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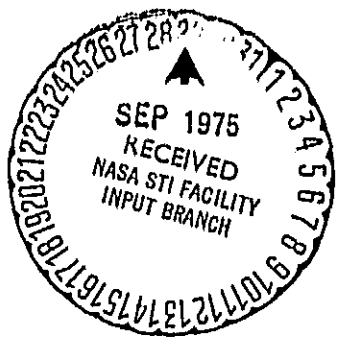

DATA REPORT OF FOUR FREE-DRIFTING BUOYS TRACKED BY THE EOLE SATELLITE IN THE WESTERN NORTH ATLANTIC OCEAN IN THE WINTER OF 1973

By John W. Wallace and J. W. Usry

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16. Abstract

This report presents data from four free-drifting buoys deployed near Chesapeake Light on February 20, 1973. Position and water temperature data are presented in tabular and graphic form.

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SUMMARY

Four free-drifting buoys were deployed near Chesapeake Light on February 20, 1973. The bouys drifted southeast for 7 days before becoming entrained in the Gulf Stream near Cape Hatteras. Trajectory data and water temperature near the surface were obtained using the French EOLE satellite. These data are presented in tabular and graphical form.

INTRODUCTION

The Langley Research Center is involved with state and other federal agencies in studying the use of satellites and free-drifting buoy systems for remote measurements of current, temperature, salinity, sea state, and other ocean and air-sea interface parameters. One of these programs was designed to measure the currents on a seasonal basis in the Chesapeake Bight in a cooperative effort with the Virginia Institute of Marine Science. These data are needed to develop and validate analytical models which may be used for predicting the general circulation of surface currents, and the resultant transport of various pollutants and nutrients.

Several free-drifting buoy missions have been conducted since the program was initiated in 1972. Two of these were conducted in the autumn of 1972. Data from these two missions, including background information and a description of the systems used, are reported in reference 1.

The purpose of this paper is to present the data from a later mission wherein the same four buoys used in the two missions reported in reference 1 were deployed near the Chesapeake Light on February 20, 1973. Position and water temperature data for each buoy were obtained via satellite. These data are presented in tabular and graphical form (without an analysis).

SYSTEMS DESCRIPTION

A photograph and sketch of the buoy system are shown in figure 1. The four major components of the system include the flotation disk, instrument compartment, connector chain, and drogue plates. The lifting bridle shown in the photograph was used during deployment and retrieval operations. Mounted on top of the flotation disk were two wire antennas (used with two recovery beacons), a flashing light, and the buoy-satellite antenna. The system weight was 254 kg.

The instrument compartment was attached to the bottom of the flotation disk and housed the transponder (see reference 1), batteries, beacons, and other related electronics. Flotation blocks and support legs were mounted to the sides and bottom of the compartment. The access hatch allowed entry into the instrument compartment for checkout purposes.

Square drag plates were suspended below the instrument box using a galvanized chain. The chain was attached to a swivel at the top of the drag plates so that the plates could rotate freely. Stiffeners kept the plates at right angles to one another and lead ballast mounted on the plates kept the plates in line with the flotation disk. All of the buoys were drogued at 5 meters on this mission. Temperature sensors were at a depth of 2 meters for two of the buoys and at 5 meters for the remaining two. Position and temperature data were obtained using the French EOLE satellite data collection and tracking system.

The EOLE satellite was launched from Wallops Island, Virginia, in August 1971 using a NASA Scout launch vehicle. The satellite measures the range and range rate relative to the buoy and with these data, and the orbital parameters of the satellite, the buoy position can be determined. The

temperature data, along with calibration data, are transmitted from the buoy to the satellite, stored in the memory, and at a later time all data are transmitted to ground receiving stations.

DISCUSSION OF THE DATA

The four buoys were deployed near the Chesapeake Light on February 20, 1973, at 2000, 0300, 0700, and 1000Z. All of the buoys initially drifted in a clockwise pattern. Buoy 3 stopped transmitting data to the satellite after the first day. It was, however, intermittently observed by aircraft, homing on the buoy recovery beacon, to generally follow the path of buoy 1. There will be no further discussion of buoy 3 because of insufficient data. Buoy 1 approached within 4 km of the coastline which it then followed as it drifted south to Cape Hatteras. Buoys 2 and 4 always remained more than 10 km seaward of the coastline. Buoys 1, 2, and 4 were later entrained in the Gulf Stream near Cape Hatteras and then drifted northeast. On March 2, 1973, buoy 4 disappeared about 80 km northeast of Cape Hatteras. Buoys 1 and 2 continued to drift in the Gulf Stream and were recovered approximately 450 km and 650 km, respectively, east of Wallops Island, Virginia. Time histories of the position and temperature data are listed in Table I. Water temperature was measured at depths of 2 meters on buoys 1 and 4 and 5 meters on buoy 2. The position data were converted to rectangular (x,y) coordinates from a reference point located at latitude 36° N and longitude 76° W. These data, with the distance R from the reference point and azimuth from north, are listed in Table I.

Position and temperature data for each buoy are presented graphically in figures 2 and 3. Positions are plotted in figure 2 with the origin of the plot at the reference point latitude and longitude of 36° N and 76° W,

respectively, and with the coastline shown for reference. Histories of the water temperature and range and azimuth from the reference point are plotted in figure 3.

A discussion of the accuracy of the data using this technique is presented in references 1 and 2. Reference 1 showed that a systematic error in the position data of 1.0 to 1.5 km existed with a random error about the mean ranging from 1.4 to 2.3 km depending upon the transponder. The accuracy numbers were estimated using buoys 1, 2, 5, and 6 for the position data, and buoy 1 for the temperature data.

CONCLUDING REMARKS

Four free-drifting buoys were deployed near Chesapeake Light on February 20, 1973. The buoys drifted southeast for 7 days before becoming entrained in the Gulf Stream near Cape Hatteras. Trajectory data and water temperature near the surface were obtained using the French EOLE satellite. These data have been presented in tabular and graphical form.

REFERENCES

1. Usry, J. W.; and Wallace, John W.: Data Report of Six Free-Drifting Buoys Tracked by the EOLE Satellite in the Western North Atlantic Ocean in the Autumn of 1972. NASA TM X-72645.

2. Brachet, G; and Vincent M.: Buoys Tracking Experiments Calibration of VIMS Transponders. CNES No. 74.170/cb/mt/ml. January 1974.

TABLE I.- LIST OF DATA, FEB.-MAR. 1973

(a) Buoy 1

Time Mo/Day/Hr	Elapsed Time, hr	Lat., North deg.	Long., West deg.	Temp., °C	X, km	Y, km	R, km	Azimuth, deg.
22108	0.0	30.91	75.72	*	25.1	100.7	103.7	14.0
22110	1.8	36.90	75.69	4.1	27.2	99.9	103.3	15.3
22112	3.6	36.90	75.69	4.1	27.2	99.7	103.3	15.3
22114	5.3	36.88	75.69	4.1	27.6	98.1	101.9	15.7
22115	7.1	36.83	75.76	4.4	21.5	91.9	94.4	13.1
22117	8.9	36.83	75.76	4.6	21.5	91.9	94.4	13.1
22119	10.6	36.86	75.73	4.?	23.8	95.1	98.0	14.0
22211	27.0	36.76	75.70	4.3	26.5	84.1	88.2	17.5
22213	28.8	36.72	75.69	4.4	28.0	80.0	84.8	19.3
22218	34.1	36.65	75.68	4.4	28.2	72.2	77.6	21.3
22309	48.7	36.60	75.67	4.4	29.6	66.6	72.9	24.0
22311	50.5	36.60	75.67	4.3	29.6	66.6	72.9	24.0
22312	52.3	36.58	75.67	4.3	29.4	64.6	71.0	24.5
22314	54.0	36.61	75.66	4.3	30.4	67.7	74.2	24.2
22316	55.8	36.61	75.66	4.5	30.4	67.7	74.2	24.2
22318	57.6	36.57	75.71	4.7	25.6	63.6	68.6	22.0
22408	72.2	36.58	75.69	4.2	27.8	64.0	69.8	23.4
22410	73.9	36.58	75.69	4.2	27.8	64.0	69.8	23.4
22412	75.7	36.57	75.67	4.1	29.3	62.8	69.3	25.0
22414	77.5	36.56	75.67	4.1	29.6	62.4	69.1	25.4
22415	79.3	36.56	75.67	4.3	29.6	62.4	69.1	25.4
22417	81.0	36.52	75.70	4.4	26.3	57.6	63.3	24.6
22508	95.7	36.68	75.68	4.0	28.4	47.7	55.5	30.8
22510	97.4	36.43	75.68	3.9	28.4	47.7	55.5	30.8
22511	99.2	36.42	75.68	3.9	28.8	46.7	54.9	31.7
22513	100.9	36.42	75.67	3.9	29.1	47.1	55.3	31.7
22515	102.7	36.42	75.67	4.0	29.1	47.1	55.3	31.7
22517	104.5	36.41	75.70	4.3	26.8	45.3	52.6	30.6
22607	119.2	36.42	75.71	4.6	26.1	46.3	53.1	29.4
22609	120.9	36.42	75.71	4.7	26.1	46.3	53.1	29.4
22611	122.6	36.41	75.70	4.8	27.0	46.1	53.4	30.4
22613	124.4	36.42	75.70	4.7	27.1	46.3	53.6	30.3
22614	120.2	36.41	75.73	4.8	24.3	45.7	51.8	28.0
22616	128.0	36.41	75.73	5.0	24.3	45.7	51.8	28.0
22707	142.6	36.37	75.75	4.9	22.3	40.7	46.4	28.7
22709	144.3	36.37	75.75	4.9	22.3	40.7	46.4	28.7

*No data.

TABLE I.- LIST OF DATA, FEB.-MAR. 1973 - Continued

(a) Buoy 1 - Concluded

Time Mo/Day/Hr	Elapsed Time, hr	Lat., North deg.	Long., West deg.	Temp., °C	X, km	Y, km	R, km	Azimuth, deg.
22710	146.1	36.34	75.74	4.9	23.2	38.0	44.5	31.5
22712	147.9	36.30	75.73	4.8	24.2	32.7	40.7	36.5
22714	149.7	36.18	75.72	4.9	25.1	19.8	31.9	51.8
22716	151.4	36.18	75.72	4.9	25.1	19.8	31.9	51.8
22808	167.8	35.68	75.44	4.9	49.4	-35.2	60.6	125.5
22810	169.6	35.64	75.43	4.8	50.8	-40.2	64.8	128.3
22812	171.4	35.59	75.41	4.8	52.9	-45.9	70.0	131.0
22813	173.1	35.48	75.44	4.9	49.9	-57.2	75.9	138.9
22815	174.9	35.48	75.44	5.0	49.9	-57.2	75.9	138.9
30107	191.3	35.27	75.44	5.0	50.2	-80.8	95.1	148.1
30109	193.0	35.27	75.44	5.0	50.2	-80.8	95.1	148.1
30111	194.8	35.25	75.44	5.0	50.1	-83.2	97.2	148.9
30113	196.6	35.24	75.43	5.0	50.6	-84.0	98.0	149.0
30116	200.1	35.20	75.44	5.2	49.8	-88.7	101.7	150.7
30205	213.0	35.28	75.38	5.5	55.1	-79.8	97.0	145.4
30306	238.2	35.40	75.23	8.1	68.5	-67.0	95.8	134.4
30308	240.0	35.40	75.23	7.7	68.5	-67.0	95.8	134.4
30310	241.7	35.41	75.21	*	70.2	-65.3	95.9	132.9
30315	247.0	35.47	75.18	*	72.8	-59.3	93.9	129.1
30406	261.7	35.63	74.91	12.6	97.1	-40.5	105.2	112.6
30408	263.4	35.03	74.91	12.8	97.1	-40.5	105.2	112.6
30413	268.8	35.68	74.77	13.3	109.0	-35.0	114.5	107.8
30405	285.1	36.02	74.48	15.2	135.0	2.1	135.1	89.1
30507	286.9	36.02	74.48	15.3	135.0	2.1	135.1	89.1
30512	292.2	36.20	74.38	7.4	143.8	22.4	145.6	81.1
30605	308.6	36.64	74.13	*	166.2	70.6	180.6	67.0
30612	315.7	36.84	73.77	*	198.8	91.3	218.7	65.3
30706	333.8	37.22	72.82	*	283.3	135.9	314.3	64.4
30711	339.2	37.32	72.48	*	313.1	140.2	345.5	65.0
30806	357.3	37.76	71.51	*	399.4	195.5	444.7	63.9
31012	411.3	38.04	70.95	5.7	449.7	226.5	503.5	63.3
31210	458.2	38.07	70.95	8.0	449.2	230.2	504.7	62.9

*No data.

TABLE I.- LIST OF DATA, FEB.-MAR., 1973 - Continued

(b) Buoy 2

Time Mo/Day/Hr	Elapsed Time hr	Lat., North deg.	Long., West deg.	Temp., °C	X, km	Y, km	R, km	Azimuth, deg.
22108	0.0	36.90	75.70	*	26.5	100.2	103.7	14.8
22110	1.8	36.89	75.68	4.3	28.4	98.3	102.3	16.1
22112	3.5	36.89	75.68	4.5	28.4	98.3	102.3	16.1
22114	5.3	36.87	75.68	4.4	28.1	96.4	100.5	16.3
22115	7.1	36.82	75.75	4.3	22.5	91.3	94.1	13.9
22117	8.9	36.82	75.75	4.4	22.5	91.3	94.1	13.9
22119	10.6	36.84	75.73	4.5	24.4	93.7	96.8	14.6
22211	27.0	36.74	75.70	4.4	27.0	82.8	87.1	18.0
22213	28.8	36.72	75.68	4.3	28.1	79.6	84.4	19.5
22218	34.1	36.65	75.67	4.5	28.9	72.0	77.6	21.9
22311	50.5	36.57	75.65	4.4	31.0	63.5	70.6	26.0
22312	52.3	36.56	75.66	4.5	30.4	62.4	69.4	26.0
22314	54.1	36.60	75.65	4.4	31.2	66.5	73.5	25.2
22316	55.8	36.60	75.65	4.5	31.2	66.5	73.5	25.2
22318	57.6	36.58	75.69	4.5	27.4	64.3	69.9	23.1
22319	58.7	36.57	75.65	4.4	31.0	63.5	70.6	26.0
22408	72.2	36.61	75.66	4.7	30.0	68.0	74.3	23.8
22410	73.9	36.61	75.66	4.5	30.0	68.0	74.3	23.8
22412	75.7	36.60	75.65	4.5	31.2	66.7	73.7	25.1
22414	77.5	36.61	75.63	4.6	32.8	67.5	75.0	26.0
22416	79.3	36.61	75.63	4.7	32.8	67.5	75.0	26.0
22417	81.0	36.58	75.65	4.6	31.0	64.6	71.6	25.6
22508	95.7	36.53	75.67	4.9	29.5	58.3	65.3	26.8
22510	97.4	36.53	75.67	4.4	29.5	58.3	65.3	26.8
22511	99.2	36.51	75.66	4.4	30.4	56.2	63.8	28.4
22513	100.9	36.48	75.64	4.3	32.1	53.8	62.7	30.8
22515	102.7	36.48	75.64	4.4	32.1	53.8	62.7	30.8
22517	104.5	36.48	75.65	4.3	31.1	50.8	59.6	31.4
22607	119.2	36.40	75.50	4.5	44.4	44.8	63.1	44.7
22609	120.9	36.40	75.50	4.5	44.4	44.8	63.1	44.7

*No data.

TABLE I.- LIST OF DATA, FEB.-MAR., 1973 - Continued

(b) Buoy 2 - Continued

Time Mo/Day/Hr	Elapsed Time hr	Lat., North deg.	Long., West deg.	Temp., °C	X, km	Y, km	R, km	Azimuth, deg.
22611	122.7	30.38	75.49	4.6	45.1	42.7	62.1	46.6
22613	124.4	36.38	75.48	4.7	46.3	42.4	62.8	47.5
22614	126.2	36.37	75.48	4.6	46.5	41.5	62.3	48.2
22616	128.0	36.37	75.48	4.6	46.5	41.5	62.3	48.2
22707	142.6	36.27	75.44	4.9	49.8	30.4	58.3	58.6
22709	144.3	36.27	75.44	4.9	49.8	30.4	58.3	58.6
22710	146.1	36.25	75.43	4.8	50.6	27.3	57.5	61.7
22712	147.9	36.20	75.43	4.8	50.8	22.7	55.7	65.9
22714	149.7	36.09	75.45	5.0	49.1	10.0	50.1	78.5
22716	151.4	36.09	75.45	5.3	49.1	10.0	50.1	78.5
22806	166.1	35.59	75.26	5.5	66.2	-45.5	80.4	124.5
22808	167.8	35.59	75.26	5.3	66.2	-45.5	80.4	124.5
22810	169.6	35.53	75.24	*	68.1	-51.9	85.6	127.3
22812	171.4	35.45	75.23	*	68.8	-58.5	90.3	130.4
22813	173.1	35.36	75.23	5.3	68.2	-71.4	98.7	136.3
22815	174.9	35.36	75.23	5.3	68.2	-71.4	98.7	136.3
30108	191.3	35.17	75.18	6.8	72.6	-91.6	116.9	141.6
30109	193.1	35.17	75.18	6.4	72.6	-91.6	116.9	141.6
30111	194.8	35.18	75.17	8.0	74.0	-91.3	117.5	141.0
30113	196.6	35.18	75.16	16.0	74.9	-90.3	117.7	140.5
30116	200.1	35.21	75.16	*	74.9	-87.6	115.2	139.5
30205	213.0	35.32	75.04	15.2	85.8	-76.0	114.6	131.5
30216	223.6	35.43	74.90	14.3	97.8	-63.6	116.7	123.0
30306	238.2	36.01	74.43	*	140.1	0.8	140.1	89.7
30308	240.0	36.01	74.43	*	140.1	0.8	140.1	89.7
30310	241.8	36.07	74.33	*	148.2	7.9	148.4	87.0
30315	247.0	36.28	74.11	*	168.1	31.1	170.9	79.5
30406	261.7	36.99	73.20	14.0	249.1	110.2	272.4	66.1
30408	263.5	36.99	73.20	14.1	249.1	110.2	272.4	66.1
30409	265.2	37.05	73.10	*	258.1	116.3	283.1	65.7

*No data.

TABLE I.- LIST OF DATA, FEB.-MAR., 1973 - Continued

(b) Buoy 2 - Concluded

Time Mo/Day/Hr	Elapsed Time hr	Lat., North deg.	Long., West deg.	Temp., °C	X, km	Y, km	R, km	Azimuth, deg.
30415	270.5	37.24	72.86	*	279.8	137.6	311.8	63.8
30505	285.1	37.68	72.08	14.2	349.2	186.1	395.7	61.9
30507	286.9	37.68	72.08	14.2	349.2	186.1	395.7	61.9
30511	290.5	37.62	71.79	14.1	375.0	180.1	416.0	64.3
30512	292.2	37.62	71.79	14.0	375.0	180.1	416.0	64.3
30605	308.6	37.83	71.04	13.9	441.2	202.8	485.5	65.3
30607	310.4	37.83	71.04	13.4	441.2	202.8	485.5	65.3
30608	312.2	37.83	70.91	13.6	452.8	203.0	496.2	65.9
30610	313.9	38.18	70.14	14.1	521.4	242.0	574.9	65.1
30612	315.7	38.18	70.14	14.4	521.4	242.0	574.9	65.1
30704	332.1	38.08	69.83	14.5	548.9	230.8	595.5	67.2
30706	333.9	38.08	69.83	14.6	548.9	230.8	595.5	67.2
30708	335.6	38.09	69.75	14.6	556.4	231.7	602.7	67.4
30710	337.4	38.09	69.68	14.6	562.4	231.9	608.3	67.6
30711	339.2	38.11	69.56	14.5	543.4	234.4	619.5	67.8
30713	340.9	38.11	69.56	14.6	573.4	234.4	619.5	67.8
30804	355.5	38.34	69.04	14.8	619.9	259.7	672.1	67.3
30806	357.3	38.34	69.04	14.9	619.9	259.7	672.1	67.3
30807	359.1	38.33	69.98	14.7	624.5	259.0	676.1	67.5
30809	360.9	38.32	68.95	14.7	627.2	257.8	678.1	67.7
30811	362.7	38.31	68.92	14.7	630.2	25616	680.4	67.8
30813	364.4	38.31	68.92	14.7	630.2	256.6	680.4	67.8
30903	379.0	38.42	68.74	15.1	645.9	268.4	699.5	67.4
30905	380.8	38.42	68.74	15.1	645.9	268.4	699.5	67.4
30907	382.6	38.41	68.72	15.1	648.0	267.6	701.1	67.6
30909	384.3	38.40	68.70	15.1	649.4	266.5	702.0	67.7
30912	387.8	38.42	68.72	15.1	648 3	268.2	701.6	67.5

*No data.

TABLE I.- LIST OF DATA, FEB.-MAR., 1973 - Continued

(c) Buoy 4

Time Mo/Day/Hr	Elapsed Time hr	Lat., North deg.	Long., West deg.	Temp., °C	X, km	Y, km	R, km	Azimuth, deg.
22108	0.0	36.90	75.70	*	26.5	100.1	103.6	14.8
22110	1.8	36.89	75.67	4.1	29.2	99.1	103.3	16.4
22112	3.6	36.89	75.67	3.9	29.2	99.1	103.3	16.4
22114	5.3	36.88	75.68	4.2	28.7	97.5	101.7	16.4
22115	7.1	36.83	75.73	4.3	24.0	92.2	95.3	14.6
22117	8.9	36.83	75.73	4.4	24.0	92.2	95.3	14.6
[illegible]9	10.6	36.85	75.71	4.6	25.9	94.3	97.8	15.4
[illegible]1	27.0	36.74	75.66	4.1	30.1	82.5	87.8	20.0
22213	28.8	36.71	75.64	*	32.0	79.0	85.2	22.0
22218	34.1	36.64	75.64	4.3	32.0	70.9	77.8	24.3
22309	48.7	36.58	75.63	4.2	32.9	64.6	72.5	27.0
22311	50.5	36.58	75.63	4.2	32.9	64.6	72.5	27.0
22312	52.3	36.57	75.63	4.2	32.8	63.1	71.2	27.5
22314	54.1	36.59	75.63	4.3	32.8	65.7	73.5	26.6
22316	55.8	36.59	75.63	4.3	32.8	65.7	73.5	26.6
22318	57.6	36.57	75.68	4.6	28.8	62.9	69.2	24.6
22408	72.2	36.61	75.66	4.4	30.4	67.4	73.9	24.3
22410	73.9	36.61	75.66	4.4	30.4	67.4	73.9	24.3
22412	75.7	36.60	75.65	4.3	31.3	66.0	73.1	25.4
22414	77.5	36.60	75.64	4.3	32.5	66.6	74.1	26.0
22416	79.3	36.60	75.64	4.3	32.5	66.6	74.1	26.0
22417	81.0	36.57	75.66	4.7	30.2	63.4	70.2	25.5
22508	95.7	36.48	75.67	3.8	29.8	53.7	61.4	29.0
22510	97.4	36.48	75.67	3.7	29.8	53.7	61.4	29.0
22511	99.2	36.46	75.66	3.6	30.5	51.3	59.7	30.8
22513	100.9	36.44	75.64	3.6	32.3	49.4	59.0	33.2
22515	102.7	36.44	75.64	3.7	32.3	49.4	59.0	33.2
22517	104.5	36.42	75.65	4.1	31.4	46.9	56.5	33.8
22607	119.2	36.38	75.50	5.6	44.8	42.4	61.7	46.6
22609	120.9	36.38	75.50	4.6	44.8	42.4	61.7	46.6

*No data.

TABLE I.- LIST OF DATA, FEB.-MAR., 1973 - Continued

(c) Buoy 4 - Concluded

Time Mo/Day/Hr	Elapsed Time hr	Lat., North deg.	Long., West deg.	Temp., °C	X, km	Y, km	R, km	Azimuth, deg.
22611	122.7	36.38	,5.48	4.6	46.7	42.1	62.9	48.0
22613	124.4	36.37	75.46	4.7	48.1	41.6	63.6	49.1
22614	126.2	36.36	75.46	4.6	47.8	40.4	62.6	49.8
22616	128.0	36.36	75.46	4.6	47.8	40.4	62.6	49.8
22707	142.6	36.26	75.46	4.7	48.4	28.6	56.3	59.4
22709	144.3	36.26	75.46	4.8	48.4	28.6	56.3	59.4
22710	146.1	36.23	75.45	4.8	48.6	25.9	55.1	62.0
22712	147.9	36.19	75.46	*	48.2	21.4	52.8	66.1
22714	149.7	36.07	75.48	4.8	46.6	7.5	47.2	80.8
22716	151.4	36.07	75.48	4.8	46.6	7.5	47.2	80.8
22806	166.1	35.60	75.27	5.1	64.6	-44.4	78.4	124.5
22808	167.8	35.60	75.27	5.4	64.6	-44.4	78.4	124.5
22810	169.6	35.54	75.25	5.3	67.2	-50.9	84.3	127.2
22812	171.4	35.48	75.23	*	68.9	-57.4	89.7	129.8
22813	173.1	35.37	75.23	5.1	68.2	-70.1	97.8	135.8
22815	174.9	35.37	75.23	5.0	68.2	-70.1	97.8	135.8
30108	191.3	35.20	75.18	5.3	72.9	-89.1	115.1	140.7
30109	193.0	35.20	75.18	5.6	72.9	-89.1	115.1	140.7
30111	194.8	35.21	75.16	5.5	74.9	-87.9	115.5	139.6
30113	196.6	35.22	75.13	5.7	77.4	-86.3	115.9	138.1
30116	200.1	35.26	75.11	*	79.6	-82.7	114.8	136.1
30205	213.0	35.46	74.89	8.1	98.6	-59.7	115.3	121.2
30212	220.1	35.65	74.77	12.7	109.8	-38.7	116.4	109.4
30214	221.	35.65	74.77	13.8	109.8	-38.7	116.4	109.4

*No data.

TABLE I.- LIST OF DATA, FEB.-MAR. 1973 - Continued

(d) Wind Data

Time Mo/Day/Hr	Chesapeake Light	Oregon Inlet	EB-01	Time Mo/Day/Hr	Chesapeake Light	Oregon Inlet	EB-01
22000	SE6	NE5	*	22412	Calm	Calm	*
22003	SSE6	Calm	*	22415	Calm	Calm	*
22006	SE8	Calm	*	22418	W3	NE5	*
22009	S8	NE5	*	22421	NW6	NE10	*
22012	S8	NE5	*	22500	NE4	SE5	*
22015	S4	NE5	*	22503	NE4	SE5	*
22018	S3	NE5	*	22506	NNE8	SE5	*
22021	SE6	NE10	*	22509	NNE10	SE5	*
22100	SE6	ENE5	*	22512	NNE4	ENE10	*
22103	E4	NNE5	*	22515	NNE6	NE5	*
22106	Calm	NE5	*	22518	NNE8	NE10	*
22109	WNW10	NE5	*	22521	NNE8	NE10	*
22112	N22	NE5	*	22600	NE10	SE10	140/2
22115	NW14	NE5	*	22603	E14	SE5	160/7
22118	NW8	NE10	*	22606	SE20	SE5	170/7
22121	NW2	NE10	*	22609	SSE12	SE5	*
22200	E4	NE12	*	22612	SE16	SE5	190/7
22203	SSE10	SW15	*	22615	SE18	SE5	160/12
22206	WNW30	W20	*	22618	S8	SSE5	160/12
22209	WNW32	NW20	*	22700	NE20	SSE5	200/9
22212	W30	NW20	*	22703	N18	SSE5	80/3
22215	WNW31	NW25	*	22706	N24	NE10	30/10
22218	NW28	NW25	*	22709	N26	NE10	40/14
22221	W14	NNW25	*	22712	N30	NE10	70/16
22300	W14	NW10	*	22715	N30	NE10	20/14
22303	SW12	NW15	*	22718	N36	NE10	50/17
22306	WNW4	NW15	*	22721	N40	NE15	40/14
22309	NW10	NW15	*	22800	NNW34	NE20	40/21
22312	Calm	NW10	*	22803	NNW34	NE25	10/19
22315	Calm	NE5	*	22806	NNW36	NE25	360/20
22318	Calm	W3	*	22809	NNW22	NE20	10/17
22321	Calm	SW5	*	22812	NNW18	NE29	*
22400	NE4	Calm	*	22815	NNW16	NE20	30/13
22403	SE2	SW5	*	22818	N16	NE20	30/12
22406	SE4	SW5	*	22821	N11	NE20	*
22409	Calm	SW5	*	30100	N6	NE15	40/9

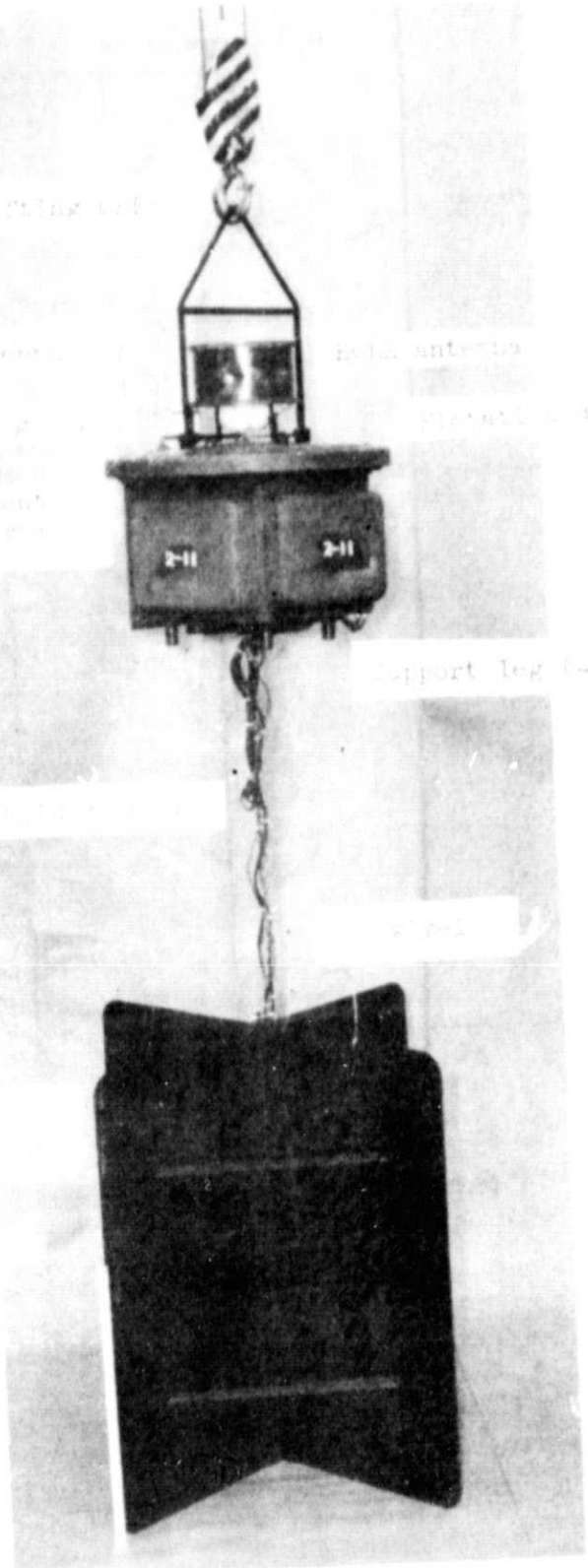
*No data.

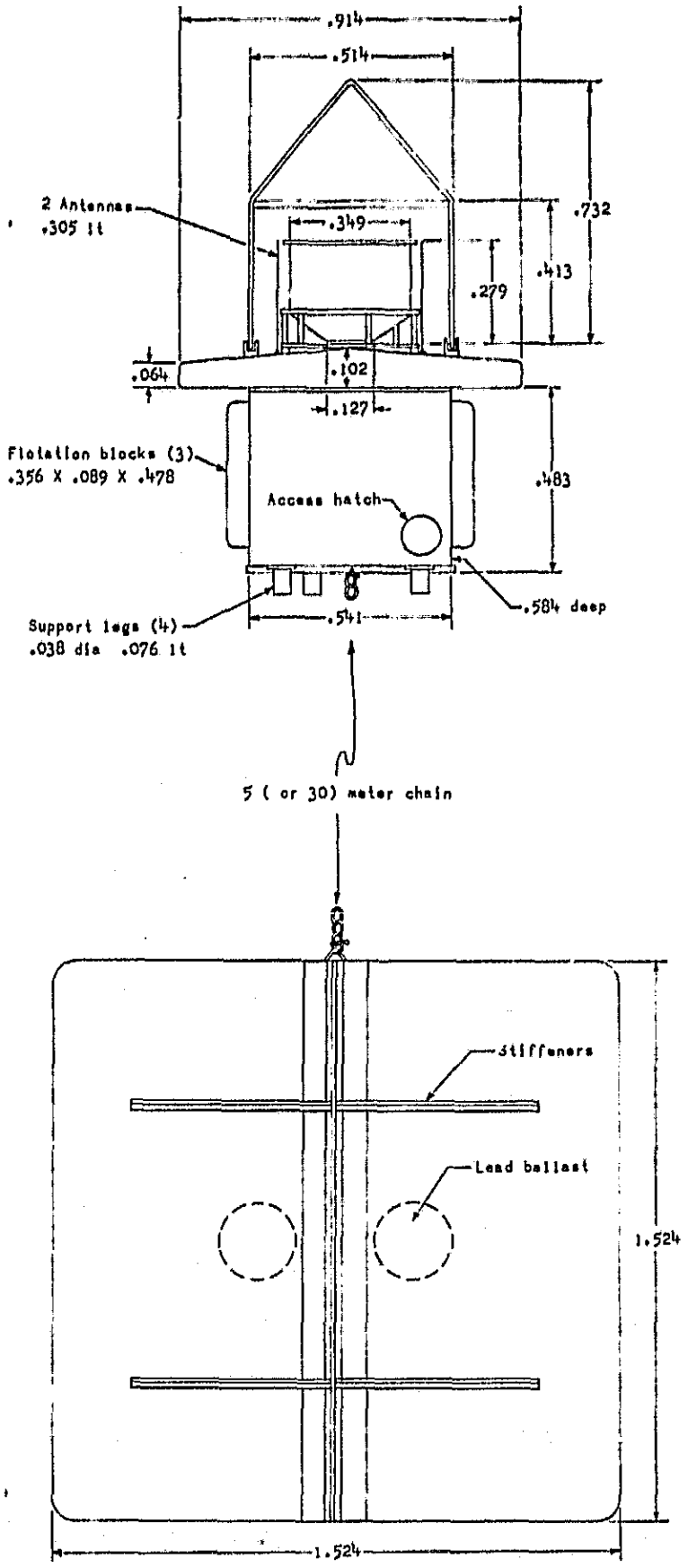
TABLE I.- LIST OF DATA, FEB.-MAR. 1973 - Concluded

(d) Wind Data - Concluded

Time Mo/Day/Hr	Chesapeake Light	Oregon Inlet	EB-01
30103	Calm	NE15	*
30106	Calm	NE15	70/3
30109	Calm	NE15	60/3
30112	Calm	NE15	130/2
30115	*	*	60/2
30118	*	*	Calm
30121	*	*	190/2
30200	*	*	180/5
30203	*	*	190/7
30206	SE10	NE10	200/8
30209	S6	E10	280/7
30212	S8	NE5	310/6
30215	S6	NE5	260/3
30218	SE10	NNE10	260/3
30221	SE18	NNE10	210/9
30300	SE18	NE10	170/16
30303	SE14	SSE7	*
30306	SE16	SSE10	*
30309	SE8	Calm	*
30312	SSE4	NE5	*
30315	ESE18	E6	*
30318	E12	E6	*
30321	E18	E10	170/13
30400	E16	E10	170/16
30403	ESE17	E10	160/15
30406	SSE10	E10	180/17
30409	SSW8	S9	170/17
30412	S8	E10	190/14
30415	S4	E5	170/15
30418	NW5	E5	200/14
30421	NE10	E5	170/5
30500	NE12	E8	230/6
30503	NE10	E5	240/5
30506	NE16	Calm	190/7
30509	*	E3	210/6
30512	NNE12	E3	*
30515	NNE16	NE2	*
30518	N15	NE2	*
30521	NE20	NE5	*
30600	NNE14	NE10	*
30603	NNE14	NE5	*
30606	NNE10	NE5	*
30609	N16	NE2	*
30612	NNW16	NE5	*
30615	NNE18	NE10	*
30618	NNE18	NE8	*
30621	W20	NE8	*
30700	N24	*	*
30703	N18	NE12	*
30706	NNE16	NE10	*
30709	NNE12	NE10	*
30712	NNW15	NE10	*
30715	N10	NE10	*
30718	N6	NE10	*
30721	N6	NE10	*
30800	WNW4	NE5	*
30803	E2	N5	*

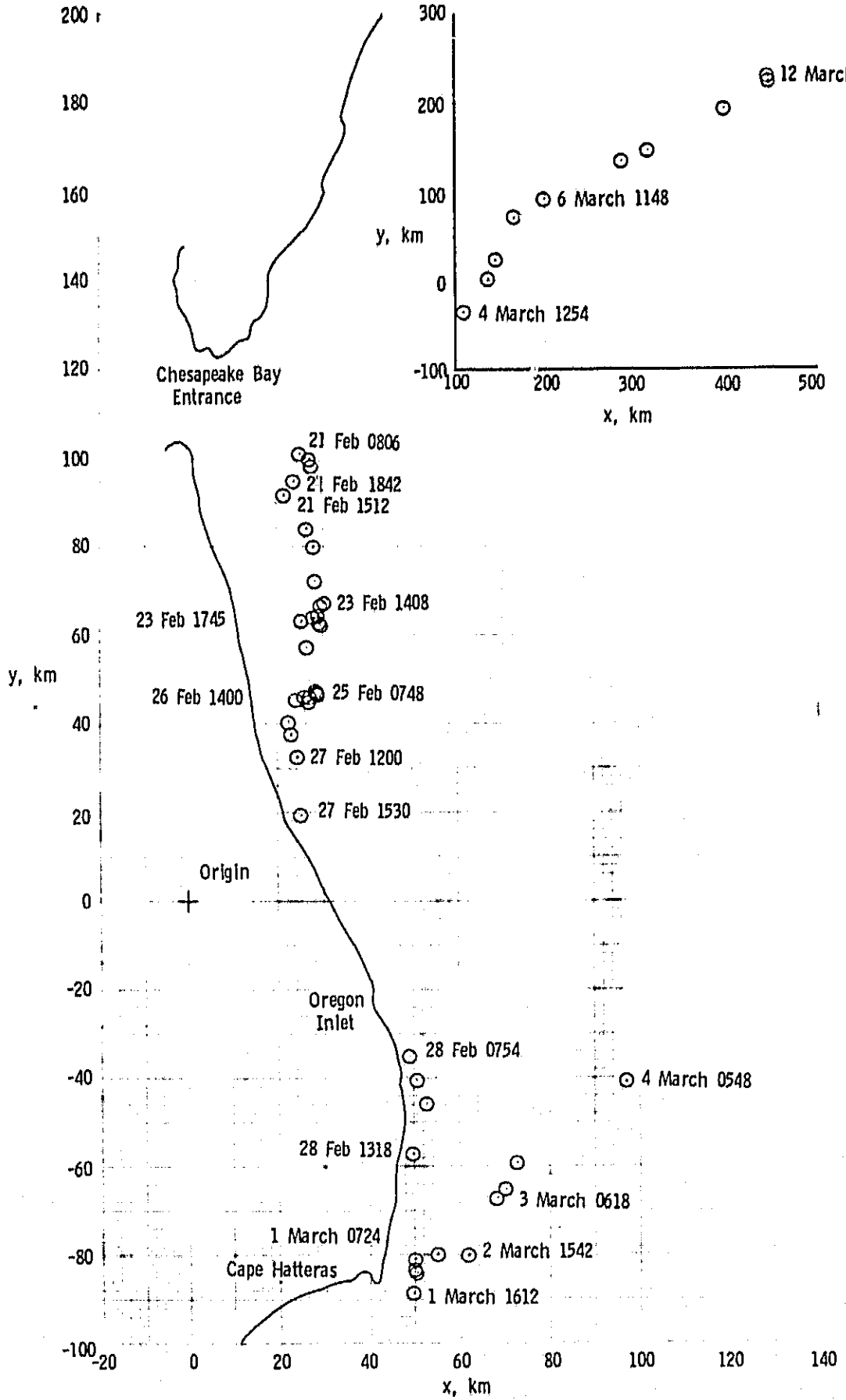
*No data.





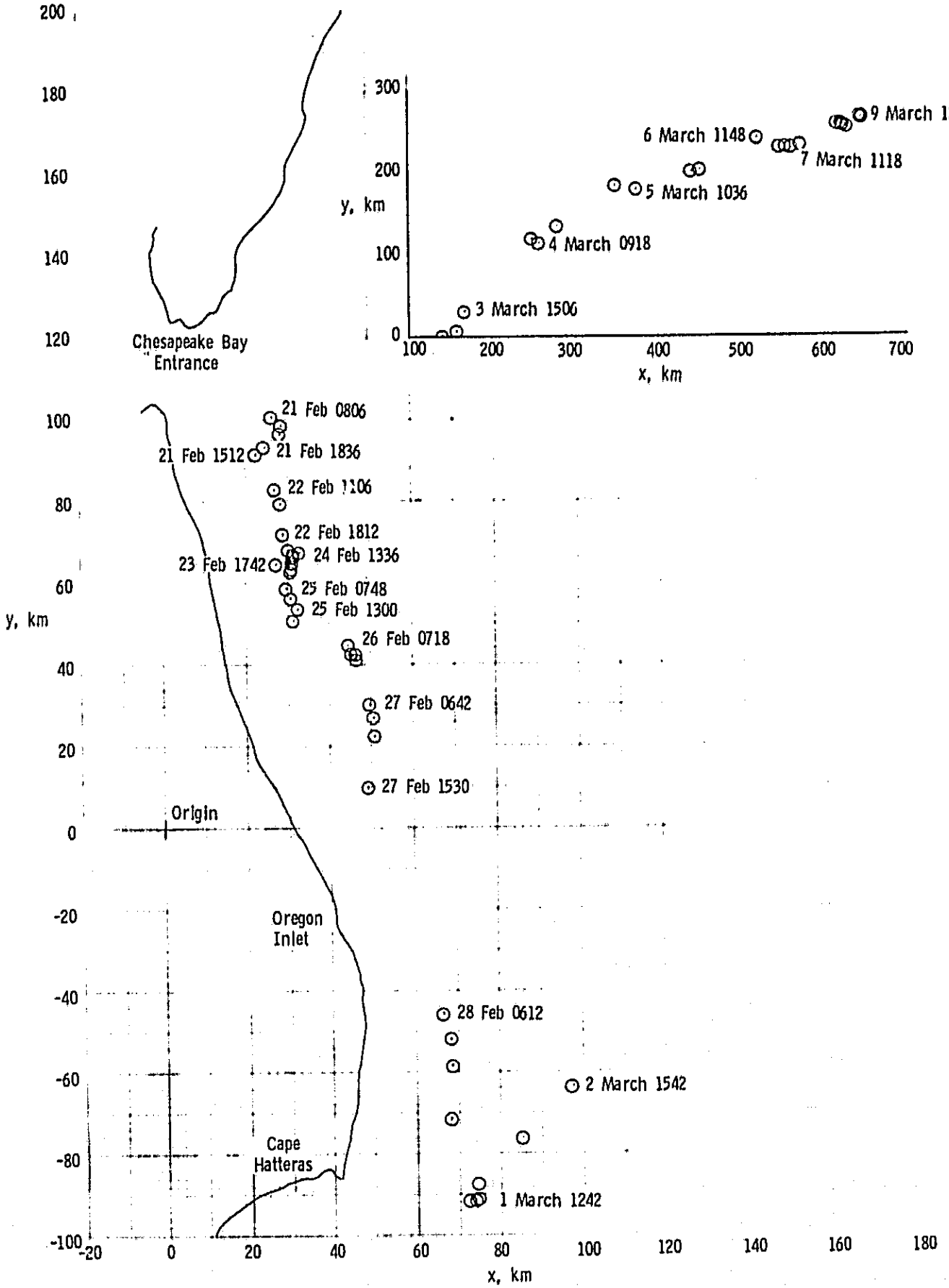
(b) Sketch of the buoy system. (All dimensions in meters.)

Figure 1. - Concluded.



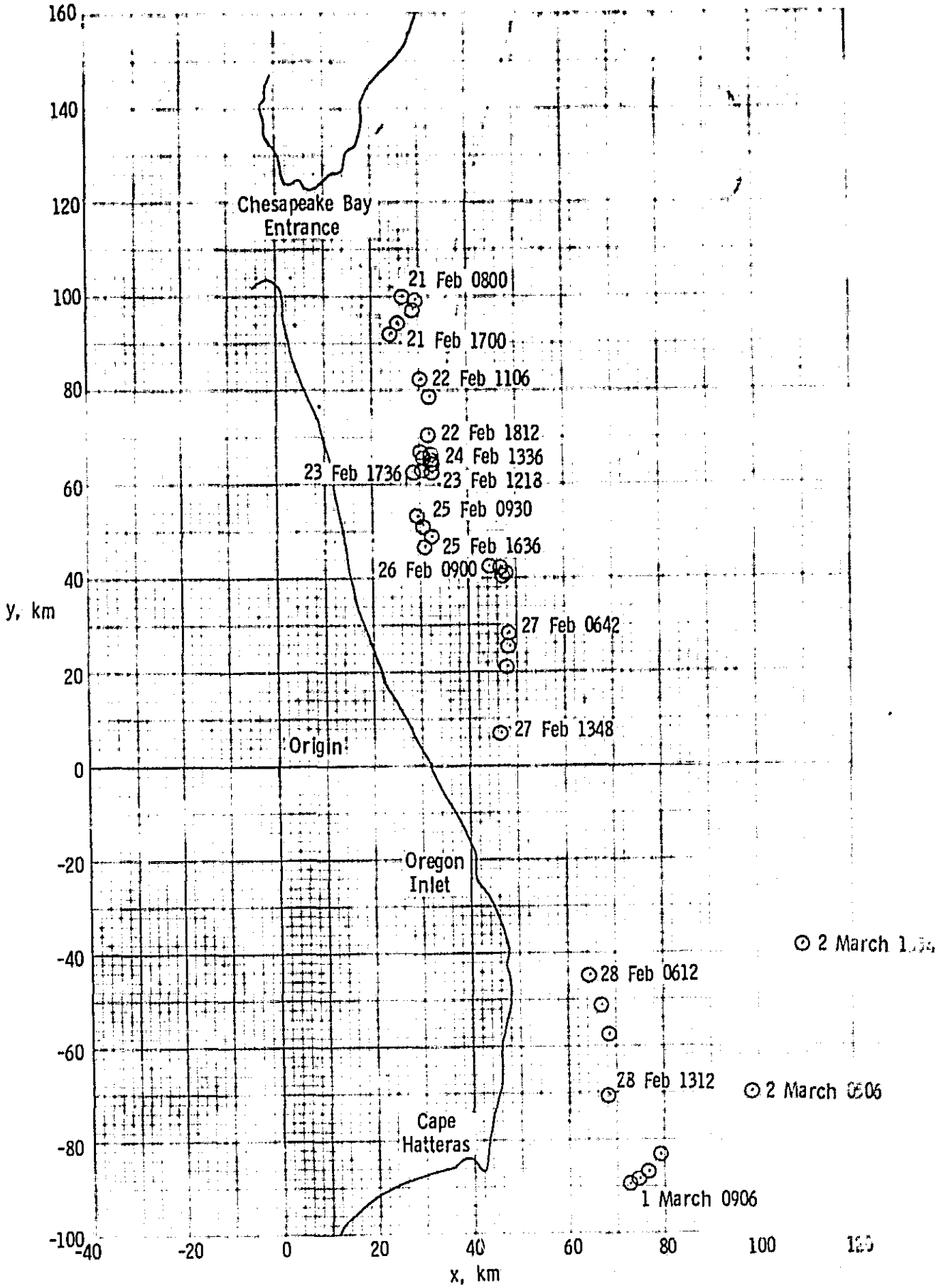
(a) Buoy 1.

Figure 2.- Buoy trajectories for Feb - March 1973.



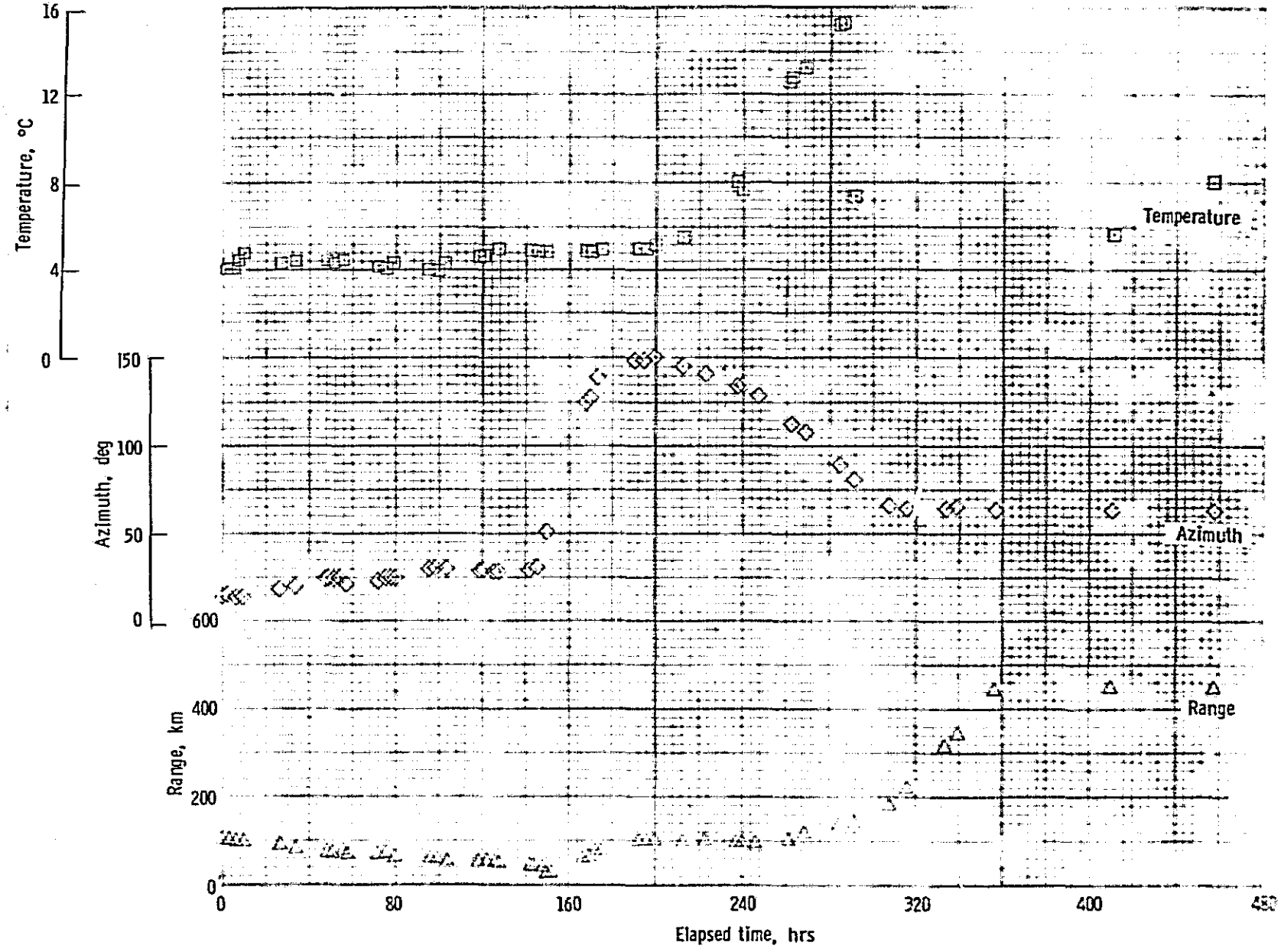
(b) Buoy 2.

Figure 2.- Continued.



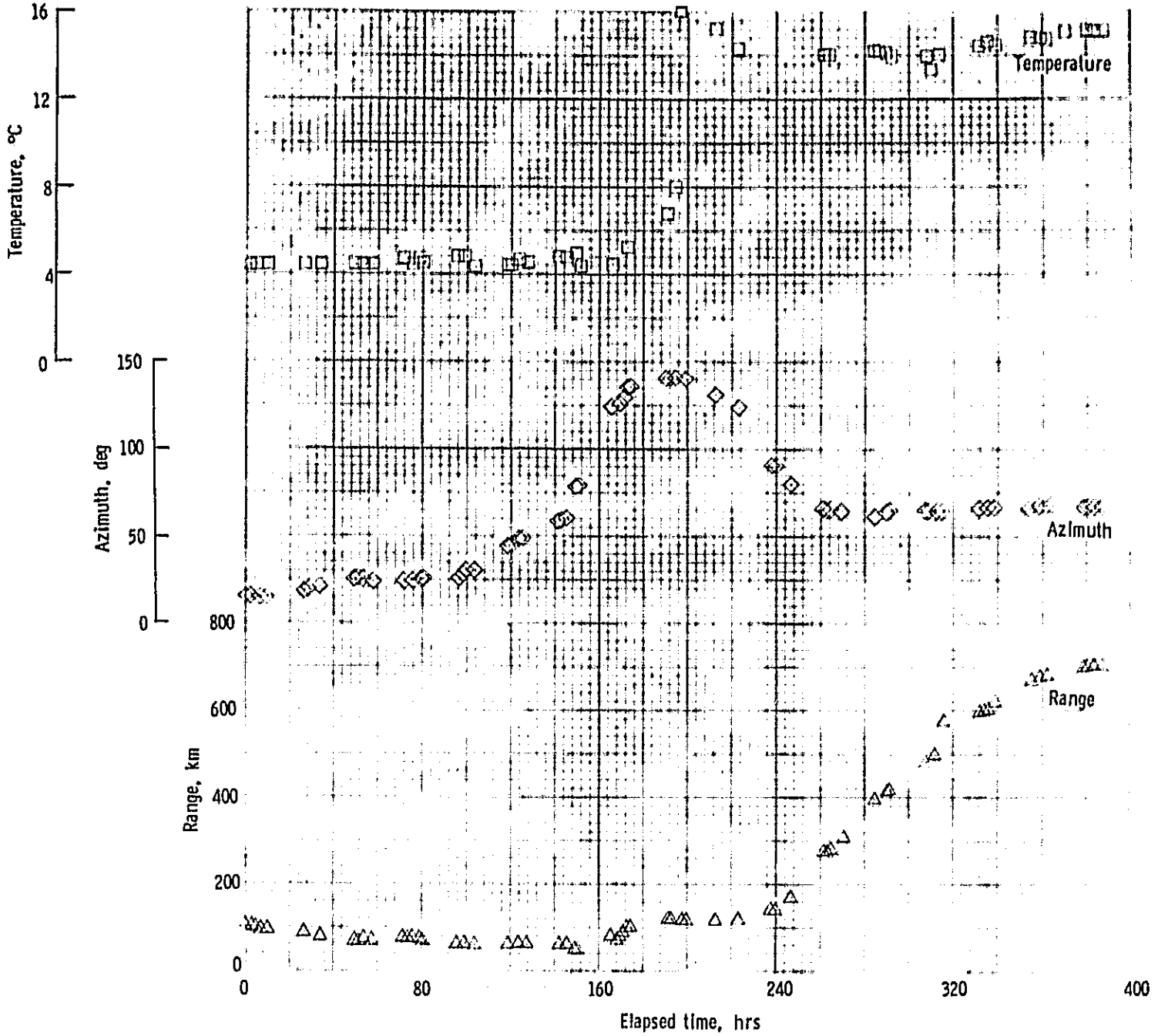
(c) Buoy 4.

Figure 2. - Concluded.



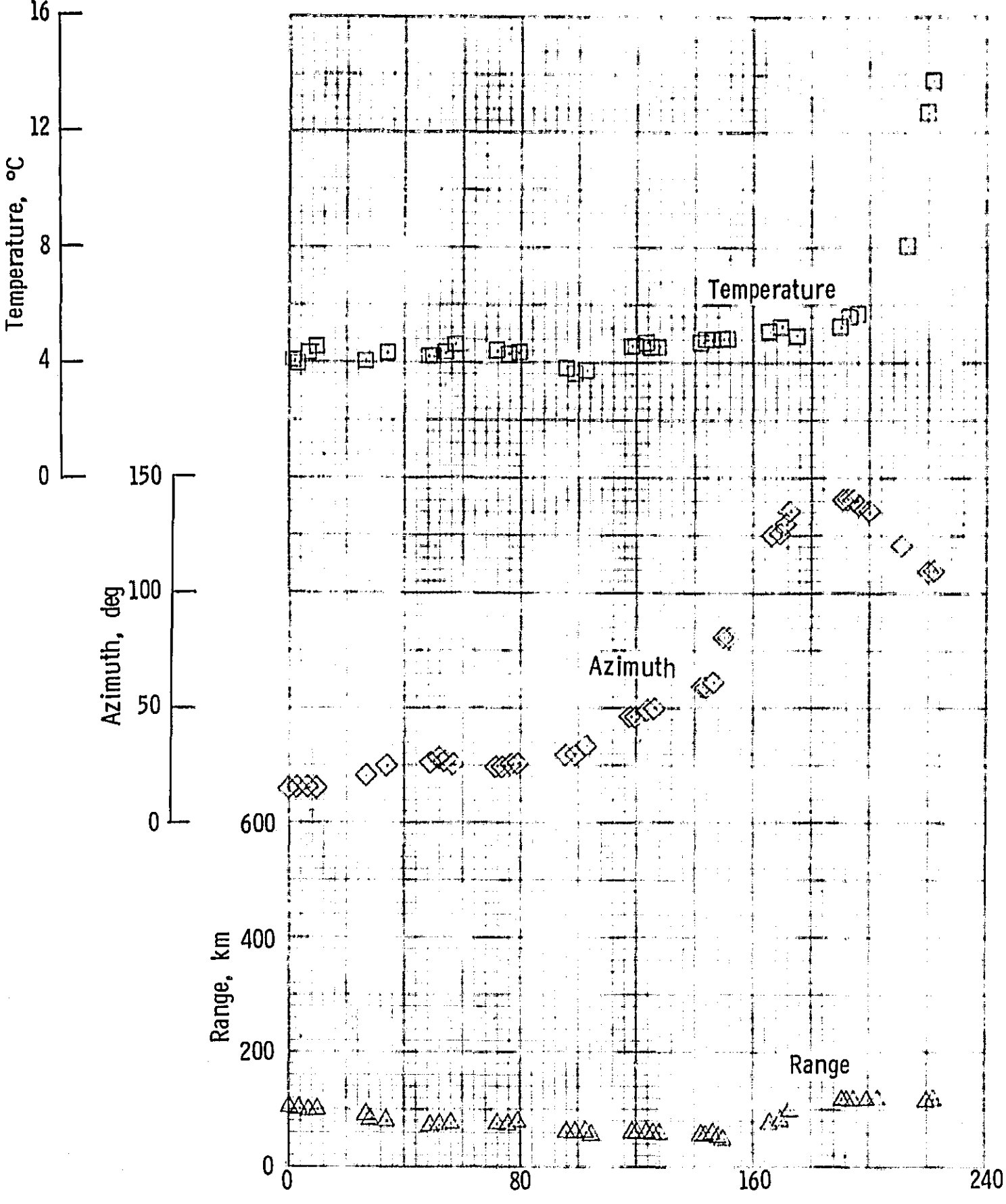
(a) Buoy I.

Figure 3.- Time histories of the position and temperature data.



(b) Buoy 2.

Figure 3. - Continued.



(c) Buoy 4.

Figure 3. - Concluded.