

EXPEDITION REPORT

NO. 84-025

LOUIS M. LAUZIER

CENTRE CHAMPLAIN DES SCIENCES DE LA MER

October 19-21, 1984

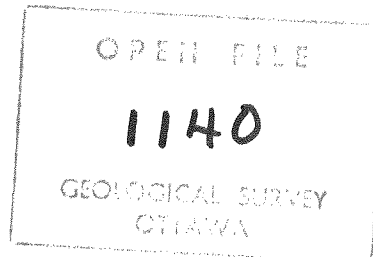
by

K.S. HOSKIN¹

Dr. J.P.M. Syvitski¹

K.W. Asprey¹

P. Connolly²



¹Atlantic Geoscience Centre
Geological Survey of Canada
Bedford Institute of Oceanography
P.O. Box 1006, Dartmouth, N.S.
B2Y 4A2

²Huntec (70) Limited
P.O. Box 851
Dartmouth, N.S.
B2Y 3Z5

This document was produced
by scanning the original publication.

Ce document est le produit d'une
numérisation par balayage
de la publication originale.

CRUISE OBJECTIVES

This cruise is the last of a series of three 1984 cruises to the Saguenay Fiord. The first Cruise 84-004 (Navimar VN) deployed three sediment trap arrays and two current meter arrays (Schafer et al. 1984). The purpose of the second Cruise 84-022 (Louis M. Lauzier) was to retrieve these moorings and to conduct an intense gravity coring program (Asprey et al. 1984). The purpose of this Cruise 84-025 was to conduct a geophysical survey of the Saguenay Fiord using a Hunttec DTS (Deep Tow System). The survey has provided high quality data that will contribute to a more comprehensive interpretation of the environment. The detailed information gives a better understanding of sediment distribution patterns, gravity flow, and landslide deposit occurrences, some of which may have taken place over the last several thousand years.

PERSONNEL

RESPONSIBILITY

Dr. J.P.M. Syvitski	Environmental Marine Geology Subdivision Atlantic Geoscience Centre Chief Scientist and Hunttec operator
K.W. Asprey	Environmental Marine Geology Subdivision Atlantic Geoscience Centre Navigation and bathymetry
K.S. Hoskin	Environmental Marine Geology Subdivision Atlantic Geoscience Centre Navigation and bathymetry
P. Connolly	Hunttec (70) Ltd. Mobilization of DTS Equipment Hunttec operator

METHODS

The Huntec DTS (boomer) fish was towed from the stern of the vessel. Details of the equipment's configuration is given in Appendix I. The laboratory container on the port side was used as a base of operation for the Huntec operators and for the electronics. A cable was run from the ship's sounder on the bridge to the EPC recorders. When the ship passed over a fix the current marker was placed simultaneously on the sounder and EPC recorders.

The survey began in the middle of the St. Lawrence just off the mouth of the Saguenay. The ship's track followed the centre of the fiord on the way up and a zig-zag pattern on the way back down the fiord. (See Fig. 1 for ship's track and Appendix II for ship's log).

ACKNOWLEDGEMENTS

The authors would like to thank Dr. Stephen Peck D.F.O., Quebec, for making the necessary arrangements for ship time. A special thanks must also be given to the Captain, officers, and crew of the N.S.C. Louis M. Lauzier for their constant support during all phases of the cruise.

APPENDIX 1

EQUIPMENT

The DTS system was especially rigged for this survey. Basically, the DTS consisted of a standard Boomer Deeptow (540 joule maximum output) fitted with an external mesh 15/10P streamer and internal LC10 hydrophone. The DTS winch and tow cable were not sent. A special test cable was used to connect the towfish to the top side consoles. The towfish was deployed using the ship's 'A' frame and general-purpose winch, fitted with a steel cable to take the towing strains. This configuration limited towing depths to the length of the test cable (approximately 10 m).

EQUIPMENT PERFORMANCE

No major problems were encountered with the DTS. On two occasions the leak alarm sounded. A small amount of water was found in the ASU (a few drops). The source of the leak was not evident and the problem will be investigated during post-cruise servicing.

One of the EPC recorders supplied by AGC developed problems and will require servicing after the cruise. The KrohnHite filter was not operational when hooked up in the field. Due to these malfunctions, single-channel graphic recording was collected instead of two-channel (internal/external) as is normal. No spares were supplied with the EPC recorder, so no repairs could be effected.

APPENDIX II

BRIDGE LOG

Time	Fix #	Depth	Speed	Gyro Heading	Lat.	Long.
20:05	# 1	110	3.50	266°	48°07.54N	069°33.52W
20:25	# 2	86	3.00	266°	48°07.46N	069°35.00W
20:41	# 3	40	4.00	266°	48°07.39N	069°36.50W
20:57	# 4	30	4.00	266°	48°07.34N	069°37.99W
21:19	# 6	83	4.00	275°	48°07.57N	069°42.46W
21:39	# 7	154	3.00	287°	48°07.55N	069°42.50W
21:58	# 8	147	3.00	287°	48°07.86N	069°43.93W
22:12	# 9	180	4.00	287°	48°08.15N	069°45.48W
22:27	#10	215	4.00	287°	48°08.17N	069°45.80W
22:34	A/C			276°		
22:43	#11			276°	48°08.45N	069°48.30W
22:52	A/C			305°		
22:59	#12	200	4.00	305°	48°08.93N	069°49.73W
23:12	#13	140	4.40	305°	48°09.50N	069°50.95W
23:23	A/C			348°		
23:28	#14	90	4.00	348°	48°10.30N	069°52.00W
23:44	#15	100	4.00	348°	48°11.26N	069°52.30W
23:50	A/C			334°		
00:03	#16	178	4.40	335°	48°12.18N	069°52.85W
00:22	#17	150	3.25	334°	48°13.08N	069°53.50W
00:26	A/C	163		310°		
00:27	A/C	164		334°		
00:35	A/C	126		274°	48°13.85N	069°54.06W
00:45	#18	163	3.25	274°	48°13.89N	069°54.53W
00:54	A/C	150		284°		
01:06	#19	135	3.00	284°	48°13.98N	069°56.05W
01:22	#20	156	3.75	284°	48°14.19N	069°57.59W
01:29	A/C	152		302°		
01:35	#21	130	5.00	302°	48°14.66N	069°58.00W
01:48	A/C	151		279°		
01:50	#22	165	4.00	279°	48°15.15N	070°00.16W
02:02	#23	170	5.00	279°	48°15.41N	070°01.59W
02:09	A/C	174		267°		
02:15	#24	179	5.00	267°	48°15.38N	070°03.10W
02:31	#25	189	4.00	267°	48°15.33N	070°04.65W
02:46	#26	210	4.00	267°	48°15.38N	070°06.12W
03:01	#27	225	4.00	267°	48°15.27N	070°07.68W
03:05	A/C	230	4.00	301°		
03:16	#28	233	4.00	301°	48°15.61N	070°09.09W
03:31	#29	245	4.00	301°	48°16.10N	070°10.35W
03:46	#30	250	4.00	301°	48°16.65N	070°11.63W
04:01	#31	250	4.00	301°	48°17.12N	070°12.95W
04:14	#32	260	5.00	301°	48°17.66N	070°14.20W

Time	Fix #	Depth	Speed	Gyro Heading	Lat.	Long.
04:18	A/C	260		304°		
04:29	#33	270	5.00	304°	48°18.22N	070°15.50W
04:43	#34	265	4.28	304°	48°18.75N	070°16.75W
04:56	#35	260	4.60	304°	48°19.30N	070°17.98W
05:08	#36	260	5.00	304°	48°19.83N	070°19.20W
05:19 ⁵⁰	#37	260	5.00	304°	48°20.37N	070°20.40W
05:30 ³⁸	#38	268	5.50	304°	48°20.92N	070°21.62W
05:41	A/C	260		263°		
05:44 ⁵⁵	#39	260	4.20	263 ^{1/2} °	48°21.44N	070°23.00W
05:55 ⁵³	#40	260	5.00	263 ^{1/2} °	48°20.30N	070°20.40W
06:05 ¹⁰	#41	260	5.30	263 ^{1/2} °	48°20.18N	070°25.85W
06:08	A/C			281°		
06:15 ⁵⁰	#42	260	4.95	281°	48°21.32N	070°27.16W
06:30 ⁰⁵	#43	251	4.63	281°	48°21.55N	070°28.75W
06:42 ⁰⁰	#44	260	4.93	281°	48°21.68N	070°30.20W
06:54 ⁰⁰	#45	250	5.00	281°	48°21.85N	070°31.65W
07:06 ⁵⁰	#46	255	4.67	268°	48°22.05N	070°33.12W
07:07 ¹⁰	A/C			268°		
07:18 ⁰⁰	#47	255	3.80	268°	48°22.05N	070°34.50W
07:31 ⁴⁰	#48	255	4.45	268°	48°22.05N	070°36.04W
07:45 ²¹	#49	245	4.47	268°	48°21.97N	070°37.55W
07:59 ²⁰	#50	230	4.28	268°	48°21.90N	070°39.08W
08:12 ¹⁰	#51	230	4.70	268°	48°21.84N	070°40.49W
08:26 ⁵⁰	#52	225	4.10	267°	48°21.80N	070°42.02W
08:42 ¹⁵	#53	216	3.90	267°	48°21.75N	070°43.50W
08:56 ⁴⁰	#54	165	4.20	267°	48°21.70N	070°44.94W
08:10 ²⁰	#55	155	4.40	267°	48°21.65N	070°46.42W
08:22 ⁴⁵	#56	150	4.80	238°	48°21.20N	070°47.75W
08:35 ⁴⁵	#57	135	4.60	238°	48°20.60N	070°49.03W
08:49 ²⁰	#58	118	4.40	238°	48°20.16N	070°50.30W
				A/C		
10:00 ⁴⁵	#59	110	3.70	230/324°	48°19.82N	070°57.20W
10:13 ¹⁵	#60	92	2.40	324°	48°20.19N	070°51.56W
10:22 ⁵⁰	#61	94	5.40	324°	48°20.60N	070°52.10W
10:31 ³⁰	#62	75	3.50	114°	48°21.06N	070°52.42W
10:38 ³⁵	#63	95	4.20	114°	48°20.83N	070°51.86W
10:48 ³⁵	#64	98	3.00	114°	48°20.60N	070°51.15W
10:56 ⁰⁵	#65	122	4.00	114°	48°20.42N	070°50.50W
				A/C		
11:01 ⁴⁵	#66	88	5.50	114/018°	48°20.22N	070°49.82W
11:09 ⁵⁰	#67	130	3.70	018°	48°20.67N	070°49.56W
11:17 ⁵⁰	#68	135	5.00	018°	48°21.18N	070°49.71W
				A/C		
11:24 ²⁰	#69	135	4.60	018/124°	48°21.43N	070°49.96W
11:32 ⁰⁰	#70	150	5.30	124°	48°21.15N	070°48.36W

Time	Fix #	Depth	Speed	Gyro Heading	Lat.	Long.
11:38 ⁴⁰	#71	150	4.50	124°	48°20.86N	070°47.73W
				A/C		
11:49 ⁰⁰	#72	110	2.90	124/015°	48°20.70N	070°47.18W
11:56 ³⁵	#73	150	4.00	015°	48°21.18N	070°47.00W
12:04 ²⁶	#74	155	3.75	015°	48°21.63N	070°46.80W
12:13 ²⁸	#75	160	3.40	015°	48°22.10N	070°46.61W
				A/C		
12:21 ³⁵	#76	150	3.75	015/108°	48°22.41N	070°46.25W
12:28 ³⁰	#77	150	4.25	108°	48°22.25N	070°45.53W
12:35	#78	172	4.25	108°	48°22.10N	070°44.81W
12:43 ³⁴	#79	193	3.75	108°	48°21.96N	070°44.09W
				A/C		
12:50 ⁵⁰	#80	208	4.25	108/318°	48°21.80N	070°43.40W
13:03 ⁰⁰	#81	182	4.50	338°	48°22.72N	070°43.92W
13:15 ²¹	#82	162	5.00	338°	48°23.67N	070°44.47W
				A/C		
13:28 ²²	#83	136	4.60	338/304°	48°24.58N	070°45.03W
				A/C		
13:43 ⁰⁰	#84	130	4.00	304/257.5°	48°25.09N	070°46.29W
13:59	#85	110	3.75	257.5°	48°24.86N	070°47.75W
14:11	#86	96	5.00	257.5°	48°24.63N	070°49.19W
				A/C		
14:28	#87	84	3.50	309.5°	48°24.68N	070°50.58W
14:47	#88	62	3.25	308°	48°25.30N	070°51.70W
14:56 ³⁶	#89	32	6.00	A/C	48°25.79N	070°52.59W
15:16 ²⁴	#90	30	-	166.5°	48°25.98N	070°52.48W
15:26	#91	44	3.50	166.5°	48°25.38N	070°52.28W
				A/C		
15:31	#92	32	4.75	079.5°	48°25.03N	070°52.12W
15:37	#93	73	5.00	079.5°	48°25.12N	070°51.34W
				A/C		
15:46	#94	75	4.25	173°	48°25.23N	070°50.36W
15:52	#95	86	5.00	173°	48°24.71N	070°50.28W
				A/C		
15:58	#96	75	4.50	101°	48°24.28N	070°50.20W
				101° A/C		
16:03	#97	93	5.00	079°	48°24.19N	070°49.48W
				79° A/C		
16:09	#98	104	4.50	000°	48°24.28N	070°48.75W
				000° A/C		
16:23	#99	75	3.75	118°	48°25.18N	070°48.72W
16:36	#110	109	4.50	118°	48°24.69N	070°47.44W
16:49	#111	60	4.50	118°	48°24.20N	070°46.10W

Time	Fix #	Depth	Speed	Gyro Heading	Lat.	Long.
17:00	#112	140	5.00	A/C 78.5°	48°24.22N	070°44.83W
17:10	#113	120	4.00	A/C 335°	48°24.35N	070°43.87W
17:27	#114	80	4.25	A/C 238°	48°25.30N	070°44.55W
17:39	#115	120	4.00	238°	48°24.78N	070°45.82W
17:56	#116	74	3.50	A/C 006°	48°24.08N	070°47.03W
18:12	#117	107	5.00	A/C 112 ^{1/2} °	48°25.61N	070°46.83W
18:25	#118	130	4.50	112 ^{1/2} °	48°25.25N	070°45.48W
18:29				A/C 148°		
18:39	#119	132	4.10	148°	48°24.60N	070°44.52W
18:43 ^{1/2}				A/C 151°		
18:51	#120	135	5.00	151°	48°23.73N	070°43.80W
19:01 ^{1/2}	#121	150	5.50	151°	48°22.84N	070°23.10W
19:03 ^{1/2}				A/C 266°		
19:16 ^{1/2}	#122	184	4.15	266°	48°22.64N	070°43.95W
19:25	#123	153	4.90	A/C 164°	48°22.60N	070°45.00W
19:41	#124	180	4.50	A/C 100°	48°21.38N	070°44.50W
19:59	#125	210	4.30	A/C 001°	48°21.18N	070°42.58W
20:16	#126	170	4.20	A/C 128°	48°22.36N	070°42.50W
20:26	#127	220	5.50	128°	48°21.70N	070°41.30W
20:36				A/C 028°		
20:40	#128	180	5.50	028°	48°21.38N	070°40.25W
20:54 ^{1/2}	#129	220	4.34	028°	48°22.36N	070°39.55W
21:03	#130	180	7.10	A/C 132°	48°22.95N	070°38.7W
21:16	#131	240	4.00	132°	48°22.38N	070°37.85W
21:29 ^{1/2}	#132	242	4.50	132°	48°21.70N	070°36.75W
21:36				A/C 054°		
21:41	#133	235	4.20	054°	48°21.60N	070°35.62W

Time	Fix #	Depth	Speed	Gyro Heading	Lat.	Long.
07:59	#161	245	4.00	096° A/C 125°	48° 16.70N	070° 11.21W
08:13	#162	235	3.40	069 A/C 205°	48° 16.70N	070° 10.05W
08:21	#163	240	3.00	205°	48° 16.31N	070° 13.00W
08:28	#164	235	3.90	205°	48° 15.50N	070° 10.58W
08:34	#165	220	5.00	205°	48° 15.48N	070° 10.90W
08:40	#166	125	3.40	A/C 205/083°	48° 15.13N	070° 11.08W
08:50	#168	225	4.20	A/C 083/066°	48° 15.19N	070° 10.09W
09:04	#169	220	4.30	066°	48° 15.59N	070° 08.67W
09:17	#170	220	4.60	A/C 066/138°	48° 15.30N	070° 07.61W
09:32	#171	195	4.00	A/C 138/072°	48° 14.64N	070° 06.65W
09:46	#172	180	3.80	077°	48° 14.80N	070° 05.28W
10:01	#173	175	4.00	077°	48° 15.05N	070° 03.81W
10:15	#174	160	4.30	077°	48° 15.25N	070° 02.36W
10:29	#175	175	4.30	077°	48° 15.50N	070° 00.93W
10:44	#176	125	4.00	A/C 077/119/107°	48° 15.32N	069° 59.63W
10:52	#177	80	4.80	A/C 107/246°	48° 15.10N	069° 58.74W
10:58	#178	125	4.00	246°	48° 14.90N	069° 59.22W
10:05	#179	100	4.30	A/C 246/098°	48° 14.70N	069° 59.80W
11:19	#180	140	4.30	A/C 099/130°	48° 14.50N	069° 57.87W
11:38	#181	165	3.10	A/C 130/095°	48° 13.85N	069° 56.70W
11:51	#182	170	4.60	098°	48° 13.75N	069° 55.22W
12:05	#183	152	4.25	A/C 107°	48° 13.49N	069° 53.77W
12:21	#184	150	3.75	A/C 214°	48° 12.98N	069° 53.42W
12:35	#185	82	4.25	A/C 126°	48° 12.08N	069° 53.52W
12:50	#186	75	4.00	169°	48° 11.21N	069° 52.82W

Time	Fix #	Depth	Speed	Gyro Heading	Lat.	Long.
				A/C		
21:55 ^{1/2}	#134	254	4.26	054°	48°22.20N	070°34.37W
				054 A/C		
22:07	#135	240	5.20	156°	48°22.75N	070°33.1W
22:23	#136	260	3.60	156°	48°21.87N	070.32.5W
				156 A/C		
22:35	#137	240	4.50	075°	48°21.10N	070.31.83W
22:47	#138		4.50	076°	48°21.20N	070.30.4W
23:01	#139	260	4.30	076°	48°21.45N	070°29.92W
23:14	#140	260	4.60	076°	48°21.60N	070°27.41W
				A/C		
23:20				140°		
23:25	#141	260	4.90	140°	48°21.43N	070°25.87W
				140 A/C		
23:37	#142	265	5.00	051°	48°20.71N	070°25.32W
23:50	#143	265	4.60	051°	48°21.30N	070°24.18W
				A/C		
00:04	#144	255	4.25	168°	48°21.99N	070°23.00W
00:118	#145	262	3.90	168°	48°21.27N	070°22.54W
				A/C		
00:25	#146	260	5.00	070°	48°20.64N	070°22.31W
				A/C		
00:39	#147	240	5.00	172°	48°21.09N	070°20.47W
00:51	#148	265	4.00	172°	48°20.28N	070°20.31W
				A/C		
01:00	#149	170	4.25	085°	48°19.62N	070°20.18W
01:15	#150	260	3.50	085°	48°19.83N	070°18.90W
				A/C		
01:23	#151	260	5.00	096°	48°19.61N	070°17.69W
				A/C		
01:28	#152	250	5.00	278°	48°19.53N	070°17.12W
				A/C		
01:47	#153	265	2.50	219	48°19.24N	070°18.20W
				A/C		
02:06	#154	100	3.50	052	48°18.36N	070°19.26W
				A/C		
03:48	#155	255	4.50	096°	48°19/08N	070°17.77W
				096° A/C		
06:53	#156	260		206°	48°18.88N	070°16.00W
				206° A/C		
07.06	#157	250	3.70	096°	48°18.10N	070°16.37W
07:16	#158	260	5.10	096°	48°17.96N	070°15.15W
				096° A/C		
07.29	#159	255	4.60	125°	48°17.87N	070°13.63W
07:44	#160	250	4.00	125°	48°17.26N	070°12.42W

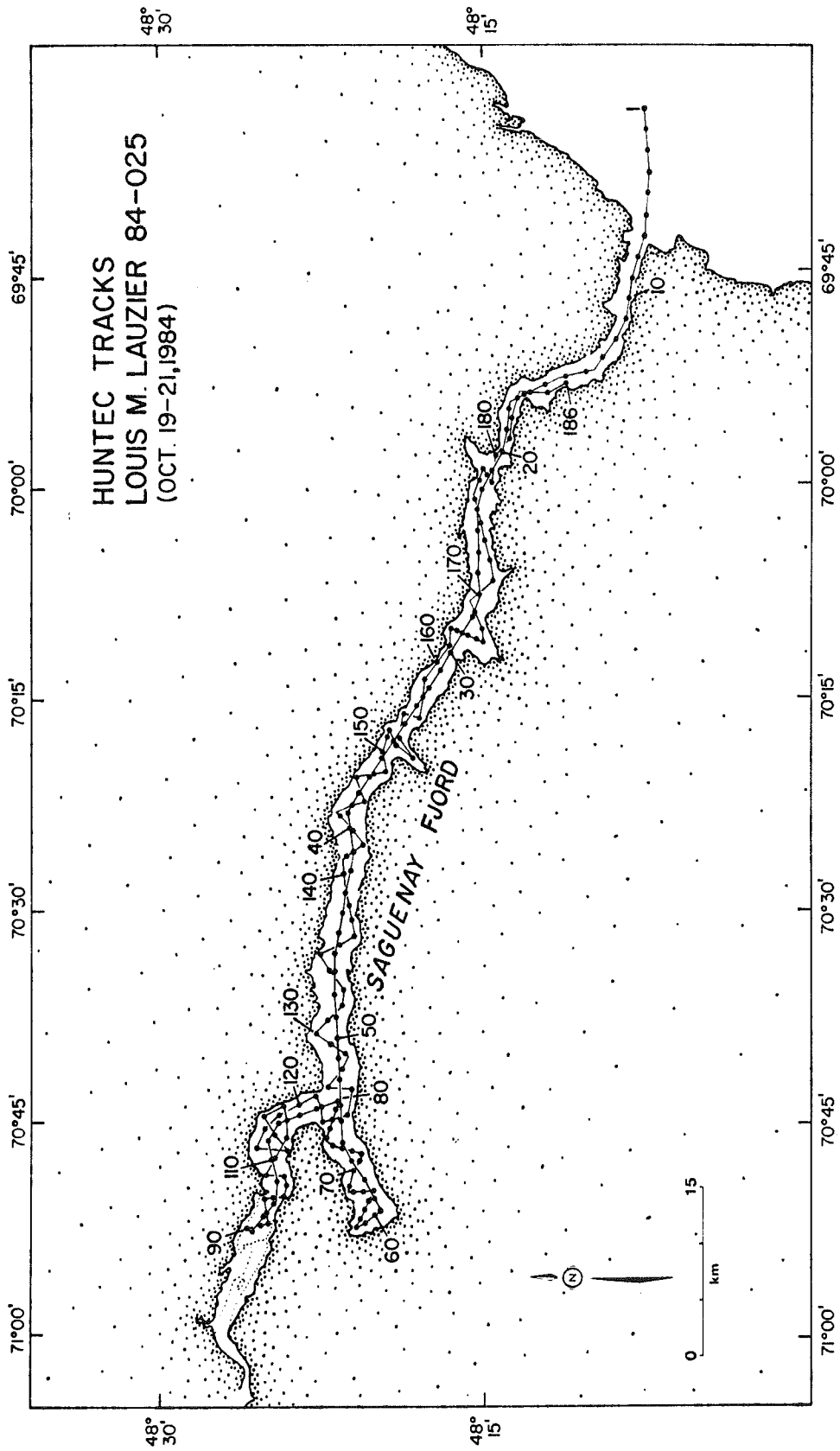


FIGURE 1