OBSERVATIONS OF POSITION, OCEAN DEPTHS, AND GRAVITY TAKEN FROM THE FRAM II AND CAMP I DRIFTING ICE STATIONS

by B. Allen, J. Ardai, K. Hunkins, T. Lee, T. O. Manley and W. Tiemann

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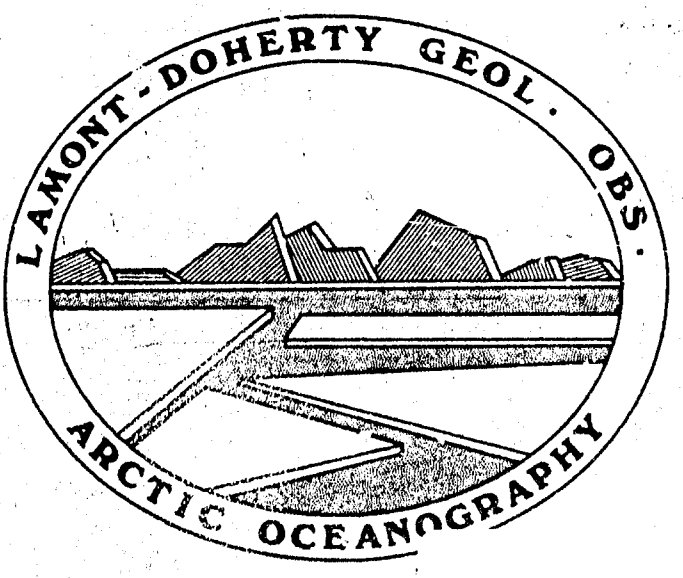

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New York, N. Y. 10964

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ABSTRACT

This report contains geophysical data collected by the Lamont group at the FRAM II and Camp I drifting stations. These data include station positions determined by satellite navigation, echo soundings, ice floe azimuths, magnetic declination and gravity readings.

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Introduction

FRAM II was a research station established on drifting pack ice to carry out underwater acoustic, geophysical, and oceanographic studies in the Arctic Ocean with primary financial support from the Office of Naval Research. Aircraft for establishing and maintaining the station were based at Nord, Greenland through cooperation of the Danish government and the Commission for Scientific Research in Greenland. FRAM II was established March 19, 1980 at 86°51'N 023° 12'W and the scientific program began on March 31st after the camp had been relocated following ice breakup at the initial site. The program continued until May 4th when the camp was at 85°46'N 023°39'W. Camp I was established later about 300 km north of FRAM II as a satellite station (fig. 1).

Investigators from Lamont-Doherty Geological Observatory carried out observations of position by satellite navigation, ocean depth and the earth's gravity field at FRAM II. Position by celestial navigation, and floe azimuth were observed at Camp I. These observations are reported here in the form of tables and figures. In order to make it available quickly, only the data are reported without detailed analysis or interpretation.

The Lamont group also conducted acoustic and oceanographic measurements which will be reported separately. The observations at FRAM II were made by Jay Ardai, Charles Monjo and Tai Lee. The measurements at Camp I were made by Barry Allen.

Navigation

All positions at FRAM II were determined with the U. S. Navy Transit satellite navigation system. Transit satellites circle the earth in 107-minute polar orbits at an altitude of approximately 100 km.

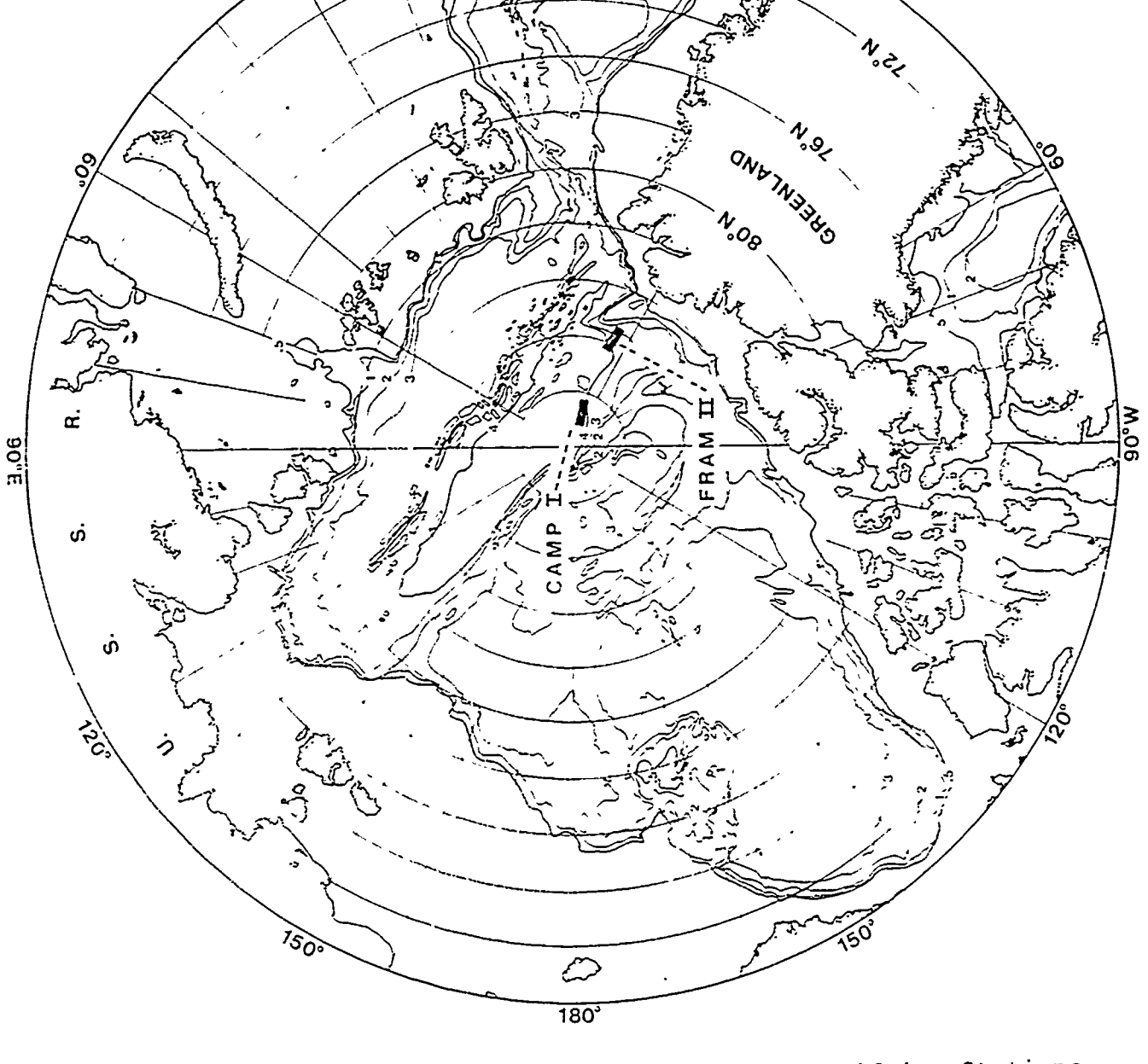


Figure 1. Locations of Fram II and Camp I Drifting Stations

Each satellite continuously transmits position data as a function of time. By measuring the change in the Doppler frequency of the received signals as the satellite approaches, passes, and recedes, the position of the station relative to the satellites path can be determined with great precision. The number of satellite passes at a given site over a given time will be greatest at the poles. In the Arctic the interval between fixes is therefore short.

The fixes at FRAM II were determined with a Magnavox MX 1502 satellite navigation set. The MX 1502 system was introduced in 1977 and is a rugged, portable, nearly automatic navigation system. The fixes and associated information are stored on magnetic tape. These data are also displayed visually and they were logged manually as often as possible in case the tape should malfunction.

Fixes calculated with the MX 1502 sets are based on the World Geodetic System-1972 coordinates. "Standard deviations" in latitude and longitude based on Doppler data residuals are calculated automatically by the 1502 for each fix. All fixes with "standard deviations" greater than 90 m in latitude and 136 m in longitude were elimited from the data set. These cutoff values were arrived at by calculating the mean and standard deviation of the "standard deviations" for all fixes of each instrument separately. All fixes with "standard deviations" greater than the mean plus one standard deviation were eliminated in two successive trials.

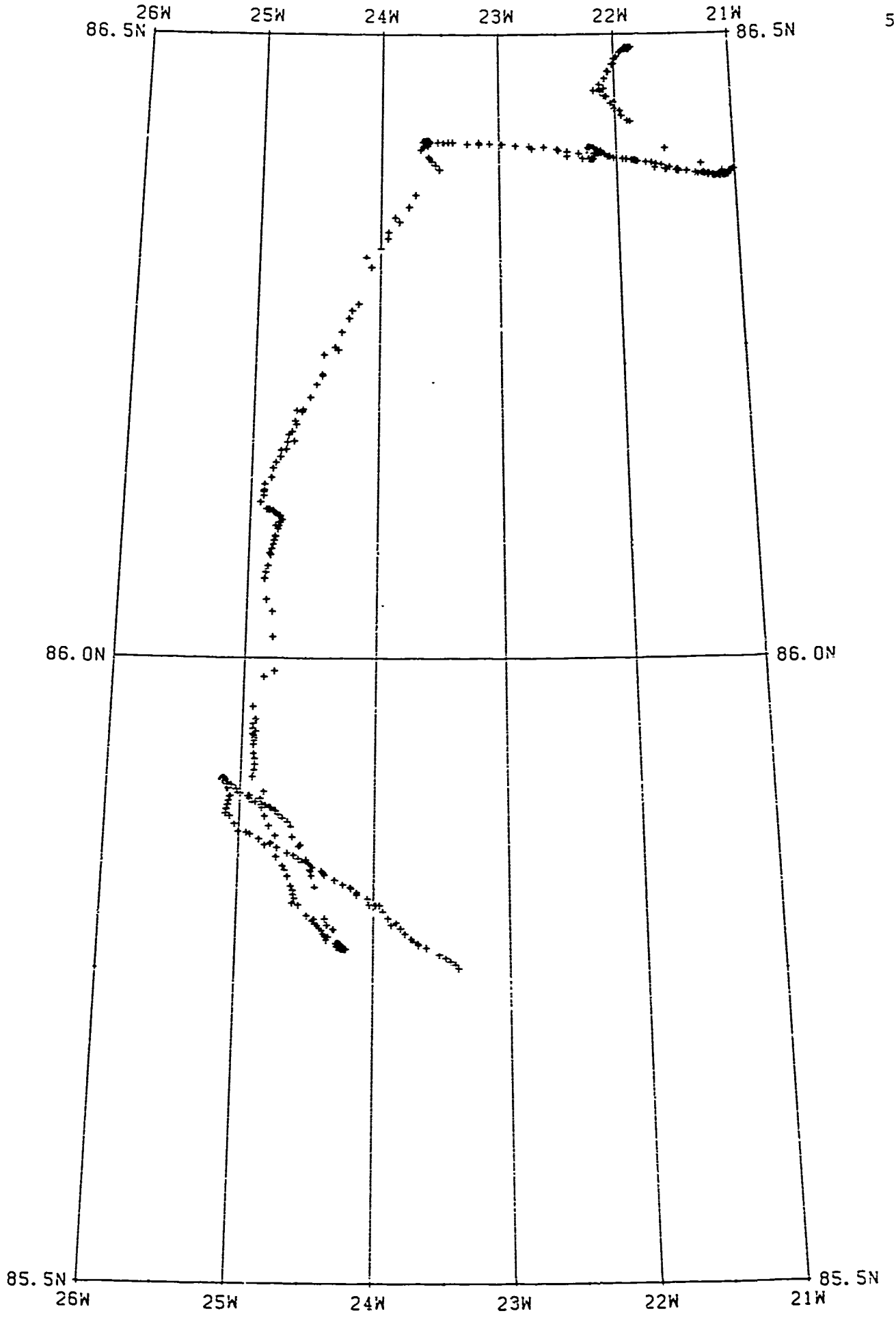
Although it had been intended to fix the positions of Camp I also with satellite navigation, no reliable fixes were obtained with the Magnavox 706 set used there and only celestial navigation was obtained. Sun shots were taken with a Wild T-2 theodolite on a daily basis when cloud cover permitted. The errors are estimated to be $\pm$ 1 km for these sun fixes.

POSITIONS OF THE FRAM II DRIFTING STATION

DETERMINED BY THE MX1502 SATELLITE NAVIGATION SET

Key to Column Headings:

SN	Serial number of satellite receiver unit
DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
LATITUDE	North latitude in decimal degrees
LONGITUDE	Longitude in decimal degrees, (negative implies west longitude)
EL	Maximum elevation of satellite above horizon in degrees
I	Number of iterations in the computation
DP	Number of 23/28 - second Doppler counts
SAT	Last three digits of satellite identification number
STDY	Standard deviation of latitude in meters
STDX	Standard deviation of longitude in meters


26W
25W
24W
23W
22W
21W
86.5N
86.5N
86.0N
86.0N
85.5N
85.5N
26W
25W
24W
23W
22W
21W

FRAM 2 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	1	APR	1980	1215	30.489399	-21.847313	31	3	32	140	62.0	85.0
30	1	APR	1980	1255	30.489853	-21.857531	58	2	32	190	44.0	17.0
30	1	APR	1980	1922	30.489740	-21.889454	64	3	32	140	61.0	29.0
30	1	APR	1980	2108	30.488754	-21.893623	53	3	32	140	63.0	23.0
30	1	APR	1980	2125	30.486503	-21.910271	75	2	32	110	53.0	79.0
30	1	APR	1980	2151	30.486419	-21.877277	75	3	24	190	62.0	65.0
30	1	APR	1980	2254	30.485983	-21.897675	66	2	33	140	54.0	39.0
30	2	APR	1980	41	30.486765	-21.906738	74	2	21	140	62.0	121.0
30	2	APR	1980	100	30.483159	-21.864866	62	3	28	110	47.0	122.0
30	2	APR	1980	124	30.488297	-21.903023	70	3	30	190	50.0	17.0
30	2	APR	1980	247	30.488190	-21.901268	73	3	24	110	50.0	48.0
30	2	APR	1980	310	30.486572	-21.931911	73	2	26	190	83.0	54.0
30	2	APR	1980	602	30.485580	-21.945883	75	3	27	140	71.0	60.0
30	2	APR	1980	748	30.481659	-21.975189	72	2	26	140	47.0	38.0
30	2	APR	1980	809	30.479950	-21.991932	72	3	30	110	37.0	29.0
30	2	APR	1980	831	30.480225	-21.997570	60	3	29	190	47.0	78.0
30	2	APR	1980	936	30.476151	-22.002205	72	3	32	140	57.0	25.0
30	2	APR	1980	1018	30.475706	-22.015623	72	3	30	190	55.0	47.0
30	2	APR	1980	1123	30.473306	-22.059682	77	3	29	140	62.0	57.0
30	2	APR	1980	1206	30.469425	-22.051479	55	2	27	190	59.0	25.0
30	2	APR	1980	1353	30.464530	-22.055144	69	3	31	190	48.0	24.0
30	2	APR	1980	1541	30.459747	-22.131536	73	3	33	190	35.0	33.0
30	2	APR	1980	1644	30.455539	-22.093361	73	3	30	140	51.0	71.0
30	2	APR	1980	1704	30.456151	-22.128367	66	3	35	110	50.0	16.0
30	2	APR	1980	1728	30.454834	-22.182293	61	3	31	190	52.0	115.0
30	2	APR	1980	1830	30.454132	-22.126812	55	3	25	140	59.0	34.0
30	2	APR	1980	1850	30.453312	-22.121002	57	3	35	110	64.0	19.0
30	2	APR	1980	2016	30.450546	-22.093777	52	3	24	140	59.0	25.0
30	2	APR	1980	2037	30.450195	-22.071793	73	3	24	110	59.0	55.0
30	2	APR	1980	2101	30.445267	-22.013195	78	4	34	190	74.0	116.0
30	2	APR	1980	2202	30.444702	-22.035976	61	3	26	140	55.0	29.0
30	2	APR	1980	2248	30.440323	-22.097545	72	3	30	190	65.0	41.0
30	2	APR	1980	2349	30.433553	-21.958639	70	3	32	140	45.0	47.0
30	3	APR	1980	35	30.434708	-21.946003	69	3	30	190	59.0	20.0
30	3	APR	1980	156	30.430954	-21.896706	75	3	27	110	41.0	53.0
30	3	APR	1980	221	30.430344	-21.874067	71	3	33	190	57.0	37.0
30	3	APR	1980	929	30.406279	-21.587646	75	3	20	190	55.0	59.0
30	3	APR	1980	1515	30.395782	-21.275152	57	3	35	110	45.0	19.0
30	3	APR	1980	2134	30.359710	-21.107471	75	3	33	110	59.0	103.0
30	3	APR	1980	2340	30.357130	-21.040177	70	3	32	140	62.0	22.0
30	4	APR	1980	433	30.341239	-21.067019	75	3	33	190	32.0	59.0
30	4	APR	1980	1214	30.392762	-21.020722	61	3	34	190	34.0	14.0
30	4	APR	1980	1932	30.347132	-21.058745	65	3	33	140	44.0	74.0
30	4	APR	1980	[illegible]	30.387170	-21.079255	72	3	25	110	[illegible]	[illegible]
30	4	APR	1980	2205	30.387244	-21.063492	61	3	32	140	54.0	25.0
30	4	APR	1980	2257	30.385541	-21.074094	71	3	31	140	61.0	34.0
30	4	APR	1980	2325	30.367222	-21.074272	74	3	28	200	69.0	132.0
30	4	APR	1980	2352	30.386307	-21.096175	71	3	29	140	53.0	73.0
30	5	APR	1980	20	30.386414	-21.060352	45	3	29	110	30.0	119.0
30	5	APR	1980	44	30.380353	-21.086720	64	3	32	190	67.0	19.0
30	5	APR	1980	207	30.380002	-21.087448	75	3	34	110	36.0	41.0
30	5	APR	1980	230	30.380230	-21.053401	71	3	33	140	62.0	44.0
30	5	APR	1980	257	30.375941	-21.098207	55	3	30	200	72.0	35.0
30	5	APR	1980	354	30.380151	-21.094931	61	3	35	110	41.0	21.0
30	5	APR	1980	415	30.375400	-21.120553	76	3	31	190	71.0	91.0
30	5	APR	1980	511	30.350545	-21.131268	77	3	22	140	70.0	55.0
30	5	APR	1980	524	30.377531	-21.133831	71	3	22	200	53.0	45.0
30	5	APR	1980	65[illegible]	30.370337	-21.126022	72	3	25	140	54.0	24.0
30	5	APR	1980	[illegible]15	30.367524	-21.174347	74	3	24	200	57.0	121.0
30	5	APR	1980	[illegible]	30.367731	-21.144[illegible]	71	3	30	140	55.0	25.0
30	5	APR	1980	1124	30.370211	-21.164291	54	3	29	190	53.0	33.0
30	5	APR	1980	1228	30.383501	-21.165551	42	4	28	140	72.0	119.0
30	5	APR	1980	1312	30.367755	-21.188393	55	3	31	190	55.0	24.0
30	5	APR	1980	1331	30.350033	-21.150642	70	3	32	200	62.0	57.0
30	5	APR	1980	1500	30.357614	-21.221812	71	3	35	190	45.0	34.0
30	5	APR	1980	1516	30.356240	-21.226353	57	3	30	200	70.0	24.0
30	5	APR	1980	1553	30.357447	-21.22419[illegible]	75	3	2[illegible]	140	64.0	115.0
30	5	APR	1980	1624	30.357306	-21.251546	57	3	24	110	54.0	19.0

FRAM 2 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	5	APR	1980	1647	30.383439	-21.264374	79	3	36	190	34.0	59.0
30	5	APR	1980	1701	30.387494	-21.279779	63	3	25	200	89.0	43.0
30	5	APR	1980	1740	30.387470	-21.278210	67	3	25	140	56.0	47.0
30	5	APR	1980	1810	30.387558	-21.311535	65	3	29	110	43.0	17.0
30	5	APR	1980	1926	30.388214	-21.336311	63	3	22	140	70.0	29.0
30	5	APR	1980	2113	30.389999	-21.409309	63	3	30	140	55.0	25.0
30	5	APR	1980	2144	30.389447	-21.480129	79	3	32	110	60.0	120.0
30	5	APR	1980	2259	30.391251	-21.455012	67	3	28	140	61.0	53.0
30	5	APR	1980	2354	30.390456	-21.495119	69	3	25	190	87.0	28.0
30	6	APR	1980	40	30.392131	-21.576897	75	3	29	140	48.0	112.0
30	6	APR	1980	118	30.393052	-21.549725	79	3	34	110	41.0	70.0
30	6	APR	1980	140	30.391220	-21.587662	70	3	23	190	86.0	36.0
30	6	APR	1980	305	30.394852	-21.623360	71	3	35	110	37.0	26.0
30	6	APR	1980	327	30.392670	-21.660244	74	3	26	190	79.0	73.0
30	6	APR	1980	419	30.395474	-21.668499	83	3	32	140	62.0	105.0
30	6	APR	1980	453	30.395744	-21.708302	67	3	36	110	41.0	15.0
30	6	APR	1980	660	30.397171	-21.755718	74	3	31	140	53.0	38.0
30	6	APR	1980	751	30.395025	-21.826912	71	3	31	140	51.0	17.0
30	6	APR	1980	828	30.398575	-21.845257	74	3	32	110	41.0	40.0
30	6	APR	1980	948	30.399170	-21.856335	77	4	26	190	45.0	73.0
30	6	APR	1980	941	30.399245	-21.875278	73	3	32	140	61.0	29.0
30	6	APR	1980	1124	30.400710	-21.919441	79	3	29	140	66.0	71.0
30	6	APR	1980	1349	30.399991	-21.949690	75	3	36	110	53.0	68.0
30	6	APR	1980	1536	30.400548	-22.025836	65	3	35	110	52.0	29.0
30	6	APR	1980	1648	30.402344	-22.059628	71	3	26	140	49.0	51.0
30	6	APR	1980	1722	30.402190	-22.079376	65	3	36	110	52.0	15.0
30	6	APR	1980	1835	30.403839	-22.100661	64	3	34	140	46.0	26.0
30	6	APR	1980	2021	30.404531	-22.126040	62	3	33	140	59.0	17.0
30	6	APR	1980	2055	30.404739	-22.153242	75	3	35	110	51.0	67.0
30	6	APR	1980	2207	30.404785	-22.154503	65	3	31	140	68.0	42.0
30	6	APR	1980	2305	30.405752	-22.145560	71	3	34	190	60.0	28.0
30	7	APR	1980	29	30.405709	-22.134842	83	3	30	110	40.0	118.0
30	7	APR	1980	52	30.406295	-22.169289	69	3	39	190	50.0	15.0
30	7	APR	1980	215	30.407315	-22.172504	74	3	35	110	42.0	43.0
30	7	APR	1980	236	30.406479	-22.195004	72	3	36	190	57.0	36.0
30	7	APR	1980	514	30.407925	-22.207676	75	3	29	140	52.0	70.0
30	7	APR	1980	731	[illegible]	-22.224430	72	3	26	140	58.0	33.0
30	7	APR	1980	756	[illegible]	-22.210117	81	3	33	190	32.0	74.0
30	7	APR	1980	[illegible]	[illegible]	-22.231171	71	3	31	140	67.0	23.0
30	7	APR	1980	[illegible]	30.404250	-22.246257	79	3	32	110	35.0	64.0
30	7	APR	1980	[illegible]	[illegible]	-22.222645	72	3	30	190	42.0	35.0
30	7	APR	1980	[illegible]	[illegible]	-22.232277	75	3	23	140	72.0	44.0
30	7	APR	1980	1133	30.404114	-22.222736	[illegible]	3	35	190	47.0	26.0
30	7	APR	1980	[illegible]	[illegible]	[illegible]	79	3	24	110	[illegible]	117.0
30	7	APR	1980	1321	[illegible]	[illegible]	[illegible]	3	[illegible]	190	37.0	13.0
30	7	APR	1980	[illegible]	[illegible]	-22.224935	72	3	33	[illegible]	49.0	37.0
30	7	APR	1980	1555	[illegible]	-22.204271	75	3	31	140	52.0	91.0
30	7	APR	1980	1634	[illegible]	-22.222003	75	3	34	110	54.0	19.0
30	7	APR	1980	1655	[illegible]	-22.245712	[illegible]	3	36	190	45.0	49.0
30	7	APR	1980	1743	30.408733	-22.229341	57	3	31	140	57.0	45.0
30	7	APR	1980	1826	30.408310	-22.225055	67	3	35	110	54.0	21.0
30	7	APR	1980	2115	[illegible]	[illegible]	63	3	29	140	57.0	22.0
30	7	APR	1980	2302	[illegible]	-22.225097	65	3	[illegible]	140	[illegible]	117.0
30	7	APR	1980	2333	[illegible]	[illegible]	[illegible]	3	[illegible]	200	65.0	159.0
30	8	APR	1980	2	30.407305	-22.217637	64	3	24	190	62.0	21.0
30	8	APR	1980	[illegible]	[illegible]	-22.231756	75	3	25	140	55.0	110.0
30	8	APR	1980	119	[illegible]	[illegible]	[illegible]	3	23	[illegible]	71.0	[illegible]
30	8	APR	1980	[illegible]	[illegible]	[illegible]	[illegible]	3	24	[illegible]	72.0	30.0
30	8	APR	1980	302	[illegible]	[illegible]	[illegible]	3	21	[illegible]	[illegible]	32.0
30	8	APR	1980	332	[illegible]	[illegible]	[illegible]	3	32	190	67.0	47.0
30	8	APR	1980	422	[illegible]	-22.233239	61	3	22	140	[illegible]	121.0
30	8	APR	1980	451	[illegible]	-22.218362	55	3	22	200	70.0	30.0
30	8	APR	1980	735	[illegible]	-22.219345	71	3	25	140	49.0	27.0
30	8	APR	1980	855	30.405414	[illegible]	75	3	34	140	43.0	55.0
30	8	APR	1980	944	[illegible]	-22.214971	72	3	24	190	61.0	29.0
30	8	APR	1980	1044	[illegible]	[illegible]	64	3	31	190	54.0	38.0
30	8	APR	1980	1136	30.405533	[illegible]	74	3	36	140	67.0	73.0
30	8	APR	1980	1231	[illegible]	[illegible]	67	3	35	190	32.0	15.0

FRAM 2 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	8	APR	1980	1419	86.404968	-22.224712	70	3	32	190	61.0	36.0
30	8	APR	1980	1524	86.405256	-22.218170	66	3	32	200	77.0	23.0
30	8	APR	1980	1545	86.404724	-22.207981	68	3	36	110	49.0	24.0
30	8	APR	1980	1606	86.405151	-22.226074	76	3	30	190	51.0	62.0
30	8	APR	1980	1651	86.407379	-22.236729	70	3	30	140	90.0	93.0
30	8	APR	1980	1837	86.405334	-22.218830	64	3	31	140	65.0	53.0
30	8	APR	1980	1854	86.404724	-22.237537	74	3	28	200	86.0	95.0
30	8	APR	1980	2024	86.404922	-22.214836	62	3	26	140	59.0	22.0
30	8	APR	1980	2210	86.405762	-22.216770	65	3	31	140	62.0	39.0
30	8	APR	1980	2356	86.405243	-22.227966	72	3	29	140	53.0	75.0
30	9	APR	1980	11	86.405365	-22.192245	74	3	23	200	59.0	84.0
30	9	APR	1980	100	86.404709	-22.213730	69	3	28	190	85.0	27.0
30	9	APR	1980	157	86.406281	-22.218128	68	3	22	200	75.0	48.0
30	9	APR	1980	246	86.405197	-22.217522	72	3	23	190	70.0	53.0
30	9	APR	1980	517	86.404572	-22.195885	77	3	31	140	56.0	50.0
30	9	APR	1980	704	86.403931	-22.205799	72	4	23	140	59.0	26.0
30	9	APR	1980	807	86.404449	-22.200069	80	3	24	190	47.0	110.0
30	9	APR	1980	851	86.404190	-22.207420	72	3	29	140	62.0	23.0
30	9	APR	1980	954	86.404236	-22.209904	72	3	27	190	63.0	50.0
30	9	APR	1980	1036	86.403961	-22.215225	76	3	32	140	55.0	42.0
30	9	APR	1980	1142	86.403915	-22.207756	68	3	33	190	50.0	23.0
30	9	APR	1980	1310	86.403534	-22.176655	77	3	36	110	50.0	83.0
30	9	APR	1980	1330	86.403412	-22.212524	68	3	27	190	70.0	32.0
30	9	APR	1980	1643	86.403198	-22.209442	66	3	35	110	51.0	16.0
30	9	APR	1980	1932	86.403122	-22.201714	63	3	14	140	74.0	44.0
30	9	APR	1980	2016	86.402542	-22.225075	73	3	34	110	45.0	46.0
30	9	APR	1980	2038	86.402679	-22.188545	78	4	24	190	80.0	119.0
30	9	APR	1980	2225	86.402664	-22.200466	71	3	36	190	78.0	48.0
30	10	APR	1980	12	86.402328	-22.205868	69	4	29	190	80.0	22.0
30	10	APR	1980	137	86.402493	-22.197216	75	3	36	110	39.0	48.0
30	10	APR	1980	158	86.402557	-22.211929	71	3	37	190	59.0	28.0
30	10	APR	1980	325	86.402374	-22.208195	69	3	36	110	37.0	21.0
30	10	APR	1980	344	86.401596	-22.219475	76	3	26	190	68.0	71.0
30	10	APR	1980	422	86.401325	-22.211689	66	3	29	200	60.0	25.0
30	10	APR	1980	900	86.400696	-22.208187	75	3	38	190	49.0	55.0
30	10	APR	1980	1053	86.400391	-22.211487	69	3	25	190	61.0	30.0
30	10	APR	1980	1134	86.400833	-22.225611	80	3	25	140	72.0	85.0
30	10	APR	1980	1240	86.400986	-22.215912	67	3	28	190	61.0	29.0
30	10	APR	1980	1408	86.400757	-22.199867	72	3	33	110	51.0	48.0
30	10	APR	1980	1423	86.400452	-22.222637	76	3	34	190	47.0	31.0
30	10	APR	1980	1615	86.401031	-22.229916	77	3	28	190	54.0	72.0
30	10	APR	1980	1654	86.400694	-22.208912	69	3	28	140	60.0	59.0
30	10	APR	1980	1741	86.400574	-22.213970	66	3	33	110	49.0	17.0
30	10	APR	1980	1840	86.400633	-22.212280	64	3	33	140	53.0	25.0
30	10	APR	1980	1928	86.400452	-22.222560	70	3	35	110	48.0	34.0
30	10	APR	1980	2026	86.400526	-22.214826	63	3	32	140	46.0	16.0
30	10	APR	1980	2114	86.400192	-22.237793	78	3	32	110	59.0	105.0
30	10	APR	1980	2136	86.400330	-22.195793	74	3	32	190	88.0	69.0
30	10	APR	1980	2213	86.400757	-22.217140	66	3	32	140	50.0	35.0
30	10	APR	1980	2322	86.400299	-22.204556	64	3	38	190	66.0	23.0
30	10	APR	1980	2359	86.401001	-22.222057	73	3	28	140	59.0	94.0
30	11	APR	1980	109	86.400299	-22.218014	69	3	26	190	53.0	18.0
30	11	APR	1980	256	86.400772	-22.224281	74	3	31	190	63.0	51.0
30	11	APR	1980	423	86.400223	-22.211159	68	3	32	110	58.0	22.0
30	11	APR	1980	500	86.400920	-22.216156	67	3	33	200	57.0	29.0
30	11	APR	1980	526	86.400421	-22.201302	76	3	36	140	52.0	43.0
30	11	APR	1980	616	86.400909	-22.190842	78	5	24	190	45.0	80.0
30	11	APR	1980	854	86.401077	-22.213264	72	3	31	140	57.0	26.0
30	11	APR	1980	1004	86.400559	-22.206573	71	3	33	190	48.0	34.0
30	11	APR	1980	1042	86.400452	-22.222622	76	3	30	140	63.0	51.0
30	11	APR	1980	1151	86.400360	-22.217670	67	3	29	190	56.0	25.0
30	11	APR	1980	1520	86.400452	-22.224480	74	3	36	190	51.0	52.0
30	11	APR	1980	1602	86.399658	-22.190487	73	3	25	140	80.0	80.0
30	11	APR	1980	1652	86.400284	-22.211590	68	3	35	110	47.0	14.0
30	11	APR	1980	1748	86.401093	.211746	66	3	23	140	56.0	29.0
30	11	APR	1980	1834	86.400341	-22.217567	68	3	35	110	48.0	24.0
30	12	APR	1980	428	86.400543	-22.201954	80	3	31	140	68.0	83.0
30	12	APR	1980	614	86.400146	-22.213306	73	3	29	140	64.0	43.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	12	APR	1980	802	80.400253	-22.212875	71	3	23	140	81.0	34.0
30	12	APR	1980	1136	80.400955	-22.234055	80	3	26	140	65.0	83.0
30	12	APR	1980	1249	80.400620	-22.219509	67	3	33	190	47.0	18.0
30	12	APR	1980	1510	80.401123	-22.186779	77	4	28	140	48.0	108.0
30	12	APR	1980	1604	80.400925	-22.208660	67	3	34	110	62.0	22.0
30	12	APR	1980	1624	80.401169	-22.225094	78	3	33	190	56.0	95.0
30	12	APR	1980	1656	80.400833	-22.193958	68	3	32	140	51.0	46.0
30	12	APR	1980	1843	80.400421	-22.206715	63	3	35	140	44.0	19.0
30	12	APR	1980	2029	80.400543	-22.213943	63	3	29	140	39.0	17.0
30	12	APR	1980	2124	80.400345	-22.234436	79	3	31	110	60.0	132.0
30	12	APR	1980	2215	80.400146	-22.220341	67	3	28	140	54.0	41.0
30	12	APR	1980	2331	80.400513	-22.192871	69	3	38	190	72.0	22.0
30	13	APR	1980	2	80.400345	-22.233501	74	3	28	140	48.0	83.0
30	13	APR	1980	522	80.400101	-22.199078	76	3	29	140	60.0	51.0
30	13	APR	1980	710	80.400726	-22.206894	72	3	23	140	58.0	27.0
30	13	APR	1980	825	80.401962	-22.224789	77	3	28	190	67.0	90.0
30	13	APR	1980	857	80.400146	-22.212070	72	3	30	140	59.0	24.0
30	13	APR	1980	1012	80.400177	-22.203423	70	3	31	190	52.0	33.0
30	13	APR	1980	1044	80.400223	-22.218540	78	3	26	140	66.0	57.0
30	13	APR	1980	1200	80.400803	-22.206409	67	3	31	190	43.0	18.0
30	13	APR	1980	1503	80.400085	-22.210171	66	3	29	200	73.0	24.0
30	13	APR	1980	1604	80.400360	-22.200291	72	3	33	140	45.0	60.0
30	13	APR	1980	1648	80.400421	-22.217697	67	3	25	200	78.0	41.0
30	13	APR	1980	1751	80.400665	-22.210888	65	3	23	140	64.0	34.0
30	13	APR	1980	1833	80.400391	-22.225399	74	3	32	200	78.0	82.0
30	13	APR	1980	1937	80.400146	-22.209087	63	3	21	140	81.0	18.0
30	13	APR	1980	2124	80.400284	-22.215691	64	3	31	140	49.0	27.0
30	13	APR	1980	2242	80.400620	-22.206188	70	3	28	190	65.0	33.0
30	13	APR	1980	2310	80.400421	-22.223228	70	3	35	140	52.0	61.0
30	13	APR	1980	2350	80.401031	-22.195484	74	3	31	200	49.0	64.0
30	14	APR	1980	135	80.400742	-22.204514	67	3	29	200	65.0	43.0
30	14	APR	1980	322	80.400528	-22.209641	65	3	29	200	61.0	28.0
30	14	APR	1980	402	80.400391	-22.225739	79	3	29	190	83.0	136.0
30	14	APR	1980	430	80.400269	-22.198532	79	3	30	140	60.0	72.0
30	14	APR	1980	508	80.400330	-22.216740	67	3	34	200	67.0	40.0
30	14	APR	1980	617	80.400269	-22.210686	73	3	35	140	56.0	28.0
30	14	APR	1980	654	80.400848	-22.222126	74	3	31	200	56.0	67.0
30	14	APR	1980	804	80.400375	-22.207710	71	3	35	140	54.0	18.0
30	14	APR	1980	952	80.400345	-22.214104	74	3	29	140	83.0	45.0
30	14	APR	1980	1110	80.401031	-22.211929	67	3	22	190	84.0	41.0
30	14	APR	1980	1139	80.400345	-22.234680	82	3	30	140	67.0	97.0
30	14	APR	1980	1210	80.401016	-22.192612	73	3	28	200	67.0	69.0
30	14	APR	1980	1253	80.400955	-22.213486	67	3	33	190	51.0	24.0
30	14	APR	1980	1445	80.400772	-22.218311	72	3	34	190	58.0	47.0
30	14	APR	1980	1512	80.400574	-22.187820	79	3	29	140	59.0	117.0
30	14	APR	1980	1540	80.400665	-22.206767	66	3	33	200	77.0	24.0
30	14	APR	1980	1632	80.400925	-22.220986	80	3	29	190	53.0	114.0
30	14	APR	1980	1659	80.400696	-22.205235	68	3	30	140	56.0	45.0
30	14	APR	1980	1726	80.400299	-22.216427	69	3	29	200	68.0	46.0
30	14	APR	1980	1815	80.400421	-22.209747	63	3	35	140	50.0	21.0
30	14	APR	1980	1911	80.400040	-22.228359	77	3	32	200	89.0	131.0
30	14	APR	1980	1946	80.400238	-22.220309	72	3	34	110	64.0	61.0
30	14	APR	1980	2032	80.400742	-22.223362	83	3	36	140	51.0	20.0
30	14	APR	1980	2153	80.401016	-22.216213	72	3	32	190	77.0	49.0
30	14	APR	1980	2218	80.401031	-22.230022	67	3	30	140	47.0	39.0
30	14	APR	1980	2340	80.400940	-22.236858	69	3	29	190	42.0	30.0
30	15	APR	1980	4	80.401531	-22.267712	75	4	34	140	47.0	93.0
30	15	APR	1980	28	80.400803	-22.233974	70	3	31	200	82.0	75.0
30	15	APR	1980	126	80.400253	-22.288967	70	3	36	190	66.0	29.0
30	15	APR	1980	214	80.404419	-22.321507	65	3	23	200	75.0	41.0
30	15	APR	1980	312	80.402252	-22.421249	75	3	34	190	87.0	91.0
30	15	APR	1980	400	80.400128	-22.422298	65	3	24	200	86.0	44.0
30	15	APR	1980	525	80.407196	-22.495331	75	3	33	140	60.0	46.0
30	15	APR	1980	540	80.408005	-22.508961	69	3	23	200	81.0	40.0
30	15	APR	1980	712	80.409775	-22.621082	71	3	32	140	53.0	20.0
30	15	APR	1980	834	80.408539	-22.721512	75	3	25	190	73.0	81.0
30	15	APR	1980	900	80.410461	-22.744203	72	3	34	140	59.0	28.0
30	15	APR	1980	1021	80.410843	-22.862610	69	3	33	190	52.0	32.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	15	APR	1980	1208	80.412170	-22.979729	67	3	30	190	56.0	25.0
30	15	APR	1980	1356	80.412537	-23.082081	69	3	33	190	63.0	35.0
30	15	APR	1980	1543	80.413361	-23.175941	70	3	31	190	54.0	66.0
30	15	APR	1980	1607	80.411896	-23.173828	71	3	30	140	36.0	45.0
30	15	APR	1980	1754	80.412521	-23.273876	65	3	28	140	56.0	34.0
30	15	APR	1980	2044	80.413696	-23.439281	77	4	27	110	69.0	115.0
30	15	APR	1980	2104	80.413301	-23.398582	75	3	35	190	85.0	84.0
30	15	APR	1980	2250	80.413132	-23.477612	70	3	27	190	72.0	29.0
30	15	APR	1980	2312	80.413081	-23.522644	71	3	28	140	47.0	63.0
30	16	APR	1980	37	80.412979	-23.604609	69	3	23	190	84.0	30.0
30	16	APR	1980	224	80.413666	-23.593147	72	3	24	190	75.0	59.0
30	16	APR	1980	620	80.413895	-23.595039	72	3	17	140	77.0	60.0
30	16	APR	1980	744	80.414505	-23.592777	79	3	30	190	47.0	92.0
30	16	APR	1980	932	80.414627	-23.605659	71	3	33	190	46.0	37.0
30	16	APR	1980	1306	80.414642	-23.606121	68	3	37	190	57.0	25.0
30	16	APR	1980	1454	80.414307	-23.621212	72	3	35	190	51.0	50.0
30	16	APR	1980	1511	80.414078	-23.604790	66	3	20	200	77.0	24.0
30	16	APR	1980	1641	80.414764	-23.629314	81	3	26	190	66.0	135.0
30	16	APR	1980	1702	80.413696	-23.592175	68	3	29	140	56.0	43.0
30	16	APR	1980	1848	80.414734	-23.608097	63	3	22	140	55.0	22.0
30	16	APR	1980	2034	80.414368	-23.629185	63	3	27	140	75.0	29.0
30	16	APR	1980	2220	80.414642	-23.639885	68	3	23	140	75.0	71.0
30	16	APR	1980	2348	80.413208	-23.629086	69	3	29	190	77.0	26.0
30	17	APR	1980	7	80.413696	-23.653820	76	3	32	140	51.0	118.0
30	17	APR	1980	340	80.410614	-23.607063	83	3	30	140	72.0	122.0
30	17	APR	1980	528	80.411118	-23.635326	75	3	27	140	84.0	51.0
30	17	APR	1980	715	80.410233	-23.648808	71	3	27	140	82.0	33.0
30	17	APR	1980	902	80.409607	-23.648144	73	3	25	140	65.0	39.0
30	17	APR	1980	1049	80.407394	-23.668873	79	3	27	140	77.0	77.0
30	17	APR	1980	1610	80.401581	-23.599850	71	3	31	140	52.0	59.0
30	17	APR	1980	1756	80.400421	-23.592316	65	3	33	140	52.0	28.0
30	17	APR	1980	1942	80.398056	-23.570576	62	3	31	140	47.0	18.0
30	17	APR	1980	2129	80.395187	-23.540146	55	3	24	140	49.0	31.0
30	17	APR	1980	2315	80.391674	-23.509254	72	3	22	140	58.0	83.0
30	18	APR	1980	435	80.371124	-23.709824	77	3	31	140	58.0	59.0
30	18	APR	1980	622	80.361518	-23.767792	72	3	31	140	78.0	35.0
30	18	APR	1980	753	80.353333	-23.880466	78	3	31	190	53.0	89.0
30	18	APR	1980	810	80.349945	-23.842545	71	3	32	140	56.0	18.0
30	18	APR	1980	940	80.341442	-23.934025	70	3	34	190	57.0	38.0
30	18	APR	1980	957	80.330503	-23.939377	75	3	35	140	52.0	44.0
30	18	APR	1980	1129	80.328079	-24.000557	66	3	35	190	62.0	27.0
30	18	APR	1980	1144	80.321198	-24.118492	83	4	29	140	83.0	132.0
30	18	APR	1980	1315	80.313243	-24.073154	67	3	33	190	65.0	32.0
30	18	APR	1980	1704	80.283850	-24.176126	66	3	27	140	60.0	39.0
30	18	APR	1980	1811	80.276900	-24.227032	71	4	32	200	78.0	72.0
30	18	APR	1980	1950	80.272014	-24.251320	62	3	24	140	66.0	17.0
30	18	APR	1980	2057	80.261396	-24.308685	63	3	23	140	74.0	37.0
30	18	APR	1980	2210	80.247070	-24.334663	70	4	35	190	78.0	42.0
30	18	APR	1980	2223	80.249374	-24.360053	67	4	22	140	63.0	66.0
30	18	APR	1980	2328	80.243332	-24.451214	74	3	22	200	72.0	131.0
30	19	APR	1980	114	80.227707	-24.457399	66	3	34	200	66.0	40.0
30	19	APR	1980	143	80.226304	-24.456858	69	4	21	190	86.0	48.0
30	19	APR	1980	300	80.219269	-24.503540	63	3	29	200	61.0	25.0
30	19	APR	1980	446	80.208984	-24.553009	65	3	30	200	47.0	25.0
30	19	APR	1980	632	80.199310	-24.610352	72	4	27	200	67.0	63.0
30	19	APR	1980	703	80.196502	-24.657721	82	4	31	190	48.0	123.0
30	19	APR	1980	718	80.197342	-24.616589	70	4	27	140	61.0	19.0
30	19	APR	1980	850	80.190048	-24.667023	72	3	28	190	48.0	56.0
30	19	APR	1980	905	80.187149	-24.657463	72	4	22	140	77.0	26.0
30	19	APR	1980	1038	80.181503	-24.690533	67	3	26	190	73.0	52.0
30	19	APR	1980	1052	80.174986	-24.715664	78	4	24	140	72.0	66.0
30	19	APR	1980	1148	80.173874	-24.671272	72	4	29	200	60.0	81.0
30	19	APR	1980	1226	80.173065	-24.723022	66	3	35	190	62.0	24.0
30	19	APR	1980	1334	80.167236	-24.732956	65	4	33	200	60.0	29.0
30	19	APR	1980	1413	80.165540	-24.773427	69	4	34	190	62.0	44.0
30	19	APR	1980	1518	80.161270	-24.775528	64	4	27	200	65.0	21.0
30	19	APR	1980	1704	80.156017	-24.811722	59	4	30	200	64.0	37.0
30	19	APR	1980	1849	80.151[illegible]76	-24.833103	74	4	22	200	81.0	108.0

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SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	19	APR	1980	2121	86.144440	-24.843090	71	4	27	190	90.0	64.0
30	20	APR	1980	6	86.139160	-24.896343	70	4	31	200	48.0	43.0
30	20	APR	1980	152	86.134044	-24.897793	63	4	30	200	44.0	22.0
30	20	APR	1980	240	86.133072	-24.900146	72	4	29	190	89.0	80.0
30	20	APR	1980	338	86.130173	-24.900627	63	4	32	200	65.0	24.0
30	20	APR	1980	710	86.124969	-24.923019	75	4	30	200	48.0	70.0
30	20	APR	1980	1323	86.119522	-24.871510	67	4	31	190	64.0	30.0
30	20	APR	1980	1411	86.119171	-24.849266	64	3	26	200	61.0	23.0
30	20	APR	1980	1556	86.118973	-24.853607	64	4	27	200	60.0	19.0
30	20	APR	1980	1741	86.118973	-24.846935	69	4	28	200	63.0	52.0
30	20	APR	1980	2258	86.118011	-24.821983	76	4	28	200	47.0	75.0
30	21	APR	1980	4	86.117661	-24.820023	66	4	27	190	88.0	28.0
30	21	APR	1980	44	86.117111	-24.816063	66	3	29	200	43.0	30.0
30	21	APR	1980	230	86.116028	-24.801323	62	3	28	200	49.0	22.0
30	21	APR	1980	748	86.114273	-24.781158	79	4	26	200	57.0	108.0
30	21	APR	1980	859	86.113968	-24.763058	71	3	27	190	49.0	53.0
30	21	APR	1980	1046	86.113358	-24.763786	65	3	28	190	54.0	29.0
30	21	APR	1980	1234	86.111115	-24.758381	65	4	32	190	86.0	38.0
30	21	APR	1980	1304	86.110809	-24.747982	66	4	33	200	61.0	35.0
30	21	APR	1980	1421	86.109085	-24.769276	70	4	31	190	56.0	47.0
30	21	APR	1980	1449	86.108612	-24.761971	63	4	31	200	62.0	20.0
30	21	APR	1980	1608	86.105881	-24.797169	78	4	28	190	54.0	90.0
30	21	APR	1980	1634	86.105442	-24.770222	65	4	32	200	69.0	33.0
30	21	APR	1980	1319	86.103516	-24.779282	72	4	33	200	58.0	60.0
30	21	APR	1980	2256	86.097656	-24.797398	63	4	28	130	47.0	17.0
30	21	APR	1980	2336	86.097168	-24.798473	71	4	31	200	48.0	51.0
30	22	APR	1980	102	86.094208	-24.806271	68	4	33	190	86.0	37.0
30	22	APR	1980	122	86.094254	-24.807068	64	4	31	200	57.0	31.0
30	22	APR	1980	308	86.090790	-24.812637	62	4	33	200	50.0	19.0
30	22	APR	1980	454	86.087296	-24.824417	65	4	32	200	48.0	28.0
30	22	APR	1980	640	86.084122	-24.840130	73	4	27	200	58.0	63.0
30	22	APR	1980	751	86.082581	-24.829876	73	4	22	130	54.0	41.0
30	22	APR	1980	1145	86.073715	-24.848267	64	4	28	190	66.0	31.0
30	22	APR	1980	1332	86.068695	-24.863014	67	4	30	190	53.0	29.0
30	22	APR	1980	1520	86.063000	-24.871887	74	4	33	190	65.0	76.0
30	22	APR	1980	2226	86.046997	-24.850756	78	4	25	200	55.0	96.0
30	23	APR	1980	40	86.037277	-24.802498	70	4	32	130	54.0	52.0
30	23	APR	1980	849	86.016391	-24.791023	68	4	22	130	54.0	33.0
30	23	APR	1980	1745	85.989624	-24.771381	73	5	25	130	59.0	116.0
30	23	APR	1980	1950	85.984894	-24.848499	60	4	28	140	51.0	21.0
30	24	APR	1980	019	85.961090	-24.923875	70	4	20	200	49.0	47.0
30	24	APR	1980	1107	85.950989	-24.900276	72	4	30	200	48.0	52.0
30	24	APR	1980	1312	85.947311	-24.918221	64	4	32	200	57.0	28.0
30	24	APR	1980	1457	85.943151	-24.920929	62	4	32	200	62.0	20.0
30	24	APR	1980	1526	85.941277	-24.897484	71	4	23	140	47.0	57.0
30	24	APR	1980	1642	85.939285	-24.918747	65	4	28	200	58.0	37.0
30	24	APR	1980	1712	85.937729	-24.912186	63	4	27	140	52.0	29.0
30	24	APR	1980	1827	85.935004	-24.908245	73	4	32	200	70.0	81.0
30	24	APR	1980	1953	85.933035	-24.909065	60	4	28	140	57.0	23.0
30	24	APR	1980	2044	85.930573	-24.911419	62	4	14	140	81.0	48.0
30	24	APR	1980	2344	85.923462	-24.906998	69	4	29	200	45.0	42.0
30	25	APR	1980	130	85.919342	-24.897400	62	4	30	200	48.0	23.0
30	25	APR	1980	316	85.914636	-24.897587	61	4	29	200	46.0	18.0
30	25	APR	1980	502	85.910172	-24.901123	65	4	23	200	71.0	37.0
30	25	APR	1980	648	85.904724	-24.910843	74	4	26	200	35.0	52.0
30	25	APR	1980	1019	85.893082	-24.923227	78	5	26	200	79.0	125.0
30	25	APR	1980	1100	85.889504	-24.927849	79	5	24	140	66.0	76.0
30	25	APR	1980	1204	85.883208	-24.846214	64	4	30	200	64.0	45.0
30	25	APR	1980	1349	85.880173	-24.835281	62	4	31	200	53.0	20.0
30	25	APR	1980	1534	85.873322	-24.812006	62	4	32	200	55.0	20.0
30	25	APR	1980	1719	85.865077	-24.776809	67	4	28	200	60.0	42.0
30	25	APR	1980	1904	85.857727	-24.726142	77	5	30	200	67.0	113.0
30	25	APR	1980	2236	85.849973	-24.716651	75	4	26	200	42.0	62.0
30	26	APR	1980	22	85.833691	-24.669933	65	4	28	200	47.0	33.0
30	26	APR	1980	105	85.830536	-24.652916	72	4	20	110	83.0	88.0
30	26	APR	1980	206	85.825577	-24.630760	60	4	23	200	42.0	20.0
30	26	APR	1980	354	85.817027	-24.603164	61	4	26	200	44.0	18.0
30	26	APR	1980	440	85.814331	-24.589138	64	4	21	110	77.0	17.0

FRAM 2 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	DP	SAT	STDY	STDX
30	26	APR	1980	540	85.810806	-24.587158	67	4	27	200	33.0	25.0
30	26	APR	1980	628	85.807724	-24.576530	68	4	22	110	53.0	24.0
30	26	APR	1980	726	85.804031	-24.591995	79	5	22	200	57.0	94.0
30	26	APR	1980	815	85.802567	-24.546093	77	5	21	110	72.0	90.0
30	26	APR	1980	1056	85.793961	-24.483604	72	4	31	200	59.0	71.0
30	26	APR	1980	1149	85.791260	-24.430588	77	5	22	110	76.0	122.0
30	26	APR	1980	1242	85.789581	-24.445057	64	4	28	200	38.0	22.0
30	26	APR	1980	1336	85.787628	-24.422512	68	4	23	110	71.0	40.0
30	26	APR	1980	1427	85.786163	-24.406994	61	4	22	200	56.0	19.0
30	26	APR	1980	1522	85.784042	-24.390221	63	4	25	110	66.0	17.0
30	26	APR	1980	1612	85.782150	-24.373051	62	4	30	200	59.0	27.0
30	26	APR	1980	1709	85.779526	-24.363293	63	4	25	110	63.0	26.0
30	26	APR	1980	1757	85.777710	-24.352016	70	4	31	200	63.0	58.0
30	26	APR	1980	1856	85.777206	-24.325111	69	4	23	110	82.0	70.0
30	26	APR	1980	1942	85.774597	-24.336609	81	7	24	200	59.0	128.0
30	26	APR	1980	2229	85.771667	-24.268227	87	8	25	110	41.0	42.0
30	27	APR	1980	100	85.769470	-24.256096	82	4	29	200	53.0	29.0
30	27	APR	1980	204	85.769531	-24.246319	67	4	22	110	41.0	27.0
30	27	APR	1980	246	85.768539	-24.243713	59	4	24	200	55.0	23.0
30	27	APR	1980	351	85.768372	-24.236427	64	4	24	110	46.0	18.0
30	27	APR	1980	432	85.767975	-24.239456	62	4	19	200	71.0	29.0
30	27	APR	1980	539	85.767426	-24.230198	65	4	21	110	50.0	23.0
30	27	APR	1980	618	85.767670	-24.229355	71	4	32	200	44.0	50.0
30	27	APR	1980	726	85.767303	-24.224472	73	4	26	110	45.0	45.0
30	27	APR	1980	1135	85.767305	-24.193863	68	4	28	200	63.0	49.0
30	27	APR	1980	1320	85.767593	-24.201916	61	4	31	200	51.0	21.0
30	27	APR	1980	1434	85.767258	-24.197483	65	4	26	110	70.0	26.0
30	27	APR	1980	1621	85.767334	-24.210339	63	4	25	110	56.0	20.0
30	27	APR	1980	1650	85.767776	-24.222336	64	4	18	200	56.0	40.0
30	27	APR	1980	1835	85.768021	-24.229698	74	5	20	200	64.0	99.0
30	28	APR	1980	303	85.768875	-24.245770	64	4	28	110	41.0	20.0
30	28	APR	1980	638	85.769333	-24.255215	69	4	30	110	42.0	30.0
30	28	APR	1980	825	85.769394	-24.265137	79	4	35	110	40.0	67.0
30	28	APR	1980	836	85.770630	-24.246701	68	6	13	190	65.0	70.0
30	28	APR	1980	1159	85.770676	-24.233696	76	5	31	110	45.0	67.0
30	28	APR	1980	1212	85.770035	-24.238453	65	4	19	200	65.0	40.0
30	28	APR	1980	1545	85.771302	-24.240780	77	5	23	190	88.0	123.0
30	28	APR	1980	1719	85.772544	-24.254295	64	4	34	110	54.0	21.0
30	28	APR	1980	2106	85.783371	-24.287971	67	4	31	190	75.0	42.0
30	28	APR	1980	2236	85.786743	-24.334877	70	4	39	140	55.0	68.0
30	29	APR	1980	39	85.791809	-24.351597	65	4	25	190	63.0	35.0
30	29	APR	1980	731	85.810456	-24.430309	68	4	23	140	79.0	28.0
30	29	APR	1980	1121	85.826233	-24.456836	62	4	30	190	59.0	22.0
30	29	APR	1980	1256	85.829449	-24.465086	63	4	16	200	65.0	33.0
30	29	APR	1980	1308	85.831314	-24.471019	65	4	29	190	55.0	32.0
30	29	APR	1980	1459	85.835842	-24.483456	73	4	31	190	62.0	58.0
30	29	APR	1980	1625	85.838849	-24.498409	64	4	26	140	45.0	33.0
30	29	APR	1980	2144	85.859021	-24.553061	66	4	21	140	43.0	34.0
30	29	APR	1980	2203	85.851044	-24.540314	65	4	27	190	81.0	33.0
30	30	APR	1980	136	85.857497	-24.603725	69	4	28	190	90.0	53.0
30	30	APR	1980	451	85.865708	-24.617401	71	4	20	140	75.0	37.0
30	30	APR	1980	657	85.869203	-24.639847	77	4	17	190	69.0	133.0
30	30	APR	1980	844	85.872009	-24.680595	68	4	35	190	52.0	36.0
30	30	APR	1980	1032	85.875275	-24.713837	63	4	26	190	53.0	30.0
30	30	APR	1980	1159	85.877975	-24.732903	69	4	20	130	45.0	26.0
30	30	APR	1980	1219	85.878250	-24.739990	63	4	33	190	58.0	24.0
30	30	APR	1980	1406	85.880284	-24.769989	69	4	31	190	60.0	47.0
30	30	APR	1980	1533	85.881075	-24.781601	67	4	19	140	79.0	58.0
30	30	APR	1980	1554	85.882945	-24.808041	79	4	34	190	56.0	123.0
30	30	APR	1980	1656	85.882533	-24.839245	66	4	22	200	59.0	43.0
30	30	APR	1980	1719	85.883484	-24.835419	61	4	19	140	61.0	35.0
30	30	APR	1980	1843	85.884427	-24.905361	76	5	28	200	56.0	93.0
30	30	APR	1980	1906	85.885223	-24.882156	60	4	26	140	54.0	21.0
30	30	APR	1980	2114	85.888902	-24.929890	67	4	28	190	73.0	37.0
30	30	APR	1980	2214	85.889601	-24.940411	75	4	20	200	38.0	65.0
30	1	MAY	1980	0	85.891870	-24.999016	65	4	23	200	31.0	29.0
30	1	MAY	1980	47	85.892197	-25.019970	66	4	25	190	37.0	41.0
30	1	MAY	1980	145	85.895355	-25.032555	60	4	24	200	34.0	16.0

FRAM 2 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	OP	SAT	STDY	STDX
30	1	MAY	1980	332	85.898483	-25.066265	61	4	29	200	43.0	19.0
30	1	MAY	1980	518	85.900574	-25.097661	67	4	27	200	33.0	27.0
30	1	MAY	1980	704	85.902130	-25.122803	78	4	29	200	26.0	53.0
30	1	MAY	1980	922	85.903732	-25.125755	66	4	18	130	69.0	26.0
30	1	MAY	1980	942	85.903290	-25.128113	64	4	27	190	61.0	35.0
30	1	MAY	1980	1035	85.903854	-25.119244	73	4	26	200	54.0	78.0
30	1	MAY	1980	1220	85.903885	-25.125130	64	4	31	200	63.0	36.0
30	1	MAY	1980	1317	85.903931	-25.137310	66	4	31	190	53.0	33.0
30	1	MAY	1980	1405	85.903625	-25.125034	61	4	23	200	48.0	16.0
30	1	MAY	1980	1441	85.902512	-25.109104	72	4	30	140	56.0	71.0
30	1	MAY	1980	1504	85.902725	-25.140793	74	4	32	190	57.0	75.0
30	1	MAY	1980	1520	85.902344	-25.123104	62	4	30	200	45.0	20.0
30	1	MAY	1980	1628	85.901398	-25.115551	64	4	24	140	53.0	32.0
30	1	MAY	1980	1736	85.900467	-25.110062	69	4	29	200	62.0	56.0
30	1	MAY	1980	1814	85.898849	-25.106712	60	4	23	140	65.0	33.0
30	1	MAY	1980	2000	85.895355	-25.091570	61	4	27	140	54.0	21.0
30	1	MAY	1980	2212	85.889633	-25.070244	65	4	27	190	69.0	24.0
30	1	MAY	1980	2252	85.888977	-25.076778	70	4	29	200	48.0	50.0
30	1	MAY	1980	2358	85.885834	-25.080994	65	4	26	190	72.0	29.0
30	2	MAY	1980	36	85.885590	-25.082321	62	4	29	200	41.0	22.0
30	2	MAY	1980	224	85.882757	-25.087254	60	4	30	200	39.0	15.0
30	2	MAY	1980	300	85.882401	-25.092316	79	5	18	140	88.0	130.0
30	2	MAY	1980	410	85.879084	-25.097542	62	4	31	200	47.0	25.0
30	2	MAY	1980	454	85.878677	-25.096096	71	4	24	140	69.0	49.0
30	2	MAY	1980	556	85.875019	-25.102184	71	4	30	200	31.0	35.0
30	2	MAY	1980	641	85.873459	-25.070049	68	4	22	140	72.0	23.0
30	2	MAY	1980	828	85.867142	-25.032784	70	4	36	140	52.0	27.0
30	2	MAY	1980	1016	85.860401	-25.003113	78	4	22	140	71.0	72.0
30	2	MAY	1980	1040	85.860321	-24.942459	62	4	24	190	67.0	26.0
30	2	MAY	1980	1113	85.859100	-24.913364	69	4	25	200	46.0	40.0
30	2	MAY	1980	1258	85.855209	-24.848213	61	4	29	200	40.0	17.0
30	2	MAY	1980	1349	85.852185	-24.762959	77	5	26	140	66.0	117.0
30	2	MAY	1980	1415	85.850525	-24.805630	70	4	24	190	67.0	46.0
30	2	MAY	1980	1443	85.851700	-24.765816	60	4	29	200	47.0	15.0
30	2	MAY	1980	1536	85.848541	-24.713131	67	4	29	140	37.0	32.0
30	2	MAY	1980	1722	85.844101	-24.635555	61	4	31	140	42.0	17.0
30	2	MAY	1980	1813	85.842331	-24.587074	74	5	25	200	72.0	101.0
30	2	MAY	1980	1908	85.839447	-24.551331	60	4	31	140	45.0	17.0
30	2	MAY	1980	1936	85.837000	-24.523285	73	4	27	190	71.0	71.0
30	2	MAY	1980	2054	85.834107	-24.466431	61	4	30	140	57.0	41.0
30	2	MAY	1980	2123	85.832449	-24.449780	60	4	31	190	64.0	24.0
30	2	MAY	1980	2241	85.829773	-24.386505	72	4	24	140	42.0	63.0
30	2	MAY	1980	2309	85.828278	-24.371895	63	4	33	190	68.0	20.0
30	2	MAY	1980	2335	85.826536	-24.359203	60	4	20	200	52.0	50.0
30	3	MAY	1980	110	85.822413	-24.263057	60	4	31	200	32.0	13.0
30	3	MAY	1980	302	85.819771	-24.222350	60	4	26	200	45.0	13.0
30	3	MAY	1980	401	85.816711	-24.180046	73	4	23	140	82.0	75.0
30	3	MAY	1980	448	85.815074	-24.163128	65	4	19	200	51.0	30.0
30	3	MAY	1980	548	85.812592	-24.120331	55	4	26	140	61.0	37.0
30	3	MAY	1980	634	85.810837	-24.122219	75	4	28	200	37.0	59.0
30	3	MAY	1980	803	85.807063	-24.039513	59	4	26	190	56.0	55.0
30	3	MAY	1980	923	85.802811	-24.028098	75	4	30	140	80.0	58.0
30	3	MAY	1980	950	85.802080	-23.981888	63	4	29	190	66.0	32.0
30	3	MAY	1980	1005	85.802277	-23.953552	75	5	20	200	65.0	80.0
30	3	MAY	1980	1138	85.797455	-23.930060	62	4	32	190	59.0	23.0
30	3	MAY	1980	1326	85.792221	-23.887894	66	4	27	190	62.0	36.0
30	3	MAY	1980	1444	85.789081	-23.826175	70	4	30	140	60.0	85.0
30	3	MAY	1980	1513	85.788034	-23.806730	76	4	32	190	55.0	82.0
30	3	MAY	1980	1630	85.784033	-23.797467	62	4	34	140	46.0	25.0
30	3	MAY	1980	1819	85.779455	-23.760350	59	4	30	140	55.0	19.0
30	3	MAY	1980	2002	85.775757	-23.720478	61	4	33	140	49.0	24.0
30	3	MAY	1980	2034	85.773544	-23.700539	68	4	32	190	70.0	43.0
30	3	MAY	1980	2149	85.771845	-23.669273	68	4	24	140	48.0	48.0
30	3	MAY	1980	2220	85.770554	-23.667098	63	4	26	190	79.0	32.0
30	3	MAY	1980	2335	85.768592	-23.668303	79	5	33	140	38.0	125.0
30	4	MAY	1980	309	85.763240	-23.513018	76	4	34	140	57.0	55.0
30	4	MAY	1980	459	85.760376	-23.469201	69	4	29	140	52.0	26.0
30	4	MAY	1980	644	85.757675	-23.434052	67	4	27	140	59.0	19.0

FRAM 2 NAVIGATION - ORIGINAL

SN	DY	MON	YEAR	GMT	LATITUDE	LONGITUDE	EL	I	OP	SAT	STDY	STDX
30	4	MAY	1980	831	85.755066	-23.398399	71	4	30	140	57.0	30.0
30	4	MAY	1980	1018	85.751968	-23.375206	90	5	33	140	65.0	83.0

Kalman Filtering of Position Data

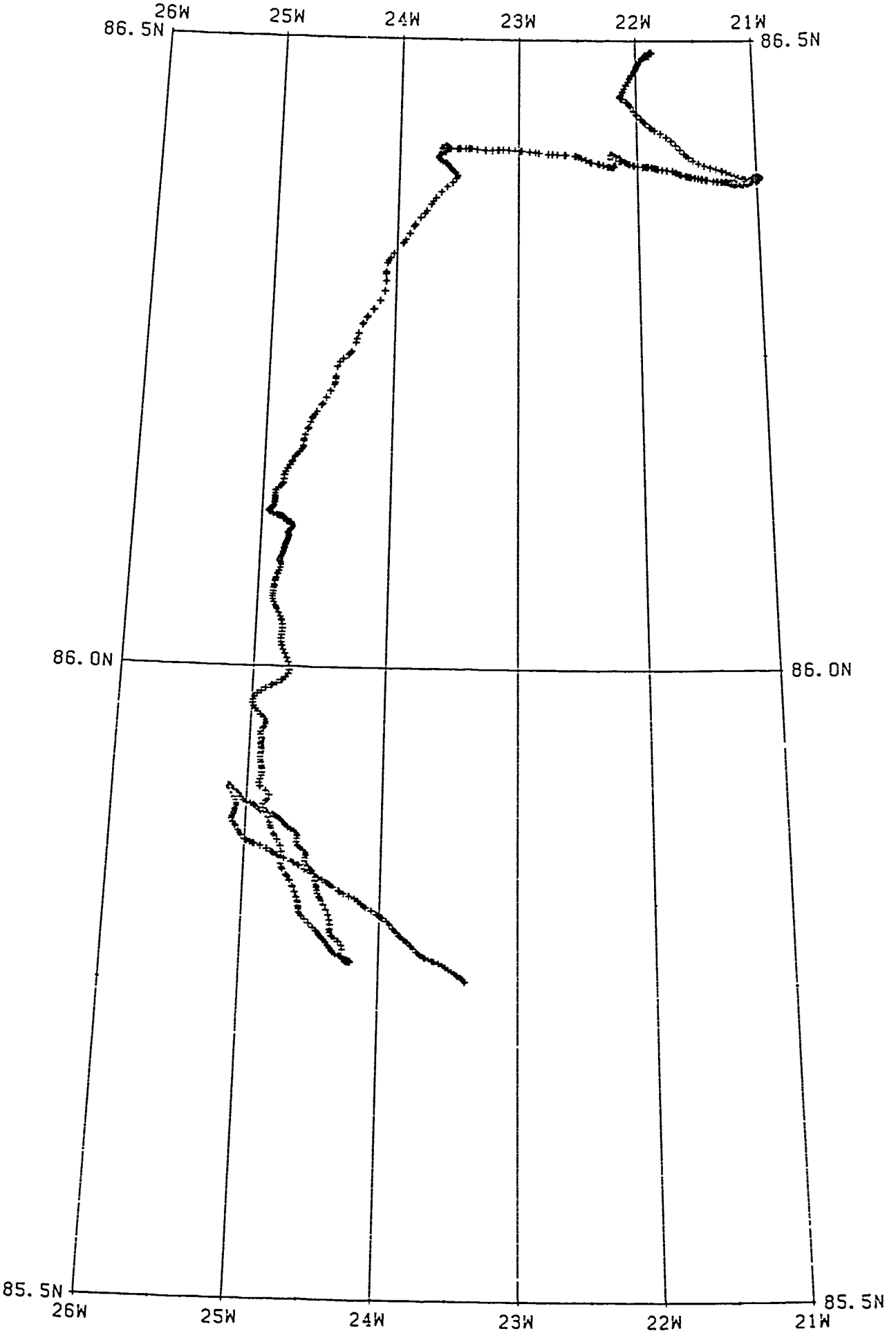
A Kalman filtering technique was used on the FRAM II navigation data set. At FRAM II the density of the fixes ranged from 7 to 29 per day. The main purpose of the filter was to smooth the track and provide fixes at evenly-spaced time intervals of one hour. In addition, ice velocities were computed at the same evenly-spaced intervals. More detail on the Kalman filtering techniques for irregularly-spaced data sets is given in Thorndike and Manley (1980). Removal of oscillations in the ice motion with periods greater than that of the inertial period was estimated to be less than 5%.

SMOOTHED HOURLY POSITIONS AND ICE VELOCITIES OF THE FRAM II DRIFTING STATION

Key to column headings

DY	Day
MON	Month
YEAR	Year
GMT	Greenwich mean time
JULDAY	Relative Julian Day, Day 1 = Jan 01, 1980
LATITUDE	North latitude in decimal degrees
LONGITUDE	Longitude in decimal degrees, (negative implies west longitude)
N-VEL	North-South component of ice velocity (cm/sec) positive values indicate north velocity negative values indicate south velocity
E-VEL	East-West component of ice velocity (cm/sec) positive values indicate east velocity negative values indicate west velocity

Note that along with the evenly spaced data is the filtered original data with associated ice velocity.


26W
25W
24W
23W
22W
21W
86. 5N
86. 0N
85. 5N

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
1	APR	1980	1215	92.510414	80.489861	-21.863552	0.0	-0.1
1	APR	1980	1255	92.538200	80.489868	-21.864040	0.1	-0.2
1	APR	1980	1300	92.541664	80.489868	-21.864128	0.1	-0.2
1	APR	1980	1400	92.583336	80.489975	-21.865515	0.5	-0.3
1	APR	1980	1500	92.625000	80.490196	-21.866909	0.8	-0.3
1	APR	1980	1600	92.666664	80.490448	-21.868643	0.7	-0.5
1	APR	1980	1700	92.708336	80.490570	-21.872696	0.0	-1.0
1	APR	1980	1800	92.750000	80.490410	-21.879305	-1.0	-1.5
1	APR	1980	1900	92.791664	80.489952	-21.887589	-1.8	-1.5
1	APR	1980	1922	92.806940	80.489731	-21.890377	-2.0	-1.3
1	APR	1980	2000	92.833336	80.489311	-21.894093	-2.0	-0.8
1	APR	1980	2100	92.875000	80.488754	-21.895607	-1.2	0.2
1	APR	1980	2108	92.880554	80.488708	-21.895451	-1.0	0.3
1	APR	1980	2125	92.892365	80.488640	-21.894918	-0.5	0.4
1	APR	1980	2151	92.910423	80.488617	-21.893978	0.2	0.3
1	APR	1980	2200	92.916664	80.488632	-21.893787	0.4	0.2
1	APR	1980	2254	92.954103	80.488831	-21.893911	0.6	0.0
1	APR	1980	2300	92.958336	80.488846	-21.893906	0.5	0.0
2	APR	1980	0	93.000000	80.488823	-21.892279	-0.7	0.6
2	APR	1980	41	93.028473	80.488609	-21.890369	-1.2	0.2
2	APR	1980	100	93.041664	80.488480	-21.890451	-1.3	-0.4
2	APR	1980	100	93.041664	80.488480	-21.890451	-1.3	-0.4
2	APR	1980	124	93.058327	80.488297	-21.892197	-1.4	-1.3
2	APR	1980	200	93.083336	80.487991	-21.895684	-1.8	-2.8
2	APR	1980	247	93.115974	80.487488	-21.912905	-2.1	-3.8
2	APR	1980	300	93.125000	80.487343	-21.917255	-2.0	-3.8
2	APR	1980	310	93.131950	80.487236	-21.920582	-2.0	-3.7
2	APR	1980	400	93.166664	80.486771	-21.935047	-1.3	-2.5
2	APR	1980	500	93.208336	80.486389	-21.943544	-1.5	-1.0
2	APR	1980	600	93.250000	80.485497	-21.950182	-4.3	-1.9
2	APR	1980	602	93.251396	80.485451	-21.950525	-4.5	-2.0
2	APR	1980	700	93.291664	80.483551	-21.965029	-7.3	-3.5
2	APR	1980	748	93.325005	80.481522	-21.980520	-8.1	-3.5
2	APR	1980	800	93.333336	80.481003	-21.984137	-8.0	-3.3
2	APR	1980	809	93.339577	80.480606	-21.986692	-8.0	-3.1
2	APR	1980	831	93.354858	80.479652	-21.992361	-8.0	-2.7
2	APR	1980	900	93.375000	80.478386	-21.998875	-8.1	-2.5
2	APR	1980	936	93.400002	80.476768	-22.007435	-8.0	-3.1
2	APR	1980	1000	93.416664	80.475624	-22.014843	-9.1	-3.9
2	APR	1980	1014	93.426109	80.474709	-22.021484	-9.0	-4.5
2	APR	1980	1100	93.458336	80.472481	-22.038888	-9.7	-4.4
2	APR	1980	1123	93.474304	80.471313	-22.048960	-9.0	-3.7
2	APR	1980	1200	93.500000	80.469629	-22.057110	-8.0	-2.7
2	APR	1980	1210	93.504173	80.469360	-22.056535	-7.9	-2.7
2	APR	1980	1300	93.541664	80.467057	-22.070993	-7.9	-2.9
2	APR	1980	1353	93.574585	80.464745	-22.086703	-8.5	-3.7
2	APR	1980	1400	93.583336	80.464417	-22.089078	-8.5	-3.8
2	APR	1980	1500	93.625000	80.461563	-22.107941	-9.1	-3.0
2	APR	1980	1541	93.653473	80.459541	-22.117002	-9.1	-2.2
2	APR	1980	1600	93.666664	80.458618	-22.120687	-8.9	-2.3
2	APR	1980	1644	93.697227	80.456883	-22.130297	-7.1	-2.8
2	APR	1980	1700	93.708336	80.456116	-22.134251	-6.1	-2.8
2	APR	1980	1704	93.711113	80.455986	-22.135731	-5.9	-2.8
2	APR	1980	1723	93.727776	80.455315	-22.140276	-4.5	-1.8
2	APR	1980	1800	93.750000	80.454659	-22.141582	-3.3	1.0
2	APR	1980	1830	93.770836	80.454109	-22.135399	-3.7	3.6
2	APR	1980	1850	93.784721	80.453659	-22.127689	-4.9	5.0
2	APR	1980	1900	93.791664	80.453392	-22.123232	-5.2	5.5
2	APR	1980	2000	93.833336	80.451050	-22.096680	-9.3	7.7
2	APR	1980	2016	93.844444	80.450584	-22.078059	-10.5	7.7
2	APR	1980	2037	93.859032	80.449944	-22.062193	-11.5	7.3
2	APR	1980	2100	93.875000	80.447487	-22.046746	-11.7	6.9
2	APR	1980	2101	93.875694	80.447429	-22.046229	-11.7	6.9
2	APR	1980	2200	93.916664	80.443810	-22.024737	-10.9	4.3
2	APR	1980	2202	93.917969	80.443687	-22.023476	-10.9	4.4
2	APR	1980	2244	93.945000	80.441071	-22.003429	-10.2	3.8
2	APR	1980	2300	93.958336	80.440414	-21.997126	-10.1	3.3
2	APR	1980	2349	93.992363	80.437775	-21.988349	-10.2	2.8

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
3	APR	1980	0	94.000000	80.437164	-21.961967	-10.4	6.6
3	APR	1980	35	94.024300	80.435188	-21.942602	-10.3	6.3
3	APR	1980	100	94.041664	80.433823	-21.928900	-9.8	6.4
3	APR	1980	158	94.081940	80.430992	-21.894011	-8.3	7.7
3	APR	1980	200	94.083336	80.430901	-21.892673	-8.3	7.7
3	APR	1980	221	94.097923	80.429985	-21.878004	-7.9	8.4
3	APR	1980	300	94.125000	80.426368	-21.848238	-7.5	9.1
3	APR	1980	400	94.166664	80.425896	-21.799698	-7.9	9.3
3	APR	1980	500	94.208336	80.423157	-21.753122	-9.0	8.5
3	APR	1980	600	94.250000	80.420044	-21.711363	-10.1	7.5
3	APR	1980	700	94.291664	80.416641	-21.674311	-10.8	6.8
3	APR	1980	800	94.333336	80.413139	-21.639946	-10.7	6.6
3	APR	1980	900	94.375000	80.409790	-21.605410	-9.9	6.9
3	APR	1980	929	94.395142	80.408287	-21.587845	-9.3	7.2
3	APR	1980	1000	94.416664	80.406784	-21.568174	-8.6	7.5
3	APR	1980	1100	94.458336	80.404213	-21.527239	-7.2	8.3
3	APR	1980	1200	94.500000	80.402077	-21.482655	-5.9	8.9
3	APR	1980	1300	94.541664	80.400322	-21.435436	-5.0	9.3
3	APR	1980	1400	94.583336	80.398827	-21.387274	-4.3	9.3
3	APR	1980	1500	94.625000	80.397461	-21.340115	-4.1	8.9
3	APR	1980	1600	94.666664	80.396116	-21.295704	-4.2	8.3
3	APR	1980	1615	94.677080	80.395782	-21.285183	-4.2	8.1
3	APR	1980	1700	94.708336	80.394745	-21.255152	-4.3	7.5
3	APR	1980	1800	94.750000	80.393364	-21.218567	-4.2	6.7
3	APR	1980	1900	94.791664	80.392052	-21.185303	-3.8	6.2
3	APR	1980	2000	94.833336	80.390915	-21.154301	-3.1	5.9
3	APR	1980	2100	94.875000	80.390068	-21.124529	-2.1	5.7
3	APR	1980	2134	94.890613	80.389748	-21.107935	-1.5	5.7
3	APR	1980	2200	94.916664	80.389572	-21.095356	-1.0	5.6
3	APR	1980	2300	94.958336	80.389404	-21.066914	-0.1	5.4
3	APR	1980	2346	94.990273	80.389450	-21.046190	0.4	5.1
4	APR	1980	0	95.000000	80.389488	-21.040155	0.6	5.0
4	APR	1980	100	95.041664	80.389732	-21.016144	0.9	4.3
4	APR	1980	200	95.083336	80.390068	-20.996176	1.1	3.4
4	APR	1980	300	95.125000	80.390419	-20.981464	1.1	2.3
4	APR	1980	400	95.166664	80.390739	-20.972895	0.9	1.0
4	APR	1980	500	95.208336	80.390999	-20.970800	0.7	-0.2
4	APR	1980	600	95.250000	80.391182	-20.975151	0.4	-1.4
4	APR	1980	700	95.291664	80.391289	-20.984797	0.2	-2.3
4	APR	1980	800	95.333336	80.391319	-20.997929	0.0	-2.7
4	APR	1980	839	95.350413	80.391296	-21.007085	-0.2	-2.7
4	APR	1980	900	95.375000	80.391273	-21.011932	-0.2	-2.6
4	APR	1980	1000	95.416664	80.391174	-21.024122	-0.4	-1.9
4	APR	1980	1100	95.458336	80.391022	-21.030620	-0.6	-0.5
4	APR	1980	1200	95.500000	80.390816	-21.028427	-0.7	1.3
4	APR	1980	1214	95.504727	80.390762	-21.026560	-0.7	1.5
4	APR	1980	1300	95.541664	80.390564	-21.017172	-0.9	2.9
4	APR	1980	1400	95.583336	80.390244	-20.999954	-1.1	3.5
4	APR	1980	1500	95.625000	80.389647	-20.983952	-1.4	2.5
4	APR	1980	1600	95.666664	80.389000	-20.976917	-1.6	0.1
4	APR	1980	1700	95.708336	80.388609	-20.984728	-1.8	-3.1
4	APR	1980	1800	95.750000	80.388222	-21.008715	-1.8	-6.0
4	APR	1980	1900	95.791664	80.387680	-21.043050	-1.5	-8.9
4	APR	1980	1932	95.813990	80.387451	-21.061119	-1.2	-9.2
4	APR	1980	2000	95.833336	80.387299	-21.074810	-0.8	-8.8
4	APR	1980	2040	95.855273	80.387177	-21.086543	-0.2	-7.9
4	APR	1980	2100	95.875000	80.387161	-21.090064	-0.1	-7.7
4	APR	1980	2200	95.916664	80.387134	-21.085630	-0.3	-1.6
4	APR	1980	2205	95.920135	80.387123	-21.084961	-0.4	-1.5
4	APR	1980	2257	95.956249	80.386909	-21.079454	-1.0	-0.7
4	APR	1980	2300	95.958336	80.386894	-21.079277	-1.0	-0.7
4	APR	1980	2325	95.975700	80.386749	-21.078485	-1.1	-0.1
4	APR	1980	2352	95.994418	80.386581	-21.078503	-1.1	-0.1
5	APR	1980	0	96.000000	80.386530	-21.078583	-1.1	-0.1
5	APR	1980	20	96.013855	80.386429	-21.078509	-0.9	-0.2
5	APR	1980	44	96.030550	80.386322	-21.079455	-0.7	-0.4
5	APR	1980	100	96.041664	80.386269	-21.079092	-0.6	-0.4
5	APR	1980	200	96.083336	80.386139	-21.084032	-0.4	-1.3

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
5	APR	1980	207	96.088196	66.386124	-21.064896	-0.4	-1.5
5	APR	1980	230	96.104164	66.386070	-21.088530	-0.5	-2.2
5	APR	1980	257	96.122917	66.385994	-21.094460	-0.6	-3.0
5	APR	1980	300	96.125000	66.385979	-21.095230	-0.6	-3.0
5	APR	1980	354	96.162498	66.385811	-21.111151	-0.4	-3.5
5	APR	1980	400	96.166664	66.385796	-21.112925	-0.3	-3.4
5	APR	1980	416	96.177773	66.385788	-21.117422	0.0	-3.1
5	APR	1980	500	96.208336	66.385895	-21.126774	0.8	-1.6
5	APR	1980	511	96.215973	66.385948	-21.128090	1.0	-1.1
5	APR	1980	600	96.250000	66.386246	-21.130360	0.9	-0.5
5	APR	1980	629	96.270142	66.386337	-21.132395	0.2	-1.3
5	APR	1980	658	96.290276	66.386307	-21.137115	-0.5	-2.5
5	APR	1980	700	96.291664	66.386307	-21.137558	-0.5	-2.6
5	APR	1980	800	96.333336	66.386086	-21.152769	-0.4	-2.3
5	APR	1980	815	96.343750	66.386070	-21.155109	0.0	-1.4
5	APR	1980	846	96.365273	66.386116	-21.156818	0.4	-0.1
5	APR	1980	900	96.375000	66.386147	-21.156683	0.5	0.3
5	APR	1980	1000	96.416664	66.386284	-21.155228	0.2	-0.3
5	APR	1980	1100	96.458336	66.386292	-21.162106	0.0	-2.2
5	APR	1980	1124	96.474998	66.386292	-21.166986	0.1	-2.5
5	APR	1980	1200	96.500000	66.386322	-21.175016	0.2	-2.5
5	APR	1980	1220	96.513885	66.386345	-21.179096	0.2	-2.2
5	APR	1980	1300	96.541664	66.386398	-21.186249	0.3	-2.1
5	APR	1980	1312	96.549995	66.386421	-21.188467	0.3	-2.2
5	APR	1980	1331	96.563194	66.386459	-21.192291	0.5	-2.5
5	APR	1980	1400	96.583336	66.386551	-21.199131	0.7	-3.0
5	APR	1980	1500	96.625000	66.386909	-21.217001	1.5	-3.8
5	APR	1980	1500	96.625000	66.386909	-21.217001	1.5	-3.8
5	APR	1980	1515	96.635108	66.387047	-21.222345	1.7	-4.0
5	APR	1980	1554	96.662498	66.387428	-21.236385	1.9	-4.8
5	APR	1980	1600	96.666664	66.387469	-21.238880	1.8	-4.9
5	APR	1980	1624	96.683327	66.387711	-21.249676	1.5	-5.5
5	APR	1980	1647	96.699310	66.387856	-21.260891	0.9	-5.8
5	APR	1980	1700	96.708336	66.387901	-21.267399	0.4	-5.9
5	APR	1980	1701	96.709023	66.387901	-21.267902	0.4	-5.9
5	APR	1980	1740	96.736115	66.387901	-21.287441	-0.3	-5.7
5	APR	1980	1800	96.750000	66.387871	-21.297612	-0.2	-5.4
5	APR	1980	1810	96.756950	66.387871	-21.301611	-0.1	-5.3
5	APR	1980	1900	96.791664	66.387965	-21.324543	1.1	-5.9
5	APR	1980	1926	96.809723	66.388199	-21.338959	1.9	-7.1
5	APR	1980	2000	96.833336	66.388626	-21.362898	2.7	-9.3
5	APR	1980	2100	96.875000	66.389572	-21.417122	2.6	-10.4
5	APR	1980	2113	96.884026	66.389763	-21.428969	2.6	-10.1
5	APR	1980	2144	96.905555	66.390156	-21.454155	2.2	-9.3
5	APR	1980	2200	96.916664	66.390343	-21.464434	2.6	-9.7
5	APR	1980	2259	96.957642	66.390846	-21.486906	1.2	-4.3
5	APR	1980	2300	96.958336	66.390654	-21.489366	1.2	-4.3
5	APR	1980	2354	96.995827	66.391220	-21.513809	1.6	-6.6
6	APR	1980	0	97.000000	66.391273	-21.517365	1.8	-7.0
6	APR	1980	46	97.031944	66.391785	-21.548063	2.1	-8.0
6	APR	1980	100	97.041664	66.391937	-21.557596	2.0	-7.8
6	APR	1980	118	97.054169	66.392126	-21.569563	1.8	-7.7
6	APR	1980	140	97.069450	66.392342	-21.584021	1.9	-7.7
6	APR	1980	200	97.083336	66.392563	-21.597243	2.2	-7.8
6	APR	1980	300	97.125000	66.393532	-21.636951	3.8	-7.4
6	APR	1980	305	97.128471	66.393639	-21.640116	4.0	-7.3
6	APR	1980	327	97.143745	66.394150	-21.653564	4.7	-6.9
6	APR	1980	400	97.166664	66.395056	-21.672406	5.2	-6.6
6	APR	1980	419	97.179863	66.395584	-21.683756	5.1	-6.8
6	APR	1980	453	97.203468	66.396273	-21.704646	3.8	-7.5
6	APR	1980	500	97.208336	66.396561	-21.708624	3.5	-7.7
6	APR	1980	600	97.250000	66.397275	-21.750891	1.3	-8.4
6	APR	1980	606	97.254173	66.397324	-21.755238	1.2	-9.4
6	APR	1980	700	97.291664	66.397659	-21.793372	1.4	-7.4
6	APR	1980	754	97.329163	66.398193	-21.828966	2.7	-6.6
6	APR	1980	800	97.333336	66.398262	-21.830290	2.2	-6.5
6	APR	1980	828	97.352776	66.398613	-21.845095	2.3	-5.8
6	APR	1980	848	97.366664	66.398657	-21.854624	2.2	-5.5

FRAM 2 NAVIGATION - MAGNAV

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
6	APR	1980	900	97.375000	86.398994	-21.860367	2.0	-5.3
6	APR	1980	941	97.403473	86.399391	-21.878143	1.6	-4.9
6	APR	1980	1000	97.416664	86.399551	-21.886095	1.4	-4.8
6	APR	1980	1100	97.458336	86.399918	-21.908998	0.8	-3.8
6	APR	1980	1128	97.477776	86.400002	-21.916954	0.4	-2.8
6	APR	1980	1200	97.500000	86.400032	-21.923540	-0.1	-2.0
6	APR	1980	1300	97.541664	86.399963	-21.934397	-0.1	-2.9
6	APR	1980	1349	97.575691	86.400009	-21.952551	0.6	-5.8
6	APR	1980	1400	97.583336	86.400047	-21.958435	0.8	-6.6
6	APR	1980	1500	97.625000	86.400490	-21.998936	1.9	-8.3
6	APR	1980	1536	97.650002	86.400925	-22.023764	2.4	-7.6
6	APR	1980	1600	97.666664	86.401253	-22.038506	2.6	-6.7
6	APR	1980	1648	97.700005	86.401970	-22.062904	2.9	-5.2
6	APR	1980	1700	97.708336	86.402153	-22.068077	2.9	-4.8
6	APR	1980	1722	97.723610	86.402512	-22.076706	3.0	-4.3
6	APR	1980	1800	97.750000	86.403152	-22.089493	3.2	-3.6
6	APR	1980	1835	97.774300	86.403740	-22.100361	2.9	-3.7
6	APR	1980	1900	97.791664	86.404099	-22.108597	2.4	-4.0
6	APR	1980	2000	97.833336	86.404648	-22.131113	1.0	-4.5
6	APR	1980	2021	97.847923	86.404724	-22.139233	0.5	-4.4
6	APR	1980	2055	97.871529	86.404779	-22.150574	0.1	-3.1
6	APR	1980	2100	97.875000	86.404776	-22.151827	0.1	-2.7
6	APR	1980	2200	97.916664	86.404930	-22.156794	1.2	0.7
6	APR	1980	2207	97.921532	86.404976	-22.156261	1.4	1.0
6	APR	1980	2300	97.958336	86.405571	-22.148615	2.4	1.7
6	APR	1980	2305	97.961800	86.405632	-22.147905	2.4	1.6
7	APR	1980	0	98.000000	86.406273	-22.145023	1.8	-0.7
7	APR	1980	29	98.020142	86.406509	-22.148857	1.2	-2.3
7	APR	1980	52	98.036110	86.406639	-22.154327	0.9	-3.2
7	APR	1980	100	98.041664	86.406670	-22.156584	0.8	-3.4
7	APR	1980	200	98.083336	86.406830	-22.176264	0.2	-3.8
7	APR	1980	216	98.094444	86.406845	-22.181381	0.1	-3.6
7	APR	1980	238	98.109718	86.40686[illegible]	-22.187824	0.1	-3.2
7	APR	1980	300	98.125000	86.406893	-22.193331	0.3	-2.9
7	APR	1980	400	98.166664	86.407143	-22.203201	1.4	-1.3
7	APR	1980	500	98.208336	86.407768	-22.208595	2.3	-1.0
7	APR	1980	514	98.218056	86.407944	-22.209837	2.3	-1.1
7	APR	1980	600	98.250000	86.408465	-22.214067	1.9	-0.9
7	APR	1980	700	98.291664	86.408690	-22.217491	0.5	-0.4
7	APR	1980	701	98.292356	86.408897	-22.217524	0.5	-0.4
7	APR	1980	756	98.331940	86.408890	-22.220699	-0.2	-1.4
7	APR	1980	800	98.333336	86.408892	-22.220649	-0.2	-1.5
7	APR	1980	[illegible]	98.3[illegible]	86.408882	-22.229107	0.3	-1.9
7	APR	1980	900	98.375000	86.408905	-22.230972	0.5	-1.8
7	APR	1980	920	98.3[illegible]	86.40[illegible]	-22.23373[illegible]	[illegible]	-0.[illegible]
7	APR	1980	[illegible]	98.4[illegible]	86.409[illegible]	-22.2343[illegible]	[illegible]	[illegible]
7	APR	1980	1000	98.41[illegible]	86.409142	-22.234[illegible]	[illegible]	0.5
7	APR	1980	1036	98.441673	86.409264	-22.230602	0.4	1.9
7	APR	1980	1100	98.458336	86.409294	-22.226748	0.0	2.1
7	APR	1980	1133	98.481255	86.409256	-22.220593	-0.4	2.1
7	APR	1980	1200	98.500000	86.409180	-22.216265	-0.5	1.5
7	APR	1980	1300	98.541664	86.408997	-22.213137	-0.5	-0.4
7	APR	1980	1300	98.541664	86.408997	-22.213137	-0.5	-0.4
7	APR	1980	1321	98.556252	86.40893[illegible]	-22.214512	-0.5	-1.0
7	APR	1980	1400	98.583336	86.408644	-22.216336	-0.4	-1.0
7	APR	1980	1500	98.625000	86.408699	-22.220827	-0.5	-0.1
7	APR	1980	15[illegible]	98.6[illegible]	86.408676	-22.22[illegible]71	-0.5	0.[illegible]
7	APR	1980	1556	98.663887	86.408562	-22.221633	-0.3	-0.7
7	APR	1980	1600	98.666664	86.408554	-22.221[illegible]	-0.2	-0.4
7	APR	1980	1634	98.690277	86.408545	-22.225124	0.1	-1.2
7	APR	1980	1656	98.705559	86.408554	-22.226927	0.1	-0.7
7	APR	1980	1700	98.708336	86.408554	-22.227142	0.1	-0.6
7	APR	1980	1743	98.738190	86.408554	-22.227345	-0.2	0.3
7	APR	1980	1800	98.750000	86.408524	-22.226970	-0.3	0.4
7	APR	1980	1820	98.763885	86.408485	-22.22[illegible]2	-0.5	0.4
7	APR	1980	1900	98.791664	86.408379	-22.224974	-0.4	0.1
7	APR	1980	2000	98.833336	86.408340	-22.225675	0.2	-0.3
7	APR	1980	2100	98.875000	86.408403	-22.226902	0.4	0.1

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
7	APR	1980	2115	98.885414	86.408493	-22.226641	0.3	0.3
7	APR	1980	2200	98.916664	86.408516	-22.223755	-0.2	1.2
7	APR	1980	2300	98.958336	86.408302	-22.216942	-1.0	1.1
7	APR	1980	2302	98.959724	86.408295	-22.216763	-1.0	1.0
7	APR	1980	2333	98.981255	86.408119	-22.215136	-1.0	0.1
8	APR	1980	0	99.000000	86.407990	-22.215981	-0.8	-0.8
8	APR	1980	2	99.001396	86.407982	-22.216118	-0.8	-0.8
8	APR	1980	48	99.033333	86.407784	-22.220619	-1.1	-1.1
8	APR	1980	100	99.041664	86.407700	-22.221590	-1.4	-0.8
8	APR	1980	119	99.054863	86.407532	-22.222637	-1.8	-0.5
8	APR	1980	149	99.075691	86.407227	-22.223072	-1.8	0.1
8	APR	1980	200	99.083336	86.407127	-22.222862	-1.6	0.3
8	APR	1980	300	99.125000	86.406776	-22.219219	-0.6	0.9
8	APR	1980	305	99.128471	86.406761	-22.218834	-0.5	0.9
8	APR	1980	336	99.150002	86.406715	-22.216448	-0.1	0.9
8	APR	1980	400	99.166664	86.406715	-22.214687	0.0	0.8
8	APR	1980	422	99.181946	86.406715	-22.213522	0.0	0.4
8	APR	1980	451	99.202067	86.406685	-22.213255	-0.3	-0.2
8	APR	1980	500	99.208336	86.406662	-22.213507	-0.5	-0.4
8	APR	1980	600	99.250000	86.406403	-22.217726	-1.1	-0.9
8	APR	1980	700	99.291664	86.406052	-22.219780	-0.9	0.3
8	APR	1980	756	99.330559	86.405930	-22.214853	0.1	1.5
8	APR	1980	800	99.333336	86.405930	-22.214338	0.2	1.5
8	APR	1980	856	99.372223	86.406097	-22.208347	0.7	0.5
8	APR	1980	900	99.375000	86.406113	-22.208204	0.7	0.3
8	APR	1980	944	99.405556	86.406212	-22.209797	0.0	-0.9
8	APR	1980	1000	99.416664	86.406197	-22.211248	-0.4	-1.2
8	APR	1980	1044	99.447227	86.406021	-22.216381	-0.9	-1.5
8	APR	1980	1100	99.458336	86.405952	-22.218433	-0.8	-1.5
8	APR	1980	1130	99.479164	86.405830	-22.221865	-0.6	-1.1
8	APR	1980	1200	99.500000	86.405754	-22.223749	-0.5	-0.4
8	APR	1980	1231	99.521523	86.405655	-22.224089	-0.8	0.1
8	APR	1980	1300	99.541664	86.405495	-22.223621	-1.3	0.3
8	APR	1980	1400	99.583336	86.405006	-22.221172	-1.3	0.7
8	APR	1980	1419	99.596527	86.404892	-22.219942	-0.9	0.8
8	APR	1980	1500	99.625000	86.404846	-22.217592	0.7	0.3
8	APR	1980	1524	99.641663	86.405014	-22.217804	1.9	-0.5
8	APR	1980	1545	99.656250	86.405261	-22.219456	2.8	-1.3
8	APR	1980	1600	99.666664	86.405540	-22.221443	3.4	-1.8
8	APR	1980	1606	99.670837	86.405647	-22.222404	3.6	-1.9
8	APR	1980	1651	99.702087	86.406441	-22.230389	1.9	-1.7
8	APR	1980	1700	99.706336	86.406509	-22.231537	0.9	-1.3
8	APR	1980	1800	99.750000	86.406013	-22.232800	-3.2	0.6
8	APR	1980	1837	99.775696	86.405342	-22.229664	-3.1	1.3
8	APR	1980	1854	99.787498	86.405063	-22.227664	-2.5	1.4
8	APR	1980	1900	99.791664	86.405006	-22.226919	-2.2	1.5
8	APR	1980	2000	99.833336	86.404724	-22.216882	0.4	1.3
8	APR	1980	2024	99.849998	86.404839	-22.216665	1.2	0.8
8	APR	1980	2100	99.875000	86.405151	-22.215311	1.8	0.1
8	APR	1980	2200	99.916664	86.405663	-22.216503	0.9	-0.2
8	APR	1980	2210	99.923615	86.405693	-22.216646	0.5	-0.1
8	APR	1980	2300	99.958336	86.405609	-22.215605	-1.0	0.7
8	APR	1980	2356	99.997223	86.405266	-22.211592	-0.9	0.5
9	APR	1980	0	100.000000	86.405251	-22.211388	-0.8	0.5
9	APR	1980	11	100.007637	86.405212	-22.210981	-0.5	0.3
9	APR	1980	100	100.041664	86.405258	-22.212088	0.9	-0.8
9	APR	1980	100	100.041664	86.405258	-22.212088	0.9	-0.8
9	APR	1980	157	100.081245	86.405602	-22.216869	0.6	-0.7
9	APR	1980	200	100.083336	86.405609	-22.217039	0.5	-0.6
9	APR	1980	246	100.115273	86.405540	-22.216940	-0.9	0.7
9	APR	1980	300	100.125000	86.405464	-22.215796	-1.1	1.2
9	APR	1980	400	100.166664	86.405037	-22.206888	-1.4	2.0
9	APR	1980	500	100.208336	86.404610	-22.198612	-1.3	0.9
9	APR	1980	517	100.220146	86.404495	-22.197729	-1.2	0.3
9	APR	1980	600	100.250000	86.404236	-22.198515	-0.9	-0.6
9	APR	1980	700	100.291664	86.404083	-22.202135	0.1	-0.5
9	APR	1980	704	100.294441	86.404091	-22.202288	0.2	-0.4
9	APR	1980	800	100.333336	86.404236	-22.203347	0.5	-0.3

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
9	APR	1980	807	100.338196	86.404251	-22.203564	0.4	-0.4
9	APR	1980	851	100.368752	86.404289	-22.206253	-0.1	-1.0
9	APR	1980	900	100.375000	86.404282	-22.207037	-0.2	-1.1
9	APR	1980	954	100.412498	86.404175	-22.211905	-0.5	-0.8
9	APR	1980	1000	100.416664	86.404160	-22.212263	-0.5	-0.6
9	APR	1980	1038	100.443054	86.404053	-22.212736	-0.5	0.4
9	APR	1980	1100	100.458336	86.403984	-22.211189	-0.5	1.2
9	APR	1980	1142	100.487495	86.403870	-22.205074	-0.6	2.0
9	APR	1980	1200	100.500000	86.403809	-22.202003	-0.7	2.0
9	APR	1980	1300	100.541664	86.403564	-22.195181	-0.8	0.2
9	APR	1980	1310	100.548615	86.403519	-22.195230	-0.8	-0.3
9	APR	1980	1330	100.562500	86.403435	-22.196575	-0.8	-1.2
9	APR	1980	1400	100.583336	86.403320	-22.200705	-0.7	-1.9
9	APR	1980	1500	100.625000	86.403160	-22.209599	-0.3	-1.2
9	APR	1980	1600	100.666664	86.403145	-22.211620	0.2	0.2
9	APR	1980	1643	100.696526	86.403214	-22.209921	0.3	0.6
9	APR	1980	1700	100.708336	86.403244	-22.209085	0.3	0.6
9	APR	1980	1800	100.750000	86.403305	-22.206905	-0.1	0.2
9	APR	1980	1900	100.791664	86.403145	-22.207001	-0.9	-0.1
9	APR	1980	1932	100.813896	86.402977	-22.207031	-1.1	0.1
9	APR	1980	2000	100.833336	86.402817	-22.206306	-1.0	0.5
9	APR	1980	2016	100.844444	86.402740	-22.205433	-0.8	0.8
9	APR	1980	2038	100.859718	86.402657	-22.203793	-0.6	0.9
9	APR	1980	2100	100.875000	86.402611	-22.202093	-0.3	0.8
9	APR	1980	2200	100.916664	86.402580	-22.199680	-0.1	0.0
9	APR	1980	2225	100.934029	86.402565	-22.200031	-0.2	-0.3
9	APR	1980	2300	100.958336	86.402504	-22.201448	-0.3	-0.5
10	APR	1980	0	101.000000	86.402451	-22.203672	0.2	-0.2
10	APR	1980	12	101.008331	86.402473	-22.203791	0.4	0.0
10	APR	1980	100	101.041664	86.402626	-22.203583	0.6	0.0
10	APR	1980	137	101.067360	86.402695	-22.204504	0.0	-0.6
10	APR	1980	158	101.081940	86.402664	-22.205782	-0.5	-0.8
10	APR	1980	200	101.083336	86.402657	-22.205929	-0.6	-0.9
10	APR	1980	300	101.125000	86.402306	-22.211069	-1.4	-0.9
10	APR	1980	325	101.142365	86.402107	-22.212700	-1.4	-0.6
10	APR	1980	344	101.155556	86.401970	-22.213474	-1.3	-0.3
10	APR	1980	400	101.166664	86.401855	-22.213783	-1.2	-0.1
10	APR	1980	422	101.181946	86.401726	-22.213705	-1.0	0.2
10	APR	1980	500	101.208336	86.401550	-22.212513	-0.7	0.5
10	APR	1980	600	101.250000	86.401382	-22.209520	-0.4	0.6
10	APR	1980	700	101.291664	86.401230	-22.207092	-0.6	0.3
10	APR	1980	800	101.333336	86.400993	-22.206123	-0.9	0.0
10	APR	1980	900	101.375000	86.400888	-22.207170	-0.9	-0.5
10	APR	1980	906	101.379173	86.400658	-22.207430	-0.9	-0.5
10	APR	1980	1000	101.416664	86.400475	-22.211480	-0.2	-1.2
10	APR	1980	1053	101.453408	86.400551	-22.217705	0.7	-1.3
10	APR	1980	1100	101.458336	86.400574	-22.218430	0.8	-1.2
10	APR	1980	1134	101.481941	86.400734	-22.220670	0.9	-0.3
10	APR	1980	1200	101.500000	86.400648	-22.220201	0.7	0.7
10	APR	1980	1240	101.527779	86.400917	-22.216347	0.0	1.3
10	APR	1980	1300	101.541664	86.400894	-22.214180	-0.4	1.2
10	APR	1980	1400	101.583336	86.400696	-22.211544	-0.5	-0.4
10	APR	1980	1408	101.588890	86.400673	-22.211926	-0.4	-0.7
10	APR	1980	1428	101.602776	86.400650	-22.213724	-0.1	-1.3
10	APR	1980	1500	101.625000	86.400681	-22.217941	0.4	-1.5
10	APR	1980	1600	101.666664	86.400871	-22.222429	0.4	0.2
10	APR	1980	1615	101.677066	86.400894	-22.221760	0.2	0.9
10	APR	1980	1654	101.704153	86.400871	-22.217256	-0.3	1.5
10	APR	1980	1700	101.708336	86.400864	-22.216516	-0.3	1.4
10	APR	1980	1741	101.736809	86.400772	-22.212864	-0.4	0.5
10	APR	1980	1800	101.750000	86.400734	-22.212511	-0.4	-0.1
10	APR	1980	1840	101.777779	86.400658	-22.214481	-0.4	-0.9
10	APR	1980	1900	101.791664	86.400612	-22.216200	-0.4	-1.0
10	APR	1980	1928	101.811104	86.400543	-22.218622	-0.5	-0.9
10	APR	1980	2000	101.833336	86.400459	-22.220398	-0.4	-0.4
10	APR	1980	2025	101.851387	86.400406	-22.220577	-0.3	0.2
10	APR	1980	2100	101.875000	86.400388	-22.218069	0.0	0.9
10	APR	1980	2114	101.884727	86.400375	-22.217758	0.1	1.1

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
10	APR	1980	2136	101.900002	80.400406	-22.215466	0.4	1.3
10	APR	1980	2200	101.916664	80.400459	-22.213037	0.5	1.1
10	APR	1980	2213	101.925690	80.400497	-22.211969	0.5	0.9
10	APR	1980	2300	101.958336	80.400597	-22.210426	0.3	-0.2
10	APR	1980	2322	101.973610	80.400627	-22.211334	0.2	-0.8
10	APR	1980	2359	101.999306	80.400635	-22.214598	-0.2	-1.1
11	APR	1980	0	102.000000	80.400635	-22.214695	-0.2	-1.1
11	APR	1980	100	102.041664	80.400520	-22.219854	-0.2	-0.8
11	APR	1980	109	102.047913	80.400513	-22.220478	-0.1	-0.8
11	APR	1980	200	102.083336	80.400551	-22.223080	0.3	-0.4
11	APR	1980	256	102.122223	80.400620	-22.223209	-0.1	0.4
11	APR	1980	300	102.125000	80.400612	-22.223055	-0.2	0.5
11	APR	1980	400	102.166664	80.400475	-22.217949	-0.4	1.4
11	APR	1980	423	102.182640	80.400436	-22.214882	-0.2	1.7
11	APR	1980	500	102.208336	80.400436	-22.208830	0.2	2.1
11	APR	1980	500	102.208336	80.400436	-22.208830	0.2	2.1
11	APR	1980	520	102.222221	80.400467	-22.205011	0.4	2.3
11	APR	1980	600	102.250000	80.400581	-22.197079	0.6	2.2
11	APR	1980	700	102.291664	80.400795	-22.189867	0.7	0.3
11	APR	1980	800	102.333336	80.400970	-22.194321	0.3	-1.8
11	APR	1980	816	102.344444	80.400993	-22.197035	0.1	-2.1
11	APR	1980	854	102.370827	80.400955	-22.204340	-0.5	-2.1
11	APR	1980	900	102.375000	80.400940	-22.205399	-0.6	-2.0
11	APR	1980	1000	102.416664	80.400650	-22.213257	-1.0	-1.2
11	APR	1980	1004	102.419441	80.400627	-22.213652	-1.0	-1.1
11	APR	1980	1042	102.445831	80.400459	-22.216822	-0.6	-0.8
11	APR	1980	1100	102.458336	80.400406	-22.217892	-0.4	-0.6
11	APR	1980	1151	102.493752	80.400375	-22.220341	0.1	-0.7
11	APR	1980	1200	102.500000	80.400383	-22.220936	0.2	-0.8
11	APR	1980	1300	102.541664	80.400490	-22.226128	0.3	-0.9
11	APR	1980	1400	102.583336	80.400467	-22.227636	-0.5	0.7
11	APR	1980	1500	102.625000	80.400223	-22.218952	-0.8	2.4
11	APR	1980	1526	102.643059	80.400124	-22.213348	-0.6	2.5
11	APR	1980	1600	102.666664	80.400085	-22.207066	0.3	1.5
11	APR	1980	1602	102.668060	80.400093	-22.206812	0.4	1.4
11	APR	1980	1652	102.702782	80.400360	-22.205462	1.4	-0.6
11	APR	1980	1700	102.708336	80.400421	-22.206001	1.4	-0.9
11	APR	1980	1748	102.741669	80.400726	-22.211510	0.5	-1.5
11	APR	1980	1800	102.750000	80.400742	-22.213100	0.0	-1.5
11	APR	1980	1839	102.777077	80.400566	-22.217918	-1.5	-1.3
11	APR	1980	1900	102.791664	80.400360	-22.220086	-2.1	-1.1
11	APR	1980	2000	102.833336	80.399536	-22.223684	-2.7	-0.3
11	APR	1980	2100	102.875000	80.398766	-22.222652	-1.9	0.7
11	APR	1980	2200	102.916664	80.398346	-22.217234	-0.6	1.4
11	APR	1980	2300	102.958336	80.398376	-22.209621	0.7	1.7
12	APR	1980	0	103.000000	80.398781	-22.200346	1.7	1.6
12	APR	1980	100	103.041664	80.399391	-22.193651	2.0	1.0
12	APR	1980	200	103.083336	80.400002	-22.190817	1.7	0.1
12	APR	1980	300	103.125000	80.400421	-22.192936	0.9	-0.8
12	APR	1980	400	103.166664	80.400558	-22.198914	0.0	-1.4
12	APR	1980	426	103.186104	80.400528	-22.202322	-0.4	-1.4
12	APR	1980	500	103.208336	80.400436	-22.206209	-0.7	-1.4
12	APR	1980	600	103.250000	80.400200	-22.211746	-0.6	-0.7
12	APR	1980	614	103.259727	80.400154	-22.212410	-0.5	-0.4
12	APR	1980	700	103.291664	80.400101	-22.212978	0.1	0.0
12	APR	1980	800	103.333336	80.400253	-22.213583	0.8	-0.5
12	APR	1980	802	103.334724	80.400281	-22.213682	0.8	-0.6
12	APR	1980	900	103.375000	80.400581	-22.219494	1.1	-1.7
12	APR	1980	1000	103.416664	80.400867	-22.229303	0.6	-1.8
12	APR	1980	1100	103.458336	80.400970	-22.235472	-0.2	-0.3
12	APR	1980	1135	103.483337	80.400902	-22.234106	-0.5	1.2
12	APR	1980	1200	103.500000	80.400826	-22.230574	-0.6	2.2
12	APR	1980	1249	103.534027	80.400696	-22.217756	-0.2	3.6
12	APR	1980	1300	103.541664	80.400688	-22.214226	0.0	3.8
12	APR	1980	1400	103.583336	80.400818	-22.196369	0.7	2.3
12	APR	1980	1500	103.625000	80.401039	-22.193827	0.5	-1.3
12	APR	1980	1510	103.631950	80.401062	-22.195185	0.3	-1.9
12	APR	1980	1600	103.666664	80.401070	-22.205261	-0.3	-1.9

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
12	APR	1980	1604	103.669441	86.401062	-22.205896	-0.4	-1.7
12	APR	1980	1624	103.683327	86.401009	-22.207993	-0.6	-0.7
12	APR	1980	1656	103.705559	86.400879	-22.207970	-0.9	0.5
12	APR	1980	1700	103.708336	86.400864	-22.207769	-0.9	0.6
12	APR	1980	1800	103.750000	86.400581	-22.203846	-0.7	0.4
12	APR	1980	1843	103.779854	86.400467	-22.204683	-0.2	-0.8
12	APR	1980	1900	103.791664	86.400459	-22.206217	0.0	-1.3
12	APR	1980	2000	103.833336	86.400475	-22.215599	0.0	-2.1
12	APR	1980	2029	103.853477	86.400459	-22.220722	-0.3	-1.9
12	APR	1980	2100	103.875000	86.400398	-22.224651	-0.4	-0.9
12	APR	1980	2124	103.891663	86.400337	-22.225193	-0.4	0.4
12	APR	1980	2200	103.916664	86.400276	-22.221243	-0.2	2.0
12	APR	1980	2215	103.927086	86.400269	-22.218449	0.0	2.3
12	APR	1980	2300	103.958336	86.400322	-22.210714	0.3	0.9
12	APR	1980	2331	103.979858	86.400383	-22.211714	0.3	-1.7
13	APR	1980	0	104.000000	86.400406	-22.218863	0.1	-3.8
13	APR	1980	2	104.001396	86.400406	-22.219538	0.1	-4.0
13	APR	1980	100	104.041664	86.400368	-22.242111	-0.3	-4.1
13	APR	1980	200	104.083336	86.400215	-22.253700	-0.6	-0.2
13	APR	1980	300	104.125000	86.400032	-22.244450	-0.5	3.4
13	APR	1980	400	104.166664	86.399918	-22.222639	-0.1	4.5
13	APR	1980	500	104.208336	86.399986	-22.203449	0.6	2.6
13	APR	1980	522	104.223610	86.400078	-22.199727	0.9	1.4
13	APR	1980	600	104.250000	86.400330	-22.198515	1.5	-0.6
13	APR	1980	700	104.291664	86.400879	-22.206770	1.6	-2.1
13	APR	1980	710	104.298615	86.400963	-22.208588	1.5	-2.1
13	APR	1980	800	104.333336	86.401207	-22.216167	0.0	-1.1
13	APR	1980	825	104.350700	86.401123	-22.217480	-1.2	-0.1
13	APR	1980	857	104.372917	86.400826	-22.216482	-2.0	0.7
13	APR	1980	900	104.375000	86.400795	-22.216288	-2.0	0.8
13	APR	1980	1000	104.416664	86.400238	-22.211554	-0.9	0.7
13	APR	1980	1012	104.424995	86.400192	-22.210964	-0.4	0.5
13	APR	1980	1044	104.447227	86.400215	-22.210201	0.7	0.2
13	APR	1980	1100	104.458336	86.400291	-22.209902	1.1	0.2
13	APR	1980	1200	104.500000	86.400711	-22.208525	1.0	0.2
13	APR	1980	1200	104.500006	86.400711	-22.208525	1.0	0.2
13	APR	1980	1300	104.541664	86.400772	-22.208284	-0.6	-0.1
13	APR	1980	1400	104.583336	86.400429	-22.208563	-1.2	0.1
13	APR	1980	1500	104.625000	86.400169	-22.207233	-0.2	0.3
13	APR	1980	1503	104.627083	86.400169	-22.207153	-0.1	0.3
13	APR	1980	1600	104.666664	86.400284	-22.207161	0.7	-0.6
13	APR	1980	1604	104.669441	86.400299	-22.207376	0.7	-0.7
13	APR	1980	1648	104.700005	86.400475	-22.211416	0.5	-1.2
13	APR	1980	1700	104.708336	86.400505	-22.212679	0.5	-1.2
13	APR	1980	1751	104.743752	86.400551	-22.216942	-0.2	-0.5
13	APR	1980	1800	104.750000	86.400536	-22.217354	-0.4	-0.4
13	APR	1980	1833	104.772919	86.400436	-22.217625	-0.7	0.3
13	APR	1980	1900	104.791664	86.400330	-22.216351	-0.8	0.3
13	APR	1980	1937	104.817360	86.400192	-22.213724	-0.5	0.7
13	APR	1980	2000	104.833336	86.400146	-22.212772	-0.2	0.2
13	APR	1980	2100	104.875000	86.400185	-22.213671	0.4	-0.4
13	APR	1980	2124	104.891663	86.400246	-22.214338	0.5	-0.3
13	APR	1980	2200	104.916664	86.400368	-22.214569	0.7	0.2
13	APR	1980	2242	104.945831	86.400543	-22.212639	0.8	0.9
13	APR	1980	2300	104.958336	86.400620	-22.210896	0.9	1.3
13	APR	1980	2310	104.965279	86.400673	-22.209675	0.9	1.5
13	APR	1980	2350	104.993050	86.400841	-22.204113	0.8	1.4
14	APR	1980	0	105.000000	86.400864	-22.202988	0.4	1.2
14	APR	1980	109	105.041664	86.400879	-22.200874	-0.3	-0.4
14	APR	1980	136	105.060973	86.400803	-22.203224	-0.5	-1.0
14	APR	1980	200	105.083336	86.400734	-22.205578	-0.5	-1.2
14	APR	1980	300	105.125000	86.400558	-22.211348	-0.5	-0.8
14	APR	1980	322	105.140282	86.400490	-22.212496	-0.5	-0.4
14	APR	1980	400	105.166664	86.400375	-22.212870	-0.5	0.1
14	APR	1980	402	105.168060	86.400368	-22.212851	-0.5	0.1
14	APR	1980	430	105.187500	86.400314	-22.212400	-0.2	0.2
14	APR	1980	500	105.208336	86.400307	-22.212400	0.1	-0.2
14	APR	1980	508	105.213890	86.400314	-22.212559	0.2	-0.3

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DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
14	APR	1980	600	105.250000	86.400429	-22.214584	0.6	-0.5
14	APR	1980	617	105.261810	86.400482	-22.215181	0.6	-0.3
14	APR	1980	654	105.287498	86.400566	-22.215408	0.2	0.3
14	APR	1980	700	105.291664	86.400574	-22.215214	0.1	0.5
14	APR	1980	800	105.333336	86.400467	-22.211145	-0.5	0.7
14	APR	1980	804	105.336113	86.400452	-22.210920	-0.5	0.6
14	APR	1980	900	105.375000	86.400337	-22.210541	-0.1	-0.5
14	APR	1980	952	105.411110	86.400414	-22.214069	0.6	-0.9
14	APR	1980	1000	105.416664	86.400444	-22.214657	0.7	-0.8
14	APR	1980	1100	105.458336	86.400688	-22.216959	0.6	0.1
14	APR	1980	1110	105.465279	86.400719	-22.216724	0.5	0.4
14	APR	1980	1139	105.485413	86.400772	-22.214945	0.2	1.0
14	APR	1980	1200	105.500000	86.400780	-22.213051	0.0	1.1
14	APR	1980	1210	105.506950	86.400780	-22.212156	-0.1	1.0
14	APR	1980	1258	105.540276	86.400734	-22.208847	-0.2	0.6
14	APR	1980	1300	105.541664	86.400726	-22.208755	-0.2	0.5
14	APR	1980	1400	105.583336	86.400673	-22.206930	-0.1	0.3
14	APR	1980	1445	105.614586	86.400681	-22.205772	0.1	0.1
14	APR	1980	1500	105.625000	86.400696	-22.205845	0.2	-0.2
14	APR	1980	1512	105.633331	86.400703	-22.206200	0.2	-0.5
14	APR	1980	1540	105.652779	86.400734	-22.208029	0.1	-1.0
14	APR	1980	1600	105.666664	86.400742	-22.209858	0.0	-1.1
14	APR	1980	1632	105.688896	86.400711	-22.212627	-0.4	-0.8
14	APR	1980	1659	105.707642	86.400627	-22.214001	-0.7	-0.4
14	APR	1980	1700	105.708336	86.400627	-22.214033	-0.7	-0.4
14	APR	1980	1726	105.726387	86.400505	-22.214777	-0.9	-0.3
14	APR	1980	1800	105.750000	86.400345	-22.216032	-0.8	-0.6
14	APR	1980	1845	105.781250	86.400215	-22.219618	-0.2	-1.1
14	APR	1980	1900	105.791664	86.400215	-22.221090	0.1	-1.1
14	APR	1980	1911	105.799309	86.400223	-22.222153	0.3	-1.1
14	APR	1980	1946	105.823608	86.400330	-22.224825	0.9	-0.6
14	APR	1980	2000	105.833336	86.400406	-22.225288	1.0	-0.2
14	APR	1980	2032	105.855560	86.400604	-22.225109	1.2	0.2
14	APR	1980	2100	105.875000	86.400780	-22.224611	1.1	0.1
14	APR	1980	2153	105.911804	86.401031	-22.226173	0.6	-0.9
14	APR	1980	2200	105.916664	86.401054	-22.226759	0.5	-1.1
14	APR	1980	2218	105.929169	86.401093	-22.228689	0.3	-1.4
14	APR	1980	2300	105.958336	86.401100	-22.234549	-0.2	-1.7
14	APR	1980	2340	105.986115	86.401024	-22.240837	-0.4	-2.1
15	APR	1980	0	106.000000	86.400986	-22.244900	-0.3	-2.7
15	APR	1980	4	106.002777	86.400986	-22.245846	-0.2	-2.8
15	APR	1980	28	106.019440	86.400980	-22.252871	0.4	-4.1
15	APR	1980	100	106.041664	86.401169	-22.267834	1.9	-6.9
15	APR	1980	126	106.059723	86.401535	-22.288301	3.3	-9.6
15	APR	1980	200	106.083336	86.402237	-22.315747	4.0	-12.4
15	APR	1980	214	106.093056	86.402542	-22.334171	3.9	-13.2
15	APR	1980	300	106.125000	86.403519	-22.386387	4.4	-12.0
15	APR	1980	312	106.133331	86.403824	-22.396146	4.9	-10.7
15	APR	1980	400	106.166664	86.405235	-22.434404	5.6	-7.4
15	APR	1980	400	106.166664	86.405235	-22.434404	5.6	-7.4
15	APR	1980	500	106.208336	86.406921	-22.472776	4.7	-8.5
15	APR	1980	525	106.225700	86.407532	-22.493097	4.4	-10.4
15	APR	1980	546	106.240273	86.408020	-22.513271	4.1	-11.9
15	APR	1980	600	106.250000	86.408318	-22.528286	3.8	-12.9
15	APR	1980	700	106.291664	86.409248	-22.601955	1.6	-14.7
15	APR	1980	712	106.299995	86.409332	-22.617092	1.0	-14.5
15	APR	1980	800	106.333336	86.409401	-22.676416	0.1	-14.2
15	APR	1980	834	106.356941	86.409508	-22.718346	1.2	-14.5
15	APR	1980	900	106.375000	86.409737	-22.751553	2.1	-15.1
15	APR	1980	900	106.375000	86.409737	-22.751553	2.1	-15.1
15	APR	1980	1000	106.416664	86.410583	-22.831772	2.8	-15.4
15	APR	1980	1021	106.431252	86.410904	-22.859179	2.7	-14.8
15	APR	1980	1100	106.458336	86.411130	-22.907064	2.3	-13.5
15	APR	1980	1200	106.500000	86.412056	-22.972408	1.5	-11.9
15	APR	1980	1208	106.505554	86.412125	-22.980564	1.4	-11.7
15	APR	1980	1300	106.541664	86.412422	-23.031582	0.9	-11.1
15	APR	1980	1356	106.580559	86.412674	-23.083357	0.8	-10.3
15	APR	1980	1400	106.583336	86.412689	-23.086691	0.8	-10.2

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
15	APR	1980	1500	106.625000	86.412827	-23.135963	-0.2	-8.6
15	APR	1980	1543	106.654854	86.412682	-23.166128	-1.0	-7.8
15	APR	1980	1600	106.666664	86.412562	-23.177668	-1.1	-7.9
15	APR	1980	1607	106.671532	86.412537	-23.182457	-1.1	-8.0
15	APR	1980	1700	106.708336	86.412308	-23.222267	-0.2	-9.9
15	APR	1980	1754	106.745827	86.412476	-23.275663	1.2	-12.7
15	APR	1980	1800	106.750000	86.412514	-23.282318	1.3	-12.9
15	APR	1980	1900	106.791664	86.413033	-23.349440	1.6	-11.8
15	APR	1980	2000	106.833336	86.413429	-23.397455	0.8	-6.3
15	APR	1980	2044	106.863892	86.413528	-23.414959	0.1	-3.5
15	APR	1980	2100	106.875000	86.413528	-23.419691	-0.1	-3.4
15	APR	1980	2104	106.877777	86.413528	-23.420860	-0.1	-3.4
15	APR	1980	2200	106.916664	86.413460	-23.444056	-0.3	-7.5
15	APR	1980	2250	106.951385	86.413383	-23.488789	-0.4	-12.6
15	APR	1980	2300	106.958336	86.413361	-23.499920	-0.4	-13.2
15	APR	1980	2312	106.966667	86.413330	-23.513874	-0.5	-13.7
16	APR	1980	0	107.000000	86.413177	-23.569675	-0.5	-11.8
16	APR	1980	37	107.025696	86.413124	-23.599358	0.1	-6.4
16	APR	1980	100	107.041664	86.413162	-23.608328	0.6	-2.6
16	APR	1980	200	107.083336	86.413475	-23.603456	1.1	3.0
16	APR	1980	224	107.099998	86.413605	-23.596779	0.9	3.3
16	APR	1980	300	107.125000	86.413750	-23.587269	0.5	2.6
16	APR	1980	400	107.166664	86.413803	-23.579756	-0.1	0.2
16	APR	1980	500	107.208336	86.413765	-23.584164	0.0	-1.5
16	APR	1980	600	107.250000	86.413864	-23.591524	0.7	-1.1
16	APR	1980	620	107.258885	86.413948	-23.592989	0.9	-0.6
16	APR	1980	700	107.291664	86.414185	-23.594116	1.2	-0.1
16	APR	1980	744	107.322227	86.414444	-23.594961	0.9	-0.5
16	APR	1980	800	107.333336	86.414513	-23.595810	0.7	-0.8
16	APR	1980	900	107.375000	86.414635	-23.601557	0.2	-1.2
16	APR	1980	932	107.397224	86.414658	-23.604641	0.1	-1.0
16	APR	1980	1000	107.416664	86.414673	-23.606520	0.1	-0.6
16	APR	1980	1100	107.458336	86.414719	-23.607473	0.1	0.1
16	APR	1980	1200	107.500000	86.414734	-23.606148	-0.1	0.2
16	APR	1980	1300	107.541664	86.414642	-23.606594	-0.5	-0.4
16	APR	1980	1306	107.545837	86.414619	-23.606840	-0.6	-0.5
16	APR	1980	1400	107.583336	86.414421	-23.610352	-0.7	-0.9
16	APR	1980	1454	107.620827	86.414253	-23.613913	-0.4	-0.6
16	APR	1980	1500	107.625000	86.414238	-23.614201	-0.3	-0.5
16	APR	1980	1511	107.632637	86.414223	-23.614647	-0.2	-0.4
16	APR	1980	1600	107.666664	86.414200	-23.614737	0.0	0.5
16	APR	1980	1641	107.695137	86.414223	-23.611141	0.2	1.4
16	APR	1980	1700	107.708336	86.414253	-23.608738	0.4	1.5
16	APR	1980	1702	107.709724	86.414253	-23.608477	0.4	1.5
16	APR	1980	1800	107.750000	86.414436	-23.603338	0.7	0.1
16	APR	1980	1848	107.783333	86.414561	-23.600140	0.3	-1.8
16	APR	1980	1900	107.791664	86.414597	-23.609137	0.1	-2.1
16	APR	1980	2000	107.833336	86.414520	-23.622122	-0.3	-2.5
16	APR	1980	2034	107.857[illegible]	86.414497	-23.628525	0.0	-2.0
16	APR	1980	2100	107.875000	86.414520	-23.632721	0.2	-1.5
16	APR	1980	2200	107.916664	86.414558	-23.637718	-0.3	-0.6
16	APR	1980	2220	107.930550	86.414490	-23.638588	-0.9	-0.4
16	APR	1980	2300	107.958336	86.414192	-23.639975	-1.8	-0.4
16	APR	1980	2348	107.991669	86.413620	-23.641693	-2.5	-0.2
17	APR	1980	0	108.000000	86.413452	-23.641944	-2.6	-0.1
17	APR	1980	7	108.004890	86.413353	-23.641842	-2.7	0.1
17	APR	1980	100	108.041664	86.412521	-23.638161	-3.1	1.5
17	APR	1980	200	108.083336	86.411522	-23.624302	-2.8	3.2
17	APR	1980	300	108.125000	86.410828	-23.610529	-1.3	1.6
17	APR	1980	340	108.152779	86.410690	-23.606902	0.0	-0.7
17	APR	1980	400	108.166664	86.410721	-23.611134	0.5	-1.9
17	APR	1980	500	108.208336	86.410965	-23.626390	0.6	-3.4
17	APR	1980	528	108.227776	86.411003	-23.634096	-0.1	-3.0
17	APR	1980	600	108.250000	86.410904	-23.641176	-1.0	-2.1
17	APR	1980	700	108.291664	86.410461	-23.647760	-1.5	-0.5
17	APR	1980	715	108.302986	86.410347	-23.648199	-1.3	-0.2
17	APR	1980	800	108.333336	86.410049	-23.647863	-1.2	0.1
17	APR	1980	900	108.375000	86.409554	-23.649584	-2.1	-1.1

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
17	APR	1980	902	108.376396	86.409531	-23.649780	-2.2	-1.2
17	APR	1980	1000	108.416664	86.408577	-23.659199	-3.9	-2.3
17	APR	1980	1049	108.450691	86.407417	-23.667833	-4.7	-1.5
17	APR	1980	1100	108.458336	86.407135	-23.669119	-4.8	-1.2
17	APR	1980	1200	108.500000	86.405540	-23.669420	-4.8	1.2
17	APR	1980	1300	108.541664	86.404091	-23.657177	-4.0	3.4
17	APR	1980	1400	108.583336	86.402969	-23.636736	-2.9	4.2
17	APR	1980	1500	108.625000	86.402206	-23.616169	-1.9	3.5
17	APR	1980	1600	108.666664	86.401680	-23.602116	-1.5	1.9
17	APR	1980	1610	108.673615	86.401596	-23.600580	-1.5	1.6
17	APR	1980	1700	108.708336	86.401138	-23.595646	-2.0	0.9
17	APR	1980	1756	108.747223	86.400391	-23.591320	-3.1	1.2
17	APR	1980	1800	108.750000	86.400322	-23.590891	-3.1	1.3
17	APR	1980	1900	108.791664	86.399101	-23.581358	-4.3	2.4
17	APR	1980	1942	108.820831	86.398079	-23.571608	-4.7	3.0
17	APR	1980	2000	108.833336	86.397614	-23.566807	-4.8	3.2
17	APR	1980	2100	108.875000	86.395988	-23.548395	-5.2	3.9
17	APR	1980	2128	108.894440	86.395195	-23.538702	-5.4	4.1
17	APR	1980	2200	108.916664	86.394241	-23.527365	-5.7	4.0
17	APR	1980	2300	108.958336	86.392235	-23.511559	-6.8	1.4
17	APR	1980	2315	108.968750	86.391670	-23.510431	-7.2	0.3
18	APR	1980	0	109.000000	86.389755	-23.516335	-8.5	-3.4
18	APR	1980	100	109.041664	86.386681	-23.545736	-10.5	-7.7
18	APR	1980	200	109.083336	86.382980	-23.592167	-12.3	-9.8
18	APR	1980	300	109.125000	86.378716	-23.642408	-13.9	-9.3
18	APR	1980	400	109.166664	86.374016	-23.685904	-15.0	-7.6
18	APR	1980	435	109.190971	86.371117	-23.707357	-15.5	-6.8
18	APR	1980	500	109.208336	86.368996	-23.721731	-15.9	-6.7
18	APR	1980	600	109.250000	86.363701	-23.758825	-16.8	-8.4
18	APR	1980	622	109.265282	86.361679	-23.775642	-17.2	-9.5
18	APR	1980	700	109.291664	86.358055	-23.808401	-18.1	-10.4
18	APR	1980	753	109.328466	86.352631	-23.852421	-19.7	-8.8
18	APR	1980	800	109.333336	86.351853	-23.857534	-19.9	-8.4
18	APR	1980	810	109.340279	86.350800	-23.864470	-20.2	-7.9
18	APR	1980	900	109.375000	86.345108	-23.896662	-22.1	-8.1
18	APR	1980	940	109.402779	86.340149	-23.928467	-23.8	-10.9
18	APR	1980	957	109.414581	86.337936	-23.945276	-24.4	-12.5
18	APR	1980	1000	109.416664	86.337540	-23.948475	-24.5	-12.7
18	APR	1980	1100	109.458336	86.329445	-24.019291	-25.0	-13.7
18	APR	1980	1126	109.477776	86.325714	-24.048935	-24.2	-11.0
18	APR	1980	1144	109.488892	86.323647	-24.068390	-23.5	-8.7
18	APR	1980	1200	109.500000	86.321655	-24.072231	-22.6	-5.0
18	APR	1980	1300	109.541664	86.314629	-24.082771	-21.6	0.5
18	APR	1980	1315	109.552086	86.312859	-24.081500	-22.0	1.0
18	APR	1980	1400	109.583336	86.307289	-24.078224	-23.4	0.2
18	APR	1980	1500	109.625000	86.299248	-24.088172	-25.1	-4.5
18	APR	1980	1600	109.666664	86.291397	-24.122695	-22.6	-8.9
18	APR	1980	1700	109.708336	86.284752	-24.171519	-18.6	-10.1
18	APR	1980	1704	109.711113	86.284355	-24.174802	-16.4	-10.0
18	APR	1980	1800	109.750000	86.278915	-24.219405	-18.5	-8.9
18	APR	1980	1811	109.757637	86.277794	-24.227383	-19.2	-8.5
18	APR	1980	1850	109.784721	86.273552	-24.252954	-20.8	-7.2
18	APR	1980	1900	109.791664	86.272423	-24.259774	-21.1	-6.8
18	APR	1980	2000	109.833336	86.265320	-24.287264	-22.8	-4.7
18	APR	1980	2037	109.859032	86.260651	-24.300587	-23.7	-4.2
18	APR	1980	2100	109.875000	86.257698	-24.309046	-23.7	-4.7
18	APR	1980	2200	109.916664	86.250488	-24.342596	-19.2	-9.7
18	APR	1980	2219	109.923615	86.249451	-24.351141	-18.7	-11.0
18	APR	1980	2223	109.926040	86.248944	-24.353745	-17.4	-12.5
18	APR	1980	2300	109.958336	86.244005	-24.404718	-16.8	-13.2
18	APR	1980	2328	109.977776	86.242149	-24.432175	-19.4	-10.1
19	APR	1980	0	110.000000	86.238472	-24.452124	-23.0	-4.9
19	APR	1980	100	110.041664	86.230644	-24.462289	-23.1	-0.5
19	APR	1980	114	110.051392	86.228951	-24.461155	-21.5	-1.0
19	APR	1980	143	110.071526	86.225807	-24.455454	-18.8	-2.7
19	APR	1980	200	110.083336	86.224174	-24.470184	-17.1	-4.0
19	APR	1980	300	110.125000	86.219009	-24.497725	-16.0	-5.4
19	APR	1980	300	110.125000	86.219009	-24.497725	-16.0	-6.4

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
19	APR	1980	400	110.166664	86.213470	-24.529772	-18.0	-6.6
19	APR	1980	446	110.198698	86.208977	-24.555332	-17.7	-7.1
19	APR	1980	500	110.208336	86.207657	-24.563589	-17.3	-7.3
19	APR	1980	600	110.250000	86.202492	-24.599979	-14.3	-7.1
19	APR	1980	632	110.272224	86.200150	-24.617170	-12.9	-6.0
19	APR	1980	700	110.291664	86.198212	-24.629484	-12.9	-4.8
19	APR	1980	703	110.293755	86.197998	-24.630640	-13.0	-4.6
19	APR	1980	718	110.304169	86.196938	-24.635912	-13.4	-4.0
19	APR	1980	800	110.333336	86.193718	-24.647755	-15.1	-3.2
19	APR	1980	850	110.368050	86.189468	-24.661745	-15.9	-3.9
19	APR	1980	900	110.375000	86.188606	-24.664972	-15.7	-4.1
19	APR	1980	905	110.378471	86.188187	-24.666658	-15.6	-4.2
19	APR	1980	1000	110.416664	86.183632	-24.685467	-15.2	-3.6
19	APR	1980	1038	110.443054	86.180504	-24.693638	-15.3	-1.7
19	APR	1980	1052	110.452782	86.179352	-24.695135	-15.3	-1.0
19	APR	1980	1100	110.458336	86.178688	-24.695646	-15.2	-0.6
19	APR	1980	1148	110.491669	86.174858	-24.698072	-13.8	-1.7
19	APR	1980	1200	110.500000	86.173981	-24.700260	-13.2	-2.8
19	APR	1980	1226	110.518059	86.172211	-24.708376	-12.1	-4.8
19	APR	1980	1300	110.541664	86.170067	-24.724140	-11.3	-6.4
19	APR	1980	1334	110.565277	86.168022	-24.742228	-11.0	-6.5
19	APR	1980	1400	110.583336	86.166473	-24.755194	-11.2	-5.7
19	APR	1980	1413	110.592354	86.165680	-24.760857	-11.4	-5.1
19	APR	1980	1500	110.625000	86.162758	-24.776695	-11.3	-3.5
19	APR	1980	1518	110.637505	86.161682	-24.781616	-10.8	-3.3
19	APR	1980	1600	110.666664	86.159409	-24.792662	-9.2	-3.4
19	APR	1980	1700	110.708336	86.156738	-24.809896	-7.7	-3.5
19	APR	1980	1704	110.711113	86.156570	-24.811033	-7.7	-3.5
19	APR	1980	1800	110.750000	86.154221	-24.825127	-8.1	-2.5
19	APR	1980	1849	110.784027	86.151955	-24.832422	-9.1	-1.2
19	APR	1980	1900	110.791664	86.151405	-24.833328	-9.3	-0.9
19	APR	1980	2000	110.833336	86.148308	-24.835461	-9.6	-0.4
19	APR	1980	2100	110.875000	86.145376	-24.840191	-8.2	-1.9
19	APR	1980	2121	110.889567	86.144485	-24.844097	-7.5	-2.7
19	APR	1980	2200	110.916664	86.143051	-24.854929	-6.2	-4.1
19	APR	1980	2300	110.958336	86.141197	-24.876640	-5.5	-4.4
20	APR	1980	0	111.000000	86.139297	-24.893875	-6.4	-2.4
20	APR	1980	6	111.004173	86.139091	-24.894965	-6.5	-2.2
20	APR	1980	100	111.031664	86.137016	-24.899776	-7.5	-0.3
20	APR	1980	152	111.067782	86.134842	-24.899456	-7.8	0.2
20	APR	1980	200	111.083336	86.134506	-24.899353	-7.9	0.1
20	APR	1980	240	111.111115	86.132797	-24.899275	-8.0	-0.1
20	APR	1980	300	111.125000	86.131927	-24.899536	-8.0	-0.2
20	APR	1980	336	111.151396	86.130302	-24.900605	-7.7	-0.5
20	APR	1980	400	111.166664	86.129417	-24.901569	-7.2	-0.9
20	APR	1980	500	111.208336	86.127386	-24.905068	-5.3	-1.1
20	APR	1980	600	111.250000	86.125999	-24.912344	-3.4	-1.7
20	APR	1980	700	111.291664	86.125064	-24.921476	-2.4	-2.1
20	APR	1980	710	111.298615	86.124954	-24.923141	-2.4	-2.1
20	APR	1980	800	111.333336	86.124321	-24.931517	-2.4	-2.0
20	APR	1980	900	111.375000	86.123497	-24.939114	-2.7	-1.0
20	APR	1980	1000	111.416664	86.122551	-24.939360	-3.1	1.0
20	APR	1980	1100	111.458336	86.121521	-24.928495	-3.2	3.5
20	APR	1980	1200	111.500000	86.120552	-24.906296	-2.8	5.9
20	APR	1980	1300	111.541664	86.119759	-24.878412	-2.0	5.6
20	APR	1980	1323	111.557640	86.119522	-24.868641	-1.7	5.0
20	APR	1980	1400	111.583336	86.119240	-24.856209	-1.1	3.3
20	APR	1980	1411	111.590973	86.119179	-24.853043	-1.0	2.6
20	APR	1980	1500	111.625000	86.119011	-24.848835	-0.4	0.9
20	APR	1980	1556	111.663887	86.118955	-24.851387	0.0	-0.6
20	APR	1980	1600	111.666664	86.118965	-24.851578	0.0	-0.6
20	APR	1980	1700	111.708336	86.116980	-24.853111	0.0	0.7
20	APR	1980	1741	111.736809	86.118973	-24.847574	-0.1	1.5
20	APR	1980	1800	111.750000	86.118956	-24.845154	-0.2	1.7
20	APR	1980	1900	111.791664	86.118858	-24.838254	-0.4	1.8
20	APR	1980	2000	111.833336	86.118698	-24.828547	-0.5	1.3
20	APR	1980	2100	111.875000	86.118515	-24.824064	-0.6	0.6
20	APR	1980	2200	111.916664	86.118301	-24.822605	-0.7	0.1

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
20	APR	1980	2258	111.956940	86.118042	-24.822241	-1.0	0.2
20	APR	1980	2300	111.958336	86.118034	-24.822216	-1.0	0.2
21	APR	1980	0	112.000000	86.117607	-24.819988	-1.6	0.9
21	APR	1980	4	112.002777	86.117577	-24.819702	-1.7	0.9
21	APR	1980	44	112.030556	86.117172	-24.815792	-2.0	1.5
21	APR	1980	100	112.041664	86.116997	-24.813745	-2.0	1.7
21	APR	1980	200	112.083336	86.116333	-24.805172	-2.0	1.6
21	APR	1980	230	112.104164	86.116028	-24.801777	-1.8	1.2
21	APR	1980	300	112.125000	86.115746	-24.799604	-1.6	0.6
21	APR	1980	400	112.166664	86.115288	-24.798779	-1.2	-0.2
21	APR	1980	500	112.208336	86.114937	-24.799906	-0.9	-0.1
21	APR	1980	600	112.250000	86.114662	-24.798119	-0.8	1.0
21	APR	1980	700	112.291664	86.114426	-24.789965	-0.7	2.4
21	APR	1980	748	112.325005	86.114250	-24.779612	-0.6	2.9
21	APR	1980	800	112.333336	86.114212	-24.776875	-0.6	2.9
21	APR	1980	859	112.374306	86.114021	-24.765617	-0.6	1.5
21	APR	1980	900	112.375000	86.114021	-24.765497	-0.6	1.5
21	APR	1980	1000	112.416664	86.113747	-24.762655	-1.3	0.0
21	APR	1980	1046	112.448606	86.113260	-24.762300	-2.5	0.4
21	APR	1980	1100	112.458336	86.113068	-24.761745	-2.9	0.6
21	APR	1980	1200	112.500000	86.111954	-24.756891	-3.7	1.1
21	APR	1980	1234	112.523613	86.111282	-24.754421	-3.6	0.6
21	APR	1980	1300	112.541664	86.110780	-24.754021	-3.5	-0.3
21	APR	1980	1304	112.544441	86.110710	-24.754128	-3.5	-0.4
21	APR	1980	1400	112.583336	86.109604	-24.759983	-4.0	-2.0
21	APR	1980	1421	112.597923	86.109131	-24.763681	-4.4	-2.4
21	APR	1980	1449	112.617363	86.108429	-24.769249	-4.9	-2.6
21	APR	1980	1500	112.625000	86.108139	-24.771511	-5.0	-2.6
21	APR	1980	1600	112.666664	86.106483	-24.781527	-4.8	-1.1
21	APR	1980	1608	112.672218	86.106277	-24.782118	-4.6	-0.7
21	APR	1980	1634	112.690277	86.105659	-24.782578	-4.2	0.2
21	APR	1980	1700	112.708336	86.105103	-24.781647	-3.8	0.6
21	APR	1980	1800	112.750000	86.103905	-24.778736	-3.7	0.3
21	APR	1980	1819	112.763191	86.103519	-24.778448	-3.8	0.0
21	APR	1980	1900	112.791664	86.102646	-24.779320	-4.0	-0.5
21	APR	1980	2000	112.833336	86.101311	-24.783264	-4.1	-1.0
21	APR	1980	2100	112.875000	86.100021	-24.788410	-3.8	-1.1
21	APR	1980	2200	112.916664	86.098846	-24.793125	-3.4	-0.9
21	APR	1980	2256	112.955559	86.097794	-24.796791	-3.7	-0.8
21	APR	1980	2300	112.958336	86.097717	-24.797043	-3.7	-0.8
21	APR	1980	2336	112.983337	86.096931	-24.799410	-4.4	-0.9
22	APR	1980	0	113.000000	86.096336	-24.801144	-4.9	-0.9
22	APR	1980	100	113.041664	86.094627	-24.805662	-5.4	-0.9
22	APR	1980	102	113.043056	86.094574	-24.805766	-5.4	-0.9
22	APR	1980	122	113.056946	86.093987	-24.807076	-5.4	-0.7
22	APR	1980	200	113.083336	86.092680	-24.809038	-5.5	-0.6
22	APR	1980	300	113.125000	86.091049	-24.811972	-5.9	-0.8
22	APR	1980	308	113.130554	86.090790	-24.812496	-5.9	-0.8
22	APR	1980	400	113.166664	86.089081	-24.817379	-5.2	-1.5
22	APR	1980	454	113.204163	86.087280	-24.825571	-6.1	-2.2
22	APR	1980	500	113.208336	86.087082	-24.826612	-6.0	-2.2
22	APR	1980	600	113.250000	86.085243	-24.835941	-5.2	-1.3
22	APR	1980	648	113.277779	86.084190	-24.837837	-4.6	0.1
22	APR	1980	700	113.291664	86.083710	-24.837023	-4.3	0.9
22	APR	1980	751	113.327987	86.082527	-24.831465	-4.5	1.5
22	APR	1980	800	113.333336	86.082306	-24.830416	-4.6	1.4
22	APR	1980	900	113.375000	86.080612	-24.826134	-5.0	0.1
22	APR	1980	1000	113.416664	86.078423	-24.829748	-7.5	-1.3
22	APR	1980	1100	113.458336	86.075813	-24.839615	-8.4	-2.4
22	APR	1980	1145	113.489586	86.073730	-24.847952	-8.7	-2.2
22	APR	1980	1200	113.500000	86.073029	-24.850542	-8.7	-2.1
22	APR	1980	1300	113.541664	86.070198	-24.859402	-8.8	-1.6
22	APR	1980	1332	113.563896	86.068680	-24.863115	-8.7	-1.3
22	APR	1980	1400	113.583336	86.067360	-24.865800	-8.7	-1.1
22	APR	1980	1500	113.625000	86.064508	-24.870585	-8.4	-0.9
22	APR	1980	1520	113.638885	86.063667	-24.871916	-8.2	-0.8
22	APR	1980	1600	113.666664	86.061935	-24.874405	-7.8	-0.7
22	APR	1980	1700	113.708336	86.059509	-24.877548	-7.2	-0.6

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
22	APR	1980	1800	113.750000	86.057274	-24.879467	-6.7	-0.2
22	APR	1980	1900	113.791664	86.055145	-24.879221	-6.5	0.4
22	APR	1980	2000	113.833336	86.053017	-24.875799	-6.7	1.1
22	APR	1980	2100	113.875000	86.050743	-24.868465	-7.3	2.0
22	APR	1980	2200	113.916664	86.048245	-24.857151	-8.1	2.8
22	APR	1980	2228	113.930104	86.046997	-24.850702	-8.5	3.1
22	APR	1980	2300	113.958336	86.045486	-24.842587	-8.9	3.4
23	APR	1980	0	114.000000	86.042480	-24.826206	-9.5	3.5
23	APR	1980	100	114.041664	86.039360	-24.810835	-9.7	3.0
23	APR	1980	140	114.069450	86.037277	-24.802555	-9.6	2.3
23	APR	1980	200	114.083336	86.036247	-24.799206	-9.5	2.0
23	APR	1980	300	114.125000	86.033226	-24.792498	-9.1	0.9
23	APR	1980	400	114.166664	86.030327	-24.790548	-8.8	0.0
23	APR	1980	500	114.208336	86.027534	-24.792059	-8.5	-0.6
23	APR	1980	600	114.250000	86.024602	-24.794935	-8.4	-0.6
23	APR	1980	700	114.291664	86.022072	-24.796785	-8.5	-0.1
23	APR	1980	800	114.333336	86.019272	-24.795456	-8.8	0.7
23	APR	1980	849	114.367363	86.016891	-24.790989	-9.2	1.6
23	APR	1980	900	114.375000	86.016342	-24.789526	-9.2	1.8
23	APR	1980	1000	114.416664	86.013268	-24.778797	-9.7	2.7
23	APR	1980	1100	114.458336	86.010063	-24.764490	-10.0	3.3
23	APR	1980	1200	114.500000	86.006775	-24.748907	-10.2	3.3
23	APR	1980	1300	114.541664	86.003471	-24.734989	-10.1	2.6
23	APR	1980	1400	114.583336	86.000229	-24.725851	-9.8	1.2
23	APR	1980	1500	114.625000	85.997116	-24.724308	-9.3	-0.7
23	APR	1980	1600	114.666664	85.994202	-24.732418	-8.7	-2.9
23	APR	1980	1700	114.708336	85.991501	-24.751009	-8.0	-5.1
23	APR	1980	1745	114.739586	85.989624	-24.771461	-7.5	-6.6
23	APR	1980	1800	114.750000	85.989029	-24.779385	-7.3	-7.1
23	APR	1980	1900	114.791664	85.986732	-24.815464	-6.9	-8.3
23	APR	1980	1950	114.826385	85.984894	-24.848433	-6.7	-8.6
23	APR	1980	2000	114.833336	85.984528	-24.855101	-6.7	-8.6
23	APR	1980	2100	114.875000	85.982353	-24.894318	-6.7	-8.2
23	APR	1980	2200	114.916664	85.980141	-24.929504	-6.9	-6.9
23	APR	1980	2300	114.958336	85.977859	-24.957813	-7.1	-5.2
24	APR	1980	0	115.000000	85.975510	-24.977459	-7.3	-3.2
24	APR	1980	100	115.041664	85.973114	-24.987646	-7.5	-1.2
24	APR	1980	200	115.083336	85.970680	-24.988460	-7.5	0.8
24	APR	1980	300	115.125000	85.968269	-24.980881	-7.4	2.5
24	APR	1980	400	115.166664	85.965904	-24.966505	-7.2	3.7
24	APR	1980	500	115.208336	85.963615	-24.947053	-6.9	4.4
24	APR	1980	600	115.250000	85.961441	-24.927183	-6.5	4.4
24	APR	1980	641	115.267459	85.960590	-24.923840	-6.5	4.3
24	APR	1980	700	115.291664	85.959381	-24.908155	-6.2	3.8
24	APR	1980	800	115.333336	85.957436	-24.893452	-5.9	2.5
24	APR	1980	900	115.375000	85.955559	-24.885944	-5.7	0.7
24	APR	1980	1000	115.416664	85.953720	-24.887041	-5.7	-1.1
24	APR	1980	1100	115.458336	85.951851	-24.895502	-5.9	-2.4
24	APR	1980	1127	115.477081	85.950989	-24.900663	-6.0	-2.6
24	APR	1980	1200	115.500000	85.949898	-24.907326	-6.2	-2.6
24	APR	1980	1300	115.541664	85.947800	-24.917088	-6.8	-1.3
24	APR	1980	1312	115.549995	85.947350	-24.918083	-6.9	-0.9
24	APR	1980	1400	115.583336	85.945457	-24.917980	-7.7	0.9
24	APR	1980	1457	115.622917	85.943024	-24.912176	-7.9	1.3
24	APR	1980	1500	115.62[illegible]	85.942694	-24.911892	-7.9	1.2
24	APR	1980	1526	115.64[illegible]	85.941811	-24.910158	-7.5	0.5
24	APR	1980	1600	115.66[illegible]	85.940491	-24.910311	-6.8	-0.5
24	APR	1980	1642	115.69[illegible]	85.938995	-24.912544	-6.4	-0.6
24	APR	1980	1700	115.70[illegible]	85.938370	-24.913044	-6.5	-0.2
24	APR	1980	1712	115.71[illegible]	85.937950	-24.913657	-6.5	0.1
24	APR	1980	1800	115.750000	85.936241	-24.911201	-6.7	0.7
24	APR	1980	1827	115.76[illegible]	85.935249	-24.909864	-6.9	0.6
24	APR	1980	1858	115.790278	85.934097	-24.908911	-6.8	0.2
24	APR	1980	1900	115.791664	85.934021	-24.908880	-6.7	0.2
24	APR	1980	2000	115.833336	85.931946	-24.909569	-6.1	-0.3
24	APR	1980	2044	115.86[illegible]	85.930481	-24.911125	-6.2	-0.5
24	APR	1980	2100	115.875000	85.929939	-24.911634	-6.4	-0.4
24	APR	1980	2200	115.916664	85.927711	-24.912365	-7.2	0.1

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
24	APR	1980	2300	115.958336	85.925293	-24.910143	-7.6	0.8
24	APR	1980	2344	115.988892	85.923508	-24.906822	-7.4	1.1
25	APR	1980	0	116.000000	85.922867	-24.905407	-7.3	1.2
25	APR	1980	100	116.041664	85.920509	-24.900066	-7.4	1.0
25	APR	1980	130	116.062500	85.919289	-24.898066	-7.6	0.7
25	APR	1980	200	116.083336	85.918030	-24.896723	-7.9	0.5
25	APR	1980	300	116.125000	85.915436	-24.895699	-8.0	0.0
25	APR	1980	316	116.136106	85.914749	-24.895754	-7.9	-0.1
25	APR	1980	400	116.166664	85.912865	-24.897196	-7.9	-0.9
25	APR	1980	500	116.208336	85.910210	-24.904871	-8.6	-2.4
25	APR	1980	502	116.209724	85.910110	-24.905239	-8.6	-2.4
25	APR	1980	600	116.250000	85.907265	-24.913673	-9.4	-0.3
25	APR	1980	648	116.283333	85.904770	-24.905354	-9.7	5.2
25	APR	1980	700	116.291664	85.904144	-24.899944	-9.7	6.7
25	APR	1980	800	116.333336	85.900955	-24.859791	-10.1	9.2
25	APR	1980	900	116.375000	85.897552	-24.831980	-11.0	1.5
25	APR	1980	1000	116.416664	85.893883	-24.847162	-11.4	-6.8
25	APR	1980	1019	116.429863	85.892715	-24.857679	-11.3	-7.7
25	APR	1980	1100	116.458336	85.890305	-24.877480	-10.3	-3.4
25	APR	1980	1100	116.458336	85.890305	-24.877480	-10.3	-3.4
25	APR	1980	1200	116.500000	85.887100	-24.869444	-10.1	5.9
25	APR	1980	1204	116.502777	85.886879	-24.867903	-10.2	5.2
25	APR	1980	1300	116.541664	85.883545	-24.844904	-11.8	4.7
25	APR	1980	1349	116.575691	85.880318	-24.831865	-12.4	2.7
25	APR	1980	1400	116.583336	85.879578	-24.829752	-12.4	2.4
25	APR	1980	1500	116.625000	85.875572	-24.819780	-12.4	2.4
25	APR	1980	1534	116.648613	85.873253	-24.812918	-12.7	3.1
25	APR	1980	1600	116.666664	85.871445	-24.806299	-13.0	3.7
25	APR	1980	1700	116.708336	85.867119	-24.795494	-13.6	5.5
25	APR	1980	1719	116.721527	85.866715	-24.777195	-13.7	6.1
25	APR	1980	1800	116.750000	85.862648	-24.757322	-14.0	6.6
25	APR	1980	1900	116.791664	85.858017	-24.731092	-14.6	4.4
25	APR	1980	1904	116.794441	85.857697	-24.729616	-14.7	4.1
25	APR	1980	2000	116.833336	85.853165	-24.720264	-15.2	0.6
25	APR	1980	2100	116.875000	85.848267	-24.722595	-14.8	-0.9
25	APR	1980	2200	116.916664	85.843620	-24.723316	-13.7	1.2
25	APR	1980	2236	116.941673	85.841026	-24.717041	-13.0	3.5
25	APR	1980	2300	116.958336	85.839363	-24.709393	-12.6	5.0
26	APR	1980	0	117.000000	85.835289	-24.682022	-12.8	6.5
26	APR	1980	22	117.015262	85.833733	-24.671507	-13.3	6.3
26	APR	1980	100	117.041664	85.830925	-24.654804	-14.1	5.5
26	APR	1980	105	117.045135	85.830544	-24.652784	-14.2	5.4
26	APR	1980	200	117.083336	85.826233	-24.633144	-14.6	4.3
26	APR	1980	208	117.088890	85.825607	-24.630602	-14.6	4.2
26	APR	1980	300	117.125000	85.821564	-24.615270	-14.0	3.8
26	APR	1980	354	117.162498	85.817603	-24.600946	-13.1	3.3
26	APR	1980	400	117.166664	85.817184	-24.599518	-12.9	3.2
26	APR	1980	440	117.194450	85.814401	-24.591438	-12.2	2.2
26	APR	1980	500	117.208336	85.813148	-24.586650	-12.0	1.5
26	APR	1980	540	117.235115	85.810600	-24.585789	-11.6	0.3
26	APR	1980	600	117.250000	85.809357	-24.585133	-11.4	0.4
26	APR	1980	624	117.266440	85.807663	-24.584316	-11.0	0.6
26	APR	1980	700	117.291664	85.805346	-24.581646	-10.9	2.0
26	APR	1980	720	117.305723	85.804497	-24.575134	-9.1	3.3
26	APR	1980	800	117.333336	85.802902	-24.563694	-8.4	5.8
26	APR	1980	815	117.343750	85.802223	-24.556929	-8.4	6.3
26	APR	1980	900	117.375000	85.800140	-24.534575	-9.0	5.1
26	APR	1980	1000	117.416664	85.797667	-24.503642	-10.2	7.2
26	APR	1980	1056	117.455559	85.793938	-24.473385	-9.6	7.4
26	APR	1980	1100	117.458336	85.793732	-24.471215	-9.5	7.3
26	APR	1980	1149	117.492363	85.791426	-24.447547	-7.8	5.9
26	APR	1980	1200	117.500000	85.790970	-24.444145	-7.4	4.2
26	APR	1980	1242	117.529167	85.789444	-24.434566	-6.2	2.6
26	APR	1980	1300	117.541664	85.788657	-24.431059	-5.9	2.8
26	APR	1980	1336	117.566673	85.787727	-24.422907	-5.7	3.5
26	APR	1980	1400	117.583336	85.786972	-24.416321	-5.9	4.0
26	APR	1980	1427	117.602081	85.786687	-24.407561	-6.2	4.4
26	APR	1980	1500	117.625000	85.784920	-24.397135	-6.9	4.5

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
26	APR	1980	1522	117.640282	85.784073	-24.390043	-7.3	4.3
26	APR	1980	1600	117.666664	85.782509	-24.378679	-7.9	3.8
26	APR	1980	1612	117.674995	85.781990	-24.375399	-7.9	3.6
26	APR	1980	1700	117.708336	85.779984	-24.363272	-7.2	3.4
26	APR	1980	1709	117.714577	85.779640	-24.360991	-6.9	3.5
26	APR	1980	1757	117.747917	85.778069	-24.348602	-5.3	3.4
26	APR	1980	1800	117.750000	85.777977	-24.347851	-5.2	3.4
26	APR	1980	1850	117.788887	85.776466	-24.335743	-5.3	2.3
26	APR	1980	1900	117.791664	85.776352	-24.335081	-5.4	2.2
26	APR	1980	1942	117.820831	85.775055	-24.328718	-5.7	2.4
26	APR	1980	2000	117.833336	85.774513	-24.325081	-5.4	3.1
26	APR	1980	2100	117.875000	85.773010	-24.305746	-3.8	5.5
26	APR	1980	2200	117.916664	85.772011	-24.280148	-2.7	5.4
26	APR	1980	2229	117.936806	85.771591	-24.270094	-2.7	4.0
26	APR	1980	2300	117.958336	85.771126	-24.262720	-2.8	2.4
27	APR	1980	0	118.000000	85.770256	-24.256952	-2.4	0.6
27	APR	1980	100	118.041664	85.769638	-24.254223	-1.5	1.0
27	APR	1980	100	118.041664	85.769638	-24.254223	-1.5	1.0
27	APR	1980	200	118.083336	85.769218	-24.248131	-1.4	1.6
27	APR	1980	204	118.086113	85.769188	-24.247675	-1.4	1.6
27	APR	1980	246	118.115273	85.768622	-24.243223	-1.7	1.3
27	APR	1980	300	118.125000	85.768700	-24.241985	-1.6	1.1
27	APR	1980	351	118.160423	85.768265	-24.238566	-1.5	0.8
27	APR	1980	400	118.166664	85.768196	-24.238064	-1.4	0.7
27	APR	1980	432	118.188890	85.767969	-24.236345	-1.3	0.8
27	APR	1980	500	118.208336	85.767784	-24.234632	-1.0	0.9
27	APR	1980	539	118.235413	85.767609	-24.231937	-0.7	0.9
27	APR	1980	600	118.250000	85.767540	-24.230503	-0.5	0.9
27	APR	1980	618	118.262505	85.767494	-24.229305	-0.4	0.9
27	APR	1980	700	118.291664	85.767403	-24.226286	-0.4	1.1
27	APR	1980	726	118.309723	85.767342	-24.223618	-0.5	1.5
27	APR	1980	800	118.333336	85.767250	-24.219555	-0.5	2.0
27	APR	1980	900	118.375000	85.767136	-24.209650	-0.2	2.4
27	APR	1980	1000	118.416664	85.767136	-24.200012	0.2	1.6
27	APR	1980	1100	118.458336	85.767281	-24.195013	0.6	0.4
27	APR	1980	1135	118.482635	85.767387	-24.194925	0.6	-0.3
27	APR	1980	1200	118.500000	85.767464	-24.195890	0.5	-0.7
27	APR	1980	1300	118.541664	85.767548	-24.199106	-0.1	-0.5
27	APR	1980	1320	118.555550	85.767525	-24.199382	-0.4	-0.1
27	APR	1980	1400	118.583336	85.767403	-24.199083	-0.6	0.2
27	APR	1980	1434	118.606941	85.767303	-24.199219	-0.4	-0.4
27	APR	1980	1500	118.625000	85.767265	-24.200697	-0.1	-1.2
27	APR	1980	1600	118.666664	85.767372	-24.209221	0.7	-2.5
27	APR	1980	1621	118.681252	85.767471	-24.2131[illegible]1	0.9	-2.5
27	APR	[illegible]	[illegible]	118.7113[illegible]	[illegible]	-24.21[illegible]	1.0	-2.5
27	APR	[illegible]	17[illegible]	118.7[illegible]	85.767[illegible]	-24.22[illegible]	1.[illegible]	-2.3
27	APR	[illegible]	[illegible]	118.75[illegible]	85.767[illegible]	-24.22[illegible]	[illegible]	-1.7
27	APR	[illegible]	1835	118.77[illegible]	85.766[illegible]	-24.23035[illegible]	[illegible].3	-0.5
27	APR	1980	1900	118.791664	85.766[illegible]	-24.231[illegible]31	0.1	-0.1
27	APR	1980	2000	118.833336	85.766054	-24.230135	-0.1	0.3
27	APR	1980	2100	118.875000	85.766013	-24.229271	-0.1	0.1
27	APR	1980	2200	118.916664	85.766005	-24.229[illegible]	[illegible].1	-0.4
27	APR	1980	2300	118.958336	85.766074	-24.232[illegible]	0.3	-0.5
28	APR	1980	0	119.000000	85.766211	-24.236[illegible]	0.5	[illegible]
28	APR	1980	100	119.041664	85.766417	-24.240271	0.7	[illegible]
28	APR	1980	200	119.083336	85.766645	-24.2435[illegible]	0.7	[illegible]
28	APR	[illegible]	300	119.125[illegible]	85.766[illegible]7	-24.2[illegible]	0.6	[illegible]
28	[illegible]	[illegible]	3[illegible]3	119.127[illegible]	[illegible]	-24.2[illegible]	[illegible]	-0.4
28	[illegible]	[illegible]	4[illegible]	119.1[illegible]	[illegible]	-24.2[illegible]7103	[illegible]	[illegible]
28	APR	[illegible]	5[illegible]	119.2[illegible]336	[illegible]	[illegible]	[illegible].2	-0.7
28	APR	1980	600	119.25[illegible]	85.76[illegible]211	-24.25337[illegible]	[illegible]	-1.[illegible]
28	APR	[illegible]	633	119.27[illegible]	85.769287	-24.256[illegible]	[illegible].5	[illegible]
28	APR	1980	700	119.291664	85.769371	-24.25732[illegible]	[illegible]	-0.7
28	APR	[illegible]	800	119.333336	85.769745	-24.257[illegible]77	1.6	[illegible]
28	APR	[illegible]	825	119.351[illegible]	85.76[illegible]	-24.256161	1.[illegible]	1.[illegible]
28	APR	1980	836	119.358337	85.770088	-24.255039	1.9	1.[illegible]
28	APR	1980	900	119.375000	85.770332	-24.251956	1.9	1.9
28	APR	1980	1000	119.416664	85.770795	-24.242992	0.8	1.8

FRAM 2   NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
28	APR	1980	1100	119.458333	85.770762	-24.237299	-0.8	0.7
28	APR	1980	1159	119.499306	85.770409	-24.235949	-1.2	0.1
28	APR	1980	1200	119.500000	85.770401	-24.235943	-1.2	0.1
28	APR	1980	1212	119.508331	85.770332	-24.235909	-1.0	0.0
28	APR	1980	1300	119.541664	85.770180	-24.235840	0.0	0.1
28	APR	1980	1400	119.583336	85.770380	-24.235883	1.2	-0.1
28	APR	1980	1500	119.625000	85.770874	-24.237551	1.6	-0.9
28	APR	1980	1545	119.656250	85.771286	-24.241619	1.8	-1.5
28	APR	1980	1600	119.666664	85.771439	-24.243446	1.9	-1.8
28	APR	1980	1700	119.708336	85.772285	-24.251365	3.8	-1.5
28	APR	1980	1719	119.721527	85.772720	-24.253256	4.8	-1.2
28	APR	1980	1800	119.750000	85.774048	-24.255644	7.1	-0.5
28	APR	1980	1900	119.791664	85.776817	-24.257578	9.6	-0.8
28	APR	1980	2000	119.833336	85.780052	-24.265783	9.9	-3.2
28	APR	1980	2100	119.875000	85.783043	-24.286901	8.3	-6.2
28	APR	1980	2106	119.879173	85.783310	-24.289680	8.1	-6.4
28	APR	1980	2200	119.916664	85.785469	-24.316965	6.9	-5.7
28	APR	1980	2236	119.941673	85.786789	-24.332969	6.7	-5.2
28	APR	1980	2300	119.958336	85.787565	-24.340841	6.9	-3.8
29	APR	1980	0	120.000000	85.790039	-24.350870	7.9	-1.0
29	APR	1980	39	120.027077	85.791809	-24.352293	8.9	-0.1
29	APR	1980	100	120.041664	85.792854	-24.352295	9.5	0.1
29	APR	1980	200	120.083336	85.796196	-24.352057	11.0	-0.3
29	APR	1980	300	120.125000	85.799965	-24.356021	12.1	-1.7
29	APR	1980	400	120.166664	85.804001	-24.366896	12.6	-3.2
29	APR	1980	500	120.208336	85.808052	-24.383600	12.3	-4.2
29	APR	1980	600	120.250000	85.811905	-24.403200	11.3	-4.5
29	APR	1980	700	120.291664	85.815353	-24.421957	9.9	-3.9
29	APR	1980	731	120.313194	85.816956	-24.430227	9.1	-3.3
29	APR	1980	800	120.333336	85.818329	-24.436813	8.4	-2.5
29	APR	1980	900	120.375000	85.820847	-24.446856	7.2	-1.8
29	APR	1980	1000	120.416664	85.823112	-24.452917	6.8	-1.1
29	APR	1980	1100	120.458336	85.825363	-24.457121	7.2	-0.6
29	APR	1980	1121	120.472923	85.826202	-24.458649	7.5	-1.0
29	APR	1980	1200	120.500000	85.827566	-24.461945	8.2	-1.3
29	APR	1980	1250	120.534721	85.830165	-24.467323	8.8	-1.6
29	APR	1980	1300	120.541664	85.830505	-24.465523	8.9	-1.5
29	APR	1980	1305	120.547218	85.831047	-24.469505	8.9	-1.7
29	APR	1980	1400	120.583336	85.833514	-24.476110	8.5	-1.7
29	APR	1980	1456	120.622223	85.835554	-24.483271	7.1	-1.4
29	APR	1980	1500	120.625000	[illegible]	[illegible]	[illegible]	-1.5
29	APR	1980	1600	120.666664	85.838127	[illegible]	[illegible]	-2.9
29	APR	1980	1625	120.684029	[illegible]	[illegible]	5.7	-3.2
29	APR	1980	1700	120.708336	[illegible]	[illegible]	5.5	-3.3
29	APR	1980	1800	120.750000	85.841799	-24.526605	5.7	-4.3
29	APR	1980	1900	120.791664	85.843735	[illegible]	5.5	-3.1
29	APR	1980	2000	120.833336	85.845979	-24.552654	7.3	-0.9
29	APR	1980	2100	120.875000	85.848404	-24.551420	7.5	1.1
29	APR	1980	2144	120.905556	85.850106	-24.547647	7.2	1.0
29	APR	1980	2200	120.916664	85.850777	-24.546738	6.9	0.5
29	APR	1980	2203	120.918755	85.850853	-24.546625	5.8	0.5
29	APR	1980	2300	120.958336	85.852814	-24.549580	5.7	-2.2
31	MAY	1980	0	121.000000	85.854515	-24.566454	5.6	-5.0
31	MAY	1980	100	121.041664	85.855224	-24.590576	5.8	-5.2
31	MAY	1980	136	121.066673	85.857437	-24.603008	5.7	-4.9
31	MAY	1980	200	121.083336	85.858360	-24.609735	7.[illegible]	-3.9
31	MAY	1980	300	121.125000	85.860974	-24.617165	8.5	-0.7
31	MAY	1980	400	121.166664	85.863603	-24.617535	[illegible]	-0.2
31	MAY	1980	451	121.202087	85.865573	[illegible]	6.7	-0.5
31	MAY	1980	500	121.208336	85.866055	[illegible]	5.4	-0.7
31	MAY	1980	600	121.250000	85.867871	-24.625944	4.9	-2.6
31	MAY	1980	657	[illegible]	85.869275	-24.630166	4.4	-4.4
31	MAY	1980	700	121.291664	85.869358	[illegible]	4.3	-4.1
31	MAY	1980	800	121.333336	[illegible]	[illegible]	4.7	-5.2
31	MAY	1980	844	121.363892	85.872002	[illegible]	5.2	-4.6
31	MAY	1980	900	121.375000	85.872457	[illegible]	[illegible]	-4.6
31	MAY	1980	1000	121.416664	85.874294	[illegible]	[illegible]	-3.7
31	MAY	1980	1032	[illegible]	85.875313	[illegible]	5.8	-3.4

FRAM 2 NAVIGATION - [illegible]

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
31	MAY	1980	1100	121.458336	85.876183	-24.720196	5.7	-3.2
31	MAY	1980	1159	121.499306	85.877653	-24.734491	4.7	-3.4
31	MAY	1980	1200	121.500000	85.877876	-24.734747	4.6	-3.4
31	MAY	1980	1219	121.513191	85.878334	-24.739667	4.2	-3.5
31	MAY	1980	1300	121.541664	85.879166	-24.750759	3.4	-3.6
31	MAY	1980	1400	121.583336	85.880142	-24.765781	2.8	-3.1
31	MAY	1980	1405	121.587502	85.880234	-24.767153	2.8	-3.0
31	MAY	1980	1500	121.625000	85.881073	-24.780106	3.0	-3.8
31	MAY	1980	1533	121.647919	85.881615	-24.791739	3.0	-5.2
31	MAY	1980	1554	121.662496	85.881958	-24.800102	2.9	-6.0
31	MAY	1980	1600	121.666664	85.882059	-24.802874	2.9	-6.2
31	MAY	1980	1658	121.706940	85.882935	-24.833502	2.9	-7.5
31	MAY	1980	1700	121.708336	85.882965	-24.834637	2.9	-7.5
31	MAY	1980	1719	121.721527	85.883278	-24.845490	3.1	-7.6
31	MAY	1980	1800	121.750000	85.883995	-24.868532	3.3	-7.0
31	MAY	1980	1843	121.779854	85.884789	-24.888391	3.5	-5.1
31	MAY	1980	1900	121.791664	85.885117	-24.894438	3.6	-4.3
31	MAY	1980	1906	121.795837	85.885231	-24.896336	3.6	-4.1
31	MAY	1980	2000	121.833336	85.886353	-24.909657	4.1	-2.9
31	MAY	1980	2100	121.875000	85.887810	-24.922871	4.9	-3.1
31	MAY	1980	2114	121.884727	85.888176	-24.926210	4.6	-3.2
31	MAY	1980	2200	121.916664	85.889359	-24.939257	4.5	-4.5
31	MAY	1980	2214	121.926392	85.889667	-24.944401	4.2	-5.2
31	MAY	1980	2300	121.958336	85.890602	-24.965675	3.2	-5.9
1	MAY	1980	0	122.000000	85.891624	-24.997705	3.6	-6.6
1	MAY	1980	0	122.000000	85.891624	-24.997705	3.6	-6.6
1	MAY	1980	47	122.032646	85.892776	-25.017803	5.7	-4.8
1	MAY	1980	100	122.041664	85.893204	-25.022224	6.4	-4.3
1	MAY	1980	146	122.073608	85.894989	-25.035172	7.4	-3.5
1	MAY	1980	200	122.083336	85.895538	-25.038593	7.2	-3.5
1	MAY	1980	300	122.125000	85.897652	-25.055796	5.7	-3.9
1	MAY	1980	332	122.147224	85.898544	-25.065544	4.6	-4.1
1	MAY	1980	400	122.166664	85.899145	-25.074303	3.9	-4.2
1	MAY	1980	500	122.208336	85.900284	-25.092829	3.0	-3.9
1	MAY	1980	518	122.220833	85.900574	-25.096087	2.9	-3.8
1	MAY	1980	600	122.250000	85.901227	-25.109459	2.8	-3.3
1	MAY	1980	700	122.291664	85.902642	-25.122215	2.6	-2.2
1	MAY	1980	704	122.294441	85.902145	-25.122854	2.5	-2.1
1	MAY	1980	800	122.333336	85.902847	-25.125511	2.0	-0.5
1	MAY	1980	900	122.375000	85.903356	-25.127919	1.2	0.7
1	MAY	1980	922	122.39[illegible]	85.903[illegible]	-25.1265[illegible]	1.6	0.[illegible]
1	MAY	1980	942	122.4[illegible]7	85.903[illegible]	-25.125141	[illegible]	1.[illegible]
1	MAY	1980	1000	122.416[illegible]	85.903[illegible]	-25.123777	[illegible].7	1.[illegible]
1	MAY	1980	1035	122.4[illegible]71	85.903779	-25.121717	[illegible]	[illegible]
1	MAY	1980	1100	122.458336	85.903[illegible]	-25.121[illegible]	[illegible]	-0.3
1	MAY	1980	1200	122.500000	85.90[illegible]	-25.125[illegible]	[illegible].2	-1.2
1	MAY	1980	1229	122.513[illegible]	85.903442	-25.1273[illegible]	[illegible]	-1.1
1	MAY	1980	1300	122.541664	85.903931	-25.129761	-0.7	-0.3
1	MAY	1980	1317	122.553474	85.903[illegible]	-25.129[illegible]31	-1.2	0.2
1	MAY	1980	1400	122.583336	85.903[illegible]	-25.127719	-2.2	0.[illegible]
1	MAY	1980	1405	122.587[illegible]	85.903361	-25.127413	-2.3	[illegible]
1	MAY	1980	1441	122.611809	85.90[illegible]901	-25.125511	-2.6	0.6
1	MAY	1980	1500	122.625000	85.902[illegible]	-25.1246[illegible]	-2.5	0.6
1	MAY	1980	1504	122.627777	85.9025[illegible]	-25.124449	-2.5	0.7
1	MAY	1980	1529	122.6[illegible]	85.902374	-25.123571	-2.4	0.8
1	MAY	1980	1600	122.666664	85.901855	-25.120481	-2.4	1.2
1	MAY	1980	1625	122.6[illegible]	85.90[illegible]	-25.11[illegible]7	-2.7	1.4
1	MAY	1980	1703	122.7[illegible]	85.900032	-25.114165	-3.4	1.4
1	MAY	1980	1730	122.733337	85.90[illegible]162	-25.11[illegible]	-4.5	1.4
1	MAY	1980	1800	122.750000	85.899521	-25.107963	-5.3	1.4
1	MAY	1980	1814	122.759727	85.899164	-25.10[illegible]	-5.[illegible]	1.4
1	MAY	1980	1900	122.791664	85.897575	-25.100821	-6.6	1.8
1	MAY	1980	2000	122.833336	85.895274	-25.0967[illegible]	-7.5	2.5
1	MAY	1980	2006	122.83[illegible]	85.895279	-25.0967[illegible]	-7.5	2.5
1	MAY	1980	2100	122.875[illegible]	85.892779	-25.[illegible]79254	-7.7	2.2
1	MAY	1980	2200	122.91[illegible]	85.89[illegible]373	-25.073137	-7.[illegible]	0.4
1	MAY	1980	2212	122.924[illegible]	85.889623	-25.072673	-6.5	0.[illegible]
1	MAY	1980	2252	122.952[illegible]	85.88[illegible]496	-25.074701	-5.5	-1.[illegible]

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
1	MAY	1980	2300	122.958336	85.888222	-25.075306	-6.4	-1.0
1	MAY	1980	2358	122.998604	85.886314	-25.080305	-5.4	-1.0
2	MAY	1980	0	123.000000	85.886261	-25.080456	-5.3	-1.0
2	MAY	1980	38	123.026390	85.885277	-25.082788	-4.3	-0.7
2	MAY	1980	100	123.041664	85.884781	-25.083773	-4.0	-0.5
2	MAY	1980	200	123.083336	85.883537	-25.086309	-3.8	-0.7
2	MAY	1980	224	123.099998	85.883026	-25.087845	-4.0	-1.0
2	MAY	1980	300	123.125000	85.882179	-25.090933	-4.8	-1.3
2	MAY	1980	306	123.129173	85.882019	-25.091518	-5.0	-1.3
2	MAY	1980	400	123.165664	85.880379	-25.096962	-6.2	-1.2
2	MAY	1980	410	123.173615	85.880035	-25.097828	-6.4	-1.1
2	MAY	1980	454	123.204103	85.878410	-25.099857	-7.4	0.1
2	MAY	1980	500	123.208336	85.878174	-25.099760	-7.5	0.3
2	MAY	1980	556	123.247223	85.875679	-25.092171	-8.9	3.5
2	MAY	1980	600	123.250000	85.875481	-25.091072	-9.0	3.8
2	MAY	1980	641	123.278473	85.873383	-25.076368	-10.0	5.3
2	MAY	1980	700	123.291664	85.872337	-25.068792	-10.4	5.3
2	MAY	1980	800	123.333336	85.868774	-25.046448	-11.3	4.5
2	MAY	1980	828	123.352776	85.867065	-25.037184	-11.3	4.4
2	MAY	1980	900	123.375000	85.865150	-25.025824	-10.8	5.3
2	MAY	1980	1000	123.416664	85.861938	-24.992231	-8.8	10.1
2	MAY	1980	1016	123.427773	85.861214	-24.979099	-8.1	11.7
2	MAY	1980	1040	123.444450	85.860222	-24.956434	-7.2	13.2
2	MAY	1980	1100	123.458336	85.859467	-24.936304	-6.8	13.5
2	MAY	1980	1113	123.467354	85.858994	-24.923214	-6.6	13.4
2	MAY	1980	1200	123.500000	85.857285	-24.878660	-7.2	11.7
2	MAY	1980	1258	123.540276	85.854813	-24.833349	-8.4	9.6
2	MAY	1980	1300	123.541664	85.854721	-24.831903	-8.4	9.6
2	MAY	1980	1349	123.575691	85.852524	-24.797848	-7.7	9.0
2	MAY	1980	1400	123.583336	85.852081	-24.790487	-7.3	8.9
2	MAY	1980	1415	123.593750	85.851517	-24.780493	-6.7	9.0
2	MAY	1980	1443	123.613190	85.850548	-24.761196	-6.2	9.6
2	MAY	1980	1500	123.625000	85.849968	-24.748600	-6.3	10.2
2	MAY	1980	1536	123.650002	85.848694	-24.719883	-6.8	11.0
2	MAY	1980	1600	123.666664	85.847786	-24.700129	-7.2	11.1
2	MAY	1980	1700	123.708336	85.845329	-24.650616	-7.9	11.1
2	MAY	1980	1722	123.723610	85.844363	-24.632425	-8.1	11.1
2	MAY	1980	1800	123.750000	85.842659	-24.601160	-8.9	10.9
2	MAY	1980	1813	123.759026	85.842018	-24.590658	-9.3	10.8
2	MAY	1980	1900	123.791664	85.839516	-24.553652	-10.1	10.4
2	MAY	1980	1908	123.797218	85.839081	-24.547464	-10.1	10.4
2	MAY	1980	1936	123.816673	85.837576	-24.526012	-9.7	10.2
2	MAY	1980	2000	123.833336	85.836357	-24.507895	-9.0	10.1
2	MAY	1980	2054	123.870827	85.833939	-24.467573	-7.8	10.1
2	MAY	1980	2100	123.875000	85.833687	-24.463064	-7.7	10.1
2	MAY	1980	2123	123.890956	85.832741	-24.445663	-7.5	10.2
2	MAY	1980	2200	123.916664	85.831215	-24.417713	-7.8	10.0
2	MAY	1980	2241	123.945137	85.829407	-24.386196	-8.6	9.3
2	MAY	1980	2300	123.958336	85.828506	-24.375225	-8.9	9.0
2	MAY	1980	2309	123.964577	85.828072	-24.369240	-9.0	8.9
2	MAY	1980	2330	123.979164	85.827042	-24.355469	-9.1	8.8
3	MAY	1980	0	124.000000	85.825592	-24.335934	-8.7	8.8
3	MAY	1980	100	124.041664	85.822968	-24.296595	-7.4	8.8
3	MAY	1980	116	124.052773	85.822342	-24.286245	-7.1	8.7
3	MAY	1980	200	124.083336	85.820755	-24.257908	-6.3	8.8
3	MAY	1980	300	124.125000	85.818817	-24.217392	-5.7	9.4
3	MAY	1980	302	124.126396	85.818756	-24.215994	-5.7	9.4
3	MAY	1980	400	124.166664	85.816956	-24.177628	-6.0	7.8
3	MAY	1980	401	124.167358	85.816925	-24.177059	-6.0	7.7
3	MAY	1980	445	124.200005	85.815285	-24.154388	-7.0	5.7
3	MAY	1980	500	124.208336	85.814819	-24.149471	-7.3	5.4
3	MAY	1980	548	124.241669	85.812813	-24.130728	-7.8	5.5
3	MAY	1980	600	124.250000	85.812309	-24.125757	-7.7	5.7
3	MAY	1980	634	124.273613	85.810928	-24.109788	-7.4	7.1
3	MAY	1980	700	124.291664	85.809898	-24.094683	-7.3	8.5
3	MAY	1980	800	124.333336	85.807434	-24.054518	-8.2	8.7
3	MAY	1980	803	124.335419	85.807304	-24.052603	-8.3	8.6
3	MAY	1980	900	124.375000	85.804649	-24.018175	-8.5	8.6

FRAM 2 NAVIGATION - KALMAN

DY	MON	YEAR	GMT	JULDAY	LATITUDE	LONGITUDE	N-VEL.	E-VEL.
3	MAY	1980	923	124.390900	85.803619	-24.002907	-8.1	9.4
3	MAY	1980	950	124.409721	85.802467	-23.983841	-7.8	9.5
3	MAY	1980	1000	124.416664	85.802040	-23.976927	-7.9	9.2
3	MAY	1980	1005	124.420135	85.801826	-23.973558	-7.9	9.0
3	MAY	1980	1100	124.458336	85.799400	-23.941574	-8.6	6.5
3	MAY	1980	1138	124.484718	85.797577	-23.925791	-9.1	5.1
3	MAY	1980	1200	124.500000	85.796494	-23.917671	-9.2	5.0
3	MAY	1980	1300	124.541664	85.793510	-23.894999	-9.2	5.5
3	MAY	1980	1326	124.559723	85.792221	-23.884203	-9.1	5.8
3	MAY	1980	1400	124.583336	85.790550	-23.869783	-9.1	5.6
3	MAY	1980	1444	124.613892	85.788429	-23.852264	-8.6	5.4
3	MAY	1980	1500	124.625000	85.787689	-23.845882	-8.4	5.5
3	MAY	1980	1513	124.634026	85.787109	-23.840466	-8.1	5.8
3	MAY	1980	1600	124.666664	85.785156	-23.818724	-7.3	6.6
3	MAY	1980	1630	124.687500	85.784004	-23.804262	-7.0	6.4
3	MAY	1980	1700	124.708336	85.782890	-23.791155	-6.9	5.5
3	MAY	1980	1800	124.750000	85.780624	-23.769587	-7.2	4.7
3	MAY	1980	1816	124.761108	85.779991	-23.763937	-7.5	4.9
3	MAY	1980	1900	124.791664	85.778137	-23.747158	-8.1	5.5
3	MAY	1980	2000	124.833336	85.775467	-23.721569	-8.0	5.9
3	MAY	1980	2002	124.834724	85.775383	-23.720703	-8.0	5.9
3	MAY	1980	2034	124.856941	85.774055	-23.707052	-7.2	5.7
3	MAY	1980	2100	124.875000	85.773109	-23.696215	-6.3	5.6
3	MAY	1980	2149	124.909027	85.771584	-23.675009	-5.4	6.5
3	MAY	1980	2200	124.916664	85.771271	-23.669655	-5.3	6.8
3	MAY	1980	2220	124.930550	85.770706	-23.659061	-5.2	7.6
3	MAY	1980	2300	124.958336	85.769606	-23.634657	-4.9	8.9
3	MAY	1980	2335	124.982635	85.768692	-23.611538	-4.8	9.0
4	MAY	1980	0	125.000000	85.768059	-23.595531	-4.6	8.5
4	MAY	1980	100	125.041664	85.766571	-23.562328	-4.5	6.5
4	MAY	1980	200	125.083336	85.765083	-23.537607	-4.7	5.0
4	MAY	1980	300	125.125000	85.763527	-23.516035	-4.9	5.1
4	MAY	1980	309	125.131248	85.763283	-23.512669	-5.0	5.2
4	MAY	1980	400	125.166664	85.761894	-23.492487	-5.1	5.5
4	MAY	1980	456	125.205559	85.760384	-23.470226	-4.9	5.2
4	MAY	1980	500	125.208336	85.760277	-23.468721	-4.9	5.1
4	MAY	1980	600	125.250000	85.758743	-23.447830	-4.8	4.5
4	MAY	1980	644	125.280556	85.757675	-23.433359	-4.4	4.5
4	MAY	1980	700	125.291664	85.757294	-23.428045	-4.4	4.6
4	MAY	1980	800	125.333336	85.755852	-23.408176	-4.6	4.4
4	MAY	1980	831	125.354858	85.755058	-23.398718	-4.8	4.0
4	MAY	1980	900	125.375000	85.754268	-23.390795	-5.1	3.5
4	MAY	1980	1000	125.41[illegible]	85.752533	-23.377987	-5.7	2.3
4	MAY	1980	1016	125.429169	85.751958	-23.375229	-5.9	1.9

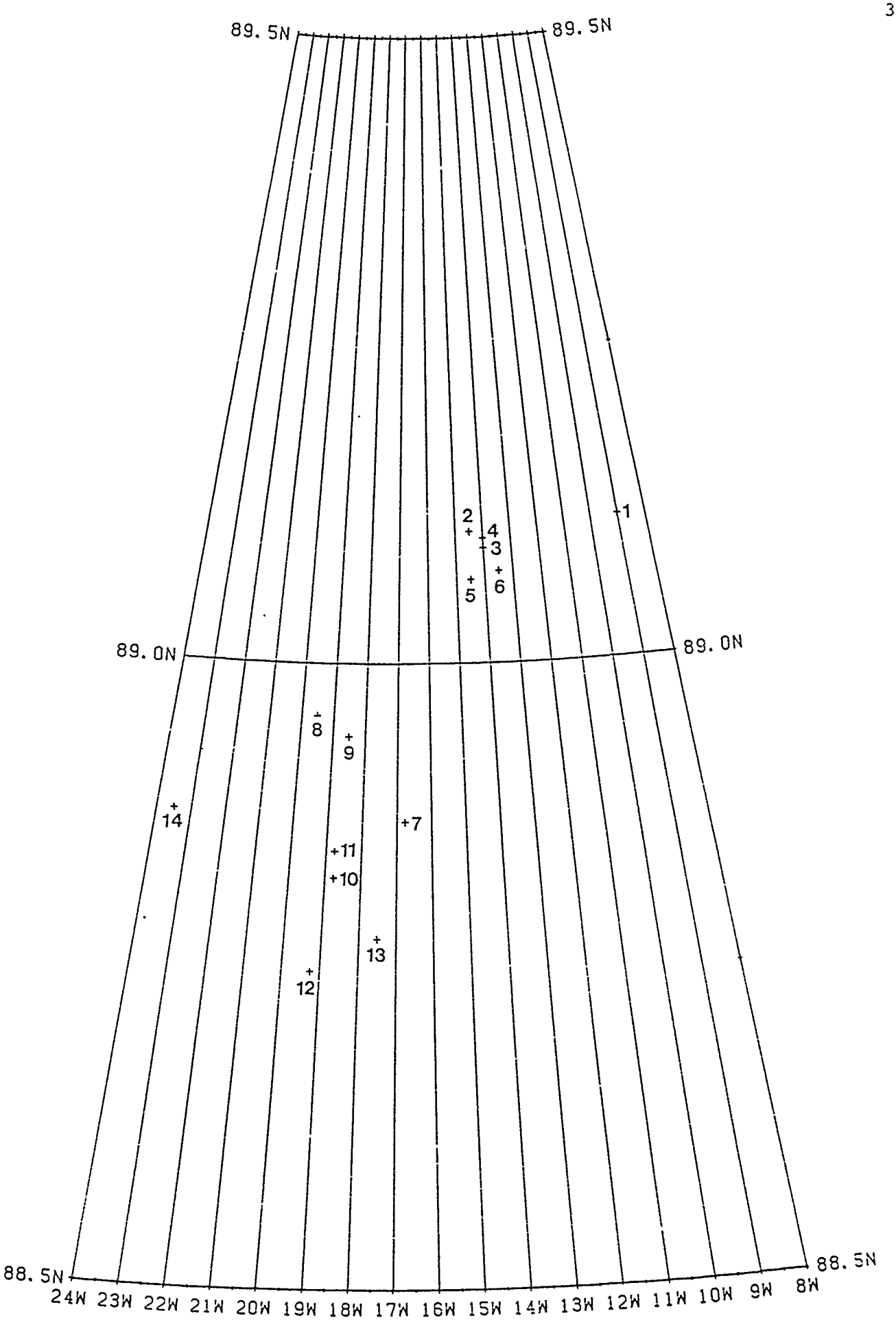
POSITIONS OF THE DRIFTING STATION CAMP I

AS DETERMINED BY CELESTIAL NAVIGATION

Fix Number	Date			GMT	Latitude	Longitude*
1	Apr.	8	1980	1916	89.113	-9.00
2		9	1980	1057	89.105	-14.50
3		10	1980	1124	89.093	-14.00
4		11	1980	1148	89.100	-14.00
5		14	1980	1006	89.067	-14.50
6		15	1980	1434	89.073	-13.50
7		20	1980	2039	88.873	-16.75
8		21	1980	1402	88.958	-19.50
9		22	1980	1525	88.942	-18.50
10		23	1980	2359	88.828	-18.75
11		25	1980	1053	88.850	-18.75
12		28	1980	1608	88.753	-19.25
13		30	1980	2116	88.780	-17.50
14	May	2	1980	1300	88.880	-23.50

The fix number is placed next to the position indicator (+) on the following plot to aid in the interpretation of the Camp I drift track through time.

*negative sign implies west longitude


89. 5N
89. 5N
89. 0N
89. 0N
88. 5N
88. 5N
1
2
3
4
5
6
7
8
9
10
11
12
13
14
24W 23W 22W 21W 20W 19W 18W 17W 16W 15W 14W 13W 12W 11W 10W 9W 8W

CAMP I ICE FLOE AZIMUTH, GRID AZIMUTH AND MAGNETIC DECLINATION

During the drift of Camp I, ice floe azimuths and magnetic declinations were taken when weather and time permitted. Markers positioned on the ice flow determined the imaginary line of the camp azimuth. Bearings of the camp azimuth relative to True North were determined using sun shots.

Magnetic declinations were obtained using a K & E surveyors compass placed in between and in line with the markers defining the line of the camp azimuth. The difference between the True North bearing of the camp azimuth and magnetic north reading from the surveyors compass is defined as the magnetic declination . Error estimates for magnetic declination are $\pm$ 0.5 degrees.

Key to column headings:

Date and GMT are as previously noted

True Azimuth	degrees clockwise from True North with estimated error (also in decimal degrees)
Grid Azimuth	degrees clockwise from Grid North. Grid North is defined as any directed line parallel to the o degree meridian from Greenwich, England to the North Pole. Grid East is 90 degrees clockwise.
Magnetic Declination	decimal degrees, positive values imply west declinations

CAMP I AZIMUTH AND DECLINATION

	Date		GMT	True Azimuth	Grid Azimuth	Magnetic Declination
April	8	1980	1916	17.9 ± 0.4	26.9	
	9		1057	15.9 ± 0.2	27.4	
	10		1124	15.9 ± 2.6	26.9	
	11		1148	13.6 ± 0.1	27.6	
	14		1006	13.5 ± 0.2	28.0	
	15		1434	15.0 ± 0.5	28.5	40.5
	18		1107	15.0		
	20		2039	12.7 ± 1.0	29.5	46.0
	21		1402	9.3 ± 0.1	28.8	45.0
	22		1525	10.4 ± 0.3	28.9	45.0
	23		2359	10.7 ± 0.1	29.5	45.0
	24		1300	10.8 ± 0.5	29.5	
	25		1053	11.0 ± 0.1	29.8	
	26		2207	10.3	29.3	
	28		1608	9.2 ± 0.1	28.5	45.0
	30		2116	9.8 ± 0.1	27.3	45.0
May	2		1300	3.0	26.5	42.0

Depth Soundings

As FRAM II drifted, a continuous record of ocean depths was made with an echo sounder operating at a frequency of 12 kHz. The sounder was manufactured by the Edo Western Corp. and consisted of three units: Model D-100 transducer, Model 248E sonar transceiver and Model 550A graphic recorder. The instrument was installed through an open hydrographic well with the transducer suspended at a depth of 2 m below sea level. Depths for this report were scaled at hourly intervals from the chart records on which 19" represented a depth change of 1500 m. The actual physical measurement is two-way reflection time from the transducer to the bottom and return. The uncorrected depth is defined as the one-way reflection time multiplied by the nominal speed of sound in seawater, 1500 m/s. More precise depth determination requires a correction for the sound speed profile in particular geographic areas of the ocean. The corrected depths listed here are based on tables by Matthews (1939).

FRAM II drifted over the lower flanks of the Morris Jessup Plateau, a marginal continental feature north of Greenland. Depths ranged from 4036 m at the commencement of recording to 3650 m at the shallowest.

OCEAN DEPTHS AT FRAM II

Key to column headings:

DY = Day

MON = Month

YEAR = Year

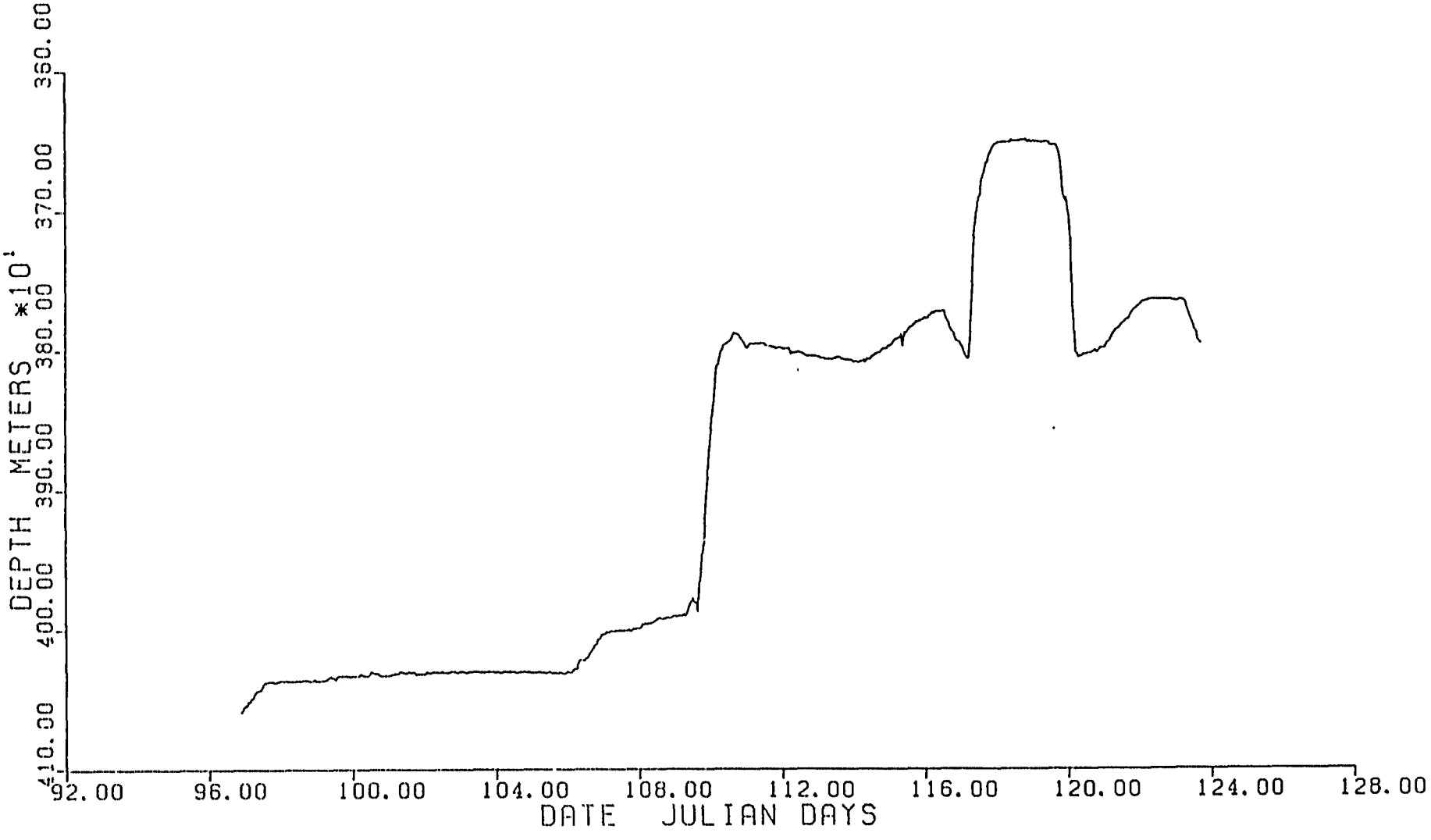
GMT = Greenwich Mean Time

SECONDS = Two-way reflection time

METERS (UNCORR) = Uncorrected depth based on sound speed of 1500 m s^{-1}

VEL (CORR) = Depth correction for sound speed in Arctic waters (Matthews, 1939)

METERS (CORR) = Corrected depths = METERS (UNCORR) + VEL (CORR)


DEPTH METERS *10¹
360.00
370.00
380.00
390.00
400.00
410.00
92.00
96.00
100.00
104.00
108.00
112.00
116.00
120.00
124.00
128.00
DATE JULIAN DAYS

FRAME 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
5	APR	1980	2100	5.490	4117.5	-58	4059.5
5	APR	1980	2200	5.488	4116.0	-58	4058.0
5	APR	1980	2300	5.485	4113.8	-58	4055.8
6	APR	1980	0	5.483	4112.3	-58	4054.3
6	APR	1980	100	5.484	4113.0	-58	4055.0
6	APR	1980	200	5.479	4109.3	-58	4051.3
6	APR	1980	300	5.480	4110.0	-58	4052.0
6	APR	1980	400	5.476	4107.0	-58	4049.0
6	APR	1980	500	5.476	4107.0	-58	4049.0
6	APR	1980	600	5.472	4104.0	-58	4046.0
6	APR	1980	700	5.470	4102.5	-58	4044.2
6	APR	1980	800	5.469	4101.8	-58	4043.8
6	APR	1980	900	5.468	4101.0	-58	4043.0
6	APR	1980	1000	5.468	4101.0	-58	4043.0
6	APR	1980	1100	5.465	4098.8	-58	4040.8
6	APR	1980	1200	5.462	4096.5	-58	4038.5
6	APR	1980	1300	5.461	4095.5	-58	4037.5
6	APR	1980	1400	5.461	4095.8	-58	4037.8
6	APR	1980	1500	5.460	4095.0	-58	4037.0
6	APR	1980	1600	5.460	4095.0	-58	4037.0
6	APR	1980	1700	5.460	4095.0	-58	4037.0
6	APR	1980	1800	5.460	4095.0	-58	4037.0
6	APR	1980	1900	5.461	4095.8	-58	4037.8
6	APR	1980	2000	5.461	4095.8	-58	4037.8
6	APR	1980	2100	5.460	4095.0	-58	4037.0
6	APR	1980	2200	5.460	4095.0	-58	4037.0
6	APR	1980	2300	5.459	4094.3	-58	4036.3
7	APR	1980	0	5.459	4094.3	-58	4036.3
7	APR	1980	100	5.459	4094.3	-58	4036.3
7	APR	1980	200	5.460	4095.0	-58	4037.0
7	APR	1980	300	5.459	4094.3	-58	4036.3
7	APR	1980	400	5.460	4095.0	-58	4037.0
7	APR	1980	500	5.460	4095.0	-58	4037.0
7	APR	1980	600	5.460	4095.0	-58	4037.0
7	APR	1980	700	5.460	4095.0	-58	4037.0
7	APR	1980	800	5.460	4095.0	-58	4037.0
7	APR	1980	900	5.460	4095.0	-58	4037.0
7	APR	1980	1000	5.459	4094.3	-58	4036.3
7	APR	1980	1100	5.460	4095.0	-58	4037.0
7	APR	1980	1200	5.459	4094.3	-58	4036.3
7	APR	1980	1300	5.460	4095.0	-58	4037.0
7	APR	1980	1400	5.459	4094.3	-58	4036.3
7	APR	1980	1500	5.459	4094.3	-58	4036.3
7	APR	1980	1600	5.459	4094.3	-58	4036.3
7	APR	1980	1700	5.459	4094.3	-58	4036.3
7	APR	1980	1800	5.459	4094.3	-58	4036.3
7	APR	1980	1900	5.460	4095.0	-58	4037.0
7	APR	1980	2000	5.460	4095.0	-58	4037.0
7	APR	1980	2100	5.459	4094.3	-58	4036.3
7	APR	1980	2200	5.458	4093.5	-58	4035.5
7	APR	1980	2300	5.460	4095.0	-58	4037.0
8	APR	1980	0	5.459	4094.3	-58	4036.3
8	APR	1980	100	5.460	4095.0	-58	4037.0
8	APR	1980	200	5.459	4094.3	-58	4036.3
8	APR	1980	300	5.459	4094.3	-58	4036.3
8	APR	1980	400	5.459	4094.3	-58	4036.3
8	APR	1980	500	5.458	4093.5	-58	4035.5
8	APR	1980	600	5.457	4092.8	-58	4034.8
8	APR	1980	700	5.457	4092.8	-58	4034.8
8	APR	1980	800	5.456	4091.3	-58	4033.3
8	APR	1980	900	5.457	4092.8	-58	4034.8
8	APR	1980	1000	5.457	4092.8	-58	4034.8
8	APR	1980	1100	5.459	4094.3	-58	4036.3
8	APR	1980	1200	5.458	4093.5	-58	4035.5
8	APR	1980	1300	5.456	4091.3	-58	4033.3
8	APR	1980	1400	5.456	4091.3	-58	4033.3
8	APR	1980	1500	5.456	4091.3	-58	4033.3

FRAM 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
8	APR	1980	1700	5.455	4091.3	-58	4033.3
8	APR	1980	1800	5.455	4091.3	-58	4033.3
8	APR	1980	1900	5.455	4091.3	-58	4033.3
8	APR	1980	2000	5.455	4091.3	-58	4033.3
8	APR	1980	2100	5.455	4091.3	-58	4033.3
8	APR	1980	2200	5.456	4092.0	-58	4034.0
8	APR	1980	2300	5.455	4091.3	-58	4033.3
9	APR	1980	0	5.455	4091.3	-58	4033.3
9	APR	1980	100	5.455	4091.3	-58	4033.3
9	APR	1980	200	5.455	4091.3	-58	4033.3
9	APR	1980	300	5.455	4091.3	-58	4033.3
9	APR	1980	400	5.455	4091.3	-58	4033.3
9	APR	1980	500	5.452	4089.0	-58	4031.0
9	APR	1980	600	5.454	4090.5	-58	4032.5
9	APR	1980	700	5.455	4091.3	-58	4033.3
9	APR	1980	800	5.455	4091.3	-58	4033.3
9	APR	1980	900	5.455	4091.3	-58	4033.3
9	APR	1980	1000	5.455	4091.3	-58	4033.3
9	APR	1980	1100	5.453	4089.8	-58	4031.8
9	APR	1980	1200	5.451	4088.3	-58	4030.3
9	APR	1980	1300	5.452	4089.0	-58	4031.0
9	APR	1980	1400	5.453	4089.8	-58	4031.8
9	APR	1980	1500	5.453	4089.8	-58	4031.8
9	APR	1980	1600	5.453	4089.8	-58	4031.8
9	APR	1980	1700	5.454	4090.5	-58	4032.5
9	APR	1980	1800	5.455	4091.3	-58	4033.3
9	APR	1980	1900	5.455	4091.3	-58	4033.3
9	APR	1980	2000	5.455	4091.3	-58	4033.3
9	APR	1980	2100	5.455	4091.3	-58	4033.3
9	APR	1980	2200	5.455	4091.3	-58	4033.3
9	APR	1980	2300	5.455	4091.3	-58	4033.3
10	APR	1980	0	5.455	4091.3	-58	4033.3
10	APR	1980	100	5.454	4090.5	-58	4032.5
10	APR	1980	200	5.454	4090.5	-58	4032.5
10	APR	1980	300	5.453	4089.8	-58	4031.8
10	APR	1980	400	5.453	4089.8	-58	4031.8
10	APR	1980	500	5.452	4089.0	-58	4031.0
10	APR	1980	600	5.451	4088.3	-58	4030.3
10	APR	1980	700	5.451	4088.3	-58	4030.3
10	APR	1980	800	5.452	4089.0	-58	4031.0
10	APR	1980	900	5.453	4089.8	-58	4031.8
10	APR	1980	1000	5.453	4089.8	-58	4031.8
10	APR	1980	1100	5.453	4089.8	-58	4031.8
10	APR	1980	1200	5.452	4089.0	-58	4031.0
10	APR	1980	1300	5.452	4089.0	-58	4031.0
10	APR	1980	1400	5.454	4090.5	-58	4032.5
10	APR	1980	1500	5.453	4089.8	-58	4031.8
10	APR	1980	1600	5.453	4089.8	-58	4031.8
10	APR	1980	1700	5.452	4089.0	-58	4031.0
10	APR	1980	1800	5.451	4088.3	-58	4030.3
10	APR	1980	1900	5.451	4088.3	-58	4030.3
10	APR	1980	2000	5.452	4089.0	-58	4031.0
10	APR	1980	2100	5.453	4089.8	-58	4031.8
10	APR	1980	2200	5.452	4089.0	-58	4031.0
10	APR	1980	2300	5.452	4089.0	-58	4031.0
11	APR	1980	0	5.452	4089.0	-58	4031.0
11	APR	1980	100	5.451	4088.3	-58	4030.3
11	APR	1980	200	5.452	4089.0	-58	4031.0
11	APR	1980	300	5.452	4089.0	-58	4031.0
11	APR	1980	400	5.452	4089.0	-58	4031.0
11	APR	1980	500	5.451	4088.3	-58	4030.3
11	APR	1980	600	5.451	4088.3	-58	4030.3
11	APR	1980	700	5.452	4089.0	-58	4031.0
11	APR	1980	800	5.451	4088.3	-58	4030.3
11	APR	1980	900	5.452	4089.0	-58	4031.0
11	APR	1980	1000	5.452	4089.0	-58	4031.0
11	APR	1980	1100	5.451	4088.3	-58	4030.3
11	APR	1980	1200	5.452	4089.0	-58	4031.0

FRAM 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
11	APR	1980	1300	5.452	4089.0	-58	4031.0
11	APR	1980	1400	5.452	4089.0	-58	4031.0
11	APR	1980	1500	5.452	4089.0	-58	4031.0
11	APR	1980	1600	5.452	4089.0	-58	4031.0
11	APR	1980	1700	5.451	4088.3	-58	4030.3
11	APR	1980	1800	5.451	4088.3	-58	4030.3
11	APR	1980	1900	5.451	4088.3	-58	4030.3
11	APR	1980	2000	5.451	4088.3	-58	4030.3
11	APR	1980	2100	5.452	4089.0	-58	4031.0
11	APR	1980	2200	5.452	4089.0	-58	4031.0
11	APR	1980	2300	5.451	4088.3	-58	4030.3
12	APR	1980	0	5.451	4088.3	-58	4030.3
12	APR	1980	100	5.451	4088.3	-58	4030.3
12	APR	1980	200	5.451	4088.3	-58	4030.3
12	APR	1980	300	5.452	4089.0	-58	4031.0
12	APR	1980	400	5.452	4089.0	-58	4031.0
12	APR	1980	500	5.451	4088.3	-58	4030.3
12	APR	1980	600	5.451	4088.3	-58	4030.3
12	APR	1980	700	5.451	4088.3	-58	4030.3
12	APR	1980	800	5.451	4088.3	-58	4030.3
12	APR	1980	900	5.451	4088.3	-58	4030.3
12	APR	1980	1000	5.451	4088.3	-58	4030.3
12	APR	1980	1100	5.451	4088.3	-58	4030.3
12	APR	1980	1200	5.451	4088.3	-58	4030.3
12	APR	1980	1300	5.452	4089.0	-58	4031.0
12	APR	1980	1400	5.451	4088.3	-58	4030.3
12	APR	1980	1500	5.452	4089.0	-58	4031.0
12	APR	1980	1600	5.451	4088.3	-58	4030.3
12	APR	1980	1700	5.451	4088.3	-58	4030.3
12	APR	1980	1800	5.451	4088.3	-58	4030.3
12	APR	1980	1900	5.451	4088.3	-58	4030.3
12	APR	1980	2000	5.451	4088.3	-58	4030.3
12	APR	1980	2100	5.451	4088.3	-58	4030.3
12	APR	1980	2200	5.451	4088.3	-58	4030.3
12	APR	1980	2300	5.452	4089.0	-58	4031.0
13	APR	1980	0	5.451	4088.3	-58	4030.3
13	APR	1980	100	5.451	4088.3	-58	4030.3
13	APR	1980	200	5.452	4089.0	-58	4031.0
13	APR	1980	300	5.452	4089.0	-58	4031.0
13	APR	1980	400	5.451	4088.3	-58	4030.3
13	APR	1980	500	5.451	4088.3	-58	4030.3
13	APR	1980	600	5.451	4088.3	-58	4030.3
13	APR	1980	700	5.451	4088.3	-58	4030.3
13	APR	1980	800	5.451	4088.3	-58	4030.3
13	APR	1980	900	5.451	4088.3	-58	4030.3
13	APR	1980	1000	5.451	4088.3	-58	4030.3
13	APR	1980	1100	5.451	4088.3	-58	4030.3
13	APR	1980	1200	5.451	4088.3	-58	4030.3
13	APR	1980	1300	5.452	4089.0	-58	4031.0
13	APR	1980	1400	5.451	4088.3	-58	4030.3
13	APR	1980	1500	5.451	4088.3	-58	4030.3
13	APR	1980	1600	5.451	4088.3	-58	4030.3
13	APR	1980	1700	5.451	4088.3	-58	4030.3
13	APR	1980	1800	5.451	4088.3	-58	4030.3
13	APR	1980	1900	5.451	4088.3	-58	4030.3
13	APR	1980	2000	5.451	4088.3	-58	4030.3
13	APR	1980	2100	5.451	4088.3	-58	4030.3
13	APR	1980	2200	5.451	4088.3	-58	4030.3
13	APR	1980	2300	5.452	4089.0	-58	4031.0
14	APR	1980	0	5.451	4088.3	-58	4030.3
14	APR	1980	100	5.451	4088.3	-58	4030.3
14	APR	1980	200	5.452	4089.0	-58	4031.0
14	APR	1980	300	5.452	4089.0	-58	4031.0
14	APR	1980	400	5.451	4088.3	-58	4030.3
14	APR	1980	500	5.451	4088.3	-58	4030.3
14	APR	1980	600	5.451	4088.3	-58	4030.3
14	APR	1980	700	5.451	4088.3	-58	4030.3
14	APR	1980	800	5.451	4088.3	-58	4030.3
14	APR	1980	900	5.451	4088.3	-58	4030.3
14	APR	1980	1000	5.451	4088.3	-58	4030.3
14	APR	1980	1100	5.451	4088.3	-58	4030.3
14	APR	1980	1200	5.451	4088.3	-58	4030.3
14	APR	1980	1300	5.452	4089.0	-58	4031.0
14	APR	1980	1400	5.451	4088.3	-58	4030.3
14	APR	1980	1500	5.451	4088.3	-58	4030.3
14	APR	1980	1600	5.451	4088.3	-58	4030.3
14	APR	1980	1700	5.451	4088.3	-58	4030.3
14	APR	1980	1800	5.451	4088.3	-58	4030.3
14	APR	1980	1900	5.451	4088.3	-58	4030.3
14	APR	1980	2000	5.451	4088.3	-58	4030.3
14	APR	1980	2100	5.451	4088.3	-58	4030.3
14	APR	1980	2200	5.451	4088.3	-58	4030.3
14	APR	1980	2300	5.452	4089.0	-58	4031.0
15	APR	1980	0	5.451	4088.3	-58	4030.3
15	APR	1980	100	5.451	4088.3	-58	4030.3
15	APR	1980	200	5.452	4089.0	-58	4031.0
15	APR	1980	300	5.452	4089.0	-58	4031.0
15	APR	1980	400	5.451	4088.3	-58	4030.3
15	APR	1980	500	5.451	4088.3	-58	4030.3
15	APR	1980	600	5.451	4088.3	-58	4030.3
15	APR	1980	700	5.451	4088.3	-58	4030.3
15	APR	1980	800	5.451	4088.3	-58	4030.3
15	APR	1980	900	5.451	4088.3	-58	4030.3
15	APR	1980	1000	5.451	4088.3	-58	4030.3
15	APR	1980	1100	5.451	4088.3	-58	4030.3
15	APR	1980	1200	5.451	4088.3	-58	4030.3
15	APR	1980	1300	5.452	4089.0	-58	4031.0
15	APR	1980	1400	5.451	4088.3	-58	4030.3
15	APR	1980	1500	5.451	4088.3	-58	4030.3
15	APR	1980	1600	5.451	4088.3	-58	4030.3
15	APR	1980	1700	5.451	4088.3	-58	4030.3
15	APR	1980	1800	5.451	4088.3	-58	4030.3
15	APR	1980	1900	5.451	4088.3	-58	4030.3
15	APR	1980	2000	5.451	4088.3	-58	4030.3
15	APR	1980	2100	5.451	4088.3	-58	4030.3
15	APR	1980	2200	5.451	4088.3	-58	4030.3
15	APR	1980	2300	5.452	4089.0	-58	4031.0
16	APR	1980	0	5.451	4088.3	-58	4030.3
16	APR	1980	100	5.451	4088.3	-58	4030.3
16	APR	1980	200	5.452	4089.0	-58	4031.0
16	APR	1980	300	5.452	4089.0	-58	4031.0
16	APR	1980	400	5.451	4088.3	-58	4030.3
16	APR	1980	500	5.451	4088.3	-58	4030.3
16	APR	1980	600	5.451	4088.3	-58	4030.3
16	APR	1980	700	5.451	4088.3	-58	4030.3

FRAM 2 DOPIN DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL COR	METERS (COFF)
14	APR	1980	900	5.453	40889.8	-558	4031.6
14	APR	1980	1000	5.452	40889.	-558	4031.0
14	APR	1980	1100	5.451	40888.	-558	4030.3
14	APR	1980	1200	5.452	40889.0	-558	4031.0
14	APR	1980	1300	5.453	40889.8	-558	4031.8
14	APR	1980	1400	5.452	40889.0	-558	4031.0
14	APR	1980	1500	5.453	40889.8	-558	4031.8
14	APR	1980	1600	5.452	40889.0	-558	4031.0
14	APR	1980	1700	5.453	40889.8	-558	4031.8
14	APR	1980	1800	5.452	40889.0	-558	4031.0
14	APR	1980	1900	5.452	40889.0	-558	4031.0
14	APR	1980	2000	5.453	40889.8	-558	4031.8
14	APR	1980	2100	5.453	40889.8	-558	4031.8
14	APR	1980	2200	5.453	40889.8	-558	4031.8
14	APR	1980	2300	5.451	40888.3	-558	4030.3
15	APR	1980	0	5.452	40889.0	-558	4031.0
15	APR	1980	100	5.452	40889.0	-558	4031.0
15	APR	1980	200	5.452	40889.0	-558	4031.0
15	APR	1980	300	5.450	40887.5	-558	4029.5
15	APR	1980	400	5.449	40886.8	-558	4028.8
15	APR	1980	500	5.449	40886.8	-558	4028.8
15	APR	1980	600	5.449	40886.8	-558	4028.8
15	APR	1980	700	5.443	40882.3	-558	4024.3
15	APR	1980	800	5.442	40881.0	-558	4023.0
15	APR	1980	900	5.442	40880.0	-558	4022.0
15	APR	1980	1000	5.442	40880.0	-558	4022.0
15	APR	1980	1100	5.441	40880.0	-558	4022.0
15	APR	1980	1200	5.438	40878.5	-558	4020.5
15	APR	1980	1300	5.438	40878.5	-558	4020.5
15	APR	1980	1400	5.438	40878.3	-558	4020.3
15	APR	1980	1500	5.438	40878.3	-558	4020.3
15	APR	1980	1600	5.436	40876.5	-558	4018.5
15	APR	1980	1700	5.428	40871.0	-558	4013.0
15	APR	1980	1800	5.429	40871.8	-558	4013.8
15	APR	1980	1900	5.429	40871.8	-558	4013.8
15	APR	1980	2000	5.429	40871.8	-558	4013.8
15	APR	1980	2100	5.429	40871.8	-558	4013.8
15	APR	1980	2200	5.417	40863.5	-558	4005.5
15	APR	1980	2300	5.419	40864.8	-558	4006.8
16	APR	1980	0	5.419	40864.8	-558	4006.8
16	APR	1980	100	5.419	40864.8	-558	4006.8
16	APR	1980	200	5.413	40860.3	-558	4002.3
16	APR	1980	300	5.413	40860.3	-558	4002.3
16	APR	1980	400	5.412	40859.5	-558	4001.5
16	APR	1980	500	5.412	40859.5	-558	4001.5
16	APR	1980	600	5.412	40859.5	-558	4001.5
16	APR	1980	700	5.412	40859.5	-558	4001.5
16	APR	1980	800	5.412	40859.5	-558	4001.5
16	APR	1980	900	5.412	40859.5	-558	4001.5
16	APR	1980	1000	5.412	40859.5	-558	4001.5
16	APR	1980	1100	5.412	40859.5	-558	4001.5
16	APR	1980	1200	5.412	40859.5	-558	4001.5
16	APR	1980	1300	5.412	40859.5	-558	4001.5
16	APR	1980	1400	5.412	40859.5	-558	4001.5
16	APR	1980	1500	5.412	40859.5	-558	4001.5
16	APR	1980	1600	5.412	40859.5	-558	4001.5
16	APR	1980	1700	5.412	40859.5	-558	4001.5
16	APR	1980	1800	5.412	40859.5	-558	4001.5
16	APR	1980	1900	5.412	40859.5	-558	4001.5
16	APR	1980	2000	5.412	40859.5	-558	4001.5
16	APR	1980	2100	5.412	40859.5	-558	4001.5
16	APR	1980	2200	5.412	40859.5	-558	4001.5
16	APR	1980	2300	5.412	40859.5	-558	4001.5
17	APR	1980	0	5.412	40859.5	-558	4001.5
17	APR	1980	100	5.412	40859.5	-558	4001.5
17	APR	1980	200	5.412	40859.5	-558	4001.5
17	APR	1980	300	5.412	40859.5	-558	4001.5
17	APR	1980	400	5.412	40859.5	-558	4001.5

FRAME 2 REPIR DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
17	APR	1980	500	5.405	40554.5	1	39996.5
17	APR	1980	600	5.405	40553.6	1	39995.6
17	APR	1980	700	5.405	40553.6	1	39995.6
17	APR	1980	800	5.405	40553.6	1	39995.6
17	APR	1980	900	5.404	40553.6	1	39995.6
17	APR	1980	1000	5.403	40552.3	1	39994.3
17	APR	1980	1100	5.402	40551.5	1	39993.5
17	APR	1980	1200	5.401	40550.6	1	39992.6
17	APR	1980	1300	5.400	40550.6	1	39992.6
17	APR	1980	1400	5.400	40550.6	1	39992.6
17	APR	1980	1500	5.401	40550.6	1	39992.6
17	APR	1980	1600	5.401	40550.6	1	39992.6
17	APR	1980	1700	5.400	40550.6	1	39992.6
17	APR	1980	1800	5.400	40550.6	1	39992.6
17	APR	1980	1900	5.400	40550.6	1	39992.6
17	APR	1980	2000	5.400	40550.6	1	39992.6
17	APR	1980	2100	5.400	40550.6	1	39992.6
17	APR	1980	2200	5.399	40549.3	1	39991.3
17	APR	1980	2300	5.398	40548.5	1	39990.5
18	APR	1980	0	5.398	40548.5	1	39990.5
18	APR	1980	100	5.398	40548.5	1	39990.5
18	APR	1980	200	5.398	40548.5	1	39990.5
18	APR	1980	300	5.398	40548.5	1	39990.5
18	APR	1980	400	5.398	40548.5	1	39990.5
18	APR	1980	500	5.398	40548.5	1	39990.5
18	APR	1980	600	5.398	40547.6	1	39989.6
18	APR	1980	700	5.397	40546.8	1	39988.8
18	APR	1980	800	5.397	40546.8	1	39988.8
18	APR	1980	900	5.396	40545.9	1	39987.9
18	APR	1980	1000	5.396	40545.9	1	39987.9
18	APR	1980	1100	5.396	40545.9	1	39987.9
18	APR	1980	1200	5.396	40545.9	1	39987.9
18	APR	1980	1300	5.396	40545.9	1	39987.9
18	APR	1980	1400	5.396	40545.9	1	39987.9
18	APR	1980	1500	5.396	40545.9	1	39987.9
18	APR	1980	1600	5.396	40545.9	1	39987.9
18	APR	1980	1700	5.396	40545.9	1	39987.9
18	APR	1980	1800	5.396	40545.9	1	39987.9
18	APR	1980	1900	5.396	40545.9	1	39987.9
18	APR	1980	2000	5.396	40545.9	1	39987.9
18	APR	1980	2100	5.396	40545.9	1	39987.9
18	APR	1980	2200	5.396	40545.9	1	39987.9
18	APR	1980	2300	5.396	40545.9	1	39987.9
19	APR	1980	0	5.396	40545.9	1	39987.9
19	APR	1980	100	5.396	40545.9	1	39987.9
19	APR	1980	200	5.396	40545.9	1	39987.9
19	APR	1980	300	5.396	40545.9	1	39987.9
19	APR	1980	400	5.396	40545.9	1	39987.9
19	APR	1980	500	5.396	40545.9	1	39987.9
19	APR	1980	600	5.396	40545.9	1	39987.9
19	APR	1980	700	5.396	40545.9	1	39987.9
19	APR	1980	800	5.396	40545.9	1	39987.9
19	APR	1980	900	5.396	40545.9	1	39987.9
19	APR	1980	1000	5.396	40545.9	1	39987.9
19	APR	1980	1100	5.396	40545.9	1	39987.9
19	APR	1980	1200	5.396	40545.9	1	39987.9
19	APR	1980	1300	5.396	40545.9	1	39987.9
19	APR	1980	1400	5.396	40545.9	1	39987.9
19	APR	1980	1500	5.396	40545.9	1	39987.9
19	APR	1980	1600	5.396	40545.9	1	39987.9
19	APR	1980	1700	5.396	40545.9	1	39987.9
19	APR	1980	1800	5.396	40545.9	1	39987.9
19	APR	1980	1900	5.396	40545.9	1	39987.9
19	APR	1980	2000	5.396	40545.9	1	39987.9
19	APR	1980	2100	5.396	40545.9	1	39987.9
19	APR	1980	2200	5.396	40545.9	1	39987.9
19	APR	1980	2300	5.396	40545.9	1	39987.9
20	APR	1980	0	5.396	40545.9	1	39987.9

FRAT 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
20	APR	1980	100	5.144	3858.0	-59	3799.0
20	APR	1980	200	5.141	3855.8	-59	3796.8
20	APR	1980	300	5.140	3855.0	-59	3796.0
20	APR	1980	400	5.140	3855.0	-59	3796.0
20	APR	1980	500	5.140	3855.0	-59	3796.0
20	APR	1980	600	5.140	3855.0	-59	3796.0
20	APR	1980	700	5.140	3855.0	-59	3796.0
20	APR	1980	800	5.140	3855.0	-59	3796.0
20	APR	1980	900	5.140	3855.0	-59	3796.0
20	APR	1980	1000	5.140	3855.0	-59	3796.0
20	APR	1980	1100	5.140	3855.0	-59	3796.0
20	APR	1980	1200	5.141	3855.8	-59	3796.8
20	APR	1980	1300	5.142	3856.5	-59	3797.5
20	APR	1980	1400	5.142	3856.5	-59	3797.5
20	APR	1980	1500	5.143	3857.3	-59	3798.3
20	APR	1980	1600	5.143	3857.3	-59	3798.3
20	APR	1980	1700	5.143	3857.3	-59	3798.3
20	APR	1980	1800	5.144	3858.0	-59	3799.0
20	APR	1980	1900	5.143	3857.3	-59	3798.3
20	APR	1980	2000	5.145	3858.8	-59	3799.8
20	APR	1980	2100	5.144	3858.0	-59	3799.0
20	APR	1980	2200	5.144	3858.0	-59	3799.0
20	APR	1980	2300	5.144	3858.0	-59	3799.0
21	APR	1980	0	5.145	3858.8	-59	3799.8
21	APR	1980	100	5.145	3858.8	-59	3799.8
21	APR	1980	200	5.145	3858.8	-59	3799.8
21	APR	1980	300	5.145	3858.8	-59	3799.8
21	APR	1980	400	5.145	3858.8	-59	3799.8
21	APR	1980	500	5.145	3858.8	-59	3799.8
21	APR	1980	600	5.150	3862.5	-59	3803.5
21	APR	1980	700	5.148	3861.0	-59	3802.0
21	APR	1980	800	5.149	3861.8	-59	3802.8
21	APR	1980	900	5.149	3861.8	-59	3802.8
21	APR	1980	1000	5.148	3861.0	-59	3802.0
21	APR	1980	1100	5.148	3861.0	-59	3802.0
21	APR	1980	1200	5.149	3861.8	-59	3802.8
21	APR	1980	1300	5.149	3861.8	-59	3802.8
21	APR	1980	1400	5.150	3862.5	-59	3803.5
21	APR	1980	1500	5.151	3863.3	-59	3804.3
21	APR	1980	1600	5.152	3864.0	-59	3805.0
21	APR	1980	1700	5.152	3864.0	-59	3805.0
21	APR	1980	1800	5.152	3864.0	-59	3805.0
21	APR	1980	1900	5.152	3864.0	-59	3805.0
21	APR	1980	2000	5.152	3864.0	-59	3805.0
21	APR	1980	2100	5.152	3864.0	-59	3805.0
21	APR	1980	2200	5.152	3864.0	-59	3805.0
21	APR	1980	2300	5.152	3864.0	-59	3805.0
22	APR	1980	0	5.153	3864.8	-59	3805.8
22	APR	1980	100	5.153	3864.8	-59	3805.8
22	APR	1980	200	5.154	3865.5	-59	3806.5
22	APR	1980	300	5.154	3865.5	-59	3806.5
22	APR	1980	400	5.154	3865.5	-59	3806.5
22	APR	1980	500	5.155	3866.3	-59	3807.3
22	APR	1980	600	5.155	3866.3	-59	3807.3
22	APR	1980	700	5.155	3866.3	-59	3807.3
22	APR	1980	800	5.155	3866.3	-59	3807.3
22	APR	1980	900	5.155	3866.3	-59	3807.3
22	APR	1980	1000	5.155	3866.3	-59	3807.3
22	APR	1980	1100	5.154	3865.5	-59	3806.5
22	APR	1980	1200	5.154	3865.5	-59	3806.5
22	APR	1980	1300	5.153	3864.8	-59	3805.8
22	APR	1980	1400	5.154	3865.5	-59	3806.5
22	APR	1980	1500	5.154	3865.5	-59	3806.5
22	APR	1980	1600	5.155	3866.3	-59	3807.3
22	APR	1980	1700	5.155	3866.3	-59	3807.3
22	APR	1980	1800	5.155	3866.3	-59	3807.3
22	APR	1980	1900	5.156	3867.0	-59	3808.0
22	APR	1980	2000	5.155	3866.3	-59	3807.3

FRAM 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
22	APR	1980	2100	5.156	3867.0	-59	3808.0
22	APR	1980	2200	5.156	3867.0	-59	3808.0
22	APR	1980	2300	5.156	3867.0	-59	3808.0
23	APR	1980	0	5.158	3868.5	-59	3809.5
23	APR	1980	100	5.157	3867.8	-59	3808.8
23	APR	1980	200	5.157	3867.8	-59	3808.8
23	APR	1980	300	5.158	3868.5	-59	3809.5
23	APR	1980	400	5.158	3868.5	-59	3809.5
23	APR	1980	500	5.157	3867.8	-59	3808.8
23	APR	1980	600	5.157	3867.8	-59	3808.8
23	APR	1980	700	5.156	3867.0	-59	3808.0
23	APR	1980	800	5.158	3868.5	-59	3809.5
23	APR	1980	900	5.155	3866.3	-59	3807.3
23	APR	1980	1000	5.155	3866.3	-59	3807.3
23	APR	1980	1100	5.155	3866.3	-59	3807.3
23	APR	1980	1200	5.153	3864.8	-59	3805.8
23	APR	1980	1300	5.152	3864.0	-59	3805.0
23	APR	1980	1400	5.151	3863.3	-59	3804.3
23	APR	1980	1500	5.150	3862.5	-59	3803.5
23	APR	1980	1600	5.149	3861.8	-59	3802.8
23	APR	1980	1700	5.149	3861.8	-59	3802.8
23	APR	1980	1800	5.148	3861.0	-59	3802.0
23	APR	1980	1900	5.146	3859.5	-59	3800.5
23	APR	1980	2000	5.145	3858.8	-59	3799.8
23	APR	1980	2100	5.145	3858.8	-59	3799.8
23	APR	1980	2200	5.145	3858.8	-59	3799.8
23	APR	1980	2300	5.143	3857.3	-59	3798.3
24	APR	1980	0	5.142	3856.5	-59	3797.5
24	APR	1980	100	5.142	3856.5	-59	3797.5
24	APR	1980	200	5.140	3855.0	-59	3796.0
24	APR	1980	300	5.138	3853.5	-59	3794.5
24	APR	1980	400	5.138	3852.0	-59	3793.0
24	APR	1980	500	5.136	3852.0	-59	3793.0
24	APR	1980	600	5.135	3851.3	-59	3792.3
24	APR	1980	700	5.134	3850.5	-59	3791.5
24	APR	1980	800	5.133	3849.8	-59	3790.8
24	APR	1980	900	5.132	3849.0	-59	3790.0
24	APR	1980	1000	5.131	3848.3	-59	3789.3
24	APR	1980	1100	5.131	3848.3	-59	3789.3
24	APR	1980	1200	5.130	3847.5	-59	3788.5
24	APR	1980	1300	5.129	3846.8	-59	3787.8
24	APR	1980	1400	5.129	3846.8	-59	3787.8
24	APR	1980	1500	5.128	3846.0	-59	3787.0
24	APR	1980	1600	5.126	3844.5	-59	3785.5
24	APR	1980	1700	5.125	3843.8	-59	3784.8
24	APR	1980	1800	5.124	3843.0	-59	3784.0
24	APR	1980	1900	5.123	3842.3	-59	3783.3
24	APR	1980	2000	5.122	3841.5	-59	3782.5
24	APR	1980	2100	5.121	3840.8	-59	3781.8
24	APR	1980	2200	5.121	3840.8	-59	3781.8
24	APR	1980	2300	5.120	3840.0	-59	3781.0
25	APR	1980	0	5.120	3840.0	-59	3781.0
25	APR	1980	100	5.119	3839.3	-59	3780.3
25	APR	1980	200	5.118	3838.5	-59	3779.5
25	APR	1980	300	5.117	3837.8	-59	3778.8
25	APR	1980	400	5.116	3837.0	-59	3778.0
25	APR	1980	500	5.117	3837.8	-59	3778.8
25	APR	1980	600	5.115	3836.3	-59	3777.3
25	APR	1980	700	5.114	3835.5	-59	3776.5
25	APR	1980	800	5.112	3834.0	-59	3775.0
25	APR	1980	900	5.113	3834.8	-59	3775.8
25	APR	1980	1000	5.111	3833.3	-59	3774.3
25	APR	1980	1100	5.111	3833.3	-59	3774.3
25	APR	1980	1200	5.111	3833.3	-59	3774.3
25	APR	1980	1300	5.111	3833.3	-59	3774.3
25	APR	1980	1400	5.111	3833.3	-59	3774.3
25	APR	1980	1500	5.113	3834.8	-59	3775.8
25	APR	1980	1600	5.117	3837.8	-59	3778.8
25	APR	1980	1700	5.120	3840.0	-59	3781.0
25	APR	1980	1800	5.123	3842.3	-59	3783.3

FRAM 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
25	APR	1980	1700	5.128	3846.0	+60	3786.0
25	APR	1980	1800	5.130	3847.5	+60	3787.5
25	APR	1980	1900	5.132	3849.0	+60	3789.0
25	APR	1980	2000	5.135	3851.3	+59	3792.3
25	APR	1980	2100	5.138	3853.5	+59	3794.5
25	APR	1980	2200	5.139	3854.0	+59	3795.3
25	APR	1980	2300	5.140	3855.0	+59	3796.0
26	APR	1980	0	5.143	3857.3	+59	3798.3
26	APR	1980	100	5.144	3858.0	+59	3799.0
26	APR	1980	200	5.149	3861.8	+59	3802.8
26	APR	1980	300	5.152	3864.0	+59	3805.0
26	APR	1980	400	5.155	3866.3	+59	3807.3
26	APR	1980	500	5.155	3866.3	+59	3807.3
26	APR	1980	600	5.139	3854.3	+59	3795.3
26	APR	1980	700	5.111	3833.3	+60	3773.3
26	APR	1980	800	5.080	3810.0	+60	3750.0
26	APR	1980	900	5.039	3779.3	+60	3719.3
26	APR	1980	1000	5.021	3765.8	+60	3705.8
26	APR	1980	1100	5.013	3759.8	+60	3699.8
26	APR	1980	1200	5.002	3751.5	+60	3691.5
26	APR	1980	1300	5.001	3750.8	+60	3690.8
26	APR	1980	1400	4.987	3740.3	+60	3680.3
26	APR	1980	1500	4.982	3736.5	+60	3676.5
26	APR	1980	1600	4.977	3732.8	+60	3672.8
26	APR	1980	1700	4.969	3726.8	+60	3666.8
26	APR	1980	1800	4.969	3726.8	+60	3666.8
26	APR	1980	1900	4.962	3721.5	+60	3661.5
26	APR	1980	2000	4.960	3720.0	+60	3660.0
26	APR	1980	2100	4.956	3717.0	+60	3657.0
26	APR	1980	2200	4.953	3714.8	+60	3654.8
26	APR	1980	2300	4.951	3713.3	+60	3653.3
27	APR	1980	0	4.951	3713.3	+60	3653.3
27	APR	1980	100	4.950	3712.5	+60	3652.5
27	APR	1980	200	4.950	3712.5	+60	3652.5
27	APR	1980	300	4.950	3712.5	+60	3652.5
27	APR	1980	400	4.950	3712.5	+60	3652.5
27	APR	1980	500	4.950	3712.5	+60	3652.5
27	APR	1980	600	4.950	3712.5	+60	3652.5
27	APR	1980	700	4.950	3712.5	+60	3652.5
27	APR	1980	800	4.950	3712.5	+60	3652.5
27	APR	1980	900	4.950	3712.5	+60	3652.5
27	APR	1980	1000	4.948	3711.0	+60	3651.0
27	APR	1980	1100	4.948	3711.0	+60	3651.0
27	APR	1980	1200	4.948	3711.0	+60	3651.0
27	APR	1980	1300	4.948	3711.0	+60	3651.0
27	APR	1980	1400	4.948	3711.0	+60	3651.0
27	APR	1980	1500	4.948	3711.0	+60	3651.0
27	APR	1980	1600	4.948	3711.0	+60	3651.0
27	APR	1980	1700	4.948	3711.0	+60	3651.0
27	APR	1980	1800	4.948	3711.0	+60	3651.0
27	APR	1980	1900	4.948	3711.0	+60	3651.0
27	APR	1980	2000	4.947	3710.3	+60	3650.3
27	APR	1980	2100	4.950	3712.5	+60	3652.5
27	APR	1980	2200	4.948	3711.0	+60	3651.0
27	APR	1980	2300	4.950	3712.5	+60	3652.5
28	APR	1980	0	4.949	3711.8	+60	3651.8
28	APR	1980	100	4.949	3711.8	+60	3651.8
28	APR	1980	200	4.950	3712.5	+60	3652.5
28	APR	1980	300	4.949	3711.8	+60	3651.8
28	APR	1980	400	4.950	3712.5	+60	3652.5
28	APR	1980	500	4.950	3712.5	+60	3652.5
28	APR	1980	600	4.950	3712.5	+60	3652.5
28	APR	1980	700	4.950	3712.5	+60	3652.5
28	APR	1980	800	4.950	3712.5	+60	3652.5
28	APR	1980	900	4.949	3711.8	+60	3651.8
28	APR	1980	1000	4.950	3712.5	+60	3652.5
28	APR	1980	1100	4.950	3712.5	+60	3652.5
28	APR	1980	1200	4.953	3714.8	+60	3654.8

FRAM 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
28	APR	1980	1300	4.953	3714.8	-60	3654.8
28	APR	1980	1400	4.953	3714.8	-60	3654.8
28	APR	1980	1500	4.953	3714.8	-60	3654.8
28	APR	1980	1600	4.953	3714.8	-60	3654.8
28	APR	1980	1700	4.955	3716.3	-60	3656.8
28	APR	1980	1800	4.960	3720.0	-60	3660.0
28	APR	1980	1900	4.967	3725.3	-60	3665.3
28	APR	1980	2000	4.979	3734.3	-60	3674.3
28	APR	1980	2100	5.000	3750.0	-60	3690.0
28	APR	1980	2200	5.000	3754.5	-60	3694.5
28	APR	1980	2300	5.003	3752.3	-60	3692.3
29	APR	1980	0	5.014	3760.5	-60	3700.5
29	APR	1980	100	5.023	3767.3	-60	3707.5
29	APR	1980	200	5.050	3787.5	-60	3727.5
29	APR	1980	300	5.100	3825.0	-60	3765.0
29	APR	1980	400	5.129	3846.8	-60	3786.8
29	APR	1980	500	5.150	3862.5	-59	3803.5
29	APR	1980	600	5.151	3863.3	-59	3804.3
29	APR	1980	700	5.154	3865.5	-59	3806.5
29	APR	1980	800	5.153	3864.8	-59	3805.8
29	APR	1980	900	5.153	3864.8	-59	3805.8
29	APR	1980	1000	5.151	3863.3	-59	3804.3
29	APR	1980	1100	5.151	3863.3	-59	3804.3
29	APR	1980	1200	5.151	3863.3	-59	3804.3
29	APR	1980	1300	5.150	3862.5	-59	3803.5
29	APR	1980	1400	5.150	3862.5	-59	3803.5
29	APR	1980	1500	5.150	3862.5	-59	3803.5
29	APR	1980	1600	5.149	3861.8	-59	3802.8
29	APR	1980	1700	5.148	3861.0	-59	3802.0
29	APR	1980	1800	5.147	3860.3	-59	3801.3
29	APR	1980	1900	5.149	3861.8	-59	3802.8
29	APR	1980	2000	5.148	3861.0	-59	3802.0
29	APR	1980	2100	5.146	3859.5	-59	3800.5
29	APR	1980	2200	5.145	3858.8	-59	3799.8
29	APR	1980	2300	5.145	3858.8	-59	3799.8
30	APR	1980	0	5.145	3858.8	-59	3799.8
30	APR	1980	100	5.143	3857.3	-59	3798.3
30	APR	1980	200	5.140	3855.0	-59	3796.0
30	APR	1980	300	5.139	3854.3	-59	3795.3
30	APR	1980	400	5.137	3852.8	-59	3793.8
30	APR	1980	500	5.134	3850.5	-59	3791.5
30	APR	1980	600	5.132	3849.0	-60	3789.0
30	APR	1980	700	5.131	3848.3	-60	3788.3
30	APR	1980	800	5.129	3846.8	-60	3786.8
30	APR	1980	900	5.128	3846.0	-60	3786.0
30	APR	1980	1000	5.127	3845.3	-60	3785.3
30	APR	1980	1100	5.125	3843.8	-60	3783.8
30	APR	1980	1200	5.123	3842.3	-60	3782.5
30	APR	1980	1300	5.122	3841.5	-60	3781.5
30	APR	1980	1400	5.121	3840.8	-60	3780.8
30	APR	1980	1500	5.119	3839.3	-60	3779.3
30	APR	1980	1600	5.119	3839.3	-60	3779.3
30	APR	1980	1700	5.117	3837.8	-60	3777.8
30	APR	1980	1800	5.114	3835.5	-60	3775.5
30	APR	1980	1900	5.112	3834.0	-60	3774.0
30	APR	1980	2000	5.110	3832.5	-60	3772.5
30	APR	1980	2100	5.109	3831.8	-60	3771.8
30	APR	1980	2200	5.107	3830.3	-60	3770.3
30	APR	1980	2300	5.106	3829.5	-60	3769.5
1	MAY	1980	0	5.105	3828.8	-60	3768.8
1	MAY	1980	100	5.103	3827.3	-60	3767.3
1	MAY	1980	200	5.102	3826.5	-60	3766.5
1	MAY	1980	300	5.102	3826.5	-60	3766.5
1	MAY	1980	400	5.101	3825.8	-60	3765.8
1	MAY	1980	500	5.101	3825.8	-60	3765.8
1	MAY	1980	600	5.100	3825.0	-60	3765.0
1	MAY	1980	700	5.100	3825.0	-60	3765.0
1	MAY	1980	800	5.100	3825.0	-60	3765.0

FRAM 2 DEPTH DATA

DY	MON	YEAR	GMT	SECONDS	METERS (UNCORR)	VEL CORR	METERS (CORR)
1	MAY	1980	900	5.100	3825.0	-60	3765.0
1	MAY	1980	1000	5.100	3825.0	-60	3765.0
1	MAY	1980	1100	5.100	3825.0	-60	3765.0
1	MAY	1980	1200	5.100	3825.0	-60	3765.0
1	MAY	1980	1300	5.100	3825.0	-60	3765.0
1	MAY	1980	1400	5.100	3825.0	-60	3765.0
1	MAY	1980	1500	5.100	3825.0	-60	3765.0
1	MAY	1980	1600	5.100	3825.0	-60	3765.0
1	MAY	1980	1700	5.100	3825.0	-60	3765.0
1	MAY	1980	1800	5.100	3825.0	-60	3765.0
1	MAY	1980	1900	5.100	3825.0	-60	3765.0
1	MAY	1980	2000	5.100	3825.0	-60	3765.0
1	MAY	1980	2100	5.100	3825.0	-60	3765.0
1	MAY	1980	2200	5.101	3825.8	-60	3765.8
1	MAY	1980	2300	5.101	3825.8	-60	3765.8
2	MAY	1980	0	5.101	3825.8	-60	3765.8
2	MAY	1980	100	5.102	3826.5	-60	3766.5
2	MAY	1980	200	5.101	3825.8	-60	3765.8
2	MAY	1980	300	5.100	3825.0	-60	3765.0
2	MAY	1980	400	5.101	3825.8	-60	3765.8
2	MAY	1980	500	5.101	3825.8	-60	3765.8
2	MAY	1980	600	5.102	3826.5	-60	3766.5
2	MAY	1980	700	5.104	3828.0	-60	3768.0
2	MAY	1980	800	5.109	3831.8	-60	3771.8
2	MAY	1980	900	5.113	3834.8	-60	3774.8
2	MAY	1980	1000	5.118	3838.5	-60	3778.5
2	MAY	1980	1100	5.122	3841.5	-60	3781.5
2	MAY	1980	1200	5.125	3843.8	-60	3783.8
2	MAY	1980	1300	5.130	3847.5	-60	3787.5
2	MAY	1980	1400	5.132	3849.0	-60	3789.0
2	MAY	1980	1500	5.138	3853.5	-59	3794.5
2	MAY	1980	1600	5.140	3855.0	-59	3796.0
2	MAY	1980	1700	5.141	3855.8	-59	3796.8

Gravity

The earth's gravity field was monitored during the station drift with a La Coste and Romberg Model G gravimeter. This instrument has a range of over 7000 milligals, a reading accuracy of ± 0.01 milligal and a drift rate normally less than 1 milligal per month. The instrument used, serial number 27, was especially modified for use on ice floes by the addition of variable damping and electronic readout. Gravity output was monitored continuously with a chart recorder but only those values read directly for calibrating the chart are reported here. The instrument was located in the Lamont residence hut at FRAM II where it was mounted on a wooden pier frozen into the ice floe. The pier extended through a hole in the floor of the hut and was free of any contact with the hut itself. The instrument was at an elevation of 1/2 m above sea level.

The gravity readings were calibrated with readings at Lamont, Thule and Nord. The manufacturer's screw curve for the instrument was checked between the gravity pier in the Oceanography Building at Lamont and Hangar #7 (SE corner, field level) at Thule AFB, Greenland. The difference in gravity between the two points is over 2600 milligals yet the difference based on the manufacturer's screw curve was found to give a gravity tie within 6 milligals of that based on the survey values for these two sites.

Site	Date	Base Surveyed Value (gals.)	Value based on G-27 Rdgs. (gals.)
Thule AFB HGR #7	24 Mar 80	982.9280	982.92205
Lamont Grav. Pier	7 May 80	980.2546	(980.2546)
Gravity Difference		2.6734	2.66745

Gravity based on our gravimeter readings using the screw curve agree with the accepted surveyed values with a difference of 5.95 milligals. This check provided confidence in the manufacturer's screw curve which was used to reduce all observations.

Drift is also a possible potential source of error. Readings were taken at the same site at Thule on both the trip to FRAM II and on return. The relative readings at Thule were:

24 March 80	6611.36 mgal
5 May 80	6610.62 mgal
Drift	0.74 mgal

The drift rate of 1/2 milligal per month is considered negligibly small and no drift corrections were made to the data.

GRAVITY OBSERVATIONS AT FRAM II

Key to column headings:

DY = Day

MON = Month

YEAR = Year

GMT - Greenwich mean time

CTR RDG = Counter reading

MGALS = Relative gravity in milligals

GRAVITY = Absolute gravity value in milligals.

FRAM 2 GRAVITY DATA

DY	MON	YEAR	GMT	CTR RDG	MGALS	GRAVITY
31	MAR	1980	1956	6551.52	6897.85	983214.87
31	MAR	1980	2235	6551.30	6897.58	983214.69
1	APR	1980	57	6551.35	6897.67	983214.69
1	APR	1980	824	6551.29	6897.60	983214.62
1	APR	1980	1020	6551.43	6897.75	983214.75
1	APR	1980	1630	6551.12	6897.42	983214.44
3	APR	1980	950	6551.43	6897.75	983214.75
4	APR	1980	1303	6549.75	6895.98	983213.06
4	APR	1980	2341	6549.92	6896.16	983213.19
5	APR	1980	940	6550.15	6896.40	983213.37
5	APR	1980	1310	6550.30	6896.56	983213.50
5	APR	1980	2330	6551.30	6897.61	983214.62
6	APR	1980	1035	6551.25	6897.56	983214.56
6	APR	1980	1622	6551.10	6897.40	983214.37
6	APR	1980	2217	6550.[illegible]	6897.14	983214.37
7	APR	1980	1039	6550.[illegible]	6896.[illegible]	983213.[illegible]
7	APR	1980	1321	6550.57	6896.80	983213.[illegible]
7	APR	1980	2142	6550.52	6896.52	983213.50
8	APR	1980	957	6550.[illegible]	6896.[illegible]	983213.[illegible]
8	APR	1980	1523	6550.[illegible]	6896.[illegible]	983213.[illegible]
9	APR	1980	15	6550.05	6896.93	983213.94
9	APR	1980	1055	6550.70	6896.[illegible]	983214.00
9	APR	1980	1522	6550.50	6896.77	983213.75
9	APR	1980	2130	6550.54	6896.81	983213.81
10	APR	1980	1130	6550.58	6896.86	983213.88
10	APR	1980	1539	6550.58	6896.86	983213.88
10	APR	1980	2215	6550.70	6897.05	983214.06
11	APR	1980	1040	6550.70	6897.05	983214.06
11	APR	1980	1715	6550.70	6897.03	983214.06
11	APR	1980	2350	6550.74	6897.08	983214.00
12	APR	1980	1040	6550.74	6897.09	983214.06
12	APR	1980	1712	6550.[illegible]	6897.11	983214.13
12	APR	1980	2214	6550.[illegible]	6897.14	983214.13
13	APR	1980	1105	6550.[illegible]	6897.12	983214.13
13	APR	1980	2210	6550.[illegible]	6897.15	983214.13
14	APR	1980	[illegible]	6550.[illegible]	6897.[illegible]	983214.[illegible]
14	APR	1980	1040	6550.73	6897.[illegible]	983214.[illegible]
14	APR	1980	1550	6550.73	6897.[illegible]	983214.[illegible]
15	APR	1980	[illegible]	6550.[illegible]	6897.[illegible]	983213.[illegible]
15	APR	1980	2[illegible]	6550.[illegible]	6897.[illegible]	983213.[illegible]
16	APR	1980	[illegible]	6550.[illegible]	6897.[illegible]	983214.[illegible]
16	APR	1980	[illegible]	6550.[illegible]	6897.[illegible]	983214.[illegible]
17	APR	1980	1130	6550.[illegible]	6897.[illegible]	983214.[illegible]
17	APR	1980	2[illegible]	6550.[illegible]	6897.[illegible]	983214.[illegible]
18	APR	1980	1140	6550.[illegible]	6897.[illegible]	983214.[illegible]
18	APR	1980	1730	6552.[illegible]	6899.[illegible]	983215.[illegible]
19	APR	1980	2227	6553.[illegible]	6900.[illegible]	983217.[illegible]
19	APR	1980	1140	6552.[illegible]	6899.[illegible]	983215.[illegible]
19	APR	1980	[illegible]	6552.27	6899.[illegible]	983215.[illegible]
20	APR	1980	[illegible]	6551.[illegible]	6898.[illegible]	983214.[illegible]
20	APR	1980	1235	6548.20	6893.77	983210.75
21	APR	1980	1330	6548.32	6894.45	983211.44
21	APR	1980	2[illegible]	6549.[illegible]	6895.[illegible]	983211.[illegible]
22	APR	1980	[illegible]	6549.[illegible]	6895.[illegible]	983211.[illegible]
22	APR	1980	[illegible]	6548.[illegible]	6894.[illegible]	983210.[illegible]
22	APR	1980	[illegible]	6548.[illegible]	6894.[illegible]	983210.[illegible]
23	APR	1980	[illegible]	6548.[illegible]	6894.[illegible]	983210.[illegible]
23	APR	1980	[illegible]	6548.[illegible]	6894.[illegible]	983210.[illegible]
23	APR	1980	2334	6548.[illegible]	6894.[illegible]	983210.[illegible]
24	APR	1980	[illegible]	6548.[illegible]	6894.[illegible]	983210.[illegible]
24	APR	1980	[illegible]	6548.[illegible]	6894.[illegible]	983210.[illegible]
24	APR	1980	1720	6547.[illegible]	6893.[illegible]	983209.[illegible]
24	APR	1980	2037	6547.00	6892.92	983209.00

FRAME 2 GRAVITY DATA

DY	MON	YEAR	GMT	CTR RDG	MGALS	GRAVITY
25	APR	1980	1203	6521.00	6866.34	983183.31
25	APR	1980	1618	6518.67	6863.25	983180.25
25	APR	1980	2214	6516.33	6860.79	983177.81
26	APR	1980	1350	6514.20	6858.54	983175.56
26	APR	1980	1859	6513.45	6857.75	983174.75
26	APR	1980	2208	6512.78	6857.05	983174.06
27	APR	1980	55	6513.04	6857.32	983174.31
27	APR	1980	1322	6513.04	6857.32	983174.31
27	APR	1980	1730	6513.01	6857.29	983174.31
28	APR	1980	1340	6513.06	6857.34	983174.31
28	APR	1980	2129	6514.01	6858.34	983175.31
28	APR	1980	2315	6514.21	6858.55	983175.56
29	APR	1980	1538	6516.50	6860.97	983178.00
29	APR	1980	1904	6517.31	6861.82	983178.81
29	APR	1980	2320	6518.11	6862.66	983179.69
30	APR	1980	1216	6520.58	6865.26	983182.25
30	APR	1980	2128	6522.03	6866.78	983183.81
1	MAY	1980	1537	6522.65	6867.45	983184.62
2	MAY	1980	518	6519.01	6863.61	983180.62

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This report contains geophysical data collected by the Lamont group at the FRAM II and Camp I drifting stations. These data include station positions determined by satellite navigation, echo soundings, ice floe azimuths, magnetic declination and gravity readings.

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