

A N N E X XII

Annex to Recommendation 9 (CBS-Ext.(76))

AMENDMENTS TO MARINE CODES

SEA ICE GROUP FOR INCLUSION IN CODES FM 21-V SHIP, FM 22-V SHIP and FM 23-V SHRED

Replace the group (ICE + { plain language or c_2KD_i, re }) by the group (ICE + { plain language or c_iS_i, b_i, D_i, z_i }).

SPECIFICATION OF SYMBOLIC LETTERS:

c_i - Concentration or arrangement of sea ice

Code figure

0	No sea ice in sight		
1	Ship in open lead more than 1.0 nautical mile wide, or ship in fast ice with boundary beyond limit of visibility		
2	Sea ice present in concentrations less than 3/10 (3/8), open water or very open pack ice	} Sea ice concentration is uniform in the observation area	} Ship in ice or within 0.5 nautical miles of ice edge
3	4/10 to 6/10 (3/8 to less than 6/8), open pack ice		
4	7/10 to 8/10 (6/8 to less than 7/8), close pack ice		
5	9/10 or more, but not 10/10 (7/8 to less than 8/8), very close pack ice	} Sea ice concentration is not uniform in the observation area	
6	Strips and patches of pack ice with open water between		
7	Strips and patches of close or very close pack ice with areas of lesser concentration between		

8	Fast ice with open water, very open or open pack ice to seaward of the ice boundary	}	Sea ice concentration is not uniform in the observation area	}	Ship in ice or within 0.5 nautical miles of ice edge
9	Fast ice with close or very close pack ice to seaward of the ice boundary				
/	Unable to report, because of darkness, lack of visibility, or because ship is more than 0.5 nautical mile away from ice edge.				

S_i - Stage of development

Code figure

0	New ice only (frazil ice, grease ice, slush, shuga)
1	Nilas or ice rind, less than 10 cm thick
2	Young ice (grey ice, grey-white ice), 10-30 cm thick
3	Predominantly new and/or young ice with some first-year ice
4	Predominantly thin first-year ice with some new and/or young ice
5	All thin first-year ice (30-70 cm thick)
6	Predominantly medium first-year ice (70-120 cm thick) and thick first-year ice (>120 cm thick) with some thinner (younger) first-year ice
7	All medium and thick first-year ice
8	Predominantly medium and thick first-year ice with some old ice (usually more than 2 metres thick)
9	Predominantly old ice
/	Unable to report, because of darkness, lack of visibility or because only ice of land origin is visible or because ship is more than 0.5 nautical mile away from ice edge.

b_i - Ice of land origin**Code
figure**

0	No ice of land origin
1	1-5 icebergs, no growlers or bergy bits
2	6-10 icebergs, no growlers or bergy bits
3	11-20 icebergs, no growlers or bergy bits
4	Up to and including 10 growlers and bergy bits - no icebergs
5	More than 10 growlers and bergy bits - no icebergs
6	1-5 icebergs with growlers and bergy bits
7	6-10 icebergs with growlers and bergy bits
8	11-20 icebergs with growlers and bergy bits
9	More than 20 icebergs with growlers and bergy bits - a major hazard to navigation
/	Unable to report - because of darkness, lack of visibility or because only sea ice is visible.

D_i - Bearing of principal edge**Code
figure**

0	Ship in shore or flaw lead
1	Principal ice edge towards NE
2	" " " " E
3	" " " " SE
4	" " " " S
5	" " " " SW

- 6 Principal ice edge towards W
 7 " " " " NW
 8 " " " " N
 9 Not determined (ship in ice)
 / Unable to report - because of darkness, lack of visibility or because only ice of land origin is visible.

z_i - Present ice situation and trend of conditions over preceding 3 hours

Code
figure

- | | | |
|---|---|---|
| 0 | Ship in open water with floating ice in sight | |
| 1 | Ship in easily penetrable ice; conditions improving | } |
| 2 | Ship in easily penetrable ice; conditions not changing | |
| 3 | Ship in easily penetrable ice; conditions worsening | |
| 4 | Ship in ice difficult to penetrate; conditions improving | |
| 5 | Ship in ice difficult to penetrate; conditions not changing | |
| 6 | Ice forming and floes freezing together | } |
| 7 | Ice under slight pressure | |
| 8 | Ice under moderate or severe pressure | |
| 9 | Ship beset | |
| / | Unable to report - because of darkness or lack of visibility. | |
- Ship in ice

REVISED REPORTING PROCEDURES FOR THE ICE GROUPS IN SHIP AND SHRED CODE FORMS

Revised coding regulations under FM 21-V SHIP

21.15

Groups (ICE + { plain language
or
 $c_i S_i b_i D_i z_i$ })

21.15.1

The reporting of sea ice and ice of land origin in SHIP or SHRED shall not supersede the reporting of sea ice and icebergs in accordance with the International Convention for the Safety of Life at Sea.

21.15.2

The group $c_i S_i b_i D_i z_i$ shall be reported whenever sea ice and/or ice of land origin are observed from the ship's position at the time of observation, unless the ship is required to report ice conditions by means of a special sea-ice code.

21.15.3

When an ice edge is crossed or sighted between observation hours it shall be reported as a plain-language addition in the form "Ice Edge Lat. Long." (with position in degrees and minutes).

21.15.4

If the ship is in the open sea reporting an ice edge, the concentration c_i and stage of development S_i shall be reported only if the ship is close to the ice (i.e. within 0.5 nm).

21.15.5

The situation in which the ship is in open lead more than 1.0 nautical mile wide shall be coded as $c_i = 1$ and $D_i = 0$. The situation in which the ship is in fast ice with ice boundary beyond limit of visibility shall be coded as $c_i = 1$ and $D_i = 9$.

21.15.6

If no sea ice is visible and the code group is used to report ice of land origin only, the group shall be coded as $0/b_i/0$; e.g., $0/2/0$ would mean 6-10 icebergs in sight, but no sea ice.

21.15.7

In coding concentration or arrangement of sea ice (code c_i), that condition shall be reported which is of the most navigational significance.

21.15.8

The bearing of the principal ice edge reported shall be to the closest part of that edge.

Revised coding regulations under FM 22-V SHIP

22.9

Groups (ICE + { plain language
or
 $c_i S_i b_i D_i z_i$ })

Regulations 21.15.1 to 21.15.8 inclusive shall apply.

Revised coding regulations under FM 23-V SHRED

23.8

Groups (ICE + { plain language
or
 $c_i S_i b_i D_i z_i$ })

Regulations 21.15.1 to 21.15.8 inclusive shall apply.

EXPLANATORY NOTE TO BE INCLUDED UNDER FM 21-V SHIP

(with cross-references under FM 22-V SHIP and FM 23-V SHRED)

(6) The requirements for sea-ice reporting are as follows:

Symbolic code letter c_i

- (a) The purpose of the first digit (0) is to establish in relation to Code z_i (Code figure 0) and Code b_i whether the floating ice that is visible is only ice of land origin.
- (b) The possible variations in sea-ice concentration and arrangement within an area of observation are almost infinite. However, the field of reasonably accurate observation from a ship's bridge is limited. For this reason, and also because minor variations are of temporary significance, the choice of concentrations and arrangements has been restricted for reporting purposes to those representing significantly different conditions from a navigational point of view. The digits 2-9 have been divided into two sections depending on:

- (i) Whether sea-ice concentration within the area of observation is more or less uniform (digits 2-5); or
- (ii) Whether there are marked contrasts in concentration or arrangement (digits 6-9).

Symbolic code letter S_i

- (a) This table represents a series of increasing navigational difficulty for any given concentration - i.e. if the concentration is, for example, 8/10ths, then new ice would hardly have any effect on navigation while predominantly old ice would provide difficult conditions requiring reductions in speed and frequent course alterations;
- (b) The correlation between the stage of development of sea ice and its thickness is explained in the Guide to Instrument and Observing Practices.

Symbolic code letter b_i

- (a) This code provides a scale of increasing navigational hazard;
- (b) Growlers and bergy bits, being much smaller and lower in the water than icebergs, are more difficult to see either by eye or radar. This is especially so if there is a heavy sea running. For this reason digits 4 and 5 represent more hazardous conditions than digits 1 to 3.

Symbolic code letter D_i

There is no provision in this code for the reporting of distance from the ice edge. It will be assumed by those receiving the report that the bearing has been given to the closest part of the ice edge. From the reported code figures for concentration and stage of development it will be clear whether the ship is in ice or within 0.5 nautical miles of the ice edge. If the ship is in open water and more than 0.5 nautical miles from the ice edge, the ice edge will be assumed to be aligned at right-angles to the bearing which is reported.

Symbolic code letter z_i

- (a) The purpose of this element in the code is to establish:
 - (i) Whether the ship is in pack ice or is viewing floating ice (i.e. sea ice and/or ice of land origin) from the open sea; and
 - (ii) A qualitative estimate, dependent on the sea-ice navigation capabilities of the reporting ship, of the penetrability of the sea ice and of the recent trend in conditions;
- (b) The reporting of the conditions represented by figures 1-9 in the above table can be used to help in the interpretation of reports from the two code tables (concentration c_i and stage of development S_i).

REVISION OF SPECIFICATIONS FOR CODE TABLE 2100 - EFFECT OF ICE ON NAVIGATION

1. Delete the present specifications of code figures 1-5 inclusive and replace by the following:

Code
figure

- | | |
|---|---|
| 1 | Navigation slightly impeded for unstrengthened ships |
| 2 | Navigation difficult for unstrengthened ships and slightly impeded for strengthened ships |
| 3 | Navigation difficult for strengthened ships |
| 4 | Navigation very difficult for strengthened ships |
| 5 | Navigation possible for strengthened ships only with icebreaker assistance. |
2. Retain the current specifications of code figures 0 and 6-9 inclusive.
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