

6. UNDERWAY GEOPHYSICAL MEASUREMENTS: *GLOMAR CHALLENGER* LEG 71¹

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Bathymetric, magnetic, and single-channel seismic reflection data were acquired during *Glomar Challenger* Leg 71. The ship departed Valparaiso, Chile on January 3, 1979 and proceeded to Punta Arenas, Chile, with a partial scientific and technical staff. The ship arrived at Punta Arenas on January 10, 1980, embarked 11 scientists and 5 Scripps personnel, and departed for Site 511 the same day. The ship's track from Valparaiso to arrival at Santos, Brazil, on February 21 is shown in Figures 1 and 2. Dates and times for the first navigational fix of the day along the ship's track where data were obtained and drill site locations are indicated. Table 1 lists the positioning information acquired underway by the satellite navigation system and used to plot the ship's track (Talwani et al., 1966). Also listed in Table 1 are the regional magnetic field values, computed at each navigation point according to the reference field of Fabiano and Peddie (1969) and used to determine the magnetic anomaly profiles in Figures 3 and 4.

Magnetic anomalies, plotted normal to the *Challenger* track and L-DGO ship's tracks in the vicinity of Sites 513 and 514, are shown in Figure 3. In this diagram, the zero level for the magnetic anomalies has been arbitrarily adjusted to avoid confusion and also to clarify the shorter wavelength positive-negative anomaly trends. The total track coverage allows us to identify some key seafloor spreading anomalies. The anomalies are identified according to the numbering system of Heirtzler et al. (1968) and LaBrecque et al. (1977). The base of the sedimentary section cored at Site 513 is estimated to be approximately 36.5 m.y. old—i.e., near the Oligocene/Eocene boundary (37 Ma). Thus a basement age of 36.5 m.y. would correspond to a position midway between Anomalies 13 and 15 (basal Oligocene), which is exactly the crustal age predicted by the magnetic anomalies.

Figure 4 shows bathymetric and magnetic anomaly profiles plotted as functions of time, distance, latitude, and longitude. The data processing procedure, including program listings, is given in Talwani (1969). The vertical scales show depth (D) in uncorrected fathoms (assuming a sound speed of 800 fms/s and total intensity

magnetic [M] anomaly values in gammas). On the lowermost scale at the bottom of the figure, distances are shown at intervals of 200 miles. In addition, tick marks 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. At the top of the figure, from top to bottom, are time in days, time in hours, latitude in degrees, and longitude in degrees.

Seismic reflection profile records obtained along the ship's track (Fig. 1 and 2) are given in Figure 5. These data were recorded analog during 10-s sweeps of an EDO chart recorder, using a 20-in³ and a 40-in³. Bolt airgun fired simultaneously as the sound source and a Scripps-designed hydrophone array. Depths are labeled on the sides of the records in two-way reflection time (1 s water = 400 fms or 732 m; 1 s sediments = 1000 m, assuming the velocity in the sediments to be 2000 m/s). Times and dates are shown on the records to key into the navigation plots (Fig. 1 and 2) and listing (Table 1).

ACKNOWLEDGMENTS

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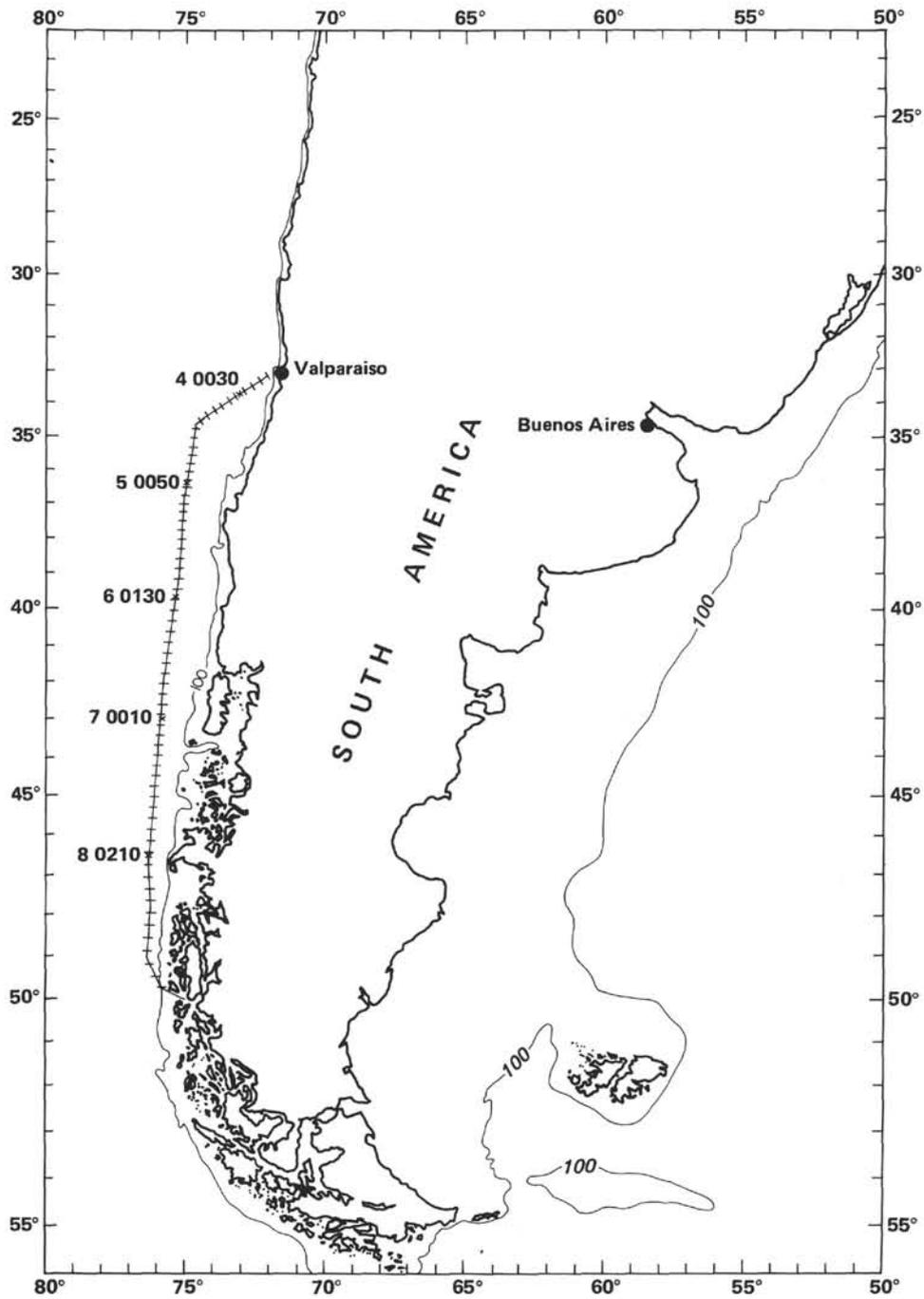


Figure 1. Track chart for transit Leg 71 of *Glomar Challenger* from Valparaiso, Chile, to Punta Arenas, Chile. Numbers indicate date and time of first navigation fix every day; ticks give time every two hours.

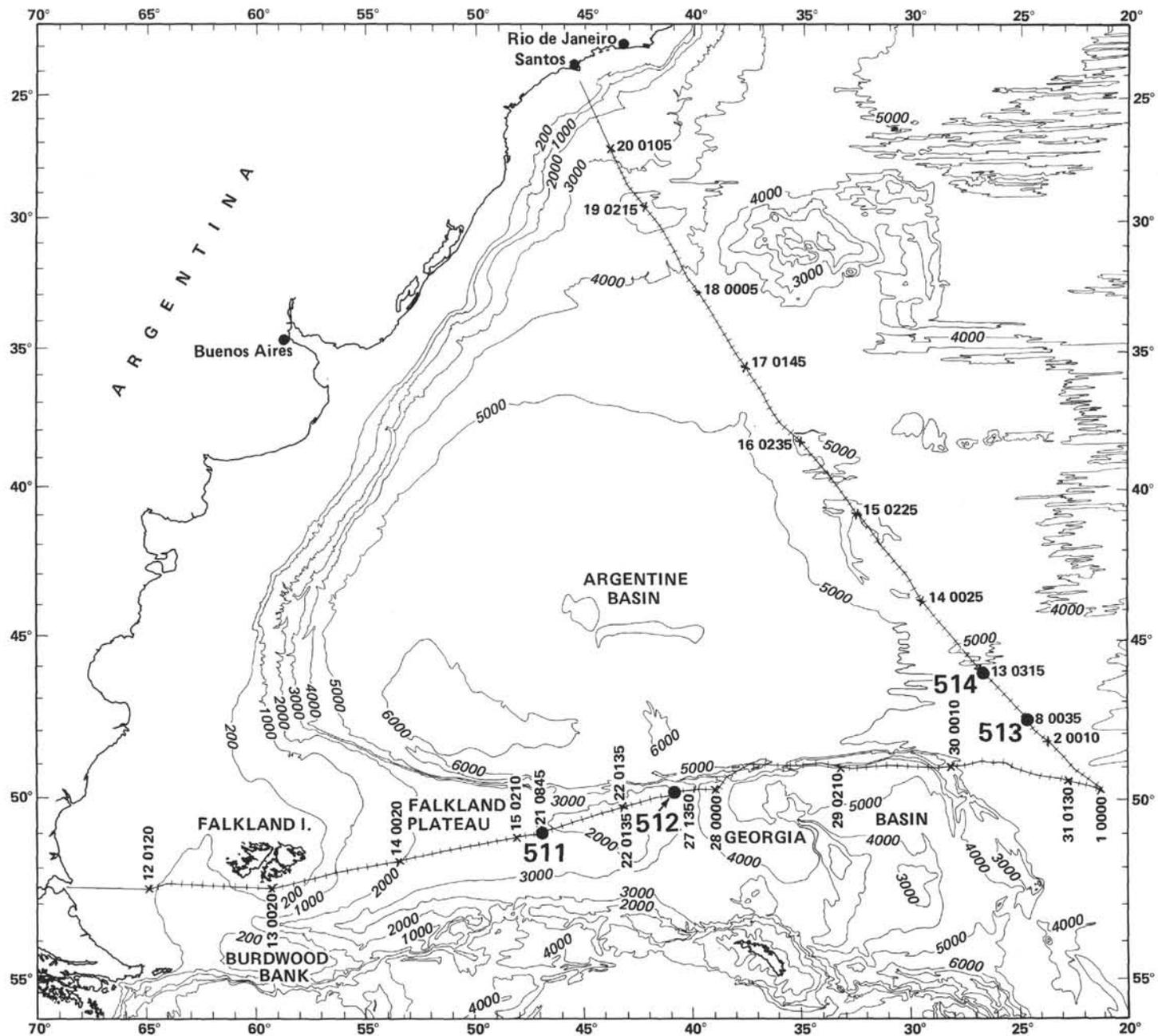


Figure 2. Track chart for Leg 71 of *Glomar Challenger* from Punta Arenas, Chile, to Santos, Brazil. Numbers indicate date and time of first navigation fix every day; ticks give time every two hours. Generalized bathymetry in meters north and south of 45°S after Heezen and Tharp (1978) and LaBrecque and Rabinowitz (1981), respectively.

Table 1. Positioning information and magnetic field values, Leg 71 of *Glomar Challenger*.

Day/Month Year	Time Zone	Time	Latitude (°) (min.)	Longitude (°) (min.)	Miles	Speed	Heading (°)	Regional Magnetic Value (gammas)
3/1/80	0.0	1530	-33 12.20	-72 1.50	0.0	8.1	234	26125
3/1/80	0.0	1830	-33 26.37	-72 25.05	24.3	8.2	235	26259
3/1/80	0.0	2130	-33 40.21	-72 49.33	48.8	8.1	236	26398
4/1/80	0.0	0030	-33 53.39	-73 13.70	72.9	8.1	237	26538
4/1/80	0.0	0200	-33 59.95	-73 26.00	85.1	8.5	241	26609
4/1/80	0.0	0430	-34 10.16	-73 48.54	106.3	8.1	234	26736
4/1/80	0.0	0530	-34 14.86	-73 56.48	114.4	5.9	236	26785
4/1/80	0.0	0550	-34 15.94	-73 58.45	116.4	6.9	232	26797
4/1/80	0.0	0600	-34 16.64	-73 59.55	117.5	8.0	231	26804
4/1/80	0.0	0900	-34 31.69	-74 22.05	141.4	7.8	230	26954
4/1/80	0.0	1110	-34 42.47	-74 37.97	158.4	7.5	209	27062
4/1/80	0.0	1120	-34 43.57	-74 38.73	159.6	8.0	186	27069
4/1/80	0.0	1310	-34 58.20	-74 40.60	174.4	8.3	189	27138
4/1/80	0.0	1450	-35 11.90	-74 43.40	188.2	8.0	185	27208
4/1/80	0.0	1750	-35 35.72	-74 46.42	212.2	7.5	186	27326
4/1/80	0.0	2020	-35 54.26	-74 49.09	230.9	7.5	191	27421
4/1/80	0.0	2030	-35 55.49	-74 49.39	232.1	7.7	197	27428
4/1/80	0.0	2100	-35 59.15	-74 50.80	236.0	6.8	189	27451
4/1/80	0.0	2210	-36 6.97	-74 52.45	243.9	6.8	184	27494
4/1/80	0.0	2320	-36 14.90	-74 53.30	251.8	7.2	190	27535
5/1/80	0.0	0220	-36 36.22	-74 57.96	273.5	7.2	188	27657
5/1/80	0.0	0250	-36 39.80	-74 58.60	277.1	7.2	193	27677
5/1/80	0.0	0520	-36 57.32	-75 3.93	295.1	7.2	186	27786
5/1/80	0.0	0730	-37 12.80	-75 6.08	310.7	7.5	182	27874
5/1/80	0.0	0740	-37 14.05	-75 6.15	312.0	7.5	171	27880
5/1/80	0.0	0800	-37 16.51	-75 5.69	314.4	7.5	178	27891
5/1/80	0.0	0810	-37 17.75	-75 5.66	315.7	7.6	183	27897
5/1/80	0.0	0920	-37 26.59	-75 6.36	324.6	7.8	188	27946
5/1/80	0.0	1040	-37 36.86	-75 8.27	334.9	8.0	182	28008
5/1/80	0.0	1340	-38 0.77	-75 9.81	358.9	8.3	182	28142
5/1/80	0.0	1640	-38 25.62	-75 11.27	383.7	8.5	185	28285
5/1/80	0.0	1940	-38 51.10	-75 14.12	409.3	8.7	182	28441
5/1/80	0.0	2200	-39 11.46	-75 15.13	429.7	8.7	186	28563
5/1/80	0.0	2230	-39 15.80	-75 15.80	434.1	8.8	189	28592
6/1/80	0.0	0130	-39 42.01	-75 21.17	460.6	9.0	189	28772
6/1/80	0.0	0430	-40 8.65	-75 26.81	487.6	8.9	189	28961
6/1/80	0.0	0730	-40 34.95	-75 32.29	514.2	9.0	187	29151
6/1/80	0.0	1030	-41 1.58	-75 37.19	541.1	8.7	186	29346
6/1/80	0.0	1330	-41 27.43	-75 41.00	567.1	8.5	186	29535
6/1/80	0.0	1450	-41 38.65	-75 42.56	578.4	5.7	185	29618
6/1/80	0.0	1500	-41 39.60	-75 42.68	579.4	7.4	185	29625
6/1/80	0.0	1510	-41 40.83	-75 42.84	580.6	8.5	185	29634
6/1/80	0.0	1810	-42 3.10	-75 46.26	606.2	8.7	185	29825
6/1/80	0.0	2110	-42 32.14	-75 49.75	632.2	8.4	183	30023
7/1/80	0.0	0010	-42 57.19	-75 52.04	657.3	8.1	185	30214
7/1/80	0.0	0310	-43 21.39	-75 54.95	681.6	8.0	184	30405
7/1/80	0.0	0610	-43 45.25	-75 57.34	705.5	7.8	184	30595
7/1/80	0.0	0910	-44 8.57	-76 0.13	728.9	8.0	185	30785
7/1/80	0.0	1210	-44 32.50	-76 3.60	752.9	8.2	186	30987
7/1/80	0.0	1410	-44 48.80	-76 6.30	769.4	8.3	183	31128
7/1/80	0.0	1710	-45 13.61	-76 8.30	794.2	8.5	183	31337
7/1/80	0.0	2010	-45 38.99	-76 10.78	819.6	8.6	184	31555
7/1/80	0.0	2310	-46 4.63	-76 13.35	845.3	8.9	185	31780
8/1/80	0.0	0210	-46 31.30	-76 17.10	872.1	9.3	187	32023
8/1/80	0.0	0300	-46 38.99	-75 18.63	879.9	9.0	179	32096
8/1/80	0.0	0600	-47 6.13	-76 18.42	907.0	8.9	177	32329
8/1/80	0.0	0630	-47 10.60	-76 18.17	911.5	9.0	173	32366
8/1/80	0.0	0840	-47 29.92	-76 14.90	931.0	8.6	177	32520
8/1/80	0.0	1030	-47 45.71	-76 14.01	946.8	8.5	182	32656
8/1/80	0.0	1130	-47 54.17	-76 14.50	955.2	9.1	184	32734
8/1/80	0.0	1430	-48 21.43	-76 17.79	982.6	9.5	184	32995
8/1/80	0.0	1730	-48 49.89	-76 21.24	1011.1	9.5	184	33273
8/1/80	0.0	1850	-49 2.47	-76 22.73	1023.7	9.8	156	33396
8/1/80	0.0	1910	-49 6.46	-76 20.74	1027.0	9.9	155	33415
8/1/80	0.0	2210	-49 32.48	-76 1.88	1056.7	9.6	155	33577
8/1/80	0.0	2240	-49 36.88	-75 58.85	1061.5	9.5	158	33604
8/1/80	0.0	2310	-49 41.29	-75 56.23	1066.2	7.7	159	33633
8/1/80	0.0	2320	-49 42.49	-75 55.52	1067.5	5.8	159	33641
8/1/80	0.0	2330	-49 43.40	-75 55.00	1068.5	9.1	119	33647
9/1/80	0.0	0230	-49 56.84	-75 18.02	1095.9	9.1	119	33660
9/1/80	0.0	0510	-50 8.80	-74 45.14	1120.1	8.4	131	33560
9/1/80	0.0	0520	-50 9.73	-74 43.51	1121.5	10.1	181	33561
9/1/80	0.0	0750	-50 34.93	-74 44.57	1146.7	9.2	155	33810
9/1/80	0.0	0800	-50 36.32	-74 43.58	1148.3	9.7	138	33819
9/1/80	0.0	0850	-50 42.40	-74 35.10	1156.4	10.6	130	33839
9/1/80	0.0	0940	-50 48.17	-74 24.52	1165.2	10.8	146	33847
9/1/80	0.0	1020	-50 54.17	-74 18.25	1172.4	10.8	147	33877
9/1/80	0.0	1030	-50 55.69	-74 16.72	1174.2	10.9	159	33885
9/1/80	0.0	1040	-50 57.38	-74 15.70	1176.0	11.1	165	33897
9/1/80	0.0	1340	-51 29.55	-74 2.77	1209.2	10.9	164	34157
9/1/80	0.0	1400	-51 33.05	-74 1.18	1212.8	10.2	157	34185
9/1/80	0.0	1410	-51 34.61	-74 0.14	1214.5	9.3	146	34196
9/1/80	0.0	1600	-51 48.84	-73 44.78	1231.6	8.8	164	34269
9/1/80	0.0	1610	-51 50.26	-73 44.16	1233.1	8.8	170	34281
9/1/80	0.0	1720	-52 0.41	-73 41.30	1243.4	9.3	174	34371
9/1/80	0.0	1820	-52 9.70	-73 39.90	1252.7	9.5	180	34459
9/1/80	0.0	2000	-52 25.50	-73 40.10	1268.5	11.1	172	34621
9/1/80	0.0	2040	-52 32.80	-73 38.44	1275.9	9.8	182	34689
9/1/80	0.0	2050	-52 34.43	-73 38.54	1277.5	8.6	201	34706
9/1/80	0.0	2140	-52 41.42	-73 42.90	1284.7	8.6	205	34795
9/1/80	0.0	2150	-52 42.42	-73 43.93	1286.2	9.0	222	34813
9/1/80	0.0	2230	-52 46.82	-73 50.65	1292.2	7.9	212	34889
9/1/80	0.0	2240	-52 47.93	-73 51.80	1293.5	7.9	154	34906
10/1/80	0.0	0020	-52 59.72	-73 42.28	1306.6	9.7	134	34985
10/1/80	0.0	0030	-53 0.86	-73 40.37	1308.2	11.3	125	34988
10/1/80	0.0	0330	-53 20.71	-72 54.42	1342.2	11.3	126	34990
10/1/80	0.0	0630	-53 40.55	-72 8.48	1375.9	11.2	126	34999
10/1/80	0.0	0700	-53 43.85	-72 0.82	1381.5	10.7	121	35001
10/1/80	0.0	0710	-53 44.77	-71 58.25	1383.3	10.5	116	35001
10/1/80	0.0	0740	-53 47.14	-71 50.34	1388.6	10.7	113	34999
10/1/80	0.0	0930	-53 54.84	-71 19.83	1408.1	11.8	108	34943
10/1/80	0.0	0940	-53 55.45	-71 16.66	1410.1	10.1	82	34936
10/1/80	0.0	0950	-53 55.23	-71 13.82	1411.8	10.4	63	34921
10/1/80	0.0	1030	-53 52.12	-71 3.30	1418.7	9.4	57	34844
10/1/80	0.0	1040	-53 51.27	-71 1.07	1420.3	7.2	18	34825
10/1/80	0.0	1310	-53 34.06	-70 51.65	1438.4	5.8	49	34603
10/1/80	0.0	1320	-53 33.43	-70 50.40	1439.3	6.1	74	34591
10/1/80	0.0	1620	-53 28.51	-70 20.56	1457.8	6.1	74	34415
10/1/80	0.0	1920	-53 23.58	-69 50.71	1476.2	6.2	74	34240

Table 1. (Continued).

Day/Month Year	Time Zone	Time	Latitude (°) (min.)	Longitude (°) (min.)	Miles	Speed	Heading (°)	Regional Magnetic Value (gammas)
10/1/80	0.0	2220	-53 18.66	-69 20.87	1494.7	6.2	74	34068
11/1/80	0.0	0120	-53 13.73	-68 51.02	1513.2	6.2	74	33896
11/1/80	0.0	0420	-53 8.81	-68 21.17	1531.8	6.2	74	33727
11/1/80	0.0	0720	-53 3.88	-67 51.33	1550.3	6.2	74	33560
11/1/80	0.0	1020	-52 58.96	-67 21.49	1569.0	6.2	74	33395
11/1/80	0.0	1320	-52 54.03	-66 51.64	1587.6	6.2	74	33232
11/1/80	0.0	1620	-52 49.10	-66 21.99	1606.3	6.2	74	33071
11/1/80	0.0	1920	-52 44.18	-65 51.95	1625.0	6.2	74	32912
11/1/80	0.0	2220	-52 39.26	-65 22.10	1643.7	6.3	74	32755
12/1/80	0.0	0120	-52 34.33	-64 52.26	1662.3	6.3	74	32600
12/1/80	0.0	0420	-52 29.41	-64 22.42	1681.3	6.3	74	32447
12/1/80	0.0	0500	-52 28.31	-64 15.78	1685.5	6.9	68	32414
12/1/80	0.0	0510	-52 27.88	-64 14.02	1686.7	14.9	42	32403
12/1/80	0.0	0520	-52 26.05	-64 11.27	1689.2	62.2	85	32375
12/1/80	0.0	0530	-52 25.21	-63 54.34	1699.5	8.4	84	32310
12/1/80	0.0	0550	-52 24.93	-63 49.79	1702.3	8.3	92	32292
12/1/80	0							

Table 1. (Continued).

Day/Month Year	Time Zone	Time	Latitude (°) (min.)	Longitude (°) (min.)	Miles	Speed	Heading (°)	Regional Magnetic Field Value (gammas)
28/1/80	0.0	0920	-49 7.36	-37 47.54	2725.7	9.7	65	28073
28/1/80	0.0	1010	-49 3.97	-37 36.29	2733.8	10.2	60	28047
28/1/80	0.0	1100	-48 59.81	-37 25.01	2742.3	7.5	90	28017
28/1/80	0.0	1130	-48 59.86	-37 19.27	2746.1	10.6	90	28017
28/1/80	0.0	1430	-49 0.25	-36 30.80	2777.9	11.1	92	28017
28/1/80	0.0	1730	-49 1.78	-35 40.02	2811.2	11.3	91	28027
28/1/80	0.0	1840	-49 2.21	-35 19.87	2824.4	11.5	83	28030
28/1/80	0.0	2140	-48 58.03	-34 27.74	2858.9	10.8	84	28005
28/1/80	0.0	2210	-48 57.52	-34 19.57	2864.3	11.8	87	28002
28/1/80	0.0	2230	-48 57.34	-34 13.57	2868.2	11.8	94	28001
28/1/80	0.0	2310	-48 57.90	-34 1.60	2876.1	9.9	101	28006
29/1/80	0.0	0210	-49 3.74	-33 17.35	2905.7	9.6	103	28050
29/1/80	0.0	0300	-49 5.57	-33 5.45	2913.7	9.4	89	28064
29/1/80	0.0	0430	-49 5.43	-32 44.02	2927.7	6.5	89	28066
29/1/80	0.0	0600	-49 5.38	-32 29.19	2937.5	6.1	84	28067
29/1/80	0.0	0630	-49 5.10	-32 24.57	2940.5	8.9	84	28066
29/1/80	0.0	0930	-49 2.71	-31 44.11	2967.1	9.4	85	28058
29/1/80	0.0	1200	-49 1.03	-31 8.38	2990.6	9.4	90	28054
29/1/80	0.0	1430	-49 1.22	-30 32.42	3014.2	9.2	93	28063
29/1/80	0.0	1730	-49 3.01	-29 50.20	3041.9	9.1	92	28085
29/1/80	0.0	2030	-49 4.36	-29 8.45	3069.3	9.3	89	28104
29/1/80	0.0	2120	-49 4.27	-28 56.61	3077.1	9.6	85	28106
30/1/80	0.0	0010	-49 2.30	-28 15.19	3104.3	9.9	90	28106
30/1/80	0.0	0020	-49 2.30	-28 12.67	3105.9	6.8	87	28107
30/1/80	0.0	0320	-49 1.39	-27 41.65	3126.3	6.9	87	28110
30/1/80	0.0	0330	-49 1.33	-27 39.89	3127.5	6.8	83	28111
30/1/80	0.0	0340	-49 1.20	-27 38.16	3128.6	7.0	66	28110
30/1/80	0.0	0500	-48 57.49	-27 25.01	3138.0	7.3	80	28092
30/1/80	0.0	0510	-48 57.28	-27 23.18	3139.2	8.0	88	28091
30/1/80	0.0	0600	-48 57.07	-27 13.02	3145.9	10.4	88	28093
30/1/80	0.0	0630	-48 56.93	-27 5.09	3151.1	10.2	69	28095
30/1/80	0.0	0700	-48 55.18	-26 57.78	3156.2	8.4	37	28087
30/1/80	0.0	0710	-48 54.06	-26 56.50	3157.6	9.8	3	28080
30/1/80	0.0	0720	-48 52.42	-26 56.35	3159.2	8.1	85	28071
30/1/80	0.0	0730	-48 52.33	-26 54.31	3160.6	9.9	98	28071
30/1/80	0.0	1000	-48 56.16	-26 17.21	3185.3	9.1	93	28106
30/1/80	0.0	1010	-48 56.24	-26 14.92	3186.8	9.3	78	28107
30/1/80	0.0	1100	-48 54.73	-26 3.32	3194.6	9.1	84	28102
30/1/80	0.0	1110	-48 54.59	-26 1.01	3196.1	9.4	98	28102
30/1/80	0.0	1220	-48 56.24	-25 44.48	3207.1	7.1	97	28118
30/1/80	0.0	1240	-48 56.55	-25 40.93	3209.4	6.5	113	28121
30/1/80	0.0	1300	-48 57.41	-25 37.91	3211.6	6.6	119	28127
30/1/80	0.0	1320	-48 58.50	-25 34.99	3213.8	9.3	118	28134
30/1/80	0.0	1430	-49 3.77	-25 20.44	3224.7	9.4	122	28171
30/1/80	0.0	1440	-49 4.63	-25 18.43	3226.3	9.5	127	28176
30/1/80	0.0	1500	-49 6.53	-25 14.59	3229.4	9.3	112	28189
30/1/80	0.0	1510	-49 7.11	-25 12.41	3230.9	9.3	107	28193
30/1/80	0.0	1530	-49 8.02	-25 7.90	3234.0	9.1	110	28200
30/1/80	0.0	1710	-49 13.39	-24 46.23	3249.2	9.2	102	28239
30/1/80	0.0	2010	-49 19.43	-24 5.05	3276.7	9.4	102	28289
30/1/80	0.0	2140	-49 22.39	-23 43.87	3290.8	9.6	99	28314
30/1/80	0.0	2210	-49 23.14	-23 36.61	3295.6	9.7	89	28321
30/1/80	0.0	2300	-49 22.99	-23 24.19	3303.7	9.6	93	28324
30/1/80	0.0	2310	-49 23.10	-23 21.73	3305.3	9.9	102	28326
31/1/80	0.0	0130	-49 28.18	-22 47.18	3328.4	9.5	106	28367
31/1/80	0.0	0200	-49 29.48	-22 40.17	3333.1	6.8	108	28377
31/1/80	0.0	0230	-49 30.53	-22 35.22	3336.5	6.7	101	28385
31/1/80	0.0	0320	-49 31.65	-22 26.83	3342.0	6.9	107	28395
31/1/80	0.0	0350	-49 32.68	-22 21.79	3345.5	6.4	107	28403
31/1/80	0.0	0520	-49 35.65	-22 7.63	3355.1	7.8	107	28424
31/1/80	0.0	0540	-49 36.42	-22 3.78	3357.7	7.6	99	28430
31/1/80	0.0	0610	-49 37.03	-21 58.02	3361.5	8.3	106	28435
31/1/80	0.0	0620	-49 37.41	-21 55.97	3362.9	9.6	105	28438
31/1/80	0.0	0810	-49 42.05	-21 29.82	3380.4	5.9	103	28475
31/1/80	0.0	0920	-49 43.67	-21 19.48	3387.3	4.8	102	28488
31/1/80	0.0	0930	-49 43.84	-21 18.28	3388.1	0.2	7	28489
31/1/80	0.0	0950	-49 43.78	-21 18.27	3388.2	0.2	0	28489
31/1/80	0.0	1000	-49 43.75	-21 18.27	3388.2	0.2	0	28488
31/1/80	0.0	1010	-49 43.72	-21 18.26	3388.2	0.2	0	28488
31/1/80	0.0	1030	-49 43.69	-21 18.26	3388.3	0.2	7	28488
31/1/80	0.0	1030	-49 43.66	-21 18.26	3388.3	0.2	0	28488
31/1/80	0.0	1040	-49 43.63	-21 18.26	3388.3	0.2	0	28488
31/1/80	0.0	1100	-49 43.57	-21 18.25	3388.4	0.2	0	28487
31/1/80	0.0	1110	-49 43.54	-21 18.25	3388.4	0.2	7	28487
31/1/80	0.0	1120	-49 43.51	-21 18.24	3388.4	0.2	0	28487
31/1/80	0.0	1130	-49 43.48	-21 18.24	3388.5	0.1	9	28487
31/1/80	0.0	1140	-49 43.46	-21 18.23	3388.5	0.2	0	28487
31/1/80	0.0	1150	-49 43.43	-21 18.23	3388.5	0.2	7	28487
31/1/80	0.0	1210	-49 43.37	-21 18.22	3388.6	0.2	0	28486
31/1/80	0.0	1220	-49 43.34	-21 18.22	3388.6	0.2	7	28486
31/1/80	0.0	1230	-49 43.31	-21 18.22	3388.6	0.2	0	28486
31/1/80	0.0	1240	-49 43.28	-21 18.22	3388.7	0.2	7	28486
31/1/80	0.0	1250	-49 43.25	-21 18.21	3388.7	0.2	0	28486
31/1/80	0.0	1250	-49 43.25	-21 18.21	3388.7	0.2	0	28486
31/1/80	0.0	1300	-49 43.22	-21 18.21	3388.7	0.2	7	28485
31/1/80	0.0	1320	-49 43.16	-21 18.20	3388.8	0.2	0	28485
31/1/80	0.0	1330	-49 43.13	-21 18.20	3388.8	0.2	7	28485
31/1/80	0.0	1340	-49 43.10	-21 18.19	3388.9	0.2	0	28485
31/1/80	0.0	1350	-49 43.07	-21 18.19	3388.9	0.1	9	28484
31/1/80	0.0	1400	-49 43.04	-21 18.19	3388.9	0.2	0	28484
31/1/80	0.0	1410	-49 43.01	-21 18.19	3388.9	0.2	7	28484
31/1/80	0.0	1430	-49 42.95	-21 18.17	3389.0	0.2	0	28484
31/1/80	0.0	1440	-49 42.92	-21 18.17	3389.0	0.2	7	28484
31/1/80	0.0	1450	-49 42.89	-21 18.17	3389.1	0.2	0	28483
31/1/80	0.0	1500	-49 42.86	-21 18.17	3389.1	0.2	7	28483
31/1/80	0.0	1510	-49 42.83	-21 18.16	3389.1	0.2	0	28483
31/1/80	0.0	1520	-49 42.80	-21 18.16	3389.2	0.2	7	28483
31/1/80	0.0	1540	-49 42.74	-21 18.15	3389.2	0.2	0	28482
31/1/80	0.0	1550	-49 42.71	-21 18.15	3389.2	0.2	7	28482
31/1/80	0.0	1600	-49 42.68	-21 18.14	3389.3	0.2	0	28482
31/1/80	0.0	1610	-49 42.65	-21 18.14	3389.3	0.2	7	28482
31/1/80	0.0	1620	-49 42.62	-21 18.14	3389.3	0.1	0	28482
31/1/80	0.0	1630	-49 42.60	-21 18.14	3389.4	0.2	7	28482
31/1/80	0.0	1650	-49 42.54	-21 18.13	3389.4	0.2	0	28481
31/1/80	0.0	1700	-49 42.51	-21 18.13	3389.5	0.2	7	28481
31/1/80	0.0	1710	-49 42.48	-21 18.12	3389.5	0.2	7	28481
31/1/80	0.0	1720	-49 42.45	-21 18.12	3389.5	0.2	7	28481
31/1/80	0.0	1730	-49 42.42	-21 18.11	3389.5	0.2	0	28481
31/1/80	0.0	1740	-49 42.39	-21 18.11	3389.6	0.2	7	28481

Table 1. (Continued).

Day/Month Year	Time Zone	Time	Latitude (°) (min.)	Longitude (°) (min.)	Miles	Speed	Heading (°)	Regional Magnetic Field Value (gammas)
31/1/80	0.0	1800	-49 42.33	-21 18.10	3389.6	0.2	0	28480
31/1/80	0.0	1810	-49 42.30	-21 18.10	3389.7	0.2	7	28480
31/1/80	0.0	1820	-49 42.27	-21 18.10	3389.7	0.2	0	28480
31/1/80	0.0	1830	-49 42.24	-21 18.10	3389.7	0.1	9	28480
31/1/80	0.0	1840	-49 42.22	-21 18.09	3389.7	0.2	0	28479
31/1/80	0.0	1850	-49 42.19	-21 18.09	3389.8	0.2	7	28479
31/1/80	0.0	1910	-49 42.13	-21 18.08	3389.8	0.2	0	28479
31/1/80	0.0	1920	-49 42.10	-21 18.08	3389.9	0.2	7	28479
31/1/80	0.0	1930	-49 42.07	-21 18.07	3389.9	0.2	0	28479
31/1/80	0.0	1940	-49 42.04	-21 18.07	3389.9	0.2	7	28478
31/1/80	0.0	1950	-49 42.01	-21 18.07	3390.0	0.2	0	28478
31/1/80	0.0	2000	-49 41.98	-21 18.07	3390.0	0.2	7	28478
31/1/80	0.0	2020	-49 41.92	-21 18.05	3390.0	0.2	0	28478
31/1/80	0.0	2030	-49 41.89	-21 18.05	3390.1	0.2	7	28478
31/1/80	0.0	2040	-49 41.86	-21 18.05	3390.1	0.2	0	28477
31/1/80	0.0	2050	-49 41.83	-21 18.05	3390.1	0.2	7	28477

Table 1. (Continued).

Day/Month Year	Time Zone	Time	Latitude (°) (min.)	Longitude (°) (min.)	Miles	Speed	Heading (°)	Regional Magnetic Field Value (gammas)
8/2/80	0.0	0635	-46 56.41	-25 30.20	3629.8	8.7	316	27463
8/2/80	0.0	0725	-46 51.19	-25 37.57	3637.1	9.5	309	27433
8/2/80	0.0	0745	-46 49.20	-25 41.14	3640.2	8.8	314	27421
8/2/80	0.0	1045	-46 30.76	-26 8.81	3666.7	9.1	314	27315
8/2/80	0.0	1125	-46 26.50	-26 15.02	3672.7	8.9	319	27290
8/2/80	0.0	1425	-46 6.08	-26 40.15	3699.5	9.1	317	27176
8/2/80	0.0	1515	-46 0.46	-26 47.47	3707.1	9.8	315	27145
8/2/80	0.0	1735	-45 44.26	-27 10.43	3729.9	3.9	308	27055
8/2/80	0.0	1745	-45 43.87	-27 11.16	3730.5	10.0	143	27052
8/2/80	0.0	1925	-45 57.26	-26 57.01	3747.1	7.8	144	27124
8/2/80	0.0	1935	-45 58.32	-26 55.93	3748.4	9.7	143	27130
8/2/80	0.0	2005	-46 2.21	-26 51.30	3753.3	3.6	144	27151
8/2/80	0.0	2015	-46 2.70	-26 51.30	3753.9	0.0	320	27154
13/2/80	0.0	0315	-46 1.88	-26 52.28	3754.9	8.0	320	27148
13/2/80	0.0	0615	-45 43.47	-27 14.51	3779.0	8.0	319	27047
13/2/80	0.0	0915	-45 25.06	-27 36.73	3803.1	8.2	320	26948
13/2/80	0.0	1055	-45 14.32	-27 49.24	3816.8	8.7	320	26891
13/2/80	0.0	1355	-44 54.36	-28 12.91	3843.0	8.2	319	26785
13/2/80	0.0	1655	-44 35.72	-28 35.48	3867.6	8.2	319	26687
13/2/80	0.0	1955	-44 17.08	-28 58.05	3892.2	8.2	319	26590
13/2/80	0.0	2255	-43 58.45	-29 20.62	3916.9	7.4	318	26495
13/2/80	0.0	2355	-43 52.87	-29 27.37	3924.3	8.2	327	26466
14/2/80	0.0	0025	-43 49.40	-29 30.44	3928.4	8.8	330	26450
14/2/80	0.0	0325	-43 26.29	-29 48.19	3954.9	9.2	330	26341
14/2/80	0.0	0625	-43 2.31	-30 6.95	3982.5	8.5	327	26231
14/2/80	0.0	0645	-42 59.92	-30 9.07	3983.3	8.5	323	26219
14/2/80	0.0	0745	-42 53.07	-30 15.92	3993.8	8.4	320	26187
14/2/80	0.0	0755	-42 52.00	-30 17.15	3995.2	8.3	315	26182
14/2/80	0.0	1055	-42 34.23	-30 40.63	4020.0	8.3	316	26095
14/2/80	0.0	1155	-42 28.25	-30 48.38	4028.3	8.4	321	26066
14/2/80	0.0	1455	-42 8.45	-31 9.38	4053.4	8.5	323	25974
14/2/80	0.0	1755	-41 47.90	-31 29.52	4078.8	8.5	324	25882
14/2/80	0.0	2055	-41 27.23	-31 49.52	4104.3	8.5	324	25791
14/2/80	0.0	2325	-41 10.01	-32 6.19	4125.6	7.9	319	25717
15/2/80	0.0	0225	-40 52.12	-32 26.62	4149.3	7.5	320	25637
15/2/80	0.0	0515	-40 35.78	-32 44.48	4170.5	7.7	326	25567
15/2/80	0.0	0815	-40 16.61	-33 1.31	4193.5	7.7	326	25489
15/2/80	0.0	1035	-40 1.70	-33 14.41	4211.5	8.9	325	25429
15/2/80	0.0	1255	-39 44.50	-33 29.68	4232.3	9.1	321	25361
15/2/80	0.0	1405	-39 36.19	-33 38.38	4243.0	9.0	317	25328
15/2/80	0.0	1555	-39 24.11	-33 52.85	4259.4	8.6	305	25277
15/2/80	0.0	1615	-39 22.45	-33 55.88	4262.3	8.7	319	25270
15/2/80	0.0	1635	-39 20.23	-33 58.33	4265.2	8.9	316	25261
15/2/80	0.0	1715	-39 15.98	-34 3.64	4271.1	8.0	321	25243
15/2/80	0.0	2015	-38 57.26	-34 22.80	4295.0	7.9	322	25170
15/2/80	0.0	2315	-38 38.44	-34 41.24	4318.7	7.5	322	25098
15/2/80	0.0	2335	-38 36.46	-34 43.18	4321.2	7.6	318	25090
16/2/80	0.0	0235	-38 19.56	-35 2.54	4343.9	8.1	315	25025
16/2/80	0.0	0345	-38 12.89	-35 11.03	4353.3	8.7	312	24998
16/2/80	0.0	0415	-38 9.94	-35 15.09	4357.7	8.7	309	24986
16/2/80	0.0	0715	-37 53.18	-35 40.67	4383.9	8.8	310	24915

Table 1. (Continued).

Day/Month Year	Time Zone	Time	Latitude (°) (min.)	Longitude (°) (min.)	Miles	Speed	Heading (°)	Regional Magnetic Field Value (gammas)
16/2/80	0.0	0755	-37 49.40	-35 46.36	4389.8	9.3	305	24900
16/2/80	0.0	0845	-37 44.86	-35 54.32	4397.5	9.2	316	24880
16/2/80	0.0	0855	-37 43.73	-35 55.65	4399.1	9.3	324	24876
16/2/80	0.0	0925	-37 39.95	-35 59.08	4403.7	7.7	324	24862
16/2/80	0.0	0945	-37 37.87	-36 0.95	4406.3	9.0	323	24855
16/2/80	0.0	1245	-37 16.03	-36 21.22	4433.4	8.6	322	24779
16/2/80	0.0	1305	-37 13.75	-36 23.39	4436.3	8.4	325	24772
16/2/80	0.0	1315	-37 12.60	-36 24.38	4437.6	8.3	330	24768
16/2/80	0.0	1325	-37 11.39	-36 25.24	4439.0	8.1	336	24764
16/2/80	0.0	1625	-36 49.17	-36 37.60	4463.4	7.9	337	24698
16/2/80	0.0	1635	-36 47.96	-36 38.24	4464.7	7.8	333	24694
16/2/80	0.0	1645	-36 46.80	-36 38.97	4466.0	8.1	328	24691
16/2/80	0.0	1945	-36 26.19	-36 54.95	4490.2	9.3	325	24626
16/2/80	0.0	2245	-36 3.13	-37 14.57	4518.2	9.4	325	24554
17/2/80	0.0	0145	-35 40.03	-37 34.28	4546.3	9.1	324	24484
17/2/80	0.0	0445	-35 17.76	-37 53.50	4573.5	8.6	330	24418
17/2/80	0.0	0745	-34 55.34	-38 9.18	4599.3	8.6	330	24358
17/2/80	0.0	0945	-34 40.27	-38 19.46	4616.6	8.5	327	24319
17/2/80	0.0	1245	-34 18.82	-38 35.89	4642.0	8.2	326	24263
17/2/80	0.0	1455	-34 3.94	-38 47.83	4659.8	8.0	327	24225
17/2/80	0.0	1645	-33 51.46	-38 57.29	4674.6	9.2	329	24194
17/2/80	0.0	1945	-33 27.72	-39 13.90	4702.1	9.2	329	24138
17/2/80	0.0	2105	-33 17.16	-39 21.31	4714.3	9.8	324	24114
18/2/80	0.0	0005	-32 53.06	-39 41.68	4743.8	9.7	323	24057
18/2/80	0.0	0215	-32 36.32	-39 56.58	4764.7	9.1	318	24017
18/2/80	0.0	0405	-32 23.74	-40 9.71	4781.5	9.0	323	23987
18/2/80	0.0	0425	-32 21.32	-40 11.81	4784.5	8.9	329	23981
18/2/80	0.0	0435	-32 20.04	-40 12.72	4786.0	9.0	334	23979
18/2/80	0.0	0615	-32 6.47	-40 20.33	4801.0	9.4	338	23953
18/2/80	0.0	0805	-31 50.48	-40 27.89	4818.2	9.7	333	23926
18/2/80	0.0	1055	-31 25.81	-40 42.16	4845.7	9.5	329	23883
18/2/80	0.0	1355	-31 1.15	-40 59.18	4874.4	9.2	331	23840
18/2/80	0.0	1455	-30 53.07	-41 4.25	4883.5	6.3	331	23827
18/2/80	0.0	1505	-30 52.15	-41 4.84	4884.6	8.4	330	23825
18/2/80	0.0	1805	-30 30.37	-41 19.39	4909.7	8.8	326	23790
18/2/80	0.0	2035	-30 12.01	-41 33.56	4931.8	8.5	321	23726
18/2/80	0.0	2335	-29 52.06	-41 51.76	4957.2	8.4	321	23698
19/2/80	0.0	0215	-29 34.42	-42 7.78	4979.7	6.8	319	23698
19/2/80	0.0	0515	-29 18.73	-42 23.02	5000.2	6.4	325	23672
19/2/80	0.0	0645	-29 10.88	-42 29.29	5009.8	8.4	323	23662
19/2/80	0.0	0945	-28 50.73	-42 46.34	5034.9	8.5	322	23634
19/2/80	0.0	1125	-28 39.50	-42 56.19	5049.0	8.5	332	23619
19/2/80	0.0	1145	-28 36.97	-42 57.68	5051.9	7.2	332	23617
19/2/80	0.0	1445	-28 17.87	-43 8.84	5073.3	7.0	332	23598
19/2/80	0.0	1655	-28 4.49	-43 16.75	5088.4	6.8	336	23586
19/2/80	0.0	1955	-27 45.77	-43 25.89	5108.8	6.8	336	23572
19/2/80	0.0	2105	-27 38.50	-43 29.45	5116.7	6.8	341	23568
19/2/80	0.0	2205	-27 32.08	-43 31.87	5123.5	6.7	335	23564
20/2/80	0.0	0105	-27 14.00	-43 41.37	5143.5	6.6	334	23553
20/2/80	0.0	0155	-27 9.00	-43 44.03	5149.0			23550

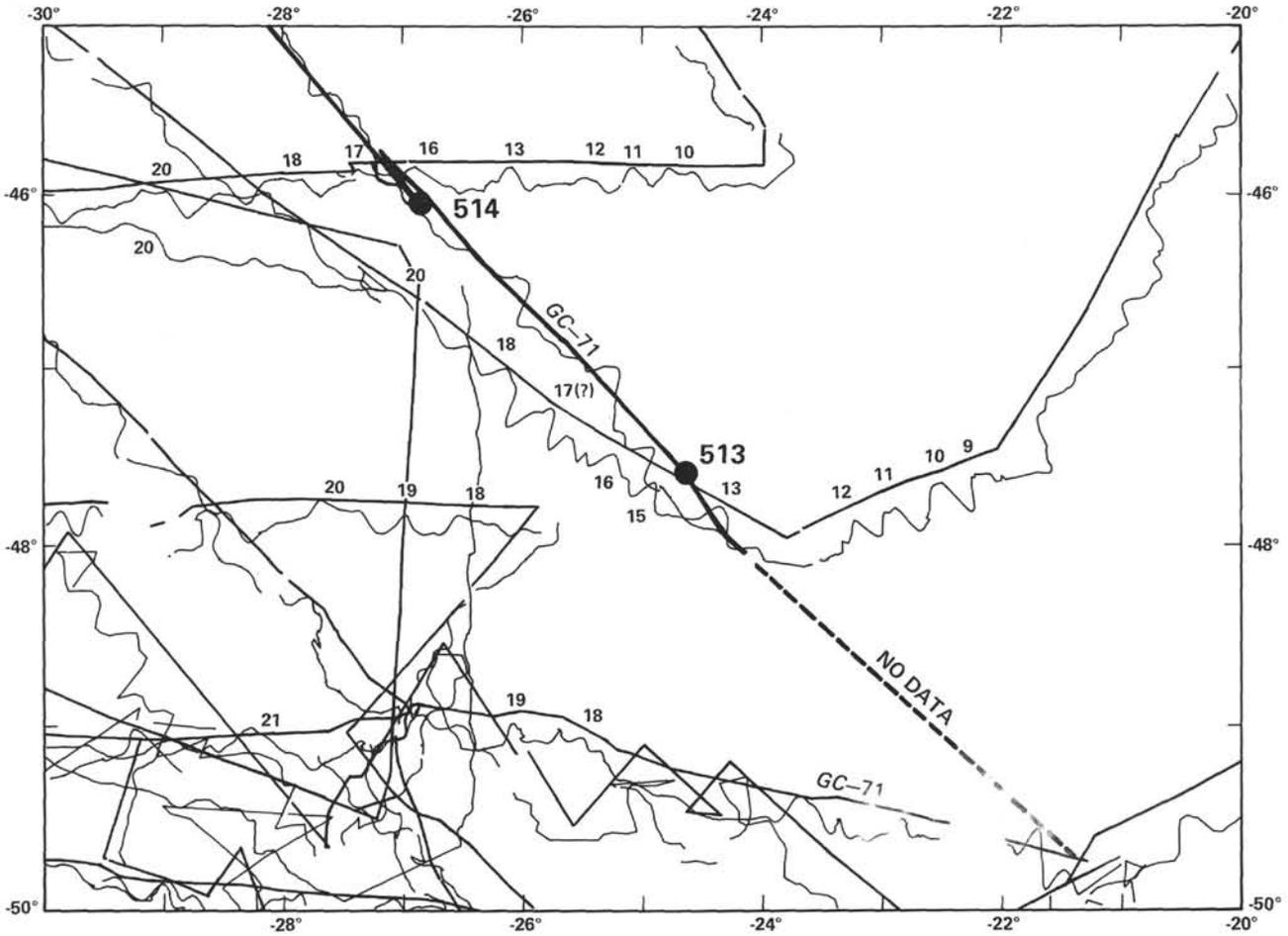
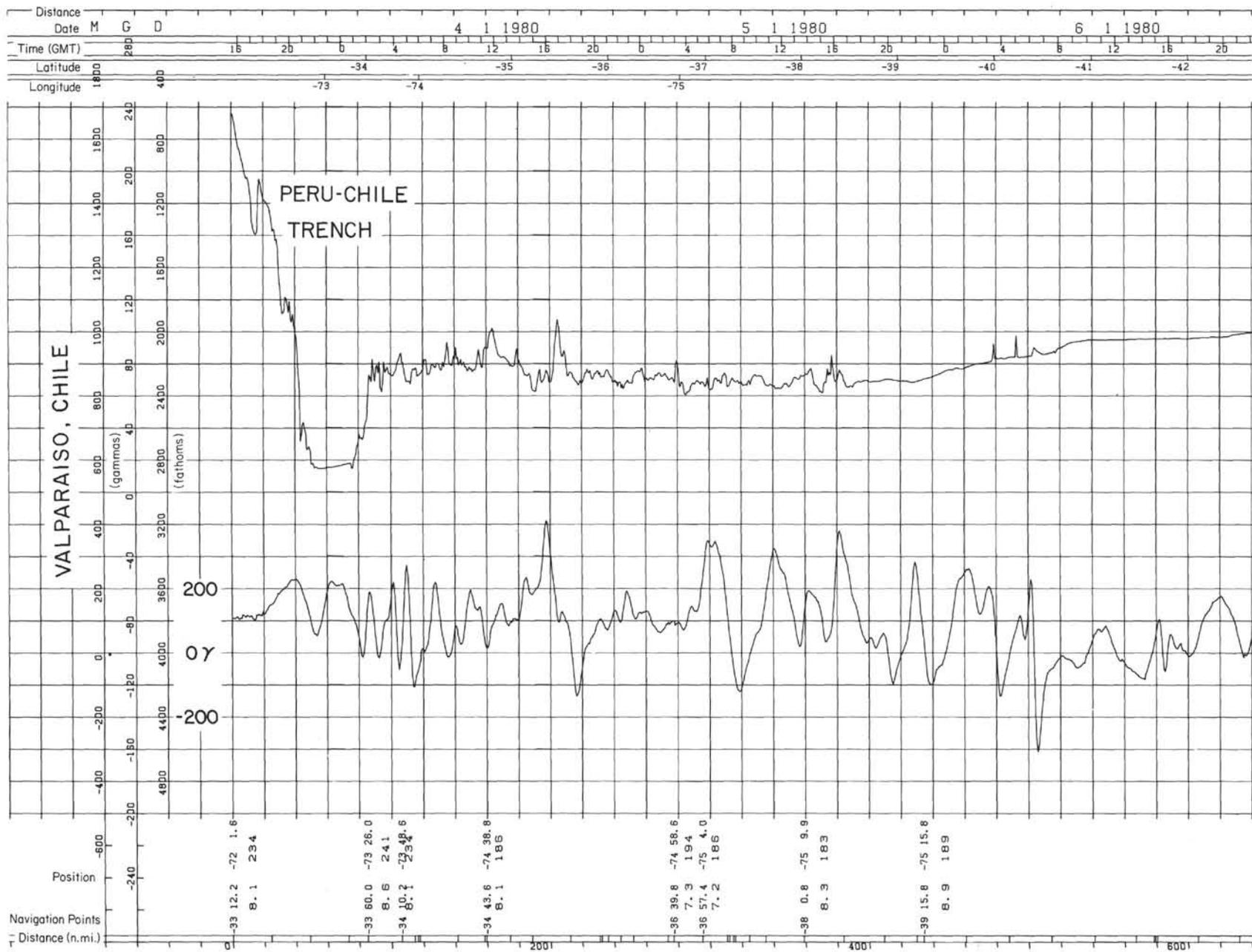


Figure 3. Magnetic anomalies plotted normal to ship's track in the vicinity of Sites 513 and 514. Magnetic anomaly identification after Heirtzler et al. (1968) and LaBrecque et al. (1977).



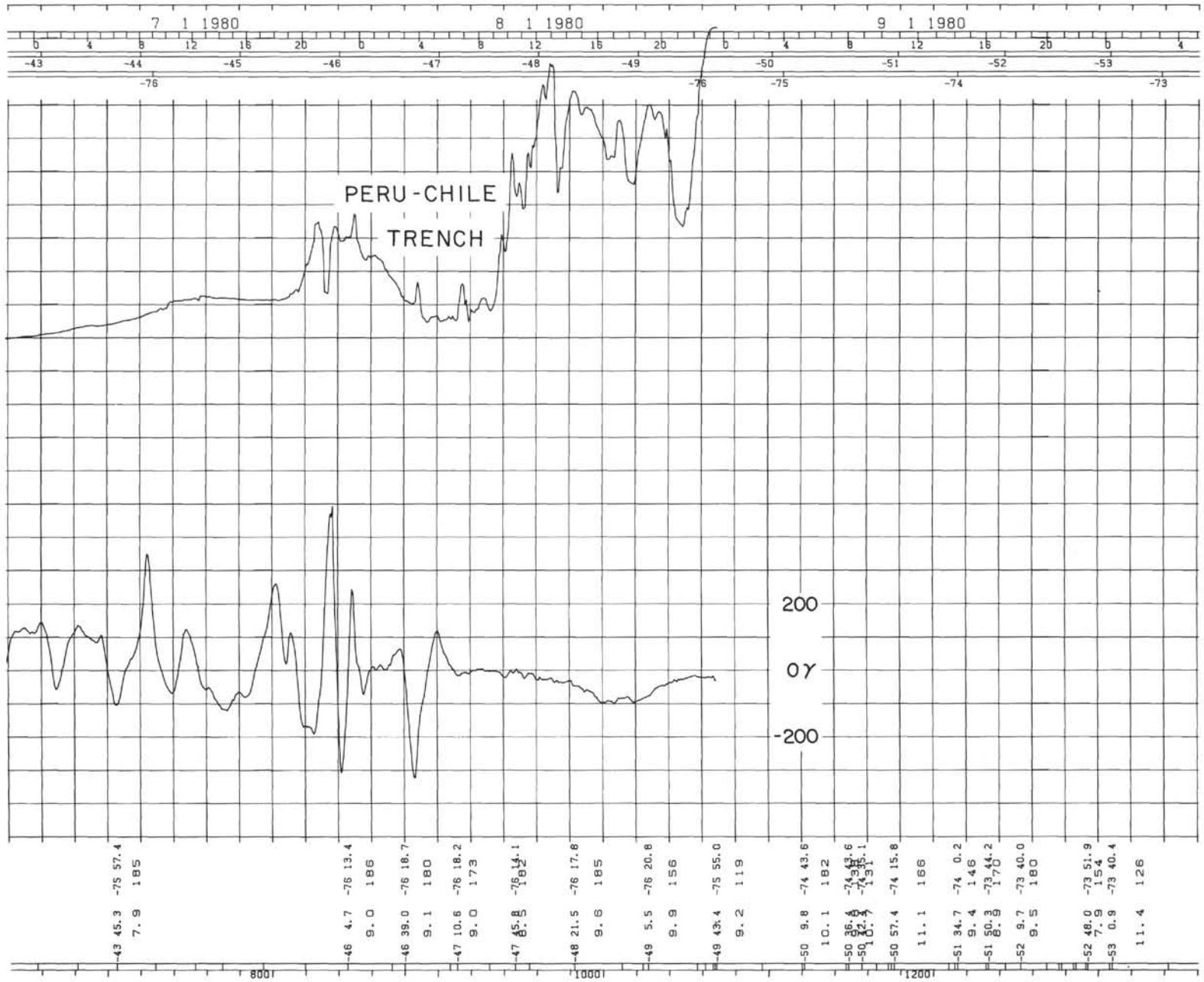
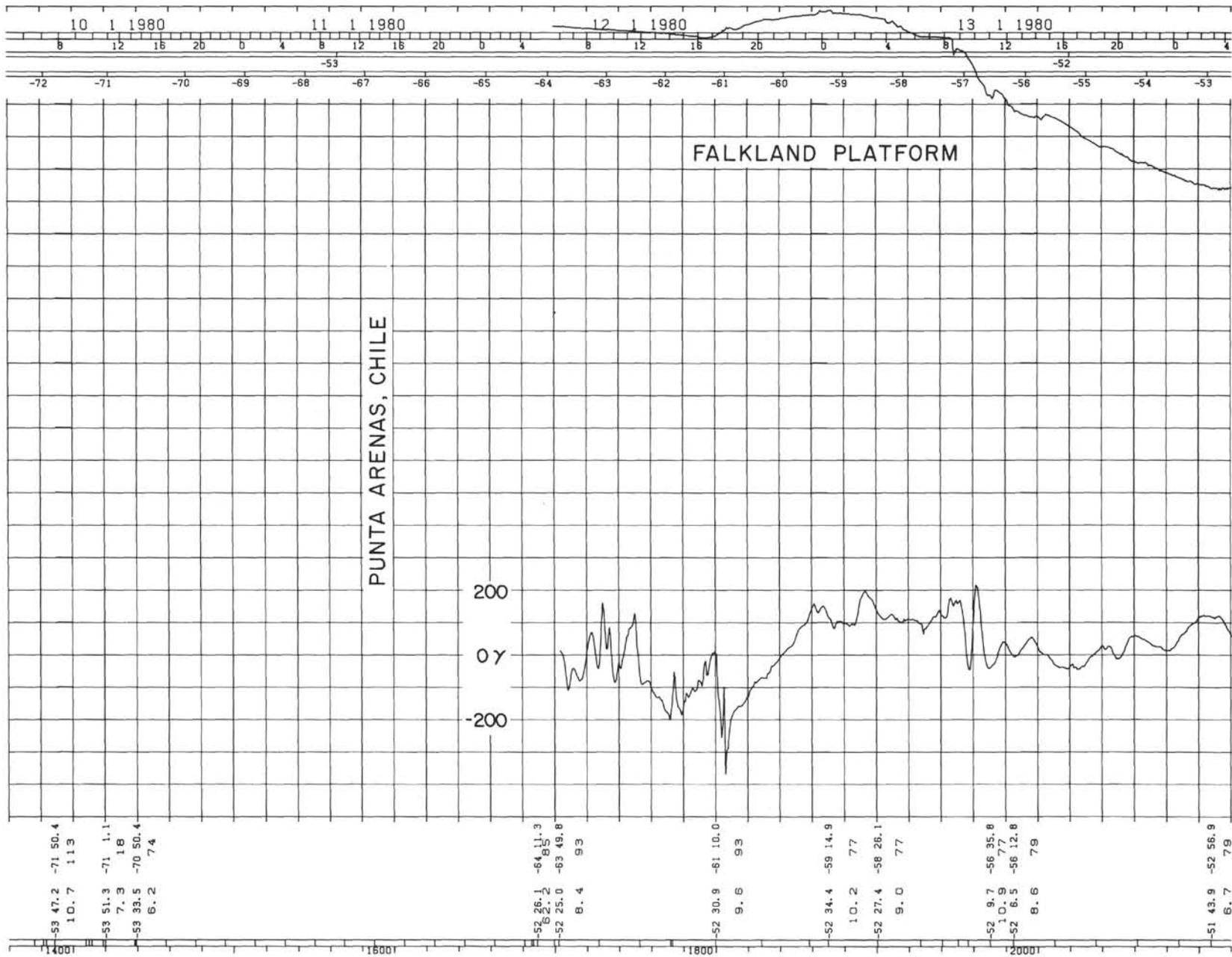


Figure 4. Bathymetric (top) and magnetic (bottom) profiles along track of Leg 71 of *Glomar Challenger*. Plots and scales explained in text.



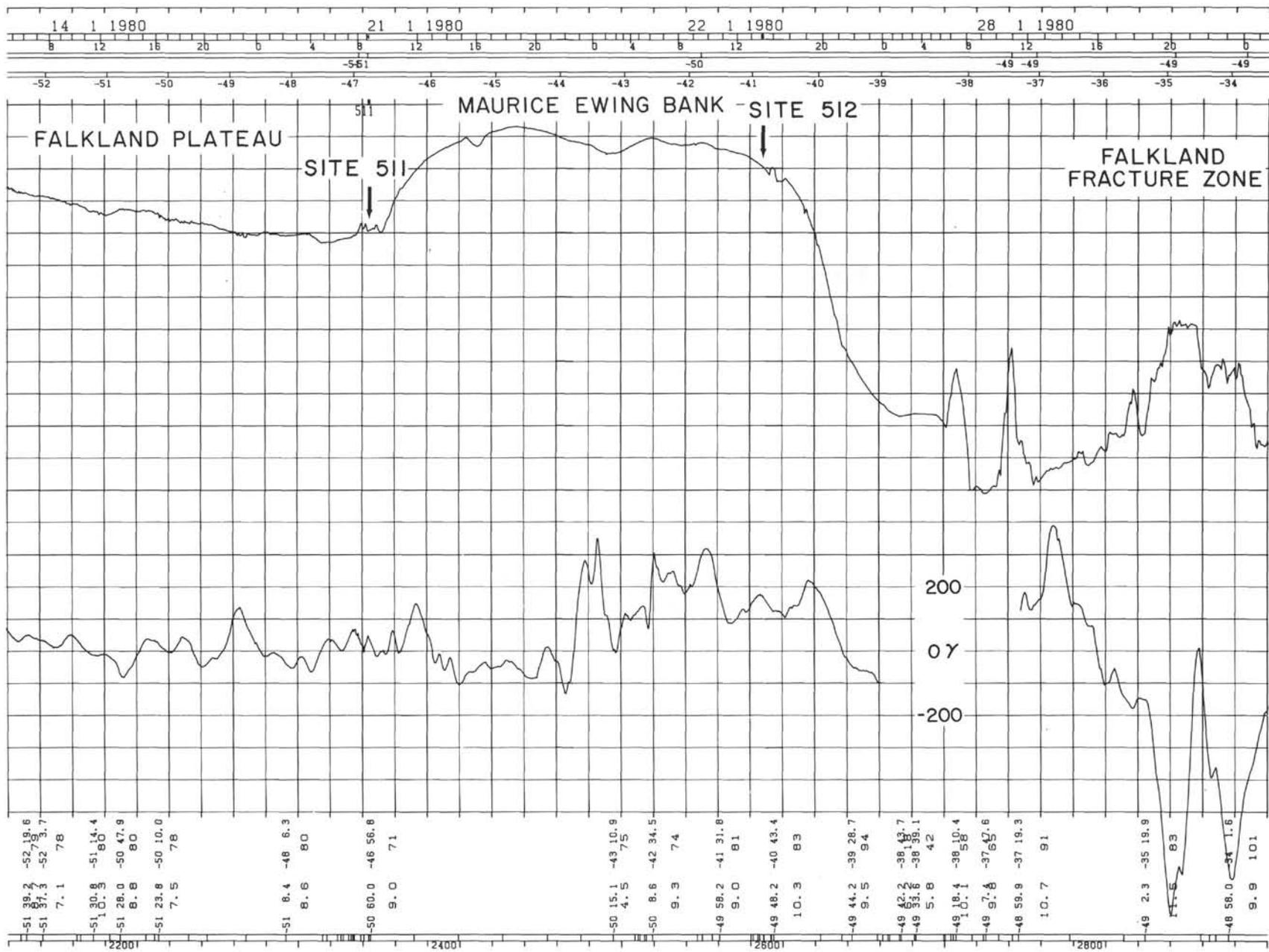
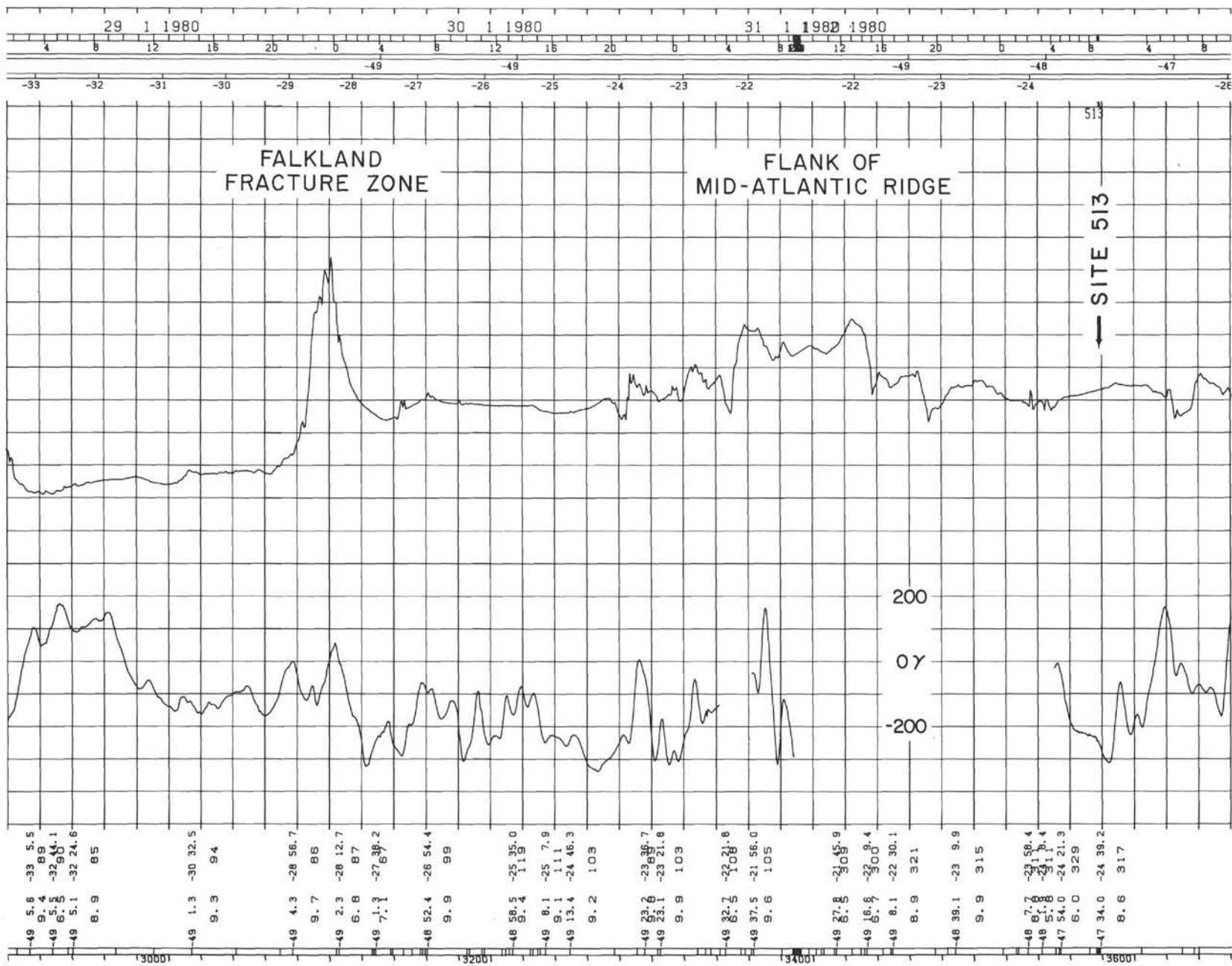


Figure 4. (Continued).



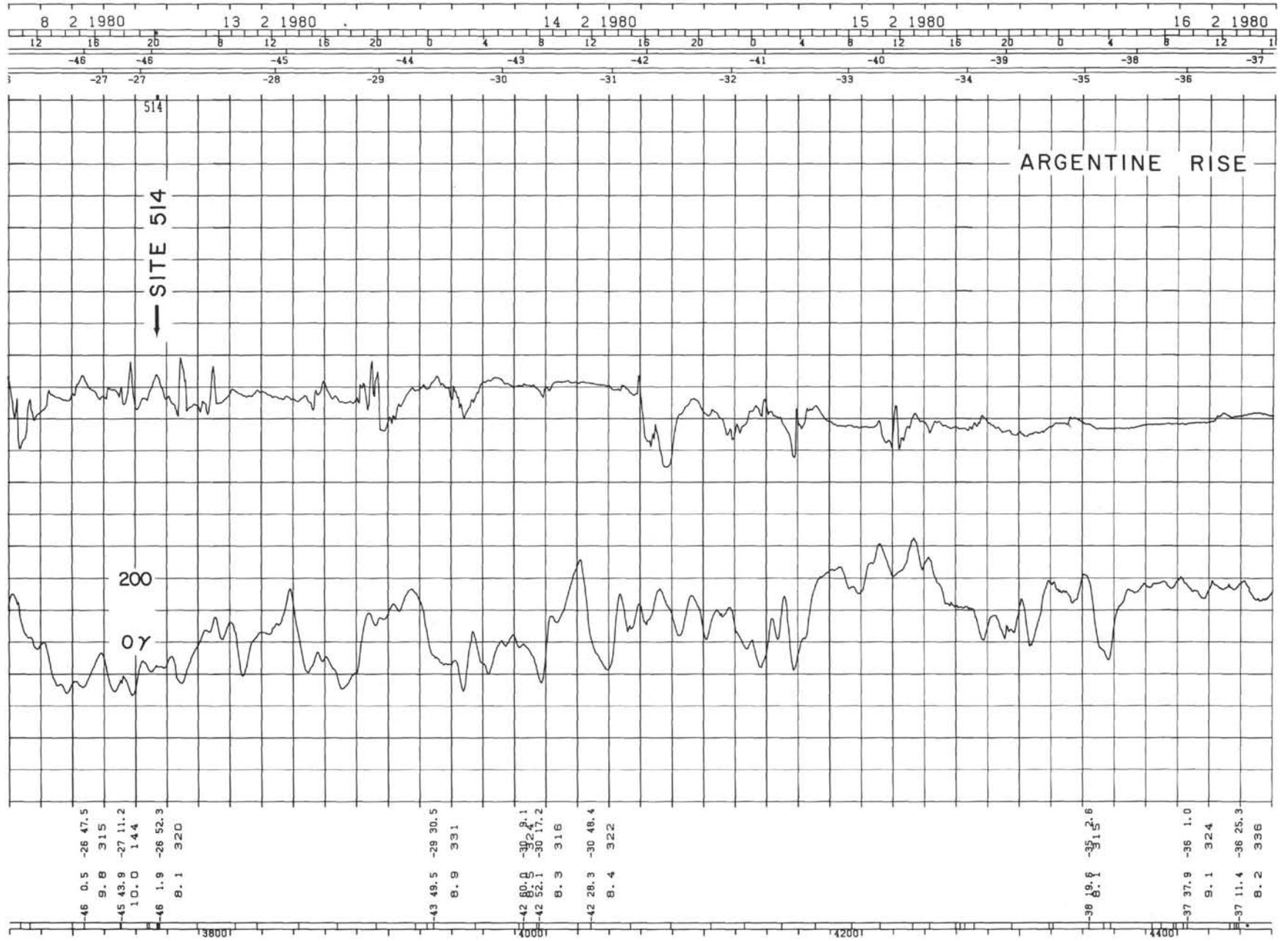


Figure 4. (Continued).

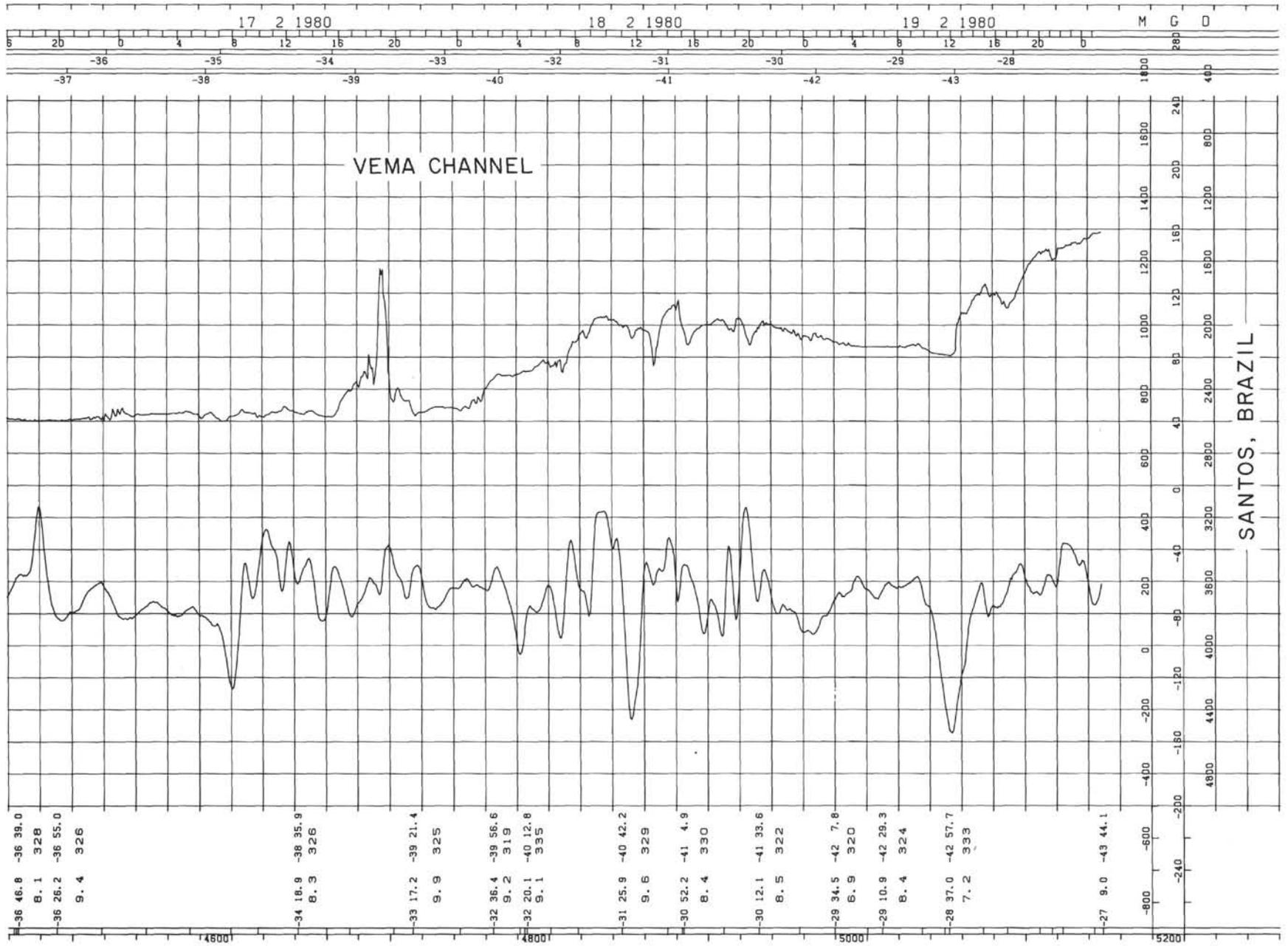


Figure 4. (Continued).

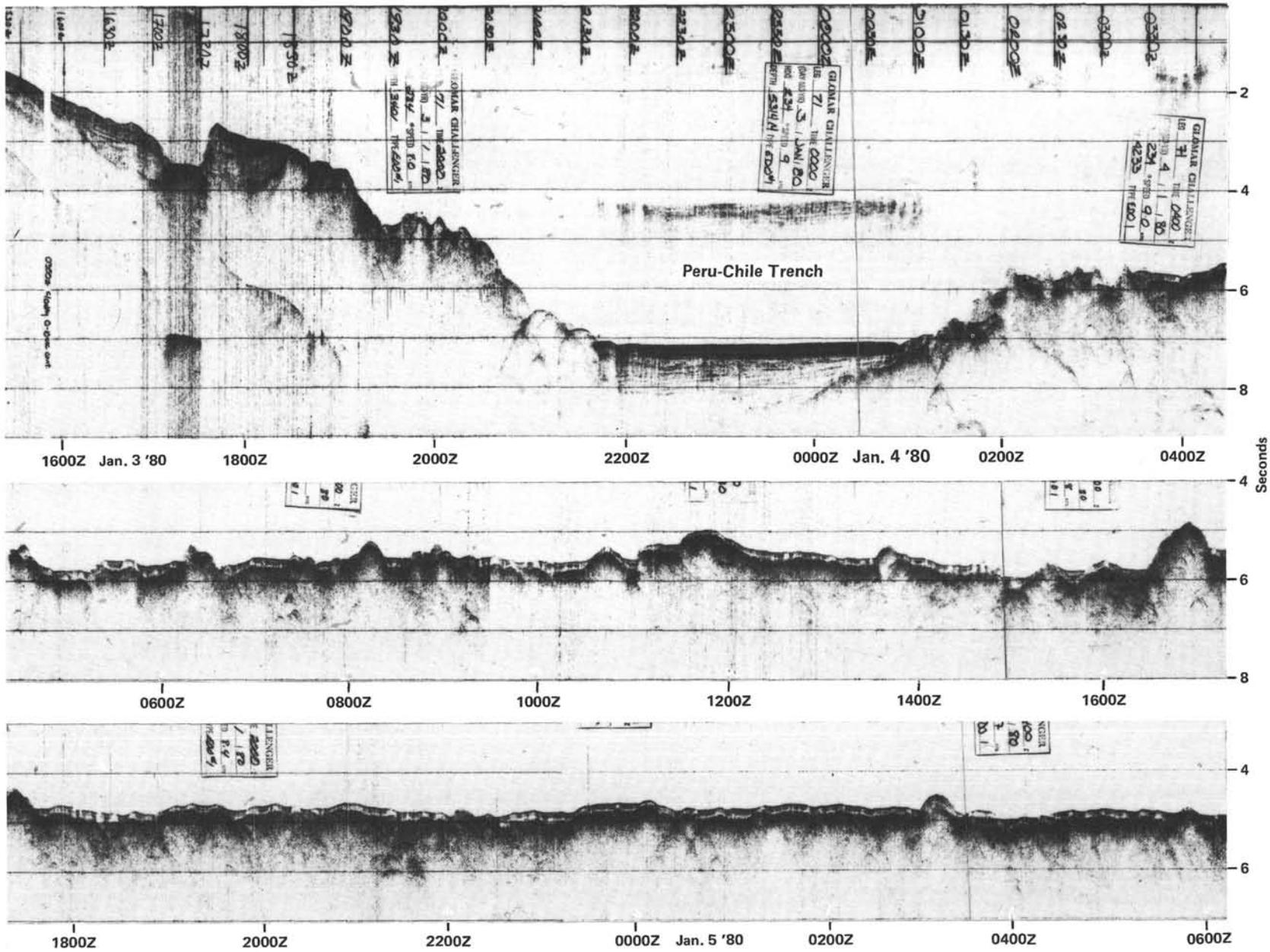
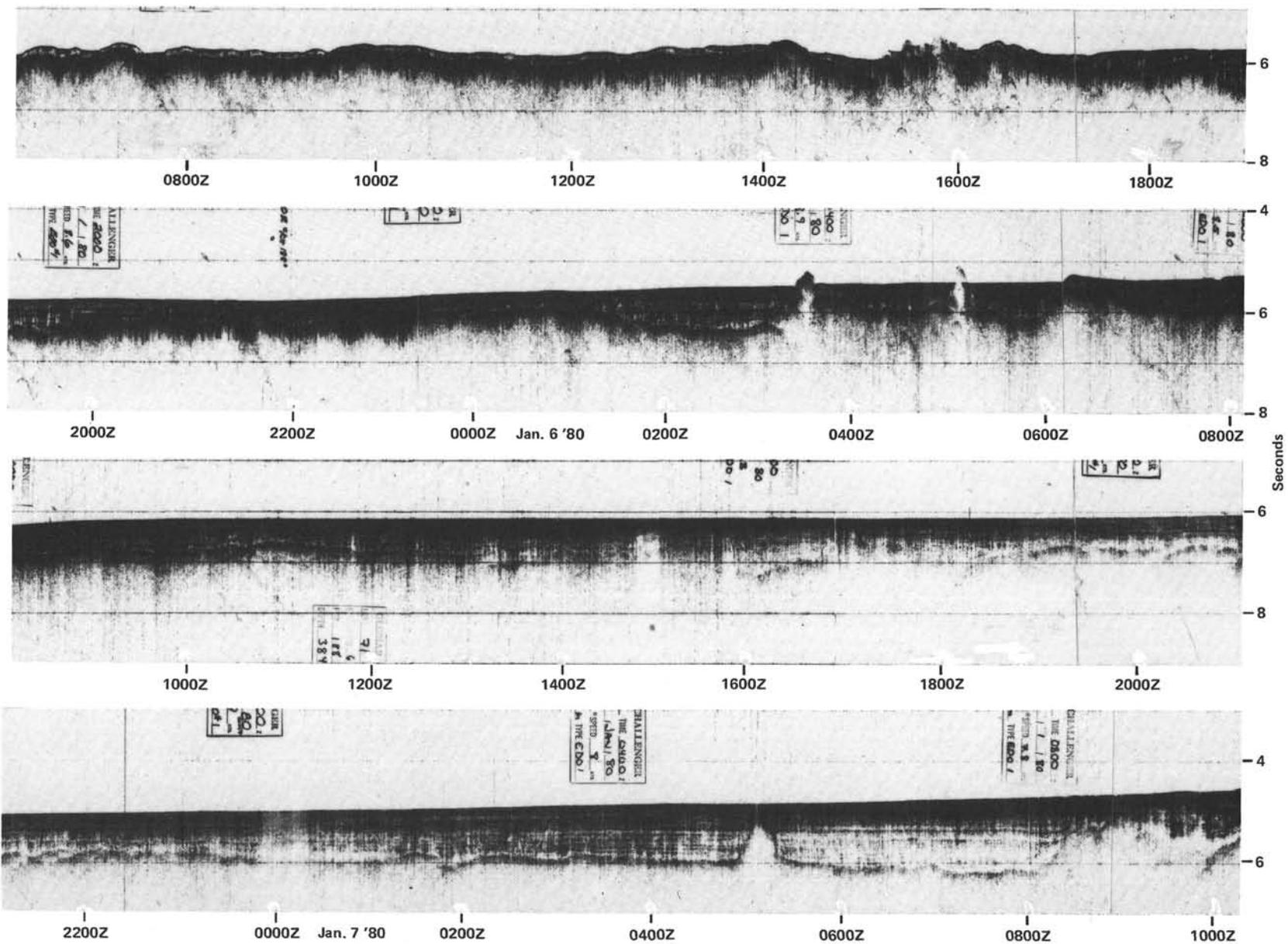


Figure 5. Seismic reflection profiles along track of Leg 71 of *Glomar Challenger*.



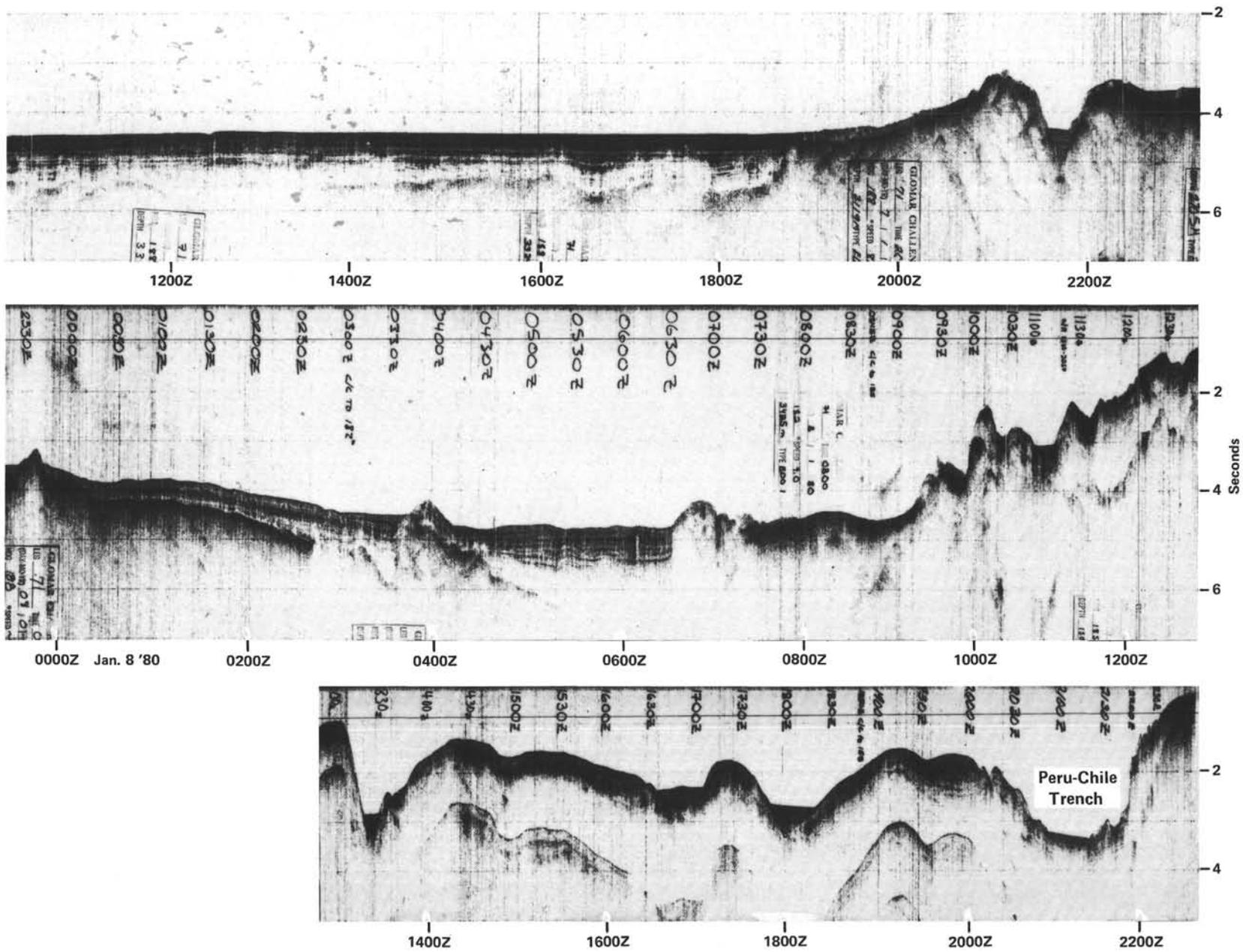
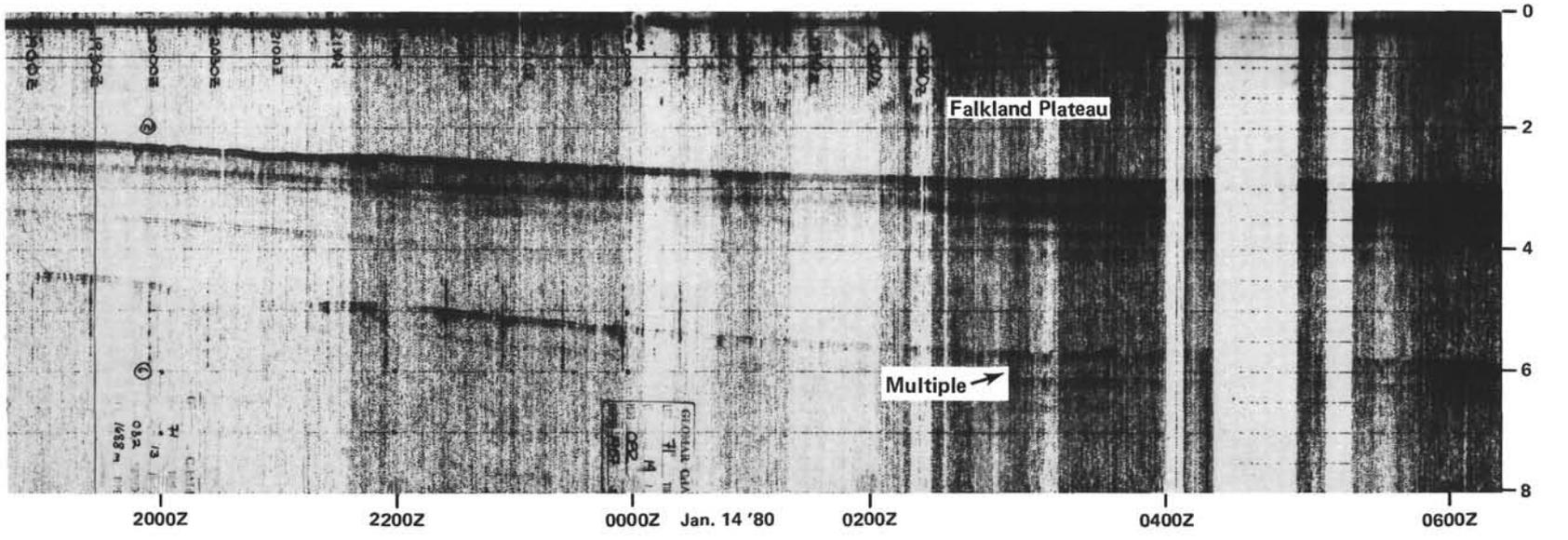
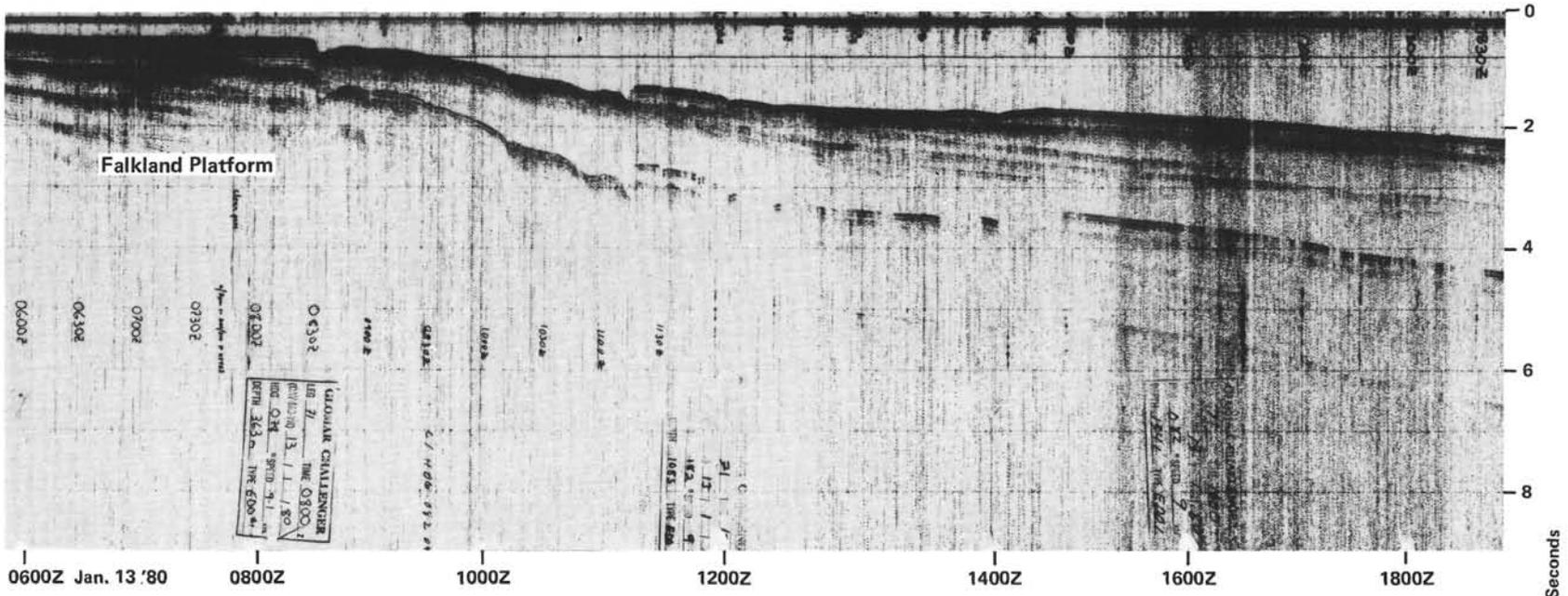


Figure 5. (Continued).



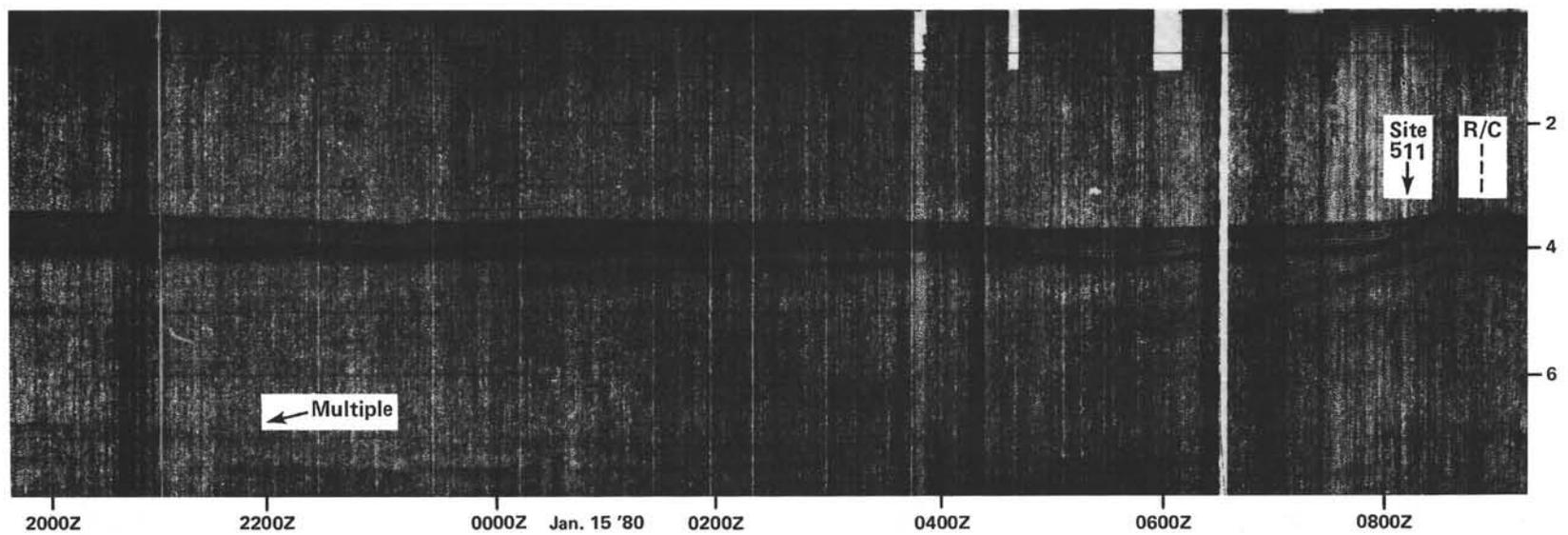
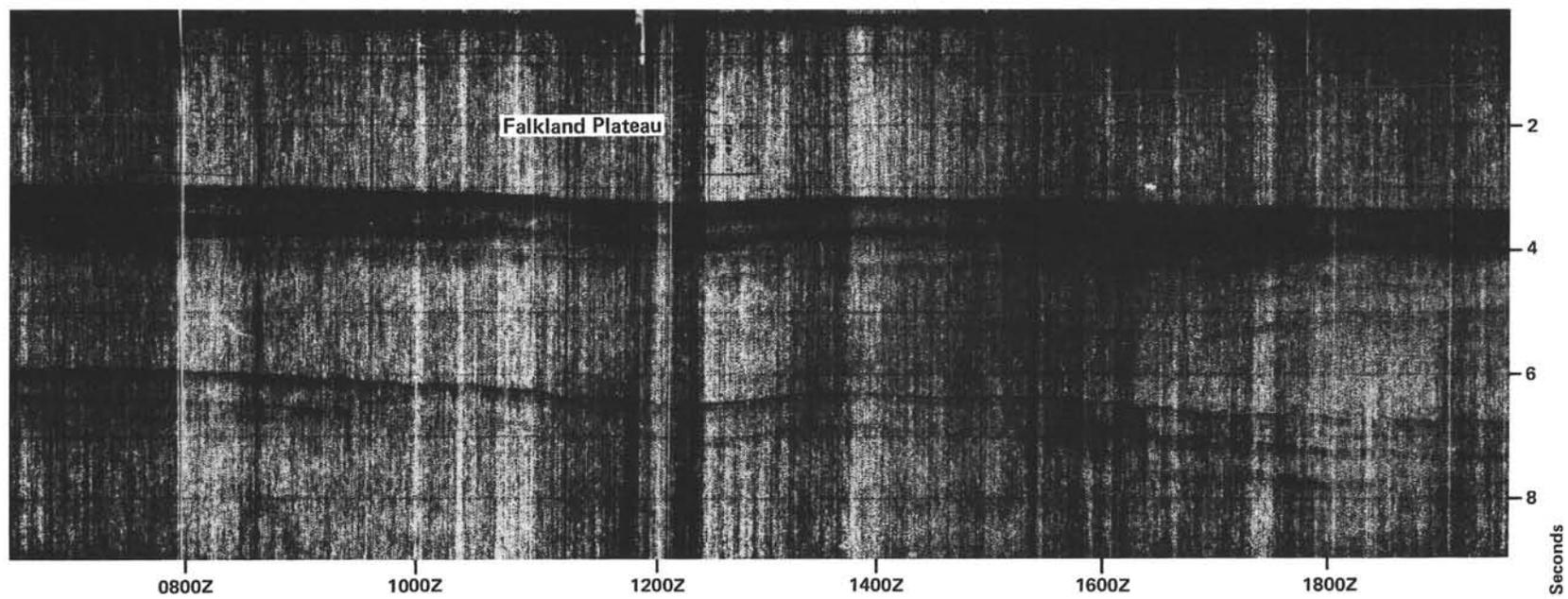
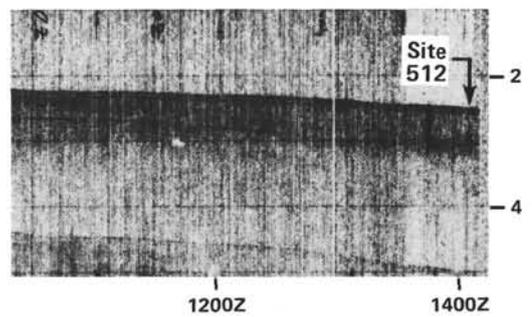
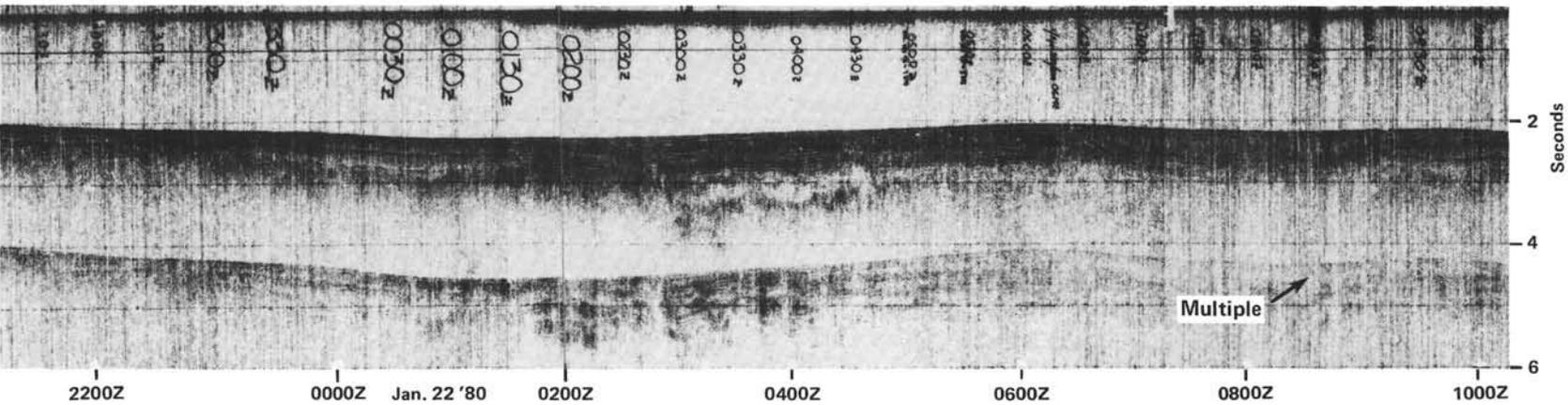
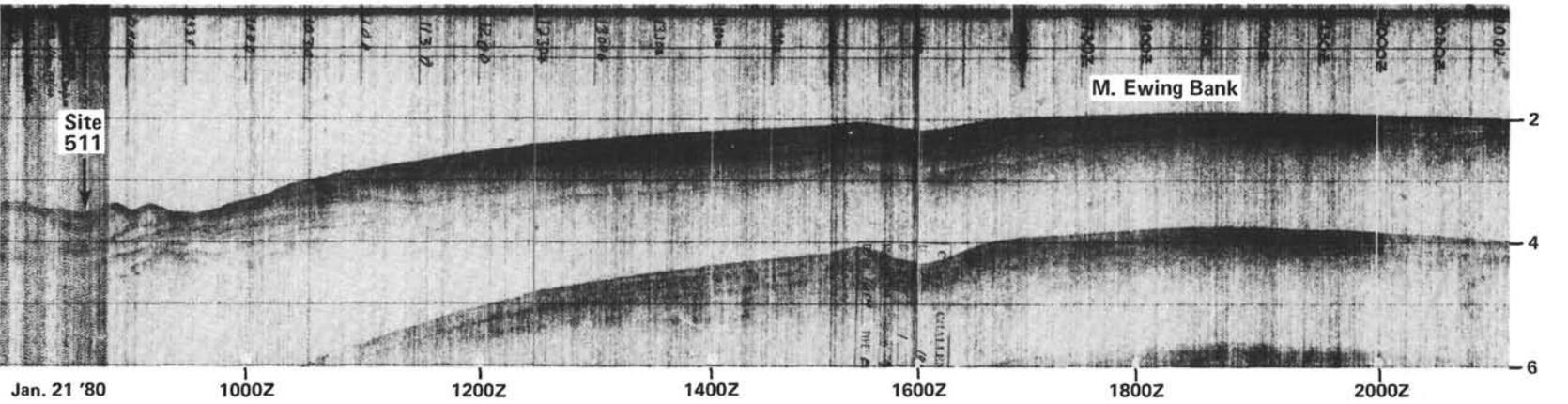
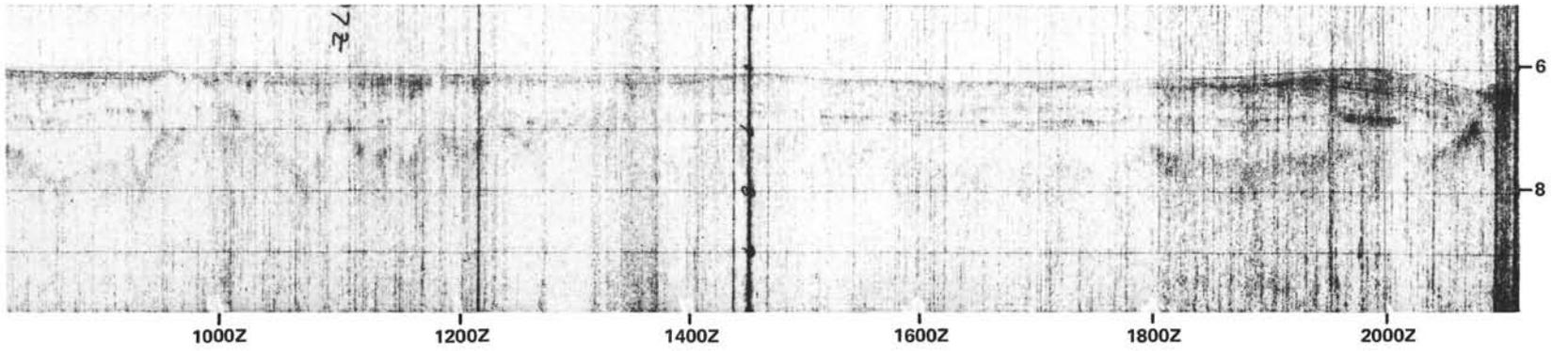
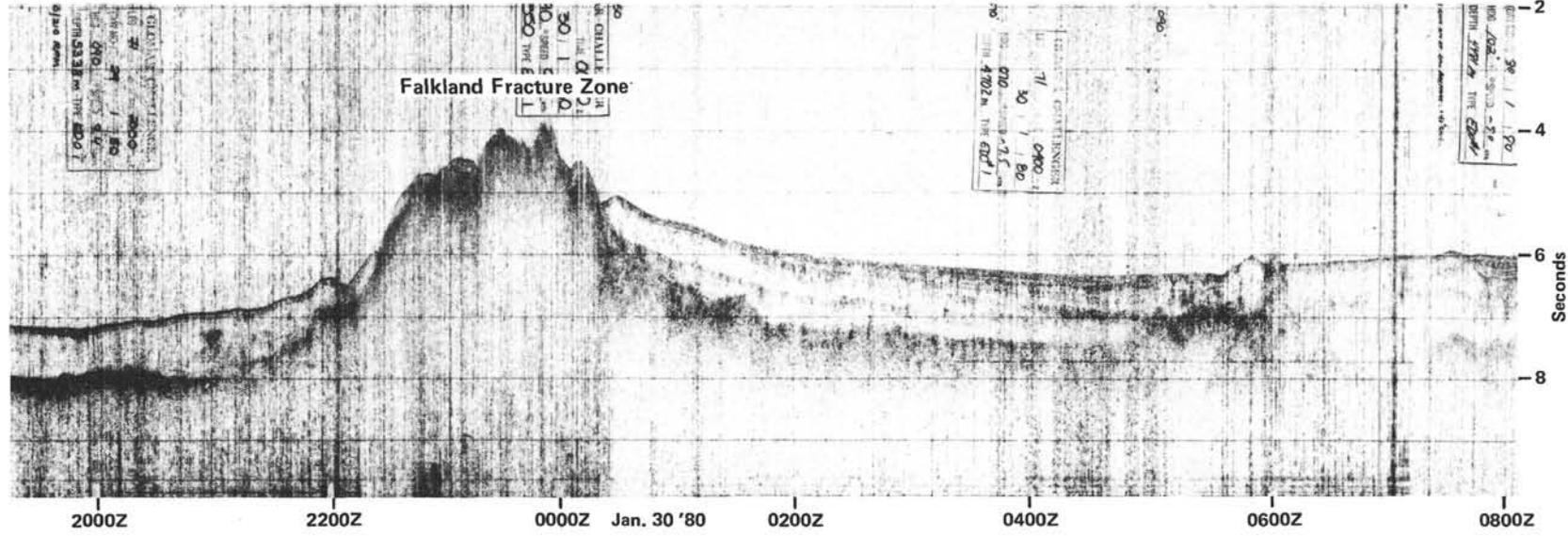
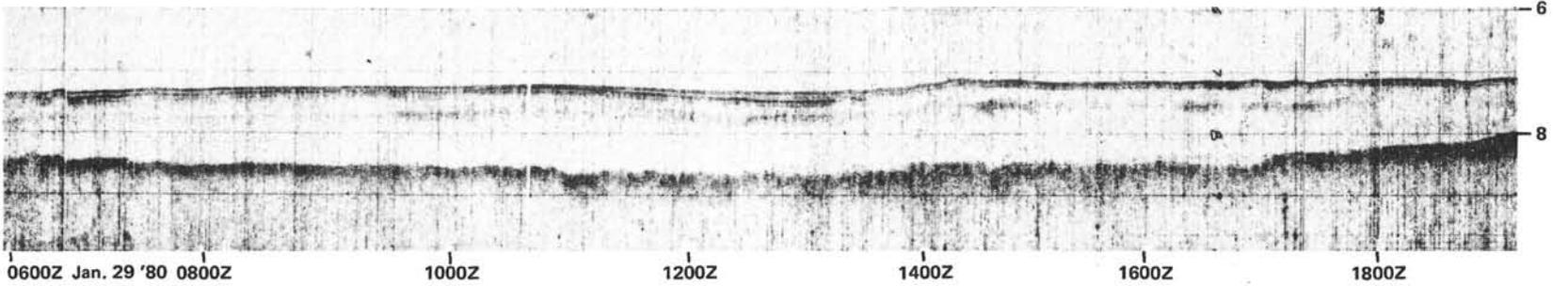
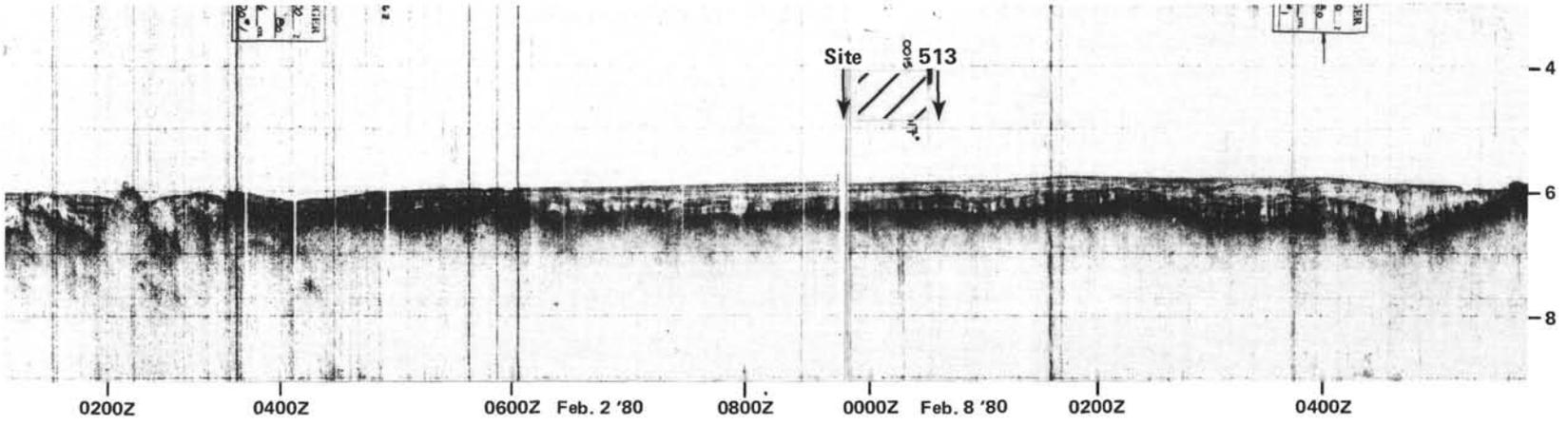
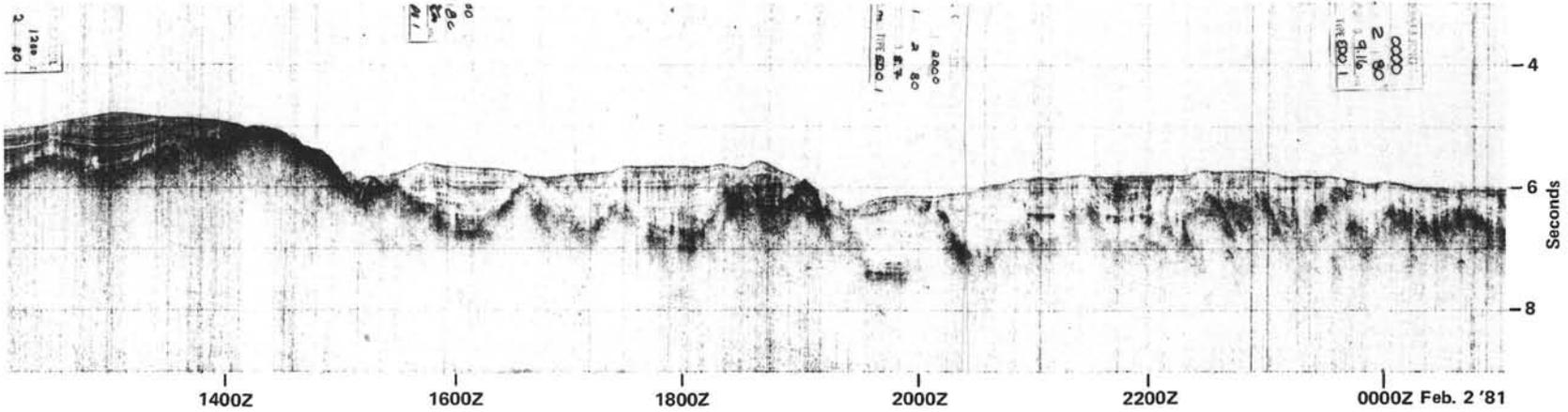
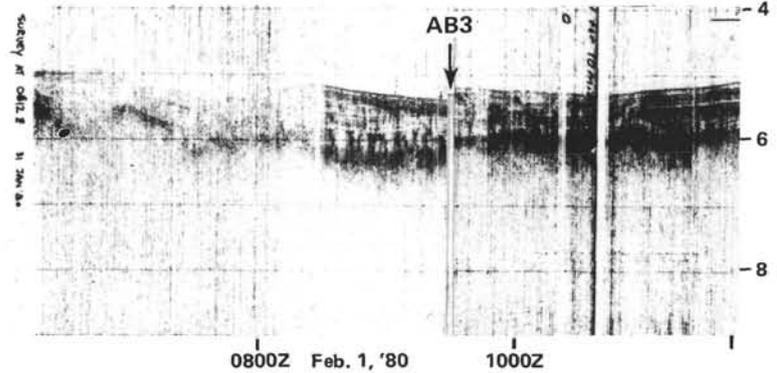
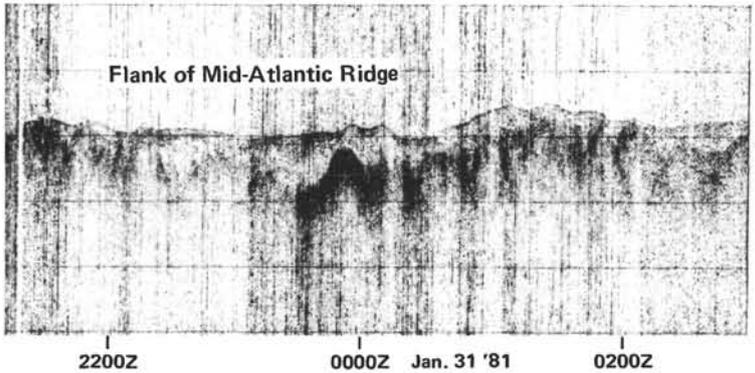
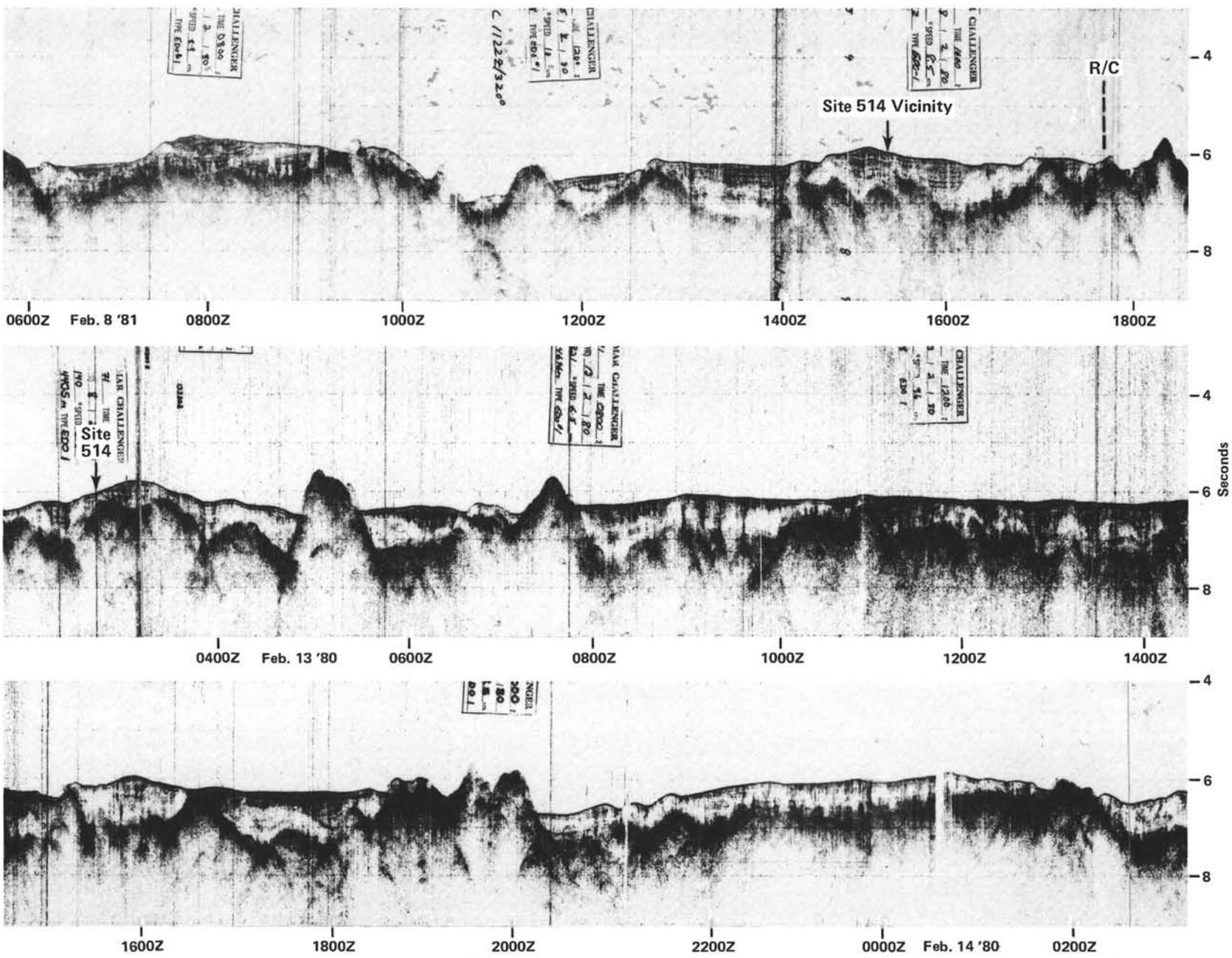


Figure 5. (Continued).









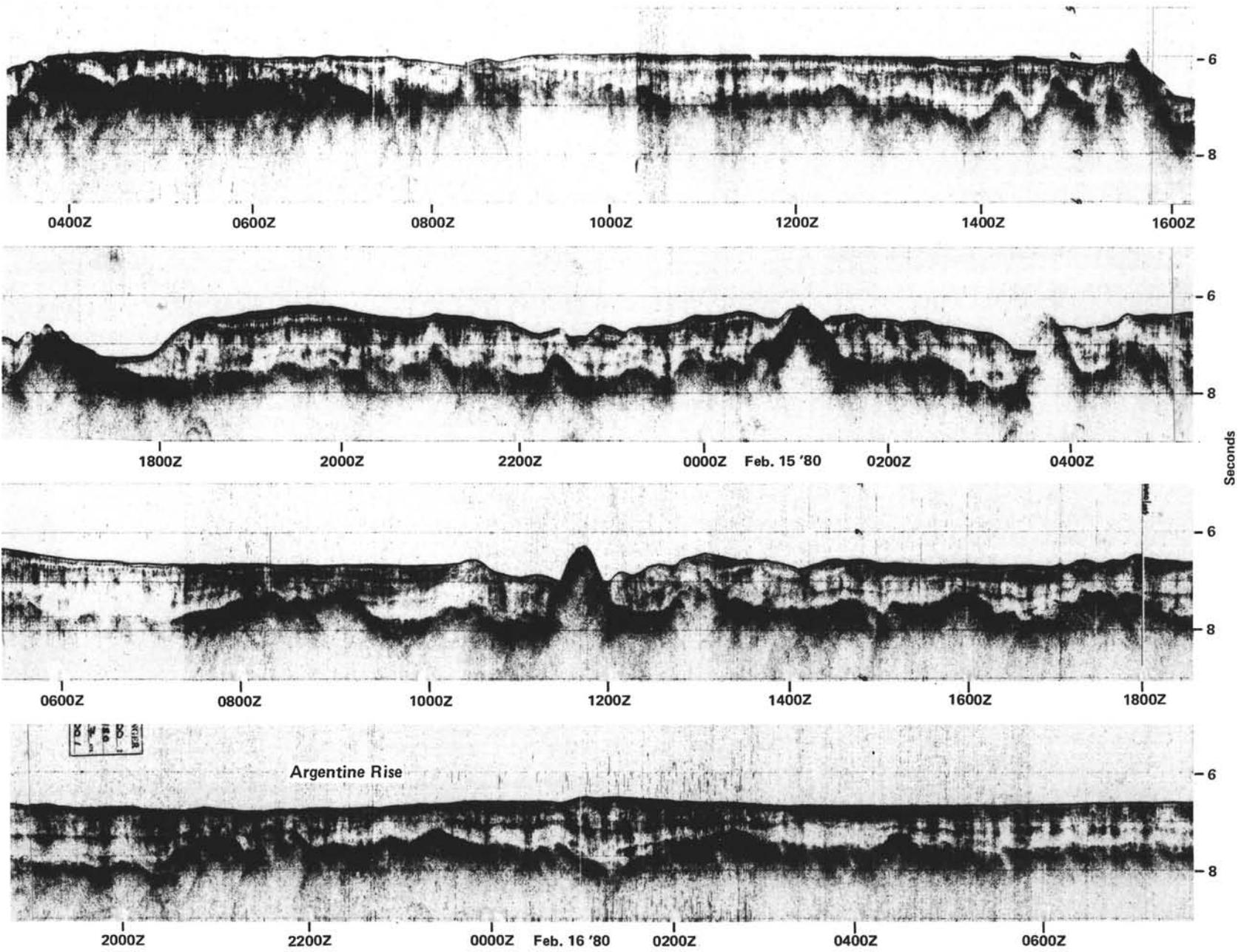
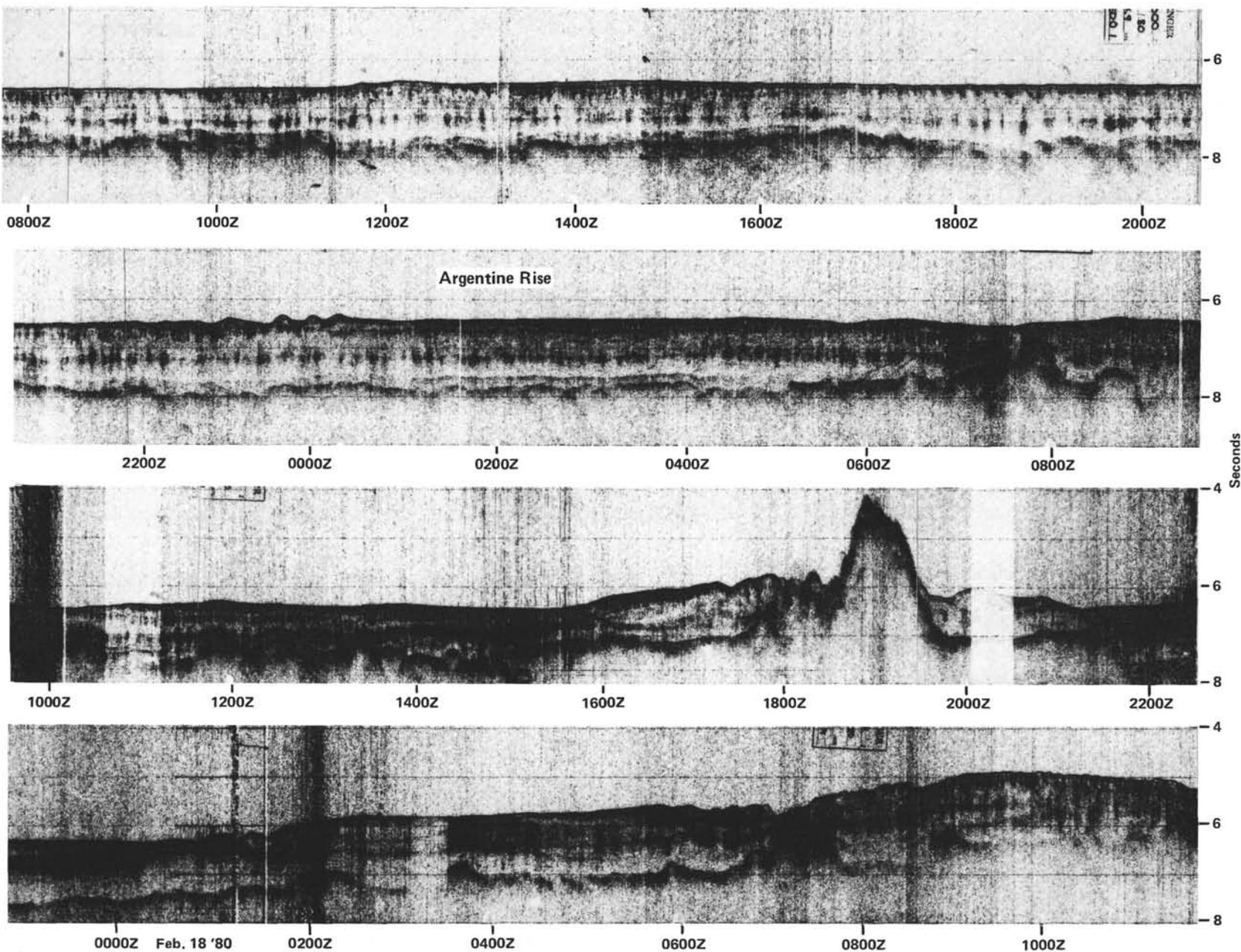


Figure 5. (Continued).



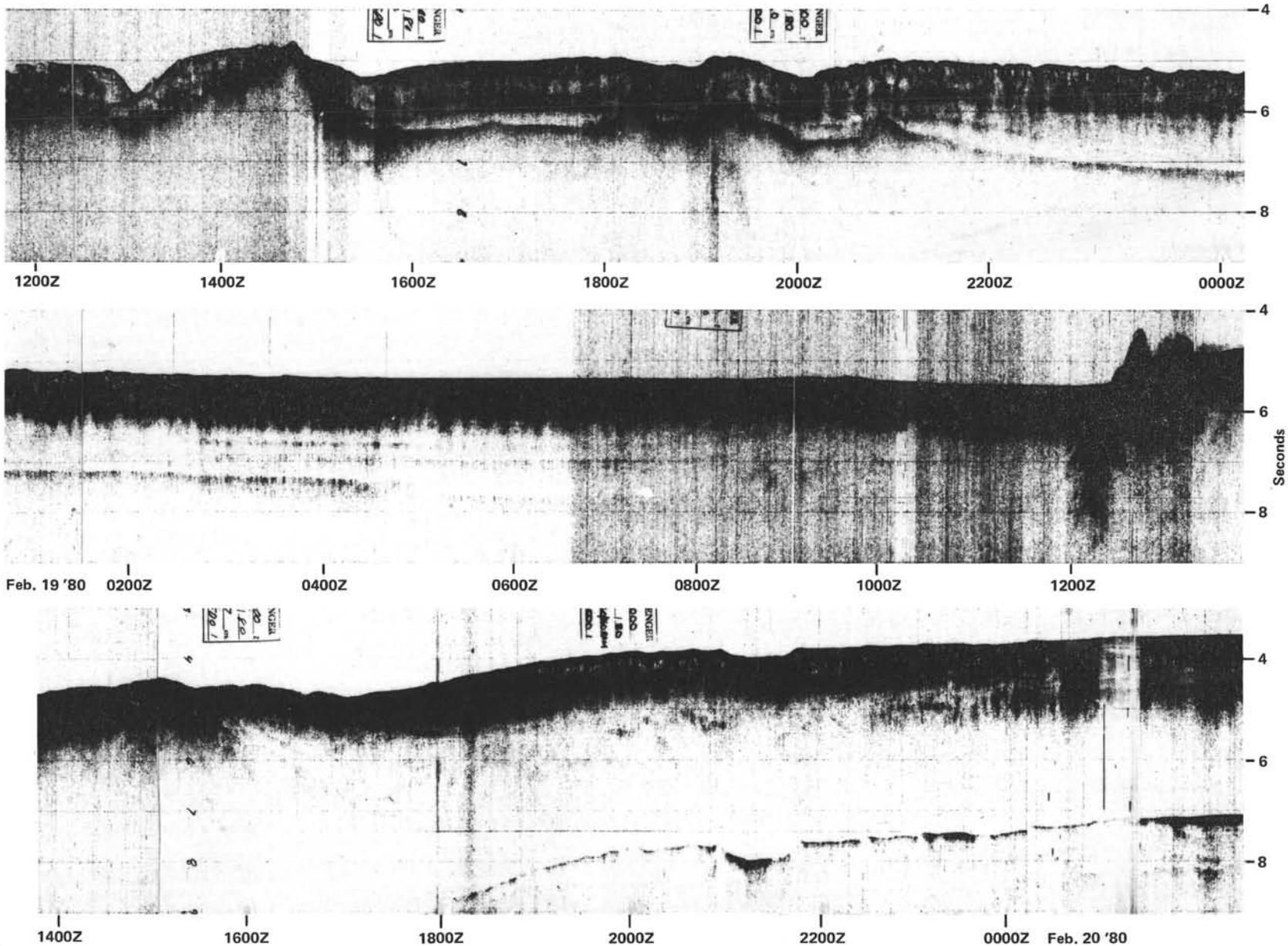


Figure 5. (Continued).