REPORTS BY THE MEMBERS OF THE ETSI

Summary and Purpose of Document

This document describes the sea ice information services provided by the Japan Meteorological Agency (JMA).

ACTION PROPOSED

The Team is invited to:

(a)   Note and comment on the information contained in the report;

(b)   Take action on the issue raised in the report, as appropriate;

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References:

- Japan Meteorological Agency, 2013: Outline of the operational numerical weather prediction at the Japan Meteorological Agency.
- _Appendix to WMO Technical progress report on the global data-processing and forecasting system and numerical weather prediction_ (_in press_).

Appendices: None

Japan Member Report
March 2014

Introduction

1.	The Japan Meteorological Agency (JMA) has been operationally monitoring sea ice conditions and providing sea ice information in the Sea of Okhotsk since 15th December 1970, in support of fishing, shipping and coastal and harbor activities. JMA is also monitoring sea ice conditions in the Arctic and Antarctic. Current status of the information services is described in this report.

Data sources

2.	The sea ice analysis in the Sea of Okhotsk is made mainly based on satellite remote sensing data provided by MTSAT, NOAA AVHRR, Metop AVHRR and RADARSAT-2. Terra/MODIS, Aqua/MODIS and GCOM-W1/AMSR2 are used as additional optical information.

3.	Visible observation data from the Japan Self Defense Force and the Japan Coast Guard aircrafts, the Coast Guard ships, and three coastal meteorological stations are additionally used.

4.	DMSP/SSM/I data and the U.S. National Ice Center (NIC) ice edge data are used for the global analysis.

Operations, data, services and product

5.	JMA operationally analyzes sea ice conditions in the Sea of Okhotsk every day from November to July by using Microsoft Paint. The analysis area includes the northern and western parts of the Sea of Japan, Bohai Sea, and the seas east of Kamchatka Peninsula. Daily sea ice analysis charts are available on the North-East Asian Regional GOOS Regional Real Time Data Base website at http://goos.kishou.go.jp/rrtdb/seaice.html with other oceanographic products (e.g. sea surface temperature analysis and sea surface height analysis).

6.	Sea ice information is broadcast on radio facsimile and posted on the JMH website (http://www.jma.go.jp/jmh/sml_00_stpn.html) twice a week (on Tuesday and Friday) from December to May. The information shows sea ice edges, four classes of sea ice concentration with a description of sea ice conditions and one-week forecasts in both Japanese and English.

7.	Numerical sea ice prognosis charts which show the distribution and concentration of sea ice of two and seven days ahead are also broadcast on radio facsimile and posted on the JMH website (http://www.jma.go.jp/jmh/sml_00_fioh0416.html) twice a week (on Wednesday and Saturday). The numerical model is described in paragraph 13.

8.	The dataset of sea ice extent is created every five days from November to July. The data are converted to Sigrid-2, which are submitted to the Global Digital Sea Ice Data Bank once a year.

9.	JMA issues the long term trend of sea ice extent in the Sea of Okhotsk from 1971 to date at http://www.data.kishou.go.jp/kaiyou/english/seaice_okhotsk/series_okhotsk_e.html once a year.

10.   Sea ice analysis chart is merged to the grid data that is made from the NIC ice edge data. The merged grid data are used for JMA's weather chart and boundary conditions for JMA's Numerical Weather Prediction Model.

11.   JMA analyzes the global sea ice. It is used for the Japanese 55-year Reanalysis and boundary conditions for JMA's Climate Prediction Model.

12.   JMA reanalyzes the Arctic and Antarctic sea ice and the long term trend in the Arctic and Antarctic from 1979 to date, which is issued at http://www.data.kishou.go.jp/kaiyou/english/seaice_global/series_global_e.html.

Sea Ice prediction model

13.   A numerical model to predict sea ice distributions was first utilized by JMA during the sea ice season in 1991. JMA's model system provides 7-day forecasts of sea ice distributions in the southern part of the Sea of Okhotsk and the neighboring waters. The model contains physical processes of sea ice formation/melting and wind- and current-driven sea ice drift. The windows bitmap file of Sea ice analysis chart is converted to grid data as an initial sea ice data.

Future plan

14.   We have a plan to reanalyze the Arctic and Antarctic sea ice from 1979 to date by using data provided by Japan Aerospace Exploration Agency.

References

Japan Meteorological Agency, 2013: Outline of the operational numerical weather prediction at the Japan Meteorological Agency.
Appendix to WMO Technical progress report on the global data-processing and forecasting system and numerical weather prediction (*in press*).

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