

WORLD METEOROLOGICAL ORGANIZATION

**INTERGOVERNMENTAL OCEANOGRAPHIC
COMMISSION (OF UNESCO)**

DATA BUOY COOPERATION PANEL

DBCP-32/ Doc. 7.1
(15-Oct-16)

THIRTYFIRST SESSION

ITEM: 7.1

LA JOLLA, USA
17-21 OCTOBER 2016

ENGLISH ONLY

**REPORT BY THE TASK TEAM ON INSTRUMENT BEST PRACTICES AND DRIFTER
TECHNOLOGY DEVELOPMENTS(TT-IBPD)**

(Submitted by Luca Centurioni (USA), Chair TT-IBP)

SUMMARY AND PURPOSE OF DOCUMENT

This document provides information on the issue of drifter best practices and drifter technology development per the request from the previous DBCP Session in this regard.

ACTION PROPOSED

The Meeting is invited to note the information contained in this document when discussing how it organises its work and formulates its recommendations.

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- Appendices:**
- A.** Report by the TT-IBP
 - B.** Terms of Reference of the TT-IBP

DISCUSSION

-A- DRAFT TEXT FOR INCLUSION IN THE FINAL REPORT

7.1.1 Dr Luca Centurioni (USA), Chairperson of the Task Team on Instrument Best Practices & Drifter Technology Developments (TT-IBPD), reported on the Task Team activities during the last inter-sessional period.

7.1.2 Drifter lifetime

The drifter lifetime across the board is sufficient to maintain an array that exceeds the goal of 1,250 drifters. 59% of the drifters are equipped with barometers, and increase from last year when, at the time of writing there were 54% barometer drifters. The TT-IBP stresses the importance of constantly monitoring the status of the global array to detect early sign of technical issues.

7.1.3 Drogue detection and retention

As per DBCP-29 discussion actions were taken to extend the drogue retention time. The statistics published in the in the Global Drifter Program Action Group Report and reported below still show a marginal improvement of drifter drogue life for the period 2012-2015.

DROGUE HALF-LIFE (DAYS) (all drifters)

Manufacturer	2008	2009	2010	2011	2012	2013	2014	2015
Clearwater	101	104	95	84	>293	>438	434	>431
DBi	*	*	*	279	227	243	228	>263
Marlin-Yug	72	57	167	*	0	*	20	*
Metocean	269	224	77	89	115	207	217	>232
Pacific Gyre	206	241	248	207	>228	241	229	206
SIO	*	*	*	*	66	>140	130	>149
Technocean	33	63	74	154	>62	0	>14	0

PERCENT THAT HAD DROGUE OFF <90 DAYS (all)

Manufacturer	2008	2009	2010	2011	2012	2013	2014	2015
Clearwater	36%	30%	36%	39%	14%	5%	16%	0%
DBi	*	*	*	25%	11%	12%	7%	6%
Marlin-Yug	41%	46%	40%	*	43%	*	71%	*
Metocean	17%	26%	40%	45%	33%	14%	21%	6%
Pacific Gyre	22%	17%	10%	16%	21%	9%	16%	15%
SIO	*	*	*	*	40%	23%	14%	20%
Technocean	78%	53%	46%	27%	33%	30%	44%	57%

PERCENT THAT HAD DROGUE OFF <10 DAYS (all)

Manufacturer	2008	2009	2010	2011	2012	2013	2014	2015
Clearwater	4%	7%	7%	5%	3%	2%	4%	0%
DBi	*	*	*	0%	4%	3%	0%	0%
Marlin-Yug	24%	33%	10%	*	43%	*	43%	*
Metocean	13%	6%	12%	6%	8%	5%	3%	0%
Pacific Gyre	11%	8%	2%	4%	7%	0%	1%	2%
SIO	*	*	*	*	25%	1%	0%	0%
Technocean	11%	10%	9%	3%	15%	15%	29%	57%

7.1.4 One recommendation is to increase the diameter of the tether to ¼” spacelay and use the same material for the construction of the drogue harness. Experimentation of drogue harness stiffening is continuing at the Lagrangian Drifter Laboratory, Scripps Institution of Oceanography.

7.1.5 Global Positioning System performance

During the intersessional period the Lagrangian Drifter Laboratory of the Scripps Institution of Oceanography started a detailed assessment of the performance of the GPS engine installed on their drifters. This is an important evaluation in light of the transition of the NOAA funded Global Drifter Program array to GPS/Iridium technology. The ability to obtain a high quality dataset for high resolution ocean currents and for high resolution SST will rely on the ability to minimize the GPS drop-out globally. Some preliminary results will be presented at the DBCP-32 Science and Technology workshop.

7.1.6 The meeting agreed on the following:

1. xxx
2. xxx

7.1.7 The Panel thanked Mr Centurioni and members of the Task Team for the comprehensive report. The Panel re-elected Dr Centurioni to Chair the Task Team during the next intersessional period. The full report of the Task Team is provided in Appendix A of DBCP-32 preparatory document No. 7.1, and will be included in the DBCP Annual Report for 2016.

-B- BACKGROUND INFORMATION *(if necessary, provide additional material to further explain the information in part A but that will not be included in the report of the meeting)*

None

APPENDIX A

**REPORT BY THE TASK TEAM ON INSTRUMENT BEST PRACTICES AND DRIFTER
TECHNOLOGY DEVELOPMENTS(TT-IBPD)**

APPENDIX B

TERMS OF REFERENCE OF THE DBCP TASK TEAM ON INSTRUMENT BEST PRACTICES AND DRIFTER TECHNOLOGY DEVELOPMENTS(TT-IBPD)

(as adopted at DBCP-28)

Note: The DBCP Evaluation Group is being merged into this Task Team.

The DBCP Task Team on Instrument Best Practices & Drifter Technology Developments shall:

On instrument best practices and quality management

1. When required by the DBCP, evaluate quality of buoy data produced by specific types of buoys, as well as functioning, efficiency;
2. Review existing practices for automatic real-time buoy data quality control, and delayed-mode buoy data quality control, and possibly suggest design changes for improvement (sensors, hardware, software, data formats) in liaison with the Task Team on technological developments;
3. Address instrument evaluation issues; suggest specific tests and / or evaluation deployments in different sea conditions to DBCP members in order to evaluate buoy quality as described in (1) above;
4. Share experience and results of evaluation with the DBCP and other interested parties;
5. Review and recommend Best Practices; work on specific technical issues in order to facilitate standardization and liaise with the other DBCP Task Teams as appropriate (e.g., DBCP recommended Argos message formats); and
6. Define specific criteria for evaluation purposes (e.g. ocean areas, definition of acceptable quality data, e.g., early failures, lifetimes, delays, accuracies, resolutions, etc.);
7. Comply with the requirements of the WMO Quality Management Framework (QMF) and quality management principles;

On drifter technology developments

8. Investigate developments in the fields of sensor technology, on-board processing, buoy hardware, hull design, energy generation and storage in order to better meet user requirements in terms of the range, reliability and quality of observed parameters and their cost-effectiveness;
9. Regularly review and document operational and upcoming satellite telemetry systems in terms of their ability to address user requirements such as bandwidth, timeliness, availability, geographical coverage, reliability, service quality, technical support, energy consumption and cost, and make specific recommendations to the communications service providers on required / desired enhancements;
10. Review operational platform location systems, and whether they meet the user requirements;
11. Propose to the DBCP and its Executive Board any evaluation activities and pilot projects that it deems beneficial to data buoy operators;

12. Propose recommendations, both upon request and unsolicited, to the Argos Joint Tariff Agreement. Such recommendations shall be passed via the DBCP Executive Board or the DBCP as appropriate; and
13. Evaluate, test, and promote buoy designs that are resistant to vandalism;

General

14. Review all relevant JCOMM Publications to make sure they are kept up to date, comply with Quality Management terminology, and adhere to the WMO Quality Management Framework (QMF);
15. Provide the DBCP Executive Board and the DBCP, both upon request and unsolicited, with technical advice needed for addressing the issues above; and
16. Submit reports to the DBCP Executive Board and to the DBCP at its annual session that describe intersessional activities and propose a Workplan for the next intersessional period.

Membership:

The membership is open to all Panel members. The Chairperson¹, appointed by the Panel, has selected the following team members:

Dr Luca Centurioni, SIO (TT co-Chairperson)	Dr Rick Lumpkin, AOML (TT co-Chairperson)
Mr Andy Sybrandy, Pacific Gyre	
Mr Pierre Blouch, Météo-France	Ms Emily Daniel, MetOcean
Mr Shaun Dolk, NOAA / AOML	
Mr Paul Freitag, NOAA / PMEL	Mr Frank Grooters, KNMI
Mr Michel Guigue, CLS	Mr Robert Jensen, USACE
Mr Chris Marshall, Environment Canada	Mr David Meldrum, SAMS
Mr Sergey Motyzhev, Marlin Yug	
Ms Mayra Pazos, NOAA / AOML	Mr Steve Piotrowicz, NOAA
Dr M Ravichandran, INCOIS	Dr. Tim Richardson, Liquid Robotics
Mr Jean Rolland, Météo-France	Mr Jon Turton, UK Met Office
Mr R. Venkatesan, NIOT, India	Mr Bill Woodward, CLS America
Mr David Murphy, Sea-Bird Electronics, USA	Technical Co-ordinator, DBCP

The Co-chairperson is representing the manufacturers and is selected on a rotating basis.

¹ The Chair and Co-Chair of the Task Team should not be in a situation of conflict of interest. Manufacturer representative may be accepted as Vice-Chair of the Task Team provided that the major drifter manufacturers agree.