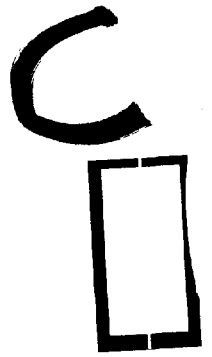




DEPARTMENT OF ENERGY, MINES AND RESOURCES  
MARINE SCIENCES BRANCH  
MINISTÈRE DE L'ÉNERGIE DE MINES ET DES RESSOURCES  
DIRECTION DES SCIENCES DE LA MER



ATLANTIC OCEANOGRAPHIC LABORATORY  
BEDFORD INSTITUTE

LABORATOIRE OCEANOGRAPHIQUE DE L'ATLANTIQUE  
INSTITUT de BEDFORD

Dartmouth, Nova Scotia  
Canada

GEOPHYSICAL DATA COLLECTED  
DURING HUDSON-70, PHASE VII OFF  
BRITISH COLUMBIA, CANADA

Edited by  
S. P. SRIVASTAVA

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## A1. Gravity, Magnetic and Bathymetric Survey

Figure 1 shows the general layout of the system used in collecting and reducing the underway geophysical measurements during and after the cruise. These measurements include gravity, magnetic, bathymetric and navigation. The gravity measurements were made using two gravimeters; a Graf-Askania Gravimeter model Gss 2-17 mounted on a gyro-stabilized platform and a D4e vibrating string accelerometer (VSA) gravimeter, belonging to Woods Hole Oceanographic Institution, also mounted on the same gyro-stabilized platform. The reasons for using two gravimeters were to get as much continuous gravity data as possible in case one of them failed during the cruise and to get a cross check on each others performance. Donner accelerometers mounted on the platform supplied data to a cross-coupling computer which calculated the cross-coupling error for the Askania Gravimeter.

The total magnetic field intensity was measured using a proton precession magnetometer (Model OM104 of Barringer Research Corp.). The sensing element (fish) of the magnetometer was towed 700 feet astern of the ship to minimize the magnetic effect of the ship. A magnetometer was set up at Port Hardy (Lat.  $50^{\circ}42'N$ , Long.  $127^{\circ}28'W$ ) to monitor the diurnal variations for the duration of the survey.

The soundings were obtained using a 12.0 KHZ EDO transducer, mounted under the ship's hull on a retractable rod in order to raise and lower it as desired, and recorded on an Alpine P.E.S.R. recorder programmed through a Giffit transceiver.

Primary navigation during the survey was provided by satellite navigation and dead reckoning. An ITT 407AB satellite navigation receiver with on-line PDP-8L computer was used on HUDSON to obtain satellite fixes and the conventional bridge dead reckoning was supplemented by data from a Sperry E/M log and gyro repeater.

The data was collected in analogue form on chart recorders as well as in digital form on punched paper tapes using Bedford Institute of Oceanography Data Logging system (BIODAL) (MacPhee, 1969). Gravity values from the two gravimeters, ship's head, ship's log and the output from the cross-coupling computer were sampled once a minute while magnetic readings were sampled every six seconds and were punched on the paper tape together with day and time (GMT). The data thus obtained were checked and processed on board ship using a PDP-8 computer and finally reprocessed on a CDC 3150 computer at the Institute. The bathymetry records were read manually at every five minutes and values punched on the cards.

Calibration of gravimeters were carried out prior to and after the cruise at Esquimalt, British Columbia where the ship was berthed. Drift rates for the two gravimeters were calculated from these calibrations for the duration of the survey. These drift rates were used in the final reduction of the data at the Institute.

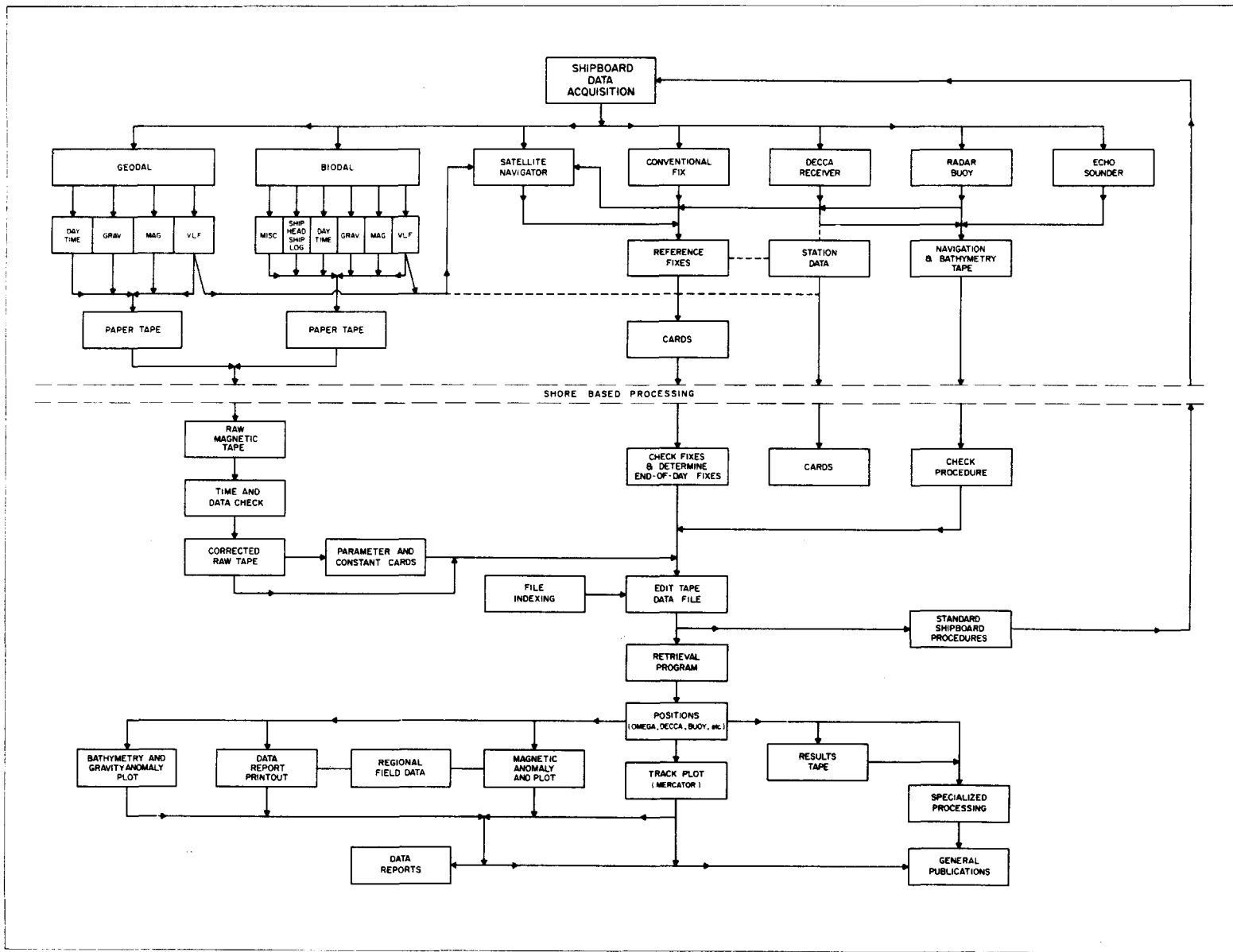


Figure 1 - General layout of the geophysical data reduction system on board ship and at headquarters.

Track charts were plotted on board ship during the cruise using the navigational information obtained from satellite navigation unit and dead reckoning. Navigational Tables were then prepared from these track charts to be used in subsequent data reduction at the Institute. Data collected in digital form on punched paper tapes were then merged with navigational data and bathymetric data during its final processing on the CDC 3150 computer.

Free Air gravity anomalies were calculated using 1930 International Gravity Formulae

$$g = 978.0490 (1 + 0.0052884 \sin^2\psi - 0.0000059 \sin^2 2\psi)$$

$\psi$  = latitude

while magnetic anomalies were computed using International Geomagnetic Reference Field (J. Geophys. Res. 74. 4407-4408, 1969). The magnetic data was further corrected for diurnal variations using the data collected at Port Hardy.

The reduced data thus obtained is listed in the following pages. It contains:

1) Table (Table 1) giving list of fixes used in preparing the final ship's track together with the "type of fix code". The code used is the standard code used by the Canadian Hydrographic Service. The code numbers and their meaning are listed below.

<u>Code</u>	<u>Type of Fix</u>
1	Short to medium range electronic system, e.g. Decca; Loran A, B; console; etc.
2	Long range electronic system, e.g. Loran C; Omega; VLF; Dectra; etc.
3	Celestial (stars and planets).
4	LAN and sun lines.
5	Dead reckoning.
6	R.D.F. bearings.
7	Visual and radar range and bearings.
8	Satellite Navigation.
9	Acoustic Navigation.

2) Table (Table 2) giving day, time, latitude, longitude, depth (in fathoms), total magnetic field intensity (in gammas), magnetic anomaly (in gammas), free air anomaly (Askania, in milligal), Eötvös correction,

free air anomaly (VSA in milligal) and calculated simple Bouguer anomaly (in milligal) using VSA free air values at ten-minute intervals. The water depths quoted are not corrected for variations in the velocity of sound in sea water, this being assumed constant at 4800 ft/sec (1463 m/sec). The Bouguer anomalies are calculated according to an 'infinite slab' model using an uncorrected depth of water beneath the observation point, a density for sea water of 1.03 gm/cc and a density for the slab of 2.70 gm/cc.

3) Profiles of bathymetry, gravity and magnetic data against distance using two-minute interval values. The scales are shown on individual profiles. The bathymetry scale is in fathoms, free air gravity anomaly in milligals, magnetic anomaly in gammas, and distance in kilometers. Also shown on each profile are the positional information between the beginning and end of each profile. Each profile contains sections of data during which the ship's speed and course were kept constant.

D.I. Ross, K.G. Shih,  
and S.P. Srivastava

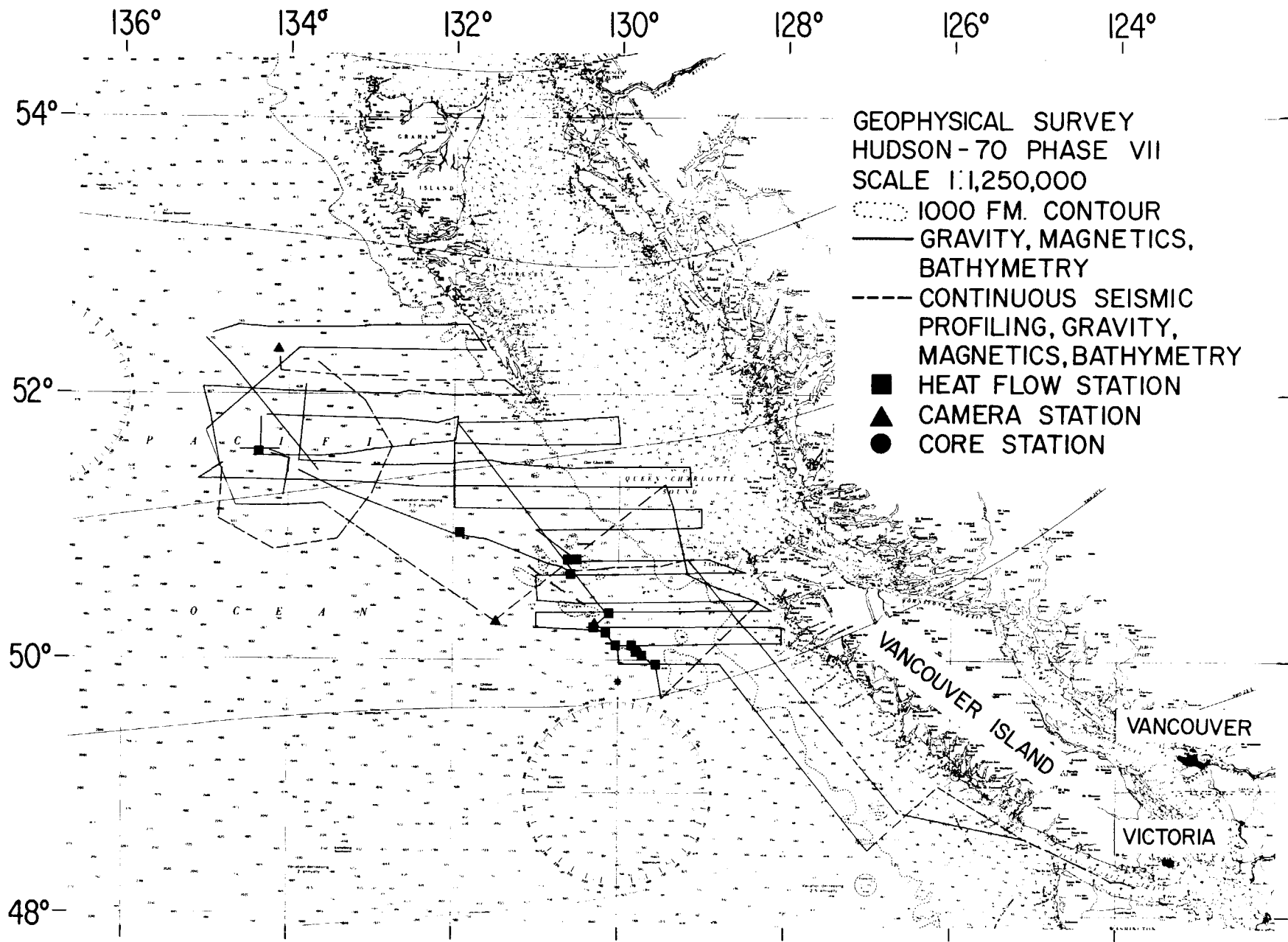


Figure 2 - Track Chart.

TABLE 1

The table contains positional information used in preparing the ship's track (Fig. 2). Each track is broken into several segments depending on the number of changes made in ship's course and speed. Numbers listed under the heading LC indicate the status of a track. This is designated by a number in the following form.

- 1 - corresponds to the start of a track.
- 2 - corresponds to the end of the track.
- 3 - corresponds to the continuation of the track; thus  
3 indicates a change in speed or course during a track.

All times given in this report are in Greenwich Mean Time. Also given are the latitude and longitude (degrees, positive for latitude indicate North and negative for longitude indicate West), type of fix used (NV), the ship's speed (knots) and course (degrees), Eötvös correction (milligal) and the distance along the track (km) between fixes.

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
1	194	100	48 15.9	-123 47.0	8				
3	194	130	48 16.7	-123 52.3	8	7.2	282.8	-35.0	3.6
3	194	130	48 16.7	-123 52.3	8				
3	194	200	48 17.0	-123 55.5	8	4.3	278.0	-21.2	2.2
3	194	200	48 17.0	-123 55.5	8				
3	194	300	48 17.8	-124 2.7	8	4.9	279.5	-23.8	4.9
3	194	300	48 17.8	-124 2.7	8				
3	194	330	48 18.8	-124 6.6	8	5.6	291.1	-25.8	2.8
3	194	330	48 18.8	-124 6.6	8				
3	194	430	48 20.6	-124 12.6	8	4.4	294.3	-19.8	4.4
3	194	430	48 20.6	-124 12.6	8				
3	194	500	48 22.1	-124 15.9	8	5.3	304.4	-21.7	2.7
3	194	500	48 22.1	-124 15.9	8				
3	194	530	48 23.6	-124 19.3	8	5.4	303.6	-22.4	2.7
3	194	530	48 23.6	-124 19.3	8				
3	194	630	48 25.8	-124 27.0	8	5.6	293.3	-25.3	5.6
3	194	630	48 25.8	-124 27.0	8				
3	194	830	48 31.7	-124 46.0	8	7.0	295.1	-31.1	13.9
3	194	830	48 31.7	-124 46.0	8				
3	194	1000	48 36.1	-125 1.6	8	7.5	293.1	-33.9	11.2
3	194	1000	48 36.1	-125 1.6	8				
3	194	1030	48 37.7	-125 7.5	8	8.4	292.3	-38.4	4.2
3	194	1030	48 37.7	-125 7.5	8				
3	194	1100	48 38.4	-125 12.6	8	6.9	281.7	-33.2	3.4
3	194	1100	48 38.4	-125 12.6	8				
3	194	1130	48 39.1	-125 16.5	8	5.3	285.2	-25.4	2.7
3	194	1130	48 39.1	-125 16.5	8				
3	194	1300	48 40.9	-125 29.8	8	6.0	281.6	-28.9	9.0
3	194	1300	48 40.9	-125 29.8	8				
3	194	1700	48 45.5	-126 8.2	8	6.4	280.3	-31.2	25.7



## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
3	194	1700	48 45.5	-126 8.2	8				
3	194	1730	48 46.0	-126 13.6	8	7.2	278.0	-35.0	3.6
3	194	1730	48 46.0	-126 13.6	8				
2	194	1830	48 48.2	-126 32.4	8	12.6	280.1	-60.6	12.6
1	194	1900	48 51.1	-126 39.5	8				
3	194	2100	49 10.3	-127 3.5	8	12.4	320.7	-38.1	24.8
3	194	2100	49 10.3	-127 3.5	8				
2	194	2200	49 14.5	-127 8.9	8	5.5	320.0	-17.2	5.5
1	194	2300	49 17.7	-127 13.2	8				
0	194	2359	49 23.3	-127 20.4	5	7.5	320.2	-23.1	7.3
0	194	2359	49 23.3	-127 20.4	5				
0	195	0	49 23.4	-127 20.6	5	10.0	307.5	-38.4	.2
0	195	0	49 23.4	-127 20.6	5				
3	195	30	49 26.3	-127 24.3	8	7.5	320.0	-23.3	3.7
3	195	30	49 26.3	-127 24.3	8				
3	195	500	50 8.4	-128 17.6	8	12.1	320.7	-36.4	54.4
3	195	500	50 8.4	-128 17.6	8				
3	195	600	50 17.6	-128 31.2	8	12.7	316.6	-41.1	12.7
3	195	600	50 17.6	-128 31.2	8				
3	195	630	50 22.3	-128 38.0	8	12.8	317.3	-40.9	6.4
3	195	630	50 22.3	-128 38.0	8				
3	195	830	50 41.8	-129 3.6	8	12.7	320.2	-38.1	25.4
3	195	830	50 41.8	-129 3.6	8				
3	195	900	50 46.6	-129 10.0	8	12.6	319.8	-37.8	6.3
3	195	900	50 46.6	-129 10.0	8				
3	195	1130	50 43.8	-129 30.0	8	5.2	257.5	-23.9	13.0
3	195	1130	50 43.8	-129 30.0	8				
3	195	1600	50 42.0	-130 9.4	8	5.6	265.9	-26.2	25.0
3	195	1600	50 42.0	-130 9.4	8				
3	195	1800	50 41.4	-130 25.8	8	5.2	266.7	-24.6	10.4

NAVIGATION FIX

A1-9

LC	DAY	TIME	LATITUDE		LONGITUDE		NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
3	195	1800	50	41.4	-130	25.8	8				
3	195	1930	50	41.6	-130	37.2	8	4.8	271.6	-22.8	7.2
3	195	1930	50	41.6	-130	37.2	8				
3	195	2000	50	43.0	-130	43.4	8	8.3	289.6	-37.0	4.2
3	195	2000	50	43.0	-130	43.4	8				
3	195	2030	50	44.4	-130	51.0	8	10.0	286.2	-45.3	5.0
3	195	2030	50	44.4	-130	51.0	8				
2	195	2300	50	55.8	-131	36.2	8	12.3	291.8	-53.5	30.7
1	196	630	50	57.8	-131	57.0	8				
3	196	730	51	1.0	-132	11.0	8	9.4	290.0	-41.2	9.4
3	196	730	51	1.0	-132	11.0	8				
3	196	1130	51	17.2	-133	24.6	8	12.2	289.3	-53.7	48.9
3	196	1130	51	17.2	-133	24.6	8				
2	196	1300	51	26.8	-133	52.4	8	13.2	298.9	-53.5	19.8
1	197	610	52	4.1	-133	47.4	8				
3	197	648	51	59.0	-133	48.7	8	8.1	188.9	-5.6	5.2
3	197	648	51	59.0	-133	48.7	8				
3	197	842	51	35.7	-133	51.5	8	12.3	184.3	-3.6	23.4
3	197	842	51	35.7	-133	51.5	8				
2	197	905	51	31.4	-133	52.2	8	11.3	185.8	-4.8	4.3
1	197	1000	51	24.8	-134	.5	8				
3	197	1022	51	20.3	-134	0	8	12.3	176.0	4.6	4.5
3	197	1022	51	20.3	-134	0	8				
2	197	1142	51	12.2	-134	.5	8	6.1	182.2	-0.9	8.1
1	197	1716	51	15.6	-134	3.8	8				
2	197	1902	51	31.6	-133	59.7	8	9.2	9.1	7.1	16.2
1	197	1936	51	35.6	-134	5.7	8				
3	197	2048	51	35.4	-134	31.5	8	13.4	269.3	-61.5	16.0
3	197	2048	51	35.4	-134	31.5	8				
2	197	2100	51	35.4	-134	35.4	8	12.1	270.0	-55.9	2.4

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
1	198	30	51 29.0	-134 47.8	8				
3	198	140	51 22.0	-135 5.0	8	11.0	236.9	-42.5	12.8
3	198	140	51 22.0	-135 5.0	8				
3	198	700	51 21.0	-133 25.0	8	11.7	90.9	55.4	62.4
3	198	700	51 21.0	-133 25.0	8				
3	198	1000	51 19.0	-132 27.3	8	12.0	93.2	56.9	36.1
3	198	1000	51 19.0	-132 27.3	8				
3	198	1330	51 19.0	-131 17.6	8	12.4	90.0	59.0	43.6
3	198	1330	51 19.0	-131 17.6	8				
3	198	1500	51 19.0	-130 47.6	8	12.5	90.0	59.3	18.7
3	198	1500	51 19.0	-130 47.6	8				
3	198	1530	51 19.0	-130 38.5	8	11.4	90.0	53.9	5.7
3	198	1530	51 19.0	-130 38.5	8				
2	198	2030	51 19.0	-129 8.0	8	11.3	90.0	53.6	56.6
1	198	2130	51 28.9	-129 8.0	8				
0	198	2359	51 28.2	-129 56.0	5	12.0	268.6	-55.6	29.9
0	198	2359	51 28.2	-129 56.0	5				
0	199	0	51 28.2	-129 56.8	5	29.9	268.9	-136.1	.5
0	199	0	51 28.2	-129 56.8	5				
3	199	200	51 27.6	-130 35.0	8	11.9	268.6	-55.0	23.8
3	199	200	51 27.6	-130 35.0	8				
3	199	430	51 29.9	-131 22.7	8	11.9	274.4	-54.9	29.8
3	199	430	51 29.9	-131 22.7	8				
3	199	500	51 30.0	-131 32.0	8	11.6	271.0	-53.5	5.8
3	199	500	51 30.0	-131 32.0	8				
3	199	530	51 30.2	-131 39.4	8	9.2	272.5	-42.7	4.6
3	199	530	51 30.2	-131 39.4	8				
3	199	600	51 30.0	-131 48.2	8	11.0	267.9	-50.7	5.5
3	199	600	51 30.0	-131 48.2	8				
3	199	700	51 29.8	-132 5.8	8	11.0	269.0	-50.7	11.0

NAVIGATION FIX

A1-11

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
3	199	700	51 29.8	-132 5.8	8				
3	199	730	51 29.8	-132 15.0	8	11.5	270.0	-53.0	5.7
3	199	730	51 29.8	-132 15.0	8				
3	199	800	51 29.2	-132 21.4	8	8.1	261.4	-37.0	4.0
3	199	800	51 29.2	-132 21.4	8				
2	199	1000	51 28.0	-133 .2	8	12.1	267.2	-55.8	24.2
1	199	1700	51 29.9	-133 7.0	8				
3	199	1730	51 29.6	-133 12.6	8	7.0	265.1	-32.4	3.5
3	199	1730	51 29.6	-133 12.6	8				
2	199	1920	51 30.1	-133 50.2	8	12.8	271.2	-58.9	23.4
1	199	2100	51 31.9	-133 59.7	8				
2	199	2200	51 33.3	-134 14.2	8	9.1	278.8	-41.7	9.1
1	200	1130	51 34.5	-134 20.8	8				
3	200	1200	51 40.2	-134 20.5	8	11.4	1.9	2.3	5.7
3	200	1200	51 40.2	-134 20.5	8				
3	200	1230	51 46.6	-134 20.1	8	12.8	2.2	3.0	6.4
3	200	1230	51 46.6	-134 20.1	8				
3	200	1245	51 49.8	-134 20.0	8	12.8	1.1	1.8	3.2
3	200	1245	51 49.8	-134 20.0	8				
3	200	1300	51 50.0	-134 14.0	8	14.8	86.9	69.7	3.7
3	200	1300	51 50.0	-134 14.0	8				
3	200	1400	51 50.2	-133 55.8	8	11.2	89.0	52.7	11.2
3	200	1400	51 50.2	-133 55.8	8				
3	200	1740	51 49.1	-132 36.8	8	13.3	91.3	62.5	48.8
3	200	1740	51 49.1	-132 36.8	8				
3	200	1845	51 47.4	-132 12.8	8	13.8	96.5	64.3	14.9
3	200	1845	51 47.4	-132 12.8	8				
3	200	1924	51 49.2	-131 58.4	8	14.0	78.6	64.3	9.1
3	200	1924	51 49.2	-131 58.4	8				
3	200	2010	51 39.2	-131 58.4	8	13.0	180.0	.7	10.0

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
3	200	2010	51 39.2	-131 58.4	8				
3	200	2330	51 35.0	-133 3.8	8	12.2	264.1	-56.1	40.8
3	200	2330	51 35.0	-133 3.8	8				
0	200	2359	51 34.3	-133 12.4	5	11.1	262.7	-51.0	5.4
0	200	2359	51 34.3	-133 12.4	5				
0	201	0	51 34.3	-133 12.8	5	15.0	265.4	-68.6	.2
0	201	0	51 34.3	-133 12.8	5				
3	201	30	51 33.6	-133 21.8	8	11.3	262.9	-51.6	5.6
3	201	30	51 33.6	-133 21.8	8				
3	201	130	51 32.2	-133 39.6	8	11.2	262.8	-51.1	11.2
3	201	130	51 32.2	-133 39.6	8				
2	201	420	51 32.2	-134 26.8	8	10.4	270.0	-47.9	29.4
1	201	1440	51 35.6	-134 17.0	5				
2	201	1530	51 32.4	-134 1.0	5	12.5	107.8	56.3	10.4
1	202	2200	51 25.1	-133 37.2	8				
0	202	2359	51 45.0	-134 3.9	5	13.1	320.2	-38.3	25.9
0	202	2359	51 45.0	-134 3.9	5				
0	203	0	51 45.2	-134 4.1	5	12.1	322.3	-33.7	.2
0	203	0	51 45.2	-134 4.1	5				
3	203	230	52 10.3	-134 37.8	8	13.0	320.4	-37.7	32.6
3	203	230	52 10.3	-134 37.8	8				
3	203	300	52 15.4	-134 44.6	8	13.2	320.8	-37.6	6.6
3	203	300	52 15.4	-134 44.6	8				
2	203	400	52 24.4	-134 59.8	8	12.9	314.1	-41.9	12.9
1	203	430	52 26.2	-134 56.2	5				
3	203	530	52 30.0	-134 36.6	8	12.5	72.3	55.2	12.5
3	203	530	52 30.0	-134 36.6	8				
3	203	630	52 29.9	-134 14.7	8	13.3	90.4	61.6	13.3
3	203	630	52 29.9	-134 14.7	8				
3	203	800	52 29.9	-133 41.5	5	13.5	90.0	62.3	20.2

NAVIGATION FIX

AI-13

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
3	203	800	52 29.9	-133 41.5	5				
3	203	900	52 29.9	-133 19.6	5	13.3	90.0	61.6	13.3
3	203	900	52 29.9	-133 19.6	5				
3	203	1000	52 30.0	-132 58.2	5	13.0	89.6	60.2	13.0
3	203	1000	52 30.0	-132 58.2	5				
3	203	1136	52 30.2	-132 26.1	8	12.2	89.4	56.4	19.5
3	203	1136	52 30.2	-132 26.1	8				
3	203	1312	52 30.9	-131 49.7	7	13.8	88.2	64.0	22.2
3	203	1312	52 30.9	-131 49.7	7				
3	203	1413	52 19.8	-131 36.6	7	13.4	144.3	36.7	13.7
3	203	1413	52 19.8	-131 36.6	7				
2	203	2100	52 20.5	-133 52.2	5	12.2	270.5	-55.4	82.8
1	204	300	52 16.5	-134 6.8	8				
3	204	330	52 10.0	-134 6.8	8	13.0	180.0	.7	6.5
3	204	330	52 10.0	-134 6.8	8				
3	204	830	52 8.7	-133 17.0	8	6.1	92.4	28.3	30.6
3	204	830	52 8.7	-133 17.0	8				
2	204	1200	52 8.0	-132 40.6	5	6.4	91.8	29.6	22.3
1	204	1334	52 6.2	-132 46.4	80				
3	204	1900	52 6.2	-131 48.4	8	6.6	90.0	30.4	35.6
3	204	1900	52 6.2	-131 48.4	8				
3	204	2125	52 6.2	-131 22.4	8	6.6	90.0	30.6	16.0
3	204	2125	52 6.2	-131 22.4	8				
3	204	2134	52 5.8	-131 21.4	8	4.9	123.1	19.0	.7
3	204	2134	52 5.8	-131 21.4	8				
3	204	2249	52 .9	-131 10.6	8	6.6	126.4	24.7	8.3
3	204	2249	52 .9	-131 10.6	8				
3	204	2300	51 59.9	-131 10.6	8	5.5	180.0	.1	1.0
3	204	2300	51 59.9	-131 10.6	8				
0	204	2359	51 59.8	-131 20.0	5	5.9	269.0	-27.0	5.8

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
0	204	2359	51 59.8	-131 20.0	5				
0	205	0	51 59.8	-131 20.2	5	7.5	270.0	-34.6	.1
0	205	0	51 59.8	-131 20.2	5				
3	205	100	51 59.7	-131 29.8	8	5.9	269.0	-27.2	5.9
3	205	100	51 59.7	-131 29.8	8				
3	205	712	52 1.1	-132 31.0	5	6.1	272.1	-27.9	37.7
3	205	712	52 1.1	-132 31.0	5				
3	205	750	52 1.0	-132 34.0	5	2.9	266.9	-13.4	1.8
3	205	750	52 1.0	-132 34.0	5				
3	205	822	52 .9	-132 41.4	5	8.5	268.7	-39.1	4.6
3	205	822	52 .9	-132 41.4	5				
3	205	1230	52 1.7	-134 3.2	8	12.2	270.9	-55.6	50.3
3	205	1230	52 1.7	-134 3.2	8				
3	205	1530	52 3.1	-135 2.0	8	12.1	272.2	-55.0	36.2
3	205	1530	52 3.1	-135 2.0	8				
3	205	1630	51 52.2	-134 57.8	8	11.2	166.6	12.5	11.2
3	205	1630	51 52.2	-134 57.8	8				
3	205	1700	51 49.3	-134 56.8	8	5.9	168.0	5.9	3.0
3	205	1700	51 49.3	-134 56.8	8				
3	205	2130	51 24.3	-134 48.8	8	5.7	168.8	5.3	25.5
3	205	2130	51 24.3	-134 48.8	8				
3	205	2200	51 21.5	-134 48.0	5	5.7	169.9	4.8	2.8
3	205	2200	51 21.5	-134 48.0	5				
0	205	2359	51 9.9	-134 49.9	5	5.9	185.8	-2.7	11.7
0	205	2359	51 9.9	-134 49.9	5				
0	206	0	51 9.8	-134 49.9	5	6.2	180.0	.2	.1
0	206	0	51 9.8	-134 49.9	5				
3	206	52	51 4.7	-134 50.8	5	5.9	186.4	-2.9	5.1
3	206	52	51 4.7	-134 50.8	5				
3	206	605	50 50.8	-134 10.7	5	5.5	118.8	23.0	28.8
3	206	605	50 50.8	-134 10.7	5				

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
3	206	605	50 50.8	-134 10.7	5				
3	206	1112	50 55.7	-133 24.0	8	5.8	80.6	27.4	29.9
3	206	1112	50 55.7	-133 24.0	8				
3	206	1330	51 6.7	-133 10.8	8	6.0	37.0	17.2	13.8
3	206	1330	51 6.7	-133 10.8	8				
3	206	1500	51 11.4	-133 4.2	8	4.2	41.4	13.1	6.3
3	206	1500	51 11.4	-133 4.2	8				
3	206	1609	51 16.0	-132 58.8	8	5.0	36.3	13.9	5.7
3	206	1609	51 16.0	-132 58.8	8				
3	206	1730	51 22.5	-132 54.3	8	5.2	23.4	9.9	7.1
3	206	1730	51 22.5	-132 54.3	8				
3	206	2000	51 34.7	-132 46.8	8	5.2	21.0	8.8	13.1
3	206	2000	51 34.7	-132 46.8	8				
2	206	2030	51 37.2	-132 45.3	80	5.3	20.4	8.8	2.7
1	206	2044	51 38.5	-132 45.0	80				
3	206	2300	51 49.7	-132 57.3	5	6.0	325.8	-15.5	13.5
3	206	2300	51 49.7	-132 57.3	5				
0	206	2359	51 54.5	-133 2.4	5	5.8	326.6	-14.7	5.7
0	206	2359	51 54.5	-133 2.4	5				
0	207	0	51 54.6	-133 2.5	5	6.2	322.4	-17.3	.1
0	207	0	51 54.6	-133 2.5	5				
3	207	30	51 57.0	-133 5.2	5	5.9	325.7	-15.3	3.0
3	207	30	51 57.0	-133 5.2	5				
3	207	134	52 1.2	-133 13.1	5	6.0	310.8	-20.9	6.4
3	207	134	52 1.2	-133 13.1	5				
3	207	400	52 10.1	-133 31.7	8	6.0	307.9	-21.5	14.5
3	207	400	52 10.1	-133 31.7	8				
2	207	514	52 14.3	-133 40.8	8	5.7	307.0	-20.7	7.0
1	207	1015	52 8.6	-133 24.0	80				
2	207	1140	52 13.5	-133 42.0	8	8.5	293.9	-35.5	12.1



## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
1	207	1145	52 13.8	-133 42.6	80				
3	207	1306	52 20.2	-133 51.0	8	6.1	321.2	-17.3	8.2
3	207	1306	52 20.2	-133 51.0	8				
0	207	1320	52 20.5	-133 52.6	80	4.4	287.1	-19.1	1.0
0	207	1320	52 20.5	-133 52.6	80				
3	207	1730	52 4.7	-134 21.5	8	5.7	228.3	-19.4	23.7
3	207	1730	52 4.7	-134 21.5	8				
3	207	1930	51 57.2	-134 35.5	5	5.7	229.0	-19.8	11.4
3	207	1930	51 57.2	-134 35.5	5				
2	207	2245	51 43.7	-135 1.0	8	6.4	229.4	-22.3	20.7
1	208	44	51 44.0	-135 .7	8				
3	208	112	51 39.6	-134 57.5	8	10.3	155.7	20.2	4.8
3	208	112	51 39.6	-134 57.5	8				
3	208	340	51 10.8	-134 37.7	8	12.7	156.8	24.1	31.3
3	208	340	51 10.8	-134 37.7	8				
3	208	530	51 10.8	-133 59.6	8	13.0	90.0	62.0	23.9
3	208	530	51 10.8	-133 59.6	8				
2	208	655	51 11.1	-133 33.0	8	11.8	89.0	55.9	16.7
1	208	1030	51 10.0	-133 33.0	5				
3	208	1430	50 56.0	-132 59.7	8	6.3	123.8	24.8	25.2
3	208	1430	50 56.0	-132 59.7	8				
3	208	2000	50 37.1	-132 14.6	8	6.2	123.5	24.8	34.2
3	208	2000	50 37.1	-132 14.6	8				
0	208	2359	50 22.8	-131 42.0	5	6.3	124.7	25.0	25.2
0	208	2359	50 22.8	-131 42.0	5				
0	209	0	50 22.7	-131 41.8	5	8.6	115.2	37.6	.1
0	209	0	50 22.7	-131 41.8	5				
3	209	100	50 19.1	-131 33.7	8	6.3	124.9	24.9	6.3
3	209	100	50 19.1	-131 33.7	8				
2	209	124	50 18.0	-131 30.8	8	5.4	120.7	22.3	2.2

NAVIGATION FIX

Al-17

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
1	209	800	50 20.6	-131 26.0	8				
3	209	1300	50 39.0	-130 48.5	8	6.0	52.4	22.9	30.1
3	209	1300	50 39.0	-130 48.5	8				
3	209	1730	50 56.5	-130 14.0	8	6.2	51.3	23.1	28.0
3	209	1730	50 56.5	-130 14.0	8				
3	209	2330	51 18.8	-129 29.0	8	6.0	51.7	22.3	36.0
3	209	2330	51 18.8	-129 29.0	8				
3	209	2350	51 20.0	-129 26.8	8	5.5	48.9	19.5	1.8
3	209	2350	51 20.0	-129 26.8	8				
0	209	2359	51 18.4	-129 25.7	5	11.5	156.5	22.0	1.7
0	209	2359	51 18.4	-129 25.7	5				
0	210	0	51 18.3	-129 25.6	5	10.9	159.8	18.1	.2
0	210	0	51 18.3	-129 25.6	5				
3	210	30	51 13.0	-129 22.0	8	11.4	156.8	21.7	5.7
3	210	30	51 13.0	-129 22.0	8				
3	210	130	51 1.4	-129 17.1	8	12.0	165.1	15.1	12.0
3	210	130	51 1.4	-129 17.1	8				
3	210	320	50 39.0	-129 9.2	8	12.5	167.4	13.5	22.9
3	210	320	50 39.0	-129 9.2	8				
3	210	400	50 35.0	-128 56.7	8	13.3	116.8	57.4	8.9
3	210	400	50 35.0	-128 56.7	8				
2	210	553	50 27.7	-128 19.7	8	13.1	107.2	60.3	24.6
1	210	630	50 26.2	-128 19.4	8				
3	210	1100	50 7.5	-128 50.0	8	6.0	226.3	-20.7	27.1
3	210	1100	50 7.5	-128 50.0	8				
2	210	1700	49 42.1	-129 29.0	8	6.0	224.7	-20.1	35.7
1	212	405	50 20.7	-130 7.0	8				
3	212	415	50 21.3	-130 8.0	8	5.3	313.2	-18.2	.9
3	212	415	50 21.3	-130 8.0	8				
3	212	530	50 32.2	-130 22.0	8	11.3	320.7	-33.5	14.1

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVCS	DISTAN (KM)
3	212	530	50 32.2	-130 22.0	8				
3	212	1000	51 15.6	-131 16.6	8	12.3	321.6	-35.6	55.4
3	212	1000	51 15.6	-131 16.6	8				
3	212	1312	51 47.7	-131 57.2	8	12.8	321.8	-36.2	40.8
3	212	1312	51 47.7	-131 57.2	8				
3	212	1700	51 48.2	-130 41.5	8	12.3	89.4	57.8	46.8
3	212	1700	51 48.2	-130 41.5	8				
3	212	1855	51 50.0	-130 1.0	8	13.1	85.9	61.3	25.1
3	212	1855	51 50.0	-130 1.0	8				
3	212	1946	51 38.8	-129 59.6	8	13.2	175.6	5.5	11.2
3	212	1946	51 38.8	-129 59.6	8				
3	212	2000	51 38.4	-130 4.0	5	11.8	261.7	-53.9	2.8
3	212	2000	51 38.4	-130 4.0	5				
3	212	2300	51 37.9	-131 5.3	8	12.7	269.2	-58.4	38.0
3	212	2300	51 37.9	-131 5.3	8				
0	212	2359	51 38.0	-131 25.4	5	12.7	270.5	-58.4	12.5
0	212	2359	51 38.0	-131 25.4	5				
0	213	0	51 38.0	-131 25.8	5	14.9	270.0	-68.6	.2
0	213	0	51 38.0	-131 25.8	5				
3	213	140	51 38.2	-132 0	8	12.7	270.5	-58.6	21.2
3	213	140	51 38.2	-132 0	8				
3	213	350	51 9.2	-131 58.2	8	13.4	177.8	3.2	29.0
3	213	350	51 9.2	-131 58.2	8				
3	213	430	51 9.3	-131 44.6	8	12.8	89.3	60.9	8.5
3	213	430	51 9.3	-131 44.6	8				
3	213	730	51 9.5	-130 42.2	8	13.0	89.7	62.1	39.1
3	213	730	51 9.5	-130 42.2	8				
3	213	1228	51 9.7	-129 .3	5	12.9	89.8	61.2	63.9
3	213	1228	51 9.7	-129 .3	5				
3	213	1312	51 .3	-129 .4	5	12.8	180.4	.3	9.4

NAVIGATION FIX

A1-19

LC	DAY	TIME	LATITUDE		LONGITUDE		NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
3	213	1312	51	.3	-129	.4	5				
3	213	1530	51	0	-129	48.0	8	13.0	269.4	-60.8	29.9
3	213	1530	51	0	-129	48.0	8				
3	213	1900	50	59.5	-130	59.0	8	12.8	269.4	-59.6	44.7
3	213	1900	50	59.5	-130	59.0	8				
2	213	2030	50	47.5	-130	33.6	8	13.3	126.8	51.3	20.0
1	214	0	50	45.9	-130	28.6	8				
3	214	430	50	46.7	-128	56.8	8	12.9	89.2	61.9	58.0
3	214	430	50	46.7	-128	56.8	8				
3	214	610	50	40.1	-128	26.2	8	12.3	108.8	55.8	20.5
3	214	610	50	40.1	-128	26.2	8				
3	214	1130	50	39.8	-130	11.0	8	12.5	269.7	-58.6	66.4
3	214	1130	50	39.8	-130	11.0	8				
2	214	1235	50	39.7	-130	32.0	8	12.3	269.6	-57.8	13.3
1	214	1530	50	39.3	-130	31.0	5				
3	214	1655	50	39.3	-131	0	8	13.0	270.0	-61.0	18.4
3	214	1655	50	39.3	-131	0	8				
3	214	1750	50	27.0	-130	59.0	5	13.4	177.0	4.1	12.3
3	214	1750	50	27.0	-130	59.0	5				
3	214	1900	50	26.9	-130	36.0	8	12.6	90.4	60.6	14.6
3	214	1900	50	26.9	-130	36.0	8				
0	214	2359	50	27.3	-128	52.7	5	13.2	89.7	63.8	65.8
0	214	2359	50	27.3	-128	52.7	5				
0	215	0	50	27.3	-128	52.3	5	15.4	90.0	74.6	.3
0	215	0	50	27.3	-128	52.3	5				
3	215	130	50	27.4	-128	21.3	8	13.2	89.7	63.6	19.7
3	215	130	50	27.4	-128	21.3	8				
3	215	154	50	27.5	-128	12.8	8	13.5	88.9	65.4	5.4
3	215	154	50	27.5	-128	12.8	8				
3	215	210	50	24.6	-128	10.0	8	12.8	148.4	32.6	3.4

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
3	215	210	50 24.6	-128 10.0	8				
3	215	216	50 23.4	-128 9.3	8	12.8	159.6	22.0	1.3
3	215	216	50 23.4	-128 9.3	8				
3	215	630	50 22.1	-129 32.6	8	12.5	268.6	-59.4	53.1
3	215	630	50 22.1	-129 32.6	8				
3	215	900	50 22.5	-130 21.6	8	12.5	270.7	-59.2	31.2
3	215	900	50 22.5	-130 21.6	8				
3	215	1100	50 22.2	-131 .6	8	12.4	269.3	-58.9	24.9
3	215	1100	50 22.2	-131 .6	8				
3	215	1132	50 15.3	-131 .7	8	12.9	180.5	.1	6.9
3	215	1132	50 15.3	-131 .7	8				
2	215	1340	50 14.2	-130 18.8	8	12.6	92.4	60.9	26.8
1	215	1830	50 15.3	-130 24.0	8				
3	215	2300	50 15.3	-128 52.8	8	13.0	90.0	62.8	58.3
3	215	2300	50 15.3	-128 52.8	8				
0	215	2359	50 15.3	-128 32.8	5	13.0	90.2	63.1	12.8
0	215	2359	50 15.3	-128 32.8	5				
0	216	0	50 15.3	-128 32.5	5	11.7	90.0	56.8	.2
0	216	0	50 15.3	-128 32.5	5				
3	216	130	50 15.2	-128 2.1	8	13.0	90.2	62.9	19.4
3	216	130	50 15.2	-128 2.1	8				
3	216	200	50 8.5	-128 2.0	8	13.4	179.5	1.4	6.7
3	216	200	50 8.5	-128 2.0	8				
3	216	430	50 7.4	-128 52.0	8	12.8	268.0	-61.0	32.1
3	216	430	50 7.4	-128 52.0	8				
3	216	800	50 7.0	-130 1.0	8	12.6	269.5	-60.1	44.2
3	216	800	50 7.0	-130 1.0	8				
2	216	830	49 58.8	-129 59.9	8	16.5	175.1	7.9	8.2
1	216	900	49 58.7	-129 57.8	8				
3	216	1030	49 58.4	-129 26.1	8	13.6	90.8	66.3	20.4

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
3	216	1030	49 58.4	-129 26.1	8				
3	216	1218	49 58.0	-128 46.4	8	14.2	90.9	69.3	25.5
3	216	1218	49 58.0	-128 46.4	8				
3	216	1630	49 15.2	-127 53.8	8	13.0	141.5	40.2	54.7
3	216	1630	49 15.2	-127 53.8	8				
3	216	2040	48 33.0	-127 1.6	8	13.1	140.9	41.3	54.4
3	216	2040	48 33.0	-127 1.6	8				
3	216	2054	48 29.9	-127 1.6	8	13.3	180.0	.7	3.1
3	216	2054	48 29.9	-127 1.6	8				
3	216	2120	48 31.0	-126 59.6	8	4.0	50.3	15.3	1.7
3	216	2120	48 31.0	-126 59.6	8				
3	216	2230	48 35.9	-126 51.8	8	6.1	46.5	22.1	7.1
3	216	2230	48 35.9	-126 51.8	8				
0	216	2359	48 42.6	-126 41.0	5	6.6	46.8	24.0	9.8
0	216	2359	48 42.6	-126 41.0	5				
0	217	0	48 42.7	-126 40.8	5	9.3	58.8	39.8	.2
0	217	0	48 42.7	-126 40.8	5				
3	217	400	49 .8	-126 11.8	8	6.6	46.5	23.7	26.3
3	217	400	49 .8	-126 11.8	8				
3	217	430	49 1.7	-126 8.4	8	4.8	68.0	22.0	2.4
3	217	430	49 1.7	-126 8.4	8				
2	217	830	48 36.3	-125 3.1	8	12.5	120.6	53.8	49.9

TIME 000.65 MIN

TABLE 2

Table 2 contains day, time (GMT), latitude, longitude (degrees), depth (fathoms), total magnetic field (T.F. in gammas corrected for diurnal variation), magnetic anomaly (M.A. in gammas, corrected for diurnal variation), Eötvös correction (milligal), free air anomaly (F.A. using Askania gravimeter, in milligal), free air anomaly (VSA using Vibrating String accelerometer, in milligal) and Bouguer anomaly (B.A. in milligal based on VSA values for every ten-minute interval). Places where data was missing or was unreliable are indicated by a star.

The last page of the table contains the summary of the data presented here. It gives the day-to-day account of the coverage in bathymetry, gravity and magnetic data together with a sum of all the data at the end.

FLDCSN 69-050 DAY 194 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0100	48 15.9	123 47.0	*	*	*	-35	49	54	*
0110	48 16.2	123 48.8	*	56698	348	-35	*	49	*
0120	48 16.4	123 50.5	91	56756	410	-35	*	9	20
0130	48 16.7	123 52.3	*	56753	412	0	*	0	*
0140	48 16.8	123 53.4	91	56979	641	-21	23	24	35
0150	48 16.9	123 54.4	96	57251	916	-21	22	20	32
0200	48 17.0	123 55.5	98	57087	756	*	*	*	*
0210	48 17.1	123 56.7	100	57111	783	-23	16	16	28
0220	48 17.3	123 57.9	101	57084	760	-23	15	15	27
0230	48 17.4	123 59.1	104	57023	702	-23	13	13	26
0240	48 17.5	124 .3	106	56942	625	-23	10	10	23
0250	48 17.7	124 1.5	104	56878	564	-23	5	1	14
0300	48 17.8	124 2.7	103	56885	575	*	*	*	*
0310	48 18.1	124 4.0	104	56848	540	-25	1	5	18
0320	48 18.5	124 5.3	105	56777	472	-25	3	4	17
0330	48 18.8	124 6.6	102	56731	428	*	*	*	*
0340	48 19.1	124 7.6	99	56739	438	-19	*	10	22
0350	48 19.4	124 8.6	96	56773	473	-19	10	11	23
0400	48 19.7	124 9.6	98	56785	487	-19	9	9	21
0410	48 20.0	124 10.6	102	56798	502	-19	-0	-6	6
0420	48 20.3	124 11.6	103	56832	537	-19	1	2	14
0430	48 20.6	124 12.6	106	56848	555	*	*	*	*
0440	48 21.1	124 13.7	110	56843	551	-21	3	3	16
0450	48 21.6	124 14.8	112	56839	547	-21	*	6	20
0500	48 22.1	124 15.9	113	56834	543	*	*	*	*
0510	48 22.6	124 17.0	110	56815	525	-22	2	5	18
0520	48 23.1	124 18.2	106	56791	502	-22	3	5	18
0530	48 23.6	124 19.3	104	56758	470	*	*	*	*
0540	48 24.0	124 20.6	104	56748	462	-25	1	2	15
0550	48 24.3	124 21.9	105	56763	479	-25	*	1	14
0600	48 24.7	124 23.1	107	56740	458	-25	*	6	19
0610	48 25.1	124 24.4	109	56693	414	-25	*	6	19
0620	48 25.4	124 25.7	114	56659	382	-25	7	7	21
0630	48 25.8	124 27.0	119	56700	425	*	*	*	*
0640	48 26.3	124 28.6	122	56736	464	-31	*	3	18
0650	48 26.8	124 30.2	126	56679	409	-31	*	-1	14
0700	48 27.3	124 31.8	128	56666	399	-31	*	0	16
0710	48 27.8	124 33.3	134	56622	357	-31	*	-2	14
0720	48 28.3	124 34.9	126	56495	233	-31	-5	-6	9
0730	48 28.8	124 36.5	127	56380	120	-31	-6	-6	9
0740	48 29.2	124 38.1	130	56349	92	-31	*	-9	7
0750	48 29.7	124 39.7	130	56338	83	-31	*	-11	5
0800	48 30.2	124 41.3	132	56326	74	-31	*	-15	1
0810	48 30.7	124 42.8	126	56321	72	-31	-13	-16	-1
0820	48 31.2	124 44.4	112	56311	64	-31	-15	-15	-1
0830	48 31.7	124 46.0	98	56281	37	*	*	*	*
0840	48 32.2	124 47.7	88	56254	13	-33	-23	-20	-9
0850	48 32.7	124 49.5	70	56238	0	-33	-21	-21	-13
0900	48 33.2	124 51.2	52	56233	-2	-33	*	-22	-16
0910	48 33.7	124 52.9	38	56221	-10	-33	*	-23	-19



FLDSCN 69-050 DAY 194 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0920	48 34.1	124 54.7	38	56223	-6	-33	-22	-21	-17
0930	48 34.6	124 56.4	33	56210	-15	-33	-26	-24	-20
0940	48 35.1	124 58.1	32	56204	-18	-33	-27	-25	-22
0950	48 35.6	124 59.9	*	56201	-17	-33	-29	-26	*
1000	48 36.1	125 1.6	*	56229	13	0	*	0	*
1010	48 36.6	125 3.6	*	56212	-1	-38	-35	-34	*
1020	48 37.2	125 5.5	*	56213	4	-38	-30	-30	*
1030	48 37.7	125 7.5	*	56222	17	0	*	0	*
1040	48 37.9	125 9.2	*	56234	34	-33	*	-17	*
1050	48 38.2	125 10.9	54	56248	52	-33	*	-18	-12
1100	48 38.4	125 12.6	54	56223	32	*	*	*	*
1110	48 38.6	125 13.9	56	56221	33	-29	-18	-9	-2
1120	48 38.9	125 15.2	57	*	*	*	*	*	*
1130	48 39.1	125 16.5	58	56230	49	*	*	*	*
1200	48 39.7	125 20.9	46	56217	48	-28	*	-24	-19
1210	48 39.9	125 22.4	37	56253	88	-28	-24	-25	-21
1220	48 40.1	125 23.9	33	56220	59	-28	-29	-28	-24
1230	48 40.3	125 25.4	36	56264	107	-28	-34	-34	-30
1240	48 40.5	125 26.8	34	56256	103	-28	-38	-37	-33
1250	48 40.7	125 28.3	78	56272	124	-28	-43	-44	-35
1300	48 40.9	125 29.8	85	56295	151	*	*	*	*
1310	48 41.1	125 31.4	93	56347	207	-31	*	-46	-35
1320	48 41.3	125 33.0	85	56377	242	-31	*	-53	-43
1330	48 41.5	125 34.6	52	56400	270	-31	-49	-50	-44
1340	48 41.7	125 36.2	76	56404	278	-31	-47	-48	-39
1350	48 41.9	125 37.8	40	56419	298	-31	-49	-50	-45
1400	48 42.0	125 39.4	44	56443	326	-31	-48	-45	-40
1410	48 42.2	125 41.0	106	56437	325	-31	-54	-52	-39
1420	48 42.4	125 42.6	88	56423	316	-31	-51	-51	-40
1430	48 42.6	125 44.2	87	56413	310	-31	-51	-50	-40
1440	48 42.8	125 45.8	98	56383	285	-31	-54	-50	-38
1450	48 43.0	125 47.4	97	56388	295	-31	-47	-47	-35
1500	48 43.2	125 49.0	79	56400	311	-31	-48	-46	-37
1510	48 43.4	125 50.6	69	56376	292	-31	-45	-44	-36
1520	48 43.6	125 52.2	*	56382	303	-31	-40	-40	*
1530	48 43.8	125 53.8	41	56369	294	-31	-36	-35	-30
1540	48 44.0	125 55.4	42	56324	254	-31	-34	-33	-28
1550	48 44.2	125 57.0	42	56276	210	-31	-31	-30	-25
1600	48 44.4	125 58.6	44	56264	203	-31	-26	-24	-19
1610	48 44.5	126 .2	44	56283	227	-31	-24	-21	-16
1620	48 44.7	126 1.8	46	56238	186	-31	-19	-18	-13
1630	48 44.9	126 3.4	51	56170	123	-31	-12	-13	-7
1640	48 45.1	126 5.0	56	56134	92	-31	-11	-11	-3
1650	48 45.3	126 6.6	60	56126	88	-31	-13	-9	-2
1700	48 45.5	126 8.2	64	56120	87	*	*	*	*
1710	48 45.7	126 10.0	70	56120	93	-34	-17	-10	-1
1720	48 45.8	126 11.8	75	56122	100	-34	-19	-17	-8
1730	48 46.0	126 13.6	81	56127	111	*	*	*	*
1740	48 46.4	126 16.7	88	56116	109	*	*	*	*
1750	48 46.7	126 19.9	98	56113	115	*	-8	*	*

FLDCSN 69-050 DAY 194 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1800	48 47.1	126 23.0	131	56101	112	-60	-13	-10	6
1810	48 47.5	126 26.1	129	56087	107	-60	-9	-9	7
1820	48 47.8	126 29.3	129	56082	112	-60	-6	-6	10
1830	48 48.2	126 32.4	139	56073	112	-60	-0	0	17
1900	48 51.1	126 39.5	*	56100	146	-38	*	-12	*
1910	48 52.7	126 41.5	*	56116	159	-38	*	-23	*
1920	48 54.3	126 43.5	*	56124	164	-38	-17	-16	*
1930	48 55.9	126 45.5	*	56112	149	-38	-13	-12	*
1940	48 57.5	126 47.5	*	56100	133	-38	-13	-12	*
1950	48 59.1	126 49.5	266	56102	132	-38	-16	-15	18
2000	49 .7	126 51.5	232	56089	116	-38	-17	-16	13
2010	49 2.3	126 53.5	216	56084	108	-38	-17	-14	13
2020	49 3.9	126 55.5	218	56082	103	-38	-18	-16	11
2030	49 5.5	126 57.5	234	56098	116	-37	-20	-20	9
2040	49 7.1	126 59.5	254	56121	136	-37	-24	-22	9
2050	49 8.7	127 1.5	298	56130	142	-37	-31	-28	9
2100	49 10.3	127 3.5	244	56138	147	*	*	*	*
2110	49 11.0	127 4.4	244	56157	164	*	*	*	*
2120	49 11.7	127 5.3	262	56165	171	-17	*	-19	13
2130	49 12.4	127 6.2	358	56152	157	-17	*	-22	22
2140	49 13.1	127 7.1	*	56152	156	-17	*	-28	*
2150	49 13.8	127 8.0	320	56159	161	-17	-29	-30	10
2200	49 14.5	127 8.9	380	56154	155	-17	-30	-28	19
2300	49 17.7	127 13.2	347	56163	159	-23	-28	-28	15
2310	49 18.7	127 14.4	366	56165	160	-23	-41	-40	6
2320	49 19.6	127 15.6	393	56160	153	-23	-43	-41	8
2330	49 20.6	127 16.9	414	56163	154	-23	-46	-45	7
2340	49 21.5	127 18.1	410	56155	144	-23	*	-45	6
2350	49 22.5	127 19.3	428	56144	132	-23	*	-21	32

FLDSCN 69-050 DAY 195 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVOS	F.A.	VSA	E.A.
0000	49 23.4	127 20.6	428	56142	128	-23	*	-23	30
0010	49 24.4	127 21.8	542	56129	114	-23	*	-32	36
0020	49 25.3	127 23.1	640	56121	104	-23	-40	-37	43
0030	49 26.3	127 24.3	585	56119	100	*	*	*	*
0040	49 27.9	127 26.3	572	56129	108	-36	*	-40	31
0050	49 29.4	127 28.2	437	56151	127	-36	-43	-43	11
0100	49 31.0	127 30.2	568	56162	135	-36	-46	-45	26
0110	49 32.5	127 32.2	400	56175	145	-36	-38	-41	9
0120	49 34.1	127 34.2	371	56147	115	-36	-34	-34	12
0130	49 35.7	127 36.1	*	56125	90	-36	*	-27	*
0140	49 37.2	127 38.1	248	56115	77	-36	*	-24	7
0150	49 38.8	127 40.1	160	56125	84	-36	*	-33	-13
0200	49 40.3	127 42.1	338	56142	99	-36	*	-46	-4
0210	49 41.9	127 44.0	530	56155	109	-36	*	-54	12
0220	49 43.5	127 46.0	493	56183	134	-36	-56	-54	7
0230	49 45.0	127 48.0	507	56188	136	-36	-59	-57	6
0240	49 46.6	127 50.0	338	56210	156	-36	-53	-54	-12
0250	49 48.1	127 51.9	686	56180	123	-36	-60	-59	27
0300	49 49.7	127 53.9	408	56189	129	-36	-56	-55	-4
0310	49 51.2	127 55.9	428	56218	156	-36	-61	-59	-6
0320	49 52.8	127 57.9	592	56178	113	-36	-73	-71	3
0330	49 54.4	127 59.8	410	56191	123	-36	-68	-68	-17
0340	49 55.9	128 1.8	196	56206	136	-36	-61	-62	-38
0350	49 57.5	128 3.8	198	56179	106	-36	-61	-60	-36
0400	49 59.0	128 5.8	362	56194	118	-36	-69	-68	-23
0410	50 .6	128 7.7	560	56202	124	-36	-73	-74	-4
0420	50 2.2	128 9.7	746	56201	120	-36	-75	-74	19
0430	50 3.7	128 11.7	800	56208	125	-36	-80	-78	22
0440	50 5.3	128 13.7	700	56207	121	-35	-86	-80	8
0450	50 6.8	128 15.6	728	56220	131	-35	-87	-86	5
0500	50 8.4	128 17.6	802	56247	156	*	*	*	*
0510	50 9.9	128 19.9	700	56290	198	-41	-95	-96	-8
0520	50 11.5	128 22.1	662	56288	194	-41	-92	-90	-7
0600	50 17.6	128 31.2	674	56234	135	-40	-96	-94	-10
0610	50 19.2	128 33.5	670	56246	146	-40	-98	-97	-13
0620	50 20.7	128 35.7	754	56254	152	-40	-100	-98	-4
0630	50 22.3	128 38.0	880	56250	147	*	*	*	*
0640	50 23.9	128 40.1	966	56239	133	-38	-118	-116	5
0650	50 25.5	128 42.3	856	56238	130	-38	-117	-115	-8
0700	50 27.2	128 44.4	992	56239	129	-38	-117	-117	7
0710	50 28.8	128 46.5	776	56239	126	-38	-108	-110	-13
0720	50 30.4	128 48.7	710	56243	128	-38	-99	-98	-9
0730	50 32.1	128 50.8	874	56243	126	-38	*	-97	12
0740	50 33.7	128 52.9	800	56254	134	-38	*	-88	12
0750	50 35.3	128 55.1	896	56261	139	-38	*	-76	36
0800	50 36.9	128 57.2	720	56255	131	-37	*	-61	29
0810	50 38.6	128 59.3	690	56249	123	-37	*	-43	43
0820	50 40.2	129 1.5	570	56271	142	-37	*	-27	44
0830	50 41.8	129 3.6	*	56298	167	-37	*	1	*
0840	50 43.4	129 5.7	104	56221	88	-37	*	24	37

FUCSCN 69-050 DAY 195 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0850	50 45.0	129 7.9	72	56245	110	-37	*	48	57
0900	50 46.6	129 10.0	66	56208	71	*	*	*	*
0910	50 46.4	129 11.3	78	56179	48	-23	*	49	58
0920	50 46.2	129 12.7	82	56222	97	-23	*	50	60
0930	50 46.0	129 14.0	89	56245	126	-23	*	50	61
0940	50 45.9	129 15.3	90	56203	90	-23	*	51	62
0950	50 45.7	129 16.7	86	56199	92	-23	*	51	61
1000	50 45.5	129 18.0	115	56493	392	-23	*	49	63
1010	50 45.3	129 19.3	145	56398	303	-23	*	37	55
1020	50 45.1	129 20.7	272	56546	457	-23	*	20	54
1030	50 44.9	129 22.0	412	56591	508	-23	*	-3	48
1040	50 44.7	129 23.3	596	56535	458	-23	*	-24	50
1050	50 44.5	129 24.7	765	56320	249	-23	*	-51	45
1100	50 44.4	129 26.0	958	56204	139	-23	*	-70	50
1110	50 44.2	129 27.3	994	56169	110	-23	*	-83	41
1130	50 43.8	129 30.0	998	56127	80	*	*	*	*
1140	50 43.7	129 31.5	1016	56128	87	-26	*	-102	25
1150	50 43.7	129 32.9	1016	56125	90	-26	*	-104	23
1200	50 43.6	129 34.4	1024	56126	96	-26	*	-103	25
1210	50 43.5	129 35.8	1032	56127	103	-26	*	-101	28
1220	50 43.5	129 37.3	1037	56123	105	-26	*	-100	30
1230	50 43.4	129 38.8	1048	56123	111	-26	*	-99	32
1240	50 43.3	129 40.2	1056	56121	115	-26	*	-94	38
1250	50 43.3	129 41.7	1063	56120	119	-26	*	-91	42
1300	50 43.2	129 43.1	1073	56124	129	-26	*	-88	46
1310	50 43.1	129 44.6	1079	56128	139	-26	*	-84	51
1320	50 43.1	129 46.1	*	56126	143	-26	*	-77	*
1330	50 43.0	129 47.5	*	56121	143	-26	*	-72	*
1340	50 42.9	129 49.0	1091	56116	144	-26	*	-64	73
1350	50 42.9	129 50.4	1094	56107	141	-26	*	-60	77
1400	50 42.8	129 51.9	1102	56094	134	-26	*	-56	82
1410	50 42.7	129 53.3	1104	56075	120	-26	*	-49	89
1420	50 42.7	129 54.8	1103	56050	101	-26	*	-45	93
1430	50 42.6	129 56.3	1103	56020	77	-26	*	-38	100
1440	50 42.5	129 57.7	1106	55987	50	-26	*	-36	103
1450	50 42.5	129 59.2	1120	55966	35	-26	*	-30	110
1500	50 42.4	130 .6	1125	55955	29	-26	*	-25	116
1510	50 42.3	130 2.1	1126	55964	44	-26	*	-24	117
1520	50 42.3	130 3.6	1126	55966	52	-26	*	-21	120
1530	50 42.2	130 5.0	1124	56002	94	-26	*	-16	125
1540	50 42.1	130 6.5	*	56088	186	-26	*	-13	*
1550	50 42.1	130 7.9	1072	56141	244	-26	*	-6	128
1600	50 42.0	130 9.4	1054	56132	241	*	*	*	*
1610	50 42.0	130 10.8	1000	56123	237	-24	*	2	127
1620	50 41.9	130 12.1	926	56200	320	-24	*	7	123
1630	50 41.8	130 13.5	950	56198	323	-24	*	10	129
1640	50 41.8	130 14.9	894	56140	270	-24	*	20	132
1650	50 41.7	130 16.2	888	56210	346	-24	*	17	128
1700	50 41.7	130 17.6	922	56251	392	-24	*	19	134
1710	50 41.7	130 19.0	938	56224	371	-24	*	20	137

FLDSCN 69-050 DAY 195 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1720	50 41.6	130 20.3	952	56244	396	-24	*	24	143
1730	50 41.5	130 21.7	928	56263	420	-24	*	17	133
1740	50 41.5	130 23.1	964	56294	457	-24	*	13	134
1750	50 41.4	130 24.4	936	56341	509	-24	*	8	125
1800	50 41.4	130 25.8	1050	56329	502	*	*	*	*
1810	50 41.4	130 27.1	1170	56286	464	-22	*	-2	145
1820	50 41.4	130 28.3	1280	56310	492	-22	*	-7	153
1830	50 41.5	130 29.6	1315	56389	576	-22	*	-13	152
1840	50 41.5	130 30.9	1300	56392	584	-22	*	-16	147
1850	50 41.5	130 32.1	1310	56288	484	-22	*	-19	145
1900	50 41.5	130 33.4	1310	56189	390	-22	*	-21	143
1910	50 41.6	130 34.7	1310	56120	325	-22	*	-21	143
1920	50 41.6	130 35.9	1310	56075	285	-22	*	-20	144
1930	50 41.6	130 37.2	1310	56068	282	*	*	*	*
1940	50 42.1	130 39.3	1312	56127	346	-37	*	-31	133
1950	50 42.5	130 41.3	1310	56197	421	-37	*	-31	133
2000	50 43.0	130 43.4	1306	56194	422	*	*	*	*
2010	50 43.5	130 45.9	1304	56056	291	-45	*	-4	159
2020	50 43.9	130 48.5	*	56070	311	-45	*	8	*
2030	50 44.4	130 51.0	826	55626	-125	*	*	*	*
2040	50 45.2	130 54.0	612	55928	182	-53	*	71	147
2050	50 45.9	130 57.0	770	56014	274	-53	*	45	141
2100	50 46.7	131 .0	1304	55901	168	-53	*	9	172
2110	50 47.4	131 3.1	1390	55981	254	-53	*	-4	170
2120	50 48.2	131 6.1	1395	56214	493	-53	*	-9	166
2130	50 49.0	131 9.1	1405	56035	321	-53	*	0	176
2140	50 49.7	131 12.1	1422	55674	-33	-53	*	-7	171
2150	50 50.5	131 15.1	1446	55596	-105	-53	*	-7	174
2200	50 51.2	131 18.1	1444	55633	-61	-53	*	-9	172
2210	50 52.0	131 21.1	1470	55625	-63	-53	*	-6	178
2220	50 52.8	131 24.1	1482	56007	324	-53	*	-7	179
2230	50 53.5	131 27.2	1494	56116	440	-53	*	-8	179
2240	50 54.3	131 30.2	1578	55913	243	-53	*	-5	193
2250	50 55.0	131 33.2	1426	56202	538	-53	*	-2	177
2300	50 55.8	131 36.2	1412	*	*	*	*	*	*

FLDCSN 69-050 DAY 196 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0630	50 57.8	131 57.0	1386	*	*	*	*	*	*
0640	50 58.3	131 59.3	1395	55873	285	-41	*	6	181
0650	50 58.9	132 1.7	1410	55861	279	-41	*	6	183
0700	50 59.4	132 4.0	1460	56033	456	-41	*	6	189
0710	50 59.9	132 6.3	1432	56101	529	-41	*	17	197
0720	51 .5	132 8.7	1457	56005	438	-41	*	19	202
0730	51 1.0	132 11.0	1474	55688	127	*	*	*	*
0740	51 1.7	132 14.1	1486	55562	8	*	*	*	*
0750	51 2.4	132 17.1	1496	55430	-116	-53	*	6	194
0800	51 3.0	132 20.2	1498	55709	169	-53	*	3	191
0810	51 3.7	132 23.3	1493	55934	401	-53	-3	-1	186
0820	51 4.4	132 26.3	1520	55765	239	-53	-3	-1	190
0830	51 5.1	132 29.4	1526	55437	-81	-53	-2	2	193
0840	51 5.7	132 32.5	1562	55582	70	-53	-1	3	199
0850	51 6.4	132 35.5	1556	55631	126	-53	-2	4	199
0900	51 7.1	132 38.6	1553	55256	-241	-53	-1	3	198
0910	51 7.8	132 41.7	1576	55411	-79	-53	*	4	202
0920	51 8.4	132 44.7	1576	55597	114	-53	*	6	204
0930	51 9.1	132 47.8	1576	55688	212	-53	*	5	203
0940	51 9.8	132 50.9	1588	55682	213	-53	-2	3	202
0950	51 10.5	132 53.9	1603	55694	232	-53	-3	4	205
1000	51 11.1	132 57.0	1610	55783	328	-53	-1	4	206
1010	51 11.8	133 .1	1610	55790	342	-53	*	2	204
1020	51 12.5	133 3.1	1590	55791	350	-53	-4	3	202
1030	51 13.2	133 6.2	1604	55841	407	-53	-2	2	203
1040	51 13.8	133 9.3	1610	55893	466	-53	-0	2	204
1050	51 14.5	133 12.3	1614	56051	631	-53	-2	4	206
1100	51 15.2	133 15.4	1616	56082	669	-53	-1	4	207
1110	51 15.9	133 18.5	1616	55970	564	-53	3	3	206
1130	51 17.2	133 24.6	1624	*	*	*	*	*	*
1300	51 26.8	133 52.4	1666	*	*	*	*	*	*

FLESCN 69-050 DAY 197 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0610	52 4.1	133 47.4	1532	*	*	*	*	*	*
0620	52 2.8	133 47.7	1535	*	*	-5	*	-5	188
0630	52 1.4	133 48.1	1548	55851	269	-5	*	-1	193
0640	52 .1	133 48.4	1562	55817	244	-5	*	-2	194
0650	51 58.6	133 48.7	1573	55757	194	-3	*	1	198
0700	51 56.5	133 49.0	1584	55746	197	-3	1	2	201
0710	51 54.5	133 49.2	*	55670	135	-3	*	13	*
0720	51 52.5	133 49.5	*	55837	315	-3	*	15	*
0730	51 50.4	133 49.7	1582	55944	436	-3	*	8	206
0740	51 48.4	133 50.0	1592	55856	361	-3	*	5	205
0750	51 46.3	133 50.2	1602	55816	335	-3	*	4	205
0800	51 44.3	133 50.5	1620	55805	338	-3	*	3	206
0810	51 42.2	133 50.7	1636	55769	315	-3	*	1	206
0820	51 40.2	133 51.0	1646	55736	296	-3	*	1	207
0830	51 38.2	133 51.2	1662	55718	292	-3	-1	1	209
0840	51 36.1	133 51.5	1664	55683	271	-3	*	1	210
0850	51 34.2	133 51.7	1671	55649	250	-4	-4	0	210
0900	51 32.3	133 52.0	1677	55630	244	-4	-2	-2	208
1000	51 24.8	134 .5	1732	55749	442	4	*	10	227
1010	51 22.8	134 .3	1726	55734	439	4	-1	2	219
1020	51 20.7	134 .0	1722	55701	418	4	-0	2	218
1030	51 19.5	134 .0	1719	55651	376	-0	-8	-5	211
1040	51 18.5	134 .1	1719	55609	341	-0	-9	-7	209
1050	51 17.5	134 .2	1728	55674	413	-0	*	-7	210
1100	51 16.5	134 .2	1728	55516	261	-0	*	-8	209
1110	51 15.4	134 .3	1727	*	*	-0	*	-7	210
1120	51 14.4	134 .4	1727	*	*	-0	*	-3	214
1130	51 13.4	134 .4	1727	*	*	-0	*	-4	213
1750	51 20.7	134 2.5	1738	*	*	7	*	-9	209
1800	51 22.2	134 2.1	1737	55414	129	7	*	-12	206
1810	51 23.8	134 1.7	1736	55329	33	7	-14	-12	206
1820	51 25.3	134 1.3	1733	55315	9	7	-12	-7	210
1830	51 26.8	134 .9	1737	55391	73	7	-9	-3	215
1840	51 28.3	134 .6	1690	55490	161	7	-7	-5	207
1850	51 29.8	134 .2	1686	55603	263	7	*	-12	199
1900	51 31.3	133 59.8	1692	55773	422	7	*	-11	201
1940	51 35.6	134 7.1	1726	55486	135	-61	*	-4	213
1950	51 35.6	134 10.7	1732	55533	195	-61	-7	-5	212
2000	51 35.5	134 14.3	1740	55609	285	-61	-20	-4	214
2010	51 35.5	134 17.9	1744	55700	389	-61	10	-4	215
2020	51 35.5	134 21.5	1752	55689	391	-61	-5	-3	217
2030	51 35.4	134 25.1	1752	55402	118	-61	-4	-5	215
2040	51 35.4	134 28.6	1766	55545	274	-61	-4	-3	219
2050	51 35.4	134 32.1	1792	55624	366	-55	3	3	228
2100	51 35.4	134 35.4	*	55599	353	-55	*	5	*

FLCSCN 69-050 DAY 198 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0030	51 29.0	134 47.8	1810	*	*	*	*	*	*
0040	51 28.0	134 50.3	1816	55465	322	-42	*	1	229
0050	51 27.0	134 52.7	1821	55442	314	-42	*	-3	229
0100	51 26.0	134 55.2	1826	55258	146	-42	*	-6	223
0110	51 25.0	134 57.6	1833	55156	59	-42	*	-2	228
0120	51 24.0	135 .1	1833	55105	24	-42	*	-4	226
0130	51 23.0	135 2.5	1836	55077	12	-42	-15	0	230
0140	51 22.0	135 5.0	1842	55042	-7	*	*	*	*
0150	51 22.0	135 1.9	1833	55056	-4	55	*	-3	227
0200	51 21.9	134 58.8	1824	55114	42	55	*	2	231
0210	51 21.9	134 55.6	1817	55206	122	55	-7	-3	225
0220	51 21.9	134 52.5	1814	55370	275	55	-5	-3	225
0230	51 21.8	134 49.4	1812	55251	144	55	-6	-5	222
0240	51 21.8	134 46.2	1811	55283	165	55	-5	-1	226
0250	51 21.8	134 43.1	1805	55222	92	55	-4	-2	224
0300	51 21.7	134 40.0	1806	55194	53	55	-6	-3	224
0310	51 21.7	134 36.9	1802	55467	315	55	-7	-4	222
0320	51 21.7	134 33.8	1790	55539	375	55	-6	-4	221
0330	51 21.7	134 30.6	1776	55566	391	55	-7	-2	221
0340	51 21.6	134 27.5	1762	55442	255	55	-4	-3	218
0350	51 21.6	134 24.4	1762	55380	182	55	-6	0	221
0400	51 21.6	134 21.3	1772	55594	385	55	-4	-2	220
0410	51 21.5	134 18.1	1768	55630	409	55	-8	-10	212
0420	51 21.5	134 15.0	1758	55493	261	55	-9	-6	215
0430	51 21.5	134 11.9	1754	55297	53	55	-9	-6	214
0440	51 21.4	134 8.8	1747	55254	0	55	-8	-5	214
0450	51 21.4	134 5.6	1739	55299	33	55	-5	-1	217
0500	51 21.4	134 2.5	1730	55463	185	55	-3	0	217
0510	51 21.3	133 59.4	1722	55837	548	55	-2	1	217
0520	51 21.3	133 56.3	1713	55588	287	55	-3	-1	214
0530	51 21.3	133 53.1	1708	55719	407	55	-2	1	215
0540	51 21.3	133 50.0	1704	55523	200	55	-3	1	215
0550	51 21.2	133 46.9	1698	55135	-199	55	-2	2	215
0600	51 21.2	133 43.8	1676	55169	-176	55	-0	6	216
0610	51 21.2	133 40.6	1658	55290	-66	55	-0	4	212
0620	51 21.1	133 37.5	1638	55570	201	55	*	1	206
0630	51 21.1	133 34.4	1636	55330	-49	55	-3	-2	203
0640	51 21.1	133 31.3	1631	55289	-101	55	-4	1	206
0650	51 21.0	133 28.1	1621	55439	36	55	-2	3	206
0700	51 21.0	133 25.0	1612	55483	69	*	*	*	*
0710	51 20.9	133 21.8	1606	*	*	*	*	*	*
0720	51 20.8	133 18.6	*	55909	472	56	-2	4	*
0730	51 20.7	133 15.4	*	56032	584	56	1	5	*
0740	51 20.6	133 12.2	1594	56053	594	56	2	5	205
0750	51 20.4	133 9.0	1586	55949	479	56	1	6	205
0800	51 20.3	133 5.8	1580	55845	364	56	*	3	201
0810	51 20.2	133 2.6	1576	55807	315	56	*	4	202
0820	51 20.1	132 59.4	1570	55801	298	56	-8	4	201
0830	51 20.0	132 56.2	1564	55792	278	56	2	2	198
0840	51 19.9	132 52.9	1554	55725	199	56	-1	3	198



FLDSON 69-050 DAY 198 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0850	51 19.8	132 49.7	1546	55693	156	56	-0	1	195
0900	51 19.7	132 46.5	1535	55810	262	56	-1	0	193
0910	51 19.6	132 43.3	1538	55650	91	56	3	1	194
0920	51 19.4	132 40.1	1548	55628	58	56	-2	3	197
0930	51 19.3	132 36.9	1528	55392	-188	56	*	-1	191
0940	51 19.2	132 33.7	1524	55712	120	56	*	-1	190
0950	51 19.1	132 30.5	1524	55925	322	56	-5	-5	186
1000	51 19.0	132 27.3	1508	55716	101	*	*	*	*
1010	51 19.0	132 24.0	1502	55940	313	59	-3	-2	186
1020	51 19.0	132 20.7	1480	56071	432	59	-3	-3	183
1030	51 19.0	132 17.3	1462	55915	264	59	-0	-1	182
1040	51 19.0	132 14.0	1454	55610	-52	59	-0	0	182
1050	51 19.0	132 10.7	1466	55650	-25	59	-0	0	184
1100	51 19.0	132 7.4	1461	55740	52	59	-0	1	184
1110	51 19.0	132 4.1	1451	56063	363	59	-0	1	183
1120	51 19.0	132 .7	1450	56183	471	59	-2	0	182
1130	51 19.0	131 57.4	1439	56151	427	59	-2	0	180
1140	51 19.0	131 54.1	1436	55940	203	59	-3	-3	177
1150	51 19.0	131 50.8	1432	55935	186	59	-4	-4	176
1200	51 19.0	131 47.5	1417	55761	0	59	-5	-4	174
1210	51 19.0	131 44.2	1393	55877	104	59	-5	-2	173
1220	51 19.0	131 40.8	1362	56076	291	59	-5	-4	167
1230	51 19.0	131 37.5	1319	55939	142	59	-7	-7	158
1240	51 19.0	131 34.2	1275	55865	55	59	-8	-8	152
1250	51 19.0	131 30.9	1247	55907	85	59	-11	-9	147
1300	51 19.0	131 27.6	1344	56099	265	59	-19	-17	151
1310	51 19.0	131 24.2	1930	56102	256	59	-24	-20	222
1320	51 19.0	131 20.9	1441	56091	233	59	-26	-25	156
1330	51 19.0	131 17.6	1422	56130	260	59	*	-25	153
1340	51 19.0	131 14.3	1399	56238	356	59	-26	-28	147
1350	51 19.0	131 10.9	1384	56358	463	59	-25	-27	147
1400	51 19.0	131 7.6	1348	56414	507	59	-12	-13	156
1410	51 19.0	131 4.3	1303	56318	399	59	-6	-6	157
1420	51 19.0	131 .9	1242	56282	351	59	1	0	156
1430	51 19.0	130 57.6	1185	56285	342	59	4	6	155
1440	51 19.0	130 54.3	1162	56241	286	59	6	6	152
1450	51 19.0	130 50.9	1200	56170	202	59	*	2	152
1500	51 19.0	130 47.6	1182	56153	173	*	*	*	*
1510	51 19.0	130 44.6	1164	56176	185	53	-7	-4	142
1520	51 19.0	130 41.5	1108	56228	226	53	-10	-9	130
1530	51 19.0	130 38.5	1088	56237	224	53	-13	-14	122
1540	51 19.0	130 35.5	1036	56132	108	53	-23	-25	105
1550	51 19.0	130 32.5	1025	56082	47	53	-21	-23	105
1600	51 19.0	130 29.5	1001	56076	30	53	-20	-29	96
1610	51 19.0	130 26.4	905	56091	34	53	*	-27	86
1620	51 19.0	130 23.4	888	56105	37	*	*	*	*
1630	51 19.0	130 20.4	814	56118	39	53	*	-29	73
1640	51 19.0	130 17.4	664	56139	49	53	-27	-32	51
1650	51 19.0	130 14.4	633	56155	54	53	-36	-34	45
1700	51 19.0	130 11.4	536	56175	64	53	-27	-20	47

FUCSCN 69-050 DAY 198 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1710	51 19.0	130 8.3	400	56193	71	53	-20	-26	24
1720	51 19.0	130 5.3	312	56209	76	53	-9	-12	27
1730	51 19.0	130 2.3	183	56230	86	53	1	2	24
1740	51 19.0	129 59.3	150	56243	88	53	3	6	24
1750	51 19.0	129 56.3	140	56269	103	53	1	6	23
1800	51 19.0	129 53.2	136	56305	128	53	6	5	22
1810	51 19.0	129 50.2	134	56360	172	*	4	*	*
1820	51 19.0	129 47.2	142	56409	210	53	8	12	29
1830	51 19.0	129 44.2	144	56442	232	53	8	1	19
1840	51 19.0	129 41.2	125	56509	288	53	4	3	18
1850	51 19.0	129 38.2	122	56574	343	53	14	6	21
1900	51 19.0	129 35.2	124	56636	394	53	5	5	20
1910	51 19.0	129 32.1	126	56669	416	53	12	6	21
1920	51 19.0	129 29.1	134	56678	414	53	1	6	22
1930	51 19.0	129 26.1	140	56599	324	53	2	2	19
1940	51 19.0	129 23.1	144	56510	224	53	*	-1	17
1950	51 19.0	129 20.1	152	56493	196	53	5	-4	15
2000	51 19.0	129 17.1	151	56505	198	53	-14	-8	10
2010	51 19.0	129 14.0	146	56481	163	53	-21	-8	10
2020	51 19.0	129 11.0	139	56503	174	53	-5	-11	6
2030	51 19.0	129 8.0	144	56509	169	53	-22	-14	4
2130	51 28.9	129 8.0	28	56597	199	*	-22	*	*
2140	51 28.9	129 11.2	29	56588	201	-55	*	-6	-3
2150	51 28.8	129 14.4	26	56619	244	-55	*	-5	-2
2200	51 28.8	129 17.7	28	56646	283	-55	*	-5	-2
2210	51 28.7	129 20.9	33	56724	373	-55	-18	-2	2
2220	51 28.7	129 24.1	37	56796	457	-55	-2	-1	3
2230	51 28.6	129 27.3	50	56666	338	-55	-8	2	8
2240	51 28.6	129 30.6	59	56642	326	-55	4	5	12
2250	51 28.5	129 33.8	67	56582	278	-55	3	7	15
2300	51 28.5	129 37.0	79	56496	204	-55	5	7	16
2310	51 28.4	129 40.2	86	56508	228	-55	5	7	17
2320	51 28.4	129 43.4	92	56496	228	-55	9	9	20
2330	51 28.3	129 46.7	98	56576	320	-55	*	13	25
2340	51 28.3	129 49.9	108	56677	432	-55	*	10	23
2350	51 28.2	129 53.1	120	56569	336	-55	*	4	19

FLDCSN 69-050 DAY 199 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	51 28.2	129 56.8	153	56506	287	*	-2	*	*
0010	51 28.1	129 60.0	183	56414	207	-55	-14	-5	17
0020	51 28.1	130 3.2	415	56366	170	-55	-21	-15	37
0030	51 28.0	130 6.3	287	56375	191	-55	-18	1	37
0040	51 28.0	130 9.5	278	56389	217	-55	-29	-10	24
0050	51 27.9	130 12.7	318	56372	212	-55	-23	-16	23
0100	51 27.9	130 15.9	402	56344	196	-55	-28	-19	31
0110	51 27.8	130 19.1	554	56293	156	-55	-42	-32	37
0120	51 27.8	130 22.3	680	56268	143	-55	*	-35	50
0130	51 27.7	130 25.5	767	56278	165	-55	-44	-30	66
0140	51 27.7	130 28.6	827	56274	173	-55	-40	-24	79
0150	51 27.6	130 31.8	900	56259	170	-55	-23	-24	89
0200	51 27.6	130 35.0	926	56183	105	*	*	*	*
0210	51 27.8	130 38.2	889	56087	20	-54	*	-23	88
0220	51 27.9	130 41.4	940	56030	-25	-54	*	-23	95
0230	51 28.1	130 44.5	1008	56042	-4	-54	*	-24	102
0240	51 28.2	130 47.7	1004	56355	320	-54	-46	-18	108
0250	51 28.4	130 50.9	919	56354	329	-54	-16	-12	103
0300	51 28.5	130 54.1	1058	56207	193	-54	-9	-8	124
0310	51 28.7	130 57.3	1120	56398	395	-54	-4	-3	137
0320	51 28.8	131 .4	1135	56282	289	-54	-1	6	148
0330	51 29.0	131 3.6	1128	56124	142	-54	*	6	147
0340	51 29.1	131 6.8	1056	56015	43	-54	-0	6	138
0350	51 29.3	131 10.0	1094	56022	61	-54	1	6	143
0400	51 29.4	131 13.2	1190	56028	78	-54	-9	-5	144
0410	51 29.6	131 16.3	1291	56049	109	-54	-15	-10	152
0420	51 29.7	131 19.5	1252	56134	205	-54	-9	-5	152
0430	51 29.9	131 22.7	1180	56181	263	*	*	*	*
0440	51 29.9	131 25.8	1166	56107	200	-53	-11	-10	136
0450	51 30.0	131 28.9	1236	56043	147	-53	-14	-12	143
0500	51 30.0	131 32.0	1274	56025	140	*	*	*	*
0510	51 30.1	131 34.9	1296	56028	151	-42	*	0	162
0520	51 30.1	131 36.9	1309	56050	182	-42	*	-14	150
0530	51 30.2	131 39.4	1322	56016	157	*	*	*	*
0540	51 30.1	131 42.3	1331	55931	83	-50	*	-9	158
0550	51 30.1	131 45.3	1337	56073	236	-50	-7	2	170
0600	51 30.0	131 48.2	1342	56105	279	-50	-5	-3	165
0610	51 30.0	131 51.1	1346	56060	245	-50	*	-2	167
0620	51 29.9	131 54.1	1350	56195	391	-50	-10	-3	166
0630	51 29.9	131 57.0	1368	56240	447	-50	-5	3	174
0640	51 29.9	131 59.9	1377	56302	520	-50	-4	2	175
0650	51 29.8	132 2.9	1390	56303	531	-50	1	-2	172
0700	51 29.8	132 5.8	1400	56089	328	*	*	*	*
0710	51 29.8	132 8.9	1414	55852	103	-52	*	6	183
0720	51 29.8	132 11.9	1430	55686	-51	-52	*	6	185
0730	51 29.8	132 15.0	1439	55890	163	*	*	*	*
0740	51 29.6	132 17.1	1450	56110	392	-36	*	-12	170
0750	51 29.4	132 19.3	1456	56195	486	-36	*	3	186
0800	51 29.2	132 21.4	1464	56272	572	*	*	*	*
0810	51 29.1	132 24.6	1474	56269	582	-55	*	-11	174

FLDCSN 69-050 DAY 199 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0820	51 29.0	132 27.9	1484	56005	330	-55	-0	5	191
0830	51 28.9	132 31.1	1492	55969	307	-55	-3	1	188
0840	51 28.8	132 34.3	1507	55973	-76	-55	-0	1	190
0850	51 28.7	132 37.6	1518	55491	-145	-55	*	-5	185
0900	51 28.6	132 40.8	1522	55695	70	-55	*	-5	186
0910	51 28.5	132 44.0	1526	55729	117	-55	-11	0	191
0920	51 28.4	132 47.3	1544	55812	212	-55	-8	1	195
1000	51 28.0	133 .2	1562	*	*	*	*	*	*
1700	51 29.9	133 7.0	1575	*	*	*	*	*	*
1710	51 29.8	133 8.9	1575	*	*	*	*	*	*
1720	51 29.7	133 10.7	1590	55941	419	*	*	*	*
1730	51 29.6	133 12.6	1603	55893	379	*	*	*	*
1740	51 29.6	133 16.0	1604	55850	348	-58	-2	-2	199
1750	51 29.7	133 19.4	1608	55781	291	-58	-4	4	206
1800	51 29.7	133 22.9	1614	55521	44	-58	-3	7	209
1810	51 29.8	133 26.3	1625	55541	76	-58	-5	-4	200
1820	51 29.8	133 29.7	1632	55405	-47	-58	-5	-4	201
1830	51 29.9	133 33.1	1638	55365	-74	-58	-6	-3	202
1840	51 29.9	133 36.5	1646	55771	343	-58	-6	-4	202
1850	51 30.0	133 39.9	1651	55527	111	-58	-6	-2	205
1900	51 30.0	133 43.4	1656	55300	-102	-58	-2	-3	205
1910	51 30.1	133 46.8	1664	55249	-141	-58	-3	1	210
1920	51 30.1	133 50.2	1671	55704	325	-58	-2	1	211
2100	51 31.9	133 59.7	1696	*	*	*	*	*	*
2110	51 32.1	134 2.1	1696	*	*	*	*	*	*
2120	51 32.4	134 4.5	1702	*	*	-41	*	19	232
2130	51 32.6	134 6.9	1706	55376	43	*	*	*	*
2140	51 32.8	134 9.4	1716	55472	147	*	12	*	*
2150	51 33.1	134 11.8	1730	55383	65	*	*	*	*
2200	51 33.3	134 14.2	1736	*	*	*	*	*	*

FLDSCN 69-050 DAY 200 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1150	51 38.3	134 20.6	1734	55734	415	2	*	0	218
1200	51 40.2	134 20.5	1724	55747	416	2	*	0	216
1210	51 42.3	134 20.4	1718	55773	428	2	*	1	216
1220	51 44.5	134 20.2	1715	55770	411	2	*	0	215
1230	51 46.6	134 20.1	1704	55697	324	*	*	*	*
1240	51 48.7	134 20.0	1684	55587	200	1	*	3	214
1250	51 49.9	134 18.0	1672	55607	206	69	*	11	221
1300	51 50.0	134 14.0	1668	55457	40	*	*	*	*
1310	51 50.0	134 11.0	1657	55581	153	52	*	-8	200
1320	51 50.1	134 7.9	1648	55547	108	52	*	-7	200
1330	51 50.1	134 4.9	1636	55427	-23	52	*	-6	197
1340	51 50.1	134 1.9	1634	55509	47	52	*	3	208
1350	51 50.2	133 58.8	1612	55814	341	52	*	4	206
1400	51 50.2	133 55.8	1594	55708	223	*	*	*	*
1410	51 50.1	133 52.2	1584	55796	299	62	*	6	205
1420	51 50.1	133 48.6	1573	55837	327	62	*	12	209
1430	51 50.1	133 45.0	1314	55515	-7	62	*	16	181
1440	51 50.0	133 41.4	1556	55595	59	62	*	9	204
1450	51 49.9	133 37.8	1554	55808	259	62	*	3	198
1500	51 49.9	133 34.3	1554	55602	40	62	*	3	198
1510	51 49.8	133 30.7	1553	55543	-30	62	*	1	196
1520	51 49.8	133 27.1	1554	55665	78	62	*	5	200
1530	51 49.8	133 23.5	1555	55679	79	62	*	6	201
1540	51 49.7	133 19.9	1533	55827	214	62	*	5	197
1550	51 49.6	133 16.3	1516	56043	417	62	*	5	195
1600	51 49.6	133 12.7	1508	56103	465	62	*	6	195
1610	51 49.5	133 9.1	1500	56124	473	62	*	6	194
1620	51 49.5	133 5.5	1497	56028	364	62	*	5	193
1630	51 49.5	133 1.9	1494	56057	380	62	*	6	193
1640	51 49.4	132 58.3	1482	56071	382	62	*	5	191
1650	51 49.3	132 54.8	1472	56052	350	62	*	5	190
1700	51 49.3	132 51.2	1468	56052	337	62	*	12	196
1710	51 49.2	132 47.6	1463	55966	238	62	*	18	201
1720	51 49.2	132 44.0	1458	55966	226	62	*	8	191
1730	51 49.2	132 40.4	1454	55827	74	62	*	0	182
1740	51 49.1	132 36.8	1446	55866	100	*	*	*	*
1750	51 48.8	132 33.1	1438	55740	-37	64	*	0	180
1800	51 48.6	132 29.4	1428	55849	59	64	*	6	185
1810	51 48.3	132 25.7	1414	56047	246	64	*	-6	171
1820	51 48.1	132 22.0	1406	56289	476	64	*	-2	174
1830	51 47.8	132 18.3	1392	56152	327	64	*	-5	169
1840	51 47.5	132 14.6	1380	55932	95	64	*	-8	165
1850	51 47.6	132 11.0	1370	55859	9	64	*	-8	164
1900	51 48.1	132 7.3	1354	55904	37	64	*	-13	157
1910	51 48.6	132 3.6	1329	56014	131	64	*	-17	150
1920	51 49.0	131 59.9	1307	56103	204	64	*	-17	147
1930	51 47.9	131 58.4	1306	56161	263	0	*	-20	144
1940	51 45.7	131 58.4	1294	56162	277	0	*	-14	148
1950	51 43.5	131 58.4	1296	56190	318	0	*	-12	150
2000	51 41.4	131 58.4	1297	56186	328	0	*	-13	150

FLCSCN 69-050 DAY 200 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
2010	51 39.2	131 58.4	1296	56171	326	*	*	*	*
2020	51 39.0	132 1.7	1316	56156	324	-56	*	-6	159
2030	51 38.8	132 4.9	1341	55991	172	-56	*	-2	166
2040	51 38.6	132 8.2	1364	55884	78	-56	*	-2	169
2050	51 38.4	132 11.5	1384	55684	-107	-56	*	-4	170
2100	51 38.1	132 14.7	1408	55627	-151	-56	*	-1	175
2110	51 37.9	132 18.0	1426	55806	41	-56	*	0	179
2120	51 37.7	132 21.3	1435	56102	349	-56	*	0	180
2130	51 37.5	132 24.6	1450	56196	456	-56	*	2	184
2140	51 37.3	132 27.8	1462	55954	228	-56	*	2	185
2150	51 37.1	132 31.1	1460	55999	286	-56	*	2	185
2200	51 36.9	132 34.4	1471	55653	-46	-56	*	4	188
2210	51 36.7	132 37.6	1475	55702	16	-56	*	2	187
2220	51 36.5	132 40.9	1479	55755	82	-56	*	1	186
2230	51 36.3	132 44.2	1483	55855	195	-56	*	5	191
2240	51 36.0	132 47.4	1480	55871	224	-56	*	1	187
2250	51 35.8	132 50.7	1491	55902	268	-56	*	0	187
2300	51 35.6	132 54.0	1499	55882	262	-56	*	2	190
2310	51 35.4	132 57.3	1483	55765	158	-56	*	6	192
2320	51 35.2	133 .5	1504	55795	201	-56	*	0	189
2330	51 35.0	133 3.8	1528	55885	305	*	*	*	*
2340	51 34.8	133 6.8	1560	55855	287	-51	*	0	196
2350	51 34.5	133 9.7	1582	55898	342	-51	*	-2	196

FLCSCN 69-050 DAY 201 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	51 34.3	133 12.8	1578	55919	376	-51	*	2	200
0010	51 34.1	133 15.8	1580	55931	401	-51	-8	-6	192
0020	51 33.8	133 18.8	1594	55890	372	-51	*	0	200
0030	51 33.6	133 21.8	1612	55676	171	-51	-2	1	203
0040	51 33.4	133 24.8	1624	55565	72	-51	-6	-2	202
0050	51 33.1	133 27.7	1630	55539	58	-51	-7	-1	203
0100	51 32.9	133 30.7	1632	55380	-87	-51	-3	4	209
0110	51 32.7	133 33.7	1635	55421	-34	-51	-0	3	208
0120	51 32.4	133 36.6	1641	55807	363	-51	*	2	208
0130	51 32.2	133 39.6	1648	55563	132	*	*	*	*
0140	51 32.2	133 42.4	1654	55364	-56	-47	1	6	213
0150	51 32.2	133 45.2	1662	55284	-126	-47	3	8	216
0200	51 32.2	133 47.9	1669	55604	204	-47	-0	6	215
0210	51 32.2	133 50.7	1676	55663	273	-47	2	3	213
0220	51 32.2	133 53.5	1682	55592	212	-47	3	6	217
0230	51 32.2	133 56.3	1696	55898	528	-47	-0	9	222
0240	51 32.2	133 59.0	1703	55641	282	-47	6	12	226
0250	51 32.2	134 1.8	1706	55380	31	-47	5	10	224
0300	51 32.2	134 4.6	1711	55460	121	-47	4	6	221
0310	51 32.2	134 7.4	1728	55419	90	-47	2	7	224
0320	51 32.2	134 10.1	1735	55460	141	-47	*	8	226
0330	51 32.2	134 12.9	1740	55598	290	-47	5	9	227
0340	51 32.2	134 15.7	1750	55640	342	-47	3	8	228
0350	51 32.2	134 18.5	1758	55443	155	-47	2	9	230
0400	51 32.2	134 21.2	1764	55445	168	-47	*	7	228
0410	51 32.2	134 24.0	1768	*	*	-47	*	-7	215
0420	51 32.2	134 26.8	1772	*	*	-47	*	-7	215
1440	51 35.6	134 17.0	1740	*	*	*	*	*	*
1450	51 35.0	134 13.8	1740	*	*	56	-5	-2	216
1500	51 34.3	134 10.6	1730	*	*	56	-4	-3	214
1510	51 33.7	134 7.4	1723	*	*	56	-3	1	217
1520	51 33.0	134 4.2	1704	*	*	56	-2	3	217
1530	51 32.4	134 1.0	1700	*	*	56	-7	-3	210

FLCSCN 69-050 DAY 202 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
2200	51 25.1	133 37.2	1646	*	*	-38	*	4	210
2210	51 26.8	133 39.4	1654	*	*	-38	*	0	207
2220	51 28.4	133 41.7	1656	55297	-102	-38	-2	2	210
2230	51 30.1	133 43.9	1662	55269	-132	-38	-3	0	208
2240	51 31.8	133 46.2	1665	55307	-96	-38	-2	2	211
2250	51 33.5	133 48.4	1667	55633	226	-38	-3	-2	207
2300	51 35.1	133 50.7	1668	55705	296	-38	-4	-1	208
2310	51 36.8	133 52.9	1673	55613	202	-38	-3	0	210
2320	51 38.5	133 55.1	1661	55765	351	-38	-3	0	208
2330	51 40.2	133 57.4	1656	55822	406	-38	-0	3	211
2340	51 41.8	133 59.6	1662	55600	182	-38	-2	1	209
2350	51 43.5	134 1.9	1673	55365	-54	-38	-3	2	212



FLCSCN 69-050 DAY 203 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	51 45.2	134 4.1	1672	55344	-78	-38	-4	2	212
0010	51 46.9	134 6.3	1657	55419	-5	-37	-2	3	211
0020	51 48.5	134 8.6	1659	55568	141	-37	-1	1	209
0030	51 50.2	134 10.8	1659	55582	152	-37	-7	4	212
0040	51 51.9	134 13.1	1662	55501	69	-37	*	7	215
0050	51 53.6	134 15.3	1665	55528	94	-37	*	7	216
0100	51 55.2	134 17.6	1670	55757	321	-37	-0	4	213
0110	51 56.9	134 19.8	1668	55760	322	-37	-1	3	212
0120	51 58.6	134 22.1	1680	55769	328	-37	-1	5	216
0130	52 .3	134 24.3	1685	55877	434	-37	-1	6	217
0140	52 1.9	134 26.6	1685	55913	468	-37	-2	5	216
0150	52 3.6	134 28.8	*	55924	477	-37	-2	-2	*
0200	52 5.3	134 31.1	*	55986	536	-37	-2	2	*
0210	52 7.0	134 33.3	*	56009	557	-37	-4	2	*
0220	52 8.6	134 35.6	1720	55842	388	-37	-5	2	218
0230	52 10.3	134 37.8	1730	55855	199	-37	-5	2	219
0240	52 12.0	134 40.1	1734	55857	198	-37	-6	-2	216
0250	52 13.7	134 42.3	1737	55849	388	-37	-7	-3	215
0300	52 15.4	134 44.6	1740	55907	444	*	*	*	*
0310	52 16.9	134 47.1	1742	55761	298	-41	*	-2	217
0320	52 18.4	134 49.7	1745	55721	258	-41	*	-1	218
0330	52 19.9	134 52.2	1750	55904	441	-41	-0	3	223
0340	52 21.4	134 54.7	1747	55834	371	-41	1	6	225
0350	52 22.9	134 57.3	1746	55620	157	-41	-0	7	226
0400	52 24.4	134 59.8	1750	55558	94	-41	-2	5	225
0430	52 26.2	134 56.2	1714	55604	116	55	*	-3	212
0440	52 26.8	134 52.9	1696	55697	194	55	*	3	216
0450	52 27.5	134 49.7	1690	55794	275	55	*	0	212
0500	52 28.1	134 46.4	1686	55906	371	55	*	-2	209
0510	52 28.7	134 43.1	1668	56039	489	55	*	1	210
0520	52 29.4	134 39.9	1665	55995	429	55	*	4	213
0530	52 30.0	134 36.6	1658	55792	211	*	*	*	*
0540	52 30.0	134 33.0	1644	55821	227	61	*	6	212
0550	52 30.0	134 29.3	1626	55812	5	61	4	7	211
0600	52 30.0	134 25.6	1606	55887	67	61	7	10	211
0610	52 29.9	134 22.0	1592	55851	218	61	9	12	212
0620	52 29.9	134 18.3	1586	55673	26	61	1	7	206
0630	52 29.9	134 14.7	1578	55863	203	*	*	*	*
0640	52 29.9	134 11.0	1568	55860	187	62	-16	4	201
0650	52 29.9	134 7.3	1554	55847	-38	62	-2	2	197
0700	52 29.9	134 3.6	1542	55752	53	62	2	3	196
0710	52 29.9	133 59.9	1526	55892	-20	62	*	1	192
0720	52 29.9	133 56.3	1516	55730	4	62	-5	1	191
0730	52 29.9	133 52.6	1507	56038	299	62	-4	0	189
0740	52 29.9	133 48.9	1500	56127	375	62	*	4	192
0750	52 29.9	133 45.2	1462	56529	764	62	15	17	200
0800	52 29.9	133 41.5	1168	56797	1018	*	*	*	*
0810	52 29.9	133 37.8	1450	56235	443	61	10	18	200
0820	52 29.9	133 34.2	1402	56051	246	61	6	9	185
0830	52 29.9	133 30.6	1423	56082	264	61	*	7	185

FLDCSN 69-050 DAY 203 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0840	52 29.9	133 26.9	1444	55900	69	61	-8	-2	179
0850	52 29.9	133 23.2	1459	55803	-40	61	-19	-11	172
0900	52 29.9	133 19.6	1464	55965	108	*	*	*	*
0910	52 29.9	133 16.0	1518	56056	186	60	-27	-23	167
0920	52 29.9	133 12.5	1525	56181	298	60	-29	-24	167
0930	52 30.0	133 8.9	1540	56366	470	60	-30	-25	168
0940	52 30.0	133 5.3	1546	*	*	*	*	*	*
0950	52 30.0	133 1.8	1556	56373	452	60	-34	-29	166
1000	52 30.0	132 58.2	1558	56329	395	*	*	*	*
1010	52 30.0	132 54.9	1566	56306	360	56	-45	-41	155
1020	52 30.0	132 51.5	1567	56264	306	56	-50	-45	152
1030	52 30.1	132 48.2	1568	56203	233	56	-55	-50	147
1040	52 30.1	132 44.8	1568	56154	172	56	-62	-55	142
1050	52 30.1	132 41.5	1576	56131	137	56	-68	-65	133
1100	52 30.1	132 38.1	1577	56148	141	56	-75	-72	126
1110	52 30.1	132 34.8	1574	56153	134	56	-82	-76	121
1120	52 30.2	132 31.5	1566	56163	132	56	-87	-84	112
1130	52 30.2	132 28.1	1510	56155	112	56	-88	-85	104
1140	52 30.2	132 24.6	1210	56147	92	64	-73	-73	79
1150	52 30.3	132 20.8	1032	56148	79	64	-72	-69	60
1200	52 30.4	132 17.0	1116	56168	85	64	-82	-77	63
1210	52 30.4	132 13.2	1036	56201	104	64	-87	-83	47
1220	52 30.5	132 9.4	956	56235	124	64	-89	-85	35
1230	52 30.6	132 5.6	1039	56264	139	64	-92	-88	42
1240	52 30.7	132 1.8	1049	56302	163	64	-87	-89	42
1250	52 30.7	131 58.0	974	56319	166	64	-63	-66	56
1300	52 30.8	131 54.3	536	56311	144	64	-19	-25	42
1310	52 30.9	131 50.5	160	56388	208	64	33	28	48
1320	52 29.4	131 48.0	159	56412	231	36	*	34	53
1330	52 27.6	131 45.8	271	56341	163	36	*	12	46
1340	52 25.8	131 43.7	222	56308	133	36	*	24	51
1350	52 24.0	131 41.5	206	56305	133	36	*	30	55
1400	52 22.2	131 39.4	308	56272	103	36	20	26	64
1410	52 20.3	131 37.2	144	56242	76	36	35	40	58
1420	52 19.8	131 38.9	426	56518	361	-55	*	13	66
1430	52 19.8	131 42.3	538	56410	265	-55	*	-14	53
1440	52 19.8	131 45.6	435	56317	183	-55	-43	-32	22
1450	52 19.9	131 48.9	762	56246	124	-55	-79	-64	31
1500	52 19.9	131 52.3	1014	56223	113	-55	-97	-92	35
1510	52 19.9	131 55.6	1126	56219	121	-55	-103	-98	43
1520	52 19.9	131 58.9	1130	56193	106	-55	*	-80	62
1530	52 19.9	132 2.3	1172	56138	63	-55	-92	-80	67
1540	52 19.9	132 5.6	1228	56081	18	-55	-85	-79	75
1550	52 20.0	132 8.9	1506	56062	12	-55	-85	-82	107
1600	52 20.0	132 12.2	1568	56094	55	-55	-94	-82	115
1610	52 20.0	132 15.6	1569	56139	111	-55	-83	-78	119
1620	52 20.0	132 18.9	1575	56146	130	-55	-76	-72	126
1630	52 20.0	132 22.2	1574	56158	154	-55	-67	-62	135
1640	52 20.1	132 25.6	1575	56104	112	-55	*	-56	142
1650	52 20.1	132 28.9	1576	56094	114	-55	-54	-51	147

FLDSCN 69-050 DAY 203 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTIVOS	F.A.	VSA	E.A.
1700	52 20.1	132 32.2	1573	56123	154	-55	-48	-44	153
1710	52 20.1	132 35.6	1562	56139	182	-55	-44	-29	167
1720	52 20.1	132 38.9	1552	56153	208	-55	-39	-32	163
1730	52 20.1	132 42.2	1534	56179	246	-55	-37	-30	162
1740	52 20.2	132 45.6	1523	56149	228	-55	-34	-31	160
1750	52 20.2	132 48.9	1516	56100	191	-55	-31	-17	173
1800	52 20.2	132 52.2	1510	56098	200	-55	-28	-13	176
1810	52 20.2	132 55.6	1494	56171	285	-55	-27	-11	176
1820	52 20.2	132 58.9	1493	56276	402	-55	-33	-10	177
1830	52 20.2	133 2.2	1472	56299	437	-55	-21	-17	168
1840	52 20.3	133 5.6	1432	56309	459	-55	-13	-5	175
1850	52 20.3	133 8.9	1418	56319	481	-55	-6	0	178
1900	52 20.3	133 12.2	1352	56368	542	-55	-1	5	174
1910	52 20.3	133 15.6	1417	56304	490	-55	-6	1	179
1920	52 20.3	133 18.9	1442	55998	195	-55	-12	-7	174
1930	52 20.3	133 22.2	1446	55867	76	-55	-13	-6	175
1940	52 20.4	133 25.5	1454	55844	65	-55	-11	-3	179
1950	52 20.4	133 28.9	1470	56027	260	-55	-11	-3	181
2000	52 20.4	133 32.2	1477	55898	143	-55	-13	-7	178
2010	52 20.4	133 35.5	1480	55886	-56	-55	-14	-5	181
2020	52 20.4	133 38.9	1488	55622	-108	-55	-14	-6	181
2030	52 20.4	133 42.2	1504	55787	68	-55	-14	-7	182
2040	52 20.5	133 45.5	1516	55845	137	-55	-13	-7	183
2050	52 20.5	133 48.9	1511	55748	52	-55	-11	-5	184
2100	52 20.5	133 52.2	1514	55991	307	-55	*	2	192

FLDSCN 69-050 DAY 204 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0300	52 16.5	134 6.8	1080	56513	906	0	*	53	188
0310	52 14.3	134 6.8	1148	56539	946	0	*	45	189
0320	52 12.2	134 6.8	1564	56177	597	0	14	22	218
0330	52 10.0	134 6.8	1574	55851	284	*	*	*	*
0340	52 10.0	134 5.1	1564	55740	167	28	*	11	207
0350	52 9.9	134 3.5	1554	55739	161	28	*	6	201
0400	52 9.9	134 1.8	1544	55752	168	28	3	8	202
0410	52 9.8	134 .2	1538	55777	187	28	*	5	198
0420	52 9.8	133 58.5	1530	55824	228	28	-0	4	196
0430	52 9.7	133 56.8	1523	55895	294	28	-2	5	196
0440	52 9.7	133 55.2	1518	55949	342	28	-4	4	194
0450	52 9.7	133 53.5	1511	55925	312	28	-4	2	191
0500	52 9.6	133 51.9	1506	55820	201	28	-5	-2	187
0510	52 9.6	133 50.2	1502	55744	120	28	-4	-2	186
0520	52 9.5	133 48.5	1498	55828	198	28	-2	2	190
0530	52 9.5	133 46.9	1498	55964	328	28	-2	2	190
0540	52 9.4	133 45.2	1496	56015	373	28	-0	7	195
0550	52 9.4	133 43.6	1474	56003	356	28	3	8	193
0600	52 9.3	133 41.9	1404	56032	379	28	10	15	191
0610	52 9.3	133 40.2	1296	56053	394	28	15	20	182
0620	52 9.3	133 38.6	1182	55964	299	28	17	20	168
0630	52 9.2	133 36.9	1294	55846	176	28	13	19	181
0640	52 9.2	133 35.3	1404	55772	96	28	6	14	190
0650	52 9.1	133 33.6	1472	55773	91	28	*	7	192
0700	52 9.1	133 31.9	1477	55838	150	28	-4	0	185
0710	52 9.0	133 30.3	1476	55801	108	28	-6	-1	184
0720	52 9.0	133 28.6	1478	55702	4	28	-7	0	185
0730	52 9.0	133 27.0	1480	55678	-26	28	-8	-2	184
0740	52 8.9	133 25.3	1480	55716	5	28	-8	-3	183
0750	52 8.9	133 23.6	1476	55772	56	28	-8	-5	180
0800	52 8.8	133 22.0	1474	55807	85	28	-7	-3	182
0810	52 8.8	133 20.3	1471	55809	81	28	-7	0	184
0820	52 8.7	133 18.7	1468	55823	89	28	-7	-2	182
0830	52 8.7	133 17.0	1464	55833	94	*	*	*	*
0840	52 8.7	133 15.3	1462	55942	197	29	-5	3	186
0850	52 8.6	133 13.5	1460	56080	329	29	-5	0	183
0900	52 8.6	133 11.8	1462	56159	402	29	-6	-2	181
0910	52 8.6	133 10.1	1460	56209	445	29	-8	-5	178
0920	52 8.5	133 8.3	1458	56230	460	29	-7	-3	180
0930	52 8.5	133 6.6	1453	56225	449	29	-8	-1	181
0940	52 8.5	133 4.9	1452	56224	442	29	-9	-3	179
0950	52 8.4	133 3.1	1449	56216	428	29	-9	-5	177
1000	52 8.4	133 1.4	1450	56191	397	29	-10	-6	176
1010	52 8.4	132 59.7	1444	56181	381	29	-10	-4	177
1020	52 8.3	132 57.9	1442	56197	391	29	-10	-3	178
1030	52 8.3	132 56.2	1440	56212	400	29	-10	1	182
1040	52 8.3	132 54.5	1432	56197	379	29	-11	-5	175
1050	52 8.2	132 52.7	1450	56135	311	29	-12	-6	176
1100	52 8.2	132 51.0	1446	56068	238	29	-14	-8	173
1110	52 8.2	132 49.3	1446	56064	228	29	-15	-6	175

FLDCSN 69-050 DAY 204 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.		
1120	52	8.1	132	47.5	1446	56103	261	29	-16	-10	171
1130	52	8.1	132	45.8	1448	56119	271	29	-18	-15	167
1140	52	8.1	132	44.1	1450	56109	255	29	-18	-13	169
1150	52	8.0	132	42.3	1442	56133	273	29	-18	-10	171
1200	52	8.0	132	40.6	1419	56209	343	29	*	-12	166
1340	52	6.2	132	45.3	1448	56095	256	30	*	-16	166
1350	52	6.2	132	43.6	1437	56161	316	30	-13	-7	173
1400	52	6.2	132	41.8	1404	56262	411	30	-14	-4	172
1410	52	6.2	132	40.0	1390	56265	407	30	-14	-5	169
1420	52	6.2	132	38.2	1376	56233	369	30	-14	-5	168
1430	52	6.2	132	36.4	1368	56135	264	30	-16	-9	162
1440	52	6.2	132	34.7	1383	56064	187	30	-17	-13	160
1450	52	6.2	132	32.9	1389	56062	178	30	-13	-10	164
1500	52	6.2	132	31.1	1398	56100	210	30	-21	-15	160
1510	52	6.2	132	29.3	1398	56147	251	30	-22	-14	161
1520	52	6.2	132	27.5	1404	56162	259	30	-24	-16	160
1530	52	6.2	132	25.8	1407	56156	247	30	-26	-20	156
1540	52	6.2	132	24.0	1409	56170	254	30	-28	-22	155
1550	52	6.2	132	22.2	1412	56196	274	30	-29	-23	154
1600	52	6.2	132	20.4	1415	56208	280	30	-32	-24	153
1610	52	6.2	132	18.6	1420	56213	278	30	-35	-30	148
1620	52	6.2	132	16.9	1426	56221	280	30	-36	-30	149
1630	52	6.2	132	15.1	1423	56212	264	30	-39	-34	144
1640	52	6.2	132	13.3	1420	56164	210	30	-41	-34	144
1650	52	6.2	132	11.5	1425	56109	149	30	-44	-25	154
1700	52	6.2	132	9.7	1428	56084	117	30	-47	-26	153
1710	52	6.2	132	8.0	1427	56099	126	30	-49	-43	136
1720	52	6.2	132	6.2	1440	56122	142	30	-54	-49	132
1730	52	6.2	132	4.4	1504	56140	154	30	-59	-52	137
1740	52	6.2	132	2.6	1548	56159	167	30	-62	-55	139
1750	52	6.2	132	.9	1562	56187	188	30	-64	-59	137
1800	52	6.2	131	59.1	1536	56230	225	30	-65	-60	133
1810	52	6.2	131	57.3	1488	56272	260	30	-66	-61	126
1820	52	6.2	131	55.5	1492	56308	290	30	-67	-62	125
1830	52	6.2	131	53.7	1544	56336	312	30	-67	-62	132
1840	52	6.2	131	52.0	1546	56343	312	30	-66	-60	134
1850	52	6.2	131	50.2	1414	56332	295	30	*	-56	121
1900	52	6.2	131	48.4	1240	56303	260	30	-55	-52	103
1910	52	6.2	131	46.6	956	56266	216	30	-49	-43	77
1920	52	6.2	131	44.8	1010	56239	183	30	-50	-43	84
1930	52	6.2	131	43.0	964	56220	157	30	-53	-46	75
1940	52	6.2	131	41.2	984	56214	145	30	-58	-50	73
1950	52	6.2	131	39.4	1014	56209	133	30	-61	-53	74
2000	52	6.2	131	37.6	952	56201	119	30	-60	-53	66
2010	52	6.2	131	35.8	842	56205	117	30	-52	-48	57
2020	52	6.2	131	34.1	760	56226	131	30	-34	-32	63
2030	52	6.2	131	32.3	498	56286	185	30	-17	-14	48
2040	52	6.2	131	30.5	472	56220	112	30	-15	-8	51
2050	52	6.2	131	28.7	546	56224	110	30	-21	-11	57
2100	52	6.2	131	26.9	640	56245	124	30	-22	-18	62

FLDSCN 69-050 DAY 204 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVOS	F.A.	VSA	E.A.
2110	52 6.2	131 25.1	494	56235	108	30	-6	2	64
2120	52 6.2	131 23.3	292	56247	114	30	26	19	55
2130	52 6.0	131 21.8	128	56233	96	18	*	17	33
2140	52 5.4	131 20.5	108	56211	72	24	*	43	56
2150	52 4.8	131 19.1	118	56310	170	24	*	52	66
2200	52 4.1	131 17.7	118	56442	301	24	43	54	68
2210	52 3.4	131 16.2	116	56350	207	24	44	52	66
2220	52 2.8	131 14.8	108	56330	186	24	48	55	68
2230	52 2.1	131 13.3	97	56392	247	24	52	62	74
2240	52 1.5	131 11.9	74	56414	267	24	53	62	71
2250	52 .8	131 10.6	82	56470	323	0	*	36	46
2300	51 59.9	131 10.6	120	56631	489	*	*	*	*
2310	51 59.9	131 12.2	133	56413	277	-27	*	45	61
2320	51 59.9	131 13.8	202	56369	239	-27	28	35	60
2330	51 59.8	131 15.4	222	56261	137	-27	28	35	62
2340	51 59.8	131 17.0	216	56352	233	-27	23	32	59
2350	51 59.8	131 18.6	382	56286	173	-27	3	14	61

FLCSCN 69-050 DAY 205 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	51 59.8	131 20.2	516	56313	206	-27	-14	-8	56
0010	51 59.8	131 21.8	805	56308	207	-27	-41	-31	70
0020	51 59.8	131 23.4	818	56289	194	-27	-55	-45	57
0030	51 59.7	131 25.0	859	56284	195	-27	-54	-53	54
0040	51 59.7	131 26.6	1016	56297	214	-27	-62	-56	71
0050	51 59.7	131 28.2	896	56313	235	-27	-59	-55	57
0100	51 59.7	131 29.8	910	56295	223	-27	-58	-53	61
0110	51 59.7	131 31.4	1085	56270	204	-27	-61	-56	80
0120	51 59.8	131 33.1	1106	56247	187	-27	-60	-53	86
0130	51 59.8	131 34.7	1125	56231	176	-27	-53	-55	86
0140	51 59.9	131 36.4	1132	56221	172	-27	-52	-48	94
0150	51 59.9	131 38.0	895	56223	180	-27	-58	-37	75
0200	51 59.9	131 39.7	846	56223	185	-27	-33	-26	80
0210	51 60.0	131 41.3	890	56211	179	-27	-30	-24	87
0220	52 .0	131 43.0	895	56210	184	-27	-29	-23	89
0230	52 .0	131 44.6	943	56188	167	-27	-35	-26	92
0240	52 .1	131 46.3	1013	56173	158	-27	-35	-32	95
0250	52 .1	131 47.9	1360	56158	149	-27	-39	-35	136
0300	52 .2	131 49.5	1315	56165	162	-27	-41	-36	129
0310	52 .2	131 51.2	1342	56160	162	-27	-40	-33	135
0320	52 .2	131 52.8	1338	56183	191	-27	-42	-36	132
0330	52 .3	131 54.5	1304	56213	227	-27	-43	-38	125
0340	52 .3	131 56.1	1292	56263	282	-27	-44	-37	125
0350	52 .3	131 57.8	1297	56337	362	-27	-44	-37	126
0400	52 .4	131 59.4	1312	56320	351	-27	-43	-38	126
0410	52 .4	132 1.1	1317	56257	293	-27	-48	-35	130
0420	52 .5	132 2.7	1314	56198	240	-27	-42	-35	130
0430	52 .5	132 4.3	1316	56155	203	-27	-35	-32	133
0440	52 .5	132 6.0	1321	56106	160	-27	-33	-35	131
0450	52 .6	132 7.6	1330	56063	122	-27	-37	-33	134
0500	52 .6	132 9.3	1344	56039	104	-27	-30	-32	136
0510	52 .6	132 10.9	1356	56020	91	-27	-32	-23	147
0520	52 .7	132 12.6	1366	56024	100	-27	-24	-23	148
0530	52 .7	132 14.2	1372	56064	146	-27	-30	-23	149
0540	52 .8	132 15.9	1374	56147	235	-27	-29	-25	147
0550	52 .8	132 17.5	1376	56224	318	-27	-27	-8	165
0600	52 .8	132 19.2	1381	56246	345	-27	-30	-21	152
0610	52 .9	132 20.8	1389	56241	346	-27	-28	-20	154
0620	52 .9	132 22.4	1394	56221	332	-27	*	-18	157
0630	52 .9	132 24.1	1397	56177	293	-27	-23	-18	157
0640	52 1.0	132 25.7	1400	56112	234	-27	-21	-18	158
0650	52 1.0	132 27.4	1402	56070	198	-27	-20	-13	163
0700	52 1.1	132 29.0	1403	56063	197	-27	-20	-13	163
0710	52 1.1	132 30.7	1405	56061	200	-27	*	-13	163
0720	52 1.1	132 31.6	1410	55977	120	-13	*	0	177
0730	52 1.1	132 32.4	1415	55894	40	-13	*	4	181
0740	52 1.0	132 33.2	1418	55875	24	-13	*	-18	160
0750	52 1.0	132 34.0	1421	55865	17	*	*	*	*
0800	52 1.0	132 36.3	1428	55883	43	-39	*	-6	173
0810	52 .9	132 38.6	1436	55929	98	-39	*	-7	173

FLOSCN 69-050 DAY 205 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0820	52 .9	132 40.9	1438	56006	183	-39	*	-6	174
0830	52 .9	132 44.0	1418	56009	198	-55	*	-10	168
0840	52 1.0	132 47.3	1438	56077	277	-55	*	-2	178
0850	52 1.0	132 50.6	1438	56082	294	-55	*	3	183
0900	52 1.0	132 53.9	1438	56109	333	-55	-8	-1	179
0910	52 1.1	132 57.2	1438	56180	416	-55	-6	-1	179
0920	52 1.1	133 .5	1442	56165	412	-55	-5	6	187
0930	52 1.1	133 3.8	1448	56211	470	-55	-4	5	187
0940	52 1.2	133 7.1	1453	56242	513	-55	-2	4	186
0950	52 1.2	133 10.4	1452	56216	499	-55	-0	2	184
1000	52 1.2	133 13.7	1453	56130	424	-55	-2	4	186
1010	52 1.2	133 17.0	1442	55847	153	-55	1	7	188
1020	52 1.3	133 20.3	1454	55755	73	-55	2	10	192
1030	52 1.3	133 23.6	1464	55772	102	-55	-2	7	191
1040	52 1.3	133 26.9	1490	55711	52	-55	2	7	194
1050	52 1.4	133 30.2	1514	55657	10	-55	-3	6	196
1100	52 1.4	133 33.5	1526	55890	255	-55	-6	1	192
1110	52 1.4	133 36.8	1540	55725	102	-55	-8	0	193
1120	52 1.5	133 40.1	1543	55540	-70	-55	-9	-3	190
1130	52 1.5	133 43.4	1546	55514	-85	-55	-9	-8	186
1140	52 1.5	133 46.7	1551	55724	136	-55	-10	-3	192
1150	52 1.6	133 50.0	1556	55783	207	-55	-7	0	195
1200	52 1.6	133 53.3	1569	55714	150	-55	-5	0	197
1210	52 1.6	133 56.6	1591	55928	376	-55	-5	2	202
1220	52 1.7	133 59.9	1590	55749	208	-55	-4	4	203
1230	52 1.7	134 3.2	1595	55527	-2	-55	-3	3	203
1240	52 1.8	134 6.5	1598	55522	5	-55	-2	2	202
1250	52 1.9	134 9.7	1610	55561	55	-55	-3	5	207
1300	52 1.9	134 13.0	1616	55457	-37	-55	-7	7	210
1310	52 2.0	134 16.3	1631	55678	195	-55	-5	2	207
1320	52 2.1	134 19.5	1657	55828	356	-55	-6	1	209
1330	52 2.2	134 22.8	1671	55795	335	-55	-2	3	213
1340	52 2.2	134 26.1	1684	55901	452	-55	-6	2	213
1350	52 2.3	134 29.3	1705	55892	454	-55	-6	-1	213
1400	52 2.4	134 32.6	1720	55844	418	-55	-8	1	217
1410	52 2.5	134 35.9	1733	55695	280	-55	-2	-1	216
1420	52 2.6	134 39.1	1747	55465	62	-55	-11	0	219
1430	52 2.6	134 42.4	1763	55605	213	-55	-7	0	221
1440	52 2.7	134 45.7	1780	55688	308	-55	-6	-3	220
1450	52 2.8	134 48.9	1784	55541	172	-55	-10	0	224
1500	52 2.9	134 52.2	1780	55605	248	-55	-7	0	223
1510	52 2.9	134 55.5	1794	55484	138	-54	*	3	228
1520	52 3.0	134 58.7	1798	55409	74	-54	-6	0	226
1530	52 3.1	135 2.0	1804	55385	62	*	*	*	*
1540	52 1.3	135 1.3	1802	55383	69	*	*	*	*
1550	51 59.5	135 .6	1800	55376	71	12	*	3	229
1600	51 57.6	134 59.9	1802	55381	84	12	-1	6	232
1610	51 55.8	134 59.2	1802	55389	101	*	-2	*	*
1620	51 54.0	134 58.5	1810	55364	85	12	-7	1	228
1630	51 52.2	134 57.8	1816	55309	39	*	*	*	*



FLCSCN 69-050 DAY 205 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1640	51 51.2	134 57.5	1819	55293	28	5	*	3	231
1650	51 50.3	134 57.1	1820	55292	32	5	*	2	230
1700	51 49.3	134 56.8	1819	55318	63	5	*	11	239
1710	51 48.4	134 56.5	1810	55370	120	5	-4	3	230
1720	51 47.4	134 56.2	1805	55441	195	5	-8	4	230
1730	51 46.5	134 55.9	1802	55502	261	5	-8	0	226
1740	51 45.6	134 55.6	1800	55546	310	5	-7	-3	223
1750	51 44.7	134 55.3	1794	55573	342	5	-9	3	228
1800	51 43.7	134 55.0	1804	55599	373	5	-6	0	226
1810	51 42.8	134 54.7	1814	55619	397	5	-8	-1	227
1820	51 41.9	134 54.4	1816	55632	415	5	-7	0	228
1830	51 41.0	134 54.1	1814	55635	423	5	-8	1	229
1840	51 40.0	134 53.8	1813	55636	429	5	-7	0	227
1850	51 39.1	134 53.5	1814	55630	428	5	-8	-3	225
1900	51 38.2	134 53.2	1814	55625	428	5	-7	0	228
1910	51 37.3	134 52.9	1812	55617	424	5	-6	0	227
1920	51 36.3	134 52.7	1818	55607	419	5	-7	-3	225
1930	51 35.4	134 52.4	1818	55599	416	5	-6	-3	225
1940	51 34.5	134 52.1	1817	55585	407	5	-6	1	229
1950	51 33.6	134 51.8	1817	55562	389	5	-8	2	230
2000	51 32.6	134 51.5	1819	55536	368	5	-6	0	228
2010	51 31.7	134 51.2	1820	55511	347	5	-5	-1	227
2020	51 30.8	134 50.9	1819	55496	337	5	-6	0	228
2030	51 29.9	134 50.6	1818	55481	327	5	-6	-1	227
2040	51 28.9	134 50.3	1815	55470	321	5	-6	-2	226
2050	51 28.0	134 50.0	1814	55450	306	5	-7	-7	221
2100	51 27.1	134 49.7	1813	55422	283	5	-7	0	227
2110	51 26.2	134 49.4	1812	55385	251	5	-6	4	231
2120	51 25.2	134 49.1	1812	55345	216	5	-7	-2	225
2130	51 24.3	134 48.8	1811	55304	179	*	*	*	*
2140	51 23.4	134 48.5	1808	55268	149	4	-7	0	227
2150	51 22.4	134 48.3	1810	55238	124	4	-6	-2	225
2200	51 21.5	134 48.0	1818	55217	108	*	*	*	*
2210	51 20.5	134 48.2	1822	55208	106	-2	*	-3	226
2220	51 19.5	134 48.3	1826	55203	108	-2	*	-7	222
2230	51 18.6	134 48.5	1831	55201	112	-2	-9	-5	225
2240	51 17.6	134 48.6	1838	55200	118	-2	-0	-2	229
2250	51 16.6	134 48.8	1842	55207	132	-2	*	-1	230
2300	51 15.6	134 49.0	1843	55219	151	-2	*	-3	228
2310	51 14.7	134 49.1	1847	55226	165	-2	-8	-6	226
2320	51 13.7	134 49.3	1852	55226	172	-2	-9	-10	222
2330	51 12.7	134 49.4	1857	55229	182	-2	-9	-5	228
2340	51 11.7	134 49.6	1860	55238	198	-2	-10	-4	229
2350	51 10.7	134 49.8	1859	55243	210	-2	-10	-4	229

FLDSCN 69-050 DAY 206 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.		
0000	51	9.8	134	49.9	1861	55209	183	-2	-11	-5	228
0010	51	8.8	134	50.1	1864	55198	179	-2	-11	-10	224
0020	51	7.8	134	50.2	1865	55190	178	-2	-11	0	234
0030	51	6.8	134	50.4	1868	55172	167	-2	-11	6	240
0040	51	5.9	134	50.6	1869	55159	161	-2	-9	-6	229
0050	51	4.9	134	50.8	1870	55154	163	-2	*	-24	211
0100	51	4.3	134	49.8	1870	55093	102	22	*	-3	232
0110	51	3.9	134	48.5	1868	55061	69	22	-6	-3	231
0120	51	3.5	134	47.2	1868	55108	114	22	-5	-1	233
0130	51	3.0	134	45.9	1868	55162	166	22	-4	1	235
0140	51	2.6	134	44.7	1866	55133	135	22	-4	-1	233
0150	51	2.1	134	43.4	1863	55040	40	22	-5	-4	230
0200	51	1.7	134	42.1	1860	54967	-35	22	-5	-3	230
0210	51	1.2	134	40.8	1854	54982	-22	22	-6	-4	229
0220	51	.8	134	39.5	1852	55076	70	22	-6	-3	229
0230	51	.3	134	38.2	1850	55208	201	22	-7	-6	226
0240	50	59.9	134	37.0	1848	55305	296	22	-7	-3	229
0250	50	59.5	134	35.7	1844	55345	334	22	-8	-4	227
0300	50	59.0	134	34.4	1838	55373	360	22	-9	-4	227
0310	50	58.6	134	33.1	1830	55398	383	22	-9	-4	226
0320	50	58.1	134	31.8	1823	55405	388	23	-8	-5	224
0330	50	57.7	134	30.6	1819	55348	329	23	-7	-6	222
0340	50	57.2	134	29.3	1815	55272	251	23	*	-7	221
0350	50	56.8	134	28.0	1810	55142	119	23	-6	-3	224
0400	50	56.4	134	26.7	1804	55066	42	23	-6	-4	222
0410	50	55.9	134	25.4	1796	55098	72	23	-4	0	225
0420	50	55.5	134	24.2	1790	55183	155	23	-3	1	226
0430	50	55.0	134	22.9	1786	55274	244	23	-1	3	227
0440	50	54.6	134	21.6	1784	55329	297	23	-1	5	229
0450	50	54.1	134	20.3	1777	55366	332	23	-2	1	224
0500	50	53.7	134	19.0	1770	55381	345	23	-4	1	223
0510	50	53.2	134	17.7	1788	55397	359	23	-6	5	229
0520	50	52.8	134	16.5	1789	55432	393	23	-6	3	227
0530	50	52.4	134	15.2	1788	55393	352	23	-6	-2	222
0540	50	51.9	134	13.9	1788	55350	307	23	-7	-4	220
0550	50	51.5	134	12.6	1786	55305	260	23	-8	-4	220
0600	50	51.0	134	11.3	1782	55315	268	23	-8	-6	218
0610	50	50.9	134	9.9	1779	55350	299	27	*	-2	221
0620	50	51.0	134	8.4	1779	55357	299	27	*	-4	219
0630	50	51.2	134	6.9	1782	55282	217	27	*	-1	223
0640	50	51.4	134	5.4	1787	55185	114	27	-3	2	226
0650	50	51.5	134	3.9	*	55189	111	27	-5	0	*
0700	50	51.7	134	2.3	*	55274	189	27	3	0	*
0710	50	51.8	134	.8	1660	55307	215	27	-17	7	215
0720	50	52.0	133	59.3	1734	55314	215	27	-1	4	222
0730	50	52.2	133	57.8	1734	55235	130	27	*	2	220
0740	50	52.3	133	56.2	1729	55205	94	27	-9	-2	215
0750	50	52.5	133	54.7	1750	55266	147	27	-4	-2	218
0800	50	52.6	133	53.2	1750	55267	141	27	-8	-3	217
0810	50	52.8	133	51.7	1757	55304	172	27	-11	-2	218

FLDCSN 69-050 DAY 206 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0820	50 53.0	133 50.2	1763	55411	272	27	-9	-2	219
0830	50 53.1	133 48.6	1768	55357	211	27	*	-3	219
0840	50 53.3	133 47.1	1774	55218	66	27	-16	-4	219
0850	50 53.4	133 45.6	1784	55135	-23	27	-10	-4	220
0900	50 53.6	133 44.1	1784	55110	-55	27	-4	-3	221
0910	50 53.8	133 42.6	1778	55131	-41	27	-6	-1	222
0920	50 53.9	133 41.0	1774	55193	14	27	-8	-1	222
0930	50 54.1	133 39.5	1770	55261	76	27	-5	-1	221
0940	50 54.2	133 38.0	1768	55199	7	27	-5	-6	216
0950	50 54.4	133 36.5	1766	55144	-55	27	-8	-5	217
1000	50 54.6	133 35.0	1761	55162	-44	27	-10	1	222
1010	50 54.7	133 33.4	1758	55223	11	27	-11	-4	217
1020	50 54.9	133 31.9	1761	55271	52	27	-14	-2	219
1030	50 55.0	133 30.4	1754	55349	122	27	-13	-2	218
1040	50 55.2	133 28.9	1742	55363	129	27	-23	-2	217
1050	50 55.3	133 27.3	1734	55360	120	27	-13	-3	215
1100	50 55.5	133 25.8	1729	55516	269	27	*	-4	213
1110	50 55.7	133 24.3	1725	55644	390	27	*	2	218
1120	50 56.3	133 23.2	1722	55713	451	17	*	-1	215
1130	50 57.1	133 22.3	1706	55736	465	17	*	1	215
1140	50 57.9	133 21.3	1688	55757	477	17	-4	-1	211
1150	50 58.7	133 20.4	1672	55792	504	17	-4	0	210
1200	50 59.5	133 19.4	1656	55850	553	17	-6	3	211
1210	51 .3	133 18.5	1637	55882	576	17	1	1	206
1220	51 1.1	133 17.5	1621	55893	579	17	-2	1	204
1230	51 1.9	133 16.5	1612	55865	542	17	-2	2	204
1240	51 2.7	133 15.6	1608	55829	497	17	-3	1	203
1250	51 3.5	133 14.6	1612	55808	467	17	-0	0	202
1300	51 4.3	133 13.7	1614	55819	470	17	-3	0	202
1310	51 5.1	133 12.7	1615	55824	466	17	-5	1	204
1320	51 5.9	133 11.8	1615	55814	447	17	-2	-2	201
1330	51 6.7	133 10.8	1615	55799	424	*	*	*	*
1340	51 7.2	133 10.1	1612	55796	415	13	*	5	207
1350	51 7.7	133 9.3	1613	55782	395	13	2	1	203
1400	51 8.3	133 8.6	1609	55781	387	13	-2	-2	200
1410	51 8.8	133 7.9	1606	55798	398	13	-3	-1	200
1420	51 9.3	133 7.1	1606	55794	388	13	*	5	206
1430	51 9.8	133 6.4	1609	55808	396	13	-3	3	205
1440	51 10.4	133 5.7	1615	55817	399	13	-2	0	203
1450	51 10.9	133 4.9	1616	55808	384	13	-3	1	204
1500	51 11.4	133 4.2	1618	55802	372	13	-2	0	203
1510	51 12.1	133 3.4	1615	55795	358	13	*	-4	199
1520	51 12.7	133 2.6	1589	55795	351	13	-12	-3	196
1530	51 13.4	133 1.9	1588	55803	352	13	-6	-2	197
1540	51 14.1	133 1.1	1588	55811	353	13	-6	-2	197
1550	51 14.7	133 .3	1585	55823	357	13	-5	-2	197
1600	51 15.4	132 59.5	1584	55826	353	13	-4	1	200
1610	51 16.1	132 58.7	1584	55826	346	9	*	-4	195
1620	51 16.9	132 58.2	1588	55823	336	9	*	2	201
1630	51 17.7	132 57.6	1582	55818	324	9	*	4	202

FLDSCN 69-050 DAY 206 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVOS	F.A.	VSA	E.A.
1640	51 18.5	132 57.1	1568	55806	305	9	-2	7	204
1650	51 19.3	132 56.5	1564	55791	283	9	-2	7	203
1700	51 20.1	132 56.0	1564	55774	259	9	-2	8	204
1710	51 20.9	132 55.4	1560	55764	241	9	*	1	197
1720	51 21.7	132 54.9	1558	55768	238	9	-2	1	196
1730	51 22.5	132 54.3	1556	55785	248	*	*	*	*
1740	51 23.3	132 53.8	1555	55804	260	8	*	0	195
1750	51 24.1	132 53.3	1554	55817	266	8	-7	2	197
1800	51 24.9	132 52.8	1548	55825	267	8	-8	3	197
1810	51 25.8	132 52.3	1543	55831	266	8	-9	0	193
1820	51 26.6	132 51.8	1538	55829	257	8	-11	-1	192
1830	51 27.4	132 51.3	1538	55814	236	8	-11	-1	192
1840	51 28.2	132 50.8	1547	55796	211	8	-11	-2	192
1850	51 29.0	132 50.3	1557	55766	174	8	-9	-1	194
1900	51 29.8	132 49.8	1541	55743	144	8	-5	-6	187
1910	51 30.6	132 49.3	1526	55746	140	8	-14	-1	190
1920	51 31.4	132 48.8	1508	55764	151	8	-14	0	189
1930	51 32.3	132 48.3	1494	55777	157	8	-6	0	187
1940	51 33.1	132 47.8	1490	55789	162	8	-9	0	187
1950	51 33.9	132 47.3	1486	55809	175	8	-8	-2	184
2000	51 34.7	132 46.8	1482	55841	200	8	-9	-1	185
2010	51 35.5	132 46.3	1480	55872	224	8	-8	1	187
2020	51 36.4	132 45.8	1480	55894	239	8	-8	2	188
2030	51 37.2	132 45.3	1481	55910	248	8	*	1	187
2050	51 39.0	132 45.5	1490	55939	267	-15	*	-1	186
2100	51 39.8	132 46.4	1491	55910	236	-15	*	3	190
2110	51 40.6	132 47.4	1495	55898	223	-15	*	3	190
2120	51 41.5	132 48.3	1500	55922	245	-15	-26	6	194
2130	51 42.3	132 49.2	1498	55951	272	-15	*	5	193
2140	51 43.1	132 50.1	1503	55968	287	-15	*	1	189
2150	51 43.9	132 51.0	1504	55975	293	-15	-4	3	192
2200	51 44.8	132 51.9	1496	55985	301	-15	-5	2	190
2210	51 45.6	132 52.8	1493	55994	308	-15	-10	3	190
2220	51 46.4	132 53.7	1488	56000	312	-15	-3	6	193
2230	51 47.2	132 54.6	1485	56001	311	-15	-8	3	189
2240	51 48.1	132 55.5	1482	56009	318	-15	*	4	190
2250	51 48.9	132 56.4	1482	56026	333	-15	-3	7	193
2300	51 49.7	132 57.3	1482	56052	357	*	*	*	*
2310	51 50.5	132 58.2	1482	56065	368	-14	-3	7	193
2320	51 51.3	132 59.0	1476	56083	384	-14	*	6	191
2330	51 52.1	132 59.9	1478	56081	381	-14	*	7	192
2340	51 52.9	133 .8	1468	56064	362	-14	-12	7	191
2350	51 53.8	133 1.6	1460	56068	364	-14	-7	6	189

FLCSCN 69-050 DAY 207 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	51 54.6	133 2.5	*	56072	366	-15	-7	0	*
0010	51 55.4	133 3.4	1444	56129	422	-15	-5	7	188
0020	51 56.2	133 4.3	1448	56173	464	-15	-6	6	188
0030	51 57.0	133 5.2	1446	56189	478	*	*	*	*
0040	51 57.7	133 6.4	1456	56210	500	-20	*	7	190
0050	51 58.3	133 7.7	1457	56228	518	-20	*	7	190
0100	51 59.0	133 8.9	1453	56217	508	-20	*	7	189
0110	51 59.6	133 10.1	1450	56212	503	-20	*	9	191
0120	52 .3	133 11.4	1454	56207	499	-20	*	9	191
0130	52 .9	133 12.6	1456	56177	469	-20	*	6	189
0140	52 1.6	133 13.9	1457	56129	422	-21	*	-2	181
0150	52 2.2	133 15.1	1459	56057	351	-21	*	7	190
0200	52 2.8	133 16.4	1458	55916	211	-21	*	7	190
0210	52 3.4	133 17.7	1463	55809	104	-21	-0	2	185
0220	52 4.0	133 19.0	1468	55774	70	-21	-2	0	184
0230	52 4.6	133 20.2	1470	55737	34	-21	-1	1	185
0240	52 5.2	133 21.5	1472	55740	38	-21	-2	5	190
0250	52 5.8	133 22.8	1477	55776	75	-21	-4	2	187
0300	52 6.4	133 24.1	1481	55780	80	-21	-3	3	189
0310	52 7.1	133 25.3	1484	55728	29	-21	-3	1	187
0320	52 7.7	133 26.6	1484	55679	-19	-21	-4	2	186
0330	52 8.3	133 27.9	1484	55665	-32	-21	-4	1	187
0340	52 8.9	133 29.2	1480	55696	0	-21	-4	1	187
0350	52 9.5	133 30.4	1484	55800	105	-21	-4	4	190
0400	52 10.1	133 31.7	1485	55907	212	*	*	*	*
0410	52 10.7	133 32.9	1486	55865	171	-20	-1	4	190
0420	52 11.2	133 34.2	1486	55772	79	-20	-1	3	189
0430	52 11.8	133 35.4	1488	55680	-11	-20	*	1	188
0440	52 12.4	133 36.6	1492	55620	-70	-20	3	6	193
0450	52 12.9	133 37.8	1496	55587	-102	-20	-0	4	192
1015	52 8.6	133 24.0	1479	*	*	*	*	*	*
1100	52 11.2	133 33.5	1485	*	*	-35	-1	3	189
1110	52 11.8	133 35.6	1486	*	*	-35	2	4	190
1120	52 12.3	133 37.8	1488	*	*	-35	2	6	193
1130	52 12.9	133 39.9	1495	*	*	-35	2	4	191
1140	52 13.5	133 42.0	1496	*	*	-35	*	2	190
1150	52 14.2	133 43.1	1497	*	*	-17	*	1	189
1200	52 15.0	133 44.2	1499	*	*	-17	*	-3	185
1210	52 15.8	133 45.2	1500	55877	197	-17	-9	-4	184
1220	52 16.6	133 46.2	1506	55873	192	-17	-9	-5	184
1230	52 17.4	133 47.3	1516	55798	116	-17	-10	-7	183
1240	52 18.1	133 48.3	1516	55718	36	-17	-11	-5	185
1250	52 18.9	133 49.3	1513	55710	27	-17	-11	-5	185
1300	52 19.7	133 50.4	1512	55783	98	-17	-6	-9	181
1310	52 20.3	133 51.5	1514	55904	219	-19	*	-5	185
1320	52 20.5	133 52.6	1514	55990	308	-19	*	1	191
1330	52 19.9	133 53.8	1512	56023	349	-19	*	7	197
1340	52 19.2	133 54.9	1494	56050	384	-19	-6	15	202
1350	52 18.6	133 56.1	1324	56077	419	-19	7	22	186
1400	52 18.0	133 57.2	1168	56098	448	-19	*	35	181

FLDSCN 69-050 DAY 207 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1410	52 17.3	133 58.4	920	56150	508	-19	*	50	165
1420	52 16.7	133 59.5	660	56300	666	-19	73	70	152
1430	52 16.1	134 .7	508	56360	734	-19	87	90	153
1440	52 15.4	134 1.8	514	56516	898	-19	89	95	159
1450	52 14.8	134 3.0	631	56627	1017	-19	69	82	161
1500	52 14.2	134 4.2	942	56597	995	-19	63	68	186
1510	52 13.5	134 5.3	1121	56592	998	-19	49	53	193
1520	52 12.9	134 6.5	1318	56448	862	-19	31	36	201
1530	52 12.3	134 7.6	1570	56171	593	-19	20	21	218
1540	52 11.7	134 8.8	1382	55932	362	-19	13	17	190
1550	52 11.0	134 9.9	1584	55774	212	-19	9	7	206
1600	52 10.4	134 11.1	1584	55646	92	-19	*	8	207
1610	52 9.8	134 12.3	1583	55567	21	-19	*	7	205
1620	52 9.1	134 13.4	1585	55535	-2	-19	1	3	202
1630	52 8.5	134 14.6	1592	55584	55	-19	-0	-2	198
1640	52 7.9	134 15.7	1600	55692	171	-19	1	-2	199
1650	52 7.2	134 16.9	1611	55812	299	-19	1	2	204
1700	52 6.6	134 18.0	1620	55884	379	-19	2	7	210
1710	52 6.0	134 19.2	1626	55859	362	-19	-0	4	208
1720	52 5.3	134 20.3	1634	55774	285	-19	*	6	211
1730	52 4.7	134 21.5	1643	*	*	*	*	*	*
1740	52 4.1	134 22.7	1658	55726	253	-19	-4	-3	205
1750	52 3.5	134 23.8	1668	55807	343	-19	-3	-1	208
1800	52 2.8	134 25.0	1672	55875	419	-19	-2	0	210
1810	52 2.2	134 26.2	1682	55900	452	-19	-3	-1	210
1820	52 1.6	134 27.3	1696	55911	471	-19	-0	5	218
1830	52 .9	134 28.5	1706	55913	481	-19	-0	1	215
1840	52 .3	134 29.7	1708	55886	462	-19	*	5	219
1850	51 59.7	134 30.8	1714	55841	425	-19	*	1	216
1900	51 59.1	134 32.0	1720	55792	385	-19	-0	3	219
1910	51 58.5	134 33.2	1722	55749	350	-19	2	6	222
1920	51 57.8	134 34.3	1730	55711	320	-19	2	7	224
1930	51 57.2	134 35.5	1732	55641	258	*	*	*	*
1940	51 56.5	134 36.8	1738	55536	162	-22	-0	0	218
1950	51 55.8	134 38.1	1742	55426	61	-22	1	3	222
2000	51 55.1	134 39.4	1746	55355	0	-22	*	3	222
2010	51 54.4	134 40.7	1750	55343	-2	-22	-1	2	222
2020	51 53.7	134 42.0	1753	55390	53	-22	*	11	231
2030	51 53.0	134 43.3	1754	55467	139	-22	1	2	222
2040	51 52.4	134 44.7	1756	55505	186	-22	*	5	225
2050	51 51.7	134 46.0	1763	55475	165	-22	1	7	228
2100	51 51.0	134 47.3	1768	55402	101	-22	*	2	224
2110	51 50.3	134 48.6	1773	55357	66	-22	-0	3	225
2120	51 49.6	134 49.9	1790	55388	106	-22	1	2	227
2130	51 48.9	134 51.2	1804	55462	189	-22	-2	1	227
2140	51 48.2	134 52.5	1806	55519	255	-22	-1	0	227
2150	51 47.5	134 53.8	1802	55529	274	-22	-2	1	227
2200	51 46.8	134 55.1	1801	55509	263	-22	-0	1	227
2210	51 46.1	134 56.4	1802	55466	230	-22	-4	-6	220
2220	51 45.4	134 57.7	1806	55412	185	-22	-3	-3	224

FLDSON 69-050 DAY 207 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
2230	51 44.7	134 59.0	1814	54838	-379	-22	*	1	229
2240	51 44.0	135 .3	1824	*	*	-22	*	-1	228

FLDCSN 69-050 DAY 208 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0050	51 43.1	135 .0	1822	55290	86	20	*	4	233
0100	51 41.5	134 58.9	1830	55337	139	20	*	-2	228
0110	51 39.9	134 57.7	1828	55369	177	20	-4	-1	228
0120	51 38.0	134 56.4	1822	55419	234	23	*	-3	226
0130	51 36.1	134 55.1	1822	55493	316	23	*	-8	221
0140	51 34.2	134 53.8	1821	55535	365	23	-6	-3	225
0150	51 32.2	134 52.4	1820	55521	359	23	-6	-3	225
0200	51 30.3	134 51.1	1818	55485	331	24	-6	-4	224
0210	51 28.3	134 49.7	1813	55385	238	24	-6	-3	224
0220	51 26.4	134 48.4	1810	55273	134	24	-5	2	229
0230	51 24.4	134 47.1	1808	55270	138	24	-4	-2	225
0240	51 22.5	134 45.7	1810	55314	190	24	-4	-5	222
0250	51 20.5	134 44.4	1818	55284	168	24	-4	-2	226
0300	51 18.6	134 43.1	1830	55194	85	24	-5	-2	228
0310	51 16.6	134 41.7	1832	55133	32	24	-5	-1	229
0320	51 14.7	134 40.4	1835	55150	57	24	-8	-3	227
0330	51 12.7	134 39.0	1837	55235	149	24	-6	-7	223
0340	51 10.8	134 37.7	1836	55323	245	*	*	*	*
0350	51 10.8	134 34.2	1820	55431	340	61	*	-2	226
0400	51 10.8	134 30.8	1813	55470	366	61	*	-2	225
0410	51 10.8	134 27.3	1808	55319	202	61	-6	-2	225
0420	51 10.8	134 23.8	1793	55238	108	61	-4	-2	223
0430	51 10.8	134 20.4	1778	55482	339	61	-5	-3	220
0440	51 10.8	134 16.9	1766	55431	275	61	-3	-3	219
0450	51 10.8	134 13.5	1731	55182	14	61	4	1	218
0500	51 10.8	134 10.0	1562	55200	19	61	7	13	209
0510	51 10.8	134 6.5	1680	55419	225	61	*	7	218
0520	51 10.8	134 3.1	1733	55478	271	61	-1	4	221
0530	51 10.8	133 59.6	1728	55382	162	*	*	*	*
0540	51 10.8	133 56.5	1726	55495	263	55	-4	-6	211
0550	51 10.9	133 53.3	1617	55355	111	55	-0	2	205
0600	51 10.9	133 50.2	1681	55552	296	55	-4	2	213
0610	51 10.9	133 47.1	1706	55222	-45	55	-7	-2	212
0620	51 11.0	133 44.0	1684	55212	-66	55	-9	-6	205
0630	51 11.0	133 40.8	1666	55436	145	55	-8	-7	202
0640	51 11.0	133 37.7	1659	55769	466	55	-9	-3	205
0650	51 11.1	133 34.6	1654	55413	98	55	-6	-2	205
1030	51 10.0	133 33.0	1648	*	*	*	*	*	*
1050	51 8.8	133 30.2	1554	55580	263	24	*	9	204
1100	51 8.3	133 28.8	1632	55645	327	24	1	5	210
1110	51 7.7	133 27.4	1628	55676	356	24	-0	1	205
1120	51 7.1	133 26.1	1624	55707	386	24	-2	6	210
1130	51 6.5	133 24.7	1623	55698	376	24	-2	5	209
1140	51 5.9	133 23.3	1618	55698	374	24	-2	4	207
1150	51 5.3	133 21.9	1619	55733	408	24	-5	4	207
1200	51 4.8	133 20.5	1615	55786	459	24	-3	3	206
1210	51 4.2	133 19.1	1618	55830	502	24	-3	0	203
1220	51 3.6	133 17.7	1609	55855	526	24	-3	2	204
1230	51 3.0	133 16.4	1608	55862	531	24	-2	7	209
1240	51 2.4	133 15.0	1609	55847	515	24	-0	8	210



FLDSCN 69-050 DAY 208 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1250	51 1.8	133 13.6	1610	55815	481	24	-1	0	202
1300	51 1.2	133 12.2	1616	55783	448	24	-1	1	204
1310	51 .7	133 10.8	1619	55760	424	24	-0	5	208
1320	51 .1	133 9.4	1626	55734	396	24	-2	6	210
1330	50 59.5	133 8.0	1635	55731	392	24	-2	5	210
1340	50 58.9	133 6.6	1643	55741	400	24	-2	3	209
1350	50 58.3	133 5.2	1645	55722	380	24	-3	3	209
1400	50 57.8	133 3.9	1645	55689	346	24	-3	2	208
1410	50 57.2	133 2.5	1645	55665	320	24	*	-1	205
1420	50 56.6	133 1.1	1641	55664	318	24	-4	6	212
1430	50 56.0	132 59.7	1643	55673	325	24	-3	5	211
1440	50 55.4	132 58.3	1637	55664	315	24	-3	4	209
1450	50 54.9	132 57.0	1632	55650	299	24	-2	1	206
1500	50 54.3	132 55.6	1630	55627	275	24	-1	2	206
1510	50 53.7	132 54.2	1626	55592	239	24	-1	3	207
1520	50 53.1	132 52.9	1622	55548	193	24	-1	3	206
1530	50 52.6	132 51.5	1616	55577	221	24	-2	6	209
1540	50 52.0	132 50.1	1610	55644	286	24	-1	5	207
1550	50 51.4	132 48.8	1607	55603	244	24	-2	6	208
1600	50 50.8	132 47.4	1600	55454	94	24	*	7	208
1610	50 50.3	132 46.0	1593	55368	6	24	*	5	205
1620	50 49.7	132 44.7	1591	55413	50	24	*	7	207
1630	50 49.1	132 43.3	1585	55372	7	24	*	8	207
1640	50 48.6	132 41.9	1577	55190	-175	*	-0	*	*
1650	50 48.0	132 40.6	157	55034	-332	24	-0	3	200
1700	50 47.4	132 39.2	1566	55013	-355	24	-1	2	198
1710	50 46.8	132 37.8	1554	55096	-273	24	-1	0	195
1720	50 46.3	132 36.5	1544	55239	-132	24	-4	3	197
1730	50 45.7	132 35.1	1533	55385	12	24	*	2	194
1740	50 45.1	132 33.7	1524	55523	149	24	-5	2	193
1750	50 44.5	132 32.4	1552	55687	311	24	-4	0	195
1800	50 44.0	132 31.0	1555	55816	439	24	-3	-1	194
1810	50 43.4	132 29.6	1560	55756	377	24	-6	0	196
1820	50 42.8	132 28.3	1614	55613	233	24	-5	2	204
1830	50 42.3	132 26.9	1652	55600	219	24	-6	0	207
1840	50 41.7	132 25.5	1654	55717	334	24	-6	0	207
1850	50 41.1	132 24.2	1586	55888	504	24	-3	-3	196
1900	50 40.5	132 22.8	1549	55918	532	24	-3	-3	191
1910	50 40.0	132 21.4	1560	55738	351	24	-3	-1	195
1920	50 39.4	132 20.1	1568	55507	119	24	-4	1	198
1930	50 38.8	132 18.7	1578	55345	-44	24	-6	-3	195
1940	50 38.2	132 17.3	1584	55206	-184	24	*	-5	194
1950	50 37.7	132 16.0	1588	55117	-275	24	-14	-3	196
2000	50 37.1	132 14.6	1590	55156	-237	24	-9	-4	195
2010	50 36.5	132 13.2	1588	55317	-77	24	-9	-4	195
2020	50 35.9	132 11.9	1592	55602	206	24	-9	-6	194
2030	50 35.3	132 10.5	1589	55855	457	24	-8	-6	193
2040	50 34.7	132 9.1	1589	55955	556	24	-7	-5	194
2050	50 34.1	132 7.8	1590	55932	532	24	-6	-3	196
2100	50 33.5	132 6.4	1590	55838	437	24	-8	-1	198

HLCSON 69-050 DAY 208 1970

TIME	LATITUDE	LONGITUDE	BATHY	I.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
2110	50 32.9	132 5.1	1590	55760	358	24	-7	0	199
2120	50 32.3	132 3.7	1587	55749	345	24	-8	-5	194
2130	50 31.7	132 2.3	1588	55662	257	24	-7	-2	197
2140	50 31.1	132 1.0	1586	55452	46	*	*	*	*
2150	50 30.5	131 59.6	1583	55305	-101	*	*	*	*
2200	50 29.9	131 58.2	1580	55338	-69	25	-6	-1	197
2210	50 29.3	131 56.9	1576	55517	107	25	-6	0	198
2220	50 28.7	131 55.5	1572	55682	271	25	-6	-1	196
2230	50 28.1	131 54.1	1569	55770	358	25	-7	-3	194
2240	50 27.5	131 52.8	1567	55677	264	25	-6	2	199
2250	50 26.9	131 51.4	1566	55374	-39	25	-5	-2	194
2300	50 26.3	131 50.0	1566	55129	-286	25	-6	-3	193
2310	50 25.7	131 48.7	1564	55056	-360	25	-8	-5	191
2320	50 25.1	131 47.3	1563	55164	-253	25	-7	-4	192
2330	50 24.5	131 46.0	1562	55419	1	25	-6	-4	192
2340	50 23.9	131 44.6	1558	55703	282	25	-5	-1	194
2350	50 23.3	131 43.2	1566	55777	355	25	-4	-2	194

FLDCSN 69-050 DAY 209 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	50 22.7	131 41.8	1587	55703	280	24	-2	5	204
0010	50 22.1	131 40.5	1646	55713	289	24	-5	8	214
0020	50 21.5	131 39.1	1634	55577	152	24	-4	-1	204
0030	50 20.9	131 37.8	1498	55288	-138	24	2	4	192
0040	50 20.3	131 36.4	1260	55023	-404	24	10	11	169
0050	50 19.7	131 35.1	1100	54879	-549	24	16	18	156
0100	50 19.1	131 33.7	1056	54708	-721	*	*	*	*
0110	50 18.6	131 32.5	1340	55027	-404	22	9	12	180
0120	50 18.2	131 31.3	1360	55335	-97	22	6	11	182
0800	50 20.6	131 26.0	1486	*	*	*	*	*	*
0830	50 22.4	131 22.2	1534	55323	-171	23	-7	-10	182
0840	50 23.1	131 21.0	1537	55376	-126	23	-6	-8	185
0850	50 23.7	131 19.8	1528	55486	-25	23	-9	-11	181
0900	50 24.3	131 18.5	1535	55640	119	23	-11	-12	181
0910	50 24.9	131 17.2	1562	55769	240	23	-12	-16	180
0920	50 25.5	131 16.0	1563	55829	291	22	-16	-18	178
0930	50 26.1	131 14.7	1562	55857	310	22	-16	-15	181
0940	50 26.7	131 13.5	1564	55848	293	22	-19	-13	183
0950	50 27.3	131 12.2	1564	55778	214	22	-26	-13	183
1000	50 28.0	131 11.0	1564	55679	106	22	-22	-13	183
1010	50 28.6	131 9.7	1565	55618	37	22	-16	-11	185
1020	50 29.2	131 8.5	1566	55587	-3	22	-18	-22	174
1030	50 29.8	131 7.2	1565	55548	-49	22	-12	-13	183
1040	50 30.4	131 6.0	1220	55405	-201	22	-4	-6	147
1050	50 31.0	131 4.7	968	55168	-447	22	6	10	131
1100	50 31.6	131 3.5	878	55350	-273	22	14	14	124
1110	50 32.3	131 2.2	960	55574	-58	22	4	15	135
1120	50 32.9	131 1.0	1360	55794	153	22	-9	-3	168
1130	50 33.5	130 59.7	1434	55833	183	22	-15	-14	166
1140	50 34.1	130 58.5	1434	55850	191	22	-22	-11	169
1150	50 34.7	130 57.2	1436	55902	235	22	-21	-21	159
1200	50 35.3	130 56.0	1437	55938	262	22	-21	-17	163
1210	50 35.9	130 54.7	1438	55924	240	22	-24	-21	159
1220	50 36.5	130 53.5	1436	55864	171	22	-21	-17	163
1230	50 37.2	130 52.2	1424	55763	62	22	-6	-11	168
1240	50 37.8	130 51.0	1297	55671	-38	22	*	1	164
1250	50 38.4	130 49.7	1132	55651	-66	22	6	7	149
1300	50 39.0	130 48.5	928	55657	-69	*	*	*	*
1310	50 39.6	130 47.2	983	55605	-130	23	17	17	140
1320	50 40.3	130 45.9	982	55655	-89	23	10	16	139
1330	50 40.9	130 44.7	1132	55990	237	23	1	8	150
1340	50 41.6	130 43.4	1299	56172	410	23	-11	-1	162
1350	50 42.2	130 42.1	1304	56212	441	23	-20	-16	147
1400	50 42.9	130 40.8	1306	56190	410	23	-27	-21	143
1410	50 43.5	130 39.6	1302	56184	395	23	-25	-29	134
1420	50 44.2	130 38.3	1300	56189	391	23	-31	-23	140
1430	50 44.8	130 37.0	1308	56255	449	23	-30	-24	140
1440	50 45.5	130 35.7	1305	56473	658	23	-27	-20	144
1450	50 46.1	130 34.4	1308	56685	861	23	-24	-29	135
1500	50 46.8	130 33.2	1306	56599	766	23	-24	-20	144

HUDSON 69-050 DAY 209 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1510	50 47.4	130 31.9	1314	56471	629	23	-18	-20	145
1520	50 48.1	130 30.6	1322	56368	518	23	-18	-16	150
1530	50 48.7	130 29.3	1322	56286	427	23	-15	-11	155
1540	50 49.4	130 28.1	1252	56197	329	23	-13	-14	143
1550	50 50.0	130 26.8	1220	56186	309	23	-11	-11	142
1600	50 50.7	130 25.5	1076	56328	443	23	-9	-5	130
1610	50 51.3	130 24.2	1032	56521	627	23	-10	-7	122
1620	50 52.0	130 22.9	1134	56446	543	23	-12	-7	135
1630	50 52.6	130 21.7	1168	56181	269	23	-18	0	146
1640	50 53.3	130 20.4	1163	56045	125	*	-21	*	*
1650	50 53.9	130 19.1	1162	56155	226	23	-23	-23	123
1700	50 54.6	130 17.8	1188	56290	352	23	-26	-23	126
1710	50 55.2	130 16.6	1226	56349	403	23	-33	-24	130
1720	50 55.9	130 15.3	1174	*	*	23	-34	-26	121
1730	50 56.5	130 14.0	1140	56340	376	*	*	*	*
1740	50 57.1	130 12.7	1136	56253	281	22	-44	-41	101
1750	50 57.7	130 11.5	1148	56126	145	22	-48	-46	96
1800	50 58.4	130 10.2	1170	56049	60	*	*	*	*
1810	50 59.0	130 9.0	1186	56020	23	22	-63	-57	92
1820	50 59.6	130 7.7	1145	56012	7	22	-66	-66	77
1830	51 .2	130 6.5	1122	56014	1	22	-70	-69	72
1840	51 .8	130 5.2	1126	56018	-4	22	-74	-72	69
1850	51 1.5	130 4.0	1088	56033	3	22	-73	-73	63
1900	51 2.1	130 2.7	1056	56059	21	22	-69	-67	65
1910	51 2.7	130 1.5	878	56095	47	22	-63	-60	50
1920	51 3.3	130 .2	906	56118	62	22	-61	-63	50
1930	51 3.9	129 59.0	915	56140	76	22	-64	-61	54
1940	51 4.6	129 57.7	926	56165	92	22	-66	-60	56
1950	51 5.2	129 56.5	936	56183	102	22	-66	-60	57
2000	51 5.8	129 55.2	904	56184	95	22	-64	-59	54
2010	51 6.4	129 54.0	818	56186	88	22	-59	-58	44
2020	51 7.0	129 52.7	688	56198	92	22	-56	-55	31
2030	51 7.7	129 51.5	486	56231	117	22	-47	-36	25
2040	51 8.3	129 50.2	445	56271	148	22	-37	-39	16
2050	51 8.9	129 49.0	396	56330	199	22	-31	-31	18
2100	51 9.5	129 47.7	302	56406	267	22	-23	-24	13
2110	51 10.1	129 46.5	253	56455	308	22	-13	-17	14
2120	51 10.7	129 45.2	194	56518	362	22	-9	-6	18
2130	51 11.4	129 44.0	226	56529	365	22	-2	4	32
2140	51 12.0	129 42.7	152	56586	414	22	2	7	26
2150	51 12.6	129 41.5	192	56534	353	22	2	11	35
2200	51 13.2	129 40.2	156	56539	350	22	1	13	32
2210	51 13.8	129 39.0	154	56546	349	22	*	11	30
2220	51 14.5	129 37.7	148	56587	382	22	*	7	25
2230	51 15.1	129 36.5	148	56606	392	22	5	3	21
2240	51 15.7	129 35.2	148	56613	391	22	*	6	24
2250	51 16.3	129 34.0	144	56630	400	22	*	1	19
2300	51 16.9	129 32.7	142	56658	420	22	-0	-2	15
2310	51 17.6	129 31.5	140	56679	433	22	-2	2	19
2320	51 18.2	129 30.2	135	56676	421	22	-4	-1	19

FLDSCN 69-050 DAY 209 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
2330	51 18.8	129 29.0	130	56650	387	*	*	*	*
2340	51 19.4	129 27.9	126	56634	364	19	*	7	22
2350	51 20.0	129 26.8	122	56631	353	*	*	*	*

HUDSON 69-050 DAY 210 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	51 18.3	129 25.6	136	56579	307	21	*	10	27
0010	51 16.5	129 24.4	150	56540	274	21	-0	5	23
0020	51 14.7	129 23.2	158	56485	225	21	*	4	23
0030	51 13.0	129 22.0	158	56507	254	*	*	*	*
0040	51 11.1	129 21.2	158	56574	329	15	-7	0	19
0050	51 9.1	129 20.4	146	56629	393	15	-3	-1	17
0100	51 7.2	129 19.5	122	56597	370	15	2	6	21
0110	51 5.3	129 18.7	114	56536	317	15	*	4	18
0120	51 3.3	129 17.9	99	56478	268	15	4	7	19
0130	51 1.4	129 17.1	94	56399	198	*	*	*	*
0140	50 59.4	129 16.4	88	56377	186	13	*	24	35
0150	50 57.3	129 15.7	79	56376	194	13	*	46	55
0200	50 55.3	129 14.9	61	56250	78	13	52	55	62
0210	50 53.3	129 14.2	54	56261	99	13	56	51	57
0220	50 51.2	129 13.5	52	56286	134	13	56	57	63
0230	50 49.2	129 12.8	58	56269	127	13	46	55	62
0240	50 47.1	129 12.1	73	56220	88	13	38	41	50
0250	50 45.1	129 11.4	81	56196	74	13	42	44	54
0300	50 43.1	129 10.6	230	56431	319	13	14	22	50
0310	50 41.0	129 9.9	526	56600	497	13	-38	-25	41
0320	50 39.0	129 9.2	644	56455	362	*	*	*	*
0330	50 38.0	129 8.1	950	56346	248	57	*	-103	16
0340	50 37.0	129 7.0	996	56302	199	57	*	-100	25
0350	50 36.0	128 59.8	872	56260	152	57	*	-98	11
0400	50 35.0	128 56.7	972	56261	148	*	*	*	*
0410	50 34.4	128 53.4	862	56275	154	60	-90	-90	18
0420	50 33.7	128 50.2	760	56272	143	60	-89	-85	10
0430	50 33.1	128 46.9	722	56275	138	60	-79	-79	11
0440	50 32.4	128 43.6	604	56276	131	60	-79	-70	5
0450	50 31.8	128 40.3	568	56288	135	60	-78	-74	-3
0500	50 31.1	128 37.1	494	56272	111	60	-64	-67	-5
0510	50 30.5	128 33.8	168	56228	59	60	-44	-44	-23
0520	50 29.8	128 30.5	106	56235	58	60	-34	-24	-11
0530	50 29.2	128 27.2	104	56221	36	60	*	-18	-5
0540	50 28.5	128 24.0	102	56255	62	60	*	-10	2
0550	50 27.9	128 20.7	97	*	*	*	*	*	*
0630	50 26.2	128 19.4	98	56230	36	-20	*	5	17
0640	50 25.5	128 20.5	102	56313	126	-20	*	6	18
0650	50 24.8	128 21.7	105	56281	103	-20	-6	-3	10
0700	50 24.1	128 22.8	110	56237	68	-20	*	-13	0
0710	50 23.4	128 23.9	115	56275	114	-20	*	-17	-3
0720	50 22.7	128 25.1	119	56319	166	-20	*	-19	-5
0730	50 22.0	128 26.2	152	56332	188	-20	-35	-31	-12
0740	50 21.4	128 27.3	270	56239	104	-20	-54	-52	-19
0750	50 20.7	128 28.5	449	56250	123	-20	-70	-67	-11
0800	50 20.0	128 29.6	598	56253	135	-20	-84	-79	-4
0810	50 19.3	128 30.7	648	56336	226	-20	*	-88	-7
0820	50 18.6	128 31.9	776	56363	261	-20	*	-99	-2
0830	50 17.9	128 33.0	812	56262	168	-20	-118	-103	-1
0840	50 17.2	128 34.1	812	56188	104	-20	-113	-103	-1

FLCSCN 69-050 DAY 210 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVOS	F.A.	VSA	E.A.
0850	50 16.5	128 35.3	846	56323	246	-20	-102	-100	6
0900	50 15.8	128 36.4	671	56271	203	-20	-99	-95	-11
0910	50 15.1	128 37.5	528	56239	179	-20	-89	-88	-22
0920	50 14.4	128 38.7	487	56215	165	-20	-87	-86	-25
0930	50 13.7	128 39.8	654	56219	176	-20	-90	-86	-4
0940	50 13.0	128 40.9	815	56234	200	-20	-102	-96	6
0950	50 12.3	128 42.1	948	56089	65	-20	-108	-104	15
1000	50 11.7	128 43.2	998	56121	105	-20	-109	-108	17
1010	50 11.0	128 44.3	1026	56202	195	-20	-108	-109	19
1020	50 10.3	128 45.5	1018	56186	187	-20	-107	-103	24
1030	50 9.6	128 46.6	1030	56224	234	-20	*	-129	0
1040	50 8.9	128 47.7	1043	56238	255	-20	*	-89	42
1050	50 8.2	128 48.9	983	56194	220	-20	*	-80	43
1100	50 7.5	128 50.0	866	56192	227	*	*	*	*
1110	50 6.8	128 51.1	876	56209	252	-19	-62	-58	52
1120	50 6.1	128 52.2	971	56212	264	-19	-60	-55	67
1130	50 5.4	128 53.2	982	56217	277	-19	-56	-58	65
1140	50 4.7	128 54.3	1092	56179	248	-19	-54	-53	84
1150	50 4.0	128 55.4	1045	56151	228	-19	-51	-47	84
1200	50 3.3	128 56.5	1124	56147	233	-19	-50	-44	97
1210	50 2.6	128 57.6	1142	56145	239	-19	-46	-41	102
1220	50 1.9	128 58.7	1219	56167	270	-19	-41	-40	113
1230	50 1.2	128 59.8	1107	56205	316	-19	-34	-34	105
1240	50 .4	129 .8	1030	56231	351	-19	*	-33	96
1250	49 59.7	129 1.9	944	56241	369	*	*	*	*
1300	49 59.0	129 3.0	1040	56211	348	-20	*	-14	116
1310	49 58.3	129 4.1	1142	56180	325	-20	-15	-15	128
1320	49 57.6	129 5.2	1192	56131	285	-20	-10	-11	138
1330	49 56.9	129 6.3	1232	56093	256	-20	-7	-5	149
1340	49 56.2	129 7.3	1172	56056	227	-20	4	12	159
1350	49 55.5	129 8.4	1024	56059	239	-20	18	20	148
1400	49 54.8	129 9.5	878	56067	255	-20	33	32	142
1410	49 54.1	129 10.6	878	56083	280	-20	*	42	152
1420	49 53.4	129 11.7	860	55794	0	-20	*	44	152
1430	49 52.7	129 12.7	1003	55657	-128	-20	42	43	169
1440	49 52.0	129 13.8	1080	55648	-128	-20	38	39	174
1450	49 51.3	129 14.9	1157	55641	-127	-20	34	39	184
1500	49 50.6	129 16.0	1192	55648	-111	-20	31	34	183
1510	49 49.9	129 17.1	1200	55647	-103	-20	28	34	184
1520	49 49.2	129 18.2	1220	55598	-144	-20	26	32	185
1530	49 48.5	129 19.2	1228	55562	-171	-20	23	23	177
1540	49 47.7	129 20.3	1248	55569	-155	-20	21	17	173
1550	49 47.0	129 21.4	1249	55585	-131	-20	19	17	174
1600	49 46.3	129 22.5	1244	55598	-109	-20	18	18	174
1610	49 45.6	129 23.6	1248	55605	-93	-20	16	17	173
1620	49 44.9	129 24.7	1252	55583	-107	-20	14	16	173
1630	49 44.2	129 25.8	1262	55531	-150	-20	13	20	178
1640	49 43.5	129 26.8	1263	*	*	-20	*	7	165
1650	49 42.8	129 27.9	1266	55462	-202	-20	11	13	172
1700	49 42.1	129 29.0	1272	55433	-222	-20	*	8	167

FLDCSN 69-050 DAY 210 1970

TIME LATITUDE LONGITUDE BATHY T.F. M.A. ECTVCS F.A. VSA E.A.



FLDCSN 69-050 DAY 212 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0405	50 20.7	130 7.0	1366	*	*	*	*	*	*
0420	50 22.0	130 8.9	1332	55900	134	-33	*	-6	161
0430	50 23.5	130 10.8	1340	55996	228	-33	*	4	172
0440	50 24.9	130 12.7	1358	56009	239	-33	*	-3	167
0450	50 26.4	130 14.5	1376	55964	191	-33	-15	-1	172
0500	50 27.8	130 16.4	1391	55942	167	-33	-16	-13	161
0510	50 29.3	130 18.3	1385	55984	207	-33	-19	-14	160
0520	50 30.7	130 20.1	1384	55986	206	-33	-20	-20	154
0530	50 32.2	130 22.0	1354	56033	251	*	*	*	*
0540	50 33.8	130 24.0	1266	56086	301	-36	-16	-13	146
0550	50 35.4	130 26.0	1100	55997	210	-36	-16	-12	126
0600	50 37.0	130 28.1	1060	55926	136	-36	-16	-10	123
0610	50 38.6	130 30.1	1270	56043	250	-35	-22	-14	145
0620	50 40.2	130 32.1	1310	56185	390	-35	-26	-19	145
0630	50 41.8	130 34.1	1310	56202	404	-35	-30	-24	140
0640	50 43.5	130 36.2	1310	56227	426	-35	-27	-27	137
0650	50 45.1	130 38.2	1304	56264	461	-35	-25	-26	137
0700	50 46.7	130 40.2	1295	56314	508	-35	-23	-21	141
0710	50 48.3	130 42.2	1263	56603	794	-35	-12	-9	149
0720	50 49.9	130 44.2	1237	56951	1140	-35	*	1	156
0730	50 51.5	130 46.3	1188	56728	914	-35	*	-5	144
0740	50 53.1	130 48.3	1309	56283	466	-35	*	-9	155
0750	50 54.7	130 50.3	1352	55988	169	-35	-27	-21	148
0800	50 56.3	130 52.3	1349	55949	127	-35	-30	-30	139
0810	50 57.9	130 54.4	1412	55991	167	-35	-33	-34	143
0820	50 59.5	130 56.4	1423	56121	294	-35	-33	-30	148
0830	51 1.1	130 58.4	1312	56121	291	-35	-29	-27	137
0840	51 2.7	131 .4	1324	56020	188	-35	-28	-27	139
0850	51 4.3	131 2.4	1338	55997	162	-35	-28	-27	141
0900	51 6.0	131 4.5	1354	56023	186	-35	-29	-27	143
0910	51 7.6	131 6.5	1330	56054	214	-35	-29	-28	139
0920	51 9.2	131 8.5	1382	55977	135	-35	-29	-31	142
0930	51 10.8	131 10.5	1354	55955	110	-35	-29	-21	149
0940	51 12.4	131 12.6	1340	56006	159	-35	-28	-19	149
0950	51 14.0	131 14.6	1376	56052	202	-35	*	-28	145
1000	51 15.6	131 16.6	1428	55963	110	*	*	*	*
1010	51 17.3	131 18.7	1436	56012	157	-36	-31	-35	145
1020	51 18.9	131 20.8	1442	56090	232	-36	-31	-37	144
1030	51 20.6	131 22.9	1430	56113	253	-36	-29	-33	146
1040	51 22.3	131 25.1	1354	56104	241	-36	-27	-25	145
1050	51 24.0	131 27.2	1284	56102	237	-36	-21	-19	142
1100	51 25.6	131 29.3	1232	56079	211	-36	-19	-20	134
1110	51 27.3	131 31.4	1271	56062	192	-36	-19	-22	137
1120	51 29.0	131 33.5	1293	56026	153	-36	-20	-19	143
1130	51 30.6	131 35.6	1287	56056	181	-36	-19	-13	148
1140	51 32.3	131 37.7	1294	56102	224	-36	-16	-15	147
1150	51 34.0	131 39.9	1289	55995	115	-36	-16	-15	147
1200	51 35.7	131 42.0	1289	55936	53	-36	-17	-19	143
1210	51 37.3	131 44.1	1272	55995	110	*	*	*	*
1220	51 39.0	131 46.2	1239	56042	154	-35	-15	-11	144

FUDSCN 69-050 DAY 212 1970

TIME	LATITUDE		LONGITUDE		BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1230	51	40.7	131	48.3	1232	56055	165	-35	-16	-5	149
1240	51	42.3	131	50.4	1243	56082	189	-35	-17	-15	141
1250	51	44.0	131	52.5	1253	56057	162	-35	-19	-17	140
1300	51	45.7	131	54.7	1264	56110	212	-35	-21	-16	142
1310	51	47.4	131	56.8	1284	56147	247	-35	-22	-18	143
1320	51	47.7	131	54.5	1276	56139	228	57	*	-20	140
1330	51	47.7	131	51.2	1247	56062	139	57	*	-24	132
1340	51	47.8	131	47.9	1212	56021	86	57	-24	-30	122
1350	51	47.8	131	44.6	1159	56050	103	57	-17	-20	125
1400	51	47.8	131	41.3	1096	56103	144	57	-12	-14	123
1410	51	47.8	131	37.9	1048	56153	182	57	-10	-6	129
1420	51	47.8	131	34.6	1028	56115	132	57	-10	-1	128
1430	51	47.9	131	31.3	1026	56066	70	57	-13	-7	121
1440	51	47.9	131	28.0	1063	56071	63	57	-20	-22	111
1450	51	47.9	131	24.7	1082	56092	72	57	-28	-30	106
1500	51	47.9	131	21.3	1068	56110	78	57	*	-28	106
1510	51	48.0	131	18.0	1040	56124	80	57	*	-40	90
1520	51	48.0	131	14.7	1034	56145	89	57	*	-48	81
1530	51	48.0	131	11.4	1066	56151	83	57	-66	-63	71
1540	51	48.0	131	8.1	1122	56142	62	57	-71	-72	69
1550	51	48.0	131	4.7	1081	56143	51	57	-70	-76	59
1600	51	48.1	131	1.4	944	56160	56	57	-44	-49	69
1610	51	48.1	130	58.1	622	56203	86	57	-3	-8	70
1620	51	48.1	130	54.8	158	56212	83	57	52	46	69
1630	51	48.1	130	51.5	126	56192	51	57	*	68	83
1640	51	48.2	130	48.1	128	56365	212	57	*	59	75
1650	51	48.2	130	44.8	143	56240	75	57	*	51	68
1700	51	48.2	130	41.5	170	56364	187	*	*	*	*
1710	51	48.4	130	38.0	221	56468	278	61	13	13	40
1720	51	48.5	130	34.5	194	56546	342	61	11	11	35
1730	51	48.7	130	30.9	145	56729	512	61	8	10	28
1740	51	48.8	130	27.4	152	56634	403	61	2	9	28
1750	51	49.0	130	23.9	134	56681	436	61	2	8	24
1800	51	49.1	130	20.4	121	56512	254	61	-0	2	17
1810	51	49.3	130	16.8	110	56485	213	61	-13	-10	3
1820	51	49.5	130	13.3	111	56577	292	61	-12	-9	4
1830	51	49.6	130	9.8	110	56560	261	61	-5	-2	11
1840	51	49.8	130	6.3	104	56411	99	61	-11	-5	8
1850	51	49.9	130	2.8	100	56460	134	61	-20	-15	-3
1900	51	48.9	130	.9	99	56460	134	*	*	*	*
1910	51	46.7	130	.6	112	56443	128	5	*	-16	-2
1920	51	44.5	130	.3	170	56392	89	5	*	-13	8
1930	51	42.3	130	.0	189	56392	101	5	-18	-15	8
1940	51	40.1	129	59.8	196	56448	169	5	-13	-9	15
1950	51	38.7	130	.9	194	56478	212	*	*	*	*
2000	51	38.4	130	4.0	190	56470	217	*	*	*	*
2010	51	38.4	130	7.4	175	56467	226	-58	*	-12	10
2020	51	38.3	130	10.8	288	56525	296	-58	-14	-13	23
2030	51	38.3	130	14.2	273	56630	414	-58	-16	-9	25
2040	51	38.3	130	17.6	180	56522	318	-58	-10	-7	15

FLCSCN 69-050 DAY 212 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
2050	51 38.3	130 21.0	220	56430	239	-58	-20	-14	13
2100	51 38.2	130 24.4	200	56386	207	-58	-5	-1	24
2110	51 38.2	130 27.8	343	56301	134	-58	-10	-4	39
2120	51 38.2	130 31.2	622	56268	114	-58	-14	-12	66
2130	51 38.2	130 34.7	664	56233	91	-58	-19	-5	78
2140	51 38.1	130 38.1	538	56359	230	-58	-10	7	74
2150	51 38.1	130 41.5	276	56790	673	-58	*	25	59
2200	51 38.1	130 44.9	520	56612	508	-58	*	30	95
2210	51 38.0	130 48.3	548	56266	174	-58	*	7	75
2220	51 38.0	130 51.7	712	56160	80	-58	-18	-11	78
2230	51 38.0	130 55.1	1044	56129	62	-58	-42	-30	101
2240	51 38.0	130 58.5	1146	56131	76	-58	*	-42	102
2250	51 37.9	131 1.9	1142	56180	138	-58	-45	-46	97
2300	51 37.9	131 5.3	1188	56184	154	-58	-43	-40	109
2310	51 37.9	131 8.7	1216	56171	154	-58	-39	-36	116
2320	51 37.9	131 12.1	1130	56112	107	-58	-27	-28	114
2330	51 38.0	131 15.5	1104	56084	91	-58	-19	-18	120
2340	51 38.0	131 18.9	1074	56042	61	-58	-11	-15	120
2350	51 38.0	131 22.3	1026	56088	120	-58	-4	-3	125

FLDSCN 69-050 DAY 213 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVOS	F.A.	VSA	E.A.
0000	51 38.0	131 25.8	1066	56271	315	-58	-0	3	137
0010	51 38.0	131 29.2	1089	56508	564	-58	*	7	143
0020	51 38.0	131 32.6	1142	56453	522	-58	-4	5	148
0030	51 38.1	131 36.1	1192	56055	136	-58	-11	11	160
0040	51 38.1	131 39.5	1218	56005	98	-58	-16	-9	144
0050	51 38.1	131 42.9	1240	56002	108	-58	-16	-12	143
0100	51 38.1	131 46.3	1252	56044	162	-58	-14	-11	146
0110	51 38.1	131 49.7	1248	56067	197	-58	-14	-8	148
0120	51 38.2	131 53.2	1274	56069	211	-58	-11	-7	153
0130	51 38.2	131 56.6	1284	56119	274	-58	-9	-6	155
0140	51 38.2	132 0	1304	56140	307	*	*	*	*
0150	51 36.0	131 59.9	1313	56129	309	3	*	0	165
0200	51 33.7	131 59.7	1337	56133	326	3	*	-1	167
0210	51 31.5	131 59.6	1364	56208	415	3	-3	-1	170
0220	51 29.3	131 59.4	1384	56305	525	3	-6	-2	172
0230	51 27.0	131 59.3	1402	56258	491	3	*	-2	174
0240	51 24.8	131 59.2	1408	56235	481	3	*	0	176
0250	51 22.6	131 59.0	1412	56240	500	3	-4	-1	176
0300	51 20.4	131 58.9	1440	56215	488	3	-4	-4	177
0310	51 18.1	131 58.8	1449	56163	449	3	-2	0	182
0320	51 15.9	131 58.6	1450	56115	415	3	-2	-1	181
0330	51 13.7	131 58.5	1439	56055	368	3	-2	1	181
0340	51 11.4	131 58.3	1421	55960	287	3	-0	4	182
0350	51 9.2	131 58.2	1413	55876	216	*	*	*	*
0400	51 9.2	131 54.8	1406	55811	139	60	*	1	177
0410	51 9.3	131 51.4	1390	55687	2	60	*	0	174
0420	51 9.3	131 48.0	1372	55822	124	60	*	-3	169
0430	51 9.3	131 44.6	1340	55945	234	*	*	*	*
0440	51 9.3	131 41.1	1448	55701	-21	62	-6	-4	178
0450	51 9.3	131 37.7	1491	55623	-112	62	-10	-6	181
0500	51 9.3	131 34.2	1512	55869	120	62	-12	-12	178
0510	51 9.3	131 30.7	1490	56126	364	62	-13	-12	175
0520	51 9.4	131 27.3	1446	55949	174	62	-14	-12	169
0530	51 9.4	131 23.8	1388	55833	46	62	-15	-15	159
0540	51 9.4	131 20.3	1354	56103	303	62	-17	-13	157
0550	51 9.4	131 16.9	1333	56030	217	62	-19	-12	155
0600	51 9.4	131 13.4	1366	55879	53	62	*	-26	145
0610	51 9.4	131 9.9	1390	55938	99	62	*	-28	146
0620	51 9.4	131 6.5	1358	56035	184	62	*	-20	150
0630	51 9.4	131 3.0	1302	56109	245	62	-32	-26	137
0640	51 9.4	130 59.5	1272	56149	272	62	-23	-20	139
0650	51 9.5	130 56.1	1280	56122	232	62	-16	-15	145
0700	51 9.5	130 52.6	1250	56122	220	62	-7	-8	149
0710	51 9.5	130 49.1	1190	56129	214	62	*	3	152
0720	51 9.5	130 45.7	1102	56134	206	62	4	8	146
0730	51 9.5	130 42.2	1064	56111	170	*	*	*	*
0740	51 9.5	130 38.8	1075	56107	154	61	-5	-1	134
0750	51 9.5	130 35.4	1098	56198	232	61	-12	-5	133
0800	51 9.5	130 31.9	1114	56247	269	61	-21	-18	122
0810	51 9.5	130 28.5	1112	56182	191	61	-27	-20	119

FLCSCN 69-050 DAY 213 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.		
0820	51	9.5	130	25.1	1090	56098	95	61	-34	-32	105
0830	51	9.5	130	21.7	1027	56076	60	61	-38	-41	88
0840	51	9.5	130	18.3	842	56105	77	61	-34	-30	75
0850	51	9.6	130	14.8	740	56147	106	61	-26	-28	65
0900	51	9.6	130	11.4	588	56169	116	61	-14	-11	62
0910	51	9.6	130	8.0	424	56142	76	61	-11	-10	43
0920	51	9.6	130	4.6	365	56153	75	61	-14	-7	38
0930	51	9.6	130	1.2	325	56172	81	61	-16	-12	28
0940	51	9.6	129	57.7	416	56170	67	61	-24	-19	33
0950	51	9.6	129	54.3	660	56203	87	61	-39	-31	51
1000	51	9.6	129	50.9	518	56285	157	61	-36	-34	31
1010	51	9.6	129	47.5	346	56392	251	61	-16	-21	22
1020	51	9.6	129	44.1	183	56534	381	61	*	-1	21
1030	51	9.6	129	40.6	147	56655	490	61	8	13	31
1040	51	9.6	129	37.2	148	56641	463	61	8	11	29
1050	51	9.6	129	33.8	155	56581	391	61	*	15	34
1100	51	9.6	129	30.4	154	56550	347	61	*	9	28
1110	51	9.6	129	27.0	152	56537	322	61	-4	-2	17
1120	51	9.7	129	23.6	155	56573	345	61	-2	-2	17
1130	51	9.7	129	20.1	149	56616	376	61	4	11	29
1140	51	9.7	129	16.7	146	56596	344	61	4	11	29
1150	51	9.7	129	13.3	109	56622	357	61	7	13	26
1200	51	9.7	129	9.9	88	56658	381	61	7	10	21
1210	51	9.7	129	6.5	80	56629	340	61	3	5	15
1220	51	9.7	129	3.0	77	56607	305	61	3	2	11
1230	51	9.3	129	.3	72	56604	295	*	-11	*	*
1240	51	7.1	129	.3	65	56636	340	0	-3	8	16
1250	51	5.0	129	.3	60	56661	378	0	*	16	23
1300	51	2.9	129	.4	58	56627	357	0	*	22	29
1310	51	.7	129	.4	47	56573	316	0	*	20	25
1320	51	.3	129	3.2	55	56530	285	-60	*	13	19
1330	51	.3	129	6.6	70	56484	252	-60	*	21	29
1340	51	.2	129	10.1	78	56462	243	-60	*	29	38
1350	51	.2	129	13.5	85	56409	202	-60	15	22	32
1400	51	.2	129	17.0	91	56401	207	-60	15	21	32
1410	51	.2	129	20.4	102	56411	229	-60	15	16	28
1420	51	.2	129	23.9	113	56403	234	-60	18	19	33
1430	51	.1	129	27.3	125	56362	206	-60	27	28	43
1440	51	.1	129	30.8	133	56338	194	-60	*	27	43
1450	51	.1	129	34.2	212	56340	209	-60	3	15	41
1500	51	.1	129	37.7	284	56287	169	-60	-11	-2	33
1510	51	.0	129	41.1	570	56259	153	-60	-28	-17	54
1520	51	.0	129	44.6	272	56223	130	-60	-25	-24	10
1530	51	0	129	48.0	354	56206	126	*	*	*	*
1540	50	60.0	129	51.4	667	*	*	*	*	*	*
1550	50	60.0	129	54.8	786	56119	64	-59	-59	-57	41
1600	50	59.9	129	58.1	928	56083	40	-59	-68	-61	55
1610	50	59.9	130	1.5	1105	56070	40	-59	-69	-63	75
1620	50	59.9	130	4.9	1124	56032	14	-59	-66	-66	75
1630	50	59.9	130	8.3	1152	56003	-2	-59	-57	-60	84

FLDSCN 69-050 DAY 213 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
1640	50 59.8	130 11.7	1184	56022	29	-59	-52	-50	98
1650	50 59.8	130 15.0	1200	56040	60	-59	-45	-31	119
1700	50 59.8	130 18.4	1242	55992	24	-59	-40	-37	119
1710	50 59.8	130 21.8	1221	55960	5	-59	-35	-34	119
1720	50 59.7	130 25.2	1180	55884	-58	-59	-27	-29	119
1730	50 59.7	130 28.6	1194	55817	-112	-59	-23	-23	127
1740	50 59.7	130 32.0	1228	55768	-149	-59	-17	-11	143
1750	50 59.7	130 35.3	1265	55740	-164	-59	-14	-12	147
1800	50 59.6	130 38.7	1294	55782	-110	-59	-16	-6	156
1810	50 59.6	130 42.1	1398	55784	-95	-59	-19	-11	164
1820	50 59.6	130 45.5	1404	55825	-41	-59	-27	-21	155
1830	50 59.6	130 48.9	1386	55840	-14	-59	-31	-29	145
1840	50 59.5	130 52.2	1422	55903	61	-59	-34	-34	144
1850	50 59.5	130 55.6	1436	56054	224	-59	-35	-32	148
1900	50 59.5	130 59.0	1330	56188	371	*	*	*	*
1910	50 58.2	130 56.2	1400	56178	359	51	*	-23	153
1920	50 56.8	130 53.4	1402	55998	177	51	*	-27	149
1930	50 55.5	130 50.5	1349	55932	109	51	*	-31	138
1940	50 54.2	130 47.7	1351	55910	85	51	-25	-22	147
1950	50 52.8	130 44.9	1157	56137	310	51	-12	-15	130
2000	50 51.5	130 42.1	1302	55992	163	51	-3	-3	160
2010	50 50.2	130 39.2	1046	56706	875	51	7	9	140
2020	50 48.8	130 36.4	1013	56815	981	51	10	14	141
2030	50 47.5	130 33.6	1094	56541	705	51	4	8	145

FLCSCN 69-050 DAY 214 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	50 45.9	130 28.6	1294	*	*	*	*	*	*
0010	50 45.9	130 25.2	1023	56069	212	61	*	0	128
0020	50 46.0	130 21.8	812	55851	-17	61	*	13	115
0030	50 46.0	130 18.4	816	56297	415	61	17	21	123
0040	50 46.0	130 15.0	1052	55877	-17	61	-4	3	135
0050	50 46.0	130 11.6	1122	55817	-89	61	-19	-12	129
0100	50 46.1	130 8.2	1126	55912	-8	61	-25	-22	119
0110	50 46.1	130 4.8	1121	55941	8	61	-35	-29	111
0120	50 46.1	130 1.4	1098	56002	57	61	-44	-38	100
0130	50 46.2	129 58.0	1132	56072	114	61	-55	-52	90
0140	50 46.2	129 54.6	1134	56106	135	61	-68	-68	74
0150	50 46.2	129 51.2	1099	56117	134	61	-79	-78	60
0200	50 46.3	129 47.8	1098	56123	127	61	*	-89	49
0210	50 46.3	129 44.4	1065	56129	120	61	*	-96	37
0220	50 46.3	129 41.0	1094	*	*	*	*	*	*
0240	50 46.4	129 34.2	976	*	*	*	*	*	*
0250	50 46.4	129 30.8	940	*	*	*	*	*	*
0300	50 46.4	129 27.4	666	56378	306	61	*	-52	31
0310	50 46.5	129 24.0	150	56606	522	61	*	1	19
0320	50 46.5	129 20.6	114	56417	320	61	*	36	50
0330	50 46.5	129 17.2	86	56197	87	61	41	49	59
0340	50 46.6	129 13.8	78	56238	116	61	44	44	53
0350	50 46.6	129 10.4	67	56202	67	61	40	38	46
0400	50 46.6	129 7.0	64	56243	96	61	40	45	53
0410	50 46.6	129 3.6	68	56287	127	61	33	41	49
0420	50 46.7	129 .2	66	56276	104	61	35	44	52
0430	50 46.7	128 56.8	52	56339	154	*	*	*	*
0440	50 46.0	128 53.7	54	56268	76	55	*	30	36
0450	50 45.4	128 50.7	57	56270	71	55	*	17	24
0500	50 44.7	128 47.6	59	56303	97	55	20	20	27
0510	50 44.1	128 44.6	52	56285	72	55	20	26	32
0520	50 43.4	128 41.5	60	56329	109	55	19	24	31
0530	50 42.7	128 38.4	62	56364	136	55	17	20	27
0540	50 42.1	128 35.4	64	56460	225	55	13	19	27
0550	50 41.4	128 32.3	61	56468	226	55	*	8	15
0600	50 40.8	128 29.3	42	56641	392	55	13	18	23
0610	50 40.1	128 26.2	40	56489	233	*	*	*	*
0620	50 40.1	128 29.5	61	56407	163	-58	*	24	31
0630	50 40.1	128 32.8	66	56469	237	-58	*	12	20
0640	50 40.1	128 36.0	78	56396	176	-58	*	13	22
0650	50 40.1	128 39.3	87	56312	104	-58	9	18	28
0700	50 40.1	128 42.6	94	56274	78	-58	5	7	18
0710	50 40.0	128 45.9	103	56319	135	-58	8	10	22
0720	50 40.0	128 49.1	112	56268	96	-58	11	8	22
0730	50 40.0	128 52.4	120	56271	111	-58	13	8	23
0740	50 40.0	128 55.7	126	56260	112	-58	10	19	34
0750	50 40.0	128 58.9	308	56252	116	-58	-2	1	39
0800	50 40.0	129 2.2	448	56293	169	-58	-19	-16	40
0810	50 40.0	129 5.5	408	56345	233	-58	-26	-30	21
0820	50 40.0	129 8.8	454	56515	415	-58	-29	-24	33

FLDCSN 69-050 DAY 214 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0830	50 40.0	129 12.0	720	56560	472	-58	-49	-51	39
0840	50 40.0	129 15.3	740	56433	357	-58	*	-56	37
0850	50 39.9	129 18.6	716	56243	179	-58	*	-71	19
0900	50 39.9	129 21.9	930	56171	119	-58	*	-90	26
0910	50 39.9	129 25.2	1020	56142	102	-58	*	-104	24
0920	50 39.9	129 28.4	*	56142	114	-58	*	-110	*
0930	50 39.9	129 31.7	*	56152	136	-58	*	-112	*
0940	50 39.9	129 35.0	*	56139	135	-58	-107	-110	*
0950	50 39.9	129 38.2	1066	56131	139	-58	-99	-100	34
1000	50 39.9	129 41.5	1070	56138	159	-58	-88	-86	48
1010	50 39.9	129 44.8	1073	56153	186	-58	-79	-74	60
1020	50 39.9	129 48.1	1076	56150	195	-58	-68	-66	69
1030	50 39.9	129 51.3	1090	56122	179	-58	*	-59	78
1040	50 39.8	129 54.6	1122	56089	158	-58	*	-47	94
1050	50 39.8	129 57.9	1112	56053	134	-58	-38	-36	103
1100	50 39.8	130 1.2	1140	56056	149	-58	-30	-32	111
1110	50 39.8	130 4.5	1136	56045	150	-58	-22	-22	120
1120	50 39.8	130 7.7	1082	56239	356	-58	*	-14	122
1130	50 39.8	130 11.0	1026	56358	488	*	*	*	*
1140	50 39.8	130 14.2	892	56254	396	-57	12	18	130
1150	50 39.8	130 17.5	900	56237	391	-57	17	16	129
1200	50 39.8	130 20.7	940	56422	588	-57	14	18	136
1210	50 39.7	130 23.9	1134	55962	140	-57	1	5	147
1220	50 39.7	130 27.2	*	56161	351	-57	-9	-6	*
1230	50 39.7	130 30.4	1240	56190	392	-57	-18	-12	143
1540	50 39.3	130 34.4	*	55936	155	-61	*	-28	*
1550	50 39.3	130 37.8	*	55813	45	-61	-15	-15	*
1600	50 39.3	130 41.2	*	55712	-43	-61	6	5	*
1610	50 39.3	130 44.6	*	55317	-425	-61	20	25	*
1620	50 39.3	130 48.1	*	55807	77	-61	11	19	*
1630	50 39.3	130 51.5	*	55634	-83	-61	4	9	*
1640	50 39.3	130 54.9	*	55281	-423	-61	-3	15	*
1650	50 39.3	130 58.3	*	55761	69	-61	-11	-7	*
1700	50 38.2	130 59.9	*	56059	380	4	-14	0	*
1710	50 35.9	130 59.7	*	56068	402	4	-11	-11	*
1720	50 33.7	130 59.5	*	55883	231	4	-12	-8	*
1730	50 31.5	130 59.4	*	55849	211	4	-10	-15	*
1740	50 29.2	130 59.2	*	55821	196	4	-9	-15	*
1750	50 27.0	130 59.0	*	55577	-33	0	*	0	*
1800	50 27.0	130 55.7	1223	55378	-244	60	*	-11	142
1810	50 27.0	130 52.4	1400	55405	-229	60	*	-19	157
1820	50 27.0	130 49.1	1437	55586	-60	60	-19	-16	164
1830	50 26.9	130 45.9	1402	55928	268	60	-18	-17	159
1840	50 26.9	130 42.6	1352	56340	668	60	-13	-14	155
1850	50 26.9	130 39.3	1296	56277	593	60	-3	-1	161
1900	50 26.9	130 36.0	714	56018	322	*	*	*	*
1910	50 26.9	130 32.5	612	56035	326	63	38	44	120
1920	50 26.9	130 29.1	770	56059	337	63	*	35	131
1930	50 26.9	130 25.6	996	55986	251	63	6	14	139
1940	50 27.0	130 22.2	1192	56106	358	63	-13	-10	139



FLDSON 69-050 DAY 214 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVOS	F.A.	VSA	E.A.
1950	50 27.0	130 18.7	1370	56115	354	63	-21	-16	156
2000	50 27.0	130 15.3	1382	55965	191	63	-14	-16	157
2010	50 27.0	130 11.8	1065	55888	102	63	*	-2	131
2020	50 27.0	130 8.4	967	55750	-48	63	12	16	137
2030	50 27.0	130 4.9	1044	55702	-109	63	11	14	145
2040	50 27.0	130 1.5	1128	55798	-26	63	-4	4	145
2050	50 27.0	129 58.0	1165	55855	18	63	-2	0	146
2100	50 27.1	129 54.5	1172	55877	26	63	-13	-7	140
2110	50 27.1	129 51.1	1174	55941	77	63	-18	-18	129
2120	50 27.1	129 47.6	1170	55983	106	63	-28	-24	123
2130	50 27.1	129 44.2	1173	55993	104	63	-35	-27	120
2140	50 27.1	129 40.7	1174	56000	98	63	-40	-34	113
2150	50 27.1	129 37.3	1103	56003	88	63	-42	-34	104
2200	50 27.1	129 33.8	1022	56005	77	63	-45	-36	92
2210	50 27.1	129 30.4	1076	56012	71	63	-57	-50	85
2220	50 27.2	129 26.9	1076	56041	88	63	*	-65	70
2230	50 27.2	129 23.4	1096	56072	106	63	*	-81	56
2240	50 27.2	129 20.0	1077	56096	117	63	-95	-91	44
2250	50 27.2	129 16.5	1078	56116	124	63	-104	-103	32
2300	50 27.2	129 13.1	1085	56138	133	63	*	-110	26
2310	50 27.2	129 9.6	1086	56172	155	63	*	-119	17
2320	50 27.2	129 6.2	1088	56205	175	63	-130	-128	8
2330	50 27.2	129 2.7	1098	56220	177	63	-135	-133	5
2340	50 27.3	128 59.3	1068	56228	172	63	-137	-132	2
2350	50 27.3	128 55.8	964	56262	194	63	-133	-136	-15

HLDSN 69-050 DAY 215 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	50 27.3	128 52.3	990	56271	190	63	*	-131	-7
0010	50 27.3	128 48.9	964	56269	175	63	*	-127	-6
0020	50 27.3	128 45.4	1010	56250	143	63	*	-123	4
0030	50 27.3	128 42.0	932	56252	133	63	*	-115	2
0040	50 27.3	128 38.5	538	56262	130	63	*	-97	-30
0050	50 27.3	128 35.1	330	56273	128	63	*	-69	-28
0100	50 27.4	128 31.6	124	56294	137	63	*	-39	-24
0110	50 27.4	128 28.2	110	56249	79	63	*	-18	-5
0120	50 27.4	128 24.7	102	56253	70	63	*	-5	7
0130	50 27.4	128 21.3	97	56266	71	*	*	*	*
0140	50 27.4	128 17.8	82	56116	-92	65	4	13	23
0150	50 27.5	128 14.2	63	56971	749	65	23	24	31
0200	50 26.4	128 11.7	56	56608	384	32	*	15	22
0210	50 24.6	128 10.0	59	57091	872	*	*	*	*
0220	50 23.4	128 10.6	71	56283	74	-59	*	2	10
0230	50 23.3	128 13.9	88	56456	259	-59	*	25	36
0240	50 23.3	128 17.2	95	56301	116	-59	*	7	18
0250	50 23.2	128 20.5	110	56221	48	-59	*	0	13
0300	50 23.2	128 23.7	114	56238	78	-59	*	-17	-3
0310	50 23.1	128 27.0	128	56317	169	-59	-33	-27	-11
0320	50 23.1	128 30.3	378	56277	141	-59	-66	-56	-9
0330	50 23.0	128 33.6	760	56284	161	-59	*	-86	9
0340	50 23.0	128 36.8	827	56268	157	-59	*	-105	-2
0350	50 22.9	128 40.1	978	56255	156	-59	*	-116	6
0400	50 22.9	128 43.4	1026	56254	168	-59	*	-124	4
0410	50 22.8	128 46.7	1054	56248	174	-59	*	-128	4
0420	50 22.8	128 50.0	1047	56236	174	-59	*	-127	4
0430	50 22.7	128 53.2	944	56193	144	-59	-135	-125	-7
0440	50 22.7	128 56.5	1080	56202	165	-59	-134	-125	10
0450	50 22.6	128 59.8	1090	56199	174	-59	-129	-125	12
0500	50 22.6	129 3.1	1097	56197	185	-59	-125	-121	16
0510	50 22.5	129 6.4	1112	56179	179	-59	-117	-115	24
0520	50 22.5	129 9.6	1125	56150	163	-59	-107	-106	35
0530	50 22.4	129 12.9	1106	56121	146	-59	-97	-92	47
0540	50 22.4	129 16.2	1099	56095	132	-59	-87	-90	48
0550	50 22.3	129 19.5	1077	56075	125	-59	-73	-78	57
0600	50 22.3	129 22.8	1054	56060	122	-59	-59	-57	75
0610	50 22.2	129 26.0	1056	*	*	*	*	*	*
0620	50 22.2	129 29.3	933	55993	80	-59	*	-37	80
0630	50 22.1	129 32.6	985	55957	57	-59	*	-26	97
0640	50 22.1	129 35.9	1106	55941	52	-59	*	-26	113
0650	50 22.2	129 39.1	1142	55946	69	-59	-23	-20	123
0700	50 22.2	129 42.4	1174	55970	105	-59	-22	-18	129
0710	50 22.2	129 45.7	1176	56022	169	-59	-15	-9	138
0720	50 22.2	129 48.9	1177	55956	115	-59	-6	-3	144
0730	50 22.3	129 52.2	1144	55822	-6	-59	2	3	146
0740	50 22.3	129 55.5	1076	55822	5	-59	9	12	147
0750	50 22.3	129 58.7	972	55787	-17	-59	17	23	145
0800	50 22.3	130 2.0	934	55729	-63	-59	*	26	143
0810	50 22.4	130 5.3	1038	55749	-31	-59	*	18	148

HUDSON 69-050 DAY 215 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0820	50 22.4	130 8.5	1386	55888	119	-59	*	4	178
0830	50 22.4	130 11.8	1214	56080	323	-59	-8	-2	150
0840	50 22.4	130 15.1	1252	56288	543	-59	-11	-7	150
0850	50 22.5	130 18.3	1350	56404	671	-59	*	-11	158
0900	50 22.5	130 21.6	1262	56299	578	*	*	*	*
0910	50 22.5	130 24.9	1014	56291	582	-58	8	7	134
0920	50 22.5	130 28.1	810	55978	281	-58	26	31	132
0930	50 22.4	130 31.4	994	55660	-24	-58	22	29	153
0940	50 22.4	130 34.6	1032	55837	165	-58	13	20	149
0950	50 22.4	130 37.9	1188	55554	-105	-58	2	12	161
1000	50 22.3	130 41.1	1351	55778	130	-58	-6	-1	168
1010	50 22.3	130 44.4	1360	56206	570	-58	-10	-6	165
1020	50 22.3	130 47.6	1360	56330	707	-58	-8	-7	164
1030	50 22.3	130 50.9	1396	56207	596	-58	-14	-1	174
1040	50 22.2	130 54.1	1380	55767	168	-58	-11	-5	168
1050	50 22.2	130 57.3	1470	55405	-180	-58	-13	-10	174
1100	50 22.2	131 .6	1508	55459	-114	*	*	*	*
1110	50 20.0	131 .6	1544	55502	-57	*	*	*	*
1120	50 17.9	131 .7	1525	55400	-145	0	*	-10	181
1130	50 15.7	131 .7	1516	55358	-173	0	*	-7	183
1140	50 15.2	130 58.1	1469	55321	-216	60	*	-17	167
1150	50 15.1	130 54.8	1409	55523	-26	60	*	-5	172
1200	50 15.1	130 51.5	1356	56159	597	60	-7	-1	169
1210	50 15.0	130 48.3	1354	56126	553	60	-8	-8	162
1220	50 14.9	130 45.0	1364	55396	-188	60	-8	-10	161
1230	50 14.8	130 41.7	1368	55315	-281	60	-11	-8	163
1240	50 14.7	130 38.4	1365	55357	-250	60	-8	-5	166
1250	50 14.6	130 35.2	1358	55621	1	60	-7	-1	169
1300	50 14.5	130 31.9	1337	56037	405	60	-5	-2	166
1310	50 14.5	130 28.6	1305	55688	45	60	-4	-1	163
1320	50 14.4	130 25.3	1228	55584	-70	60	-1	6	160
1330	50 14.3	130 22.1	1132	55839	172	60	-4	5	147
1340	50 14.2	130 18.8	1299	56137	459	60	*	-10	153
1830	50 15.3	130 24.0	1204	*	*	*	*	*	*
1840	50 15.3	130 20.6	1333	56237	558	62	*	-8	159
1850	50 15.3	130 17.2	1108	56053	362	62	*	1	140
1900	50 15.3	130 13.9	1190	56040	336	62	*	4	153
1910	50 15.3	130 10.5	1204	56056	339	62	6	8	159
1920	50 15.3	130 7.1	1152	56082	353	62	11	13	157
1930	50 15.3	130 3.7	1192	55847	105	*	9	*	*
1940	50 15.3	130 .4	1249	55970	216	62	8	9	166
1950	50 15.3	129 57.0	1027	55681	-85	62	15	14	143
2000	50 15.3	129 53.6	934	55624	-154	62	20	24	141
2010	50 15.3	129 50.2	968	55526	-265	62	19	25	146
2020	50 15.3	129 46.8	1022	55540	-263	62	11	16	144
2030	50 15.3	129 43.5	1174	55712	-104	62	1	5	152
2040	50 15.3	129 40.1	1185	55753	-76	62	-4	-2	147
2050	50 15.3	129 36.7	1169	55832	-9	62	-11	-12	134
2100	50 15.3	129 33.3	1178	55961	106	62	-16	-13	135
2110	50 15.3	129 30.0	1176	55990	123	62	-22	-18	129

FLDCSN 69-050 DAY 215 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
2120	50 15.3	129 26.6	1173	56004	124	€2	-24	-19	128
2130	50 15.3	129 23.2	952	56061	169	€2	-22	-21	98
2140	50 15.3	129 19.8	1004	56080	175	€2	-27	-25	101
2150	50 15.3	129 16.4	948	56058	141	€2	-39	-33	86
2200	50 15.3	129 13.1	1120	56039	109	€2	-38	-54	86
2210	50 15.3	129 9.7	1154	56046	104	€2	*	-64	81
2220	50 15.3	129 6.3	*	56066	111	€2	*	-73	*
2230	50 15.3	129 2.9	1116	56098	131	€2	-87	-85	55
2240	50 15.3	128 59.6	1128	56133	154	€2	*	-96	45
2250	50 15.3	128 56.2	1118	56160	168	€2	*	-107	33
2300	50 15.3	128 52.8	1110	56165	161	*	*	*	*
2310	50 15.3	128 49.4	1112	56165	148	€3	-125	-120	19
2320	50 15.3	128 46.0	1002	56168	139	€3	-123	-120	5
2330	50 15.3	128 42.6	712	56168	126	€3	-108	-108	-19
2340	50 15.3	128 39.2	600	56181	127	€3	-95	-91	-16
2350	50 15.3	128 35.9	628	56213	147	€3	-96	-91	-13

HUCSCN 69-050 DAY 216 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	50 15.3	128 32.5	725	56230	151	62	-103	-100	-9
0010	50 15.3	128 29.1	718	56240	149	62	-103	-101	-11
0020	50 15.2	128 25.7	652	56243	140	62	-95	-91	-10
0030	50 15.2	128 22.4	503	56275	159	62	-88	-82	-19
0040	50 15.2	128 19.0	480	56295	167	62	-82	-68	-8
0050	50 15.2	128 15.6	540	56341	201	62	*	-70	-3
0100	50 15.2	128 12.2	426	56333	180	62	*	-57	-4
0110	50 15.2	128 8.9	400	56324	159	62	*	-33	17
0120	50 15.2	128 5.5	84	56355	178	62	7	6	16
0130	50 15.2	128 2.1	48	56327	137	*	*	*	*
0140	50 13.0	128 2.1	49	56124	-51	1	*	17	23
0150	50 10.7	128 2.0	55	56284	122	1	*	19	25
0200	50 8.5	128 2.0	90	56290	142	*	*	*	*
0210	50 8.4	128 5.3	305	56308	173	-60	*	-24	14
0220	50 8.4	128 8.7	406	56260	137	-60	*	-53	-2
0230	50 8.3	128 12.0	544	56264	154	-60	-84	-77	-9
0240	50 8.2	128 15.3	598	56259	162	-60	-94	-92	-17
0250	50 8.1	128 18.7	828	56246	161	-60	-99	-98	6
0300	50 8.1	128 22.0	880	56230	158	-60	-95	-93	17
0310	50 8.0	128 25.3	550	56242	183	-60	-86	-82	-13
0320	50 7.9	128 28.7	664	56188	142	-60	-94	-89	-6
0330	50 7.8	128 32.0	804	56161	127	-60	-101	-100	1
0340	50 7.8	128 35.3	836	56148	127	-60	*	-102	3
0350	50 7.7	128 38.7	948	56134	126	-60	*	-101	18
0400	50 7.6	128 42.0	969	56134	139	-60	*	-97	24
0410	50 7.5	128 45.3	1026	56141	158	-60	-90	-86	42
0420	50 7.5	128 48.7	898	56161	191	-60	-77	-73	39
0430	50 7.4	128 52.0	988	56168	211	-60	*	-62	62
0440	50 7.4	128 55.3	1108	56141	196	-60	-71	-67	72
0450	50 7.4	128 58.6	1040	56095	162	-60	-63	-56	74
0500	50 7.3	129 1.9	1096	56052	132	-60	-56	-53	84
0510	50 7.3	129 5.1	1166	56050	142	-60	-50	-45	101
0520	50 7.3	129 8.4	1154	56084	188	-60	-38	-34	111
0530	50 7.3	129 11.7	851	56108	225	-60	-23	-17	89
0540	50 7.3	129 15.0	1038	56049	178	-60	*	-11	119
0550	50 7.2	129 18.3	1168	55938	79	-60	*	-1	145
0600	50 7.2	129 21.6	1168	55947	100	-60	-13	-2	144
0610	50 7.2	129 24.9	1186	55894	60	-60	-5	-7	142
0620	50 7.2	129 28.1	1144	55789	-32	-60	5	4	147
0630	50 7.2	129 31.4	1000	55830	-179	-60	18	19	144
0640	50 7.2	129 34.7	873	55474	-322	-60	*	32	141
0650	50 7.1	129 38.0	930	55439	-345	-60	*	31	147
0700	50 7.1	129 41.3	1345	55744	-28	-60	*	14	183
0710	50 7.1	129 44.6	1715	56194	434	-60	-22	-18	197
0720	50 7.1	129 47.9	1690	56541	793	-60	-28	-32	180
0730	50 7.1	129 51.1	1377	56511	776	-60	-16	-19	154
0740	50 7.0	129 54.4	1314	56122	399	-60	2	-3	162
0750	50 7.0	129 57.7	1160	55700	-10	-60	13	16	161
0800	50 7.0	130 1.0	1114	55367	-330	*	*	*	*
0810	50 4.3	130 .6	1068	55429	-252	7	*	30	164

FLDSCN 69-050 CAY 216 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0820	50 1.5	130 .3	1086	55588	-77	7	*	28	164
0830	49 58.8	129 59.9	1108	55809	160	7	15	19	158
0900	49 58.7	129 57.8	1276	56277	621	66	*	5	165
0910	49 58.7	129 54.3	1126	56207	538	66	11	13	154
0920	49 58.6	129 50.8	1220	56378	696	66	12	19	172
0930	49 58.6	129 47.2	1258	56777	1082	66	14	14	172
0940	49 58.6	129 43.7	1126	57227	1519	66	23	26	167
0950	49 58.5	129 40.2	1126	56872	1151	66	29	29	170
1000	49 58.5	129 36.7	1110	55603	-130	66	34	39	178
1010	49 58.5	129 33.1	1026	55818	71	66	*	48	176
1020	49 58.4	129 29.6	978	56201	441	66	46	53	175
1030	49 58.4	129 26.1	938	55924	151	*	*	*	*
1040	49 58.4	129 22.4	840	56055	269	69	51	58	163
1050	49 58.3	129 18.7	877	56040	240	69	42	44	154
1100	49 58.3	129 15.1	1068	55995	182	69	20	27	161
1110	49 58.3	129 11.4	1233	55984	157	69	4	10	164
1120	49 58.2	129 7.7	1184	56051	211	69	-5	-3	145
1130	49 58.2	129 4.0	1064	56262	408	69	-13	-8	125
1140	49 58.1	129 .4	1143	56259	392	69	-22	-20	123
1150	49 58.1	128 56.7	1224	56081	201	69	-33	-30	123
1200	49 58.1	128 53.0	1145	56053	159	69	-37	-34	109
1210	49 58.0	128 49.3	896	56137	230	69	-37	-30	82
1220	49 57.7	128 46.0	931	56163	246	*	*	*	*
1230	49 56.0	128 43.9	859	56159	245	39	*	-47	60
1240	49 54.3	128 41.8	852	56159	248	39	*	-45	62
1250	49 52.6	128 39.7	722	56147	239	39	-32	-33	57
1300	49 50.9	128 37.6	832	56109	204	39	-45	-37	67
1310	49 49.2	128 35.5	1127	56080	179	39	-53	-45	96
1320	49 47.5	128 33.5	1210	56060	162	39	-53	-47	105
1330	49 45.8	128 31.4	1132	56035	140	39	-53	-46	96
1340	49 44.1	128 29.3	1210	56024	132	39	-56	-56	96
1350	49 42.4	128 27.2	1218	56002	114	40	-58	-61	92
1400	49 40.7	128 25.1	1194	55989	104	40	-58	-57	93
1410	49 39.0	128 23.0	1049	56019	137	40	-52	-47	84
1420	49 37.3	128 20.9	1034	56063	184	40	-43	-38	91
1430	49 35.6	128 18.8	1227	56200	325	40	-38	-36	118
1440	49 33.9	128 16.8	1247	56152	280	40	-32	-25	131
1450	49 32.2	128 14.7	1260	56009	140	40	-38	-32	126
1500	49 30.5	128 12.6	1275	55986	120	40	-43	-44	116
1510	49 28.8	128 10.5	1283	55962	100	40	-46	-44	117
1520	49 27.1	128 8.4	1290	55955	96	40	-48	-40	122
1530	49 25.4	128 6.3	1298	55951	95	40	-50	-43	120
1540	49 23.7	128 4.2	1302	55898	46	40	-51	-45	118
1550	49 22.0	128 2.1	1307	55893	44	40	-53	-54	110
1600	49 20.3	128 .1	1313	55948	103	40	-53	-53	112
1610	49 18.6	127 58.0	1318	56020	178	40	-54	-43	122
1620	49 16.9	127 55.9	1331	56018	179	40	-55	-47	120
1630	49 15.2	127 53.8	1331	56047	212	40	*	-51	116
1640	49 13.5	127 51.7	1336	56086	254	40	-52	-48	119
1650	49 11.8	127 49.6	1340	55996	167	40	-52	-44	124

FLCSCN 69-050 DAY 216 1970

TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTIVOS	F.A.	VSA	E.A.
1700	49 10.1	127 47.5	1344	55917	92	40	-51	-52	116
1710	49 8.4	127 45.4	1347	55961	139	40	-48	-50	119
1720	49 6.8	127 43.4	1349	56021	202	40	-45	-45	124
1730	49 5.1	127 41.3	1306	56058	243	41	-39	-32	132
1740	49 3.4	127 39.2	1210	56028	216	41	-37	-20	132
1750	49 1.7	127 37.1	1176	55907	99	41	-35	-33	114
1800	49 .0	127 35.0	1145	55850	45	*	-33	*	*
1810	48 58.3	127 32.9	1120	55820	18	41	-31	-35	105
1820	48 56.6	127 30.8	1106	55807	10	41	-28	-25	114
1830	48 54.9	127 28.7	1086	55803	9	41	-29	-24	112
1840	48 53.3	127 26.7	1130	55816	25	41	-31	-28	114
1850	48 51.6	127 24.6	1136	55867	79	41	-32	-30	112
1900	48 49.9	127 22.5	1126	55928	144	41	-31	-28	113
1910	48 48.2	127 20.4	1073	55958	177	41	-27	-29	105
1920	48 46.5	127 18.3	958	55930	153	41	-20	-18	102
1930	48 44.8	127 16.2	914	55938	164	41	-21	-18	96
1940	48 43.1	127 14.1	1050	56026	256	41	*	-25	107
1950	48 41.4	127 12.0	1174	56020	253	41	*	-34	113
2000	48 39.8	127 10.0	1144	55923	160	41	*	-33	110
2010	48 38.1	127 7.9	1089	55882	122	41	-41	-36	100
2020	48 36.4	127 5.8	1354	55830	74	41	-50	-46	124
2030	48 34.7	127 3.7	1358	55791	39	41	-52	-48	122
2040	48 33.0	127 1.6	1312	55815	66	*	*	*	*
2050	48 30.8	127 1.6	1383	55815	81	0	*	-55	118
2100	48 30.2	127 1.1	1384	55806	75	*	*	*	*
2110	48 30.6	127 .4	*	55849	112	15	*	-48	*
2120	48 31.0	126 59.6	*	55895	152	0	*	0	*
2130	48 31.7	126 58.5	1267	55936	184	22	-51	-55	104
2140	48 32.4	126 57.4	1285	55961	200	22	-50	-48	113
2150	48 33.1	126 56.3	1226	55970	200	22	-50	-47	107
2200	48 33.8	126 55.1	1229	55967	188	22	-49	-45	109
2210	48 34.5	126 54.0	1184	55961	174	22	*	-42	106
2220	48 35.2	126 52.9	1016	55960	164	22	-43	-45	82
2230	48 35.9	126 51.8	858	55951	146	*	*	*	*
2240	48 36.7	126 50.6	825	55936	121	24	-34	-34	69
2250	48 37.4	126 49.4	772	*	*	24	-33	-33	64
2300	48 38.2	126 48.2	740	55951	117	24	-34	-30	63
2310	48 38.9	126 46.9	787	55978	134	24	-33	-30	68
2320	48 39.7	126 45.7	742	56008	155	24	-34	-34	59
2330	48 40.4	126 44.5	746	56049	186	24	-33	-35	58
2340	48 41.2	126 43.3	692	56085	212	24	-33	-28	58
2350	48 41.9	126 42.1	705	56107	225	23	-32	-31	57

FLDCSN 69-050 DAY 217 1970

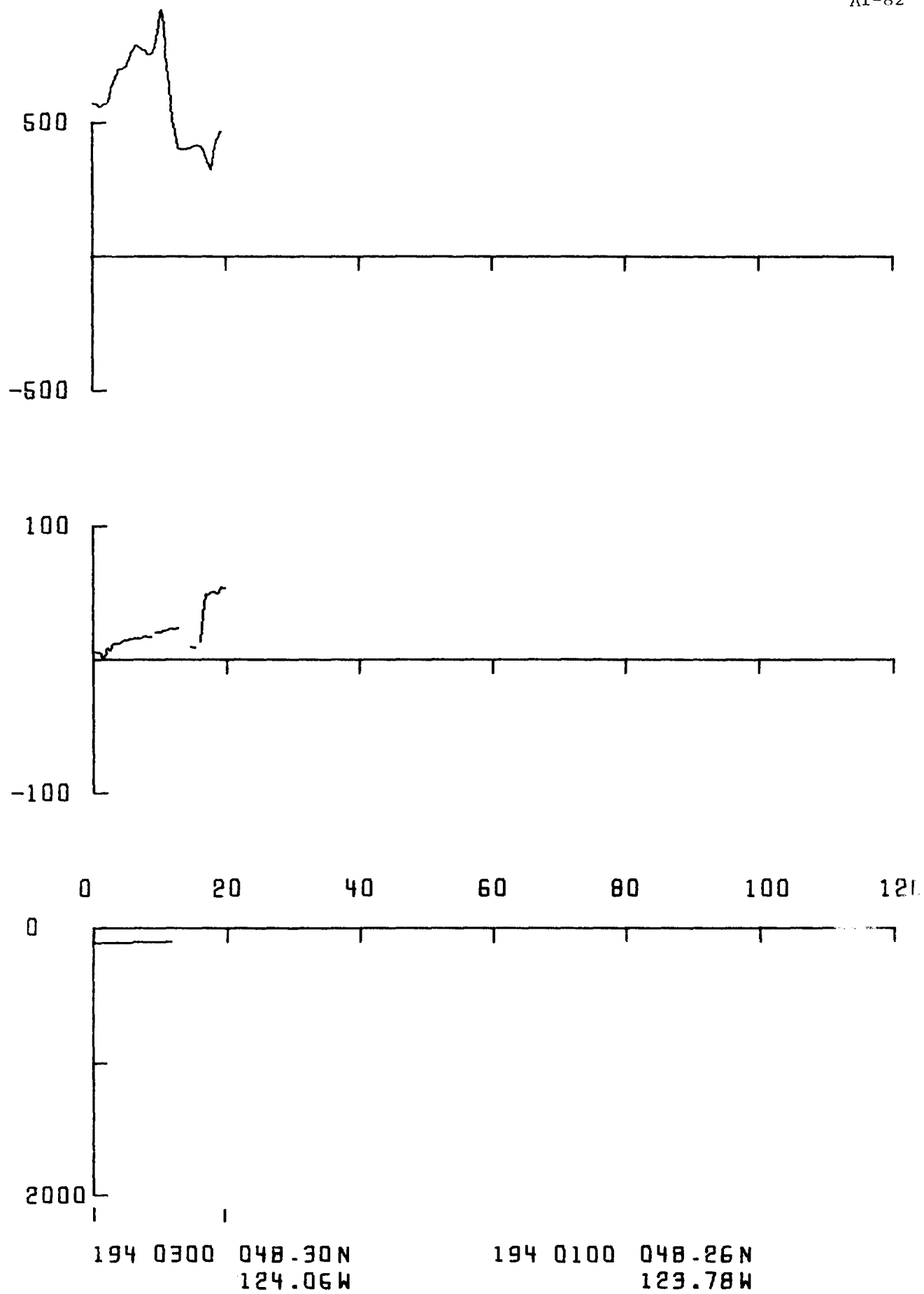
TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0000	48 42.7	126 40.8	703	56105	213	23	-32	-30	58
0010	48 43.4	126 39.6	638	56097	195	23	-25	-21	59
0020	48 44.2	126 38.4	558	56078	167	23	-13	-4	66
0030	48 45.0	126 37.2	399	56069	148	23	-4	5	55
0040	48 45.7	126 36.0	299	56069	139	23	2	10	47
0050	48 46.5	126 34.8	236	56067	127	23	2	5	34
0100	48 47.2	126 33.6	182	56062	113	23	-0	7	29
0110	48 48.0	126 32.3	145	56074	115	23	-2	7	25
0120	48 48.7	126 31.1	119	56090	122	23	-4	1	15
0130	48 49.5	126 29.9	110	56095	117	23	-6	-6	7
0140	48 50.2	126 28.7	99	56101	114	23	-9	-8	4
0150	48 51.0	126 27.5	94	56112	115	23	-14	-10	1
0200	48 51.7	126 26.3	92	56127	121	23	*	-14	-3
0210	48 52.5	126 25.1	89	56130	114	23	-22	-15	-4
0220	48 53.3	126 23.9	87	56138	113	23	-26	-21	-11
0230	48 54.0	126 22.7	83	56149	114	23	-31	-23	-13
0240	48 54.8	126 21.5	80	56160	116	23	-34	-27	-17
0250	48 55.5	126 20.3	77	56163	110	23	-35	-32	-23
0300	48 56.3	126 19.1	74	56168	105	23	-28	-27	-18
0310	48 57.0	126 17.8	70	56182	110	23	-36	-36	-28
0320	48 57.8	126 16.6	67	56199	117	23	-38	-32	-24
0330	48 58.5	126 15.4	63	56208	117	23	-38	-33	-26
0340	48 59.3	126 14.2	58	56199	98	23	-36	-33	-26
0350	49 .0	126 13.0	52	56258	148	23	-29	-25	-19
0400	49 .8	126 11.8	46	56302	183	*	*	*	*
0410	49 1.1	126 10.7	43	56356	231	22	*	-23	-18
0420	49 1.4	126 9.5	41	56415	283	22	-43	-27	-22
0430	49 1.7	126 8.4	39	56451	313	*	*	*	*
0440	49 .6	126 5.7	34	56407	266	53	*	-46	-42
0450	48 59.6	126 3.0	32	56345	201	53	*	-47	-44
0500	48 58.5	126 .2	30	56298	151	53	-40	-38	-35
0510	48 57.5	125 57.5	28	56231	81	53	-39	-36	-33
0520	48 56.4	125 54.8	26	56206	53	53	-37	-37	-34
0530	48 55.4	125 52.1	26	56193	37	53	-41	-40	-37
0540	48 54.3	125 49.4	27	56193	34	53	-39	-36	-33
0550	48 53.2	125 46.6	57	56184	22	53	-39	-41	-34
0600	48 52.2	125 43.9	26	56196	30	53	-32	-33	-30
0610	48 51.1	125 41.2	29	56214	45	53	-28	-28	-25
0620	48 50.1	125 38.5	28	56207	35	53	-27	-26	-23
0630	48 49.0	125 35.8	29	56234	59	53	-25	-25	-22
0640	48 47.9	125 33.0	64	56220	42	53	-24	-22	-14
0650	48 46.9	125 30.3	62	56224	43	53	-23	-19	-12
0700	48 45.8	125 27.6	59	56231	47	53	-22	-20	-13
0710	48 44.8	125 24.9	58	56218	31	53	-18	-16	-9
0720	48 43.7	125 22.1	58	56198	8	53	-16	-14	-7
0730	48 42.6	125 19.4	53	56183	-9	53	-16	-14	-8
0740	48 41.6	125 16.7	43	56242	46	54	-13	-10	-5
0750	48 40.5	125 14.0	53	56202	3	54	-20	-11	-5
0800	48 39.5	125 11.3	50	56202	0	54	-13	-12	-6
0810	48 38.4	125 8.5	52	56229	24	54	-21	-16	-10

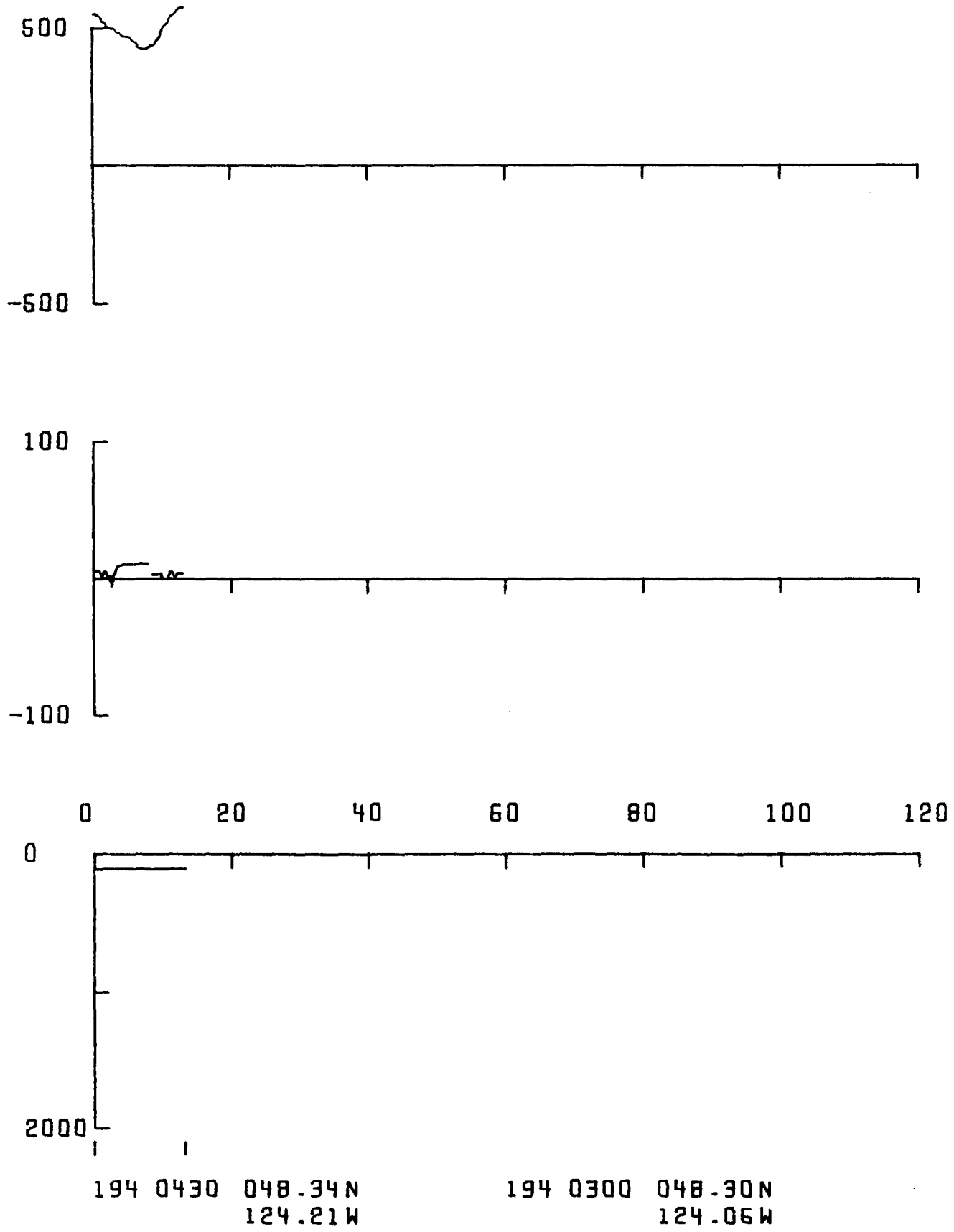


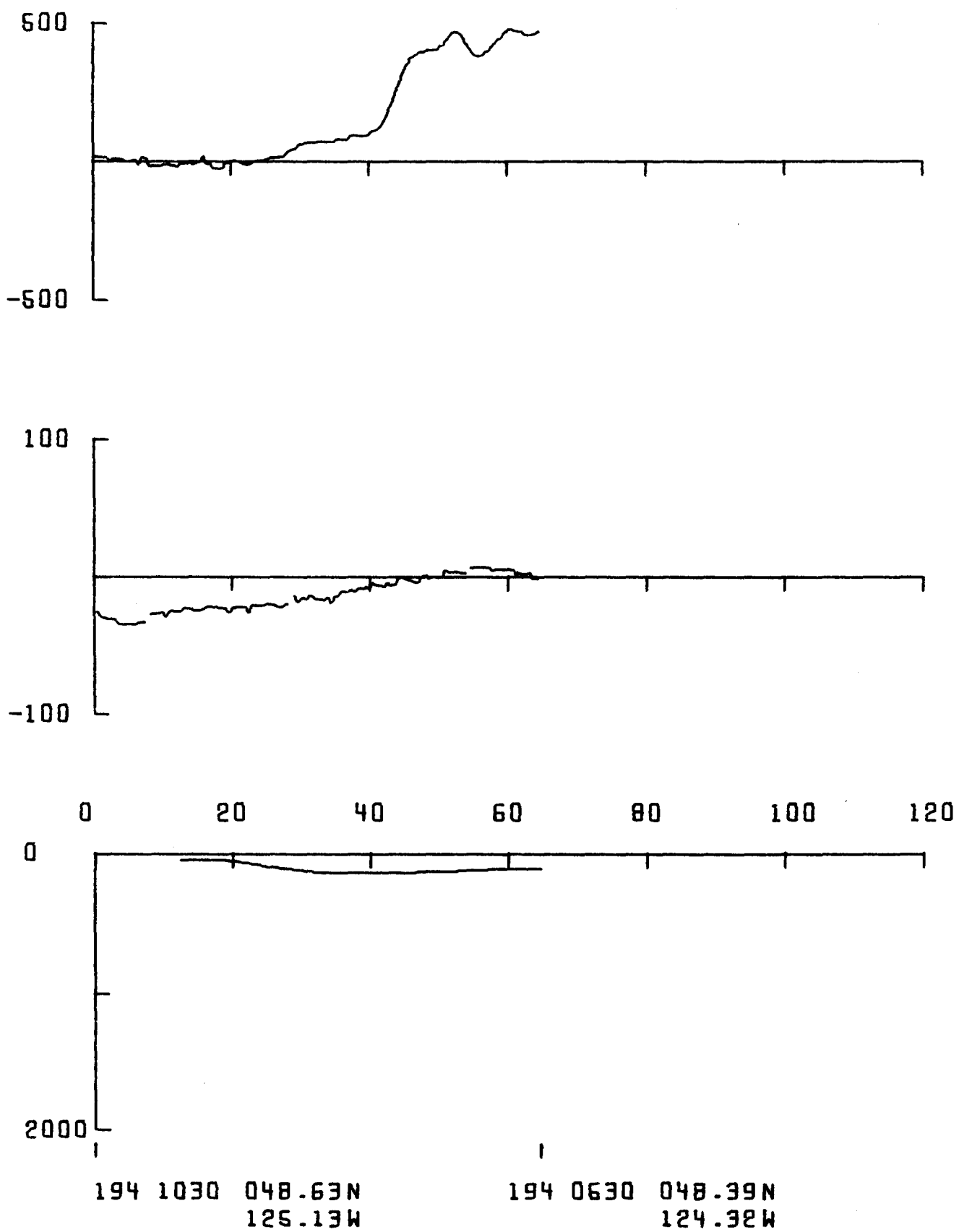
HUDSON 69-050 DAY 217 1970

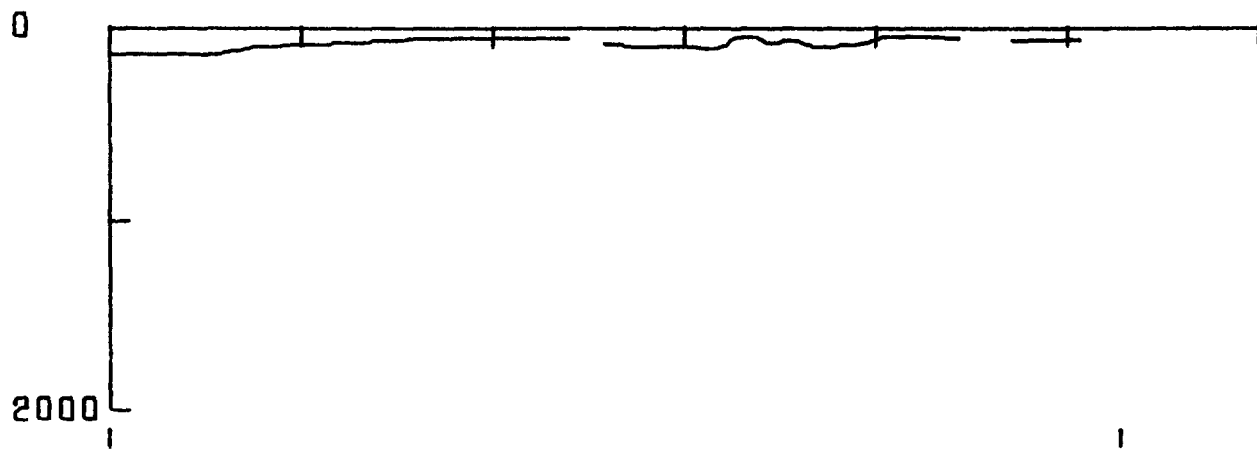
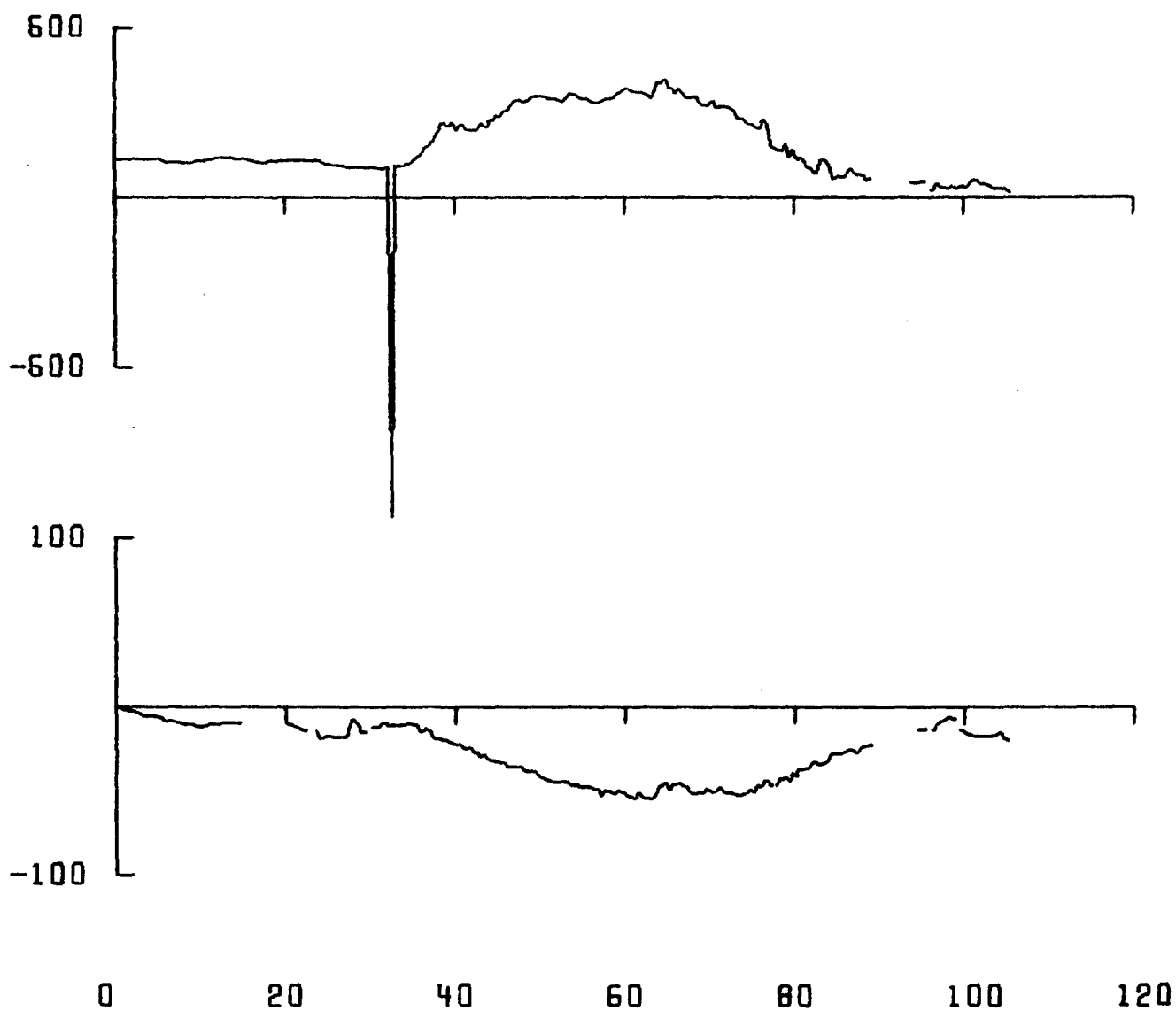
TIME	LATITUDE	LONGITUDE	BATHY	T.F.	M.A.	ECTVCS	F.A.	VSA	E.A.
0820	48 37.4	125 5.8	48	56197	-10	54	-20	-20	-15
0830	48 36.3	125 3.1	48	56197	-13	54	-27	-21	-16

DAY	AREA LIMITS		DATA FCINTS		
	LATITUDE	LONGITUDE	BATHY	GRAVITY	MAGNETICS
194	48.26-49.37	123.78-127.32	113	129	127
195	49.39-50.93	127.34-131.60	129	135	134
196	50.96-51.45	131.95-133.87	31	31	28
197	51.22-52.07	133.79-134.59	42	45	39
198	51.32-51.48	129.13-135.08	134	136	134
199	51.46-51.55	129.95-134.24	80	80	73
200	51.58-51.64	131.97-134.34	73	73	73
201	51.54-51.59	133.21-134.45	33	33	25
202	51.42-51.73	133.62-134.03	12	12	10
203	51.75-52.51	131.62-135.00	122	125	124
204	52.00-52.28	131.18-134.11	117	117	117
205	51.18-52.05	131.34-135.03	144	144	144
206	50.85-51.90	132.75-134.85	141	143	143
207	51.73-52.34	133.04-135.01	101	102	92
208	50.39-51.72	131.72-135.00	117	117	116
209	50.30-51.33	129.45-131.70	103	103	101
210	49.70-51.30	128.32-129.48	100	100	98
212	50.34-51.83	130.00-131.95	119	119	118
213	50.79-51.64	129.01-132.00	124	124	123
214	50.45-50.78	128.44-131.00	107	125	121
215	50.24-50.46	128.17-131.01	115	116	114
216	48.50-50.25	126.70-130.02	140	142	141
217	48.61-49.03	125.05-126.68	52	52	52
SUM	48.26-52.51	123.78-135.08	2249	2303	2247



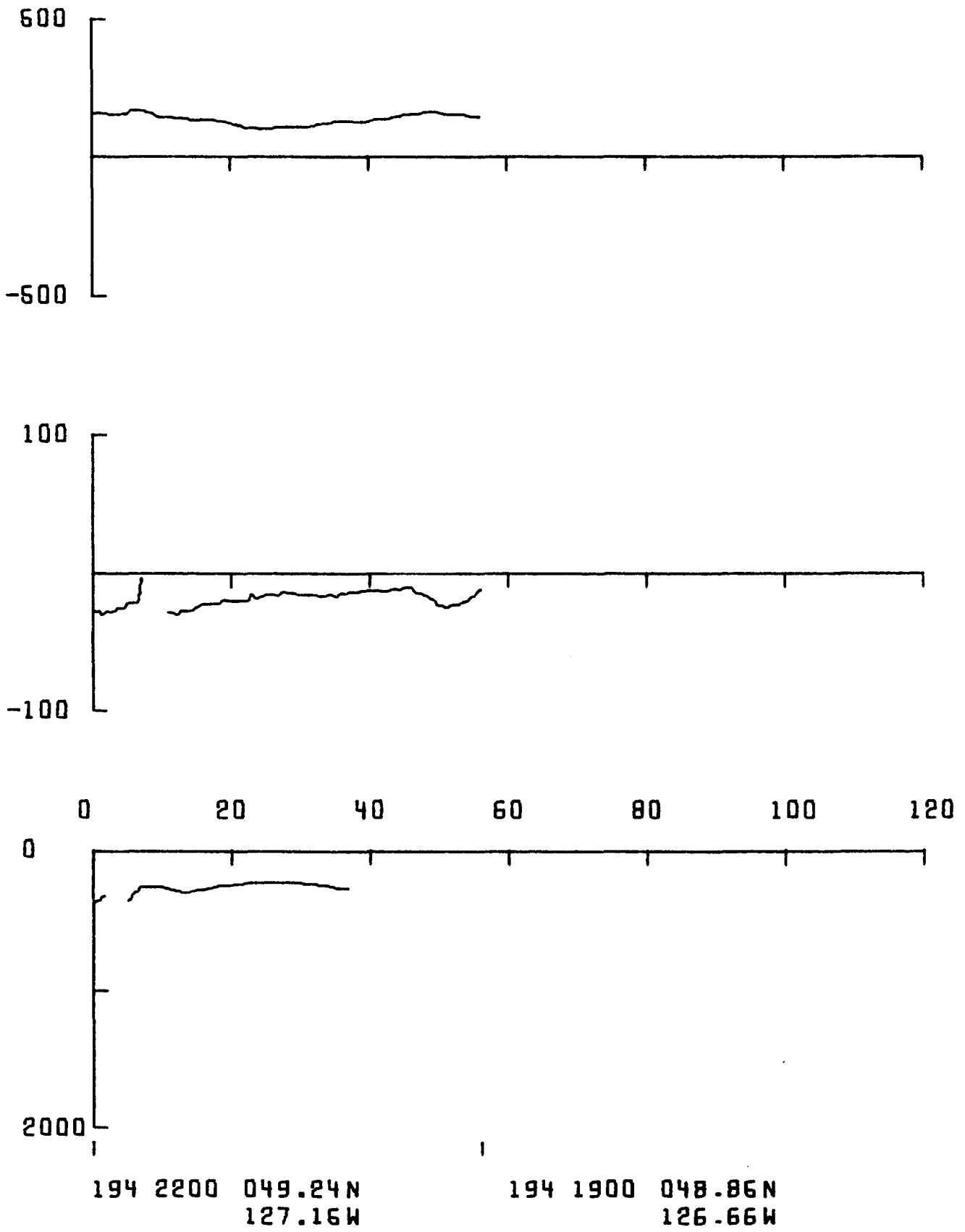


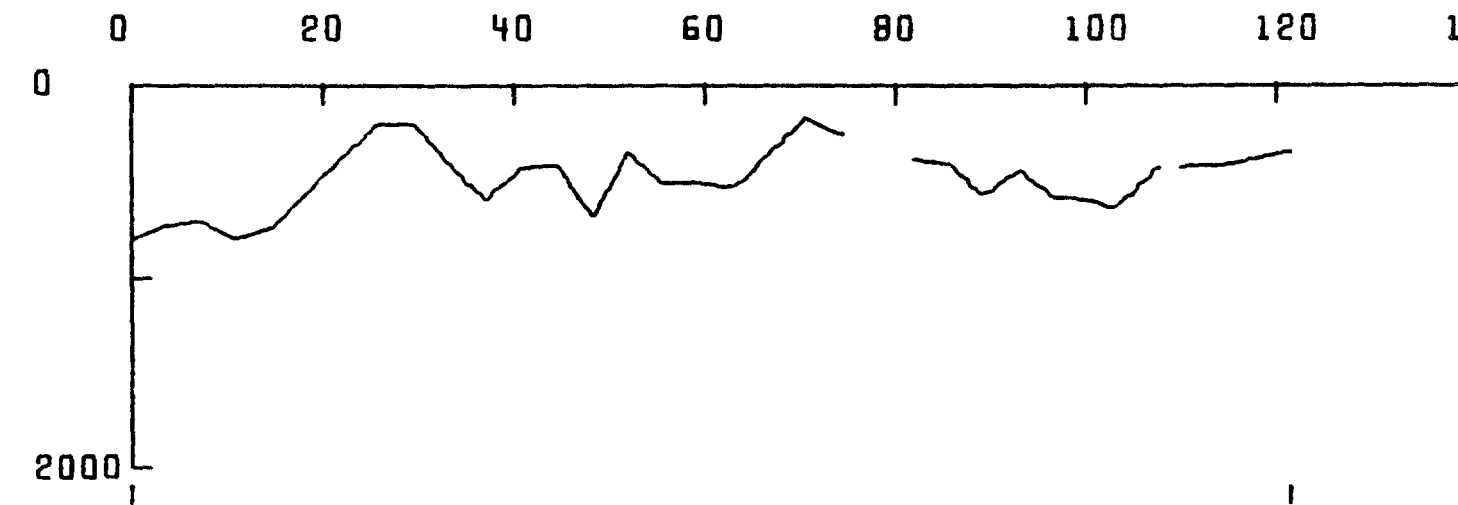
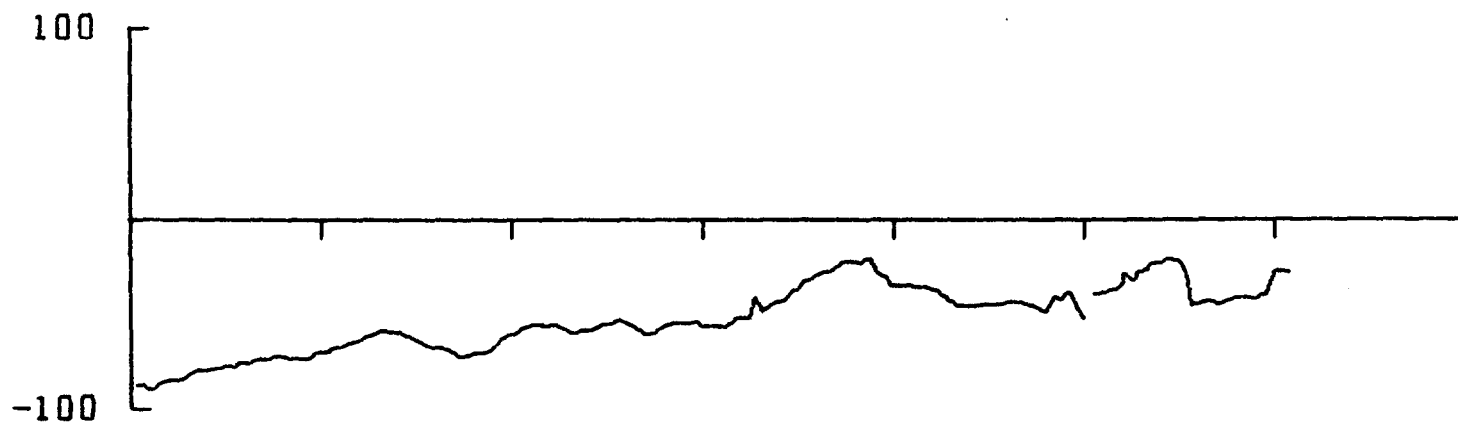
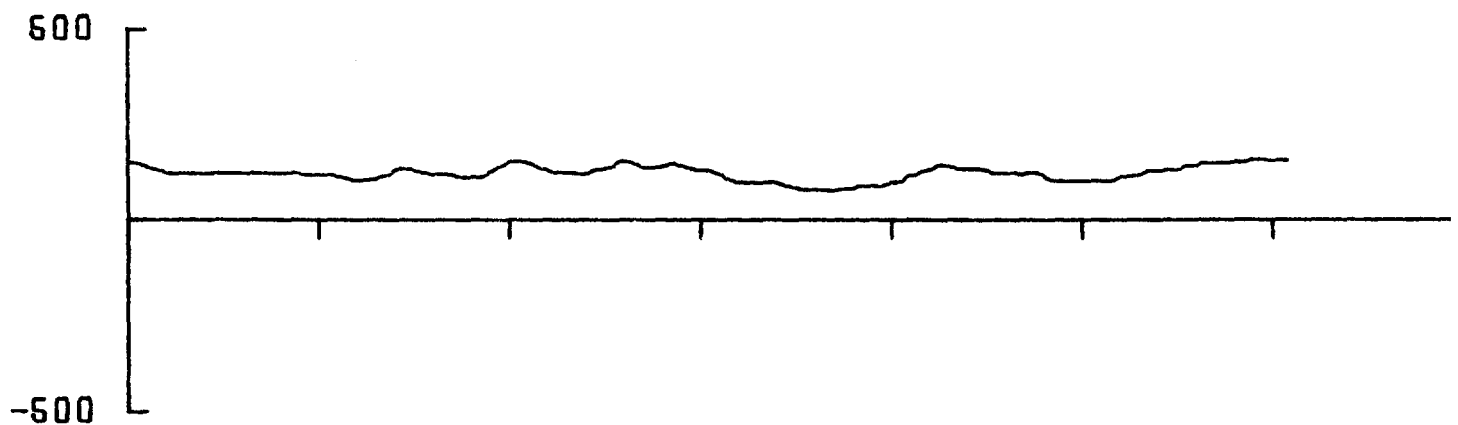




194 1830 048.80N  
126.54W

194 1030 048.63N  
125.13W

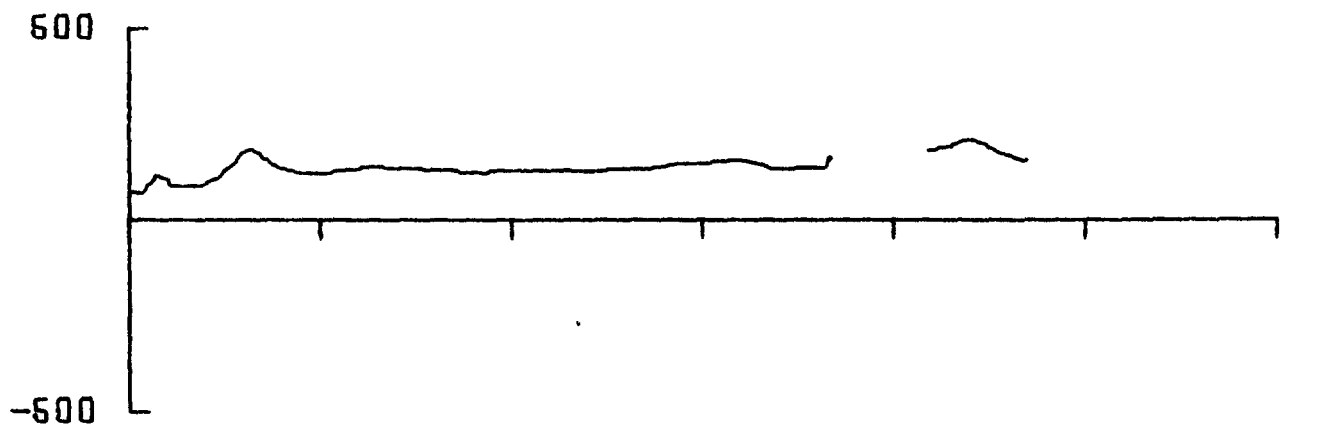




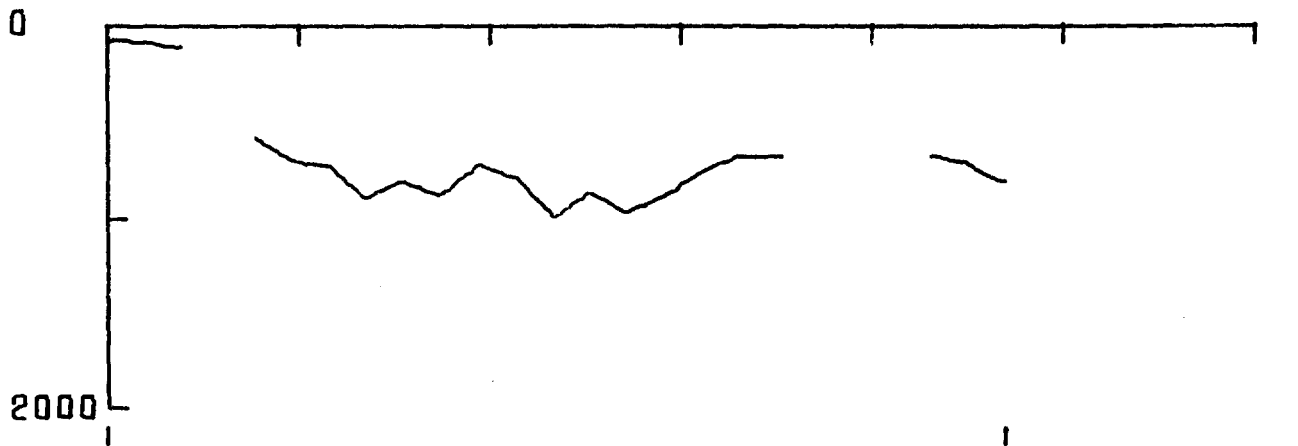
195 0600 060.14N  
128.29W

194 2300 049.29N  
127.22W



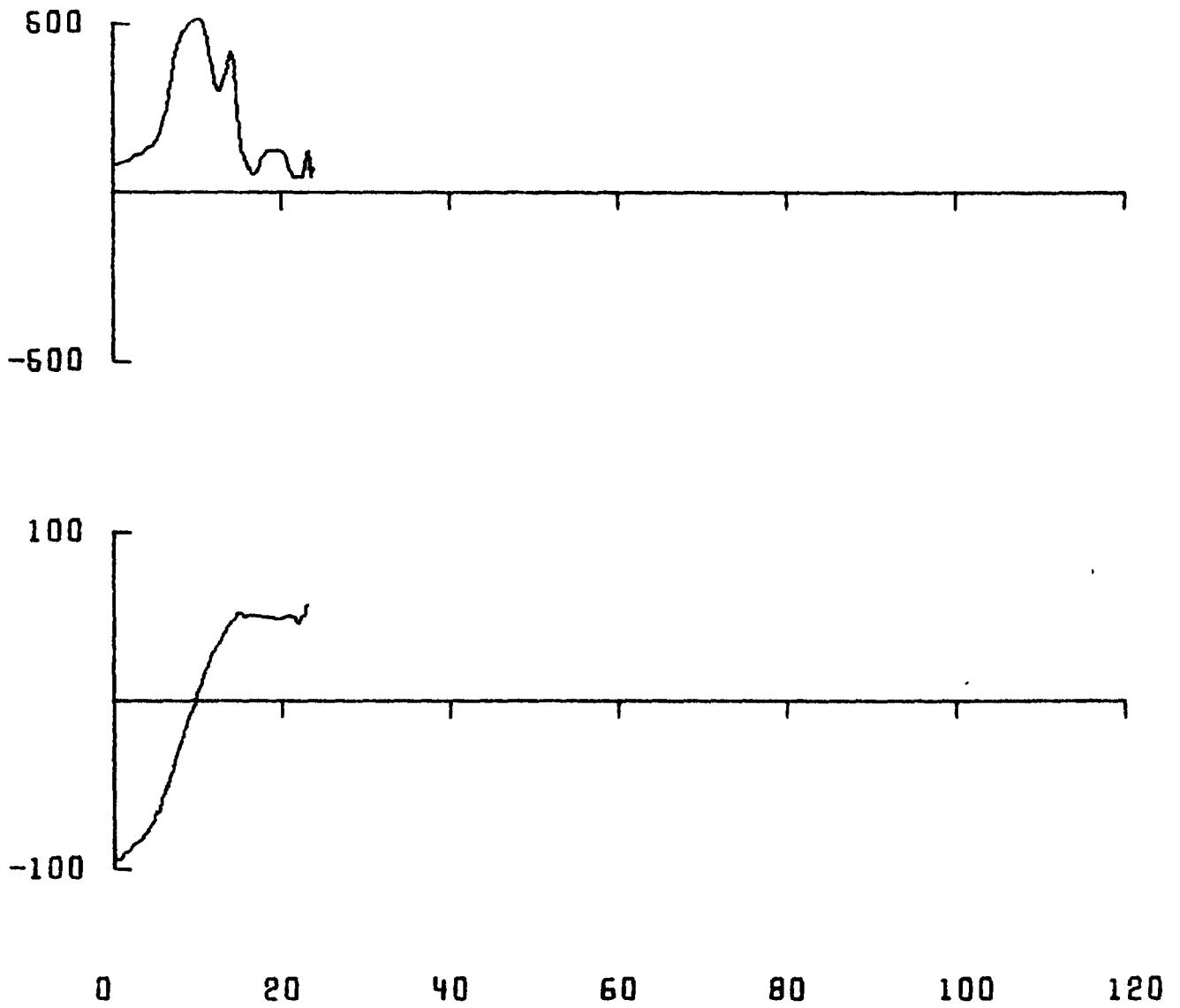


0 20 40 60 80 100 120



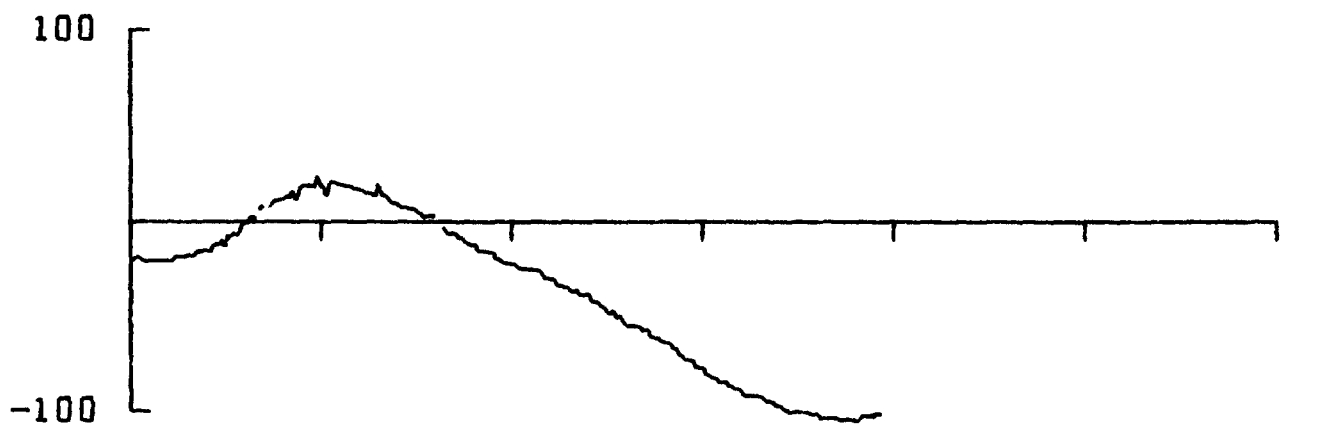
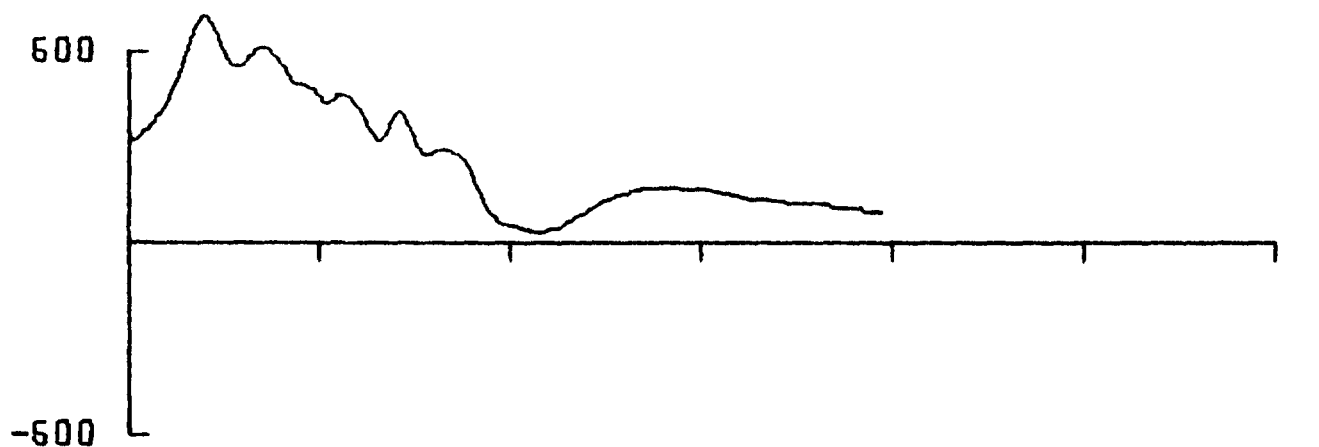
195 0900 060.78N  
129.17W

195 0600 060.14N  
128.29W

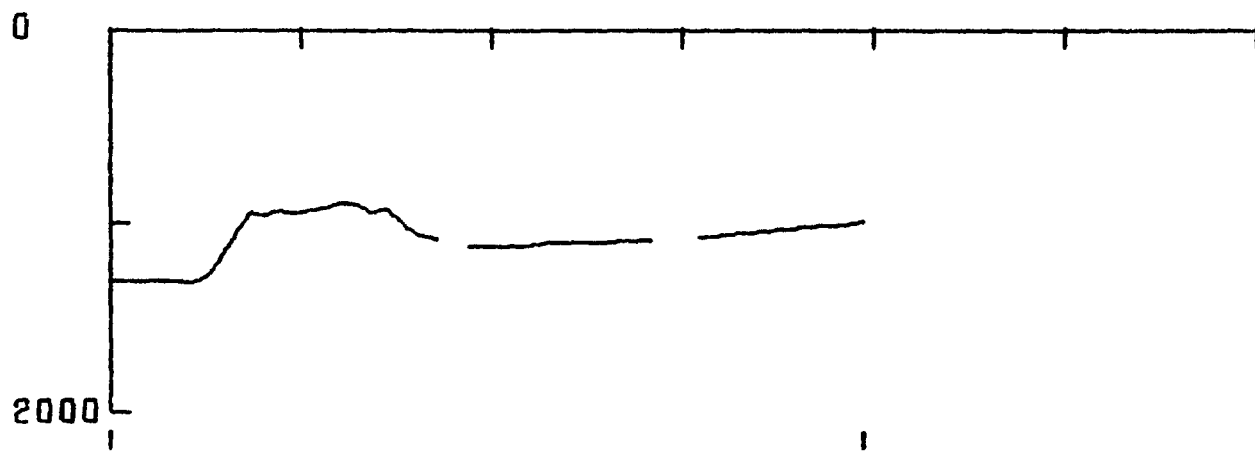


195 1130 060.73N  
129.50W

195 0900 060.78N  
129.17W

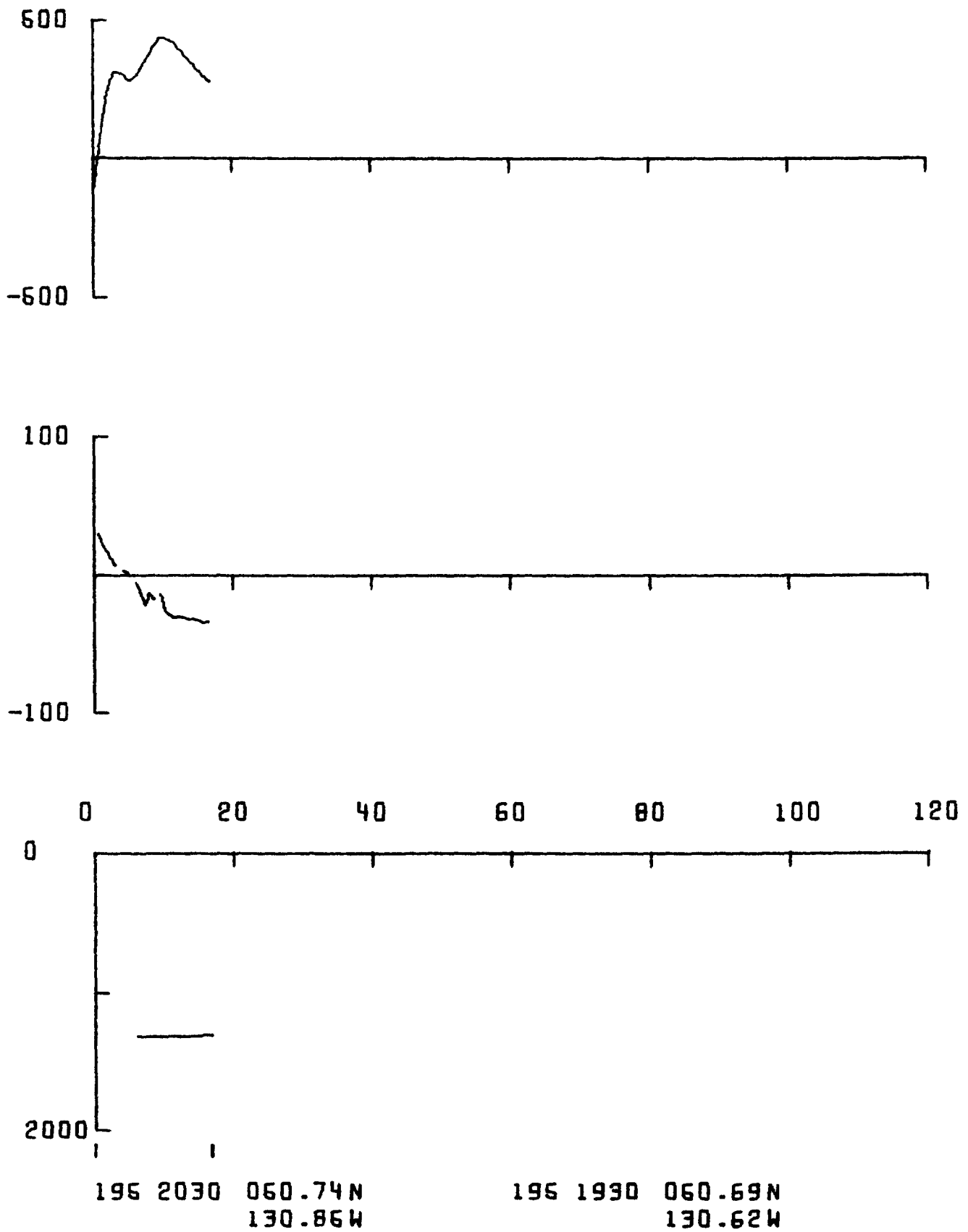


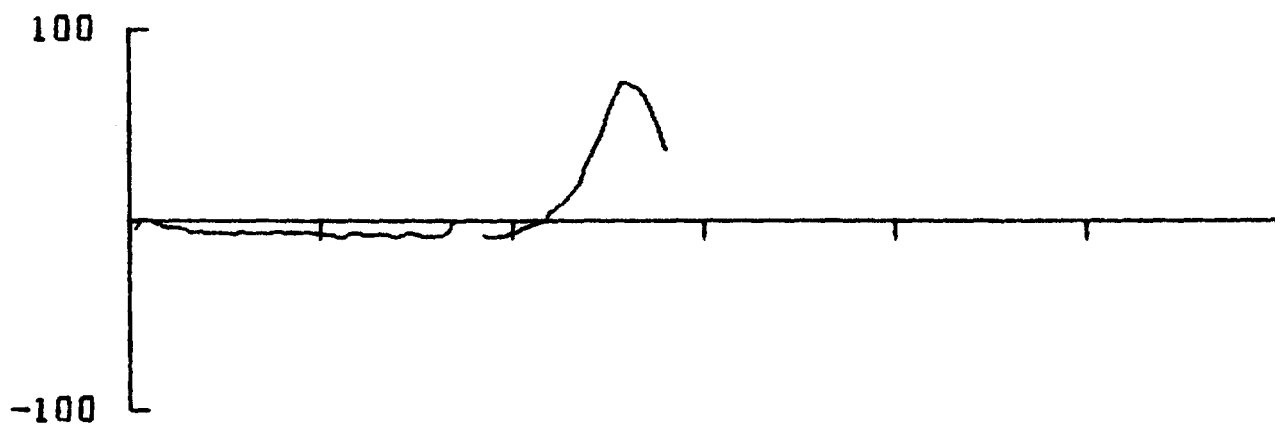
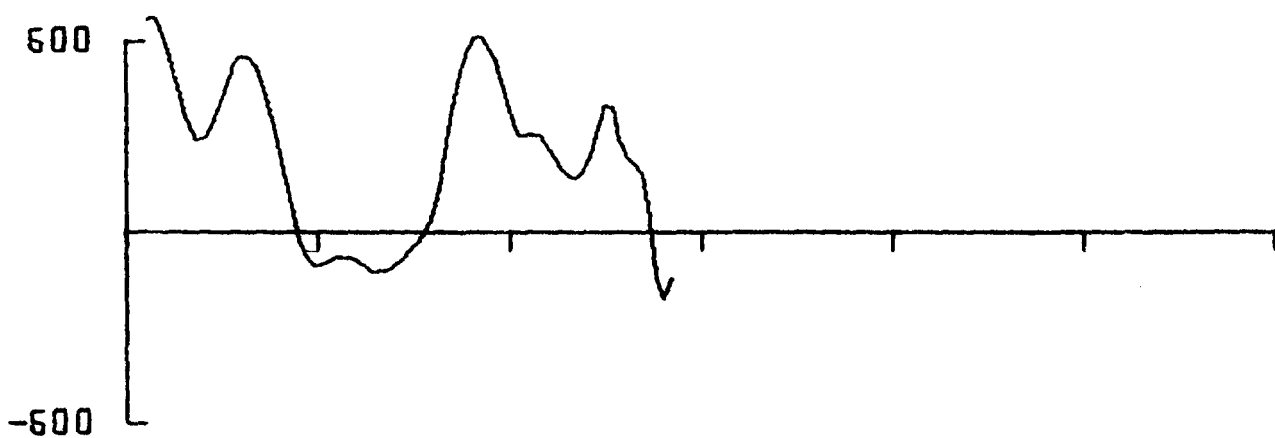
0 20 40 60 80 100 120



195 1930 060.69N  
130.62W

195 1130 060.73N  
129.50W



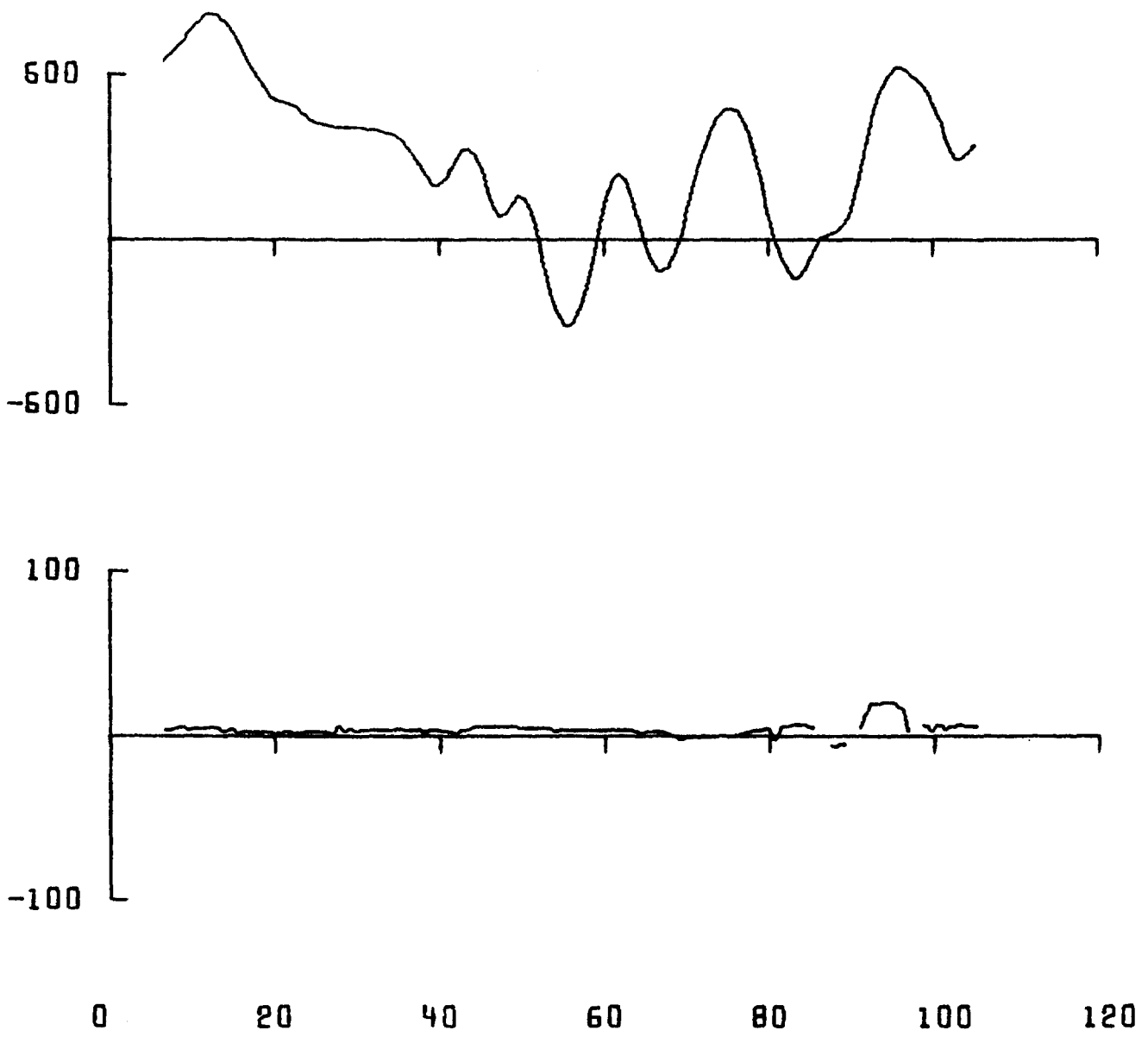


0 20 40 60 80 100 120



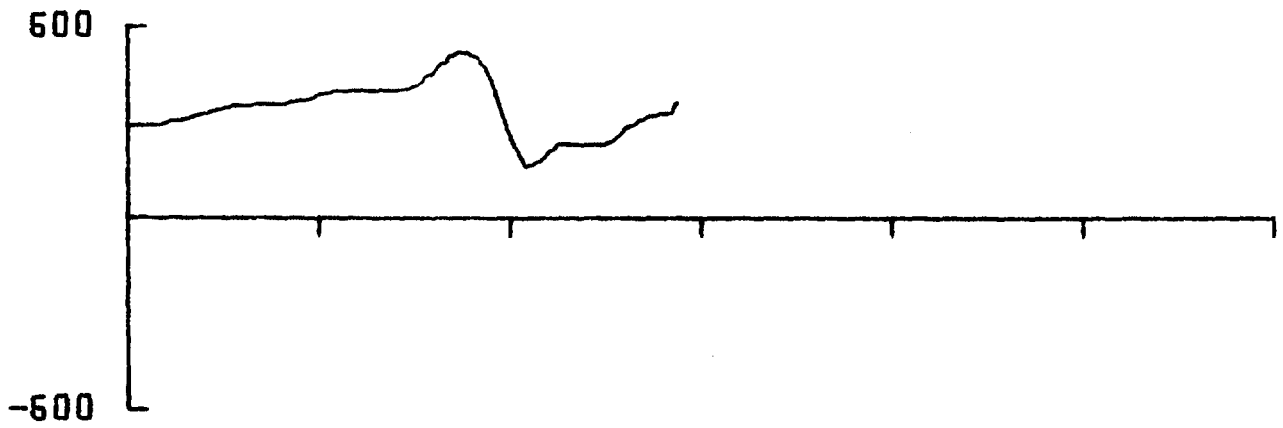
195 2300 060.93N  
131.60W

195 2030 060.74N  
130.86W

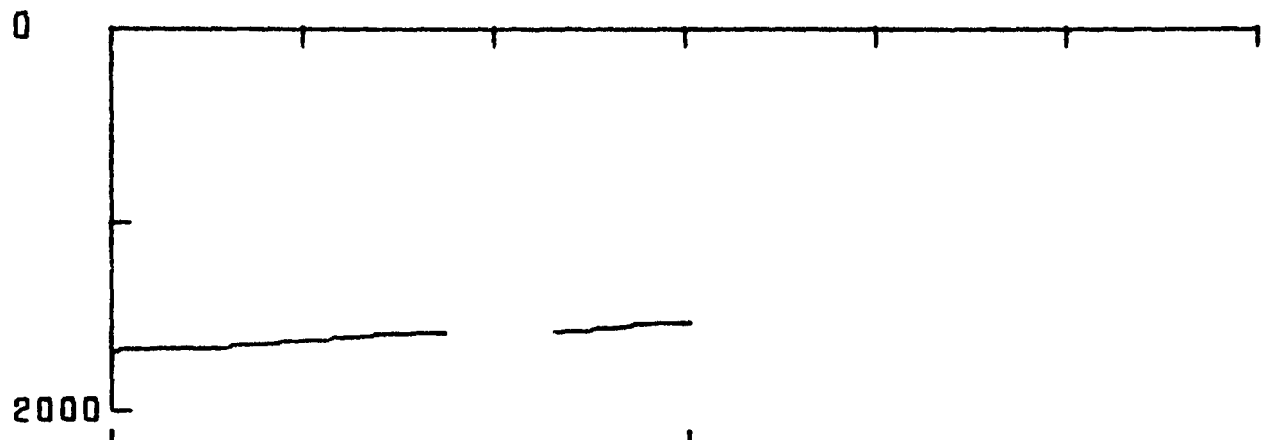


196 1130 061.29N  
133.41W

196 0640 060.97N  
131.99W

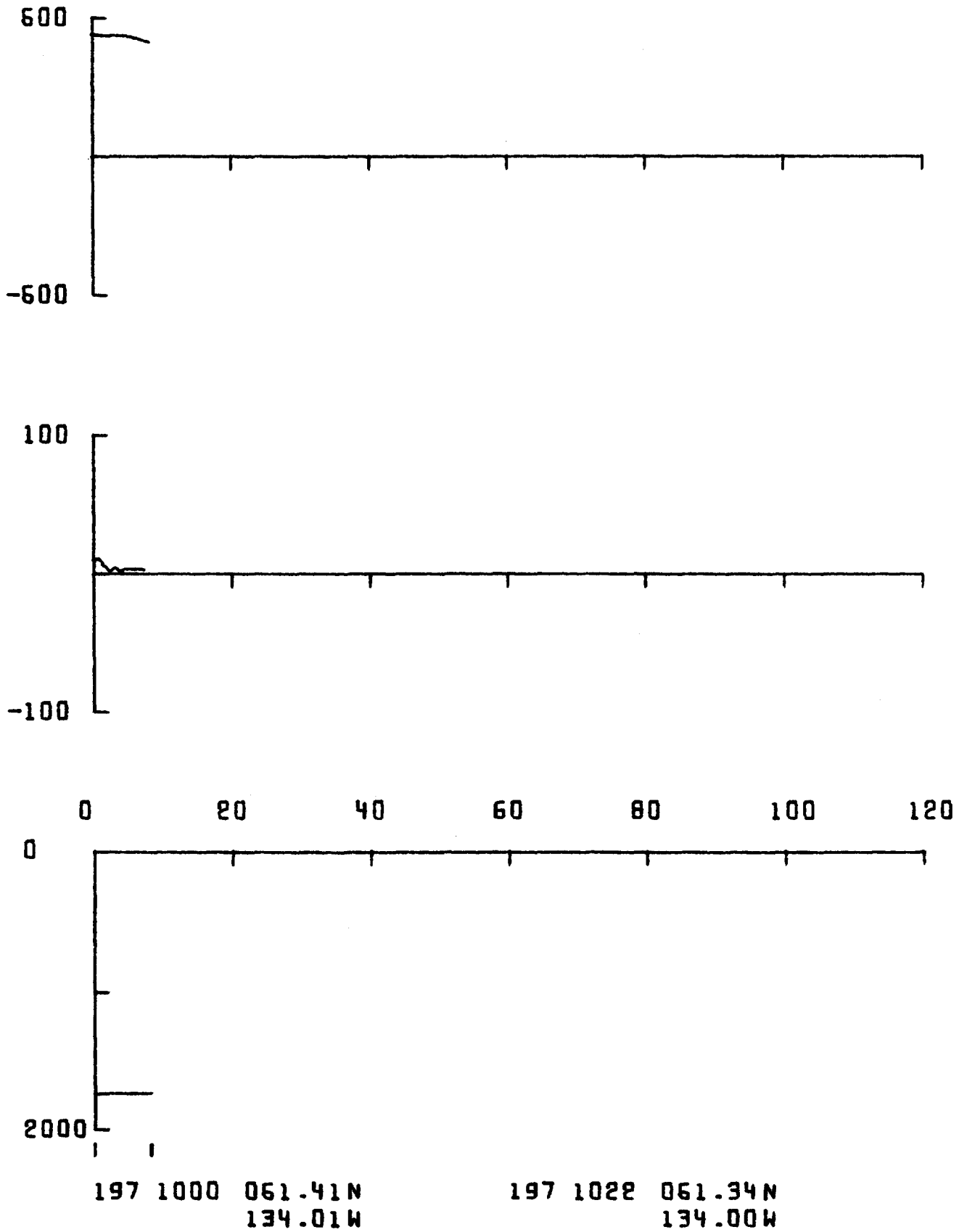


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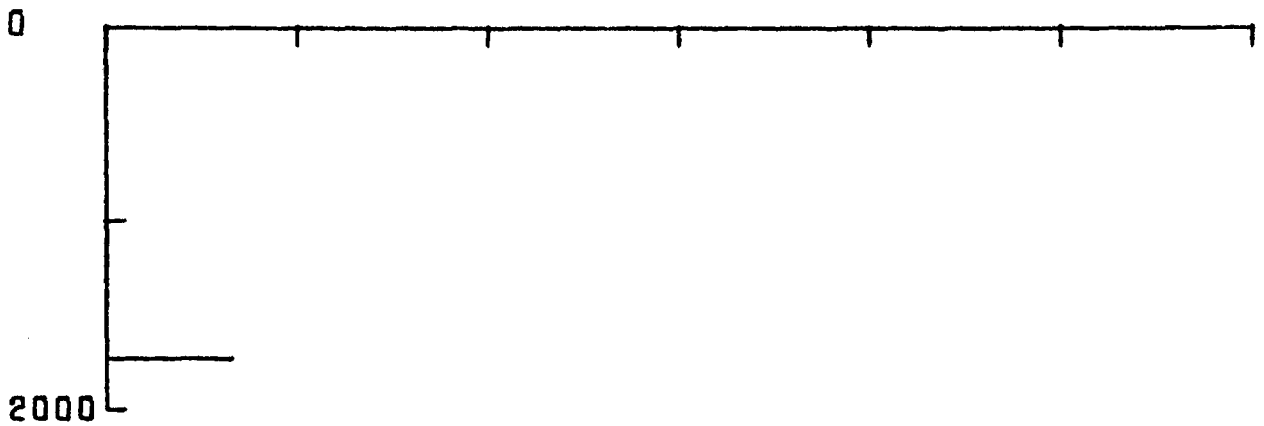
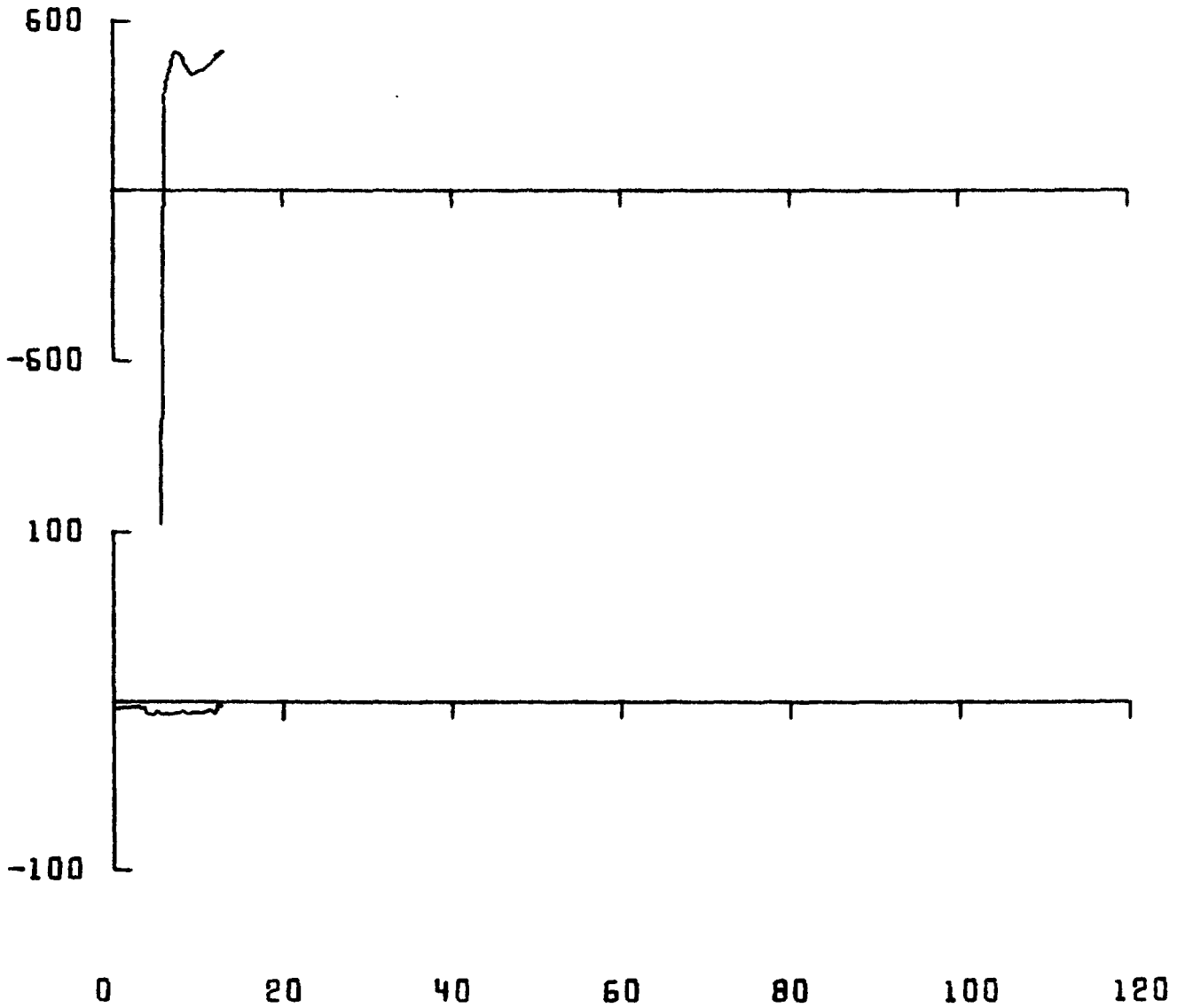


197 0904 061.53N  
139.87W

197 0610 062.07N  
139.79W

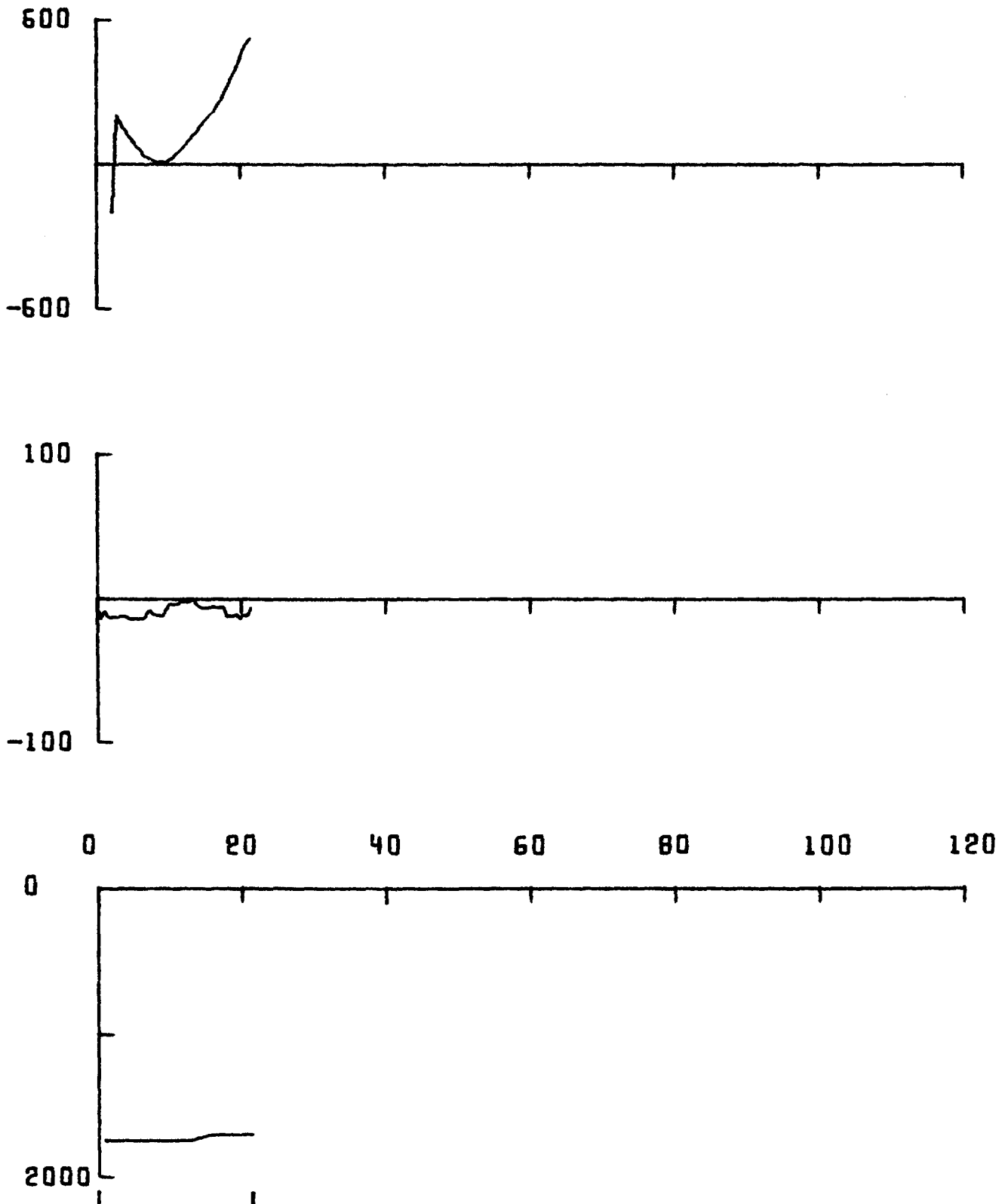






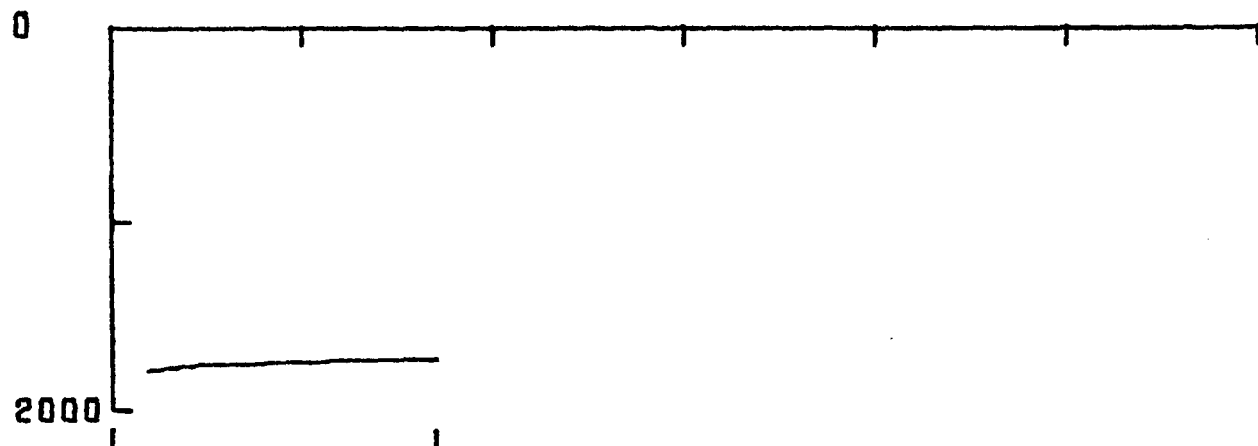
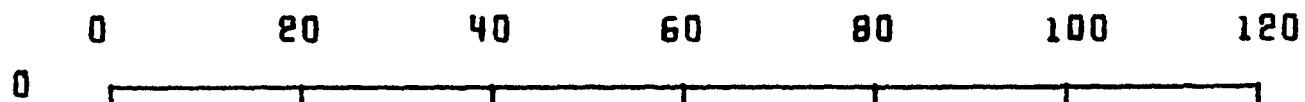
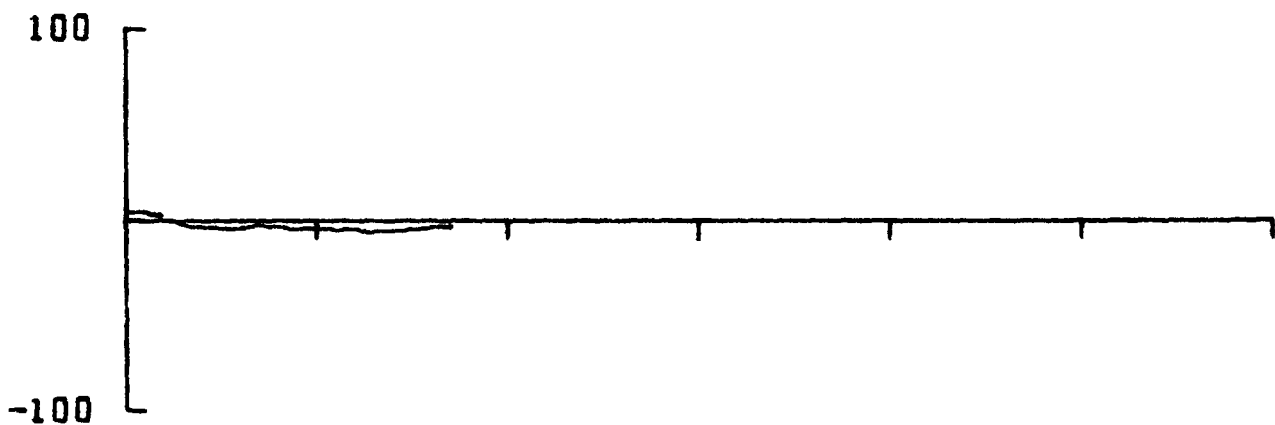
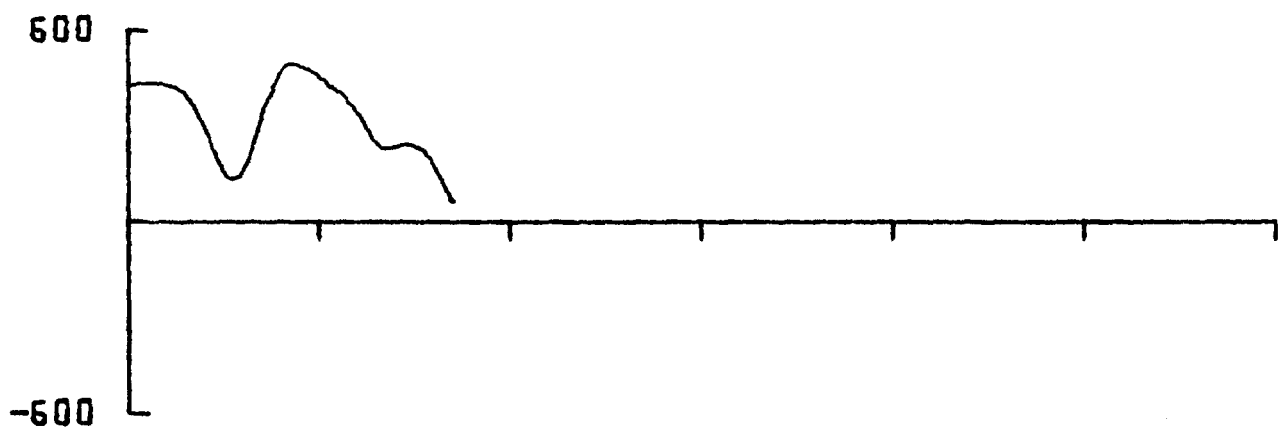
197 1132 061.22N  
134.01W

197 1022 061.34N  
134.00W



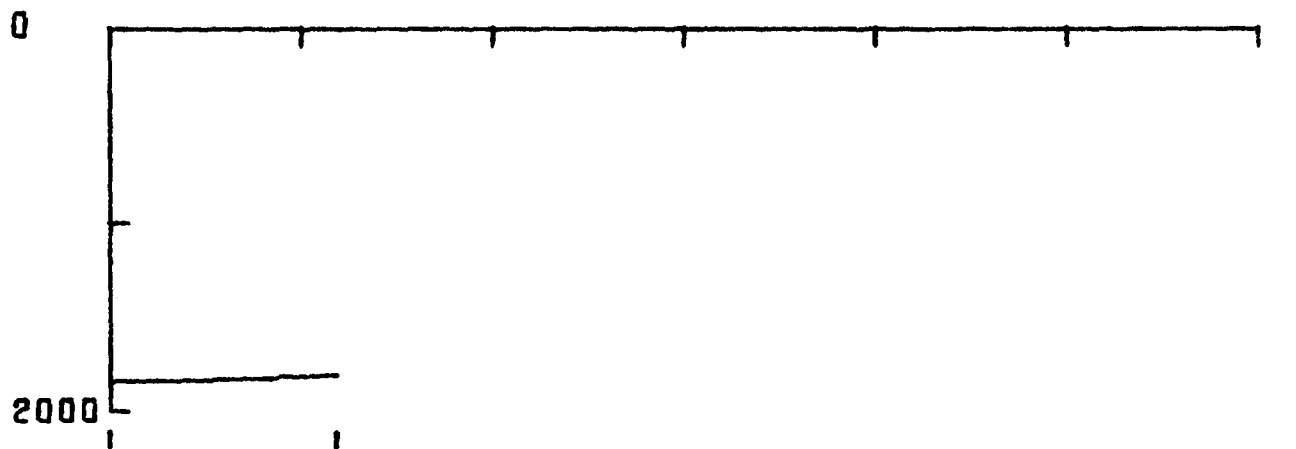
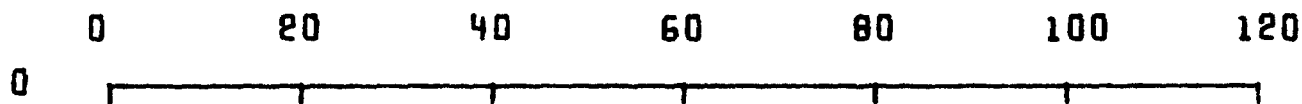
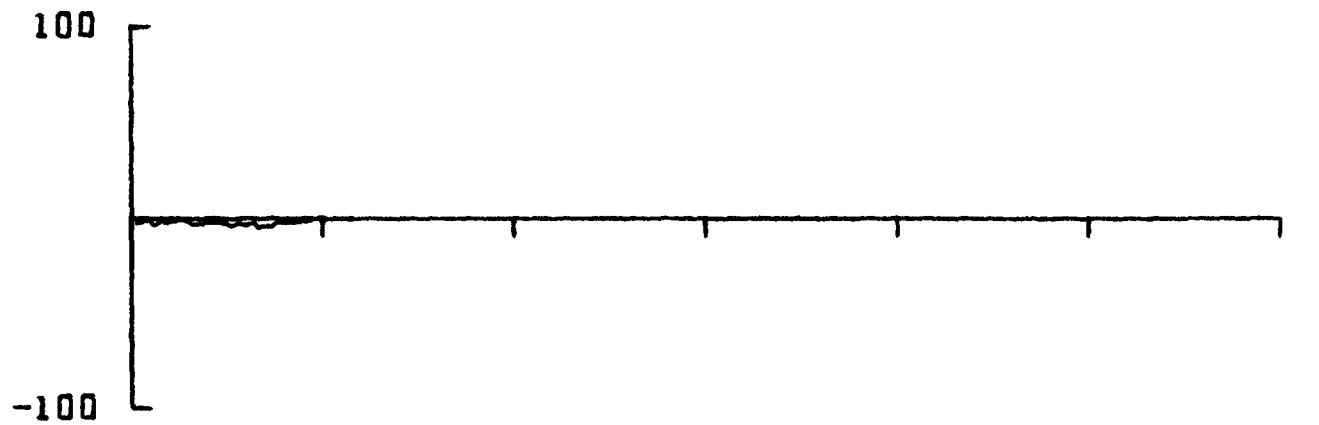
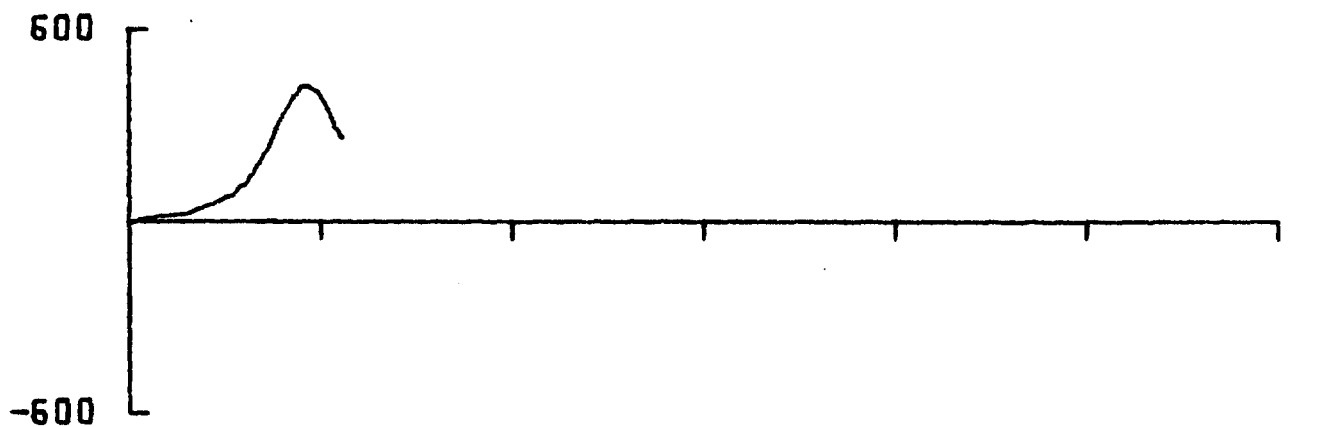
197 1746 061.34N  
134.04W

197 1902 061.53N  
139.99W



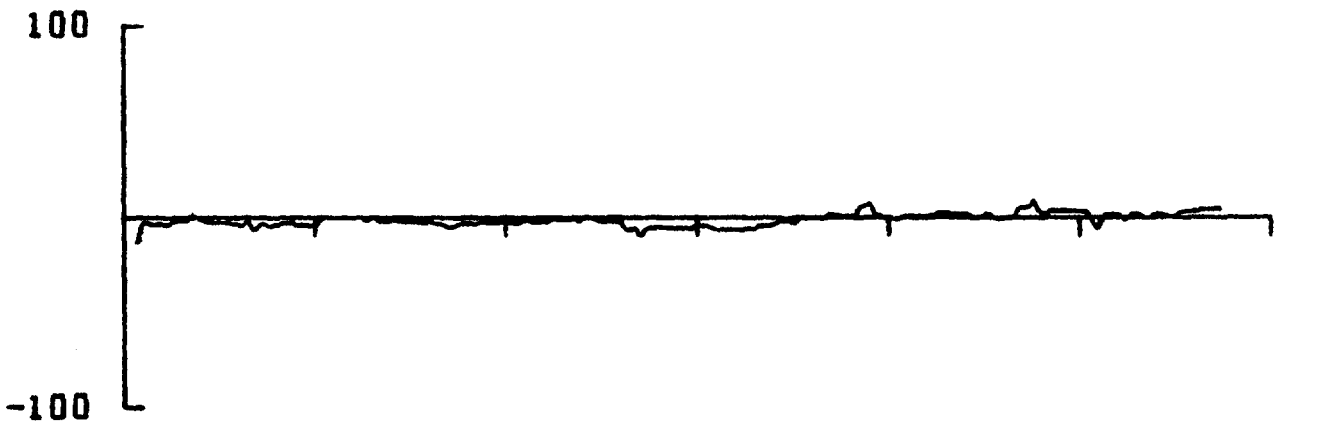
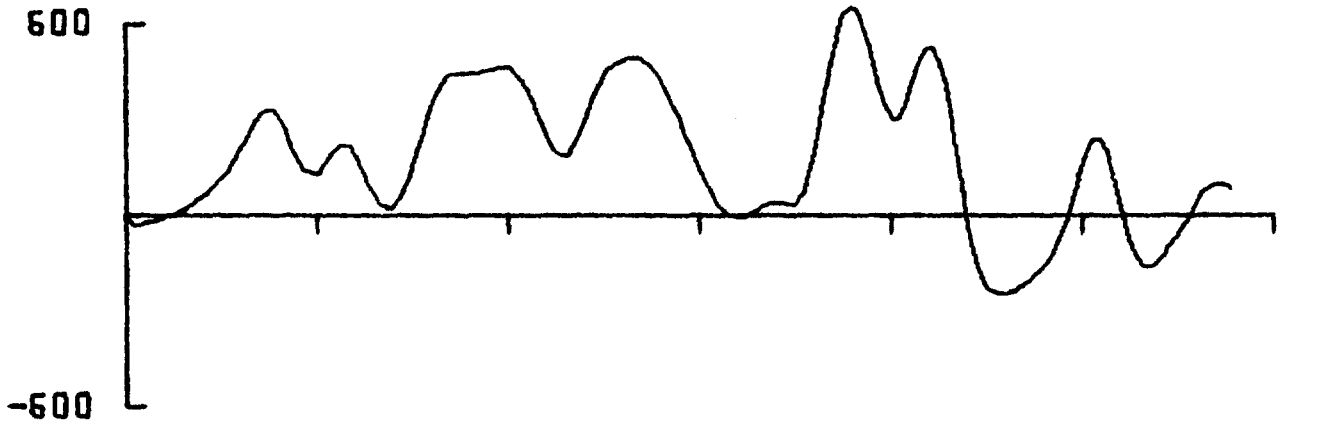
197 2100 061.69N  
134.59W

197 1996 061.59N  
134.09W

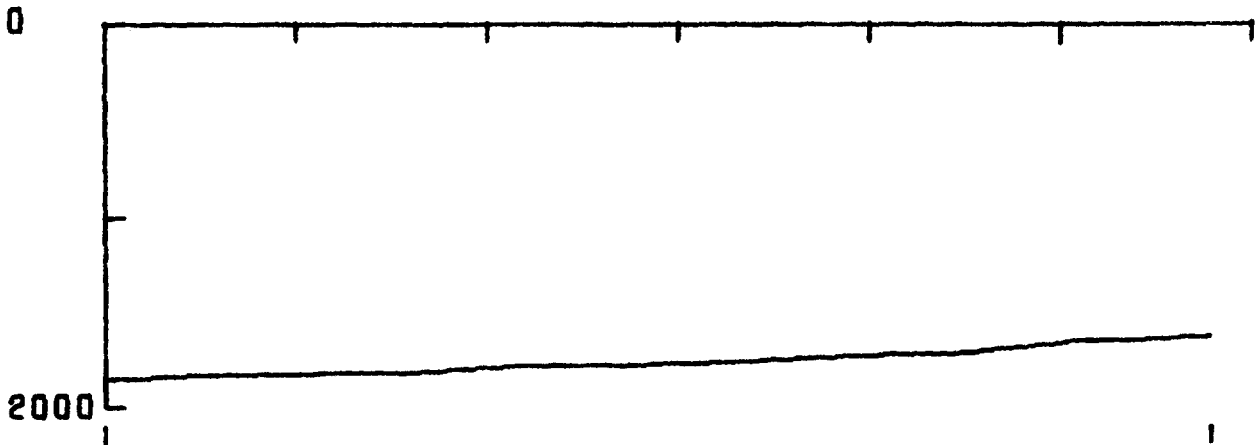


198 0140 061.37N  
135.08W

198 0030 061.48N  
134.80W

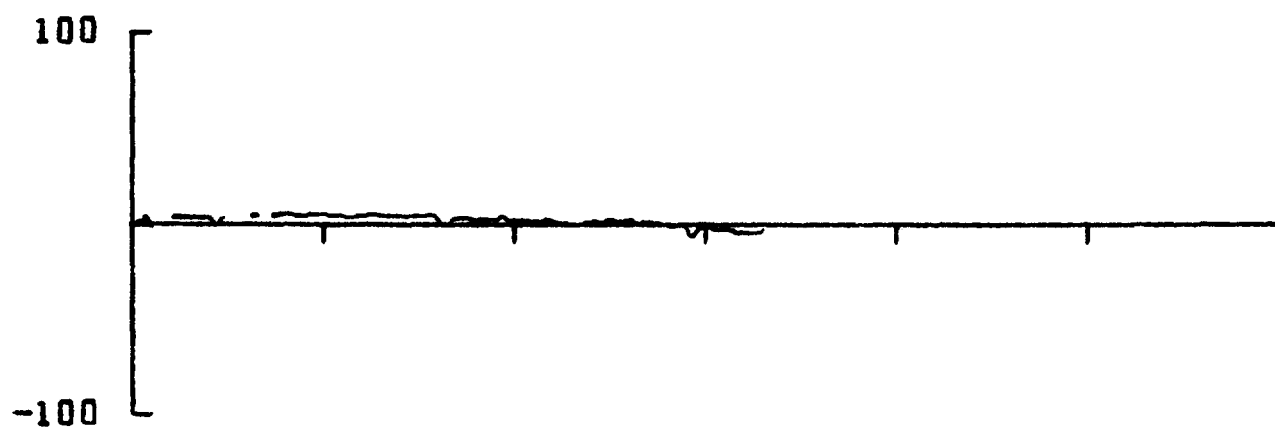
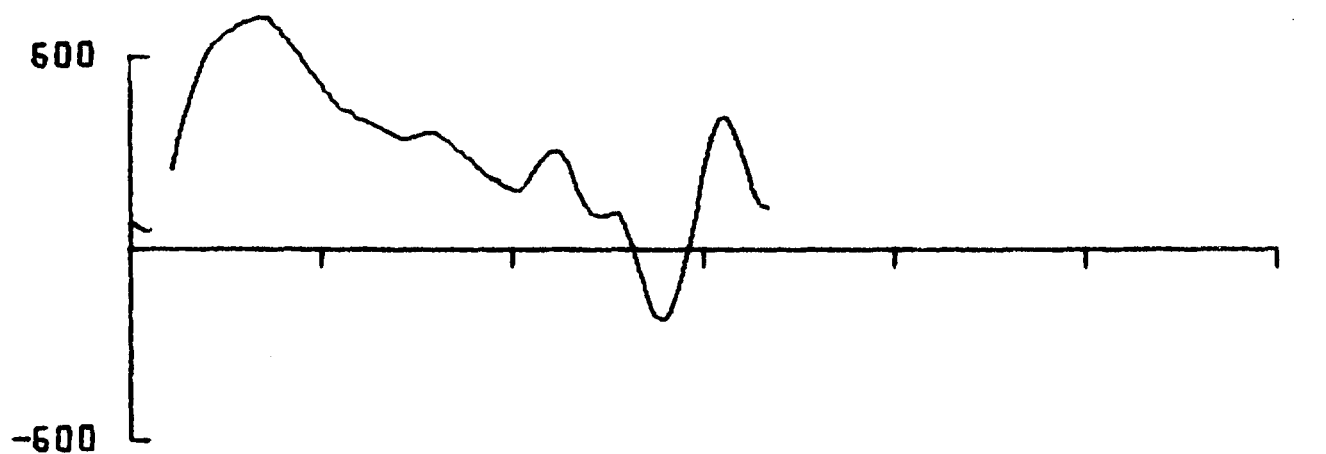


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198 0140 061.37N  
135.08W

198 0700 061.35N  
133.42W



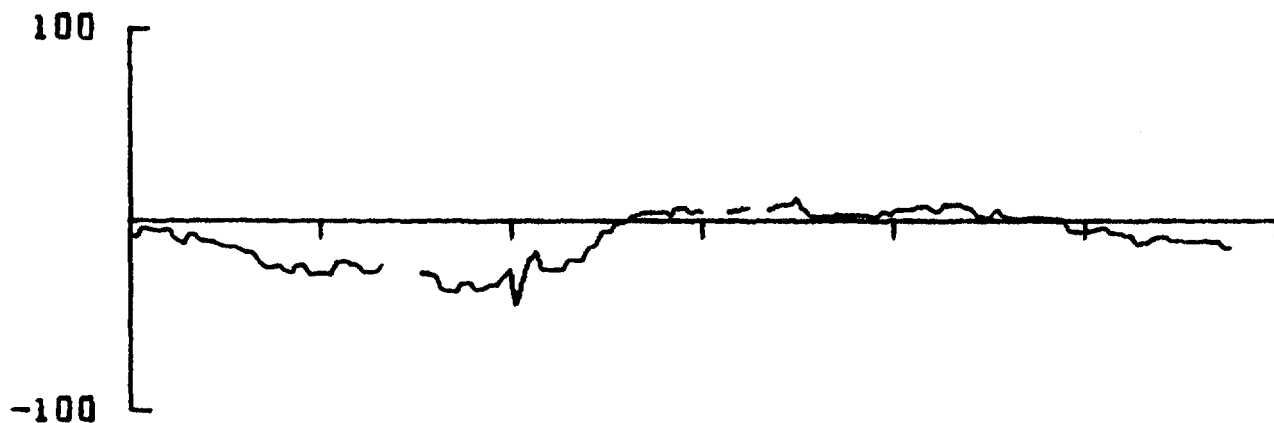
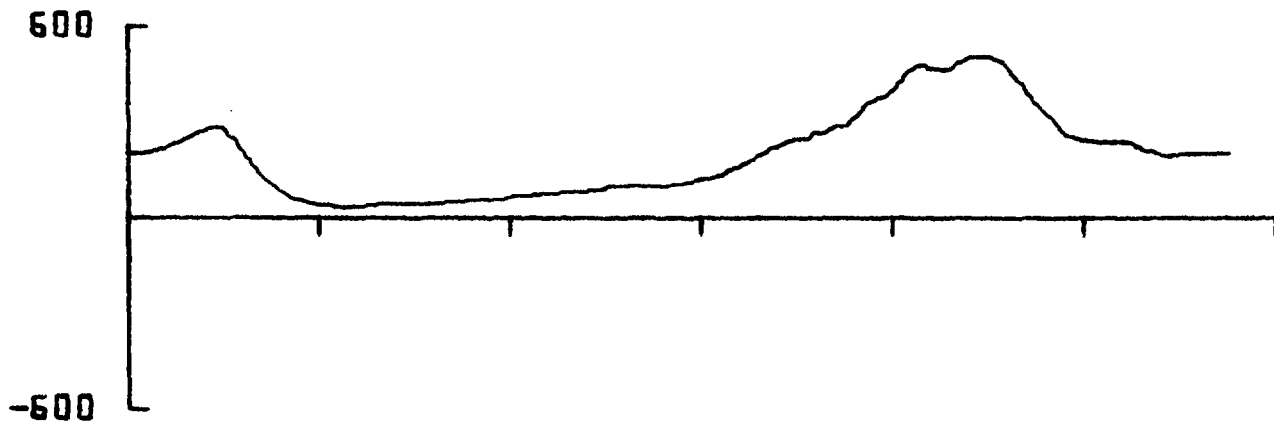
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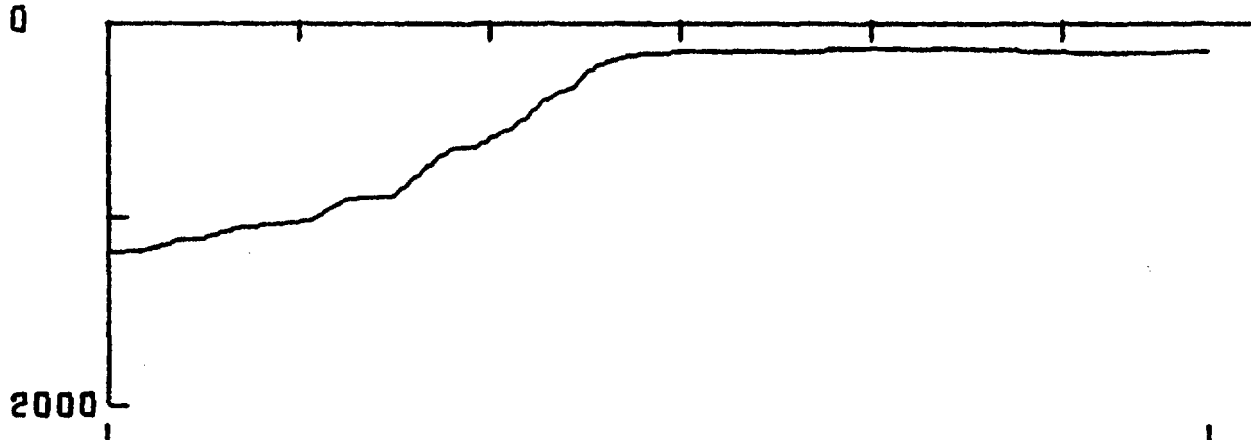
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198 0700 061.35N  
139.42W

198 1000 061.32N  
132.46W

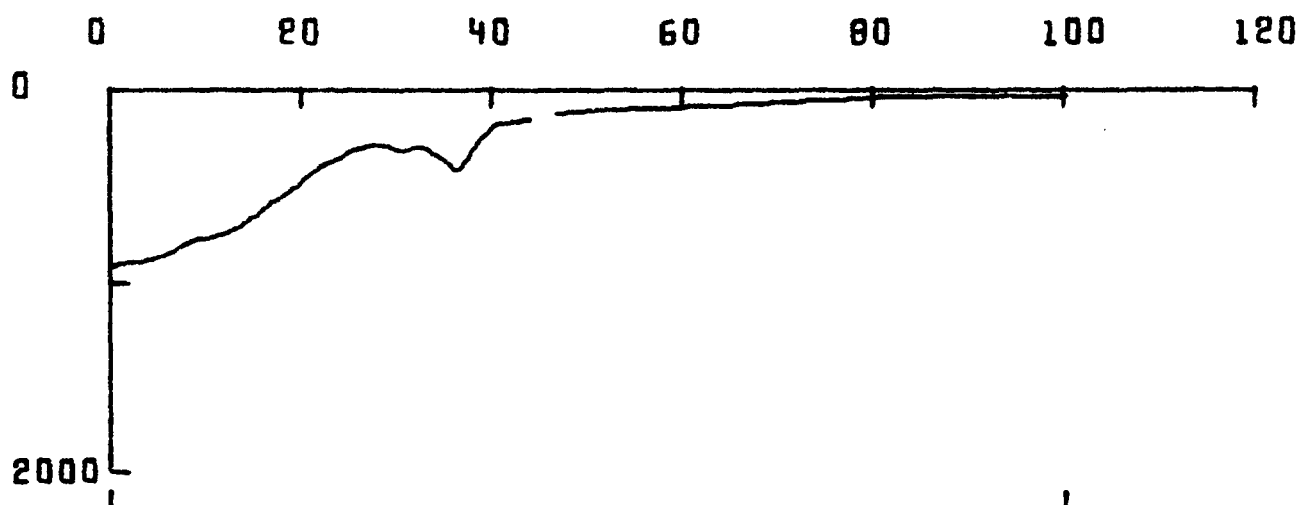
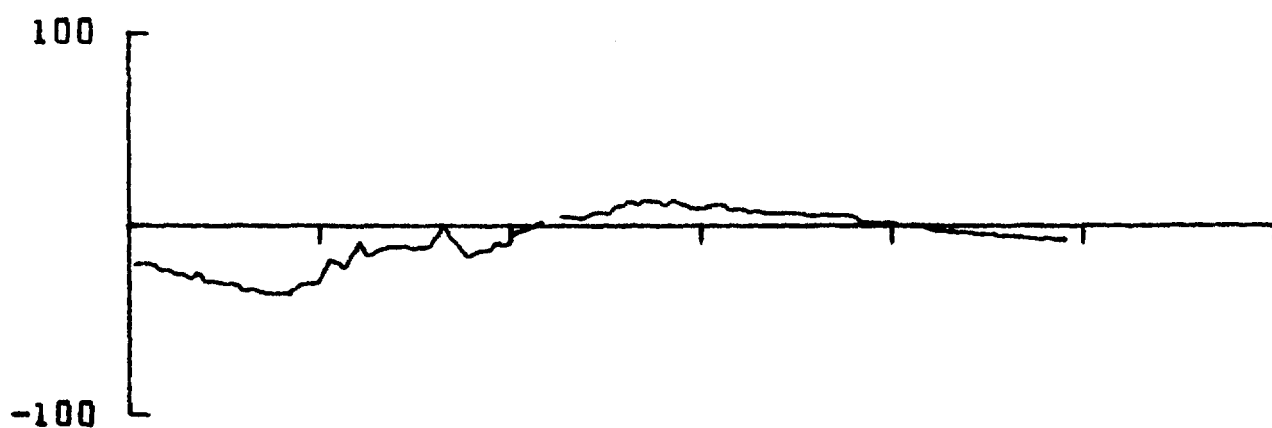
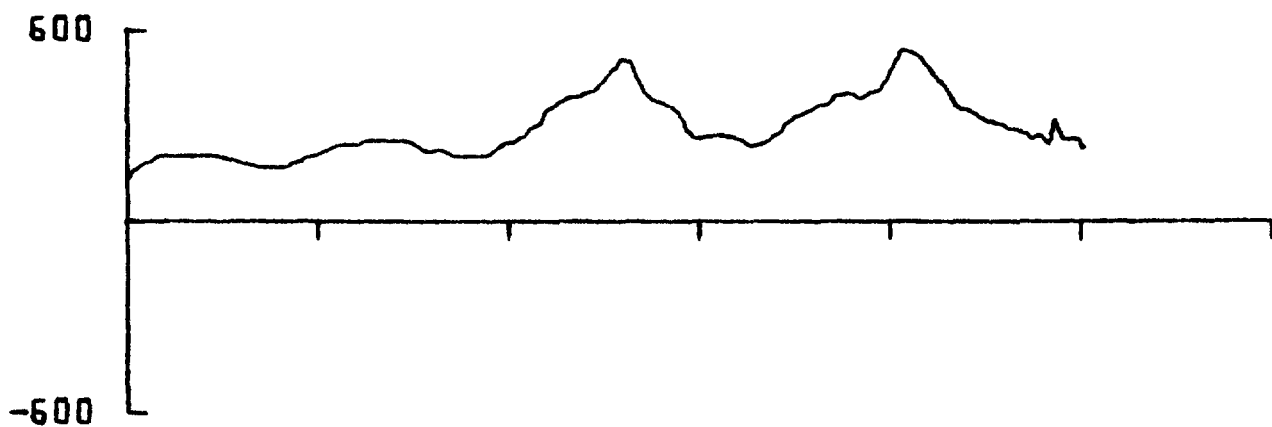


0 20 40 60 80 100 120



198 1600 061.32N  
130.79W

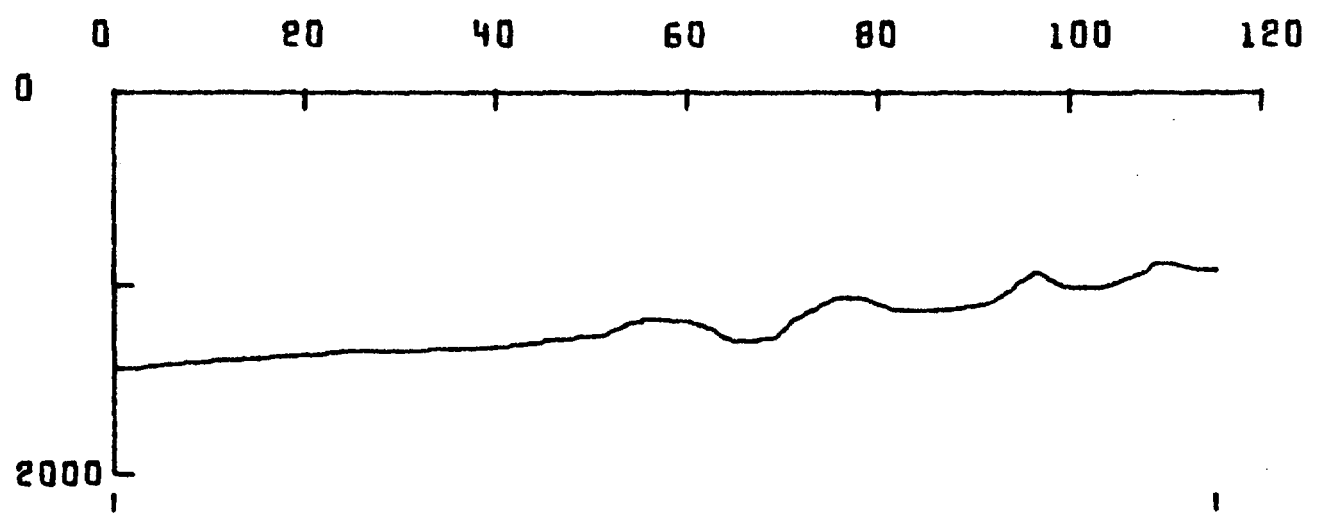
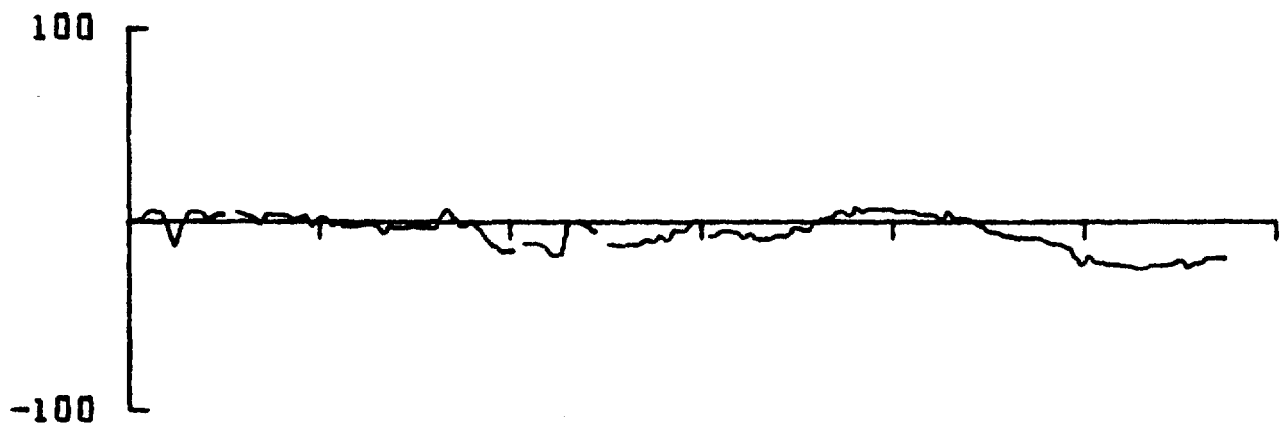
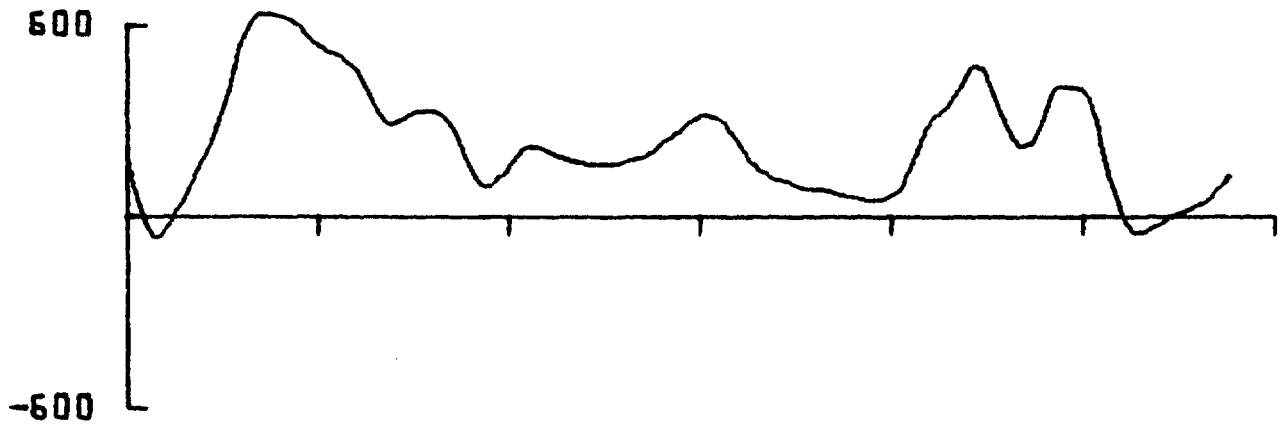
198 2030 061.32N  
129.13W



199 0200 061.46N  
130.58W

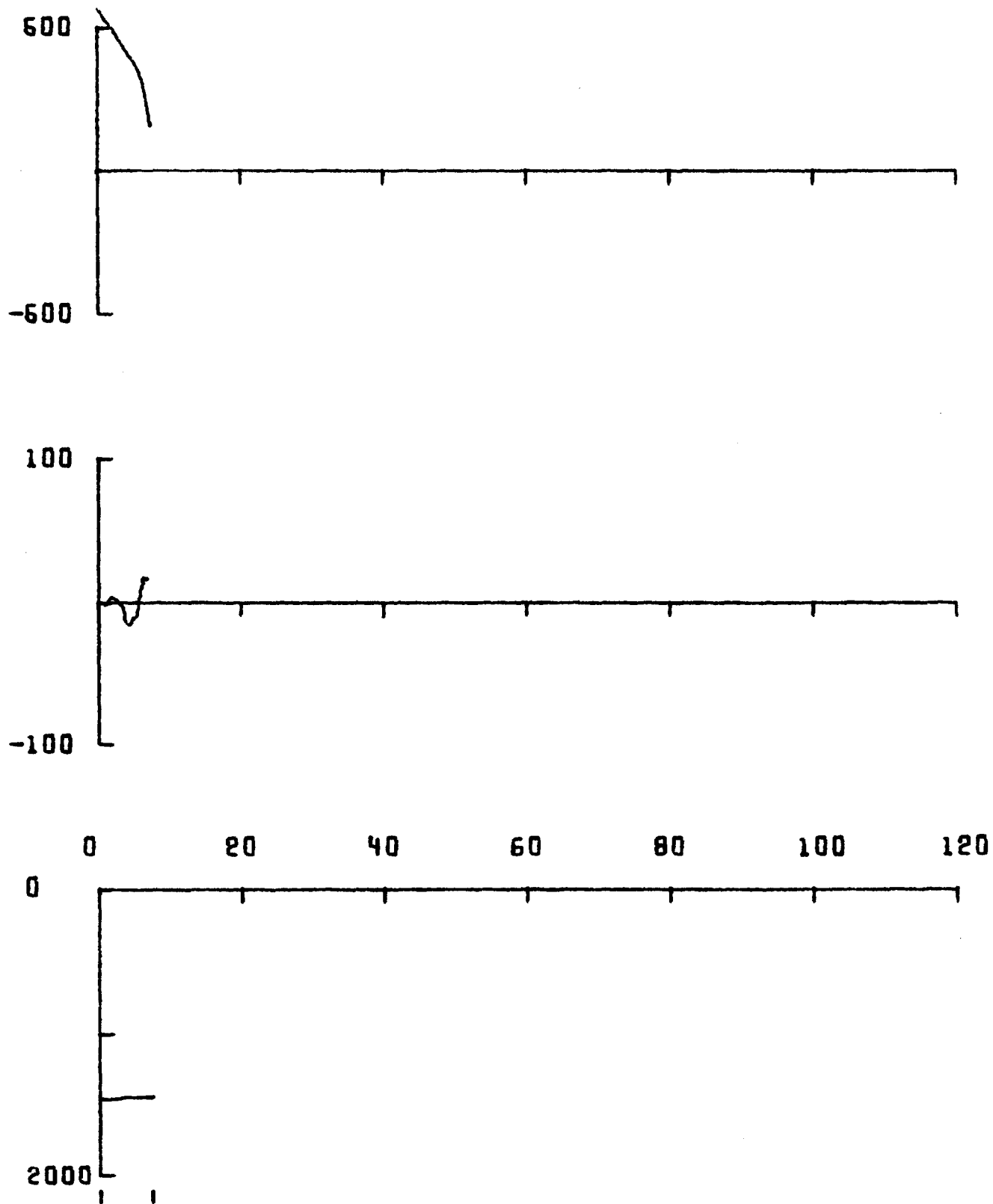
198 2130 061.48N  
129.13W





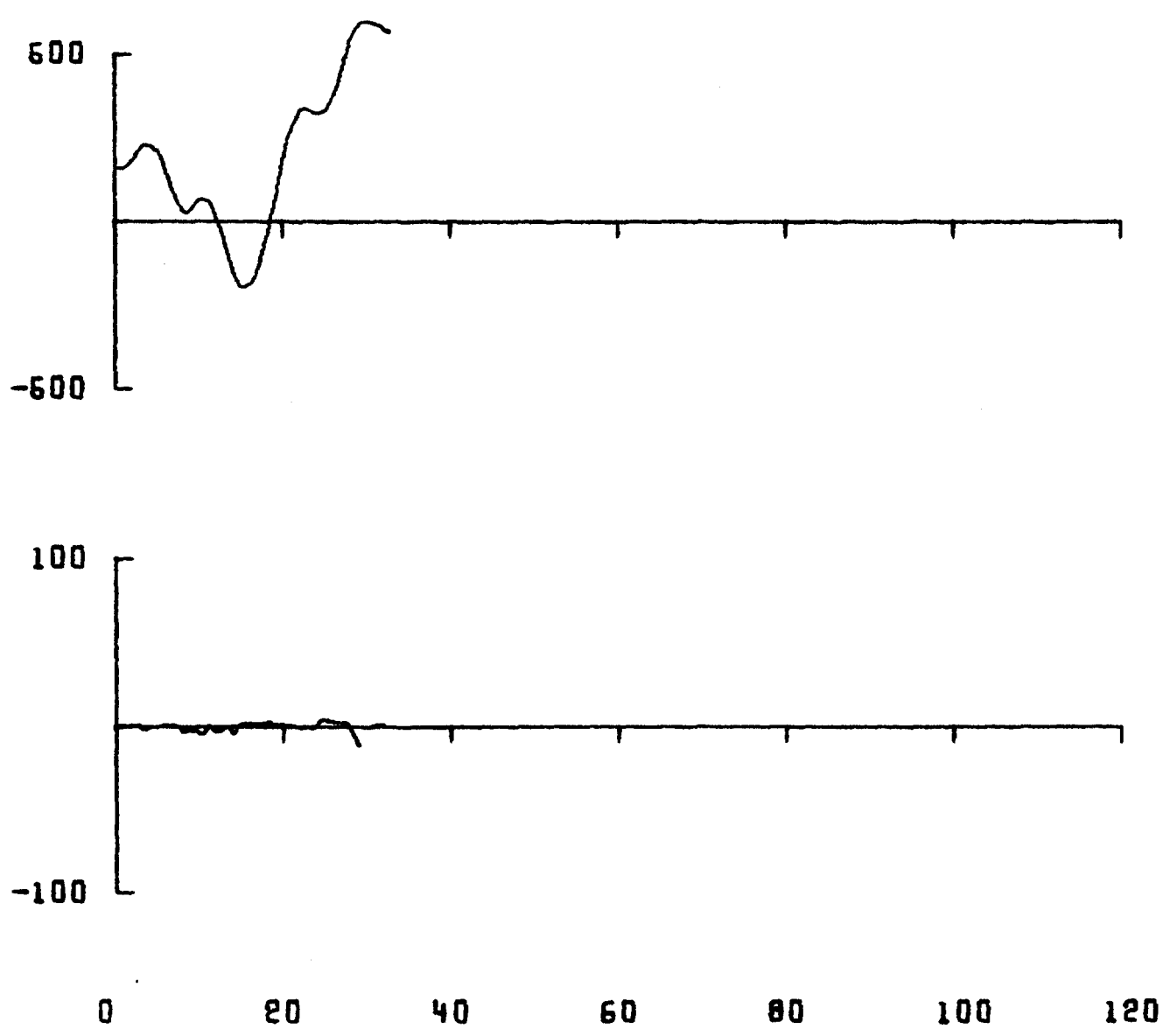
199 0730 061.50N  
132.25W

199 0200 061.46N  
130.58W



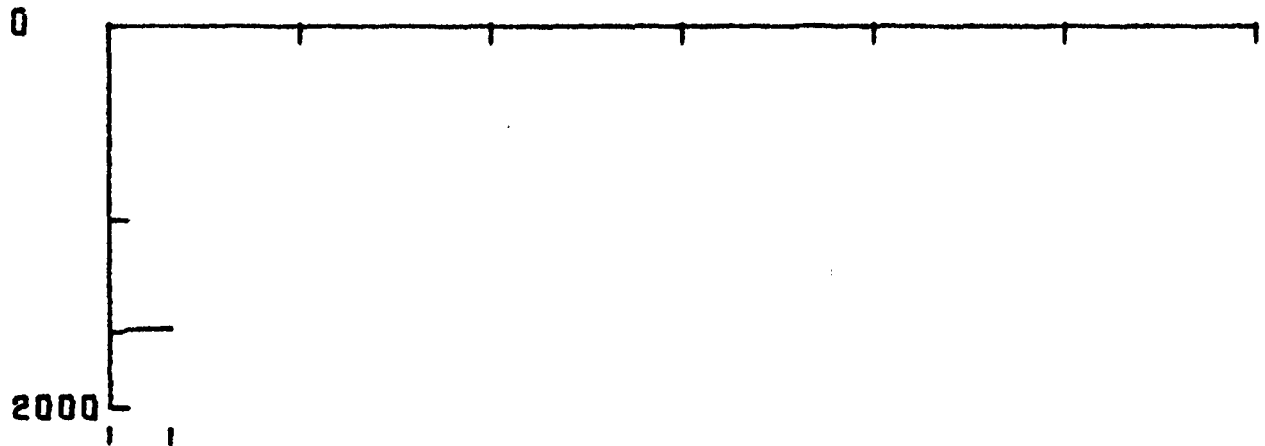
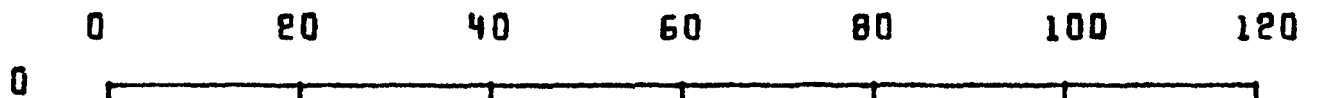
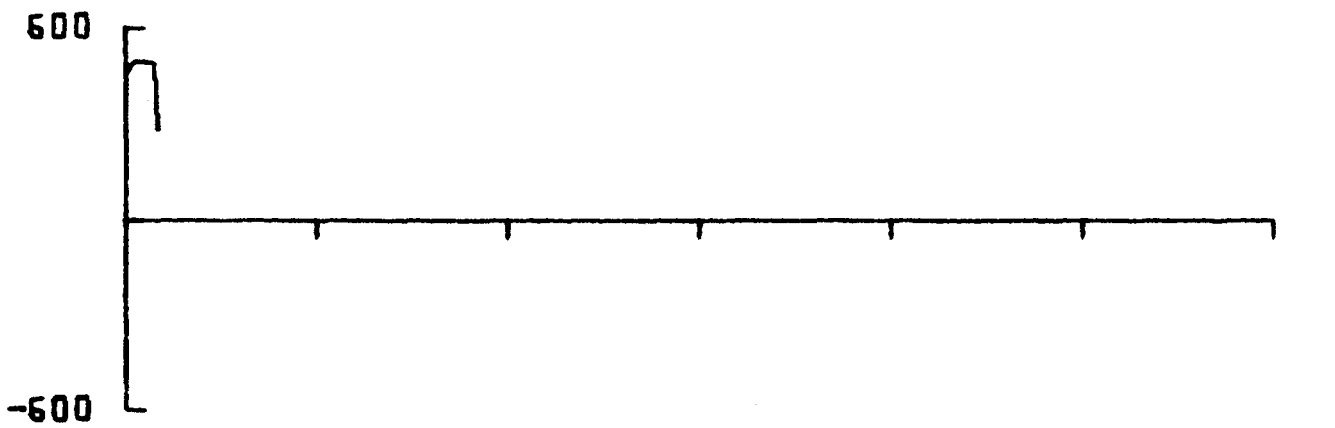
199 0800 061.49N  
132.96W

199 0730 061.50N  
132.25W



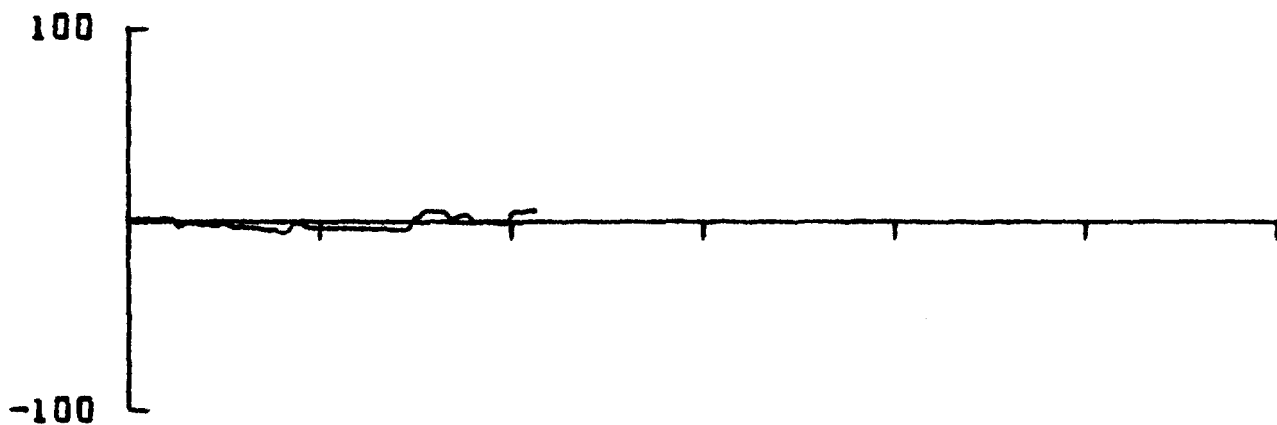
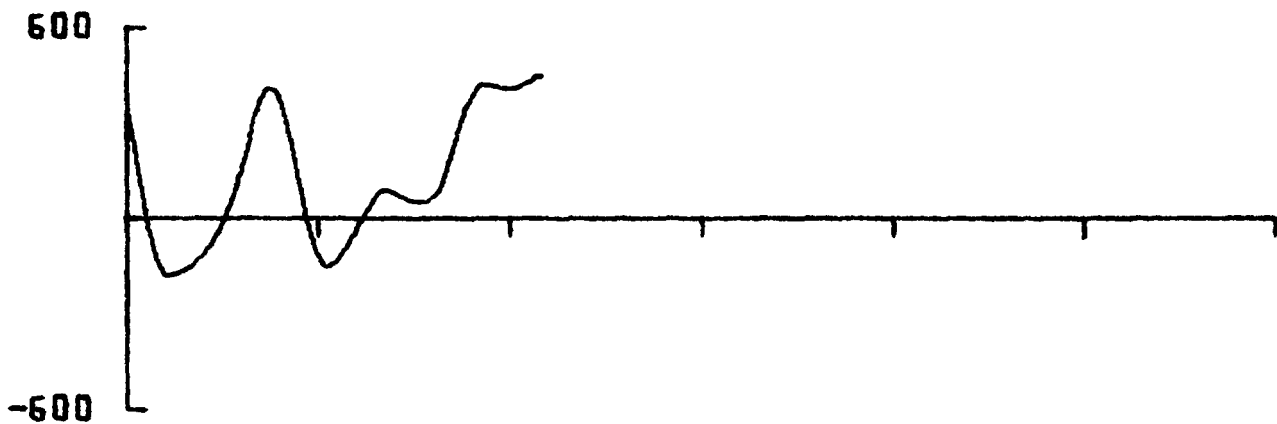
199 0928 061.47N  
132.89W

199 0800 061.49N  
132.96W

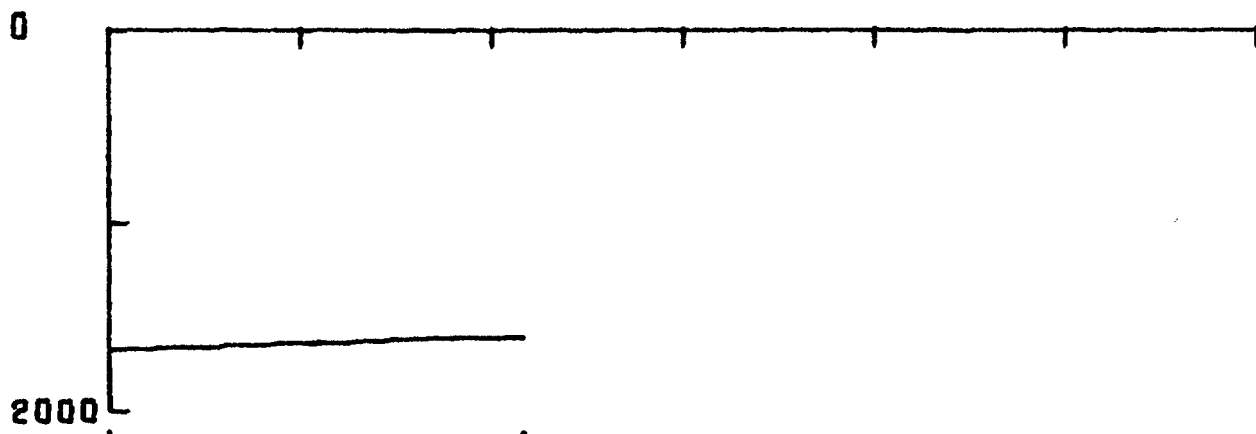


199 1730 061.49N  
139.21W

199 1700 061.50N  
139.12W

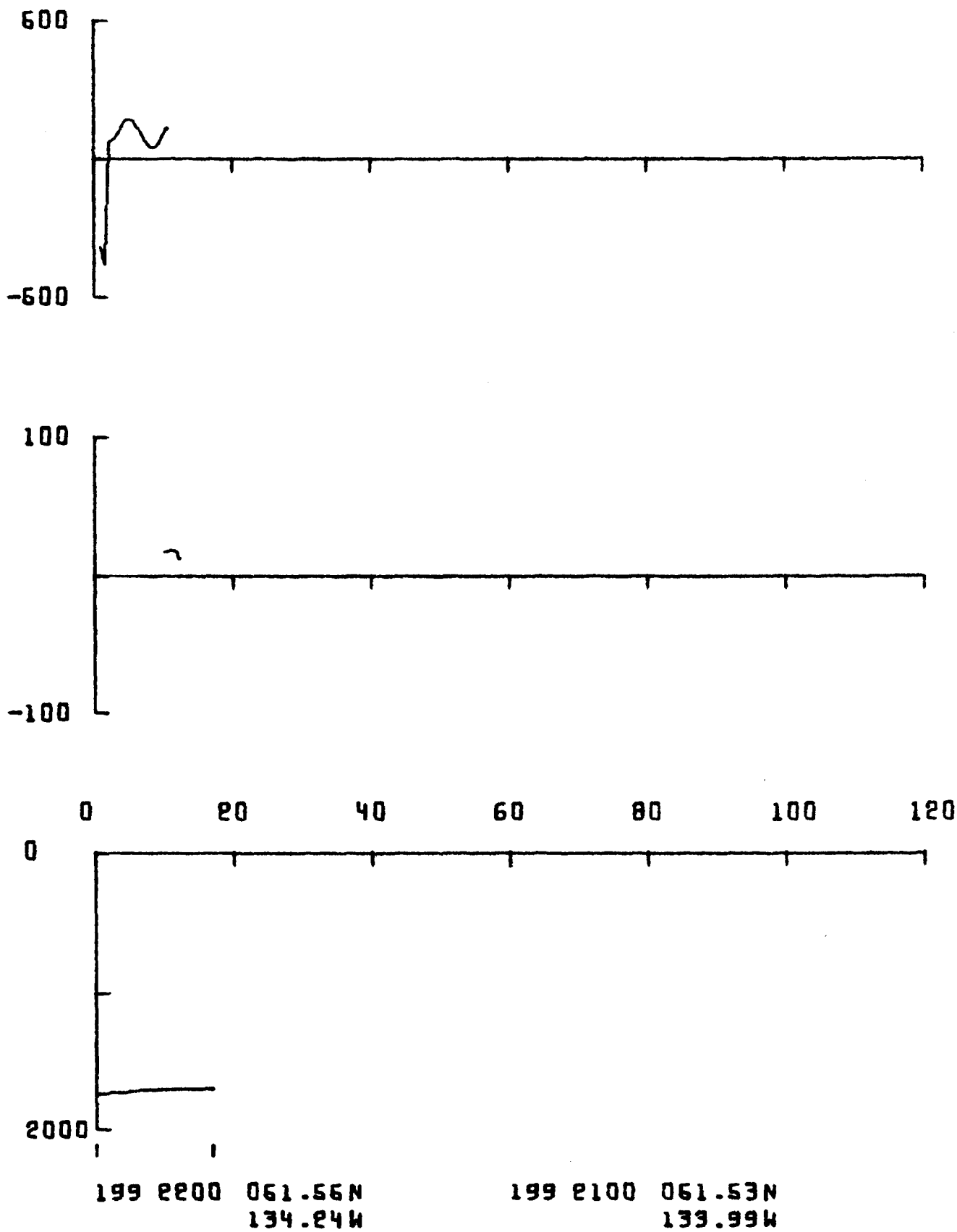


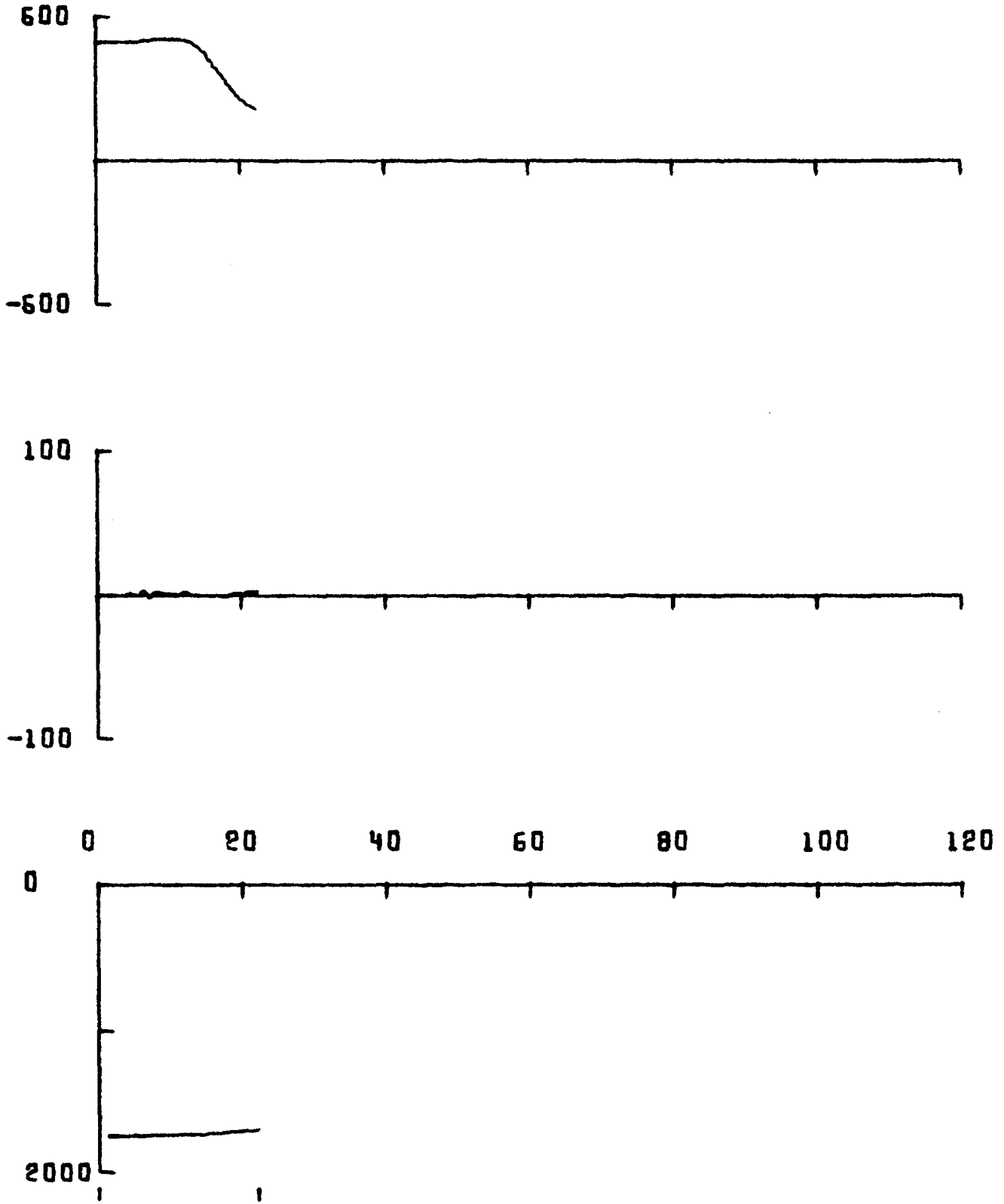
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199 1920 061.50N  
139.84W

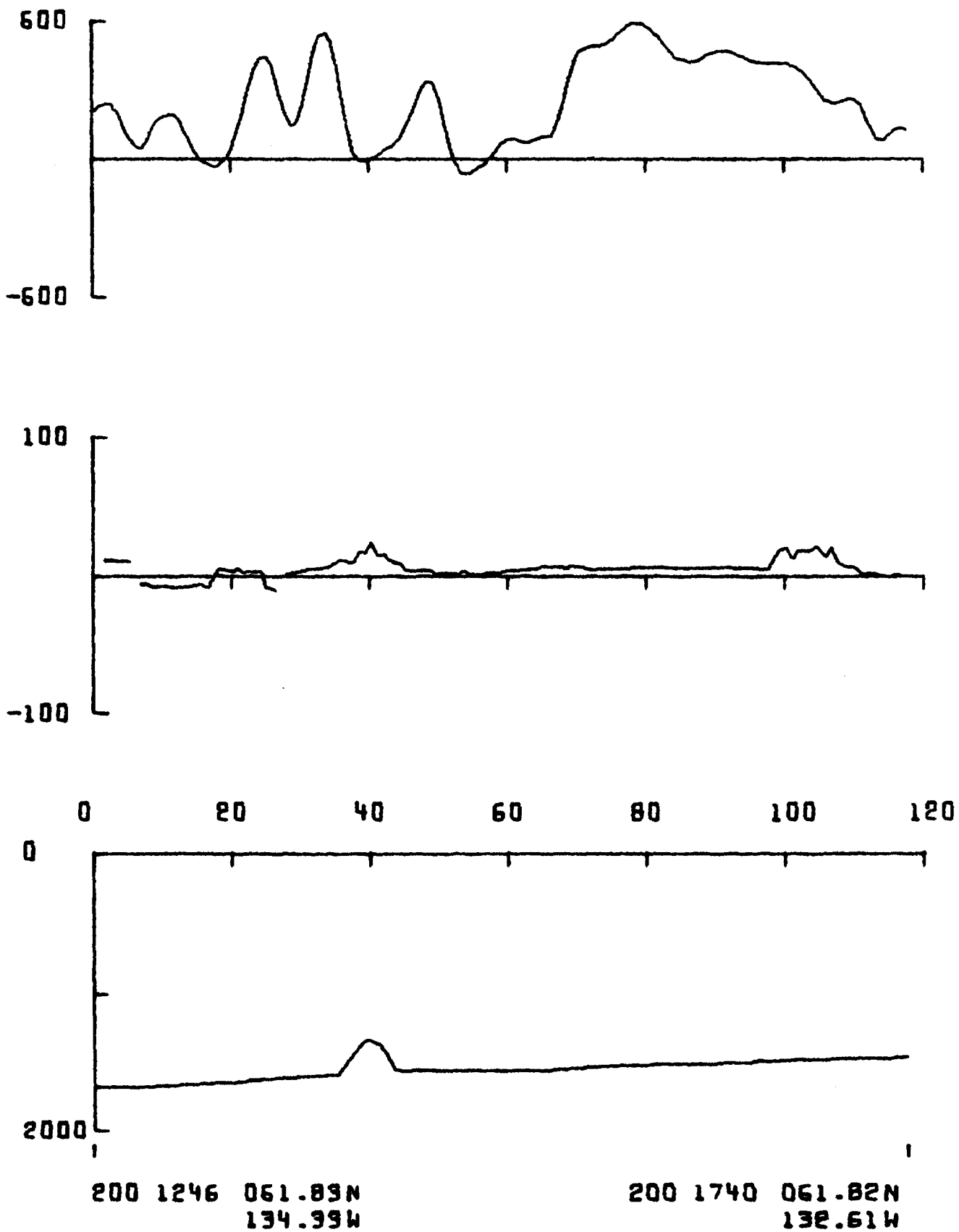
199 1730 061.49N  
139.21W



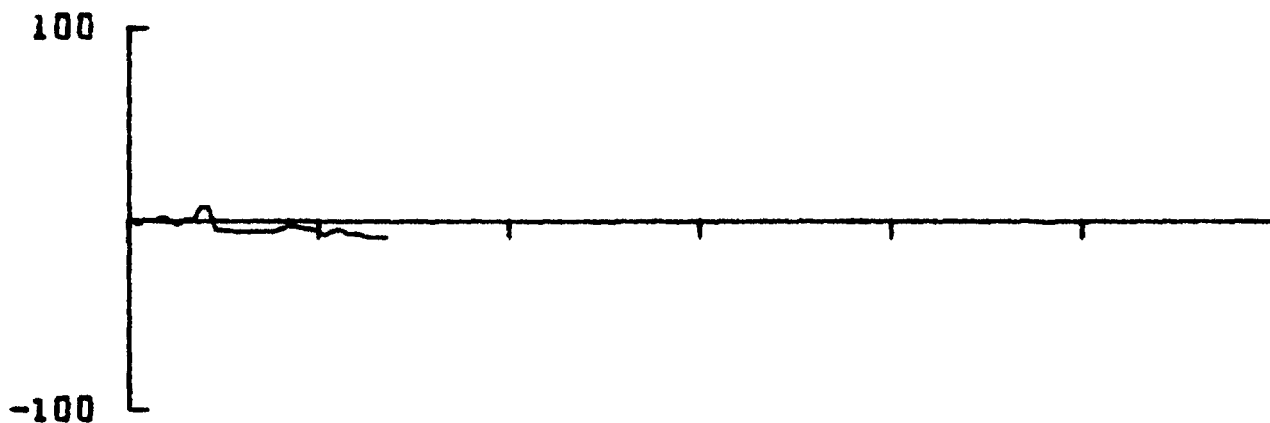
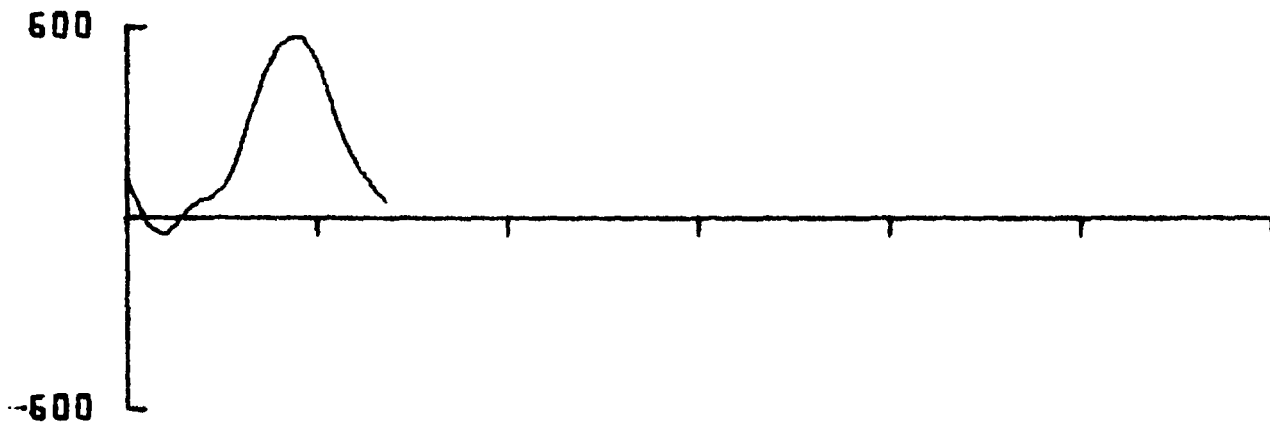


200 1146 061.63N  
134.94W

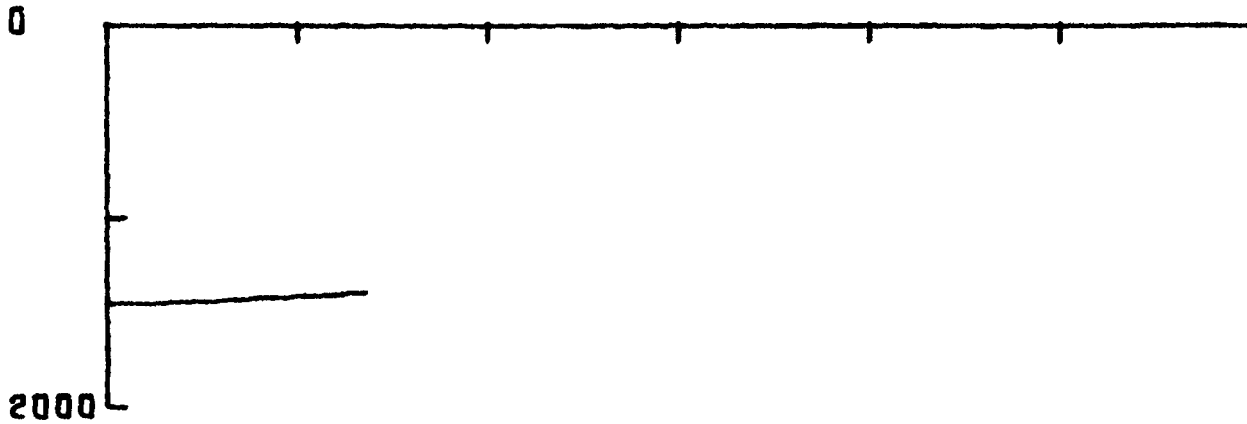
200 1244 061.83N  
134.99W





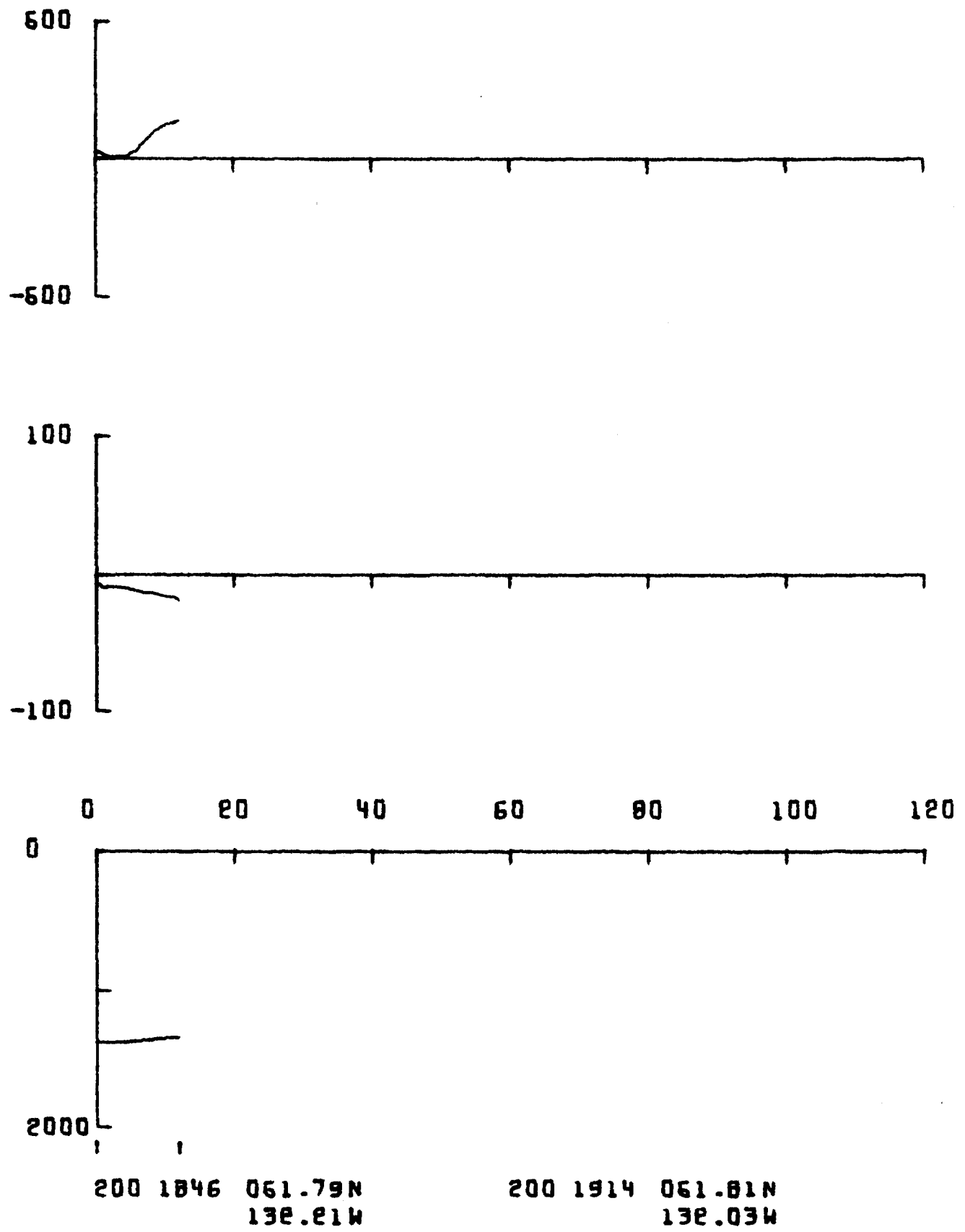


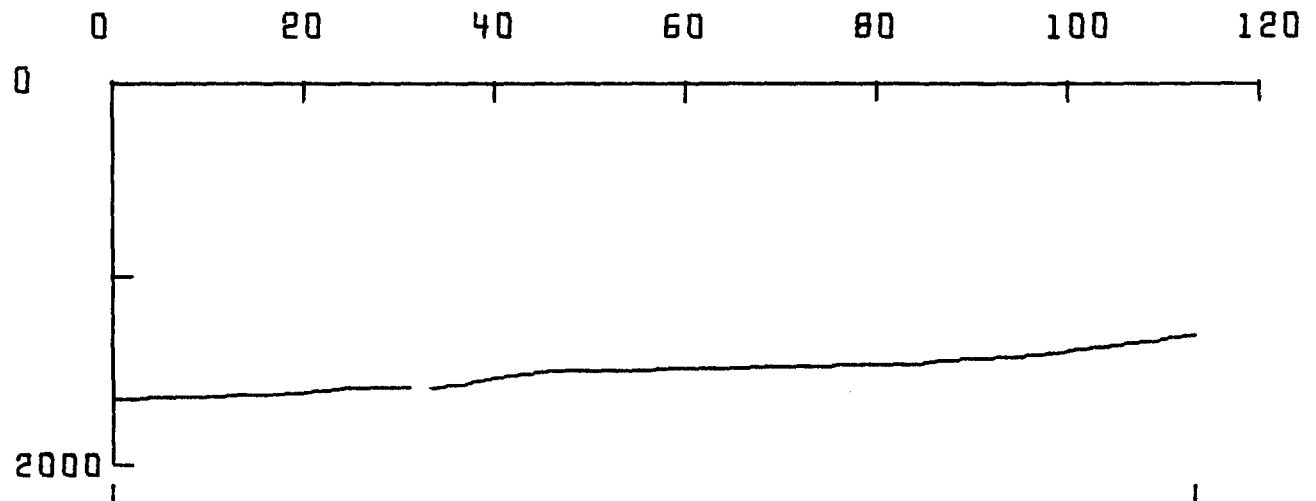
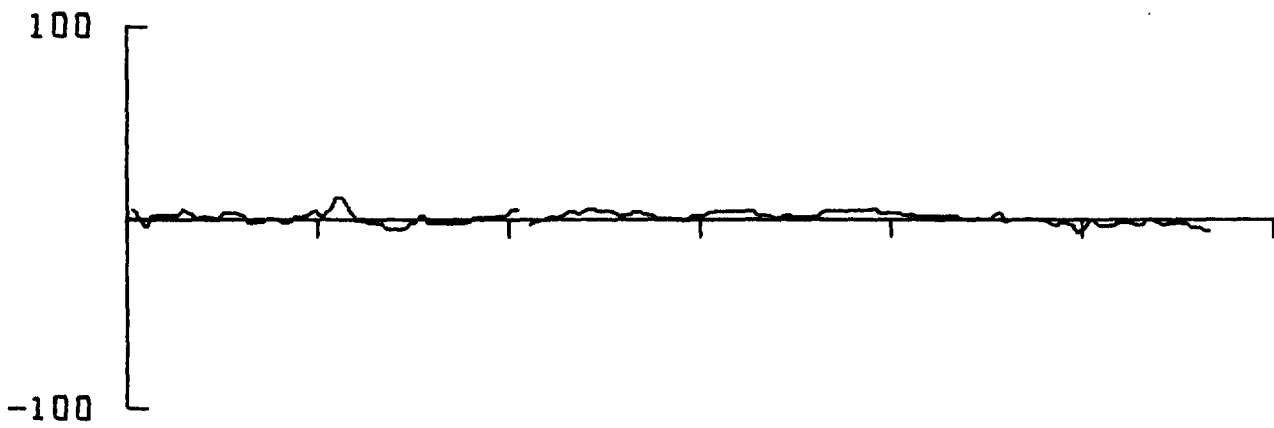
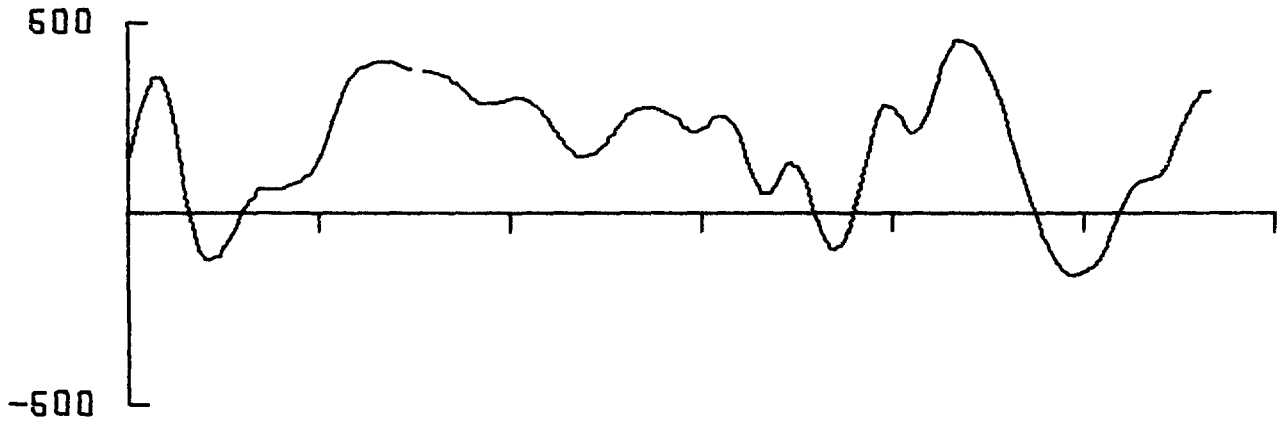
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200 1740 061.82N  
132.61W

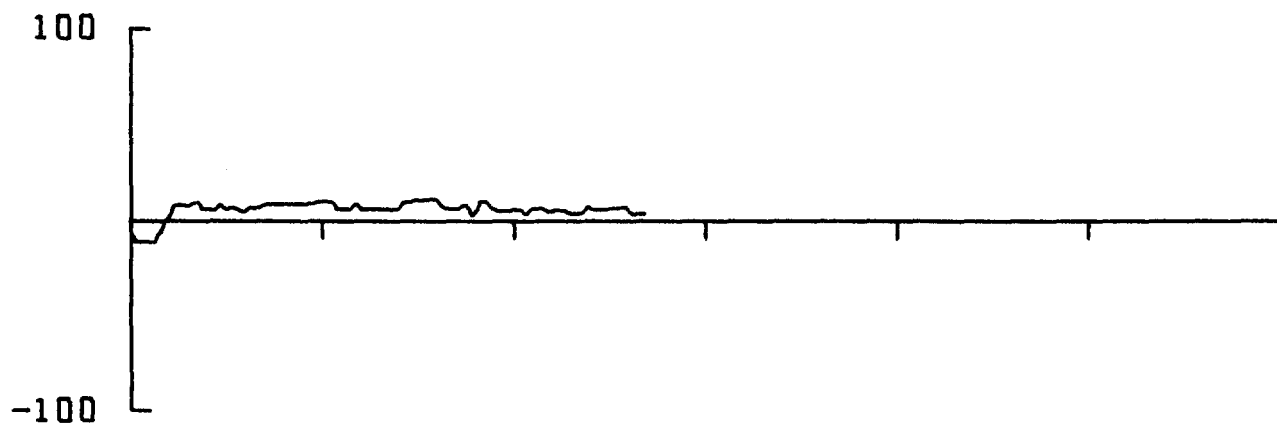
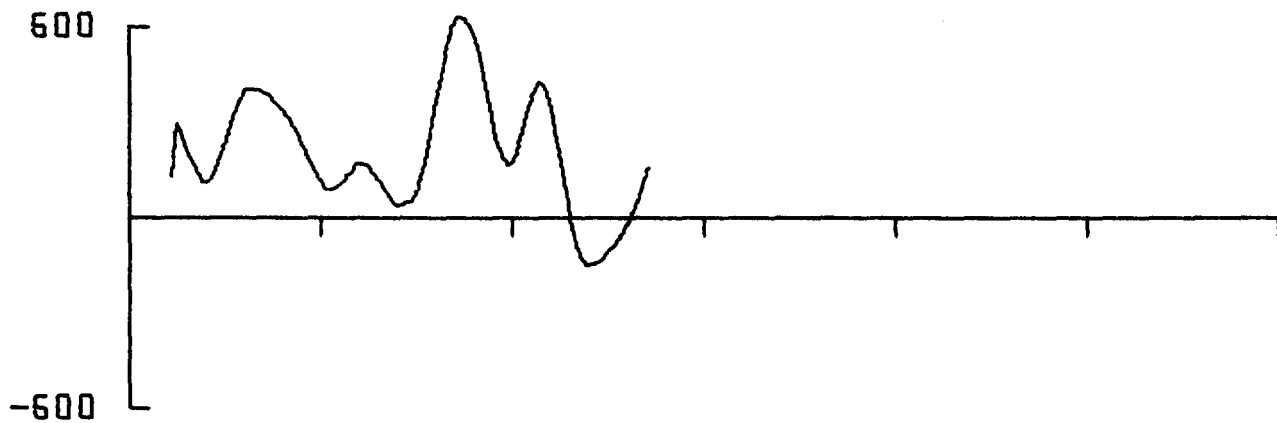
200 1844 061.79N  
132.22W



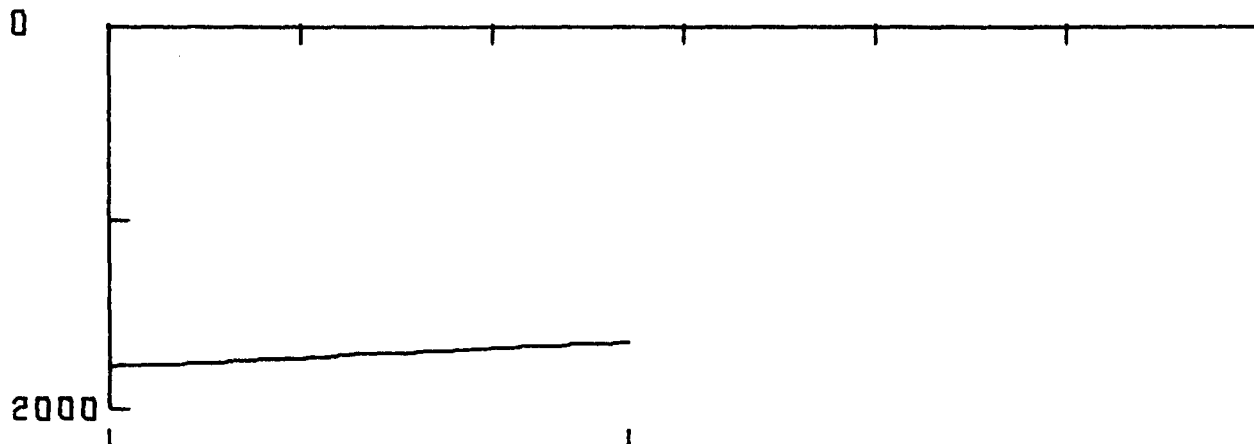


201 0130 061.54N  
139.66W

200 2020 061.66N  
138.03W

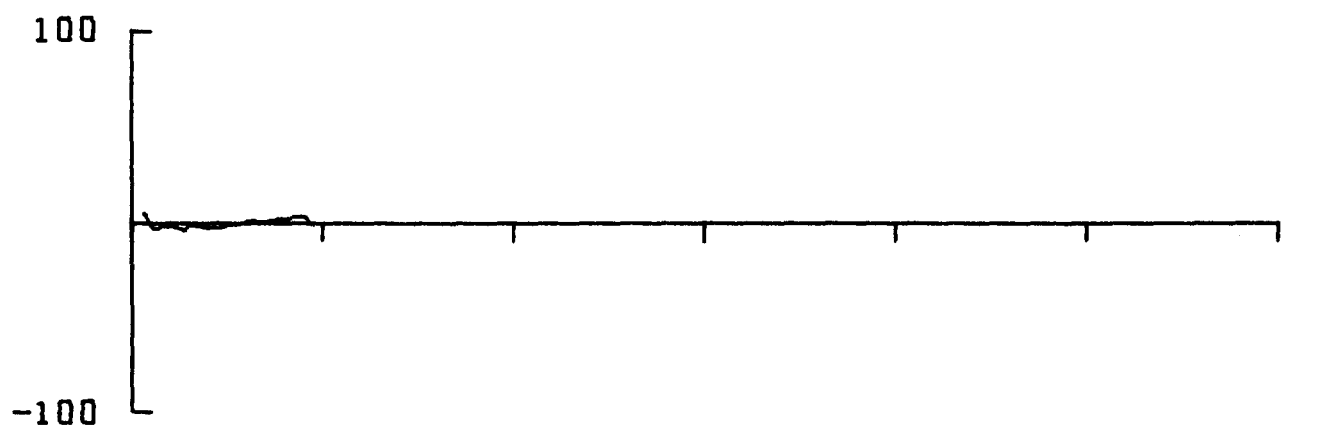


0 20 40 60 80 100 120



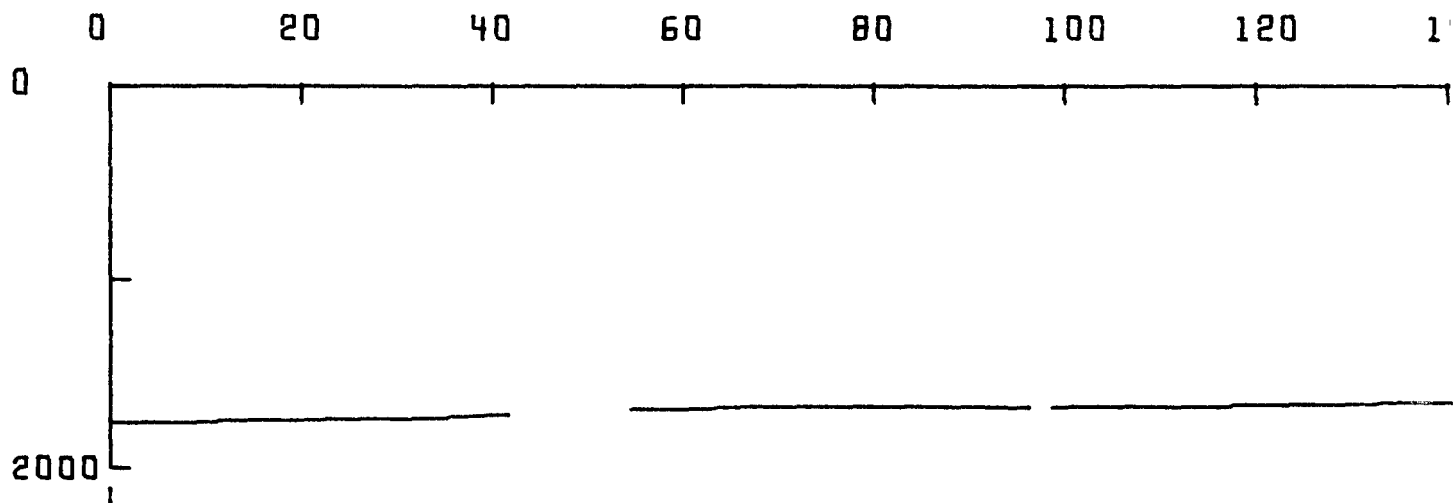
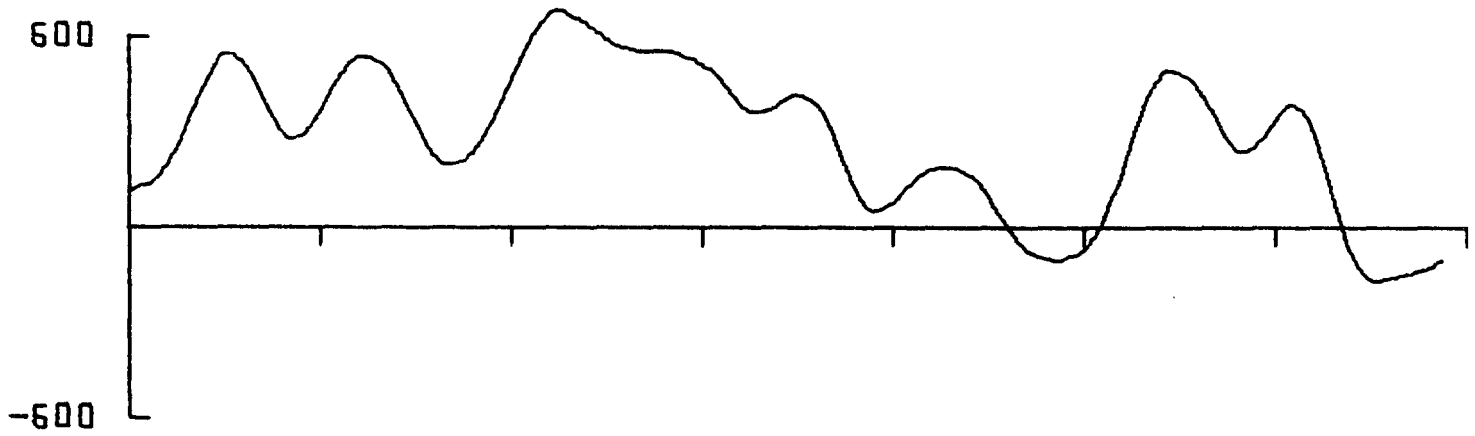
201 0420 061.54N  
134.46W

201 0130 061.54N  
139.66W



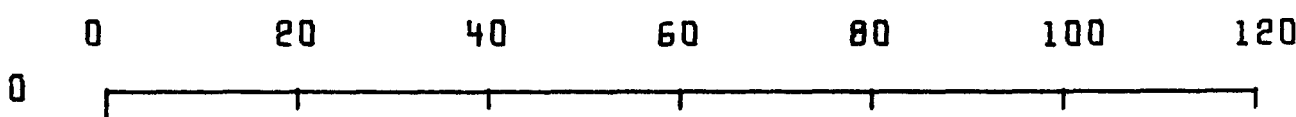
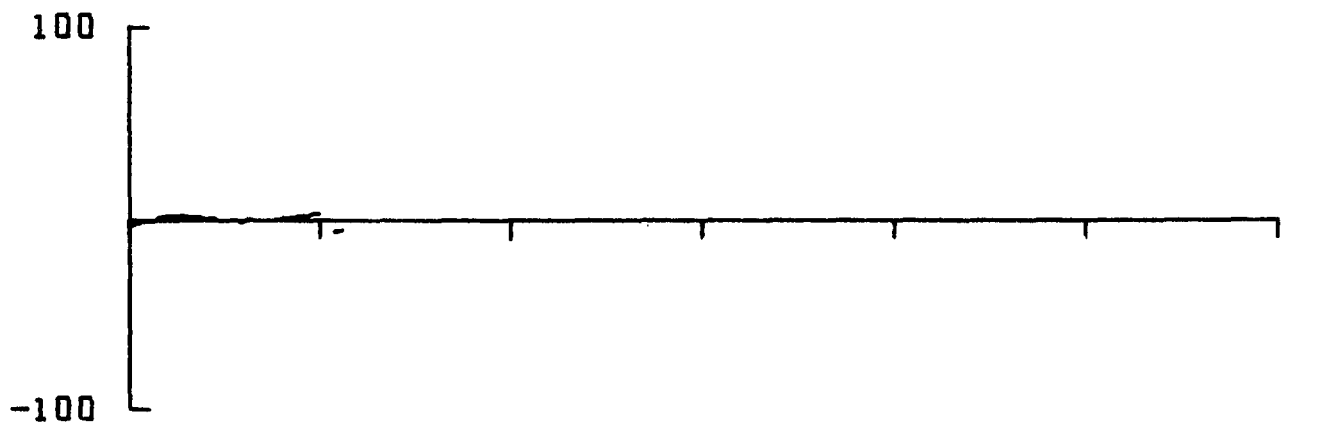
201 1440 061.59N  
134.28W

201 1630 061.54N  
134.02W



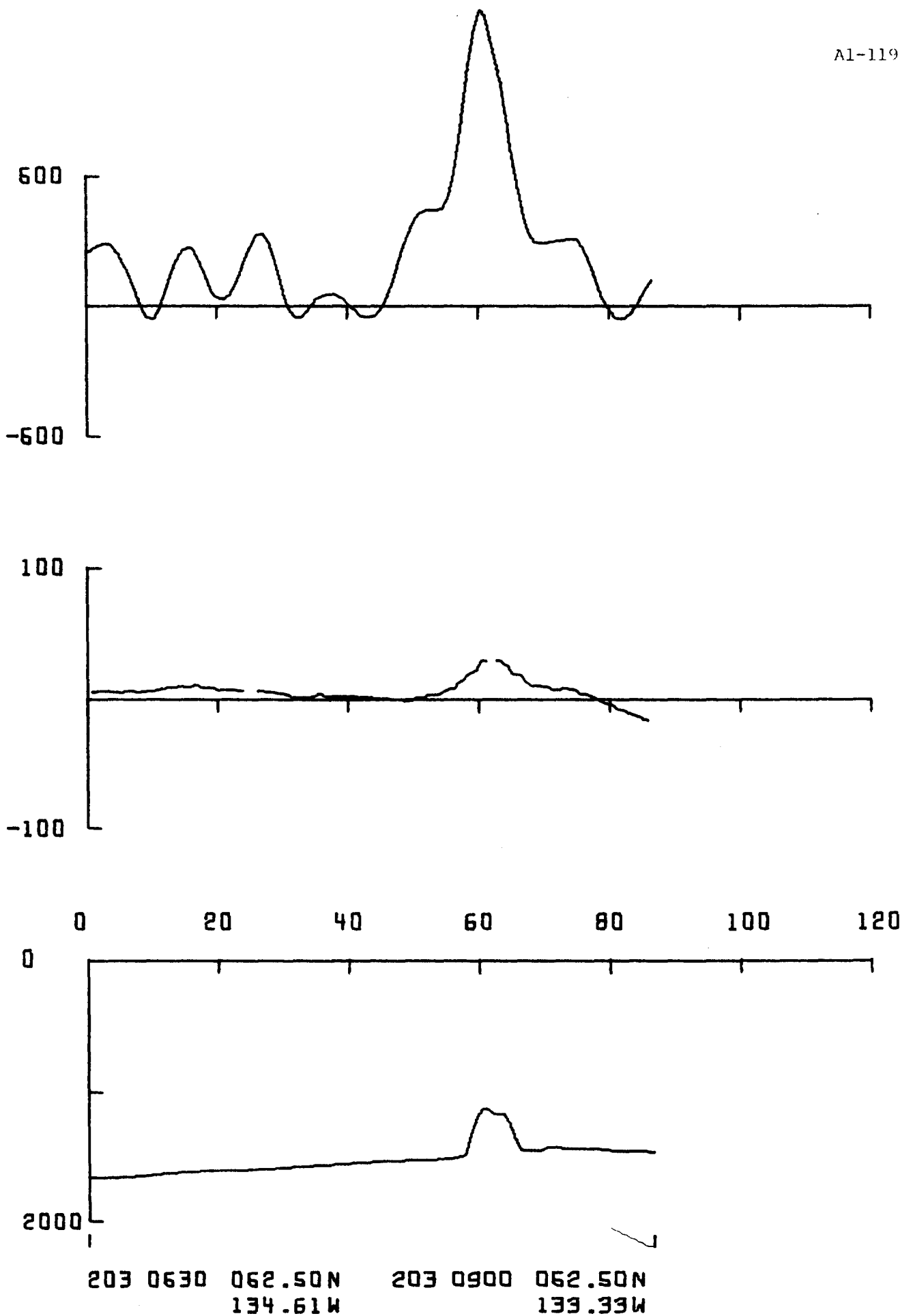
203 0400 062.41N  
135.00W

202 2200 061.42  
133.62

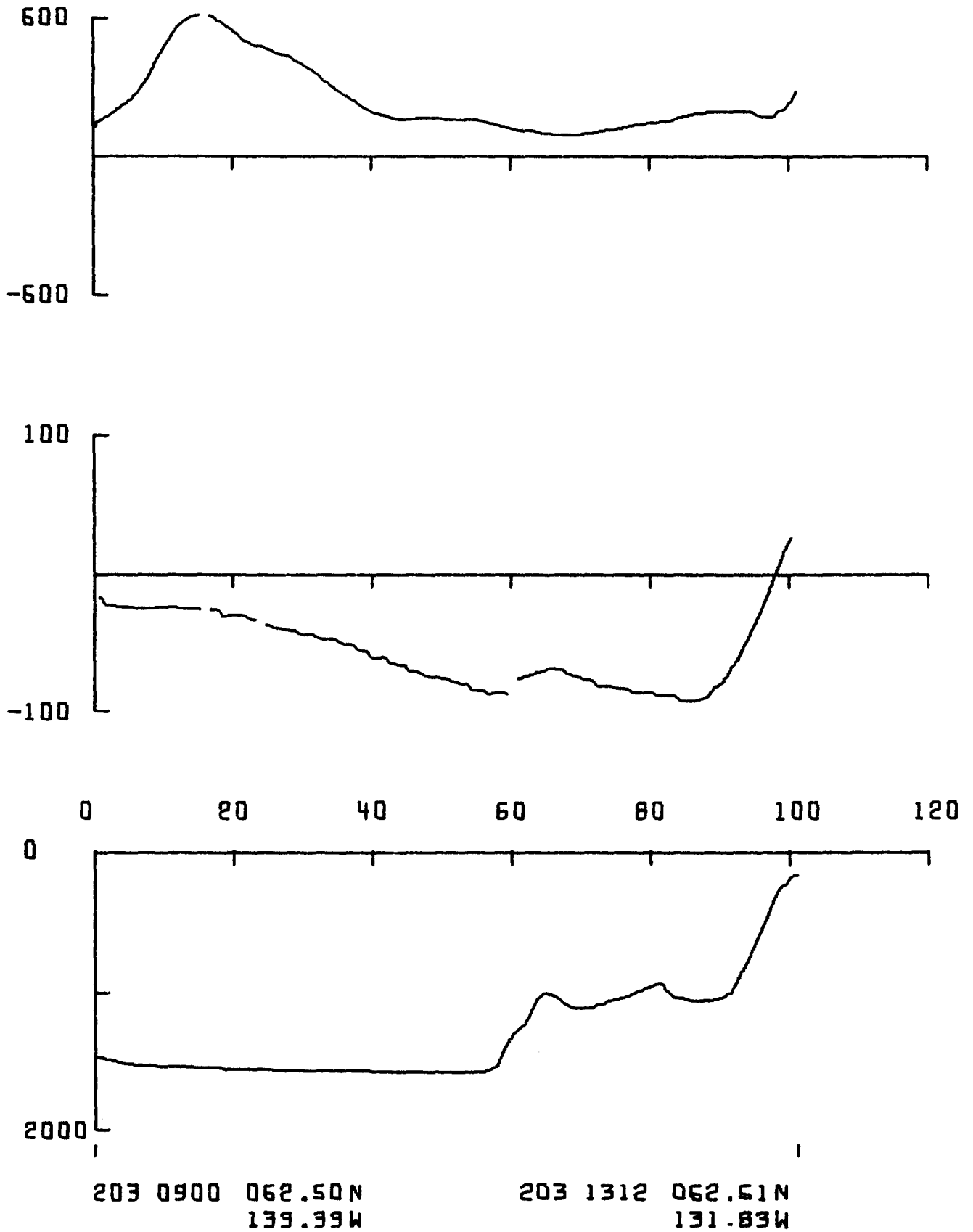


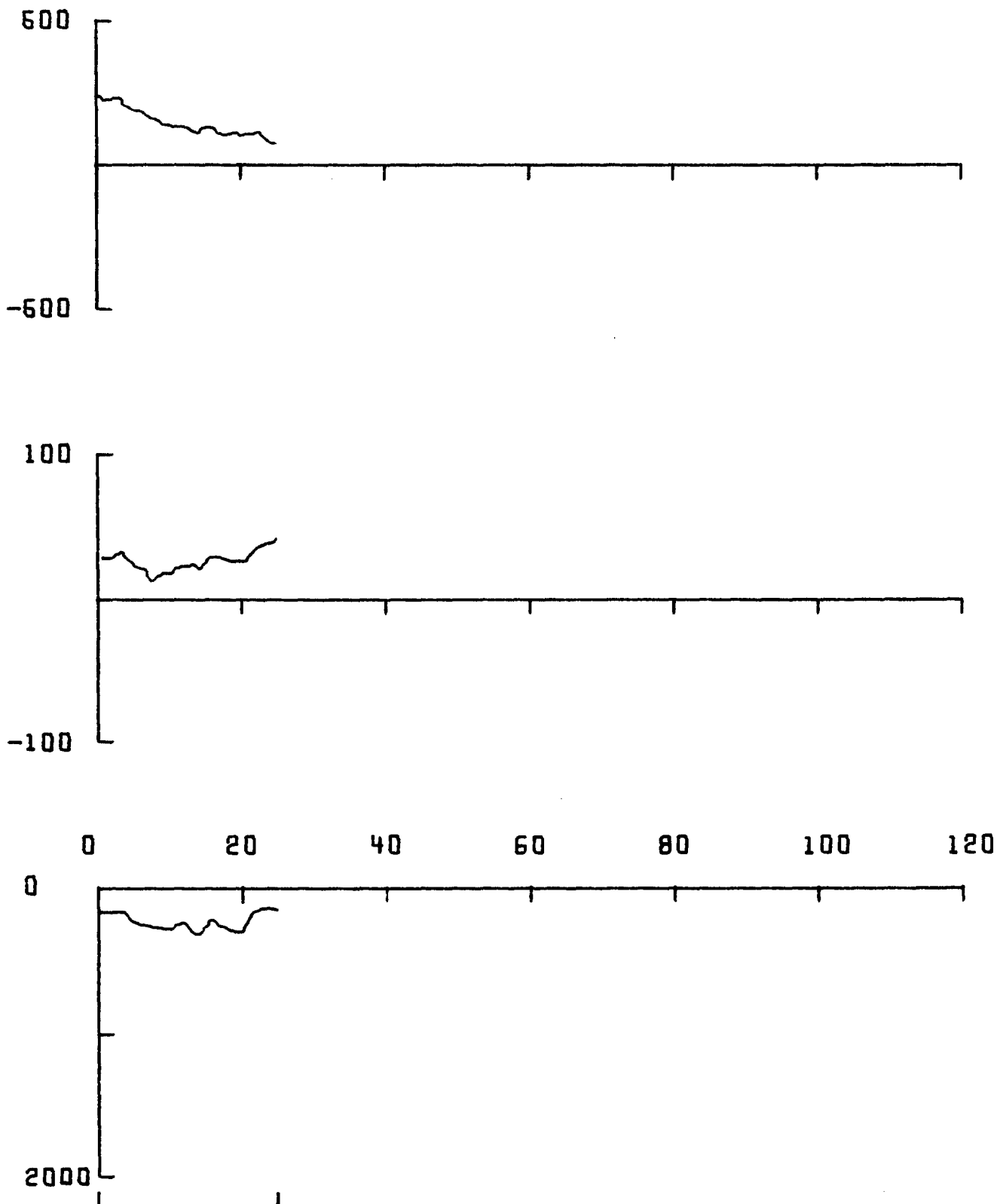
203 0430 062.44N  
134.94W

203 0630 062.50N  
134.61W



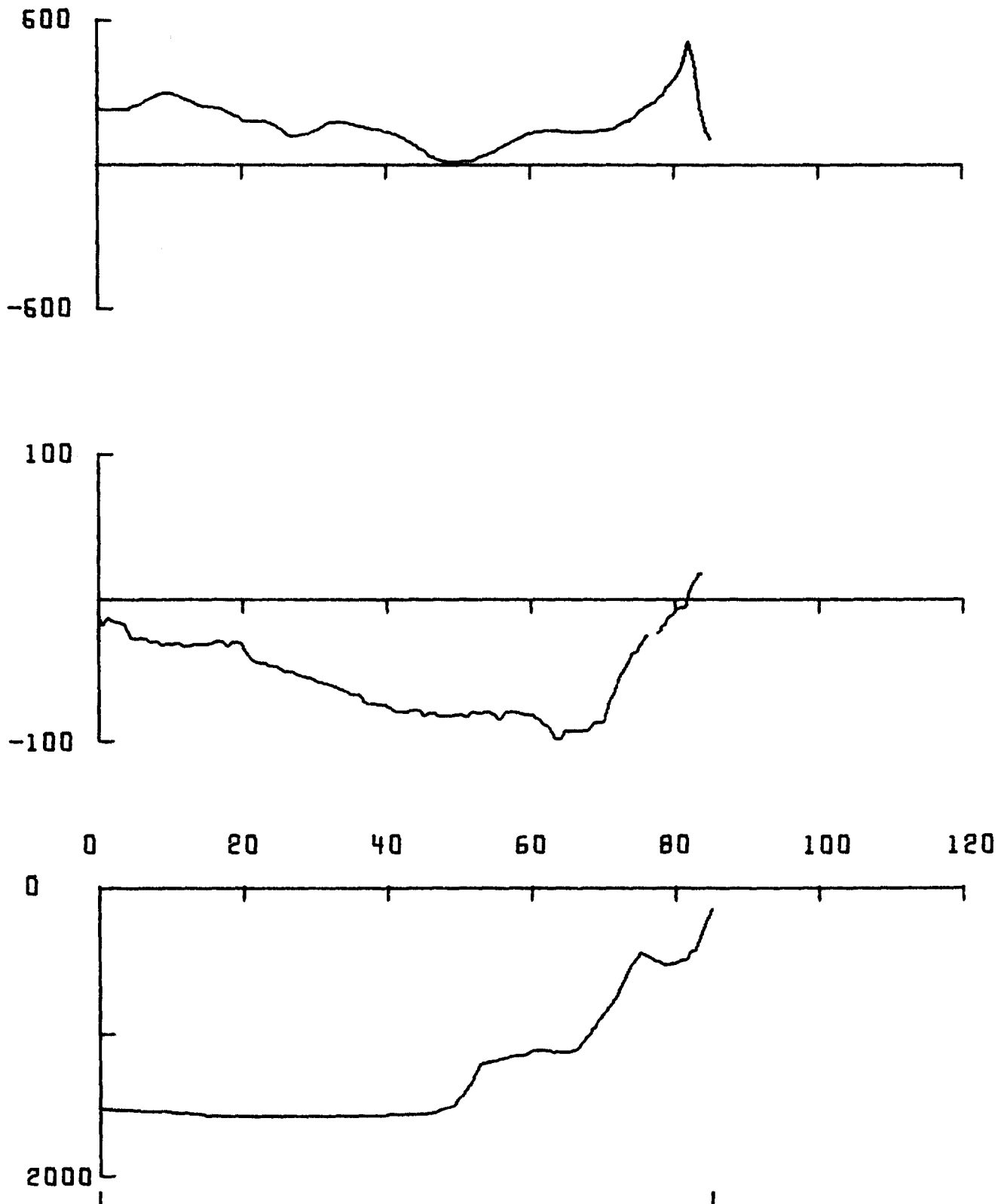




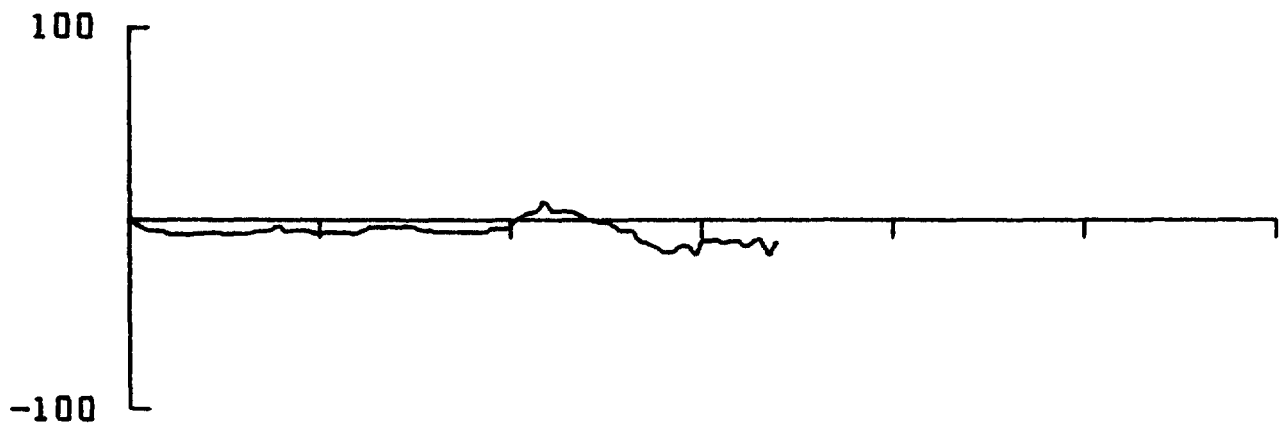
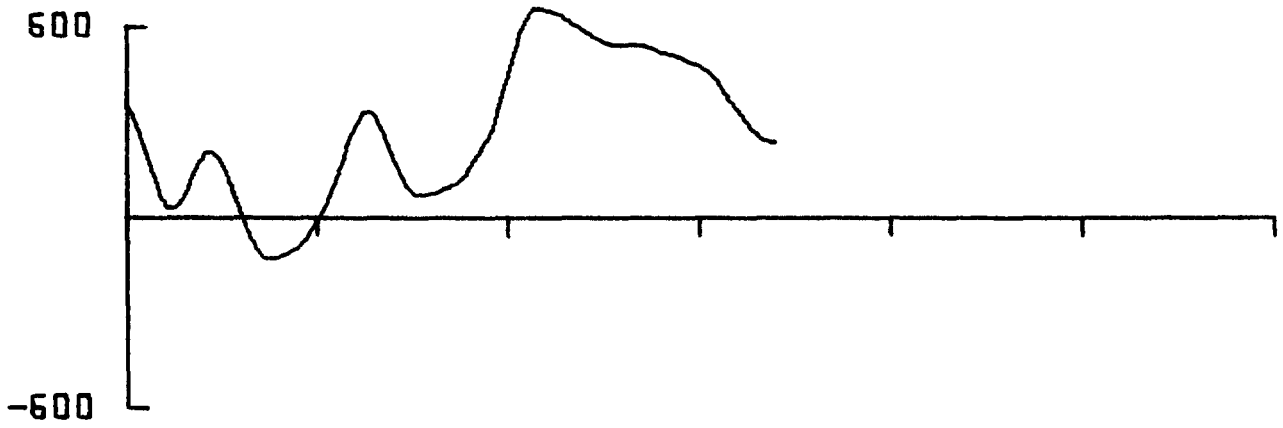


203 1312 062.51N  
131.89W

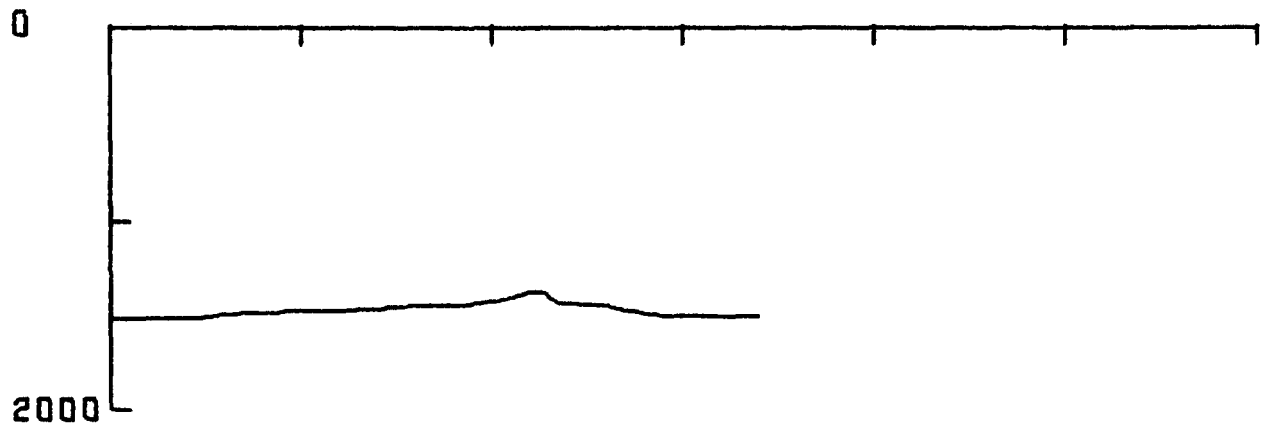
203 1412 062.39N  
131.61W



203 1800 062.34N 203 1414 062.39N  
132.87W 131.62W

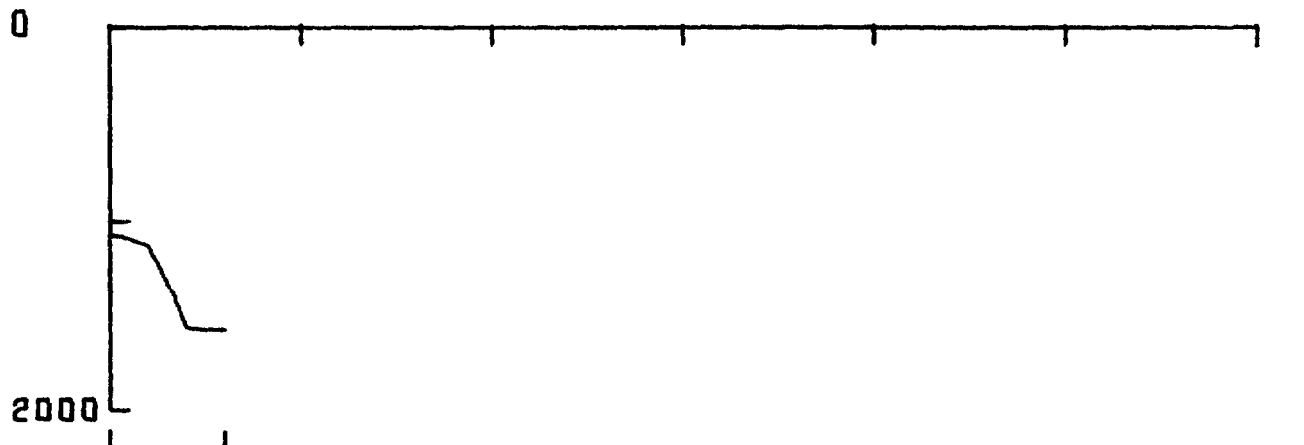
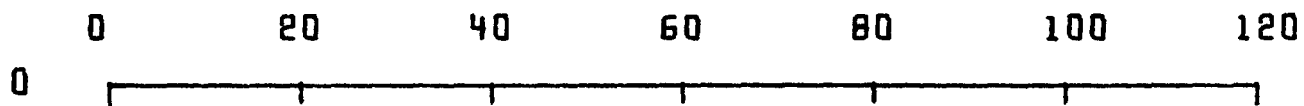
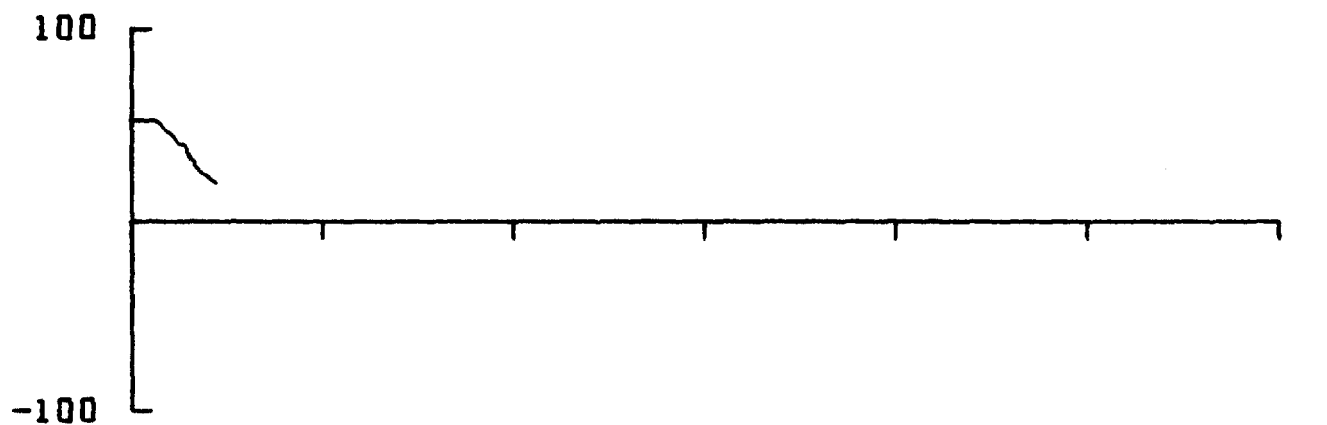
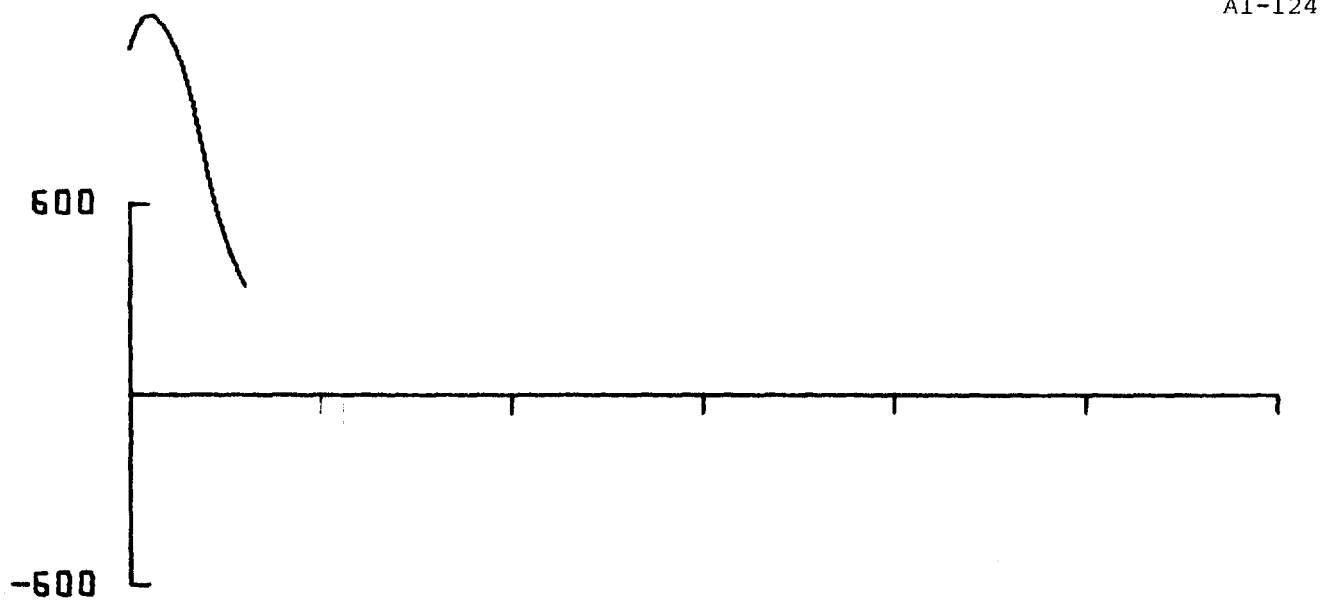


0 20 40 60 80 100 120



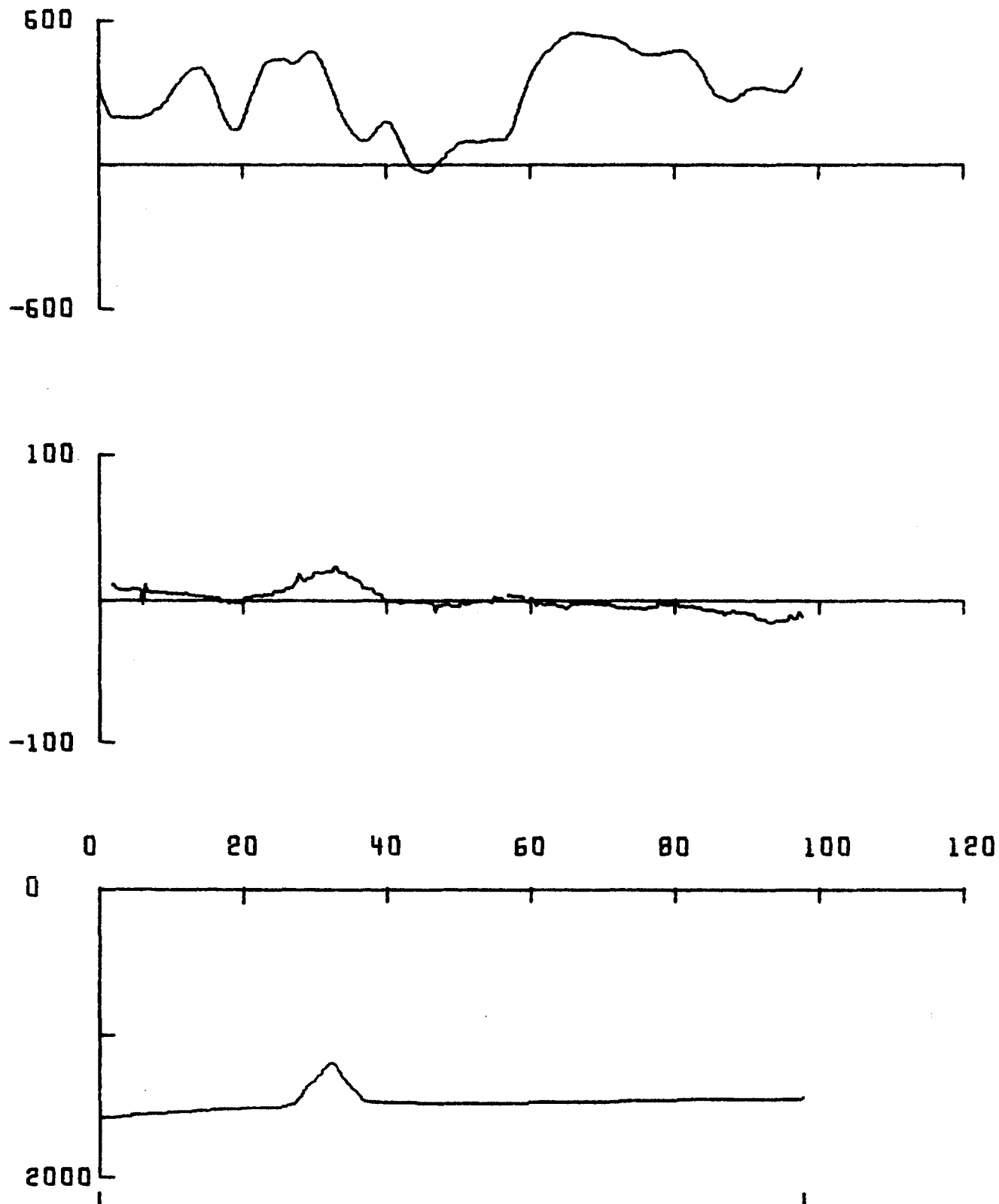
203 2100 062.34N  
139.87W

203 1800 062.34N  
138.87W



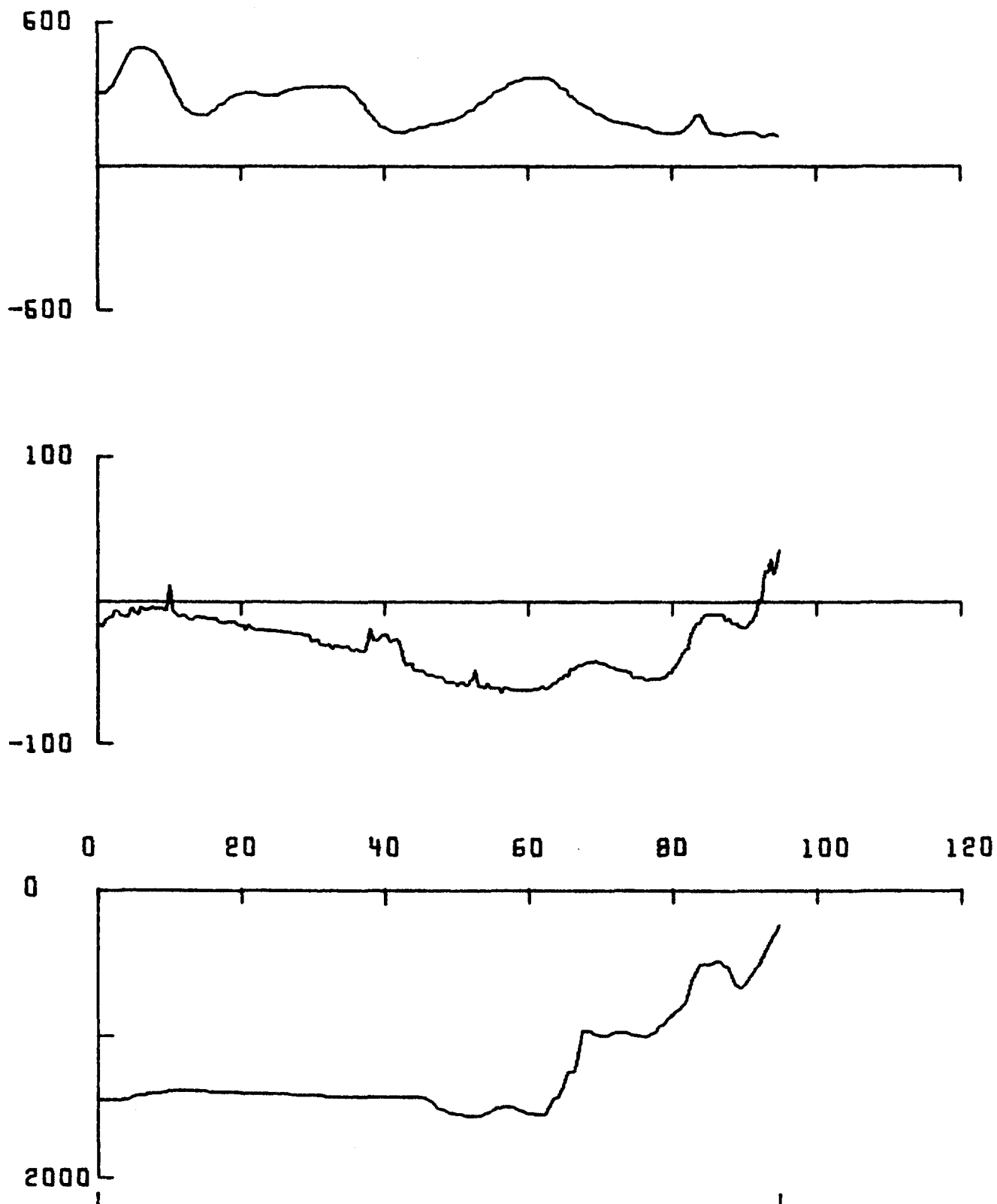
204 0300 062.28N  
134.11W

204 0390 062.17N  
134.11W



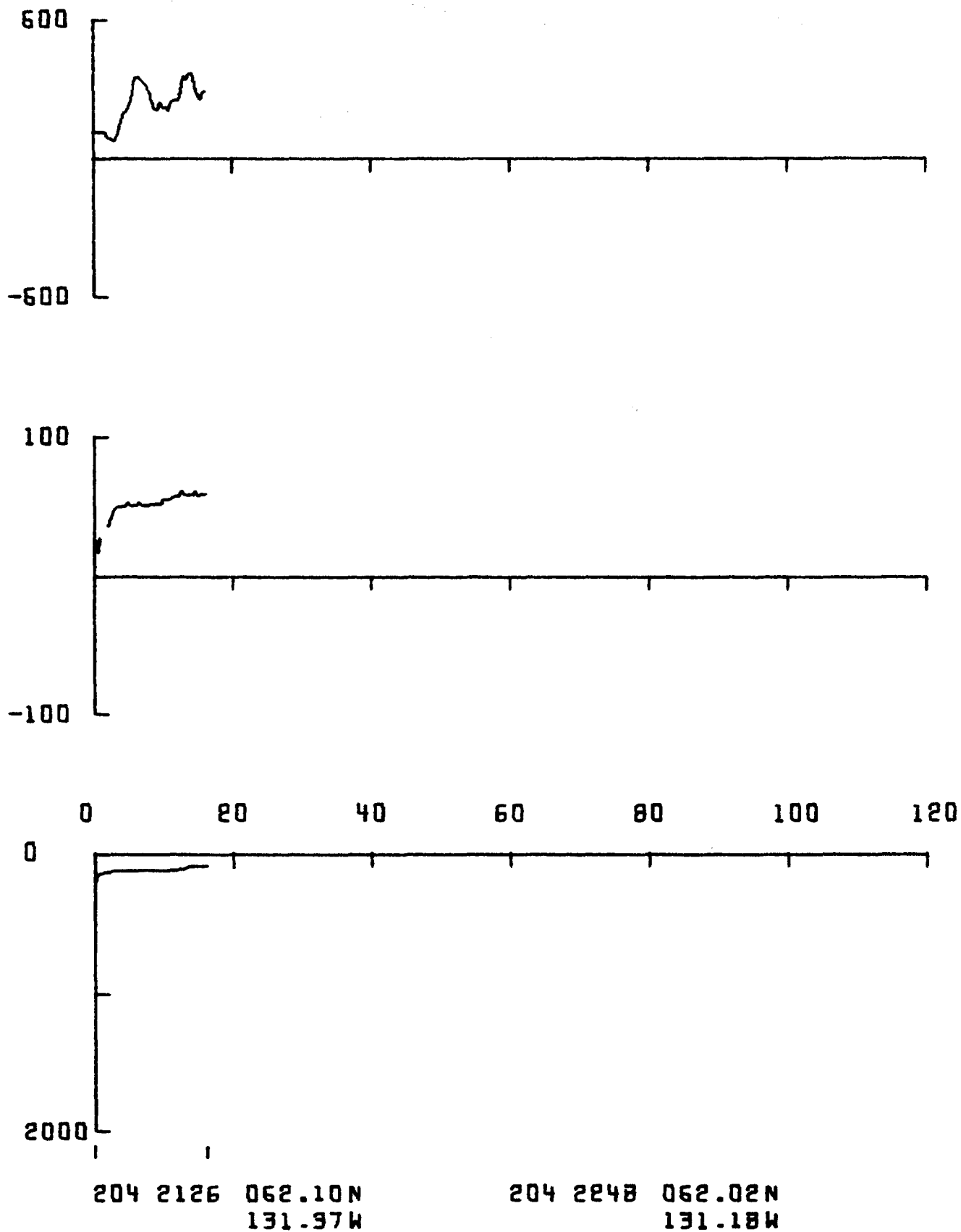
204 0330 062.17N  
134.11W

204 1200 062.13N  
132.68W

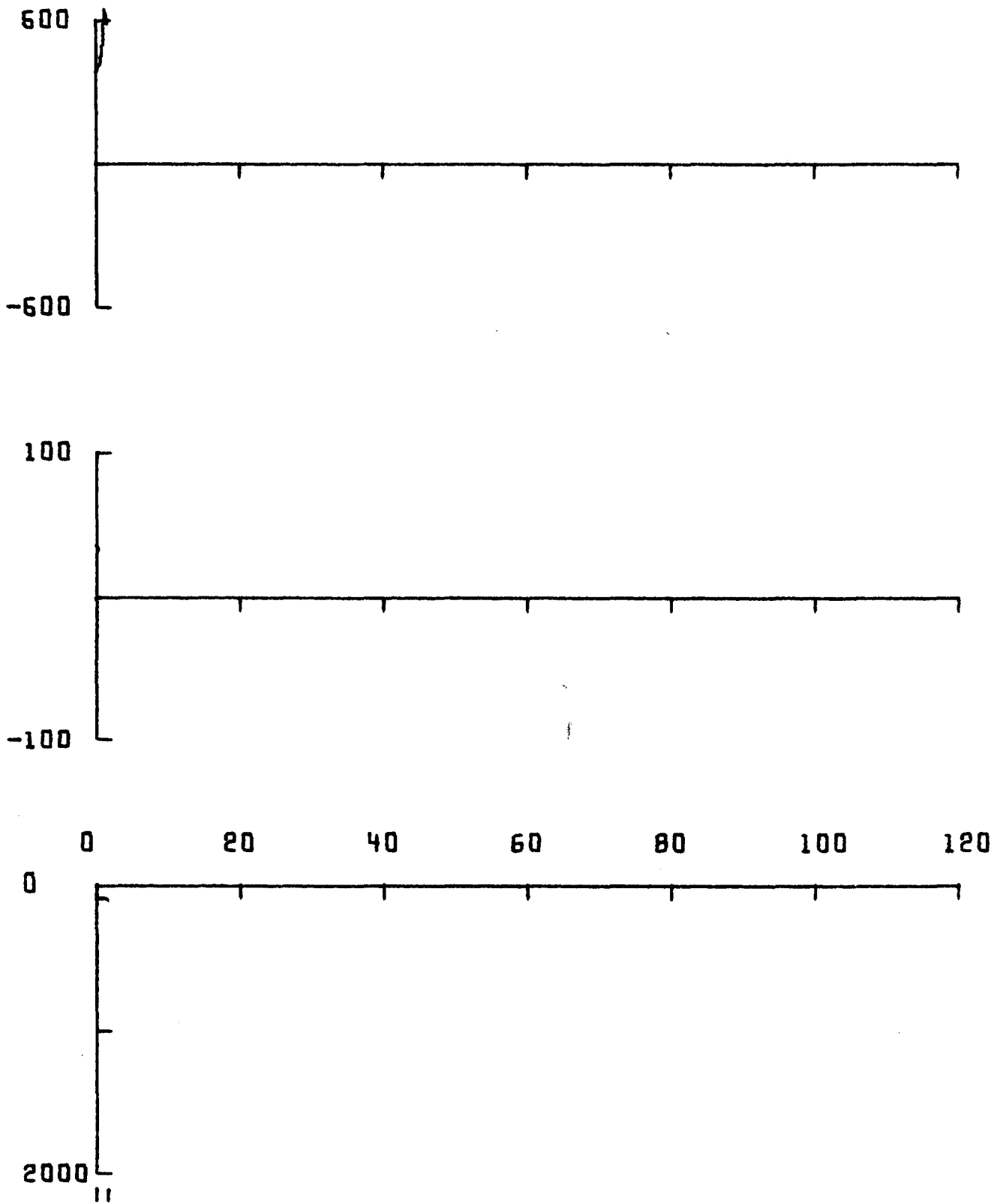


204 1396 062.10N  
132.77W

204 2124 062.10N  
131.38W

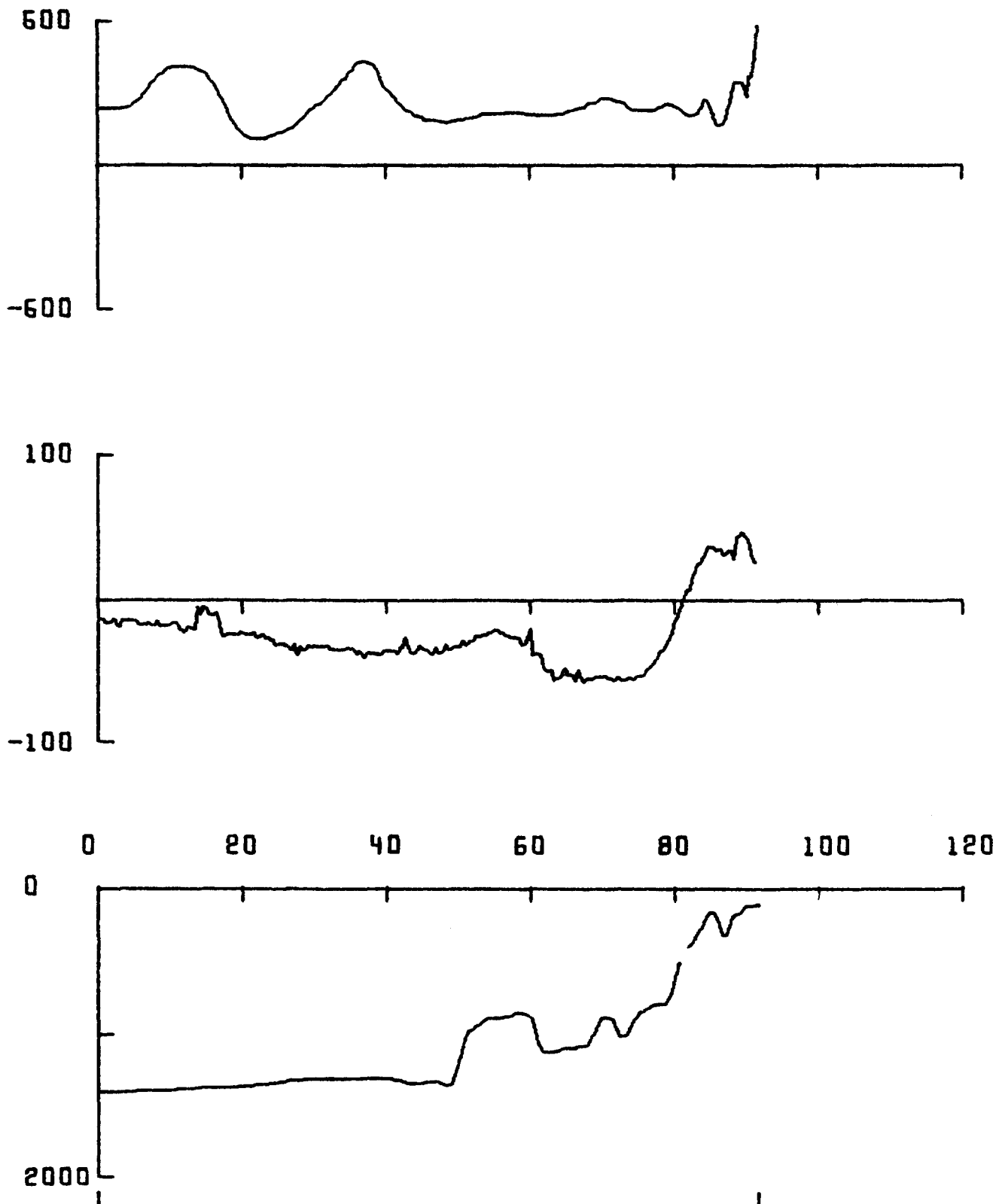






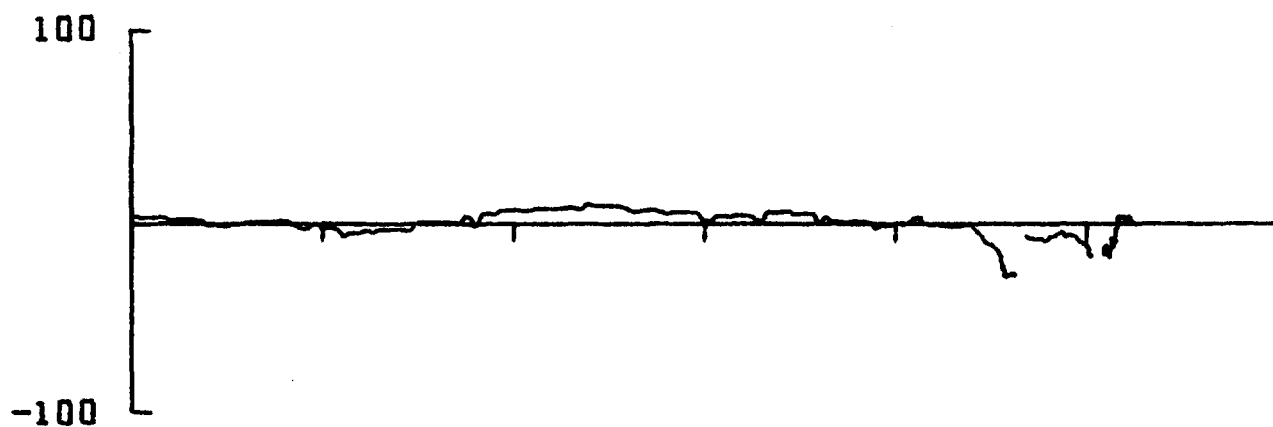
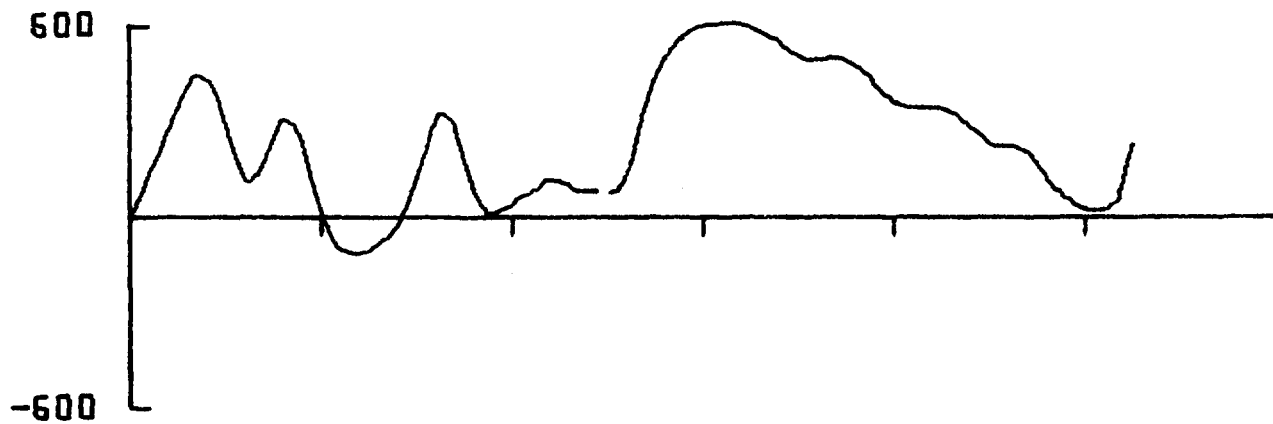
204 2850 062.01N  
131.18W

204 2900 062.00N  
131.18W

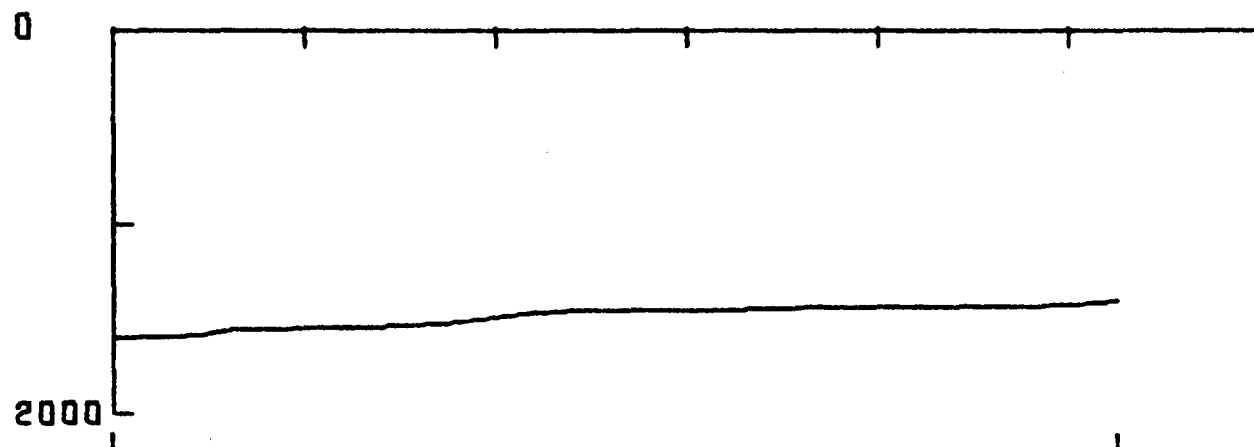


206 0712 062.02N  
132.52W

204 2300 062.00N  
131.18W

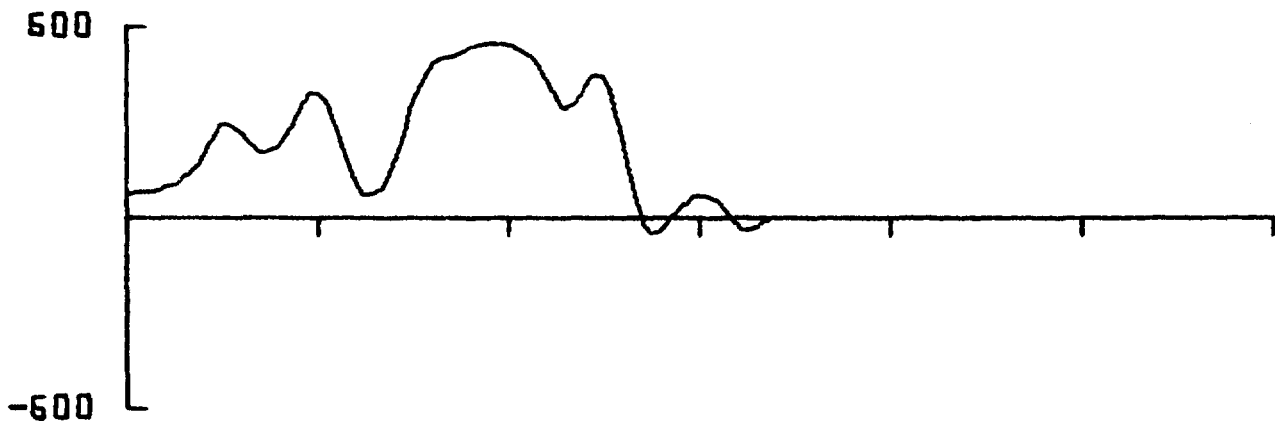


0 20 40 60 80 100 120

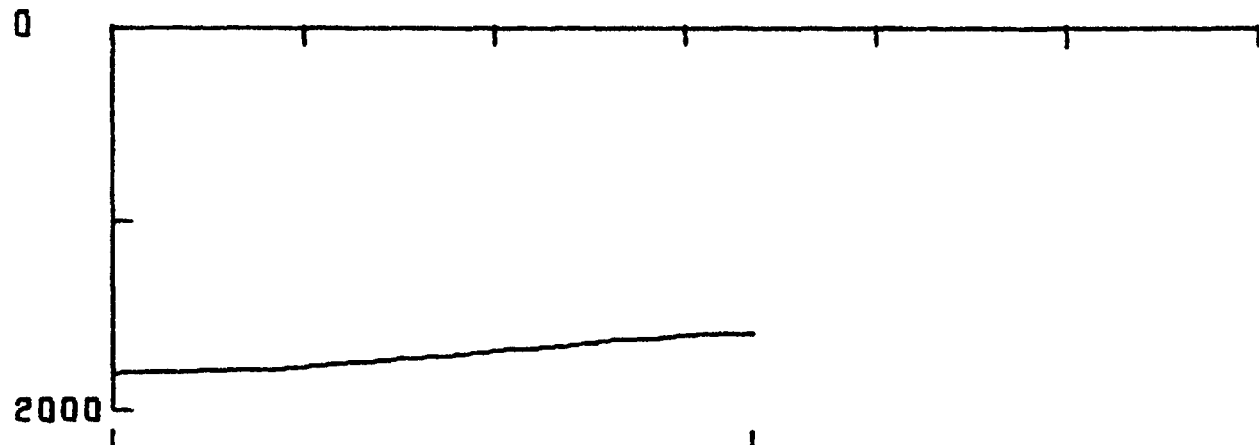


206 1290 062.03N  
134.06W

206 0712 062.02N  
132.62W

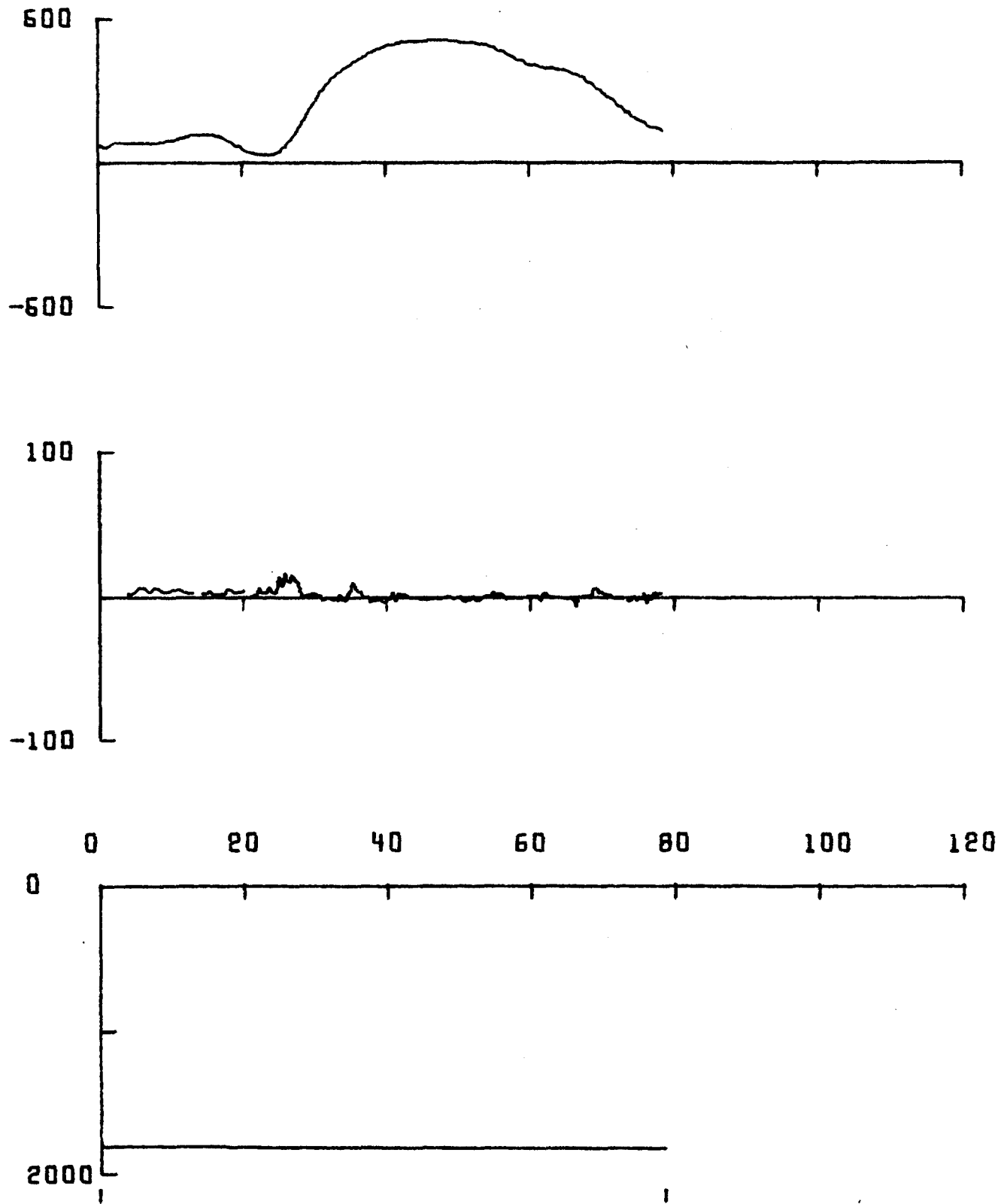


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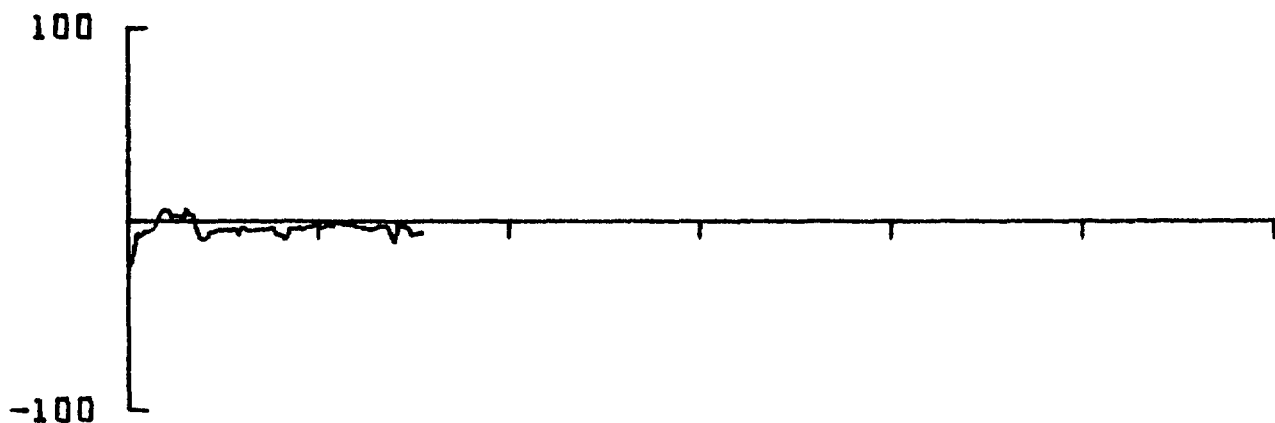
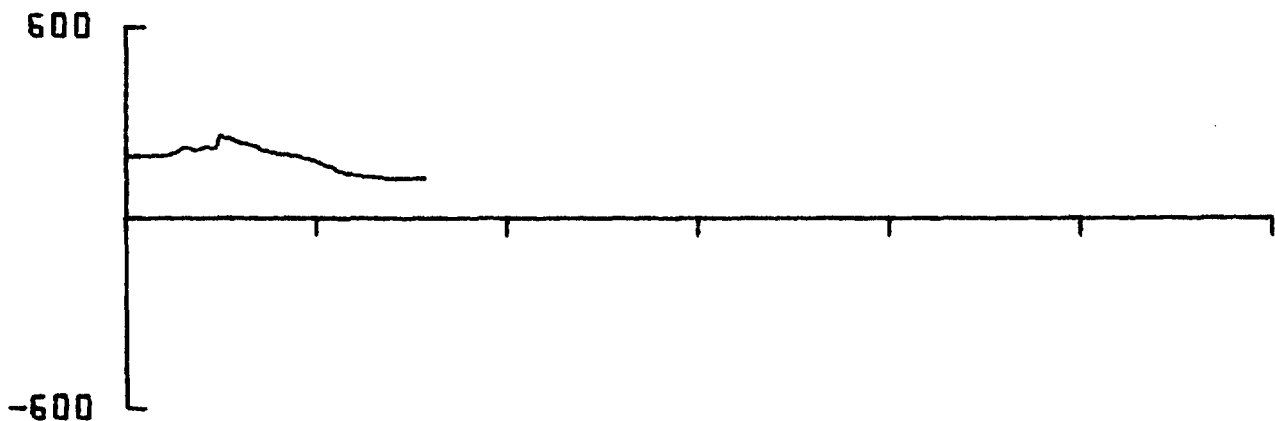
206 1630 062.06N  
135.03W

206 1230 062.03N  
134.06W

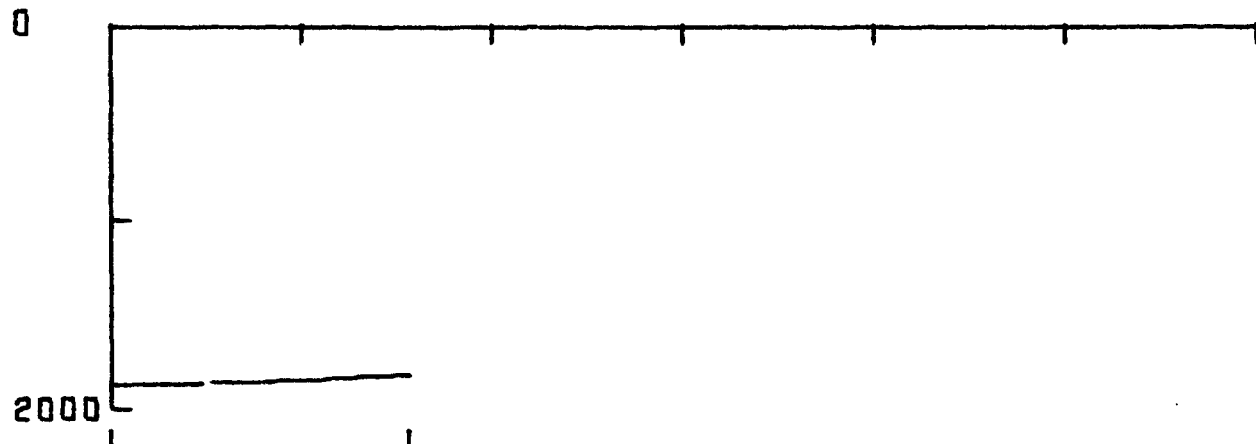


206 1630 062.06N  
135.03W

206 2200 061.96N  
134.80W

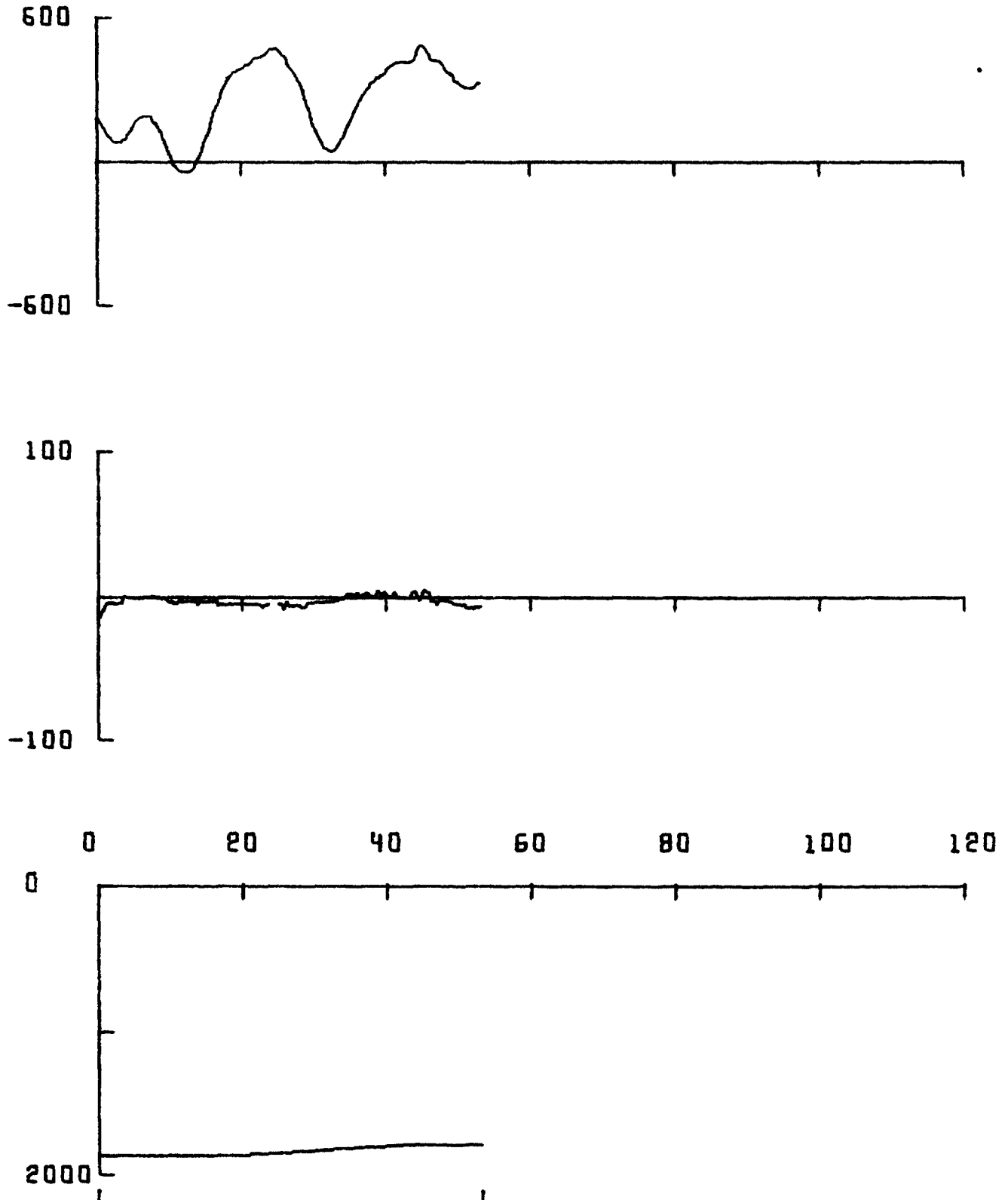


0 20 40 60 80 100 120



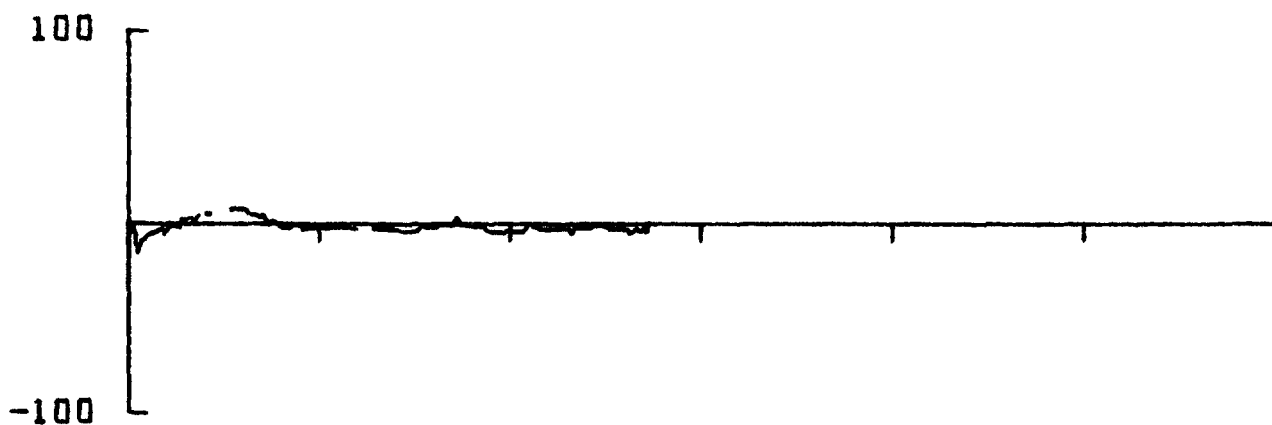
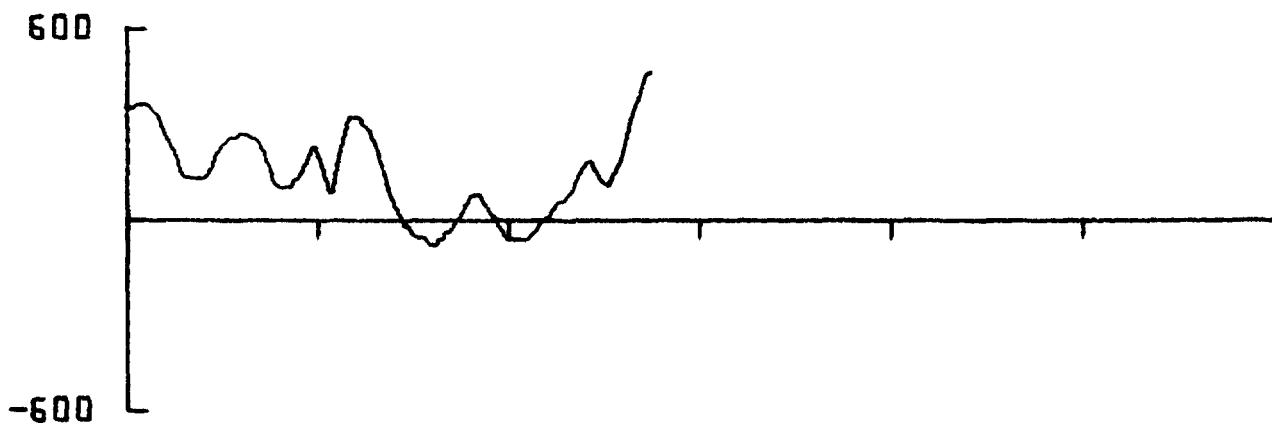
206 0062 061.08N  
134.86W

206 2200 061.36N  
134.80W



206 0062 061.08N  
134.86W

206 0604 060.86N  
134.18W



0 20 40 60 80 100 120

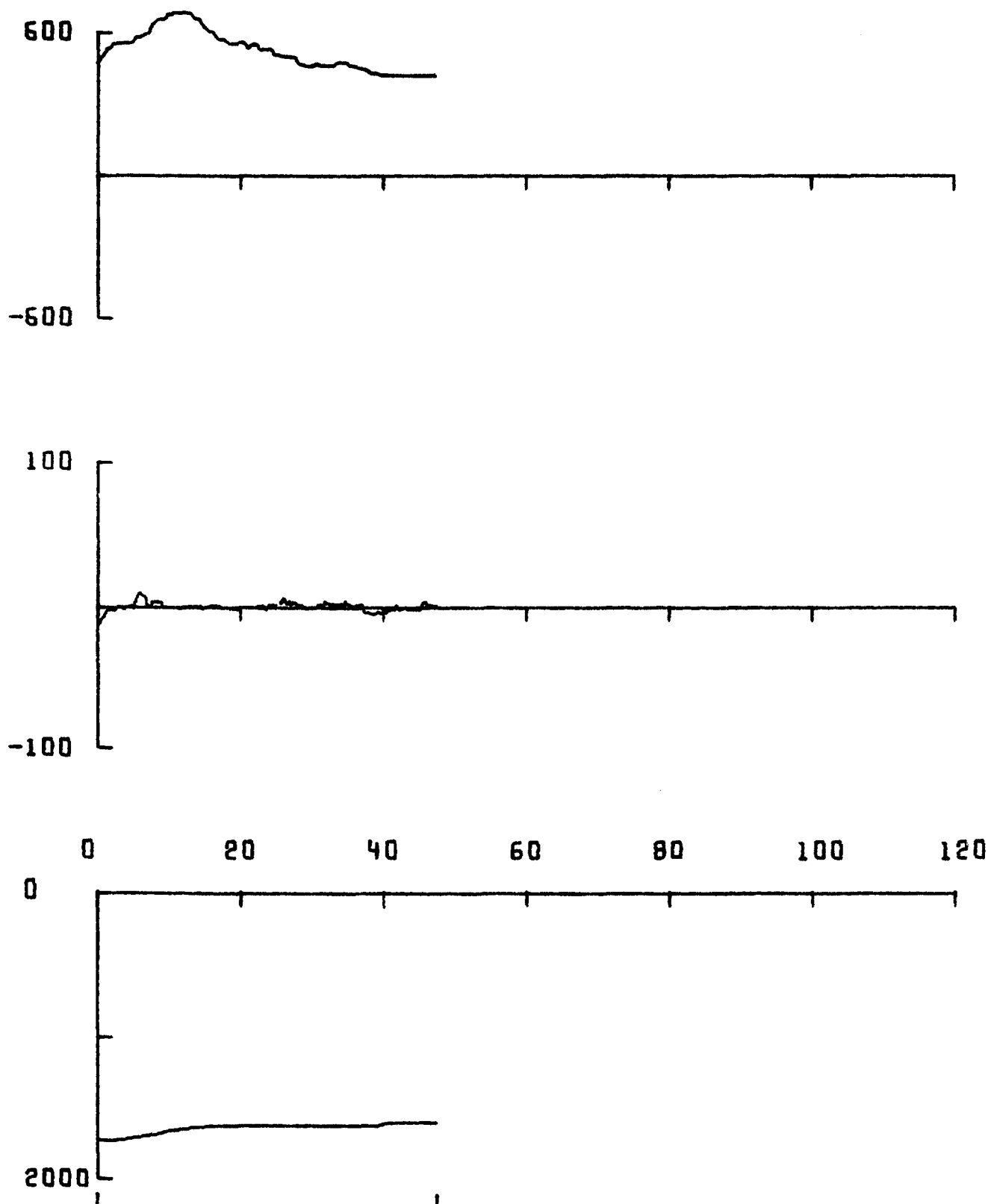


2000

206 0606 060.86N  
134.18W

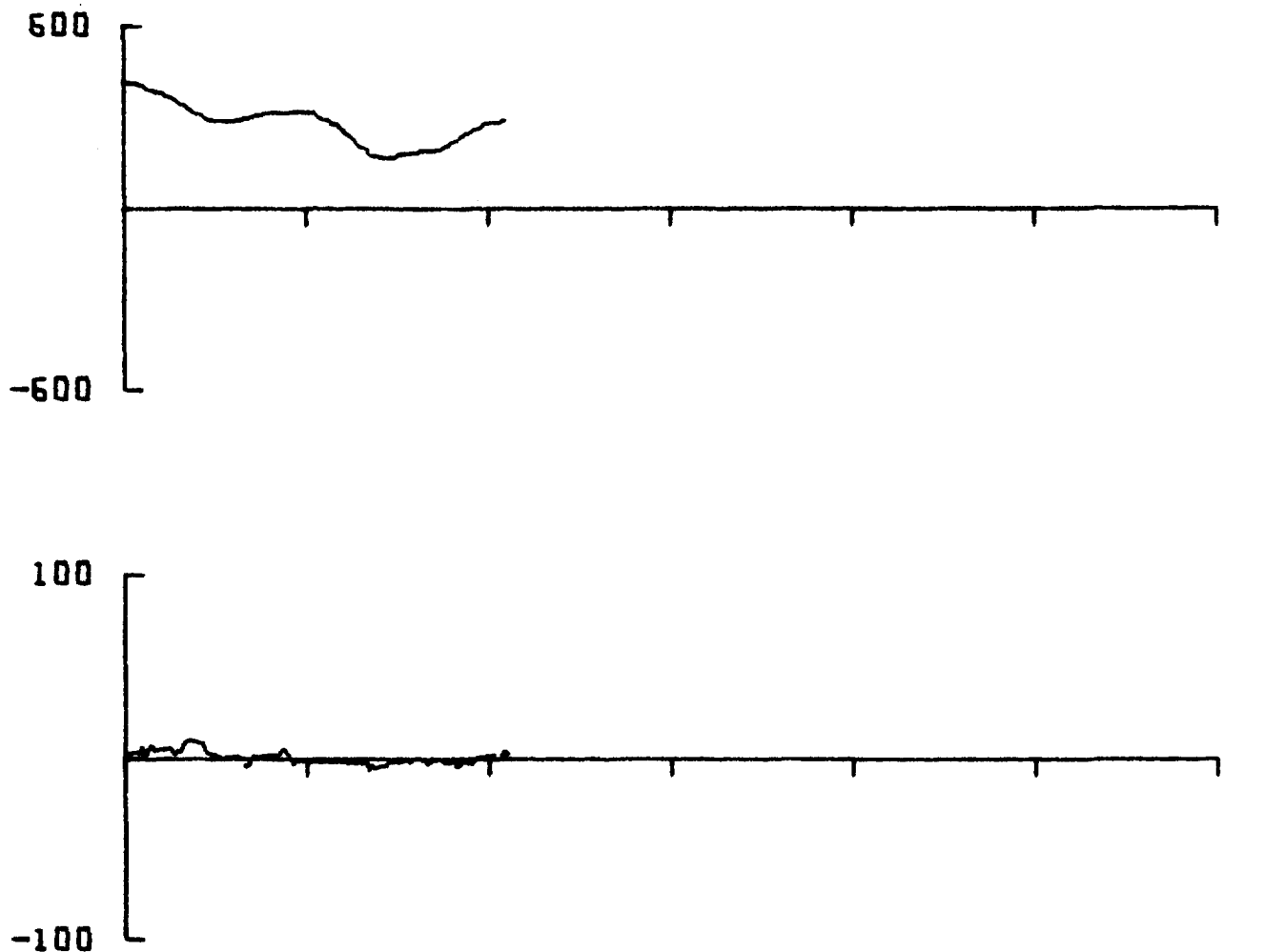
206 1112 060.99N  
139.40W



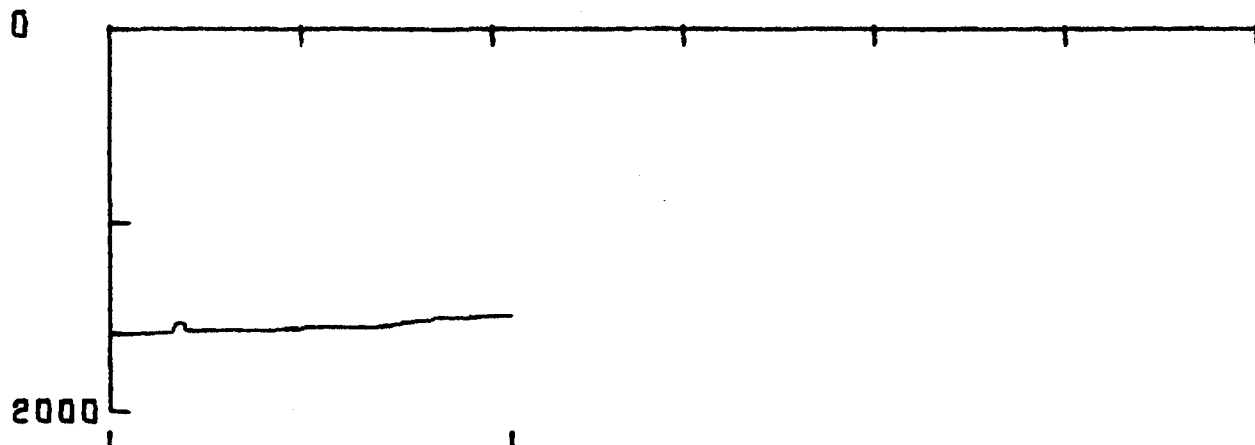


206 1112 060.99N  
139.40W

206 1608 061.27N  
132.98W

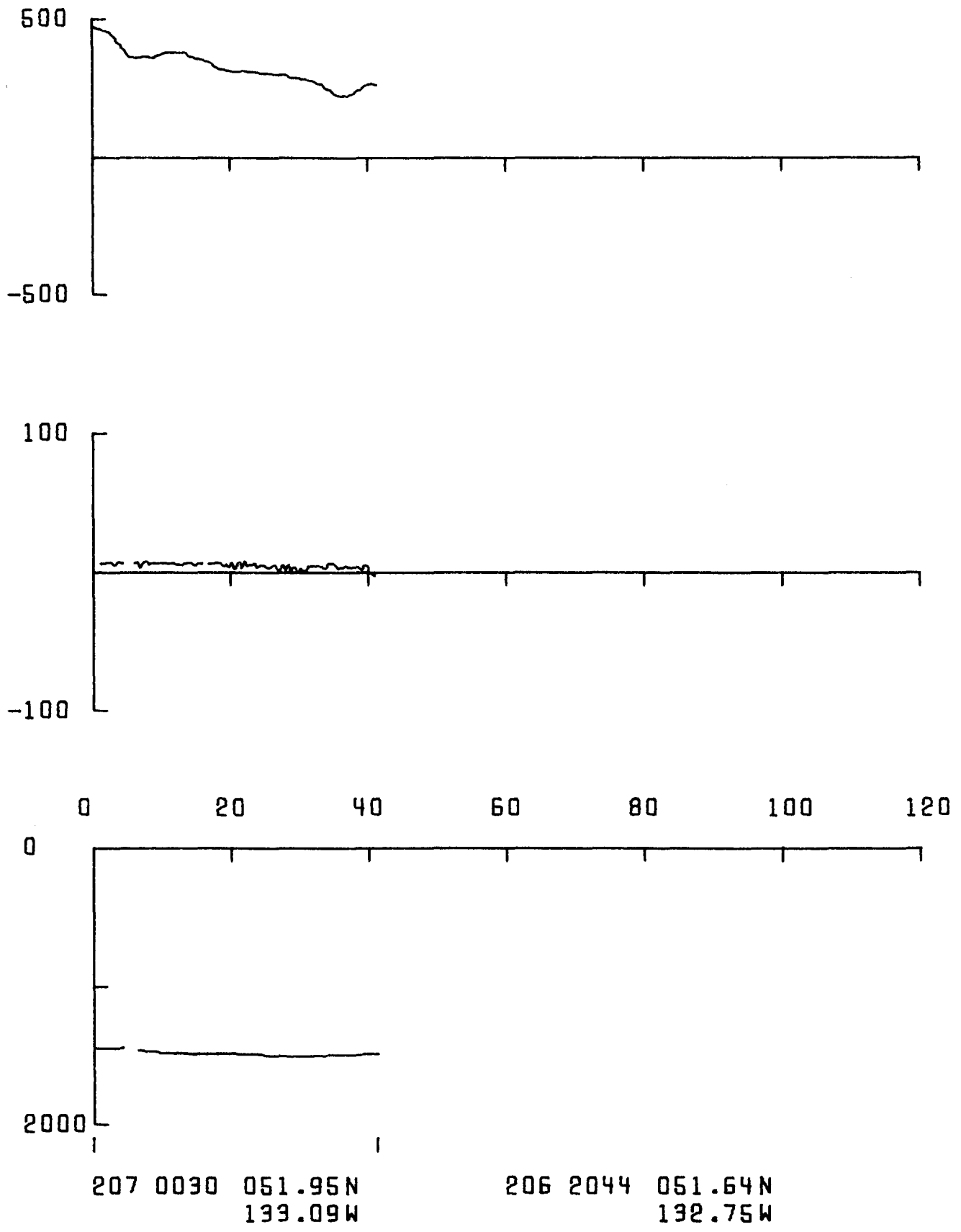


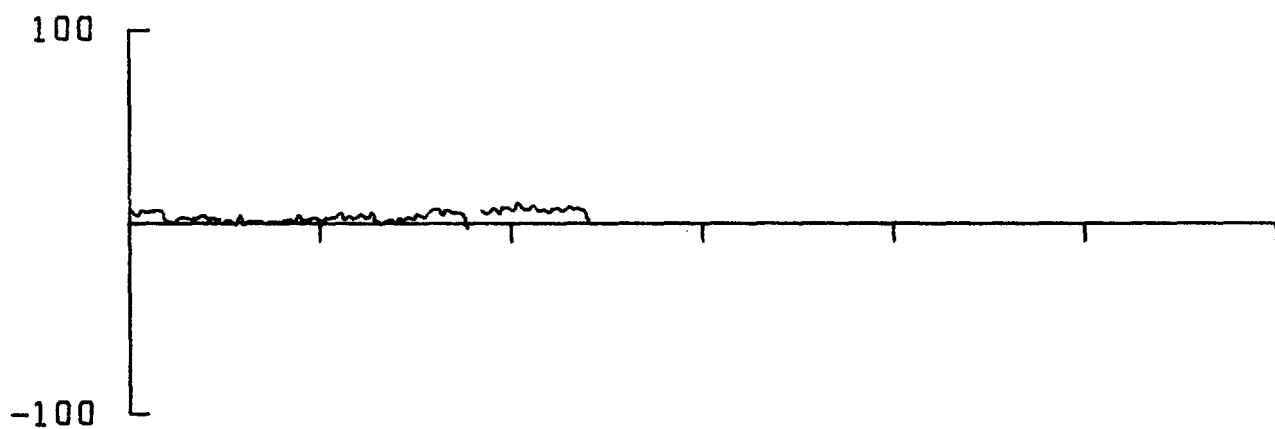
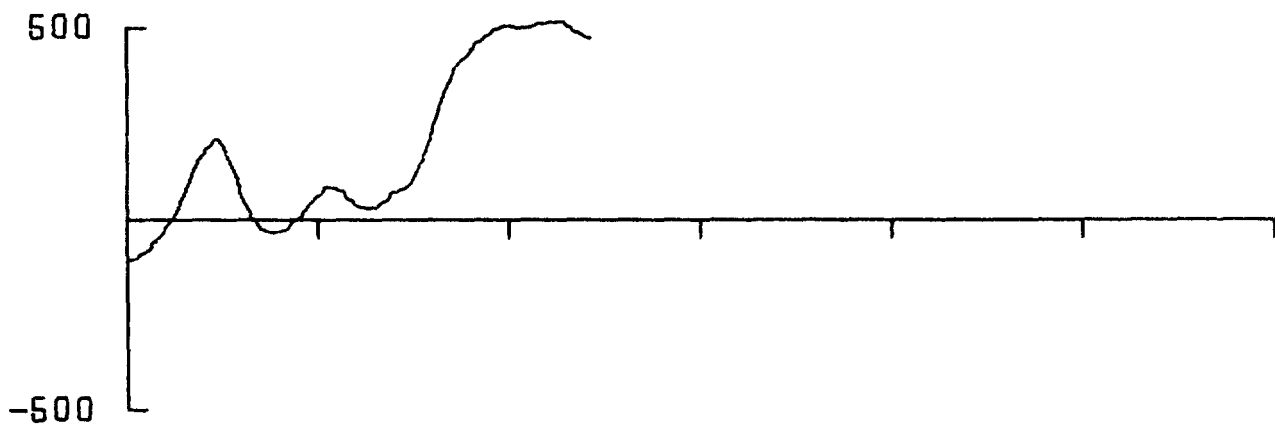
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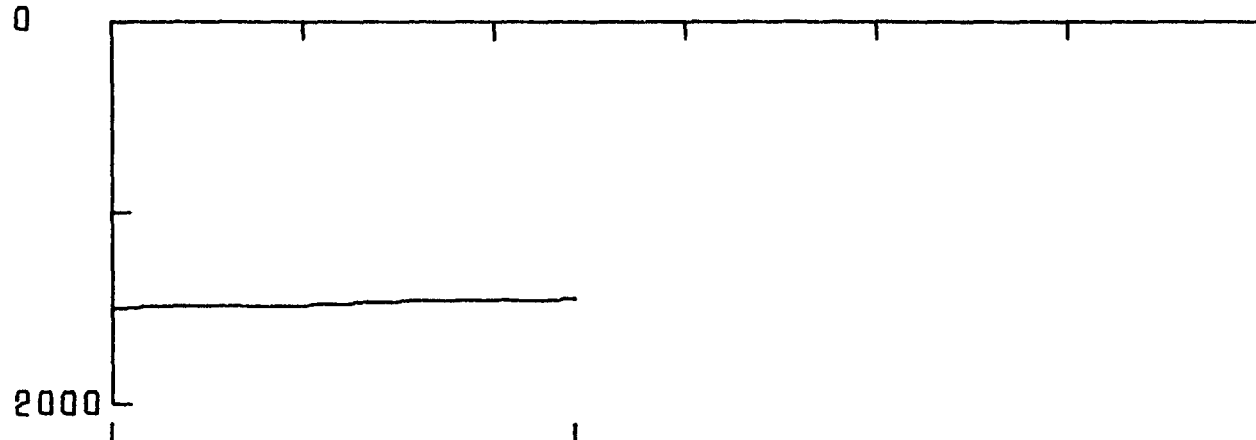
206 1610 061.27N  
132.98W

206 2030 061.62N  
132.75W



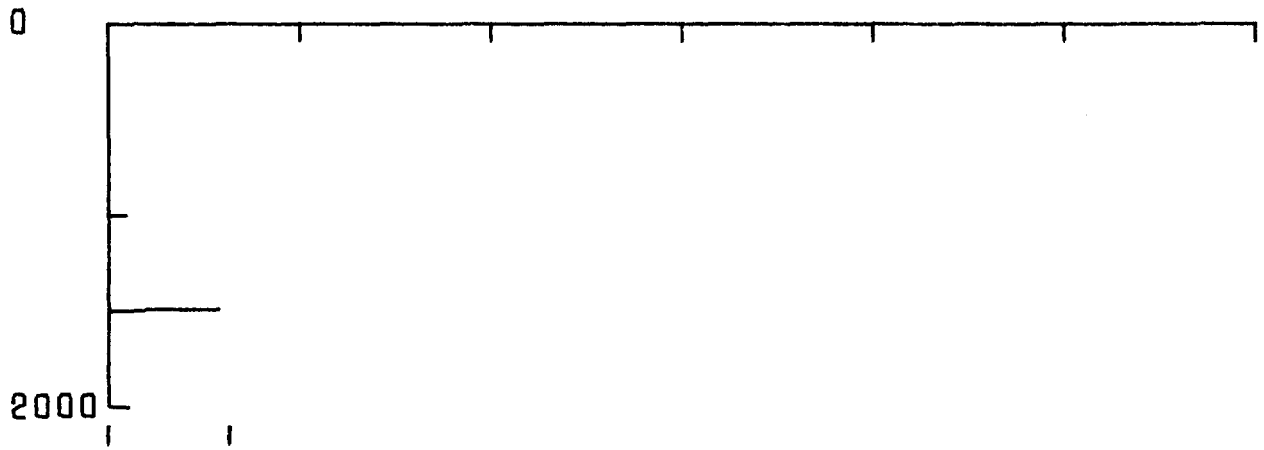
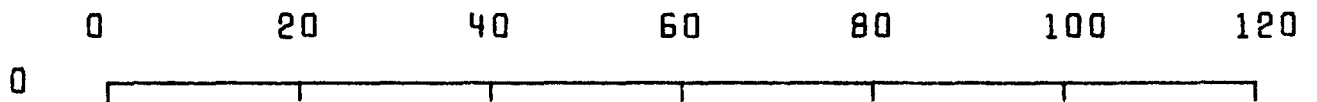
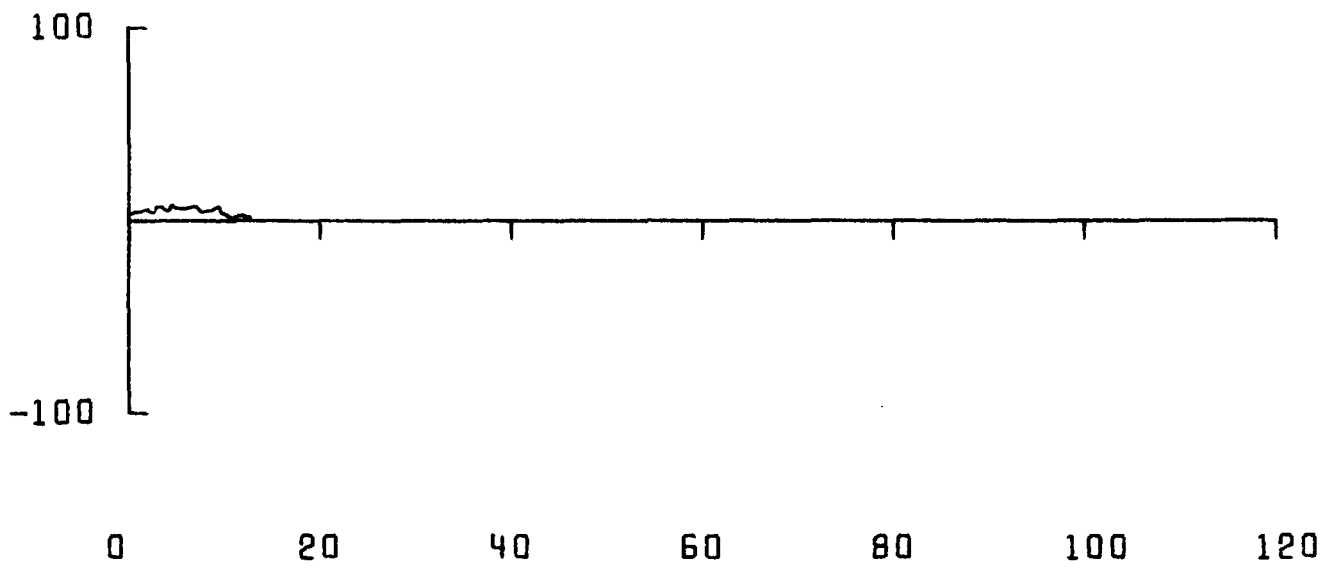


0 20 40 60 80 100 120



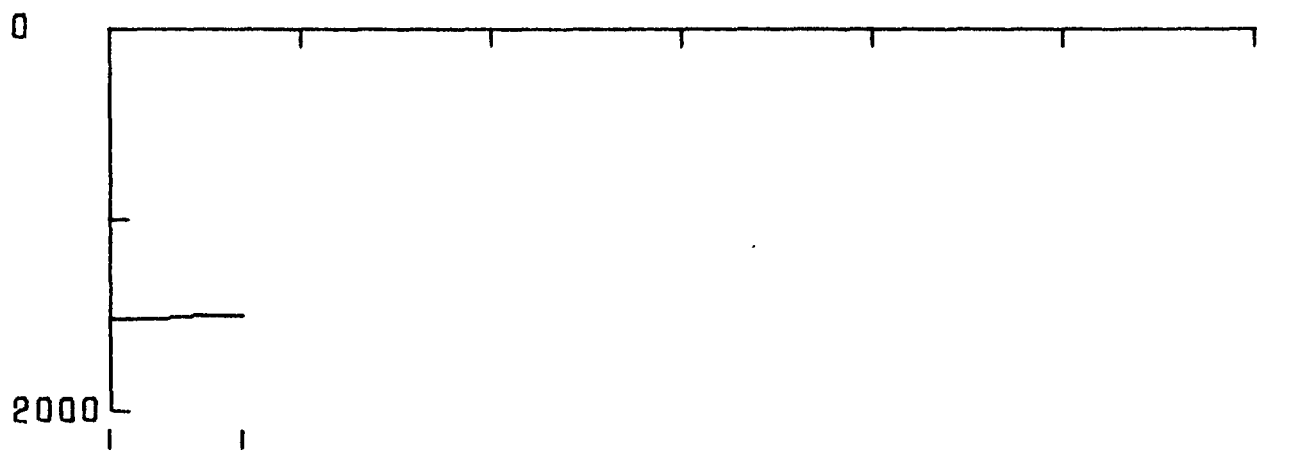
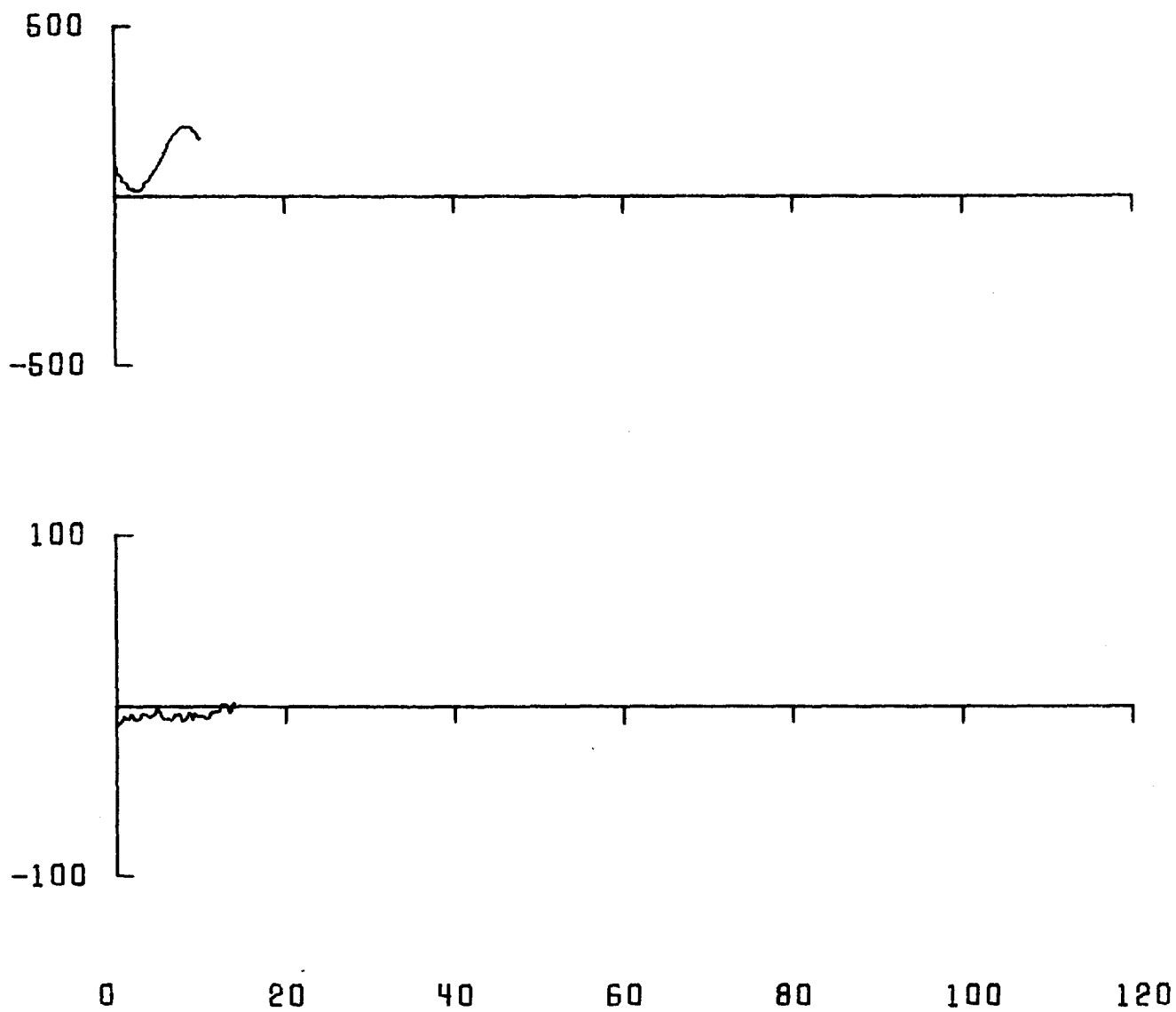
207 0456 052.22N  
139.64W

207 0030 051.95N  
139.09W



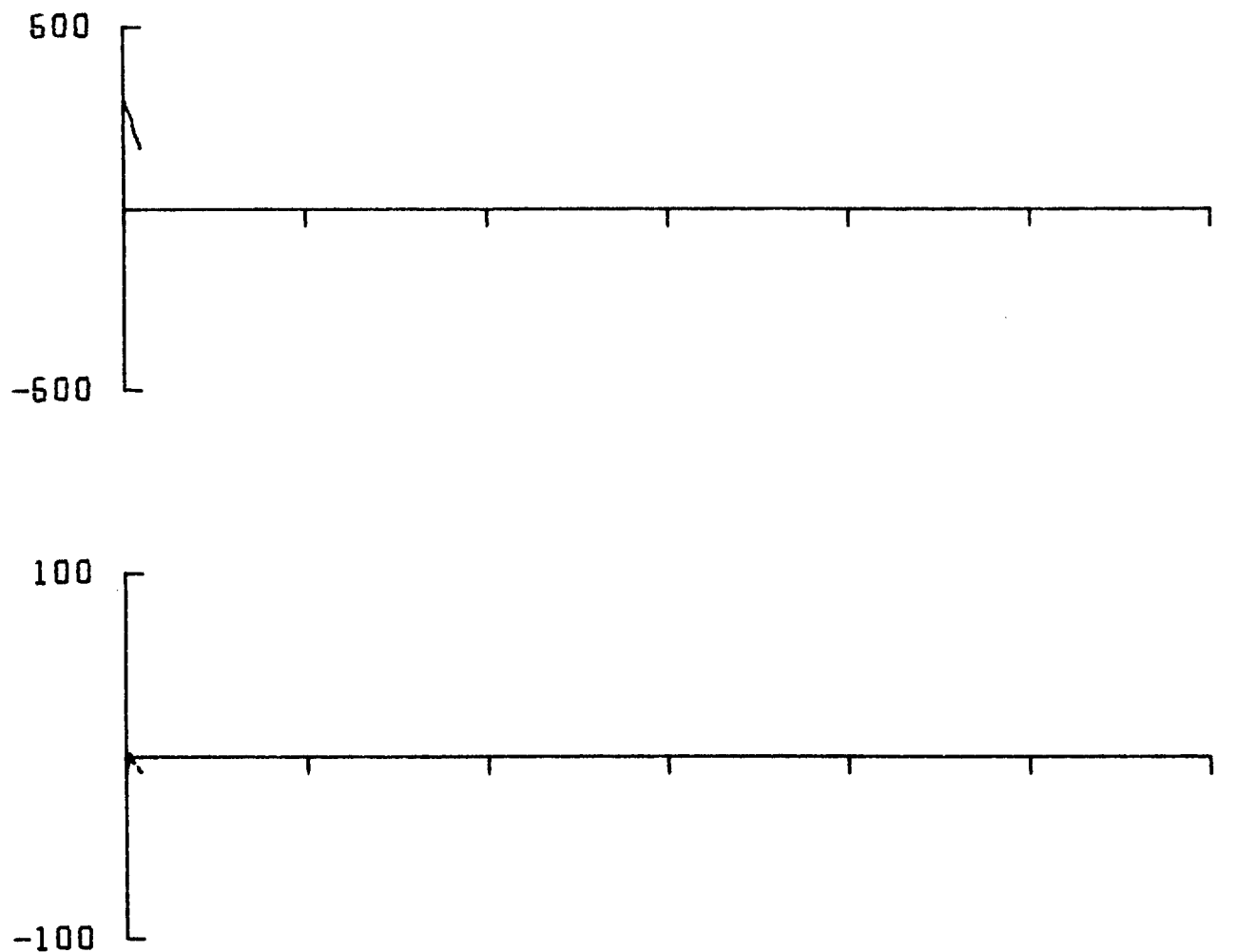
207 1140 052.22N  
139.70W

207 1052 052.18N  
139.53W

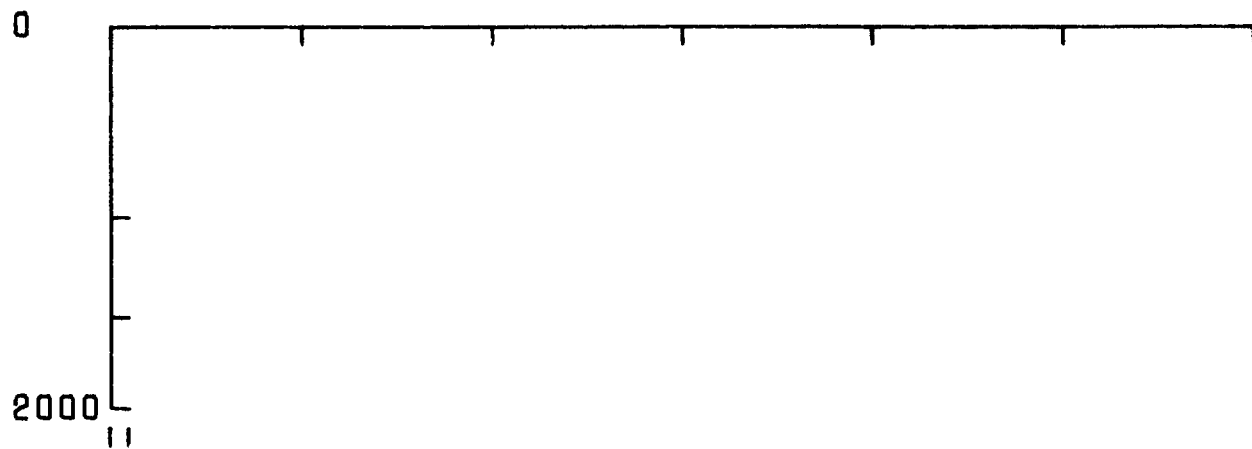


207 1300 052.33N  
133.84W

207 1146 052.23N  
133.71W

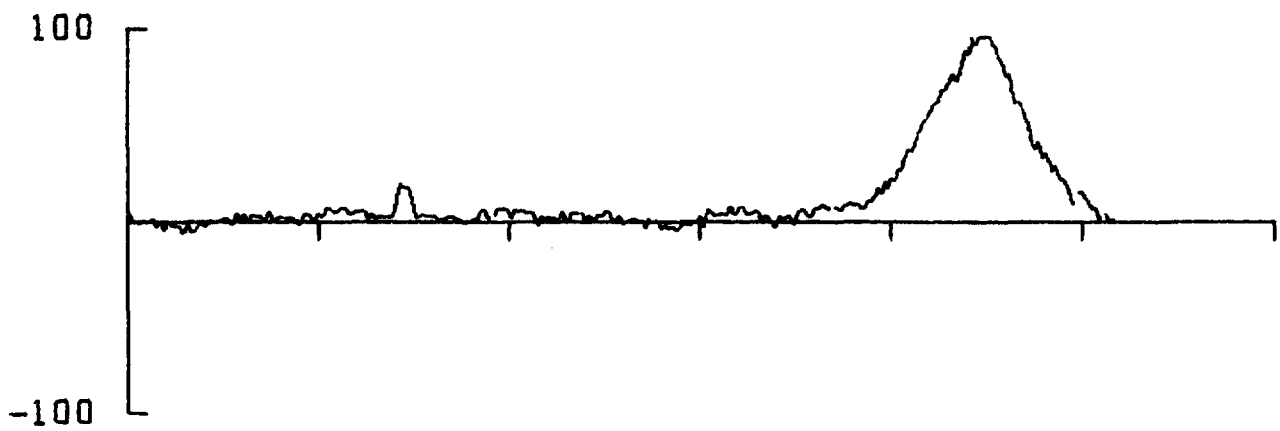
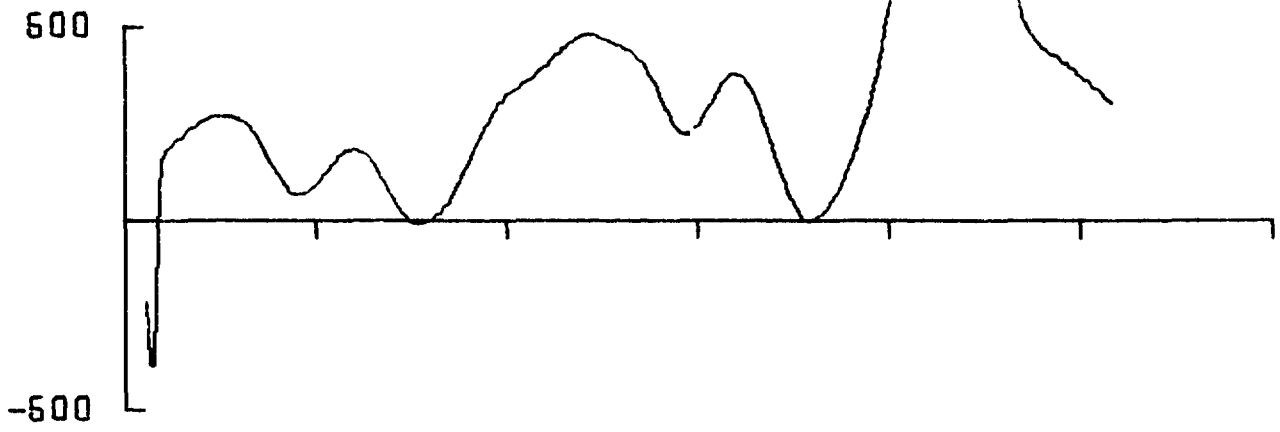


0 20 40 60 80 100 120

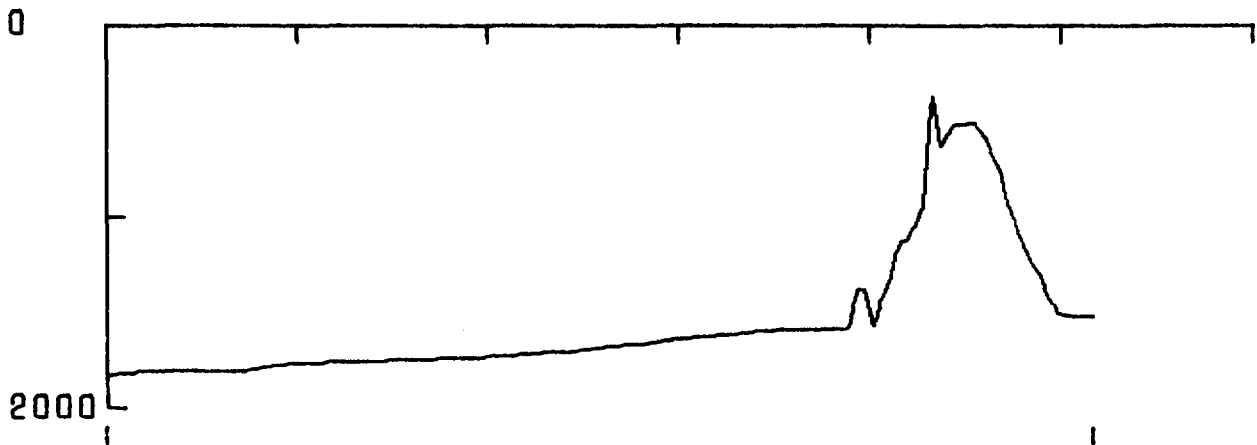


207 1320 052.34N  
139.88W

207 1306 052.34N  
139.86W



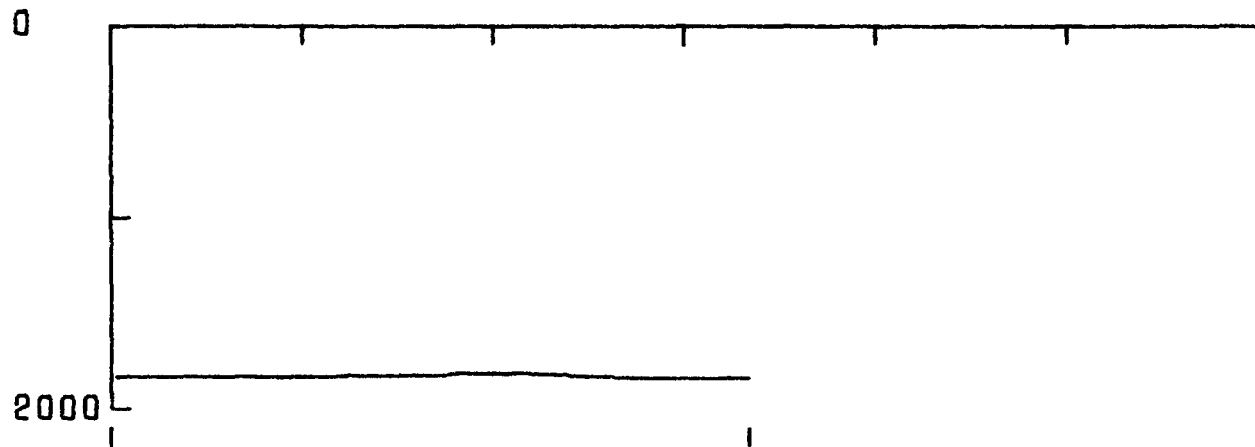
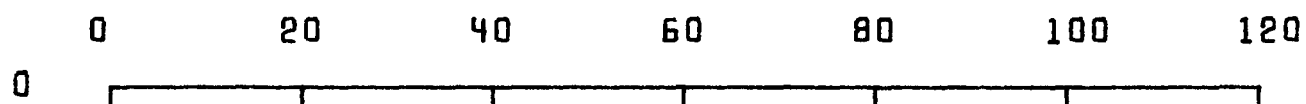
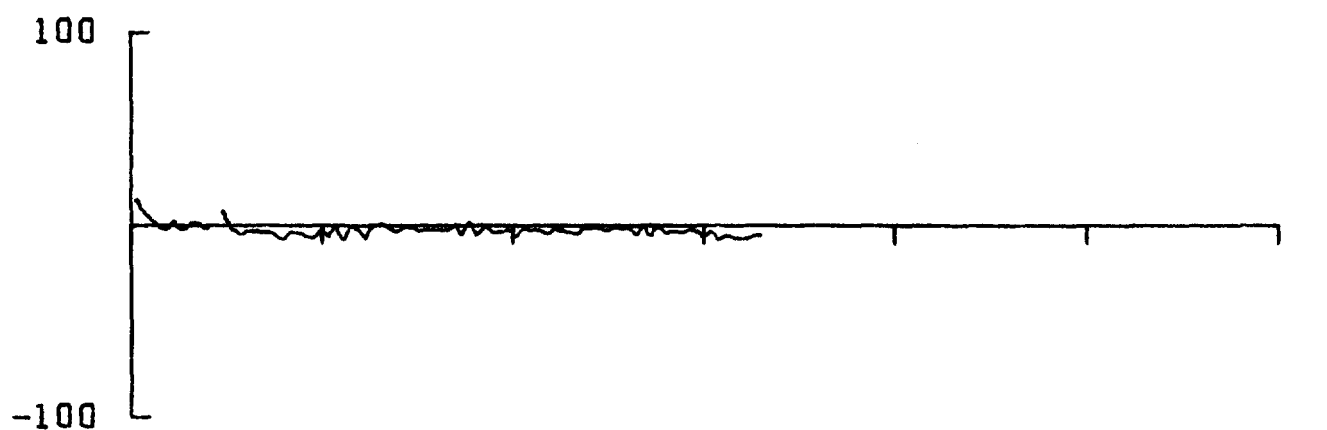
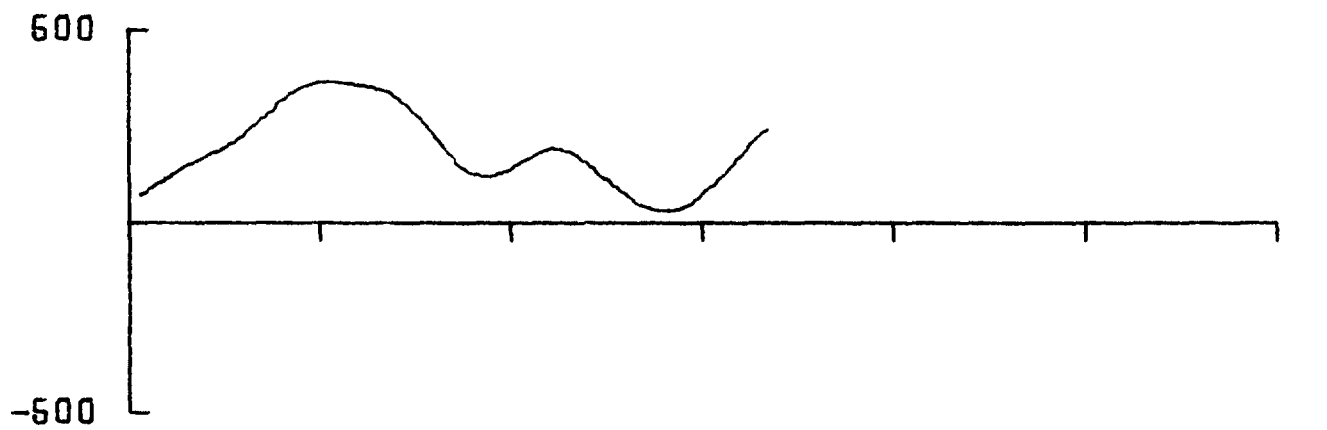
0 20 40 60 80 100 120



207 2244 061.73N  
195.01W

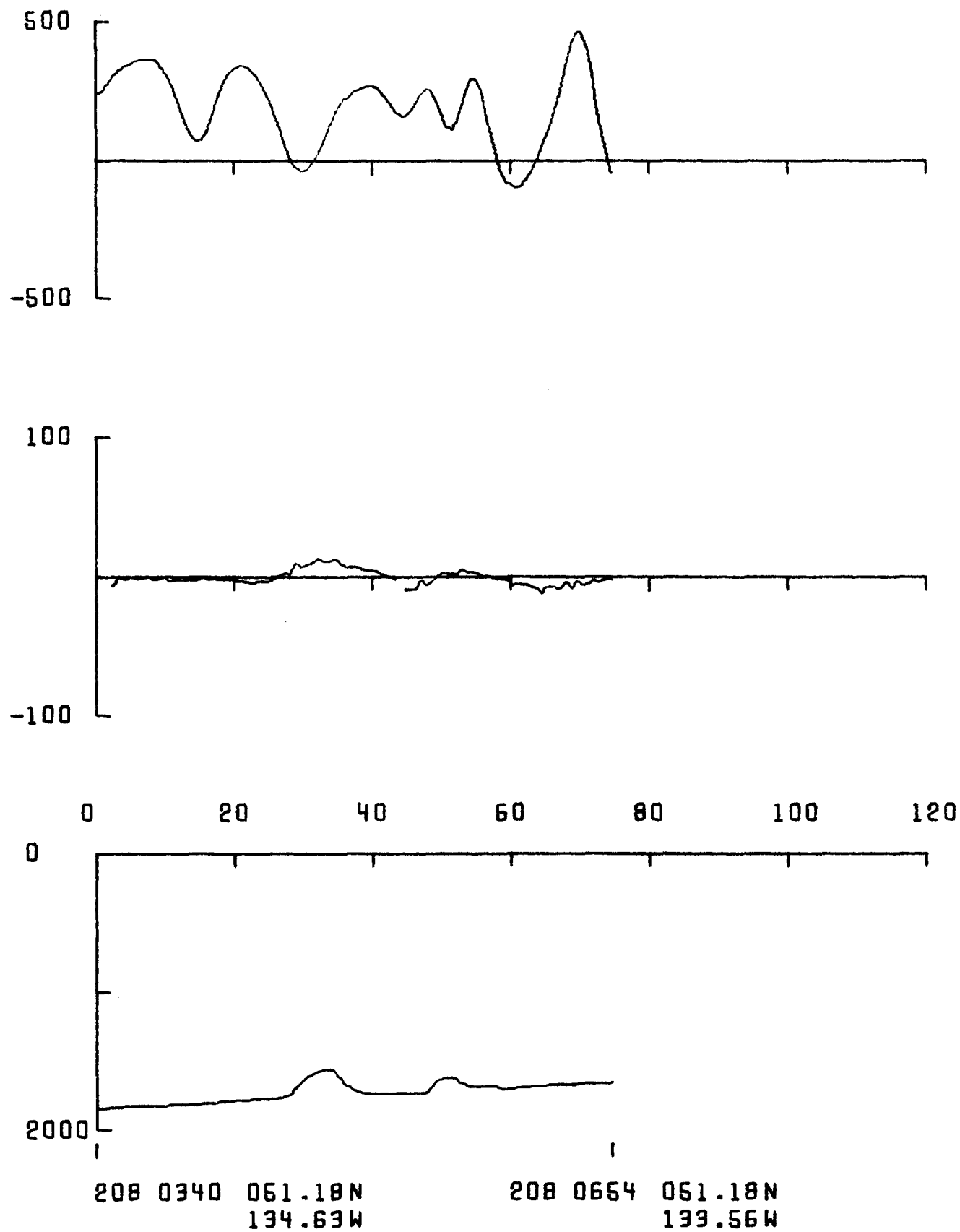
207 1320 062.34N  
133.88W

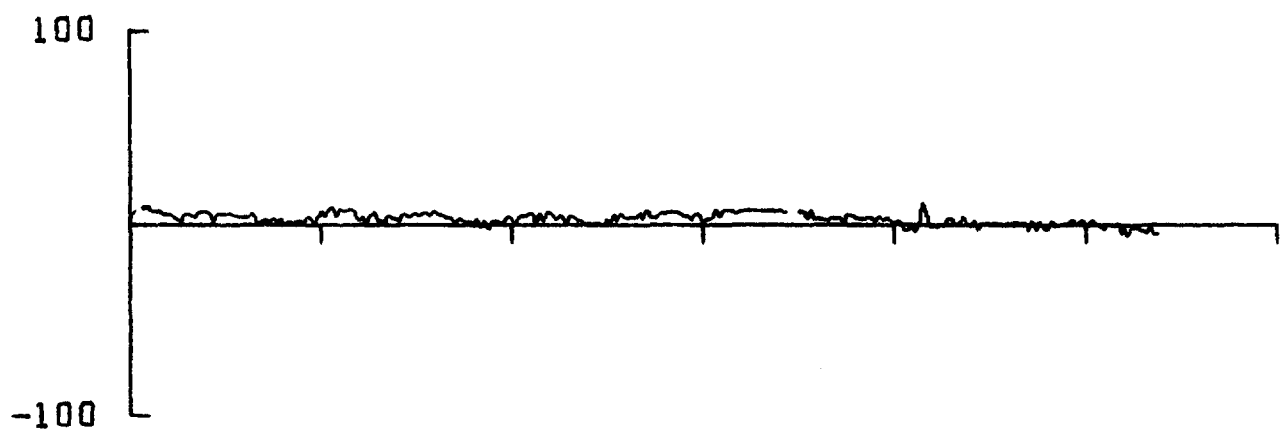
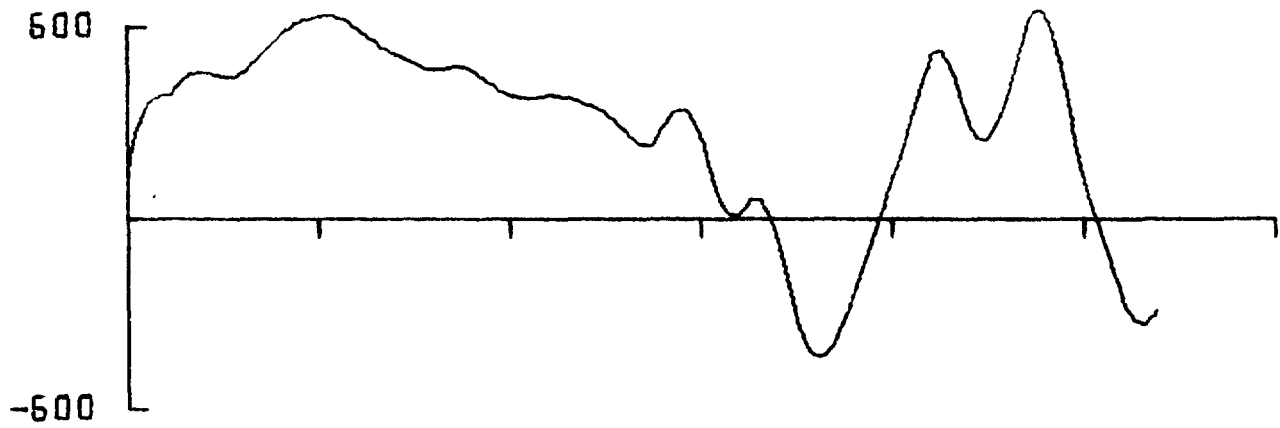




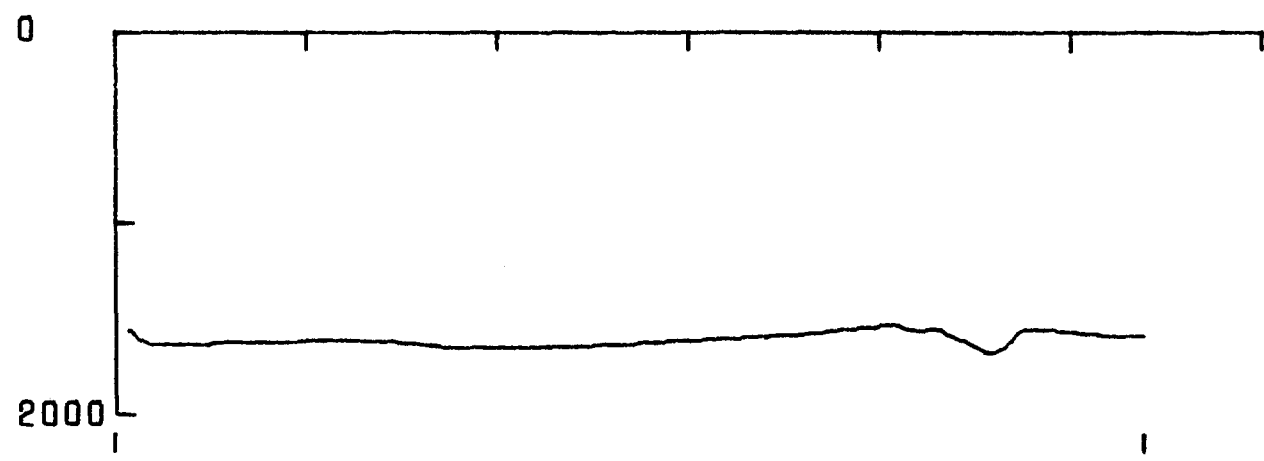
208 0044 051.73N  
135.01W

208 0340 051.18N  
134.69W



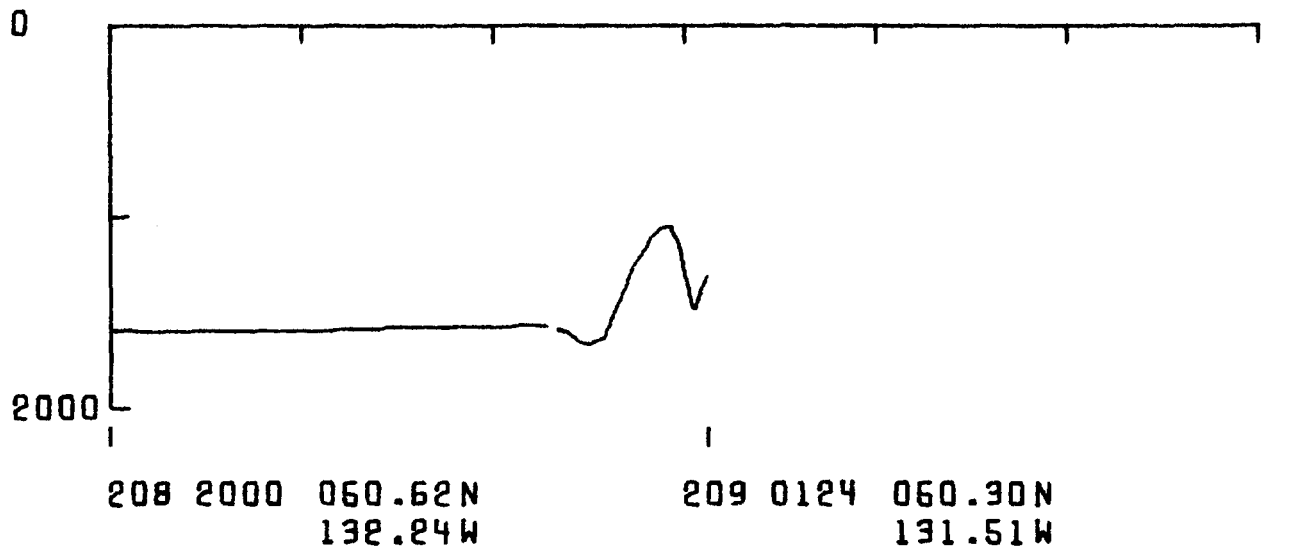
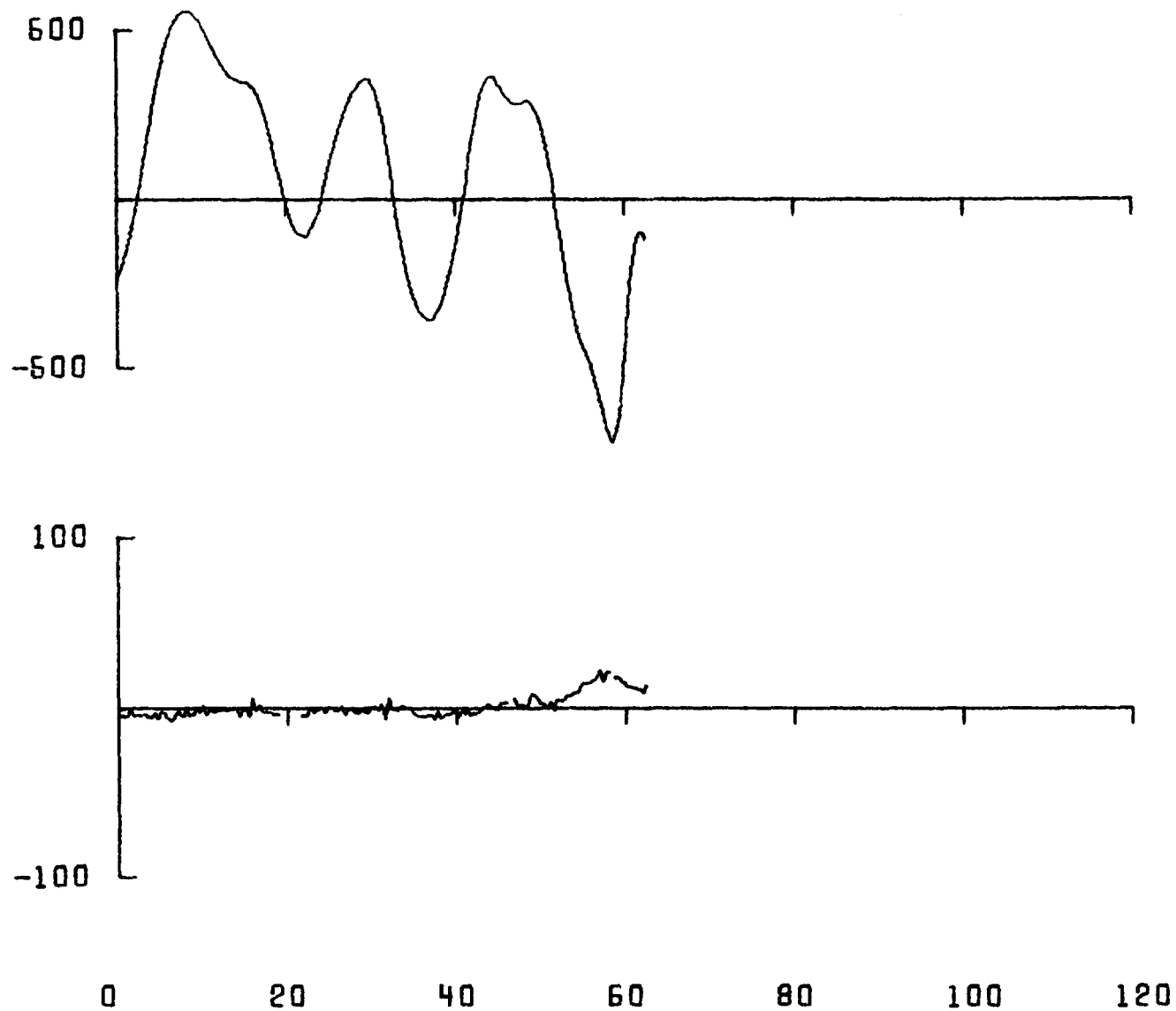


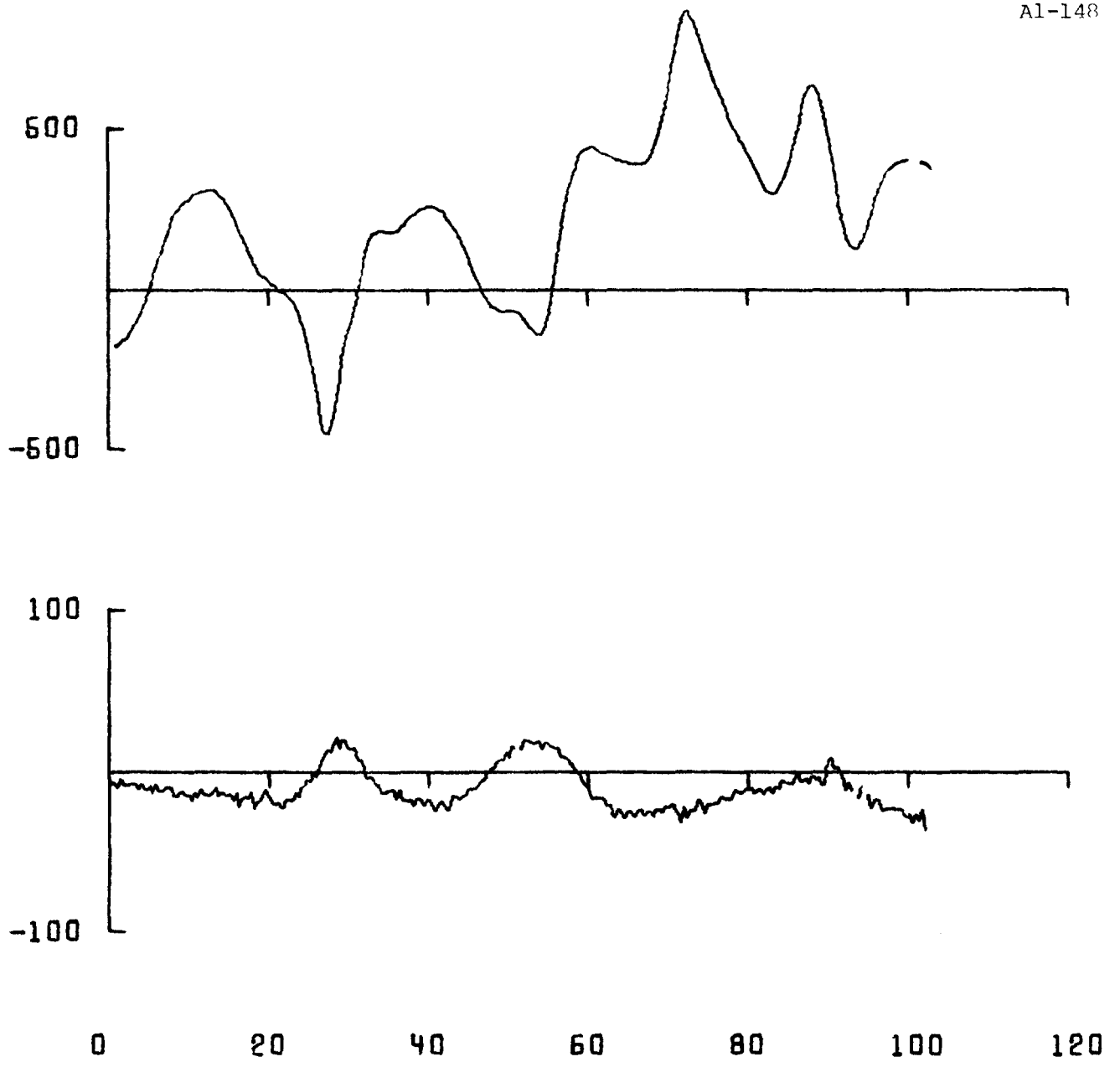
0 20 40 60 80 100 120



208 1042 061.16N  
199.52W

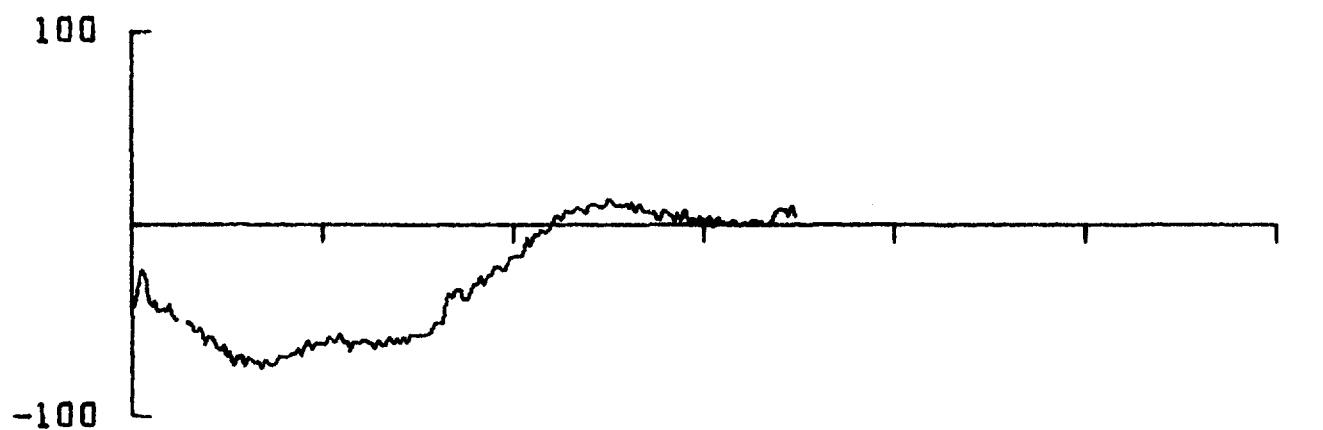
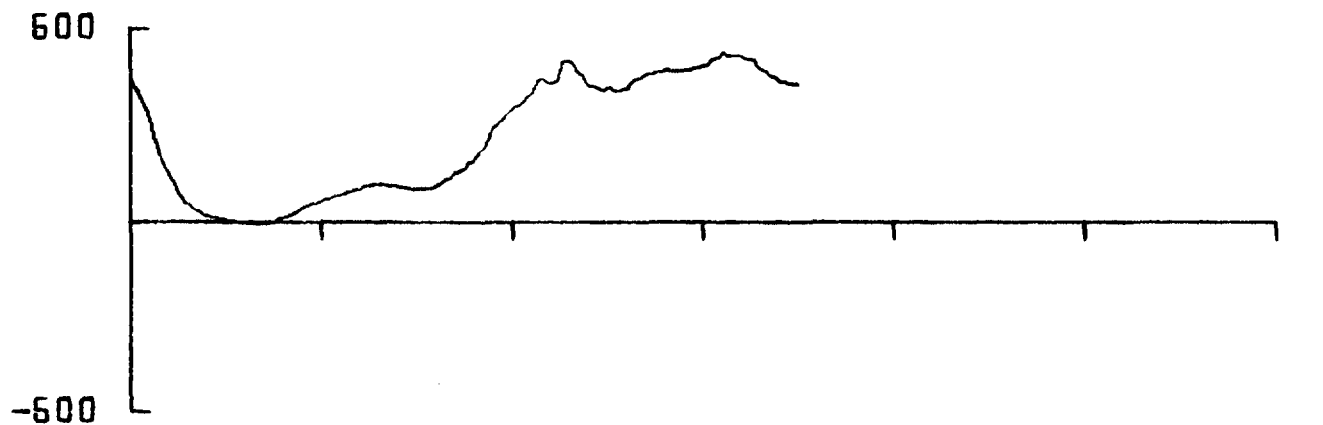
208 2000 060.62N  
192.24W



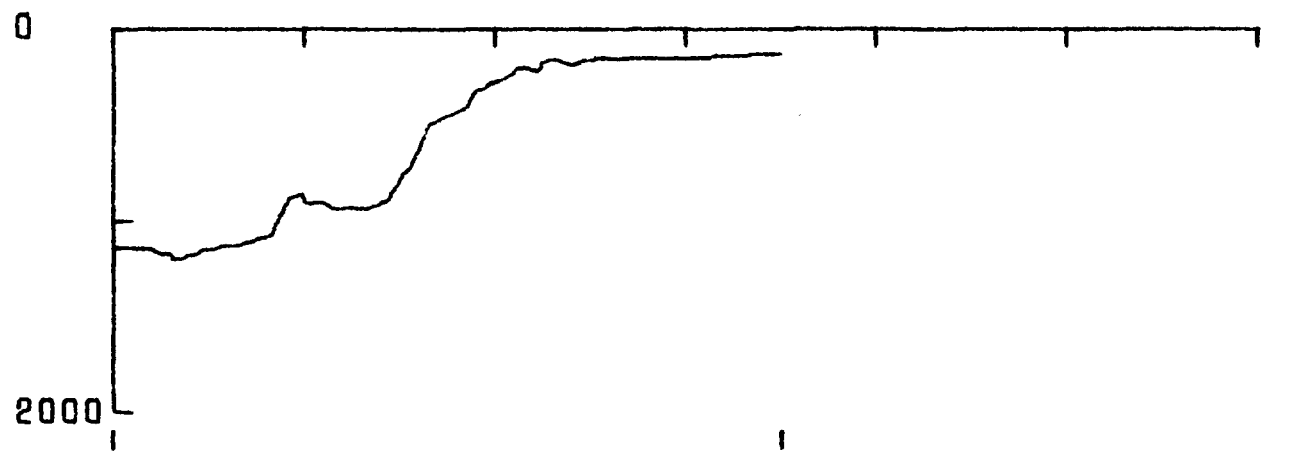


209 0824 050.37N  
131.38W

209 1730 050.94N  
130.23W

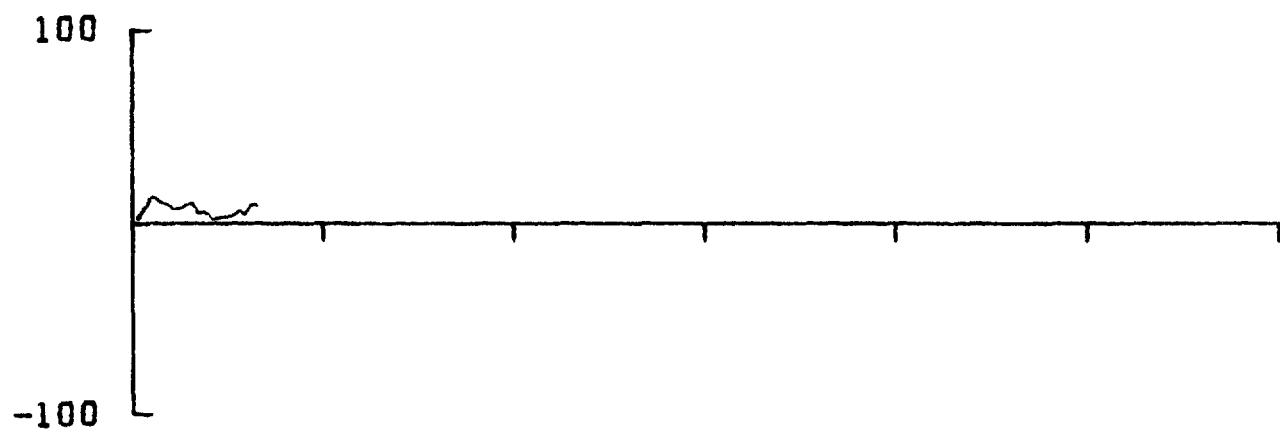
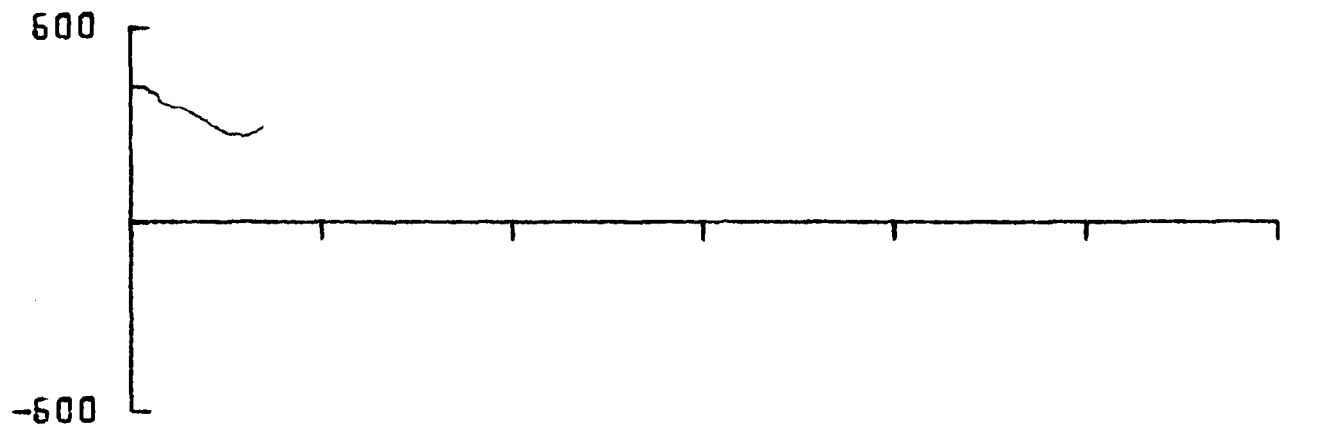


0 20 40 60 80 100 120

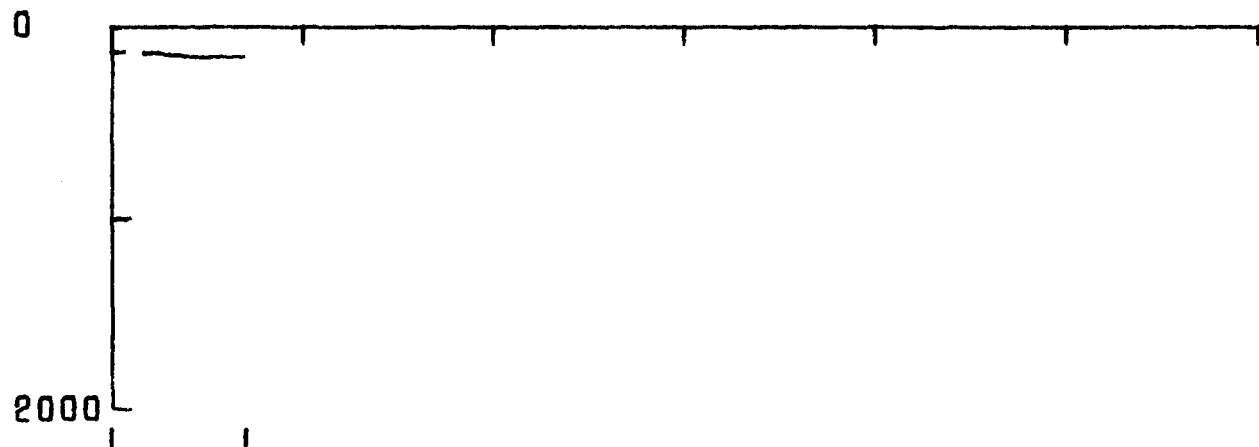


209 1730 060.94N  
130.23W

209 2350 061.33N  
129.46W

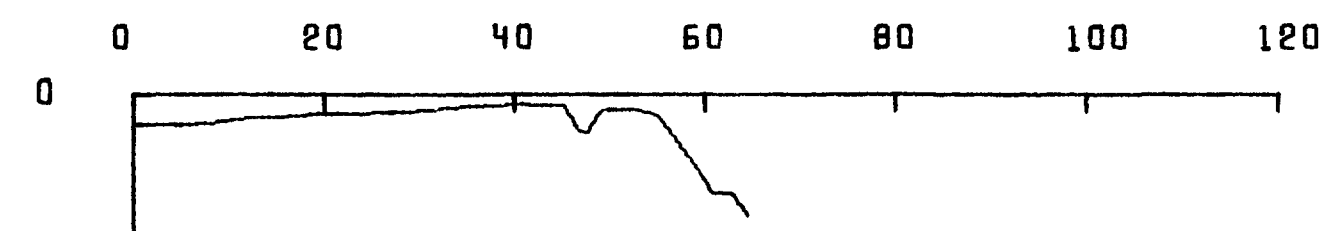
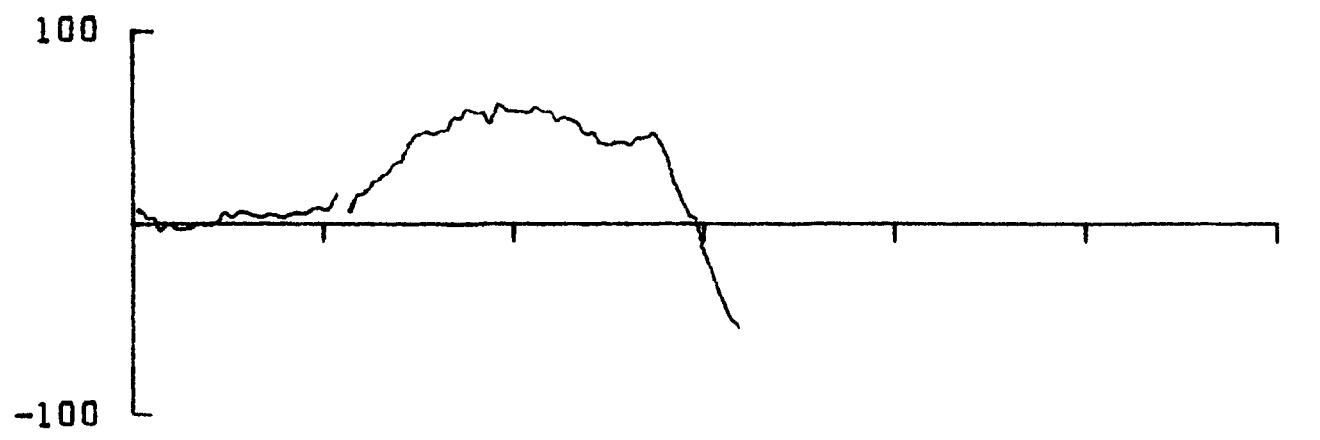
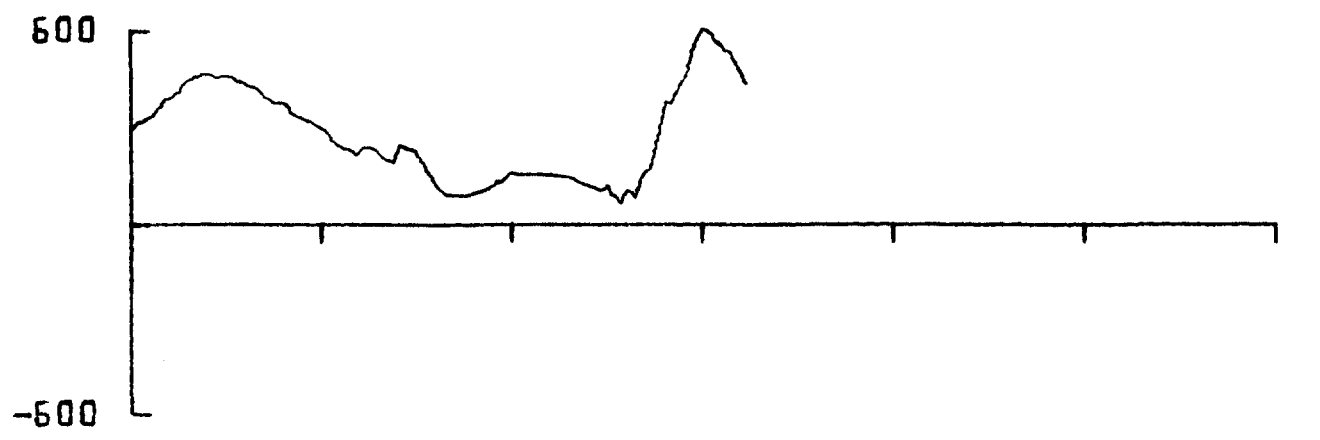


0 20 40 60 80 100 120

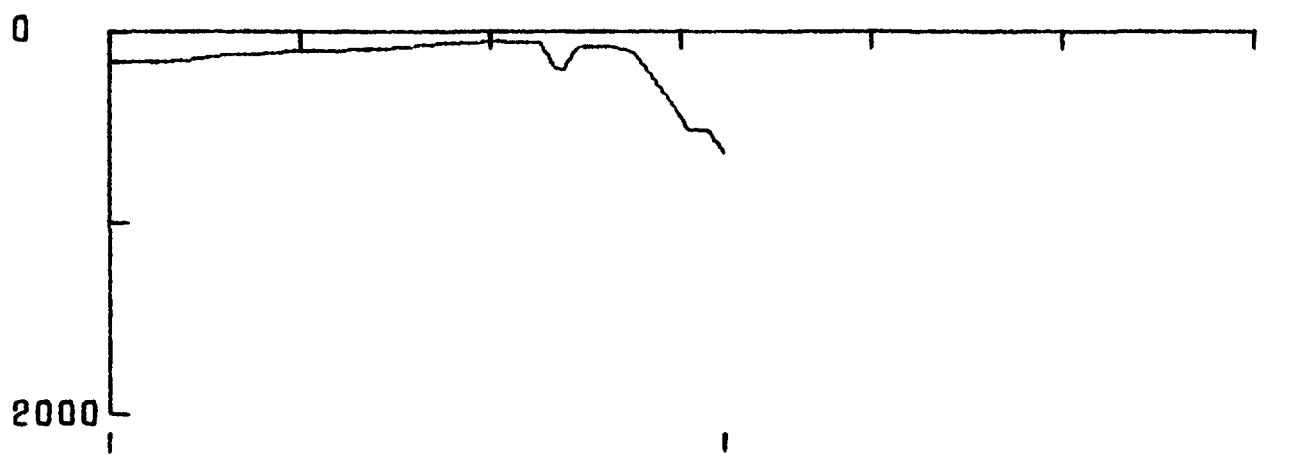


209 2350 061.39N  
129.46W

210 0030 061.22N  
129.37W



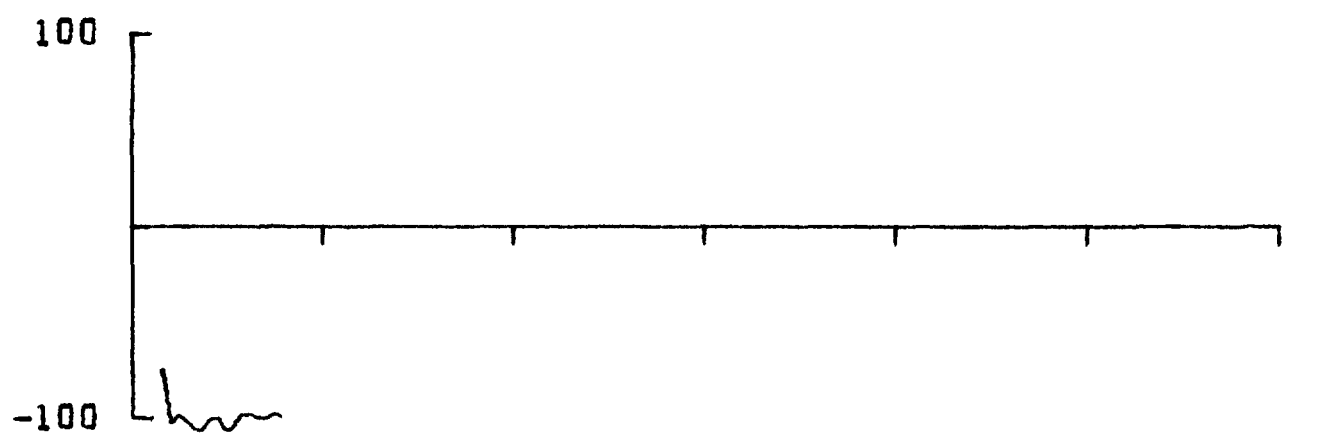
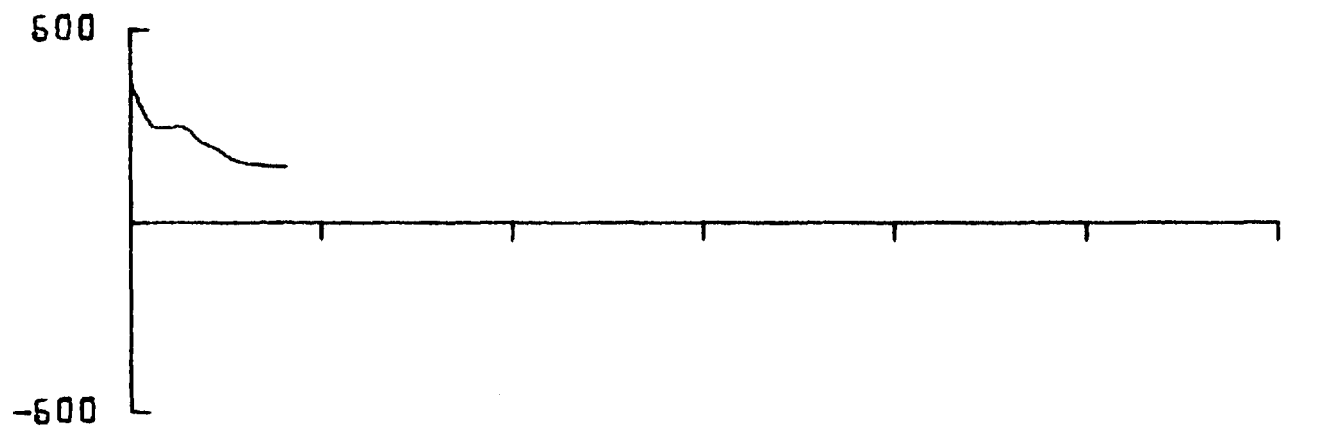
0 20 40 60 80 100 120



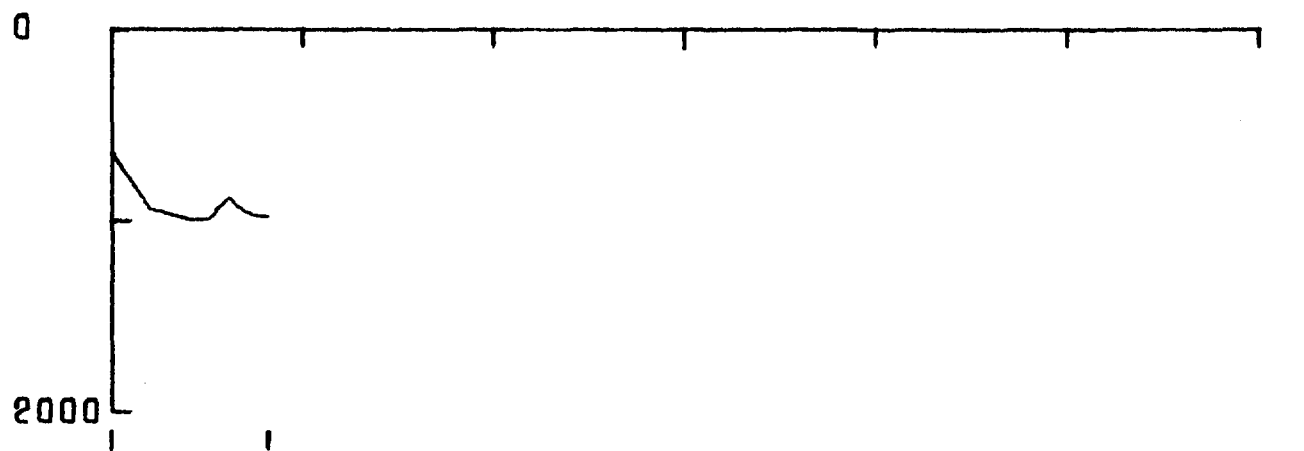
210 0030 061.22N  
129.37W

210 0320 060.66N  
129.16W



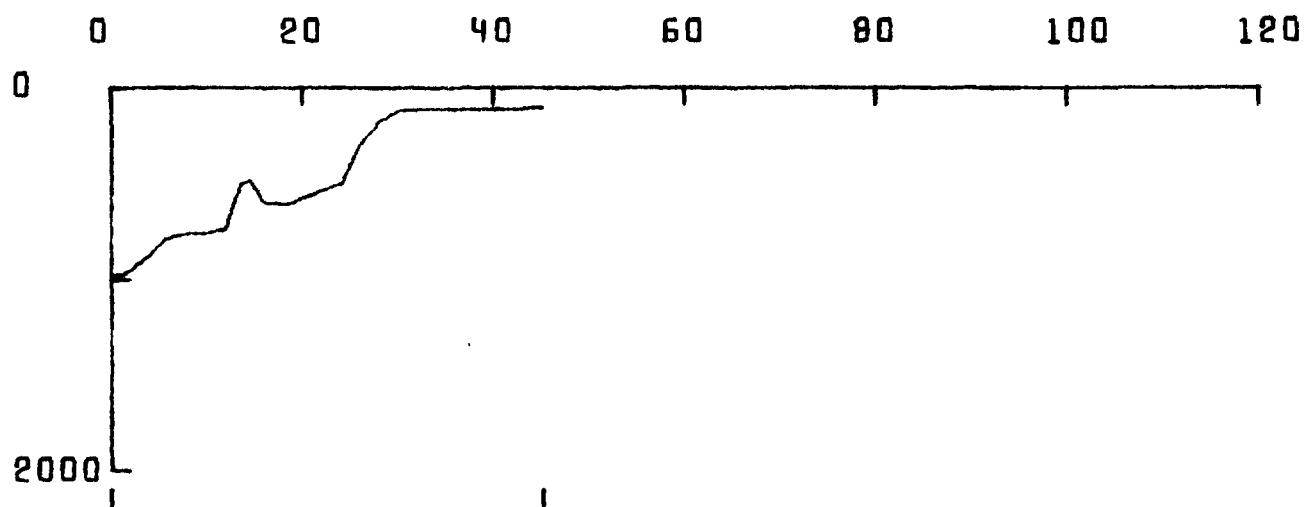
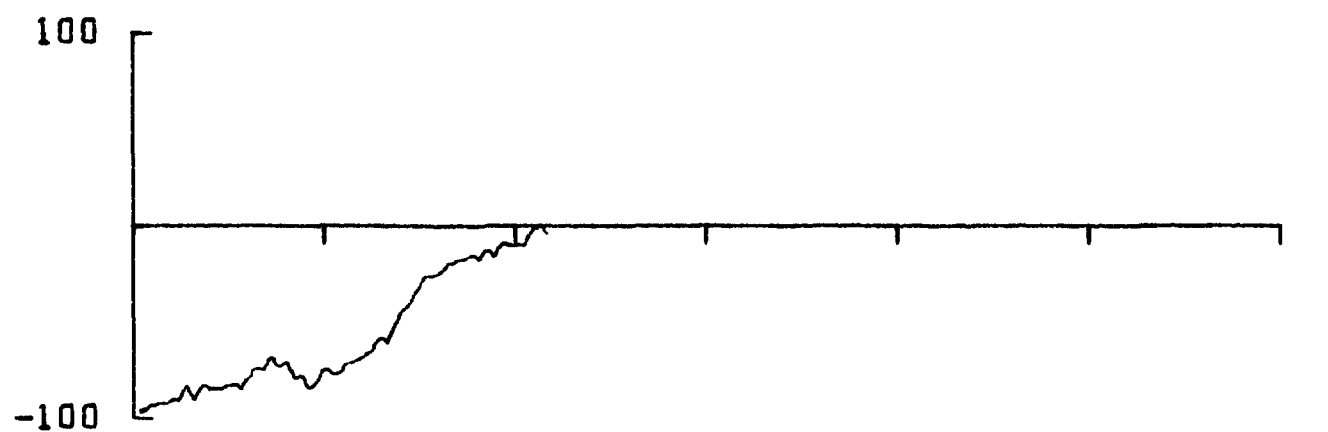
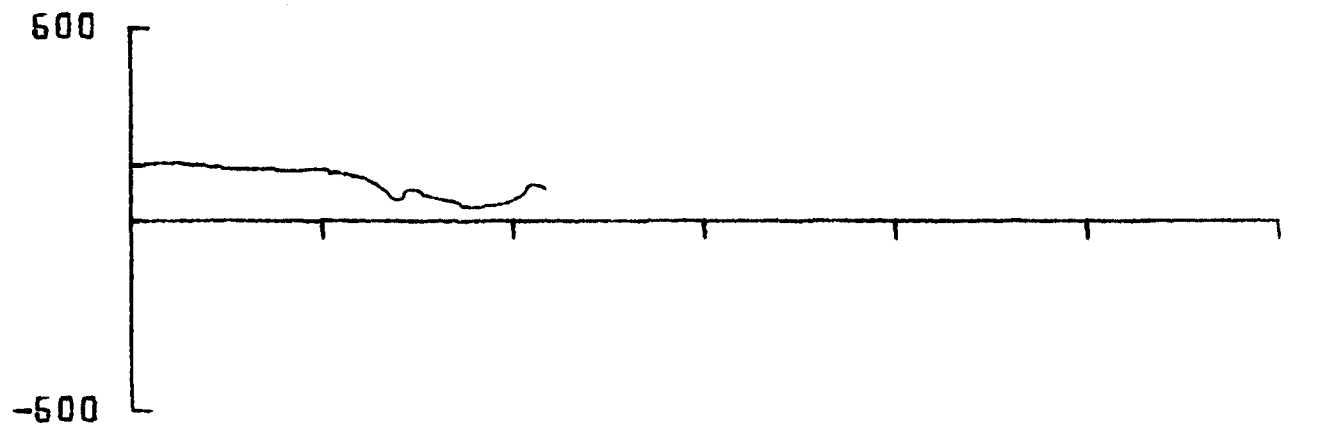


0 20 40 60 80 100 120



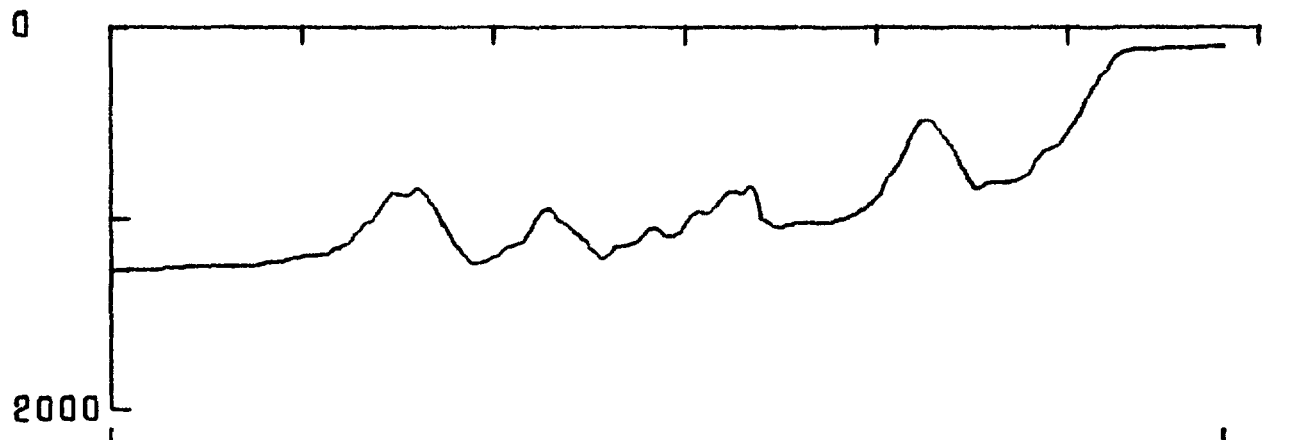
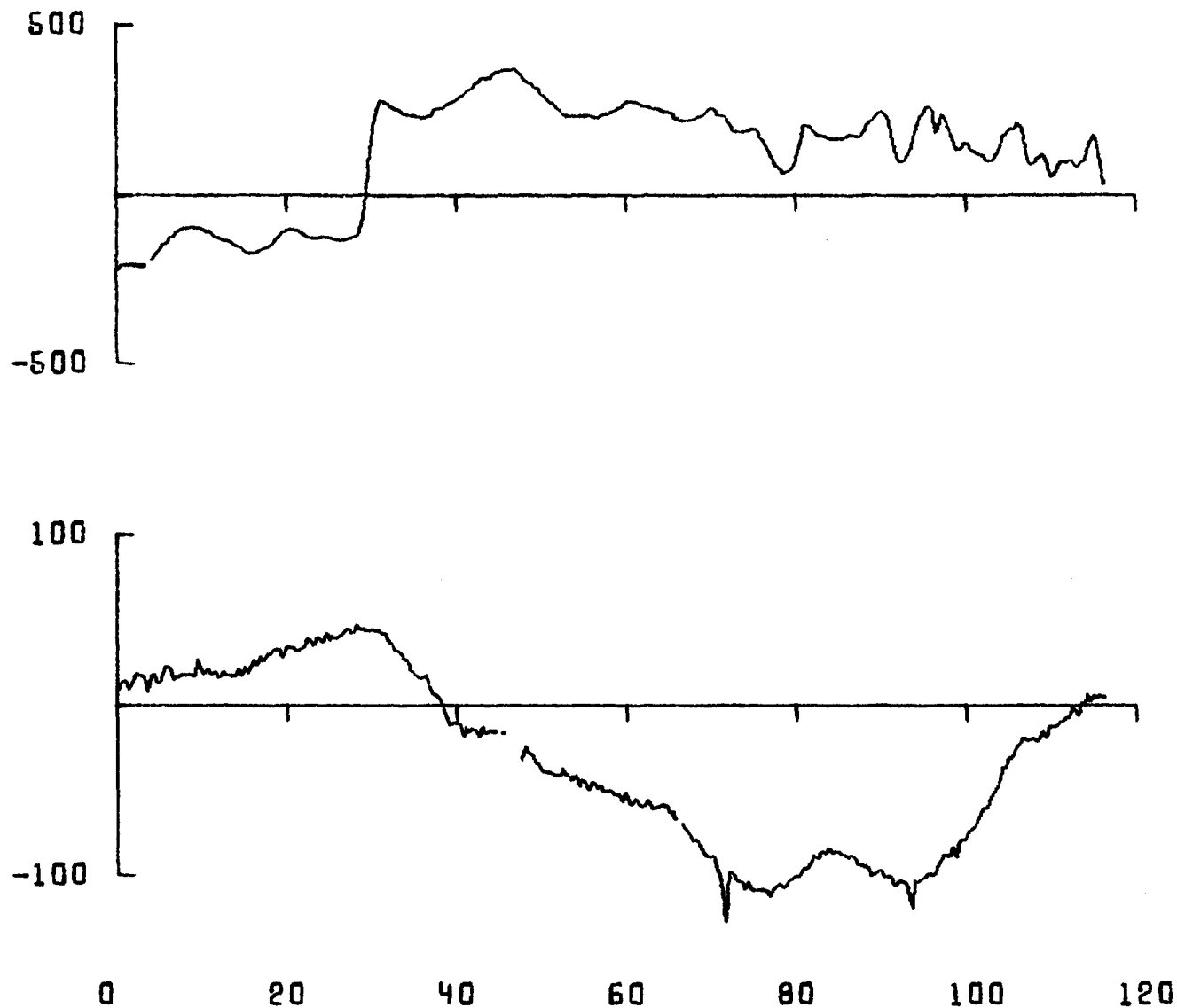
210 0320 060.65N  
129.16W

210 0400 060.58N  
128.94W



210 0400 060.58N  
128.94W

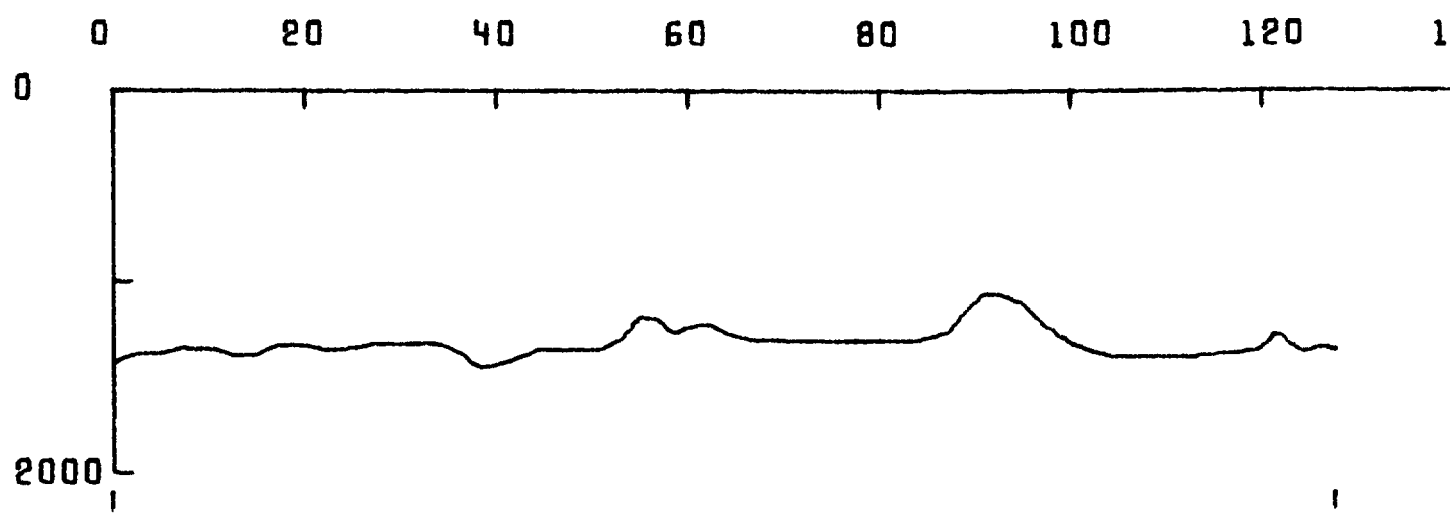
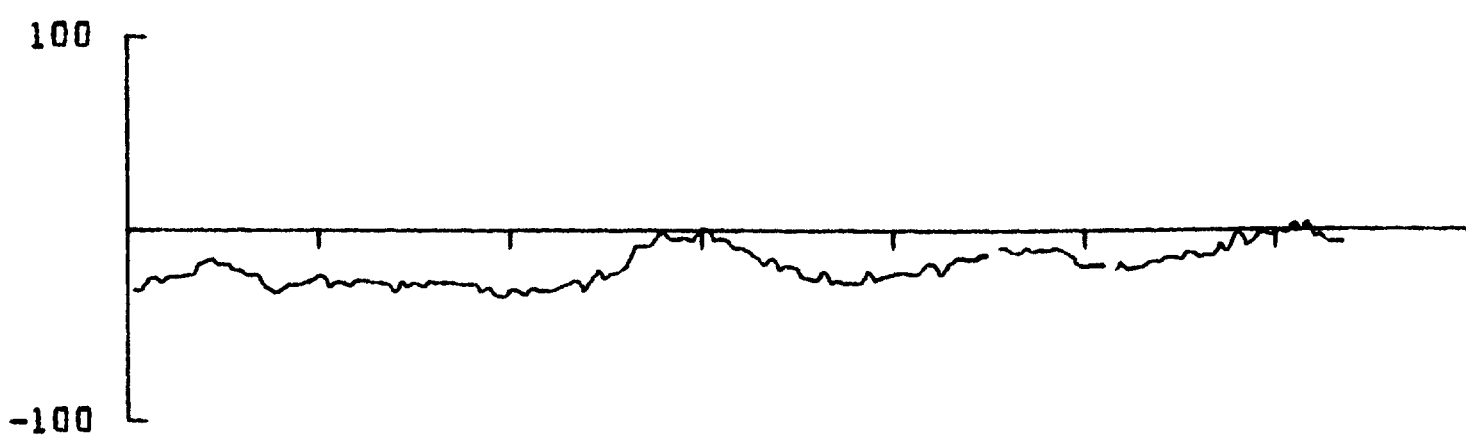
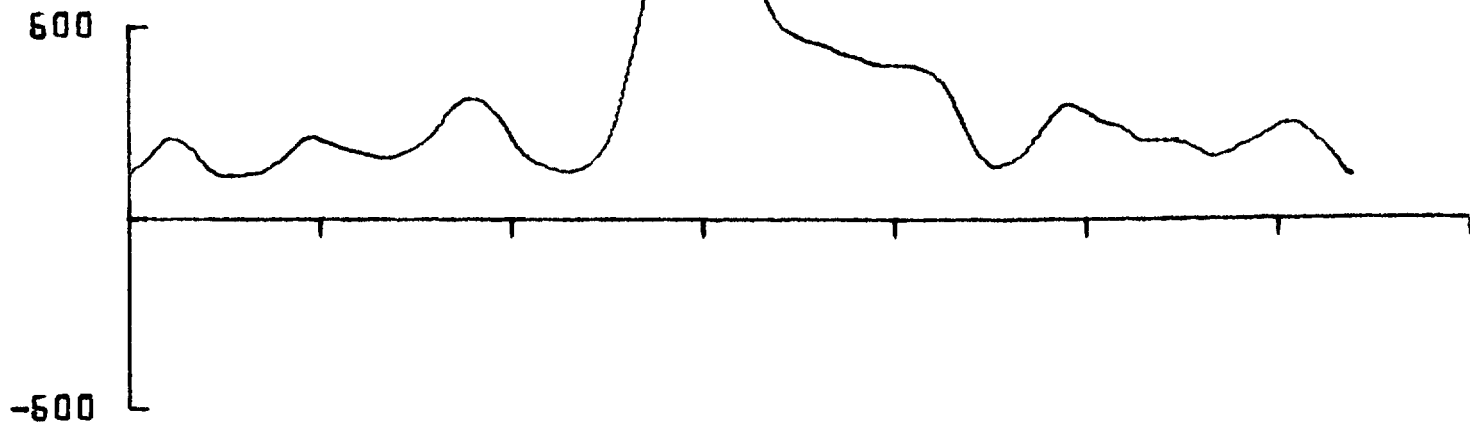
210 0662 060.46N  
128.33W



210 1700 049.70N  
129.48W

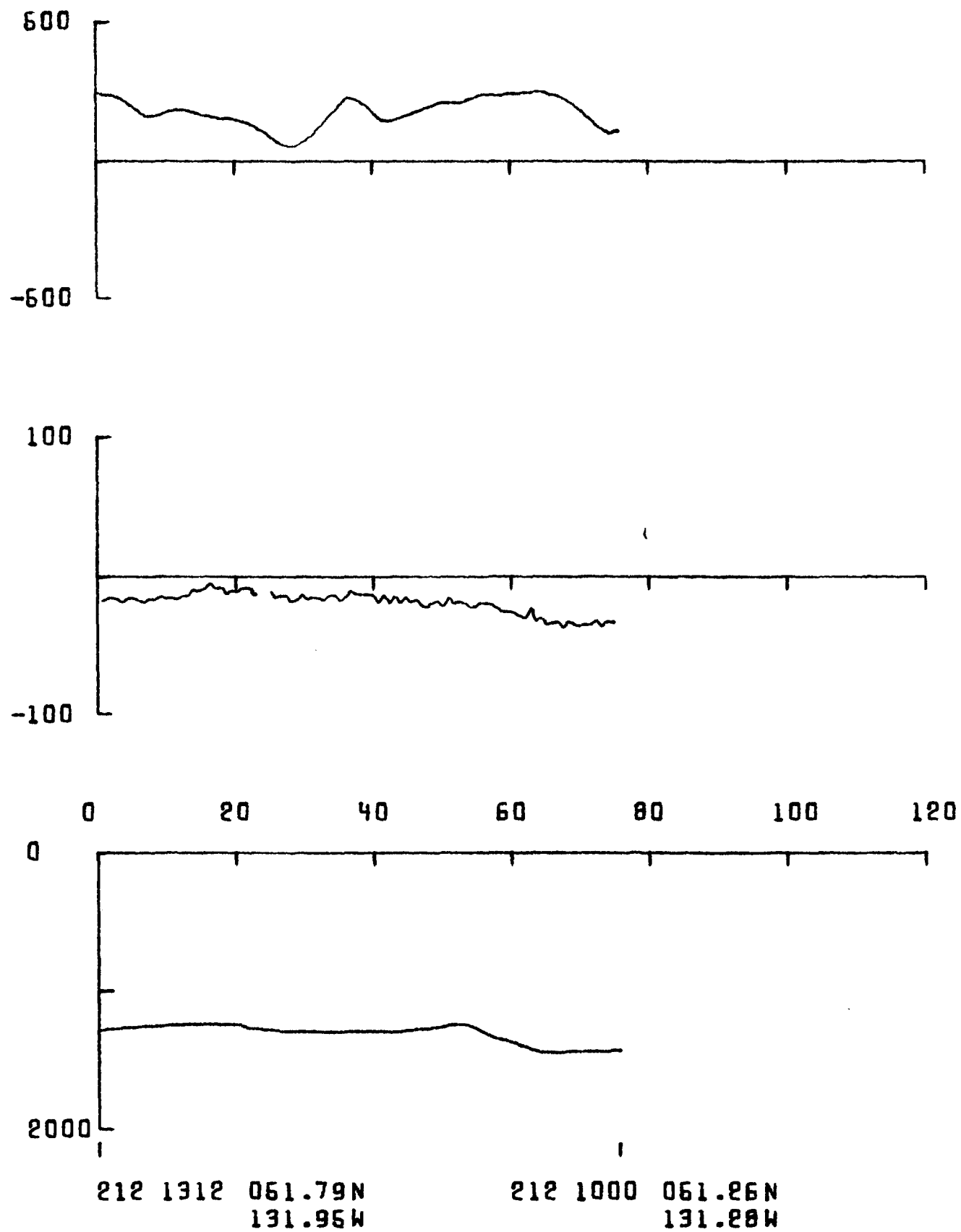
210 0630 060.44N  
128.32W

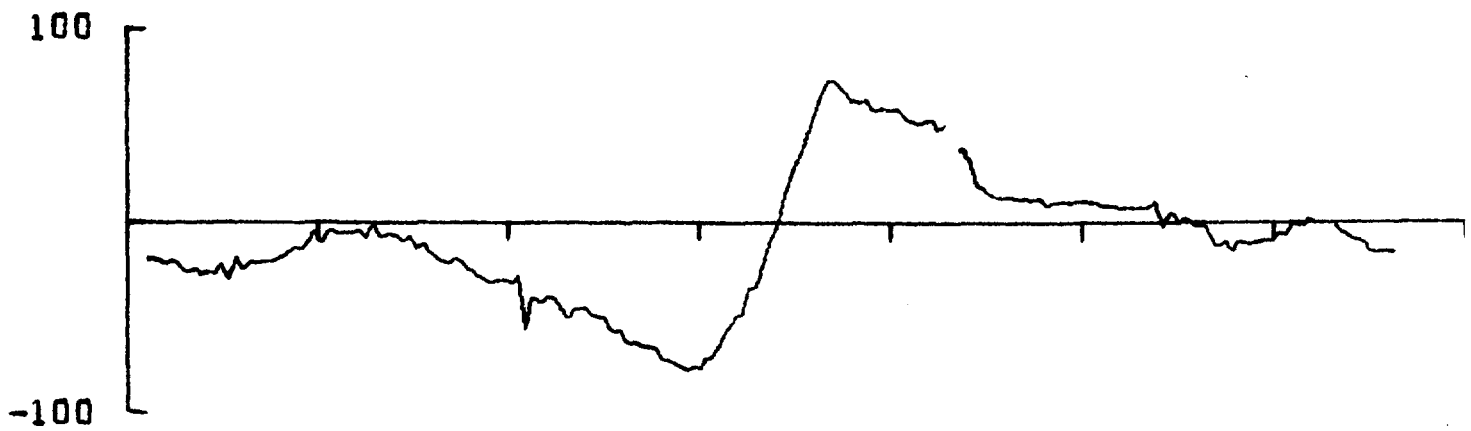
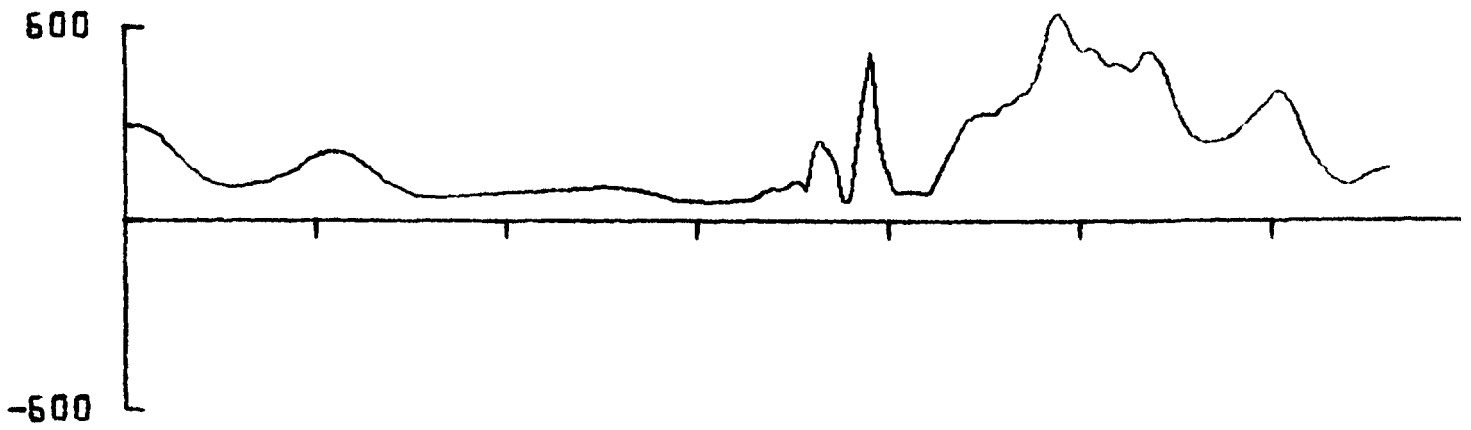
AI-155



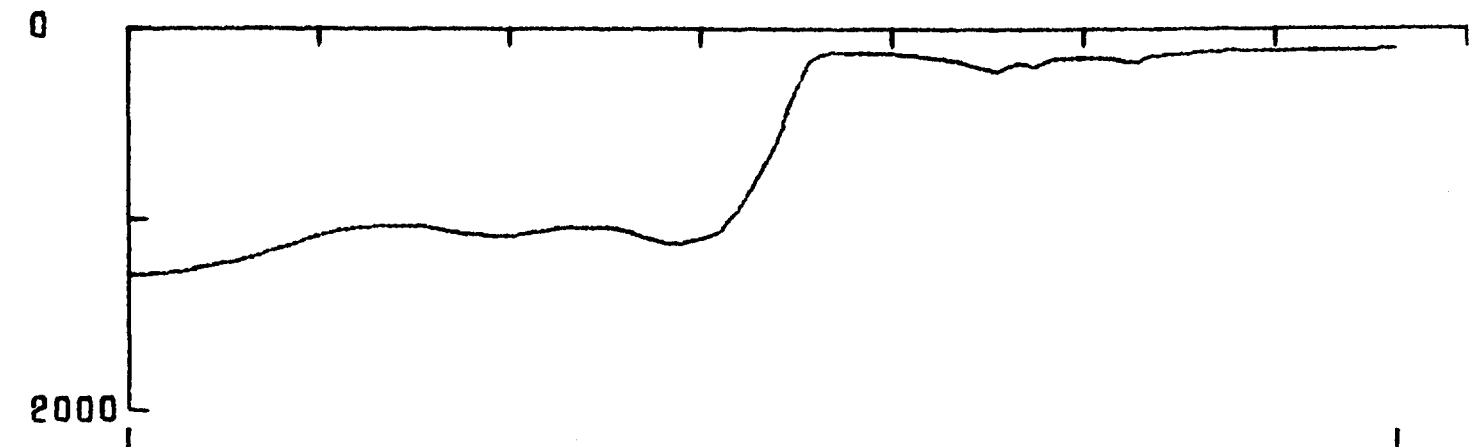
212 1000 061.26N  
131.28W

212 0406 060.36N  
130.14W



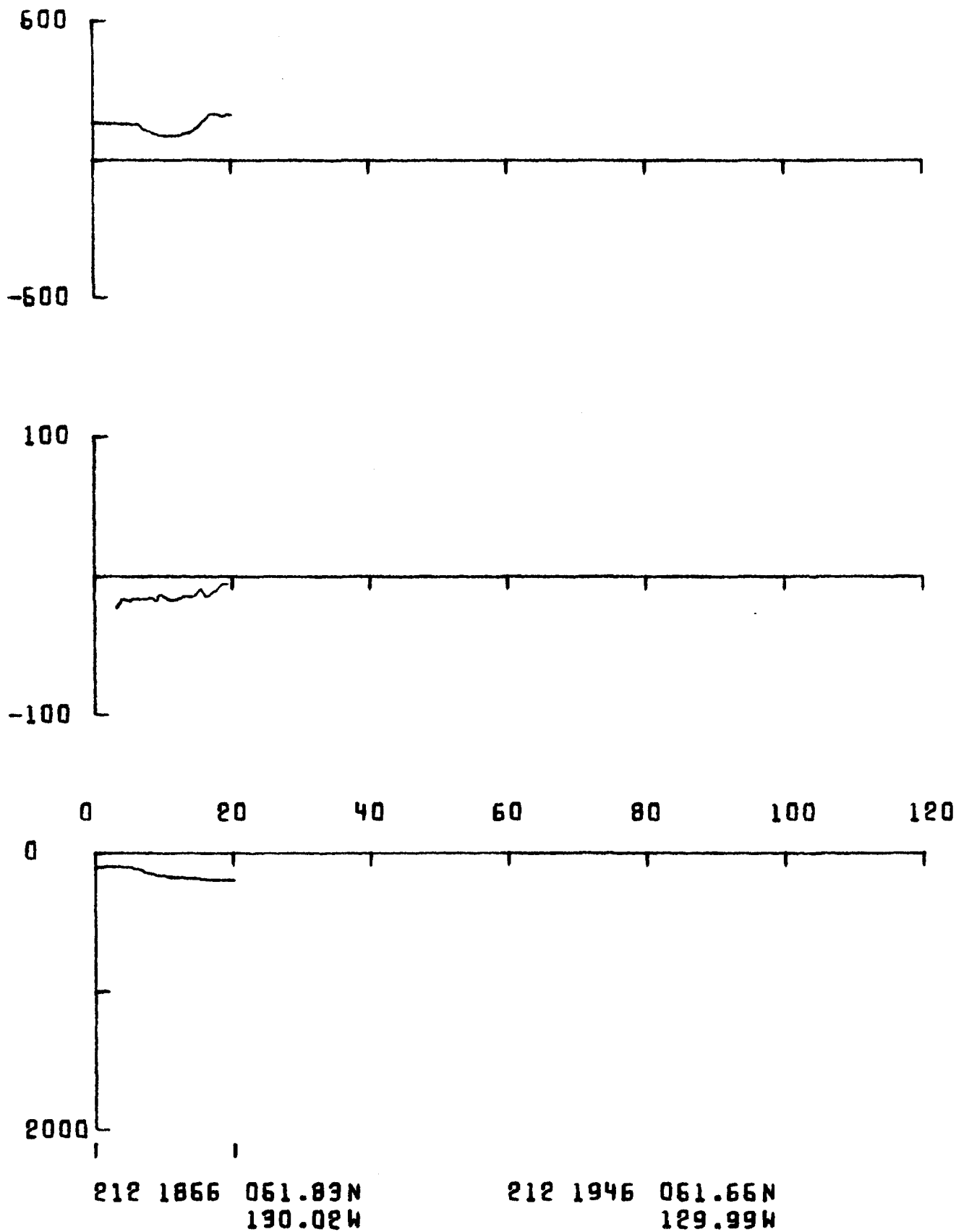


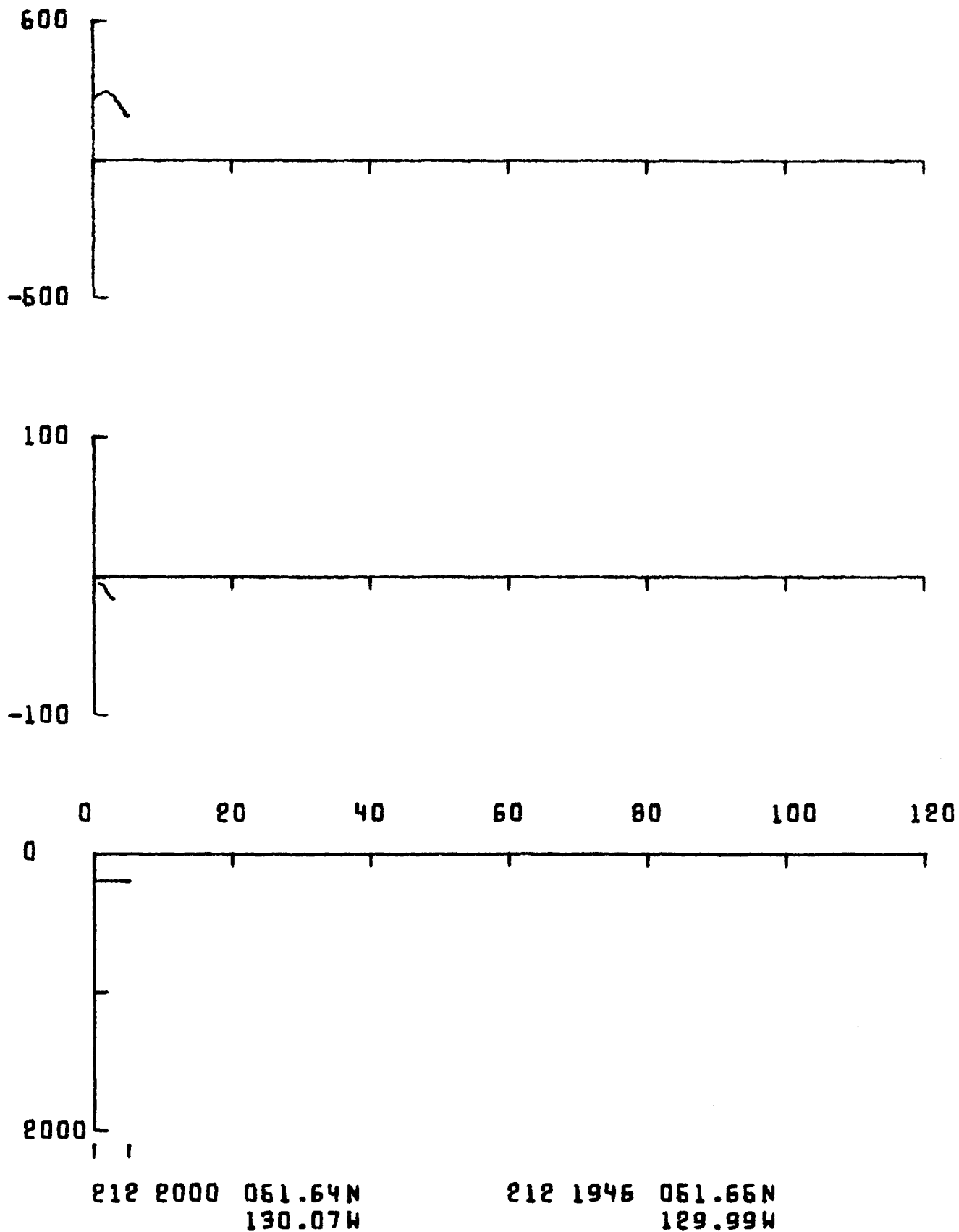
0 20 40 60 80 100 120 1



212 1312 061.79N  
131.96W

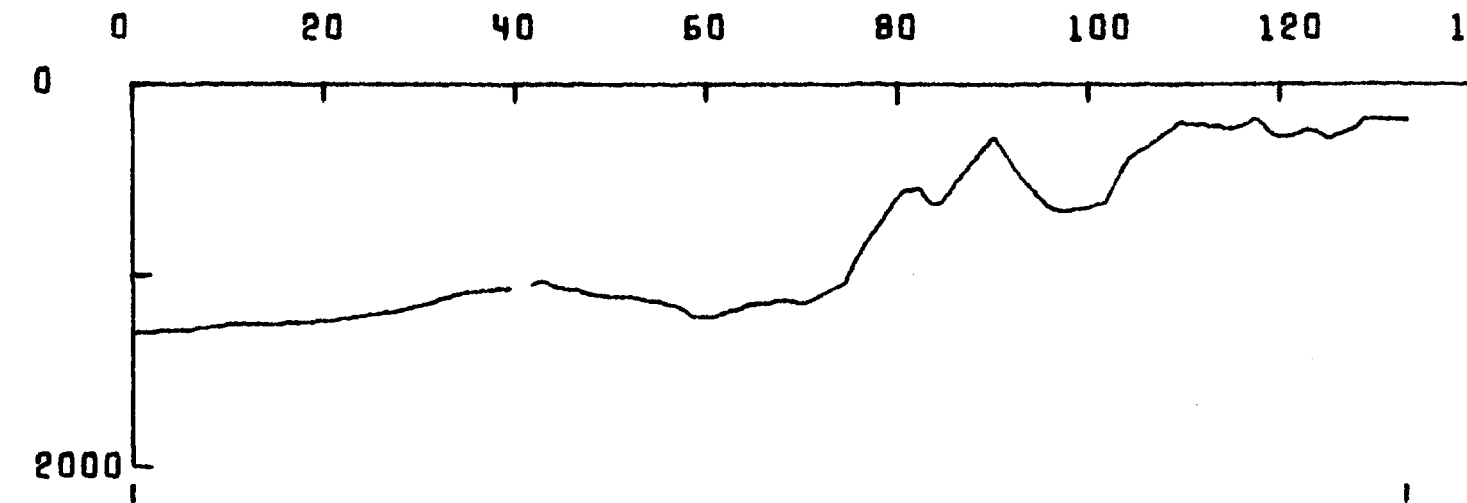
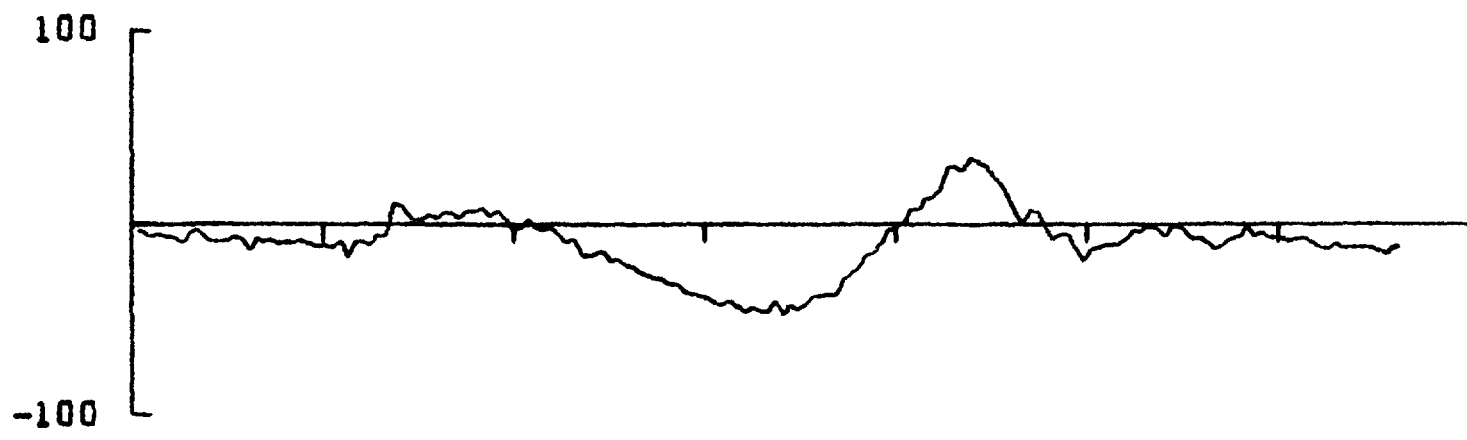
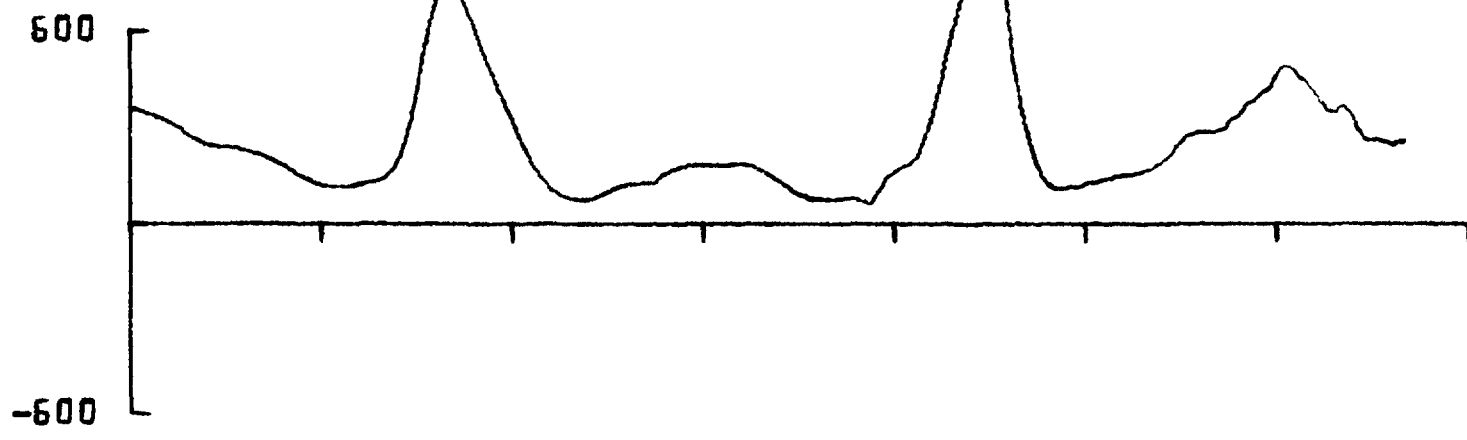
212 1864 061.83N  
130.02W





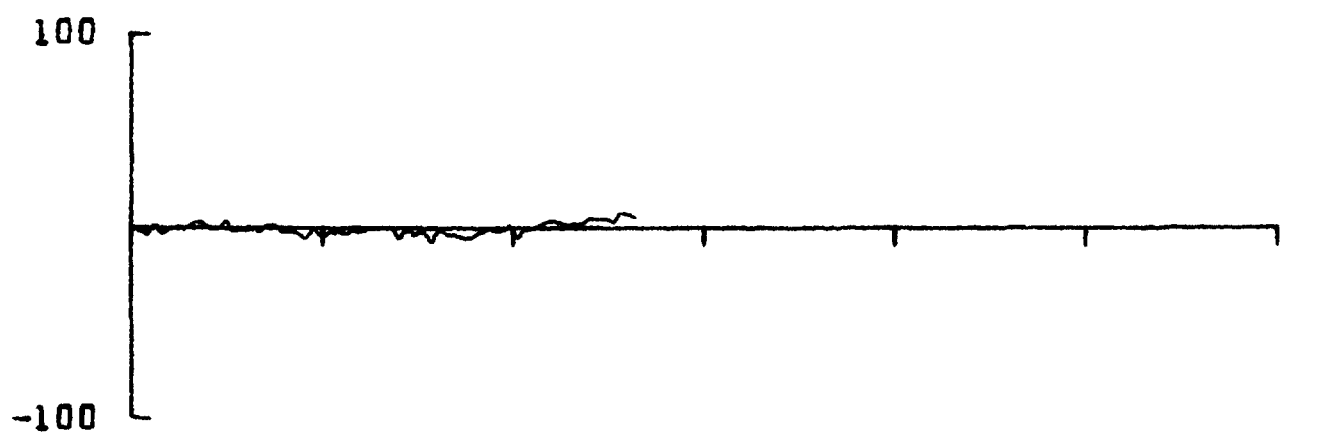
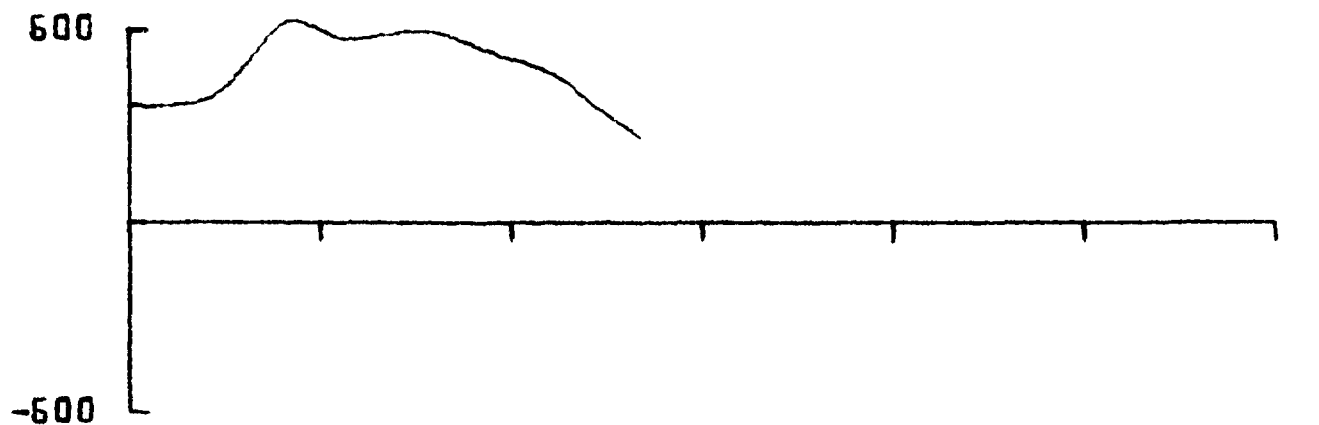


A1-160

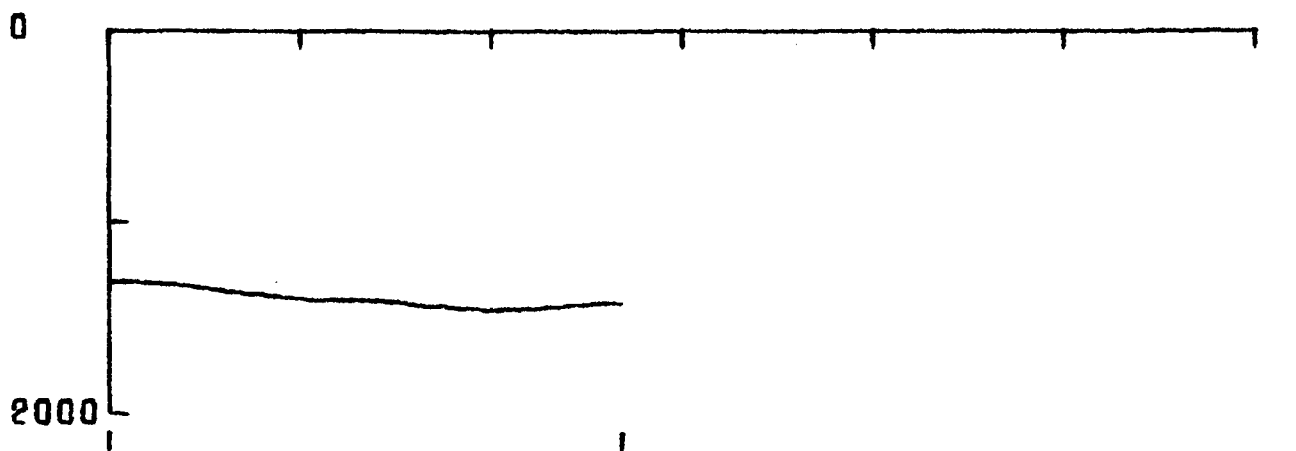


213 0140 061.64N  
132.00W

212 2000 061.64N  
130.07W

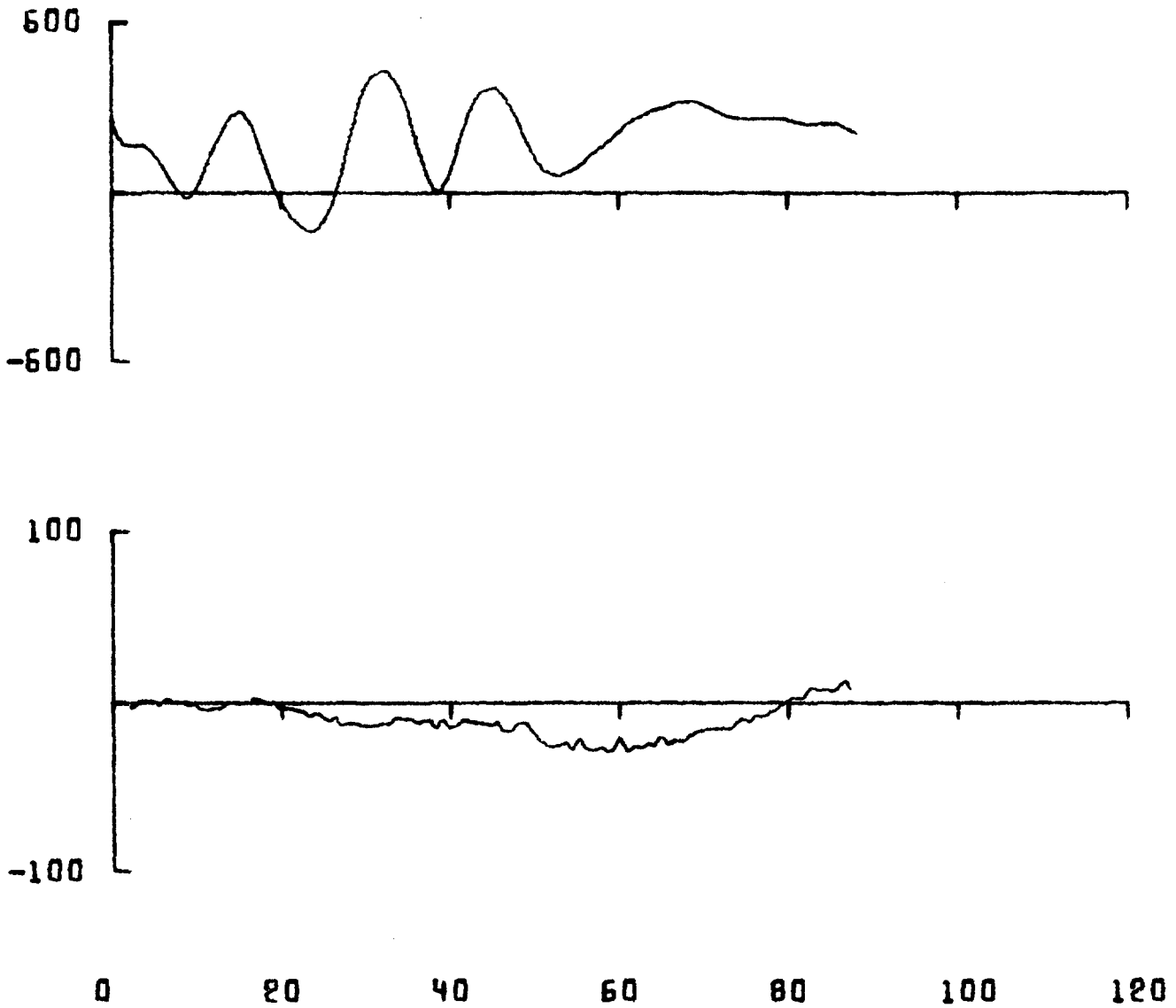


0 20 40 60 80 100 120

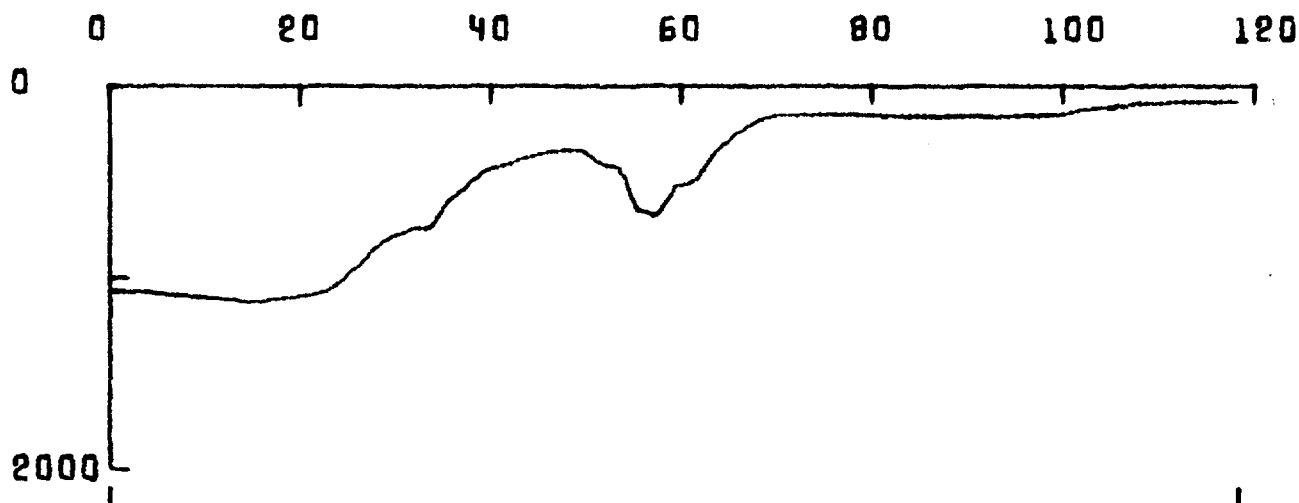
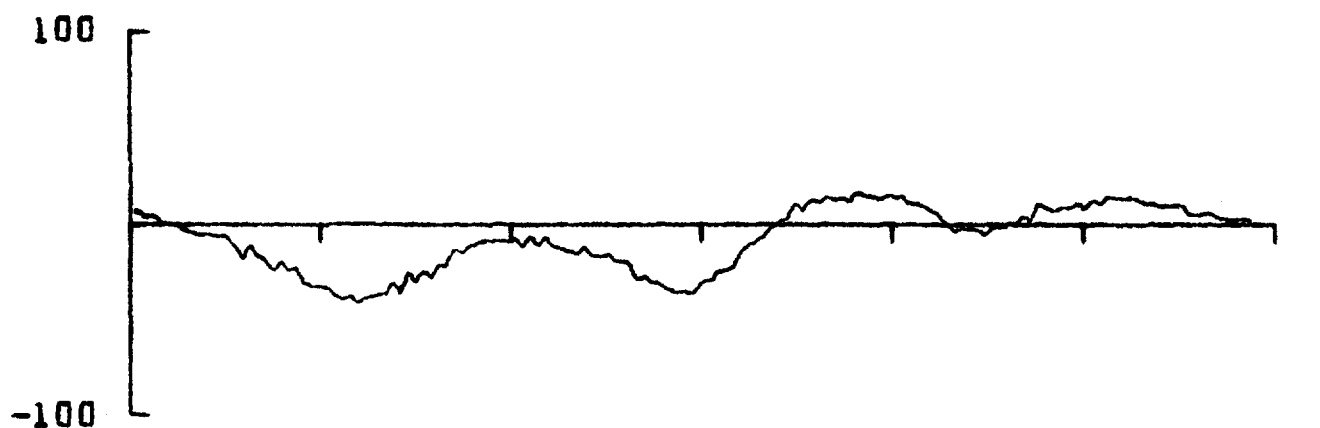
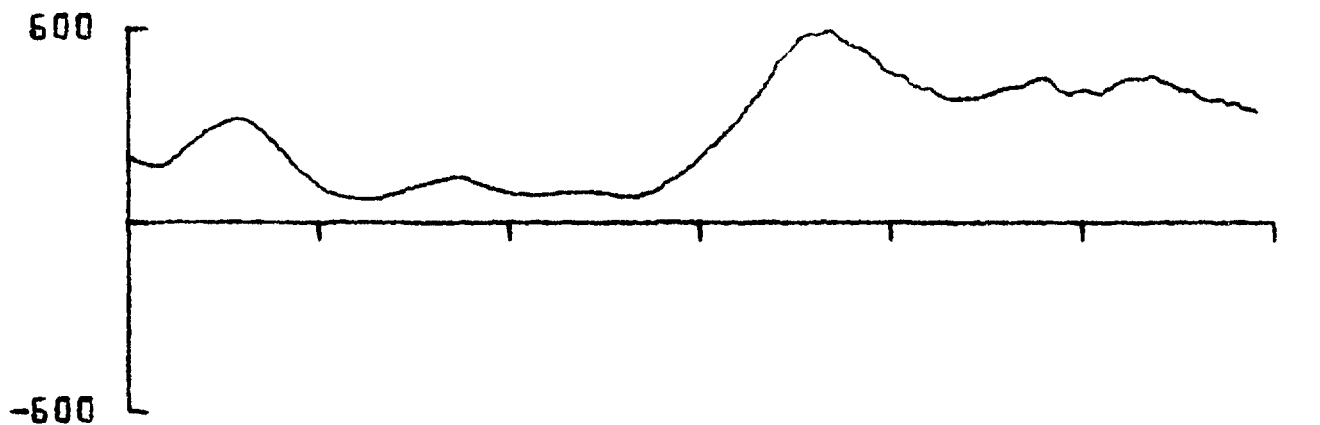


213 0140 061.64N  
132.00W

213 0350 061.16N  
131.97W

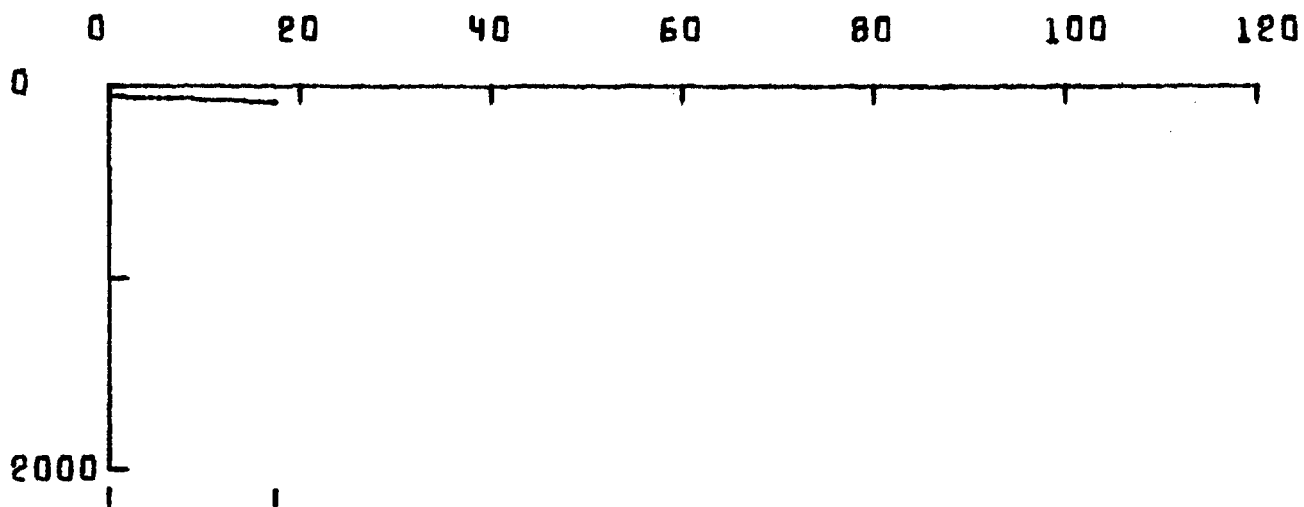
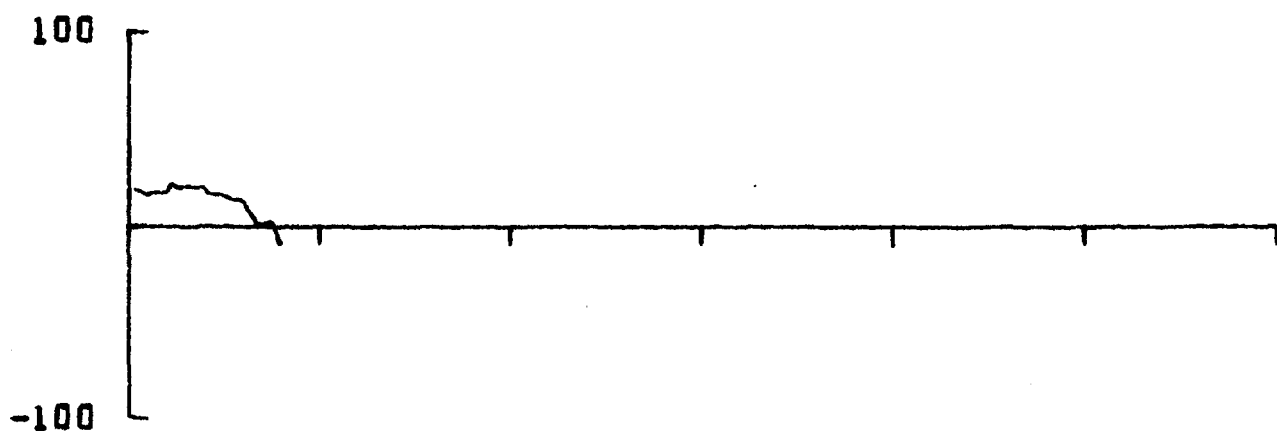
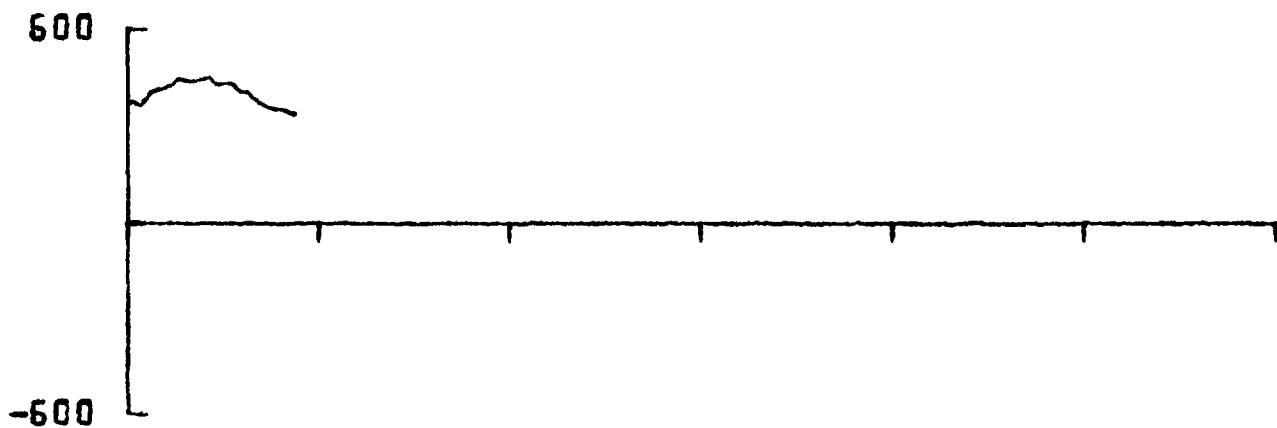


213 0350 061.16N 213 0730 061.16N  
131.97W 130.70W



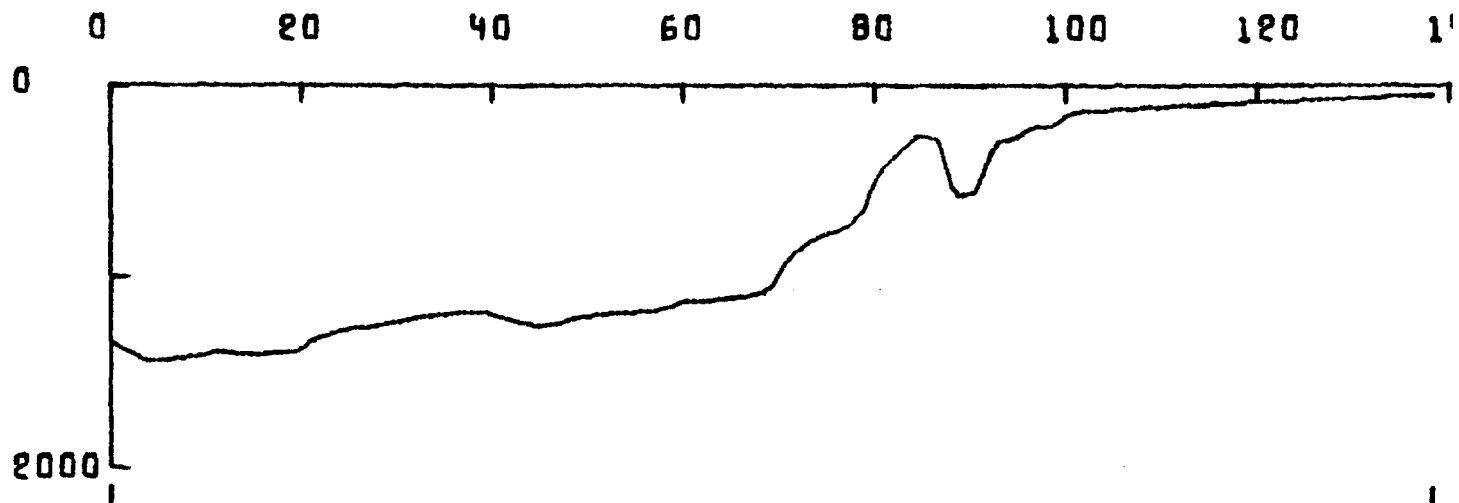
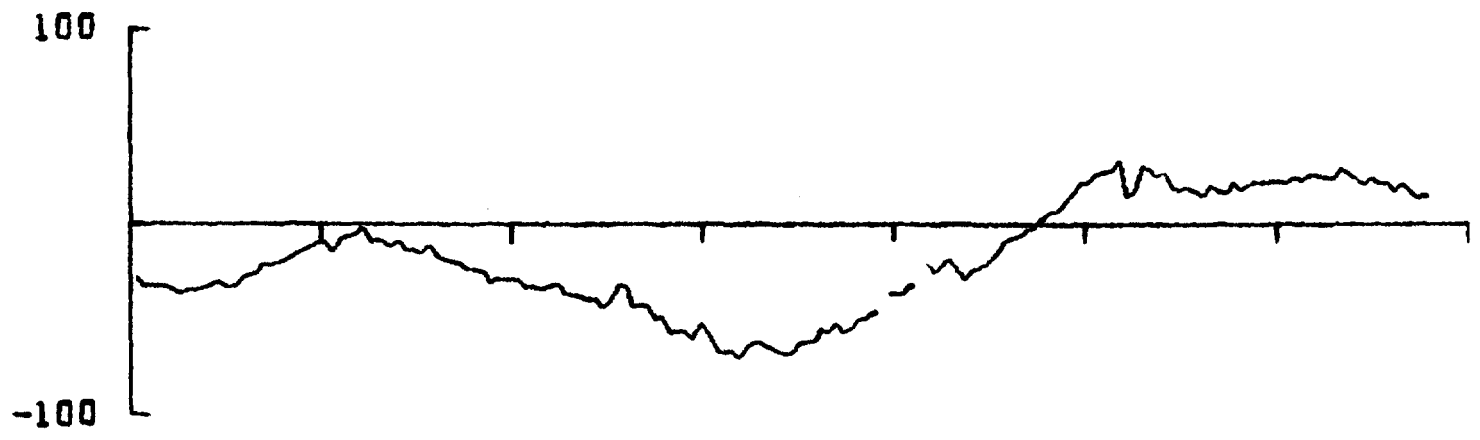
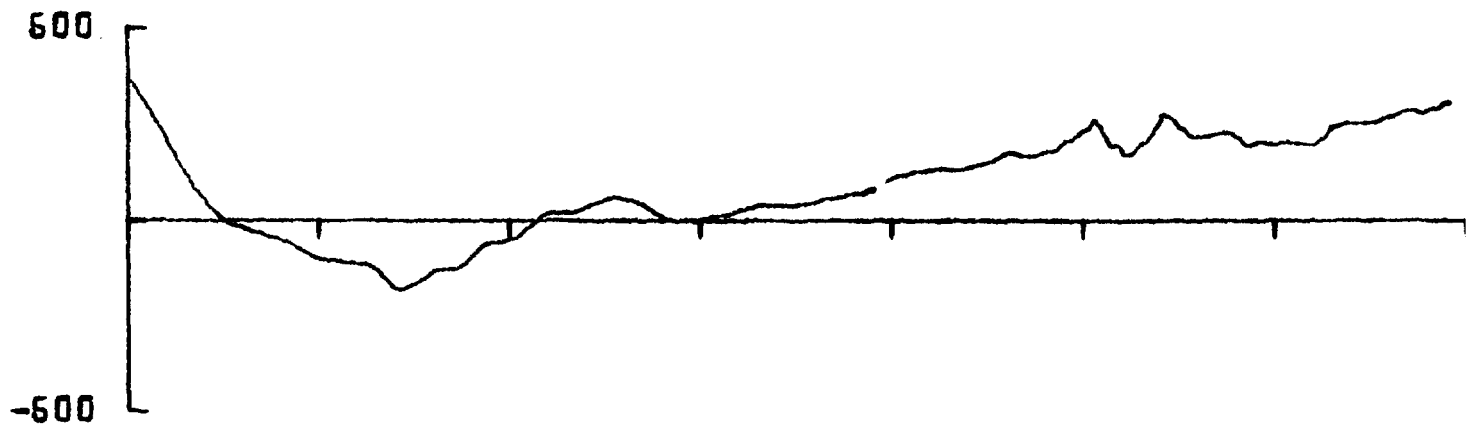
213 0730 061.16N  
130.70W

213 1228 061.16N  
129.00W



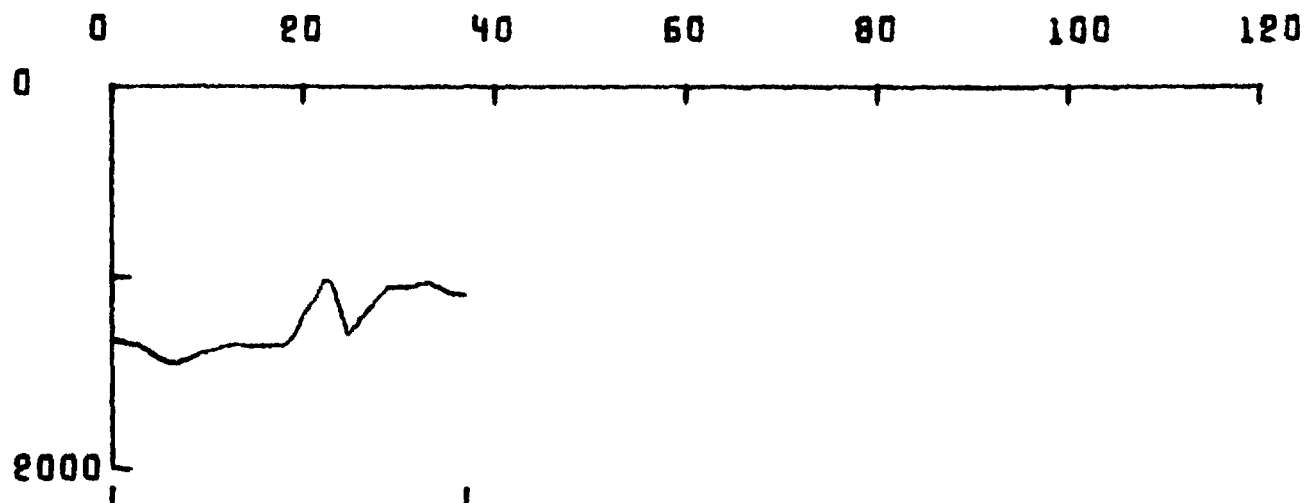
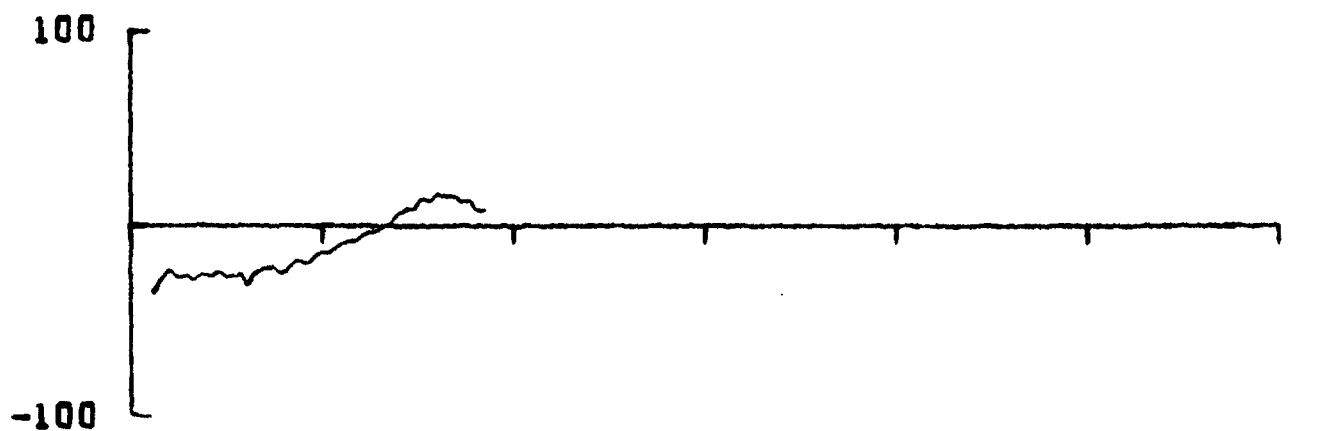
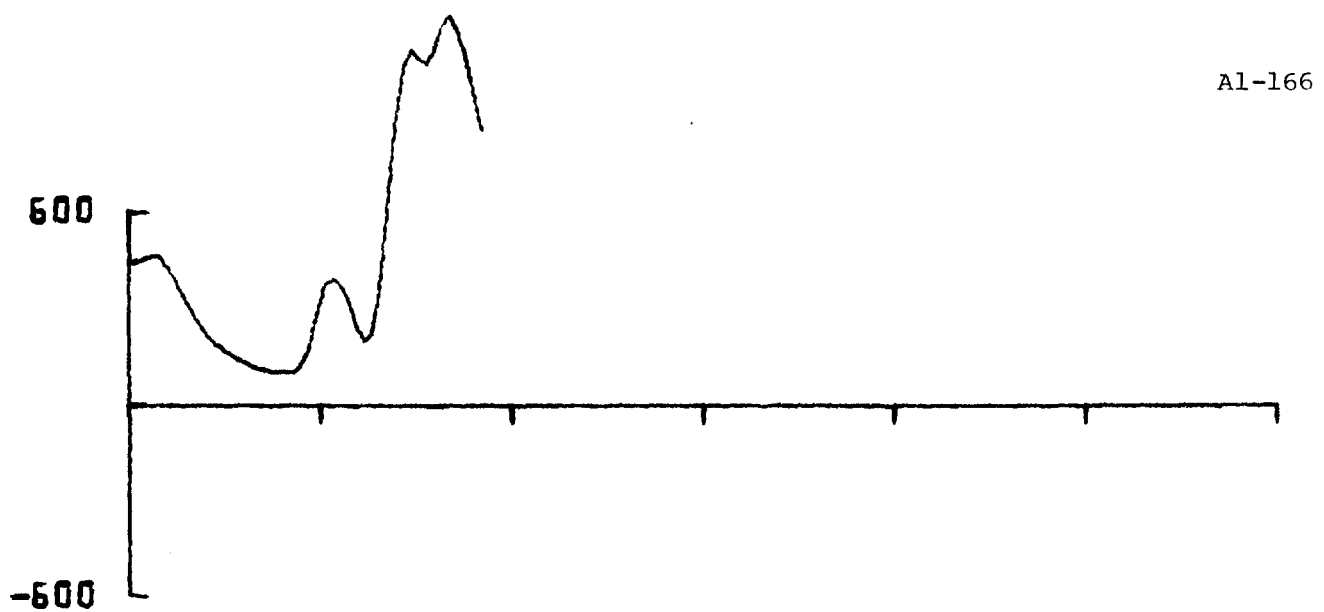
213 1312 061.00N  
129.01W

213 1228 061.16N  
129.00W



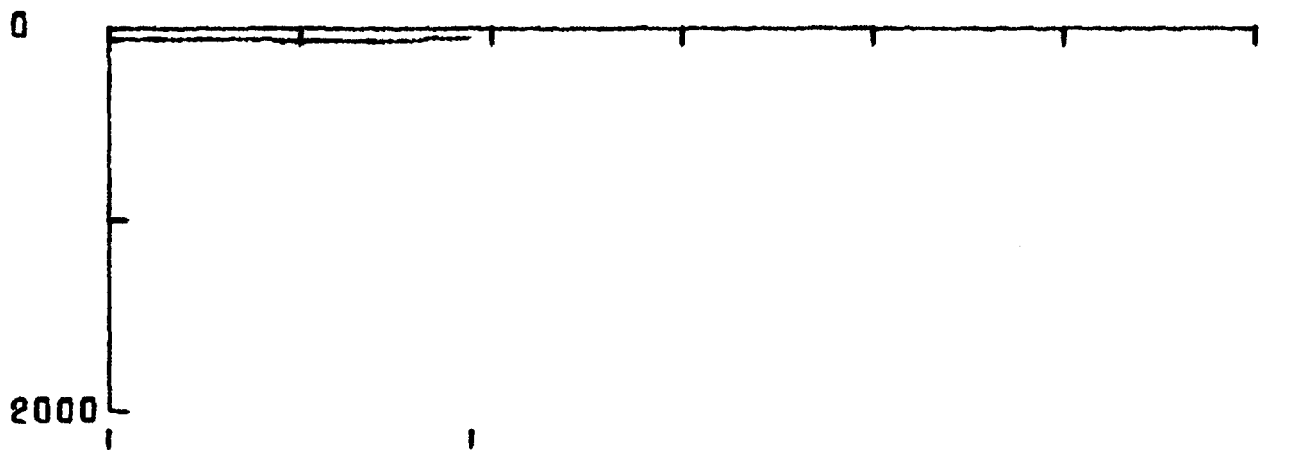
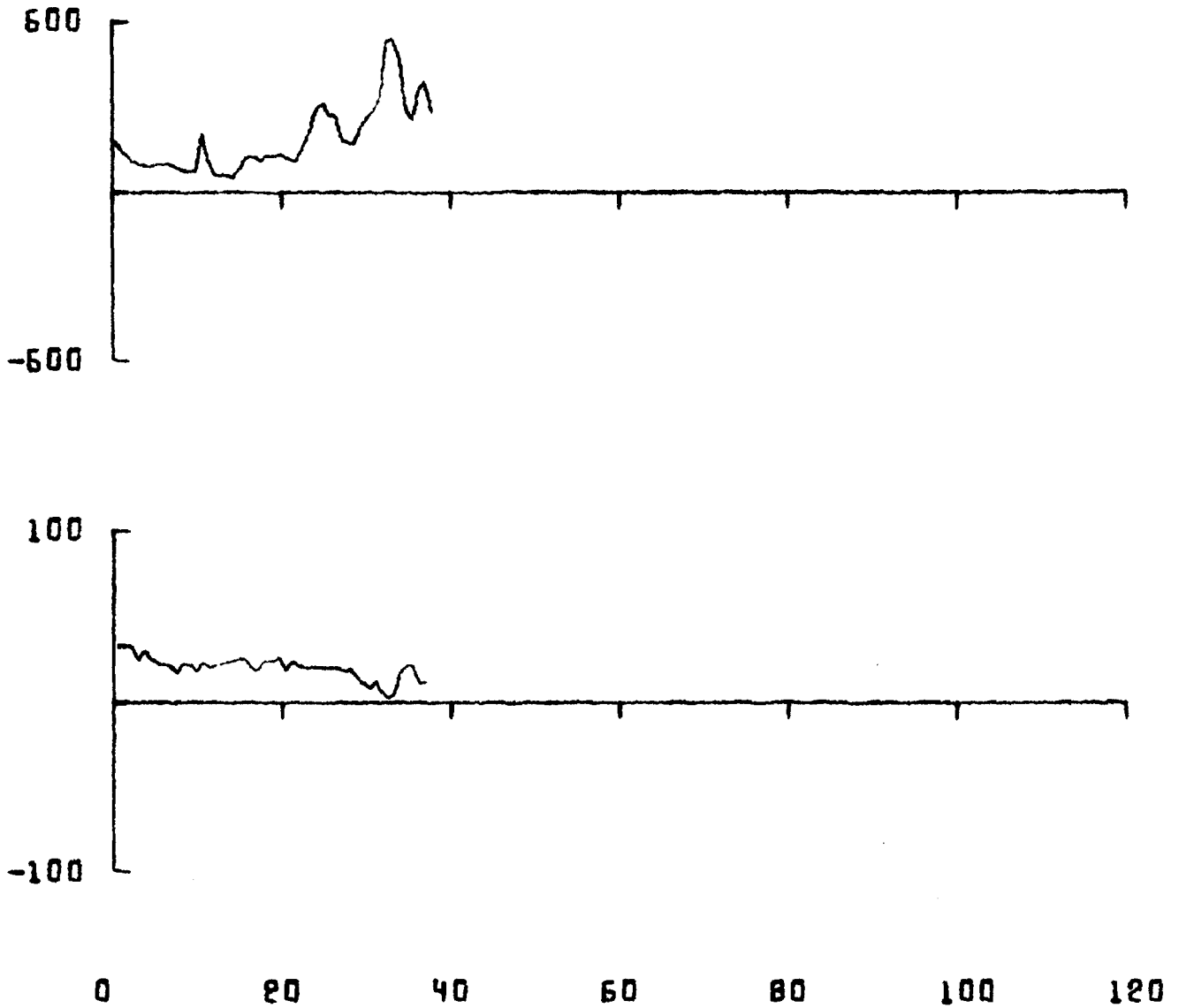
213 1900 060.99N  
130.98W

213 1312 061.00N  
129.01W



213 1900 060.99N  
130.98W

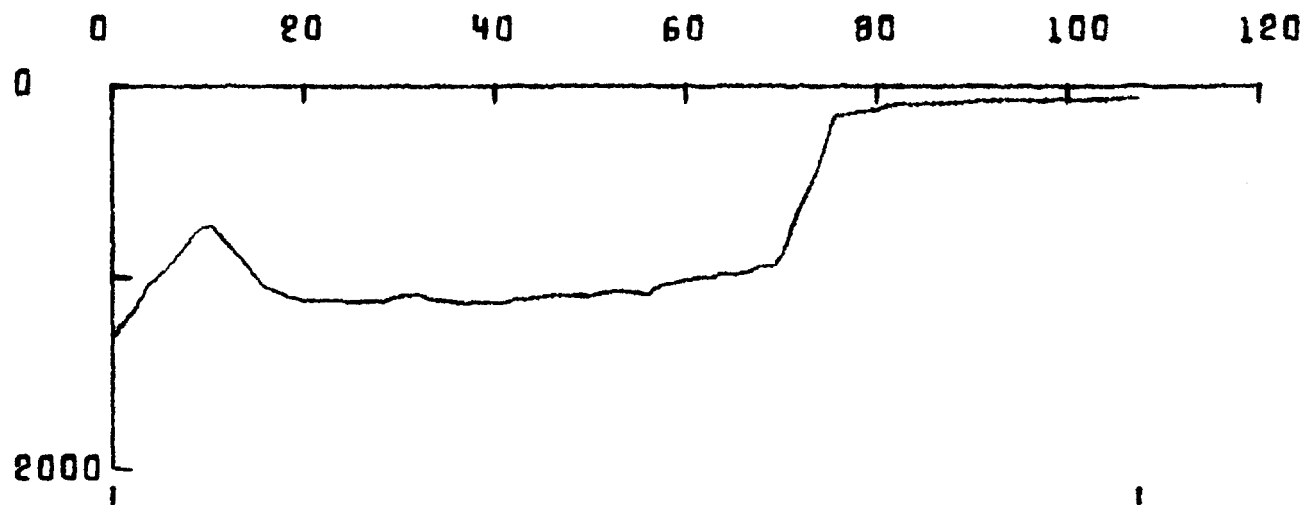
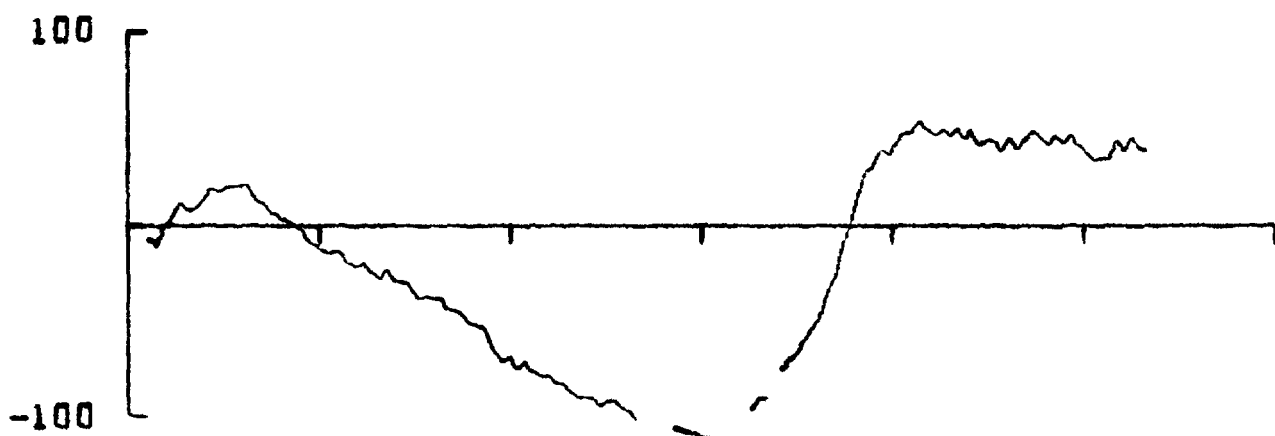
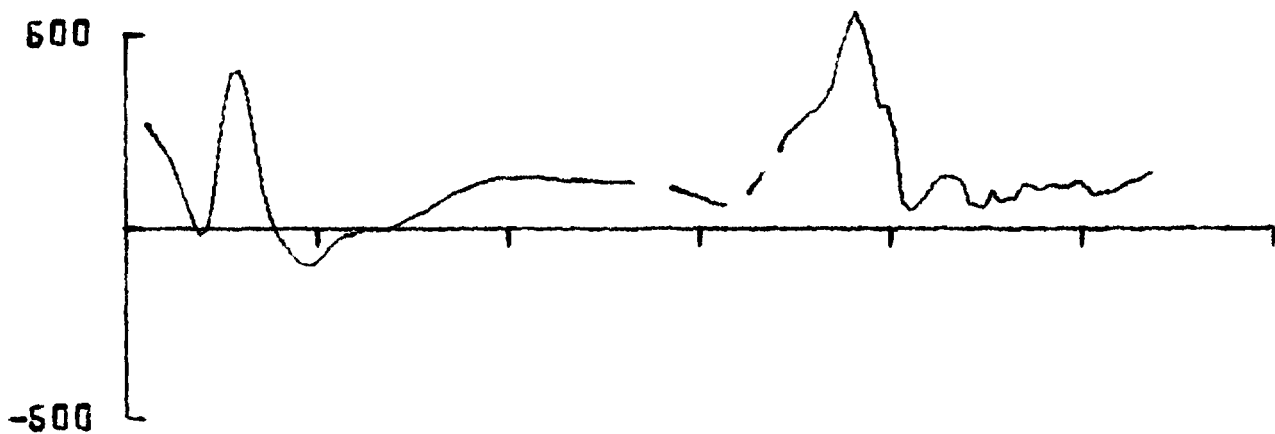
213 2030 060.79N  
130.56W



214 0430 060.78N  
128.95W

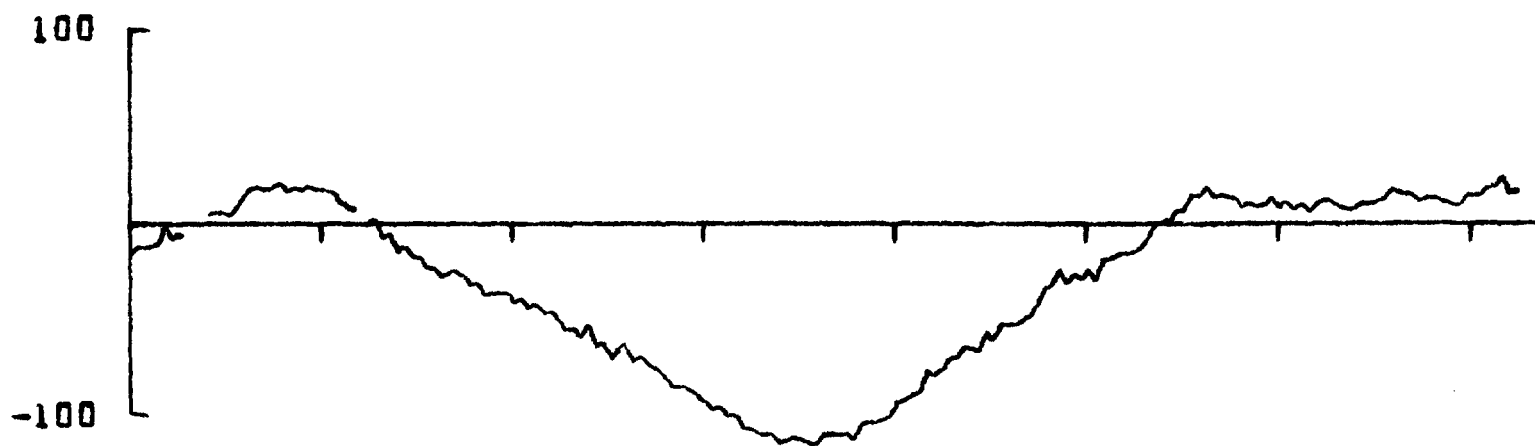
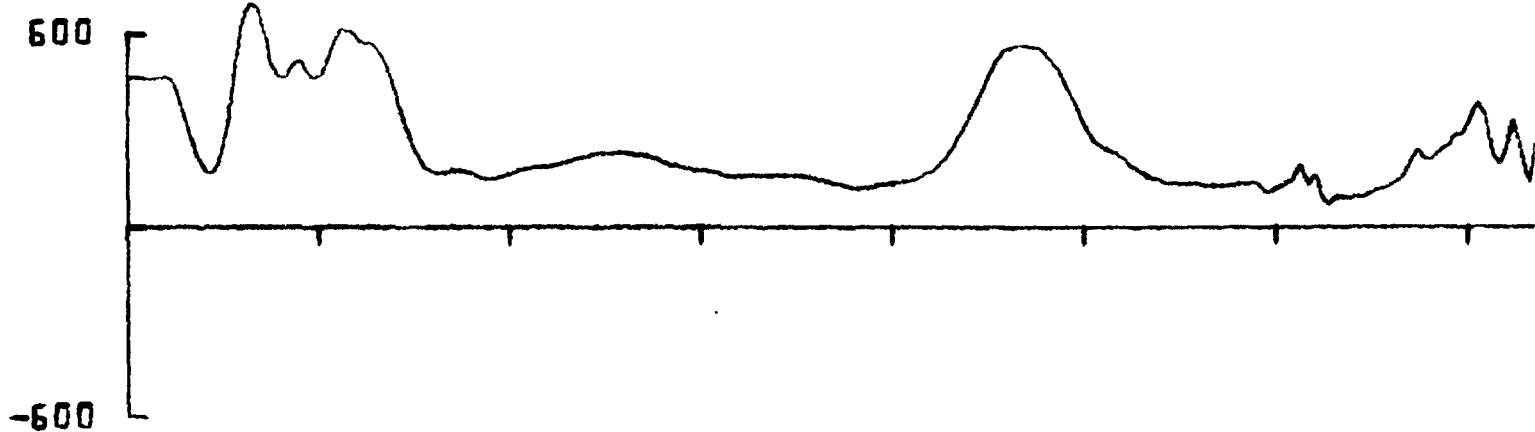
214 0610 060.67N  
128.44W



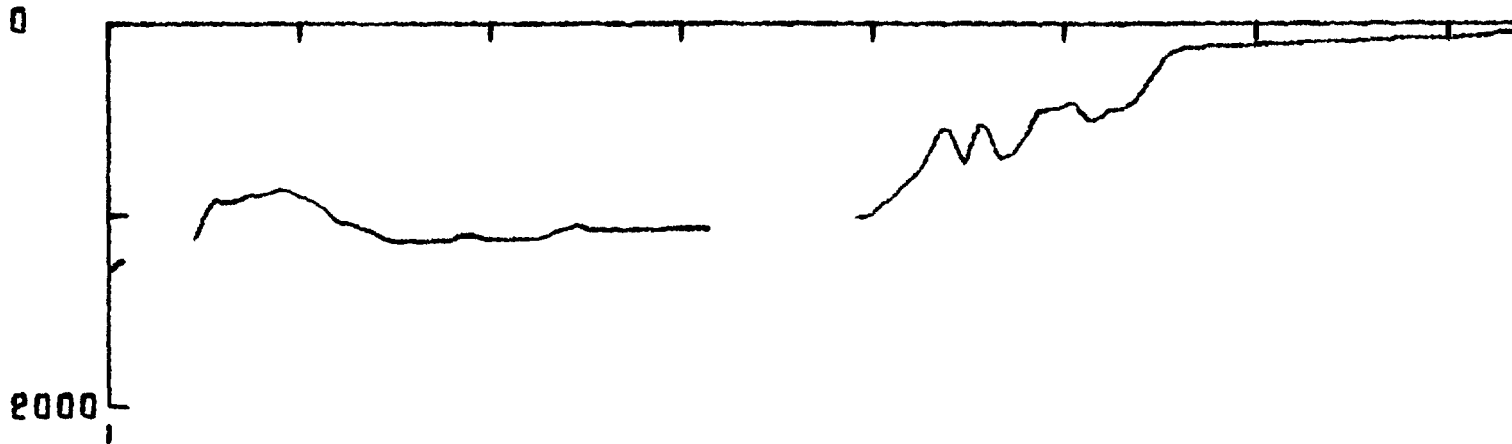


214 0000 060.76N  
130.48W

214 0430 060.78N  
128.95W

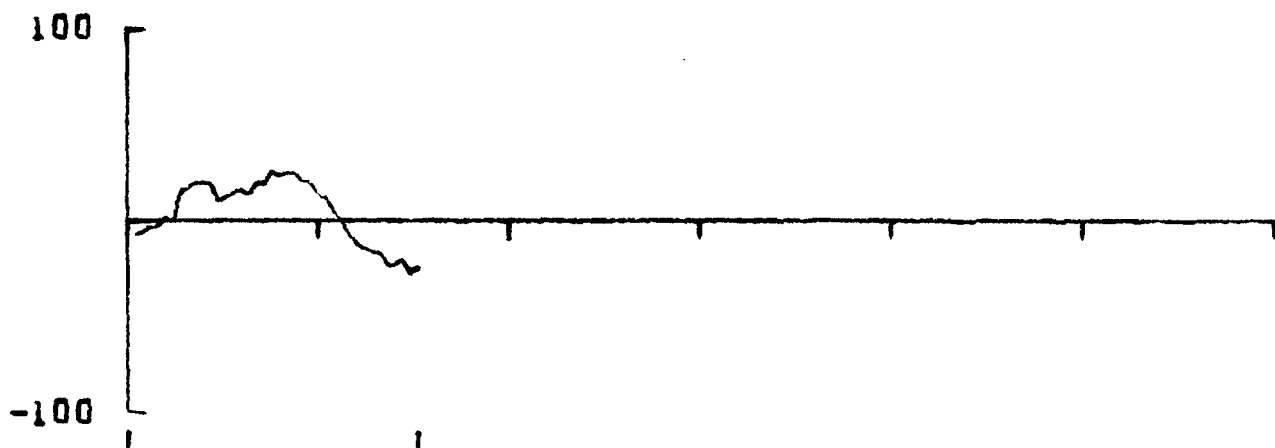
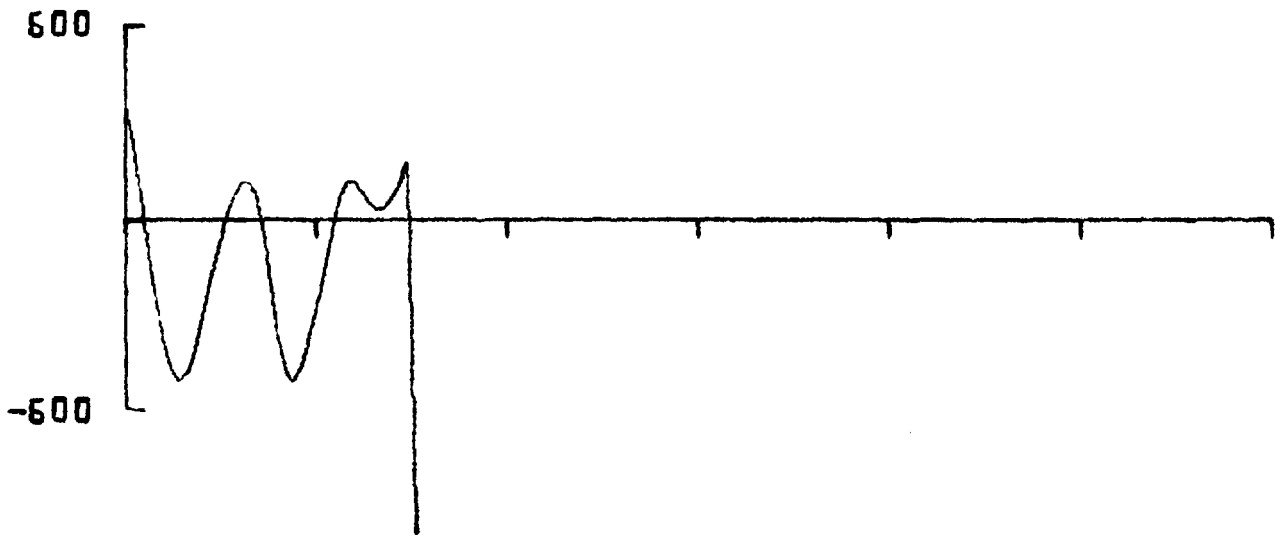


0 20 40 60 80 100 120 140



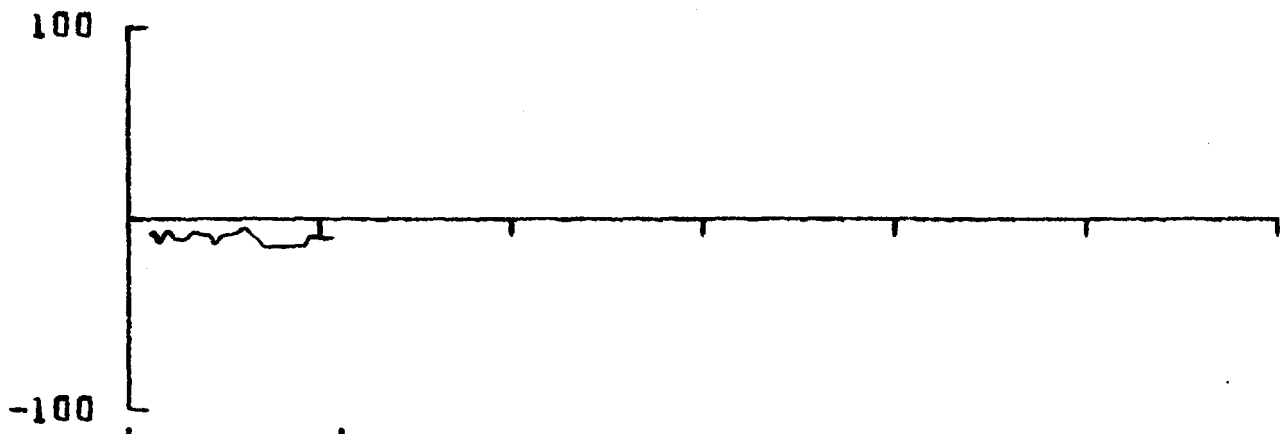
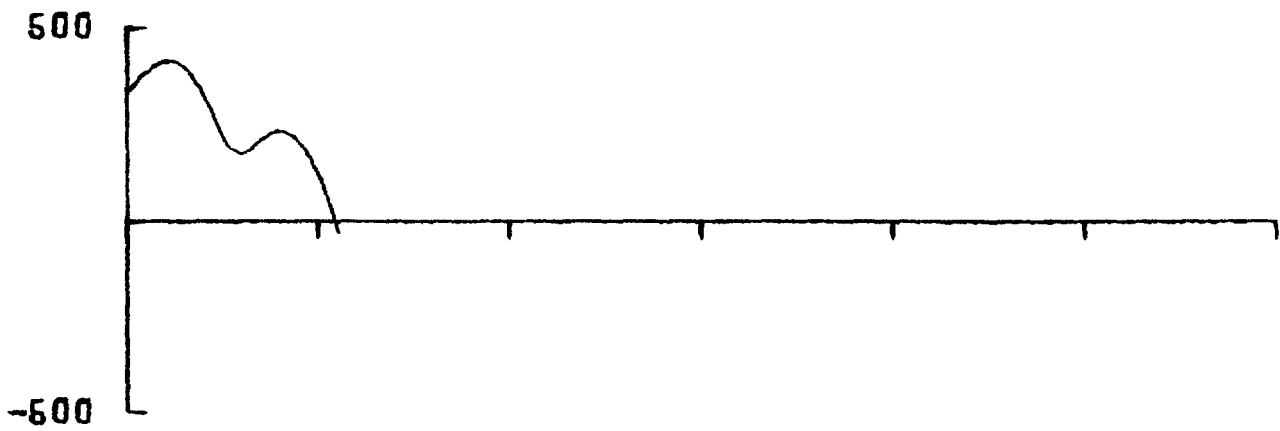
214 1234 060.66N  
130.63W

214 0610 060.67N  
128.44W



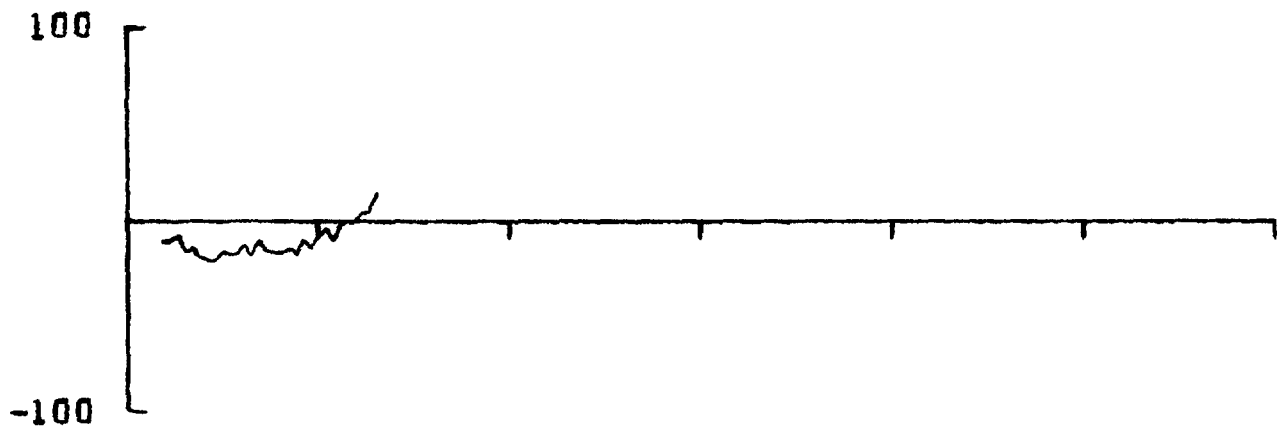
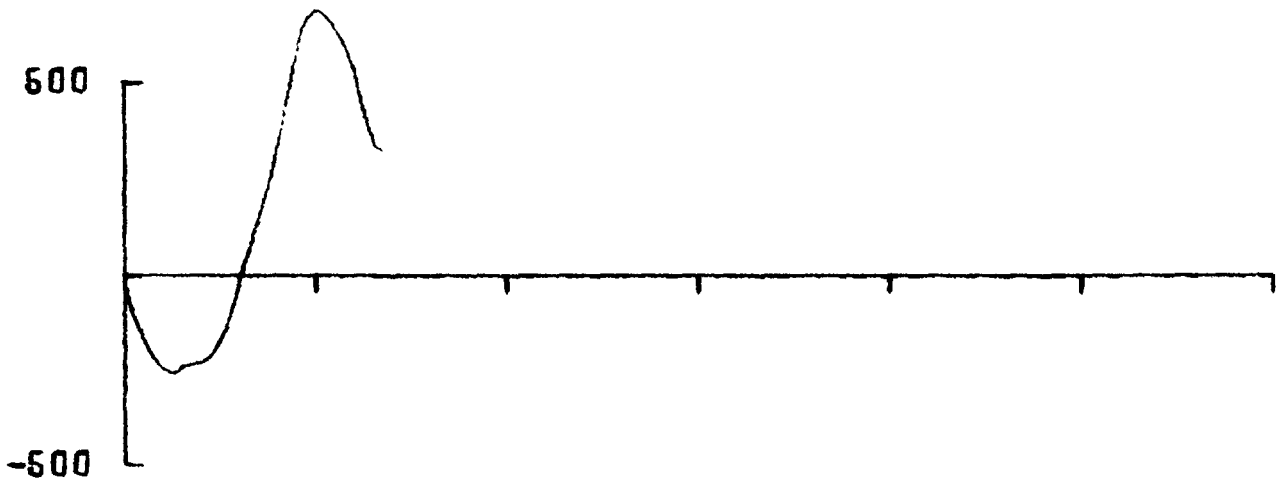
214 1664 060.66N  
130.99W

214 1638 060.66N  
190.56W

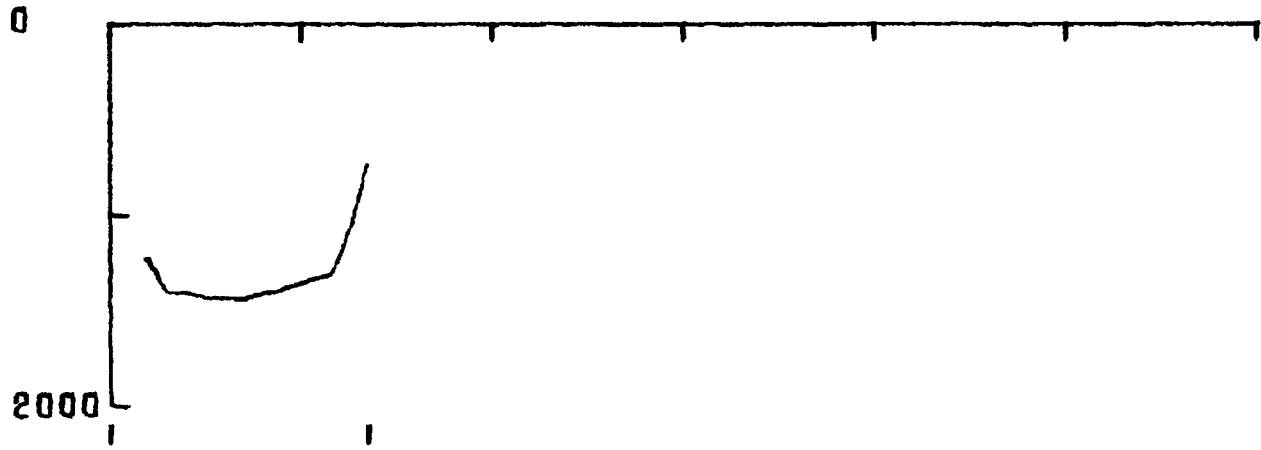


214 1666 060.66N  
191.00W

214 1750 060.46N  
130.98W

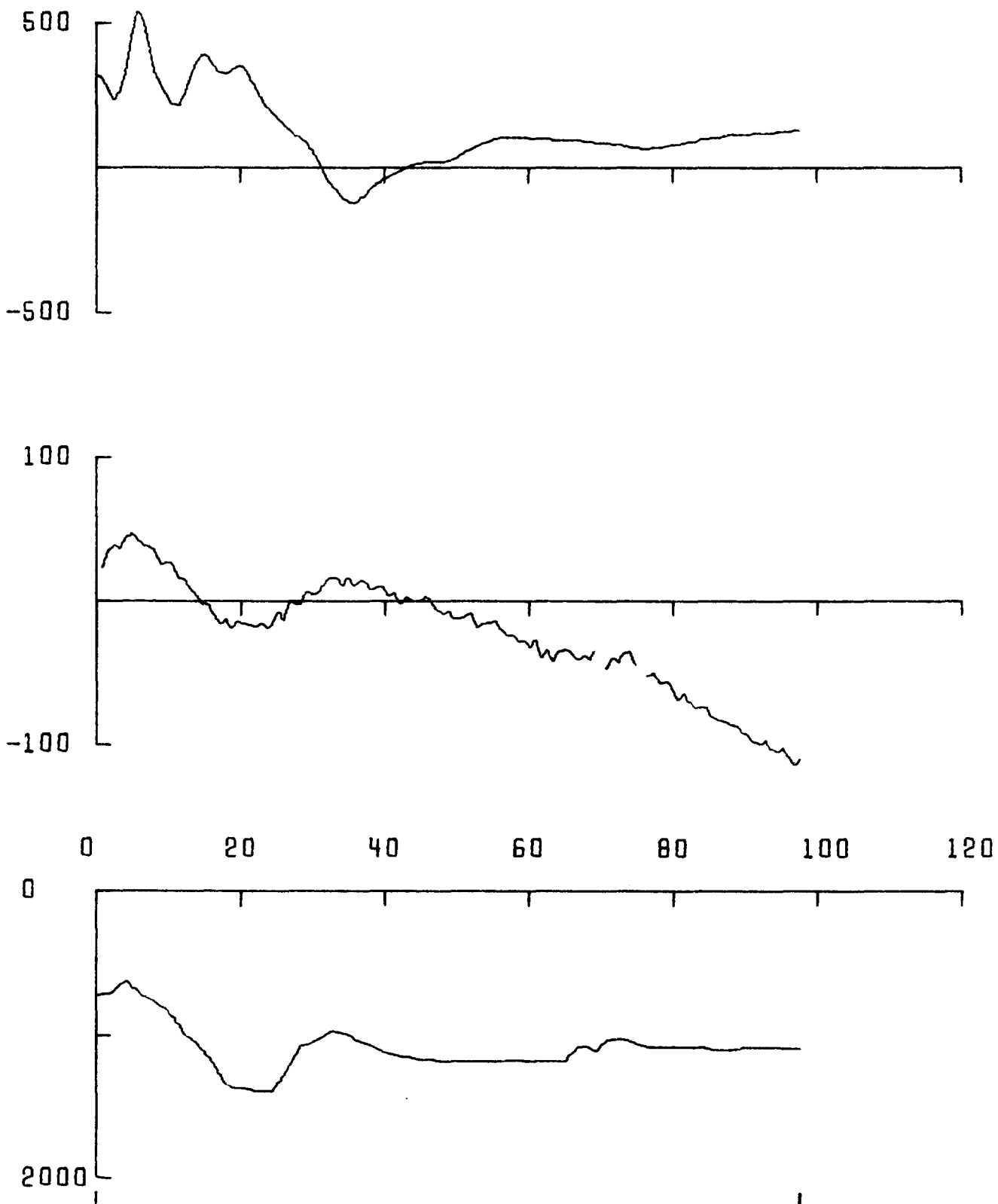


0 20 40 60 80 100 120



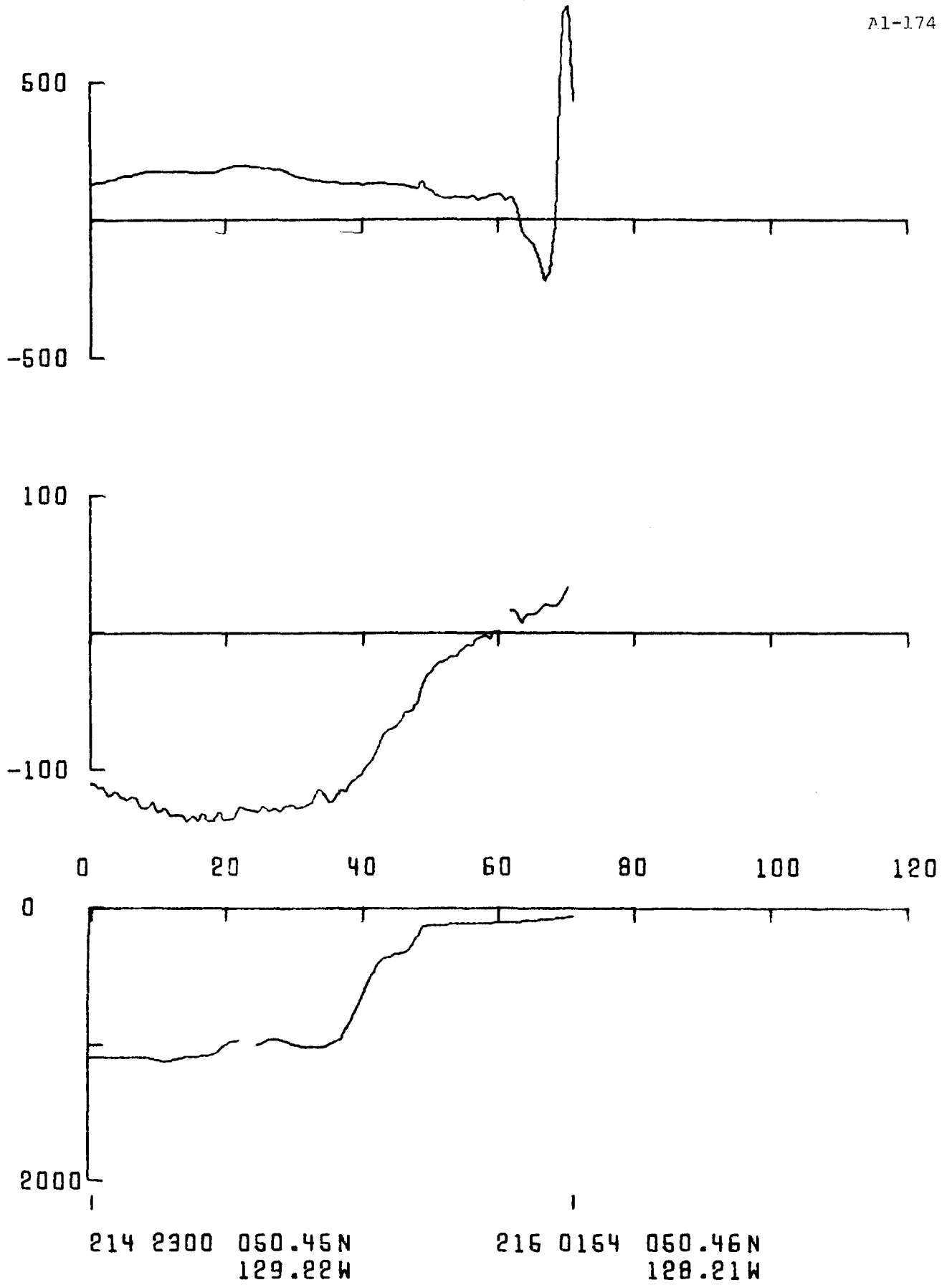
214 1750 060.46N  
130.98W

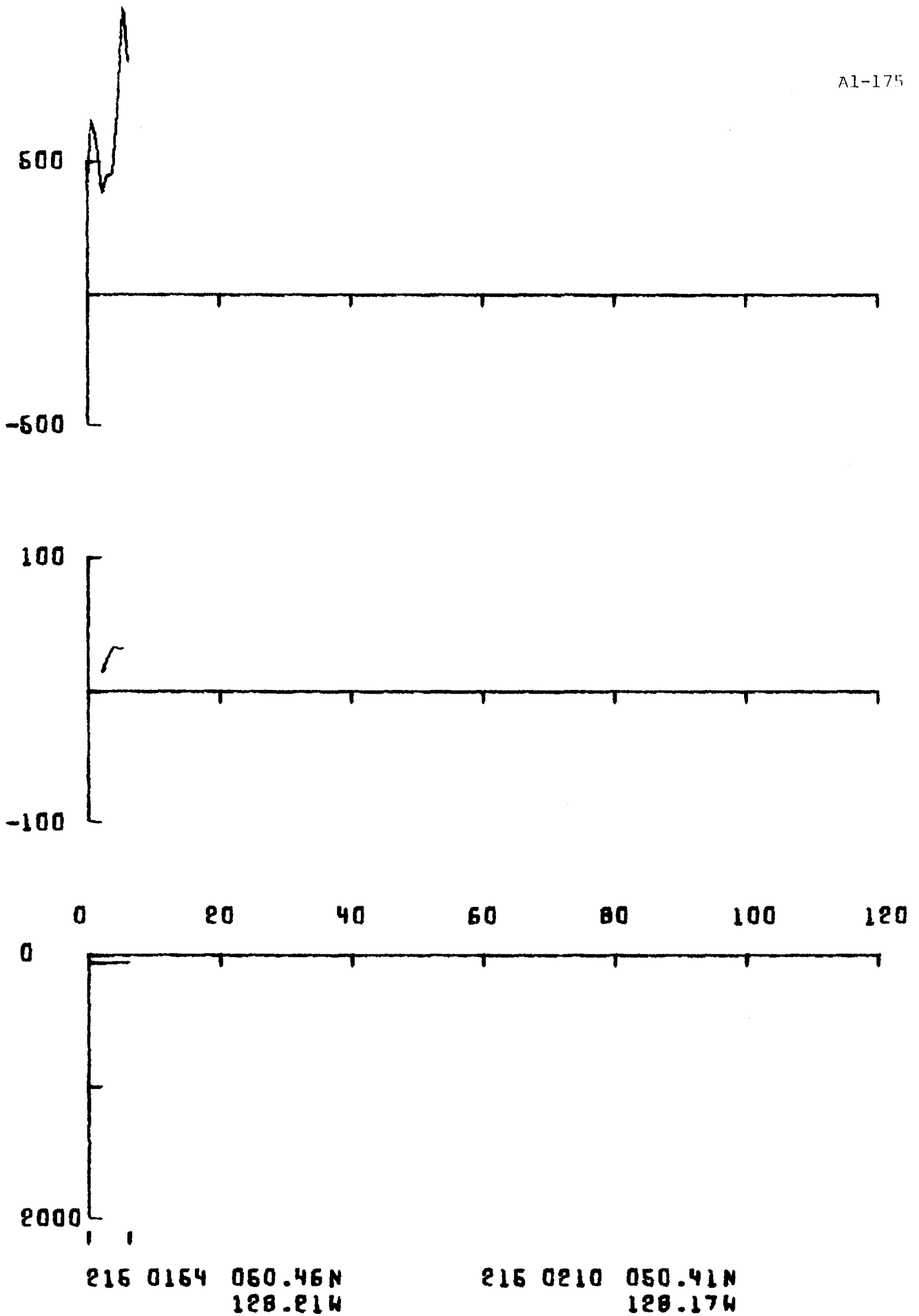
214 1900 060.46N  
130.60W



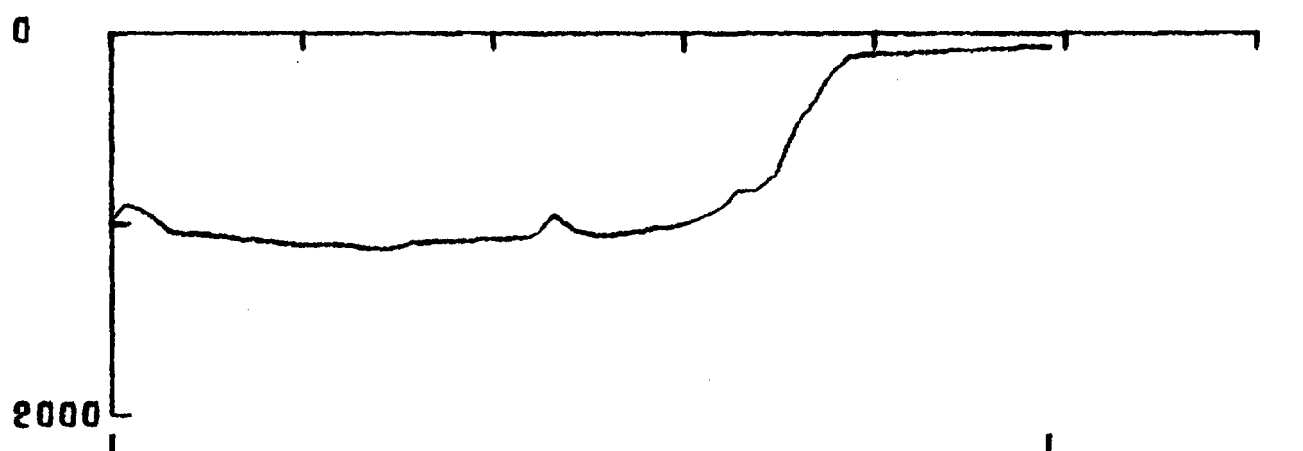
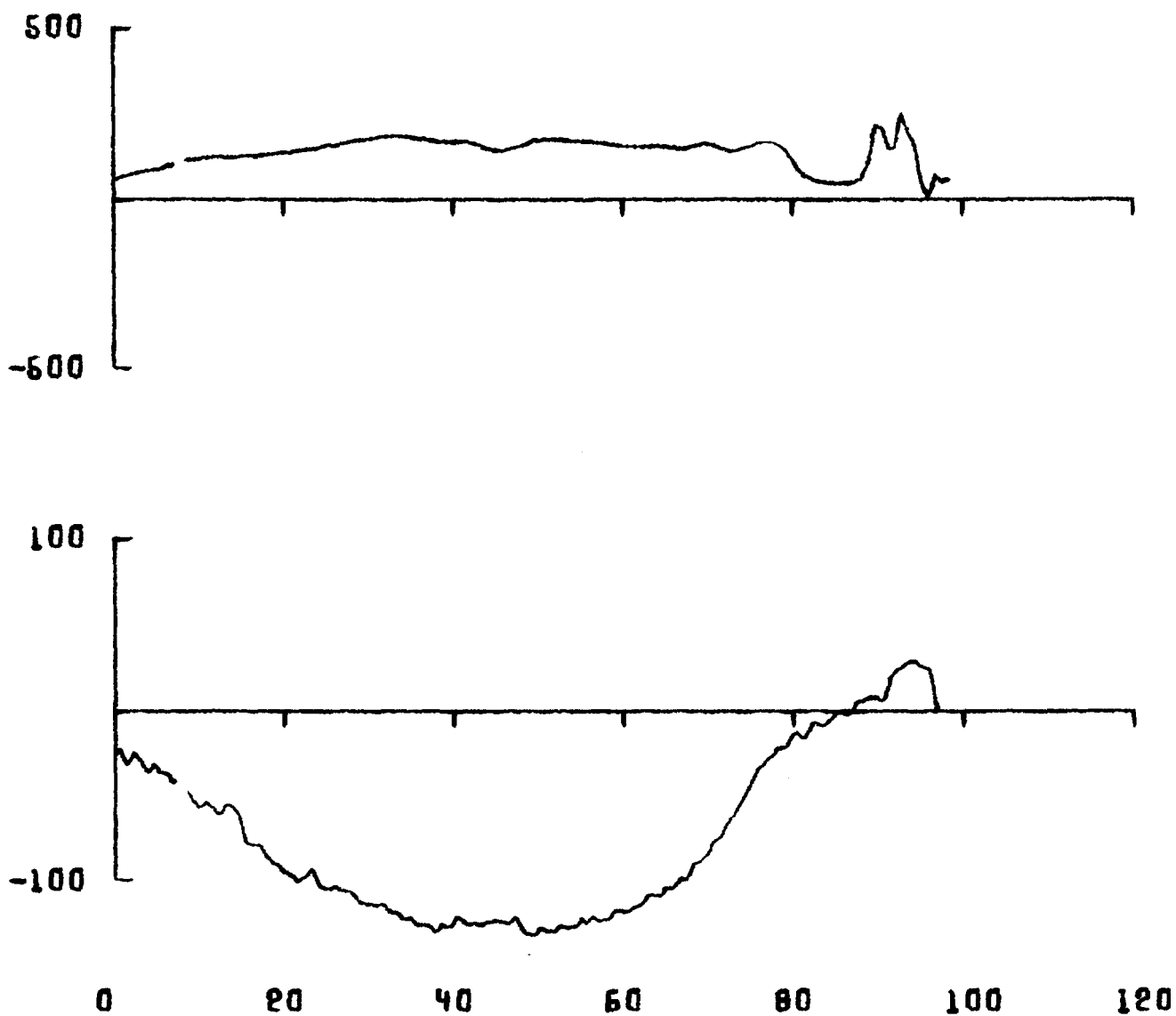
214 1900 050.45N  
130.60W

214 2300 050.45N  
129.22W



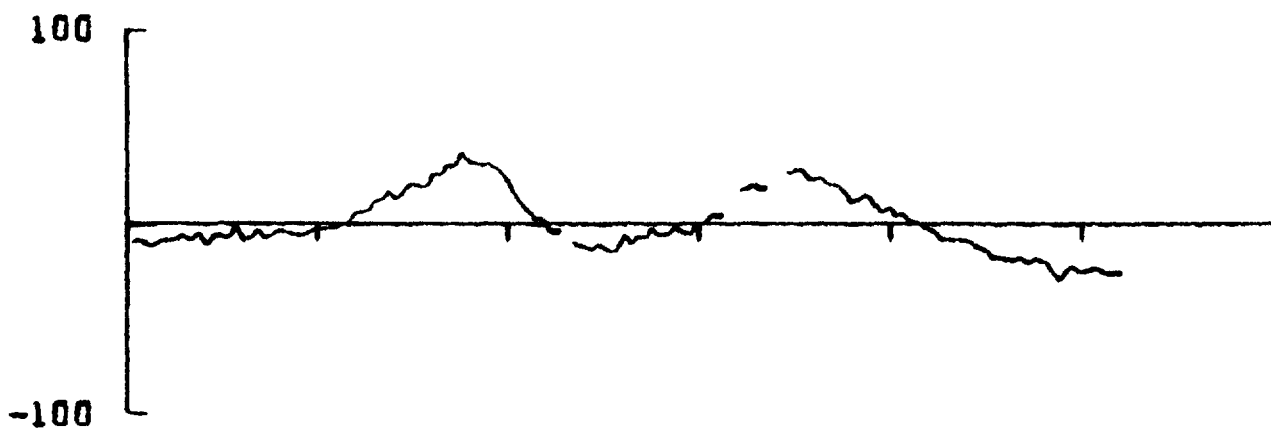
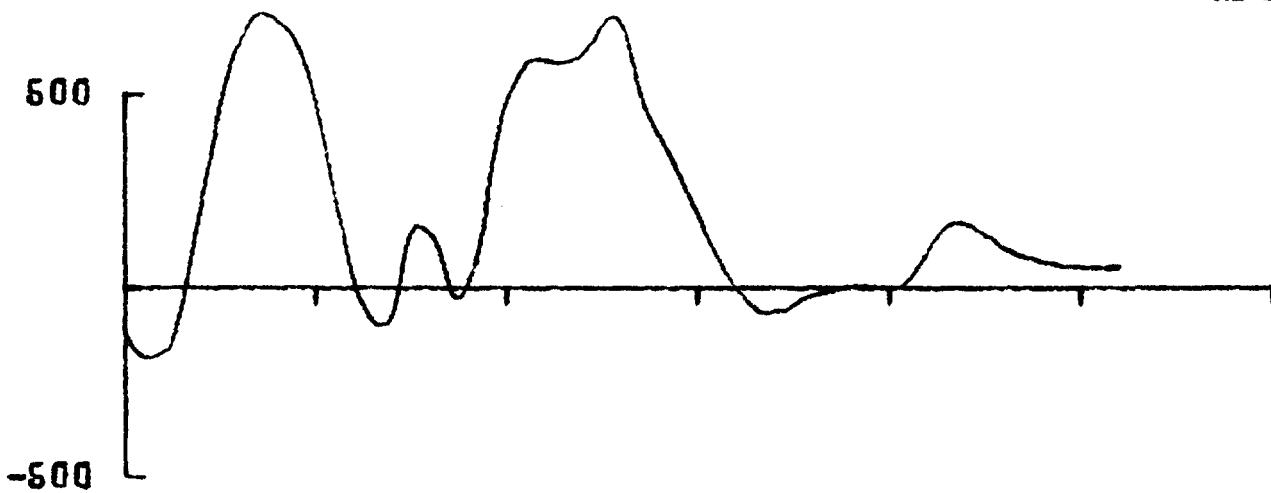




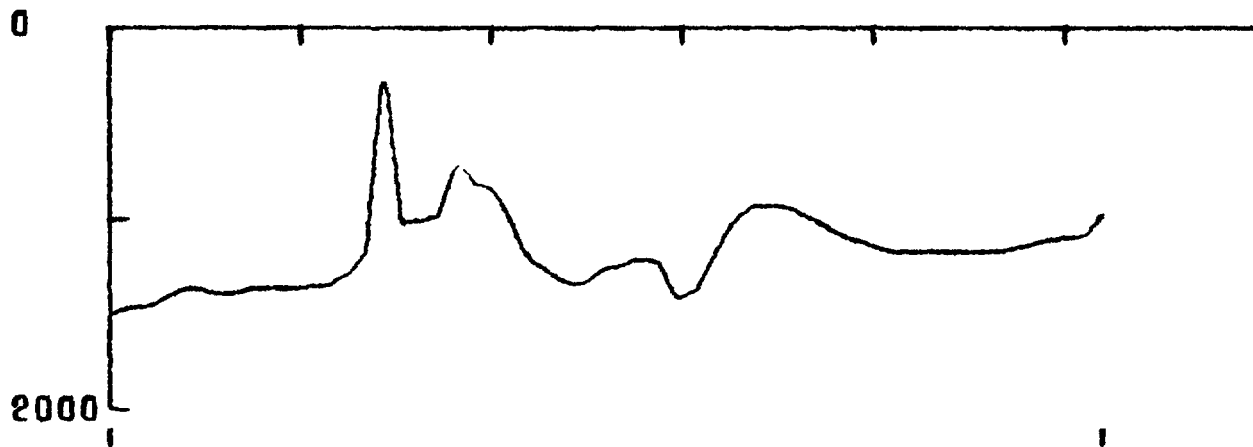


215 0630 060.37N  
129.54W

215 0216 060.39N  
128.16W

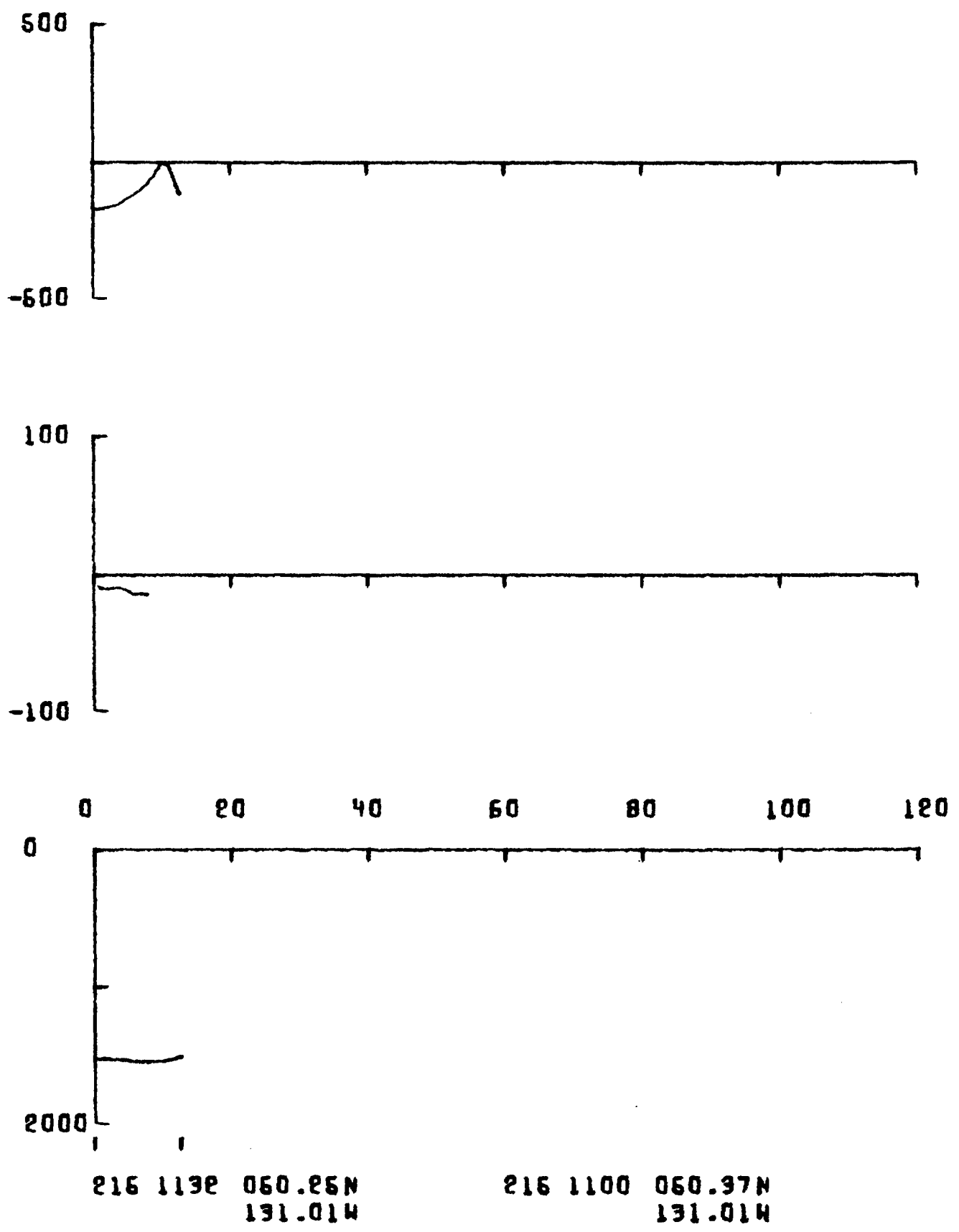


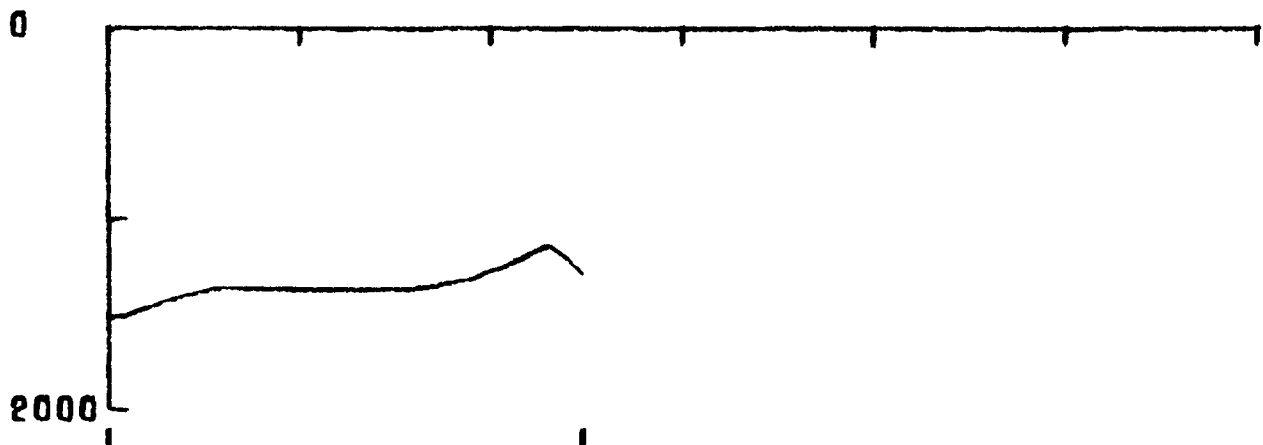
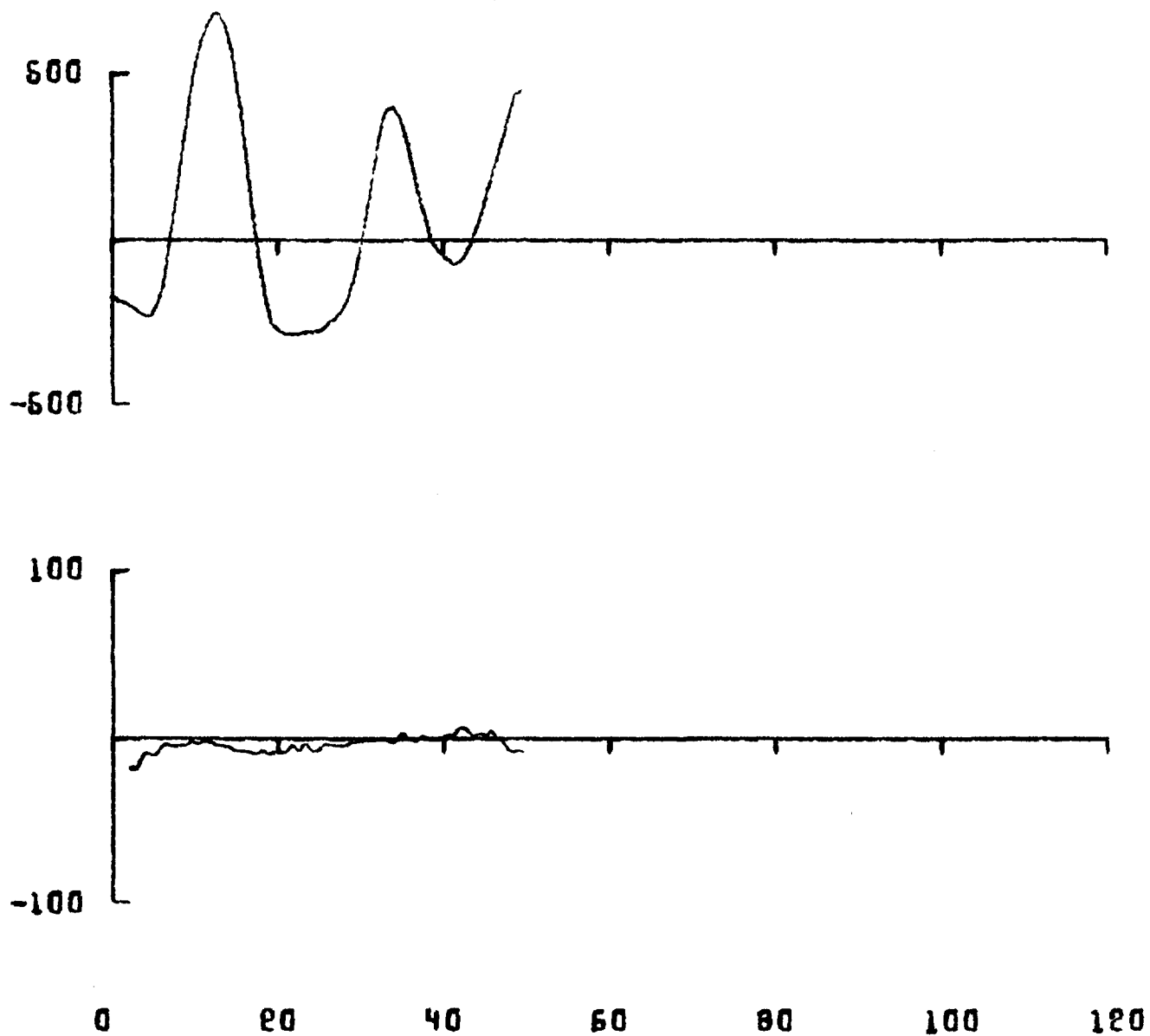
0 20 40 60 80 100 120



216 1100 060.37N  
191.01W

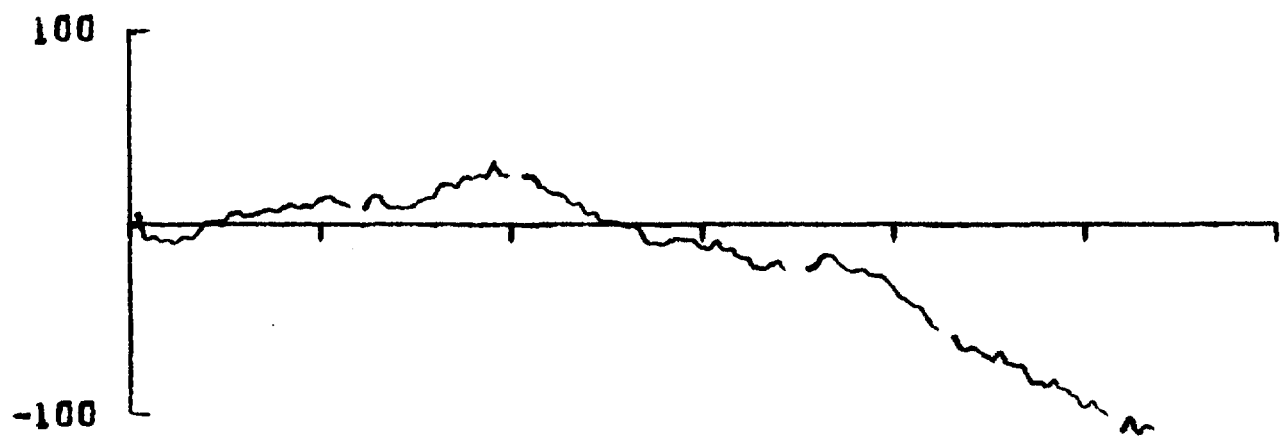
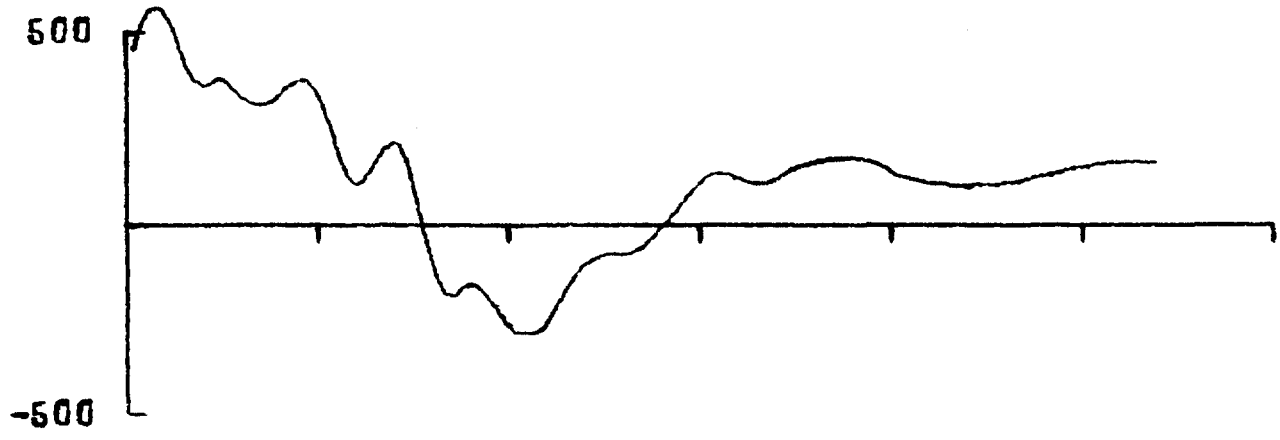
216 0630 060.37N  
129.54W



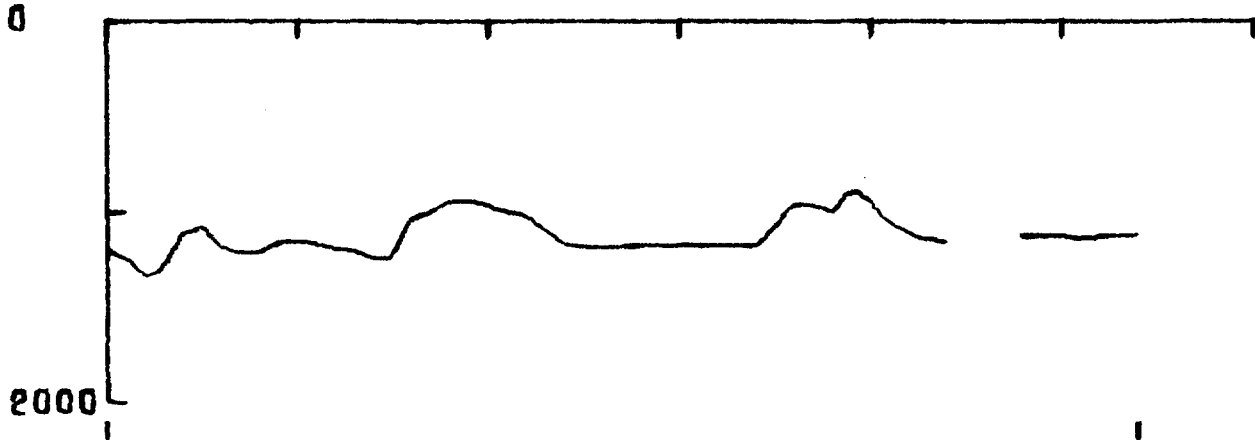


216 1130 060.25N  
131.014

216 1340 060.24N  
130.914

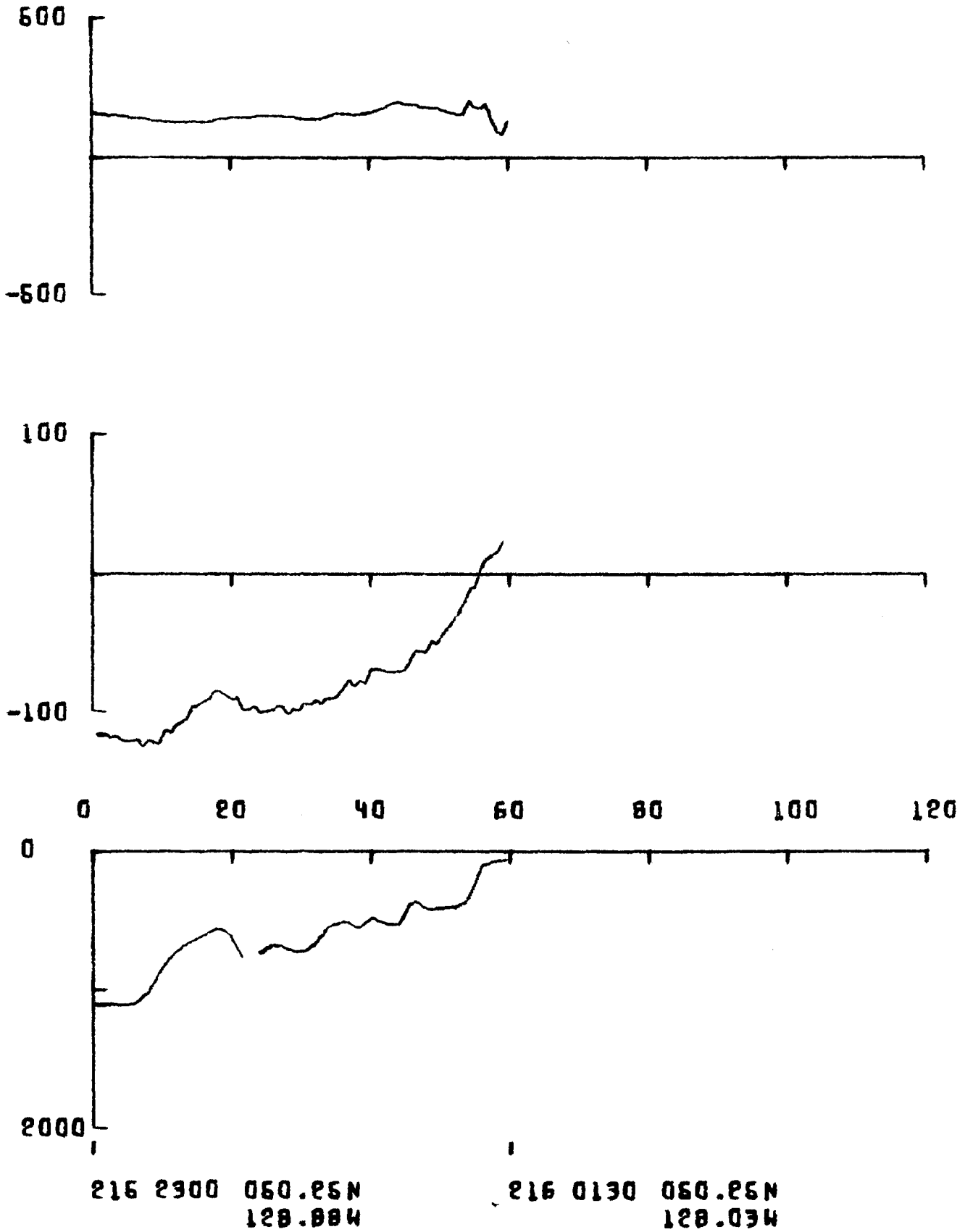


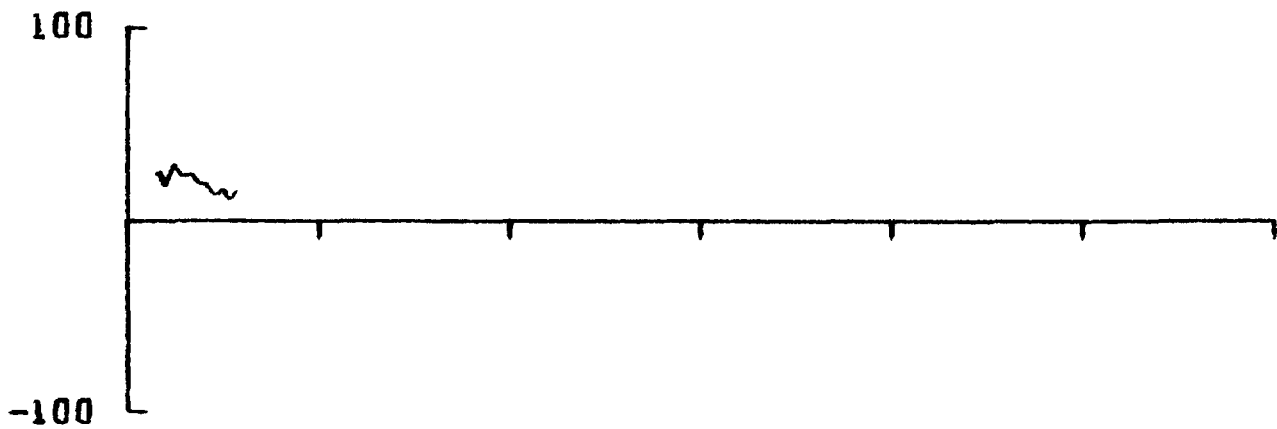
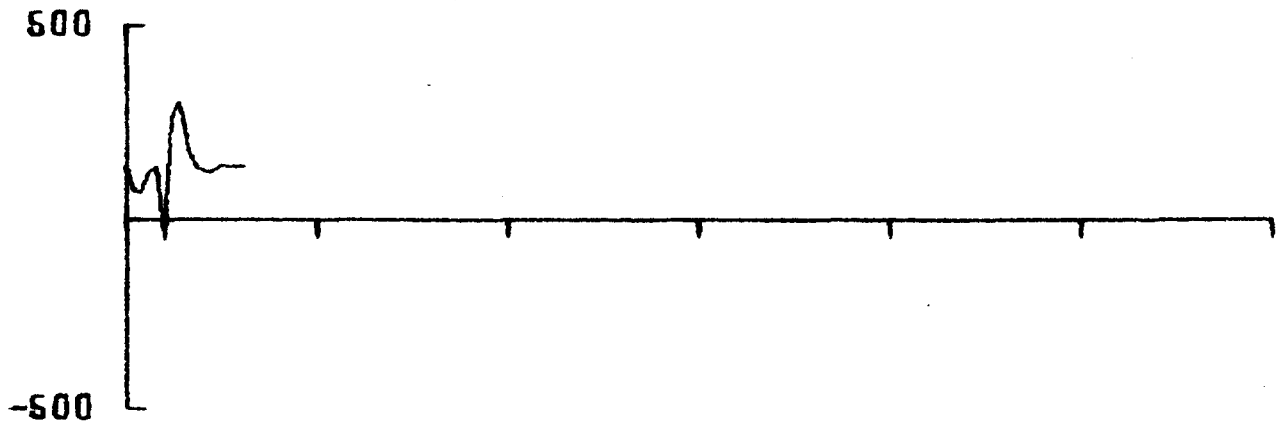
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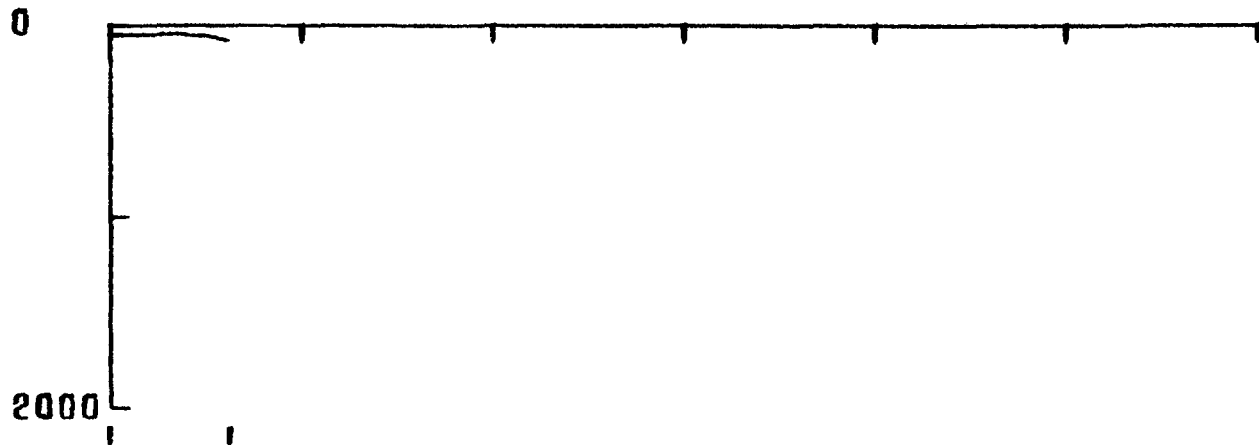
216 1830 060.25N  
130.40W

216 2300 060.25N  
128.88W





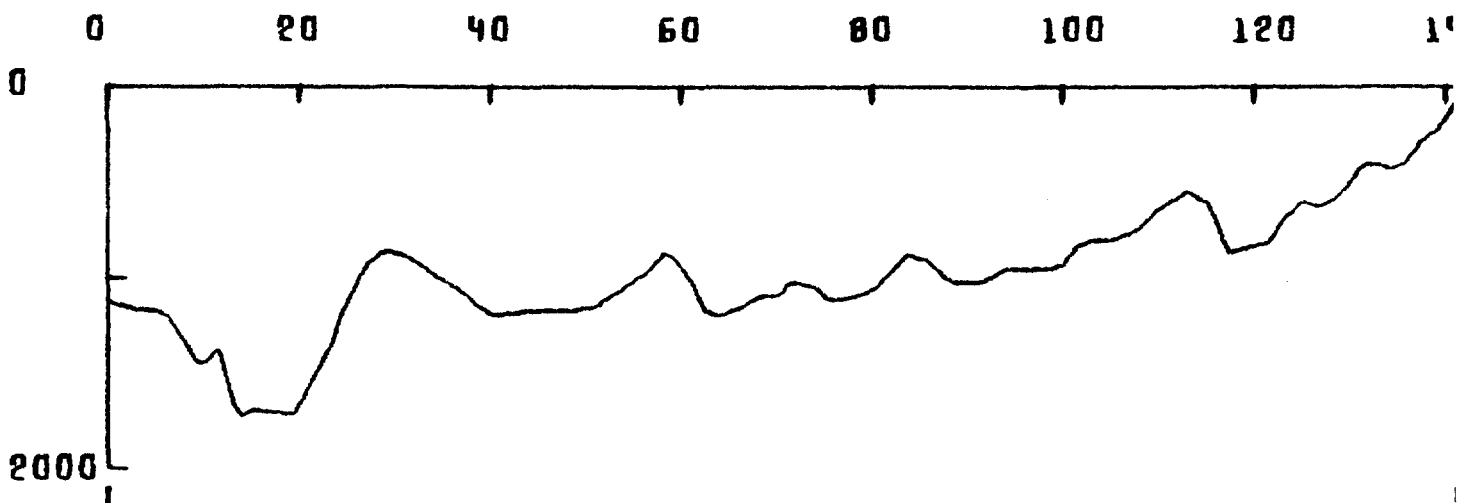
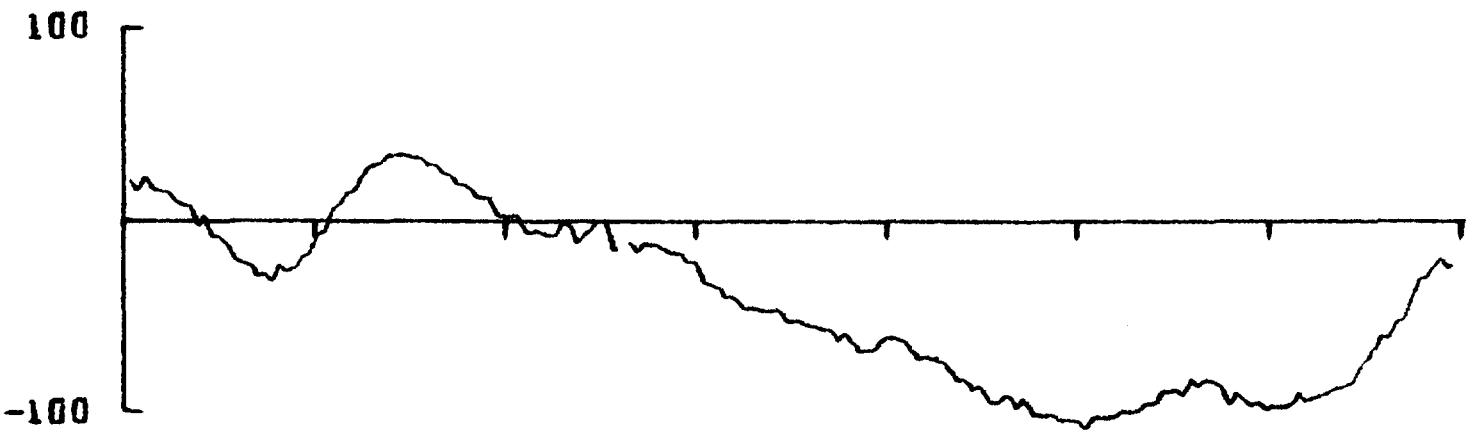
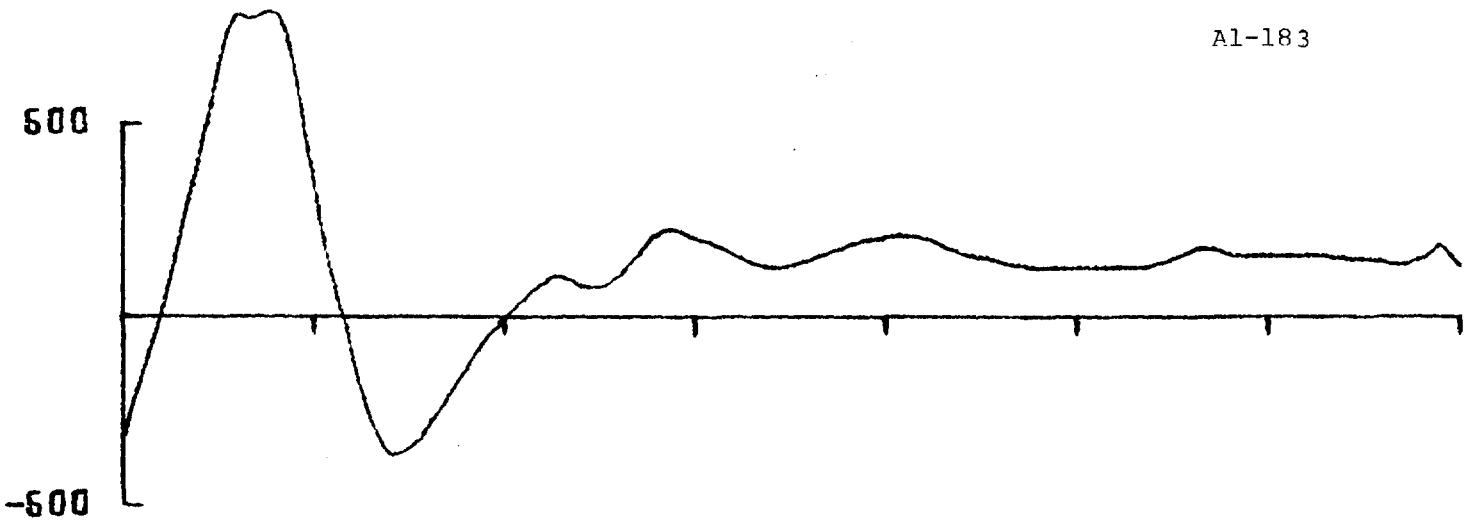
0 20 40 60 80 100 120



216 0130 060.26N  
128.03W

216 0200 060.14N  
128.03W

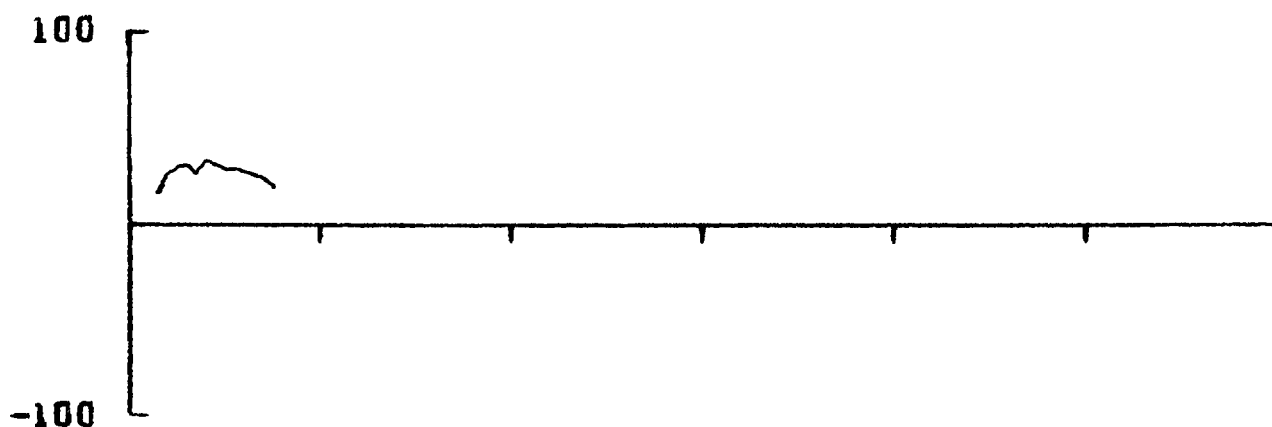
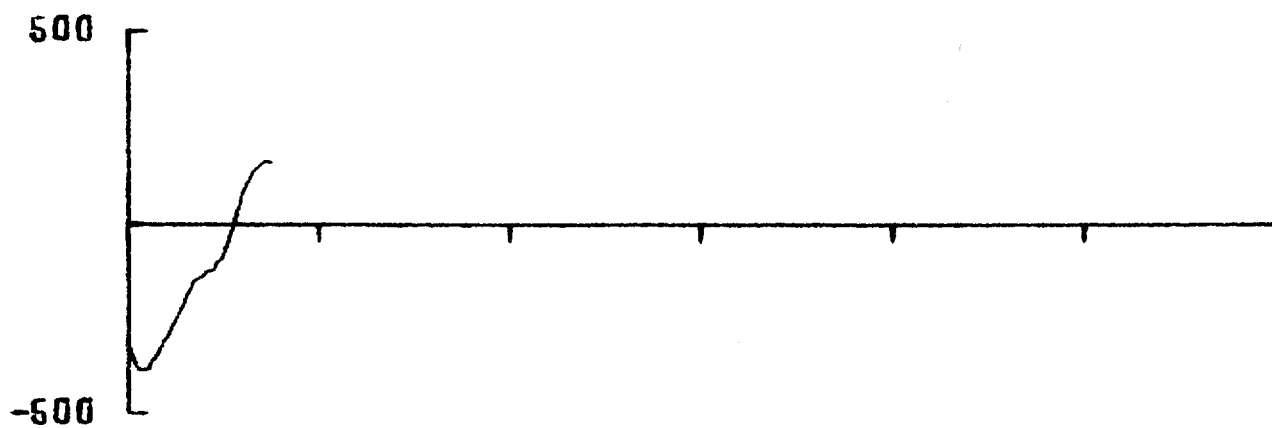
A1-183



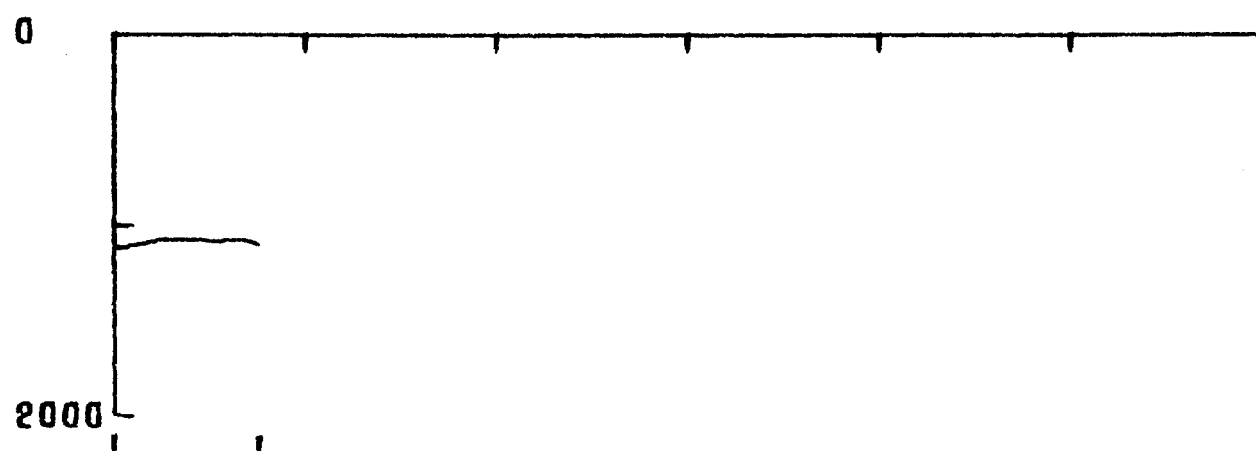
216 0800 060.12N  
130.02W

216 0200 060.14N  
128.03W



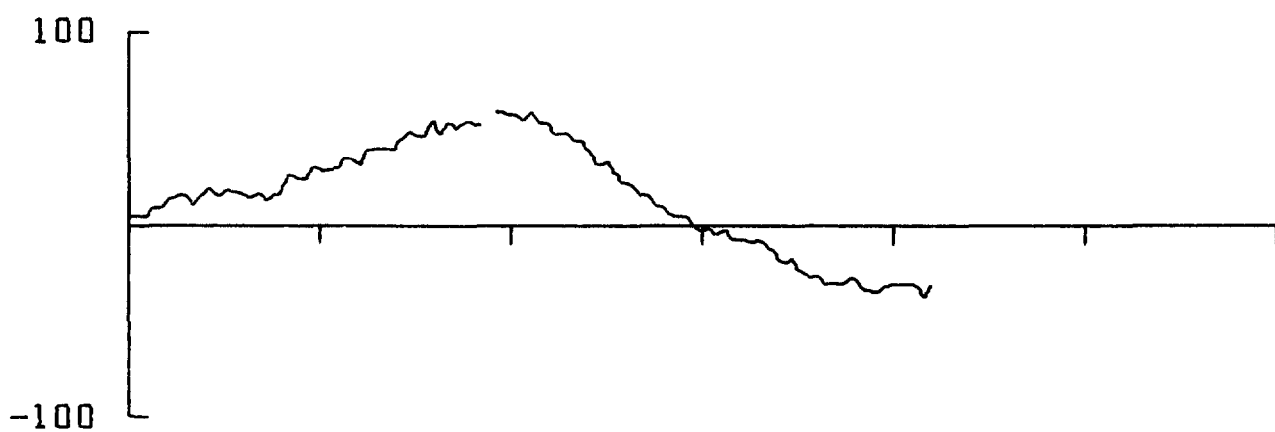
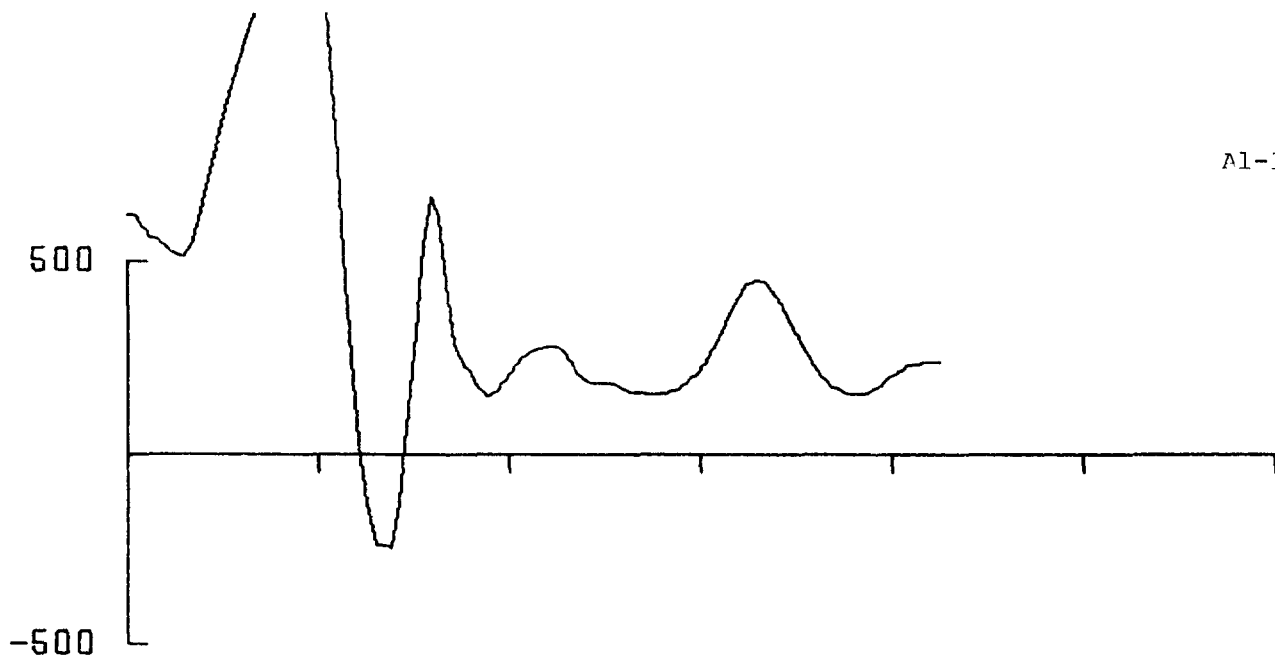


0 20 40 60 80 100 120

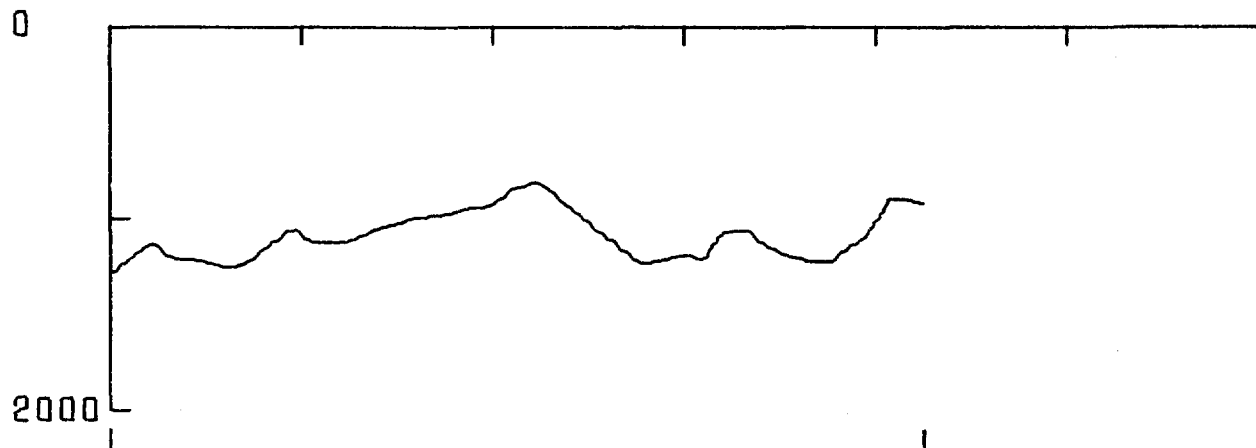


216 0800 060.12N  
130.02W

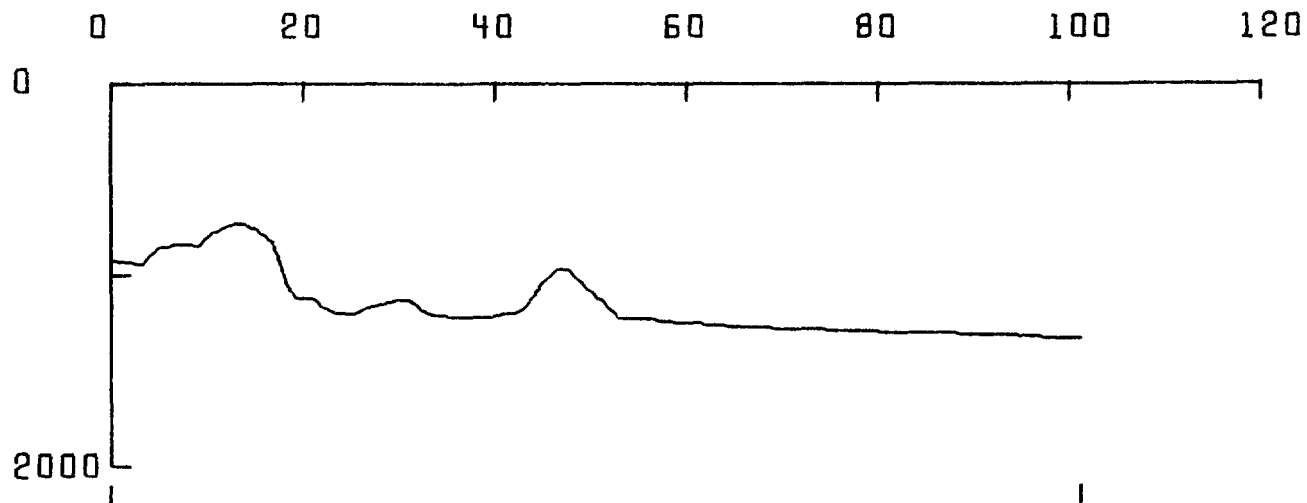
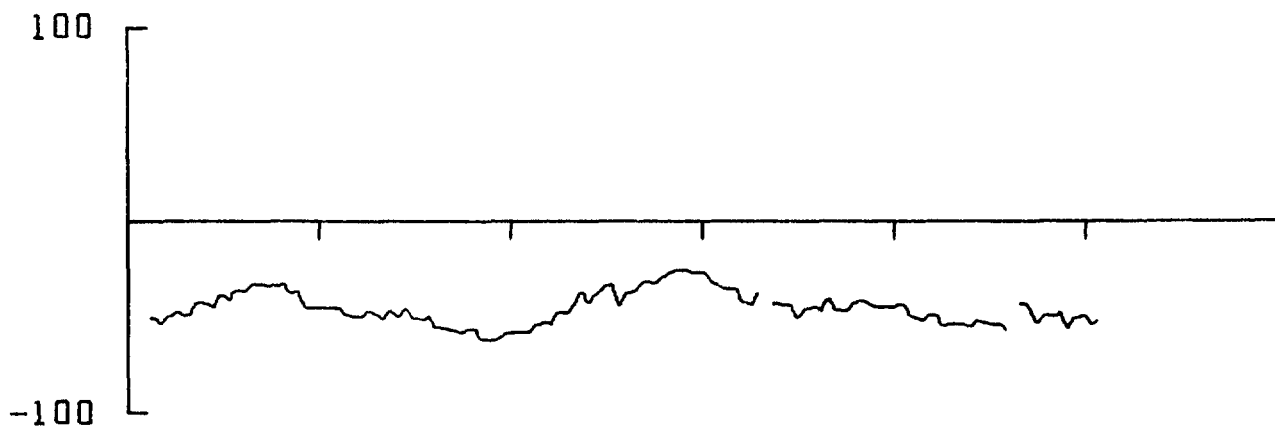
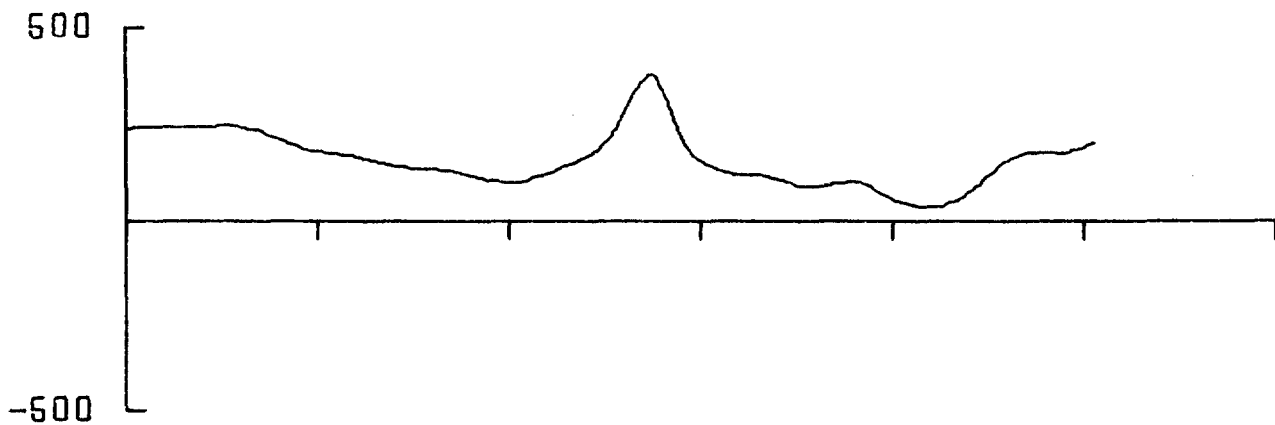
216 0830 049.98N  
130.00W



0 20 40 60 80 100 120

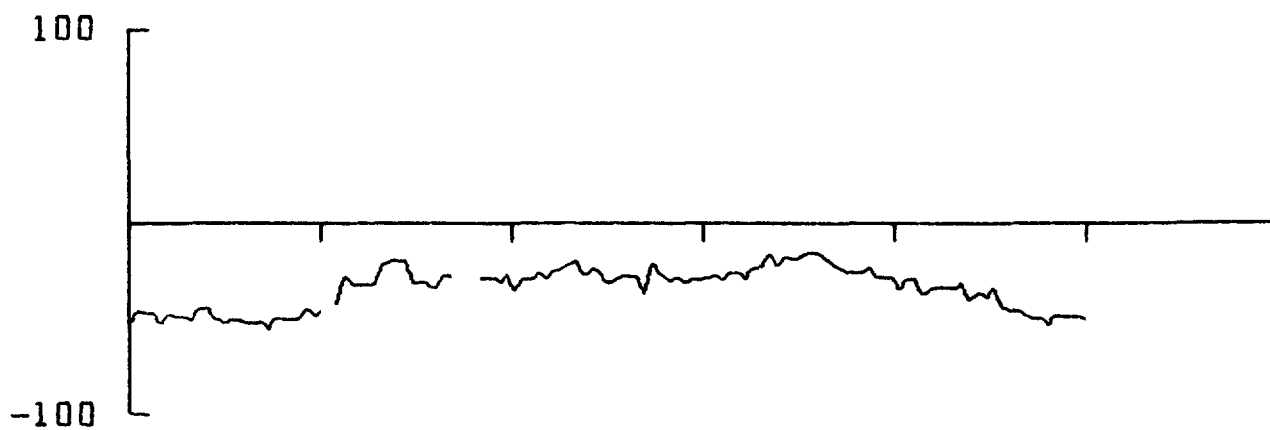
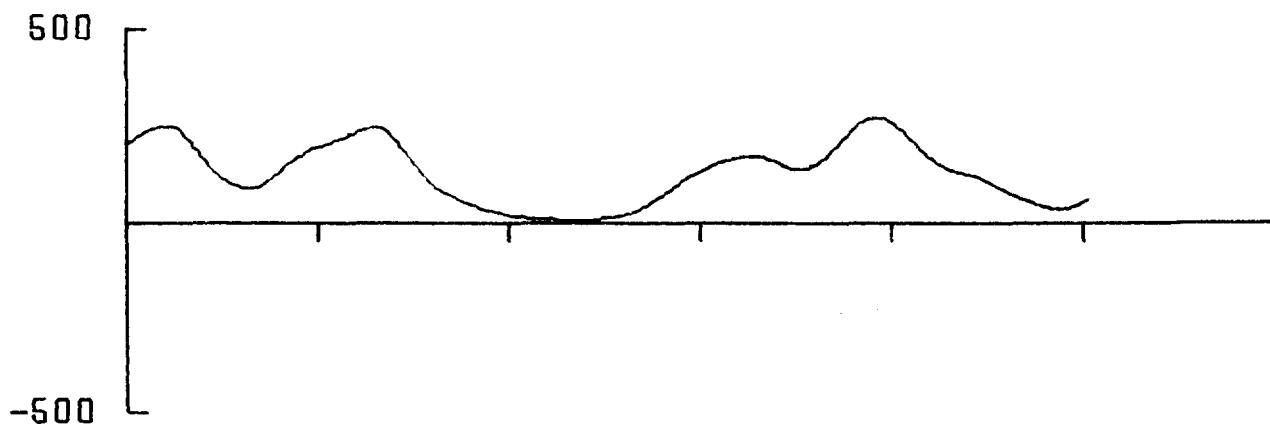


216 0900 049.98N 216 1218 049.97N  
129.96W 128.77W

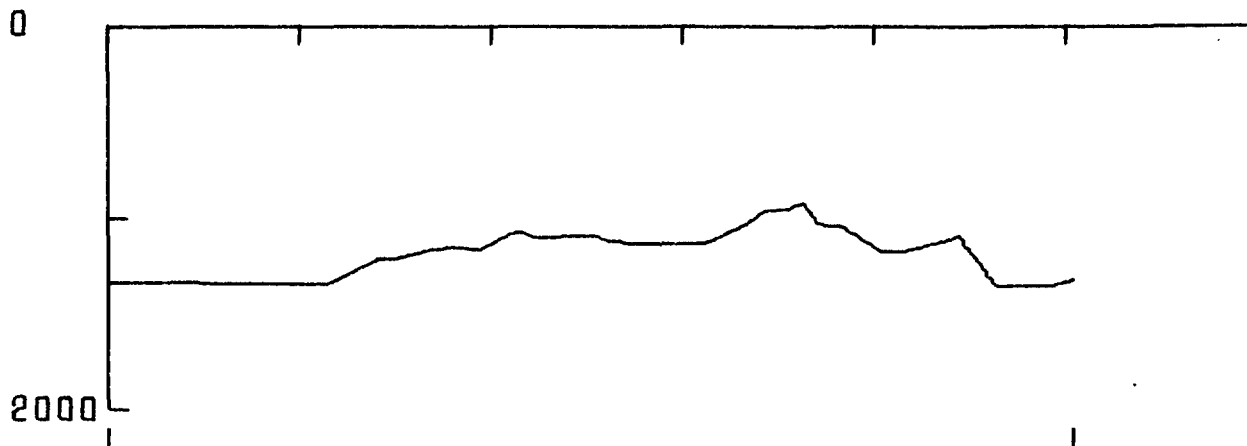


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128.77W

216 1630 049.25N  
127.90W

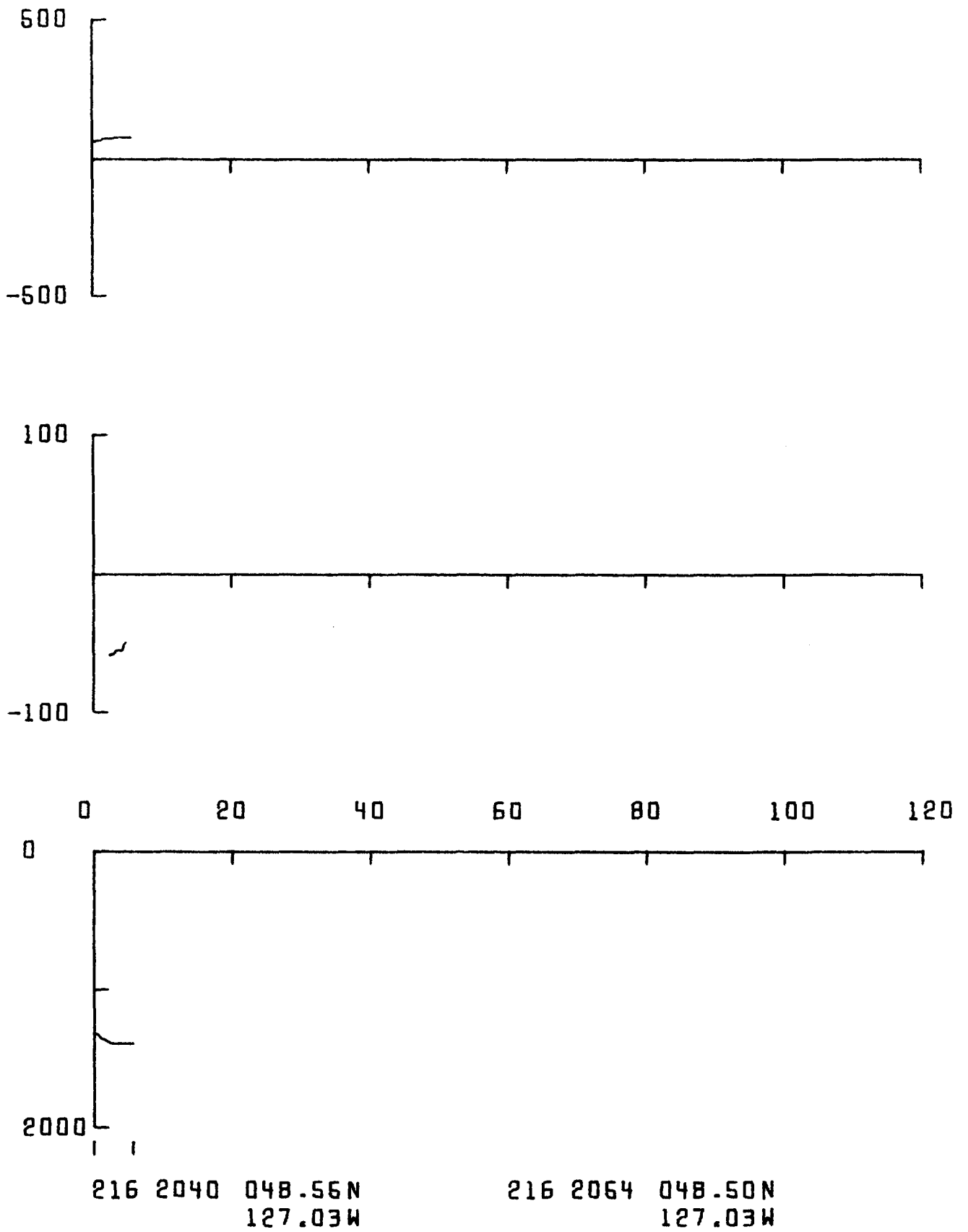


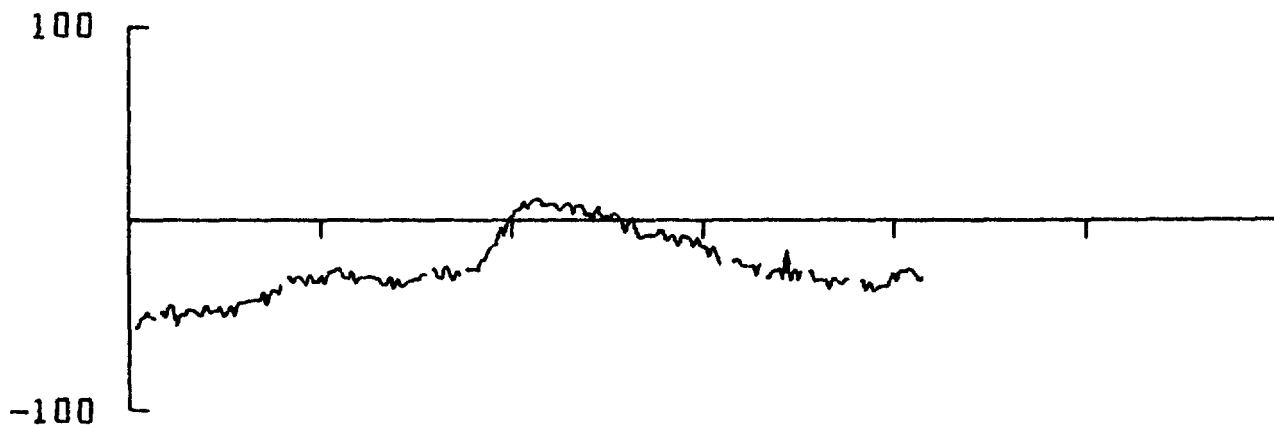
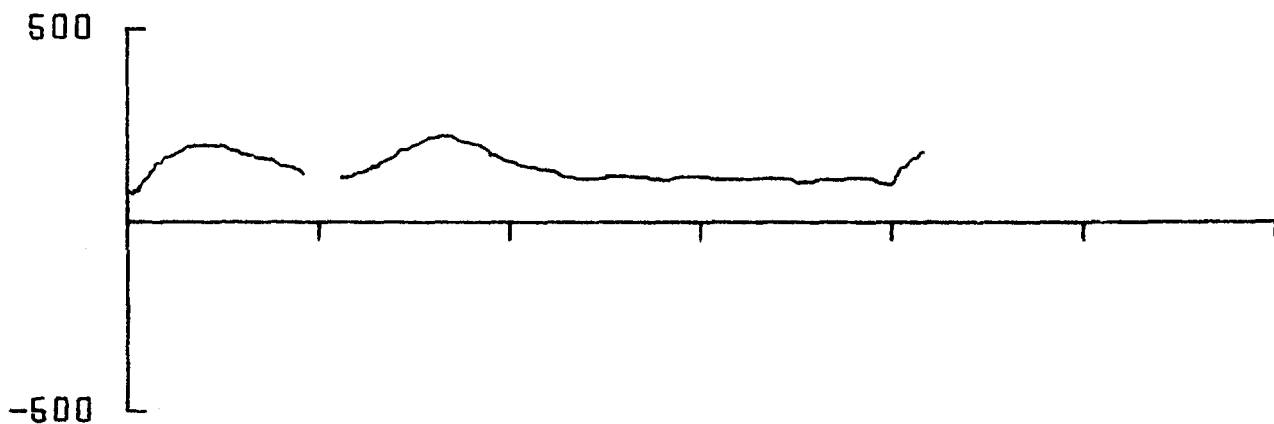
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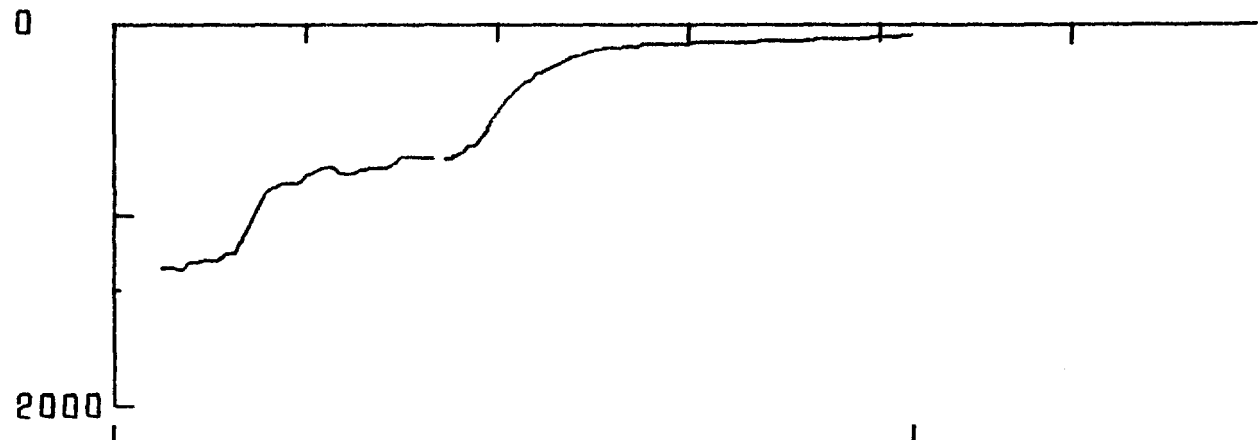
216 1630 049.25N  
127.90W

216 2040 048.56N  
127.03W

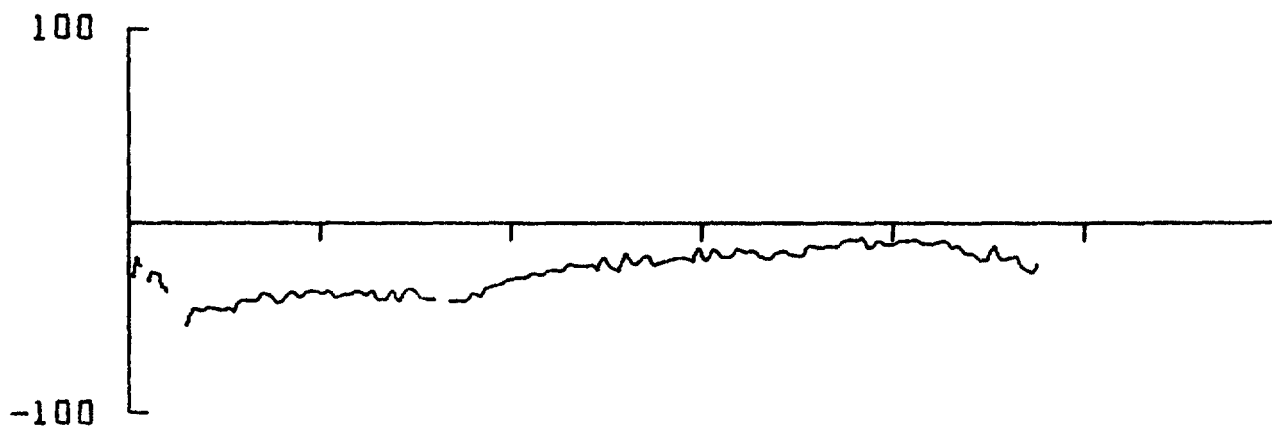
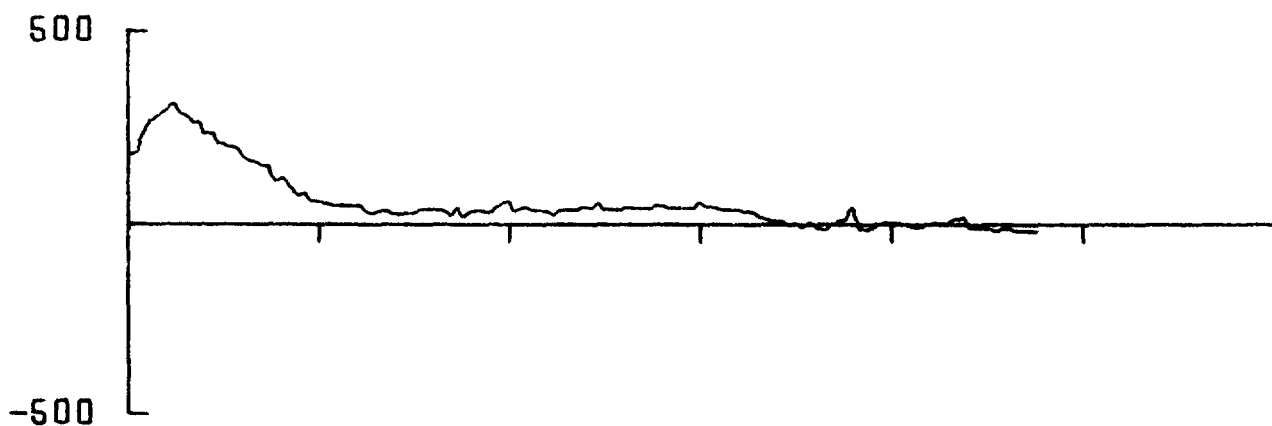




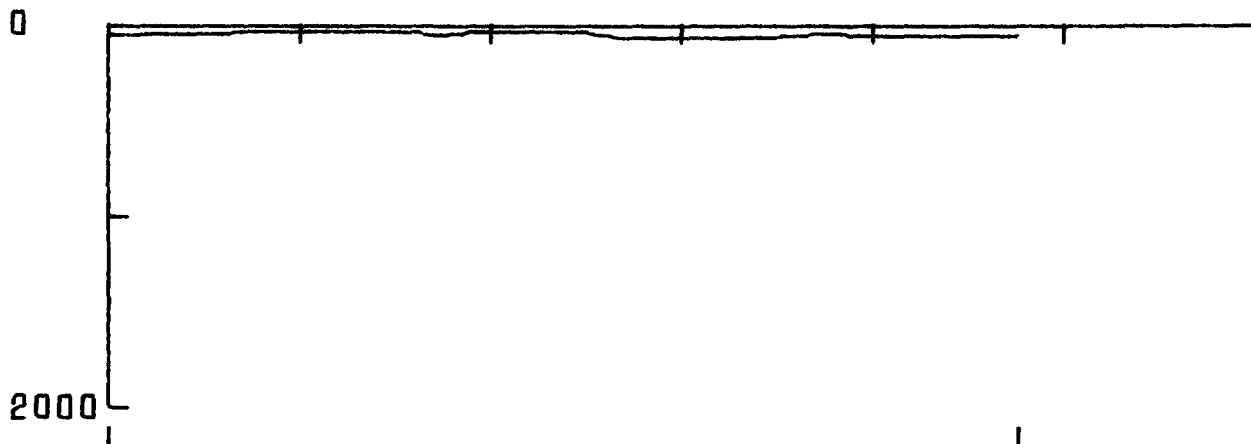
0 20 40 60 80 100 120



216 2054 048.50N 217 0400 049.01N  
127.03W 126.20W



0 20 40 60 80 100 120



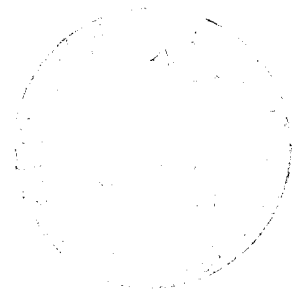
217 0400 049.01N  
126.20W

217 0830 048.61N  
125.06W

GEOPHYSICAL DATA COLLECTED  
DURING HUDSON-70, PHASE VII OFF  
BRITISH COLUMBIA, CANADA

AOL DATA SERIES NO. 71-5-D

EDITED BY  
S.P. SRIVASTAVA





## CONTENTS

	<u>Page</u>
Introduction	i
Acknowledgements	ii
 Part A. C.S.S. HUDSON  	
1. Gravity, Magnetic and Bathymetric Survey	A1-1
2. Continuous Seismic Profiling	A2-2
3. Seismic Refraction Measurements	A3-3
4. Heat Flow	A4-4
5. Bottom Photography	A5-5
 Part B. C.N.A.V. ENDEAVOUR  	
1. Navigation and Bathymetry	B1-1
2. Continuous Seismic Profiling	B2-1
3. Dredging	B3-1

## INTRODUCTION

A geophysical survey was conducted off Vancouver and Queen Charlotte Islands over a four-week period (July 12 to August 5, 1970) as part of HUDSON-70 expedition. The HUDSON-70 expedition was organized as part of the Canadian contribution to the International Decade of Oceanographic Exploration. The geophysical survey was conducted to study the subsurface structure across the continental margin off the British Columbia coast and in the deep ocean basins. The present report contains descriptions of the various measurements made during this cruise and the data collected.

The measurements were made on board two ships, C.S.S. HUDSON and C.N.A.V. ENDEAVOUR. A two-ship seismic refraction experiment was conducted in the deep ocean basin with C.N.A.V. ENDEAVOUR as the shooting ship and C.S.S. HUDSON as the receiving ship. The measurements on board C.S.S. HUDSON included gravity, magnetic, bathymetry, seismic reflection, heat flow, coring and bottom photography, while those on board C.N.A.V. ENDEAVOUR included seismic reflection, bathymetry and dredging.

The report has been divided into two main parts; one containing the data collected on board C.S.S. HUDSON and the other containing the data collected on board C.N.A.V. ENDEAVOUR. Each of these parts has been subdivided into various sections each dealing with a type of measurement made during the cruise.

ACKNOWLEDGEMENTS

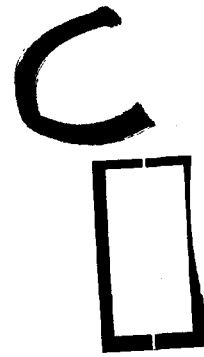
We would like to thank our many associates from Atlantic Oceanographic Laboratory, Departments of Geophysics and Geology of The University of British Columbia who helped us in collecting and reducing the data reported here during phase VII of HUDSON-70 expedition. We would like to express our sincere thanks to the Masters and Crews of C.S.S. HUDSON and C.N.A.V. ENDEAVOUR without whose help so much could not have been accomplished within such a short cruise. The support before and after the cruise rendered by the Canadian Hydrographic Office, Victoria and the Defence Research Establishment Pacific, Esquimalt is gratefully acknowledged. Scientific assistance and encouragement from Chief Scientist, Dr. C. D. Maunsell is gratefully appreciated. The assistance provided by Mr. D. R. Auld of Earth Physics Branch, Department of Energy, Mines and Resources in setting up and maintaining a magnetic monitoring station at Port Hardy for the duration of the survey is gratefully acknowledged.

PART A

C.S.S. HUDSON



DEPARTMENT OF ENERGY, MINES AND RESOURCES  
MARINE SCIENCES BRANCH  
MINISTÈRE DE L'ÉNERGIE DE MINES ET DES RESSOURCES  
DIRECTION DES SCIENCES DE LA MER



ATLANTIC OCEANOGRAPHIC LABORATORY  
BEDFORD INSTITUTE

LABORATOIRE OCEANOGRAPHIQUE DE L'ATLANTIQUE  
INSTITUT de BEDFORD

Dartmouth, Nova Scotia  
Canada

GEOPHYSICAL DATA COLLECTED  
DURING HUDSON-70, PHASE VII OFF  
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Edited by  
S. P. SRIVASTAVA

AOL DATA SERIES No. 71-5-D

SEPTEMBER, 1971

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THE CANADIAN COMMITTEE OF OCEANOGRAPHY

## A2. Continuous Seismic Profiling

The system used for continuous seismic reflection profiling is shown schematically in Figure 3. It consists of the following:

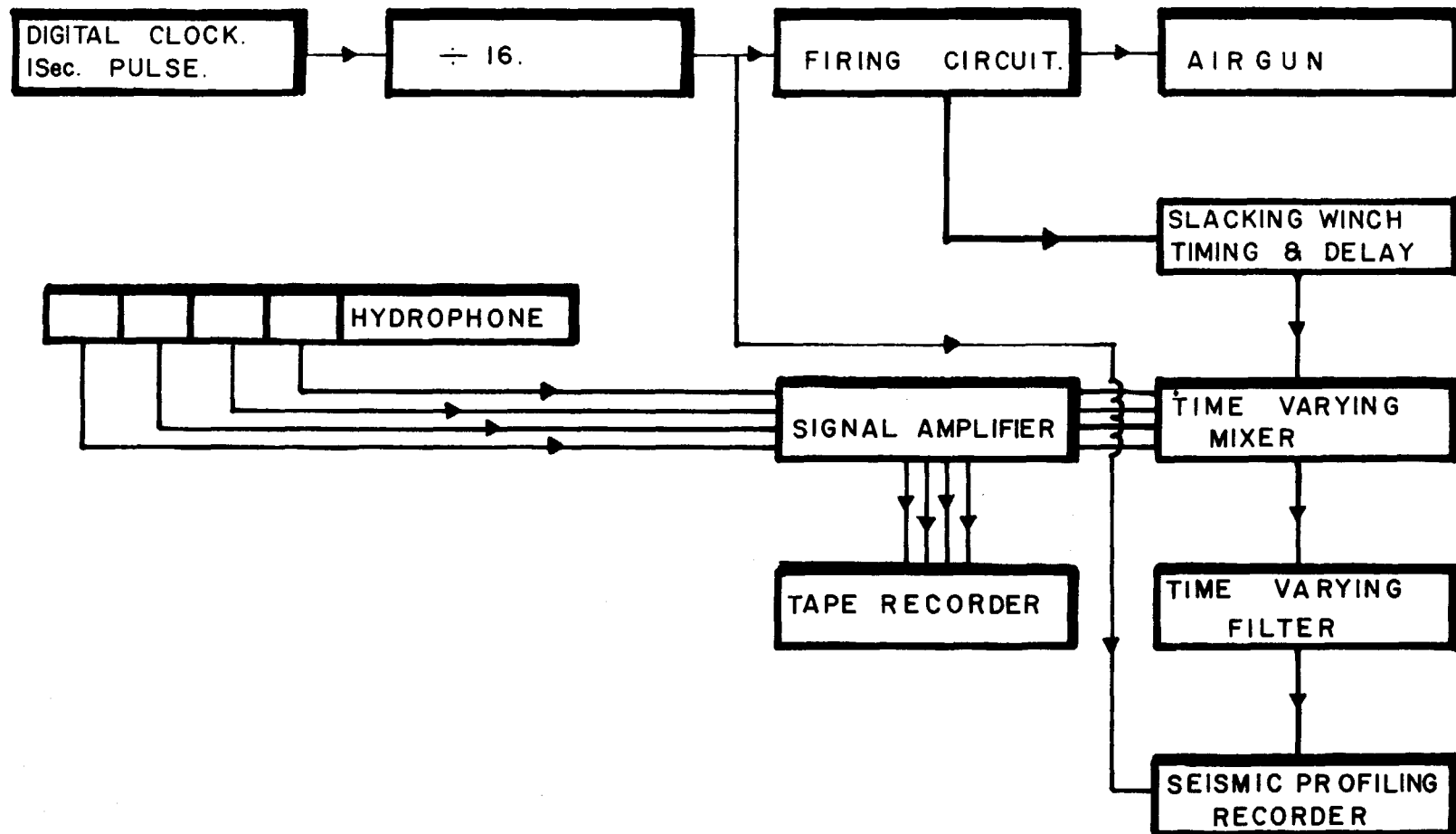
- a) A hydrophone array, 400 feet long which is divided into 100 foot sections. Each section contains 20 hydrophones. A 100 foot dead section and a 600 foot lead-in cable to the ship complete the array.
- b) A slacking winch which allows the array to be stopped in the water while signals are being received.
- c) A Bolt model 1500 air gun with pulse shaper and a 300 cubic inch chamber. The gun was fired every 16 seconds at a peak pressure of about 1700 psi.
- d) The signals were recorded on a four channel Hewlett Packard magnetic tape recorder, each channel corresponding to one of the four sections of the array. The four sections of the array were mixed, using a time varying mixer and the resulting signal was passed through a time varying filter. An EPC dry paper recorder and an Alpine recorder were used to display the results. The signals were recorded at an 8 second sweep rate.
- e) A Chicago Pneumatic air compressor with a capacity of 70 s.c.f.m.

The records obtained from the above system were annotated with day and time on board the ship. The location of these profiles can be obtained from Table 1. Photographic copies of the microfilms of each profile are given here. Each profile is broken into a number of sections to show them in as much detail as possible.

D. L. Barrett, C. E. Keen,  
and D. L. Tiffin

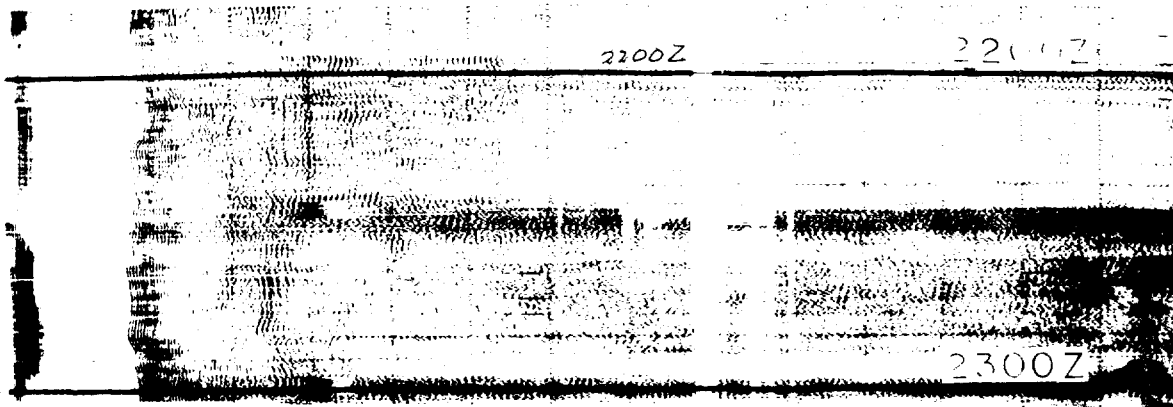
# SEISMIC REFLECTION PROFILING SYSTEM.

## BLOCK DIAGRAM



BI 69 050 HUDSON

LINE 2 8 sec sweep  
194 2147Z/194

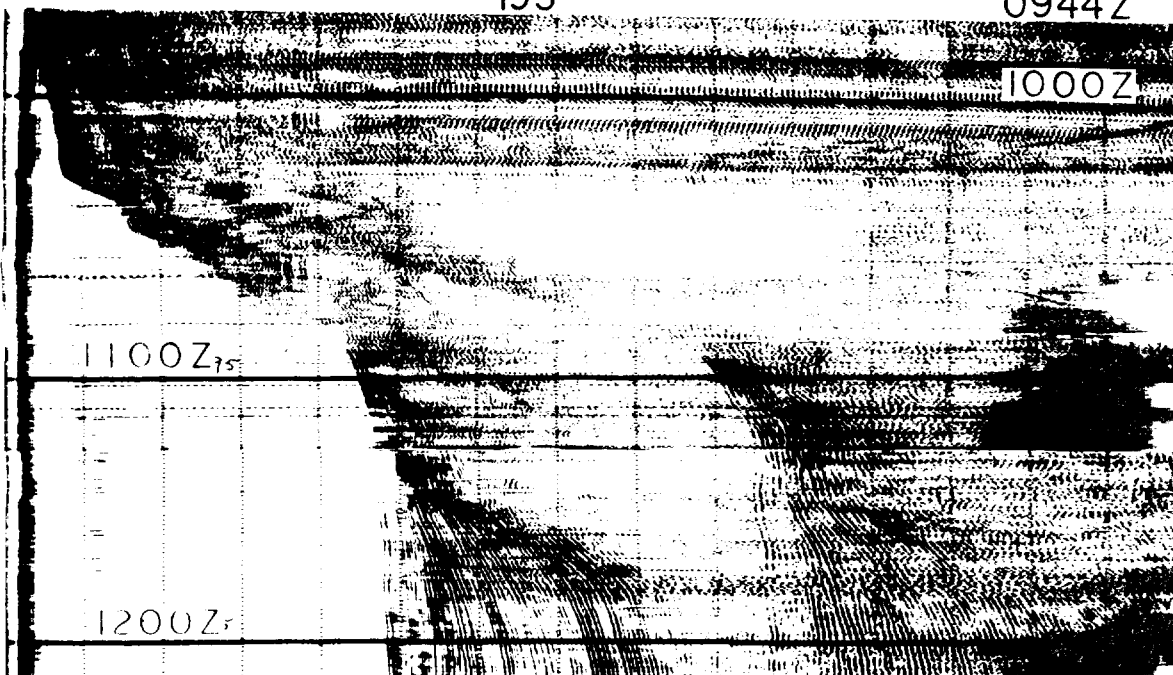


ALPINE RECORDER

BI 69 050 HUDSON

LINE 3  
195

0944Z





BI 69 056 HUDSON

LINE 3  
195

0944Z

1000Z

1100Z<sub>75</sub>

1200Z

300Z

4 sec 5028.9

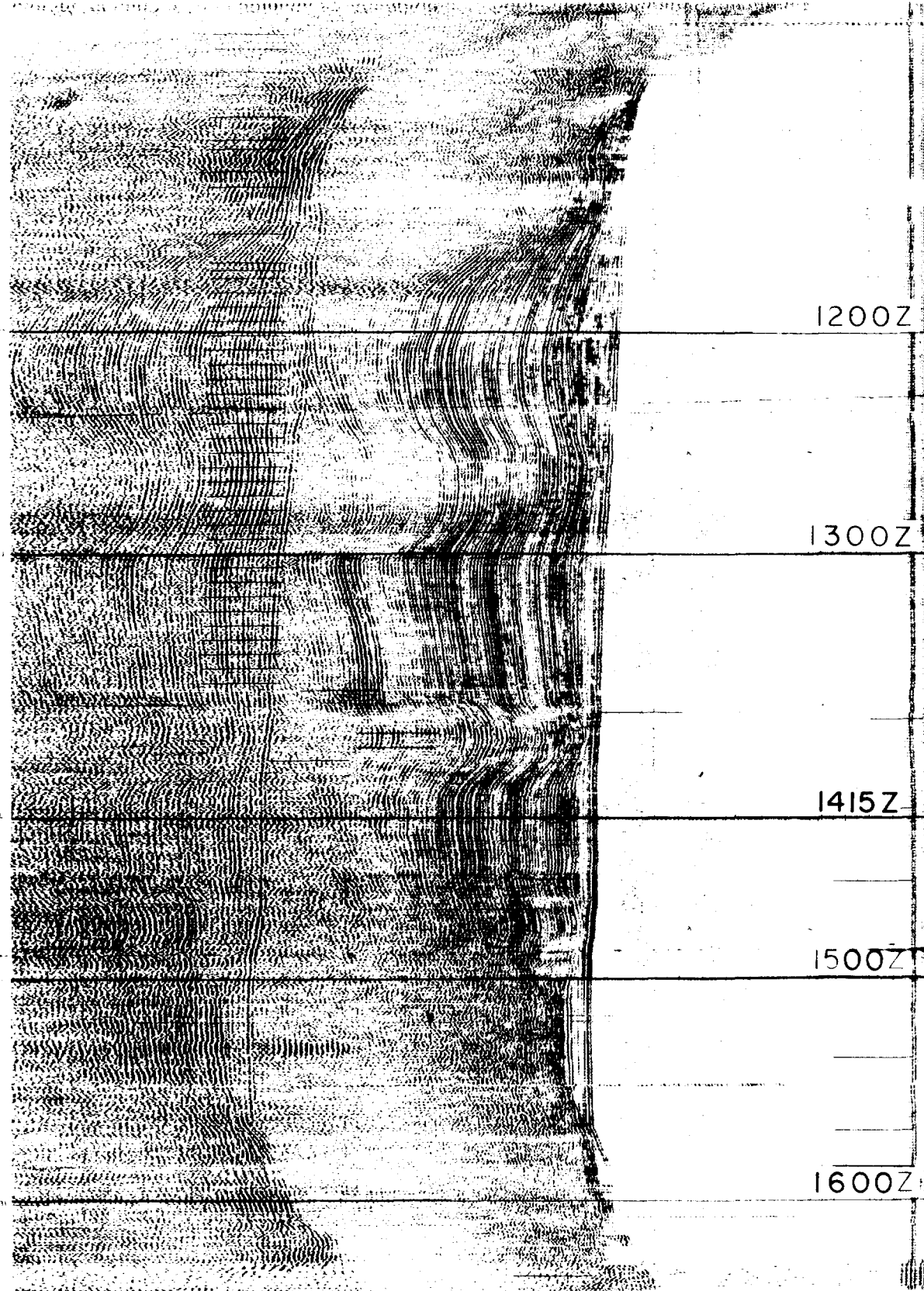
400Z

1556 - CHANGED PAPER

ALPINE RECORDER

BI 69 0.4 H D ON

LINE 3 195



1200Z

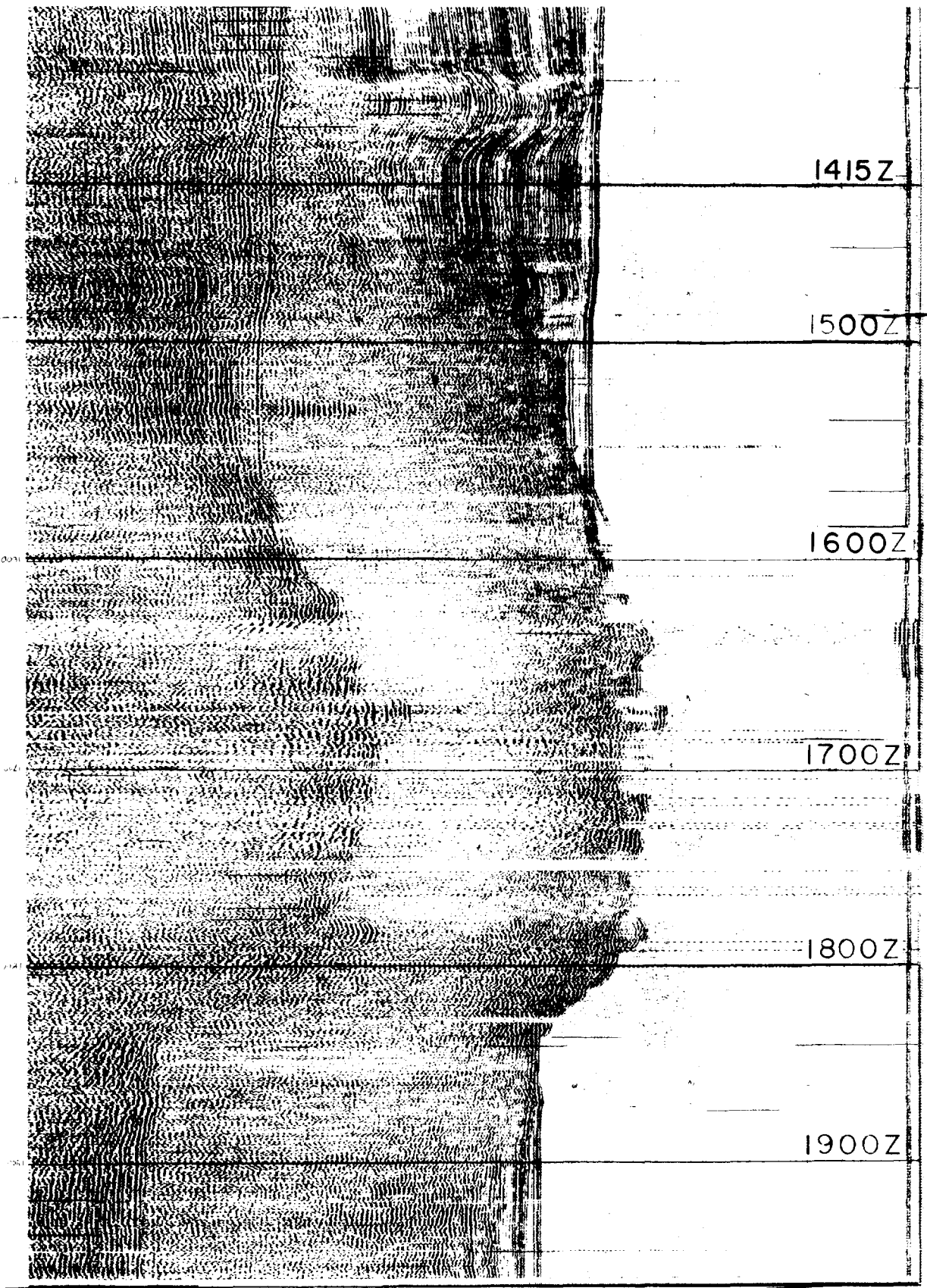
1300Z

1415Z

1500Z

1600Z

EPC RECORDER



1415Z

1500Z

1600Z

1700Z

1800Z

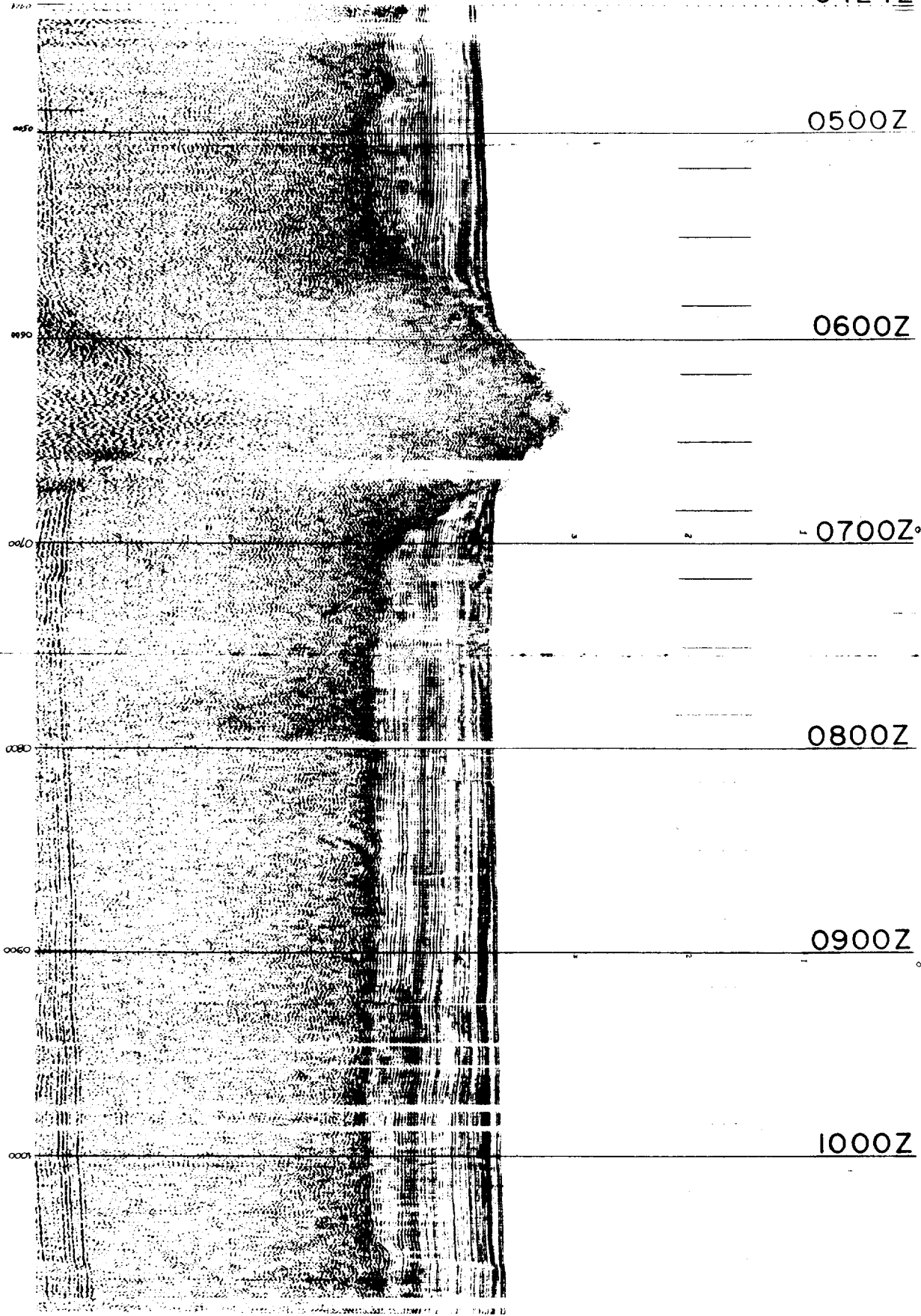
1900Z

NOV 19 1954

BI 69 050 HUDSON

LINE 4 104 8 SEC SWEEP

0424Z



0500Z

0600Z

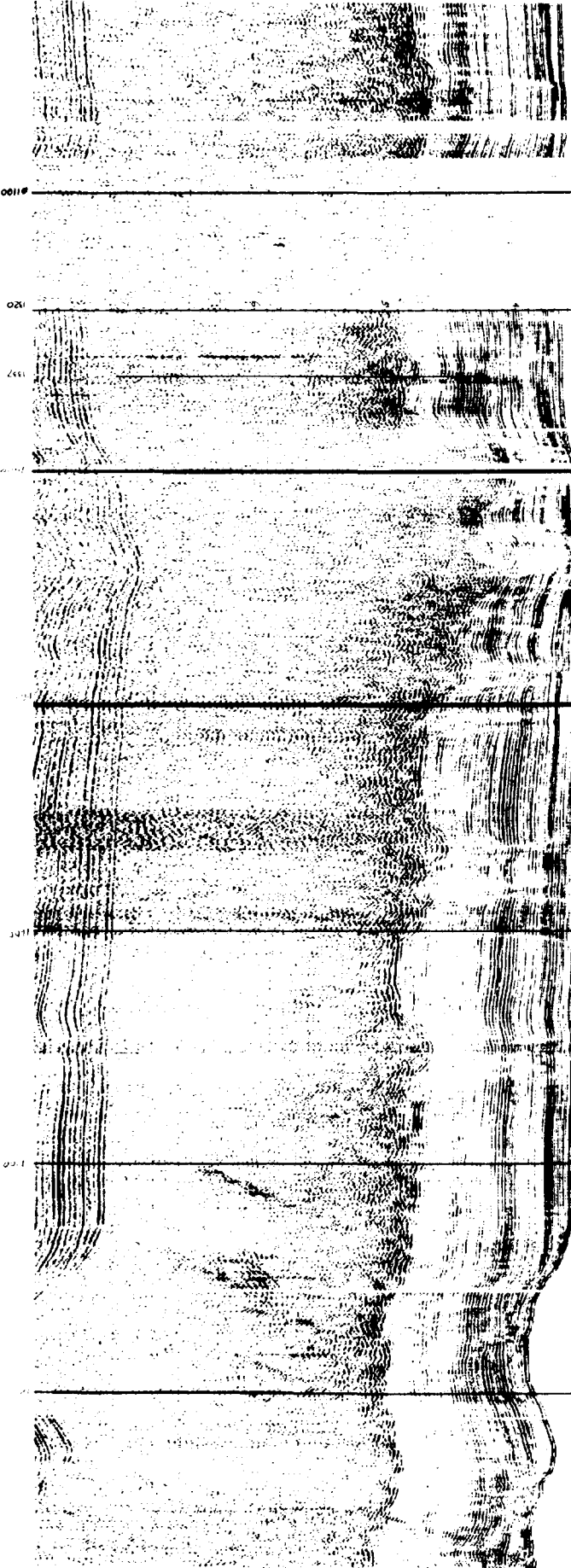
0700Z

0800Z

0900Z

1000Z

DAY 204. LINE 4 CONT.



1100Z

1320Z

1337Z

1400Z

1500Z

1600Z

1700Z

1800Z

1800Z

DAY 204. LINE 4 CONT.

1900Z

2000Z

2100Z

2200Z

2300Z

2400Z/205

0061

0007

2100

Channel

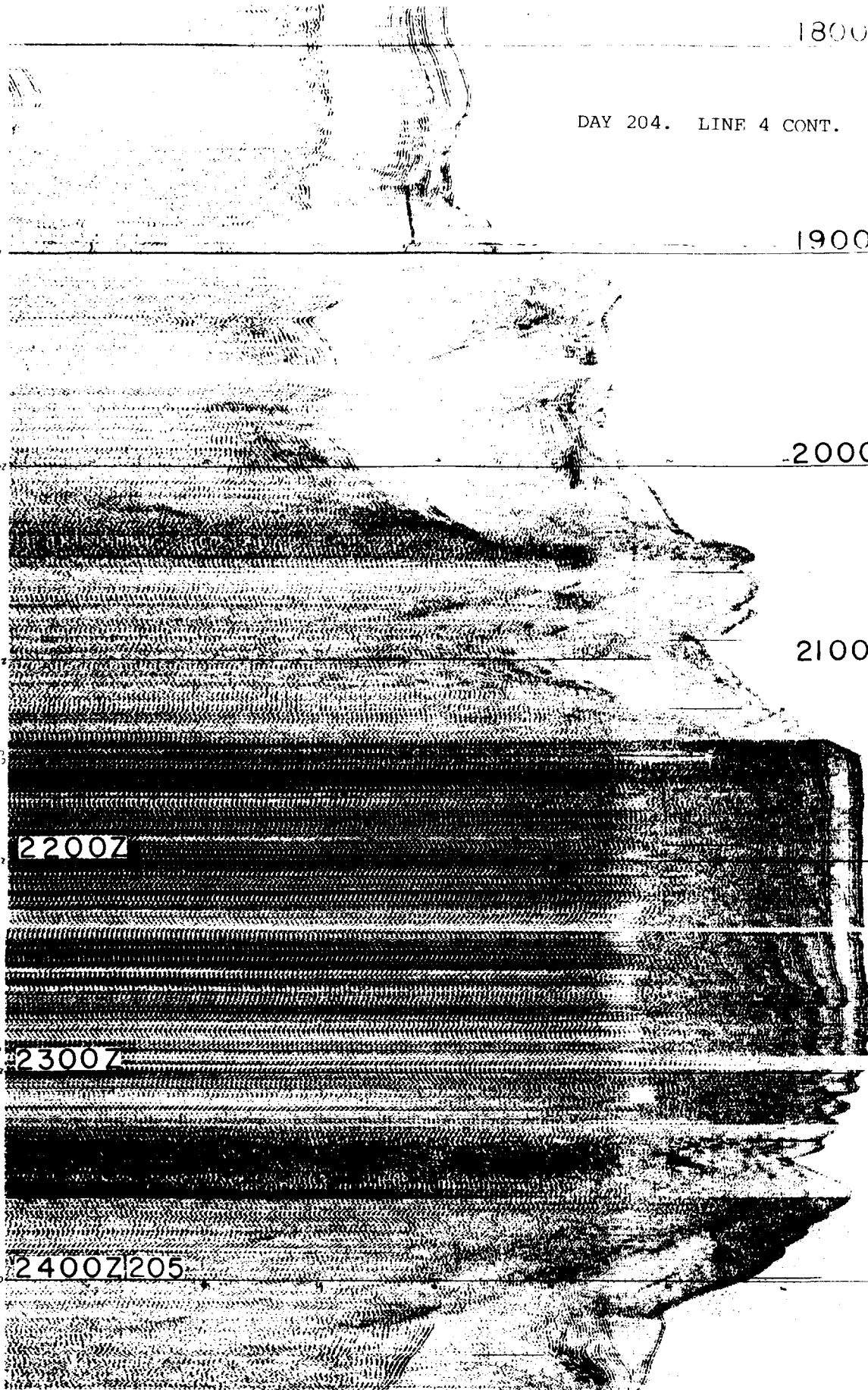
2200

2300

0027

0000

S07 140



2100Z

2200Z

2300Z

2400Z205

0100Z

DAY 204/205. LINE 4 CONT.

0200Z

0100Z

0010

DAY 205. LINE 4 CONT.

0200Z

0070

0300Z

0000

0405Z

0000

0500Z

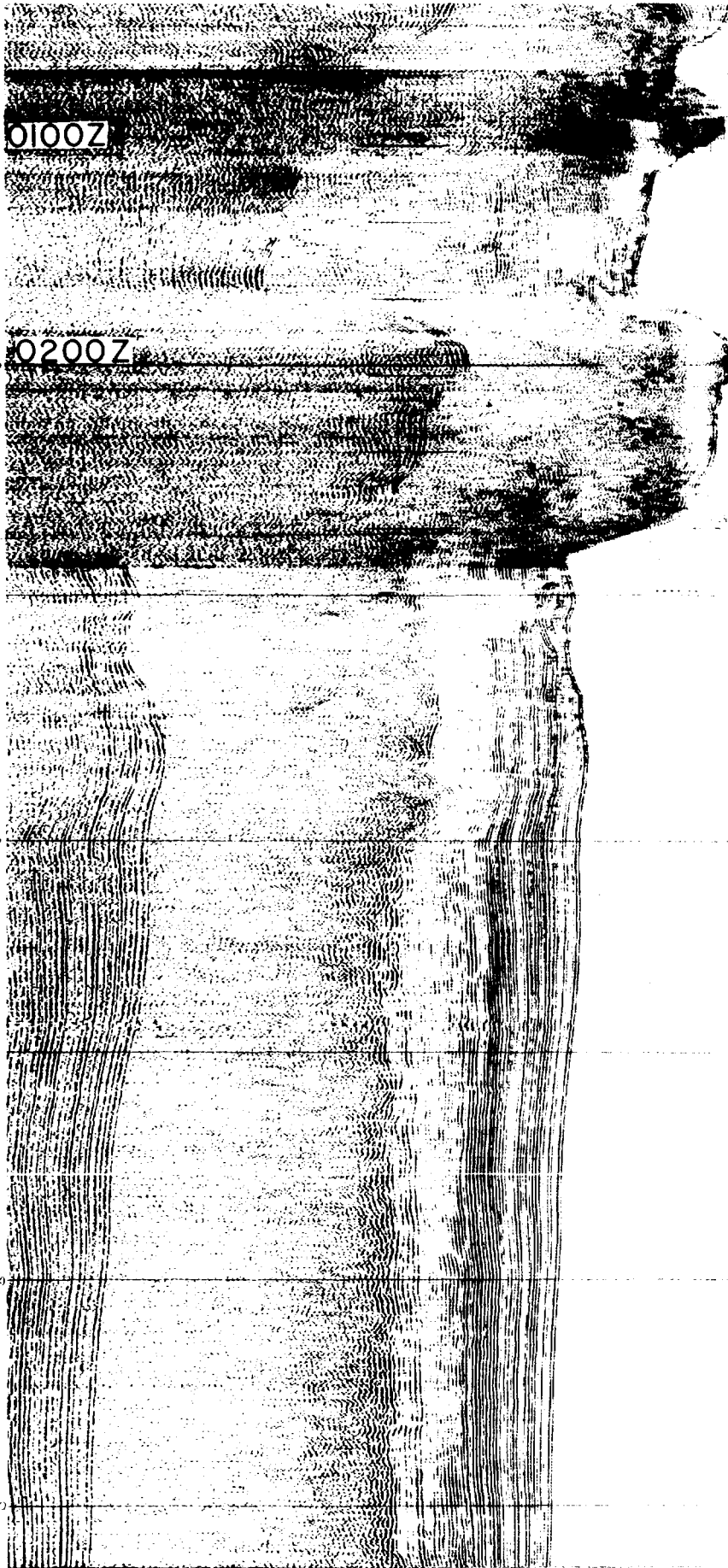
0050

0600Z

0000

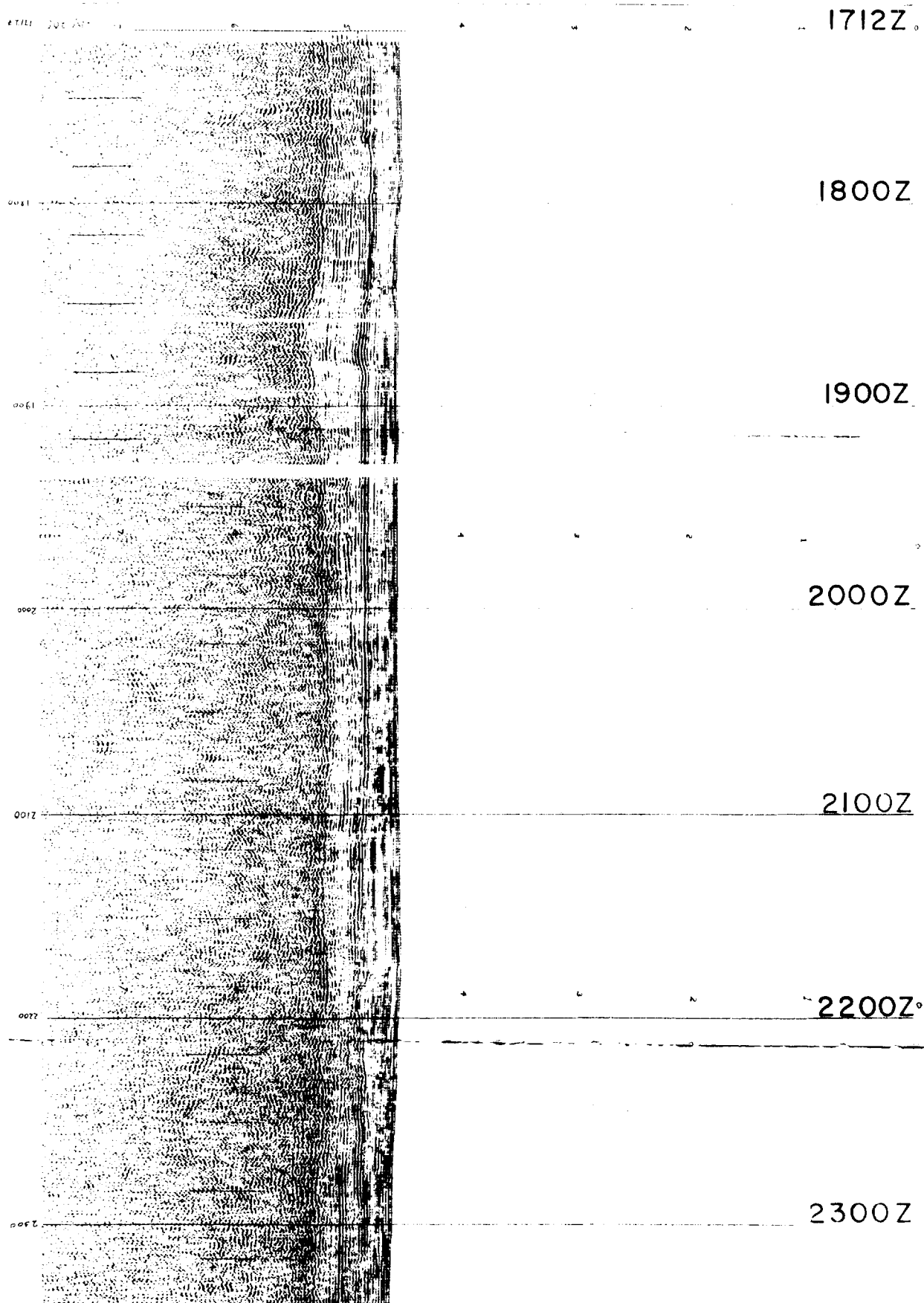
0700Z

0000

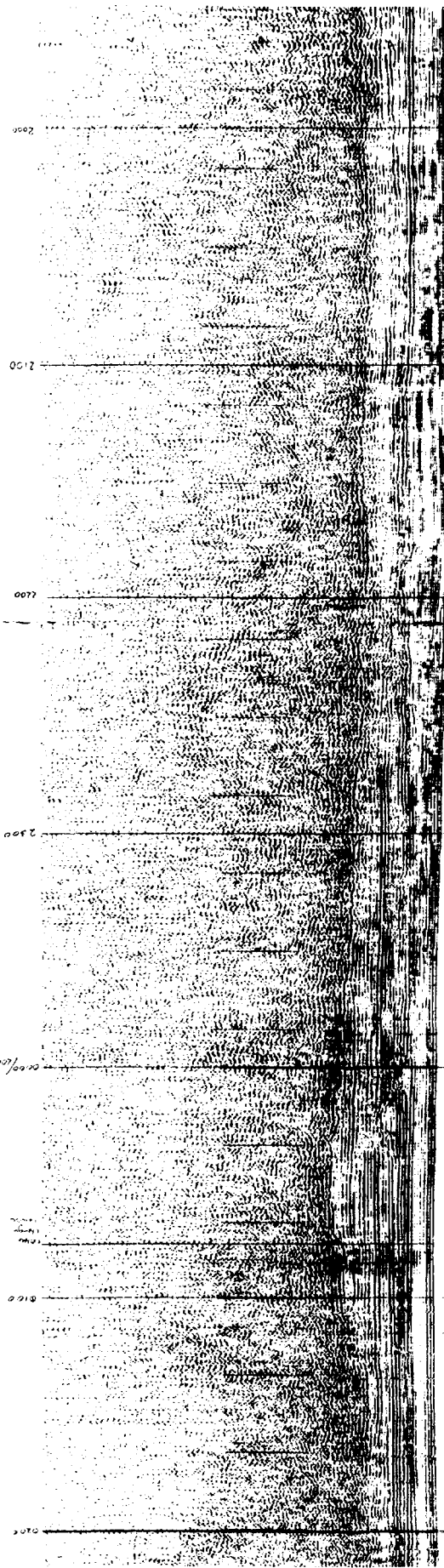




CIRCLE 205 8 SEC SWEEP



DAY 205/206. CIRCLE CONT.



2000Z

2100Z

2200Z

2300Z

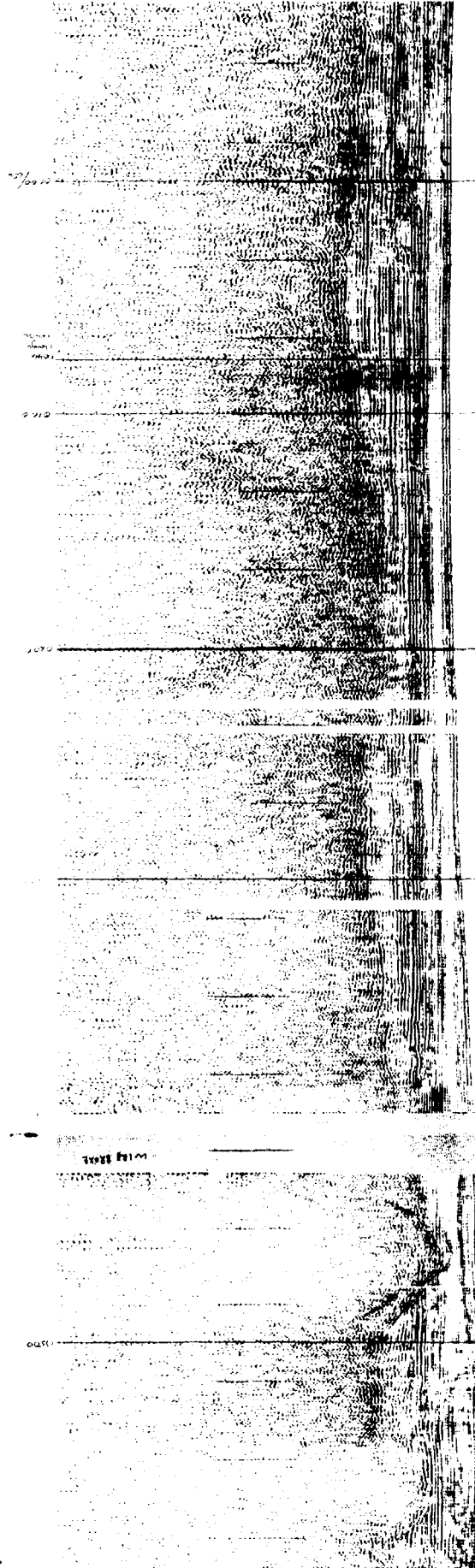
2062400Z

0046Z

0100Z

0200Z

DAY 206. CIRCLE CONT.



2062400Z

0046Z

0100Z

0200Z

0300Z

0400Z

0500Z

0600Z

DAY 206. CIRCLE CONT.

0500Z

0600Z

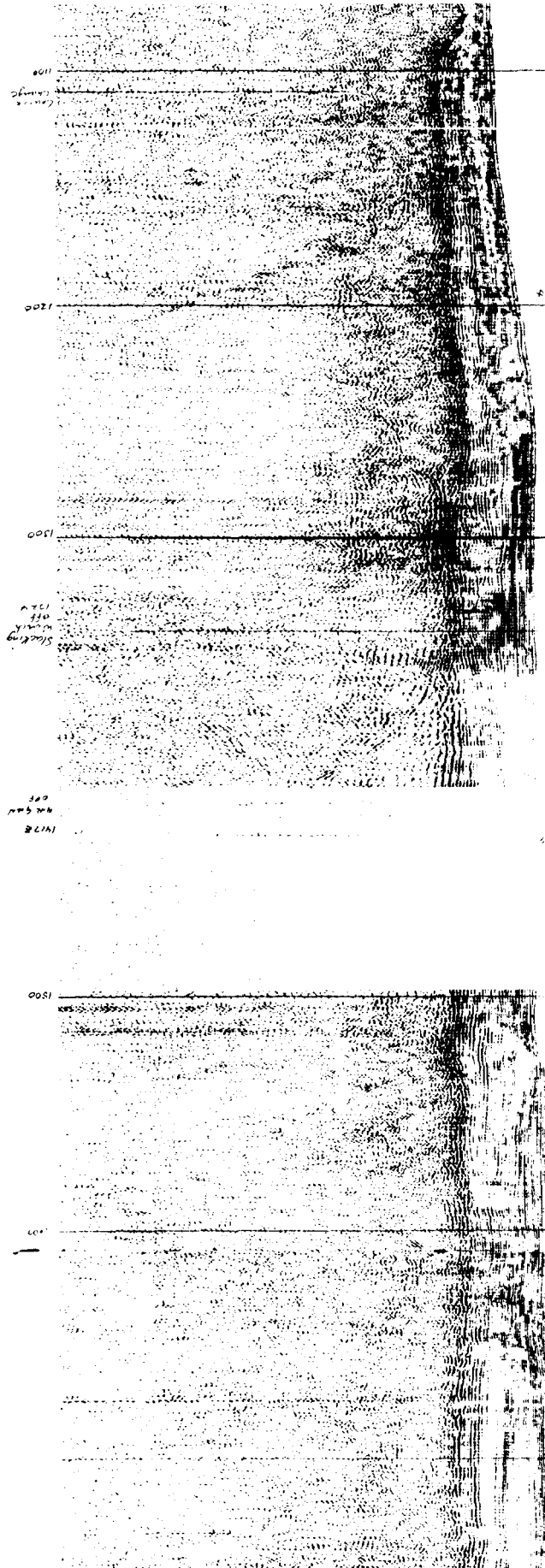
0700Z

0800Z

0900Z

1000Z

1100Z



1100Z

1200Z

1300Z

1324Z

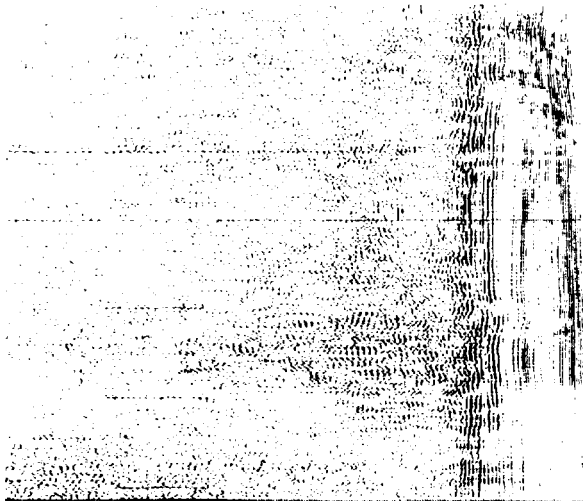
1417Z

1500Z

1600Z

1700Z

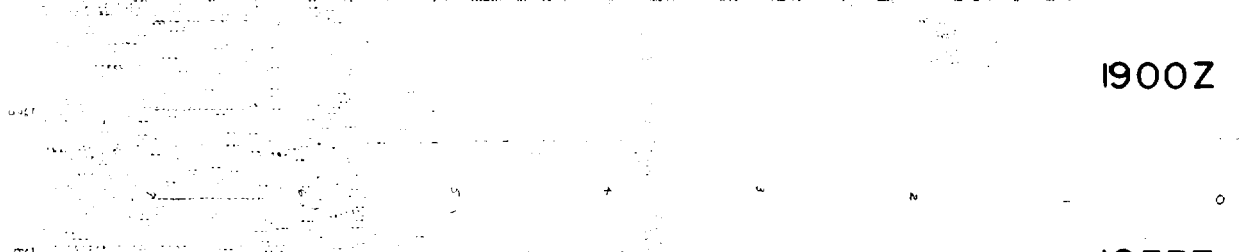
DAY 206. CIRCLE CONT.



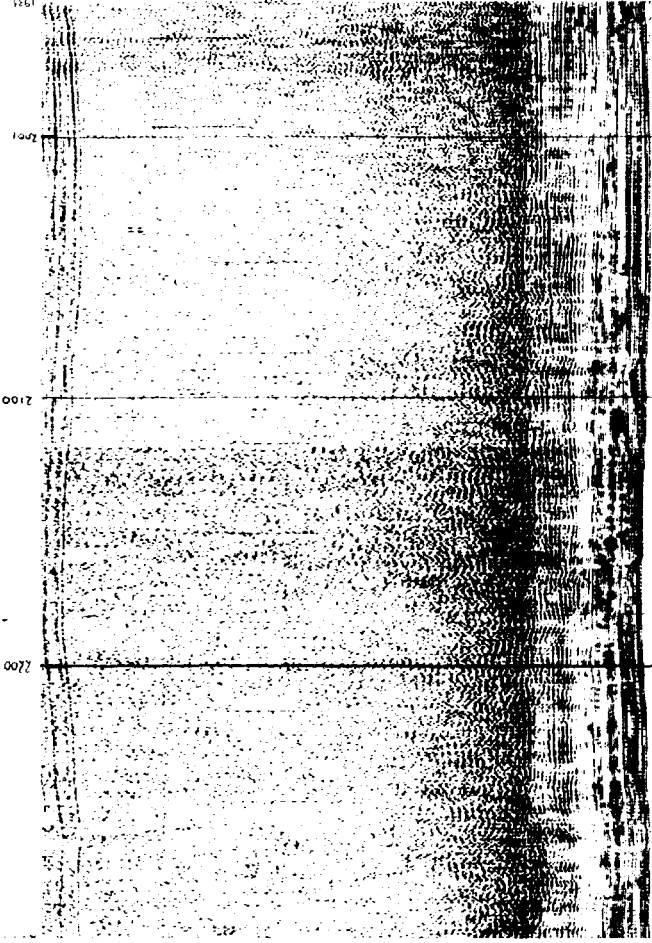
1700Z



1800Z



1900Z



1933Z

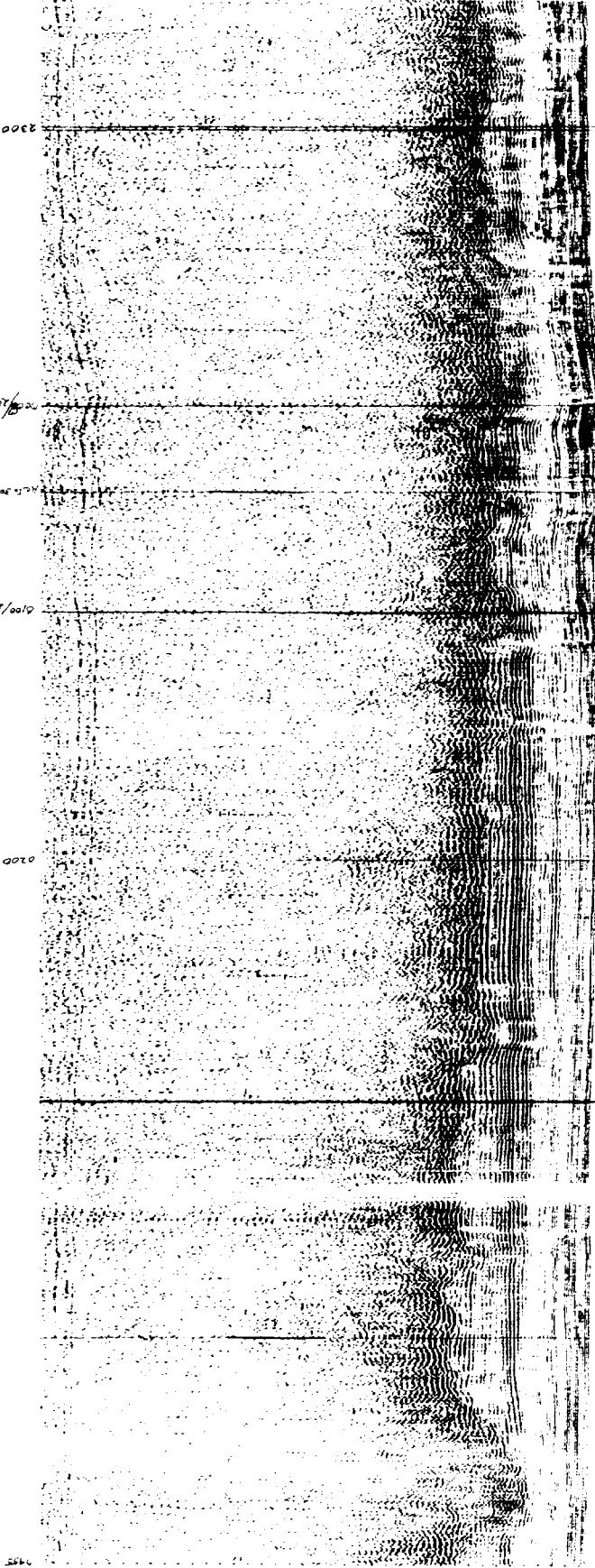
2001Z

2100Z

2200Z

2300Z

DAY 206/207. CIRCLE CONT.



2300Z

2072400Z

0100Z

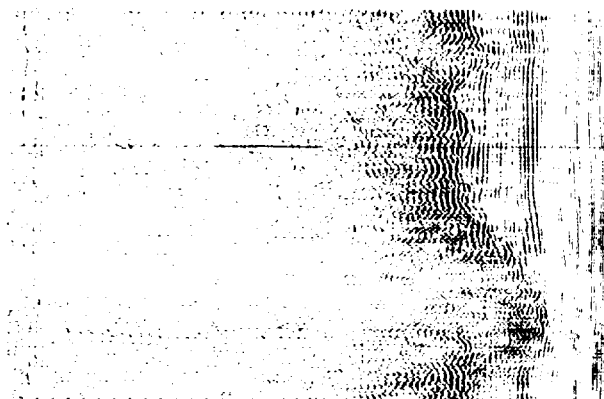
0200Z

0300Z

0400Z

0455Z

DAY 207. CIPCLE CONT.



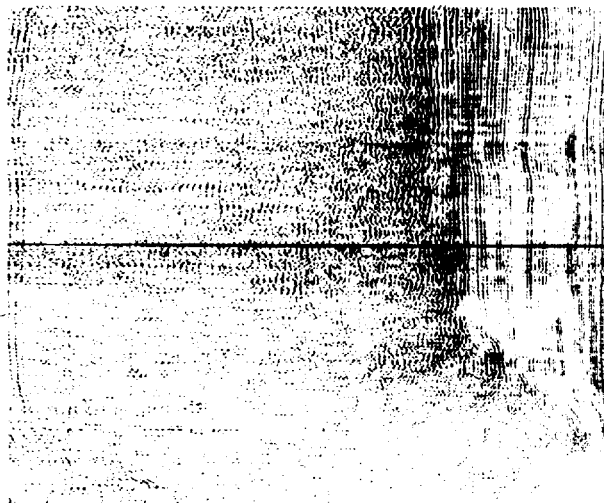
0400Z

0400

0455Z

0071

1200Z

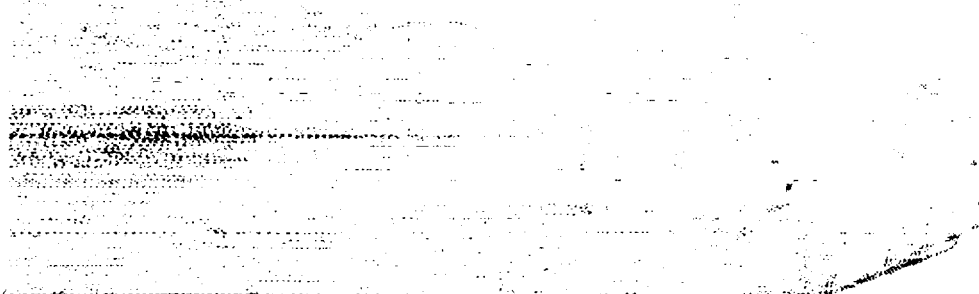


0051

1300Z

0141

1400Z



0061

1500Z



0091

1600Z



1600Z

1702Z

1800Z

1900Z

2000Z

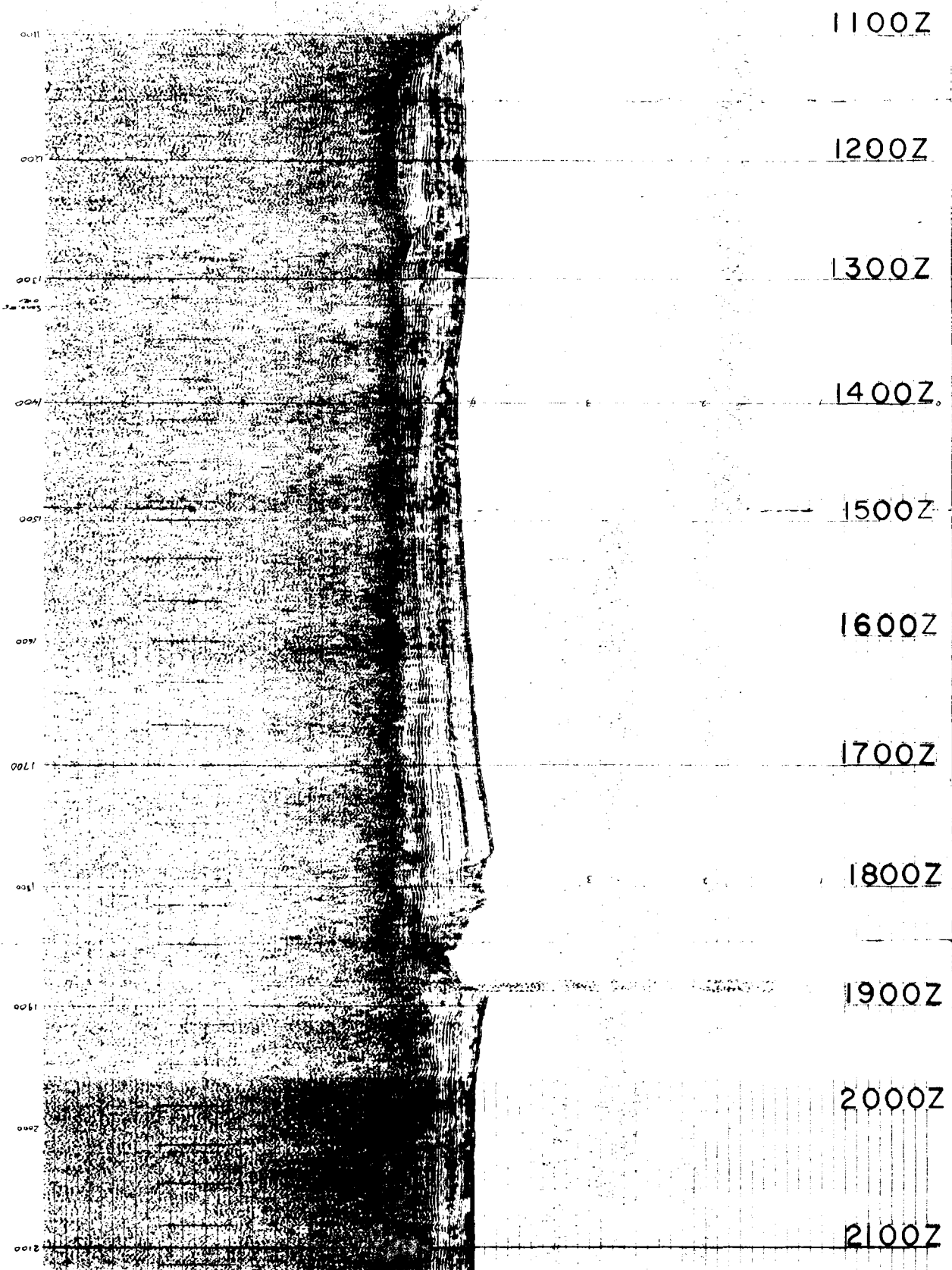
2100Z

2200Z

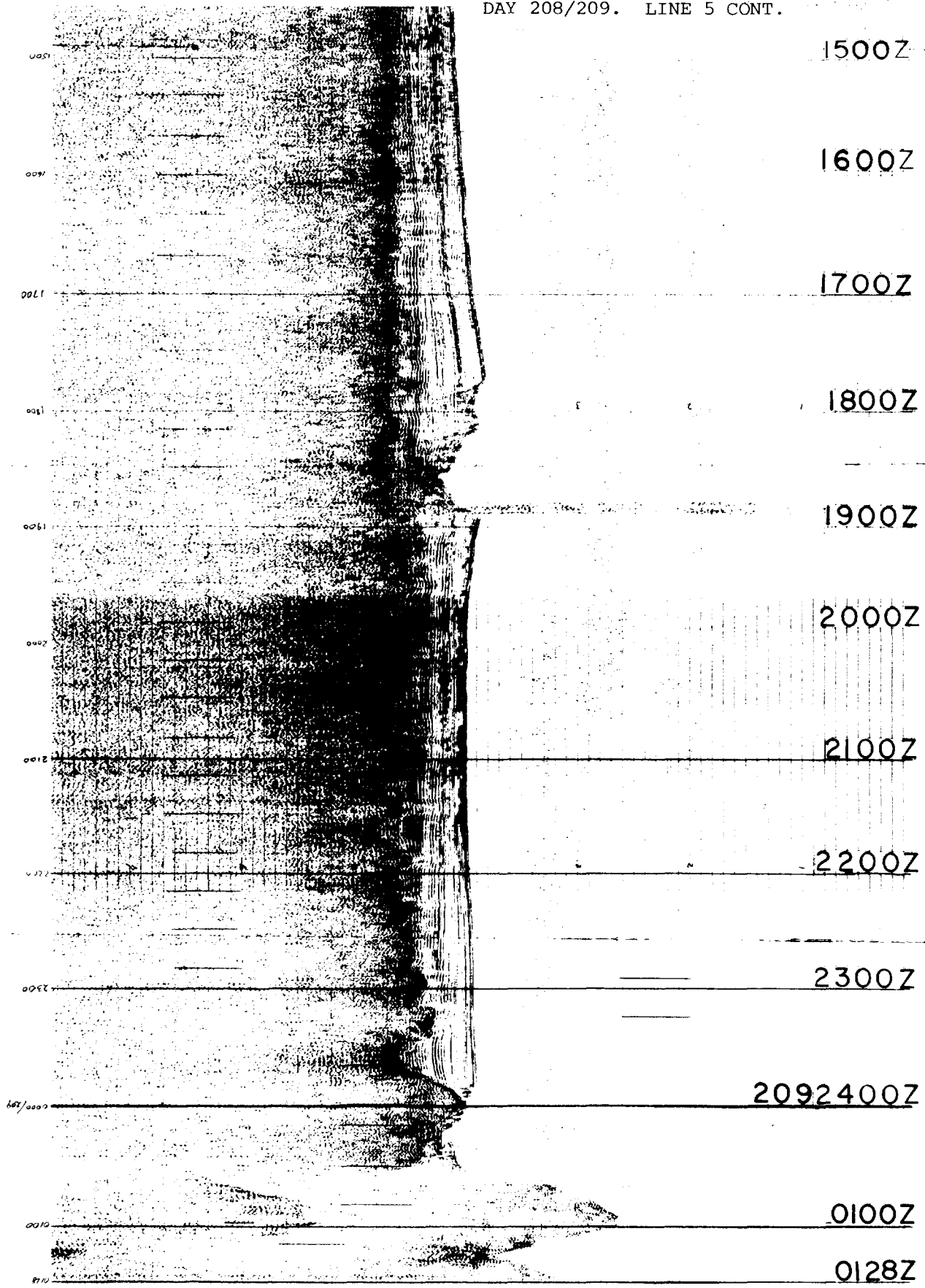
BI 69 050 HUDSON

LINE 5 208 8 SEC SWEEP

69 050 HUDSON



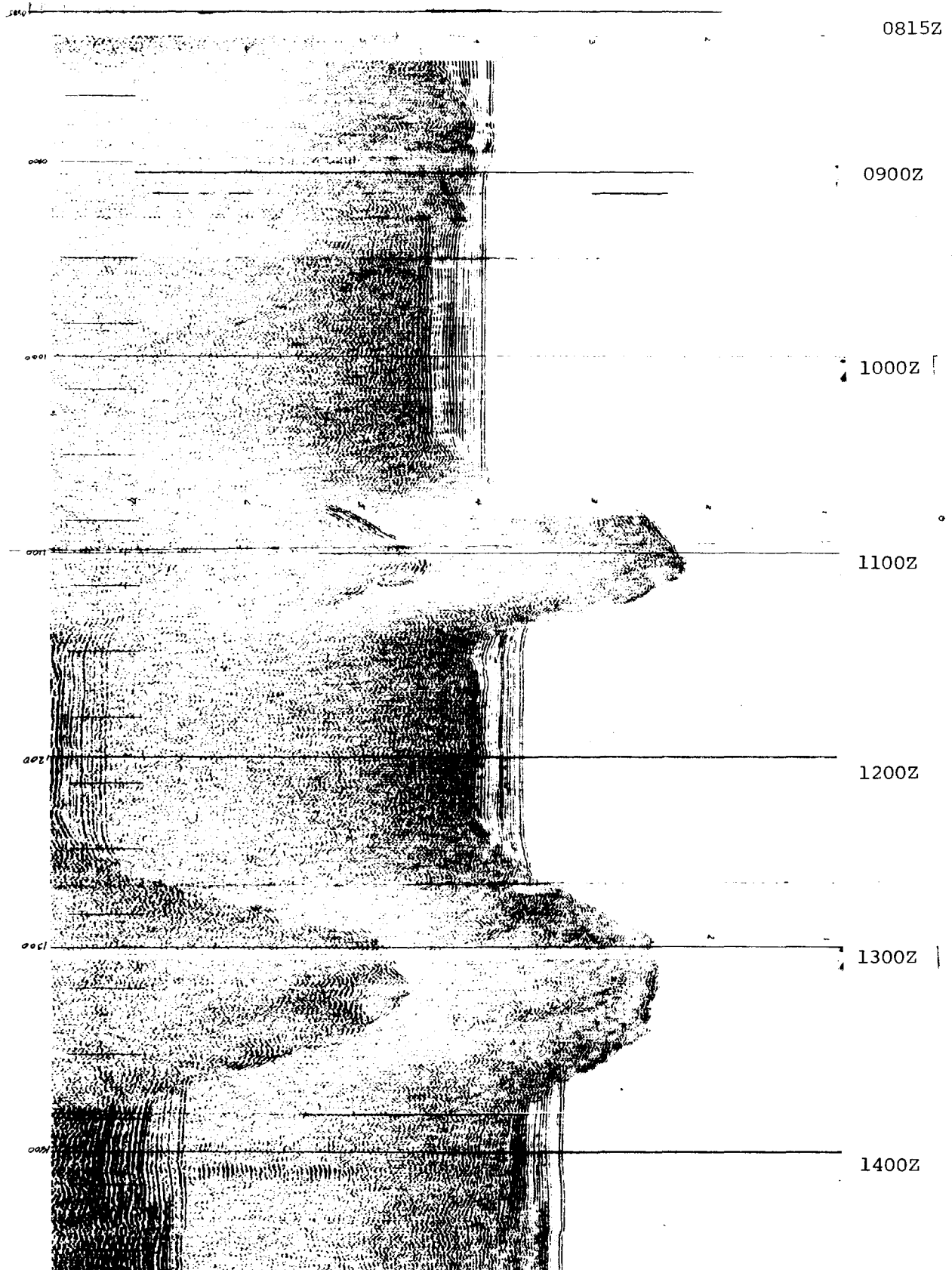
DAY 208/209. LINE 5 CONT.



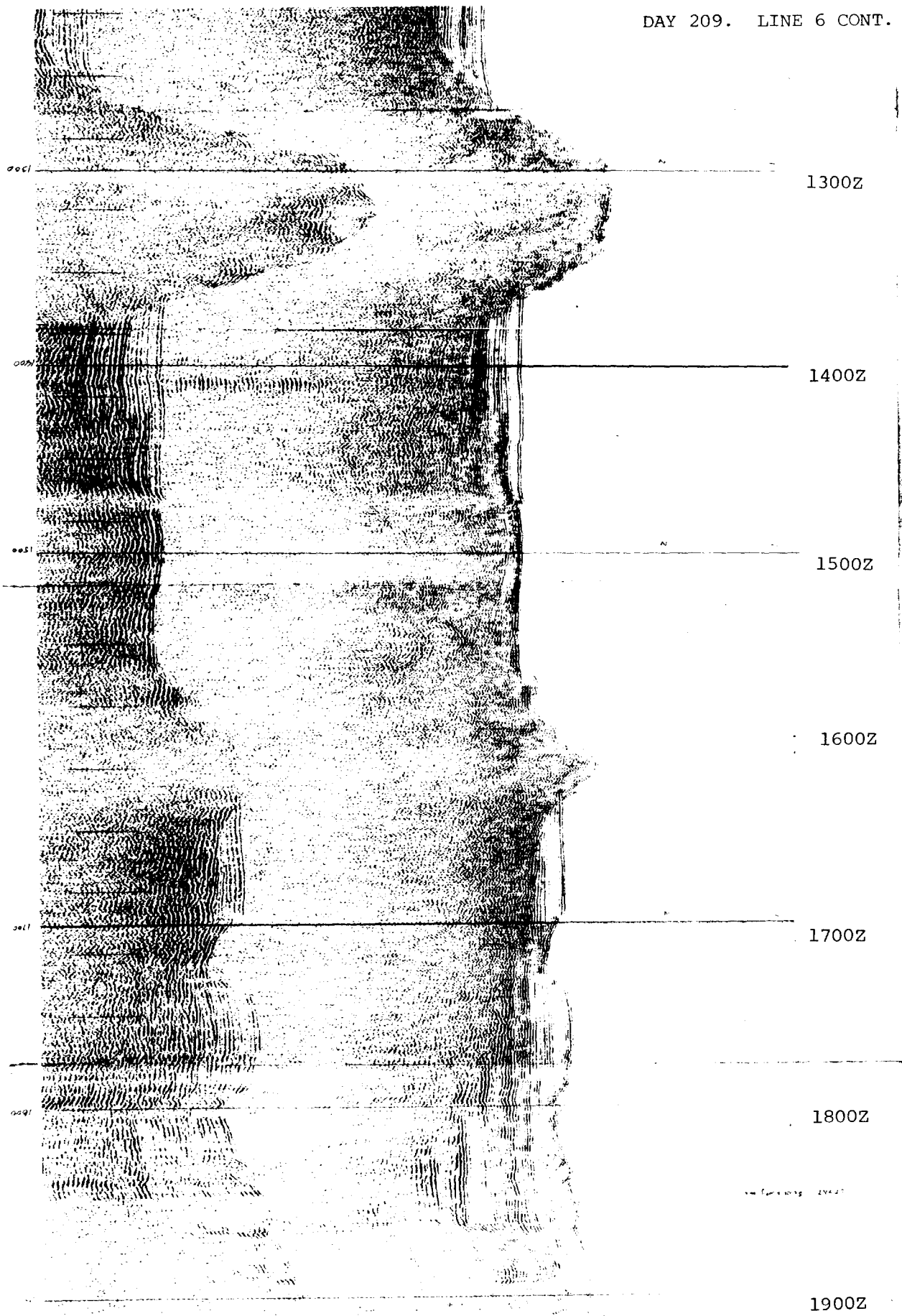
END OF LINE 5

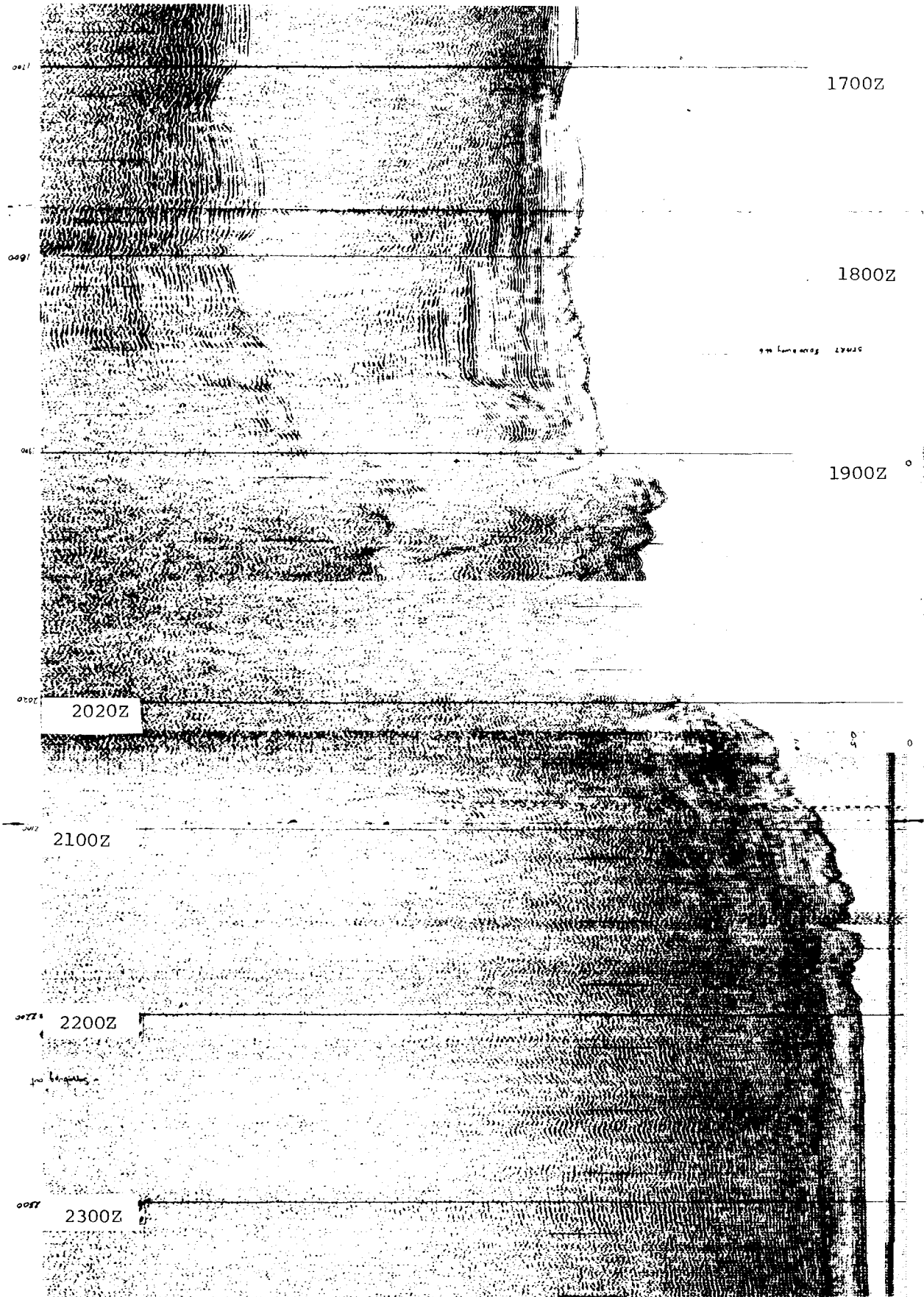
DAY 209 LINE 6

8 SEC SWEEP



DAY 209. LINE 6 CONT.





BI 69 650 HUDOC

LINE 7 210  
8 SEC SWEEP

0700Z

0800Z

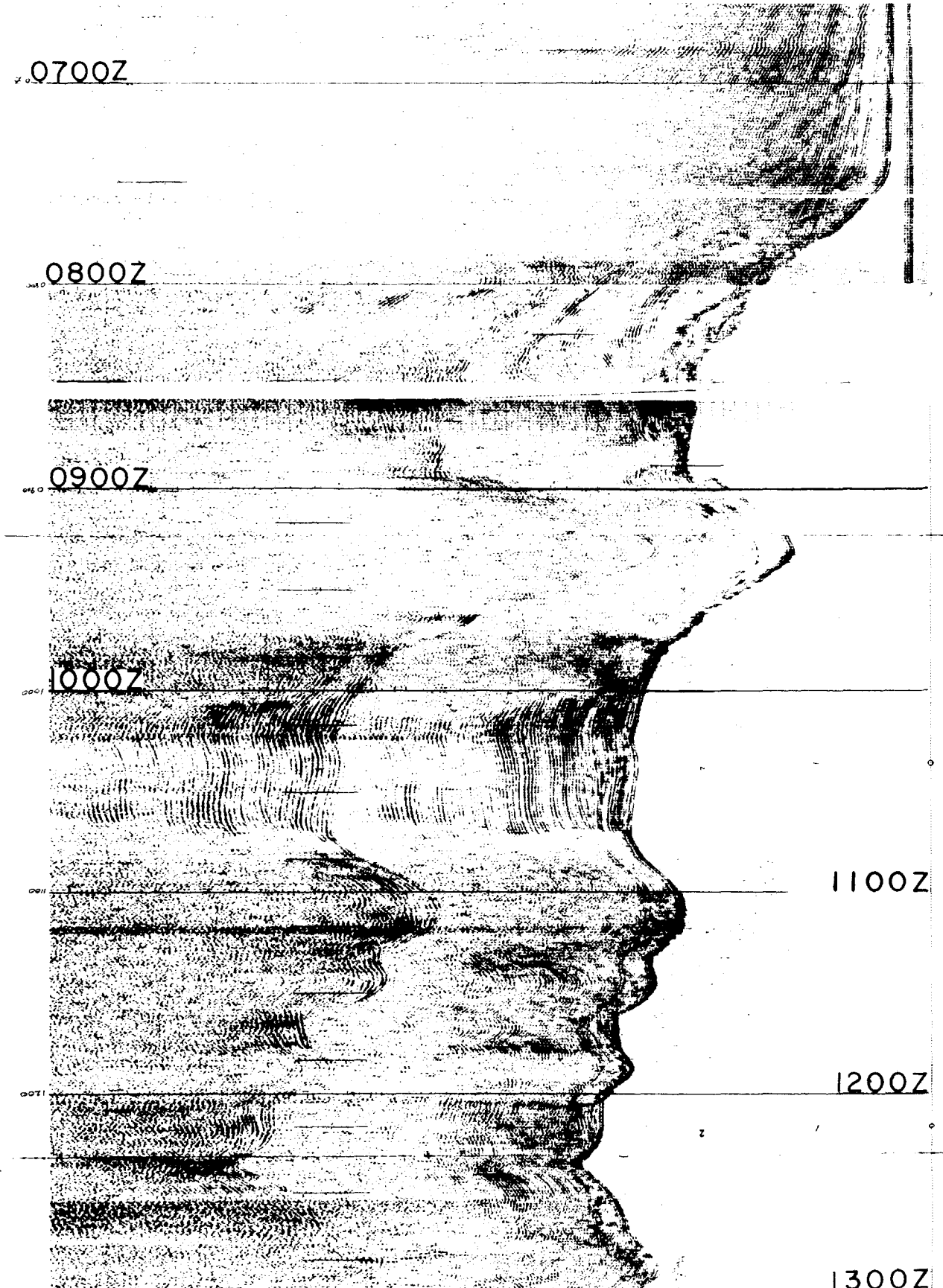
0900Z

1000Z

1100Z

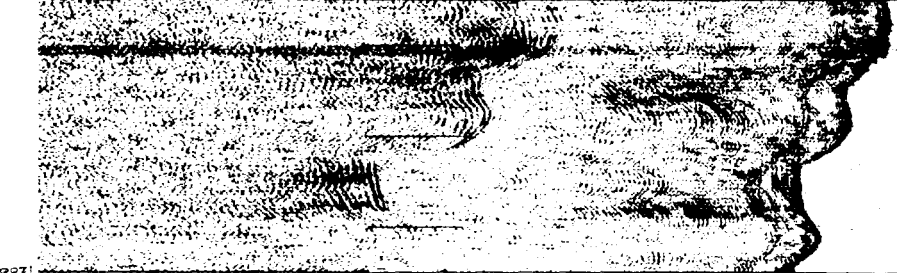
1200Z

1300Z

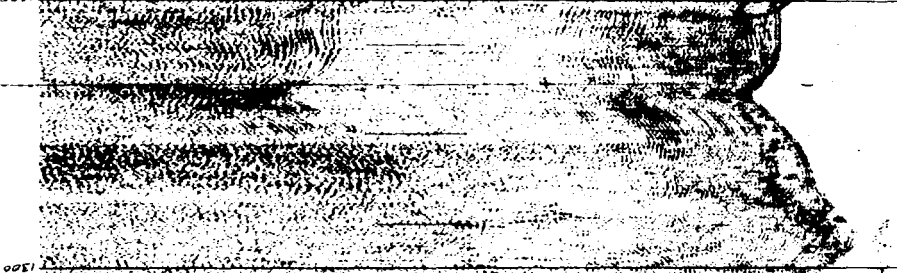




1100Z



1200Z



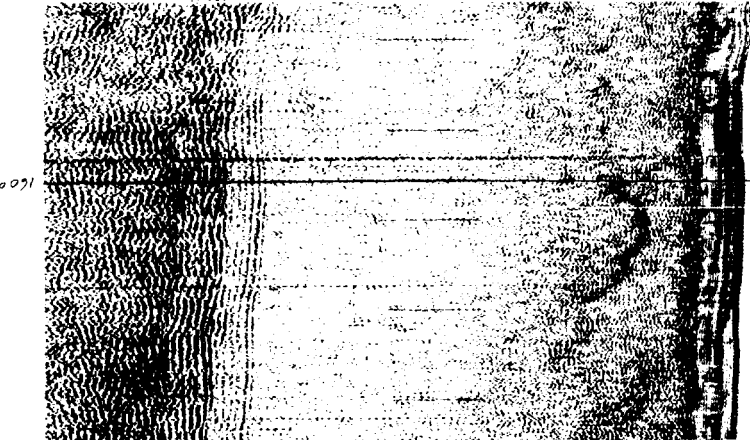
1300Z



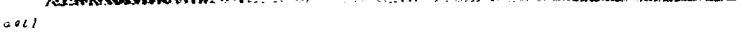
1400Z



1500Z



1600Z



1700Z

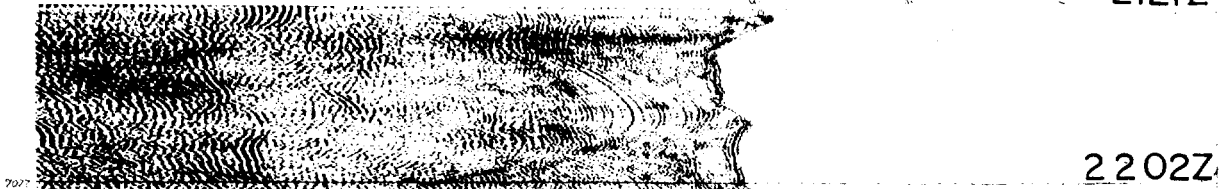
BI 69 050 HUDSON



LINE-8  
8 SEC SWEEP  
216

BI 69 050 HUDSO.

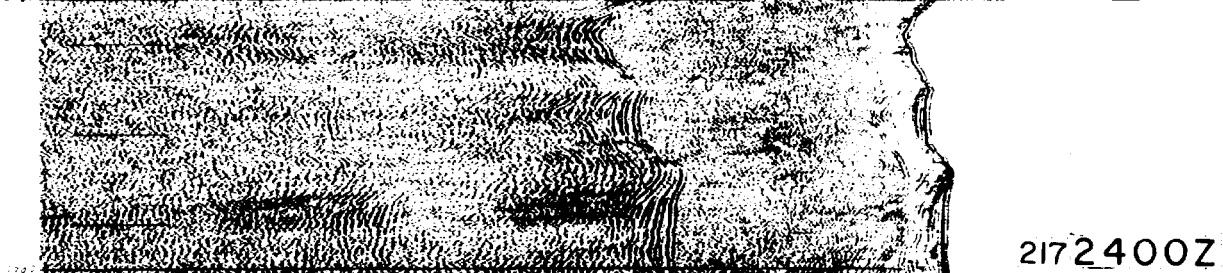
212Z



2202Z



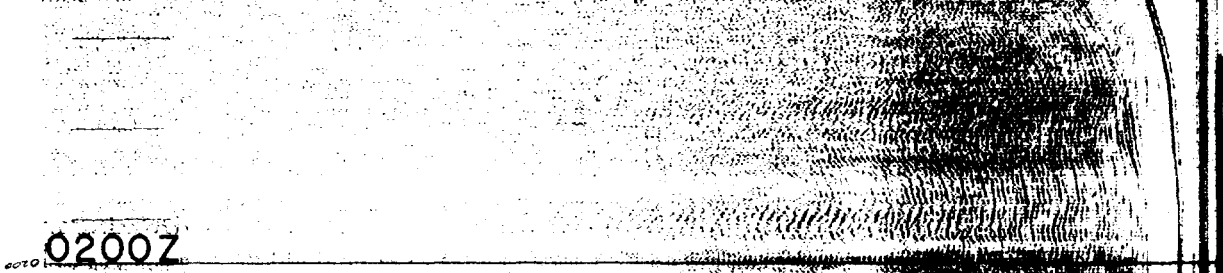
2300Z



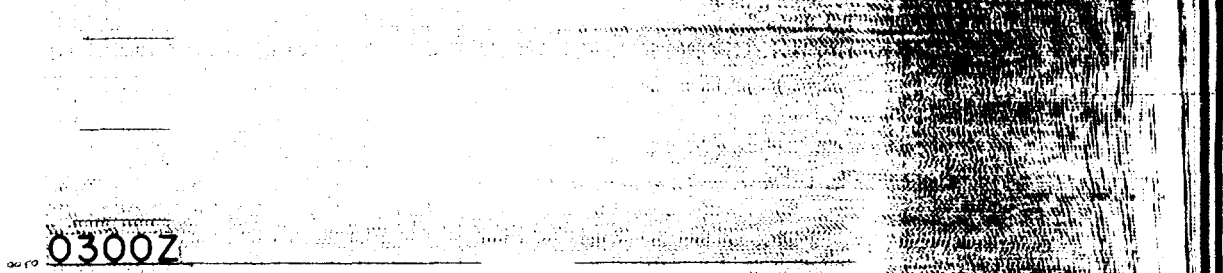
2172400Z



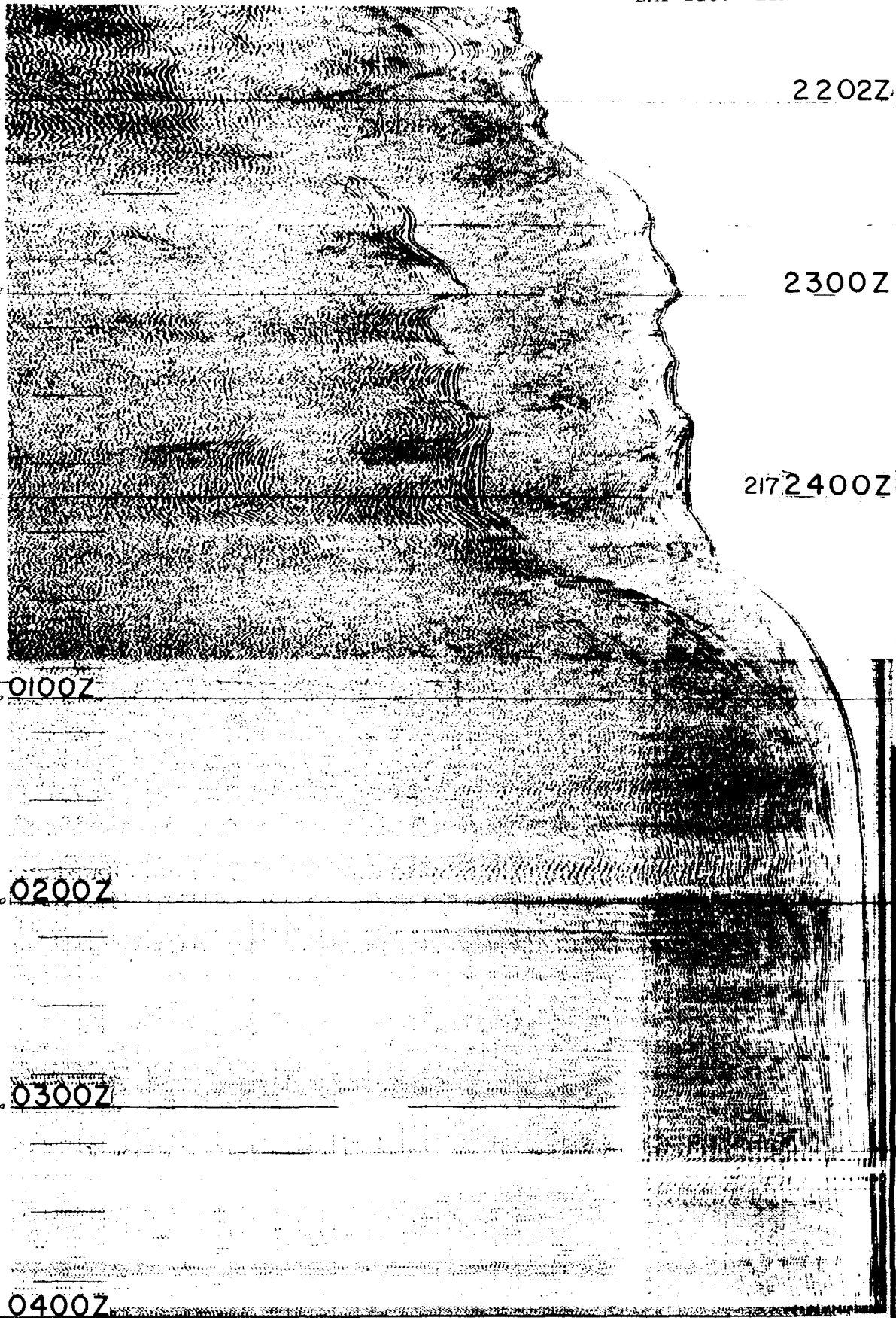
0100Z



0200Z



0300Z



2202Z

2300Z

2172400Z

0100Z

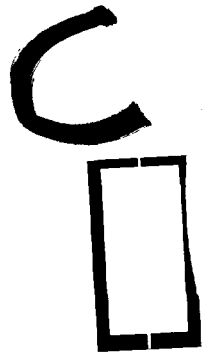
0200Z

0300Z

0400Z



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LABORATOIRE OCEANOGRAPHIQUE DE L'ATLANTIQUE  
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Edited by  
S. P. SRIVASTAVA

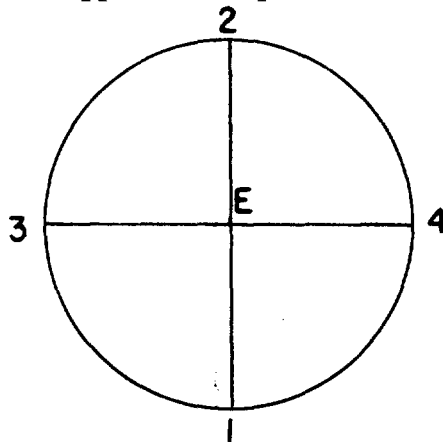
AOL DATA SERIES No. 71-5-D

SEPTEMBER, 1971

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### A3. Seismic Refraction Measurements

The seismic refraction experiment was designed to measure the anisotropy of the mantle P wave velocity. C.S.S. HUDSON was used as the receiving ship and C.N.A.V. ENDEAVOUR as the shooting ship. Two reversed lines, each about 50 miles long were completed, one in the east-west and one in the north-south direction. A 'circle' of shots was then performed, HUDSON's position being in the centre of the circle, approximately at the intersection of the two reversed lines. A radar transponder buoy was moored near HUDSON's position (E) from which her drift was determined. The sketch below shows approximately the shot lines and the positions taken up by HUDSON.



The coordinates of HUDSON's position were (approximately):

1.  $51^{\circ}12.21'N$ ,  $134^{\circ}00.51'W$
2.  $52^{\circ}02.9'N$ ,  $133^{\circ}56.7'W$
3.  $51^{\circ}32.4'N$ ,  $134^{\circ}22.7'W$
4.  $51^{\circ}30.32'N$ ,  $133^{\circ}07.39'W$
- E.  $51^{\circ}29.0'N$ ,  $133^{\circ}51.0'W$

as obtained from satellite fixes. HUDSON drifted several miles at each of these stations during the shooting. Table 3 contains a listing of the data obtained from this experiment. For each shot, the following information is provided.

a) Line number. Each shot line has been assigned a number. One refers to the north-south lines, two to the east-west line and C to the circular pattern of shots. For example, Line 1S is the line of shots with ENDEAVOUR steaming south and HUDSON stationed at the northern recording station - position 2 in the sketch.

b) The day, time (GMT), shot number, charge size in lb and the water depths in uncorrected fathoms under the shooting and recording ships at each shot time, and the shooting ship's speeds in knots are listed. The positions for each shot can be obtained by reference to Table 1. We used

Nitro and depth charges as explosives. Charges were fired at a depth of about 300 feet.

c) The water wave arrival times and the first arrival times are uncorrected for variable water depths under the shot and receiver and for time of flight. The water depths are listed and corrections can be easily applied for this source of error. The shot instant was transmitted to the recording ship but must be corrected for the time of flight. This time, multiplied by ship's speed gives the distance of the shooting ship from the charge when it detonates. If this distance is  $D$ , then a correction of  $+D/V_0$  where  $V_0$  is the water sound velocity must be applied to the arrival times.

The direct water wave arrivals were often not observed beyond a range of about 22 km. In this case we have listed the first observed water wave arrival.

d) The shot-to-receiver azimuths are listed for the circle of shots in degrees.

e) In the remarks column WW stands for water wave, TBO stands for time break oscillator (i.e. the shot instant tone transmitted to the receiving ship).

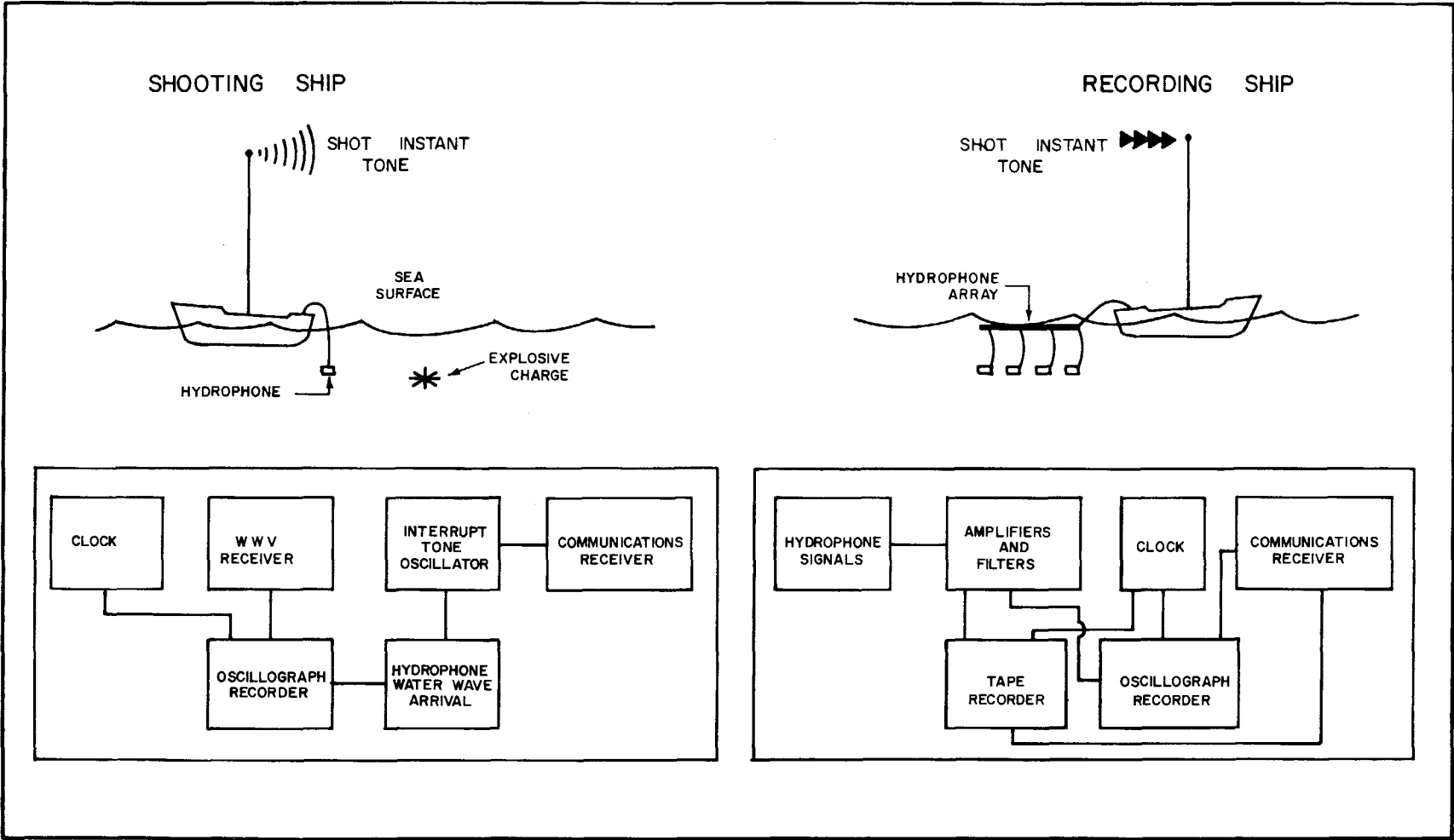
During the anisotropy experiment it was essential that the azimuth from shot to receiver could be determined for each shot around the circle. The two ship Radar Positioning System did not provide sufficient range to be useful - its maximum effective range was 18 miles. The radius of the circle was approximately 40 miles. Therefore ENDEAVOUR's position was determined by satellite fixes. These provided values of azimuth accurate to  $\pm 2^\circ$  which was sufficiently precise for this experiment.

The experiment started on July 15 and finished on July 21. A total of 201 explosive shots was fired ranging in size from 50 to 600 lb. The shooting was very successful and there were few misfires. During the reversed lines, shots were fired at intervals from 5 to 20 minutes with charge sizes up to 300 lb. Six hundred lb shots fired every 30 minutes were used during most of the circle. The system used to record the signals is given in a block diagram shown in Figure 4.

#### Sound Velocity Measurement

A sound velocimeter station was conducted at  $51^\circ 44' N$ ,  $135^\circ 00' W$ . The velocity of sound in seawater was measured down to a depth of 2600 m in order to obtain accurate shot-receiver distances for the seismic refraction station. The results are listed in Table 4.

D. L. Barrett and C. E. Keen



Block Diagram showing the seismic refraction system used.

TABLE 3

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
1S		1								
	197/0100	4	74 sec.	33 lb	1540	1553	0.24	3.64	7	(Probably over-loaded)
	0105	5	71	33	1540	1548	0.42	4.66	7	"
	0130	6	72	33	1570	1546	4.37	5.76	8	"
	0135	7	71	33	1575	1546	5.15	5.94	8	
	0140	8	75	33	1580	1546	6.00	6.24	9.5	
	0145	9	74	33	1585	1546	7.16	6.45	9.5	
	0150	10	73	33	1585	1546	8.09	6.58	9.5	
	0155	11	72	33	1585	1546	9.12	6.78	9.5	
	0200	12	72	33	1585	1546	10.13	6.80	9.5	
	0205	13	73	33	1585	1546	11.15	6.79	9.5	
	0210	14	72	33	1585	1545	12.18	7.08	9.5	
	0215	15	74	33	1585	1545	13.18	7.49	9.5	
	0220	16	74	33	1585	1544	14.19	7.74	9.5	
	0225	17	72	33	1585	1543	15.19	8.09	9.5	
	0230	18	75	33	1585	1543	16.17	8.25	9.5	
	0235	19	72	33	1590	1543	17.17	8.61	9.5	
	0240	20	73	33	1595	1543	18.16	8.76	9.5	These WW times may be ~0.1 sec late.

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTHS FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
1S	197/0245	21	72	33	1595	1543	19.16	9.03	9.5	
	0250	22	72	66	1600	1542	20.02	9.44	9.5	WW Direct gone.
	0255	23	75	66	1615	1542	20.94	9.66	9.5	
	0300	24	72	66	1620	1542	21.70	9.80	9.5	
	0305	25	72	66	1625	1542	22.78	10.09	9.5	
	0310	26	71	66	1630	1542	23.83	10.33	9.5	
	0320	27	72	66	1640	1542	25.80	10.62	9.5	
	0330	28	70	66	1645	1542	27.81	10.98	9.5	
	0340	29	73	66	1655	1542	29.85	11.40	9.5	
	0350	30	74	66	1660	1543	31.77	11.77	9.5	
	0400	31	72	66	1660	1543	33.68	12.27	9.5	
	0410	32	73	66	1660	1543		12.47	9.5	WW not recorded.
	0430	33	70	132	1660	1543	39.09	13.09	9.0	
	0450	34	68	132	1660	1536	42.41	13.70	9.0	
	0510	35	91	300	1660	1535	45.72	14.22	9.0	
	0530	36	96	300	1725	1534	49.99	15.15	9.0	



EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTHS FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
1N	197/1222	1		33	1717	1728			9.5	No TBO
	1225	2		33	1716	1728			9.5	No TBO
	1232	3	71	33	1717	1728	6.00	6.30	6.2	
	1235	4		33						No Shot
	1240	5	72	33	1720	1728	7.43	6.55	9.0	
	1245	6	74	33	1720	1728	8.47	6.80	9.0	
	1250	7	72	33	1721	1728	9.41	7.00	9.0	
	1255	8	73	33	1723	1728	10.40	7.30	9.0	
	1300	9	72	33	1723	1728	11.24	7.45	9.0	
	1305	10	71	33	1723	1728	12.20	7.62	9.0	
	1310	11	70	33	1724	1728	13.13	7.80	9.0	
	1315	12	73	33	1731	1728	14.17	8.00	9.0	
	1320	13	74	33	1723	1728	15.16	8.30	9.0	
	1325	14	71	33	1695	1728	16.08	8.48	9.0	
	1330	15	71	33	1683	1728	17.05	8.67	9.0	
	1335	16	70	33	1681	1728	18.04	8.92	9.0	
	1340	17	71	66	1682	1728	19.01	9.06	9.0	
	1345	18	72	66	1684	1728	20.00	9.25	9.0	
	1350	19	73	66	1687	1729	20.98	9.46	9.0	
	1355	20	73	66	1690	1729	21.95	9.65	9.0	
	1400	21	72	66	1695	1729	22.95	9.94	9.0	

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
1N	197/1410	22	71	66	1698	1729	24.85	10.26	9.0	Direct gone.
	1420	23	72	66	1701	1729		10.63	9.0	No WW.
	1430	24	70	132	1700	1729	28.70	10.96	9.0	
	1440	25	70	132	1705	1729	30.71	11.20	9.0	
	1450	26	67	132	1670	1730	32.65	11.87	9.0	
	1500	27	72	132	1670	1732	34.59	12.33	9.0	
	1510	28	70	132	1670	1732		12.78	9.0	
	1520	29	66	132	1660	1732	38.40	12.97	10.0	
	1530	30	68	132	1640	1731	40.50	13.56	10.5	
	1540	31	69	132	1630	1732	42.79	13.92	10.5	
	1550	32	67	132	1630	1734	45.20	14.37	10.5	? Poor.
	1610	33	95	300	1620	1733	49.79	15.07	10.5	
	1630	34	94	300	1600	1736	54.41	16.00	10.5	
	1650	35	84	300	1575	1736	59.28	16.92 17.15	10.5	? ? Poor.
	1710	36	95	300	1550	1736	63.44	18.17	10.5	? Poor.

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
2W	199/1130	1	76	33	1580	1573	2.22	4.31	8	
	1135	2	75	33	1590	1573			6	No TBO.
	1140	3	75	33	1600	1573			7	No TBO.
	1145	4	74	33	1600	1573	4.51	5.52	7	
	1150	5	76	33	1600	1573	5.15	5.70	6	
	1155	6	73	33	1600	1573			6	
	1200	7	75	33	1600	1573	6.55	6.04	7	
	1205	8	74	33	1600	1573	7.36	6.23	7	
	1210	9	74	33	1605	1573	8.06	6.35	7	
	1215	10	74	33	1605	1573	8.77	6.50	7	
	1220	11	74	33	1605	1573	9.52	6.70	7	
	1225	12	74	33	1605	1574	10.29	6.88	7	
	1230	13	72	33	1610	1574			7	No TBO.
	1235	14	72	33	1610	1574	11.81	7.24	7	
	1240	15	74	33	1615	1574	12.48	7.34	7	
	1245	16	74	33	1615	1575	13.22	7.51	6.5	
	1250	17	74	33	1620	1575	13.87	7.63	6.5	
	1255	18	73	33	1625	1575	14.56	7.84	7	
	1300	19	74	33	1625	1575	15.30	8.00	8	
	1305	20	79	33	1628	1576	16.10	8.09	8	
	1310	21	74	33	1630	1576	16.97	8.30	8	

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
2W	199/1315	22	74	33	1630	1576	17.86	8.50	8	
	1320	23	72	33	1640	1576	18.71	8.66	8	
	1325	24	74	33	1640	1576	19.64	8.85	9.5	
	1330	25	73	33	1640	1576				No TBO.
	1335	26	76	33	1640	1576				No TBO.
	1340	27	73	33	1645	1577				No TBO.
	1345	28	77	33	1650	1577				No TBO.
	1350	29	75	33	1650	1576	24.47	9.88	7	
	1355	30	73	33	1650	1576	25.38	10.10	7	
	1405	31	71	133	1655	1576	27.00	10.50	9	
	1415	32	73	133	1660	1576	28.74	10.82	9	
	1425	33	72	133	1670	1576	30.79	11.25	8	
	1435	34	74	133	1670	1576	32.71	11.60	8.5	
	1445	35	73	133	1675	1576	34.49	11.89	8.5	
	1455	36	70	133	1675	1576	36.39	12.29	8.5	
	1505	37	72	133	1680	1576	38.36	12.59	8.5	
	1515	38	72	133	1680	1577	40.43	12.96	8.5	
	1525	39	68	133	1680	1577			9.5	Noisy Record - No Picks.
	1535	40	72	133	1685	1577	44.50	13.73	11	
	1555	41	84	300	1710	1576	48.68	14.46	10	
	1615	42	90	300	1725	1575	53.46	15.19	10.5	
	1635	43	105	300	1745	1575	57.91	16.02	10.5	

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
2E	200/0045	1	82	33	1745	1766	3.88	5.76	7	
	0050	2		33		1766			7	Misfire.
	0053	3	80	33	1745	1766	5.21	5.99	7	
	0056	4	79	33	1745	1766	5.71	6.10	7	
	0100	5	74	33	1745	1764	6.33	6.28	7	
	0105	6	74	33	1745	1762	7.14	6.41	7	
	0110	7	76	33	1745	1762	7.85	6.59	7	
	0115	8	75	33	1745	1758	8.68	6.80	7	
	0715	9	81	33	1730	1754	8.86	6.88	7	
	0720	10	74	33	1730	1754	9.62	7.07	7	
		11		33		1754				Misfire.
	0730	12	77	33	1730	1754	11.35	7.49	8	
	0735	13	74	33	1725	1754	12.32	7.70	8	
	0740	14	78	33	1725	1754	13.30	7.86	8	
	0750	15	75	33	1720	1756	15.12	8.37	8	
	0800	16	80	33	1715	1756	16.94	8.65	8	
	0810	17	74	33	1690	1756	18.78	9.00	8	
	0820	18	81	33	1685	1756	20.51	9.40	8	
	0830	19	76	66	1680	1751	22.36	9.81	8	
	1050	20	74	66	1670	1747	21.26	9.60	8	

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
2E	1100	21	75	66	1670	1747	23.40	10.03	9.5	
	1110	22	74	66	1660	1747	25.34	10.40	9	
	1120	23	84	66	1655	1747	27.15	10.61	9	
	1130	24	81	66	1650	1747	29.01	10.92	9	
	1140	25	72	132	1645	1744	30.94	11.28	9	
	1150	26	74	132	1640	1744	32.62	11.69	9	
	1210	27	72	132	1630	1741	36.52	12.38	9	
	1230	28	96	300	1625	1738			9	Noisy Record - No Picks.
	1250	29	95	300	1590	1737	43.82	13.46	9	
	1310	30	94	300	1575	1736	47.93	15.11	9	Very Poor.

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	AZIMUTH SHOT- RECEIVER	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIP SPEED KNOTS	REMARKS
C	201/2015	1	90	300	1525	1680	98 <sup>0</sup>	48.30	14.18G	10	
I	2035	2	99	300	1550	1680	100.8	47.78	14.16G	10.5	
R	2050	3	71	133	1560	1679	102.4	47.34	14.14G	10.5	
C	2105	4	71	133	1560	1679	104.5	46.99	14.07G	10.5	
L	2120	5	71	133	1566	1678	108.3	46.93	13.98G	10.5	
E	2135	6	69	133	1580	1678	112.2	47.20	14.11G	10.5	
	2150	7	71	133	1605	1678	115.9	47.04	14.10G	10	
	2205	8	70	133	1603	1678	120.0	46.94	14.16G	10	
	2220	9	69	133	1595	1678	124.5	46.38	14.14P	10	
	2235	10	73	133	1610	1678	128.5	46.02	14.12G	10	
	2250	11	73	133	1610	1678	132.6	45.92	14.20P	10	
	2305	12	72	133	1613	1678	137.1	46.13	14.31G	10	
	2320	13	73	133	1660	1678	141.0	46.44	14.39P	10.5	
	2335	14	88	300	1705	1678	145.6	47.09	14.35P	10	
	2350	15	72	133	1730	1678	150.1	46.93	14.58P	10	
	202/0005	16	70	133	1755	1678	154.0			10	No Picks, Poor Record.
	0025	17	80	300	1765	1678	159.6			10	No Picks, Poor Record.
	0045	18	72	300	1780	1678	165.8	47.35	14.97P	10	
	0105	19	103	300	1790	1678	171.6	46.30	14.70G	12	
	0125	20	103	300	1805	1678	177.6	45.77	15.04P	12	
	0145	21	75	300	1700	1678	182.0	45.98	14.25P	12	
	0205	22	83	600	1780	1678	188.0	46.69	14.51G	12	

EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	AZIMUTH SHOT- RECEIVER	WATER WAVE TIME SEC.	FIPST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
C	202/0225	23	85	600	1780	1678	194.8	47.84	14.84G	11	
I	0245	24	102	300	1785	1678	199.6	47.00	14.84P	11.5	
R	0315	25	96	600	1800	1678	210.0	47.35	14.50G	11	
C	0335	26	95	300	1825	1680	216.4	47.87	14.90G	11.5	
L	0405	27	92	600	1860	1683	223.0	49.78	14.86G	11.5	
E	0435	28	195	600	1860	1683	231.5	46.39	10.71G	11.5	
	0505	29	112	600	1860	1683	240.4	50.54	15.14P	11.5	
	0525	30	104	330	1855	1682	246.0	49.88	14.23G	11.5	
	0555	31	106	500	1840	1682	254.5			11.5	No icks, Poor Record.
	0625	32	75	500	1835	1683	263.5	50.12	15.45P	12	
	0655	33	72	500	1840	1685	272.5	51.63	15.33G	12	
	0725	34	71	500	1825	1684	282.0	51.40	15.17G	11.8	
	0755	35	72	500	1808	1682	290.0	51.74	15.24G	12	
	0825	36	73	500	1795	1680	299.0	52.12	15.29P	12	
	0855	37	72	500	1767	1680	307.0	51.30	15.30G	12	
	0925	38	69	500	1745	1679	315.0	51.15	15.45P	12	
	0955	39	70	500	1705	1678	322.5	50.67	15.45P	12	
	1025	40	69	500	1625	1676	333.0	51.56	15.61G	12	
	1055	41	72	500	1584	1676	343.0	52.77	15.67G	12	
	1125	42	71	500	1215	1676	350.5	53.80	15.35G	12	
	1155	43	78	500	1494	1675	358.9	54.27	15.96G	12	



EXPT. NO.	DAY AND TIME GMT	SHOT NO.	TIME OF FLIGHT	CHARGE SIZE	ENDEAVOUR WATER DEPTH FMS	HUDSON WATER DEPTH FMS	AZIMUTH SHOT- RECEIVER	WATER WAVE TIME SEC.	FIRST ARRIVAL TIME SEC.	SHIPS SPEED KNOTS	REMARKS
C	202/1225	44	69	500	1490	1675	06.6	54.66	15.98G	12	
I	1255	45	69	500	1480	1673	16.5	54.93	16.19G	12	
R	1325	46	71	500	1460	1670	25.5	54.02	16.15G	12	
C	1355	47	70	500	1454	1669	33.8	53.97	15.82G	12	
L	1425	48	69	500	1442	1669	42.4	54.00	15.78G	12	
E	1455	49	70	500	1440	1669	51.0	52.87	16.00G	12	
	1525	50	71	500	1462	1669	61.0	52.46	15.84G	12	
	1555	51	70	500	1490	1669	70.8	53.51	15.68G	12	
	1625	52	65	500	1475	1670	80.0	52.60	15.20G	12	
	1655	53	66	500	1515	1670	89.8	51.55	14.90G	12	
	1725	54	73	500	1505	1670	97.5	51.98	14.86G	12	
	1755	55	66	500	1560	1670	106.0	52.95	15.15G	12	
	1810	56	70	500	1545	1670	111.2	53.03	15.11G	12	
	1825	57	72	500	1590	1672	115.5	53.15	15.07G	12	
	1840	58	72	500	1580	1674	119.4	53.57	15.26G	12	

TABLE 4

## SOUND VELOCIMETER STATION

Water Depth = 1825 fm

Start at 2253Z Day 207

<u>Depth (m)</u>	<u>Velocity (km/s)</u>
0	1.495
1	1.495
10	1.495
20	1.496
30	1.495
40	1.487
50	1.487
60	1.480
70	1.479
80	1.479
90	1.478
100	1.478
110	1.478
120	1.478
130	1.478
140	1.477
150	1.477
175	1.477
200	1.476
225	1.475
250	1.475
275	1.474
300	1.474
325	1.474
350	1.474
375	1.474
400	1.475
500	1.475

<u>Depth (m)</u>	<u>Velocity (km/s)</u>
600	1.476
700	1.477
800	1.478
900	1.479
1000	1.480
1100	1.480
1200	1.482
1300	1.482
1400	1.483
1500	1.485
1600	1.485
1700	1.487
1800	1.488
1900	1.489
2000	1.491
2100	1.492
2200	1.494
2300	1.495
2400	1.497
2500	1.499
2600	1.500

A4. Heat Flow

The heat flow measurements were made using a Bullard-type probe modified to measure sediment thermal conductivity in situ. The details of this apparatus and the method used are given by Lister (1970). Thirteen heat flow stations were attempted and 12 produced useful results. Table 5 contains the measured heat flow values at these stations.

The method of operation is as follows: the instrument is lowered into the sediment after the recorder has been operating for  $8 \pm 3$  minutes, and a conventional gradient measurement is obtained during the next 10 minutes. At this point the heater is turned on by a timer in the instrument, and the heating curve is recorded for the next 20 minutes. The large contact-resistance temperature rise, due to the proximity of the heater and the sensors, does not compromise the reading accuracy because of the wide dynamic range of the digital temperature recorder ( $0.001^{\circ}\text{C}$  over a  $10^{\circ}\text{C}$  range). Between 10 and 20 minutes after the onset of heating, the temperature rise approaches within 10% of the logarithmic asymptote for long heating times, and the in situ resistivity can be calculated to an accuracy of  $\pm 2$  to 4%.

In return for a somewhat longer on-bottom time than required for a conventional heat-flow instrument, the complete measurement is available on one temperature record. The 27-point resistivity measurement corresponds to what lies between the upper and lower sensors, even if that includes open water because of incomplete penetration. Where sediments are of normal stiffness, and complete penetration is obtained, the overall accuracy of the measurement is better than that practical when the sediment resistivity is measured by core analysis. The unheated temperature rise of the distributed middle sensor is as good a test of gradient linearity as would be the rise in a point sensor. The only disadvantage of the instrument is the relative shortness of the interval over which the gradient is measured. There is no evidence for any water-temperature disturbances in the heat-flow measurements made in this part of the Northeast Pacific; such disturbances would in any case be negligible for the high heat flows that are the most striking of the measurements obtained on this cruise.

E. E. Davis and C.R.B. Lister

TABLE 5

Location of heat flow stations.

STATION	LATITUDE* N	LONGITUDE* W	DEPTH** fm	HEAT FLOW $\mu\text{cal}/\text{cm}^2\text{-sec}$	ESTIMATED ACCURACY
HF-1	50°58.0'	131°54.7'	1403	1.1	.06
HF-2	51°34.7'	134°20.7'	1751	2.7	.05
HF-4	49°58.6'	129°32.6'	1111	3.8	.04
HF-5	50°01.6'	129°43.0'	1253	8.4	.3
HF-6	50°04.4'	129°46.4'	1742	1.3	.08
HF-7	50°07.7'	129°49.8'	1480	1.9	.2
HF-8	50°07.5'	130°01.8'	1116	6.6	.2
HF-9	50°13.2'	130°09.2'	1287	4.7	.07
HF-10	50°15.3'	130°17.8'	1300	1.5	.3
HF-11	50°21.0'	130°06.6'	1413	16.8	.4
HF-12	50°45.9'	130°36.6'	1310	4.8	.1
HF-13	50°39.5'	130°33.0'	1308	4.0	.06
Camera-3	50°16.6'	130°17.7'	1304		

\*Location by satellite navigation.

\*\*Depth in uncorrected fathoms.

A5. Bottom Photography

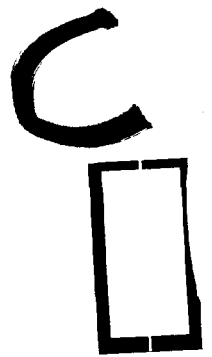
A new underwater cine-camera was brought on the cruise in an attempt to observe the bottom condition in Explorer Trough. Although the instrument had been thoroughly tested in the lab, the cold room and in Puget Sound, the pulsed Thallium Iodide light did not operate on the first two lowerings. The third and final lowering produced pictures, but without the expected test of exposure levels, we are not surprised that they are severely underexposed over much of the film. The station was sited close to the partial penetration heat flow measurement in Explorer Trough, whose gently undulating floor has an unusual acoustic signature at this point. It appears that the valley floor is a generally flat lava flow covered by less than one metre of sediment through which rocks outcrop occasionally. The heat flow measurement is therefore likely to be reasonably representative of the conductive surface flow but hydrothermal vents will not have been covered by the amount of sediment present.

The film obtained during the cruise could not be reproduced here in the report but copies of it are available to those interested.

E. E. Davis and C.R.B. Lister



DEPARTMENT OF ENERGY, MINES AND RESOURCES  
MARINE SCIENCES BRANCH  
MINISTÈRE DE L'ÉNERGIE DE MINES ET DES RESSOURCES  
DIRECTION DES SCIENCES DE LA MER



ATLANTIC OCEANOGRAPHIC LABORATORY  
BEDFORD INSTITUTE

LABORATOIRE OCEANOGRAPHIQUE DE L'ATLANTIQUE  
INSTITUT de BEDFORD

Dartmouth, Nova Scotia  
Canada

GEOPHYSICAL DATA COLLECTED  
DURING HUDSON-70, PHASE VII OFF  
BRITISH COLUMBIA, CANADA

Edited by  
S. P. SRIVASTAVA

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## B1. Navigation and Bathymetry

Primary navigation during the survey was provided by satellite navigation and dead reckoning. A Magnavox 702CA satellite receiver and punch was used on board to obtain satellite fixes. No computer was installed on ENDEAVOUR but pertinent information was passed by radio to enable fixes to be computed on board HUDSON. Since the two ships were most of the time within 100 miles of each other, the additional information was supplemented from the same satellite pass received on board HUDSON in order to compute ENDEAVOUR's position. Because the satellite fixes obtained by ENDEAVOUR were not available for the control of her lines, requiring computation by the PDP-8 aboard HUDSON, she had to rely on poor Loran-A and dead reckoning for track control. In this respect the bathymetry chart of the area compiled by Jacqueline Mammerick of Scripps Institution was used in locating sites for dredging, etc.

Subsequent to the cruise the satellite data was run on a CDC 3150 computer to calculate the fixes. Table 6 gives the list of fixes in preparing the final ships track (Fig. 5) together with the "type of fix code" as explained in Table 1. Table 7 contains the bathymetric information collected along their track.



TABLE 6

B1-2

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
1	195	500	48 46.1	-125 33.0	7				
3	195	1020	49 13.4	-127 .9	8	12.0	295.3	-52.6	63.8
3	195	1020	49 13.4	-127 .9	8				
3	195	1332	49 28.6	-127 56.5	8	12.3	292.8	-54.7	39.3
3	195	1332	49 28.6	-127 56.5	8				
3	195	1415	49 34.5	-128 11.2	5	15.7	301.7	-63.8	11.2
3	195	1415	49 34.5	-128 11.2	5				
3	195	1520	49 36.3	-128 30.2	5	11.5	278.3	-54.7	12.4
3	195	1520	49 36.3	-128 30.2	5				
3	195	1530	49 37.4	-128 33.1	8	13.1	300.3	-54.1	2.2
3	195	1530	49 37.4	-128 33.1	8				
3	195	1852	49 55.5	-129 33.2	8	12.7	295.0	-55.2	42.8
3	195	1852	49 55.5	-129 33.2	8				
3	195	2000	50 1.5	-129 54.2	5	13.0	294.0	-56.8	14.8
3	195	2000	50 1.5	-129 54.2	5				
2	195	2100	50 7.5	-130 11.8	5	12.8	298.0	-53.7	12.8
1	196	350	50 27.8	-131 17.3	5				
3	196	420	50 31.0	-131 25.3	8	12.0	302.2	-48.0	6.0
3	196	420	50 31.0	-131 25.3	8				
3	196	846	50 58.7	-132 37.2	8	12.0	301.3	-48.1	53.3
3	196	846	50 58.7	-132 37.2	8				
3	196	1054	51 10.6	-133 12.8	8	11.9	298.0	-48.8	25.3
3	196	1054	51 10.6	-133 12.8	8				
3	196	1100	51 11.2	-133 14.5	5	12.2	299.4	-49.5	1.2
3	196	1100	51 11.2	-133 14.5	5				
3	196	1114	51 11.8	-133 17.2	8	7.7	289.5	-33.9	1.8
3	196	1114	51 11.8	-133 17.2	8				
3	196	1236	51 16.3	-133 31.8	8	7.5	296.2	-31.2	10.2
3	196	1236	51 16.3	-133 31.8	8				
3	196	1258	51 17.4	-133 35.8	8	7.5	293.7	-31.8	2.7

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
3	196	1258	51 17.4	-133 35.8	8				
2	196	1405	51 20.9	-133 47.5	5	7.3	295.6	-30.5	8.1
1	197	100	52 3.0	-133 51.1	7				
3	197	110	52 1.7	-133 51.1	7	7.8	180.0	.3	1.3
3	197	110	52 1.7	-133 51.1	7				
3	197	120	52 .3	-133 51.1	7	8.4	180.0	.3	1.4
3	197	120	52 .3	-133 51.1	7				
3	197	135	51 58.3	-133 51.1	7	8.0	180.0	.3	2.0
3	197	135	51 58.3	-133 51.1	7				
3	197	146	51 56.6	-133 51.1	8	9.3	180.0	.4	1.7
3	197	146	51 56.6	-133 51.1	8				
3	197	330	51 40.2	-133 50.7	8	9.5	179.1	1.0	16.4
3	197	330	51 40.2	-133 50.7	8				
0	197	410	51 34.3	-133 50.7	5	8.8	180.0	.3	5.9
0	197	410	51 34.3	-133 50.7	5				
0	197	453	51 29.0	-133 57.3	5	9.4	217.8	-26.4	6.7
0	197	453	51 29.0	-133 57.3	5				
0	197	518	51 25.2	-133 58.2	8	9.2	188.4	-5.9	3.8
0	197	518	51 25.2	-133 58.2	8				
2	197	530	51 23.2	-133 58.0	5	10.0	176.4	3.3	2.0
1	197	1220	51 15.8	-133 59.3	7				
0	197	1328	51 26.7	-133 59.9	8	9.6	358.0	-1.2	10.9
0	197	1328	51 26.7	-133 59.9	8				
2	197	1714	52 7.5	-134 .5	8	10.8	359.5	.0	40.8
1	197	1730	52 10.7	-133 58.2	5				
0	197	1856	51 57.7	-133 41.3	8	11.6	141.4	34.0	16.6
0	197	1856	51 57.7	-133 41.3	8				
0	197	2000	51 47.5	-133 28.6	5	12.1	142.5	34.6	12.9
0	197	2000	51 47.5	-133 28.6	5				
0	197	2040	51 45.7	-133 40.5	8	11.4	256.3	-50.7	7.6

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
0	197	2040	51 45.7	-133 40.5	8				
0	197	2228	51 40.8	-134 12.1	8	11.2	255.9	-50.0	20.2
0	197	2228	51 40.8	-134 12.1	8				
2	198	0	51 36.7	-134 37.9	5	10.8	255.6	-48.1	16.5
1	198	200	51 29.0	-134 54.8	5				
0	198	430	51 29.0	-134 21.8	8	8.2	90.0	38.7	20.5
0	198	430	51 29.0	-134 21.8	8				
0	198	708	51 28.5	-133 43.9	8	9.0	91.2	42.2	23.6
0	198	708	51 28.5	-133 43.9	8				
0	198	720	51 28.5	-133 40.7	5	10.0	90.0	47.0	2.0
0	198	720	51 28.5	-133 40.7	5				
0	198	930	51 24.7	-133 11.6	8	8.6	101.8	39.4	18.5
0	198	930	51 24.7	-133 11.6	8				
0	198	1105	51 21.8	-132 48.4	5	9.3	101.3	43.2	14.8
0	198	1105	51 21.8	-132 48.4	5				
0	198	1210	51 21.6	-132 29.8	5	10.7	91.0	50.7	11.6
0	198	1210	51 21.6	-132 29.8	5				
0	198	1232	51 21.5	-132 23.5	8	10.7	91.5	50.7	3.9
0	198	1232	51 21.5	-132 23.5	8				
0	198	1304	51 21.4	-132 14.4	8	10.7	91.0	50.4	5.7
0	198	1304	51 21.4	-132 14.4	8				
0	198	1310	51 21.4	-132 12.6	5	11.2	90.0	53.2	1.1
0	198	1310	51 21.4	-132 12.6	5				
0	198	1800	51 22.0	-130 42.7	5	11.6	89.4	55.0	56.1
0	198	1800	51 22.0	-130 42.7	5				
0	198	1806	51 22.1	-130 40.9	8	11.3	84.9	53.2	1.1
0	198	1806	51 22.1	-130 40.9	8				
0	198	1950	51 23.7	-130 9.1	8	11.5	85.4	54.2	19.9
0	198	1950	51 23.7	-130 9.1	8				
2	198	2100	51 24.7	-129 48.8	5	10.9	85.5	51.3	12.7

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
1	198	2150	51 33.8	-129 48.8	5				
0	198	2326	51 33.5	-130 18.7	8	11.6	269.1	-53.6	18.6
0	198	2326	51 33.5	-130 18.7	8				
0	199	154	51 32.8	-131 3.9	8	11.4	268.6	-52.6	28.1
0	199	154	51 32.8	-131 3.9	8				
0	199	215	51 32.4	-131 10.1	5	11.1	264.1	-50.9	3.9
0	199	215	51 32.4	-131 10.1	5				
0	199	235	51 32.2	-131 15.5	5	10.1	266.6	-46.6	3.4
0	199	235	51 32.2	-131 15.5	5				
0	199	305	51 31.9	-131 20.3	5	6.0	264.3	-27.7	3.0
0	199	305	51 31.9	-131 20.3	5				
0	199	438	51 31.2	-131 46.5	8	10.5	267.5	-48.6	16.3
0	199	438	51 31.2	-131 46.5	8				
0	199	528	51 31.2	-132 2.1	8	11.6	270.0	-53.8	9.7
0	199	528	51 31.2	-132 2.1	8				
0	199	656	51 31.2	-132 28.2	8	11.1	270.0	-51.2	16.2
0	199	656	51 31.2	-132 28.2	8				
0	199	840	51 30.5	-133 2.1	8	12.2	268.1	-56.2	21.1
0	199	840	51 30.5	-133 2.1	8				
2	199	900	51 30.3	-133 7.2	5	9.5	266.4	-44.1	3.2
1	199	1130	51 30.5	-133 9.9	5				
0	199	1138	51 30.5	-133 11.3	8	6.5	270.0	-30.3	.9
0	199	1138	51 30.5	-133 11.3	8				
0	199	1326	51 30.7	-133 33.9	8	7.8	270.8	-36.2	14.1
0	199	1326	51 30.7	-133 33.9	8				
0	199	1525	51 30.8	-134 2.0	7	8.8	270.3	-40.8	17.5
0	199	1525	51 30.8	-134 2.0	7				
2	199	1640	51 31.0	-134 19.6	5	8.8	271.0	-40.6	11.0
1	200	1422	51 31.3	-133 53.1	8				
0	200	1652	51 32.7	-133 31.0	8	5.5	84.2	25.8	13.8

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
0	200	1652	51 32.7	-133 31.0	8				
0	200	1900	51 33.9	-133 10.3	5	6.1	84.7	28.3	12.9
0	200	1900	51 33.9	-133 10.3	5				
0	200	1954	51 38.4	-133 10.3	8	5.0	0	.1	4.5
0	200	1954	51 38.4	-133 10.3	8				
0	200	2007	51 39.6	-133 10.3	5	5.5	0	.1	1.2
0	200	2007	51 39.6	-133 10.3	5				
0	200	2140	51 39.0	-133 18.5	8	3.3	263.3	-15.2	5.1
0	200	2140	51 39.0	-133 18.5	8				
0	201	118	51 36.5	-133 52.7	8	5.9	263.3	-27.1	21.4
0	201	118	51 36.5	-133 52.7	8				
0	201	202	51 36.2	-134 .1	8	6.3	266.3	-29.0	4.6
0	201	202	51 36.2	-134 .1	8				
2	201	300	51 36.2	-134 8.1	5	5.1	270.0	-23.8	5.0
1	201	656	51 32.9	-134 12.2	8				
2	201	814	51 33.4	-133 57.2	8	7.2	86.9	33.7	9.3
1	201	1100	51 34.3	-133 47.2	5				
0	201	1134	51 34.2	-133 40.0	8	7.9	91.3	37.1	4.5
0	201	1134	51 34.2	-133 40.0	8				
0	201	1322	51 34.0	-133 9.8	8	10.4	90.6	49.1	18.8
0	201	1322	51 34.0	-133 9.8	8				
2	201	1342	51 33.9	-133 5.0	5	9.0	91.9	42.1	3.0
1	201	1922	51 29.5	-132 56.0	8				
0	201	2015	51 24.6	-132 54.9	5	5.6	172.0	3.8	4.9
0	201	2015	51 24.6	-132 54.9	5				
0	201	2135	51 13.9	-132 59.9	5	8.4	196.3	-10.7	11.1
0	201	2135	51 13.9	-132 59.9	5				
0	201	2200	51 10.3	-133 3.0	5	9.8	208.3	-21.5	4.1
0	201	2200	51 10.3	-133 3.0	5				
0	201	2236	51 5.2	-133 10.9	8	11.9	224.2	-38.3	7.1

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVGS	DISTAN (KM)
0	201	2236	51 5.2	-133 10.9	8				
0	201	2335	50 57.0	-133 21.6	5	10.8	219.4	-31.8	10.6
0	201	2335	50 57.0	-133 21.6	5				
0	202	30	50 52.1	-133 37.2	5	12.0	243.5	-50.2	11.0
0	202	30	50 52.1	-133 37.2	5				
0	202	114	50 51.8	-133 50.5	8	11.5	268.0	-53.7	8.4
0	202	114	50 51.8	-133 50.5	8				
0	202	210	50 51.3	-134 7.9	8	11.8	267.4	-55.1	11.0
0	202	210	50 51.3	-134 7.9	8				
0	202	225	50 51.3	-134 13.0	5	12.9	270.0	-60.3	3.2
0	202	225	50 51.3	-134 13.0	5				
0	202	302	50 54.5	-134 24.1	8	12.5	294.6	-53.1	7.7
0	202	302	50 54.5	-134 24.1	8				
0	202	355	50 59.1	-134 40.4	5	12.7	294.1	-54.3	11.3
0	202	355	50 59.1	-134 40.4	5				
0	202	450	51 6.6	-134 52.2	8	11.5	315.3	-37.6	10.5
0	202	450	51 6.6	-134 52.2	8				
0	202	455	51 7.4	-134 53.5	5	13.7	314.4	-45.3	1.1
0	202	455	51 7.4	-134 53.5	5				
0	202	542	51 17.0	-134 57.3	8	12.6	346.1	-13.6	9.9
0	202	542	51 17.0	-134 57.3	8				
0	202	606	51 22.1	-134 58.2	8	12.8	353.7	-5.9	5.1
0	202	606	51 22.1	-134 58.2	8				
0	202	700	51 33.7	-135 .6	5	13.0	352.7	-7.1	11.7
0	202	700	51 33.7	-135 .6	5				
0	202	712	51 36.3	-135 .6	5	13.0	0	.7	2.6
0	202	712	51 36.3	-135 .6	5				
0	202	752	51 44.0	-134 57.6	8	11.9	13.6	13.6	7.9
0	202	752	51 44.0	-134 57.6	8				
0	202	800	51 45.9	-134 57.0	5	14.5	11.1	13.8	1.9
0	202	800	51 45.9	-134 57.0	5				

NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
0	202	800	51 45.9	-134 57.0	5				
0	202	850	51 54.8	-134 47.2	5	12.9	34.2	34.4	10.8
0	202	850	51 54.8	-134 47.2	5				
0	202	914	51 58.2	-134 41.7	8	12.0	44.9	39.8	4.8
0	202	914	51 58.2	-134 41.7	8				
0	202	940	52 1.9	-134 35.6	5	12.2	45.4	40.6	5.3
0	202	940	52 1.9	-134 35.6	5				
0	202	1040	52 9.6	-134 17.5	8	13.5	55.3	52.0	13.5
0	202	1040	52 9.6	-134 17.5	8				
0	202	1050	52 10.8	-134 14.4	5	13.5	57.7	53.2	2.2
0	202	1050	52 10.8	-134 14.4	5				
0	202	1130	52 14.5	-134 .7	5	13.8	66.2	58.7	9.2
0	202	1130	52 14.5	-134 .7	5				
0	202	1200	52 14.5	-133 50.5	5	12.5	90.0	58.0	6.2
0	202	1200	52 14.5	-133 50.5	5				
0	202	1226	52 13.4	-133 40.8	8	13.9	100.5	63.8	6.0
0	202	1226	52 13.4	-133 40.8	8				
0	202	1243	52 12.7	-133 35.2	5	12.4	101.5	56.3	3.5
0	202	1243	52 12.7	-133 35.2	5				
0	202	1300	52 11.0	-133 28.3	5	16.1	111.9	69.7	4.6
0	202	1300	52 11.0	-133 28.3	5				
0	202	1400	52 5.0	-133 10.5	5	12.5	118.8	51.0	12.5
0	202	1400	52 5.0	-133 10.5	5				
0	202	1418	52 2.1	-133 5.8	8	13.6	135.1	45.2	4.1
0	202	1418	52 2.1	-133 5.8	8				
0	202	1430	51 59.5	-133 3.0	5	15.6	146.5	40.8	3.1
0	202	1430	51 59.5	-133 3.0	5				
0	202	1508	51 52.8	-132 55.2	8	13.0	144.3	35.8	8.2
0	202	1508	51 52.8	-132 55.2	8				
0	202	1600	51 41.3	-132 44.6	5	15.3	150.3	36.1	13.2
0	202	1600	51 41.3	-132 44.6	5				

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
0	202	1600	51 41.3	-132 44.6	5				
0	202	1644	51 32.4	-132 44.6	8	12.1	180.0	.6	8.9
0	202	1644	51 32.4	-132 44.6	8				
0	202	1745	51 19.4	-132 44.6	5	12.8	180.0	.7	13.0
0	202	1745	51 19.4	-132 44.6	5				
2	202	1810	51 13.7	-132 47.7	8	14.4	198.8	-21.0	6.0
1	202	1849	51 5.6	-132 53.9	5				
0	202	1956	51 10.3	-133 14.1	8	12.1	290.3	-52.8	13.5
0	202	1956	51 10.3	-133 14.1	8				
0	202	2018	51 11.8	-133 20.9	8	12.3	289.4	-54.0	4.5
0	202	2018	51 11.8	-133 20.9	8				
0	202	2035	51 13.0	-133 25.7	5	11.4	291.8	-49.3	3.2
0	202	2035	51 13.0	-133 25.7	5				
0	202	2111	51 21.4	-133 28.0	5	14.2	350.3	-10.4	8.5
0	202	2111	51 21.4	-133 28.0	5				
0	202	2145	51 27.5	-133 37.0	0	14.6	317.4	-45.5	8.3
0	202	2145	51 27.5	-133 37.0	0				
0	202	2150	51 27.7	-133 37.2	5	2.8	328.1	-7.0	.2
0	202	2150	51 27.7	-133 37.2	5				
0	203	26	52 2.7	-133 53.5	8	14.0	343.9	-17.2	36.4
0	203	26	52 2.7	-133 53.5	8				
0	203	36	52 4.8	-133 54.5	5	13.1	343.7	-16.3	2.2
0	203	36	52 4.8	-133 54.5	5				
2	203	105	52 12.1	-133 55.5	5	15.2	355.2	-4.9	7.3
1	203	120	52 12.6	-133 56.5	5				
0	203	212	52 7.5	-133 54.9	8	6.0	169.1	5.4	5.2
0	203	212	52 7.5	-133 54.9	8				
0	203	400	51 58.0	-133 51.9	8	5.4	169.0	4.8	9.7
0	203	400	51 58.0	-133 51.9	8				
0	203	800	51 35.7	-133 51.3	5	5.6	179.0	.6	22.3



## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
0	203	800	51 35.7	-133 51.3	5				
0	203	900	51 30.7	-133 53.0	5	5.1	191.9	-4.8	5.1
0	203	900	51 30.7	-133 53.0	5				
0	203	1236	51 13.9	-134 .4	8	4.8	195.4	-5.9	17.4
0	203	1236	51 13.9	-134 .4	8				
0	203	1320	51 10.4	-134 2.1	8	5.0	196.9	-6.7	3.7
0	203	1320	51 10.4	-134 2.1	8				
0	203	1714	50 52.3	-134 9.7	5	4.8	194.8	-5.7	18.7
0	203	1714	50 52.3	-134 9.7	5				
0	203	1730	50 53.7	-134 14.3	5	12.1	295.8	-50.9	3.2
0	203	1730	50 53.7	-134 14.3	5				
0	203	1906	51 4.2	-134 35.3	8	10.5	308.5	-38.6	16.9
0	203	1906	51 4.2	-134 35.3	8				
0	203	2035	51 15.3	-134 54.4	5	11.0	312.8	-37.5	16.3
0	203	2035	51 15.3	-134 54.4	5				
0	203	2045	51 16.5	-134 55.3	5	8.0	334.9	-15.6	1.3
0	203	2045	51 16.5	-134 55.3	5				
0	204	24	51 17.9	-134 24.8	8	5.2	85.8	24.6	19.1
0	204	24	51 17.9	-134 24.8	8				
0	204	504	51 19.7	-133 42.1	8	5.7	86.1	27.0	20.7
0	204	504	51 19.7	-133 42.1	8				
0	204	700	51 20.3	-133 23.5	5	6.0	87.0	28.3	11.6
0	204	700	51 20.3	-133 23.5	5				
0	204	756	51 20.0	-133 14.1	8	6.3	92.9	29.7	5.9
0	204	756	51 20.0	-133 14.1	8				
0	204	856	51 20.0	-133 4.0	8	6.3	90.0	29.7	6.3
0	204	856	51 20.0	-133 4.0	8				
0	204	1148	51 18.5	-132 35.5	8	6.2	94.8	29.3	17.9
0	204	1148	51 18.5	-132 35.5	8				
0	204	1520	51 16.3	-132 1.2	8	6.1	95.9	28.6	21.6
0	204	1520	51 16.3	-132 1.2	8				

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LCNGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
0	204	1520	51 16.3	-132 1.2	8				
0	205	112	51 18.1	-130 24.2	8	6.1	88.3	29.0	60.7
0	205	112	51 18.1	-130 24.2	8				
0	205	522	51 17.1	-129 43.9	8	6.1	92.3	28.5	25.2
0	205	522	51 17.1	-129 43.9	8				
0	205	708	51 17.8	-129 27.9	8	5.7	86.0	26.7	10.0
0	205	708	51 17.8	-129 27.9	8				
2	205	1038	51 20.8	-128 53.1	8	6.3	82.1	29.3	21.9
1	207	1732	51 4.6	-130 15.1	8				
2	207	2102	50 53.8	-130 36.8	8	5.0	231.7	-18.3	17.4
1	208	535	50 54.1	-130 34.5	5				
0	208	618	50 56.9	-130 29.2	8	6.1	50.0	22.2	4.4
0	208	618	50 56.9	-130 29.2	8				
0	208	944	51 8.2	-130 7.9	8	5.1	49.3	18.5	17.5
0	208	944	51 8.2	-130 7.9	8				
0	208	1113	51 12.7	-129 59.2	5	4.8	50.5	17.4	7.1
0	208	1113	51 12.7	-129 59.2	5				
0	208	1220	51 7.1	-130 2.9	8	5.4	202.5	-9.7	6.1
0	208	1220	51 7.1	-130 2.9	8				
0	208	1410	50 58.4	-130 8.7	8	5.1	202.7	-9.3	9.4
0	208	1410	50 58.4	-130 8.7	8				
2	208	1828	50 40.5	-130 28.6	8	5.1	215.1	-13.7	21.9
1	209	528	51 8.5	-131 5.0	5				
0	209	856	50 54.8	-130 46.3	8	5.2	139.4	16.1	18.1
0	209	856	50 54.8	-130 46.3	8				
0	209	1124	50 45.5	-130 33.8	8	4.9	139.7	15.3	12.2
0	209	1124	50 45.5	-130 33.8	8				
0	209	1448	50 32.6	-130 14.7	8	5.2	136.8	17.1	17.7
0	209	1448	50 32.6	-130 14.7	8				
2	209	1530	50 30.1	-130 10.9	5	5.0	136.0	16.6	3.5

NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVOS	DISTAN (KM)
1	210	558	50 26.3	-130 12.9	5				
0	210	618	50 25.1	-130 10.8	8	5.4	131.9	19.3	1.6
0	210	618	50 25.1	-130 10.8	8				
0	210	802	50 18.9	-130 .2	8	5.3	132.5	16.8	9.2
0	210	802	50 18.9	-130 .2	8				
0	210	830	50 17.0	-129 57.1	5	5.9	133.8	20.5	2.7
0	210	830	50 17.0	-129 57.1	5				
0	210	956	50 9.5	-129 47.5	8	6.6	139.5	20.7	9.5
0	210	956	50 9.5	-129 47.5	8				
0	210	1009	50 8.5	-129 46.3	5	6.6	147.4	17.2	1.4
0	210	1009	50 8.5	-129 46.3	5				
0	210	1406	49 51.5	-129 17.9	8	6.4	133.5	22.5	25.1
0	210	1406	49 51.5	-129 17.9	8				
2	210	1600	49 43.2	-129 6.0	1	5.9	136.5	19.7	11.2
1	211	330	49 58.0	-129 18.8	5				
0	211	408	49 59.0	-129 22.9	5	4.5	290.8	-20.0	2.8
0	211	408	49 59.0	-129 22.9	5				
0	211	440	49 56.8	-129 24.7	8	4.7	207.8	-10.4	2.5
0	211	440	49 56.8	-129 24.7	8				
0	211	714	49 42.8	-129 34.9	8	6.0	205.2	-12.3	15.5
0	211	714	49 42.8	-129 34.9	8				
0	211	737	49 41.2	-129 36.2	5	4.7	207.7	-10.6	1.8
0	211	737	49 41.2	-129 36.2	5				
0	211	934	49 46.8	-129 50.1	8	5.4	301.9	-22.2	10.6
0	211	934	49 46.8	-129 50.1	8				
0	211	1118	49 51.6	-130 2.7	8	5.4	300.6	-22.6	9.4
0	211	1118	49 51.6	-130 2.7	8				
0	211	1310	49 57.3	-130 14.0	8	5.0	308.1	-18.7	9.2
0	211	1310	49 57.3	-130 14.0	8				
0	211	1458	50 2.7	-130 24.9	8	4.9	307.6	-18.7	8.8

## NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	EOTVOS	DISTAN (KM)
0	211	1458	50 2.7	-130 24.9	8				
0	211	1647	50 8.5	-130 36.2	5	5.1	308.7	-19.1	9.3
0	211	1647	50 8.5	-130 36.2	5				
0	211	1738	50 11.3	-130 32.3	8	4.4	41.7	14.2	3.8
0	211	1738	50 11.3	-130 32.3	8				
0	211	1818	50 14.0	-130 28.5	8	5.4	42.0	17.6	3.6
0	211	1818	50 14.0	-130 28.5	8				
2	211	1925	50 19.0	-130 21.4	5	6.0	42.2	19.6	6.8
1	212	400	50 23.0	-130 34.6	8				
0	212	500	50 26.5	-130 29.4	5	4.8	43.4	15.9	4.8
0	212	500	50 26.5	-130 29.4	5				
0	212	626	50 32.4	-130 21.9	8	5.3	39.0	16.0	7.6
0	212	626	50 32.4	-130 21.9	8				
0	212	842	50 41.6	-130 8.5	8	5.5	42.7	18.0	12.5
0	212	842	50 41.6	-130 8.5	8				
0	212	1000	50 46.4	-130 .4	8	5.4	46.9	18.8	7.0
0	212	1000	50 46.4	-130 .4	8				
0	212	1012	50 47.2	-129 59.2	5	5.5	43.5	18.1	1.1
0	212	1012	50 47.2	-129 59.2	5				
0	212	1026	50 48.2	-129 59.2	8	4.3	0	.1	1.0
0	212	1026	50 48.2	-129 59.2	8				
0	212	1226	50 57.6	-129 58.6	8	4.7	2.3	1.0	9.4
0	212	1226	50 57.6	-129 58.6	8				
0	212	1300	51 .4	-129 58.5	5	4.9	1.3	.6	2.8
0	212	1300	51 .4	-129 58.5	5				
0	212	1410	50 56.0	-130 7.5	8	6.1	232.2	-22.8	7.2
0	212	1410	50 56.0	-130 7.5	8				
0	212	1600	50 49.1	-130 20.9	8	6.0	230.8	-21.7	10.9
0	212	1600	50 49.1	-130 20.9	8				
2	212	1625	50 47.0	-130 23.0	5	6.0	212.3	-15.0	2.5

NAVIGATION FIX

LC	DAY	TIME	LATITUDE	LONGITUDE	NV	SPEED (NM/HR)	COURSE	ECTVCS	DISTAN (KM)
1	213	40	50 47.1	-130 18.9	5				
0	213	100	50 48.1	-130 16.4	8	5.6	57.7	22.6	1.9
0	213	100	50 48.1	-130 16.4	8				
0	213	302	50 52.8	-130 4.4	8	4.4	58.2	17.7	8.9
0	213	302	50 52.8	-130 4.4	8				
2	213	350	50 55.0	-130 0	2	4.4	51.6	16.5	3.5
1	213	420	50 55.0	-130 0	2				
0	213	750	50 35.5	-129 58.9	8	5.6	178.0	1.1	19.5
0	213	750	50 35.5	-129 58.9	8				
0	213	908	50 28.3	-129 58.6	8	5.5	178.5	.8	7.2
0	213	908	50 28.3	-129 58.6	8				
0	213	930	50 26.3	-129 58.3	8	5.5	174.5	2.6	2.0
0	213	930	50 26.3	-129 58.3	8				
0	213	1116	50 16.1	-129 57.4	8	5.8	176.8	1.7	10.2
0	213	1116	50 16.1	-129 57.4	8				
2	213	1200	50 12.1	-129 57.2	5	5.5	178.2	1.0	4.0

TIME 000.60 MIN

TABLE 7

Bathymetric information collected during the cruise is listed in this table. Depths in fathoms are listed against day and time in each column. All times are in GMT.

TABLE 7

B1-16

1950000	0067	1950005	0068	1950010	0067	1950015	0070
1950020	0072	1950025	0072	1950030	0074	1950035	0077
1950040	0082	1950045	0089	1950050	0099	1950055	0110
1950100	0113	1950105	0114	1950110	0110	1950115	0110
1950120	0110	1950125	0113	1950130	0114	1950135	0116
1950140	0118	1950145	0122	1950150	0126	1950155	0128
1950200	0127	1950205	0125	1950210	0117	1950215	0109
1950220	0100	1950225	0093	1950230	0081	1950235	0070
1950240	0053	1950245	0040	1950250	0040	1950255	0036
1950300	0033	1950305	0034	1950310	0035	1950315	0040
1950320	0049	1950325	0051	1950330	0051	1950335	0051
1950340	0054	1950345	0052	1950350	0049	1950355	0054
1950400	0054	1950405	0055	1950410	0036	1950415	0033
1950420	0035	1950425	0047	1950430	0062	1950435	0065
1950440	0065	1950445	0065	1950450	0067	1950455	0070
1950500	0073	1950505	0076	1950510	0093	1950515	0048
1950520	0050	1950525	0037	1950530	0032	1950535	0031
1950540	0032	1950545	0029	1950550	0028	1950555	0028
1950600	0028	1950605	0030	1950610	0030	1950615	0032
1950620	0031	1950625	0034	1950630	0035	1950635	0034
1950640	0036	1950645	0040	1950650	0040	1950655	0042
1950700	0044	1950705	0045	1950710	0048	1950715	0052
1950720	0055	1950725	0057	1950730	0061	1950735	0063
1950740	0064	1950745	0067	1950750	0069	1950755	0070
1950800	0072	1950805	0074	1950810	0073	1950815	0074
1950820	0074	1950825	0074	1950830	0076	1950835	0074
1950840	0073	1950845	0067	1950850	0073	1950855	0073
1950900	0073	1950905	0074	1950910	0074	1950915	0074
1950920	0075	1950925	0075	1950930	0076	1950935	0079
1950940	0081	1950945	0084	1950950	0090	1950955	0092
1951000	0101	1951005	0106	1951010	0110	1951015	0114
1951020	0117	1951025	0125	1951030	0146	1951035	0206
1951040	0291	1951045	0359	1951050	0374	1951115	0463
1951120	0470	1951125	0533	1951130	0542	1951515	1257
1951520	1257	1951525	1258	1951530	1258	1951535	1262
1951540	1262	1951545	1262	1951550	1261	1951555	1262
1951600	1265	1951605	1270	1951610	1262	1951615	1250
1951620	1238	1951625	1218	1951630	1210	1951635	1190
1951640	1202	1951645	1178	1951650	1174	1951655	1088
1951700	0995	1951705	1030	1951710	1036	1951715	1100
1951720	1098	1951725	1058	1951730	1038	1951735	1034
1951740	1080	1951745	1046	1951750	1012	1951755	1190
1951800	1077	1951815	1092	1951820	1104	1951825	1138
1952115	0892	1952120	0914	1952125	0937	1952130	0962
1952135	0972	1952140	0982	1952145	1020	1952150	1052
1952155	1147	1952200	1177	1952205	1242	1952210	1297
1952215	1337	1952220	1367	1952225	1352	1952230	1317
1952235	1292	1952240	1282	1952245	1275	1952250	1317
1952255	1212	1952300	1182	1952305	1310	1952310	1287
1952315	1292	1952320	1284	1952325	1249	1952330	1252
1952335	1296	1952340	1317	1952345	1338	1952350	1344
1952355	1346	1960000	1342	1960005	1339	1960010	1352

1960015	1364	1960020	1365	1960025	1367	1960030	1362
1960035	1362	1960040	1347	1960045	1347	1960050	1360
1960055	1364	1960100	1352	1960105	1364	1960110	1397
1960115	1424	1960120	1464	1960125	1472	1960130	1472
1960135	1465	1960140	1487	1960145	1502	1960150	1527
1960155	1522	1960200	1552	1960205	1577	1960210	1594
1960215	1596	1960220	1589	1960225	1582	1960230	1568
1960235	1542	1960240	1544	1960245	1547	1960250	1557
1960255	1565	1960300	1565	1960305	1565	1960310	1565
1960315	1565	1960320	1563	1960325	1563	1960330	1562
1960335	1564	1960340	1552	1960345	1550	1960350	1548
1960355	1546	1960400	1542	1960405	1535	1960410	1535
1960415	1535	1960420	1652	1960425	1602	1960430	1522
1960435	1502	1960440	1509	1960445	1512	1960450	1512
1960455	1517	1960500	1517	1960505	1525	1960510	1529
1960515	1532	1960520	1529	1960525	1534	1960530	1542
1960535	1552	1960540	1562	1960545	1557	1960550	1557
1960555	1552	1960600	1542	1960605	1542	1960610	1535
1960615	1532	1960620	1527	1960625	1507	1960630	1502
1960635	1492	1960640	1482	1960645	1467	1960650	1472
1960655	1477	1960700	1477	1960705	1477	1960710	1477
1960715	1482	1960720	1522	1960725	1622	1960730	1657
1960735	1602	1960740	1552	1960745	1492		
1960755	1497	1960800	1517	1960805	1527	1960810	1532
1960815	1539	1960820	1547	1960825	1552	1960830	1552
1960835	1560	1960840	1562	1960845	1564	1960850	1568
1960855	1572	1960900	1572	1960905	1577	1960910	1577
1960915	1582	1960920	1584	1960925	1587	1960930	1590
1960935	1592	1960940	1590	1960945	1590	1960950	1590
1960955	1590	1961000	1588	1961005	1587	1961010	1584
1961015	1582	1961020	1582	1961025	1589	1961030	1602
1961035	1602	1961040	1607	1961045	1608	1961050	1617
1961055	1627	1961100	1602	1961105	1593	1961110	1590
1961115	1592	1961120	1602	1961125	1602	1961130	1602
1961135	1602	1961140	1602	1961145	1606	1961150	1616
1961155	1618	1961200	1640	1961205	1652	1961210	1658
1961215	1662	1961220	1664	1961225	1662	1961230	1662
1961235	1660	1961240	1659	1961245	1657	1961250	1654
1961255	1658	1961300	1654	1961305	1651	1961310	1658
1961315	1676	1961320	1680	1961325	1686	1961330	1686
1961335	1688	1961340	1693	1961345	1693	1961350	1698
1961355	1700	1961400	1705	1961405	1714	1961410	1714
1961415	1708	1961420	1682	1961425	1680	1961500	1680
1961505	1678	1961510	1678	1961515	1679	1961520	1679
1961525	1679	1961530	1680	1961535	1680	1961540	1680
1961555	1679	1961600	1703	1961605	1689	1961610	1688
1961615	1688	1961620	1688	1961625	1688	1961630	1688
1961725	1602	1961730	1604	1961735	1602	1961740	1602
1961745	1601	1961750	1602	1961755	1602	1961800	1597
1961805	1582	1961807	1580	1961810	1581	1961815	1592
1961820	1595	1961825	1592	1961830	1583	1970100	1543
1970105	1549	1970110	1553	1970115	1557	1970120	1560



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2120600	1333	2120605	1330	2120610	1342	2120615	1342
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2120740	0987	2120745	0982	2120750	0960	2120755	0972
2120800	0972	2120805	0967	2120810	0947	2120815	0960
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2120840	1062	2120845	1090	2120850	1100	2120855	1115
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2121200	1122	2121205	1120	2121210	1130	2121215	1141
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2121240	1097	2121245	1095	2121250	1087	2121255	1028
2121300	1062	2121305	1074	2121310	1089	2121315	1099
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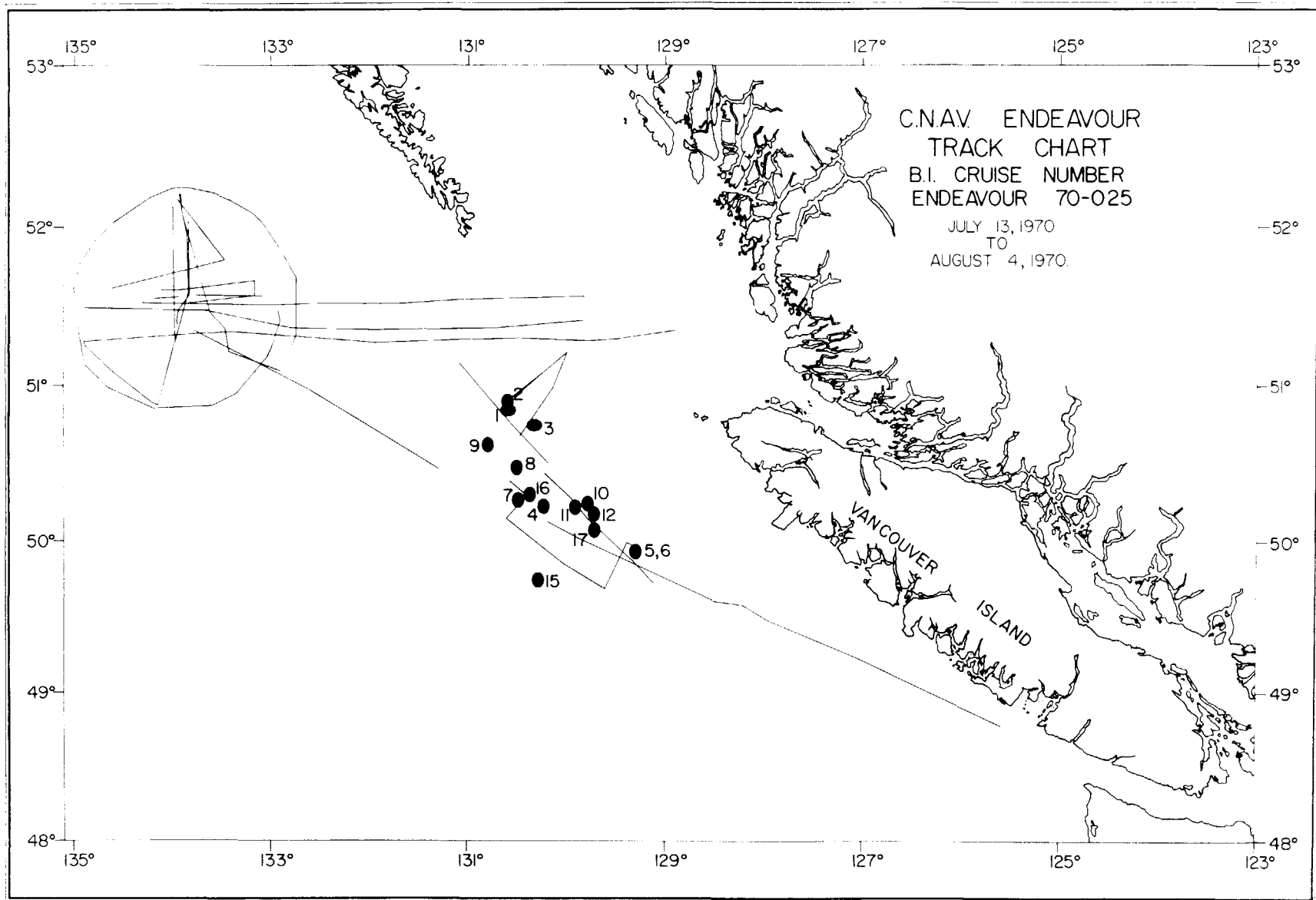


Figure 5 - Ship's Track. Dots and numbers refer to location and number of dredge stations.

PART B

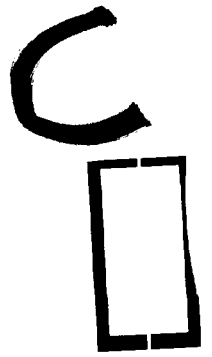
C.N.A.V. ENDEAVOUR





CANADA

DEPARTMENT OF ENERGY, MINES AND RESOURCES  
MARINE SCIENCES BRANCH  
MINISTÈRE DE L'ÉNERGIE DE MINES ET DES RESSOURCES  
DIRECTION DES SCIENCES DE LA MER



ATLANTIC OCEANOGRAPHIC LABORATORY  
BEDFORD INSTITUTE

LABORATOIRE OCEANOGRAPHIQUE DE L'ATLANTIQUE  
INSTITUT de BEDFORD

Dartmouth, Nova Scotia  
Canada

GEOPHYSICAL DATA COLLECTED  
DURING HUDSON-70, PHASE VII OFF  
BRITISH COLUMBIA, CANADA

Edited by  
S. P. SRIVASTAVA

AOL DATA SERIES No. 71-5-D

SEPTEMBER, 1971

PROGRAMMED BY  
THE CANADIAN COMMITTEE OF OCEANOGRAPHY

## B2. Continuous Seismic Profiling

Continuous seismic profiling system used on board C.N.A.V. ENDEAVOUR consisted of 10 cubic inch Bolt Model 600B air gun which was fired every 5 and 10 seconds at a peak pressure of 2000 psi. The signals were recorded, using a 100 foot long array of Geospace hydrophones (MP-7), a Geospace amplifier and filter, an E.P.C. model 4100 or a Giffit wet paper recorder.

Compressed air for the air gun was obtained from an electric driven Worthington compressor, (65 S.C.F.M.) or a Rix Model K-20 compressor.

The records obtained were annotated with day and time on board the ship. The original records were then microfilmed and reproduced here. The location of the profiles can be obtained from Table 6.

W. G. Butrand, R. L. Chase,  
K. S. Manchester and  
A. Thomlinson

DAY 200 LINE 1

B2-2

1730  
1800 GMT

1700 GMT

1630 GMT

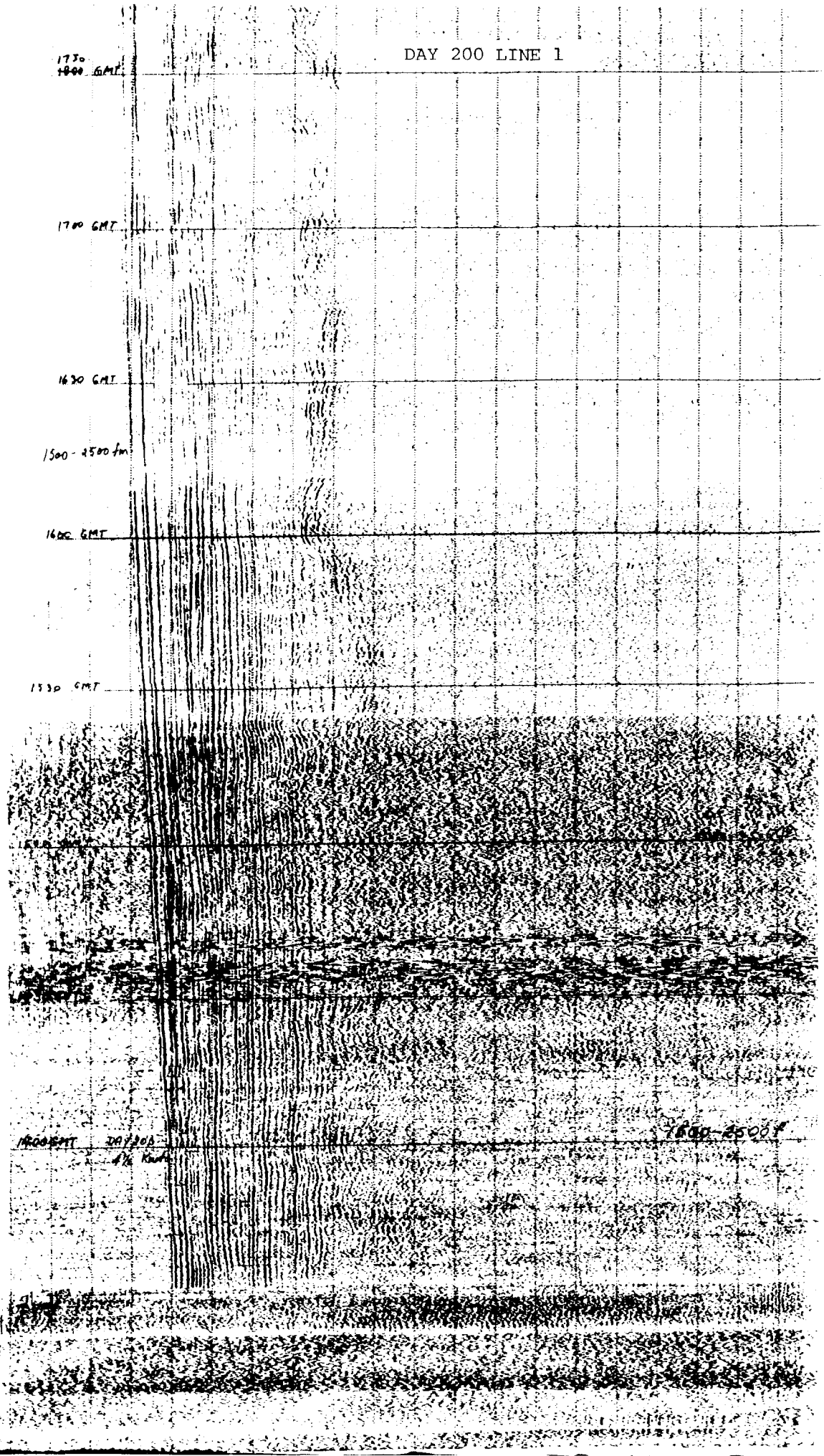
1500-1550 fm

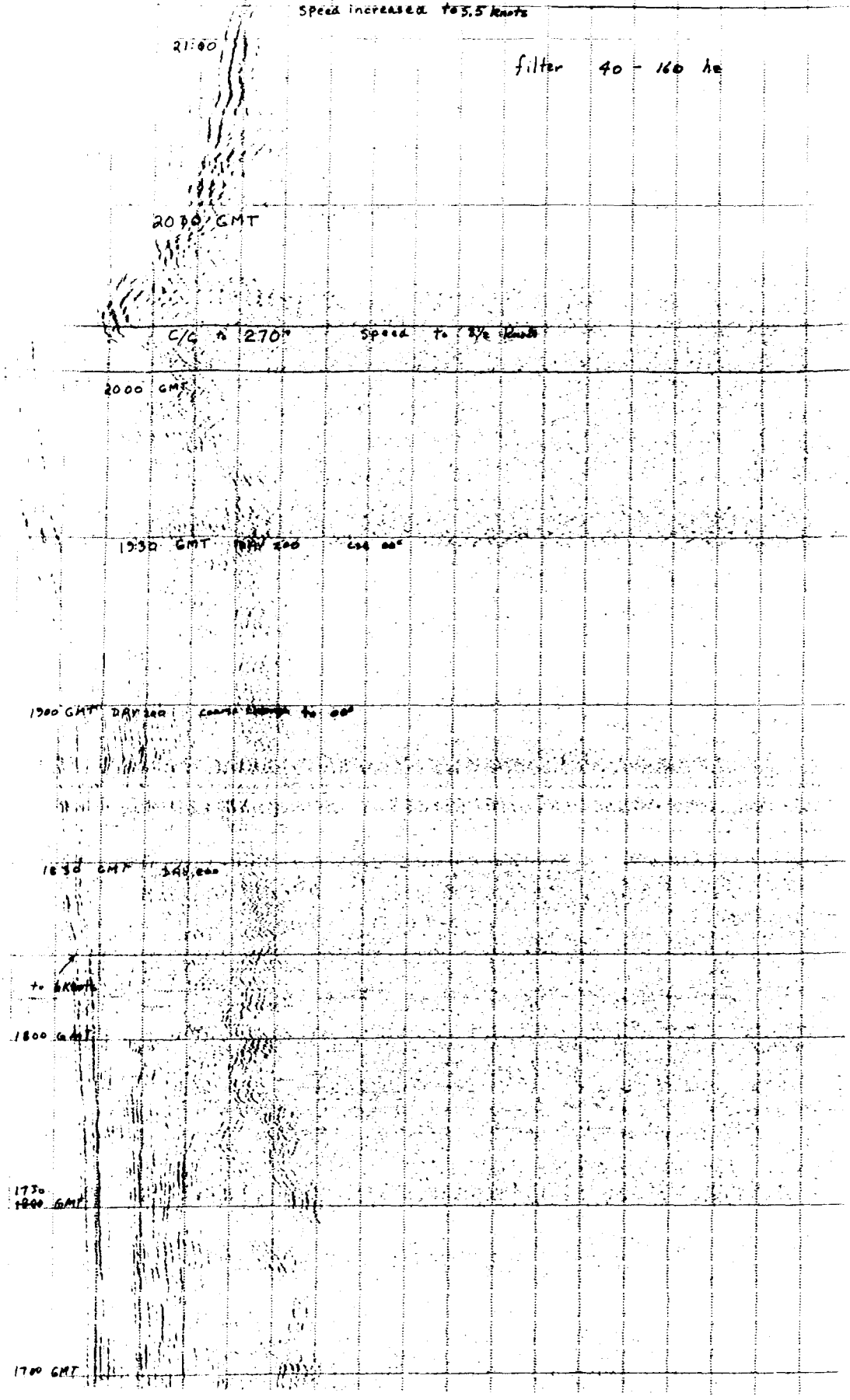
1600 GMT

1530 GMT

1200 GMT 207300  
4 1/2 knots

1800-1850 f





DAY 200 LINE 1 Cont.

40/2320 GMT  
1000-2000 f

40/2300 GMT  
1000-2000 f

40/2270 GMT  
1000-2000 f

40/2210 GMT  
1000-2000 f

1000 - 2000 fm

paper speed doubled

1500 - 2500 fm

201/0100  
1500-1600 f

201/0125  
1500-1550 f

1500-1550 f

201/0150  
1000-1200 f

201/0175  
1000-1200 f

DAY 203 LINE 2 Cont.

B2-6

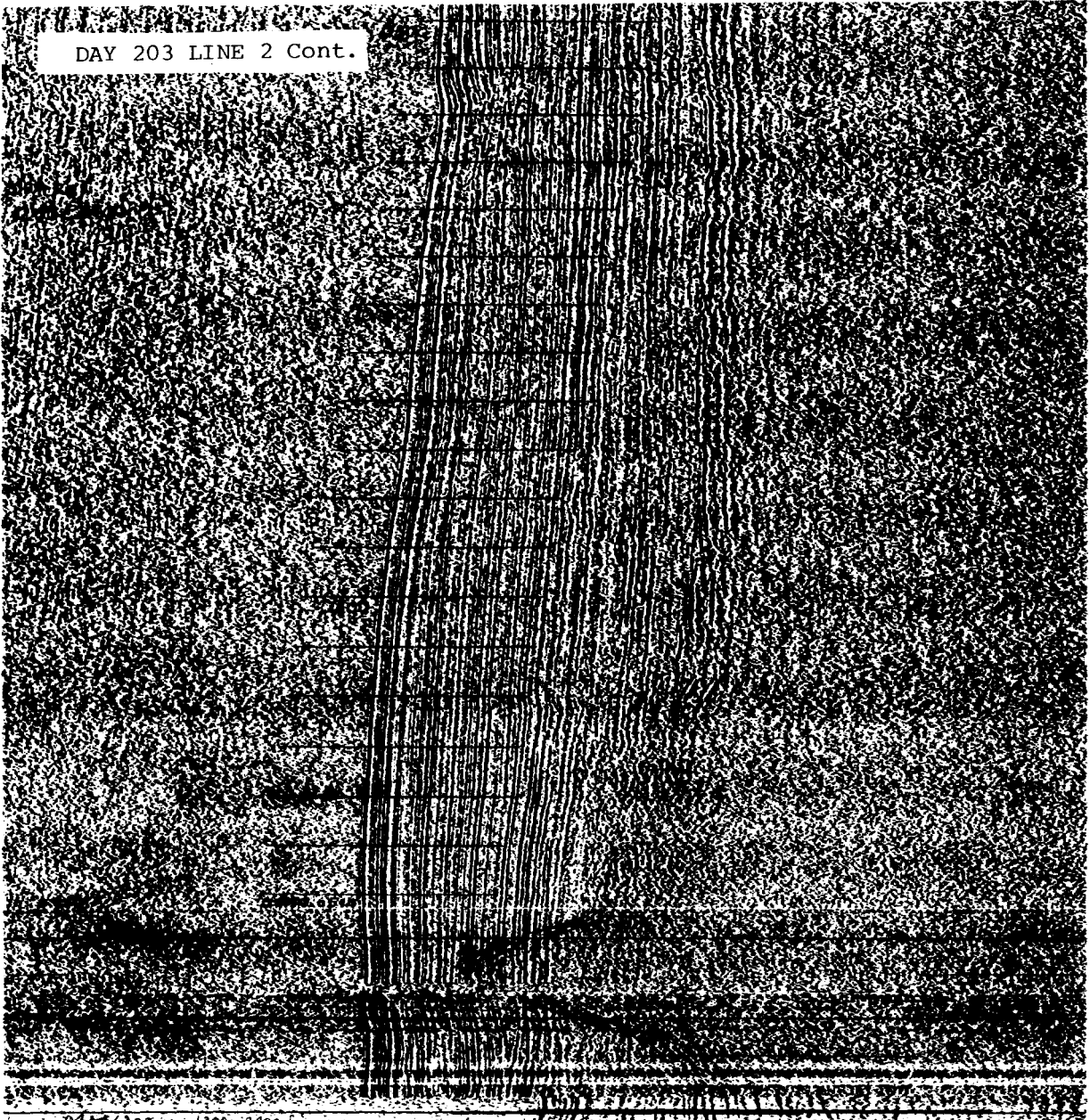
*Field Reading on E.P.H.*

0700/203

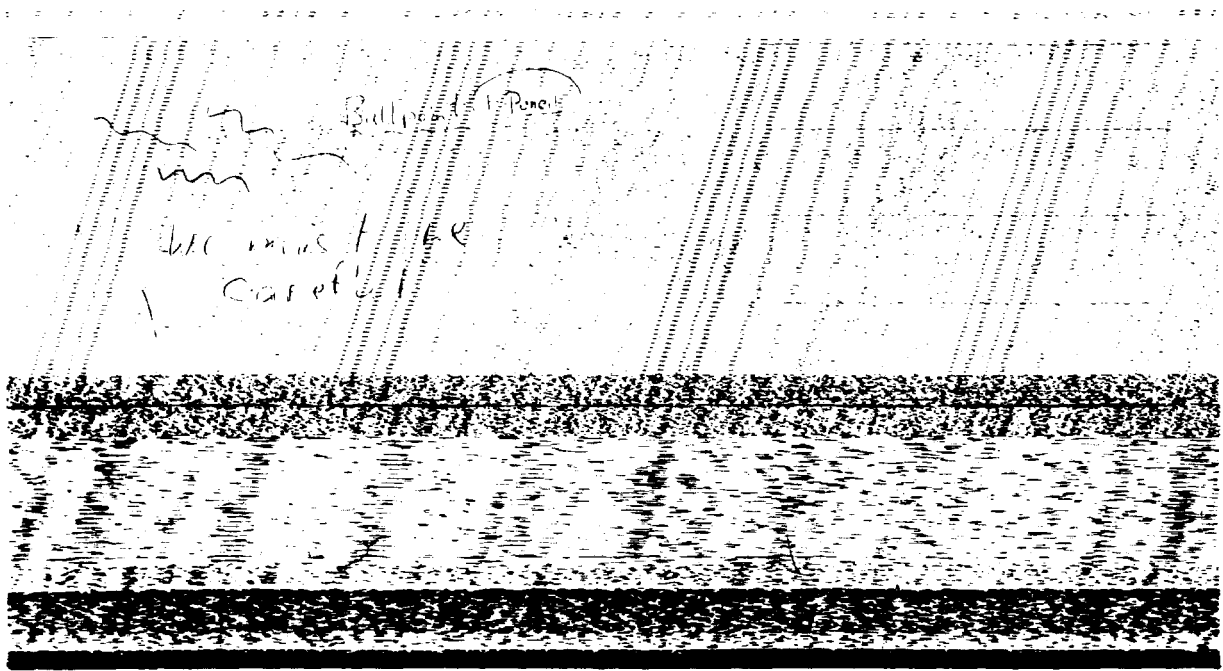
1200/203

3

*[Faint handwritten notes]*



Day 203 1200-2400 ft  
0100

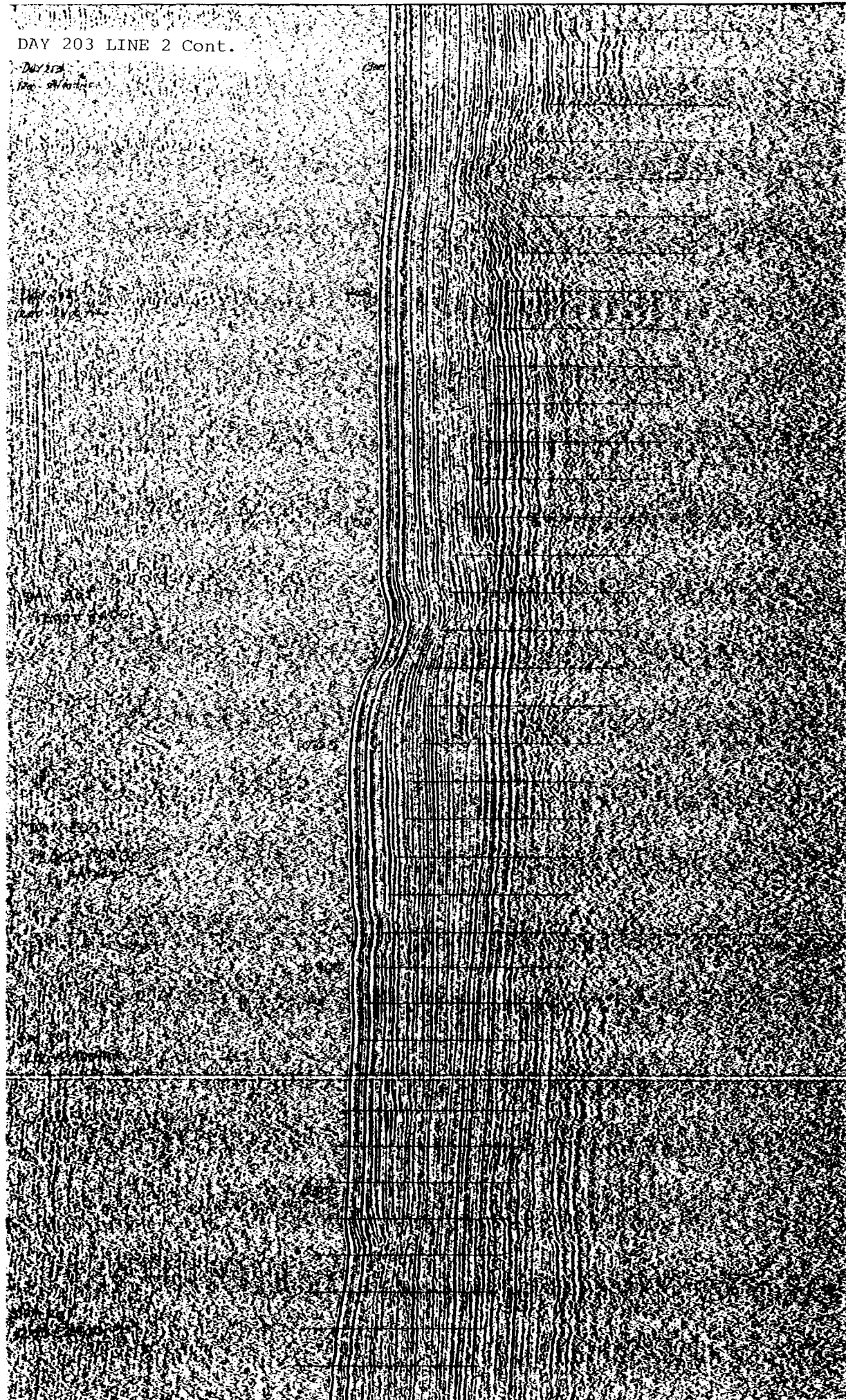


Ball  
Pencil  
The most  
Careful



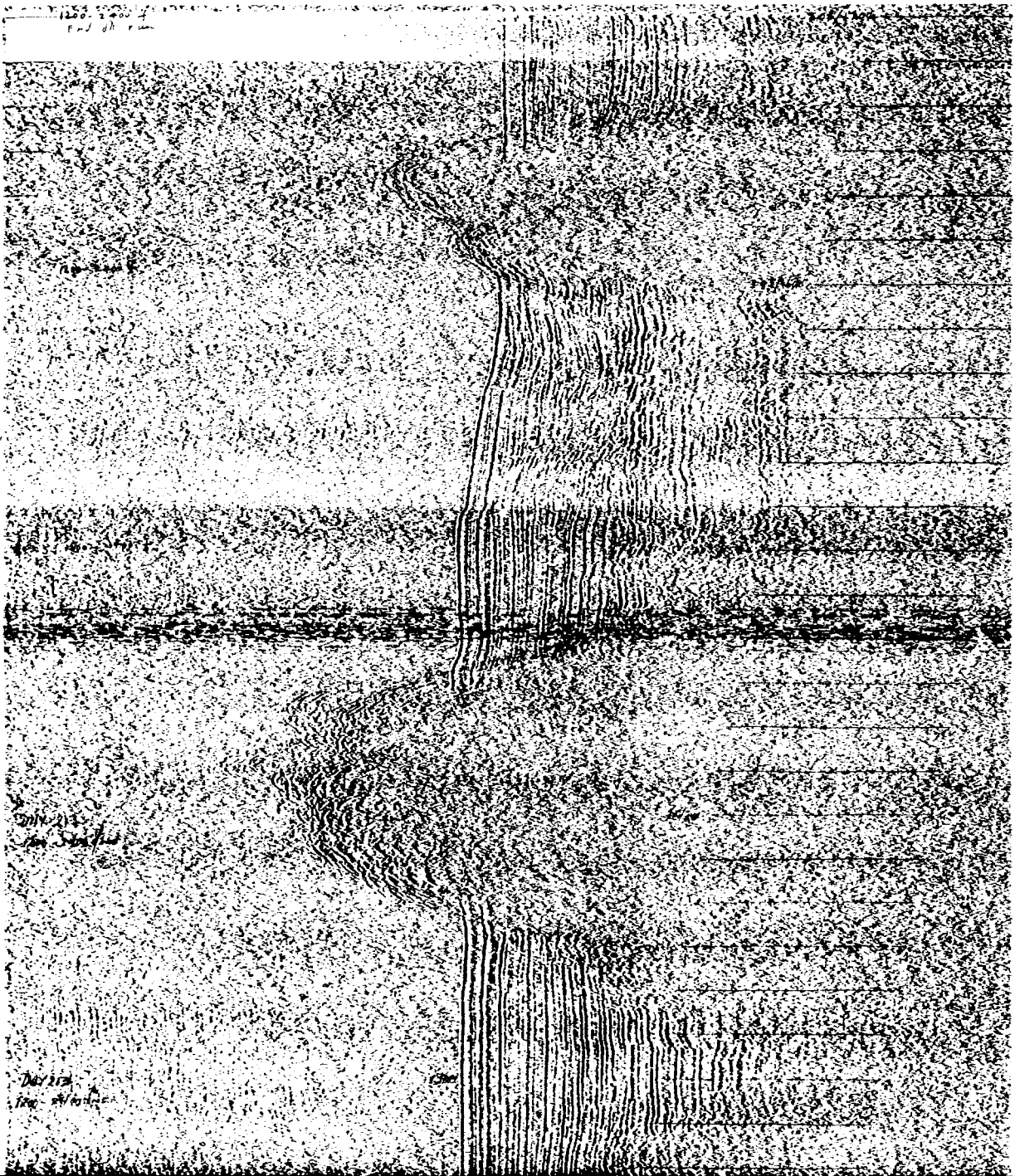
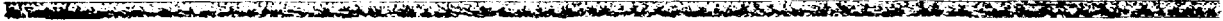
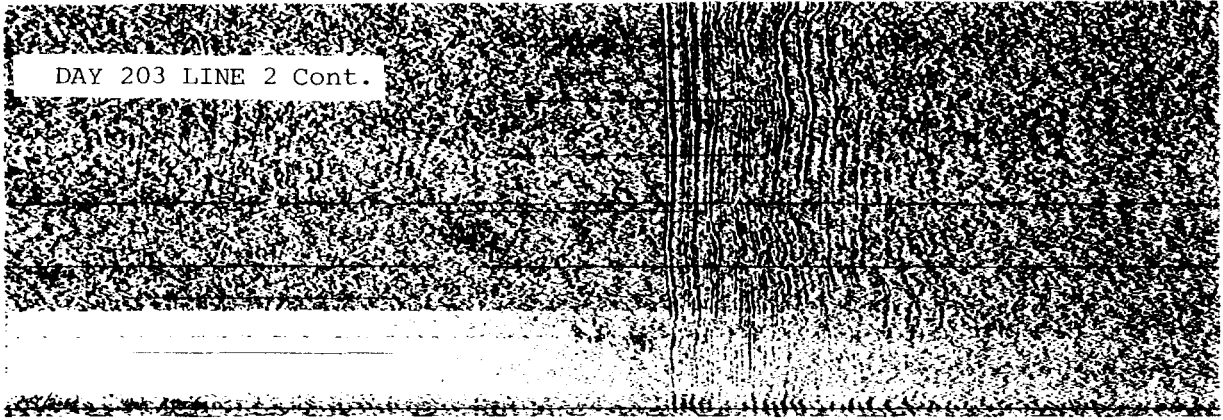
DAY 203 LINE 2 Cont.

B2-8



DAY 203 LINE 2 Cont.

B2-9

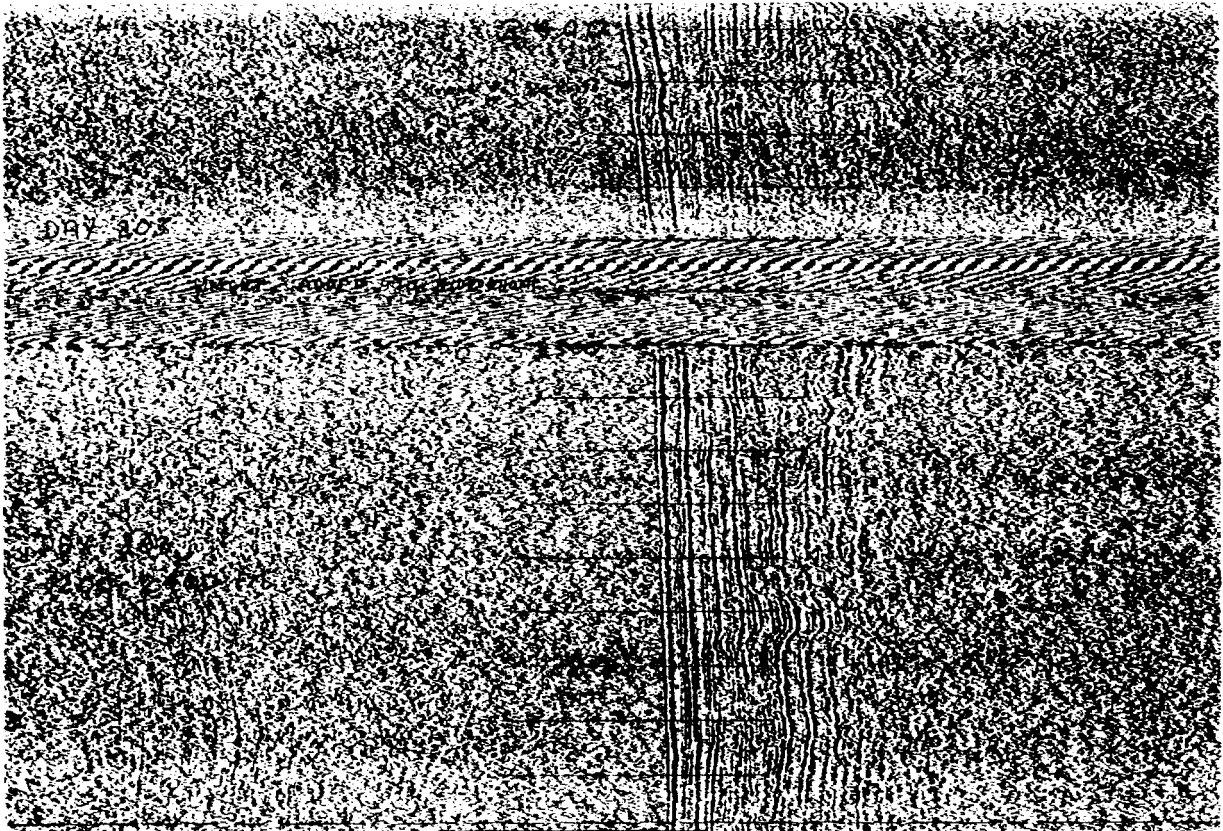


20th Day  
1100-1400 AM

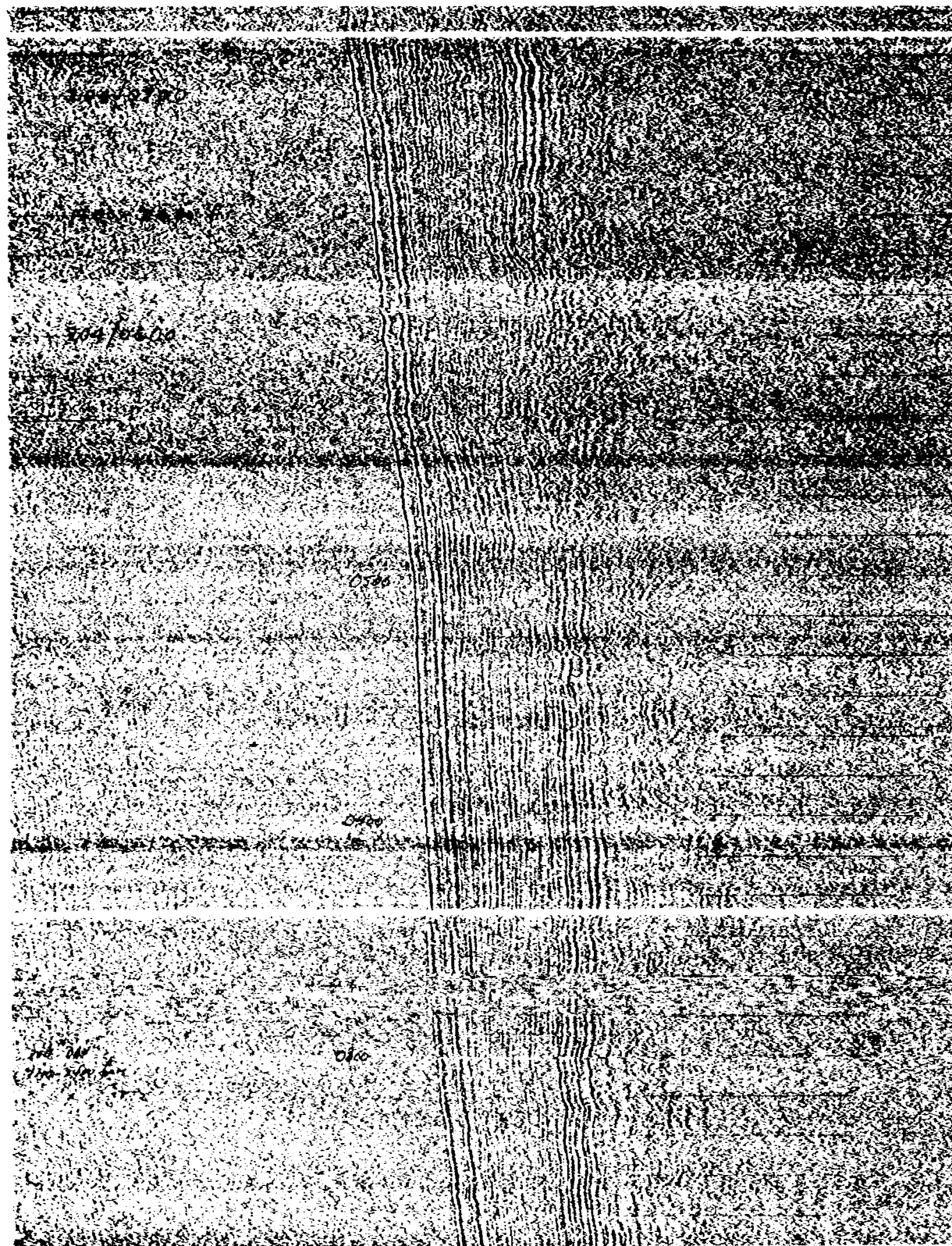
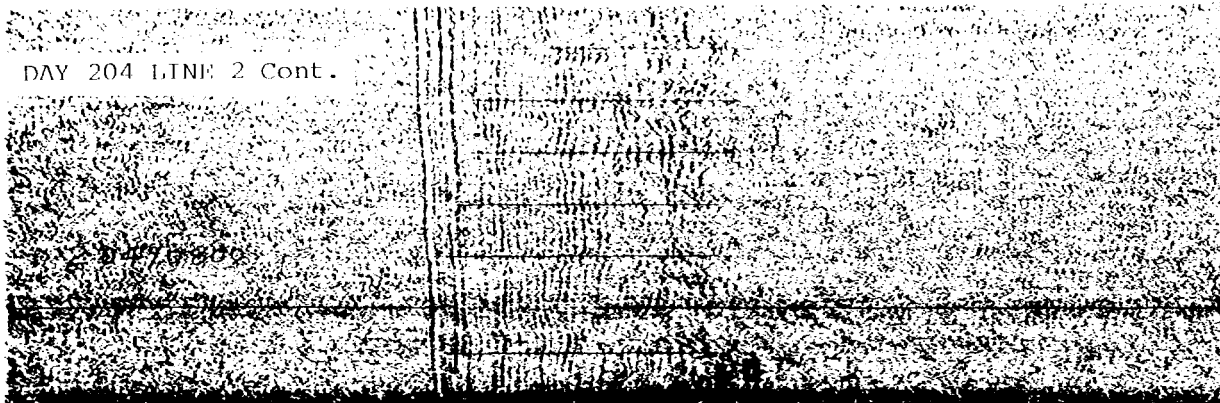
0100

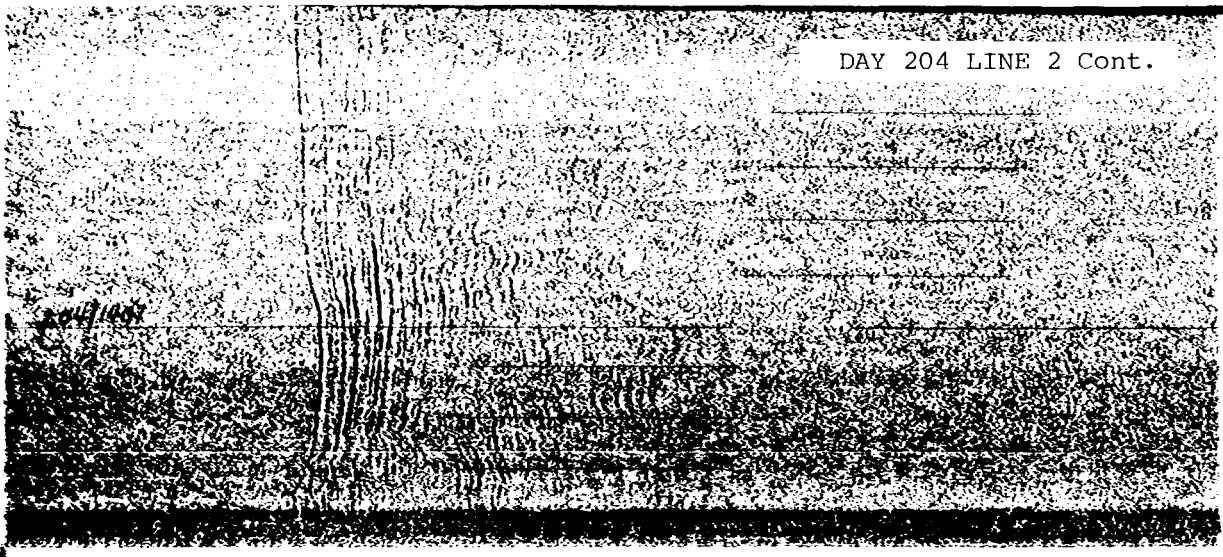
0100

DAY 204  
1200-2400 PM  
CSF 090 5.5 KNOTS

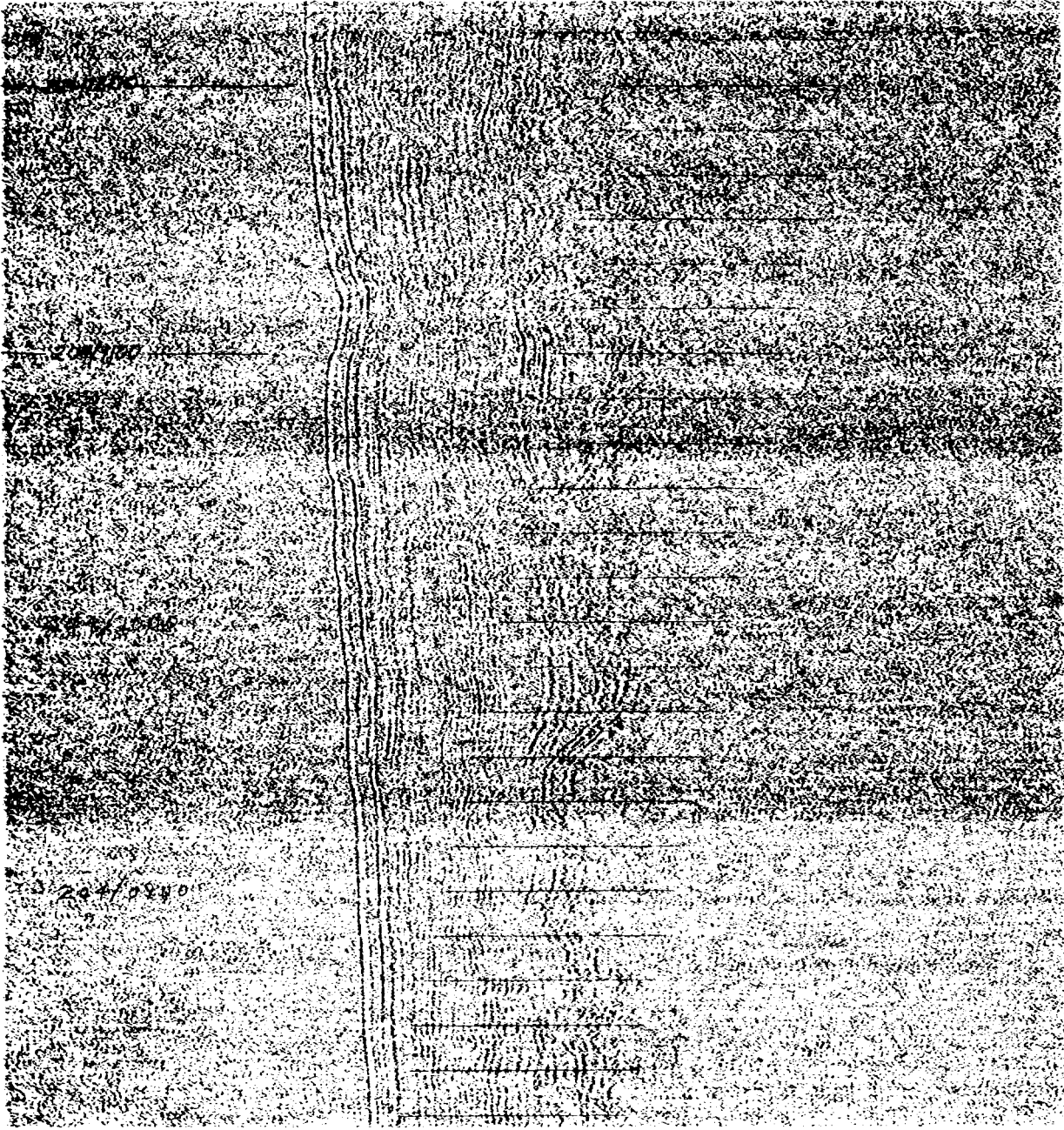


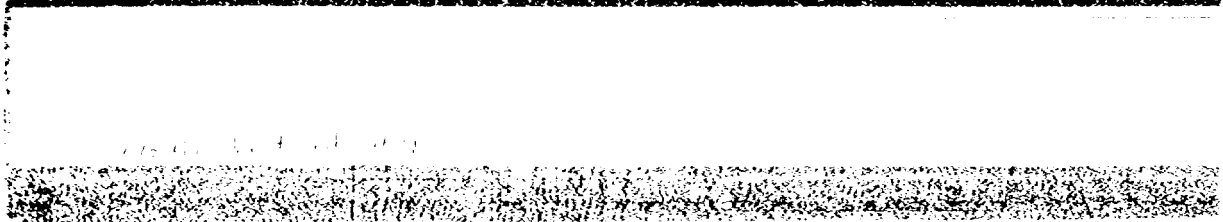
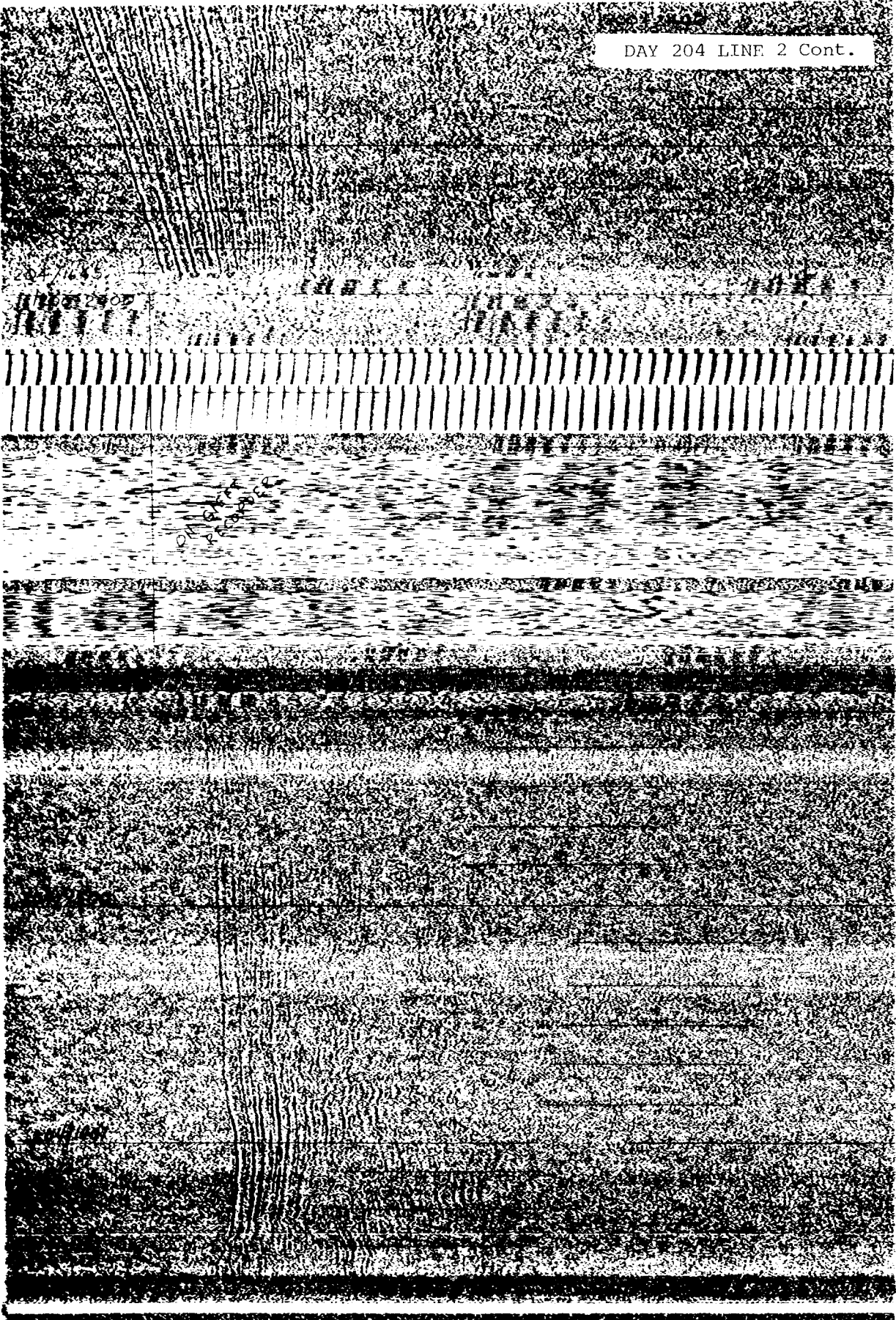
DAY 205





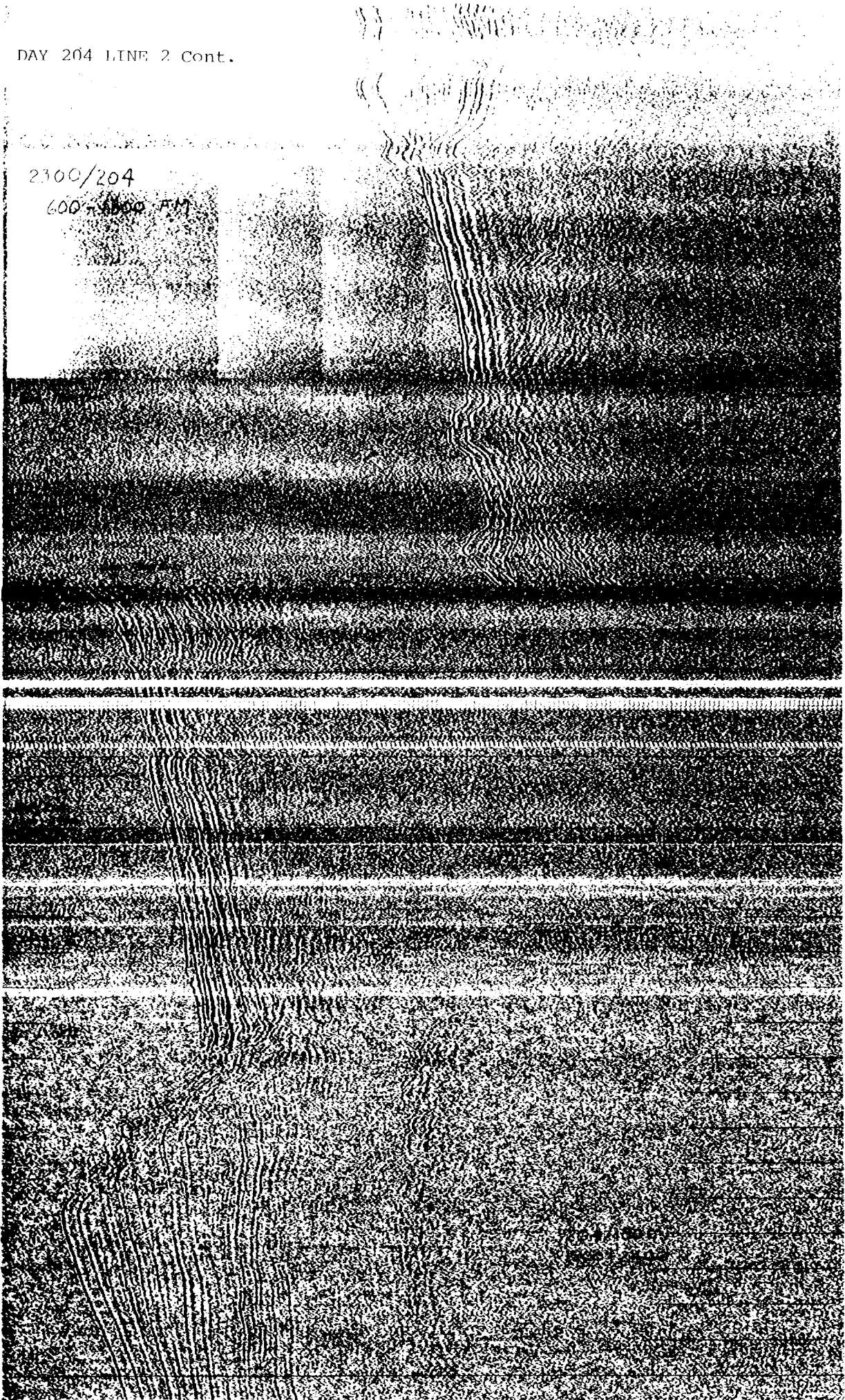
1716 Recycled material

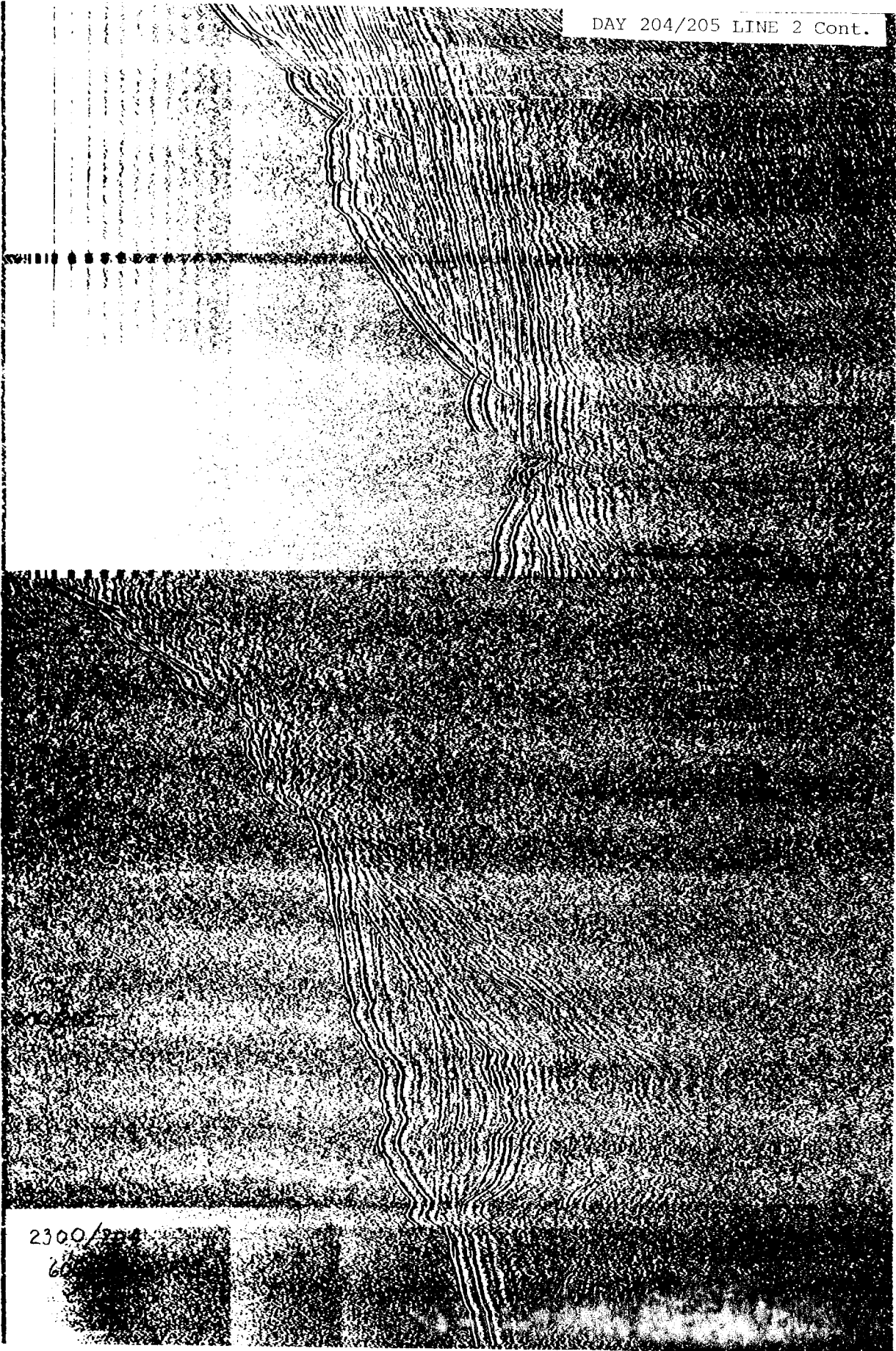




2300/204

600-1000 PM



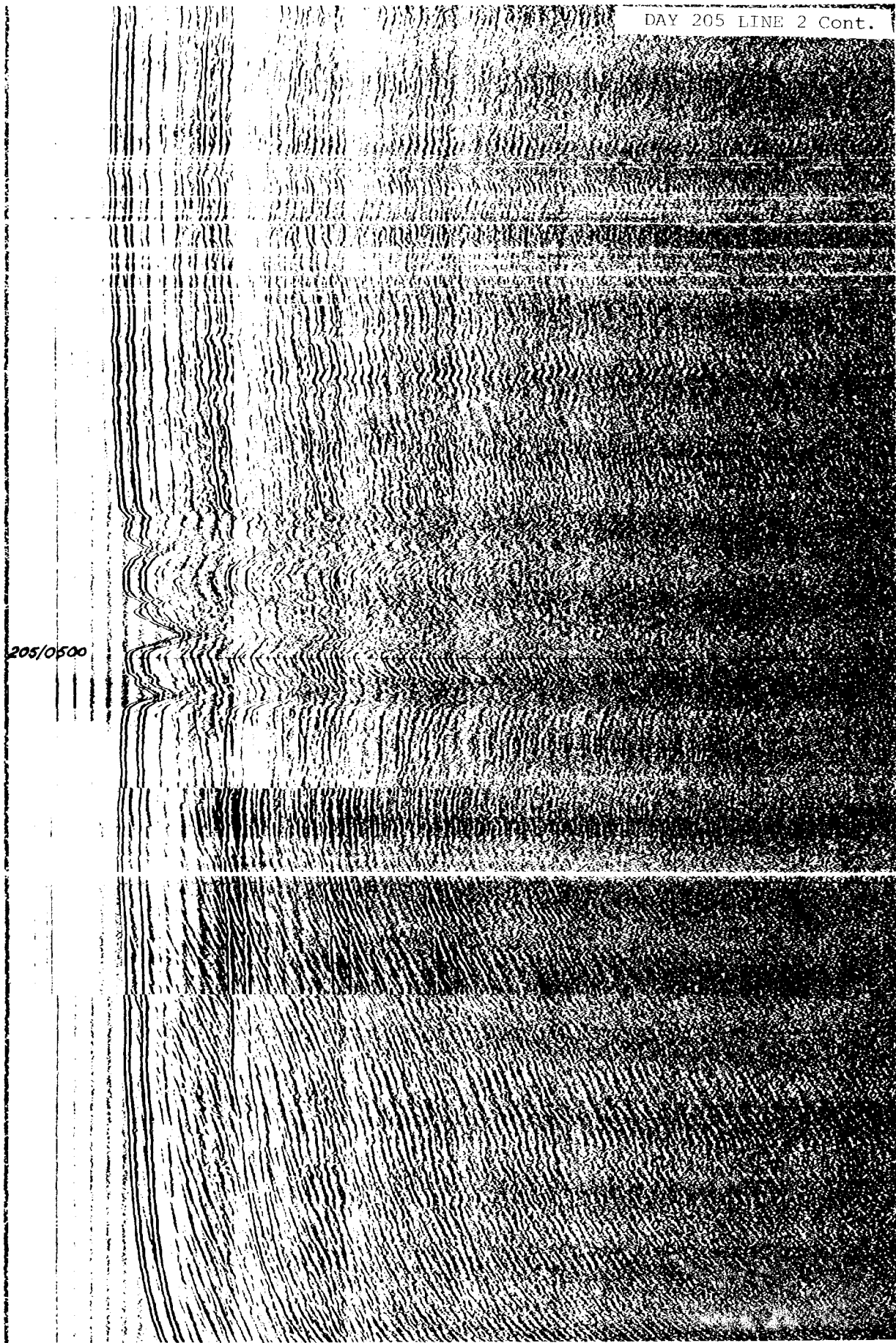


2300/200  
60

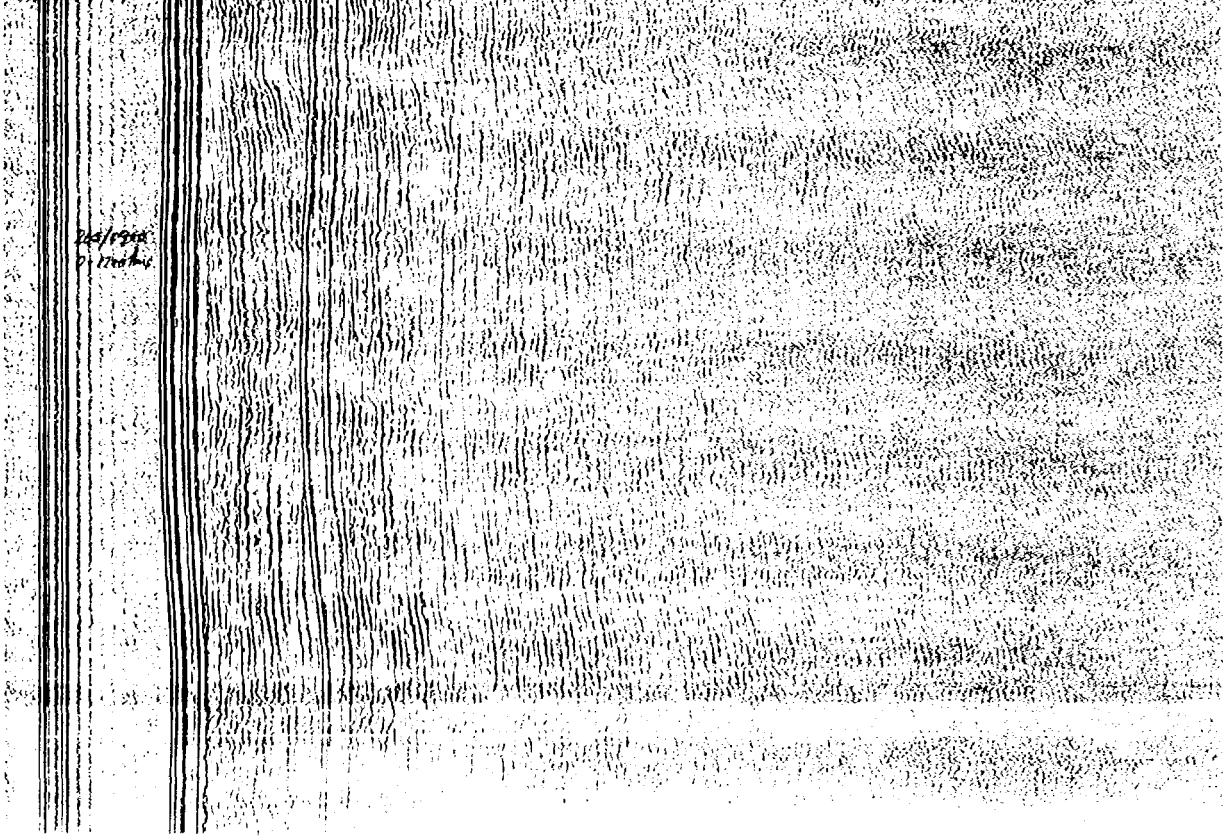
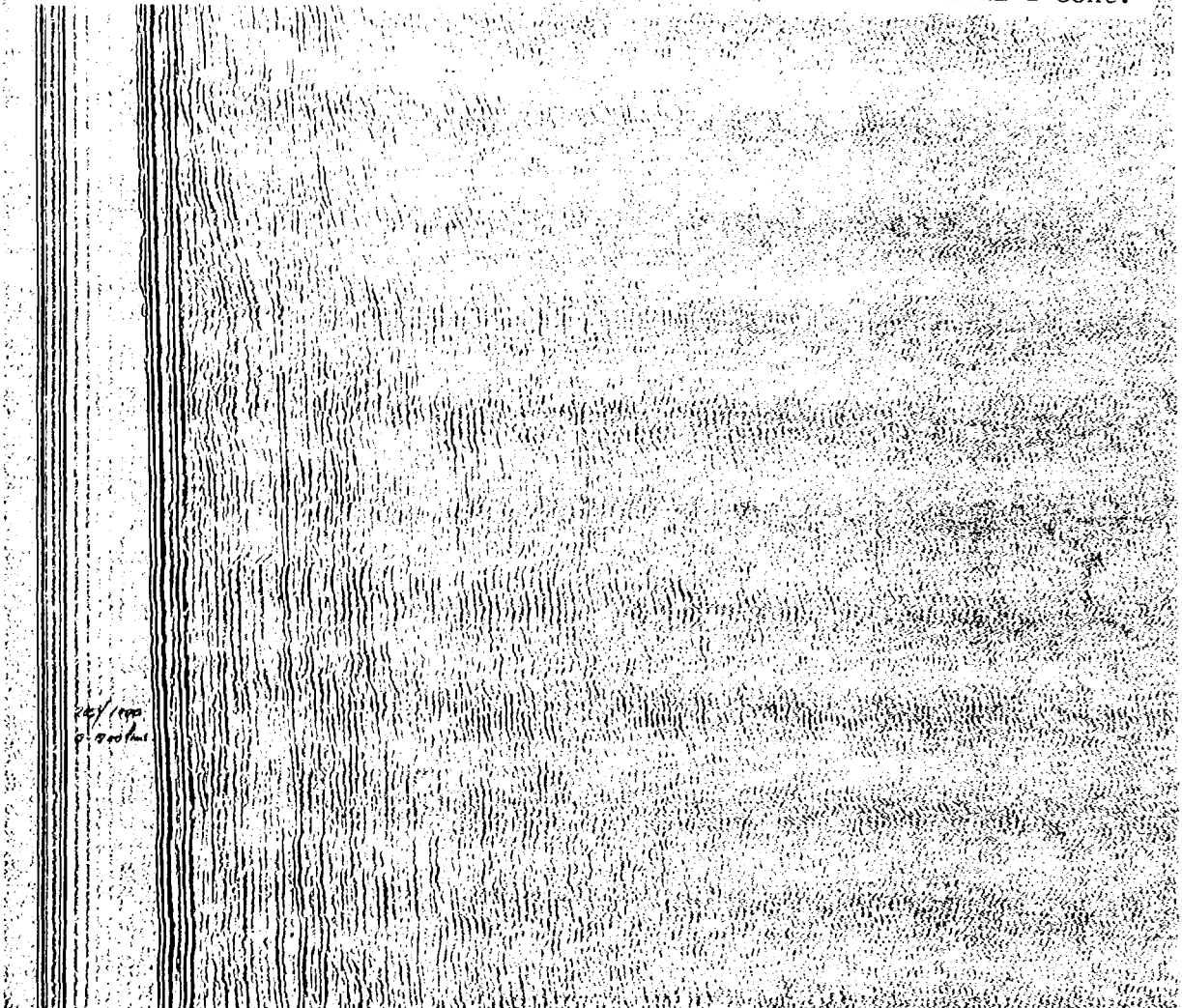


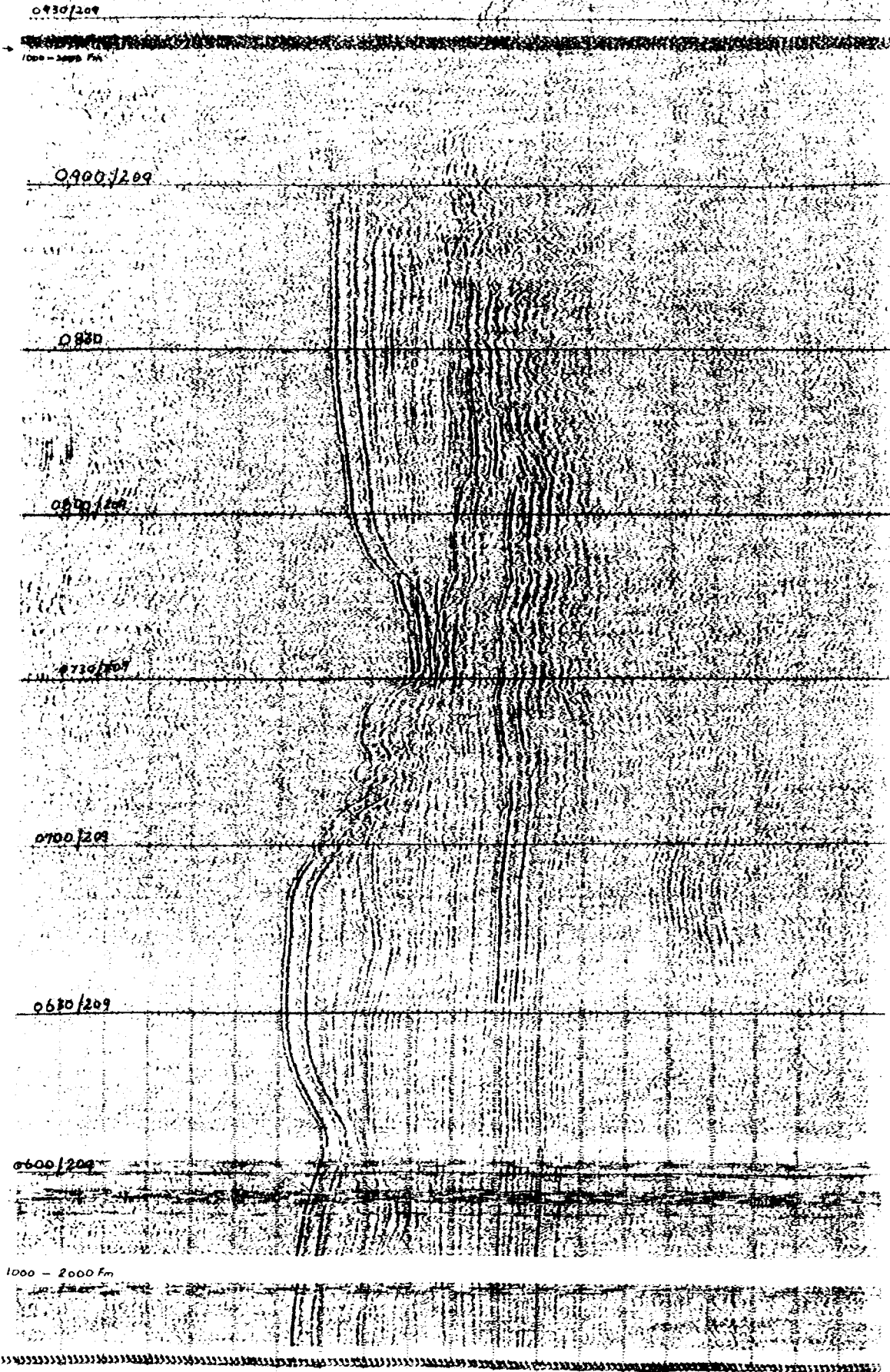
DAY 205 LINE 2 Cont.

205/0500



205/0700





ENI 70-025-3 July 28 1970

GMT 0528/209

1300/209

DAY 209 LINE 3 Cont.

B2-20

1130/209

1100/209

1030/209

0950/209

0900/209

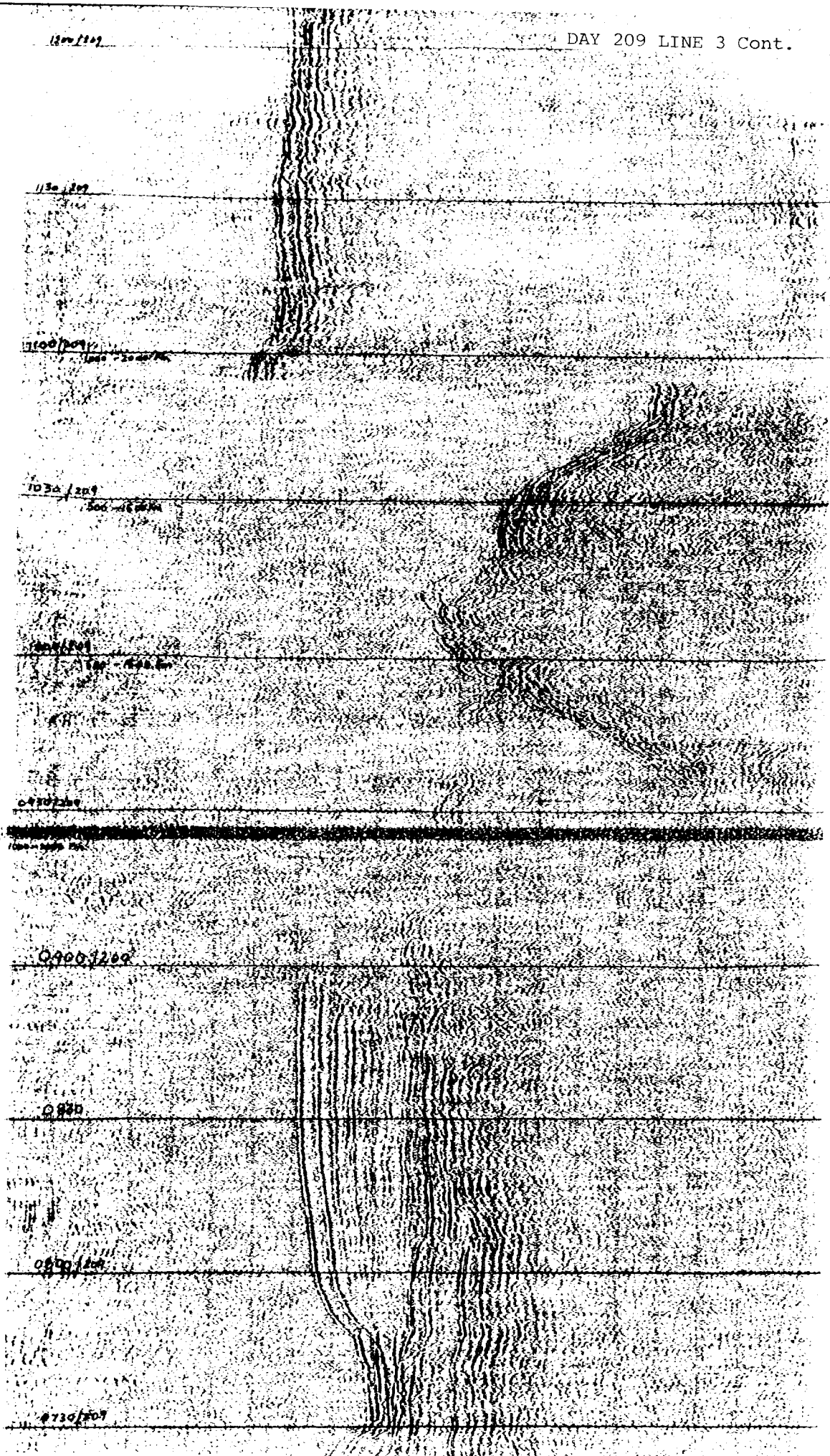
0830/209

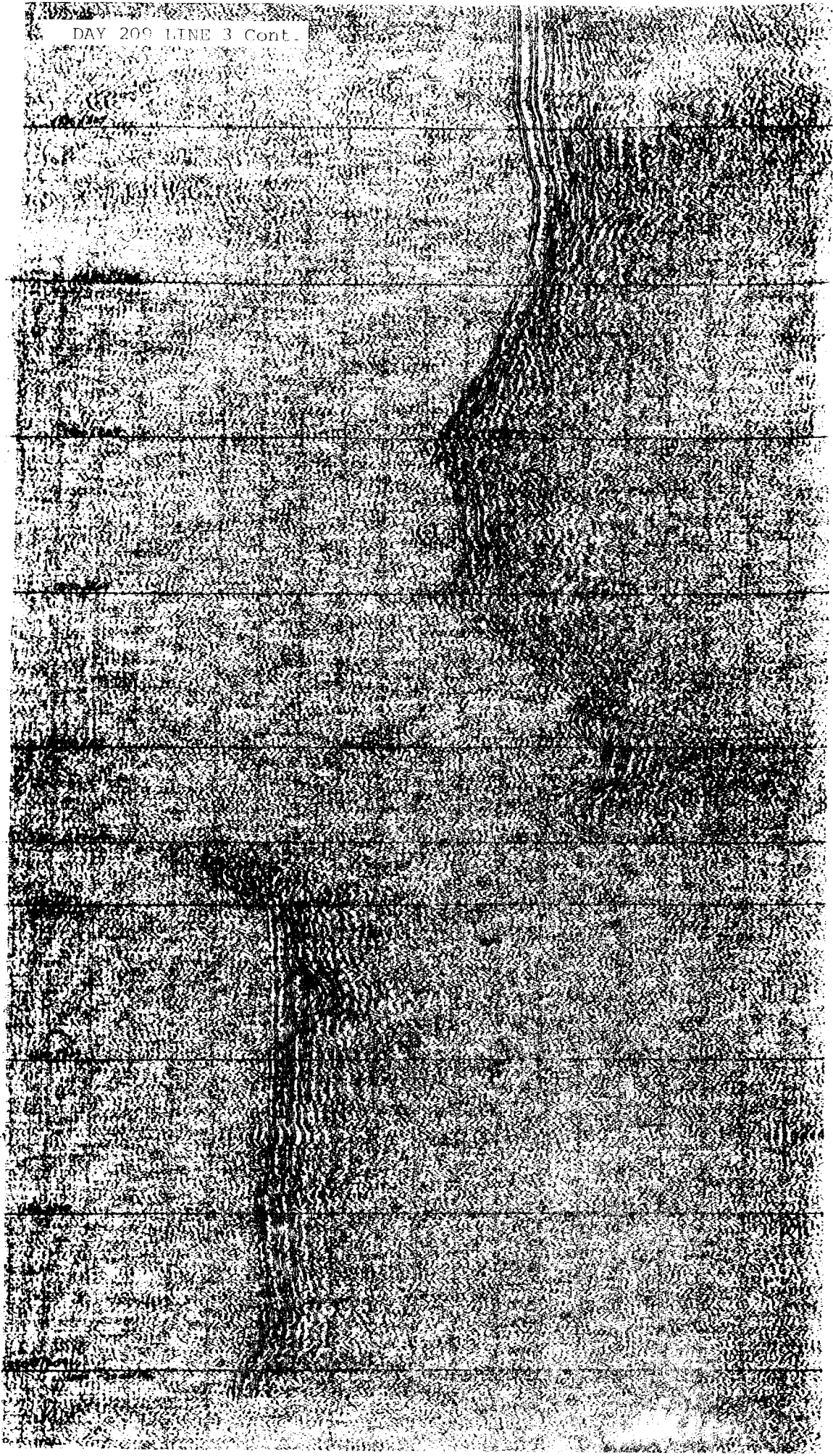
0700/209

0630

0500/209

0430/209





### B3. Dredging

Equipment consisted of chain-bag dredges. At each site, selected with the aid of a bathymetric chart (Mammerickx, 1969, Special Chart No. 1, Scripps Institution of Oceanography), echo-sounder profiles and continuous seismic profiles, the dredge was lowered from the ship's bow. When the metered wire length indicated the dredge to be on bottom, the ship moved slowly astern, paying out additional wire in amount of approximately 50% of the water depth, to permit dredging with wire angle ranging from 0° to 45°. At all sites we attempted to place the dredge low topographically and to dredge in the "uphill" direction. Beginning depths for dredging ranged from 1475 metres on a seamount to 3200 metres in Explorer Trench. Dredge-site locations and depths are listed in Table 8.

The method of dredging from the bow was time consuming and inconvenient as it necessitated hoisting the dredge between the well-deck and the bow by crane, and attendant attaching and detaching of the winch at the beginning and end of each haul. Moreover, lack of lighting forward of the ship precluded dredging with safety after dark, and under some wind and sea conditions the ship was incapable of maintaining the desired heading while steaming astern.

Despite the admittedly inefficient dredging technique, dictated by the ship's gear, in only three out of a total of 17 attempts the dredge returned empty. As indicated in Table 9, recovery ranged from a single fragment to several hundredweight of rock in the other 14 hauls. Dredge sites are shown on the bathymetric chart, (Fig. 5).

TABLE 8

Locations and Depths of Dredge Sites  
Cruise En. 70-025, Phase VII of HUDSON-70 Project

Dredge Site	Location of start of dredge haul			Depth (m)	
	<u>° N Lat.</u>	<u>° W Long.</u>	<u>Geographic Feature</u>	<u>From</u>	<u>To</u>
1	Dredge did not touch bottom				
2	50°53.7'	130°35.0'	Dellwood Knolls (N.W.)	1900	1500
3	50°46.0'	130°24.0'	Dellwood Knolls (S.E.)	1900	1500
4	50°14.1'	130°15.4'	Explorer Trench	2500	2000
5	49°55.7'	129°20.7'	Paul Revere Ridge (South slope)	1800	1700
6	49°58.0'	129°17.7'	Paul Revere Ridge (crest)	1600	1500
7	50°17.9'	130°24.6'	Dellwood Range (S.E. end)	2000	1900
8	50°27.2'	130°32.5'	S.E. Dellwood Seamount	1475	1300
9	50°36.0'	130°45.5'	Middle Dellwood Seamount	1800	1500
10	50°14.5'	129°49.9'	Paul Revere Ridge (crest)	1800	1700
11	50°14.2'	129°54.7'	Paul Revere Ridge (S. slope)	2300	2200
12	Approx. 50°10.0'	Approx. 129°45'	Paul Revere Ridge (S. slope)	2200	2000
13	Approx. 49°46'	Approx. 130°18'	Explorer Trench (E. wall)		
14	Approx. 49°46'	Approx. 130°18'	Explorer Trench (E. wall)		
15	Approx. 49°46'	Approx. 130°18'	Explorer Trench (E. wall)	2100	2000
16	Approx. 50°13'	Approx. 130°14'	Explorer Area (N.W. Part)	2100	1900
17	Approx. 50°5.5'	Approx. 129°44.5'	Explorer Area (N.E. deep)	3200	2400



TABLE 9

Dredge Hauls, Cruise En. 70-025, Phase VII of HUDSON-70 Project

<u>Dredge Site</u>	Recovery - Weights are estimates, descriptions are preliminary and tentative.
1	Nil - dredge apparently did not reach bottom.
2	250 lb 90% angular fragments of vesicular pillow basalt, many with fresh glassy rind 10% pebble size glacial erratics of dioritic to granitic composition.
3	100 lb 40% glacial boulders and cobbles, 60% pillow basalt. Generally thin manganese coating but one sample with 2 cm. thick crust of manganese oxides.
4	125 lb fresh, ropey, vesicular basalt with glassy rind.
5	One 13 cm. fragment of porous, low density, manganeseiferous mudstone.
6	600 lb 10% glass sponges, infilled with clay and manganese oxide; 25% glacial pebbles and cobbles; 65% basalt with weathered, palagonitized glassy rind.
7	500 lb mainly vesicular pillow basalt some with glassy rind. No glacial erratics.
8	600 lb one large glacial boulder (80 lb) and few glacial pebbles and cobbles; remainder is vesicular, pillow basalt. Many large samples with weathered glassy rind, some with manganese coating about 2 mm thick.
9	400 lb 20% glacial pebbles and cobbles and iron oxide-stained volcanic ash; 75% basalt with manganese oxide coating to 3 cm thick. 5% manganese nodule fragments. Weathered glassy rind on some basalt fragments.
10	One glacial cobble of intrusive rock.
11	100 lb vesicular olivine basalt, apparently from weathered talus, coated with manganese oxides.
12	300 lb 50% green, partly serpentinized rock (basalt and/or peridotite); 50% greywacke and interbedded mudstone and siltstone, contorted and sheared, containing carbonized plant fragments and lenses of coal up to 8 mm thick. Uniform weathering of all sides of most rock fragments indicates a probable talus-slope as their source.

- 13 Nil
- 14 Nil
- 15 200 lb pillow basalt with palagonitized glassy rind; one glacial cobble.
- 16 650 lb pillow basalt with glassy rind.
- 17 One angular fragment of fresh, dark green volcanic rock.

A separate data report is being prepared describing in detail each of the rock samples collected during these dredge hauls.

W. G. Butrand, R. L. Chase,  
K. S. Manchester and  
A. Thomlinson