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SPACE OPERATIONS CONTROL CENTER
GODDARD SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
GREENBELT, MARYLAND

Volume 1, No. 21 SATELLITE SITUATION REPORT November 21, 1961

The following report reflects data computed and compiled by Goddard Space Flight Center, NORAD, and the Smithsonian Astrophysical Observatory as of 1200Z on November 21, 1961.

Ralph R. Stroble Nov. 21, 1961
RALPH R. STROBLE
HEAD, Operations Branch

OBJECTS IN ORBIT

OBJECT	CODE NAME	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE S. MILES	PERIGEE S. MILES	TRANSMITTING FREQ. (MC/S)
1958 ALPHA 1	EXPLORER I	US	1 FEB 58	106.1	33.19	1092	217	
1958 BETA 1	ROCKET BODY	US	17 MAR 58	138.3	34.26	2685	406	
1958 BETA 2	VANGUARD I	US	17 MAR 58	133.9	34.24	2452	404	108.022
1959 ALPHA 1	VANGUARD II	US	17 FEB 59	125.4	32.85	2040	354	
1959 ALPHA 2	ROCKET BODY	US	17 FEB 59	129.6	32.90	2257	367	
1959 DELTA 1	EXPLORER VI	US	7 AUG 59	POSITION UNCERTAIN				
1959 ETA 1	VANGUARD III	US	18 SEP 59	129.8	33.30	2315	321	
1959 MU*	LUNIK I	USSR	2 JAN 59	450D	0.01	1.3177AU	0.9766AU	
1959 NU*	PIONEER IV	US	3 MAR 59	398D	0.127	1.1421AU	0.9871AU	
1959 IOTA 1	EXPLORER VII	US	13 OCT 59	101.1	50.31	669	344	19.9904
1959 IOTA 2	ROCKET BODY	US	13 OCT 59	100.9	50.30	656	345	
1960 ALPHA*	PIONEER V	US	11 MAR 60	311.6D	3.35	.9951AU	.8061AU	
1960 BETA 1	ROCKET BODY	US	1 APR 60	99.1	48.41	463	429	
1960 BETA 2	TIROS I	US	1 APR 60	99.1	48.39	467	429	107.997
1960 BETA 3	NONE	US	1 APR 60	97.8	48.46	445	375	
1960 BETA 4	NONE	US	1 APR 60	99.8	48.15	503	434	
1960 GAMMA 2	TRANSIT 1B	US	13 APR 60	94.7	51.28	404	229	
1960 GAMMA 4	NONE	US	13 APR 60	96.8	51.21	458	299	
1960 EPSILON 1	SPUTNIK IV	USSR	15 MAY 60	91.8	65.02	291	160	
1960 EPSILON 3	NONE	USSR	15 MAY 60	93.1	64.89	354	172	
1960 EPSILON 4	NONE	USSR	15 MAY 60	POSITION UNCERTAIN				
1960. ZETA 1	MIDAS II	US	24 MAY 60	94.3	33.01	311	299	
1960 ETA 1	TRANSIT 2A	US	22 JUN 60	101.6	66.77	649	389	162;216;108.06
1960 ETA 2	GREB	US	22 JUN 60	101.6	66.77	657	381	
1960 ETA 3	ROCKET BODY	US	22 JUN 60	101.4	66.77	643	383	
1960 IOTA 1	ECHO I	US	12 AUG 60	116.3	47.28	1274	614	
1960 IOTA 2	ROCKET BODY	US	12 AUG 60	118.0	47.22	1049	932	
1960 IOTA 3	METAL OBJECT	US	12 AUG 60	118.1	47.20	1049	941	
1960 IOTA 4	METAL OBJECT	US	12 AUG 60	118.2	47.20	1043	951	
1960 IOTA 5	METAL OBJECT	US	12 AUG 60	118.3	47.20	1060	940	
1960 NU 1	COURIER 1B	US	4 OCT 60	106.9	28.22	753	601	107.9709
1960 NU 2	ROCKET BODY	US	4 OCT 60	106.4	28.29	759	567	
1960 XI 1	EXPLORER VIII	US	3 NOV 60	112.5	49.92	1411	258	
1960 XI 2	ROCKET BODY	US	3 NOV 60	112.3	49.98	1399	259	
1960 XI 3	NONE	US	3 NOV 60	111.0	49.39	1336	250	
1960 XI 4	NONE	US	3 NOV 60	111.8	50.52	1366	262	

OBJECTS IN ORBIT

OBJECT	CODE NAME	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE S. MILES	PERIGEE S. MILES	TRANSMITTING FREQ. (MC/S)
1960 PI 1	TIROS II	US	23 NOV 60	98.2	48.57	461	378	108.0;108.3
1960 PI 2	ROCKET BODY	US	23 NOV 60	98.1	48.57	456	378	
1960 PI 3	NONE	US	23 NOV 60	98.1	48.46	453	383	
1960 PI 4	NONE	US	23 NOV 60	98.3	48.51	455	389	
1961 ALPHA 1	SAMOS II	US	31 JAN 61	94.9	97.40	340	295	
1961 ALPHA 2	METAL OBJECT	US	31 JAN 61	94.9	97.40	338	295	
1961 GAMMA 1*	VENUS PROBE	USSR	12 FEB 61	300D	0.581	1.0190AU	0.7183AU	
1961 DELTA 1	EXPLORER IX	US	16 FEB 61	118.1	38.82	1526	466	
1961 DELTA 2	ROCKET BODY	US	16 FEB 61	118.5	38.77	1619	391	
1961 DELTA 3	NONE	US	16 FEB 61	118.1	38.87	1555	438	
1961 DELTA 4	NONE	US	16 FEB 61	POSITION UNCERTAIN				
1961 EPSILON 1	DISCOVERER XX	US	17 FEB 61	93.3	80.91	365	176	
1961 ZETA 1	DISCOVERER XXI	US	18 FEB 61	93.9	80.74	436	138	
1961 KAPPA 1	EXPLORER X	US	25 MAR 61	POSITION UNCERTAIN				
1961 LAMBDA 1	DISCOVERER XXIII	US	8 APR 61	92.3	82.31	296	183	
1961 LAMBDA 2	CAPSULE	US	8 APR 61	96.9	81.94	629	126	
1961 NU 1	EXPLORER XI	US	27 APR 61	107.9	28.77	1112	302	108.058
1961 OMICRON 1	TRANSIT 4A	US	29 JUN 61	103.8	66.81	620	547	
1961 OMICRON 2	INJUN-SR-3	US	29 JUN 61	103.8	66.82	619	548	136.5;108.09
1961 OMICRON 3-52**	METAL OBJECTS	US	29 JUN 61					
1961 PI 1	DISCOVERER XXVI	US	7 JUL 61	90.4	82.94	220	142	
1961 RHO 1	TIROS III	US	12 JUL 61	100.3	47.90	511	457	108.0;108.03
1961 RHO 2	ROCKET BODY	US	12 JUL 61	100.3	47.85	503	462	
1961 RHO 3	METAL OBJECT	US	12 JUL 61	98.8	47.92	500	376	
1961 RHO 4	METAL OBJECT	US	12 JUL 61	101.9	47.89	562	498	
1961 SIGMA 1	MIDAS III	US	12 JUL 61	161.5	91.13	2197	2084	
1961 SIGMA 3	METAL OBJECT	US	12 JUL 61	161.2	91.13	2179	2085	
1961 SIGMA 4	METAL OBJECT	US	12 JUL 61	161.9	91.15	2205	2096	
1961 UPSILON 1	EXPLORER XII	US	16 AUG 61	1592.7	33.43	47952	284	136.020
1961 OMEGA 1	DISCOVERER XXX	US	12 SEP 61	90.4	82.66	221	144	
1961 ALPHA DELTA 1	MIDAS IV	US	21 OCT 61					
1961 ALPHA EPSILON 1	DISCOVERER XXXIV	US	5 NOV 61	96.9	82.52	614	140	
1961 ALPHA EPSILON 2	METAL OBJECT	US	5 NOV 61	92.4	82.46	339	144	

OBJECTS IN ORBIT (CONT'D)

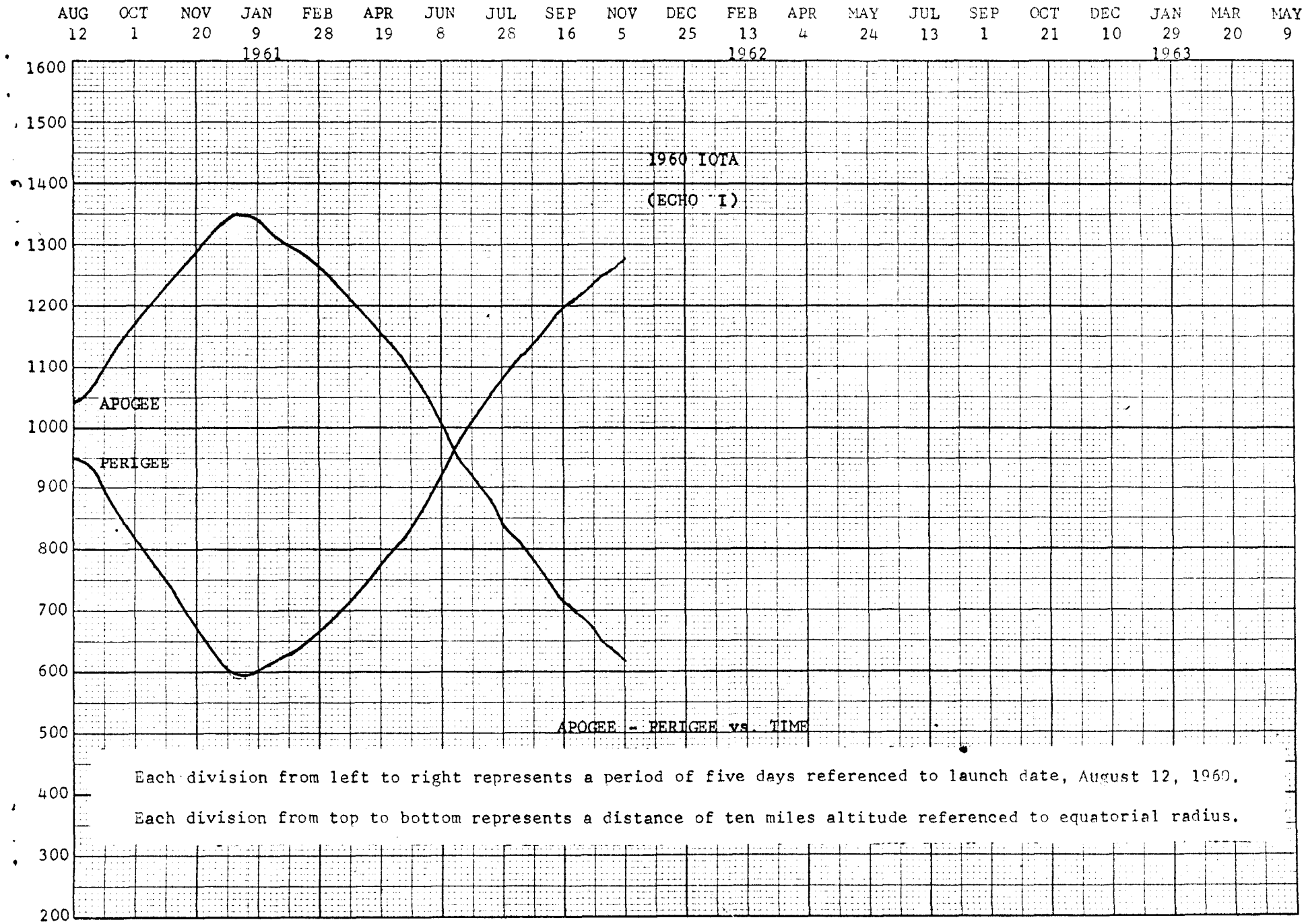
OBJECT	CODE NAME	SOURCE	LAUNCH	NODAL PERIOD	INCLI-NATION	APOGEE S. MILES	PERIGEE S. MILES	TRANSMITTING FREQ. (MC/S)
1961 ALPHA EPSILON 3	METAL OBJECT	US	5 NOV 61	94.9	82.42	480	154	
1961 ALPHA EPSILON 4	METAL OBJECT	US	5 NOV 61	94.5	82.50	456	154	
1961 ALPHA EPSILON 5	METAL OBJECT	US	5 NOV 61	94.7	82.52	482	140	
1961 ALPHA ZETA 1	DISCOVERER XXXV	US	15 NOV 61	89.7	81.63	173	145	
1961 ALPHA ZETA 2	METAL OBJECT	US	15 NOV 61	88.6	81.53	139	111	
1961 ALPHA ETA 1	TRANSIT IV-B	US	15 NOV 61	105.6	32.42	700	582	136.8;54;324;150;400
1961 ALPHA ETA 2	TRAAC	US	15 NOV 61	105.6	32.43	720	562	136.65;54;324
1961 ALPHA ETA 3	ROCKET BODY	US	15 NOV 61	105.5	32.44	689	584	

*APHELION, PERIHELION IN ASTRONOMICAL UNITS, INCLINATION TO ECLIPTIC.
**FIFTY METAL OBJECTS HAVE BEEN IDENTIFIED IN THE PLANE OF THE 1961 OMICRON 1 AND 1961 OMICRON 2 ORBITS.

PLEASE ADD THE FOLLOWING TO THE DECAYED OBJECTS LIST:

OBJECT	CODE NAME	SOURCE	LAUNCH	DECAY
1961 ALPHA GAMMA 1	DISCOVERER XXXII	US	13 OCT 61	13 NOV 61
1961 ALPHA ZETA 1	CAPSULE	US	15 NOV 61	16 NOV 61*
1961 ALPHA THETA 1	RANGER 2	US	18 NOV 61	20 NOV 61

* SUCCESSFUL RE-ENTRY AND RECOVERY.


AUG 12
OCT 1
NOV 20
JAN 9 1961
FEB 28
APR 19
JUN 8
JUL 28
SEP 16
NOV 5
DEC 25
FEB 13 1962
APR 4
MAY 24
JUL 13
SEP 1
OCT 21
DEC 10
JAN 29 1963
MAR 20
MAY 9
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
400
300
200
1960 IOTA
(ECHO I)
APOGEE
PERIGEE
APOGEE - PERIGEE vs. TIME
Each division from left to right represents a period of five days referenced to launch date, August 12, 1960.
Each division from top to bottom represents a distance of ten miles altitude referenced to equatorial radius.