WORLD METEOROLOGICAL ORGANIZATION

JOINT WMO/IOC TECHNICAL COMMISSION FOR OCEANOGRAPHY AND MARINE METEOROLOGY (JCOMM)
EXPERT TEAM ON SEA ICE – FOURTH SESSION

STEERING GROUP FOR THE PROJECT GLOBAL DIGITAL SEA ICE DATA BANK (GDSIDB) – TWELTH SESSION

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REQUIREMENTS FOR SEA ICE MSI (MANDATORY SEA ICE INFORMATION)

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Summary and Purpose of Document

This document contains introductory information for discussion on requirements for sea ice marine safety information in part of a list of warning parameters.

ACTION PROPOSED

The Expert Team on Sea Ice (ETSI) is invited to:

(a) Note and comment on the information contained in this document, as appropriate;
(b) Prioritize and develop a draft list of natural parameters and sea ice products required for specific classes, including marine safety and efficiency

Appendix: 1. Russian Federation warning criteria for the Arctic and South Oceans and offshore (250 km) areas

2. Doc. 2.5.5 - Updates to Guidelines for Sea Ice Marine Safety Information in WMO Manuals and Guides

DISCUSSION

1. The Team is invited to review the existing warning criteria on national level and other relevant sections in the IHO/IMO/WMO publications, prioritize and develop a draft list of natural parameters and sea ice products required for different marine applications, including provision of marine safety (mandatory sea ice information for MSS), support for efficiency of marine operations, customer-oriented support, for further inclusion into relevant sections of WMO No. 558 and 471.

2. As a background information, the Team is invited to use the existing national lists of warning criteria, requirements for sea ice information and services developed jointly by the IICWG, ETSI, GCOS SST and IGOS (“Ice Information Services: Socio-Economic Benefits and Earth Observation Requirements”, “Summary of Current/Planned Capabilities and Requirements for Space-based Remote-Sensing of Sea Ice and Iceberg Parameters” etc.). The Team is proposed to consider taking responsibilities for ice accretion definitions for MSI.

Warning criteria for the Arctic and South Oceans and offshore (250 km) areas

Phenomenon	Parameter	Normal conditions	Moderate conditions	Dangerous conditions	Extreme conditions
Air temperature °C (negative, frost and icing)	Air temperature °C	–0 –14.9	–15 –24.9	–25 –34.9	≤–35
Water surface temperature °C (negative)	Water temperature, measured °C	>5	4.9-0.1	0.0 –1.0	–1.1 –2.0
Current speed, cm/s	Current: mean speed (cm/s)	0-12.9	13-19.9	20-29.9	≥30
Intense ice drift, cm/s	Instant ice drift speed (cm/s)	0-14.9	15-24.9	25-34.9	≥35
Edge	Total concentration	0	>0	>0	>0
Sea ice total concentation	Total concentration (tenths)	0	1-3	4-6	7-10
Bergy waters	Stage of development	≠98	98	98	98
Iceberg	Ice of land origin (geographic coordinates)	no	present	present	present
Compacting, level	Sea ice: compacting (level)	0-0.4	0.5-0.9	1.0-1.9	2.0-3.0
Surge, cm	Water level (cm)	0-49	50-99	100-149	≥150
Downsurge, cm	Water level (cm)	0 –49	–50 –99	–100 –149	≥–150
Wind, m/s	Wind: speed (м/с)	< 10	10-19.9	20-29.9	≥30
Waves height, m Coastal zone High sea Open ocean	Wind waves: height (m)	 0-1.9 0-2.9 0-3.9	 2-3.9 3-5.9 4-7.9	 4-4.9 6-6.9 8-8.9	 ≥5 ≥7 ≥9
Ice accretion, cm/h	Ice accretion (vessel): speed (cm/h)	0-0.6	0.7-1.9	2-2.5	≥2.5
Icing (level, points) Air temperature Mean waves height	Icing (points)	0 > (-2°)	1 ≤ (-2°) 1.5m	2 (-2°) - (-6°) 2.0m - 6.0m	3 ≤ (-3°) / < (-8°) >6.5m / > 2.0m

References:

a) RF Manual for hydrometerological stations and posts. Issue.9, part.III. Hydrometerological observations on shipborne stations carried out by observers.

b) RF Instruction. Criteria for dangerous hydrometerological phenomena and order of provision of warning message.