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

ST PETERSBURG, RUSSIAN FEDERATION

1 TO 5 MARCH 2010

INTERGOVERNMENTAL OCEANOGRAPHIC COMMISSION (OF UNESCO)

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Ice analysis harmonization issues

(Submitted by the ETSI chair)

Summary and Purpose of Document

This document contains a number of proposed additions and amendments to the WMO Sea Ice Nomenclature following recommendations from ETSI-III.

ACTION PROPOSED

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

(a) Note and comment on the proposed information on the 1st and 2nd Ice Analysts Workshops

(b) Agree on its approach towards this activity and if appropriate develop themes for the 3rd Ice Analysts Workshop

Attachments

Appendix I - Final Agenda of the 1st Ice Analysts Workshop

Appendix II - Final Agenda of the 2nd Ice Analysts Workshop

Appendix III - Participants of the 1st and 2nd Ice Analysts Workshops

Discussion

1. Highlights of achievements in sea ice capacity building support include provision of the 1st (June 2008, Rostock, Germany, BSH) and the 2nd (June 2009, Tromso, Norway, met.no) joint ETSI/IICWG/GCOS "Ice Analysts Workshops". The workshops encompassed:

- Case studies/discussion from Ice Services on the techniques used in analyzing imagery and preparing ice charts in order to exchange views, techniques, learning diverse practices and philosophies from different Ice Services; and
- Breakout expert groups by region (Arctic, Antarctic and Baltic Sea) and a 'merged' Barents Sea group (only IAW-II) to analyze imagery and prepare ice charts during the workshop in order to develop a methodology to harmonize the analysis process.

2. Proceedings of the 1st workshop are available as WMO Td. No. 1441. The scientific results of the 1st workshop included identification of uncertainties on current and historical ice charts.

3. A valuable conclusion of the more practically-oriented 2nd workshop related to harmonization of ice charts from different Ice Services is that, potentially, Arctic ice charts are interchangeable for MSS within new Arctic METAREAs, provided that the timeliness, accepted accuracy of the boundaries and amount of additional information (leads, cracks, compactness) is sufficient for operative purposes.

4. Proposals for the 3rd Ice Analysts Workshop drafted during the round-table discussion between the participants of the 2nd Workshop included the following:

<u>Background</u>

Critical tasks for preparatory period:

- descriptions of philosophies by services prior to Workshop,
- better and longer preparation for the Workshop,
- more extensive and harmonized presentation

<u>Themes for agenda:</u>

1) Rerun of case study "Online analysis of routine dataset shared by met.no (SAR/VIS/IR, weather stations) and ice charting for a single test region (e.g. Greenland/Barents Sea) by 3-4 teams of ice analysts
2) Case study on assimilation of SIGRID-3 (shapefiles) from different ice services
3) Investigation on philosophies for ice analysis and requirements from individual clients
4) Discussion on standards for annotating imagery
5) Case study on differences in ice charts in time
6) Investigation on sea ice climatology used by ice services to reference their ice charts
7) Discussion on automated products in MyOcean project to be used

Prior to IAW-3 the Organizing Committee should consider whether IAW should be separated by focuses, e.g.: 3 days for 1st focus (items 1-4) and 2 days for 2nd one (5-7).

Place and time: DMI, June 2010 (after Oslo IPY conference).

Appendix I Final Agenda of the 1st Ice Analysts Workshop

Ice Analysts Workshop June'2008

12-17 June 2008

Bundesamt für Seechifffahrt und Hydrographie (BSH) Ice Service, Rostock, Germany

AGENDA

1. Opening of the workshop
1.1 Opening
1.2 Adoption of the agenda
1.3 Working arrangements
2. Reports
2.1 Report by the National Ice Services on their current practices in ice mapping systems and techniques
3. Case studies
3.1 Identification of a strategy for comparing current practices in ice mapping systems and techniques; establishment of regional groups (Arctic, Antarctic and Baltic Sea)
3.2 Case study 1: Differences in presenting ice parameters on selected satellite imagery (SAR/visible/IR), analysed prior to the Workshop
3.3 Case study 2: Results of the online analysis of selected satellite imagery (SAR/passive microwave/visible/IR) by regions and national ice services
3.4 Case study 3: Differences in routine ice charts from the past season 20072008
by regions
and national ice services
3.5 Case study 4: Assessment of uncertainties in historical series of ice charts since initiation, the routine ice mapping, using ice charts from the Baltic Sea Ice Services for 1950s2008
as a model
4. Discussions
4.1 Discussion 1: Identification of sea ice parameters' uncertainties on routine ice charts by regions, seasons and sensors
4.2 Discussion 2: Identification of uncertainties in the climatological series of the ice charts by regions, seasons and time intervals
4.3 Discussion 3: Identification of uncertainties and verification of the passive microwave ice informational products (based on results from case study 2)
4.4 Discussion 4: Constraints of the ice charts in comparison to other ice informational products and needs for *Sea Ice Nomenclature and Symbology* amendments and updates
4.5 Discussion 5: Practices and formats' harmonization, potentials for integrated ice mapping services
5. GHRSSTPP
and GCOS SST&SI WG current practices in using ice charts
5.1 Assimilation of the ice charts into numerical forecasting systems – existing practices, constraints and potential
5.2 Integration of the ice charts into climatological studies
6. Review of existing sea ice regulatory publications
7. Development of guidelines for standard seaice
services response practices,
including coding and presentation schemes
7.1 Development of a summary of ice charts uncertainties for operational practices and climatological analysis
8. Closure of the workshop

Appendix II - Final Agenda of the 2nd Ice Analysts Workshop

15-19 June 2009

Norwegian Meteorological Institute (met.no) Forecasting Center for the Northern Norway

FINAL AGENDA

1. Opening of the workshop

1.1 Opening and welcome

1.2 Adoption of the agenda

1.3 Workshop logistics and arrangements

2. Reports

2.1 Reports by national services on their current practices and key points for ice mapping systems and techniques for the last season 2008/2009

2.2. Reports/presentations from satellite data providers

3. Case studies

3.1 Workshop logistics

3.1.1 Presentation of online resources to be used during case-studies

3.1.2 Identification of a strategy for comparing practices and ice products

3.1.3 Identification of 3-4 regional groups:

- West Arctic (Barents/Greenland Seas) / East Arctic (Beaufort/Chukchi Seas) / Baltic Sea / Antarctic

3.2 Case study 1 (Day 1, Monday): Comparison of routine ice charts and satellite imagery from the past season 2008-2009 by regions and national ice services

3.3 Case study 2 (Day 2, Tuesday):

- Online analysis of synchronous satellite imagery by ice analysts for 3-4 selected regions
- Training on Identification and tracking multiyear ice floes in the Canadian Arctic

3.4 Case study 3 (Day 3, Wednesday): Online analysis of routine dataset shared by met.no (SAR/VIS/IR, weather stations) and ice charting for the Barents Sea by 3-4 teams of ice analysts

3.5 Case study 4 (Day 4, Thursday): Import, export and assimilation of ice charts in gridded and vector internal and WMO formats between the services

3.6 Case study 5 (Day 4, Thursday): Identification of uncertainties in historical series of ice charts since initiation, the routine ice mapping, using ice charts from the Baltic Sea Ice Services for 1950s-2008 as a model

4. Discussions

4.1 Discussion 1 (Day 2, Tuesday): Identification of differences in presentation schemas, list and uncertainties of sea ice parameters by regions, seasons and sensors for the routine ice charts and imagery for the past 2008-2009 season

4.2 Discussion 2 (day 3, Wednesday): Identification of differences in ice analysis techniques based on online ice analysis for 3-4 selected regions and a common region using Barents Sea as a model

4.3 Discussion 3 (day 4, Thursday): Changes in ice services and customers requirements to initial information (satellite products, in-situ data) and sea ice products

4.4 Discussion 4 (day 5, Friday): Harmonization, exchange of products and integration of ice charting, potentials for the training in sea ice analysis (implementation of coding schemas, SIGRID-3, ENC, gridded data etc)

5. Review of existing sea ice regulatory publications (day 5, Friday)

6. Workshop proceedings

6.1 Development of a summary of ice charts and ice analysis differences for operational practices and climatological studies

6.2 Development of guidelines for harmonization of ice practices and training in ice analysis

6.3 Workshop actions and report

7. Closure of the workshop

Appendix III - Participants of the 1st and 2nd Ice Analysts Workshops

Mit Standards noch effektiver

Rostock (rfra) • Heute geht im Bundesamt für Seeschifffahrt und Hydrographie (BSH) ein fünftägiger internationaler Workshop der Eisdienste zu Ende. Vertreter aus 13 Ländern, von Japan bis Kanada, tauschten in Rostock ihre Erfahrungen aus. Dabei wurde diskutiert, wie die Zusammenarbeit künftig weiter verbessert werden kann, erklärte gestern Dr. Jürgen Holfort, Leiter des gastgebenden BSH-Dienstes aus Rostock.

Als Ergebnis der Beratungen wurde vereinbart, die bisherigen Standards zu überarbeiten, um zu einem noch effektiveren Datenaustausch zu kommen. Im Blickfeld stand die technische Umsetzung der Herstellung und des Vertriebs der Eiskarten, die Minimierung von Fehlerquellen.

Holfort nennt ein Beispiel, wie die Arbeit noch stärker vernetzt werden kann. Alle zwei Wochen geben sowohl die USA als auch Russland Antarktis-Karten heraus. Wenn beide Seiten sich abstimmen, könnte im Ergebnis das Gebiet wöchentlich mit Karten abgedeckt werden.

Die Ergebnisse der Rostocker Tagung werden in einem Report zusammengefasst.

Am „Ice Analyst Workshop" im Bundesamt für Seeschifffahrt und Hydrographie nehmen Vertreter von Eisdiensten aus der ganzen Welt teil. Foto: Ove Arscholl

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