

## FOREWORD

It is my pleasure to present the thirty first Annual Report of the Data Buoy Co-operation Panel. The Panel was established in 1984 to address the drifting buoy network in the global oceans. In 1993 its Terms of Reference were updated to also address the moored buoys in the high seas. It was re-constituted in 1999 under the auspices of JCOMM. In 2012, per decision from JCOMM, the terms of reference of the Panel were again updated to include coordination for rigs and platforms in the ocean. Membership in the DBCP is voluntary, and its activities are supported by contributions, both monetary and in-kind, from member countries. The drifting and moored buoy arrays support many international programs such as the GOOS<sup>1</sup>, the GCOS<sup>2</sup>, the WCRP<sup>3</sup>, the WIGOS<sup>4</sup>, and the GFCS<sup>5</sup>. At its twenty-ninth Session (Paris, France, 23-27 September 2013), the Panel recognized again the considerable importance of the implementation of the WMO Integrated Global Observing System (WIGOS) to WMO and UNESCO/IOC, and to their Members/Member States. It updated its implementation strategy to reflect the implication to the DBCP activities of the WIGOS framework Implementation Plan (WIP). This was confirmed at the last DBCP thirty first Session (DBCP-31) in Geneva, Switzerland from 19 to 23 October 2015.

The Panel encouraged its members and JCOMMOPS to contribute to the development of the WIGOS Data Quality Monitoring System for the met-ocean observing systems, including contributions to the OSCAR Platform metadata databases. Recognizing the importance of receiving metadata for plans of deployments, the Panel encouraged all buoy operators to provide metadata of plans and deployment information for drifting and moored buoys. JCOMMOPS is developing metadata capturing and re-formatting tools for the newly developed web site which will also allow flexible response to needs of WIGOS/OSCAR metadata collection and dissemination standards. The Panel encouraged inclusion of fixed platform metadata into these efforts. The Panel agreed upon the importance of increased collaboration between JCOMM programmes such as DBCP, SOT and OceanSITES and use of shared resources like JCOMMOPS.

While the Panel is striving to maintain the drifting buoy array at the level of 1250 operational units in the world oceans, efforts remain to be made to address data gaps in certain oceans. DBCP seeks to improve quantity, quality, timeliness and coverage of data, in particular, barometric pressure, for use in prediction and research programs. Other activities include the analysis of requirements and the provision of international liaison and a forum for discussion. The DBCP supports an excellent working relationship with manufacturers, who are attendees at annual meetings, and who work with network operators throughout the year to address issues.

Some of the successes of the DBCP include: (i) the development of data quality control guidelines; (ii) the establishment of actions groups for the world's oceans, e.g. International Buoy Programme for the Indian Ocean (IBPIO); (iii) the creation of task teams to address technical issues, e.g. Capacity Building; (iv) the setting up pilot projects e.g. Argos/Iridium telecommunications; wave measurements; sea level pressure; (v) the coordination of reporting on common issues such as the DBCP Report on Vandalism, technical

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1 IOC-WMO-UNEP-ICSU Global Ocean Observing System  
2 WMO-IOC-UNEP-ICSU Global Climate Observing System  
3 WMO-IOC-ICSU World Climate Research Program  
4 WMO Integrated Global Observing System  
5 Global Framework for Climate Services

manuals and guides, standards, and best practices; and (vi) the sponsoring of capacity building workshops.

The Panel has been fostering collaborative activities and deployment opportunities in critical and data-sparse areas. The Panel has organized a series of Capacity Building workshops, the first of these, directed at key personnel from the African region, was held at Ostend in June 2007; and successive ones in Cape Town, South Africa (2010), Mauritius (2011), Mombasa, Kenya (2012), Zanzibar, Tanzania (2013), and Port Elizabeth, South Africa (2014) targeting implementation of buoy programmes in the Western Indian Ocean region. In addition, The Panel organized four “North Pacific Ocean and Marginal Seas” (NPOMS) Workshops in the Republic of Korea (2012, 2015), in China (2013), and Japan (2014). A “Regional Workshop on Best Practices for Instruments and Methods of Ocean Observation” was held in Chennai, India in November 2012, and a first DBCP Pacific Islands Training Workshop on Ocean Observations and Data Applications (DBCPI-1) was held in the Republic of Palau from 4 to 7 May 2015.

During the intercessional period preceding DBCP-31, the average number of drifting buoys reporting on the GTS was 1504 per month, 407 moored buoys and 102 fixed platforms, for an increase of 14% in drifting buoys. The Panel noted the importance of developing better performance metrics for the DBCP networks, and requested its Task Teams and Action Groups to develop Key Performance Indicators.

Cooperation with manufacturers has largely solved the drifter lifetime problems reported in DBCP-29 and DBCP-30. The Panel responded to a request from JCOMM OCG to evaluate emerging autonomous surface vehicle (ASVs) technology for weather station.

The Panel evaluated the final work of the Pilot Project on the Impact of Sea Level Pressure measurements from drifters on Numerical Weather Prediction (NWP). WMO/ECMWF OSE control experiments were performed using an accurate list of WMO drifter IDs corresponding exclusively to barometer drifters. The data denial experiments were launched during the summer of 2014. The runs were completed, a report was submitted and the main findings of the study, describing the significant beneficial effect of the SLP data from drifters on NWP, were submitted to the Bulletin of the American Meteorological Society. The Panel recommended closing the PP-SLP.

Buoy data availability delays (data timeliness) are now routinely monitored and posted to the DBCP web pages. During the year, about 40% the drifting buoys reported to the GTS in less than 60 minutes and 84% reported in less than 120 minutes after observation time, with greatest delays in South Atlantic and South Pacific. Improvements in the Argos real-time stations network with 2 new stations (Ascension Island and Libreville, Gabon), and progress in implementing the Real-time Antenna Upgrade Project will improve data availability delays.

As we look forward to the future the DBCP sees opportunities while it will also face some challenges. The Panel welcomes new participants and partners to support the observing arrays and maintain the drifting network at 1250, while addressing gaps and timeliness issues and increasing the number of buoys reporting barometric pressure. The DBCP must remain relevant by meeting client needs (such as high resolution sea surface temperature), integrating emerging technologies (such as gliders), and addressing regional and/or technological requirements through establishment of appropriate task teams or pilot projects. And, of course, we must accomplish this during a time of global fiscal constraint. I invite the readers of this annual report to consider joining the DBCP to advance programs of mutual interest.

Actions continue to be undertaken in 2015 to address the issue of vandalism on data buoys. In particular, the Working Group on Vandalism circulated a new DBCP form for reporting incidents of vandalism on data buoys to promote the collection of systematic statistics on vandalism. The Group reported 63 vandalism events on 42 moored buoys and 62 identified drifter buoy vandalism incidences from the GDP. The Panel noted the efforts made against vandalism, but agreed that efforts remain to be made on anti-vandalism data buoy technologies, awareness programmes and national policies. The recommendations of the working group were endorsed by the panel and annexed to the DBCP-31 final report.

While at DBCP-31 the Panel noted the successful move in March 2015 of JCOMMOPS from Toulouse, France to Best, France, the Panel also commended Ms Champika Gallage for exceptional progress made in her first year as DBPC Technical Coordinator. The Panel thanked CLS and Ifremer for their generous infrastructure support. The Panel noted with appreciation the stabilization of the JCOMMOPS staff after this long transition period to five permanent staff following the addition of 3 new permanent staff in the last 3 years

We look forward to welcoming participants at the thirty-second DBCP Session in USA in October 2016.

Jon Turton  
(*DBCP Chair*)