UNITED STATES DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

Ice Gouge Data Sets from the Alaskan Beaufort Sea: Magnetic Tape and Documentation for Computer Assisted Analyses and Correlation

by

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Open-File Report 83-706

This report is preliminary and has not been reviewed for conformity with U.S. Geological Survey editorial standards and stratigraphic nomenclature.

1. Menlo Park, California

1983

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Two ice gouge studies have produced data on the size, density, orientation, and location of ice gouges in the Alaskan Beaufort Sea (Rearic et al., 1981 and Reimnitz et al., 1982) (Fig. 1). The large size of the data set required computer assisted methods for the analyses and correlation of the ice gouge characteristics (Barnes et al., in press; Reimnitz et al., 1982; and Weeks et al., in press). This report contains the documentation on the format and data fields for digital tapes that are available from National Geophysical Data Center., NOAA-Code E64, 325 Broadway, Boulder, Colorado 80303, telephone (303) 497-6338. The data are on two tape files. File 1 contains 2071 records of data for the Beaufort Sea shelf west of the Canning River ($\sim 146^0$W) and corresponds to U.S. Geological Survey Open-File Report #81-950. File 2 contains 372 records of data for the U.S. Beaufort Sea shelf east of the Canning River and corresponds to U.S. Geological Survey Open-File Report #82-974.

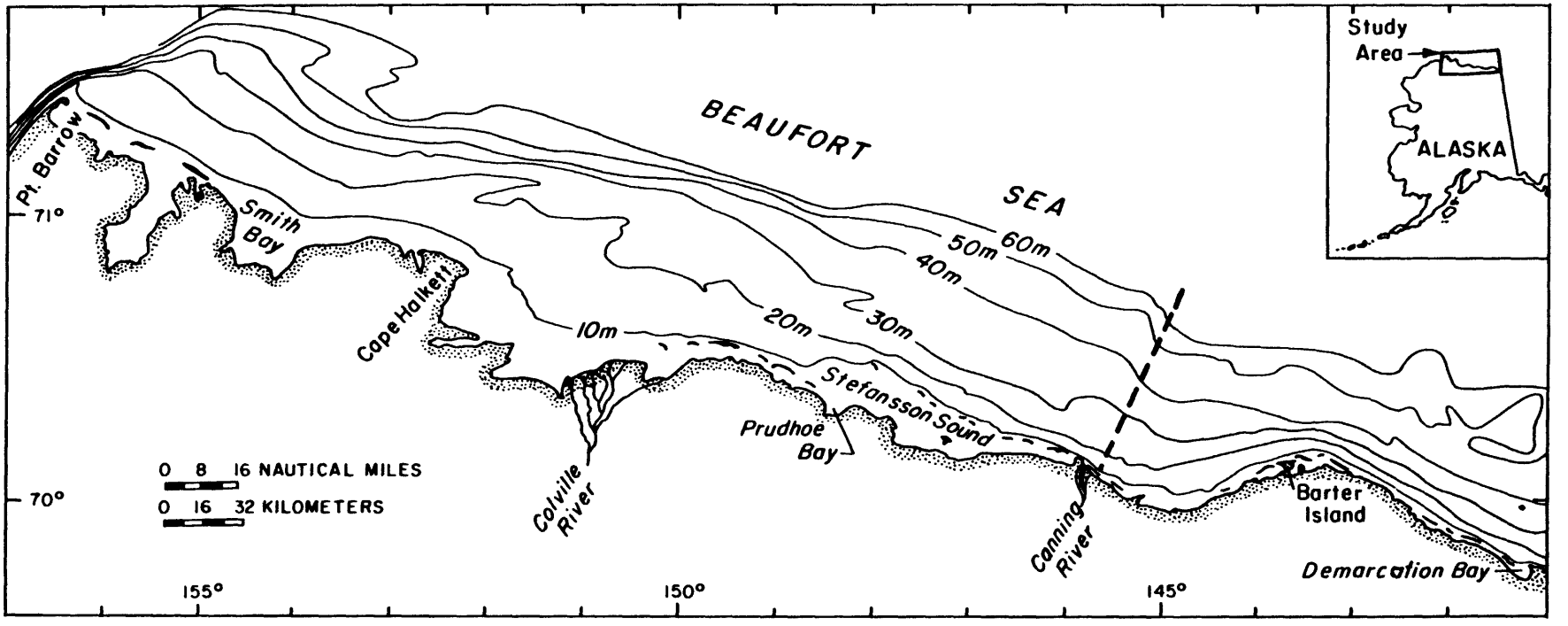
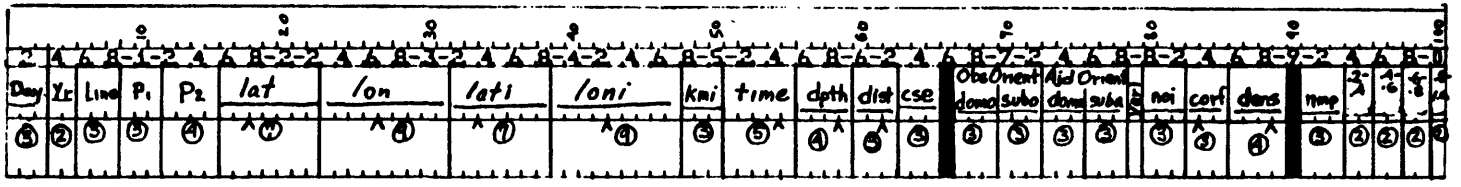
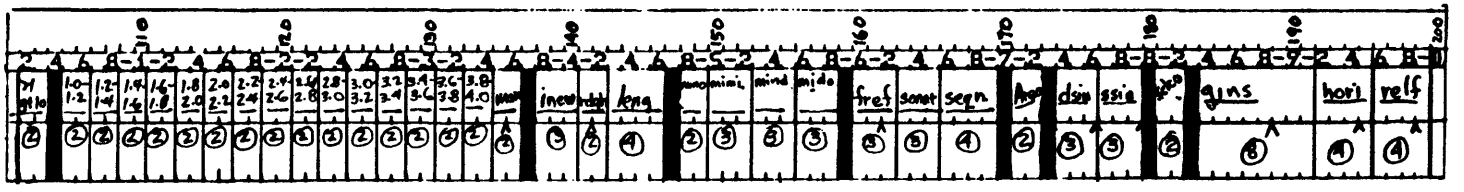


Figure 1. Location map for ice gouge data (magnetic tape files 1 and 2) of the Alaskan Beaufort Sea shelf. Dashed line extending offshore from the Canning River is the approximate division between file 1 data (west of dashed line) and file 2 (east of dashed line). Trackline locations may be found by consulting U.S.G.S. Open-File Reports #81-950 and #82-974.

ICE GOUGE AND NAVIGATION DATA FORMAT





NOTES

Record is 199 chars. long

"line" and "segn" are right justified.

"p1" and "p2" are left justified

Sort file on fields//length
1/2 6/3 166/4

Columns 4-11
(Yr + line + P1)
can be used as 8 char unique i.d. for each record

DATA DICTIONARY

FOR DATA: Ice Gouges

BY PERSON: Graig M cHendrie

ON DATE: March 20, 1981

Revised May 17, 1982

Datum No.	Datum Name	English Name	Description	Allowed Values	Type *	Merged Nav / pre-SPSS Columns	pre-SPSS Format	Justification	Source	Missing Datum Value	Missing Datum Set BY	
1	DAY	Day	"Julian" day number	1-366	A	3-5/1-2	a3/a2	R	Hand Coding	NA	NA	
2	YR	Year	last 2 digits of year		I	1-2/3-5	i2/a3	NA	Hand Coding	NA	NA	72-3, 75-80
3	LINE	Line number	Track line identifier		A	6-8/6-8	a3/a3	R	Hand Coding	NA	NA	
4	P1	Point 1	Interval start point	A-ZZZ	A	9-11/9-11	a3/a3	L	Hand Coding	NA	NA	
5	P2	Point 2	Interval end point	A-ZZZZ END	A	12-15/12-15	a4/a4	L	Hand Coding	NA	NA	
6	LAT	Latitude	Latitude of P1		D	16-23/16-22	f8.5/f7.5	NA	Program 'merge_nav'	NA	NA	Decimal degrees NAD '27
7	LON	Longitude	Longitude of P1		D	24-33/23-31	f10.5/f9.5	NA	Program 'merge_nav'	NA	NA	Negative value
8	LATI	Interval Lat	Latitude at mid-point of interval		D	34-41/32-38	f8.5/f7.5	NA	Program 'interp_nav'	NA	NA	ibed (By linear interpolation)
9	LONI	Interval Long	Longitude at mid-point		D	42-51/39-47	f10.5/f9.5	NA	Program 'interp_nav'	NA	NA	ibeb (By linear interpolation)
10	KMI	Interval No.	Interval number, in kilometers from start of line.	0:999	I	52-54/48-50	i3/i3	R	Hand Coding	999	NA	
11	TIME	Time of day	Time at P1, hours decimal minutes in hhmm.m	0000.0-2359.9	A	55-60/51-55	f6.1/f5.1	NA	Hand Coding	NA	NA	
12	DPTH	Water depth	Depth in meters	0.1:999.9/-1.0	D	61-65/56-59	f5.1/f4.1	NA	Hand Coding	-1.0	check_fmt_dp	
13	DIST	Distance	Straight line distance between P1 and nearest coastal point, in kilometers	0.1:99.9	D	66-69/60-62	f4.1/f3.1	NA	Hand Coding	99.9	check_fmt_dp	
14	CSE	Course	Ships heading, degrees True	0-360	I	70-72/63-65	i3/i3	NA	Hand Coding	999	NA	

*Type: A = alpha, I = integer, D = decimal

GRSH March 13, 1981

DATA DICTIONARY

FOR DATA: Ice Gouge, Page 2 BY PERSON: ON DATE:

Datum No.	Datum Name	English Name	Description	Allowed Values	Type *	Merged Nav/pre-SPSS Columns	Merged Nav/pre-SPSS Format	Justification	Source	Missing Datum Value	Missing Datum Set By
15	DOMO	Dominant Orientation, observed	Observed orientation of dominant gouges, relative to tract line	0:360	I	74-76/67-69	i3 / i3	R	Hand Coding	999	hand coding
16	SUBO	Subordinate Observed orient.	Observed orientation of subordinate gouges.	0:360	I	77-79/70-72	i3 / i3	R	Hand Coding	999	hand coding
17	DOMA	Dominant orientation, adjusted	Orientation of dominant gouges, adjusted by ship's course to geographic orientation.	0:180	I	80-82/73-75	i3 / i3	NA	Hand coding (0-360), check_fmt_dp' to 000-180	-1	'check_fmt_dp'
18	SUBA	Subordinate adjusted orient.	Subordinate orientation, adjusted to geographic N/S	0:180	I	83-85/76-78	i3 / i3	NA	ibid	-1	check_fmt_dp
19	VARI	Orientation Variability	Code for variability in orientations: L=low (1 or 2 values), M=medium (bi-modal), H=high (wide scatter)		A	86 / 79	a1 / a1	NA	Hand Coding	NA	NA
20	NOI	Number of Incisions	Number of incisions in interval	0:999	I	87-89/80-82	i3 / i3	R	Hand Coding	999	check_fmt_dp
21	CORF	Correction Factor	Factor for relative orientation, record width and length	0.01 : 9.99	D	90-93/83-85	f4.2/f3.2	NA	Hand Coding	9.99	hand coding
22	DENS	Gouge Density	Number of gouges/sq. km	0.1:999.9/ -1.0	D	94-98/86-89	f5.1 / f4.1	NA	Hand Coding	-1.0	'check_fmt_dp'
23	NMP	No measurement possible	No of features recognizable as gouges but not possible to measure depth - gouges generally less than 20 cm deep.	0:999		100-02/91-93	i3 / i3	R	Hand Coding	999	hand coding

*Type: A= alpha, I= integer, D= decimal

5.

DATA DICTIONARY

FOR DATA: Ice Gouges, page 3 BY PERSON: ON DATE:

Datum No.	Datum Name	English Name	Description	Allowed Values	Type *	Merged Nav/pre-SPSS Columns	Merged Nav/pre-SPSS Format	Justification	Source	Missing Datum Value	Missing Datum Set By	
24	LT04	Less than 0.4	Number of gouges with a depth between 0.2-0.4 m	0:99	I	103-4 / 94-95	i2 / i2	R	Hand Coding	99	hand coding	
25	LT06	" 0.6	0.4:0.6m			105-6 / 96-97	i2 / i2	R	Hand Coding	99	hand coding	
26	LT08	" 0.8	0.6:0.8m	"	I	107-8 / 98-99	i2 / i2	R	Hand Coding	99	hand coding	
27	LT10	" 1.0	0.8:1.0m	"	I	109-10 / 100-01	i2 / i2	R	Hand Coding	99	hand coding	
28	GT10	Greater 1.0m	Number of gouges with depths >1.0m	0:99	I	111-12 / 102-03	i2 / i2	R	Hand Coding	99	hand coding	
29	LT 12	Less than 1.2		0 : 99	I	114-15	105-06 i2 / i2	R	Hand Coding	99	hand coding	
30	14	" 1.4				116-17	107-08					
31	16	" 1.6				118-19	109-10					
32	18	" 1.8				120-21	111-12					
33	20	" 2.0				122-23	113-14					
34	22	" 2.2				124-25	115-16					
35	24	" 2.4				126-27	117-18					
36	26	" 2.6				128-29	119-20					
37	28	" 2.8				130-31	121-22					
38	30	" 3.0				132-33	123-24					
39	32	" 3.2				134-35	125-26					
40	34	" 3.4				136-37	127-28					
41	36	" 3.6				138-39	129-30					
42	38	" 3.8				140-41	131-32					
43	40	" 4.0		0 : 99	I	142-43	133-34 i2 / i2	R	Hand Coding	99	hand coding	
44	MAX	Maximum Depth	Deepest gouge, meters	0.1:9.9 / -0.1	D	144-46 / 135-6	f3.1 / f2.1	NA	Hand Coding	-0.1	check_fmt_dp	Next column is blank; use (I135, f3.0) in SPSS fmt for depth in cm

*Type: A = alpha, I = integer, D = decimal

DATA DICTIONARY

FOR DATA: Ice Gouges, page 4 BY PERSON: _____ ON DATE: _____

Datum No.	Datum Name	English Name	Description	Allowed Values	Type *	Merged Nav/Pre-SPSS Columns	Merged Nav/Pre-SPSS Format	Justification	Source	Missing Datum Value	Missing Datum Set By	
45	INCW	Max incision width	Widest gouge, meters	0:999	I	148-50/138-40	i3 / i3 v	R	Hand coding	-1	hand coding	
46	RDGH	Max ridge height	Highest ridge, meters	0.1:9.9/-0.1	D	151-53/141-42	f3.1 / f2.1	NA	Hand Coding	-0.1	'check_fmt_dp'	
47	LENG	Max gouge length	Longest gouge, meters (unusable measure!)	0:9999/-1	I	154-57/143-46	i4 / i4	R	Hand Coding	-1	'check_fmt_dp'	
48	MINO	Multi-incisions	Number of multi-incision gouges	0:99	I	159-60/148-49	i2 / i2	R	Hand Coding	99	hand coding	
49	MIMI	Max incs/gouge	Maximum number of incisions per gouge in interval	0:999	I	161-63/150-52	i3 / i3	R	Hand Coding	999	hand coding	
50	MIMD	Max disturbance	Maximum width of disturbance in interval	0:999	I	164-66/153-55	i3 / i3	R	Hand Coding	999	hand coding	
51	MIDO	Dominant orientation	Dominant orientation of multi-incisions - average adj. orient.	0:180	I	167-69/156-58	i3 / i3	R	Hand Coding	999	hand coding	Adj. from 0-360 to 0-180 made by SPSS
52	FREF	1st Reflector	First horizon depth below sea level.	0.1:99.9/-1.0	D	171-74/160-62	f4.1 / f3.1	NA	Hand Coding	99.9	'check_fmt_dp'	
53	SONR	Sonar Range	Range of sonar, meters	0:999	I	175-77/163-65	i3 / i3	R	Hand Coding	999	hand coding	
54	SEQN	Sequence Number	Record sequence number within line.	0:9999	I	178-81/166-69	i4/i4	R	number_pts	NA	NA	
55	AREA	Area Code	Area code	00:99	I	182-83/171-72	i2/i2	R	Hand Coding	NA	NA	

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GAGH March 13, 1981

DATA DICTIONARY

FOR DATA: Ice Gouges, page 5 BY PERSON: ON DATE:

Datum No.	Datum Name	English Name	Description	Allowed Values	Type *	Columns	Format	Justification	Source	Missing Datum Value	Missing Datum Set By	
56.	dsin	Dominant sin	Sin of dominant orientation x 1000	0-999	R	NA /174-176	f3.3	NA	program "cv4sp"	-100	cv4sp/hand	
57.	ssin	Subordinate sin	Sin of subordinate orientation x 1000	0-999	R	NA /177-179	f3.3	NA	program "cv4sp"	-100	" "	
58.	sc	Sediment Cohesion		SN, RC, ΔT	A	NA /181-182	a2	R	program - setco			
59	gdns	gouge intensity	dens x max x incw	0.000: 99999.999	R	184-191	f8.3	R	SPSS	-1.0	SPSS	
60	hori	horizon thickness	Thickness of sediments above 1st. refl.	0:9999	R	192-195	f4.1	NA	SPSS	-1.0	SPSS	
61	relf	relief	Max depth + ridge height	0:9999	R	196-199	f4.1	NA	SPSS	-1.0	SPSS	

*Type: A = alpha, I = integer, D = decimal

GREEN March 17, 1981

References

Barnes, P. W., Rearic, D. M., and Reimnitz, Erk, in press, Ice gouge characteristics and processes: in Barnes, P. W., Schell, D. M., and Reimnitz, E., (eds.), The Alaskan Beaufort Sea - Ecosystem and Environment, Academic Press, New York, 36 p.

Rearic, D. M., Barnes, P. W., and Reimnitz, Erk, 1981, Ice gouge data, Beaufort Sea, Alaska, 1972-1980: U.S. Geological Survey Open-File Report #81-950, 8 microfiche cards.

Reimnitz, Erk, Barnes, P. W., Rearic, D. M., Minkler, P. W., Kempema, E. W., and Reiss, T. E., 1982, Marine geological investigations in the Beaufort Sea in 1981 and preliminary interpretations for regions from the Canning River to the Canadian Border: U.S. Geological Survey Open-File Report #82-974, 46 p.

Weeks, W. F., Barnes, P. W., Rearic, D. M., and Reimnitz, Erk, in press, Some probabilistic aspects of ice gouging on the Alaskan shelf of the Beaufort Sea: in Barnes, P. W., Schell, D. M., and Reimnitz, E., (eds.), The Alaskan Beaufort Sea - Ecosystem and Environment, Academic Press, New York, 40 p.