3. UNDERWAY GEOPHYSICS[1]

Shipboard Scientific Party[2]

Underway geophysical measurements were made at various times aboard *JOIDES Resolution* during Ocean Drilling Program (ODP) Leg 119. The cruise began in Port Louis, Mauritius, on 19 December 1987 and ended at Fremantle, Australia, on 21 February 1988 after operations in the Kerguelen Plateau and Prydz Bay regions of Antarctica. Bathymetric and magnetic measurements were made during all transits. Seismic-reflection profiles were recorded for site surveys and for a few short transits at speeds of 5 to 7 kt. The quality of the seismic records deteriorated severely at speeds greater than 7 kt. Sonobuoy reflection-refraction profiles were recorded at most sites and along one transit line.

Instrumentation aboard ship included two precision echosounders (3.5 and 12 kHz), a proton precession magnetometer, a digital seismic-reflection profiling system, and a global positioning system (GPS)/Transit satellite navigation system. The instruments were maintained and operated by the ODP marine technicians in cooperation with the scientific party.

NAVIGATION

Navigation data were collected on the bridge and in the underway geophysics laboratory using a Magnavox MX1107 satellite navigation system (SATNAV). Positions were recorded on magnetic tape and paper, listing every 2 min during nonseismic transits and every 9–12 s (e.g., each shotpoint) during seismic operations. The more accurate GPS satellite operated only about 6 hr per day when at least three satellites were accessible. Transit satellite fixes were possible every 1 to 1.5 hr. The general ship track for Leg 119 is shown in Figure 1. This plot was generated from satellite navigation and course- and speed-change information (Table 1).

BATHYMETRY

Bathymetric data were recorded with both 3.5- and 12-kHz echo-sounder systems that had signal correlators. The signals were recorded on two Raytheon recorders at sweep speeds of 1 s (750 m scale). The quality of the records was poor on high-speed transits (10–12 kt), principally because of large ship motion and ship noise in heavy seas. At other times, excellent 3.5-kHz bathymetric records (up to 200 m penetration) were recorded.

MAGNETICS

Total intensity measurements of the Earth's magnetic field were obtained with a Geometrics 801 proton precession magnetometer. The sensor was towed approximately 400 m astern. Measurements were made at 6-s intervals. The data were recorded continuously on a graphic recorder and in the header of seismic tapes (once per seismic shot). The magnetometer was not operational during the first few days of the cruise, but was used routinely thereafter. Noise levels on the data were about 3 to 8 nT.

SEISMIC-REFLECTION PROFILES

Seismic lines collected during Leg 119 (Table 2) were recorded using the equipment and parameters listed in Table 3. All seismic lines are shown in Figures 1 through 13, and all processed digital seismic data are shown in Figures 14 through 24. The seismic source was normally two 80-in.^{3} water guns operating at 1900 psi and towed about 14 m apart (starboard and port davits) and about 25 m behind the ship. Reflections were recorded by a Teledyne "high-speed" streamer that included a 100-m-long "active" section containing 60 hydrophones and a 3-m-long "stretch" section. The head of the streamer was normally about 317 m behind the ship (Fig. 25). The seismic source and streamer were towed at estimated depths of 4–5 m and 10–15(?) m, respectively. Depth stabilizing "birds" were not used on the streamer, and the depth monitoring system for the streamer gave unreliable values.

The seismic recording system consisted of a Super-Micro 561 Masscomp computer, which recorded the seismic data on magnetic tape (Table 4) and displayed the data on a 15-in.-wide high-resolution graphic printer (160 dots/in.). The system had the capability to do real-time processing such as automatic gain control (AGC) and filtering; however, these options were not used because they required several additional seconds of processing time (e.g., additional seconds between water gun shots).

Raw data were filtered (25–250 Hz) and recorded on 1600 bpi magnetic tape in SEG-Y format at a 1-ms sample rate for 5 s. The minimum shot interval for the seismic-reflection system was 9 s for normal operations and 10 s when sonobuoys were used. The raw seismic data contain a large component of 220-Hz presumed electrical noise, the source of which could not be determined during the cruise.

Seismic data were also displayed during acquisition in analog form on two Raytheon recorders at sweep rates of 4 and 8 s with filter settings of 25 to 150 Hz.

Selected parts of the digitally recorded seismic profiles were reprocessed aboard ship and displayed on both the dot-matrix and electrostatic printers to enhance the seismic data for detailed analysis at drilling sites and along critical transit lines.

Although time consuming, the shipboard processing option proved highly useful for several important areas. Operational processing programs included data windowing, AGC, band-pass filtering, deconvolution, and display. The sonobuoy seismic data could not be replayed and processed because of software problems. Enlarged plots of the data were used for comparison with synthetic seismic traces derived from velocity-depth data for each of the logged sites (see "Logging" sections of the site chapters, this volume).

SONOBUOY SEISMIC-RECORDING PROCEDURES

Sonobuoys were deployed during most site surveys along the seismic line just prior to crossing the proposed drill site. The sonobuoy data were used to compute velocity-depth curves useful

[1] Barron, J., Larsen, B., et al., 1989. *Proc. ODP, Init. Repts*, 119: College Station, TX (Ocean Drilling Program).

[2] Shipboard Scientific Party is as given in the list of Participants preceding the contents.

in guiding the drilling strategy. The sonobuoy parameters and equipment for all sites are listed in Table 5.

Prior to launch, the sonobuoy's hydrophone was released and carefully put back in place with a dissolvable-tissue covering to ensure that the hydrophone would deploy immediately on, but not before, contact with the water. The sonobuoy was gently lowered into the water from the aft catwalk to avoid immediate buoy failure, which is common when this type of sonobuoy is thrown into the water. After launch, the vertical-incidence seismic-reflection record was switched to the sonobuoy seismic to provide continuity of vertical and wide-angle reflection arrivals. Initial filter settings of 20–100 Hz, useful for good resolution of wide-angle reflection arrivals, were gradually changed to settings of 5–50 Hz when deep refraction arrivals could be seen (offsets of about 5–6 km).

Seismic signals from the low-frequency sonobuoys (76 MHz) were received by a Fairfield Industries STR7O-Telseis receiver. The data were displayed in real time on a Raytheon graphic recorder and were digitally recorded on the Masscomp computer system along with the vertical-incident seismic-reflection data.

SONOBUOY SEISMIC DATA-REDUCTION PROCEDURES

Initial analysis of the sonobuoy data was done aboard ship immediately following the sonobuoy station and prior to drilling. The procedures followed are based on those described by Childs and Cooper (1978). Rms, interval, and refraction velocities were computed from the original sonobuoy analog record. These results are described in the "Site Geophysics" sections of the site chapters. The following procedures were used for computation of the velocities.

Rms and Interval Velocities

Wide-angle reflections were visually picked from strong reflections on the vertical-incident seismic profiles as well as on the sonobuoy record. All wide-angle reflections with an associated refraction arrival were also selected. Deep reflectors were only easily identifiable from the sonobuoy wide-angle reflection data because seafloor multiples and high noise levels concealed these reflectors in the vertical incident profiles.

Reflection traveltimes and direct-arrival (*D*-wave) times for all horizons were read from the shipboard sonobuoy record. Offset distances were determined by multiplying the *D*-wave times by the water velocities determined from measured near-surface water temperatures and salinities ("Biology and Oceanography" sections of the site chapters and Table 6). Plots of traveltime squared vs. distance squared were made and least-squares lines were fit to reliable parts of the data. Estimates of apparent rms velocities were made by computing the square root of the slope of each line. If necessary, rms velocities were adjusted because of incorrect *D*-wave arrivals and layer dips, as described in the following discussion of error analysis. Approximate interval velocities were computed from rms velocities using the Dix equation. Subsurface depths were computed from these interval velocities and used to aid the real-time comparison of drilling depths and seismic-reflection data.

Refraction Velocities

Refraction arrivals were identified on the sonobuoy record using criteria of first-break linearity (and gentle upward curvature) and amplitude of arrivals associated with wide-angle reflections. In cases where large velocity gradients were present and refraction arrivals were curved, two or more linear segments were used to approximate the curved refraction. Traveltimes and *D*-wave times for each refractor were read from the sonobuoy record. Velocities, determined from the slope of the traveltime curve, and intercept times for the refractor, were used to compute layer thicknesses and depths to refractors. These thicknesses and depths were used as a check on the primary depths determined from the interval velocities.

ERRORS IN VELOCITY MEASUREMENTS

The apparent interval velocities and refraction velocities contain errors, as described in the following, and the velocities should be considered preliminary. At most of the Leg 119 sites (738–742, and 745), the *D*-wave was weak and its position on the sonobuoy record was sometimes uncertain, particularly at large ship-to-sonobuoy offsets. At these stations, the *D*-wave was assumed nearly parallel with the seafloor reflection at large offsets, and the correctness of the *D*-wave picks was verified or adjusted based on the following criteria from rms velocities.

First, the x-square vs. t-square plots for all strong reflections were checked for linearity. Large systematic curvatures of these plots indicated a probably incorrect *D*-wave, which was then repicked. Second, a correction was added to the rms velocities and to the refraction velocities for all layers if the rms velocity determined from the seafloor reflection was not about the same as the average velocity of the water column, as estimated from oceanographic tables (see Table 6). The correction (i.e., the difference between the seafloor and water column velocities) was generally small (1%–5%) and was attributed principally to errors in picking the *D*-wave. The corrected velocity values are presented in the site chapters.

This procedure also reduced the errors in rms velocities that are inherent in using a t-squared vs. x-squared method to analyze large-offset reflection data (Shah and Levin, 1973; Al-Chalabi, 1974). These errors in rms velocity (and subsequently, the interval velocity from the Dix equation) result from approximating the traveltime of wide-angle reflections by a two-term linear equation (in x-squared and t-squared) instead of a more exact, multiterm Taylor-series expansion. The errors can range from 1% to 14% depending on depth and local velocity structure (Shah and Levin, 1973). In the case of flat-lying layers, which applies to all Leg 119 sonobuoy stations, apparent rms velocities will always be greater than true rms velocities, regardless of the subsurface velocity structure, because the third term of the aforementioned Taylor series is negative (Shah and Levin, 1973). Stated differently, t-squared vs. x-squared plots for large-offset reflection data will be somewhat curved, with higher apparent velocities occurring at larger offsets.

The procedure of fitting a least-squares line to all t-squared vs. x-squared data points gave apparent rms velocities (and subsequent interval velocities) with errors of about 5%–10%. More accurate methods for computing interval velocities from sonobuoy data are based on ray-tracing and tau-p inversion (Le Pichon et al., 1968; Bryan, 1974; Stoffa et al., 1982). These methods are, however, not presently suited for shipboard use because they are computationally more complex, they require greater expertise in data analysis and interpretation, and shipboard software for their use does not exist.

The errors in apparent refraction velocity (i.e., without dip corrections) are subject only to the accuracies in picking *D*-wave and refraction-arrival times. These errors are probably about 1%–5%.

Corrections for dipping horizons have not been made, but dips are generally less than 1° along the sonobuoy lines. For reflection data, apparent rms velocities (and interval velocities) will be high in the presence of up- or down-dipping horizons, assuming that layer velocities do not change horizontally. For refraction data, the apparent velocities will be higher than real velocities if the ship is moving in the updip direction, and lower in the downdip direction. The dip-related errors should not exceed 1%–3% for the Leg 119 sonobuoys.

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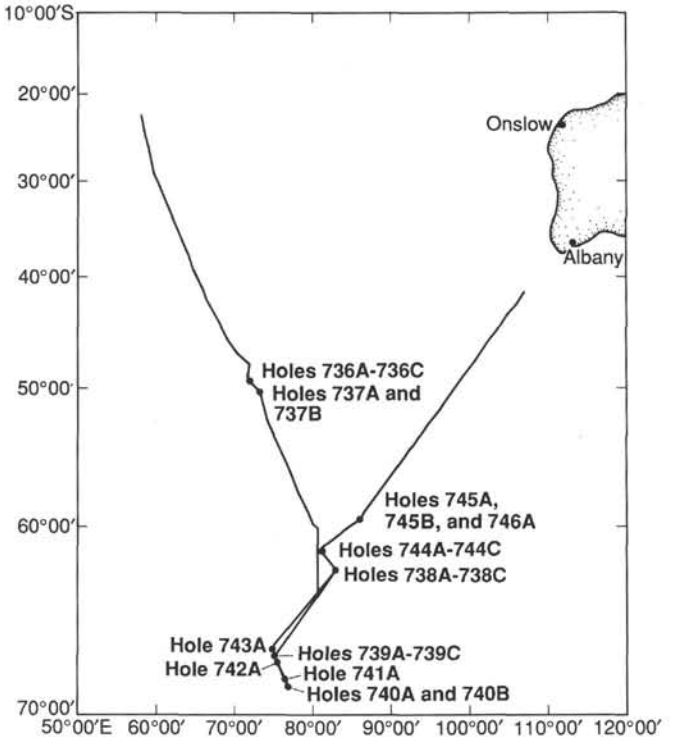

Figure 1. General navigation plot of ODP Leg 119, showing site locations generated from satellite navigation and course- and speed-change data (Table 1).

Table 1. Satellite navigation and course- and speed-change data used to generate Leg 119 trackline plots shown in Figures 1 through 13.

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	South latitude (min)	East longitude (deg)	East longitude (min)	Distance (nmi)	Actual speed (kt)	Actual course (deg)	Comments[a]
19 Dec	353	0240	22	19.44	57	40.74	0.0	11.2	170	DR
19	353	0316	22	26.04	57	41.97	6.7	11.6	171	SN
19	353	0412	22	36.70	57	43.90	17.5	11.8	171	c/cs
19	353	0436	22	41.36	57	44.70	22.2	12.0	173	SN
19	353	0501	22	46.30	57	45.40	27.2	12.0	173	c/cs
19	353	0551	22	56.20	57	46.80	37.2	12.0	173	c/cs
19	353	0622	23	2.40	57	47.70	43.4	11.9	173	c/cs
19	353	0645	23	6.90	57	48.30	48.0	12.0	173	c/cs
19	353	0708	23	11.50	57	49.00	52.6	12.0	173	c/cs
19	353	0746	23	19.00	57	50.02	60.2	12.3	172	GP
19	353	0748	23	19.40	57	50.10	60.6	12.3	168	c/cs
19	353	0800	23	21.80	57	50.65	63.0	11.9	168	GP
19	353	0829	23	27.40	57	52.00	68.8	11.9	168	c/cs
19	353	0904	23	34.20	57	53.50	75.7	11.9	168	c/cs
19	353	0950	23	43.10	57	55.60	84.8	11.9	168	c/cs
19	353	1003	23	45.60	57	56.20	87.4	11.9	168	c/cs
19	353	1030	23	50.90	57	57.40	92.8	11.9	168	c/cs
19	353	1119	24	0.40	57	59.70	102.5	12.0	168	c/cs
19	353	1134	24	3.30	58	0.30	105.5	11.9	167	c/cs
19	353	1154	24	7.10	58	1.30	109.4	11.9	168	c/cs
19	353	1243	24	16.70	58	3.50	119.2	11.9	168	c/cs
19	353	1254	24	18.80	58	4.03	121.3	12.1	165	SN
19	353	1301	24	20.20	58	4.40	122.7	12.0	165	c/cs
19	353	1311	24	22.10	58	5.00	124.7	12.0	165	c/cs
19	353	1336	24	26.90	58	6.50	129.8	11.9	165	c/cs
19	353	1404	24	32.30	58	8.10	135.3	12.0	165	c/cs
19	353	1442	24	39.60	58	10.30	142.9	12.0	165	SN
19	353	1454	24	41.90	58	11.00	145.3	11.9	166	c/cs
19	353	1525	24	47.90	58	12.70	151.5	11.8	165	c/cs
19	353	1553	24	53.20	58	14.30	157.0	12.0	165	c/cs
19	353	1606	24	55.70	58	15.00	159.6	11.8	166	c/cs
19	353	1616	24	57.60	58	15.60	161.6	11.9	165	c/cs
19	353	1707	25	7.40	58	18.50	171.7	11.8	166	c/cs
19	353	1737	25	13.10	58	20.10	177.6	12.0	165	c/cs
19	353	1810	25	19.51	58	22.01	184.2	11.6	164	GP
19	353	1810	25	19.50	58	22.00	184.2	11.6	166	c/cs
19	353	1825	25	22.30	58	22.80	187.1	11.5	165	c/cs
19	353	1909	25	30.50	58	25.10	195.6	11.6	165	c/cs
19	353	1934	25	35.20	58	26.50	200.4	11.5	165	c/cs
19	353	2010	25	41.80	58	28.50	207.3	11.6	165	c/cs
19	353	2039	25	47.30	58	30.10	212.9	11.6	165	c/cs
19	353	2126	25	56.10	58	32.70	222.0	11.4	165	c/cs
19	353	2154	26	1.20	58	34.20	227.3	11.4	165	c/cs
19	353	2221	26	6.20	58	35.60	232.5	11.6	166	c/cs
19	353	2227	26	7.30	58	35.90	233.6	11.5	165	c/cs
19	353	2242	26	10.09	58	36.72	236.5	12.3	168	GP
19	353	2247	26	11.10	58	36.90	237.5	12.4	171	c/cs
19	353	2300	26	13.74	58	37.44	240.2	12.3	171	GP
19	353	2325	26	18.80	58	38.40	245.3	12.2	171	c/cs
19	353	2330	26	19.80	58	38.55	246.3	12.3	169	GP
20 Dec	354	0000	26	25.80	58	39.90	252.5	12.3	169	c/cs
20	354	0015	26	28.80	58	40.60	255.5	12.2	169	c/cs
20	354	0100	26	37.78	58	42.58	264.7	12.6	168	GP
20	354	0104	26	38.60	58	42.80	265.5	12.7	168	c/cs
20	354	0130	26	44.00	58	44.07	271.0	11.4	170	GP
20	354	0154	26	48.50	58	45.00	275.6	11.3	170	c/cs
20	354	0200	26	49.59	58	45.18	276.7	11.8	170	GP
20	354	0205	26	50.60	58	45.40	277.7	11.8	170	c/cs
20	354	0218	26	53.10	58	45.90	280.3	12.0	170	c/cs
20	354	0308	27	3.00	58	47.80	290.3	12.0	170	c/cs
20	354	0331	27	7.50	58	48.70	294.9	11.7	166	c/cs
20	354	0334	27	8.10	58	48.90	295.5	11.8	170	c/cs
20	354	0341	27	9.40	58	49.20	296.9	12.1	161	c/cs
20	354	0343	27	9.80	58	49.30	297.3	11.6	175	c/cs
20	354	0346	27	10.40	58	49.40	297.8	11.5	167	c/cs
20	354	0349	27	10.90	58	49.50	298.4	11.8	170	c/cs
20	354	0359	27	12.90	58	49.90	300.4	11.6	163	c/cs
20	354	0400	27	13.06	58	49.95	300.6	11.5	163	GP

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
20	354	0402	27	13.40	58	50.10	301.0	11.8	170	c/cs
20	354	0407	27	14.40	58	50.30	301.9	10.8	157	c/cs
20	354	0409	27	14.70	58	50.40	302.3	11.8	171	c/cs
20	354	0417	27	16.30	58	50.70	303.9	12.0	169	c/cs
20	354	0437	27	20.20	58	51.50	307.9	11.8	171	c/cs
20	354	0500	27	24.70	58	52.40	312.4	11.8	171	c/cs
20	354	0533	27	31.10	58	53.50	318.9	11.8	170	c/cs
20	354	0536	27	31.70	58	53.70	319.5	11.5	165	c/cs
20	354	0538	27	32.00	58	53.80	319.9	11.7	171	c/cs
20	354	0540	27	32.40	58	53.80	320.3	11.7	161	c/cs
20	354	0541	27	32.60	58	53.90	320.5	11.3	172	c/cs
20	354	0543	27	33.00	58	54.00	320.8	11.9	166	c/cs
20	354	0548	27	33.90	58	54.20	321.8	11.4	171	c/cs
20	354	0551	27	34.50	58	54.30	322.4	11.7	160	c/cs
20	354	0553	27	34.90	58	54.50	322.8	11.4	171	c/cs
20	354	0558	27	35.80	58	54.60	323.7	11.7	168	c/cs
20	354	0606	27	37.30	58	55.00	325.3	11.7	170	c/cs
20	354	0609	27	37.90	58	55.10	325.9	11.8	166	c/cs
20	354	0611	27	38.30	58	55.20	326.3	11.6	172	c/cs
20	354	0614	27	38.90	58	55.30	326.8	11.6	167	c/cs
20	354	0626	27	41.10	58	55.90	329.2	11.5	169	c/cs
20	354	0634	27	42.60	58	56.30	330.7	11.6	171	c/cs
20	354	0649	27	45.47	58	56.78	333.6	12.0	171	GP
20	354	0652	27	46.10	58	56.90	334.2	12.1	169	c/cs
20	354	0705	27	48.64	58	57.47	336.8	12.8	168	GP
20	354	0730	27	53.87	58	58.72	342.2	12.2	168	GP
20	354	0730	27	53.90	58	58.70	342.2	12.1	168	c/cs
20	354	0800	27	59.81	59	0.12	348.2	12.5	167	GP
20	354	0807	28	1.20	59	0.50	349.7	12.5	167	c/cs
20	354	0848	28	9.60	59	2.60	358.3	12.3	167	c/cs
20	354	0901	28	12.20	59	3.30	360.9	12.5	167	c/cs
20	354	0913	28	14.60	59	3.90	363.4	12.3	167	c/cs
20	354	0927	28	17.40	59	4.70	366.3	12.3	143	c/cs
20	354	0929	28	17.70	59	5.00	366.7	10.5	155	c/cs
20	354	0931	28	18.10	59	5.10	367.0	7.6	190	c/cs
20	354	0934	28	18.40	59	5.00	367.4	8.2	175	c/cs
20	354	0936	28	18.70	59	5.10	367.7	8.1	161	c/cs
20	354	0937	28	18.80	59	5.10	367.8	11.0	166	c/cs
20	354	0941	28	19.50	59	5.30	368.6	12.3	167	c/cs
20	354	0954	28	22.10	59	6.00	371.2	12.3	167	c/cs
20	354	1012	28	25.80	59	6.90	374.9	12.4	167	c/cs
20	354	1029	28	29.20	59	7.80	378.4	12.5	166	c/cs
20	354	1038	28	31.00	59	8.40	380.3	12.3	163	c/cs
20	354	1040	28	31.40	59	8.50	380.7	12.1	168	c/cs
20	354	1050	28	33.30	59	9.00	382.7	12.2	166	c/cs
20	354	1100	28	35.33	59	9.52	384.8	11.7	168	SN
20	354	1105	28	36.30	59	9.80	385.7	11.9	168	c/cs
20	354	1136	28	42.30	59	11.20	391.9	11.7	168	c/cs
20	354	1203	28	47.50	59	12.40	397.2	11.9	168	c/cs
20	354	1224	28	51.60	59	13.30	401.4	11.8	168	c/cs
20	354	1249	28	56.40	59	14.50	406.3	11.9	168	c/cs
20	354	1310	29	0.50	59	15.40	410.4	11.9	159	c/cs
20	354	1330	29	4.20	59	17.00	414.4	12.1	159	c/cs
20	354	1340	29	6.10	59	17.80	416.4	11.9	159	c/cs
20	354	1418	29	13.10	59	20.90	424.0	12.0	159	c/cs
20	354	1426	29	14.60	59	21.56	425.6	11.4	154	SN
20	354	1446	29	18.00	59	23.50	429.4	11.3	154	c/cs
20	354	1519	29	23.60	59	26.70	435.6	11.2	154	c/cs
20	354	1554	29	29.50	59	30.00	442.2	11.1	154	c/cs
20	354	1614	29	32.80	59	31.90	445.9	11.4	158	SN
20	354	1630	29	35.60	59	33.20	448.9	11.3	157	c/cs
20	354	1648	29	38.70	59	34.80	452.3	11.1	156	c/cs
20	354	1734	29	46.50	59	38.70	460.8	11.0	158	c/cs
20	354	1804	29	51.58	59	41.11	466.3	11.2	156	GP
20	354	1815	29	53.50	59	42.10	468.3	11.3	156	c/cs
20	354	1905	30	2.00	59	46.50	477.8	11.3	156	c/cs
20	354	1917	30	4.10	59	47.60	480.0	11.6	156	c/cs
20	354	1923	30	5.20	59	48.20	481.2	11.4	157	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
20	354	1933	30	6.90	59	49.00	483.1	11.6	157	c/cs
20	354	1946	30	9.20	59	50.20	485.6	11.6	156	c/cs
20	354	1956	30	11.00	59	51.10	487.5	11.6	157	c/cs
20	354	2036	30	18.10	59	54.60	495.2	11.6	156	c/cs
20	354	2105	30	23.20	59	57.30	500.8	11.7	157	c/cs
20	354	2122	30	26.20	59	58.80	504.2	11.7	156	c/cs
20	354	2203	30	33.50	60	2.60	512.1	11.5	157	c/cs
20	354	2208	30	34.40	60	3.05	513.1	12.1	157	SN
20	354	2233	30	39.00	60	5.40	518.1	12.1	156	c/cs
20	354	2248	30	41.80	60	6.80	521.2	12.1	159	c/cs
20	354	2306	30	45.20	60	8.40	524.8	12.4	159	c/cs
20	354	2330	30	49.76	60	10.46	529.7	10.7	160	GP
20	354	2355	30	53.90	60	12.30	534.2	10.6	159	c/cs
21 Dec	355	0000	30	54.77	60	12.64	535.1	11.7	159	GP
21	355	0000	30	54.80	60	12.60	535.1	11.7	159	c/cs
21	355	0045	31	2.90	60	16.40	543.8	11.7	159	c/cs
21	355	0100	31	5.64	60	17.61	546.8	11.4	158	GP
21	355	0110	31	7.40	60	18.40	548.7	11.4	158	c/cs
21	355	0139	31	12.50	60	20.80	554.2	11.5	158	c/cs
21	355	0229	31	21.40	60	25.10	563.8	11.6	158	c/cs
21	355	0249	31	25.00	60	26.70	567.7	11.7	158	c/cs
21	355	0313	31	29.40	60	28.80	572.3	11.5	158	c/cs
21	355	0330	31	32.40	60	30.20	575.6	11.7	158	c/cs
21	355	0400	31	37.80	60	32.77	581.4	11.4	161	GP
21	355	0419	31	41.20	60	34.20	585.0	11.4	161	c/cs
21	355	0509	31	50.20	60	37.90	594.6	11.5	161	c/cs
21	355	0534	31	54.70	60	39.70	599.4	11.5	161	c/cs
21	355	0558	31	59.10	60	41.50	604.0	11.6	160	c/cs
21	355	0600	31	59.45	60	41.69	604.4	11.7	159	GP
21	355	0607	32	0.70	60	42.30	605.7	11.6	158	c/cs
21	355	0630	32	4.84	60	44.23	610.2	11.5	156	GP
21	355	0633	32	5.40	60	44.50	610.7	11.6	157	c/cs
21	355	0700	32	10.18	60	46.89	616.0	12.2	157	GP
21	355	0709	32	11.90	60	47.70	617.8	12.2	157	c/cs
21	355	0747	32	18.90	60	51.30	625.5	12.2	156	c/cs
21	355	0800	32	21.36	60	52.59	628.1	11.9	156	GP
21	355	0837	32	28.10	60	56.10	635.5	11.9	156	c/cs
21	355	0926	32	37.00	61	0.70	645.2	12.0	156	c/cs
21	355	0953	32	42.00	61	3.30	650.6	11.9	157	c/cs
21	355	1004	32	44.00	61	4.30	652.8	12.3	144	c/cs
21	355	1006	32	44.30	61	4.50	653.2	11.8	159	c/cs
21	355	1011	32	45.20	61	5.00	654.2	12.0	156	c/cs
21	355	1024	32	47.60	61	6.20	656.8	12.2	155	GP
21	355	1034	32	49.40	61	7.20	658.8	12.3	155	c/cs
21	355	1105	32	55.20	61	10.40	665.2	12.2	155	c/cs
21	355	1143	33	2.20	61	14.30	672.9	12.2	155	c/cs
21	355	1228	33	10.50	61	18.90	682.1	12.3	155	SN
21	355	1233	33	11.40	61	19.40	683.1	12.4	155	c/cs
21	355	1302	33	16.80	61	22.50	689.1	12.5	155	c/cs
21	355	1345	33	24.90	61	27.10	698.0	12.3	155	c/cs
21	355	1432	33	33.60	61	32.00	707.7	12.4	156	c/cs
21	355	1445	33	36.10	61	33.30	710.3	12.3	157	c/cs
21	355	1503	33	39.50	61	35.10	714.0	12.3	157	c/cs
21	355	1508	33	40.40	61	35.60	715.1	12.2	152	c/cs
21	355	1511	33	41.00	61	35.90	715.7	12.2	157	c/cs
21	355	1531	33	44.70	61	37.80	719.7	12.5	157	c/cs
21	355	1559	33	50.10	61	40.60	725.5	12.2	158	c/cs
21	355	1609	33	51.90	61	41.50	727.6	12.4	158	c/cs
21	355	1634	33	56.70	61	43.80	732.8	12.4	159	c/cs
21	355	1700	34	1.80	61	46.10	738.1	12.4	161	c/cs
21	355	1743	34	10.10	61	49.70	747.0	12.4	161	c/cs
21	355	1800	34	13.45	61	51.10	750.5	12.2	160	GP
21	355	1804	34	14.20	61	51.40	751.3	12.3	156	c/cs
21	355	1854	34	23.60	61	56.40	761.6	12.3	156	c/cs
21	355	1935	34	31.30	62	0.50	769.9	12.1	156	c/cs
21	355	2000	34	35.90	62	3.00	775.0	12.2	157	c/cs
21	355	2005	34	36.80	62	3.50	776.0	12.0	156	c/cs
21	355	2051	34	45.30	62	8.00	785.2	12.1	156	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
21	355	2129	34	52.30	62	11.80	792.9	12.1	156	c/cs
21	355	2130	34	52.46	62	11.85	793.1	12.0	157	GP
21	355	2215	35	0.80	62	16.10	802.1	11.9	157	c/cs
21	355	2240	35	5.35	62	18.52	807.1	12.3	157	GP
21	355	2240	35	5.40	62	18.50	807.1	12.4	157	c/cs
21	355	2300	35	9.15	62	20.46	811.2	12.2	158	GP
21	355	2323	35	13.50	62	22.60	815.9	12.3	158	c/cs
21	355	2330	35	14.82	62	23.27	817.4	11.8	159	GP
21	355	2356	35	19.60	62	25.50	822.5	11.8	159	c/cs
22 Dec	356	0000	35	20.34	62	25.86	823.3	11.3	156	GP
22	356	0000	35	20.30	62	25.90	823.3	11.3	156	c/cs
22	356	0045	35	28.10	62	30.10	831.7	11.1	156	c/cs
22	356	0104	35	31.30	62	31.80	835.3	11.4	156	c/cs
22	356	0112	35	32.70	62	32.60	836.8	11.2	156	c/cs
22	356	0158	35	40.50	62	36.80	845.3	11.1	155	c/cs
22	356	0211	35	42.70	62	38.10	847.8	11.2	156	c/cs
22	356	0229	35	45.80	62	39.80	851.1	11.3	156	c/cs
22	356	0247	35	48.90	62	41.40	854.5	11.2	156	c/cs
22	356	0317	35	54.00	62	44.20	860.1	11.2	156	c/cs
22	356	0347	35	59.10	62	47.00	865.7	11.1	156	c/cs
22	356	0353	36	0.10	62	47.60	866.8	10.8	162	c/cs
22	356	0355	36	0.50	62	47.70	867.2	11.1	157	c/cs
22	356	0425	36	5.60	62	50.50	872.7	11.1	157	c/cs
22	356	0454	36	10.60	62	53.10	878.1	11.2	158	c/cs
22	356	0508	36	13.00	62	54.30	880.7	11.2	159	c/cs
22	356	0530	36	16.78	62	56.15	884.8	10.3	155	GP
22	356	0534	36	17.40	62	56.50	885.5	9.8	158	c/cs
22	356	0536	36	17.70	62	56.70	885.8	9.4	145	c/cs
22	356	0537	36	17.80	62	56.80	886.0	9.8	157	c/cs
22	356	0542	36	18.60	62	57.20	886.8	10.1	157	c/cs
22	356	0553	36	20.30	62	58.10	888.7	10.1	157	c/cs
22	356	0600	36	21.38	62	58.63	889.8	9.9	158	GP
22	356	0601	36	21.50	62	58.70	890.0	10.1	156	c/cs
22	356	0622	36	24.80	63	0.50	893.5	10.0	155	c/cs
22	356	0630	36	25.97	63	1.18	894.9	10.2	154	GP
22	356	0645	36	28.30	63	2.60	897.4	10.2	153	c/cs
22	356	0700	36	30.54	63	3.99	900.0	10.3	154	GP
22	356	0705	36	31.30	63	4.50	900.8	10.3	155	c/cs
22	356	0718	36	33.30	63	5.60	903.1	10.2	156	c/cs
22	356	0735	36	35.98	63	7.11	906.0	9.8	157	GP
22	356	0735	36	36.00	63	7.10	906.0	9.9	157	c/cs
22	356	0751	36	38.40	63	8.40	908.6	9.9	157	c/cs
22	356	0800	36	39.79	63	9.09	910.1	10.2	157	GP
22	356	0811	36	41.50	63	10.00	912.0	10.0	157	c/cs
22	356	0830	36	44.41	63	11.57	915.1	9.9	156	GP
22	356	0839	36	45.80	63	12.30	916.6	10.0	157	c/cs
22	356	0902	36	49.30	63	14.20	920.4	10.3	156	c/cs
22	356	0927	36	53.20	63	16.30	924.7	10.1	157	c/cs
22	356	0955	36	57.60	63	18.60	929.4	9.9	157	c/cs
22	356	1003	36	58.80	63	19.30	930.8	10.1	156	c/cs
22	356	1022	37	1.70	63	20.90	933.9	10.3	157	SN
22	356	1023	37	1.90	63	21.00	934.1	10.3	157	c/cs
22	356	1033	37	3.40	63	21.80	935.8	10.5	158	c/cs
22	356	1051	37	6.30	63	23.30	939.0	10.6	158	c/cs
22	356	1114	37	10.10	63	25.30	943.1	10.3	157	c/cs
22	356	1129	37	12.50	63	26.50	945.6	10.3	159	c/cs
22	356	1137	37	13.80	63	27.10	947.0	10.3	153	c/cs
22	356	1139	37	14.10	63	27.30	947.4	9.7	159	c/cs
22	356	1147	37	15.30	63	27.90	948.7	10.1	158	c/cs
22	356	1154	37	16.40	63	28.50	949.8	10.0	158	c/cs
22	356	1159	37	17.20	63	28.90	950.7	10.3	157	c/cs
22	356	1202	37	17.60	63	29.10	951.2	10.0	156	c/cs
22	356	1204	37	17.90	63	29.30	951.5	9.2	156	c/cs
22	356	1210	37	18.80	63	29.80	952.4	9.9	159	c/cs
22	356	1216	37	19.70	63	30.20	953.4	9.5	159	SN
22	356	1217	37	19.80	63	30.30	953.6	9.5	165	c/cs
22	356	1220	37	20.30	63	30.40	954.0	9.5	158	c/cs
22	356	1227	37	21.30	63	31.00	955.2	9.4	154	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	South latitude (min)	East longitude (deg)	East longitude (min)	Distance (nmi)	Actual speed (kt)	Actual course (deg)	Comments[a]
22	356	1232	37	22.00	63	31.40	955.9	9.8	157	c/cs
22	356	1248	37	24.50	63	32.70	958.6	9.6	157	c/cs
22	356	1303	37	26.70	63	33.90	961.0	9.4	158	c/cs
22	356	1323	37	29.60	63	35.40	964.1	9.6	157	c/cs
22	356	1401	37	35.10	63	38.40	970.2	9.2	157	c/cs
22	356	1412	37	36.70	63	39.20	971.9	9.5	162	SN
22	356	1416	37	37.30	63	39.50	972.5	9.9	161	c/cs
22	356	1444	37	41.70	63	41.40	977.1	9.6	152	c/cs
22	356	1446	37	41.90	63	41.50	977.4	10.4	139	c/cs
22	356	1447	37	42.10	63	41.70	977.6	10.0	99	c/cs
22	356	1449	37	42.10	63	42.10	977.9	10.3	106	c/cs
22	356	1457	37	42.50	63	43.80	979.3	9.2	163	c/cs
22	356	1504	37	43.50	63	44.20	980.4	10.0	159	c/cs
22	356	1510	37	44.50	63	44.60	981.4	9.6	161	c/cs
22	356	1540	37	49.00	63	46.60	986.2	9.4	161	c/cs
22	356	1548	37	50.10	63	47.10	987.4	9.6	162	c/cs
22	356	1555	37	51.20	63	47.60	988.5	9.1	161	c/cs
22	356	1603	37	52.40	63	48.10	989.8	9.6	162	c/cs
22	356	1611	37	53.60	63	48.60	991.0	9.3	162	c/cs
22	356	1623	37	55.40	63	49.30	992.9	9.4	162	c/cs
22	356	1633	37	56.80	63	49.90	994.5	8.9	162	c/cs
22	356	1639	37	57.70	63	50.30	995.4	9.7	163	c/cs
22	356	1644	37	58.50	63	50.60	996.2	8.7	165	c/cs
22	356	1646	37	58.70	63	50.70	996.4	9.5	162	c/cs
22	356	1658	38	0.60	63	51.40	998.4	9.4	162	c/cs
22	356	1722	38	4.10	63	52.90	1002.1	8.8	162	c/cs
22	356	1729	38	5.10	63	53.30	1003.1	9.3	162	c/cs
22	356	1730	38	5.25	63	53.32	1003.3	9.3	161	GP
22	356	1745	38	7.40	63	54.30	1005.6	9.5	161	c/cs
22	356	1813	38	11.60	63	56.10	1010.0	9.7	162	c/cs
22	356	1833	38	14.70	63	57.30	1013.3	10.0	162	c/cs
22	356	1851	38	17.50	63	58.50	1016.2	9.9	162	c/cs
22	356	1921	38	22.20	64	0.50	1021.1	9.7	161	c/cs
22	356	1939	38	24.90	64	1.70	1024.0	9.5	162	c/cs
22	356	2006	38	29.00	64	3.40	1028.3	9.8	162	c/cs
22	356	2022	38	31.50	64	4.40	1030.9	9.8	162	c/cs
22	356	2047	38	35.40	64	6.10	1035.0	9.7	162	c/cs
22	356	2100	38	37.37	64	6.90	1037.1	9.8	164	GP
22	356	2102	38	37.70	64	7.00	1037.5	9.7	162	c/cs
22	356	2112	38	39.20	64	7.70	1039.1	9.8	159	c/cs
22	356	2131	38	42.10	64	9.10	1042.2	9.1	158	c/cs
22	356	2133	38	42.40	64	9.20	1042.5	10.0	158	c/cs
22	356	2145	38	44.30	64	10.20	1044.5	9.8	158	c/cs
22	356	2153	38	45.50	64	10.80	1045.8	10.1	158	c/cs
22	356	2205	38	47.35	64	11.73	1047.8	10.2	160	GP
22	356	2209	38	48.00	64	12.00	1048.5	9.8	161	c/cs
22	356	2213	38	48.60	64	12.30	1049.1	10.0	161	c/cs
22	356	2230	38	51.30	64	13.47	1052.0	9.9	161	GP
22	356	2234	38	51.90	64	13.70	1052.6	9.9	162	c/cs
22	356	2244	38	53.50	64	14.40	1054.3	9.9	160	c/cs
22	356	2251	38	54.60	64	14.90	1055.4	9.9	160	c/cs
22	356	2259	38	55.80	64	15.50	1056.8	9.7	160	c/cs
22	356	2300	38	55.98	64	15.57	1056.9	10.1	161	GP
22	356	2315	38	58.40	64	16.60	1059.5	10.3	159	c/cs
22	356	2320	38	59.20	64	17.00	1060.3	10.0	161	c/cs
22	356	2327	39	0.30	64	17.50	1061.5	10.0	160	c/cs
22	356	2330	39	0.73	64	17.74	1062.0	10.0	160	GP
22	356	2335	39	1.50	64	18.10	1062.8	10.2	157	c/cs
23 Dec	357	0000	39	5.40	64	20.20	1067.0	10.2	157	c/cs
23	357	0002	39	5.70	64	20.40	1067.4	10.4	157	c/cs
23	357	0005	39	6.20	64	20.65	1067.9	10.1	156	GP
23	357	0016	39	7.90	64	21.60	1069.8	10.0	157	c/cs
23	357	0021	39	8.70	64	22.10	1070.6	10.2	155	c/cs
23	357	0031	39	10.20	64	23.00	1072.3	9.9	156	c/cs
23	357	0056	39	14.00	64	25.20	1076.4	9.7	156	c/cs
23	357	0114	39	16.60	64	26.70	1079.3	9.9	155	c/cs
23	357	0122	39	17.80	64	27.40	1080.6	9.7	156	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
23	357	0147	39	21.50	64	29.60	1084.7	10.1	156	c/cs
23	357	0150	39	21.96	64	29.85	1085.2	10.7	154	SN
23	357	0202	39	23.90	64	31.10	1087.3	10.5	154	c/cs
23	357	0214	39	25.80	64	32.30	1089.4	10.7	154	c/cs
23	357	0228	39	28.00	64	33.70	1091.9	10.5	154	c/cs
23	357	0242	39	30.20	64	35.10	1094.4	10.7	154	c/cs
23	357	0250	39	31.50	64	35.90	1095.8	10.6	154	c/cs
23	357	0301	39	33.20	64	37.00	1097.7	10.6	154	c/cs
23	357	0308	39	34.30	64	37.70	1099.0	10.5	154	c/cs
23	357	0323	39	36.70	64	39.30	1101.6	10.9	154	c/cs
23	357	0336	39	38.80	64	40.60	1104.0	10.9	153	SN
23	357	0353	39	41.60	64	42.40	1107.0	10.7	153	c/cs
23	357	0401	39	42.80	64	43.20	1108.5	11.0	153	c/cs
23	357	0412	39	44.60	64	44.40	1110.5	10.7	154	c/cs
23	357	0434	39	48.10	64	46.60	1114.4	10.8	153	c/cs
23	357	0442	39	49.40	64	47.50	1115.8	10.9	153	c/cs
23	357	0447	39	50.20	64	48.00	1116.7	10.9	154	c/cs
23	357	0500	39	52.38	64	49.32	1119.1	10.9	152	GP
23	357	0505	39	53.20	64	49.90	1120.0	10.8	152	c/cs
23	357	0520	39	55.60	64	51.60	1122.7	11.0	151	c/cs
23	357	0538	39	58.40	64	53.70	1126.0	10.6	151	c/cs
23	357	0546	39	59.70	64	54.50	1127.4	10.3	155	c/cs
23	357	0555	40	1.10	64	55.40	1129.0	10.8	155	c/cs
23	357	0600	40	1.90	64	55.88	1129.9	9.8	155	GP
23	357	0611	40	3.50	64	56.90	1131.7	9.5	155	c/cs
23	357	0619	40	4.70	64	57.60	1132.9	9.4	154	c/cs
23	357	0624	40	5.40	64	58.00	1133.7	9.9	154	c/cs
23	357	0631	40	6.40	64	58.70	1134.9	9.7	155	c/cs
23	357	0635	40	6.99	64	59.04	1135.5	10.7	155	GP
23	357	0652	40	9.70	65	0.70	1138.5	10.7	155	c/cs
23	357	0709	40	12.50	65	2.40	1141.6	10.7	156	c/cs
23	357	0715	40	13.47	65	2.94	1142.6	10.1	154	GP
23	357	0737	40	16.80	65	5.00	1146.4	10.6	155	c/cs
23	357	0742	40	17.60	65	5.50	1147.3	10.1	154	c/cs
23	357	0750	40	18.80	65	6.30	1148.6	10.4	154	c/cs
23	357	0758	40	20.10	65	7.10	1150.0	10.0	154	c/cs
23	357	0800	40	20.39	65	7.29	1150.3	10.2	155	GP
23	357	0805	40	21.20	65	7.80	1151.2	10.4	155	c/cs
23	357	0830	40	25.12	65	10.14	1155.5	10.1	156	GP
23	357	0838	40	26.40	65	10.90	1156.9	10.2	155	c/cs
23	357	0848	40	27.90	65	11.80	1158.6	10.4	156	c/cs
23	357	0856	40	29.20	65	12.50	1160.0	10.0	156	c/cs
23	357	0908	40	31.00	65	13.60	1162.0	10.3	156	c/cs
23	357	0924	40	33.50	65	15.10	1164.7	10.3	155	c/cs
23	357	0951	40	37.70	65	17.70	1169.4	10.1	156	c/cs
23	357	1015	40	41.40	65	19.80	1173.4	10.3	155	c/cs
23	357	1022	40	42.50	65	20.50	1174.6	10.1	156	c/cs
23	357	1034	40	44.30	65	21.60	1176.6	9.7	157	SN
23	357	1035	40	44.40	65	21.70	1176.7	9.4	156	c/cs
23	357	1045	40	45.90	65	22.50	1178.3	9.7	157	c/cs
23	357	1058	40	47.80	65	23.60	1180.4	9.8	157	c/cs
23	357	1123	40	51.60	65	25.80	1184.5	9.7	157	c/cs
23	357	1136	40	53.50	65	26.90	1186.6	10.0	156	c/cs
23	357	1143	40	54.60	65	27.50	1187.8	9.8	156	c/cs
23	357	1156	40	56.50	65	28.70	1189.9	9.7	157	c/cs
23	357	1203	40	57.50	65	29.20	1191.0	9.9	157	c/cs
23	357	1211	40	58.70	65	29.90	1192.3	9.7	157	c/cs
23	357	1232	41	1.80	65	31.70	1195.7	9.8	156	c/cs
23	357	1241	41	3.20	65	32.50	1197.2	9.9	156	c/cs
23	357	1302	41	6.40	65	34.40	1200.7	9.8	157	c/cs
23	357	1312	41	7.90	65	35.30	1202.3	10.1	156	c/cs
23	357	1330	41	10.62	65	36.90	1205.3	9.8	157	SN
23	357	1330	41	10.60	65	36.90	1205.3	9.4	157	c/cs
23	357	1343	41	12.50	65	38.00	1207.4	9.6	157	c/cs
23	357	1406	41	15.80	65	39.90	1211.0	9.6	158	c/cs
23	357	1428	41	19.10	65	41.70	1214.5	9.7	157	c/cs
23	357	1446	41	21.80	65	43.20	1217.5	9.7	157	c/cs
23	357	1459	41	23.70	65	44.30	1219.5	9.6	157	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
23	357	1524	41	27.40	65	46.40	1223.5	9.4	158	c/cs
23	357	1526	41	27.67	65	46.56	1223.9	9.7	161	SN
23	357	1539	41	29.70	65	47.50	1226.0	10.1	160	c/cs
23	357	1549	41	31.20	65	48.20	1227.6	10.1	159	c/cs
23	357	1602	41	33.30	65	49.30	1229.8	10.0	158	c/cs
23	357	1607	41	34.00	65	49.70	1230.7	9.8	164	c/cs
23	357	1618	41	35.80	65	50.40	1232.5	9.9	164	c/cs
23	357	1640	41	39.30	65	51.70	1236.1	9.9	164	c/cs
23	357	1708	41	43.70	65	53.40	1240.7	9.9	164	c/cs
23	357	1718	41	45.30	65	54.00	1242.4	10.0	162	c/cs
23	357	1724	41	46.30	65	54.40	1243.4	9.9	164	c/cs
23	357	1734	41	47.80	65	55.10	1245.0	10.0	164	c/cs
23	357	1739	41	48.60	65	55.40	1245.9	9.9	164	c/cs
23	357	1821	41	55.30	65	57.90	1252.8	10.0	164	c/cs
23	357	1830	41	56.70	65	58.50	1254.3	9.7	164	c/cs
23	357	1840	41	58.30	65	59.10	1255.9	10.1	164	c/cs
23	357	1857	42	1.10	66	0.20	1258.8	9.9	163	c/cs
23	357	1913	42	3.60	66	1.20	1261.4	9.6	159	c/cs
23	357	1915	42	3.90	66	1.40	1261.7	10.1	154	c/cs
23	357	1930	42	6.10	66	2.90	1264.3	10.2	154	c/cs
23	357	1941	42	7.80	66	4.00	1266.1	10.0	154	c/cs
23	357	1948	42	8.90	66	4.60	1267.3	10.4	150	c/cs
23	357	1958	42	10.40	66	5.80	1269.0	10.3	149	c/cs
23	357	2008	42	11.80	66	7.00	1270.7	10.2	149	c/cs
23	357	2030	42	15.05	66	9.53	1274.4	10.3	151	GP
23	357	2031	42	15.20	66	9.60	1274.6	10.4	152	c/cs
23	357	2059	42	19.40	66	12.80	1279.5	10.5	152	c/cs
23	357	2112	42	21.40	66	14.20	1281.7	10.1	152	c/cs
23	357	2117	42	22.20	66	14.80	1282.6	10.1	152	c/cs
23	357	2127	42	23.70	66	15.80	1284.3	10.3	152	c/cs
23	357	2130	42	24.12	66	16.18	1284.8	10.7	152	GP
23	357	2151	42	27.40	66	18.60	1288.5	10.7	152	c/cs
23	357	2200	42	28.84	66	19.60	1290.1	10.5	152	GP
23	357	2216	42	31.30	66	21.40	1292.9	10.6	151	c/cs
23	357	2230	42	33.49	66	22.99	1295.4	11.1	151	GP
23	357	2300	42	38.30	66	26.70	1300.9	11.0	150	c/cs
23	357	2328	42	42.80	66	30.20	1306.1	11.0	150	c/cs
23	357	2330	42	43.08	66	30.48	1306.5	11.1	150	GP
23	357	2348	42	46.00	66	32.80	1309.8	11.3	150	c/cs
24 Dec	358	0000	42	47.91	66	34.33	1312.1	11.4	149	GP
24	358	0000	42	47.90	66	34.30	1312.1	11.4	149	c/cs
24	358	0019	42	51.00	66	36.90	1315.7	11.4	150	c/cs
24	358	0041	42	54.60	66	39.80	1319.8	11.4	143	c/cs
24	358	0043	42	54.90	66	40.10	1320.2	11.0	153	c/cs
24	358	0047	42	55.60	66	40.50	1321.0	11.3	149	c/cs
24	358	0052	42	56.40	66	41.20	1321.9	11.7	151	c/cs
24	358	0057	42	57.20	66	41.90	1322.9	11.3	145	c/cs
24	358	0059	42	57.50	66	42.20	1323.3	11.2	155	c/cs
24	358	0101	42	57.90	66	42.40	1323.6	11.2	144	c/cs
24	358	0102	42	58.00	66	42.50	1323.8	11.1	152	c/cs
24	358	0106	42	58.70	66	43.00	1324.5	11.5	150	c/cs
24	358	0128	43	2.30	66	45.90	1328.8	11.6	148	GP
24	358	0145	43	5.10	66	48.30	1332.1	11.5	148	c/cs
24	358	0203	43	8.00	66	50.70	1335.5	11.8	149	c/cs
24	358	0218	43	10.60	66	52.80	1338.4	11.6	150	c/cs
24	358	0243	43	14.80	66	56.10	1343.3	11.8	150	c/cs
24	358	0253	43	16.50	66	57.50	1345.3	11.6	149	c/cs
24	358	0308	43	19.00	66	59.50	1348.2	11.6	150	c/cs
24	358	0334	43	23.30	67	3.00	1353.2	11.6	152	c/cs
24	358	0409	43	29.30	67	7.30	1359.9	11.6	152	c/cs
24	358	0443	43	35.10	67	11.50	1366.5	11.6	152	c/cs
24	358	0500	43	38.05	67	13.58	1369.8	11.9	151	GP
24	358	0514	43	40.50	67	15.40	1372.6	11.9	151	c/cs
24	358	0544	43	45.70	67	19.40	1378.5	11.9	151	c/cs
24	358	0614	43	50.90	67	23.50	1384.5	11.9	151	c/cs
24	358	0630	43	53.66	67	25.60	1387.7	11.3	149	GP
24	358	0644	43	55.90	67	27.50	1390.3	11.2	150	c/cs
24	358	0700	43	58.52	67	29.53	1393.3	11.2	155	GP

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
24	358	0708	43	59.90	67	30.40	1394.8	11.2	155	c/cs
24	358	0715	44	1.10	67	31.20	1396.1	11.5	155	c/cs
24	358	0723	44	2.50	67	32.10	1397.6	11.2	155	c/cs
24	358	0730	44	3.63	67	32.86	1398.9	11.6	152	GP
24	358	0736	44	4.70	67	33.60	1400.1	11.8	152	c/cs
24	358	0753	44	7.60	67	35.80	1403.5	11.8	152	c/cs
24	358	0800	44	8.83	67	36.69	1404.8	11.6	151	GP
24	358	0816	44	11.50	67	38.80	1407.9	11.7	151	c/cs
24	358	0824	44	12.90	67	39.90	1409.5	11.5	151	c/cs
24	358	0830	44	13.91	67	40.63	1410.6	11.5	150	GP
24	358	0854	44	17.90	67	43.90	1415.2	11.6	150	c/cs
24	358	0907	44	20.00	67	45.70	1417.7	11.7	150	c/cs
24	358	0929	44	23.80	67	48.70	1422.0	11.5	150	c/cs
24	358	0935	44	24.80	67	49.50	1423.2	11.7	150	c/cs
24	358	0940	44	25.60	67	50.20	1424.2	12.7	152	SN
24	358	1011	44	31.40	67	54.60	1430.7	12.6	151	c/cs
24	358	1031	44	35.00	67	57.40	1434.9	12.7	152	c/cs
24	358	1054	44	39.30	68	0.70	1439.8	12.7	151	c/cs
24	358	1122	44	44.50	68	4.70	1445.7	12.4	152	c/cs
24	358	1136	44	47.00	68	6.70	1448.6	12.7	152	c/cs
24	358	1159	44	51.30	68	10.00	1453.5	12.5	152	c/cs
24	358	1214	44	54.10	68	12.10	1456.6	12.7	152	c/cs
24	358	1228	44	56.70	68	14.10	1459.6	12.7	151	c/cs
24	358	1240	44	58.90	68	15.80	1462.1	12.7	149	c/cs
24	358	1248	45	0.30	68	17.00	1463.8	12.6	151	c/cs
24	358	1313	45	4.90	68	20.60	1469.0	12.2	150	c/cs
24	358	1321	45	6.30	68	21.80	1470.7	12.6	151	c/cs
24	358	1348	45	11.30	68	25.70	1476.3	12.6	151	c/cs
24	358	1414	45	16.00	68	29.50	1481.8	12.5	151	c/cs
24	358	1428	45	18.59	68	31.50	1484.7	12.7	157	SN
24	358	1439	45	20.70	68	32.80	1487.1	12.8	156	c/cs
24	358	1452	45	23.30	68	34.40	1489.8	12.7	156	c/cs
24	358	1507	45	26.20	68	36.20	1493.0	12.7	156	c/cs
24	358	1528	45	30.20	68	38.80	1497.5	12.5	156	c/cs
24	358	1537	45	32.00	68	39.90	1499.3	12.7	156	c/cs
24	358	1558	45	36.00	68	42.50	1503.8	12.4	156	c/cs
24	358	1621	45	40.40	68	45.20	1508.5	12.3	156	c/cs
24	358	1626	45	41.33	68	45.80	1509.6	12.6	156	SN
24	358	1626	45	41.30	68	45.80	1509.6	12.8	156	c/cs
24	358	1644	45	44.90	68	48.00	1513.4	12.7	153	c/cs
24	358	1704	45	48.60	68	50.70	1517.6	12.9	153	c/cs
24	358	1714	45	50.60	68	52.10	1519.8	13.0	153	c/cs
24	358	1727	45	53.10	68	53.90	1522.6	13.1	153	c/cs
24	358	1730	45	53.66	68	54.33	1523.3	13.0	153	GP
24	358	1735	45	54.60	68	55.00	1524.3	12.5	152	c/cs
24	358	1747	45	56.80	68	56.70	1526.8	12.6	152	c/cs
24	358	1757	45	58.70	68	58.10	1528.9	12.7	149	c/cs
24	358	1800	45	59.24	68	58.56	1529.6	13.0	147	GP
24	358	1805	46	0.10	68	59.40	1530.7	12.7	148	c/cs
24	358	1813	46	1.60	69	0.70	1532.4	13.3	147	c/cs
24	358	1820	46	2.90	69	1.90	1533.9	12.8	148	c/cs
24	358	1828	46	4.30	69	3.20	1535.6	13.2	147	c/cs
24	358	1830	46	4.70	69	3.59	1536.1	12.9	144	GP
24	358	1835	46	5.60	69	4.50	1537.1	12.7	142	c/cs
24	358	1845	46	7.20	69	6.40	1539.2	12.7	142	c/cs
24	358	1859	46	9.60	69	9.00	1542.2	12.3	142	c/cs
24	358	1911	46	11.50	69	11.20	1544.7	12.5	141	c/cs
24	358	1924	46	13.60	69	13.60	1547.4	12.7	141	c/cs
24	358	1939	46	16.10	69	16.50	1550.5	12.3	142	c/cs
24	358	1944	46	16.90	69	17.40	1551.6	12.7	143	c/cs
24	358	2000	46	19.61	69	20.35	1554.9	12.3	143	GP
24	358	2001	46	19.80	69	20.50	1555.1	12.3	142	c/cs
24	358	2007	46	20.70	69	21.60	1556.4	12.3	143	c/cs
24	358	2017	46	22.40	69	23.40	1558.4	12.8	144	c/cs
24	358	2020	46	22.90	69	24.00	1559.1	12.2	143	c/cs
24	358	2030	46	24.50	69	25.70	1561.1	12.3	143	c/cs
24	358	2040	46	26.20	69	27.50	1563.2	12.7	142	c/cs
24	358	2043	46	26.70	69	28.10	1563.8	11.8	143	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	South latitude (min)	East longitude (deg)	East longitude (min)	Distance (nmi)	Actual speed (kt)	Actual course (deg)	Comments[a]
24	358	2048	46	27.40	69	28.90	1564.8	12.2	143	c/cs
24	358	2053	46	28.30	69	29.80	1565.8	12.5	143	c/cs
24	358	2100	46	29.41	69	31.12	1567.2	12.4	141	GP
24	358	2105	46	30.20	69	32.10	1568.3	12.3	143	c/cs
24	358	2126	46	33.70	69	35.80	1572.6	12.0	142	c/cs
24	358	2130	46	34.30	69	36.50	1573.4	12.3	144	c/cs
24	358	2141	46	36.10	69	38.40	1575.6	11.9	143	c/cs
24	358	2146	46	36.90	69	39.30	1576.6	12.1	143	c/cs
24	358	2159	46	39.00	69	41.60	1579.2	12.3	143	c/cs
24	358	2200	46	39.17	69	41.76	1579.4	10.7	142	GP
24	358	2208	46	40.30	69	43.10	1580.9	11.7	143	c/cs
24	358	2211	46	40.80	69	43.60	1581.4	10.5	142	c/cs
24	358	2222	46	42.30	69	45.30	1583.4	10.9	142	c/cs
24	358	2230	46	43.42	69	46.56	1584.8	11.9	143	GP
24	358	2232	46	43.70	69	46.90	1585.2	11.6	146	c/cs
24	358	2242	46	45.40	69	48.50	1587.2	11.8	149	c/cs
24	358	2252	46	47.00	69	49.90	1589.1	11.7	148	c/cs
24	358	2301	46	48.52	69	51.31	1590.9	11.7	144	SF
24	358	2305	46	49.20	69	52.00	1591.6	11.6	143	c/cs
24	358	2312	46	50.20	69	53.20	1593.0	11.7	143	c/cs
24	358	2323	46	51.90	69	55.10	1595.2	11.6	144	c/cs
24	358	2330	46	53.04	69	56.24	1596.5	11.4	147	GP
24	358	2340	46	54.60	69	57.80	1598.4	11.4	146	c/cs
24	358	2345	46	55.40	69	58.50	1599.4	11.5	147	c/cs
24	358	2355	46	57.00	70	0.10	1601.3	11.5	147	c/cs
25 Dec	359	0000	46	57.80	70	0.90	1602.2	11.5	147	c/cs
25	359	0006	46	58.80	70	1.80	1603.4	11.9	147	c/cs
25	359	0016	47	0.50	70	3.30	1605.4	11.1	149	c/cs
25	359	0026	47	2.00	70	4.80	1607.2	11.5	147	c/cs
25	359	0031	47	2.84	70	5.53	1608.2	10.9	138	SF
25	359	0036	47	3.50	70	6.40	1609.1	11.1	139	c/cs
25	359	0044	47	4.60	70	7.90	1610.6	10.6	139	c/cs
25	359	0053	47	5.80	70	9.40	1612.2	11.0	139	c/cs
25	359	0102	47	7.10	70	11.00	1613.8	10.2	138	c/cs
25	359	0107	47	7.70	70	11.80	1614.6	10.2	139	c/cs
25	359	0109	47	7.95	70	12.15	1615.0	9.7	142	SF
25	359	0114	47	8.60	70	12.90	1615.8	10.2	141	c/cs
25	359	0121	47	9.50	70	14.00	1617.0	9.7	143	c/cs
25	359	0126	47	10.20	70	14.70	1617.8	10.0	131	c/cs
25	359	0132	47	10.80	70	15.80	1618.8	10.5	131	c/cs
25	359	0139	47	11.60	70	17.20	1620.0	10.7	128	c/cs
25	359	0150	47	12.80	70	19.40	1622.0	11.0	130	c/cs
25	359	0157	47	13.70	70	20.90	1623.3	10.9	130	c/cs
25	359	0205	47	14.60	70	22.50	1624.7	9.3	131	c/cs
25	359	0207	47	14.80	70	22.90	1625.0	10.5	131	c/cs
25	359	0215	47	15.70	70	24.40	1626.4	10.6	130	c/cs
25	359	0218	47	16.00	70	25.00	1627.0	11.1	130	c/cs
25	359	0225	47	16.90	70	26.50	1628.3	10.7	131	c/cs
25	359	0241	47	18.70	70	29.70	1631.1	11.0	130	c/cs
25	359	0248	47	19.60	70	31.10	1632.4	10.6	132	c/cs
25	359	0253	47	20.20	70	32.10	1633.3	10.9	130	c/cs
25	359	0257	47	20.63	70	32.91	1634.0	11.1	131	SF
25	359	0258	47	20.70	70	33.10	1634.2	10.4	131	c/cs
25	359	0306	47	21.70	70	34.70	1635.6	10.9	132	c/cs
25	359	0311	47	22.30	70	35.70	1636.5	9.8	131	c/cs
25	359	0314	47	22.60	70	36.20	1637.0	10.8	132	c/cs
25	359	0324	47	23.80	70	38.20	1638.8	10.8	131	c/cs
25	359	0334	47	25.00	70	40.10	1640.6	10.1	132	c/cs
25	359	0339	47	25.50	70	41.10	1641.4	10.7	130	c/cs
25	359	0346	47	26.40	70	42.50	1642.6	10.4	130	c/cs
25	359	0354	47	27.30	70	44.00	1644.0	10.5	130	c/cs
25	359	0410	47	29.10	70	47.20	1646.9	10.2	132	c/cs
25	359	0415	47	29.60	70	48.20	1647.7	11.4	132	c/cs
25	359	0418	47	30.00	70	48.80	1648.3	9.7	131	c/cs
25	359	0420	47	30.20	70	49.10	1648.6	10.8	130	c/cs
25	359	0430	47	31.40	70	51.17	1650.4	11.0	131	GP
25	359	0435	47	32.00	70	52.20	1651.3	10.8	133	c/cs
25	359	0453	47	34.20	70	55.70	1654.5	11.2	132	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
25	359	0500	47	35.08	70	57.13	1655.8	11.7	131	GP
25	359	0503	47	35.50	70	57.80	1656.4	11.6	129	c/cs
25	359	0506	47	35.80	70	58.40	1657.0	11.1	132	c/cs
25	359	0513	47	36.70	70	59.90	1658.3	11.2	132	c/cs
25	359	0524	47	38.10	71	2.20	1660.4	11.5	130	c/cs
25	359	0530	47	38.81	71	3.45	1661.5	10.5	131	GP
25	359	0536	47	39.50	71	4.60	1662.6	10.4	130	c/cs
25	359	0557	47	41.90	71	8.80	1666.2	9.5	135	c/cs
25	359	0559	47	42.10	71	9.10	1666.5	10.2	131	c/cs
25	359	0600	47	42.20	71	9.29	1666.7	10.8	131	GP
25	359	0617	47	44.20	71	12.70	1669.7	11.1	131	c/cs
25	359	0629	47	45.70	71	15.20	1672.0	10.8	131	c/cs
25	359	0630	47	45.79	71	15.38	1672.1	10.1	131	GP
25	359	0645	47	47.50	71	18.20	1674.7	10.0	131	c/cs
25	359	0658	47	48.90	71	20.60	1676.8	10.8	132	c/cs
25	359	0701	47	49.20	71	21.20	1677.4	10.2	130	c/cs
25	359	0711	47	50.40	71	23.20	1679.1	9.7	130	c/cs
25	359	0718	47	51.10	71	24.40	1680.2	9.8	122	c/cs
25	359	0721	47	51.30	71	25.10	1680.7	10.7	117	c/cs
25	359	0726	47	51.70	71	26.30	1681.6	10.3	116	c/cs
25	359	0730	47	52.04	71	27.18	1682.3	10.1	114	GP
25	359	0733	47	52.20	71	27.90	1682.8	10.3	117	c/cs
25	359	0744	47	53.10	71	30.40	1684.7	10.0	115	c/cs
25	359	0800	47	54.21	71	34.00	1687.3	10.0	114	GP
25	359	0801	47	54.30	71	34.20	1687.5	10.1	114	c/cs
25	359	0815	47	55.20	71	37.40	1689.9	10.1	113	c/cs
25	359	0820	47	55.50	71	38.60	1690.7	10.9	115	c/cs
25	359	0825	47	55.90	71	39.80	1691.6	9.9	115	c/cs
25	359	0830	47	56.28	71	40.95	1692.4	9.4	123	GP
25	359	0834	47	56.60	71	41.70	1693.1	9.0	181	c/cs
25	359	0839	47	57.40	71	41.70	1693.8	9.0	184	c/cs
25	359	0900	48	0.50	71	41.40	1697.0	8.7	183	c/cs
25	359	0918	48	3.10	71	41.20	1699.6	8.4	182	c/cs
25	359	0919	48	3.26	71	41.22	1699.7	9.0	184	SF
25	359	0954	48	8.50	71	40.60	1705.0	9.1	188	c/cs
25	359	0959	48	9.20	71	40.50	1705.7	8.7	193	c/cs
25	359	1008	48	10.50	71	40.03	1707.0	8.9	200	SF
25	359	1014	48	11.30	71	39.60	1707.9	8.5	201	c/cs
25	359	1032	48	13.70	71	38.20	1710.5	8.8	202	c/cs
25	359	1039	48	14.70	71	37.60	1711.5	8.6	200	c/cs
25	359	1052	48	16.40	71	36.60	1713.3	8.7	201	c/cs
25	359	1100	48	17.48	71	35.98	1714.5	9.1	193	SF
25	359	1105	48	18.20	71	35.70	1715.3	8.8	192	c/cs
25	359	1110	48	18.90	71	35.50	1716.0	9.3	191	c/cs
25	359	1117	48	20.00	71	35.20	1717.1	9.3	192	c/cs
25	359	1125	48	21.20	71	34.80	1718.3	8.8	193	c/cs
25	359	1157	48	25.80	71	33.30	1723.0	8.9	192	c/cs
25	359	1223	48	29.60	71	32.10	1726.9	8.5	192	c/cs
25	359	1226	48	29.99	71	31.96	1727.3	7.6	195	SF
25	359	1226	48	30.00	71	32.00	1727.3	8.4	193	c/cs
25	359	1231	48	30.70	71	31.70	1728.0	8.0	194	c/cs
25	359	1239	48	31.70	71	31.30	1729.1	8.5	195	c/cs
25	359	1241	48	32.00	71	31.20	1729.3	8.2	183	c/cs
25	359	1247	48	32.79	71	31.13	1730.2	9.3	182	SF
25	359	1251	48	33.40	71	31.10	1730.8	9.2	180	c/cs
25	359	1308	48	36.00	71	31.10	1733.4	9.3	180	c/cs
25	359	1312	48	36.60	71	31.10	1734.0	9.0	181	c/cs
25	359	1400	48	43.80	71	30.90	1741.2	5.7	186	c/cs
25	359	1520	48	51.40	71	29.60	1748.8	8.4	191	c/cs
25	359	1620	48	59.60	71	27.10	1757.2	8.4	187	c/cs
25	359	1651	49	3.96	71	26.32	1761.6	8.7	179	GP
25	359	1655	49	4.50	71	26.30	1762.2	9.2	154	c/cs
25	359	1730	49	9.40	71	29.90	1767.5	10.9	157	c/cs
25	359	1740	49	11.03	71	31.02	1769.3	9.6	156	GP
25	359	1750	49	12.49	71	32.00	1770.9	9.6	154	GP
25	359	1750	49	12.50	71	32.00	1770.9	9.6	157	c/cs
25	359	1800	49	13.96	71	32.97	1772.5	8.2	155	GP
25	359	1806	49	14.70	71	33.50	1773.3	8.7	164	GP

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
25	359	1806	49	14.70	71	33.50	1773.3	6.3	164	c/cs
25	359	1810	49	15.11	71	33.68	1773.8	6.3	155	GP
25	359	1820	49	16.06	71	34.37	1774.8	6.9	155	GP
25	359	1830	49	17.10	71	35.11	1776.0	6.6	156	GP
25	359	1840	49	18.11	71	35.80	1777.1	6.2	156	GP
25	359	1850	49	19.05	71	36.43	1778.1	6.0	157	GP
25	359	1910	49	20.91	71	37.64	1780.1	7.1	153	GP
25	359	1920	49	21.97	71	38.46	1781.3	6.6	155	GP
25	359	1930	49	22.96	71	39.18	1782.4	6.4	157	GP
25	359	1940	49	23.94	71	39.82	1783.5	7.7	157	GP
25	359	1945	49	24.53	71	40.20	1784.1	6.1	156	GP
25	359	2000	49	25.92	71	41.14	1785.6	6.8	155	GP
25	359	2015	49	27.47	71	42.25	1787.3	6.4	157	GP
25	359	2030	49	28.95	71	43.23	1788.9	4.6	159	GP
25	359	2116	49	32.30	71	45.20	1792.5	8.3	337	c/cs
25	359	2200	49	26.65	71	41.52	1798.6	8.1	338	GP
25	359	2217	49	24.52	71	40.20	1800.9	9.1	334	GP
25	359	2217	49	24.50	71	40.20	1800.9	7.1	335	c/cs
25	359	2225	49	23.66	71	39.59	1801.9	3.4	330	GP
25	359	2250	49	22.50	71	38.50	1803.3	6.6	156	c/cs
25	359	2307	49	24.17	71	39.69	1805.1	5.0	150	736
25	359	2307	49	24.20	71	39.70	1805.1	0.0	90	c/cs
29 Dec	363	1245	49	24.17	71	39.69	1805.1	1.0	124	736
29	363	1245	49	24.20	71	39.70	1805.1	3.8	307	c/cs
29	363	1250	49	24.00	71	39.30	1805.5	4.0	356	c/cs
29	363	1252	49	23.80	71	39.30	1805.6	3.6	299	c/cs
29	363	1254	49	23.80	71	39.10	1805.7	4.4	249	c/cs
29	363	1255	49	23.80	71	39.00	1805.8	5.5	222	c/cs
29	363	1256	49	23.90	71	38.90	1805.9	6.6	196	c/cs
29	363	1257	49	24.00	71	38.90	1806.0	6.8	140	c/cs
29	363	1259	49	24.20	71	39.10	1806.2	7.9	133	c/cs
29	363	1315	49	25.60	71	41.50	1808.3	6.3	131	c/cs
29	363	1326	49	26.40	71	42.80	1809.5	6.8	131	c/cs
29	363	1330	49	26.60	71	43.30	1809.9	7.8	132	c/cs
29	363	1356	49	28.90	71	47.20	1813.3	7.8	132	c/cs
29	363	1418	49	30.80	71	50.50	1816.2	7.8	132	c/cs
29	363	1446	49	33.20	71	54.70	1819.8	7.7	132	c/cs
29	363	1516	49	35.80	71	59.10	1823.6	7.7	132	c/cs
29	363	1528	49	36.83	72	0.85	1825.2	8.3	132	SF
29	363	1542	49	38.10	72	3.10	1827.1	8.3	135	c/cs
29	363	1612	49	41.00	72	7.60	1831.3	8.2	134	c/cs
29	363	1630	49	42.74	72	10.36	1833.7	8.1	139	GP
29	363	1642	49	44.00	72	12.00	1835.3	7.9	140	c/cs
29	363	1700	49	45.80	72	14.33	1837.7	8.2	134	GP
29	363	1706	49	46.40	72	15.20	1838.5	8.2	133	c/cs
29	363	1720	49	47.67	72	17.43	1840.5	8.3	130	GP
29	363	1720	49	47.70	72	17.40	1840.5	9.0	130	c/cs
29	363	1730	49	48.64	72	19.22	1842.0	9.5	134	GP
29	363	1738	49	49.50	72	20.60	1843.2	9.5	135	c/cs
29	363	1800	49	51.99	72	24.46	1846.7	10.0	135	GP
29	363	1808	49	52.90	72	25.90	1848.1	10.0	135	c/cs
29	363	1838	49	56.50	72	31.40	1853.1	10.0	135	c/cs
29	363	1900	49	59.04	72	35.46	1856.7	9.4	137	GP
29	363	1908	49	59.90	72	36.80	1858.0	9.4	134	c/cs
29	363	1930	50	2.34	72	40.63	1861.4	9.6	134	GP
29	363	1935	50	2.90	72	41.50	1862.2	9.4	132	c/cs
29	363	1945	50	3.95	72	43.34	1863.8	9.2	132	GP
29	363	1946	50	4.10	72	43.50	1863.9	8.6	130	c/cs
29	363	2000	50	5.34	72	45.90	1865.9	8.3	128	GP
29	363	2016	50	6.70	72	48.60	1868.1	8.2	127	c/cs
29	363	2046	50	9.20	72	53.70	1872.2	8.2	128	c/cs
29	363	2100	50	10.36	72	56.02	1874.1	8.3	127	GP
29	363	2103	50	10.60	72	56.50	1874.5	7.4	130	c/cs
29	363	2111	50	11.20	72	57.70	1875.5	7.0	131	c/cs
29	363	2118	50	11.80	72	58.70	1876.3	6.9	135	c/cs
29	363	2130	50	12.75	73	0.20	1877.7	6.7	135	GP
29	363	2132	50	12.90	73	0.40	1877.9	6.4	133	c/cs
29	363	2140	50	13.49	73	1.43	1878.8	6.7	135	GP

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	South latitude (min)	East longitude (deg)	East longitude (min)	Distance (nmi)	Actual speed (kt)	Actual course (deg)	Comments[a]
29	363	2149	50	14.20	73	2.54	1879.8	6.2	139	GP
29	363	2200	50	15.10	73	3.70	1880.9	6.3	139	c/cs
29	363	2208	50	15.70	73	4.57	1881.8	4.2	126	SF
29	363	2212	50	15.90	73	4.90	1882.1	4.2	131	c/cs
29	363	2219	50	16.20	73	5.50	1882.6	3.4	182	c/cs
29	363	2220	50	16.20	73	5.50	1882.6	3.1	237	c/cs
29	363	2222	50	16.30	73	5.40	1882.7	3.2	300	c/cs
29	363	2225	50	16.20	73	5.20	1882.9	3.9	322	c/cs
29	363	2228	50	16.10	73	5.00	1883.1	5.1	317	c/cs
29	363	2236	50	15.60	73	4.30	1883.7	5.3	320	c/cs
29	363	2243	50	15.10	73	3.60	1884.4	4.7	320	c/cs
29	363	2250	50	14.70	73	3.10	1884.9	2.7	323	c/cs
29	363	2259	50	14.40	73	2.70	1885.3	2.6	328	c/cs
29	363	2318	50	13.67	73	2.02	1886.1	1.9	312	737
29	363	2318	50	13.70	73	2.00	1886.1	0.0	90	c/cs
4	Jan 4	0615	50	13.67	73	2.02	1886.1	1.4	29	737
4	4	0622	50	13.50	73	2.10	1886.3	5.6	7	c/cs
4	4	0630	50	12.80	73	2.30	1887.0	4.9	2	c/cs
4	4	0647	50	11.40	73	2.40	1888.4	3.4	322	c/cs
4	4	0650	50	11.30	73	2.20	1888.6	2.1	260	c/cs
4	4	0653	50	11.30	73	2.00	1888.7	3.0	235	c/cs
4	4	0700	50	11.50	73	1.60	1889.1	3.3	229	c/cs
4	4	0705	50	11.70	73	1.30	1889.3	3.7	175	c/cs
4	4	0711	50	12.00	73	1.30	1889.7	4.3	174	c/cs
4	4	0718	50	12.52	73	1.41	1890.2	6.5	175	SF
4	4	0741	50	15.00	73	1.70	1892.7	6.6	175	c/cs
4	4	0759	50	17.00	73	2.00	1894.7	6.5	174	c/cs
4	4	0825	50	19.80	73	2.50	1897.5	6.5	175	c/cs
4	4	0832	50	20.60	73	2.60	1898.3	6.6	173	c/cs
4	4	0839	50	21.30	73	2.80	1899.0	8.2	164	c/cs
4	4	0847	50	22.40	73	3.20	1900.1	8.9	163	c/cs
4	4	0900	50	24.20	73	4.10	1902.1	9.9	164	c/cs
4	4	0908	50	25.50	73	4.69	1903.4	10.9	166	SF
4	4	0910	50	25.90	73	4.80	1903.8	11.1	166	c/cs
4	4	0938	50	30.90	73	6.90	1909.0	11.0	166	c/cs
4	4	0953	50	33.50	73	7.90	1911.7	11.1	166	c/cs
4	4	1011	50	36.80	73	9.10	1915.0	11.2	166	c/cs
4	4	1034	50	40.90	73	10.80	1919.3	11.1	166	c/cs
4	4	1057	50	45.10	73	12.40	1923.6	11.2	162	c/cs
4	4	1102	50	46.00	73	12.80	1924.5	11.1	158	c/cs
4	4	1109	50	47.20	73	13.60	1925.8	11.2	166	c/cs
4	4	1127	50	50.40	73	14.90	1929.2	11.2	166	c/cs
4	4	1129	50	50.78	73	15.06	1929.5	11.8	167	SF
4	4	1148	50	54.40	73	16.40	1933.3	11.9	164	c/cs
4	4	1150	50	54.80	73	16.50	1933.7	11.7	155	c/cs
4	4	1158	50	56.20	73	17.60	1935.2	11.9	167	c/cs
4	4	1214	50	59.34	73	18.70	1938.4	11.9	167	SF
4	4	1246	51	5.50	73	21.00	1944.8	11.9	167	c/cs
4	4	1321	51	12.26	73	23.43	1951.7	12.5	167	SF
4	4	1329	51	13.90	73	24.00	1953.4	12.3	168	c/cs
4	4	1342	51	16.51	73	24.89	1956.0	11.7	166	SF
4	4	1346	51	17.30	73	25.20	1956.8	12.0	158	c/cs
4	4	1354	51	18.80	73	26.20	1958.4	11.8	166	c/cs
4	4	1422	51	24.10	73	28.30	1963.9	11.9	166	c/cs
4	4	1443	51	28.20	73	29.90	1968.1	12.0	166	c/cs
4	4	1503	51	32.10	73	31.40	1972.1	12.2	166	c/cs
4	4	1553	51	41.90	73	35.30	1982.3	12.1	166	c/cs
4	4	1600	51	43.31	73	35.82	1983.7	12.6	168	GP
4	4	1616	51	46.60	73	37.00	1987.1	12.7	167	c/cs
4	4	1642	51	52.00	73	39.00	1992.6	12.7	167	c/cs
4	4	1718	51	59.37	73	41.85	2000.2	12.6	159	SF
4	4	1718	51	59.40	73	41.90	2000.2	12.7	159	c/cs
4	4	1730	52	1.70	73	43.40	2002.7	12.6	159	c/cs
4	4	1751	52	5.80	73	46.00	2007.1	12.6	159	c/cs
4	4	1811	52	9.80	73	48.40	2011.3	12.6	159	c/cs
4	4	1831	52	13.70	73	50.80	2015.5	12.6	159	c/cs
4	4	1836	52	14.69	73	51.39	2016.6	11.9	165	SF
4	4	1851	52	17.60	73	52.70	2019.6	11.9	168	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	South latitude (min)	East longitude (deg)	East longitude (min)	Distance (nmi)	Actual speed (kt)	Actual course (deg)	Comments[a]
4	4	1859	52	19.12	73	53.20	2021.2	12.2	170	SF
4	4	1914	52	22.10	73	54.10	2024.2	12.0	169	c/cs
4	4	1954	52	30.00	73	56.60	2032.2	12.1	170	c/cs
4	4	2000	52	31.16	73	56.96	2033.4	11.9	169	GP
4	4	2018	52	34.70	73	58.10	2037.0	12.0	168	c/cs
4	4	2023	52	35.70	73	58.40	2038.0	12.0	159	c/cs
4	4	2030	52	37.00	73	59.30	2039.4	12.1	157	c/cs
4	4	2046	52	39.92	74	1.29	2042.6	12.1	150	SF
4	4	2051	52	40.80	74	2.10	2043.6	12.3	151	c/cs
4	4	2103	52	42.90	74	4.10	2046.1	12.1	151	c/cs
4	4	2121	52	46.10	74	7.10	2049.7	12.0	150	c/cs
4	4	2134	52	48.40	74	9.20	2052.3	12.4	150	c/cs
4	4	2201	52	53.19	74	13.84	2057.9	11.5	156	SF
4	4	2207	52	54.20	74	14.60	2059.0	11.4	156	c/cs
4	4	2219	52	56.30	74	16.10	2061.3	11.6	160	c/cs
4	4	2225	52	57.43	74	16.77	2062.5	11.8	157	SF
4	4	2237	52	59.60	74	18.30	2064.8	11.8	157	c/cs
4	4	2255	53	2.90	74	20.60	2068.4	11.8	157	c/cs
4	4	2338	53	10.60	74	26.00	2076.8	11.8	157	c/cs
4	4	2344	53	11.72	74	26.78	2078.0	12.3	159	SF
5	Jan 5	0000	53	14.80	74	28.70	2081.3	12.3	159	c/cs
5	5	0003	53	15.40	74	29.10	2081.9	12.3	159	c/cs
5	5	0037	53	21.90	74	33.20	2088.8	12.2	158	c/cs
5	5	0046	53	23.50	74	34.40	2090.7	12.3	157	c/cs
5	5	0115	53	29.00	74	38.30	2096.6	12.4	157	c/cs
5	5	0137	53	33.20	74	41.40	2101.2	12.3	157	c/cs
5	5	0153	53	36.20	74	43.50	2104.5	12.4	155	c/cs
5	5	0220	53	41.30	74	47.50	2110.1	12.4	155	c/cs
5	5	0249	53	46.80	74	51.70	2116.0	12.4	156	c/cs
5	5	0300	53	48.84	74	53.26	2118.3	12.3	156	GP
5	5	0316	53	51.80	74	55.50	2121.6	12.2	156	c/cs
5	5	0400	54	0.02	75	1.70	2130.6	12.5	156	GP
5	5	0401	54	0.20	75	1.80	2130.8	12.6	157	c/cs
5	5	0430	54	5.80	75	5.90	2136.8	12.5	156	c/cs
5	5	0443	54	8.30	75	7.80	2139.6	12.5	155	c/cs
5	5	0500	54	11.49	75	10.28	2143.1	11.8	156	GP
5	5	0506	54	12.60	75	11.10	2144.3	11.9	156	c/cs
5	5	0518	54	14.70	75	12.80	2146.6	11.9	156	c/cs
5	5	0549	54	20.30	75	17.20	2152.8	11.8	156	c/cs
5	5	0600	54	22.28	75	18.70	2154.9	12.2	156	GP
5	5	0622	54	26.40	75	21.80	2159.4	12.2	156	c/cs
5	5	0657	54	32.90	75	26.70	2166.5	12.2	156	c/cs
5	5	0700	54	33.44	75	27.17	2167.1	12.2	156	GP
5	5	0738	54	40.50	75	32.70	2174.9	12.3	156	c/cs
5	5	0756	54	43.90	75	35.30	2178.6	12.2	156	c/cs
5	5	0800	54	44.62	75	35.87	2179.4	11.6	154	GP
5	5	0846	54	52.60	75	42.70	2188.3	11.6	154	c/cs
5	5	0853	54	53.77	75	43.75	2189.6	12.1	154	SF
5	5	0917	54	58.10	75	47.40	2194.4	11.9	154	c/cs
5	5	0937	55	1.60	75	50.50	2198.4	12.2	153	c/cs
5	5	0952	55	4.40	75	52.90	2201.4	12.1	153	c/cs
5	5	1041	55	13.20	76	0.70	2211.3	12.1	153	c/cs
5	5	1053	55	15.40	76	2.60	2213.8	11.8	154	c/cs
5	5	1101	55	16.80	76	3.90	2215.3	12.2	149	c/cs
5	5	1121	55	20.30	76	7.50	2219.4	12.0	155	c/cs
5	5	1139	55	23.50	76	10.30	2223.0	12.3	155	c/cs
5	5	1150	55	25.56	76	11.93	2225.3	11.3	150	SF
5	5	1209	55	28.68	76	15.09	2228.9	12.9	157	SF
5	5	1210	55	28.90	76	15.20	2229.1	12.7	157	c/cs
5	5	1227	55	32.20	76	17.80	2232.7	12.7	157	c/cs
5	5	1232	55	33.15	76	18.49	2233.7	12.1	155	SF
5	5	1305	55	39.21	76	23.42	2240.4	12.0	154	SF
5	5	1313	55	40.70	76	24.60	2242.0	11.8	155	c/cs
5	5	1333	55	44.20	76	27.60	2245.9	12.1	154	c/cs
5	5	1356	55	48.40	76	31.10	2250.6	11.9	155	c/cs
5	5	1431	55	54.70	76	36.30	2257.5	11.9	155	c/cs
5	5	1449	55	58.00	76	39.00	2261.1	11.9	156	c/cs
5	5	1500	55	59.94	76	40.54	2263.2	12.3	162	GP

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
5	5	1505	56	0.90	76	41.10	2264.3	12.1	159	c/cs
5	5	1514	56	2.60	76	42.30	2266.1	12.2	167	c/cs
5	5	1520	56	3.80	76	42.80	2267.3	12.4	166	c/cs
5	5	1527	56	5.21	76	43.38	2268.8	11.5	154	SF
5	5	1535	56	6.60	76	44.60	2270.3	11.7	143	c/cs
5	5	1548	56	8.60	76	47.30	2272.8	11.5	151	c/cs
5	5	1600	56	10.64	76	49.29	2275.1	11.6	152	GP
5	5	1606	56	11.70	76	50.30	2276.3	11.9	152	c/cs
5	5	1616	56	13.40	76	51.90	2278.3	11.8	153	c/cs
5	5	1618	56	13.76	76	52.25	2278.7	11.9	167	SF
5	5	1630	56	16.08	76	53.21	2281.0	12.9	168	GP
5	5	1634	56	16.90	76	53.50	2281.9	12.6	167	c/cs
5	5	1641	56	18.36	76	54.14	2283.4	11.8	147	SF
5	5	1700	56	21.50	76	57.78	2287.1	11.6	158	GP
5	5	1701	56	21.70	76	57.90	2287.3	11.5	149	c/cs
5	5	1712	56	23.50	76	59.90	2289.4	11.5	150	c/cs
5	5	1727	56	26.00	77	2.50	2292.3	11.5	158	c/cs
5	5	1732	56	26.90	77	3.10	2293.3	11.6	158	c/cs
5	5	1757	56	31.40	77	6.30	2298.1	11.6	159	c/cs
5	5	1825	56	36.40	77	9.90	2303.5	11.6	159	c/cs
5	5	1858	56	42.30	77	14.00	2309.8	11.5	159	c/cs
5	5	1921	56	46.50	77	16.90	2314.3	11.5	158	c/cs
5	5	1928	56	47.71	77	17.81	2315.6	11.9	162	GP
5	5	1959	56	53.60	77	21.20	2321.8	12.1	161	c/cs
5	5	2012	56	56.10	77	22.80	2324.4	11.8	162	c/cs
5	5	2022	56	57.90	77	23.80	2326.3	12.0	161	c/cs
5	5	2035	57	0.40	77	25.40	2328.9	11.9	162	c/cs
5	5	2045	57	2.30	77	26.50	2330.9	11.9	162	c/cs
5	5	2107	57	6.40	77	29.10	2335.3	11.8	161	c/cs
5	5	2120	57	8.90	77	30.60	2337.9	11.9	162	c/cs
5	5	2141	57	12.81	77	33.06	2342.0	11.3	158	SF
5	5	2156	57	15.40	77	35.00	2344.9	11.2	154	c/cs
5	5	2221	57	19.60	77	38.70	2349.5	11.0	154	c/cs
5	5	2225	57	20.31	77	39.29	2350.3	11.7	157	SF
5	5	2234	57	21.90	77	40.60	2352.0	11.9	157	c/cs
5	5	2252	57	25.20	77	43.10	2355.6	11.7	157	c/cs
5	5	2259	57	26.47	77	44.12	2357.0	10.8	158	SF
5	5	2304	57	27.30	77	44.70	2357.8	11.0	159	c/cs
5	5	2320	57	30.00	77	46.70	2360.8	10.7	158	c/cs
5	5	2332	57	32.04	77	48.15	2362.9	10.8	156	SF
5	5	2340	57	33.40	77	49.20	2364.4	10.9	156	c/cs
6 Jan	6	0000	57	36.70	77	52.00	2368.0	10.9	156	c/cs
6	6	0005	57	37.50	77	52.70	2368.9	10.8	156	c/cs
6	6	0013	57	38.82	77	53.75	2370.3	11.4	157	SF
6	6	0028	57	41.40	77	55.90	2373.2	11.4	156	c/cs
6	6	0041	57	43.70	77	57.80	2375.7	11.3	155	c/cs
6	6	0059	57	46.80	78	0.40	2379.0	11.5	155	c/cs
6	6	0117	57	49.87	78	3.14	2382.5	11.3	152	SF
6	6	0126	57	51.40	78	4.60	2384.2	11.3	152	c/cs
6	6	0141	57	53.90	78	7.10	2387.0	11.2	152	c/cs
6	6	0200	57	57.00	78	10.30	2390.5	11.3	152	c/cs
6	6	0229	58	1.80	78	15.00	2396.0	10.8	152	c/cs
6	6	0235	58	2.80	78	16.00	2397.1	11.1	152	c/cs
6	6	0315	58	9.30	78	22.70	2404.5	10.9	152	c/cs
6	6	0328	58	11.40	78	24.80	2406.8	11.1	152	c/cs
6	6	0353	58	15.47	78	28.83	2411.5	11.4	153	SF
6	6	0401	58	16.80	78	30.10	2413.0	11.4	153	c/cs
6	6	0416	58	19.40	78	32.60	2415.8	11.3	153	c/cs
6	6	0455	58	26.00	78	38.90	2423.2	11.2	153	c/cs
6	6	0500	58	26.79	78	39.67	2424.1	10.7	154	SF
6	6	0507	58	27.90	78	40.70	2425.4	10.9	154	c/cs
6	6	0528	58	31.40	78	43.90	2429.2	10.9	155	c/cs
6	6	0545	58	34.20	78	46.40	2432.3	10.9	154	c/cs
6	6	0619	58	39.71	78	51.50	2438.4	10.4	155	SF
6	6	0624	58	40.50	78	52.20	2439.3	10.4	155	c/cs
6	6	0635	58	42.21	78	53.79	2441.2	10.8	151	SF
6	6	0636	58	42.40	78	54.00	2441.4	10.5	151	c/cs
6	6	0646	58	43.90	78	55.60	2443.2	10.9	154	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
6	6	0711	58	48.00	78	59.50	2447.7	10.8	155	c/cs
6	6	0753	58	54.80	79	5.80	2455.3	10.9	154	c/cs
6	6	0803	58	56.40	79	7.30	2457.1	10.6	154	c/cs
6	6	0822	58	59.44	79	10.19	2460.4	10.2	156	SF
6	6	0822	58	59.40	79	10.20	2460.4	10.4	156	c/cs
6	6	0841	59	2.50	79	12.80	2463.7	10.5	156	c/cs
6	6	0855	59	4.70	79	14.70	2466.2	10.4	155	c/cs
6	6	0859	59	5.30	79	15.30	2466.9	10.1	142	c/cs
6	6	0900	59	5.50	79	15.50	2467.0	9.6	133	c/cs
6	6	0907	59	6.20	79	17.10	2468.2	10.0	146	c/cs
6	6	0909	59	6.50	79	17.50	2468.5	10.4	157	c/cs
6	6	0918	59	7.90	79	18.70	2470.1	10.2	156	c/cs
6	6	0935	59	10.60	79	20.90	2473.0	10.4	157	c/cs
6	6	0955	59	13.80	79	23.60	2476.4	10.4	156	c/cs
6	6	1008	59	15.80	79	25.40	2478.7	10.2	157	c/cs
6	6	1031	59	19.40	79	28.40	2482.6	10.6	157	c/cs
6	6	1051	59	22.70	79	31.10	2486.1	10.4	158	c/cs
6	6	1058	59	23.80	79	31.99	2487.3	10.3	158	SF
6	6	1104	59	24.80	79	32.70	2488.4	10.5	158	c/cs
6	6	1119	59	27.20	79	34.70	2491.0	10.4	157	c/cs
6	6	1134	59	29.60	79	36.70	2493.6	10.4	158	c/cs
6	6	1142	59	30.90	79	37.70	2495.0	10.9	158	c/cs
6	6	1150	59	32.20	79	38.70	2496.4	10.6	151	c/cs
6	6	1203	59	34.20	79	40.90	2498.7	10.6	157	c/cs
6	6	1225	59	37.80	79	43.90	2502.6	10.6	157	c/cs
6	6	1246	59	41.20	79	46.70	2506.3	10.6	157	c/cs
6	6	1253	59	42.40	79	47.70	2507.6	11.2	157	c/cs
6	6	1256	59	42.90	79	48.10	2508.1	10.4	158	c/cs
6	6	1300	59	43.50	79	48.60	2508.8	10.7	169	c/cs
6	6	1314	59	46.00	79	49.60	2511.3	8.6	168	c/cs
6	6	1319	59	46.70	79	49.90	2512.0	9.9	169	c/cs
6	6	1339	59	49.90	79	51.20	2515.3	10.1	169	c/cs
6	6	1340	59	50.08	79	51.24	2515.5	10.0	162	SF
6	6	1352	59	52.00	79	52.50	2517.5	10.1	137	c/cs
6	6	1354	59	52.20	79	52.90	2517.8	10.3	126	c/cs
6	6	1402	59	53.00	79	55.10	2519.2	10.5	126	c/cs
6	6	1414	59	54.20	79	58.50	2521.3	10.6	127	c/cs
6	6	1437	59	56.60	80	5.00	2525.3	10.0	126	c/cs
6	6	1447	59	57.60	80	7.70	2527.0	10.5	127	c/cs
6	6	1457	59	58.70	80	10.50	2528.7	10.9	126	c/cs
6	6	1526	60	1.70	80	19.10	2534.0	10.7	126	c/cs
6	6	1533	60	2.50	80	21.10	2535.2	10.9	126	c/cs
6	6	1600	60	5.40	80	29.01	2540.2	9.9	136	GP
6	6	1601	60	5.50	80	29.20	2540.3	10.5	153	c/cs
6	6	1603	60	5.80	80	29.60	2540.7	10.7	174	c/cs
6	6	1609	60	6.90	80	29.80	2541.7	10.8	179	c/cs
6	6	1618	60	8.50	80	29.80	2543.4	10.7	179	c/cs
6	6	1630	60	10.65	80	29.91	2545.5	10.7	178	GP
6	6	1642	60	12.80	80	30.10	2547.6	10.6	179	c/cs
6	6	1700	60	15.98	80	30.20	2550.8	10.8	179	GP
6	6	1710	60	17.80	80	30.20	2552.6	10.9	180	c/cs
6	6	1729	60	21.20	80	30.20	2556.1	10.8	179	c/cs
6	6	1730	60	21.40	80	30.23	2556.2	10.8	178	GP
6	6	1753	60	25.50	80	30.50	2560.4	10.0	179	c/cs
6	6	1758	60	26.40	80	30.50	2561.2	10.6	180	c/cs
6	6	1800	60	26.72	80	30.53	2561.6	10.4	180	GP
6	6	1811	60	28.60	80	30.50	2563.5	10.2	181	c/cs
6	6	1823	60	30.70	80	30.40	2565.5	10.2	178	c/cs
6	6	1828	60	31.50	80	30.50	2566.4	10.3	179	c/cs
6	6	1830	60	31.85	80	30.52	2566.7	10.3	181	GP
6	6	1839	60	33.40	80	30.40	2568.2	10.6	181	c/cs
6	6	1849	60	35.20	80	30.40	2570.0	10.4	186	c/cs
6	6	1900	60	37.06	80	29.96	2571.9	10.9	186	GP
6	6	1919	60	40.50	80	29.20	2575.4	10.8	186	c/cs
6	6	1930	60	42.46	80	28.80	2577.4	10.2	185	GP
6	6	1932	60	42.80	80	28.70	2577.7	10.4	182	c/cs
6	6	1942	60	44.50	80	28.60	2579.4	10.2	182	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
6	6	1955	60	46.70	80	28.50	2581.6	10.3	182	c/cs
6	6	2000	60	47.60	80	28.47	2582.5	10.9	180	GP
6	6	2012	60	49.80	80	28.40	2584.7	10.8	180	c/cs
6	6	2020	60	51.20	80	28.50	2586.1	10.9	180	c/cs
6	6	2045	60	55.80	80	28.50	2590.7	10.8	179	c/cs
6	6	2050	60	56.68	80	28.55	2591.6	9.6	180	GP
6	6	2100	60	58.29	80	28.57	2593.2	10.8	185	GP
6	6	2101	60	58.50	80	28.50	2593.4	11.1	186	c/cs
6	6	2106	60	59.40	80	28.40	2594.3	10.6	181	c/cs
6	6	2113	61	0.60	80	28.30	2595.5	11.0	186	c/cs
6	6	2124	61	2.64	80	27.89	2597.5	10.7	180	SF
6	6	2134	61	4.40	80	27.90	2599.3	11.0	180	c/cs
6	6	2201	61	9.40	80	27.80	2604.3	10.9	189	c/cs
6	6	2219	61	12.60	80	26.80	2607.5	10.5	183	c/cs
6	6	2222	61	13.10	80	26.70	2608.1	11.1	180	c/cs
6	6	2305	61	21.00	80	26.70	2616.0	11.2	180	c/cs
6	6	2310	61	22.00	80	26.70	2616.9	10.9	170	c/cs
6	6	2321	61	23.90	80	27.40	2618.9	11.0	169	c/cs
6	6	2326	61	24.80	80	27.80	2619.8	11.0	177	c/cs
6	6	2334	61	26.30	80	27.93	2621.3	9.8	178	SF
6	6	2343	61	27.80	80	28.10	2622.8	9.9	178	c/cs
6	6	2352	61	29.24	80	28.18	2624.2	12.0	175	SF
7	Jan 7	0000	61	30.80	80	28.50	2625.8	12.0	175	c/cs
7	7	0017	61	34.20	80	29.20	2629.2	11.8	170	c/cs
7	7	0027	61	36.14	80	29.87	2631.2	10.2	167	SF
7	7	0027	61	36.10	80	29.90	2631.2	10.3	165	c/cs
7	7	0037	61	37.80	80	30.80	2632.9	10.0	169	c/cs
7	7	0042	61	38.60	80	31.10	2633.7	10.3	175	c/cs
7	7	0050	61	39.97	80	31.38	2635.1	11.6	177	SF
7	7	0050	61	40.00	80	31.40	2635.1	11.5	184	c/cs
7	7	0052	61	40.40	80	31.30	2635.5	11.7	178	c/cs
7	7	0110	61	43.90	80	31.60	2639.0	11.8	180	c/cs
7	7	0120	61	45.80	80	31.60	2640.9	11.8	177	c/cs
7	7	0138	61	49.40	80	32.00	2644.5	11.8	177	c/cs
7	7	0157	61	53.09	80	32.44	2648.2	12.0	181	SF
7	7	0211	61	55.90	80	32.40	2651.0	12.0	181	c/cs
7	7	0234	62	0.50	80	32.20	2655.6	12.0	181	c/cs
7	7	0259	62	5.50	80	32.10	2660.6	12.0	181	c/cs
7	7	0303	62	6.29	80	32.05	2661.4	11.7	174	GP
7	7	0324	62	10.40	80	33.00	2665.5	11.8	176	c/cs
7	7	0330	62	11.53	80	33.16	2666.7	12.0	186	SF
7	7	0342	62	13.90	80	32.60	2669.1	12.0	190	c/cs
7	7	0350	62	15.50	80	32.00	2670.7	11.7	185	c/cs
7	7	0355	62	16.50	80	31.80	2671.7	12.1	186	c/cs
7	7	0400	62	17.47	80	31.58	2672.7	11.7	181	GP
7	7	0413	62	20.00	80	31.50	2675.2	11.5	177	c/cs
7	7	0432	62	23.60	80	31.90	2678.9	11.6	182	c/cs
7	7	0500	62	29.07	80	31.49	2684.3	11.9	181	GP
7	7	0521	62	33.20	80	31.30	2688.5	12.0	182	c/cs
7	7	0533	62	35.60	80	31.20	2690.9	11.7	173	c/cs
7	7	0538	62	36.60	80	31.50	2691.8	12.0	181	c/cs
7	7	0600	62	40.98	80	31.30	2696.2	12.1	180	GP
7	7	0607	62	42.40	80	31.30	2697.6	12.1	181	c/cs
7	7	0635	62	48.00	80	31.20	2703.3	12.1	180	c/cs
7	7	0700	62	53.06	80	31.22	2708.3	12.0	176	GP
7	7	0708	62	54.70	80	31.50	2709.9	12.0	176	c/cs
7	7	0758	63	4.60	80	33.10	2719.9	12.0	176	c/cs
7	7	0802	63	5.42	80	33.19	2720.7	12.1	180	SF
7	7	0847	63	14.50	80	33.10	2729.8	12.2	180	c/cs
7	7	0917	63	20.60	80	33.10	2735.9	12.2	183	c/cs
7	7	0920	63	21.23	80	32.99	2736.5	12.1	182	SF
7	7	0933	63	23.80	80	32.70	2739.1	12.0	179	c/cs
7	7	0948	63	26.90	80	32.80	2742.1	12.1	180	c/cs
7	7	1023	63	33.90	80	32.80	2749.2	12.1	180	c/cs
7	7	1036	63	36.60	80	32.80	2751.8	12.0	186	c/cs
7	7	1041	63	37.60	80	32.60	2752.8	10.8	196	c/cs
7	7	1043	63	37.90	80	32.30	2753.2	12.1	179	c/cs
7	7	1053	63	39.92	80	32.40	2755.2	11.8	185	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
7	7	1106	63	42.50	80	31.90	2757.8	11.9	185	c/cs
7	7	1129	63	47.00	80	31.10	2762.3	12.0	185	c/cs
7	7	1138	63	48.79	80	30.72	2764.1	12.1	181	SF
7	7	1139	63	49.00	80	30.70	2764.3	11.9	178	c/cs
7	7	1150	63	51.20	80	30.90	2766.5	11.9	182	c/cs
7	7	1151	63	51.36	80	30.84	2766.7	11.4	187	SF
7	7	1207	63	54.40	80	30.00	2769.7	11.5	187	c/cs
7	7	1230	63	58.70	80	28.80	2774.1	11.4	216	c/cs
7	7	1237	63	59.80	80	27.00	2775.5	11.8	216	c/cs
7	7	1306	64	4.40	80	19.40	2781.1	12.0	217	c/cs
7	7	1308	64	4.80	80	18.80	2781.6	11.8	205	c/cs
7	7	1318	64	6.50	80	16.90	2783.5	11.6	217	c/cs
7	7	1325	64	7.60	80	15.10	2784.9	11.8	218	c/cs
7	7	1329	64	8.20	80	14.00	2785.7	11.8	215	c/cs
7	7	1346	64	11.00	80	9.50	2789.0	11.7	219	c/cs
7	7	1354	64	12.20	80	7.30	2790.6	11.6	210	c/cs
7	7	1359	64	13.00	80	6.20	2791.5	11.7	211	c/cs
7	7	1407	64	14.30	80	4.30	2793.1	11.8	214	c/cs
7	7	1419	64	16.30	80	1.30	2795.4	11.8	214	c/cs
7	7	1442	64	20.00	79	55.40	2800.0	11.8	214	c/cs
7	7	1529	64	27.68	79	43.41	2809.2	10.9	207	SF
7	7	1532	64	28.20	79	42.80	2809.7	10.9	206	c/cs
7	7	1600	64	32.75	79	37.71	2814.8	11.6	212	GP
7	7	1600	64	32.70	79	37.70	2814.8	11.7	212	c/cs
7	7	1621	64	36.20	79	32.60	2818.9	11.7	212	c/cs
7	7	1630	64	37.69	79	30.47	2820.7	11.8	212	GP
7	7	1700	64	42.67	79	23.10	2826.6	11.4	211	GP
7	7	1711	64	44.50	79	20.60	2828.7	11.5	211	c/cs
7	7	1724	64	46.60	79	17.60	2831.1	11.4	208	c/cs
7	7	1730	64	47.62	79	16.36	2832.3	11.8	207	GP
7	7	1730	64	47.60	79	16.40	2832.3	11.8	205	c/cs
7	7	1740	64	49.40	79	14.40	2834.3	11.7	212	c/cs
7	7	1747	64	50.60	79	12.70	2835.6	11.8	211	c/cs
7	7	1813	64	55.00	79	6.50	2840.7	11.8	211	c/cs
7	7	1830	64	57.85	79	2.50	2844.1	12.2	213	GP
7	7	1838	64	59.20	79	0.40	2845.7	12.2	214	c/cs
7	7	1904	65	3.60	78	53.40	2851.0	12.2	217	c/cs
7	7	1917	65	5.70	78	49.60	2853.6	12.0	217	c/cs
7	7	1932	65	8.10	78	45.20	2856.6	12.1	221	c/cs
7	7	1944	65	9.90	78	41.50	2859.1	12.1	223	c/cs
7	7	2000	65	12.26	78	36.24	2862.3	12.4	225	GP
7	7	2034	65	17.20	78	24.50	2869.3	12.3	225	c/cs
7	7	2045	65	18.80	78	20.70	2871.5	12.0	233	c/cs
7	7	2050	65	19.40	78	18.80	2872.5	12.2	233	c/cs
7	7	2100	65	20.68	78	14.89	2874.6	12.5	234	GP
7	7	2107	65	21.50	78	12.10	2876.0	12.6	230	c/cs
7	7	2131	65	24.80	78	2.80	2881.1	12.4	229	c/cs
7	7	2148	65	27.10	77	56.50	2884.6	11.9	229	c/cs
7	7	2151	65	27.50	77	55.40	2885.2	11.0	210	c/cs
7	7	2154	65	27.90	77	54.70	2885.7	11.2	214	c/cs
7	7	2159	65	28.70	77	53.50	2886.7	10.7	220	c/cs
7	7	2206	65	29.70	77	51.50	2887.9	9.0	220	c/cs
7	7	2209	65	30.00	77	50.80	2888.4	8.4	218	c/cs
7	7	2213	65	30.50	77	50.00	2888.9	11.4	215	c/cs
7	7	2217	65	31.10	77	48.90	2889.7	13.0	213	c/cs
7	7	2225	65	32.54	77	46.69	2891.4	11.6	209	SF
7	7	2229	65	33.20	77	45.80	2892.2	11.9	211	c/cs
7	7	2247	65	36.26	77	41.34	2895.7	12.2	213	SF
7	7	2319	65	41.70	77	32.80	2902.2	12.3	213	c/cs
7	7	2320	65	41.90	77	32.50	2902.4	11.3	223	c/cs
7	7	2322	65	42.10	77	31.90	2902.8	12.1	212	c/cs
7	7	2332	65	43.90	77	29.30	2904.8	11.9	240	c/cs
7	7	2340	65	44.60	77	25.90	2906.4	12.4	241	c/cs
7	7	2347	65	45.30	77	22.90	2907.8	12.0	245	c/cs
7	7	2356	65	46.10	77	18.90	2909.6	12.1	248	c/cs
8 Jan	8	0001	65	46.50	77	16.60	2910.6	11.8	243	c/cs
8	8	0006	65	46.90	77	14.50	2911.6	10.6	243	c/cs
8	8	0009	65	47.15	77	13.32	2912.2	10.3	245	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
8	8	0013	65	47.40	77	11.80	2912.8	9.7	248	c/cs
8	8	0016	65	47.60	77	10.70	2913.3	8.5	243	c/cs
8	8	0020	65	47.90	77	9.50	2913.9	6.1	247	c/cs
8	8	0023	65	48.00	77	8.80	2914.2	5.7	256	c/cs
8	8	0025	65	48.00	77	8.30	2914.4	6.7	240	c/cs
8	8	0028	65	48.20	77	7.60	2914.7	6.6	218	c/cs
8	8	0031	65	48.46	77	7.14	2915.1	6.3	210	SF
8	8	0034	65	48.70	77	6.80	2915.4	5.7	200	c/cs
8	8	0038	65	49.10	77	6.40	2915.7	5.2	205	c/cs
8	8	0041	65	49.30	77	6.20	2916.0	5.4	196	c/cs
8	8	0046	65	49.80	77	5.90	2916.5	6.5	194	c/cs
8	8	0051	65	50.30	77	5.50	2917.0	6.8	186	c/cs
8	8	0056	65	50.80	77	5.40	2917.6	6.8	192	c/cs
8	8	0109	65	52.30	77	4.70	2919.0	6.1	186	c/cs
8	8	0112	65	52.60	77	4.60	2919.3	5.0	180	c/cs
8	8	0117	65	53.00	77	4.60	2919.8	6.4	183	c/cs
8	8	0122	65	53.50	77	4.50	2920.3	6.0	193	c/cs
8	8	0127	65	54.00	77	4.20	2920.8	5.6	189	c/cs
8	8	0131	65	54.40	77	4.10	2921.2	7.1	206	c/cs
8	8	0132	65	54.50	77	4.00	2921.3	9.3	205	c/cs
8	8	0135	65	54.90	77	3.50	2921.7	10.0	204	c/cs
8	8	0145	65	56.40	77	1.80	2923.4	9.8	208	c/cs
8	8	0202	65	58.90	76	58.70	2926.2	11.0	209	c/cs
8	8	0203	65	59.07	76	58.45	2926.4	12.0	211	SF
8	8	0208	65	59.90	76	57.20	2927.4	12.5	211	c/cs
8	8	0215	66	1.20	76	55.30	2928.8	12.2	215	c/cs
8	8	0220	66	2.00	76	53.90	2929.8	12.7	210	c/cs
8	8	0225	66	2.90	76	52.60	2930.9	12.5	206	c/cs
8	8	0228	66	3.50	76	51.90	2931.5	12.7	211	c/cs
8	8	0253	66	8.10	76	45.30	2936.8	12.9	216	c/cs
8	8	0256	66	8.60	76	44.30	2937.5	12.9	210	c/cs
8	8	0311	66	11.40	76	40.40	2940.7	12.9	211	c/cs
8	8	0318	66	12.70	76	38.50	2942.2	12.8	204	c/cs
8	8	0321	66	13.20	76	37.90	2942.8	12.6	196	c/cs
8	8	0331	66	15.30	76	36.40	2944.9	12.6	200	c/cs
8	8	0339	66	16.90	76	35.00	2946.6	12.6	198	c/cs
8	8	0352	66	19.40	76	32.90	2949.3	12.9	201	c/cs
8	8	0357	66	20.40	76	31.90	2950.4	12.3	208	c/cs
8	8	0400	66	20.98	76	31.21	2951.0	11.2	206	GP
8	8	0402	66	21.30	76	30.80	2951.4	11.7	208	c/cs
8	8	0407	66	22.20	76	29.70	2952.4	11.4	192	c/cs
8	8	0411	66	22.90	76	29.30	2953.1	11.5	176	c/cs
8	8	0416	66	23.90	76	29.40	2954.1	11.4	162	c/cs
8	8	0425	66	25.50	76	30.80	2955.8	11.6	165	c/cs
8	8	0430	66	26.40	76	31.40	2956.8	11.7	170	c/cs
8	8	0437	66	27.80	76	32.00	2958.1	11.6	177	c/cs
8	8	0440	66	28.30	76	32.10	2958.7	11.6	190	c/cs
8	8	0442	66	28.70	76	31.90	2959.1	11.7	199	c/cs
8	8	0447	66	29.60	76	31.10	2960.1	11.4	196	c/cs
8	8	0450	66	30.20	76	30.70	2960.6	11.4	206	c/cs
8	8	0453	66	30.70	76	30.10	2961.2	11.3	214	c/cs
8	8	0455	66	31.00	76	29.50	2961.6	11.7	220	c/cs
8	8	0500	66	31.77	76	27.99	2962.6	12.4	228	GP
8	8	0515	66	33.80	76	22.20	2965.7	12.1	225	c/cs
8	8	0516	66	33.99	76	21.84	2965.9	11.9	214	SF
8	8	0518	66	34.30	76	21.30	2966.3	12.1	218	c/cs
8	8	0522	66	34.90	76	20.00	2967.1	12.2	217	c/cs
8	8	0528	66	35.90	76	18.20	2968.3	12.3	217	c/cs
8	8	0535	66	37.10	76	16.00	2969.7	12.1	217	c/cs
8	8	0540	66	37.87	76	14.47	2970.7	12.9	224	SF
8	8	0555	66	40.20	76	8.80	2973.9	12.8	219	c/cs
8	8	0558	66	40.70	76	7.80	2974.6	12.9	224	c/cs
8	8	0600	66	40.97	76	7.03	2975.0	12.1	222	GP
8	8	0615	66	43.20	76	1.90	2978.0	12.2	224	c/cs
8	8	0621	66	44.10	75	59.80	2979.2	11.7	223	c/cs
8	8	0628	66	45.10	75	57.40	2980.6	12.0	219	c/cs
8	8	0630	66	45.40	75	56.77	2981.0	12.6	215	GP
8	8	0631	66	45.60	75	56.50	2981.2	12.5	219	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
8	8	0641	66	47.20	75	53.10	2983.3	11.0	217	c/cs
8	8	0643	66	47.50	75	52.50	2983.7	8.1	222	c/cs
8	8	0644	66	47.58	75	52.32	2983.8	7.3	240	SF
8	8	0648	66	47.80	75	51.30	2984.3	6.3	233	c/cs
8	8	0659	66	48.52	75	48.90	2985.5	6.7	213	SF
8	8	0704	66	49.00	75	48.10	2986.0	7.0	215	c/cs
8	8	0718	66	50.33	75	45.72	2987.7	6.7	220	GP
8	8	0726	66	51.00	75	44.30	2988.6	6.8	216	c/cs
8	8	0730	66	51.39	75	43.58	2989.0	7.0	216	GP
8	8	0738	66	52.10	75	42.20	2989.9	6.9	216	c/cs
8	8	0743	66	52.60	75	41.30	2990.5	6.9	223	c/cs
8	8	0750	66	53.20	75	39.90	2991.3	6.8	211	c/cs
8	8	0800	66	54.20	75	38.40	2992.4	6.9	208	c/cs
8	8	0804	66	54.60	75	37.90	2992.9	5.9	201	c/cs
8	8	0807	66	54.80	75	37.60	2993.2	5.2	204	c/cs
8	8	0811	66	55.20	75	37.30	2993.5	5.4	196	c/cs
8	8	0823	66	56.20	75	36.50	2994.6	5.3	203	c/cs
8	8	0830	66	56.80	75	35.90	2995.2	5.0	189	c/cs
8	8	0838	66	57.40	75	35.60	2995.9	5.2	197	c/cs
8	8	0844	66	57.91	75	35.25	2996.4	5.1	191	SF
8	8	0848	66	58.20	75	35.10	2996.8	5.1	200	c/cs
8	8	0907	66	59.80	75	33.70	2998.4	4.9	199	c/cs
8	8	0913	67	0.20	75	33.30	2998.9	4.8	213	c/cs
8	8	0924	67	1.00	75	32.00	2999.7	4.8	207	c/cs
8	8	0937	67	1.90	75	30.80	3000.8	5.6	201	c/cs
8	8	0941	67	2.20	75	30.50	3001.2	6.6	209	c/cs
8	8	0950	67	3.10	75	29.30	3002.2	4.7	211	c/cs
8	8	0954	67	3.40	75	28.80	3002.5	3.9	201	c/cs
8	8	0957	67	3.60	75	28.70	3002.7	3.6	170	c/cs
8	8	1003	67	3.90	75	28.80	3003.0	4.4	174	c/cs
8	8	1004	67	3.99	75	28.83	3003.1	4.9	171	SF
8	8	1009	67	4.40	75	29.00	3003.5	5.0	187	c/cs
8	8	1015	67	4.90	75	28.80	3004.0	5.2	201	c/cs
8	8	1021	67	5.40	75	28.40	3004.5	4.9	220	c/cs
8	8	1022	67	5.44	75	28.23	3004.6	5.3	240	SF
8	8	1035	67	6.00	75	25.70	3005.8	5.6	246	c/cs
8	8	1052	67	6.70	75	22.00	3007.3	5.6	247	c/cs
8	8	1059	67	6.90	75	20.40	3008.0	5.4	249	c/cs
8	8	1151	67	8.60	75	9.07	3012.7	4.0	261	SF
8	8	1152	67	8.60	75	8.90	3012.8	3.0	228	c/cs
8	8	1200	67	8.90	75	8.10	3013.2	3.2	213	c/cs
8	8	1203	67	9.00	75	7.90	3013.3	3.1	217	c/cs
8	8	1231	67	10.20	75	5.70	3014.8	3.3	113	c/cs
8	8	1232	67	10.20	75	5.80	3014.8	4.7	38	c/cs
8	8	1252	67	8.90	75	8.30	3016.4	4.7	29	c/cs
8	8	1300	67	8.40	75	9.10	3017.0	4.9	22	c/cs
8	8	1303	67	8.17	75	9.30	3017.3	4.2	26	SF
8	8	1312	67	7.60	75	10.00	3017.9	4.3	19	c/cs
8	8	1323	67	6.90	75	10.70	3018.7	4.3	18	c/cs
8	8	1340	67	5.70	75	11.67	3019.9	4.7	18	SF
8	8	1341	67	5.60	75	11.70	3020.0	4.9	17	c/cs
8	8	1404	67	3.83	75	13.13	3021.9	5.8	27	SF
8	8	1408	67	3.50	75	13.60	3022.3	5.6	35	c/cs
8	8	1415	67	2.95	75	14.54	3022.9	4.7	26	SF
8	8	1419	67	2.70	75	14.90	3023.2	5.0	20	c/cs
8	8	1437	67	1.30	75	16.20	3024.7	5.1	21	c/cs
8	8	1444	67	0.70	75	16.80	3025.3	4.9	26	c/cs
8	8	1451	67	0.20	75	17.40	3025.9	5.0	21	c/cs
8	8	1504	66	59.20	75	18.40	3027.0	4.8	34	c/cs
8	8	1507	66	58.97	75	18.70	3027.2	4.7	44	SF
8	8	1519	66	58.30	75	20.40	3028.2	4.8	39	c/cs
8	8	1530	66	57.60	75	21.79	3029.1	4.8	33	GP
8	8	1530	66	57.60	75	21.80	3029.1	5.7	25	c/cs
8	8	1535	66	57.20	75	22.30	3029.5	6.6	22	c/cs
8	8	1548	66	55.85	75	23.68	3031.0	6.6	24	GP
8	8	1548	66	55.80	75	23.70	3031.0	5.1	30	c/cs
8	8	1553	66	55.50	75	24.20	3031.4	4.6	47	c/cs
8	8	1602	66	55.00	75	25.50	3032.1	4.1	62	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
8	8	1608	66	54.80	75	26.40	3032.5	4.8	45	c/cs
8	8	1616	66	54.40	75	27.60	3033.1	5.2	50	c/cs
8	8	1621	66	54.10	75	28.40	3033.5	4.8	41	c/cs
8	8	1626	66	53.80	75	29.10	3033.9	4.2	38	c/cs
8	8	1631	66	53.50	75	29.60	3034.3	3.6	15	c/cs
8	8	1635	66	53.30	75	29.80	3034.5	4.9	12	c/cs
8	8	1640	66	52.88	75	30.01	3034.9	5.0	0	SF
8	8	1648	66	52.20	75	30.00	3035.6	5.4	356	c/cs
8	8	1658	66	51.32	75	29.84	3036.5	5.4	4	SF
8	8	1659	66	51.20	75	29.90	3036.6	4.5	8	c/cs
8	8	1706	66	50.70	75	30.00	3037.1	4.6	18	c/cs
8	8	1711	66	50.30	75	30.30	3037.5	6.1	21	c/cs
8	8	1718	66	49.70	75	31.00	3038.2	6.4	21	c/cs
8	8	1722	66	49.30	75	31.40	3038.6	5.8	16	c/cs
8	8	1727	66	48.80	75	31.70	3039.1	6.9	23	c/cs
8	8	1736	66	47.90	75	32.70	3040.2	4.9	61	c/cs
8	8	1742	66	47.63	75	33.84	3040.6	5.9	72	SF
8	8	1742	66	47.60	75	33.80	3040.6	7.3	69	c/cs
8	8	1751	66	47.20	75	36.40	3041.7	6.0	72	c/cs
8	8	1755	66	47.10	75	37.40	3042.1	5.6	65	c/cs
8	8	1800	66	46.92	75	38.46	3042.6	4.4	55	GP
8	8	1802	66	46.80	75	38.80	3042.7	5.8	53	c/cs
8	8	1810	66	46.40	75	40.40	3043.5	6.3	54	c/cs
8	8	1822	66	45.60	75	42.90	3044.8	7.6	57	c/cs
8	8	1825	66	45.40	75	43.80	3045.2	9.3	59	c/cs
8	8	1826	66	45.35	75	44.10	3045.3	10.5	60	SF
8	8	1845	66	43.70	75	51.30	3048.6	10.5	56	c/cs
8	8	1850	66	43.20	75	53.20	3049.5	10.3	49	c/cs
8	8	1852	66	43.00	75	53.80	3049.9	10.2	35	c/cs
8	8	1900	66	41.85	75	55.78	3051.2	9.4	32	GP
8	8	1900	66	41.90	75	55.80	3051.2	9.8	40	c/cs
8	8	1903	66	41.50	75	56.60	3051.7	11.1	40	c/cs
8	8	1908	66	40.76	75	58.08	3052.6	11.2	33	SF
8	8	1921	66	38.70	76	1.40	3055.0	11.2	31	c/cs
8	8	1930	66	37.28	76	3.54	3056.7	11.7	39	SF
8	8	1939	66	35.90	76	6.30	3058.5	11.7	41	c/cs
8	8	1949	66	34.50	76	9.60	3060.4	9.1	43	c/cs
8	8	1951	66	34.20	76	10.10	3060.7	7.5	41	c/cs
8	8	1956	66	33.80	76	11.10	3061.4	6.7	44	c/cs
8	8	2000	66	33.44	76	11.89	3061.8	6.6	42	GP
8	8	2012	66	32.50	76	14.10	3063.1	6.9	41	c/cs
8	8	2014	66	32.30	76	14.50	3063.4	8.9	41	c/cs
8	8	2017	66	32.00	76	15.20	3063.8	10.0	43	c/cs
8	8	2027	66	30.70	76	18.10	3065.5	10.0	38	c/cs
8	8	2029	66	30.50	76	18.60	3065.8	9.8	49	c/cs
8	8	2031	66	30.30	76	19.30	3066.1	10.1	39	c/cs
8	8	2037	66	29.48	76	20.84	3067.1	10.3	38	SF
8	8	2039	66	29.20	76	21.40	3067.5	11.5	38	c/cs
8	8	2047	66	28.00	76	23.80	3069.0	11.5	34	c/cs
8	8	2054	66	26.90	76	25.60	3070.4	11.6	38	c/cs
8	8	2110	66	24.40	76	30.40	3073.5	11.3	35	c/cs
8	8	2113	66	24.00	76	31.20	3074.0	11.6	37	c/cs
8	8	2146	66	18.90	76	40.80	3080.4	11.6	36	c/cs
8	8	2201	66	16.60	76	45.10	3083.3	11.6	36	c/cs
8	8	2224	66	12.99	76	51.63	3087.7	11.7	36	SF
8	8	2234	66	11.40	76	54.40	3089.7	11.7	36	c/cs
8	8	2324	66	3.50	77	8.80	3099.5	11.7	36	c/cs
8	8	2335	66	1.80	77	12.00	3101.6	11.5	36	c/cs
8	8	2341	66	0.88	77	13.66	3102.8	11.0	35	SF
8	8	2344	66	0.40	77	14.40	3103.3	9.5	42	c/cs
8	8	2350	65	59.70	77	16.00	3104.3	9.4	37	c/cs
8	8	2355	65	59.10	77	17.20	3105.1	7.8	42	c/cs
8	8	2358	65	58.80	77	17.80	3105.5	6.4	35	c/cs
9	Jan 9	0000	65	58.60	77	18.10	3105.7	6.4	35	c/cs
9	9	0008	65	57.90	77	19.30	3106.5	6.3	27	c/cs
9	9	0010	65	57.75	77	19.55	3106.7	6.0	23	SF
9	9	0019	65	56.90	77	20.40	3107.6	4.3	12	c/cs
9	9	0027	65	56.37	77	20.70	3108.2	4.3	20	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
9	9	0033	65	56.00	77	21.10	3108.6	4.6	7	c/cs
9	9	0044	65	55.14	77	21.30	3109.5	4.7	14	SF
9	9	0104	65	53.60	77	22.20	3111.0	4.8	12	c/cs
9	9	0107	65	53.40	77	22.40	3111.3	4.5	352	c/cs
9	9	0112	65	53.00	77	22.20	3111.6	5.8	26	c/cs
9	9	0115	65	52.80	77	22.50	3111.9	8.4	34	c/cs
9	9	0119	65	52.30	77	23.30	3112.5	10.0	38	c/cs
9	9	0125	65	51.50	77	24.80	3113.5	11.1	39	c/cs
9	9	0127	65	51.22	77	25.40	3113.9	11.6	37	SF
9	9	0145	65	48.40	77	30.50	3117.3	11.8	36	c/cs
9	9	0156	65	46.69	77	33.59	3119.5	11.1	33	SF
9	9	0158	65	46.40	77	34.10	3119.9	11.1	33	c/cs
9	9	0218	65	43.30	77	39.00	3123.6	10.2	52	c/cs
9	9	0225	65	42.50	77	41.30	3124.8	8.9	55	c/cs
9	9	0231	65	42.00	77	43.00	3125.7	6.5	14	c/cs
9	9	0233	65	41.80	77	43.20	3125.9	6.2	0	c/cs
9	9	0235	65	41.60	77	43.20	3126.1	6.0	339	c/cs
9	9	0236	65	41.50	77	43.10	3126.2	8.0	341	c/cs
9	9	0238	65	41.20	77	42.90	3126.5	8.7	5	c/cs
9	9	0241	65	40.80	77	43.00	3126.9	10.2	32	c/cs
9	9	0245	65	40.24	77	43.82	3127.6	11.1	37	SF
9	9	0246	65	40.10	77	44.10	3127.8	12.0	38	c/cs
9	9	0256	65	38.50	77	47.10	3129.8	12.1	38	c/cs
9	9	0306	65	36.90	77	50.10	3131.8	11.7	38	c/cs
9	9	0313	65	35.80	77	52.10	3133.1	12.2	39	c/cs
9	9	0316	65	35.40	77	53.00	3133.7	11.9	45	c/cs
9	9	0321	65	34.70	77	54.70	3134.7	12.0	38	c/cs
9	9	0334	65	32.60	77	58.60	3137.3	12.2	38	c/cs
9	9	0341	65	31.48	78	0.71	3138.8	11.1	35	SF
9	9	0355	65	29.36	78	4.31	3141.4	11.4	35	SF
9	9	0424	65	24.90	78	11.90	3146.9	11.3	35	c/cs
9	9	0436	65	23.00	78	14.96	3149.1	11.6	37	SF
9	9	0452	65	20.50	78	19.40	3152.2	11.4	26	c/cs
9	9	0455	65	20.00	78	20.00	3152.8	11.4	33	c/cs
9	9	0503	65	18.70	78	22.00	3154.3	11.6	38	c/cs
9	9	0504	65	18.58	78	22.30	3154.5	12.5	43	SF
9	9	0528	65	14.90	78	30.45	3159.5	11.7	37	SF
9	9	0549	65	11.70	78	36.30	3163.6	11.8	37	c/cs
9	9	0609	65	8.50	78	42.00	3167.5	11.6	36	c/cs
9	9	0632	65	5.00	78	48.30	3172.0	11.8	37	c/cs
9	9	0654	65	1.51	78	54.50	3176.3	12.2	38	SF
9	9	0655	65	1.40	78	54.80	3176.5	12.1	37	c/cs
9	9	0728	64	56.00	79	4.40	3183.2	12.2	37	c/cs
9	9	0749	64	52.67	79	10.46	3187.4	12.7	39	SF
9	9	0805	64	50.00	79	15.40	3190.8	12.7	46	c/cs
9	9	0819	64	47.98	79	20.48	3193.8	11.8	45	SF
9	9	0821	64	47.70	79	21.10	3194.2	11.5	23	c/cs
9	9	0828	64	46.50	79	22.40	3195.5	11.8	37	c/cs
9	9	0839	64	44.70	79	25.40	3197.7	12.0	37	c/cs
9	9	0841	64	44.40	79	25.90	3198.1	11.6	30	c/cs
9	9	0848	64	43.20	79	27.50	3199.4	11.6	39	c/cs
9	9	0854	64	42.30	79	29.30	3200.6	11.7	37	c/cs
9	9	0906	64	40.47	79	32.50	3202.9	12.0	34	SF
9	9	0921	64	38.00	79	36.50	3205.9	12.2	34	c/cs
9	9	0938	64	35.13	79	41.02	3209.4	11.9	36	SF
9	9	0954	64	32.60	79	45.40	3212.6	11.9	35	c/cs
9	9	1008	64	30.30	79	49.10	3215.3	12.0	35	c/cs
9	9	1014	64	29.31	79	50.69	3216.5	11.9	36	SF
9	9	1036	64	25.80	79	56.60	3220.9	11.7	36	c/cs
9	9	1048	64	23.90	79	59.80	3223.3	11.9	36	c/cs
9	9	1058	64	22.26	80	2.52	3225.2	12.4	38	SF
9	9	1126	64	17.71	80	10.84	3231.0	11.3	30	SF
9	9	1136	64	16.10	80	13.00	3232.9	11.3	31	c/cs
9	9	1151	64	13.70	80	16.40	3235.7	11.2	31	c/cs
9	9	1204	64	11.61	80	19.27	3238.2	11.4	38	SF
9	9	1211	64	10.50	80	21.10	3239.5	11.5	32	c/cs
9	9	1227	64	8.00	80	24.90	3242.6	11.4	34	c/cs
9	9	1229	64	7.64	80	25.37	3242.9	12.4	38	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
9	9	1232	64	7.20	80	26.20	3243.6	12.4	48	c/cs
9	9	1244	64	5.50	80	30.50	3246.0	12.5	42	c/cs
9	9	1311	64	1.30	80	39.01	3251.7	12.4	37	SF
9	9	1326	63	58.80	80	43.30	3254.8	12.3	37	c/cs
9	9	1351	63	54.70	80	50.30	3259.9	12.1	32	c/cs
9	9	1353	63	54.37	80	50.78	3260.3	11.2	27	SF
9	9	1403	63	52.70	80	52.70	3262.2	11.3	40	c/cs
9	9	1416	63	50.80	80	56.30	3264.6	11.4	32	c/cs
9	9	1434	63	48.00	81	0.40	3268.0	11.5	33	c/cs
9	9	1444	63	46.34	81	2.81	3270.0	11.7	39	SF
9	9	1454	63	44.80	81	5.60	3271.9	11.5	39	c/cs
9	9	1520	63	41.00	81	12.70	3276.9	11.4	34	c/cs
9	9	1538	63	38.10	81	17.00	3280.3	11.5	40	c/cs
9	9	1541	63	37.67	81	17.84	3280.9	11.8	38	SF
9	9	1558	63	35.00	81	22.50	3284.2	11.8	37	c/cs
9	9	1605	63	33.96	81	24.34	3285.6	11.1	38	SF
9	9	1616	63	32.30	81	27.10	3287.6	11.0	39	c/cs
9	9	1628	63	30.60	81	30.20	3289.8	11.2	38	c/cs
9	9	1717	63	23.40	81	42.70	3299.0	11.1	38	c/cs
9	9	1737	63	20.40	81	47.70	3302.7	11.1	37	c/cs
9	9	1752	63	18.21	81	51.43	3305.5	11.5	35	SF
9	9	1757	63	17.40	81	52.70	3306.4	11.6	35	c/cs
9	9	1810	63	15.40	81	55.90	3308.9	11.5	31	c/cs
9	9	1821	63	13.56	81	58.28	3311.1	11.4	35	SF
9	9	1856	63	8.10	82	6.70	3317.7	11.3	35	c/cs
9	9	1900	63	7.51	82	7.65	3318.4	11.2	31	GP
9	9	1905	63	6.70	82	8.70	3319.4	11.1	39	c/cs
9	9	1916	63	5.10	82	11.60	3321.4	10.8	22	c/cs
9	9	1923	63	4.00	82	12.60	3322.7	10.9	26	c/cs
9	9	1926	63	3.50	82	13.10	3323.2	11.2	30	c/cs
9	9	1939	63	1.40	82	15.80	3325.6	11.2	31	c/cs
9	9	1959	62	58.20	82	20.00	3329.4	11.2	36	c/cs
9	9	2008	62	56.82	82	22.25	3331.1	11.5	42	SF
9	9	2014	62	56.00	82	23.90	3332.2	10.8	33	c/cs
9	9	2016	62	55.70	82	24.40	3332.6	11.5	43	c/cs
9	9	2030	62	53.69	82	28.38	3335.3	10.4	38	GP
9	9	2034	62	53.10	82	29.30	3335.9	10.5	37	c/cs
9	9	2053	62	50.50	82	33.70	3339.3	10.7	38	c/cs
9	9	2054	62	50.30	82	34.00	3339.5	10.6	38	c/cs
9	9	2113	62	47.70	82	38.50	3342.8	6.4	38	c/cs
9	9	2116	62	47.40	82	38.90	3343.2	5.9	39	c/cs
9	9	2143	62	45.30	82	42.60	3345.8	5.9	39	c/cs
9	9	2147	62	45.00	82	43.10	3346.2	6.0	38	c/cs
9	9	2153	62	44.57	82	43.94	3346.8	6.3	39	SF
9	9	2217	62	42.60	82	47.40	3349.3	6.4	39	c/cs
9	9	2244	62	40.39	82	51.39	3352.2	6.5	39	SF
9	9	2247	62	40.10	82	51.80	3352.5	6.5	38	c/cs
9	9	2258	62	39.20	82	53.40	3353.7	6.5	37	c/cs
9	9	2305	62	38.59	82	54.41	3354.5	5.3	37	SF
9	9	2309	62	38.30	82	54.90	3354.8	5.5	39	c/cs
9	9	2319	62	37.60	82	56.10	3355.8	4.2	338	c/cs
9	9	2321	62	37.50	82	56.00	3355.9	3.7	275	c/cs
9	9	2323	62	37.50	82	55.70	3356.0	4.0	240	c/cs
9	9	2324	62	37.50	82	55.60	3356.1	4.2	221	c/cs
9	9	2340	62	38.40	82	54.00	3357.2	10.5	216	c/cs
10 Jan	10	0010	62	42.56	82	47.27	3362.4	10.0	217	738
10	10	0010	62	42.60	82	47.30	3362.4	0.0	90	c/cs
17 Jan	17	0145	62	42.56	82	47.27	3362.4	0.8	260	738
17	17	0145	62	42.60	82	47.30	3362.4	4.3	224	c/cs
17	17	0156	62	43.10	82	46.10	3363.2	9.2	220	c/cs
17	17	0202	62	43.80	82	44.80	3364.2	10.5	219	c/cs
17	17	0212	62	45.20	82	42.40	3365.9	10.9	219	c/cs
17	17	0226	62	47.16	82	38.88	3368.4	11.5	213	SF
17	17	0239	62	49.20	82	35.90	3370.9	11.8	214	c/cs
17	17	0309	62	54.10	82	28.50	3376.8	11.8	214	c/cs
17	17	0319	62	55.74	82	26.11	3378.8	11.5	216	SF
17	17	0339	62	58.90	82	21.10	3382.7	11.5	216	c/cs
17	17	0355	63	1.34	82	17.17	3385.7	12.1	218	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
17	17	0400	63	2.10	82	15.80	3386.7	12.0	219	c/cs
17	17	0408	63	3.40	82	13.60	3388.3	12.1	218	c/cs
17	17	0426	63	6.23	82	8.62	3392.0	11.2	215	SF
17	17	0435	63	7.60	82	6.50	3393.6	11.3	215	c/cs
17	17	0445	63	9.10	82	4.10	3395.5	11.1	215	c/cs
17	17	0500	63	11.40	82	0.60	3398.3	11.0	216	c/cs
17	17	0508	63	12.60	81	58.60	3399.8	11.1	214	c/cs
17	17	0513	63	13.40	81	57.50	3400.7	11.1	219	c/cs
17	17	0519	63	14.20	81	56.00	3401.8	11.3	215	c/cs
17	17	0526	63	15.30	81	54.27	3403.1	11.8	215	SF
17	17	0554	63	19.80	81	47.20	3408.6	11.9	215	c/cs
17	17	0600	63	20.78	81	45.69	3409.8	11.1	216	GP
17	17	0630	63	25.20	81	38.40	3415.3	11.1	215	c/cs
17	17	0652	63	28.50	81	33.10	3419.4	10.9	216	c/cs
17	17	0707	63	30.70	81	29.50	3422.1	11.1	215	c/cs
17	17	0710	63	31.19	81	28.81	3422.7	11.5	211	SF
17	17	0750	63	37.77	81	20.10	3430.3	11.7	214	SF
17	17	0756	63	38.70	81	18.60	3431.5	11.8	214	c/cs
17	17	0836	63	45.20	81	8.60	3439.3	11.8	214	c/cs
17	17	0902	63	49.50	81	2.10	3444.5	11.8	214	c/cs
17	17	0937	63	55.10	80	53.20	3451.3	11.8	215	c/cs
17	17	0942	63	55.94	80	51.95	3452.3	11.7	217	SF
17	17	1008	64	0.00	80	45.10	3457.4	11.8	217	c/cs
17	17	1043	64	5.50	80	35.70	3464.3	11.9	217	c/cs
17	17	1053	64	7.10	80	33.00	3466.3	11.8	217	c/cs
17	17	1116	64	10.70	80	26.80	3470.8	11.5	229	c/cs
17	17	1120	64	11.24	80	25.51	3471.5	11.2	229	SF
17	17	1122	64	11.50	80	24.90	3471.9	11.4	226	c/cs
17	17	1141	64	14.00	80	18.80	3475.5	11.6	211	c/cs
17	17	1155	64	16.30	80	15.60	3478.2	11.6	217	c/cs
17	17	1207	64	18.10	80	12.40	3480.5	11.4	218	c/cs
17	17	1217	64	19.60	80	9.70	3482.4	11.5	218	c/cs
17	17	1240	64	23.10	80	3.40	3486.8	11.5	217	c/cs
17	17	1306	64	27.10	79	56.50	3491.8	11.6	216	c/cs
17	17	1310	64	27.70	79	55.42	3492.6	11.9	219	SF
17	17	1321	64	29.40	79	52.30	3494.8	11.9	220	c/cs
17	17	1339	64	32.20	79	47.00	3498.3	11.9	220	c/cs
17	17	1353	64	34.30	79	42.80	3501.1	11.9	226	c/cs
17	17	1359	64	35.10	79	40.90	3502.3	11.8	220	c/cs
17	17	1400	64	35.26	79	40.56	3502.5	11.6	220	GP
17	17	1424	64	38.80	79	33.60	3507.1	11.7	220	c/cs
17	17	1450	64	42.70	79	26.00	3512.2	11.6	217	c/cs
17	17	1458	64	43.93	79	23.83	3513.7	11.5	213	SF
17	17	1505	64	45.00	79	22.10	3515.1	11.3	210	c/cs
17	17	1518	64	47.20	79	19.20	3517.5	11.5	210	c/cs
17	17	1520	64	47.51	79	18.79	3517.9	11.8	216	SF
17	17	1608	64	55.20	79	5.80	3527.4	11.8	216	c/cs
17	17	1613	64	56.01	79	4.44	3528.4	12.0	212	SF
17	17	1645	65	1.42	78	56.36	3534.8	12.2	213	SF
17	17	1654	65	3.00	78	54.00	3536.6	12.2	213	c/cs
17	17	1704	65	4.70	78	51.40	3538.6	12.0	216	c/cs
17	17	1712	65	6.00	78	49.20	3540.2	12.2	216	c/cs
17	17	1750	65	12.20	78	38.20	3548.0	12.1	219	c/cs
17	17	1758	65	13.40	78	35.80	3549.6	12.1	217	c/cs
17	17	1800	65	13.77	78	35.24	3550.0	12.3	214	GP
17	17	1813	65	16.00	78	31.70	3552.7	12.4	213	c/cs
17	17	1847	65	21.89	78	22.66	3559.7	12.3	221	SF
17	17	1850	65	22.40	78	21.70	3560.3	12.3	221	c/cs
17	17	1934	65	29.22	78	7.53	3569.3	12.2	213	SF
17	17	1939	65	30.10	78	6.20	3570.4	12.2	213	c/cs
17	17	1956	65	33.00	78	1.60	3573.8	12.2	213	c/cs
17	17	2000	65	33.64	78	0.50	3574.6	12.4	215	GP
17	17	2010	65	35.30	77	57.60	3576.7	12.3	215	c/cs
17	17	2025	65	37.90	77	53.40	3579.8	12.4	215	c/cs
17	17	2035	65	39.54	77	50.52	3581.8	12.3	220	SF
17	17	2108	65	44.70	77	40.00	3588.6	12.3	213	c/cs
17	17	2113	65	45.60	77	38.60	3589.6	12.3	219	c/cs
17	17	2120	65	46.70	77	36.46	3591.0	12.5	215	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
17	17	2203	65	54.10	77	24.00	3600.0	12.5	215	c/cs
17	17	2219	65	56.80	77	19.40	3603.4	12.5	213	c/cs
17	17	2222	65	57.37	77	18.54	3604.0	11.4	209	SF
17	17	2237	65	59.90	77	15.10	3606.8	11.5	210	c/cs
17	17	2250	66	2.00	77	12.10	3609.3	11.3	215	c/cs
17	17	2257	66	3.10	77	10.20	3610.6	11.5	211	c/cs
17	17	2307	66	4.75	77	7.82	3612.5	12.5	217	SF
17	17	2338	66	9.90	76	58.10	3619.0	12.4	217	c/cs
17	17	2345	66	11.04	76	55.99	3620.5	12.2	214	SF
18 Jan	18	0000	66	13.60	76	51.80	3623.5	12.2	214	c/cs
18	18	0008	66	14.94	76	49.55	3625.1	11.9	215	SF
18	18	0016	66	16.20	76	47.30	3626.7	12.1	215	c/cs
18	18	0031	66	18.70	76	43.00	3629.7	11.5	215	c/cs
18	18	0043	66	20.60	76	39.80	3632.0	11.8	215	c/cs
18	18	0102	66	23.70	76	34.40	3635.8	11.7	215	c/cs
18	18	0132	66	28.48	76	26.10	3641.6	11.9	212	SF
18	18	0132	66	28.50	76	26.10	3641.6	12.0	208	c/cs
18	18	0145	66	30.80	76	23.00	3644.2	11.9	211	c/cs
18	18	0152	66	31.96	76	21.23	3645.6	10.7	216	SF
18	18	0203	66	33.50	76	18.30	3647.6	10.8	215	c/cs
18	18	0204	66	33.69	76	18.05	3647.8	12.1	213	SF
18	18	0252	66	41.80	76	4.70	3657.4	12.2	213	c/cs
18	18	0322	66	46.90	75	56.30	3663.5	12.2	214	c/cs
18	18	0339	66	49.79	75	51.33	3667.0	11.8	213	SF
18	18	0345	66	50.80	75	49.70	3668.2	11.6	206	c/cs
18	18	0352	66	52.00	75	48.20	3669.5	11.8	215	c/cs
18	18	0410	66	54.90	75	43.00	3673.1	11.9	215	c/cs
18	18	0420	66	56.51	75	40.06	3675.1	12.1	215	SF
18	18	0438	66	59.50	75	34.70	3678.7	11.9	214	c/cs
18	18	0441	66	60.00	75	33.80	3679.3	11.8	209	c/cs
18	18	0443	67	0.30	75	33.30	3679.7	12.0	214	c/cs
18	18	0455	67	2.30	75	29.80	3682.1	12.1	215	c/cs
18	18	0501	67	3.30	75	28.00	3683.3	12.0	221	c/cs
18	18	0508	67	4.30	75	25.70	3684.7	12.2	225	c/cs
18	18	0509	67	4.49	75	25.32	3684.9	11.8	224	SF
18	18	0514	67	5.20	75	23.60	3685.9	11.8	219	c/cs
18	18	0516	67	5.50	75	23.00	3686.3	11.8	210	c/cs
18	18	0521	67	6.30	75	21.70	3687.3	11.6	214	c/cs
18	18	0600	67	12.57	75	10.83	3694.8	10.9	217	GP
18	18	0603	67	13.00	75	10.00	3695.3	10.5	208	c/cs
18	18	0604	67	13.20	75	9.80	3695.5	6.0	209	c/cs
18	18	0630	67	15.43	75	6.50	3698.1	6.6	211	GP
18	18	0634	67	15.80	75	5.90	3698.5	6.5	212	c/cs
18	18	0640	67	16.37	75	5.03	3699.2	6.6	209	GP
18	18	0700	67	18.28	75	2.25	3701.4	6.2	207	SF
18	18	0704	67	18.60	75	1.80	3701.8	6.2	207	c/cs
18	18	0715	67	19.70	75	0.40	3702.9	6.0	178	c/cs
18	18	0717	67	19.90	75	0.50	3703.1	5.0	131	c/cs
18	18	0719	67	20.00	75	0.80	3703.3	4.5	94	c/cs
18	18	0725	67	20.00	75	2.00	3703.8	5.4	93	c/cs
18	18	0747	67	20.12	75	7.07	3705.7	4.9	88	SF
18	18	0751	67	20.10	75	7.90	3706.1	4.6	53	c/cs
18	18	0753	67	20.00	75	8.20	3706.2	4.5	5	c/cs
18	18	0755	67	19.90	75	8.30	3706.4	5.5	340	c/cs
18	18	0802	67	19.30	75	7.70	3707.0	5.9	336	c/cs
18	18	0832	67	16.50	75	4.60	3710.0	6.0	336	c/cs
18	18	0855	67	14.40	75	2.20	3712.3	6.2	317	c/cs
18	18	0856	67	14.40	75	2.10	3712.4	5.6	277	c/cs
18	18	0857	67	14.40	75	1.80	3712.5	4.7	230	c/cs
18	18	0859	67	14.50	75	1.50	3712.6	5.4	206	c/cs
18	18	0905	67	14.90	75	0.90	3713.2	6.1	207	c/cs
18	18	0915	67	15.80	74	59.70	3714.2	5.7	181	c/cs
18	18	0924	67	16.70	74	59.60	3715.0	5.0	156	c/cs
18	18	0925	67	16.80	74	59.70	3715.1	4.0	109	c/cs
18	18	0927	67	16.80	75	0.10	3715.2	3.5	90	c/cs
18	18	0928	67	16.80	75	0.20	3715.3	3.7	88	c/cs
18	18	0933	67	16.80	75	0.99	3715.6	5.7	88	SF
18	18	0933	67	16.80	75	1.00	3715.6	6.8	88	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
18	18	0943	67	16.80	75	3.90	3716.7	6.8	88	c/cs
18	18	0957	67	16.70	75	8.00	3718.3	6.8	89	c/cs
18	18	1019	67	16.70	75	14.50	3720.8	6.7	81	c/cs
18	18	1020	67	16.70	75	14.80	3720.9	3.3	272	c/cs
18	18	1035	67	16.60	75	12.70	3721.8	7.3	271	c/cs
18	18	1100	67	16.57	75	4.78	3724.8	9.0	270	739
18	18	1100	67	16.60	75	4.80	3724.8	0.0	90	c/cs
23	Jan 23	0145	67	16.57	75	4.78	3724.8	1.0	161	739
23	23	0145	67	16.60	75	4.80	3724.8	6.5	158	c/cs
23	23	0147	67	16.80	75	5.00	3725.0	8.6	159	c/cs
23	23	0150	67	17.20	75	5.40	3725.5	10.4	158	c/cs
23	23	0202	67	19.10	75	7.40	3727.5	10.8	158	c/cs
23	23	0217	67	21.60	75	10.00	3730.2	11.5	158	c/cs
23	23	0220	67	22.10	75	10.50	3730.8	10.6	163	c/cs
23	23	0225	67	23.00	75	11.20	3731.7	11.4	159	c/cs
23	23	0238	67	25.30	75	13.50	3734.2	11.5	158	c/cs
23	23	0319	67	32.60	75	21.10	3742.0	11.7	157	c/cs
23	23	0346	67	37.47	75	26.39	3747.3	11.9	157	SF
23	23	0346	67	37.50	75	26.40	3747.3	11.8	157	c/cs
23	23	0419	67	43.50	75	33.00	3753.8	12.0	157	c/cs
23	23	0428	67	45.14	75	34.88	3755.6	11.9	158	SF
23	23	0430	67	45.50	75	35.30	3756.0	11.8	163	c/cs
23	23	0452	67	49.60	75	38.70	3760.3	12.0	163	c/cs
23	23	0458	67	50.80	75	39.60	3761.6	12.0	167	c/cs
23	23	0508	67	52.70	75	40.80	3763.5	11.8	154	c/cs
23	23	0510	67	53.10	75	41.20	3763.9	11.6	146	c/cs
23	23	0512	67	53.40	75	41.80	3764.3	12.0	158	c/cs
23	23	0548	68	0.10	75	48.90	3771.5	11.8	162	c/cs
23	23	0549	68	0.27	75	49.06	3771.7	11.7	161	SF
23	23	0558	68	1.90	75	50.60	3773.5	12.0	161	c/cs
23	23	0601	68	2.50	75	51.10	3774.1	11.8	157	c/cs
23	23	0619	68	5.77	75	54.80	3777.6	12.1	156	SF
23	23	0624	68	6.70	75	55.90	3778.6	12.0	155	c/cs
23	23	0631	68	8.00	75	57.50	3780.0	12.1	156	c/cs
23	23	0704	68	14.00	76	4.90	3786.7	12.1	156	c/cs
23	23	0725	68	17.90	76	9.60	3790.9	12.1	160	c/cs
23	23	0732	68	19.20	76	10.90	3792.3	12.2	156	c/cs
23	23	0802	68	24.80	76	17.50	3798.4	12.2	158	c/cs
23	23	0808	68	25.92	76	18.76	3799.6	11.8	156	SF
23	23	0820	68	28.10	76	21.40	3802.0	6.8	146	c/cs
23	23	0830	68	29.00	76	23.10	3803.1	6.8	147	c/cs
23	23	0905	68	32.34	76	28.95	3807.1	6.6	154	SF
23	23	0905	68	32.30	76	28.90	3807.1	6.7	150	c/cs
23	23	0909	68	32.70	76	29.60	3807.5	6.9	150	c/cs
23	23	0932	68	35.00	76	33.17	3810.2	6.7	148	SF
23	23	0939	68	35.70	76	34.30	3810.9	6.7	149	c/cs
23	23	1009	68	38.50	76	39.10	3814.3	6.7	148	c/cs
23	23	1039	68	41.40	76	44.10	3817.7	6.7	147	c/cs
23	23	1109	68	44.20	76	49.20	3821.0	6.7	148	c/cs
23	23	1123	68	45.51	76	51.46	3822.6	5.8	149	SF
23	23	1131	68	46.20	76	52.50	3823.4	5.4	186	c/cs
23	23	1134	68	46.40	76	52.50	3823.6	4.5	127	c/cs
23	23	1136	68	46.50	76	52.80	3823.8	4.2	32	c/cs
23	23	1140	68	46.30	76	53.20	3824.1	5.3	320	c/cs
23	23	1143	68	46.10	76	52.80	3824.3	6.5	327	c/cs
23	23	1144	68	46.00	76	52.60	3824.4	6.4	326	c/cs
23	23	1150	68	45.50	76	51.60	3825.1	7.0	323	c/cs
23	23	1215	68	43.10	76	46.80	3828.0	7.0	324	c/cs
23	23	1231	68	41.60	76	43.70	3829.9	7.1	324	c/cs
23	23	1239	68	40.83	76	42.19	3830.8	6.7	307	SF
23	23	1246	68	40.40	76	40.50	3831.6	7.5	284	c/cs
23	23	1247	68	40.30	76	40.10	3831.7	7.9	262	c/cs
23	23	1248	68	40.40	76	39.80	3831.9	7.6	239	c/cs
23	23	1249	68	40.40	76	39.50	3832.0	7.2	210	c/cs
23	23	1251	68	40.60	76	39.20	3832.2	7.4	196	c/cs
23	23	1257	68	41.30	76	38.60	3833.0	8.1	194	c/cs
23	23	1301	68	41.90	76	38.20	3833.5	7.8	180	c/cs
23	23	1302	68	42.00	76	38.20	3833.7	6.2	158	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
23	23	1303	68	42.10	76	38.30	3833.8	4.0	122	c/cs
23	23	1305	68	42.20	76	38.60	3833.9	2.8	59	c/cs
23	23	1307	68	42.10	76	38.90	3834.0	3.6	33	c/cs
23	23	1314	68	41.80	76	39.50	3834.4	4.2	34	c/cs
23	23	1341	68	40.20	76	42.40	3836.3	3.8	50	c/cs
23	23	1342	68	40.20	76	42.50	3836.4	3.4	106	c/cs
23	23	1343	68	40.20	76	42.70	3836.4	4.4	142	c/cs
23	23	1344	68	40.20	76	42.80	3836.5	5.3	172	c/cs
23	23	1355	68	41.20	76	43.19	3837.5	4.5	146	740
23	23	1355	68	41.20	76	43.20	3837.5	0.0	90	c/cs
27 Jan	27	1055	68	41.20	76	43.19	3837.5	0.4	343	740
27	27	1334	68	40.20	76	42.30	3838.5	1.4	140	c/cs
27	27	1339	68	40.30	76	42.50	3838.6	3.4	143	c/cs
27	27	1343	68	40.50	76	42.90	3838.9	3.5	143	c/cs
27	27	1348	68	40.70	76	43.40	3839.1	1.9	144	c/cs
27	27	1352	68	40.80	76	43.60	3839.3	3.8	130	c/cs
27	27	1354	68	40.90	76	43.90	3839.4	3.8	66	c/cs
27	27	1355	68	40.90	76	44.00	3839.5	3.3	358	c/cs
27	27	1357	68	40.80	76	44.00	3839.6	6.0	336	c/cs
27	27	1359	68	40.60	76	43.80	3839.8	9.6	340	c/cs
27	27	1403	68	40.00	76	43.20	3840.4	11.2	339	c/cs
27	27	1413	68	38.20	76	41.40	3842.3	11.4	338	c/cs
27	27	1437	68	34.00	76	36.70	3846.8	11.4	333	c/cs
27	27	1456	68	30.80	76	32.30	3850.4	8.8	334	c/cs
27	27	1459	68	30.40	76	31.80	3850.9	7.0	335	c/cs
27	27	1500	68	30.27	76	31.65	3851.0	7.4	335	GP
27	27	1506	68	29.60	76	30.80	3851.7	7.3	337	c/cs
27	27	1519	68	28.20	76	29.20	3853.3	7.9	341	c/cs
27	27	1527	68	27.20	76	28.20	3854.4	8.1	337	c/cs
27	27	1530	68	26.78	76	27.79	3854.8	8.2	338	GP
27	27	1540	68	25.50	76	26.40	3856.1	8.1	337	c/cs
27	27	1550	68	24.30	76	25.00	3857.5	7.4	338	c/cs
27	27	1600	68	23.12	76	23.74	3858.7	6.8	335	SF
27	27	1613	68	21.78	76	22.07	3860.2	6.8	328	SF
27	27	1620	68	21.11	76	20.93	3861.0	7.1	338	GP
27	27	1620	68	21.10	76	20.90	3861.0	7.1	337	c/cs
27	27	1630	68	20.02	76	19.67	3862.2	5.8	341	GP
27	27	1642	68	18.90	76	18.60	3863.3	5.0	311	c/cs
27	27	1644	68	18.80	76	18.30	3863.5	5.1	346	c/cs
27	27	1648	68	18.50	76	18.10	3863.8	4.6	4	c/cs
27	27	1649	68	18.40	76	18.10	3863.9	5.3	141	c/cs
27	27	1650	68	18.47	76	18.23	3864.0	6.5	141	GP
27	27	1653	68	18.70	76	18.80	3864.3	7.8	138	c/cs
27	27	1657	68	19.11	76	19.74	3864.9	6.4	149	SF
27	27	1703	68	19.70	76	20.60	3865.5	6.7	149	c/cs
27	27	1715	68	20.80	76	22.50	3866.8	7.5	140	GP
27	27	1718	68	21.10	76	23.10	3867.2	7.3	131	c/cs
27	27	1723	68	21.50	76	24.40	3867.8	7.2	126	c/cs
27	27	1729	68	21.90	76	26.00	3868.5	7.2	140	c/cs
27	27	1730	68	22.00	76	26.20	3868.7	5.8	151	GP
27	27	1730	68	22.00	76	26.20	3868.7	4.9	184	c/cs
27	27	1731	68	22.10	76	26.20	3868.7	5.7	226	c/cs
27	27	1736	68	22.40	76	25.30	3869.2	7.4	224	c/cs
27	27	1745	68	23.21	76	23.16	3870.3	7.7	221	GP
27	27	1754	68	24.10	76	21.10	3871.5	7.8	221	c/cs
27	27	1800	68	24.66	76	19.71	3872.3	6.1	221	GP
27	27	1806	68	25.10	76	18.60	3872.9	6.2	223	c/cs
27	27	1818	68	26.00	76	16.30	3874.1	7.0	41	c/cs
27	27	1850	68	23.19	76	22.95	3877.9	6.6	42	741
27	27	1850	68	23.20	76	22.90	3877.9	0.0	90	c/cs
29 Jan	29	0800	68	23.19	76	22.95	3877.9	1.3	202	741
29	29	0801	68	23.20	76	22.90	3877.9	3.4	141	c/cs
29	29	0802	68	23.30	76	23.00	3877.9	7.1	173	c/cs
29	29	0806	68	23.70	76	23.20	3878.4	5.5	138	c/cs
29	29	0808	68	23.90	76	23.50	3878.6	3.3	94	c/cs
29	29	0810	68	23.90	76	23.80	3878.7	2.3	8	c/cs
29	29	0812	68	23.80	76	23.80	3878.8	4.7	325	c/cs
29	29	0816	68	23.50	76	23.40	3879.1	5.7	319	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
29	29	0822	68	23.10	76	22.40	3879.7	5.6	329	c/cs
29	29	0852	68	20.70	76	18.40	3882.5	5.6	330	c/cs
29	29	0906	68	19.60	76	16.60	3883.8	5.6	333	c/cs
29	29	0936	68	17.06	76	13.21	3886.6	6.2	334	SF
29	29	0936	68	17.10	76	13.20	3886.6	6.0	335	c/cs
29	29	1006	68	14.30	76	9.80	3889.6	5.7	337	c/cs
29	29	1021	68	13.00	76	8.30	3891.0	5.3	345	c/cs
29	29	1026	68	12.60	76	8.00	3891.4	5.2	346	c/cs
29	29	1033	68	12.00	76	7.60	3892.1	5.6	342	c/cs
29	29	1054	68	10.20	76	6.00	3894.0	5.5	338	c/cs
29	29	1100	68	9.65	76	5.39	3894.6	5.4	337	SF
29	29	1110	68	8.80	76	4.40	3895.5	5.6	337	c/cs
29	29	1119	68	8.10	76	3.60	3896.3	5.5	340	c/cs
29	29	1130	68	7.10	76	2.60	3897.3	5.5	341	c/cs
29	29	1136	68	6.60	76	2.20	3897.9	5.1	340	c/cs
29	29	1153	68	5.20	76	0.80	3899.3	5.2	343	c/cs
29	29	1203	68	4.40	76	0.10	3900.2	5.0	344	c/cs
29	29	1208	68	3.99	75	59.80	3900.6	5.1	343	SF
29	29	1212	68	3.70	75	59.50	3900.9	5.3	342	c/cs
29	29	1225	68	2.60	75	58.60	3902.1	5.6	336	c/cs
29	29	1234	68	1.80	75	57.70	3902.9	5.7	333	c/cs
29	29	1246	68	0.80	75	56.30	3904.1	5.7	332	c/cs
29	29	1257	67	59.90	75	54.90	3905.1	5.9	330	c/cs
29	29	1300	67	59.63	75	54.55	3905.4	6.0	332	GP
29	29	1309	67	58.80	75	53.40	3906.3	5.9	334	c/cs
29	29	1321	67	57.80	75	52.10	3907.5	5.4	337	c/cs
29	29	1336	67	56.50	75	50.70	3908.8	5.9	338	c/cs
29	29	1344	67	55.80	75	49.90	3909.6	5.5	342	c/cs
29	29	1358	67	54.60	75	48.80	3910.9	5.3	340	c/cs
29	29	1400	67	54.44	75	48.68	3911.0	5.2	338	GP
29	29	1405	67	54.00	75	48.30	3911.5	5.4	336	c/cs
29	29	1416	67	53.10	75	47.20	3912.5	5.3	341	c/cs
29	29	1430	67	51.97	75	46.08	3913.7	5.7	342	GP
29	29	1438	67	51.20	75	45.50	3914.5	5.9	336	c/cs
29	29	1452	67	50.00	75	44.00	3915.8	5.3	343	c/cs
29	29	1500	67	49.31	75	43.44	3916.6	5.1	341	GP
29	29	1500	67	49.30	75	43.40	3916.6	5.1	343	c/cs
29	29	1506	67	48.80	75	43.00	3917.1	5.5	336	c/cs
29	29	1520	67	47.70	75	41.70	3918.3	5.7	330	c/cs
29	29	1530	67	46.82	75	40.41	3919.3	5.9	331	GP
29	29	1530	67	46.80	75	40.40	3919.3	5.9	332	c/cs
29	29	1543	67	45.70	75	38.80	3920.6	5.8	338	c/cs
29	29	1551	67	45.00	75	38.00	3921.4	5.2	344	c/cs
29	29	1558	67	44.40	75	37.60	3922.0	5.2	346	c/cs
29	29	1600	67	44.22	75	37.47	3922.1	4.3	345	GP
29	29	1606	67	43.80	75	37.20	3922.6	4.2	346	c/cs
29	29	1615	67	43.20	75	36.80	3923.2	3.7	353	c/cs
29	29	1624	67	42.60	75	36.60	3923.8	4.3	344	c/cs
29	29	1630	67	42.22	75	36.27	3924.2	7.1	342	GP
29	29	1638	67	41.30	75	35.50	3925.1	7.2	338	c/cs
29	29	1643	67	40.80	75	34.90	3925.7	7.4	338	c/cs
29	29	1650	67	39.97	75	34.06	3926.6	5.1	337	SF
29	29	1651	67	39.90	75	34.00	3926.7	4.3	342	c/cs
29	29	1659	67	39.30	75	33.50	3927.3	6.0	336	c/cs
29	29	1700	67	39.25	75	33.40	3927.4	6.3	335	GP
29	29	1704	67	38.90	75	32.90	3927.8	7.2	333	c/cs
29	29	1722	67	37.00	75	30.40	3929.9	6.7	333	c/cs
29	29	1730	67	36.16	75	29.31	3930.8	6.8	331	GP
29	29	1737	67	35.50	75	28.30	3931.6	5.9	325	c/cs
29	29	1745	67	34.80	75	27.10	3932.4	5.6	323	c/cs
29	29	1750	67	34.40	75	26.40	3932.9	6.4	324	c/cs
29	29	1801	67	33.50	75	24.50	3934.1	5.0	338	c/cs
29	29	1808	67	33.00	75	24.00	3934.6	5.7	330	c/cs
29	29	1812	67	32.60	75	23.50	3935.0	6.4	324	c/cs
29	29	1815	67	32.37	75	22.98	3935.3	5.9	324	GP
29	29	1827	67	31.40	75	21.20	3936.5	5.0	334	c/cs
29	29	1830	67	31.18	75	20.87	3936.8	5.5	334	GP
29	29	1838	67	30.50	75	20.00	3937.5	5.0	335	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
29	29	1840	67	30.37	75	19.83	3937.7	4.4	338	GP
29	29	1843	67	30.20	75	19.60	3937.9	1.4	33	c/cs
29	29	1845	67	30.10	75	19.70	3937.9	1.7	165	c/cs
29	29	1848	67	30.20	75	19.70	3938.0	3.3	158	c/cs
29	29	1850	67	30.31	75	19.84	3938.1	3.3	164	GP
29	29	1859	67	30.80	75	20.20	3938.6	3.4	152	c/cs
29	29	1900	67	30.83	75	20.26	3938.7	4.0	151	GP
29	29	1904	67	31.10	75	20.60	3938.9	5.6	145	c/cs
29	29	1910	67	31.53	75	21.44	3939.5	5.6	143	GP
29	29	1910	67	31.50	75	21.40	3939.5	6.2	143	c/cs
29	29	1920	67	32.35	75	23.06	3940.5	7.8	137	GP
29	29	1926	67	32.90	75	24.40	3941.3	7.7	138	c/cs
29	29	1927	67	33.02	75	24.67	3941.5	5.3	139	SF
29	29	1937	67	33.70	75	26.20	3942.3	4.6	121	c/cs
29	29	1938	67	33.70	75	26.40	3942.4	3.1	57	c/cs
29	29	1940	67	33.70	75	26.60	3942.5	3.5	52	c/cs
29	29	1942	67	33.60	75	26.80	3942.6	4.3	68	c/cs
29	29	1951	67	33.40	75	28.40	3943.3	4.6	7	c/cs
29	29	1953	67	33.20	75	28.50	3943.4	7.2	345	c/cs
29	29	1955	67	33.00	75	28.30	3943.7	7.9	330	c/cs
29	29	2001	67	32.30	75	27.30	3944.5	6.5	315	c/cs
29	29	2003	67	32.10	75	26.90	3944.7	6.2	282	c/cs
29	29	2005	67	32.10	75	26.40	3944.9	6.8	246	c/cs
29	29	2011	67	32.40	75	24.70	3945.6	7.2	245	c/cs
29	29	2019	67	32.80	75	22.40	3946.5	7.1	245	c/cs
29	29	2034	67	33.50	75	18.20	3948.3	7.2	245	c/cs
29	29	2047	67	34.20	75	14.50	3949.9	7.3	244	c/cs
29	29	2103	67	35.00	75	9.90	3951.8	6.1	74	c/cs
29	29	2131	67	34.24	75	17.03	3954.7	5.0	71	SF
29	29	2200	67	33.40	75	23.00	3957.1	3.3	70	c/cs
29	29	2210	67	33.20	75	24.30	3957.7	0.5	58	c/cs
29	29	2220	67	33.20	75	24.54	3957.7	2.5	72	742
29	29	2220	67	33.20	75	24.50	3957.7	0.0	90	c/cs
2	Feb 33	0329	67	33.20	75	24.54	3957.7	1.3	316	742
2	33	0330	67	33.20	75	24.50	3957.8	9.3	327	c/cs
2	33	0344	67	31.40	75	21.40	3959.9	7.3	330	c/cs
2	33	0350	67	30.70	75	20.50	3960.7	7.5	336	c/cs
2	33	0420	67	27.30	75	16.50	3964.4	7.5	337	c/cs
2	33	0430	67	26.13	75	15.18	3965.7	6.7	337	GP
2	33	0450	67	24.08	75	12.95	3967.9	6.8	337	GP
2	33	0450	67	24.10	75	13.00	3967.9	6.8	337	c/cs
2	33	0505	67	22.52	75	11.25	3969.6	6.8	338	GP
2	33	0520	67	20.90	75	9.60	3971.3	6.8	338	c/cs
2	33	0535	67	19.38	75	7.90	3973.0	6.9	340	GP
2	33	0550	67	17.70	75	6.40	3974.7	7.0	343	c/cs
2	33	0614	67	15.10	75	4.20	3977.5	6.9	339	c/cs
2	33	0644	67	11.80	75	1.10	3981.0	6.9	337	c/cs
2	33	0659	67	10.26	74	59.29	3982.7	6.9	334	SF
2	33	0714	67	8.70	74	57.40	3984.4	7.0	332	c/cs
2	33	0720	67	8.10	74	56.53	3985.1	7.2	337	SF
2	33	0744	67	5.40	74	53.70	3988.0	7.1	338	c/cs
2	33	0751	67	4.68	74	52.92	3988.8	6.9	338	SF
2	33	0814	67	2.20	74	50.40	3991.5	6.9	337	c/cs
2	33	0816	67	2.02	74	50.17	3991.7	7.3	335	SF
2	33	0845	66	58.80	74	46.40	3995.2	7.2	333	c/cs
2	33	0859	66	57.30	74	44.50	3996.9	7.2	332	c/cs
2	33	0929	66	54.20	74	40.10	4000.5	7.3	332	c/cs
2	33	0953	66	51.61	74	36.62	4003.4	6.0	334	SF
2	33	0959	66	51.10	74	36.00	4004.0	5.6	327	c/cs
2	33	1001	66	50.90	74	35.70	4004.2	4.3	280	c/cs
2	33	1003	66	50.90	74	35.30	4004.3	3.8	356	c/cs
2	33	1005	66	50.80	74	35.30	4004.4	4.4	53	c/cs
2	33	1007	66	50.70	74	35.60	4004.6	4.5	115	c/cs
2	33	1009	66	50.70	74	36.00	4004.7	5.7	149	c/cs
2	33	1013	66	51.10	74	36.50	4005.1	6.9	150	c/cs
2	33	1031	66	52.90	74	39.10	4007.2	7.0	150	c/cs
2	33	1032	66	52.96	74	39.23	4007.3	6.9	156	SF
2	33	1053	66	55.16	74	41.69	4009.7	6.0	154	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
2	33	1100	66	55.80	74	42.50	4010.4	4.9	202	c/cs
2	33	1101	66	55.90	74	42.40	4010.5	5.5	241	c/cs
2	33	1103	66	55.90	74	42.00	4010.7	6.5	247	c/cs
2	33	1110	66	56.20	74	40.20	4011.4	6.9	248	c/cs
2	33	1114	66	56.40	74	39.10	4011.9	6.4	264	c/cs
2	33	1115	66	56.40	74	38.80	4012.0	5.8	299	c/cs
2	33	1116	66	56.40	74	38.60	4012.1	6.3	329	c/cs
2	33	1122	66	55.80	74	37.80	4012.7	6.9	334	c/cs
2	33	1126	66	55.40	74	37.30	4013.2	5.0	33	c/cs
2	33	1128	66	55.30	74	37.50	4013.3	5.7	47	c/cs
2	33	1133	66	55.00	74	38.40	4013.8	6.4	45	c/cs
2	33	1140	66	54.40	74	39.80	4014.6	5.8	76	c/cs
2	33	1141	66	54.40	74	40.00	4014.7	7.6	86	SF
2	33	1143	66	54.40	74	40.60	4014.9	8.2	93	c/cs
2	33	1200	66	54.50	74	46.60	4017.2	8.3	95	c/cs
2	33	1205	66	54.60	74	48.30	4017.9	2.4	261	c/cs
2	33	1312	66	54.98	74	41.43	4020.7	4.0	270	743
2	33	1312	66	55.00	74	41.40	4020.7	0.0	90	c/cs
3 Feb	34	1600	66	54.98	74	41.43	4020.7	1.0	279	743
3	34	1607	66	55.00	74	41.10	4020.8	2.7	231	c/cs
3	34	1609	66	55.00	74	41.00	4020.9	4.0	288	c/cs
3	34	1610	66	55.00	74	40.80	4020.9	2.7	306	SF
3	34	1611	66	55.00	74	40.70	4021.0	4.5	25	c/cs
3	34	1612	66	54.90	74	40.80	4021.0	7.4	31	c/cs
3	34	1614	66	54.70	74	41.10	4021.3	9.5	30	c/cs
3	34	1619	66	54.00	74	42.10	4022.1	10.4	30	c/cs
3	34	1622	66	53.57	74	42.79	4022.6	9.5	29	SF
3	34	1625	66	53.15	74	43.39	4023.1	10.3	23	SF
3	34	1632	66	52.00	74	44.60	4024.3	10.8	23	c/cs
3	34	1650	66	49.10	74	47.90	4027.5	10.8	25	c/cs
3	34	1726	66	43.22	74	54.87	4034.0	10.7	30	SF
3	34	1744	66	40.42	74	58.88	4037.2	11.0	32	SF
3	34	1746	66	40.10	74	59.40	4037.6	11.1	29	c/cs
3	34	1753	66	39.00	75	1.00	4038.9	11.4	29	c/cs
3	34	1811	66	36.00	75	5.10	4042.3	11.2	43	c/cs
3	34	1829	66	33.50	75	10.90	4045.7	11.5	43	c/cs
3	34	1834	66	32.80	75	12.60	4046.6	11.1	43	c/cs
3	34	1835	66	32.68	75	12.87	4046.8	11.5	42	GP
3	34	1839	66	32.10	75	14.20	4047.6	11.6	42	c/cs
3	34	1844	66	31.40	75	15.80	4048.5	11.7	42	c/cs
3	34	1849	66	30.70	75	17.50	4049.5	11.5	42	c/cs
3	34	1854	66	30.00	75	19.10	4050.5	11.5	42	c/cs
3	34	1904	66	28.60	75	22.30	4052.4	11.6	42	c/cs
3	34	1913	66	27.25	75	25.25	4054.1	11.0	39	SF
3	34	1922	66	26.00	75	27.80	4055.8	11.0	44	c/cs
3	34	1930	66	24.90	75	30.40	4057.2	11.0	47	c/cs
3	34	1937	66	24.00	75	32.70	4058.5	10.8	48	c/cs
3	34	1942	66	23.40	75	34.40	4059.4	10.9	40	c/cs
3	34	1943	66	23.30	75	34.68	4059.6	10.8	41	SF
3	34	1955	66	21.60	75	38.20	4061.8	10.9	40	c/cs
3	34	2018	66	18.40	75	44.80	4066.0	10.8	40	c/cs
3	34	2027	66	17.17	75	47.42	4067.6	11.4	40	SF
3	34	2033	66	16.30	75	49.20	4068.7	11.2	41	c/cs
3	34	2058	66	12.74	75	56.81	4073.4	10.5	41	SF
3	34	2059	66	12.60	75	57.10	4073.6	10.3	41	c/cs
3	34	2122	66	9.60	76	3.50	4077.6	10.2	41	c/cs
3	34	2128	66	8.82	76	5.13	4078.6	10.1	41	SF
3	34	2141	66	7.10	76	8.70	4080.8	10.3	41	c/cs
3	34	2158	66	4.90	76	13.30	4083.7	10.0	41	c/cs
3	34	2213	66	3.00	76	17.40	4086.2	9.9	41	c/cs
3	34	2214	66	2.91	76	17.63	4086.4	10.3	40	SF
3	34	2231	66	0.70	76	22.20	4089.3	10.3	41	c/cs
3	34	2242	65	59.24	76	25.26	4091.2	9.8	42	SF
3	34	2248	65	58.50	76	26.90	4092.2	9.9	43	c/cs
3	34	2312	65	55.60	76	33.50	4096.1	9.8	50	c/cs
3	34	2321	65	54.70	76	36.20	4097.6	9.6	55	c/cs
3	34	2340	65	52.90	76	42.30	4100.6	9.6	57	c/cs
3	34	2355	65	51.60	76	47.20	4103.0	9.5	48	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
4 Feb	35	0000	65	51.00	76	48.60	4103.8	10.1	41	c/cs
4	35	0020	65	48.50	76	54.00	4107.2	10.1	40	c/cs
4	35	0029	65	47.32	76	56.40	4108.7	9.7	38	SF
4	35	0031	65	47.10	76	56.90	4109.0	9.7	39	c/cs
4	35	0046	65	45.20	77	0.60	4111.5	9.9	37	c/cs
4	35	0055	65	44.00	77	2.80	4112.9	9.8	37	c/cs
4	35	0114	65	41.60	77	7.40	4116.0	9.8	37	c/cs
4	35	0133	65	39.10	77	11.90	4119.1	9.8	38	c/cs
4	35	0147	65	37.30	77	15.40	4121.4	9.7	37	c/cs
4	35	0152	65	36.68	77	16.56	4122.2	10.0	36	SF
4	35	0204	65	35.10	77	19.40	4124.2	10.0	36	c/cs
4	35	0210	65	34.25	77	20.85	4125.2	9.9	39	SF
4	35	0215	65	33.60	77	22.10	4126.0	9.9	38	c/cs
4	35	0224	65	32.40	77	24.30	4127.5	9.7	39	c/cs
4	35	0247	65	29.56	77	29.98	4131.2	9.5	38	SF
4	35	0253	65	28.80	77	31.40	4132.2	9.3	36	c/cs
4	35	0307	65	27.10	77	34.50	4134.4	9.5	37	c/cs
4	35	0326	65	24.70	77	38.80	4137.4	9.3	37	c/cs
4	35	0344	65	22.46	77	42.87	4140.1	10.4	37	SF
4	35	0346	65	22.20	77	43.40	4140.5	10.0	37	c/cs
4	35	0358	65	20.60	77	46.30	4142.5	10.2	38	c/cs
4	35	0411	65	18.80	77	49.50	4144.7	10.4	38	c/cs
4	35	0416	65	18.20	77	50.80	4145.6	9.7	48	c/cs
4	35	0426	65	17.10	77	53.70	4147.2	10.2	39	c/cs
4	35	0432	65	16.30	77	55.20	4148.2	10.3	38	c/cs
4	35	0434	65	16.00	77	55.69	4148.5	9.6	39	SF
4	35	0455	65	13.40	78	0.70	4151.9	9.8	39	c/cs
4	35	0504	65	12.20	78	2.90	4153.4	9.6	48	c/cs
4	35	0507	65	11.90	78	3.70	4153.9	10.1	39	c/cs
4	35	0517	65	10.60	78	6.20	4155.5	10.1	38	c/cs
4	35	0520	65	10.20	78	6.95	4156.0	11.0	39	SF
4	35	0545	65	6.60	78	13.90	4160.6	11.0	40	c/cs
4	35	0549	65	6.08	78	14.98	4161.4	10.1	38	SF
4	35	0610	65	3.30	78	20.20	4164.9	10.2	38	c/cs
4	35	0616	65	2.50	78	21.70	4165.9	10.2	37	c/cs
4	35	0623	65	1.54	78	23.42	4167.1	11.0	42	SF
4	35	0623	65	1.50	78	23.40	4167.1	11.1	46	c/cs
4	35	0634	65	0.10	78	26.90	4169.2	11.2	49	c/cs
4	35	0644	64	58.90	78	30.20	4171.0	11.1	42	c/cs
4	35	0656	64	57.30	78	33.80	4173.2	11.0	42	c/cs
4	35	0705	64	56.06	78	36.38	4174.9	10.7	35	SF
4	35	0709	64	55.50	78	37.40	4175.6	10.8	36	c/cs
4	35	0728	64	52.70	78	42.11	4179.0	11.0	42	SF
4	35	0747	64	50.10	78	47.60	4182.5	10.9	42	c/cs
4	35	0812	64	46.80	78	54.80	4187.1	10.8	41	c/cs
4	35	0838	64	43.20	79	2.00	4191.8	10.8	41	c/cs
4	35	0853	64	41.10	79	6.10	4194.5	10.8	42	c/cs
4	35	0911	64	38.70	79	11.20	4197.7	10.6	41	c/cs
4	35	0919	64	37.70	79	13.30	4199.1	10.9	41	c/cs
4	35	0921	64	37.42	79	13.90	4199.5	10.7	42	SF
4	35	0929	64	36.40	79	16.10	4200.9	10.6	42	c/cs
4	35	0941	64	34.78	79	19.44	4203.0	10.3	41	SF
4	35	0944	64	34.40	79	20.20	4203.5	10.3	40	c/cs
4	35	0952	64	33.40	79	22.30	4204.9	10.1	40	c/cs
4	35	1009	64	31.20	79	26.60	4207.8	10.0	39	c/cs
4	35	1034	64	27.90	79	32.70	4211.9	9.9	39	c/cs
4	35	1039	64	27.28	79	33.94	4212.8	9.8	40	SF
4	35	1058	64	24.90	79	38.50	4215.9	9.9	40	c/cs
4	35	1113	64	23.00	79	42.20	4218.4	9.9	40	c/cs
4	35	1132	64	20.58	79	46.84	4221.5	10.2	42	SF
4	35	1133	64	20.50	79	47.10	4221.7	10.5	39	c/cs
4	35	1136	64	20.00	79	47.90	4222.2	10.1	34	c/cs
4	35	1141	64	19.30	79	49.00	4223.0	10.3	42	c/cs
4	35	1153	64	17.80	79	52.10	4225.1	10.2	41	c/cs
4	35	1204	64	16.40	79	54.90	4227.0	10.2	41	c/cs
4	35	1214	64	15.10	79	57.50	4228.7	10.1	42	c/cs
4	35	1228	64	13.36	80	1.07	4231.0	9.2	45	SF
4	35	1229	64	13.30	80	1.30	4231.1	9.4	45	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
4	35	1237	64	12.40	80	3.40	4232.4	9.4	44	c/cs
4	35	1242	64	11.80	80	4.60	4233.2	9.5	44	c/cs
4	35	1300	64	9.76	80	9.13	4236.0	10.6	42	SF
4	35	1302	64	9.50	80	9.70	4236.4	10.8	42	c/cs
4	35	1310	64	8.40	80	11.90	4237.8	10.3	41	c/cs
4	35	1322	64	6.90	80	15.00	4239.9	10.3	40	c/cs
4	35	1330	64	5.80	80	17.00	4241.3	10.1	40	c/cs
4	35	1348	64	3.50	80	21.50	4244.3	10.0	39	c/cs
4	35	1352	64	2.99	80	22.48	4245.0	9.5	43	SF
4	35	1358	64	2.30	80	24.00	4245.9	9.4	43	c/cs
4	35	1412	64	0.70	80	27.40	4248.1	9.8	43	c/cs
4	35	1421	63	59.60	80	29.60	4249.6	9.5	44	c/cs
4	35	1445	63	56.87	80	35.65	4253.4	10.4	39	SF
4	35	1454	63	55.70	80	37.90	4254.9	10.7	39	c/cs
4	35	1501	63	54.70	80	39.70	4256.2	10.1	39	c/cs
4	35	1507	63	53.91	80	41.11	4257.2	9.8	42	SF
4	35	1509	63	53.70	80	41.60	4257.5	9.9	41	c/cs
4	35	1519	63	52.40	80	44.10	4259.2	10.1	44	c/cs
4	35	1532	63	50.80	80	47.50	4261.4	10.2	43	c/cs
4	35	1543	63	49.45	80	50.37	4263.2	10.3	41	SF
4	35	1546	63	49.10	80	51.10	4263.7	10.1	42	c/cs
4	35	1602	63	47.10	80	55.20	4266.4	10.2	41	c/cs
4	35	1610	63	46.04	80	57.21	4267.8	8.9	42	SF
4	35	1617	63	45.30	80	58.80	4268.8	9.0	42	c/cs
4	35	1632	63	43.60	81	2.20	4271.1	9.3	42	c/cs
4	35	1638	63	42.90	81	3.60	4272.0	6.8	47	c/cs
4	35	1643	63	42.50	81	4.60	4272.6	6.1	47	c/cs
4	35	1653	63	41.82	81	6.25	4273.6	6.7	44	SF
4	35	1655	63	41.70	81	6.60	4273.8	6.6	43	c/cs
4	35	1701	63	41.20	81	7.60	4274.5	7.3	43	c/cs
4	35	1706	63	40.70	81	8.60	4275.1	7.1	43	c/cs
4	35	1748	63	37.10	81	16.30	4280.1	7.2	43	c/cs
4	35	1800	63	36.04	81	18.51	4281.5	7.3	47	SF
4	35	1807	63	35.50	81	19.90	4282.4	7.2	45	c/cs
4	35	1812	63	35.00	81	20.90	4283.0	6.3	36	c/cs
4	35	1819	63	34.50	81	21.80	4283.7	6.3	34	c/cs
4	35	1822	63	34.19	81	22.22	4284.0	6.3	34	SF
4	35	1836	63	33.00	81	24.10	4285.5	6.3	34	c/cs
4	35	1840	63	32.62	81	24.59	4285.9	6.2	29	SF
4	35	1845	63	32.20	81	25.20	4286.4	6.6	29	c/cs
4	35	1850	63	31.70	81	25.80	4287.0	5.9	31	c/cs
4	35	1900	63	30.80	81	26.90	4288.0	6.4	29	c/cs
4	35	1920	63	28.99	81	29.21	4290.1	6.8	35	SF
4	35	1933	63	27.80	81	31.10	4291.6	7.1	35	c/cs
4	35	1940	63	27.10	81	32.20	4292.4	7.1	37	c/cs
4	35	2001	63	25.13	81	35.50	4294.9	7.0	32	SF
4	35	2001	63	25.10	81	35.50	4294.9	6.8	33	c/cs
4	35	2011	63	24.20	81	36.90	4296.0	7.3	32	c/cs
4	35	2026	63	22.60	81	39.10	4297.8	6.9	33	c/cs
4	35	2039	63	21.40	81	40.90	4299.3	7.0	33	c/cs
4	35	2049	63	20.40	81	42.30	4300.5	7.2	33	c/cs
4	35	2104	63	18.90	81	44.40	4302.3	6.9	32	c/cs
4	35	2112	63	18.10	81	45.50	4303.2	7.4	32	c/cs
4	35	2125	63	16.70	81	47.50	4304.8	8.1	35	c/cs
4	35	2129	63	16.30	81	48.10	4305.4	9.2	37	c/cs
4	35	2134	63	15.68	81	49.17	4306.1	9.6	35	SF
4	35	2135	63	15.60	81	49.40	4306.3	10.7	35	c/cs
4	35	2145	63	14.10	81	51.70	4308.1	10.7	35	c/cs
4	35	2203	63	11.50	81	55.70	4311.3	10.4	34	c/cs
4	35	2206	63	11.02	81	56.36	4311.8	10.3	31	SF
4	35	2210	63	10.40	81	57.20	4312.5	10.4	33	c/cs
4	35	2223	63	8.50	81	59.90	4314.8	10.7	33	c/cs
4	35	2235	63	6.70	82	2.40	4316.9	10.7	36	c/cs
4	35	2243	63	5.60	82	4.30	4318.3	10.7	35	c/cs
4	35	2252	63	4.30	82	6.30	4319.9	10.4	33	c/cs
4	35	2304	63	2.50	82	8.80	4322.0	10.4	33	c/cs
4	35	2312	63	1.40	82	10.50	4323.4	10.6	35	c/cs
4	35	2319	63	0.34	82	12.00	4324.6	9.8	30	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
4	35	2320	63	0.20	82	12.20	4324.8	9.4	31	c/cs
4	35	2332	62	58.60	82	14.30	4326.7	9.7	32	c/cs
4	35	2338	62	57.76	82	15.47	4327.7	10.7	38	SF
4	35	2347	62	56.50	82	17.60	4329.2	10.3	37	c/cs
4	35	2350	62	56.10	82	18.30	4329.8	10.6	38	c/cs
5 Feb	36	0000	62	54.70	82	20.70	4331.5	10.6	38	c/cs
5	36	0003	62	54.30	82	21.44	4332.1	9.9	38	SF
5	36	0015	62	52.70	82	24.10	4334.0	9.7	38	c/cs
5	36	0026	62	51.30	82	26.50	4335.8	10.0	38	c/cs
5	36	0043	62	49.10	82	30.30	4338.6	9.8	39	c/cs
5	36	0059	62	47.10	82	33.90	4341.3	10.0	44	c/cs
5	36	0111	62	45.60	82	36.90	4343.3	9.8	43	c/cs
5	36	0121	62	44.40	82	39.30	4344.9	10.5	43	c/cs
5	36	0124	62	44.00	82	40.10	4345.4	9.7	36	c/cs
5	36	0126	62	43.80	82	40.50	4345.7	8.3	40	c/cs
5	36	0132	62	43.14	82	41.70	4346.6	8.1	43	GP
5	36	0132	62	43.10	82	41.70	4346.6	5.2	45	c/cs
5	36	0140	62	42.65	82	42.77	4347.3	5.0	45	GP
5	36	0140	62	42.70	82	42.80	4347.3	4.9	71	c/cs
5	36	0143	62	42.60	82	43.30	4347.5	6.2	90	c/cs
5	36	0150	62	42.57	82	44.84	4348.2	6.6	91	GP
5	36	0200	62	42.58	82	47.25	4349.3	6.4	89	GP
5	36	0210	62	42.56	82	49.57	4350.4	6.6	86	GP
5	36	0213	62	42.50	82	50.30	4350.7	6.6	84	c/cs
5	36	0225	62	42.40	82	53.16	4352.0	5.6	78	GP
5	36	0231	62	42.30	82	54.40	4352.6	5.7	80	c/cs
5	36	0234	62	42.20	82	55.00	4352.9	6.2	45	c/cs
5	36	0235	62	42.20	82	55.10	4353.0	5.0	334	c/cs
5	36	0237	62	42.00	82	55.00	4353.2	6.1	320	c/cs
5	36	0238	62	41.90	82	54.80	4353.3	8.5	321	c/cs
5	36	0243	62	41.40	82	53.90	4354.0	9.2	322	c/cs
5	36	0257	62	39.70	82	51.00	4356.1	9.4	324	c/cs
5	36	0300	62	39.30	82	50.40	4356.6	9.1	335	c/cs
5	36	0305	62	38.62	82	49.70	4357.3	9.2	334	SF
5	36	0308	62	38.20	82	49.20	4357.8	9.7	336	c/cs
5	36	0316	62	37.00	82	48.10	4359.1	9.1	334	c/cs
5	36	0320	62	36.50	82	47.50	4359.7	9.6	322	c/cs
5	36	0328	62	35.50	82	45.80	4361.0	9.1	324	c/cs
5	36	0331	62	35.10	82	45.20	4361.4	10.0	322	c/cs
5	36	0339	62	34.10	82	43.40	4362.8	9.4	320	c/cs
5	36	0354	62	32.30	82	40.10	4365.1	9.6	320	c/cs
5	36	0410	62	30.31	82	36.54	4367.7	9.4	320	SF
5	36	0412	62	30.10	82	36.10	4368.0	9.3	321	c/cs
5	36	0430	62	27.90	82	32.32	4370.8	9.3	318	SF
5	36	0432	62	27.70	82	31.90	4371.1	8.6	318	c/cs
5	36	0437	62	27.10	82	30.80	4371.8	9.2	318	c/cs
5	36	0445	62	26.20	82	29.10	4373.0	9.3	319	c/cs
5	36	0451	62	25.52	82	27.76	4374.0	9.5	320	SF
5	36	0452	62	25.40	82	27.50	4374.1	9.0	318	c/cs
5	36	0505	62	23.90	82	24.70	4376.1	9.2	319	c/cs
5	36	0517	62	22.50	82	22.20	4377.9	9.2	320	c/cs
5	36	0522	62	22.00	82	21.10	4378.7	8.9	319	c/cs
5	36	0545	62	19.40	82	16.30	4382.1	9.1	317	c/cs
5	36	0553	62	18.50	82	14.50	4383.3	9.3	318	c/cs
5	36	0559	62	17.76	82	13.19	4384.3	9.1	319	SF
5	36	0608	62	16.70	82	11.20	4385.6	9.0	319	c/cs
5	36	0614	62	16.06	82	9.97	4386.5	8.9	315	SF
5	36	0618	62	15.60	82	9.10	4387.1	9.3	316	c/cs
5	36	0624	62	15.00	82	7.70	4388.0	9.4	309	c/cs
5	36	0636	62	13.80	82	4.50	4389.9	9.0	310	c/cs
5	36	0638	62	13.61	82	4.03	4390.2	8.8	313	SF
5	36	0639	62	13.50	82	3.80	4390.4	8.9	321	c/cs
5	36	0649	62	12.40	82	1.80	4391.8	9.6	320	c/cs
5	36	0702	62	10.80	81	58.90	4393.9	9.2	320	c/cs
5	36	0705	62	10.43	81	58.31	4394.4	9.7	318	SF
5	36	0719	62	8.70	81	55.10	4396.6	9.6	321	c/cs
5	36	0725	62	8.00	81	53.80	4397.6	9.8	325	c/cs
5	36	0726	62	7.86	81	53.60	4397.8	9.3	325	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
5	36	0729	62	7.50	81	53.00	4398.2	9.3	321	c/cs
5	36	0737	62	6.50	81	51.30	4399.5	9.6	328	c/cs
5	36	0742	62	5.90	81	50.40	4400.3	9.2	326	c/cs
5	36	0750	62	4.83	81	48.98	4401.5	9.3	328	SF
5	36	0758	62	3.80	81	47.60	4402.7	9.6	323	c/cs
5	36	0810	62	2.23	81	45.14	4404.6	9.9	321	SF
5	36	0815	62	1.60	81	44.00	4405.5	9.5	323	c/cs
5	36	0823	62	0.60	81	42.40	4406.7	10.1	321	c/cs
5	36	0826	62	0.18	81	41.74	4407.2	9.5	323	SF
5	36	0833	61	59.30	81	40.30	4408.3	8.8	322	c/cs
5	36	0840	61	58.50	81	39.00	4409.4	9.0	322	c/cs
5	36	0851	61	57.20	81	36.80	4411.0	9.3	321	c/cs
5	36	0859	61	56.22	81	35.16	4412.3	9.8	321	SF
5	36	0913	61	54.40	81	32.10	4414.6	10.1	321	c/cs
5	36	0921	61	53.40	81	30.30	4415.9	10.3	320	c/cs
5	36	0926	61	52.70	81	29.20	4416.8	9.6	322	c/cs
5	36	0939	61	51.10	81	26.40	4418.8	9.9	322	c/cs
5	36	0947	61	50.04	81	24.73	4420.2	10.1	323	SF
5	36	0947	61	50.00	81	24.70	4420.2	9.5	323	c/cs
5	36	0954	61	49.20	81	23.30	4421.3	10.1	322	c/cs
5	36	1006	61	47.60	81	20.70	4423.3	9.8	316	c/cs
5	36	1017	61	46.30	81	18.00	4425.1	9.9	318	c/cs
5	36	1022	61	45.70	81	16.90	4425.9	9.6	321	c/cs
5	36	1037	61	43.80	81	13.70	4428.3	9.4	321	c/cs
5	36	1055	61	41.60	81	9.90	4431.1	9.4	326	c/cs
5	36	1057	61	41.36	81	9.52	4431.4	9.5	326	SF
5	36	1100	61	41.00	81	9.00	4431.9	9.6	327	c/cs
5	36	1103	61	40.60	81	8.40	4432.4	6.6	329	c/cs
5	36	1110	61	39.90	81	7.60	4433.2	6.3	328	c/cs
5	36	1115	61	39.50	81	7.00	4433.7	9.4	328	c/cs
5	36	1120	61	38.80	81	6.10	4434.5	9.5	320	c/cs
5	36	1126	61	38.10	81	4.80	4435.4	10.4	322	c/cs
5	36	1128	61	37.80	81	4.40	4435.8	9.4	315	c/cs
5	36	1133	61	37.30	81	3.20	4436.6	9.7	317	c/cs
5	36	1136	61	36.90	81	2.50	4437.0	9.2	315	c/cs
5	36	1143	61	36.10	81	0.90	4438.1	9.5	311	c/cs
5	36	1151	61	35.30	80	58.90	4439.4	9.6	313	c/cs
5	36	1159	61	34.40	80	56.90	4440.7	9.2	324	c/cs
5	36	1206	61	33.60	80	55.60	4441.7	9.5	324	c/cs
5	36	1211	61	32.90	80	54.60	4442.5	7.7	327	c/cs
5	36	1213	61	32.70	80	54.30	4442.8	5.7	325	c/cs
5	36	1218	61	32.30	80	53.70	4443.3	4.7	325	c/cs
5	36	1225	61	31.90	80	53.10	4443.8	4.8	302	c/cs
5	36	1227	61	31.80	80	52.80	4444.0	5.4	267	c/cs
5	36	1230	61	31.80	80	52.20	4444.2	5.8	257	c/cs
5	36	1237	61	31.96	80	50.85	4444.9	4.8	247	SF
5	36	1300	61	32.70	80	47.30	4446.8	4.7	248	c/cs
5	36	1315	61	33.10	80	44.90	4448.0	4.8	249	c/cs
5	36	1330	61	33.54	80	42.60	4449.2	6.2	241	GP
5	36	1337	61	33.90	80	41.30	4449.9	6.1	245	c/cs
5	36	1340	61	34.03	80	40.68	4450.2	5.7	251	GP
5	36	1350	61	34.34	80	38.80	4451.1	5.3	251	GP
5	36	1354	61	34.50	80	38.10	4451.5	4.9	261	c/cs
5	36	1400	61	34.53	80	37.07	4452.0	5.2	261	GP
5	36	1410	61	34.66	80	35.25	4452.9	3.3	258	GP
5	36	1411	61	34.70	80	35.10	4452.9	3.4	257	c/cs
5	36	1419	61	34.80	80	34.20	4453.4	2.2	315	c/cs
5	36	1420	61	34.80	80	34.20	4453.4	2.6	58	c/cs
5	36	1422	61	34.70	80	34.30	4453.5	4.6	93	c/cs
5	36	1425	61	34.70	80	34.80	4453.7	5.4	91	c/cs
5	36	1428	61	34.70	80	35.40	4454.0	4.9	89	c/cs
5	36	1430	61	34.72	80	35.70	4454.2	3.0	78	744
5	36	1430	61	34.70	80	35.70	4454.2	0.0	90	c/cs
7 Feb	38	1030	61	34.72	80	35.70	4454.2	2.6	71	744
7	38	1030	61	34.70	80	35.70	4454.2	5.1	60	c/cs
7	38	1031	61	34.70	80	35.90	4454.2	7.5	53	c/cs
7	38	1035	61	34.40	80	36.70	4454.7	8.5	45	c/cs
7	38	1038	61	34.10	80	37.30	4455.2	10.0	43	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
7	38	1041	61	33.70	80	38.00	4455.7	10.9	43	c/cs
7	38	1049	61	32.60	80	40.10	4457.1	11.7	42	c/cs
7	38	1054	61	31.90	80	41.50	4458.1	12.3	42	c/cs
7	38	1104	61	30.40	80	44.40	4460.1	12.6	44	c/cs
7	38	1118	61	28.26	80	48.61	4463.1	11.3	37	SF
7	38	1119	61	28.10	80	48.80	4463.3	11.2	39	c/cs
7	38	1124	61	27.40	80	50.10	4464.2	10.9	40	c/cs
7	38	1129	61	26.70	80	51.30	4465.1	11.4	40	c/cs
7	38	1142	61	24.80	80	54.60	4467.6	11.3	43	c/cs
7	38	1149	61	23.90	80	56.50	4468.9	11.7	44	c/cs
7	38	1154	61	23.10	80	57.90	4469.9	11.0	51	c/cs
7	38	1202	61	22.20	81	0.30	4471.3	11.4	51	c/cs
7	38	1217	61	20.50	81	4.90	4474.2	11.6	52	c/cs
7	38	1225	61	19.50	81	7.50	4475.7	11.3	52	c/cs
7	38	1245	61	17.20	81	13.70	4479.5	11.4	52	c/cs
7	38	1300	61	15.50	81	18.40	4482.3	11.3	53	c/cs
7	38	1311	61	14.20	81	21.80	4484.4	11.3	54	c/cs
7	38	1323	61	12.87	81	25.66	4486.7	10.9	55	SF
7	38	1325	61	12.70	81	26.30	4487.1	11.0	56	c/cs
7	38	1334	61	11.70	81	29.10	4488.7	11.0	56	c/cs
7	38	1339	61	11.22	81	30.68	4489.6	11.0	53	SF
7	38	1339	61	11.20	81	30.70	4489.6	11.2	57	c/cs
7	38	1341	61	11.00	81	31.30	4490.0	11.0	52	c/cs
7	38	1354	61	9.50	81	35.20	4492.4	11.3	49	c/cs
7	38	1403	61	8.40	81	37.80	4494.1	11.0	48	c/cs
7	38	1408	61	7.80	81	39.25	4495.0	11.3	51	SF
7	38	1421	61	6.30	81	43.20	4497.4	11.2	53	c/cs
7	38	1434	61	4.83	81	47.22	4499.9	11.5	56	SF
7	38	1437	61	4.50	81	48.20	4500.4	11.7	57	c/cs
7	38	1452	61	2.90	81	53.30	4503.4	11.7	61	c/cs
7	38	1500	61	2.10	81	56.10	4504.9	11.7	63	c/cs
7	38	1509	61	1.36	81	59.37	4506.7	10.9	59	SF
7	38	1509	61	1.40	81	59.40	4506.7	11.0	50	c/cs
7	38	1518	61	0.30	82	2.00	4508.3	11.1	51	c/cs
7	38	1530	60	58.90	82	5.50	4510.6	11.3	51	c/cs
7	38	1540	60	57.70	82	8.50	4512.4	10.8	50	c/cs
7	38	1545	60	57.10	82	9.90	4513.3	11.0	51	c/cs
7	38	1557	60	55.74	82	13.43	4515.5	10.5	52	SF
7	38	1558	60	55.60	82	13.70	4515.7	10.1	50	c/cs
7	38	1603	60	55.10	82	15.00	4516.5	10.9	51	c/cs
7	38	1605	60	54.90	82	15.60	4516.9	9.0	47	c/cs
7	38	1606	60	54.80	82	15.80	4517.1	5.4	48	c/cs
7	38	1610	60	54.50	82	16.40	4517.4	4.2	48	c/cs
7	38	1624	60	53.86	82	17.88	4518.4	5.4	53	SF
7	38	1624	60	53.90	82	17.90	4518.4	5.5	56	c/cs
7	38	1640	60	53.04	82	20.35	4519.9	4.7	51	SF
7	38	1659	60	52.10	82	22.70	4521.3	4.5	49	c/cs
7	38	1716	60	51.27	82	24.71	4522.6	4.7	55	SF
7	38	1717	60	51.20	82	24.80	4522.7	4.7	59	c/cs
7	38	1724	60	50.90	82	25.80	4523.3	5.0	57	c/cs
7	38	1734	60	50.50	82	27.20	4524.1	4.9	55	c/cs
7	38	1745	60	49.97	82	28.74	4525.0	4.5	48	SF
7	38	1759	60	49.30	82	30.30	4526.0	4.4	48	c/cs
7	38	1813	60	48.60	82	31.91	4527.0	4.5	47	SF
7	38	1827	60	47.89	82	33.48	4528.1	4.9	54	SF
7	38	1827	60	47.90	82	33.50	4528.1	5.0	54	c/cs
7	38	1851	60	46.70	82	36.80	4530.1	4.9	54	c/cs
7	38	1930	60	44.85	82	42.09	4533.3	4.8	55	SF
7	38	1941	60	44.30	82	43.60	4534.2	4.9	55	c/cs
7	38	2012	60	42.90	82	47.80	4536.7	4.9	55	c/cs
7	38	2035	60	41.80	82	50.90	4538.6	5.0	55	c/cs
7	38	2041	60	41.53	82	51.79	4539.1	5.0	51	SF
7	38	2044	60	41.40	82	52.20	4539.3	6.9	52	c/cs
7	38	2048	60	41.10	82	52.90	4539.8	7.6	53	c/cs
7	38	2102	60	40.00	82	55.80	4541.5	7.3	52	c/cs
7	38	2123	60	38.50	82	59.90	4544.1	7.2	52	c/cs
7	38	2146	60	36.76	83	4.26	4546.8	7.8	58	SF
7	38	2153	60	36.30	83	5.80	4547.7	7.9	59	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
7	38	2159	60	35.90	83	7.20	4548.5	8.7	57	c/cs
7	38	2204	60	35.50	83	8.40	4549.2	9.9	57	c/cs
7	38	2207	60	35.20	83	9.28	4549.7	9.6	50	SF
7	38	2216	60	34.30	83	11.50	4551.2	10.5	51	c/cs
7	38	2223	60	33.50	83	13.50	4552.4	11.4	50	c/cs
7	38	2232	60	32.40	83	16.10	4554.1	11.2	50	c/cs
7	38	2242	60	31.20	83	19.00	4556.0	11.0	35	c/cs
7	38	2246	60	30.60	83	19.90	4556.7	11.6	48	c/cs
7	38	2300	60	28.80	83	24.00	4559.4	11.7	49	c/cs
7	38	2314	60	27.00	83	28.20	4562.1	11.6	49	c/cs
7	38	2329	60	25.10	83	32.60	4565.0	11.3	48	c/cs
7	38	2335	60	24.36	83	34.31	4566.2	11.2	49	SF
7	38	2337	60	24.10	83	34.90	4566.5	11.3	45	c/cs
8 Feb	39	0000	60	21.00	83	41.00	4570.9	11.1	48	c/cs
8	39	0005	60	20.40	83	42.40	4571.8	11.5	50	c/cs
8	39	0016	60	19.10	83	45.70	4573.9	11.0	53	c/cs
8	39	0018	60	18.86	83	46.30	4574.3	11.6	56	SF
8	39	0026	60	18.00	83	48.90	4575.8	12.0	54	c/cs
8	39	0033	60	17.20	83	51.20	4577.2	11.4	55	c/cs
8	39	0036	60	16.80	83	52.10	4577.8	11.8	52	c/cs
8	39	0044	60	15.90	83	54.60	4579.4	11.7	53	c/cs
8	39	0046	60	15.60	83	55.30	4579.8	11.8	47	c/cs
8	39	0054	60	14.60	83	57.60	4581.3	11.6	45	c/cs
8	39	0101	60	13.60	83	59.50	4582.7	11.7	45	c/cs
8	39	0104	60	13.20	84	0.30	4583.3	12.0	57	c/cs
8	39	0113	60	12.22	84	3.39	4585.1	11.5	55	SF
8	39	0114	60	12.10	84	3.70	4585.3	12.1	55	c/cs
8	39	0117	60	11.80	84	4.70	4585.9	11.2	55	c/cs
8	39	0127	60	10.70	84	7.80	4587.7	11.5	55	c/cs
8	39	0139	60	9.40	84	11.60	4590.0	11.4	55	c/cs
8	39	0141	60	9.16	84	12.20	4590.4	11.6	56	SF
8	39	0203	60	6.80	84	19.30	4594.6	11.7	56	c/cs
8	39	0209	60	6.17	84	21.24	4595.8	12.3	61	SF
8	39	0217	60	5.40	84	24.10	4597.5	12.3	61	c/cs
8	39	0224	60	4.68	84	26.64	4598.9	12.2	55	SF
8	39	0226	60	4.40	84	27.30	4599.3	12.4	57	c/cs
8	39	0229	60	4.10	84	28.30	4599.9	11.6	47	c/cs
8	39	0231	60	3.80	84	28.90	4600.3	11.6	54	c/cs
8	39	0237	60	3.20	84	30.80	4601.5	11.9	57	c/cs
8	39	0242	60	2.60	84	32.50	4602.5	12.0	60	c/cs
8	39	0301	60	0.72	84	39.07	4606.3	10.8	56	SF
8	39	0302	60	0.60	84	39.40	4606.5	10.9	56	c/cs
8	39	0312	59	59.60	84	42.40	4608.3	8.7	53	c/cs
8	39	0314	59	59.40	84	42.90	4608.6	7.3	51	c/cs
8	39	0320	59	59.00	84	44.00	4609.3	6.5	51	c/cs
8	39	0330	59	58.30	84	45.67	4610.4	7.1	56	GP
8	39	0342	59	57.50	84	48.00	4611.8	6.9	58	c/cs
8	39	0346	59	57.30	84	48.80	4612.3	6.7	48	c/cs
8	39	0359	59	56.30	84	51.00	4613.7	6.2	38	c/cs
8	39	0404	59	55.89	84	51.59	4614.2	6.4	36	GP
8	39	0404	59	55.90	84	51.60	4614.2	6.5	52	c/cs
8	39	0409	59	55.60	84	52.50	4614.8	6.8	55	c/cs
8	39	0418	59	55.00	84	54.10	4615.8	7.0	56	c/cs
8	39	0430	59	54.18	84	56.44	4617.2	6.8	55	GP
8	39	0437	59	53.70	84	57.70	4618.0	6.7	53	c/cs
8	39	0500	59	52.17	85	1.85	4620.6	6.8	51	GP
8	39	0505	59	51.80	85	2.70	4621.1	6.7	51	c/cs
8	39	0516	59	51.03	85	4.62	4622.4	6.6	52	GP
8	39	0519	59	50.80	85	5.10	4622.7	6.6	52	c/cs
8	39	0530	59	50.09	85	7.03	4623.9	5.8	50	GP
8	39	0550	59	48.90	85	10.00	4625.8	5.7	52	c/cs
8	39	0556	59	48.51	85	10.90	4626.4	6.6	58	SF
8	39	0604	59	48.00	85	12.40	4627.3	6.6	58	c/cs
8	39	0634	59	46.30	85	18.00	4630.6	6.7	57	c/cs
8	39	0639	59	46.00	85	18.96	4631.2	6.2	58	SF
8	39	0701	59	44.79	85	22.79	4633.4	7.1	67	SF
8	39	0704	59	44.70	85	23.40	4633.8	7.0	67	c/cs
8	39	0716	59	44.10	85	25.97	4635.2	6.4	59	SF

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
8	39	0718	59	44.00	85	26.30	4635.4	6.3	55	c/cs
8	39	0740	59	42.70	85	30.10	4637.7	6.4	53	c/cs
8	39	0744	59	42.40	85	30.76	4638.1	6.4	56	SF
8	39	0800	59	41.50	85	33.60	4639.8	6.3	49	c/cs
8	39	0814	59	40.49	85	35.73	4641.3	6.3	50	SF
8	39	0828	59	39.60	85	38.00	4642.8	6.3	48	c/cs
8	39	0858	59	37.50	85	42.60	4645.9	6.2	49	c/cs
8	39	0909	59	36.70	85	44.25	4647.0	6.2	47	SF
8	39	0918	59	36.10	85	45.60	4648.0	6.3	46	c/cs
8	39	0948	59	33.90	85	50.10	4651.1	6.4	47	c/cs
8	39	1018	59	31.70	85	54.70	4654.3	6.4	46	c/cs
8	39	1046	59	29.70	85	59.00	4657.3	5.5	12	c/cs
8	39	1047	59	29.60	85	59.00	4657.4	4.5	350	c/cs
8	39	1051	59	29.30	85	58.90	4657.7	3.6	118	c/cs
8	39	1052	59	29.30	85	59.03	4657.8	4.9	115	SF
8	39	1053	59	29.30	85	59.20	4657.8	4.6	150	c/cs
8	39	1055	59	29.50	85	59.30	4658.0	2.8	205	c/cs
8	39	1100	59	29.70	85	59.10	4658.2	3.8	216	c/cs
8	39	1111	59	30.20	85	58.30	4658.9	4.1	217	c/cs
8	39	1138	59	31.70	85	56.10	4660.8	4.1	216	c/cs
8	39	1208	59	33.40	85	53.80	4662.8	4.2	217	c/cs
8	39	1231	59	34.70	85	51.90	4664.4	4.6	197	c/cs
8	39	1245	59	35.69	85	51.25	4665.5	5.3	218	745
8	39	1245	59	35.70	85	51.20	4665.5	0.0	90	c/cs
10 Feb	41	1318	59	35.69	85	51.25	4665.5	1.1	77	745
10	41	1318	59	35.70	85	51.20	4665.5	0.9	45	c/cs
10	41	1340	59	35.46	85	51.70	4665.8	0.8	338	GP
10	41	1340	59	35.50	85	51.70	4665.8	1.0	9	c/cs
10	41	1350	59	35.30	85	51.75	4666.0	0.8	327	GP
10	41	1400	59	35.19	85	51.61	4666.1	0.9	38	GP
10	41	1400	59	35.20	85	51.60	4666.1	0.8	352	c/cs
10	41	1415	59	34.98	85	51.55	4666.3	1.0	354	GP
10	41	1415	59	35.00	85	51.60	4666.3	1.1	9	c/cs
10	41	1430	59	34.70	85	51.64	4666.6	0.8	359	GP
10	41	1445	59	34.50	85	51.63	4666.8	1.1	357	GP
10	41	1500	59	34.22	85	51.60	4667.1	1.0	358	GP
10	41	1515	59	33.97	85	51.58	4667.4	1.0	0	GP
10	41	1530	59	33.73	85	51.58	4667.6	0.2	146	GP
10	41	1815	59	34.12	85	52.09	4668.1	1.0	339	746
10	41	1815	59	34.10	85	52.10	4668.1	0.0	90	c/cs
12 Feb	43	1840	59	34.12	85	52.09	4668.1	2.4	100	746
12	43	1840	59	34.10	85	52.10	4668.1	4.8	33	c/cs
12	43	1930	59	30.70	85	56.40	4672.1	5.0	35	c/cs
12	43	2000	59	28.70	85	59.20	4674.6	4.7	38	c/cs
12	43	2030	59	26.90	86	2.10	4676.9	4.9	36	c/cs
12	43	2140	59	22.27	86	8.58	4682.6	5.6	10	SN
12	43	2200	59	20.40	86	9.20	4684.4	7.6	21	c/cs
12	43	2230	59	16.90	86	11.80	4688.3	12.2	35	c/cs
12	43	2242	59	14.85	86	14.58	4690.7	11.9	34	SN
12	43	2330	59	7.00	86	24.90	4700.2	11.9	36	c/cs
13 Feb	44	0000	59	2.15	86	31.70	4706.2	11.5	36	GP
13	44	0100	58	52.85	86	44.98	4717.7	11.6	36	GP
13	44	0200	58	43.48	86	58.22	4729.3	11.6	37	GP
13	44	0300	58	34.19	87	11.46	4740.9	11.8	39	GP
13	44	0400	58	24.99	87	25.63	4752.7	12.0	40	GP
13	44	0500	58	15.73	87	40.28	4764.7	12.0	38	GP
13	44	0500	58	15.70	87	40.30	4764.7	12.0	37	c/cs
13	44	0522	58	12.22	87	45.28	4769.1	11.8	35	SN
13	44	0630	58	1.32	87	59.89	4782.5	11.9	34	SN
13	44	0744	57	49.16	88	15.33	4797.1	12.0	35	SN
13	44	0920	57	33.50	88	36.00	4816.3	7.0	34	c/cs
13	44	0932	57	32.39	88	37.49	4817.7	6.1	33	SN
13	44	1005	57	29.58	88	40.90	4821.0	7.2	37	SN
13	44	1030	57	27.20	88	44.20	4824.0	7.3	37	c/cs
13	44	1040	57	26.20	88	45.60	4825.2	11.2	37	c/cs
13	44	1100	57	23.20	88	49.70	4828.9	12.3	38	c/cs
13	44	1120	57	20.02	88	54.36	4833.0	11.8	38	SN
13	44	1133	57	18.00	88	57.30	4835.6	6.8	36	c/cs

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
13	44	1148	57	16.60	88	59.10	4837.3	6.0	36	c/cs
13	44	1200	57	15.70	89	0.40	4838.5	12.0	37	c/cs
13	44	1300	57	6.00	89	13.70	4850.5	11.9	36	c/cs
13	44	1330	57	1.19	89	20.06	4856.4	11.7	37	GP
13	44	1500	56	47.07	89	39.26	4874.0	11.8	37	GP
13	44	1600	56	37.74	89	52.28	4885.8	11.7	37	GP
13	44	1700	56	28.32	90	5.02	4897.5	11.7	37	GP
13	44	1730	56	23.65	90	11.36	4903.4	11.9	31	SN
13	44	1730	56	23.60	90	11.40	4903.4	11.9	33	c/cs
13	44	1800	56	18.65	90	17.12	4909.3	11.7	35	GP
13	44	2010	55	57.94	90	43.62	4934.7	11.7	38	SN
13	44	2010	55	57.90	90	43.60	4934.7	11.7	37	c/cs
13	44	2048	55	52.07	90	51.64	4942.1	11.7	37	SN
14 Feb	45	0000	55	22.26	91	32.09	4979.7	11.5	37	GP
14	45	0100	55	13.02	91	44.10	4991.2	12.2	36	GP
14	45	0100	55	13.00	91	44.10	4991.2	12.1	34	c/cs
14	45	0200	55	3.02	91	56.10	5003.3	12.1	35	GP
14	45	0200	55	3.00	91	56.10	5003.3	12.1	34	c/cs
14	45	0300	54	53.01	92	7.79	5015.4	12.4	35	GP
14	45	0300	54	53.00	92	7.80	5015.4	12.0	37	c/cs
14	45	0400	54	43.41	92	20.25	5027.3	11.9	37	GP
14	45	0400	54	43.40	92	20.30	5027.3	12.3	38	c/cs
14	45	0500	54	33.72	92	33.24	5039.6	12.7	38	GP
14	45	0550	54	25.42	92	44.48	5050.2	12.5	36	SN
14	45	0550	54	25.40	92	44.50	5050.2	12.7	35	c/cs
14	45	0608	54	22.27	92	48.20	5054.0	12.8	40	SN
14	45	0608	54	22.30	92	48.20	5054.0	12.6	39	c/cs
14	45	0630	54	18.69	92	53.18	5058.6	12.6	35	SN
14	45	0630	54	18.70	92	53.20	5058.6	12.2	36	c/cs
14	45	0700	54	13.70	92	59.30	5064.7	12.6	35	c/cs
14	45	0720	54	10.31	93	3.48	5068.9	11.9	36	SN
14	45	0720	54	10.30	93	3.50	5068.9	12.1	35	c/cs
14	45	0820	54	0.40	93	15.30	5081.0	12.3	31	SN
14	45	0908	53	51.89	93	23.85	5090.9	12.0	35	SN
14	45	0940	53	46.69	93	30.12	5097.3	11.8	31	SN
14	45	1058	53	33.55	93	43.61	5112.7	11.6	34	SN
14	45	1058	53	33.50	93	43.60	5112.7	11.4	35	c/cs
14	45	1342	53	8.06	94	13.32	5143.7	11.6	33	SN
14	45	1342	53	8.10	94	13.30	5143.7	11.1	35	c/cs
14	45	1500	52	56.20	94	27.16	5158.2	10.9	35	GP
14	45	1600	52	47.27	94	37.58	5169.1	11.4	39	GP
14	45	1700	52	38.42	94	49.38	5180.5	11.4	42	GP
14	45	1800	52	30.01	95	1.94	5191.9	11.2	41	GP
14	45	1944	52	15.26	95	22.71	5211.3	10.3	42	SN
14	45	1944	52	15.30	95	22.70	5211.3	10.6	37	c/cs
14	45	2100	52	4.50	95	35.90	5224.8	10.8	36	c/cs
15 Feb	46	0000	51	38.14	96	6.58	5257.2	10.3	32	GP
15	46	0100	51	29.42	96	15.38	5267.5	10.3	31	GP
15	46	0100	51	29.40	96	15.40	5267.5	10.1	33	c/cs
15	46	0200	51	20.92	96	24.09	5277.6	10.1	30	GP
15	46	0300	51	12.23	96	32.23	5287.7	10.3	30	GP
15	46	0300	51	12.20	96	32.20	5287.7	10.3	32	c/cs
15	46	0400	51	3.53	96	41.06	5298.0	11.2	37	GP
15	46	0500	50	54.60	96	51.73	5309.2	11.7	35	GP
15	46	0700	50	35.30	97	12.70	5332.6	11.3	36	c/cs
15	46	0900	50	17.10	97	33.80	5355.2	11.7	38	c/cs
15	46	1047	50	0.73	97	53.95	5376.1	12.2	37	GP
15	46	1100	49	58.60	97	56.40	5378.7	12.2	35	c/cs
15	46	1216	49	45.90	98	10.08	5394.2	12.2	32	GP
15	46	1216	49	45.90	98	10.10	5394.2	12.2	33	c/cs
15	46	1500	49	18.10	98	38.30	5427.5	11.8	34	c/cs
15	46	1600	49	8.33	98	48.47	5439.3	11.6	34	GP
15	46	1600	49	8.30	98	48.50	5439.3	12.3	35	c/cs
15	46	1636	49	2.33	98	54.96	5446.6	12.7	38	SN
15	46	1800	48	48.31	99	11.44	5464.4	12.7	40	GP
15	46	1900	48	38.60	99	23.70	5477.0	12.4	38	c/cs
15	46	2216	48	6.80	100	1.10	5517.4	12.3	37	c/cs
15	46	2315	47	57.07	100	12.08	5529.5	11.9	36	GP

Table 1 (continued).

Date (1987)	Julian day	Time (UTC)	South latitude (deg)	(min)	East longitude (deg)	(min)	Distance (nmi)	Actual speed (kt)	course (deg)	Comments[a]
16 Feb	47	0000	47	49.86	100	19.90	5538.5	12.2	36	GP
16	47	0100	47	39.99	100	30.44	5550.6	11.6	35	GP
16	47	0200	47	30.44	100	40.25	5562.2	12.5	34	GP
16	47	0445	47	2.17	101	8.81	5596.5	12.2	32	GP
16	47	0519	46	56.32	101	14.20	5603.4	12.3	34	GP
16	47	0826	46	24.38	101	45.11	5641.7	12.1	33	SN
16	47	0900	46	18.60	101	50.50	5648.6	12.1	35	c/cs
16	47	0956	46	9.33	101	59.73	5659.9	12.6	36	SN
16	47	0956	46	9.30	101	59.70	5659.9	12.6	37	c/cs
16	47	1018	46	5.65	102	3.73	5664.5	12.1	38	SN
16	47	1142	45	52.29	102	18.62	5681.4	13.1	37	SN
16	47	1142	45	52.30	102	18.60	5681.4	12.7	38	c/cs
16	47	1630	45	4.29	103	12.56	5742.5	12.8	38	GP
16	47	1700	44	59.23	103	18.16	5748.9	12.6	34	GP
16	47	1800	44	48.77	103	28.07	5761.5	12.4	39	GP
16	47	1800	44	48.80	103	28.10	5761.5	12.8	33	c/cs
16	47	1856	44	38.84	103	37.32	5773.4	12.5	31	SN
16	47	2204	44	5.34	104	5.68	5812.6	12.3	32	SN
16	47	2300	43	55.54	104	14.06	5824.1	12.2	32	GP
16	47	2300	43	55.50	104	14.10	5824.1	12.2	35	c/cs
17 Feb	48	0000	43	45.50	104	23.74	5836.3	12.1	35	GP
17	48	0000	43	45.50	104	23.70	5836.3	12.1	36	c/cs
17	48	0105	43	34.86	104	34.29	5849.4	12.5	37	GP
17	48	0200	43	25.63	104	43.73	5860.9	12.8	37	GP
17	48	0218	43	22.60	104	46.90	5864.7	7.8	38	c/cs
17	48	0250	43	19.30	104	50.40	5868.9	6.9	39	c/cs
17	48	0300	43	18.38	104	51.40	5870.1	6.8	41	GP
17	48	0415	43	11.92	104	59.01	5878.6	5.9	37	GP
17	48	0415	43	11.90	104	59.00	5878.6	9.7	37	c/cs
17	48	0500	43	6.06	105	4.99	5885.9	9.4	48	GP
17	48	0700	42	53.40	105	24.10	5904.7	9.4	45	c/cs
17	48	0804	42	46.33	105	33.86	5914.8	9.7	35	SN
17	48	0952	42	31.95	105	47.30	5932.2	9.9	33	SN
17	48	1106	42	21.77	105	56.36	5944.4	9.5	33	SN
17	48	1238	42	9.59	106	7.23	5959.0	9.6	32	SN
17	48	1238	42	9.60	106	7.20	5959.0	9.6	33	c/cs
17	48	1548	41	44.13	106	29.44	5989.4	9.3	34	SN
17	48	1548	41	44.10	106	29.40	5989.4	9.4	35	c/cs
17	48	1700	41	34.90	106	38.00	6000.6	9.1	36	c/cs
17	48	1732	41	30.97	106	41.84	6005.5	9.4	35	SN

SN= Satellite navigation; c/cs= change of course;
GP = Global positioning system; ****= Missing data;
UTC= Universal Time Coordinated.

Table 2. Times and shotpoints for transit lines, beacon drops, beacon crossings, and sonobuoys.

Seismic line				Beacon[a]		Sonobuoy		
No.	Start (Julian day/hr)	End (Julian day/hr)	Site no.	Shotpoint	Time (Julian day/hr)	No.	Shotpoint	Time (Julian day/hr)
1	359/1430	359/2235	736	9638	359/2225	1	8697	359/1917
2	363/1240	363/2300	736	182	363/1321	(500 m from site)		
2	—	—	737	[b]55	[b]363/2139	2	55	363/2139
3	004/0630	004/0825	737	280	004/0729	(over beacon)		—
3	009/2110	009/2359	738	6732	009/2218	3	6605	009/2156
4	018/0605	018/1019	739	946	018/0829	4	1403	018/0941
5	023/0822	023/1339	740	1845	023/1234	5	2051	023/1308
6	027/1352	027/1810	741	32449	027/1745	6	32408	027/1738
7	029/0800	029/2047	741	108	029/0820	(over beacon)		—
7	—	—	—	—	—	7	1967	029/1331
7	—	—	742	4089	029/1928	8	4312	029/2008
8	033/0345	033/1200	743	2829	033/1051	—	—	—
9	036/0130	036/0228	—	—	—	—	—	—
9	036/1220	036/1412	744	2672	036/1410	—	—	—
10	039/0319	039/1232	745	3602	039/1220	9	3291	039/1103
11	044/0930	044/1130	746	—	—	—	—	—

[a] Location and time of the final beacon drop if more than one was used.
[b] Shotpoint and time on seismic record selected for Site 737 after crossing the area. Beacon 1 was not used. The final beacon (2) was dropped at Site 737 after the seismic gear had been retrieved.

Table 3. Seismic-reflection equipment used during Leg 119.

			Record length				
To site	Water gun source	Fire rate[a] (s)	Raytheon graphic recorder 1 (s)	Raytheon graphic recorder 2 (s)	Printronix printer (s)	Digital magnetic tape (s)	Streamer
736	2 80-in.^{3}	12/12	8/8	4	4	5	Port
737	2 80-in.^{3}	9/10	8/8	4	4	5	Port
738	2 80-in.^{3}	9/10	8/8	4	4	5	Port
739	2 80-in.^{3}	9/10	8/4	4	4	5	Port
740	2 80-in.^{3}	9/10	8/4	4	4	5	Port
741	2 80-in.^{3}	9/10	8/4	4	2	5	Port
742	2 80-in.^{3}	9/10	8/8	4	2	5	[b]Port
742	2 80-in.^{3}	9/10	8/4	4	2	5	Port
743	2 80-in.^{3}	9/—	8/—	4	2	5	Port
744	1 80-in.^{3}	9/—	8/—	4	2	5	Port
745	2 80-in.^{3}	12/15	8/8	4	2	5/8	Port

Note: No seismic recorded for Site 746.
[a] First number is seismic only and second number is seismic and sonobuoy or sonobuoy only.
[b] Sonobuoy 7 recorded along transit line.

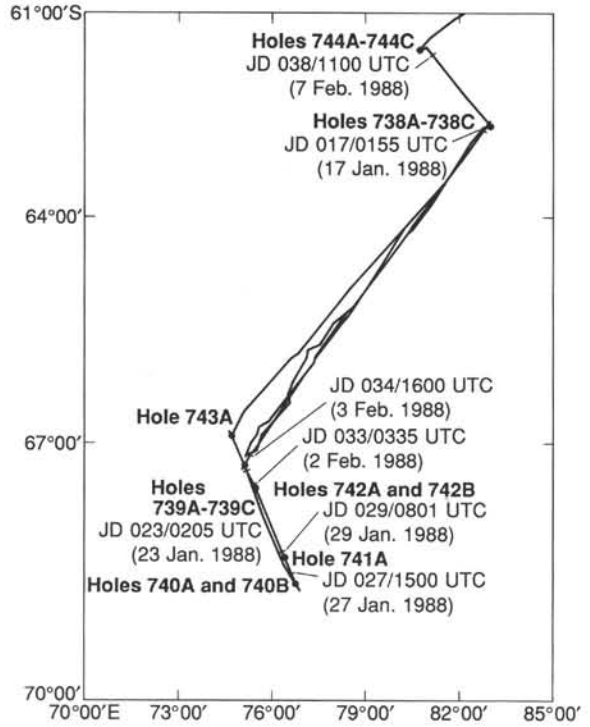

Figure 2. Enlarged navigation plot near Sites 738 through 744.

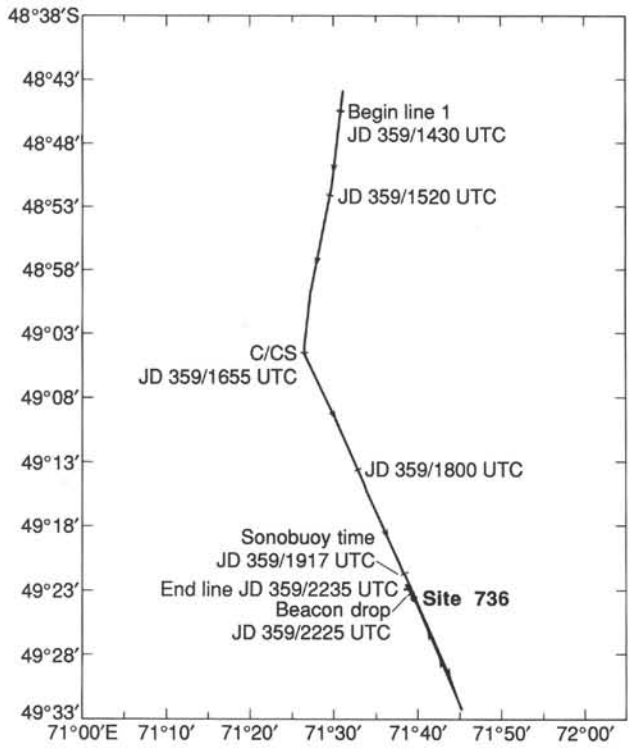

Figure 3. Enlarged navigation plot of line 119-01. The location of the seismic line is indicated by the bold line. The course changes (CC/CS) are marked on the seismic profile in Figure 14.

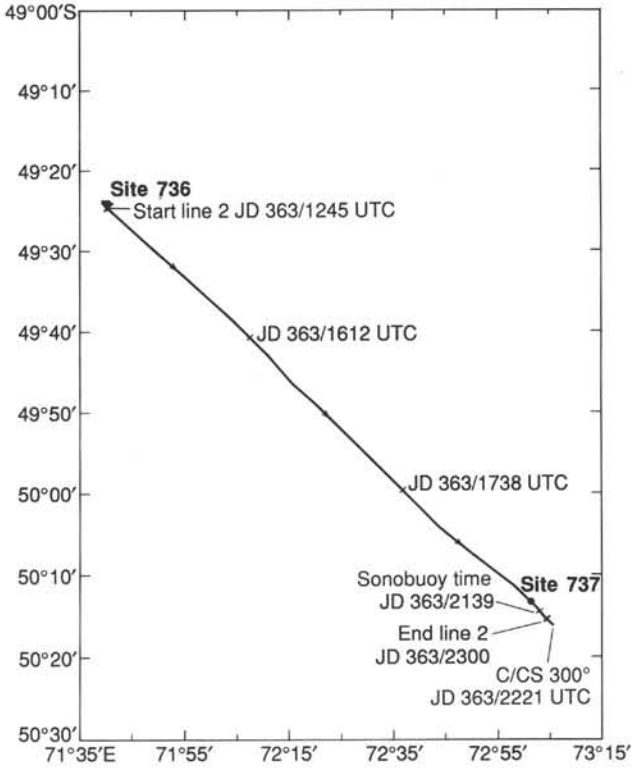

Figure 4. Enlarged navigation plot of line 119-02. The location of the seismic line is indicated by the bold line. The course changes are marked on the seismic profile in Figure 15.

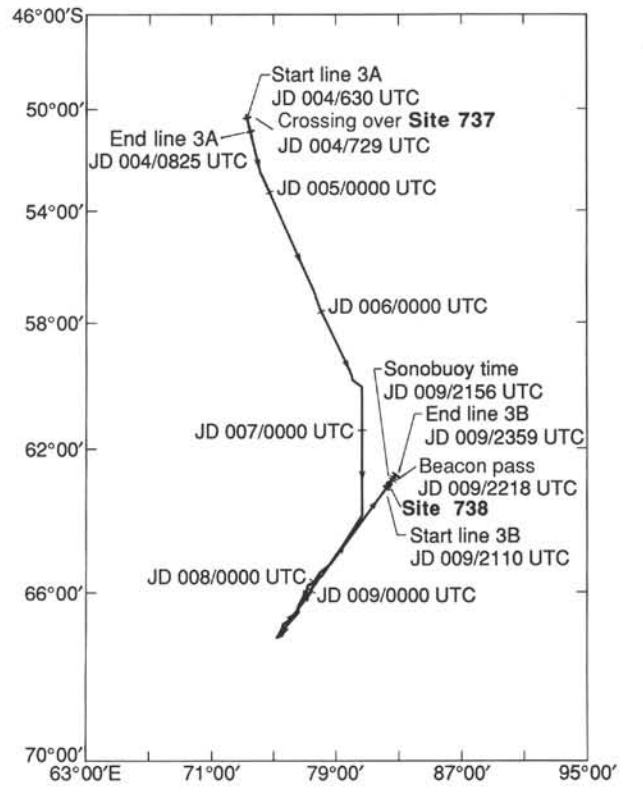

Figure 5. Enlarged navigation plot of lines 119-03A and 119-03B. The locations of the seismic lines are indicated by the bold lines. The course changes are marked on the seismic profile in Figure 16.

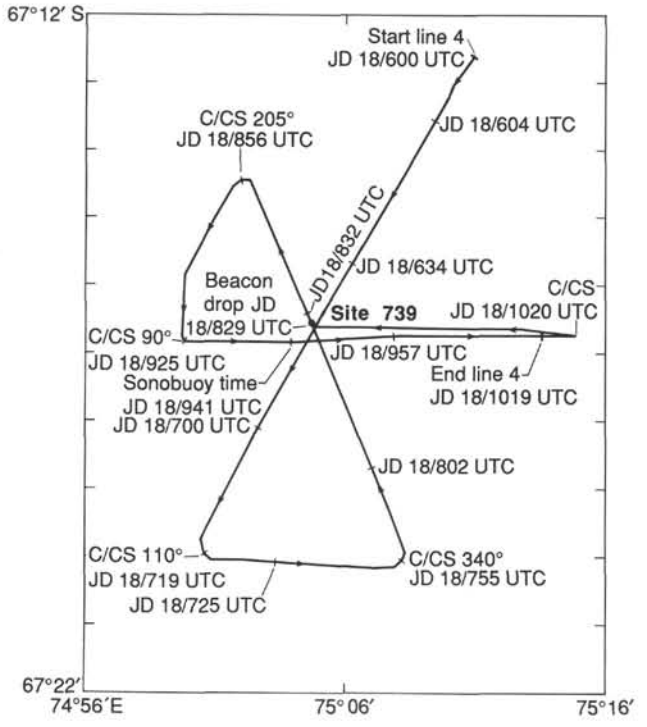

Figure 6. Enlarged navigation plot of line 119-04. The location of the seismic line is indicated by the bold line. The course changes are marked on the seismic profile in Figure 17.

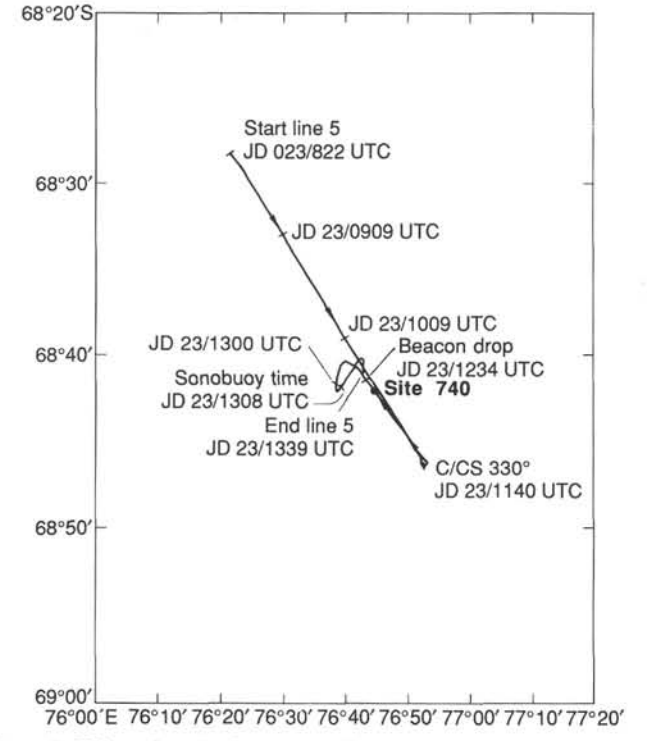

Figure 7. Enlarged navigation plot of line 119-05. The location of the seismic line is indicated by the bold line. The course changes are marked on the seismic profile in Figure 18.

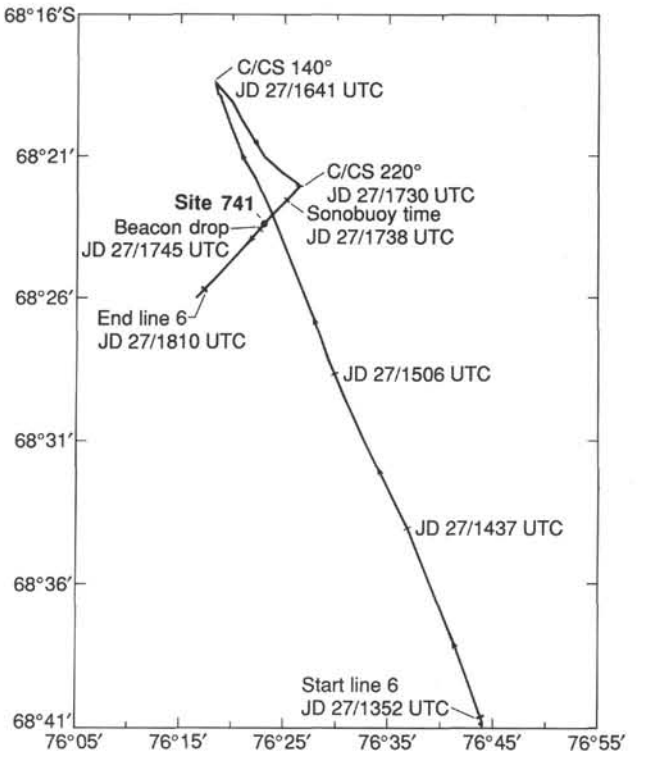

Figure 8. Enlarged navigation plot of line 119-06. The location of the seismic line is indicated by the bold line. The course changes are marked on the seismic profile in Figure 19.

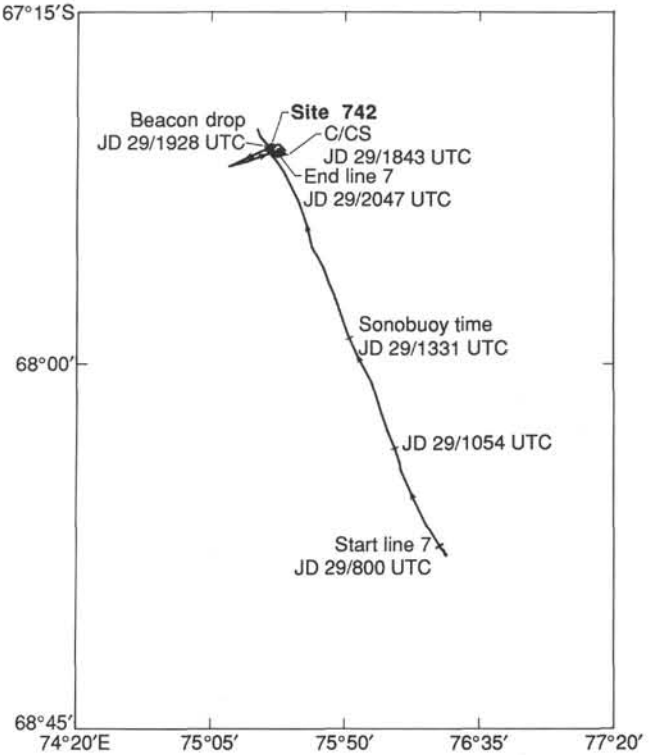

Figure 9. Enlarged navigation plot of line 119-07. The location of the seismic line is indicated by the bold line. The course changes are marked on the seismic profile in Figure 20.

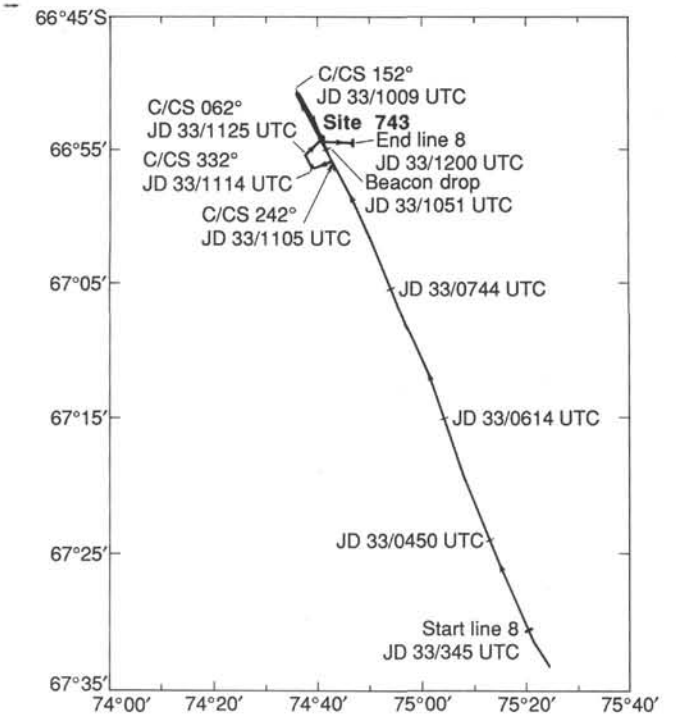

Figure 10. Enlarged navigation plot of line 119-08. The location of the seismic line is indicated by the bold line. The course changes are marked on the seismic profile in Figure 21.

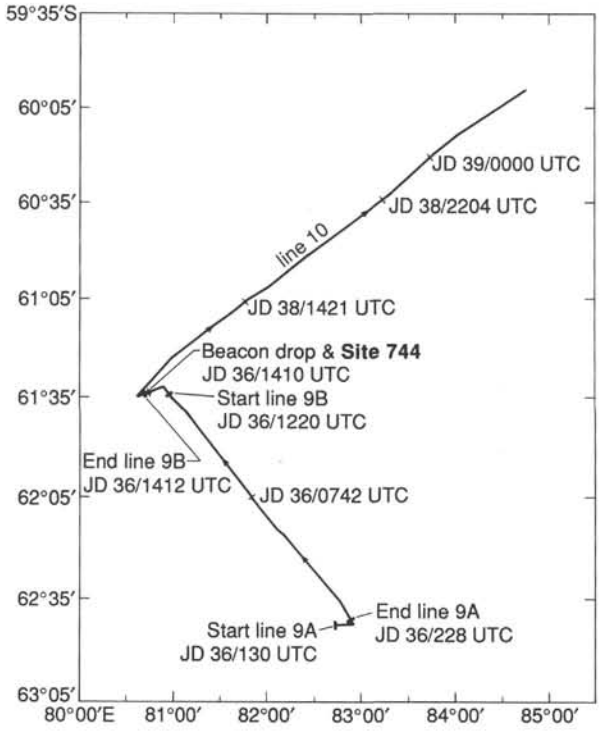

Figure 11. Enlarged navigation plot of lines 119-09A, 119-09B, and 119-10. The locations of the seismic lines are indicated by the bold lines. The course changes of lines 119-09A and 119-09B are marked on the seismic profile in Figure 22.

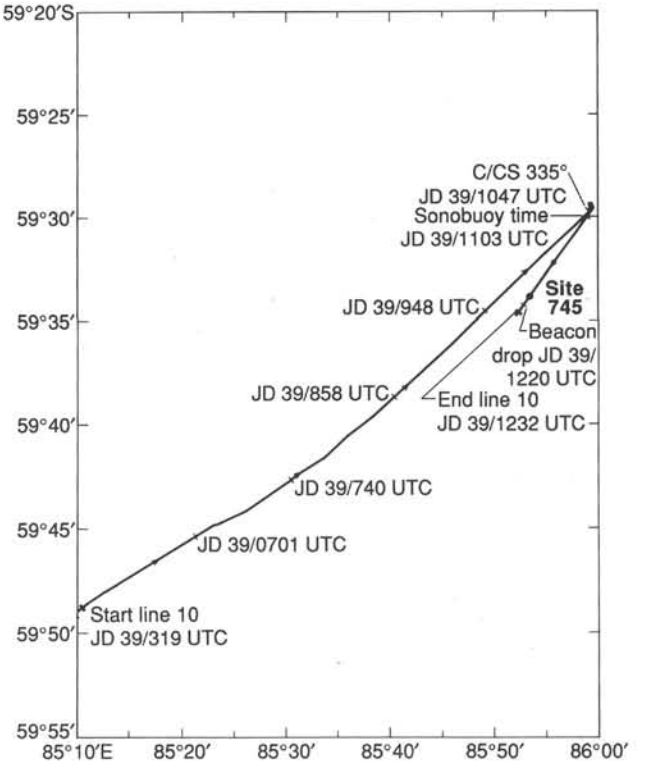

Figure 12. Enlarged navigation plot of line 119-10. The location of the seismic line is indicated by the bold line. The course changes are marked on the seismic profile in Figure 23.

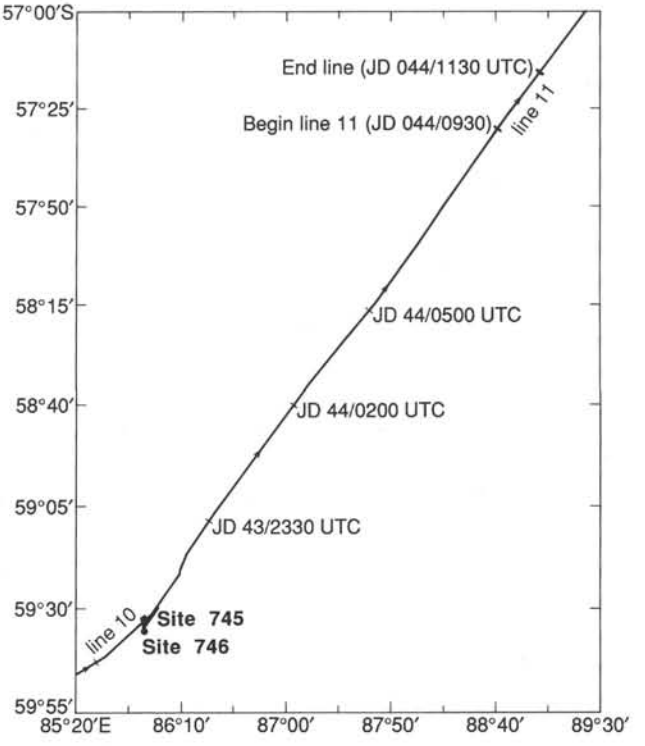

Figure 13. Enlarged navigation plot of lines 119-10 and 119-11. The locations of the seismic lines are indicated by the bold lines. The course changes of line 119-11 are marked on the seismic profile in Figure 24.

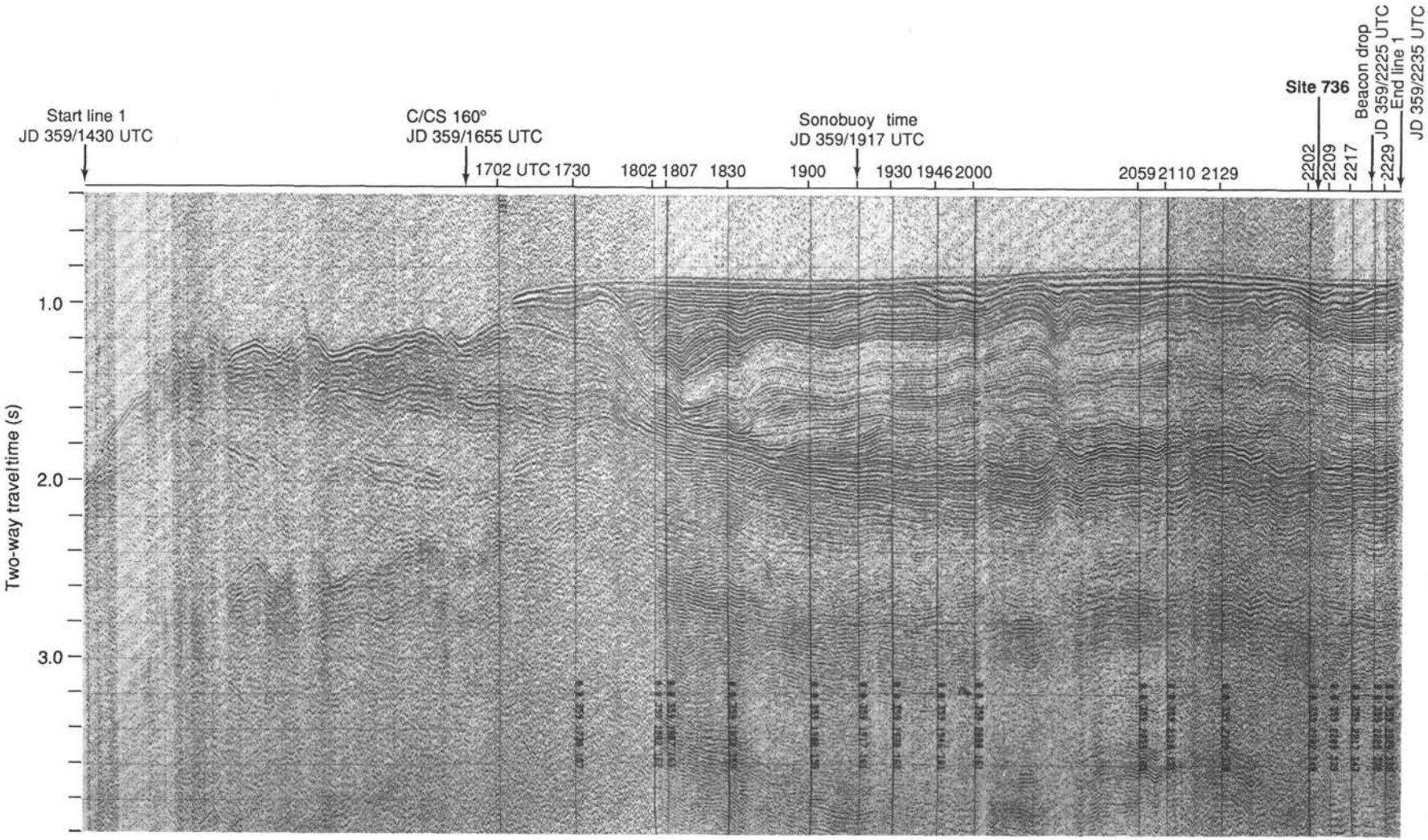

Figure 14. Analog seismic data collected from survey line 119-01, en route to Site 736. Tracking navigation is shown in Figure 3.

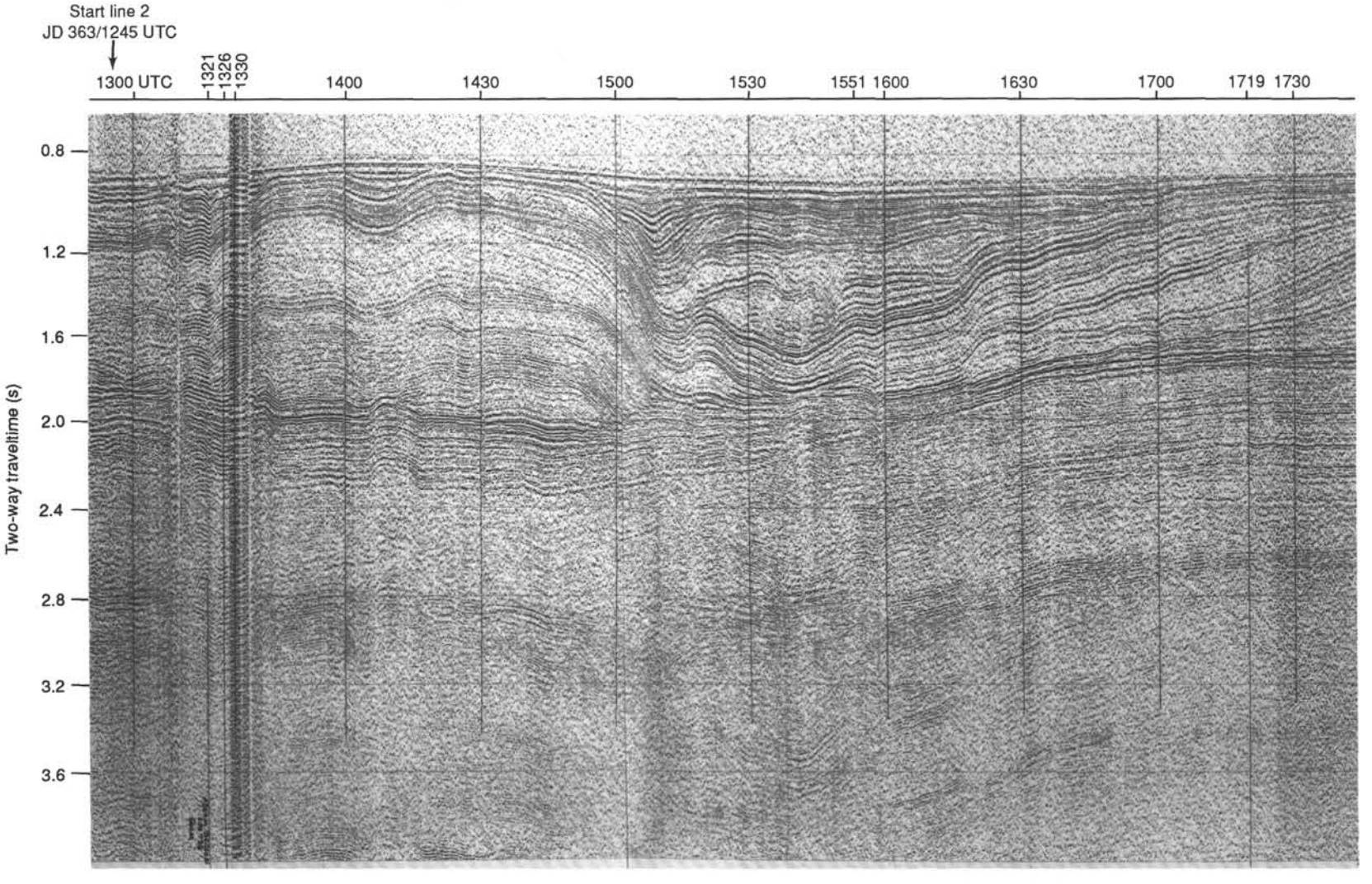

Figure 15. Analog seismic data collected from survey line 119-02, en route to Site 737. Tracking navigation is shown in Figure 4.

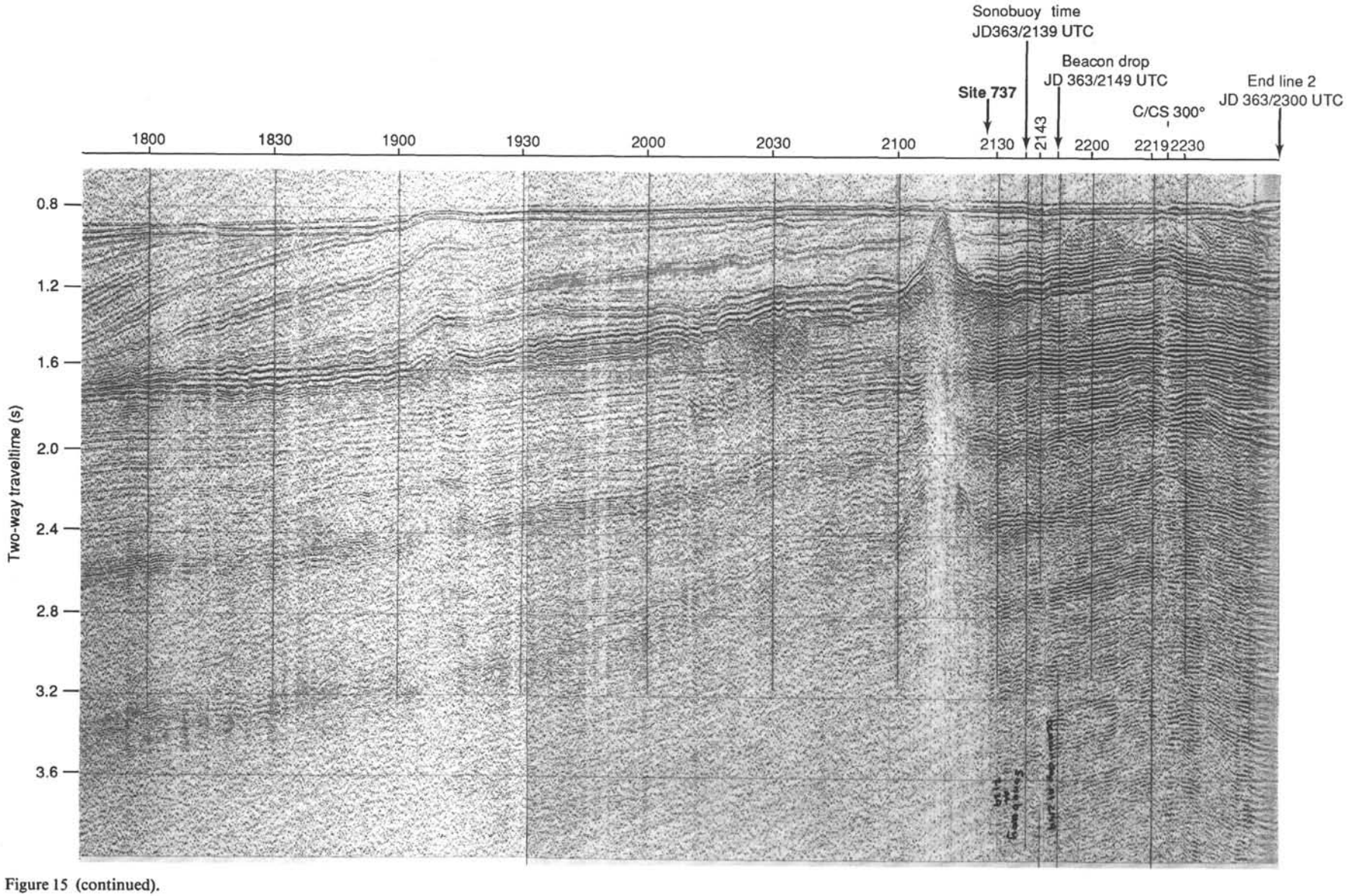

Figure 15 (continued).

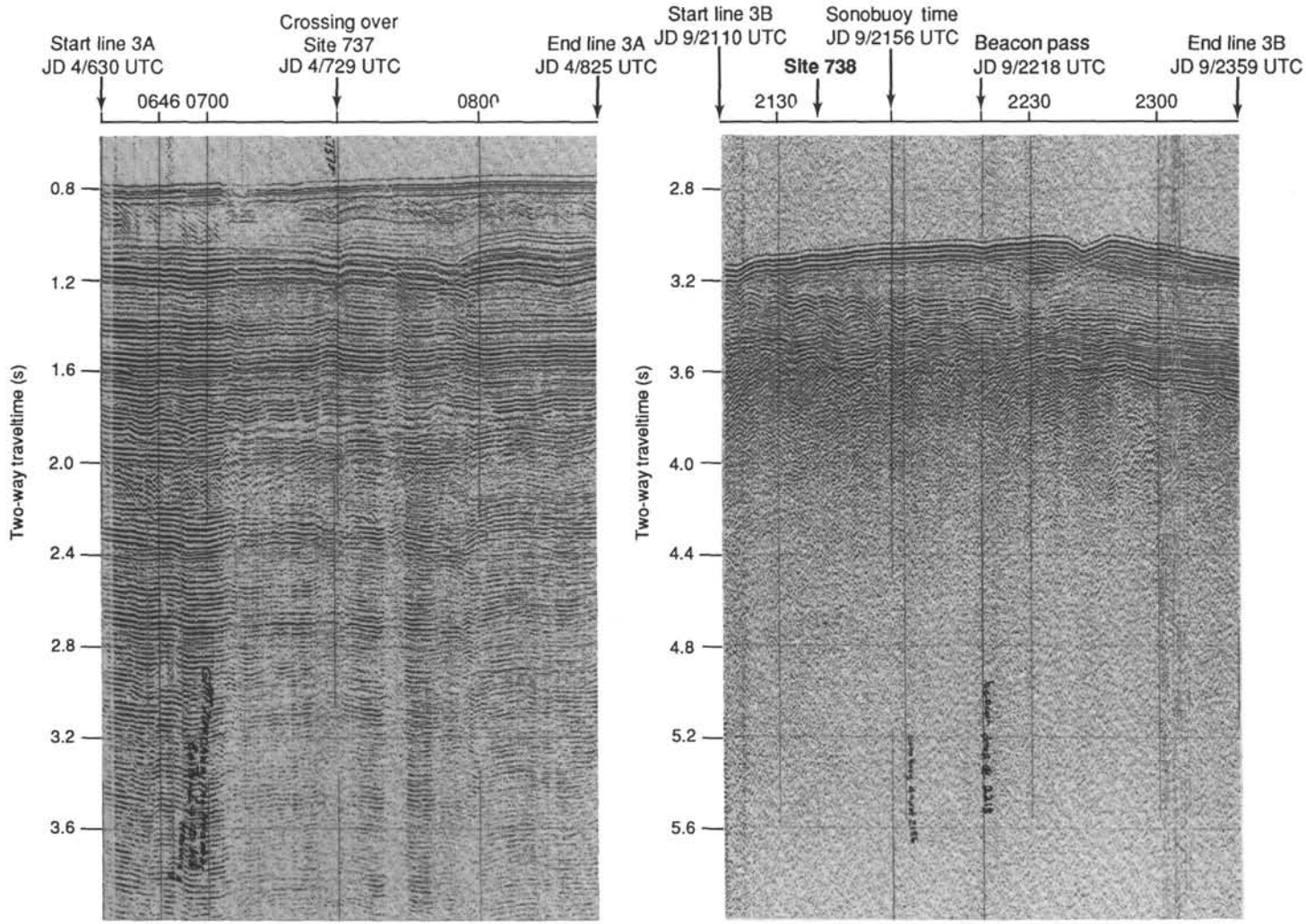

Figure 16. Analog seismic data collected from survey lines 119-03A and 119-03B, en route to Site 738. Tracking navigation is shown in Figure 5.

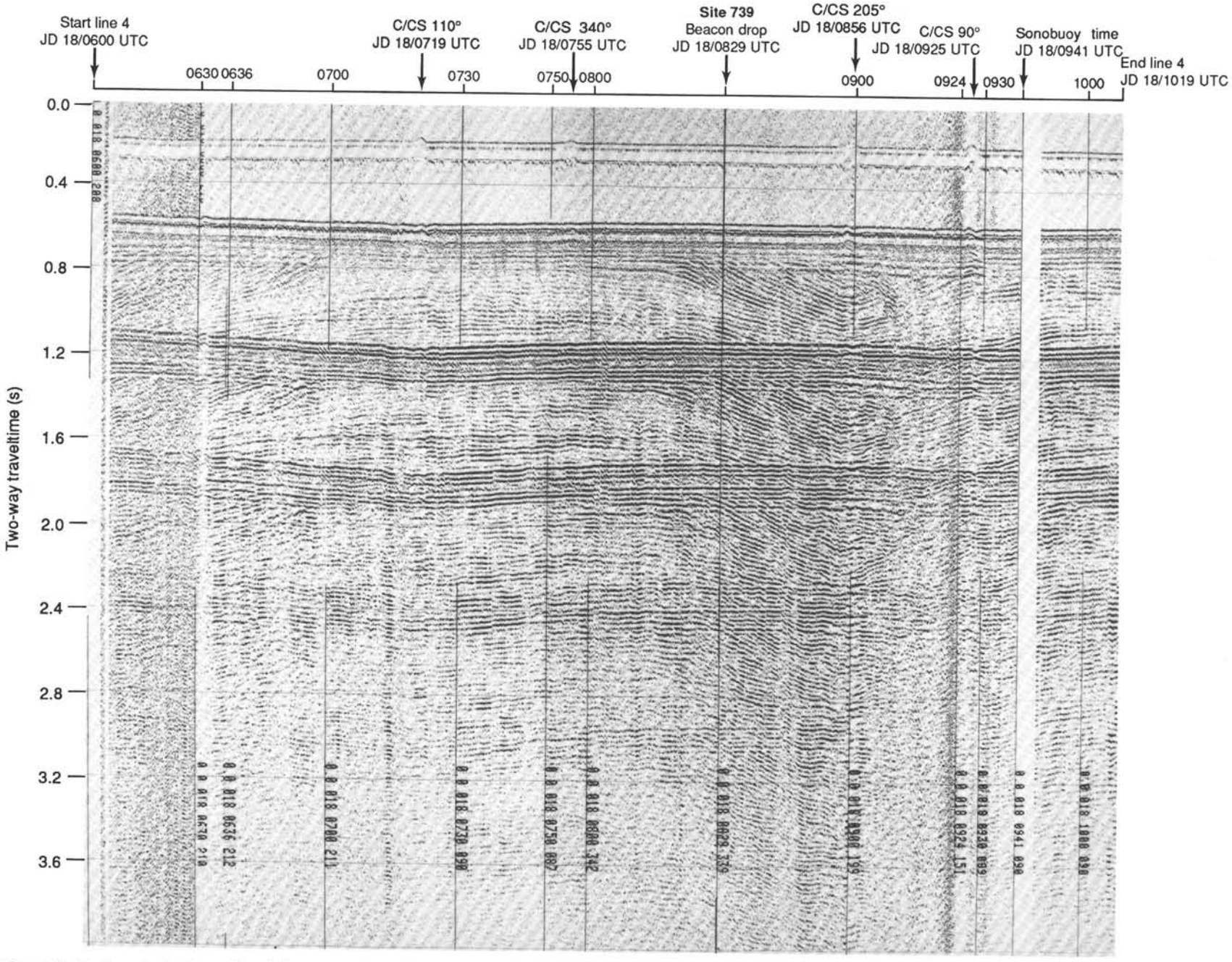

Figure 17. Analog seismic data collected from survey line 119-04, en route to Site 739. Tracking navigation is shown in Figure 6.

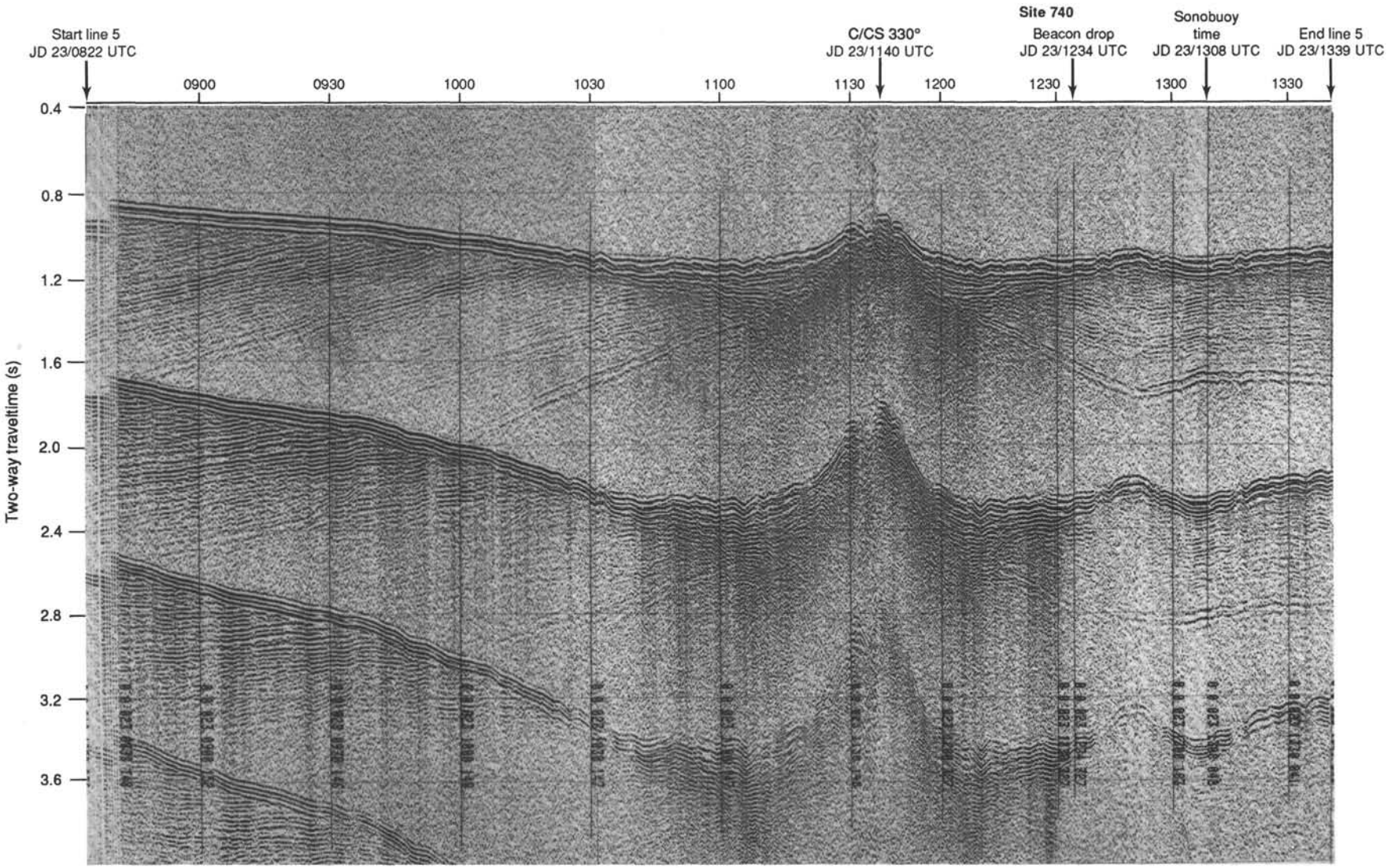

Figure 18. Analog seismic data collected from survey line 119-05, en route to Site 740. Tracking navigation is shown in Figure 7.

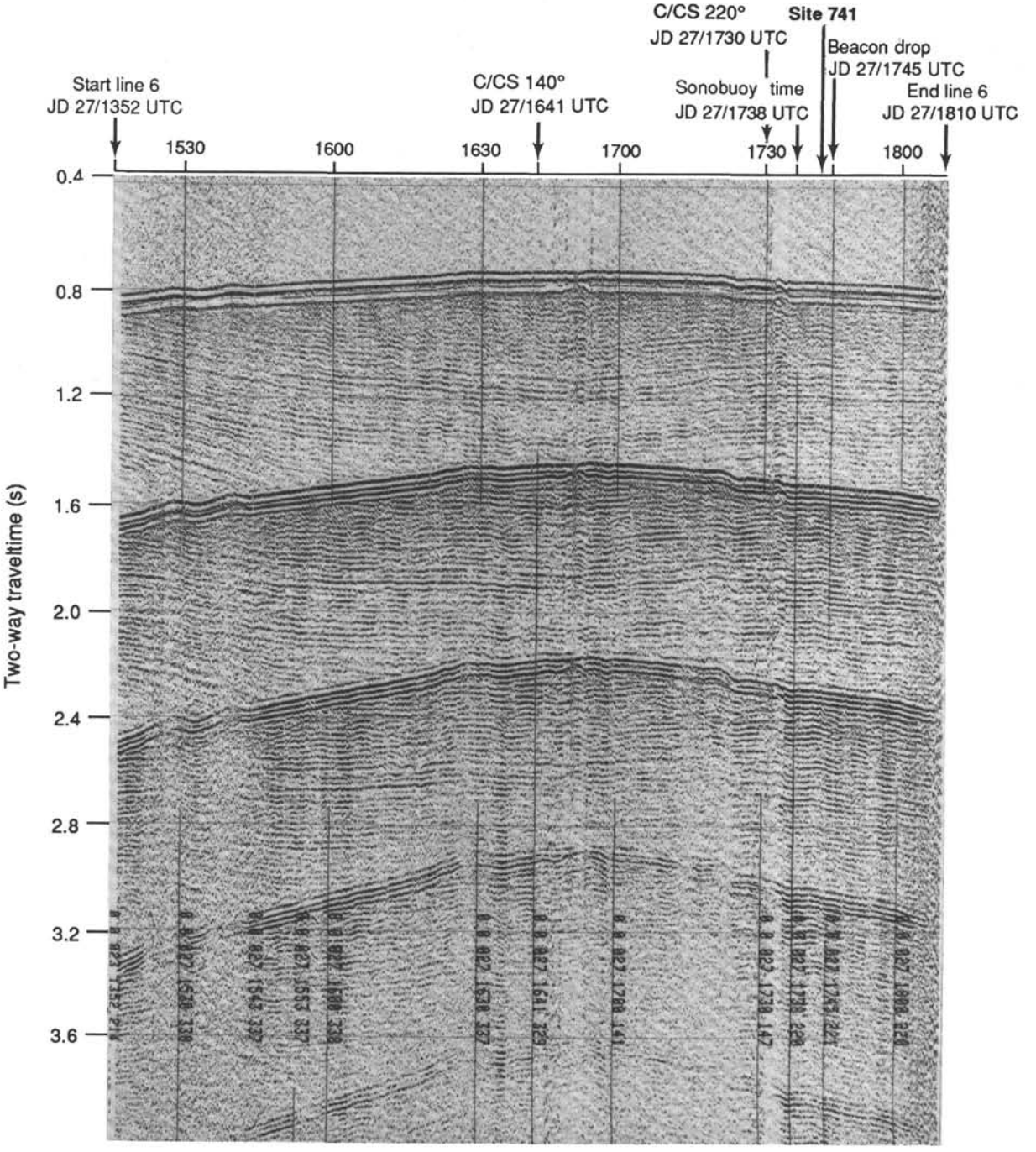

Figure 19. Analog seismic data collected from survey line 119-06, en route to Site 741. Tracking navigation is shown in Figure 8.

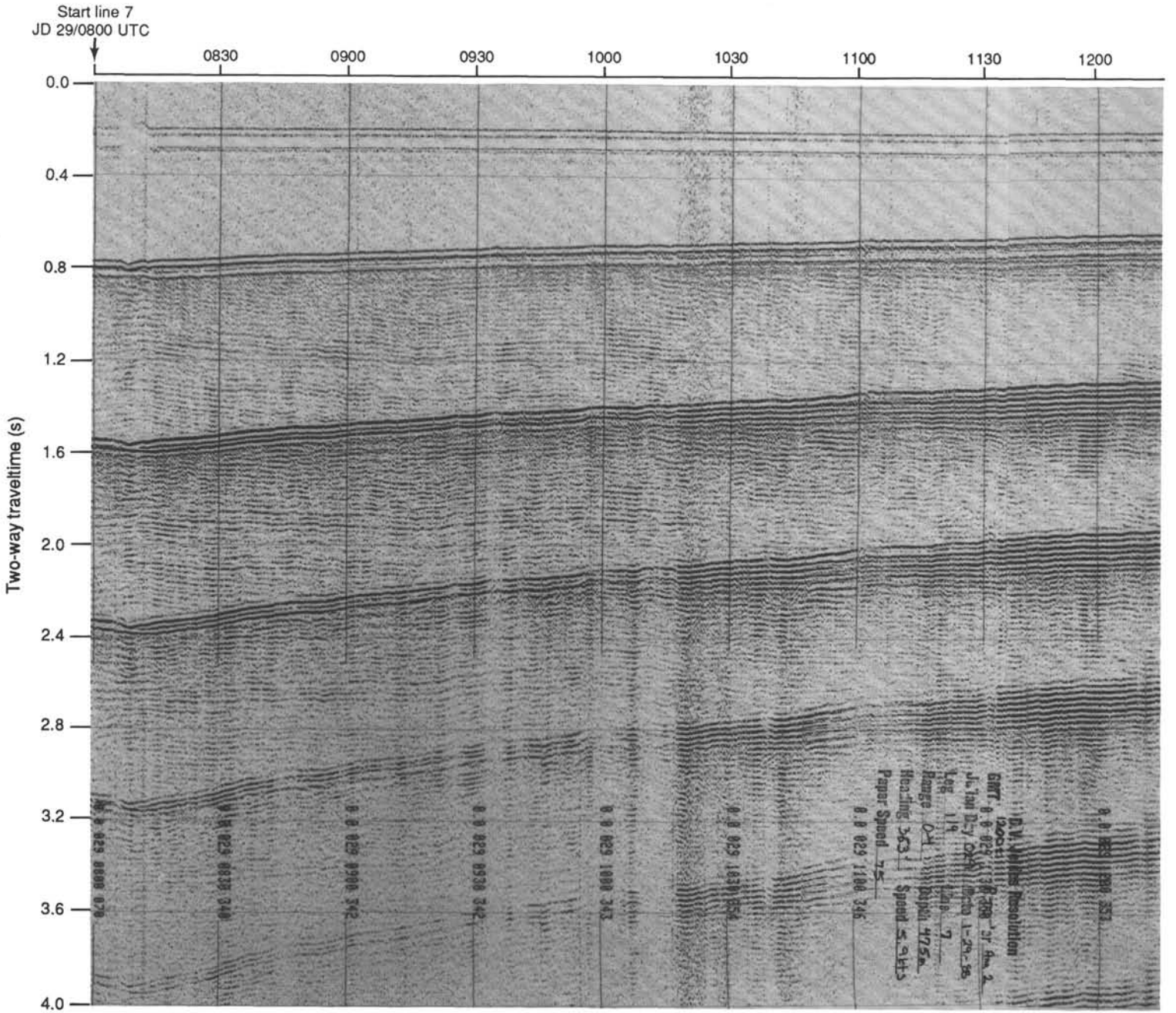

Figure 20. Analog seismic data collected from survey line 119-07, en route to Site 742. Tracking navigation is shown in Figure 9.

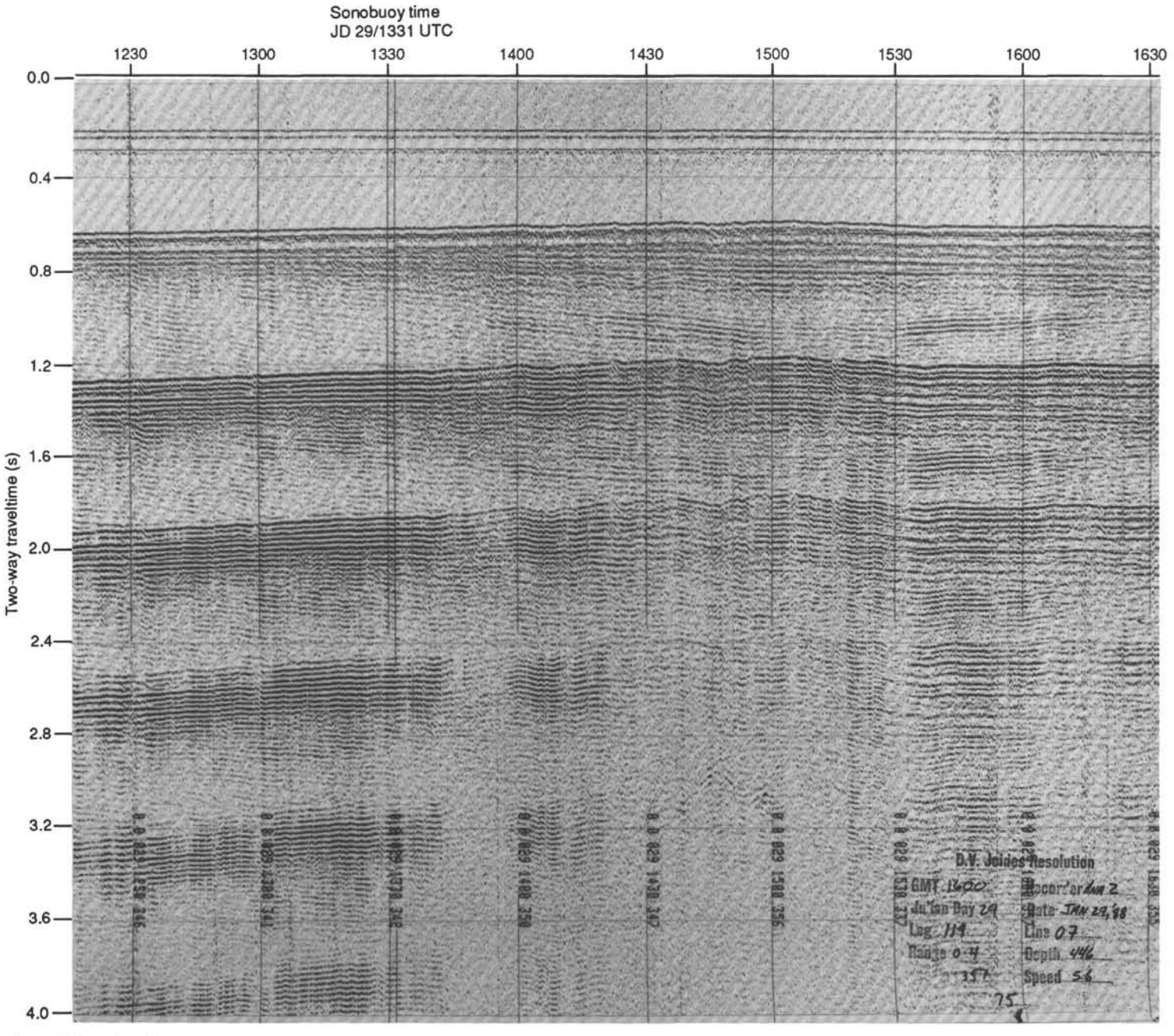

Figure 20 (continued).

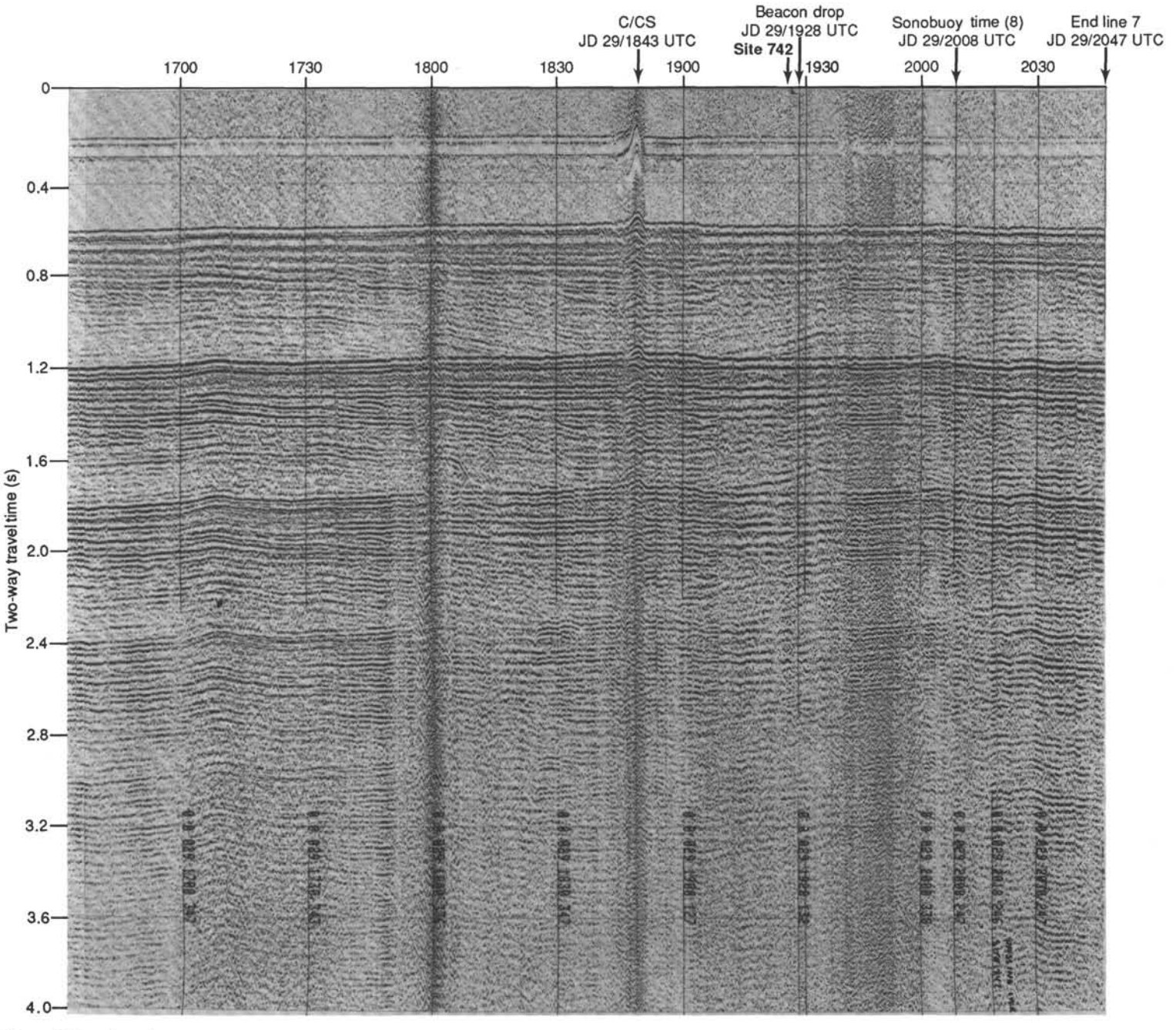

Figure 20 (continued).

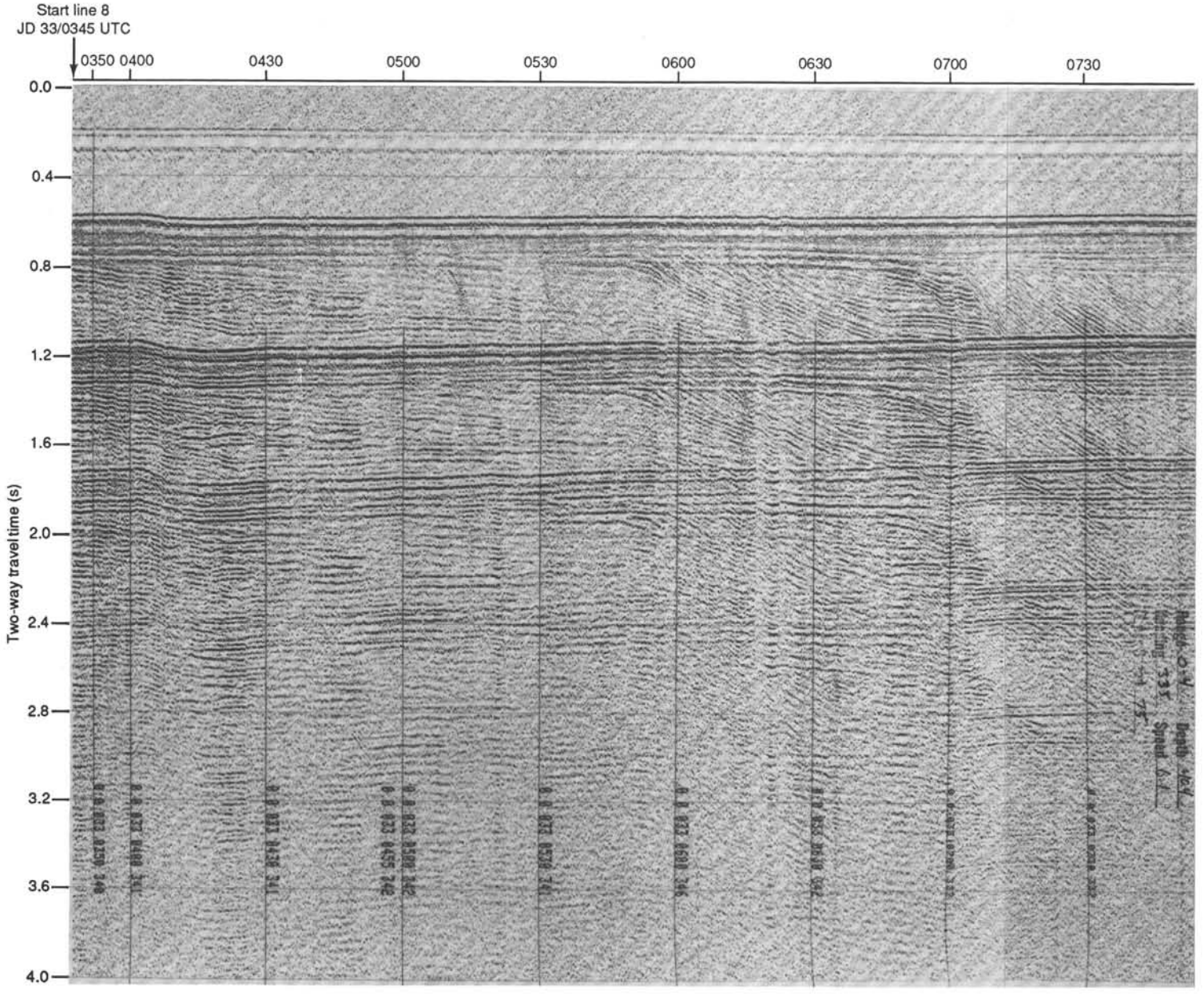

Figure 21. Analog seismic data collected from survey line 119-08, en route to Site 743. Tracking navigation is shown in Figure 10.

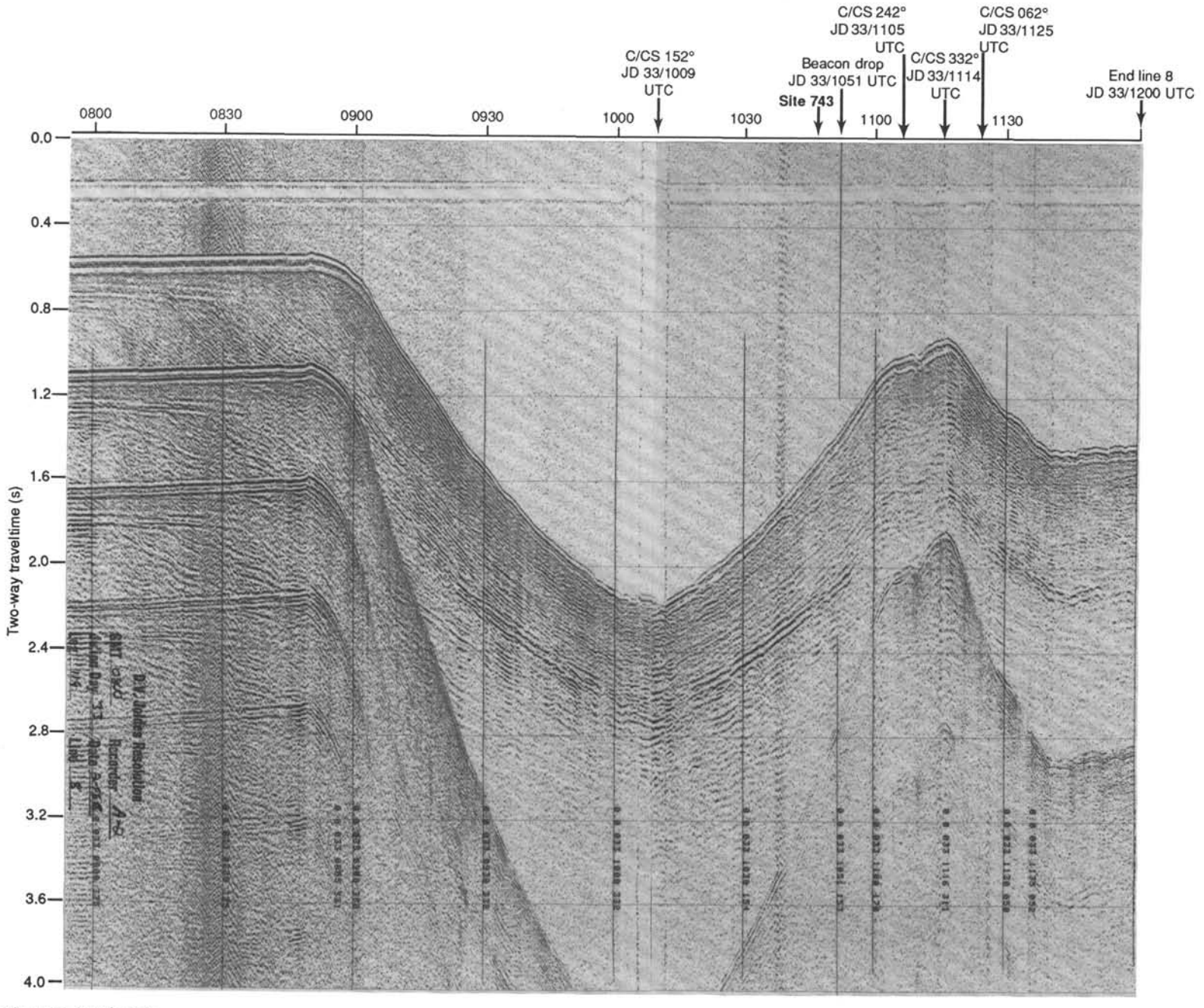

Figure 21 (continued).

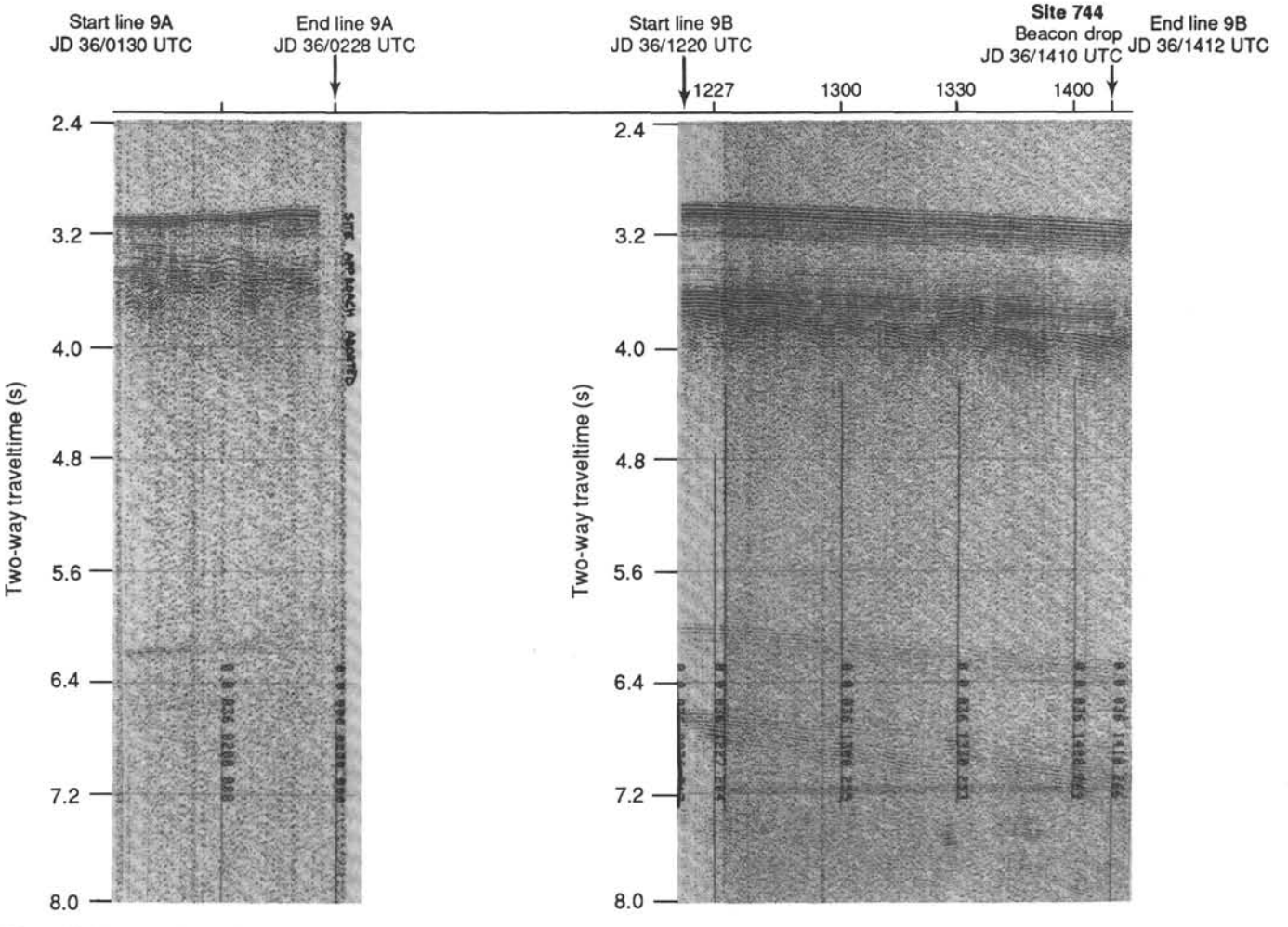

Figure 22. Analog seismic data collected from survey lines 119-09A and 119-09B, en route to Site 744. Tracking navigation is shown in Figure 11.

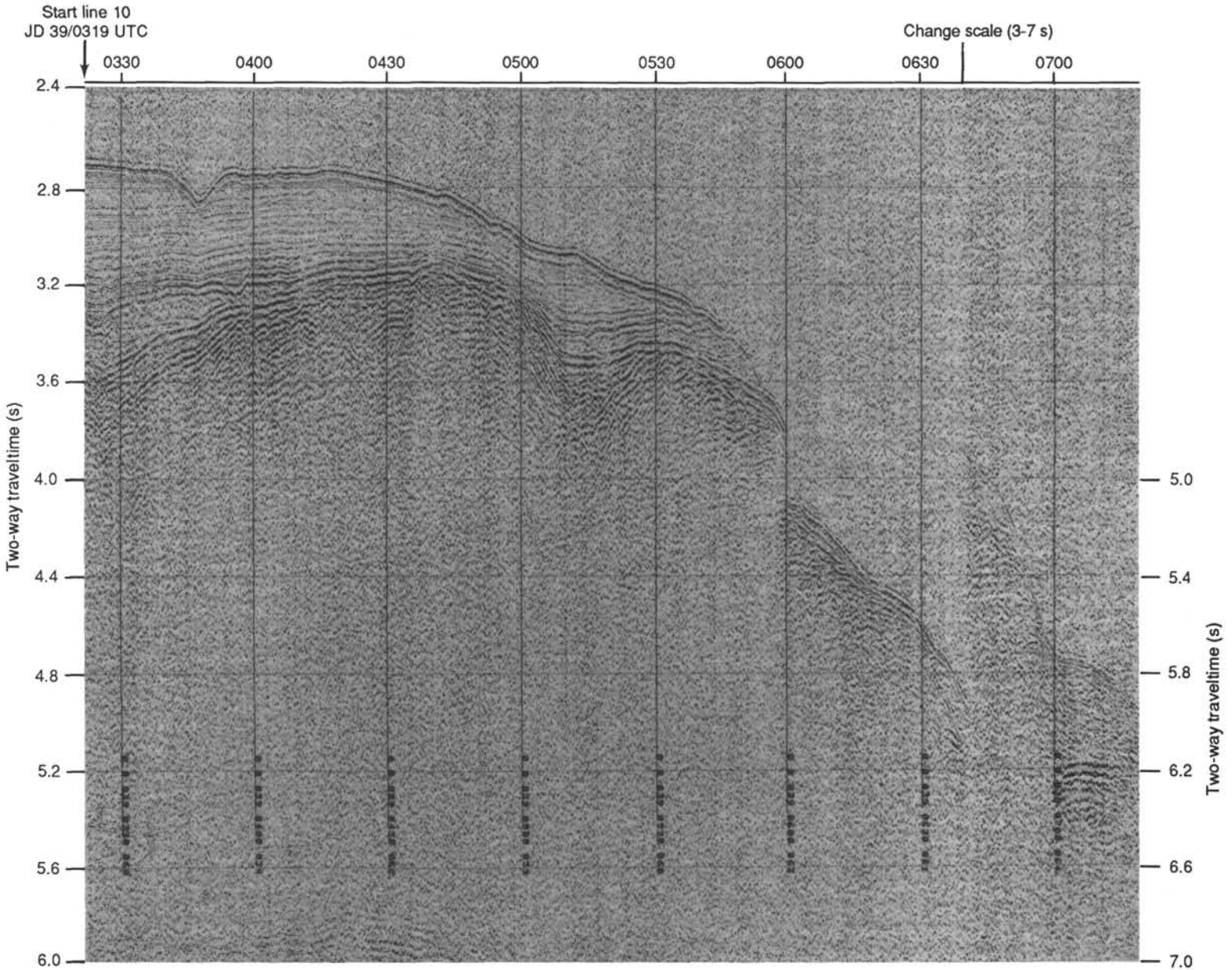

Figure 23. Analog seismic data collected from survey line 119-10, en route to Sites 745 and 746. Tracking navigation is shown in Figure 12.

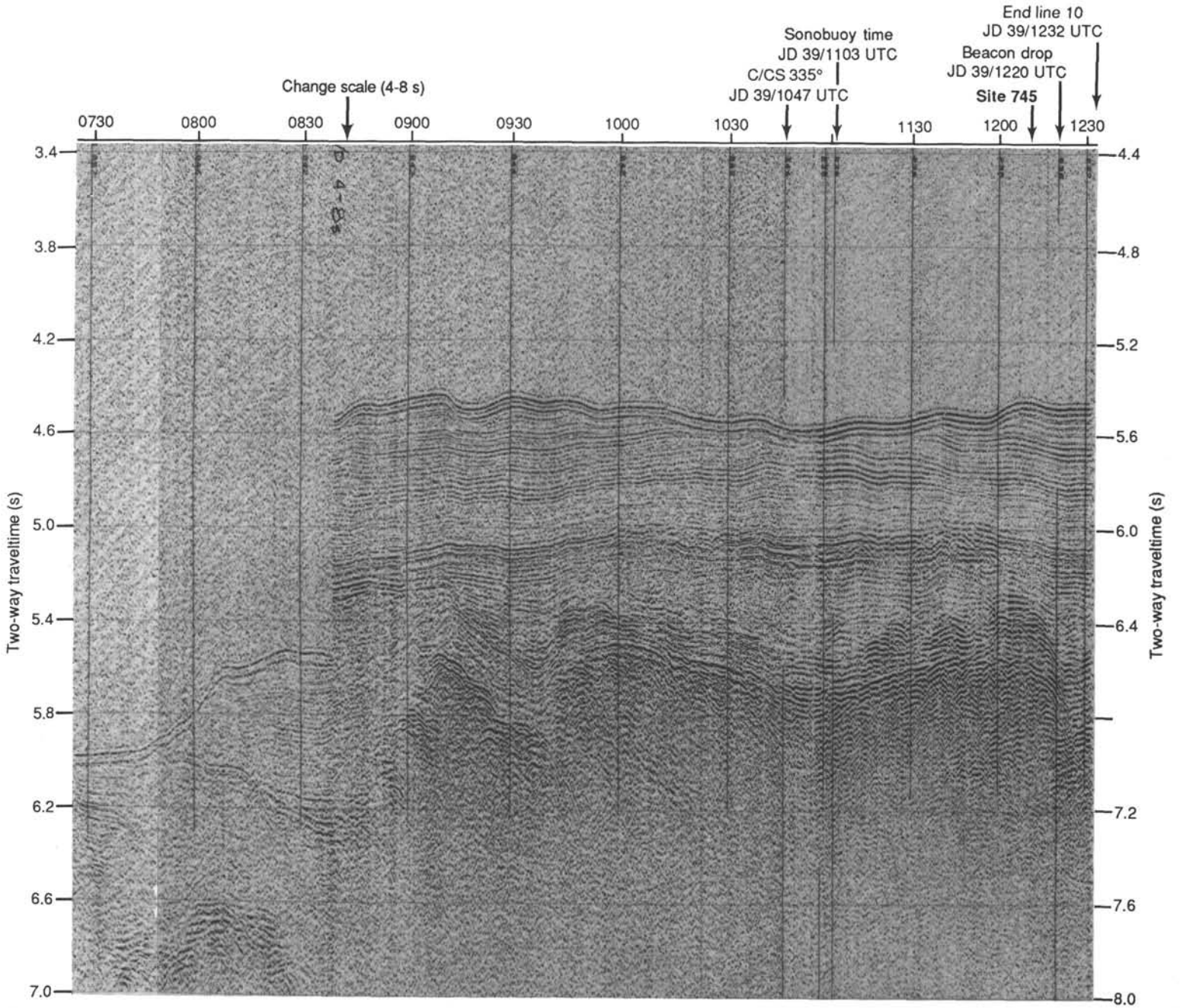

Figure 23 (continued).

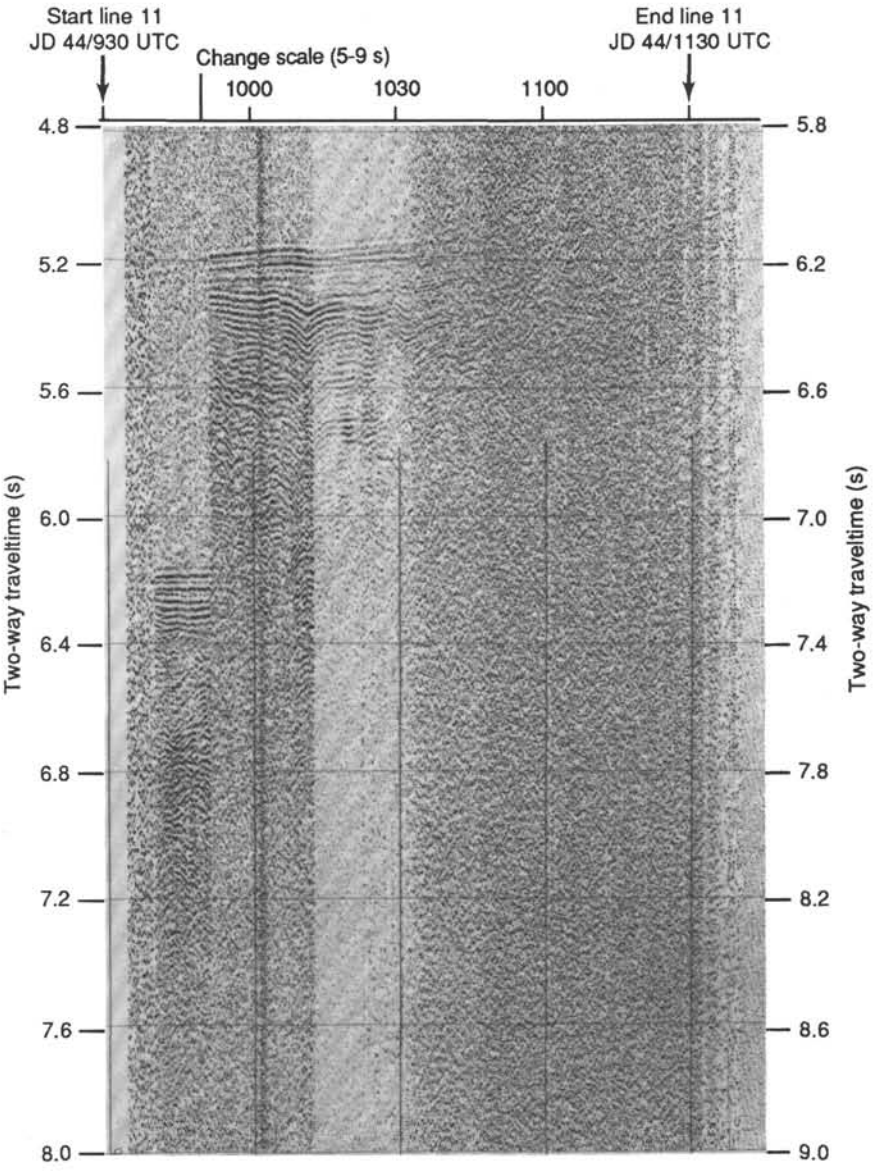

Figure 24. Analog seismic data collected from survey line 119-11. Tracking navigation is shown in Figure 13.

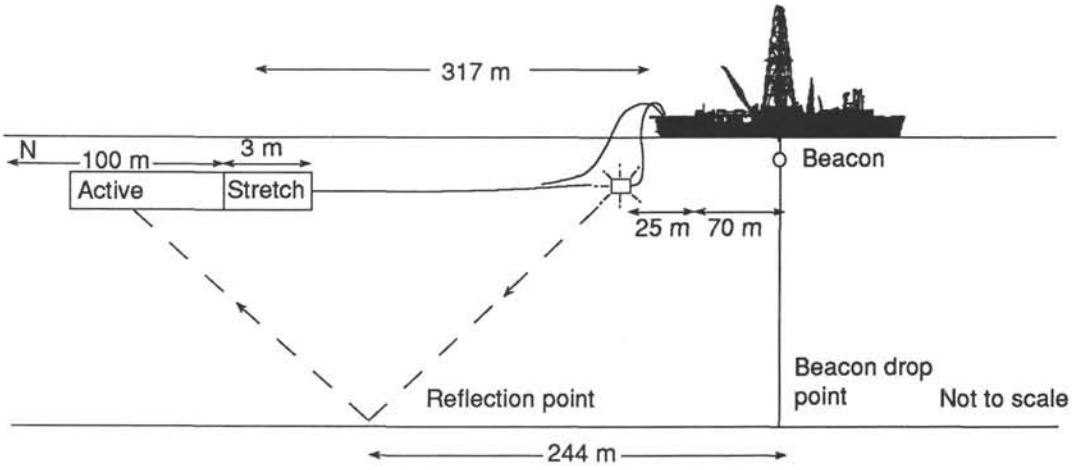

Figure 25. Geometry of seismic system used during Leg 119. The beacon drop point (i.e., drilling location) is 244 m (8–10 shotpoints) behind the reflection point on the seismic-reflection records.

Table 4. Parameters for digital seismic magnetic tapes recorded on Leg 119.

Line no.	Start Shotpoint	Start Time (Julian day/hr)	End Shotpoint	End Time (Julian day/hr)	Reel number	Channel[a]
1	7282	359/1434	8236	359/1745	2	2
1	8237	1745	9182	2054	3	2
1	9183	2054	9690	2235	4	2
2	1	363/1245	1882	363/1744	5	1
2	1883	1744	3215	2104	6	1
2	3233	2106	?	2125	7	2
2	87	2125	457	2300	7	2
3	1	004/0640	657	004/0825	8	1
3	6356	009/2113	7124	009/2324	11	2
4	0	018/0603	1334	018/0928	13	1
4	1366	0933	1608	1019	14	2
5	294	023/0820	1558	023/1144	16	1
5	1588	1150	2266	1344	17	2
6	31075	027/1334	31568	027/1512	18	0
6	31587	1516	32116	1645	18	1
6	32136	1648	32572	1806	18	2
7	0	029/0801	1910	029/1321	19	1
7	1926	1324	2495	1500	20	2
7	2514	1503	3291	1714	20	1
7	3292	1714	4183	1945	21	1
7	4192	1946	4524	2047	21	2
8	1	033/0344	1876	033/0828	22	1
8	1877	0828	3287	1200	23	1
9	1	034/1510	1249	036/0126	24	0
9	1269	036/0132	1594	0222	24	1
9	1605	0224	1996	1213	24	0
9	2000	1217	2778	1428	24	1
10	1	038/0740	780	039/0314	25	0
10	805	039/0319	2646	0848	25	1
10	2647	0848	3225	1047	26	1
10	3241	1050	3653	1233	27	2

[a] 0 = no seismic; 1 = seismic only; 2 = seismic and sonobuoy.

Table 5. Sonobuoy equipment and recording parameters, Leg 119.

Sonobuoy	Site	Type	Channel depth (m)	Phone (m)	Source: Maximum offset (km)	Source: Seismic
1	736	Reftek	20	18	20	2 80-in.^{3} water guns
2	737	Reftek	10	18	8	2 80-in.^{3} water guns
3	738	Reftek	20	2?	11	2 80-in.^{3} water guns
4–6	739–741	Reftek	20	18	6	2 80-in.^{3} water guns
7	—	Reftek	10	18	12	2 80-in.^{3} water guns
8	742	Reftek	20	18	9	2 80-in.^{3} water guns
9	745	Reftek	20	2?	11	2 80-in.^{3} water guns

Sonobuoy	Analog record: Sweep (s)	Analog record: Traces/in.	Analog record: Filter[a] (Hz)	Digital record: Record length (s)	Digital record: Filter (Hz)
1	8	75	20–100	5	25–250
2, 3	8	50	Variable	5	25–250
4–6	4	50	Variable	5	25–250
7	8	50	Variable	5	25–250
8	4	50	Variable	5	25–250
9	8	50	Variable	8	25–250

[a] Variable = initially 20–100 Hz and gradually changed to 5–50 Hz.

Table 6. Temperature, salinity, and water velocity at Leg 119 sonobuoy stations.

Site	Sonobuoy	Water depth (m)	Near-surface water temperature[a] (°C)	Near-surface salinity[a] (ppm)	Water velocity[b]: Near-surface (m/s)	Water velocity[b]: Average (m/s)
736	1	628	3.5–4.0	—	1465	1460
737	2	564	3.0–3.5	—	1465	1460
738	3	2253	0.8	33.8	1450	1475
739	4	412	−0.5–0.2	33.7	1450	1450
740	5	814	0.5–1.5	33.9	1455	1455
741	6	551	0.6–1.3	33.7	1455	1455
742	8	416	0.5	33.7	1450	1450
745	9	4083	1.5–2.0	—	1460	1490

[a] Values averaged from 0 to 20 m below sea level ("Biology and Oceanography" sections of the site chapters).

[b] All values based on velocity curves of Bialek (1966, p. 325). Near-surface water velocities are derived from measured temperature and salinity values. Average values assume a bottom-water temperatures of 0°C for Kerguelen Plateau and −2°C for Prydz Bay.