



## **Information Paper to PAME Arctic Shipping Best Practices Information Forum London, June 5-6, 2017**

WMO provides information for integrating weather, climate and hydrological data, environmental information and weather-climate predictive tools in the Arctic region, for example through its World Weather Watch (WWW), the Marine Meteorology and Oceanography Programme (MMOP), the Global Cryosphere Watch and other components of the WMO Integrated Global Observing System (WIGOS) as well as its World Climate and Weather Research Programmes (WCRP and WWRP).

The Joint WMO and IOC Technical Commission for Oceanography and Marine Meteorology (JCOMM) also delivers technical expertise for improved marine services in polar regions. Of note are the Expert Team on Sea Ice (ETSI) and the Expert Team on Maritime Safety Services (ETMSS). WMO's Manual 558 and Guide 471 (Marine Meteorological Services), and WMO Guide 574 (Sea-Ice Information Services) also give relevant advice.

All these WMO programmes, experts and documents aim in particular to provide weather and climate information at both poles (including the state of sea ice and the polar oceans) on time scales from hours to decades through a Global Integrated Polar Prediction System.

Marine services are also provided in the Arctic region by WMO Members through the Global Maritime Distress and Safety System (GMDSS), the Marine Pollution Emergency Response Support System (MPERSS), and in support of Search and Rescue (SAR) operations.

WMO is coordinating a Year of Polar Prediction (YOPP), starting in 2017, which will include a host of observing, modelling and educational activities. YOPP has the overarching goal to significantly improve our environmental prediction capabilities for the polar regions and beyond, on time scales from hours to seasons. Because of various teleconnections the poles influence weather and climate conditions in lower latitudes where hundreds of millions of people live. YOPP is intended to evaluate the improvement of weather and climate prediction worldwide with improved polar observational network. The connection to longer time scales is made through the World Climate Research Programme's Polar Climate Predictability Initiative. The core period of YOPP entails intensive observation and modelling campaigns in both the Arctic and the Antarctic, scheduled from mid-2017 to mid-2019.

The Arctic needs observational and monitoring networks on land, in the oceans and in the atmosphere, hazard early warning systems, emergency response capabilities, and skilled daily, seasonal and long-term forecasting services developed and tailored to its extreme conditions. Building blocks and prototypes for these networks and services exist within the WMO community and the Arctic nations have taken the lead in contributing to many of these activities.

WMO is committed to providing weather and climate information and services – and to supporting the research required – to ensure the protection of lives and livelihoods as well as sustainable development of the region.

**Relevant links:**

1. Global Cryosphere Watch: <http://globalcryospherewatch.org>
2. WMO Integrated Global Observing System: <http://www.wmo.int/pages/prog/www/wigos/>
3. WMO/IOC/ICSU World Climate Research Programme: <http://wcrp-climate.org>
4. World Weather Research Programme: <http://www.wmo.int/wwrp>
5. Year of Polar Prediction: <http://www.polarprediction.net/yopp.html>
6. Polar Climate Predictability Initiative: <http://www.climate-cryosphere.org/wcrp/pcpi>
7. JCOMM Expert Team on Maritime Safety Services:  
[http://www.jcomm.info/index.php?option=com\\_oe&task=viewGroupRecord&groupID=112&Itemid=37](http://www.jcomm.info/index.php?option=com_oe&task=viewGroupRecord&groupID=112&Itemid=37)
8. JCOMM Expert Team on Sea Ice:  
[http://www.jcomm.info/index.php?option=com\\_oe&task=viewGroupRecord&groupID=114&Itemid=37](http://www.jcomm.info/index.php?option=com_oe&task=viewGroupRecord&groupID=114&Itemid=37)
9. WMO Manual 558 Marine Meteorological Services  
[https://library.wmo.int/pmb\\_ged/wmo\\_558\\_en-v1.pdf](https://library.wmo.int/pmb_ged/wmo_558_en-v1.pdf)
10. WMO Guide 471 Marine Meteorological Services  
[https://library.wmo.int/opac/index.php?lvl=notice\\_display&id=7469#.WSwhWWmGOpo](https://library.wmo.int/opac/index.php?lvl=notice_display&id=7469#.WSwhWWmGOpo)
11. WMO Guide 574 (Sea-Ice Information Services)  
[http://www.aari.ru/gdsidb/docs/wmo/WMO\\_574.pdf](http://www.aari.ru/gdsidb/docs/wmo/WMO_574.pdf)
12. Global Maritime Distress and Safety System (GMDSS): <http://weather.gmdss.org>
13. Marine Pollution Emergency Response Support System (MPERSS)  
([http://www.jcomm.info/index.php?option=com\\_content&view=article&id=281&Itemid=37](http://www.jcomm.info/index.php?option=com_content&view=article&id=281&Itemid=37))