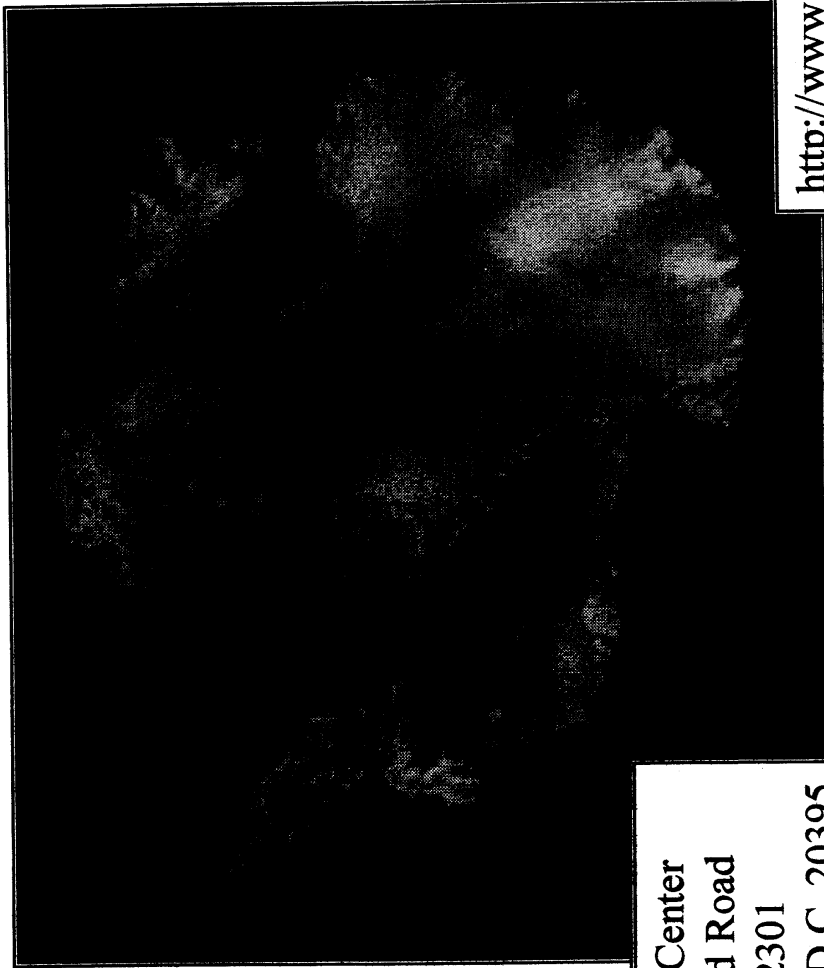


**National Ice Center  
Antarctic Sea Ice Atlas  
1995**



19990722 018

**National Ice Center  
4251 Suitland Road  
FB4, Room 2301  
Washington D.C. 20395**

<http://www.natice.noaa.gov>

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## PREFACE

The National Ice Center (NIC), under sponsorship of the United States Navy, the United States Coast Guard, and the National Oceanic and Atmospheric Administration (NOAA), provides sea ice analyses encompassing the "Arctic" and the "Antarctic". These analyses continue the data set established under our previous name, the Joint Ice Center. These atlases continue the near real-time integration of remotely sensed data and point observations and differ only in that the Arctic and Antarctic are split into two separate publications per hemisphere per year.

This publication is the 10<sup>th</sup> edition of the annual "Antarctic Sea Ice Atlas" published in hard copy format by the NIC. The atlas contains weekly charts depicting the sea ice extent and coverage in the Southern Hemisphere from the first week of January through December 1995.

The NIC uses a wide variety of data sources in the production of sea ice analyses. Table 1 lists the data sources used to produce the Antarctic weekly ice analyses contained in this publication. The line types used in the analyses provide metadata information with regard to sensor type. Solid lines depict boundaries derived from: point observations, Defense Meteorological Satellite Program Operational Line Scan (DMSP OLS) and NOAA Advanced Very High-Resolution Radiometer (AVHRR) data. Dash-dash-dotted line depicts boundaries derived from DMSP Special Sensor Microwave Imager (SSM/I), and dashed lines depict boundaries derived from forecast models and climatology.

Please direct questions or comments to the NIC Liaison Branch, at phone number (301) 457-5303 extension 311 or 303, facsimile number (301)457-5300, or electronic mail address: [liaison@natice.noaa.gov](mailto:liaison@natice.noaa.gov)

**Atlas addendum:** This publication is intended to serve as an interim solution, while transitioning to distribution via CD-ROM. The purpose of this atlas is to make all National Ice Center (NIC) sea ice charts available to customers using NIC designated archive centers. By fall 1999, it is anticipated that NIC will complete and distribute Arctic/Antarctic ice atlases on CD-ROM for 1995, 1996, 1997 and 1998. It should be noted that the charts presented in this atlas have been drawn by hand for operational use. Corrections to "hand annotations" are visible on some of the charts in the atlas.

From	To	Sensor Platform	Sensor and Type	Spectral Region	Resolution	Coverage
01-95	12-95	DMSP F-10, 11, 12, 13	OLS Fine: VIS IR SSM/I	0.4 to 1.1 $\mu$ m 10.2 to 12.8 $\mu$ m 19.35 and 37GHz	0.55 km  25 km	3,012km  3,012km
01-95	12-95	NOAA 12, 14	AVHRR: HRPT/LAC VIS NIR IR	0.58 to 0.68 $\mu$ m 0.72 to 1.10 $\mu$ m 3.55 to 3.9 $\mu$ m	1.1km at nadir; 2.5km at swath edge	4,000km

**TABLE 1. 1995 Antarctic Satellite Data Sources**

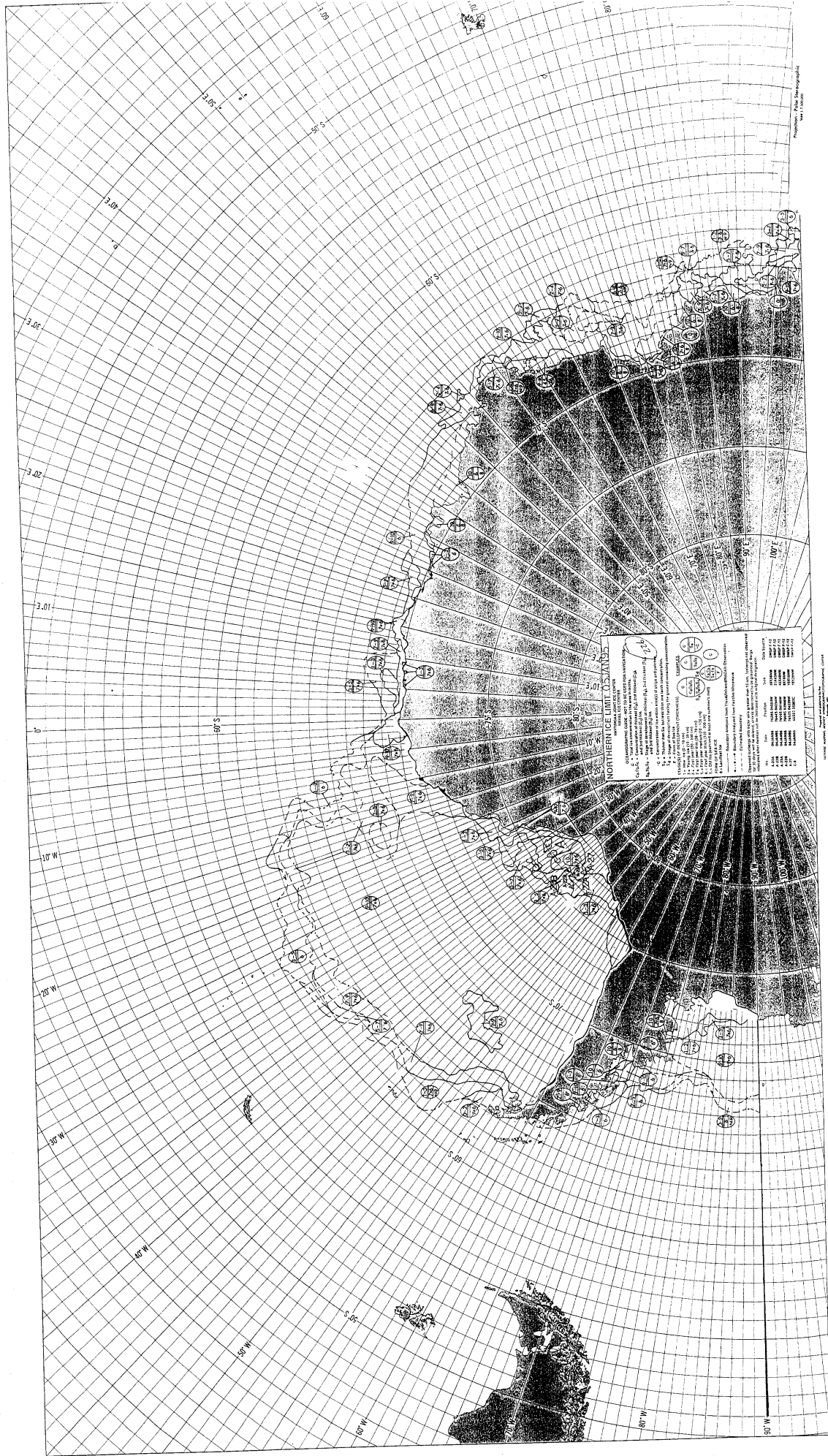
Note: DMSP F-13 launched 03/24/95

### Abbreviations and Acronyms:

AVHRR- Advanced Very High Resolution Radiometer  
cm- centimeter  
GHz- Gigahertz  
HRPT- High Resolution Picture transmission  
IR- Infrared  
km- kilometer  
LAC- Local Area Coverage  
NIR- Near Infrared  
OLS- Operational Linescan System  
SSM/I- Special Sensor Microwave Imager  
 $\mu$ m- micrometer  
VIS- Visible

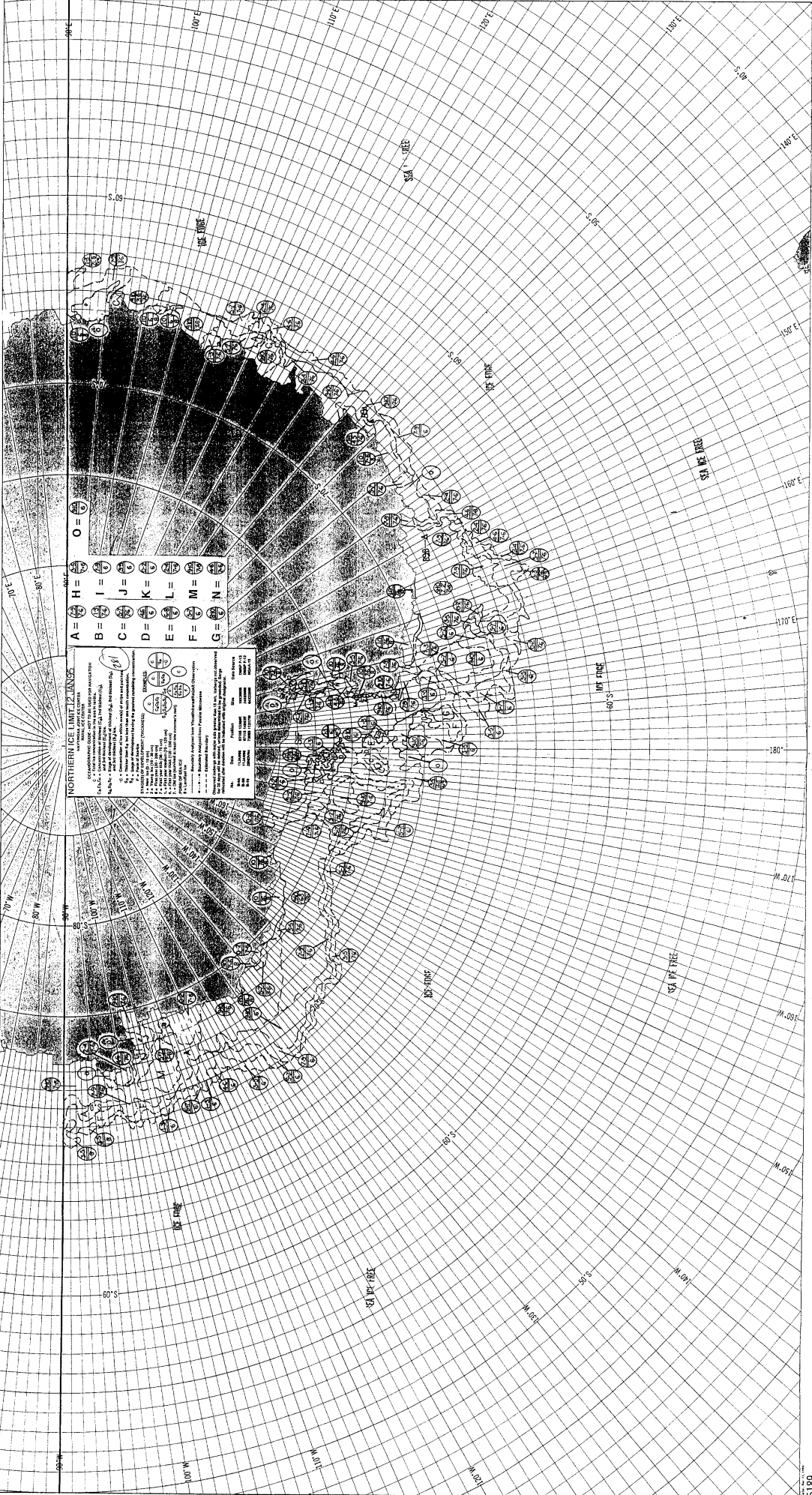
Antarctica satellite composite courtesy of United States Geological Survey, Flagstaff, AZ.  
(<http://TerraWeb.wr.usgs.gov/TRS/projects/Antarctica/color/images>).

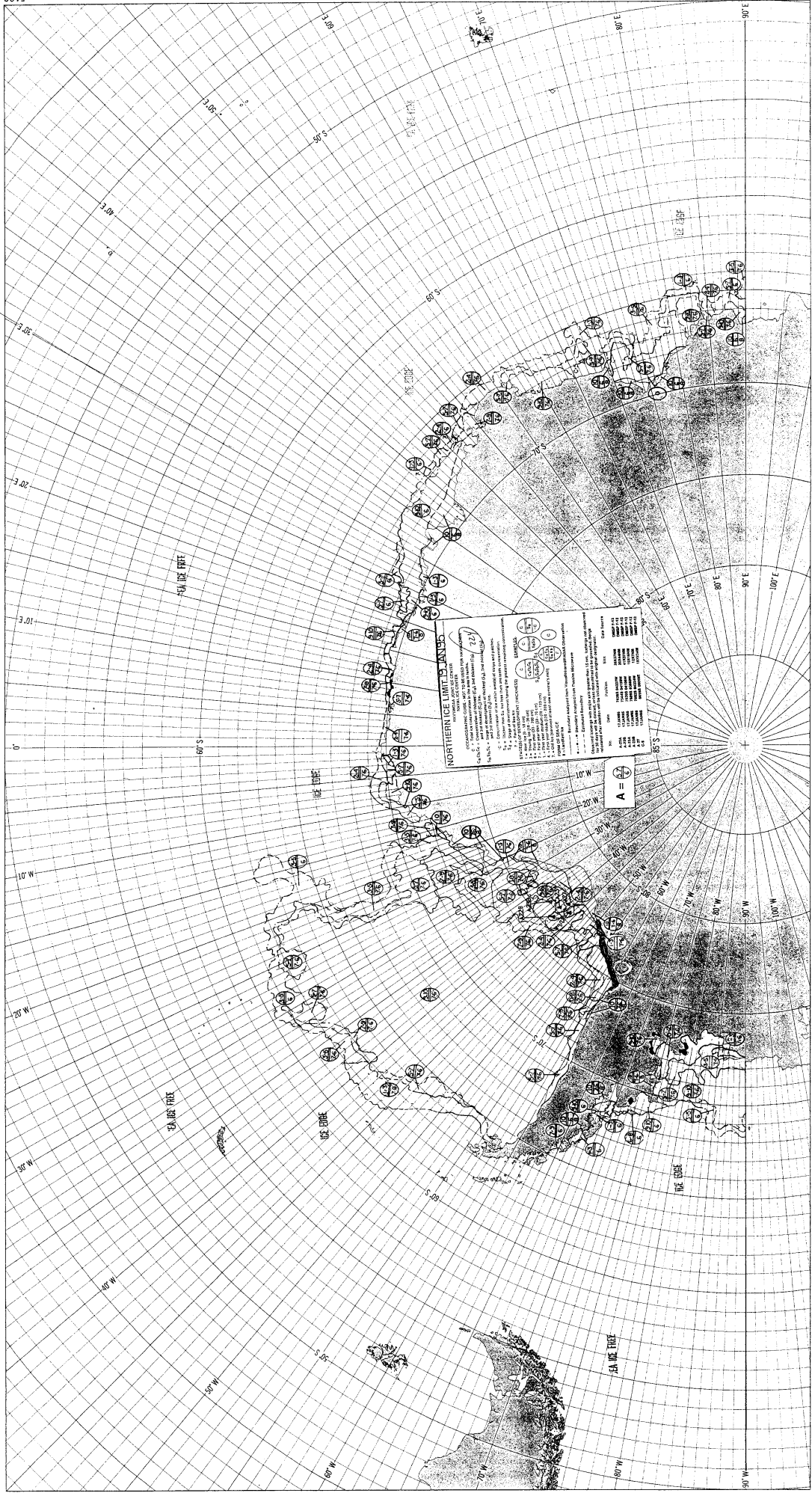
Prepared under the authority of Commander, Naval Oceanography Command, Stennis Space Center, MS 39529-5000







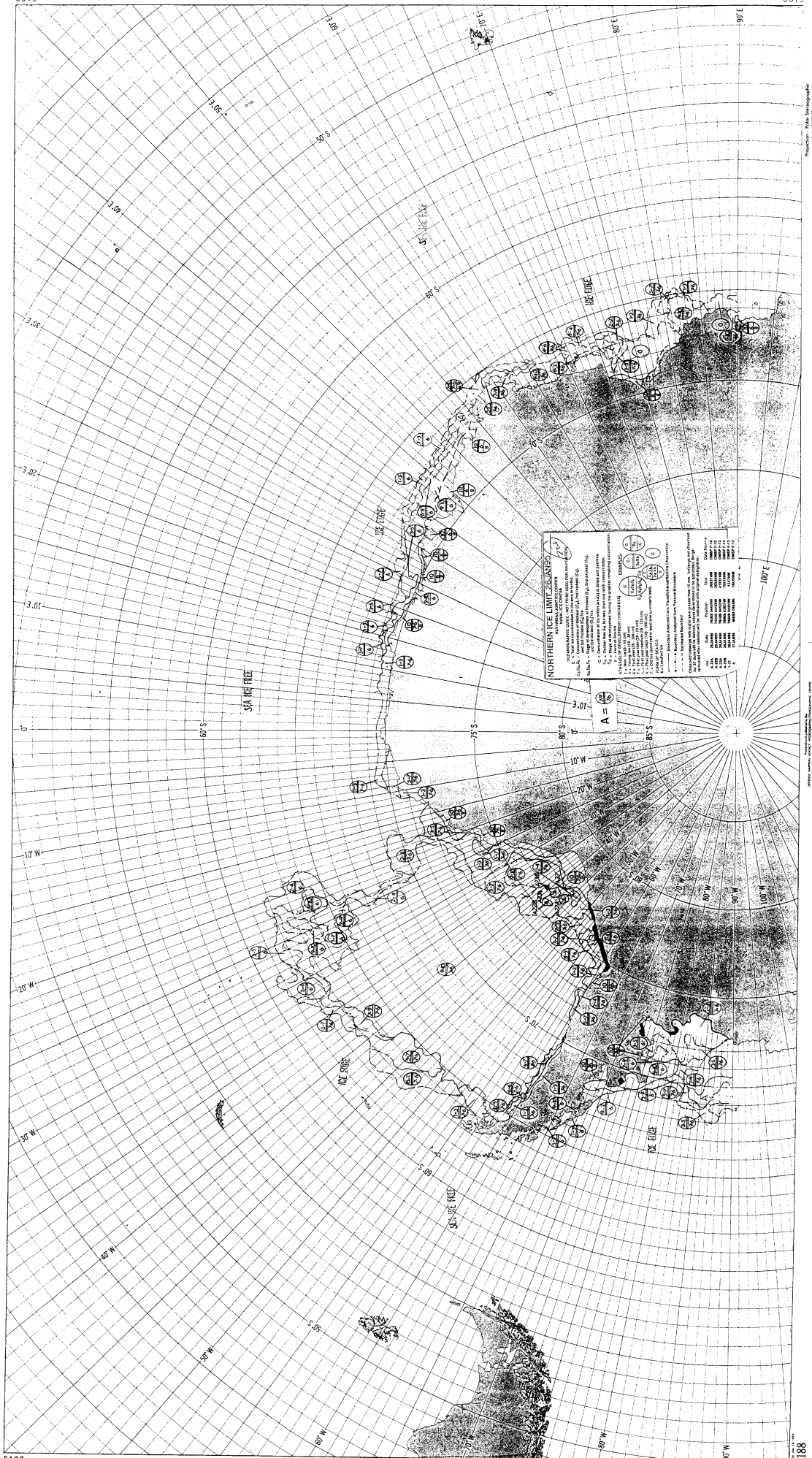




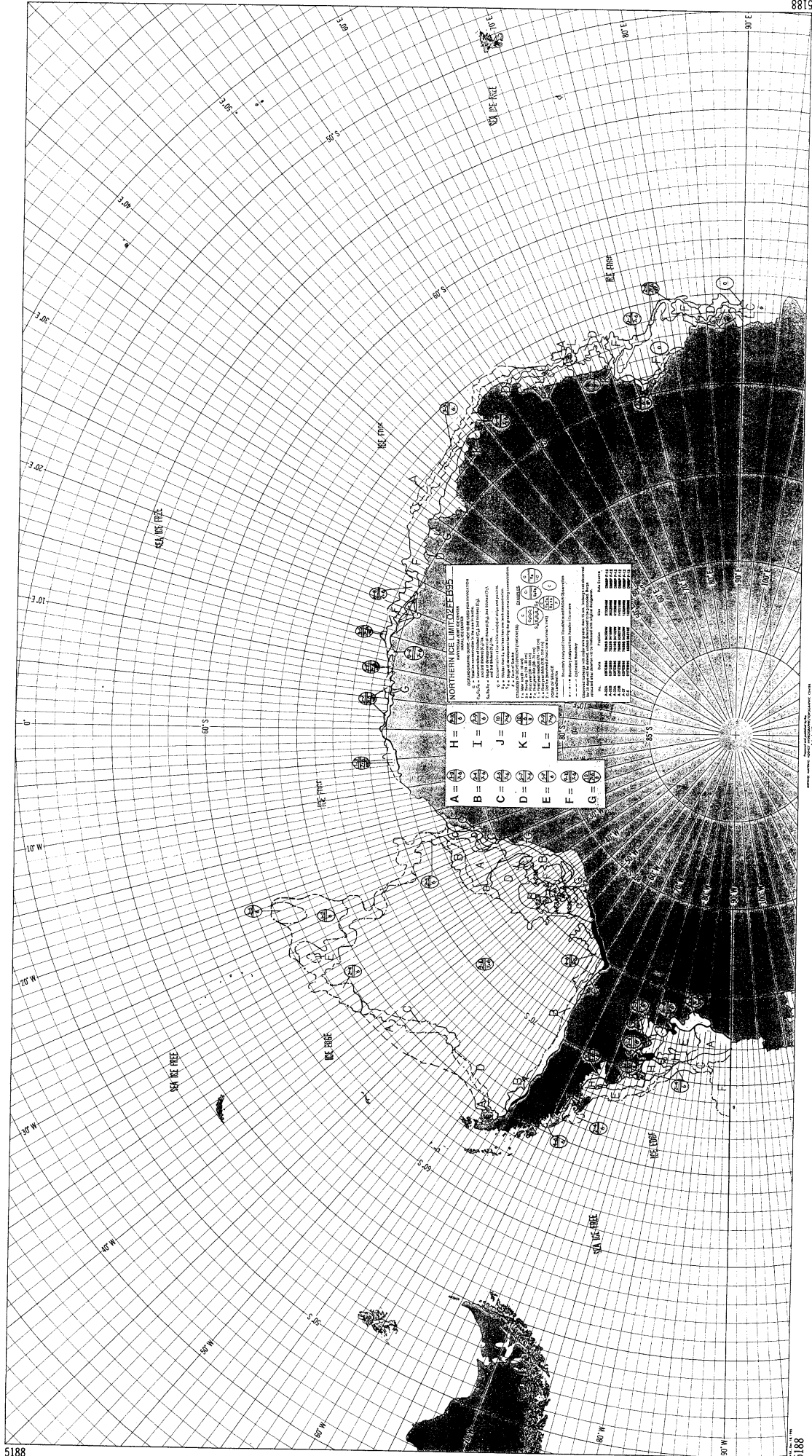
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Source: U.S. Navy Hydrographic Office  
Revised: 1974

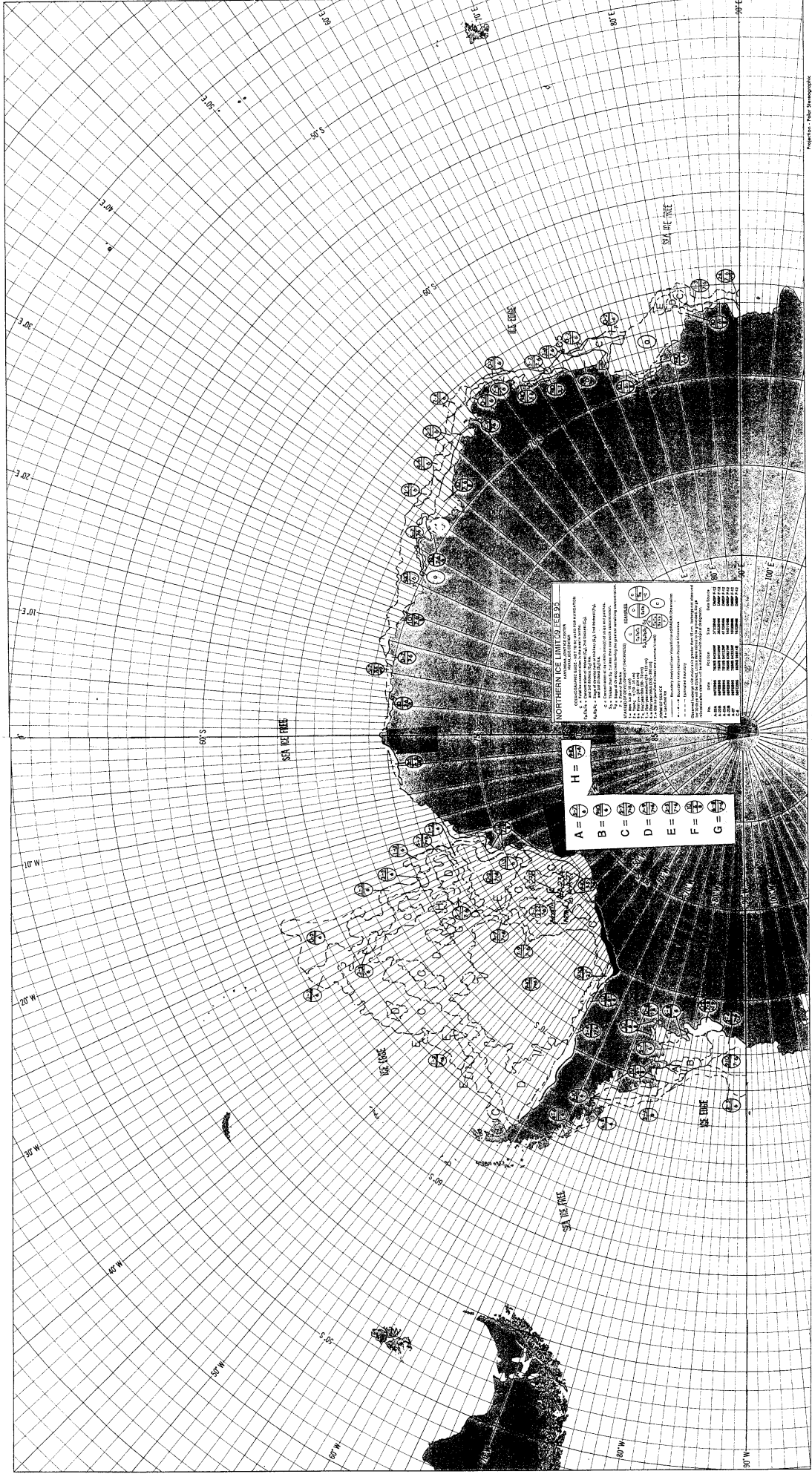






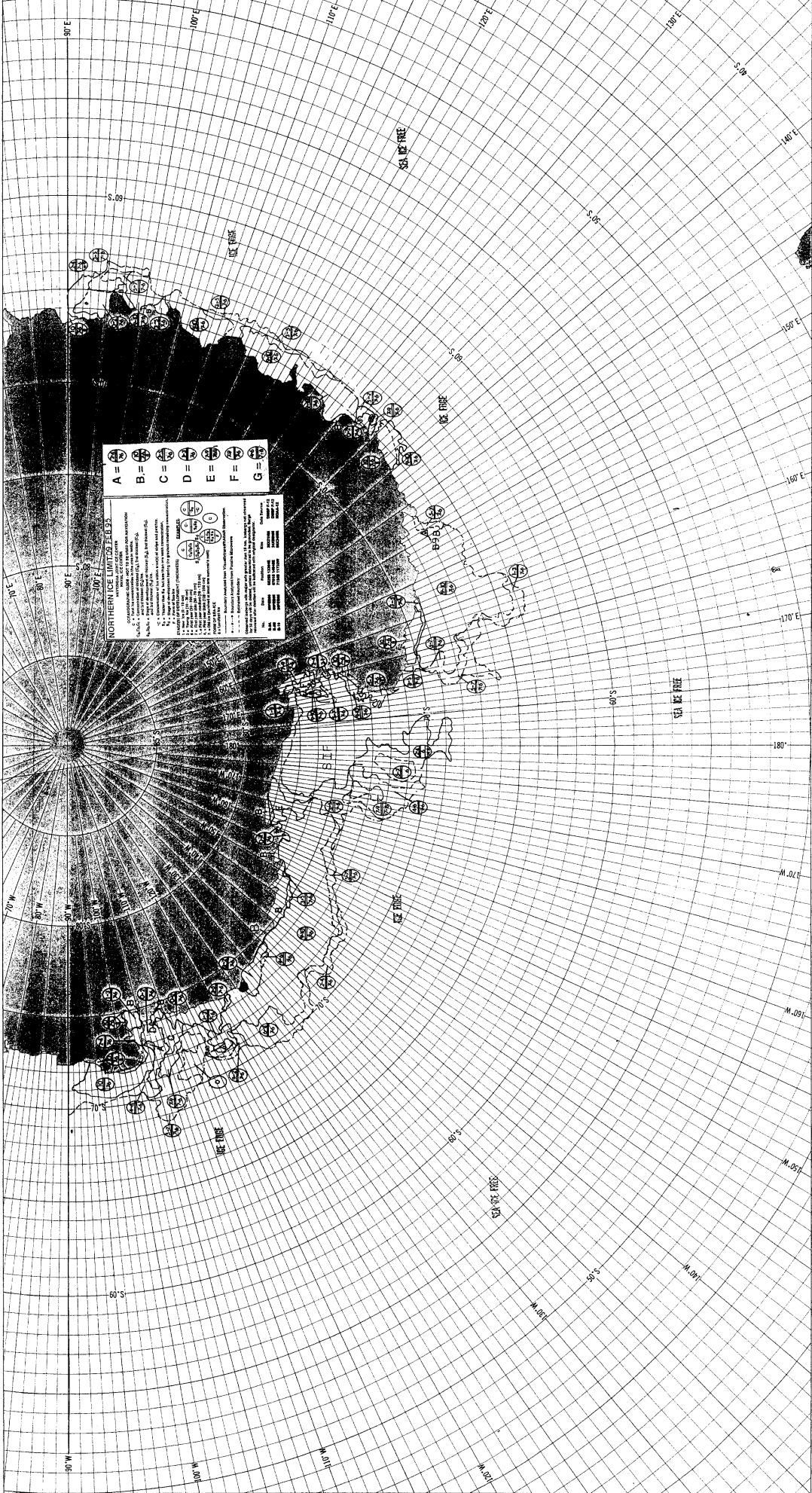


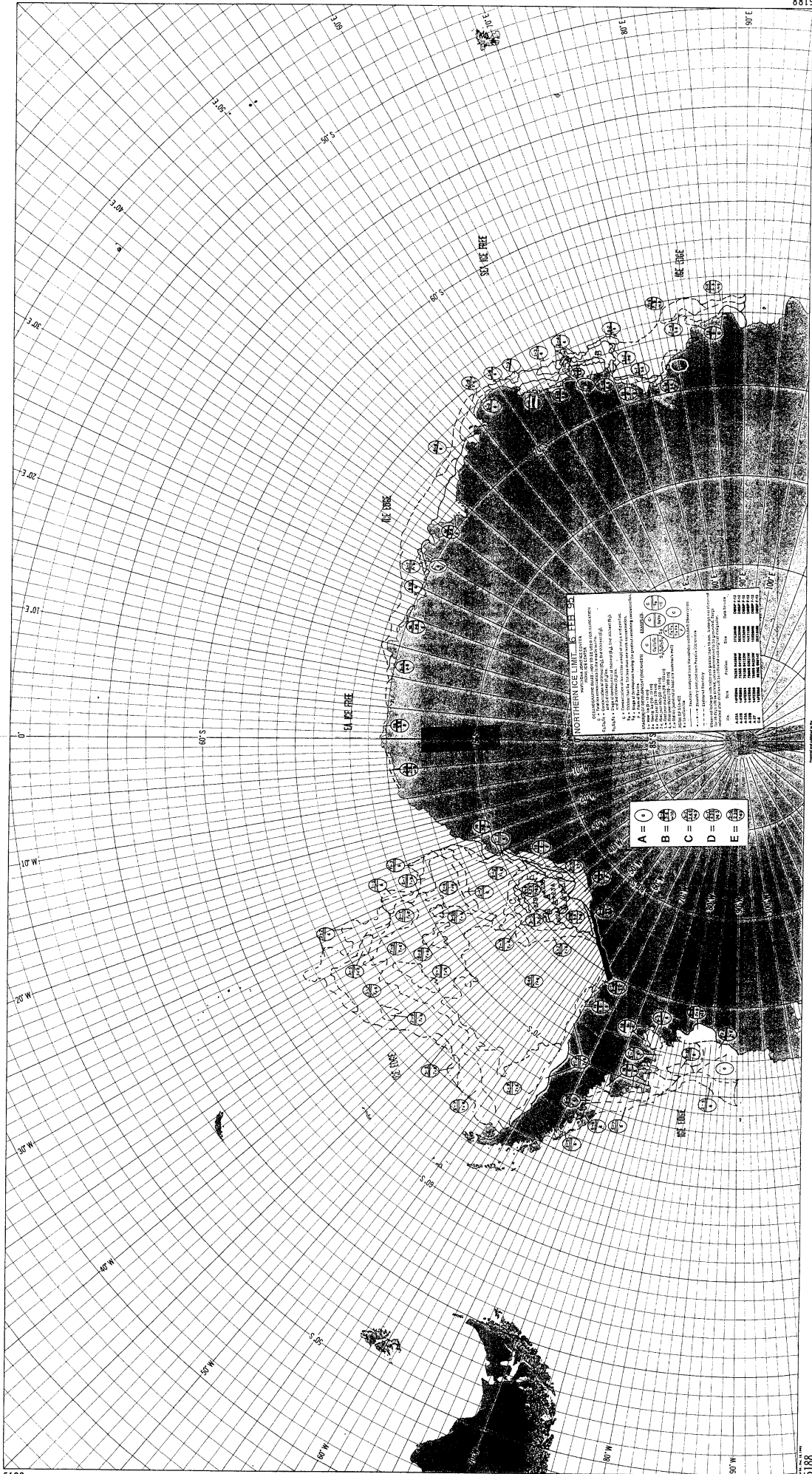


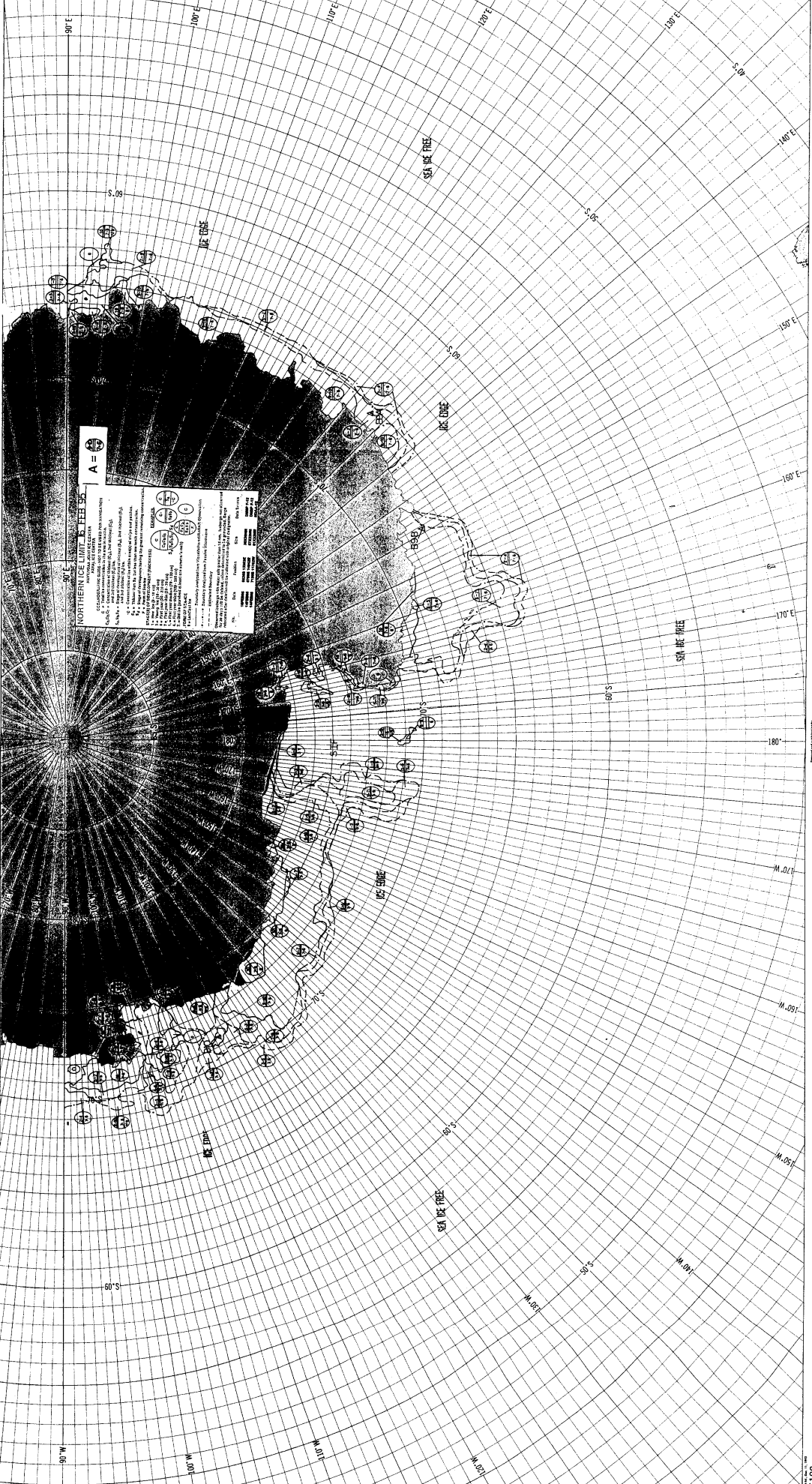


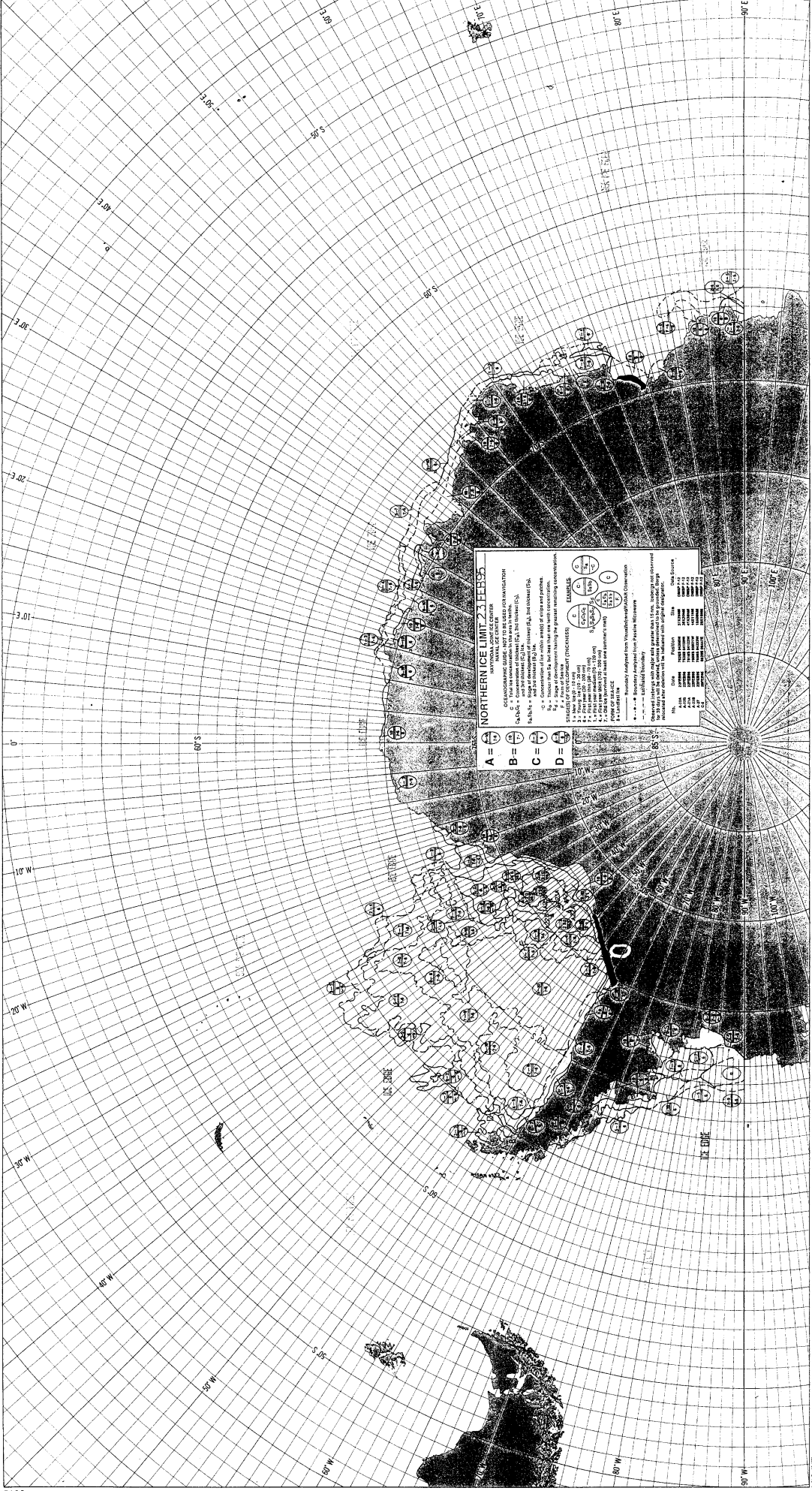
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SOUNDINGS IN FEET  
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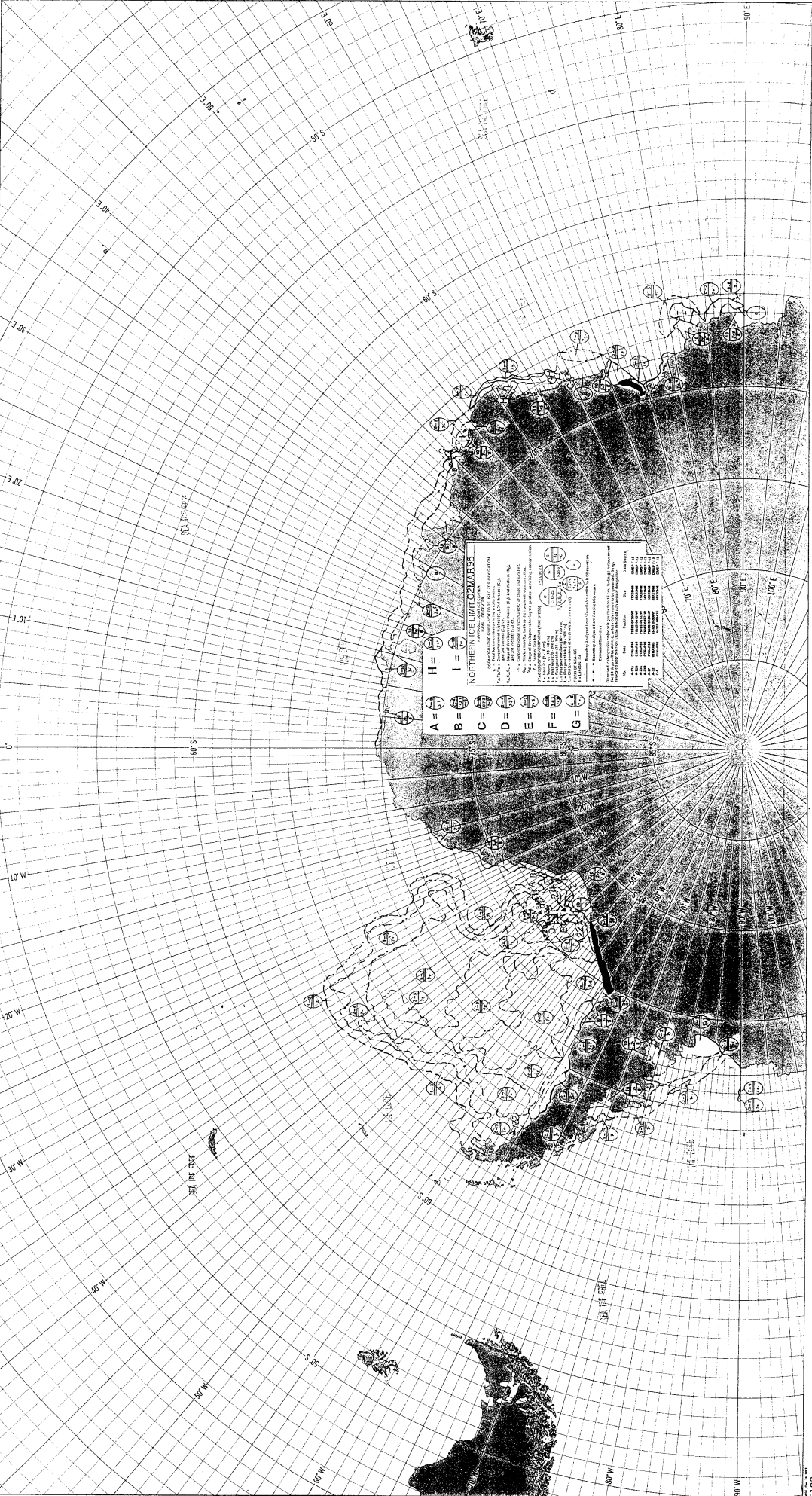












**NORTHERN ICE LIMIT 02 MAR 55**  
 NATIONAL ICE CENTER  
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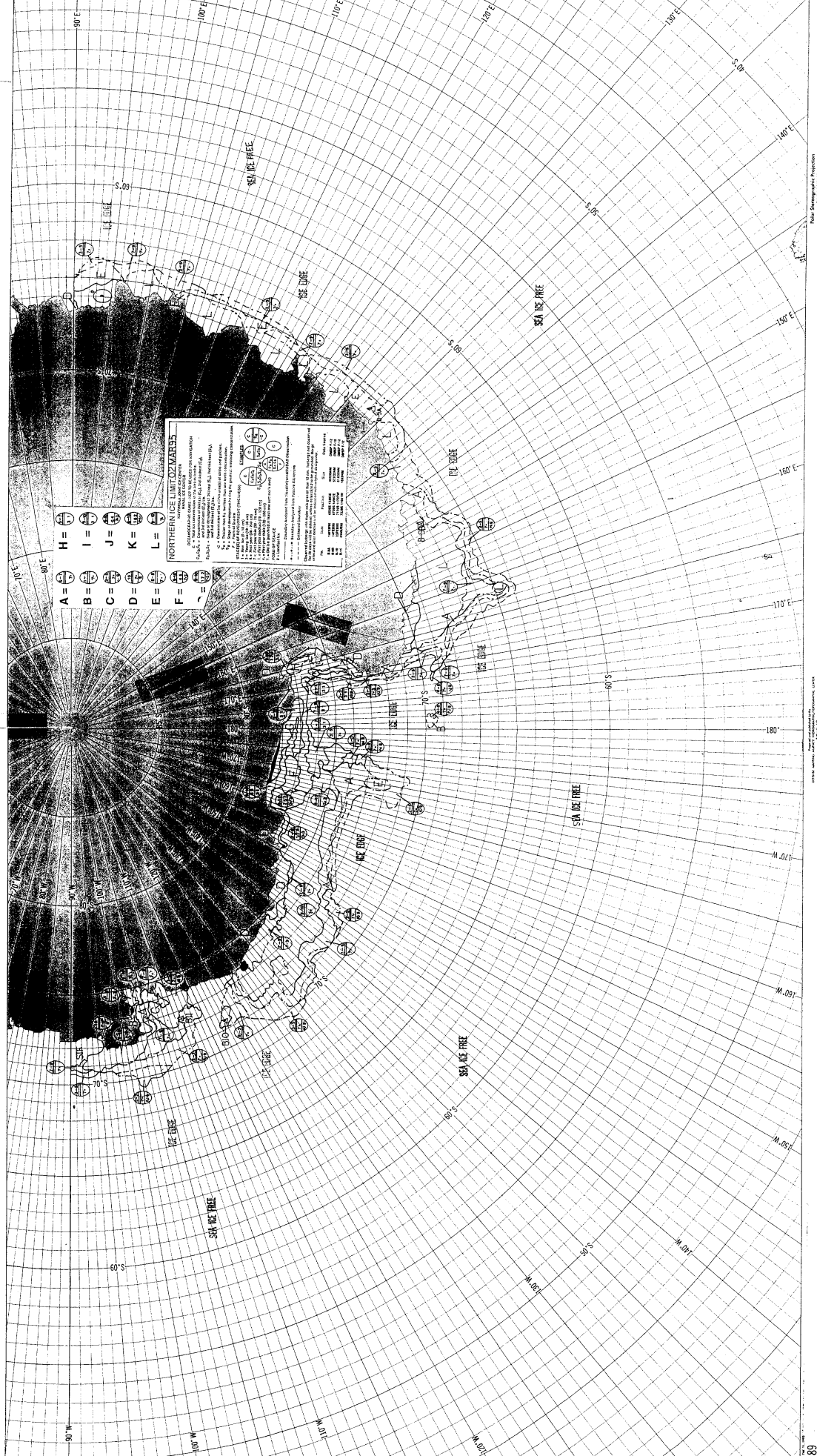
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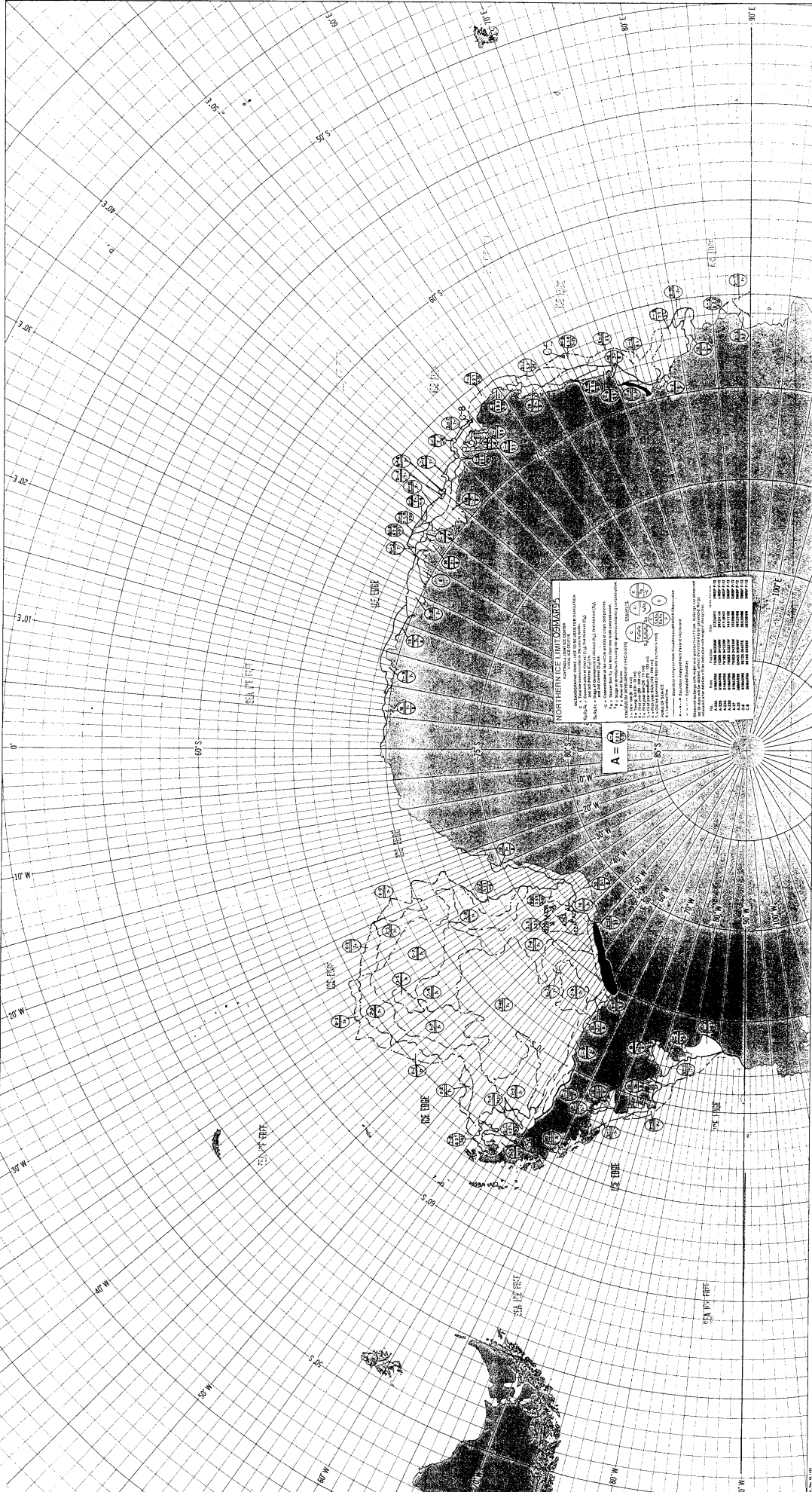
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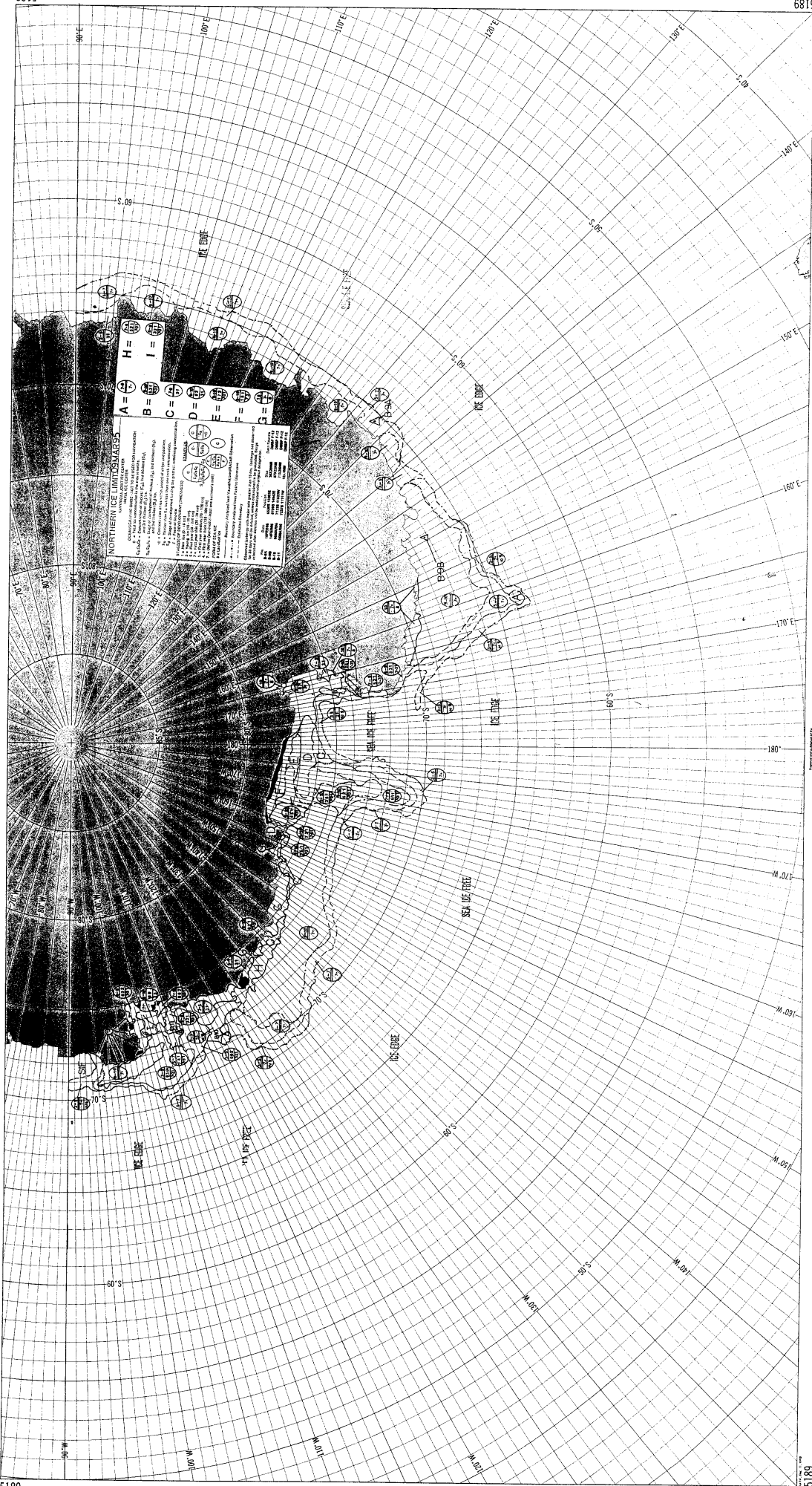
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Published by the Hydrographic Office, Washington, D.C.

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**NORTHERN ICE LIMITS 1985**

THIS CHART SHOWS THE POSITION OF THE NORTHERN ICE LIMITS IN THE ARCTIC OCEAN AND ADJACENT SEAS AS DETERMINED BY THE U.S. NAVY'S POLAR EXPEDITIONS IN 1985. THE LIMITS ARE BASED ON THE POSITION OF THE LEADING EDGE OF THE ICE AT THE END OF THE POLAR NIGHT.

**LEGEND**

**ICE LIMITS**

A = 100% ICE  
 B = 90% ICE  
 C = 80% ICE  
 D = 70% ICE  
 E = 60% ICE  
 F = 50% ICE  
 G = 40% ICE  
 H = 30% ICE  
 I = 20% ICE

**ICE TYPES**

1 = PERMANENT ICE  
 2 = SEMI-PERMANENT ICE  
 3 = PERENNIAL ICE  
 4 = MULTISEASONAL ICE  
 5 = SEASONAL ICE  
 6 = FIRST YEAR ICE  
 7 = SECOND YEAR ICE  
 8 = OLD ICE

**ICE CHARACTERISTICS**

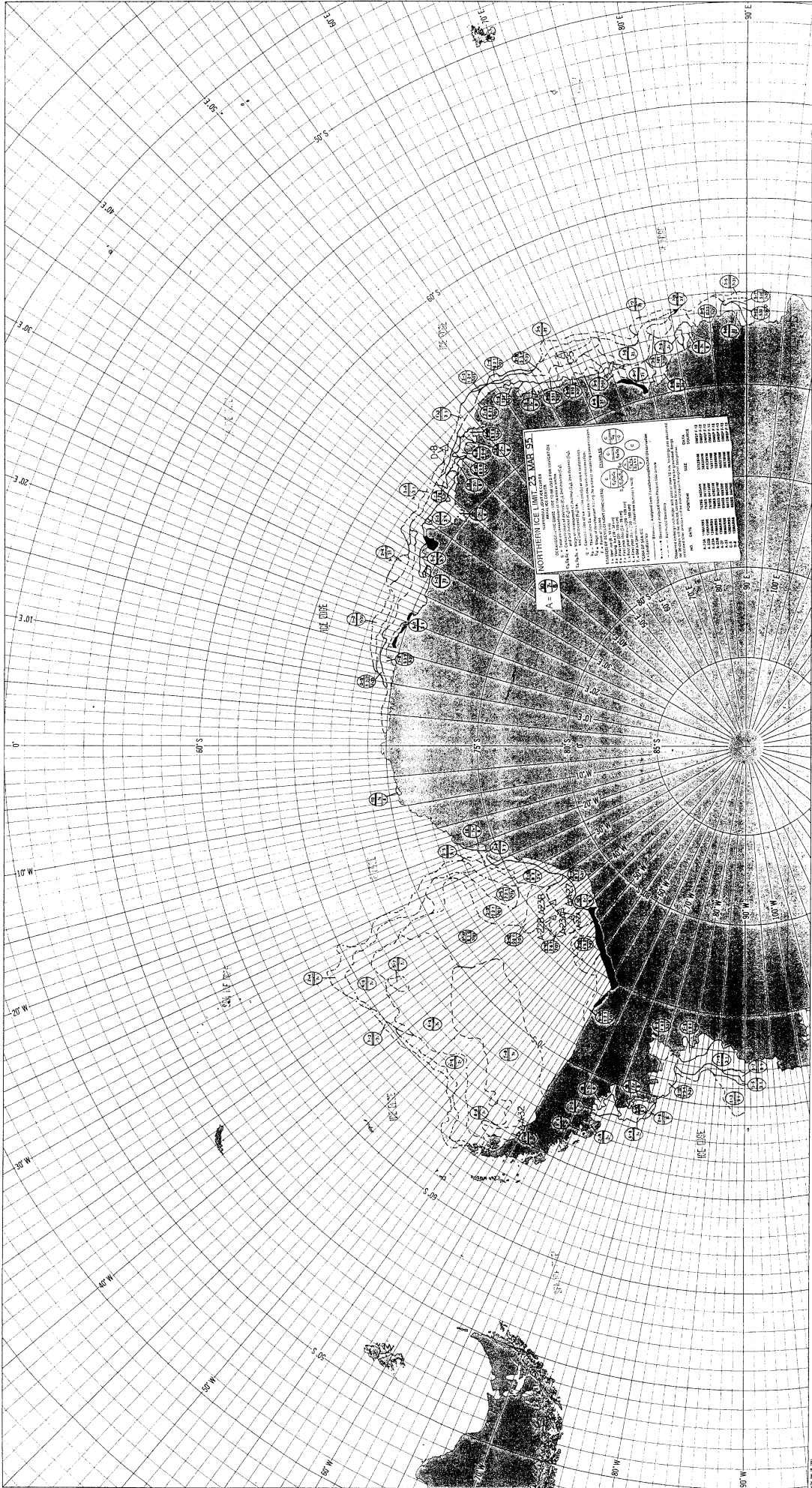
1 = ICE THICKNESS  
 2 = ICE DIRECTION  
 3 = ICE VELOCITY  
 4 = ICE DENSITY  
 5 = ICE TEMPERATURE  
 6 = ICE SALINITY  
 7 = ICE AGE  
 8 = ICE TYPE

**ICE SOUNDINGS**

1 = ICE SOUNDING  
 2 = ICE SOUNDING



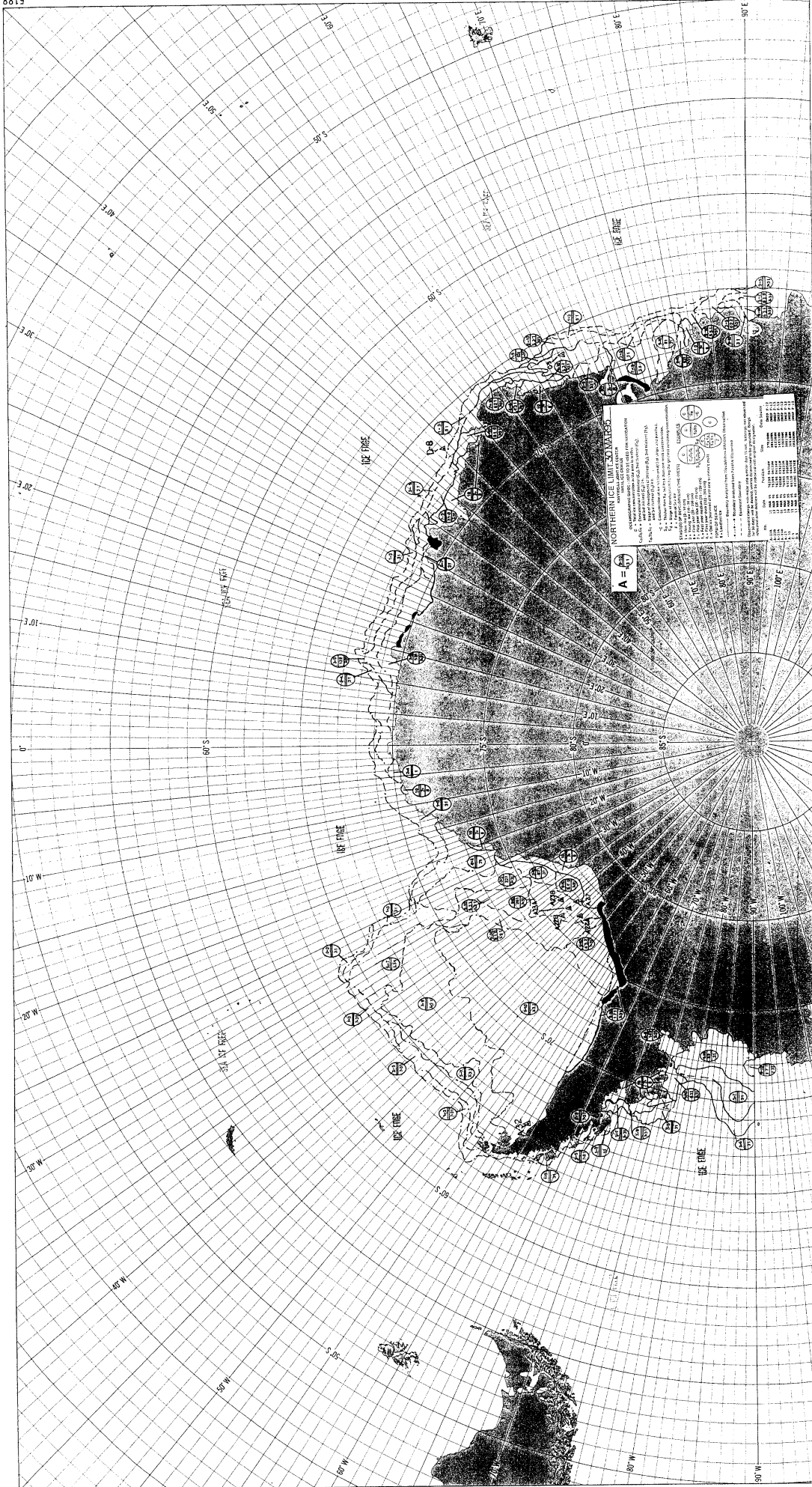




Projection: Polar Stereographic  
Scale: 1:100,000

Source: U.S. Navy Hydrographic Office  
Original Chart: 5188  
Revised: 1980-2020

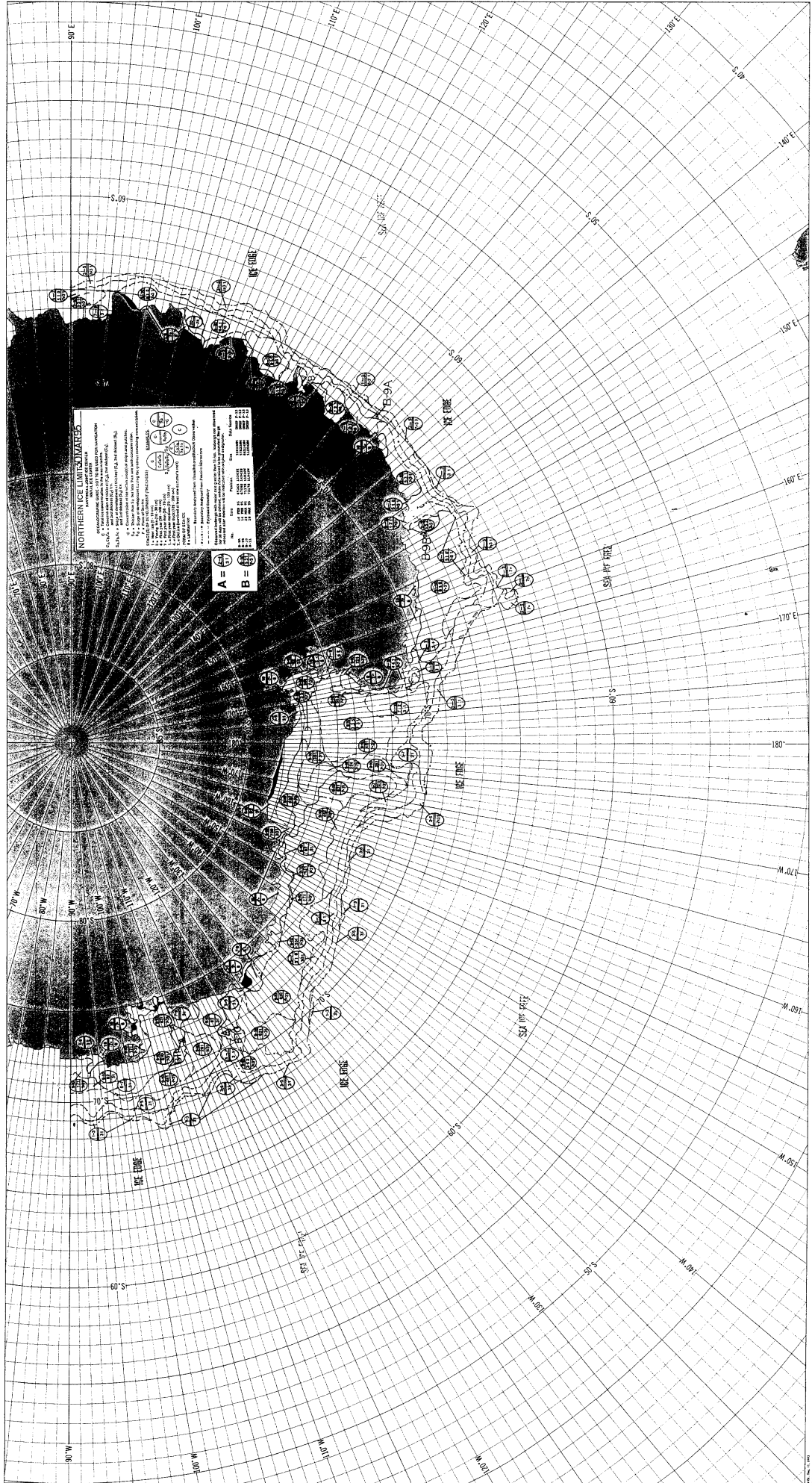




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 p. Information from the Hydrographic Office, Yokohama  
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 10. The information on this chart is not to be used for navigation without the aid of a depth sounder.

Hydrographic Office, Washington, D.C.

Hydrographic Office, London



**NORTHERN LIMITS**

1. 100 FATHOM DEPTH

2. 200 FATHOM DEPTH

3. 300 FATHOM DEPTH

4. 400 FATHOM DEPTH

5. 500 FATHOM DEPTH

6. 600 FATHOM DEPTH

7. 700 FATHOM DEPTH

8. 800 FATHOM DEPTH

9. 900 FATHOM DEPTH

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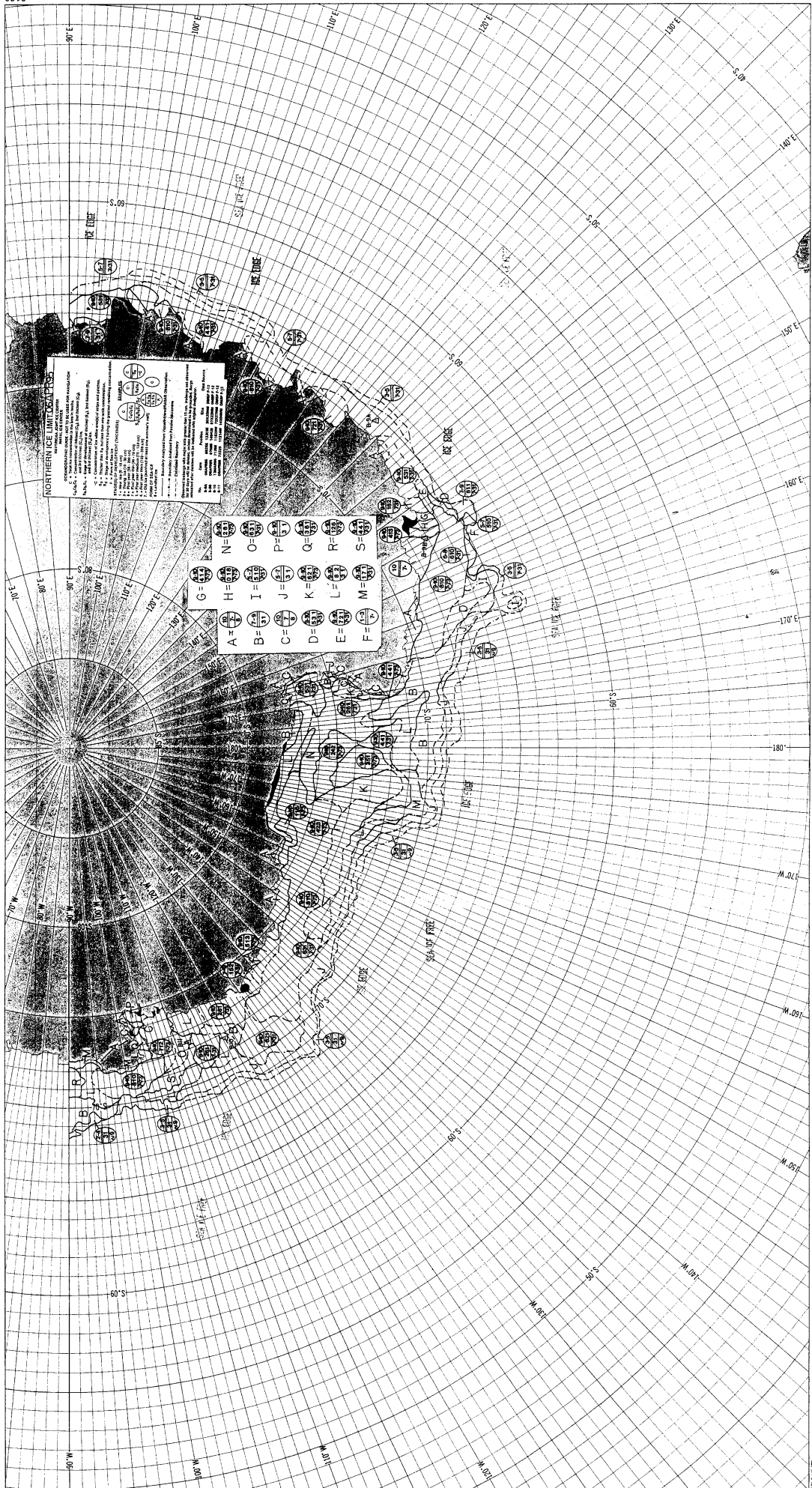
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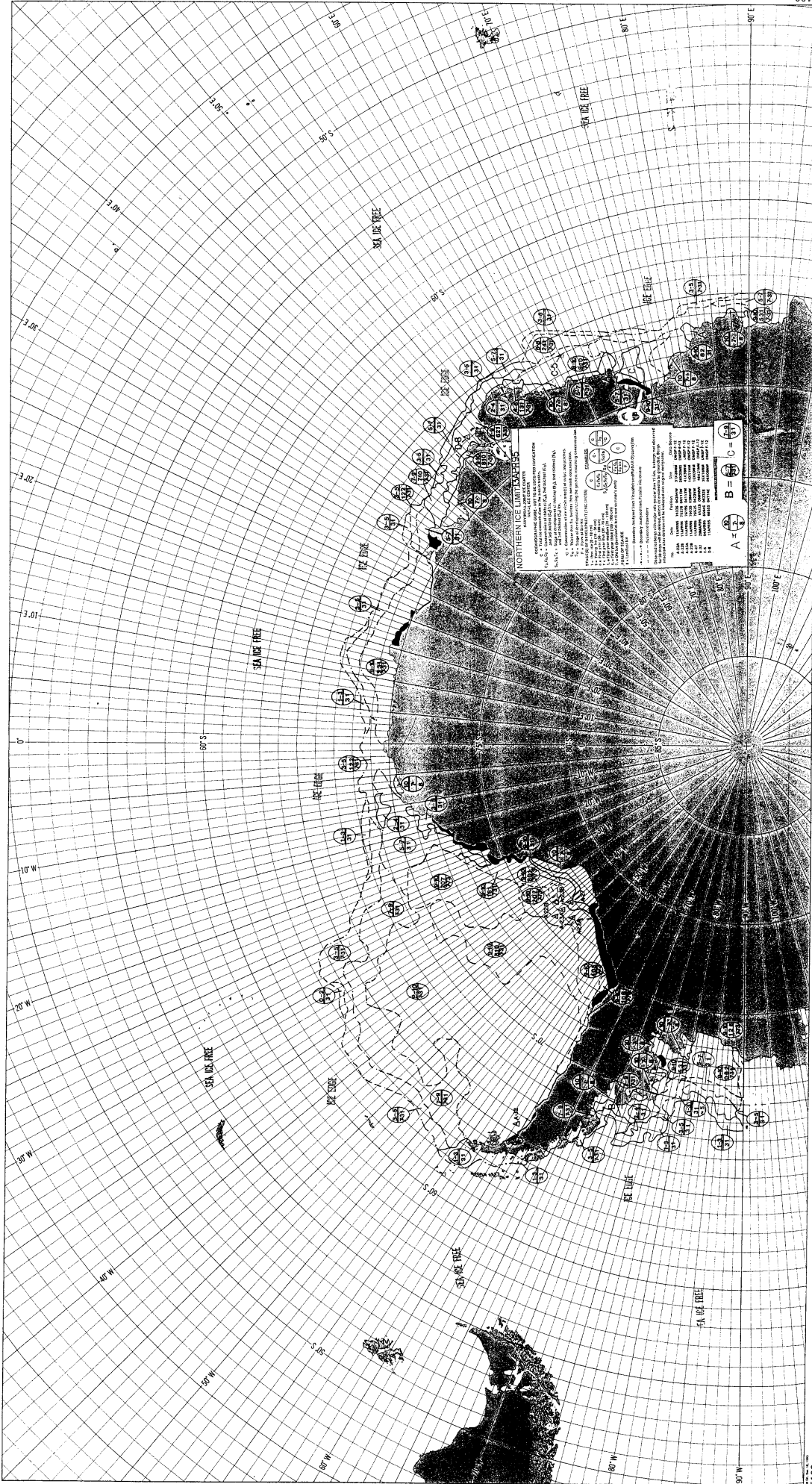
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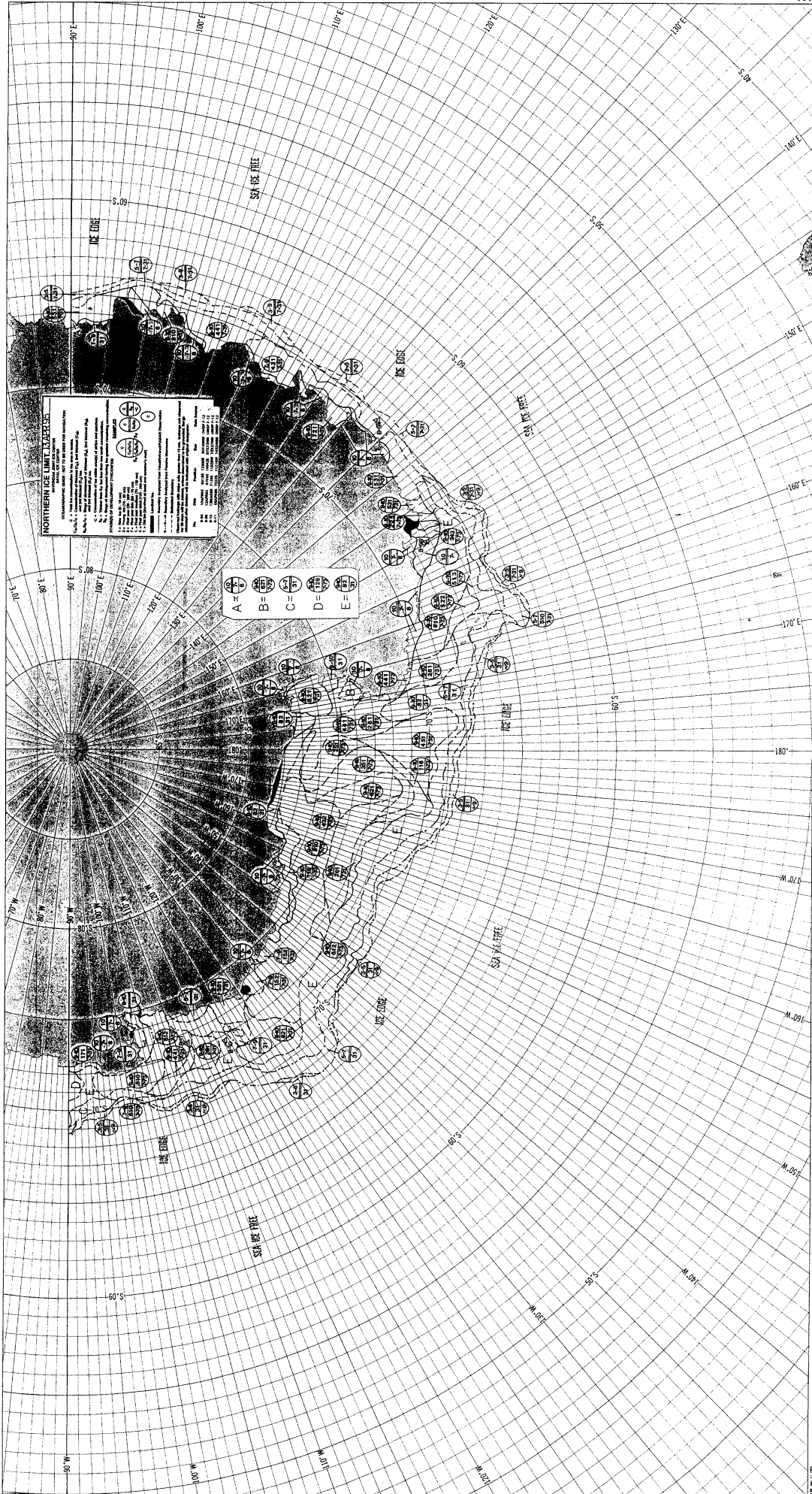
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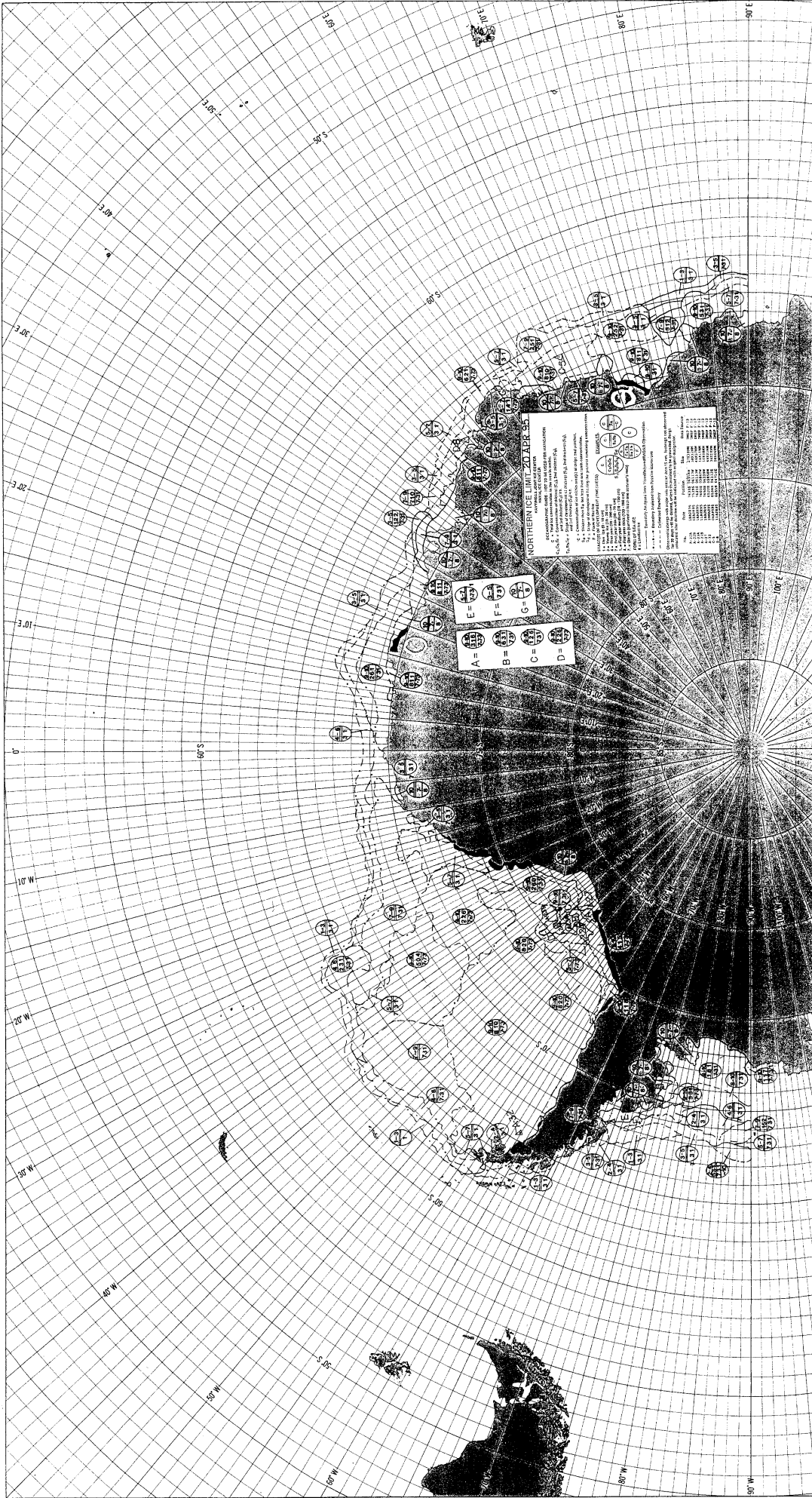
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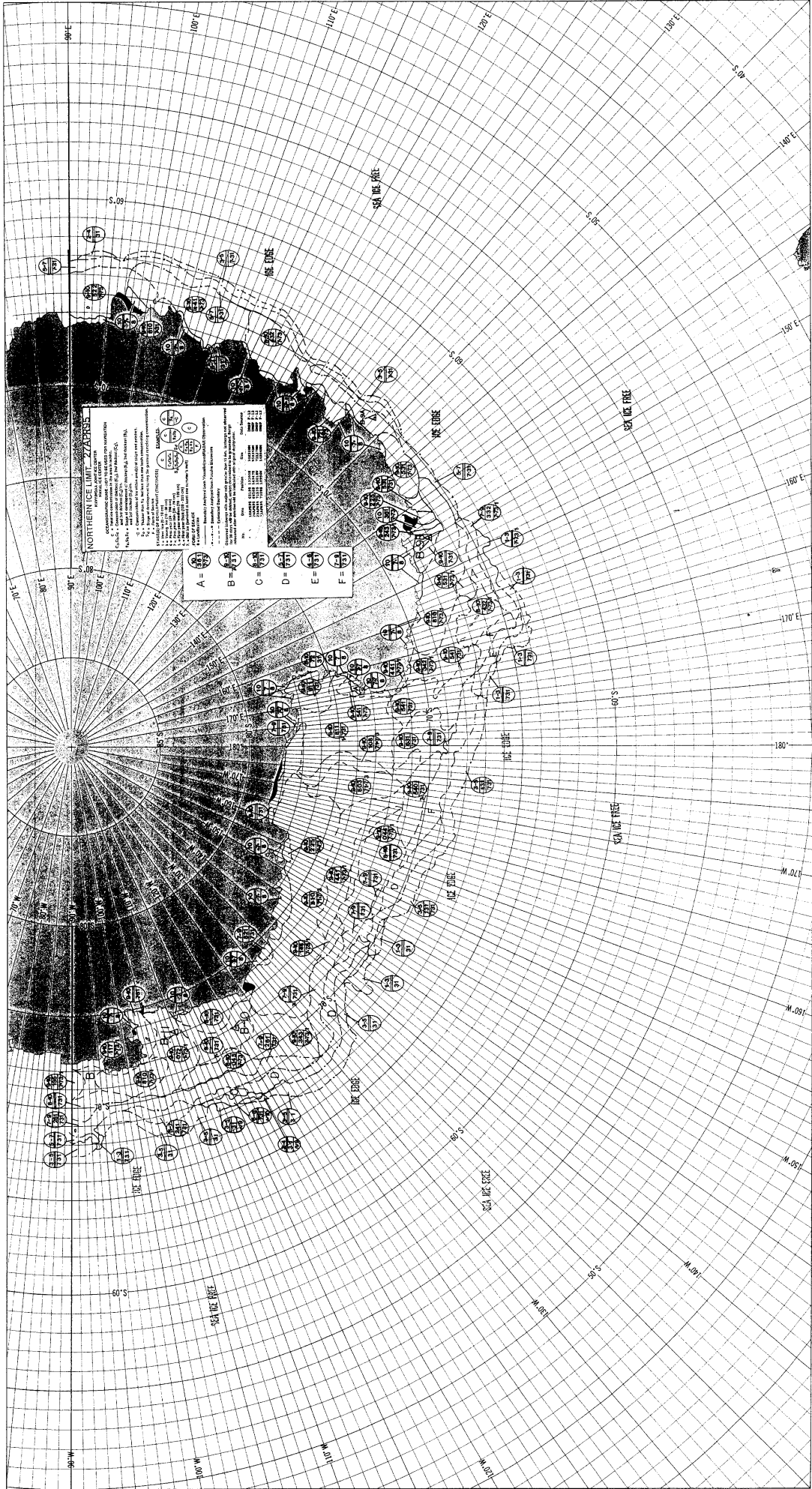












**NORTHERN ICE LIMIT**

CONTAINING DATA NOT REPRODUCIBLE FROM ANY OTHER SOURCE

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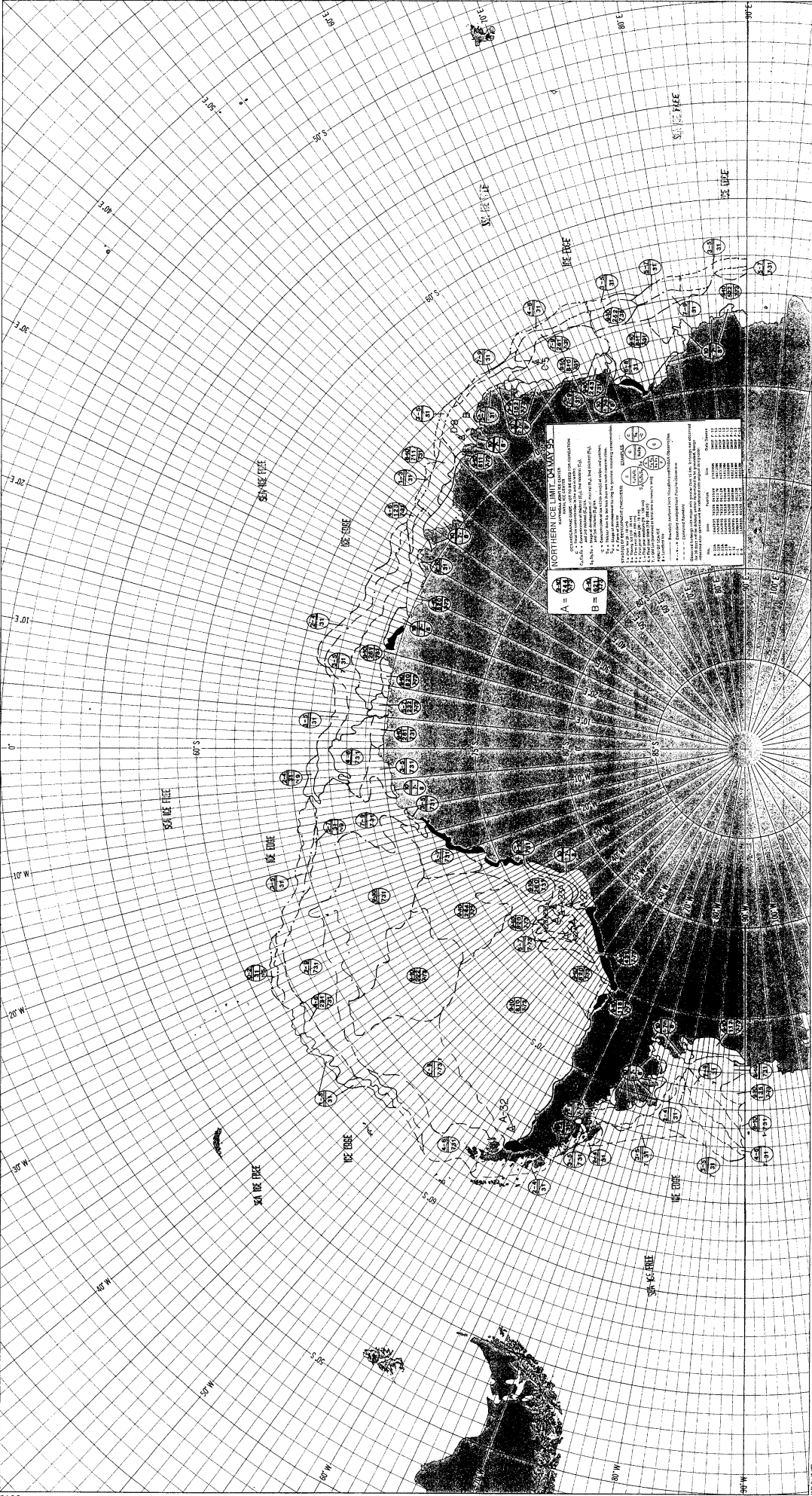
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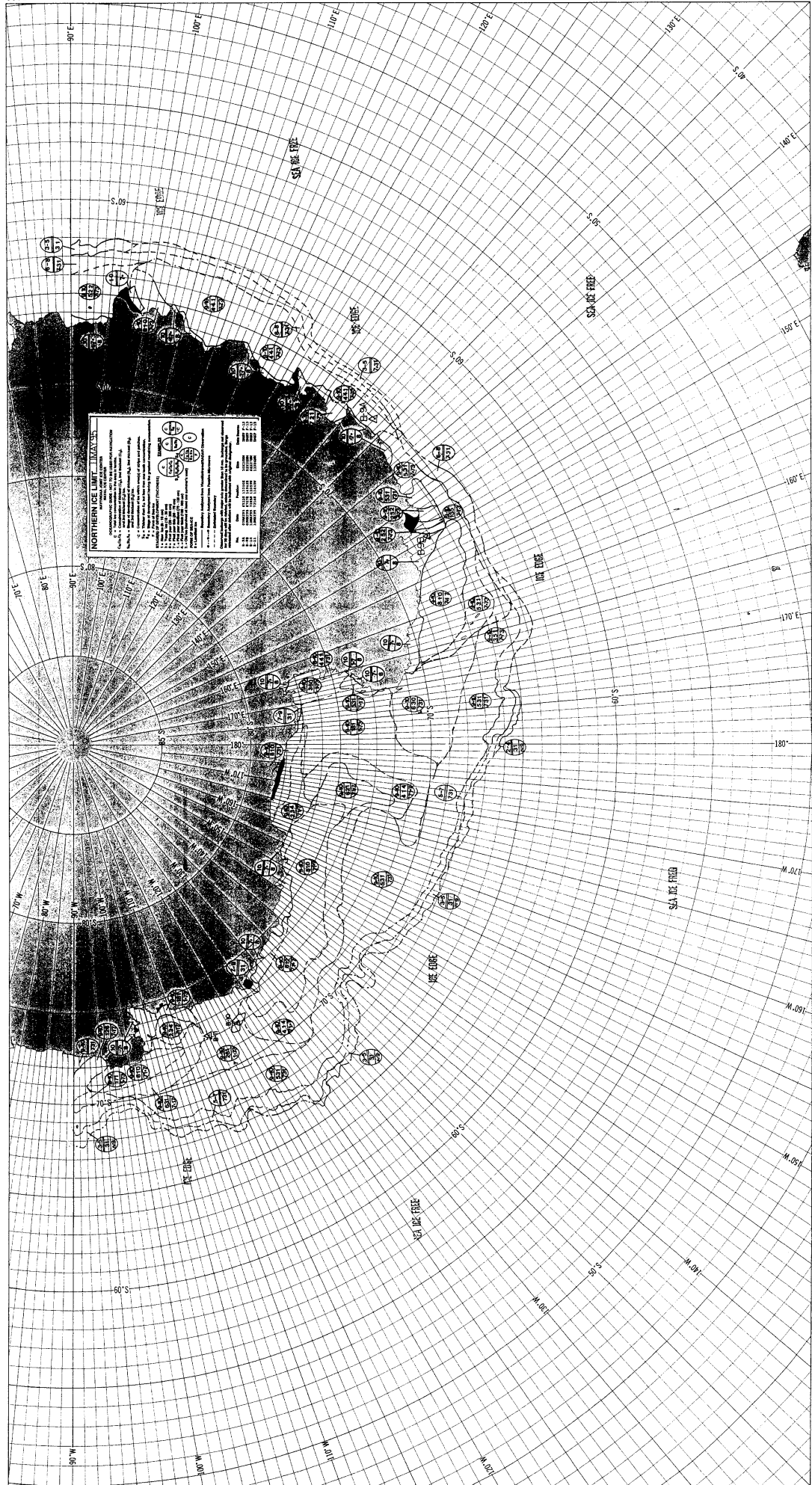


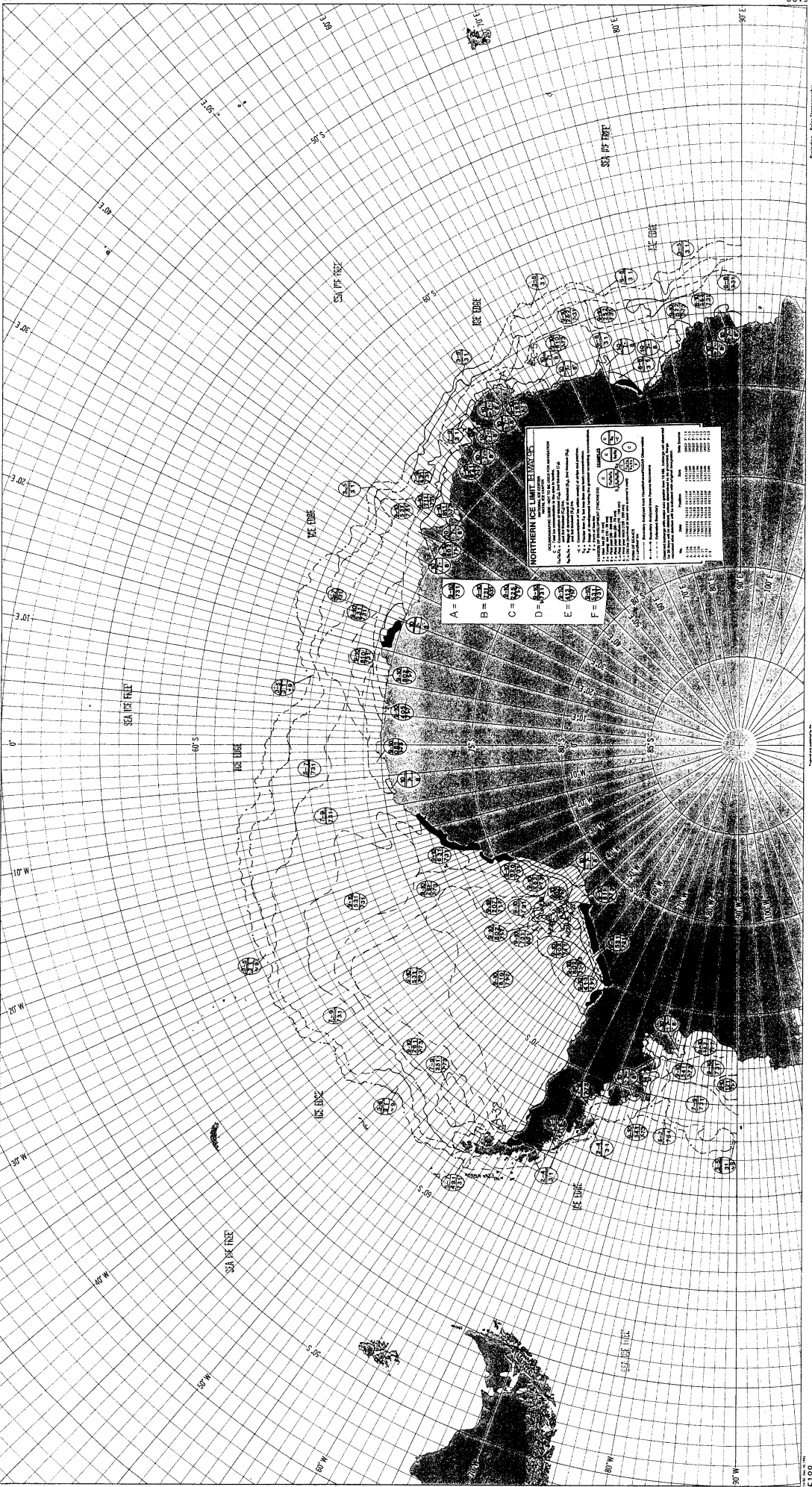
Projection - Polar Stereographic  
Datum - WGS 84

Scale - 1:100,000  
Graphic Scale - 0 to 100 Nautical Miles



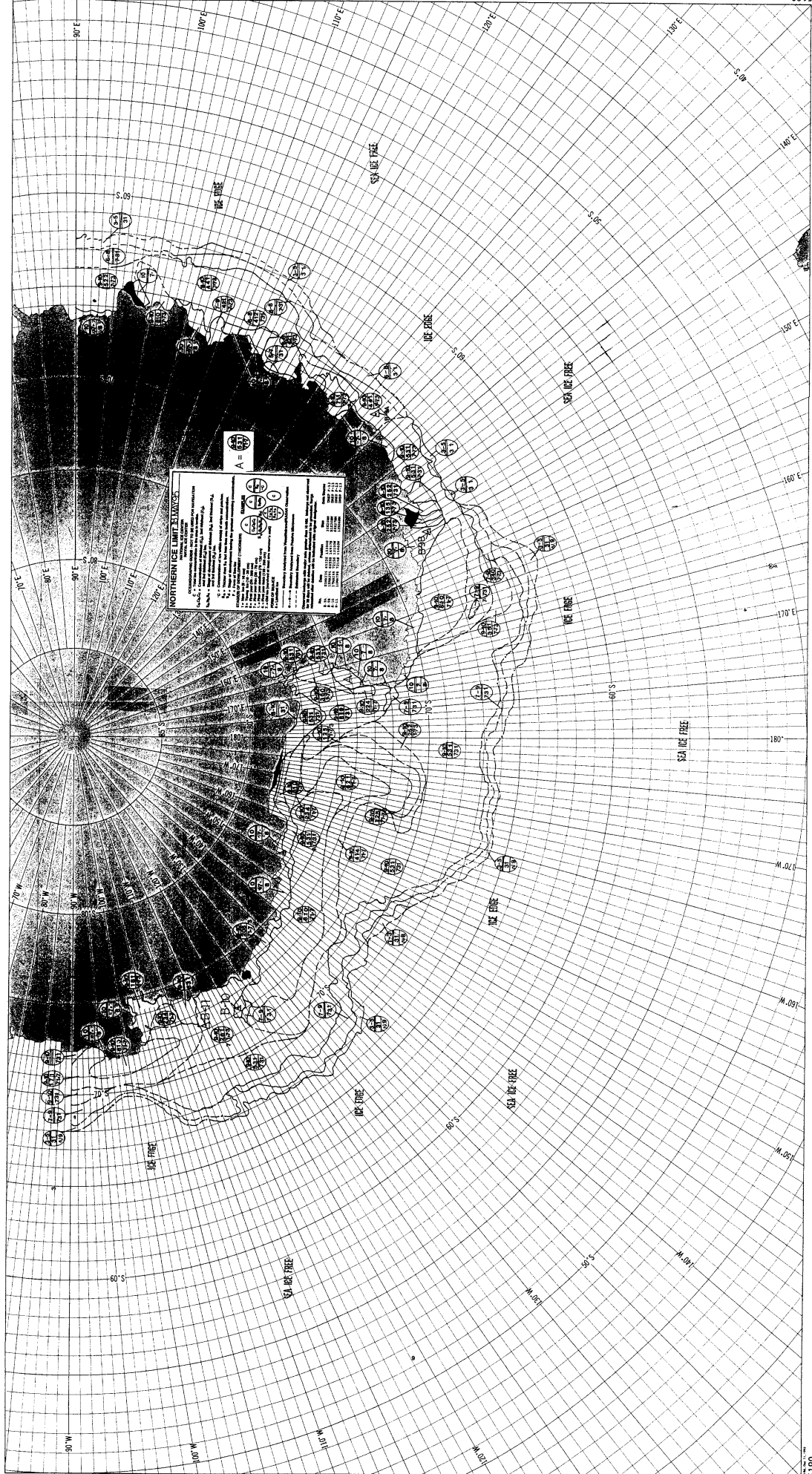


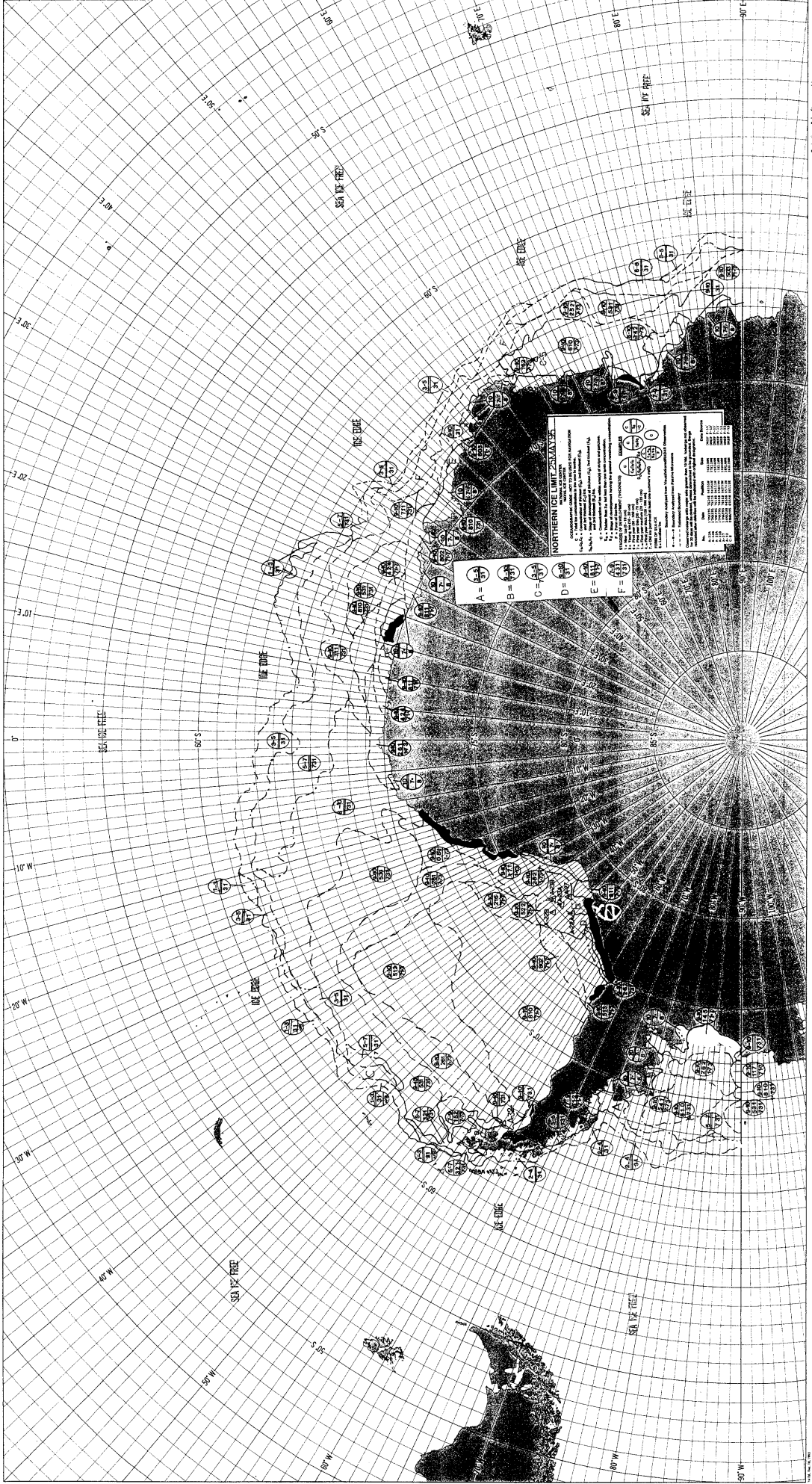


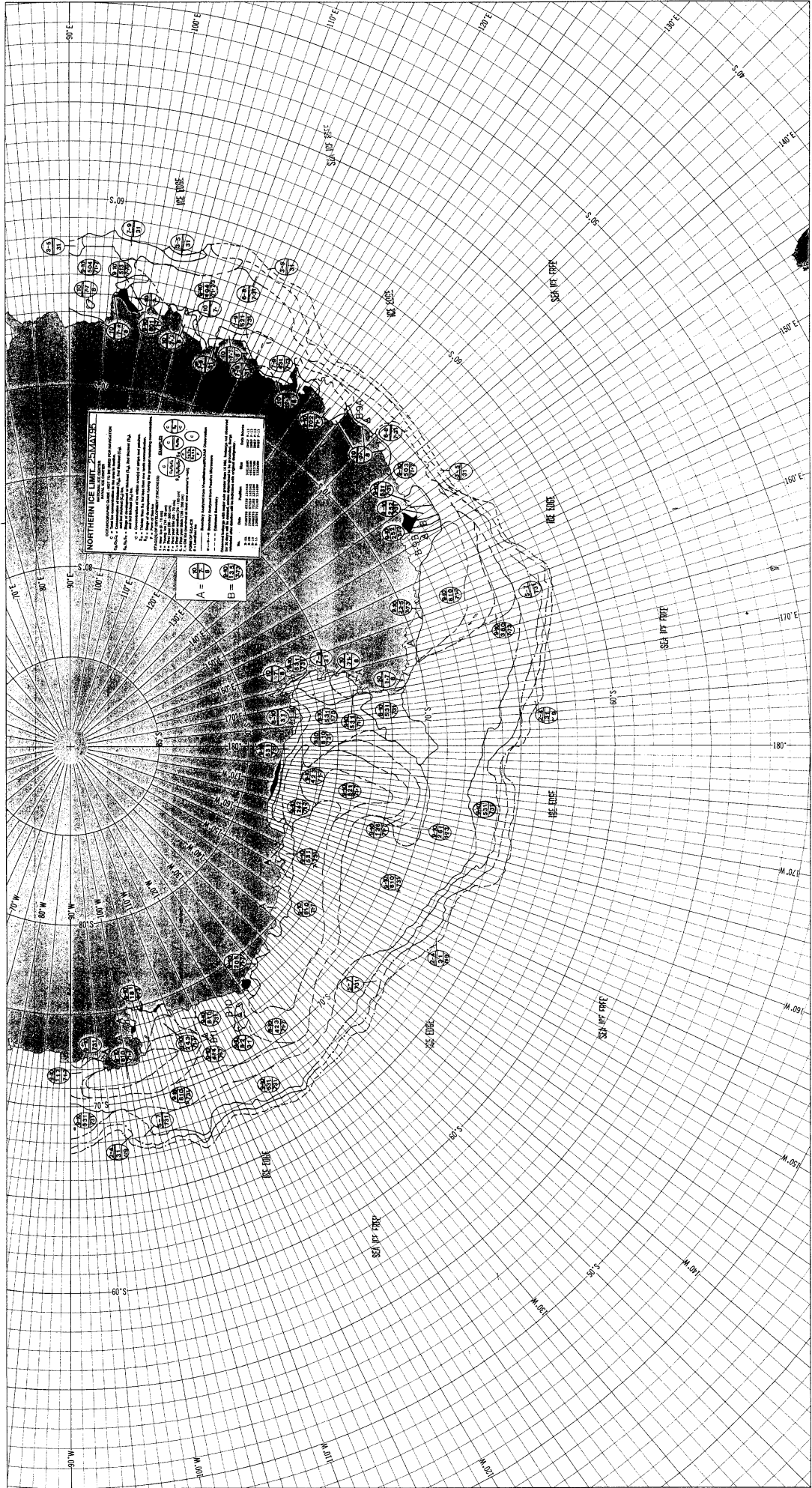


**NORTHERN ICE LIMITS**  
 (Symbolic representation of ice limits)  
 (Detailed text describing ice symbols and their meanings)

- A = (Symbol)
- B = (Symbol)
- C = (Symbol)
- D = (Symbol)
- E = (Symbol)
- F = (Symbol)





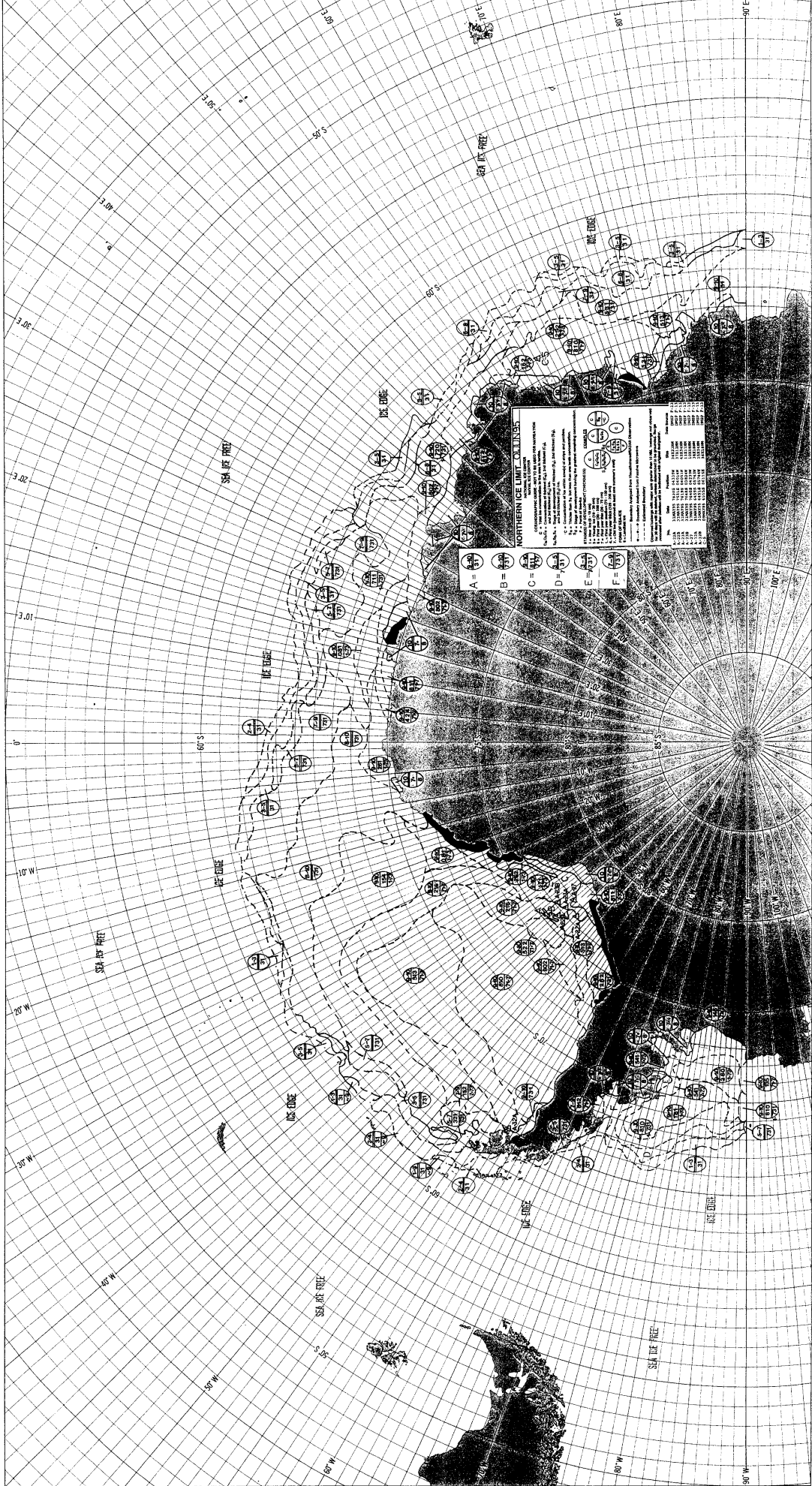


**NORTHERN ICE LIMIT - SUMMER**  
 (Information regarding ice limits and navigational hazards)

A = B =

© 1988 Hydrographic Service, Ottawa, Ontario, Canada

© 1988 Hydrographic Service, Ottawa, Ontario, Canada



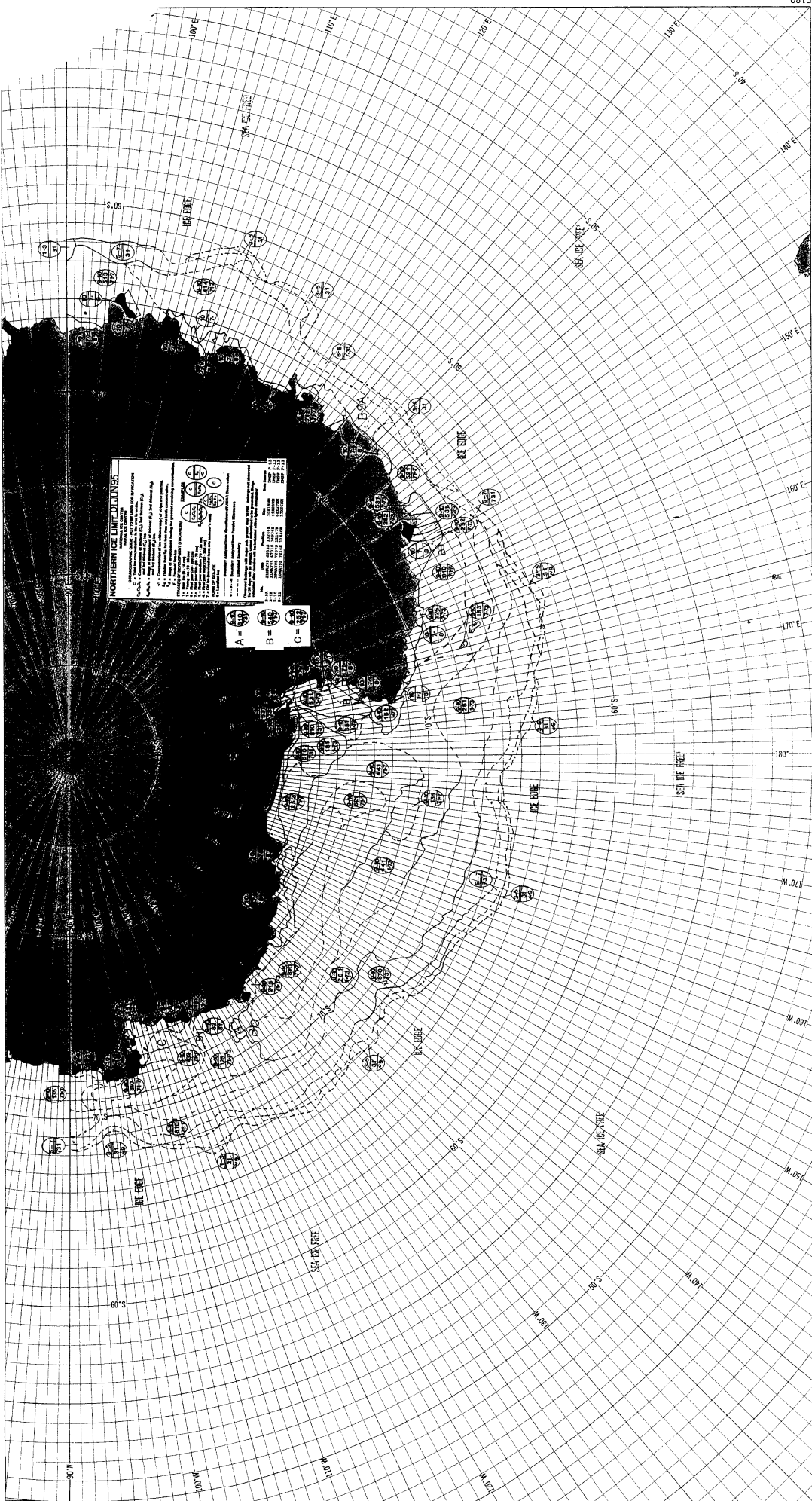
**NORTHERN LIMIT LINE (NLL)**  
 (NORTH KOREA'S CLAIMED MARITIME BOUNDARY)  
 (SOUTH KOREA'S CLAIMED MARITIME BOUNDARY)  
 (INTERNATIONALLY RECOGNIZED MARITIME BOUNDARY)

**Legend:**  
 A = (Symbol)  
 B = (Symbol)  
 C = (Symbol)  
 D = (Symbol)  
 E = (Symbol)  
 F = (Symbol)

**Scale:**  
 1:50,000

**Projection:**  
 Mercator

**Source:**  
 Hydrographic Survey, 1980

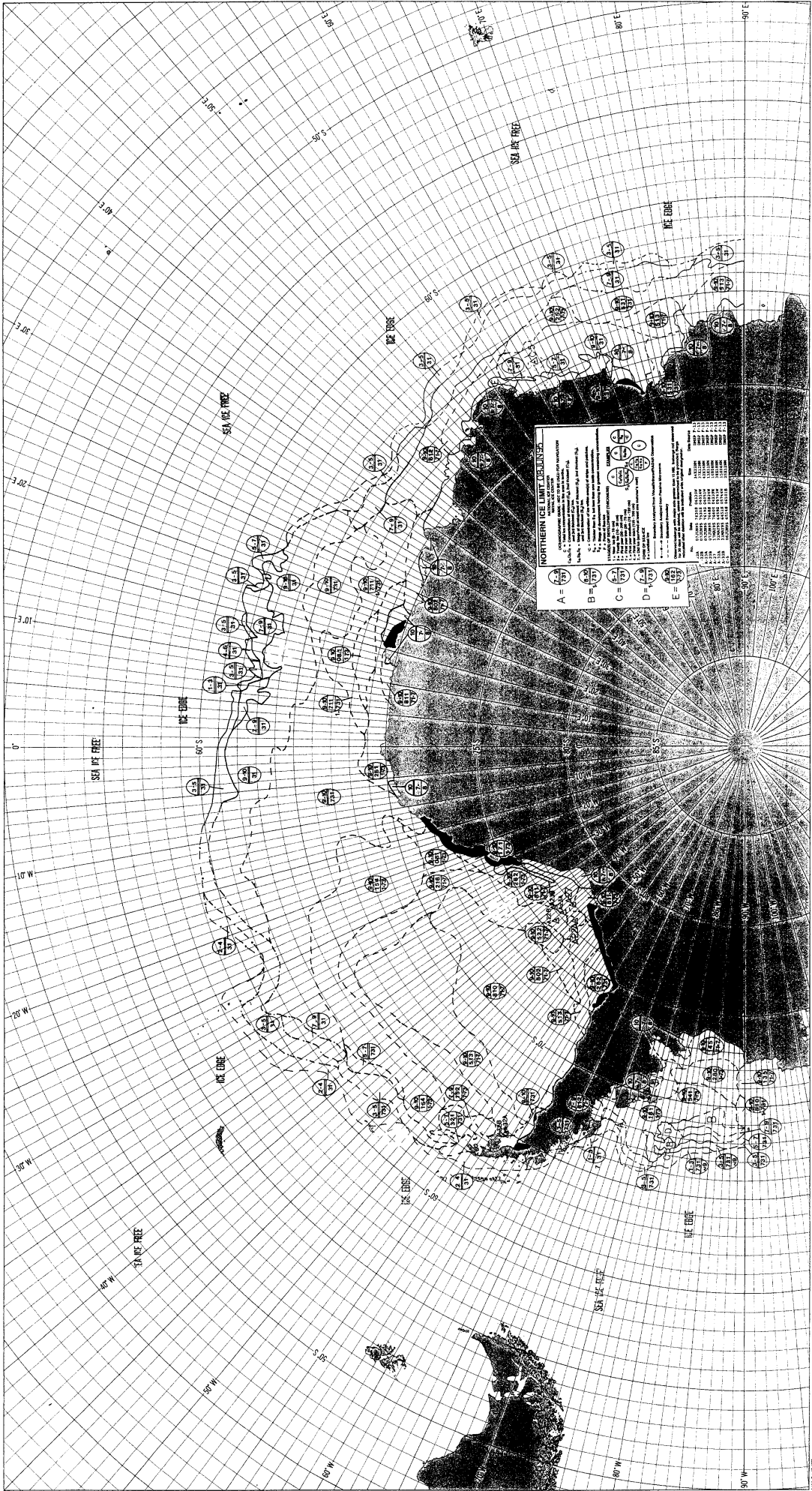


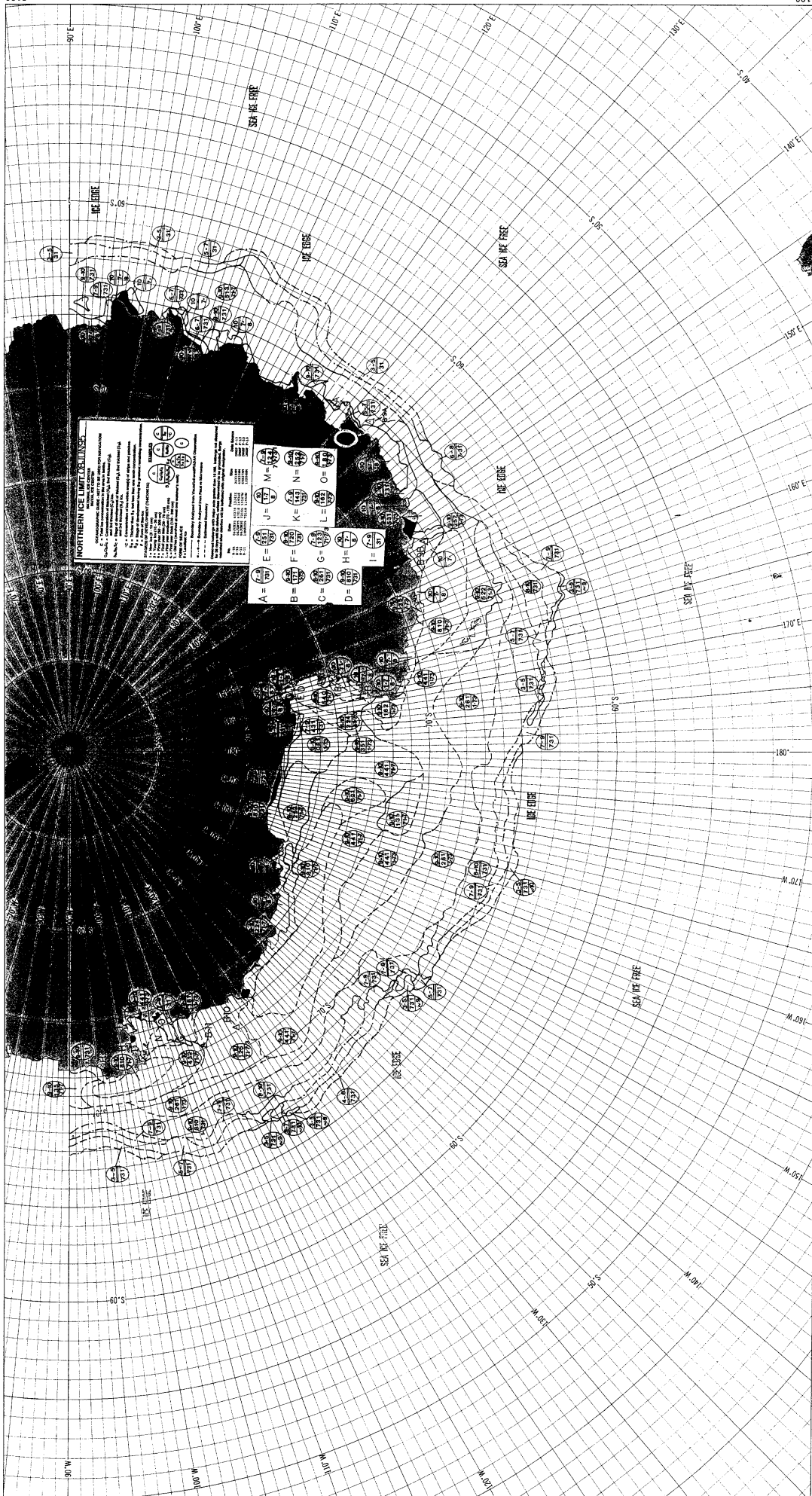
Symbol	Description
(A) 100	Ice thickness 100 feet or more
(B) 50	Ice thickness 50 to 100 feet
(C) 25	Ice thickness 25 to 50 feet
(D) 15	Ice thickness 15 to 25 feet
(E) 10	Ice thickness 10 to 15 feet
(F) 5	Ice thickness 5 to 10 feet
(G) 3	Ice thickness 3 to 5 feet
(H) 1	Ice thickness 1 to 3 feet
(I) 0	Ice thickness less than 1 foot
(J) 100	Ice thickness 100 feet or more
(K) 50	Ice thickness 50 to 100 feet
(L) 25	Ice thickness 25 to 50 feet
(M) 15	Ice thickness 15 to 25 feet
(N) 10	Ice thickness 10 to 15 feet
(O) 5	Ice thickness 5 to 10 feet
(P) 3	Ice thickness 3 to 5 feet
(Q) 1	Ice thickness 1 to 3 feet
(R) 0	Ice thickness less than 1 foot

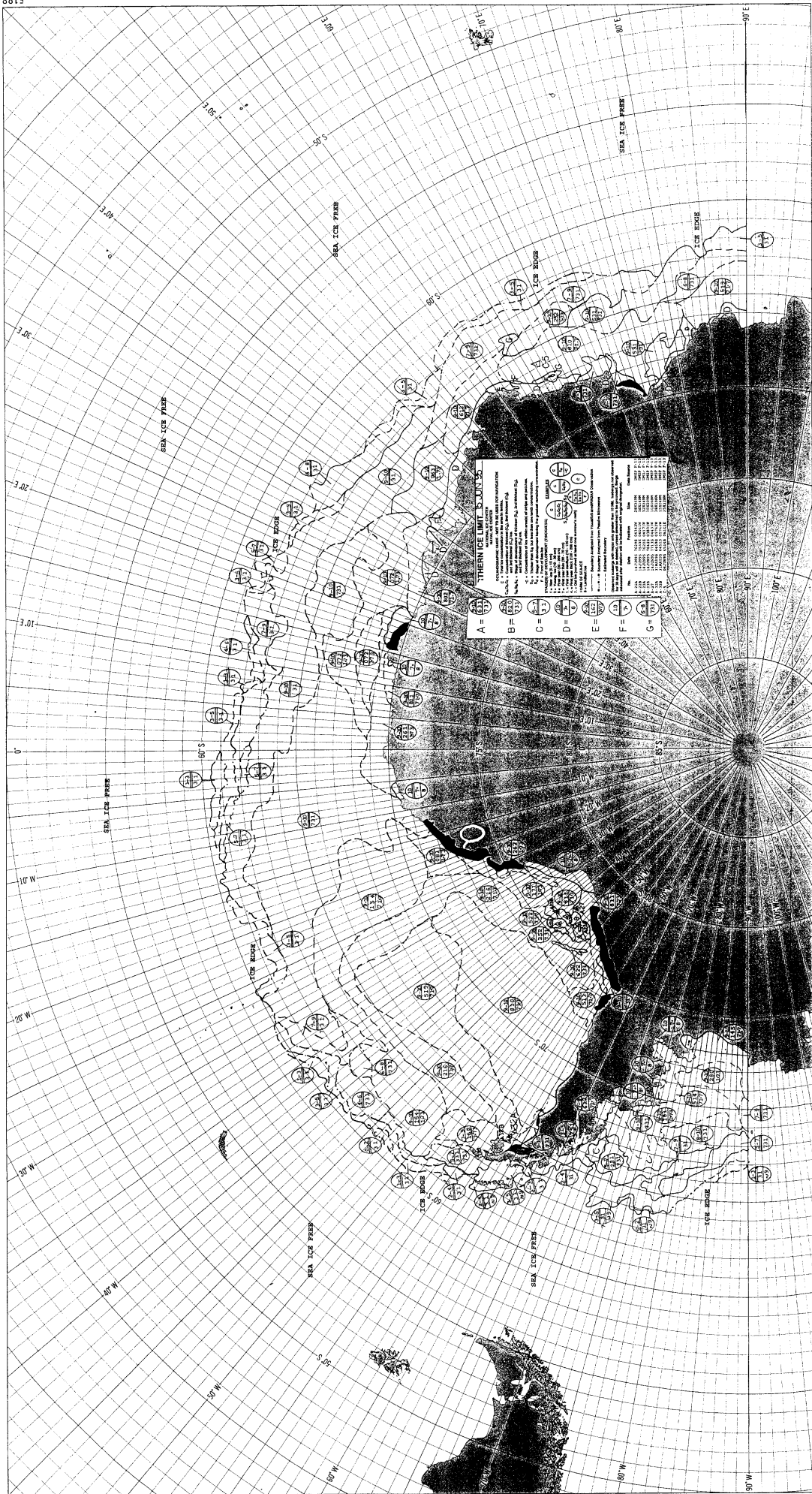
A = 100  
 B = 50  
 C = 25

Pub. 5189, 1955  
 Hydrographic Department  
 U.S. Navy

Pub. 5189, 1955  
 Hydrographic Department  
 U.S. Navy

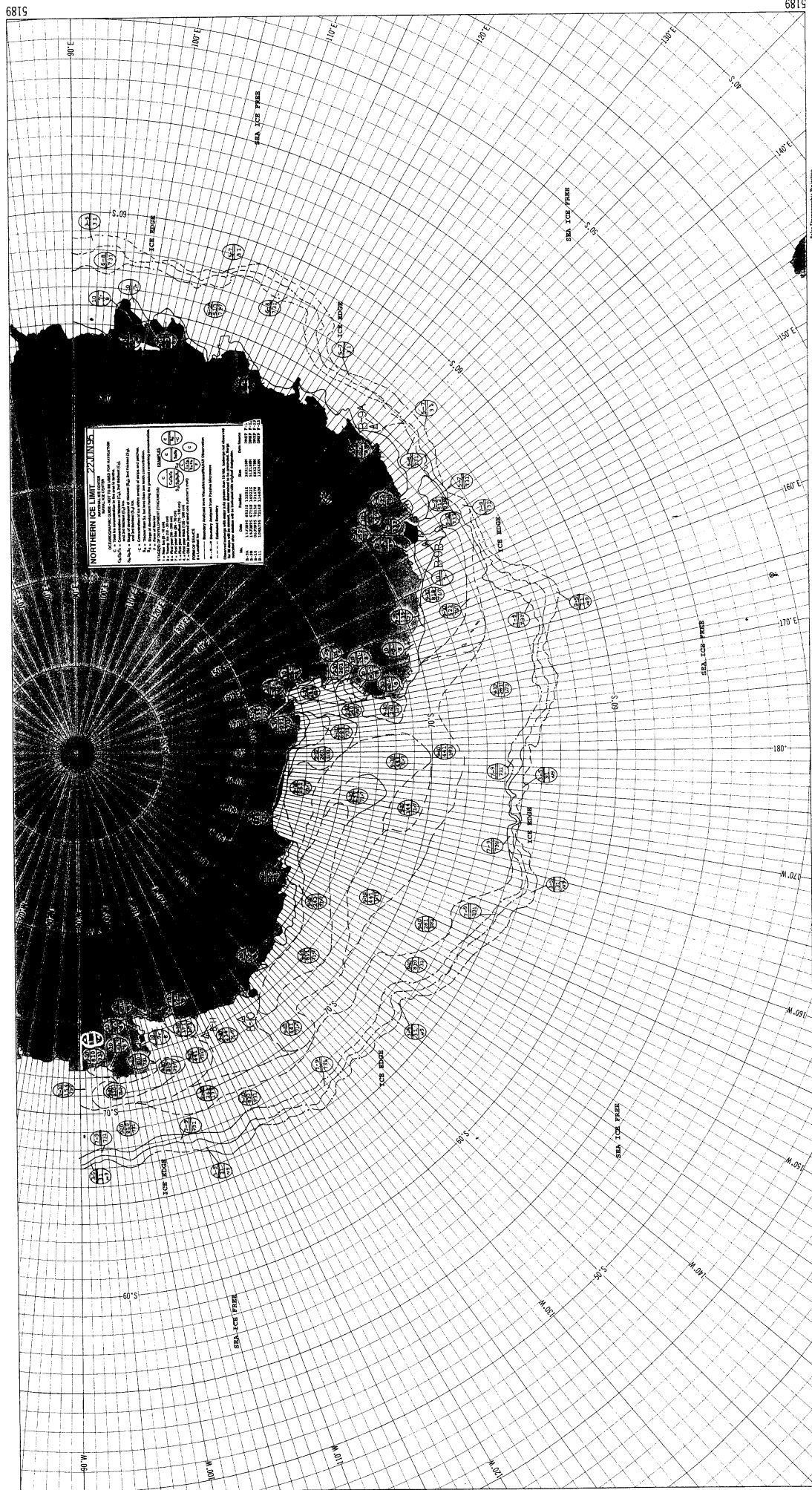


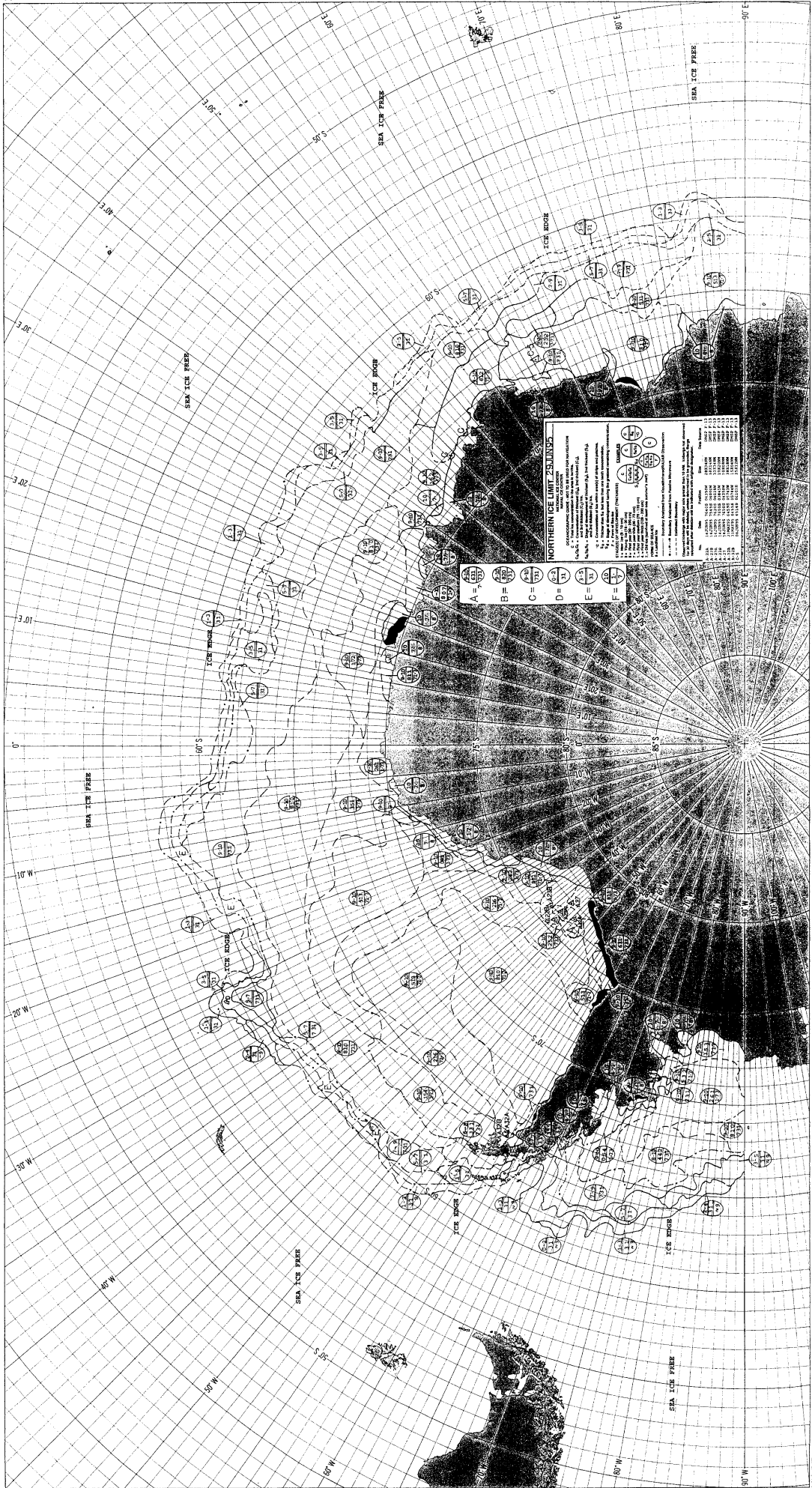






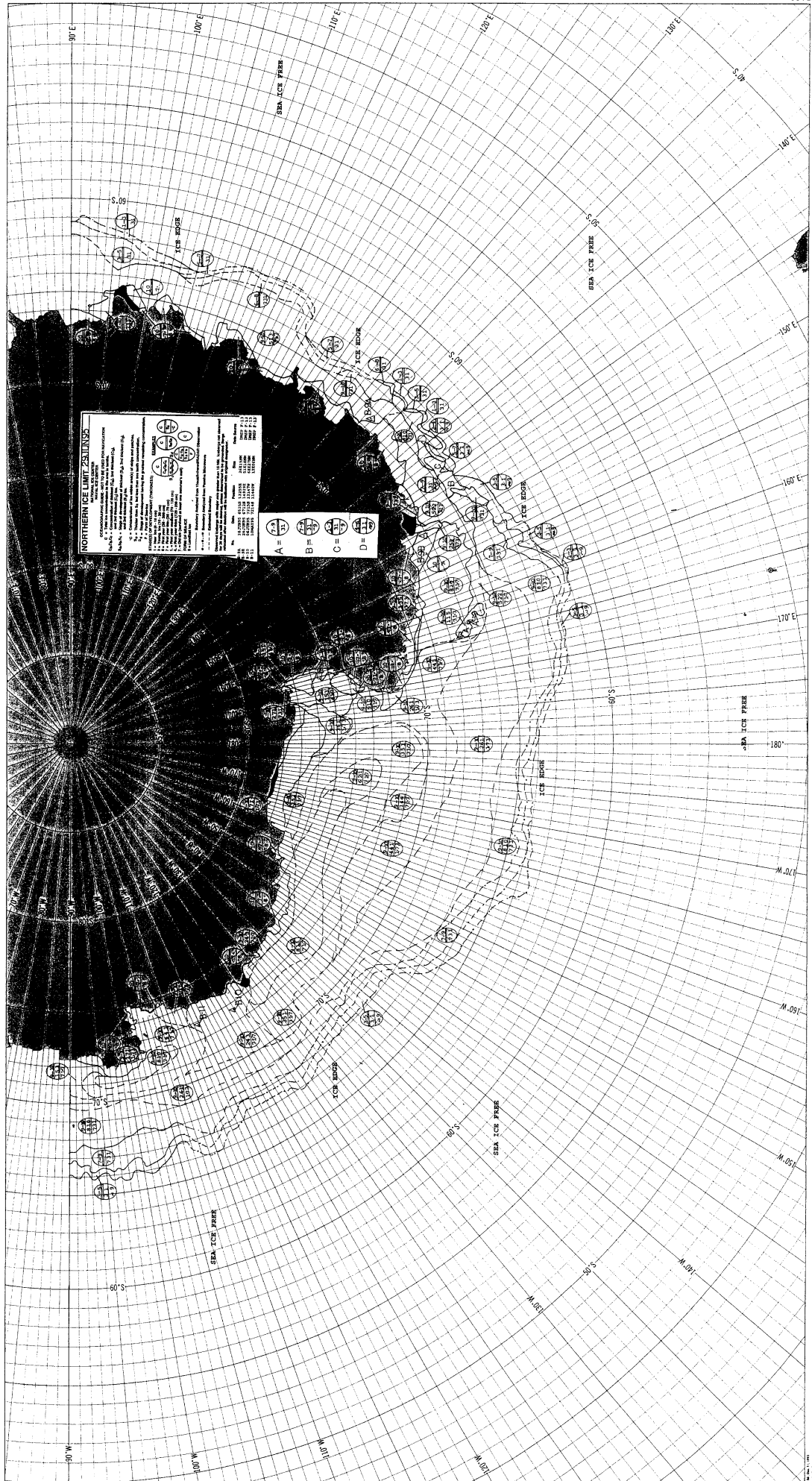




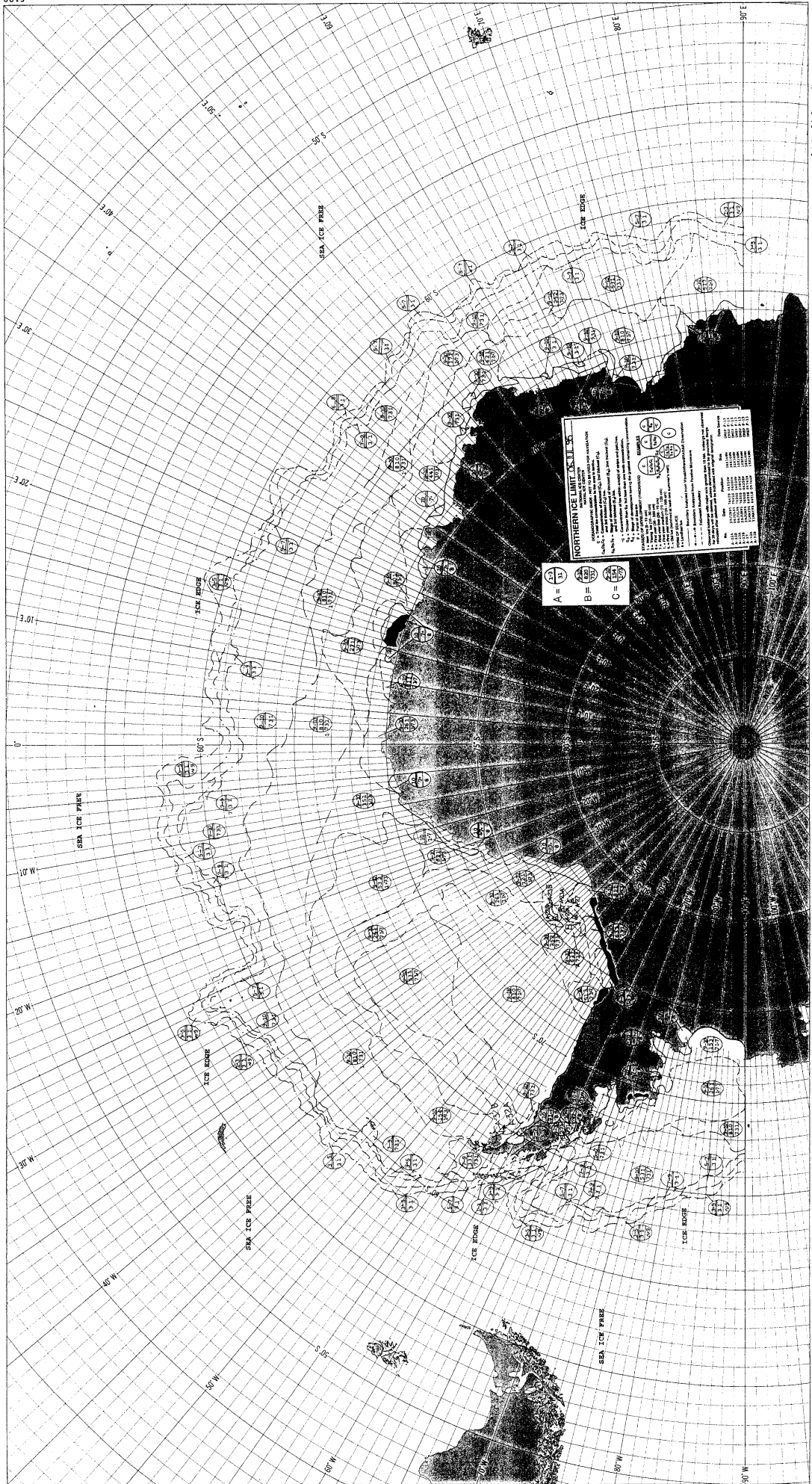


A = B = C = D = E = F =

**NORTHERN ICE LIMITS**  
 1. 1000 METERS (3280 FEET) DEPTH SOUNDINGS  
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 99. 1000 METERS (3280 FEET) DEPTH SOUNDINGS  
 100. 1000 METERS (3280 FEET) DEPTH SOUNDINGS



**NORTHERN ICE LIMIT - 25 JANUARY**  
 ALL DATA FROM  
 1. U.S. NAVY HYDROGRAPHIC SURVEYS  
 2. U.S. NAVY AIR PHOTOGRAPHIC SURVEYS  
 3. U.S. NAVY AIR OBSERVATION REPORTS  
 4. U.S. NAVY AIR SEARCH REPORTS  
 5. U.S. NAVY AIR SEARCH RESULTS  
 6. U.S. NAVY AIR SEARCH RESULTS - 1950-1951  
 7. U.S. NAVY AIR SEARCH RESULTS - 1952-1953  
 8. U.S. NAVY AIR SEARCH RESULTS - 1954-1955  
 9. U.S. NAVY AIR SEARCH RESULTS - 1956-1957  
 10. U.S. NAVY AIR SEARCH RESULTS - 1958-1959  
 11. U.S. NAVY AIR SEARCH RESULTS - 1960-1961  
 12. U.S. NAVY AIR SEARCH RESULTS - 1962-1963  
 13. U.S. NAVY AIR SEARCH RESULTS - 1964-1965  
 14. U.S. NAVY AIR SEARCH RESULTS - 1966-1967  
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 19. U.S. NAVY AIR SEARCH RESULTS - 1976-1977  
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 42. U.S. NAVY AIR SEARCH RESULTS - 2022-2023  
 43. U.S. NAVY AIR SEARCH RESULTS - 2024-2025

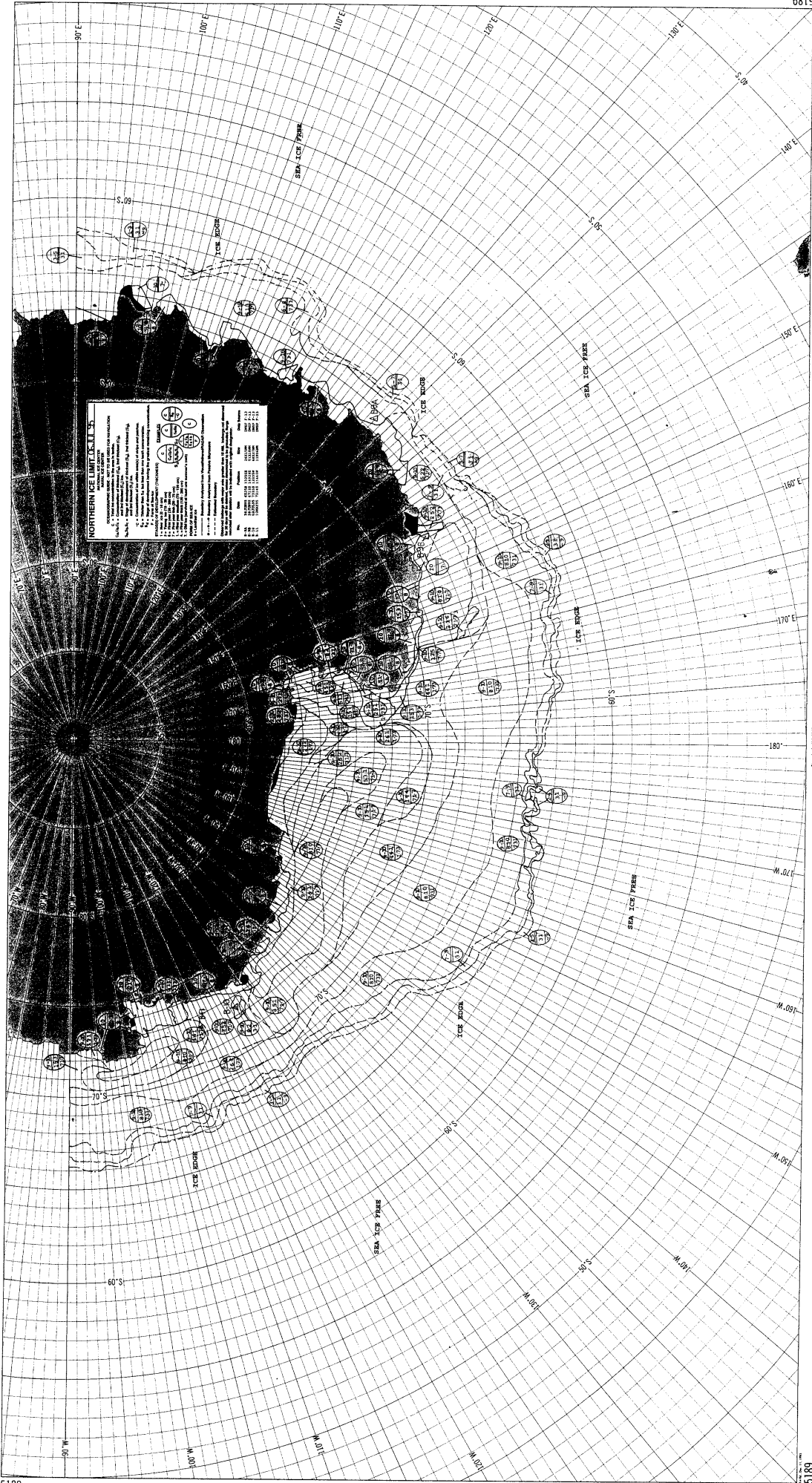


**NORTHERN ICE LIMIT (S.I.L.S.)**  
 Maximum Northern Limit of Sea Ice  
 (Based on observations from 1950 to 1960)  
 (Based on observations from 1961 to 1970)  
 (Based on observations from 1971 to 1980)  
 (Based on observations from 1981 to 1990)  
 (Based on observations from 1991 to 2000)  
 (Based on observations from 2001 to 2010)  
 (Based on observations from 2011 to 2020)  
 (Based on observations from 2021 to 2030)

A =   
 B =   
 C =

Projection: Polar Stereographic  
 Date: 1/1/2000

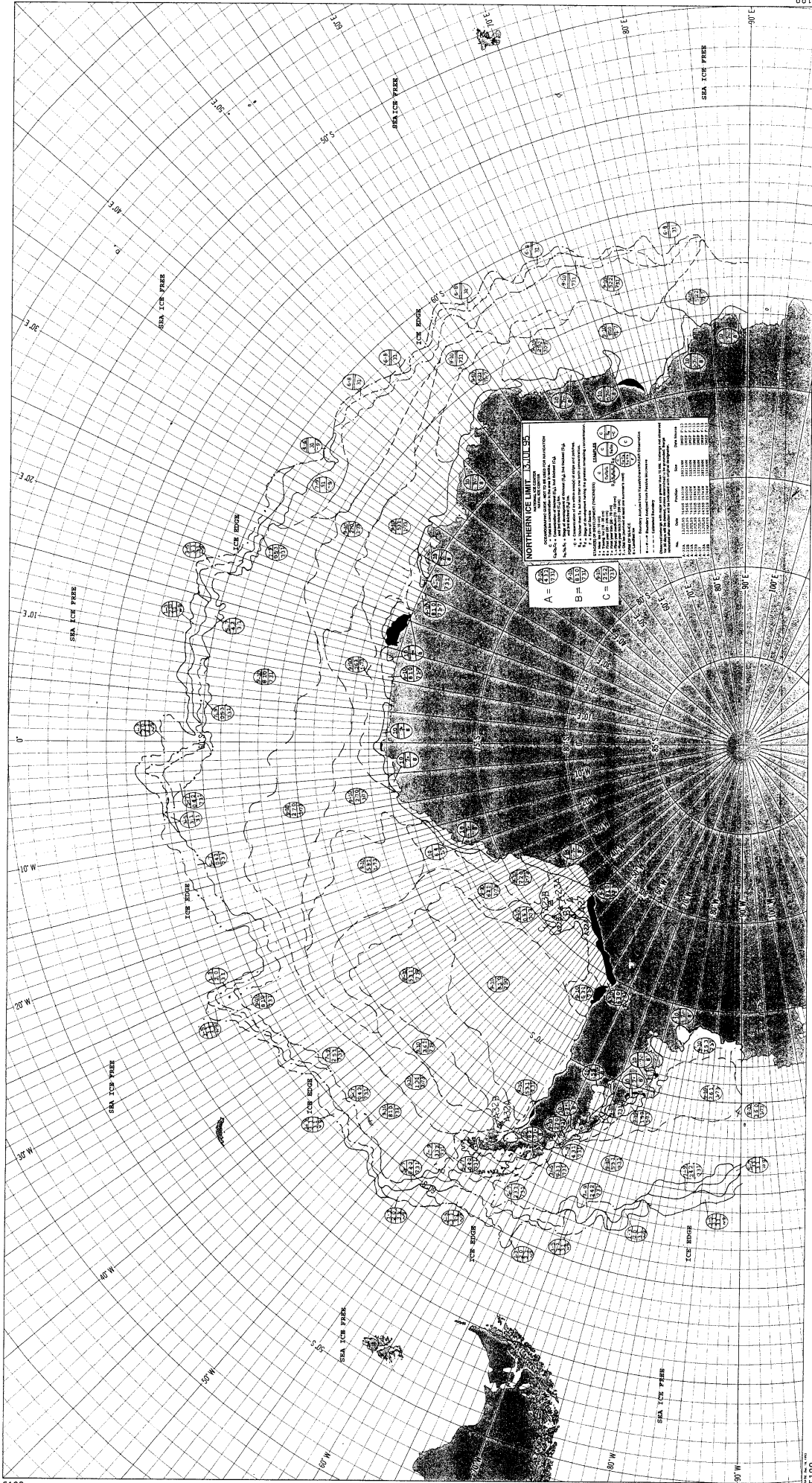
Scale: 1:10,000,000  
 Source: National Oceanic and Atmospheric Administration

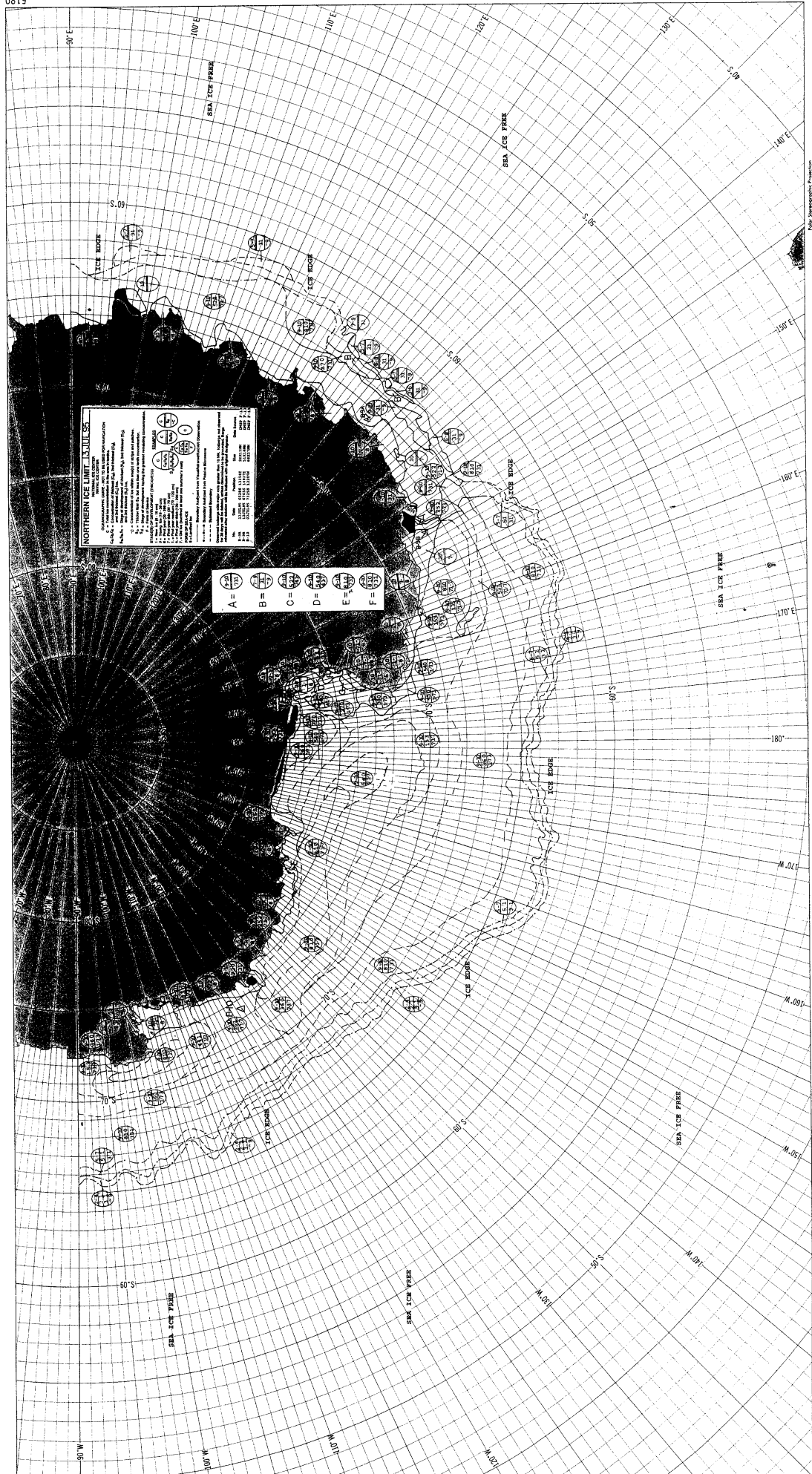


**NORTHERN ICE LIMITS LIST**

1. **ICE BORDERS**

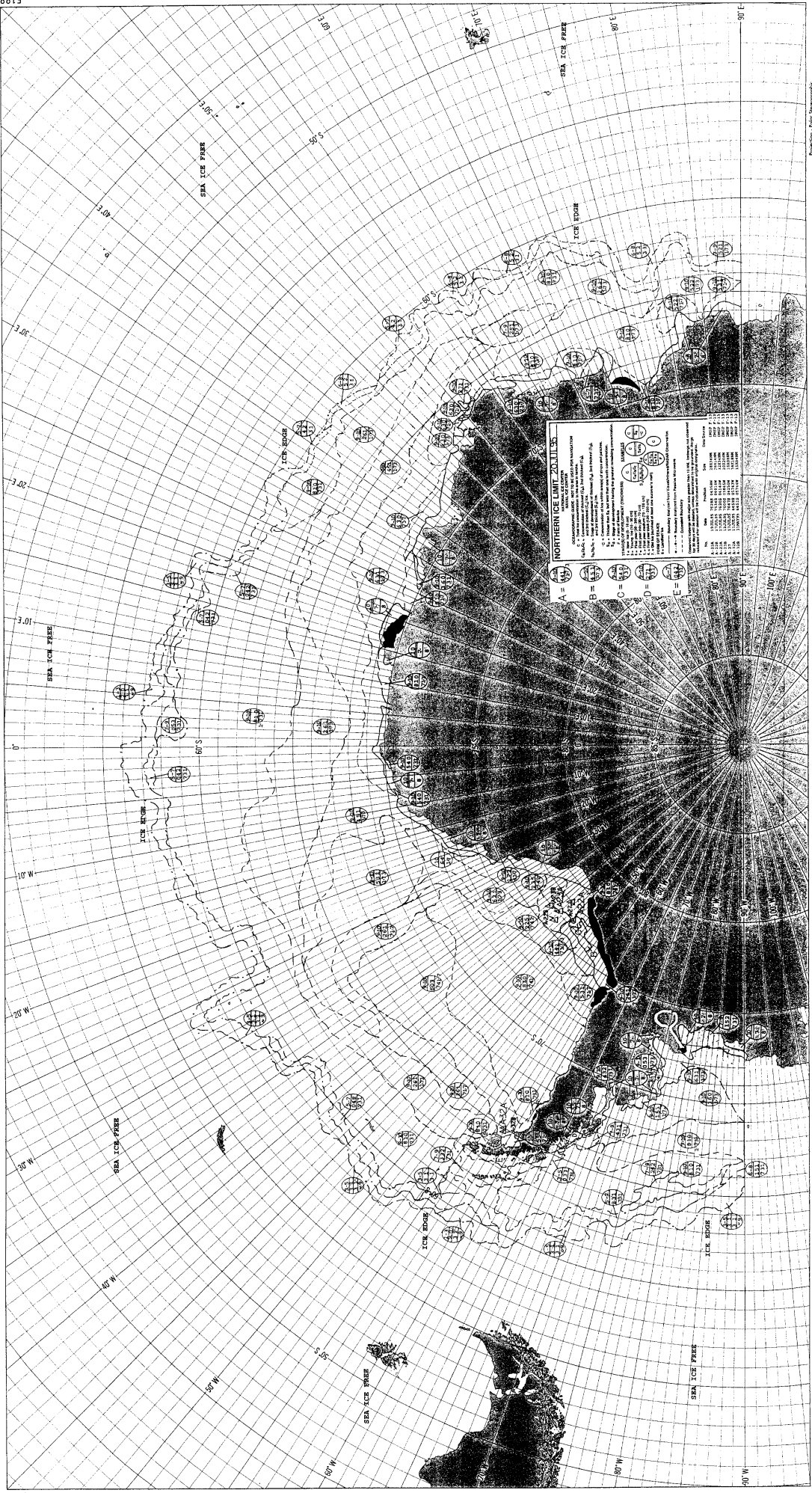
Station	Date	Time	Latitude	Longitude	Remarks
101	1953	0800	70°N	150°E	Ice border
102	1953	0830	70°N	155°E	Ice border
103	1953	0900	70°N	160°E	Ice border
104	1953	0930	70°N	165°E	Ice border
105	1953	1000	70°N	170°E	Ice border
106	1953	1030	70°N	175°E	Ice border
107	1953	1100	70°N	180°E	Ice border
108	1953	1130	70°N	185°E	Ice border
109	1953	1200	70°N	190°E	Ice border
110	1953	1230	70°N	195°E	Ice border
111	1953	1300	70°N	200°E	Ice border
112	1953	1330	70°N	205°E	Ice border
113	1953	1400	70°N	210°E	Ice border
114	1953	1430	70°N	215°E	Ice border
115	1953	1500	70°N	220°E	Ice border
116	1953	1530	70°N	225°E	Ice border
117	1953	1600	70°N	230°E	Ice border
118	1953	1630	70°N	235°E	Ice border
119	1953	1700	70°N	240°E	Ice border
120	1953	1730	70°N	245°E	Ice border
121	1953	1800	70°N	250°E	Ice border
122	1953	1830	70°N	255°E	Ice border
123	1953	1900	70°N	260°E	Ice border
124	1953	1930	70°N	265°E	Ice border
125	1953	2000	70°N	270°E	Ice border
126	1953	2030	70°N	275°E	Ice border
127	1953	2100	70°N	280°E	Ice border
128	1953	2130	70°N	285°E	Ice border
129	1953	2200	70°N	290°E	Ice border
130	1953	2230	70°N	295°E	Ice border
131	1953	2300	70°N	300°E	Ice border
132	1953	2330	70°N	305°E	Ice border
133	1953	2400	70°N	310°E	Ice border
134	1953	2430	70°N	315°E	Ice border
135	1953	2500	70°N	320°E	Ice border
136	1953	2530	70°N	325°E	Ice border
137	1953	2600	70°N	330°E	Ice border
138	1953	2630	70°N	335°E	Ice border
139	1953	2700	70°N	340°E	Ice border
140	1953	2730	70°N	345°E	Ice border
141	1953	2800	70°N	350°E	Ice border
142	1953	2830	70°N	355°E	Ice border
143	1953	2900	70°N	360°E	Ice border
144	1953	2930	70°N	365°E	Ice border
145	1953	3000	70°N	370°E	Ice border
146	1953	3030	70°N	375°E	Ice border
147	1953	3100	70°N	380°E	Ice border
148	1953	3130	70°N	385°E	Ice border
149	1953	3200	70°N	390°E	Ice border
150	1953	3230	70°N	395°E	Ice border
151	1953	3300	70°N	400°E	Ice border
152	1953	3330	70°N	405°E	Ice border
153	1953	3400	70°N	410°E	Ice border
154	1953	3430	70°N	415°E	Ice border
155	1953	3500	70°N	420°E	Ice border
156	1953	3530	70°N	425°E	Ice border
157	1953	3600	70°N	430°E	Ice border
158	1953	3630	70°N	435°E	Ice border
159	1953	3700	70°N	440°E	Ice border
160	1953	3730	70°N	445°E	Ice border
161	1953	3800	70°N	450°E	Ice border
162	1953	3830	70°N	455°E	Ice border
163	1953	3900	70°N	460°E	Ice border
164	1953	3930	70°N	465°E	Ice border
165	1953	4000	70°N	470°E	Ice border
166	1953	4030	70°N	475°E	Ice border
167	1953	4100	70°N	480°E	Ice border
168	1953	4130	70°N	485°E	Ice border
169	1953	4200	70°N	490°E	Ice border
170	1953	4230	70°N	495°E	Ice border
171	1953	4300	70°N	500°E	Ice border
172	1953	4330	70°N	505°E	Ice border
173	1953	4400	70°N	510°E	Ice border
174	1953	4430	70°N	515°E	Ice border
175	1953	4500	70°N	520°E	Ice border
176	1953	4530	70°N	525°E	Ice border
177	1953	4600	70°N	530°E	Ice border
178	1953	4630	70°N	535°E	Ice border
179	1953	4700	70°N	540°E	Ice border
180	1953	4730	70°N	545°E	Ice border
181	1953	4800	70°N	550°E	Ice border
182	1953	4830	70°N	555°E	Ice border
183	1953	4900	70°N	560°E	Ice border
184	1953	4930	70°N	565°E	Ice border
185	1953	5000	70°N	570°E	Ice border
186	1953	5030	70°N	575°E	Ice border
187	1953	5100	70°N	580°E	Ice border
188	1953	5130	70°N	585°E	Ice border
189	1953	5200	70°N	590°E	Ice border
190	1953	5230	70°N	595°E	Ice border
191	1953	5300	70°N	600°E	Ice border
192	1953	5330	70°N	605°E	Ice border
193	1953	5400	70°N	610°E	Ice border
194	1953	5430	70°N	615°E	Ice border
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202	1953	5830	70°N	655°E	Ice border
203	1953	5900	70°N	660°E	Ice border
204	1953	5930	70°N	665°E	Ice border
205	1953	6000	70°N	670°E	Ice border
206	1953	6030	70°N	675°E	Ice border
207	1953	6100	70°N	680°E	Ice border
208	1953	6130	70°N	685°E	Ice border
209	1953	6200	70°N	690°E	Ice border
210	1953	6230	70°N	695°E	Ice border
211	1953	6300	70°N	700°E	Ice border
212	1953	6330	70°N	705°E	Ice border
213	1953	6400	70°N	710°E	Ice border
214	1953	6430	70°N	715°E	Ice border
215	1953	6500	70°N	720°E	Ice border
216	1953	6530	70°N	725°E	Ice border
217	1953	6600	70°N	730°E	Ice border
218	1953	6630	70°N	735°E	Ice border
219	1953	6700	70°N	740°E	Ice border
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225	1953	7000	70°N	770°E	Ice border
226	1953	7030	70°N	775°E	Ice border
227	1953	7100	70°N	780°E	Ice border
228	1953	7130	70°N	785°E	Ice border
229	1953	7200	70°N	790°E	Ice border
230	1953	7230	70°N	795°E	Ice border
231	1953	7300	70°N	800°E	Ice border
232	1953	7330	70°N	805°E	Ice border
233	1953	7400	70°N	810°E	Ice border
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236	1953	7530	70°N	825°E	Ice border
237	1953	7600	70°N	830°E	Ice border
238	1953	7630	70°N	835°E	Ice border
239	1953	7700	70°N	840°E	Ice border
240	1953	7730	70°N	845°E	Ice border
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244	1953	7930	70°N	865°E	Ice border
245	1953	8000	70°N	870°E	Ice border
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294	1953	10430	70°N	215°E	Ice border
295	1953	10500	70°N	220°E	Ice border
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301	1953	10800	70°N	250°E	Ice border
302	1953	10830	70°N	255°E	Ice border
303	1953	10900	70°N	260°E	Ice border
304	1953	10930	70°N	265°E	Ice border
305	1953	11000	70°N	270°E	Ice border
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307	1953	11100	70°N	280°E	Ice border
308	1953	11130	70°N	285°E	Ice border
309					





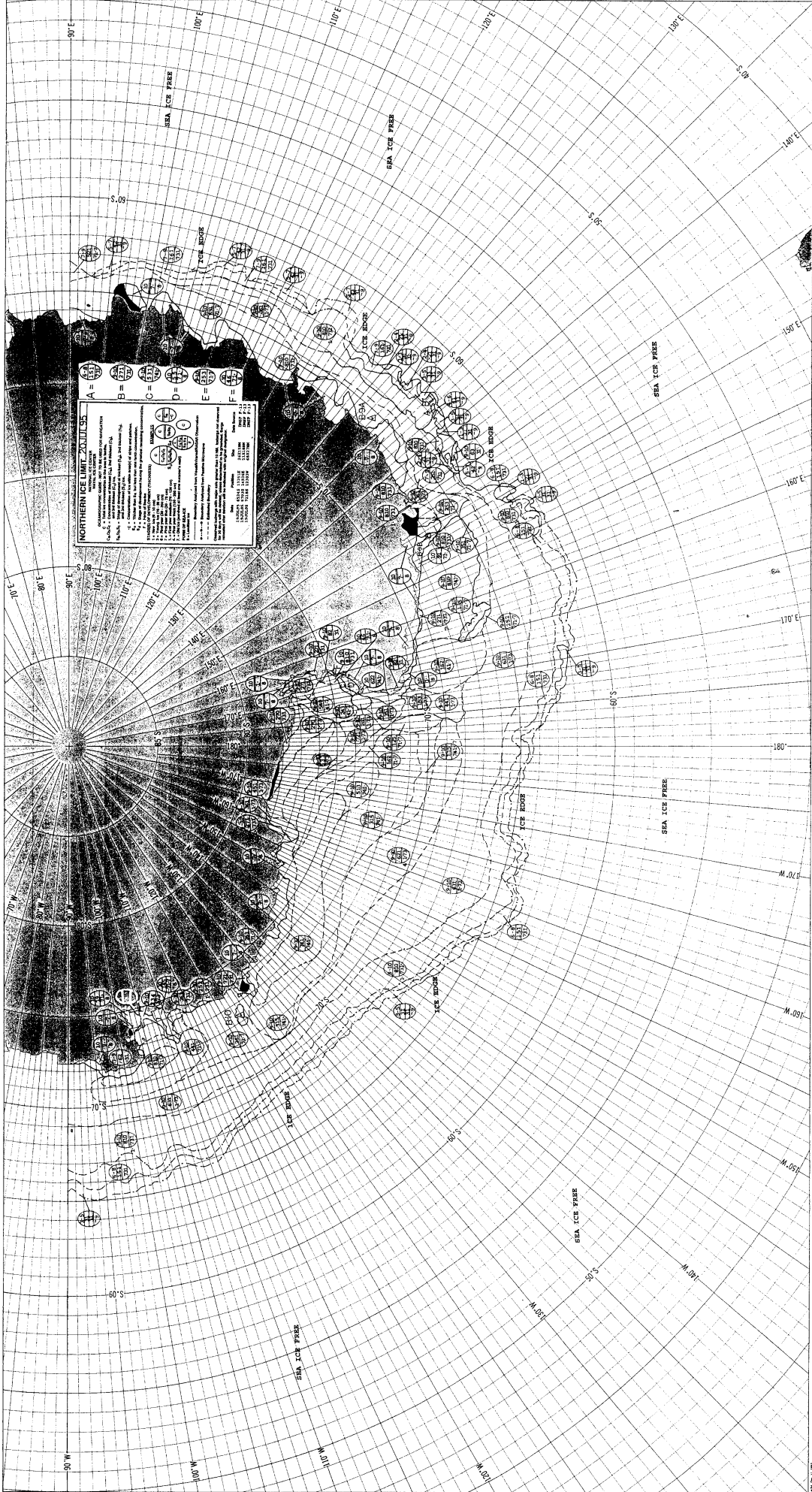
**NORTHERN ICE LIMIT AS OF 1958**  
 NATIONAL ICE CENTER  
 U.S. DEPARTMENT OF COMMERCE  
 OFFICE OF NAUTICAL INFORMATION  
 1600 EAST AVENUE, ANCHORAGE, ALASKA 99504  
 1. This chart is based on the latest available information.  
 2. It is not intended for use in areas where the ice is extensive.  
 3. It is not intended for use in areas where the ice is extensive.  
 4. It is not intended for use in areas where the ice is extensive.  
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 9. It is not intended for use in areas where the ice is extensive.  
 10. It is not intended for use in areas where the ice is extensive.

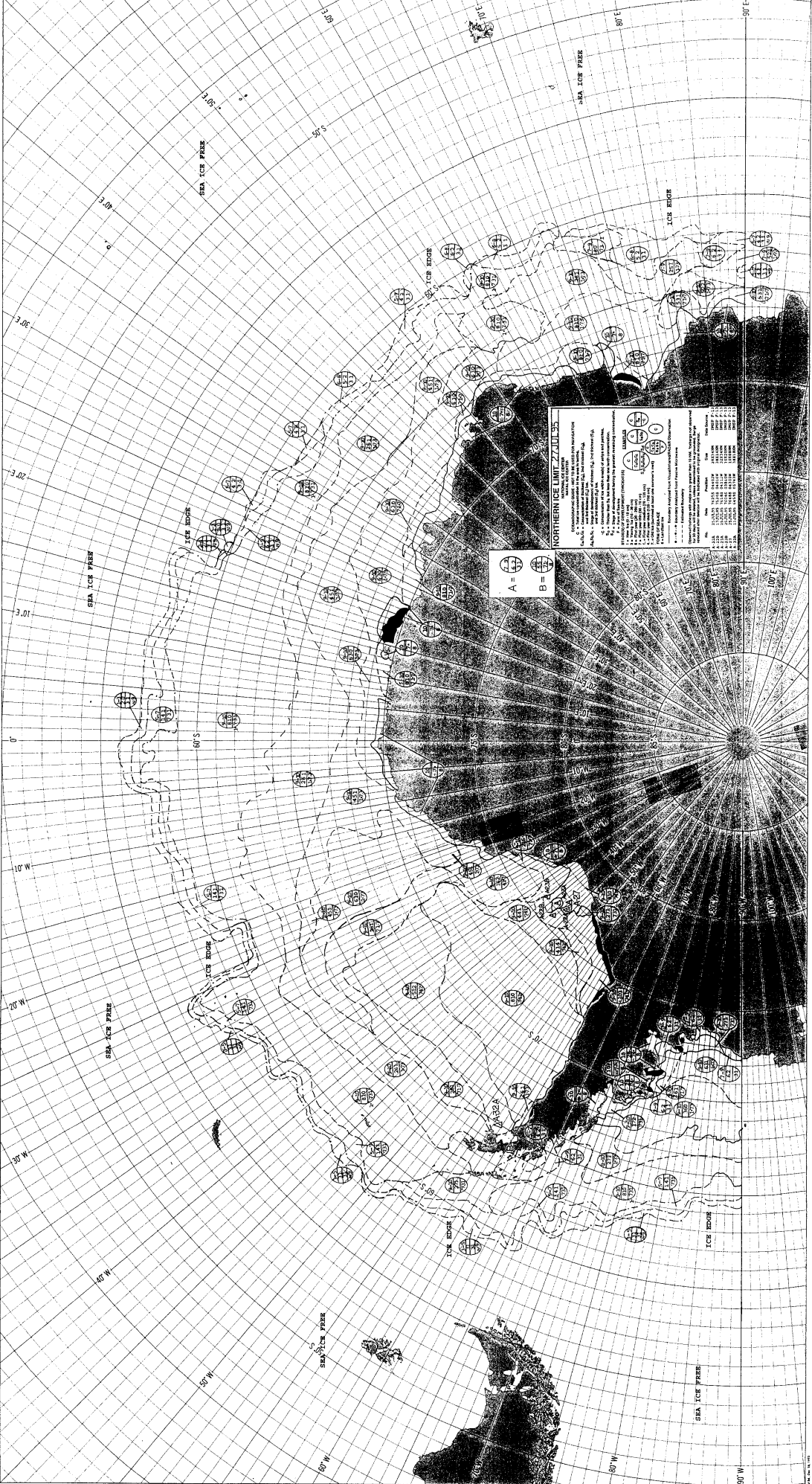
A =  $\frac{1}{2}$  B =  $\frac{1}{4}$  C =  $\frac{1}{8}$  D =  $\frac{1}{16}$  E =  $\frac{1}{32}$  F =  $\frac{1}{64}$



Published by the Hydrographic Office, Washington, D.C.

Scale: 1:100,000





**NORSEMAN LIGHT, JUL 25**

**CHARACTERISTICS**  
 1000 FT. LIGHT  
 1000 FT. LIGHT  
 1000 FT. LIGHT

**TABLE**

Time of Day	Color	Height	Range
Day	White	1000	10.0
Night	White	1000	10.0
Day	White	1000	10.0
Night	White	1000	10.0

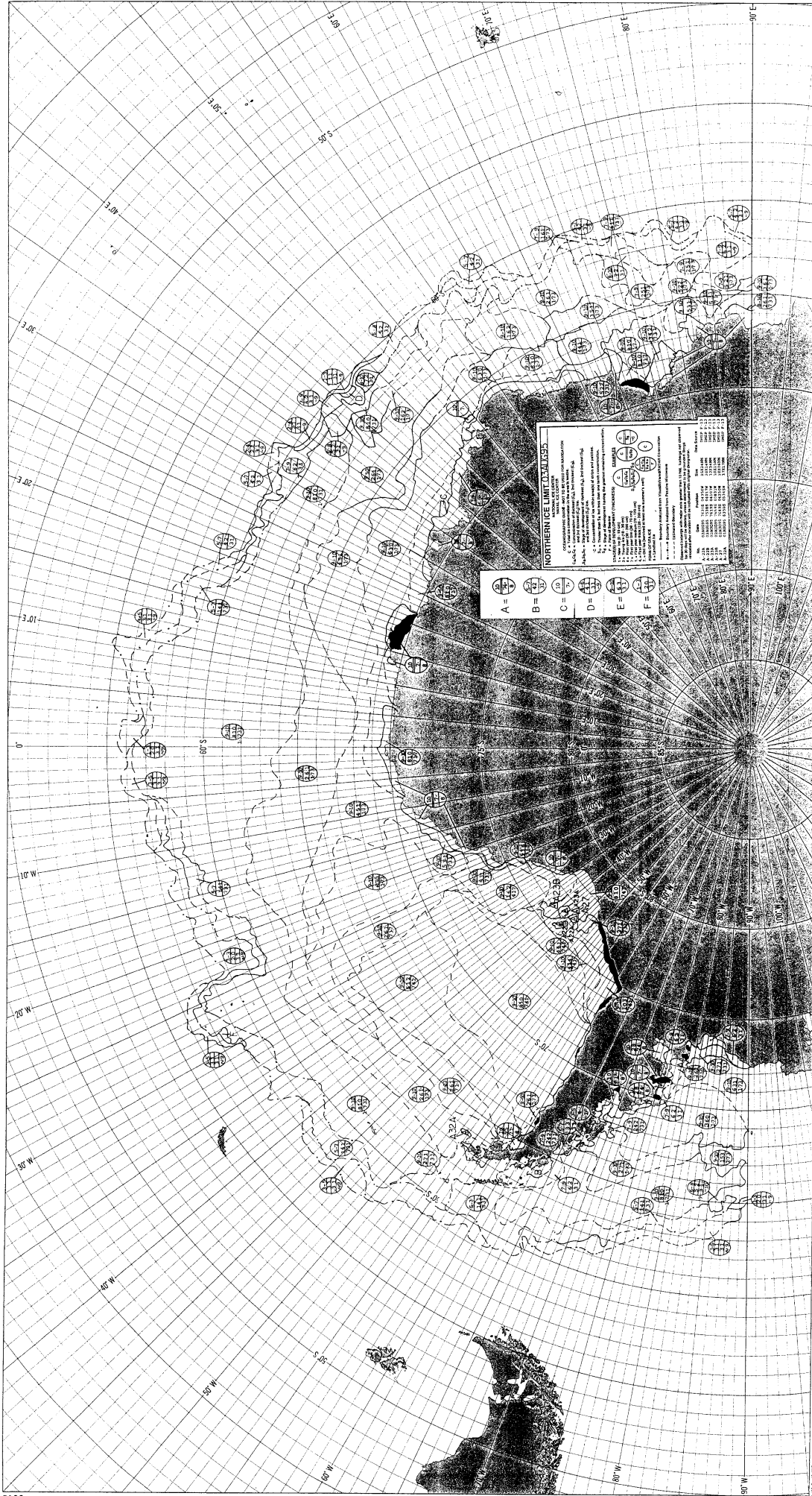
**REMARKS**  
 1. Light is visible in all directions.  
 2. Light is visible in all directions.  
 3. Light is visible in all directions.

A =   
 B = 

Hydrographic, Public Information, etc.  
 Date: 1/1/00

Scale: 1:100,000  
 Projection: Mercator





**NORTHERN ICE LIMIT (N.I.L.)**  
 SYMBOLS TO BE USED IN CONNECTION WITH THE N.I.L. CHARTS

**Legend:**

- A = (Symbol)
- B = (Symbol)
- C = (Symbol)
- D = (Symbol)
- E = (Symbol)
- F = (Symbol)

**Notes:**

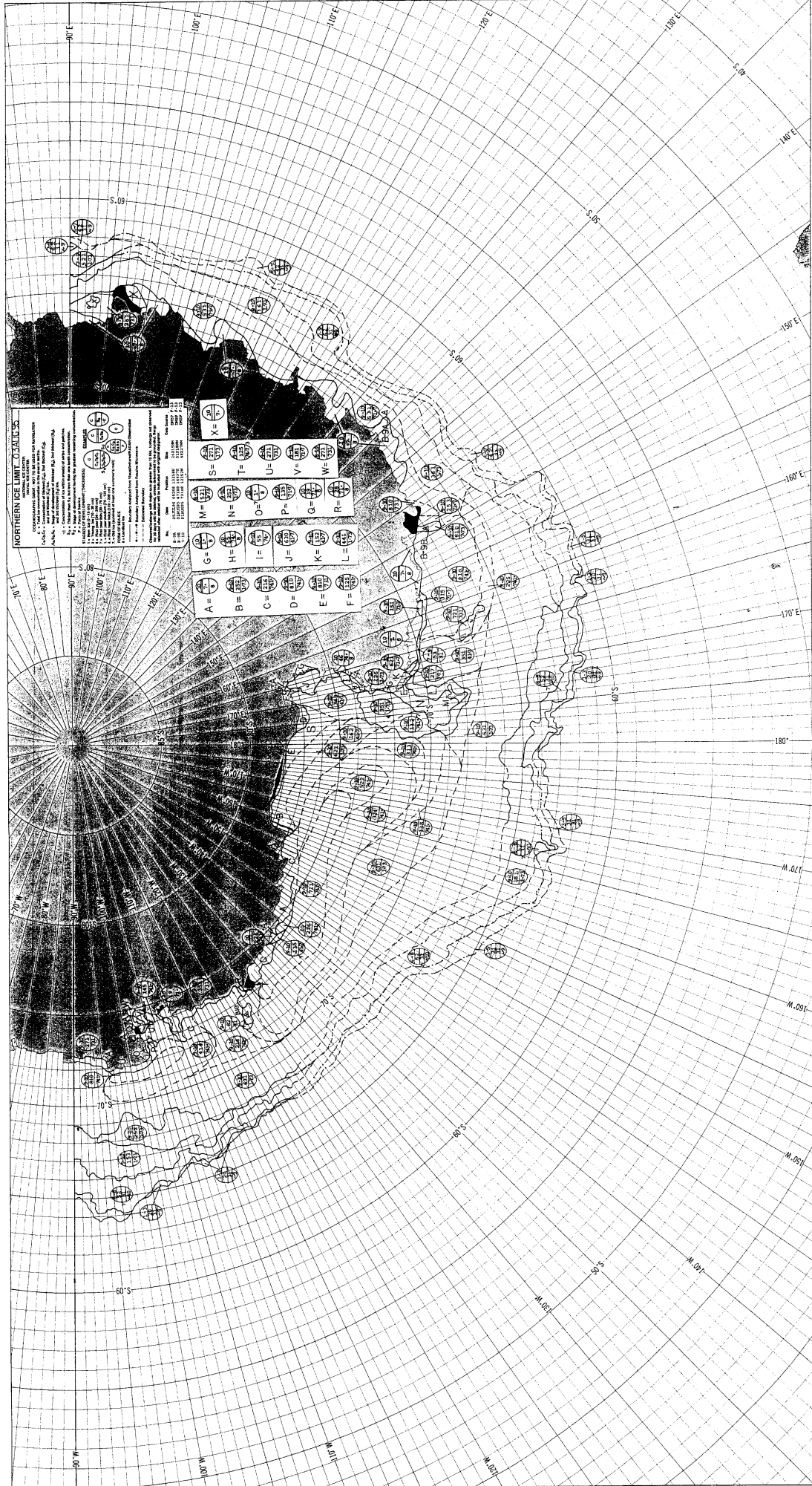
1. The N.I.L. is shown as a dashed line with circular symbols.
2. The N.I.L. is shown as a solid line with circular symbols.
3. The N.I.L. is shown as a solid line with circular symbols.
4. The N.I.L. is shown as a solid line with circular symbols.
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10. The N.I.L. is shown as a solid line with circular symbols.

**Scale:**

Scale	1:100,000	1:200,000	1:300,000	1:400,000	1:500,000	1:600,000	1:700,000	1:800,000	1:900,000	1:1,000,000
1 inch	10 miles	20 miles	30 miles	40 miles	50 miles	60 miles	70 miles	80 miles	90 miles	100 miles

Hydrographic Office, Washington, D.C.

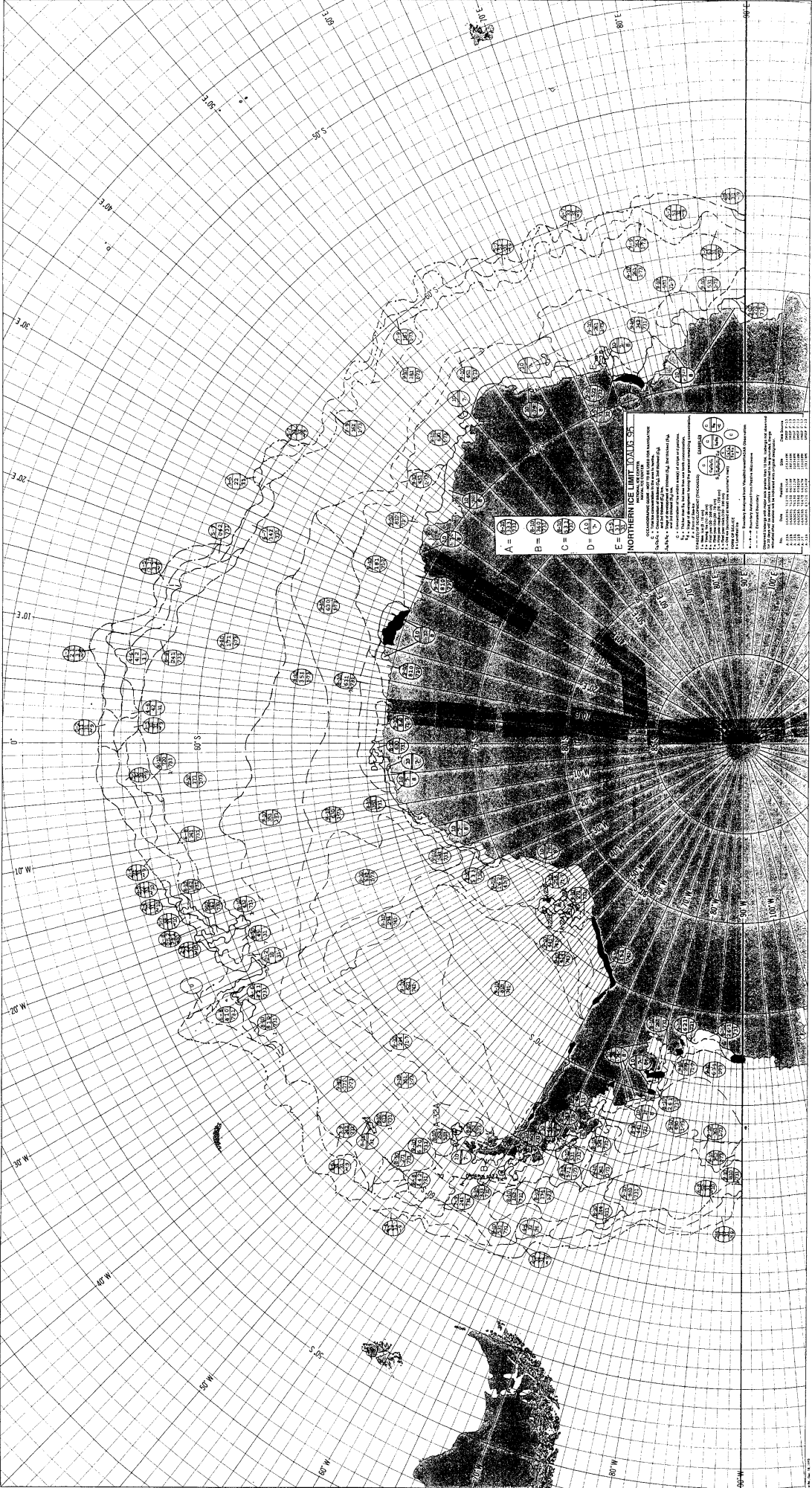
Copyright, 1950, by the Hydrographic Office, Washington, D.C.



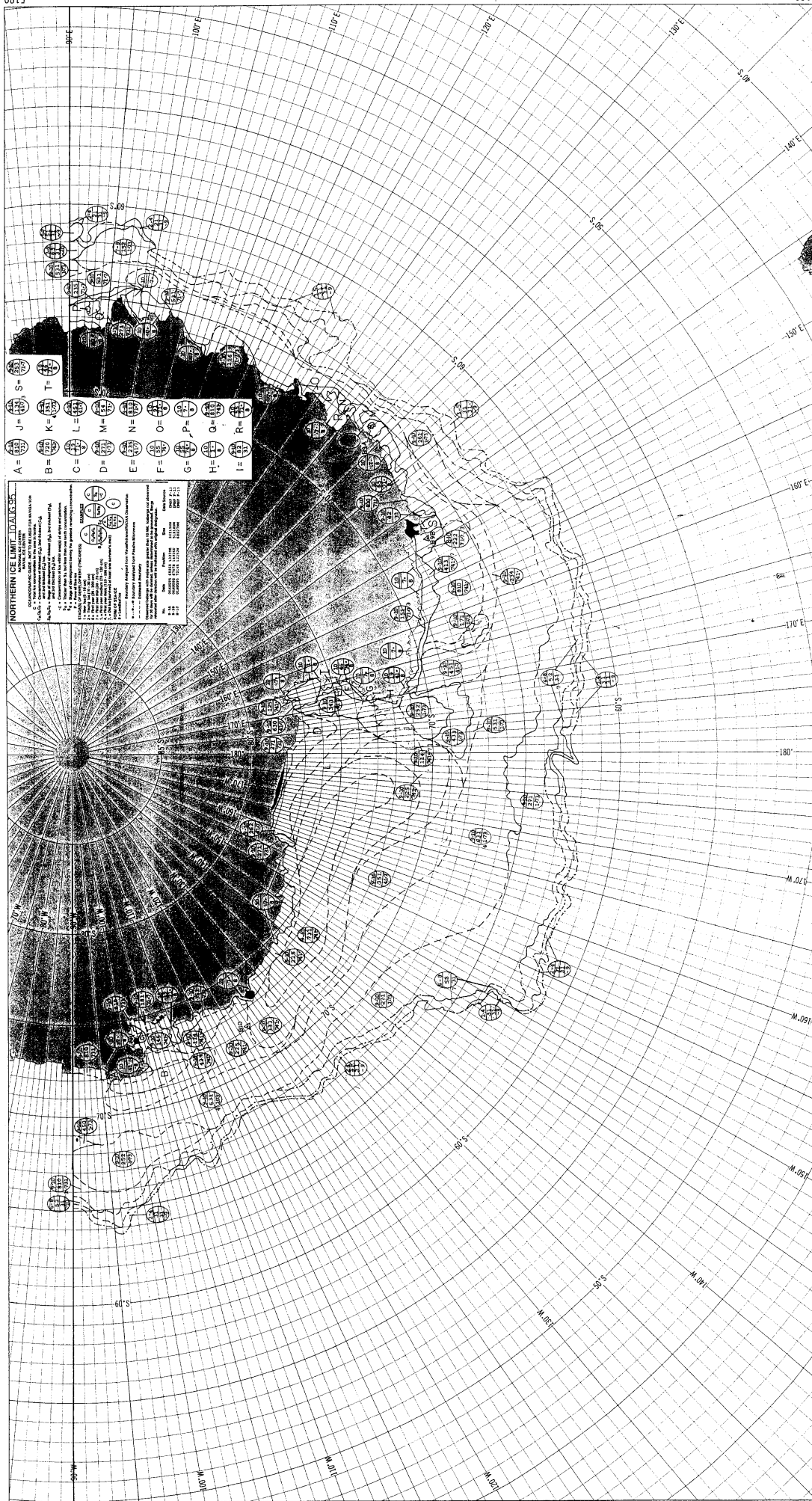
**NORTHERN ICE LIMIT**  
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A = $\frac{100}{100}$	B = $\frac{100}{100}$	C = $\frac{100}{100}$	D = $\frac{100}{100}$	E = $\frac{100}{100}$	F = $\frac{100}{100}$
G = $\frac{100}{100}$	H = $\frac{100}{100}$	I = $\frac{100}{100}$	J = $\frac{100}{100}$	K = $\frac{100}{100}$	L = $\frac{100}{100}$
M = $\frac{100}{100}$	N = $\frac{100}{100}$	O = $\frac{100}{100}$	P = $\frac{100}{100}$	Q = $\frac{100}{100}$	R = $\frac{100}{100}$
S = $\frac{100}{100}$	T = $\frac{100}{100}$	U = $\frac{100}{100}$	V = $\frac{100}{100}$	W = $\frac{100}{100}$	X = $\frac{100}{100}$

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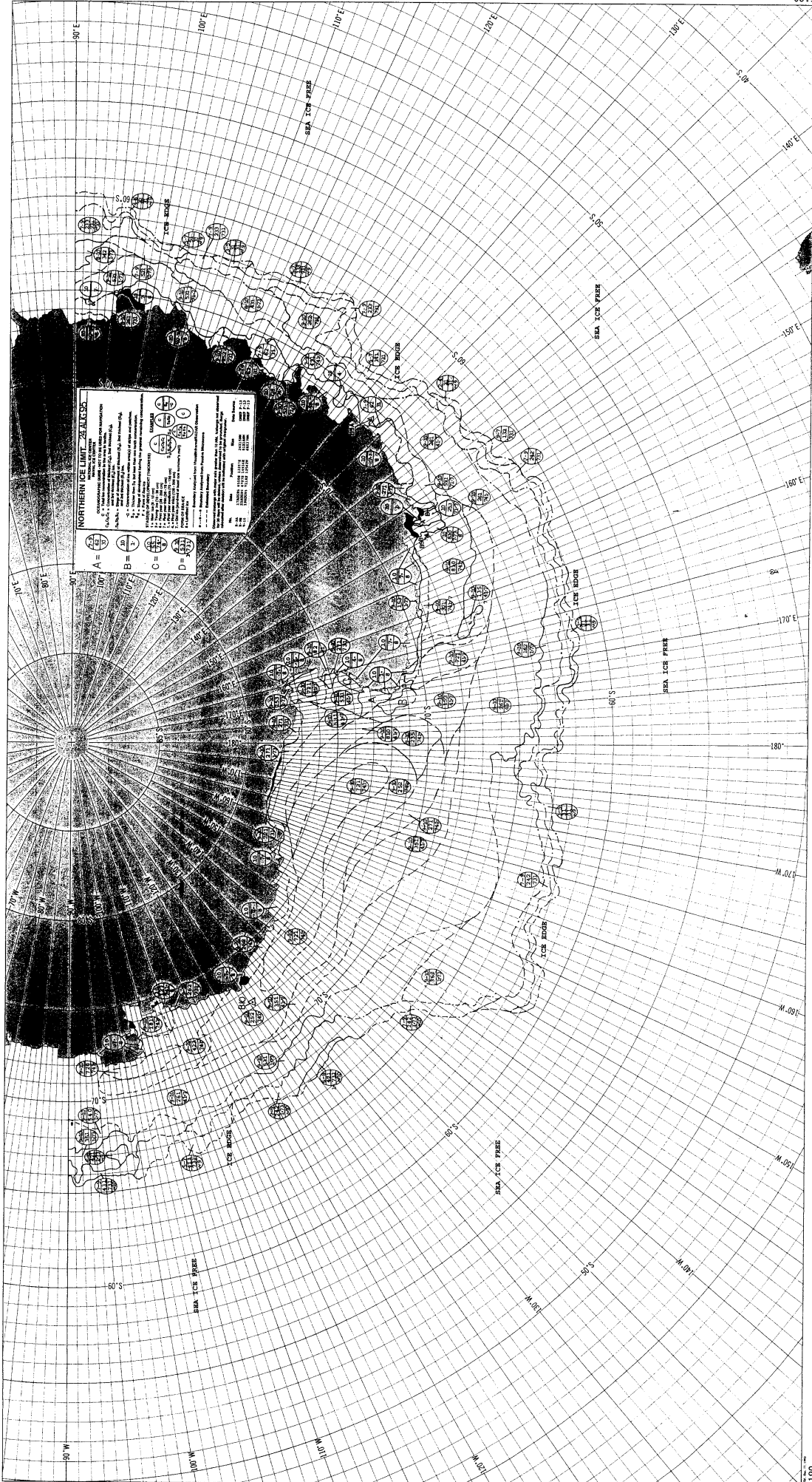
**NORTHERN OCEAN**  
 OCCURRENCE OF LIGHTS  
 LIGHTS ARE SHOWN BY THE FOLLOWING SYMBOLS:  
 LIGHTS IN CIRCLES ARE LIGHTS WHICH ARE  
 1. LIGHTS WHICH ARE NOT TO BE USED FOR NAVIGATION  
 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN SQUARES ARE LIGHTS WHICH ARE  
 1. LIGHTS WHICH ARE NOT TO BE USED FOR NAVIGATION  
 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN TRIANGLES ARE LIGHTS WHICH ARE  
 1. LIGHTS WHICH ARE NOT TO BE USED FOR NAVIGATION  
 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN DIAMONDS ARE LIGHTS WHICH ARE  
 1. LIGHTS WHICH ARE NOT TO BE USED FOR NAVIGATION  
 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CROSSES ARE LIGHTS WHICH ARE  
 1. LIGHTS WHICH ARE NOT TO BE USED FOR NAVIGATION  
 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN STARS ARE LIGHTS WHICH ARE  
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 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CIRCLES WITH A CROSS ARE LIGHTS WHICH ARE  
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 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CIRCLES WITH A SQUARE ARE LIGHTS WHICH ARE  
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 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CIRCLES WITH A TRIANGLE ARE LIGHTS WHICH ARE  
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 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CIRCLES WITH A DIAMOND ARE LIGHTS WHICH ARE  
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 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CIRCLES WITH A STAR ARE LIGHTS WHICH ARE  
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 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CIRCLES WITH A CROSS AND A SQUARE ARE LIGHTS WHICH ARE  
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 LIGHTS IN CIRCLES WITH A TRIANGLE AND A STAR ARE LIGHTS WHICH ARE  
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 LIGHTS IN CIRCLES WITH A DIAMOND AND A STAR ARE LIGHTS WHICH ARE  
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 2. LIGHTS WHICH ARE TO BE USED FOR NAVIGATION  
 LIGHTS IN CIRCLES WITH A CROSS, A SQUARE, A TRIANGLE, A DIAMOND, AND A STAR ARE LIGHTS WHICH ARE  
 1. LIGHTS WHICH ARE NOT TO BE USED FOR NAVIGATION  
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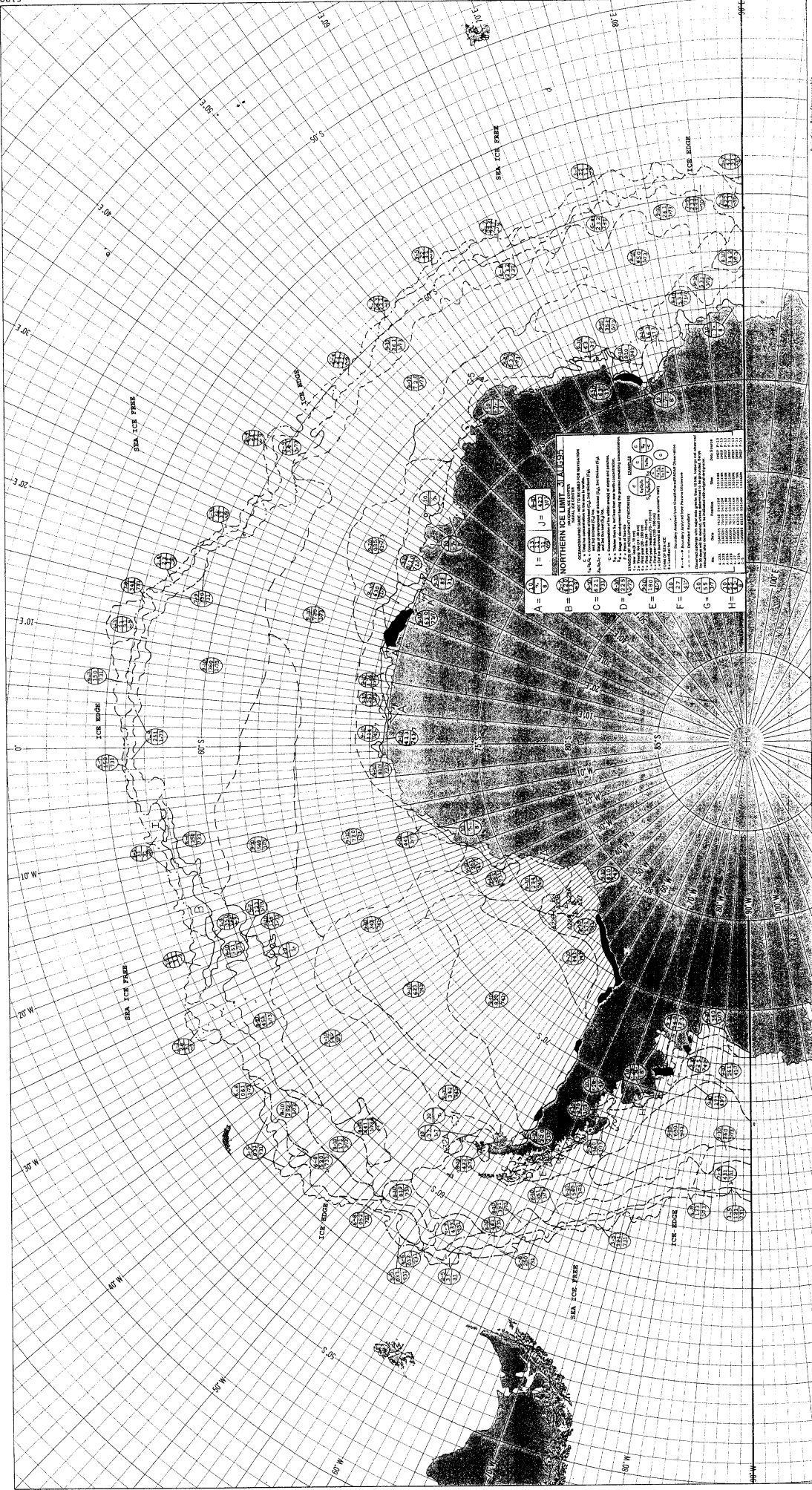




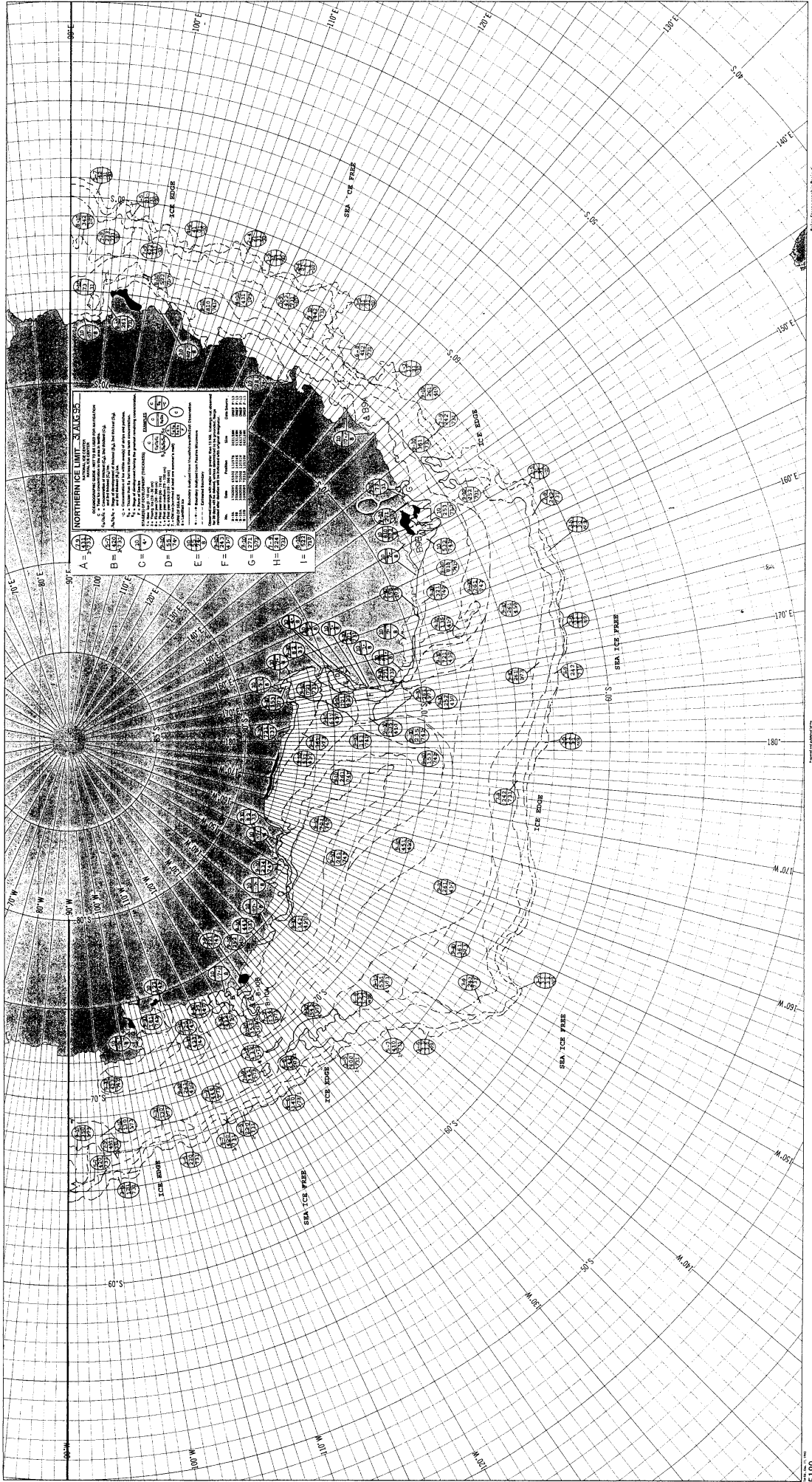




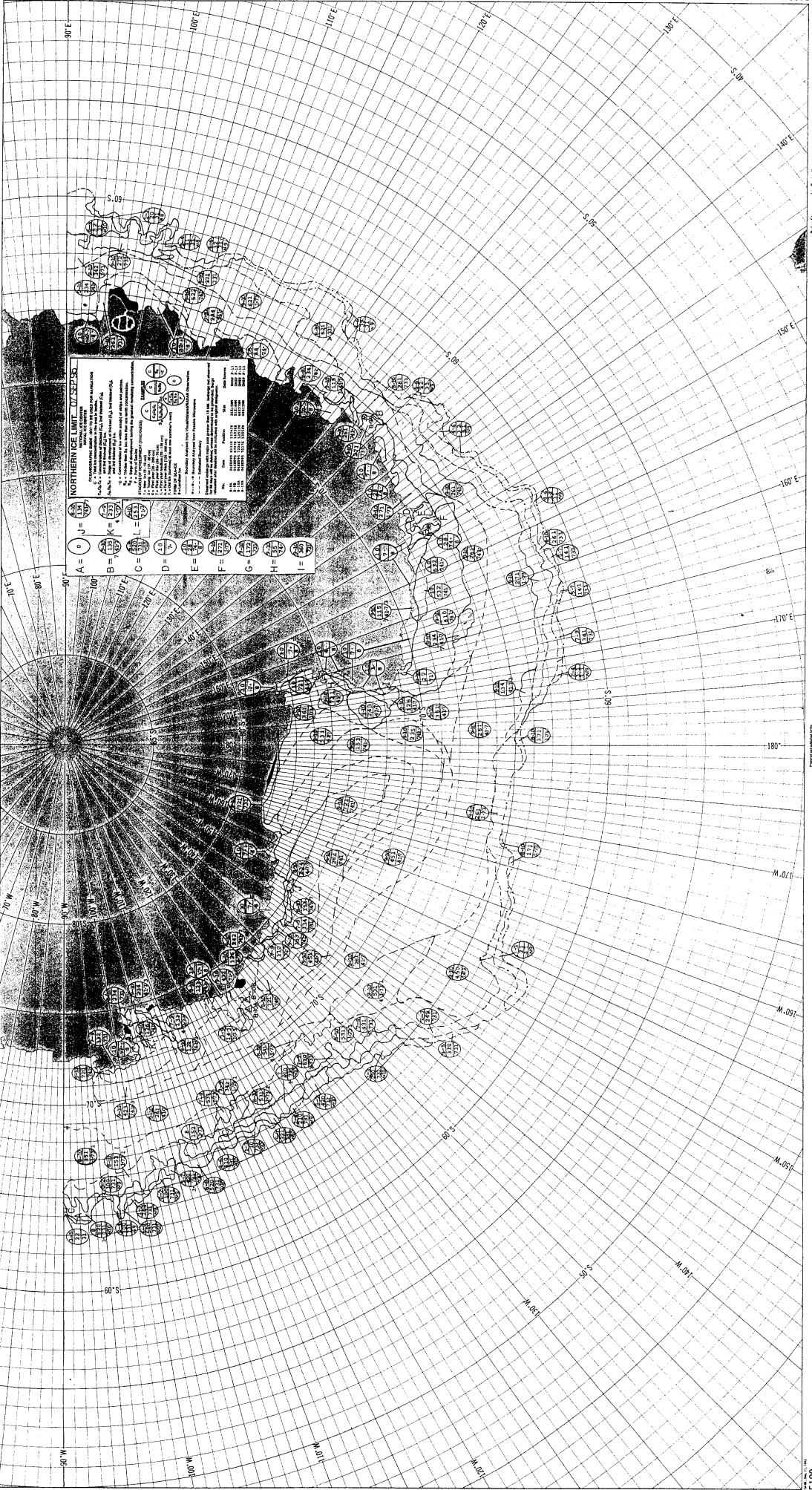




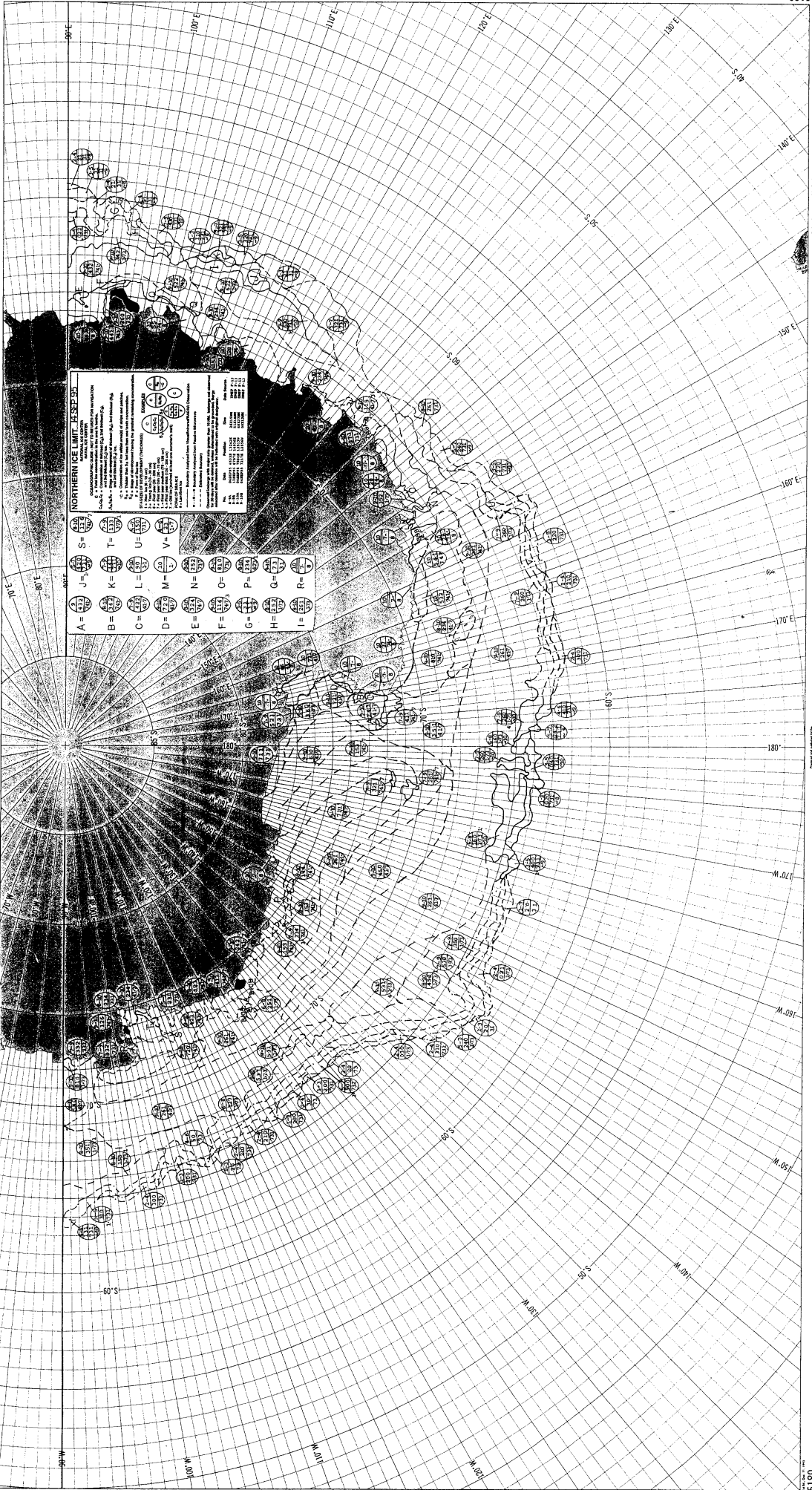
NAVY OFFICE OF NAUTICAL CHARTS  
 WASHINGTON, D. C. 20370  
 1955

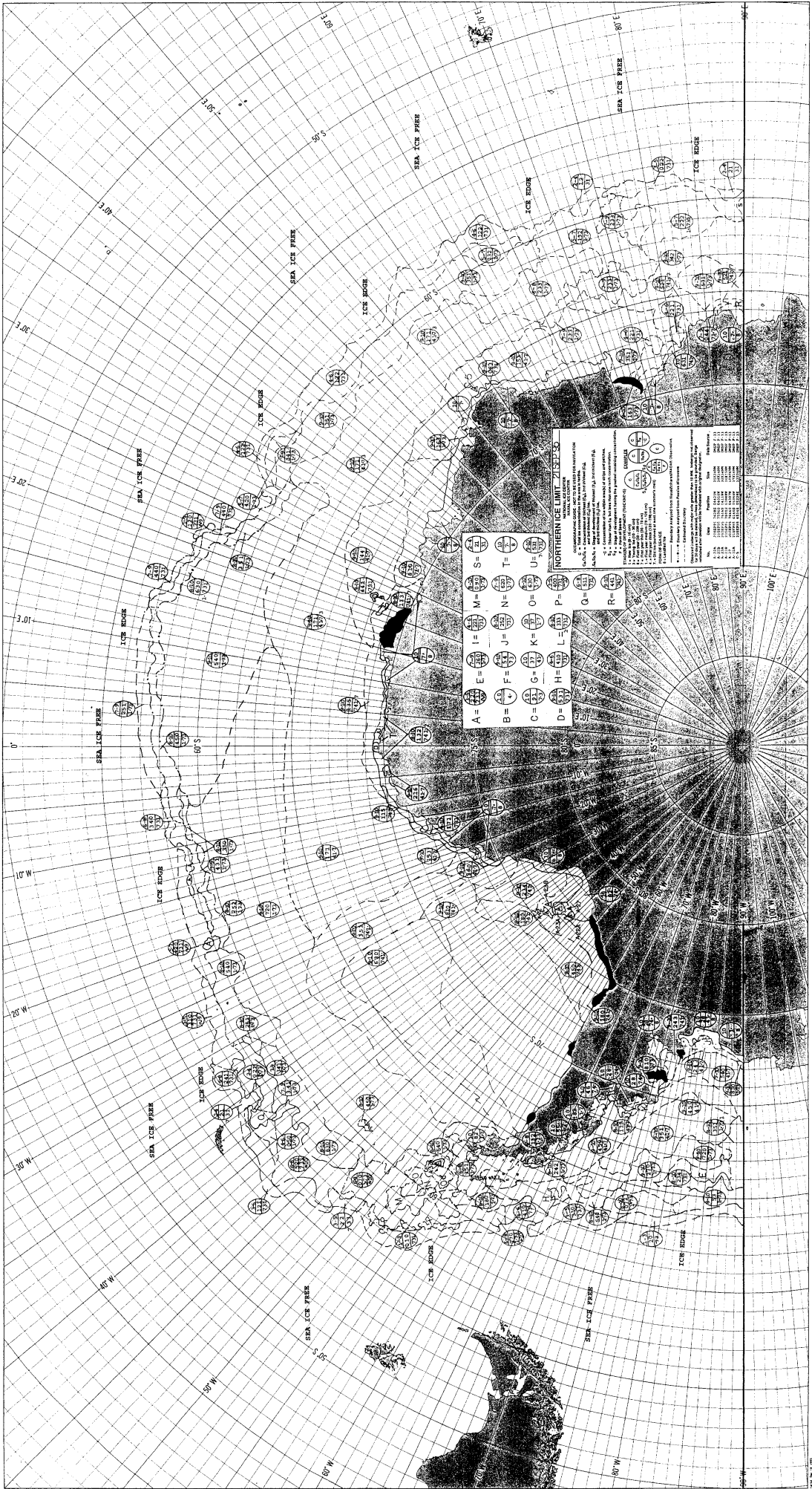




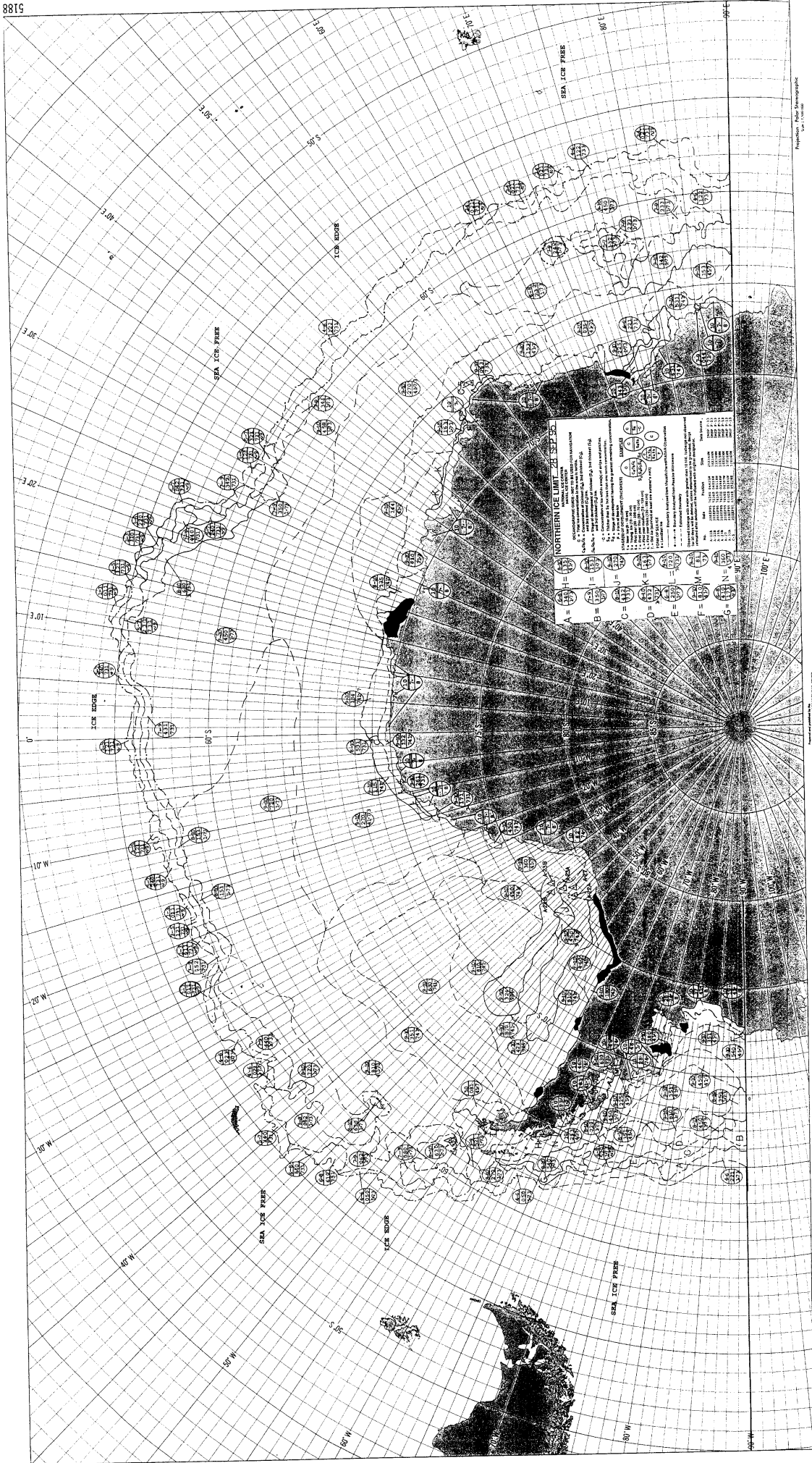












**NORTHERN ICE LIMIT**

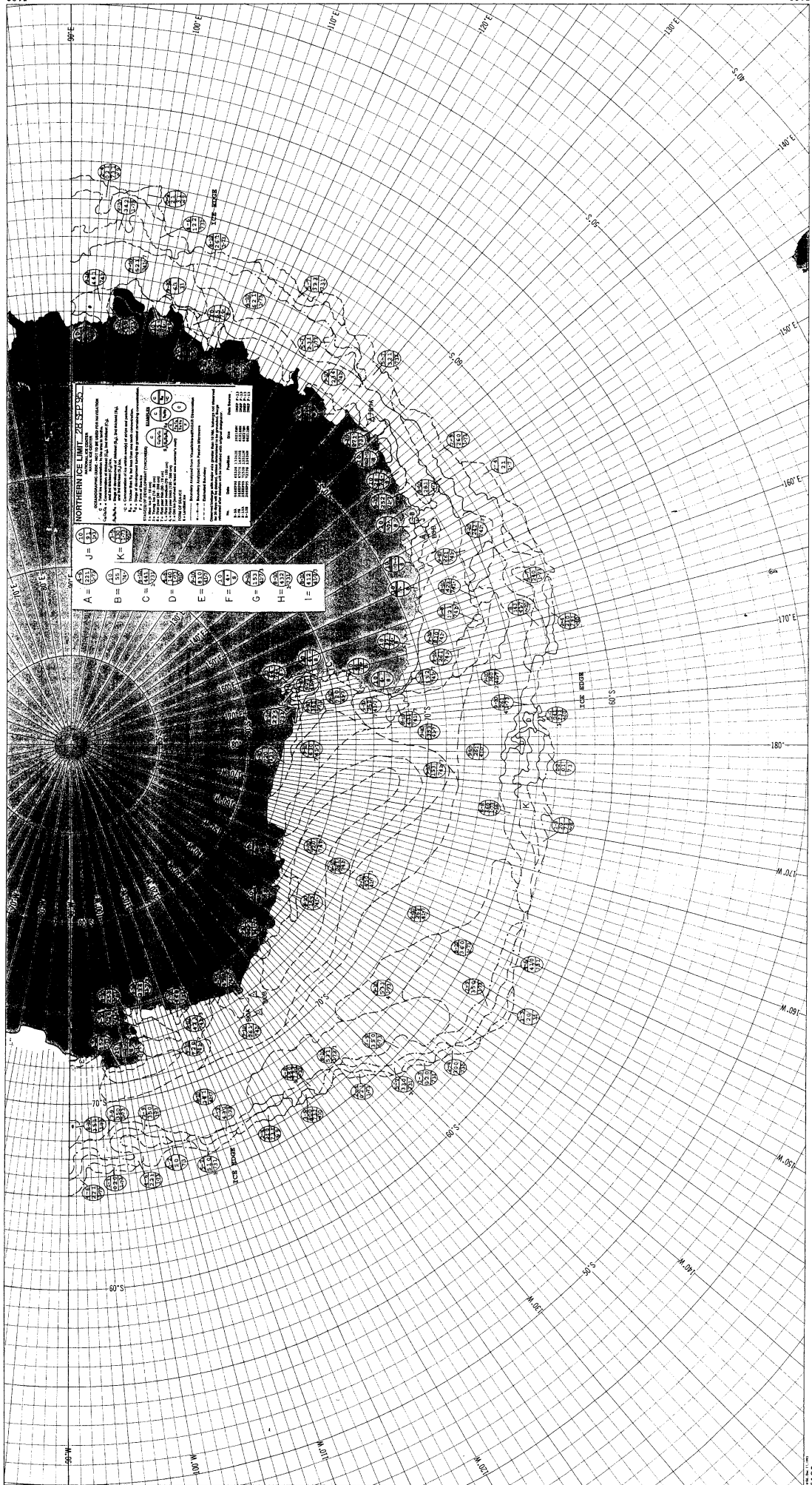
DEFINITION: The limit of the sea ice in the Arctic region, as determined by the International Arctic Buoy Programme (IABP) and the International Arctic Buoy Programme (IABP).

**SYMBOLS:**

- A = 0-100% (Icebergs)
- B = 10-100% (Thin ice)
- C = 10-100% (Medium ice)
- D = 10-100% (Thick ice)
- E = 10-100% (Very thick ice)
- F = 10-100% (Icebergs)
- G = 10-100% (Icebergs)

**TABLE:**

Symbol	Thickness (m)	Duration (days)	Other
A	10-100	10-100	Icebergs
B	10-100	10-100	Thin ice
C	10-100	10-100	Medium ice
D	10-100	10-100	Thick ice
E	10-100	10-100	Very thick ice
F	10-100	10-100	Icebergs
G	10-100	10-100	Icebergs



**NORTHERN ICE LIMIT 22 SEP 56**

CONTAINS INFORMATION FROM THE ARCTIC OCEAN CHARTS, 1:50,000 AND 1:100,000, AND THE ARCTIC OCEAN CHART, 1:250,000, PUBLISHED BY THE HYDROGRAPHIC OFFICE, WASHINGTON, D. C., AND THE ARCTIC OCEAN CHART, 1:500,000, PUBLISHED BY THE HYDROGRAPHIC OFFICE, WASHINGTON, D. C., AND THE ARCTIC OCEAN CHART, 1:1,000,000, PUBLISHED BY THE HYDROGRAPHIC OFFICE, WASHINGTON, D. C.

1. This chart is a reproduction of the original chart, and is not to be used for navigation.

2. This chart is a reproduction of the original chart, and is not to be used for navigation.

3. This chart is a reproduction of the original chart, and is not to be used for navigation.

4. This chart is a reproduction of the original chart, and is not to be used for navigation.

5. This chart is a reproduction of the original chart, and is not to be used for navigation.

6. This chart is a reproduction of the original chart, and is not to be used for navigation.

7. This chart is a reproduction of the original chart, and is not to be used for navigation.

8. This chart is a reproduction of the original chart, and is not to be used for navigation.

9. This chart is a reproduction of the original chart, and is not to be used for navigation.

10. This chart is a reproduction of the original chart, and is not to be used for navigation.

11. This chart is a reproduction of the original chart, and is not to be used for navigation.

12. This chart is a reproduction of the original chart, and is not to be used for navigation.

13. This chart is a reproduction of the original chart, and is not to be used for navigation.

14. This chart is a reproduction of the original chart, and is not to be used for navigation.

15. This chart is a reproduction of the original chart, and is not to be used for navigation.

16. This chart is a reproduction of the original chart, and is not to be used for navigation.

17. This chart is a reproduction of the original chart, and is not to be used for navigation.

18. This chart is a reproduction of the original chart, and is not to be used for navigation.

19. This chart is a reproduction of the original chart, and is not to be used for navigation.

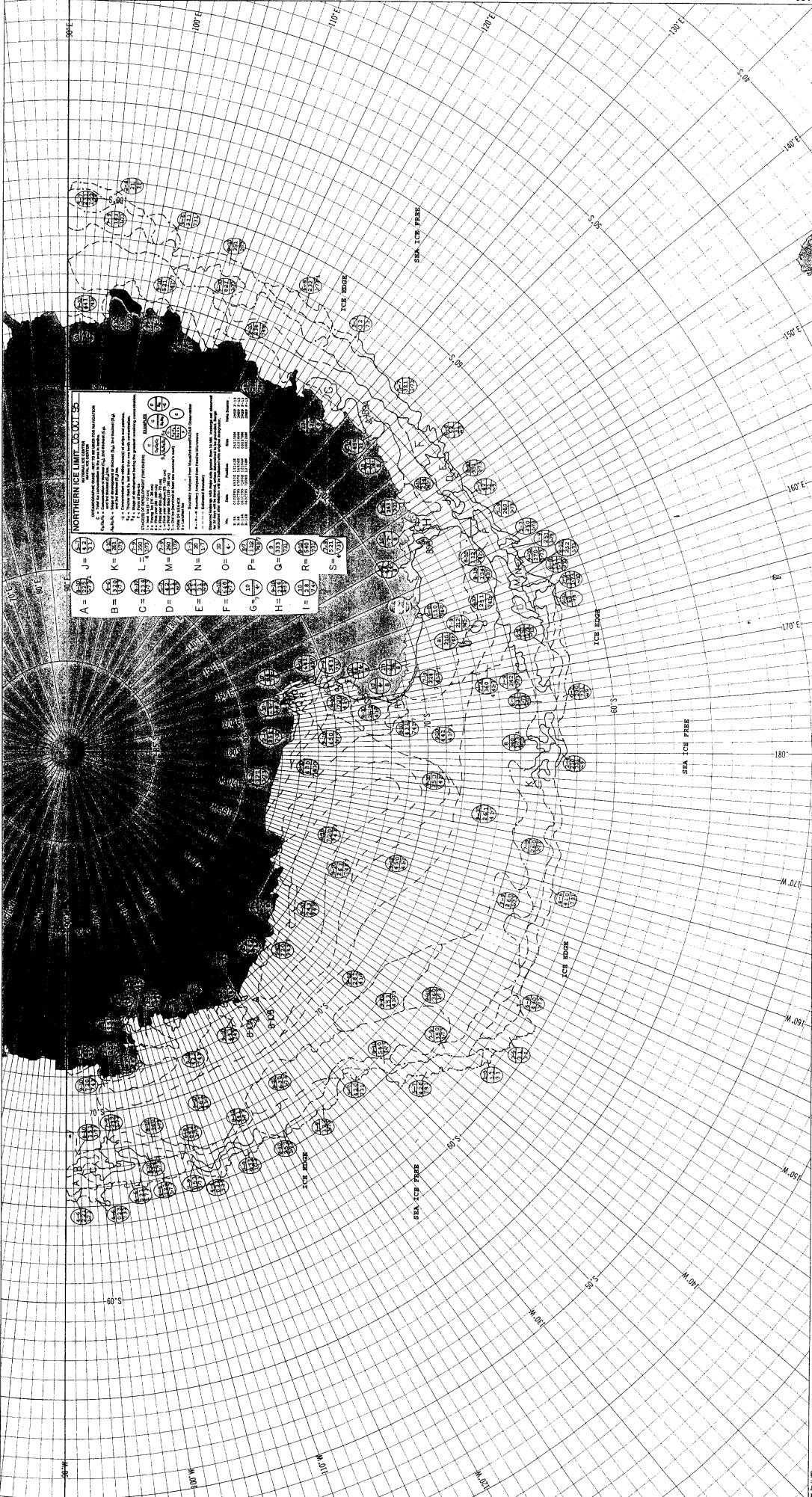
20. This chart is a reproduction of the original chart, and is not to be used for navigation.

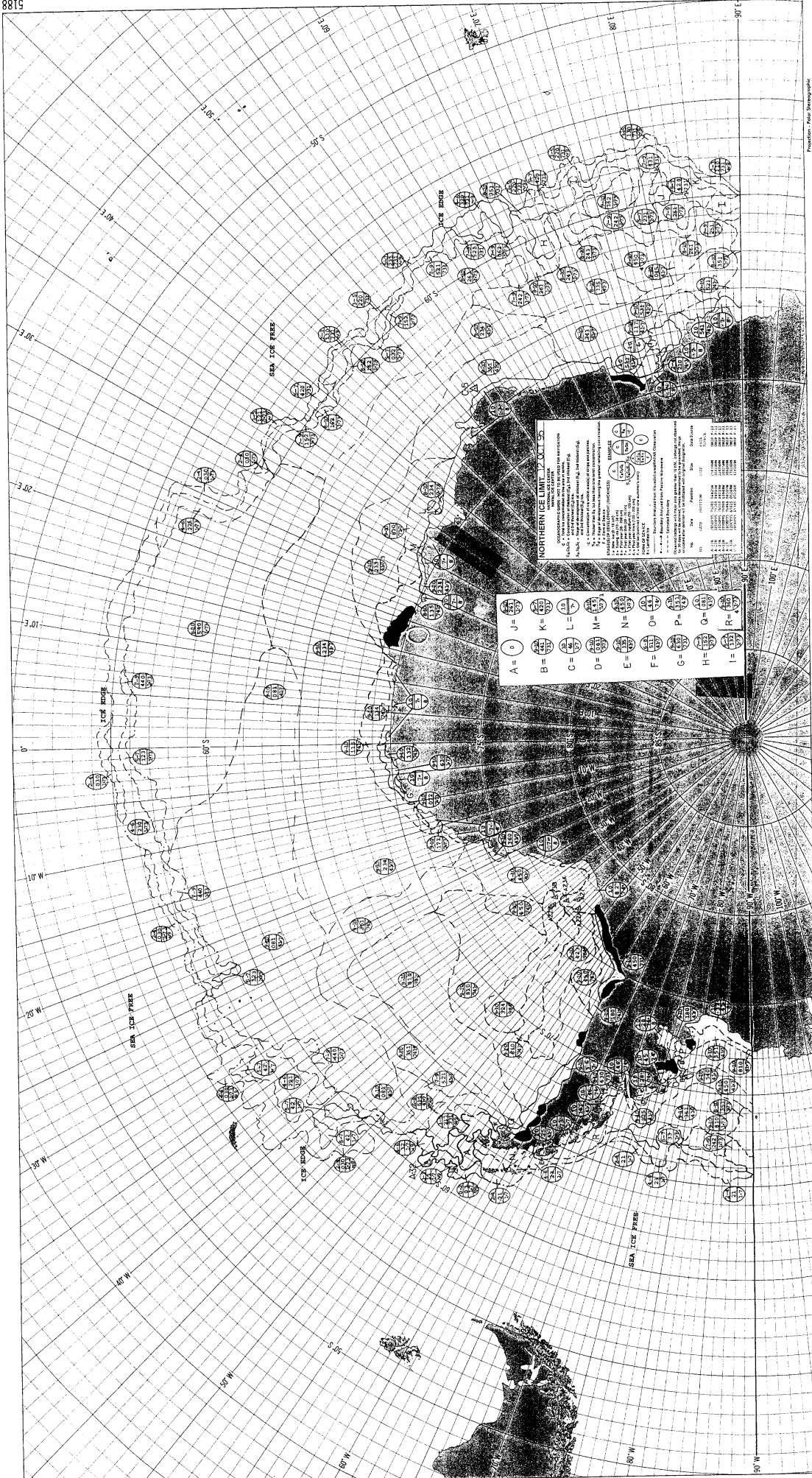
- A =
- B =
- C =
- D =
- E =
- F =
- G =
- H =
- I =
- J =
- K =

Publ. Distribution Statement  
 (U) 1:100,000

Publ. Distribution Statement  
 (U) 1:100,000







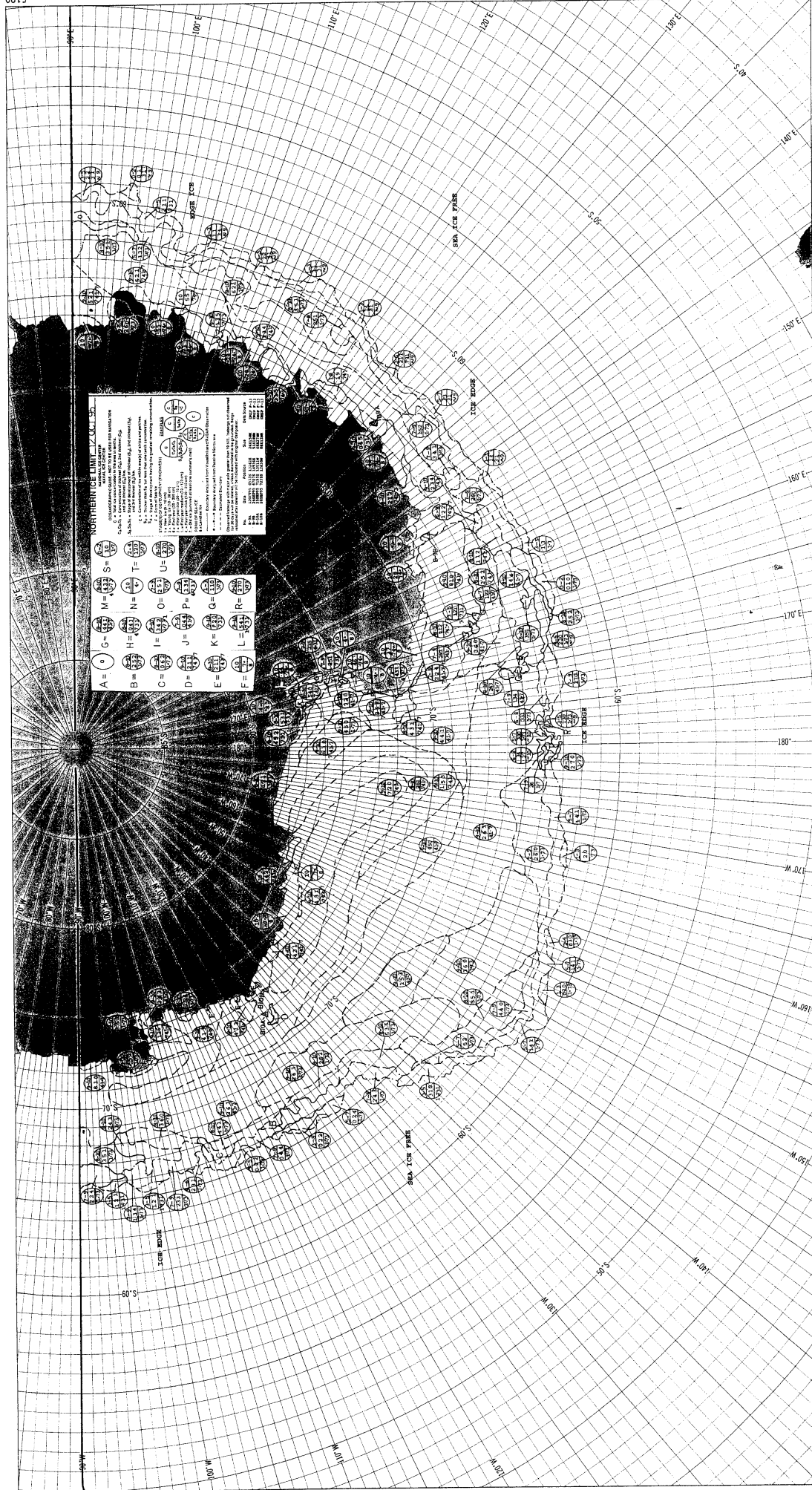
**NORTHERN LIMITS 2000**  
 NATIONAL NAVY  
 HYDROGRAPHIC OFFICE  
 WASHINGTON, D.C. 20375

**CONTENTS**  
 1. GENERAL INFORMATION  
 2. SOUNDINGS AND DEPTHS  
 3. TIDES AND CURRENTS  
 4. WINDS AND WEATHER  
 5. TEMPERATURES  
 6. PRESSURES  
 7. VISIBILITIES  
 8. CLOUDS  
 9. HAZARDS  
 10. OTHER INFORMATION

**SYMBOLS**  
 A = 0  
 B = 1  
 C = 2  
 D = 3  
 E = 4  
 F = 5  
 G = 6  
 H = 7  
 I = 8  
 J = 9  
 K = 10  
 L = 11  
 M = 12  
 N = 13  
 O = 14  
 P = 15  
 Q = 16  
 R = 17

Projection: Polar Stereographic  
Scale: 1:50,000

Source: Hydrographic Survey  
Date: 1998



**NORTHERN ICE LIMIT 1700-15**

SYMBOLS FOR ICE LIMITS:  
 A = 0  
 B = 1/10  
 C = 2/10  
 D = 3/10  
 E = 4/10  
 F = 5/10  
 G = 6/10  
 H = 7/10  
 I = 8/10  
 J = 9/10  
 K = 10/10  
 L = 11/10  
 M = 12/10  
 N = 13/10  
 O = 14/10  
 P = 15/10  
 Q = 16/10  
 R = 17/10  
 S = 18/10  
 T = 19/10  
 U = 20/10

SYMBOLS FOR ICE TYPES:  
 1 = 1/10  
 2 = 2/10  
 3 = 3/10  
 4 = 4/10  
 5 = 5/10  
 6 = 6/10  
 7 = 7/10  
 8 = 8/10  
 9 = 9/10  
 10 = 10/10  
 11 = 11/10  
 12 = 12/10  
 13 = 13/10  
 14 = 14/10  
 15 = 15/10  
 16 = 16/10  
 17 = 17/10  
 18 = 18/10  
 19 = 19/10  
 20 = 20/10

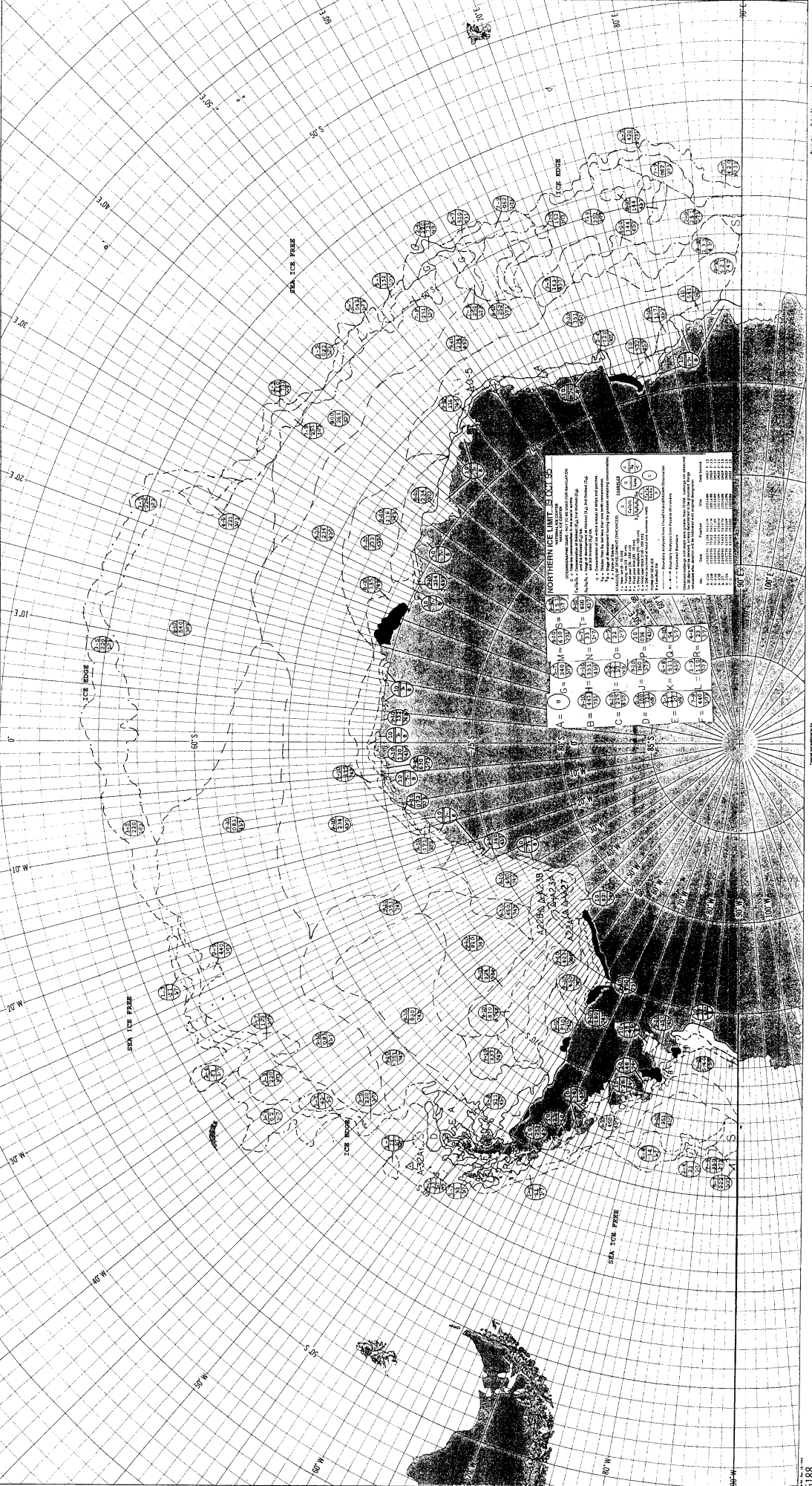
SYMBOLS FOR ICE DIRECTIONS:  
 1 = 1/10  
 2 = 2/10  
 3 = 3/10  
 4 = 4/10  
 5 = 5/10  
 6 = 6/10  
 7 = 7/10  
 8 = 8/10  
 9 = 9/10  
 10 = 10/10  
 11 = 11/10  
 12 = 12/10  
 13 = 13/10  
 14 = 14/10  
 15 = 15/10  
 16 = 16/10  
 17 = 17/10  
 18 = 18/10  
 19 = 19/10  
 20 = 20/10

SYMBOLS FOR ICE DENSITIES:  
 1 = 1/10  
 2 = 2/10  
 3 = 3/10  
 4 = 4/10  
 5 = 5/10  
 6 = 6/10  
 7 = 7/10  
 8 = 8/10  
 9 = 9/10  
 10 = 10/10  
 11 = 11/10  
 12 = 12/10  
 13 = 13/10  
 14 = 14/10  
 15 = 15/10  
 16 = 16/10  
 17 = 17/10  
 18 = 18/10  
 19 = 19/10  
 20 = 20/10

SYMBOLS FOR ICE TYPES (continued):  
 1 = 1/10  
 2 = 2/10  
 3 = 3/10  
 4 = 4/10  
 5 = 5/10  
 6 = 6/10  
 7 = 7/10  
 8 = 8/10  
 9 = 9/10  
 10 = 10/10  
 11 = 11/10  
 12 = 12/10  
 13 = 13/10  
 14 = 14/10  
 15 = 15/10  
 16 = 16/10  
 17 = 17/10  
 18 = 18/10  
 19 = 19/10  
 20 = 20/10

SYMBOLS FOR ICE DIRECTIONS (continued):  
 1 = 1/10  
 2 = 2/10  
 3 = 3/10  
 4 = 4/10  
 5 = 5/10  
 6 = 6/10  
 7 = 7/10  
 8 = 8/10  
 9 = 9/10  
 10 = 10/10  
 11 = 11/10  
 12 = 12/10  
 13 = 13/10  
 14 = 14/10  
 15 = 15/10  
 16 = 16/10  
 17 = 17/10  
 18 = 18/10  
 19 = 19/10  
 20 = 20/10

SYMBOLS FOR ICE DENSITIES (continued):  
 1 = 1/10  
 2 = 2/10  
 3 = 3/10  
 4 = 4/10  
 5 = 5/10  
 6 = 6/10  
 7 = 7/10  
 8 = 8/10  
 9 = 9/10  
 10 = 10/10  
 11 = 11/10  
 12 = 12/10  
 13 = 13/10  
 14 = 14/10  
 15 = 15/10  
 16 = 16/10  
 17 = 17/10  
 18 = 18/10  
 19 = 19/10  
 20 = 20/10



**NORTHERN ICE LIMIT, STAGE 5**

1. This chart is based on the latest available information.

2. The soundings are in fathoms, unless otherwise indicated.

3. The depth soundings are based on the mean low water level.

4. The depth soundings are based on the mean low water level.

5. The depth soundings are based on the mean low water level.

6. The depth soundings are based on the mean low water level.

7. The depth soundings are based on the mean low water level.

8. The depth soundings are based on the mean low water level.

9. The depth soundings are based on the mean low water level.

10. The depth soundings are based on the mean low water level.

11. The depth soundings are based on the mean low water level.

12. The depth soundings are based on the mean low water level.

13. The depth soundings are based on the mean low water level.

14. The depth soundings are based on the mean low water level.

15. The depth soundings are based on the mean low water level.

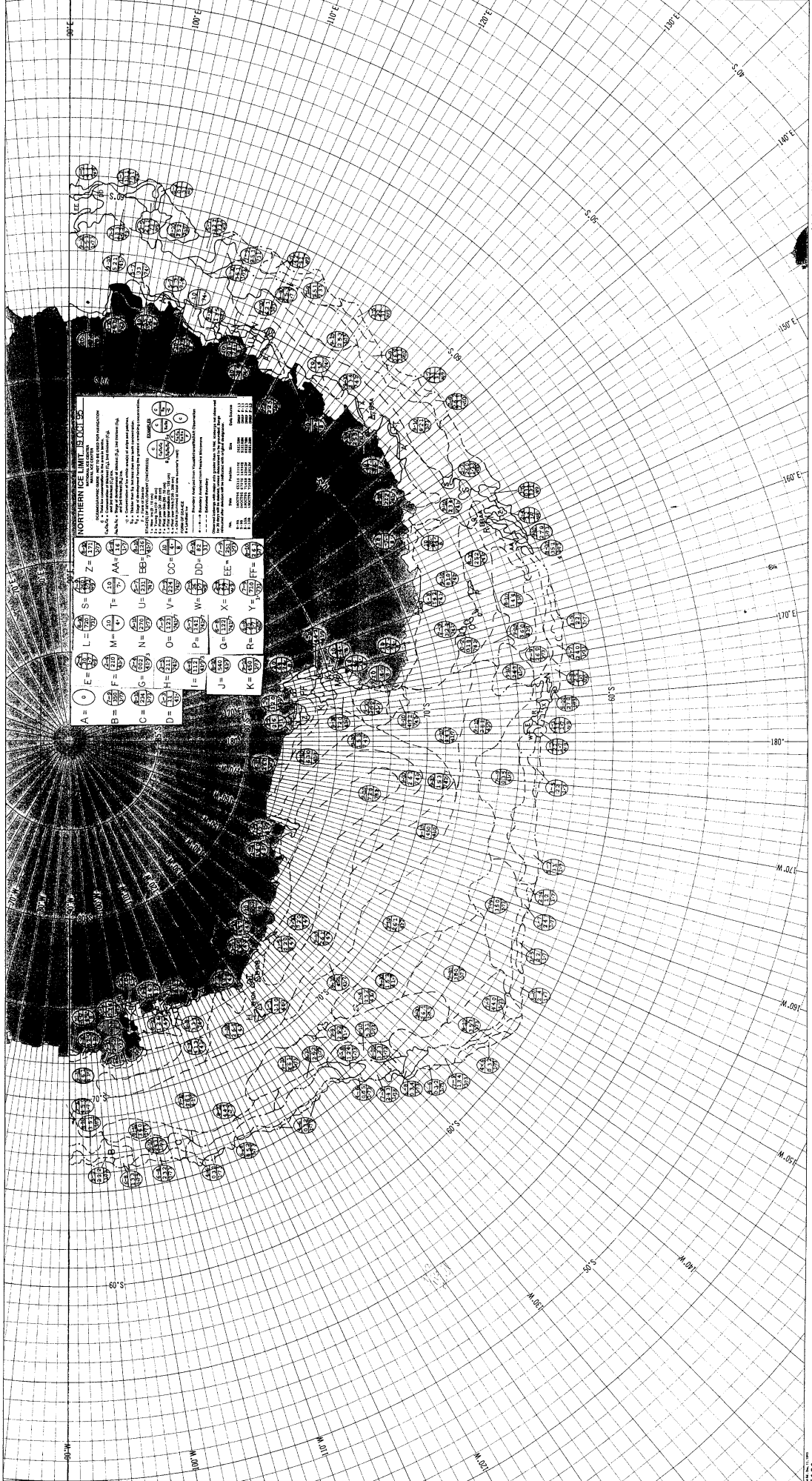
16. The depth soundings are based on the mean low water level.

17. The depth soundings are based on the mean low water level.

18. The depth soundings are based on the mean low water level.

19. The depth soundings are based on the mean low water level.

20. The depth soundings are based on the mean low water level.



**NORTHERN OCEAN AREA OUTLINE**

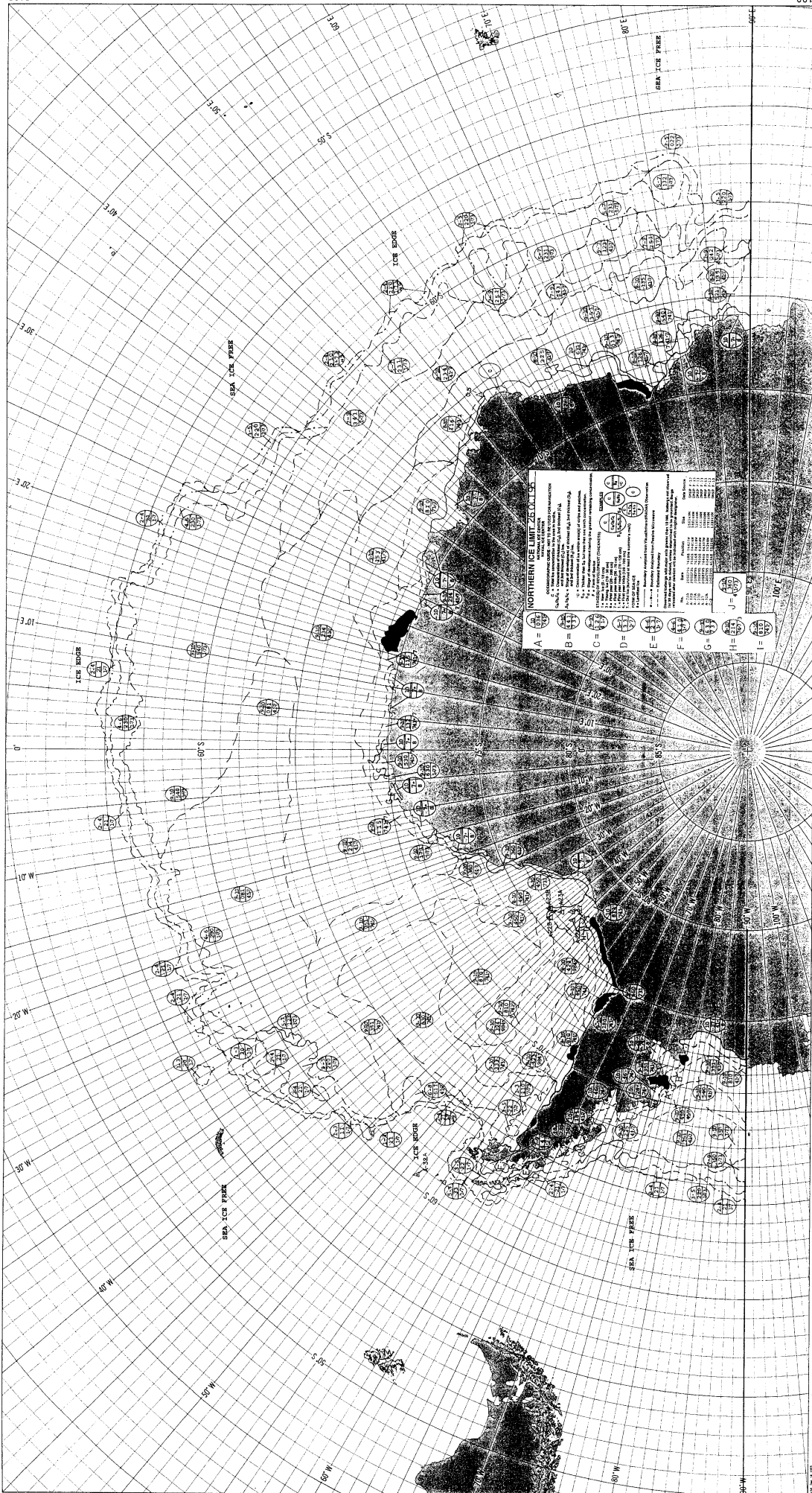
1. This chart is a planisphere showing the Northern Hemisphere. It is based on the Mercator projection and is suitable for use in the Northern Hemisphere. It shows the outlines of the continents and the major lines of latitude and longitude. It is suitable for use in the Northern Hemisphere.

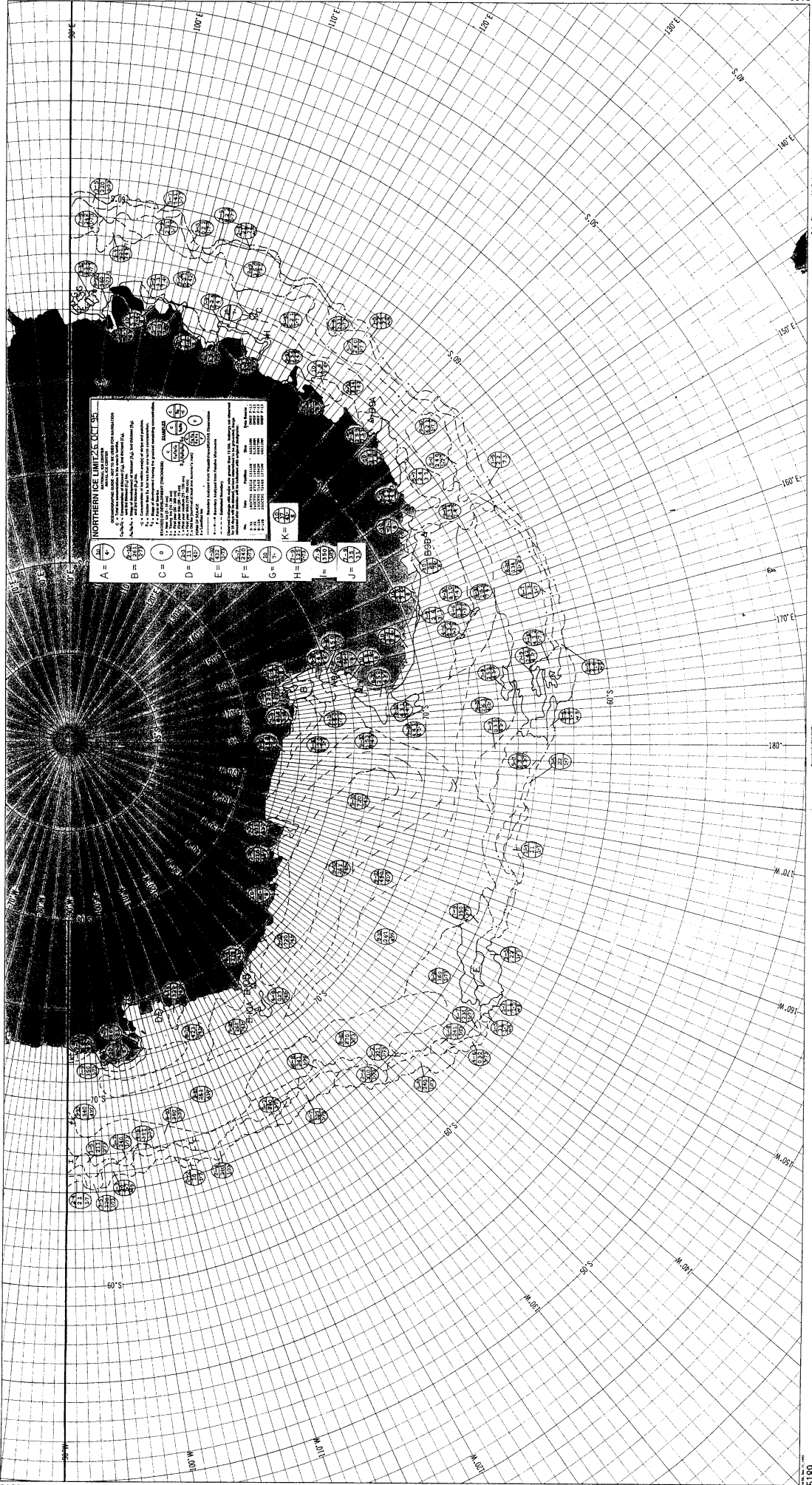
2. The chart is divided into four quadrants by the Equator and the Prime Meridian. The symbols and codes are arranged in a grid pattern across the chart.

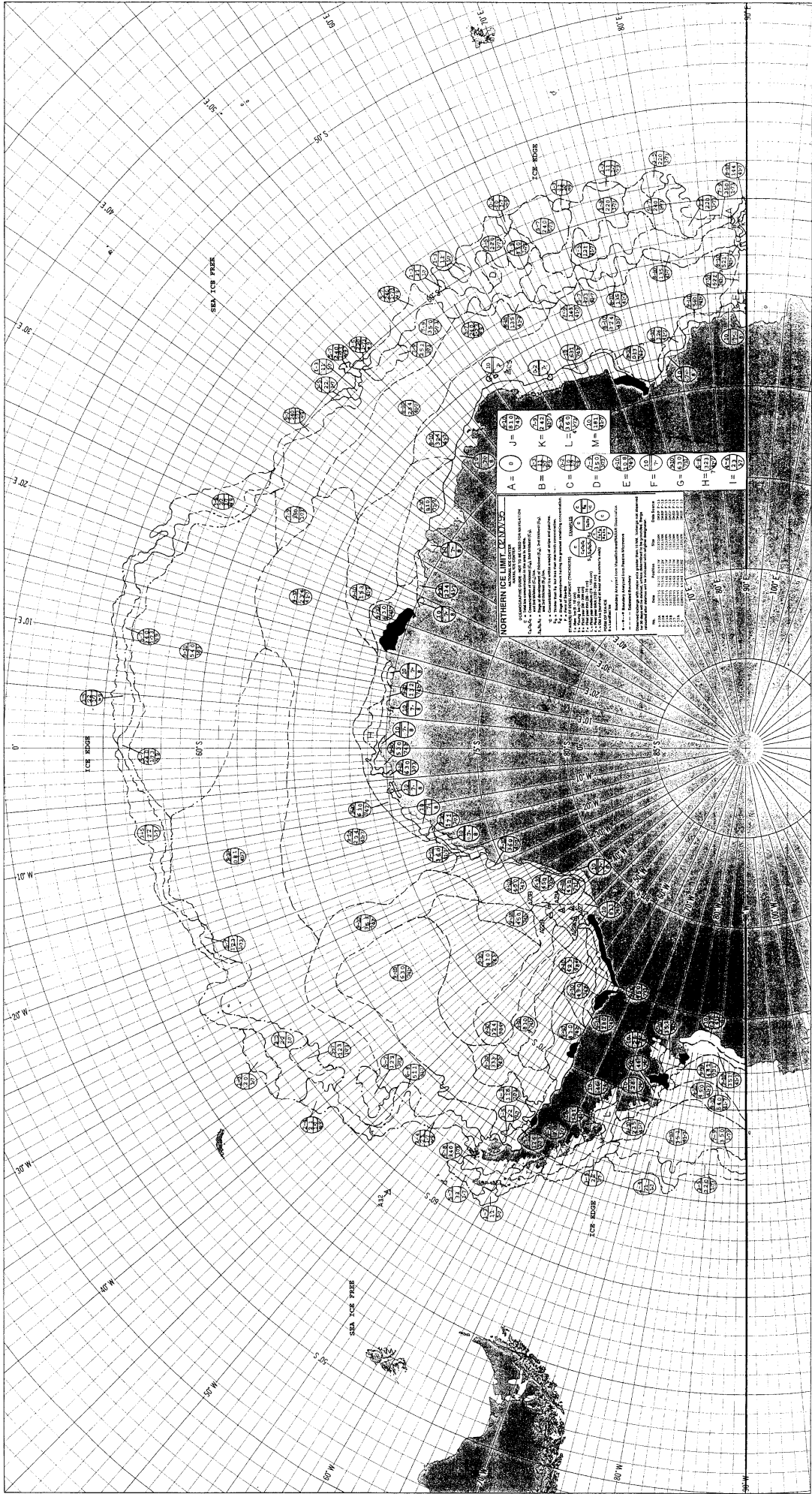
3. The symbols and codes are as follows:

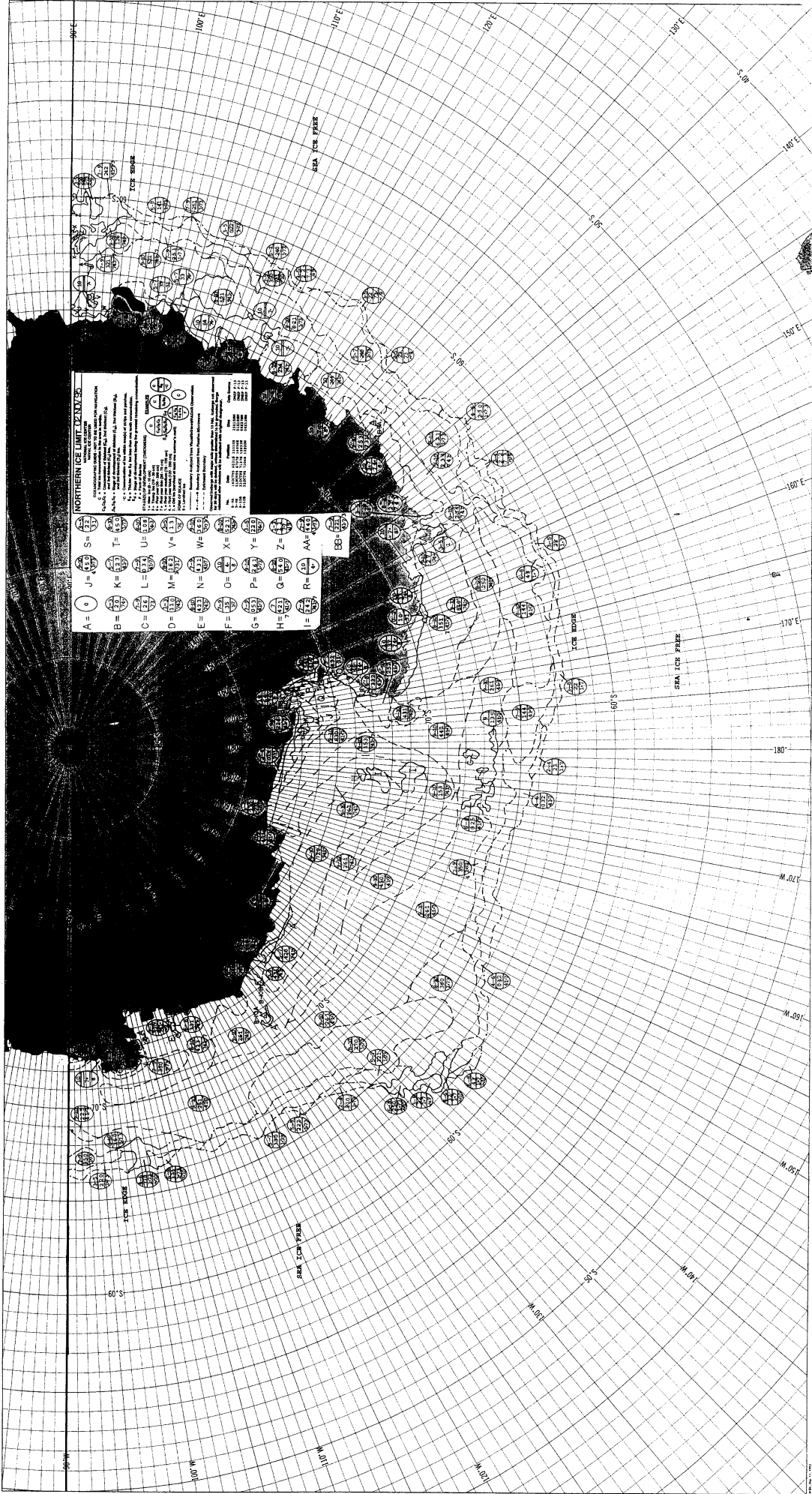
A = 0	E = 0	L = 0	S = 0	Z = 0
B = 0	F = 0	M = 0	T = 0	AA = 0
C = 0	G = 0	N = 0	U = 0	BB = 0
D = 0	H = 0	O = 0	V = 0	CC = 0
	I = 0	P = 0	W = 0	DD = 0
	J = 0	Q = 0	X = 0	EE = 0
	K = 0	R = 0	Y = 0	FF = 0
				GG = 0
				HH = 0
				II = 0
				JJ = 0
				KK = 0
				LL = 0
				MM = 0
				NN = 0
				OO = 0
				PP = 0
				QQ = 0
				RR = 0
				SS = 0
				TT = 0
				UU = 0
				VV = 0
				WW = 0
				XX = 0
				YY = 0
				ZZ = 0

4. The chart is suitable for use in the Northern Hemisphere.





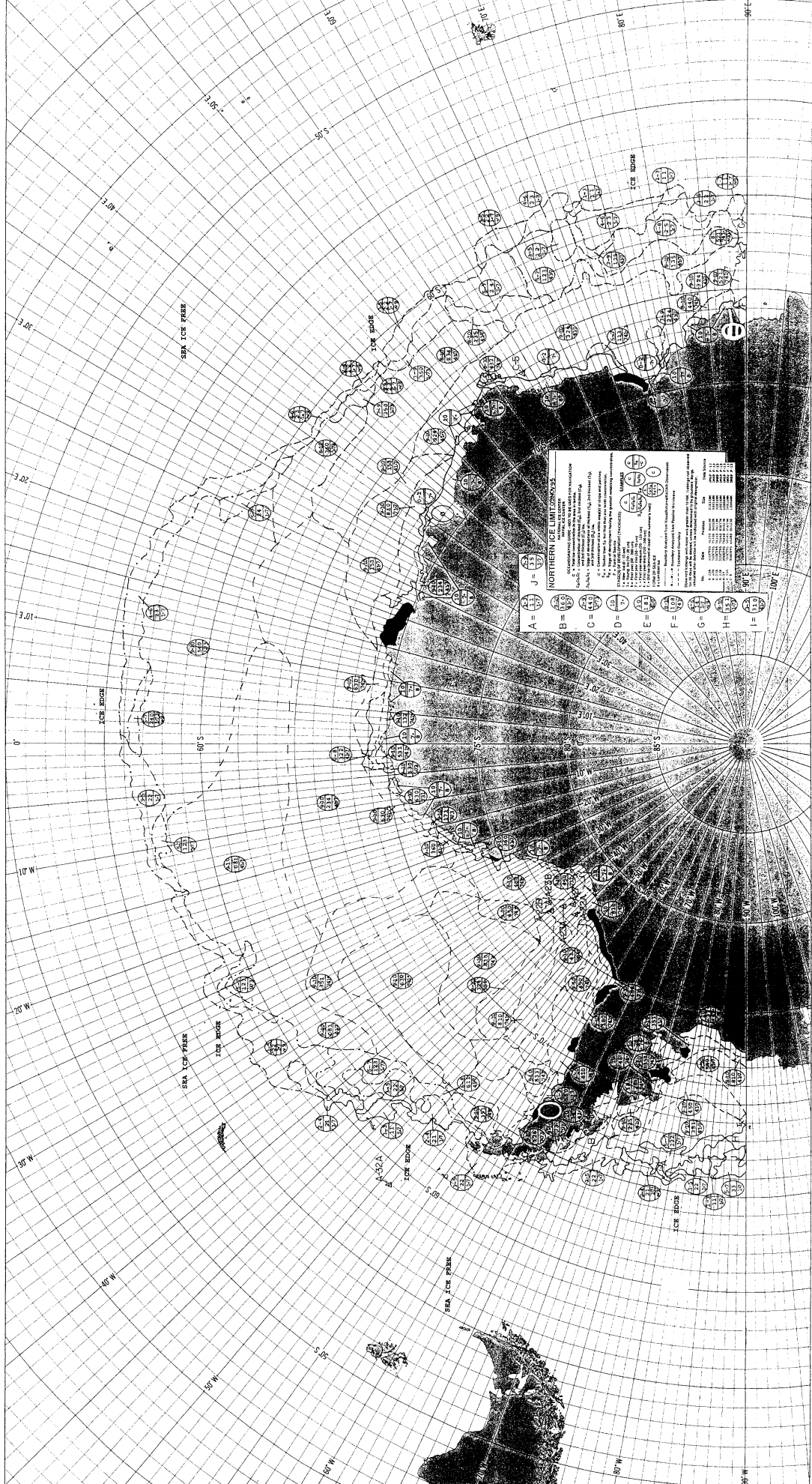




**NORTHERN ICE LIMIT (NIL) 2012**

A = 100  
 B = 100  
 C = 100  
 D = 100  
 E = 100  
 F = 100  
 G = 100  
 H = 100  
 I = 100  
 J = 100  
 K = 100  
 L = 100  
 M = 100  
 N = 100  
 O = 100  
 P = 100  
 Q = 100  
 R = 100  
 S = 100  
 T = 100  
 U = 100  
 V = 100  
 W = 100  
 X = 100  
 Y = 100  
 Z = 100  
 AA = 100  
 BB = 100

1. Seasonal Northern Ice Limit (NIL) for the year 2012. The NIL is defined as the northernmost limit of sea ice extent in a given year. The NIL is shown as a solid line on the chart. The area to the north of the NIL is shaded black. The area to the south of the NIL is unshaded. The NIL is shown for the months of January, February, March, April, May, June, July, August, September, October, and November. The NIL is shown for the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, and 2012. The NIL is shown for the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, and 2012. The NIL is shown for the years 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, and 2012.

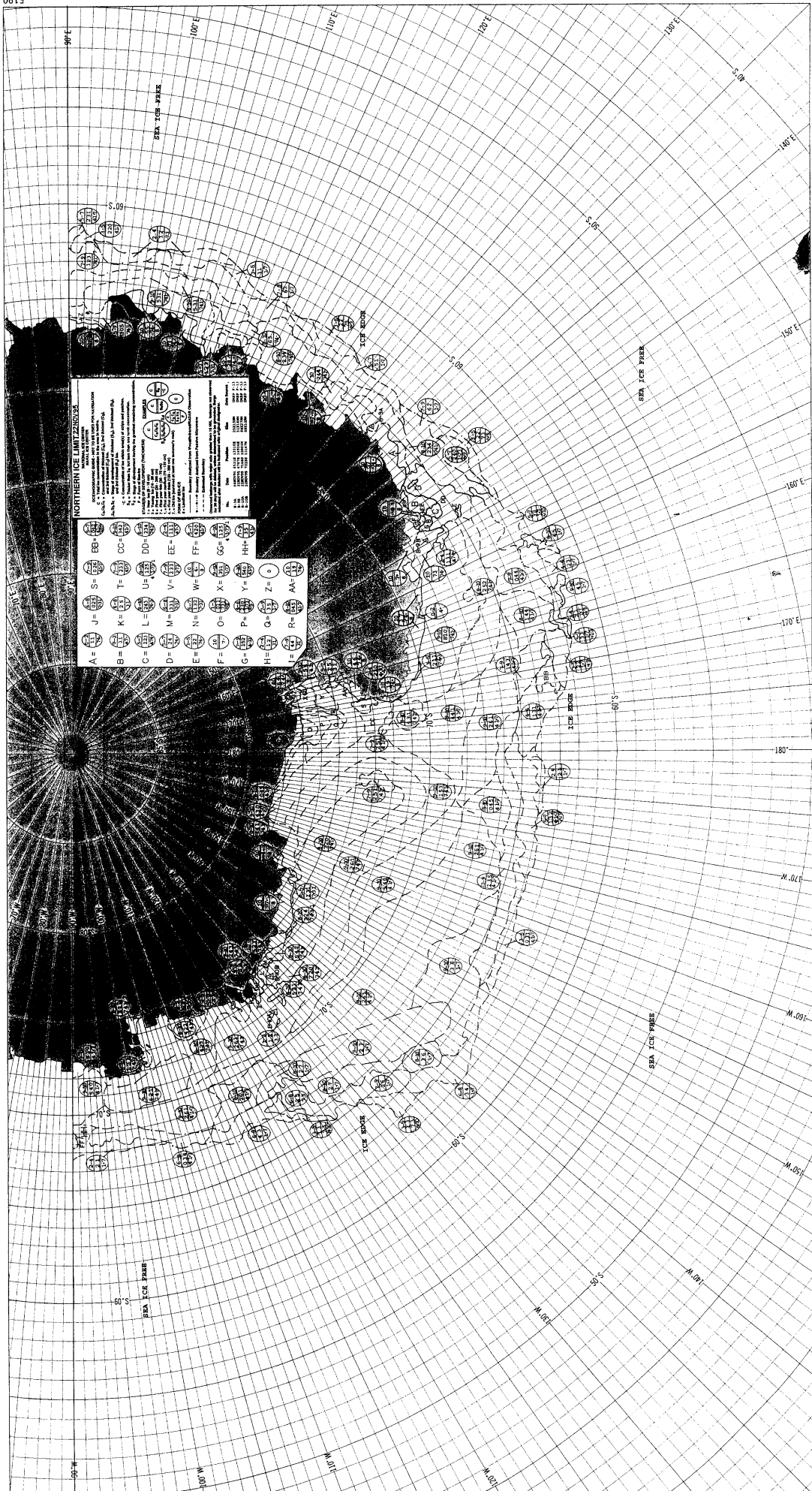






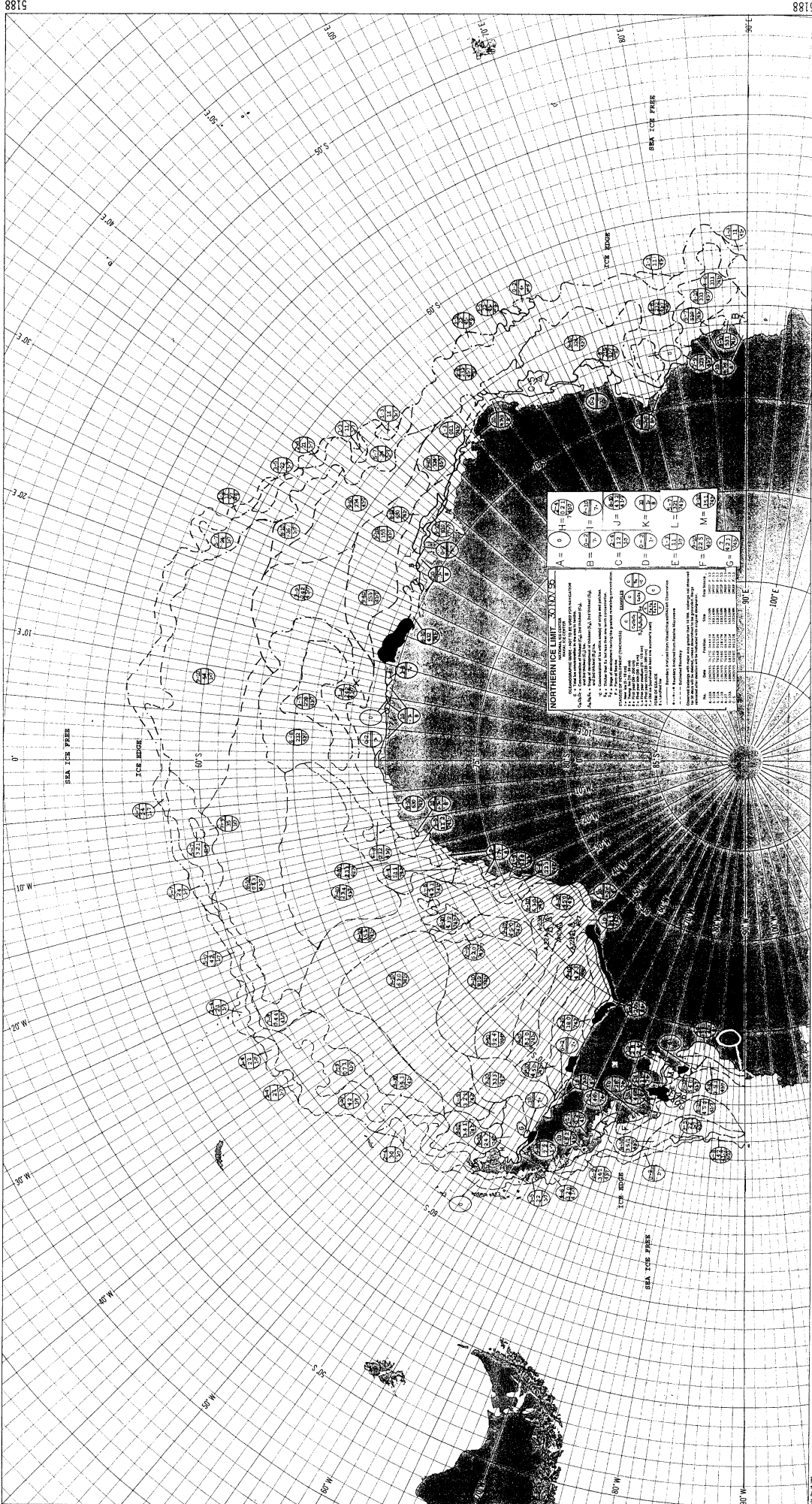


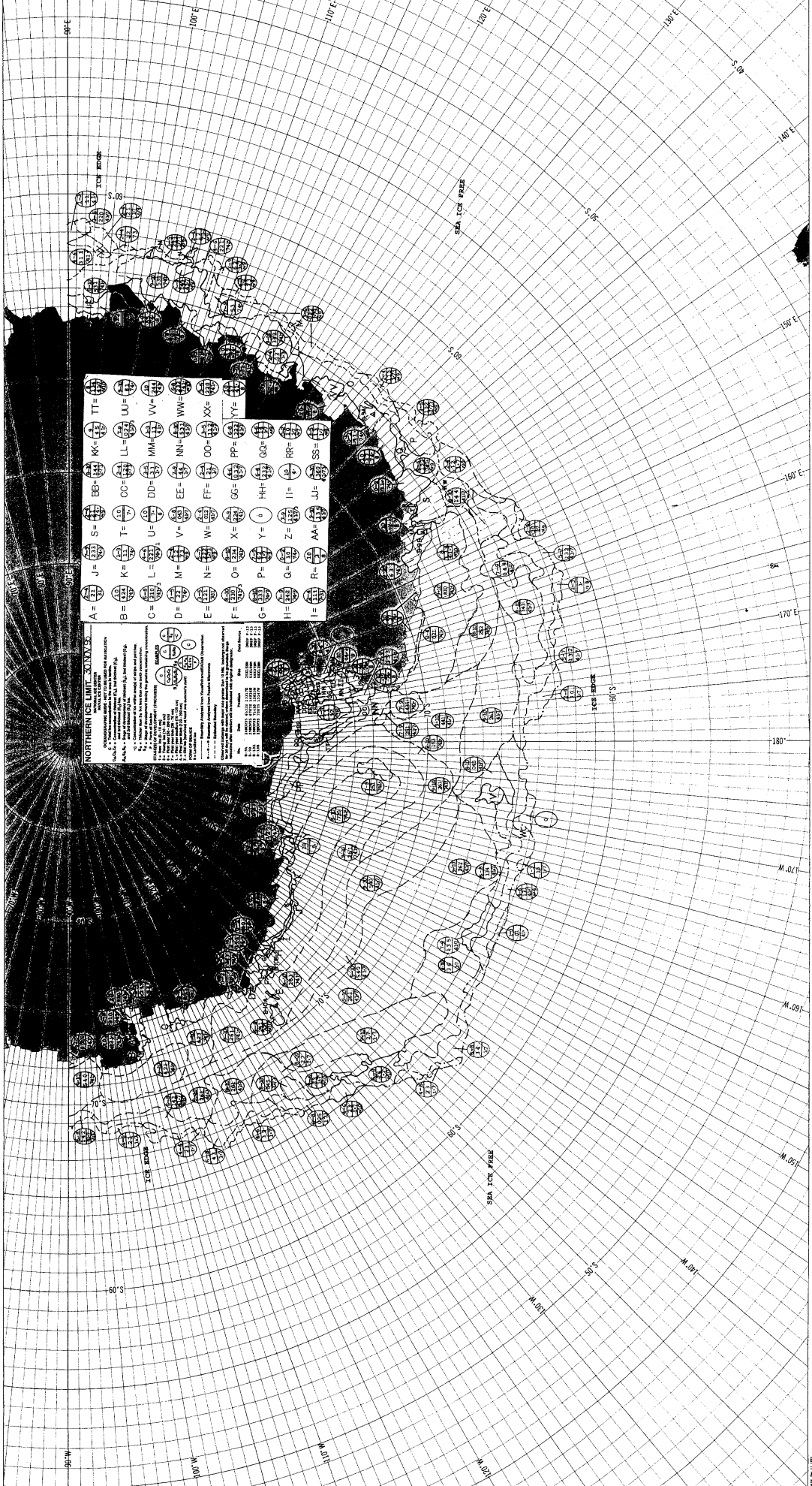




**NORTHERN ICE LIMIT 72°N 00' E**  
 1. 72°N 00' E  
 2. 72°N 00' E  
 3. 72°N 00' E  
 4. 72°N 00' E  
 5. 72°N 00' E  
 6. 72°N 00' E  
 7. 72°N 00' E  
 8. 72°N 00' E  
 9. 72°N 00' E  
 10. 72°N 00' E  
 11. 72°N 00' E  
 12. 72°N 00' E  
 13. 72°N 00' E  
 14. 72°N 00' E  
 15. 72°N 00' E  
 16. 72°N 00' E  
 17. 72°N 00' E  
 18. 72°N 00' E  
 19. 72°N 00' E  
 20. 72°N 00' E  
 21. 72°N 00' E  
 22. 72°N 00' E  
 23. 72°N 00' E  
 24. 72°N 00' E  
 25. 72°N 00' E  
 26. 72°N 00' E  
 27. 72°N 00' E  
 28. 72°N 00' E  
 29. 72°N 00' E  
 30. 72°N 00' E  
 31. 72°N 00' E  
 32. 72°N 00' E  
 33. 72°N 00' E  
 34. 72°N 00' E  
 35. 72°N 00' E  
 36. 72°N 00' E  
 37. 72°N 00' E  
 38. 72°N 00' E  
 39. 72°N 00' E  
 40. 72°N 00' E  
 41. 72°N 00' E  
 42. 72°N 00' E  
 43. 72°N 00' E  
 44. 72°N 00' E  
 45. 72°N 00' E  
 46. 72°N 00' E  
 47. 72°N 00' E  
 48. 72°N 00' E  
 49. 72°N 00' E  
 50. 72°N 00' E  
 51. 72°N 00' E  
 52. 72°N 00' E  
 53. 72°N 00' E  
 54. 72°N 00' E  
 55. 72°N 00' E  
 56. 72°N 00' E  
 57. 72°N 00' E  
 58. 72°N 00' E  
 59. 72°N 00' E  
 60. 72°N 00' E  
 61. 72°N 00' E  
 62. 72°N 00' E  
 63. 72°N 00' E  
 64. 72°N 00' E  
 65. 72°N 00' E  
 66. 72°N 00' E  
 67. 72°N 00' E  
 68. 72°N 00' E  
 69. 72°N 00' E  
 70. 72°N 00' E  
 71. 72°N 00' E  
 72. 72°N 00' E  
 73. 72°N 00' E  
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 75. 72°N 00' E  
 76. 72°N 00' E  
 77. 72°N 00' E  
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 80. 72°N 00' E  
 81. 72°N 00' E  
 82. 72°N 00' E  
 83. 72°N 00' E  
 84. 72°N 00' E  
 85. 72°N 00' E  
 86. 72°N 00' E  
 87. 72°N 00' E  
 88. 72°N 00' E  
 89. 72°N 00' E  
 90. 72°N 00' E  
 91. 72°N 00' E  
 92. 72°N 00' E  
 93. 72°N 00' E  
 94. 72°N 00' E  
 95. 72°N 00' E  
 96. 72°N 00' E  
 97. 72°N 00' E  
 98. 72°N 00' E  
 99. 72°N 00' E  
 100. 72°N 00' E

A	J	S	EB	B	K	T	CC	C	L	U	DD	D	M	V	EE	E	N	W	FF	F	O	X	GG	G	P	Y	HH	H	Q	Z	II	I	R	AA	JJ
---	---	---	----	---	---	---	----	---	---	---	----	---	---	---	----	---	---	---	----	---	---	---	----	---	---	---	----	---	---	---	----	---	---	----	----





A =	⊙	J =	⊙	TT =	⊙
B =	⊙	K =	⊙	KK =	⊙
C =	⊙	L =	⊙	LL =	⊙
D =	⊙	M =	⊙	MM =	⊙
E =	⊙	N =	⊙	NN =	⊙
F =	⊙	O =	⊙	OO =	⊙
G =	⊙	P =	⊙	PP =	⊙
H =	⊙	Q =	⊙	QQ =	⊙
I =	⊙	R =	⊙	RR =	⊙
				SS =	⊙

**NORTHERN ICE LIMITS - 2017-18**

1. This chart shows the Northern Ice Limits (NIL) for the 2017-18 season. The NIL is defined as the outermost limit of the ice pack, excluding the ice pack itself.

2. The NIL is shown as a solid line. The area between the NIL and the coast is shaded. The area between the NIL and the 100m depth contour is unshaded.

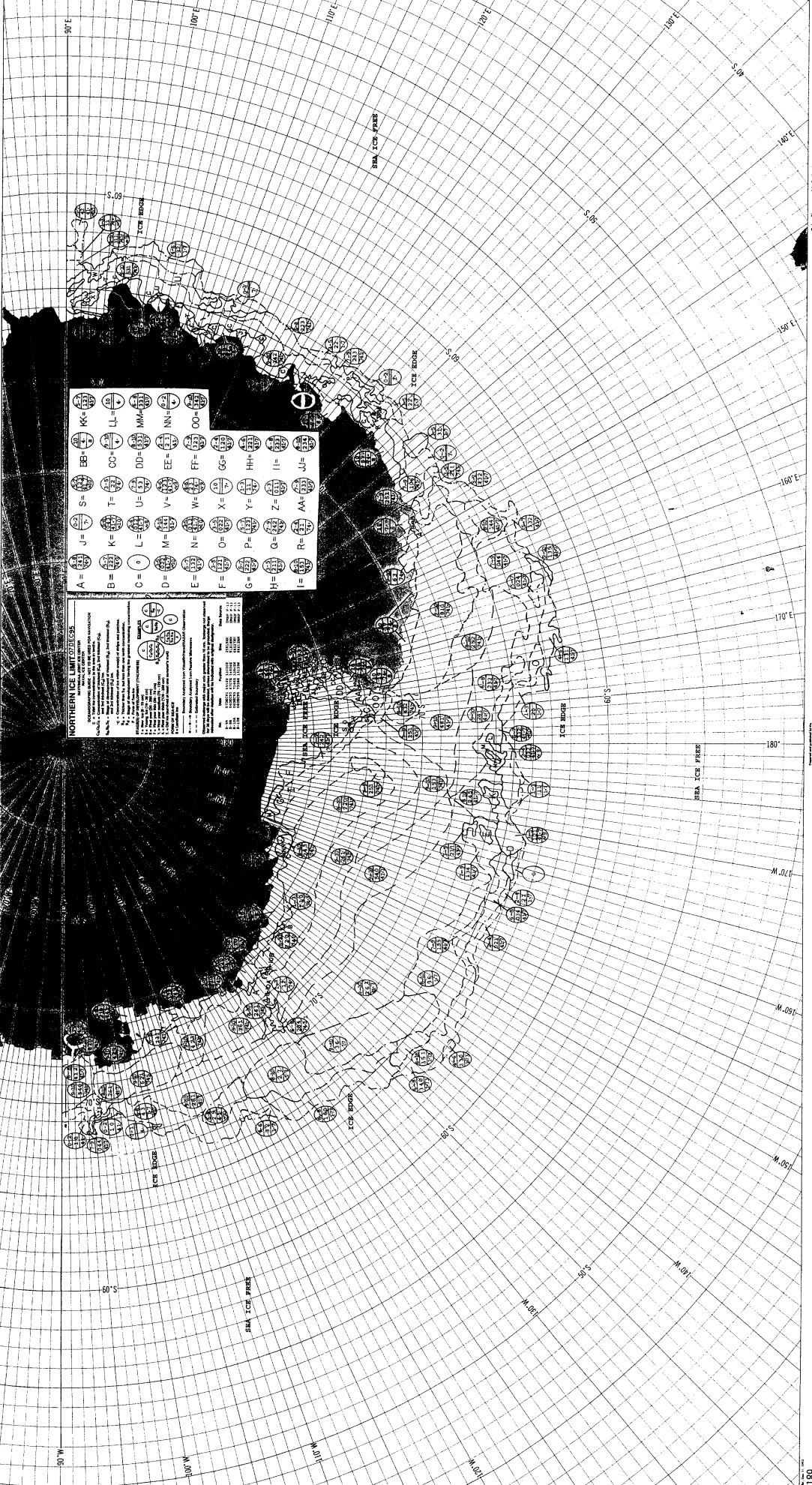
3. The NIL is based on satellite data from the European Space Agency (ESA) and the National Ice Center (NIC). The data is updated daily.

4. The NIL is shown for the period from 1 October to 31 March. The NIL for the period from 1 April to 30 September is shown as a dashed line.

5. The NIL is shown for the period from 1 October to 31 March. The NIL for the period from 1 April to 30 September is shown as a dashed line.

6. The NIL is shown for the period from 1 October to 31 March. The NIL for the period from 1 April to 30 September is shown as a dashed line.

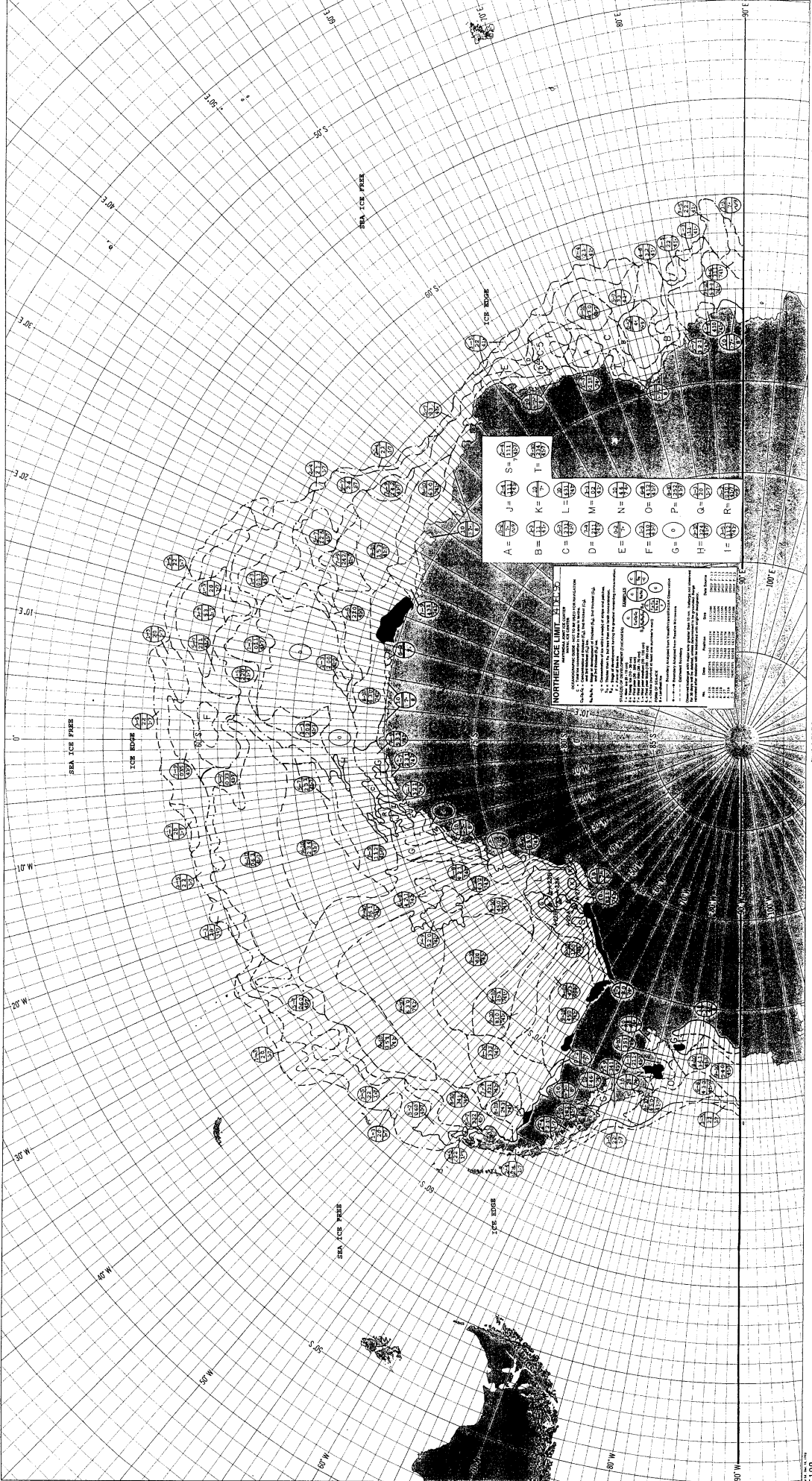




A =	J =	S =	EB =	KK =	7 =
B =	K =	T =	CO =	LL =	8 =
C =	L =	U =	DD =	MM =	9 =
D =	M =	V =	EE =	NN =	0 =
E =	N =	W =	FF =	OO =	1 =
F =	O =	X =	GG =		2 =
G =	P =	Y =	HH =		3 =
H =	Q =	Z =	II =		4 =
I =	R =	AA =	JJ =		5 =

**NORTHERN ICE LIMITS**  
 This chart shows the limits of the ice in the Arctic region. The limits are based on the observations of the U.S.S.R. and the U.S.S.R. Navy. The limits are shown in the following table:

Month	10° N	20° N	30° N	40° N	50° N	60° N	70° N	80° N	90° N
Jan	100	100	100	100	100	100	100	100	100
Feb	100	100	100	100	100	100	100	100	100
Mar	100	100	100	100	100	100	100	100	100
Apr	100	100	100	100	100	100	100	100	100
May	100	100	100	100	100	100	100	100	100
Jun	100	100	100	100	100	100	100	100	100
Jul	100	100	100	100	100	100	100	100	100
Aug	100	100	100	100	100	100	100	100	100
Sep	100	100	100	100	100	100	100	100	100
Oct	100	100	100	100	100	100	100	100	100
Nov	100	100	100	100	100	100	100	100	100
Dec	100	100	100	100	100	100	100	100	100

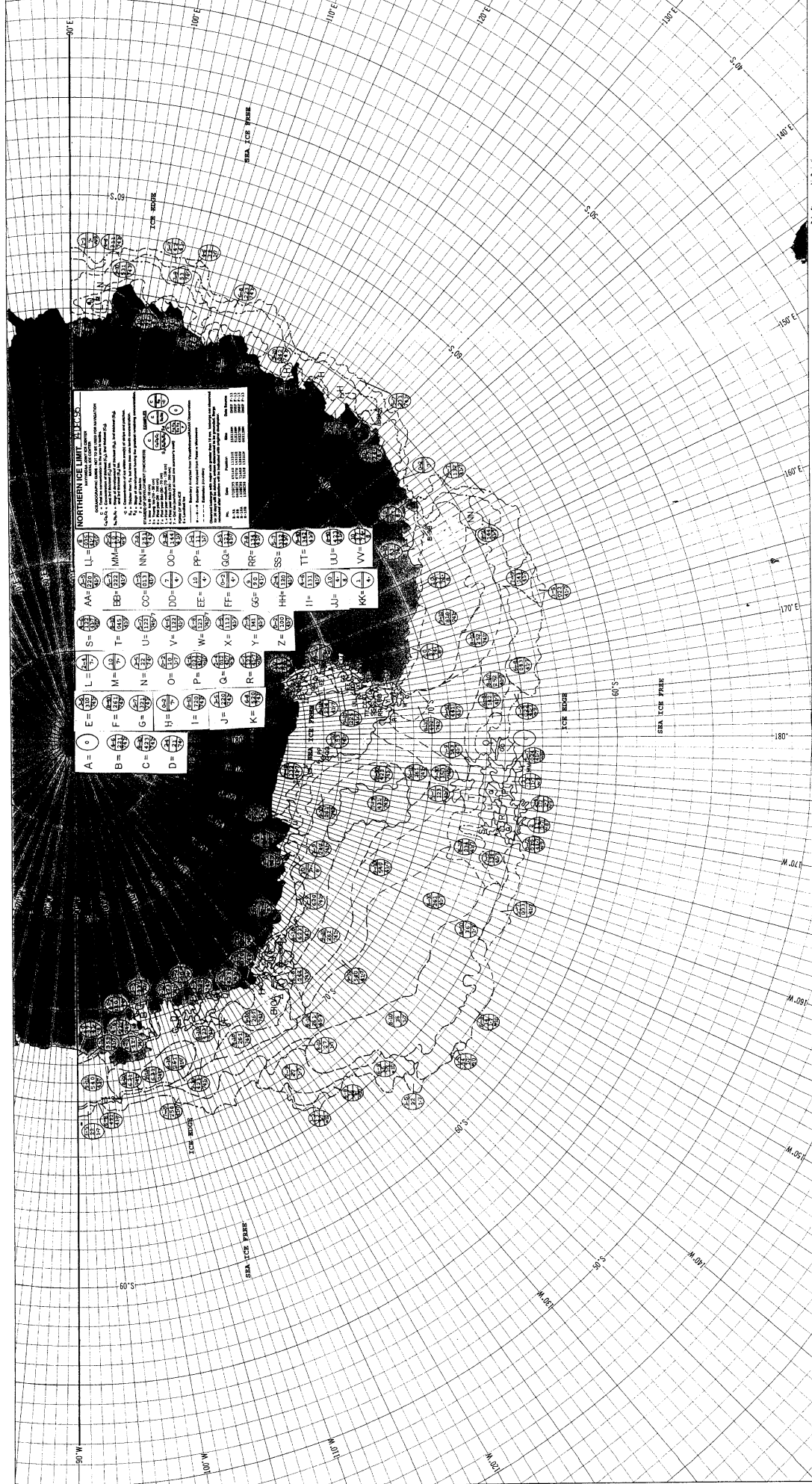


**NORTHERN ICE LIMIT SYMBOLS**

A = S = T =   
 B = K = L =   
 C = M = N =   
 D = O = P =   
 E = G = R =   
 F = H = I =

**NORTHERN ICE LIMIT SYMBOLS**

The symbols on this map represent the following information:  
 A. The letter indicates the type of ice.  
 B. The number indicates the thickness of the ice in feet.  
 C. The number indicates the age of the ice in years.  
 D. The number indicates the direction of the wind in degrees true.  
 E. The number indicates the force of the wind in knots.  
 F. The number indicates the direction of the current in degrees true.  
 G. The number indicates the force of the current in knots.  
 H. The number indicates the direction of the surface current in degrees true.  
 I. The number indicates the force of the surface current in knots.  
 J. The number indicates the direction of the bottom current in degrees true.  
 K. The number indicates the force of the bottom current in knots.  
 L. The number indicates the direction of the surface current in degrees true.  
 M. The number indicates the force of the surface current in knots.  
 N. The number indicates the direction of the bottom current in degrees true.  
 O. The number indicates the force of the bottom current in knots.  
 P. The number indicates the direction of the surface current in degrees true.  
 Q. The number indicates the force of the surface current in knots.  
 R. The number indicates the direction of the bottom current in degrees true.  
 S. The number indicates the force of the bottom current in knots.  
 T. The number indicates the direction of the surface current in degrees true.  
 U. The number indicates the force of the surface current in knots.  
 V. The number indicates the direction of the bottom current in degrees true.  
 W. The number indicates the force of the bottom current in knots.  
 X. The number indicates the direction of the surface current in degrees true.  
 Y. The number indicates the force of the surface current in knots.  
 Z. The number indicates the direction of the bottom current in degrees true.  
 AA. The number indicates the force of the bottom current in knots.



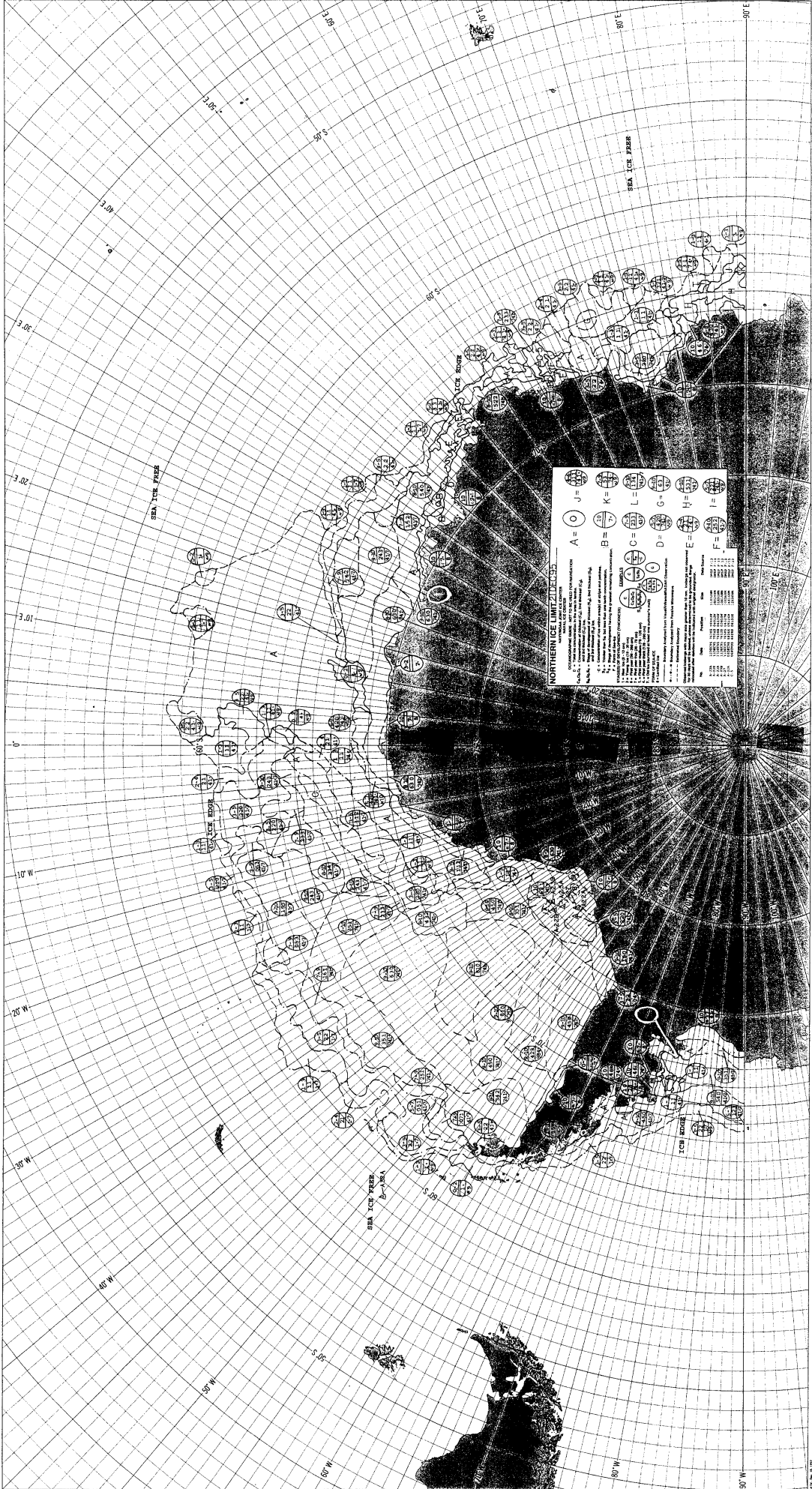
**NORTHERN LIMIT**

**SEA ICE PERM**

**SEA ICE PROB**

**SEA ICE UNK**

A = 0	E = 0	L = 0	S = 0	AA = 0	LL = 0
B = 1	F = 1	M = 1	T = 1	BB = 1	MM = 1
C = 2	G = 2	N = 2	U = 2	CC = 2	NN = 2
D = 3	H = 3	O = 3	V = 3	DD = 3	OO = 3
J = 4	I = 4	P = 4	W = 4	JJ = 4	PP = 4
K = 5	Q = 5	R = 5	X = 5	KK = 5	QQ = 5
	Y = 6		Z = 6	RR = 6	SS = 6
				TT = 7	UU = 7
				VV = 8	WW = 8
				XX = 9	YY = 9
				ZZ = 0	00 = 0



**NORTHERN ICE LIMITS (ICES)**  
 SYMBOLS FOR ICE LIMITS

**A =** **B =** **C =** **D =** **E =** **F =**

**G =** **H =** **I =** **J =**

**K =** **L =** **M =**

**N =** **O =**

**P =** **Q =**

**R =** **S =**

**T =** **U =**

**V =** **W =**

**X =** **Y =**

**Z =**

**1 =** **2 =**

**3 =** **4 =**

**5 =** **6 =**

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**89 =**

**90 =**

**91 =**

**92 =**

**93 =**

**94 =**

**95 =**

**96 =**

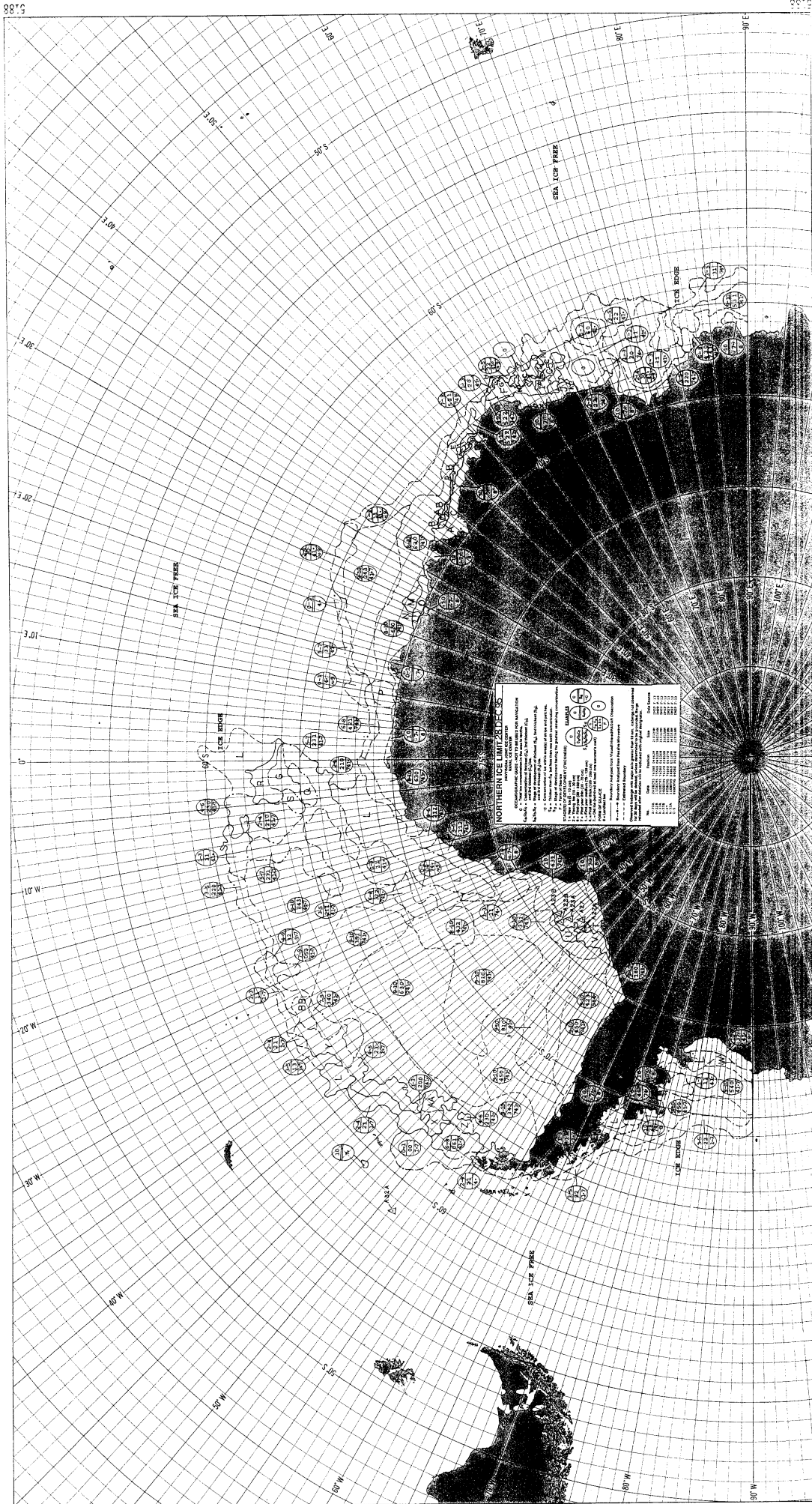
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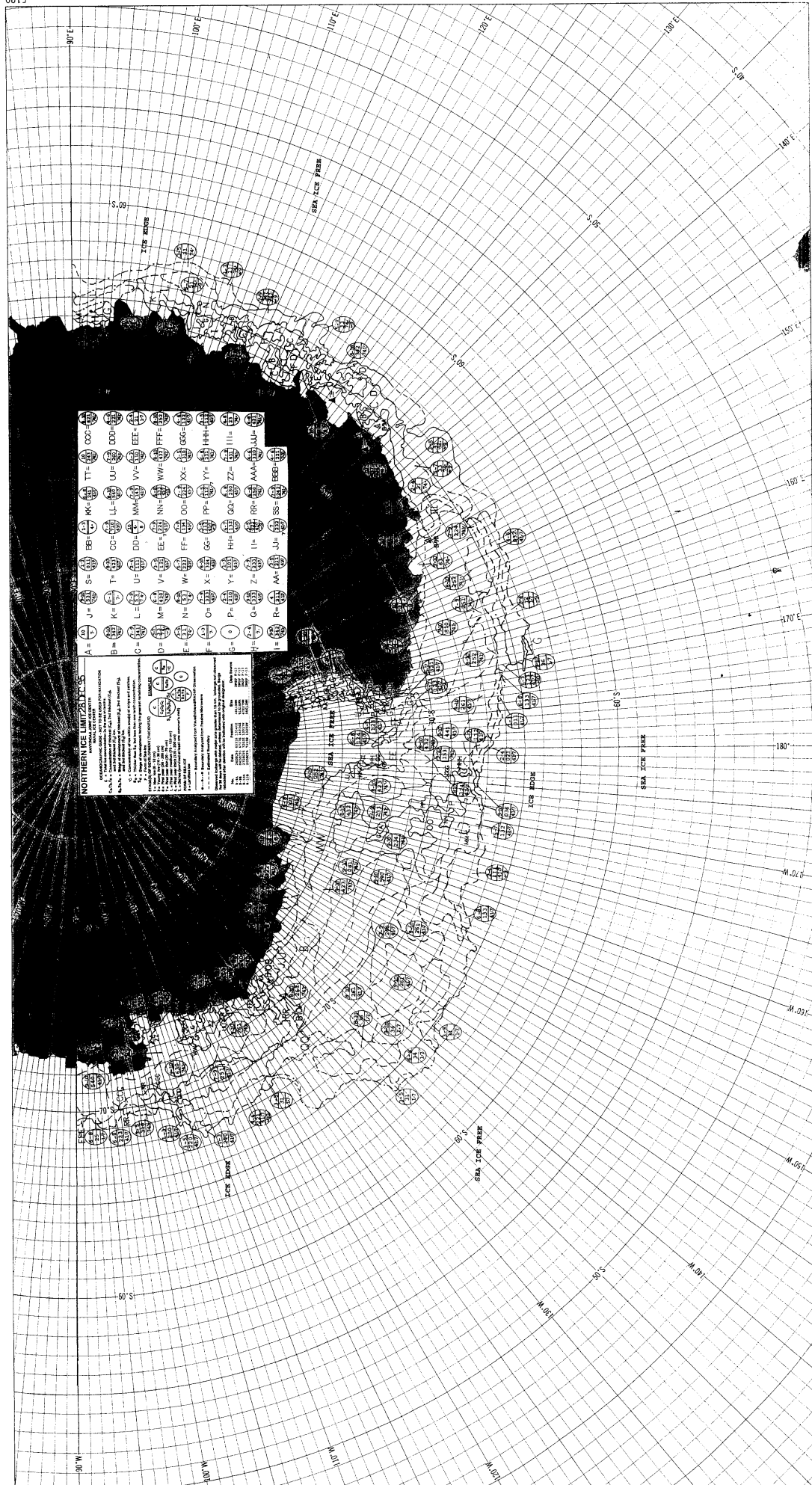
**98 =**

**99 =**

**100 =**







**NORTHERN ICE LIMITS, 1955**

**SYMBOLS FOR ICE TYPES AND THICKNESSES**

A =	J =	S =	T =	CC =	TT =	CC =
B =	K =	U =	V =	DD =	UU =	DD =
C =	L =	W =	X =	EE =	VV =	EE =
D =	M =	Y =	Z =	FF =	WW =	FF =
E =	N =	0 =	P =	GG =	XX =	GG =
F =	O =	1 =	Q =	HH =	YY =	HH =
G =	P =	2 =	R =	II =	ZZ =	II =
H =	Q =	3 =	S =	AAA =	AAA =	AAA =
I =	R =	4 =	T =	BBB =	BBB =	BBB =
J =	S =	5 =	U =	CCC =	CCC =	CCC =
K =	T =	6 =	V =	DDD =	DDD =	DDD =
L =	U =	7 =	W =	EEE =	EEE =	EEE =
M =	V =	8 =	X =	FFF =	FFF =	FFF =
N =	W =	9 =	Y =	GGG =	GGG =	GGG =
O =	X =	0 =	Z =	HHH =	HHH =	HHH =
P =	Y =	1 =	AAA =	III =	III =	III =
Q =	Z =	2 =	AAA =	LLL =	LLL =	LLL =
R =	AAA =	3 =	AAA =	MMM =	MMM =	MMM =
S =	AAA =	4 =	AAA =	NNN =	NNN =	NNN =
T =	AAA =	5 =	AAA =	OOO =	OOO =	OOO =
U =	AAA =	6 =	AAA =	PPP =	PPP =	PPP =
V =	AAA =	7 =	AAA =	QQQ =	QQQ =	QQQ =
W =	AAA =	8 =	AAA =	RRR =	RRR =	RRR =
X =	AAA =	9 =	AAA =	SSS =	SSS =	SSS =
Y =	AAA =	0 =	AAA =	TTT =	TTT =	TTT =
Z =	AAA =	1 =	AAA =	UUU =	UUU =	UUU =
AAA =	AAA =	2 =	AAA =	VVV =	VVV =	VVV =
BBB =	BBB =	3 =	AAA =	WWW =	WWW =	WWW =
CCC =	CCC =	4 =	AAA =	XXX =	XXX =	XXX =
DDD =	DDD =	5 =	AAA =	YYY =	YYY =	YYY =
EEE =	EEE =	6 =	AAA =	ZZZ =	ZZZ =	ZZZ =
FFF =	FFF =	7 =	AAA =	AAA =	AAA =	AAA =
GGG =	GGG =	8 =	AAA =	BBB =	BBB =	BBB =
HHH =	HHH =	9 =	AAA =	CCC =	CCC =	CCC =
III =	III =	0 =	AAA =	DDD =	DDD =	DDD =
LLL =	LLL =	1 =	AAA =	EEE =	EEE =	EEE =
MMM =	MMM =	2 =	AAA =	FFF =	FFF =	FFF =
NNN =	NNN =	3 =	AAA =	GGG =	GGG =	GGG =
OOO =	OOO =	4 =	AAA =	HHH =	HHH =	HHH =
PPP =	PPP =	5 =	AAA =	III =	III =	III =
QQQ =	QQQ =	6 =	AAA =	LLL =	LLL =	LLL =
RRR =	RRR =	7 =	AAA =	MMM =	MMM =	MMM =
SSS =	SSS =	8 =	AAA =	NNN =	NNN =	NNN =
TTT =	TTT =	9 =	AAA =	OOO =	OOO =	OOO =
UUU =	UUU =	0 =	AAA =	PPP =	PPP =	PPP =
VVV =	VVV =	1 =	AAA =	QQQ =	QQQ =	QQQ =
WWW =	WWW =	2 =	AAA =	RRR =	RRR =	RRR =
XXX =	XXX =	3 =	AAA =	SSS =	SSS =	SSS =
YYY =	YYY =	4 =	AAA =	TTT =	TTT =	TTT =
ZZZ =	ZZZ =	5 =	AAA =	UUU =	UUU =	UUU =
AAA =	AAA =	6 =	AAA =	VVV =	VVV =	VVV =
BBB =	BBB =	7 =	AAA =	WWW =	WWW =	WWW =
CCC =	CCC =	8 =	AAA =	XXX =	XXX =	XXX =
DDD =	DDD =	9 =	AAA =	YYY =	YYY =	YYY =
EEE =	EEE =	0 =	AAA =	ZZZ =	ZZZ =	ZZZ =
FFF =	FFF =	1 =	AAA =	AAA =	AAA =	AAA =
GGG =	GGG =	2 =	AAA =	BBB =	BBB =	BBB =
HHH =	HHH =	3 =	AAA =	CCC =	CCC =	CCC =
III =	III =	4 =	AAA =	DDD =	DDD =	DDD =
LLL =	LLL =	5 =	AAA =	EEE =	EEE =	EEE =
MMM =	MMM =	6 =	AAA =	FFF =	FFF =	FFF =
NNN =	NNN =	7 =	AAA =	GGG =	GGG =	GGG =
OOO =	OOO =	8 =	AAA =	HHH =	HHH =	HHH =
PPP =	PPP =	9 =	AAA =	III =	III =	III =
QQQ =	QQQ =	0 =	AAA =	LLL =	LLL =	LLL =
RRR =	RRR =	1 =	AAA =	MMM =	MMM =	MMM =
SSS =	SSS =	2 =	AAA =	NNN =	NNN =	NNN =
TTT =	TTT =	3 =	AAA =	OOO =	OOO =	OOO =
UUU =	UUU =	4 =	AAA =	PPP =	PPP =	PPP =
VVV =	VVV =	5 =	AAA =	QQQ =	QQQ =	QQQ =
WWW =	WWW =	6 =	AAA =	RRR =	RRR =	RRR =
XXX =	XXX =	7 =	AAA =	SSS =	SSS =	SSS =
YYY =	YYY =	8 =	AAA =	TTT =	TTT =	TTT =
ZZZ =	ZZZ =	9 =	AAA =	UUU =	UUU =	UUU =
AAA =	AAA =	0 =	AAA =	VVV =	VVV =	VVV =
BBB =	BBB =	1 =	AAA =	WWW =	WWW =	WWW =
CCC =	CCC =	2 =	AAA =	XXX =	XXX =	XXX =
DDD =	DDD =	3 =	AAA =	YYY =	YYY =	YYY =
EEE =	EEE =	4 =	AAA =	ZZZ =	ZZZ =	ZZZ =
FFF =	FFF =	5 =	AAA =	AAA =	AAA =	AAA =
GGG =	GGG =	6 =	AAA =	BBB =	BBB =	BBB =
HHH =	HHH =	7 =	AAA =	CCC =	CCC =	CCC =
III =	III =	8 =	AAA =	DDD =	DDD =	DDD =
LLL =	LLL =	9 =	AAA =	EEE =	EEE =	EEE =
MMM =	MMM =	0 =	AAA =	FFF =	FFF =	FFF =
NNN =	NNN =	1 =	AAA =	GGG =	GGG =	GGG =
OOO =	OOO =	2 =	AAA =	HHH =	HHH =	HHH =
PPP =	PPP =	3 =	AAA =	III =	III =	III =
QQQ =	QQQ =	4 =	AAA =	LLL =	LLL =	LLL =
RRR =	RRR =	5 =	AAA =	MMM =	MMM =	MMM =
SSS =	SSS =	6 =	AAA =	NNN =	NNN =	NNN =
TTT =	TTT =	7 =	AAA =	OOO =	OOO =	OOO =
UUU =	UUU =	8 =	AAA =	PPP =	PPP =	PPP =
VVV =	VVV =	9 =	AAA =	QQQ =	QQQ =	QQQ =
WWW =	WWW =	0 =	AAA =	RRR =	RRR =	RRR =
XXX =	XXX =	1 =	AAA =	SSS =	SSS =	SSS =
YYY =	YYY =	2 =	AAA =	TTT =	TTT =	TTT =
ZZZ =	ZZZ =	3 =	AAA =	UUU =	UUU =	UUU =
AAA =	AAA =	4 =	AAA =	VVV =	VVV =	VVV =
BBB =	BBB =	5 =	AAA =	WWW =	WWW =	WWW =
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III =	III =	2 =	AAA =	DDD =	DDD =	DDD =
LLL =	LLL =	3 =	AAA =	EEE =	EEE =	EEE =
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OOO =	OOO =	6 =	AAA =	HHH =	HHH =	HHH =
PPP =	PPP =	7 =	AAA =	III =	III =	III =
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RRR =	RRR =	9 =	AAA =	MMM =	MMM =	MMM =
SSS =	SSS =	0 =	AAA =	NNN =	NNN =	NNN =
TTT =	TTT =	1 =	AAA =	OOO =	OOO =	OOO =
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VVV =	VVV =	3 =	AAA =	QQQ =	QQQ =	QQQ =
WWW =	WWW =	4 =	AAA =	RRR =	RRR =	RRR =
XXX =	XXX =	5 =	AAA =	SSS =	SSS =	SSS =
YYY =	YYY =	6 =	AAA =	TTT =	TTT =	TTT =
ZZZ =	ZZZ =	7 =	AAA =	UUU =	UUU =	UUU =
AAA =	AAA =	8 =	AAA =	VVV =	VVV =	VVV =
BBB =	BBB =	9 =	AAA =	WWW =	WWW =	WWW =
CCC =	CCC =	0 =	AAA =	XXX =	XXX =	XXX =
DDD =	DDD =	1 =	AAA =	YYY =	YYY =	YYY =
EEE =	EEE =	2 =	AAA =	ZZZ =	ZZZ =	ZZZ =
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III =	III =	6 =	AAA =	DDD =	DDD =	DDD =
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MMM =	MMM =	8 =	AAA =	FFF =	FFF =	FFF =
NNN =	NNN =	9 =	AAA =	GGG =	GGG =	GGG =
OOO =	OOO =	0 =	AAA =	HHH =	HHH =	HHH =
PPP =	PPP =	1 =	AAA =	III =	III =	III =
QQQ =	QQQ =	2 =	AAA =	LLL =	LLL =	LLL =
RRR =	RRR =	3 =	AAA =	MMM =	MMM =	MMM =
SSS =	SSS =	4 =	AAA =	NNN =	NNN =	NNN =
TTT =	TTT =	5 =	AAA =	OOO =	OOO =	OOO =
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VVV =	VVV =	7 =	AAA =	QQQ =	QQQ =	QQQ =
WWW =	WWW =	8 =	AAA =	RRR =	RRR =	RRR =
XXX =	XXX =	9 =	AAA =	SSS =	SSS =	SSS =
YYY =	YYY =	0 =	AAA =	TTT =	TTT =	TTT =
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BBB =	BBB =	3 =	AAA =	WWW =	WWW =	WWW =
CCC =	CCC =	4 =	AAA =	XXX =	XXX =	XXX =
DDD =	DDD =	5 =	AAA =	YYY =	YYY =	YYY =
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FFF =	FFF =	7 =	AAA =	AAA =	AAA =	AAA =
GGG =	GGG =	8 =	AAA =	BBB =	BBB =	BBB =
HHH =	HHH =	9 =	AAA =	CCC =	CCC =	CCC =
III =	III =	0 =	AAA =	DDD =	DDD =	DDD =
LLL =	LLL =	1 =	AAA =	EEE =	EEE =	EEE =
MMM =	MMM =	2 =	AAA =	FFF =	FFF =	FFF =
NNN =	NNN =	3 =	AAA =	GGG =	GGG =	GGG =
OOO =	OOO =	4 =	AAA =	HHH =	HHH =	HHH =
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QQQ =	QQQ =	6 =	AAA =	LLL =	LLL =	LLL =
RRR =	RRR =	7 =	AAA =	MMM =	MMM =	MMM =
SSS =	SSS =	8 =	AAA =	NNN =	NNN =	NNN =
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VVV =	VVV =	1 =	AAA =	QQQ =	QQQ =	QQQ =
WWW =	WWW =	2 =	AAA =	RRR =	RRR =	RRR =
XXX =	XXX =	3 =	AAA =	SSS =	SSS =	SSS =
YYY =	YYY =	4 =	AAA =	TTT =	TTT =	TTT =
ZZZ =	ZZZ =	5 =	AAA =	UUU =	UUU =	UUU =
AAA =	AAA =	6 =	AAA =	VVV =	VVV =	VVV =
BBB =	BBB =	7 =	AAA =	WWW =	WWW =	WWW =
CCC =	CCC =	8 =	AAA =	XXX =	XXX =	XXX =
DDD =	DDD =	9 =	AAA =	YYY =	YYY =	YYY =
EEE =	EEE =	0 =	AAA =	ZZZ =	ZZZ =	ZZZ =
FFF =	FFF =	1 =	AAA =	AAA =	AAA =	AAA =
GGG =	GGG =	2 =	AAA =	BBB =	BBB =	BBB =
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LLL =	LLL =	5 =	AAA =	EEE =	EEE =	EEE =
MMM =	MMM =	6 =	AAA =	FFF =	FFF =	FFF =
NNN =	NNN =	7 =	AAA =	GGG =	GGG =	GGG =
OOO =	OOO =	8 =				