

## 28. GEOPHYSICAL SITE SURVEY RESULTS ON THE WALVIS RIDGE<sup>1</sup>

Philip D. Rabinowitz, Department of Oceanography, Texas A&M University, College Station, Texas  
and

E. S. W. Simpson, Department of Oceanography, University of Capetown, Rondebosch, 7700, South Africa

The purpose of this report is to present the underway geophysical measurements collected on a predrilling site survey in March, 1979, aboard *Thomas B. Davie* of the University of Capetown during cruise 388. The cruise was devoted to collecting bathymetric, magnetics, and single-channel seismic reflection data, over seven candidate drill sites for the International Phase of Ocean Drilling program (IPOD) of the Deep Sea Drilling Project (DSDP). Six of the sites, which were originally selected on a seismic reflection profile obtained aboard *Vema* cruise 2712, are located on a northwest-southeast transect across the Walvis Ridge near 29°S (Fig. 1). An approximate  $1^\circ \times 3^\circ$  grid area was surveyed, criss-crossing the candidate sites (Fig. 2). The seventh site (SAII-7) is located just to the south of the transect in shallower water depths. A single geophysical traverse was made across this candidate drill site (Fig. 2; DSDP Site 526). The data collected, given in this report, have provided sufficient seismic control for the safety review by the DSDP and JOIDES Pollution Prevention and Safety Panels and for the selection of exact drill site locations. Site SAII-6 was drilled on Leg 73 of *Glomar Challenger* (DSDP Site 524, Fig. 2). Sites SAII-1, 2, 3, 5, and 7 were drilled on Leg 74 (DSDP Sites 525, 529, 528, 527, and 526, respectively; Fig. 2).

The Walvis Ridge consists of offset north-northwest-trending crustal blocks connected by east-northeast-trending blocks. Together these segments form a roughly linear ridge which extends to the northeast from the Mid-Atlantic Ridge and joins the continental margin of Africa near 20°S latitude. Within the study area (Fig. 3), structural blocks tend to slope steeply to the east toward the Cape Basin and more gradually northwestward toward the Angola Basin. The drill sites selected on the Walvis Ridge and subsequently drilled on Leg 74 constitute a transect of closely spaced holes at different water depths. They have been selected in order to generate a spectrum of paleodepths in the late Mesozoic and Cenozoic for analysis of changes in carbonate dissolution levels and in ocean circulation. Three of the five sites drilled penetrated basement and recovered rocks that are important for our understanding of the evolution of the Walvis Ridge. The site survey data presented here should provide investigators with the data necessary for interpretation and extrapolation of the deep sea drill results in order to address the fundamental problems relating

to the upper Mesozoic and Cenozoic paleoenvironments of the South Atlantic Ocean and the origin of the Walvis Ridge (Moore, Rabinowitz, et al., in press). The regional bathymetric framework is given in Figure 4, back pocket.

The navigation for the *Thomas B. Davie* cruise (TD 388) as well as other cruises where geological/geophysical data are available is given in Figure 2. Dates, hour marks, and cruise identifications are noted. Table 1 lists the positioning information for the *Thomas B. Davie* cruise 388 acquired underway by the satellite navigation system (Guier, 1966). The ship's log and gyrocompass were used to interpolate the ship's track between satellite fixes. The interpolated ship positions should be generally accurate to better than 0.5 nautical miles. Also listed in Table 1 are the regional magnetic field values, computed at each navigation point using the reference field of Fabiano and Peddie (1969), and used to determine magnetic anomaly profiles in Figure 5. A varian proton precession magnetometer was used for all magnetic measurements. The instrument was towed  $\approx 200$  m astern of the ship. The accuracy of this type of instrument has been discussed in many publications (e.g., Bullard and Mason, 1963) and is generally considered to be about  $\pm 10$  gammas. A 12 kHz transducer was used with an EPC 4600 recorder for precision depth measurements. Relative depths can be resolved to about 2 m ( $\approx 1/400$  s of two-way reflection time) in any depth in regions of low to moderate relief. Side echoes are common in areas of high relief and the resolution of small amplitude relief in such areas is difficult.

Figure 5 shows magnetic anomaly and bathymetric data plotted as functions of time, distance, and longitude, with the distance plotted as a linear function. The data processing procedure, including program listings, is given in Talwani (1969). The vertical scales show depth in uncorrected fathoms (assuming a sound speed of 800 fm/s or 1463 m/s) under "D" and magnetic anomaly values in gammas under "M". On the lowermost scale at the bottom of the figure, distances are shown at intervals of 200 nautical miles. In addition, tick marks shown above the distance scale indicate the distance at which any change in course or speed occurred. The corresponding course and speed between changes and the coordinates at the points of change are noted above the distance scale listings. Navigational changes, which occur too frequently to be shown in the space available, or minor adjustments in course or speed, are indicated only by tick marks. At the top of the figures, from top to bottom, are shown dates in day-month-year, time in hours, with labels every 4 hr, latitude in degrees, and

<sup>1</sup> Moore, T. C., Jr., Rabinowitz, P. D., et al., *Init. Repts. DSDP*, 74: Washington (U.S. Govt. Printing Office).

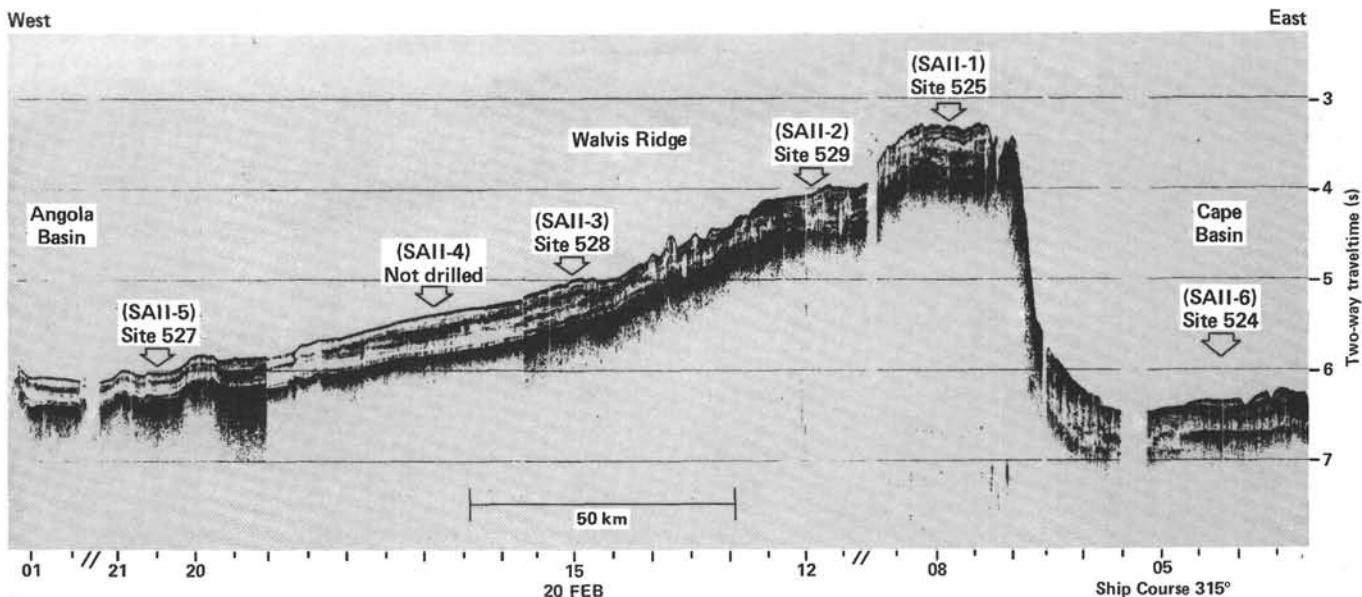


Figure 1. Single channel seismic reflection profile across Walvis Ridge, *Vema* cruise 2712. SAII 1–6 were candidate sites surveyed prior to drilling. Five of these six sites were subsequently drilled (SAII-1, 2, 3, 5, and 6—DSDP Sites 525, 529, 528, 527, and 524 respectively).

longitude in degrees with a tick mark whenever a whole degree is crossed.

Seismic reflection profile records collected aboard *Thomas B. Davie* 388 are indexed in Figure 6 and given in Figure 7. These data were recorded on dry-paper EPC recorders and in general were obtained using 40, 150 and/or 300 in<sup>3</sup> air guns as a sound source. Depths are labeled on the sides of the records in two-way reflection time (1 s = 750 m water depth). Times and dates are listed near the top of the records to key into the navigation plots (Figs. 2 and 6) and listings (Table 1).

#### ACKNOWLEDGMENTS

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for Oceanographic Research provided financial assistance to operate the research vessel. This work was supported in part under a contract from JOI, Inc.

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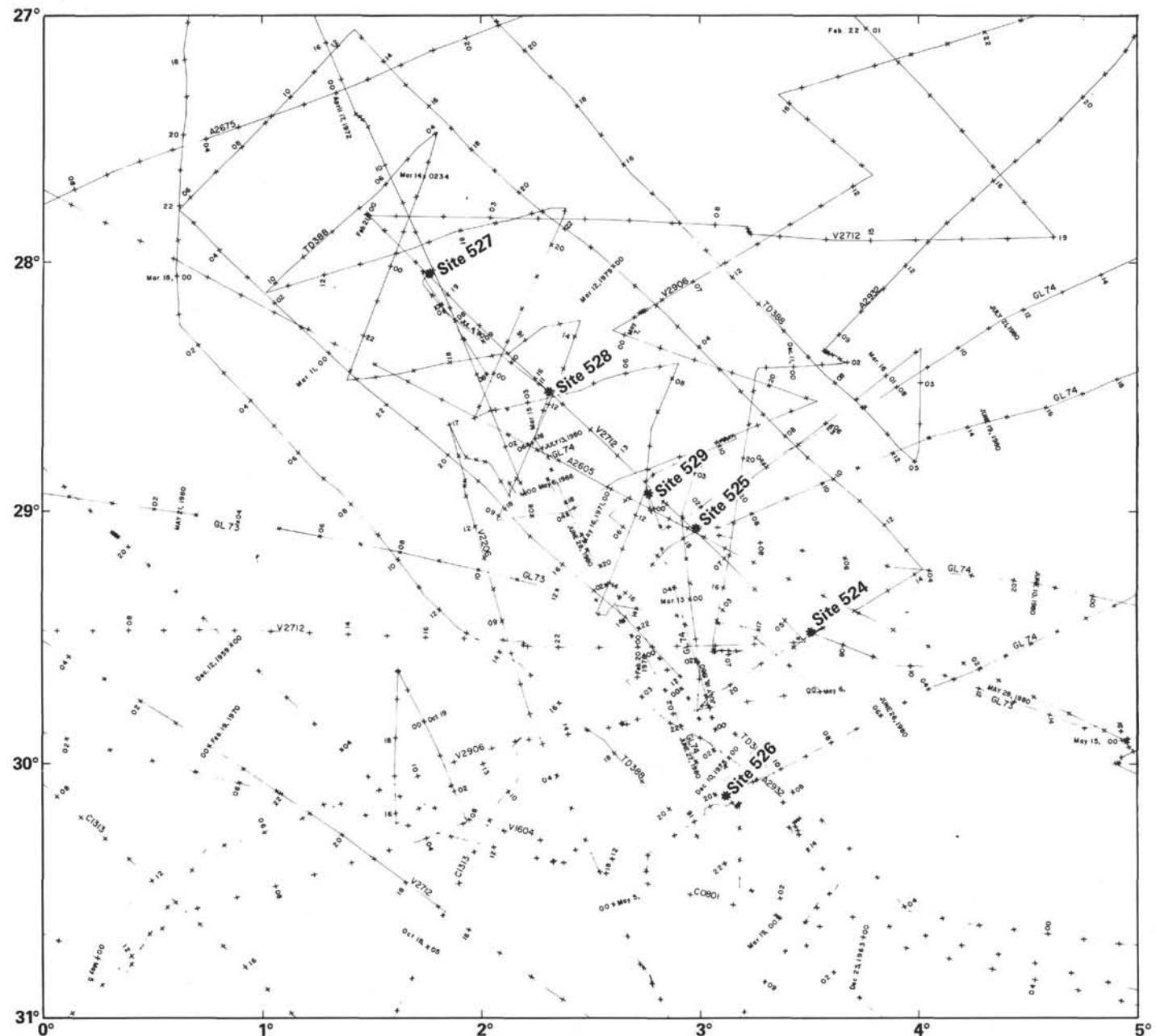


Figure 2. Navigation for *Thomas B. Davie* cruise 388 (TD 388) and *Vema* cruise 2712 (V 2712) as well as for all other available ships' tracks in the region. Dates, hour marks, and cruise identifications are marked. Seismic records for cruise TD 388 are given in Figure 7 to key into navigation.

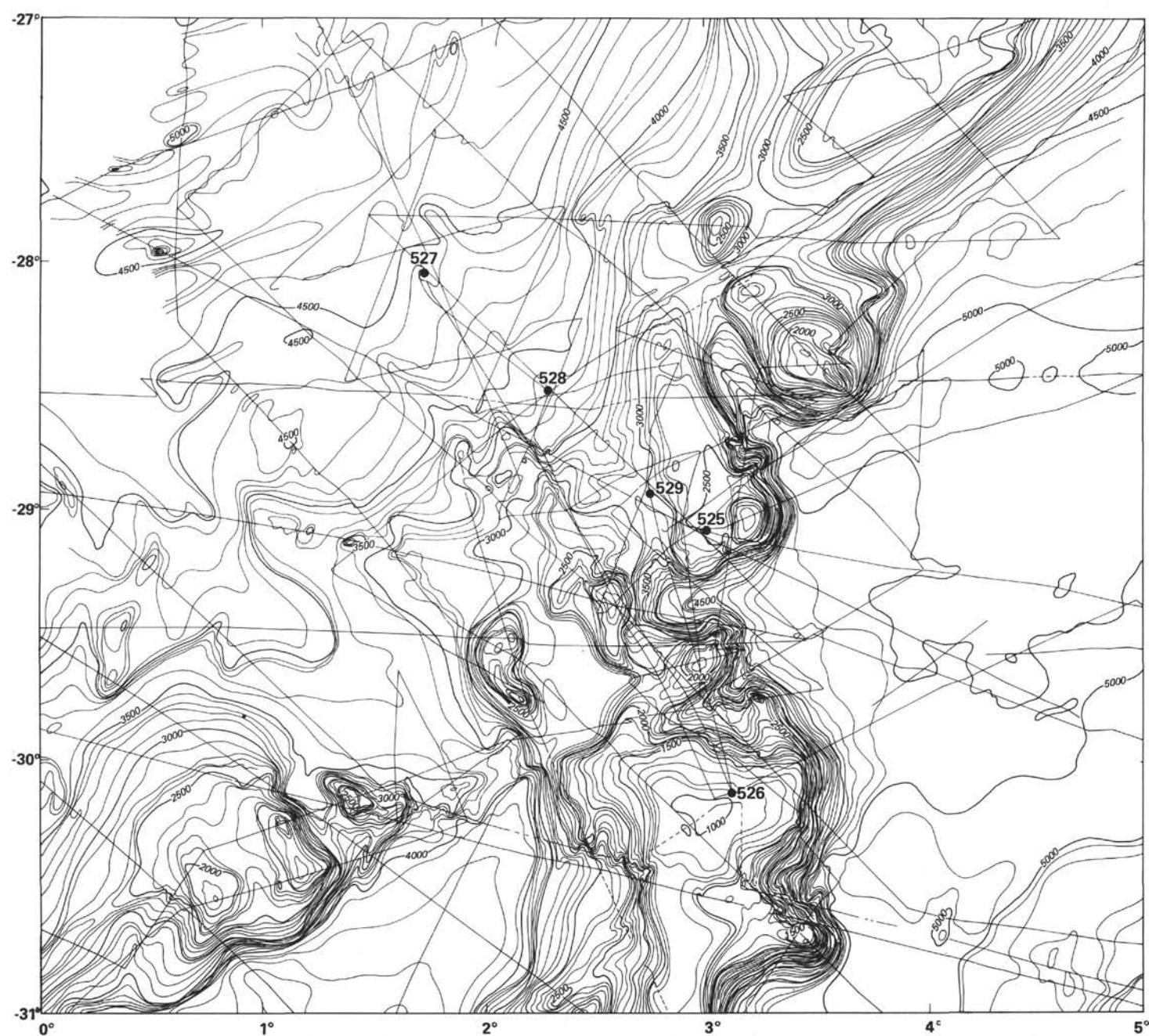


Figure 3. Bathymetry (contour interval 100 m, corrected).

Table 1. Positioning information (from satellite navigation system).

Date	Time	Latitude (South)	Longitude (East)	Miles	Speed	Heading	Regional Magnetic Field Values
6 3 79	*1644	33 2.17	17 29.31	0.0	11.2	288	28569.
6 3 79	1717	33 0.26	17 22.35	6.1	9.9	289	28568.
6 3 79	*2006	32 51.16	16 51.05	33.9	9.7	279	28565.
7 3 79	*0206	32 41.98	15 42.80	92.1	8.7	282	28533.
7 3 79	*0316	32 39.79	15 31.07	102.2	8.8	282	28529.
7 3 79	*0504	32 36.39	15 12.65	118.1	9.3	283	28522.
7 3 79	*0655	32 32.40	14 52.89	135.2	9.4	284	28516.
7 3 79	*0753	32 30.14	14 42.41	144.3	10.0	277	28514.
7 3 79	*0937	32 27.89	14 22.02	161.6	10.8	279	28503.
7 3 79	1330	32 21.14	13 32.97	203.6	5.8	277	28479.
7 3 79	1340	32 21.02	13 31.84	204.6	10.4	279	28479.
7 3 79	*1505	32 18.67	13 14.67	219.3	10.7	279	28470.
7 3 79	*1648	32 15.64	13 52.20	237.7	10.7	277	28460.
7 3 79	1700	32 15.34	12 50.68	239.8	11.3	278	28458.
7 3 79	*1742	32 14.23	12 41.42	247.7	10.0	278	28453.
7 3 79	*1850	32 12.58	12 28.18	259.0	10.1	279	28446.
7 3 79	*2046	32 9.42	12 5.34	278.6	9.6	281	28435.
8 3 79	*0224	31 58.48	11 2.71	332.8	10.3	273	28408.
8 3 79	*0258	31 58.10	10 55.87	338.6	8.5	285	28402.
8 3 79	*0413	31 55.31	10 43.83	349.2	10.8	279	28399.
8 3 79	0425	31 54.95	10 41.32	351.4	10.5	279	28397.
8 3 79	*0444	31 54.39	10 37.45	354.7	9.4	283	28395.
8 3 79	*0457	31 53.93	10 35.12	356.8	9.4	286	28394.
8 3 79	*0557	31 51.32	10 24.49	366.1	9.0	283	28391.
8 3 79	0730	31 48.19	10 8.54	380.1	9.4	282	28384.
8 3 79	0900	31 45.02	9 52.30	394.2	6.1	284	28377.
8 3 79	0907	31 44.84	9 51.49	394.9	7.5	283	28377.
8 3 79	0915	31 44.61	9 50.35	395.9	7.5	283	28377.
8 3 79	0934	31 44.06	9 47.65	398.3	10.8	334	28375.
8 3 79	1004	31 39.22	9 44.89	403.7	8.9	276	28385.
8 3 79	*1017	31 39.00	9 42.65	405.6	9.7	276	28384.
8 3 79	1100	31 38.26	9 34.55	412.5	9.7	271	28378.
8 3 79	1230	31 37.96	9 17.50	427.1	9.9	271	28362.
8 3 79	1333	31 37.76	9 5.26	437.5	9.7	271	28351.
8 3 79	1600	31 37.27	8 37.27	461.3	11.1	265	28324.
8 3 79	1648	31 38.05	8 26.86	470.2	8.6	271	28312.
8 3 79	*1653	31 38.03	8 26.02	470.9	13.8	252	28311.
8 3 79	1655	31 38.17	8 25.51	471.4	6.2	227	28310.
8 3 79	*1739	31 41.20	8 21.58	475.9	4.3	317	28299.
8 3 79	*1839	31 37.98	8 18.15	480.2	1.3	22	28304.
8 3 79	*1934	31 36.90	8 18.68	481.4	1.0	209	28307.
8 3 79	*2125	31 38.58	8 17.58	483.3	2.1	308	28301.
8 3 79	2130	31 38.47	8 17.42	483.5	5.3	326	28302.
8 3 79	*2307	31 31.29	8 11.89	492.1	3.4	323	28314.
8 3 79	2330	31 30.25	8 10.99	493.4	7.9	336	28316.
9 3 79	0105	31 18.77	8 5.00	506.0	9.1	336	28339.
9 3 79	*0201	31 10.94	8 1.08	514.5	9.1	335	28356.
9 3 79	*0321	30 59.87	7 55.22	526.6	9.3	335	28379.
9 3 79	0326	30 59.17	7 54.85	527.4	10.1	271	28380.
9 3 79	*0347	30 59.08	7 50.73	530.9	9.0	274	28376.
9 3 79	*0508	30 58.23	7 36.55	543.1	7.6	267	28363.
9 3 79	0515	30 58.27	7 35.51	544.0	7.4	268	28362.
9 3 79	*0534	30 58.32	7 32.79	546.3	10.1	279	28359.
9 3 79	*0556	30 57.74	7 28.53	550.0	8.8	275	28356.
9 3 79	*0702	30 56.79	7 17.25	559.8	8.6	274	28346.
9 3 79	*0738	30 56.39	7 11.26	564.9	9.2	273	28341.
9 3 79	*0910	30 55.43	6 54.80	579.1	8.1	275	28325.
9 3 79	0930	30 55.18	6 51.67	581.8	8.2	275	28323.
9 3 79	*1054	30 54.12	6 38.38	593.2	8.2	277	28311.
9 3 79	1129	30 53.49	6 32.86	598.0	8.2	277	28306.
9 3 79	*1502	30 49.65	5 59.08	627.2	7.3	272	28278.
9 3 79	1517	30 49.57	5 56.96	629.1	7.6	272	28276.
9 3 79	*1601	30 49.30	5 50.50	634.6	8.3	287	28269.
9 3 79	*1648	30 47.33	5 43.32	641.1	10.5	275	28266.
9 3 79	1650	30 47.30	5 42.92	641.4	8.8	274	28265.
9 3 79	*1701	30 47.16	5 41.05	643.1	7.9	277	28264.
9 3 79	1720	30 46.84	5 38.17	645.5	9.0	277	28261.
9 3 79	*1751	30 46.27	5 32.81	650.2	8.1	276	28256.
9 3 79	1800	30 46.13	5 31.40	651.4	7.7	276	28255.
9 3 79	*1858	30 45.26	5 22.80	658.8	8.4	279	28247.
9 3 79	*2016	30 43.41	5 10.31	669.7	7.6	273	28237.
9 3 79	2040	30 43.22	5 6.78	672.8	7.7	273	28234.
9 3 79	*2202	30 42.56	4 54.61	683.3	8.5	278	28221.
9 3 79	2250	30 41.59	4 46.82	690.0	8.7	278	28214.
9 3 79	*2343	30 40.51	4 37.98	697.7	8.1	279	28206.
10 3 79	0009	30 39.92	4 33.95	701.2	8.1	277	28203.
10 3 79	*0226	30 37.51	4 12.62	719.7	9.4	282	28183.
10 3 79	0352	30 34.70	3 57.25	733.3	10.8	317	28171.
10 3 79	*0417	30 31.40	3 53.70	737.8	8.7	320	28175.
10 3 79	*0439	30 28.93	3 51.33	741.0	9.4	312	28178.
10 3 79	*0507	30 25.93	3 47.59	745.4	9.3	316	28181.

Table 1. (Continued).

Date	Time	Latitude (South)	Longitude (East)	Miles	Speed	Heading	Regional Magnetic Field Values
10 3 79	0525	30 23.91	3 45.38	748.1	9.3	316	28183.
10 3 79	*0655	30 13.74	3 34.27	762.1	9.6	314	28194.
10 3 79	*0946	29 54.58	3 11.54	789.6	9.5	316	28211.
10 3 79	*1403	29 24.78	2 39.40	830.4	9.5	310	28243.
10 3 79	1420	29 23.04	2 37.04	833.1	10.0	309	28244.
10 3 79	1522	29 16.52	2 27.90	843.4	9.3	309	28248.
10 3 79	1524	29 16.32	2 27.62	843.7	9.7	309	28248.
10 3 79	*1554	29 13.25	2 23.31	848.6	10.3	311	28250.
10 3 79	*1701	29 5.70	2 13.44	860.0	8.5	316	28255.
10 3 79	1718	29 3.96	2 11.55	862.4	8.8	317	28257.
10 3 79	*1755	28 59.96	2 7.37	867.9	9.1	318	28261.
10 3 79	*1847	28 54.04	2 1.40	875.8	9.8	310	28268.
10 3 79	*1954	28 46.97	1 51.93	886.7	9.8	310	28272.
10 3 79	*2056	28 40.39	1 43.19	896.8	9.4	309	28276.
10 3 79	2200	28 34.04	1 34.35	906.8	9.4	308	28279.
10 3 79	*2241	28 30.04	1 28.58	913.2	9.3	310	28281.
10 3 79	2307	28 27.39	1 25.10	917.3	9.1	313	28282.
11 3 79	0130	28 12.61	1 7.10	939.0	8.8	313	28293.
11 3 79	0200	28 9.62	1 3.46	943.3	8.6	312	28295.
11 3 79	0230	28 6.70	0 59.90	947.6	9.1	313	28297.
11 3 79	*0325	28 1.03	0 53.01	955.9	9.9	312	28301.
11 3 79	0330	28 0.47	0 52.31	956.8	10.0	312	28301.
11 3 79	*0343	27 59.02	0 50.49	958.9	8.9	316	28302.
11 3 79	0422	27 54.84	0 45.95	964.7	9.2	316	28305.
11 3 79	*0510	27 49.53	0 40.17	972.1	10.1	309	28310.
11 3 79	*0840	27 28.05	0 58.64	1002.6	8.6	44	28395.
11 3 79	*1026	27 17.28	1 10.66	1017.7	8.5	42	28442.
11 3 79	1100	27 13.72	1 14.30	1022.5	8.4	43	28458.
11 3 79	1230	27 4.57	1 24.03	1035.1	9.6	48	28498.
11 3 79	*1458	27 16.78	1 39.09	1054.7	7.7	132	28489.
11 3 79	1510	27 17.83	1 40.36	1056.3	7.7	132	28488.
11 3 79	*1643	27 25.95	1 50.19	1068.2	7.6	135	28482.
11 3 79	1650	27 26.58	1 50.90	1069.1	7.7	135	28481.
11 3 79	*1703	27 27.75	1 52.22	1070.8	6.9	138	28480.
11 3 79	*1756	27 32.36	1 56.79	1076.9	7.7	131	28475.
11 3 79	*1946	27 41.61	2 8.72	1090.9	7.8	130	28469.
11 3 79	*2049	27 46.92	2 15.83	1099.2	6.2	127	28465.
12 3 79	*0248	28 14.40	2 53.11	1142.1	7.1	135	28447.
12 3 79	2130	28 49.53	2 19.63	1103.4	5.8	127	28464.
12 3 79	*0917	28 48.32	3 31.64	1103.7	7.7	126	28464.
12 3 79	0940	28 50.23	3 34.41	1117.2	6.7	131	28461.
12 3 79	*1103	28 57.77	3 44.51	1120.8	8.2	133	28403.
12 3 79	1150	29 2.22	3 49.82	1211.2	8.0		

Table 1. (Continued).

Date	Time	Latitude (South)	Longitude (East)	Miles	Speed	Heading	Regional Magnetic Field Values
13 3 79	*0150	29 3.22	2 55.51	1335.8	11.6	0	28321.
13 3 79	0205	29 0.33	2 55.54	1338.7	11.0	16	28328.
13 3 79	0318	28 47.52	2 59.84	1352.0	11.1	20	28368.
13 3 79	*0328	28 45.79	3 0.58	1353.9	10.8	22	28374.
13 3 79	0329	28 45.62	3 0.66	1354.0	10.3	257	28374.
13 3 79	0400	28 46.79	2 54.72	1359.4	6.8	261	28363.
13 3 79	0404	28 46.86	2 54.21	1359.8	8.5	247	28362.
13 3 79	0505	28 50.13	2 45.07	1368.5	9.5	258	28340.
13 3 79	*0515	28 50.46	2 43.30	1370.1	10.7	248	28337.
13 3 79	0545	28 52.39	2 37.59	1375.4	9.9	236	28324.
13 3 79	0705	28 59.68	2 24.97	1388.7	7.6	248	28287.
13 3 79	*0721	29 0.42	2 22.82	1390.7	8.4	255	28282.
13 3 79	0722	29 0.46	2 22.66	1390.8	11.7	265	28282.
13 3 79	*0810	29 1.26	2 12.03	1400.2	9.7	265	28265.
13 3 79	0815	29 1.32	2 11.11	1401.0	9.7	262	28263.
13 3 79	0825	29 1.54	2 9.28	1402.6	8.5	259	28260.
13 3 79	0837	29 1.85	2 7.37	1404.3	9.9	260	28256.
13 3 79	0852	29 2.27	2 4.59	1406.7	10.0	25	28251.
13 3 79	*0957	28 52.48	2 9.85	1417.6	9.1	20	28284.
13 3 79	1023	28 48.78	2 11.40	1421.5	9.8	23	28296.
13 3 79	1245	28 27.44	2 21.98	1444.8	8.2	19	28367.
13 3 79	1430	28 13.87	2 27.52	1459.2	10.7	259	28411.
13 3 79	1500	28 14.83	2 21.56	1464.5	10.3	259	28399.
13 3 79	*1520	28 15.45	2 17.72	1468.0	9.0	262	28392.
13 3 79	1523	28 15.51	2 17.21	1468.4	8.6	232	28391.
13 3 79	1637	28 21.94	2 7.61	1479.0	8.8	264	28360.
13 3 79	*1638	28 21.95	2 7.44	1479.2	10.0	260	28360.
13 3 79	*1707	28 22.72	2 2.00	1484.0	10.7	262	28349.
13 3 79	1714	28 22.89	2 0.59	1485.3	11.3	262	28347.
13 3 79	*1728	28 23.24	1 57.63	1487.9	10.1	260	28342.
13 3 79	*1809	28 24.34	1 49.88	1494.8	9.2	257	28327.
13 3 79	1813	28 24.48	1 49.20	1495.4	8.7	256	28326.
13 3 79	*1916	28 26.55	1 39.11	1504.5	9.5	257	28305.
13 3 79	1924	28 26.82	1 37.71	1505.8	9.6	261	28303.
13 3 79	1952	28 27.47	1 32.67	1510.3	9.5	262	28293.
13 3 79	2032	28 28.29	1 25.48	1516.7	11.9	265	28281.
13 3 79	2036	28 28.35	1 24.58	1517.5	8.5	266	28279.
13 3 79	2043	28 28.41	1 23.46	1518.4	9.0	20	28277.
14 3 79	*0234	27 39.28	1 44.58	1571.0	8.4	10	28437.
14 3 79	0243	27 38.03	1 44.84	1572.3	8.8	15	28441.
14 3 79	0306	27 34.78	1 45.86	1575.6	8.2	16	28451.
14 3 79	0356	27 28.20	1 47.99	1582.5	10.6	231	28472.
14 3 79	*0430	27 31.97	1 42.75	1588.5	7.9	220	28454.
14 3 79	*0607	27 41.61	1 33.33	1601.2	8.1	225	28413.
14 3 79	*0632	27 43.99	1 30.64	1604.6	9.1	230	28403.
14 3 79	*0713	27 47.91	1 25.21	1610.8	9.1	228	28384.
14 3 79	*0849	27 57.53	1 12.88	1625.3	8.9	229	28340.
14 3 79	0928	28 1.34	1 7.92	1631.1	9.8	224	28322.
14 3 79	1005	28 5.64	1 3.08	1637.2	8.4	226	28304.
14 3 79	1022	28 7.29	1 1.13	1639.6	8.9	74	28297.
14 3 79	1120	28 4.92	1 10.48	1648.2	9.3	73	28317.
14 3 79	1200	28 3.12	1 17.19	1654.4	9.1	73	28332.
14 3 79	*1426	27 56.66	1 41.11	1676.4	7.9	68	28386.
14 3 79	*1545	27 52.77	1 52.08	1686.9	8.5	77	28413.
14 3 79	*1613	27 51.93	1 56.48	1690.9	8.9	74	28422.
14 3 79	1620	27 51.66	1 57.62	1691.9	8.8	77	28424.
14 3 79	*1720	27 49.82	2 7.34	1700.7	9.3	73	28444.
14 3 79	1830	27 46.72	2 19.06	1711.5	9.0	90	28470.
14 3 79	1855	27 46.78	2 23.30	1715.3	8.5	195	28476.
14 3 79	*1907	27 48.43	2 22.80	1717.0	8.7	198	28471.
14 3 79	1910	27 48.85	2 22.65	1717.4	8.7	204	28470.
14 3 79	*2012	27 57.04	2 18.44	1726.4	8.4	206	28441.
14 3 79	2025	27 58.66	2 17.51	1728.2	8.5	203	28436.
15 3 79	0122	28 37.46	1 58.31	1770.5	8.9	65	28305.
15 3 79	*0146	28 36.00	2 2.00	1774.1	8.0	76	28314.
15 3 79	*0330	28 32.80	2 17.45	1788.0	8.3	77	28345.
15 3 79	*0435	28 30.84	2 27.41	1797.0	8.3	63	28365.
15 3 79	0445	28 30.23	2 28.82	1798.4	8.6	64	28369.
15 3 79	*0518	28 28.18	2 33.64	1803.1	8.0	73	28381.
15 3 79	*0544	28 27.17	2 37.43	1806.6	8.2	76	28389.
15 3 79	*0623	28 25.94	2 43.33	1811.9	8.7	75	28401.
15 3 79	0633	28 25.57	2 44.93	1813.4	8.6	80	28404.
15 3 79	*0729	28 24.28	2 53.93	1821.4	7.2	79	28421.
15 3 79	0733	28 24.20	2 54.47	1821.9	10.5	203	28422.
15 3 79	*0740	28 25.32	2 53.91	1823.1	8.6	203	28418.
15 3 79	*0927	28 39.48	2 47.06	1838.5	8.4	195	28370.
15 3 79	0932	28 40.15	2 46.84	1839.2	8.5	184	28368.
15 3 79	1005	28 44.83	2 46.39	1843.9	7.5	183	28355.
15 3 79	1020	28 46.70	2 46.25	1845.7	8.9	184	28350.
15 3 79	*1111	28 54.26	2 45.52	1853.3	8.9	188	28329.
15 3 79	1113	28 54.55	2 45.47	1853.6	8.7	201	28329.

Table 1. (Continued).

Date	Time	Latitude (South)	Longitude (East)	Miles	Speed	Heading	Regional Magnetic Field Values
15 3 79	*1448	29 23.44	2 32.38	1884.7	9.8	212	28236.
15 3 79	1455	29 24.40	2 31.67	1885.8	9.0	98	28233.
15 3 79	1512	29 24.80	2 34.57	1888.4	8.0	30	28236.
15 3 79	*1523	29 23.53	2 35.41	1889.9	9.3	43	28240.
15 3 79	*1630	29 15.95	2 43.58	1900.3	8.8	44	28271.
15 3 79	1640	29 14.90	2 44.74	1901.7	9.6	44	28275.
15 3 79	*1710	29 11.45	2 48.59	1906.5	8.8	41	28289.
15 3 79	*1737	29 8.51	2 51.59	1910.5	10.6	60	28301.
15 3 79	*1817	29 5.01	2 58.58	1917.5	8.0	50	28320.
15 3 79	1833	29 3.66	3 0.48	1919.7	8.6	46	28326.
15 3 79	*2036	28 51.47	3 15.16	1937.4	9.3	52	28378.
15 3 79	2100	28 49.22	3 18.55	1941.1	9.4	53	28389.
15 3 79	*2220	28 41.86	3 30.03	1953.6	6.6	52	28425.
15 3 79	2245	28 40.20	3 32.50	1956.3	9.7	51	28433.
15 3 79	2330	28 35.62	3 38.97	1963.6	9.1	52	28454.
16 3 79	0210	28 20.72	4 0.82	1987.9	9.8	181	28526.
16 3 79	*0426	28 43.03	4 0.31	2010.2	10.0	176	28464.
16 3 79	0435	28 44.53	4 0.41	2011.7	9.5	191	28460.
16 3 79	*0454	28 47.49	3 59.71	2014.7	9.6	196	28451.
16 3 79	0458	28 48.10	3 59.51	2015.4	9.6	311	28449.
16 3 79	*0536	28 44.05	3 54.30	2021.5	8.7	318	28453.
16 3 79	*0643	28 36.73	3 46.95	2031.2	9.3	313	28462.
16 3 79	*0721	28 32.66	3 42.11	2037.1	8.9	310	28467.
16 3 79	*0819	28 27.07	3 34.65	2045.7	8.8	316	28471.
16 3 79	0900	28 22.71	3 29.88	2051.8	8.6	317	28477.
16 3 79	*1005	28 15.90	3 22.74	2061.0	9.1	315	28485.
16 3 79	*1351	27 51.52	2 55.66	2095.2	9.2	322	28512.
16 3 79	*1429	27 46.90	2 51.61	2101.0	10.5	312	28519.
16 3 79	*1429	27 46.90	2 51.61	2101.0	10.5	312	28526.
16 3 79	*1542	27 38.29	2 41.02	2113.8	8.7	321	28526.
16 3 79	1558	27 36.47	2 39.40	2116.1	8.8	320	28529.
16 3 79	*1617	27 34.32	2 37.42	2118.9	9.2	321	28532.
16 3 79	*2258	26 49.03	4 49.22	2181.4	8.8	321	28580.
16 3 79	2320	26 46.52	4 46.98	2184.6	9.7	320	28583.
17 3 79	*0140	26 28.97	1 30.98	2207.2	11.3	305	28605.
17 3 79	0140	26 13.24	2 16.92	2146.8	8.5	316	28558.
17 3 79	*1915	27 13.24	2 16.92	2146.8	8.5	316	28558.
17 3 79	*2018	27 6.76	2 10.04	2155.7	10.5	314	28565.
17 3 79	2048	27 6.76	2 10.04	2155.7	10.5	314	28565.
17 3 79	*2101	27 1.60	2 4.16	2163.0	10.4	315	28570.
17 3 79	*2116	26 59.62	2 1.98	2165.8	9.1	312	28572.
17 3 79	2258	26 49.03	4 49.22</td				

Table 1. (Continued).

Date	Time	Latitude (South)	Longitude (East)	Miles	Speed	Heading	Regional Magnetic Field Values
18 3 79	1200	29 23.36	1 48.95	2517.0	9.7	135	28175.
18 3 79	1230	29 26.79	1 52.86	2521.9	6.1	131	28172.
18 3 79	1245	29 27.80	1 54.16	2523.4	9.0	120	28172.
18 3 79	*1434	29 35.98	2 10.34	2539.7	9.7	119	28174.
18 3 79	1438	29 36.30	2 10.98	2540.3	9.4	134	28174.
18 3 79	*1657	29 51.68	2 28.76	2562.1	8.6	120	28160.
18 3 79	1705	29 52.26	2 29.91	2563.3	8.8	120	28160.
18 3 79	*1720	29 53.37	2 32.10	2565.5	8.0	120	28161.
18 3 79	1730	29 54.04	2 33.42	2566.8	7.5	131	28161.
18 3 79	*1738	29 54.70	2 34.29	2567.8	9.2	143	28160.
18 3 79	1808	29 58.38	2 37.47	2572.4	9.4	133	28156.
18 3 79	*1844	30 2.28	4 22.16	2578.0	9.2	134	28152.
19 3 79	*0139	30 47.08	3 34.26	2641.5	8.4	134	28111.
19 3 79	0150	30 48.16	3 35.55	2643.0	8.4	135	28110.
19 3 79	*0328	30 57.95	3 46.82	2656.8	11.2	126	28100.
19 3 79	0335	30 58.73	3 48.04	2658.1	11.0	127	28100.
19 3 79	*0412	31 2.84	3 54.35	2664.9	9.5	143	28098.
19 3 79	*0455	31 8.31	3 59.11	2671.7	7.3	147	28091.
19 3 79	*0512	31 10.07	4 0.40	2673.8	9.0	153	28088.
19 3 79	0547	31 14.76	4 3.18	2679.0	9.0	153	28080.
19 3 79	0635	31 21.19	4 7.00	2686.2	10.9	164	28070.
19 3 79	*0641	31 22.23	4 7.35	2687.3	10.0	144	28068.
19 3 79	0645	31 22.77	4 7.80	2688.0	10.0	86	28067.
19 3 79	*0744	31 22.09	4 19.24	2697.8	7.8	88	28082.
19 3 79	0748	31 22.07	4 19.85	2698.3	7.9	88	28083.
19 3 79	*0830	31 21.90	4 26.32	2703.8	9.1	95	28091.
19 3 79	0936	31 22.89	4 37.97	2713.8	8.3	96	28102.
19 3 79	*1016	31 23.47	4 44.43	2719.4	7.6	97	28108.
19 3 79	1030	31 23.69	4 46.48	2721.1	7.7	97	28109.
19 3 79	*1341	31 26.75	5 14.99	2745.7	9.2	84	28134.
19 3 79	1350	31 26.61	5 16.61	2747.0	9.2	83	28137.
19 3 79	1404	31 26.37	5 19.12	2749.2	8.9	83	28140.
19 3 79	*1439	31 25.74	5 25.16	2754.4	7.5	91	28148.
19 3 79	*1530	31 25.88	5 32.59	2760.7	9.4	91	28156.
19 3 79	*1607	31 26.01	5 39.39	2766.5	8.5	92	28163.
19 3 79	*1624	31 26.10	5 42.22	2769.0	8.0	90	28166.
19 3 79	1640	31 26.12	5 44.72	2771.1	8.0	90	28169.
19 3 79	*1650	31 26.13	5 46.29	2772.4	9.5	89	28171.
19 3 79	1707	31 26.09	5 49.44	2775.1	10.3	89	28174.
19 3 79	*1716	31 26.07	5 51.25	2776.7	8.7	94	28176.
19 3 79	*1837	31 26.99	6 4.94	2788.4	8.6	92	28189.
19 3 79	*1936	31 27.39	6 14.82	2796.8	8.5	90	28199.
19 3 79	2218	31 27.58	6 41.73	2819.8	8.7	90	28277.
19 3 79	*2303	31 27.64	6 49.39	2826.3	9.1	99	28235.
20 3 79	*0232	31 32.81	7 26.22	2858.1	9.1	94	28261.
20 3 79	*0245	31 32.95	7 28.54	2860.1	8.3	97	28263.
20 3 79	*0319	31 33.59	7 34.00	2864.8	9.6	82	28267.
20 3 79	*0405	31 32.66	7 42.60	2872.2	11.5	84	28278.
20 3 79	*0431	31 32.22	7 48.41	2877.2	8.9	83	28285.
20 3 79	0448	31 31.91	7 51.36	2879.7	9.0	83	28289.
20 3 79	*0513	31 31.46	7 55.72	2883.4	9.4	79	28295.
20 3 79	0520	31 31.26	7 56.98	2884.5	9.5	80	28297.
20 3 79	*0551	31 30.47	8 2.68	2889.5	8.8	82	28304.
20 3 79	0557	31 30.36	8 3.70	2890.3	8.6	85	28306.
20 3 79	*0655	31 29.64	8 13.45	2898.7	8.5	105	28317.
20 3 79	0733	31 31.06	8 19.58	2904.1	7.9	107	28320.
20 3 79	*0735	31 31.14	8 19.87	2904.4	9.0	86	28320.
20 3 79	*0907	31 30.19	8 36.00	2918.1	7.6	89	28339.
20 3 79	0912	31 30.18	8 36.75	2918.8	8.6	91	28339.
20 3 79	1125	31 30.80	8 59.18	2937.9	8.2	98	28360.
20 3 79	*1344	31 33.67	9 21.28	2957.0	8.2	92	28374.
20 3 79	1400	31 33.75	9 23.84	2959.1	7.8	92	28377.
20 3 79	*1439	31 34.00	9 29.81	2964.2	10.1	103	28382.

Table 1. (Continued).

Date	Time	Latitude (South)	Longitude (East)	Miles	Speed	Heading	Regional Magnetic Field Values
21 3 79	0630	32 0.10	11 54.90	3091.1	8.9	105	28447.
21 3 79	*0648	32 0.82	11 57.94	3093.7	7.2	97	28448.
21 3 79	*0802	32 2.04	12 8.32	3102.6	8.0	97	28454.
21 3 79	*0947	32 3.81	12 24.63	3116.5	7.3	100	28462.
21 3 79	*0957	32 4.03	12 26.05	3117.8	7.8	99	28463.
21 3 79	*1346	32 8.87	13 0.84	3147.6	7.1	103	28480.
21 3 79	1351	32 9.01	13 1.52	3148.2	6.3	104	28480.
21 3 79	*1435	32 10.13	13 6.84	3152.9	7.6	102	28482.
21 3 79	*1615	32 12.91	13 21.35	3165.5	9.1	111	28487.
21 3 79	1715	32 16.21	13 31.34	3174.5	9.3	108	28487.
21 3 79	*1717	32 16.31	13 31.69	3174.8	7.5	87	28487.
21 3 79	1800	32 16.03	13 38.06	3180.2	8.3	83	28493.
21 3 79	*1804	32 15.96	13 38.71	3180.8	7.5	93	28493.
21 3 79	1820	32 16.09	13 41.06	3182.8	6.2	98	28495.
21 3 79	*1845	32 16.46	13 44.09	3185.4	8.4	104	28497.
21 3 79	*1908	32 17.24	13 47.79	3188.6	7.7	101	28498.
21 3 79	1915	32 17.42	13 48.83	3189.5	7.8	76	28498.
21 3 79	2054	32 14.40	14 3.67	3202.4	7.1	122	28518.
22 3 79	*0058	32 29.77	14 32.71	3231.3	6.8	112	28502.
22 3 79	*0226	32 33.60	14 43.67	3241.3	6.7	107	28502.
22 3 79	*0520	32 39.39	15 5.86	3260.9	5.7	109	28505.
22 3 79	*0600	32 40.64	15 10.16	3264.7	6.3	92	28505.
22 3 79	*0702	32 40.95	15 17.89	3271.3	7.1	134	28511.
22 3 79	0715	32 42.02	15 19.21	3272.8	7.2	134	28509.
22 3 79	*0840	32 49.25	15 27.83	3283.0	6.0	132	28498.
22 3 79	*0900	32 50.60	15 29.61	3285.1	6.6	130	28496.
22 3 79	0930	32 52.75	15 32.62	3288.4	7.0	128	28493.
22 3 79	*1022	32 56.51	15 38.30	3294.4	8.1	120	28488.
22 3 79	*1340	33 9.95	16 5.89	3321.2	6.5	120	28478.
22 3 79	1400	33 11.03	16 8.12	3323.3	7.5	113	28477.
22 3 79	*1441	33 13.12	16 13.74	3328.5	9.4	103	28477.
22 3 79	*1628	33 17.10	16 33.21	3345.3	9.7	107	28483.
22 3 79	1630	33 17.20	16 33.58	3345.6	9.2	107	28483.
22 3 79	*1712	33 19.15	16 40.88	3352.0	8.5	105	28485.
22 3 79	*1757	33 20.88	16 48.19	3358.3	8.8	106	28487.
22 3 79	*1900	33 23.56	16 58.77	3367.6	8.0	102	28489.
22 3 79	*1945	33 24.87	17 5.78	3373.6	9.0	101	28492.
22 3 79	1950	33 25.02	17 6.66	3374.3	9.1	104	28492.
22 3 79	*2130	33 28.90	17 24.26	3389.5	9.0	108	28497.
22 3 79	2135	33 29.14	17 25.11	3390.3	9.1	112	28498.
22 3 79	2336	33 36.00	17 45.43	3408.5	2.4	100	28499.
22 3 79	2342	33 36.04	17 45.70	3408.8	8.6	111	28499.
23 3 79	*0133	33 41.95	18 3.42	3424.6	2.4	105	28501.
20 3 79	1507	31 35.11	9 35.18	2969.0	5.1	105	28384.
20 3 79	*1527	31 35.56	9 37.10	2970.6	6.0	103	28385.
20 3 79	1537	31 35.79	9 38.25	2971.6	7.7	103	28385.
20 3 79	*1624	31 37.16	9 45.19	2977.7	7.1	104	28388.
20 3 79	*1705	31 38.39	9 50.70	2982.6	6.3	91	28390.
20 3 79	1811	31 38.53	9 58.86	2989.5	9.6	94	28398.
20 3 79	*1932	31 39.63	10 14.06	3002.5	9.8	107	28409.
20 3 79	2130	31 45.38	10 35.67	3021.8	11.2	105	28414.
20 3 79	*2200	31 46.90	10 42.03	3027.4	7.9	105	28416.
21 3 79	*0135	31 54.35	11 14.02	3055.6	9.3	84	28426.
21 3 79	0142	31 54.24	11 15.29	3056.6	7.1	78	28427.
21 3 79	*0152	31 54.00	11 16.66	3057.8	7.9	108	28429.
21 3 79	*0314	31 57.32	11 28.69	3068.6	8.9	91	28431.
21 3 79	*0340	31 57.39	11 33.24	3072.4	6.8	97	28435.
21 3 79	*0422	31 57.98	11 38.80	3077.2	7.6	97	28438.
21 3 79	0435	31 58.20	11 40.73				

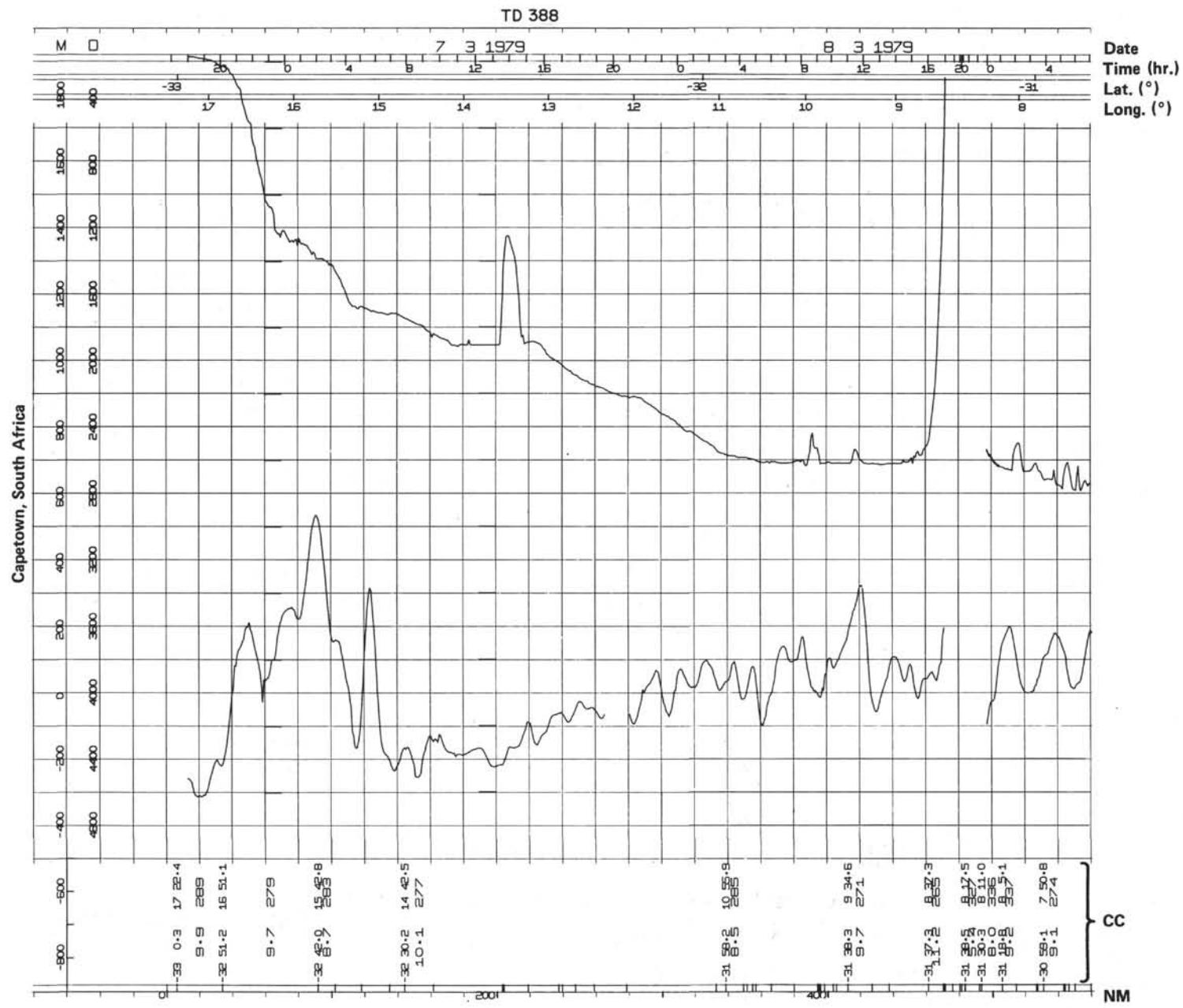


Figure 5. Magnetic anomaly and bathymetric profiles along track of *Thomas B. Davie* (TD) cruise 388. Plots and scales further explained in text. (D = depth, in uncorrected fathoms; M = magnetic anomaly values, in gammas; NM = distance, in nautical miles; CC = course changes, speed between changes, and coordinates at the point of change.)

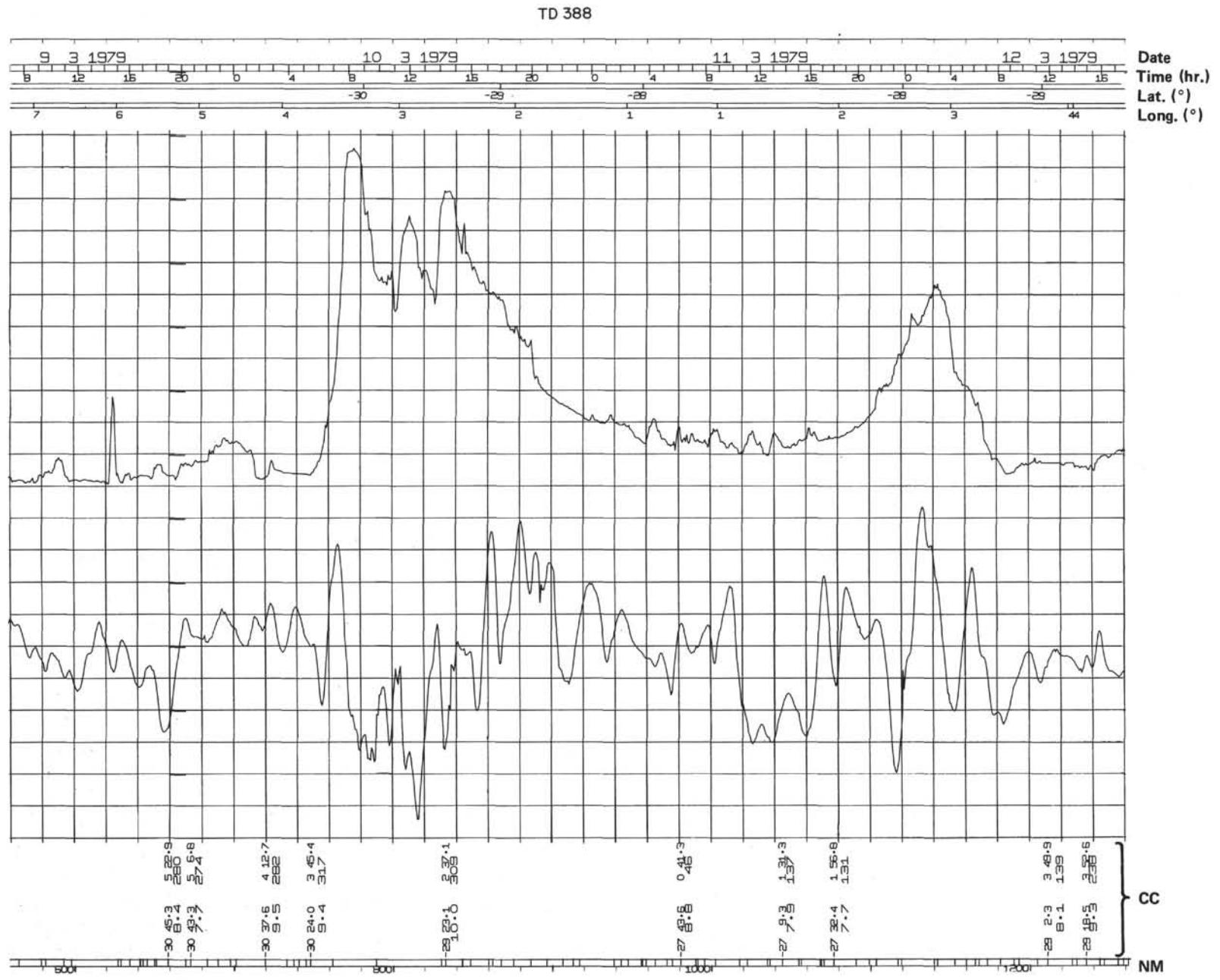
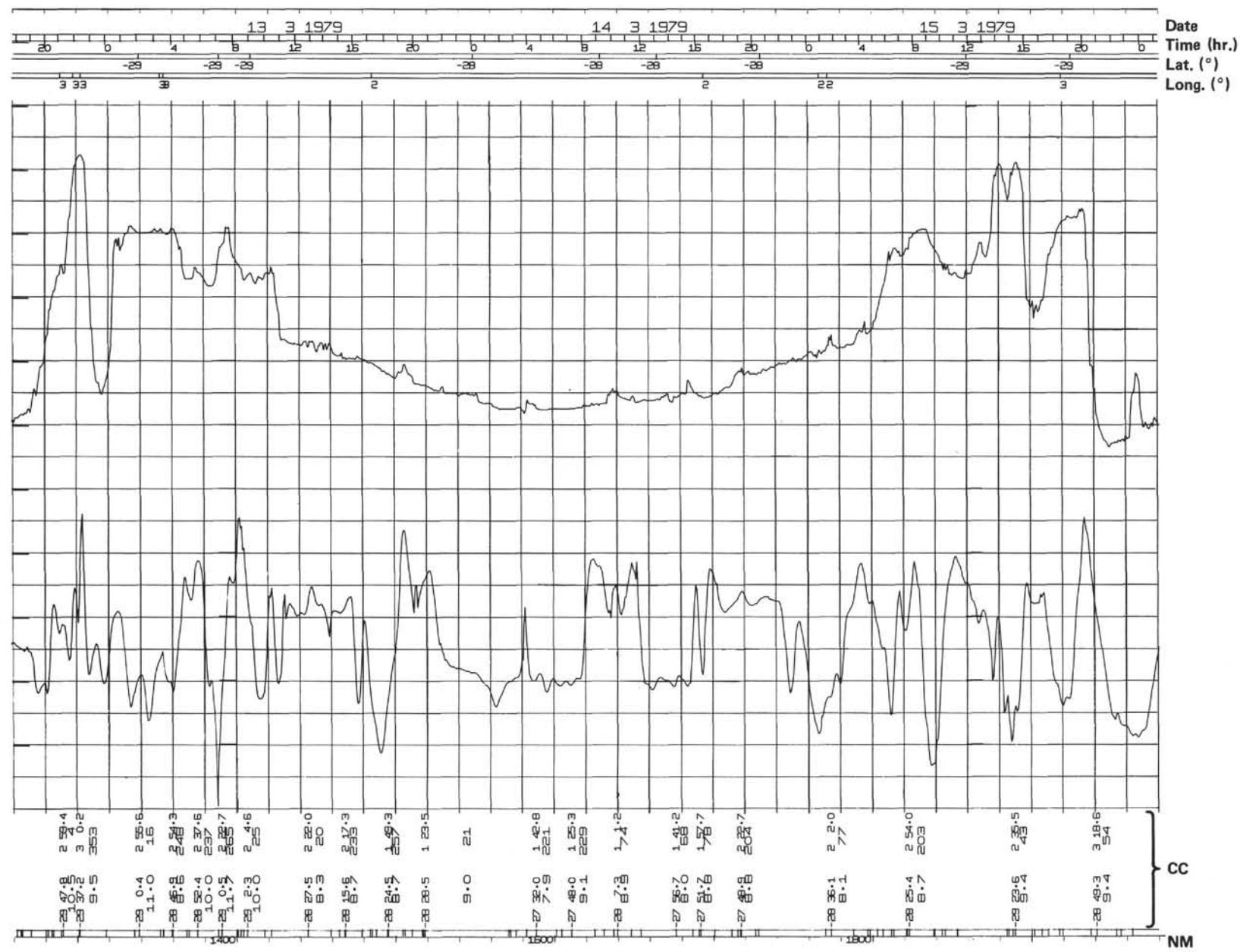
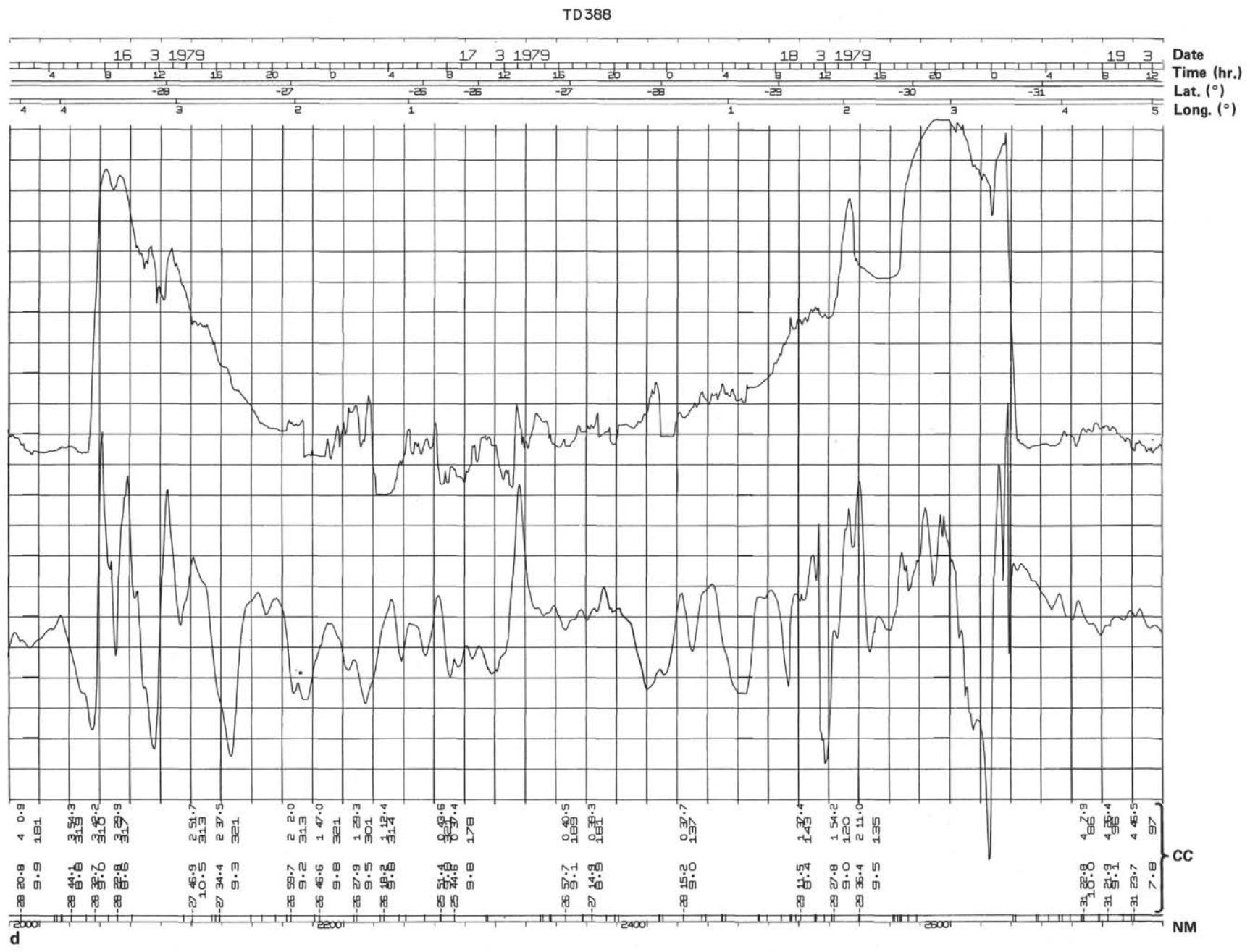


Figure 5. (Continued).

TD 388





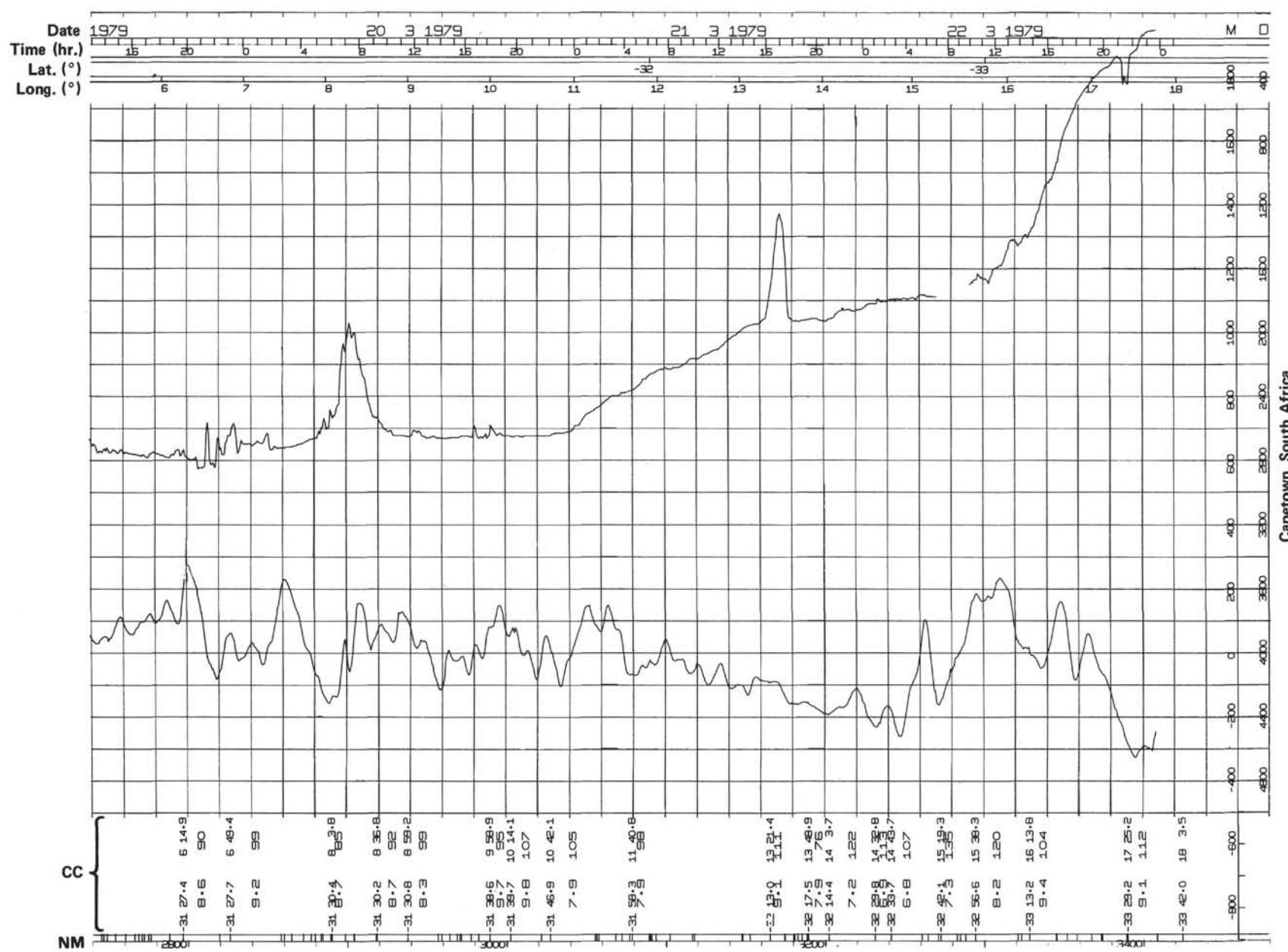


Figure 5. (Continued).

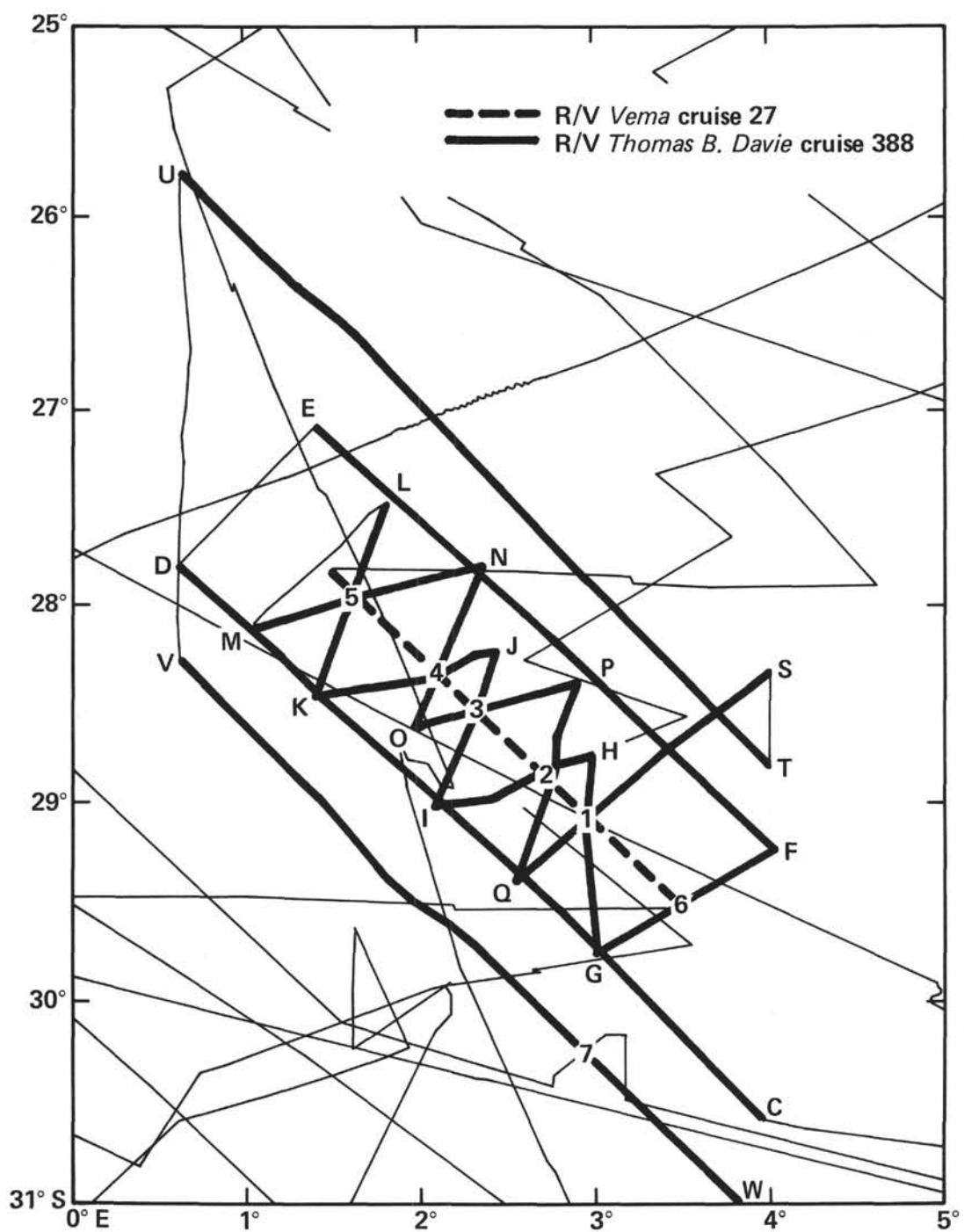


Figure 6. Navigation index map in site survey area, keying in selected seismic traverses by letter and number (Fig. 7).

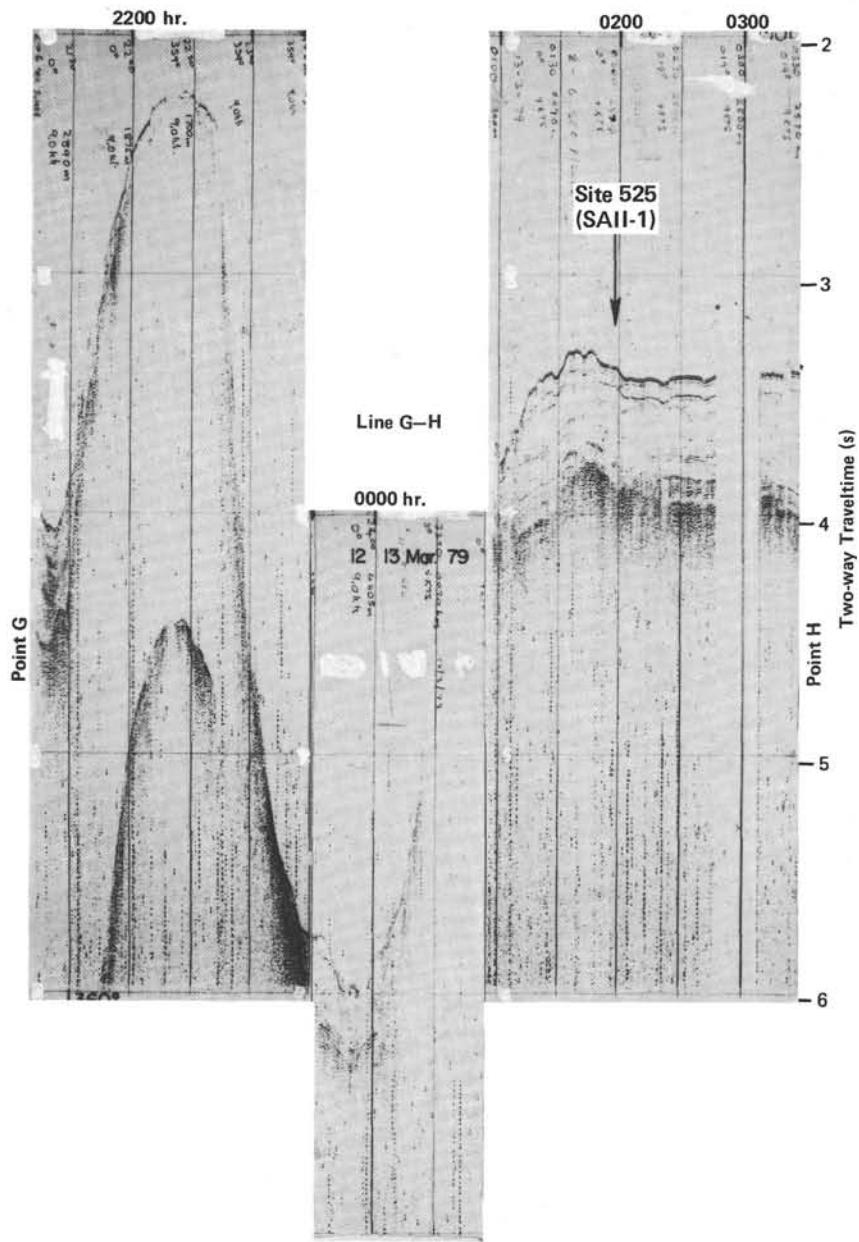


Figure 7. Seismic reflection profiles along track of *Thomas B. Davie* cruise 388. Dates, times, and locations of candidate drill sites (where applicable) are given near tops of records. Lines keyed to Figure 6. See Figure 2 for detailed navigation.

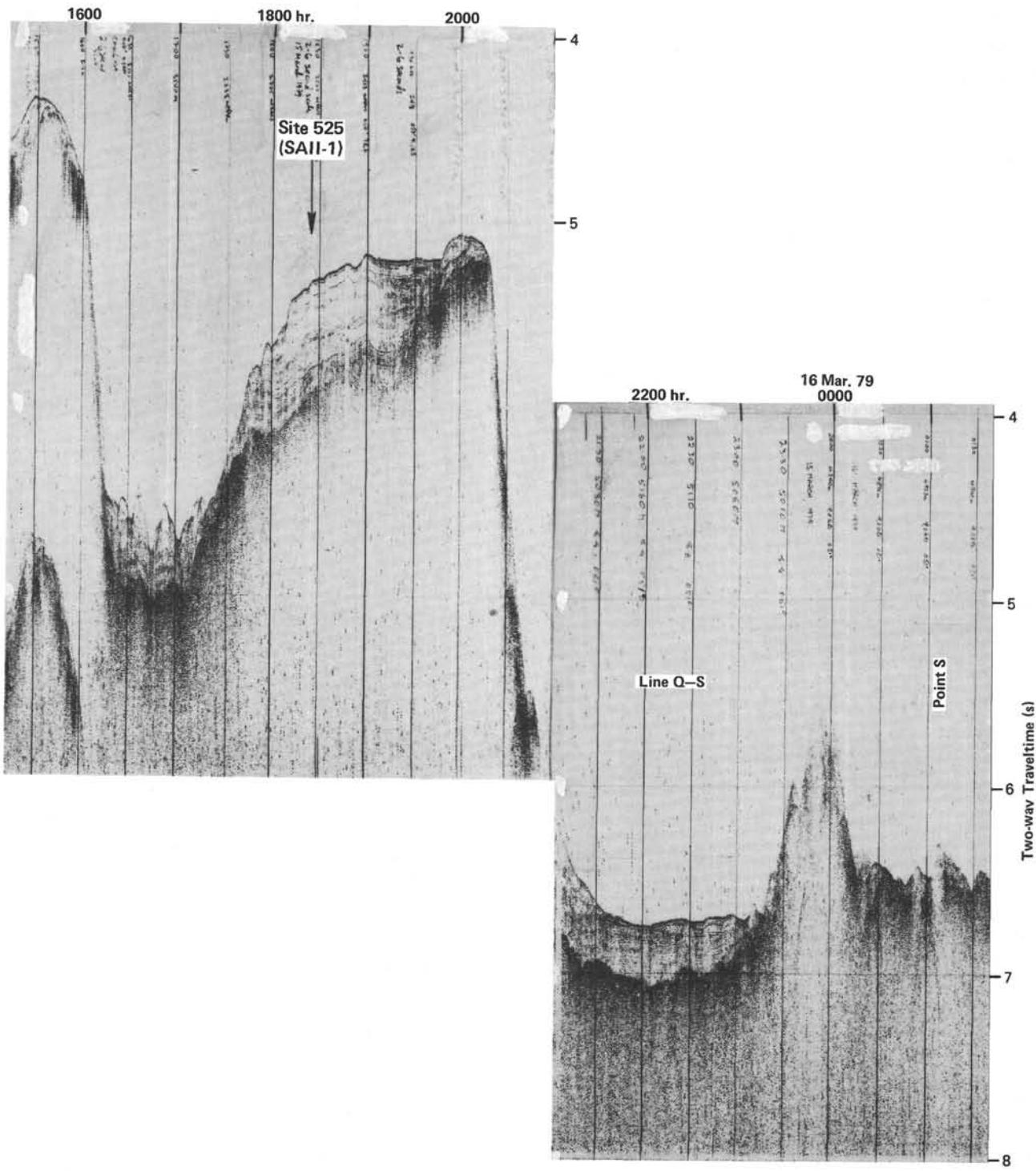


Figure 7. (Continued).

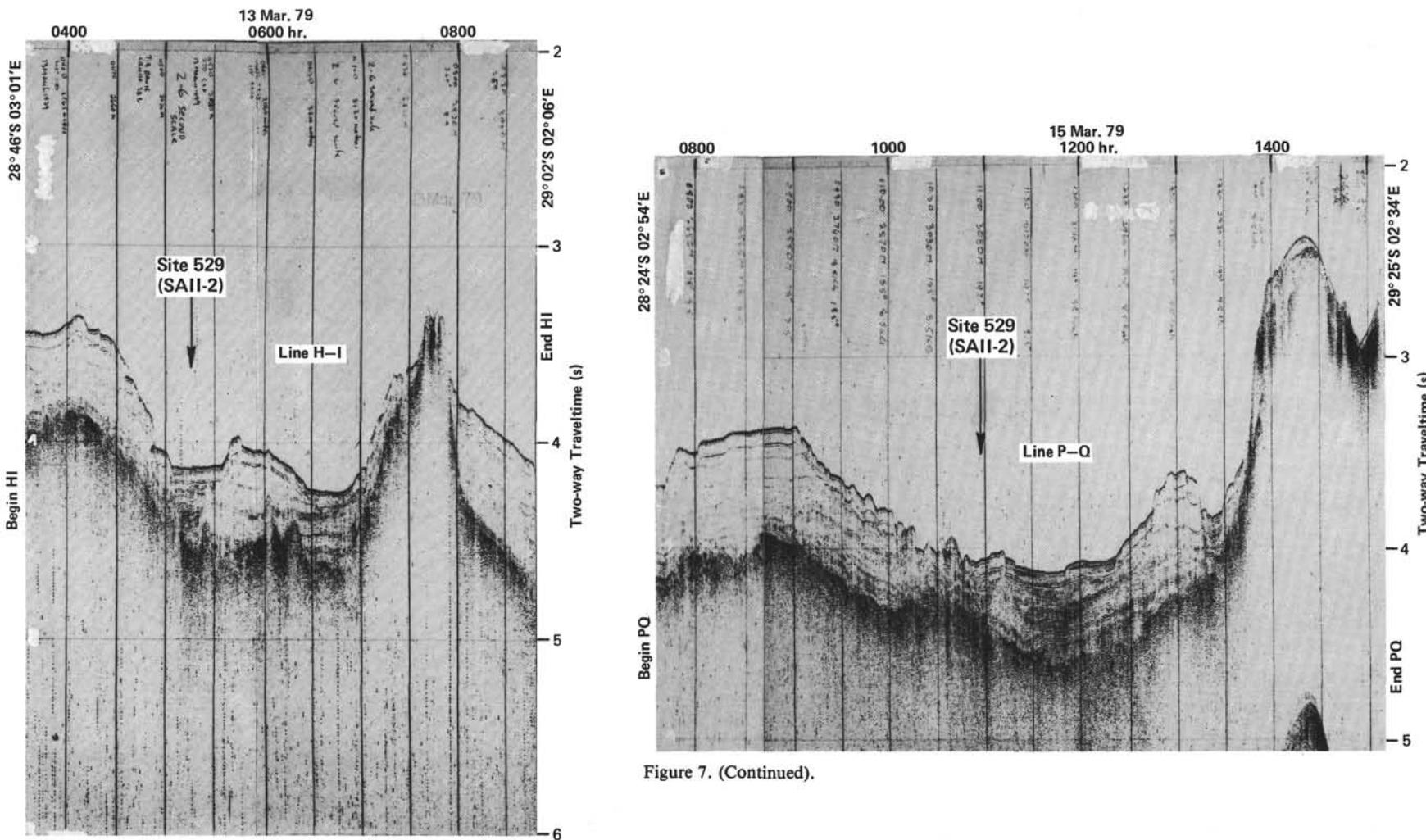


Figure 7. (Continued).

Figure 7. (Continued).

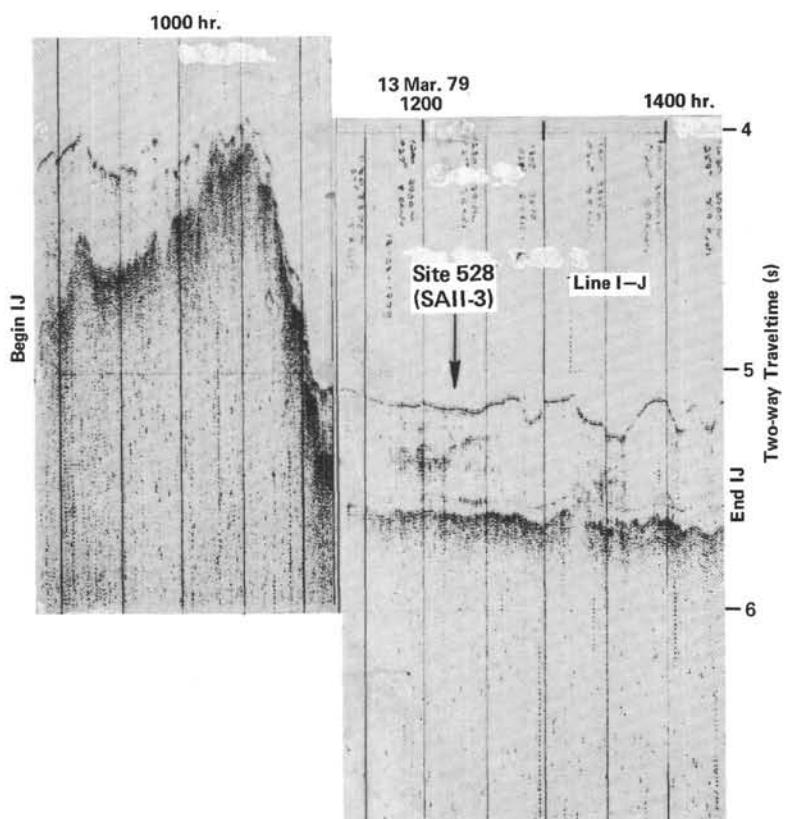


Figure 7. (Continued).

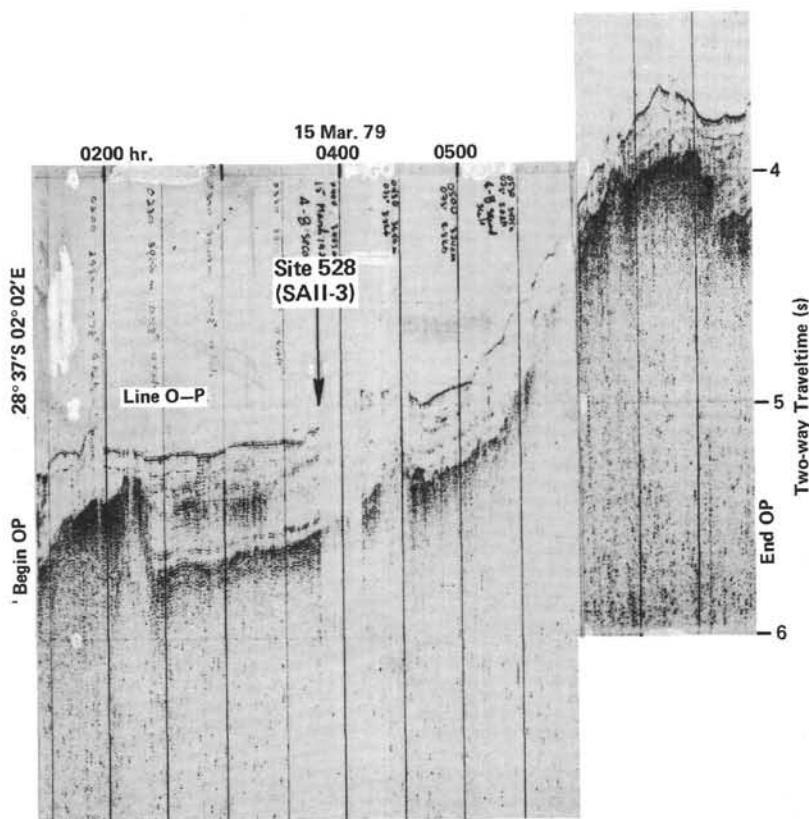


Figure 7. (Continued).

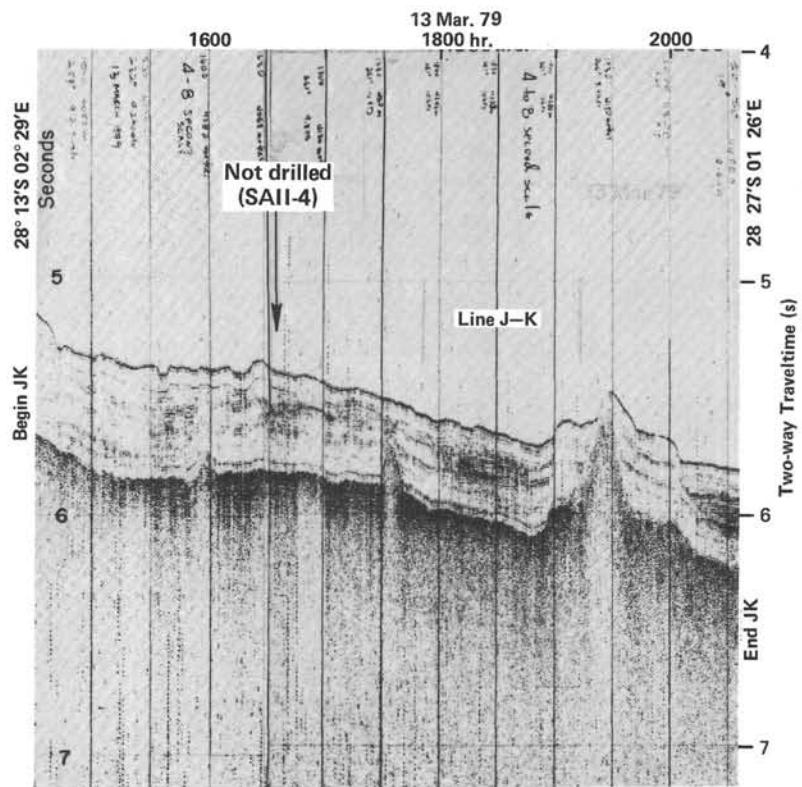


Figure 7. (Continued).

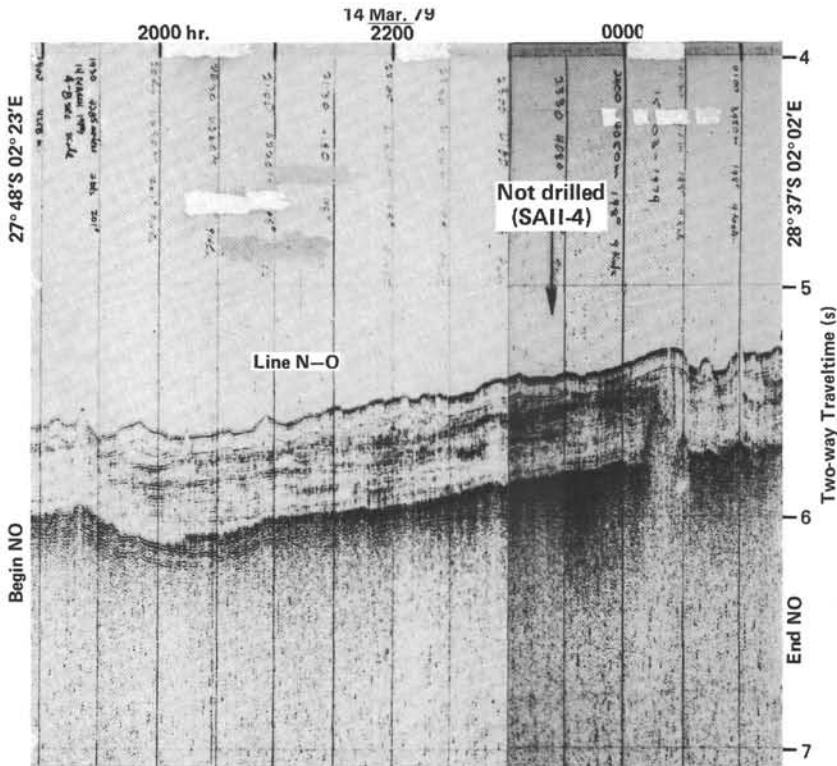


Figure 7. (Continued).

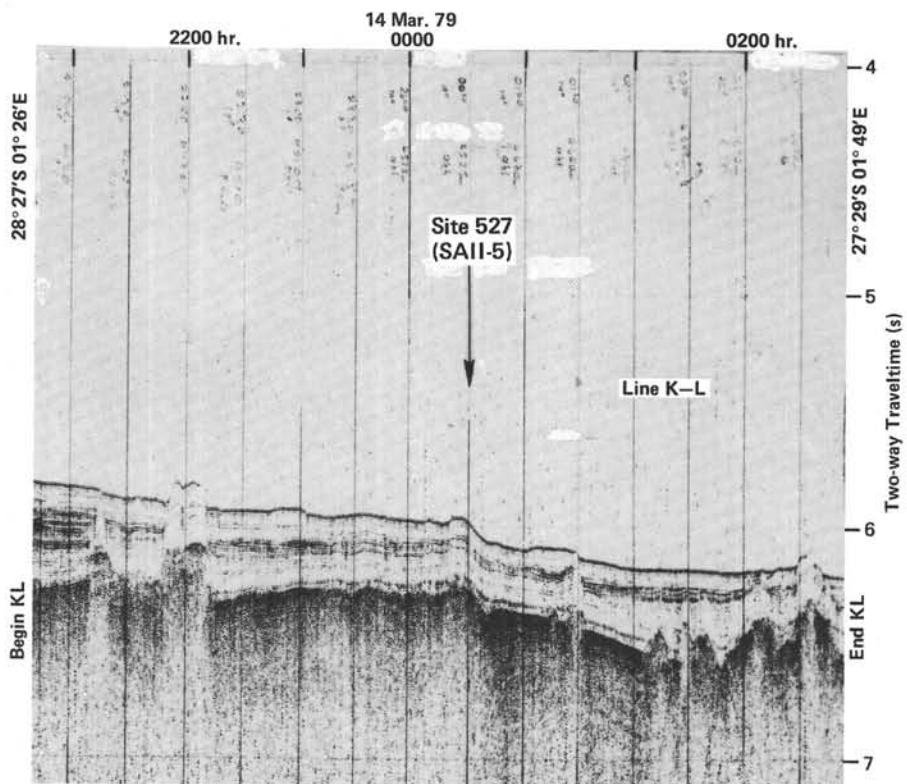


Figure 7. (Continued).

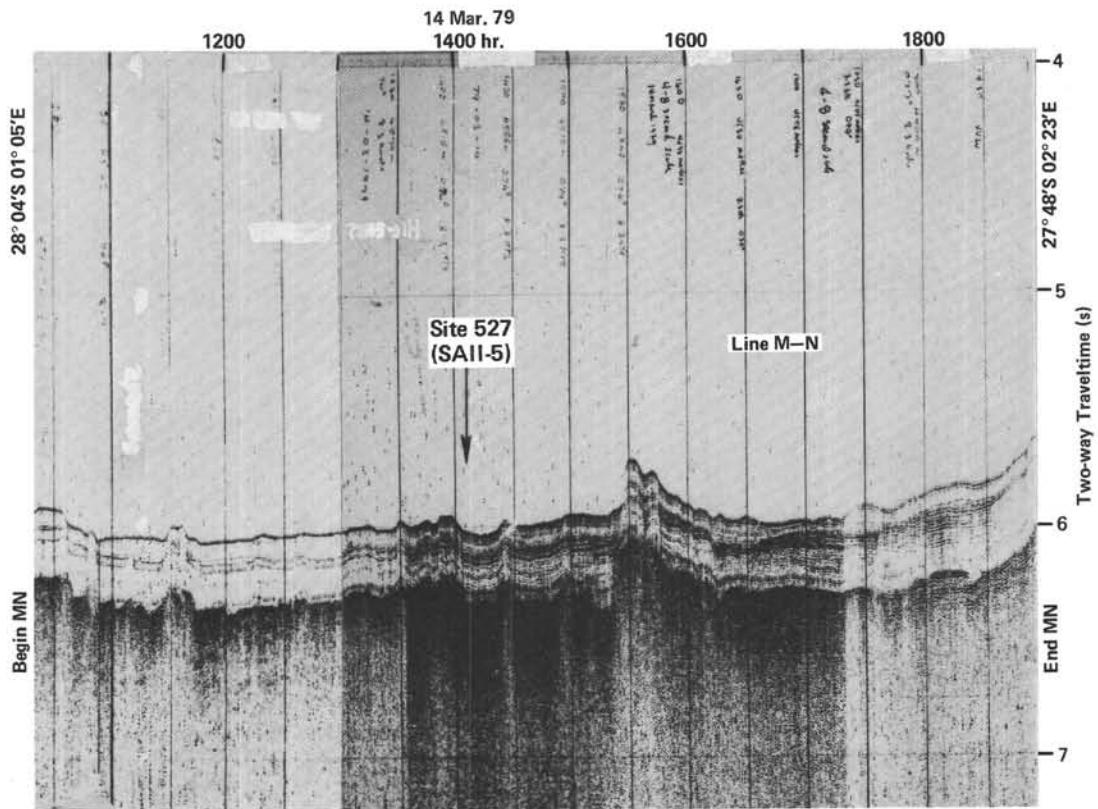


Figure 7. (Continued).

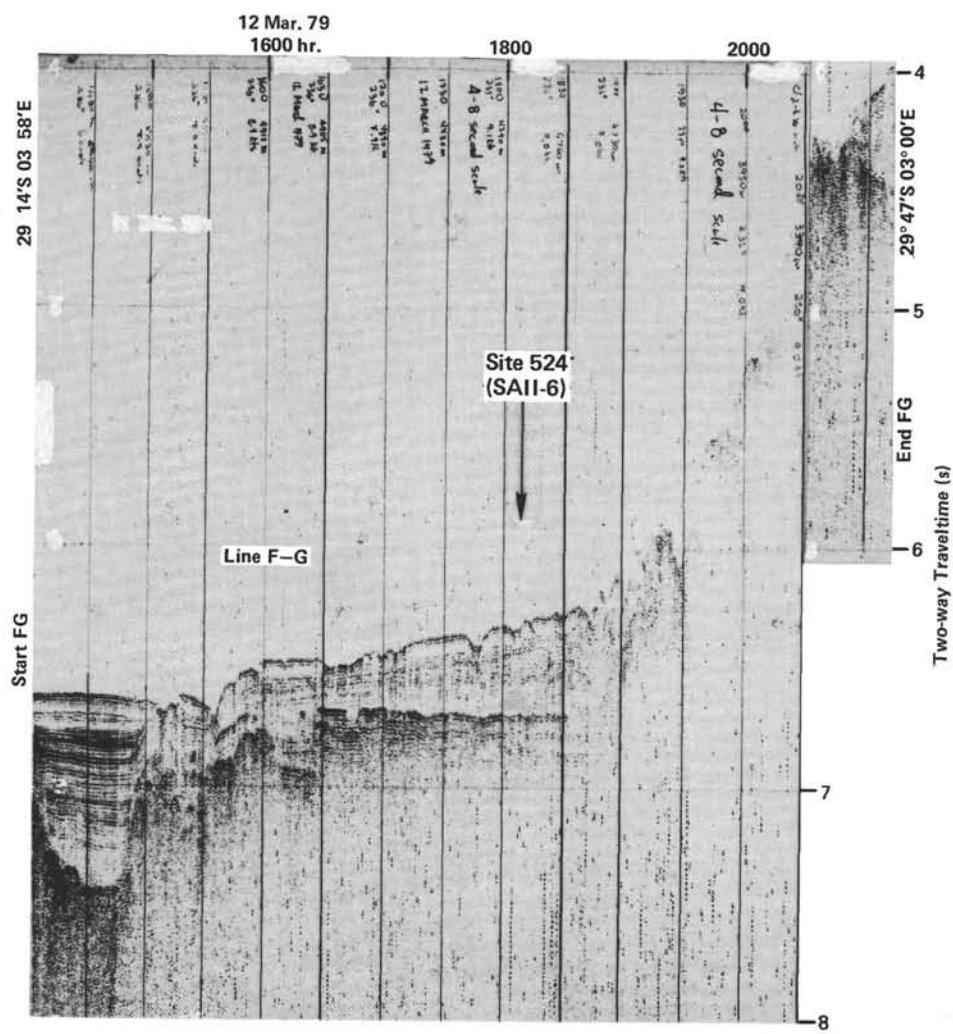


Figure 7. (Continued).

28°13'S 00°37'E

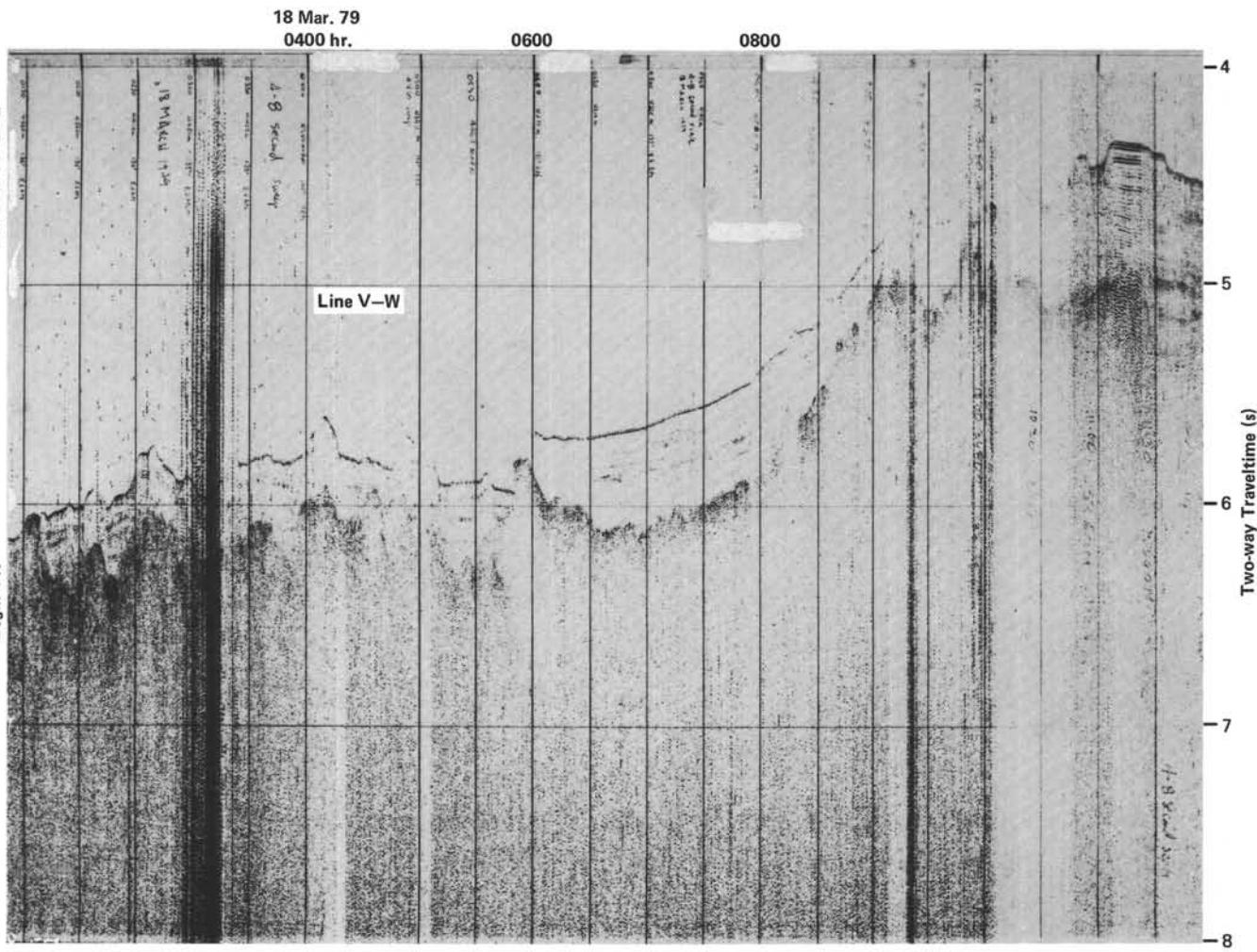


Figure 7. (Continued).

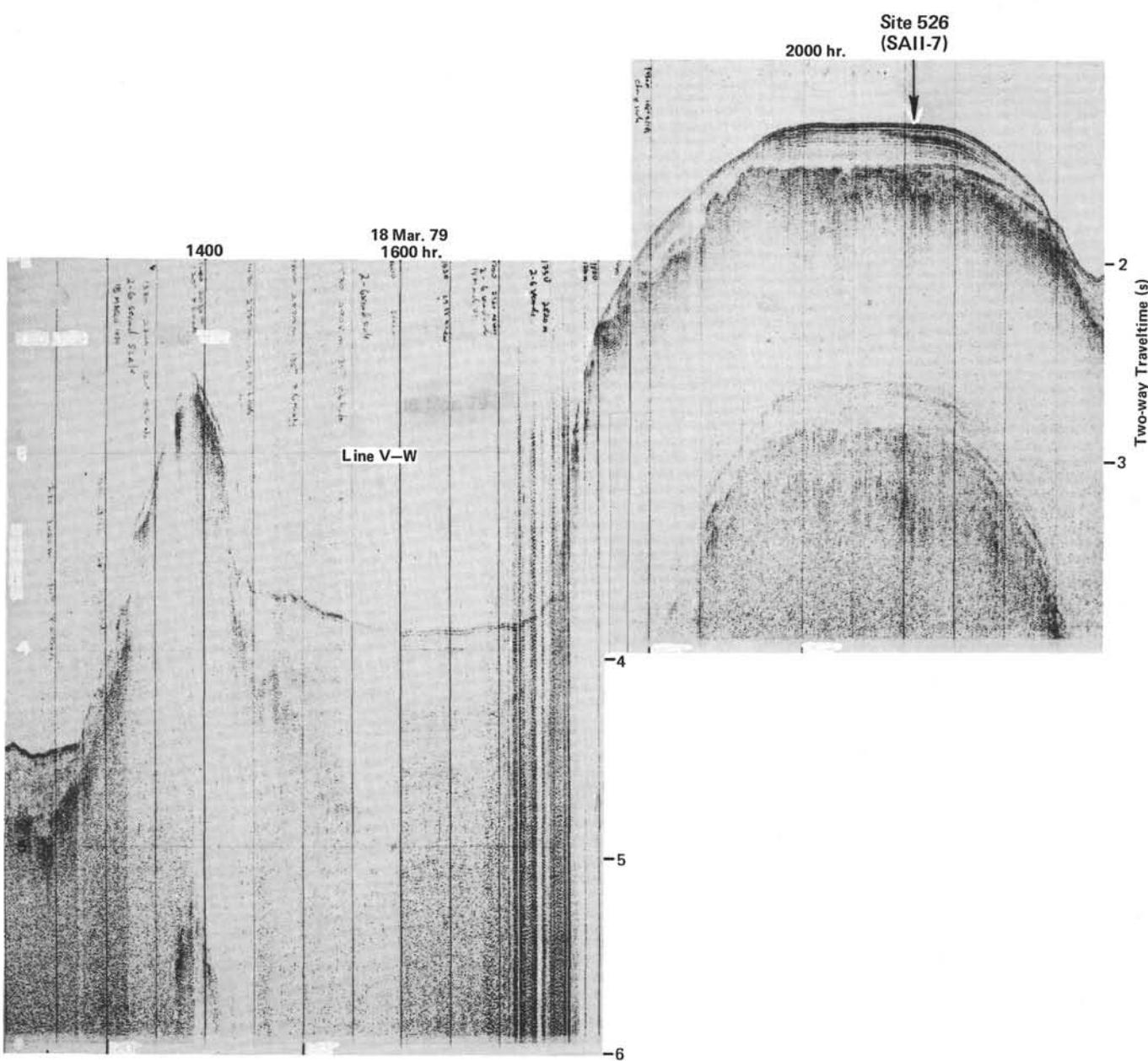


Figure 7. (Continued).

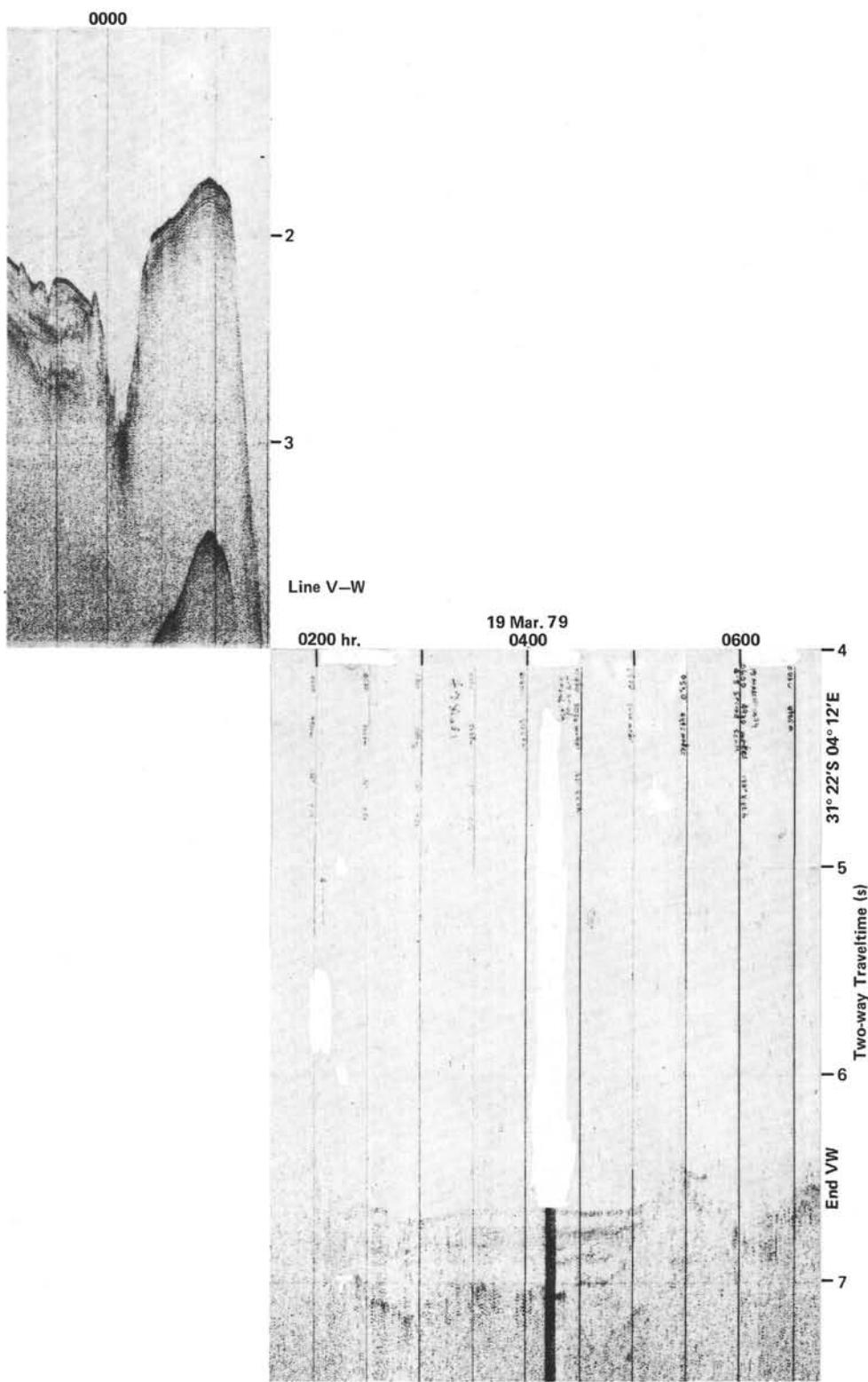


Figure 7. (Continued).

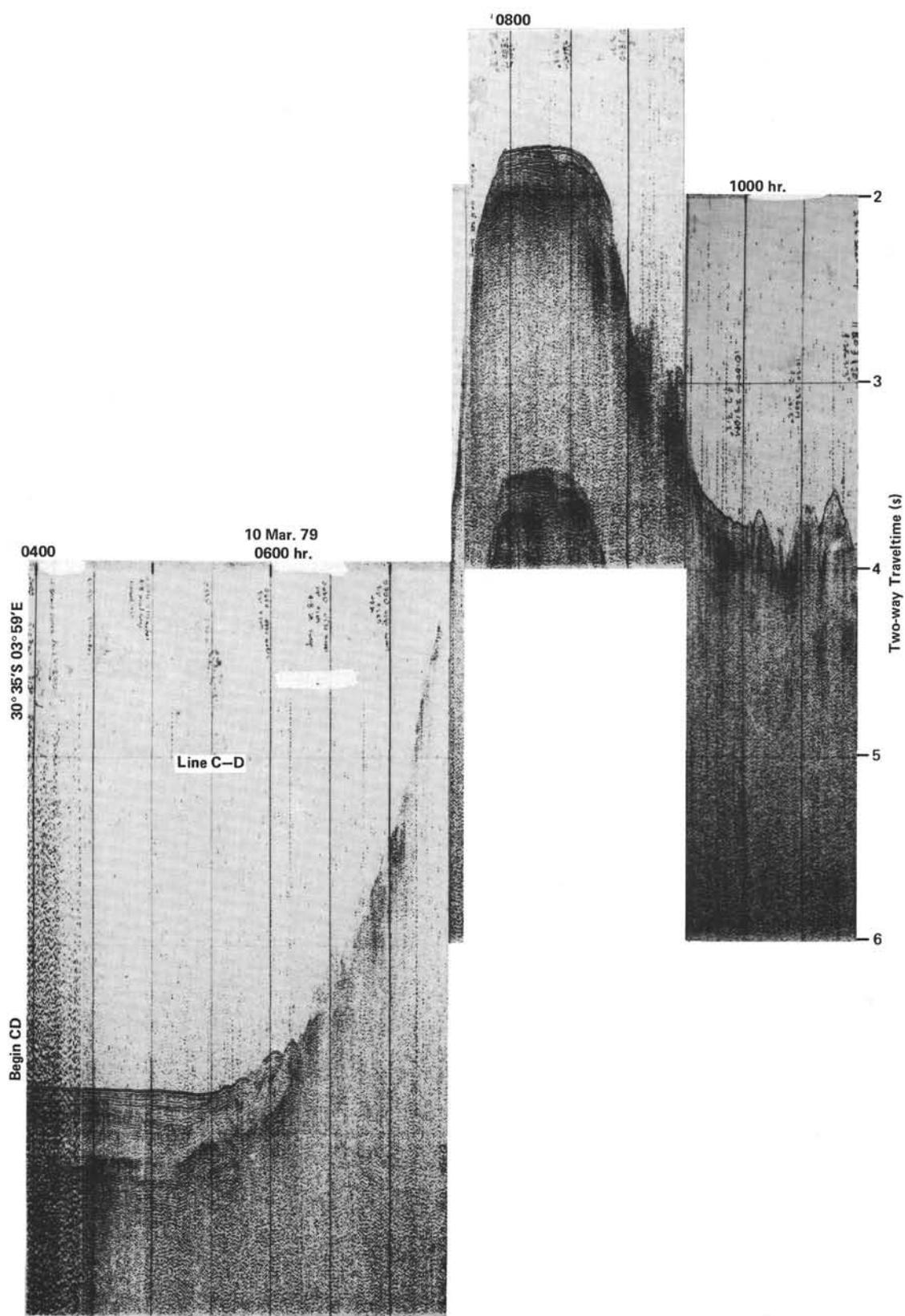


Figure 7. (Continued).

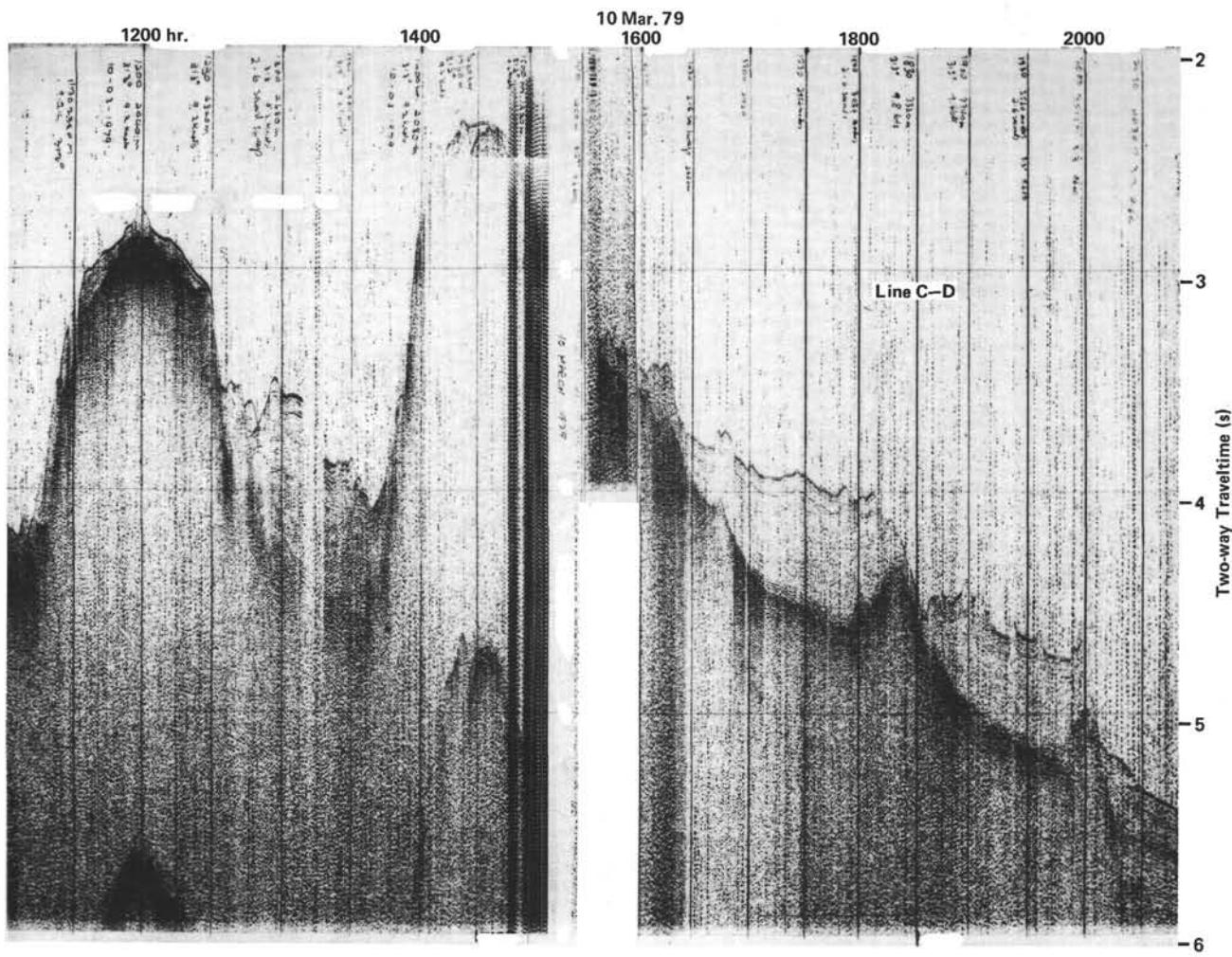


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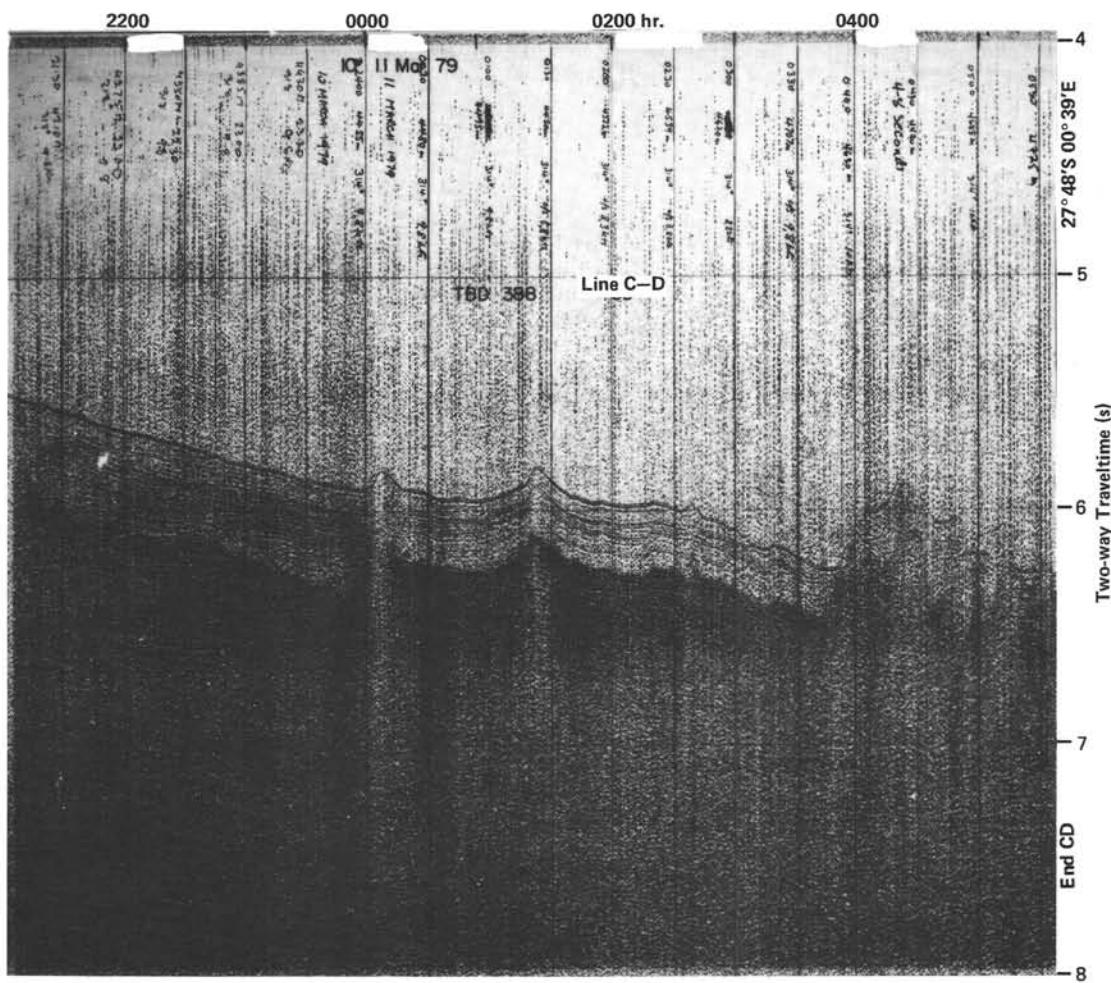


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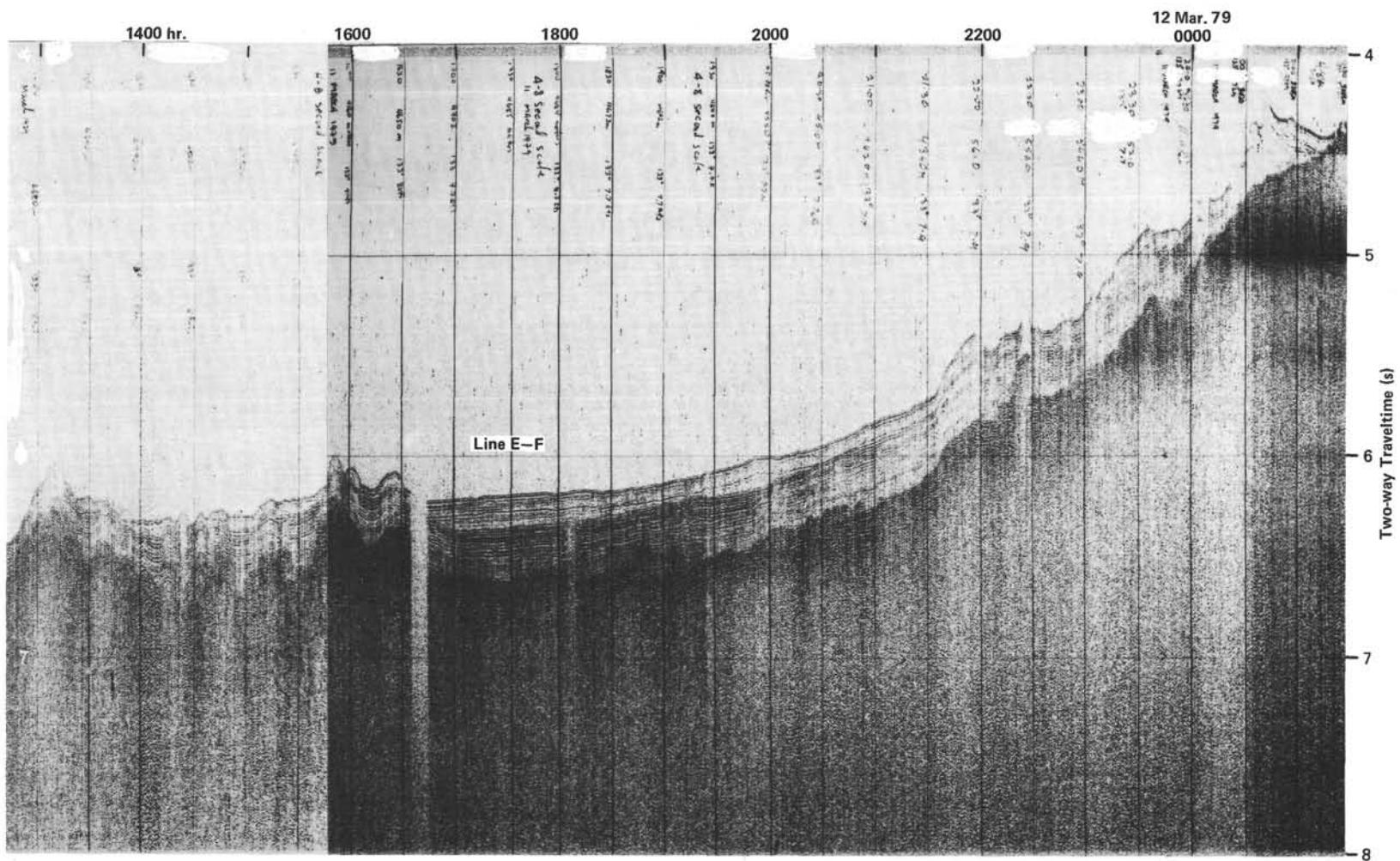


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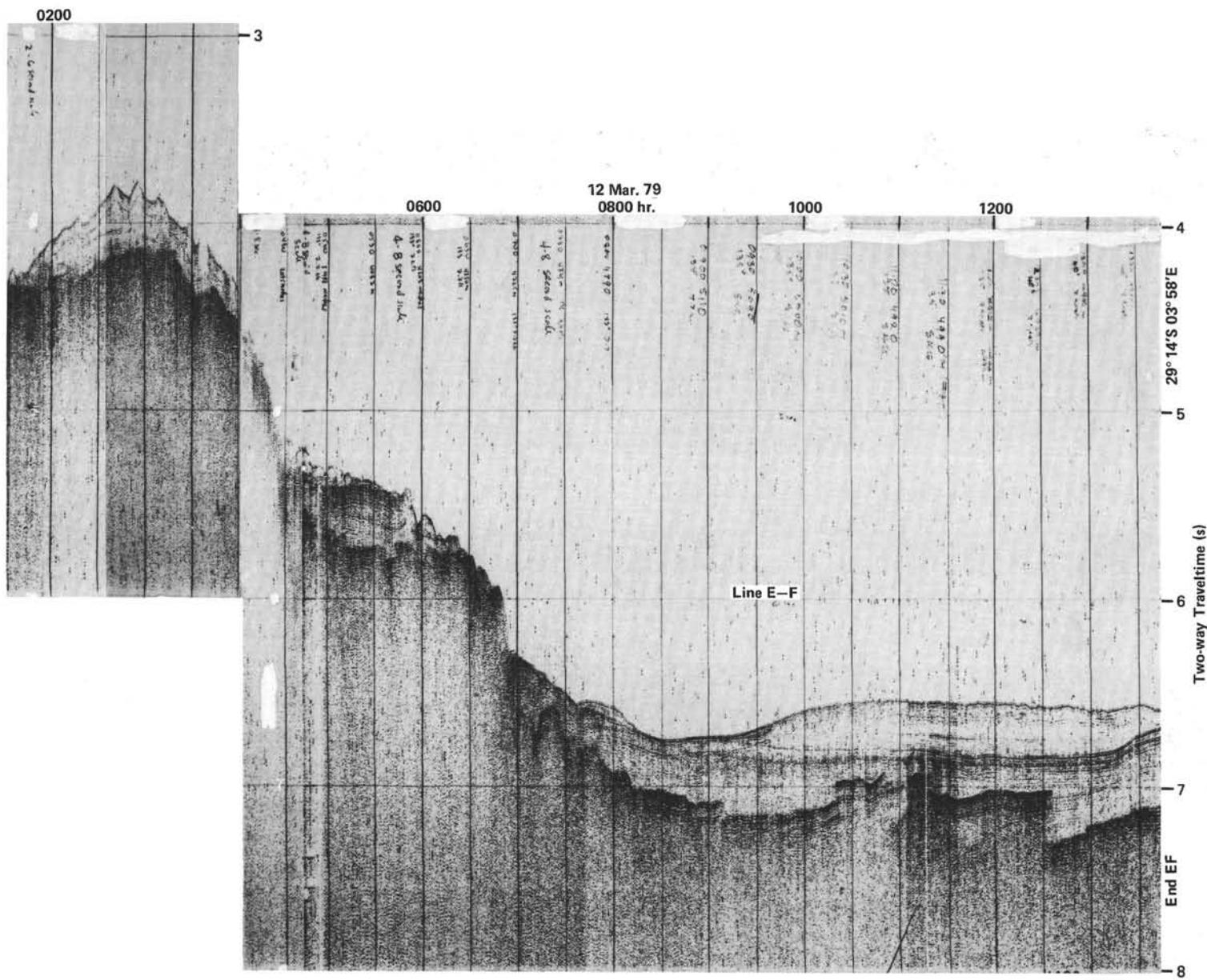


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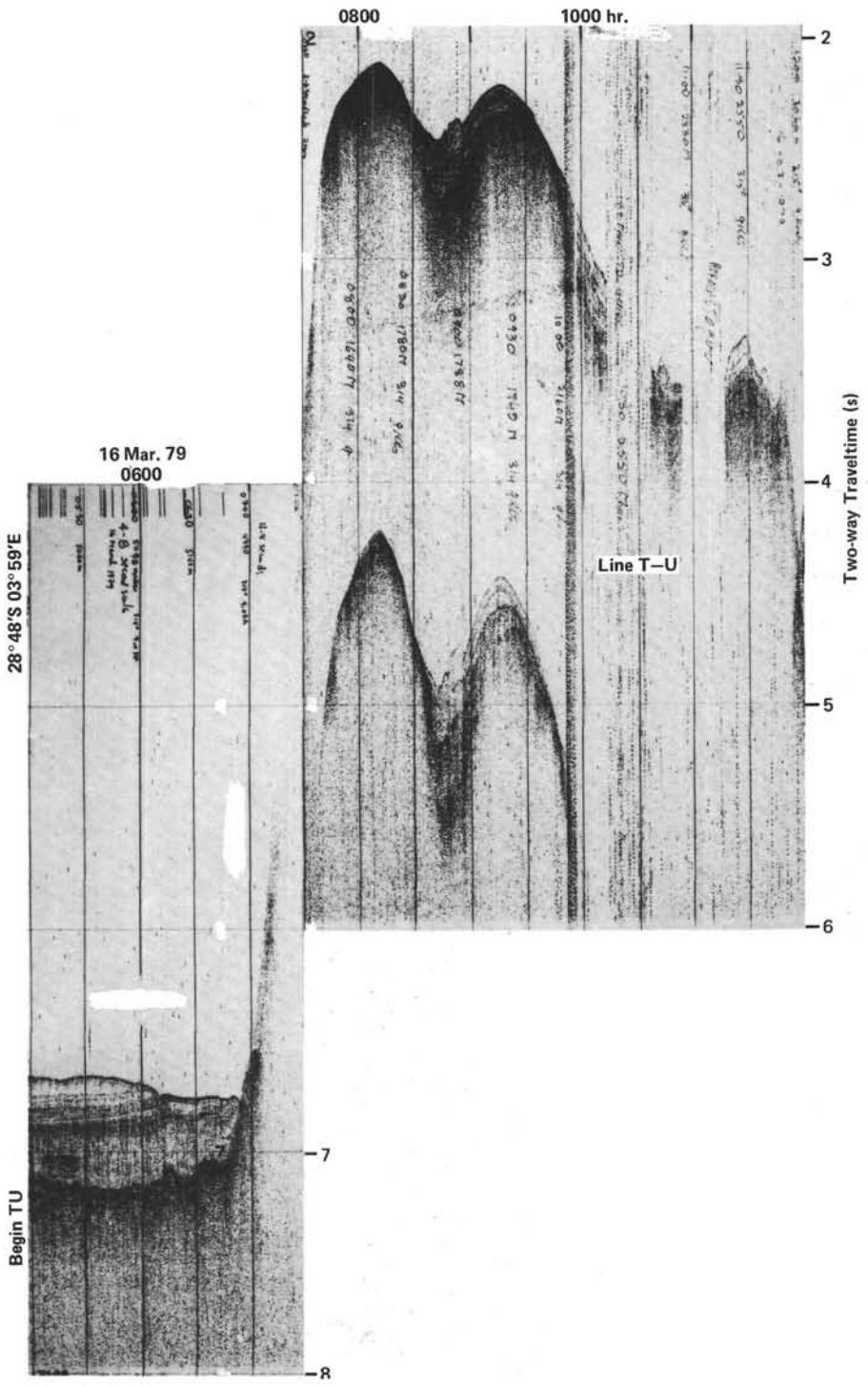


Figure 7. (Continued).

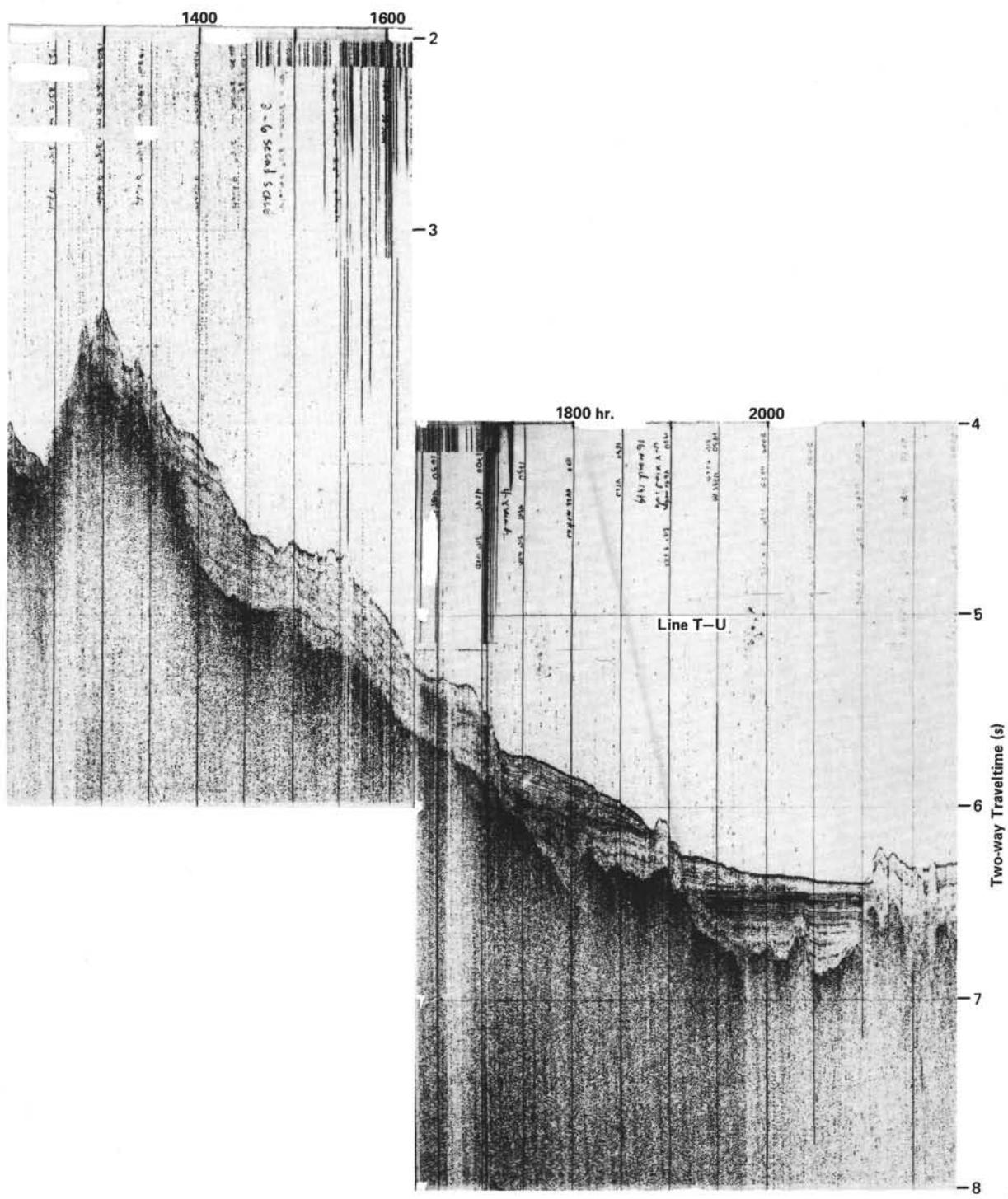


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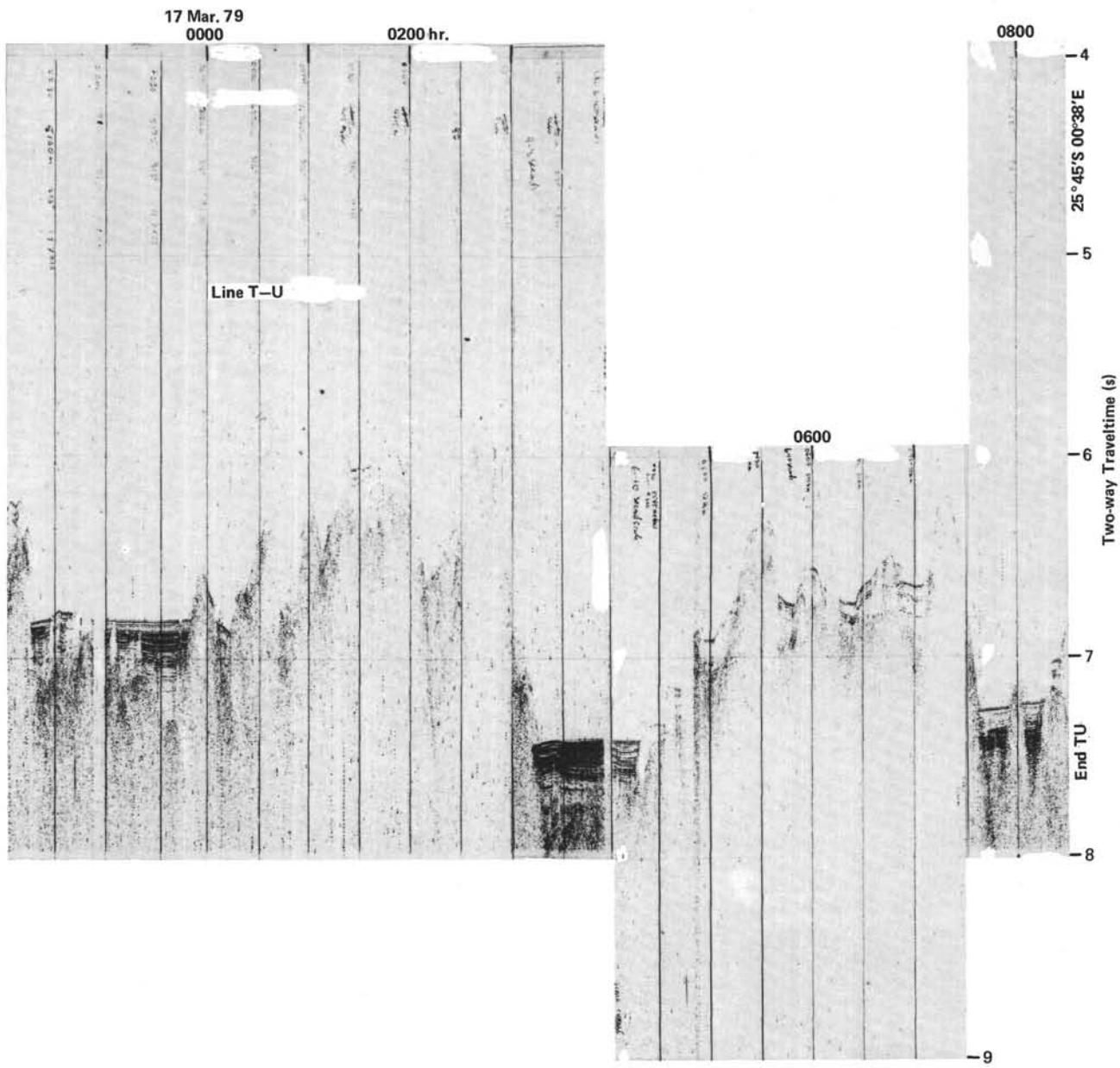


Figure 7. (Continued).