

## 28. SEISMIC REFLECTION PROFILES BETWEEN FIJI, GUAM, AND JAPAN

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Seismic reflection profiles were recorded while underway during Leg 20 of the Deep Sea Drilling Project. A small airgun sound source was used. *Glomar Challenger* steamed from Japan to the Fiji Islands passing Marcus Island, Guam, and Kusaie Island (Figure 1). The airgun profiles, annotated with local time and important navigational positions, are presented at the end of this chapter. Full details of the navigational coordinates are given in Table 1.

Of particular interest to the drilling observations is the distribution of the upper acoustically transparent layer which rests on a reverberant zone designated as the upper opaque layer (Ewing et al., 1968). The thickness of the transparent layer is highly variable and largely determined the locations where drilling could be carried out, since it was thought necessary to have roughly 100 meters of relatively unconsolidated sediments present in order to spud-in without risk of losing the bottom-hole assembly. Earlier drilling (Leg 6) had shown that the layer beneath the upper transparent was difficult to penetrate. Just seaward of the Japan Trench off Tokyo, the transparent layer is about 0.3 sec thick. It is much thinner near the base of seamounts owing to bottom current scour and thins to the east. Taking the seismic velocity in this layer to be 1.87 km/sec, which was obtained from oblique reflection measurements at Site 194 (Jones, this volume), the transparent layer here has a thickness of about 280 meters. South of Site 194 the upper transparent layer thins markedly. In the region of Site 196, it averages 0.1 to 0.15 sec. which made drilling in the area only marginally possible. The layer continues to thin southeast of this point along the track toward Site 198. Along much of this part of the profile, the transparent layer is less than 0.1 sec thick and is only just discernible as a distinct unit. The thinning southward and southeastward from Site 194 is believed to be due to the decrease in the contribution to the abyssal deposits of ash from the Japanese arc with increasing distance from the trench. Drilling was only feasible at Site 198 because of a sudden and anomalous thickening of the transparent layer to the north of Marcus Island, where it reaches 0.15 sec. The transparent layer again wedges out to the southwest of Site 198.

The local thickening of the layer near Site 198 is a curious feature. Since Late Cretaceous abyssal clays with ash layers were sampled at this site, the thickening may be due to local contributions of volcanic debris. This conclusion is supported by determinations of the composition of glass in the clays sampled, which is dominantly of basaltic composition (Jones, this volume). The age of the volcanic activity on the little-studied Marcus Island is not known. The ponding of this relatively thick transparent layer against a group of seamounts to the northwest of Site 198 (see record between 2100, 9 Oct and

0600, 10 Oct) and the thinning of the layer upslope toward the lower apron of Marcus Island suggest that transport by bottom-following currents has been important in controlling the distribution of this sediment body. A somewhat similar ponding of the layer is seen between 2100, 15 Oct and 0600, 16 Oct. West of the latter point to the axis of the Mariana Trench, the transparent layer is barely perceptible on the record. Drilling, although highly desirable in this area, was believed not to be possible because of anticipated difficulties in spudding-in.

On the easterly track from Guam, which passes over the Caroline Abyssal Plain, the uppermost transparent layer can only just be resolved on the recordings, and it even appears to be absent locally (0730, 21 Oct). Seismic penetration is very limited in the area because the layer beneath is highly reflective, a feature emphasized by the number of multiples generated by reflection between the top of the layer and the sea surface (see 0800, 21 Oct-1200, 22 Oct). The transparent layer remains very thin along this track until close to Ita Mai Tai Guyot where it becomes thick enough (0.1 sec approximately), probably due to local current action, to allow drilling operations. Drilling at Site 199 revealed that much of the highly reflective or "opaque" zone below the thin uppermost transparent layer consists of turbidites. The opaque layer in this region is clearly not of the same composition as that at the northern drilling sites. Moreover it is considerably younger than the opaque layer at the northern sites. It is emphasized elsewhere (Heezen, et al., 1973; and this volume) that the opaque/transparent layer contact, originally thought to make an important single event in the depositional history of the Pacific is, in fact, markedly diachronous. A further local thickening of the transparent layer is also seen just south of Ita Mai Tai Guyot, where the layer reaches 0.2 sec (see 2000, 30 Oct-0200, 31 Oct). The flatness of the opaque layer over this section of record suggests the possible importance of turbidity currents in building up the layer in this area. Further south, the transparent layer thickens, a feature attributable to the proximity of the equatorial high-productivity zone.

The thick carbonate sediments in the equatorial zone are well displayed on the crossing of the Solomon Plateau, which shows the strikingly layered sediments lying upon a strong reflector which dips gently to the north (see especially record between 1600, 4 Nov-0800, 6 Nov). The carbonate layer thins abruptly on the southern side of the plateau. Some reflectors appear to crop out, suggesting that this feature may be erosional, perhaps a result of relatively recent faulting on the southern margin and tilting of the plateau. In the basin to the south, the transparent layer is thin and the opaque layer highly reflective (see 0500-0800, 7 Nov). Its thinness in this region may be attributable to

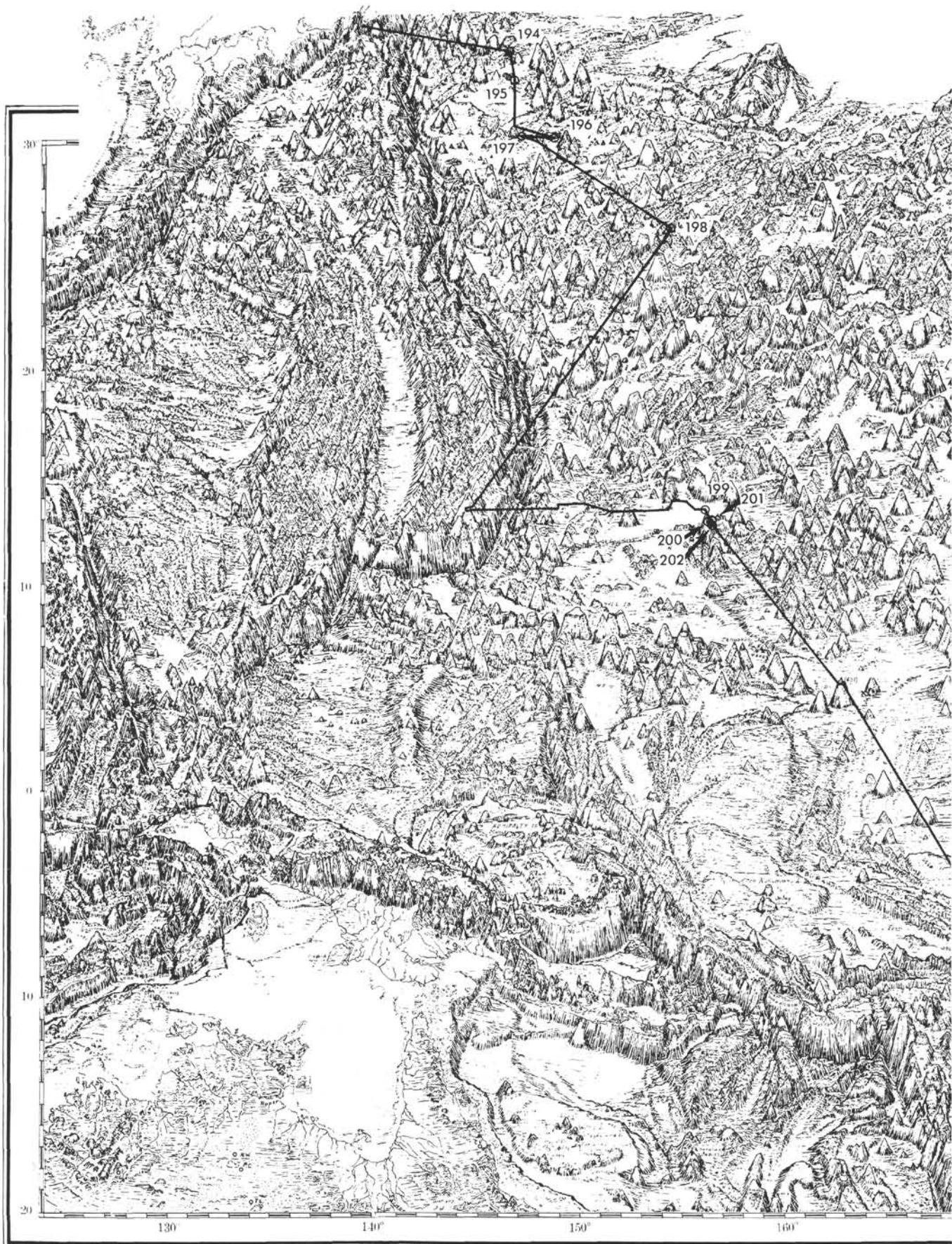


Figure 1. Track chart of D/V Glomar Challenger between Japan and the Fiji Islands.

PHYSIOGRAPHIC DIAGRAM OF THE  
**WESTERN PACIFIC OCEAN**  
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Figure 1. | (Continued).

the appreciably greater water depth compared to the north and the fact that this area lies outside of the main high-productivity belt. The thickening from approximately 0.15 sec to 0.3 sec between 1200, 7 Nov and 1700, 7 Nov is probably due to the shallowing of the bottom and its rise through the carbonate compensation level.

The Fiji Plateau, which was crossed southwards from 0200, 8 Nov, is remarkable for its rough topography, and the thinness of its sedimentary cover. The thinness of the sediments is consistent with the conclusions of Chase (1971) that this is an area of young crust. Sediment ponding in intermontane valleys only becomes significant close to Fiji (1900, 9 Nov-2200, 9 Nov).

Beneath the upper transparent and acoustically opaque layers, Ewing et al. (1968) have distinguished on their profiles a lower transparent and a lower opaque zone. Near Site 194 (0630, 19 Sept), the opaque layer is separated by a thin zone of lower reflectivity from a deeper strong reflector which we interpret as the top of the lower opaque zone (see Heezen et al., 1973) although the distinction from basement is ambiguous. In general, the base of the upper opaque layer is difficult to define in this region. On some parts of the profile it appears that the basement is very shallow, being revealed as small peaks which penetrate the opaque layer (0100, 3 Oct-0330, 3 Oct). This is, however, a result of sound scattering near the crests of small undulations on the sea floor, and it is probable that the basement is appreciably beyond the limit of seismic penetration. Further south, near Site 195, the lower transparent layer is somewhat thicker and hence more clearly seen on the record (see Figure 2). South of this point, however, the opaque zone is so highly reflective that layers beneath are ill-defined.

It is interesting to note that the strength of the reflection from the top of the opaque layer, which largely determines seismic penetration, changes southward from Site 194. This is best seen by reference to Figure 2, in which profiles from close to each site have been assembled.

Although instrumental gains and noise levels are not the same for each section, it is evident that the opaque layer is considerably more reflective at Site 198 than it is at Site 194. This fact is probably due to the larger quantity of volcanic ash in the abyssal clays in the latter region. The presence of ash tends to increase the seismic velocity in the clays and hence reduces reflection coefficients at the transparent layer/opaque layer boundary. The ash also leads to greater internal reflection losses. The drilling results (Heezen et al., 1973) suggest that the reverberation within the opaque layer is a consequence of the presence of chert stringers within a chalk sequence having a much lower acoustic impedance.

Drilling at Site 199 indicates that the high reflectivity of the opaque layer beneath the very thin uppermost transparent layer on the Caroline Abyssal Plain results from the presence of thick turbidity current deposits. The high reflectivity greatly restricts penetration. Penetration tends to increase westward until at Site 199 it is rather more than 0.5 sec. At Site 199, carbonates were sampled beneath the topmost reflective zone. In this region, the pelagic carbonate layer is relatively transparent in contrast to the highly reflective chalk layer at the northern drilling sites.

## REFERENCES

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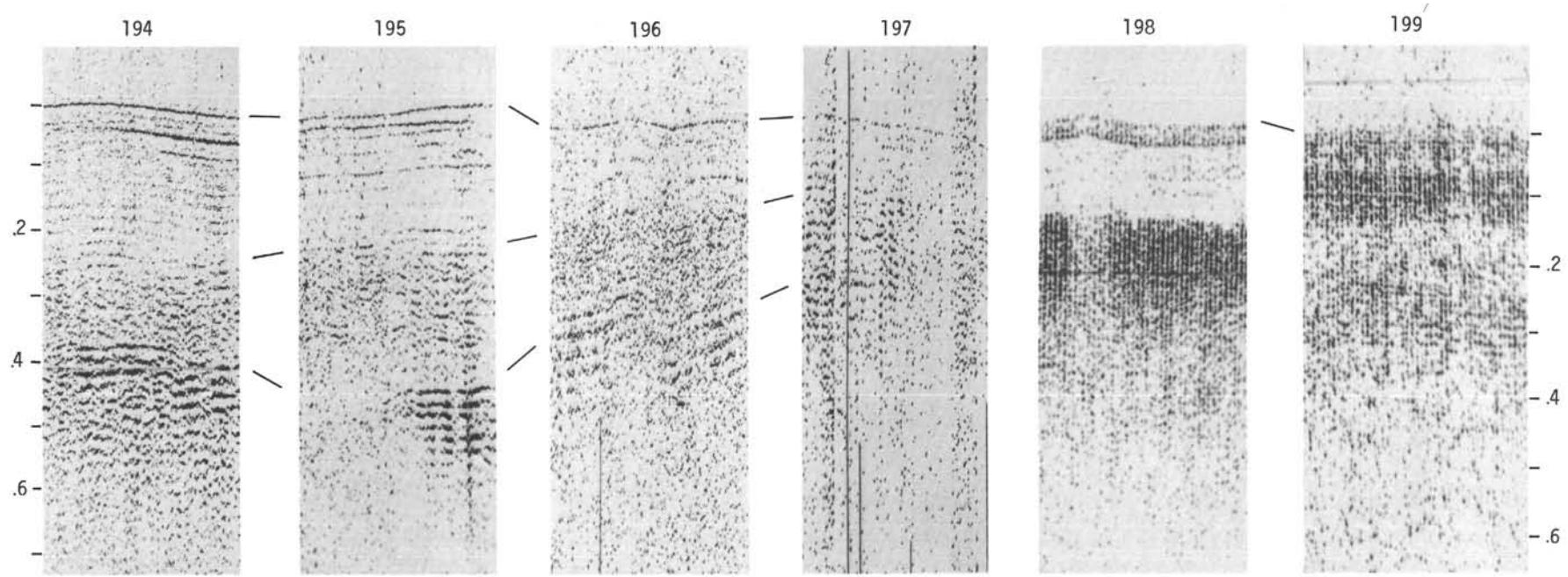


Figure 2. Seismic profiles recorded close to Sites 194-199.

TABLE 1  
Navigation Listing: DSDP Leg 20

DA	MO	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NU.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
17	9	1971	-9.0	1040	34	53.4	139	40.4	0.0	7.7	149	1.0	104	7.0	155	0	RAD	24.4	1
17	9	1971	-9.0	1050	34	52.3	139	41.2	1.3	10.0	110	1.0	104	9.0	111	0	C/CS	58.1	2
17	9	1971	-9.0	1148	34	48.9	139	52.2	10.9	10.0	99	1.0	104	9.0	98	0	C/C	61.1	3
17	9	1971	-9.0	122	34	48.6	139	55.0	13.3	5.0	99	1.0	104	4.0	98	0	C/S	30.7	4
17	9	1971	-9.0	1224	34	48.3	139	57.3	15.1	10.0	99	1.0	104	9.0	98	0	C/S	61.1	5
17	9	1971	-9.0	13 8	34	47.2	140	6.1	22.5	10.3	96	1.3	84	9.0	98	0	SATL	63.4	6
17	9	1971	-9.0	14 2	34	46.2	140	17.3	31.7	7.5	93	1.6	301	9.0	98	0	SATL	46.5	7
17	9	1971	-9.0	1810	34	44.5	140	55.0	62.8	7.5	96	1.6	301	9.0	100	0	C/C	46.2	8
17	9	1971	-9.0	2315	34	40.8	141	41.1	100.8	8.9	108	1.3	198	9.0	100	0	LOR	52.6	9
18	9	1971	-9.0	0 0	34	38.7	141	48.8	107.5	8.9	108	1.3	198	9.0	100	0	U/W	52.6	10
18	9	1971	-9.0	130	34	34.6	142	4.3	120.9	9.0	109	1.4	195	9.0	100	0	LOR	52.8	11
18	9	1971	-9.0	241	34	31.2	142	16.5	131.5	5.0	112	1.4	195	5.0	96	0	C/CS	28.8	12
18	9	1971	-9.0	4 0	34	28.7	142	23.9	138.1	5.7	106	1.2	154	5.0	96	0	LOR	34.2	13
18	9	1971	-9.0	534	34	26.3	142	34.3	147.0	9.7	102	1.2	154	9.0	96	0	C/S	58.8	14
18	9	1971	-9.0	6 0	34	25.4	142	39.3	151.2	8.2	103	1.3	229	9.0	96	0	LOR	49.5	15
18	9	1971	-9.0	6 8	34	25.2	142	40.6	152.3	8.1	99	1.3	229	9.0	93	0	C/C	49.9	16
18	9	1971	-9.0	7 0	34	24.0	142	49.0	159.3	7.5	95	1.6	262	9.0	93	0	LOR	46.2	17
18	9	1971	-9.0	8 0	34	23.3	142	58.0	166.8	7.9	91	1.2	289	9.0	93	0	LOR	48.9	18
18	9	1971	-9.0	915	34	23.2	143	9.9	176.6	8.1	93	0.9	275	9.0	93	0	LOR	50.5	19
18	9	1971	-9.0	1130	34	22.3	143	32.0	194.9	8.1	98	0.9	275	9.0	98	0	C/C	50.1	20
18	9	1971	-9.0	1454	34	18.3	144	5.1	222.5	9.6	89	1.6	25	9.0	98	0	SATL	59.6	21
18	9	1971	-9.0	1524	34	18.4	144	10.9	227.3	9.2	94	0.7	20	9.0	98	0	SATL	57.0	22
18	9	1971	-9.0	1530	34	18.3	144	12.0	228.2	9.0	106	0.7	20	9.0	110	0	C/C	54.0	23
18	9	1971	-9.0	1732	34	13.4	144	33.4	246.6	8.4	110	0.7	295	9.0	110	0	SATL	48.9	24
18	9	1971	-9.0	1830	34	10.7	144	42.6	254.7	8.3	112	0.7	295	9.0	112	0	C/C	48.3	25
18	9	1971	-9.0	1920	34	8.1	144	50.4	261.6	10.2	109	1.3	90	9.0	112	0	SATL	60.0	26
18	9	1971	-9.0	22 7	33	58.7	145	22.7	289.9	10.3	94	1.3	90	9.0	95	0	C/C	64.0	27
18	9	1971	-9.0	2210	33	58.7	145	23.3	290.4	9.6	95	0.6	99	9.0	95	0	SATL	59.6	28
19	9	1971	-9.0	0 0	33	57.1	145	44.4	308.0	10.1	93	1.2	75	9.0	95	0	SATL	63.1	29
19	9	1971	-9.0	0 0	33	57.1	145	44.4	308.0	10.1	93	1.2	75	9.0	95	0	U/W	63.1	30
19	9	1971	-9.0	142	33	56.3	146	5.1	325.2	10.1	88	1.2	75	9.0	90	0	C/C	63.3	30
19	9	1971-10.0	422	33	56.8	146	25.4	342.1	10.2	88	1.3	75	9.0	90	0	SATL	63.8	31	
19	9	1971-10.0	458	33	57.0	146	32.8	348.2	10.4	88	1.4	72	9.0	90	0	SATL	64.8	32	
19	9	1971-10.0	530	33	57.2	146	39.5	353.8	9.4	87	1.4	72	8.0	90	0	C/S	58.5	33	
19	9	1971-10.0	545	33	57.4	146	42.3	356.1	9.4	77	1.4	72	8.0	78	0	C/C	57.4	34	
19	9	1971-10.0	634	33	59.1	146	51.4	363.8	6.6	259	1.4	72	8.0	258	0	C/C	-40.4	35	
19	9	1971-10.0	645	33	58.9	146	49.9	365.0	2.6	261	1.4	72	5.5	258	0	C/S	-16.1	36	
19	9	1971-10.0	7 9	33	58.7	146	48.7	366.0	4.0	258	0.0	90	4.0	258	0	SATL	-24.6	37	
19	9	1971-10.0	7 9	33	58.7	146	48.7	366.0	0.0	90	0.0	90	0.0	500	0	STOP	0.3	38	
22	9	1971-10.0	526	33	58.7	146	48.7	366.0	0.4	102	0.4	102	0.0	500	0	SATL	2.6	38	
22	9	1971-10.0	526	33	58.7	146	48.7	366.0	3.9	5	0.4	102	4.0	0	0	U/W	2.1	39	
22	9	1971-10.0	537	33	59.4	146	48.8	366.7	5.4	4	0.4	102	5.5	0	0	C/S	2.3	39	
22	9	1971-10.0	551	34	0.7	146	48.9	368.0	5.6	171	0.4	102	5.5	175	0	C/C	5.5	40	
22	9	1971-10.0	558	34	0.0	146	49.0	368.7	5.6	181	0.4	102	5.5	185	0	C/C	-0.5	41	

DA	MU	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NO.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
22	9	1971-10.0	6	1	33	59.8	146	49.0	369.0	5.5	186	0.4	102	5.5	190	0	C/C	-3.6	42
22	9	1971-10.0	6	6	33	59.3	146	48.9	369.4	5.5	196	0.4	102	5.5	200	0	C/C	-9.4	43
22	9	1971-10.0	610	33	59.0	146	48.8	369.8	5.4	201	0.4	102	5.5	205	0	C/C	-12.1	44	
22	9	1971-10.0	613	33	58.7	146	48.7	370.1	4.6	198	1.1	54	5.5	205	0	SATL	-8.8	45	
22	9	1971-10.0	730	33	53.1	146	46.5	375.9	9.8	162	1.1	54	10.2	168	0	C/CS	18.9	46	
22	9	1971-10.0	830	33	43.8	146	50.1	385.7	11.2	171	1.2	194	10.2	168	0	LOR	11.0	47	
22	9	1971-10.0	930	33	32.7	146	52.3	397.0	10.1	167	0.3	50	10.2	168	0	LOR	14.2	48	
22	9	1971-10.0	1112	33	16.0	146	57.0	414.1	7.9	166	0.3	50	8.0	168	0	C/S	12.0	49	
22	9	1971-10.0	1114	33	15.8	146	57.1	414.3	8.8	177	1.6	231	8.0	168	0	SATL	2.9	50	
22	9	1971-10.0	1148	33	10.8	146	57.4	419.4	9.1	175	1.5	214	8.0	168	0	SATL	5.0	51	
22	9	1971-10.0	1336	32	54.5	146	59.2	435.7	8.5	174	1.0	234	8.0	168	0	SATL	5.6	52	
22	9	1971-10.0	1430	32	46.9	147	0.1	443.4	7.7	178	1.4	274	8.0	168	0	SATL	1.7	53	
22	9	1971-10.0	1459	32	43.2	147	0.2	447.1	8.5	339	1.4	274	8.0	348	0	C/C	-19.3	54	
22	9	1971-10.0	1519	32	45.9	146	59.0	449.9	5.6	334	1.4	274	5.0	348	0	C/S	-15.5	55	
22	9	1971-10.0	1525	32	46.3	146	58.7	450.5	4.6	331	1.4	274	4.0	348	0	C/S	-14.2	56	
22	9	1971-10.0	1526	32	46.4	146	58.7	450.5	4.0	348	0.0	132	4.0	348	0	SATL	-5.3	57	
22	9	1971-10.0	1526	32	46.4	146	58.7	450.5	0.0	132	0.0	132	0.0	500	0	STOP	0.3	58	
28	9	1971-10.0	18 0	32	44.2	147	1.6	453.8	1.4	174	1.4	174	0.0	500	0	DR	0.9	58	
28	9	1971-10.0	18 0	32	44.2	147	1.6	453.8	6.4	178	1.4	174	5.0	179	0	U/W	1.4	59	
28	9	1971-10.0	19 5	32	37.2	147	1.9	460.8	8.9	178	1.4	174	7.5	179	0	C/S	2.0	59	
28	9	1971-10.0	1915	32	35.7	147	2.0	462.3	6.9	178	1.4	174	5.5	179	0	C/S	1.5	60	
28	9	1971-10.0	1920	32	35.2	147	2.0	462.9	8.4	178	1.4	174	7.0	179	0	C/S	1.9	61	
28	9	1971-10.0	1957	32	30.0	147	2.2	468.1	9.4	178	1.4	174	8.0	179	0	C/S	2.1	62	
28	9	1971-10.0	2114	32	17.9	147	2.6	480.1	8.3	181	0.4	225	8.0	179	0	SATL	-0.8	63	
28	9	1971-10.0	2230	32	7.4	147	2.4	490.6	8.3	183	0.6	246	8.0	179	0	SATL	-2.7	64	
29	9	1971-10.0	0 0	31	55.0	147	1.7	503.0	8.3	183	0.6	246	8.0	179	0	U/W	-2.7	65	
29	9	1971-10.0	218	31	36.1	147	0.6	522.0	8.2	188	1.3	266	8.0	179	0	SATL	-7.2	66	
29	9	1971-10.0	3 5	31	29.7	146	59.5	528.4	8.1	183	1.3	266	8.0	174	0	C/C	-2.6	67	
29	9	1971-10.0	4 2	31	22.1	146	59.0	536.1	7.9	183	1.2	273	8.0	174	0	SATL	-2.6	68	
29	9	1971-10.0	440	31	17.1	146	58.7	541.1	8.4	176	0.5	214	8.0	174	0	SATL	3.7	69	
29	9	1971-10.0	8 0	30	49.2	147	0.9	569.0	8.0	123	0.5	214	8.0	120	0	C/C	43.4	70	
29	9	1971-10.0	1014	30	39.4	147	18.2	586.8	8.7	121	0.7	130	8.0	120	0	SATL	48.2	71	
29	9	1971-10.0	1158	30	31.7	147	33.2	601.9	8.7	123	0.8	155	8.0	120	0	SATL	47.4	72	
29	9	1971-10.0	1316	30	25.5	147	44.2	613.2	8.5	125	0.8	177	8.0	120	0	SATL	45.2	73	
29	9	1971-10.0	14 0	30	21.9	147	50.1	619.4	8.4	119	0.8	177	8.0	114	0	C/C	47.9	74	
29	9	1971-10.0	1414	30	21.0	147	52.1	621.4	8.5	115	0.5	135	8.0	114	0	SATL	50.0	75	
29	9	1971-10.0	1552	30	15.1	148	6.6	635.2	8.0	115	0.1	214	8.0	114	0	SATL	47.1	76	
29	9	1971-10.0	1640	30	12.4	148	13.3	641.6	8.0	118	0.6	202	8.0	114	0	SATL	46.2	77	
29	9	1971-10.0	1742	30	8.5	148	21.8	649.9	7.4	115	0.6	281	8.0	114	0	SATL	44.0	78	
29	9	1971-10.0	1756	30	7.8	148	23.6	651.6	7.4	99	0.6	281	8.0	99	0	C/C	47.9	79	
29	9	1971-10.0	18 6	30	7.6	148	25.0	652.9	7.9	99	0.6	281	8.5	99	0	C/S	51.1	80	
29	9	1971-10.0	1943	30	5.6	148	39.7	665.7	8.5	5	0.6	281	8.5	9	0	C/C	4.8	81	
29	9	1971-10.0	2011	30	9.6	148	40.1	669.7	6.0	194	0.6	281	6.0	189	0	C/CS	-9.4	82	
29	9	1971-10.0	2044	30	6.4	148	39.1	673.0	6.6	279	0.6	281	6.0	279	0	C/C	-42.4	83	

TABLE 1 - *Continued*

B. C. HEEZEN, E. J. W. JONES

DA	MO	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NU.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
29	9	1971-10.0	2121	30 7.0	148 34.5		677.0	6.0 279	0.0	90	6.0 279					0	SATL	-38.7	84
29	9	1971-10.0	2121	30 7.0	148 34.5		677.0	0.0 90	0.0	90	0.0 500					0	STOP	0.3	85
2	10	1971-10.0	2215	30 7.0	148 34.5		677.0	1.3 101	1.3	101	0.0 500					0	SATL	8.4	85
2	10	1971-10.0	2215	30 7.0	148 34.5		677.0	2.7 280	1.3	101	4.0 280					0	U/W	-17.7	86
2	10	1971-10.0	2230	30 7.1	148 33.7		677.7	4.2 280	1.3	101	5.5 280					0	C/S	-27.3	86
2	10	1971-10.0	2254	30 7.4	148 31.8		679.4	6.4 287	1.2	320	5.5 280					0	SATL	-40.3	87
3	10	1971-10.0	0 0	30 9.4	148 23.9		686.5	6.4 287	1.2	320	5.5 280					0	U/W	-40.3	88
3	10	1971-10.0	0 3	30 9.5	148 23.6		686.8	8.9 285	1.2	320	8.0 280					0	C/S	-56.2	89
3	10	1971-10.0	036	30 10.8	148 18.1		691.7	8.2 287	1.0	1	8.0 280					0	SATL	-51.3	90
3	10	1971-10.0	234	30 15.5	148 0.2		707.9	7.0 191	1.0	1	8.0 190					0	C/C	-8.6	91
3	10	1971-10.0	247	30 14.1	147 59.8		709.4	9.0 9	1.0	1	8.0 10					0	C/C	9.1	92
3	10	1971-10.0	3 0	30 16.0	148 0.2		711.4	8.7 11	0.8	24	8.0 10					0	SATL	10.8	93
3	10	1971-10.0	310	30 17.4	148 0.5		712.8	7.8 285	0.8	24	8.0 280					0	C/C	-49.4	94
3	10	1971-10.0	333	30 18.2	147 57.2		715.8	7.6 263	0.8	24	8.0 258					0	C/C	-48.9	95
3	10	1971-10.0	448	30 17.0	147 46.3		725.3	6.7 266	1.7	44	8.0 258					0	SATL	-43.3	96
3	10	1971-10.0	5 0	30 16.9	147 44.7		726.6	2.8 278	1.7	44	4.0 258					0	C/S	-18.0	97
3	10	1971-10.0	520	30 17.0	147 43.7		727.5	6.7 266	1.7	44	8.0 258					0	C/S	-43.3	98
3	10	1971-10.0	545	30 16.8	147 40.5		730.3	6.2 267	1.7	44	7.5 258					0	C/S	-40.2	99
3	10	1971-10.0	6 4	30 16.7	147 38.2		732.3	9.0 72	1.7	44	7.5 78					0	C/C	55.4	100
3	10	1971-10.0	615	30 17.2	147 40.0		733.9	5.5 68	1.7	44	4.0 78					0	C/S	33.2	101
3	10	1971-10.0	620	30 17.4	147 40.5		734.4	4.0 78	0.0	90	4.0 78					0	SATL	25.6	102
3	10	1971-10.0	620	30 17.4	147 40.5		734.4	0.0 90	0.0	90	0.0 78					0	STOP	0.3	103
8	10	1971-10.0	2 3	30 17.4	147 40.5		734.4	0.6 45	0.6	45	0.0 78					0	SATL	2.9	103
8	10	1971-10.0	2 3	30 17.4	147 40.5		734.4	5.4 86	0.6	45	5.0 90					0	U/W	35.5	104
8	10	1971-10.0	217	30 17.5	147 42.0		735.6	5.9 86	0.6	45	5.5 90					0	C/S	38.7	104
8	10	1971-10.0	335	30 18.1	147 50.9		743.4	8.4 87	0.6	45	8.0 90					0	C/S	54.9	105
8	10	1971-10.0	356	30 18.2	147 54.3		746.3	8.0 89	0.1	18	8.0 90					0	SATL	52.4	106
8	10	1971-10.0	419	30 18.3	147 57.9		749.4	10.0 125	0.1	18	10.0 126					0	C/CS	53.0	107
8	10	1971-10.0	428	30 17.4	147 59.3		750.9	9.0 131	1.2	269	10.0 126					0	SATL	44.4	108
8	10	1971-10.0	530	30 11.3	148 7.5		760.3	9.1 127	0.9	297	10.0 126					0	*	47.5	109
8	10	1971-10.0	843	29 53.7	148 34.6		789.6	3.1 129	0.9	297	4.0 126					0	C/S	16.0	110
8	10	1971-10.0	915	29 52.6	148 36.1		791.3	9.1 127	0.9	297	10.0 126					0	C/S	47.6	111
8	10	1971-10.0	1054	29 43.6	148 50.0		806.3	8.8 128	1.2	293	10.0 126					0	SATL	45.4	112
8	10	1971-10.0	1124	29 40.9	148 54.0		810.7	9.8 128	0.5	244	10.0 126					0	SATL	50.5	113
8	10	1971-10.0	1516	29 17.4	149 28.1		848.6	9.9 127	0.2	231	10.0 126					0	SATL	52.2	114
8	10	1971-10.0	1628	29 10.2	149 39.0		860.5	9.8 128	0.3	247	10.0 126					0	SATL	51.0	115
8	10	1971-10.0	1812	28 59.8	149 54.5		877.6	10.3 127	0.4	169	10.0 126					0	SATL	54.1	116
8	10	1971-10.0	1830	28 57.9	149 57.3		880.7	10.3 126	0.4	169	10.0 124					0	C/C	54.8	117
8	10	1971-10.0	2054	28 43.6	150 20.2		905.3	9.8 130	1.0	231	10.0 124					0	SATL	49.4	118
8	10	1971-10.0	2130	28 39.9	150 25.4		911.2	9.8 132	1.0	231	10.0 126					0	C/C	48.1	119
8	10	1971-10.0	2238	28 32.5	150 34.8		922.3	9.5 134	1.4	240	10.0 126					0	SATL	45.3	120
9	10	1971-10.0	0 0	28 23.5	150 45.5		935.3	9.5 134	1.4	240	10.0 126					0	U/W	45.4	121
9	10	1971-10.0	5 0	27 50.6	151 24.5		982.9	11.3 129	1.4	152	10.0 126					0	SATL	58.3	122
9	10	1971-10.0	528	27 47.3	151 29.1		988.1	8.8 132	1.5	269	10.0 126					0	SATL	43.8	123

DA	MO	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NO.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
9	10	1971-10.0	6 0	27 44.1	151	33.1	992.9	8.7	123	1.5	269	10.0	118	0	C/C	48.7	124		
9	10	1971-10.0	1030	27 22.9	152	10.2	1032.0	9.1	120	1.0	274	10.0	118	0	SATL	52.8	125		
9	10	1971-10.0	1218	27 14.6	152	26.1	1048.4	9.0	119	1.0	291	10.0	118	0	SATL	52.9	126		
9	10	1971-10.0	1320	27 10.1	152	35.3	1057.8	9.1	118	0.9	298	10.0	118	0	SATL	53.7	127		
9	10	1971-10.0	15 0	27 3.0	152	50.3	1072.9	8.5	117	1.5	306	10.0	118	0	SATL	50.8	128		
9	10	1971-10.0	1538	27 0.6	152	55.7	1078.3	9.1	115	1.0	325	10.0	118	0	SATL	55.4	129		
9	10	1971-10.0	16 0	26 59.2	152	59.1	1081.6	9.1	123	1.0	325	10.0	125	0	C/C	51.0	130		
9	10	1971-10.0	1612	26 58.2	153	0.8	1083.4	9.2	125	0.8	306	10.0	125	0	SATL	50.4	131		
9	10	1971-10.0	1722	26 52.1	153	10.6	1094.1	9.4	121	0.9	347	10.0	125	0	SATL	53.9	132		
9	10	1971-10.0	18 0	26 49.0	153	16.3	1100.0	8.6	126	1.4	300	10.0	125	0	*	46.9	133		
9	10	1971-10.0	1830	26 46.5	153	20.2	1104.3	8.6	132	1.4	300	10.0	130	0	C/C	43.2	134		
9	10	1971-10.0	20 2	26 37.7	153	31.3	1117.6	9.0	130	1.0	308	10.0	130	0	SATL	46.4	135		
9	10	1971-10.0	2226	26 23.8	153	49.7	1139.1	9.3	131	0.7	295	10.0	130	0	SATL	47.5	136		
10	10	1971-11.0	1 0	26 14.2	154	2.0	1153.8	9.3	131	0.7	295	10.0	130	0	U/W	47.6	137		
10	10	1971-11.0	136	26 10.5	154	6.7	1159.3	9.0	135	1.3	274	10.0	130	0	SATL	42.8	138		
10	10	1971-11.0	320	25 59.5	154	18.9	1174.9	10.3	130	0.3	121	10.0	130	0	SATL	53.6	139		
10	10	1971-11.0	420	25 52.9	154	27.7	1185.2	8.8	130	0.3	121	8.5	130	0	C/S	45.9	140		
10	10	1971-11.0	440	25 51.0	154	30.3	1188.1	8.8	108	0.3	121	8.5	107	0	C/C	57.0	141		
10	10	1971-11.0	5 5	25 49.9	154	34.2	1191.8	8.3	108	0.3	121	8.0	107	0	C/S	53.8	142		
10	10	1971-11.0	556	25 47.8	154	41.6	1198.9	7.7	286	0.3	121	8.0	287	0	C/C	-50.1	143		
10	10	1971-11.0	642	25 49.4	154	35.4	1204.8	4.7	286	0.3	121	5.0	287	0	C/S	-30.6	144		
10	10	1971-11.0	645	25 49.5	154	35.1	1205.0	5.0	287	0.0	90	5.0	287	0	SATL	-32.6	145		
10	10	1971-11.0	645	25 49.5	154	35.1	1205.0	0.0	90	0.0	90	0.0	287	0	STOP	0.3	146		
14	10	1971-11.0	2015	25 49.5	154	35.1	1205.0	0.5	111	0.5	111	0.0	287	0	SATL	3.3	146		
14	10	1971-11.0	2015	25 49.5	154	35.1	1205.0	5.9	212	0.5	111	6.0	217	0	U/W	-21.2	147		
14	10	1971-11.0	2043	25 47.2	154	33.5	1207.8	8.9	214	0.5	111	9.0	217	0	C/S	-33.6	147		
14	10	1971-11.0	21 4	25 44.6	154	31.5	1210.9	5.9	212	0.5	111	6.0	217	0	C/S	-21.2	148		
14	10	1971-11.0	2144	25 41.3	154	29.2	1214.8	6.8	218	0.8	226	6.0	217	0	SATL	-28.5	149		
14	10	1971-11.0	2215	25 38.5	154	26.8	1218.3	10.8	218	0.8	226	10.0	217	0	C/S	-45.1	150		
14	10	1971-11.0	2256	25 32.7	154	21.8	1225.7	10.0	219	0.4	308	10.0	217	0	SATL	-42.7	151		
15	10	1971-11.0	0 0	25 24.4	154	14.3	1236.4	10.0	219	0.4	308	10.0	217	0	U/W	-42.8	152		
15	10	1971-11.0	252	25 2.3	153	54.2	1265.0	9.9	221	0.6	321	10.0	217	0	SATL	-44.1	153		
15	10	1971-11.0	420	24 51.3	153	43.8	1279.5	9.3	218	0.7	20	10.0	217	0	SATL	-39.2	154		
15	10	1971-11.0	510	24 45.2	153	38.5	1287.3	9.6	220	0.7	342	10.0	217	0	SATL	-42.2	155		
15	10	1971-11.0	654	24 32.5	153	26.6	1304.0	9.4	222	1.0	346	10.0	217	0	SATL	-43.0	156		
15	10	1971-11.0	1048	24 5.2	152	59.8	1340.6	9.4	223	1.2	343	10.0	217	0	SATL	-43.9	157		
15	10	1971-11.0	12 2	23 56.7	152	51.2	1352.2	8.9	220	1.2	11	10.0	217	0	SATL	-39.3	158		
15	10	1971-11.0	13 0	23 50.1	152	45.1	1360.8	8.8	215	1.2	11	10.0	212	0	C/C	-34.9	159		
15	10	1971-11.0	1442	23 37.8	152	35.7	1375.8	9.1	211	0.9	38	10.0	212	0	SATL	-32.3	160		
15	10	1971-11.0	1540	23 30.3	152	30.7	1384.6	9.4	215	0.8	356	10.0	212	0	SATL	-37.1	161		
15	10	1971-11.0	17 0	23 20.0	152	22.9	1397.1	9.5	216	0.8	342	10.0	212	0	SATL	-38.5	162		
15	10	1971-11.0	1726	23 16.7	152	20.3	1401.2	9.2	213	0.8	18	10.0	212	0	SATL	-34.6	163		
15	10	1971-11.0	1848	23 6.2	152	12.8	1413.8	9.5	213	0.5	15	10.0	212	0	SATL	-35.7	164		
15	10	1971-11.0	2050	22 50.0	152	1.4	1433.1	10.2	215	0.6	282	10.0	212	0	SATL	-40.7	165		

TABLE 1 - *Continued*

B. C. HEEZEN, E. J. W. JONES

DA	MO	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NO.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
15	10	1971-11.0	2125	22 45.1	151 57.7		1439.0	10.3	217	0.6	282	10.0	214		0	C/C	-42.8	166	
15	10	1971-11.0	2318	22 29.8	151 45.0		1458.3	5.3	220	0.6	282	5.0	214		0	C/S	-23.6	167	
15	10	1971-11.0	2333	22 28.8	151 44.1		1459.7	10.1	217	0.6	282	9.8	214		0	C/S	-42.0	168	
15	10	1971-11.0	2350	22 26.5	151 42.2		1462.5	9.6	218	0.7	325	9.8	214		0	SATL	-41.0	169	
16	10	1971-11.0	0 0	22 25.2	151 41.1		1464.1	9.6	218	0.7	325	9.8	214		0	U/W	-41.0	170	
16	10	1971-11.0	2 6	22 9.4	151 27.8		1484.2	10.1	221	1.2	292	9.8	214		0	SATL	-46.2	171	
16	10	1971-11.0	328	21 58.9	151 18.1		1498.0	10.5	218	1.1	261	9.8	214		0	SATL	-45.3	172	
16	10	1971-11.0	352	21 55.6	151 15.3		1502.2	10.7	220	1.4	266	9.8	214		0	SATL	-48.2	173	
16	10	1971-11.0	5 0	21 46.2	151 6.8		1514.4	10.7	218	1.4	266	9.8	212		0	C/C	-46.0	174	
16	10	1971-11.0	514	21 44.3	151 5.2		1516.9	10.5	207	1.1	158	9.8	212		0	SATL	-33.2	175	
16	10	1971-11.0	6 4	21 36.5	151 0.9		1525.7	10.9	213	1.1	219	9.8	212		0	SATL	-41.6	176	
16	10	1971-11.0	954	21 1.3	150 36.6		1567.5	10.1	213	0.3	251	9.8	212		0	SATL	-38.5	177	
16	10	1971-11.0	1037	20 55.3	150 32.4		1574.7	10.1	214	0.3	251	9.8	213		0	C/C	-39.5	178	
16	10	1971-11.0	13 0	20 35.4	150 17.9		1598.7	10.8	217	0.3	251	10.5	216		0	C/CS	-45.7	179	
16	10	1971-11.0	1356	20 27.4	150 11.5		1608.8	10.1	219	0.7	343	10.5	216		0	SATL	-44.7	180	
16	10	1971-11.0	1640	20 6.1	149 52.9		1636.3	9.9	224	1.5	334	10.5	216		0	SATL	-48.5	181	
16	10	1971-11.0	1930	19 45.8	149 32.3		1664.3	9.8	219	1.5	334	10.5	212		0	C/C	-43.6	182	
16	10	1971-11.0	2140	19 29.5	149 18.0		1685.5	10.5	215	0.6	302	10.5	212		0	SATL	-42.8	183	
16	10	1971-11.0	2215	19 24.5	149 14.2		1691.7	6.0	218	0.6	302	6.0	212		0	C/S	-26.4	184	
16	10	1971-11.0	2227	19 23.5	149 13.4		1692.9	10.0	216	0.6	302	10.0	212		0	C/S	-41.8	185	
16	10	1971-11.0	23 4	19 18.5	149 9.6		1699.1	9.6	213	0.5	11	10.0	212		0	SATL	-37.0	186	
16	10	1971-11.0	2328	19 15.3	149 7.4		1702.9	9.9	215	0.5	312	10.0	212		0	SATL	-40.4	187	
17	10	1971-11.0	0 0	19 10.9	149 4.2		1708.2	10.4	215	0.5	312	10.5	212		0	U/W	-42.5	188	
17	10	1971-11.0	159	18 54.0	148 51.8		1728.8	4.9	218	0.5	312	5.0	212		0	C/S	-21.7	189	
17	10	1971-11.0	2 6	18 53.5	148 51.4		1729.4	9.9	215	0.5	312	10.0	212		0	C/S	-40.5	190	
17	10	1971-11.0	3 4	18 45.6	148 45.6		1739.0	10.0	214	0.4	300	10.0	212		0	SATL	-39.9	191	
17	10	1971-11.0	420	18 35.1	148 38.1		1751.7	10.0	213	0.1	309	10.0	212		0	SATL	-38.8	192	
17	10	1971-11.0	518	18 27.0	148 32.6		1761.3	10.0	215	0.5	299	10.0	212		0	SATL	-41.1	193	
17	10	1971-11.0	610	18 19.9	148 27.3		1770.0	4.1	220	0.5	299	4.0	212		0	C/S	-18.8	194	
17	10	1971-11.0	616	18 19.6	148 27.0		1770.5	10.4	215	0.5	299	10.4	212		0	C/S	-42.8	195	
17	10	1971-11.0	1212	17 28.8	147 49.7		1832.4	10.3	215	0.5	315	10.4	212		0	SATL	-42.4	196	
17	10	1971-11.0	1452	17 6.2	147 33.4		1859.9	10.2	214	0.4	332	10.4	212		0	SATL	-40.9	197	
17	10	1971-11.0	1546	16 58.6	147 28.0		1869.0	9.8	215	0.8	350	10.4	212		0	SATL	-40.6	198	
17	10	1971-11.0	2216	16 6.3	146 49.7		1932.9	9.8	212	0.6	34	10.4	212		0	SATL	-37.7	199	
17	10	1971-11.0	2358	15 52.1	146 40.5		1949.7	9.9	213	0.5	15	10.4	212		0	SATL	-39.2	200	
18	10	1971-11.0	0 0	15 51.8	146 40.3		1950.0	9.9	213	0.5	15	10.4	212		0	U/W	-39.2	201	
18	10	1971-11.0	040	15 46.3	146 36.6		1956.6	9.6	215	0.5	15	10.0	214		0	C/CS	-39.7	202	
18	10	1971-11.0	220	15 33.2	146 27.1		1972.6	9.7	215	0.4	354	10.0	214		0	SATL	-40.3	203	
18	10	1971-11.0	336	15 23.2	146 19.7		1984.8	10.3	217	0.5	272	10.0	214		0	SATL	-44.9	204	
18	10	1971-11.0	516	15 9.4	146 9.1		2002.0	10.3	216	0.5	273	10.0	214		0	SATL	-43.8	205	
18	10	1971-11.0	715	14 53.0	145 56.6		2022.4	9.9	216	0.4	324	10.0	214		0	RAD	-42.2	206	
18	10	1971-11.0	730	14 51.0	145 55.1		2024.9	10.0	213	0.2	121	10.0	214		0	RAD	-39.6	207	
18	10	1971-11.0	745	14 48.9	145 53.7		2027.4	10.3	217	0.6	273	10.0	214		0	RAD	-45.3	208	
18	10	1971-11.0	950	14 31.7	145 40.3		2048.9	10.3	214	0.3	196	10.0	214		0	SATL	-41.8	209	

DA	MO	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NO.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
18	10	1971-11.0	1020	14 27.4	145	37.4	2054.0	10.3	215	0.3	196	10.0	216	0	C/C	-42.8	210		
18	10	1971-11.0	11 0	14 21.8	145	33.3	2060.9	10.3	217	0.3	196	10.0	218	0	C/C	-45.0	211		
18	10	1971-11.0	1124	14 18.6	145	30.7	2065.0	9.9	217	0.2	112	10.0	218	0	SATL	-43.6	212		
18	10	1971-11.0	12 0	14 13.8	145	27.0	2070.9	9.9	228	0.2	112	10.0	229	0	C/C	-53.6	213		
18	10	1971-11.0	1220	14 11.6	145	24.5	2074.2	10.7	228	0.8	215	10.0	229	0	RAD	-58.2	214		
18	10	1971-11.0	13 0	14 6.8	145	19.0	2081.4	10.8	231	0.9	255	10.0	229	0	RAD	-61.1	215		
18	10	1971-11.0	1340	14 2.3	145	13.3	2088.6	5.8	233	0.9	255	5.0	229	0	C/S	-33.8	216		
18	10	1971-11.0	1357	14 1.3	145	11.9	2090.2	10.8	231	0.9	255	10.0	229	0	C/S	-61.2	217		
18	10	1971-11.0	14 4	14 0.5	145	10.9	2091.5	10.6	229	0.6	229	10.0	229	0	SATL	-58.4	218		
18	10	1971-11.0	15 0	13 54.0	145	3.2	2101.4	10.7	228	0.7	222	10.0	229	0	RAD	-58.3	219		
18	10	1971-11.0	16 0	13 46.9	144	54.9	2112.1	0.7	222	0.7	222	0.0	500	0	STOP	-3.8	220		
19	10	1971-11.0	12 0	13 35.7	144	44.7	2127.1	1.1	210	1.1	210	0.0	500	0	RAD	-4.2	221		
19	10	1971-11.0	12 0	13 35.7	144	44.7	2127.1	8.9	47	1.1	210	10.0	45	0	U/W	47.8	222		
19	10	1971-11.0	1210	13 36.7	144	45.8	2128.5	9.6	42	0.7	276	10.0	45	0	RAD	46.9	222		
19	10	1971-11.0	1220	13 37.9	144	46.9	2130.1	10.4	51	1.2	117	10.0	45	0	RAD	59.2	223		
19	10	1971-11.0	1230	13 39.0	144	48.3	2131.9	9.8	49	0.6	150	10.0	45	0	RAD	54.4	224		
19	10	1971-11.0	1246	13 40.7	144	50.3	2134.5	5.3	96	0.6	150	5.0	90	0	C/CS	39.1	225		
19	10	1971-11.0	13 0	13 40.6	144	51.6	2135.8	3.8	94	1.2	258	5.0	90	0	RAD	28.3	226		
19	10	1971-11.0	13 5	13 40.6	144	51.9	2136.1	8.8	92	1.2	258	10.0	90	0	C/S	64.7	227		
19	10	1971-11.0	1336	13 40.5	144	56.6	2140.6	8.8	88	1.2	258	10.0	87	0	C/C	64.6	228		
19	10	1971-11.0	1345	13 40.5	144	58.0	2142.0	9.7	88	0.3	245	10.0	87	0	RAD	71.2	229		
19	10	1971-11.0	14 0	13 40.6	145	0.5	2144.4	9.0	92	1.3	232	10.0	87	0	RAD	65.5	230		
19	10	1971-11.0	15 2	13 40.3	145	10.0	2153.6	8.7	92	1.5	239	10.0	87	0	SATL	64.0	231		
19	10	1971-11.0	1554	13 40.1	145	17.8	2161.2	8.9	92	1.4	233	10.0	87	0	SATL	65.1	232		
19	10	1971-11.0	1712	13 39.7	145	29.7	2172.8	8.5	88	1.5	260	10.0	87	0	SATL	62.2	233		
19	10	1971-11.0	1930	13 40.3	145	49.8	2192.3	9.2	89	0.8	248	10.0	87	0	*	67.4	234		
19	10	1971-11.0	2053	13 40.6	146	2.9	2205.1	4.2	91	0.8	248	5.0	87	0	C/S	31.0	235		
19	10	1971-11.0	21 4	13 40.6	146	3.7	2205.8	9.2	89	0.8	248	10.0	87	0	C/S	67.4	236		
20	10	1971-11.0	0 0	13 41.2	146	31.5	2232.8	8.2	89	0.8	248	9.0	87	0	U/W	60.1	237		
20	10	1971-11.0	0 8	13 41.2	146	32.6	2233.9	8.9	89	0.4	196	9.0	87	0	SATL	65.0	238		
20	10	1971-11.0	228	13 41.4	146	53.9	2254.6	8.9	89	0.4	192	9.0	87	0	SATL	65.2	239		
20	10	1971-11.0	3 0	13 41.4	146	58.8	2259.4	8.9	90	0.4	192	9.0	88	0	C/C	65.3	240		
20	10	1971-11.0	334	13 41.4	147	4.0	2264.4	9.1	91	0.4	163	9.0	88	0	SATL	66.7	241		
20	10	1971-11.0	440	13 41.3	147	14.3	2274.4	8.3	90	0.8	245	9.0	88	0	SATL	60.9	242		
20	10	1971-11.0	630	13 41.3	147	30.0	2289.7	9.0	91	0.4	178	9.0	88	0	*	66.0	243		
20	10	1971-11.0	950	13 40.9	148	0.9	2319.7	8.7	90	0.4	218	9.0	88	0	SATL	64.1	244		
20	10	1971-11.0	1132	13 40.9	148	16.2	2334.6	9.1	91	0.5	167	9.0	88	0	SATL	66.8	245		
20	10	1971-11.0	12 0	13 40.8	148	20.6	2338.9	8.3	88	0.7	267	9.0	88	0	LAN	60.7	246		
20	10	1971-11.0	1750	13 42.4	149	10.3	2387.2	9.0	355	0.7	267	9.0	0	0	C/C	-5.8	247		
20	10	1971-11.0	1810	13 45.4	149	10.1	2390.2	9.3	359	0.3	339	9.0	0	0	SATL	-1.2	248		
20	10	1971-11.0	1820	13 47.0	149	10.1	2391.8	8.9	86	0.3	339	9.0	88	0	C/C	65.1	249		
20	10	1971-11.0	2136	13 48.8	149	40.0	2420.9	9.4	86	0.5	49	9.0	88	0	SATL	68.3	250		
20	10	1971-11.0	2314	13 49.8	149	55.7	2436.1	8.6	88	0.4	270	9.0	88	0	SATL	62.8	251		
21	10	1971-11.0	0 0	13 50.0	150	2.5	2442.7	8.6	88	0.4	270	9.0	88	0	U/W	62.8	252		

TABLE I - *Continued*

DA	MO	YR	TZ	TIME	DEG	MIN	DEG	MIN	DIST	ACTUAL	SPEED	CSE	DRIFT	SPEED	HED	DR	SPEED	CSE	FIX	COMNT	EOTVOS	NO.
21	10	1971-11.0	018	13 50.1	150	5.1	2445.3	8.6	100	0.4	270	9.0	100	0	C/C	61.9	253					
21	10	1971-11.0	140	13 48.0	150	17.0	2457.0	8.9	101	0.2	220	9.0	100	0	SATL	63.9	254					
21	10	1971-11.0	246	13 46.1	150	26.9	2466.8	9.0	101	0.1	176	9.0	100	0	SATL	64.9	255					
21	10	1971-11.0	630	13 39.8	151	1.0	2500.6	8.7	104	0.7	217	9.0	100	0	*	62.0	256					
21	10	1971-11.0	854	13 34.8	151	21.9	2521.5	9.0	104	0.6	196	9.0	100	0	SATL	63.7	257					
21	10	1971-11.0	1040	13 31.0	151	37.7	2537.3	8.1	102	0.9	265	9.0	100	0	SATL	58.4	258					
21	10	1971-11.0	1055	13 30.6	151	39.7	2539.3	8.1	91	0.9	265	9.0	90	0	C/C	59.4	259					
21	10	1971-11.0	12 0	13 30.5	151	48.8	2548.1	9.2	94	0.7	162	9.0	90	0	LAN	67.6	260					
21	10	1971-11.0	1510	13 28.4	152	18.8	2577.4	10.2	92	1.2	107	9.0	90	0	SATL	74.3	261					
21	10	1971-11.0	1526	13 28.3	152	21.6	2580.1	6.2	93	1.2	107	5.0	90	0	C/S	45.1	262					
21	10	1971-11.0	1532	13 28.3	152	22.2	2580.7	10.2	92	1.2	107	9.0	90	0	C/S	74.3	263					
21	10	1971-11.0	16 0	13 28.1	152	27.1	2585.5	8.6	92	0.5	239	9.0	90	0	SATL	62.7	264					
21	10	1971-11.0	19 0	13 27.3	152	53.5	2611.1	9.1	95	0.7	178	9.0	90	0	*	66.1	265					
21	10	1971-11.0	1930	13 26.9	152	58.1	2615.7	9.0	93	0.7	178	9.0	88	0	C/C	66.1	266					
21	10	1971-11.0	2220	13 25.8	153	24.4	2641.2	9.0	91	0.4	177	9.0	88	0	SATL	66.1	267					
21	10	1971-11.0	23 5	13 25.7	153	31.3	2648.0	9.0	89	0.4	177	9.0	86	0	C/C	66.0	268					
22	10	1971-11.0	0 0	13 25.9	153	39.8	2656.3	9.7	89	0.4	177	9.7	86	0	C/S	71.1	269					
22	10	1971-11.0	054	13 26.1	153	48.8	2665.0	9.2	87	0.6	246	9.7	86	0	SATL	67.1	270					
22	10	1971-11.0	336	13 27.3	154	14.2	2689.7	10.2	95	1.7	164	9.7	86	0	SATL	74.2	271					
22	10	1971-11.0	417	13 26.7	154	21.3	2696.7	8.6	38	1.7	164	9.7	30	0	C/C	38.9	272					
22	10	1971-11.0	917	14 0.6	154	48.6	2739.8	9.8	98	1.7	164	9.3	88	0	C/CS	71.2	273					
22	10	1971-11.0	946	14 0.0	154	53.5	2744.5	9.1	90	0.4	208	9.3	88	0	SATL	66.7	274					
22	10	1971-11.0	1148	14 0.0	155	12.6	2763.0	8.2	83	1.3	299	9.3	88	0	SATL	59.4	275					
22	10	1971-11.0	12 0	14 0.2	155	14.3	2764.7	8.6	87	0.7	275	9.3	88	0	LAN	63.1	276					
22	10	1971-11.0	1450	14 1.3	155	39.5	2789.2	8.8	138	0.7	275	9.3	135	0	C/C	43.1	277					
22	10	1971-11.0	1510	13 59.1	155	41.5	2792.1	10.0	270	0.7	275	9.3	270	0	C/C	-72.8	278					
22	10	1971-11.0	1732	13 59.3	155	17.2	2815.7	9.4	356	0.7	275	9.3	0	0	C/C	-4.8	279					
22	10	1971-11.0	1746	14 1.5	155	17.1	2817.9	8.6	90	0.7	275	9.3	90	0	C/C	63.2	280					
22	10	1971-11.0	1820	14 1.5	155	22.1	2822.8	8.6	91	0.8	256	9.3	90	0	SATL	62.6	281					
22	10	1971-11.0	1826	14 1.5	155	23.0	2823.6	8.9	139	0.8	256	9.3	135	0	C/C	42.9	282					
22	10	1971-11.0	2126	13 41.2	155	41.0	2850.4	8.9	140	0.9	253	9.3	135	0	SATL	41.9	283					
22	10	1971-11.0	2231	13 33.8	155	47.4	2860.1	8.4	92	0.9	253	9.3	90	0	C/C	61.8	284					
22	10	1971-11.0	2310	13 33.6	155	53.0	2865.6	8.7	92	0.7	240	9.3	90	0	SATL	63.9	285					
22	10	1971-11.0	2328	13 33.5	155	55.7	2868.2	8.6	88	0.7	293	9.3	90	0	SATL	63.3	286					
23	10	1971-11.0	0 0	13 33.6	156	0.5	2872.8	8.6	88	0.7	293	9.3	90	0	U/W	63.3	287					
23	10	1971-11.0	033	13 33.8	156	5.3	2877.5	8.6	121	0.7	293	9.3	120	0	C/C	54.0	288					
23	10	1971-11.0	137	13 29.1	156	13.4	2886.7	10.0	299	0.7	293	9.3	300	0	C/C	-64.1	289					
23	10	1971-11.0	146	13 29.9	156	12.1	2888.2	5.7	299	0.7	293	5.0	300	0	C/S	-36.7	290					
23	10	1971-11.0	148	13 30.0	156	11.9	2888.4	10.0	299	0.7	293	9.3	300	0	C/S	-64.1	291					
23	10	1971-11.0	158	13 30.8	156	10.4	2890.1	9.3	300	0.0	90	9.3	300	0	SATL	-59.0	292					
23	10	1971-11.0	158	13 30.8	156	10.4	2890.1	0.0	90	0.0	90	0.0	300	0	STOP	0.3	293					
26	10	1971-11.0	1315	13 30.8	156	10.4	2890.1	1.4	249	1.4	249	0.0	300	0	SATL	-10.0	293					
26	10	1971-11.0	1315	13 30.8	156	10.4	2890.1	4.7	156	1.4	249	5.0	139	0	U/W	14.1	294					
26	10	1971-11.0	1442	13 24.0	156	13.3	2896.9	4.9	155	1.4	243	5.0	139	0	SATL	15.1	294					

DA	MO	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NO.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
26	10	1971-11.0	15	9	13	22.6	156	14.2	2899.1	7.8	149	1.4	243	8.0	139	0	C/S	29.4	295
26	10	1971-11.0	1539		13	19.3	156	16.3	2903.0	7.5	139	1.4	243	8.0	129	0	C/C	36.3	296
26	10	1971-11.0	17	0	13	11.6	156	23.2	2913.2	6.7	139	1.9	269	8.0	129	0	SATL	32.2	297'
26	10	1971-11.0	1830		13	4.0	156	29.9	2923.2	7.3	137	1.3	257	8.0	129	0	*	36.5	298
26	10	1971-11.0	19	0	13	1.3	156	32.4	2926.8	7.2	130	1.3	257	8.0	123	0	C/C	40.3	299
26	10	1971-11.0	2116		12	50.8	156	45.1	2943.0	7.9	126	0.4	236	8.0	123	0	SATL	46.7	300
26	10	1971-11.0	2142		12	48.8	156	47.9	2946.4	8.2	300	0.4	236	8.0	303	0	C/C	-52.0	301
26	10	1971-11.0	2154		12	49.6	156	46.5	2948.1	4.6	31	0.4	236	5.0	33	0	C/CS	17.6	302
26	10	1971-11.0	22	1	12	50.1	156	46.8	2948.6	4.6	66	0.4	236	5.0	65	0	C/C	31.1	303
26	10	1971-11.0	22	4	12	50.2	156	47.0	2948.8	5.0	65	0.0	254	5.0	65	0	SATL	33.4	304
26	10	1971-11.0	22	4	12	50.2	156	47.0	2948.8	0.0	254	0.0	254	0.0	500	0	STOP	-0.3	305
27	10	1971-11.0	15	0	12	50.2	156	47.0	2948.9	0.1	211	0.0	254	0.1	210	0	U/W	-0.5	305
27	10	1971-11.0	16	0	12	50.1	156	46.9	2949.0	0.1	210	0.0	90	0.1	210	0	SATL	-0.5	306
27	10	1971-11.0	16	0	12	50.1	156	46.9	2949.0	0.0	90	0.0	90	0.0	500	0	STOP	0.3	307
27	10	1971-11.0	2027		12	50.1	156	46.9	2949.0	0.9	248	0.9	248	0.0	500	0	SATL	-6.7	307
27	10	1971-11.0	2027		12	50.1	156	46.9	2949.0	1.9	259	0.9	248	1.0	270	0	U/W	-14.0	308
27	10	1971-11.0	2059		12	49.9	156	45.9	2950.0	1.8	270	0.9	248	1.0	290	0	C/C	-13.6	308
27	10	1971-11.0	2140		12	49.9	156	44.6	2951.3	1.0	290	0.0	90	1.0	290	0	SATL	-7.2	309
27	10	1971-11.0	2140		12	49.9	156	44.6	2951.3	0.0	90	0.0	90	0.0	500	0	STOP	0.3	310
28	10	1971-11.0	725		12	49.9	156	44.6	2951.3	0.8	239	0.8	239	0.0	500	0	SATL	-5.0	310
28	10	1971-11.0	725		12	49.9	156	44.6	2951.3	2.4	99	0.8	239	3.0	90	0	U/W	17.5	311
28	10	1971-11.0	730		12	49.9	156	44.8	2951.5	4.9	95	0.8	239	5.5	90	0	C/S	35.7	311
28	10	1971-11.0	750		12	49.7	156	46.5	2953.1	9.4	92	0.8	239	10.0	90	0	C/S	68.7	312
28	10	1971-11.0	8	1	12	49.7	156	48.2	2954.8	8.4	93	0.8	239	9.0	90	0	C/S	61.3	313
28	10	1971-11.0	930		12	49.1	157	0.9	2967.2	9.7	268	0.8	239	9.0	270	0	C/C	-70.9	314
28	10	1971-11.0	935		12	49.0	157	0.1	2968.0	7.7	267	0.8	239	7.0	270	0	C/S	-56.3	315
28	10	1971-11.0	958		12	48.9	156	57.1	2970.9	7.0	270	0.0	90	7.0	270	0	SATL	-51.5	316
28	10	1971-11.0	958		12	48.9	156	57.1	2970.9	0.0	90	0.0	90	0.0	500	0	STOP	0.3	317
30	10	1971-11.0	16	0	12	48.9	156	57.1	2970.9	0.9	260	0.9	260	0.0	500	0	SATL	-7.1	317
30	10	1971-11.0	16	0	12	48.9	156	57.1	2970.9	5.9	268	0.9	260	5.0	270	0	U/W	-43.7	318
30	10	1971-11.0	18	0	12	48.6	156	44.9	2982.8	6.8	125	0.9	260	7.5	120	0	C/CS	41.0	318
30	10	1971-11.0	1910		12	44.0	156	51.6	2990.7	8.6	124	0.9	260	9.3	120	0	C/S	52.4	319
30	10	1971-11.0	2023		12	38.1	157	0.5	3001.2	8.9	146	0.9	260	9.3	141	0	C/C	36.5	320
30	10	1971-11.0	2112		12	32.1	157	4.6	3008.4	9.5	145	0.7	213	9.3	141	0	SATL	40.3	321
30	10	1971-11.0	2224		12	22.7	157	11.3	3019.9	9.4	147	1.1	228	9.3	141	0	SATL	37.7	322
31	10	1971-11.0	0	0	12	10.0	157	19.6	3035.0	9.4	147	1.1	228	9.3	141	0	U/W	37.8	323
31	10	1971-11.0	044		12	4.2	157	23.4	3041.8	8.9	147	1.0	255	9.3	141	0	SATL	35.9	324
31	10	1971-11.0	121		11	59.6	157	26.5	3047.4	8.9	140	1.0	255	9.3	135	0	C/C	41.9	325
31	10	1971-11.0	3	2	11	48.1	157	36.2	3062.3	9.2	134	0.2	358	9.3	135	0	SATL	48.6	326
31	10	1971-11.0	434		11	38.3	157	46.5	3076.3	8.8	139	0.8	265	9.3	135	0	SATL	42.8	327
31	10	1971-11.0	836		11	11.5	158	10.4	3111.9	9.1	140	0.8	241	9.3	135	0	SATL	43.3	328
31	10	1971-11.0	950		11	2.9	158	17.8	3123.2	8.8	142	1.2	254	9.3	135	0	SATL	40.0	329
31	10	1971-11.0	1228		10	44.7	158	32.3	3146.3	8.8	138	0.7	270	9.3	135	0	SATL	43.6	330
31	10	1971-11.0	1412		10	33.3	158	42.6	3161.5	8.9	140	0.8	253	9.3	135	0	SATL	42.5	331

TABLE 1 - *Continued*

DA	MO	YR	TZ	TIME	LATITUDE	LONGITUDE	ACTUAL	DRIFT	DR	FIX	COMNT	EOTVOS	NO.						
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE	FIX	COMNT	EOTVOS	NO.
31	10	1971-11.0	15 0	10 27.8	158	47.3	3168.7	9.0	144	0.8	253	9.3	139	0	C/C	39.1	332		
31	10	1971-11.0	1615	10 18.8	158	54.0	3179.9	6.7	146	0.8	253	7.0	139	0	C/S	27.8	333		
31	10	1971-11.0	1618	10 18.5	158	54.2	3180.2	6.4	144	0.8	275	7.0	139	0	SATL	28.1	334		
31	10	1971-11.0	1625	10 17.9	158	54.6	3181.0	8.4	143	0.8	275	9.0	139	0	C/S	37.6	335		
31	10	1971-11.0	2018	9 51.8	159	14.7	3213.7	8.7	138	0.3	344	9.0	139	0	SATL	43.3	336		
31	10	1971-11.0	2130	9 44.0	159	21.8	3224.2	8.9	138	0.2	33	9.0	139	0	SATL	44.4	337		
31	10	1971-11.0	2320	9 31.9	159	33.0	3240.6	9.0	138	0.1	37	9.0	139	0	SATL	44.7	338		
1	11	1971-11.0	0 0	9 27.4	159	37.0	3246.6	9.0	138	0.1	37	9.0	139	0	U/W	44.7	339		
1	11	1971-11.0	142	9 16.0	159	47.3	3261.8	9.2	138	0.3	110	9.0	139	0	SATL	46.0	340		
1	11	1971-11.0	210	9 12.8	159	50.2	3266.1	8.8	140	0.3	269	9.0	139	0	SATL	42.3	341		
1	11	1971-11.0	230	9 10.5	159	52.1	3269.1	8.9	145	0.3	269	9.0	144	0	C/C	37.8	342		
1	11	1971-11.0	356	9 0.1	159	59.4	3281.7	9.1	146	0.3	223	9.0	144	0	SATL	37.7	343		
1	11	1971-11.0	534	8 47.8	160	7.8	3296.6	8.6	146	0.5	287	9.0	144	0	SATL	35.7	344		
1	11	1971-11.0	617	8 42.7	160	11.3	3302.7	8.6	141	0.5	287	9.0	139	0	C/C	40.1	345		
1	11	1971-11.0	742	8 33.3	160	19.0	3314.8	8.9	143	0.6	241	9.0	139	0	SATL	39.9	346		
1	11	1971-11.0	9 4	8 23.6	160	26.4	3327.0	9.0	142	0.5	229	9.0	139	0	SATL	41.4	347		
1	11	1971-11.0	1048	8 11.3	160	36.1	3342.6	9.1	140	0.2	207	9.0	139	0	SATL	43.5	348		
1	11	1971-11.0	1524	7 39.2	161	3.1	3384.4	9.0	140	0.2	220	9.0	139	0	SATL	43.4	349		
1	11	1971-11.0	1714	7 26.5	161	13.8	3400.9	9.0	142	0.5	236	9.0	139	0	SATL	41.2	350		
1	11	1971-11.0	19 0	7 14.0	161	23.7	3416.8	9.0	144	0.5	236	9.0	141	0	C/C	39.4	351		
1	11	1971-11.0	2042	7 1.7	161	32.7	3432.0	8.7	143	0.4	281	9.0	141	0	SATL	39.1	352		
1	11	1971-11.0	21 8	6 58.7	161	35.0	3435.8	8.8	145	0.7	247	9.0	141	0	SATL	37.9	353		
1	11	1971-11.0	2226	6 49.3	161	41.6	3447.2	8.9	143	0.3	241	9.0	141	0	SATL	40.3	354		
2	11	1971-11.0	0 0	6 38.1	161	50.1	3461.3	8.9	143	0.3	241	9.0	141	0	U/W	40.3	355		
2	11	1971-11.0	056	6 31.4	161	55.1	3469.6	9.1	140	0.3	82	9.0	141	0	SATL	44.0	356		
2	11	1971-11.0	120	6 28.6	161	57.5	3473.3	9.7	143	0.8	168	9.0	141	0	SATL	43.8	357		
2	11	1971-11.0	244	6 17.7	162	5.7	3486.9	9.2	144	0.5	207	9.0	141	0	SATL	40.6	358		
2	11	1971-11.0	318	6 13.5	162	8.8	3492.1	9.7	147	0.5	207	9.5	144	0	C/CS	39.8	359		
2	11	1971-11.0	444	6 1.8	162	16.5	3506.1	9.6	148	0.7	223	9.5	144	0	SATL	38.3	360		
2	11	1971-11.0	7 2	5 43.0	162	28.4	3528.3	9.6	145	0.7	223	9.5	141	0	C/C	41.3	361		
2	11	1971-11.0	832	5 31.2	162	36.7	3542.7	9.9	139	0.5	100	9.5	141	0	SATL	48.6	362		
2	11	1971-11.0	833	5 31.1	162	36.8	3542.8	9.9	132	0.5	100	9.5	134	0	C/C	55.2	363		
2	11	1971-11.0	948	5 22.7	162	46.0	3555.2	9.9	134	0.5	100	9.5	136	0	C/C	53.4	364		
2	11	1971-11.0	1033	5 17.5	162	51.3	3562.6	5.4	133	0.5	100	5.0	136	0	C/S	29.7	365		
2	11	1971-11.0	11 0	5 15.9	162	53.1	3565.1	0.5	100	0.5	100	0.0	500	0	STUP	3.9	366		
2	11	1971-11.0	2011	5 15.1	162	57.5	3569.5	5.3	145	0.5	100	5.0	149	0	U/W	23.0	367		
2	11	1971-11.0	2035	5 13.3	162	58.7	3571.6	9.3	147	0.5	100	9.0	149	0	C/S	38.1	368		
2	11	1971-11.0	2040	5 12.7	162	59.1	3572.4	5.3	145	0.5	100	5.0	149	0	C/S	23.0	369		
2	11	1971-11.0	2052	5 11.8	162	59.7	3573.5	9.3	147	0.5	100	9.0	149	0	C/S	38.1	370		
2	11	1971-11.0	2142	5 5.3	163	4.0	3581.3	9.2	147	0.3	98	9.0	149	0	SATL	37.7	371		
2	11	1971-11.0	2328	4 51.6	163	12.8	3597.5	9.4	147	0.5	117	9.0	149	0	SATL	38.5	372		
3	11	1971-11.0	0 0	4 47.4	163	15.5	3602.6	9.4	147	0.5	117	9.0	149	0	U/W	38.5	373		
3	11	1971-11.0	0 8	4 46.3	163	16.2	3603.8	8.7	147	0.4	22	9.0	149	0	SATL	35.8	374		
3	11	1971-11.0	6 0	4 3.4	163	44.5	3655.1	8.7	150	0.4	22	9.0	152	0	C/C	32.8	375		

DA	MO	YR	TZ	TIME	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EOTVOS	NO.
					DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSE				
6	11	1971-12.0	14 0	-6 43.9	169	50.4	4399.6	10.2	149	0.2	229	10.2	148	0	SATL	39.4	420		
6	11	1971-12.0	21 8	-7 46.6	170	28.1	4472.6	9.9	147	0.3	350	10.2	148	0	SATL	40.3	421		
6	11	1971-12.0	2258	-8 1.9	170	38.0	4490.8	10.1	149	0.1	285	10.2	148	0	SATL	38.8	422		
6	11	1971-12.0	2344	-8 8.5	170	42.1	4498.5	10.1	151	0.1	285	10.2	150	0	C/C	36.5	423		
7	11	1971-12.0	0 0	-8 10.9	170	43.4	4501.2	9.9	151	0.1	285	10.0	150	0	C/S	35.8	424		
7	11	1971-12.0	320	-8 39.6	170	59.8	4534.2	9.4	152	0.7	306	10.0	150	0	SATL	32.9	425		
7	11	1971-12.0	336	-8 41.8	171	1.0	4536.7	10.2	152	0.3	211	10.0	150	0	SATL	35.5	426		
7	11	1971-12.0	518	-8 57.0	171	9.3	4554.0	9.9	153	0.5	250	10.0	150	0	SATL	33.5	427		
7	11	1971-12.0	836	-9 26.2	171	24.3	4586.7	10.1	154	0.7	237	10.0	150	0	SATL	32.8	428		
7	11	1971-12.0	1034	-9 44.0	171	33.1	4606.5	9.9	155	0.9	246	10.0	150	0	SATL	31.2	429		
7	11	1971-12.0	13 6	-10 6.8	171	43.9	4631.7	10.3	154	0.7	221	10.0	150	0	SATL	33.4	430		
7	11	1971-12.0	1456	-10 23.7	171	52.3	4650.5	10.0	155	0.9	240	10.0	150	0	SATL	31.4	431		
7	11	1971-12.0	1646	-10 40.4	172	0.2	4668.9	10.4	156	1.1	220	10.0	150	0	SATL	31.4	432		
7	11	1971-12.0	1720	-10 45.8	172	2.7	4674.8	10.3	147	1.1	220	10.0	141	0	C/C	41.4	433		
7	11	1971-12.0	20 6	-11 9.7	172	18.3	4703.2	10.3	146	1.0	215	10.0	141	0	SATL	42.6	434		
7	11	1971-12.0	2030	-11 13.1	172	20.6	4707.4	10.6	148	1.0	215	10.3	143	0	C/CS	41.7	435		
7	11	1971-12.0	2035	-11 13.9	172	21.1	4708.2	10.6	144	1.0	215	10.3	139	0	C/C	45.9	436		
7	11	1971-12.0	2148	-11 24.3	172	28.8	4721.1	10.5	137	0.4	73	10.3	139	0	SATL	52.8	437		
7	11	1971-12.0	22 6	-11 26.6	172	31.0	4724.2	10.5	142	0.5	207	10.3	139	0	SATL	47.7	438		
8	11	1971-12.0	0 0	-11 42.2	172	43.7	4744.2	10.8	141	0.5	207	10.6	139	0	C/S	50.1	439		
8	11	1971-12.0	044	-11 48.4	172	48.7	4752.1	10.5	143	0.7	238	10.6	139	0	SATL	46.6	440		
8	11	1971-12.0	115	-11 52.7	172	52.1	4757.6	10.6	148	0.7	238	10.6	144	0	C/C	41.3	441		
8	11	1971-12.0	222	-12 2.7	172	58.5	4769.3	10.6	144	0.1	359	10.6	144	0	SATL	45.7	442		
8	11	1971-12.0	414	-12 18.6	173	10.4	4789.0	10.6	147	0.5	240	10.6	144	0	SATL	42.3	443		
8	11	1971-12.0	6 0	-12 34.2	173	20.8	4807.7	10.6	149	0.5	240	10.6	146	0	C/C	40.0	444		
8	11	1971-12.0	820	-12 55.4	173	33.9	4832.4	10.4	133	0.5	240	10.6	130	0	C/C	56.0	445		
8	11	1971-12.0	830	-12 56.5	173	35.2	4834.1	10.6	149	0.5	240	10.6	146	0	C/C	40.0	446		
8	11	1971-12.0	946	-13 8.0	173	42.3	4847.5	10.6	147	0.1	248	10.6	146	0	SATL	42.2	447		
8	11	1971-12.0	1216	-13 30.1	173	57.2	4873.9	10.6	146	0.1	251	10.6	146	0	SATL	43.3	448		
8	11	1971-12.0	13 0	-13 36.6	174	1.6	4881.7	10.0	150	0.1	251	10.0	150	0	C/CS	36.6	449		
8	11	1971-12.0	14 6	-13 46.1	174	7.2	4892.6	9.6	153	0.7	279	10.0	150	0	SATL	31.8	450		
8	11	1971-12.0	1554	-14 1.5	174	15.2	4909.9	8.9	151	1.1	326	10.0	150	0	SATL	31.5	451		
8	11	1971-12.0	19 0	-14 25.5	174	29.2	4937.5	10.4	153	0.7	209	10.0	150	0	*	34.4	452		
8	11	1971-12.0	2112	-14 45.9	174	39.8	4960.3	9.7	152	0.5	284	10.0	150	0	SATL	33.2	453		
8	11	1971-12.0	23 0	-15 1.3	174	48.3	4977.7	10.1	153	0.6	234	10.0	150	0	SATL	33.3	454		
8	11	1971-12.0	2358	-15 10.0	174	52.8	4987.5	9.7	151	0.4	298	10.0	150	0	SATL	34.2	455		
9	11	1971-12.0	0 0	-15 10.3	174	53.0	4987.8	9.7	151	0.4	298	10.0	150	0	U/W	34.2	456		
9	11	1971-12.0	132	-15 23.3	175	0.4	5002.7	10.0	150	0.1	202	10.0	150	0	SATL	36.4	457		
9	11	1971-12.0	215	-15 29.6	175	4.1	5009.9	10.0	151	0.1	202	10.0	151	0	C/C	35.3	458		
9	11	1971-12.0	316	-15 38.5	175	9.2	5020.1	9.6	153	0.5	296	10.0	151	0	SATL	31.7	459		
9	11	1971-12.0	4 0	-15 44.8	175	12.6	5027.1	9.6	144	0.5	296	10.0	143	0	C/C	40.9	460		
9	11	1971-12.0	532	-15 56.7	175	21.5	5041.8	9.6	143	0.4	328	10.0	143	0	SATL	41.8	461		
9	11	1971-12.0	1044	-16 36.4	175	52.9	5091.7	9.7	143	0.3	337	10.0	143	0	SATL	42.1	462		
9	11	1971-12.0	1312	-16 55.4	176	8.1	5115.6	9.8	142	0.3	7	10.0	143	0	SATL	43.5	463		

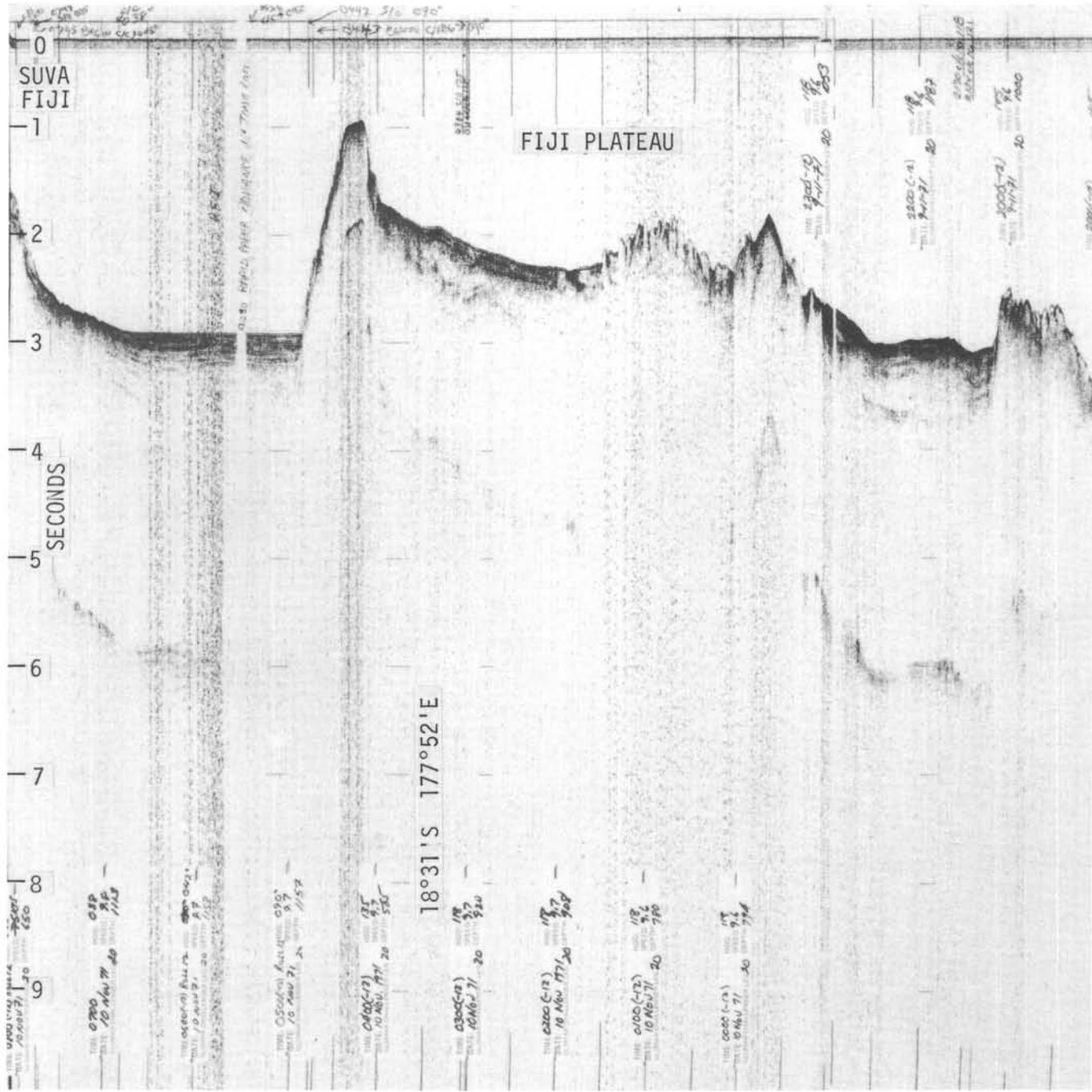
TABLE 1 - *Continued*

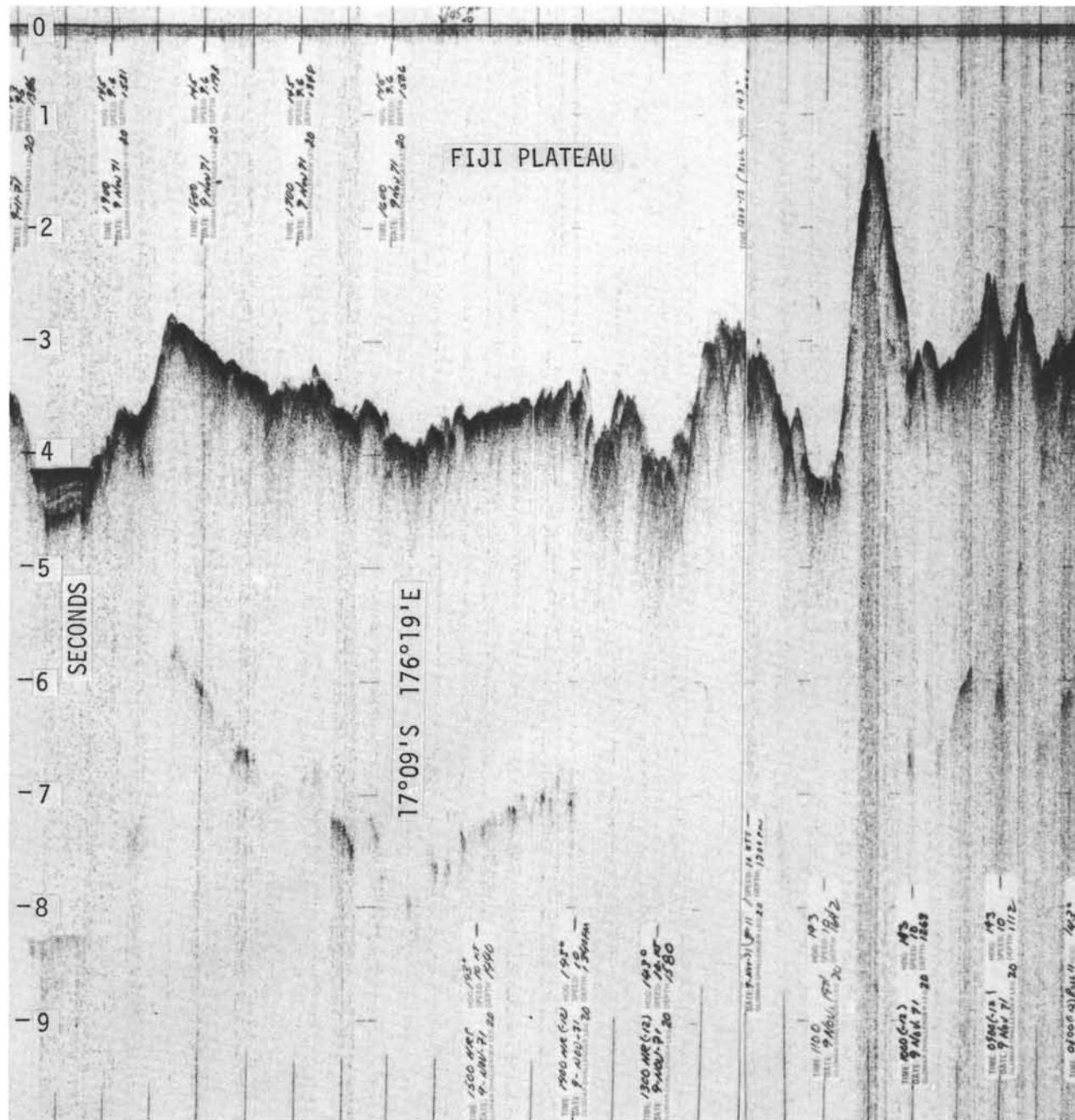
DA	MO	YR	TZ	LATITUDE		LONGITUDE		ACTUAL			DRIFT		DR		FIX	COMNT	EUTVOS	NO.
				DEG	MIN	DEG	MIN	DIST	SPEED	CSE	SPEED	HED	SPEED	CSC				
9	11	1971-12.0	15 0	-17	9.3	176	19.5	5133.3	9.9	144	0.2	287	10.0	143	0	SATL	41.8	464
9	11	1971-12.0	1530	-17	13.3	176	22.6	5138.2	9.5	146	0.2	287	9.6	145	0	C/CS	38.2	465
9	11	1971-12.0	17 0	-17	25.0	176	31.0	5152.4	9.6	146	0.1	222	9.6	145	0	SATL	38.7	466
9	11	1971-12.0	2124	-17	59.9	176	56.1	5194.7	9.6	122	0.1	222	9.6	121	0	C/C	58.2	467
9	11	1971-12.0	2130	-18	0.4	176	57.0	5195.7	9.6	119	0.1	222	9.6	118	0	C/C	60.0	468
9	11	1971-12.0	2144	-18	1.5	176	59.0	5197.9	9.5	118	0.1	280	9.6	118	0	SATL	60.0	469
9	11	1971-12.0	2216	-18	3.9	177	3.7	5203.0	9.9	118	0.3	123	9.6	118	0	SATL	62.4	470
10	11	1971-12.0	0 0	-18	12.0	177	19.6	5220.1	9.9	118	0.3	123	9.6	118	0	U/W	62.4	471
10	11	1971-12.0	056	-18	16.3	177	28.1	5229.3	9.4	121	0.5	234	9.6	118	0	SATL	57.7	472
10	11	1971-12.0	230	-18	23.8	177	41.5	5244.1	9.5	118	0.1	265	9.6	118	0	SATL	59.9	473
10	11	1971-12.0	254	-18	25.6	177	45.0	5247.8	10.1	120	0.6	153	9.6	118	0	SATL	62.5	474
10	11	1971-12.0	3 3	-18	26.3	177	46.4	5249.3	10.2	136	0.6	153	9.6	135	0	C/C	50.5	475
10	11	1971-12.0	345	-18	31.5	177	51.6	5256.5	8.3	135	1.3	312	9.6	135	0	RAD	42.0	476
10	11	1971-12.0	445	-18	37.4	177	57.7	5264.8	8.7	84	1.3	312	9.6	90	0	C/C	61.7	477
10	11	1971-12.0	454	-18	37.3	177	59.1	5266.1	10.5	93	1.1	124	9.6	90	0	RAD	75.1	478
10	11	1971-12.0	528	-18	37.7	178	5.4	5272.0	9.8	48	1.1	124	9.6	42	0	C/C	52.0	479
10	11	1971-12.0	545	-18	35.8	178	7.6	5274.8	10.5	42	0.9	42	9.6	42	0	RAD	50.1	480
10	11	1971-12.0	615	-18	31.9	178	11.3	5280.1	9.6	48	1.1	133	9.6	42	0	RAD	51.1	481
10	11	1971-12.0	630	-18	30.3	178	13.2	5282.5	10.7	45	1.3	68	9.6	42	0		54.2	482
10	11	1971-12.0	645	-18	28.4	178	15.2	5285.2	10.3	39	0.9	2	9.6	42	0		46.5	483
10	11	1971-12.0	649	-18	27.9	178	15.7	5285.9	10.4	35	0.9	2	9.6	38	0	C/C	42.5	484
10	11	1971-12.0	7 0	-18	26.3	178	16.8	5287.8	10.3	39	0.7	51	9.6	38	0		46.2	485
10	11	1971-12.0	715	-18	24.3	178	18.5	5290.3	10.2	41	0.8	80	9.6	38	0		47.9	486
10	11	1971-12.0	744	-18	20.6	178	21.9	5295.3	10.2	41	0.0	0	9.6	38	0		47.9	487
			0.0	487	5295.2	GC20	1968											
			N03 NOT CONTROL		STMNT													

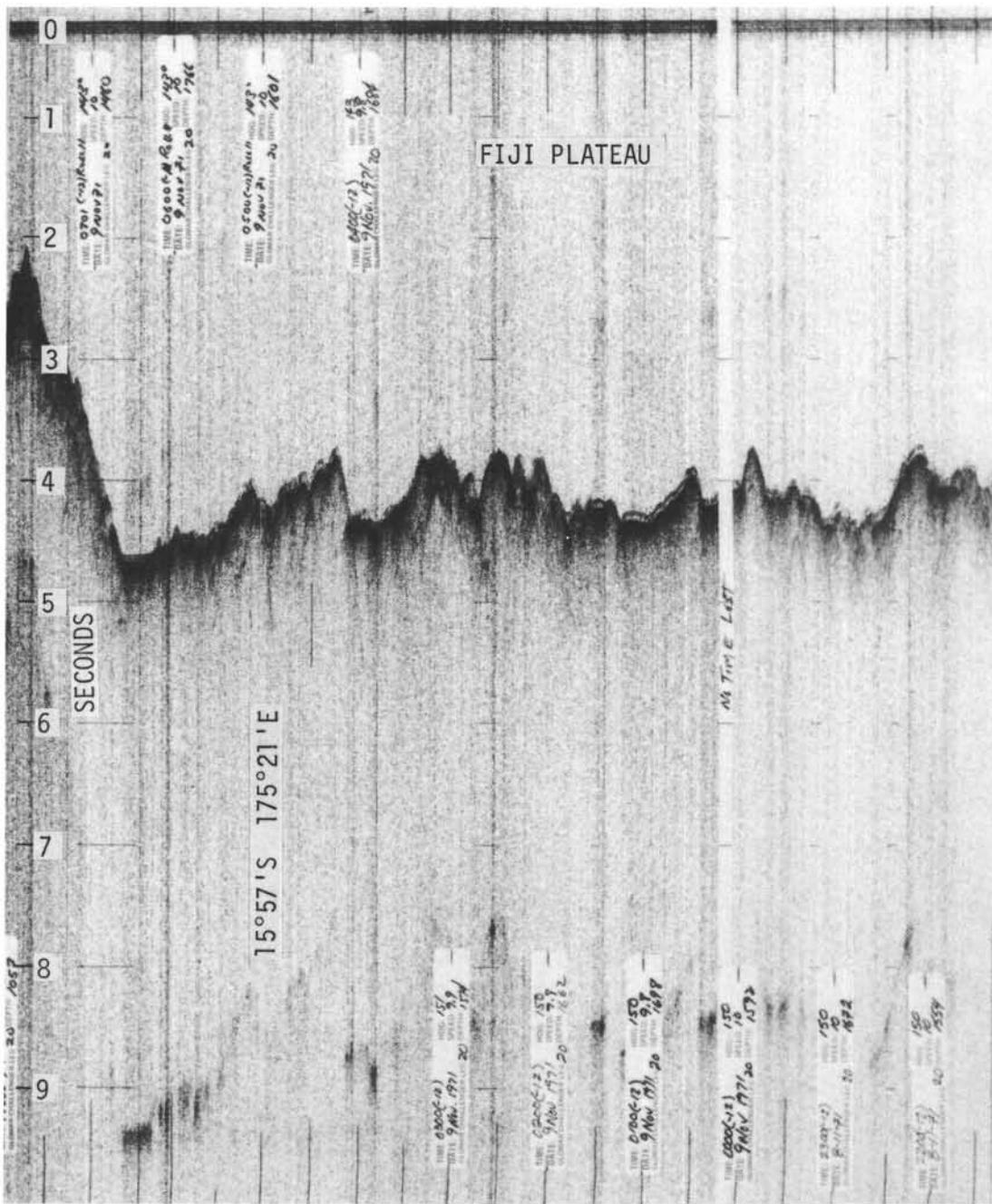
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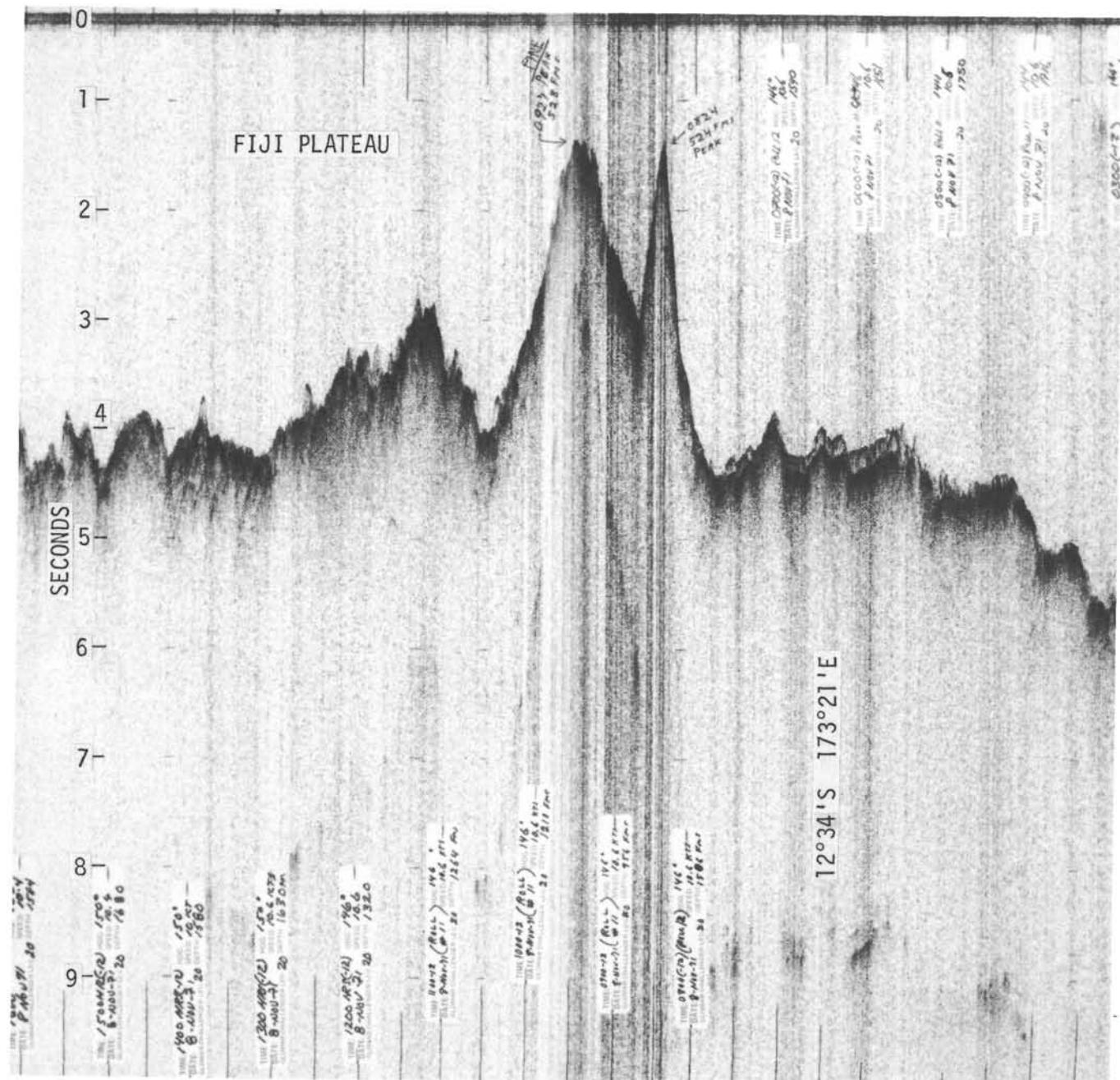
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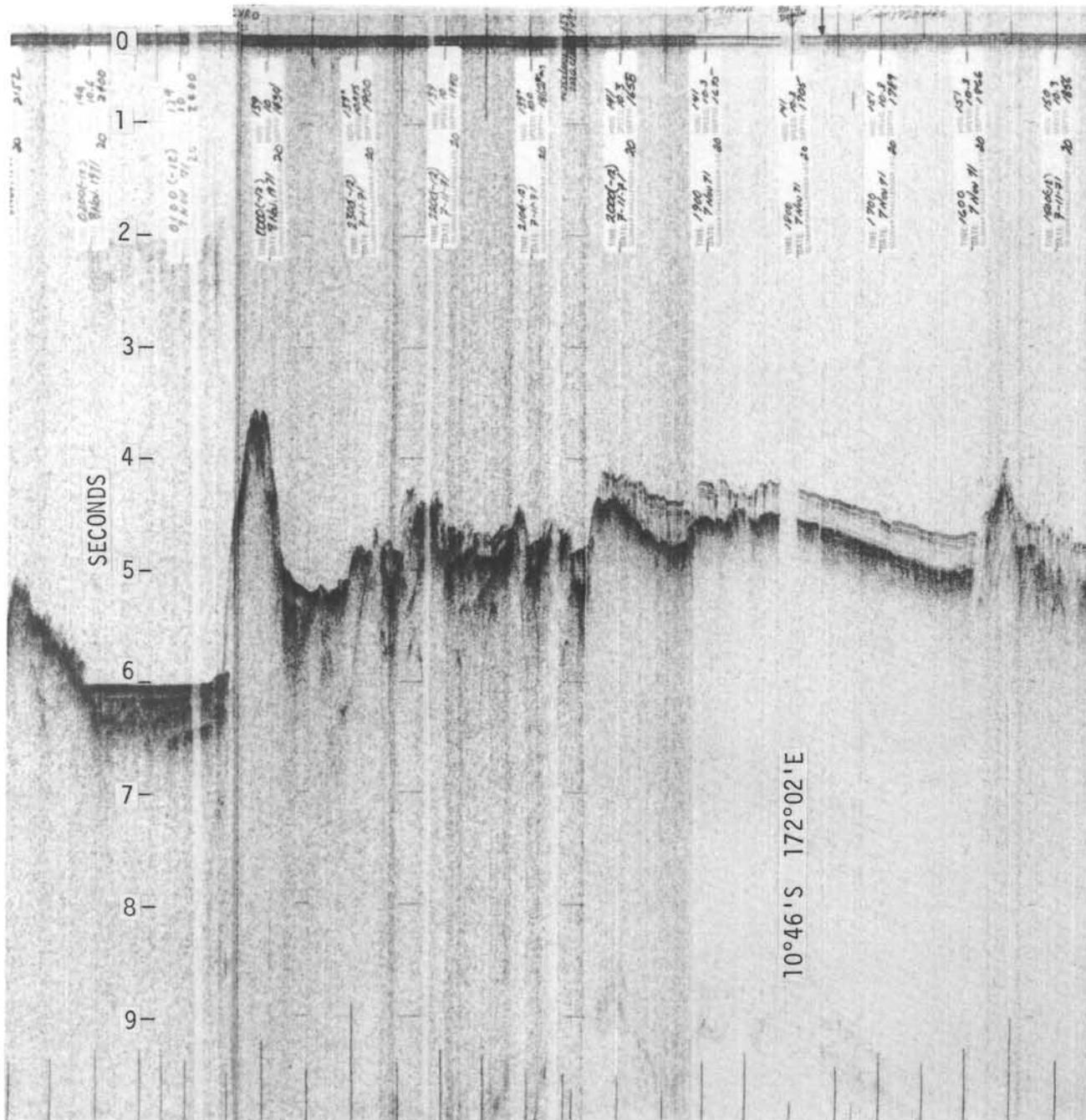




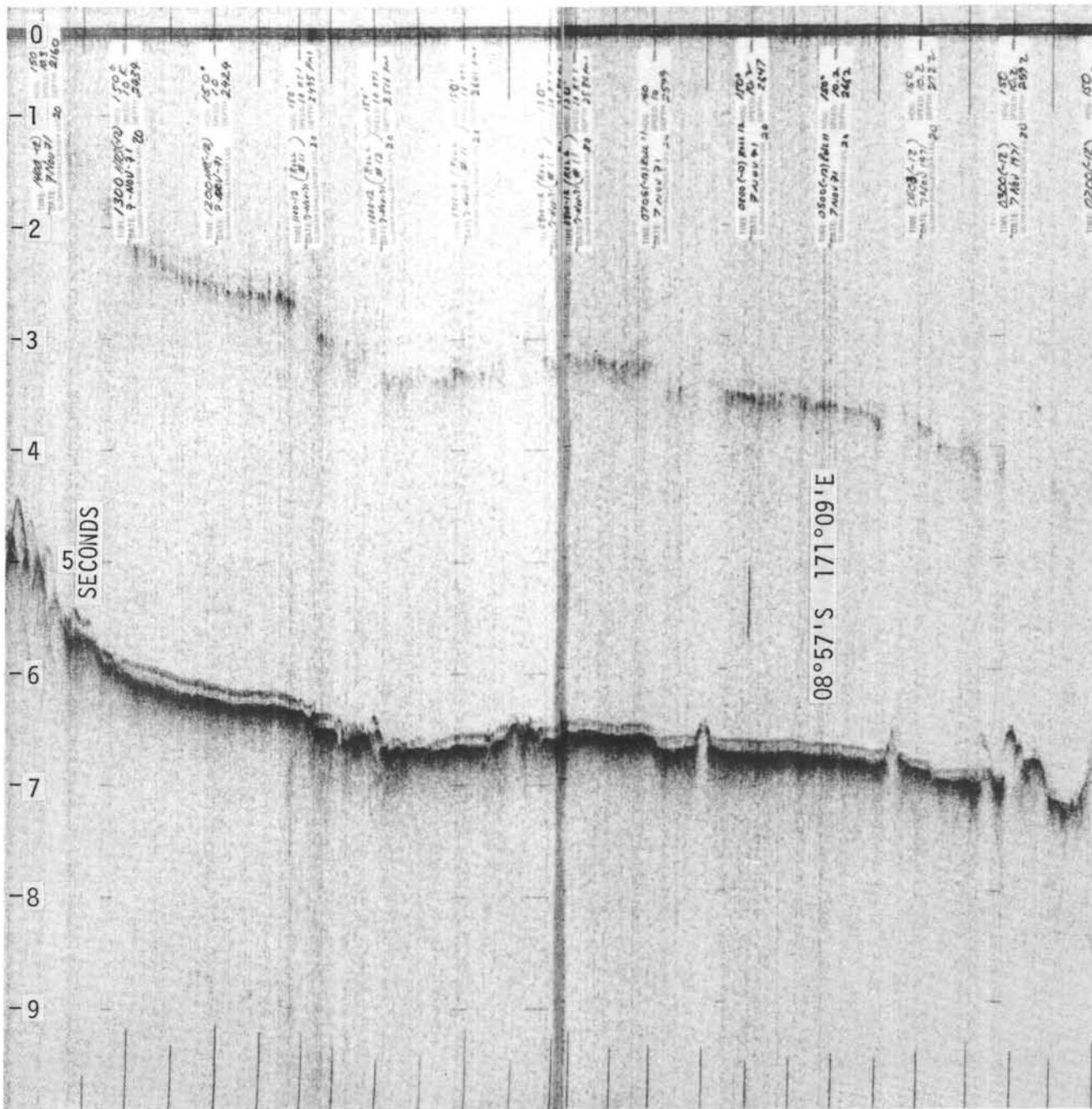


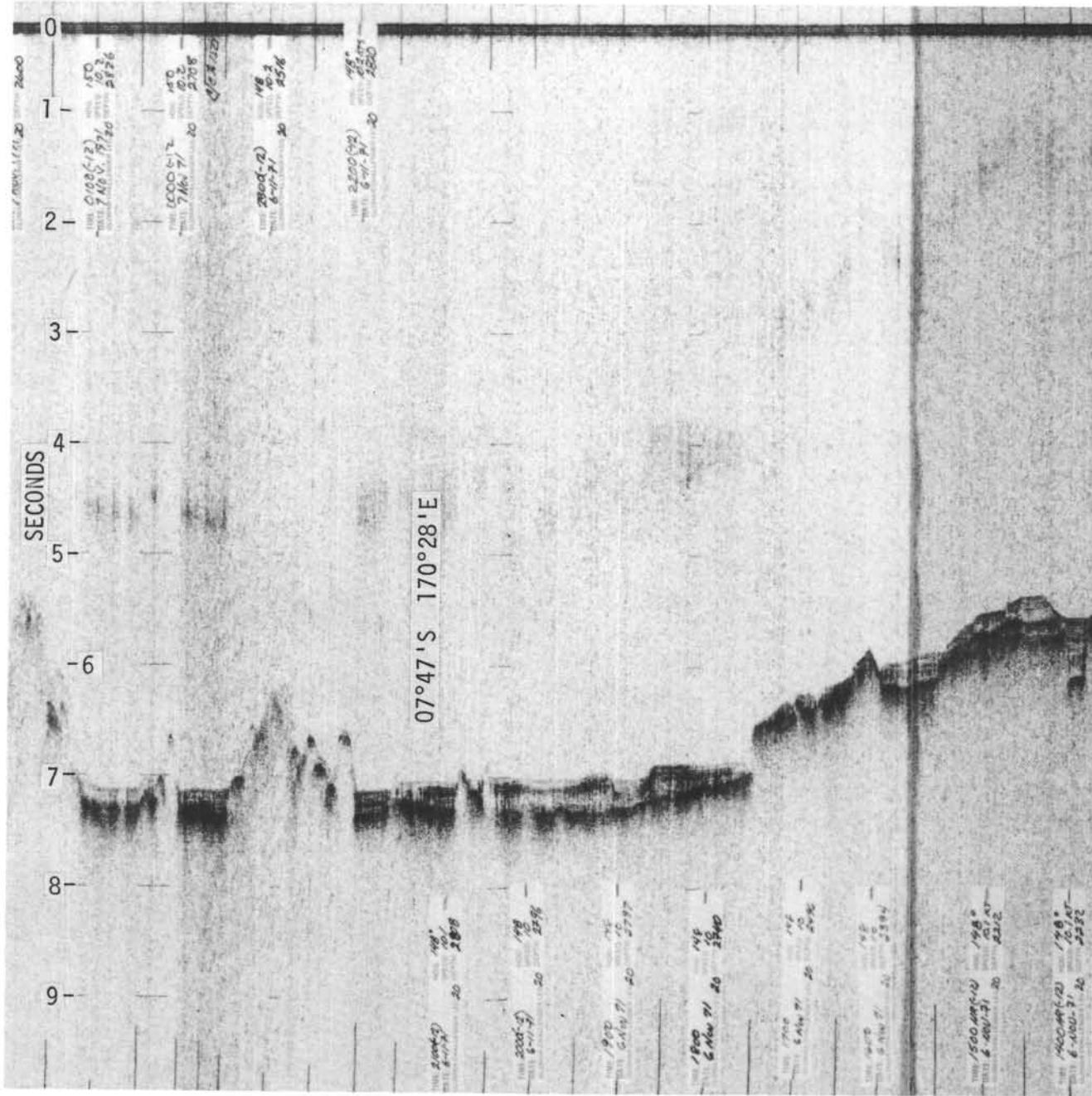
PART RECORD MISSING

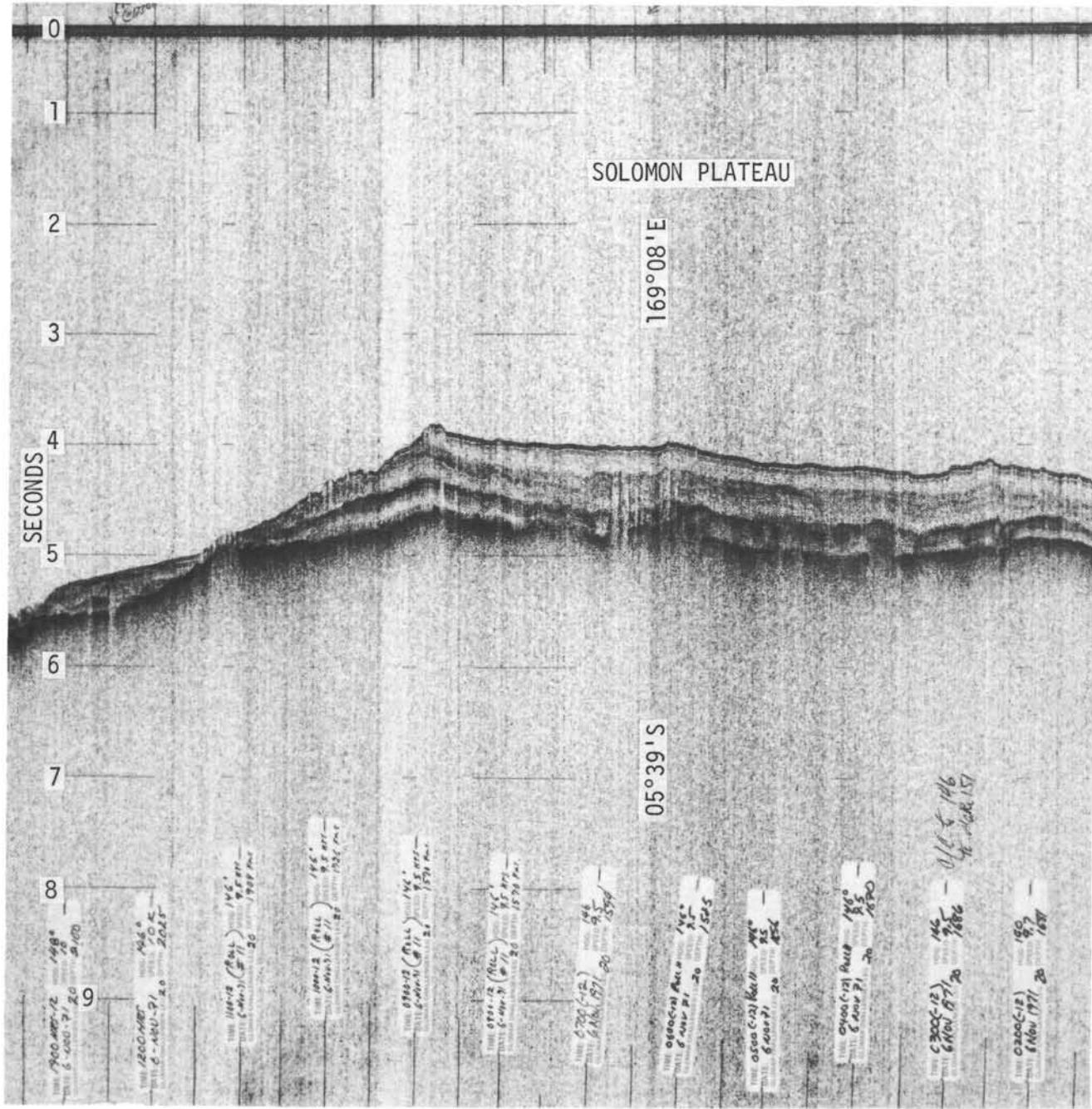


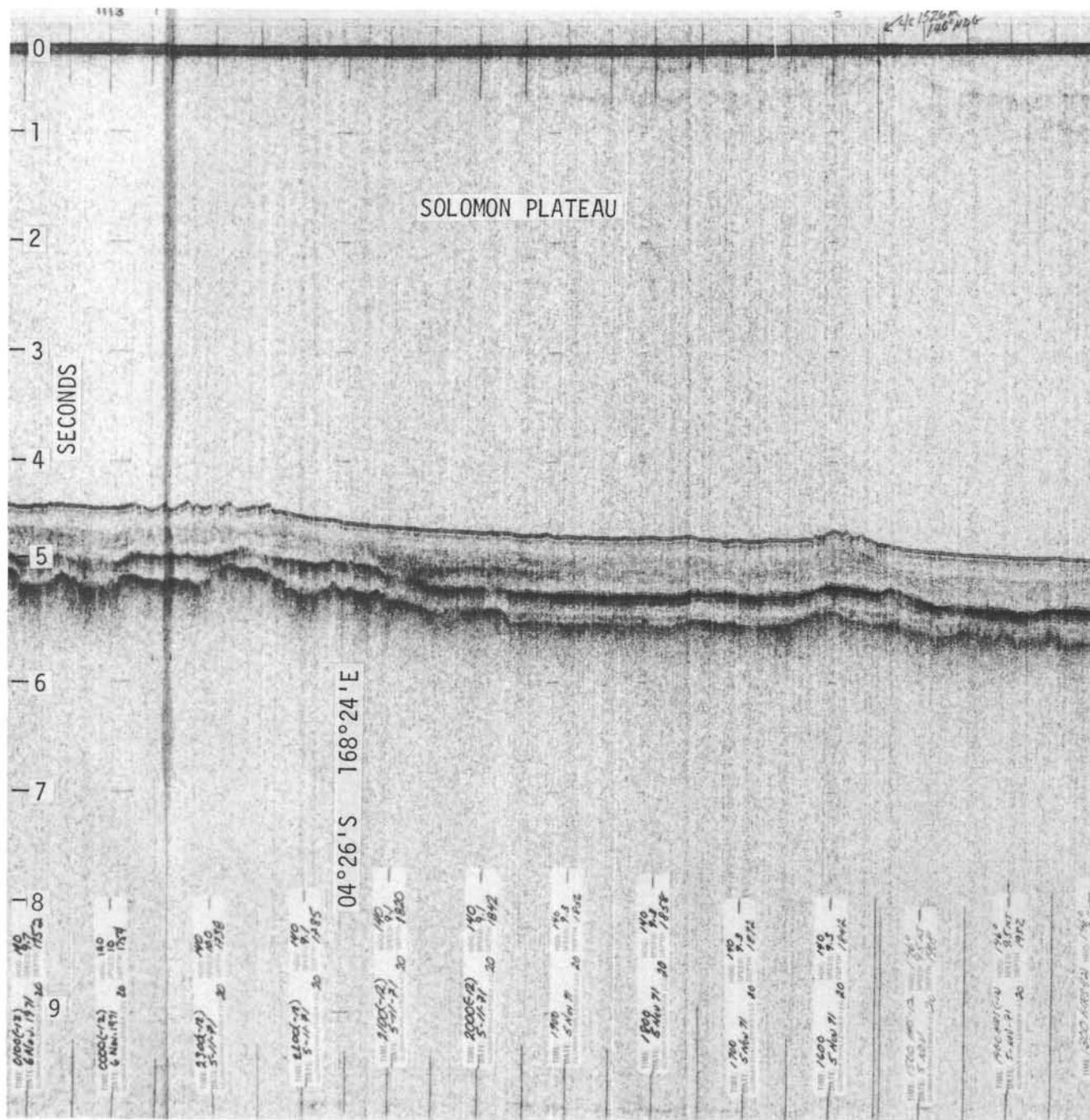


10°46'S 172°02'E

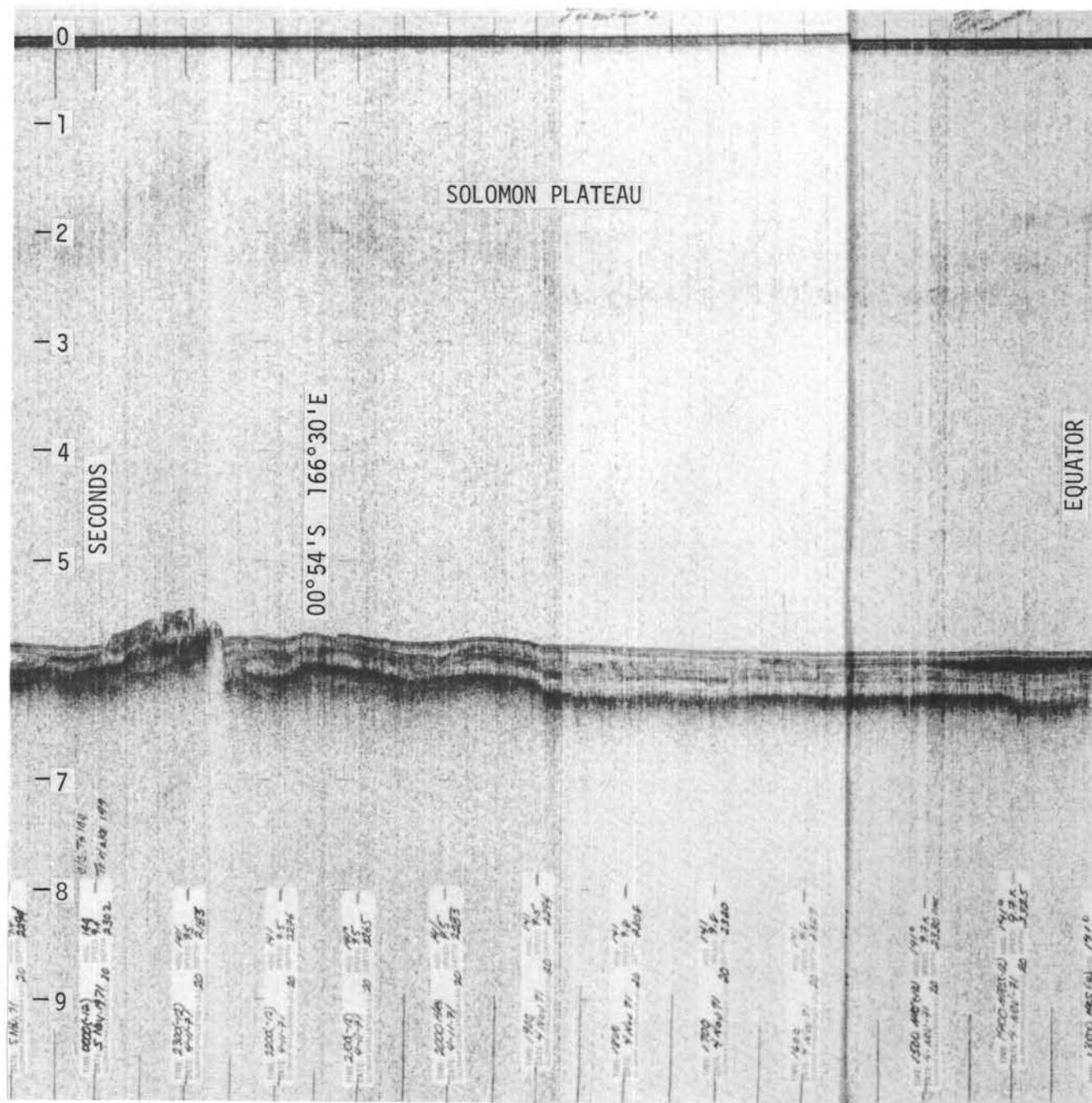




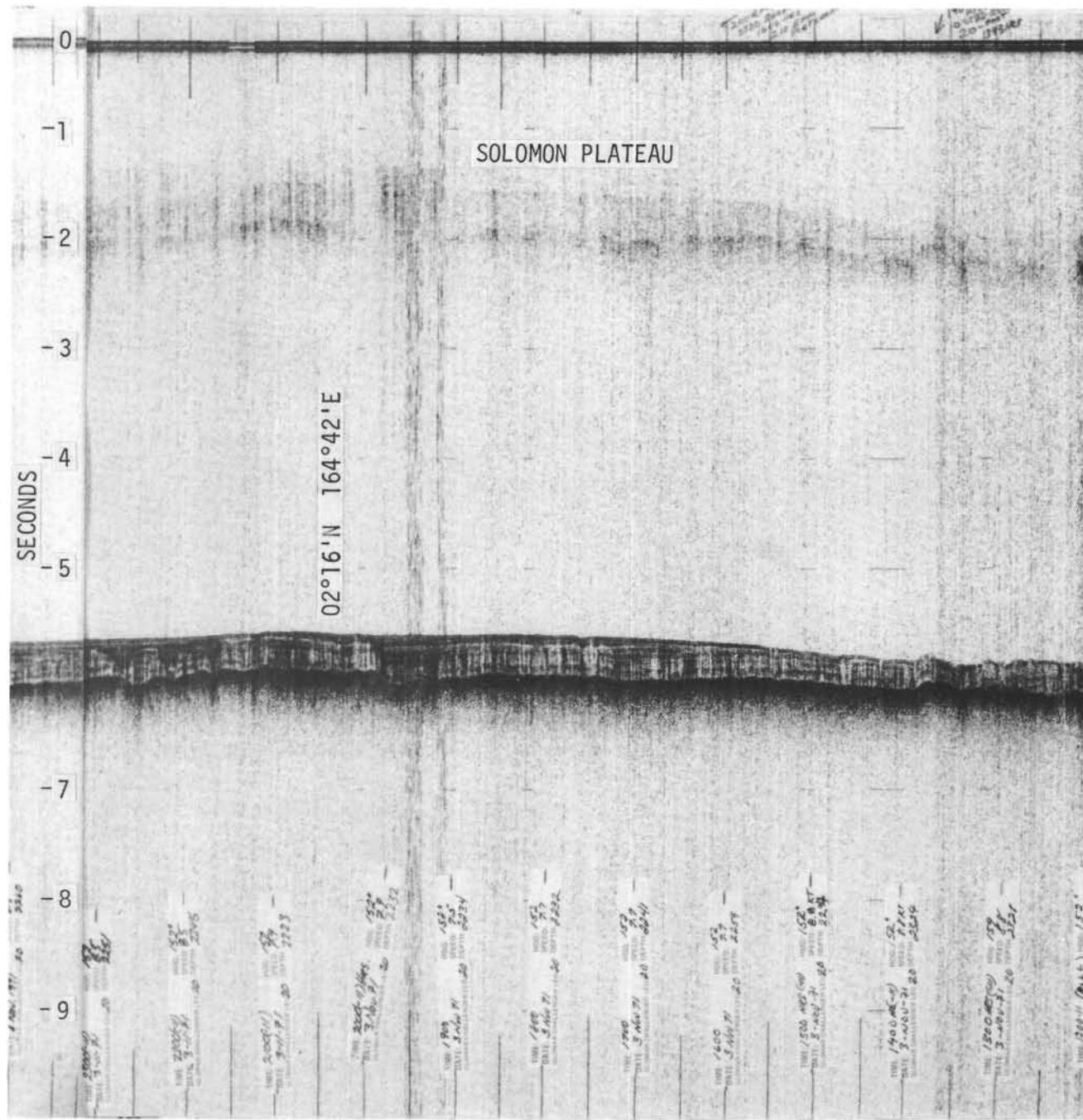


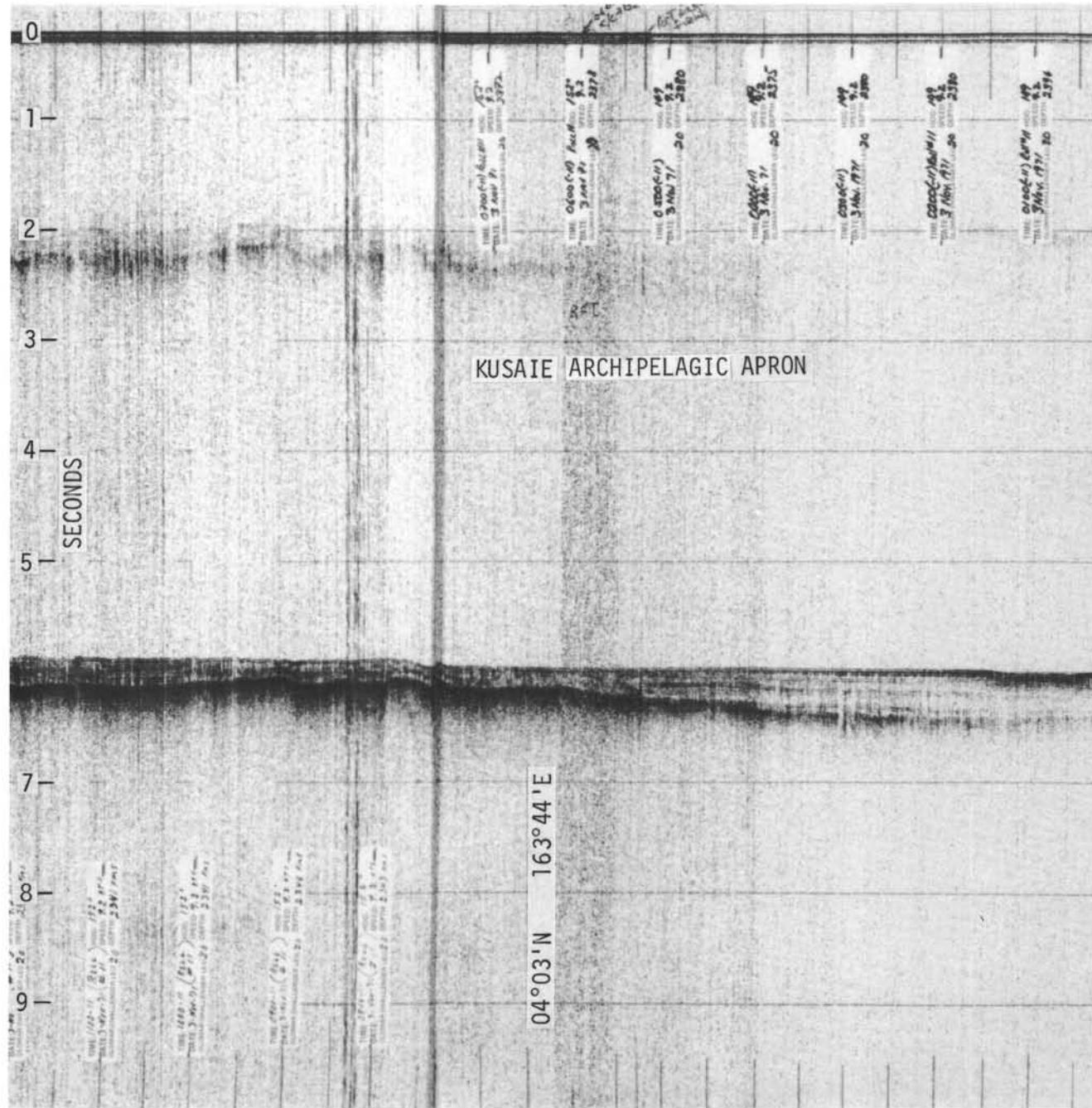


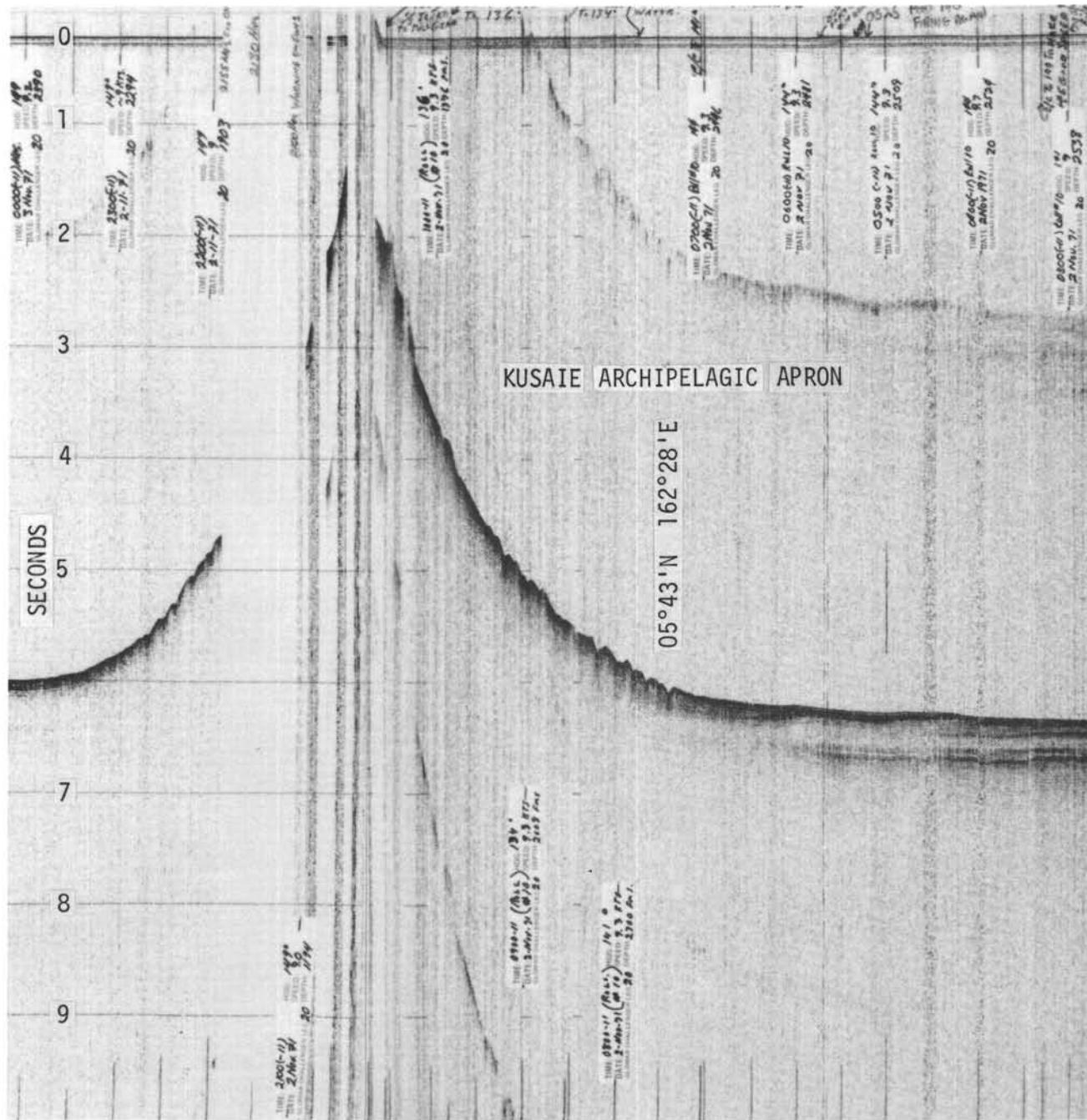


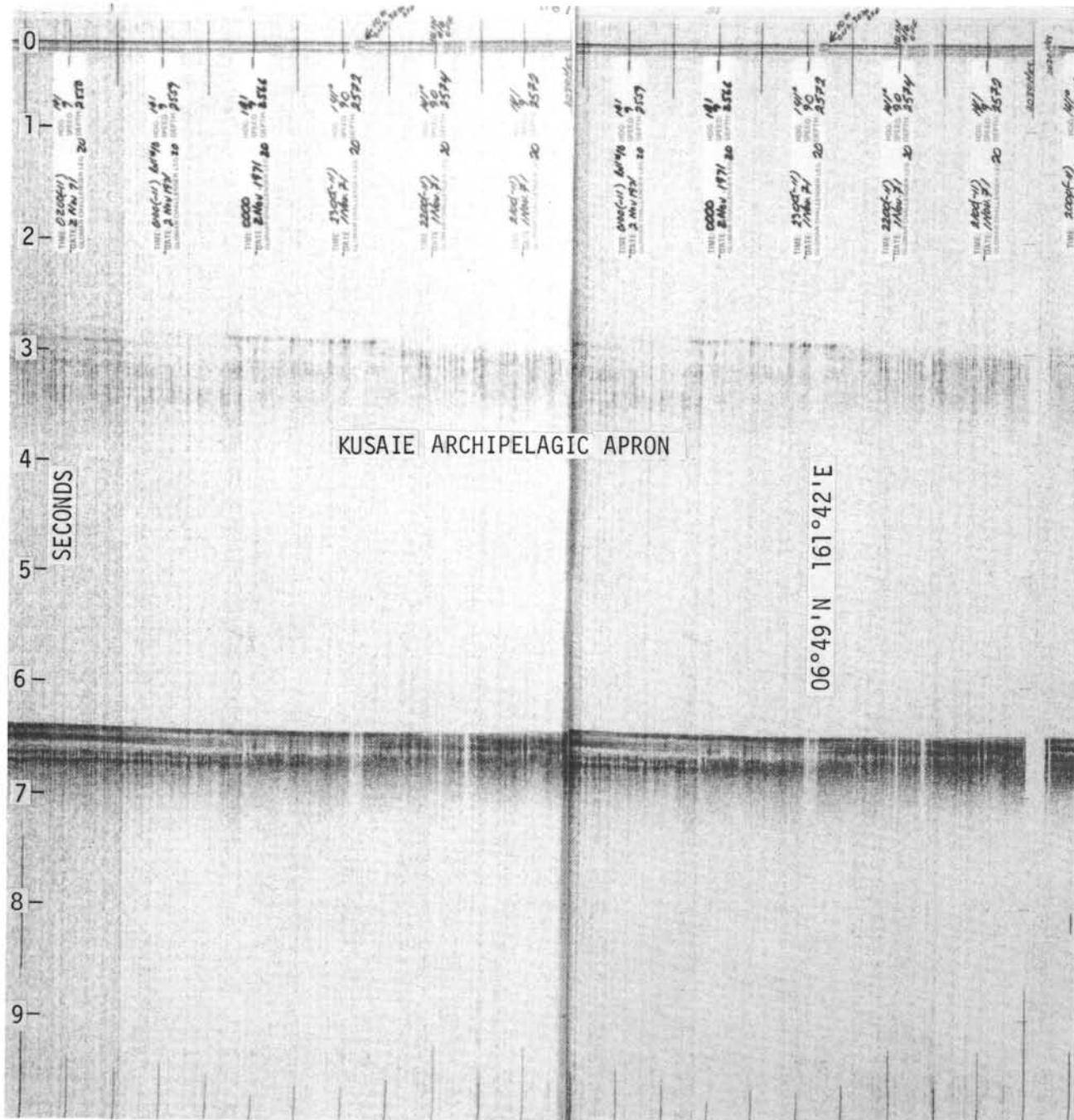


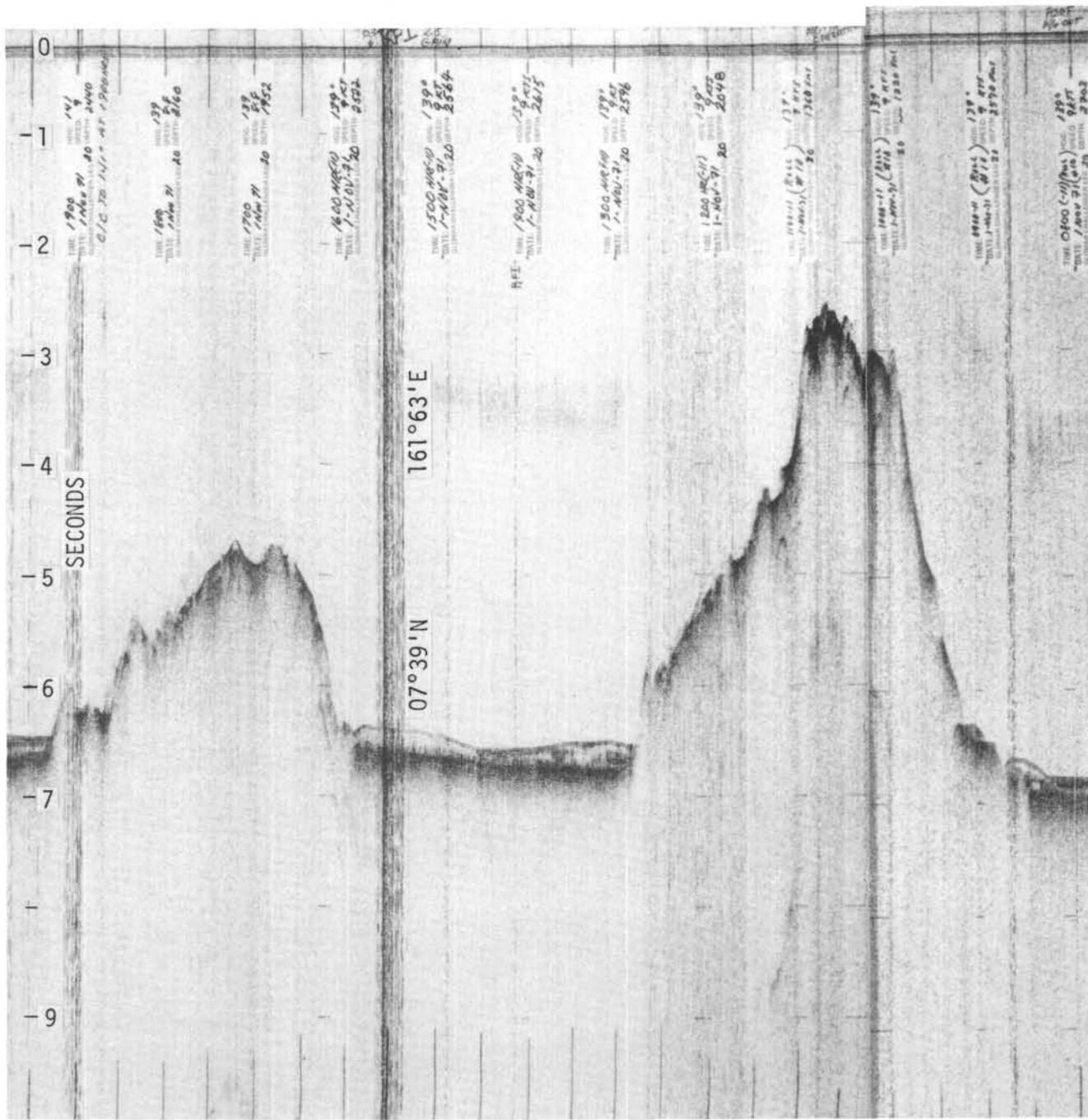


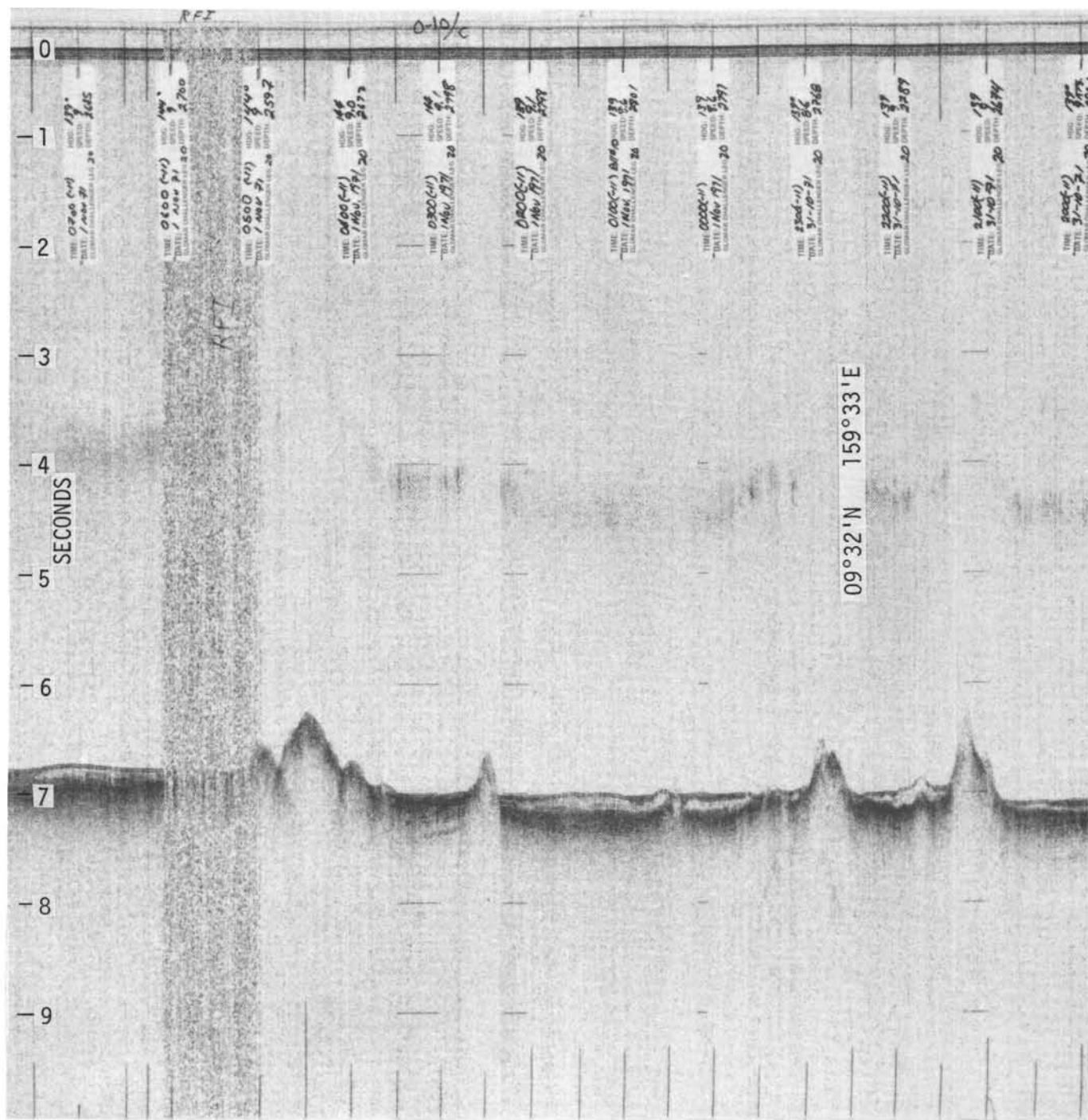


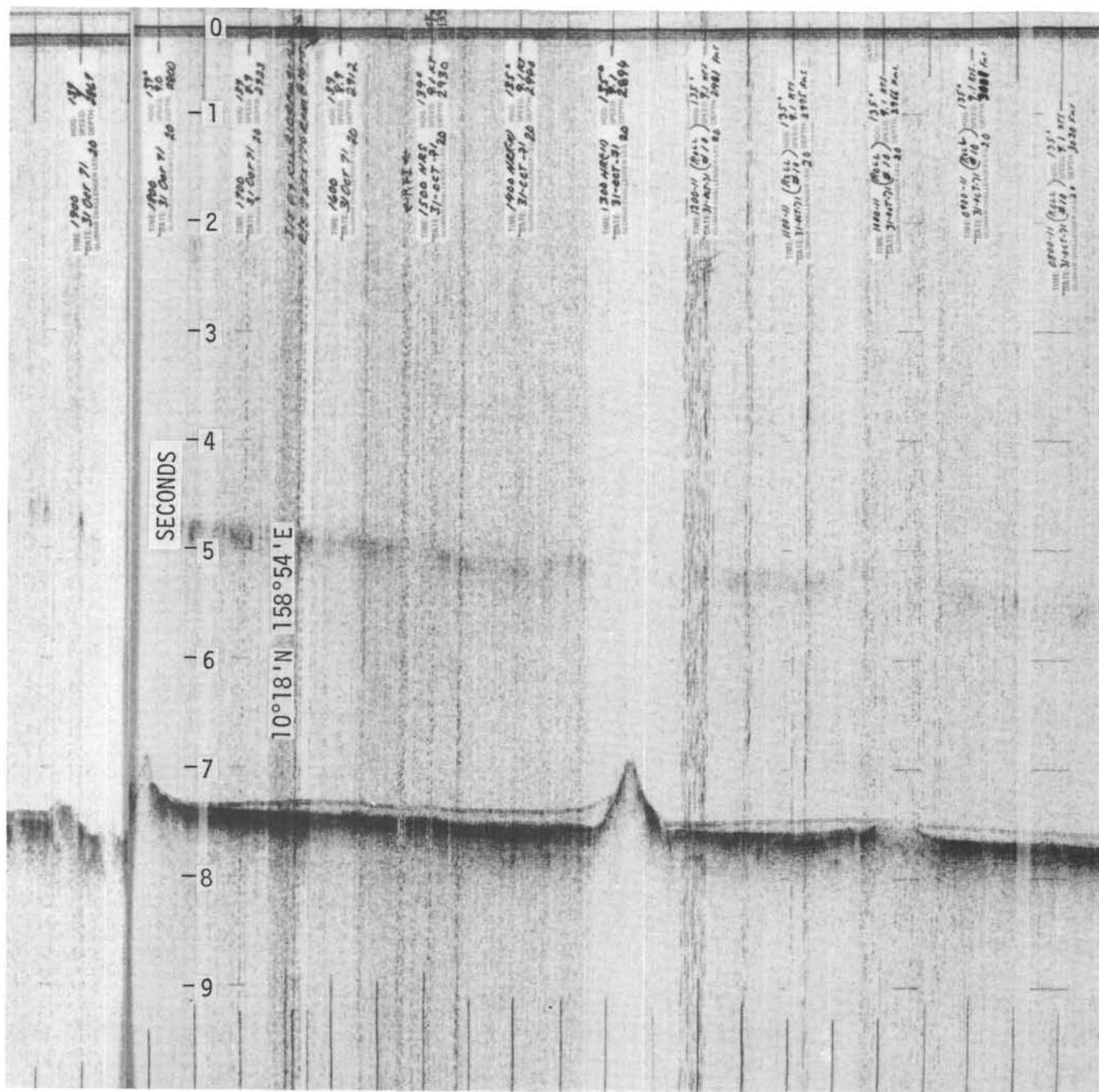


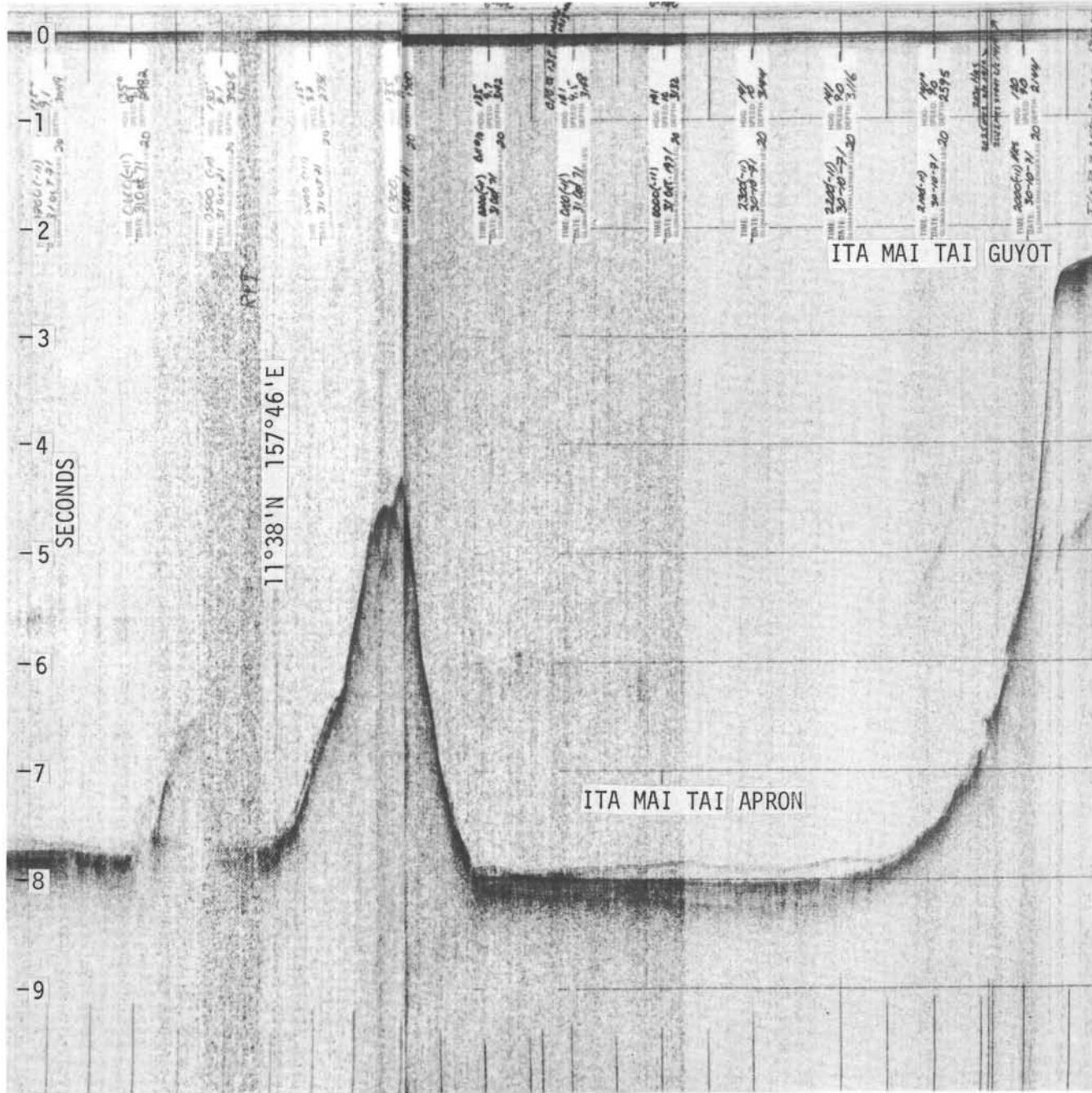


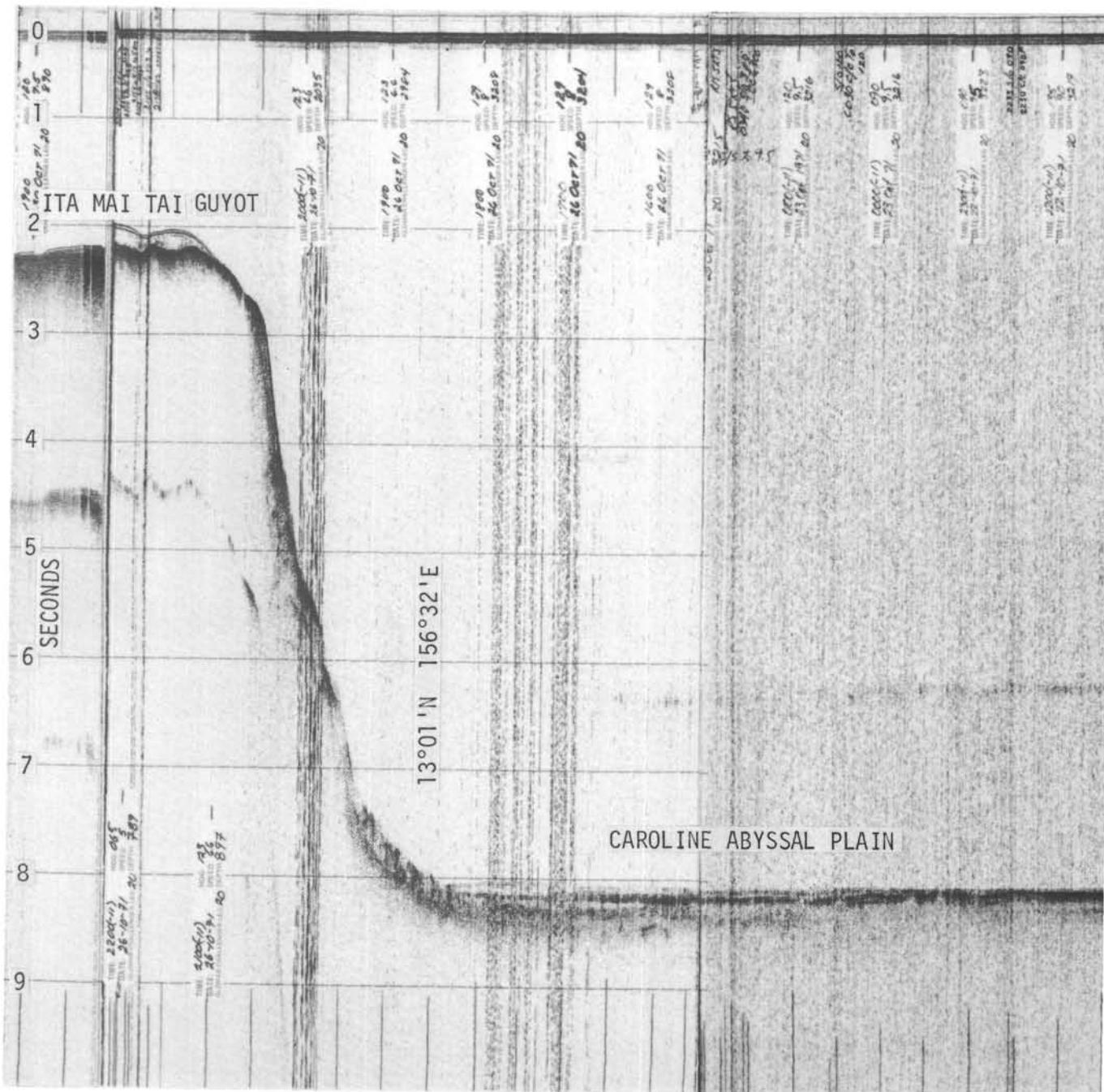


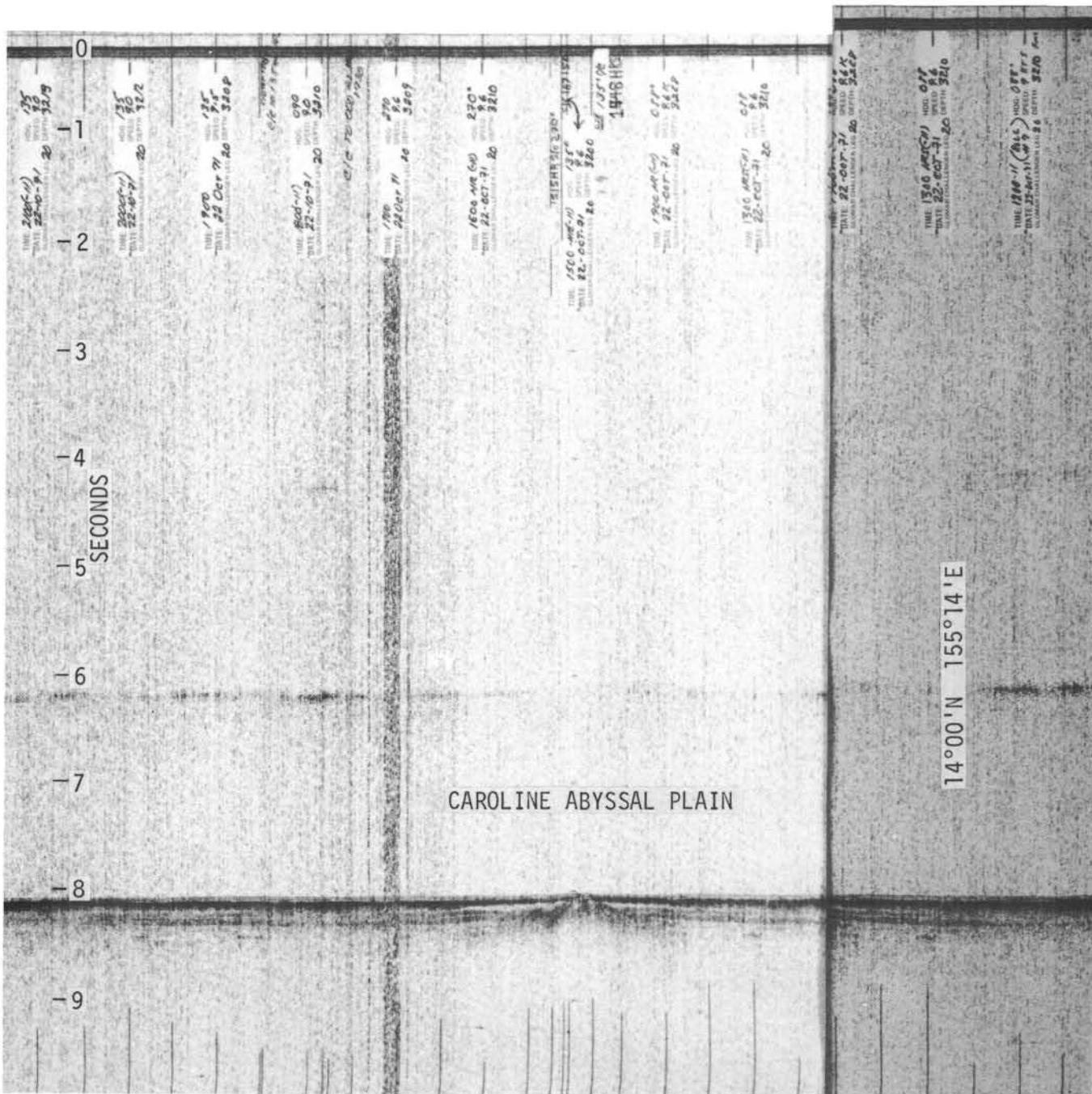


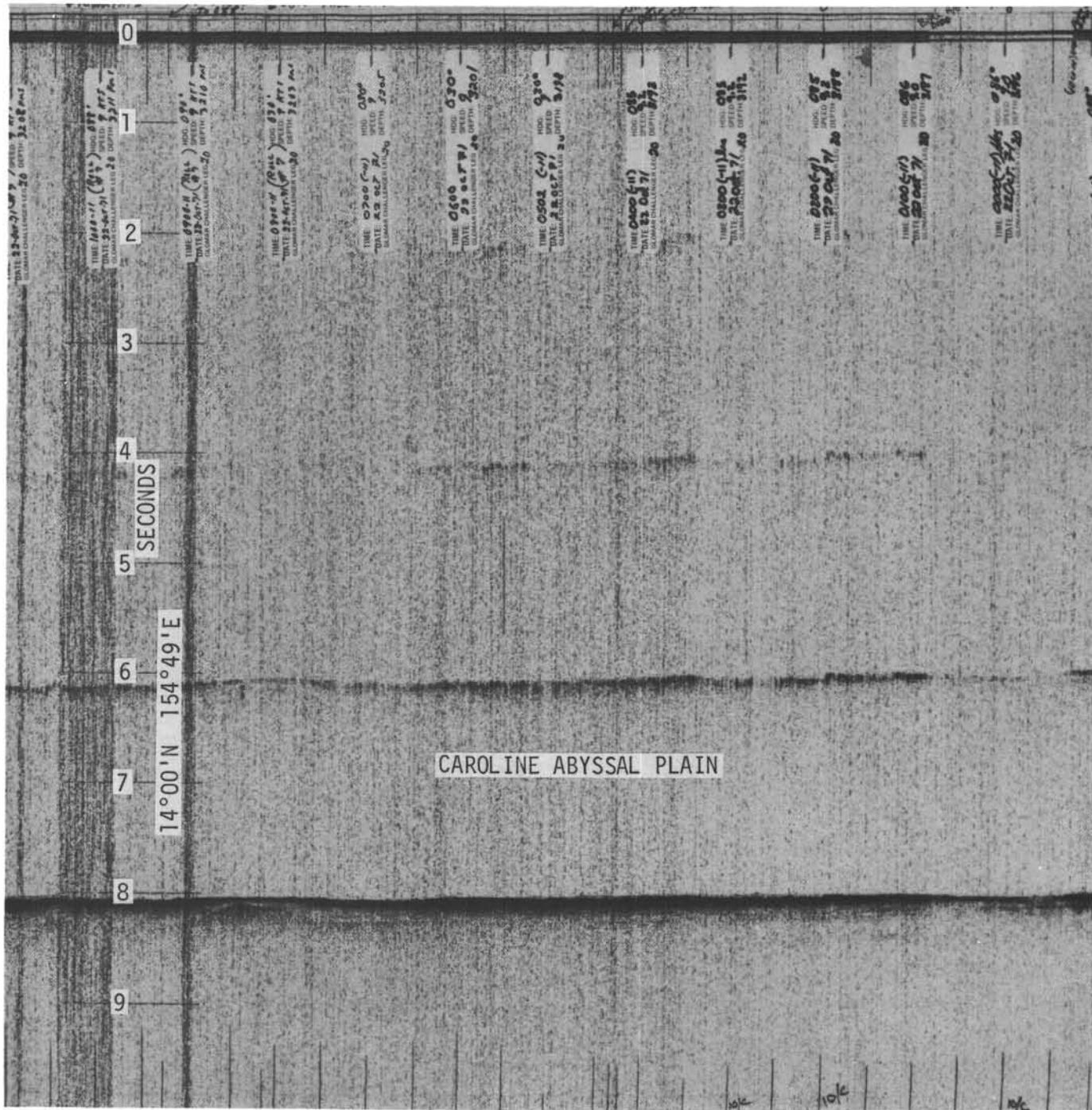


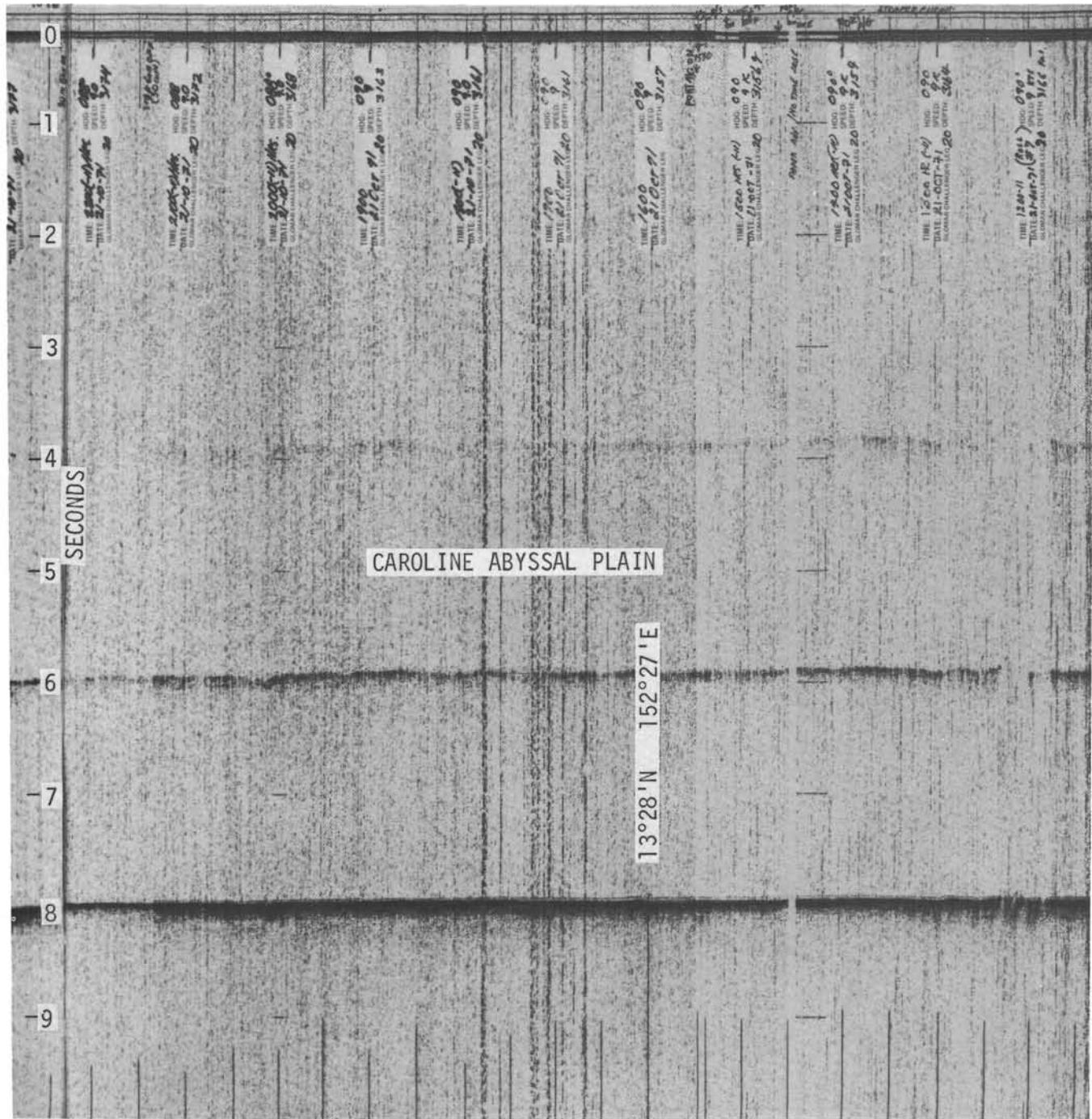


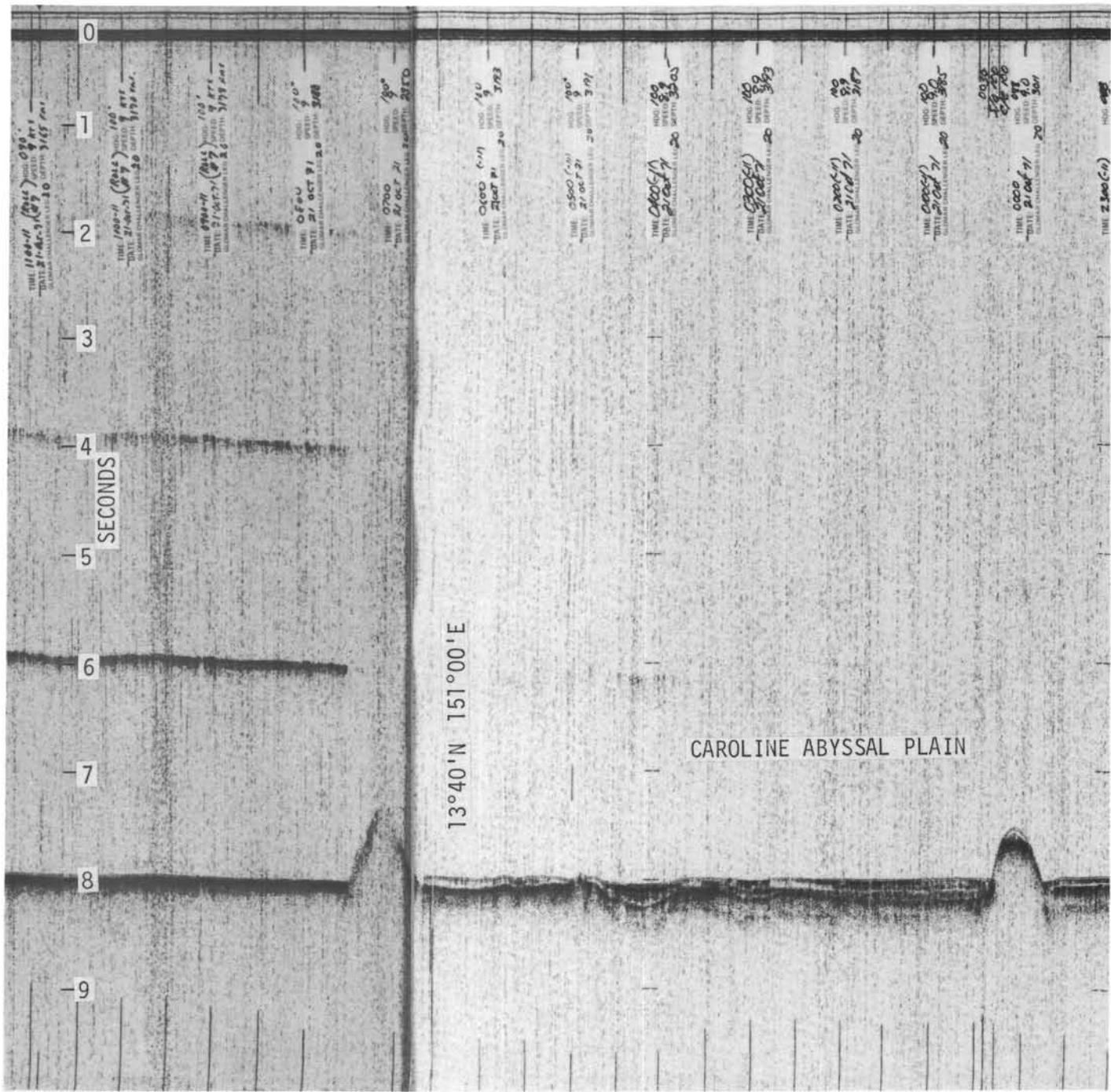


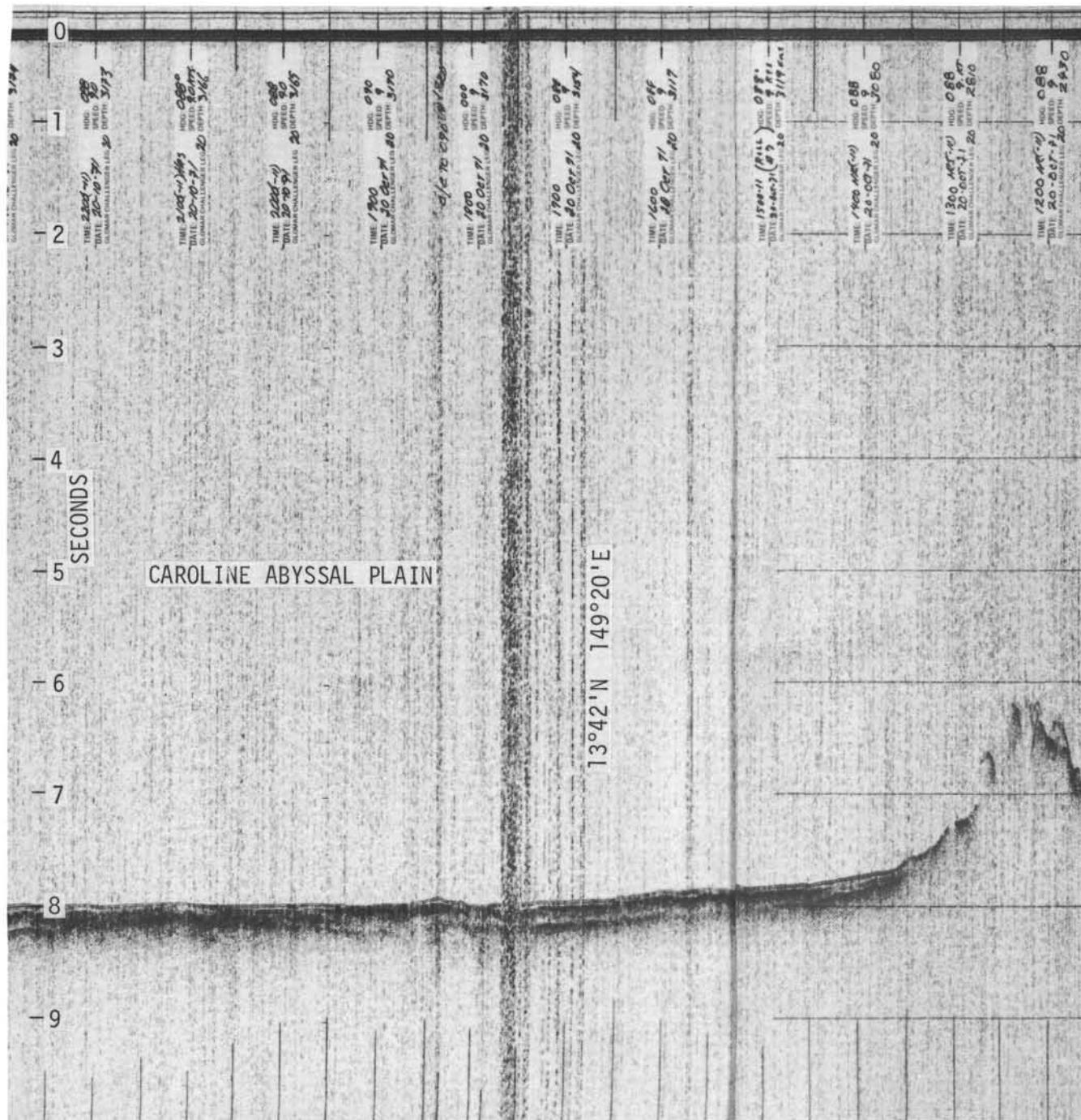


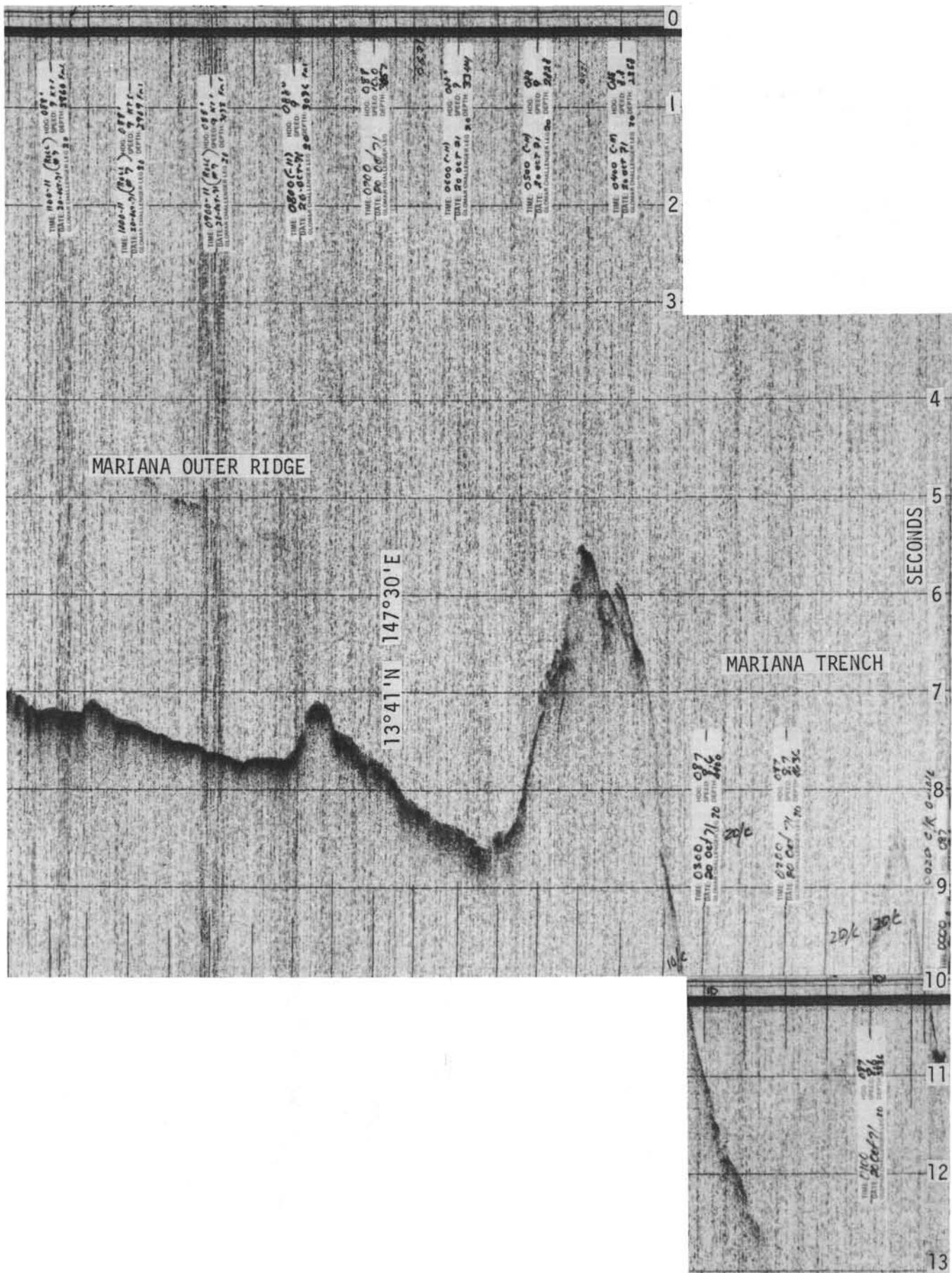


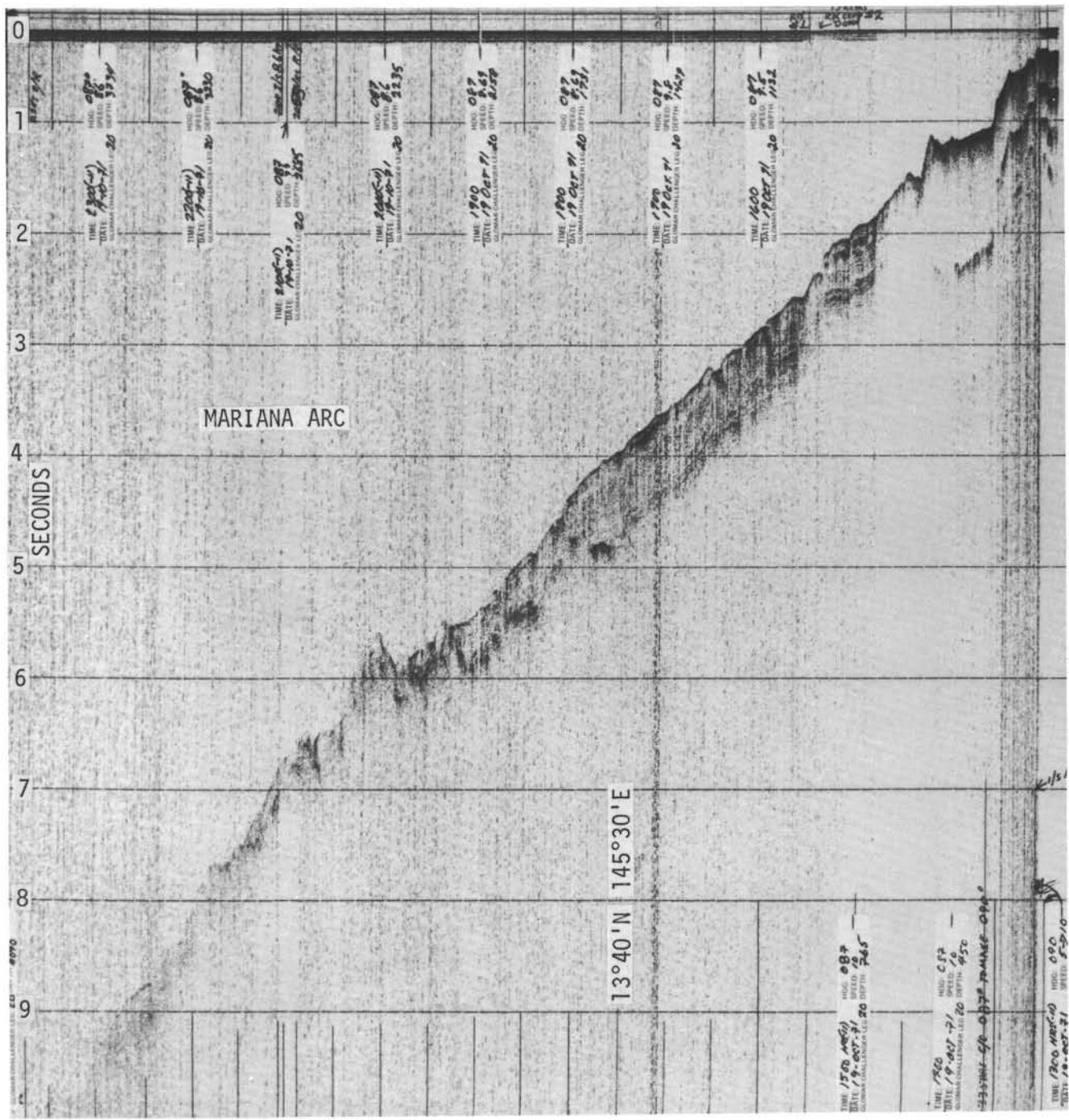


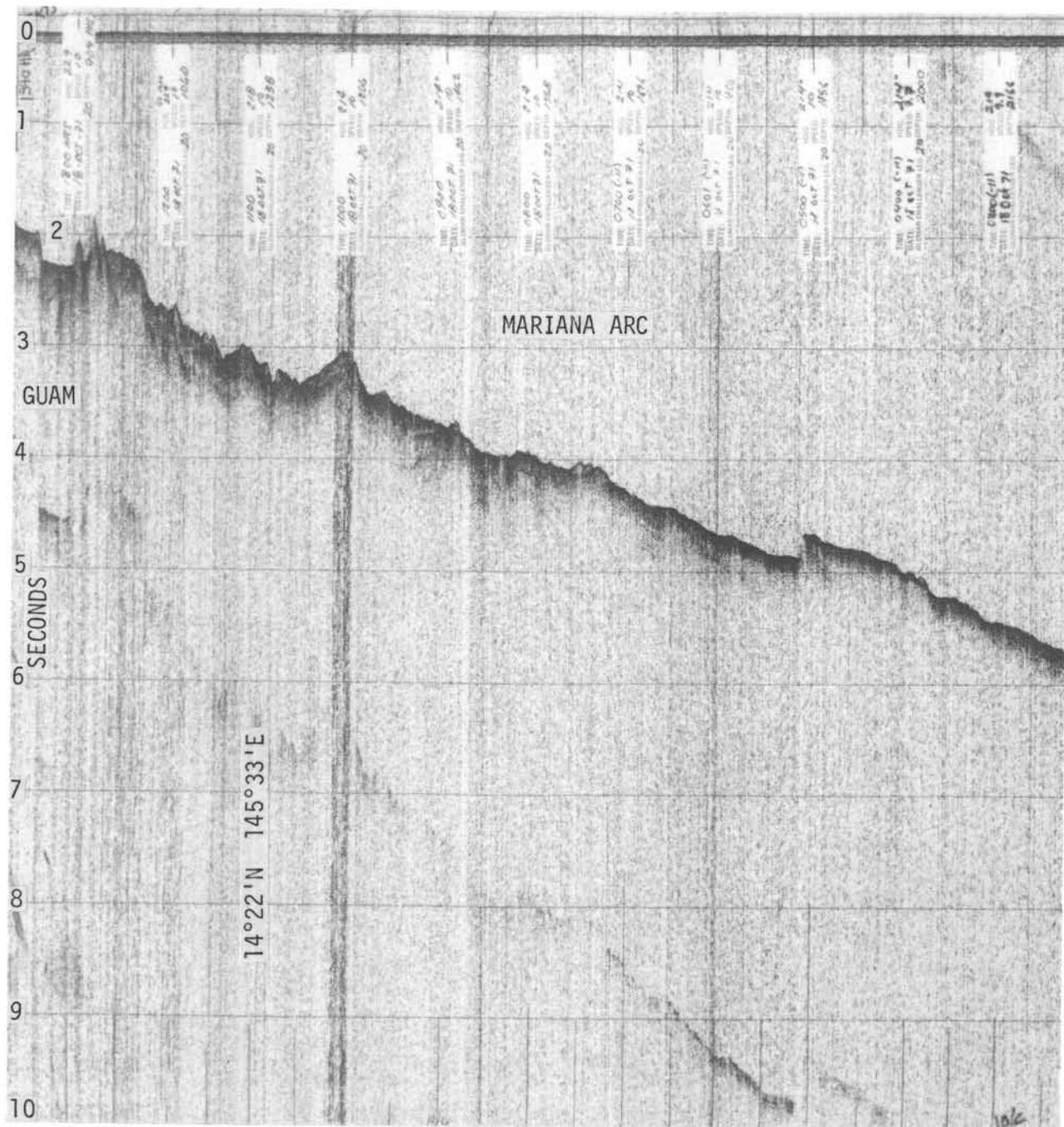


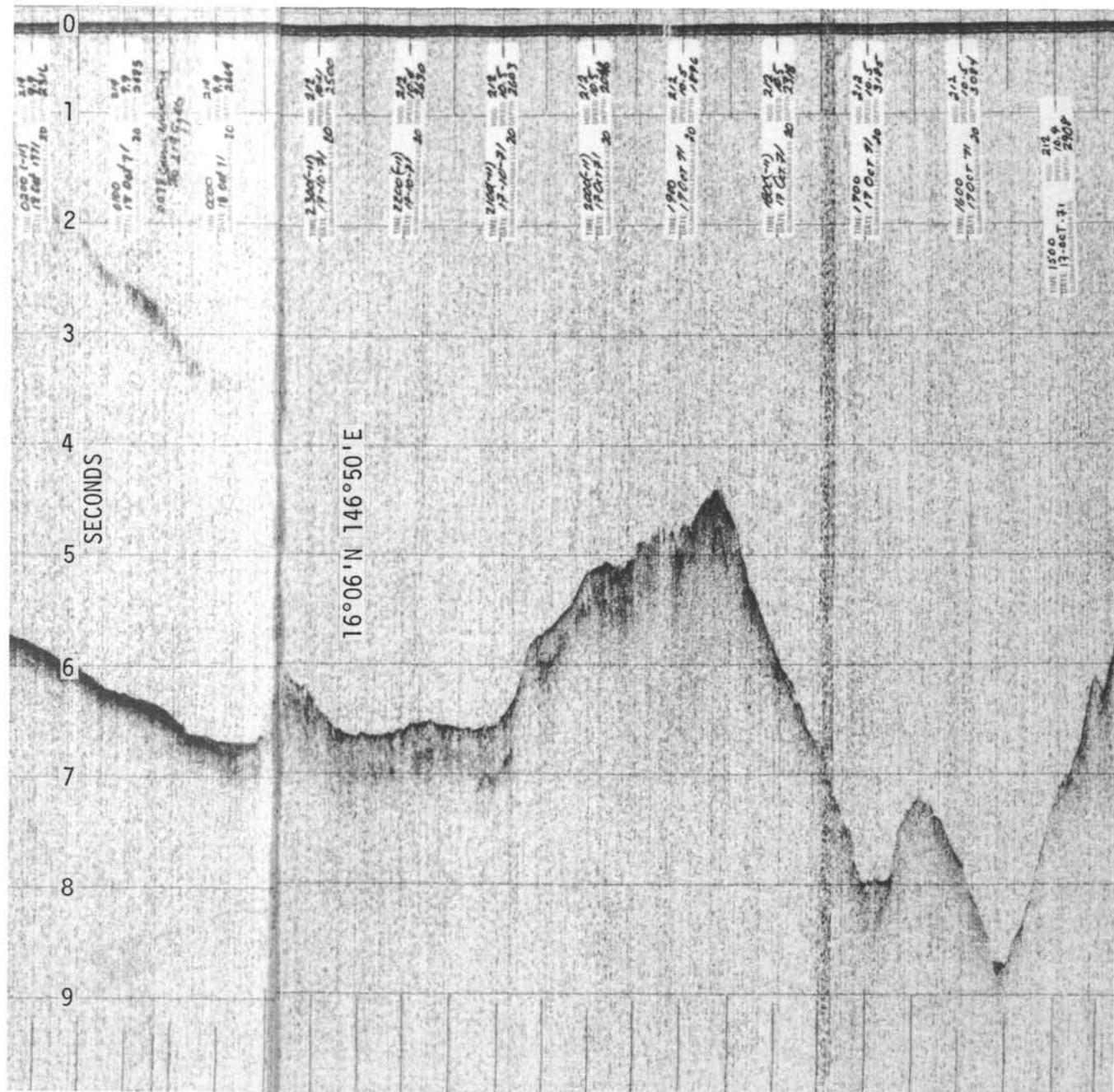


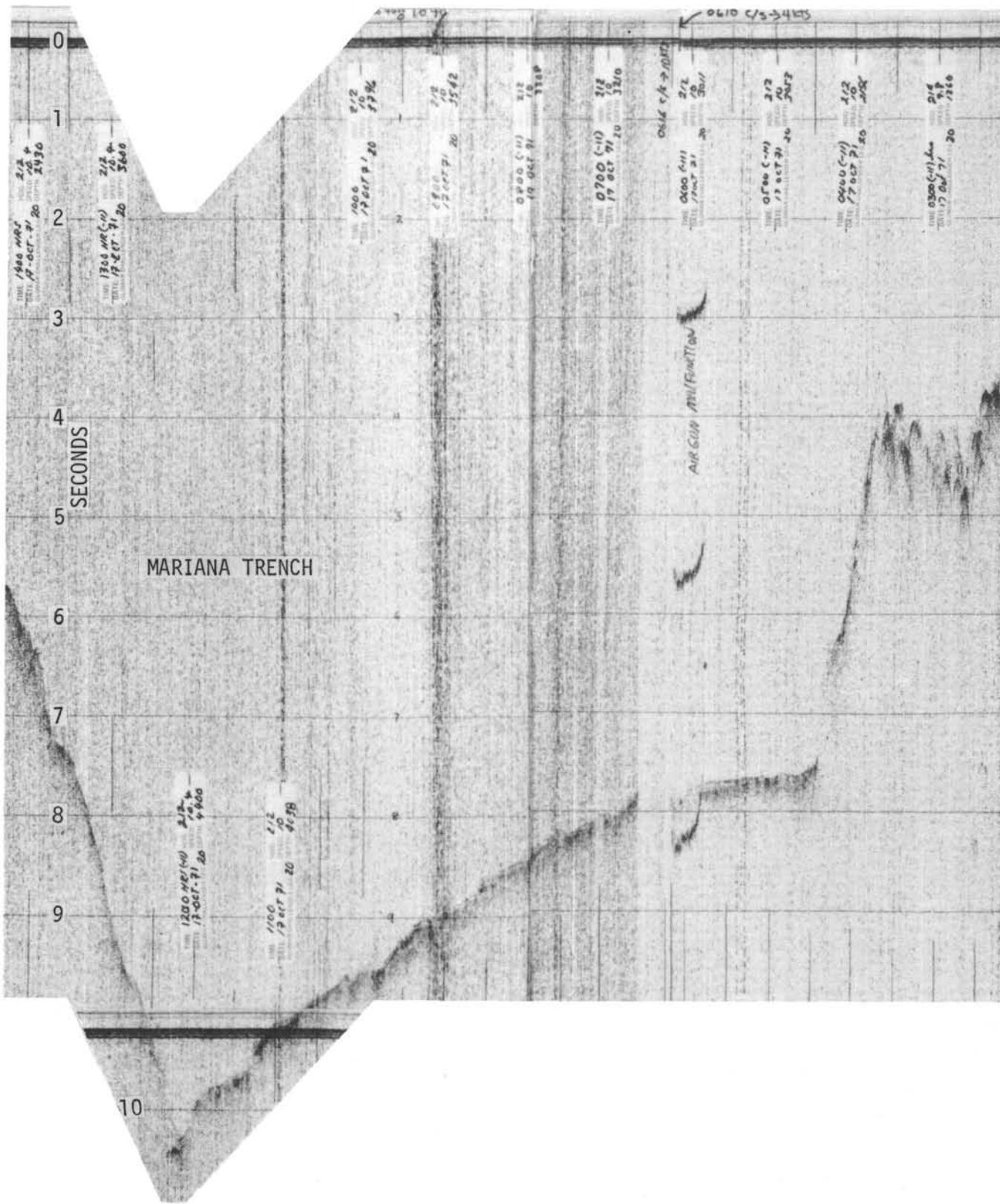


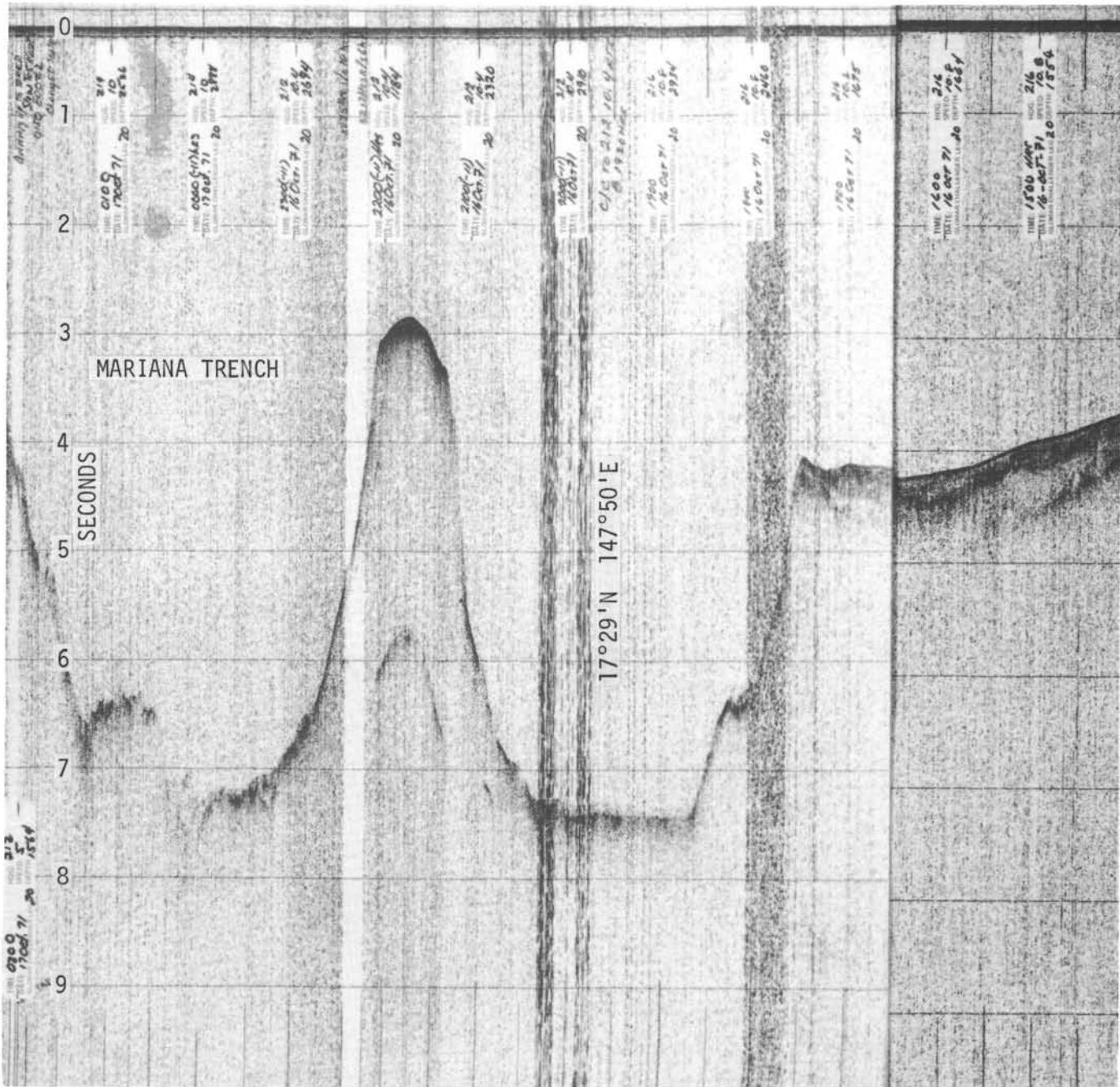


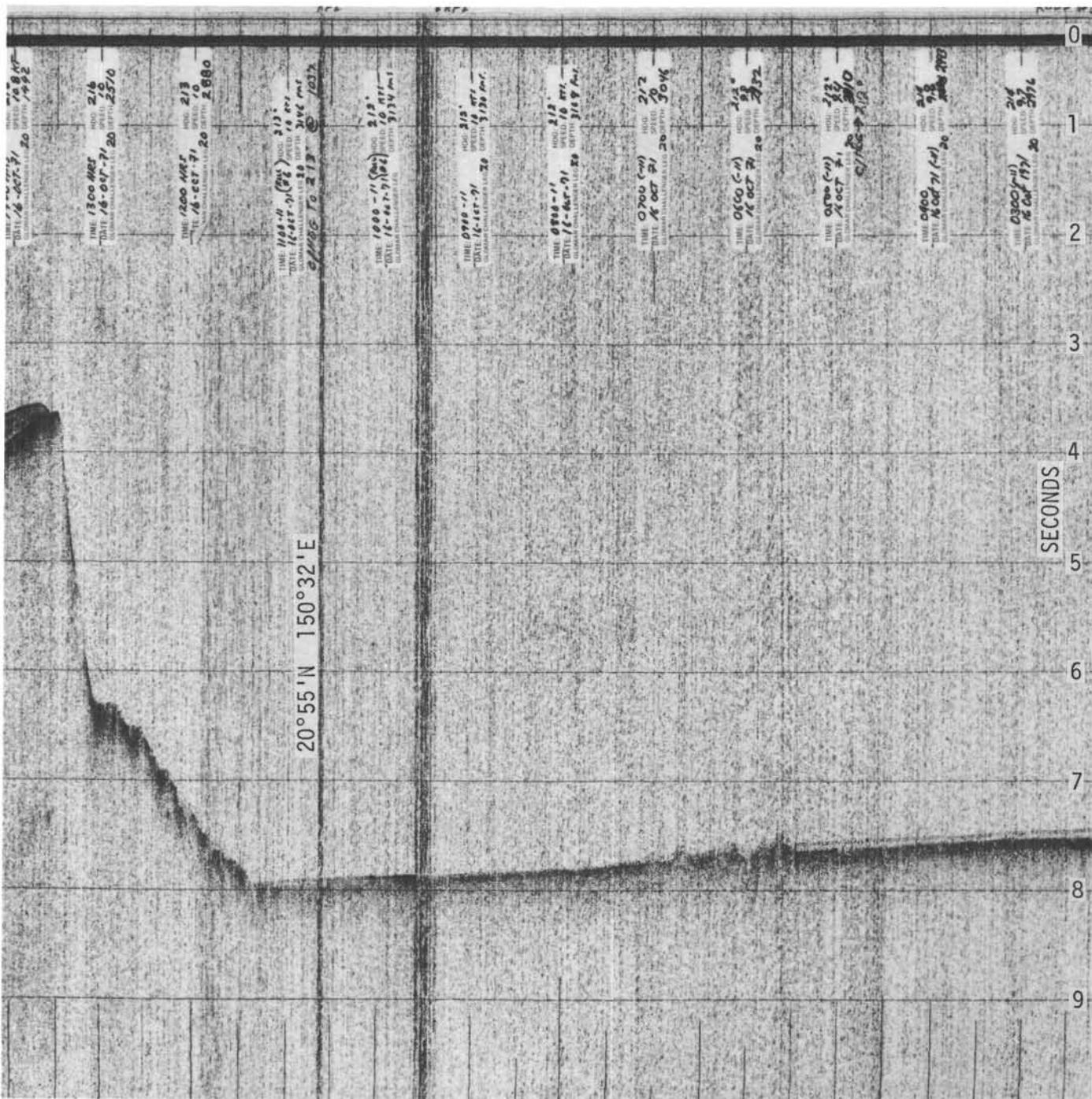


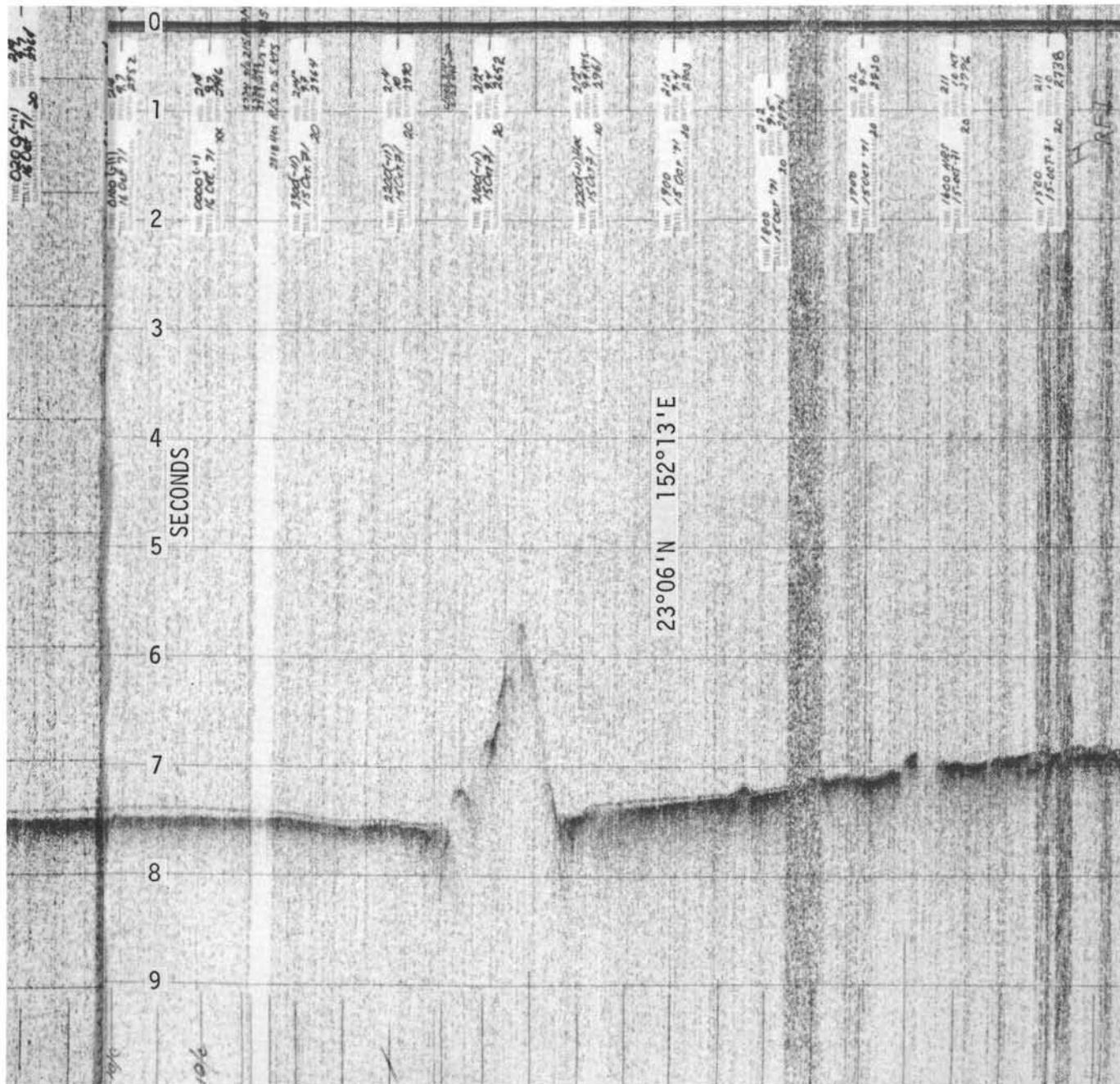


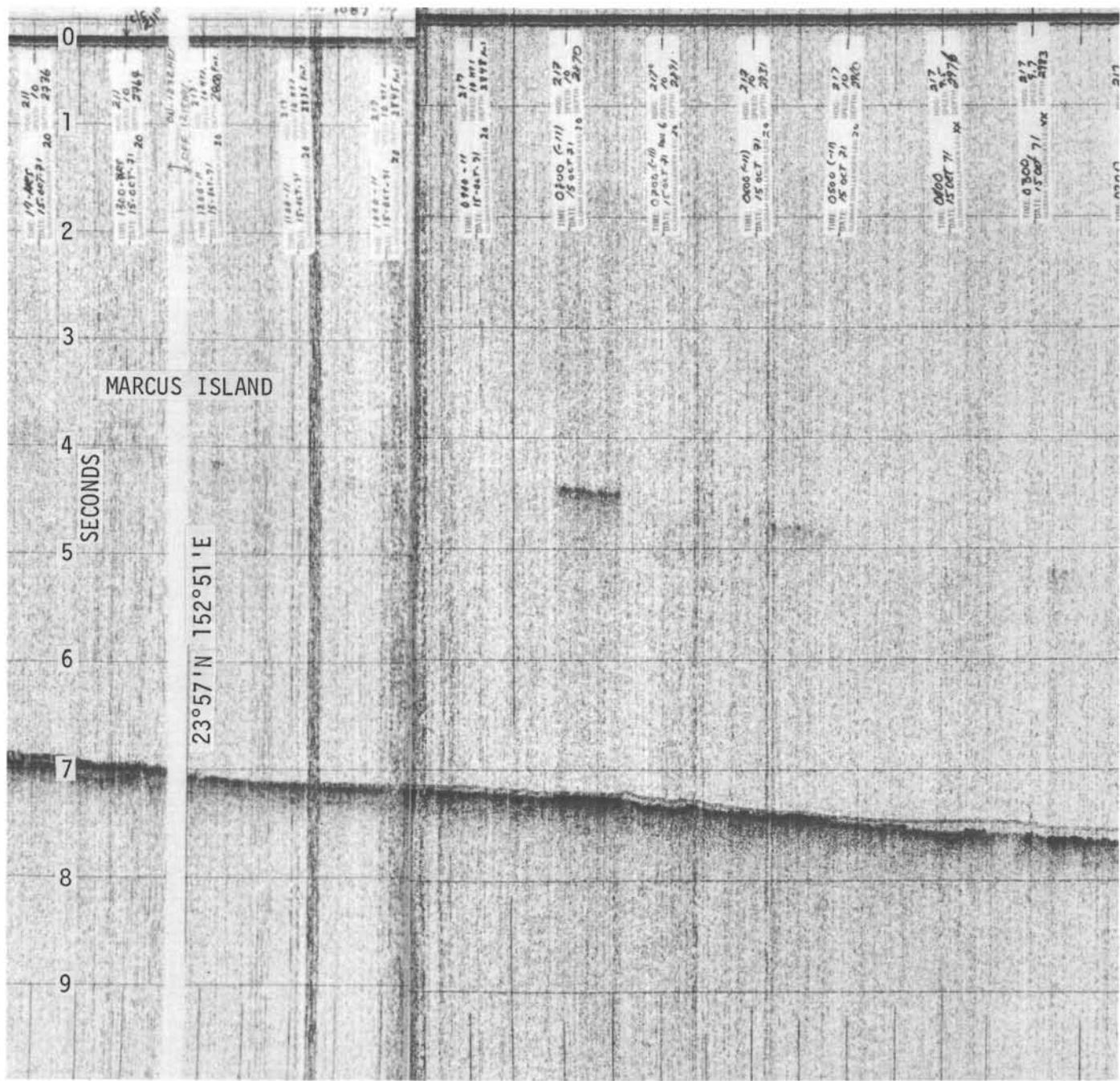


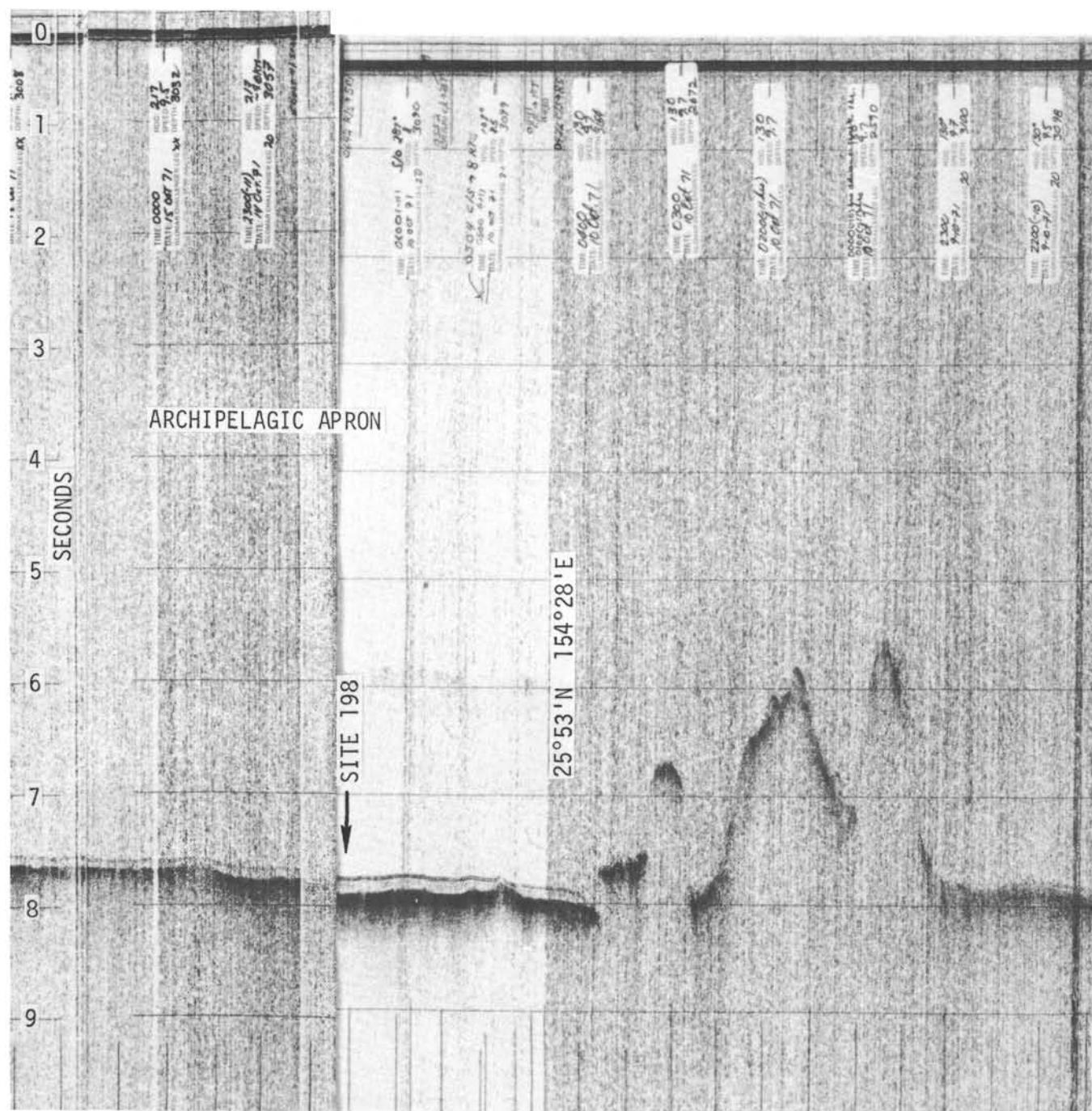


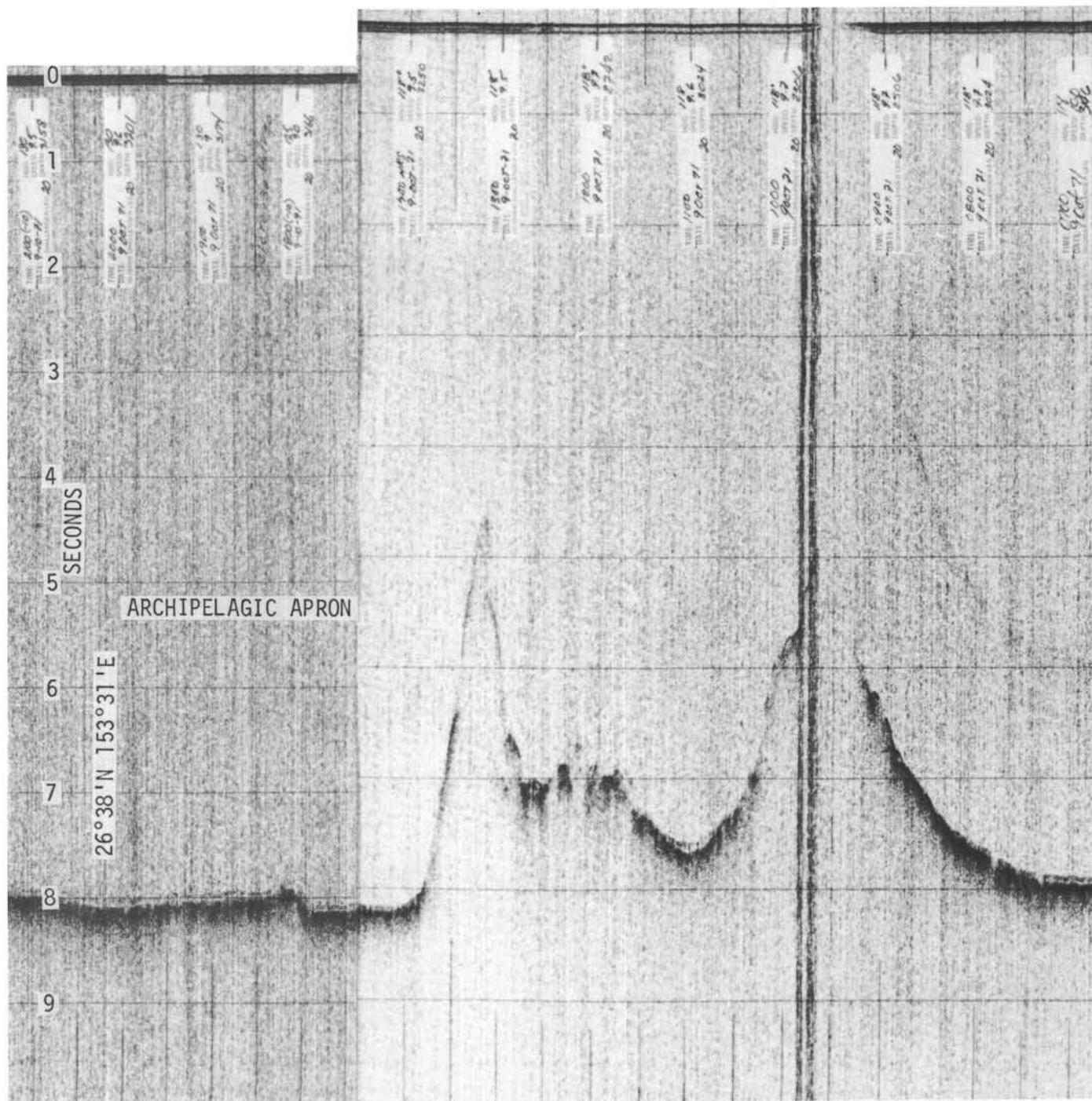


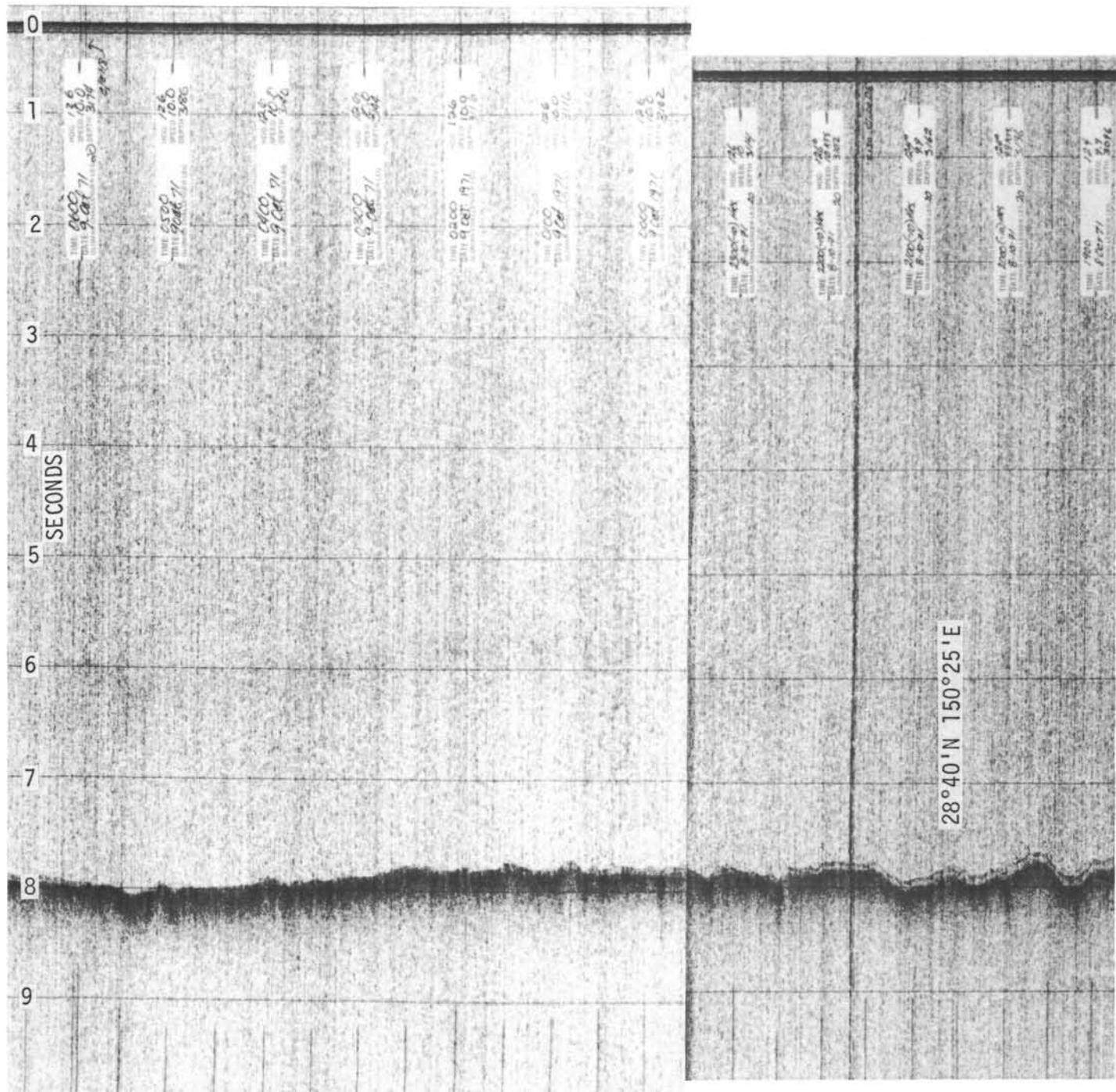












28°40' N 150°25' E

