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IONOSPHERIC RESEARCH

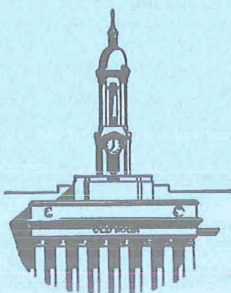
Scientific Report No. 362(E)

TABLES FROM THE PENN STATE MARK I IONOSPHERIC MODEL

by
John S. Nisbet
August 20, 1970

CASE FILE
COPY

IONOSPHERE RESEARCH LABORATORY



University Park, Pennsylvania NASA Grant NGL 39-009-003

Ionospheric Research
NASA Grant NGL 39-009-003

Scientific Report

on

"Tables from the Penn State Mark I Ionospheric Model"

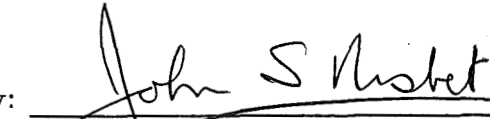
by

John S. Nisbet

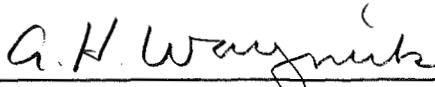
August 20, 1970

Scientific Report No. 362 (E)

Submitted by:


John S. Nisbet, Professor of Electrical Engineering
Project Supervisor

Approved by:


A. H. Waynick, Director
Ionosphere Research Laboratory

Ionosphere Research Laboratory
The Pennsylvania State University
University Park, Pennsylvania
16802

INTRODUCTION

The tables which form the main section of this report were derived from the Penn State Mark I Computer Model using version 15 of this program. The model itself has been described quite completely by Nisbet (1970) and only a brief summary of the meaning of the notations will be given here.

The models have as variables the latitude and longitude, the day number, the time and the 2800 MHz (10.7 cm) solar flux. The present tables are for two levels of solar flux $S_{10.7} = 100$ and $S_{10.7} = 200$ corresponding to unadjusted solar flux intensities at 2800 MHz of $100 \times 10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$ and $200 \times 10^{-22} \text{ Wm}^{-2} \text{ Hz}^{-1}$ respectively. The tables are given for east longitudes of 0° , 90° , 180° and 270° and latitudes from -60° to $+60^\circ$ in 20° increments. Models are given for the summer and winter solstice and the spring equinox.

Values are given of the electron density from 120 km to 1250 km, the electron content in a 1 square centimeter vertical column from 120 to 1250 km, the F_2 peak electron density $N_m F_2$ in units of cm^{-3} , and the altitude of the F_2 peak in km, $H_m F_2$. Three parameters of midlatitude sporadic E are given. The percentage probability of observing sporadic E with a critical frequency greater than 0.5 MHz ESPROB, the average value of the peak electron density when it is observed AVNES and the standard deviation SIGMA of the lognormal distribution. The probability that the peak sporadic E electron density $N_m E_s$ exceeds a given electron density N_e is

$$P(N_m E_s > N_e) = 0.5 \text{ ESPROB} \left[1 - \text{erf} \left(\frac{\log N_e / \text{AVNES}}{\sqrt{2} \text{ SIGMA}} \right) \right]$$

The model is a computer program and the tables presented here are merely representative print outs.

ACKNOWLEDGEMENTS

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The programming was under the direction of Mr. R. Divany.

BIBLIOGRAPHY

Nisbet, J. S. (1970) On the Construction and Use of a Simple Ionospheric Model submitted to Radio Science.

The material in the above paper is treated more completely in an internal publication:

Nisbet, J. S. On the Construction and Use of the Penn State MK I Ionospheric Model, Scientific Report No. 355, Ionosphere Research Laboratory, The Pennsylvania State University, University Park, Pennsylvania 16802.

PAGE NUMBERS FOR TABULATED DATA

Season	West Longitude	$S_{10.7} = 100$							$S_{10.7} = 200$						
		Latitude							Latitude						
		-60	-40	-20	0	20	40	60	-60	-40	-20	0	20	40	60
Vernal	0	1	2	3	4	5	6	7	85	86	87	88	89	90	91
Equinox	90	8	9	10	11	12	13	14	92	93	94	95	96	97	98
Day 80	180	15	16	17	18	19	20	21	99	100	101	102	103	104	105
	270	22	23	24	25	26	27	28	106	107	108	109	110	111	112
Summer	0	29	30	31	32	33	34	35	113	114	115	116	117	118	119
Solstice	90	36	37	38	39	40	41	42	120	121	122	123	124	125	126
Day 172	180	43	44	45	46	47	48	49	127	128	129	130	131	132	133
	270	50	51	52	53	54	55	56	134	135	136	137	138	139	140
Winter	0	57	58	59	60	61	62	63	141	142	143	144	145	146	147
Solstice	90	64	65	66	67	68	69	70	148	149	150	151	152	153	154
Day 356	180	71	72	73	74	75	76	77	155	156	157	158	159	160	161
	270	78	79	80	81	82	83	84	162	163	164	165	166	167	168

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = 0.0 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	1.70	1.70	1.99	33.44	44.04	49.40	44.04	33.44	1.99	1.70	1.70	
130.00	1.48	1.49	1.49	6.95	36.26	66.49	77.75	65.65	35.66	6.73	1.48	1.48	
140.00	1.91	1.92	1.94	9.10	54.40	93.35	105.09	91.21	51.05	8.94	1.88	1.89	
150.00	2.17	2.18	2.19	8.90	73.07	114.61	126.43	111.46	67.96	9.12	2.15	2.16	
160.00	2.18	2.17	2.16	8.04	89.47	134.67	146.50	130.37	83.24	8.53	2.20	2.19	
170.00	2.04	2.01	1.99	7.57	106.76	156.65	167.99	150.83	99.16	7.90	2.10	2.07	
180.00	1.84	1.80	1.76	8.10	127.93	183.98	193.95	175.35	118.41	7.63	1.93	1.89	
190.00	1.62	1.58	1.54	10.09	156.87	221.13	228.22	207.12	143.80	8.05	1.74	1.68	
200.00	1.42	1.37	1.33	13.36	198.35	272.14	274.29	249.42	178.70	9.63	1.55	1.48	
210.00	1.24	1.19	1.15	17.52	309.08	399.85	393.30	368.37	305.45	102.14	1.37	1.30	
220.00	1.07	1.03	1.00	69.41	417.15	532.77	521.04	493.61	445.91	242.21	4.37	1.14	
230.00	0.93	0.89	0.86	105.51	458.97	593.29	580.56	546.60	500.46	298.81	19.93	1.00	
240.00	0.81	0.78	0.75	138.68	484.84	637.70	626.86	587.79	544.19	356.55	56.65	0.87	
250.00	0.71	0.68	1.93	174.69	495.20	664.59	658.14	615.77	575.07	409.85	115.49	0.77	
260.00	0.62	0.59	10.93	208.86	492.36	674.92	674.55	630.70	592.81	453.93	186.17	0.67	
270.00	0.55	2.08	34.36	236.60	479.43	671.09	677.60	633.88	598.50	485.88	254.22	2.03	
280.00	3.86	11.06	72.50	255.22	459.50	656.11	669.53	627.21	593.94	504.87	308.71	10.67	
290.00	16.40	33.57	116.64	264.21	435.22	632.98	652.81	612.80	581.26	511.68	345.01	33.06	
300.00	43.08	69.57	156.10	264.69	408.67	604.40	629.80	592.65	562.54	508.11	363.55	70.78	
320.00	122.26	148.25	199.80	247.77	354.32	539.10	572.68	541.98	514.09	478.47	360.68	161.98	
340.00	181.25	190.31	201.04	219.00	303.48	472.13	510.21	485.82	459.71	432.07	328.39	220.68	
360.00	197.37	192.66	181.01	187.95	258.70	409.47	449.26	430.41	405.95	380.42	286.42	233.32	
380.00	185.75	174.53	154.84	159.10	220.35	353.50	393.13	378.91	356.07	330.05	244.60	218.05	
400.00	163.09	150.12	129.47	134.01	187.91	304.71	343.04	332.57	311.34	284.06	206.81	191.85	
420.00	138.64	126.14	107.25	112.82	160.59	262.69	299.09	291.62	271.96	243.50	174.15	163.99	
440.00	116.20	104.96	88.63	95.14	137.57	226.70	260.87	255.78	237.63	208.43	146.50	138.34	
460.00	96.90	87.12	73.35	80.46	118.15	195.95	227.77	224.56	207.86	178.42	123.36	116.11	
480.00	80.80	72.40	60.94	68.28	101.73	169.66	199.15	197.42	182.07	152.90	104.10	97.39	
500.00	67.58	60.41	50.95	58.17	87.80	147.18	174.40	173.82	159.75	131.26	88.14	81.85	
550.00	44.50	39.72	34.02	39.77	61.44	104.02	126.09	127.36	116.11	90.65	59.47	54.20	
600.00	31.46	28.24	24.95	28.34	43.81	74.48	92.19	94.35	85.43	64.09	42.24	37.97	
650.00	24.64	22.37	20.52	21.57	32.14	54.22	68.28	70.77	63.80	46.99	32.40	29.02	
700.00	21.39	19.64	18.55	17.89	24.68	40.43	51.44	53.93	48.61	36.33	27.17	24.46	
750.00	19.95	18.47	17.73	16.10	20.22	31.26	39.73	42.04	38.13	30.01	24.59	22.33	
800.00	19.34	17.98	17.40	15.30	17.79	25.43	31.78	33.83	31.14	26.48	23.38	21.37	
850.00	19.09	17.78	17.27	14.96	16.57	21.95	26.62	28.37	26.69	24.61	22.83	20.96	
900.00	18.99	17.70	17.21	14.82	15.99	20.00	23.44	24.92	24.02	23.65	22.58	20.78	
950.00	18.94	17.67	17.19	14.76	15.73	18.97	21.59	22.85	22.49	23.17	22.47	20.70	
1000.00	18.92	17.65	17.18	14.73	15.61	18.43	20.56	21.67	21.65	22.93	22.42	20.67	
1050.00	18.92	17.65	17.18	14.72	15.56	18.17	20.00	21.01	21.20	22.81	22.40	20.65	
1100.00	18.91	17.64	17.18	14.72	15.54	18.03	19.70	20.64	20.96	22.75	22.38	20.65	
1150.00	18.91	17.64	17.18	14.71	15.52	17.97	19.54	20.45	20.83	22.72	22.38	20.64	
1200.00	18.91	17.64	17.18	14.71	15.52	17.93	19.45	20.34	20.77	22.71	22.38	20.64	
1250.00	18.91	17.64	17.18	14.71	15.52	17.91	19.41	20.28	20.73	22.70	22.38	20.64	

ELECTRON CONTENT	=	4.61E 12	4.45E 12	4.54E 12	6.15E 12	1.12E 13	1.66E 13	1.79E 13	1.73E 13	1.58E 13	1.26E 13	8.22E 12	5.47E 12
PEAK ELECTRON DENSITY	=	1.97E 05	1.95E 05	2.04E 05	2.65E 05	4.96E 05	6.75E 05	6.78E 05	6.34E 05	5.99E 05	5.12E 05	3.68E 05	2.34E 05
HEIGHT OF PEAK	=	359.13	350.90	330.09	295.51	252.54	261.99	267.45	267.92	270.21	291.21	308.09	356.66
ESPROB PERCENT	=	15.97	17.95	26.07	38.16	50.99	61.12	65.82	63.85	55.73	43.64	30.81	20.68
AVGES/1000. CM-3	=	28.98	24.58	23.14	60.96	116.75	113.60	104.71	91.58	76.29	60.96	47.36	36.56
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = 0.0 LATITUDE = -40.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00 MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	40.33	65.33	77.27	65.35	40.34	1.70	1.70	1.70				
130.00	1.48	1.49	1.49	1.49	57.21	104.70	120.17	103.86	55.92	1.48	1.48	1.48				
140.00	1.91	1.92	1.94	1.95	83.32	134.48	150.29	132.84	79.85	1.87	1.88	1.89				
150.00	2.17	2.18	2.19	2.19	104.46	158.47	175.08	156.58	100.13	2.14	2.15	2.16				
160.00	2.18	2.17	2.16	2.15	124.23	181.28	198.92	179.97	119.73	2.20	2.20	2.19				
170.00	2.04	2.01	1.99	1.98	146.10	206.66	225.76	206.15	142.39	2.12	2.10	2.07				
180.00	1.84	1.80	1.76	1.75	174.04	239.93	260.71	239.14	171.44	1.97	1.93	1.89				
190.00	1.62	1.58	1.54	1.53	213.51	286.35	308.37	283.13	210.82	3.14	1.74	1.68				
200.00	1.42	1.37	1.33	1.32	269.46	349.29	371.58	341.18	264.43	16.49	1.55	1.48				
210.00	1.24	1.19	1.15	1.14	400.18	489.04	514.33	483.71	425.43	54.15	1.37	1.30				
220.00	1.07	1.03	1.00	3.47	528.57	652.37	682.43	648.53	606.30	126.14	3.08	1.14				
230.00	0.93	0.89	0.86	16.92	584.68	747.60	780.85	738.01	689.47	228.81	15.97	1.00				
240.00	0.81	0.78	0.75	48.25	620.33	825.38	864.78	814.49	759.02	345.89	49.75	0.87				
250.00	0.71	0.68	1.14	95.62	635.66	880.82	928.97	873.53	810.92	457.72	108.27	0.77				
260.00	0.62	0.88	7.35	147.82	633.49	912.75	971.29	913.24	843.82	549.62	182.84	0.67				
270.00	1.86	6.34	25.21	192.89	617.75	922.87	992.27	933.99	858.55	614.71	258.11	4.20				
280.00	10.64	23.54	56.48	224.18	592.46	914.57	994.24	937.68	857.36	652.72	320.95	17.99				
290.00	34.17	55.90	94.68	240.71	561.14	891.88	980.47	927.07	843.19	667.23	364.83	48.22				
300.00	73.97	97.83	130.33	244.85	526.59	858.73	954.47	905.18	819.05	663.39	389.14	93.27				
320.00	167.23	171.25	172.35	229.70	455.34	774.37	878.69	838.79	751.82	620.38	391.92	189.02				
340.00	222.20	200.15	176.25	200.70	388.35	681.71	787.92	757.27	673.18	554.87	359.67	242.44				
360.00	229.53	193.92	160.25	169.80	329.26	591.98	695.36	672.79	593.87	484.69	315.06	248.80				
380.00	210.64	172.19	138.06	141.72	278.70	510.32	608.04	592.09	519.49	418.20	269.73	229.17				
400.00	182.78	146.92	116.23	117.80	236.04	438.43	529.05	518.34	452.43	358.61	228.44	200.27				
420.00	154.64	123.27	97.11	98.01	200.25	376.24	459.24	452.61	393.27	306.66	192.61	170.73				
440.00	129.49	102.89	81.16	81.92	170.27	322.94	398.35	394.85	341.70	262.01	162.23	144.00				
460.00	108.16	85.98	68.22	68.96	145.14	277.45	345.63	344.49	297.05	223.93	136.80	121.05				
480.00	90.54	72.24	57.89	58.64	124.06	238.70	300.13	300.78	258.51	191.58	115.64	101.86				
500.00	76.20	61.22	49.76	50.50	106.34	205.70	260.94	262.90	225.27	164.16	98.14	86.03				
550.00	51.60	42.91	36.74	37.35	73.41	142.99	185.09	188.92	160.82	112.73	66.81	58.25				
600.00	38.25	33.54	30.51	30.94	52.17	100.82	132.71	137.14	116.16	79.20	48.18	42.46				
650.00	31.63	29.21	27.80	28.10	38.85	72.48	96.44	100.78	85.16	57.74	37.73	34.14				
700.00	28.63	27.36	26.70	26.91	30.97	53.66	71.37	75.26	63.74	44.47	32.29	30.12				
750.00	27.35	26.61	26.26	26.43	26.69	41.50	54.25	57.50	49.16	36.67	29.64	28.31				
800.00	26.82	26.30	26.08	26.23	24.55	33.99	42.84	45.39	39.53	32.35	28.42	27.52				
850.00	26.60	26.18	26.01	26.15	23.55	29.63	35.52	37.40	33.45	30.08	27.86	27.18				
900.00	26.51	26.13	25.99	26.12	23.10	27.25	31.06	32.36	29.81	28.92	27.61	27.04				
950.00	26.47	26.11	25.98	26.11	22.90	26.00	28.47	29.32	27.73	28.34	27.50	26.97				
1000.00	26.46	26.10	25.97	26.10	22.81	25.36	27.02	27.57	26.59	28.05	27.45	26.95				
1050.00	26.45	26.10	25.97	26.10	22.76	25.03	26.23	26.58	25.97	27.90	27.43	26.94				
1100.00	26.45	26.10	25.97	26.10	22.75	24.87	25.81	26.04	25.64	27.83	27.41	26.93				
1150.00	26.45	26.10	25.97	26.10	22.74	24.79	25.58	25.74	25.47	27.79	27.41	26.93				
1200.00	26.45	26.10	25.97	26.10	22.73	24.75	25.46	25.58	25.37	27.78	27.41	26.93				
1250.00	26.45	26.10	25.97	26.10	22.73	24.72	25.39	25.48	25.32	27.77	27.41	26.93				

ELECTRON CONTENT = 5.71E 12 5.18E 12 4.81E 12 5.98E 12 1.45E 13 2.28E 13 2.61E 13 2.53E 13 2.23E 13 1.53E 13 9.11E 12 6.21E 12
PEAK ELECTRON DENSITY = 2.31E 05 2.01E 05 1.78E 05 2.45E 05 6.37E 05 9.23E 05 9.96E 05 9.38E 05 8.60E 05 6.68E 05 3.97E 05 2.51E 05
HEIGHT OF PEAK = 353.44 344.57 331.97 298.97 253.52 270.14 276.05 277.31 274.10 292.50 310.51 352.95
ESPROB PERCENT = 25.95 27.83 35.79 47.70 60.38 70.42 75.13 73.25 65.29 53.38 40.70 30.67
AVNES/1000. CM-3 = 36.17 30.08 28.10 81.63 163.03 158.40 145.33 126.10 103.81 81.63 62.11 46.79
SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = 0.0 LATITUDE = -20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	45.89	82.10	97.52	82.18	45.91	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.48	1.49	1.49	1.49	71.30	126.05	143.73	125.82	69.92	1.48	1.48	1.48	1.48	1.48	1.48	1.48
140.00	1.91	1.92	1.94	1.95	99.12	155.10	173.91	155.74	96.36	1.87	1.88	1.89	1.87	1.88	1.89	1.89
150.00	2.17	2.18	2.19	2.19	120.34	176.24	197.38	180.44	118.16	2.14	2.15	2.16	2.14	2.15	2.16	2.16
160.00	2.18	2.17	2.16	2.15	139.24	192.53	217.87	204.17	140.12	2.20	2.20	2.19	2.20	2.20	2.19	2.19
170.00	2.04	2.01	1.99	1.98	158.39	207.73	240.12	230.64	165.95	2.12	2.10	2.07	2.12	2.10	2.07	2.07
180.00	1.84	1.80	1.76	1.75	181.56	226.88	269.49	264.55	199.30	1.97	1.93	1.89	1.97	1.93	1.89	1.89
190.00	1.62	1.58	1.54	1.53	213.98	254.70	310.46	310.13	244.45	1.80	1.74	1.68	1.80	1.74	1.68	1.68
200.00	1.42	1.37	1.33	1.32	260.35	294.62	365.74	370.16	305.15	1.55	1.55	1.48	1.55	1.55	1.48	1.48
210.00	1.24	1.19	1.15	1.14	365.58	370.01	475.79	508.83	457.97	1.37	1.37	1.30	1.37	1.37	1.30	1.30
220.00	1.07	1.03	1.00	0.99	500.60	468.14	594.38	632.58	656.17	1.21	1.21	1.14	1.21	1.21	1.14	1.14
230.00	0.93	0.89	0.86	0.85	587.03	577.98	726.61	770.14	789.67	1.00	1.00	0.93	1.00	1.00	0.93	0.93
240.00	0.81	0.78	0.75	0.75	657.31	692.90	867.02	916.78	923.17	0.87	0.87	0.81	0.87	0.87	0.81	0.81
250.00	2.27	6.62	1.94	55.69	705.74	802.61	1005.04	1062.35	1045.63	514.83	91.90	2.47	514.83	91.90	2.47	2.47
260.00	14.45	27.31	10.83	102.58	731.12	897.65	1129.74	1195.91	1148.00	683.60	192.76	15.69	683.60	192.76	15.69	15.69
270.00	49.70	69.32	33.74	151.11	735.62	970.63	1232.51	1308.46	1224.67	823.76	317.64	55.16	823.76	317.64	55.16	55.16
280.00	112.24	126.43	70.70	191.02	723.21	1019.16	1308.31	1394.32	1273.71	924.49	441.17	128.45	924.49	441.17	128.45	128.45
290.00	190.07	184.26	113.22	217.43	698.33	1043.35	1355.72	1451.35	1296.26	984.78	542.79	224.75	984.78	542.79	224.75	224.75
300.00	264.36	230.55	151.04	230.33	665.08	1045.82	1376.21	1480.40	1295.45	1009.59	612.77	322.37	1009.59	612.77	322.37	322.37
320.00	355.98	273.26	192.61	226.70	586.29	1001.16	1350.61	1467.17	1240.36	982.69	661.76	456.85	982.69	661.76	456.85	456.85
340.00	368.66	265.53	193.66	202.99	505.00	916.39	1264.61	1386.52	1141.25	899.00	629.58	490.75	899.00	629.58	490.75	490.75
360.00	337.63	235.42	174.71	173.98	429.87	815.80	1148.34	1269.56	1023.76	795.50	561.84	461.00	795.50	561.84	461.00	461.00
380.00	291.90	200.19	150.02	146.35	364.00	714.27	1022.71	1138.98	904.09	691.55	485.57	405.75	691.55	485.57	405.75	405.75
400.00	245.79	167.22	126.19	122.32	307.72	619.44	900.03	1008.83	790.99	595.66	413.09	346.15	595.66	413.09	346.15	346.15
420.00	204.65	138.83	105.49	102.29	260.24	534.48	786.51	886.63	688.42	510.74	348.85	291.05	510.74	348.85	291.05	291.05
440.00	169.77	115.27	88.31	85.95	220.42	460.09	684.65	775.75	597.54	437.06	293.73	243.24	437.06	293.73	243.24	243.24
460.00	140.90	96.09	74.43	72.81	187.08	395.78	594.85	677.13	518.12	373.82	247.18	202.94	373.82	247.18	202.94	202.94
480.00	117.30	80.68	63.40	62.37	159.18	340.57	516.52	590.48	449.23	319.84	208.19	169.44	319.84	208.19	169.44	169.44
500.00	98.18	68.43	54.78	54.20	135.83	293.35	448.58	514.86	389.73	273.91	175.67	141.82	273.91	175.67	141.82	141.82
550.00	65.32	48.26	41.08	41.13	92.76	203.30	316.45	366.50	274.54	187.13	116.49	92.73	187.13	116.49	92.73	92.73
600.00	47.27	38.12	34.64	34.90	65.31	142.65	225.05	262.70	195.22	129.69	79.83	63.72	129.69	79.83	63.72	63.72
650.00	38.15	33.51	31.89	32.17	48.28	101.83	161.73	190.02	140.51	92.01	57.83	47.44	92.01	57.83	47.44	47.44
700.00	33.96	31.57	30.77	31.04	38.27	74.54	117.84	139.03	102.82	67.75	45.34	38.99	67.75	45.34	38.99	38.99
750.00	32.16	30.79	30.33	30.58	32.83	56.65	87.54	103.31	77.05	52.65	38.73	34.96	52.65	38.73	34.96	34.96
800.00	31.42	30.48	30.15	30.40	30.09	45.34	66.88	78.47	59.76	43.71	35.46	33.14	43.71	35.46	33.14	33.14
850.00	31.11	30.35	30.08	30.32	28.80	38.53	53.13	61.48	48.52	38.70	33.92	32.35	48.52	38.70	33.92	32.35
900.00	30.98	30.30	30.06	30.29	28.20	34.65	44.30	50.17	41.52	36.04	33.21	32.01	41.52	36.04	33.21	32.01
950.00	30.93	30.28	30.04	30.28	27.93	32.54	38.87	42.92	37.36	34.66	32.89	31.87	37.36	34.66	32.89	31.87
1000.00	30.91	30.27	30.04	30.27	27.81	31.42	35.67	38.46	34.99	33.96	32.74	31.80	34.99	33.96	32.74	31.80
1050.00	30.90	30.27	30.04	30.27	27.75	30.84	33.85	35.80	33.67	33.60	32.67	31.77	33.67	33.60	32.67	31.77
1100.00	30.90	30.27	30.04	30.27	27.72	30.54	32.83	34.27	32.95	33.42	32.64	31.76	32.95	33.42	32.64	31.76
1150.00	30.89	30.27	30.04	30.27	27.71	30.38	32.27	33.40	32.55	33.33	32.62	31.75	32.55	33.33	32.62	31.75
1200.00	30.89	30.27	30.04	30.27	27.70	30.30	31.96	32.91	32.34	33.29	32.61	31.75	32.34	33.29	32.61	31.75
1250.00	30.89	30.27	30.04	30.27	27.70	30.25	31.79	32.63	32.22	33.26	32.61	31.75	32.63	33.26	32.61	31.75

ELECTRON CONTENT	8.30E 12	6.67E 12	5.43E 12	6.13E 12	1.73E 13	2.74E 13	3.75E 13	4.11E 13	3.42E 13	2.28E 13	1.43E 13	1.06E 13
PEAK ELECTRON DENSITY	3.71E 05	2.75E 05	1.97E 05	2.33E 05	7.36E 05	1.05E 06	1.38E 06	1.49E 06	1.30E 06	1.01E 06	6.62E 05	4.91E 05
HEIGHT OF PEAK	333.65	325.21	329.87	306.97	267.32	296.16	303.49	306.64	294.53	303.55	319.86	338.24
ESPROB PERCENT	40.03	41.02	47.32	57.25	68.14	77.07	81.66	80.67	74.37	64.44	53.55	44.61
AVNES/1000. CM-3	39.61	31.82	29.33	100.27	213.49	206.96	188.60	161.70	130.74	100.27	73.84	53.45
SIGMA ES	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

MONTH = 3

ELECTRON CONTENT	=	1.88E 13	1.46E 13	7.16E 12	6.11E 12	2.25E 13	3.23E 13	4.18E 13	4.93E 13	4.81E 13	3.61E 13	2.90E 13	2.34E 13
PEAK ELECTRON DENSITY	=	1.04E 06	8.21E 05	3.58E 05	2.73E 05	9.43E 05	1.14E 06	1.37E 06	1.59E 06	1.63E 06	1.56E 06	1.39E 06	1.23E 06
HEIGHT OF PEAK	=	301.62	286.70	283.27	293.96	300.49	351.68	377.87	390.21	388.95	382.04	385.48	325.47
ESPROB PERCENT	=	26.91	23.59	26.31	34.36	45.58	56.95	65.43	68.76	66.03	57.98	46.76	35.39
AVNES/1000. CM-3	=	42.83	35.43	33.05	98.27	198.18	192.48	176.42	152.79	125.44	98.27	74.41	55.73
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = 0.0 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	44.67	80.14	95.46	80.17	44.68	1.70	1.70	1.70				
130.00	1.48	1.49	1.49	1.49	68.42	123.28	140.58	122.54	66.90	1.48	1.48	1.48				
140.00	1.91	1.92	1.94	1.95	95.64	150.99	168.23	149.81	91.96	1.87	1.88	1.89				
150.00	2.17	2.18	2.19	2.19	115.80	169.31	186.67	169.10	110.96	2.14	2.15	2.16				
160.00	2.18	2.17	2.16	2.15	132.62	180.63	198.61	183.43	127.41	2.20	2.20	2.19				
170.00	2.04	2.01	1.99	1.98	147.97	187.83	207.56	195.02	143.50	2.12	2.10	2.07				
180.00	1.84	1.80	1.76	1.75	164.65	195.02	217.70	207.03	160.85	1.97	1.93	1.89				
190.00	1.62	1.58	1.54	1.53	186.91	206.01	232.68	222.66	181.75	1.80	1.74	1.68				
200.00	1.42	1.37	1.33	1.32	219.12	223.88	255.35	244.67	209.02	1.62	1.55	1.48				
210.00	1.82	8.03	1.15	1.14	264.47	250.91	287.66	275.18	245.27	1.46	1.37	1.30				
220.00	18.41	44.31	1.00	1.00	340.06	288.43	330.65	315.45	292.36	1.30	1.21	1.14				
230.00	85.47	134.88	6.92	7.69	445.97	337.00	384.70	366.09	351.24	1.17	1.07	7.34				
240.00	234.14	275.53	27.17	30.09	565.19	396.83	449.94	427.32	422.32	1.08	0.95	45.20				
250.00	448.84	430.59	66.03	74.19	691.50	468.22	526.63	499.37	505.95	9.18	0.84	154.22				
260.00	675.56	562.06	116.23	133.37	811.29	592.49	615.34	582.69	602.76	43.79	1.39	349.93				
270.00	863.00	649.98	164.61	193.19	911.76	714.91	765.65	683.09	784.31	136.53	12.61	599.05				
280.00	986.35	692.78	201.34	241.38	984.70	852.93	912.15	847.44	943.58	310.91	59.40	844.00				
290.00	1045.26	698.95	223.06	272.54	1027.37	998.28	1077.07	1002.64	1123.04	561.11	175.59	1039.11				
300.00	1052.26	679.59	231.13	287.08	1041.55	1138.84	1254.82	1176.53	1317.36	852.45	372.06	1165.25				
320.00	971.26	601.06	220.17	280.46	1003.24	1362.28	1600.11	1546.54	1696.14	1386.59	875.66	1230.88				
340.00	838.57	507.30	192.67	249.86	911.47	1471.90	1856.24	1865.75	1975.80	1692.14	1248.86	1143.23				
360.00	702.23	419.36	162.35	213.26	799.83	1471.91	1979.19	2064.70	2106.86	1762.38	1377.28	998.15				
380.00	580.08	343.64	134.65	178.55	688.10	1394.93	1978.01	2128.71	2100.72	1681.75	1330.84	846.16				
400.00	476.47	280.71	111.11	148.34	585.67	1275.81	1887.66	2082.27	1997.65	1529.11	1201.41	707.50				
420.00	390.63	229.22	91.75	123.03	495.83	1140.58	1745.44	1962.60	1839.62	1353.86	1047.42	587.96				
440.00	320.25	187.38	76.08	102.21	418.85	1005.29	1580.37	1803.45	1658.65	1191.46	897.16	487.50				
460.00	262.87	153.50	63.55	85.26	353.69	878.45	1411.46	1629.35	1475.26	1023.08	761.78	404.05				
480.00	216.04	126.12	53.62	71.57	298.87	763.79	1249.70	1455.82	1301.02	882.46	644.23	335.12				
500.00	177.99	104.04	45.84	60.59	252.88	662.32	1100.55	1291.59	1141.45	759.81	543.98	278.30				
550.00	111.27	66.06	33.40	42.14	167.92	462.25	792.50	943.03	814.96	522.17	356.70	176.47				
600.00	72.04	44.76	27.47	32.47	113.28	323.59	568.95	684.09	580.73	360.42	235.72	114.24				
650.00	49.74	33.60	24.91	27.86	78.27	228.21	409.95	497.27	415.68	250.79	157.97	76.76				
700.00	37.88	28.29	23.87	25.84	56.17	162.65	297.26	363.41	299.69	176.57	108.37	54.98				
750.00	32.11	25.98	23.46	24.99	42.71	117.63	217.33	267.48	218.10	126.56	77.32	43.11				
800.00	29.54	25.03	23.30	24.64	34.96	86.92	160.59	198.68	160.72	93.25	58.58	37.15				
850.00	28.45	24.65	23.24	24.50	30.79	66.29	120.43	149.38	120.52	71.59	47.90	34.37				
900.00	28.00	24.50	23.21	24.44	28.68	52.82	92.22	114.20	92.67	58.02	42.20	33.13				
950.00	27.81	24.44	23.20	24.42	27.64	44.35	72.71	89.38	73.76	49.92	39.33	32.58				
1000.00	27.73	24.41	23.20	24.40	27.15	39.26	59.55	72.17	61.29	45.31	37.93	32.35				
1050.00	27.70	24.40	23.20	24.40	26.91	36.32	50.95	60.57	53.36	42.79	37.26	32.24				
1100.00	27.69	24.40	23.20	24.40	26.80	34.68	45.53	52.99	48.51	41.44	36.94	32.20				
1150.00	27.68	24.40	23.20	24.40	26.75	33.78	42.23	48.20	45.63	40.72	36.78	32.18				
1200.00	27.68	24.40	23.20	24.40	26.72	33.29	40.27	45.25	43.96	40.35	36.71	32.17				
1250.00	27.68	24.40	23.20	24.40	26.71	33.02	39.13	43.48	43.00	40.15	36.67	32.16				

ELECTRON CONTENT = 1.91E 13 1.29E 13 5.43E 12 6.57E 12 2.45E 13 4.08E 13 5.85E 13 6.42E 13 6.01E 13 3.99E 13 2.83E 13 2.33E 13
 PEAK ELECTRON DENSITY = 1.05E 06 7.00E 05 2.31E 05 2.89E 05 1.04E 06 1.48E 06 1.99E 06 2.13E 06 2.12E 06 1.76E 06 1.38E 06 1.23E 06
 HEIGHT OF PEAK = 296.47 286.89 302.35 305.98 300.53 349.69 369.49 380.51 368.68 357.36 362.85 316.21
 ESPOB PERCENT = 33.74 31.75 35.71 44.58 55.95 66.80 74.22 76.21 72.24 63.38 52.00 41.15
 AVNES/1000. CM-3 = 36.89 29.30 26.89 96.73 209.81 203.27 184.87 157.96 127.06 96.73 70.53 50.44
 SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

MONTH = 3

[illegible]

ELECTRON CONTENT	=	6.11E 12	6.11E 12	4.92E 12	5.95E 12	1.41E 13	2.10E 13	2.53E 13	2.49E 13	2.25E 13	1.63E 13	1.04E 13	7.33E 12
PEAK ELECTRON DENSITY	=	2.53E 05	2.55E 05	1.80E 05	2.38E 05	6.10E 05	8.31E 05	9.48E 05	9.12E 05	8.67E 05	7.19E 05	4.69E 05	3.17E 05
HEIGHT OF PEAK	=	348.15	339.55	331.27	303.33	255.49	274.14	280.29	282.37	276.52	293.98	311.48	348.59
ESPROB PERCENT	=	23.75	25.54	33.58	45.71	58.69	69.03	73.97	72.17	64.13	52.00	39.02	28.68
AVNVS/1000. CM-3	=	32.60	26.97	25.15	74.87	151.05	146.71	134.46	116.44	95.59	74.87	56.68	42.44
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE WK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = 0.0 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	1.70	1.70	1.70	31.29	41.27	46.05	41.27	31.30	1.70	1.70	1.70	
130.00	1.48	1.49	1.49	1.49	31.03	59.27	70.63	58.56	30.73	1.48	1.48	1.48	
140.00	1.91	1.92	1.94	1.95	44.56	84.51	96.96	82.84	41.73	1.87	1.88	1.89	
150.00	2.17	2.18	2.19	2.19	61.28	103.77	116.99	102.27	56.82	2.14	2.15	2.16	
160.00	2.18	2.17	2.16	2.15	74.91	119.94	134.82	119.83	70.75	2.20	2.20	2.19	
170.00	2.04	2.01	1.99	1.98	86.82	135.16	152.72	138.36	84.48	2.12	2.10	2.07	
180.00	1.84	1.80	1.76	1.75	98.36	151.18	172.94	160.02	100.29	1.97	1.93	1.89	
190.00	1.62	1.58	1.54	1.53	110.72	170.76	198.55	187.55	120.54	1.80	1.74	1.68	
200.00	1.42	1.37	1.33	1.32	125.98	197.18	232.82	224.04	148.04	8.78	1.55	1.48	
210.00	1.24	1.19	1.15	1.14	164.22	265.00	323.59	329.65	256.61	29.79	1.37	1.30	
220.00	1.07	1.03	1.00	1.77	212.45	342.18	423.76	441.10	380.51	71.12	3.12	1.14	
230.00	0.93	0.89	0.86	8.57	237.58	380.18	470.93	487.12	428.21	131.37	13.93	1.00	
240.00	0.81	0.78	0.75	24.32	254.94	408.05	507.39	522.56	466.90	201.27	39.03	0.87	
250.00	0.71	0.68	1.59	48.03	264.14	424.98	531.79	546.30	494.66	269.00	78.74	0.77	
260.00	0.62	0.59	7.03	74.07	266.04	431.61	544.35	558.59	511.15	325.38	125.99	0.67	
270.00	0.55	1.22	18.71	96.50	262.09	429.46	546.35	560.65	517.15	365.89	171.13	1.85	
280.00	2.94	6.47	35.21	112.02	253.89	420.43	539.59	554.19	514.21	390.09	207.02	8.83	
290.00	11.83	19.63	52.38	120.19	242.90	406.37	526.06	541.06	504.11	399.96	230.73	25.53	
300.00	29.91	40.67	66.43	122.18	230.29	388.95	507.63	523.04	488.64	398.55	242.66	52.08	
320.00	81.10	86.65	79.89	114.36	203.52	349.14	462.20	478.21	447.82	373.80	240.16	112.49	
340.00	117.63	111.24	78.00	99.65	177.83	308.29	412.74	428.87	401.49	334.90	218.37	148.91	
360.00	126.73	112.55	69.15	83.99	154.88	270.04	364.58	380.37	355.42	292.83	190.31	155.18	
380.00	118.52	101.83	58.63	69.72	135.00	235.80	320.26	335.37	312.53	252.81	162.44	143.91	
400.00	103.62	87.41	48.71	57.49	117.99	205.84	280.70	294.92	273.98	216.87	137.28	126.04	
420.00	87.76	73.22	40.11	47.29	103.48	179.89	245.93	259.16	239.97	185.51	115.55	107.40	
440.00	73.25	60.66	32.91	38.87	91.06	157.50	215.63	227.85	210.27	158.54	97.15	90.34	
460.00	60.75	50.02	26.98	31.96	80.38	138.19	189.32	200.53	184.44	135.53	81.74	75.58	
480.00	50.26	41.17	22.11	26.30	71.16	121.50	166.47	176.74	162.03	115.98	68.91	63.14	
500.00	41.58	33.88	18.14	21.66	63.14	107.05	146.63	156.02	142.58	99.41	58.27	52.78	
550.00	26.05	20.89	11.10	13.42	47.24	78.62	107.53	115.03	104.33	68.33	39.09	34.12	
600.00	16.63	12.97	6.86	8.39	35.66	58.31	79.61	85.63	77.18	48.08	27.48	22.80	
650.00	11.00	8.13	4.28	5.32	27.11	43.59	59.48	64.38	57.76	35.14	20.77	16.18	
700.00	7.76	5.17	2.72	3.45	20.73	32.85	44.86	48.94	43.84	27.16	17.15	12.53	
750.00	6.01	3.36	1.79	2.33	15.93	24.96	34.24	37.74	33.96	22.49	15.34	10.68	
800.00	5.15	2.28	1.24	1.69	12.31	19.20	26.57	29.70	27.07	19.91	14.48	9.80	
850.00	4.75	1.66	0.94	1.34	9.57	15.02	21.13	24.07	22.45	18.55	14.09	9.41	
900.00	4.57	1.33	0.79	1.17	7.52	12.07	17.39	20.26	19.49	17.86	13.91	9.24	
950.00	4.50	1.17	0.72	1.09	6.00	10.08	14.93	17.82	17.71	17.52	13.83	9.16	
1000.00	4.47	1.09	0.68	1.06	4.91	8.81	13.41	16.33	16.69	17.35	13.79	9.13	
1050.00	4.45	1.06	0.67	1.04	4.18	8.06	12.51	15.46	16.13	17.26	13.78	9.11	
1100.00	4.45	1.04	0.66	1.04	3.72	7.63	12.01	14.97	15.82	17.22	13.77	9.11	
1150.00	4.45	1.04	0.66	1.03	3.46	7.41	11.73	14.70	15.65	17.20	13.77	9.11	
1200.00	4.44	1.03	0.66	1.03	3.32	7.29	11.58	14.55	15.56	17.19	13.76	9.10	
1250.00	4.44	1.03	0.66	1.03	3.25	7.23	11.50	14.47	15.52	17.18	13.76	9.10	

ELECTRON CONTENT	=	2.44E 12	2.00E 12	1.38E 12	2.12E 12	6.68E 12	1.12E 13	1.46E 13	1.52E 13	1.37E 13	9.22E 12	5.41E 12	3.33E 12
PEAK ELECTRON DENSITY	=	1.27E 05	1.14E 05	8.05E 04	1.22E 05	2.66E 05	4.32E 05	5.47E 05	5.61E 05	5.17E 05	4.01E 05	2.45E 05	1.56E 05
HEIGHT OF PEAK	=	358.07	350.89	326.11	298.84	257.85	262.26	267.01	267.15	271.40	293.43	307.69	354.95
ESPROB PERCENT	=	9.10	10.58	17.10	26.90	37.36	45.67	49.62	48.13	41.62	31.82	21.36	13.04
AVNES/1000. CM-3	=	21.72	19.22	18.39	38.93	67.09	65.54	61.13	54.56	46.82	38.93	31.77	25.94
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	1.99	1.70	1.70	1.70	1.70	1.70	1.99	33.44	44.04	49.40	44.04	33.44
130.00	6.73	1.48	1.48	1.48	1.49	1.49	6.95	36.26	66.45	77.68	65.63	35.66
140.00	8.94	1.88	1.89	1.91	1.92	1.94	9.10	54.33	93.06	104.76	91.05	51.09
150.00	9.13	2.15	2.16	2.17	2.18	2.19	8.90	72.77	113.65	125.45	110.96	68.12
160.00	8.53	2.20	2.19	2.18	2.17	2.16	8.04	88.53	132.27	144.21	129.17	83.70
170.00	7.90	2.10	2.07	2.04	2.01	1.99	7.57	104.44	151.56	163.37	148.37	100.22
180.00	7.64	1.93	1.89	1.84	1.80	1.76	8.09	122.96	174.33	185.58	170.81	120.58
190.00	8.07	1.74	1.68	1.62	1.58	1.54	10.06	147.24	204.52	214.30	199.41	147.90
200.00	9.72	1.55	1.48	1.42	1.37	1.33	13.23	181.51	246.03	252.92	237.32	185.82
210.00	114.62	1.37	1.30	1.24	1.19	1.15	17.11	272.67	350.92	353.06	343.85	324.12
220.00	273.54	4.77	1.14	1.07	1.03	1.00	54.75	363.08	463.02	463.32	457.82	476.26
230.00	337.56	21.81	1.00	0.93	0.89	0.86	82.74	398.80	515.48	516.20	507.10	534.73
240.00	402.85	62.15	0.87	0.81	0.78	0.75	108.24	420.77	554.03	557.39	545.50	581.63
250.00	463.11	126.92	0.77	0.71	0.68	1.00	135.72	429.43	577.47	585.32	571.67	614.75
260.00	512.93	204.84	0.67	0.62	0.59	5.76	161.66	426.84	586.61	600.07	585.76	633.78
270.00	549.02	279.97	2.50	0.55	1.45	18.23	182.64	415.67	583.54	603.00	588.95	639.87
280.00	570.45	340.19	13.12	4.12	7.60	38.66	196.69	398.56	570.84	596.09	583.01	634.98
290.00	578.09	380.36	40.61	17.41	22.91	62.42	203.49	377.80	551.11	581.51	569.87	621.35
300.00	573.99	400.93	86.88	45.58	47.25	83.74	203.91	355.13	526.65	561.35	551.39	601.22
320.00	540.33	397.91	198.67	128.79	100.12	107.48	191.44	308.81	470.70	511.17	504.76	549.15
340.00	487.73	362.33	270.56	190.55	128.18	108.41	170.19	265.53	413.26	456.21	452.96	490.69
360.00	429.20	316.02	285.99	207.29	129.68	97.99	147.28	227.41	359.46	402.53	401.80	432.91
380.00	372.15	269.84	267.17	194.98	117.62	84.26	126.01	194.73	311.37	353.06	354.22	379.29
400.00	320.05	228.10	234.94	171.14	101.42	70.98	107.47	167.03	269.39	308.87	311.38	331.22
420.00	274.12	192.01	200.67	145.45	85.55	59.43	91.74	143.62	233.16	270.05	273.50	288.92
440.00	234.41	161.44	169.11	121.88	71.61	49.86	78.54	123.82	202.08	236.25	240.31	252.07
460.00	200.44	135.83	141.73	101.61	59.94	42.14	67.49	107.05	175.44	206.93	211.37	220.14
480.00	171.55	114.51	118.63	84.70	50.41	36.03	58.21	92.79	152.60	181.53	186.18	192.51
500.00	147.06	96.82	99.41	70.80	42.76	31.27	50.41	80.63	133.00	159.51	164.26	168.62
550.00	101.09	64.93	64.98	46.53	30.00	23.77	35.84	57.39	95.15	116.36	120.99	122.01
600.00	70.97	45.60	44.41	32.78	23.47	20.29	26.38	41.59	68.98	85.86	90.12	89.36
650.00	51.49	34.41	32.71	25.56	20.44	18.81	20.48	30.97	50.84	64.18	67.97	66.43
700.00	39.22	28.37	26.52	22.09	19.15	18.22	17.11	24.07	38.37	48.81	52.10	50.40
750.00	31.84	25.34	23.51	20.56	18.62	17.98	15.39	19.90	30.02	38.04	40.84	39.38
800.00	27.66	23.90	22.14	19.91	18.41	17.89	14.60	17.59	24.68	30.70	33.05	32.04
850.00	25.41	23.24	21.54	19.64	18.32	17.85	14.26	16.43	21.47	25.91	27.87	27.39
900.00	24.25	22.94	21.27	19.53	18.29	17.84	14.12	15.88	19.68	22.97	24.59	24.60
950.00	23.67	22.81	21.16	19.48	18.27	17.83	14.06	15.63	18.73	21.25	22.63	23.01
1000.00	23.38	22.75	21.11	19.46	18.26	17.83	14.03	15.52	18.24	20.29	21.51	22.13
1050.00	23.23	22.72	21.09	19.45	18.26	17.83	14.02	15.46	17.99	19.77	20.88	21.66
1100.00	23.16	22.70	21.08	19.45	18.26	17.83	14.02	15.44	17.87	19.49	20.54	21.41
1150.00	23.12	22.70	21.07	19.45	18.26	17.83	14.02	15.43	17.81	19.34	20.35	21.28
1200.00	23.10	22.69	21.07	19.45	18.26	17.83	14.02	15.42	17.77	19.26	20.25	21.21
1250.00	23.09	22.69	21.07	19.45	18.26	17.83	14.02	15.42	17.76	19.22	20.19	21.17

ELECTRON CONTENT	=	1.40E 13	8.93E 12	6.41E 12	4.81E 12	3.48E 12	3.12E 12	5.09E 12	1.01E 13	1.48E 13	1.63E 13	1.63E 13	1.67E 13
PEAK ELECTRON DENSITY	=	5.78E 05	4.06E 05	2.86E 05	2.07E 05	1.31E 05	1.10E 05	2.04E 05	4.30E 05	5.87E 05	6.03E 05	5.89E 05	6.40E 05
HEIGHT OF PEAK	=	291.16	308.16	356.64	359.03	350.73	330.26	295.63	252.37	262.19	267.67	268.18	270.20
ESPROB PERCFNT	=	44.21	31.36	21.21	16.50	18.48	26.62	38.75	51.60	61.75	66.46	64.48	56.33
AVNES/1000. CM-3	=	62.25	48.31	37.25	29.49	24.99	23.52	62.25	119.47	116.24	107.11	93.64	77.96
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

MONTH = 3

ELECTRON CONTENT	=	1.78E 13	1.19E 13	9.43E 12	8.25E 12	7.39E 12	5.67E 12	7.39E 12	1.74E 13	2.66E 13	3.33E 13	3.32E 13	2.79E 13
PEAK ELECTRON DENSITY	=	7.69E 05	5.32E 05	4.20E 05	3.68E 05	3.21E 05	2.13E 05	3.12E 05	7.45E 05	1.02E 06	1.21E 06	1.18E 06	1.04E 06
HEIGHT OF PEAK	=	303.69	319.97	338.10	333.45	325.03	329.83	307.03	267.47	296.42	303.77	306.94	294.77
ESPROB PERCENT	=	64.51	53.63	44.71	40.12	41.10	47.39	57.30	68.17	77.09	81.68	80.70	74.41
AVNES/1000. CM-3	=	100.36	73.88	53.47	39.61	31.81	29.32	100.36	213.78	207.24	188.84	161.89	130.88
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = -20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)								
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	45.89	82.04	97.36	82.06	45.89
130.00	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49	71.20	125.40	142.32	124.57	69.60
140.00	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	1.95	1.95	1.95	1.95	98.53	152.56	168.94	151.13	94.58
150.00	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	2.19	2.19	2.19	2.19	118.37	169.63	185.22	168.89	112.75
160.00	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.15	2.15	2.15	2.15	2.15	134.31	178.71	193.56	180.52	127.50
170.00	2.12	2.10	2.07	2.04	2.01	1.99	1.98	1.98	1.98	1.98	1.98	1.98	147.93	182.62	197.34	188.09	140.48
180.00	1.97	1.93	1.89	1.84	1.80	1.76	1.75	1.75	1.75	1.75	1.75	1.75	161.85	185.28	200.41	194.52	152.77
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.53	1.53	1.53	1.53	1.53	1.53	180.08	190.20	205.97	202.65	166.15
200.00	1.62	1.55	1.48	1.42	1.37	1.33	1.32	1.32	1.32	1.32	1.32	1.32	206.74	200.09	216.46	214.93	182.83
210.00	1.46	1.37	1.30	1.24	9.47	2.43	1.14	245.05	217.05	233.74	233.30	205.09					
220.00	1.30	1.21	1.14	12.04	48.85	15.50	5.36	297.73	242.55	259.09	259.20	234.90					
230.00	1.17	1.07	2.33	66.29	142.11	51.91	25.10	395.46	277.43	293.27	293.54	273.60					
240.00	1.04	0.95	21.59	204.05	281.51	112.86	69.69	503.16	322.02	336.57	336.73	321.93					
250.00	0.93	0.84	97.83	423.53	430.86	183.70	135.55	618.89	376.52	389.14	388.98	380.27					
260.00	2.01	0.74	270.46	673.12	554.49	246.24	206.86	730.57	464.32	451.23	450.55	449.01					
270.00	14.12	0.66	531.35	892.55	635.06	289.71	267.53	826.11	561.93	523.29	521.85	528.71					
280.00	58.83	4.02	824.11	1046.55	672.44	312.24	309.01	897.26	672.51	647.02	618.90	648.11					
290.00	166.76	27.10	1085.07	1128.73	675.37	317.29	330.38	940.79	792.19	766.98	748.61	790.88					
300.00	355.04	104.08	1275.33	1150.13	654.63	309.96	335.06	957.77	911.55	901.55	882.59	940.78					
320.00	898.28	512.30	1424.83	1076.71	576.89	275.52	312.91	928.38	1111.14	1185.22	1188.85	1282.85					
340.00	1405.35	1073.69	1360.56	935.97	486.04	233.07	272.53	847.02	1220.45	1423.85	1485.97	1606.11					
360.00	1684.25	1448.94	1204.50	786.41	401.41	192.93	229.87	745.37	1235.78	1565.03	1701.60	1826.92					
380.00	1740.62	1557.25	1028.30	650.70	328.76	158.34	191.15	642.53	1181.67	1601.26	1803.96	1915.44					
400.00	1656.64	1487.58	862.92	534.92	268.45	129.65	158.10	547.68	1087.55	1554.65	1802.12	1989.42					
420.00	1506.09	1336.84	718.51	438.72	219.14	106.27	130.64	464.22	976.55	1455.28	1724.74	1785.59					
440.00	1334.91	1164.13	596.35	359.71	179.08	87.40	108.13	392.55	863.41	1329.14	1602.29	1639.23					
460.00	1166.82	997.58	494.53	295.16	146.64	72.26	89.81	331.81	756.20	1194.41	1458.88	1476.36					
480.00	1012.31	848.09	410.21	242.53	120.43	60.19	74.98	280.64	658.67	1062.19	1310.72	1313.40					
500.00	874.91	718.35	340.61	199.66	99.28	50.63	63.06	237.68	571.99	938.45	1167.49	1159.41					
550.00	604.43	472.65	215.51	124.26	62.86	34.94	42.82	158.20	400.40	679.29	857.54	835.20					
600.00	418.38	312.39	138.57	79.56	42.37	27.07	31.98	107.01	281.10	489.35	624.18	597.91					
650.00	291.59	208.62	91.66	53.71	31.57	23.52	26.67	74.14	198.96	353.70	454.88	429.31					
700.00	205.34	141.66	63.75	39.56	26.40	22.04	24.29	53.37	142.50	257.39	333.29	310.34					
750.00	146.86	98.91	47.97	32.43	24.14	21.45	23.29	40.71	103.82	189.08	246.11	226.44					
800.00	107.57	72.25	39.68	29.15	23.21	21.22	22.88	33.42	77.59	140.70	183.61	167.33					
850.00	81.68	56.33	35.67	27.74	22.84	21.13	22.71	29.50	60.15	106.61	138.93	125.89					
900.00	65.16	47.38	33.83	27.14	22.69	21.10	22.64	27.51	48.94	82.89	107.22	97.16					
950.00	55.09	42.65	33.01	26.90	22.63	21.08	22.61	26.54	42.02	66.71	85.03	77.65					
1000.00	49.22	40.27	32.65	26.80	22.60	21.08	22.60	26.08	37.95	56.01	69.84	64.79					
1050.00	45.95	39.11	32.50	26.75	22.59	21.08	22.59	25.86	35.64	49.18	59.76	56.62					
1100.00	44.18	38.55	32.43	26.74	22.59	21.08	22.59	25.75	34.36	44.97	53.28	51.61					
1150.00	43.23	38.27	32.39	26.73	22.59	21.07	22.59	25.70	33.66	42.45	49.25	48.64					
1200.00	42.73	38.14	32.38	26.72	22.59	21.07	22.59	25.67	33.28	40.98	46.80	46.90					
1250.00	42.46	38.08	32.37	26.72	22.59	21.07	22.59	25.66	33.08	40.12	45.34	45.91					

ELECTRON CONTENT = 4.00E 13 3.21E 13 2.67E 13 2.06E 13 1.24E 13 6.57E 12 7.16E 12 2.28E 13 3.48E 13 4.81E 13 5.58E 13 5.59E 13
PEAK ELECTRON DENSITY = 1.74E 06 1.56E 06 1.43E 06 1.15E 06 6.78E 05 3.17E 05 3.35E 05 9.58E 05 1.24E 06 1.60E 06 1.81E 06 1.92E 06
HEIGHT OF PEAK = 376.16 380.07 321.87 299.22 285.86 288.40 298.28 302.16 353.44 377.61 389.31 384.60
ESPROB PERCENT = 61.38 52.86 44.36 38.17 35.93 38.25 44.51 53.03 61.53 67.72 69.96 67.64
AVNFS/1000. CM-3 = 96.96 71.71 52.20 38.91 31.41 29.01 96.96 204.71 198.51 181.06 155.47 126.01
SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = 0.0
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY METERS -3 X10-9				(CM. -3 X10-3)									
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	47.67	87.41	103.72	87.42	47.67	
130.00	1.48	1.48	1.48	1.48	1.49	1.49	1.49	47.50	131.67	149.13	130.74	73.40		
140.00	1.87	1.88	1.89	1.91	1.92	1.94	1.95	102.74	158.86	175.47	157.01	98.58		
150.00	2.14	2.15	2.16	2.17	2.18	2.19	2.19	122.75	175.66	190.83	173.97	116.50		
160.00	2.20	2.20	2.19	2.18	2.17	2.16	2.15	138.79	184.20	197.75	184.09	130.65		
170.00	2.12	2.10	2.07	2.04	2.01	1.99	1.98	152.48	187.77	199.97	189.67	142.42		
180.00	1.97	1.93	1.89	1.84	1.80	1.76	1.75	166.73	190.55	201.50	193.75	152.85		
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.53	185.77	196.11	205.47	199.13	163.60		
200.00	1.62	1.55	1.48	1.42	1.37	1.33	1.32	213.79	207.22	214.23	208.10	176.76		
210.00	1.46	1.37	1.30	1.24	1.19	1.14	1.14	253.95	225.95	229.53	222.50	194.46		
220.00	1.30	1.21	1.14	1.08	1.03	0.98	0.97	316.51	253.72	252.64	243.71	218.58		
230.00	1.17	1.07	1.00	0.94	0.89	0.84	0.83	414.26	291.26	284.29	272.68	250.53		
240.00	1.04	0.95	0.88	0.82	0.77	0.72	0.71	524.38	338.86	324.81	309.89	291.16		
250.00	0.93	0.84	0.77	0.71	0.66	0.61	0.60	640.75	396.72	374.35	355.59	340.91		
260.00	0.84	0.74	0.67	0.61	0.56	0.51	0.50	750.69	493.02	463.12	439.98	400.14		
270.00	7.00	0.66	0.59	0.53	0.48	0.43	0.42	842.55	595.63	561.52	533.38	499.29		
280.00	34.62	1.86	1.72	1.58	1.44	1.30	1.29	908.90	711.53	671.80	636.68	596.04		
290.00	111.55	15.16	13.80	12.44	11.08	9.72	9.61	947.38	834.83	782.34	732.00	686.21		
300.00	261.40	66.67	1002.03	855.44	492.48	190.82	250.30	959.72	955.50	860.79	792.28	718.52		
320.00	749.90	388.55	1189.55	814.38	436.91	167.37	229.56	923.48	1151.19	1131.90	1070.48	1128.09		
340.00	1259.22	889.46	1170.56	713.73	369.35	140.86	198.26	838.60	1251.65	1360.46	1347.48	1438.86		
360.00	1570.74	1257.24	1052.01	602.15	305.64	116.56	166.63	735.82	1257.70	1496.08	1553.86	1667.87		
380.00	1660.65	1384.66	905.04	499.35	250.66	95.93	138.47	633.15	1196.12	1531.35	1657.16	1776.04		
400.00	1601.24	1340.00	762.56	411.07	204.95	79.02	114.67	539.10	1096.76	1487.26	1663.06	1772.42		
420.00	1466.71	1212.65	636.37	337.50	167.56	65.40	95.04	456.64	982.33	1392.56	1597.05	1689.08		
440.00	1305.73	1060.01	528.91	277.01	137.20	54.56	79.06	385.99	867.02	1272.13	1487.31	1559.77		
460.00	1144.31	910.29	439.03	227.57	112.66	46.02	66.17	326.17	758.47	1143.38	1356.59	1410.58		
480.00	994.37	774.84	364.48	187.28	92.88	39.38	55.84	275.84	660.10	1016.97	1220.38	1258.48		
500.00	860.27	656.82	302.87	154.51	76.99	34.28	47.65	233.59	572.89	898.63	1088.04	1113.19		
520.00	595.14	432.69	192.13	97.07	49.96	26.47	34.20	155.45	400.64	650.67	800.40	804.29		
540.00	412.26	286.33	124.09	63.45	35.23	22.99	27.45	105.13	281.08	468.90	583.15	576.69		
560.00	287.51	191.58	82.80	44.53	27.86	21.57	24.38	72.83	198.81	339.05	425.35	414.54		
580.00	202.60	130.57	58.48	34.63	24.52	21.02	23.08	52.43	142.29	246.88	311.96	299.97		
600.00	144.99	91.75	44.94	29.90	23.12	20.80	22.55	39.99	103.57	181.51	230.66	219.13		
620.00	106.28	67.74	37.98	27.82	22.56	20.72	22.33	32.84	77.31	135.24	172.41	162.16		
640.00	80.76	53.56	34.66	26.94	22.33	20.69	22.24	29.00	59.84	102.68	130.83	122.24		
660.00	64.48	45.70	33.16	26.58	22.24	20.68	22.21	27.05	48.59	80.06	101.39	94.59		
680.00	54.54	41.60	32.50	26.43	22.21	20.67	22.19	26.10	41.66	64.68	80.87	75.85		
700.00	48.75	39.55	32.20	26.37	22.19	20.67	22.19	25.65	37.57	54.55	66.91	63.52		
720.00	45.53	38.56	32.08	26.34	22.19	20.67	22.18	25.43	35.25	48.11	57.70	55.71		
740.00	43.77	38.08	32.02	26.33	22.18	20.67	22.18	25.33	33.96	44.16	51.83	50.93		
760.00	42.84	37.85	31.99	26.32	22.18	20.67	22.18	25.28	33.26	41.80	48.20	48.10		
780.00	42.34	37.73	31.98	26.32	22.18	20.67	22.18	25.25	32.88	40.42	46.01	46.45		
800.00	42.07	37.68	31.98	26.32	22.18	20.67	22.18	25.24	32.67	39.63	44.71	45.51		

ELECTRON CONTENT = 3.83E 13 2.88E 13 2.28E 13 1.58E 13 9.64E 12 4.72E 12 5.78E 12 2.28E 13 3.54E 13 4.62E 13 5.18E 13 5.25E 13
PEAK ELECTRON DENSITY = 1.66E 06 1.39E 06 1.20E 06 8.56E 05 5.06E 05 1.99E 05 2.52E 05 9.60E 05 1.27E 06 1.53E 06 1.67E 06 1.79E 06
HEIGHT OF PEAK = 380.16 383.01 326.98 302.16 287.70 284.23 294.40 300.24 351.16 377.75 391.10 388.96
SPREAD PERCENT = 58.16 46.95 35.59 27.14 23.86 26.62 34.69 45.91 57.26 65.71 69.00 66.23
MUF(3000)F = 98.24 74.30 55.56 42.63 35.22 32.84 98.24 198.61 192.89 176.74 153.00 125.52
SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -90.00 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY METERS -3 X10-9				(CM. -3 X10-3)									
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	44.68	80.19	95.57	80.25	44.69	
130.00	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	68.50	123.83	141.60	123.44	67.13	
140.00	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	96.16	153.15	171.85	153.18	93.23	
150.00	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	117.58	175.01	195.60	177.63	114.88	
160.00	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.15	137.15	192.70	216.64	201.03	136.70	
170.00	2.12	2.10	2.07	2.04	2.01	1.99	1.98	1.98	157.70	210.01	239.63	226.98	162.52	
180.00	1.97	1.93	1.89	1.84	1.80	1.76	1.75	1.75	183.22	232.15	269.94	260.02	196.05	
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.53	1.53	219.12	263.95	312.08	304.41	241.61	
200.00	4.81	1.55	1.48	1.42	1.37	1.33	1.32	1.32	270.17	308.86	368.74	362.95	303.01	
210.00	24.05	1.37	1.30	1.24	1.19	1.15	1.14	1.14	387.03	402.77	489.10	503.59	461.40	
220.00	76.39	1.21	1.14	1.07	1.03	1.00	0.99	0.99	531.95	507.66	608.85	624.53	665.05	
230.00	174.19	6.07	1.00	0.93	0.89	0.86	4.85	4.85	620.89	623.96	741.98	758.93	798.69	
240.00	311.77	27.39	0.87	0.81	0.98	0.75	21.03	21.03	692.02	743.54	881.62	901.24	931.33	
250.00	467.47	77.62	2.40	2.39	7.53	1.84	55.65	55.65	739.88	855.50	1016.97	1041.34	1052.05	
260.00	615.71	158.26	13.51	13.52	29.08	10.28	105.05	105.05	763.69	950.15	1137.39	1168.77	1152.05	
270.00	737.50	255.55	43.61	42.84	70.48	32.03	157.41	157.41	766.05	1021.18	1234.86	1275.07	1226.05	
280.00	824.01	349.84	95.65	91.43	124.57	67.16	201.34	201.34	751.23	1066.24	1305.03	1355.15	1272.47	
290.00	874.85	425.98	160.49	148.93	177.69	107.61	231.07	231.07	723.89	1086.28	1347.07	1407.27	1292.66	
300.00	894.68	477.33	223.53	201.65	219.07	143.59	246.17	246.17	688.24	1084.41	1362.84	1432.51	1289.86	
320.00	868.04	510.79	305.85	263.14	255.24	183.17	243.87	243.87	605.14	1031.62	1330.48	1415.16	1232.12	
340.00	792.69	483.73	322.93	268.53	246.08	184.23	219.00	219.00	520.26	940.23	1241.21	1334.38	1131.85	
360.00	700.72	430.70	300.95	244.37	217.42	166.30	187.91	187.91	442.22	834.58	1124.27	1219.95	1014.24	
380.00	608.80	371.86	264.00	210.82	184.65	142.92	158.06	158.06	373.97	729.24	999.59	1093.39	895.04	
400.00	524.22	316.28	225.06	177.58	154.25	120.36	132.00	132.00	315.77	631.51	878.69	967.84	782.71	
420.00	449.41	267.17	189.43	148.19	128.18	100.77	110.21	110.21	266.75	544.30	767.29	850.27	680.99	
440.00	384.56	225.13	158.72	123.44	106.62	84.56	92.38	92.38	225.67	468.14	667.57	743.77	590.96	
460.00	328.92	189.68	132.98	103.10	89.13	71.49	78.00	78.00	191.31	402.40	579.81	649.15	512.32	
480.00	281.46	160.06	111.73	86.61	75.13	61.14	66.53	66.53	162.58	346.04	503.33	566.07	444.15	
500.00	241.09	135.42	94.35	73.40	64.05	53.08	57.49	57.49	138.55	297.86	437.05	493.58	385.27	
550.00	164.87	90.86	64.10	51.32	46.02	40.40	42.90	42.90	94.30	206.08	308.22	351.42	271.30	
600.00	114.54	63.72	47.12	39.91	37.14	34.53	35.82	35.82	66.15	144.31	219.12	251.94	192.79	
650.00	81.63	47.92	38.32	34.55	33.18	32.04	32.67	32.67	48.70	102.73	157.40	182.25	138.59	
700.00	60.57	39.31	34.14	32.24	31.54	31.04	31.35	31.35	38.44	74.92	114.59	133.32	101.18	
750.00	47.60	34.95	32.27	31.28	30.89	30.64	30.82	30.82	32.87	56.66	85.01	99.01	75.53	
800.00	40.01	32.88	31.47	30.89	30.62	30.49	30.60	30.60	30.07	45.06	64.81	75.10	58.23	
850.00	35.81	31.92	31.13	30.74	30.52	30.42	30.51	30.51	28.74	38.05	51.33	58.71	46.90	
900.00	33.59	31.48	30.98	30.67	30.48	30.40	30.47	30.47	28.13	34.03	42.65	47.77	39.78	
950.00	32.46	31.28	30.92	30.64	30.46	30.39	30.46	30.46	27.85	31.84	37.30	40.72	35.52	
1000.00	31.88	31.19	30.89	30.63	30.45	30.38	30.45	30.45	27.73	30.68	34.14	36.37	33.06	
1050.00	31.59	31.15	30.88	30.63	30.45	30.38	30.45	30.45	27.67	30.07	32.33	33.78	31.69	
1100.00	31.44	31.13	30.87	30.63	30.45	30.38	30.45	30.45	27.64	29.76	31.32	32.27	30.94	
1150.00	31.37	31.12	30.87	30.63	30.45	30.38	30.45	30.45	27.63	29.60	30.76	31.42	30.53	
1200.00	31.33	31.11	30.87	30.63	30.45	30.38	30.45	30.45	27.62	29.51	30.46	30.94	30.31	
1250.00	31.31	31.11	30.87	30.63	30.45	30.38	30.45	30.45	27.62	29.47	30.29	30.67	30.19	

ELECTRON CONTENT = 2.03E 13 1.15E 13 7.73E 12 6.69E 12 6.39E 12 5.31E 12 6.41E 12 1.78E 13 2.81E 13 3.69E 13 3.97E 13 3.38E 13
 PEAK ELECTRON DENSITY = 8.96E 05 5.11E 05 3.24E 05 2.71E 05 2.56E 05 1.87E 05 2.49E 05 7.67E 05 1.09E 06 1.36E 06 1.44E 06 1.29E 06
 HEIGHT OF PEAK = 302.78 318.78 336.32 331.87 323.96 329.89 307.93 266.12 293.98 301.66 305.52 293.60
 ES PROB PERCENT = 60.18 47.31 36.74 31.30 32.46 39.90 51.63 64.50 75.07 80.50 79.35 71.91
 AVNES/1000. CM-3 = 85.47 62.47 44.82 32.89 26.20 24.07 85.47 184.52 178.80 162.69 139.13 112.06
 SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = 40.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	38.56	62.02	73.69	62.04
130.00	1.48	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	1.49	1.49	1.49	51.92	99.65	115.33	98.94
140.00	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	1.95	1.95	1.95	1.95	76.52	128.39	144.39	127.37
150.00	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	2.19	2.19	2.19	2.19	96.20	150.20	167.05	150.15
160.00	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.15	2.15	2.15	2.15	2.15	112.96	169.10	187.25	172.05
170.00	2.12	2.10	2.07	2.04	2.01	1.99	1.98	1.98	1.98	1.98	1.98	1.98	129.32	187.74	208.08	195.87
180.00	1.97	1.93	1.89	1.84	1.80	1.76	1.75	1.75	1.75	1.75	1.75	1.75	147.55	210.33	233.83	225.21
190.00	3.30	1.74	1.68	1.62	1.58	1.54	1.53	1.53	1.53	1.53	1.53	1.53	171.35	241.50	268.83	264.04
200.00	16.35	1.55	1.48	1.42	1.37	1.33	1.32	1.32	1.32	1.32	1.32	1.32	205.07	284.96	316.24	315.53
210.00	51.32	1.37	1.30	1.24	1.19	1.15	1.14	1.14	1.14	1.14	1.14	1.14	286.17	384.67	426.56	443.51
220.00	115.66	3.77	1.14	1.07	1.03	1.00	2.31	367.83	494.33	548.70	579.67	529.90				
230.00	204.78	17.16	1.00	0.93	0.89	0.86	11.73	403.69	551.39	612.50	644.01	593.10				
240.00	304.06	48.77	0.87	0.81	0.78	0.75	34.51	425.66	593.64	662.46	694.59	643.17				
250.00	397.07	99.42	0.77	0.71	0.68	1.27	69.85	434.22	619.65	696.56	729.49	677.91				
260.00	472.13	160.26	0.67	0.62	0.59	6.96	109.57	431.46	630.20	714.83	748.74	697.18				
270.00	524.22	218.84	1.84	0.55	2.23	21.38	144.44	420.10	627.48	718.82	753.76	702.38				
280.00	553.64	265.74	9.19	3.68	10.81	44.38	169.05	402.79	614.24	710.86	746.78	695.71				
290.00	563.68	296.99	27.44	14.69	30.86	70.63	182.40	381.83	593.29	693.58	730.28	679.70				
300.00	558.76	312.95	57.28	36.94	61.30	93.81	186.15	358.98	567.13	669.46	706.68	656.79				
320.00	520.48	310.50	127.15	99.57	124.34	119.02	175.26	312.34	506.96	609.13	646.48	598.58				
340.00	464.47	282.73	170.63	144.01	155.91	119.36	153.35	268.79	444.94	542.79	579.16	533.95				
360.00	405.18	246.63	179.07	154.96	156.11	107.48	129.75	230.44	386.76	477.90	512.46	470.40				
380.00	349.30	210.67	166.82	145.08	140.74	92.15	108.21	197.56	334.70	418.06	450.32	411.61				
400.00	299.36	178.19	146.63	127.14	120.85	77.38	89.79	169.67	289.24	364.61	394.35	359.01				
420.00	255.88	150.12	125.37	108.09	101.55	64.54	74.52	146.09	250.02	317.70	344.89	312.79				
440.00	218.55	126.37	105.90	90.73	84.63	53.87	62.04	126.13	216.37	276.89	301.61	272.57				
460.00	186.71	106.51	89.10	75.87	70.43	45.22	51.95	109.19	187.56	241.57	263.96	237.73				
480.00	159.67	90.00	75.00	63.54	58.78	38.31	43.85	94.77	162.88	211.03	231.27	207.62				
500.00	136.75	76.34	63.36	53.47	49.34	32.88	37.42	82.46	141.72	184.63	202.91	181.60				
550.00	93.75	51.90	42.88	36.16	33.29	24.15	26.82	58.81	100.90	133.13	147.27	130.87				
600.00	65.67	37.36	31.22	26.71	24.67	19.96	21.48	42.62	72.74	97.02	107.96	95.37				
650.00	47.64	29.19	25.07	22.01	20.47	18.13	19.03	31.58	53.21	71.54	80.03	70.41				
700.00	36.44	24.94	22.09	19.86	18.59	17.38	17.99	24.25	39.76	53.57	60.16	52.90				
750.00	29.81	22.87	20.74	18.95	17.81	17.09	17.56	19.65	30.66	40.99	46.11	40.75				
800.00	26.11	21.91	20.15	18.57	17.49	16.97	17.39	17.01	24.75	32.38	36.33	32.54				
850.00	24.15	21.47	19.90	18.41	17.36	16.92	17.32	15.63	21.13	26.69	29.74	27.21				
900.00	23.15	21.28	19.79	18.34	17.30	16.90	17.29	14.96	19.06	23.12	25.49	23.94				
950.00	22.65	21.19	19.74	18.32	17.28	16.89	17.28	14.65	17.94	21.00	22.88	22.03				
1000.00	22.40	21.15	19.72	18.31	17.27	16.89	17.27	14.51	17.36	19.80	21.35	20.96				
1050.00	22.27	21.13	19.71	18.30	17.27	16.89	17.27	14.45	17.06	19.14	20.49	20.38				
1100.00	22.21	21.12	19.71	18.30	17.27	16.89	17.27	14.42	16.91	18.79	20.01	20.07				
1150.00	22.18	21.12	19.71	18.30	17.27	16.89	17.27	14.41	16.84	18.60	19.75	19.91				
1200.00	22.16	21.11	19.71	18.30	17.27	16.89	17.27	14.40	16.80	18.50	19.61	19.82				
1250.00	22.15	21.11	19.71	18.30	17.27	16.89	17.27	14.40	16.78	18.44	19.53	19.77				

ELECTRON CONTENT = 1.28E 13 7.22E 12 4.49E 12 3.88E 12 3.84E 12 3.22E 12 4.35E 12 1.04E 13 1.60E 13 1.91E 13 2.03E 13 1.82E 13
 PEAK ELECTRON DENSITY = 5.64E 05 3.16E 05 1.80E 05 1.55E 05 1.59E 05 1.21E 05 1.86E 05 4.34E 05 6.31E 05 7.19E 05 7.54E 05 7.02E 05
 HEIGHT OF PEAK = 291.22 308.09 355.77 357.94 349.44 329.57 299.72 252.23 262.68 268.02 268.86 269.04
 ESPROB PERCENT = 41.80 29.60 19.97 15.51 17.39 25.13 36.65 48.85 58.48 62.95 61.06 53.32
 AVNES/1000. CM-3 = 58.50 46.13 36.22 29.21 25.11 23.76 58.50 108.64 105.83 97.87 86.11 72.35
 SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = 60.00

S 10.7 = 100.00 S 10.7 (IA.U.) =

99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				{CM. -3 X10-3}			
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	31.29	41.26	46.05	41.27
130.00	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	31.03	59.23	70.52	58.50
140.00	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	44.52	84.19	96.32	82.44
150.00	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	61.07	102.66	115.02	100.96
160.00	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.15	74.26	117.17	130.18	116.66
170.00	2.12	2.10	2.07	2.04	2.01	1.99	1.98	1.98	85.21	129.35	143.40	131.82
180.00	1.97	1.93	1.89	1.84	1.80	1.76	1.75	1.75	94.93	140.31	156.08	147.86
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.53	1.53	104.15	152.10	170.41	166.70
200.00	5.01	1.55	1.48	1.42	1.37	1.33	1.32	1.32	114.38	167.31	188.96	190.76
210.00	18.67	1.37	1.30	1.24	1.19	1.15	1.14	1.14	140.41	202.50	234.67	258.33
220.00	47.78	2.54	1.14	1.07	1.03	1.00	1.60	1.60	167.91	252.02	295.01	337.31
230.00	92.89	11.64	1.00	0.93	0.89	0.86	8.06	8.06	192.02	282.78	330.20	375.13
240.00	147.79	33.25	0.87	0.81	0.78	0.75	23.55	23.55	210.39	306.45	358.34	405.20
250.00	203.10	68.00	0.77	0.71	0.68	2.66	47.47	47.47	222.02	322.02	378.19	426.36
260.00	250.80	109.87	0.67	0.62	0.59	10.50	74.24	74.24	227.10	329.67	389.63	438.54
270.00	286.39	150.27	3.48	0.88	2.06	25.81	97.66	97.66	226.60	330.36	393.37	442.81
280.00	308.81	182.69	13.80	5.37	9.45	46.01	114.14	114.14	221.80	325.44	390.61	439.50
290.00	319.32	204.34	35.02	18.10	25.95	65.94	123.03	123.03	214.00	316.31	382.71	430.93
300.00	320.20	215.45	65.21	40.52	50.19	81.51	125.48	125.48	204.29	304.28	371.00	418.18
320.00	302.81	213.88	126.25	95.28	98.71	95.17	117.90	117.90	182.45	275.59	340.68	384.97
340.00	272.58	194.75	158.30	129.01	121.95	91.62	102.93	102.93	160.68	245.35	306.69	347.37
360.00	238.99	169.82	160.55	134.44	121.14	80.67	86.84	86.84	140.88	216.65	273.12	309.89
380.00	206.68	144.96	146.80	123.67	108.62	68.18	72.12	72.12	123.57	190.75	241.95	274.82
400.00	177.49	122.47	127.60	107.24	92.83	56.55	59.49	59.49	108.68	167.96	213.95	243.11
420.00	151.94	103.01	108.23	90.42	77.59	46.52	48.94	48.94	95.94	148.12	189.21	214.96
440.00	129.94	86.51	90.74	75.26	64.20	38.15	40.23	40.23	85.00	130.93	167.54	190.20
460.00	111.14	72.67	75.68	62.29	52.90	31.26	33.08	33.08	75.57	116.01	148.61	168.51
480.00	95.16	61.12	62.99	51.44	43.52	25.61	27.22	27.22	67.39	103.05	132.07	149.54
500.00	81.61	51.51	52.40	42.46	35.81	21.00	22.42	22.42	60.25	91.74	117.60	132.94
550.00	56.21	34.07	33.18	26.34	22.05	12.85	13.87	13.87	45.95	69.19	88.68	99.79
600.00	39.67	23.29	21.17	16.44	13.67	7.93	8.65	8.65	35.38	52.70	67.53	75.64
650.00	29.12	16.84	13.67	10.34	8.54	4.94	5.45	5.45	27.43	40.43	51.84	57.84
700.00	22.64	13.18	9.00	6.56	5.38	3.12	3.47	3.47	21.38	31.21	40.07	44.63
750.00	18.87	11.25	6.12	4.20	3.44	2.03	2.26	2.26	16.74	24.21	31.18	34.79
800.00	16.79	10.30	4.41	2.74	2.25	1.38	1.53	1.53	13.15	18.86	24.45	27.49
850.00	15.71	9.85	3.44	1.83	1.52	1.02	1.11	1.11	10.37	14.75	19.36	22.16
900.00	15.16	9.65	2.93	1.29	1.10	0.82	0.88	0.88	8.21	11.59	15.55	18.37
950.00	14.88	9.56	2.68	0.98	0.87	0.73	0.76	0.76	6.52	9.14	12.75	15.77
1000.00	14.74	9.51	2.56	0.81	0.76	0.69	0.70	0.70	5.19	7.24	10.76	14.09
1050.00	14.68	9.49	2.51	0.73	0.70	0.67	0.68	0.68	4.15	5.77	9.41	13.05
1100.00	14.64	9.48	2.49	0.69	0.68	0.67	0.67	0.67	3.33	4.64	8.54	12.44
1150.00	14.62	9.48	2.48	0.67	0.67	0.66	0.66	0.66	2.67	3.78	8.02	12.09
1200.00	14.61	9.48	2.47	0.67	0.66	0.66	0.66	0.66	2.16	3.13	7.71	11.90
1250.00	14.61	9.48	2.47	0.66	0.66	0.66	0.66	0.66	1.75	2.66	7.54	11.79

ELECTRON CONTENT	=	7.46E 12	4.62E 12	3.03E 12	2.37E 12	2.14E 12	1.63E 12	2.16E 12	6.07E 12	9.11E 12	1.13E 13	1.26E 13	1.16E 13
PEAK ELECTRON DENSITY	=	3.21E 05	2.18E 05	1.62E 05	1.35E 05	1.24E 05	9.55E 04	1.25E 05	2.28E 05	3.31E 05	3.93E 05	4.43E 05	4.19E 05
HEIGHT OF PEAK	=	295.93	308.21	351.42	354.50	348.48	324.01	299.57	263.89	266.01	270.41	270.35	275.76
ESPROB PERCENT	=	27.04	17.82	10.41	6.81	7.98	13.60	22.17	31.39	38.79	42.39	41.22	35.60
AVNES/1000. CM-3	=	28.74	23.75	19.66	16.69	14.92	14.33	28.74	48.11	47.05	44.03	39.52	34.19
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	49.39	44.04	33.44	1.99	1.70	1.70	1.70	1.70	1.70	1.70	1.99	33.43
130.00	77.59	65.59	35.65	6.73	1.48	1.48	1.48	1.49	1.49	1.49	6.95	36.24
140.00	104.25	90.81	50.96	8.94	1.88	1.89	1.91	1.92	1.94	9.10	54.18	92.55
150.00	123.92	110.24	67.57	9.12	2.15	2.16	2.17	2.18	2.19	8.90	72.02	111.96
160.00	140.67	127.46	82.13	8.53	2.20	2.19	2.18	2.17	2.16	8.04	86.27	128.12
170.00	156.31	144.89	96.61	7.89	2.10	2.07	2.04	2.01	1.99	7.57	99.00	142.89
180.00	172.90	164.42	113.22	7.62	1.93	1.89	1.84	1.80	1.76	8.08	111.47	158.13
190.00	193.31	188.59	134.07	8.01	1.74	1.68	1.62	1.58	1.54	10.03	125.32	176.81
200.00	220.59	220.32	161.82	9.52	1.55	1.48	1.42	1.37	1.33	13.12	143.24	202.24
210.00	290.65	308.99	262.05	89.91	1.37	1.30	1.24	1.19	1.15	16.78	189.62	266.21
220.00	373.85	407.13	381.01	213.18	4.68	1.14	1.07	1.03	1.00	43.14	249.44	342.46
230.00	417.40	451.62	432.96	264.86	21.29	1.00	0.93	0.89	0.86	63.72	281.89	382.70
240.00	451.76	486.55	476.54	319.01	60.44	0.87	0.81	0.78	0.75	82.84	305.29	412.96
250.00	475.51	510.65	509.25	370.49	123.09	0.77	0.71	0.68	1.75	103.19	318.76	432.14
260.00	488.62	523.98	530.22	414.51	198.27	0.67	0.62	0.59	7.86	122.17	323.01	440.65
270.00	492.08	527.54	539.95	447.83	270.60	4.19	0.72	1.50	21.09	137.36	319.67	439.93
280.00	487.47	522.86	539.81	469.15	328.48	17.89	4.87	7.32	39.92	147.43	310.68	431.85
290.00	476.53	511.68	531.61	478.78	367.00	47.87	17.60	20.98	59.61	152.23	297.86	418.33
300.00	460.93	495.65	517.23	478.19	386.65	92.48	41.34	41.76	75.80	152.45	282.73	401.09
320.00	421.42	454.71	476.62	454.21	383.46	187.15	102.85	84.95	91.44	143.44	249.88	360.90
340.00	377.68	408.93	428.82	412.55	348.98	239.85	143.10	106.66	89.41	128.35	217.85	319.11
360.00	334.72	363.56	380.46	364.64	304.22	245.96	151.10	106.78	79.33	112.19	189.00	279.70
380.00	295.00	321.26	335.00	317.19	259.62	226.20	139.94	96.13	67.30	97.25	163.94	244.30
400.00	259.42	283.12	293.91	273.49	219.31	197.26	121.79	82.33	55.95	84.23	142.49	213.26
420.00	228.07	249.33	257.54	234.75	184.43	167.66	102.93	68.91	46.09	73.16	124.21	186.34
440.00	200.68	219.68	225.71	201.13	154.86	140.80	85.84	57.08	37.85	63.80	108.61	163.11
460.00	176.84	193.78	198.01	172.28	130.05	117.64	71.19	47.10	31.05	55.88	95.25	143.07
480.00	156.09	171.19	173.96	147.69	109.34	98.13	58.94	38.81	25.49	49.13	83.76	125.76
500.00	138.03	151.48	153.07	126.79	92.11	81.88	48.82	32.00	20.95	43.34	73.83	110.77
550.00	102.26	112.39	112.02	87.40	60.79	52.54	30.79	19.92	12.97	32.04	54.32	81.30
600.00	76.54	84.24	82.90	61.39	41.38	34.57	19.99	12.69	8.23	23.98	40.35	60.28
650.00	57.83	63.81	62.10	44.37	29.69	23.84	13.71	8.43	5.47	18.09	30.20	45.09
700.00	44.16	48.92	47.24	33.49	23.00	17.73	10.25	6.04	3.94	13.74	22.76	34.04
750.00	34.17	38.11	36.71	26.80	19.44	14.48	8.49	4.79	3.16	10.49	17.29	25.99
800.00	26.95	30.38	29.43	22.92	17.68	12.90	7.68	4.20	2.80	8.07	13.28	20.18
850.00	21.85	25.00	24.58	20.80	16.84	12.17	7.32	3.93	2.64	6.26	10.37	16.07
900.00	18.38	21.41	21.51	19.68	16.46	11.85	7.17	3.82	2.57	4.93	8.33	13.28
950.00	16.14	19.15	19.68	19.12	16.28	11.71	7.11	3.77	2.54	3.99	6.98	11.49
1000.00	14.79	17.79	18.64	18.83	16.20	11.64	7.08	3.75	2.53	3.37	6.15	10.42
1050.00	14.00	17.00	18.06	18.69	16.16	11.62	7.07	3.74	2.53	3.00	5.69	9.82
1100.00	13.56	16.57	17.75	18.62	16.15	11.60	7.06	3.74	2.52	2.80	5.45	9.50
1150.00	13.32	16.33	17.58	18.58	16.14	11.60	7.06	3.74	2.52	2.70	5.33	9.33
1200.00	13.20	16.19	17.49	18.56	16.13	11.60	7.06	3.74	2.52	2.65	5.28	9.24
1250.00	13.13	16.12	17.44	18.55	16.13	11.59	7.06	3.74	2.52	2.63	5.25	9.20

ELECTRON CONTENT	=	1.37E 13	1.47E 13	1.46E 13	1.17E 13	8.21E 12	5.09E 12	3.02E 12	2.06E 12	1.69E 12	3.64E 12	7.97E 12	1.16E 13
PEAK ELECTRON DENSITY	=	4.92E 05	5.28E 05	5.41E 05	4.80E 05	3.91E 05	2.48E 05	1.52E 05	1.09E 05	9.22E 04	1.53E 05	3.23E 05	4.41E 05
HEIGHT OF PEAK	=	268.95	268.99	274.76	294.26	308.05	352.90	355.97	349.52	326.33	295.42	260.19	264.05
ESPROB PERCENT	=	52.66	51.12	44.01	33.25	21.71	12.48	8.04	9.59	16.69	27.46	39.00	48.23
AVNES/1000. CM-3	=	62.83	55.23	46.36	37.43	29.45	23.07	18.57	15.93	15.07	37.43	69.78	67.97
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00 LATITUDE = -40.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	77.23	65.33	40.33	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	40.33	65.32	
130.00	119.77	103.63	55.87	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	57.17	104.42	
140.00	148.74	131.84	79.55	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	83.09	133.23	
150.00	171.02	153.91	99.11	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	103.60	154.94	
160.00	190.26	174.18	117.21	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.15	121.91	173.35	
170.00	209.60	195.15	137.03	2.12	2.10	2.07	2.04	2.01	1.99	1.98	1.98	140.90	191.21	
180.00	233.38	220.19	161.17	1.97	1.93	1.89	1.84	1.80	1.76	1.75	1.75	163.69	212.86	
190.00	265.82	253.08	192.79	3.12	1.74	1.68	1.62	1.58	1.54	1.53	1.53	194.98	242.92	
200.00	310.11	296.98	235.41	15.76	1.55	1.48	1.42	1.37	1.33	1.32	1.32	239.55	285.07	
210.00	412.86	406.19	363.60	50.22	1.37	1.30	1.24	1.19	1.15	1.14	1.14	344.19	381.62	
220.00	535.26	532.32	508.11	114.44	4.46	1.14	1.07	1.03	1.00	4.08	4.08	446.91	495.84	
230.00	605.60	599.03	573.85	204.27	21.92	1.00	0.93	0.89	0.86	18.52	18.52	491.56	561.01	
240.00	663.52	654.07	627.66	305.12	65.78	0.87	0.81	0.78	0.75	50.32	50.32	519.12	612.10	
250.00	705.89	694.70	666.75	400.23	139.38	0.77	0.71	0.68	1.11	96.43	96.43	530.05	646.48	
260.00	731.88	720.16	690.42	477.46	230.94	0.67	0.62	0.59	6.99	145.66	145.66	526.87	664.13	
270.00	742.45	731.25	699.64	531.44	321.61	4.44	1.50	4.81	23.67	187.05	187.05	512.91	666.80	
280.00	739.67	729.80	696.44	562.27	396.07	20.86	10.06	20.37	52.51	214.99	214.99	491.47	657.20	
290.00	726.11	718.11	683.22	573.24	447.10	59.64	36.13	52.93	87.43	229.07	229.07	465.39	638.27	
300.00	704.39	698.51	662.45	568.82	474.54	120.72	84.50	98.55	119.80	231.78	231.78	436.90	612.77	
320.00	645.64	644.09	606.83	530.58	474.96	258.29	209.18	185.39	157.59	216.05	216.05	378.61	551.01	
340.00	578.03	580.20	543.18	473.90	434.39	340.33	290.36	224.26	160.76	188.17	188.17	324.12	485.18	
360.00	510.38	515.36	479.65	413.64	379.72	353.87	306.26	220.73	146.00	158.94	158.94	276.15	422.37	
380.00	447.19	454.12	420.40	356.77	324.62	327.84	283.68	197.35	125.74	132.53	132.53	235.08	365.64	
400.00	390.33	398.51	367.11	305.89	274.57	287.08	247.04	168.77	105.86	110.09	110.09	200.37	315.84	
420.00	340.20	349.09	320.14	261.60	231.18	244.67	209.05	141.54	88.46	91.56	91.56	171.15	272.76	
440.00	296.49	305.72	279.19	223.57	194.38	205.94	174.69	117.84	73.97	76.49	76.49	146.56	235.78	
460.00	258.59	267.89	243.69	191.15	163.52	172.47	145.30	98.02	62.22	64.37	64.37	125.84	204.11	
480.00	225.82	235.00	212.97	163.64	137.80	144.29	120.83	81.80	52.85	54.71	54.71	108.35	177.01	
500.00	197.49	206.43	186.42	140.35	116.44	120.88	100.72	68.68	45.49	47.09	47.09	93.54	153.81	
550.00	142.31	150.33	134.67	96.77	77.87	78.94	65.43	46.38	33.72	34.78	34.78	65.68	109.25	
600.00	103.75	110.68	98.48	68.52	54.39	53.89	45.17	34.45	28.12	28.78	28.78	47.30	78.77	
650.00	76.72	82.53	73.13	50.65	40.70	39.63	34.29	28.64	25.69	26.11	26.11	35.47	57.92	
700.00	57.84	62.59	55.45	39.78	33.23	32.09	28.94	26.06	24.71	25.00	25.00	28.26	43.86	
750.00	44.83	48.60	43.33	33.53	29.45	28.41	26.52	24.98	24.31	24.55	24.55	24.23	34.68	
800.00	36.14	39.02	35.31	30.14	27.64	26.74	25.48	24.54	24.16	24.36	24.36	22.17	28.99	
850.00	30.59	32.69	30.24	28.38	26.81	26.00	25.05	24.36	24.10	24.29	24.29	21.20	25.68	
900.00	27.22	28.72	27.20	27.50	26.43	25.68	24.87	24.29	24.07	24.26	24.26	20.75	23.88	
950.00	25.29	26.34	25.48	27.06	26.26	25.54	24.80	24.26	24.06	24.25	24.25	20.55	22.94	
1000.00	24.21	24.98	24.53	26.84	26.18	25.48	24.76	24.25	24.06	24.24	24.24	20.46	22.46	
1050.00	23.63	24.22	24.02	26.73	26.15	25.45	24.75	24.24	24.05	24.24	24.24	20.42	22.22	
1100.00	23.32	23.80	23.75	26.67	26.13	25.44	24.74	24.24	24.05	24.24	24.24	20.40	22.10	
1150.00	23.16	23.57	23.61	26.65	26.12	25.43	24.74	24.24	24.05	24.24	24.24	20.39	22.04	
1200.00	23.07	23.45	23.53	26.63	26.12	25.43	24.74	24.24	24.05	24.24	24.24	20.39	22.01	
1250.00	23.02	23.38	23.49	26.63	26.12	25.43	24.74	24.24	24.05	24.24	24.24	20.39	21.99	

ELECTRON CONTENT = 2.02E 13 2.03E 13 1.86E 13 1.33E 13 1.06E 13 7.89E 12 6.83E 12 5.44E 12 4.42E 12 5.63E 12 1.25E 13 1.72E 13
PEAK ELECTRON DENSITY = 7.43E 05 7.32E 05 7.00E 05 5.73E 05 4.82E 05 3.55E 05 3.07E 05 2.27E 05 1.63E 05 2.32E 05 5.30E 05 6.67E 05
HEIGHT OF PEAK = 272.67 273.66 272.14 291.66 309.54 354.66 355.84 347.05 331.67 297.72 252.43 266.89
ESPROB PERCENT = 72.92 70.96 62.85 50.75 37.91 27.77 23.04 25.00 33.11 45.21 58.05 68.19
AVNES/1000. CM-3 = 134.47 116.95 96.62 76.34 58.45 44.36 34.56 28.91 27.08 76.34 150.58 146.36
SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00 LATITUDE = -20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY			METERS -3 X10-9	(CM. -3 X10-3)									
120.00	97.47	82.13	45.90	1.70	1.70	1.70	1.70	1.70	1.70	1.70	45.89	82.09		
130.00	143.28	125.22	69.82	1.48	1.48	1.48	1.49	1.49	1.49	1.49	71.34	125.95		
140.00	172.30	153.49	95.79	1.87	1.88	1.89	1.91	1.92	1.94	1.95	99.41	154.70		
150.00	193.39	174.76	116.41	2.14	2.15	2.16	2.17	2.18	2.19	2.19	121.30	175.19		
160.00	209.78	192.41	135.99	2.20	2.20	2.19	2.18	2.17	2.16	2.15	141.70	190.32		
170.00	225.67	209.23	157.48	2.12	2.10	2.07	2.04	2.01	1.99	1.98	163.67	203.65		
180.00	245.89	228.95	183.59	1.97	1.93	1.89	1.84	1.80	1.76	1.75	191.67	220.04		
190.00	274.63	255.31	217.83	1.80	1.74	1.68	1.62	1.58	1.54	1.53	231.44	244.02		
200.00	314.86	291.28	263.72	1.62	1.55	1.48	1.42	1.37	1.33	1.32	287.71	279.03		
210.00	368.13	338.77	323.76	4.08	1.37	1.30	1.24	1.19	1.15	1.14	400.58	327.04		
220.00	434.87	398.57	482.60	22.86	1.21	1.14	1.07	1.03	1.00	0.99	561.06	388.77		
230.00	563.58	485.37	604.86	79.23	1.07	1.00	0.93	3.79	0.86	5.19	692.77	508.55		
240.00	685.23	604.34	740.69	193.31	8.99	3.76	9.31	23.85	1.00	27.09	818.79	624.78		
250.00	822.15	735.23	885.83	364.52	41.40	23.68	44.73	80.12	8.46	81.44	924.81	755.43		
260.00	969.17	876.55	1029.68	569.01	119.29	82.35	126.32	176.12	34.90	167.95	1001.52	891.78		
270.00	1115.64	1019.45	1160.93	773.13	246.66	189.86	248.46	290.57	88.38	267.52	1045.81	1021.88		
280.00	1250.23	1153.64	1270.34	948.59	402.98	329.26	381.94	394.77	160.77	357.01	1059.65	1134.54		
290.00	1363.55	1270.14	1352.29	1079.77	556.95	468.74	496.29	470.22	233.70	421.97	1048.02	1221.94		
300.00	1449.69	1362.67	1404.93	1163.08	683.44	581.88	574.96	512.29	291.70	458.87	1016.93	1280.53		
320.00	1534.62	1466.58	1429.11	1207.45	818.16	693.92	625.33	517.15	344.38	465.34	919.13	1314.65		
340.00	1518.25	1471.55	1371.08	1145.40	821.00	684.46	584.46	465.17	333.54	422.09	802.21	1263.08		
360.00	1433.22	1405.45	1265.08	1034.68	753.38	615.98	508.94	396.85	294.85	363.29	686.69	1161.66		
380.00	1311.34	1298.25	1138.26	910.32	660.74	530.42	428.92	330.61	250.00	305.21	581.84	1039.22		
400.00	1175.80	1173.19	1008.12	789.72	566.50	447.30	356.23	272.66	208.14	253.72	490.63	914.00		
420.00	1040.91	1045.35	884.34	680.12	480.36	373.64	294.09	224.09	172.08	210.11	413.01	795.78		
440.00	914.34	923.30	771.47	583.65	405.28	310.94	242.39	184.15	142.10	173.94	347.68	688.91		
460.00	799.52	811.24	671.02	500.13	341.30	258.55	199.89	151.63	117.60	144.27	292.98	594.63		
480.00	697.42	710.70	582.89	428.45	287.40	215.17	165.20	125.28	97.78	120.07	247.30	512.63		
500.00	607.70	621.74	506.20	367.21	242.25	179.44	136.98	104.04	81.86	100.43	209.16	441.86		
550.00	430.83	444.85	356.74	250.91	159.47	115.72	87.79	67.67	55.03	66.46	139.13	305.76		
600.00	307.02	319.78	253.31	173.33	107.37	77.52	59.57	47.65	40.83	47.46	94.59	213.36		
650.00	220.59	231.70	181.78	121.83	75.22	55.48	44.32	37.48	33.99	37.61	66.58	150.68		
700.00	160.21	169.62	132.29	88.04	56.12	43.58	36.77	32.80	31.00	32.96	49.51	108.22		
750.00	118.07	125.88	98.21	66.38	45.44	37.67	33.35	30.81	29.76	30.92	39.67	79.71		
800.00	88.86	95.21	75.04	53.05	39.88	34.94	31.90	30.00	29.26	30.06	34.40	60.93		
850.00	68.91	73.96	59.67	45.25	37.15	33.73	31.29	29.67	29.06	29.70	31.76	48.98		
900.00	55.63	59.57	49.83	40.92	35.87	33.21	31.05	29.54	28.98	29.56	30.49	41.71		
950.00	47.11	50.12	43.79	38.62	35.27	32.99	30.94	29.48	28.95	29.49	29.90	37.51		
1000.00	41.85	44.14	40.25	37.43	34.99	32.89	30.90	29.46	28.94	29.47	29.62	35.17		
1050.00	38.73	40.50	38.23	36.82	34.87	32.84	30.88	29.45	28.93	29.46	29.49	33.91		
1100.00	36.94	38.35	37.11	36.51	34.81	32.83	30.87	29.45	28.93	29.45	29.43	33.24		
1150.00	35.92	37.11	36.48	36.35	34.78	32.82	30.87	29.45	28.93	29.45	29.41	32.89		
1200.00	35.34	36.39	36.14	36.26	34.76	32.81	30.87	29.45	28.93	29.45	29.39	32.70		
1250.00	35.02	35.98	35.95	36.22	34.76	32.81	30.87	29.45	28.93	29.45	29.39	32.60		

ELECTRON CONTENT = 4.32E 13 4.25E 13 3.87E 13 2.72E 13 1.76E 13 1.43E 13 1.24E 13 1.06E 13 7.66E 12 9.93E 12 2.42E 13 3.49E 13
PEAK ELECTRON DENSITY = 1.54E 06 1.48E 06 1.43E 06 1.21E 06 8.32E 05 7.01E 05 6.26E 05 5.25E 05 3.46E 05 4.71E 05 1.06E 06 1.32E 06
HEIGHT OF PEAK = 326.02 330.85 314.76 316.37 329.99 327.33 318.54 310.50 324.83 311.17 280.04 316.69
ESPROB PERCENT = 81.89 81.63 76.61 68.18 58.60 50.44 45.88 46.15 51.17 59.59 69.17 77.33
AVNES/1000. CM-3 = 201.43 171.72 137.67 104.31 75.57 53.61 38.86 30.64 28.03 104.31 228.97 221.75
SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00

LATITUDE = 0.0

S 10.7

= 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	103.72	87.41	47.67	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	149.08	130.68	73.39	1.48	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49
140.00	175.32	156.82	98.51	1.87	1.88	1.89	1.91	1.92	1.94	1.95	103.71	159.67
150.00	190.47	173.51	116.30	2.14	2.15	2.16	2.17	2.18	2.19	2.19	125.93	177.73
160.00	197.05	183.19	130.20	2.20	2.20	2.19	2.18	2.17	2.16	2.15	146.73	188.44
170.00	198.79	188.12	141.57	2.12	2.10	2.07	2.04	2.01	1.99	1.98	169.24	195.30
180.00	199.66	191.30	151.36	1.97	1.93	1.89	1.84	1.80	1.76	1.75	198.24	202.78
190.00	202.76	195.48	161.18	1.80	1.74	1.68	1.62	1.58	1.54	1.53	239.63	214.83
200.00	210.37	202.88	173.04	1.62	1.55	1.48	1.42	1.37	28.21	8.87	298.04	234.55
210.00	224.22	215.27	188.99	1.46	1.37	1.30	1.24	4.06	71.71	35.80	411.97	264.11
220.00	245.57	234.03	210.88	1.30	1.21	1.14	1.07	27.14	128.45	88.83	575.13	304.72
230.00	275.20	260.12	240.14	1.17	1.07	1.00	2.77	94.14	182.43	158.76	712.04	366.58
240.00	313.46	294.10	277.68	1.04	0.95	0.87	22.67	210.11	222.13	227.39	844.07	457.46
250.00	361.22	336.23	323.99	0.93	0.84	1.01	91.86	348.72	244.16	280.45	956.16	556.09
260.00	445.12	393.69	379.39	0.84	0.74	10.55	230.84	474.18	250.74	312.61	1038.21	664.92
270.00	530.44	479.16	444.31	1.06	0.66	52.27	419.08	563.84	246.21	325.40	1086.59	775.61
280.00	625.62	567.64	559.89	8.24	0.59	154.74	609.71	612.51	234.63	323.45	1103.03	878.38
290.00	725.52	666.07	669.60	37.09	1.02	320.29	762.78	626.04	219.21	311.61	1092.55	964.90
300.00	822.92	769.42	793.30	111.66	9.13	516.83	860.91	614.14	202.13	293.93	1061.40	1029.83
320.00	983.35	962.99	1060.44	444.91	128.28	843.18	908.18	548.83	168.00	251.73	960.84	1089.87
340.00	1072.51	1100.34	1290.94	899.05	465.42	971.17	836.26	465.54	137.62	209.96	839.32	1070.55
360.00	1088.56	1161.94	1430.46	1245.37	838.03	944.20	722.76	385.79	112.21	173.18	718.69	1000.03
380.00	1049.15	1155.56	1469.02	1397.53	1048.84	845.22	606.65	316.53	91.53	142.30	608.95	904.37
400.00	975.91	1101.11	1427.32	1394.26	1086.32	726.89	502.52	258.74	74.93	116.94	513.37	801.50
420.00	886.64	1018.87	1334.64	1302.52	1019.53	613.24	413.97	211.34	61.72	96.33	431.96	701.70
440.00	793.35	924.46	1216.37	1172.96	908.98	512.81	340.39	172.78	51.29	79.69	363.41	609.99
460.00	703.08	828.13	1090.19	1034.99	789.16	427.24	279.90	141.52	43.12	66.34	306.00	528.24
480.00	619.46	735.84	966.75	903.14	675.95	355.58	230.40	116.23	36.80	55.67	258.02	456.64
500.00	543.97	650.59	851.67	783.43	575.15	296.05	189.98	95.81	31.99	47.23	217.95	394.55
550.00	391.08	473.70	612.30	543.98	380.84	188.54	118.69	60.57	24.68	33.39	144.27	274.48
600.00	281.74	344.43	438.60	377.77	253.01	122.26	76.29	40.66	21.48	26.47	97.16	192.54
650.00	204.59	251.95	315.72	264.20	170.22	81.96	51.70	30.08	20.20	23.34	67.18	136.78
700.00	150.39	186.20	229.35	186.94	117.08	58.20	38.20	24.96	19.72	22.02	48.48	98.95
750.00	112.49	139.66	168.82	134.69	83.58	44.99	31.37	22.71	19.53	21.49	37.30	73.55
800.00	86.29	106.98	126.64	99.78	63.19	38.18	28.22	21.77	19.46	21.28	31.03	56.88
850.00	68.54	84.38	97.60	77.02	51.43	34.94	26.85	21.40	19.43	21.20	27.76	46.32
900.00	56.87	69.14	78.04	62.72	45.07	33.46	26.27	21.25	19.42	21.17	26.15	39.95
950.00	49.49	59.19	65.29	54.15	41.82	32.81	26.03	21.18	19.42	21.15	25.38	36.29
1000.00	45.00	52.93	57.28	49.25	40.22	32.52	25.93	21.16	19.42	21.15	25.02	34.26
1050.00	42.36	49.12	52.44	46.55	39.45	32.39	25.88	21.15	19.42	21.14	24.85	33.17
1100.00	40.85	46.86	49.60	45.09	39.07	32.33	25.87	21.14	19.42	21.14	24.77	32.59
1150.00	39.98	45.55	47.97	44.32	38.89	32.31	25.86	21.14	19.42	21.14	24.73	32.28
1200.00	39.50	44.79	47.04	43.91	38.81	32.30	25.85	21.14	19.42	21.14	24.71	32.11
1250.00	39.22	44.35	46.51	43.69	38.76	32.29	25.85	21.14	19.42	21.14	24.71	32.02

ELECTRON CONTENT	=	3.31E 13	3.64E 13	4.34E 13	3.30E 13	2.33E 13	1.91E 13	1.68E 13	1.15E 13	5.36E 12	6.82E 12	2.49E 13	2.99E 13
PEAK ELECTRON DENSITY	=	1.09E 06	1.17E 06	1.47E 06	1.41E 06	1.09E 06	9.75E 05	9.11E 05	6.26E 05	2.51E 05	3.26E 05	1.10E 06	1.09E 06
HEIGHT OF PEAK	=	354.74	367.56	378.44	388.97	395.19	344.91	315.54	289.66	260.21	273.25	280.74	324.15
ESPROR PERCENT	=	53.18	58.16	56.92	49.79	38.70	26.59	16.73	11.76	13.00	20.12	31.22	43.32
AVNES/1000. CM-3	=	159.51	141.21	119.73	97.99	78.43	62.65	51.38	44.74	42.56	97.99	176.21	171.85
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -180.00 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY METERS -3 X10-9				(CM. -3 X10-3)									
120.00	95.48	80.19	44.68	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	44.67	80.15	
130.00	140.71	122.74	66.95	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	68.43	123.34	
140.00	168.70	150.56	92.22	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	95.67	151.23	
150.00	187.81	170.98	111.76	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	115.91	169.94	
160.00	200.86	187.26	129.29	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.15	132.89	181.95	
170.00	211.52	201.88	147.30	2.12	2.10	2.07	2.04	2.01	1.99	1.98	1.98	148.55	190.22	
180.00	224.08	218.26	167.78	1.97	1.93	1.89	1.84	1.80	1.76	1.75	1.75	165.73	198.97	
190.00	242.34	239.92	193.45	1.80	1.74	1.68	1.62	1.58	1.54	1.53	1.53	188.78	212.13	
200.00	269.24	269.79	227.46	1.62	1.55	1.48	1.42	1.37	1.33	1.32	1.32	222.10	232.90	
210.00	306.67	309.90	272.49	1.46	1.37	1.30	1.24	1.21	1.15	1.14	1.14	268.85	263.53	
220.00	355.54	361.29	330.16	1.30	1.21	1.14	7.55	14.67	1.00	0.99	0.99	364.54	305.28	
230.00	416.12	424.33	401.15	2.82	1.07	6.65	42.17	55.99	0.86	3.13	469.61	358.62		
240.00	488.53	499.18	485.76	18.04	0.95	38.77	131.01	133.32	5.57	15.42	586.30	423.74		
250.00	573.12	586.20	603.12	69.59	2.15	127.36	273.67	231.18	21.12	44.54	703.55	536.64		
260.00	725.56	729.23	760.52	184.78	16.37	281.47	436.84	323.88	50.30	89.30	808.19	651.77		
270.00	866.04	878.38	931.39	372.57	67.85	473.10	580.98	393.03	87.54	139.52	889.98	782.16		
280.00	1023.96	1040.41	1117.63	613.14	182.43	658.07	682.62	432.91	123.25	183.71	943.83	921.38		
290.00	1191.92	1219.58	1307.34	868.51	360.43	802.98	737.26	446.69	150.32	215.11	969.53	1057.97		
300.00	1357.94	1405.73	1486.42	1101.19	571.65	894.84	751.96	441.12	166.37	232.41	970.33	1180.37		
320.00	1637.66	1748.26	1765.67	1414.24	939.80	938.22	704.85	397.37	171.02	234.00	917.20	1350.85		
340.00	1800.15	1984.25	1902.82	1511.53	1111.99	868.26	613.18	338.50	155.46	211.75	823.49	1407.57		
360.00	1837.65	2083.26	1906.29	1460.75	1112.16	756.76	515.50	281.29	133.65	182.29	717.47	1370.63		
380.00	1778.02	2062.23	1814.85	1335.80	1020.72	641.02	426.80	231.35	112.23	153.48	614.68	1275.02		
400.00	1657.90	1957.88	1669.69	1185.17	896.56	535.83	351.13	189.62	93.53	128.11	521.99	1151.45		
420.00	1508.22	1806.37	1502.25	1034.44	770.20	445.34	288.30	155.44	78.01	106.77	441.44	1020.62		
440.00	1350.15	1635.05	1332.56	895.06	654.41	369.37	236.76	127.71	65.47	89.23	372.78	894.35		
460.00	1196.34	1461.60	1171.71	771.03	553.18	306.34	194.72	105.35	55.51	75.01	314.85	778.46		
480.00	1053.37	1296.18	1024.93	662.84	466.64	254.33	160.54	87.40	47.72	63.60	266.20	675.04		
500.00	924.02	1143.84	893.97	569.45	393.49	211.53	132.81	73.08	41.73	54.54	225.42	584.28		
550.00	661.58	828.66	632.69	390.19	257.89	135.13	84.60	49.12	32.49	39.68	150.18	406.74		
600.00	473.64	598.77	448.85	269.13	171.04	88.96	56.99	36.62	28.34	32.25	101.91	284.47		
650.00	340.80	434.25	320.58	187.61	115.82	61.83	42.06	30.70	26.63	28.87	71.15	200.68		
700.00	247.02	316.88	231.04	132.91	81.28	46.73	34.68	28.15	25.95	27.43	51.98	143.28		
750.00	180.77	233.06	168.45	96.57	60.38	38.97	31.35	27.11	25.68	26.84	40.55	104.08		
800.00	133.99	173.15	124.78	72.93	48.41	35.29	29.93	26.70	25.58	26.60	34.16	77.56		
850.00	101.13	130.41	94.56	58.08	41.99	33.64	29.35	26.54	25.54	26.50	30.83	59.99		
900.00	78.32	100.10	73.98	49.19	38.76	32.92	29.11	26.47	25.52	26.46	29.18	48.72		
950.00	62.81	78.91	60.36	44.14	37.20	32.61	29.01	26.45	25.52	26.44	28.39	41.81		
1000.00	52.58	64.40	51.65	41.38	36.46	32.48	28.97	26.44	25.51	26.44	28.01	37.76		
1050.00	46.08	54.76	46.30	39.92	36.11	32.42	28.95	26.43	25.51	26.43	27.83	35.47		
1100.00	42.10	48.57	43.13	39.15	35.95	32.39	28.95	26.43	25.51	26.43	27.75	34.21		
1150.00	39.73	44.73	41.30	38.75	35.87	32.38	28.94	26.43	25.51	26.43	27.71	33.53		
1200.00	38.35	42.40	40.26	38.54	35.83	32.37	28.94	26.43	25.51	26.43	27.69	33.16		
1250.00	37.55	41.02	39.67	38.43	35.82	32.37	28.94	26.43	25.51	26.43	27.68	32.96		

ELECTRON CONTENT = 5.33E 13 6.19E 13 5.31E 13 3.41E 13 2.34E 13 1.83E 13 1.43E 13 9.04E 12 4.71E 12 5.90E 12 2.30E 13 3.84E 13
 PEAK ELECTRON DENSITY = 1.84E 06 2.09E 06 1.92E 06 1.51E 06 1.13E 06 9.42E 05 7.52E 05 4.47E 05 1.73E 05 2.38E 05 9.73E 05 1.41E 06
 HEIGHT OF PEAK = 356.59 365.76 350.29 341.29 349.46 315.37 299.43 291.52 312.48 310.18 295.25 340.92
 ESPROB PERCENT = 78.65 79.79 74.96 65.45 53.80 43.14 36.32 35.18 40.01 49.52 61.17 71.83
 AVN/1000. CM-3 = 186.65 158.63 126.58 95.27 68.40 47.97 34.33 26.78 24.39 95.27 212.66 205.83
 SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00

LATITUDE = 40.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	73.70	62.05	38.56	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	38.56	62.03
130.00	115.54	99.06	50.79	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	51.95	99.76
140.00	145.24	127.86	73.42	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	1.95	1.95	1.95	76.92	128.89
150.00	169.32	151.48	93.27	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	2.19	2.19	2.19	97.32	151.61
160.00	192.12	174.98	112.34	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.15	2.15	2.15	2.15	116.01	172.29
170.00	217.23	201.52	134.43	2.12	2.10	2.07	2.04	2.01	1.99	1.98	1.98	1.98	1.98	1.98	136.27	193.99
180.00	249.42	235.04	163.02	1.97	1.93	1.89	1.84	1.80	1.76	1.75	1.75	1.75	1.75	1.75	161.51	221.36
190.00	293.24	279.75	202.10	1.80	1.74	1.68	1.62	1.58	1.54	1.53	1.53	1.53	1.53	1.53	196.67	259.32
200.00	351.70	338.72	255.73	10.94	1.55	1.48	1.42	1.37	1.33	1.32	1.32	1.32	1.32	1.32	246.71	311.54
210.00	480.50	480.46	422.66	40.19	1.37	1.30	1.24	1.19	1.15	1.14	1.14	1.14	1.14	1.14	369.83	426.26
220.00	645.84	657.57	619.12	101.71	2.05	1.14	1.07	1.03	1.00	1.00	1.00	1.00	1.00	1.00	501.19	575.97
230.00	757.20	768.45	716.30	196.15	12.14	1.00	0.93	0.89	0.86	0.84	0.84	0.84	0.84	0.84	563.56	677.81
240.00	859.85	871.52	802.13	310.22	41.66	0.87	0.81	0.78	0.75	0.75	0.75	0.75	0.75	0.75	606.76	768.62
250.00	946.00	959.32	870.66	424.46	97.07	0.77	0.71	0.68	1.36	71.61	629.56	840.96	840.96	840.96	840.96	840.96
260.00	1010.76	1026.94	918.81	522.44	172.11	2.43	1.29	4.97	8.32	124.16	633.85	890.94	890.94	890.94	890.94	890.94
270.00	1052.40	1072.37	946.25	595.12	251.56	12.77	8.38	20.81	27.62	175.39	623.21	918.10	918.10	918.10	918.10	918.10
280.00	1071.79	1096.06	954.63	640.57	320.69	39.38	29.27	53.46	60.46	215.36	601.60	924.47	924.47	924.47	924.47	924.47
290.00	1071.56	1100.19	946.83	661.47	371.07	83.88	66.98	98.54	99.77	240.25	572.71	913.53	913.53	913.53	913.53	913.53
300.00	1055.16	1087.88	926.13	662.64	400.88	138.09	114.68	144.87	135.85	250.94	539.57	889.17	889.17	889.17	889.17	889.17
320.00	988.24	1027.44	858.72	625.82	410.11	230.77	196.99	207.10	177.41	242.88	469.05	814.69	814.69	814.69	814.69	814.69
340.00	896.32	939.26	773.72	562.89	379.45	268.99	229.29	219.84	180.38	215.56	401.27	724.65	724.65	724.65	724.65	724.65
360.00	796.89	841.09	685.03	493.29	333.80	263.30	222.35	203.50	163.62	183.82	340.79	633.45	633.45	633.45	633.45	633.45
380.00	700.04	743.67	600.30	426.45	286.41	236.80	197.89	176.77	140.88	154.07	288.71	548.38	548.38	548.38	548.38	548.38
400.00	610.77	652.64	523.08	366.13	242.85	204.46	169.26	149.28	118.67	128.36	244.63	472.38	472.38	472.38	472.38	472.38
420.00	530.97	570.39	454.54	313.34	204.87	173.25	142.31	124.69	99.28	106.96	207.58	406.05	406.05	406.05	406.05	406.05
440.00	460.87	497.52	394.59	267.88	172.59	145.68	118.96	103.93	83.16	89.47	176.53	348.88	348.88	348.88	348.88	348.88
460.00	399.91	433.68	342.58	229.05	145.52	122.31	99.49	86.91	70.12	75.37	150.50	299.94	299.94	299.94	299.94	299.94
480.00	347.17	378.11	297.65	196.02	122.98	102.88	83.57	73.19	59.76	64.11	128.66	258.16	258.16	258.16	258.16	258.16
500.00	301.66	329.90	258.91	168.02	104.31	86.94	70.74	62.26	51.64	55.22	110.31	222.54	222.54	222.54	222.54	222.54
550.00	213.51	235.74	183.88	115.43	70.81	59.09	49.11	44.30	38.78	40.81	76.27	154.76	154.76	154.76	154.76	154.76
600.00	152.63	169.95	132.03	81.09	50.80	43.40	37.76	35.31	32.73	33.76	54.39	109.13	109.13	109.13	109.13	109.13
650.00	110.47	123.86	96.11	59.07	39.49	35.22	32.36	31.24	30.14	30.61	40.75	78.44	78.44	78.44	78.44	78.44
700.00	81.30	91.53	71.30	45.42	33.55	31.32	29.99	29.54	29.09	29.29	32.74	58.01	58.01	58.01	58.01	58.01
750.00	61.30	68.96	54.38	37.37	30.64	29.57	29.01	28.84	28.67	28.75	28.42	44.76	44.76	44.76	44.76	44.76
800.00	47.85	53.43	43.12	32.90	29.29	28.81	28.60	28.57	28.51	28.53	26.28	36.53	36.53	36.53	36.53	36.53
850.00	39.11	43.00	35.92	30.53	28.67	28.49	28.44	28.46	28.44	28.44	25.28	31.71	31.71	31.71	31.71	31.71
900.00	33.68	36.25	31.55	29.32	28.40	28.35	28.37	28.41	28.42	28.40	24.83	29.04	29.04	29.04	29.04	29.04
950.00	30.47	32.08	29.02	28.71	28.27	28.29	28.34	28.39	28.41	28.39	24.63	27.62	27.62	27.62	27.62	27.62
1000.00	28.64	29.61	27.60	28.41	28.21	28.26	28.33	28.38	28.40	28.38	24.53	26.89	26.89	26.89	26.89	26.89
1050.00	27.64	28.19	26.83	28.26	28.19	28.25	28.32	28.38	28.40	28.38	24.49	26.52	26.52	26.52	26.52	26.52
1100.00	27.09	27.39	26.42	28.18	28.17	28.25	28.32	28.38	28.40	28.38	24.47	26.33	26.33	26.33	26.33	26.33
1150.00	26.79	26.95	26.20	28.15	28.17	28.24	28.32	28.38	28.40	28.38	24.46	26.23	26.23	26.23	26.23	26.23
1200.00	26.63	26.71	26.08	28.13	28.16	28.24	28.32	28.38	28.40	28.38	24.46	26.18	26.18	26.18	26.18	26.18
1250.00	26.54	26.57	26.01	28.12	28.16	28.24	28.32	28.38	28.40	28.38	24.46	26.16	26.16	26.16	26.16	26.16

ELECTRON CONTENT = 2.85E 13 2.98E 13 2.47E 13 1.53E 13 9.46E 12 6.65E 12 5.85E 12 5.66E 12 5.08E 12 6.28E 12 1.47E 13 2.33E 13
PEAK ELECTRON DENSITY = 1.07E 06 1.10E 06 9.55E 05 6.64E 05 4.13E 05 2.71E 05 2.30E 05 2.20E 05 1.83E 05 2.52E 05 6.34E 05 9.25E 05
HEIGHT OF PEAK = 284.78 287.25 279.85 295.54 312.86 345.91 344.62 336.15 331.26 304.44 257.51 278.34
ESPROB PERCENT = 75.99 74.31 66.34 54.23 41.21 30.78 25.73 27.41 35.38 47.49 60.51 70.94
AVNES/1000. CM-3 = 142.23 122.74 100.24 77.95 58.46 43.28 32.86 26.92 25.01 77.95 160.20 155.49
SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00 LATITUDE = 60.00

S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	46.06	41.27	31.30	1.70	1.70	1.70	1.70	1.70	1.70	1.70	31.29	41.27
130.00	70.68	58.60	30.73	1.48	1.48	1.48	1.48	1.49	1.49	1.49	31.03	59.28
140.00	97.21	83.06	41.75	1.87	1.88	1.89	1.91	1.92	1.94	1.95	44.57	84.60
150.00	117.76	103.02	56.93	2.14	2.15	2.16	2.17	2.18	2.19	2.19	61.37	104.05
160.00	136.64	121.67	71.09	2.20	2.20	2.19	2.18	2.17	2.16	2.15	75.24	120.65
170.00	156.44	142.19	85.31	2.12	2.10	2.07	2.04	2.01	1.99	1.98	87.62	136.67
180.00	179.74	167.23	102.04	1.97	1.93	1.89	1.84	1.80	1.76	1.75	100.08	154.03
190.00	210.01	200.00	123.92	1.80	1.74	1.68	1.62	1.58	1.54	1.53	114.06	175.70
200.00	250.67	243.89	154.09	9.04	1.55	1.48	1.42	1.37	1.33	1.32	131.93	205.12
210.00	358.38	371.15	274.11	30.13	1.37	1.30	1.24	1.19	1.15	1.14	179.25	281.01
220.00	473.77	502.18	408.87	70.93	3.10	1.14	1.07	1.03	1.00	2.43	235.15	365.00
230.00	526.19	554.39	459.24	129.69	13.76	1.00	0.93	0.89	0.86	11.72	261.86	405.00
240.00	566.50	594.45	499.77	197.19	38.46	0.87	0.81	0.78	0.75	33.19	279.87	434.11
250.00	593.28	621.11	528.53	262.07	77.45	0.77	0.71	0.68	2.10	65.44	288.96	451.56
260.00	606.81	634.70	545.24	315.69	123.76	0.67	0.62	0.59	9.59	100.81	290.16	458.07
270.00	608.53	636.62	550.83	353.92	167.95	1.82	0.55	1.29	26.04	131.23	285.11	455.31
280.00	600.51	628.85	546.97	376.46	203.04	8.95	3.21	6.97	49.70	152.26	275.57	445.30
290.00	584.97	613.51	535.59	385.33	226.19	26.47	13.26	21.41	74.66	163.30	263.12	430.02
300.00	563.98	592.61	518.61	383.49	237.81	54.88	34.18	44.75	95.32	165.96	249.03	411.23
320.00	512.59	540.89	474.40	359.10	235.28	120.85	94.84	96.30	115.51	155.31	219.39	368.52
340.00	456.83	484.15	424.62	321.44	213.90	161.52	139.10	124.22	113.20	135.32	191.12	324.85
360.00	402.65	428.46	375.32	280.93	186.43	169.14	150.67	125.98	100.54	114.06	165.94	284.05
380.00	352.85	376.86	329.52	242.48	159.14	157.24	141.30	114.12	85.34	94.69	144.18	247.57
400.00	308.45	330.52	288.42	208.00	134.54	137.91	123.72	98.03	70.95	78.11	125.59	215.67
420.00	269.49	289.61	252.20	177.93	113.28	117.60	104.87	82.16	58.45	64.27	109.75	184.08
440.00	235.58	253.83	220.61	152.09	95.30	98.98	87.59	68.10	47.98	52.86	96.22	164.31
460.00	206.18	222.68	193.18	130.06	80.26	82.86	72.68	56.19	39.35	43.50	84.61	143.83
480.00	180.71	195.60	169.39	111.35	67.74	69.25	60.18	46.30	32.28	35.85	74.60	126.16
500.00	158.64	172.07	148.78	95.50	57.37	57.93	49.84	38.15	26.52	29.59	65.94	110.89
550.00	115.35	125.73	108.36	65.83	38.77	37.57	31.37	23.67	16.34	18.51	48.83	80.95
600.00	84.67	92.76	79.78	46.57	27.61	25.28	20.25	14.94	10.25	11.85	36.50	59.68
650.00	62.75	69.13	59.45	34.36	21.26	18.15	13.72	9.73	6.65	7.94	27.49	44.38
700.00	46.99	52.12	44.97	26.92	17.90	14.28	10.07	6.72	4.58	5.73	20.84	33.30
750.00	35.68	39.92	34.76	22.62	16.25	12.34	8.19	5.08	3.47	4.57	15.91	25.27
800.00	27.64	31.27	27.71	20.29	15.48	11.43	7.29	4.25	2.92	4.02	12.27	19.50
850.00	22.03	25.29	23.03	19.07	15.13	11.03	6.90	3.87	2.67	3.77	9.62	15.42
900.00	18.27	21.31	20.07	18.46	14.97	10.85	6.73	3.71	2.56	3.67	7.74	12.65
950.00	15.86	18.78	18.31	18.15	14.89	10.78	6.65	3.64	2.52	3.62	6.48	10.87
1000.00	14.41	17.27	17.30	18.00	14.86	10.74	6.62	3.61	2.50	3.60	5.70	9.81
1050.00	13.58	16.39	16.75	17.93	14.85	10.73	6.61	3.60	2.49	3.59	5.26	9.21
1100.00	13.12	15.90	16.45	17.89	14.84	10.72	6.61	3.59	2.49	3.59	5.03	8.89
1150.00	12.86	15.63	16.29	17.87	14.84	10.72	6.60	3.59	2.49	3.59	4.92	8.72
1200.00	12.73	15.49	16.21	17.86	14.84	10.72	6.60	3.59	2.48	3.59	4.87	8.64
1250.00	12.65	15.40	16.16	17.85	14.83	10.72	6.60	3.59	2.48	3.59	4.84	8.59

ELECTRON CONTENT	=	1.60E 13	1.69E 13	1.44E 13	8.96E 12	5.39E 12	3.68E 12	2.98E 12	2.37E 12	2.08E 12	3.01E 12	7.14E 12	1.17E 13
PEAK ELECTRON DENSITY	=	6.09E 05	6.37E 05	5.51E 05	3.86E 05	2.40E 05	1.70E 05	1.51E 05	1.28E 05	1.17E 05	1.66E 05	2.91E 05	4.58E 05
HEIGHT OF PEAK	=	266.53	266.74	270.58	292.91	307.62	355.54	358.61	351.18	326.64	298.78	256.61	261.70
ESPROB PERCENT	=	51.49	49.93	43.21	33.12	22.37	13.84	9.82	11.38	18.10	28.19	38.94	47.47
AVNES/1000. CM-3	=	65.89	58.71	50.25	41.65	33.85	27.51	22.94	20.23	19.34	41.65	72.42	70.72
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -270.00 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.99	33.43	44.03	49.39	44.04	33.44	1.99	1.70	1.70	1.70	1.70	1.70
130.00	6.95	36.24	66.36	77.56	65.57	35.64	6.73	1.48	1.48	1.48	1.49	1.49
140.00	9.10	54.18	92.51	104.09	90.73	50.93	8.94	1.88	1.89	1.91	1.92	1.94
150.00	8.90	72.02	111.83	123.44	109.97	67.45	9.12	2.15	2.16	2.17	2.18	2.19
160.00	8.04	86.28	127.80	139.56	126.83	81.80	8.53	2.20	2.19	2.18	2.17	2.16
170.00	7.57	99.01	142.21	154.14	143.62	95.87	7.89	2.10	2.07	2.04	2.01	1.99
180.00	8.09	111.50	156.88	169.02	162.09	111.71	7.61	1.93	1.89	1.84	1.80	1.76
190.00	10.03	125.38	174.69	186.93	184.66	131.28	7.98	1.74	1.68	1.62	1.58	1.54
200.00	13.14	143.36	198.89	210.75	214.13	156.98	9.40	1.55	1.48	1.42	1.37	1.33
210.00	16.84	189.47	259.18	270.74	295.59	248.37	73.03	1.37	1.30	1.24	1.19	1.15
220.00	45.62	247.47	330.89	343.40	386.00	356.87	170.16	2.71	1.14	1.07	1.03	1.00
230.00	66.84	278.08	368.70	382.38	427.23	404.16	210.94	12.26	1.00	0.93	0.89	0.86
240.00	86.92	299.63	396.81	412.86	459.36	443.44	253.40	34.69	0.87	0.81	0.78	0.75
250.00	108.27	311.49	414.29	433.66	481.28	472.54	293.51	70.48	0.77	0.71	0.68	1.70
260.00	128.16	314.52	421.66	444.86	493.11	490.82	327.58	113.32	0.67	0.62	0.59	7.88
270.00	144.06	310.39	420.34	447.42	495.87	498.83	353.15	154.47	1.95	0.55	1.10	21.58
280.00	154.55	301.01	412.14	442.79	491.03	497.92	369.30	187.35	8.71	2.91	5.56	41.42
290.00	159.51	288.12	398.90	432.54	480.18	489.76	376.35	209.19	24.06	10.98	16.34	62.46
300.00	159.65	273.16	382.24	418.21	464.91	476.08	375.50	220.29	47.54	26.57	33.08	79.96
320.00	150.05	241.09	343.76	382.33	426.31	438.28	356.24	218.41	98.83	68.44	68.63	97.20
340.00	134.06	210.11	304.00	342.87	383.43	394.29	323.50	198.83	128.37	96.84	86.98	95.41
360.00	116.97	182.32	266.64	304.27	341.07	350.02	286.08	173.46	132.56	103.09	87.50	84.83
380.00	101.16	158.23	233.12	268.63	301.65	308.52	249.14	148.22	122.45	95.93	78.98	72.06
400.00	87.40	137.63	203.75	236.74	266.12	271.06	215.16	125.43	107.12	83.74	67.76	59.96
420.00	75.70	120.08	178.29	208.64	234.67	237.93	185.06	105.76	91.33	70.95	56.81	49.46
440.00	65.81	105.09	156.30	184.08	207.07	208.93	158.94	89.14	76.98	59.34	47.15	40.67
460.00	57.45	92.25	137.33	162.67	182.94	183.67	136.52	75.26	64.62	49.39	39.00	33.44
480.00	50.34	81.20	120.92	144.02	161.89	161.72	117.41	63.74	54.27	41.10	32.26	27.53
500.00	44.26	71.64	106.69	127.75	143.50	142.64	101.16	54.24	45.70	34.28	26.74	22.73
550.00	32.45	52.84	78.68	95.42	106.95	105.03	70.53	37.36	30.55	22.34	17.06	14.37
600.00	24.08	39.35	58.61	72.01	80.55	78.22	50.38	27.48	21.79	15.51	11.47	9.55
650.00	18.03	29.54	44.07	54.88	61.32	58.99	37.32	22.07	17.07	11.36	8.42	6.93
700.00	13.61	22.36	33.46	42.28	47.26	45.18	29.15	19.32	14.72	10.08	6.89	5.61
750.00	10.38	17.09	25.74	33.01	37.03	35.38	24.29	18.02	13.65	9.28	6.19	5.01
800.00	8.04	13.28	20.18	26.29	29.71	28.59	21.57	17.42	13.17	8.94	5.99	4.75
850.00	6.39	10.58	16.28	21.53	24.63	24.07	20.13	17.15	12.97	8.80	5.77	4.65
900.00	5.31	8.78	13.68	18.31	21.25	21.22	19.39	17.03	12.88	8.74	5.72	4.61
950.00	4.67	7.66	12.05	16.24	19.13	19.53	19.02	16.98	12.84	8.71	5.69	4.59
1000.00	4.33	7.03	11.10	15.00	17.86	18.57	18.84	16.95	12.83	8.70	5.69	4.58
1050.00	4.17	6.71	10.58	14.28	17.13	18.04	18.74	16.94	12.82	8.70	5.68	4.58
1100.00	4.09	6.55	10.30	13.88	16.73	17.75	18.70	16.93	12.81	8.70	5.68	4.58
1150.00	4.06	6.47	10.16	13.67	16.51	17.60	18.67	16.93	12.81	8.69	5.68	4.58
1200.00	4.04	6.44	10.08	13.55	16.39	17.52	18.66	16.93	12.81	8.69	5.68	4.58
1250.00	4.03	6.42	10.05	13.49	16.32	17.47	18.66	16.93	12.81	8.69	5.68	4.58

ELECTRON CONTENT	=	3.80E 12	7.82E 12	1.12E 13	1.27E 13	1.40E 13	1.36E 13	9.53E 12	5.23E 12	3.21E 12	2.34E 12	1.87E 12	1.92E 12
PEAK ELECTRON DENSITY	=	1.60E 05	3.15E 05	4.22E 05	4.48E 05	4.96E 05	4.99E 05	3.77E 05	2.23E 05	1.33E 05	1.03E 05	8.89E 04	9.82E 04
HEIGHT OF PEAK	=	295.23	258.82	263.25	268.23	268.31	273.80	293.70	307.96	353.77	356.84	350.11	326.85
ESPROB PERCENT	=	28.74	40.52	49.92	54.41	52.79	45.50	34.49	22.71	13.32	8.83	10.44	17.73
AVNES/1000. CM-3	=	40.21	75.10	73.14	67.60	59.41	49.84	40.21	31.61	24.74	19.89	17.06	16.13
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -270.00 LATITUDE = -40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	40.33	65.31	77.21	65.32	40.33	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	57.15	104.35	119.50	103.49	55.85	1.48	1.48	1.48	1.48	1.49	1.49	1.49
140.00	1.95	82.91	132.95	147.69	131.27	79.36	1.87	1.88	1.89	1.91	1.92	1.94	1.94
150.00	2.19	102.95	154.16	168.29	152.38	98.48	2.14	2.15	2.16	2.17	2.18	2.19	2.19
160.00	2.15	120.18	171.62	184.51	170.89	115.66	2.20	2.20	2.19	2.18	2.17	2.16	2.16
170.00	1.98	137.04	187.88	199.02	188.96	133.78	2.12	2.10	2.07	2.04	2.01	1.99	1.99
180.00	1.75	156.09	207.05	215.64	209.61	155.00	1.97	1.93	1.89	1.84	1.80	1.76	1.76
190.00	1.53	181.41	233.61	238.20	236.31	182.00	2.63	1.74	1.68	1.62	1.58	1.54	1.54
200.00	1.32	217.49	271.20	269.84	272.15	217.99	12.96	1.55	1.48	1.42	1.37	1.33	1.33
210.00	1.14	302.32	357.21	343.44	360.59	325.31	40.51	1.37	1.30	1.24	1.19	1.15	1.15
220.00	3.50	386.93	455.10	431.95	460.61	446.37	91.03	2.89	1.14	1.07	1.03	1.00	1.00
230.00	14.56	424.40	508.13	482.37	511.73	501.05	160.80	13.40	1.00	0.93	0.89	0.86	0.86
240.00	37.27	447.22	547.63	522.09	552.07	544.95	238.35	38.60	0.87	0.81	0.78	0.75	0.75
250.00	68.53	455.95	572.21	549.47	580.09	576.01	310.87	79.44	0.77	0.71	0.68	0.79	0.79
260.00	100.62	452.80	582.53	564.48	595.78	593.95	369.30	128.93	0.67	0.62	0.59	4.67	4.67
270.00	126.69	440.63	580.56	568.30	600.24	599.83	409.77	176.92	1.45	0.55	1.64	15.16	15.16
280.00	143.64	422.25	568.84	562.74	595.22	595.45	432.54	215.58	7.52	3.00	8.20	32.68	32.68
290.00	151.61	400.06	549.92	549.82	582.66	582.94	440.22	241.53	23.01	12.28	23.92	53.36	53.36
300.00	152.44	375.90	526.14	531.49	564.48	564.36	436.29	254.96	48.85	31.48	48.22	72.14	72.14
320.00	141.13	326.67	471.16	485.22	517.77	516.16	406.32	253.59	110.65	86.75	99.51	93.44	93.44
340.00	122.64	280.75	414.30	434.07	465.32	461.98	362.63	231.31	149.99	126.81	125.81	94.74	94.74
360.00	103.63	240.34	360.87	383.88	413.24	408.38	316.43	202.08	158.22	137.16	126.57	86.05	86.05
380.00	86.62	205.72	313.00	337.49	364.65	358.61	272.92	172.89	147.93	128.92	114.58	74.38	74.38
400.00	72.27	176.39	271.14	295.97	320.81	313.96	234.07	146.53	130.39	113.35	98.80	63.07	63.07
420.00	60.51	151.61	234.98	259.44	281.99	274.62	200.28	123.77	111.82	96.71	83.46	53.27	53.27
440.00	51.04	130.67	203.92	227.57	247.96	240.31	171.30	104.58	94.81	81.56	70.05	45.22	45.22
460.00	43.51	112.92	177.28	199.88	218.25	210.52	146.63	88.58	80.15	68.63	58.88	38.81	38.81
480.00	37.60	97.85	154.42	175.85	192.38	184.70	125.73	75.37	67.91	57.97	49.81	33.82	33.82
500.00	33.03	85.01	134.78	154.98	169.85	162.33	108.07	64.51	57.88	49.35	42.58	30.00	30.00
550.00	25.91	60.48	96.79	113.92	125.33	118.47	75.19	45.48	40.55	34.87	30.71	24.22	24.22
600.00	22.64	43.87	70.46	84.72	93.52	87.53	54.16	34.65	31.10	27.37	24.83	21.69	21.69
650.00	21.26	32.76	52.16	63.82	70.64	65.60	41.13	28.94	26.37	23.85	22.18	20.65	20.65
700.00	20.70	25.61	39.57	48.90	54.21	50.14	33.46	26.14	24.19	22.33	21.07	20.25	20.25
750.00	20.47	21.34	31.14	38.37	42.51	39.40	29.20	24.85	23.23	21.69	20.62	20.09	20.09
800.00	20.38	19.02	25.76	31.16	34.39	32.18	26.97	24.26	22.83	21.43	20.44	20.02	20.02
850.00	20.35	17.87	22.54	26.43	28.95	27.56	25.83	24.00	22.65	21.33	20.37	20.00	20.00
900.00	20.33	17.33	20.75	23.50	25.50	24.77	25.27	23.89	22.58	21.28	20.34	19.99	19.99
950.00	20.33	17.09	19.80	21.79	23.42	23.16	24.99	23.83	22.54	21.26	20.33	19.98	19.98
1000.00	20.32	16.98	19.31	20.83	22.22	22.28	24.86	23.81	22.53	21.26	20.32	19.98	19.98
1050.00	20.32	16.92	19.07	20.31	21.55	21.80	24.79	23.80	22.52	21.25	20.32	19.98	19.98
1100.00	20.32	16.90	18.94	20.03	21.18	21.54	24.75	23.79	22.52	21.25	20.32	19.98	19.98
1150.00	20.32	16.89	18.88	19.89	20.98	21.41	24.74	23.79	22.52	21.25	20.32	19.98	19.98
1200.00	20.32	16.89	18.85	19.81	20.87	21.33	24.73	23.79	22.52	21.25	20.32	19.98	19.98
1250.00	20.32	16.88	18.83	19.76	20.81	21.30	24.72	23.79	22.52	21.25	20.32	19.98	19.98

ELECTRON CONTENT = 4.07E 12 1.09E 13 1.52E 13 1.60E 13 1.70E 13 1.62E 13 1.05E 13 6.37E 12 4.35E 12 3.82E 12 3.60E 12 3.09E 12
 PEAK ELECTRON DENSITY = 1.53E 05 4.56E 05 5.83E 05 5.68E 05 6.00E 05 6.00E 05 4.40E 05 2.58E 05 1.58E 05 1.37E 05 1.29E 05 9.59E 04
 HEIGHT OF PEAK = 296.13 252.00 263.16 268.73 269.37 270.39 291.10 308.46 356.37 358.45 349.96 330.79
 ESPR0B PERCENT = 40.78 53.70 63.88 68.60 66.61 58.42 46.24 33.33 23.14 18.42 20.42 28.60
 AVNES/1000. CM-3 = 66.74 129.09 125.56 115.60 100.91 83.83 66.74 51.59 39.60 31.21 26.35 24.77
 SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

MONTH = 3

ALTITUDE	ELECTRON DENSITY	METERS -3 X10-9	(CM. -3 X10-3)
120.00	1.70 45.89	82.11 97.53	82.18 45.91
130.00	1.49 71.33	126.17 143.78	125.81 69.90
140.00	1.95 99.32	155.59 174.08	155.71 96.26
150.00	2.19 121.01	177.52 197.80	180.37 117.85
160.00	2.15 140.96	195.25 218.73	204.01 139.39
170.00	1.98 162.07	212.78 241.66	230.36 164.45
180.00	1.75 188.61	235.39 272.01	264.08 196.50
190.00	1.53 226.15	267.98 314.28	309.41 239.71
200.00	1.32 279.43	313.95 371.13	369.13 297.80
210.00	1.14 401.14	402.87 480.85	493.75 453.66
220.00	1.43 540.50	533.41 634.28	661.18 646.41
230.00	9.51 617.10	640.80 757.11	785.79 759.45
240.00	33.73 673.61	743.11 877.02	907.94 864.16
250.00	77.65 707.16	831.08 984.33	1018.30 952.45
260.00	133.16 718.82	898.31 1071.59	1109.49 1019.19
270.00	186.67 712.14	942.12 1134.64	1177.19 1062.47
280.00	228.01 691.48	962.99 1172.60	1220.13 1093.07
290.00	253.42 661.18	963.59 1187.09	1239.51 1083.59
300.00	264.03 624.90	947.63 1181.28	1238.15 1067.55
320.00	254.78 545.19	881.61 1124.16	1187.68 1000.42
340.00	225.77 466.85	791.95 1030.59	1097.24 907.53
360.00	192.39 396.18	696.61 922.69	989.38 806.81
380.00	161.19 335.01	605.37 814.15	878.64 708.63
400.00	134.26 283.11	522.65 712.24	773.14 618.12
420.00	111.86 239.50	449.82 620.11	676.69 537.22
440.00	93.57 202.98	386.73 538.63	590.62 466.18
460.00	78.81 172.43	332.54 467.45	514.88 404.41
480.00	67.04 146.86	286.20 405.72	448.78 351.01
500.00	57.74 125.45	246.65 352.38	391.33 304.95
550.00	42.68 85.94	171.37 248.98	279.05 215.82
600.00	35.31 60.75	120.72 177.59	200.66 154.38
650.00	32.02 45.15	86.68 128.21	145.82 111.96
700.00	30.64 36.03	64.04 94.09	107.42 82.75
750.00	30.08 31.13	49.35 70.68	80.65 62.88
800.00	29.85 28.70	40.21 54.92	62.22 49.69
850.00	29.75 27.55	34.83 44.64	49.83 41.27
900.00	29.72 27.03	31.84 38.22	41.79 36.14
950.00	29.70 26.80	30.24 34.38	36.78 33.17
1000.00	29.69 26.69	29.41 32.19	33.80 31.50
1050.00	29.69 26.64	28.99 30.97	32.08 30.59
1100.00	29.69 26.62	28.77 30.30	31.10 30.10
1150.00	29.69 26.61	28.66 29.93	30.56 29.84
1200.00	29.69 26.60	28.60 29.74	30.26 29.69
1250.00	29.69 26.60	28.57 29.63	30.09 29.62

ELECTRON CONTENT	=	6.59E 12	1.67E 13	2.49E 13	3.20E 13	3.41E 13	2.85E 13	1.80E 13	1.21E 13	9.04E 12	7.68E 12	6.58E 12	5.34E 12
PEAK ELECTRON DENSITY	=	2.65E 05	7.19E 05	9.66E 05	1.19E 06	1.24E 06	1.09E 06	7.86E 05	5.50E 05	4.03E 05	3.36E 05	2.73E 05	1.94E 05
HEIGHT OF PEAK	=	303.95	260.97	285.23	291.86	294.20	285.20	298.19	315.55	344.42	341.95	333.25	331.41
ESPROB PERCENT	=	54.51	66.16	75.57	80.21	78.83	71.81	61.02	49.36	39.96	35.32	36.70	43.72
AVNYS/1000. CM-3	=	95.28	198.40	192.48	175.82	151.36	123.15	95.28	70.98	52.12	39.22	31.90	29.56
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -270.00 LATITUDE = 0.0
S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	47.67	87.41	103.73	87.43	47.67	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	75.10	131.66	149.19	130.86	73.45	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48	1.48
140.00	1.95	102.82	158.82	175.69	157.43	98.84	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.96	1.97	1.98
150.00	2.19	122.99	175.56	191.35	174.99	117.26	2.14	2.15	2.16	2.17	2.18	2.19	2.20	2.21	2.22	2.23
160.00	2.15	139.40	184.01	198.74	186.11	132.37	2.20	2.20	2.19	2.18	2.17	2.16	2.15	2.14	2.13	2.12
170.00	1.98	153.75	187.43	201.66	193.17	145.78	2.12	2.10	2.07	2.04	2.01	1.99	1.97	1.95	1.93	1.91
180.00	1.75	169.08	190.00	204.14	199.30	158.75	1.97	1.93	1.89	1.84	1.80	1.76	1.72	1.68	1.64	1.60
190.00	1.53	189.77	195.27	209.38	207.45	173.24	1.80	1.74	1.68	1.62	1.58	1.54	1.50	1.46	1.42	1.38
200.00	1.32	220.09	205.99	219.79	220.06	191.64	1.62	1.55	1.48	1.42	1.37	1.33	1.29	1.25	1.21	1.17
210.00	1.14	263.18	224.23	237.17	239.06	216.34	1.46	1.37	1.30	1.23	1.17	1.12	1.07	1.02	0.97	0.92
220.00	2.54	320.58	251.41	262.78	265.84	249.26	1.30	1.21	1.14	1.07	1.01	0.96	0.91	0.86	0.81	0.76
230.00	15.58	425.86	288.27	297.30	301.24	291.65	1.17	1.07	1.00	0.94	0.88	0.83	0.78	0.73	0.68	0.63
240.00	52.06	542.90	335.11	341.03	345.65	344.16	1.04	0.95	0.88	0.82	0.76	0.71	0.66	0.61	0.56	0.51
250.00	115.04	669.63	392.12	394.08	399.27	407.13	0.97	0.84	0.76	0.69	0.63	0.58	0.53	0.48	0.43	0.38
260.00	191.76	792.98	481.96	456.72	462.34	480.99	0.83	0.74	0.66	0.59	0.53	0.48	0.43	0.38	0.33	0.28
270.00	263.60	899.51	584.04	541.34	535.31	566.37	0.70	0.64	0.56	0.49	0.43	0.38	0.33	0.28	0.23	0.18
280.00	317.62	979.78	699.26	656.91	648.29	719.16	0.58	0.52	0.44	0.37	0.31	0.26	0.21	0.16	0.11	0.06
290.00	349.70	1029.84	824.17	778.18	772.60	860.41	0.48	0.42	0.34	0.27	0.21	0.16	0.11	0.06	0.01	0.00
300.00	361.95	1050.56	949.12	912.88	909.28	1019.62	0.40	0.34	0.26	0.19	0.13	0.08	0.03	0.00	0.00	0.00
320.00	346.27	1021.28	1159.10	1191.52	1215.84	1362.23	0.34	0.28	0.20	0.13	0.07	0.02	0.00	0.00	0.00	0.00
340.00	305.18	933.34	1275.28	1419.04	1502.67	1656.68	0.28	0.22	0.14	0.07	0.01	0.00	0.00	0.00	0.00	0.00
360.00	258.93	822.03	1292.96	1547.80	1701.66	1833.91	0.22	0.16	0.08	0.01	0.00	0.00	0.00	0.00	0.00	0.00
380.00	215.95	708.79	1237.46	1574.20	1787.50	1881.77	0.17	0.11	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00
400.00	178.85	604.09	1139.60	1521.71	1773.29	1827.06	0.12	0.07	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
420.00	147.85	511.82	1023.69	1420.04	1688.60	1707.42	0.08	0.04	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
440.00	122.33	432.55	905.30	1294.17	1563.10	1555.31	0.06	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
460.00	101.50	365.34	793.00	1161.25	1419.61	1393.29	0.04	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
480.00	84.60	308.74	690.75	1031.65	1273.20	1234.92	0.03	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
500.00	70.94	261.23	599.84	910.82	1132.67	1087.37	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
550.00	47.58	173.36	419.79	658.65	830.53	780.57	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
600.00	34.81	116.80	294.56	474.28	604.04	557.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
650.00	28.41	80.47	208.29	342.73	440.02	400.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
700.00	25.48	57.43	148.95	249.38	322.30	289.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
750.00	24.23	43.29	108.24	183.19	237.93	211.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
800.00	23.70	35.06	80.54	136.32	177.47	156.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
850.00	23.49	30.58	62.05	103.32	134.25	117.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
900.00	23.40	28.29	50.06	80.36	103.59	90.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
950.00	23.36	27.16	42.62	64.72	82.13	72.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1000.00	23.35	26.61	38.19	54.39	67.46	61.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1050.00	23.34	26.35	35.66	47.80	57.71	53.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1100.00	23.34	26.23	34.26	43.75	51.46	49.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1150.00	23.34	26.17	33.49	41.33	47.57	46.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1200.00	23.34	26.14	33.07	39.91	45.22	44.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1250.00	23.34	26.12	32.84	39.09	43.81	44.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

ELECTRON CONTENT = 7.67E 12 2.48E 13 3.63E 13 4.73E 13 5.50E 13 5.45E 13 4.04E 13 3.25E 13 2.58E 13 1.86E 13 1.31E 13 6.91E 12
 PEAK ELECTRON DENSITY = 3.62E 05 1.05E 06 1.30E 06 1.58E 06 1.79E 06 1.88E 06 1.77E 06 1.59E 06 1.38E 06 1.03E 06 7.22E 05 3.34E 05
 HEIGHT OF PEAK = 302.67 302.91 353.82 375.63 386.51 378.17 368.74 373.42 318.68 297.53 285.70 294.21
 ESPROB PERCENT = 40.77 52.05 63.08 70.90 73.42 69.96 61.45 50.17 39.14 31.32 28.80 32.26
 AVNES/1000. CM-3 = 97.45 205.99 199.74 182.16 156.38 126.70 97.45 72.03 52.39 39.02 31.48 29.06
 SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -270.00 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.70	44.67	80.14	95.45	80.16	44.68	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	68.43	123.26	140.45	122.43	66.87	1.48	1.48	1.48	1.48	1.49	1.49
140.00	1.95	95.67	150.90	167.77	149.41	91.79	1.87	1.88	1.89	1.91	1.92	1.94
150.00	2.19	115.89	169.07	185.55	168.11	110.43	2.14	2.15	2.16	2.17	2.18	2.19
160.00	2.15	132.85	180.13	196.37	181.42	126.19	2.20	2.20	2.19	2.18	2.17	2.16
170.00	1.98	148.46	186.93	203.67	191.46	141.05	2.12	2.10	2.07	2.04	2.01	1.99
180.00	1.75	165.57	193.54	211.47	201.23	156.40	1.97	1.93	1.89	1.84	1.80	1.76
190.00	1.53	188.51	203.71	223.27	213.80	174.28	1.80	1.74	1.68	1.62	1.58	1.54
200.00	1.32	221.65	220.51	241.80	231.78	197.25	1.62	1.55	1.48	1.42	1.37	1.33
210.00	1.14	268.20	246.18	269.05	257.28	227.83	1.46	1.37	1.30	1.50	7.46	1.15
220.00	1.29	342.76	282.09	306.17	291.66	267.98	1.30	1.21	1.14	15.47	39.67	1.47
230.00	8.76	451.65	328.84	353.66	335.66	318.82	1.17	1.07	5.35	72.56	117.83	9.19
240.00	31.39	573.56	386.66	411.68	389.56	380.88	1.04	0.95	35.79	200.12	236.72	30.48
250.00	72.81	703.66	455.81	480.43	453.58	454.50	4.05	0.84	129.31	385.39	365.79	66.09
260.00	125.51	828.13	572.76	560.36	528.05	540.18	24.21	0.74	305.36	581.89	473.81	107.63
270.00	176.60	933.55	692.23	687.19	613.61	678.86	89.28	6.38	537.49	744.95	545.06	144.58
280.00	216.24	1011.04	827.27	822.42	756.99	831.22	230.42	37.44	772.09	852.69	578.88	170.58
290.00	240.76	1057.39	970.96	972.84	898.15	992.07	456.58	129.57	963.55	904.54	582.61	184.37
300.00	251.15	1074.13	1111.61	1137.53	1056.14	1171.04	743.79	307.52	1090.80	911.24	565.54	187.86
320.00	242.60	1037.66	1339.74	1466.67	1402.40	1538.34	1325.49	833.02	1165.35	841.81	499.26	175.63
340.00	214.99	944.45	1456.86	1721.95	1714.90	1832.01	1702.71	1278.35	1088.45	727.13	421.03	152.44
360.00	183.07	829.65	1463.89	1854.80	1921.87	1990.50	1825.49	1464.97	953.02	609.07	347.96	128.07
380.00	153.18	714.17	1392.06	1868.15	2001.65	2013.07	1770.88	1444.48	809.08	503.24	285.15	106.25
400.00	127.32	608.02	1276.17	1792.94	1972.90	1933.96	1625.42	1318.08	677.02	413.44	233.01	87.89
420.00	105.74	514.77	1142.72	1664.54	1869.76	1793.81	1447.03	1155.78	562.90	339.05	190.39	72.92
440.00	88.06	434.81	1008.27	1511.39	1724.88	1625.43	1266.86	993.09	466.87	278.07	155.79	60.90
460.00	73.71	367.10	881.71	1352.56	1562.69	1450.74	1099.18	844.71	387.05	228.33	127.92	51.39
480.00	62.18	310.13	767.03	1199.25	1399.02	1282.50	949.26	715.07	321.10	197.85	105.26	43.95
500.00	53.00	262.32	665.39	1057.23	1242.96	1127.15	817.98	604.14	266.73	154.94	87.13	38.22
550.00	37.79	173.99	464.66	762.55	909.47	806.82	562.76	396.32	169.32	97.40	56.18	29.34
600.00	30.05	117.17	325.39	548.02	660.55	575.74	388.61	261.75	109.84	63.85	39.19	25.33
650.00	26.48	80.71	229.54	395.22	480.59	412.54	270.38	175.03	74.12	45.09	30.59	23.67
700.00	24.94	57.64	163.62	286.85	351.52	297.72	190.18	119.46	53.47	35.37	26.65	23.01
750.00	24.31	43.51	118.33	209.96	259.01	216.89	135.98	84.37	42.30	30.78	24.99	22.76
800.00	24.05	35.31	87.41	155.40	192.65	160.03	99.71	62.91	36.73	28.78	24.32	22.66
850.00	23.94	30.86	66.63	116.80	145.12	120.20	75.94	50.44	34.14	27.94	24.05	22.62
900.00	23.90	28.59	53.03	89.74	111.26	92.61	60.89	43.65	33.00	27.59	23.94	22.61
950.00	23.88	27.47	44.47	71.07	87.42	73.90	51.80	40.16	32.49	27.45	23.90	22.60
1000.00	23.87	26.94	39.32	58.52	70.95	61.57	46.56	38.45	32.27	27.39	23.88	22.60
1050.00	23.87	26.68	36.34	50.37	59.89	53.75	43.66	37.62	32.18	27.37	23.87	22.60
1100.00	23.87	26.56	34.68	45.26	52.70	48.97	42.10	37.22	32.14	27.36	23.87	22.60
1150.00	23.87	26.50	33.76	42.16	48.18	46.14	41.27	37.03	32.12	27.35	23.87	22.60
1200.00	23.87	26.47	33.26	40.32	45.42	44.49	40.83	36.94	32.11	27.35	23.87	22.60
1250.00	23.87	26.46	32.99	39.25	43.75	43.55	40.60	36.90	32.10	27.35	23.87	22.59

ELECTRON CONTENT	=	5.93E 12	2.52E 13	4.06E 13	5.54E 13	6.08E 13	5.78E 13	4.14E 13	3.02E 13	2.22E 13	1.68E 13	1.10E 13	4.71E 12
PEAK ELECTRON DENSITY	=	2.52E 05	1.07E 06	1.47E 06	1.88E 06	2.00E 06	2.02E 06	1.83E 06	1.48E 06	1.17E 06	9.13E 05	5.84E 05	1.88E 05
HEIGHT OF PEAK	=	304.18	301.30	351.16	372.27	383.81	373.52	362.09	366.90	317.44	296.64	286.34	299.03
ESPROB PERCENT	=	42.82	54.15	65.08	72.68	74.92	71.20	62.51	51.19	40.26	32.65	30.41	34.13
AVNES/1000. CM-3	=	97.09	208.16	201.75	183.71	157.30	126.94	97.09	71.23	51.33	37.86	30.28	27.87
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -270.00 LATITUDE = 40.00
S 10.7 = 100.00 S 10.7 (IA.U.) = 99.08

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	38.56	62.04	73.71	62.05	38.56	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	51.98	99.91	115.66	99.05	50.79	1.48	1.48	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49
140.00	1.95	77.07	129.61	145.70	127.85	73.39	1.87	1.88	1.89	1.91	1.92	1.94	1.95	1.95	1.95	1.95
150.00	2.19	98.31	153.68	170.55	151.45	93.15	2.14	2.15	2.16	2.17	2.18	2.19	2.19	2.19	2.19	2.19
160.00	2.15	118.74	177.02	194.80	174.92	112.04	2.20	2.20	2.19	2.18	2.17	2.16	2.16	2.16	2.16	2.16
170.00	1.98	142.56	203.35	222.30	201.40	133.78	2.12	2.10	2.07	2.04	2.01	1.99	1.99	1.99	1.99	1.99
180.00	1.75	174.34	237.96	258.08	234.83	161.75	1.97	1.93	1.89	1.84	1.80	1.76	1.76	1.76	1.76	1.76
190.00	1.53	220.01	286.12	306.78	279.41	199.84	2.99	1.74	1.68	1.62	1.58	1.54	1.54	1.54	1.54	1.54
200.00	1.32	284.72	351.22	371.25	338.23	252.05	16.18	1.55	1.48	1.42	1.37	1.33	1.33	1.33	1.33	1.33
210.00	1.14	438.64	496.66	517.64	484.16	415.06	54.30	1.37	1.30	1.24	1.19	1.15	1.15	1.15	1.15	1.15
220.00	1.92	589.96	668.13	691.56	655.31	598.76	128.51	3.83	1.14	1.07	1.03	1.00	1.00	1.00	1.00	1.00
230.00	11.68	655.26	769.32	794.68	749.94	681.81	235.89	19.99	1.00	0.93	0.89	0.86	0.86	0.86	0.86	0.86
240.00	38.87	697.61	853.32	883.82	832.32	751.56	359.70	62.64	0.87	0.81	0.78	0.75	0.75	0.75	0.75	0.75
250.00	85.71	716.80	914.49	953.20	897.33	803.92	479.06	136.88	0.77	0.71	0.68	1.30	1.30	1.30	1.30	1.30
260.00	142.64	715.80	951.11	1000.14	942.52	837.43	577.99	231.83	1.17	0.62	1.89	7.91	7.91	7.91	7.91	7.91
270.00	195.86	698.99	964.62	1024.86	967.86	852.82	648.73	327.95	8.08	3.55	11.06	26.13	26.13	26.13	26.13	26.13
280.00	235.82	670.96	958.37	1029.54	975.06	852.30	690.65	408.41	30.24	16.80	35.79	57.05	57.05	57.05	57.05	57.05
290.00	259.50	635.75	936.50	1017.47	966.83	838.75	707.38	464.74	73.76	47.39	77.34	93.95	93.95	93.95	93.95	93.95
300.00	268.49	596.61	903.17	992.24	946.26	815.17	704.32	496.10	133.56	93.78	126.82	127.76	127.76	127.76	127.76	127.76
320.00	256.90	515.38	816.28	915.82	879.99	748.84	659.88	500.05	250.11	190.84	205.84	166.60	166.60	166.60	166.60	166.60
340.00	226.60	438.70	719.49	822.54	796.27	670.84	590.81	459.00	308.46	241.03	232.06	169.26	169.26	169.26	169.26	169.26
360.00	197.52	370.94	625.13	726.60	708.40	591.98	516.36	401.99	310.40	242.97	220.94	153.44	153.44	153.44	153.44	153.44
380.00	160.92	312.94	538.95	635.66	623.87	517.93	445.63	343.98	282.93	220.26	194.41	132.05	132.05	132.05	132.05	132.05
400.00	133.71	264.06	462.91	553.15	546.31	451.10	382.16	291.08	245.78	189.94	165.02	111.17	111.17	111.17	111.17	111.17
420.00	111.06	223.12	397.06	480.11	477.00	392.12	326.77	245.11	208.70	160.14	137.96	92.93	92.93	92.93	92.93	92.93
440.00	92.53	188.91	340.59	416.35	416.02	340.70	279.14	206.08	175.43	133.80	114.77	77.76	77.76	77.76	77.76	77.76
460.00	77.53	160.31	292.39	361.11	362.81	296.16	238.49	173.32	146.95	111.57	95.55	65.48	65.48	65.48	65.48	65.48
480.00	65.49	136.39	251.34	313.43	316.59	257.70	203.93	145.99	123.11	93.23	79.90	55.70	55.70	55.70	55.70	55.70
500.00	55.91	116.36	216.39	272.34	276.54	224.54	174.61	123.28	103.39	78.29	67.31	48.03	48.03	48.03	48.03	48.03
550.00	40.14	79.35	150.00	192.85	198.32	160.21	119.51	82.18	68.38	52.63	46.14	35.82	35.82	35.82	35.82	35.82
600.00	32.18	55.66	105.39	137.96	143.59	115.60	83.40	57.03	47.88	38.58	35.05	30.04	30.04	30.04	30.04	30.04
650.00	28.54	40.87	75.40	99.93	105.14	84.59	60.08	42.24	36.59	31.54	29.78	27.55	27.55	27.55	27.55	27.55
700.00	26.98	32.12	55.43	73.61	78.13	63.10	45.43	34.07	30.86	28.32	27.49	26.54	26.54	26.54	26.54	26.54
750.00	26.34	27.35	42.44	55.56	59.25	48.40	36.65	29.89	28.17	26.95	26.54	26.14	26.14	26.14	26.14	26.14
800.00	26.08	24.96	34.35	43.43	46.28	38.62	31.67	27.88	26.98	26.37	26.16	25.98	25.98	25.98	25.98	25.98
850.00	25.98	23.84	29.59	35.57	37.62	32.38	29.00	26.94	26.46	26.14	26.01	25.92	25.92	25.92	25.92	25.92
900.00	25.93	23.32	26.95	30.71	32.07	28.60	27.63	26.52	26.24	26.04	25.94	25.89	25.89	25.89	25.89	25.89
950.00	25.91	23.09	25.55	27.85	28.67	26.43	26.93	26.33	26.14	26.00	25.92	25.88	25.88	25.88	25.88	25.88
1000.00	25.91	22.99	24.84	26.23	26.68	25.22	26.58	26.24	26.10	25.98	25.91	25.88	25.88	25.88	25.88	25.88
1050.00	25.90	22.94	24.47	25.34	25.55	24.56	26.41	26.20	26.08	25.98	25.90	25.88	25.88	25.88	25.88	25.88
1100.00	25.90	22.92	24.29	24.86	24.92	24.21	26.32	26.18	26.07	25.97	25.90	25.87	25.87	25.87	25.87	25.87
1150.00	25.90	22.91	24.19	24.61	24.58	24.02	26.28	26.17	26.07	25.97	25.90	25.87	25.87	25.87	25.87	25.87
1200.00	25.90	22.91	24.14	24.47	24.39	23.92	26.26	26.16	26.07	25.97	25.90	25.87	25.87	25.87	25.87	25.87
1250.00	25.90	22.91	24.12	24.39	24.28	23.87	26.24	26.16	26.07	25.97	25.90	25.87	25.87	25.87	25.87	25.87

ELECTRON CONTENT = 6.35E 12 1.59E 13 2.37E 13 2.69E 13 2.62E 13 2.21E 13 1.60E 13 1.10E 13 7.24E 12 5.93E 12 5.65E 12 4.70E 12
PEAK ELECTRON DENSITY = 2.69E 05 7.19E 05 9.65E 05 1.03E 06 9.75E 05 8.54E 05 7.08E 05 5.06E 05 3.15E 05 2.47E 05 2.32E 05 1.71E 05
HEIGHT OF PEAK = 302.60 254.34 271.52 277.51 279.34 274.55 293.11 310.66 350.26 350.37 341.71 331.18
ESPROB PERCENT = 44.37 57.29 67.55 72.41 70.56 62.50 50.39 37.47 27.21 22.35 24.20 23.26
AVNES/1000. CM-3 = 72.53 144.40 140.31 128.78 111.81 92.13 72.53 55.28 41.72 32.32 26.91 25.17
SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -270.00 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 99.08

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.70	31.29	41.27	46.06	41.28	31.30	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	31.04	59.34	70.79	58.69	30.74	1.48	1.48	1.48	1.48	1.49	1.49
140.00	1.95	44.60	84.97	97.86	83.62	41.84	1.87	1.88	1.89	1.91	1.92	1.94
150.00	2.19	61.49	105.33	119.79	104.88	57.36	2.14	2.15	2.16	2.17	2.18	2.19
160.00	2.15	75.62	123.91	141.51	126.25	72.41	2.20	2.20	2.19	2.18	2.17	2.16
170.00	1.98	88.58	143.66	166.49	151.90	88.52	2.12	2.10	2.07	2.04	2.01	1.99
180.00	1.75	102.15	167.40	198.38	185.70	108.87	1.97	1.93	1.89	1.84	1.80	1.76
190.00	1.53	118.09	199.01	241.49	232.04	137.24	1.80	1.74	1.68	1.62	1.58	1.54
200.00	1.32	139.15	242.48	299.42	294.66	177.98	9.96	1.55	1.48	1.42	1.37	1.33
210.00	1.14	199.39	356.27	452.07	475.93	344.86	35.11	1.37	1.30	1.24	1.19	1.15
220.00	2.33	272.74	479.06	612.89	660.39	532.43	86.22	3.88	1.14	1.07	1.03	1.00
230.00	11.42	308.74	536.11	685.15	733.15	603.55	162.60	17.47	1.00	0.93	0.89	0.86
240.00	32.72	334.82	578.94	741.95	790.05	662.42	252.95	49.28	0.87	0.81	0.78	0.75
250.00	65.03	349.91	605.90	780.88	828.98	705.80	341.91	99.90	0.77	0.71	0.68	0.67
260.00	100.73	354.77	617.61	801.92	850.05	732.71	417.06	160.40	0.67	0.62	0.59	11.75
270.00	131.63	351.17	616.07	806.76	854.94	744.02	471.91	218.41	3.05	0.58	1.74	30.15
280.00	153.13	341.24	603.98	798.01	846.21	741.79	505.44	264.69	13.50	4.13	8.79	55.36
290.00	164.53	327.01	584.07	778.61	826.71	728.57	520.01	295.39	37.08	15.51	25.74	80.98
300.00	167.43	310.17	558.83	751.41	799.21	706.99	519.49	310.94	72.97	37.43	52.05	101.52
320.00	156.90	273.50	500.14	683.12	729.63	648.08	488.82	308.05	150.95	96.09	107.77	120.45
340.00	136.80	237.70	439.22	607.87	652.21	579.92	438.71	280.18	195.59	135.74	136.47	116.86
360.00	115.33	205.43	381.86	534.17	575.69	511.53	383.93	244.16	201.66	144.37	137.18	103.28
380.00	95.75	177.39	330.42	466.19	504.54	447.57	331.58	208.32	185.93	134.16	123.72	87.44
400.00	78.96	153.42	285.44	405.49	440.55	389.98	284.45	175.94	162.32	116.91	106.03	72.59
420.00	64.94	133.02	246.60	352.24	384.08	339.20	243.25	147.92	138.01	98.82	88.75	59.75
440.00	53.38	115.66	213.28	305.99	334.76	294.95	207.77	124.17	115.88	82.36	73.49	49.01
460.00	43.89	100.85	184.72	266.00	291.92	256.60	177.45	104.23	96.75	68.22	60.58	40.16
480.00	36.11	88.16	160.26	231.49	254.81	223.47	151.65	87.59	80.62	56.36	49.86	32.91
500.00	29.74	77.24	139.27	201.71	222.68	194.87	129.74	73.73	67.15	46.53	41.02	26.99
550.00	18.39	55.96	98.73	143.84	159.90	139.25	88.45	48.51	42.73	28.88	25.27	16.51
600.00	11.46	40.93	70.62	103.45	115.82	100.48	61.22	32.80	27.58	18.03	15.66	10.18
650.00	7.20	30.15	50.91	75.03	84.64	73.27	43.41	23.26	18.28	11.34	9.78	6.33
700.00	4.57	22.34	36.98	54.90	62.50	54.14	32.00	17.72	12.69	7.19	6.16	3.98
750.00	2.95	16.63	27.07	40.62	46.76	40.75	24.94	14.72	9.48	4.60	3.93	2.55
800.00	1.95	12.44	20.01	30.50	35.65	31.51	20.80	13.21	7.76	2.99	2.55	1.69
850.00	1.35	9.35	15.00	23.42	27.93	25.31	18.49	12.48	6.91	1.99	1.71	1.19
900.00	1.01	7.05	11.49	18.57	22.72	21.32	17.28	12.15	6.52	1.39	1.21	0.92
950.00	0.83	5.34	9.08	15.37	19.34	18.88	16.65	12.00	6.34	1.03	0.93	0.78
1000.00	0.74	4.06	7.51	13.35	17.26	17.46	16.34	11.93	6.26	0.84	0.79	0.71
1050.00	0.69	3.11	6.53	12.15	16.03	16.67	16.18	11.89	6.23	0.74	0.72	0.68
1100.00	0.68	2.38	5.97	11.46	15.32	16.23	16.10	11.88	6.21	0.70	0.69	0.67
1150.00	0.67	1.84	5.65	11.07	14.93	16.00	16.06	11.87	6.21	0.68	0.67	0.66
1200.00	0.66	1.43	5.48	10.86	14.72	15.87	16.04	11.87	6.20	0.67	0.67	0.66
1250.00	0.66	1.13	5.39	10.75	14.60	15.80	16.02	11.87	6.20	0.66	0.66	0.66

ELECTRON CONTENT	=	2.87E 12	8.30E 12	1.48E 13	2.03E 13	2.18E 13	1.87E 13	1.16E 13	6.53E 12	3.97E 12	2.54E 12	2.40E 12	2.05E 12
PEAK ELECTRON DENSITY	=	1.67E 05	3.55E 05	6.18E 05	8.07E 05	8.55E 05	7.45E 05	5.21E 05	3.14E 05	2.03E 05	1.45E 05	1.39E 05	1.21E 05
HEIGHT OF PEAK	=	299.07	260.34	263.64	268.24	268.28	273.13	294.46	307.88	353.61	356.75	350.06	325.18
ESPROB PERCENT	=	24.72	34.64	42.57	46.37	45.02	38.89	29.62	19.70	11.77	7.98	9.32	15.45
AVNES/1000. CM-3	=	34.28	58.25	56.93	53.18	47.60	41.01	34.28	28.15	23.14	19.52	17.35	16.63
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	1.70	1.70	1.70	1.70	1.70	11.69	22.29	11.69	1.70	1.70	1.70	1.70
130.00	1.48	1.49	1.49	1.49	1.49	15.14	21.28	15.13	1.47	1.47	1.48	1.48
140.00	1.91	1.92	1.94	1.94	1.93	14.30	20.48	14.45	1.86	1.86	1.87	1.89
150.00	2.17	2.18	2.18	2.19	2.18	13.22	25.24	13.36	2.13	2.14	2.15	2.16
160.00	2.18	2.17	2.16	2.15	2.16	14.13	34.45	13.61	7.78	2.20	2.19	2.19
170.00	2.04	2.01	1.98	1.97	2.01	18.16	45.34	16.40	26.09	2.12	2.10	2.07
180.00	1.83	1.80	1.76	1.75	9.96	25.01	58.29	22.27	62.37	1.97	1.93	1.88
190.00	1.62	1.58	1.54	1.52	31.45	35.04	76.09	32.19	116.21	1.80	1.74	1.68
200.00	1.42	1.37	1.33	1.32	68.20	51.01	103.24	49.31	180.22	4.23	1.55	1.48
210.00	1.23	1.19	1.15	1.14	113.82	187.74	251.72	236.17	244.13	14.44	1.37	1.30
220.00	1.07	1.03	0.99	0.99	158.26	338.28	403.50	441.76	299.30	34.60	1.91	1.14
230.00	0.93	0.89	0.86	0.86	193.70	370.83	439.76	481.46	340.86	64.06	7.41	0.99
240.00	0.81	0.77	1.50	0.75	216.88	392.78	465.13	509.83	367.63	98.28	18.81	0.87
250.00	0.71	0.67	7.29	2.11	228.18	404.00	479.41	526.50	380.86	131.45	35.36	0.76
260.00	0.62	0.59	20.55	9.00	229.83	405.61	483.53	532.31	383.01	159.06	53.78	0.67
270.00	0.54	1.33	40.13	23.71	224.55	399.36	479.09	528.81	376.82	178.90	70.43	0.96
280.00	1.85	6.57	61.10	44.87	214.76	387.18	467.93	517.83	364.74	190.73	83.00	4.39
290.00	7.41	18.93	78.61	67.59	202.37	370.86	451.83	501.23	348.84	195.54	90.78	12.33
300.00	18.66	37.85	90.23	87.02	188.72	351.92	432.38	480.68	330.69	194.85	94.18	24.65
320.00	50.31	77.30	96.62	107.74	160.95	310.73	388.34	433.08	291.91	182.76	91.73	51.89
340.00	72.72	97.18	89.25	107.71	135.32	269.91	343.02	383.12	254.01	163.77	82.81	67.79
360.00	78.19	97.32	77.03	97.24	113.03	232.44	300.19	335.25	219.38	143.25	72.00	70.17
380.00	73.06	87.59	64.45	83.63	94.17	199.37	261.50	291.59	188.78	123.76	61.51	64.92
400.00	63.85	74.99	53.18	70.30	78.40	170.77	227.37	252.83	162.21	106.29	52.18	56.85
420.00	54.09	62.73	43.62	58.47	65.29	146.29	197.66	218.95	139.35	91.06	44.21	48.53
440.00	45.18	51.94	35.71	48.42	54.43	125.44	171.95	189.59	119.77	78.01	37.54	40.96
450.00	37.52	42.81	29.22	40.04	45.43	107.71	149.76	164.27	103.06	66.91	32.03	34.46
480.00	31.11	35.25	23.93	33.11	37.99	92.64	130.63	142.47	88.82	57.51	27.52	29.03
500.00	25.82	29.02	19.62	27.40	31.82	79.80	114.12	123.72	76.69	49.60	23.87	24.55
550.00	16.45	17.96	12.03	17.18	20.69	55.38	81.97	87.53	53.74	34.97	17.65	16.71
600.00	10.92	11.27	7.48	10.94	13.81	38.86	59.46	62.63	38.58	25.77	14.32	12.29
650.00	7.79	7.27	4.77	7.15	9.66	27.64	43.59	45.49	28.76	20.22	12.67	9.99
700.00	6.16	4.92	3.20	4.90	7.26	20.04	32.37	33.73	22.61	17.07	11.90	8.89
750.00	5.37	3.61	2.32	3.63	5.97	14.97	24.48	25.80	18.95	15.38	11.56	8.40
800.00	5.02	2.94	1.87	2.96	5.32	11.68	19.02	20.60	16.88	14.52	11.41	8.19
850.00	4.87	2.62	1.66	2.64	5.02	9.67	15.36	17.32	15.76	14.09	11.34	8.10
900.00	4.81	2.48	1.57	2.49	4.88	8.50	13.01	15.37	15.17	13.88	11.31	8.06
950.00	4.78	2.42	1.53	2.43	4.82	7.87	11.59	14.24	14.87	13.78	11.30	8.04
1000.00	4.77	2.40	1.52	2.40	4.79	7.54	10.78	13.62	14.72	13.73	11.29	8.03
1050.00	4.77	2.39	1.51	2.39	4.78	7.38	10.33	13.29	14.64	13.70	11.29	8.03
1100.00	4.77	2.38	1.51	2.38	4.77	7.29	10.09	13.11	14.59	13.69	11.29	8.03
1150.00	4.77	2.38	1.51	2.38	4.77	7.25	9.96	13.01	14.57	13.68	11.29	8.03
1200.00	4.77	2.38	1.50	2.38	4.77	7.23	9.89	12.96	14.56	13.68	11.29	8.03
1250.00	4.77	2.38	1.50	2.38	4.77	7.22	9.85	12.93	14.56	13.68	11.29	8.03

ELECTRON CONTENT	=	1.65E 12	1.91E 12	1.69E 12	2.03E 12	4.41E 12	8.78E 12	1.15E 13	1.25E 13	9.01E 12	4.87E 12	2.54E 12	1.80E 12
PEAK ELECTRON DENSITY	=	7.83E 04	9.91E 04	9.68E 04	1.10E 05	2.30E 05	4.06E 05	4.84E 05	5.32E 05	3.83E 05	1.96E 05	9.45E 04	7.05E 04
HEIGHT OF PEAK	=	357.84	349.56	316.77	329.35	256.91	256.77	259.47	260.92	257.15	293.38	304.67	354.06
ESPROR PERCENT	=	7.99	9.47	15.58	24.67	34.32	41.93	45.47	43.99	37.88	28.79	19.14	11.53
AVNES/1000. CM-3	=	24.27	22.15	21.45	38.13	59.57	58.41	55.11	50.15	44.24	38.13	32.46	27.75
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = 0.0 LATITUDE = -40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	19.86	37.74	43.64	37.75	19.86	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.48	1.49	1.49	1.49	19.79	49.07	65.12	48.48	19.90	1.47	1.48	1.48	1.48	1.48	1.48	1.48
140.00	1.91	1.92	1.94	1.94	18.36	72.50	91.48	70.72	18.41	1.86	1.87	1.89	1.89	1.89	1.89	1.89
150.00	2.17	2.18	2.18	2.19	21.90	92.78	113.07	90.83	20.09	2.14	2.15	2.16	2.16	2.16	2.16	2.16
160.00	2.18	2.17	2.16	2.15	30.57	111.85	134.39	110.55	26.32	2.20	2.19	2.19	2.19	2.19	2.19	2.19
170.00	2.04	2.01	1.98	1.97	40.76	133.59	159.15	134.02	35.78	2.12	2.10	2.07	2.07	2.07	2.07	2.07
180.00	1.83	1.80	1.76	1.75	52.21	161.56	190.97	165.19	48.53	1.97	1.93	1.88	1.88	1.88	1.88	1.88
190.00	1.62	1.58	1.54	1.52	67.49	200.20	234.17	208.45	67.44	1.89	1.74	1.68	1.68	1.68	1.68	1.68
200.00	1.42	1.37	1.33	1.32	90.95	253.90	292.45	267.89	98.18	1.55	1.48	1.48	1.48	1.48	1.48	1.48
210.00	1.23	1.19	1.15	1.14	197.35	395.50	445.03	450.66	311.08	28.37	1.37	1.30	1.30	1.30	1.30	1.30
220.00	1.07	1.03	0.99	0.99	305.40	530.78	593.49	633.21	534.98	63.23	2.87	1.14	1.14	1.14	1.14	1.14
230.00	0.93	0.89	0.86	0.86	334.36	582.27	652.10	699.43	584.43	110.97	10.90	0.99	0.99	0.99	0.99	0.99
240.00	0.81	0.77	0.75	0.75	351.67	617.29	694.86	750.13	619.42	163.67	27.18	0.87	0.87	0.87	0.87	0.87
250.00	0.71	0.67	2.75	3.67	357.87	635.60	720.86	783.71	639.51	212.63	50.45	0.76	0.76	0.76	0.76	0.76
260.00	0.62	1.54	10.08	12.78	354.77	638.89	731.10	800.58	645.84	251.83	76.06	1.27	1.27	1.27	1.27	1.27
270.00	2.53	7.89	23.56	29.22	344.65	629.86	727.76	802.57	640.51	278.75	98.99	6.13	6.13	6.13	6.13	6.13
280.00	9.89	23.25	40.55	50.10	329.74	611.49	713.54	792.18	625.93	293.69	116.14	17.81	17.81	17.81	17.81	17.81
290.00	24.41	47.08	56.73	70.47	311.90	586.58	691.16	772.15	604.51	298.47	126.62	36.37	36.37	36.37	36.37	36.37
300.00	44.02	73.82	68.97	86.49	292.60	557.52	663.07	745.04	578.40	295.47	131.06	58.12	58.12	58.12	58.12	58.12
320.00	80.29	113.65	78.95	101.19	253.43	494.04	597.67	678.26	518.81	274.76	127.39	93.67	93.67	93.67	93.67	93.67
340.00	96.15	124.90	75.86	98.75	217.05	430.92	529.04	605.19	457.12	244.99	114.98	107.19	107.19	107.19	107.19	107.19
360.00	94.70	117.67	67.34	88.54	185.11	372.83	463.51	533.62	398.66	213.67	100.09	104.17	104.17	104.17	104.17	104.17
380.00	85.21	103.19	57.86	76.39	157.82	321.45	403.96	467.40	345.78	184.26	85.71	93.59	93.59	93.59	93.59	93.59
400.00	73.61	87.69	49.26	64.93	134.75	276.90	351.24	408.04	299.15	158.04	72.97	81.07	81.07	81.07	81.07	81.07
420.00	62.58	73.64	42.09	55.05	115.34	238.66	305.25	355.77	258.61	135.28	62.14	69.16	69.16	69.16	69.16	69.16
440.00	53.08	61.76	36.38	46.90	99.00	205.98	265.42	310.17	223.63	115.78	53.13	58.80	58.80	58.80	58.80	58.80
460.00	45.25	52.04	31.95	40.35	85.22	178.07	231.04	270.59	193.57	99.22	45.76	50.14	50.14	50.14	50.14	50.14
480.00	38.98	44.25	28.60	35.19	73.57	154.23	201.40	236.32	167.76	85.21	39.79	43.09	43.09	43.09	43.09	43.09
500.00	34.06	38.12	26.12	31.20	63.72	133.84	175.83	206.65	145.62	73.40	35.02	37.46	37.46	37.46	37.46	37.46
550.00	26.27	28.27	22.56	24.99	45.19	94.70	126.11	148.70	103.02	51.56	27.12	28.17	28.17	28.17	28.17	28.17
600.00	22.62	23.55	21.09	22.15	33.06	67.90	91.41	108.03	73.85	37.79	23.08	23.53	23.53	23.53	23.53	23.53
650.00	21.05	21.50	20.51	20.94	25.39	49.53	67.06	79.31	53.89	29.45	21.17	21.39	21.39	21.39	21.39	21.39
700.00	20.41	20.66	20.29	20.44	20.86	37.05	49.97	59.00	40.35	24.68	20.31	20.47	20.47	20.47	20.47	20.47
750.00	20.15	20.32	20.20	20.24	18.44	28.79	38.10	44.70	31.38	22.11	19.93	20.08	20.08	20.08	20.08	20.08
800.00	20.04	20.19	20.17	20.16	17.25	23.59	30.02	34.77	25.67	20.79	19.76	19.92	19.92	19.92	19.92	19.92
850.00	20.00	20.14	20.15	20.12	16.70	20.51	24.75	28.07	22.21	20.14	19.69	19.85	19.85	19.85	19.85	19.85
900.00	19.98	20.11	20.15	20.11	16.45	18.82	21.47	23.72	20.23	19.81	19.65	19.82	19.82	19.82	19.82	19.82
950.00	19.98	20.11	20.15	20.10	16.34	17.93	19.54	21.04	19.14	19.66	19.64	19.81	19.81	19.81	19.81	19.81
1000.00	19.97	20.10	20.15	20.10	16.30	17.48	18.47	19.46	18.55	19.58	19.63	19.80	19.80	19.80	19.80	19.80
1050.00	19.97	20.10	20.15	20.10	16.27	17.25	17.88	18.56	18.25	19.54	19.63	19.80	19.80	19.80	19.80	19.80
1100.00	19.97	20.10	20.15	20.10	16.26	17.14	17.57	18.07	18.09	19.52	19.63	19.80	19.80	19.80	19.80	19.80
1150.00	19.97	20.10	20.15	20.10	16.26	17.08	17.40	17.80	18.00	19.51	19.63	19.80	19.80	19.80	19.80	19.80
1200.00	19.97	20.10	20.15	20.10	16.26	17.05	17.32	17.65	17.96	19.51	19.63	19.80	19.80	19.80	19.80	19.80
1250.00	19.97	20.10	20.15	20.10	16.26	17.04	17.27	17.57	17.93	19.50	19.63	19.80	19.80	19.80	19.80	19.80

ELECTRON CONTENT = 3.10E 12 3.53E 12 2.87E 12 3.24E 12 8.12E 12 1.53E 13 1.85E 13 2.05E 13 1.52E 13 7.31E 12 3.84E 12 3.31E 12
 PEAK ELECTRON DENSITY = 9.70E 04 1.25E 05 7.91E 04 1.02E 05 3.58E 05 6.39E 05 7.31E 05 8.03E 05 6.46E 05 2.98E 05 1.31E 05 1.08E 05
 HEIGHT OF PEAK = 346.71 339.46 322.49 325.23 251.28 257.35 262.27 266.38 260.09 290.60 304.14 344.31
 ESPROB PERCENT = 9.94 11.88 20.11 32.42 45.52 55.90 60.77 58.83 50.60 38.29 25.19 14.81
 AVNES/1000. CM-3 = 23.88 20.52 19.42 47.90 89.03 86.73 80.20 70.55 59.26 47.90 37.75 29.63
 SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = 0.0 LATITUDE = -20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	1.70	1.70	1.70	1.70	34.71	58.07	70.81	58.07	34.71	1.70	1.70	1.70
130.00	1.48	1.49	1.49	1.49	39.97	93.65	111.51	92.65	39.19	1.47	1.48	1.48
140.00	1.91	1.92	1.94	1.94	60.42	122.56	140.21	120.21	56.91	1.86	1.87	1.89
150.00	2.17	2.18	2.18	2.19	79.92	145.14	162.27	141.39	74.73	2.14	2.15	2.16
160.00	2.18	2.17	2.16	2.15	97.51	165.99	181.55	160.66	91.00	2.20	2.19	2.19
170.00	2.04	2.01	1.98	1.97	116.91	188.06	200.85	180.24	108.59	2.12	2.10	2.07
180.00	1.83	1.80	1.76	1.75	141.63	215.77	224.14	202.97	130.46	1.97	1.93	1.88
190.00	1.62	1.58	1.54	1.52	176.38	254.02	255.59	232.30	159.80	1.80	1.74	1.68
200.00	1.42	1.37	1.33	1.32	226.36	306.57	298.46	271.40	200.35	9.13	1.55	1.48
210.00	1.23	1.19	1.15	1.14	356.53	427.24	396.05	364.42	342.77	32.70	1.37	1.30
220.00	1.07	1.03	0.99	0.99	486.41	574.73	525.70	492.73	517.12	81.21	2.82	1.14
230.00	0.93	0.89	0.86	0.86	539.85	664.07	612.94	582.78	603.36	154.37	13.24	0.99
240.00	1.66	2.72	0.75	4.33	574.45	739.17	692.07	669.86	681.61	241.49	38.44	2.70
250.00	8.55	12.29	0.65	15.81	590.12	794.75	757.26	747.38	746.07	327.68	79.47	12.57
260.00	25.30	32.99	3.27	37.27	589.31	829.00	805.13	810.35	793.37	400.77	129.37	35.36
270.00	51.38	62.36	10.54	65.12	575.64	842.92	834.72	856.07	822.55	454.33	177.84	70.31
280.00	80.71	92.97	22.60	92.64	552.84	839.31	847.04	883.99	834.63	487.23	216.96	109.92
290.00	106.43	117.97	36.75	114.45	524.22	821.72	844.37	895.22	831.86	501.71	243.23	145.49
300.00	124.53	134.21	49.52	128.32	492.42	793.79	829.46	891.95	817.02	501.51	256.85	171.60
320.00	136.98	142.55	63.88	135.07	426.48	719.41	774.44	852.55	762.37	472.28	255.55	192.46
340.00	129.49	132.14	65.32	125.56	364.25	635.58	701.39	786.17	690.01	424.06	233.17	184.53
360.00	114.09	115.14	61.01	110.14	309.24	553.41	623.48	708.53	612.94	371.26	203.78	164.12
380.00	97.58	97.86	54.84	94.34	262.12	478.12	548.16	629.56	538.52	320.79	174.44	140.96
400.00	82.71	82.65	48.97	80.31	222.34	411.54	479.01	554.71	470.26	275.37	147.97	119.31
420.00	70.26	70.09	44.11	68.62	188.94	353.80	417.33	486.47	409.42	235.70	125.16	100.57
440.00	60.21	60.06	40.36	59.22	160.96	304.20	363.19	425.65	356.06	201.59	105.97	84.94
460.00	52.31	52.25	37.59	51.83	137.50	261.81	316.08	372.13	309.66	172.50	90.02	72.18
480.00	46.23	46.30	35.60	46.15	117.82	225.66	275.30	325.39	269.51	147.81	76.90	61.92
500.00	41.65	41.85	34.20	41.87	101.29	194.83	240.05	284.71	234.84	126.92	66.18	53.77
550.00	34.82	35.34	32.32	35.49	70.65	136.16	171.55	204.94	167.52	87.91	47.59	40.47
600.00	31.88	32.60	31.60	32.72	51.09	96.63	123.96	148.87	120.81	62.78	37.29	33.87
650.00	30.69	31.52	31.33	31.59	39.08	70.07	90.80	109.33	88.31	47.03	32.02	30.88
700.00	30.22	31.10	31.22	31.13	32.22	52.49	67.76	81.43	65.75	37.60	29.50	29.59
750.00	30.04	30.93	31.18	30.95	28.65	41.22	51.93	61.83	50.27	32.27	28.35	29.06
800.00	29.96	30.87	31.17	30.88	26.93	34.35	41.34	48.26	39.91	29.42	27.84	28.83
850.00	29.94	30.84	31.16	30.85	26.14	30.42	34.53	39.11	33.24	27.97	27.61	28.74
900.00	29.92	30.83	31.16	30.83	25.79	28.29	30.35	33.16	29.16	27.24	27.51	28.70
950.00	29.92	30.83	31.16	30.83	25.63	27.19	27.92	29.47	26.78	26.88	27.47	28.68
1000.00	29.92	30.83	31.16	30.83	25.56	26.62	26.56	27.27	25.45	26.70	27.44	28.68
1050.00	29.92	30.83	31.16	30.83	25.53	26.34	25.81	26.01	24.72	26.61	27.44	28.67
1100.00	29.92	30.83	31.16	30.83	25.51	26.20	25.41	25.30	24.33	26.56	27.43	28.67
1150.00	29.92	30.83	31.16	30.83	25.51	26.12	25.19	24.90	24.12	26.54	27.43	28.67
1200.00	29.92	30.83	31.16	30.83	25.50	26.09	25.08	24.68	24.01	26.53	27.43	28.67
1250.00	29.92	30.83	31.16	30.83	25.50	26.07	25.01	24.56	23.94	26.52	27.43	28.67

ELECTRON CONTENT	=	4.56E 12	4.71E 12	3.61E 12	4.66E 12	1.37E 13	2.12E 13	2.30E 13	2.50E 13	2.18E 13	1.19E 13	6.68E 12	5.41E 12
PEAK ELECTRON DENSITY	=	1.37E 05	1.43E 05	6.55E 04	1.35E 05	5.92E 05	8.44E 05	8.48E 05	8.96E 05	8.35E 05	5.03E 05	2.60E 05	1.93E 05
HEIGHT OF PEAK	=	319.54	315.93	330.50	315.38	254.35	272.68	282.99	292.50	282.90	294.69	308.49	322.19
ESPROB PERCENT	=	13.19	14.73	24.54	39.98	56.92	70.82	77.96	76.42	66.61	51.17	34.23	20.33
AVNES/1000. CM-3	=	21.10	16.45	14.98	58.60	130.86	126.66	114.85	97.61	77.87	58.60	42.07	29.49
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = 0.0 LATITUDE = 0.0
 S 10.7 = 100.0 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	44.45	78.83	93.71	78.81	44.45	1.70	1.70	1.70
130.00	1.48	1.49	1.49	1.49	67.90	121.66	138.15	120.40	66.25	1.47	1.48	1.48
140.00	1.91	1.92	1.94	1.94	95.03	149.26	164.38	146.17	90.57	1.86	1.87	1.89
150.00	2.17	2.18	2.18	2.19	115.05	167.41	180.07	162.46	107.83	2.14	2.15	2.16
160.00	2.18	2.17	2.16	2.15	131.58	178.46	187.45	171.74	120.92	2.20	2.19	2.19
170.00	2.04	2.01	1.98	1.97	146.40	185.14	189.55	175.68	131.19	2.12	2.10	2.07
180.00	1.83	1.80	1.76	1.75	162.18	191.44	189.98	176.81	139.29	1.97	1.93	1.88
190.00	1.62	1.58	1.54	1.52	183.05	201.08	191.74	177.57	146.38	1.80	1.74	1.68
200.00	1.42	1.37	1.33	1.32	213.27	217.11	197.07	179.96	154.06	1.62	1.55	1.48
210.00	1.23	1.19	1.84	1.46	256.10	241.79	207.66	185.55	164.05	1.45	1.37	1.30
220.00	1.07	5.13	10.49	10.61	339.82	276.51	224.83	195.61	177.99	1.30	1.21	1.14
230.00	6.53	27.89	32.57	39.67	439.28	321.91	249.47	211.17	197.33	1.16	1.07	0.99
240.00	36.13	84.42	67.24	94.29	550.62	378.24	282.06	232.97	223.18	1.04	0.94	0.87
250.00	111.86	172.24	105.65	164.71	663.93	466.42	322.83	261.47	256.26	0.93	0.83	0.98
260.00	233.62	269.44	138.22	233.33	766.52	571.15	371.93	296.92	296.98	4.58	0.74	9.64
270.00	373.45	352.40	159.93	286.58	848.07	687.57	431.39	339.50	345.65	24.09	3.22	46.04
280.00	497.72	408.46	170.41	319.33	903.08	815.57	529.54	389.49	402.68	80.96	20.13	132.71
290.00	586.12	436.36	171.83	332.96	930.88	945.47	627.64	458.48	492.74	195.33	72.89	269.50
300.00	634.41	441.18	167.05	331.84	934.26	1066.18	737.40	549.23	592.30	368.51	178.65	428.94
320.00	637.20	408.36	147.79	303.47	886.66	1245.35	967.03	752.81	822.98	795.23	503.10	687.96
340.00	572.98	352.29	124.96	261.53	798.06	1318.93	1157.93	975.35	1067.50	1136.92	787.25	785.34
360.00	489.50	294.44	103.71	219.37	696.37	1299.48	1268.84	1161.80	1259.71	1294.38	911.01	759.95
380.00	408.52	242.73	85.59	181.87	597.17	1218.67	1294.98	1274.28	1361.55	1298.97	902.70	678.59
400.00	337.47	199.04	70.72	150.16	507.42	1106.59	1254.94	1306.90	1374.03	1215.51	825.80	582.81
420.00	277.69	163.04	58.76	123.94	429.29	984.47	1173.15	1275.27	1319.92	1094.18	725.09	491.35
440.00	228.33	133.69	49.28	102.52	362.63	864.84	1070.47	1201.31	1225.69	964.17	623.54	410.77
460.00	187.93	109.92	41.85	85.14	306.33	754.05	961.39	1104.63	1112.74	839.82	530.72	342.26
480.00	155.00	90.74	36.12	71.10	259.03	654.66	854.67	999.43	995.43	727.07	449.58	284.97
500.00	128.24	75.32	31.76	59.83	219.37	567.15	755.00	894.70	882.21	627.59	380.18	237.45
550.00	81.57	49.08	25.19	40.81	146.12	395.43	546.67	662.22	639.39	433.13	250.45	151.94
600.00	54.67	34.79	22.33	30.72	99.03	276.90	434.27	484.23	459.55	300.21	167.06	99.72
650.00	39.98	27.66	21.18	25.85	68.92	195.62	285.60	354.33	331.31	210.22	114.17	68.58
700.00	32.62	24.43	20.74	23.69	50.03	139.95	208.63	260.91	240.85	149.62	81.33	50.85
750.00	29.26	23.07	20.57	22.79	38.65	101.96	154.27	194.03	177.29	109.25	61.74	41.46
800.00	27.82	22.53	20.50	22.42	32.22	76.33	116.05	146.34	132.87	82.92	50.73	36.89
850.00	27.22	22.31	20.48	22.27	28.82	59.41	89.47	112.59	102.19	66.36	44.95	34.79
900.00	26.97	22.22	20.47	22.20	27.13	48.63	71.34	89.04	81.43	56.41	42.09	33.86
950.00	26.87	22.18	20.47	22.18	26.31	42.06	59.33	72.97	67.80	50.73	40.71	33.45
1000.00	26.83	22.17	20.46	22.17	25.92	38.23	51.66	62.34	59.19	47.62	40.06	33.28
1050.00	26.81	22.16	20.46	22.16	25.74	36.08	46.94	55.54	53.94	45.96	39.75	33.20
1100.00	26.80	22.16	20.46	22.16	25.65	34.90	44.12	51.33	50.84	45.08	39.61	33.16
1150.00	26.80	22.16	20.46	22.16	25.61	34.27	42.48	48.79	49.05	44.63	39.54	33.15
1200.00	26.80	22.16	20.46	22.16	25.59	33.92	41.53	47.29	48.03	44.38	39.50	33.14
1250.00	26.80	22.16	20.46	22.16	25.58	33.73	40.99	46.40	47.45	44.26	39.49	33.14

ELECTRON CONTENT = 1.25E 13 8.65E 12 4.30E 12 7.09E 12 2.21E 13 3.65E 13 3.96E 13 4.15E 13 4.14E 13 3.06E 13 1.98E 13 1.58E 13
 PEAK ELECTRON DENSITY = 6.48E 05 4.42E 05 1.72E 05 3.34E 05 9.36E 05 1.32E 06 1.30E 06 1.31E 06 1.38E 06 1.31E 06 9.20E 05 7.88E 05
 HEIGHT OF PEAK = 309.91 297.40 286.68 293.91 296.44 344.94 376.77 399.04 392.90 370.27 367.80 344.10
 ESPROB PERCENT = 52.65 51.56 52.45 55.07 58.73 62.43 65.20 66.28 65.39 62.77 59.11 55.41
 AVNES/1000. CM-3 = 34.40 27.18 24.89 91.72 200.65 194.34 176.59 150.65 120.89 91.72 66.57 47.34
 SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = 0.0 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)											
120.00	1.70	1.70	1.70	24.57	53.68	89.42	103.49	89.47	53.69	24.57	1.70	1.70				
130.00	1.48	1.49	1.49	22.69	86.44	133.56	148.56	133.02	84.88	22.81	1.48	1.48				
140.00	1.91	1.92	1.94	24.22	113.89	159.45	174.00	159.09	110.85	23.24	1.87	1.89				
150.00	2.17	2.18	2.18	34.18	132.02	173.45	187.63	175.53	129.27	30.13	2.15	2.16				
160.00	2.18	2.17	2.16	45.73	143.54	177.28	191.77	184.75	143.91	39.95	2.19	2.19				
170.00	2.04	2.01	1.98	55.27	149.33	174.11	190.04	189.13	156.09	49.44	2.10	2.07				
180.00	1.83	1.80	1.76	63.19	152.04	167.85	186.24	191.73	167.27	58.38	1.93	1.88				
190.00	1.62	1.58	1.54	69.96	155.00	161.48	183.17	195.30	179.64	67.75	1.74	1.68				
200.00	1.42	1.37	1.33	75.86	161.20	156.94	182.77	202.05	195.63	78.71	1.55	1.48				
210.00	1.23	3.81	1.15	81.71	173.13	155.50	186.41	213.70	217.53	92.58	1.37	1.30				
220.00	1.93	20.85	7.28	88.98	192.75	158.12	195.19	231.64	247.20	111.19	1.21	1.14				
230.00	14.17	63.14	27.31	99.50	221.37	165.61	209.94	256.80	285.88	136.79	1.07	2.23				
240.00	53.00	128.44	64.10	115.12	272.89	178.64	231.26	289.75	334.21	171.49	0.94	15.20				
250.00	125.61	200.09	109.85	145.98	339.49	197.68	259.51	330.76	392.54	216.79	0.83	55.63				
260.00	218.49	260.56	152.44	190.89	413.44	223.03	294.83	380.01	461.26	273.54	0.74	132.48				
270.00	308.11	300.77	183.60	239.47	487.52	254.85	337.41	437.78	583.55	342.33	0.66	234.46				
280.00	376.79	320.14	201.04	285.49	553.56	305.11	402.48	535.54	700.74	465.30	1.37	337.97				
290.00	418.24	322.69	206.48	322.96	605.31	365.96	478.62	633.73	832.66	595.59	10.82	422.71				
300.00	434.64	313.59	203.26	348.31	639.63	433.44	564.00	744.15	974.77	739.24	46.60	479.21				
320.00	416.43	277.27	182.40	361.93	657.30	572.17	752.47	982.23	1248.91	1050.84	264.04	512.67				
340.00	366.18	234.14	155.17	339.76	624.21	680.54	922.18	1191.79	1448.07	1310.55	594.98	479.25				
360.00	309.58	193.82	129.05	300.97	564.34	734.56	1032.44	1325.96	1538.37	1449.84	833.51	419.92				
380.00	257.21	159.21	106.45	258.53	495.56	736.04	1071.88	1372.93	1529.74	1465.60	913.30	356.82				
400.00	212.22	130.57	87.75	218.79	428.04	700.13	1052.05	1347.34	1452.02	1392.78	881.31	298.99				
420.00	174.78	107.26	72.61	184.03	366.48	643.25	992.59	1272.98	1335.60	1271.30	796.27	249.11				
440.00	144.12	88.48	60.51	154.57	312.46	577.92	911.71	1171.87	1203.41	1131.32	695.43	207.26				
460.00	119.19	73.44	50.95	129.98	266.01	511.99	822.69	1060.23	1070.06	991.22	596.96	172.63				
480.00	99.05	61.48	43.49	109.57	226.50	449.76	733.90	948.41	943.67	860.54	508.11	144.18				
500.00	82.85	52.06	37.74	92.68	193.08	393.17	650.01	842.28	828.12	743.27	430.84	120.94				
550.00	55.39	36.76	28.85	62.15	130.68	278.75	472.76	616.48	592.03	511.31	284.52	80.27				
600.00	40.63	29.25	24.85	43.34	90.12	198.01	342.12	448.52	422.88	352.42	189.54	57.00				
650.00	33.40	25.93	23.20	32.17	64.01	142.14	248.69	327.39	303.88	245.20	128.78	44.57				
700.00	30.16	24.57	22.55	26.03	47.61	103.81	182.48	240.78	220.53	173.09	90.56	38.48				
750.00	28.81	24.03	22.30	22.96	37.78	77.81	135.77	179.05	162.29	124.82	67.27	35.72				
800.00	28.26	23.82	22.20	21.56	32.26	60.55	103.06	135.22	121.84	92.94	53.92	34.52				
850.00	28.04	23.73	22.16	20.96	29.36	49.48	80.48	104.38	94.13	72.43	46.54	34.01				
900.00	27.95	23.70	22.15	20.70	27.91	42.68	65.26	83.02	75.59	59.76	42.84	33.79				
950.00	27.91	23.69	22.14	20.59	27.21	38.69	55.33	68.61	63.60	52.30	41.03	33.70				
1000.00	27.89	23.68	22.14	20.54	26.87	36.44	49.09	59.20	56.14	48.11	40.16	33.66				
1050.00	27.89	23.68	22.14	20.52	26.71	35.20	45.31	53.26	51.68	45.84	39.75	33.64				
1100.00	27.89	23.68	22.14	20.52	26.63	34.53	43.08	49.64	49.08	44.63	39.56	33.64				
1150.00	27.88	23.68	22.14	20.51	26.59	34.16	41.79	47.47	47.60	43.99	39.46	33.63				
1200.00	27.88	23.68	22.14	20.51	26.57	33.97	41.05	46.20	46.76	43.65	39.42	33.63				
1250.00	27.88	23.68	22.14	20.51	26.57	33.86	40.63	45.46	46.28	43.47	39.40	33.63				

ELECTRON CONTENT	=	9.08E 12	6.89E 12	4.95E 12	8.96E 12	1.72E 13	2.27E 13	3.36E 13	4.28E 13	4.50E 13	3.82E 13	1.98E 13	1.11E 13
PEAK ELECTRON DENSITY	=	4.36E 05	3.23E 05	2.06E 05	3.63E 05	6.59E 05	7.41E 05	1.07E 06	1.37E 06	1.55E 06	1.47E 06	9.14E 05	5.13E 05
HEIGHT OF PEAK	=	303.16	286.65	290.55	315.96	315.59	370.31	382.28	381.92	367.70	372.63	382.38	317.56
ESPROB PERCENT	=	65.32	65.00	65.63	67.01	68.80	70.50	71.66	71.98	71.35	69.96	68.18	66.48
AVNES/1000. CM-3	=	38.25	29.82	27.16	106.25	237.29	229.67	208.25	176.98	141.20	106.25	76.27	53.47
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = 0.0 LATITUDE = 40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	1.70	1.70	1.70	32.68	57.65	87.22	98.72	87.25	57.65	32.68	1.70	1.70		
130.00	1.48	1.49	1.49	34.30	93.32	131.50	143.88	130.77	91.54	33.76	1.48	1.48		
140.00	1.91	1.92	1.94	51.14	121.92	158.79	170.70	157.66	117.92	47.70	1.87	1.89		
150.00	2.17	2.18	2.18	68.79	142.50	175.80	187.27	175.85	136.79	63.70	2.15	2.16		
160.00	2.18	2.17	2.16	82.47	158.47	184.70	196.10	188.01	151.97	77.33	2.19	2.19		
170.00	2.04	2.01	1.98	93.80	172.03	188.79	200.69	196.61	164.85	89.99	2.10	2.07		
180.00	1.83	1.80	1.76	103.54	187.42	192.31	205.04	204.91	177.27	103.39	1.93	1.88		
190.00	1.62	1.58	1.54	112.89	209.63	198.89	212.42	216.00	191.74	119.00	1.74	1.68		
200.00	1.42	1.37	1.33	124.29	242.98	211.36	225.40	232.47	210.93	138.79	1.55	1.48		
210.00	1.23	1.19	1.15	140.89	317.23	231.84	245.85	264.65	250.46	213.43	1.37	1.30		
220.00	1.07	1.03	0.99	181.22	410.60	277.96	291.68	320.89	320.96	276.17	1.21	1.14		
230.00	0.93	0.89	0.86	236.04	467.24	336.81	350.10	380.06	380.61	345.02	7.40	0.99		
240.00	0.81	0.77	0.75	293.20	508.73	395.00	408.69	437.89	437.92	418.92	34.37	0.87		
250.00	0.71	0.67	0.65	344.61	533.10	447.22	462.81	490.06	488.37	491.34	99.32	0.76		
260.00	0.62	0.57	0.55	383.65	541.31	489.35	508.50	533.14	528.61	555.42	205.21	0.67		
270.00	1.52	7.88	20.91	407.27	536.05	519.14	543.27	565.15	556.97	606.03	334.43	2.46		
280.00	11.31	31.85	59.63	415.83	520.61	536.19	566.18	585.56	573.31	640.60	460.72	15.68		
290.00	43.54	80.12	117.88	411.85	498.19	541.54	577.61	594.94	578.61	658.96	563.42	55.54		
300.00	106.78	145.79	181.65	398.57	471.48	537.02	578.84	594.63	574.54	662.68	633.21	130.62		
320.00	279.21	266.91	273.72	356.24	413.03	506.78	557.76	571.80	545.75	636.54	679.86	334.15		
340.00	397.64	318.53	297.44	307.06	355.74	460.83	516.95	530.40	500.88	583.25	644.69	480.77		
360.00	424.47	311.36	277.93	260.22	304.09	409.93	467.59	480.91	450.10	519.36	574.22	522.06		
380.00	395.32	277.29	242.10	219.10	259.33	360.20	416.79	430.05	399.52	454.88	495.68	494.13		
400.00	345.06	236.55	204.32	184.29	221.23	314.52	368.44	381.53	352.26	394.85	421.37	437.24		
420.00	292.22	197.98	170.16	155.27	189.07	273.93	324.32	337.09	309.62	341.25	355.66	374.48		
440.00	244.16	164.50	141.14	131.22	161.99	238.47	285.00	297.32	271.88	294.46	299.35	315.85		
460.00	202.96	136.53	117.18	111.30	139.17	207.77	250.40	262.18	238.82	254.11	251.84	264.62		
480.00	168.58	113.59	97.70	94.79	119.93	181.30	220.17	231.35	210.02	219.54	212.07	221.23		
500.00	140.27	94.99	82.04	81.10	103.67	158.51	193.85	204.40	184.99	189.99	178.92	185.02		
550.00	90.42	63.17	55.66	56.36	73.23	114.46	142.12	151.06	135.85	133.71	118.67	119.76		
600.00	61.52	45.86	41.76	41.33	53.41	84.10	105.61	113.06	101.21	95.91	81.43	80.21		
650.00	45.71	37.23	35.11	32.84	40.95	63.26	79.84	85.94	76.80	70.72	59.16	57.13		
700.00	37.79	33.33	32.21	28.53	33.62	49.22	61.78	66.68	59.76	54.31	46.57	44.46		
750.00	34.14	31.67	31.01	26.56	29.68	40.12	49.38	53.23	48.16	44.07	39.95	38.06		
800.00	32.57	31.00	30.53	25.72	27.73	34.54	41.17	44.12	40.57	38.05	36.70	35.05		
850.00	31.90	30.72	30.34	25.38	26.82	31.33	36.00	38.21	35.87	34.73	35.17	33.70		
900.00	31.63	30.61	30.26	25.24	26.40	29.58	32.91	34.57	33.11	32.97	34.47	33.11		
950.00	31.51	30.56	30.23	25.18	26.22	28.67	31.15	32.43	31.56	32.08	34.15	32.85		
1000.00	31.46	30.55	30.21	25.15	26.13	28.20	30.17	31.20	30.71	31.63	34.00	32.74		
1050.00	31.44	30.54	30.21	25.14	26.10	27.95	29.64	30.52	30.26	31.40	33.93	32.69		
1100.00	31.43	30.53	30.21	25.14	26.08	27.83	29.35	30.15	30.01	31.29	33.90	32.67		
1150.00	31.43	30.53	30.20	25.14	26.07	27.77	29.19	29.94	29.88	31.23	33.89	32.66		
1200.00	31.43	30.53	30.20	25.14	26.07	27.73	29.11	29.82	29.81	31.20	33.88	32.65		
1250.00	31.43	30.53	30.20	25.14	26.06	27.72	29.06	29.76	29.77	31.18	33.88	32.65		

ELECTRON CONTENT = 9.24E 12 7.40E 12 6.99E 12 1.03E 13 1.36E 13 1.58E 13 1.78E 13 1.84E 13 1.72E 13 1.77E 13 1.47E 13 1.13E 13
 PEAK ELECTRON DENSITY = 4.25E 05 3.21E 05 2.98E 05 4.16E 05 5.41E 05 5.42E 05 5.79E 05 5.96E 05 5.79E 05 6.63E 05 6.80E 05 5.22E 05
 HEIGHT OF PEAK = 357.10 346.07 338.37 281.42 260.70 290.06 296.24 294.57 290.31 297.74 319.15 359.60
 ESPROB PERCENT = 42.96 44.47 51.26 61.51 72.47 81.20 85.37 83.86 77.07 66.82 55.86 47.13
 AVNES/1000. CM-3 = 49.92 40.85 37.94 118.90 244.88 237.67 217.34 187.50 153.02 118.90 89.07 65.86
 SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	1.70	22.31	37.24	54.31	72.53	79.83	72.54	54.31	37.24	22.31	1.70	
130.00	1.48	1.49	21.21	47.95	87.66	113.77	122.29	112.80	85.87	46.76	21.31	1.48	
140.00	1.91	1.92	20.73	71.45	115.65	141.29	149.16	139.31	111.54	67.45	20.43	1.89	
150.00	2.17	2.18	27.31	89.90	135.08	159.63	166.82	157.35	129.16	84.49	24.87	2.16	
160.00	2.18	2.17	37.50	103.56	149.09	171.27	177.79	169.89	142.31	97.65	33.36	2.19	
170.00	2.04	2.01	46.50	113.70	159.15	178.44	184.28	178.52	152.01	108.75	42.16	2.07	
180.00	1.83	1.80	53.65	120.96	168.55	184.74	189.52	185.72	159.49	118.48	50.11	1.88	
190.00	1.62	1.58	59.25	127.43	181.40	193.76	196.61	194.17	166.63	127.58	57.69	1.68	
200.00	1.42	1.37	63.23	136.13	201.58	208.52	208.09	206.26	175.47	137.39	65.63	1.48	
210.00	1.23	1.19	65.65	150.21	243.17	247.17	233.35	233.08	187.99	149.74	74.66	1.30	
220.00	1.07	1.03	67.08	188.77	288.85	285.27	270.00	267.32	219.08	182.84	85.86	1.14	
230.00	0.93	0.89	68.42	224.55	313.86	317.25	302.54	297.44	253.25	221.82	123.36	0.99	
240.00	0.81	0.77	70.70	252.68	328.24	340.91	328.71	321.54	283.80	260.25	163.19	0.87	
250.00	0.71	0.67	74.98	270.58	332.74	355.51	347.31	338.64	308.64	294.54	207.09	0.76	
260.00	0.62	0.59	82.35	278.21	329.15	361.56	358.21	348.68	326.62	321.93	253.38	0.67	
270.00	1.18	2.94	93.82	277.14	319.56	360.29	362.02	352.23	337.53	340.97	296.91	4.66	
280.00	8.18	14.70	112.52	269.61	305.97	353.26	359.83	350.26	341.87	351.54	332.94	21.14	
290.00	30.07	42.76	144.50	257.81	290.01	342.02	352.89	343.89	340.58	354.43	358.54	58.97	
300.00	71.39	85.98	176.78	243.58	272.92	327.96	342.41	334.21	334.78	350.95	372.91	117.26	
320.00	179.72	176.79	225.44	212.78	238.59	295.60	315.05	308.69	313.99	330.66	372.46	245.44	
340.00	251.32	222.99	240.81	183.45	206.92	262.30	284.23	279.65	286.82	300.93	346.26	319.69	
360.00	265.95	223.84	229.48	157.75	179.17	231.06	253.73	250.64	258.09	268.63	308.80	330.41	
380.00	246.77	202.03	204.94	135.96	155.39	203.07	225.39	223.47	230.44	237.49	269.29	305.16	
400.00	215.15	173.57	176.98	117.67	135.18	178.53	199.91	198.87	205.07	209.14	232.29	266.81	
420.00	182.27	145.90	150.47	102.31	118.01	157.24	177.40	177.01	182.39	184.05	199.50	227.25	
440.00	152.52	121.63	127.20	89.34	103.37	138.83	157.66	157.75	162.37	162.17	171.22	191.29	
460.00	127.13	101.28	107.50	78.31	90.84	122.89	140.40	140.84	144.80	143.18	147.13	160.29	
480.00	106.04	84.59	91.06	68.89	80.07	109.06	125.31	126.01	129.41	126.72	126.72	134.26	
500.00	88.77	71.10	77.43	60.80	70.77	97.04	112.10	112.98	115.91	112.45	109.45	112.69	
550.00	58.80	48.21	52.87	45.09	52.64	73.22	85.66	86.82	88.87	84.33	77.00	74.28	
600.00	42.07	36.02	37.88	34.23	39.99	56.08	66.34	67.61	69.08	64.23	55.62	51.69	
650.00	33.45	30.13	29.18	26.97	31.37	43.73	52.13	53.41	54.46	49.80	41.74	39.14	
700.00	29.40	27.52	24.60	22.51	25.82	34.98	41.73	42.98	43.71	39.54	33.14	32.73	
750.00	27.64	26.44	22.44	20.10	22.57	29.03	34.29	35.46	35.94	32.48	28.20	29.69	
800.00	26.90	26.00	21.50	18.95	20.86	25.23	29.18	30.25	30.53	27.89	25.60	28.34	
850.00	26.59	25.82	21.10	18.46	20.03	22.99	25.86	26.82	26.96	25.12	24.32	27.75	
900.00	26.46	25.75	20.94	18.25	19.65	21.76	23.85	24.70	24.76	23.56	23.72	27.50	
950.00	26.41	25.72	20.88	18.16	19.48	21.11	22.69	23.46	23.47	22.72	23.44	27.39	
1000.00	26.39	25.70	20.85	18.13	19.40	20.79	22.05	22.76	22.75	22.30	23.31	27.34	
1050.00	26.38	25.70	20.84	18.11	19.37	20.62	21.71	22.37	22.35	22.08	23.25	27.32	
1100.00	26.38	25.70	20.83	18.11	19.35	20.54	21.53	22.16	22.14	21.97	23.23	27.31	
1150.00	26.37	25.69	20.83	18.11	19.35	20.50	21.43	22.05	22.03	21.91	23.21	27.30	
1200.00	26.37	25.69	20.83	18.10	19.34	20.48	21.38	21.99	21.97	21.89	23.21	27.30	
1250.00	26.37	25.69	20.83	18.10	19.34	20.47	21.35	21.95	21.93	21.87	23.20	27.30	

ELECTRON CONTENT	=	6.28E 12	5.56E 12	6.70E 12	7.57E 12	9.14E 12	1.09E 13	1.16E 13	1.15E 13	1.12E 13	1.07E 13	9.93E 12	7.62E 12
PEAK ELECTRON DENSITY	=	2.67E 05	2.28E 05	2.41E 05	2.79E 05	3.33E 05	3.62E 05	3.62E 05	3.52E 05	3.42E 05	3.54E 05	3.77E 05	3.32E 05
HEIGHT OF PEAK	=	356.17	349.76	339.80	263.50	250.13	263.01	271.02	271.11	282.45	289.16	309.33	353.88
ESPROB PFCENT	=	12.03	14.22	23.82	38.26	53.67	65.92	71.73	69.54	59.94	45.51	30.10	17.84
AVNES/1000. CM-3	=	22.01	17.60	16.20	56.47	121.09	117.36	106.87	91.50	73.83	56.47	41.42	29.85
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -90.00 LATITUDE = -60.00

S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	11.69	22.29	11.69	1.70
130.00	1.47	1.48	1.48	1.48	1.49	1.49	1.49	1.49	15.14	21.28	15.13	1.47
140.00	1.86	1.87	1.89	1.91	1.92	1.94	1.94	1.93	14.30	20.48	14.44	1.86
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.19	2.18	13.22	25.23	13.35	2.13
160.00	2.20	2.19	2.19	2.18	2.17	2.16	2.15	2.16	14.12	34.38	13.57	5.56
170.00	2.12	2.10	2.07	2.04	2.01	1.98	1.97	2.01	18.11	45.11	16.23	18.58
180.00	1.97	1.93	1.88	1.83	1.80	1.76	1.75	9.52	24.78	57.68	21.58	44.29
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.52	29.53	34.32	74.69	29.93	82.34
200.00	3.50	1.55	1.48	1.42	1.37	1.33	1.32	63.23	49.11	100.33	43.16	127.49
210.00	11.84	1.37	1.30	1.23	1.19	1.15	1.14	104.58	172.79	239.47	179.95	172.49
220.00	28.19	2.11	1.14	1.07	1.03	0.99	0.99	144.47	308.85	381.82	331.03	211.28
230.00	51.93	8.16	0.99	0.93	0.89	0.86	0.86	176.00	338.25	415.91	360.58	240.45
240.00	79.37	20.66	0.87	0.81	0.77	0.75	0.75	196.40	357.99	439.72	381.70	259.19
250.00	105.87	38.75	0.76	0.71	0.67	3.39	1.02	206.13	367.99	453.07	394.11	268.42
260.00	127.86	58.84	0.67	0.62	0.59	9.67	4.31	207.26	369.29	456.86	398.44	269.85
270.00	143.59	76.99	1.17	0.54	1.11	19.03	11.30	202.25	363.50	452.61	395.85	265.45
280.00	152.92	90.66	5.28	2.26	5.35	29.13	21.29	193.26	352.36	442.04	387.72	256.92
290.00	156.65	99.10	14.63	8.85	15.19	37.62	31.99	181.98	337.50	426.84	375.41	245.71
300.00	156.01	102.78	28.97	21.98	30.05	43.29	41.11	169.63	320.29	408.50	360.18	232.93
320.00	146.27	100.05	60.33	58.34	60.60	46.50	50.78	144.58	282.93	367.02	324.90	205.65
340.00	131.08	90.27	78.38	83.68	75.74	43.04	50.73	121.53	245.95	324.36	287.86	179.01
360.00	114.72	78.46	80.92	89.63	75.65	37.20	45.81	101.51	212.03	284.07	252.37	154.69
380.00	99.20	67.01	74.74	83.60	68.01	31.17	39.43	84.58	182.08	247.67	219.98	133.22
400.00	85.30	56.81	65.40	73.01	58.22	25.77	33.19	70.43	156.18	215.56	191.21	114.60
420.00	73.22	48.09	55.78	61.83	48.71	21.20	27.68	58.69	134.00	187.59	166.04	98.60
440.00	62.89	40.80	47.05	51.64	40.36	17.43	23.00	48.97	115.09	163.38	144.21	94.92
460.00	54.12	34.76	39.56	42.90	33.32	14.35	19.12	40.93	99.00	142.48	125.35	73.28
480.00	46.74	29.82	33.28	35.59	27.49	11.86	15.93	34.28	85.30	124.44	109.09	63.38
500.00	40.55	25.81	28.11	29.56	22.70	9.85	13.32	28.80	73.63	108.85	95.08	54.99
550.00	29.26	18.95	19.04	18.90	14.26	6.41	8.78	18.96	51.37	78.47	67.97	39.29
600.00	22.37	15.25	13.89	12.64	9.28	4.53	6.20	13.00	36.29	57.14	49.27	29.18
650.00	18.39	13.40	11.18	9.15	6.45	3.58	4.83	9.52	26.03	42.07	36.39	22.90
700.00	16.23	12.53	9.87	7.34	4.94	3.15	4.16	7.62	19.11	31.41	27.61	19.19
750.00	15.11	12.15	9.28	6.49	4.21	2.97	3.86	6.66	14.52	23.91	21.78	17.11
800.00	14.56	11.97	9.03	6.11	3.88	2.89	3.74	6.21	11.61	18.74	18.06	16.01
850.00	14.29	11.90	8.92	5.95	3.74	2.86	3.68	6.01	9.87	15.30	15.79	15.43
900.00	14.16	11.86	8.87	5.89	3.69	2.85	3.66	5.91	8.89	13.12	14.49	15.14
950.00	14.09	11.85	8.85	5.86	3.66	2.84	3.65	5.87	8.37	11.81	13.76	14.99
1000.00	14.06	11.84	8.84	5.85	3.65	2.84	3.65	5.85	8.11	11.07	13.36	14.92
1050.00	14.05	11.84	8.84	5.84	3.65	2.84	3.65	5.85	7.98	10.66	13.15	14.88
1100.00	14.04	11.84	8.84	5.84	3.65	2.84	3.64	5.84	7.91	10.44	13.04	14.86
1150.00	14.03	11.84	8.84	5.84	3.64	2.84	3.64	5.84	7.88	10.33	12.98	14.85
1200.00	14.03	11.84	8.84	5.84	3.64	2.84	3.64	5.84	7.86	10.26	12.95	14.84
1250.00	14.03	11.84	8.84	5.84	3.64	2.84	3.64	5.84	7.85	10.23	12.93	14.84

ELECTRON CONTENT	=	4.13E 12	2.73E 12	2.04E 12	1.91E 12	1.53E 12	9.67E 11	1.14E 12	4.08E 12	8.11E 12	1.10E 13	9.64E 12	6.66E 12
PEAK ELECTRON DENSITY	=	1.57E 05	1.03E 05	8.14E 04	8.97E 04	7.71E 04	4.66E 04	5.17E 04	2.08E 05	3.70E 05	4.57E 05	3.98E 05	2.70E 05
HEIGHT OF PEAK	=	293.13	304.58	353.71	357.46	349.18	317.05	329.20	256.42	256.57	259.36	260.94	257.03
ESPROB PERCENT	=	29.31	19.46	11.69	8.08	9.60	15.84	25.12	34.97	42.74	46.36	44.84	38.60
AVVES/1000. CM-3	=	38.78	32.87	27.97	24.36	22.17	21.44	38.78	61.21	59.99	56.53	51.35	45.16
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -90.00 LATITUDE = -40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.47	1.48	1.48	1.48	1.49	1.49	1.49	1.49	1.49	1.49	1.49	1.49
140.00	1.86	1.87	1.89	1.91	1.92	1.94	1.94	1.94	1.94	1.94	1.94	1.94
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.19	2.19	2.19	2.19	2.19	2.19
160.00	2.20	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.15	2.15	2.15	2.15
170.00	2.12	2.10	2.07	2.04	2.01	1.98	1.97	1.97	1.97	1.97	1.97	1.97
180.00	1.97	1.93	1.88	1.83	1.80	1.76	1.75	1.75	1.75	1.75	1.75	1.75
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.52	1.52	1.52	1.52	1.52	1.52
200.00	6.87	1.55	1.48	1.42	1.37	1.33	1.32	100.03	222.76	227.78	181.73	69.22
210.00	24.70	1.37	1.30	1.23	1.19	1.15	1.14	238.47	339.38	322.32	259.69	190.27
220.00	61.48	2.16	1.14	1.07	1.03	0.99	0.99	385.01	479.47	445.02	367.23	347.16
230.00	117.06	10.19	0.99	0.93	0.89	0.86	0.86	427.49	553.82	518.71	433.86	404.96
240.00	183.35	29.65	1.94	1.53	2.53	0.75	3.80	455.07	616.37	585.60	498.27	457.47
250.00	249.03	61.42	8.94	7.79	11.27	0.65	13.82	467.61	662.75	640.80	555.64	500.81
260.00	304.79	100.11	24.98	22.82	30.02	3.69	32.47	467.06	691.43	681.42	602.30	532.69
270.00	345.70	137.75	49.41	46.02	56.44	11.92	56.62	456.29	703.25	706.66	636.26	552.47
280.00	370.87	168.15	76.97	71.94	83.82	25.60	80.43	438.25	700.51	717.34	657.12	560.81
290.00	382.00	188.60	101.64	94.54	106.08	41.67	99.26	415.57	686.16	715.37	665.69	559.21
300.00	381.95	199.23	119.68	110.37	120.46	56.20	111.22	390.35	663.21	703.11	663.58	549.53
320.00	359.87	198.40	133.95	121.10	127.73	72.55	117.02	338.04	601.91	657.20	635.15	513.41
340.00	323.29	181.26	128.66	114.55	118.49	73.99	109.01	288.65	532.71	596.04	586.82	465.38
360.00	283.20	158.69	114.87	101.14	103.47	68.58	95.96	245.00	464.80	530.70	530.15	414.14
380.00	244.87	136.16	99.26	86.83	88.25	61.03	82.62	207.64	402.53	467.47	472.43	364.60
400.00	210.39	115.88	84.76	73.99	74.92	53.83	70.83	176.11	347.42	409.38	417.67	319.13
420.00	180.31	98.46	72.32	63.30	63.96	47.81	61.07	149.69	299.56	357.51	367.68	278.57
440.00	154.48	83.88	62.10	54.76	55.29	43.12	53.30	127.60	258.39	311.93	323.05	242.96
460.00	132.49	71.85	53.90	48.11	48.60	39.60	47.27	109.13	223.14	272.22	283.72	211.97
480.00	113.88	62.04	47.45	43.05	43.56	37.05	42.70	93.68	193.02	237.79	249.28	185.12
500.00	98.18	54.12	42.48	39.28	39.83	35.23	39.31	80.78	167.29	207.98	219.23	161.91
550.00	69.14	40.76	34.79	33.78	34.47	32.75	34.35	57.18	118.10	149.86	159.99	116.76
600.00	50.83	33.73	31.28	31.47	32.27	31.78	32.26	42.61	84.79	109.26	117.97	85.40
650.00	39.76	30.30	29.77	30.55	31.40	31.42	31.42	34.15	62.32	80.83	88.06	63.65
700.00	33.43	28.73	29.15	30.19	31.07	31.28	31.08	29.65	47.44	61.00	66.77	48.72
750.00	30.03	28.03	28.89	30.04	30.94	31.22	30.95	27.46	37.95	47.37	51.74	38.73
800.00	28.29	27.72	28.79	29.99	30.89	31.20	30.89	26.46	32.23	38.27	41.32	32.30
850.00	27.42	27.59	28.74	29.96	30.87	31.19	30.87	26.01	29.00	32.45	34.34	28.37
900.00	26.99	27.52	28.73	29.96	30.86	31.19	30.86	25.81	27.27	28.92	29.85	26.10
950.00	26.78	27.50	28.72	29.95	30.86	31.19	30.86	25.72	26.37	26.88	27.11	24.83
1000.00	26.67	27.48	28.71	29.95	30.86	31.19	30.86	25.68	25.92	25.75	25.50	24.15
1050.00	26.62	27.48	28.71	29.95	30.86	31.19	30.86	25.66	25.69	25.13	24.58	23.78
1100.00	26.59	27.48	28.71	29.95	30.86	31.19	30.86	25.66	25.58	24.80	24.07	23.58
1150.00	26.58	27.48	28.71	29.95	30.86	31.19	30.86	25.65	25.52	24.62	23.79	23.48
1200.00	26.58	27.47	28.71	29.95	30.86	31.19	30.86	25.65	25.49	24.52	23.63	23.42
1250.00	26.57	27.47	28.71	29.95	30.86	31.19	30.86	25.65	25.47	24.47	23.54	23.39

ELECTRON CONTENT	=	9.51E 12	5.67E 12	4.48E 12	4.33E 12	4.50E 12	3.73E 12	4.39E 12	1.08E 13	1.78E 13	1.96E 13	1.90E 13	1.49E 13
PEAK ELECTRON DENSITY	=	3.83E 05	2.02E 05	1.34E 05	1.21E 05	1.28E 05	7.44E 04	1.17E 05	4.69E 05	7.04E 05	7.18E 05	6.66E 05	5.61E 05
HEIGHT OF PEAK	=	294.77	308.56	322.00	319.30	315.72	330.55	315.29	254.42	272.86	283.23	292.79	283.17
ESPRDB PERCENT	=	51.26	34.30	20.37	13.22	14.75	24.55	40.01	56.97	70.90	78.06	76.53	66.72
AVNES/1000. CM-3	=	58.69	42.11	29.50	21.09	16.43	14.96	58.69	131.19	126.97	115.12	97.82	78.02
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -90.00 LATITUDE = -20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	34.71	58.04	70.76	58.04	34.71		
130.00	1.47	1.48	1.48	1.48	1.49	1.49	1.49	39.95	93.26	110.81	92.15	39.13		
140.00	1.86	1.87	1.89	1.91	1.92	1.94	1.94	60.19	120.72	137.38	117.97	56.42		
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.19	78.91	139.81	154.81	135.28	72.75		
160.00	2.20	2.19	2.19	2.18	2.17	2.16	2.15	94.53	153.86	165.78	147.43	85.63		
170.00	2.12	2.10	2.07	2.04	2.01	1.98	1.97	109.75	164.30	171.86	155.38	96.67		
180.00	1.97	1.93	1.88	1.83	1.80	1.76	1.75	126.51	173.86	175.68	160.57	106.90		
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.52	147.67	185.91	180.00	164.96	116.94		
200.00	1.62	1.55	1.48	1.42	1.37	1.33	1.32	177.13	203.58	187.17	170.50	127.75		
210.00	1.45	1.37	1.30	1.23	1.19	1.15	1.14	231.21	229.40	199.08	178.90	140.74		
220.00	1.30	1.21	1.14	2.23	7.34	1.95	6.22	331.77	265.02	217.22	191.65	157.54		
230.00	1.16	1.07	0.99	15.88	31.49	9.40	24.33	426.88	311.24	242.65	209.93	179.79		
240.00	1.04	0.94	0.87	58.22	81.18	26.15	59.63	531.95	368.38	275.95	234.59	208.79		
250.00	1.87	0.83	6.60	136.13	148.50	50.29	106.42	636.79	469.77	317.39	266.15	245.41		
260.00	11.94	1.15	33.33	234.63	215.69	75.47	152.99	729.61	573.00	367.17	304.89	290.13		
270.00	46.18	9.54	99.66	328.81	268.19	95.87	189.81	801.47	689.61	445.71	351.03	343.31		
280.00	123.47	42.05	207.17	400.36	300.32	108.86	212.99	848.10	815.45	535.38	404.87	406.59		
290.00	251.09	118.41	334.66	443.09	313.35	114.60	223.17	869.56	940.48	634.05	493.87	529.14		
300.00	416.91	242.20	453.77	459.52	311.79	114.79	223.21	868.93	1053.98	742.55	585.79	632.46		
320.00	761.28	545.16	601.01	439.19	283.36	105.43	205.14	819.53	1215.78	961.10	799.77	873.45		
340.00	990.90	759.14	624.13	385.68	242.44	91.03	177.38	734.85	1274.29	1132.66	1023.86	1112.52		
360.00	1069.94	826.46	576.19	325.81	201.96	76.67	149.24	639.84	1245.82	1223.71	1201.98	1285.95		
380.00	1041.98	793.07	502.50	270.51	166.39	64.14	124.18	548.11	1161.93	1235.21	1301.24	1365.30		
400.00	958.44	713.25	426.47	223.03	136.61	53.83	103.01	465.56	1051.02	1187.32	1320.81	1358.99		
420.00	854.27	620.57	357.41	183.52	112.23	45.60	85.59	393.90	932.53	1103.51	1278.87	1292.33		
440.00	748.43	531.02	297.94	151.13	92.49	39.18	71.46	332.86	817.67	1002.81	1197.91	1191.37		
460.00	649.69	450.73	247.97	124.77	76.62	34.27	60.10	281.34	711.96	898.02	1097.03	1075.97		
480.00	561.32	381.24	206.47	103.43	63.95	30.59	51.07	238.07	617.53	796.72	989.65	958.94		
500.00	483.93	322.12	172.23	86.22	53.91	27.88	43.96	201.79	534.59	702.79	884.06	847.55		
550.00	333.61	212.11	111.07	56.81	37.40	24.00	32.48	134.75	372.30	507.79	652.21	611.65		
600.00	231.41	141.70	74.34	40.71	29.10	22.42	26.91	91.64	260.53	365.84	476.01	438.51		
650.00	162.52	97.26	53.10	32.62	25.34	21.81	24.45	64.09	183.96	264.81	347.77	315.51		
700.00	116.44	69.88	41.58	28.92	23.77	21.58	23.43	46.86	131.54	193.31	255.61	228.87		
750.00	86.09	53.75	35.84	27.35	23.14	21.49	23.01	36.55	95.78	142.80	189.60	167.97		
800.00	66.65	44.84	33.18	26.71	22.89	21.46	22.84	30.77	71.64	107.28	142.43	125.35		
850.00	54.71	40.23	32.01	26.45	22.79	21.44	22.78	27.75	55.70	82.54	108.91	95.78		
900.00	47.74	37.97	31.50	26.34	22.76	21.44	22.75	26.26	45.53	65.64	85.36	75.64		
950.00	43.86	36.90	31.28	26.30	22.74	21.44	22.74	25.54	39.33	54.41	69.15	62.31		
1000.00	41.78	36.39	31.18	26.28	22.73	21.43	22.73	25.20	35.72	47.22	58.29	53.79		
1050.00	40.68	36.15	31.14	26.27	22.73	21.43	22.73	25.04	33.70	42.78	51.26	48.56		
1100.00	40.11	36.04	31.12	26.27	22.73	21.43	22.73	24.96	32.58	40.13	46.85	45.44		
1150.00	39.81	35.99	31.11	26.27	22.73	21.43	22.73	24.93	31.98	38.58	44.17	43.63		
1200.00	39.65	35.96	31.11	26.27	22.73	21.43	22.73	24.91	31.66	37.68	42.57	42.60		
1250.00	39.57	35.95	31.10	26.27	22.73	21.43	22.73	24.90	31.48	37.17	41.63	42.01		

ELECTRON CONTENT = 2.51E 13 1.78E 13 1.29E 13 9.36E 12 6.68E 12 3.53E 12 5.38E 12 2.04E 13 3.48E 13 3.74E 13 4.14E 13 4.03E 13
 PEAK ELECTRON DENSITY = 1.07E 06 8.27E 05 6.27E 05 4.60E 05 3.14E 05 1.15E 05 2.24E 05 8.72E 05 1.27E 06 1.24E 06 1.32E 06 1.37E 06
 HEIGHT OF PEAK = 363.13 361.33 334.36 302.78 293.53 294.97 294.81 294.58 342.35 373.02 395.34 388.02
 ESROB PERCENT = 56.12 39.34 22.61 10.40 6.00 10.57 22.90 39.68 56.41 68.62 73.02 68.45
 AVNES/1000. CM-3 = 99.94 76.61 58.22 45.42 38.03 35.64 99.94 196.67 191.18 175.69 152.87 126.37
 SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -90.00 LATITUDE = 0.0
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	44.45	78.79	93.69	78.81	44.45		
130.00	1.47	1.48	1.48	1.48	1.49	1.49	1.49	67.80	121.24	137.88	120.41	66.26		
140.00	1.86	1.87	1.89	1.91	1.92	1.94	1.94	94.38	147.59	163.46	146.22	90.59		
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.19	112.87	163.06	177.84	162.57	107.90		
160.00	2.20	2.19	2.19	2.18	2.17	2.16	2.15	126.14	169.46	183.10	171.95	121.07		
170.00	2.12	2.10	2.07	2.04	2.01	1.98	1.97	135.01	169.10	182.17	176.05	131.50		
180.00	1.97	1.93	1.88	1.83	1.80	1.76	1.75	141.04	165.45	178.51	177.39	139.84		
190.00	1.80	1.74	1.68	1.62	1.58	1.54	1.52	147.01	161.52	174.88	178.44	147.26		
200.00	1.62	1.55	1.48	1.42	1.34	1.33	1.32	155.91	159.41	173.19	181.20	155.42		
210.00	1.45	1.37	1.30	1.29	19.20	6.14	1.14	170.44	160.61	174.77	187.26	166.04		
220.00	1.30	1.21	1.67	11.08	62.22	24.04	6.35	192.79	166.29	180.69	197.93	180.82		
230.00	1.16	1.07	13.45	46.00	132.10	57.84	24.87	227.65	177.40	191.80	214.21	201.21		
240.00	1.04	0.94	54.88	116.72	211.32	100.51	61.01	290.59	194.66	208.75	236.87	228.31		
250.00	0.93	0.83	140.56	212.23	279.70	140.51	108.92	359.44	218.54	231.99	266.33	262.81		
260.00	0.83	0.74	261.17	308.01	326.05	169.82	156.63	427.49	249.28	261.72	302.84	305.12		
270.00	0.75	0.66	388.87	383.69	349.06	186.19	194.38	487.36	301.25	298.12	346.59	355.56		
280.00	3.80	0.58	496.96	430.95	352.95	191.23	218.16	533.54	361.41	356.65	419.81	426.21		
290.00	19.82	0.52	571.45	451.19	343.53	188.13	228.61	563.47	428.49	423.36	497.20	523.61		
300.00	66.63	2.29	610.83	450.44	325.87	179.77	228.66	577.30	498.00	498.27	584.09	623.36		
320.00	306.38	55.66	609.33	411.79	280.10	155.86	210.13	565.47	621.79	658.46	772.48	851.56		
340.00	670.58	268.84	550.13	353.97	233.26	130.47	181.67	520.17	698.24	796.36	939.63	1068.70		
360.00	971.31	562.17	473.61	295.93	191.69	107.70	152.81	460.99	719.33	880.73	1047.85	1218.28		
380.00	1117.60	761.04	398.76	244.47	156.80	88.58	127.08	400.02	696.66	905.55	1087.04	1279.42		
400.00	1130.78	821.48	332.41	201.08	128.21	73.00	105.35	343.25	647.14	882.56	1068.41	1263.57		
420.00	1064.83	788.11	276.04	165.32	105.07	60.52	87.44	292.98	585.10	828.59	1010.65	1195.18		
440.00	963.27	710.96	229.09	136.16	86.47	50.63	72.90	249.60	520.08	758.55	931.28	1097.96		
460.00	852.19	621.22	190.37	112.53	71.59	42.88	61.20	212.65	457.54	683.03	843.26	989.44		
480.00	744.77	534.03	158.59	93.48	59.76	36.90	51.86	181.40	400.10	608.54	754.91	880.69		
500.00	646.68	455.41	132.61	78.20	50.43	32.34	44.50	155.03	348.76	538.62	670.94	777.88		
550.00	449.72	302.65	86.99	52.36	35.25	25.45	32.53	105.86	246.54	391.81	492.08	561.38		
600.00	312.86	202.01	60.58	38.57	27.77	22.46	26.66	73.86	175.18	284.08	358.98	403.03		
650.00	219.55	137.16	46.19	31.87	24.44	21.25	24.04	53.25	126.06	207.23	263.03	290.72		
700.00	156.38	96.06	39.00	28.90	23.08	20.79	22.94	40.36	92.51	152.92	194.56	211.78		
750.00	114.06	70.75	35.68	27.66	22.54	20.61	22.50	32.73	69.92	114.80	145.96	156.55		
800.00	86.23	55.90	34.23	27.16	22.33	20.54	22.32	28.53	55.08	88.34	111.74	118.19		
850.00	68.53	47.73	33.61	26.96	22.25	20.51	22.24	26.36	45.71	70.34	87.98	91.97		
900.00	57.77	43.50	33.35	26.88	22.21	20.50	22.21	25.30	40.06	58.46	71.88	74.47		
950.00	51.54	41.41	33.23	26.85	22.20	20.50	22.20	24.79	36.81	50.90	61.30	63.21		
1000.00	48.08	40.40	33.18	26.83	22.20	20.50	22.20	24.55	35.00	46.27	54.60	56.23		
1050.00	46.21	39.92	33.16	26.83	22.19	20.50	22.19	24.43	34.01	43.53	50.50	52.06		
1100.00	45.22	39.69	33.15	26.82	22.19	20.50	22.19	24.38	33.48	41.94	48.05	49.64		
1150.00	44.70	39.58	33.15	26.82	22.19	20.50	22.19	24.35	33.20	41.03	46.62	48.25		
1200.00	44.42	39.52	33.15	26.82	22.19	20.50	22.19	24.34	33.04	40.51	45.78	47.47		
1250.00	44.27	39.50	33.15	26.82	22.19	20.50	22.19	24.33	32.96	40.22	45.30	47.02		

ELECTRON CONTENT = 2.71E 13 1.81E 13 1.29E 13 9.26E 12 7.22E 12 4.58E 12 5.42E 12 1.50E 13 2.17E 13 2.88E 13 3.47E 13 3.85E 13
 PEAK ELECTRON DENSITY = 1.14E 06 8.22E 05 6.21E 05 4.53E 05 3.53E 05 1.91E 05 2.30E 05 5.79E 05 7.19E 05 9.06E 05 1.09E 06 1.28E 06
 HEIGHT OF PEAK = 392.07 400.84 309.02 294.39 277.32 280.45 294.83 304.67 358.38 379.22 382.55 385.05
 ES PROB PERCENT = 63.00 59.43 55.81 53.11 52.06 52.95 55.52 59.09 62.71 65.41 66.45 65.57
 AVNES/1000. CM-3 = 92.03 66.75 47.42 34.42 27.17 24.87 92.03 201.64 195.28 177.42 151.31 121.37
 SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

MONTH = 6

[illegible]

ELECTRON CONTENT	=	2.29E 13	1.52E 13	1.15E 13	9.19E 12	7.34E 12	6.55E 12	8.79E 12	1.47E 13	1.95E 13	2.64E 13	3.00E 13	2.79E 13
PEAK ELECTRON DENSITY	=	8.95E 05	6.95E 05	5.32E 05	4.23E 05	3.20E 05	2.74E 05	3.42E 05	5.69E 05	6.65E 05	8.89E 05	1.02E 06	1.00E 06
HEIGHT OF PEAK	=	311.72	330.21	352.44	346.04	333.28	329.14	299.72	279.20	317.57	322.22	319.67	305.19
ESPROB PERCENT	=	73.42	66.65	61.09	58.24	58.84	62.76	68.92	75.69	81.24	84.10	83.49	79.58
AYNES/1000. CM-3	=	134.59	100.21	73.54	55.30	44.96	41.64	134.59	280.55	272.17	248.58	213.96	174.04
SIGMA FS	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

MONTH = 6

ELECTRON CONTENT	=	1.26E 13	9.77E 12	7.31E 12	5.40E 12	4.38E 12	4.41E 12	6.65E 12	9.34E 12	1.14E 13	1.31E 13	1.34E 13	1.29E 13
PEAK ELECTRON DENSITY	=	4.44E 05	4.19E 05	3.01E 05	1.97E 05	1.34E 05	1.37E 05	2.26E 05	3.34E 05	3.64E 05	4.04E 05	4.12E 05	4.07E 05
HEIGHT OF PEAK	=	290.19	312.38	360.19	360.83	351.94	342.08	267.61	249.72	270.13	277.81	277.15	282.64
ESPROB PERCENT	=	56.88	42.51	31.17	25.91	28.14	37.25	50.81	65.18	76.52	81.78	79.55	70.44
AVNSES/1000. CM-3	=	89.17	66.51	48.92	36.88	30.04	27.85	89.17	185.21	179.70	164.18	141.41	115.14
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -90.00 LATITUDE = 60.00

S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	37.24	22.31	1.70	1.70	1.70	22.31	37.24	54.31	72.52	79.82	72.54	54.31	
130.00	46.76	21.31	1.48	1.48	1.49	21.21	47.94	87.56	113.62	122.18	112.75	85.84	
140.00	67.41	20.43	1.89	1.91	1.92	20.73	71.37	115.13	140.68	148.72	139.09	111.40	
150.00	84.34	24.87	2.16	2.17	2.18	27.31	89.57	133.51	157.99	165.71	156.79	128.80	
160.00	97.29	33.32	2.19	2.18	2.17	37.47	102.63	145.43	167.81	175.52	168.75	141.52	
170.00	107.98	42.02	2.07	2.04	2.01	46.42	111.61	151.93	172.13	180.28	176.49	150.54	
180.00	117.04	49.76	1.88	1.83	1.80	53.46	116.88	155.81	174.32	183.08	182.42	157.01	
190.00	125.08	56.91	1.68	1.62	1.58	58.84	120.20	160.58	177.63	186.84	189.12	162.72	
200.00	133.33	64.08	1.48	1.42	1.37	62.42	124.17	169.41	184.69	193.92	198.90	169.63	
210.00	143.46	71.77	1.30	1.23	1.19	64.21	131.41	183.49	190.91	198.55	214.41	179.57	
220.00	163.57	80.75	1.14	1.07	1.03	64.70	143.70	211.86	220.80	229.99	246.47	198.33	
230.00	199.04	104.19	0.99	0.93	0.89	64.68	172.11	233.88	246.18	258.08	274.91	230.53	
240.00	234.41	136.51	0.87	0.81	0.77	65.02	195.09	248.10	265.23	280.83	297.90	259.85	
250.00	266.40	172.19	0.76	0.71	0.67	66.59	210.36	254.61	277.31	297.18	314.46	284.21	
260.00	292.35	209.35	1.40	0.62	0.59	70.22	217.63	254.48	282.73	306.96	324.44	302.36	
270.00	310.82	243.88	8.62	2.56	4.21	76.78	217.96	249.24	282.41	310.66	328.34	313.92	
280.00	321.53	272.10	29.69	12.59	16.85	89.05	213.05	240.40	277.52	309.20	327.03	319.26	
290.00	325.12	291.87	68.28	36.45	42.07	111.34	204.61	229.31	269.29	303.63	321.53	319.17	
300.00	322.73	302.73	118.58	73.38	76.17	132.42	194.10	217.00	258.79	294.98	312.87	314.67	
320.00	305.33	301.61	211.09	152.24	138.65	161.19	170.93	191.56	234.31	272.08	289.58	296.50	
340.00	278.80	280.67	253.74	193.96	165.01	167.80	148.64	167.61	208.92	246.09	262.80	271.76	
360.00	249.60	251.28	252.07	196.31	161.24	158.80	129.04	146.41	185.01	220.27	235.90	245.17	
380.00	221.27	220.51	228.32	178.35	143.78	142.98	112.39	128.15	163.55	196.24	210.64	219.37	
400.00	195.39	191.77	197.77	154.03	122.96	125.92	98.37	112.54	144.70	174.61	187.73	195.59	
420.00	172.45	166.31	167.77	130.05	103.33	110.15	86.56	99.22	128.31	155.47	167.34	174.27	
440.00	152.40	144.30	141.09	108.86	86.38	96.44	76.52	87.81	114.08	138.67	149.36	155.41	
460.00	134.98	125.47	118.36	91.00	72.31	84.80	67.93	77.98	101.73	123.96	133.57	138.84	
480.00	119.86	109.41	99.43	76.31	60.90	74.94	60.52	69.46	90.97	111.07	119.70	124.31	
500.00	106.72	95.71	83.85	64.41	51.77	66.57	54.07	62.04	81.56	99.76	107.50	111.55	
550.00	80.71	69.45	56.51	44.17	36.70	50.44	41.26	47.31	62.73	77.01	82.96	85.93	
600.00	61.96	51.48	40.94	33.39	29.10	39.00	31.99	36.67	48.94	60.25	64.86	67.09	
650.00	48.34	39.24	32.72	28.16	25.63	30.66	25.37	29.08	38.78	47.79	51.43	53.11	
700.00	38.52	31.15	28.73	25.84	24.17	24.62	20.89	23.88	31.41	38.57	41.49	42.73	
750.00	31.62	26.15	26.93	24.86	23.57	20.42	18.16	20.59	26.26	31.88	34.27	35.16	
800.00	27.03	23.33	26.14	24.46	23.33	17.78	16.72	18.72	22.86	27.22	29.22	29.82	
850.00	24.18	21.87	25.81	24.29	23.24	16.31	16.04	17.77	20.80	24.15	25.86	26.24	
900.00	22.53	21.16	25.66	24.23	23.20	15.60	15.75	17.31	19.64	22.27	23.76	23.99	
950.00	21.65	20.83	25.60	24.20	23.18	15.27	15.63	17.10	19.03	21.17	22.51	22.66	
1000.00	21.18	20.68	25.57	24.19	23.17	15.14	15.58	17.01	18.71	20.56	21.81	21.91	
1050.00	20.95	20.60	25.56	24.18	23.17	15.08	15.56	16.96	18.55	20.24	21.42	21.49	
1100.00	20.83	20.57	25.56	24.18	23.17	15.05	15.55	16.94	18.47	20.06	21.21	21.27	
1150.00	20.77	20.56	25.56	24.18	23.17	15.04	15.54	16.93	18.43	19.97	21.09	21.15	
1200.00	20.74	20.55	25.55	24.18	23.17	15.04	15.54	16.93	18.41	19.92	21.03	21.08	
1250.00	20.72	20.55	25.55	24.18	23.17	15.03	15.54	16.93	18.40	19.89	21.00	21.05	

ELECTRON CONTENT	=	1.00E 13	8.47E 12	6.22E 12	5.02E 12	4.40E 12	5.33E 12	6.41E 12	7.65E 12	9.11E 12	1.04E 13	1.09E 13	1.07E 13
PEAK ELECTRON DENSITY	=	3.25E 05	3.06E 05	2.57E 05	1.99E 05	1.66E 05	1.68E 05	2.19E 05	2.55E 05	2.83E 05	3.11E 05	3.28E 05	3.20E 05
HEIGHT OF PEAK	=	290.65	308.75	348.31	350.87	345.87	336.62	265.42	254.68	264.28	271.87	272.21	284.73
ESPROB PERCENT	=	39.26	24.42	12.50	6.71	8.58	17.63	31.42	46.27	58.18	63.98	62.10	53.06
AVNES/1000. CM-3	=	41.28	29.84	21.12	15.26	12.00	10.97	41.28	90.97	88.08	79.98	68.14	54.56
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (IA.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	22.29	11.69	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	11.69
130.00	21.28	15.13	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49	1.49	15.14
140.00	20.47	14.44	1.86	1.86	1.87	1.89	1.91	1.92	1.94	1.94	1.93	14.29
150.00	25.22	13.35	2.13	2.14	2.15	2.16	2.17	2.18	2.18	2.19	2.18	13.21
160.00	34.30	13.58	3.08	2.20	2.19	2.19	2.18	2.17	2.16	2.15	2.16	14.08
170.00	44.83	16.28	13.45	2.12	2.10	2.07	2.04	2.01	1.98	1.97	2.01	17.94
180.00	56.94	21.78	39.24	1.97	1.93	1.88	1.83	1.80	1.76	1.75	1.80	24.10
190.00	73.02	30.59	84.95	1.80	1.74	1.68	1.62	1.58	1.54	1.52	5.51	32.21
200.00	96.86	44.94	147.51	2.40	1.55	1.48	1.42	1.37	1.33	1.32	17.30	43.59
210.00	238.33	216.34	217.60	10.32	1.37	1.30	1.23	1.19	1.15	1.14	37.64	145.84
220.00	394.66	414.47	284.53	29.28	2.06	1.14	1.07	1.03	0.99	0.99	63.29	268.88
230.00	438.73	458.23	340.23	61.41	9.00	0.99	0.93	0.89	0.86	0.86	88.78	302.31
240.00	472.64	491.74	380.76	103.30	24.80	0.87	0.81	0.77	1.81	0.75	109.65	327.82
250.00	495.17	513.91	405.70	147.89	49.43	0.76	0.71	0.67	7.17	1.38	123.82	344.32
260.00	506.52	525.01	416.81	188.20	78.38	0.67	0.62	0.59	17.55	6.18	131.26	352.00
270.00	507.92	526.22	416.81	219.72	105.76	1.53	0.54	0.93	31.12	16.87	133.11	351.95
280.00	501.09	519.22	408.53	240.83	127.31	7.50	2.40	5.21	44.35	32.72	130.81	345.65
290.00	487.91	505.80	394.50	252.04	141.38	22.04	10.18	16.38	54.54	50.14	125.74	334.70
300.00	470.13	487.69	376.77	254.99	148.28	45.47	26.69	34.72	60.70	65.31	119.01	320.53
320.00	426.61	443.09	336.05	243.89	146.19	99.44	75.48	75.93	62.72	82.01	103.50	287.13
340.00	379.43	394.33	294.31	220.88	132.58	132.37	111.63	98.63	56.95	82.55	88.03	252.14
360.00	333.61	346.58	255.25	194.28	115.31	138.27	121.36	100.33	48.75	74.78	74.08	219.06
380.00	291.53	302.46	220.25	168.27	98.24	128.28	113.95	90.98	40.62	64.42	62.04	189.32
400.00	254.04	262.95	189.59	144.59	82.85	112.31	99.78	78.17	33.44	54.19	51.85	163.30
420.00	221.19	228.21	163.05	123.76	69.56	95.60	84.55	65.51	27.39	45.08	43.32	140.83
440.00	192.64	197.98	140.22	105.75	58.28	80.28	70.54	54.27	22.41	37.33	36.20	121.56
460.00	167.94	171.81	120.64	90.34	48.82	67.00	58.45	44.74	18.32	30.86	30.27	105.07
480.00	146.59	149.22	103.88	77.20	40.90	55.78	48.30	36.82	14.99	25.50	25.33	90.96
500.00	128.14	129.73	89.54	66.02	34.28	46.40	39.88	30.30	12.28	21.09	21.22	78.86
550.00	92.10	91.91	62.13	44.92	22.15	29.34	24.75	18.66	7.50	13.16	13.69	55.58
600.00	66.74	65.63	43.59	30.94	14.40	18.65	15.45	11.57	4.63	8.27	8.90	39.51
650.00	48.70	47.25	31.10	21.72	9.42	11.94	9.72	7.23	2.91	5.25	5.83	28.29
700.00	35.76	34.33	22.78	15.72	6.22	7.70	6.16	4.57	1.88	3.38	3.86	20.38
750.00	26.40	25.23	17.35	11.93	4.14	5.01	3.95	2.93	1.29	2.22	2.60	14.77
800.00	19.59	18.84	13.93	9.62	2.80	3.30	2.58	1.93	0.96	1.52	1.80	10.76
850.00	14.61	14.39	11.87	8.30	1.94	2.22	1.74	1.34	0.79	1.10	1.30	7.88
900.00	10.94	11.37	10.70	7.59	1.39	1.54	1.23	1.00	0.72	0.88	1.00	5.80
950.00	8.23	9.38	10.06	7.21	1.06	1.14	0.95	0.82	0.68	0.76	0.83	4.29
1000.00	6.21	8.13	9.71	7.02	0.87	0.90	0.80	0.73	0.67	0.71	0.74	3.19
1050.00	4.72	7.37	9.53	6.92	0.76	0.78	0.72	0.69	0.66	0.68	0.70	2.40
1100.00	3.60	6.94	9.43	6.87	0.71	0.72	0.69	0.67	0.66	0.67	0.68	1.82
1150.00	2.76	6.69	9.38	6.85	0.68	0.69	0.67	0.67	0.66	0.66	0.67	1.40
1200.00	2.14	6.55	9.35	6.83	0.67	0.67	0.67	0.66	0.66	0.66	0.66	1.10
1250.00	1.67	6.48	9.34	6.83	0.67	0.67	0.66	0.66	0.66	0.66	0.66	0.90

ELECTRON CONTENT	=	1.21E 13	1.23E 13	9.51E 12	5.63E 12	2.82E 12	2.53E 12	2.14E 12	1.76E 12	1.09E 12	1.50E 12	2.48E 12	7.84E 12
PEAK ELECTRON DENSITY	=	5.08E 05	5.27E 05	4.18E 05	2.55E 05	1.50E 05	1.39E 05	1.21E 05	1.02E 05	6.33E 04	8.38E 04	1.33E 05	3.53E 05
HEIGHT OF PEAK	=	266.47	266.27	264.87	299.17	307.07	355.23	358.94	351.55	313.14	330.29	268.88	264.83
ESPROB PERCENT	=	30.66	29.84	26.06	20.34	14.21	9.30	6.95	7.77	11.54	17.26	23.40	28.30
AVNES/1000. CM-3	=	30.60	28.93	26.90	24.73	22.65	20.85	19.48	18.62	18.33	24.73	32.08	31.70
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = -40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	43.64	37.74	19.86	1.70	1.70	1.70	1.70	1.70	1.70	1.70	19.86	37.74
130.00	65.11	48.45	19.90	1.47	1.48	1.48	1.48	1.49	1.49	1.49	19.79	49.06
140.00	91.39	70.48	18.41	1.86	1.87	1.89	1.91	1.92	1.94	1.94	18.36	72.41
150.00	112.78	89.95	20.06	2.14	2.15	2.16	2.17	2.18	2.18	2.19	21.88	92.41
160.00	133.68	108.26	26.17	2.20	2.19	2.19	2.18	2.17	2.16	2.15	30.42	110.85
170.00	157.64	128.99	35.20	2.12	2.10	2.07	2.04	2.01	1.98	1.97	40.18	131.33
180.00	188.12	155.30	46.81	1.97	1.93	1.88	1.83	1.80	1.76	1.75	50.52	157.01
190.00	229.29	190.74	63.17	1.80	1.74	1.68	1.62	1.58	1.54	1.52	63.36	191.97
200.00	284.84	239.05	88.80	8.56	1.55	1.48	1.42	1.37	1.33	1.32	81.84	240.44
210.00	428.62	385.59	258.61	26.83	1.37	1.30	1.23	1.19	1.15	1.14	162.25	367.51
220.00	565.44	529.44	434.24	60.41	3.64	1.14	1.07	1.03	0.99	0.99	246.14	487.80
230.00	617.95	580.14	471.50	106.81	13.76	0.99	0.93	0.89	0.86	0.86	270.09	533.06
240.00	655.28	617.68	497.06	158.40	34.21	0.87	0.81	0.77	0.75	0.75	284.75	563.23
250.00	676.92	641.26	510.84	206.63	63.39	0.76	0.71	0.67	4.55	3.46	290.45	578.33
260.00	684.09	651.59	513.96	245.45	95.43	0.89	0.62	0.80	15.33	12.88	288.60	580.03
270.00	678.95	650.36	508.17	272.30	124.07	5.31	1.97	5.14	33.80	30.88	281.01	570.85
280.00	664.09	639.70	495.42	287.37	145.45	17.83	9.60	17.78	55.93	54.73	269.47	553.51
290.00	642.04	621.84	477.60	292.40	158.49	40.30	27.61	40.18	76.16	78.76	255.50	530.52
300.00	615.04	598.80	456.37	289.72	163.99	69.13	55.33	67.94	90.89	98.22	240.29	504.00
320.00	553.32	543.87	408.78	269.72	159.17	121.26	114.16	114.18	101.82	117.11	209.25	446.55
340.00	489.36	485.04	360.13	240.64	143.37	144.70	145.06	130.82	96.41	115.11	180.30	389.79
360.00	428.71	428.04	314.31	209.93	124.47	143.26	146.62	125.50	84.50	103.29	154.81	337.73
380.00	373.78	375.62	273.02	181.05	106.19	129.60	133.07	110.86	71.61	88.84	132.96	291.74
400.00	325.26	328.78	236.66	155.27	89.94	112.26	114.82	94.31	59.92	75.01	114.42	251.87
420.00	282.97	287.57	205.07	132.87	76.05	95.31	96.85	78.97	50.05	62.94	98.74	217.63
440.00	246.35	251.62	177.80	113.68	64.40	80.28	80.96	65.80	42.01	52.84	85.45	188.33
460.00	214.74	220.38	154.34	97.36	54.76	67.52	67.55	54.90	35.58	44.58	74.17	163.26
480.00	187.45	193.27	134.17	83.55	46.85	56.92	56.50	46.04	30.53	37.91	64.56	141.81
500.00	163.89	169.75	116.84	71.89	40.42	48.24	47.52	38.93	26.63	32.61	56.35	123.41
550.00	117.98	123.54	83.38	50.28	29.33	33.18	32.15	27.07	20.58	23.89	40.60	87.91
600.00	85.80	90.80	60.35	36.56	23.26	24.83	23.82	20.97	17.83	19.52	29.88	63.37
650.00	63.09	67.43	44.53	28.18	20.19	20.56	19.69	18.13	16.69	17.53	22.72	46.34
700.00	47.04	50.71	33.79	23.33	18.74	18.56	17.83	16.92	16.23	16.68	18.16	34.57
750.00	35.78	38.80	26.69	20.68	18.08	17.68	17.03	16.42	16.05	16.33	15.50	26.58
800.00	28.02	30.43	22.21	19.31	17.79	17.30	16.71	16.22	15.98	16.18	14.08	21.38
850.00	22.85	24.71	19.53	18.63	17.67	17.14	16.57	16.14	15.95	16.12	13.39	18.18
900.00	19.58	20.97	18.01	18.29	17.61	17.07	16.52	16.10	15.94	16.10	13.08	16.35
950.00	17.62	18.64	17.18	18.12	17.58	17.04	16.49	16.09	15.94	16.09	12.93	15.37
1000.00	16.51	17.26	16.74	18.04	17.57	17.03	16.48	16.08	15.94	16.08	12.87	14.86
1050.00	15.90	16.48	16.51	18.00	17.57	17.02	16.48	16.08	15.94	16.08	12.84	14.60
1100.00	15.57	16.04	16.39	17.98	17.56	17.02	16.48	16.08	15.94	16.08	12.83	14.47
1150.00	15.40	15.81	16.33	17.97	17.56	17.02	16.48	16.08	15.94	16.08	12.82	14.41
1200.00	15.31	15.68	16.30	17.96	17.56	17.02	16.48	16.08	15.94	16.08	12.82	14.38
1250.00	15.26	15.61	16.28	17.96	17.56	17.02	16.48	16.08	15.94	16.08	12.82	14.36

ELECTRON CONTENT	=	1.73E 13	1.69E 13	1.23E 13	7.09E 12	4.25E 12	3.73E 12	3.64E 12	3.31E 12	2.85E 12	3.17E 12	6.79E 12	1.40E 13
PEAK ELECTRON DENSITY	=	6.84E 05	6.52E 05	5.14E 05	2.92E 05	1.64E 05	1.46E 05	1.49E 05	1.31E 05	1.02E 05	1.18E 05	2.91E 05	5.81E 05
HEIGHT OF PEAK	=	260.49	263.76	258.17	291.00	304.05	347.75	350.70	343.00	320.77	326.67	252.21	256.32
ESPROB PERCENT	=	56.59	54.74	47.05	35.59	23.42	13.81	9.33	11.18	18.87	30.34	42.50	52.12
AVNES/1000. CM-3	=	73.21	64.98	55.30	45.49	36.63	29.46	24.33	21.29	20.29	45.49	80.71	78.75
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = -20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	70.80	58.05	34.71	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	34.71	58.06		
130.00	111.30	92.40	39.16	1.47	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	39.98	93.61		
140.00	139.38	119.11	56.68	1.86	1.87	1.89	1.91	1.92	1.94	1.94	1.94	1.94	60.54	122.39		
150.00	160.05	138.37	73.79	2.14	2.15	2.16	2.17	2.18	2.18	2.18	2.19	2.19	80.46	144.63		
160.00	176.81	154.06	88.43	2.20	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.15	99.13	164.81		
170.00	191.99	167.69	102.82	2.12	2.10	2.07	2.04	2.01	1.98	1.97	1.97	1.97	120.86	185.71		
180.00	209.12	181.31	118.89	1.97	1.93	1.88	1.83	1.80	1.76	1.75	1.75	1.75	150.11	211.56		
190.00	231.96	197.56	138.48	1.80	1.74	1.68	1.62	1.58	1.54	1.52	1.52	1.52	192.60	247.16		
200.00	263.69	219.14	163.96	2.62	1.55	1.48	1.42	1.37	1.33	1.32	1.32	1.32	253.91	296.27		
210.00	329.39	248.35	271.05	13.79	1.37	1.30	1.23	1.19	1.15	1.14	1.14	1.14	416.07	395.88		
220.00	411.75	308.50	344.26	45.46	1.21	1.14	1.27	1.20	0.99	0.99	0.99	0.99	596.50	538.29		
230.00	503.41	381.60	423.71	106.50	6.53	4.60	8.68	8.29	0.86	3.75	685.09	654.06				
240.00	600.86	462.72	509.76	194.42	25.21	19.73	30.89	29.48	0.75	16.90	751.76	768.35				
250.00	696.89	549.02	596.44	295.71	63.88	52.33	70.74	67.12	0.77	45.90	792.59	870.54				
260.00	783.92	634.55	676.81	393.55	120.18	99.62	120.20	113.13	5.04	88.17	808.37	952.45				
270.00	855.89	713.08	744.96	474.96	183.19	150.87	166.81	155.68	17.52	133.69	902.83	1009.68				
280.00	909.25	779.43	797.06	533.58	240.58	195.08	201.76	186.82	39.59	172.37	780.88	1041.56				
290.00	942.92	830.34	831.60	568.74	284.32	226.18	222.27	204.37	66.73	198.88	747.46	1050.20				
300.00	957.88	864.54	849.03	583.30	311.80	243.16	229.78	210.00	92.18	212.65	706.82	1039.32				
320.00	941.42	885.75	840.57	568.03	324.87	244.41	219.20	198.60	122.36	211.59	616.53	975.77				
340.00	882.76	857.64	791.85	519.77	303.53	221.86	192.74	173.60	125.53	190.54	527.15	981.51				
360.00	802.85	799.20	722.22	460.01	268.46	191.90	163.42	146.66	114.92	163.85	446.28	777.93				
380.00	716.27	726.29	645.45	400.00	231.14	162.42	136.55	122.31	99.95	138.15	376.22	677.18				
400.00	631.58	649.57	569.77	344.67	196.51	136.33	113.69	101.81	85.30	115.74	316.82	585.01				
420.00	553.13	575.29	499.38	295.71	166.23	114.29	94.89	85.12	72.62	97.06	266.98	503.45				
440.00	482.66	506.57	436.02	253.28	140.51	96.12	79.75	71.80	62.27	81.85	225.35	432.59				
460.00	420.48	444.68	380.05	216.92	118.98	81.35	67.72	61.35	54.11	69.66	190.62	371.64				
480.00	366.16	389.80	331.14	185.95	101.14	69.48	58.29	53.27	47.83	60.04	161.65	319.48				
500.00	318.98	341.59	288.65	159.66	86.45	60.05	51.01	47.13	43.11	52.54	137.49	274.97				
550.00	226.98	246.23	205.77	110.35	60.55	44.58	39.71	37.87	36.14	40.72	93.18	190.29				
600.00	163.05	178.87	148.17	78.28	45.67	36.86	34.57	33.84	33.18	35.19	65.25	133.40				
650.00	118.58	131.32	108.12	57.92	37.73	33.32	32.41	32.22	32.00	32.82	48.15	95.19				
700.00	87.70	97.76	80.33	45.48	33.80	31.80	31.55	31.58	31.54	31.84	38.27	69.74				
750.00	66.43	74.17	61.25	38.30	31.96	31.17	31.21	31.33	31.36	31.44	33.01	53.14				
800.00	52.05	57.80	48.43	34.37	31.13	30.90	31.07	31.24	31.29	31.28	30.41	42.73				
850.00	42.65	46.70	40.12	32.33	30.76	30.79	31.02	31.20	31.26	31.22	29.19	36.52				
900.00	36.75	39.43	34.97	31.29	30.59	30.75	30.99	31.18	31.25	31.19	28.64	33.02				
950.00	33.22	34.87	31.93	30.78	30.51	30.73	30.98	31.18	31.25	31.18	28.39	31.13				
1000.00	31.19	32.11	30.20	30.52	30.48	30.72	30.98	31.17	31.24	31.18	28.28	30.15				
1050.00	30.06	30.51	29.24	30.39	30.46	30.72	30.98	31.17	31.24	31.17	28.23	29.64				
1100.00	29.43	29.59	28.71	30.32	30.46	30.72	30.98	31.17	31.24	31.17	28.20	29.38				
1150.00	29.08	29.07	28.43	30.29	30.45	30.71	30.98	31.17	31.24	31.17	28.19	29.24				
1200.00	28.90	28.77	28.27	30.27	30.45	30.71	30.98	31.17	31.24	31.17	28.19	29.17				
1250.00	28.79	28.61	28.18	30.27	30.45	30.71	30.98	31.17	31.24	31.17	28.18	29.13				

ELECTRON CONTENT = 2.68E 13 2.59E 13 2.34E 13 1.38E 13 8.07E 12 6.48E 12 6.09E 12 5.76E 12 4.47E 12 5.93E 12 1.81E 13 2.67E 13
 PEAK ELECTRON DENSITY = 9.59E 05 8.86E 05 8.52E 05 5.84E 05 3.26E 05 2.48E 05 2.30E 05 2.10E 05 1.27E 05 2.16E 05 3.09E 05 1.05E 06
 HEIGHT OF PEAK = 303.94 317.38 306.46 303.65 315.37 309.97 302.17 300.81 332.12 308.50 262.07 289.08
 ESPROB PERCENT = 83.00 82.50 72.95 56.92 38.70 23.18 14.51 15.01 24.56 40.59 58.81 74.33
 AVNES/1000. CM-3 = 134.85 113.65 89.51 66.11 46.25 31.38 21.62 16.31 14.65 66.11 154.62 149.42
 SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = 0.0
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY METERS -3 X10-9				(CM. -3 X10-3)									
120.00	93.71	78.81	44.45	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	44.46	78.83	
130.00	138.16	120.43	66.25	1.47	1.48	1.48	1.48	1.49	1.49	1.49	1.49	67.95	121.69	
140.00	164.41	146.29	90.53	1.86	1.87	1.89	1.91	1.92	1.94	1.94	1.94	95.31	149.35	
150.00	180.14	162.74	107.72	2.14	2.15	2.16	2.17	2.18	2.18	2.19	2.19	116.02	167.64	
160.00	187.59	172.30	120.67	2.20	2.19	2.19	2.18	2.17	2.16	2.15	2.15	134.04	178.94	
170.00	189.79	176.66	130.71	2.12	2.10	2.07	2.04	2.01	2.40	1.97	1.97	151.67	186.01	
180.00	190.37	178.35	138.45	1.97	1.93	1.88	1.83	1.80	13.76	1.75	1.75	172.19	192.88	
190.00	192.32	179.86	145.02	1.80	1.74	1.68	1.62	1.58	41.67	1.52	200.39	203.32		
200.00	197.89	183.23	151.96	1.62	1.55	1.48	1.42	1.37	83.06	6.26	240.89	220.41		
210.00	208.80	190.09	160.95	1.45	1.37	1.30	1.23	1.19	125.82	27.85	331.74	246.42		
220.00	226.35	201.74	173.60	1.30	1.21	1.14	1.07	1.03	159.17	73.86	433.25	282.72		
230.00	251.44	219.22	191.31	1.16	1.07	0.99	0.93	5.88	178.88	138.11	547.77	329.92		
240.00	284.55	243.27	215.22	1.04	0.94	0.87	0.81	27.25	185.96	203.97	666.68	408.45		
250.00	325.88	274.30	246.06	0.93	0.83	0.76	0.71	74.22	183.77	256.86	776.42	501.59		
260.00	385.34	312.54	284.28	0.83	0.74	0.67	1.44	141.35	175.63	290.41	865.31	606.06		
270.00	466.36	366.04	330.19	2.51	0.66	0.59	11.35	211.39	164.21	305.24	926.69	719.91		
280.00	553.65	441.40	411.96	14.35	0.58	0.52	45.29	268.49	151.36	305.41	959.16	834.09		
290.00	650.38	521.36	493.11	51.55	0.52	0.46	113.58	305.35	138.24	295.58	965.37	938.65		
300.00	750.87	610.07	584.63	130.97	4.20	4.09	207.07	322.24	125.52	279.69	950.10	1025.42		
320.00	934.38	793.67	782.48	417.31	73.10	72.14	382.54	313.49	102.59	240.43	876.37	1129.24		
340.00	1057.53	945.51	953.71	742.84	296.33	271.38	460.89	277.04	83.56	200.92	774.73	1142.08		
360.00	1104.94	1034.58	1057.71	957.24	565.09	476.59	453.77	234.35	68.25	165.90	668.50	1088.67		
380.00	1087.72	1057.26	1086.85	1030.60	728.64	574.23	406.10	194.46	56.13	136.44	569.33	998.02		
400.00	1026.98	1027.64	1056.47	1003.99	766.45	574.08	347.48	160.12	46.66	112.22	481.69	892.47		
420.00	942.67	964.37	988.21	925.04	725.26	523.26	291.22	131.59	39.35	92.53	406.42	785.94		
440.00	849.40	883.68	900.93	826.32	649.45	455.61	241.88	108.26	33.79	76.65	342.70	685.80		
460.00	756.32	797.07	807.76	725.65	565.23	387.97	200.26	89.35	29.63	63.92	289.15	595.32		
480.00	668.49	711.65	716.61	631.43	484.87	326.94	165.78	74.11	26.59	53.77	244.29	515.39		
500.00	588.26	631.35	631.65	546.85	413.03	274.32	137.48	61.91	24.41	45.76	206.74	445.70		
550.00	424.01	462.00	455.03	379.32	274.34	176.74	87.53	41.36	21.42	32.70	137.54	310.24		
600.00	305.64	336.84	327.01	263.96	183.39	115.70	58.21	30.47	20.27	26.25	93.16	217.44		
650.00	221.84	246.90	236.63	185.77	125.03	78.45	41.79	25.23	19.85	23.36	64.87	154.11		
700.00	162.83	182.85	173.39	133.23	88.29	56.51	33.26	22.93	19.69	22.16	47.21	111.00		
750.00	121.45	137.49	129.44	98.43	65.93	44.35	29.22	21.98	19.64	21.67	36.67	81.89		
800.00	92.71	105.66	99.27	75.99	53.03	38.11	27.43	21.61	19.61	21.48	30.78	62.58		
850.00	73.11	83.67	79.01	62.08	46.07	35.13	26.68	21.45	19.61	21.40	27.71	50.17		
900.00	60.10	68.87	65.83	53.88	42.52	33.76	26.36	21.39	19.60	21.37	26.19	42.54		
950.00	51.79	59.24	57.59	49.27	40.79	33.16	26.23	21.37	19.60	21.36	25.47	38.07		
1000.00	46.67	53.19	52.64	46.77	39.96	32.88	26.17	21.36	19.60	21.36	25.13	35.56		
1050.00	43.63	49.52	49.76	45.45	39.56	32.76	26.15	21.35	19.60	21.35	24.97	34.18		
1100.00	41.87	47.35	48.12	44.75	39.37	32.71	26.14	21.35	19.60	21.35	24.89	33.45		
1150.00	40.87	46.08	47.19	44.39	39.28	32.68	26.14	21.35	19.60	21.35	24.86	33.05		
1200.00	40.29	45.35	46.67	44.19	39.24	32.67	26.13	21.35	19.60	21.35	24.84	32.84		
1250.00	39.97	44.93	46.37	44.09	39.21	32.67	26.13	21.35	19.60	21.35	24.83	32.73		

ELECTRON CONTENT = 3.38E 13 3.36E 13 3.30E 13 2.47E 13 1.71E 13 1.24E 13 9.52E 12 6.75E 12 4.39E 12 6.54E 12 2.24E 13 3.15E 13
 PEAK ELECTRON DENSITY = 1.11E 06 1.06E 06 1.09E 06 1.03E 06 7.67E 05 5.83E 05 4.66E 05 3.24E 05 1.86E 05 3.07E 05 9.66E 05 1.15E 06
 HEIGHT OF PEAK = 363.73 377.54 378.60 383.03 397.41 389.35 347.15 305.62 241.99 274.94 287.55 332.94
 ESPROR PERCENT = 54.16 58.04 57.07 51.52 42.87 33.44 25.76 21.88 22.85 28.40 37.05 46.48
 AVNES/1000. CM-3 = 152.95 134.06 112.02 89.91 70.22 54.55 43.51 37.09 34.99 89.91 170.26 165.74
 SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	103.51	89.48	53.70	24.57	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	24.57	53.68	89.42	
130.00	148.72	133.17	84.97	22.81	1.48	1.48	1.48	1.49	1.49	1.49	1.49	1.49	22.69	86.45	133.60	
140.00	174.54	159.64	111.30	23.24	1.87	1.89	1.91	1.92	1.94	1.94	1.94	1.94	24.22	113.90	159.60	
150.00	188.88	176.87	130.51	30.15	2.15	2.16	2.17	2.18	2.18	2.18	2.18	2.18	34.17	132.06	173.81	
160.00	194.16	187.37	146.63	40.05	2.19	2.19	2.18	2.17	2.16	2.16	2.16	2.16	45.67	143.62	178.00	
170.00	194.04	193.63	161.26	49.72	2.10	2.07	2.04	2.01	1.98	1.98	1.98	1.98	55.09	149.49	175.35	
180.00	192.39	198.82	176.22	59.06	1.93	1.88	1.83	1.80	1.76	1.76	1.76	1.76	62.75	152.31	169.78	
190.00	192.14	205.88	194.08	69.18	1.74	1.68	1.62	1.58	1.54	1.54	1.54	1.54	69.02	155.43	164.30	
200.00	195.39	217.19	217.63	81.48	1.55	1.48	1.42	1.37	1.33	1.33	1.33	1.33	74.06	161.87	160.92	
210.00	203.71	234.63	249.37	97.66	1.37	1.30	1.23	1.19	1.15	1.15	1.15	1.15	78.55	174.11	160.99	
220.00	218.31	259.61	291.07	119.96	1.21	1.14	1.07	1.03	1.00	1.00	1.00	1.00	83.72	194.13	165.56	
230.00	240.03	292.98	343.68	150.97	1.07	0.99	0.93	0.88	0.84	0.84	0.84	0.84	91.13	223.24	175.49	
240.00	269.39	335.15	407.61	192.87	0.94	0.86	0.79	0.74	0.70	0.70	0.70	0.70	102.45	277.17	191.46	
250.00	306.60	386.32	510.58	247.06	0.83	0.75	0.68	0.62	0.58	0.58	0.58	0.58	119.21	344.44	213.91	
260.00	351.82	446.72	634.03	332.74	0.74	0.66	0.59	0.53	0.49	0.49	0.49	0.49	146.95	418.14	243.09	
270.00	413.78	548.18	762.15	481.33	0.67	0.59	0.52	0.46	0.42	0.42	0.42	0.42	173.02	516.20	280.90	
280.00	499.65	651.95	904.83	605.70	0.60	0.52	0.45	0.39	0.35	0.35	0.35	0.35	205.77	636.53	341.04	
290.00	591.37	768.27	1053.63	744.84	0.54	0.46	0.39	0.33	0.29	0.29	0.29	0.29	242.24	786.21	407.40	
300.00	693.20	894.56	1197.30	890.10	0.49	0.41	0.34	0.28	0.24	0.24	0.24	0.24	282.58	936.02	480.56	
320.00	902.17	1144.65	1428.87	1149.18	0.45	0.37	0.30	0.24	0.20	0.20	0.20	0.20	358.58	1246.03	625.39	
340.00	1070.76	1338.07	1550.37	1305.73	0.41	0.33	0.26	0.20	0.16	0.16	0.16	0.16	439.34	1508.81	732.03	
360.00	1164.34	1440.01	1563.02	1343.45	0.38	0.30	0.23	0.17	0.13	0.13	0.13	0.13	503.67	179.08	779.58	
380.00	1181.34	1452.60	1495.83	1290.43	0.35	0.27	0.20	0.14	0.10	0.10	0.10	0.10	562.55	212.76	773.35	
400.00	1139.97	1398.25	1381.94	1184.92	0.32	0.24	0.17	0.11	0.08	0.08	0.08	0.08	615.74	241.93	730.40	
420.00	1062.54	1302.86	1247.53	1057.57	0.29	0.21	0.14	0.09	0.06	0.06	0.06	0.06	662.92	261.33	667.77	
440.00	967.63	1187.66	1109.64	927.65	0.26	0.18	0.11	0.07	0.04	0.04	0.04	0.04	697.67	277.87	597.91	
460.00	867.90	1067.10	977.95	805.39	0.23	0.15	0.09	0.05	0.03	0.03	0.03	0.03	729.33	289.16	528.46	
480.00	770.94	949.91	857.15	695.25	0.20	0.12	0.07	0.04	0.02	0.02	0.02	0.02	808.85	289.12	463.45	
500.00	680.71	840.68	748.97	598.43	0.17	0.09	0.05	0.03	0.01	0.01	0.01	0.01	867.69	289.44	404.65	
550.00	492.77	612.17	532.19	410.31	0.12	0.06	0.03	0.02	0.01	0.01	0.01	0.01	966.08	289.44	286.31	
600.00	355.60	444.19	379.07	282.97	0.08	0.04	0.02	0.01	0.00	0.00	0.00	0.00	1066.21	289.44	203.09	
650.00	257.90	323.65	272.07	197.53	0.05	0.03	0.01	0.00	0.00	0.00	0.00	0.00	1166.90	289.44	145.59	
700.00	188.78	237.69	197.45	140.42	0.03	0.02	0.01	0.00	0.00	0.00	0.00	0.00	1266.68	289.44	106.17	
750.00	140.05	176.51	145.56	102.59	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	1366.74	289.44	79.44	
800.00	105.91	133.12	109.74	78.05	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1466.33	289.44	61.70	
850.00	82.31	102.62	85.42	62.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1566.21	289.44	50.31	
900.00	66.36	81.53	69.35	53.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1666.17	289.44	43.32	
950.00	55.92	67.31	59.12	48.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1766.14	289.44	39.22	
1000.00	49.33	58.04	52.87	45.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1866.13	289.44	36.90	
1050.00	45.33	52.20	49.18	43.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1966.13	289.44	35.62	
1100.00	42.97	48.64	47.06	43.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2066.13	289.44	34.93	
1150.00	41.60	46.53	45.87	42.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2166.13	289.44	34.56	
1200.00	40.81	45.28	45.20	42.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2266.13	289.44	34.35	
1250.00	40.36	44.56	44.82	42.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	2366.13	289.44	34.24	

ELECTRON CONTENT = 3.64E 13 4.48E 13 4.48E 13 3.46E 13 1.82E 13 1.23E 13 1.00E 13 8.05E 12 5.95E 12 8.57E 12 1.70E 13 2.37E 13
 PEAK ELECTRON DENSITY = 1.18E 06 1.46E 06 1.57E 06 1.34E 06 8.39E 05 5.80E 05 4.89E 05 3.90E 05 2.63E 05 3.35E 05 6.50E 05 7.83E 05
 HEIGHT OF PEAK = 374.80 372.94 352.37 357.00 368.06 325.70 312.27 296.54 299.61 321.62 314.12 367.02
 ESPROB PERCENT = 75.26 75.42 74.76 73.47 71.90 70.45 69.53 69.37 70.03 71.32 72.89 74.34
 AVNES/1000. CM-3 = 229.40 195.32 156.28 118.08 85.23 60.18 43.39 34.06 31.10 118.08 261.02 252.72
 SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = 40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	98.71	87.25	57.65	32.68	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	32.68	57.65	87.21	
130.00	143.85	130.69	91.52	33.76	1.48	1.48	1.48	1.48	1.49	1.49	1.49	1.49	34.30	93.29	131.42	
140.00	170.60	157.38	117.81	47.66	1.87	1.89	1.91	1.92	1.94	1.94	1.94	1.94	51.13	121.78	158.49	
150.00	187.04	175.17	136.49	63.52	2.15	2.16	2.17	2.18	2.18	2.18	2.18	2.18	68.70	142.07	175.05	
160.00	195.63	186.66	151.33	76.81	2.19	2.19	2.18	2.17	2.16	2.16	2.16	2.16	82.21	157.48	183.17	
170.00	199.90	194.26	163.65	88.78	2.10	2.07	2.04	2.01	1.98	1.98	1.98	1.98	93.15	170.05	186.09	
180.00	203.78	201.15	175.23	100.91	1.93	1.88	1.83	1.80	1.76	1.76	1.76	1.76	102.18	183.89	187.95	
190.00	210.55	210.33	188.49	114.36	1.74	1.68	1.62	1.58	1.54	1.54	1.54	1.54	110.31	203.80	192.26	
200.00	222.71	224.29	206.02	130.66	1.55	1.48	1.42	1.37	1.33	1.33	1.33	1.33	119.77	234.03	201.69	
210.00	242.15	244.99	247.99	174.17	1.37	1.30	1.23	1.19	1.15	1.15	1.15	1.15	133.45	300.88	218.30	
220.00	277.55	293.38	303.50	232.81	1.21	1.14	1.07	1.03	0.99	0.99	0.99	0.99	157.88	393.14	245.76	
230.00	337.15	351.55	362.50	292.38	3.89	0.99	0.93	0.89	0.86	0.86	0.86	0.86	208.64	454.99	302.13	
240.00	399.48	410.66	420.55	357.48	20.43	0.87	0.81	0.77	0.75	0.75	0.75	0.75	264.32	503.29	360.79	
250.00	459.77	466.32	472.97	422.84	64.39	0.76	0.71	0.67	0.65	0.65	0.65	0.65	317.65	534.73	416.55	
260.00	513.39	514.58	516.08	482.29	141.55	0.67	0.62	0.58	1.78	5.45	5.45	5.45	361.26	549.26	464.59	
270.00	556.81	552.70	547.75	530.80	241.12	3.06	2.45	11.96	23.96	390.69	549.03	501.58	501.58	501.58	501.58	
280.00	588.15	579.41	567.42	565.48	342.83	18.09	15.68	42.40	63.59	405.03	537.18	526.09	526.09	526.09	526.09	
290.00	607.06	594.72	575.78	585.67	428.85	60.74	54.46	97.48	119.69	406.00	517.01	538.34	538.34	538.34	538.34	
300.00	614.39	599.58	574.33	592.40	489.84	137.53	124.35	166.74	178.31	396.58	491.46	539.70	539.70	539.70	539.70	
320.00	600.94	584.32	549.32	574.19	536.55	336.26	299.00	284.07	258.38	358.80	433.01	517.68	517.68	517.68	517.68	
340.00	562.48	546.94	506.47	529.49	514.17	473.06	408.99	327.59	275.62	311.28	374.05	475.72	475.72	475.72	475.72	
360.00	511.86	498.86	456.46	473.68	460.59	507.98	428.16	315.02	255.33	264.64	320.11	425.94	425.94	425.94	425.94	
380.00	457.79	447.77	405.90	416.38	398.91	478.13	394.97	278.33	221.55	223.12	273.02	375.70	375.70	375.70	375.70	
400.00	405.29	398.13	358.27	362.53	339.83	421.91	343.15	236.50	186.70	187.73	232.79	328.74	328.74	328.74	328.74	
420.00	356.83	352.18	315.10	314.19	287.32	360.86	289.93	197.56	155.47	188.15	198.77	286.58	286.58	286.58	286.58	
440.00	313.35	310.79	276.77	271.84	242.23	304.17	241.96	163.98	129.06	133.59	170.11	249.53	249.53	249.53	249.53	
460.00	274.95	274.07	243.15	235.23	204.18	254.79	201.02	136.02	107.33	113.25	145.97	217.36	217.36	217.36	217.36	
480.00	241.34	241.79	213.84	203.79	172.35	213.03	166.93	113.14	89.74	96.40	125.62	189.57	189.57	189.57	189.57	
500.00	212.06	213.53	188.34	176.86	145.88	178.23	138.90	94.60	75.64	82.44	108.45	165.64	165.64	165.64	165.64	
550.00	154.58	157.58	138.29	125.44	98.07	115.60	89.60	62.92	52.10	57.19	76.33	119.36	119.36	119.36	119.36	
600.00	114.17	117.75	103.03	90.76	69.03	77.80	61.09	45.71	39.93	41.86	55.46	87.51	87.51	87.51	87.51	
650.00	85.77	89.36	78.21	67.58	52.21	55.88	45.55	37.16	34.25	33.17	42.32	65.68	65.68	65.68	65.68	
700.00	65.98	69.24	60.91	52.48	43.10	43.97	37.79	33.29	31.81	28.73	34.56	50.98	50.98	50.98	50.98	
750.00	52.44	55.21	49.15	43.08	38.52	38.02	34.23	31.66	30.81	26.70	30.36	41.44	41.44	41.44	41.44	
800.00	43.50	45.71	41.48	37.57	36.35	35.25	32.70	30.99	30.41	25.83	28.27	35.57	35.57	35.57	35.57	
850.00	37.87	39.56	36.73	34.54	35.35	34.01	32.06	30.72	30.25	25.47	27.29	32.19	32.19	32.19	32.19	
900.00	34.50	35.76	33.95	32.95	34.89	33.47	31.79	30.61	30.18	25.32	26.84	30.33	30.33	30.33	30.33	
950.00	32.57	33.51	32.39	32.14	34.69	33.24	31.68	30.56	30.16	25.26	26.64	29.35	29.35	29.35	29.35	
1000.00	31.49	32.23	31.53	31.73	34.59	33.14	31.63	30.54	30.15	25.23	26.54	28.85	28.85	28.85	28.85	
1050.00	30.91	31.52	31.07	31.52	34.55	33.09	31.61	30.53	30.14	25.22	26.50	28.59	28.59	28.59	28.59	
1100.00	30.59	31.12	30.83	31.42	34.53	33.07	31.60	30.53	30.14	25.22	26.48	28.45	28.45	28.45	28.45	
1150.00	30.41	30.90	30.69	31.36	34.52	33.06	31.60	30.53	30.14	25.22	26.47	28.38	28.38	28.38	28.38	
1200.00	30.32	30.78	30.62	31.34	34.51	33.06	31.60	30.53	30.14	25.22	26.47	28.35	28.35	28.35	28.35	
1250.00	30.27	30.71	30.58	31.32	34.51	33.05	31.60	30.53	30.14	25.22	26.47	28.33	28.33	28.33	28.33	

ELECTRON CONTENT = 1.88E 13 1.87E 13 1.73E 13 1.62E 13 1.22E 13 1.10E 13 9.32E 12 7.52E 12 6.65E 12 1.02E 13 1.39E 13 1.59E 13
 PEAK ELECTRON DENSITY = 6.15E 05 6.00E 05 5.76E 05 5.92E 05 5.37E 05 5.08E 05 4.30E 05 3.28E 05 2.76E 05 4.07E 05 5.51E 05 5.40E 05
 HEIGHT OF PEAK = 302.05 300.14 293.31 300.57 321.42 358.40 355.00 343.51 336.59 285.70 264.71 296.29
 ESPOB PERCENT = 85.40 84.11 78.03 68.77 58.82 50.85 46.99 48.27 54.36 63.62 73.57 81.54
 AVNES/1000. CM-3 = 227.32 196.05 159.95 124.22 93.00 68.71 52.04 42.56 39.51 124.22 256.17 248.61
 SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY			METERS -3 X10-9	(CM. -3 X10-3)								
120.00	79.82	72.53	54.31	37.24	22.31	1.70	1.70	1.70	22.31	37.24	54.32	72.53	
130.00	122.18	112.68	85.84	46.76	21.31	1.48	1.48	1.49	21.21	47.96	87.67	113.69	
140.00	148.73	138.84	111.38	67.44	20.43	1.89	1.91	1.92	20.73	71.51	115.70	140.97	
150.00	165.73	156.16	128.74	84.44	24.87	2.16	2.17	2.18	27.31	90.12	135.23	158.75	
160.00	175.56	167.45	141.40	97.54	33.35	2.19	2.18	2.17	37.51	104.16	149.46	169.41	
170.00	180.34	174.18	150.32	108.50	42.12	2.07	2.04	2.01	46.53	115.06	159.89	175.04	
180.00	183.18	178.69	156.65	118.02	50.01	1.88	1.83	1.80	53.74	123.63	169.86	179.12	
190.00	187.00	183.45	162.15	126.78	57.47	1.68	1.62	1.58	59.45	132.21	183.57	185.03	
200.00	194.15	190.66	168.77	136.09	65.19	1.48	1.42	1.37	63.61	144.12	204.94	195.60	
210.00	199.00	192.23	178.34	147.72	73.83	1.30	1.23	1.19	66.33	172.52	248.80	217.05	
220.00	230.15	220.32	194.95	177.05	84.39	1.14	1.07	1.03	68.21	217.29	295.25	250.41	
230.00	257.84	245.03	224.96	214.61	117.08	0.99	0.93	0.89	70.20	258.96	319.98	278.44	
240.00	280.12	264.80	251.68	251.55	155.25	0.87	0.81	0.77	73.43	291.78	333.87	299.21	
250.00	296.01	278.86	273.30	284.42	197.00	0.76	0.71	0.67	79.05	312.71	337.80	312.08	
260.00	305.36	287.13	288.86	310.60	241.07	0.67	0.62	0.59	88.24	321.61	333.62	317.48	
270.00	308.71	290.11	298.21	328.75	282.58	3.71	0.98	3.00	102.03	320.30	323.49	316.50	
280.00	306.98	288.58	301.82	338.76	317.01	17.98	7.37	15.65	124.09	311.38	309.41	310.49	
290.00	301.23	283.45	300.54	341.41	341.57	52.57	28.61	46.95	160.26	297.43	293.02	300.80	
300.00	292.48	275.63	295.35	337.96	355.46	108.06	70.53	96.43	197.21	280.57	275.56	288.65	
320.00	269.54	254.96	277.02	318.38	355.44	235.30	185.54	203.22	253.96	244.07	240.64	260.66	
340.00	243.66	231.42	253.24	289.83	330.82	312.55	265.01	259.36	272.81	209.25	208.51	231.83	
360.00	218.04	207.91	228.17	258.88	295.43	326.19	283.31	261.75	260.47	178.72	180.42	204.78	
380.00	194.23	185.88	204.08	229.06	258.04	302.76	264.16	236.77	232.40	152.85	156.37	180.54	
400.00	172.82	165.95	182.01	201.93	222.98	265.39	230.83	203.53	200.07	131.18	135.93	159.28	
420.00	153.88	148.22	162.28	177.93	191.89	226.35	195.74	171.00	169.29	113.04	118.58	140.81	
440.00	137.27	132.59	144.86	156.99	165.05	190.68	163.83	142.37	142.27	97.81	103.79	124.82	
460.00	122.72	118.86	129.57	138.81	142.17	159.88	136.51	118.27	119.42	84.95	91.14	110.95	
480.00	109.98	106.79	116.15	123.05	122.76	133.98	113.77	98.46	100.43	74.05	80.28	98.89	
500.00	98.81	96.17	104.37	109.36	106.31	112.50	95.13	82.36	84.76	64.76	70.91	88.37	
550.00	76.35	74.77	80.72	82.36	75.29	74.29	62.66	54.75	56.87	47.06	52.68	67.44	
600.00	59.82	58.96	63.30	63.00	54.73	51.83	44.38	39.69	40.25	35.21	40.02	52.25	
650.00	47.58	47.22	50.39	49.04	41.30	39.41	34.85	32.16	30.92	27.63	31.45	41.22	
700.00	38.59	38.58	40.85	39.10	32.92	33.07	30.32	28.74	26.15	23.23	26.00	33.36	
750.00	32.14	32.39	33.96	32.23	28.07	30.09	28.33	27.29	23.96	20.99	22.85	28.00	
800.00	27.73	28.13	29.18	27.76	25.51	28.76	27.49	26.69	23.02	19.97	21.22	24.59	
850.00	24.89	25.38	26.05	25.06	24.24	28.18	27.15	26.45	22.63	19.54	20.44	22.58	
900.00	23.18	23.71	24.13	23.54	23.65	27.94	27.00	26.35	22.47	19.36	20.08	21.48	
950.00	22.21	22.75	23.02	22.73	23.37	27.83	26.94	26.31	22.40	19.29	19.92	20.90	
1000.00	21.68	22.21	22.40	22.31	23.25	27.78	26.92	26.29	22.38	19.26	19.85	20.61	
1050.00	21.39	21.92	22.07	22.10	23.19	27.76	26.91	26.28	22.36	19.25	19.82	20.47	
1100.00	21.24	21.76	21.89	21.99	23.16	27.75	26.90	26.28	22.36	19.24	19.81	20.40	
1150.00	21.16	21.67	21.79	21.94	23.15	27.75	26.90	26.28	22.36	19.24	19.80	20.36	
1200.00	21.12	21.63	21.74	21.91	23.14	27.74	26.90	26.28	22.36	19.24	19.80	20.34	
1250.00	21.10	21.60	21.71	21.90	23.14	27.74	26.90	26.28	22.36	19.24	19.79	20.33	

ELECTRON CONTENT	=	1.04E 13	1.00E 13	1.02E 13	1.04E 13	9.61E 12	7.57E 12	6.59E 12	6.20E 12	7.34E 12	8.36E 12	9.24E 12	9.95E 12
PEAK ELECTRON DENSITY	=	3.09E 05	2.90E 05	3.02E 05	3.41E 05	3.60E 05	3.27E 05	2.84E 05	2.66E 05	2.73E 05	3.22E 05	3.38E 05	3.18E 05
HEIGHT OF PEAK	=	271.27	271.28	282.09	288.97	309.57	355.09	357.25	350.49	340.42	263.45	249.41	263.22
ESPROB PERCENT	=	73.48	71.24	61.59	47.10	31.67	19.42	13.65	15.89	25.54	40.03	55.46	67.70
AVNES/1000. CM-3	=	114.35	98.01	79.22	60.72	44.68	32.32	23.93	19.20	17.70	60.72	129.46	125.50
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	1.70	11.69	22.29	11.69	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	1.49	15.14	21.28	15.13	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49
140.00	1.94	1.93	14.29	20.47	14.44	1.86	1.86	1.87	1.89	1.91	1.92	1.94	1.94
150.00	2.19	2.18	13.21	25.19	13.35	2.13	2.14	2.15	2.16	2.17	2.18	2.18	2.18
160.00	2.15	2.16	14.07	34.17	13.59	4.18	2.20	2.19	2.19	2.18	2.17	2.16	2.16
170.00	1.97	2.01	17.88	44.40	16.29	17.31	2.12	2.10	2.07	2.04	2.01	1.98	1.98
180.00	1.75	1.80	23.88	55.82	21.83	48.51	1.97	1.93	1.88	1.83	1.80	1.76	1.76
190.00	1.52	6.85	31.54	70.46	30.74	101.88	1.80	1.74	1.68	1.62	1.58	1.54	1.54
200.00	1.32	20.24	41.88	91.60	45.36	172.92	2.94	1.55	1.48	1.42	1.37	1.33	1.33
210.00	1.14	42.13	127.62	212.51	216.18	250.73	12.22	1.37	1.30	1.23	1.19	1.15	1.15
220.00	0.99	68.63	229.56	345.04	411.67	323.60	33.82	1.60	1.14	1.07	1.03	0.99	0.99
230.00	0.86	94.12	256.70	381.85	453.66	383.16	69.64	6.88	0.99	0.93	0.89	0.86	0.86
240.00	0.75	114.36	277.00	409.69	485.36	425.62	115.55	18.71	0.87	0.81	0.77	2.05	2.05
250.00	1.47	127.62	289.73	427.71	505.87	450.93	163.78	36.96	0.76	0.71	0.67	8.20	8.20
260.00	6.60	134.15	295.17	436.23	515.58	461.28	206.87	58.24	0.67	0.62	0.59	20.29	20.29
270.00	18.06	135.19	294.32	436.40	515.73	459.76	240.18	78.22	0.59	0.54	0.68	36.22	36.22
280.00	35.09	132.26	288.46	429.75	507.99	449.49	262.18	93.86	2.87	1.20	3.88	51.87	51.87
290.00	53.84	126.72	278.90	417.87	494.15	433.21	273.55	103.98	8.57	5.21	12.31	64.00	64.00
300.00	70.20	119.64	266.83	402.27	475.88	413.11	276.12	108.88	17.86	13.91	26.29	71.38	71.38
320.00	88.24	103.71	238.85	364.73	431.57	367.68	263.32	107.13	39.56	40.12	57.98	73.94	73.94
340.00	88.88	88.05	209.87	324.48	383.59	321.58	238.08	97.05	53.00	59.92	75.62	67.23	67.23
360.00	80.53	74.01	182.60	285.61	336.85	278.65	209.22	84.37	55.54	65.44	77.07	57.58	57.58
380.00	69.38	61.92	158.17	250.03	293.78	240.29	181.11	71.86	51.61	61.59	69.96	47.98	47.98
400.00	58.36	51.72	136.81	218.37	255.29	206.74	155.57	60.60	45.22	54.00	60.14	39.51	39.51
420.00	48.56	43.18	118.36	190.63	221.49	177.72	133.12	50.87	38.51	45.78	50.41	32.37	32.37
440.00	40.21	36.07	102.52	166.51	192.10	152.78	113.75	42.63	32.35	39.21	41.77	26.43	26.43
460.00	33.24	30.15	88.93	145.62	166.68	131.41	97.16	35.71	27.00	31.66	34.44	21.65	21.65
480.00	27.47	25.22	77.28	127.53	144.74	113.11	83.03	29.93	22.49	26.17	29.34	17.72	17.72
500.00	22.71	21.12	67.28	111.85	125.82	97.47	71.01	25.10	18.71	21.61	23.32	14.51	14.51
550.00	14.17	13.61	47.90	81.12	89.12	67.56	48.34	16.25	11.84	13.42	14.37	8.86	8.86
600.00	8.91	8.84	34.41	59.32	63.65	47.35	33.33	10.61	7.54	8.39	8.91	5.46	5.46
650.00	5.65	5.79	24.90	43.70	45.86	33.74	23.45	7.03	4.85	5.29	5.59	3.41	3.41
700.00	3.63	3.83	18.13	32.39	33.39	24.67	17.05	4.75	3.16	3.39	3.54	2.18	2.18
750.00	2.38	2.58	13.27	24.13	24.64	18.74	13.02	3.33	2.11	2.21	2.30	1.46	1.46
800.00	1.61	1.78	9.77	18.08	18.54	15.00	10.60	2.48	1.46	1.51	1.55	1.05	1.05
850.00	1.16	1.29	7.22	13.61	14.35	12.76	9.22	1.99	1.08	1.09	1.11	0.84	0.84
900.00	0.91	0.99	5.37	10.29	11.55	11.47	8.48	1.73	0.87	0.87	0.88	0.74	0.74
950.00	0.78	0.83	4.01	7.82	9.76	10.76	8.09	1.60	0.76	0.76	0.76	0.69	0.69
1000.00	0.71	0.74	3.01	5.98	8.66	10.39	7.89	1.54	0.71	0.70	0.70	0.67	0.67
1050.00	0.68	0.70	2.28	4.61	8.01	10.19	7.79	1.51	0.68	0.68	0.68	0.67	0.67
1100.00	0.67	0.68	1.74	3.60	7.65	10.08	7.74	1.50	0.67	0.67	0.67	0.66	0.66
1150.00	0.66	0.67	1.35	2.85	7.44	10.02	7.72	1.49	0.66	0.66	0.66	0.66	0.66
1200.00	0.66	0.66	1.07	2.31	7.33	10.00	7.70	1.49	0.66	0.66	0.66	0.66	0.66
1250.00	0.66	0.66	0.88	1.93	7.27	9.98	7.70	1.48	0.66	0.66	0.66	0.66	0.66

ELECTRON CONTENT	=	1.61E 12	2.52E 12	6.66E 12	1.06E 13	1.21E 13	1.05E 13	6.12E 12	2.12E 12	1.05E 12	1.18E 12	1.37E 12	1.27E 12
PEAK ELECTRON DENSITY	=	9.02E 04	1.35E 05	2.96E 05	4.37E 05	5.17E 05	4.62E 05	2.76E 05	1.10E 05	5.57E 04	6.54E 04	7.80E 04	7.45E 04
HEIGHT OF PEAK	=	330.36	267.14	263.43	265.14	265.08	263.42	298.37	306.72	355.61	359.40	351.79	313.42
ESPROB PERCENT	=	18.06	24.59	29.80	32.29	31.40	27.35	21.24	14.71	9.50	7.01	7.90	11.95
AVNES/1000. CM-3	=	26.48	35.12	34.67	33.38	31.41	29.02	26.48	24.05	21.96	20.38	19.39	19.05
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = -40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY	METERS -3 X10-9	(CM. -3 X10-3)									
120.00	1.70	19.86	37.74	43.64	37.75	19.86	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	19.79	49.03	65.07	48.48	19.90	1.47	1.48	1.48	1.48	1.49	1.49
140.00	1.94	18.36	72.17	91.16	70.66	18.41	1.86	1.87	1.89	1.91	1.92	1.94
150.00	2.19	21.86	91.51	112.01	90.60	20.09	2.14	2.15	2.16	2.17	2.18	2.18
160.00	2.15	30.26	108.44	131.81	109.95	26.33	2.20	2.19	2.19	2.18	2.17	2.16
170.00	1.97	39.58	125.93	153.71	132.69	35.84	2.12	2.10	2.07	2.04	2.01	1.99
180.00	1.75	48.84	146.25	180.71	162.58	48.70	1.97	1.93	1.88	1.83	1.80	1.76
190.00	1.52	59.34	172.54	216.59	203.77	67.85	1.80	1.74	1.68	1.62	1.58	1.54
200.00	1.32	73.12	208.50	264.99	260.28	99.09	7.57	1.55	1.48	1.42	1.37	1.33
210.00	1.14	127.76	302.41	389.32	427.56	303.00	24.88	1.37	1.30	1.23	1.19	1.15
220.00	0.99	188.37	393.53	506.72	584.82	509.73	57.95	2.29	1.14	1.07	1.03	0.99
230.00	0.86	208.47	429.17	551.52	636.85	551.69	105.09	8.74	0.99	0.93	0.89	0.86
240.00	0.75	221.55	452.78	582.73	674.16	579.84	158.77	21.93	0.87	0.81	0.77	0.78
250.00	2.00	227.60	464.46	600.15	696.26	594.30	209.97	40.89	0.76	0.71	0.67	4.10
260.00	8.19	227.58	465.59	605.00	704.24	596.48	251.97	61.83	0.67	0.62	0.59	12.25
270.00	20.96	222.82	458.18	599.28	700.12	588.49	281.64	80.65	0.93	0.54	1.49	24.86
280.00	38.89	214.74	444.41	585.30	686.29	572.63	298.89	94.76	3.87	2.02	6.58	38.87
290.00	57.79	204.53	426.25	565.16	665.16	551.09	305.38	103.43	10.17	7.29	17.58	50.93
300.00	73.69	193.17	405.35	541.12	638.90	525.77	303.50	107.14	19.40	17.13	33.34	59.19
320.00	90.21	169.61	360.22	486.60	577.90	469.64	283.64	104.18	38.63	42.55	64.04	64.31
340.00	89.73	147.35	315.72	430.58	513.71	412.70	253.58	93.98	49.08	59.12	78.19	59.92
360.00	80.88	127.63	274.92	377.70	452.12	359.32	221.45	81.72	50.20	62.39	77.27	52.03
380.00	69.58	110.63	238.85	329.91	395.81	311.34	191.05	69.85	46.39	57.91	69.19	43.79
400.00	58.60	96.13	207.53	287.74	345.68	269.20	163.83	59.30	40.83	50.60	59.19	36.40
420.00	48.91	83.80	180.55	250.97	301.70	232.64	140.12	50.30	35.21	43.03	49.61	30.16
440.00	40.72	73.29	157.37	219.11	263.41	201.14	119.77	42.79	30.20	36.22	41.27	25.04
460.00	33.93	64.28	137.45	191.55	230.20	174.09	102.43	36.60	25.98	30.44	34.28	20.92
480.00	28.38	56.53	120.30	167.73	201.43	150.87	87.72	31.55	22.55	25.70	28.54	17.63
500.00	23.87	49.84	105.50	147.11	176.50	130.94	75.28	27.48	19.82	21.87	23.90	15.03
550.00	16.10	36.69	76.58	106.72	127.67	92.58	52.03	20.59	15.40	15.45	15.96	10.84
600.00	11.82	27.31	56.14	78.16	93.20	66.24	37.04	16.95	13.25	12.13	11.65	8.81
650.00	9.64	20.55	41.55	57.78	68.68	48.14	27.62	15.17	12.28	10.58	9.52	7.91
700.00	8.63	15.70	31.08	43.17	51.16	35.77	21.96	14.36	11.87	9.91	8.56	7.55
750.00	8.20	12.28	23.60	32.70	38.66	27.47	18.75	13.99	11.70	9.63	8.16	7.40
800.00	8.01	9.99	18.32	25.27	29.83	22.09	17.03	13.83	11.63	9.52	7.99	7.34
850.00	7.93	8.56	14.72	20.12	23.71	18.77	16.15	13.76	11.60	9.47	7.92	7.32
900.00	7.90	7.76	12.39	16.69	19.62	16.82	15.70	13.73	11.58	9.45	7.90	7.31
950.00	7.89	7.34	10.98	14.51	17.01	15.74	15.49	13.72	11.58	9.45	7.89	7.31
1000.00	7.88	7.14	10.18	13.21	15.43	15.15	15.38	13.71	11.57	9.44	7.88	7.31
1050.00	7.88	7.05	9.75	12.47	14.51	14.85	15.32	13.71	11.57	9.44	7.88	7.31
1100.00	7.88	7.01	9.53	12.06	14.00	14.68	15.30	13.71	11.57	9.44	7.88	7.31
1150.00	7.88	6.99	9.42	11.84	13.72	14.60	15.28	13.71	11.57	9.44	7.88	7.31
1200.00	7.88	6.98	9.36	11.72	13.56	14.55	15.28	13.71	11.57	9.44	7.88	7.31
1250.00	7.88	6.97	9.33	11.66	13.48	14.53	15.27	13.71	11.57	9.44	7.88	7.31

ELECTRON CONTENT	=	2.11E 12	5.45E 12	1.15E 13	1.54E 13	1.78E 13	1.38E 13	7.17E 12	2.96E 12	1.74E 12	1.73E 12	1.87E 12	1.59E 12
PEAK ELECTRON DENSITY	=	9.16E 04	2.28E 05	4.66E 05	6.05E 05	7.04E 05	5.97E 05	3.06E 05	1.07E 05	5.06E 04	6.25E 04	7.92E 04	6.43E 04
HEIGHT OF PEAK	=	328.57	254.84	256.09	259.24	261.29	256.88	292.33	304.32	352.26	355.84	347.65	318.11
ESPROB PERCENT	=	26.73	37.29	45.62	49.49	47.86	41.16	31.19	20.62	12.29	8.42	10.06	16.76
AVNES/1000. CM-3	=	40.98	67.09	65.66	61.61	55.55	48.37	40.98	34.21	28.62	24.55	22.09	21.28
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = -20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.70	34.71	58.07	70.83	58.07	34.71	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	39.97	93.70	111.68	92.67	39.18	1.47	1.48	1.48	1.48	1.49	1.49
140.00	1.94	60.46	122.81	140.92	120.32	56.85	1.86	1.87	1.89	1.91	1.92	1.94
150.00	2.19	80.12	145.86	164.17	141.70	74.51	2.14	2.15	2.16	2.17	2.18	2.18
160.00	2.15	98.11	167.65	185.67	161.34	90.40	2.20	2.19	2.19	2.18	2.17	2.16
170.00	1.97	118.37	191.36	208.61	181.55	107.23	2.12	2.10	2.07	2.04	2.01	1.98
180.00	1.75	144.75	221.68	237.40	205.25	127.71	1.97	1.93	1.88	1.83	1.80	1.76
190.00	1.52	182.35	263.67	276.48	235.97	154.71	1.88	1.74	1.68	1.62	1.58	1.54
200.00	1.32	236.53	321.00	329.01	276.91	191.66	9.68	1.55	1.48	1.42	1.37	1.33
210.00	1.14	374.15	452.89	451.93	381.40	320.38	31.29	1.37	1.30	1.23	1.19	1.15
220.00	0.99	503.80	598.06	595.14	511.40	465.76	72.03	3.62	1.14	1.07	1.03	0.99
230.00	0.86	553.36	674.12	675.41	586.90	526.19	129.49	15.04	0.99	0.93	0.89	0.86
240.00	2.31	583.46	732.60	742.04	653.35	575.69	194.37	40.00	0.87	0.81	0.77	0.75
250.00	10.32	594.76	770.83	791.29	706.49	611.68	255.84	77.74	3.29	1.59	3.30	1.15
260.00	27.98	590.20	789.08	822.00	744.17	633.51	305.93	121.08	13.49	8.17	13.63	5.78
270.00	53.85	573.58	789.71	835.13	766.16	642.08	341.07	161.30	34.87	24.23	34.63	16.69
280.00	81.92	548.65	776.06	832.93	773.67	639.22	361.26	192.41	65.47	49.37	63.18	33.20
290.00	106.02	518.60	751.69	818.29	768.77	627.16	368.58	212.27	98.51	77.85	92.06	51.28
300.00	122.80	485.94	719.88	794.19	753.87	608.17	365.95	221.60	127.10	103.06	115.15	66.73
320.00	134.16	419.42	644.40	728.10	703.49	557.26	341.60	217.44	158.64	130.92	136.38	82.63
340.00	126.91	357.47	565.03	651.47	638.56	498.97	305.25	197.00	160.19	132.10	132.84	82.54
360.00	112.14	303.08	489.83	574.53	569.81	440.80	266.57	171.57	146.29	120.02	118.42	75.19
380.00	96.24	256.67	422.23	502.56	503.36	386.55	230.05	146.66	127.35	103.96	101.55	65.91
400.00	81.80	217.56	363.11	437.76	442.19	337.76	197.40	124.38	108.55	88.36	85.93	57.22
420.00	69.60	184.77	312.15	380.64	387.40	294.75	169.01	105.28	91.85	74.80	72.58	49.95
440.00	59.69	157.30	268.53	330.88	339.08	257.25	144.68	89.25	77.75	63.62	61.78	44.22
460.00	51.83	134.29	231.32	287.79	296.82	224.71	123.99	75.99	66.17	54.66	53.24	39.87
480.00	45.72	114.97	199.60	250.57	260.02	196.55	106.49	65.11	56.82	47.64	46.62	36.65
500.00	41.06	98.74	172.55	218.47	228.05	172.19	91.73	56.26	49.38	42.24	41.61	34.33
550.00	33.98	68.62	120.98	156.14	165.29	124.63	64.41	41.06	37.22	33.97	34.09	31.10
600.00	30.85	49.32	86.13	112.83	120.99	91.27	47.15	32.79	31.18	30.27	30.83	29.81
650.00	29.55	37.37	62.63	82.63	89.56	67.79	36.68	28.63	28.43	28.73	29.51	29.32
700.00	29.02	30.47	47.02	61.62	67.25	51.32	30.68	26.67	27.25	28.11	28.99	29.13
750.00	28.81	26.84	36.99	47.17	51.50	39.93	27.44	25.79	26.75	27.87	28.79	29.06
800.00	28.72	25.07	30.88	37.48	40.55	32.28	25.77	25.40	26.55	27.77	28.71	29.03
850.00	28.68	24.26	27.39	31.25	33.17	27.37	24.94	25.23	26.46	27.73	28.68	29.02
900.00	28.67	23.90	25.51	27.44	28.39	24.40	24.53	25.15	26.42	27.71	28.67	29.01
950.00	28.66	23.74	24.54	25.23	25.44	22.68	24.33	25.12	26.41	27.71	28.66	29.01
1000.00	28.66	23.66	24.05	24.00	23.71	21.73	24.23	25.10	26.40	27.70	28.66	29.01
1050.00	28.66	23.63	23.80	23.33	22.72	21.22	24.18	25.09	26.40	27.70	28.66	29.01
1100.00	28.66	23.62	23.68	22.97	22.17	20.94	24.16	25.09	26.40	27.70	28.66	29.01
1150.00	28.66	23.61	23.61	22.78	21.86	20.80	24.14	25.09	26.40	27.70	28.66	29.01
1200.00	28.66	23.61	23.58	22.67	21.70	20.72	24.14	25.09	26.40	27.70	28.66	29.01
1250.00	28.66	23.61	23.57	22.62	21.60	20.67	24.13	25.09	26.40	27.70	28.66	29.01

ELECTRON CONTENT = 4.45E 12 1.35E 13 1.96E 13 2.22E 13 2.14E 13 1.69E 13 9.04E 12 5.85E 12 4.73E 12 4.32E 12 4.43E 12 3.68E 12
 PEAK ELECTRON DENSITY = 1.34E 05 5.95E 05 7.91E 05 8.36E 05 7.74E 05 6.42E 05 3.69E 05 2.23E 05 1.62E 05 1.34E 05 1.37E 05 8.38E 04
 HEIGHT OF PEAK = 319.30 251.77 265.30 273.36 280.74 272.22 291.87 306.06 330.56 330.21 325.12 328.01
 ESPROB PERCENT = 38.03 53.80 66.53 72.80 70.93 61.43 46.84 31.07 18.34 12.07 13.94 23.44
 AVNES/1000. CM-3 = 54.80 116.02 112.50 102.58 88.04 71.30 54.80 40.48 29.41 21.88 17.63 16.28
 SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = 0.0
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		[CM. -3 X10-3]								
120.00	1.70	44.46	78.83	93.73	78.81	44.45	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	67.95	121.73	138.28	120.47	66.26	1.47	1.48	1.48	1.48	1.49	1.49	1.49
140.00	1.94	95.34	149.54	164.86	146.41	90.64	1.86	1.87	1.89	1.91	1.92	1.94	1.94
150.00	2.19	116.10	168.13	181.22	163.06	108.05	2.14	2.15	2.16	2.17	2.18	2.18	2.18
160.00	2.15	134.24	179.97	189.70	172.93	121.42	2.20	2.19	2.19	2.18	2.17	2.16	2.16
170.00	1.97	152.11	187.89	193.42	177.75	132.18	2.12	2.10	2.07	2.04	2.01	1.98	1.98
180.00	1.75	173.03	195.98	196.07	180.08	141.03	1.97	1.93	1.88	1.83	1.80	1.76	1.76
190.00	1.52	201.85	208.13	200.81	182.45	149.21	1.80	1.74	1.68	1.62	1.58	1.54	1.54
200.00	1.32	243.21	227.49	210.03	186.94	158.41	1.62	1.55	1.48	1.42	1.37	1.33	1.33
210.00	1.14	318.52	256.35	225.59	195.23	170.46	1.45	1.37	1.30	1.23	2.12	1.15	1.15
220.00	6.25	427.97	296.02	248.82	208.67	187.09	1.30	1.21	1.14	10.19	14.63	0.99	0.99
230.00	25.68	547.15	347.03	280.52	228.33	209.80	1.16	1.07	0.99	46.69	51.73	3.63	3.63
240.00	65.11	675.88	409.57	321.06	254.88	239.64	1.23	0.94	6.22	126.68	116.90	15.42	15.42
250.00	118.93	800.37	523.14	370.59	288.72	277.26	8.97	0.83	33.23	241.13	195.58	39.50	39.50
260.00	173.74	906.78	634.01	429.33	330.06	323.04	38.17	5.51	103.02	361.05	267.33	72.04	72.04
270.00	217.97	985.63	758.72	531.73	379.12	377.32	109.24	29.13	219.09	459.49	318.94	104.50	104.50
280.00	246.47	1033.27	889.15	632.41	444.32	470.36	233.29	93.18	359.01	523.71	347.21	129.89	129.89
290.00	259.63	1051.02	1014.18	745.52	537.28	565.00	401.20	208.39	491.09	553.86	355.35	145.45	145.45
300.00	260.61	1043.32	1123.35	865.71	633.50	670.91	587.78	361.19	592.71	556.76	348.96	151.82	151.82
320.00	240.47	974.25	1268.17	1093.59	853.39	904.61	911.31	662.29	683.22	513.02	312.27	145.96	145.96
340.00	208.26	867.71	1307.13	1256.20	1066.49	1113.23	1082.14	828.97	662.49	442.60	265.15	128.45	128.45
360.00	175.25	751.98	1262.79	1328.38	1220.85	1245.47	1109.51	853.58	591.02	370.59	220.00	108.72	108.72
380.00	145.70	641.91	1168.21	1319.32	1293.82	1288.49	1049.24	795.43	506.62	306.25	180.82	90.62	90.62
400.00	120.67	543.68	1050.98	1253.44	1292.10	1258.55	949.03	704.34	426.18	251.80	148.21	75.26	75.26
420.00	99.99	458.84	929.15	1155.44	1236.36	1181.13	837.70	607.74	355.51	206.78	121.56	62.71	62.71
440.00	83.14	386.81	812.79	1044.03	1148.44	1079.14	729.75	517.71	295.63	169.99	99.99	52.65	52.65
460.00	69.54	326.18	706.62	931.26	1045.62	968.82	631.33	438.37	245.73	140.09	82.55	44.71	44.71
480.00	58.64	275.36	612.26	823.94	939.51	860.12	544.35	370.32	204.50	115.88	68.78	38.55	38.55
500.00	49.99	232.83	529.67	725.41	837.00	758.36	468.72	312.71	170.58	96.34	57.75	33.83	33.83
550.00	35.75	154.45	368.57	522.71	615.38	545.98	322.77	206.06	110.28	62.85	39.52	26.64	26.64
600.00	28.58	104.22	257.88	376.10	448.71	391.57	224.10	138.21	74.37	44.35	30.23	23.47	23.47
650.00	25.31	72.19	182.20	272.10	327.98	282.35	157.96	95.75	53.89	34.91	25.96	22.17	22.17
700.00	23.92	52.14	130.52	198.66	241.48	205.69	114.08	69.98	43.01	30.54	24.15	21.66	21.66
750.00	23.35	40.09	95.40	146.93	179.75	152.12	85.56	55.13	37.69	28.67	23.43	21.47	21.47
800.00	23.12	33.28	71.86	110.69	135.88	114.98	67.65	47.14	35.28	27.90	23.15	21.39	21.39
850.00	23.02	29.69	56.47	85.61	104.99	89.64	56.93	43.11	34.22	27.59	23.03	21.36	21.36
900.00	22.99	27.90	46.80	68.62	83.58	72.79	50.84	41.17	33.76	27.47	22.99	21.35	21.35
950.00	22.97	27.05	41.00	57.46	69.12	61.98	47.52	40.26	33.57	27.41	22.97	21.34	21.34
1000.00	22.96	26.64	37.67	50.40	59.66	55.32	45.77	39.83	33.48	27.39	22.96	21.34	21.34
1050.00	22.96	26.45	35.82	46.10	53.68	51.35	44.86	39.63	33.44	27.38	22.96	21.34	21.34
1100.00	22.96	26.36	34.82	43.55	50.03	49.05	44.39	39.54	33.43	27.38	22.96	21.34	21.34
1150.00	22.96	26.31	34.27	42.08	47.84	47.74	44.14	39.49	33.42	27.38	22.96	21.34	21.34
1200.00	22.96	26.29	33.98	41.23	46.56	47.00	44.02	39.47	33.42	27.38	22.96	21.34	21.34
1250.00	22.96	26.28	33.83	40.75	45.80	46.58	43.95	39.46	33.42	27.38	22.96	21.34	21.34

ELECTRON CONTENT = 5.99E 12 2.43E 13 3.58E 13 4.02E 13 4.10E 13 3.85E 13 2.61E 13 1.85E 13 1.40E 13 1.10E 13 7.33E 12 4.07E 12
 PEAK ELECTRON DENSITY = 2.61E 05 1.05E 06 1.31E 06 1.33E 06 1.30E 06 1.29E 06 1.11E 06 8.58E 05 6.86E 05 5.58E 05 3.55E 05 1.52E 05
 HEIGHT OF PEAK = 295.76 291.64 338.09 367.16 389.18 380.66 354.50 354.04 324.57 296.11 289.92 303.65
 ESPROB PERCENT = 63.00 65.33 67.61 69.23 69.75 69.04 67.28 64.94 62.66 61.04 60.52 61.24
 AVNES/1000. CM-3 = 99.59 222.03 214.91 194.91 165.69 132.25 99.59 71.55 50.22 35.97 28.08 25.58
 SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	24.57	53.68	89.43	103.50	89.47	53.69	24.57	1.70	1.70	1.70	1.70	1.70
130.00	22.69	86.49	133.63	148.64	133.03	84.85	22.81	1.48	1.48	1.48	1.49	1.49
140.00	24.22	114.11	159.73	174.27	159.13	110.73	23.24	1.87	1.89	1.91	1.92	1.94
150.00	34.18	132.70	174.13	188.25	175.63	128.92	30.12	2.15	2.16	2.17	2.18	2.18
160.00	45.74	145.12	178.64	192.96	184.95	143.14	39.87	2.19	2.19	2.18	2.17	2.16
170.00	55.28	152.43	176.45	192.03	189.46	154.63	49.21	2.10	2.07	2.04	2.01	1.98
180.00	63.21	157.46	171.49	189.29	192.24	164.76	57.83	1.93	1.88	1.83	1.80	1.76
190.00	70.00	163.78	166.82	187.61	196.07	175.63	66.60	1.74	1.68	1.62	1.58	1.54
200.00	75.93	174.70	164.50	189.00	203.14	189.53	76.48	1.55	1.48	1.42	1.37	1.33
210.00	81.84	192.97	165.94	194.95	215.21	208.69	88.54	1.37	1.30	1.23	6.93	1.68
220.00	89.21	220.62	172.27	206.59	233.66	234.96	104.24	1.21	1.14	3.71	32.63	10.64
230.00	99.85	258.79	184.39	224.81	259.42	269.62	125.52	1.07	4.05	23.17	89.16	35.46
240.00	115.66	329.87	202.97	250.14	293.05	313.41	154.37	0.94	24.05	77.67	169.18	76.81
250.00	151.02	410.57	228.42	282.88	334.81	366.70	192.35	0.83	79.97	170.82	251.40	124.65
260.00	195.24	499.59	260.96	323.17	384.89	429.85	240.43	0.74	178.14	282.34	317.04	166.71
270.00	241.30	587.96	300.77	371.21	443.57	531.33	299.20	0.66	300.95	384.48	358.06	195.90
280.00	283.02	665.97	366.09	443.02	540.29	643.42	369.25	0.58	419.99	459.05	375.49	210.76
290.00	315.28	726.36	438.27	528.25	640.25	766.32	502.01	5.38	513.55	501.21	374.65	213.97
300.00	335.55	765.67	518.87	623.05	752.44	902.06	628.14	28.46	573.05	514.99	361.52	208.95
320.00	342.06	783.56	683.28	833.49	997.42	1175.85	913.91	208.31	601.62	486.88	316.98	185.74
340.00	317.61	741.67	810.13	1025.15	1217.20	1388.86	1170.85	536.52	557.11	425.31	266.51	157.28
360.00	279.87	668.74	871.94	1151.57	1361.51	1498.59	1325.09	806.20	485.75	358.32	220.04	130.47
380.00	240.02	585.85	871.70	1198.71	1415.81	1507.73	1362.02	916.66	411.64	297.08	180.39	107.45
400.00	203.25	504.90	827.68	1178.77	1393.88	1443.19	1309.30	902.04	344.32	244.72	147.64	88.46
420.00	171.30	431.31	759.34	1113.57	1319.97	1335.29	1204.31	823.58	286.47	201.23	120.99	73.10
440.00	144.29	366.87	681.38	1023.68	1217.09	1208.03	1077.12	723.35	238.00	165.60	99.48	60.84
460.00	121.75	311.55	602.98	924.18	1102.36	1077.18	946.85	622.86	197.88	136.61	82.21	51.14
480.00	103.01	264.57	529.12	824.64	986.85	951.80	823.82	531.06	164.90	113.13	68.43	43.55
500.00	87.45	224.88	462.05	730.41	876.86	836.39	712.59	450.73	137.89	94.18	57.49	37.70
550.00	59.18	150.95	326.58	530.99	642.18	599.11	491.21	297.91	90.34	61.73	39.47	28.63
600.00	41.58	103.01	231.07	383.85	467.26	428.35	339.00	198.39	62.67	43.87	30.36	24.52
650.00	31.00	72.13	164.95	278.53	340.99	307.99	236.19	134.56	47.49	34.82	26.20	22.83
700.00	25.10	52.61	119.48	203.80	250.65	223.60	167.04	94.25	39.83	30.65	24.46	22.16
750.00	22.14	40.76	88.46	150.97	186.21	164.57	120.82	69.54	36.27	28.87	23.77	21.90
800.00	20.77	33.97	67.64	113.81	140.40	123.54	90.36	55.14	34.70	28.13	23.50	21.80
850.00	20.18	30.34	54.05	87.98	108.09	95.40	70.85	47.27	34.03	27.84	23.39	21.76
900.00	19.93	28.50	45.54	70.37	85.66	76.54	58.86	43.23	33.74	27.72	23.35	21.75
950.00	19.82	27.60	40.43	58.73	70.45	64.31	51.84	41.25	33.62	27.67	23.33	21.74
1000.00	19.78	27.17	37.50	51.29	60.47	56.70	47.92	40.29	33.57	27.65	23.32	21.74
1050.00	19.76	26.96	35.86	46.72	54.14	52.12	45.79	39.84	33.54	27.64	23.32	21.74
1100.00	19.75	26.86	34.97	43.99	50.26	49.45	44.66	39.62	33.53	27.63	23.32	21.74
1150.00	19.74	26.81	34.48	42.40	47.93	47.93	44.06	39.52	33.53	27.63	23.32	21.74
1200.00	19.74	26.79	34.22	41.48	46.56	47.07	43.75	39.47	33.53	27.63	23.32	21.74
1250.00	19.74	26.78	34.07	40.96	45.75	46.58	43.58	39.44	33.53	27.63	23.32	21.74

ELECTRON CONTENT	=	8.57E 12	1.99E 13	2.62E 13	3.72E 13	4.41E 13	4.44E 13	3.57E 13	2.00E 13	1.26E 13	1.03E 13	7.69E 12	5.04E 12
PEAK ELECTRON DENSITY	=	3.44E 05	7.86E 05	8.79E 05	1.20E 06	1.42E 06	1.51E 06	1.36E 06	9.22E 05	6.04E 05	5.15E 05	3.77E 05	2.14E 05
HEIGHT OF PEAK	=	312.89	314.68	369.58	383.08	383.31	371.78	376.94	386.44	315.50	300.95	284.26	288.18
ESPROB PERCENT	=	65.23	67.24	69.18	70.53	70.93	70.26	68.72	66.71	64.77	63.43	63.03	63.69
AVNES/1000. CM-3	=	102.97	229.99	222.61	201.85	171.53	136.85	102.97	73.91	51.81	37.06	28.89	26.31
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = 40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	32.68	57.66	87.25	98.77	87.28	57.66	32.68	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	34.30	93.46	131.81	144.33	131.04	91.64	33.76	1.48	1.48	1.48	1.49	1.49	1.49	1.49	1.49	1.49
140.00	51.17	122.65	159.98	172.27	158.64	118.35	47.70	1.87	1.89	1.91	1.92	1.94	1.94	1.94	1.94	1.94
150.00	68.93	144.72	178.85	191.07	178.24	137.96	63.71	2.15	2.16	2.17	2.18	2.18	2.18	2.18	2.18	2.18
160.00	82.91	163.70	190.97	203.57	192.78	154.52	77.36	2.19	2.19	2.18	2.17	2.16	2.16	2.16	2.16	2.16
170.00	94.87	182.56	199.99	213.64	204.99	169.67	90.04	2.10	2.07	2.04	2.01	1.98	1.98	1.98	1.98	1.98
180.00	105.83	206.45	210.60	225.68	218.42	185.54	103.50	1.93	1.88	1.83	1.80	1.76	1.76	1.76	1.76	1.76
190.00	117.28	241.13	227.00	243.47	236.50	204.98	119.21	1.74	1.68	1.62	1.58	1.54	1.54	1.54	1.54	1.54
200.00	132.05	291.05	252.43	269.93	262.07	230.95	139.16	1.55	1.48	1.42	1.37	1.33	1.33	1.33	1.33	1.33
210.00	158.90	399.10	309.56	330.36	314.41	290.07	219.08	1.37	1.30	1.23	1.19	1.15	1.15	1.15	1.15	1.15
220.00	214.31	520.36	383.20	404.14	400.24	381.58	280.49	1.21	1.14	1.07	1.03	0.99	0.99	0.99	0.99	0.99
230.00	276.68	587.00	460.56	482.20	470.90	451.04	348.93	8.01	0.99	0.93	0.89	0.86	0.86	0.86	0.86	0.86
240.00	339.46	633.76	534.63	558.59	538.29	516.95	421.40	34.61	0.87	0.81	0.77	0.75	0.75	0.75	0.75	0.75
250.00	393.62	659.08	598.71	627.16	597.44	574.09	491.26	94.99	0.76	0.71	0.67	0.65	0.65	0.65	0.65	0.65
260.00	432.65	664.78	648.09	683.16	644.70	618.85	551.95	189.22	0.67	0.62	0.58	0.56	0.56	0.56	0.56	0.56
270.00	454.21	654.52	680.72	723.92	678.28	649.57	598.85	300.41	2.28	1.35	0.81	20.19	20.19	20.19	20.19	20.19
280.00	459.52	632.48	696.85	748.79	697.99	666.30	629.88	406.20	15.14	10.99	29.96	60.15	60.15	60.15	60.15	60.15
290.00	451.75	602.55	698.31	758.78	704.91	670.36	645.20	490.15	55.15	45.05	79.83	122.56	122.56	122.56	122.56	122.56
300.00	434.59	567.97	687.77	755.86	700.83	663.79	646.60	545.62	132.25	115.35	151.16	192.83	192.83	192.83	192.83	192.83
320.00	385.05	494.00	641.81	721.05	668.10	627.54	617.95	578.95	346.33	317.28	289.82	297.65	297.65	297.65	297.65	297.65
340.00	329.86	422.63	578.44	662.91	615.57	573.66	564.45	545.71	504.12	463.00	353.58	327.14	327.14	327.14	327.14	327.14
360.00	278.19	358.85	510.68	595.49	555.10	513.66	501.73	484.58	550.60	500.10	349.20	307.27	307.27	307.27	307.27	307.27
380.00	233.21	303.90	445.63	527.49	494.08	454.38	439.06	417.68	522.62	468.33	312.48	268.27	268.27	268.27	268.27	268.27
400.00	195.33	257.38	386.53	463.51	436.48	399.26	381.00	354.86	463.09	409.82	267.09	226.55	226.55	226.55	226.55	226.55
420.00	163.87	218.29	334.38	405.57	384.07	349.70	329.32	299.50	396.87	347.38	223.64	188.63	188.63	188.63	188.63	188.63
440.00	137.87	185.55	289.09	354.22	337.39	305.94	284.27	252.18	334.80	290.23	185.72	156.29	156.29	156.29	156.29	156.29
460.00	116.42	158.13	250.08	309.26	296.30	267.71	245.45	212.31	280.48	241.08	153.92	129.53	129.53	129.53	129.53	129.53
480.00	98.71	135.14	216.61	270.15	260.37	234.49	212.19	179.01	234.42	199.95	127.77	107.71	107.71	107.71	107.71	107.71
500.00	84.09	115.86	187.95	236.25	229.05	205.68	183.75	151.30	195.95	166.01	106.49	90.09	90.09	90.09	90.09	90.09
550.00	57.85	80.18	133.06	170.14	167.40	149.40	129.56	101.17	126.49	105.87	69.76	60.15	60.15	60.15	60.15	60.15
600.00	42.15	57.41	95.80	124.07	123.81	110.03	93.11	70.57	84.22	70.42	49.36	44.06	44.06	44.06	44.06	44.06
650.00	33.41	43.36	70.62	91.97	92.98	82.51	68.78	52.66	59.35	50.47	38.90	36.17	36.17	36.17	36.17	36.17
700.00	29.05	35.25	53.91	69.76	71.27	63.44	52.91	42.84	45.52	40.05	34.03	32.65	32.65	32.65	32.65	32.65
750.00	27.08	30.95	43.21	54.67	56.22	50.53	42.99	37.85	38.42	35.08	31.93	31.18	31.18	31.18	31.18	31.18
800.00	26.25	28.86	36.71	44.74	46.09	42.12	37.15	35.45	35.05	32.88	31.06	30.58	30.58	30.58	30.58	30.58
850.00	25.91	27.89	33.00	38.51	39.55	36.92	33.93	34.35	33.53	31.94	30.71	30.34	30.34	30.34	30.34	30.34
900.00	25.77	27.45	31.00	34.79	35.52	33.86	32.23	33.84	32.86	31.54	30.57	30.24	30.24	30.24	30.24	30.24
950.00	25.71	27.25	29.95	32.67	33.16	32.15	31.36	33.61	32.57	31.38	30.51	30.20	30.20	30.20	30.20	30.20
1000.00	25.69	27.16	29.41	31.49	31.82	31.21	30.92	33.51	32.44	31.31	30.48	30.18	30.18	30.18	30.18	30.18
1050.00	25.68	27.12	29.13	30.85	31.07	30.70	30.70	33.46	32.38	31.28	30.47	30.18	30.18	30.18	30.18	30.18
1100.00	25.67	27.10	28.99	30.51	30.66	30.43	30.59	33.44	32.36	31.26	30.47	30.18	30.18	30.18	30.18	30.18
1150.00	25.67	27.10	28.92	30.32	30.43	30.29	30.54	33.43	32.34	31.26	30.46	30.17	30.17	30.17	30.17	30.17
1200.00	25.67	27.09	28.88	30.22	30.31	30.21	30.51	33.42	32.34	31.26	30.46	30.17	30.17	30.17	30.17	30.17
1250.00	25.67	27.09	28.87	30.16	30.24	30.17	30.49	33.42	32.34	31.25	30.46	30.17	30.17	30.17	30.17	30.17

ELECTRON CONTENT = 1.10E 13 1.58E 13 1.92E 13 2.19E 13 2.09E 13 1.93E 13 1.72E 13 1.28E 13 1.17E 13 1.05E 13 7.99E 12 7.46E 12
 PEAK ELECTRON DENSITY = 4.60E 05 6.65E 05 6.99E 05 7.59E 05 7.05E 05 6.70E 05 6.48E 05 5.79E 05 5.51E 05 5.00E 05 3.58E 05 3.27E 05
 HEIGHT OF PEAK = 278.61 258.18 286.01 292.48 290.98 288.49 296.01 317.73 360.20 358.31 347.60 339.42
 ESPROB PERCENT = 59.93 71.57 80.81 85.18 83.52 76.26 65.35 53.72 44.48 40.10 41.77 49.03
 AVNES/1000. CM-3 = 114.71 236.21 229.26 209.65 180.87 147.62 114.71 85.94 63.55 48.18 39.43 36.62
 SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 103.25

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	37.24	54.32	72.54	79.83	72.55	54.32	37.24	22.31	1.70	1.70	1.70	22.31
130.00	47.96	87.68	113.81	122.37	112.90	85.91	46.77	21.32	1.48	1.48	1.49	21.21
140.00	71.50	115.76	141.47	149.47	139.70	111.72	67.50	20.43	1.89	1.91	1.92	20.73
150.00	90.10	135.40	160.11	167.61	158.34	129.68	84.66	24.88	2.16	2.17	2.18	27.32
160.00	104.12	149.86	172.29	179.39	171.93	143.42	98.10	33.39	2.19	2.18	2.17	37.51
170.00	114.96	160.69	180.31	187.13	182.17	154.10	109.70	42.25	2.07	2.04	2.01	46.56
180.00	123.44	171.29	187.85	194.14	191.68	163.05	120.28	50.35	1.88	1.83	1.80	53.80
190.00	131.87	185.93	198.63	203.65	203.31	172.26	130.70	58.21	1.68	1.62	1.58	59.58
200.00	143.55	208.59	215.73	218.34	219.64	183.95	142.50	66.69	1.48	1.42	1.37	63.87
210.00	170.58	257.12	252.57	257.66	254.69	208.11	163.79	76.65	1.30	1.23	1.19	66.79
220.00	215.41	311.37	304.60	298.40	306.17	248.54	204.95	89.41	1.14	1.07	1.03	68.98
230.00	257.52	340.73	339.10	334.63	341.08	288.29	249.47	137.79	0.99	0.93	0.89	71.44
240.00	291.03	358.49	364.70	363.80	369.08	324.15	293.67	181.97	0.87	0.81	0.77	75.34
250.00	312.73	365.16	380.58	384.57	389.02	353.59	333.41	231.06	0.76	0.71	0.67	81.90
260.00	322.31	362.56	387.24	396.74	400.77	375.17	365.40	282.81	1.05	0.62	0.59	92.35
270.00	321.53	352.97	385.99	401.02	405.00	388.53	387.88	331.41	8.05	2.34	4.83	107.73
280.00	312.97	338.60	378.51	398.60	402.81	394.20	400.58	371.52	32.32	14.00	22.00	134.80
290.00	299.21	321.31	366.46	390.86	395.48	393.21	406.35	399.89	82.79	46.43	60.08	172.81
300.00	282.43	302.55	351.34	379.16	384.28	386.85	400.66	415.67	155.07	102.66	115.71	210.66
320.00	245.85	264.44	316.47	348.57	354.66	363.06	377.57	414.53	302.14	237.75	276.24	266.27
340.00	210.82	228.97	280.50	314.07	320.87	331.49	343.22	384.61	379.80	319.37	278.60	282.15
360.00	180.04	197.77	246.74	279.91	287.06	297.87	305.68	342.16	385.64	331.44	276.38	267.08
380.00	153.93	171.00	216.47	248.15	255.37	265.38	269.37	297.50	352.92	304.46	247.87	237.06
400.00	132.06	148.24	189.95	219.61	226.68	235.53	236.26	255.73	307.05	263.98	212.10	203.44
420.00	113.75	128.92	166.94	194.39	201.18	208.81	206.97	218.76	260.76	222.84	177.71	171.80
440.00	98.38	112.49	147.05	172.30	178.73	185.22	181.43	186.92	219.02	185.92	147.64	144.15
460.00	85.40	98.45	129.86	153.00	159.05	164.54	159.32	159.86	183.18	154.47	122.41	120.82
480.00	74.39	86.42	114.96	136.15	141.80	146.45	140.21	136.99	153.10	128.32	101.65	101.45
500.00	65.01	76.07	102.02	121.42	126.69	130.62	123.68	117.71	128.14	106.85	84.76	85.48
550.00	47.08	55.97	76.47	92.04	96.43	99.04	91.35	81.70	83.51	69.16	55.63	56.98
600.00	35.01	42.03	58.16	70.68	74.34	76.09	68.54	58.23	56.85	47.47	39.48	39.89
650.00	27.16	32.52	45.01	55.06	58.12	59.28	52.40	43.18	41.66	35.76	31.24	30.15
700.00	22.49	26.37	35.72	43.67	46.23	47.00	41.10	33.96	33.62	29.98	27.41	25.09
750.00	20.03	22.72	29.38	35.54	37.68	38.17	33.46	28.70	29.70	27.35	25.76	22.72
800.00	18.88	20.76	25.31	29.94	31.73	32.04	28.56	25.95	27.91	26.23	25.08	21.69
850.00	18.39	19.80	22.90	26.30	27.79	27.98	25.64	24.60	27.13	25.76	24.80	21.26
900.00	18.18	19.36	21.56	24.07	25.33	25.46	24.02	23.97	26.79	25.56	24.69	21.09
950.00	18.10	19.16	20.86	22.79	23.87	23.98	23.16	23.68	26.64	25.48	24.64	21.02
1000.00	18.07	19.07	20.50	22.08	23.05	23.15	22.72	23.55	26.58	25.44	24.62	20.99
1050.00	18.05	19.03	20.33	21.69	22.59	22.69	22.49	23.49	26.55	25.43	24.62	20.98
1100.00	18.05	19.01	20.24	21.49	22.35	22.45	22.38	23.46	26.53	25.42	24.61	20.97
1150.00	18.04	19.00	20.19	21.38	22.21	22.32	22.32	23.44	26.53	25.42	24.61	20.97
1200.00	18.04	19.00	20.17	21.32	22.14	22.25	22.29	23.44	26.53	25.42	24.61	20.97
1250.00	18.04	18.99	20.16	21.29	22.10	22.21	22.28	23.43	26.52	25.42	24.61	20.97

ELECTRON CONTENT	=	8.30E 12	9.76E 12	1.14E 13	1.25E 13	1.28E 13	1.25E 13	1.18E 13	1.07E 13	8.54E 12	7.30E 12	6.35E 12	7.40E 12
PEAK ELECTRON DENSITY	=	3.23E 05	3.65E 05	3.88E 05	4.01E 05	4.05E 05	3.95E 05	4.04E 05	4.20E 05	3.90E 05	3.33E 05	2.83E 05	2.82E 05
HEIGHT OF PEAK	=	264.04	251.84	263.18	271.05	271.27	283.30	289.68	309.00	351.54	354.00	348.22	338.51
ESPROB PERCENT	=	35.19	50.44	62.61	68.44	66.37	56.96	42.72	27.47	15.30	9.47	11.53	20.95
AVNES/1000. CM-3	=	49.38	107.10	103.76	94.37	80.64	64.86	49.38	36.01	25.76	18.84	14.96	13.73
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	1.70	22.34	37.26	54.35	72.59	79.88	72.58	54.34	37.26	22.34	1.70	
130.00	1.48	1.48	21.23	48.03	88.02	114.22	122.68	113.06	86.00	46.83	21.33	1.48	
140.00	1.90	1.92	20.78	71.80	117.35	143.04	150.56	140.20	111.96	67.62	20.47	1.89	
150.00	2.17	2.18	27.44	91.04	140.18	164.24	170.28	159.53	130.21	84.87	24.98	2.16	
160.00	2.17	2.16	37.71	106.56	161.18	181.09	184.81	174.29	144.48	98.46	33.51	2.18	
170.00	2.03	2.00	46.83	120.41	183.68	196.64	196.78	186.36	156.01	110.32	42.29	2.06	
180.00	1.83	1.79	54.24	134.25	213.19	215.46	209.93	198.55	166.23	121.33	50.16	1.88	
190.00	1.61	1.57	60.34	151.52	255.85	242.17	227.95	213.93	177.29	132.44	57.57	1.67	
200.00	1.41	1.36	65.18	176.78	316.09	280.35	253.87	235.26	191.55	145.29	65.19	1.47	
210.00	1.23	1.18	59.00	233.38	438.77	366.26	313.27	284.75	229.74	173.01	73.66	1.29	
220.00	1.07	1.02	72.60	323.84	547.48	470.62	395.18	353.37	273.96	216.63	83.92	1.13	
230.00	0.93	0.89	77.20	393.04	594.10	532.35	449.05	397.42	317.07	263.88	110.02	0.99	
240.00	0.81	0.77	84.23	449.91	619.77	580.60	494.17	433.84	355.56	310.77	149.66	0.87	
250.00	0.70	0.67	95.21	488.16	626.13	612.93	527.96	460.82	386.77	352.85	191.04	0.76	
260.00	0.62	0.59	111.48	506.43	616.77	629.34	549.55	477.87	409.23	386.61	235.50	0.67	
270.00	0.54	0.54	134.06	507.05	595.86	631.57	559.45	485.52	422.70	410.20	278.26	1.66	
280.00	5.19	15.00	168.31	494.08	567.29	622.21	559.15	484.97	427.82	423.37	314.52	10.37	
290.00	24.09	48.82	219.97	471.81	534.25	604.06	550.52	477.73	425.80	427.05	341.09	36.24	
300.00	67.15	105.97	274.34	443.96	499.16	579.77	535.51	465.34	418.07	422.82	356.87	84.29	
320.00	203.56	237.82	361.78	382.11	429.17	521.17	493.36	430.65	390.99	397.77	359.49	212.42	
340.00	310.82	312.35	394.26	322.21	364.96	458.93	443.92	389.80	355.92	360.92	335.94	302.93	
360.00	342.85	319.32	378.66	269.46	309.07	399.67	394.01	348.32	318.95	320.81	300.53	327.23	
380.00	324.34	290.44	337.77	224.89	261.59	346.23	347.18	309.13	283.44	282.11	262.60	308.90	
400.00	285.24	250.16	289.43	187.90	221.68	299.35	304.88	273.50	250.92	246.89	226.83	273.01	
420.00	242.46	210.20	243.01	157.39	188.27	258.84	267.47	241.78	221.89	215.78	195.04	233.79	
440.00	202.99	174.83	202.18	132.26	160.30	224.05	234.76	213.85	196.32	188.70	167.58	197.34	
460.00	168.97	144.97	167.72	111.55	136.87	194.27	206.29	189.39	173.94	165.29	144.18	165.62	
480.00	140.53	120.35	139.22	94.45	117.21	168.78	181.56	168.01	154.40	145.10	124.35	138.87	
500.00	117.13	100.28	115.88	80.33	100.69	146.95	160.10	149.33	137.34	127.67	107.56	116.67	
550.00	76.06	65.61	74.94	54.99	70.03	105.03	117.92	112.18	103.45	93.76	76.04	77.19	
600.00	52.52	46.33	51.16	39.79	50.39	76.39	88.05	85.37	79.00	70.05	55.32	54.07	
650.00	39.91	36.44	38.09	31.33	38.27	56.95	66.85	65.95	61.29	53.48	41.96	41.36	
700.00	33.73	31.83	31.52	27.12	31.31	44.03	51.93	51.95	48.53	42.12	33.78	34.93	
750.00	30.95	29.84	28.52	25.23	27.67	35.81	41.66	42.04	39.53	34.64	29.16	31.92	
800.00	29.77	29.01	27.24	24.45	25.93	30.90	34.88	35.28	33.43	30.01	26.77	30.59	
850.00	29.28	28.68	26.71	24.13	25.13	28.16	30.63	30.88	29.52	27.34	25.62	30.01	
900.00	29.07	28.54	26.50	24.00	24.77	26.71	28.13	28.18	27.17	25.90	25.08	29.76	
950.00	28.98	28.49	26.41	23.94	24.62	25.98	26.72	26.60	25.82	25.16	24.83	29.66	
1000.00	28.95	28.46	26.37	23.92	24.55	25.61	25.96	25.72	25.08	24.78	24.72	29.61	
1050.00	28.93	28.45	26.36	23.91	24.52	25.42	25.55	25.23	24.68	24.59	24.67	29.59	
1100.00	28.93	28.45	26.35	23.91	24.50	25.33	25.33	24.97	24.46	24.50	24.64	29.58	
1150.00	28.92	28.45	26.35	23.91	24.50	25.29	25.22	24.83	24.35	24.45	24.63	29.58	
1200.00	28.92	28.45	26.35	23.91	24.49	25.26	25.16	24.75	24.29	24.42	24.63	29.57	
1250.00	28.92	28.45	26.35	23.91	24.49	25.25	25.12	24.71	24.25	24.41	24.63	29.57	

ELECTRON CONTENT	= 7.70E 12	7.27E 12	9.73E 12	1.17E 13	1.45E 13	1.67E 13	1.63E 13	1.49E 13	1.33E 13	1.23E 13	9.74E 12	7.68E 12
PEAK ELECTRON DENSITY	= 3.43E 05	3.23E 05	3.94E 05	5.09E 05	6.26E 05	6.32E 05	5.60E 05	4.86E 05	4.28E 05	4.27E 05	3.63E 05	3.27E 05
HEIGHT OF PEAK	= 360.28	352.09	342.00	265.28	248.63	266.65	274.58	274.18	281.88	289.28	311.15	358.99
ESPROB PERCENT	= 21.36	23.66	33.14	47.27	62.24	74.06	79.56	77.25	67.77	53.65	38.68	26.86
AVNES/1000. CM-3	= 32.40	26.28	24.32	79.39	166.11	161.13	147.10	126.53	102.81	79.39	58.99	43.19
SIGMA ES	= 0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

MONTH = 12

ELECTRON CONTENT	=	8.21E 12	6.62E 12	6.98E 12	1.05E 13	1.62E 13	2.17E 13	2.42E 13	2.30E 13	1.93E 13	1.71E 13	1.08E 13	9.33E 12
PEAK ELECTRON DENSITY	=	3.65E 05	2.73E 05	2.98E 05	4.32E 05	6.91E 05	8.23E 05	8.66E 05	7.98E 05	6.76E 05	6.48E 05	4.72E 05	4.13E 05
HEIGHT OF PEAK	=	359.45	349.14	340.44	275.49	255.53	281.56	288.37	287.07	286.63	294.20	316.21	360.67
ESPROB PERCENT	=	36.75	38.59	46.37	58.01	70.40	80.21	84.82	82.99	75.21	63.56	51.17	41.36
AVVES/1000. CM-3	=	45.90	37.55	34.87	109.43	225.52	218.87	200.14	172.64	140.87	109.43	81.96	60.58
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PA. 16802
EAST LONGITUDE = 0.0 LATITUDE = -20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

PENNSYLVANIA STATE UNIVERSITY, UNIVERSITY PARK, PA. 16802
EAST LONGITUDE = 0.0 LATITUDE = -20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

MONTH = 12

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		[CM. -3 X10-3]															
120.00	1.70	1.70	1.70	24.58	53.69	89.47	103.63	89.57	53.71	24.58	1.70	1.70								
130.00	1.48	1.48	1.49	22.69	86.66	134.15	149.72	134.02	85.23	22.82	1.47	1.48								
140.00	1.90	1.92	1.93	24.25	114.96	161.63	177.96	162.61	112.43	23.28	1.87	1.89								
150.00	2.17	2.18	2.18	34.27	135.22	178.86	197.01	184.06	133.64	30.31	2.15	2.16								
160.00	2.17	2.16	2.15	45.93	150.99	188.11	209.93	201.66	153.55	40.55	2.19	2.18								
170.00	2.03	2.00	1.98	55.68	164.08	192.94	221.00	218.69	174.65	51.08	2.09	2.06								
180.00	1.83	1.79	1.76	64.05	178.20	197.79	234.92	239.22	199.77	62.22	1.92	1.88								
190.00	1.61	1.57	1.53	71.67	198.05	206.45	255.63	267.17	232.53	75.82	1.73	1.67								
200.00	1.41	1.36	1.33	79.04	227.89	221.86	286.03	305.47	276.38	94.53	1.54	1.47								
210.00	1.23	1.18	1.14	87.34	299.37	246.17	327.88	355.87	391.04	121.78	1.36	1.29								
220.00	1.07	1.02	0.99	98.42	381.63	280.68	383.03	436.88	494.48	285.65	1.21	1.13								
230.00	0.93	0.89	0.85	120.39	468.86	342.19	488.74	545.35	608.43	386.10	1.06	0.99								
240.00	0.81	0.77	0.74	160.72	551.13	420.34	592.66	665.00	731.16	486.64	0.829	0.87								
250.00	0.70	1.62	2.58	205.83	619.23	508.18	708.61	793.89	853.75	597.48	39.30	0.76								
260.00	2.00	11.70	14.26	250.99	667.47	600.29	829.82	923.71	966.28	709.92	115.45	1.44								
270.00	15.03	43.46	44.00	290.00	694.28	688.58	946.95	1044.86	1060.53	813.32	241.67	1.21								
280.00	58.12	102.70	91.50	318.37	701.31	765.41	1051.02	1149.07	1131.38	898.72	397.90	52.61								
290.00	142.38	178.56	145.62	334.46	692.03	825.35	1135.29	1230.73	1177.05	960.75	552.55	141.39								
300.00	255.24	252.01	193.28	339.04	670.47	865.85	1196.12	1287.31	1198.51	997.85	679.96	273.66								
320.00	461.65	343.05	244.74	322.68	605.27	890.52	1246.73	1327.94	1180.87	1005.06	815.93	553.68								
340.00	550.00	355.33	244.86	288.14	528.78	856.85	1219.13	1291.14	1107.79	948.40	818.98	708.27								
360.00	538.23	324.39	219.93	248.93	453.84	789.11	1141.21	1205.67	1006.62	858.67	751.14	724.83								
380.00	480.06	279.32	188.04	211.80</																

ELECTRON CONTENT	=	1.13E 13	7.93E 12	6.16E 12	8.72E 12	1.72E 13	2.48E 13	3.55E 13	3.79E 13	3.27E 13	2.54E 13	1.76E 13	1.49E 13
PEAK ELECTRON DENSITY	=	5.54E 05	3.58E 05	2.49E 05	3.39E 05	7.01E 05	8.91E 05	1.25E 06	1.33E 06	1.20E 06	1.01E 06	8.30E 05	7.31E 05
HEIGHT OF PEAK	=	346.26	333.52	329.31	299.44	278.91	317.15	321.82	319.28	304.93	311.47	330.02	352.60
ESPROB PERCENT	=	58.13	58.75	62.69	68.90	75.70	81.29	84.15	83.54	79.60	73.39	66.59	61.00
AVNES/1000. CM-3	=	55.37	45.03	41.71	134.67	280.60	272.23	248.64	214.03	174.11	134.67	100.29	73.61
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE WK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = 0.0
S 10.7 = 100.0 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	44.45	78.79	93.69	78.80	44.45	1.70	1.70	1.70				
130.00	1.48	1.48	1.49	1.49	67.85	121.32	138.04	120.49	66.26	1.47	1.47	1.48				
140.00	1.90	1.92	1.93	1.94	94.74	147.92	164.02	146.50	90.62	1.86	1.87	1.89				
150.00	2.17	2.18	2.18	2.18	114.03	163.88	179.17	163.25	107.95	2.14	2.15	2.16				
160.00	2.17	2.16	2.15	2.15	128.97	171.11	185.65	173.27	121.15	2.19	2.19	2.18				
170.00	2.03	2.00	1.98	1.97	140.84	171.97	186.46	178.31	131.60	2.11	2.09	2.06				
180.00	1.83	1.79	1.76	1.74	151.74	170.03	185.17	180.95	139.97	1.96	1.92	1.88				
190.00	1.61	1.57	1.53	1.52	165.12	168.41	184.66	183.77	147.45	1.79	1.73	1.67				
200.00	1.41	4.57	1.33	1.32	184.70	169.37	187.05	188.89	155.70	1.61	1.54	1.47				
210.00	2.13	28.09	9.74	1.20	213.70	174.64	193.92	198.00	166.48	1.45	1.36	1.29				
220.00	18.52	91.27	38.17	8.98	254.22	185.54	206.49	212.52	181.50	1.29	1.21	1.29				
230.00	77.26	193.91	91.77	34.15	326.90	203.11	225.70	233.47	202.21	1.16	1.06	21.05				
240.00	196.42	310.14	159.25	82.05	417.99	228.00	252.11	261.53	229.72	1.03	0.94	86.40				
250.00	357.34	410.24	222.31	144.30	517.85	260.58	286.03	297.09	264.71	0.92	0.83	221.88				
260.00	518.46	477.85	268.32	205.25	616.44	301.02	327.62	340.33	307.58	0.83	0.73	412.67				
270.00	645.45	511.15	293.82	252.70	702.88	370.81	377.08	391.50	358.66	0.74	0.65	614.49				
280.00	724.42	516.44	301.46	281.97	769.19	445.29	458.74	477.89	426.86	3.67	0.58	784.95				
290.00	757.87	502.23	296.18	294.22	811.72	528.18	544.59	566.13	527.87	20.05	0.52	902.02				
300.00	756.01	476.04	282.65	293.34	830.76	613.80	641.18	665.39	628.49	69.55	2.75	963.50				
320.00	690.02	408.55	244.39	268.32	811.47	765.28	847.83	880.66	860.45	332.56	73.06	959.70				
340.00	592.21	339.69	203.91	231.23	743.91	857.58	1025.25	1071.51	1082.98	742.66	367.87	865.19				
360.00	494.27	278.62	167.61	193.95	656.61	881.54	1133.09	1194.67	1237.49	1086.70	784.59	743.80				
380.00	407.49	227.35	137.04	160.82	567.13	851.96	1163.91	1238.72	1301.62	1256.68	1071.95	625.31				
400.00	334.31	185.30	112.01	132.84	484.11	789.85	1133.08	1216.62	1286.62	1274.49	1161.88	520.38				
420.00	273.89	151.17	91.77	109.76	410.81	712.81	1062.52	1149.93	1217.43	1201.27	1116.40	431.23				
440.00	224.50	123.62	75.54	90.93	347.76	632.46	971.53	1058.75	1118.45	1086.92	1007.45	356.92				
460.00	184.31	101.44	62.61	75.70	294.26	555.39	873.71	957.88	1007.73	961.40	880.01	295.51				
480.00	151.67	83.65	52.37	63.45	249.16	484.77	777.41	856.77	896.71	839.87	755.97	244.96				
500.00	125.22	69.42	44.34	53.67	211.27	421.73	687.15	760.80	791.72	728.85	644.03	203.46				
550.00	79.26	45.49	31.42	37.37	141.11	296.45	497.90	556.64	570.65	505.90	426.33	129.56				
600.00	52.90	32.77	25.20	28.95	95.88	209.14	359.20	404.86	409.02	350.95	282.47	85.09				
650.00	38.60	26.62	22.50	25.00	66.86	149.03	260.25	295.48	294.40	245.15	189.05	59.06				
700.00	31.48	23.93	21.41	23.30	48.59	107.82	190.16	217.32	213.79	173.26	128.78	44.66				
750.00	28.25	22.83	20.99	22.60	37.53	79.81	140.65	161.65	157.27	124.68	90.37	37.31				
800.00	26.89	22.40	20.82	22.31	31.23	61.09	105.86	122.16	117.86	92.28	66.53	33.86				
850.00	26.32	22.23	20.76	22.20	27.89	48.95	81.67	94.40	90.72	71.18	52.40	32.32				
900.00	26.09	22.16	20.74	22.15	26.21	41.39	65.19	75.23	72.42	57.94	44.52	31.66				
950.00	26.00	22.14	20.73	22.13	25.40	36.90	54.29	62.32	60.47	50.03	40.39	31.37				
1000.00	25.96	22.12	20.72	22.12	25.01	34.35	47.33	53.92	52.96	45.51	38.32	31.25				
1050.00	25.95	22.12	20.72	22.12	24.82	32.94	43.06	48.64	48.42	43.03	37.31	31.19				
1100.00	25.94	22.12	20.72	22.12	24.73	32.17	40.51	45.43	45.75	41.70	36.83	31.17				
1150.00	25.94	22.12	20.72	22.12	24.69	31.75	39.03	43.52	44.22	40.99	36.59	31.16				
1200.00	25.94	22.12	20.72	22.12	24.67	31.53	38.17	42.40	43.35	40.61	36.43	31.15				
1250.00	25.93	22.12	20.72	22.12	24.66	31.41	37.68	41.74	42.85	40.42	36.42	31.15				

ELECTRON CONTENT = 1.41E 13 9.74E 12 6.27E 12 6.45E 12 2.01E 13 2.57E 13 3.58E 13 3.87E 13 3.88E 13 3.00E 13 2.45E 13 1.87E 13
PEAK ELECTRON DENSITY = 7.61E 05 5.17E 05 3.01E 05 2.95E 05 8.32E 05 8.82E 05 1.16E 06 1.24E 06 1.30E 06 1.28E 06 1.16E 06 9.79E 05
HEIGHT OF PEAK = 294.21 277.15 280.22 294.00 304.11 357.71 378.85 382.31 385.41 392.55 401.29 308.82
ESPROB PERCENT = 9.54 4.71 8.68 20.39 36.70 53.25 65.59 70.43 66.46 54.75 38.43 21.89
AVNES/1000. CM-3 = 49.03 41.62 39.21 102.82 196.52 191.24 176.30 154.25 128.56 102.82 79.95 61.78
SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = 20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	1.70	1.70	1.70	34.70	58.03	70.76	58.03	34.70	1.70	1.70	1.70	
130.00	1.48	1.48	1.49	1.49	39.95	93.45	111.13	92.31	39.13	1.47	1.47	1.48	
140.00	1.90	1.92	1.93	1.94	60.37	121.70	138.74	118.80	56.58	1.86	1.87	1.89	
150.00	2.17	2.18	2.18	2.18	79.74	142.64	158.39	137.52	73.41	2.14	2.15	2.16	
160.00	2.17	2.16	2.15	2.15	96.98	160.23	173.27	152.21	87.40	2.19	2.19	2.18	
170.00	2.03	2.00	1.98	1.97	115.62	176.66	185.44	164.22	100.52	2.11	2.09	2.06	
180.00	1.83	1.79	1.76	1.74	138.88	195.49	198.13	175.38	114.34	1.96	1.92	1.89	
190.00	1.61	1.57	1.53	1.52	171.15	220.98	214.77	188.17	130.20	1.79	1.73	1.67	
200.00	1.41	1.36	1.33	1.32	217.46	256.86	238.40	205.09	149.93	1.61	1.54	1.47	
210.00	6.21	5.20	1.14	1.14	363.80	305.52	271.23	228.35	175.81	1.45	1.36	1.29	
220.00	40.64	29.90	0.99	3.69	475.04	367.91	314.56	259.61	210.08	1.29	1.21	1.13	
230.00	139.74	93.35	0.85	16.49	600.75	444.32	368.89	299.86	254.40	1.34	1.06	7.95	
240.00	311.42	193.72	3.77	44.26	730.90	588.25	434.41	349.55	309.63	10.22	0.94	46.77	
250.00	517.90	305.69	14.88	84.00	850.57	722.00	511.39	408.94	376.21	44.73	4.78	154.10	
260.00	706.75	401.36	36.41	125.95	947.02	873.54	651.92	478.32	454.52	130.21	29.27	340.76	
270.00	843.75	465.75	64.45	160.80	1013.04	1037.15	780.48	575.81	571.76	280.78	103.49	572.31	
280.00	920.19	497.39	91.73	183.99	1047.34	1199.30	925.46	708.10	713.26	485.29	247.92	794.98	
290.00	943.90	502.35	112.64	195.36	1052.93	1345.74	1081.49	838.87	869.36	712.44	450.28	968.52	
300.00	928.92	488.70	125.19	197.17	1035.16	1465.26	1237.63	984.97	1037.71	927.20	671.68	1077.64	
320.00	834.48	432.33	129.28	183.23	952.94	1602.88	1505.75	1293.29	1365.86	1230.63	1021.88	1126.78	
340.00	710.69	364.83	117.88	159.38	840.91	1611.71	1666.80	1555.31	1609.77	1338.45	1159.77	1040.43	
360.00	590.83	301.54	101.64	134.67	724.41	1528.97	1709.88	1714.77	1726.64	1305.40	1133.96	905.21	
380.00	486.06	247.12	85.68	112.40	615.95	1396.17	1659.63	1761.76	1725.91	1199.38	1027.69	765.62	
400.00	398.22	201.97	71.81	93.61	520.32	1244.40	1550.44	1718.15	1642.14	1066.61	896.16	639.13	
420.00	325.92	165.11	60.38	78.19	438.31	1092.69	1411.90	1615.38	1511.41	931.92	766.49	530.49	
440.00	266.88	135.26	51.24	65.75	369.00	950.98	1264.53	1481.38	1361.16	806.61	649.41	439.41	
460.00	218.86	111.19	44.08	55.83	310.83	823.46	1120.59	1336.15	1208.93	694.82	547.83	363.88	
480.00	179.86	91.85	38.58	48.03	262.17	711.17	986.56	1192.23	1064.50	597.19	461.40	301.57	
500.00	148.23	76.38	34.44	41.97	221.51	613.50	865.21	1056.56	932.51	512.90	388.54	250.29	
550.00	93.13	50.34	28.28	32.46	146.75	424.28	618.97	769.85	663.50	351.17	253.89	158.62	
600.00	61.26	36.51	25.66	28.06	99.01	295.09	442.76	557.74	471.57	242.13	167.90	102.86	
650.00	43.67	29.82	24.61	26.18	68.72	207.03	318.35	405.12	336.99	168.90	113.37	69.55	
700.00	34.71	26.89	24.20	25.42	49.92	146.94	230.65	296.01	242.82	119.96	79.32	50.46	
750.00	30.56	25.70	24.05	25.11	38.77	105.99	168.77	218.03	176.87	97.65	58.75	40.24	
800.00	28.78	25.22	23.99	24.99	32.57	78.31	125.16	162.28	130.72	66.84	47.00	35.22	
850.00	28.04	25.03	23.96	24.94	29.36	59.94	94.60	122.52	98.63	53.96	40.72	32.92	
900.00	27.74	24.96	23.95	24.92	27.79	48.12	73.47	94.36	76.63	46.37	37.57	31.90	
950.00	27.62	24.93	23.95	24.91	27.04	40.84	59.17	74.71	61.90	42.12	36.06	31.46	
1000.00	27.57	24.91	23.95	24.91	26.69	36.56	49.79	61.30	52.37	39.84	35.34	31.27	
1050.00	27.55	24.91	23.95	24.91	26.52	34.15	43.88	52.42	46.43	38.63	35.01	31.18	
1100.00	27.54	24.91	23.95	24.91	26.45	32.82	40.28	46.75	42.87	38.01	34.85	31.15	
1150.00	27.53	24.91	23.95	24.91	26.41	32.10	38.15	43.23	40.79	37.69	34.77	31.13	
1200.00	27.53	24.91	23.95	24.91	26.39	31.72	36.91	41.11	39.59	37.52	34.74	31.12	
1250.00	27.53	24.91	23.95	24.91	26.38	31.51	36.20	39.85	38.92	37.43	34.72	31.12	

ELECTRON CONTENT = 1.72E 13 9.77E 12 3.94E 12 5.13E 12 2.39E 13 4.27E 13 4.94E 13 5.29E 13 4.87E 13 3.03E 13 2.39E 13 2.14E 13
PEAK ELECTRON DENSITY = 9.44E 05 5.03E 05 1.30E 05 1.97E 05 1.05E 06 1.62E 06 1.71E 06 1.76E 06 1.74E 06 1.34E 06 1.17E 06 1.13E 06
HEIGHT OF PEAK = 290.50 287.10 312.90 297.06 287.08 331.26 358.07 379.26 369.55 343.73 345.40 315.00
ESPROB PERCENT = 12.43 9.31 15.53 29.43 47.29 64.31 75.94 79.06 72.84 58.94 41.08 24.06
AVNES/1000. CM-3 = 35.98 28.95 26.71 90.56 192.22 196.37 169.88 145.73 117.94 90.56 66.79 48.45
SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = 40.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	1.70	1.70	1.70	1.70	19.82	37.73	43.62	37.73	19.82	1.70	1.70	1.70	1.70	1.70
130.00	1.48	1.48	1.49	1.49	19.77	49.05	65.09	48.42	19.88	1.47	1.47	1.48	1.48	1.48
140.00	1.90	1.92	1.93	1.94	18.34	72.62	91.50	70.47	18.38	1.86	1.87	1.89	1.89	1.89
150.00	2.17	2.18	2.18	2.18	21.91	93.31	113.18	89.99	20.02	2.14	2.15	2.16	2.16	2.16
160.00	2.17	2.16	2.15	2.15	30.80	113.35	134.72	108.39	26.11	2.19	2.19	2.18	2.18	2.18
170.00	2.03	2.00	1.98	1.97	41.83	137.04	159.87	129.31	35.11	2.11	2.09	2.06	2.06	2.06
180.00	1.83	1.79	1.76	1.74	55.41	168.56	192.35	155.95	46.65	1.96	1.92	1.88	1.88	1.88
190.00	1.61	1.57	1.53	1.52	75.57	212.95	236.59	191.95	62.82	1.98	1.73	1.67	1.67	1.67
200.00	1.41	1.36	1.33	1.32	109.07	274.72	296.30	241.06	88.13	9.80	1.54	1.47	1.47	1.47
210.00	1.23	1.18	1.14	1.14	264.73	439.29	455.61	396.72	273.69	30.74	1.36	1.29	1.29	1.29
220.00	1.07	1.02	0.99	0.98	419.58	601.62	618.63	563.65	478.54	69.13	4.48	1.13	1.13	1.13
230.00	0.93	0.89	0.85	0.85	459.57	666.44	687.81	631.52	529.21	122.07	17.67	0.99	0.99	0.99
240.00	0.81	0.77	0.74	0.97	483.24	712.58	740.85	686.41	567.19	180.73	45.23	0.87	0.87	0.87
250.00	0.70	0.73	2.94	5.43	491.34	738.98	775.84	725.83	591.35	235.38	85.47	0.76	0.76	0.76
260.00	2.10	5.37	12.47	17.19	486.44	747.09	793.17	749.29	602.23	279.19	130.41	4.89	4.89	4.89
270.00	10.49	20.16	32.10	36.81	471.74	739.85	794.79	757.94	601.48	309.31	171.11	17.94	17.94	17.94
280.00	30.55	48.02	59.00	60.28	450.37	720.73	783.48	753.83	591.26	326.04	201.83	43.05	43.05	43.05
290.00	61.57	83.94	86.28	82.08	424.95	693.09	762.19	739.45	573.82	331.39	220.83	76.80	76.80	76.80
300.00	96.48	118.90	108.09	98.46	397.53	659.86	733.72	717.28	551.25	328.07	229.12	111.53	111.53	111.53
320.00	149.11	162.54	128.00	112.02	342.06	585.59	664.41	658.26	497.52	304.97	222.98	160.31	160.31	160.31
340.00	164.74	168.79	124.41	107.95	290.67	510.56	589.56	590.62	440.29	271.80	200.99	173.17	173.17	173.17
360.00	155.84	154.58	110.57	96.27	245.73	440.99	517.04	522.82	385.23	236.93	174.44	163.27	163.27	163.27
380.00	137.05	133.61	94.50	82.96	207.49	379.22	450.59	459.26	334.99	204.20	148.70	144.14	144.14	144.14
400.00	116.64	112.64	79.62	70.63	175.35	325.60	391.51	401.83	290.46	175.05	125.77	123.40	123.40	123.40
420.00	97.98	94.13	66.99	60.13	148.48	279.59	339.85	350.99	251.61	149.76	106.14	104.29	104.29	104.29
440.00	82.08	78.65	56.71	51.56	126.05	240.33	295.07	306.50	218.00	128.11	89.67	87.80	87.80	87.80
460.00	68.97	66.05	48.56	44.74	107.31	206.90	256.42	267.79	189.06	109.73	76.01	74.04	74.04	74.04
480.00	58.38	55.97	42.23	39.43	91.65	178.43	223.12	234.21	164.18	94.19	64.77	62.77	62.77	62.77
500.00	49.95	48.03	37.41	35.38	78.56	154.17	194.42	205.11	142.81	81.10	55.58	53.65	53.65	53.65
550.00	36.12	35.25	30.12	29.22	54.51	107.94	138.79	148.15	101.59	56.90	39.63	38.21	38.21	38.21
600.00	29.24	29.09	26.93	26.49	39.41	76.70	100.17	108.08	73.30	41.67	30.74	30.05	30.05	30.05
650.00	26.13	26.41	25.64	25.35	30.38	55.61	73.25	79.75	53.92	32.46	26.16	26.11	26.11	26.11
700.00	24.82	25.30	25.14	24.89	25.38	41.58	54.51	59.69	40.79	27.20	23.96	24.35	24.35	24.35
750.00	24.29	24.87	24.94	24.70	22.86	32.55	41.63	45.57	32.13	24.37	22.96	23.60	23.60	23.60
800.00	24.08	24.69	24.86	24.63	21.68	27.03	32.99	35.82	26.66	22.93	22.52	23.28	23.28	23.28
850.00	23.99	24.62	24.83	24.60	21.15	23.87	27.44	29.27	23.38	22.21	22.32	23.14	23.14	23.14
900.00	23.95	24.59	24.82	24.58	20.91	22.18	24.06	25.07	21.51	21.86	22.23	23.09	23.09	23.09
950.00	23.94	24.58	24.81	24.58	20.81	21.31	22.10	22.51	20.50	21.69	22.19	23.06	23.06	23.06
1000.00	23.93	24.58	24.81	24.58	20.76	20.87	21.02	21.01	19.96	21.60	22.18	23.05	23.05	23.05
1050.00	23.93	24.58	24.81	24.57	20.74	20.65	20.43	20.17	19.67	21.56	22.17	23.05	23.05	23.05
1100.00	23.93	24.57	24.81	24.57	20.73	20.54	20.12	19.70	19.52	21.54	22.17	23.05	23.05	23.05
1150.00	23.93	24.57	24.81	24.57	20.73	20.49	19.96	19.45	19.44	21.53	22.16	23.05	23.05	23.05
1200.00	23.93	24.57	24.81	24.57	20.73	20.46	19.87	19.31	19.40	21.52	22.16	23.05	23.05	23.05
1250.00	23.93	24.57	24.81	24.57	20.73	20.45	19.82	19.23	19.38	21.52	22.16	23.05	23.05	23.05

ELECTRON CONTENT = 4.47E 12 4.57E 12 3.97E 12 3.77E 12 1.06E 13 1.77E 13 2.02E 13 1.98E 13 1.46E 13 8.09E 12 5.74E 12 4.63E 12
PEAK ELECTRON DENSITY = 1.65E 05 1.70E 05 1.29E 05 1.12E 05 4.91E 05 7.47E 05 7.96E 05 7.58E 05 6.03E 05 3.31E 05 2.30E 05 1.73E 05
HEIGHT OF PEAK = 340.16 333.74 324.93 322.90 250.83 259.92 266.05 271.48 264.20 290.62 304.63 338.75
ESPROB PERCENT = 10.78 12.76 21.65 35.05 49.39 60.82 66.27 64.29 55.41 42.00 27.67 16.24
AVNES/1000. CM-3 = 22.99 19.22 18.00 50.89 100.48 97.67 89.72 78.02 64.43 50.89 38.94 29.54
SIGMA ES = 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	1.70	11.62	22.25	11.62	1.70	1.70	1.70	1.70
130.00	1.48	1.48	1.49	1.49	1.49	15.09	21.26	15.08	1.47	1.47	1.47	1.48
140.00	1.90	1.92	1.93	1.94	1.93	14.26	20.45	14.41	1.86	1.86	1.87	1.89
150.00	2.17	2.18	2.18	2.18	2.18	13.18	25.22	13.32	2.13	2.14	2.15	2.16
160.00	2.17	2.16	2.15	2.15	2.16	14.05	34.59	13.55	3.74	2.19	2.19	2.18
170.00	2.03	2.00	1.98	1.97	2.00	18.03	45.99	16.30	14.69	2.11	2.09	2.06
180.00	1.83	1.79	1.76	1.74	2.48	24.77	60.15	22.11	39.53	1.96	1.92	1.88
190.00	1.61	1.57	1.53	1.52	10.95	34.53	80.50	31.91	80.46	1.79	1.73	1.67
200.00	1.41	1.36	1.33	1.32	30.12	49.89	112.52	48.79	133.29	1.69	1.54	1.47
210.00	1.23	1.18	1.14	1.14	59.53	194.68	299.60	245.41	189.69	6.82	1.36	1.29
220.00	1.07	1.02	0.99	0.98	93.37	362.93	498.41	467.44	241.29	18.44	1.21	1.13
230.00	0.93	0.89	0.85	0.85	124.55	404.52	550.11	513.45	282.51	37.29	4.49	0.99
240.00	0.81	0.77	1.65	0.74	148.31	434.93	588.47	547.57	311.09	61.01	12.13	0.87
250.00	0.70	0.67	6.90	0.67	163.08	453.18	612.45	568.99	327.37	85.55	23.83	0.76
260.00	0.62	0.59	17.52	3.05	169.56	459.95	622.74	578.30	333.11	107.16	37.37	0.67
270.00	0.54	0.74	31.82	8.43	169.50	456.93	621.10	577.01	330.64	123.62	50.00	0.61
280.00	1.43	4.32	46.07	16.49	164.83	446.20	609.81	567.08	322.20	134.26	59.81	3.16
290.00	6.45	13.95	57.25	25.41	157.21	429.87	591.23	550.52	309.73	139.54	66.10	9.67
300.00	17.62	30.10	64.14	33.20	147.92	409.80	567.50	529.20	294.75	140.43	69.07	20.48
320.00	52.19	67.07	66.76	41.82	127.63	364.16	511.56	478.45	261.55	133.39	67.78	46.15
340.00	78.82	87.79	60.80	42.14	108.03	317.53	452.37	424.15	228.31	120.33	61.30	62.28
360.00	86.47	89.58	52.10	38.17	90.61	274.02	395.66	371.63	197.55	105.62	53.25	65.44
380.00	81.52	81.31	43.42	32.87	75.69	235.26	344.02	323.44	170.19	91.40	45.34	60.87
400.00	71.50	69.87	35.74	27.64	63.14	201.57	298.30	280.52	146.34	78.53	38.25	53.34
420.00	60.60	58.54	29.27	22.99	52.65	172.65	258.42	242.92	125.75	67.28	32.14	45.41
440.00	50.56	48.48	23.93	19.03	43.93	147.97	223.93	210.29	108.09	57.59	26.98	38.12
460.00	41.89	39.95	19.56	15.73	36.67	126.97	194.19	182.12	92.99	49.34	22.67	31.81
480.00	34.60	32.86	16.00	12.99	30.64	109.09	168.60	157.85	80.09	42.34	19.07	26.47
500.00	28.56	27.03	13.10	10.74	25.63	93.87	146.57	136.96	69.08	36.43	16.09	22.01
550.00	17.71	16.63	7.99	6.71	16.48	64.87	103.88	96.57	48.17	25.44	10.72	13.91
600.00	11.05	10.30	4.92	4.24	10.66	45.19	74.21	68.66	34.21	18.45	7.45	8.84
650.00	6.95	6.43	3.08	2.72	6.96	31.71	53.39	49.28	25.02	14.16	5.55	5.67
700.00	4.42	4.07	1.98	1.80	4.58	22.39	38.66	35.78	19.12	11.66	4.51	3.68
750.00	2.85	2.62	1.34	1.26	3.06	15.91	28.18	26.38	15.48	10.29	3.98	2.43
800.00	1.89	1.74	0.99	0.95	2.08	11.36	20.68	19.90	13.35	9.58	3.73	1.66
850.00	1.32	1.22	0.81	0.80	1.47	8.16	15.29	15.52	12.16	9.22	3.62	1.20
900.00	0.99	0.93	0.72	0.72	1.10	5.89	11.43	12.65	11.52	9.04	3.57	0.93
950.00	0.82	0.79	0.69	0.69	0.89	4.28	8.68	10.85	11.19	8.95	3.54	0.79
1000.00	0.73	0.72	0.67	0.67	0.77	3.13	6.74	9.77	11.01	8.91	3.53	0.72
1050.00	0.69	0.68	0.66	0.67	0.71	2.31	5.40	9.15	10.92	8.89	3.53	0.69
1100.00	0.67	0.67	0.66	0.66	0.69	1.74	4.51	8.81	10.87	8.88	3.52	0.67
1150.00	0.67	0.66	0.66	0.66	0.67	1.33	3.95	8.62	10.85	8.87	3.52	0.67
1200.00	0.66	0.66	0.66	0.66	0.67	1.05	3.62	8.51	10.84	8.87	3.52	0.66
1250.00	0.66	0.66	0.66	0.66	0.66	0.87	3.42	8.46	10.83	8.87	3.52	0.66

ELECTRON CONTENT	=	1.53E 12	1.58E 12	1.15E 12	7.98E 11	3.13E 12	9.78E 12	1.44E 13	1.34E 13	7.74E 12	3.43E 12	1.51E 12	1.22E 12
PEAK ELECTRON DENSITY	=	8.65E 04	9.06E 04	6.72E 04	4.28E 04	1.70E 05	4.60E 05	6.23E 05	5.79E 05	3.33E 05	1.41E 05	6.95E 04	6.56E 04
HEIGHT OF PEAK	=	359.78	351.90	313.90	330.40	264.75	261.59	263.42	263.60	261.54	297.25	306.22	355.91
ESPR08 PERCENT	=	7.12	8.13	12.57	19.24	26.35	32.01	34.70	33.69	29.25	22.58	15.46	9.81
AVNES/1000. CM-3	=	21.53	20.35	19.95	28.94	39.60	39.04	37.44	35.01	32.06	28.94	25.98	23.45
SIGMA ES	=	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -90.00

LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	37.26	22.34	1.70	1.70	1.70	22.34	37.26	54.35	72.58	79.87	72.58	54.35	
130.00	46.85	21.34	1.48	1.48	1.48	21.23	48.02	87.93	114.06	122.58	113.09	86.08	
140.00	67.78	20.47	1.89	1.90	1.92	20.78	71.73	116.87	142.40	150.15	140.30	112.34	
150.00	85.47	25.01	2.16	2.17	2.18	27.44	90.74	138.70	162.51	169.25	159.78	131.26	
160.00	100.01	33.66	2.18	2.17	2.16	37.71	105.73	157.60	177.35	182.68	174.81	146.77	
170.00	113.64	42.82	2.06	2.03	2.00	46.84	118.49	176.28	189.62	192.94	187.30	160.35	
180.00	127.69	51.52	1.88	1.83	1.79	54.25	130.37	199.53	203.51	203.62	200.10	173.70	
190.00	143.68	60.61	1.67	1.61	1.57	60.35	144.38	233.03	223.27	218.22	216.33	189.28	
200.00	163.91	71.35	1.47	1.41	1.36	65.19	164.66	281.30	252.38	239.66	238.79	209.78	
210.00	211.69	85.38	1.29	1.23	1.18	69.02	209.03	381.16	318.30	287.93	291.34	257.82	
220.00	292.07	104.97	1.13	1.07	1.02	72.64	285.57	471.89	403.72	359.01	363.49	332.29	
230.00	357.38	183.16	0.99	0.93	0.89	77.26	346.60	511.88	456.94	408.21	409.43	385.43	
240.00	422.64	252.54	0.87	0.81	0.77	84.33	396.96	533.96	498.75	449.58	447.58	433.05	
250.00	481.56	324.72	0.76	0.70	0.67	95.36	431.04	539.55	527.02	480.73	476.03	471.78	
260.00	529.10	403.30	0.67	0.62	0.59	111.70	447.60	531.74	541.69	500.82	494.18	499.74	
270.00	562.50	479.73	2.89	0.78	3.58	134.35	448.63	514.08	544.20	510.30	502.55	516.57	
280.00	581.27	545.20	18.45	7.71	21.14	168.60	437.68	489.89	536.74	510.46	502.34	523.03	
290.00	586.63	593.63	65.24	36.10	68.89	220.44	418.51	461.89	521.71	503.01	495.12	520.59	
300.00	580.76	622.67	153.05	101.27	149.67	275.02	394.40	432.15	501.35	489.72	482.48	511.01	
320.00	545.31	628.06	389.66	309.25	336.18	362.91	340.65	372.79	451.93	451.96	446.72	477.27	
340.00	492.82	585.14	558.50	473.88	441.74	395.68	288.46	318.31	399.22	407.43	404.37	433.43	
360.00	435.54	520.00	604.80	523.62	451.60	380.13	242.42	270.83	348.92	362.37	361.26	387.14	
380.00	380.21	449.95	571.23	495.49	410.55	339.12	203.45	230.42	303.47	320.00	320.46	342.64	
400.00	329.86	383.84	504.62	435.59	353.29	290.61	171.01	196.37	263.54	281.70	283.34	301.88	
420.00	285.48	325.19	431.56	369.89	296.45	244.01	144.16	167.77	228.95	247.79	250.28	265.53	
440.00	246.98	274.78	363.47	309.15	246.06	203.00	121.95	143.73	199.17	218.09	221.17	233.56	
460.00	213.86	232.13	304.04	256.68	203.42	168.39	103.55	123.50	173.60	192.21	195.69	205.65	
480.00	185.48	196.32	253.71	212.67	168.12	139.77	88.27	106.44	151.64	169.70	173.42	181.35	
500.00	161.18	166.38	211.69	176.30	139.21	116.34	75.58	92.03	132.76	150.11	153.97	160.21	
550.00	114.64	111.45	135.71	111.63	88.52	75.24	52.52	65.03	96.23	111.47	115.35	118.57	
600.00	83.00	76.70	89.19	73.20	59.19	51.38	38.44	47.48	70.97	83.92	87.55	88.96	
650.00	61.59	55.10	61.40	51.20	43.13	38.27	30.44	36.51	53.59	64.22	67.45	67.85	
700.00	47.39	42.24	45.58	39.42	35.04	31.69	26.39	30.13	41.89	50.25	53.00	52.90	
750.00	38.35	35.09	37.19	33.64	31.33	28.69	24.55	26.77	34.36	40.55	42.80	42.55	
800.00	32.93	31.41	33.10	31.03	29.73	27.41	23.78	25.15	29.82	34.10	35.85	35.65	
850.00	29.88	29.63	31.22	29.90	29.07	26.88	23.47	24.41	27.26	30.04	31.34	31.30	
900.00	28.27	28.80	30.38	29.43	28.80	26.66	23.34	24.08	25.91	27.63	28.57	28.70	
950.00	27.44	28.42	30.02	29.23	28.69	26.58	23.29	23.93	25.21	26.27	26.96	27.23	
1000.00	27.03	28.25	29.86	29.14	28.64	26.54	23.27	23.87	24.87	25.53	26.06	26.43	
1050.00	26.82	28.16	29.79	29.11	28.62	26.52	23.26	23.84	24.69	25.13	25.56	25.99	
1100.00	26.71	28.13	29.76	29.09	28.61	26.52	23.26	23.83	24.60	24.92	25.29	25.76	
1150.00	26.66	28.11	29.74	29.09	28.61	26.51	23.25	23.82	24.56	24.81	25.14	25.64	
1200.00	26.63	28.10	29.73	29.08	28.61	26.51	23.25	23.82	24.54	24.75	25.06	25.57	
1250.00	26.62	28.10	29.73	29.08	28.61	26.51	23.25	23.82	24.53	24.72	25.02	25.54	

ELECTRON CONTENT	=	1.57E 13	1.51E 13	1.25E 13	1.07E 13	9.44E 12	9.77E 12	1.07E 13	1.30E 13	1.49E 13	1.52E 13	1.53E 13	1.55E 13
PEAK ELECTRON DENSITY	=	5.87E 05	6.33E 05	6.05E 05	5.24E 05	4.56E 05	3.96E 05	4.50E 05	5.40E 05	5.45E 05	5.11E 05	5.03E 05	5.23E 05
HEIGHT OF PEAK	=	289.40	311.35	359.26	360.43	352.12	342.05	265.63	248.75	267.21	275.10	274.65	281.97
ESPOB PERCENT	=	54.26	39.38	27.64	22.18	24.47	33.90	47.94	62.82	74.57	30.02	77.73	68.30
AVNES/1000. CM-3	=	81.22	60.40	44.26	33.23	26.98	24.98	81.22	169.69	164.61	150.30	129.31	105.12
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -90.00 LATITUDE = -40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	32.69	1.70	1.70	1.70	1.70	1.70	32.69	57.66	87.24	98.77	87.30	57.68		
130.00	33.79	1.47	1.48	1.48	1.48	1.49	34.33	93.35	131.60	144.28	131.10	91.73		
140.00	47.78	1.87	1.89	1.90	1.92	1.93	51.20	121.94	159.09	172.04	158.80	118.66		
150.00	63.81	2.15	2.16	2.17	2.18	2.18	68.80	142.46	176.50	190.46	178.57	138.74		
160.00	77.47	2.19	2.18	2.17	2.16	2.15	82.32	158.30	186.07	202.31	193.38	156.12		
170.00	90.16	2.09	2.06	2.03	2.00	1.98	93.26	171.61	191.18	211.42	206.00	172.63		
180.00	103.61	1.92	1.88	1.83	1.79	1.76	102.28	186.64	196.19	222.11	220.06	190.62		
190.00	119.32	1.73	1.67	1.61	1.57	1.53	110.40	208.38	204.86	238.14	239.02	213.16		
200.00	139.26	1.54	1.47	1.41	1.36	1.33	119.87	241.14	220.16	262.37	265.78	243.37		
210.00	166.09	1.36	1.29	1.23	1.18	1.14	133.61	317.24	244.25	296.72	302.33	308.82		
220.00	238.64	1.21	1.13	1.07	1.02	0.99	154.57	404.91	278.47	342.15	354.17	390.29		
230.00	323.32	1.06	0.99	0.93	0.89	0.85	185.10	498.13	339.80	431.50	442.71	479.85		
240.00	407.25	7.45	0.87	0.81	0.77	0.74	248.05	586.35	417.16	523.30	539.85	576.35		
250.00	499.79	35.61	0.76	0.70	2.56	4.83	320.01	659.63	504.46	625.83	644.55	672.76		
260.00	593.69	105.20	1.53	2.60	18.29	26.47	393.00	711.78	596.29	733.23	750.13	761.33		
270.00	680.11	221.08	12.87	19.33	67.33	81.22	456.72	740.99	684.60	837.23	848.83	835.58		
280.00	751.59	365.02	55.13	74.16	158.17	168.23	503.53	748.96	761.69	929.85	933.89	891.51		
290.00	803.62	507.92	147.58	180.69	273.90	267.02	530.39	739.37	822.07	1005.06	1000.72	927.68		
300.00	834.88	625.94	284.84	322.71	385.47	353.77	538.30	716.52	863.10	1059.56	1047.23	944.84		
320.00	841.51	752.45	574.36	581.12	523.01	447.01	511.63	646.90	888.84	1105.60	1081.28	931.62		
340.00	794.81	755.97	733.52	690.87	540.82	446.51	454.30	564.94	856.01	1082.08	1052.27	874.81		
360.00	720.44	693.71	750.04	675.33	493.04	400.17	388.89	484.52	788.81	1013.69	983.50	795.86		
380.00	636.90	608.12	688.26	601.91	423.99	341.19	326.84	411.79	706.93	922.64	895.08	709.80		
400.00	554.90	521.08	599.16	513.69	355.03	284.47	272.45	348.61	622.87	824.45	800.85	625.50		
420.00	479.58	441.59	508.55	429.71	293.85	234.96	226.53	294.83	543.36	728.35	708.98	547.41		
440.00	412.83	372.38	426.57	356.32	242.15	193.49	188.42	249.52	471.39	639.09	623.71	477.33		
460.00	354.83	313.48	356.00	294.51	199.42	159.41	157.04	211.51	407.85	558.63	546.78	415.56		
480.00	304.99	263.94	296.64	243.32	164.47	131.67	131.30	179.68	352.53	487.39	478.53	361.68		
500.00	262.39	222.50	247.26	201.27	136.05	109.22	110.23	153.04	304.75	424.96	418.59	314.96		
550.00	181.57	146.79	158.20	126.84	86.60	70.61	72.91	103.93	212.75	302.26	300.25	224.13		
600.00	127.75	99.52	103.72	82.65	58.33	49.16	50.86	72.63	150.23	216.58	217.04	161.36		
650.00	92.17	70.75	71.18	57.30	43.12	38.12	38.54	53.10	107.91	156.95	158.67	118.08		
700.00	69.05	54.04	52.60	43.64	35.62	32.96	32.25	41.49	79.51	115.54	117.81	88.42		
750.00	54.56	44.97	42.74	36.91	32.26	30.75	29.34	35.07	60.82	86.99	89.39	68.45		
800.00	45.93	40.39	37.91	33.85	30.84	29.84	28.08	31.78	48.96	67.65	69.93	55.40		
850.00	41.08	38.19	35.69	32.54	30.26	29.47	27.55	30.19	41.78	54.90	56.96	47.24		
900.00	38.50	37.17	34.71	31.98	30.02	29.32	27.33	29.45	37.66	46.84	48.62	42.38		
950.00	37.16	36.70	34.28	31.75	29.92	29.26	27.24	29.11	35.40	41.94	43.49	39.60		
1000.00	36.48	36.49	34.09	31.65	29.88	29.24	27.20	28.95	34.19	39.09	40.44	38.06		
1050.00	36.14	36.39	34.01	31.61	29.87	29.23	27.18	28.88	33.55	37.48	38.68	37.23		
1100.00	35.96	36.34	33.97	31.59	29.86	29.22	27.18	28.84	33.22	36.57	37.68	36.77		
1150.00	35.88	36.32	33.95	31.59	29.86	29.22	27.17	28.83	33.04	36.07	37.12	36.53		
1200.00	35.83	36.31	33.95	31.58	29.85	29.22	27.17	28.82	32.95	35.80	36.81	36.39		
1250.00	35.81	36.30	33.94	31.58	29.85	29.22	27.17	28.81	32.90	35.65	36.63	36.32		

ELFCTRON CONTENT = 2.21E 13 1.64E 13 1.54E 13 1.37E 13 1.09E 13 9.40E 12 1.27E 13 1.82E 13 2.48E 13 3.19E 13 3.16E 13 2.66E 13
 PEAK ELECTRON DENSITY = 8.47E 05 7.66E 05 7.57E 05 6.96E 05 5.45E 05 4.55E 05 5.38E 05 7.49E 05 8.89E 05 1.11E 06 1.08E 06 9.47E 05
 HEIGHT OF PEAK = 311.66 330.17 352.49 346.10 333.34 329.18 299.65 279.14 317.48 322.13 319.58 305.13
 ESPROB PERCENT = 73.44 66.68 61.13 58.28 58.89 62.80 68.96 75.72 81.27 84.12 83.51 79.60
 AVNES/1000. CM-3 = 134.75 100.34 73.64 55.38 45.03 41.71 134.75 280.84 272.45 248.84 214.19 174.23
 SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -90.00 LATITUDE = -20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	24.58	1.70	1.70	1.70	1.70	1.70	24.58	53.69	89.43	103.51	89.46	53.69		
130.00	22.81	1.47	1.48	1.48	1.48	1.49	22.69	86.54	133.73	148.74	133.01	84.78		
140.00	23.25	1.87	1.89	1.90	1.92	1.93	24.25	114.30	160.07	174.59	159.02	110.35		
150.00	30.15	2.15	2.16	2.17	2.18	2.18	34.28	133.21	174.93	188.96	175.34	127.80		
160.00	39.82	2.19	2.18	2.17	2.16	2.15	45.96	146.24	180.17	194.26	184.32	140.64		
170.00	48.87	2.09	2.06	2.03	2.00	1.98	55.77	154.57	179.04	194.18	188.35	149.87		
180.00	56.90	1.92	1.88	1.83	1.79	1.76	64.28	161.19	175.56	192.60	190.49	156.62		
190.00	64.56	1.73	1.67	1.61	1.57	1.53	72.16	169.90	172.88	192.49	193.49	162.68		
200.00	72.49	1.54	1.47	1.41	1.33	1.33	80.00	184.23	173.20	195.96	199.51	170.03		
210.00	81.28	1.36	1.29	1.23	1.15	1.12	89.06	207.07	178.13	204.58	210.28	180.53		
220.00	91.80	1.21	1.18	1.10	1.00	0.98	101.35	240.40	188.93	219.58	227.15	195.86		
230.00	105.31	1.06	1.00	0.90	0.80	0.78	124.33	298.32	206.55	241.81	251.08	217.38		
240.00	123.37	0.94	0.86	0.76	0.66	0.64	168.32	376.38	231.60	271.75	282.66	246.07		
250.00	147.52	0.83	0.76	0.66	0.56	0.54	217.62	465.51	264.41	309.64	322.16	282.50		
260.00	178.92	0.73	0.66	0.56	0.46	0.44	268.45	558.74	305.14	355.62	369.79	327.01		
270.00	218.34	0.65	0.58	0.48	0.38	0.36	313.78	645.69	367.52	409.93	425.79	379.93		
280.00	266.30	0.58	0.51	0.41	0.31	0.29	348.04	717.23	442.87	494.43	516.00	461.67		
290.00	323.31	0.52	0.45	0.35	0.25	0.23	368.72	767.85	528.27	588.27	612.25	556.38		
300.00	414.30	0.44	0.37	0.27	0.17	0.15	376.21	796.06	620.33	693.62	720.08	660.84		
320.00	635.36	0.36	0.29	0.19	0.09	0.07	360.87	793.61	795.18	925.43	957.44	893.71		
340.00	872.02	0.28	0.21	0.11	0.01	0.00	323.11	737.89	915.41	1132.98	1172.57	1104.85		
360.00	1051.11	0.20	0.13	0.03	0.00	0.00	278.90	657.54	961.21	1266.58	1315.52	1241.20		
380.00	1133.27	0.16	0.09	0.00	0.00	0.00	236.50	571.63	943.30	1312.90	1370.93	1288.05		
400.00	1126.17	0.12	0.06	0.00	0.00	0.00	199.06	490.16	883.82	1286.68	1351.55	1260.76		
420.00	1059.01	0.09	0.04	0.00	0.00	0.00	167.24	417.29	803.30	1212.28	1280.94	1184.80		
440.00	960.87	0.07	0.03	0.00	0.00	0.00	140.64	354.10	716.10	1112.10	1181.61	1093.38		
460.00	852.46	0.05	0.02	0.00	0.00	0.00	118.54	300.19	630.75	1002.35	1070.42	973.09		
480.00	746.04	0.04	0.01	0.00	0.00	0.00	100.22	254.58	551.60	893.19	958.27	864.12		
500.00	647.72	0.03	0.01	0.00	0.00	0.00	85.03	216.16	480.44	790.23	851.41	761.95		
550.00	448.53	0.02	0.01	0.00	0.00	0.00	57.43	144.80	338.06	573.16	623.30	548.47		
600.00	310.23	0.01	0.00	0.00	0.00	0.00	40.24	98.68	238.38	413.48	453.33	393.19		
650.00	216.64	0.01	0.00	0.00	0.00	0.00	29.92	69.05	169.62	299.38	330.73	283.37		
700.00	153.80	0.00	0.00	0.00	0.00	0.00	21.36	50.40	122.43	218.50	243.11	205.33		
750.00	111.97	0.00	0.00	0.00	0.00	0.00	21.03	39.13	90.27	161.31	180.68	152.52		
800.00	84.63	0.00	0.00	0.00	0.00	0.00	20.90	32.73	68.68	121.05	136.40	115.26		
850.00	67.31	0.00	0.00	0.00	0.00	0.00	19.43	29.33	54.59	92.98	105.26	89.87		
900.00	56.82	0.00	0.00	0.00	0.00	0.00	19.19	27.63	45.74	73.77	83.73	73.02		
950.00	50.78	0.00	0.00	0.00	0.00	0.00	20.82	19.09	26.80	40.43	60.97	62.23		
1000.00	47.44	0.00	0.00	0.00	0.00	0.00	20.82	19.05	26.41	37.38	52.75	59.74		
1050.00	45.65	0.00	0.00	0.00	0.00	0.00	20.82	19.04	26.22	35.69	47.66	53.78		
1100.00	44.70	0.00	0.00	0.00	0.00	0.00	20.82	19.03	26.13	34.76	44.60	50.15		
1150.00	44.20	0.00	0.00	0.00	0.00	0.00	20.82	19.02	26.08	34.25	42.81	47.98		
1200.00	43.93	0.00	0.00	0.00	0.00	0.00	20.82	19.02	26.06	33.98	41.78	47.35		
1250.00	43.80	0.00	0.00	0.00	0.00	0.00	20.82	19.02	26.05	33.83	41.19	45.97		

ELECTRON CONTENT = 3.06E 13 1.97E 13 1.63E 13 1.17E 13 7.66E 12 5.64E 12 9.00E 12 2.00E 13 2.81E 13 4.03E 13 4.28E 13 3.87E 13
PEAK ELECTRON DENSITY = 1.14E 06 9.05E 05 8.27E 05 6.07E 05 3.81E 05 2.59E 05 3.76E 05 8.04E 05 9.62E 05 1.31E 06 1.37E 06 1.29E 06
HEIGHT OF PEAK = 387.81 396.81 310.70 296.04 279.00 282.54 301.38 308.92 363.36 381.71 383.92 381.54
ESPROB PERCENT = 64.93 61.98 59.04 56.90 56.12 56.93 59.09 62.04 64.98 67.12 67.90 67.09
AVNES/1000. CM-3 = 94.97 68.50 48.32 34.80 27.29 24.92 94.97 210.23 203.53 184.72 157.24 125.76
SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -90.00 LATITUDE = 0.0
 S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	44.45	78.82	93.71	78.80	44.45
130.00	1.47	1.47	1.48	1.48	1.48	1.49	1.49	67.94	121.77	138.29	120.50	66.27
140.00	1.86	1.87	1.89	1.90	1.92	1.93	1.94	95.30	149.71	164.91	146.54	90.69
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.18	115.92	168.56	181.32	163.35	108.16
160.00	2.19	2.19	2.18	2.17	2.16	2.15	2.15	133.74	180.84	189.87	173.48	121.63
170.00	2.11	2.09	2.06	2.03	2.00	1.98	1.97	150.99	189.44	193.68	178.67	132.55
180.00	1.96	1.92	1.88	1.83	1.79	1.76	1.74	170.87	198.57	196.50	181.53	141.63
190.00	1.79	1.73	1.67	1.61	1.57	1.53	1.52	198.12	212.21	201.49	184.64	150.17
200.00	1.61	1.54	1.47	1.41	1.36	1.33	1.32	237.34	233.60	211.08	190.13	159.90
210.00	1.45	1.36	1.29	1.23	1.18	1.15	1.25	291.60	265.02	227.14	199.74	172.68
220.00	1.29	1.21	1.13	1.07	4.15	7.12	9.35	399.01	307.72	251.00	214.86	190.31
230.00	1.16	1.06	0.99	6.86	22.31	23.33	35.59	516.22	362.17	283.46	236.54	214.27
240.00	1.03	0.94	0.87	36.62	66.93	49.91	85.53	647.74	428.55	324.86	265.44	245.61
250.00	0.92	0.83	1.48	110.60	135.60	80.26	150.46	781.72	532.51	375.36	301.93	284.95
260.00	5.35	0.73	13.83	226.88	210.97	106.62	214.05	903.03	653.04	435.20	346.20	332.67
270.00	27.76	4.18	63.27	357.98	274.78	124.61	263.56	999.36	786.63	510.65	398.49	389.11
280.00	92.21	25.67	176.86	472.62	317.48	133.65	294.11	1064.16	933.57	625.71	459.18	454.77
290.00	220.28	91.52	351.15	552.76	338.34	135.35	306.91	1096.68	1082.64	742.03	543.81	559.15
300.00	412.25	221.61	549.79	595.34	341.46	132.03	306.00	1100.25	1221.02	871.97	651.75	672.06
320.00	879.03	613.55	863.59	594.17	315.32	117.35	279.90	1043.08	1425.95	1143.84	894.32	934.47
340.00	1246.87	950.15	974.78	532.42	271.69	99.59	241.18	937.59	1509.29	1369.17	1159.21	1211.85
360.00	1412.23	1092.57	937.36	453.91	226.96	83.01	202.27	816.89	1495.85	1499.20	1380.59	1429.75
380.00	1412.35	1078.30	833.91	378.32	187.12	68.89	167.69	699.35	1392.24	1528.71	1513.43	1542.39
400.00	1318.47	983.87	714.52	312.25	153.55	57.38	138.47	593.17	1263.11	1480.01	1551.02	1554.57
420.00	1184.86	862.30	601.37	256.77	125.96	48.22	114.34	500.86	1122.75	1382.24	1512.20	1491.54
440.00	1042.74	740.48	502.02	211.03	103.55	41.05	94.67	422.20	985.48	1260.12	1423.28	1383.52
460.00	907.32	629.47	417.68	173.63	85.47	35.53	78.73	355.87	858.50	1130.71	1307.64	1254.76
480.00	784.80	532.59	347.22	143.19	70.98	31.36	65.90	300.21	744.71	1004.34	1182.13	1121.44
500.00	676.84	449.80	288.78	118.48	59.42	28.26	55.63	253.60	644.58	886.45	1057.41	993.01
550.00	466.08	295.05	183.45	75.51	40.16	23.79	38.46	167.69	448.33	640.41	781.04	718.14
600.00	322.12	195.33	118.66	50.91	30.19	21.95	29.52	112.57	313.01	460.66	569.77	514.91
650.00	224.56	131.60	79.35	37.63	25.51	21.23	25.30	77.29	220.24	332.55	415.68	370.08
700.00	158.66	91.38	56.23	31.06	23.52	20.96	23.46	55.01	156.62	241.75	304.81	267.84
750.00	114.44	66.67	43.39	28.10	22.71	20.85	22.70	41.39	113.05	177.45	225.27	195.82
800.00	85.24	52.19	36.81	26.84	22.39	20.81	22.39	33.51	83.41	131.98	168.28	145.21
850.00	66.50	44.25	33.68	26.33	22.26	20.80	22.26	29.26	63.57	100.01	127.58	109.87
900.00	54.97	40.16	32.26	26.12	22.21	20.79	22.21	27.09	50.65	77.82	98.74	85.55
950.00	48.21	38.15	31.64	26.03	22.19	20.79	22.19	26.04	42.57	62.74	78.62	69.21
1000.00	44.44	37.19	31.36	25.99	22.18	20.79	22.18	25.54	37.75	52.81	64.91	58.59
1050.00	42.40	36.73	31.24	25.98	22.18	20.79	22.18	25.30	34.98	46.51	55.85	51.93
1100.00	41.32	36.52	31.19	25.97	22.18	20.79	22.18	25.19	33.45	42.64	50.06	47.92
1150.00	40.75	36.41	31.16	25.97	22.18	20.79	22.18	25.13	32.61	40.34	46.48	45.55
1200.00	40.45	36.37	31.15	25.97	22.18	20.79	22.18	25.10	32.15	39.00	44.31	44.19
1250.00	40.29	36.34	31.15	25.97	22.18	20.79	22.18	25.09	31.90	38.22	43.02	43.41

ELECTRON CONTENT	=	3.28E 13	2.30E 13	1.89E 13	1.17E 13	7.06E 12	3.77E 12	6.66E 12	2.54E 13	4.11E 13	4.58E 13	4.94E 13	4.61E 13
PEAK ELECTRON DENSITY	=	1.43E 06	1.10E 06	9.76E 05	6.06E 05	3.42E 05	1.35E 05	3.08E 05	1.10E 06	1.51E 06	1.53E 06	1.55E 06	1.56E 06
HEIGHT OF PEAK	=	369.52	367.09	343.02	309.10	296.97	287.60	294.01	296.27	344.71	376.44	398.73	392.46
ESPROB PERCENT	=	54.89	38.53	21.95	9.62	4.83	8.86	20.64	37.01	53.58	65.92	70.71	66.68
AVNES/1000. CM-3	=	102.54	79.62	61.42	48.66	41.25	38.83	102.54	196.58	191.28	176.28	154.14	128.36
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

EAST LONGITUDE = -90.00 LATITUDE = 20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

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UNIVERSAL TIME =      0.0      2.00      4.00      6.00
LOCAL TIME     =     18.00     20.00     22.00     0.0

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8.00	10.00
2.00	4.00

12.00	14.00
6.00	8.00

16.00	18.00
10.00	12.00

20.00	22.00
14.00	16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)											
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	34.70	58.06	70.80	58.05	34.70			
130.00	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49	1.49	1.49	1.49	39.97	93.80	111.66	92.64	39.16				
140.00	1.86	1.87	1.89	1.90	1.92	1.93	1.94	1.94	1.94	1.94	1.94	60.60	123.38	140.91	120.27	56.84				
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.18	2.18	2.18	2.18	2.18	80.76	147.57	164.17	141.57	74.46				
160.00	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.15	2.15	2.15	2.15	100.03	171.64	185.65	161.06	90.26				
170.00	2.11	2.09	2.06	2.03	2.00	1.98	1.97	1.97	1.97	1.97	1.97	123.08	199.40	208.58	181.01	106.90				
180.00	1.96	1.92	1.88	1.83	1.79	1.76	1.74	1.74	1.74	1.74	1.74	154.90	236.17	237.38	204.32	127.02				
190.00	1.79	1.73	1.67	1.61	1.57	1.53	1.52	1.52	1.52	1.52	1.52	201.80	287.35	276.52	234.50	153.43				
200.00	7.30	1.54	1.47	1.41	1.36	1.33	1.32	1.32	1.32	1.32	1.32	269.48	356.32	329.16	274.77	189.48				
210.00	26.66	1.36	1.29	1.23	1.18	1.14	1.14	1.14	1.14	1.14	1.14	442.19	511.06	447.53	369.90	315.07				
220.00	67.06	2.74	1.13	1.07	1.02	0.99	0.98	0.98	0.98	0.98	0.98	611.29	694.93	600.05	500.98	471.55				
230.00	128.59	13.18	0.99	0.93	0.89	0.85	0.85	0.85	0.85	0.85	0.85	680.04	805.03	701.31	593.68	550.92				
240.00	202.33	38.81	3.15	2.02	3.28	0.74	5.95	724.75	897.98	793.57	683.66	623.20								
250.00	275.62	81.04	14.70	10.40	14.77	1.06	21.88	745.14	967.10	869.92	764.10	682.97								
260.00	337.94	132.73	41.41	30.68	39.56	6.34	51.78	744.27	1009.96	926.25	829.73	727.01								
270.00	383.71	283.17	82.30	62.10	74.61	20.72	90.64	726.76	1027.70	961.34	877.63	754.40								
280.00	411.89	123.99	128.55	97.26	110.98	44.81	129.03	697.42	1023.69	976.28	907.14	766.01								
290.00	424.36	251.46	169.96	127.92	140.55	73.24	159.43	660.52	1002.31	973.65	919.35	763.90								
300.00	424.32	265.75	200.24	149.37	159.63	99.01	178.72	619.49	968.03	956.70	916.49	750.63								
320.00	399.65	264.52	224.11	163.80	169.08	128.05	187.85	534.37	876.39	893.04	876.53	700.94								
340.00	358.80	241.28	214.39	154.23	156.15	129.72	173.84	454.08	772.91	808.14	808.40	634.81								
360.00	314.07	210.73	190.24	135.30	135.49	117.91	151.55	383.22	671.43	717.43	728.43	564.27								

ELECTRON CONTENT	=	1.03E 13	6.83E 12	5.92E 12	4.97E 12	5.11E 12	4.54E 12	5.47E 12	1.65E 13	2.52E 13	2.60E 13	2.55E 13	2.03E 13
PEAK ELECTRON DENSITY	=	4.26E 05	2.69E 05	2.24E 05	1.64E 05	1.70E 05	1.31E 05	1.88E 05	7.47E 05	1.03E 06	9.77E 05	9.20E 05	7.67E 05
HEIGHT OF PEAK	=	294.79	308.57	321.93	319.21	315.64	330.56	315.27	254.44	272.91	283.29	292.88	283.25
ESPROR PERCENT	=	51.25	34.25	20.30	13.13	14.66	24.48	39.96	56.95	70.90	78.08	76.55	66.73
AVNYS/1000. CM-3	=	58.60	42.03	29.43	21.03	16.38	14.91	58.60	131.05	126.83	114.99	97.70	77.91
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -90.00 LATITUDE = 40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	19.82	37.73	43.63	37.73
130.00	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49	19.77	49.07	65.23	48.51
140.00	1.86	1.87	1.89	1.90	1.92	1.93	1.94	1.94	18.34	72.75	92.35	71.15
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.18	2.18	21.86	93.82	115.97	92.47
160.00	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.15	30.53	114.74	141.67	114.91
170.00	2.11	2.09	2.06	2.03	2.00	1.98	1.97	1.97	40.74	140.22	174.74	143.79
180.00	1.96	1.92	1.88	1.83	1.79	1.76	1.74	1.74	52.24	175.01	220.71	184.68
190.00	1.79	1.73	1.67	1.61	1.57	1.53	1.52	1.52	67.65	224.64	285.05	243.39
200.00	9.15	1.54	1.47	1.41	1.36	1.33	1.32	1.32	91.40	293.67	371.08	324.27
210.00	30.28	1.36	1.29	1.23	1.18	1.14	1.14	1.14	204.68	471.03	586.03	559.82
220.00	70.82	4.11	1.13	1.07	1.02	0.99	0.98	0.98	325.91	634.22	781.56	777.87
230.00	128.72	15.93	0.99	0.93	0.89	0.85	0.85	0.85	361.77	693.65	852.72	848.75
240.00	194.70	40.29	0.87	0.81	0.77	1.35	0.74	0.74	385.04	733.13	902.47	899.76
250.00	257.60	75.48	0.76	0.70	0.67	7.41	2.64	2.64	395.65	752.65	930.32	930.15
260.00	309.11	114.46	0.67	0.62	0.59	22.62	10.85	10.85	395.24	754.43	938.12	941.30
270.00	345.42	149.53	2.24	0.57	3.06	46.59	27.86	27.86	386.23	741.82	929.02	935.92
280.00	366.43	175.83	9.28	3.84	13.35	73.50	51.74	51.74	371.13	718.41	906.65	917.25
290.00	374.22	191.95	24.24	13.75	35.34	96.85	76.89	76.89	352.15	687.55	874.55	888.57
300.00	371.73	198.83	46.00	32.01	66.58	112.96	98.01	98.01	331.06	652.04	835.85	852.83
320.00	347.04	193.05	90.92	78.62	126.71	123.17	119.85	119.85	287.33	575.33	748.38	769.71
340.00	309.96	173.72	114.97	108.50	153.87	114.76	119.06	119.06	246.05	499.71	658.50	682.19
360.00	270.43	150.54	117.02	113.98	151.49	99.48	107.17	107.17	209.55	430.49	573.72	598.23
380.00	233.09	128.10	107.26	105.31	135.22	83.47	92.07	92.07	178.25	369.49	497.27	521.54
400.00	199.68	108.10	93.44	91.57	115.31	69.06	77.42	77.42	151.75	316.78	430.00	453.37
420.00	170.61	90.95	79.48	77.41	96.31	56.84	64.51	64.51	129.44	271.67	371.60	393.70
440.00	145.65	76.52	66.92	64.66	79.73	46.75	53.59	53.59	110.66	233.25	321.24	341.89
460.00	124.39	64.49	56.16	53.80	65.81	38.53	44.53	44.53	94.82	200.54	277.96	297.11
480.00	106.34	54.53	47.19	44.77	54.33	31.89	37.11	37.11	81.44	172.70	240.79	258.45
500.00	91.06	46.32	39.79	37.38	44.93	26.54	31.05	31.05	70.09	148.97	208.88	225.10
550.00	62.44	31.74	26.82	24.50	28.47	17.46	20.53	20.53	48.61	103.68	147.30	160.29
600.00	43.82	23.22	19.44	17.24	18.92	12.57	14.59	14.59	34.16	72.88	104.79	115.12
650.00	31.95	18.54	15.55	13.44	13.65	10.15	11.47	11.47	24.42	51.78	75.25	83.43
700.00	24.63	16.17	13.67	11.62	10.98	9.07	9.98	9.98	17.92	37.30	54.63	61.11
750.00	20.36	15.04	12.82	10.82	9.75	8.62	9.32	9.32	13.74	27.42	40.26	45.40
800.00	18.00	14.53	12.46	10.49	9.21	8.44	9.04	9.04	11.22	20.81	30.32	34.42
850.00	16.77	14.30	12.30	10.35	8.99	8.37	8.92	8.92	9.82	16.54	23.60	26.88
900.00	16.15	14.20	12.23	10.29	8.90	8.34	8.87	8.87	9.11	13.94	19.20	21.87
950.00	15.83	14.15	12.20	10.27	8.86	8.33	8.85	8.85	8.77	12.45	16.46	18.67
1000.00	15.68	14.13	12.19	10.26	8.85	8.32	8.84	8.84	8.62	11.64	14.84	16.73
1050.00	15.60	14.12	12.18	10.25	8.84	8.32	8.84	8.84	8.54	11.22	13.92	15.60
1100.00	15.56	14.11	12.18	10.25	8.84	8.32	8.84	8.84	8.51	11.01	13.43	14.97
1150.00	15.54	14.11	12.18	10.25	8.84	8.32	8.84	8.84	8.49	10.90	13.16	14.62
1200.00	15.53	14.11	12.18	10.25	8.84	8.32	8.84	8.84	8.49	10.85	13.01	14.43
1250.00	15.53	14.11	12.18	10.25	8.84	8.32	8.84	8.84	8.48	10.82	12.94	14.32

ELECTRON CONTENT = 8.55E 12 4.59E 12 2.90E 12 2.62E 12 3.16E 12 2.58E 12 2.67E 12 8.42E 12 1.72E 13 2.24E 13 2.30E 13 1.60E 13
 PEAK ELECTRON DENSITY = 3.74E 05 1.99E 05 1.18E 05 1.14E 05 1.56E 05 1.23E 05 1.22E 05 3.97E 05 7.56E 05 9.38E 05 9.41E 05 7.05E 05
 HEIGHT OF PEAK = 292.14 304.26 351.83 355.35 347.20 318.39 328.40 254.48 256.02 259.27 261.45 256.90
 ESPR08 PERCENT = 31.63 20.89 12.42 8.48 10.15 16.96 27.09 37.83 46.31 50.24 48.58 41.76
 AVNES/1000. CM-3 = 41.45 34.47 28.73 24.54 22.03 21.19 41.45 68.44 66.97 62.77 56.50 49.07
 SIGMA ES = 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50 0.51 0.55 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -90.00 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	11.62	22.25	11.62
130.00	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49	1.49	15.09	21.26	15.08
140.00	1.86	1.87	1.89	1.90	1.92	1.93	1.94	1.93	1.93	14.26	20.44	14.41
150.00	2.14	2.15	2.16	2.17	2.18	2.18	2.18	2.18	2.18	13.17	25.19	13.32
160.00	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.16	14.03	34.42	13.55	2.19
170.00	2.11	2.09	2.06	2.03	2.00	1.98	1.97	2.00	17.88	45.42	16.28	9.77
180.00	1.96	1.92	1.88	1.83	1.79	1.76	1.74	1.80	24.18	58.63	22.05	31.37
190.00	1.79	1.73	1.67	1.61	1.57	1.53	1.52	4.95	32.68	76.98	31.69	72.95
200.00	1.75	1.54	1.47	1.41	1.36	1.33	1.32	17.82	45.03	105.19	48.20	133.60
210.00	8.19	1.36	1.29	1.23	1.18	1.14	1.14	42.70	165.73	279.91	261.28	205.05
220.00	24.66	1.71	1.13	1.07	1.02	0.99	0.98	76.86	314.56	476.66	512.25	276.15
230.00	53.99	7.86	0.99	0.93	0.89	0.85	0.85	113.19	357.42	534.80	570.72	337.58
240.00	93.69	22.45	0.87	0.81	0.77	2.77	0.74	144.71	391.35	581.01	616.78	384.08
250.00	137.20	45.84	0.76	0.70	0.67	10.85	1.31	167.49	414.51	613.14	648.56	414.32
260.00	177.46	73.90	0.67	0.62	0.59	26.41	5.90	180.71	426.72	631.03	666.03	429.62
270.00	209.63	100.85	1.36	0.54	1.34	46.58	16.13	185.57	429.06	635.91	670.46	432.61
280.00	231.72	122.34	6.39	2.68	7.26	66.13	31.26	184.03	423.26	629.82	663.86	426.23
290.00	244.00	136.56	18.25	10.82	22.32	81.07	47.86	178.06	411.23	615.08	648.52	413.21
300.00	247.94	143.72	36.86	27.40	46.59	90.00	62.29	169.31	394.80	593.97	626.66	395.80
320.00	238.42	142.24	78.45	74.23	99.85	92.68	78.05	148.12	354.66	540.30	571.00	354.41
340.00	216.50	129.20	102.91	107.38	128.31	83.99	78.45	126.39	311.66	480.76	508.88	311.09
360.00	190.67	112.43	106.63	115.39	129.76	71.79	70.97	106.55	270.55	422.27	447.43	270.14
380.00	165.21	95.78	98.47	107.68	117.28	59.75	61.08	89.33	233.41	368.25	390.32	233.28
400.00	141.96	80.76	85.98	93.97	100.57	49.15	51.34	74.72	200.83	320.00	339.04	200.89
420.00	121.47	67.77	73.06	79.46	84.17	40.24	42.69	62.45	172.69	277.67	293.88	172.81
440.00	103.76	56.76	61.28	66.20	69.66	32.89	35.33	52.21	148.56	240.92	254.57	148.62
460.00	88.58	47.52	51.10	54.80	57.39	26.88	29.19	43.67	127.94	209.17	220.54	127.86
480.00	75.64	39.79	42.51	45.25	47.20	21.98	24.11	36.56	110.34	181.78	191.18	110.08
500.00	64.64	33.34	35.34	37.34	38.81	17.99	19.92	30.64	95.30	158.18	165.88	94.85
550.00	43.84	21.51	22.31	23.14	23.86	10.96	12.42	19.78	66.49	112.35	116.87	65.71
600.00	30.01	13.97	14.16	14.42	14.77	6.73	7.80	12.85	46.78	80.42	82.94	45.94
650.00	20.84	9.13	9.06	9.06	9.21	4.19	4.95	8.41	33.15	57.97	59.27	32.54
700.00	14.79	6.02	5.84	5.74	5.80	2.65	3.18	5.55	23.65	42.05	42.67	23.52
750.00	10.87	4.01	3.81	3.68	3.69	1.74	2.10	3.70	16.96	30.67	30.96	17.54
800.00	8.41	2.71	2.53	2.41	2.40	1.21	1.44	2.51	12.23	22.48	22.68	13.67
850.00	6.93	1.88	1.73	1.63	1.62	0.92	1.06	1.75	8.87	16.56	16.83	11.27
900.00	6.10	1.35	1.24	1.17	1.16	0.78	0.85	1.27	6.46	12.26	12.73	9.85
950.00	5.65	1.03	0.96	0.91	0.90	0.71	0.75	0.99	4.74	9.11	9.90	9.05
1000.00	5.41	0.85	0.81	0.78	0.77	0.68	0.70	0.83	3.49	6.81	7.99	8.61
1050.00	5.29	0.76	0.73	0.71	0.71	0.67	0.68	0.74	2.60	5.11	6.75	8.38
1100.00	5.23	0.71	0.69	0.68	0.68	0.66	0.67	0.70	1.95	3.85	5.98	8.25
1150.00	5.20	0.68	0.68	0.67	0.67	0.66	0.66	0.68	1.49	2.93	5.52	8.19
1200.00	5.18	0.67	0.67	0.66	0.66	0.66	0.66	0.67	1.17	2.24	5.26	8.15
1250.00	5.18	0.67	0.66	0.66	0.66	0.66	0.66	0.66	0.95	1.74	5.11	8.14

ELECTRON CONTENT	=	5.39E 12	2.74E 12	1.96E 12	2.03E 12	2.26E 12	1.58E 12	1.42E 12	3.46E 12	9.46E 12	1.50E 13	1.56E 13	9.77E 12
PEAK ELECTRON DENSITY	=	2.48E 05	1.45E 05	1.07E 05	1.15E 05	1.32E 05	9.36E 04	7.97E 04	1.86E 05	4.29E 05	6.36E 05	6.71E 05	4.33E 05
HEIGHT OF PEAK	=	300.64	307.73	354.20	357.75	350.81	312.76	330.07	272.12	267.56	269.11	268.70	267.74
ESPROB PERCENT	=	18.79	13.36	9.00	6.88	7.57	10.88	15.92	21.35	25.70	27.82	27.14	23.83
AVNES/1000. CM-3	=	21.55	20.04	18.71	17.70	17.06	16.84	21.55	26.84	26.57	25.79	24.59	23.13
SIGMA ES	=	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50	0.51	0.55	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	79.86	72.57	54.34	37.26	22.34	1.70	1.70	1.70	22.34	37.26	54.34	72.56	
130.00	122.44	112.97	85.97	46.82	21.33	1.48	1.48	1.48	21.23	48.01	87.75	113.89	
140.00	149.61	139.84	111.80	67.57	20.47	1.89	1.90	1.92	20.78	71.57	115.90	141.69	
150.00	167.88	158.61	129.79	84.70	24.98	2.16	2.17	2.18	27.43	90.10	135.71	160.60	
160.00	179.86	172.39	143.55	98.03	33.53	2.18	2.17	2.16	37.65	103.93	150.47	173.26	
170.00	187.90	182.94	154.25	109.41	42.37	2.06	2.03	2.00	46.63	114.38	161.81	182.02	
180.00	195.38	192.91	163.23	119.61	50.37	1.88	1.83	1.79	53.71	122.17	173.26	190.70	
190.00	205.57	205.21	172.51	129.44	58.04	1.67	1.61	1.57	59.18	129.52	189.20	203.11	
200.00	221.19	222.46	184.34	140.36	66.14	1.47	1.41	1.36	62.91	139.60	213.72	222.45	
210.00	264.42	260.22	208.89	155.65	75.43	1.29	1.23	1.18	64.94	159.42	266.90	264.95	
220.00	306.64	314.66	249.92	195.01	87.06	1.13	1.07	1.02	65.80	201.56	326.32	322.76	
230.00	344.27	350.95	290.42	237.63	127.34	0.99	0.93	0.89	66.36	241.25	358.24	359.89	
240.00	374.62	380.12	327.10	280.05	168.27	0.87	0.81	0.77	67.55	272.94	377.85	387.53	
250.00	396.28	400.94	357.32	318.27	213.61	0.76	0.70	0.67	70.32	293.56	385.61	404.76	
260.00	409.03	413.27	379.56	349.11	261.39	1.08	0.62	0.59	75.65	302.79	383.36	412.07	
270.00	413.56	417.76	393.44	370.85	306.22	8.07	2.29	3.92	84.48	302.25	373.51	410.86	
280.00	411.12	415.58	399.44	383.19	343.17	31.74	13.34	17.61	99.80	294.38	358.44	402.92	
290.00	403.14	408.04	398.62	386.95	369.26	80.03	43.39	47.56	126.72	281.62	340.16	390.04	
300.00	391.04	396.47	392.28	383.54	383.73	148.13	94.57	90.82	153.05	266.01	320.23	373.83	
320.00	359.34	365.79	368.24	361.62	382.56	284.14	214.96	175.61	190.88	231.95	279.59	336.39	
340.00	323.57	330.76	336.17	328.89	355.00	354.01	285.81	214.87	201.16	199.33	241.69	297.74	
360.00	288.14	295.71	301.97	293.10	316.05	357.63	294.94	212.46	190.71	170.69	208.32	261.45	
380.00	255.22	262.87	268.91	258.49	275.15	326.32	270.10	190.29	170.58	146.39	179.69	228.93	
400.00	225.64	233.14	238.52	226.95	236.95	283.41	233.81	162.82	148.28	126.03	155.37	200.44	
420.00	199.52	206.73	211.34	199.04	203.15	240.43	197.21	136.56	127.39	108.96	134.76	175.75	
440.00	176.65	183.49	187.35	174.72	174.05	201.83	164.51	113.71	109.13	94.59	117.25	154.44	
460.00	156.69	163.12	166.33	153.65	149.29	168.76	136.73	94.62	93.63	82.44	102.33	136.03	
480.00	139.27	145.29	147.94	135.43	128.34	141.06	113.70	79.01	80.60	72.09	89.57	120.12	
500.00	124.05	129.67	131.86	119.66	110.64	118.13	94.84	66.42	69.69	63.24	78.61	106.32	
550.00	93.76	98.45	99.81	88.77	77.45	77.27	61.97	45.13	49.41	46.21	57.44	79.17	
600.00	71.78	75.70	76.56	66.89	55.66	53.09	43.36	33.88	36.20	34.58	42.85	59.82	
650.00	55.75	59.02	59.55	51.33	41.57	39.52	33.57	28.48	27.77	26.90	32.98	46.03	
700.00	44.10	46.83	47.15	40.39	32.86	32.47	28.87	26.12	22.77	22.22	26.64	36.33	
750.00	35.81	38.07	38.25	32.94	27.87	29.10	26.79	25.13	20.13	19.70	22.91	29.77	
800.00	30.11	31.99	32.07	28.15	25.25	27.59	25.92	24.74	18.89	18.51	20.92	25.59	
850.00	26.41	27.96	28.00	25.29	23.96	26.93	25.55	24.58	18.35	17.99	19.95	23.12	
900.00	24.16	25.46	25.47	23.69	23.36	26.65	25.40	24.51	18.13	17.77	19.51	21.77	
950.00	22.87	23.98	24.00	22.84	23.09	26.52	25.34	24.49	18.03	17.69	19.30	21.06	
1000.00	22.15	23.14	23.17	22.41	22.96	26.47	25.32	24.47	17.99	17.65	19.21	20.70	
1050.00	21.77	22.68	22.72	22.19	22.90	26.45	25.30	24.47	17.98	17.64	19.17	20.52	
1100.00	21.56	22.42	22.47	22.08	22.87	26.44	25.30	24.47	17.97	17.63	19.15	20.43	
1150.00	21.45	22.29	22.34	22.02	22.86	26.43	25.30	24.47	17.97	17.63	19.15	20.38	
1200.00	21.40	22.21	22.27	21.99	22.86	26.43	25.30	24.47	17.97	17.63	19.14	20.36	
1250.00	21.37	22.17	22.23	21.98	22.85	26.43	25.30	24.47	17.97	17.62	19.14	20.35	

ELECTRON CONTENT	=	1.28E 13	1.31E 13	1.26E 13	1.14E 13	1.01E 13	8.05E 12	6.68E 12	5.30E 12	5.89E 12	7.95E 12	1.01E 13	1.19E 13
PEAK ELECTRON DENSITY	=	4.14E 05	4.18E 05	4.00E 05	3.87E 05	3.88E 05	3.62E 05	2.97E 05	2.18E 05	2.01E 05	3.04E 05	3.86E 05	4.13E 05
HEIGHT OF PEAK	=	271.17	271.42	283.60	289.87	308.93	350.82	353.31	347.71	338.11	264.26	252.43	263.35
ESPROB PERCENT	=	67.51	65.48	56.13	41.96	26.77	14.62	8.78	10.81	20.17	34.34	49.53	61.67
AVNES/1000. CM-3	=	91.06	77.74	62.46	47.48	34.54	24.64	17.96	14.23	13.05	47.48	103.40	100.16
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

EAST LONGITUDE = -180.00 LATITUDE = -40.00
\$ 10.7 = 100.00 \$ 10.7 (1A.U.) = 96.78

MONTH = 12

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

[illegible]

ELECTRON CONTENT	=	2.04E 13	1.95E 13	1.84E 13	1.84E 13	1.42E 13	1.23E 13	1.05E 13	8.43E 12	7.09E 12	1.02E 13	1.38E 13	1.77E 13
PEAK ELECTRON DENSITY	=	7.13E 05	6.62E 05	6.41E 05	7.13E 05	6.60E 05	5.91E 05	5.08E 05	3.88E 05	3.07E 05	4.22E 05	5.70E 05	6.51E 05
HEIGHT OF PEAK	=	283.55	282.52	284.63	292.24	314.46	360.84	360.44	350.68	341.42	271.86	252.63	276.34
ESPROB PERCENT	=	83.93	81.91	73.51	60.98	47.69	37.19	32.30	34.32	42.72	55.25	68.54	79.04
WYNES/1000. CM-3	=	186.25	160.59	130.97	101.65	76.05	56.13	42.47	34.71	32.21	101.65	209.93	203.73
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

MONTH = 12

20.00	22.00
8.00	10.00

ELECTRON CONTENT	=	4.20E 13	4.68E 13	3.76E 13	2.42E 13	1.68E 13	1.65E 13	1.55E 13	1.25E 13	9.51E 12	1.29E 13	2.00E 13	2.78E 13
PEAK ELECTRON DENSITY	=	1.44E 06	1.60E 06	1.36E 06	9.36E 05	7.75E 05	8.22E 05	8.11E 05	6.51E 05	4.72E 05	5.65E 05	8.18E 05	9.76E 05
HEIGHT OF PEAK	=	345.74	342.89	322.18	327.74	343.05	342.84	333.17	319.15	318.30	313.56	296.11	341.37
ESPROB PERCENT	=	81.14	81.04	79.07	75.78	72.03	68.83	67.05	67.15	69.12	72.42	76.16	79.36
AVNVS/1000. CM-3	=	253.87	217.66	175.99	134.98	99.39	71.96	53.33	42.84	39.49	134.98	287.37	278.59
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = 0.0
 S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY			METERS -3 X10-9	(CM. -3 X10-3)									
120.00	93.70	78.81	44.45	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	44.45	78.82	
130.00	138.14	120.51	66.25	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49	67.98	121.67	
140.00	164.39	146.60	90.58	1.86	1.87	1.89	1.90	1.92	1.93	1.94	1.94	95.54	149.32	
150.00	180.07	163.49	107.82	2.14	2.15	2.16	2.17	2.18	2.18	2.18	2.18	116.77	167.54	
160.00	187.42	173.75	120.85	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.15	135.91	178.70	
170.00	189.48	179.15	131.01	2.11	2.09	2.06	2.03	2.00	1.98	1.97	1.97	155.67	185.56	
180.00	189.88	182.29	138.93	1.96	1.92	1.88	1.83	1.79	1.76	1.74	1.74	179.86	192.14	
190.00	191.64	185.78	145.76	1.79	1.73	1.67	1.61	1.57	1.53	1.52	1.52	213.75	202.23	
200.00	196.98	191.77	153.10	1.61	1.54	1.47	1.41	4.73	1.99	11.11	262.13	218.89		
210.00	207.63	202.02	162.66	1.45	1.36	1.29	6.48	25.74	12.24	42.31	366.54	244.38		
220.00	224.90	217.94	176.07	1.29	1.21	3.92	34.08	77.15	39.69	100.72	511.64	280.11		
230.00	249.68	240.57	194.77	1.16	1.06	24.55	101.02	155.20	83.98	174.76	619.67	347.20		
240.00	282.45	270.57	219.88	1.03	0.94	84.27	203.51	239.24	133.70	245.08	716.63	426.58		
250.00	338.25	308.26	252.13	0.92	0.83	191.19	315.93	308.64	176.06	297.72	792.34	515.56		
260.00	405.74	376.11	291.94	0.83	0.73	326.25	411.36	353.47	204.27	328.28	841.66	608.23		
270.00	481.67	448.08	339.62	0.74	0.65	457.60	475.60	373.77	217.77	339.06	864.44	696.38		
280.00	562.88	528.62	423.81	2.11	0.58	560.71	507.40	374.71	219.42	335.11	863.92	772.41		
290.00	643.60	614.23	508.04	12.55	1.15	625.90	512.71	362.48	212.96	321.50	844.93	831.11		
300.00	717.73	699.14	602.78	46.37	9.33	655.16	499.42	342.36	201.55	302.31	812.59	870.16		
320.00	828.16	843.98	807.22	240.83	116.00	637.11	443.38	292.65	172.68	257.83	725.36	891.95		
340.00	876.40	931.29	983.65	563.44	392.98	567.70	375.56	242.94	143.56	214.47	628.56	856.09		
360.00	869.18	955.80	1090.20	846.43	680.78	485.31	311.53	199.20	117.92	176.55	536.03	787.00		
380.00	823.74	930.39	1119.27	993.55	833.54	406.97	256.17	162.64	96.56	144.84	453.50	704.12		
400.00	757.23	872.85	1086.99	1016.27	852.52	338.39	210.04	132.75	79.19	118.85	382.40	619.65		
420.00	682.40	798.80	1015.85	962.67	794.27	280.50	172.23	108.56	65.25	97.77	322.18	540.08		
440.00	607.28	719.24	925.36	873.61	705.03	232.43	141.49	89.11	54.16	80.76	271.63	468.24		
460.00	536.28	640.92	829.03	774.13	610.44	192.86	116.62	73.53	45.43	67.11	229.33	404.90		
480.00	471.48	567.49	734.96	677.10	521.96	160.42	96.57	61.13	38.63	56.23	193.98	349.83		
500.00	413.53	500.61	647.39	588.12	443.64	133.91	80.46	51.31	33.39	47.61	164.44	302.29		
550.00	297.29	363.73	465.62	409.04	293.51	87.35	53.15	35.21	25.32	33.48	110.03	210.81		
600.00	214.80	264.79	334.06	284.59	195.40	60.33	38.43	27.13	21.70	26.41	75.22	148.64		
650.00	156.90	194.45	241.28	199.87	132.43	45.54	31.17	23.48	20.22	23.22	53.20	106.52		
700.00	116.48	144.78	176.38	142.70	92.64	38.09	27.92	21.97	19.64	21.88	39.71	78.18		
750.00	88.53	109.95	131.26	104.57	68.22	34.65	26.57	21.38	19.42	21.35	31.91	59.44		
800.00	69.55	85.87	100.24	79.71	53.97	33.14	26.02	21.14	19.34	21.13	27.73	47.45		
850.00	57.04	69.61	79.36	64.07	46.18	32.50	25.80	21.05	19.31	21.05	25.65	40.14		
900.00	49.11	58.99	65.73	54.68	42.17	32.22	25.71	21.02	19.30	21.02	24.66	35.90		
950.00	44.29	52.32	57.18	49.32	40.20	32.11	25.68	21.00	19.29	21.00	24.19	33.56		
1000.00	41.47	48.27	52.02	46.38	39.25	32.06	25.66	21.00	19.29	21.00	23.98	32.30		
1050.00	39.86	45.89	49.00	44.81	38.80	32.04	25.66	20.99	19.29	20.99	23.88	31.64		
1100.00	38.95	44.51	47.29	43.98	38.59	32.03	25.66	20.99	19.29	20.99	23.84	31.29		
1150.00	38.44	43.72	46.32	43.54	38.48	32.02	25.65	20.99	19.29	20.99	23.82	31.11		
1200.00	38.16	43.27	45.77	43.31	38.43	32.02	25.65	20.99	19.29	20.99	23.81	31.01		
1250.00	38.00	43.02	45.46	43.19	38.41	32.02	25.65	20.99	19.29	20.99	23.80	30.96		

ELECTRON CONTENT = 2.70E 13 3.01E 13 3.37E 13 2.44E 13 1.87E 13 1.34E 13 1.01E 13 7.46E 12 4.91E 12 6.99E 12 1.98E 13 2.46E 13
 PEAK ELECTRON DENSITY = 8.79E 05 9.56E 05 1.12E 06 1.02E 06 8.58E 05 6.59E 05 5.13E 05 3.76E 05 2.20E 05 3.39E 05 8.67E 05 8.93E 05
 HEIGHT OF PEAK = 346.71 358.65 378.29 394.28 393.20 305.19 287.28 275.40 276.50 271.74 274.65 316.29
 ESPOB PERCENT = 52.52 58.24 56.81 48.63 35.88 21.97 10.64 4.92 6.35 14.53 27.28 41.19
 AVNES/1000. CM-3 = 164.02 146.14 125.08 103.64 84.22 68.43 57.06 50.31 48.08 103.64 180.29 176.05
 SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = 20.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	70.76	58.03	34.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	34.70	58.04	
130.00	111.17	92.36	39.14	1.47	1.47	1.48	1.48	1.48	1.49	1.49	39.95	93.47	
140.00	138.90	119.00	56.59	1.86	1.87	1.89	1.90	1.92	1.93	1.94	60.42	121.80	
150.00	158.81	138.08	73.47	2.14	2.15	2.16	2.17	2.18	2.18	2.18	79.94	142.95	
160.00	174.17	153.42	87.56	2.19	2.19	2.18	2.17	2.16	2.15	2.15	97.59	160.94	
170.00	187.10	166.48	100.88	2.11	2.09	2.06	2.03	2.00	1.98	1.97	117.10	178.04	
180.00	200.90	179.24	115.05	1.96	1.92	1.88	1.83	1.79	1.76	1.74	142.02	197.94	
190.00	219.12	194.29	131.48	1.79	1.73	1.67	1.61	1.57	1.53	1.52	177.14	224.99	
200.00	244.82	214.28	152.09	1.61	1.54	1.47	1.41	1.36	1.33	1.32	227.70	262.93	
210.00	280.21	241.49	179.24	1.45	1.36	1.29	5.44	3.04	1.14	1.14	353.68	314.08	
220.00	326.52	277.52	215.21	2.80	1.21	3.15	29.91	17.38	0.99	2.20	523.66	379.35	
230.00	384.19	323.24	261.59	15.98	1.06	21.06	91.35	54.11	0.85	11.65	643.69	489.32	
240.00	488.32	379.04	319.23	56.27	4.49	75.58	187.80	112.08	0.74	35.16	756.51	615.77	
250.00	596.15	448.85	438.65	139.06	24.84	176.86	295.61	176.62	3.12	72.31	849.48	757.11	
260.00	714.54	575.76	549.14	264.99	81.46	308.37	388.54	231.69	12.55	114.60	914.84	905.02	
270.00	844.76	687.34	671.16	417.15	184.47	439.03	452.12	268.69	31.16	152.01	950.57	1046.80	
280.00	978.28	812.86	803.05	570.64	321.27	543.57	484.49	286.83	55.87	178.60	959.05	1170.32	
290.00	1104.90	947.04	935.95	703.96	464.45	611.19	491.04	289.64	80.35	193.15	945.12	1266.98	
300.00	1215.46	1080.90	1059.80	804.81	588.25	643.00	479.34	281.84	99.49	197.39	914.37	1332.69	
320.00	1365.55	1311.26	1248.50	902.26	731.38	629.06	426.67	249.58	116.25	186.29	822.82	1374.27	
340.00	1413.32	1452.26	1335.88	892.96	747.72	562.19	361.94	211.00	112.49	163.34	716.14	1322.71	
360.00	1377.93	1494.11	1330.85	825.87	692.39	481.31	300.53	174.89	99.99	138.59	611.96	1216.76	
380.00	1289.31	1456.23	1261.75	736.24	609.85	403.92	247.35	143.94	85.72	116.06	518.01	1087.76	
400.00	1173.91	1366.73	1157.38	643.48	523.86	335.98	203.03	118.41	72.63	96.92	436.60	955.56	
420.00	1050.13	1250.47	1039.15	556.57	444.52	278.55	166.73	97.72	61.63	81.18	367.47	830.76	
440.00	929.02	1125.05	920.49	478.87	375.08	230.83	137.26	81.16	52.77	68.48	309.37	718.07	
460.00	816.33	1001.32	808.67	411.04	315.82	191.52	113.46	68.02	45.85	58.39	260.77	618.82	
480.00	714.49	885.21	707.03	352.56	265.88	159.28	94.34	57.71	40.55	50.46	220.19	532.63	
500.00	624.07	779.39	616.58	302.49	224.06	132.93	79.05	49.70	36.59	44.34	186.32	458.39	
550.00	444.01	562.79	436.61	207.29	147.47	86.61	53.44	37.15	30.78	34.81	124.15	316.00	
600.00	317.00	406.19	310.29	143.89	99.42	59.66	40.03	31.36	28.34	30.45	84.64	219.67	
650.00	227.99	294.67	222.31	102.03	69.91	44.85	33.65	28.93	27.37	28.60	59.84	154.47	
700.00	165.62	215.44	161.07	74.86	52.53	37.37	30.88	27.97	26.99	27.86	44.80	110.34	
750.00	121.94	159.14	118.50	57.76	42.91	33.89	29.75	27.59	26.85	27.56	36.20	80.65	
800.00	91.51	119.19	89.09	47.49	37.97	32.37	29.30	27.45	26.79	27.44	31.64	60.99	
850.00	70.57	91.01	69.09	41.65	35.56	31.72	29.12	27.39	26.77	27.39	29.37	48.37	
900.00	56.49	71.42	55.84	38.49	34.44	31.44	29.04	27.37	26.76	27.37	28.30	40.61	
950.00	47.32	58.09	47.37	36.84	33.92	31.32	29.01	27.36	26.76	27.36	27.80	36.07	
1000.00	41.59	49.30	42.18	36.00	33.68	31.27	29.00	27.36	26.75	27.36	27.57	33.53	
1050.00	38.14	43.70	39.11	35.56	33.57	31.25	29.00	27.35	26.75	27.35	27.46	32.15	
1100.00	36.13	40.27	37.35	35.34	33.52	31.24	28.99	27.35	26.75	27.35	27.41	31.42	
1150.00	34.98	38.21	36.36	35.23	33.49	31.23	28.99	27.35	26.75	27.35	27.39	31.03	
1200.00	34.33	37.01	35.80	35.17	33.48	31.23	28.99	27.35	26.75	27.35	27.38	30.82	
1250.00	33.96	36.30	35.49	35.14	33.48	31.23	28.99	27.35	26.75	27.35	27.37	30.71	

ELECTRON CONTENT	=	4.03E 13	4.42E 13	3.73E 13	2.10E 13	1.60E 13	1.31E 13	1.00E 13	6.66E 12	3.96E 12	5.33E 12	2.16E 13	3.56E 13
PEAK ELECTRON DENSITY	=	1.41E 06	1.49E 06	1.34E 06	9.09E 05	7.53E 05	6.48E 05	4.91E 05	2.90E 05	1.17E 05	1.97E 05	9.59E 05	1.37E 06
HEIGHT OF PEAK	=	340.33	359.36	348.43	327.26	332.85	306.14	287.96	287.04	323.97	299.97	278.40	317.61
ESPROB PERCENT	=	80.93	82.75	75.10	60.03	41.59	24.71	13.92	12.11	19.76	34.82	53.26	70.14
AVNES/1000. CM-3	=	160.29	136.03	108.31	81.26	58.09	40.52	28.82	22.36	20.32	81.26	182.82	176.90
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = 40.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	43.62	37.73	19.82	1.70	1.70	1.70	1.70	1.70	1.70	1.70	19.82	37.73	
130.00	65.09	48.41	19.88	1.47	1.47	1.48	1.48	1.48	1.49	1.49	19.77	49.05	
140.00	91.53	70.41	18.37	1.86	1.87	1.89	1.90	1.92	1.93	1.94	18.34	72.60	
150.00	113.28	89.78	19.99	2.14	2.15	2.16	2.17	2.18	2.18	2.18	21.89	93.24	
160.00	134.97	107.86	25.93	2.19	2.19	2.18	2.17	2.16	2.15	2.15	30.74	113.15	
170.00	160.39	128.15	34.40	2.11	2.09	2.06	2.03	2.00	1.98	1.97	41.55	136.57	
180.00	193.34	153.67	44.59	1.96	1.92	1.88	1.83	1.79	1.76	1.74	54.60	167.61	
190.00	238.29	187.87	57.78	1.79	1.73	1.67	1.61	1.57	1.53	1.52	73.55	211.22	
200.00	298.95	234.39	77.12	7.25	1.54	1.47	1.41	1.36	1.33	1.32	104.53	271.92	
210.00	462.52	383.71	221.15	23.09	1.36	1.29	1.23	1.18	1.14	1.14	248.68	435.94	
220.00	636.40	551.23	386.86	52.50	2.96	1.13	1.07	1.02	0.99	0.98	393.09	603.60	
230.00	714.63	624.87	432.05	93.46	12.01	0.99	0.93	0.89	0.85	0.85	430.85	674.09	
240.00	776.96	686.95	467.41	139.22	31.36	0.87	0.81	0.77	0.74	1.57	453.35	726.14	
250.00	820.49	734.01	491.48	182.12	60.11	1.12	0.70	1.45	1.87	7.92	461.26	757.95	
260.00	844.91	764.77	504.29	216.73	92.64	5.90	3.33	7.95	8.68	23.35	456.95	770.51	
270.00	851.85	779.79	506.95	240.69	122.42	18.16	12.72	24.46	23.78	47.56	443.42	766.55	
280.00	844.03	780.82	501.14	254.17	145.14	38.47	30.82	50.84	45.58	75.22	423.60	749.52	
290.00	824.54	770.28	488.71	258.69	159.38	62.92	54.72	80.95	68.61	99.98	399.94	722.95	
300.00	796.43	750.70	471.45	256.38	165.80	86.02	78.55	107.56	87.67	117.92	374.37	689.93	
320.00	724.70	693.78	428.40	238.75	162.02	114.93	109.61	136.51	106.22	131.53	322.58	614.32	
340.00	644.92	625.36	381.18	213.08	146.54	119.91	115.46	137.07	104.57	125.51	274.54	536.65	
360.00	566.47	555.19	335.05	185.98	127.62	111.48	107.16	123.82	93.86	111.28	232.49	464.00	
380.00	493.97	488.57	292.58	160.53	109.23	98.08	93.80	106.63	80.97	95.54	196.69	399.17	
400.00	429.20	427.90	254.70	137.87	92.88	84.25	80.17	90.13	68.97	81.10	166.57	342.74	
420.00	372.40	373.95	221.50	118.23	78.95	71.82	68.11	75.89	58.83	68.82	141.38	294.26	
440.00	323.09	326.60	192.69	101.46	67.35	61.32	58.08	64.18	50.68	58.80	120.32	252.85	
460.00	280.50	285.34	167.80	87.27	57.83	52.74	50.03	54.82	44.33	50.81	102.73	217.58	
480.00	243.81	249.50	146.34	75.33	50.11	45.88	43.73	47.50	39.51	44.57	88.01	187.55	
500.00	212.21	218.44	127.85	65.33	43.92	40.50	38.90	41.88	35.92	39.78	75.71	161.99	
550.00	151.03	157.63	92.02	47.14	33.60	31.95	31.53	33.28	30.72	32.45	53.13	113.30	
600.00	108.68	114.90	67.26	36.07	28.27	27.90	28.25	29.46	28.56	29.17	39.07	80.48	
650.00	79.25	84.71	50.20	29.71	25.73	26.12	26.90	27.88	27.71	27.79	30.78	58.42	
700.00	58.86	63.38	38.62	26.27	24.58	25.37	26.36	27.26	27.38	27.24	26.31	43.82	
750.00	44.89	48.40	31.00	24.51	24.07	25.06	26.15	27.02	27.25	27.01	24.10	34.49	
800.00	35.57	38.06	26.21	23.64	23.85	24.93	26.06	26.92	27.20	26.92	23.08	28.84	
850.00	29.60	31.14	23.37	23.22	23.75	24.88	26.03	26.88	27.18	26.88	22.62	25.64	
900.00	25.98	26.71	21.76	23.01	23.70	24.85	26.01	26.87	27.17	26.87	22.42	23.93	
950.00	23.89	24.00	20.90	22.91	23.68	24.84	26.01	26.86	27.17	26.86	22.33	23.05	
1000.00	22.73	22.43	20.43	22.86	23.68	24.84	26.00	26.86	27.17	26.86	22.30	22.61	
1050.00	22.11	21.54	20.19	22.84	23.67	24.84	26.00	26.86	27.17	26.86	22.28	22.40	
1100.00	21.77	21.04	20.06	22.83	23.67	24.84	26.00	26.86	27.17	26.86	22.27	22.29	
1150.00	21.60	20.77	20.00	22.82	23.67	24.84	26.00	26.86	27.17	26.86	22.27	22.23	
1200.00	21.50	20.63	19.96	22.82	23.67	24.84	26.00	26.86	27.17	26.86	22.26	22.20	
1250.00	21.45	20.54	19.94	22.82	23.67	24.84	26.00	26.86	27.17	26.86	22.26	22.19	

ELECTRON CONTENT = 2.17E 13 2.07E 13 1.28E 13 6.76E 12 4.76E 12 3.92E 12 3.89E 12 4.30E 12 3.86E 12 4.25E 12 1.02E 13 1.84E 13
PEAK ELECTRON DENSITY = 8.52E 05 7.82E 05 5.07E 05 2.59E 05 1.67E 05 1.20E 05 1.16E 05 1.39E 05 1.07E 05 1.32E 05 4.61E 05 7.71E 05
HEIGHT OF PEAK = 269.36 275.73 267.82 291.06 305.22 334.76 335.36 329.58 326.51 321.18 251.08 262.31
ESPROB PERCENT = 69.64 67.69 58.46 44.42 29.33 17.24 11.39 13.34 22.57 36.61 51.69 63.79
AVNES/1000. CM-3 = 96.03 82.93 67.79 52.79 39.67 29.43 22.40 18.38 17.09 52.79 108.11 104.95
SIGMA ES = 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60 0.55 0.51 0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = 60.00

S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	22.25	11.62	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70	11.62
130.00	21.26	15.08	1.47	1.47	1.47	1.48	1.48	1.48	1.49	1.49	1.49	15.09
140.00	20.45	14.41	1.86	1.86	1.87	1.89	1.90	1.92	1.93	1.94	1.93	14.26
150.00	25.27	13.33	2.13	2.14	2.15	2.16	2.17	2.18	2.18	2.18	2.18	13.18
160.00	34.82	13.58	4.54	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.16	14.08
170.00	46.78	16.43	17.10	2.11	2.09	2.06	2.03	2.00	1.98	1.97	2.00	18.15
180.00	62.27	22.64	44.56	1.96	1.92	1.88	1.83	1.79	1.76	1.74	3.99	25.28
190.00	85.46	33.64	88.53	1.79	1.73	1.67	1.61	1.57	1.53	1.52	16.29	36.15
200.00	122.82	53.57	144.01	1.83	1.54	1.47	1.41	1.36	1.33	1.32	42.40	54.21
210.00	338.39	284.66	202.16	7.13	1.36	1.29	1.23	1.18	1.14	1.14	80.56	225.25
220.00	563.72	542.83	254.51	18.80	1.21	1.13	1.07	1.02	0.99	0.98	122.85	420.88
230.00	620.45	594.92	295.66	37.34	4.35	0.99	0.93	0.89	0.85	0.85	160.59	467.43
240.00	661.94	633.10	323.64	60.28	11.62	0.87	0.81	0.77	1.81	0.74	188.46	500.83
250.00	687.21	656.58	339.04	83.68	22.62	0.76	0.70	0.67	7.76	1.10	205.07	520.21
260.00	697.20	666.15	343.81	104.06	35.26	0.67	0.62	0.59	20.02	5.02	211.60	526.51
270.00	693.99	663.64	340.37	119.38	46.98	0.59	0.54	0.88	36.77	13.86	210.37	521.77
280.00	680.19	651.32	331.02	129.14	56.01	2.90	1.24	5.06	53.66	27.06	203.76	508.43
290.00	658.44	631.54	317.71	133.82	61.76	8.86	5.59	16.26	67.04	41.64	193.77	488.90
300.00	631.13	606.44	301.99	134.37	64.44	18.79	15.32	34.96	75.39	54.38	181.92	465.29
320.00	567.52	547.27	267.53	127.29	63.12	42.37	45.49	77.63	78.79	68.43	156.51	412.26
340.00	500.78	484.41	233.28	114.66	57.07	57.20	68.78	101.43	71.91	68.91	132.25	358.54
360.00	437.11	423.82	201.71	100.58	49.58	60.12	75.51	103.41	61.67	62.41	110.80	308.65
380.00	379.31	368.37	173.69	87.02	42.26	55.92	71.20	93.82	51.42	53.74	92.49	264.36
400.00	328.24	319.06	149.30	74.80	35.71	49.00	62.45	80.61	42.34	45.18	77.10	225.94
420.00	283.78	275.93	128.26	64.11	30.08	41.72	52.94	67.53	34.68	37.57	64.26	193.03
440.00	245.38	238.54	110.23	54.94	25.34	35.03	44.17	55.92	28.35	31.10	53.58	165.01
460.00	212.34	206.30	94.82	47.13	21.39	29.23	36.59	46.08	23.18	25.69	44.71	141.20
480.00	183.95	178.56	81.66	40.52	18.12	24.32	30.23	37.90	18.96	21.22	37.34	120.99
500.00	159.55	154.70	70.44	34.95	15.43	20.23	24.95	31.17	15.52	17.54	31.22	103.81
550.00	112.42	108.68	49.15	24.67	10.69	12.78	15.47	19.17	9.46	10.94	20.04	71.22
600.00	79.84	76.99	34.97	18.22	7.94	8.13	9.66	11.87	5.82	6.88	12.95	49.25
650.00	57.12	55.05	25.67	14.35	6.46	5.22	6.08	7.41	3.63	4.37	8.43	34.30
700.00	41.15	39.83	19.73	12.16	5.73	3.39	3.87	4.68	2.31	2.82	5.54	24.04
750.00	29.87	29.29	16.10	10.99	5.38	2.25	2.51	2.99	1.54	1.87	3.68	16.95
800.00	21.88	22.06	13.99	10.39	5.22	1.55	1.69	1.97	1.10	1.31	2.48	12.02
850.00	16.22	17.19	12.83	10.09	5.16	1.13	1.20	1.36	0.86	0.98	1.72	8.57
900.00	12.24	14.02	12.20	9.95	5.12	0.89	0.92	1.01	0.75	0.81	1.25	6.14
950.00	9.47	12.04	11.88	9.88	5.11	0.77	0.78	0.82	0.70	0.73	0.97	4.43
1000.00	7.61	10.87	11.71	9.84	5.10	0.71	0.72	0.73	0.68	0.69	0.82	3.22
1050.00	6.40	10.20	11.63	9.82	5.10	0.68	0.68	0.69	0.67	0.67	0.74	2.37
1100.00	5.65	9.83	11.58	9.82	5.10	0.67	0.67	0.67	0.66	0.67	0.70	1.76
1150.00	5.22	9.62	11.56	9.81	5.10	0.67	0.66	0.67	0.66	0.66	0.68	1.35
1200.00	4.97	9.51	11.54	9.81	5.10	0.66	0.66	0.66	0.66	0.66	0.67	1.06
1250.00	4.83	9.45	11.54	9.81	5.10	0.66	0.66	0.66	0.66	0.66	0.66	0.88

ELECTRON CONTENT	=	1.59E 13	1.52E 13	7.99E 12	3.38E 12	1.54E 12	1.12E 12	1.35E 12	1.81E 12	1.35E 12	1.25E 12	3.88E 12	1.10E 13
PEAK ELECTRON DENSITY	=	6.98E 05	6.67E 05	3.44E 05	1.35E 05	6.48E 04	6.03E 04	7.55E 04	1.05E 05	7.93E 04	7.00E 04	2.12E 05	5.27E 05
HEIGHT OF PEAK	=	262.30	262.68	260.30	296.42	305.87	355.93	359.83	351.80	314.33	330.34	263.03	260.35
ESPROB PERCENT	=	36.66	35.55	30.81	23.69	16.10	10.08	7.24	8.34	13.09	20.21	27.79	33.82
AVNES/1000. CM-3	=	40.69	37.85	34.42	30.80	27.39	24.48	22.29	20.94	20.48	30.80	43.22	42.57
SIGMA ES	=	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60	0.55	0.51	0.50

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = -60.00

S 10.7 = 100.00

S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3	X10-9	(CM. -3	X10-3)							
120.00	37.26	54.34	72.56	79.85	72.57	54.34	37.26	22.34	1.70	1.70	1.70	22.34	
130.00	48.00	87.72	113.83	122.39	112.87	85.93	46.81	21.33	1.48	1.48	1.48	21.23	
140.00	71.52	115.74	141.43	149.43	139.45	111.63	67.52	20.47	1.89	1.90	1.92	20.78	
150.00	89.92	135.23	159.90	167.42	157.60	129.32	84.51	24.97	2.16	2.17	2.18	27.43	
160.00	103.43	149.33	171.76	178.92	170.32	142.53	97.56	33.48	2.18	2.17	2.16	37.64	
170.00	113.24	159.53	179.26	186.22	179.22	152.34	108.41	42.19	2.06	2.03	2.00	46.60	
180.00	119.94	169.18	186.09	192.64	186.82	159.99	117.73	49.90	1.88	1.83	1.79	53.64	
190.00	125.54	182.46	195.89	201.38	195.84	167.37	126.17	57.01	1.67	1.61	1.57	59.03	
200.00	132.97	203.27	211.74	215.09	208.74	176.59	135.04	64.09	1.47	1.41	1.36	62.61	
210.00	145.26	247.23	245.34	250.16	239.57	189.64	146.07	71.60	1.29	1.23	1.18	64.42	
220.00	177.38	296.99	294.36	289.82	275.05	223.24	171.58	80.30	1.13	1.07	1.02	64.95	
230.00	211.40	324.47	327.70	325.10	306.33	258.78	208.49	100.40	0.99	0.93	0.89	65.02	
240.00	238.29	340.86	352.41	353.48	331.39	290.76	245.02	132.34	0.87	0.81	0.77	65.52	
250.00	255.55	346.76	367.69	373.68	349.20	316.95	277.74	167.29	0.76	0.70	0.67	67.33	
260.00	263.06	343.93	374.05	385.50	359.67	336.08	303.98	203.83	0.67	0.62	0.59	71.32	
270.00	262.29	334.57	372.78	389.62	363.40	347.85	322.34	237.93	4.43	1.07	2.63	78.39	
280.00	255.35	320.76	365.49	387.23	361.40	352.76	332.65	265.94	18.63	6.78	12.44	89.80	
290.00	244.35	304.29	353.80	379.67	354.81	351.77	335.63	285.68	49.19	23.36	34.85	113.91	
300.00	231.01	286.48	339.17	368.27	344.79	346.01	332.53	296.63	94.05	52.97	68.24	137.61	
320.00	202.09	250.46	305.50	338.50	318.33	324.74	313.61	295.95	187.54	126.09	135.84	172.02	
340.00	174.54	217.04	270.83	304.99	288.22	296.67	285.66	275.60	238.18	171.42	168.51	181.94	
360.00	150.41	187.70	238.33	271.84	258.15	266.86	255.23	246.85	242.98	178.87	167.81	173.27	
380.00	129.95	162.55	209.21	241.06	229.99	238.13	225.89	216.70	222.99	164.99	151.00	155.88	
400.00	112.77	141.17	183.71	213.40	204.52	211.76	199.17	188.54	194.41	143.62	129.69	136.50	
420.00	98.32	123.01	161.59	188.98	181.88	188.17	175.53	163.60	165.49	121.83	109.22	118.31	
440.00	86.11	107.55	142.47	167.59	161.95	167.36	154.91	142.04	139.43	102.34	91.40	102.40	
460.00	75.72	94.33	125.94	148.90	144.46	149.09	137.01	123.60	117.14	85.87	76.59	88.85	
480.00	66.81	82.98	111.61	132.59	129.13	133.10	121.49	107.88	98.54	72.34	64.56	77.43	
500.00	59.13	73.21	99.16	118.32	115.68	119.09	108.01	94.46	83.24	61.41	54.95	67.79	
550.00	44.14	54.17	74.54	89.86	88.68	91.05	81.40	68.74	56.48	43.08	39.11	49.56	
600.00	33.65	40.91	56.86	69.14	68.87	70.56	62.30	51.14	41.39	33.57	31.18	37.20	
650.00	26.52	31.86	44.16	53.98	54.26	55.46	48.51	39.15	33.54	29.10	27.58	28.83	
700.00	22.03	26.01	35.17	42.93	43.53	44.36	38.64	31.28	29.78	27.16	26.07	23.42	
750.00	19.54	22.55	29.06	35.04	35.79	36.34	31.80	26.44	28.10	26.36	25.46	20.26	
800.00	18.33	20.71	25.15	29.63	30.41	30.76	27.32	23.74	27.38	26.03	25.21	18.64	
850.00	17.80	19.82	22.84	26.12	26.87	27.07	24.59	22.36	27.07	25.90	25.12	17.89	
900.00	17.57	19.41	21.57	23.99	24.68	24.78	23.04	21.70	26.93	25.84	25.08	17.57	
950.00	17.48	19.22	20.91	22.77	23.39	23.44	22.22	21.39	26.88	25.82	25.06	17.44	
1000.00	17.45	19.14	20.57	22.10	22.66	22.69	21.80	21.24	26.85	25.81	25.05	17.38	
1050.00	17.43	19.10	20.41	21.73	22.26	22.28	21.58	21.18	26.84	25.81	25.05	17.36	
1100.00	17.42	19.08	20.32	21.54	22.05	22.06	21.47	21.15	26.84	25.80	25.05	17.35	
1150.00	17.42	19.07	20.28	21.44	21.93	21.95	21.42	21.13	26.84	25.80	25.05	17.35	
1200.00	17.42	19.07	20.26	21.38	21.86	21.88	21.39	21.13	26.83	25.80	25.05	17.34	
1250.00	17.42	19.07	20.25	21.35	21.83	21.85	21.37	21.12	26.83	25.80	25.05	17.34	

ELECTRON CONTENT	=	7.27E 12	9.40E 12	1.11E 13	1.22E 13	1.18E 13	1.14E 13	1.03E 13	8.38E 12	6.10E 12	4.83E 12	4.62E 12	5.60E 12
PEAK ELECTRON DENSITY	=	2.64E 05	3.47E 05	3.74E 05	3.90E 05	3.63E 05	3.53E 05	3.36E 05	3.00E 05	2.45E 05	1.80E 05	1.71E 05	1.82E 05
HEIGHT OF PEAK	=	263.83	251.37	263.08	270.99	271.19	283.08	289.53	309.07	352.12	354.54	348.62	338.85
ESPROB PERCENT	=	35.95	51.27	63.49	69.33	67.23	57.75	43.43	28.11	15.90	10.06	12.16	21.64
AVNES/1000. CM-3	=	51.09	110.56	107.12	97.45	83.30	67.05	51.09	37.30	26.71	19.57	15.57	14.29
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = -40.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	32.69	57.66	87.26	98.75	87.27	57.66	32.69	1.70	1.70	1.70	1.70	1.70
130.00	34.33	93.37	131.76	144.08	130.82	91.49	33.78	1.47	1.48	1.48	1.48	1.49
140.00	51.20	122.07	159.70	171.36	157.78	117.59	47.70	1.87	1.89	1.90	1.92	1.93
150.00	68.81	142.84	178.06	188.80	176.08	135.80	63.44	2.15	2.16	2.17	2.18	2.18
160.00	82.33	159.18	189.27	199.04	188.40	149.76	76.41	2.19	2.18	2.17	2.16	2.15
170.00	93.29	173.37	196.89	205.73	197.24	160.65	87.70	2.09	2.06	2.03	2.00	1.98
180.00	102.33	189.80	205.52	213.03	205.92	170.08	98.61	1.92	1.88	1.83	1.79	1.76
190.00	110.50	213.61	219.20	224.45	217.55	180.30	109.98	1.73	1.67	1.61	1.57	1.53
200.00	120.05	249.16	241.13	242.72	234.76	193.71	122.95	1.54	1.47	1.41	1.36	1.33
210.00	137.43	323.40	288.90	292.58	271.52	226.15	162.52	1.36	1.29	1.23	1.18	1.14
220.00	175.70	395.18	359.84	345.28	330.51	270.02	203.82	1.77	1.13	1.07	1.02	0.99
230.00	213.20	429.34	409.94	394.85	373.94	312.99	248.72	10.42	0.99	0.93	0.89	0.85
240.00	244.59	448.64	450.34	437.35	410.64	351.55	293.55	35.42	0.87	0.81	0.77	0.74
250.00	266.36	454.14	478.71	470.16	438.61	383.00	334.04	81.89	0.76	0.70	0.67	0.64
260.00	277.63	448.39	494.66	492.15	457.11	405.01	366.81	144.20	0.67	0.62	0.59	1.13
270.00	279.48	434.32	499.25	503.56	466.47	419.69	389.97	209.54	1.18	0.54	1.50	7.16
280.00	274.01	414.70	494.37	505.52	467.70	425.23	403.20	265.85	7.93	3.08	8.79	24.37
290.00	263.48	391.83	482.18	499.63	462.21	423.61	407.30	306.42	29.09	14.75	28.51	54.34
300.00	249.88	367.43	464.74	487.65	451.46	416.24	403.77	329.99	70.02	41.97	61.74	90.89
320.00	219.14	318.55	420.98	451.78	419.60	389.74	380.58	336.07	183.77	130.34	138.17	150.47
340.00	189.07	273.57	373.37	408.33	381.00	355.07	345.79	310.12	267.39	201.35	181.23	170.80
360.00	162.44	234.26	327.49	363.83	341.28	318.39	307.68	272.42	291.74	223.36	185.30	163.21
380.00	139.76	200.71	285.78	321.73	303.48	283.07	270.80	233.62	276.87	212.15	168.94	144.04
400.00	120.71	172.35	249.01	283.51	268.95	250.69	237.18	198.15	245.44	187.21	146.07	122.73
420.00	104.72	148.42	217.05	249.58	238.13	221.76	207.45	167.36	210.60	159.73	123.45	103.20
440.00	91.26	128.20	189.48	219.82	210.94	196.28	181.56	141.30	178.05	134.37	103.55	86.61
460.00	79.86	111.08	165.74	193.87	187.09	173.96	159.16	119.56	149.70	112.58	86.92	73.04
480.00	70.15	96.55	145.31	171.27	166.22	154.47	139.84	101.58	125.80	94.50	73.39	62.18
500.00	61.84	84.18	127.69	151.60	147.96	137.45	123.16	86.80	105.99	79.77	62.58	53.65
550.00	45.87	60.70	93.42	112.76	111.59	103.63	90.69	60.80	70.96	54.63	44.81	40.04
600.00	35.09	45.12	69.53	85.03	85.26	79.24	68.00	45.96	50.77	41.17	35.94	33.60
650.00	28.19	35.16	52.92	65.17	66.12	61.56	52.18	38.07	39.93	34.62	31.94	30.82
700.00	24.22	29.25	41.62	51.05	52.27	48.84	41.37	34.20	34.59	31.70	30.26	29.70
750.00	22.22	26.08	34.26	41.24	42.44	39.88	34.31	32.40	32.15	30.47	29.59	29.25
800.00	21.32	24.53	29.77	34.68	35.69	33.82	29.99	31.58	31.08	29.97	29.31	29.07
850.00	20.95	23.82	27.22	30.55	31.28	29.95	27.53	31.22	30.62	29.76	29.20	29.00
900.00	20.79	23.50	25.85	28.08	28.57	27.63	26.21	31.06	30.42	29.67	29.16	28.97
950.00	20.73	23.36	25.15	26.69	26.98	26.30	25.53	30.99	30.33	29.64	29.14	28.96
1000.00	20.70	23.29	24.79	25.93	26.08	25.57	25.19	30.95	30.30	29.62	29.13	28.96
1050.00	20.69	23.27	24.62	25.52	25.59	25.18	25.02	30.94	30.28	29.62	29.13	28.95
1100.00	20.69	23.25	24.53	25.30	25.32	24.97	24.93	30.93	30.27	29.61	29.13	28.95
1150.00	20.68	23.25	24.48	25.18	25.17	24.85	24.89	30.93	30.27	29.61	29.13	28.95
1200.00	20.68	23.25	24.46	25.12	25.09	24.79	24.87	30.93	30.27	29.61	29.13	28.95
1250.00	20.68	23.24	24.45	25.09	25.05	24.76	24.85	30.93	30.27	29.61	29.13	28.95

ELECTRON CONTENT = 7.63E 12 1.15E 13 1.42E 13 1.54E 13 1.47E 13 1.33E 13 1.18E 13 8.32E 12 7.13E 12 5.81E 12 5.18E 12 4.92E 12
PEAK ELECTRON DENSITY = 2.80E 05 4.54E 05 4.99E 05 5.06E 05 4.68E 05 4.25E 05 4.07E 05 3.39E 05 2.92E 05 2.23E 05 1.87E 05 1.71E 05
HEIGHT OF PEAK = 267.13 249.46 269.48 277.21 276.59 282.47 290.00 312.15 360.04 360.79 352.02 342.11
ESPROR PERCENT = 50.27 64.77 76.20 81.50 79.26 70.07 56.39 41.90 30.47 25.16 27.40 36.59
AVNES/1000. CM-3 = 87.64 182.28 176.85 161.56 139.12 113.23 87.64 65.33 48.01 36.16 29.43 27.27
SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = -20.00
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	24.58	53.70	89.49	103.63	89.58	53.71	24.58	1.70	1.70	1.70	1.70	1.70
130.00	22.69	86.72	134.27	149.78	134.13	85.18	22.82	1.47	1.48	1.48	1.48	1.49
140.00	24.25	115.26	162.10	178.16	163.01	112.23	23.28	1.87	1.89	1.90	1.92	1.93
150.00	34.31	136.15	180.07	197.49	185.05	133.07	30.31	2.15	2.16	2.17	2.18	2.18
160.00	46.11	153.20	190.57	210.88	203.67	152.27	40.54	2.19	2.18	2.17	2.16	2.15
170.00	56.24	168.57	197.32	222.66	222.27	172.13	51.05	2.09	2.06	2.03	2.00	1.98
180.00	65.43	186.37	204.92	237.59	245.11	195.29	62.13	1.92	1.88	1.83	1.79	1.76
190.00	74.64	211.69	217.37	259.65	276.14	225.18	75.63	1.73	1.67	1.61	1.57	1.53
200.00	84.87	249.00	237.80	291.76	318.34	265.18	94.14	1.54	1.47	1.41	1.36	1.33
210.00	97.94	329.45	268.36	335.65	404.86	353.97	198.27	1.36	1.29	1.23	1.18	1.14
220.00	131.93	442.58	317.13	417.25	503.59	483.09	310.17	1.21	1.13	1.07	1.02	0.99
230.00	178.53	523.36	396.79	514.33	613.10	584.67	394.10	3.01	0.99	0.93	0.89	0.85
240.00	230.81	590.79	484.31	620.59	729.75	688.01	487.97	18.78	0.87	0.81	0.77	0.74
250.00	284.22	638.90	573.00	728.92	845.31	784.67	585.62	66.84	0.76	0.70	0.67	1.11
260.00	331.24	665.90	654.86	830.82	951.09	867.24	677.83	160.07	0.67	0.62	4.15	8.86
270.00	366.11	673.33	723.14	918.67	1039.96	930.75	756.16	289.62	5.30	5.47	23.09	35.15
280.00	386.45	664.62	773.62	987.27	1107.45	973.16	815.05	429.68	28.97	30.17	72.01	86.76
290.00	392.92	643.81	804.94	1034.26	1151.96	994.88	852.35	553.85	91.97	94.38	151.40	155.28
300.00	388.00	614.73	818.04	1059.81	1174.23	998.04	868.79	646.16	200.04	200.31	243.42	223.36
320.00	355.98	543.96	799.81	1055.53	1162.38	961.27	850.59	726.02	465.29	441.37	385.43	310.45
340.00	310.97	469.81	742.73	998.59	1097.53	888.18	787.91	704.42	637.72	578.13	428.85	324.43
360.00	265.09	400.80	667.79	913.34	1004.39	799.27	705.21	634.73	675.39	592.20	405.05	297.31
380.00	223.58	340.06	588.80	817.61	900.89	707.65	618.39	551.10	630.82	540.06	354.43	256.41
400.00	187.95	288.05	513.31	722.27	798.00	620.55	535.95	469.80	554.13	466.20	299.45	215.21
420.00	158.07	244.11	444.76	633.06	701.58	541.27	461.62	397.03	472.54	392.29	249.11	178.61
440.00	133.27	207.21	384.25	552.45	614.20	470.87	396.45	334.30	397.39	326.35	206.00	147.76
460.00	112.76	176.27	331.65	481.08	536.56	409.25	340.20	281.21	332.16	270.29	170.15	122.39
480.00	95.80	150.35	286.32	418.63	468.38	355.73	292.05	236.69	277.07	223.66	140.78	101.79
500.00	81.78	128.63	247.44	364.36	408.89	309.46	251.01	199.54	231.14	185.28	116.91	85.22
550.00	56.59	88.48	173.05	258.56	292.22	219.73	173.35	131.88	148.24	117.32	75.63	57.25
600.00	41.45	62.85	122.78	185.22	210.60	157.86	121.78	89.89	97.58	77.12	52.46	42.42
650.00	32.99	46.96	88.93	134.41	153.53	115.22	87.76	64.57	67.42	54.27	40.38	35.27
700.00	28.74	37.67	66.40	99.30	113.66	86.01	65.74	50.09	50.34	42.15	34.66	32.13
750.00	26.80	32.66	51.81	75.28	85.99	66.34	51.98	42.37	41.35	36.27	32.17	30.83
800.00	25.98	30.16	42.76	59.18	67.09	53.47	43.84	38.53	36.99	33.63	31.13	30.31
850.00	25.64	28.99	37.45	48.75	54.52	45.42	39.30	36.71	35.00	32.51	30.71	30.10
900.00	25.50	28.45	34.49	42.28	46.48	40.62	36.88	35.88	34.12	32.03	30.54	30.01
950.00	25.44	28.20	32.91	38.44	41.55	37.88	35.64	35.49	33.73	31.84	30.47	29.98
1000.00	25.42	28.09	32.08	36.25	38.64	36.37	35.02	35.32	33.56	31.75	30.44	29.96
1050.00	25.41	28.04	31.65	35.02	36.97	35.54	34.70	35.24	33.49	31.72	30.43	29.96
1100.00	25.41	28.01	31.43	34.35	36.03	35.10	34.54	35.20	33.45	31.70	30.42	29.95
1150.00	25.40	28.00	31.31	33.98	35.51	34.86	34.46	35.18	33.44	31.69	30.42	29.95
1200.00	25.40	28.00	31.25	33.78	35.21	34.73	34.42	35.17	33.43	31.69	30.42	29.95
1250.00	25.40	28.00	31.22	33.67	35.05	34.66	34.40	35.17	33.43	31.69	30.42	29.95

ELECTRON CONTENT = 9.65E 12 1.64E 13 2.25E 13 3.01E 13 3.34E 13 2.74E 13 2.21E 13 1.56E 13 1.40E 13 1.21E 13 9.10E 12 7.41E 12
 PEAK ELECTRON DENSITY = 3.93E 05 6.73E 05 8.19E 05 1.07E 06 1.18E 06 9.99E 05 8.70E 05 7.28E 05 6.76E 05 5.98E 05 4.29E 05 3.26E 05
 HEIGHT OF PEAK = 290.23 269.20 303.04 308.39 306.24 296.80 303.85 324.02 356.81 352.44 340.51 334.44
 ESROB PERCENT = 65.63 74.51 81.67 85.20 84.15 78.80 70.59 61.71 54.54 51.01 52.06 57.41
 AVNES/1000. CM-3 = 128.87 266.39 258.51 236.31 203.72 166.09 128.87 96.36 71.08 53.75 43.90 40.74
 SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENNY STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = 0.0
S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	1.70	44.45	78.78	93.68	78.81	44.45	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	67.82	121.28	137.99	120.53	66.28	1.47	1.47	1.48	1.48	1.48	1.48	1.49	1.49
140.00	1.94	94.49	147.76	163.86	146.67	90.74	1.86	1.87	1.89	1.90	1.92	1.93	1.93	1.93
150.00	2.18	113.18	163.47	178.78	163.68	108.32	2.14	2.15	2.16	2.17	2.18	2.18	2.18	2.18
160.00	2.15	126.85	170.27	184.90	174.14	121.99	2.19	2.19	2.18	2.17	2.16	2.15	2.15	2.15
170.00	1.97	136.43	170.48	185.18	179.83	133.25	2.11	2.09	2.06	2.03	2.00	1.98	1.98	1.98
180.00	1.74	143.60	167.65	183.18	183.39	142.87	1.96	1.92	1.88	1.83	1.79	1.76	1.76	1.76
190.00	1.52	151.31	164.83	181.74	187.42	152.20	1.79	1.73	1.67	1.61	1.57	1.53	1.53	1.53
200.00	1.32	162.74	164.22	182.91	194.13	163.04	1.61	1.54	1.47	1.41	1.36	1.33	1.33	1.33
210.00	1.14	180.77	167.41	188.20	205.31	177.33	1.45	1.36	1.29	1.23	1.13	3.11	3.11	3.11
220.00	0.98	207.62	175.67	198.82	222.38	196.92	1.29	1.21	1.13	6.25	47.45	17.01	17.01	17.01
230.00	5.52	244.66	190.00	215.67	246.37	223.29	1.16	1.06	7.84	34.43	119.22	51.22	51.22	51.22
240.00	25.75	305.14	211.10	239.37	277.92	257.46	1.03	0.94	41.75	105.73	213.58	103.51	103.51	103.51
250.00	71.53	387.40	239.37	270.24	317.35	300.00	0.92	0.83	128.42	218.81	305.06	160.16	160.16	160.16
260.00	139.47	475.87	275.04	308.47	364.86	351.26	0.83	0.73	270.72	346.67	374.35	207.28	207.28	207.28
270.00	213.50	561.55	320.53	354.23	420.70	413.21	3.31	0.65	439.82	458.36	414.88	238.00	238.00	238.00
280.00	277.00	635.31	392.22	422.83	511.71	524.32	17.95	0.58	596.96	536.09	429.40	252.19	252.19	252.19
290.00	320.89	690.81	469.38	504.39	607.71	626.76	61.86	2.26	715.64	576.95	424.54	253.27	253.27	253.27
300.00	343.98	725.44	555.00	595.17	715.07	742.10	152.23	15.70	787.34	586.83	407.01	245.41	245.41	245.41
320.00	342.74	736.77	726.63	797.58	951.78	985.60	464.30	160.49	812.29	547.98	354.03	216.06	216.06	216.06
340.00	308.02	692.94	855.26	982.59	1166.93	1188.39	805.19	490.77	745.17	475.57	296.37	181.96	181.96	181.96
360.00	263.79	621.70	914.45	1104.99	1310.40	1304.61	1021.42	805.72	646.27	399.20	244.03	150.40	150.40	150.40
380.00	220.99	542.59	909.38	1150.88	1366.52	1329.45	1089.27	959.00	545.82	330.17	199.65	123.49	123.49	123.49
400.00	183.42	466.28	859.98	1131.93	1347.83	1283.94	1054.88	966.24	455.39	271.46	163.11	101.34	101.34	101.34
420.00	151.77	397.47	786.59	1069.24	1277.79	1195.10	968.26	892.97	377.99	222.82	133.41	83.43	83.43	83.43
440.00	125.62	337.53	704.21	982.70	1178.90	1085.47	862.74	789.14	313.23	183.01	109.44	69.10	69.10	69.10
460.00	104.24	286.30	622.07	886.92	1068.06	970.36	756.29	681.53	259.62	150.62	90.19	57.74	57.74	57.74
480.00	86.86	242.91	545.08	791.12	956.17	858.79	657.17	581.84	215.48	124.36	74.79	48.81	48.81	48.81
500.00	72.81	206.35	475.39	700.46	849.51	755.41	568.47	493.99	179.23	103.14	62.55	41.87	41.87	41.87
550.00	48.73	138.44	335.12	508.74	621.74	541.66	393.22	326.02	114.80	66.57	42.25	30.97	30.97	30.97
600.00	35.54	94.54	236.47	367.39	451.95	387.31	272.68	216.21	76.26	46.12	31.83	25.93	25.93	25.93
650.00	28.89	66.33	168.24	266.26	329.38	278.40	190.87	145.42	54.01	35.49	27.00	23.81	23.81	23.81
700.00	25.84	48.57	121.28	194.50	241.68	201.98	135.68	100.25	41.96	30.47	24.95	22.98	22.98	22.98
750.00	24.53	37.84	89.15	143.72	179.05	148.49	98.81	72.03	35.97	28.29	24.14	22.65	22.65	22.65
800.00	23.99	31.74	67.47	107.95	134.43	111.24	74.66	55.07	33.21	27.38	23.81	22.53	22.53	22.53
850.00	23.76	28.50	53.18	82.98	102.84	85.63	59.38	45.46	32.00	27.02	23.69	22.48	22.48	22.48
900.00	23.67	26.88	44.11	65.88	80.75	68.40	50.13	40.36	31.48	26.87	23.64	22.46	22.46	22.46
950.00	23.63	26.09	38.61	54.47	65.64	57.17	44.82	37.80	31.25	26.81	23.62	22.45	22.45	22.45
1000.00	23.62	25.71	35.41	47.14	55.60	50.14	41.88	36.55	31.15	26.78	23.61	22.45	22.45	22.45
1050.00	23.61	25.52	33.61	42.59	49.16	45.89	40.31	35.95	31.11	26.77	23.61	22.45	22.45	22.45
1100.00	23.61	25.44	32.62	39.86	45.16	43.41	39.48	35.66	31.09	26.77	23.61	22.45	22.45	22.45
1150.00	23.61	25.39	32.08	38.26	42.75	41.99	39.05	35.53	31.09	26.76	23.60	22.45	22.45	22.45
1200.00	23.60	25.37	31.79	37.34	41.32	41.18	38.82	35.46	31.08	26.76	23.60	22.45	22.45	22.45
1250.00	23.60	25.36	31.63	36.81	40.48	40.73	38.69	35.43	31.08	26.76	23.60	22.45	22.45	22.45

ELFCTRON CONTENT = 7.48E 12 1.85E 13 2.69E 13 3.55E 13 4.24E 13 3.91E 13 2.56E 13 2.08E 13 1.60E 13 1.14E 13 8.51E 12 5.69E 12
PEAK ELECTRON DENSITY = 3.50E 05 7.41E 05 9.19E 05 1.15E 06 1.37E 06 1.33E 06 1.09E 06 9.77E 05 8.18E 05 5.87E 05 4.30E 05 2.54E 05
HEIGHT OF PEAK = 308.85 312.98 367.87 383.19 384.13 375.94 381.47 390.75 313.42 298.80 281.93 285.78
ESPROB PERCENT = 25.77 43.09 60.02 72.03 75.90 70.59 57.53 40.21 23.28 11.27 7.40 12.71
AVNES/1000. CM-3 = 96.02 195.50 189.82 173.80 150.25 123.03 96.02 72.36 53.88 41.15 33.88 31.54
SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = 20.00

S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	34.70	58.03	70.75	58.03	34.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	39.95	93.39	110.95	92.27	39.13	1.47	1.47	1.48	1.48	1.48	1.48	1.49
140.00	1.94	60.37	121.40	138.02	118.61	56.54	1.86	1.87	1.89	1.90	1.92	1.93	1.93
150.00	2.18	79.74	141.78	156.49	137.01	73.27	2.14	2.15	2.16	2.17	2.18	2.18	2.18
160.00	2.15	96.97	158.29	169.27	151.11	87.00	2.19	2.19	2.18	2.17	2.16	2.15	2.15
170.00	1.97	115.58	172.85	178.14	162.16	99.64	2.11	2.09	2.06	2.03	2.00	1.98	1.98
180.00	1.74	138.80	188.77	185.99	171.91	112.62	1.96	1.92	1.88	1.83	1.79	1.76	1.76
190.00	1.52	170.98	210.06	195.89	182.68	127.09	1.79	1.73	1.67	1.61	1.57	1.53	1.53
200.00	1.32	217.18	240.30	210.53	196.87	144.68	1.61	1.54	1.47	1.41	1.36	1.33	1.33
210.00	1.14	354.65	282.03	232.08	216.59	167.49	1.45	1.36	1.29	1.27	1.27	1.27	1.27
220.00	5.34	468.30	336.43	262.04	243.52	197.66	1.29	1.21	1.13	1.06	1.00	0.99	0.99
230.00	23.03	596.01	403.91	301.24	278.75	236.89	1.16	1.06	0.96	0.86	0.76	0.66	0.66
240.00	60.31	731.31	518.99	350.02	322.81	286.20	0.94	0.84	0.74	0.64	0.54	0.44	0.44
250.00	112.55	859.05	644.99	408.57	376.00	346.08	0.74	0.64	0.54	0.44	0.34	0.24	0.24
260.00	166.77	965.18	782.22	503.31	438.56	416.89	0.54	0.44	0.34	0.24	0.14	0.04	0.04
270.00	211.19	1040.95	933.97	608.58	510.94	499.16	0.34	0.24	0.14	0.04	0.04	0.04	0.04
280.00	240.29	1083.73	1088.69	723.62	636.14	629.12	0.24	0.14	0.04	0.04	0.04	0.04	0.04
290.00	254.15	1095.83	1232.80	850.52	756.56	773.84	0.14	0.04	0.04	0.04	0.04	0.04	0.04
300.00	255.78	1082.39	1354.67	981.61	891.16	933.89	0.04	0.04	0.04	0.04	0.04	0.04	0.04
320.00	236.70	1003.11	1506.16	1218.48	1188.40	1263.83	0.04	0.04	0.04	0.04	0.04	0.04	0.04
340.00	205.26	888.82	1533.23	1374.40	1459.15	1531.73	0.04	0.04	0.04	0.04	0.04	0.04	0.04
360.00	172.83	767.52	1467.32	1431.22	1640.13	1681.00	0.04	0.04	0.04	0.04	0.04	0.04	0.04
380.00	143.76	653.49	1348.00	1404.70	1711.35	1709.16	0.04	0.04	0.04	0.04	0.04	0.04	0.04
400.00	119.13	552.40	1206.47	1322.82	1688.36	1645.98	0.04	0.04	0.04	0.04	0.04	0.04	0.04
420.00	98.80	465.45	1062.43	1211.50	1600.66	1527.65	0.04	0.04	0.04	0.04	0.04	0.04	0.04
440.00	82.28	391.84	926.52	1089.45	1476.58	1383.64	0.04	0.04	0.04	0.04	0.04	0.04	0.04
460.00	68.96	330.00	803.46	968.29	1337.39	1233.65	0.04	0.04	0.04	0.04	0.04	0.04	0.04
480.00	58.33	278.25	694.66	854.35	1196.86	1089.11	0.04	0.04	0.04	0.04	0.04	0.04	0.04
500.00	49.92	234.98	599.78	750.53	1062.89	955.76	0.04	0.04	0.04	0.04	0.04	0.04	0.04
550.00	36.22	155.42	415.48	538.59	776.84	681.67	0.04	0.04	0.04	0.04	0.04	0.04	0.04
600.00	29.45	104.56	289.35	386.24	563.69	484.99	0.04	0.04	0.04	0.04	0.04	0.04	0.04
650.00	26.41	72.21	203.28	278.45	409.85	346.79	0.04	0.04	0.04	0.04	0.04	0.04	0.04
700.00	25.13	52.01	144.48	202.42	299.71	249.98	0.04	0.04	0.04	0.04	0.04	0.04	0.04
750.00	24.61	39.90	104.39	148.81	220.92	182.14	0.04	0.04	0.04	0.04	0.04	0.04	0.04
800.00	24.40	33.08	77.29	111.13	164.55	134.63	0.04	0.04	0.04	0.04	0.04	0.04	0.04
850.00	24.32	29.51	59.30	84.87	124.32	101.55	0.04	0.04	0.04	0.04	0.04	0.04	0.04
900.00	24.28	27.73	47.75	66.87	95.82	78.84	0.04	0.04	0.04	0.04	0.04	0.04	0.04
950.00	24.27	26.88	40.63	54.87	75.91	63.60	0.04	0.04	0.04	0.04	0.04	0.04	0.04
1000.00	24.26	26.48	36.45	47.14	62.32	53.71	0.04	0.04	0.04	0.04	0.04	0.04	0.04
1050.00	24.26	26.29	34.09	42.34	53.33	47.54	0.04	0.04	0.04	0.04	0.04	0.04	0.04
1100.00	24.26	26.20	32.80	39.47	47.57	43.82	0.04	0.04	0.04	0.04	0.04	0.04	0.04
1150.00	24.26	26.16	32.10	37.79	44.00	41.64	0.04	0.04	0.04	0.04	0.04	0.04	0.04
1200.00	24.26	26.14	31.72	36.83	41.84	40.39	0.04	0.04	0.04	0.04	0.04	0.04	0.04
1250.00	24.26	26.13	31.51	36.27	40.56	39.67	0.04	0.04	0.04	0.04	0.04	0.04	0.04

ELECTRON CONTENT = 6.00E 12 2.48E 13 4.08E 13 4.21E 13 5.19E 13 4.82E 13 3.10E 13 2.21E 13 1.74E 13 1.12E 13 7.84E 12 4.40E 12
PEAK ELECTRON DENSITY = 2.56E 05 1.10E 06 1.54E 06 1.43E 06 1.71E 06 1.37E 06 1.07E 06 8.97E 05 5.76E 05 3.82E 05 1.65E 05
HEIGHT OF PEAK = 296.40 289.35 334.70 362.62 384.26 375.08 348.83 349.44 319.18 292.79 288.19 308.72
ESPROB PERCENT = 27.70 45.32 62.31 74.14 77.62 71.83 58.32 40.71 23.72 11.89 8.40 14.19
AVNES/1000. CM-3 = 93.22 194.04 188.25 171.96 148.05 120.47 93.22 69.45 51.01 38.40 31.24 28.95
SIGMA ES = 0.55 0.51 0.50 0.51 0.55 0.60 0.65 0.69 0.70 0.69 0.65 0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = 40.00
 S 10.7 = 100.00 S 10.7 (1A.U.) = 96.78

DAY = 356.00

MONTH = 12

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	1.70	19.82	37.73	43.62	37.73	19.82	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	19.77	49.06	65.16	48.43	19.88	1.47	1.47	1.48	1.48	1.48	1.49
140.00	1.94	18.34	72.70	91.96	70.57	18.38	1.86	1.87	1.89	1.90	1.92	1.93
150.00	2.18	21.90	93.61	114.69	90.35	20.01	2.14	2.15	2.16	2.17	2.18	2.18
160.00	2.15	30.80	114.17	138.45	109.35	26.06	2.19	2.19	2.18	2.17	2.16	2.15
170.00	1.97	41.80	138.93	167.82	131.40	34.92	2.11	2.09	2.06	2.03	2.00	1.98
180.00	1.74	55.34	172.38	207.49	160.06	46.07	1.96	1.92	1.88	1.83	1.79	1.76
190.00	1.52	75.39	219.88	262.51	199.30	61.41	1.92	1.73	1.67	1.61	1.57	1.53
200.00	1.32	108.66	285.97	336.46	253.06	85.04	1.48	1.54	1.47	1.41	1.36	1.33
210.00	1.14	263.44	459.71	529.30	421.14	251.60	29.63	1.36	1.29	1.23	1.18	1.14
220.00	0.98	417.65	626.85	718.82	595.40	432.02	66.45	3.66	1.13	1.07	1.02	0.99
230.00	0.85	457.60	691.41	795.22	662.55	474.66	117.12	14.22	0.99	0.93	0.89	0.85
240.00	1.11	481.30	736.37	852.45	715.46	505.73	173.16	36.06	0.87	0.81	0.77	0.74
250.00	6.71	489.48	760.98	888.80	752.05	524.55	225.29	67.69	0.76	0.70	0.67	0.71
260.00	22.32	484.70	767.05	905.09	772.29	531.87	267.02	102.78	2.07	0.68	2.55	10.81
270.00	49.48	470.13	757.71	903.83	777.66	529.29	295.66	134.39	8.66	4.15	11.07	26.70
280.00	82.96	448.88	736.58	888.29	770.45	518.76	311.51	158.14	22.76	13.86	29.17	47.69
290.00	114.84	423.60	707.09	861.88	753.29	502.28	316.53	172.73	43.30	30.71	54.62	68.39
300.00	139.34	396.29	672.22	827.77	728.69	481.64	313.28	178.98	65.79	51.37	81.11	84.53
320.00	160.70	341.04	595.21	746.67	665.91	433.64	291.14	174.00	99.71	85.69	117.13	98.56
340.00	155.38	289.84	518.11	660.40	595.70	383.29	259.43	156.83	110.57	98.21	124.82	95.29
360.00	138.28	245.04	446.94	577.50	526.19	335.26	226.12	136.21	105.86	94.82	115.94	84.67
380.00	118.44	206.91	383.93	501.92	461.49	291.63	194.88	116.25	94.41	84.56	101.06	72.59
400.00	99.82	174.85	329.33	434.95	403.28	253.05	167.05	98.53	81.53	72.84	85.75	61.52
420.00	83.72	148.05	282.55	376.54	351.89	219.43	142.91	83.40	69.53	62.01	72.13	52.22
440.00	70.33	125.66	242.66	326.03	307.01	190.36	122.26	70.75	59.20	52.80	60.74	44.74
460.00	59.43	106.95	208.71	282.53	268.01	165.33	104.71	60.30	50.65	45.32	51.52	38.90
480.00	50.68	91.30	179.82	245.12	234.22	143.81	89.89	51.77	43.73	39.39	44.22	34.43
500.00	43.75	78.19	155.22	212.96	204.96	125.30	77.40	44.86	38.25	34.81	38.54	31.10
550.00	32.48	54.05	108.37	150.83	147.75	89.56	54.32	33.08	29.36	27.70	29.64	26.21
600.00	26.94	38.77	76.73	107.94	107.55	64.97	39.78	26.76	25.01	24.48	25.54	24.16
650.00	24.45	29.50	55.37	78.20	79.16	48.10	31.00	23.63	23.06	23.14	23.82	23.35
700.00	23.40	24.27	41.11	57.58	59.08	36.69	25.99	22.19	22.23	22.59	23.12	23.03
750.00	22.97	21.57	31.87	43.42	44.95	29.19	23.30	21.54	21.88	22.38	22.85	22.91
800.00	22.79	20.29	26.17	33.91	35.17	24.49	21.93	21.25	21.73	22.29	22.74	22.86
850.00	22.72	19.71	22.88	27.76	28.60	21.69	21.24	21.13	21.67	22.25	22.70	22.84
900.00	22.69	19.45	21.10	23.98	24.36	20.12	20.91	21.07	21.65	22.24	22.68	22.84
950.00	22.68	19.33	20.17	21.77	21.77	19.27	20.75	21.05	21.64	22.23	22.68	22.83
1000.00	22.67	19.28	19.71	20.54	20.26	18.82	20.66	21.03	21.63	22.23	22.67	22.83
1050.00	22.67	19.26	19.48	19.87	19.40	18.58	20.62	21.03	21.63	22.23	22.67	22.83
1100.00	22.67	19.25	19.36	19.51	18.93	18.46	20.60	21.03	21.63	22.23	22.67	22.83
1150.00	22.67	19.24	19.30	19.33	18.67	18.40	20.59	21.03	21.63	22.23	22.67	22.83
1200.00	22.67	19.24	19.27	19.23	18.53	18.36	20.59	21.03	21.63	22.23	22.67	22.83
1250.00	22.67	19.24	19.26	19.17	18.46	18.34	20.59	21.02	21.63	22.23	22.67	22.83

ELECTRON CONTENT	4.37E 12	1.05E 13	1.80E 13	2.24E 13	2.01E 13	1.30E 13	7.73E 12	4.77E 12	3.50E 12	3.31E 12	3.74E 12	3.37E 12
PEAK ELECTRON DENSITY	1.61E 05	4.90E 05	7.67E 05	9.07E 05	7.78E 05	5.32E 05	3.17E 05	1.80E 05	1.11E 05	9.84E 04	1.25E 05	9.89E 04
HEIGHT OF PEAK	324.02	250.91	258.58	264.13	268.94	262.11	290.52	304.34	341.38	343.28	336.46	323.81
ESPRDB PERCENT	33.87	47.65	58.60	63.79	61.81	53.21	40.29	26.50	15.55	10.37	12.34	20.94
AVNES/1000. CM-3	49.51	95.15	92.57	85.29	74.55	62.04	49.51	38.40	29.58	23.40	19.82	18.65
SIGMA ES	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = 60.00

S 10.7 = 100.00

S 10.7 (IA.U.) = 96.78

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	1.70	1.70	11.62	22.25	11.62	1.70	1.70	1.70	1.70	1.70	1.70	1.70	1.70
130.00	1.49	1.49	15.09	21.26	15.08	1.47	1.47	1.47	1.48	1.48	1.48	1.49	1.49
140.00	1.94	1.93	14.26	20.45	14.41	1.86	1.86	1.87	1.89	1.90	1.92	1.93	1.93
150.00	2.18	2.18	13.18	25.23	13.32	2.13	2.14	2.15	2.16	2.17	2.18	2.18	2.18
160.00	2.15	2.16	14.04	34.62	13.56	2.79	2.19	2.19	2.18	2.17	2.16	2.15	2.15
170.00	1.97	2.00	17.95	46.09	16.32	12.00	2.11	2.09	2.06	2.03	2.00	1.98	1.98
180.00	1.74	1.80	24.45	60.41	22.18	34.57	1.96	1.92	1.88	1.83	1.79	1.76	1.76
190.00	1.52	8.12	33.53	81.11	32.15	74.10	1.79	1.73	1.67	1.61	1.57	1.53	1.53
200.00	1.32	24.90	47.25	113.77	49.44	127.61	1.61	1.54	1.47	1.41	1.36	1.33	1.33
210.00	1.14	53.20	178.55	310.14	260.51	187.01	6.80	1.36	1.29	1.23	1.18	1.14	1.14
220.00	0.98	88.24	335.14	523.43	502.87	243.20	19.27	1.21	1.13	1.07	1.02	0.99	0.99
230.00	0.85	122.52	376.49	581.71	555.48	289.55	40.31	4.32	0.99	0.93	0.89	0.85	0.85
240.00	0.74	150.15	407.79	626.26	595.48	322.90	67.64	11.94	0.87	0.81	0.77	2.17	2.17
250.00	1.12	168.56	427.72	655.48	621.64	343.07	96.61	23.85	0.76	0.70	0.67	8.77	8.77
260.00	5.14	177.91	436.61	669.74	634.34	351.66	122.69	37.85	0.67	0.62	0.59	21.75	21.75
270.00	14.20	179.79	435.86	670.71	635.09	350.99	142.97	51.07	0.80	0.54	1.14	38.88	38.88
280.00	27.73	176.23	427.37	660.76	625.94	343.50	156.45	61.46	4.05	2.17	6.57	55.69	55.69
290.00	42.69	169.07	413.15	642.40	609.10	331.28	163.51	68.21	12.15	9.48	21.01	68.69	68.69
300.00	55.76	159.76	395.00	618.00	586.67	316.07	165.23	71.49	25.41	25.36	45.05	76.58	76.58
320.00	70.19	138.62	352.60	558.85	531.94	281.45	157.76	70.40	56.38	73.24	99.65	79.24	79.24
340.00	70.70	117.72	308.48	495.13	472.45	246.21	142.70	63.78	75.49	109.26	129.98	71.97	71.97
360.00	64.03	98.95	266.93	433.48	414.43	213.34	125.42	55.42	79.03	119.17	132.40	61.58	61.58
380.00	55.14	82.79	229.69	377.05	360.94	183.96	108.57	47.18	73.36	112.02	120.08	51.28	51.28
400.00	46.36	69.14	197.21	326.92	313.15	158.27	93.27	39.77	64.22	98.11	103.15	42.20	42.20
420.00	38.55	57.71	169.25	283.12	271.21	136.06	79.83	33.36	54.64	83.10	86.40	34.55	34.55
440.00	31.91	48.19	145.34	245.19	234.77	116.97	68.24	27.94	45.87	69.31	71.54	28.25	28.25
460.00	26.36	40.27	124.95	212.49	203.28	100.62	58.34	23.39	38.26	57.40	58.95	23.09	23.09
480.00	21.78	33.68	107.57	184.35	176.14	86.64	49.92	19.59	31.84	47.41	48.49	18.88	18.88
500.00	18.00	28.19	92.74	160.12	152.78	74.69	42.77	16.42	26.47	39.12	39.88	15.45	15.45
550.00	11.22	18.16	64.42	113.22	107.58	51.91	29.37	10.60	16.72	24.25	24.52	9.42	9.42
600.00	7.05	11.77	45.11	80.68	76.34	36.60	20.63	6.90	10.62	15.12	15.18	5.80	5.80
650.00	4.48	7.69	31.82	57.88	54.60	26.39	15.03	4.53	6.80	9.50	9.47	3.61	3.61
700.00	2.89	5.07	22.59	41.78	39.41	19.69	11.58	3.03	4.40	6.02	5.96	2.30	2.30
750.00	1.92	3.38	16.13	30.33	28.76	15.44	9.54	2.07	2.89	3.86	3.79	1.53	1.53
800.00	1.33	2.30	11.58	22.13	21.32	12.85	8.42	1.47	1.95	2.52	2.46	1.09	1.09
850.00	1.00	1.61	8.36	16.23	16.16	11.35	7.82	1.12	1.37	1.70	1.65	0.86	0.86
900.00	0.82	1.19	6.06	11.96	12.65	10.53	7.52	0.91	1.03	1.21	1.18	0.75	0.75
950.00	0.73	0.94	4.43	8.85	10.35	10.09	7.37	0.81	0.84	0.93	0.91	0.70	0.70
1000.00	0.69	0.80	3.25	6.58	8.89	9.86	7.29	0.76	0.75	0.79	0.78	0.68	0.68
1050.00	0.67	0.73	2.41	4.92	8.01	9.74	7.26	0.73	0.70	0.72	0.71	0.67	0.67
1100.00	0.67	0.69	1.81	3.70	7.50	9.67	7.24	0.72	0.68	0.69	0.68	0.66	0.66
1150.00	0.66	0.68	1.39	2.81	7.22	9.64	7.23	0.71	0.67	0.67	0.67	0.66	0.66
1200.00	0.66	0.67	1.09	2.15	7.06	9.62	7.22	0.71	0.66	0.67	0.66	0.66	0.66
1250.00	0.66	0.66	0.90	1.67	6.97	9.61	7.22	0.71	0.66	0.66	0.66	0.66	0.66

ELECTRON CONTENT	=	1.29E 12	3.33E 12	9.45E 12	1.55E 13	1.47E 13	8.09E 12	3.82E 12	1.38E 12	1.46E 12	2.09E 12	2.31E 12	1.36E 12
PEAK ELECTRON DENSITY	=	7.18E 04	1.80E 05	4.37E 05	6.72E 05	6.36E 05	3.52E 05	1.65E 05	7.21E 04	7.93E 04	1.19E 05	1.34E 05	7.99E 04
HEIGHT OF PEAK	=	330.36	267.93	264.05	265.72	265.60	264.05	298.74	306.87	355.45	359.21	351.70	313.28
ESPROB PERCENT	=	17.66	23.99	29.05	31.47	30.61	26.70	20.79	14.45	9.40	6.97	7.83	11.74
AVNES/1000. CM-3	=	25.65	33.63	33.21	32.02	30.21	28.00	25.65	23.40	21.46	19.98	19.06	18.75
SIGMA ES	=	0.55	0.51	0.50	0.51	0.55	0.60	0.65	0.69	0.70	0.69	0.65	0.60

PENN STATE WK. 1 IONOSPHERIC MODELS FOR VEPNAL EQUINOX.

EAST LONGITUDE = 0.0 LATITUDE = -60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	2.02	2.02	2.02	2.60	43.92	63.27	73.80	63.28	43.93	2.60	2.02	2.02	
130.00	1.74	1.75	1.75	8.13	54.28	109.74	130.06	108.14	53.07	7.89	1.74	1.74	
140.00	2.16	2.18	2.20	10.79	85.43	154.93	175.47	151.15	80.13	10.53	2.13	2.14	
150.00	2.52	2.54	2.56	11.25	115.22	187.83	207.76	182.55	107.86	11.26	2.48	2.50	
160.00	2.67	2.67	2.68	10.93	139.33	216.61	236.38	209.18	132.34	11.22	2.65	2.66	
170.00	2.66	2.64	2.63	10.53	161.52	248.27	267.77	236.78	155.93	10.96	2.67	2.67	
180.00	2.55	2.52	2.50	10.43	186.30	287.97	306.33	269.42	182.05	10.77	2.61	2.59	
190.00	2.40	2.35	2.32	11.10	217.84	339.93	355.57	310.34	214.16	10.84	2.49	2.45	
200.00	2.22	2.17	2.13	13.14	260.08	407.36	418.11	362.23	255.68	11.41	2.35	2.29	
210.00	2.04	1.98	1.94	16.81	437.42	647.49	648.03	580.06	500.69	228.16	5.07	2.12	
220.00	1.86	1.80	1.76	134.66	646.36	913.24	905.38	830.35	786.14	519.81	17.16	1.95	
230.00	1.70	1.63	1.59	187.23	731.79	1019.79	1008.21	927.73	881.19	602.65	44.40	1.79	
240.00	1.54	1.48	1.44	230.22	809.63	1117.45	1104.75	1021.42	972.99	689.28	92.94	1.64	
250.00	1.40	1.34	1.57	277.83	875.82	1202.08	1191.29	1107.91	1057.99	776.10	164.65	3.14	
260.00	1.28	1.21	6.97	328.06	927.79	1270.88	1265.01	1184.31	1133.20	859.29	255.63	11.11	
270.00	1.89	4.28	21.31	877.52	964.51	1322.52	1324.22	1248.55	1196.51	935.29	357.63	29.31	
280.00	7.57	14.40	49.01	422.69	986.21	1356.90	1368.22	1299.50	1246.72	1001.26	460.79	61.60	
290.00	21.73	35.75	90.85	460.73	994.11	1374.91	1397.24	1336.83	1283.47	1055.32	556.29	108.45	
300.00	48.22	70.47	142.96	489.85	989.98	1378.15	1412.15	1360.88	1307.08	1096.52	637.86	166.31	
320.00	137.28	168.39	250.94	519.65	953.81	1348.27	1405.32	1372.99	1318.73	1140.62	748.42	290.04	
340.00	242.50	264.87	328.18	516.39	893.28	1283.64	1360.66	1346.04	1291.87	1139.79	791.60	387.74	
360.00	322.62	326.26	361.76	490.44	820.88	1198.78	1291.08	1291.44	1237.94	1104.99	784.59	440.77	
380.00	362.52	348.26	361.08	451.98	745.12	1104.67	1207.34	1219.52	1167.21	1047.59	746.53	453.82	
400.00	368.35	341.84	340.16	408.55	671.16	1008.77	1117.43	1138.40	1087.75	977.25	692.34	439.98	
420.00	352.54	319.42	309.87	364.88	601.79	915.70	1026.84	1054.00	1005.34	901.21	631.91	411.12	
440.00	325.55	289.99	276.84	323.56	538.27	828.08	939.02	970.28	923.87	824.43	571.09	375.64	
460.00	294.32	258.91	244.62	285.79	480.94	747.15	855.99	889.74	845.71	750.04	513.04	338.63	
480.00	262.81	228.96	214.81	251.95	429.64	673.33	778.78	813.81	772.24	679.88	459.29	302.84	
500.00	233.01	201.41	188.02	221.99	383.97	606.52	707.76	743.20	704.08	614.84	410.39	269.63	
550.00	170.34	144.92	134.20	162.12	290.99	467.50	556.63	590.80	557.53	476.08	309.09	200.27	
600.00	124.40	104.34	96.06	119.23	222.02	361.82	438.74	470.08	442.04	368.69	233.60	149.13	
650.00	91.72	75.78	69.36	88.48	170.60	281.58	347.37	375.46	351.95	286.95	178.02	112.32	
700.00	68.78	55.86	50.77	66.35	132.02	220.47	276.54	301.44	281.81	224.84	137.40	86.21	
750.00	52.93	42.11	37.95	50.40	102.93	173.75	221.48	243.45	227.15	177.98	107.97	68.00	
800.00	42.22	32.80	29.25	38.95	80.91	137.93	178.58	197.94	184.50	142.70	86.93	55.60	
850.00	35.21	26.66	23.50	30.83	64.25	110.42	145.11	162.20	151.24	116.30	72.19	47.40	
900.00	30.79	22.78	19.84	25.20	51.71	89.34	119.02	134.16	125.38	96.76	62.13	42.19	
950.00	28.10	20.41	17.60	21.44	42.36	73.26	98.76	112.24	105.39	82.51	55.45	34.95	
1000.00	26.52	19.02	16.28	19.02	35.53	61.13	83.14	95.23	90.10	72.31	51.14	37.01	
1050.00	25.61	18.22	15.53	17.53	30.66	52.11	71.24	82.17	78.57	65.17	48.43	35.86	
1100.00	25.09	17.77	15.10	16.64	27.30	45.54	62.31	72.29	70.02	60.27	46.74	35.18	
1150.00	24.79	17.52	14.87	16.12	25.05	40.87	55.73	64.94	63.81	56.97	45.70	34.79	
1200.00	24.62	17.38	14.73	15.83	23.60	37.63	50.99	59.58	59.38	54.77	45.07	34.56	
1250.00	24.52	17.30	14.66	15.66	22.68	35.43	47.63	55.73	56.28	53.33	44.68	34.42	

ELECTRON CONTENT	=	1.03E 13	9.20E 12	9.33E 12	1.48E 13	3.04E 13	4.56E 13	5.08E 13	5.15E 13	4.84E 13	3.95E 13	2.40E 13	1.35F 13
PEAK ELECTRON DENSITY	=	3.69E 05	3.49E 05	3.65E 05	5.22E 05	9.94E 05	1.38E 06	1.41E 06	1.37E 06	1.32E 06	1.15E 06	7.94E 05	4.54E 05
HEIGHT OF PEAK	=	393.93	384.07	369.03	327.43	291.31	297.31	306.76	315.38	315.22	329.31	346.21	378.00
ESPROB PERCENT	=	11.20	12.96	20.22	31.03	42.49	51.54	55.75	53.99	46.73	35.92	24.45	15.40
AVNES/1000. CM-3	=	31.63	26.27	24.54	71.65	143.42	139.33	127.81	110.85	91.20	71.65	54.46	40.98
SIGMA ES	=	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = 0.0 LATITUDE = -40.00

S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	2.02	2.02	2.02	2.02	56.12	104.87	127.59	104.89	56.15	2.02	2.02	2.02	
130.00	1.74	1.75	1.75	1.75	92.69	178.56	205.77	176.92	90.47	1.74	1.74	1.74	
140.00	2.16	2.18	2.20	2.21	136.46	226.02	252.06	222.86	131.47	2.12	2.13	2.14	
150.00	2.52	2.54	2.56	2.57	168.67	260.91	286.99	256.31	164.18	2.47	2.48	2.50	
160.00	2.67	2.67	2.68	2.68	195.30	296.00	322.77	288.59	193.23	2.64	2.65	2.66	
170.00	2.66	2.64	2.63	2.63	223.35	338.69	365.89	325.87	224.34	2.68	2.67	2.67	
180.00	2.55	2.52	2.50	2.48	258.28	394.25	420.86	372.33	262.26	5.14	2.61	2.59	
190.00	2.40	2.35	2.32	2.30	304.77	466.51	490.80	431.09	311.05	17.65	2.49	2.45	
200.00	2.22	2.17	2.13	2.11	366.75	557.44	577.30	504.19	374.07	47.38	2.35	2.29	
210.00	2.04	1.98	1.94	1.92	575.12	818.84	831.10	742.47	656.94	104.29	2.19	2.12	
220.00	1.86	1.80	1.76	3.83	821.78	1121.85	1126.75	1023.69	987.30	195.50	8.66	1.95	
230.00	1.70	1.63	1.59	14.59	939.77	1276.23	1276.43	1160.87	1119.26	321.91	26.62	1.79	
240.00	1.54	1.48	1.44	39.85	1050.45	1426.16	1424.76	1299.23	1251.30	477.33	63.91	1.64	
250.00	1.40	1.34	1.30	84.47	1147.65	1564.56	1565.58	1433.51	1378.23	650.27	126.25	2.31	
260.00	1.28	1.21	1.47	147.63	1226.95	1685.61	1693.50	1558.76	1495.18	827.16	213.81	8.93	
270.00	3.68	5.36	6.39	222.63	1286.02	1785.23	1804.25	1670.73	1598.23	995.33	320.57	25.24	
280.00	13.18	17.18	19.26	299.98	1324.45	1861.31	1895.02	1766.26	1684.60	1145.02	436.50	55.97	
290.00	34.67	41.16	43.93	370.86	1343.32	1913.45	1964.47	1843.48	1752.78	1270.08	550.75	102.79	
300.00	71.93	78.94	81.02	429.28	1344.72	1942.69	2012.57	1901.62	1802.34	1367.79	654.19	162.96	
320.00	186.68	181.68	176.40	500.36	1305.69	1940.97	2049.17	1962.46	1848.39	1482.98	807.61	297.76	
340.00	311.89	279.48	262.01	517.12	1228.78	1877.19	2019.58	1958.58	1833.96	1508.51	882.59	409.72	
360.00	401.19	339.73	311.48	498.09	1132.05	1773.20	1942.20	1905.16	1774.46	1471.43	893.35	474.20	
380.00	441.68	359.77	325.19	460.32	1028.32	1647.15	1834.33	1817.76	1685.04	1396.10	861.71	493.72	
400.00	443.25	351.51	314.82	415.25	925.64	1512.28	1709.88	1709.79	1578.35	1300.77	806.32	482.05	
420.00	421.00	327.58	291.60	369.39	828.52	1377.41	1579.01	1591.60	1463.86	1197.60	740.26	452.44	
440.00	386.95	296.97	263.26	325.99	739.14	1247.88	1448.60	1470.57	1348.19	1094.12	671.60	414.57	
460.00	348.82	264.96	234.19	286.44	658.26	1126.65	1322.98	1351.61	1235.61	994.65	604.89	374.41	
480.00	310.91	234.27	206.62	251.15	585.83	1015.07	1204.62	1237.78	1128.71	901.42	542.45	335.25	
500.00	275.35	206.12	181.50	220.03	521.36	913.48	1094.74	1130.80	1028.85	815.41	485.25	298.72	
550.00	201.05	148.64	130.51	158.29	390.51	700.93	858.76	897.33	812.59	632.55	365.93	222.14	
600.00	146.82	107.56	94.28	114.72	294.18	539.02	673.53	710.92	641.34	490.86	276.48	165.51	
650.00	108.32	78.87	69.08	84.24	223.11	416.37	529.87	564.50	507.64	382.24	210.34	124.72	
700.00	81.38	59.12	51.82	63.10	170.43	323.34	418.69	450.02	403.63	299.24	161.75	95.78	
750.00	62.81	45.78	40.24	48.65	131.23	252.58	332.53	360.49	322.66	235.89	126.31	75.58	
800.00	50.32	37.03	32.70	39.03	102.00	198.58	265.58	290.36	259.54	187.63	100.72	61.82	
850.00	42.18	31.51	27.99	32.84	80.25	157.30	213.46	235.32	210.26	150.98	82.56	52.73	
900.00	37.09	28.17	25.17	29.02	64.15	125.73	172.83	192.07	171.79	123.35	69.96	46.94	
950.00	34.01	26.22	23.54	26.74	52.40	101.66	141.19	158.12	141.84	102.72	61.45	43.35	
1000.00	32.20	25.11	22.63	25.42	43.99	83.42	116.61	131.54	118.63	87.55	55.87	41.20	
1050.00	31.17	24.49	22.12	24.68	38.13	69.73	97.65	110.85	100.81	76.59	52.29	39.92	
1100.00	30.57	24.14	21.83	24.25	34.17	59.63	83.16	94.88	87.28	68.84	50.05	39.17	
1150.00	30.24	23.95	21.68	24.02	31.58	52.31	72.22	82.70	77.18	63.46	48.66	38.73	
1200.00	30.05	23.85	21.59	23.88	29.93	47.13	64.11	73.54	69.75	59.80	47.80	38.47	
1250.00	29.94	23.79	21.54	23.81	28.90	43.54	58.20	66.78	64.40	57.34	47.27	38.32	

ELECTRON CONTENT = 1.25E 13 9.81E 12 8.81E 12 1.36E 13 4.08E 13 6.53E 13 7.43E 13 7.42E 13 6.79E 13 4.89E 13 2.70E 13 1.47E 13
 PEAK ELECTRON DENSITY = 4.46E 05 3.60E 05 3.25E 05 5.17E 05 1.35E 06 1.95E 06 2.05E 06 1.97E 06 1.85E 06 1.51E 06 8.96E 05 4.94E 05
 HEIGHT OF PEAK = 390.54 382.56 379.57 337.59 295.79 309.28 320.15 328.43 324.52 336.80 353.81 380.87
 ESPROB PERCENT = 21.13 22.65 29.09 38.73 48.99 57.12 60.93 59.41 52.97 43.33 33.07 24.94
 AVNES/1000. CM-3 = 37.18 30.00 27.71 92.74 195.91 189.97 173.26 148.76 120.55 92.74 68.57 49.89
 SIGMA ES = 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55 0.62 0.68 0.70

PENN STATE MK. 1 IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = 0.0 LATITUDE = -20.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	2.02	2.02	2.02	2.02	66.88	136.57	165.20	136.76	66.93	2.02	2.02	2.02
130.00	1.74	1.75	1.75	1.75	118.23	215.41	245.76	215.16	115.96	1.74	1.74	1.74
140.00	2.16	2.18	2.20	2.21	164.06	258.20	288.22	259.48	160.28	2.12	2.13	2.14
150.00	2.52	2.54	2.56	2.57	195.18	286.97	319.32	291.94	193.57	2.47	2.48	2.50
160.00	2.67	2.67	2.68	2.68	220.91	313.67	350.47	323.98	223.67	2.64	2.65	2.66
170.00	2.66	2.64	2.63	2.63	248.30	344.37	387.49	361.30	256.86	2.68	2.67	2.67
180.00	2.55	2.52	2.50	2.48	282.37	383.48	434.45	407.81	297.77	2.63	2.61	2.59
190.00	2.40	2.35	2.32	2.30	327.39	434.38	494.25	466.39	350.16	2.52	2.49	2.45
200.00	2.22	2.17	2.13	2.11	386.87	499.31	568.47	538.78	416.93	2.35	2.35	2.29
210.00	2.04	1.98	1.94	1.92	554.00	671.29	744.66	727.47	646.54	2.19	2.19	2.12
220.00	1.86	1.80	1.76	1.75	771.66	817.06	920.26	918.80	941.24	1.81	1.81	1.95
230.00	1.70	1.63	1.59	1.58	909.31	962.34	1076.43	1072.14	1093.19	1.49	1.49	1.79
240.00	1.54	1.48	1.44	1.44	1051.79	1120.55	1245.09	1236.26	1257.56	1.27	1.27	1.64
250.00	3.27	2.11	1.30	19.98	1191.21	1288.16	1425.47	1412.91	1431.41	455.25	58.56	6.53
260.00	14.37	9.67	1.17	50.35	1319.57	1458.65	1612.64	1597.67	1609.20	673.91	132.73	24.44
270.00	44.06	30.38	2.08	100.70	1430.32	1624.48	1799.82	1784.73	1784.39	918.28	251.11	67.45
280.00	102.54	71.51	8.77	168.75	1519.08	1778.40	1979.86	1967.36	1950.44	1169.84	411.72	148.84
290.00	193.21	135.10	25.84	246.95	1583.77	1914.31	2146.08	2139.10	2101.54	1411.00	602.62	265.73
300.00	309.58	215.93	58.01	325.71	1624.36	2027.84	2293.10	2294.41	2233.17	1627.84	806.05	416.44
320.00	563.28	387.89	164.96	454.35	1640.47	2179.77	2516.67	2540.08	2427.27	1956.95	1180.94	748.72
340.00	760.06	515.20	286.95	523.31	1588.93	2233.78	2635.62	2687.81	2525.40	2135.35	1440.85	1019.98
360.00	859.31	573.85	374.69	538.23	1494.25	2206.49	2661.05	2740.83	2537.34	2184.96	1565.86	1173.14
380.00	874.84	576.81	413.71	517.85	1376.93	2120.52	2610.78	2714.56	2481.37	2142.42	1581.50	1216.70
400.00	837.02	546.09	414.11	478.93	1251.57	1997.46	2506.38	2628.80	2377.44	2042.06	1524.88	1184.61
420.00	771.85	499.24	391.40	432.75	1127.44	1854.64	2502.84	2502.84	2243.35	1910.21	1427.69	1109.59
440.00	696.44	447.25	357.71	385.77	1009.81	1704.61	2209.81	2352.87	2093.20	1764.86	1312.11	1015.07
460.00	620.45	396.05	320.61	341.24	901.29	1555.68	2044.91	2191.30	1937.26	1617.34	1191.90	915.39
480.00	548.72	348.45	284.18	300.58	802.86	1412.97	1880.69	2027.00	1782.54	1474.34	1074.89	818.44
500.00	483.32	305.53	250.34	264.22	714.52	1279.29	1722.19	1865.91	1633.51	1339.46	965.11	728.09
550.00	349.68	219.03	180.56	191.17	533.87	990.98	1367.09	1497.91	1299.92	1046.20	730.76	538.36
600.00	253.22	157.63	130.44	139.16	400.41	765.83	1078.52	1192.89	1028.59	814.84	551.82	397.24
650.00	184.67	114.70	95.37	102.59	302.09	593.17	850.79	948.86	814.02	635.65	417.87	294.34
700.00	136.22	84.98	71.17	77.16	229.48	461.36	672.93	756.24	646.04	497.60	318.15	219.72
750.00	102.21	64.67	54.78	59.76	175.67	360.66	534.33	604.81	514.83	391.34	244.03	165.77
800.00	78.61	51.12	43.99	48.14	135.73	283.53	426.21	485.75	412.26	309.52	189.06	126.97
850.00	62.58	42.38	37.13	40.66	106.11	224.33	341.67	391.96	331.93	246.53	148.45	99.34
900.00	52.00	36.97	32.96	36.02	84.26	178.82	275.43	317.95	268.93	198.10	118.70	79.98
950.00	45.28	33.74	30.52	33.24	68.31	143.84	223.45	259.45	219.48	160.99	97.20	66.74
1000.00	41.16	31.89	29.12	31.63	56.86	117.04	182.66	213.18	180.72	132.74	81.96	57.95
1050.00	38.71	30.84	28.35	30.72	48.85	96.62	150.70	176.63	150.43	111.44	71.40	52.31
1100.00	37.29	30.25	27.91	30.20	43.39	81.23	125.76	147.84	126.91	95.60	64.29	48.78
1150.00	36.48	29.93	27.67	29.90	39.78	69.78	106.41	125.27	108.79	84.02	59.61	46.63
1200.00	36.01	29.75	27.54	29.74	37.45	61.41	91.56	107.72	95.00	75.71	56.59	45.33
1250.00	35.74	29.65	27.46	29.64	35.98	55.41	80.29	94.23	84.66	69.85	54.67	44.55

ELECTRON CONTENT	= 2.31E 13	1.53E 13	1.13E 13	1.46E 13	5.12E 13	7.90E 13	1.01E 14	1.07E 14	9.64E 13	7.13E 13	4.69E 13	3.36E 13
PEAK ELECTRON DENSITY	= 8.77E 05	5.81E 05	4.18E 05	5.39E 05	1.64E 06	2.23E 06	2.66E 06	2.74E 06	2.54E 06	2.19E 06	1.59E 06	1.22E 06
HEIGHT OF PEAK	= 374.33	370.88	389.77	356.72	313.89	342.43	355.90	362.60	352.90	359.40	373.19	379.89
ESPROB PERCENT	= 35.39	36.11	40.69	47.90	55.81	62.31	65.64	64.92	60.34	53.13	45.22	38.72
AVNES/1000. CM-3	= 36.79	28.17	25.47	107.71	246.78	238.65	215.83	182.57	144.61	107.71	76.23	52.48
SIGMA ES	= 0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70

MONTH = 3

ELECTRON CONTENT	=	7.13E 13	4.47E 13	1.68E 13	1.76E 13	6.95E 13	1.11E 14	1.38E 14	1.48E 14	1.43E 14	1.12E 14	9.49E 13	8.52E 13
PEAK ELECTRON DENSITY	=	2.88E 06	1.85E 06	6.65E 05	6.66E 05	2.15E 06	2.89E 06	6.31E 06	3.45E 06	3.50E 06	3.27E 06	3.14E 06	3.17E 06
HEIGHT OF PEAK	=	345.45	339.72	364.50	365.41	351.14	414.37	445.44	454.82	446.10	443.04	446.31	380.54
ESPROB PERCENT	=	28.35	26.88	29.81	36.35	44.74	52.75	58.21	59.68	56.76	50.22	41.82	33.82
AVNES/1000. CM-3	=	28.05	20.31	17.94	95.82	235.38	227.12	203.96	170.38	132.36	95.82	65.17	42.57
SIGMA ES	=	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = 0.0 LATITUDE = 40.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00 MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	2.02	2.02	2.02	2.02	52.81	98.50	120.87	98.53	52.84	2.02	2.02	2.02				
130.00	1.74	1.75	1.75	1.75	83.12	169.88	197.91	168.33	81.06	1.74	1.74	1.74				
140.00	2.16	2.18	2.20	2.21	125.18	217.16	244.68	214.30	120.02	2.12	2.13	2.14				
150.00	2.52	2.54	2.56	2.57	157.35	251.36	279.99	247.63	152.33	2.47	2.48	2.50				
160.00	2.67	2.67	2.68	2.68	183.75	284.93	316.13	279.42	181.04	2.64	2.65	2.66				
170.00	2.66	2.64	2.63	2.63	211.07	325.19	359.73	315.88	211.47	2.68	2.67	2.67				
180.00	2.55	2.52	2.50	2.48	244.77	377.32	415.38	361.21	248.38	3.69	2.61	2.59				
190.00	2.40	2.35	2.32	2.30	289.60	445.22	486.28	418.60	295.97	13.64	2.49	2.45				
200.00	2.22	2.17	2.13	2.11	349.63	531.08	574.05	490.19	357.79	38.90	2.35	2.29				
210.00	2.04	1.98	1.94	1.92	559.52	779.55	830.11	723.53	647.99	89.93	2.19	2.12				
220.00	1.86	1.80	1.76	1.75	809.78	1073.23	1132.04	1002.51	990.58	175.49	9.36	1.95				
230.00	1.70	1.63	1.59	6.33	928.95	1228.45	1290.37	1143.27	1128.57	298.60	29.35	1.79				
240.00	1.54	1.48	1.44	21.08	1041.84	1382.33	1450.52	1287.97	1268.91	454.80	71.63	1.64				
250.00	1.40	1.34	1.30	52.08	1142.03	1527.50	1606.04	1431.42	1406.21	633.33	143.34	5.56				
260.00	2.52	3.42	1.17	102.41	1224.82	1657.56	1568.20	1535.14	820.20	245.26	19.43					
270.00	10.66	13.72	5.53	169.17	1287.55	1767.68	1879.35	1693.45	1651.12	1001.60	370.76	50.80				
280.00	31.82	38.90	18.05	244.54	1329.51	1854.92	1988.15	1803.28	1750.67	1166.24	508.18	105.93				
290.00	72.66	84.80	43.75	319.19	1351.58	1918.15	2074.90	1895.03	1831.62	1306.51	644.56	185.49				
300.00	135.08	151.26	84.54	385.34	1355.72	1957.82	2138.82	1967.25	1893.02	1418.52	768.85	283.17				
320.00	301.49	315.46	196.10	475.88	1320.64	1973.62	2200.91	2052.84	1958.53	1556.90	954.92	490.71				
340.00	459.99	457.74	302.38	509.26	1245.75	1922.01	2187.47	2067.28	1956.91	1596.90	1047.64	653.42				
360.00	560.11	537.39	367.55	501.00	1149.58	1825.12	2117.52	2025.26	1903.80	1566.50	1063.05	740.95				
380.00	596.45	557.39	388.85	469.05	1045.43	1702.11	2010.03	1943.10	1815.47	1492.10	1027.00	761.70				
400.00	586.54	537.74	379.40	426.54	941.75	1567.39	1880.84	1835.52	1705.92	1393.96	961.92	737.57				
420.00	550.11	497.22	353.06	381.36	843.35	1430.77	1741.90	1714.24	1585.94	1285.83	883.63	683.52				
440.00	501.63	448.51	319.62	337.66	752.58	1298.38	1601.47	1587.81	1463.17	1176.29	801.92	628.57				
460.00	449.89	398.83	284.77	297.34	670.33	1173.70	1464.90	1462.09	1342.68	1070.36	722.36	566.15				
480.00	399.61	351.77	251.45	261.10	596.60	1058.44	1335.36	1340.82	1227.60	970.70	647.76	505.85				
500.00	353.03	308.90	220.95	229.00	530.93	953.18	1214.54	1226.19	1119.64	878.52	579.37	449.87				
550.00	256.57	221.67	158.75	165.03	397.53	732.20	953.70	974.43	884.82	681.99	436.48	332.82				
600.00	186.42	159.28	114.34	119.75	299.37	563.38	748.09	772.35	698.20	529.34	329.13	246.10				
650.00	136.50	115.40	83.29	87.98	226.94	435.30	588.30	613.22	552.25	412.12	249.52	183.13				
700.00	101.28	84.74	61.84	65.90	173.26	338.08	464.52	488.62	438.62	322.38	190.75	137.76				
750.00	76.67	63.52	47.24	50.77	133.34	264.06	368.53	391.10	350.12	253.74	147.55	105.31				
800.00	59.75	49.07	37.55	40.66	103.58	207.54	293.91	314.63	281.07	201.28	116.00	82.37				
850.00	48.40	39.48	31.35	34.12	81.43	164.27	235.75	254.55	227.10	161.28	93.21	66.44				
900.00	41.03	33.34	27.54	30.06	65.05	131.13	190.35	207.28	184.90	130.92	77.04	55.68				
950.00	36.43	29.56	25.29	27.63	53.08	105.80	154.90	170.06	151.92	108.07	65.83	48.63				
1000.00	33.66	27.32	24.00	26.22	44.50	86.54	127.26	140.82	126.26	91.08	58.26	44.16				
1050.00	32.04	26.04	23.28	25.42	38.52	72.02	105.81	117.93	106.41	78.65	53.29	41.41				
1100.00	31.10	25.31	22.87	24.96	34.48	61.22	89.27	100.13	91.21	69.73	50.11	39.76				
1150.00	30.56	24.90	22.65	24.71	31.83	53.34	76.67	86.43	79.73	63.45	48.10	38.77				
1200.00	30.26	24.67	22.53	24.56	30.14	47.71	67.19	76.01	71.18	59.12	46.85	38.18				
1250.00	30.08	24.54	22.46	24.48	29.09	43.77	60.19	68.21	64.94	56.17	46.07	37.83				

ELECTRON CONTENT = 1.61E 13 1.45E 13 1.04E 13 1.36E 13 4.12E 13 6.67E 13 8.02E 13 7.84E 13 7.23E 13 5.17E 13 3.16E 13 2.15E 13
 PEAK ELECTRON DENSITY = 5.97E 05 5.58E 05 3.89E 05 5.10E 05 1.36E 06 1.98E 06 2.20E 06 2.07E 06 1.97E 06 1.60E 06 1.07E 06 7.62E 05
 HEIGHT OF PEAK = 384.38 378.30 382.22 344.72 297.45 313.90 325.83 334.38 329.22 339.98 354.64 377.60
 ESPOB PERCENT = 19.45 20.82 26.98 36.26 46.20 54.11 57.89 56.52 50.37 41.08 31.15 23.23
 AVNES/1000. CM-3 = 30.21 24.09 22.14 78.26 168.68 163.46 148.76 127.25 102.54 78.26 57.26 41.12
 SIGMA ES = 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55 0.62 0.68 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = 0.0 LATITUDE = 60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	2.02	2.02	2.02	2.02	40.50	57.90	67.22	57.92	40.51	2.02	2.02	2.02	
130.00	1.74	1.75	1.75	1.75	44.70	96.53	117.26	95.27	44.02	1.74	1.74	1.74	
140.00	2.16	2.18	2.20	2.21	68.21	139.29	161.75	136.69	63.79	2.12	2.13	2.14	
150.00	2.52	2.54	2.56	2.57	94.88	169.87	193.58	168.00	88.43	2.47	2.48	2.50	
160.00	2.67	2.67	2.68	2.68	116.13	194.08	220.95	194.36	111.38	2.64	2.65	2.66	
170.00	2.66	2.64	2.63	2.63	133.10	217.88	250.10	221.23	133.29	2.68	2.67	2.67	
180.00	2.55	2.52	2.50	2.48	148.70	245.50	285.37	252.73	156.78	9.26	2.61	2.59	
190.00	2.40	2.35	2.32	2.30	165.56	280.31	330.22	292.22	184.98	25.69	2.49	2.45	
200.00	2.22	2.17	2.13	2.11	186.02	325.26	387.38	342.50	221.18	57.96	2.35	2.29	
210.00	2.04	1.98	1.94	2.15	269.22	493.21	605.55	564.80	458.75	110.68	6.94	2.12	
220.00	1.86	1.80	1.76	8.11	376.15	682.70	845.93	815.75	734.81	184.76	20.27	1.95	
230.00	1.70	1.63	1.59	21.95	424.59	757.64	935.89	906.11	820.27	276.75	46.63	1.79	
240.00	1.54	1.48	1.44	46.11	468.61	825.17	1018.63	991.48	901.79	379.80	88.90	1.64	
250.00	1.40	1.34	3.76	79.87	506.00	882.57	1091.13	1068.75	976.25	485.66	146.18	5.98	
260.00	1.28	1.47	11.69	119.47	535.36	928.20	1151.32	1135.51	1041.16	586.56	213.90	17.46	
270.00	3.32	6.16	27.18	159.80	556.14	961.38	1198.07	1190.20	1094.87	676.46	285.44	39.64	
280.00	11.25	18.12	50.72	196.28	568.52	982.33	1231.17	1232.11	1136.51	751.55	354.17	74.05	
290.00	28.38	40.61	80.12	225.91	573.21	991.88	1251.11	1261.24	1165.97	810.13	414.89	118.85	
300.00	56.97	73.99	111.54	247.42	571.20	991.28	1258.93	1278.18	1183.72	852.18	464.42	169.51	
320.00	141.33	158.86	165.83	267.27	551.69	965.55	1243.73	1279.79	1188.02	891.94	526.35	267.02	
340.00	229.80	234.50	196.62	263.84	518.72	916.90	1197.52	1247.17	1159.12	885.91	544.46	335.16	
360.00	290.77	278.13	204.51	247.10	479.20	855.35	1131.62	1191.08	1107.34	850.20	532.08	366.36	
380.00	316.95	290.25	197.15	224.43	437.84	788.31	1055.10	1120.83	1041.73	797.75	501.70	368.15	
400.00	316.13	281.01	181.88	200.25	397.44	720.69	974.55	1043.58	969.27	737.61	462.62	351.52	
420.00	299.09	260.37	163.56	176.86	359.52	655.48	894.37	964.38	894.87	675.55	420.74	325.32	
440.00	274.20	235.13	144.96	155.31	324.72	594.33	817.28	886.60	821.80	614.96	379.44	295.46	
460.00	246.74	209.19	127.41	135.97	293.24	537.97	744.80	812.28	752.01	557.68	340.51	265.33	
480.00	219.63	184.53	111.48	118.87	264.95	486.60	677.65	742.54	686.60	504.61	304.74	236.73	
500.00	194.29	162.01	97.31	103.86	239.64	440.10	616.06	677.91	626.07	456.04	272.39	210.47	
550.00	141.43	116.05	69.06	74.20	187.51	343.12	485.32	538.93	496.21	353.71	205.84	156.15	
600.00	102.81	83.04	49.09	53.26	147.98	268.92	383.47	429.15	394.05	275.23	156.73	116.40	
650.00	75.27	59.67	35.06	38.51	117.70	212.07	304.49	343.21	314.43	215.65	121.02	87.95	
700.00	55.79	43.16	25.18	28.12	94.24	168.30	243.17	276.01	252.45	170.68	95.41	67.91	
750.00	42.16	31.49	18.21	20.83	75.90	134.41	195.43	223.38	204.19	136.97	77.36	54.05	
800.00	32.74	23.26	13.28	15.75	61.47	108.07	158.15	182.09	166.59	111.94	64.93	44.73	
850.00	26.40	17.48	9.81	12.26	50.05	97.56	129.01	149.70	137.35	93.59	56.62	38.66	
900.00	22.26	13.47	7.37	9.93	41.01	71.59	106.28	124.34	114.71	80.40	51.23	34.84	
950.00	19.66	10.75	5.68	8.42	33.84	59.23	88.61	104.59	97.34	71.11	47.83	32.52	
1000.00	18.08	8.96	4.54	7.49	28.20	49.73	75.00	89.34	84.19	64.71	45.73	31.13	
1050.00	17.15	7.83	3.78	6.93	23.79	42.55	64.65	77.72	74.39	60.40	44.44	30.32	
1100.00	16.61	7.13	3.30	6.60	20.41	37.22	56.91	69.00	67.23	57.54	43.66	29.84	
1150.00	16.30	6.72	3.01	6.41	17.88	33.37	51.25	62.59	62.11	55.67	43.19	29.57	
1200.00	16.13	6.48	2.84	6.30	16.05	30.66	47.18	57.96	58.51	54.45	42.91	29.40	
1250.00	16.02	6.35	2.74	6.24	14.77	28.79	44.32	54.68	56.02	53.66	42.73	29.31	

ELECTRON CONTENT	=	8.64E 12	7.26E 12	4.97E 12	6.72E 12	1.89E 13	3.37E 13	4.51E 13	4.78E 13	4.36E 13	2.97E 13	1.71E 13	1.10E 13
PEAK ELECTRON DENSITY	=	3.19E 05	2.90E 05	2.05E 05	2.68E 05	5.73E 05	9.93E 05	1.26E 06	1.28E 06	1.19E 06	8.94E 05	5.44E 05	3.70E 05
HEIGHT OF PEAK	=	388.79	379.60	358.55	325.93	291.75	294.30	302.04	310.57	312.02	326.47	340.27	371.05
ESPROB PERCENT	=	6.92	8.26	14.18	23.09	32.59	40.14	43.73	42.38	36.46	27.55	18.05	10.50
AVNES/1000. CM-3	=	24.35	21.36	20.38	45.09	79.50	77.59	72.18	64.15	54.69	45.09	36.42	29.39
SIGMA ES	=	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = -60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	2.60	2.02	2.02	2.02	2.02	2.02	2.02	2.60	43.91	63.26	73.79	63.27
130.00	7.89	1.74	1.74	1.74	1.75	1.75	8.13	54.26	109.59	129.95	108.06	53.07
140.00	10.53	2.13	2.14	2.16	2.18	2.20	10.79	85.23	154.21	175.00	150.78	80.17
150.00	11.26	2.48	2.50	2.52	2.54	2.56	11.25	114.46	185.83	206.56	181.57	108.01
160.00	11.21	2.65	2.66	2.67	2.67	2.68	10.93	137.36	212.32	233.95	207.16	132.71
170.00	10.96	2.67	2.67	2.66	2.64	2.63	10.52	157.37	240.24	263.42	233.12	156.68
180.00	10.76	2.61	2.59	2.55	2.52	2.50	10.42	178.50	274.23	299.15	263.34	183.41
190.00	10.81	2.49	2.45	2.40	2.35	2.32	11.07	204.28	318.10	344.50	300.87	216.47
200.00	11.37	2.35	2.29	2.22	2.17	2.13	13.04	238.01	374.93	402.08	348.27	259.35
210.00	218.55	4.76	2.12	2.04	1.98	1.94	16.54	377.71	578.72	614.20	547.06	512.78
220.00	497.39	16.26	1.95	1.86	1.80	1.76	98.29	546.36	808.30	854.05	777.93	807.70
230.00	576.75	42.35	1.79	1.70	1.63	1.59	138.43	617.80	902.65	951.47	869.44	905.75
240.00	659.82	89.15	1.64	1.54	1.48	1.44	170.03	682.80	989.25	1043.08	957.62	1000.58
250.00	743.18	158.62	3.92	1.40	1.34	1.30	204.78	738.02	1064.40	1125.33	1039.15	1088.50
260.00	823.13	247.12	13.95	1.28	1.21	3.88	241.36	781.33	1125.64	1195.58	1111.31	1166.41
270.00	896.26	346.69	37.04	2.15	3.13	12.08	277.34	811.91	1171.74	1252.15	1172.13	1232.11
280.00	959.83	447.68	78.22	8.64	10.54	28.19	310.20	829.99	1202.60	1294.37	1220.51	1284.33
290.00	1012.00	541.41	138.21	24.81	26.24	52.83	337.89	836.59	1219.01	1322.41	1256.11	1322.65
300.00	1051.85	621.68	212.58	55.09	51.81	83.82	359.14	833.20	1222.34	1337.10	1279.23	1347.40
320.00	1094.77	730.91	372.28	156.95	124.06	148.80	381.12	803.26	1196.80	1331.67	1291.61	1360.11
340.00	1094.49	774.09	498.95	277.39	195.38	195.90	379.25	753.17	1140.40	1290.23	1267.13	1332.89
360.00	1061.48	767.88	568.09	369.14	240.85	216.81	361.01	693.27	1066.01	1225.02	1216.51	1277.56
380.00	1006.64	731.04	585.48	414.87	257.21	216.94	333.74	630.61	983.32	1146.23	1149.43	1204.74
400.00	939.29	678.24	567.88	421.58	252.57	204.73	302.86	569.44	898.94	1061.47	1073.58	1122.79
420.00	866.39	619.20	530.71	403.48	236.10	186.74	271.77	512.05	816.99	975.95	994.53	1037.71
440.00	792.73	559.70	484.88	372.56	214.45	167.02	242.30	459.47	739.77	892.97	916.04	953.55
460.00	721.33	502.88	436.99	336.78	191.56	147.74	215.33	411.96	668.40	814.47	840.48	872.77
480.00	653.96	450.24	390.65	300.66	169.51	129.90	191.11	369.39	603.25	741.42	769.20	796.82
500.00	591.50	402.36	347.60	266.51	149.23	113.87	169.61	331.43	544.24	674.20	702.88	726.34
550.00	458.20	303.13	257.53	194.62	107.71	81.74	126.35	253.84	421.27	531.06	559.63	574.81
600.00	355.04	229.18	190.87	141.86	78.02	59.13	94.95	195.86	327.53	419.29	446.05	455.40
650.00	276.43	174.76	142.60	104.22	57.28	43.52	72.07	152.26	256.13	332.56	356.93	362.28
700.00	216.88	135.02	108.00	77.69	43.02	32.92	55.30	119.22	201.56	265.25	287.13	289.81
750.00	171.91	106.25	83.46	59.21	33.41	25.91	42.97	94.03	159.68	212.86	232.38	233.35
800.00	138.09	85.72	66.33	46.57	27.12	21.42	33.95	74.76	127.44	171.99	189.37	189.32
850.00	112.83	71.37	54.65	38.17	23.17	18.68	27.44	60.01	102.60	140.06	155.55	154.98
900.00	94.17	61.60	46.94	32.77	20.78	17.07	22.86	48.79	83.50	115.16	128.99	128.28
950.00	80.61	55.13	42.01	29.44	19.39	16.15	19.76	40.33	68.91	95.80	108.22	107.64
1000.00	70.94	50.97	38.96	27.45	18.61	15.64	17.75	34.08	57.89	80.88	92.11	91.84
1050.00	64.20	48.35	37.12	26.28	18.17	15.36	16.51	29.58	49.69	69.52	79.75	79.91
1100.00	59.59	46.73	36.02	25.62	17.92	15.20	15.77	26.44	43.73	60.99	70.40	71.05
1150.00	56.49	45.73	35.37	25.24	17.79	15.12	15.33	24.34	39.50	54.73	63.47	64.60
1200.00	54.44	45.12	34.99	25.02	17.71	15.07	15.08	22.96	36.58	50.22	58.41	59.99
1250.00	53.09	44.75	34.77	24.89	17.67	15.05	14.94	22.10	34.60	47.03	54.80	56.76

ELECTRON CONTENT	=	3.80E 13	2.35E 13	1.68E 13	1.16E 13	7.07E 12	5.96E 12	1.14E 13	2.63E 13	4.11E 13	4.84E 13	4.87E 13	4.98E 13
PEAK ELECTRON DENSITY	=	1.10E 06	7.77E 05	5.86E 05	4.23E 05	2.58E 05	2.19E 05	3.83E 05	8.37E 05	1.22E 06	1.34E 06	1.29E 06	1.36E 06
HEIGHT OF PEAK	=	329.57	346.54	378.27	393.96	384.16	369.65	327.88	291.35	297.71	307.24	315.86	315.52
ESPROB PERCENT	=	36.32	24.90	15.90	11.71	13.47	20.70	31.47	42.88	51.89	56.07	54.31	47.08
AVNES/1000. CM-3	=	73.04	55.44	41.64	32.09	26.61	24.84	73.04	146.62	142.43	130.61	113.22	93.07
SIGMA ES	=	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = -40.00

S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	2.02	2.02	2.02	2.02	2.02	2.02	56.12	104.79	127.49	104.85	56.14		
130.00	1.74	1.74	1.74	1.74	1.75	1.75	92.69	177.73	204.89	174.45	90.36		
140.00	2.12	2.13	2.14	2.16	2.18	2.20	2.21	136.48	223.01	249.23	221.23	130.88	
150.00	2.47	2.48	2.50	2.52	2.54	2.56	2.57	168.72	253.72	280.66	252.58	162.51	
160.00	2.64	2.65	2.66	2.67	2.67	2.68	2.68	195.41	281.86	310.87	281.51	189.64	
170.00	2.68	2.67	2.67	2.66	2.64	2.63	2.63	223.57	313.88	345.82	313.82	217.63	
180.00	2.63	2.61	2.59	2.55	2.52	2.50	2.48	258.67	354.28	389.57	353.32	250.80	
190.00	2.52	2.49	2.45	2.40	2.35	2.32	2.30	305.42	406.64	445.22	402.99	292.77	
200.00	5.91	2.35	2.29	2.22	2.17	2.13	2.11	367.74	473.43	514.72	464.97	346.64	
210.00	19.77	2.19	2.12	2.04	1.98	1.94	1.92	561.97	681.78	709.07	652.26	558.33	
220.00	52.20	2.04	1.95	1.86	1.80	1.76	1.75	808.79	831.46	879.78	830.08	833.86	
230.00	113.72	4.15	1.79	1.70	1.63	1.59	1.58	953.45	979.76	1029.07	969.39	968.75	
240.00	212.03	15.84	1.64	1.54	1.48	1.44	8.00	1103.43	1141.11	1190.24	1118.11	1114.50	
250.00	348.43	45.31	5.50	3.42	2.67	1.30	27.38	1250.30	1312.30	1363.01	1278.26	1268.79	
260.00	516.81	103.09	20.56	14.95	12.21	1.17	69.24	1385.74	1486.69	1542.41	1445.90	1426.69	
270.00	705.36	195.62	56.72	45.61	38.20	2.63	138.86	1502.76	1656.57	1722.08	1615.63	1582.39	
280.00	899.79	321.50	123.43	105.76	89.64	10.66	233.22	1596.69	1814.48	1895.09	1781.54	1730.12	
290.00	1086.47	471.46	223.29	198.71	168.97	31.46	341.87	1665.29	1954.13	2055.07	1937.73	1864.68	
300.00	1254.57	631.59	349.84	317.71	269.59	70.70	451.48	1708.51	2071.02	2196.79	2079.13	2028.03	
320.00	1510.26	927.37	628.75	576.36	483.15	201.29	630.92	1726.25	2228.06	2411.91	2303.33	2155.51	
340.00	1649.45	1133.08	856.34	776.32	640.81	350.39	727.45	1672.48	2284.81	2528.64	2438.77	2243.79	
360.00	1688.83	1232.52	984.79	876.75	713.16	457.72	748.67	1573.00	2258.08	2554.48	2488.20	2255.42	
380.00	1656.72	1245.58	1021.26	892.00	716.46	505.51	720.51	1449.49	2170.94	2507.40	2465.48	2206.59	
400.00	1579.64	1201.52	994.31	853.09	678.04	506.04	666.40	1317.38	2045.52	2408.03	2388.53	2114.93	
420.00	1478.03	1125.30	931.36	786.48	619.68	478.26	602.10	1186.49	1899.63	2275.29	2274.86	1996.33	
440.00	1365.83	1034.46	852.07	709.52	554.99	437.04	536.62	1062.41	1746.17	2124.30	2139.21	1863.32	
460.00	1251.89	939.90	768.46	632.03	491.31	391.62	474.51	947.93	1593.73	1966.21	1992.87	1725.05	
480.00	1141.39	847.81	687.15	558.92	432.12	347.00	417.77	844.09	1447.58	1808.65	1843.93	1587.79	
500.00	1037.14	761.39	611.39	492.28	378.74	305.55	366.99	750.90	1310.63	1656.50	1697.82	1455.50	
550.00	810.47	576.93	452.35	356.11	271.08	219.98	264.81	560.38	1015.16	1315.42	1363.82	1159.26	
600.00	631.68	436.17	334.16	257.83	194.50	158.36	191.76	419.72	784.37	1038.11	1086.83	918.17	
650.00	493.31	330.95	248.10	187.97	140.75	115.04	140.06	316.19	607.38	819.19	865.11	727.42	
700.00	386.85	252.81	185.87	138.58	103.25	84.89	103.64	239.80	472.27	648.17	690.05	578.03	
750.00	305.07	194.98	141.09	103.88	77.31	64.18	78.20	183.25	369.06	514.88	552.39	461.30	
800.00	242.32	152.38	109.14	79.78	59.66	50.24	60.68	141.31	290.02	410.89	444.12	370.03	
850.00	194.26	121.25	86.64	63.38	47.94	41.14	48.90	110.22	229.35	329.57	358.84	298.55	
900.00	157.59	98.80	71.16	52.54	40.45	35.43	41.24	87.28	182.71	265.86	291.54	242.52	
950.00	129.81	82.93	60.79	45.63	35.85	31.99	36.44	70.52	146.86	215.89	238.38	198.60	
1000.00	108.99	71.97	54.08	41.39	33.13	29.98	33.54	58.48	119.37	176.68	196.38	164.24	
1050.00	93.60	64.60	49.87	38.86	31.56	28.84	31.83	50.02	98.42	145.99	163.25	137.47	
1100.00	82.44	59.78	47.28	37.39	30.67	28.21	30.85	44.25	82.61	122.05	137.22	116.78	
1150.00	74.50	56.68	45.73	36.55	30.18	27.85	30.29	40.42	70.82	103.53	116.90	100.95	
1200.00	68.95	54.72	44.80	36.06	29.90	27.65	29.97	37.94	62.20	89.33	101.18	88.99	
1250.00	65.14	53.50	44.25	35.79	29.75	27.54	29.79	36.37	56.01	78.60	89.16	80.11	

ELECTRON CONTENT = 5.55E 13 3.73E 13 2.86E 13 2.36E 13 1.86E 13 1.35E 13 1.97E 13 5.34E 13 8.05E 13 9.70E 13 9.76E 13 8.58E 13
PEAK ELECTRON DENSITY = 1.69E 06 1.25E 06 1.02E 06 8.95E 05 7.22E 05 5.10E 05 7.49E 05 1.73E 06 2.29E 06 2.56E 06 2.49E 06 2.26E 06
HEIGHT OF PEAK = 359.65 373.39 379.87 374.16 370.75 389.81 356.88 314.07 342.75 356.25 362.94 353.20
ESPROB PERCENT = 53.19 45.30 38.82 35.49 36.20 40.76 47.96 55.85 62.33 65.66 64.95 60.39
AVNES/1000. CM-3 = 107.75 76.23 52.47 36.75 28.14 25.43 107.75 247.04 238.90 216.04 182.72 144.71
SIGMA ES = 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55

PENV STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -90.00 LATITUDE = -20.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	2.02	2.02	2.02	2.02	2.02	2.02	2.02	66.86	136.26	164.53	136.29	66.85		
130.00	1.74	1.74	1.74	1.74	1.75	1.75	117.87	212.71	241.00	211.30	114.85			
140.00	2.12	2.13	2.14	2.16	2.18	2.20	2.21	162.34	249.58	274.41	247.72	155.49		
150.00	2.47	2.48	2.50	2.52	2.54	2.56	2.57	190.43	267.92	290.52	266.87	181.32		
160.00	2.64	2.65	2.66	2.67	2.67	2.68	2.68	210.75	278.53	299.48	278.92	199.00		
170.00	2.68	2.67	2.67	2.66	2.64	2.63	2.63	229.37	286.14	305.69	288.10	213.16		
180.00	2.63	2.61	2.59	2.55	2.52	2.50	2.48	250.06	293.77	311.94	296.89	226.38		
190.00	2.52	2.49	2.45	2.40	2.35	2.32	2.30	275.93	303.76	320.30	307.15	240.34		
200.00	2.40	2.35	2.29	2.22	2.17	2.13	2.11	309.89	318.04	332.40	320.39	256.43		
210.00	2.25	2.19	2.12	2.04	1.98	1.94	1.92	354.34	338.17	349.54	337.91	275.96		
220.00	2.11	2.04	1.95	1.86	1.76	1.75	1.75	410.94	365.37	372.76	360.77	300.16		
230.00	1.97	1.88	1.79	1.69	1.57	1.50	1.47	470.19	400.47	402.80	389.79	330.11		
240.00	1.83	1.74	1.64	1.54	1.44	1.36	1.33	531.12	443.93	440.11	425.55	366.66		
250.00	1.70	1.60	1.50	1.40	1.30	1.22	1.19	592.52	495.93	484.93	468.36	410.41		
260.00	1.58	1.47	1.37	1.27	1.17	1.09	1.06	653.54	556.52	537.33	518.38	461.65		
270.00	1.47	1.36	1.26	1.16	1.06	0.98	0.95	714.91	625.77	597.32	575.65	520.56		
280.00	1.37	1.25	1.15	1.05	0.95	0.87	0.84	776.28	686.25	657.80	636.24	581.23		
290.00	2.72	1.15	398.43	1400.31	1182.84	547.44	379.95	1375.45	877.01	740.45	712.27	661.79		
300.00	10.56	1.06	698.89	1779.73	1391.23	665.51	488.61	1509.84	1001.02	824.01	791.95	744.46		
320.00	79.14	5.98	1472.04	2356.43	1648.43	823.57	658.25	1716.10	1282.70	1139.47	1095.48	1084.67		
340.00	301.32	68.46	2212.08	2627.19	1711.70	876.39	742.39	1823.87	1592.14	1432.87	1374.05	1371.91		
360.00	725.59	318.86	2704.41	2647.28	1647.02	854.95	753.88	1839.59	1882.80	1763.19	1695.52	1703.38		
380.00	1280.66	831.79	2913.86	2513.30	1516.60	793.27	719.58	1784.96	2112.44	2091.94	2030.71	2047.08		
400.00	1830.20	1491.88	2905.49	2303.94	1361.60	715.14	662.15	1684.45	2258.32	2376.63	2338.61	2359.12		
420.00	2265.47	2099.31	2762.66	2069.08	1204.88	634.18	596.34	1558.89	2318.45	2587.36	2585.06	2604.02		
440.00	2542.54	2523.65	2551.43	1836.08	1057.54	557.19	530.36	1423.43	2304.73	2712.29	2751.44	2763.75		
460.00	2668.86	2738.57	2314.77	1618.23	924.11	487.07	468.31	1288.00	2234.91	2754.97	2834.92	2837.14		
480.00	2676.31	2780.23	2077.51	1420.84	805.67	424.66	411.87	1158.51	2127.02	2728.36	2843.98	2834.61		
500.00	2601.25	2702.69	1852.57	1245.08	701.71	369.82	361.51	1038.09	1996.40	2648.82	2792.87	2771.93		
550.00	2238.28	2271.75	1373.18	892.88	496.71	261.69	260.35	782.81	1639.52	2318.40	2500.75	2456.94		
600.00	1824.28	1789.99	1012.78	641.46	352.81	185.96	188.09	589.04	1308.32	1932.19	2118.43	2062.87		
650.00	1457.90	1381.82	748.24	462.84	251.96	133.10	136.87	444.59	1032.78	1574.28	1747.12	1688.36		
700.00	1158.30	1061.64	555.02	335.79	181.16	96.24	100.66	337.27	813.24	1270.89	1424.05	1367.11		
750.00	920.06	816.41	413.80	245.20	131.36	70.61	75.19	257.39	641.23	1023.38	1156.06	1103.39		
800.00	732.44	629.83	310.41	180.50	96.37	52.95	57.44	197.76	507.19	824.72	938.42	890.98		
850.00	585.04	487.99	234.64	134.31	71.90	40.98	45.30	153.15	402.81	666.26	763.22	721.20		
900.00	469.26	380.07	179.13	101.48	54.97	33.08	37.22	119.77	321.44	540.06	622.60	585.79		
950.00	378.24	297.90	138.62	78.35	43.50	28.07	32.02	94.85	257.92	439.50	509.77	477.80		
1000.00	306.68	235.35	109.30	62.34	35.95	25.01	28.81	76.38	208.28	359.29	419.18	391.61		
1050.00	250.44	187.84	88.36	51.54	31.17	23.22	26.89	62.84	169.50	295.23	346.38	322.76		
1100.00	206.35	151.94	73.72	44.49	28.26	22.19	25.76	53.08	139.27	244.05	287.84	267.78		
1150.00	171.91	125.04	63.75	40.04	26.54	21.62	25.11	46.22	115.80	203.19	240.80	223.93		
1200.00	145.21	105.14	57.15	37.33	25.55	21.29	24.74	41.50	97.71	170.64	203.06	189.06		
1250.00	124.68	90.67	52.91	35.71	24.98	21.11	24.53	38.34	83.92	144.81	172.88	161.46		

ELECTRON CONTENT = 9.31E 13 8.55E 13 7.93E 13 6.62E 13 4.12E 13 2.14E 13 1.96E 13 6.01E 13 9.07E 13 1.17E 14 1.24E 14 1.21E 14
 PEAK ELECTRON DENSITY = 2.69E 06 2.78E 06 2.93E 06 2.66E 06 1.71E 06 8.77E 05 7.56E 05 1.84E 06 2.32E 06 2.76E 06 2.85E 06 2.84E 06
 HEIGHT OF PEAK = 471.18 475.67 388.64 351.60 338.08 342.63 353.62 353.66 425.69 461.56 472.51 469.05
 ESPROB PERCENT = 48.88 43.58 38.29 34.43 33.03 34.48 38.38 43.68 48.97 52.83 54.23 52.78
 AVNES/1000. CM-3 = 97.19 67.03 44.61 30.06 22.22 19.80 97.19 233.10 225.09 202.62 169.99 132.94
 SIGMA ES = 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -90.00 LATITUDE = 0.0
 S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)								
120.00	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	70.37	146.24	176.12	146.21	70.35
130.00	1.74	1.74	1.74	1.74	1.75	1.75	1.75	1.75	1.75	1.75	1.75	1.75	124.94	223.51	252.19	221.59	121.64
140.00	2.12	2.13	2.14	2.16	2.18	2.20	2.21	2.21	2.21	2.21	2.21	2.21	169.88	259.77	284.08	256.37	162.21
150.00	2.47	2.48	2.50	2.52	2.54	2.56	2.57	2.57	2.57	2.57	2.57	2.57	198.34	278.05	298.76	273.69	187.10
160.00	2.64	2.65	2.66	2.67	2.67	2.68	2.68	2.68	2.68	2.68	2.68	2.68	219.75	289.12	306.24	283.58	203.55
170.00	2.68	2.67	2.67	2.66	2.64	2.63	2.63	2.63	2.63	2.63	2.63	2.63	240.38	297.81	310.94	290.21	216.16
180.00	2.63	2.61	2.59	2.55	2.52	2.50	2.48	2.48	2.48	2.48	2.48	2.48	264.25	307.29	315.69	296.02	227.35
190.00	2.52	2.49	2.45	2.40	2.35	2.32	2.30	2.30	2.30	2.30	2.30	2.30	294.77	320.04	322.53	302.80	238.70
200.00	2.40	2.35	2.29	2.22	2.17	2.13	2.11	2.11	2.11	2.11	2.11	2.11	335.03	338.07	333.07	311.99	251.46
210.00	2.25	2.19	2.12	2.04	1.98	1.94	1.92	1.92	1.92	1.92	1.92	1.92	387.44	362.99	348.54	324.79	266.82
220.00	2.11	2.04	1.95	1.86	1.82	1.78	1.75	1.75	1.75	1.75	1.75	1.75	453.38	395.95	369.95	342.20	285.91
230.00	1.97	1.88	1.79	1.69	1.64	1.60	1.58	1.58	1.58	1.58	1.58	1.58	586.00	437.68	398.01	365.02	309.74
240.00	1.83	1.74	1.64	1.54	1.49	1.45	1.43	1.43	1.43	1.43	1.43	1.43	732.46	488.51	433.20	393.85	339.19
250.00	1.70	1.60	1.50	1.40	1.35	1.31	1.29	1.29	1.29	1.29	1.29	1.29	876.24	548.51	475.73	429.08	374.89
260.00	1.58	1.47	1.37	1.27	1.22	1.18	1.16	1.16	1.16	1.16	1.16	1.16	1033.55	617.69	525.69	470.92	417.25
270.00	1.47	1.36	1.26	1.16	1.11	1.07	1.05	1.05	1.05	1.05	1.05	1.05	1199.98	696.14	583.10	519.46	466.51
280.00	1.37	1.25	1.15	1.05	1.00	0.96	0.94	0.94	0.94	0.94	0.94	0.94	1367.35	828.93	648.02	574.77	522.80
290.00	1.27	1.15	1.05	0.95	0.90	0.86	0.84	0.84	0.84	0.84	0.84	0.84	1526.74	980.68	720.58	636.93	586.22
300.00	5.27	1.06	0.96	0.86	0.81	0.77	0.75	0.75	0.75	0.75	0.75	0.75	1670.01	1118.55	801.03	706.09	656.94
320.00	49.13	2.55	1.08	0.98	0.93	0.89	0.87	0.87	0.87	0.87	0.87	0.87	1885.71	1431.84	1099.69	955.64	932.02
340.00	217.29	38.93	1788.80	2010.93	1347.28	572.60	595.61	1993.12	1772.32	1383.36	1205.96	1186.92					
360.00	579.99	218.81	2286.56	2060.09	1299.88	546.20	592.38	2001.61	2088.27	1706.68	1493.40	1480.08					
380.00	1098.95	645.52	2533.22	1975.57	1198.90	500.06	558.29	1935.73	2334.38	2033.79	1801.63	1795.22					
400.00	1649.44	1255.16	2570.48	1822.17	1077.45	447.20	509.75	1822.16	2487.45	2322.18	2093.80	2092.84					
420.00	2112.25	1862.65	2471.26	1642.67	954.04	394.65	456.88	1683.14	2546.70	2540.34	2336.18	2337.29					
440.00	2427.17	2319.16	2298.40	1461.21	837.72	345.72	405.11	1534.66	2526.06	2674.45	2507.99	2507.25					
460.00	2589.99	2575.88	2094.64	1289.84	732.24	301.68	357.04	1387.08	2445.28	2726.39	2603.39	2597.50					
480.00	2627.22	2655.79	1885.48	1133.70	638.53	262.75	313.65	1246.50	2324.05	2708.05	2628.00	2614.93					
500.00	2574.24	2608.52	1684.61	994.21	556.25	228.71	275.11	1116.09	2179.03	2635.38	2593.96	2572.94					
550.00	2240.20	2222.09	1251.98	713.86	393.95	161.92	198.07	840.37	1786.32	2315.98	2343.19	2304.76					
600.00	1834.85	1759.96	924.58	513.36	280.03	115.43	143.30	631.54	1423.97	1934.54	1995.00	1946.67					
650.00	1469.72	1361.63	683.69	370.84	200.23	83.24	104.66	476.07	1123.26	1578.21	1650.15	1598.73					
700.00	1169.10	1047.28	507.56	269.48	144.29	61.08	77.55	360.65	883.95	1275.03	1347.43	1297.24					
750.00	929.31	805.91	378.78	197.28	105.05	46.01	58.70	274.80	696.55	1027.21	1095.17	1048.45					
800.00	740.16	622.04	284.48	145.83	77.62	35.99	45.81	210.74	550.56	828.07	889.78	847.49					
850.00	591.41	482.15	215.38	109.26	58.61	29.54	37.22	162.81	436.88	669.11	724.19	686.58					
900.00	474.46	375.65	164.82	83.46	45.65	25.56	31.70	126.92	348.25	542.44	591.17	558.11					
950.00	382.46	294.50	127.98	65.51	37.06	23.21	28.29	100.08	279.01	441.47	484.37	455.58					
1000.00	310.05	232.70	101.39	53.32	31.56	21.87	26.25	80.12	224.86	360.88	398.59	373.71					
1050.00	253.09	185.72	82.49	45.29	28.18	21.12	25.07	65.41	182.49	296.48	329.63	308.31					
1100.00	208.36	150.18	69.36	40.18	26.17	20.70	24.39	54.75	149.37	245.01	274.18	256.07					
1150.00	173.37	123.51	60.48	37.04	25.01	20.48	24.01	47.18	123.57	203.88	229.63	214.41					
1200.00	146.16	103.76	54.64	35.16	24.35	20.35	23.79	41.93	103.59	171.08	193.90	181.29					
1250.00	125.20	89.37	50.91	34.06	23.98	20.28	23.66	38.38	88.24	145.02	165.35	155.09					

ELECTRON CONTENT = 9.13E 13 8.18E 13 7.00E 13 5.17E 13 3.26E 13 1.43E 13 1.57E 13 6.51E 13 9.92E 13 1.16E 14 1.16E 14 1.12E 14
 PEAK ELECTRON DENSITY = 2.63E 06 2.66E 06 2.58E 06 2.06E 06 1.35E 06 5.74E 05 5.99E 05 2.01E 06 2.55E 06 2.73E 06 2.63E 06 2.62E 06
 HEIGHT OF PEAK = 477.02 481.21 394.12 355.71 338.99 335.15 348.00 351.70 424.14 464.14 477.63 475.16
 ESPOB PERCENT = 44.96 36.86 28.66 22.55 20.18 22.18 28.01 36.11 44.31 50.42 52.79 50.79
 AVNES/1000. CM-3 = 99.02 69.70 47.65 33.13 25.20 22.72 99.02 229.08 221.46 200.09 168.95 133.47
 SIGMA ES = 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -90.00 LATITUDE = 20.00
 S 10.7 = 200.00 S 10.7 (IA.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	64.50	133.02	161.63	133.13	64.54			
130.00	1.74	1.74	1.74	1.74	1.75	1.75	1.75	1.75	113.25	211.85	242.28	210.95	110.78			
140.00	2.12	2.13	2.14	2.16	2.18	2.20	2.21	159.20	255.87	285.35	255.14	154.30				
150.00	2.47	2.48	2.50	2.52	2.54	2.56	2.57	191.32	286.55	317.22	287.14	186.83				
160.00	2.64	2.65	2.66	2.67	2.67	2.68	2.68	218.62	316.13	349.44	318.31	215.53				
170.00	2.68	2.67	2.67	2.66	2.64	2.63	2.63	248.46	351.00	387.88	354.33	246.42				
180.00	2.63	2.61	2.59	2.55	2.52	2.50	2.48	286.27	395.78	436.70	399.07	283.94				
190.00	2.52	2.49	2.45	2.40	2.35	2.32	2.30	336.69	453.96	498.81	455.41	331.71				
200.00	8.25	2.35	2.29	2.22	2.17	2.13	2.11	403.35	527.62	575.74	525.15	392.64				
210.00	26.51	2.19	2.12	2.04	1.98	1.94	1.92	596.72	752.89	789.12	729.74	608.82				
220.00	67.66	2.04	1.95	1.86	1.80	1.76	1.75	841.89	901.22	953.11	901.33	886.65				
230.00	143.40	7.21	1.79	1.70	1.63	1.59	1.58	989.35	1058.34	1111.45	1049.78	1029.35				
240.00	261.38	24.96	1.64	1.54	1.48	1.44	5.14	1140.32	1228.66	1283.13	1209.57	1183.47				
250.00	421.64	66.03	7.62	4.04	2.98	1.30	18.24	1286.24	1406.88	1466.15	1380.99	1346.15				
260.00	615.97	141.14	25.61	15.93	12.56	1.17	47.46	1418.83	1585.78	1654.74	1559.51	1512.13				
270.00	830.28	254.84	64.96	44.98	36.93	1.98	97.29	1531.55	1757.27	1841.90	1739.42	1675.28				
280.00	1048.37	402.51	132.37	98.25	82.61	8.47	166.19	1620.23	1913.96	2020.45	1914.15	1829.52				
290.00	1255.28	571.81	227.46	176.25	150.10	25.25	246.81	1683.18	2049.91	2183.94	2077.66	1969.49				
300.00	1439.53	746.78	342.24	271.90	232.82	57.18	329.27	1720.78	2161.15	2327.13	2224.66	2091.03				
320.00	1715.04	1057.02	581.15	469.63	401.57	164.50	466.59	1728.55	2303.45	2540.11	2454.99	2269.27				
340.00	1859.97	1261.38	764.17	614.18	520.67	288.12	542.52	1667.41	2344.26	2649.83	2590.59	2358.00				
360.00	1895.25	1351.31	859.80	681.40	571.69	377.76	561.21	1563.22	2303.04	2666.08	2635.68	2366.74				
380.00	1853.05	1352.19	879.58	685.84	569.76	418.11	541.84	1437.14	2203.96	2608.47	2605.66	2312.74				
400.00	1762.77	1295.92	849.09	651.68	536.64	419.11	502.18	1303.99	2069.32	2498.71	2519.72	2214.59				
420.00	1646.70	1208.53	791.07	598.44	489.07	396.47	454.34	1173.02	1916.57	2356.23	2396.31	2088.81				
440.00	1519.94	1107.78	721.27	538.61	437.30	362.53	405.33	1049.46	1758.13	2196.42	2250.79	1948.44				
460.00	1391.96	1004.55	649.10	479.13	386.77	325.02	358.70	935.80	1602.13	2030.44	2094.87	1802.94				
480.00	1268.27	904.88	579.64	423.39	340.03	288.13	316.03	832.93	1453.43	1865.90	1936.84	1658.78				
500.00	1151.85	811.83	515.29	372.79	298.00	253.84	277.82	740.73	1314.67	1707.58	1782.26	1520.03				
550.00	899.21	614.09	380.94	269.81	213.49	193.06	200.94	552.52	1016.61	1354.06	1429.97	1209.74				
600.00	700.21	463.61	281.49	195.79	153.59	132.19	146.10	413.72	784.62	1067.54	1138.53	957.51				
650.00	546.22	351.18	209.27	143.41	111.75	96.55	107.46	311.59	607.04	841.73	905.55	758.06				
700.00	427.67	267.62	157.21	106.65	82.79	71.94	80.48	236.24	471.61	665.49	721.72	601.89				
750.00	336.50	205.65	119.92	81.13	63.03	55.23	61.92	180.45	368.22	528.19	577.21	479.87				
800.00	266.38	159.83	93.49	63.74	49.86	44.18	49.42	139.06	289.08	421.10	463.58	384.43				
850.00	212.48	126.15	75.08	52.22	41.37	37.14	41.29	108.35	228.33	337.36	374.05	309.64				
900.00	171.13	101.64	62.58	44.86	36.12	32.84	36.18	85.66	181.61	271.73	303.36	250.94				
950.00	139.54	84.10	54.35	40.34	32.99	30.31	33.11	69.06	145.68	220.20	247.46	204.84				
1000.00	115.60	71.81	49.10	37.65	31.20	28.87	31.30	57.11	118.10	179.73	203.22	168.66				
1050.00	97.66	63.43	45.86	36.09	30.19	28.05	30.27	48.68	97.04	147.97	168.23	140.36				
1100.00	84.42	57.85	43.90	35.20	29.62	27.60	29.68	42.91	81.09	123.13	140.63	118.35				
1150.00	74.81	54.23	42.73	34.70	29.31	27.35	29.35	39.07	69.17	103.81	118.97	101.37				
1200.00	67.98	51.92	42.03	34.41	29.13	27.21	29.16	36.59	60.40	88.92	102.08	88.43				
1250.00	63.21	50.46	41.62	34.25	29.03	27.14	29.05	35.01	54.07	77.58	89.06	78.70				

ELECTRON CONTENT = 6.19E 13 4.03E 13 2.48E 13 1.85E 13 1.51E 13 1.14E 13 1.51E 13 5.35E 13 8.23E 13 1.01E 14 1.03E 14 9.00E 13
 PEAK ELECTRON DENSITY = 1.90E 06 1.36E 06 8.80E 05 6.90E 05 5.76E 05 4.23E 05 5.61E 05 1.74E 06 2.34E 06 2.67E 06 2.64E 06 2.37E 06
 HEIGHT OF PEAK = 357.75 369.85 376.28 371.34 368.61 390.16 358.05 311.65 338.99 353.71 361.18 352.24
 ESPROB PERCENT = 47.58 37.95 30.05 25.98 26.85 32.41 41.18 50.81 58.71 62.78 61.91 56.35
 AYNES/1000. CM-3 = 86.50 60.37 40.82 28.02 21.06 18.90 86.50 203.18 196.33 177.11 149.14 117.32
 SIGMA ES = 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = 40.00

S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	2.02	2.02	2.02	2.02	2.02	2.02	2.02	52.80	98.46	120.83	98.54	52.83
130.00	1.74	1.74	1.74	1.74	1.75	1.75	1.75	83.01	169.49	197.56	169.40	81.05
140.00	2.12	2.13	2.14	2.16	2.18	2.20	2.21	124.47	215.72	243.50	214.58	119.97
150.00	2.47	2.48	2.50	2.52	2.54	2.56	2.57	155.09	247.86	277.32	248.27	152.19
160.00	2.64	2.65	2.66	2.67	2.67	2.68	2.68	178.52	277.99	311.07	280.64	180.73
170.00	2.68	2.67	2.67	2.66	2.64	2.63	2.63	200.73	312.91	351.10	317.99	210.88
180.00	9.84	2.61	2.59	2.55	2.52	2.50	2.48	226.24	357.39	401.85	364.56	247.35
190.00	29.10	2.49	2.45	2.40	2.35	2.32	2.30	258.79	415.18	466.48	423.59	294.31
200.00	69.17	2.35	2.29	2.22	2.17	2.13	2.11	301.81	488.71	546.81	497.18	355.29
210.00	137.82	5.88	2.12	2.04	1.98	1.94	1.92	453.76	711.20	794.02	749.81	645.66
220.00	238.20	19.30	1.95	1.86	1.80	1.76	5.51	634.29	960.45	1070.35	1036.92	976.83
230.00	367.04	48.76	1.79	1.70	1.63	1.59	18.01	716.08	1073.89	1194.21	1161.39	1096.09
240.00	515.51	100.16	1.64	1.54	1.48	1.44	43.73	789.98	1178.27	1311.07	1281.96	1211.58
250.00	671.79	174.78	3.97	1.40	1.34	1.30	84.70	852.27	1269.10	1416.37	1394.01	1318.77
260.00	824.03	268.11	13.32	1.28	1.26	4.87	138.06	900.63	1343.34	1506.62	1493.72	1413.83
270.00	962.47	371.50	33.73	2.91	5.90	15.48	197.32	934.22	1399.44	1579.62	1578.29	1494.07
280.00	1080.50	475.01	68.63	10.62	18.85	36.70	255.08	953.44	1437.22	1634.42	1646.06	1557.92
290.00	1174.73	569.96	117.78	28.36	45.05	69.63	305.42	959.54	1457.57	1671.16	1696.44	1604.85
300.00	1244.42	650.35	177.04	59.50	86.23	111.53	344.88	954.30	1462.11	1690.82	1729.75	1635.23
320.00	1316.28	757.71	300.22	156.81	197.94	200.52	388.52	917.67	1432.14	1685.47	1749.71	1651.04
340.00	1316.66	797.81	394.43	264.44	304.01	265.98	393.38	858.50	1364.68	1633.73	1718.52	1618.04
360.00	1269.62	788.43	443.55	342.06	369.21	295.67	374.20	788.57	1275.21	1551.18	1650.79	1550.61
380.00	1195.12	748.75	453.62	377.87	390.77	296.60	343.17	715.84	1175.54	1450.92	1559.85	1461.73
400.00	1107.39	693.52	437.92	379.99	381.60	280.27	308.08	645.10	1073.69	1342.76	1456.36	1361.64
420.00	1015.61	632.45	408.09	361.35	355.45	255.80	273.21	578.88	974.70	1233.44	1348.10	1257.70
440.00	925.30	571.23	372.22	332.66	322.07	228.82	240.62	518.32	881.38	1127.27	1240.36	1154.83
460.00	839.48	512.95	335.16	299.72	287.18	202.35	211.13	463.69	795.14	1026.77	1136.48	1056.10
480.00	759.67	459.06	299.51	267.19	253.73	177.80	184.92	414.81	716.44	933.25	1038.42	963.26
500.00	686.42	410.08	266.51	236.63	223.04	155.72	161.86	371.28	645.19	847.19	947.14	877.14
550.00	531.53	308.68	197.77	172.68	160.24	111.30	116.22	282.54	496.90	664.10	750.04	692.04
600.00	412.09	233.14	147.15	125.92	115.15	79.83	84.07	216.53	384.18	521.42	594.02	546.34
650.00	320.83	177.51	110.72	92.66	83.36	57.85	61.56	167.14	298.63	411.05	471.95	432.87
700.00	251.29	136.83	84.86	69.29	61.10	42.62	45.93	129.91	233.50	325.67	376.68	344.69
750.00	198.41	107.31	66.80	53.09	45.63	32.20	35.22	101.68	183.71	259.46	302.22	276.07
800.00	158.30	86.17	54.48	42.09	35.03	25.21	28.06	80.20	145.53	207.97	243.90	222.58
850.00	128.03	71.32	46.32	34.85	27.94	20.67	23.42	63.84	116.20	167.85	198.15	180.84
900.00	105.40	61.15	41.10	30.25	23.35	17.85	20.53	51.42	93.68	136.58	162.24	148.31
950.00	88.70	54.37	37.87	27.44	20.49	16.15	18.81	42.08	76.46	112.26	134.09	123.03
1000.00	76.58	49.99	35.93	25.78	18.78	15.17	17.80	35.16	63.40	93.42	112.13	103.53
1050.00	67.96	47.22	34.78	24.81	17.79	14.62	17.23	30.16	53.62	78.97	95.11	88.64
1100.00	61.97	45.49	34.10	24.26	17.23	14.31	16.91	26.65	46.44	68.01	82.06	77.42
1150.00	57.87	44.43	33.70	23.95	16.91	14.14	16.73	24.28	41.29	59.83	72.21	69.13
1200.00	55.12	43.78	33.47	23.77	16.73	14.04	16.63	22.72	37.67	53.85	64.88	63.10
1250.00	53.30	43.38	33.33	23.67	16.63	13.99	16.57	21.73	35.20	49.55	59.52	58.80

ELECTRON CONTENT = 4.28E 13 2.41E 13 1.34E 13 1.06E 13 1.02E 13 7.76E 12 1.03E 13 2.98E 13 4.88E 13 6.07E 13 6.51E 13 5.99E 13
PEAK ELECTRON DENSITY = 1.32E 06 7.99E 05 4.54E 05 3.82E 05 3.91E 05 2.99E 05 3.95E 05 9.60E 05 1.46E 06 1.70E 06 1.75E 06 1.65E 06
HEIGHT OF PEAK = 329.76 345.06 376.19 391.12 382.45 370.34 332.76 290.09 298.06 307.82 316.93 315.63
ESPROB PERCENT = 33.74 23.82 16.00 12.37 13.91 20.19 29.55 39.46 47.28 50.91 49.37 43.09
AVNES/1000. CM-3 = 63.92 49.29 37.71 29.63 24.95 23.44 63.92 124.30 120.89 111.23 97.00 80.46
SIGMA ES = 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -90.00 LATITUDE = 60.00

S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	2.02	2.02	2.02	2.02	2.02	2.02	2.02	40.49	57.88	67.18	57.90	40.50
130.00	1.74	1.74	1.74	1.74	1.75	1.75	1.75	44.69	96.30	116.78	95.05	43.99
140.00	2.12	2.13	2.14	2.16	2.18	2.20	2.21	68.10	138.09	159.62	135.62	63.59
150.00	2.47	2.48	2.50	2.52	2.54	2.56	2.57	94.40	166.44	187.99	165.04	87.63
160.00	2.64	2.65	2.66	2.67	2.67	2.68	2.68	114.82	186.67	209.51	188.11	109.26
170.00	2.68	2.67	2.67	2.66	2.64	2.63	2.63	130.26	204.07	229.56	209.79	128.77
180.00	7.41	2.61	2.59	2.55	2.52	2.50	2.48	143.34	222.00	251.42	233.52	148.34
190.00	20.69	2.49	2.45	2.40	2.35	2.32	2.30	156.28	242.86	277.55	261.96	170.43
200.00	46.90	2.35	2.29	2.22	2.17	2.13	2.11	170.87	268.81	310.10	297.36	197.57
210.00	89.91	7.51	2.12	2.04	1.98	1.94	2.40	218.72	359.66	430.87	451.00	369.27
220.00	150.57	21.33	1.95	1.86	1.80	1.76	8.69	288.27	472.55	574.07	630.93	573.53
230.00	226.11	47.99	1.79	1.70	1.63	1.59	22.78	327.37	525.28	634.96	700.44	640.59
240.00	310.96	89.90	2.69	1.54	1.48	1.97	46.72	363.72	573.24	691.20	766.14	704.81
250.00	398.32	145.77	9.54	1.40	1.34	7.36	79.44	395.39	614.47	740.68	825.63	763.73
260.00	481.76	210.92	25.18	1.49	2.76	19.64	117.13	421.07	647.72	781.97	877.08	815.35
270.00	556.24	278.96	52.89	6.24	10.08	40.64	154.96	440.10	672.45	814.29	919.30	858.33
280.00	618.57	343.69	92.94	18.52	26.62	69.39	188.72	452.43	688.69	837.45	951.74	891.94
290.00	667.31	400.33	142.19	42.11	54.93	102.43	215.79	458.48	696.96	851.77	974.39	916.06
300.00	702.40	446.10	195.31	78.00	93.95	135.37	235.15	458.96	698.08	857.91	987.71	930.99
320.00	735.87	502.30	291.85	173.25	185.03	187.57	252.25	446.73	682.89	849.35	989.60	936.31
340.00	731.43	517.41	354.57	263.56	259.52	213.36	247.95	422.69	651.21	819.74	965.28	915.36
360.00	702.38	504.32	379.79	320.35	298.59	216.52	231.61	392.57	610.06	776.68	922.94	876.19
380.00	659.39	474.73	376.86	340.77	305.98	205.69	210.02	360.37	564.69	726.28	869.71	825.90
400.00	609.97	437.30	356.95	334.86	293.01	188.07	187.18	328.55	518.61	673.01	811.07	770.00
420.00	558.91	397.45	328.66	313.89	269.67	168.22	165.19	298.46	473.96	619.82	750.89	712.39
440.00	509.03	358.32	297.49	286.10	242.53	148.59	144.98	270.71	431.93	568.58	691.74	655.65
460.00	461.88	321.52	266.55	256.48	215.21	130.32	126.86	245.51	393.08	520.30	635.17	601.37
480.00	418.19	287.76	237.44	227.72	189.51	113.86	110.84	222.80	357.57	475.50	582.06	550.41
500.00	378.23	257.26	210.85	201.08	166.18	99.28	96.79	202.42	325.33	434.32	532.79	503.19
550.00	294.15	194.62	156.06	145.87	118.79	70.33	69.01	160.28	257.69	346.56	426.65	401.65
600.00	229.85	148.51	116.05	105.64	84.82	49.92	49.36	128.08	205.42	277.71	342.54	321.51
650.00	181.29	115.10	87.38	76.88	60.76	35.57	35.46	103.18	164.88	223.85	276.42	259.81
700.00	144.94	91.25	67.12	56.43	43.71	25.46	25.60	83.68	133.21	181.61	224.48	209.84
750.00	118.00	74.55	53.05	41.93	31.59	18.32	18.56	68.25	108.30	148.36	183.61	171.57
800.00	98.33	63.16	43.51	31.73	22.93	13.24	13.52	55.94	88.61	122.13	151.42	141.70
850.00	84.23	55.62	37.24	24.63	16.73	9.62	9.90	46.05	73.00	101.42	126.10	118.47
900.00	74.34	50.78	33.27	19.81	12.26	7.02	7.29	38.07	60.62	85.12	106.25	100.54
950.00	67.57	47.75	30.83	16.63	9.02	5.16	5.39	31.62	50.85	72.38	90.83	86.87
1000.00	63.03	45.88	29.37	14.60	6.88	3.82	4.02	26.40	43.19	62.55	78.99	76.62
1050.00	60.03	44.75	28.51	13.36	4.97	2.86	3.02	22.19	37.27	55.07	70.05	69.08
1100.00	58.08	44.07	28.01	12.62	3.73	2.16	2.30	18.80	32.79	49.51	63.43	63.66
1150.00	56.82	43.66	27.72	12.18	2.82	1.67	1.78	16.11	29.48	45.47	58.62	59.84
1200.00	56.01	43.41	27.55	11.93	2.16	1.32	1.41	14.01	27.10	42.59	55.20	57.19
1250.00	55.49	43.25	27.45	11.79	1.68	1.08	1.15	12.41	25.44	40.59	52.81	55.38

ELECTRON CONTENT	=	2.51E 13	1.64E 13	1.12E 13	8.96E 12	7.48E 12	5.20E 12	6.14E 12	1.58E 13	2.51E 13	3.24E 13	3.82E 13	3.55E 13
PEAK ELECTRON DENSITY	=	7.38E 05	5.17E 05	3.81E 05	3.41E 05	3.07E 05	2.17E 05	2.53E 05	4.59E 05	6.98E 05	8.58E 05	9.92E 05	9.38E 05
HEIGHT OF PEAK	=	326.78	339.07	366.97	384.16	375.60	353.15	324.68	295.87	296.64	303.27	311.01	313.34
ESPROB PERCENT	=	25.08	15.93	8.58	5.00	6.16	11.74	20.25	29.40	36.75	40.32	39.16	33.59
AVNES/1000. CM-3	=	34.68	28.59	23.59	19.97	17.80	17.08	34.68	58.44	57.14	53.43	47.90	41.37
SIGMA ES	=	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00 LATITUDE = -60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)			
120.00	73.76	63.26	43.92	2.60	2.02	2.02	2.02	2.02	2.02	2.02	2.60	43.91
130.00	129.49	107.92	53.03	7.89	1.74	1.74	1.74	1.75	1.75	8.13	54.21	109.26
140.00	173.08	150.12	79.91	10.53	2.13	2.14	2.16	2.18	2.20	10.79	84.89	152.61
150.00	201.71	179.84	107.09	11.26	2.48	2.50	2.52	2.54	2.56	11.25	113.14	181.43
160.00	224.20	203.61	130.44	11.21	2.65	2.66	2.67	2.67	2.68	10.93	133.96	202.98
170.00	246.11	226.74	152.07	10.95	2.67	2.67	2.66	2.64	2.63	10.52	150.29	222.98
180.00	270.84	252.79	175.05	10.76	2.61	2.59	2.55	2.52	2.50	10.41	165.40	245.05
190.00	301.02	284.46	202.38	10.80	2.49	2.45	2.40	2.35	2.32	11.06	181.83	271.96
200.00	338.92	324.08	236.99	11.35	2.35	2.29	2.22	2.17	2.13	13.02	201.74	306.18
210.00	476.60	488.69	438.44	208.04	8.83	2.12	2.04	1.98	1.94	16.46	274.23	426.51
220.00	637.86	680.74	675.36	471.83	26.94	1.95	1.86	1.80	1.76	95.85	372.54	569.94
230.00	706.62	756.69	755.61	545.95	64.18	1.79	1.70	1.63	1.59	120.53	423.18	633.88
240.00	770.30	828.70	832.77	622.96	125.81	2.25	1.54	1.48	1.44	146.37	470.16	691.99
250.00	826.55	894.17	903.86	699.62	211.50	9.14	1.40	1.34	4.29	174.26	511.00	741.94
260.00	873.70	951.01	966.46	772.50	314.96	26.83	1.28	1.53	13.12	202.57	544.00	782.19
270.00	910.81	997.88	1018.86	838.54	426.23	61.16	4.06	6.28	30.18	229.35	568.32	812.04
280.00	937.63	1034.11	1060.12	895.34	534.81	114.63	13.71	18.17	55.87	252.79	583.92	831.58
290.00	954.46	1059.66	1090.01	941.36	632.13	184.46	34.45	40.22	87.71	271.62	591.35	841.42
300.00	962.02	1074.97	1108.87	975.90	712.66	263.61	68.98	72.60	121.53	285.21	591.56	842.56
320.00	953.43	1078.37	1116.88	1011.23	816.04	416.43	170.48	153.90	179.52	296.86	574.88	823.62
340.00	920.77	1052.77	1092.94	1007.47	849.71	523.62	276.57	225.47	212.04	291.57	542.93	784.61
360.00	872.61	1007.14	1046.69	974.49	833.71	572.98	349.49	266.23	220.05	275.37	503.16	734.09
380.00	815.94	949.31	986.72	922.31	788.04	576.11	380.63	277.08	211.86	253.60	460.74	678.44
400.00	755.83	885.34	919.71	859.33	727.66	550.14	379.46	267.84	195.29	229.95	418.87	621.95
420.00	695.72	819.54	850.46	791.79	662.21	509.08	358.89	247.95	175.56	206.64	379.30	567.24
440.00	637.72	754.74	782.12	723.92	597.27	462.17	328.95	223.80	155.56	184.82	342.85	515.73
460.00	583.04	692.72	716.65	658.38	535.80	414.81	295.96	199.06	136.73	164.97	309.77	468.23
480.00	532.27	634.43	655.15	596.70	479.17	369.80	263.41	175.59	119.64	147.20	280.00	424.80
500.00	485.60	580.35	598.12	539.62	427.81	328.42	232.99	154.17	104.45	131.42	253.33	385.41
550.00	386.18	463.80	475.51	418.08	321.70	242.61	169.55	110.52	74.20	99.56	198.35	302.98
600.00	308.28	371.46	378.79	324.21	242.75	179.45	123.20	79.22	52.86	76.15	156.63	239.57
650.00	247.47	298.92	303.21	252.84	184.64	133.79	90.11	57.12	37.90	58.78	124.66	190.68
700.00	199.90	241.97	244.24	198.90	142.13	101.04	66.70	41.59	27.44	45.73	99.90	152.77
750.00	162.56	197.19	198.19	158.30	111.27	77.78	50.27	30.71	20.13	35.84	80.54	123.20
800.00	133.18	161.93	162.21	127.92	89.14	61.49	38.89	23.15	15.08	28.29	65.31	100.04
850.00	110.05	134.17	134.15	105.40	73.56	50.35	31.19	17.99	11.62	22.52	53.27	81.86
900.00	91.87	112.37	112.37	88.93	62.86	42.95	26.14	14.55	9.33	18.11	43.73	67.62
950.00	77.69	95.37	95.61	77.10	55.72	38.19	22.94	12.33	7.86	14.78	36.20	56.52
1000.00	66.73	82.24	82.88	68.78	51.08	35.24	20.99	10.97	6.95	12.30	30.29	47.96
1050.00	58.40	72.25	73.37	63.05	48.15	33.45	19.84	10.15	6.41	10.52	25.70	41.46
1100.00	52.18	64.78	66.40	59.19	46.32	32.38	19.17	9.68	6.09	9.28	22.22	36.64
1150.00	47.64	59.31	61.41	56.63	45.19	31.74	18.78	9.41	5.92	8.46	19.64	33.15
1200.00	44.41	55.38	57.89	54.94	44.50	31.37	18.56	9.26	5.82	7.94	17.80	30.70
1250.00	42.14	52.60	55.45	53.84	44.08	31.15	18.43	9.17	5.76	7.62	16.53	29.01

ELECTRON CONTENT	=	3.59E 13	4.13E 13	4.16E 13	3.52E 13	2.54E 13	1.65E 13	1.03E 13	7.07E 12	5.46E 12	8.89E 12	1.98E 13	2.96E 13
PEAK ELECTRON DENSITY	=	9.63E 05	1.08E 06	1.12E 06	1.01E 06	8.50E 05	5.79E 05	3.83E 05	2.77E 05	2.20E 05	2.97E 05	5.92E 05	8.43E 05
HEIGHT OF PEAK	=	304.01	311.81	314.24	327.55	342.11	371.25	388.64	379.03	358.08	322.66	295.24	296.35
ESPROB PERCENT	=	49.81	48.21	40.86	29.73	17.79	8.24	3.66	5.25	12.60	23.74	35.68	45.22
AVNES/1000. CM-3	=	77.15	67.48	56.22	44.93	34.91	26.95	21.37	18.13	17.07	44.93	86.02	83.70
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

= 56

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00 LATITUDE = -40.00

S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	127.49	104.83	56.14	2.02	2.02	2.02	2.02	2.02	2.02	2.02	56.12	104.80		
130.00	204.94	176.32	90.31	1.74	1.74	1.74	1.74	1.75	1.75	1.75	92.62	177.87		
140.00	249.38	220.77	130.64	2.12	2.13	2.14	2.16	2.18	2.20	2.21	136.07	223.50		
150.00	280.98	251.53	161.83	2.47	2.48	2.50	2.52	2.54	2.56	2.57	167.50	254.87		
160.00	311.47	279.54	188.19	2.64	2.65	2.66	2.67	2.67	2.68	2.68	192.63	284.10		
170.00	346.82	310.47	214.93	2.68	2.67	2.67	2.66	2.64	2.63	2.63	218.15	317.79		
180.00	391.13	348.06	246.21	5.73	2.61	2.59	2.55	2.52	2.50	2.48	249.04	360.55		
190.00	447.49	395.21	285.46	18.53	2.49	2.45	2.40	2.35	2.32	2.30	289.58	416.05		
200.00	517.84	454.08	335.65	47.38	2.35	2.29	2.22	2.17	2.13	2.11	343.47	486.69		
210.00	729.34	649.92	562.87	100.18	3.35	2.12	2.04	1.98	1.94	1.92	526.08	695.14		
220.00	977.34	883.92	830.76	181.74	13.06	1.95	1.86	1.80	1.76	6.23	743.14	938.72		
230.00	1100.55	997.18	937.63	291.37	37.77	1.79	1.70	1.63	1.59	21.33	845.97	1060.51		
240.00	1220.33	1109.59	1043.18	422.70	86.39	1.64	1.54	1.48	1.44	53.73	941.17	1176.32		
250.00	1331.80	1216.81	1143.19	565.64	164.24	3.92	1.40	1.34	1.30	107.01	1023.58	1280.84		
260.00	1430.87	1314.97	1233.97	709.04	269.75	14.93	1.28	1.40	2.80	178.23	1089.69	1369.97		
270.00	1514.54	1400.92	1312.66	843.01	394.69	41.73	4.64	6.86	11.00	258.99	1137.82	1441.11		
280.00	1581.06	1472.56	1377.34	960.30	527.07	91.77	17.59	22.73	30.65	339.12	1167.91	1493.22		
290.00	1629.85	1528.77	1427.11	1056.61	654.75	167.39	48.37	55.81	65.80	410.08	1181.16	1526.51		
300.00	1661.29	1569.31	1461.93	1130.37	768.10	263.96	103.82	109.07	115.86	466.62	1179.52	1542.20		
320.00	1677.07	1606.03	1489.76	1213.41	931.39	478.72	282.31	257.60	236.89	531.24	1141.13	1528.46		
340.00	1641.91	1592.36	1470.94	1226.00	1006.20	655.69	485.13	402.37	339.02	541.30	1071.45	1469.50		
360.00	1571.15	1541.16	1418.10	1190.38	1010.91	756.68	634.73	493.58	394.24	516.89	985.90	1382.32		
380.00	1478.49	1465.00	1343.22	1125.90	970.35	786.42	706.04	525.55	406.22	475.15	895.21	1280.49		
400.00	1374.65	1374.32	1256.05	1046.75	905.06	766.74	712.95	515.07	390.11	427.19	806.02	1173.67		
420.00	1267.29	1277.01	1163.80	962.30	829.10	718.86	679.59	480.82	359.53	379.19	721.99	1068.11		
440.00	1161.43	1178.57	1071.38	878.25	751.07	658.05	625.88	436.24	323.54	334.14	644.84	967.53		
460.00	1060.20	1082.59	981.95	797.85	675.74	593.74	564.76	389.30	287.18	293.30	575.11	873.86		
480.00	965.28	991.27	897.34	722.73	605.47	531.09	503.53	344.13	252.94	256.94	512.70	787.94		
500.00	877.48	905.79	818.51	653.59	541.26	472.66	445.83	302.60	221.87	224.94	457.14	709.87		
550.00	689.54	719.95	648.22	506.95	407.54	349.94	324.66	217.49	158.91	161.53	344.23	546.79		
600.00	542.31	571.94	513.51	393.63	307.36	258.75	235.66	156.30	114.11	116.79	260.82	422.52		
650.00	428.11	455.72	408.26	306.98	233.21	192.41	171.88	113.14	82.74	85.44	199.01	328.16		
700.00	339.61	364.76	326.24	240.97	178.61	144.52	126.52	82.89	60.98	63.62	152.96	256.37		
750.00	270.91	293.52	262.28	190.81	138.60	110.18	94.41	61.85	46.06	48.63	118.49	201.56		
800.00	217.44	237.63	212.32	152.84	109.52	85.79	71.89	47.43	36.05	38.55	92.64	159.59		
850.00	175.75	193.71	173.27	124.29	88.66	68.77	56.33	37.75	29.53	31.99	73.27	127.41		
900.00	143.25	159.20	142.80	103.04	74.00	57.17	45.83	31.48	25.45	27.88	58.86	102.76		
950.00	117.95	132.14	119.13	87.46	63.95	49.50	38.99	27.57	23.00	25.41	48.27	83.98		
1000.00	98.37	111.01	100.87	76.24	57.25	44.61	34.68	25.22	21.58	23.96	40.65	69.78		
1050.00	83.34	94.66	86.95	68.33	52.91	41.57	32.06	23.85	20.78	23.14	35.32	59.21		
1100.00	71.95	82.14	76.49	62.87	50.15	39.72	30.51	23.08	20.33	22.67	31.70	51.47		
1150.00	63.45	72.70	68.78	59.17	48.42	38.62	29.61	22.64	20.08	22.41	29.33	45.94		
1200.00	57.23	65.70	63.20	56.70	47.35	37.96	29.09	22.39	19.94	22.26	27.81	42.08		
1250.00	52.77	60.60	59.23	55.07	46.69	37.57	28.79	22.25	19.86	22.18	26.87	39.45		

ELECTRON CONTENT	=	6.12E 13	6.10E 13	5.52E 13	4.01E 13	3.02E 13	2.22E 13	1.90E 13	1.37E 13	1.06E 13	1.41E 13	3.62E 13	5.22E 13
PEAK ELECTRON DENSITY	=	1.68E 06	1.61E 06	1.49E 06	1.23E 06	1.02E 06	7.86E 05	7.16E 05	5.26E 05	4.07E 05	5.43E 05	1.18E 06	1.54E 06
HEIGHT OF PEAK	=	315.35	323.83	321.04	334.06	351.26	380.42	392.28	383.60	376.76	334.31	293.75	304.88
ESPROB PERCENT	=	59.60	57.97	51.24	41.20	30.55	22.13	18.21	19.83	26.57	36.60	47.26	55.67
AVNES/1000. CM-3	=	161.52	139.09	113.21	87.63	65.32	48.01	36.16	29.44	27.28	87.63	182.23	176.80
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.

EAST LONGITUDE = -180.00 LATITUDE = -20.00
S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY			METERS -3 X10-9	(CM. -3 X10-3)									
120.00	165.02	136.62	66.92	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	66.89	136.51	
130.00	244.52	213.96	115.73	1.74	1.74	1.74	1.74	1.75	1.75	1.75	1.75	118.35	214.92	
140.00	284.59	255.80	159.30	2.12	2.13	2.14	2.16	2.18	2.20	2.21	2.21	164.65	256.61	
150.00	311.65	284.00	191.02	2.47	2.48	2.50	2.52	2.54	2.56	2.57	2.57	196.81	283.41	
160.00	336.68	309.50	218.46	2.64	2.65	2.66	2.67	2.67	2.68	2.68	2.68	224.44	307.00	
170.00	365.03	337.44	247.46	2.68	2.67	2.67	2.66	2.64	2.63	2.63	2.63	254.98	333.15	
180.00	400.45	371.26	282.18	2.63	2.61	2.59	2.55	2.52	2.50	2.48	2.48	293.89	365.99	
190.00	445.79	413.65	325.95	2.52	2.49	2.45	2.40	2.35	2.32	2.30	2.30	345.82	408.79	
200.00	502.95	466.59	381.52	2.40	2.35	2.29	2.22	2.17	2.13	2.11	2.11	414.34	463.90	
210.00	572.84	531.24	450.80	2.54	2.19	2.12	2.04	1.98	1.94	1.92	1.92	646.84	532.54	
220.00	655.63	608.01	534.75	10.62	2.04	1.95	1.86	1.80	1.76	1.75	1.75	807.67	615.02	
230.00	751.08	696.85	850.47	33.74	1.88	1.79	1.70	1.63	1.59	1.58	1.58	968.56	736.01	
240.00	934.78	892.17	1021.46	85.69	2.35	2.27	7.41	4.18	1.44	2.70	1145.00	918.91		
250.00	1103.53	1054.70	1186.49	181.42	10.97	11.74	30.66	19.59	1.30	13.05	1330.94	1082.50		
260.00	1278.50	1218.03	1364.78	331.22	36.91	41.63	89.50	62.40	1.17	43.07	1516.77	1260.24		
270.00	1467.52	1394.42	1554.95	536.11	95.76	110.08	200.24	148.12	4.16	106.12	1692.00	1450.68		
280.00	1667.26	1581.67	1751.47	786.67	202.10	231.74	365.49	281.26	17.68	208.97	1847.47	1647.33		
290.00	1871.54	1774.53	1947.77	1065.72	362.04	408.50	570.83	450.78	52.42	346.49	1976.39	1842.04		
300.00	2073.10	1966.73	2136.68	1352.75	569.28	627.09	791.17	635.04	118.26	503.42	2074.93	2026.54		
320.00	2439.62	2323.28	2467.34	1877.00	1053.49	1095.24	1179.72	961.10	338.44	802.32	2178.78	2337.19		
340.00	2720.91	2607.75	2706.55	2257.76	1494.04	1465.49	1412.48	1153.36	590.96	1001.49	2173.30	2542.15		
360.00	2895.24	2796.39	2841.29	2469.05	1789.50	1666.84	1485.81	1209.45	773.41	1081.53	2088.24	2634.38		
380.00	2963.91	2886.34	2878.36	2533.76	1925.09	1716.73	1447.94	1172.57	855.09	1071.79	1954.14	2628.32		
400.00	2942.96	2889.33	2835.66	2492.08	1934.08	1664.07	1348.73	1086.06	856.48	1009.29	1795.52	2547.96		
420.00	2854.22	2823.99	2734.45	2382.50	1860.32	1554.29	1223.32	979.62	809.64	922.10	1629.44	2417.98		
440.00	2719.32	2709.95	2594.65	2234.99	1740.43	1419.27	1092.40	870.20	739.84	827.52	1466.61	2259.27		
460.00	2556.63	2564.72	2432.65	2070.34	1599.84	1278.32	966.72	766.31	662.83	734.94	1313.07	2087.58		
480.00	2380.29	2402.27	2260.75	1901.91	1454.34	1141.94	851.16	671.59	587.11	648.82	1171.75	1913.79		
500.00	2200.43	2232.99	2087.62	1737.65	1312.93	1015.19	747.36	587.12	516.71	570.93	1043.66	1744.88		
550.00	1773.85	1821.53	1681.76	1369.01	1001.58	749.66	537.84	418.25	371.15	412.58	779.25	1366.34		
600.00	1411.26	1463.52	1339.28	1071.34	758.79	552.31	387.64	298.63	265.98	298.42	582.74	1061.64		
650.00	1118.73	1170.16	1063.54	838.27	575.35	408.28	280.90	214.54	191.56	217.01	437.80	824.56		
700.00	887.57	935.66	845.62	657.54	437.98	303.58	205.16	155.51	139.18	159.11	330.83	642.22		
750.00	706.21	749.97	674.49	517.74	335.30	227.54	151.48	114.16	102.44	118.02	251.64	502.28		
800.00	564.07	603.29	540.21	409.56	258.59	172.39	113.60	85.38	76.85	89.00	192.84	394.74		
850.00	452.52	487.33	434.72	325.80	201.36	132.59	87.12	65.61	59.29	68.74	149.13	311.89		
900.00	364.78	395.52	351.70	260.94	158.83	104.14	68.95	52.33	47.51	54.87	116.66	247.92		
950.00	295.63	322.68	286.27	210.78	127.47	84.13	56.81	43.71	39.87	45.63	92.68	198.45		
1000.00	241.06	264.84	234.68	172.11	104.63	70.39	48.98	38.32	35.11	39.70	75.13	160.21		
1050.00	197.99	218.89	194.06	142.47	88.29	61.23	44.11	35.09	32.25	36.02	62.50	130.70		
1100.00	164.04	182.44	162.16	119.97	76.86	55.30	41.17	33.20	30.58	33.81	53.60	108.06		
1150.00	137.37	153.61	137.26	103.10	69.07	51.58	39.45	32.12	29.63	32.51	47.50	90.83		
1200.00	116.54	130.93	117.97	90.64	63.88	49.29	38.45	31.50	29.08	31.75	43.42	77.87		
1250.00	100.41	113.23	103.20	81.61	60.49	47.90	37.87	31.16	28.78	31.31	40.76	68.28		

ELECTRON CONTENT = 1.16E 14 1.17E 14 1.12E 14 8.37E 13 5.76E 13 4.68E 13 3.79E 13 3.01E 13 2.20E 13 2.81E 13 6.87E 13 9.58E 13
PEAK ELECTRON DENSITY = 2.97E 06 2.90E 06 2.88E 06 2.53E 06 1.94E 06 1.72E 06 1.49E 06 1.21E 06 8.64E 05 1.09E 06 2.19E 06 2.64E 06
HEIGHT OF PEAK = 384.66 390.55 378.43 380.86 391.37 378.10 361.56 360.32 389.98 366.89 328.59 368.38
ESPROB PERCENT = 66.14 65.96 62.52 56.73 50.16 44.56 41.43 41.62 45.06 50.84 57.41 63.01
AVNES/1000. CM-3 = 225.65 189.39 148.22 108.47 74.91 49.95 33.73 33.73 24.99 22.28 108.47 259.50 250.60
SIGMA ES = 0.42 0.47 0.55 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40

PENN STATE WK. I IONOSPHERIC MODELS FOR VERNAL EQUINOX.
 EAST LONGITUDE = -180.00 LATITUDE = 0.0
 S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

DAY = 80.00

MONTH = 3

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY		METERS -3	X10-9	(CM. -3	X10-31												
120.00	176.04	146.16	70.34	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	70.38	146.23					
130.00	251.63	221.18	121.54	1.74	1.74	1.74	1.74	1.75	1.75	1.75	1.75	125.15	223.40					
140.00	282.51	255.18	161.80	2.12	2.13	2.14	2.16	2.18	2.20	2.21	2.21	170.84	259.43					
150.00	295.61	271.23	186.07	2.47	2.48	2.50	2.52	2.54	2.56	2.57	2.57	200.95	277.31					
160.00	300.87	279.33	201.56	2.64	2.65	2.66	2.67	2.67	2.68	2.68	2.68	225.27	287.80					
170.00	302.65	283.59	212.77	2.68	2.67	2.67	2.66	2.64	2.63	2.63	2.63	250.58	295.67					
180.00	303.70	286.36	222.05	2.63	2.61	2.59	2.55	2.52	2.50	2.48	2.48	281.53	304.08					
190.00	305.94	289.35	230.85	2.52	2.49	2.45	2.40	2.35	4.22	2.30	2.30	322.13	315.44					
200.00	310.83	293.89	240.29	2.40	2.35	2.29	2.22	2.17	18.00	2.14	375.73	331.74						
210.00	319.50	301.05	251.42	2.25	2.19	2.12	2.04	1.98	52.38	10.46	444.58	354.54						
220.00	332.85	311.72	265.24	2.11	2.04	1.95	1.86	2.18	114.58	34.39	624.96	385.03						
230.00	351.64	326.68	282.70	1.97	1.88	1.79	1.70	12.58	202.38	83.67	777.96	423.95						
240.00	376.40	346.55	304.62	1.83	1.74	1.64	1.54	46.58	304.57	161.95	931.16	471.69						
250.00	407.49	371.79	331.71	1.70	1.60	1.50	1.40	123.55	406.49	263.45	1099.10	528.35						
260.00	445.10	402.73	364.47	1.58	1.47	1.37	8.15	254.56	495.75	375.46	1276.11	593.95						
270.00	489.30	439.54	403.23	1.47	1.36	1.26	33.62	433.17	565.05	483.83	1453.31	733.75						
280.00	540.15	482.33	448.20	1.37	1.25	1.15	98.45	637.62	612.11	577.45	1620.96	847.20						
290.00	597.71	531.16	499.49	1.27	1.15	5.20	221.53	840.84	638.22	650.03	1770.43	966.30						
300.00	705.15	586.12	557.24	1.18	1.06	21.00	407.19	1020.07	646.60	699.82	1895.25	1096.72						
320.00	913.37	794.19	755.40	4.01	0.90	143.04	894.69	1260.45	625.37	738.32	2058.42	1378.00						
340.00	1144.22	996.28	988.52	36.46	0.77	445.89	1352.27	1341.68	575.42	718.53	2108.22	1650.12						
360.00	1396.18	1228.71	1236.58	159.92	6.09	859.35	1637.23	1310.15	514.77	667.14	2066.53	1871.33						
380.00	1637.27	1470.47	1511.03	426.87	54.09	1231.15	1737.45	1211.12	453.32	602.70	1962.59	2016.95						
400.00	1837.10	1692.05	1779.16	812.12	217.14	1468.35	1704.76	1098.60	395.76	535.96	1822.89	2082.47						
420.00	1976.91	1868.97	2007.94	1225.86	519.83	1563.26	1596.42	975.36	343.92	472.33	1667.40	2077.74						
440.00	2051.63	1988.03	2175.10	1579.27	888.13	1551.19	1454.08	857.87	298.19	414.19	1509.46	2019.07						
460.00	2066.60	2047.32	2272.64	1825.10	1216.93	1473.45	1302.90	750.64	258.31	362.26	1357.16	1923.50						
480.00	2032.93	2053.13	2304.17	1957.54	1442.95	1362.25	1156.29	655.03	223.74	316.46	1214.89	1805.75						
500.00	1963.16	2015.76	2280.37	1994.61	1555.99	1238.58	1020.55	570.88	193.87	276.36	1084.63	1677.15						
550.00	1703.32	1804.58	2063.18	1833.58	1495.59	941.50	739.35	404.51	135.96	197.27	812.88	1354.52						
600.00	1413.25	1529.05	1752.54	1537.96	1240.77	702.13	534.21	287.49	96.03	141.55	609.18	1071.61						
650.00	1149.06	1261.74	1444.07	1245.63	978.63	522.22	387.14	205.38	68.52	102.38	458.25	842.06						
700.00	926.93	1029.28	1174.18	996.63	759.77	389.53	281.96	147.64	49.60	74.86	346.48	661.38						
750.00	746.46	836.51	950.40	795.15	588.11	292.12	206.65	106.97	36.70	55.62	263.47	520.72						
800.00	601.95	679.99	769.19	635.16	456.18	220.67	152.66	78.31	28.05	42.28	201.57	411.53						
850.00	486.87	554.06	623.90	508.93	355.43	168.32	113.97	58.17	22.42	33.22	155.29	326.72						
900.00	395.36	453.08	507.85	409.53	278.67	130.11	86.36	44.15	18.89	27.23	120.61	260.76						
950.00	322.57	372.17	415.22	331.30	220.27	102.43	66.83	34.55	16.78	23.42	94.65	209.38						
1000.00	264.65	307.36	341.29	269.76	175.97	82.65	53.24	28.15	15.56	21.09	75.29	169.35						
1050.00	218.58	255.46	282.30	221.44	142.57	68.80	44.02	24.02	14.88	19.71	60.97	138.20						
1100.00	181.96	213.96	235.27	183.61	117.60	59.35	37.95	21.47	14.51	18.91	50.53	114.04						
1150.00	152.95	180.86	197.88	154.17	99.20	53.09	34.10	19.94	14.30	18.45	43.04	95.41						
1200.00	130.08	154.58	168.26	131.45	85.88	49.06	31.73	19.05	14.19	18.19	37.81	81.19						
1250.00	112.17	133.86	144.97	114.10	76.43	46.51	30.30	18.53	14.13	18.05	34.25	70.46						

ELECTRON CONTENT = 8.87E 13 9.11E 13 9.94E 13 7.02E 13 4.97E 13 4.39E 13 4.43E 13 3.24E 13 1.53E 13 1.84E 13 6.71E 13 8.07E 13
 PEAK ELECTRON DENSITY = 2.07E 06 2.06E 06 2.30E 06 1.99E 06 1.58E 06 1.57E 06 1.74E 06 1.34E 06 6.47E 05 7.38E 05 2.11E 06 2.09E 06
 HEIGHT OF PEAK = 455.43 472.20 480.61 499.39 515.15 426.86 383.69 342.85 300.57 321.55 339.85 408.27
 ESROB PERCENT = 37.94 41.33 40.49 35.64 28.08 19.84 13.13 9.74 10.58 15.43 22.99 31.23
 AVNES/1000. CM-3 = 188.68 162.35 131.99 102.01 75.88 55.62 41.78 33.94 31.42 102.01 212.99 206.62
 SIGMA ES = 0.42 0.47 0.55 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40

EAST LONGITUDE = -180.00 LATITUDE = 20.00
S 10.7 = 200.00 S 10.7 (1A.U.) = 198.16

MONTH = 3

UNIVERSAL TIME	=	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME	=	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	161.18	132.88	64.50	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	64.49	132.79	
130.00	238.95	208.81	110.29	1.74	1.74	1.74	1.74	1.74	1.75	1.75	1.75	1.75	112.96	209.78		
140.00	275.59	248.53	152.14	2.12	2.12	2.13	2.14	2.16	2.18	2.20	2.21	157.78	249.19			
150.00	296.64	272.87	181.17	2.47	2.47	2.48	2.50	2.52	2.54	2.56	2.57	187.33	271.59			
160.00	312.58	292.37	203.97	2.64	2.65	2.66	2.67	2.67	2.67	2.68	2.68	209.95	288.15			
170.00	328.13	311.74	225.66	2.68	2.67	2.67	2.66	2.66	2.64	2.63	2.63	232.08	304.01			
180.00	346.47	333.93	249.59	2.63	2.61	2.59	2.55	2.52	2.50	2.48	2.57	257.99	322.60			
190.00	370.05	361.30	278.31	2.52	2.49	2.45	2.40	2.35	2.32	2.30	291.29	346.75				
200.00	400.84	395.76	314.02	2.40	2.35	2.29	2.22	2.17	2.13	2.11	335.20	378.75				
210.00	440.25	438.77	358.65	2.25	2.19	2.12	2.04	1.98	1.94	1.92	392.22	420.27				
220.00	489.14	491.24	413.62	2.11	2.04	1.95	3.95	1.80	1.76	1.75	469.17	472.32				
230.00	547.87	553.57	479.74	1.97	1.88	1.79	21.16	9.36	1.59	1.58	662.19	535.28				
240.00	616.48	625.85	557.33	1.83	1.74	4.96	75.10	36.29	1.44	1.43	800.09	609.20				
250.00	694.93	708.02	646.40	7.39	1.60	23.83	194.47	99.66	1.30	3.97	950.28	694.00				
260.00	783.18	800.07	746.92	25.22	1.47	79.75	396.07	210.85	2.32	14.79	1111.97	873.28				
270.00	934.69	915.53	968.04	68.31	3.87	201.54	671.55	366.12	9.83	39.99	1278.11	1025.99				
280.00	1122.04	1163.24	1149.11	153.06	17.16	409.48	989.85	547.33	29.00	84.62	1439.90	1174.32				
290.00	1273.67	1323.85	1327.65	293.78	55.76	701.98	1310.94	730.37	65.06	148.32	1588.69	1337.35				
300.00	1436.74	1490.78	1520.47	496.83	141.36	1054.31	1599.72	894.12	118.50	224.97	1717.41	1512.77				
320.00	1801.20	1866.70	1938.58	1061.30	522.09	1785.73	2003.25	1118.48	253.66	380.48	1898.05	1875.32				
340.00	2181.37	2268.71	2357.93	1712.63	1156.95	2344.40	2159.98	1199.25	372.99	492.27	1971.32	2204.30				
360.00	2525.36	2645.80	2723.82	2289.20	1850.38	2635.17	2133.08	1176.17	440.78	543.32	1953.15	2452.40				
380.00	2791.49	2952.62	2996.57	2695.64	2402.19	2694.06	2000.52	1095.53	458.55	545.65	1869.84	2598.12				
400.00	2959.50	3162.84	3160.11	2914.38	2728.23	2599.25	1820.21	990.46	442.94	518.15	1747.08	2644.05				
420.00	3029.39	3270.98	3218.78	2974.42	2843.62	2420.55</										

ELECTRON CONTENT	=	1.25E 14	1.39E 14	1.30E 14	1.00E 14	8.52E 13	7.25E 13	5.41E 13	2.95E 13	1.22E 13	1.49E 13	6.35E 13	1.00E 14
PEAK ELECTRON DENSITY	=	3.03E 06	3.29E 06	3.22E 06	2.97E 06	2.85E 06	2.70E 06	2.17E 06	1.20E 06	4.59E 05	5.49E 05	1.97E 06	2.64E 06
HEIGHT OF PEAK	=	425.97	433.62	422.57	419.18	423.76	376.11	345.97	344.15	378.83	370.75	345.29	400.26
ESPROB PERCENT	=	61.96	62.81	59.23	52.16	43.52	35.60	30.54	29.69	33.28	40.34	48.99	56.90
AVNSES/1000. CM-3	=	203.51	169.38	130.82	93.89	63.07	40.51	26.15	18.57	16.26	93.89	235.51	227.08
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

\$ 10.7 = 200.00 \$ 10.7 (1A.0.) = 198.16

MONTH = 3

UNIVERSAL TIME =	0.0	2.00	4.00	8.00
LOCAL TIME =	12.00	14.00	16.00	18.00

18.00 20.00 22.00

18.00	20.00	22.00
6.00	8.00	10.00

[illegible]

ELECTRON CONTENT	=	8.64E 13	8.94E 13	7.78E 13	5.15E 13	3.08E 13	1.91E 13	1.40E 13	1.22E 13	1.05E 13	1.47E 13	4.41E 13	7.34E 13
PEAK ELECTRON DENSITY	=	2.36E 06	2.35E 06	2.11E 06	1.59E 06	1.03E 06	6.66E 05	5.09E 05	4.59E 05	3.92E 05	5.55E 05	1.45E 06	2.17E 06
HEIGHT OF PEAK	=	331.82	340.12	334.00	343.59	357.78	377.45	381.63	376.35	384.64	347.99	300.41	319.30
ESPROB PERCENT	=	59.32	58.04	52.00	42.80	32.92	25.00	21.16	22.44	28.48	37.68	47.56	55.48
AVNES/1000. CM-3	=	156.59	133.39	106.79	80.76	58.36	41.27	29.81	23.43	21.41	80.76	178.13	172.48
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

MONTH = 6

[illegible]

ELECTRON CONTENT	=	4.27E 13	2.84E 13	1.21E 13	1.97E 13	6.49E 13	1.03E 14	1.03E 14	1.04E 14	1.03E 14	8.28E 13	6.19E 13	5.59E 13
PEAK ELECTRON DENSITY	=	1.69E 06	1.17E 06	4.84E 05	7.69E 05	2.03E 06	2.70E 06	2.41E 06	2.33E 06	2.41E 06	2.40E 06	2.02E 06	2.03E 06
HEIGHT OF PEAK	=	362.44	345.98	335.62	346.88	344.97	407.93	461.69	486.70	474.30	460.24	457.62	410.83
ESPROB PERCENT	=	50.76	50.75	50.76	50.78	50.80	50.83	50.85	50.86	50.85	50.83	50.81	50.78
AVNES/1000. CM-3	=	26.38	18.98	16.70	91.80	227.26	219.22	196.72	164.10	127.21	91.80	62.15	40.35
SIGMA ES	=	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70

MONTH = 6

[illegible]

ELECTRON CONTENT	=	4.84E 13	3.68E 13	3.25E 13	2.71E 13	2.10E 13	1.73E 13	2.18E 13	3.68E 13	5.09E 13	6.63E 13	6.82E 13	5.89E 13
PEAK ELECTRON DENSITY	=	1.30E 06	1.20E 06	1.15E 06	1.02E 06	8.14E 05	6.70E 05	7.18E 05	1.09E 06	1.32E 06	1.65E 06	1.66E 06	1.48E 06
HEIGHT OF PEAK	=	376.20	403.55	409.70	397.14	388.20	387.01	347.54	334.81	375.01	378.47	378.63	362.11
ESPROB PERCENT	=	64.73	60.39	56.83	55.00	55.39	57.89	61.85	66.18	69.74	71.58	71.19	68.68
AVNES/1000. CM-3	=	158.46	114.38	80.76	58.24	45.71	41.75	158.46	350.25	339.12	307.82	262.10	209.71
SIGMA ES	=	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = -40.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	62.52	51.34	24.44	2.02	2.02	2.02	2.02	2.02	2.02	2.02	24.44	51.34	
130.00	107.54	76.80	25.57	1.74	1.74	1.74	1.74	1.75	1.75	1.75	25.50	78.07	
140.00	153.20	115.04	25.02	2.12	2.13	2.14	2.16	2.18	2.20	2.21	25.09	118.96	
150.00	189.46	147.46	27.46	2.47	2.48	2.49	2.52	2.54	2.55	2.56	29.75	153.60	
160.00	224.43	176.43	35.08	2.64	2.65	2.65	2.66	2.67	2.67	2.67	41.27	185.60	
170.00	265.66	207.26	46.91	3.39	2.67	2.67	2.65	2.64	2.63	2.62	56.26	222.09	
180.00	319.21	244.85	61.95	11.05	2.61	2.58	2.55	2.52	2.49	2.48	73.16	269.72	
190.00	389.79	293.53	80.93	28.34	3.09	2.45	2.39	2.35	2.31	2.30	93.32	334.29	
200.00	480.42	356.91	106.22	59.92	10.07	2.29	2.22	2.16	2.12	2.11	120.09	420.03	
210.00	824.28	662.06	423.59	108.50	25.19	2.12	2.04	1.98	1.93	1.92	315.95	746.89	
220.00	1179.72	998.67	796.30	173.38	51.13	1.95	1.86	1.80	1.75	1.74	533.19	1077.52	
230.00	1295.58	1108.51	884.94	250.53	88.11	4.06	1.69	1.63	1.58	1.58	585.90	1179.82	
240.00	1399.29	1211.81	968.06	333.82	133.50	12.35	1.54	1.47	1.43	2.10	629.14	1267.33	
250.00	1487.35	1304.80	1042.53	416.61	182.82	28.80	2.78	1.75	2.21	7.47	661.49	1337.23	
260.00	1557.63	1384.63	1106.03	493.18	231.21	54.80	9.63	6.71	7.43	19.48	682.62	1388.28	
270.00	1609.34	1449.50	1157.14	559.46	274.66	89.00	24.59	18.38	18.34	39.98	693.09	1420.64	
280.00	1642.79	1498.62	1195.28	613.15	310.57	127.87	49.69	38.93	35.82	68.34	694.07	1435.54	
290.00	1659.11	1532.11	1220.63	653.55	337.79	167.05	83.91	67.81	58.57	101.52	687.02	1434.86	
300.00	1660.01	1550.76	1233.89	681.10	356.32	202.68	123.51	101.81	83.70	135.44	673.49	1420.87	
320.00	1623.73	1548.98	1228.93	702.87	370.66	254.45	199.88	167.89	128.86	191.84	632.83	1362.20	
340.00	1550.49	1506.08	1191.21	691.39	363.05	277.46	251.27	211.88	155.90	222.91	582.03	1276.76	
360.00	1454.98	1435.27	1131.64	659.04	342.45	277.95	272.10	228.85	164.05	230.44	527.99	1178.08	
380.00	1348.53	1347.82	1059.41	615.45	315.60	264.59	269.88	225.82	159.29	222.37	474.90	1075.53	
400.00	1239.10	1252.38	981.44	567.13	286.75	244.22	254.16	211.41	147.61	206.02	425.02	975.05	
420.00	1131.83	1155.01	902.52	518.14	258.34	221.30	232.15	191.96	133.17	186.35	379.37	880.02	
440.00	1029.80	1059.70	825.73	470.83	231.62	198.38	208.29	171.26	118.31	166.23	338.26	792.11	
460.00	934.63	968.85	752.91	426.42	207.17	176.78	184.98	151.28	104.22	147.11	301.56	711.94	
480.00	847.01	883.78	685.03	385.46	185.13	157.07	163.37	132.91	91.41	129.63	268.97	639.49	
500.00	767.03	805.09	622.48	348.11	165.49	139.41	143.88	116.47	80.03	114.00	240.11	574.37	
550.00	598.42	636.29	489.08	269.75	125.79	103.84	104.53	83.57	57.44	82.61	181.68	439.98	
600.00	468.15	503.45	384.91	209.93	97.18	78.55	76.58	60.41	41.71	60.32	138.53	338.64	
650.00	367.90	399.83	304.27	164.71	76.97	61.01	57.13	44.38	30.97	44.72	106.46	262.13	
700.00	290.63	319.07	241.96	130.76	63.02	49.15	43.83	33.45	23.79	33.97	82.49	204.14	
750.00	230.89	256.02	193.77	105.48	53.67	41.40	34.97	26.17	19.14	26.70	64.52	159.99	
800.00	184.55	206.67	156.51	86.88	47.61	36.52	29.27	21.48	16.25	21.94	51.04	126.26	
850.00	148.55	167.97	127.73	73.41	43.79	33.56	25.74	18.58	14.54	18.93	41.00	100.47	
900.00	120.56	137.63	105.60	63.85	41.46	31.81	23.65	16.86	13.56	17.11	33.62	80.76	
950.00	98.85	113.88	88.72	57.23	40.05	30.79	22.44	15.87	13.01	16.04	28.32	65.79	
1000.00	82.09	95.37	76.00	52.74	39.20	30.21	21.76	15.32	12.71	15.43	24.62	54.51	
1050.00	69.28	81.08	66.57	49.75	38.70	29.88	21.38	15.01	12.55	15.08	22.14	46.14	
1100.00	59.62	70.16	59.70	47.80	38.41	29.68	21.16	14.85	12.46	14.89	20.53	40.06	
1150.00	52.45	61.95	54.79	46.53	38.23	29.57	21.04	14.75	12.41	14.78	19.52	35.74	
1200.00	47.23	55.88	51.35	45.71	38.12	29.51	20.97	14.70	12.38	14.72	18.90	32.76	
1250.00	43.51	51.48	48.98	45.18	38.06	29.47	20.94	14.67	12.37	14.68	18.53	30.74	

ELECTRON CONTENT = 5.67E 13 5.62E 13 4.31E 13 2.34E 13 1.21E 13 8.74E 12 7.74E 12 6.19E 12 4.52E 12 6.37E 12 2.00E 13 4.52E 13
 PEAK ELECTRON DENSITY = 1.66E 06 1.56E 06 1.24E 06 7.03E 05 3.71E 05 2.80E 05 2.73E 05 2.30E 05 1.64E 05 2.31E 05 6.95E 05 1.44E 06
 HEIGHT OF PEAK = 295.56 309.02 307.21 321.71 321.42 349.99 367.11 365.78 360.83 357.87 276.05 284.47
 ESPROB PERCENT = 41.64 40.33 34.92 26.85 18.28 11.51 8.35 9.66 15.07 23.15 31.72 38.48
 AVNES/1000. CM-3 = 67.53 59.40 49.90 40.33 31.78 24.94 20.11 17.27 16.35 40.33 74.96 73.02
 SIGMA ES = 0.42 0.47 0.55 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40

MONTH = 6

[illegible]

ELECTRON CONTENT	=	8.21E 13	7.79E 13	7.56E 13	4.72E 13	2.67E 13	1.83E 13	1.43E 13	1.16E 13	7.42E 12	1.29E 13	5.59E 13	8.23E 13
PEAK ELECTRON DENSITY	=	2.15E 06	1.96E 06	1.96E 06	1.44E 06	8.94E 05	6.45E 05	5.25E 05	4.29E 05	2.46E 05	5.64E 05	1.88E 06	2.42E 06
HEIGHT OF PEAK	=	359.24	373.82	370.67	359.09	356.18	347.31	337.86	342.03	402.06	369.21	304.20	326.53
ESPROB PERCENT	=	61.06	60.66	52.96	40.03	25.34	12.83	5.83	6.24	13.94	26.87	41.56	54.07
AVNVS/1000. CM-3	=	133.66	109.97	83.41	58.25	37.60	22.83	13.72	9.08	7.71	58.25	155.96	150.08
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
EAST LONGITUDE = -180.00 LATITUDE = 20.00
S 10.7 = 200.00 S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

[illegible]

ELECTRON CONTENT	=	9.07E 13	1.05E 14	1.01E 14	8.08E 13	4.99E 13	3.82E 13	3.05E 13	2.24E 13	1.56E 13	2.07E 13	4.06E 13	5.92E 13
PEAK ELECTRON DENSITY	=	2.13E 06	2.44E 06	2.47E 06	2.12E 06	1.61E 06	1.37E 06	1.18E 06	8.94E 05	6.10E 05	6.59E 05	1.18E 06	1.45E 06
HEIGHT OF PEAK	=	447.40	444.03	427.75	444.04	459.91	394.39	361.75	355.62	361.03	376.30	367.17	442.40
ESPROB PERCENT	=	63.72	63.58	64.17	65.32	66.74	68.04	68.87	69.01	68.42	67.26	65.84	64.55
AVNYS/1000. CM-3	=	258.40	216.51	169.00	123.20	84.63	56.03	37.51	27.58	24.50	123.20	297.54	287.24
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
EAST LONGITUDE = -180.00 LATITUDE = 40.00
S 10.7 = 200.00 S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

[illegible]

ELECTRON CONTENT	=	4.63E 13	4.62E 13	4.10E 13	3.56E 13	2.62E 13	2.61E 13	2.36E 13	1.88E 13	1.59E 13	2.40E 13	3.39E 13	3.94E 13
PEAK ELECTRON DENSITY	=	1.14E 06	1.11E 06	1.00E 06	9.18E 05	8.41E 05	9.13E 05	8.81E 05	7.23E 05	6.11E 05	7.92E 05	1.01E 06	1.03E 06
HEIGHT OF PEAK	=	354.63	356.75	345.84	358.97	389.84	410.50	407.77	395.62	390.75	330.29	321.30	348.18
ESPROB PERCENT	=	72.27	71.25	66.43	59.09	51.21	44.89	41.84	42.85	47.68	55.01	62.89	69.21
AVVSES/1000. CM-3	=	292.37	249.70	200.72	152.67	111.18	79.39	57.96	45.97	42.16	152.67	331.91	321.54
SIGMA FS	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = -60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	2.02	2.02	14.33	27.60	14.33	2.02	2.02	2.02	2.02	2.02	2.02	2.02
130.00	1.75	1.75	18.61	27.83	18.58	1.74	1.74	1.74	1.74	1.74	1.75	1.75
140.00	2.21	2.20	18.60	28.26	18.70	4.54	2.12	2.13	2.14	2.16	2.18	2.20
150.00	2.56	2.55	18.06	35.06	18.22	14.87	2.47	2.48	2.49	2.52	2.54	2.55
160.00	2.67	3.24	18.74	48.18	18.50	38.58	2.64	2.65	2.65	2.66	2.67	2.67
170.00	2.62	10.35	22.33	64.80	20.86	82.83	5.46	2.67	2.67	2.65	2.64	2.63
180.00	2.48	25.11	29.46	84.62	26.53	152.54	16.38	2.61	2.58	2.55	2.52	2.49
190.00	2.30	49.23	40.09	109.73	36.48	248.08	39.25	3.89	2.45	2.39	2.35	2.31
200.00	2.11	81.82	55.14	143.85	52.66	364.76	78.57	11.54	2.29	2.22	2.16	2.12
210.00	1.92	119.66	260.01	442.66	418.74	494.19	136.05	26.75	2.12	2.04	1.98	1.93
220.00	1.74	158.45	495.68	767.57	846.55	626.52	209.64	51.12	1.95	1.86	1.80	1.75
230.00	1.85	194.27	544.06	834.97	929.94	752.58	294.07	83.99	2.10	1.69	1.63	3.66
240.00	6.40	224.35	585.79	893.32	1005.58	865.23	382.43	122.54	6.17	1.54	1.47	10.69
250.00	16.23	247.34	619.48	940.96	1070.97	959.92	467.91	162.83	14.03	1.40	1.39	23.57
260.00	32.55	263.02	644.46	977.09	1124.47	1034.53	545.00	201.06	26.18	4.39	5.24	42.10
270.00	54.57	271.95	660.72	1001.67	1165.31	1088.96	610.08	234.34	41.89	11.55	14.15	64.15
280.00	79.78	275.12	668.76	1015.26	1193.47	1124.45	661.38	260.99	59.47	23.85	29.66	86.69
290.00	105.02	273.64	669.44	1018.84	1209.54	1143.09	698.68	280.46	76.97	40.97	51.24	106.99
300.00	127.60	268.60	663.77	1013.65	1214.50	1147.35	722.81	292.99	92.71	61.10	76.46	123.29
320.00	158.92	251.51	637.72	982.22	1196.46	1122.87	737.76	300.62	115.21	100.67	125.02	141.87
340.00	170.89	229.66	598.67	931.17	1150.16	1068.84	720.38	292.03	124.84	127.92	156.98	144.60
360.00	168.55	206.55	553.04	869.05	1085.86	998.92	683.24	274.11	124.69	139.43	169.05	137.46
380.00	157.99	184.10	505.33	802.21	1011.78	922.37	635.88	251.94	118.65	138.80	166.48	125.56
400.00	143.74	163.23	458.41	734.93	933.95	844.99	584.62	228.66	109.62	130.96	155.62	112.10
420.00	128.50	144.31	413.92	669.88	856.44	770.18	533.31	206.02	99.56	119.71	141.12	98.80
440.00	113.72	127.38	372.70	608.60	781.82	699.77	484.14	184.92	89.58	107.40	125.75	86.45
460.00	100.07	112.36	335.07	551.83	711.55	634.59	438.23	165.72	80.22	95.32	110.93	75.35
480.00	87.78	99.10	301.04	499.83	646.37	574.90	396.04	148.53	71.74	84.07	97.31	65.55
500.00	76.87	87.43	270.44	452.54	586.52	520.61	357.68	133.29	64.20	73.90	85.10	56.98
550.00	55.09	64.05	207.30	353.29	459.47	406.58	277.50	102.82	49.30	53.25	60.59	40.15
600.00	39.55	47.13	159.73	276.94	360.78	318.83	216.60	81.32	39.10	38.40	43.16	28.38
650.00	28.51	34.86	123.91	218.40	284.80	251.74	170.85	66.57	32.41	27.83	30.86	20.15
700.00	20.64	25.95	96.87	173.48	226.49	200.64	136.80	56.78	28.21	20.33	22.16	14.38
750.00	15.02	19.46	76.42	138.98	181.81	161.91	111.74	50.49	25.67	15.01	15.99	10.32
800.00	10.98	14.74	60.97	112.49	147.67	132.80	93.59	46.59	24.18	11.26	11.59	7.44
850.00	8.07	11.32	49.35	92.25	121.74	111.16	80.71	44.23	23.33	8.63	8.45	5.40
900.00	5.96	8.86	40.69	76.89	102.23	95.33	71.77	42.82	22.85	6.83	6.19	3.95
950.00	4.43	7.11	34.35	65.38	87.74	83.96	65.73	41.98	22.57	5.62	4.57	2.92
1000.00	3.32	5.90	29.80	56.92	77.16	75.98	61.72	41.49	22.42	4.84	3.40	2.19
1050.00	2.52	5.08	26.62	50.82	69.58	70.47	59.10	41.20	22.33	4.36	2.55	1.67
1100.00	1.93	4.54	24.46	46.52	64.25	66.74	57.41	41.03	22.29	4.07	1.95	1.31
1150.00	1.52	4.20	23.02	43.56	60.58	64.24	56.32	40.93	22.26	3.89	1.52	1.07
1200.00	1.22	3.99	22.09	41.55	58.07	62.58	55.63	40.87	22.24	3.79	1.22	0.91
1250.00	1.02	3.86	21.48	40.21	56.38	61.49	55.18	40.84	22.23	3.74	1.01	0.81

ELECTRON CONTENT	=	4.24E 12	7.27E 12	2.07E 13	3.39E 13	4.17E 13	3.88E 13	2.49E 13	1.05E 13	4.55E 12	3.62E 12	4.12E 12	3.43E 12
PEAK ELECTRON DENSITY	=	1.71E 05	2.75E 05	6.70E 05	1.02E 06	1.21E 06	1.15E 06	7.38E 05	3.01E 05	1.26E 05	1.40E 05	1.70E 05	1.45E 05
HEIGHT OF PEAK	=	345.56	281.43	285.92	288.83	299.82	298.26	317.76	317.57	348.78	368.26	365.26	333.99
ESPROB PERCENT	=	17.01	21.21	24.57	26.17	25.60	22.99	19.06	14.85	11.50	9.89	10.47	13.07
AVNES/1000. CM-3	=	29.39	37.87	37.43	36.17	34.25	31.90	29.39	26.99	24.91	23.32	22.33	21.99
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

MONTH = 6

[illegible]

ELECTRON CONTENT	=	6.53E 12	3.87E 13	6.06E 13	6.89E 13	6.68E 13	5.61E 13	3.02E 13	1.63E 13	9.74E 12	6.80E 12	6.30E 12	3.72E 12
PEAK ELECTRON DENSITY	=	2.10E 05	1.33E 06	1.86E 06	1.91E 06	1.76E 06	1.51E 06	9.22E 05	5.27E 05	3.10E 05	2.13E 05	2.07E 05	9.45E 04
HEIGHT OF PEAK	=	365.16	284.40	297.36	317.48	331.35	329.43	333.14	332.22	347.35	355.14	356.66	384.09
ESPROB PERCENT	=	26.62	38.53	48.15	52.89	51.48	44.30	33.28	21.36	11.74	7.01	8.42	15.59
AVNES/1000. CM-3	=	46.74	109.61	105.92	95.57	80.50	63.35	46.74	32.66	22.11	15.20	11.44	10.27
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = 0.0
S 10.7 = 200.00 S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	2.02	64.07	130.36	157.91	130.24	64.04	2.02	2.02	2.02	2.02	2.02	2.02	2.02
130.00	1.75	112.22	207.36	234.63	204.49	108.93	1.74	1.74	1.74	1.74	1.75	1.75	1.75
140.00	2.21	157.74	247.64	269.27	241.11	149.21	2.12	2.13	2.14	2.16	2.18	2.20	2.20
150.00	2.56	188.96	271.33	286.79	260.09	175.16	2.47	2.48	2.49	2.52	2.54	2.55	2.55
160.00	2.67	214.56	289.75	297.42	271.57	192.84	2.64	2.65	2.65	2.66	2.67	2.67	2.67
170.00	2.62	241.55	308.20	305.64	279.78	206.79	2.67	2.67	2.67	2.65	2.64	2.63	2.63
180.00	2.48	274.97	330.27	314.27	287.13	219.59	2.62	2.61	2.58	2.55	2.52	2.49	2.49
190.00	2.30	319.09	358.93	325.44	295.39	232.89	2.52	2.49	2.45	2.39	2.35	2.31	2.31
200.00	2.11	377.51	396.54	340.85	306.02	248.03	2.39	2.34	2.29	2.22	2.16	2.12	2.12
210.00	1.92	452.48	444.75	361.90	320.24	266.29	2.25	2.19	2.12	2.04	1.98	1.93	1.93
220.00	1.74	661.69	504.42	389.64	339.10	288.85	2.11	2.03	1.95	3.33	3.50	1.75	1.75
230.00	1.58	827.27	575.79	424.79	363.46	316.81	1.96	1.88	1.79	17.51	16.72	1.58	1.58
240.00	7.30	991.14	658.79	467.75	393.93	351.06	1.83	1.73	1.64	61.17	53.65	1.43	1.43
250.00	24.39	1170.84	790.28	518.69	430.93	392.21	1.70	1.60	3.66	156.41	127.47	4.25	4.25
260.00	60.48	1360.61	985.51	577.65	474.66	440.64	2.57	1.47	17.61	315.34	241.38	15.29	15.29
270.00	119.42	1550.81	1135.43	644.65	525.22	496.53	10.19	1.35	59.11	530.32	384.97	39.76	39.76
280.00	198.10	1731.04	1298.01	719.78	582.68	560.00	31.26	5.05	149.93	776.55	539.15	80.81	80.81
290.00	287.55	1891.93	1475.13	867.68	647.13	631.16	77.72	20.20	305.79	1023.03	684.28	136.24	136.24
300.00	376.80	2026.45	1661.35	1004.13	718.73	720.71	162.63	60.53	526.19	1243.10	806.03	199.30	199.30
320.00	520.71	2202.66	2030.95	1273.10	1000.67	989.60	478.42	284.44	1078.05	1547.07	956.64	316.70	316.70
340.00	596.12	2256.90	2347.05	1582.96	1253.19	1282.81	959.78	735.83	1591.46	1661.39	994.04	390.36	390.36
360.00	610.71	2212.59	2568.35	1900.51	1539.03	1597.99	1488.22	1300.25	1923.42	1636.34	956.70	415.33	415.33
380.00	585.99	2101.21	2681.73	2183.26	1827.52	1897.10	1939.70	1800.31	2056.95	1531.91	880.94	405.83	405.83
400.00	540.91	1951.30	2696.54	2398.73	2083.08	2144.22	2248.29	2131.77	2041.03	1392.12	790.82	377.43	377.43
420.00	488.06	1784.38	2633.65	2532.09	2279.01	2317.35	2407.17	2282.97	1934.42	1243.35	699.71	341.13	341.13
440.00	434.57	1614.83	2516.46	2584.61	2403.02	2410.93	2442.44	2291.94	1782.62	1099.43	614.08	303.32	303.32
460.00	384.01	1451.37	2365.85	2567.95	2455.92	2431.83	2389.72	2207.31	1614.85	966.71	536.55	267.22	267.22
480.00	337.91	1298.72	2198.17	2497.93	2447.15	2393.69	2281.17	2069.72	1447.82	847.44	467.77	234.24	234.24
500.00	296.72	1159.00	2025.15	2390.52	2389.85	2311.82	2141.53	1907.71	1290.10	741.78	407.43	204.83	204.83
550.00	213.96	867.71	1613.38	2042.26	2119.31	2003.90	1754.47	1495.85	955.23	531.13	288.60	146.18	146.18
600.00	154.91	649.59	1266.01	1679.25	1785.37	1659.65	1398.87	1146.33	704.26	381.46	205.38	104.94	104.94
650.00	113.18	488.18	989.36	1357.74	1467.78	1346.76	1105.95	874.00	520.46	275.56	147.31	76.32	76.32
700.00	83.87	368.83	773.82	1091.13	1194.24	1084.49	873.49	667.22	386.56	200.63	106.83	56.67	56.67
750.00	63.45	280.35	607.08	876.17	968.60	872.14	691.36	511.34	289.05	147.65	78.74	43.40	43.40
800.00	49.47	214.53	478.23	704.84	785.99	702.67	549.21	394.01	218.06	110.32	59.44	34.69	34.69
850.00	40.13	165.47	378.53	568.81	639.36	568.14	438.36	305.70	166.50	84.27	46.44	29.17	29.17
900.00	34.11	128.87	301.23	460.89	521.95	461.48	351.91	239.32	129.28	66.40	37.95	25.83	25.83
950.00	30.37	101.65	241.21	375.19	427.98	376.89	284.53	189.58	102.72	54.47	32.61	23.88	23.88
1000.00	28.14	81.54	194.59	307.09	352.75	309.80	232.12	152.55	84.13	46.78	29.39	22.78	22.78
1050.00	26.83	66.85	158.42	252.97	292.53	256.61	191.51	125.28	71.43	42.00	27.51	22.16	22.16
1100.00	26.08	56.31	130.47	209.99	244.37	214.53	160.26	105.51	63.02	39.13	26.45	21.82	21.82
1150.00	25.66	48.92	108.99	175.95	205.93	181.36	136.44	91.48	57.61	37.45	25.85	21.64	21.64
1200.00	25.41	43.87	92.65	149.11	175.39	155.39	118.52	81.75	54.22	36.47	25.51	21.53	21.53
1250.00	25.28	40.50	80.39	128.09	151.26	135.22	105.24	75.14	52.13	35.91	25.33	21.48	21.48

ELECTRON CONTENT	=	1.61E 13	7.15E 13	1.01E 14	1.09E 14	1.07E 14	1.01E 14	8.34E 13	6.95E 13	5.62E 13	4.18E 13	2.44E 13	1.08E 13
PEAK ELECTRON DENSITY	=	6.12E 05	2.26E 06	2.70E 06	2.59E 06	2.46E 06	2.43E 06	2.44E 06	2.30E 06	2.07E 06	1.67E 06	9.94E 05	4.16E 05
HEIGHT OF PEAK	=	355.77	339.97	393.16	444.55	466.67	456.29	436.76	431.18	386.99	345.18	338.18	362.91
ESPROR PERCENT	=	58.91	57.85	56.81	56.07	55.83	56.16	56.96	58.03	59.07	59.80	60.04	59.71
AVNES/1000. CM-3	=	100.22	249.68	240.81	215.96	179.95	139.25	100.22	67.59	43.66	28.37	20.28	17.81
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = 20.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	30.65	82.14	149.87	175.70	150.05	82.17	30.66	2.02	2.02	2.02	2.02	2.02
130.00	30.20	144.99	226.08	251.33	225.79	142.23	30.24	1.74	1.74	1.74	1.75	1.75
140.00	33.90	187.86	259.08	282.25	260.60	183.24	32.41	2.13	2.14	2.16	2.18	2.20
150.00	48.11	211.42	272.25	295.37	278.28	207.76	42.33	2.48	2.49	2.52	2.54	2.55
160.00	65.44	225.83	276.05	300.64	288.85	224.58	56.36	2.65	2.65	2.66	2.67	2.67
170.00	80.29	236.39	275.04	302.43	296.52	238.37	70.32	2.67	2.67	2.65	2.64	2.63
180.00	91.82	246.16	272.09	303.48	303.81	251.64	82.85	2.61	2.58	2.55	2.52	2.49
190.00	101.00	257.54	269.21	305.75	312.57	266.10	94.16	2.49	2.45	2.39	2.35	2.31
200.00	109.05	272.75	267.90	310.67	324.33	283.26	105.05	2.34	2.29	2.22	2.16	2.12
210.00	117.05	293.77	269.25	319.38	340.34	304.50	116.51	2.19	2.12	2.04	1.98	1.93
220.00	125.95	322.26	274.15	332.82	361.61	331.07	129.63	2.03	1.95	1.86	1.80	1.75
230.00	136.83	359.44	283.34	351.70	388.97	364.00	145.55	1.88	1.79	1.68	1.60	1.55
240.00	150.91	406.02	297.44	376.59	422.94	404.06	165.55	1.73	1.64	1.53	1.44	1.39
250.00	169.50	475.47	316.94	407.83	463.85	451.68	190.92	1.60	1.50	1.39	1.29	1.24
260.00	209.05	573.03	342.16	445.62	511.86	507.11	222.92	1.47	1.36	1.24	1.14	1.09
270.00	268.04	678.75	373.33	490.03	567.01	570.46	262.56	1.35	1.24	1.12	1.02	0.97
280.00	326.41	792.97	410.54	541.10	629.37	641.81	310.56	1.24	1.12	1.00	0.90	0.85
290.00	390.47	910.96	453.87	598.92	699.04	721.33	367.36	1.15	1.03	0.91	0.81	0.76
300.00	457.20	1026.75	503.41	663.61	828.17	906.56	433.24	1.06	0.94	0.82	0.72	0.67
320.00	581.21	1228.66	683.10	903.17	1083.99	1179.80	594.31	0.90	0.78	0.66	0.56	0.51
340.00	668.69	1365.01	871.50	1136.76	1353.33	1482.49	971.55	0.78	0.66	0.54	0.44	0.39
360.00	707.97	1426.21	1083.38	1403.46	1652.48	1813.20	1290.88	0.66	0.54	0.42	0.32	0.27
380.00	704.55	1421.63	1289.10	1673.78	1946.14	2130.44	1644.56	0.54	0.42	0.30	0.20	0.15
400.00	671.34	1368.83	1458.64	1912.51	2198.42	2394.55	1987.46	0.42	0.30	0.18	0.08	0.03
420.00	621.22	1285.77	1573.51	2093.43	2384.70	2580.68	2272.59	0.30	0.18	0.06	0.02	0.01
440.00	563.92	1186.98	1629.41	2204.87	2495.56	2681.77	2470.35	0.18	0.06	0.02	0.01	0.00
460.00	505.72	1082.81	1632.51	2248.30	2534.34	2704.47	2572.96	0.06	0.02	0.01	0.00	0.00
480.00	450.17	979.90	1594.07	2233.57	2512.20	2663.02	2589.42	0.02	0.01	0.00	0.00	0.00
500.00	399.02	882.13	1526.30	2173.85	2443.10	2573.76	2537.29	0.01	0.00	0.00	0.00	0.00
550.00	293.16	670.46	1294.55	1910.47	2151.18	2236.38	2229.54	0.00	0.00	0.00	0.00	0.00
600.00	215.68	507.18	1051.04	1595.77	1805.10	1857.05	1839.37	0.00	0.00	0.00	0.00	0.00
650.00	159.81	384.54	837.96	1301.89	1480.73	1510.55	1475.83	0.00	0.00	0.00	0.00	0.00
700.00	119.51	293.05	664.09	1051.98	1203.24	1218.83	1171.71	0.00	0.00	0.00	0.00	0.00
750.00	90.38	224.77	526.22	847.83	975.12	981.69	928.14	0.00	0.00	0.00	0.00	0.00
800.00	69.34	173.73	418.09	683.91	790.85	791.79	736.44	0.00	0.00	0.00	0.00	0.00
850.00	54.26	135.54	333.60	553.19	643.04	640.58	586.47	0.00	0.00	0.00	0.00	0.00
900.00	43.60	107.00	267.63	449.17	524.77	520.36	469.30	0.00	0.00	0.00	0.00	0.00
950.00	36.28	85.79	216.13	366.40	430.15	424.76	377.72	0.00	0.00	0.00	0.00	0.00
1000.00	31.41	70.19	175.97	300.53	354.43	348.73	306.11	0.00	0.00	0.00	0.00	0.00
1050.00	28.30	58.89	144.73	248.11	293.84	288.26	250.15	0.00	0.00	0.00	0.00	0.00
1100.00	26.39	50.88	120.54	206.45	245.40	240.25	206.51	0.00	0.00	0.00	0.00	0.00
1150.00	25.24	45.34	101.97	173.43	206.76	202.24	172.64	0.00	0.00	0.00	0.00	0.00
1200.00	24.57	41.61	87.86	147.38	176.07	172.30	146.54	0.00	0.00	0.00	0.00	0.00
1250.00	24.18	39.15	77.29	126.98	151.83	148.90	126.65	0.00	0.00	0.00	0.00	0.00

ELECTRON CONTENT	=	2.18E 13	4.85E 13	6.67E 13	9.67E 13	1.10E 14	1.14E 14	1.00E 14	6.18E 13	4.22E 13	3.43E 13	2.34E 13	1.37E 13
PEAK ELECTRON DENSITY	=	7.11E 05	1.43E 06	1.64E 06	2.25E 06	2.53E 06	2.71E 06	2.59E 06	1.99E 06	1.53E 06	1.35E 06	9.49E 05	5.40E 05
HEIGHT OF PEAK	=	367.86	368.16	451.08	464.29	461.99	456.31	474.09	487.40	385.13	352.60	341.95	346.26
ESPROB PERCENT	=	61.21	59.90	58.64	57.77	57.51	57.94	58.94	60.24	61.50	62.38	62.63	62.21
AVNES/1000. CM-3	=	104.11	258.66	249.49	223.80	186.58	144.49	104.11	70.33	45.53	29.67	21.27	18.70
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = 40.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3	X10-9	(CM. -3	X10-3)						
120.00	42.68	89.89	145.96	167.21	146.07	89.93	42.69	2.02	2.02	2.02	2.02	2.02
130.00	50.59	157.17	223.73	245.03	222.87	154.47	49.49	1.74	1.74	1.74	1.75	1.75
140.00	79.19	200.84	261.19	281.15	260.85	196.48	73.73	2.13	2.14	2.16	2.18	2.20
150.00	107.13	226.31	281.49	301.84	283.33	222.74	99.06	2.48	2.49	2.52	2.54	2.55
160.00	127.67	244.66	295.56	317.53	300.68	242.80	119.71	2.65	2.65	2.66	2.67	2.67
170.00	143.10	261.69	308.44	332.96	317.44	261.63	136.77	2.67	2.67	2.65	2.64	2.63
180.00	156.60	281.13	323.53	351.35	336.50	282.07	152.47	2.61	2.58	2.55	2.52	2.49
190.00	170.64	306.18	343.55	375.17	360.13	306.32	168.90	2.49	2.45	2.39	2.35	2.31
200.00	187.40	339.71	370.70	406.39	390.19	336.30	187.92	2.34	2.29	2.22	2.16	2.12
210.00	209.12	417.03	430.36	490.03	457.49	425.22	270.85	2.19	2.12	2.04	1.98	1.93
220.00	277.52	538.69	509.81	573.12	565.33	552.67	374.47	2.03	1.95	1.86	1.80	1.75
230.00	348.91	635.01	595.83	662.68	650.13	634.39	444.27	1.88	1.79	1.69	1.63	1.58
240.00	425.21	735.14	688.13	758.17	740.28	719.95	518.44	3.41	1.64	1.54	1.47	1.43
250.00	507.84	833.58	783.31	856.74	833.14	806.48	598.38	12.81	1.50	1.40	1.33	1.29
260.00	591.86	924.71	877.22	954.70	925.46	890.70	681.77	36.20	1.37	1.27	1.21	1.17
270.00	671.24	1003.86	965.65	1048.22	1013.84	969.44	765.35	81.63	1.54	1.16	1.09	2.59
280.00	740.54	1067.82	1044.93	1133.85	1095.19	1040.01	845.56	153.96	7.50	1.53	5.95	11.74
290.00	795.91	1114.99	1112.27	1208.82	1167.04	1100.40	919.15	251.98	25.48	8.02	22.29	36.57
300.00	835.45	1145.25	1165.99	1271.25	1227.60	1149.37	983.47	368.49	65.49	28.40	60.29	85.64
320.00	867.80	1159.79	1230.79	1355.23	1311.61	1211.69	1077.93	613.72	235.87	153.77	221.32	257.59
340.00	849.32	1126.22	1243.41	1386.58	1347.09	1229.69	1124.29	812.86	494.08	399.83	448.73	462.83
360.00	798.24	1061.75	1215.15	1373.90	1341.08	1211.72	1127.80	931.21	742.45	671.63	642.64	615.76
380.00	730.60	980.87	1158.89	1328.59	1303.52	1167.65	1098.41	972.98	909.73	869.15	750.42	687.26
400.00	657.59	893.95	1085.99	1261.71	1244.40	1106.73	1046.67	959.09	983.11	962.18	777.11	692.12
420.00	585.87	807.59	1005.15	1182.45	1172.23	1036.42	981.72	911.02	983.34	970.05	749.88	656.31
440.00	518.94	725.57	922.39	1097.66	1093.58	962.24	910.51	845.29	937.79	924.68	694.10	600.79
460.00	458.26	649.76	841.56	1012.12	1013.13	887.99	837.88	772.78	868.45	852.29	626.98	538.79
480.00	404.17	580.87	764.93	928.92	934.03	816.08	766.96	700.00	789.88	769.97	558.35	477.50
500.00	356.42	518.93	693.66	849.91	858.23	747.96	699.61	630.49	710.59	687.39	493.19	420.36
550.00	261.14	391.80	540.92	675.84	689.20	598.06	551.87	479.91	533.13	505.42	356.19	302.05
600.00	192.82	297.26	421.95	536.10	551.64	477.57	434.46	364.00	395.93	367.90	256.13	216.56
650.00	143.68	227.07	330.52	426.26	442.35	382.57	343.23	277.22	294.50	268.29	185.00	156.13
700.00	108.16	174.79	260.41	340.46	356.23	308.09	272.83	212.90	220.52	196.94	134.82	113.70
750.00	82.44	135.71	206.55	273.49	288.48	249.75	218.56	165.54	166.86	146.04	99.57	84.06
800.00	63.87	106.48	165.11	221.15	235.16	204.03	176.78	130.96	128.17	109.90	75.01	63.57
850.00	50.62	84.67	133.21	180.21	193.18	168.22	144.67	106.02	100.57	84.49	58.16	49.64
900.00	41.39	68.54	108.72	148.22	160.16	140.27	120.16	88.38	81.19	66.91	46.86	40.45
950.00	35.17	56.78	90.02	123.31	134.28	118.57	101.63	76.20	67.92	55.05	39.55	34.60
1000.00	31.15	48.41	75.91	104.04	114.13	101.90	87.83	68.01	59.10	47.32	35.00	31.02
1050.00	28.67	42.60	65.41	89.27	98.59	89.28	77.75	62.65	53.41	42.45	32.27	28.90
1100.00	27.18	38.71	57.76	78.13	86.77	79.87	70.55	59.22	49.85	39.48	30.67	27.69
1150.00	26.32	36.17	52.31	69.85	77.92	73.00	65.52	57.05	47.67	37.71	29.76	27.00
1200.00	25.82	34.56	48.52	63.81	71.41	68.07	62.06	55.70	46.35	36.68	29.24	26.61
1250.00	25.54	33.55	45.92	59.50	66.70	64.59	59.73	54.87	45.55	36.07	28.94	26.39

ELECTRON CONTENT	=	2.56E 13	3.78E 13	4.57E 13	5.42E 13	5.44E 13	4.86E 13	4.24E 13	2.98E 13	2.81E 13	2.59E 13	2.01E 13	1.79E 13
PEAK ELECTRON DENSITY	=	8.68E 05	1.16E 06	1.24E 06	1.39E 06	1.35E 06	1.23E 06	1.13E 06	9.74E 05	9.91E 05	9.75E 05	7.77E 05	6.96E 05
HEIGHT OF PEAK	=	321.59	315.06	335.29	343.46	346.55	339.09	351.60	383.73	409.65	411.91	398.14	391.40
ESPROB PERCENT	=	50.71	60.60	68.45	72.17	70.76	64.59	55.31	45.43	37.57	33.85	35.27	41.44
AVNES/1000. CM-3	=	143.84	311.47	301.78	274.51	234.62	188.81	143.84	104.98	75.16	55.03	43.76	40.17
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

139

PENN STATE MK. I IONOSPHERIC MODELS FOR SUMMER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = 60.00

S 10.7 = 200.00 S 10.7 (1A.U.) = 206.50

DAY = 172.00

MONTH = 6

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	50.41	83.37	118.40	132.11	118.42	83.39	50.42	27.61	2.02	2.02	2.02	27.61	
130.00	75.50	146.87	192.70	207.30	191.17	144.05	73.37	27.83	1.74	1.74	1.75	27.77	
140.00	114.59	189.48	231.65	244.24	229.42	184.69	108.34	28.04	2.14	2.16	2.18	28.54	
150.00	142.71	212.55	251.86	263.26	250.18	208.52	135.07	33.93	2.49	2.52	2.54	37.28	
160.00	160.91	226.28	264.18	274.79	263.62	224.33	153.90	45.20	2.65	2.66	2.67	51.65	
170.00	173.87	235.90	273.42	283.25	274.11	236.75	168.21	57.93	2.67	2.65	2.64	65.69	
180.00	184.77	244.40	282.49	291.27	284.08	248.17	180.58	69.81	2.58	2.55	2.52	77.07	
190.00	195.79	254.14	293.71	300.85	295.33	260.21	192.75	80.37	2.45	2.39	2.35	85.77	
200.00	208.91	267.23	308.99	313.62	309.38	274.28	206.03	90.01	2.29	2.22	2.16	92.59	
210.00	231.32	292.50	353.11	339.76	346.05	314.37	249.63	99.54	2.12	2.04	1.98	98.30	
220.00	282.77	344.56	403.79	386.99	393.29	360.35	293.00	109.87	1.95	1.86	1.80	103.57	
230.00	338.61	398.77	454.04	434.87	441.45	408.31	339.82	122.04	1.79	1.69	1.63	109.02	
240.00	395.85	452.19	501.51	481.45	488.78	456.59	389.48	194.18	1.64	1.54	1.47	115.31	
250.00	450.38	501.81	544.10	524.90	533.47	503.36	440.18	248.97	1.50	1.40	1.33	123.27	
260.00	498.39	545.07	580.22	563.65	573.99	546.87	489.82	297.35	2.61	1.27	1.21	133.85	
270.00	537.11	580.18	608.91	596.54	609.13	585.65	536.31	349.99	10.37	1.16	1.82	148.05	
280.00	565.11	606.28	629.82	622.89	638.10	618.62	577.84	405.82	30.03	1.67	8.33	172.45	
290.00	582.22	623.27	643.11	642.48	660.52	645.16	613.07	462.28	67.94	7.62	26.22	215.29	
300.00	589.24	631.71	649.32	655.43	676.40	665.03	641.22	516.47	126.84	24.24	61.98	261.59	
320.00	578.72	626.91	643.73	663.27	689.89	685.56	675.52	607.69	291.35	113.14	189.47	362.21	
340.00	546.15	601.09	620.26	651.57	682.94	683.90	683.00	665.63	461.70	268.95	344.61	451.36	
360.00	502.58	563.03	585.76	626.15	661.01	665.51	669.46	688.09	583.15	427.92	462.61	508.00	
380.00	455.56	519.39	545.63	592.28	629.27	635.84	641.41	680.93	641.03	535.81	519.69	527.18	
400.00	409.48	474.58	503.63	554.03	591.98	599.50	604.61	652.91	647.18	581.36	525.83	516.00	
420.00	366.56	431.21	462.19	514.31	552.25	559.98	563.52	612.32	620.24	578.99	500.36	485.31	
440.00	327.68	390.66	422.71	475.05	512.25	519.73	521.20	565.64	575.72	547.81	459.25	444.69	
460.00	292.99	353.51	385.92	437.40	473.37	480.33	479.67	517.31	524.08	502.64	412.72	400.80	
480.00	262.26	319.87	352.09	402.01	436.43	442.74	440.10	470.09	471.48	452.85	366.40	357.64	
500.00	235.12	289.62	321.24	369.17	401.86	407.48	403.11	425.52	421.20	403.65	323.05	317.30	
550.00	180.33	227.06	256.22	298.39	326.54	330.56	323.10	329.50	313.50	296.46	232.94	233.10	
600.00	139.80	179.53	205.71	242.19	266.09	268.85	259.78	255.30	232.54	216.09	167.64	171.44	
650.00	109.38	143.13	166.39	197.79	218.04	219.89	210.19	199.08	173.48	158.18	121.45	127.07	
700.00	86.26	114.99	135.56	162.64	179.83	181.06	171.34	156.62	130.90	116.97	89.07	95.12	
750.00	68.54	93.04	111.24	134.68	149.38	150.20	140.81	124.53	100.47	87.90	66.56	72.03	
800.00	54.91	75.84	91.99	112.39	125.05	125.62	116.76	100.32	79.01	67.62	51.12	55.32	
850.00	44.45	62.35	76.73	94.59	105.62	106.06	97.85	82.15	64.17	53.75	40.79	43.32	
900.00	36.49	51.80	64.68	80.41	90.13	90.55	83.06	68.70	54.20	44.53	34.10	34.84	
950.00	30.55	43.64	55.25	69.21	77.89	78.36	71.61	58.94	47.72	38.62	29.93	29.01	
1000.00	26.26	37.44	47.99	60.46	68.32	68.89	62.90	52.06	43.63	34.96	27.44	25.16	
1050.00	23.29	32.84	42.50	53.74	60.95	61.66	56.41	47.35	41.12	32.76	25.99	22.73	
1100.00	21.33	29.55	38.47	48.68	55.40	56.26	51.70	44.22	39.62	31.48	25.17	21.25	
1150.00	20.11	27.27	35.59	44.97	51.29	52.32	48.36	42.19	38.72	30.74	24.70	20.39	
1200.00	19.37	25.76	33.59	42.30	48.32	49.49	46.05	40.91	38.19	30.31	24.44	19.89	
1250.00	18.94	24.78	32.24	40.43	46.22	47.51	44.48	40.10	37.87	30.06	24.29	19.60	

ELECTRON CONTENT	=	1.88E 13	2.26E 13	2.51E 13	2.75E 13	2.92E 13	2.88E 13	2.71E 13	2.42E 13	1.87E 13	1.59E 13	1.38E 13	1.63E 13
PEAK ELECTRON DENSITY	=	5.90E 05	6.33E 05	6.50E 05	6.63E 05	6.90E 05	6.87E 05	6.83E 05	6.89E 05	6.50E 05	5.85E 05	5.28E 05	5.27E 05
HEIGHT OF PEAK	=	302.81	306.11	304.77	317.08	322.34	328.08	336.18	364.33	392.56	408.31	392.63	381.49
ESPROB PERCENT	=	29.11	46.32	60.05	66.63	64.30	53.68	37.61	20.40	6.67	0.09	2.42	13.04
AVNES/1000. CM-3	=	61.07	138.12	133.62	121.00	102.60	81.57	61.07	43.53	30.25	21.43	16.56	15.03
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = 0.0 LATITUDE = -60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	2.02	2.02	27.66	50.44	83.44	118.52	132.22	118.49	83.43	50.44	27.66	2.02
130.00	1.74	1.74	27.81	75.67	147.44	193.59	208.00	191.44	144.16	73.47	27.86	1.74
140.00	2.16	2.18	28.61	115.13	191.50	234.43	246.24	230.11	184.85	108.50	28.09	2.14
150.00	2.52	2.53	37.49	144.05	217.41	257.98	267.41	251.53	208.71	135.22	34.07	2.49
160.00	2.66	2.67	51.98	163.75	235.86	275.48	282.13	265.95	224.57	154.00	45.40	2.65
170.00	2.65	2.64	66.11	179.24	252.71	292.16	295.01	277.80	237.06	168.22	58.07	2.66
180.00	2.54	2.51	77.57	194.15	271.60	311.42	308.92	289.58	248.58	180.48	69.73	2.58
190.00	2.39	2.34	86.41	211.21	295.70	336.08	326.10	303.20	260.78	192.49	79.87	2.44
200.00	2.21	2.15	93.44	233.07	327.84	368.50	348.42	320.25	275.07	205.57	88.85	2.28
210.00	2.03	1.97	99.52	304.51	411.74	456.37	404.07	358.71	316.23	242.53	97.34	2.11
220.00	1.85	1.79	105.34	375.79	535.94	580.55	494.28	428.91	362.95	286.73	106.15	1.94
230.00	1.69	1.62	111.59	454.41	622.42	660.51	560.06	484.59	411.83	333.81	116.11	1.78
240.00	1.53	1.47	119.05	536.91	707.83	738.46	625.57	540.33	461.20	384.18	128.12	1.63
250.00	1.39	1.33	128.64	617.42	787.16	810.70	688.15	594.04	509.19	436.18	195.58	1.49
260.00	1.26	1.20	141.43	690.02	856.19	874.20	745.37	643.75	553.96	487.74	239.58	1.36
270.00	1.15	1.09	158.52	750.05	911.99	926.79	795.32	687.86	593.99	536.65	284.36	2.33
280.00	1.04	3.61	180.91	794.83	953.13	967.31	836.69	725.19	628.13	580.94	332.88	9.13
290.00	2.78	14.11	227.64	823.58	979.47	995.51	868.82	755.08	655.69	619.07	383.52	26.19
300.00	11.18	39.33	281.03	837.08	991.90	1011.87	891.60	777.32	676.44	650.09	433.81	58.86
320.00	71.95	150.09	403.13	826.07	981.61	1013.42	910.96	799.81	698.14	689.46	523.32	175.17
340.00	207.05	310.80	523.15	780.00	937.29	982.74	901.00	797.02	696.96	700.61	585.91	325.37
360.00	369.23	450.18	609.88	715.70	873.26	931.12	869.75	775.14	678.47	689.19	616.36	453.15
380.00	494.97	528.82	649.65	645.08	800.39	867.94	824.80	740.36	648.30	661.94	618.07	529.10
400.00	559.46	549.29	647.17	575.27	725.86	800.06	772.29	697.95	611.21	624.96	598.48	554.42
420.00	570.99	530.83	615.32	509.99	653.96	732.02	716.72	651.85	570.82	583.02	565.33	543.81
440.00	548.27	491.67	567.09	450.80	586.91	666.57	661.14	604.88	529.65	539.49	525.01	512.14
460.00	507.55	444.20	512.21	398.07	525.68	605.20	607.43	558.86	489.34	496.55	482.08	470.46
480.00	459.72	395.57	456.82	351.54	470.47	548.62	556.70	514.91	450.89	455.52	439.46	425.70
500.00	411.08	349.38	404.32	310.70	421.05	496.99	509.50	473.63	414.83	417.10	398.82	381.74
550.00	302.94	252.30	293.69	229.40	319.93	388.41	407.61	383.44	336.20	333.87	310.45	285.57
600.00	221.02	181.55	212.70	170.90	244.67	304.87	326.87	310.99	273.20	268.02	241.71	212.50
650.00	161.86	131.44	154.97	128.48	188.49	240.77	263.48	253.48	223.28	216.51	189.45	159.15
700.00	119.79	96.30	113.96	97.49	146.33	191.42	213.70	207.90	183.76	176.24	149.89	120.82
750.00	90.16	71.85	84.81	74.76	114.55	153.29	174.49	171.70	152.41	144.68	119.94	93.64
800.00	69.56	55.08	64.11	58.13	90.54	123.74	143.54	142.90	127.51	119.91	97.31	74.70
850.00	55.53	43.84	49.53	46.07	72.45	100.83	119.08	119.99	107.77	100.52	80.33	61.83
900.00	46.26	36.55	39.43	37.49	58.92	83.14	99.79	101.81	92.18	85.44	67.77	53.36
950.00	40.35	32.01	32.63	31.59	48.95	69.58	84.67	87.47	80.00	73.85	58.71	47.96
1000.00	36.72	29.29	28.24	27.69	41.77	59.33	72.94	76.30	70.61	65.11	52.34	44.63
1050.00	34.55	27.70	25.51	25.24	36.75	51.73	63.96	67.71	63.51	58.66	48.02	42.62
1100.00	33.29	26.80	23.88	23.77	33.36	46.22	57.22	61.24	58.26	54.02	45.17	41.42
1150.00	32.56	26.29	22.93	22.90	31.14	42.34	52.28	56.46	54.46	50.77	43.33	40.72
1200.00	32.14	26.00	22.38	22.41	29.72	39.67	48.72	53.00	51.77	48.54	42.17	40.30
1250.00	31.90	25.84	22.08	22.12	28.84	37.86	46.21	50.54	49.89	47.03	41.45	40.06

ELECTRON CONTENT	=	1.57E 13	1.44E 13	1.96E 13	2.47E 13	3.23E 13	3.67E 13	3.61E 13	3.34E 13	2.93E 13	2.78E 13	2.23E 13	1.64E 13
PEAK ELECTRON DENSITY	=	5.72E 05	5.49E 05	6.53E 05	8.39E 05	9.93E 05	1.02E 06	9.11E 05	8.01E 05	7.00E 05	7.01E 05	6.20E 05	5.55E 05
HEIGHT OF PEAK	=	415.16	398.74	388.33	304.97	305.00	310.56	322.34	327.28	328.58	338.88	371.08	402.59
ESPROB PERCENT	=	12.57	14.85	24.23	38.20	53.02	64.72	70.16	67.88	58.50	44.53	29.71	18.01
AVNES/1000. CM-3	=	38.43	30.37	27.82	102.39	223.91	216.87	197.08	168.13	134.93	102.39	74.33	52.87
SIGMA ES	=	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = 0.0 LATITUDE = -40.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)									
120.00	2.02	2.02	2.02	42.70	89.92	146.05	167.28	146.10	89.95	42.70	2.02	2.02		
130.00	1.74	1.74	1.75	50.65	157.31	224.30	245.43	222.99	154.37	49.54	1.73	1.74		
140.00	2.16	2.18	2.20	79.35	201.20	262.87	282.21	261.09	195.96	73.83	2.12	2.14		
150.00	2.52	2.53	2.55	107.28	227.03	285.03	303.98	283.76	221.40	99.11	2.47	2.49		
160.00	2.66	2.67	2.67	127.69	245.99	301.95	321.23	301.37	240.19	119.58	2.64	2.65		
170.00	2.65	2.64	2.62	142.88	263.97	318.87	338.85	318.52	257.16	136.30	2.67	2.66		
180.00	2.54	2.51	2.49	155.98	284.82	339.46	360.16	338.13	275.06	151.47	2.60	2.58		
190.00	2.39	2.34	2.31	169.44	311.86	366.67	387.76	362.49	295.92	167.12	2.48	2.44		
200.00	2.21	2.15	2.11	185.35	348.06	402.84	423.63	393.51	321.55	185.01	2.34	2.28		
210.00	2.03	1.97	1.92	205.87	434.63	479.75	502.72	466.93	394.71	280.04	2.18	2.11		
220.00	1.85	1.79	1.74	276.31	565.71	601.06	624.73	580.60	504.35	358.41	2.02	1.94		
230.00	1.69	1.62	1.57	341.98	665.35	700.17	720.35	666.09	577.76	422.68	1.87	1.78		
240.00	1.53	1.47	1.42	414.24	767.81	804.74	821.24	756.09	654.08	492.11	1.67	1.63		
250.00	1.39	1.33	1.28	490.95	867.30	910.46	923.88	847.66	730.62	566.56	1.30	1.49		
260.00	1.26	1.20	1.16	566.98	958.15	1012.52	1024.30	937.44	804.39	643.45	1.16	1.36		
270.00	1.15	1.09	1.09	636.80	1035.78	1106.31	1022.12	872.66	719.67	511.14	1.04	1.24		
280.00	1.04	3.11	8.77	695.86	1097.25	1188.15	1203.14	1098.82	933.14	791.95	0.94	1.41		
290.00	4.04	12.24	27.76	741.25	1141.30	1255.64	1165.30	984.23	857.39	727.13	1.84	1.48		
300.00	15.34	34.31	65.73	771.86	1168.11	1306.97	1334.41	1220.12	1024.97	913.72	3.25	4.74		
320.00	90.99	131.89	200.32	791.41	1175.70	1362.58	1408.87	1292.64	1074.80	994.11	5.27	170.04		
340.00	249.37	274.33	362.10	767.49	1136.11	1362.50	1429.70	1318.08	1086.00	1030.38	6.86	354.53		
360.00	431.77	398.41	482.96	716.98	1067.00	1320.54	1407.10	1304.44	1066.42	1028.39	7.75	530.54		
380.00	568.53	468.75	539.46	653.85	982.80	1251.08	1353.27	1261.82	1024.92	997.65	8.03	647.84		
400.00	635.64	487.35	543.27	587.43	893.64	1166.18	1279.50	1199.97	969.56	947.82	7.87	698.18		
420.00	644.44	471.29	514.99	523.11	805.83	1074.75	1194.88	1126.93	906.77	887.07	7.44	696.89		
440.00	616.27	436.73	471.22	463.57	722.92	982.80	1106.04	1048.79	841.19	821.48	6.89	663.58		
460.00	569.04	394.72	422.41	409.86	646.60	894.04	1017.48	969.80	775.98	755.21	6.28	613.82		
480.00	514.59	351.64	374.21	362.12	577.45	810.57	932.05	892.76	713.12	690.91	5.68	557.82		
500.00	459.67	310.70	329.33	320.03	515.41	733.41	851.42	819.37	653.77	630.10	5.11	501.55		
550.00	338.30	224.68	236.57	236.00	388.39	569.17	674.96	656.75	523.61	497.34	3.89	376.14		
600.00	246.65	162.08	169.74	175.54	294.18	442.10	534.16	525.14	419.24	392.18	2.95	279.67		
650.00	180.52	117.89	122.70	131.80	224.36	344.88	423.88	420.89	336.96	310.56	2.25	208.74		
700.00	133.50	87.09	89.90	99.97	172.43	270.60	337.96	338.88	272.41	247.55	1.73	157.41		
750.00	100.36	65.89	67.22	76.74	133.67	213.73	271.00	274.43	221.76	198.95	1.36	120.62		
800.00	77.30	51.60	51.81	59.84	104.72	170.11	218.76	223.74	182.00	161.50	1.09	94.60		
850.00	61.57	42.25	41.61	47.70	83.16	136.63	177.97	183.85	150.82	132.71	0.91	76.54		
900.00	51.15	36.37	35.09	39.17	67.23	110.99	146.14	152.52	126.46	110.74	0.76	64.33		
950.00	44.50	32.81	31.09	33.39	55.65	91.47	121.38	127.99	107.57	94.17	0.68	56.34		
1000.00	40.40	30.74	28.74	29.64	47.41	76.76	102.26	108.92	93.08	81.86	0.62	51.28		
1050.00	37.95	29.56	27.38	27.31	41.72	65.85	87.64	94.26	82.13	72.92	0.58	48.17		
1100.00	36.52	28.89	26.62	25.92	37.92	57.91	76.63	83.13	74.02	66.56	0.56	46.28		
1150.00	35.70	28.52	26.19	25.12	35.45	52.26	68.46	74.83	68.12	62.13	0.54	45.16		
1200.00	35.23	28.31	25.96	24.65	33.88	48.33	62.53	68.76	63.92	59.12	0.53	44.49		
1250.00	34.95	28.20	25.82	24.39	32.90	45.65	58.29	64.38	60.97	57.09	0.53	44.09		

ELECTRON CONTENT = 1.77E 13 1.31E 13 1.42E 13 2.36E 13 3.80E 13 4.92E 13 5.52E 13 5.28E 13 4.33E 13 3.89E 13 2.49E 13 2.04E 13
 PEAK ELECTRON DENSITY = 6.47E 05 4.87E 05 5.47E 05 7.92E 05 1.18E 06 1.37E 06 1.43E 06 1.32E 06 1.09E 06 1.03E 06 8.04E 05 7.03E 05
 HEIGHT OF PEAK = 413.41 398.94 391.38 317.75 312.48 329.71 338.67 342.18 336.39 348.56 381.10 408.93
 ESPROB PERCENT = 29.97 31.58 38.39 48.59 59.43 68.02 72.06 70.45 63.64 53.45 42.60 34.01
 AVNES/1000. CM-3 = 53.02 42.17 38.72 138.45 299.64 290.32 264.11 225.75 181.69 138.45 101.07 72.38
 SIGMA ES = 0.68 0.63 0.55 0.48 0.42 0.40 0.42 0.47 0.55 0.62 0.68 0.70

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = 0.0 LATITUDE = -20.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00

ALTITUDE	ELECTRON DENSITY			METERS -3 X10-9	(CM. -3 X10-3)							
120.00	2.02	2.02	2.02	30.67	82.17	150.03	176.04	150.27	82.23	30.67	2.02	2.02
130.00	1.74	1.74	1.75	30.21	145.33	227.40	253.65	227.58	142.95	30.26	1.73	1.74
140.00	2.16	2.18	2.20	33.97	189.13	263.03	288.72	265.79	185.85	32.49	2.12	2.14
150.00	2.52	2.53	2.55	48.32	214.48	280.56	308.43	288.95	213.85	42.60	2.47	2.49
160.00	2.66	2.67	2.67	65.88	231.86	290.71	323.07	307.48	236.13	57.13	2.64	2.65
170.00	2.65	2.64	2.62	81.12	246.98	298.33	337.43	326.02	257.94	72.10	2.67	2.66
180.00	2.54	2.51	2.49	93.35	263.30	306.60	354.73	347.58	282.44	86.47	2.60	2.58
190.00	2.39	2.34	2.31	103.72	283.76	318.00	377.46	374.53	312.09	100.85	2.48	2.44
200.00	2.21	2.15	2.11	113.68	311.05	334.53	407.84	408.80	349.02	116.56	2.34	2.28
210.00	2.03	1.97	1.92	124.61	347.45	357.76	446.37	451.78	418.15	135.36	2.18	2.11
220.00	1.85	1.79	1.74	137.89	433.73	388.86	494.75	504.32	578.07	159.31	2.02	1.94
230.00	1.69	1.62	1.57	155.09	526.10	428.57	553.02	617.60	680.75	304.13	1.87	1.79
240.00	1.53	1.47	1.42	206.47	626.19	513.05	669.14	730.25	789.07	493.73	1.72	1.63
250.00	1.39	1.33	1.28	272.46	734.34	600.41	780.82	844.24	905.74	591.10	1.59	1.49
260.00	1.26	1.20	1.16	333.41	845.72	690.89	901.19	967.52	1028.51	691.31	1.40	1.36
270.00	2.91	4.54	3.73	400.56	954.28	790.11	1029.94	1098.25	1153.30	799.89	21.51	1.76
280.00	13.74	18.18	14.74	470.83	1054.04	895.69	1163.60	1232.61	1275.59	914.46	58.01	8.82
290.00	44.60	51.50	41.28	539.52	1140.13	1003.52	1297.57	1366.08	1390.83	1030.90	126.28	30.70
300.00	108.67	112.20	88.99	601.90	1209.31	1108.91	1426.84	1493.93	1495.11	1144.38	231.89	80.31
320.00	350.79	306.30	238.83	694.02	1292.26	1294.93	1653.57	1716.42	1659.70	1344.65	535.84	295.75
340.00	666.60	520.15	400.51	734.48	1306.63	1427.60	1817.45	1876.45	1757.62	1488.42	875.19	626.93
360.00	925.25	669.62	510.96	729.55	1268.51	1497.59	1909.14	1966.10	1791.22	1566.05	1147.02	947.89
380.00	1065.57	733.14	555.84	693.42	1196.40	1509.65	1933.42	1990.25	1771.51	1582.38	1306.96	1164.93
400.00	1098.09	730.10	551.02	639.99	1106.00	1475.95	1902.98	1961.03	1712.23	1550.10	1362.26	1260.52
420.00	1059.19	687.82	517.41	579.59	1008.63	1410.33	1832.70	1892.51	1626.66	1483.59	1341.64	1261.25
440.00	982.16	627.27	470.74	518.73	911.61	1325.20	1736.47	1797.95	1525.84	1395.93	1274.41	1202.64
460.00	889.64	561.34	420.51	461.00	819.18	1230.22	1625.60	1688.25	1418.07	1297.36	1183.01	1113.27
480.00	794.80	496.91	371.75	408.11	733.52	1132.29	1508.51	1571.68	1309.19	1195.24	1082.27	1012.01
500.00	704.39	437.21	326.75	360.63	655.51	1035.94	1391.07	1454.06	1203.04	1094.45	981.09	909.88
550.00	512.92	314.17	234.44	264.55	493.55	817.20	1117.34	1177.39	962.47	864.88	752.38	681.49
600.00	371.67	225.51	168.29	195.20	372.42	639.14	887.91	942.81	764.91	677.57	571.40	505.12
650.00	270.33	162.97	121.89	145.37	282.61	499.67	704.14	753.10	607.98	530.76	434.21	374.80
700.00	198.16	119.17	89.66	109.48	216.01	391.90	559.52	602.56	484.87	417.39	331.62	279.70
750.00	146.95	88.72	67.53	83.62	166.50	308.93	446.36	483.92	388.66	330.24	255.29	210.62
800.00	110.84	67.82	52.64	65.09	129.68	245.07	357.90	390.55	313.51	263.34	198.72	160.64
850.00	85.65	53.81	42.92	52.01	102.36	195.89	288.70	317.05	254.82	212.07	157.04	124.75
900.00	68.45	44.71	36.82	43.00	82.23	158.05	234.53	259.17	209.02	172.89	126.66	99.31
950.00	57.03	39.03	33.14	37.02	67.59	129.03	192.14	213.61	173.40	143.14	104.96	81.65
1000.00	49.71	35.62	31.00	33.22	57.16	106.91	159.05	177.84	145.85	120.79	89.55	69.72
1050.00	45.19	33.64	29.79	30.90	49.92	90.23	133.35	149.89	124.75	104.24	79.06	61.91
1100.00	42.48	32.51	29.11	29.52	45.04	77.82	113.55	128.20	108.78	92.20	72.07	56.95
1150.00	40.89	31.88	28.74	28.72	41.84	68.75	98.45	111.56	96.88	83.62	67.51	53.87
1200.00	39.97	31.52	28.53	28.27	39.78	62.26	87.11	98.94	88.17	77.61	64.58	51.99
1250.00	39.44	31.32	28.41	28.00	38.49	57.70	78.72	89.52	81.89	73.48	62.73	50.86

ELECTRON CONTENT	=	2.89E 13	1.91E 13	1.46E 13	2.22E 13	4.30E 13	5.73E 13	7.64E 13	8.04E 13	7.01E 13	5.80E 13	4.12E 13	3.56E 13
PEAK ELECTRON DENSITY	=	1.10E 06	7.38E 05	5.59E 05	7.37E 05	1.31E 06	1.51E 06	1.93E 06	1.99E 06	1.79E 06	1.58E 06	1.36E 06	1.27E 06
HEIGHT OF PEAK	=	397.40	388.39	387.11	347.20	334.55	374.49	377.99	378.19	361.76	375.84	403.27	409.77
ESPROR PERCENT	=	54.87	55.27	57.80	61.80	66.18	69.78	71.63	71.23	68.69	64.70	60.31	56.71
AVNES/1000. CM-3	=	58.41	45.87	41.89	158.75	350.70	339.56	308.24	262.48	210.05	158.75	114.63	80.97
SIGMA ES	=	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70

MONTH = 12

[illegible]

ELECTRON CONTENT	=	4.59E 13	3.57E 13	3.58E 13	3.25E 13	2.62E 13	2.35E 13	3.10E 13	4.47E 13	5.74E 13	6.87E 13	6.65E 13	5.42E 13
PEAK ELECTRON DENSITY	=	1.21E 06	1.17E 06	1.28E 06	1.25E 06	1.03E 06	9.35E 05	1.05E 06	1.36E 06	1.51E 06	1.73E 06	1.62E 06	1.35E 06
HEIGHT OF PEAK	=	376.12	403.50	409.73	397.22	388.26	387.03	347.45	334.76	374.90	378.37	378.53	362.03
ESPROB PERCENT	=	64.76	60.43	56.87	55.04	55.43	57.94	61.89	66.22	69.78	71.61	71.22	68.71
AVNSES/1000. CM-3	=	158.75	114.60	80.93	58.37	45.83	41.85	158.75	350.79	339.64	308.31	262.52	210.07
SIGMA ES	=	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55

MONTH = 12

[illegible]

ELECTRON CONTENT	=	3.44E 13	2.08E 13	1.37E 13	8.12E 12	7.26E 12	5.77E 12	1.03E 13	4.38E 13	6.64E 13	6.85E 13	6.90E 13	5.78E 13
PEAK ELECTRON DENSITY	=	1.06E 06	6.91E 05	4.69E 05	2.65E 05	2.43E 05	1.80E 05	3.64E 05	1.50E 06	2.01E 06	1.86E 06	1.79E 06	1.53E 06
HEIGHT OF PEAK	=	341.26	339.75	346.43	348.29	351.10	392.97	367.44	290.96	306.83	331.59	345.59	343.42
ESPROB PERCENT	=	36.00	22.81	11.98	6.41	7.60	15.22	27.24	40.44	51.27	56.84	55.65	48.03
AVNES/1000. CM-3	=	50.16	33.60	21.49	13.81	9.76	8.53	50.16	126.43	121.89	109.19	90.80	70.03
SIGMA ES	=	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -90.00 LATITUDE = 60.00

S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	14.24	27.55	14.24	2.02	
130.00	1.73	1.73	1.74	1.74	1.74	1.75	1.75	1.75	18.54	27.81	18.52	1.73	
140.00	2.12	2.12	2.14	2.16	2.18	2.20	2.21	2.20	18.56	28.27	18.66	3.27	
150.00	2.46	2.47	2.49	2.52	2.53	2.55	2.56	2.55	18.03	35.24	18.21	11.13	
160.00	2.63	2.64	2.65	2.66	2.67	2.67	2.67	2.92	18.74	49.11	18.52	29.78	
170.00	4.13	2.67	2.66	2.65	2.64	2.62	2.62	10.35	22.46	67.77	20.98	65.51	
180.00	12.70	2.60	2.58	2.54	2.51	2.49	2.47	27.27	30.11	92.04	27.03	123.01	
190.00	31.05	4.50	2.44	2.39	2.34	2.31	2.29	56.99	42.19	125.65	38.11	203.16	
200.00	63.12	13.71	2.28	2.21	2.15	2.11	2.10	99.55	60.61	174.25	57.05	302.41	
210.00	110.61	32.43	2.11	2.03	1.97	1.92	1.91	151.35	350.15	612.83	512.71	413.75	
220.00	172.02	62.94	1.94	1.85	1.79	1.79	1.73	206.59	687.94	1090.57	1047.15	528.66	
230.00	243.02	104.60	4.94	1.69	1.62	7.46	2.20	259.37	759.69	1190.97	1152.61	638.99	
240.00	317.76	153.90	14.22	1.53	1.47	19.84	7.13	305.16	822.71	1278.81	1248.71	738.28	
250.00	390.41	205.82	31.82	3.33	3.48	40.78	17.21	341.37	874.65	1351.39	1332.18	822.30	
260.00	456.18	255.35	58.54	11.31	12.36	68.99	33.22	367.17	914.23	1407.30	1400.86	888.98	
270.00	511.88	298.66	92.55	28.38	31.86	100.80	54.02	383.06	941.18	1446.25	1453.66	938.06	
280.00	555.94	333.47	130.15	56.49	64.35	131.87	77.11	390.27	956.03	1468.91	1490.46	970.52	
290.00	588.08	359.01	167.12	94.25	108.03	158.71	99.60	390.32	959.86	1476.62	1511.93	988.13	
300.00	608.98	375.55	199.99	137.36	157.56	179.36	119.22	384.81	954.10	1471.12	1519.30	993.00	
320.00	622.33	385.90	246.11	219.07	249.57	200.92	145.37	362.57	919.98	1428.18	1498.31	973.51	
340.00	608.12	374.91	264.91	272.72	307.25	201.46	154.24	332.34	865.51	1355.17	1441.17	927.67	
360.00	577.00	351.71	263.10	293.41	326.81	189.59	150.82	299.63	800.34	1264.92	1360.88	867.56	
380.00	537.13	322.92	248.93	289.65	319.32	172.08	140.59	267.49	731.37	1167.02	1267.95	801.41	
400.00	493.92	292.66	228.73	271.78	296.98	153.00	127.43	237.40	663.05	1068.03	1170.08	734.38	
420.00	450.67	263.21	206.54	247.50	268.41	134.46	113.63	210.01	597.99	972.08	1072.49	669.51	
440.00	409.24	235.73	184.60	221.47	238.62	117.42	100.38	185.45	537.57	881.55	978.46	608.42	
460.00	370.59	210.69	164.04	196.17	210.15	102.19	88.20	163.63	482.33	797.64	889.89	551.87	
480.00	335.13	188.23	145.33	172.75	184.11	88.79	77.28	144.34	432.35	720.77	807.72	500.10	
500.00	302.92	168.26	128.58	151.65	160.85	77.10	67.62	127.34	387.42	650.90	732.28	453.04	
550.00	235.83	128.10	94.81	108.92	114.29	54.20	48.36	93.26	294.81	504.47	572.19	354.35	
600.00	185.19	99.38	70.61	78.24	81.27	38.24	34.66	68.56	225.26	392.19	447.91	278.64	
650.00	147.53	79.28	53.55	56.39	58.01	27.10	24.94	50.61	173.08	306.45	352.28	221.03	
700.00	119.88	65.57	41.73	40.81	41.59	19.30	18.03	37.51	133.81	240.90	278.87	177.47	
750.00	99.92	56.52	33.74	29.67	29.96	13.81	13.10	27.92	104.18	190.72	222.58	144.79	
800.00	85.82	50.73	28.50	21.67	21.68	9.94	9.56	20.88	81.76	152.25	179.46	120.57	
850.00	76.09	47.14	25.20	15.90	15.76	7.19	7.02	15.67	64.81	122.80	146.57	102.89	
900.00	69.54	44.97	23.18	11.71	11.51	5.23	5.18	11.81	52.04	100.34	121.64	90.25	
950.00	65.22	43.68	21.99	8.67	8.45	3.84	3.85	8.95	42.48	83.35	102.96	81.38	
1000.00	62.43	42.91	21.29	6.46	6.24	2.84	2.89	6.80	35.42	70.65	89.16	75.31	
1050.00	60.63	42.45	20.89	4.83	4.63	2.14	2.20	5.20	30.30	61.31	79.14	71.21	
1100.00	59.49	42.19	20.66	3.64	3.47	1.64	1.70	4.00	26.67	54.58	72.01	68.48	
1150.00	58.77	42.03	20.52	2.77	2.62	1.29	1.35	3.10	24.16	49.83	67.02	66.68	
1200.00	58.31	41.93	20.45	2.14	2.01	1.06	1.11	2.42	22.47	46.55	63.59	65.50	
1250.00	58.02	41.87	20.40	1.67	1.57	0.90	0.94	1.92	21.35	44.32	61.26	64.73	

ELECTRON CONTENT	=	2.16E 13	1.27E 13	7.82E 12	7.30E 12	7.87E 12	4.76E 12	3.80E 12	1.02E 13	2.91E 13	4.79E 13	5.16E 13	3.41E 13
PEAK ELECTRON DENSITY	=	6.22E 05	3.86E 05	2.66E 05	2.94E 05	3.27E 05	2.03E 05	1.54E 05	3.91E 05	9.60E 05	1.48E 06	1.52E 06	9.93E 05
HEIGHT OF PEAK	=	318.14	317.95	347.34	365.80	362.93	330.19	342.93	284.99	288.74	290.59	300.66	299.28
ESPROB PERCENT	=	17.66	14.20	11.42	10.06	10.50	12.61	15.83	19.30	22.08	23.43	22.99	20.88
AVNES/1000. CM-3	=	26.26	24.73	23.38	22.34	21.68	21.46	26.26	31.55	31.28	30.51	29.31	27.85
SIGMA ES	=	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40	0.42	0.47	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = -60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	132.12	118.43	83.42	50.44	27.66	2.02	2.02	2.02	27.66	50.43	83.40	118.42	
130.00	207.09	190.93	144.02	73.44	27.86	1.74	1.74	1.74	27.81	75.58	146.85	192.56	
140.00	243.43	228.48	184.35	108.36	28.09	2.14	2.16	2.18	28.61	114.54	189.08	230.96	
150.00	261.40	248.02	207.53	134.81	34.07	2.49	2.52	2.53	37.47	142.12	211.32	250.16	
160.00	271.38	259.67	222.36	153.10	45.40	2.65	2.66	2.67	51.89	159.22	223.68	260.95	
170.00	277.74	267.70	233.37	166.55	58.07	2.66	2.65	2.64	65.83	170.36	231.27	268.04	
180.00	283.05	274.46	242.89	177.68	69.74	2.58	2.54	2.51	76.90	178.47	236.95	274.26	
190.00	289.20	281.63	252.44	188.11	79.88	2.44	2.39	2.34	85.07	185.41	242.90	281.79	
200.00	297.72	290.61	263.32	199.01	88.85	2.28	2.21	2.15	91.06	192.78	251.06	292.45	
210.00	309.90	302.58	276.72	214.10	97.35	2.11	2.03	1.97	95.53	202.21	263.15	307.75	
220.00	334.45	326.74	315.00	251.56	106.17	1.94	1.85	1.79	99.01	215.41	288.21	350.65	
230.00	375.90	366.78	357.06	291.85	116.14	1.78	1.69	1.62	101.93	251.40	333.64	394.39	
240.00	416.25	406.12	399.48	334.56	161.39	1.63	1.53	1.47	104.73	293.53	378.50	435.72	
250.00	453.89	443.28	440.60	378.17	206.42	1.49	1.39	1.33	107.95	333.61	420.24	472.82	
260.00	487.46	476.96	478.90	420.88	246.08	2.15	1.26	1.20	112.19	368.88	456.68	504.29	
270.00	515.95	506.16	513.07	460.86	289.17	8.53	1.15	1.22	118.15	397.30	486.34	529.30	
280.00	538.79	530.22	542.15	496.58	334.75	24.60	1.30	5.58	126.55	417.87	508.45	547.53	
290.00	555.75	548.84	565.57	526.88	380.70	55.44	5.92	17.55	141.85	430.48	522.93	559.13	
300.00	566.96	562.02	583.14	551.08	424.66	103.11	18.73	41.39	170.90	435.72	530.24	564.57	
320.00	573.77	573.21	601.37	580.55	498.27	235.24	86.60	125.84	232.43	428.38	526.68	559.80	
340.00	563.68	567.46	600.10	587.01	544.64	370.69	204.30	227.79	285.36	405.13	505.52	539.52	
360.00	541.79	549.33	584.13	575.44	562.27	466.14	323.10	304.59	318.07	374.02	474.12	509.71	
380.00	512.63	523.13	558.26	551.50	556.13	510.67	402.70	341.12	328.64	340.51	438.08	475.05	
400.00	479.74	492.37	526.57	520.13	533.37	514.28	435.44	344.37	321.81	307.75	401.07	438.82	
420.00	445.63	459.65	492.11	485.14	500.72	491.98	432.60	327.19	304.14	277.29	365.27	403.10	
440.00	411.93	426.74	457.03	449.16	463.35	456.07	408.60	300.00	281.15	249.72	331.81	369.10	
460.00	379.65	394.77	422.71	413.87	424.79	414.77	374.46	269.44	256.58	225.10	301.16	337.43	
480.00	349.32	364.42	389.99	380.28	387.18	372.91	337.10	239.14	232.57	203.27	273.40	308.32	
500.00	321.18	336.03	359.30	348.91	351.74	333.03	300.32	210.87	210.22	183.94	248.42	281.78	
550.00	260.56	274.21	292.38	281.05	275.39	247.92	220.59	152.34	163.43	144.63	196.66	225.81	
600.00	212.40	224.57	238.69	227.31	216.21	184.28	161.13	110.23	128.47	115.08	157.14	182.26	
650.00	174.30	185.06	196.04	185.13	171.05	138.16	118.58	80.77	102.30	92.45	126.66	148.26	
700.00	144.06	153.58	162.18	151.97	136.59	105.22	88.62	60.48	82.34	74.84	102.88	121.51	
750.00	119.96	128.45	135.22	125.80	110.22	82.03	67.83	46.79	66.87	60.99	84.16	100.33	
800.00	100.70	108.34	113.72	105.12	90.04	66.03	53.70	37.82	54.70	50.04	69.35	83.49	
850.00	85.30	92.26	96.59	88.79	74.67	55.29	44.38	32.16	45.07	41.37	57.60	70.11	
900.00	73.03	79.47	83.02	75.99	63.11	48.31	38.45	28.73	37.43	34.56	48.32	59.52	
950.00	63.35	69.39	72.36	66.07	54.59	43.93	34.82	26.74	31.40	29.29	41.06	51.23	
1000.00	55.82	61.56	64.12	58.53	48.49	41.26	32.67	25.61	26.70	25.32	35.49	44.85	
1050.00	50.06	55.59	57.86	52.92	44.27	39.67	31.42	24.97	23.13	22.44	31.32	40.05	
1100.00	45.77	51.14	53.22	48.87	41.44	38.73	30.71	24.62	20.53	20.47	28.31	36.54	
1150.00	42.64	47.89	49.86	46.01	39.60	38.18	30.30	24.43	18.72	19.18	26.22	34.06	
1200.00	40.41	45.57	47.47	44.04	38.42	37.85	30.07	24.32	17.53	18.38	24.82	32.34	
1250.00	38.86	43.94	45.80	42.71	37.68	37.66	29.94	24.26	16.78	17.90	23.91	31.19	

ELECTRON CONTENT	=	2.43E 13	2.49E 13	2.57E 13	2.38E 13	2.05E 13	1.52E 13	1.23E 13	9.49E 12	1.18E 13	1.50E 13	1.97E 13	2.23E 13
PEAK ELECTRON DENSITY	=	5.74E 05	5.73E 05	6.03E 05	5.87E 05	5.63E 05	5.17E 05	4.38E 05	3.46E 05	3.29E 05	4.36E 05	5.32E 05	5.65E 05
HEIGHT OF PEAK	=	317.11	322.34	328.28	336.21	363.95	391.75	407.54	392.01	380.91	303.05	306.51	304.84
ESPROB PERCENT	=	66.42	64.11	53.43	37.26	19.93	6.07	-0.59	1.72	12.40	28.57	45.90	59.76
AVNES/1000. CM-3	=	115.98	98.26	78.02	58.31	41.46	28.73	20.27	15.62	14.16	58.31	132.45	128.13
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = -40.00
S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
LOCAL TIME = 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00 6.00 8.00 10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	167.20	146.03	89.94	42.70	2.02	2.02	2.02	2.02	2.02	42.70	89.90	145.97	
130.00	244.85	222.42	154.26	49.55	1.73	1.74	1.74	1.74	1.75	50.65	157.02	223.67	
140.00	280.53	259.43	195.56	73.86	2.12	2.14	2.16	2.18	2.20	79.32	200.05	260.91	
150.00	300.48	280.28	220.48	99.22	2.47	2.49	2.52	2.53	2.55	107.19	224.17	280.78	
160.00	315.09	295.24	238.45	119.85	2.64	2.65	2.66	2.67	2.67	127.45	240.27	294.21	
170.00	329.07	308.74	254.25	136.85	2.67	2.66	2.65	2.64	2.62	142.37	253.90	306.21	
180.00	345.58	323.51	270.52	152.45	2.60	2.58	2.54	2.51	2.49	155.04	268.46	320.15	
190.00	367.07	341.69	289.21	168.76	2.48	2.44	2.39	2.34	2.31	167.82	286.86	338.74	
200.00	395.48	365.05	312.04	187.60	2.34	2.28	2.21	2.15	2.11	182.69	311.72	364.16	
210.00	458.47	417.56	375.65	311.56	2.18	2.11	2.03	1.97	1.92	209.79	368.46	417.81	
220.00	561.68	507.40	474.02	380.25	2.02	1.94	1.85	1.79	1.74	272.05	465.45	511.96	
230.00	644.09	579.28	541.32	446.59	1.87	1.78	1.69	1.62	1.57	332.92	544.04	591.60	
240.00	729.45	653.69	610.57	518.47	1.66	1.63	1.53	1.47	1.42	399.42	623.49	673.41	
250.00	814.48	728.01	679.21	594.69	21.87	1.49	1.39	1.33	1.28	467.93	699.18	753.74	
260.00	895.81	799.48	744.59	672.44	55.44	1.36	1.26	1.20	1.16	533.54	766.93	828.85	
270.00	970.36	865.53	804.34	748.41	114.55	1.86	1.15	1.09	2.01	591.63	823.58	895.61	
280.00	1035.60	924.05	856.55	819.38	201.32	8.62	1.04	3.85	9.16	638.76	867.24	951.69	
290.00	1089.85	973.52	899.94	882.60	311.23	28.23	4.36	15.47	28.67	673.11	897.33	995.74	
300.00	1132.22	1013.11	933.86	936.03	434.64	70.40	17.34	44.07	67.29	694.36	914.29	1027.35	
320.00	1181.19	1061.98	973.28	1009.56	676.75	242.40	109.63	173.23	202.65	701.73	913.99	1055.10	
340.00	1187.37	1073.79	978.74	1038.97	857.57	492.86	312.18	365.05	363.76	674.13	879.48	1043.15	
360.00	1160.21	1055.87	957.65	1031.20	954.18	726.10	553.16	534.29	483.16	626.33	824.20	1002.81	
380.00	1109.92	1016.59	918.02	996.09	977.90	788.05	738.65	631.54	538.35	569.75	758.81	944.81	
400.00	1045.50	963.61	866.95	943.29	951.55	940.51	832.92	658.43	541.35	511.72	690.58	877.66	
420.00	973.94	903.07	809.95	880.71	895.97	935.10	848.84	637.71	512.72	456.29	623.96	807.41	
440.00	900.20	839.51	751.01	814.15	826.32	888.10	814.24	591.43	468.88	405.37	561.36	737.97	
460.00	827.56	776.02	692.75	747.50	752.25	820.05	753.21	534.74	420.16	359.63	503.88	671.70	
480.00	758.06	714.57	636.83	683.21	679.32	744.30	681.84	476.40	372.13	319.02	451.86	609.83	
500.00	692.81	656.35	584.17	622.65	610.48	668.53	609.38	420.85	327.45	283.22	405.17	552.90	
550.00	550.78	528.02	469.00	490.97	462.93	500.25	448.41	303.87	235.15	211.51	309.31	432.17	
600.00	437.79	424.45	376.75	386.98	350.23	370.87	326.35	218.47	168.67	159.47	237.67	338.75	
650.00	349.26	342.36	303.97	306.36	266.18	275.50	237.96	157.88	121.88	121.38	184.02	266.98	
700.00	280.13	277.61	246.76	244.14	204.04	206.08	174.74	115.26	89.22	93.28	143.61	211.80	
750.00	226.08	226.54	201.75	196.14	158.37	155.84	129.75	85.47	66.64	72.45	113.04	169.23	
800.00	183.77	186.20	166.32	159.14	125.09	119.71	97.93	64.87	51.26	57.03	89.88	136.33	
850.00	150.62	154.34	138.45	130.67	101.14	94.01	75.68	50.88	41.05	45.73	72.38	110.89	
900.00	124.69	129.22	116.63	108.93	84.23	76.04	60.42	41.67	34.52	37.62	59.27	91.28	
950.00	104.50	109.52	99.65	92.49	72.58	63.80	50.24	35.81	30.50	31.99	49.61	76.30	
1000.00	88.90	94.20	86.62	80.27	64.77	55.70	43.68	32.24	28.12	28.25	42.67	64.99	
1050.00	77.01	82.43	76.77	71.37	59.67	50.52	39.60	30.13	26.76	25.88	37.82	56.60	
1100.00	68.09	73.54	69.47	65.04	56.42	47.29	37.14	28.92	25.99	24.44	34.56	50.53	
1150.00	61.52	66.94	64.16	60.62	54.38	45.32	35.69	28.23	25.56	23.59	32.42	46.24	
1200.00	56.78	62.14	60.38	57.61	53.11	44.13	34.85	27.84	25.32	23.11	31.07	43.28	
1250.00	53.42	58.70	57.74	55.58	52.32	43.42	34.36	27.62	25.18	22.83	30.22	41.28	

ELECTRON CONTENT = 4.65E 13 4.38E 13 3.94E 13 3.89E 13 2.96E 13 2.67E 13 2.27E 13 1.71E 13 1.42E 13 2.14E 13 3.07E 13 3.88E 13
PEAK ELECTRON DENSITY = 1.19E 06 1.07E 06 9.80E 05 1.04E 06 9.78E 05 9.45E 05 8.51E 05 6.58E 05 5.45E 05 7.04E 05 9.19E 05 1.06E 06
HEIGHT OF PEAK = 333.04 337.06 333.41 345.10 377.92 407.62 414.78 399.54 391.00 313.25 309.57 323.12
ESPROB PERCENT = 71.71 69.88 62.26 50.89 38.83 29.31 24.87 26.70 34.32 45.69 57.75 67.27
AVNES/1000. CM-3 = 247.74 211.73 170.38 129.79 94.71 67.80 49.63 39.46 36.23 129.79 281.10 272.35
SIGMA ES = 0.42 0.47 0.55 0.62 0.68 0.70 0.68 0.63 0.55 0.48 0.42 0.40

MONTH = 12

ELECTRON CONTENT	=	1.04E 14	1.13E 14	1.08E 14	7.50E 13	6.38E 13	5.24E 13	3.69E 13	2.00E 13	8.87E 12	1.32E 13	6.42E 13	1.01E 14
PEAK ELECTRON DENSITY	=	2.60E 06	2.74E 06	2.72E 06	2.26E 06	2.18E 06	1.97E 06	1.48E 06	8.00E 05	3.14E 05	4.80E 05	2.08E 06	2.85E 06
HEIGHT OF PEAK	=	406.83	424.33	417.95	396.97	391.48	359.78	331.87	333.91	394.73	365.79	325.75	362.63
ESPROB PERCENT	=	60.78	62.30	55.89	43.28	27.84	13.72	4.68	3.16	9.57	22.18	37.62	51.74
AVNCS/1000. CM-3	=	170.18	140.84	107.81	76.35	50.31	31.46	19.63	13.50	11.66	76.35	197.74	190.48
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -180.00 LATITUDE = 40.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	62.47	51.31	24.40	2.02	2.02	2.02	2.02	2.02	2.02	2.02	24.40	51.32	
130.00	107.39	76.69	25.53	1.73	1.73	1.74	1.74	1.74	1.75	1.75	25.48	78.08	
140.00	152.78	114.69	24.96	2.12	2.12	2.14	2.16	2.18	2.20	2.21	25.07	119.34	
150.00	188.33	146.47	27.33	2.46	2.47	2.49	2.52	2.53	2.55	2.56	29.79	154.87	
160.00	222.03	174.23	34.75	2.63	2.64	2.65	2.66	2.67	2.67	2.67	41.61	188.62	
170.00	261.23	203.04	46.01	2.67	2.67	2.66	2.65	2.64	2.62	2.62	57.49	228.21	
180.00	311.72	237.50	59.71	4.98	2.60	2.58	2.54	2.51	2.49	2.47	76.46	280.88	
190.00	378.11	281.65	76.02	15.17	2.48	2.44	2.39	2.34	2.31	2.29	100.83	352.87	
200.00	463.46	338.94	96.48	36.86	5.22	2.28	2.21	2.15	2.11	2.10	135.30	448.46	
210.00	795.01	615.87	364.55	74.70	15.76	2.11	2.03	1.97	1.92	1.91	413.40	821.69	
220.00	1163.57	939.22	694.96	130.78	37.12	1.94	1.85	1.79	1.74	1.73	731.31	1218.01	
230.00	1306.45	1063.01	787.91	203.49	71.91	4.34	1.69	1.62	1.57	1.57	814.90	1355.08	
240.00	1443.56	1186.78	880.73	287.91	119.49	12.70	1.53	1.47	1.42	1.42	886.67	1478.60	
250.00	1569.31	1305.72	969.71	377.26	175.99	28.75	5.42	3.99	1.28	3.80	943.47	1583.49	
260.00	1679.21	1415.40	1051.44	464.65	235.74	53.38	14.84	12.58	1.16	11.75	983.92	1666.60	
270.00	1770.15	1512.19	1123.15	544.34	293.06	85.01	31.53	29.58	3.12	27.51	1008.12	1726.65	
280.00	1840.51	1593.55	1182.95	612.42	343.51	120.22	55.24	55.68	9.51	52.00	1017.29	1764.01	
290.00	1890.03	1658.04	1229.79	666.84	384.40	155.06	83.52	88.57	21.87	83.45	1013.36	1780.26	
300.00	1919.48	1705.25	1263.48	707.14	414.72	186.21	112.83	123.95	40.54	118.14	998.52	1777.72	
320.00	1924.97	1750.30	1293.50	748.78	445.44	230.27	162.18	185.66	88.68	181.40	945.03	1727.32	
340.00	1873.91	1738.76	1281.26	749.21	444.97	248.60	189.71	221.14	131.82	221.11	872.57	1634.73	
360.00	1784.41	1684.77	1237.80	722.36	424.94	247.49	196.64	230.67	156.58	235.15	792.63	1519.62	
380.00	1672.13	1602.33	1173.83	679.76	394.60	234.69	190.10	222.97	163.26	230.85	712.52	1392.77	
400.00	1549.01	1503.20	1098.19	629.60	360.14	216.12	176.34	206.18	158.01	216.16	636.39	1266.28	
420.00	1423.40	1396.29	1017.49	577.19	325.26	195.61	159.72	185.86	146.39	196.85	566.27	1144.70	
440.00	1300.69	1287.85	936.27	525.66	291.94	175.31	142.74	165.17	132.28	176.39	502.88	1031.03	
460.00	1184.11	1181.98	857.46	476.77	261.12	156.30	126.67	145.65	117.88	156.64	446.24	926.61	
480.00	1075.36	1081.17	782.79	431.36	233.18	139.04	112.07	127.96	104.28	138.44	395.97	831.80	
500.00	975.18	986.78	713.17	389.75	208.13	123.65	99.10	112.28	91.96	122.10	351.53	746.34	
550.00	761.84	781.67	562.75	301.98	157.15	92.93	73.50	81.33	67.27	89.30	262.03	569.56	
600.00	595.72	618.55	443.96	234.62	119.99	71.44	56.00	60.02	50.21	66.23	196.68	436.28	
650.00	467.47	490.71	351.39	183.47	93.34	56.87	44.49	45.76	38.89	50.41	148.80	335.92	
700.00	368.53	390.87	279.49	144.85	74.54	47.33	37.23	36.52	31.67	39.85	113.57	260.13	
750.00	292.00	312.83	223.63	115.87	61.58	41.33	32.84	30.77	27.28	33.04	87.61	202.68	
800.00	232.63	251.70	180.18	94.30	52.91	37.69	30.30	27.36	24.72	28.83	68.52	158.99	
850.00	186.46	203.69	146.37	78.45	47.28	35.55	28.87	25.42	23.28	26.33	54.61	125.71	
900.00	150.50	165.93	120.09	67.01	43.73	34.32	28.08	24.34	22.49	24.89	44.62	100.37	
950.00	122.49	136.23	99.76	58.92	41.56	33.62	27.65	23.75	22.07	24.08	37.63	81.15	
1000.00	100.73	112.91	84.14	53.33	40.24	33.22	27.42	23.43	21.84	23.63	32.89	66.68	
1050.00	83.91	94.69	72.29	49.55	39.45	32.99	27.29	23.26	21.71	23.37	29.78	55.93	
1100.00	71.04	80.56	63.42	47.04	38.97	32.86	27.22	23.17	21.65	23.23	27.81	48.09	
1150.00	61.30	69.72	56.90	45.39	38.69	32.79	27.18	23.12	21.61	23.16	26.59	42.49	
1200.00	54.05	61.51	52.20	44.32	38.52	32.75	27.16	23.09	21.59	23.11	25.85	38.59	
1250.00	48.76	55.40	48.86	43.62	38.41	32.72	27.14	23.07	21.58	23.09	25.40	35.94	

ELECTRON CONTENT	=	6.76E 13	6.46E 13	4.65E 13	2.49E 13	1.41E 13	8.21E 12	6.33E 12	6.71E 12	5.09E 12	6.99E 12	2.88E 13	5.64E 13
PEAK ELECTRON DENSITY	=	1.93E 06	1.75E 06	1.29E 06	7.53E 05	4.48E 05	2.50E 05	1.97E 05	2.31E 05	1.63E 05	2.35E 05	1.02E 06	1.78E 06
HEIGHT OF PEAK	=	311.45	325.28	323.42	329.86	329.14	347.93	358.28	359.14	379.18	363.80	281.74	293.49
ESPROB PERCENT	=	50.58	49.13	42.26	31.81	20.57	11.57	7.21	8.66	15.53	25.99	37.22	46.22
AVNES/1000. CM-3	=	88.74	75.34	60.02	45.07	32.26	22.54	16.06	12.47	11.34	45.07	101.18	97.91
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -180.00 LATITUDE = 60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00	6.00	8.00	10.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	27.55	14.24	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	14.24
130.00	27.83	18.53	1.73	1.73	1.73	1.74	1.74	1.74	1.75	1.75	1.75	18.55
140.00	28.33	18.68	3.83	2.12	2.12	2.14	2.16	2.18	2.20	2.21	2.20	18.58
150.00	35.53	18.26	12.76	2.46	2.47	2.49	2.52	2.53	2.55	2.56	2.55	18.10
160.00	50.26	18.64	33.52	2.63	2.64	2.65	2.66	2.67	2.67	2.67	6.92	18.92
170.00	71.32	21.29	72.63	2.88	2.67	2.66	2.65	2.64	2.62	2.62	21.15	23.00
180.00	100.95	27.93	134.69	8.79	2.60	2.58	2.54	2.51	2.49	2.47	49.52	31.87
190.00	144.87	40.68	220.18	21.34	2.48	2.44	2.39	2.34	2.31	2.29	94.28	47.38
200.00	210.62	63.65	324.98	43.13	6.01	2.28	2.21	2.15	2.11	2.10	152.99	73.88
210.00	781.98	627.23	441.54	75.23	14.09	2.11	2.03	1.97	1.92	1.91	219.40	491.94
220.00	1393.98	1285.73	560.91	116.54	27.15	1.94	1.85	1.79	1.74	1.73	285.96	967.93
230.00	1517.51	1413.91	674.73	164.12	44.88	1.78	1.69	1.62	2.01	1.57	346.09	1061.22
240.00	1624.28	1530.31	776.50	214.06	65.75	4.19	1.53	1.47	6.79	3.39	395.50	1141.00
250.00	1711.17	1631.04	862.03	262.44	87.63	9.84	1.39	1.33	16.69	9.27	432.30	1204.60
260.00	1776.74	1713.51	929.40	306.13	108.43	18.79	2.86	4.48	32.36	19.70	456.48	1250.88
270.00	1820.92	1776.50	978.50	343.03	126.55	30.61	7.92	12.76	52.46	34.49	469.27	1279.99
280.00	1844.79	1819.95	1010.46	372.13	141.06	44.05	16.99	27.86	74.27	52.11	472.49	1293.04
290.00	1850.18	1844.74	1027.17	393.27	151.66	57.60	30.03	49.61	94.95	70.35	468.11	1291.79
300.00	1839.39	1852.40	1030.89	406.94	158.47	69.91	45.77	75.72	112.37	87.12	458.00	1278.32
320.00	1779.13	1824.45	1008.56	415.40	162.66	87.75	77.60	127.54	133.95	111.30	426.75	1223.28
340.00	1683.00	1752.94	959.62	405.80	158.49	95.61	100.21	162.82	139.31	121.45	388.29	1143.83
360.00	1566.84	1653.71	896.43	385.06	149.33	95.88	110.22	176.94	133.97	120.80	348.31	1052.41
380.00	1442.32	1539.49	827.35	358.60	137.92	91.62	110.29	175.12	123.18	113.78	309.83	957.68
400.00	1317.33	1419.57	757.61	329.98	125.97	85.01	104.38	164.12	110.38	103.80	274.27	865.07
420.00	1196.78	1300.22	690.25	301.39	114.41	77.58	95.59	149.03	97.48	92.93	242.14	777.66
440.00	1083.45	1185.39	626.90	274.05	103.72	70.19	85.87	132.87	85.39	82.30	213.49	696.99
460.00	978.68	1077.33	568.31	248.60	94.11	63.30	76.29	117.23	74.47	72.44	188.13	623.60
480.00	882.91	977.15	514.69	225.29	85.62	57.08	67.37	102.82	64.80	63.55	165.77	557.45
500.00	796.01	885.22	465.96	204.17	78.22	51.62	59.30	89.90	56.33	55.65	146.12	498.19
550.00	614.33	690.23	363.72	160.44	63.95	41.02	42.97	63.95	39.68	39.85	106.84	376.58
600.00	475.47	538.90	285.18	127.82	54.55	34.07	31.33	45.51	28.03	28.60	78.50	295.82
650.00	369.69	422.40	225.25	103.98	48.63	29.74	23.20	32.50	19.90	20.60	58.03	213.11
700.00	289.02	332.86	179.73	86.91	45.02	27.15	17.59	23.32	14.19	14.91	43.21	167.47
750.00	227.35	263.99	145.35	74.96	42.88	25.66	13.82	16.81	10.18	10.84	32.48	129.48
800.00	180.12	211.00	119.61	66.82	41.63	24.82	11.35	12.17	7.34	7.93	24.74	100.93
850.00	143.92	170.25	100.60	61.41	40.91	24.35	9.79	8.86	5.32	5.83	19.20	79.48
900.00	116.22	139.01	86.78	57.89	40.50	24.09	8.86	6.49	3.89	4.31	15.27	63.42
950.00	95.13	115.20	76.95	55.64	40.26	23.95	8.31	4.78	2.87	3.22	12.56	51.48
1000.00	79.20	97.23	70.09	54.21	40.12	23.86	8.00	3.55	2.15	2.43	10.73	42.72
1050.00	67.32	83.84	65.40	53.30	40.04	23.82	7.82	2.66	1.64	1.86	9.53	36.40
1100.00	58.61	74.03	62.25	52.74	39.99	23.79	7.72	2.02	1.29	1.46	8.78	31.95
1150.00	52.36	66.98	60.15	52.38	39.96	23.78	7.67	1.57	1.06	1.18	8.31	28.89
1200.00	47.95	61.99	58.76	52.15	39.94	23.77	7.64	1.26	0.90	0.99	8.02	26.84
1250.00	44.91	58.53	57.85	52.01	39.93	23.76	7.62	1.04	0.80	0.86	7.85	25.49

ELECTRON CONTENT	=	5.88E 13	6.20E 13	3.49E 13	1.52E 13	6.96E 12	3.97E 12	3.11E 12	4.30E 12	3.29E 12	3.03E 12	1.24E 13	3.81E 13
PEAK ELECTRON DENSITY	=	1.85E 06	1.85E 06	1.03E 06	4.15E 05	1.63E 05	9.64E 04	1.11E 05	1.78E 05	1.39E 05	1.22E 05	4.73E 05	1.29E 06
HEIGHT OF PEAK	=	288.10	299.82	298.15	317.71	317.51	349.70	369.68	366.72	338.18	348.06	278.82	284.00
ESPROB PERCENT	=	28.82	28.10	25.02	20.39	15.46	11.54	9.70	10.41	13.50	18.13	23.06	26.97
AVNES/1000. CM-3	=	41.54	38.79	35.46	31.94	28.61	25.76	23.61	22.27	21.82	31.94	43.99	43.35
SIGMA ES	=	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55	0.48	0.42	0.40

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00

LATITUDE = -60.00

S 10.7

= 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	50.43	83.40	118.41	132.11	118.41	83.41	50.44	27.66	2.02	2.02	2.02	27.66	
130.00	75.57	146.83	192.46	206.98	190.76	143.89	73.42	27.86	1.74	1.74	1.74	27.80	
140.00	114.51	189.00	230.65	243.08	227.93	183.84	108.23	28.09	2.14	2.16	2.18	28.61	
150.00	142.02	211.10	249.47	260.65	246.85	206.34	134.43	34.06	2.49	2.52	2.53	37.47	
160.00	158.99	223.24	259.69	270.05	257.59	220.13	152.27	45.35	2.65	2.66	2.67	51.88	
170.00	169.92	230.51	265.96	275.63	264.39	229.66	165.02	57.92	2.66	2.65	2.64	65.80	
180.00	177.70	235.74	271.10	279.92	269.54	237.19	175.14	69.39	2.58	2.54	2.51	76.83	
190.00	184.16	241.09	277.24	284.78	274.66	244.14	184.14	79.20	2.44	2.39	2.34	84.93	
200.00	190.86	248.46	286.13	291.70	281.09	251.70	193.10	87.63	2.28	2.21	2.15	90.81	
210.00	199.38	259.55	299.24	301.92	289.94	260.93	202.95	95.31	2.11	2.03	1.97	95.12	
220.00	211.36	279.11	329.59	316.45	302.19	272.80	216.74	102.91	1.94	1.85	1.79	98.36	
230.00	240.61	322.67	370.56	352.66	327.26	300.72	251.25	111.11	1.78	1.69	1.62	100.94	
240.00	280.55	365.51	409.25	390.43	362.24	336.07	287.75	131.52	1.63	1.53	1.47	103.29	
250.00	318.42	405.20	443.95	425.65	395.27	370.29	324.99	170.38	1.49	1.39	1.33	105.90	
260.00	351.62	439.70	473.36	457.06	425.20	402.09	361.40	203.09	1.36	1.26	1.20	109.33	
270.00	378.26	467.61	496.71	483.71	451.14	430.39	395.46	238.38	5.23	1.15	1.09	114.22	
280.00	397.43	488.27	513.71	505.07	472.52	454.43	425.86	275.66	15.68	1.04	4.07	121.26	
290.00	409.06	501.64	524.51	520.93	489.06	473.74	451.61	313.24	36.42	3.55	13.22	131.12	
300.00	413.76	508.19	529.55	531.42	500.77	488.18	472.16	349.21	69.35	11.71	32.01	157.14	
320.00	406.40	504.08	525.02	537.79	510.73	503.02	497.17	409.61	163.57	57.31	100.88	214.17	
340.00	384.18	483.40	506.03	528.38	505.67	501.74	502.62	447.93	263.10	139.91	186.51	263.77	
360.00	354.68	453.17	478.15	507.95	489.64	488.34	492.81	462.92	335.10	225.89	252.54	294.98	
380.00	323.01	418.66	445.77	480.73	466.46	466.82	472.53	458.58	370.04	285.09	284.96	305.70	
400.00	292.10	383.35	411.94	450.03	439.24	440.54	445.99	440.72	374.55	310.63	288.99	300.16	
420.00	263.40	349.25	378.61	418.19	410.29	412.03	416.40	414.81	359.58	310.10	275.38	284.42	
440.00	237.43	317.41	346.88	386.74	381.18	383.03	386.00	385.04	334.18	293.86	252.98	263.62	
460.00	214.25	288.26	317.32	356.61	352.90	354.69	356.19	354.27	304.51	269.95	227.52	241.27	
480.00	193.69	261.87	290.16	328.31	326.06	327.68	327.82	324.23	274.25	243.47	202.16	219.38	
500.00	175.48	238.13	265.39	302.05	300.95	302.36	301.32	295.90	245.33	217.28	178.43	198.97	
550.00	138.43	188.93	213.14	245.47	246.25	247.14	244.00	234.74	183.58	160.36	129.29	156.23	
600.00	110.52	151.32	172.45	200.49	202.32	202.82	198.54	187.09	137.57	118.04	94.01	124.22	
650.00	89.09	122.26	140.64	164.88	167.32	167.57	162.77	150.43	104.54	88.01	69.47	100.13	
700.00	72.36	99.56	115.58	136.60	139.42	139.54	134.57	122.13	81.34	67.22	52.75	81.62	
750.00	59.17	81.65	95.71	114.05	117.12	117.19	112.25	100.15	65.42	53.16	41.65	67.11	
800.00	48.70	67.44	79.89	96.01	99.28	99.37	94.56	83.03	54.81	43.96	34.53	55.57	
850.00	40.40	56.16	67.31	81.58	85.04	85.19	80.57	69.75	47.99	38.17	30.16	46.29	
900.00	33.86	47.23	57.35	70.11	73.74	73.99	69.60	59.54	43.74	34.66	27.58	38.81	
950.00	28.78	40.25	49.56	61.06	64.88	65.27	61.12	51.85	41.18	32.60	26.11	32.78	
1000.00	24.95	34.88	43.58	54.04	58.04	58.58	54.70	46.21	39.67	31.42	25.29	27.96	
1050.00	22.18	30.87	39.09	48.71	52.87	53.57	49.96	42.22	38.78	30.75	24.83	24.17	
1100.00	20.27	27.98	35.83	44.74	49.05	49.50	46.56	39.50	38.27	30.37	24.58	21.29	
1150.00	19.03	25.98	33.52	41.87	46.29	47.28	44.18	37.69	37.97	30.16	24.44	19.18	
1200.00	18.26	24.64	31.94	39.84	44.34	45.44	42.55	36.52	37.79	30.04	24.37	17.72	
1250.00	17.80	23.77	30.88	38.43	42.98	44.18	41.46	35.78	37.69	29.97	24.32	16.77	

ELECTRON CONTENT	= 1.44E 13	1.90E 13	2.12E 13	2.31E 13	2.27E 13	2.22E 13	2.10E 13	1.76E 13	1.17E 13	9.26E 12	8.19E 12	1.14E 13
PEAK ELECTRON DENSITY	= 4.14E 05	5.09E 05	5.30E 05	5.38E 05	5.11E 05	5.04E 05	5.03E 05	4.63E 05	3.76E 05	3.13E 05	2.90E 05	3.06E 05
HEIGHT OF PEAK	= 302.63	305.83	304.76	317.12	322.39	327.95	336.19	364.68	393.26	408.95	393.14	381.99
ESPROB PERCENT	= 29.61	46.75	60.42	66.95	64.60	54.00	37.98	20.84	7.17	0.64	2.99	13.60
AVNES/1000. CM-3	= 63.52	143.34	138.69	125.62	106.55	84.76	63.52	45.33	31.55	22.39	17.33	15.74
SIGMA ES	= 0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = -40.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	42.70	89.89	145.92	167.04	145.90	89.89	42.70	2.02	2.02	2.02	2.02	2.02
130.00	50.63	156.82	223.27	243.74	221.44	153.73	49.51	1.73	1.74	1.74	1.74	1.75
140.00	79.22	199.24	259.66	277.35	256.54	193.68	73.61	2.12	2.14	2.16	2.18	2.20
150.00	106.76	222.18	278.07	293.96	274.28	216.16	98.29	2.47	2.49	2.52	2.53	2.55
160.00	126.31	236.33	289.32	303.73	284.76	230.40	117.54	2.64	2.65	2.66	2.67	2.67
170.00	139.96	247.02	298.27	311.15	292.17	240.88	132.19	2.67	2.66	2.65	2.64	2.62
180.00	150.55	257.40	308.14	319.09	299.00	249.90	144.15	2.60	2.58	2.54	2.51	2.49
190.00	160.11	270.10	321.45	329.73	307.11	259.01	155.04	2.48	2.44	2.39	2.34	2.31
200.00	170.22	287.44	340.26	344.76	317.98	269.52	166.11	2.34	2.28	2.21	2.15	2.11
210.00	182.43	334.28	393.01	374.24	332.86	282.63	197.68	2.18	2.11	2.03	1.97	1.92
220.00	214.91	394.82	455.30	430.35	369.71	316.23	234.53	2.02	1.94	1.85	1.79	1.74
230.00	259.20	458.07	519.74	488.94	418.58	359.05	273.24	1.87	1.78	1.69	1.62	1.57
240.00	305.79	520.63	583.44	547.88	467.94	402.43	314.71	6.05	1.63	1.53	1.47	1.42
250.00	351.56	578.91	643.43	604.81	515.96	444.74	357.75	17.74	1.49	1.39	1.33	1.28
260.00	393.25	629.83	697.09	657.54	560.87	484.40	400.66	41.11	1.36	1.26	1.20	1.16
270.00	428.21	671.25	742.49	704.21	601.17	520.01	441.61	79.07	1.37	1.15	1.09	1.47
280.00	454.83	702.08	778.45	743.51	635.74	550.54	478.96	131.24	5.77	1.04	1.88	6.33
290.00	472.57	722.19	804.55	774.70	663.88	575.38	511.38	193.85	17.45	1.83	7.51	19.00
300.00	481.79	732.18	821.01	797.56	685.32	594.25	538.02	261.03	40.88	7.48	21.32	43.17
320.00	478.79	726.53	828.05	819.48	708.64	614.60	572.64	385.65	128.98	49.04	83.42	124.41
340.00	455.82	695.97	807.77	814.34	709.11	614.70	583.72	472.50	248.40	142.78	175.31	217.59
360.00	422.29	650.89	769.26	789.17	692.06	599.40	575.80	514.44	353.82	256.41	256.17	284.61
380.00	384.91	599.19	720.31	750.82	662.98	573.62	554.39	519.96	418.95	345.19	302.50	314.24
400.00	347.71	546.11	666.73	704.97	626.59	541.59	524.61	501.60	442.88	391.19	315.19	314.32
420.00	312.77	494.77	612.42	655.83	586.53	506.51	490.48	469.78	436.87	399.91	305.31	296.83
440.00	280.96	446.80	559.80	606.28	545.38	470.63	454.83	431.91	413.00	384.49	283.27	271.05
460.00	252.48	402.88	510.21	558.16	504.86	435.44	419.54	392.56	380.39	356.30	256.30	242.75
480.00	227.19	363.18	464.30	512.54	466.02	401.82	385.74	354.34	344.87	323.02	228.56	215.03
500.00	204.80	327.52	422.27	469.97	429.44	370.25	354.03	318.57	309.75	289.11	202.19	189.34
550.00	159.41	254.06	333.46	377.75	349.26	301.32	285.18	242.64	232.58	213.72	146.83	136.55
600.00	125.53	198.64	264.64	304.41	284.62	245.99	230.55	185.37	173.95	156.77	106.74	98.82
650.00	99.82	156.58	211.42	246.62	233.17	202.06	187.69	143.32	131.34	115.93	78.71	72.61
700.00	80.02	124.39	170.09	201.08	192.27	167.21	154.06	112.95	101.02	87.24	59.52	54.73
750.00	64.63	99.60	137.85	165.08	159.69	139.52	127.63	91.40	79.85	67.45	46.69	42.82
800.00	52.61	80.44	112.60	136.56	133.70	117.50	106.83	76.46	65.43	54.14	38.40	35.14
850.00	43.25	65.65	92.83	113.93	112.96	100.02	90.52	66.39	55.91	45.48	33.26	30.40
900.00	36.03	54.31	77.40	96.03	96.48	86.24	77.85	59.81	49.84	40.05	30.19	27.59
950.00	30.58	45.74	65.46	81.95	83.46	75.50	68.14	55.62	46.09	36.77	28.43	25.99
1000.00	26.59	39.40	56.35	70.99	73.32	67.26	60.87	53.00	43.83	34.85	27.44	25.09
1050.00	23.81	34.86	49.53	62.60	65.53	61.07	55.55	51.40	42.49	33.75	26.89	24.59
1100.00	21.98	31.71	44.55	56.29	59.67	56.52	51.76	50.42	41.71	33.12	26.59	24.32
1150.00	20.82	29.61	41.02	51.66	55.36	53.26	49.13	49.82	41.25	32.76	26.42	24.17
1200.00	20.12	28.25	38.58	48.32	52.24	50.96	47.34	49.46	40.97	32.55	26.32	24.08
1250.00	19.71	27.39	36.92	45.97	50.04	49.37	46.14	49.24	40.82	32.44	26.27	24.04

ELECTRON CONTENT = 1.60E 13 2.55E 13 3.14E 13 3.35E 13 3.06E 13 2.65E 13 2.36E 13 1.69E 13 1.36E 13 1.15E 13 8.90E 12 8.76E 12
 PEAK ELECTRON DENSITY = 4.84E 05 7.34E 05 8.29E 05 8.20E 05 7.11E 05 6.17E 05 5.84E 05 5.21E 05 4.44E 05 4.01E 05 3.15E 05 3.17E 05
 HEIGHT OF PEAK = 307.35 306.13 314.30 325.54 330.21 329.85 340.68 373.34 404.67 415.56 399.41 389.56
 ESPROB PERCENT = 40.87 54.78 65.74 70.83 68.68 59.86 46.75 32.84 21.88 16.79 18.94 27.76
 AVVES/1000. CM-3 = 112.94 245.78 238.09 216.47 184.84 148.54 112.94 82.20 58.66 42.79 33.92 31.10
 SIGMA ES = 0.48 0.42 0.40 0.42 0.47 0.55 0.62 0.68 0.70 0.68 0.63 0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = -20.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)								
120.00	30.67	82.17	150.09	176.10	150.33	82.22	30.67	2.02	2.02	2.02	2.02	2.02	2.02
130.00	30.21	145.37	227.90	254.07	227.98	142.90	30.26	1.73	1.74	1.74	1.74	1.74	1.75
140.00	33.98	189.32	264.54	289.91	266.97	185.67	32.49	2.12	2.14	2.16	2.18	2.20	2.20
150.00	48.37	214.96	283.79	310.88	291.41	213.41	42.60	2.47	2.49	2.52	2.53	2.55	2.55
160.00	66.09	232.84	296.51	327.35	311.84	235.28	57.13	2.64	2.65	2.66	2.67	2.67	2.67
170.00	81.69	248.72	307.69	344.20	333.03	256.48	72.10	2.67	2.66	2.65	2.64	2.62	2.62
180.00	94.62	266.15	320.72	364.78	358.10	280.12	86.48	2.60	2.58	2.54	2.51	2.49	2.49
190.00	106.17	288.15	338.25	391.65	389.54	308.60	100.85	2.48	2.44	2.39	2.34	2.31	2.31
200.00	118.03	317.48	362.45	426.79	429.31	344.01	116.57	2.34	2.28	2.21	2.15	2.11	2.11
210.00	131.91	386.89	394.96	471.53	478.75	445.09	135.39	2.18	2.11	2.03	1.97	1.92	1.92
220.00	149.66	474.64	436.86	560.47	618.24	591.70	277.92	2.02	1.94	1.85	1.79	1.74	1.74
230.00	223.10	567.35	518.59	665.48	723.93	685.92	432.52	1.87	1.78	1.69	1.62	1.57	1.57
240.00	293.09	668.04	612.55	773.55	836.05	787.77	517.05	1.72	1.63	1.53	1.47	1.42	1.42
250.00	359.04	772.63	714.27	890.46	956.89	894.98	604.83	4.44	1.49	1.39	1.33	1.28	1.28
260.00	431.59	875.45	823.21	1014.23	1083.84	1003.91	699.90	16.57	1.36	1.26	1.20	1.16	1.16
270.00	507.21	970.74	935.46	1140.75	1212.87	1110.50	799.85	46.60	1.46	1.15	2.19	2.92	2.92
280.00	580.72	1053.63	1046.31	1265.38	1339.39	1210.70	901.01	104.76	7.54	5.16	10.66	12.75	12.75
290.00	646.98	1120.80	1150.90	1383.31	1458.89	1301.11	999.12	197.19	26.87	21.19	35.14	38.61	38.61
300.00	701.97	1170.59	1245.01	1490.41	1567.40	1379.03	1090.13	322.33	71.64	61.93	85.98	88.39	88.39
320.00	770.34	1218.44	1390.07	1660.21	1740.24	1491.69	1238.36	629.70	270.94	256.59	274.78	257.26	257.26
340.00	784.68	1207.44	1469.85	1761.82	1845.56	1545.57	1330.45	923.18	583.87	566.52	512.25	452.60	452.60
360.00	758.18	1154.95	1488.32	1797.26	1885.07	1547.61	1365.89	1128.43	891.86	860.84	697.04	594.03	594.03
380.00	706.92	1077.75	1458.07	1777.71	1869.29	1509.50	1353.77	1229.01	1103.09	1047.26	788.83	657.21	657.21
400.00	643.99	988.92	1393.81	1717.46	1811.86	1443.48	1306.62	1243.98	1198.39	1115.82	801.26	658.08	658.08
420.00	578.14	897.28	1308.82	1630.29	1726.22	1360.28	1236.69	1201.91	1202.10	1098.43	763.91	621.65	621.65
440.00	514.45	808.25	1213.43	1527.60	1623.69	1268.27	1154.06	1127.41	1148.08	1031.39	701.71	567.60	567.60
460.00	455.48	724.79	1114.95	1417.97	1512.95	1173.46	1066.16	1037.89	1063.85	941.52	630.72	508.10	508.10
480.00	402.25	648.25	1018.15	1307.37	1400.19	1079.92	978.06	944.27	967.72	845.24	559.83	449.72	449.72
500.00	354.89	579.02	925.91	1199.71	1289.57	990.16	892.94	852.81	870.42	751.40	493.38	395.52	395.52
550.00	259.84	436.22	723.36	956.42	1036.82	790.11	703.17	650.82	652.31	549.18	355.12	283.76	283.76
600.00	191.56	329.83	562.84	757.37	827.36	627.94	550.78	493.34	483.61	398.44	254.88	203.31	203.31
650.00	142.57	250.98	438.79	599.74	659.83	499.86	432.14	374.72	358.89	289.84	183.90	146.64	146.64
700.00	107.28	192.43	343.63	476.40	527.64	399.60	340.79	286.34	267.88	212.28	133.98	107.00	107.00
750.00	81.86	148.84	270.70	380.19	423.76	321.32	270.67	220.82	201.75	157.07	99.06	79.48	79.48
800.00	63.63	116.37	214.73	305.13	342.18	260.20	216.91	172.49	153.91	117.93	74.85	60.63	60.63
850.00	50.76	92.26	171.76	246.50	278.05	212.49	175.80	137.10	119.56	90.44	58.36	47.99	47.99
900.00	41.90	74.50	138.79	200.69	227.64	175.34	144.51	111.54	95.23	71.46	47.43	39.79	39.79
950.00	36.02	61.62	113.60	164.95	188.05	146.52	120.91	93.40	78.34	58.67	40.44	34.68	34.68
1000.00	32.28	52.47	94.49	137.17	157.06	124.36	103.34	80.84	66.93	50.35	36.14	31.62	31.62
1050.00	30.00	46.16	80.17	115.71	132.94	107.50	90.49	72.37	59.47	45.11	33.59	29.85	29.85
1100.00	28.65	41.93	69.61	99.31	114.35	94.87	81.27	66.81	54.72	41.93	32.12	28.84	28.84
1150.00	27.88	39.18	61.98	86.93	100.17	85.57	74.79	63.23	51.78	40.04	31.28	28.27	28.27
1200.00	27.43	37.43	56.57	77.73	89.53	78.84	70.33	60.96	49.99	38.94	30.81	27.96	27.96
1250.00	27.18	36.34	52.82	71.02	81.66	74.05	67.30	59.53	48.91	38.30	30.54	27.78	27.78

ELECTRON CONTENT = 2.33E 13 3.99E 13 5.50E 13 7.01E 13 7.52E 13 6.06E 13 5.01E 13 3.77E 13 3.39E 13 2.94E 13 2.07E 13 1.71E 13
 PEAK ELECTRON DENSITY = 7.86E 05 1.22E 06 1.49E 06 1.80E 06 1.89E 06 1.55E 06 1.37E 06 1.25E 06 1.21E 06 1.12E 06 8.04E 05 6.64E 05
 HEIGHT OF PEAK = 335.87 325.53 356.66 362.06 363.54 350.64 364.12 393.99 410.59 404.68 393.58 389.89
 ESPROB PERCENT = 57.49 64.16 69.55 72.20 71.41 67.39 61.22 54.55 49.17 46.51 47.30 51.32
 AVNES/1000. CM-3 = 156.33 341.27 330.56 300.44 256.40 205.87 156.33 113.60 80.89 58.88 46.59 42.68
 SIGMA ES = 0.48 0.42 0.40 0.42 0.47 0.55 0.62 0.68 0.70 0.68 0.63 0.55

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

MONTH = 12

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY	METERS -3	X10-9	(CM. -3	X10-3)
120.00	2.02	64.02	130.10	157.73	130.19
130.00	1.75	111.67	205.24	233.51	204.31
140.00	2.21	154.96	240.80	266.04	240.57
150.00	2.56	181.08	256.24	280.10	258.92
160.00	2.67	197.54	262.15	285.80	269.46
170.00	2.62	209.80	263.07	287.45	276.43
180.00	2.47	220.91	261.71	287.66	282.17
190.00	2.29	233.08	260.06	288.32	288.42
200.00	2.10	248.38	259.63	290.81	296.58
210.00	1.91	268.77	261.55	296.23	307.82
220.00	1.73	296.00	266.76	305.49	323.16
230.00	1.57	331.43	276.06	319.31	343.42
240.00	2.71	375.96	290.11	338.31	369.28
250.00	12.00	458.09	309.42	362.92	401.18
260.00	36.94	551.10	334.39	393.43	439.39
270.00	86.13	652.35	365.23	429.98	484.05
280.00	162.32	761.45	402.08	472.66	535.24
290.00	259.90	873.55	445.01	521.52	593.04
300.00	367.27	982.92	494.12	576.67	662.94
320.00	562.54	1171.72	673.12	778.44	912.96
340.00	684.66	1296.76	860.22	982.31	1143.51
360.00	727.46	1350.27	1070.32	1217.15	1403.04
380.00	713.37	1342.06	1273.92	1459.04	1662.73
400.00	667.14	1289.19	1441.17	1676.27	1890.31
420.00	606.67	1208.68	1553.86	1844.04	2062.40
440.00	542.69	1114.16	1607.93	1950.40	2168.85
460.00	480.86	1015.20	1609.69	1995.51	2211.22
480.00	423.79	917.87	1570.50	1987.55	2198.59
500.00	372.43	825.69	1502.52	1938.13	2143.09
550.00	268.60	626.80	1272.03	1708.07	1893.64
600.00	194.15	473.82	1031.13	1428.22	1591.34
650.00	141.36	359.08	820.93	1165.45	1305.98
700.00	104.08	273.55	649.74	941.55	1061.19
750.00	77.91	209.74	514.15	758.53	859.74
800.00	59.74	162.05	407.90	611.55	696.94
850.00	47.36	126.36	324.90	494.34	566.34
900.00	39.18	99.69	260.10	401.06	461.82
950.00	33.96	79.86	209.47	326.83	378.18
1000.00	30.76	65.25	169.92	267.72	311.21
1050.00	28.85	54.67	139.07	220.63	257.56
1100.00	27.75	47.17	115.10	183.16	214.61
1150.00	27.11	41.97	96.57	153.39	180.28
1200.00	26.75	38.47	82.40	129.85	152.92
1250.00	26.54	36.17	71.68	111.34	131.24

ELECTRON CONTENT	=	1.90E 13	4.55E 13	6.54E 13	8.60E 13	9.64E 13	9.17E 13	6.68E 13	5.84E 13	4.80E 13	3.83E 13	2.79E 13	1.76E 13
PEAK ELECTRON DENSITY	=	7.28E 05	1.35E 06	1.61E 06	2.00E 06	2.21E 06	2.17E 06	1.92E 06	1.89E 06	1.77E 06	1.53E 06	1.15E 06	7.09E 05
HEIGHT OF PEAK	=	363.62	366.74	450.53	466.50	464.80	462.66	480.96	493.90	382.83	351.25	338.92	342.56
ESPROB PERCENT	=	15.80	30.36	44.60	54.70	57.95	53.48	42.50	27.94	13.71	3.61	0.36	4.82
AVN5S/1000. CM-3	=	95.05	222.90	215.40	194.34	163.69	128.82	95.05	66.39	44.94	30.89	23.25	20.87
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.
 EAST LONGITUDE = -270.00 LATITUDE = 20.00
 S 10.7 = 200.00 S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

UNIVERSAL TIME = 0.0 2.00 4.00 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00
 LOCAL TIME = 6.00 8.00 10.00 12.00 14.00 16.00 18.00 20.00 22.00 0.0 2.00 4.00

ALTITUDE	ELECTRON DENSITY				METERS -3 X10-9				(CM. -3 X10-3)							
120.00	2.02	46.02	90.69	115.05	90.64	46.01	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02	2.02
130.00	1.75	61.11	158.00	188.20	155.55	59.43	1.73	1.73	1.74	1.74	1.74	1.74	1.74	1.75	1.75	1.75
140.00	2.21	96.21	202.80	228.00	196.86	89.59	2.12	2.12	2.14	2.16	2.16	2.18	2.20	2.20	2.20	2.20
150.00	2.56	127.53	231.75	250.41	221.42	116.69	2.46	2.47	2.49	2.52	2.53	2.55	2.55	2.55	2.55	2.55
160.00	2.67	153.41	256.03	266.02	238.84	138.04	2.63	2.64	2.65	2.66	2.67	2.67	2.67	2.67	2.67	2.67
170.00	2.62	178.99	281.75	279.55	253.91	156.13	2.67	2.67	2.66	2.65	2.64	2.62	2.62	2.62	2.62	2.62
180.00	2.47	209.67	312.96	293.77	269.23	173.72	2.62	2.60	2.58	2.54	2.51	2.49	2.49	2.49	2.49	2.49
190.00	2.29	250.41	353.00	310.85	286.73	193.07	2.51	2.48	2.44	2.39	2.34	2.31	2.31	2.31	2.31	2.31
200.00	2.10	305.77	404.54	332.64	308.06	216.15	2.38	2.34	2.28	2.21	2.15	2.11	2.11	2.11	2.11	2.11
210.00	1.91	379.14	469.25	360.69	334.72	244.83	2.24	2.18	2.11	2.03	1.97	1.92	1.92	1.92	1.92	1.92
220.00	1.73	698.30	547.80	396.20	367.95	280.82	2.10	2.02	1.94	1.86	1.79	1.74	1.74	1.74	1.74	1.74
230.00	1.57	860.71	640.18	439.92	408.63	325.61	1.96	1.87	1.78	1.70	1.63	1.57	1.57	1.57	1.57	1.57
240.00	4.45	1029.51	746.16	492.24	457.33	380.23	1.82	1.72	1.63	1.55	1.48	1.42	1.42	1.42	1.42	1.42
250.00	16.39	1214.01	924.95	553.27	514.28	445.24	1.89	1.79	1.70	1.62	1.55	1.49	1.49	1.49	1.49	1.49
260.00	43.80	1407.21	1120.34	623.04	579.56	520.88	8.40	1.46	1.37	1.29	1.22	1.16	1.16	1.16	1.16	1.16
270.00	91.56	1598.94	1314.07	701.58	653.21	607.21	28.21	4.06	3.97	3.89	3.82	3.76	3.76	3.76	3.76	3.76
280.00	158.61	1778.52	1524.39	818.24	735.34	704.30	75.34	18.07	17.98	17.89	17.80	17.72	17.72	17.72	17.72	17.72
290.00	237.93	1936.76	1747.92	1005.81	826.13	866.62	166.92	58.75	58.66	58.57	58.48	58.40	58.40	58.40	58.40	58.40
300.00	319.69	2067.01	1976.67	1141.52	1040.82	1089.62	317.44	148.78	148.69	148.60	148.51	148.43	148.43	148.43	148.43	148.43
320.00	456.89	2231.85	2412.64	1446.36	1345.33	1453.25	807.47	546.98	546.89	546.80	546.71	546.63	546.63	546.63	546.63	546.63
340.00	533.34	2274.01	2764.83	1787.99	1682.98	1867.01	1466.95	1205.03	1204.94	1204.85	1204.76	1204.68	1204.68	1204.68	1204.68	1204.68
360.00	552.58	2219.25	2993.80	2123.82	2052.20	2296.39	2118.55	1916.31	1916.22	1916.13	1916.04	1915.96	1915.96	1915.96	1915.96	1915.96
380.00	533.69	2099.93	3093.66	2408.94	2408.39	2686.75	2630.51	2475.32	2475.23	2475.14	2475.05	2474.97	2474.97	2474.97	2474.97	2474.97
400.00	494.48	1944.55	3081.83	2613.52	2708.16	2993.22	2947.47	2799.49	2799.40	2799.31	2799.22	2799.14	2799.14	2799.14	2799.14	2799.14
420.00	447.12	1774.17	2985.82	2727.54	2923.56	3192.88	3081.67	2907.88	2907.79	2907.70	2907.61	2907.53	2907.53	2907.53	2907.53	2907.53
440.00	398.59	1602.66	2833.58	2756.96	3045.57	3284.64	3074.88	2860.26	2860.17	2860.08	2860.00	2859.91	2859.91	2859.91	2859.91	2859.91
460.00	352.46	1438.28	2648.74	2716.82	3080.22	3282.12	2972.81	2716.82	2716.73	2716.64	2716.56	2716.47	2716.47	2716.47	2716.47	2716.47
480.00	310.27	1285.40	2449.11	2624.94	3042.26	3205.68	2813.56	2523.51	2523.42	2523.33	2523.24	2523.16	2523.16	2523.16	2523.16	2523.16
500.00	272.52	1145.89	2247.04	2498.23	2949.28	3076.52	2624.92	2310.76	2310.67	2310.58	2310.49	2310.41	2310.41	2310.41	2310.41	2310.41
550.00	196.65	856.03	1775.83	2113.45	2581.04	2637.21	2130.16	1794.85	1794.76	1794.67	1794.58	1794.50	1794.50	1794.50	1794.50	1794.50
600.00	142.61	639.69	1385.25	1727.18	2156.35	2169.19	1689.66	1368.71	1368.62	1368.53	1368.44	1368.36	1368.36	1368.36	1368.36	1368.36
650.00	104.56	479.94	1077.42	1390.75	1762.93	1752.07	1331.19	1039.94	1039.85	1039.76	1039.67	1039.59	1039.59	1039.59	1039.59	1039.59
700.00	77.99	362.02	839.27	1114.21	1428.49	1405.80	1048.25	791.36	791.27	791.18	791.09	791.01	791.01	791.01	791.01	791.01
750.00	59.69	274.72	655.98	892.39	1154.61	1126.85	827.15	604.30	604.21	604.12	604.03	603.95	603.95	603.95	603.95	603.95
800.00	47.34	209.87	514.88	716.16	933.90	904.83	654.76	463.54	463.45	463.36	463.27	463.19	463.19	463.19	463.19	463.19
850.00	39.27	161.58	406.01	576.53	757.14	728.79	520.30	357.45	357.36	357.27	357.18	357.10	357.10	357.10	357.10	357.10
900.00	34.19	125.60	321.75	465.88	615.77	589.20	415.26	277.41	277.32	277.23	277.14	277.06	277.06	277.06	277.06	277.06
950.00	31.12	98.86	256.37	378.06	502.64	478.34	333.10	217.02	217.02	217.02	217.02	217.02	217.02	217.02	217.02	217.02
1000.00	29.32	79.11	205.56	308.26	411.96	390.12	268.81	171.55	171.55	171.55	171.55	171.55	171.55	171.55	171.55	171.55
1050.00	28.28	64.69	166.05	252.71	339.18	319.80	218.53	137.48	137.48	137.48	137.48	137.48	137.48	137.48	137.48	137.48
1100.00	27.69	54.35	135.37	208.48	280.70	263.69	179.27	112.18	112.18	112.18	112.18	112.18	112.18	112.18	112.18	112.18
1150.00	27.36	47.10	111.62	173.30	233.69	218.91	148.77	93.63	93.63	93.63	93.63	93.63	93.63	93.63	93.63	93.63
1200.00	27.18	42.15	93.36	145.38	195.93	183.23	125.23	80.29	80.29	80.29	80.29	80.29	80.29	80.29	80.29	80.29
1250.00	27.07	38.85	79.45	123.33	165.67	154.89	107.24	70.90	70.90	70.90	70.90	70.90	70.90	70.90	70.90	70.90

ELECTRON CONTENT = 1.47E 13 7.09E 13 1.13E 14 1.14E 14 1.31E 14 1.33E 14 1.04E 14 8.64E 13 7.06E 13 4.40E 13 2.66E 13 1.19E 13
 PEAK ELECTRON DENSITY = 5.53E 05 2.27E 06 3.10E 06 2.76E 06 3.08E 06 3.29E 06 3.09E 06 2.91E 06 2.64E 06 1.77E 06 1.09E 06 4.52E 05
 HEIGHT OF PEAK = 358.32 337.65 387.41 437.66 458.76 449.19 428.52 422.58 380.14 340.85 336.36 371.08
 ESPROB PERCENT = 17.14 31.97 46.28 56.24 59.17 54.30 42.92 28.09 13.78 3.82 0.89 5.76
 AVNES/1000. CM-3 = 91.41 219.09 211.56 190.46 159.80 125.00 91.41 63.06 41.99 28.31 20.94 18.66
 SIGMA ES = 0.48 0.42 0.40 0.42 0.47 0.55 0.62 0.68 0.70 0.68 0.63 0.55

MONTH = 12

[illegible]

ELECTRON CONTENT	=	6.92E 12	2.93E 13	5.80E 13	7.32E 13	6.84E 13	5.00E 13	2.95E 13	1.47E 13	7.42E 12	5.25E 12	5.45E 12	4.06E 12
PEAK ELECTRON DENSITY	=	2.42E 05	1.06E 06	1.87E 06	2.15E 06	1.90E 06	1.43E 06	9.10E 05	4.72E 05	2.21E 05	1.57E 05	1.85E 05	1.28E 05
HEIGHT OF PEAK	=	361.19	278.30	288.33	302.88	316.59	314.78	325.38	324.91	348.98	362.99	362.76	370.59
ESPROB PERCENT	=	24.77	34.77	42.72	46.48	45.05	38.81	29.43	19.43	11.48	7.72	9.15	15.39
AYNES/1000. CM-3	=	42.74	88.25	85.65	78.30	67.52	55.06	42.74	31.98	23.61	17.87	14.60	13.55
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55

PENN STATE MK. I IONOSPHERIC MODELS FOR WINTER SOLSTICE.

EAST LONGITUDE = -270.00 LATITUDE = 60.00

S 10.7 = 200.00

S 10.7 (1A.U.) = 193.56

DAY = 356.00

MONTH = 12

CAUTION: THE GEOMAGNETIC LATITUDE OF THIS STATION IS BEYOND THE RANGE OF THE MODEL

UNIVERSAL TIME =	0.0	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00
LOCAL TIME =	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	0.0	2.00	4.00

ALTITUDE	ELECTRON DENSITY		METERS -3 X10-9		(CM. -3 X10-3)							
120.00	2.02	2.02	14.24	27.55	14.24	2.02	2.02	2.02	2.02	2.02	2.02	2.02
130.00	1.75	1.75	18.55	27.83	18.52	1.73	1.73	1.73	1.74	1.74	1.74	1.75
140.00	2.21	2.20	18.57	28.31	18.67	3.81	2.12	2.12	2.14	2.16	2.18	2.20
150.00	2.56	2.55	18.06	35.44	18.24	12.74	2.46	2.47	2.49	2.52	2.53	2.55
160.00	2.67	4.62	18.81	49.89	18.59	33.58	2.63	2.64	2.65	2.66	2.67	2.67
170.00	2.62	15.20	22.67	70.16	21.17	72.96	3.63	2.67	2.66	2.65	2.64	2.62
180.00	2.47	37.72	30.77	98.03	27.58	135.61	11.08	2.60	2.58	2.54	2.51	2.49
190.00	2.29	75.19	44.10	138.55	39.69	222.11	26.93	2.57	2.44	2.39	2.34	2.31
200.00	2.10	126.54	65.46	198.70	61.10	328.35	54.49	7.75	2.28	2.21	2.15	2.11
210.00	1.91	186.77	402.86	729.11	582.20	446.69	95.12	18.20	2.11	2.03	1.97	1.92
220.00	1.73	249.03	791.93	1300.56	1191.45	568.07	147.46	35.13	1.94	1.85	1.79	1.74
230.00	1.58	306.90	871.32	1417.56	1310.26	683.96	207.79	58.13	2.84	1.69	1.62	4.44
240.00	5.47	355.79	940.12	1519.15	1418.19	787.69	271.14	85.24	8.46	1.53	1.47	12.88
250.00	13.92	393.35	995.90	1602.33	1511.60	874.99	332.57	113.69	19.40	2.18	2.27	28.28
260.00	27.95	419.15	1037.46	1665.60	1588.13	943.85	388.06	140.74	36.39	7.91	8.66	50.29
270.00	46.88	434.03	1064.72	1708.80	1646.59	994.13	434.95	164.32	58.41	20.89	23.50	76.34
280.00	68.52	439.56	1078.45	1732.86	1686.96	1026.96	471.94	183.23	83.11	43.28	49.40	102.80
290.00	90.16	437.52	1080.01	1739.44	1710.02	1044.25	498.85	197.04	107.72	74.48	85.49	126.50
300.00	109.45	429.68	1071.07	1730.67	1717.23	1048.29	516.26	205.95	129.84	111.16	127.63	145.39
320.00	136.08	402.57	1028.76	1676.25	1691.53	1025.98	527.09	211.40	183.16	208.65	166.63	
340.00	146.09	367.63	964.83	1587.45	1625.43	976.48	514.81	205.65	174.83	232.51	261.70	169.32
360.00	143.87	330.60	889.93	1479.24	1533.61	912.38	488.35	193.33	174.37	253.10	281.45	160.62
380.00	134.69	294.59	811.52	1362.74	1427.87	842.22	454.59	178.06	165.53	251.64	276.82	146.47
400.00	122.41	261.12	734.39	1245.48	1316.83	771.34	418.06	162.03	152.52	237.14	258.47	130.61
420.00	109.34	230.75	661.27	1132.17	1206.31	702.86	381.55	146.50	138.07	216.54	234.17	114.99
440.00	96.69	203.60	593.59	1025.52	1099.95	638.44	346.61	132.08	123.74	194.09	208.49	100.53
460.00	85.02	179.51	531.87	926.82	999.86	578.86	314.04	119.05	110.29	172.10	183.78	87.56
480.00	74.53	158.26	476.13	836.53	907.07	524.32	284.18	107.45	98.06	151.66	161.11	76.12
500.00	65.23	139.54	426.11	754.55	821.91	474.76	257.09	97.26	87.15	133.20	140.81	66.13
550.00	46.68	102.08	323.24	583.04	641.30	370.79	200.77	77.27	65.32	95.75	100.11	46.52
600.00	33.47	74.97	246.21	451.81	501.14	290.97	158.44	63.68	49.99	68.83	71.21	32.84
650.00	24.10	55.30	188.58	351.77	393.27	230.11	127.15	54.80	39.53	49.66	50.84	23.29
700.00	17.43	40.99	145.35	275.43	310.42	183.94	104.39	49.21	32.64	36.00	36.46	16.60
750.00	12.67	30.53	112.82	217.05	246.78	149.15	88.15	45.80	28.26	26.25	26.27	11.89
800.00	9.25	22.87	88.30	172.33	197.91	123.19	76.83	43.77	25.59	19.26	19.02	8.56
850.00	6.79	17.24	69.83	138.07	160.45	104.08	69.14	42.59	24.00	14.26	13.83	6.20
900.00	5.02	13.11	55.96	111.88	131.88	90.27	64.04	41.89	23.09	10.68	10.11	4.52
950.00	3.74	10.07	45.63	91.98	110.25	80.48	60.72	41.49	22.56	8.12	7.42	3.33
1000.00	2.81	7.86	38.04	77.00	94.07	73.70	58.59	41.26	22.27	6.32	5.48	2.48
1050.00	2.14	6.25	32.56	65.88	82.17	69.08	57.23	41.12	22.10	5.07	4.08	1.87
1100.00	1.66	5.11	28.70	57.77	73.55	65.99	56.37	41.04	22.00	4.23	3.06	1.45
1150.00	1.32	4.32	26.05	51.98	67.44	63.94	55.83	40.99	21.95	3.69	2.32	1.16
1200.00	1.08	3.78	24.27	47.93	63.18	62.59	55.48	40.96	21.92	3.34	1.79	0.97
1250.00	0.93	3.42	23.09	45.15	60.25	61.70	55.27	40.95	21.90	3.13	1.42	0.85

ELECTRON CONTENT	=	3.62E 12	1.15E 13	3.23E 13	5.57E 13	5.78E 13	3.56E 13	1.87E 13	8.22E 12	5.71E 12	6.37E 12	6.80E 12	3.99E 12
PEAK ELECTRON DENSITY	=	1.46E 05	4.40E 05	1.08E 06	1.74E 06	1.72E 06	1.05E 06	5.27E 05	2.11E 05	1.76E 05	2.55E 05	2.82E 05	1.70E 05
HEIGHT OF PEAK	=	345.14	281.95	286.32	289.04	299.89	298.36	317.79	317.59	348.56	367.91	364.92	333.30
ESPROB PERCENT	=	16.79	20.84	24.08	25.64	25.09	22.58	18.79	14.73	11.49	9.94	10.49	13.00
AVNES/1000. CM-3	=	28.85	36.68	36.27	35.11	33.34	31.17	28.85	26.63	24.69	23.21	22.28	21.97
SIGMA ES	=	0.48	0.42	0.40	0.42	0.47	0.55	0.62	0.68	0.70	0.68	0.63	0.55