5. MAGNETIC, BATHYMETRIC, SEISMIC REFLECTION, AND POSITIONING DATA COLLECTED UNDERWAY ON *GLOMAR CHALLENGER*, LEG 76[1]

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DATA COLLECTION AND PRESENTATION

Leg 76 began in Norfolk, Virginia, on 11 October and returned to port in Fort Lauderdale, Florida for engine repairs on 23 October, for a crew change on 1 December, and finally for the termination of the leg on 21 December 1980. The track made by *Glomar Challenger* during this cruise is shown in Figure 1. Position along the track in Greenwich Mean Time (GMT) is shown progressively by the small numbers, and the completed drill sites are indicated. Positioning information is listed in Table 1 along with calculated course and speed maintained between fixes. Navigation was achieved with satellite fixes supplemented with Loran A and C when available. Accuracy of these underway positions is usually within one nautical mile, and the final refined position on station is accurate to within a few tenths of a nautical mile (Talwani et al., 1966). The regional magnetic anomaly for each navigation point was calculated from the coefficients of Cain et al. (1968), and these values were used to compute the magnetic anomaly profiles shown in Figures 2 and 3.

The magnetic anomaly and bathymetric data are presented as profiles (Fig. 3) plotted against linear distance along the track, as indicated on the horizontal scale given in hundreds of nautical miles. Also plotted in digital form are the latitude and longitude at navigation points, date, and time. The vertical scales in Figure 3 are given in gammas for the magnetic anomaly profile and in uncorrected meters for water depth. The magnetic data are the upper of the two profiles and have less variation. A nominal speed of sound of 1500 m/s is assumed to calculate the bathymetric data, and the presentation of the profiles follow the format of the Deep Sea Drilling Project, which kindly provided these illustrations. The locations of the drill sites completed are also indicated on the plots.

The continuous seismic reflection profile is shown in Figure 4 (back pocket of this volume). Reflection times in seconds of two-way traveltime are plotted along the sides of the profile, and they can be used to determine depth at a conversion rate of 750 m/s. The tick marks along the bottom of the profile mark half-hour intervals; course and speed changes are also marked. The time (given in Greenwich Mean Time), date, speed, and heading maintained between course and speed changes are also indicated. Portions of the profiler record discussed in the text are cited by time and date. The sites are noted along the upper edge of the profiles. Individual profiles can be located along the track (Fig. 1) by converting GMT (ship's time) to location and distance along the track using Table 1.

Two Bolt air guns fired every 20 s at 2000 psi provided the sound source for these profiles. Chamber sizes were 150 in.^{3} for one gun and 40 in.^{3} for the second gun. Filter settings were generally 20 to 160 Hz. The data presented here were recorded on two recorders, one at a 10-s (EDO #1) and one at a 2.5-s (EDO #2) sweep.

DISCUSSION

The underway geophysical gear was streamed shortly after *Glomar Challenger* left Norfolk, Virginia, and had reached water sufficiently deep to tow the array. We obtained a good profile transverse to the continental margin. Rough steep topography of the canyon-dissected continental slope gives way southeastward to the smooth apron of the continental rise sedimentary prism (Figs. 3 and 4, 12 October). The continental rise levels off markedly at 0900Z, 12 October 1980, where 0.5 s of well-stratified turbitites overlie what might be a gas hydrate bottom-simulating reflector (BSR) at 1.0 s sub-bottom depth. None of the deeper reflectors of A^u, A^*, β, or oceanic basement appear, because the relatively low energy of *Glomar Challenger*'s air guns failed to penetrate the 1.0 s of sedimentary section. First appearance of the flank and bedding structure of the Blake Outer Ridge occurs at 0200Z, 17 October 1980 (Fig. 4). Site 533 was drilled here on the crest of the Blake Outer Ridge.

The magnetometer data underway to Site 533 are characterized by low-amplitude, 50-gamma anomalies typical of the Jurassic magnetic quiet zone. A prominent anomaly at 25 nautical miles (n. mi.) is an outer branch of the East Coast Magnetic Anomaly (ECMA) (Taylor et al., 1968; Rabinowitz, 1974).

After leaving Site 533, *Glomar Challenger* sailed south toward the Blake-Bahama Basin. This track (Fig. 1) parallels the strike of the small-amplitude, 50-gamma magnetic anomalies of the magnetic quiet zone (Fig. 2 and 3), and consequently the profile is remarkably smooth. The water depths of the area of the southwest flank of the Blake Outer Ridge are clearly recorded on this track and are most revealing. As *Glomar Challenger* approached the Blake-Bahama Basin Site 534 from the north, its track crossed the southern part of the Blake Outer Ridge and the ancillary ridge crest forming on its southwest flank between 0900Z and 1800Z, 20 October 1980 (Figs. 3 and 4). Horizon A^u, which passes beneath

[1] Sheridan, R. E., Gradstein, F. M., et al., *Init. Repts. DSDP*, 76: Washington (U.S. Govt. Printing Office).

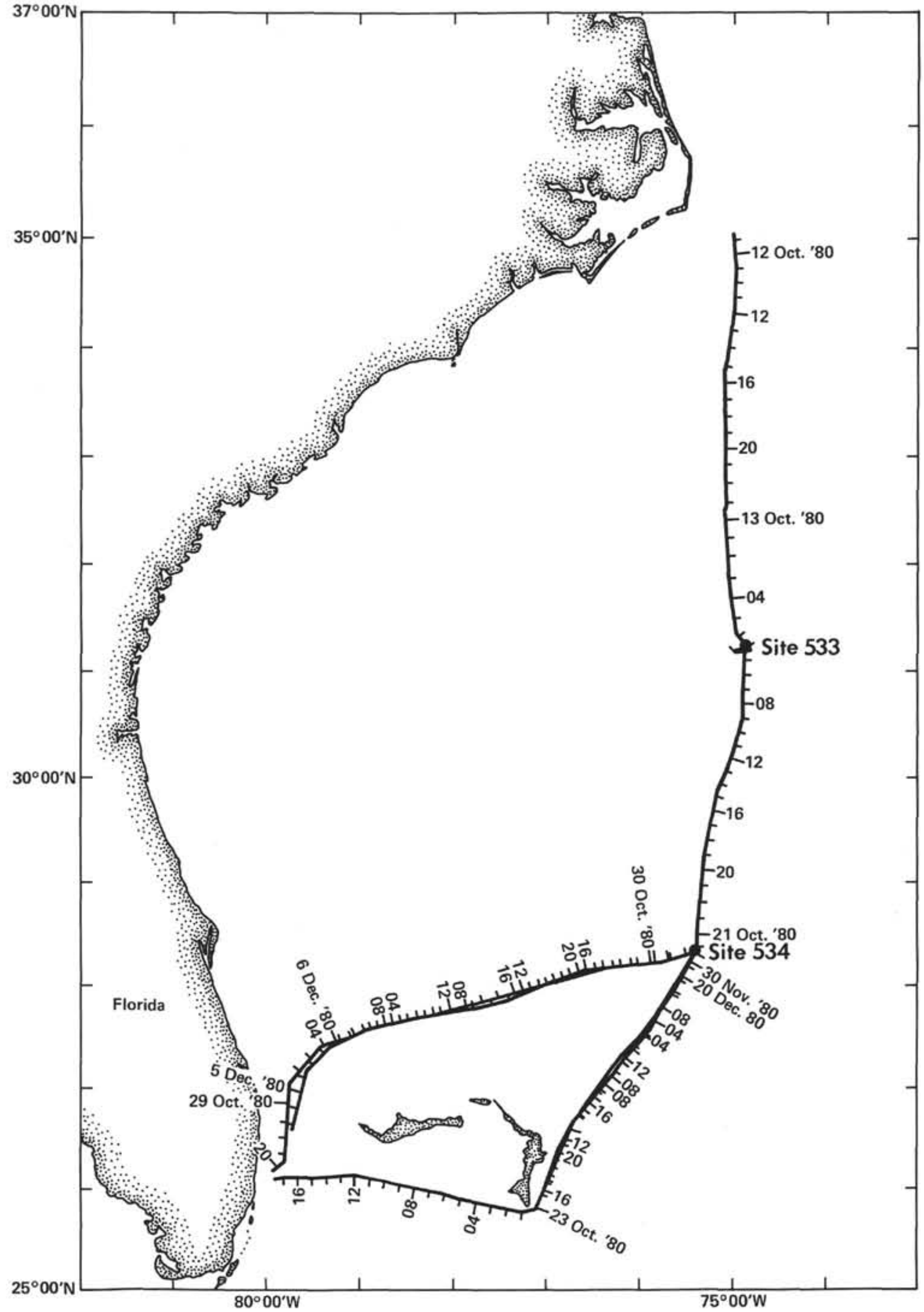

Figure 1. Track chart of *Glomar Challenger* during Leg 76 from Norfolk, Virginia, to Fort Lauderdale, Florida. (Locations of Sites 533 and 534 are indicated. Smaller numbers denote dates and GMT ship-time along track in hours.)

the ridge, is very weak on these profiles, but the details of bedding structures that cross the bottom-simulating reflector of clathrate origin are clearly visible. The ancillary ridge southwest of the main Blake Outer Ridge crest apparently is forming by current-deposited sediments ponding on its lower flanks (Fig. 4, 1600Z, 20 October 1980).

The "hilly" topography and internal structures of the Blake Outer Ridge are confined to sediments well above horizons A^u and X (Fig. 4). The deeper reflectors X and A^u, which we also see along this track for the first time at this position (1600Z) at 1.0 and 1.5 s sub-bottom, respectively, show little structural relief. The internal structure of these ridges and their consistent wavelength within any one cluster (Figs. 3 and 4) support the conclusion that they originated as current-built mud ridges, as suggested by Heezen and Hollister (1971). Formation by rotation of local slump blocks, as proposed by Bal-

Table 1. Navigation data for the underway portion of Leg 76 of *Glomar Challenger*.

Day	Month	Year	Time (GMT)	Latitude (north)	Longitude (west)	Distance (n. mi.)	Speed (knots)	Course (°)	Drift Speed (knots)	Drift Heading (°)
12	10	1980	0622[a]	35° 2.95′	75° 0.97′	0.0	4.5	160	3.0	52
12	10	1980	0626	35° 2.7′	75° 0.8′	0.3	7.7	172	3.0	52
12	10	1980	0646	35° 0.1′	75° 0.4′	2.9	7.6	174	3.0	52
12	10	1980	0856[a]	34° 43.67′	74° 58.48′	19.4	8.0	184	1.8	38
12	10	1980	1040[a]	34° 29.76′	74° 59.62′	33.3	8.9	180	1.7	72
12	10	1980	1130[a]	34° 22.32′	74° 59.63′	40.8	9.1	186	0.8	63
12	10	1980	1304[a]	34° 8.10′	75° 1.36′	55.1	9.6	189	0.2	106
12	10	1980	1450[a]	33° 51.29′	75° 4.47′	72.1	10.0	194	0.8	255
12	10	1980	1512	33° 47.8′	75° 5.5′	75.7	9.8	184	0.8	255
12	10	1980	1556[a]	33° 40.57′	75° 6.21′	82.9	9.3	178	0.4	39
12	10	1980	1617	33° 37.3′	75° 6.1′	86.2	9.3	176	0.4	39
12	10	1980	1744[a]	33° 23.90′	75° 5.05′	99.6	9.6	184	1.0	268
12	10	1980	1809	33° 19.9′	75° 5.4′	103.7	9.6	183	1.0	268
12	10	1980	1820[a]	33° 18.12′	75° 5.49′	105.4	8.6	181	1.1	328
12	10	1980	2050[a]	32° 56.54′	75° 5.80′	127.0	10.5	178	0.9	191
12	10	1980	2123	32° 50.8′	75° 5.6′	132.8	10.5	176	0.9	191
12	10	1980	2236[a]	32° 38.00′	75° 4.64′	145.6	10.0	177	0.5	224
12	10	1980	2310	32° 32.4′	75° 4.3′	151.2	10.1	196	0.5	224
12	10	1980	2316	32° 31.4′	75° 4.7′	152.2	10.1	206	0.5	224
12	10	1980	2326	32° 29.9′	75° 5.5′	153.9	10.0	177	0.5	224
13	10	1980	0018[a]	32° 21.24′	75° 5.07′	162.6	10.5	178	1.0	204
13	10	1980	0050	32° 15.7′	75° 4.8′	168.1	10.4	175	1.0	204
13	10	1980	0204[a]	32° 2.85′	75° 3.42′	181.0	10.8	179	1.7	219
13	10	1980	0310[a]	31° 50.96′	75° 3.07′	192.9	11.4	173	1.8	179
13	10	1980	0338	31° 45.7′	75° 2.3′	198.2	11.4	169	1.8	179
13	10	1980	0354[a]	31° 42.68′	75° 1.63′	201.3	11.5	171	2.0	189
13	10	1980	0539	31° 22.8′	74° 57.8′	221.4	11.6	182	2.0	189
13	10	1980	0546	31° 21.5′	74° 57.9′	222.7	8.6	142	2.0	189
13	10	1980	0555	31° 20.5′	74° 57.0′	224.0	7.9	138	2.0	189
13	10	1980	0720[a]	31° 12.14′	74° 48.24′	235.2	7.3	127	0.6	154
13	10	1980	0724	31° 11.8′	74° 47.8′	235.7	6.6	265	0.6	154
13	10	1980	0856	31° 11.0′	74° 59.5′	245.7	6.7	52	0.6	154
13	10	1980	0906[a]	31° 11.72′	74° 58.48′	246.9	6.7	63	1.9	147
13	10	1980	0928	31° 12.8′	74° 55.9′	249.3	7.0	71	1.9	147
13	10	1980	1011	31° 14.4′	74° 50.4′	254.3	6.3	244	1.9	147
13	10	1980	1020	31° 14.0′	74° 51.4′	255.3	5.2	290	1.9	147
13	10	1980	1021	31° 14.1′	74° 51.4′	255.4	4.9	345	1.9	147
13	10	1980	1025	31° 14.4′	74° 51.5′	255.7	4.9	317	1.9	147
13	10	1980	1042	31° 15.4′	74° 52.7′	257.1	6.7	61	1.9	147
13	10	1980	1045	31° 15.5′	74° 52.3′	257.4	6.7	61	1.9	147
13	10	1980	1046[a]	31° 15.60′	74° 52.19′	257.5	6.8	45	0.0	0
13	10	1980	1046	31° 15.6′	74° 52.2′	257.5	0.0	0	0.0	0
20	10	1980	0351[a]	31° 15.62′	74° 52.19′	257.5	0.9	83	0.9	83
20	10	1980	0351	31° 15.6′	74° 52.2′	257.5	6.0	182	0.9	83
20	10	1980	0412	31° 13.5′	74° 52.3′	259.6	8.8	185	0.9	83
20	10	1980	0420	31° 12.4′	74° 52.4′	260.8	7.8	184	0.9	83
20	10	1980	0436	31° 10.3′	74° 52.6′	262.9	7.6	184	0.9	83
20	10	1980	0449	31° 8.6′	74° 52.7′	264.5	8.8	185	0.9	83
20	10	1980	0654[a]	30° 50.41′	74° 54.44′	282.8	7.9	181	1.7	56
20	10	1980	0746[a]	30° 43.54′	74° 54.61′	289.7	8.1	179	1.9	65
20	10	1980	0826	30° 38.2′	74° 54.5′	295.1	8.0	184	1.9	65
20	10	1980	0842[a]	30° 36.05′	74° 54.68′	297.2	8.5	189	0.8	68
20	10	1980	0912	30° 31.8′	74° 55.5′	301.5	8.4	198	0.8	68
20	10	1980	0926[a]	30° 29.97′	74° 56.20′	303.4	7.7	193	1.8	63
20	10	1980	1112[a]	30° 16.68′	74° 59.82′	317.1	7.4	198	1.7	40
20	10	1980	1256[a]	30° 4.42′	75° 4.43′	330.0	8.0	203	1.1	13
20	10	1980	1420[a]	29° 54.17′	75° 9.49′	341.1	8.2	201	0.8	33
20	10	1980	1440	29° 51.6′	75° 10.6′	343.9	8.2	190	0.8	33
20	10	1980	1528[a]	29° 45.12′	75° 11.94′	350.4	7.9	190	1.2	23
20	10	1980	1604[a]	29° 40.47′	75° 12.92′	355.2	8.5	191	0.5	30
20	10	1980	1846[a]	29° 17.97′	75° 17.88′	378.1	8.9	191	0.1	55
20	10	1980	1908	29° 14.8′	75° 18.6′	381.3	8.9	184	0.1	55
20	10	1980	2034[a]	29° 2.03′	75° 19.73′	394.1	9.3	185	0.3	187
20	10	1980	2238	28° 42.9′	75° 21.7′	413.3	9.3	184	0.3	187
21	10	1980	0004[a]	28° 29.61′	75° 22.74′	426.7	9.5	181	0.6	144
21	10	1980	0010	28° 28.7′	75° 22.8′	427.6	7.3	181	0.6	144
21	10	1980	0058[a]	28° 22.82′	75° 22.85′	433.4	8.2	182	1.4	172

Table 1. (Continued).

Day	Month	Year	Time (GMT)	Latitude (north)	Longitude (west)	Distance (n. mi.)	Speed (knots)	Course (°)	Drift Speed (knots)	Drift Heading (°)
21	10	1980	0114[a]	28° 20.63′	75° 22.93′	435.6	6.8	184	0.0	0
21	10	1980	0114	28° 20.6′	75° 22.9′	435.6	0.0	0	0.0	0
22	10	1980	0342[a]	28° 20.63′	75° 22.93′	435.6	1.7	59	1.7	59
22	10	1980	0342	28° 20.6′	75° 22.9′	435.6	4.7	205	1.7	59
22	10	1980	0355	28° 19.7′	75° 23.4′	436.7	7.5	209	1.7	59
22	10	1980	0414[a]	28° 17.61′	75° 24.72′	439.0	9.2	209	0.8	133
22	10	1980	0702[a]	27° 55.18′	75° 38.82′	464.7	9.1	211	0.5	134
22	10	1980	0734	27° 51.0′	75° 41.6′	469.5	9.1	215	0.5	134
22	10	1980	0750[a]	27° 49.04′	75° 43.21′	472.0	9.5	218	0.6	224
22	10	1980	0850[a]	27° 41.55′	75° 49.90′	481.5	9.4	219	0.4	238
22	10	1980	0936[a]	27° 35.94′	75° 55.01′	488.7	8.9	220	0.3	327
22	10	1980	1204[a]	27° 19.16′	76° 10.94′	510.7	8.4	221	0.7	2
22	10	1980	1222	27° 17.2′	76° 12.8′	513.2	8.4	216	0.7	2
22	10	1980	1604[a]	26° 51.98′	76° 33.07′	544.2	8.5	217	0.8	349
22	10	1980	1640	26° 47.9′	76° 36.5′	549.3	8.4	213	0.8	349
22	10	1980	1734	26° 41.6′	76° 41.2′	556.9	8.4	203	0.8	349
22	10	1980	1818	26° 35.9′	76° 43.8′	563.0	8.4	205	0.8	349
22	10	1980	1851	26° 31.7′	76° 46.0′	567.6	8.4	204	0.8	349
22	10	1980	1854[a]	26° 31.36′	76° 46.16′	568.1	8.6	202	0.5	5
22	10	1980	1935	26° 25.9′	76° 48.6′	573.9	8.6	204	0.5	5
22	10	1980	2042[a]	26° 17.18′	76° 52.92′	583.5	9.2	204	0.3	239
22	10	1980	2313	25° 56.0′	77° 3.4′	606.7	9.2	201	0.3	239
22	10	1980	2334[a]	25° 52.96′	77° 4.74′	609.9	9.3	199	0.4	178
22	10	1980	2354	25° 50.0′	77° 5.9′	613.0	7.1	199	0.4	178
22	10	1980	2359	25° 49.5′	77° 6.1′	613.6	9.3	199	0.4	178
23	10	1980	0003	25° 48.9′	77° 6.3′	614.3	9.3	202	0.4	178
23	10	1980	0012	25° 47.6′	77° 6.9′	615.7	9.1	258	0.4	178
23	10	1980	0039	25° 46.7′	77° 11.3′	619.7	6.9	257	0.4	178
23	10	1980	0046	25° 46.5′	77° 12.2′	620.5	9.1	258	0.4	178
23	10	1980	0054	25° 46.3′	77° 13.5′	621.7	8.9	280	0.4	178
23	10	1980	0108[a]	25° 46.62′	77° 15.77′	623.8	9.3	283	0.4	309
23	10	1980	0224	25° 49.3′	77° 28.6′	635.7	9.1	283	0.4	309
23	10	1980	0254[a]	25° 50.34′	77° 33.53′	640.2	9.2	284	0.5	323
23	10	1980	0324[a]	25° 51.44′	77° 38.47′	644.8	9.3	282	0.5	285
23	10	1980	0506	25° 54.8′	77° 55.7′	660.6	9.3	283	0.5	285
23	10	1980	0512[a]	25° 54.99′	77° 56.66′	661.6	9.6	288	1.1	332
23	10	1980	0612[a]	25° 57.96′	78° 6.79′	671.1	8.8	281	0.3	187
23	10	1980	0800[a]	26° 0.95′	78° 24.05′	686.9	8.9	283	0.1	261
23	10	1980	0848[a]	26° 2.52′	78° 31.77′	694.0	8.7	282	0.1	161
23	10	1980	1036[a]	26° 5.90′	78° 48.88′	709.8	8.5	283	0.3	115
23	10	1980	1118[a]	26° 7.20′	78° 55.36′	715.7	8.7	290	1.1	21
23	10	1980	1150	26° 8.8′	79° 0.2′	720.4	8.4	274	1.1	21
23	10	1980	1224	26° 9.1′	79° 5.5′	725.2	8.3	263	1.1	21
23	10	1980	1446[a]	26° 6.78′	79° 27.15′	744.7	8.3	270	1.9	7
23	10	1980	1644	26° 6.7′	79° 45.4′	761.1	8.2	264	1.9	7
23	10	1980	1703	26° 6.4′	79° 48.3′	763.7	8.0	260	1.9	7
23	10	1980	1744[a]	26° 5.50′	79° 54.30′	769.2	8.8	248	0.0	355
23	10	1980	1744	26° 5.5′	79° 54.3′	769.2	0.0	355	0.0	355
28	10	1980	1915[a]	26° 10.20′	79° 54.80′	773.9	2.8	309	2.8	309
28	10	1980	1915	26° 10.2′	79° 54.8′	773.9	5.3	43	2.8	309
28	10	1980	1930	26° 11.2′	79° 53.8′	775.2	6.4	48	2.8	309
28	10	1980	2008[a]	26° 13.92′	79° 50.44′	779.3	9.0	56	2.5	13
28	10	1980	2030	26° 15.8′	79° 47.4′	782.6	9.9	8	2.5	13
28	10	1980	2154[a]	26° 29.54′	79° 45.27′	796.5	9.8	2	2.4	351
28	10	1980	2304	26° 40.9′	79° 44.8′	807.9	11.0	3	2.4	351
29	10	1980	0104	27° 2.9′	79° 43.6′	829.9	10.1	39	2.4	351
29	10	1980	0342	27° 23.5′	79° 25.0′	856.3	9.2	60	2.4	351
29	10	1980	0354	27° 24.4′	79° 23.2′	858.2	9.8	61	2.4	351
29	10	1980	0411	27° 25.8′	79° 20.5′	860.9	10.1	61	2.4	351
29	10	1980	0417	27° 26.3′	79° 19.5′	862.0	9.4	75	2.4	351
29	10	1980	0439	27° 27.1′	79° 15.7′	865.4	9.2	80	2.4	351
29	10	1980	0525	27° 28.4′	79° 7.9′	872.5	10.0	63	2.4	351
29	10	1980	0636[a]	27° 33.75′	78° 56.07′	884.2	8.6	79	1.0	238
29	10	1980	0726[a]	27° 35.11′	78° 48.14′	891.4	9.4	77	0.1	227
29	10	1980	0824[a]	27° 37.11′	78° 38.12′	900.5	9.5	74	0.5	340
29	10	1980	0912[a]	27° 39.16′	78° 29.90′	908.1	9.6	76	0.3	10
29	10	1980	1132[a]	27° 44.77′	78° 5.37′	930.5	9.4	76	0.2	319

Table 1. (Continued).

Day	Month	Year	Time (GMT)	Latitude (north)	Longitude (west)	Distance (n. mi.)	Speed (knots)	Course (°)	Drift Speed (knots)	Drift Heading (°)
29	10	1980	1318[a]	27° 48.85′	77° 47.19′	947.1	9.4	74	0.4	339
29	10	1980	1830[a]	28° 2.07′	76° 53.65′	996.2	9.9	72	0.9	14
29	10	1980	1855	28° 3.3′	76° 49.2′	1000.3	9.9	74	0.9	14
29	10	1980	1920[a]	28° 4.45′	76° 44.67′	1004.5	9.7	74	0.8	4
29	10	1980	2016[a]	28° 6.91′	76° 34.74′	1013.6	9.8	76	0.5	18
29	10	1980	2104[a]	28° 8.74′	76° 26.14′	1021.4	10.0	79	0.5	71
29	10	1980	2242[a]	28° 11.94′	76° 8.07′	1037.6	10.9	81	1.5	92
29	10	1980	2308	28° 12.7′	76° 2.8′	1042.4	10.9	82	1.5	92
30	10	1980	0026[a]	28° 14.76′	75° 46.82′	1056.6	10.1	83	0.8	118
30	10	1980	0048[a]	28° 15.23′	75° 42.63′	1060.3	9.9	80	0.4	71
30	10	1980	0104	28° 15.7′	75° 39.7′	1062.9	9.9	75	0.4	71
30	10	1980	0133	28° 16.9′	75° 34.5′	1067.7	9.9	68	0.4	71
30	10	1980	0143	28° 17.6′	75° 32.7′	1069.3	0.4	71	0.4	71
31	10	1980	0254[a]	28° 20.63′	75° 22.89′	1078.5	0.0	0	0.0	0
29	11	1980	1130[a]	28° 20.63′	75° 22.89′	1078.5	0.2	98	0.2	98
29	11	1980	2306	28° 20.4′	75° 20.9′	1080.3	7.3	213	0.2	98
29	11	1980	2329	28° 18.0′	75° 22.6′	1083.1	9.1	213	0.2	98
29	11	1980	2346	28° 15.9′	75° 24.2′	1085.7	9.5	213	0.2	98
30	11	1980	0030[a]	28° 10.00′	75° 28.55′	1092.7	10.1	208	1.1	150
30	11	1980	0215	27° 54.4′	75° 38.1′	1110.4	10.0	214	1.1	150
30	11	1980	0220[a]	27° 53.72′	75° 38.62′	1111.3	10.7	215	1.5	176
30	11	1980	0305	27° 47.1′	75° 43.8′	1119.3	7.7	212	1.5	176
30	11	1980	0308	27° 46.8′	75° 44.0′	1119.7	9.5	214	1.5	176
30	11	1980	0322	27° 44.9′	75° 45.4′	1121.9	10.1	214	1.5	176
30	11	1980	0324[a]	27° 44.6′	75° 45.61′	1122.2	9.7	208	2.0	143
30	11	1980	0326	27° 44.4′	75° 45.8′	1122.6	10.2	209	2.0	143
30	11	1980	0424	27° 35.7′	75° 51.2′	1132.5	10.1	214	2.0	143
30	11	1980	0510[a]	27° 29.30′	75° 56.07′	1140.2	10.5	221	1.1	190
30	11	1980	06 2[a]	27° 22.44′	76° 2.89′	1149.3	9.9	219	1.0	151
30	11	1980	0752[a]	27° 8.34′	76° 15.86′	1167.6	10.1	223	0.5	192
30	11	1980	0825	27° 4.3′	76° 20.1′	1173.1	10.1	220	0.5	192
30	11	1980	0846[a]	27° 1.59′	76° 22.65′	1176.6	9.8	221	0.2	237
30	11	1980	1030[a]	26° 48.82′	76° 35.26′	1193.6	9.9	221	0.3	234
30	11	1980	1100	26° 45.1′	76° 38.9′	1198.6	9.9	218	0.3	234
30	11	1980	1148	26° 38.9′	76° 44.4′	1206.4	9.8	201	0.3	234
30	11	1980	1221	26° 33.9′	76° 46.5′	1211.8	7.6	201	0.3	234
30	11	1980	1222[a]	26° 33.78′	76° 46.59′	1212.0	8.0	202	0.6	227
30	11	1980	1227	26° 33.2′	76° 46.9′	1212.6	10.2	202	0.6	227
30	11	1980	1348	26° 20.4′	76° 52.5′	1226.3	8.0	202	0.6	227
30	11	1980	1405	26° 18.3′	76° 53.4′	1228.6	10.2	202	0.6	227
30	11	1980	1412[a]	26° 17.23′	76° 53.93′	1229.8	10.2	201	0.7	213
30	11	1980	1516[a]	26° 7.02′	76° 58.26′	1240.7	10.3	201	0.8	216
30	11	1980	1612	25° 58.0′	77° 2.1′	1250.4	10.3	197	0.8	216
30	11	1980	1700[a]	25° 50.13′	77° 4.90′	1258.6	9.6	203	1.2	288
30	11	1980	1700	25° 50.1′	77° 4.9′	1258.6	1.2	288	1.2	288
5	12	1980	1741	26° 35.9′	79° 43.1′	1407.8	6.7	9	1.2	288
5	12	1980	1742[a]	26° 36.00′	79° 42.60′	1408.3	7.4	13	1.1	329
5	12	1980	1742	26° 36.0′	79° 42.6′	1408.3	10.0	15	1.1	329
5	12	1980	1908[a]	26° 49.80′	79° 38.50′	1422.5	9.9	13	1.4	319
5	12	1980	2012	27° 0.1′	79° 35.8′	1433.1	7.4	11	1.4	319
5	12	1980	2043	27° 3.8′	79° 35.0′	1436.9	9.9	13	1.4	319
5	12	1980	2125	27° 10.6′	79° 33.2′	1443.9	9.2	44	1.4	319
5	12	1980	2323	27° 23.8′	79° 19.1′	1462.1	8.7	67	1.4	319
6	12	1980	0000	27° 25.9′	79° 13.6′	1467.4	8.7	67	1.4	319
6	12	1980	0230[a]	27° 34.40′	78° 51.00′	1489.2	7.7	77	1.5	242
6	12	1980	0300	27° 35.2′	78° 46.7′	1493.0	8.1	77	1.5	242
6	12	1980	0346[a]	27° 36.60′	78° 39.90′	1499.2	9.4	75	0.2	240
6	12	1980	0534[a]	27° 40.90′	78° 21.40′	1516.2	9.4	80	0.9	179
6	12	1980	0900[a]	27° 46.40′	77° 45.40′	1548.5	10.5	77	1.0	99
6	12	1980	0945	27° 48.1′	77° 36.7′	1556.4	10.5	74	1.0	99
6	12	1980	1046[a]	27° 51.00′	77° 25.10′	1567.1	9.9	69	0.6	12
6	12	1980	1106[a]	27° 52.20′	77° 21.60′	1570.4	9.6	66	1.0	337
6	12	1980	1332	28° 1.7′	76° 57.5′	1593.7	6.6	63	1.0	337
6	12	1980	1343	28° 2.2′	76° 56.3′	1594.9	9.6	66	1.0	337
6	12	1980	1420[a]	28° 4.60′	76° 50.20′	1600.8	9.3	73	0.4	222
6	12	1980	1538[a]	28° 8.10′	76° 37.10′	1612.8	9.7	76	0.7	159
6	12	1980	1620	28° 9.7′	76° 29.7′	1619.6	9.8	84	0.7	159

Table 1. (Continued).

Day	Month	Year	Time (GMT)	Latitude (north)	Longitude (west)	Distance (n. mi.)	Speed (knots)	Course (°)	Drift Speed (knots)	Drift Heading (°)
6	12	1980	2030	28° 13.9′	75° 43.7′	1660.3	9.6	74	0.7	159
6	12	1980	2125	28° 16.3′	75° 34.1′	1669.1	6.3	76	0.7	159
6	12	1980	2137	28° 16.6′	75° 32.7′	1670.4	9.6	74	0.7	159
6	12	1980	2143	28° 16.9′	75° 31.7′	1671.3	6.3	76	0.7	159
6	12	1980	2148	28° 17.0′	75° 31.1′	1671.8	9.2	74	0.7	159
6	12	1980	2155[a]	28° 17.30′	75° 29.90′	1672.9	8.1	75	1.3	220
6	12	1980	2220[a]	28° 18.20′	75° 26.20′	1676.3	7.5	67	1.7	263
6	12	1980	2226	28° 18.5′	75° 25.4′	1677.1	4.5	65	1.7	263
6	12	1980	2248[a]	28° 19.20′	75° 23.70′	1678.7	7.0	64	1.1	27
6	12	1980	2248	28° 19.2′	75° 23.7′	1678.7	1.1	27	1.1	27
7	12	1980	0015[a]	28° 20.60′	75° 22.90′	1680.3	0.0	288	0.0	288
19	12	1980	2206	28° 20.8′	75° 23.7′	1681.0	6.6	214	0.0	288
19	12	1980	2227	28° 18.9′	75° 25.1′	1683.3	9.6	214	0.0	288
19	12	1980	2310[a]	28° 13.20′	75° 29.50′	1690.2	9.6	210	0.6	120
20	12	1980	0000	28° 6.3′	75° 34.0′	1698.2	9.6	210	0.6	120
20	12	1980	0254[a]	27° 42.30′	75° 49.80′	1725.9	9.8	217	0.5	287
20	12	1980	0446[a]	27° 27.70′	76° 2.10′	1744.1	9.2	213	0.4	50
20	12	1980	0716[a]	27° 8.40′	76° 16.40′	1767.2	9.6	217	0.6	308
20	12	1980	0834[a]	26° 58.50′	76° 24.90′	1779.7	9.5	220	1.0	315
20	12	1980	0858[a]	26° 55.60′	76° 27.60′	1783.5	9.4	219	0.9	320
20	12	1980	1022[a]	26° 45.40′	76° 36.90′	1796.6	9.8	217	0.6	282
20	12	1980	1200	26° 32.6′	76° 47.8′	1812.7	9.7	204	0.6	282
20	12	1980	1250[a]	26° 25.20′	76° 51.40′	1820.8	10.0	198	0.6	151
20	12	1980	1446[a]	26° 6.80′	76° 57.90′	1840.1	9.3	204	0.8	318
20	12	1980	1545	25° 58.5′	77° 2.0′	1849.2	6.3	206	0.8	318
20	12	1980	1548[a]	25° 58.24′	77° 2.24′	1849.5	6.3	206	0.0	0

[a] Satellite fix.

lard (1966), would probably result in more chaotic features.

In the abyssal depths of the Blake-Bahama Basin (Figs. 3 and 4, 0000Z, 21 October, 1980), two prominent reflectors are seen. These have been previously identified as the top of a Miocene turbidite Horizon M (6.7 s) and Horizon A^u (7.1 s) (Sheridan et al., 1974; Dillon et al., 1976). No definite reflectors are seen on the *Challenger* profiles below Horizon A^u, but the two prominent reflectors, denoted M and A^u by Dillon et al. (1976), can be traced to Site 534.

The magnetic anomaly profile (Figs. 2 and 3) fails to show the prominent, small-amplitude (150-gamma) Blake Spur Anomaly and the even smaller-amplitude (50-gamma) quiet-zone anomaly designated "a" by Drake et al. (1963). Apparently, this is because the *Challenger* track crossed the Blake Spur Fracture Zone where these anomalies are broken and offset.

The same track from Site 534 to and from Fort Lauderdale, Florida, was repeated twice for the port-call interruptions on 21 October 1980 and 1 December 1980. The geophysical profiles to Fort Lauderdale pass over a small topographic expression of the buried Eleuthera Ridge at 480 n. mi. (Fig. 3). The seismic profiles reveal this as a reflection of a hummocky, mounded, seismically transparent early Miocene unit forming a partially buried ridge at 0900Z, 22 October 1980 (Fig. 4). This unit is thought to be an extension of a serpentinelike fan complex extending northeast of the Northeast Providence Channel in the Bahamas.

The track then crosses the rough erosional topography of the mouth of Northeast and Northwest Providence Channels at 500 to 700 n. mi. (Fig. 3). Here, hard limestones, as well as chalks and the rough topography prevent penetration of seismic waves from the *Challenger*'s small air guns. The large amplitude magnetic anomalies of the Bahama Platform are recorded (Fig. 3).

On the return track from Fort Lauderdale to Site 534, the Northern Florida Straits and the Blake Plateau are crossed (Figs. 3 and 4). The apparent ridge at 870 n. mi. (Fig. 3) is a sediment drift of Oligocene and younger sediments forming a nose off the northwest end of Little Bahama Bank. Well-stratified reflectors show about 1.0-s thickness of sediments beneath this ridge (0700Z, 29 October 1980, Fig. 4). On the Blake Plateau proper only about 0.5 s of penetration was achieved through the transparent ooze and chalk above a harder, shallow-water limestone. Some large-amplitude magnetic anomalies (Fig. 3) over the plateau might indicate the presence of continental-type basement at depth (Taylor et al., 1968; Rabinowitz, 1974).

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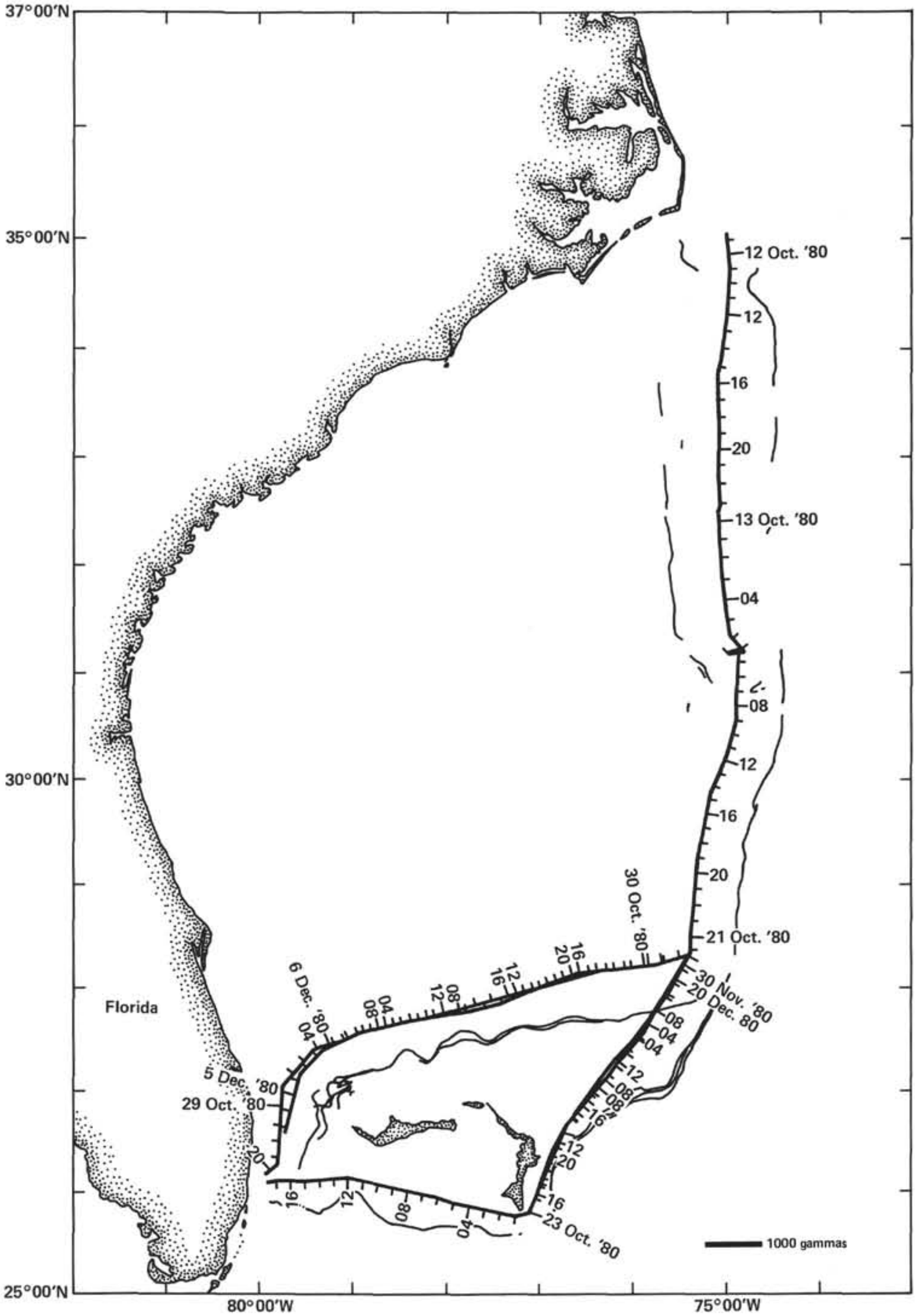

Figure 2. Track chart of *Glomar Challenger* during Leg 76 showing the profiles of the magnetic anomalies along the track.

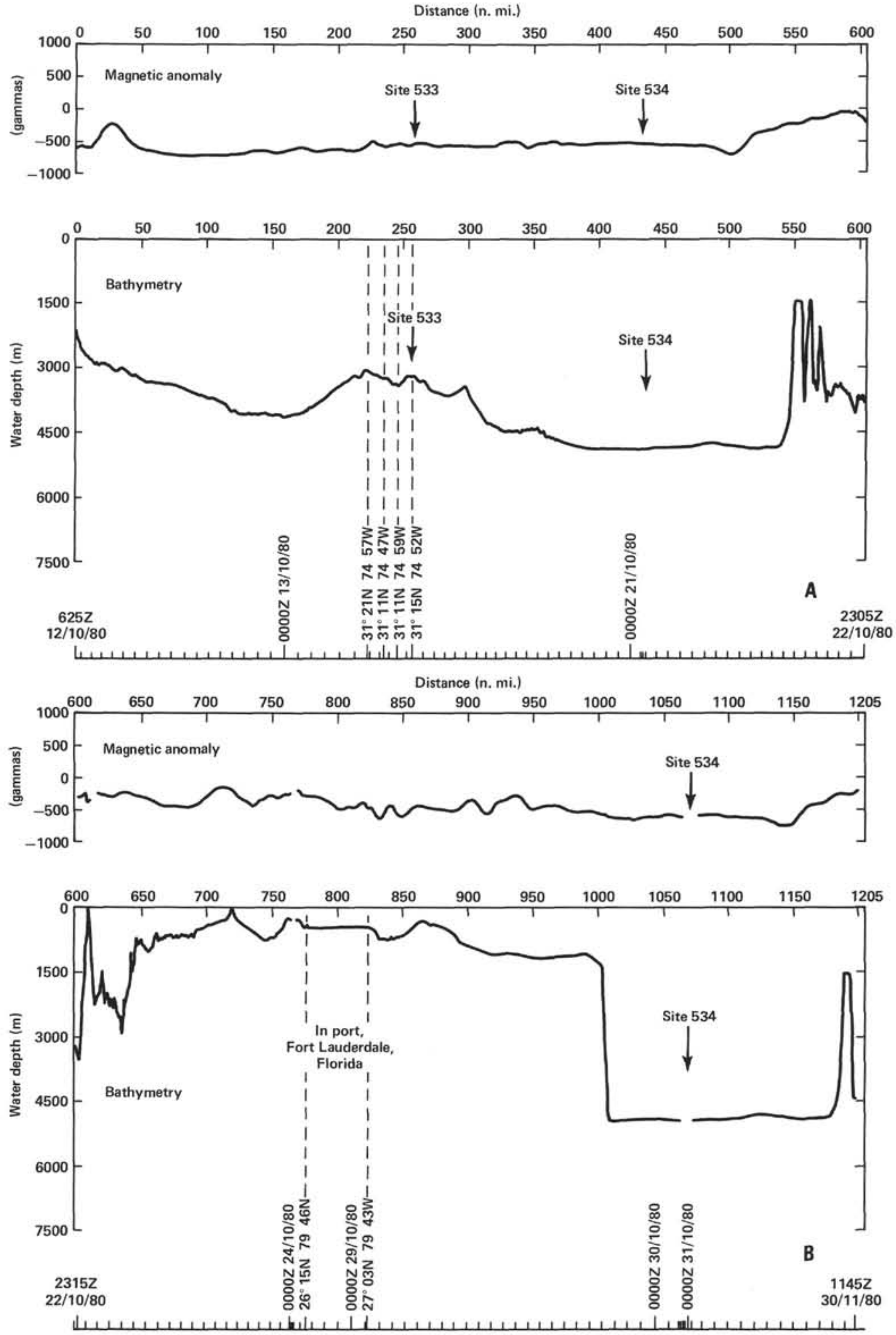

Figure 3. A–C. Magnetic anomaly and bathymetric profiles along the track of the *Glomar Challenger* during Leg 76. (Plots and scales are explained in the text.)

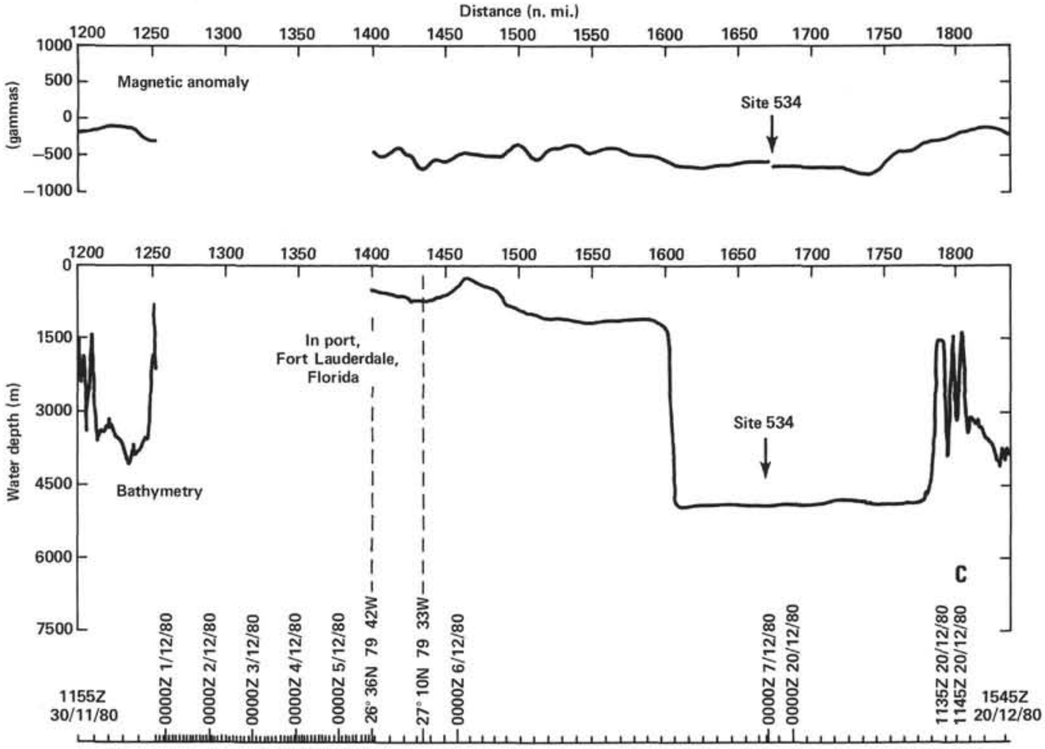

Figure 3. (Continued).