

Second session

HOBART, AUSTRALIA, 18-20 OCTOBER 2010

AGENDA ITEM: 5.1

OBSERVATION PROGRAM UPDATES
POLAR BUOY PROGRAMS - IABP and IPAB
SUMMARY

ISSUES TO BE DISCUSSED:

This document provides updated information on the Polar Buoy Programmes (International Arctic Buoy Program and International Program for Antarctic Buoys), including challenges and priorities, and recommendations for the consideration of EC PORS.

DECISIONS/ACTIONS REQUIRED:

The Panel is invited to consider action on the following opportunities:

- PORS and the WMO should consider the real monitoring requirement for essential service (including prediction and warning) activities and develop strategies for their acquisition, operation and maintenance. The engagement of other organizations to extend these networks to include oceanographic requirements (which both networks increasingly incorporate) is important.
- PORS and the WMO need to ensure that the GTS will receive and process data from all platforms operating in the polar regions – including being responsive to new/different modes of transmission.
- PORS and the WMO need to encourage the use of the GTS by all operators in the polar regions to the maximum extent possible. It is recognized that some research and other programs may need to limit access to some data for some period, but real-time data exchange should be recommended to the greatest extent.

REFERENCES:

1. International Arctic Buoy Programme (IABP):
Web: <http://iabp.apl.washington.edu/index.html>
Coordinator: Ignatius Rigor ignatius@apl.washington.edu
2. International Programme for Antarctic Buoys (IPAB)
Web: <http://ipab.ag/>
Coordinator: Christian Haas Christian.Haas@ualberta.ca

5.1 OBSERVATION PROGRAM UPDATES

POLAR BUOY PROGRAMS - IABP and IPAB

1. International Arctic Buoy Programme (IABP)

Overview

The participants of the IABP maintain a network of drifting buoys in the Arctic Ocean (Figure 1) to provide meteorological and oceanographic data for real-time operational requirements and research purposes, including support to the World Climate Research Programme (WCRP) and the World Weather Watch (WWW) Programme. The operational area of the IABP includes the central Arctic Ocean and its marginal seas, excepting Exclusive Economic Zones where agreements of the Coastal States have not been obtained. Measurements include atmospheric, oceanographic, cryospheric and air quality variables. The IABP strives to establish and maintain a well distributed network with observational points no more than 250 kilometres apart.

There are approximately 35 organizations from 10 countries that participate in the programme. Participants include representatives from academic institutions, international institutions, private sector agencies, and government agencies (both research and operational.)

Ms. Christine Best of Environment Canada was elected Chair at the 2010 participants meeting with Ignatius Rigor of the University of Washington re-affirmed as the Coordinator.

Challenges

There are several challenges for IABP, namely:

- Increasing areas of open water and first-year ice requires new/different buoys.
- Deployments on the Eurasian side of the pole; maintaining the network density.
- Ensuring data are available in (near) real-time and also in an accessible archive.
- Maintaining investment levels post-IPY.

Priorities

IABP has several priorities, including:

- Testing, deploying and supporting development of new buoys like AXIB (Airdroppable eXpendable Ice Beacon), O-buoy (atmospheric constituents), UpTempO buoy, etc.
- Effective coordination of deployment opportunities – particularly seeking options for the Eurasian side.
- Effective participation/collaboration with relevant Arctic initiatives such as SAON.
- Continued maximization of both real-time and archive accessibility to support operational services and research optimally.

2. International Programme for Antarctic Buoys (IPAB)

Overview

The Participants of the WCRP/SCAR International Programme for Antarctic Buoys (IPAB) maintain a network of drifting buoys in the Southern Ocean (in particular over sea ice, see Figure 2) to provide meteorological and oceanographic data for real-time operational

requirements and research purposes. The operational area of IPAB is south of 55°S and that region of the Southern Ocean and Antarctic marginal seas within the maximum seasonal sea-ice extent. Variables monitored may include atmospheric, oceanographic and cryospheric.

An informal IPAB meeting was held at the International Antarctic Sea Ice Workshop on May 30, 2010, in Tromsø, Norway, where all of the most active IPAB participants were present. There were no deployments performed on sea ice in the 2009/2010 season, although numerous SVPs were deployed in open water by the Meteorological Services of South Africa, Australia, and New Zealand.

There are approximately 20 organizations from 10 countries that participate in the programme. Participants include representatives from academic institutions, international institutions, private sector agencies, and government agencies (both research and operational.)

Challenges

Challenges are significant, namely:

- The remoteness of the Southern Ocean and the divergent, seasonal nature of Antarctic sea ice pose challenges to all parts of operations – cost, deployments, communications
- Maintaining an appropriate network of buoys to meet the desired network.
- Research institutions and associated projects perform only sporadic deployment campaigns
- Deployments on sea ice as far south as possible are required, but are difficult and expensive to achieve.

Priorities

Priorities for IPAB include:

- Testing and supporting development of new buoys like AXIB – Airdroppable eXpendible Ice Beacon.
- Data transmission of observations in real-time to the GTS.
- Funding for acquisition and deployment of buoys.
 - Two buoy deployment cruises planned for 2010:
 - 20 prototype ice mass balance buoys will be deployed in the Bellingshausen Sea in November 2010.
 - 2 standard CRREL ice mass balance buoys will be deployed in the Bellingshausen and Amundsen Seas November/December 2010.

3. Opportunities for consideration by PORS

The IPAB and IABP both attempt to operate coordinated networks to support the collective requirements of research and service requirements. However, the observational networks are substantially funded by research activities with deployments supported through research dollars as well as a myriad of organizational and/or opportunistic situations. If observations are transmitted on the GTS, observations become both accessible and archived through available international systems.

PORS and the WMO should consider the real monitoring requirement for essential service (including prediction and warning) activities and develop strategies for their acquisition, operation and maintenance. The engagement of other organizations to extend these networks to include oceanographic requirements (which both networks increasingly incorporate) is important.

The GTS and the associated systems for quality control and archiving of information are important to the success of these programs. These systems alleviate/reduce responsibilities of research operators when then can be used. Occasionally, research requirements limit the ability for real-time transmission of some information from platforms.

PORS and the WMO need to ensure that the GTS will receive and process data from all platforms operating in the polar regions – including being responsive to new/different modes of transmission.

PORS and the WMO need to encourage the use of the GTS by all operators in the polar regions to the maximum extent possible. It is recognized that some research and other programs may need to limit access to some data for some period, but real- time data exchange should be recommended to the greatest extent.

Figure 1: Arctic Buoy Network – May, 2010 (Source: ISDM, DFO, Canada)



Figure 2: Antarctic Buoy Network – May, 2010 (Source: ISDM, DFO, Canada)

