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| **World Meteorological Organization &****Intergovernmental Oceanographic Commission (of UNESCO)****Data Buoy Cooperation Panel Thirty Eighth Session**, Hybrid meeting, 1 -4 November 2022 | Image result for ioc logo unesco**DBCP-38/Doc. 9.1.0** |
| Submitted by:Lance Braasch Shaun Dolk01.11.2022**DRAFT 1** |

**AGENDA ITEM 9.0: RECOMMENDATIONS BY THE TASK TEAMS**

**AGENDA ITEM 9.1: Task Team on Data Management**

# SUMMARY

### SUMMARY (Draft text for inclusion in the final report):

#### Terms of Reference, Strategic Pillars and Pillar Actions

During the intersessional period, DBCP Task Teams reviewed their Terms of Reference, Strategy Pillars and Pillar Actions. Such items were last updated in May 2022 and are provided below.

**Terms of Reference**

1. Receive and review reports from the Data Management Centres specializing in drifting buoy data; reconcile any overlaps with emphasis on differences
2. Liaise on requirements for data buoy observations, for all relevant applications, and submit them in a consolidated way to the related WMO expert groups
3. Suggest improvements and address issues to do with real-time distribution of data, including GTS issues, timeliness and methods to improve data flows
4. Suggest improvements and address issues relating to delayed-mode distribution and archiving of the data, with consideration to GOOS OCG data management
5. Seek input from stakeholders on which metadata is most important and how it is best managed and coordinate and ensure integration with the Ocean Ops
6. Review all TT-DM circulated publications and documents, to make sure they are kept up-to-date and comply with Quality Management terminology and to ensure the documents to be linked with OBPS repository when ready
7. Make sure that the developments and activities proposed by the Task Team are consistent with the governing principles of WMO and IOC
8. Make recommendations to the DBCP Executive Board or the DBCP members for addressing the issues above
9. Propose to the DBCP and its Executive Board any evaluation activities and pilot projects that it deems beneficial to buoy operators
10. Report to the DBCP Executive Board and the DBCP at its annual Sessions.

**Strategic Pillars**

1. Impact and Value
2. Scientific and Operational excellence

**Pillar Actions**

1. (1.7) Drive a culture of continuous improvement and to grow and sustain time series of essential ocean and climate variables (including biochemistry) that underpin responses to societal and grand challenges.
2. (1.8) Follow and promote international data-sharing practices consistent with WMO and IOC data principles to make our data freely available to maximize impact and value for our users.
3. (2.2) Standardize our processes in coordination with other global ocean observing networks to enhance clarity, transparency and efficiency in the use of data, metadata, operational methods and science-based approaches.
4. (2.4) Adopt, define, and promote best practice in the lifecycle of our data from measurement – through its use and reuse – to archiving

#### TT-DM Reporting according to Terms of Reference

**Receive and Review Reports**

TT-DM reviewed and contributed comments to OCG Data flow mapping for Drifting buoys, Polar Buoys, Moored Buoys and Tsunameters. These Maps are preliminary but have been reviewed by TT-DM and DBCP TC. Initial OCG recommendations from these mappings presented to TT-DM in May 2022.

OCG data vice-chair looks forward to further discussion and refinement at DBCP-38.

**Liaise on requirements for data buoy observations**

OCG Data Implementation strategy is in final stages of development to be released Winter 2022/2023 (Dec/Jan). Once available, TT-DM will review and provide comments and feedback as necessary.

Iridium SBD raw data formats

The document describing recommended data formats for Iridium transmissions, maintained by Météo-France can be accessed here:

http://esurfmar.meteo.fr/doc/o/db/others/DB\_Iridium\_formats.pdf

Manufacturers are invited to use the existing active templates prior to the creation of their own. In case none of the existing templates is suitable for a given set of buoys, a new one may be designed in coordination with the DBCP TT-DM team.

**Real-time Distribution of Data**

The Lagrangian Drifter Lab at Scripps Institution of Oceanography (LDL-SIO) disseminates real-time data via GTS (under headers IOBX02 KWBC and IOWX02 KWBC) as soon as drifters are deployed. As of October 30, 2022, the LDL-SIO posted observations from 1247 unique drifters, comprised of contributions from the Global Drifter Program (GDP) and its sensor (e.g., barometer) upgrade partners as well as from other scientific programs.

The LDL at SIO hosts an ERDDAP service for open access to real-time distribution of GTS data, such as for the 2021 and 2022 Atlantic Hurricane seasons, in addition to providing real-time KML layers for display within NOAA GeoCollaborate dashboards.

Météo-France platforms

Météo-France (MF) / Centre de Météorologie Marine (CMM) monitors data on the GTS for the platforms managed by MF, and by other operators (CLS, LDL-SIO for example).

As of writing (October 2022), MF / CMM hourly processes around 160 operational drifting buoys sending data through Iridium SBD transmission (56% of them using #000 format, 42% using #003 format).

In addition to the 3 existing operational moored buoys and 2 waveriders maintained by MF, 1 new waverider was set up off Mayotte island during intersessional period, and MF is now in charge of the Gascogne moored buoy in Biscay bay since May 2022 (this includes data processing and BUFR messages production with new header IOBA02 LFPW). Data of CEREMA waveriders network are also processed by MF for BUFR production.

Data received from these drifting and moored buoys is used to produce and disseminate on GTS 315009 or 315008 BUFR messages respectively.

In the frame of Coriolis / Météo-France GDAC, Météo-France continues to provide IFREMER / Coriolis with Iridium SBD messages they receive from operational drifting buoys.

Other platforms at MF

Observations from drifters are all received at MF in BUFR messages using 315009 template. However, observations from moored buoys are still received at MF in multiple formats: SHIP FM-13, BUOY FM-18, BUFR template 308009, BUFR template 315008, ... with some duplicates encoded in two formats.

Quality Control at MF

New quality control tools have been developed this year by MF / CMM for the members of EUMETNET's E-Surfmar Programme. The first one is a cartographic supervision portal for real time monitoring, including display of warnings (missing parameters, absence of messages, blacklists, monthly statistics, ...), access to other QC tools, data and tracks display, etc ... And secondly the production of an automatic monthly monitoring report for the members has been implemented. These tools are based on OceanOPS metadata daily exports (VOS and buoys).

**Delayed Mode and Archive of Data**

MF / CMM provides every week Coriolis with a surface current product derived from drifters locations, based on Elipot et al. 2016 (http://dx.doi.org/10.1002/2016JC011716) and which is part of INSITU\_GLO\_UV\_NRT\_OBSERVATIONS\_013\_048 (" in-situ Near real time observations of ocean currents") Copernicus product.

Historical, 6-hourly interpolated drifter data are available through the AOML web page: https://www.aoml.noaa.gov/phod/gdp/interpolated/data/all.php . NetCDF versions of all the 6-hour quality-controlled data are available at the OSMC Interpolated Data ERDDAP server (http://osmc.noaa.gov/erddap/tabledap/gdp\_interpolated\_drifter.html) served by NOAA’s OSMC site. Latest update is through July 31, 2021 as of October 28th, 2022.

Global hourly location and velocities (https://www.aoml.noaa.gov/phod/gdp/hourly\_data.php ) from GDP surface drifters tracked by Argos or GPS, as described in Elipot et al. (2016), "A global surface drifter dataset at hourly resolution", J. Geophys. Res.Oceans,121 doi:10.1002/2016JC011716, are also available to download. These data are a subset of the historical 6h data when hourly resolution became possible.

A new version of the Global Hourly Data is available (v2.0) with SST measurements. The methodology is described in Elipot, S., Sykulski, A., Lumpkin, R. et al. "A dataset of hourly sea surface temperature from drifting buoys”, Sci Data 9, 567 (2022). https://doi.org/10.1038/s41597-022-01670-2.

There are a total of 1,269 active drifters as of October 28th, 2022. The decrease of the total number of active drifters from the same time last year (1478) is mostly due to the effects of COVID-19, impacting deployment opportunities as several cruises were delayed or cancelled.

Covid-19 situation did not impact or cause any problems to continue the processing and distribution of the delayed mode drifter data.

**Metadata**

CMM produces a daily export of drifters metadata which is sent to OceanOPS, AOML and LDL-SIO. Modification of the export format is asked, this has to be further discussed.

AOML/DAC continues to gather metadata from all GDP drifters directly from manufacturers where available.

Information from the specification sheets that is relevant and that can be made public are posted on the following AOML website. (https://www.aoml.noaa.gov/phod/gdp/). Deployment information from GDP drifters is received at AOML via web form or e-mail from deploying agencies. For all other drifters (ex. Meteo-France, UK Met Office, etc) metadata are gathered from different sources, compiled and made available via web:

http://www.aoml.noaa.gov/phod/dac/dirall.html

http://www.aoml.noaa.gov/phod/dac/deployed.html

http://www.aoml.noaa.gov/phod/dac/Drifter\_Specifications.html (and .csv),

http://www.aoml.noaa.gov/phod/dac/Barometer\_Metadata.html (and .csv)

http://www.aoml.noaa.gov/phod/dac/Drogue\_Specifications.html (and .csv)

**Review Relevant Publications and Documents**

During the 2021-2022 intersessional period, TT-DM reviewed and updated their Terms of Reference, Strategic Pillars and Pillar actions. Latest revision from May 2022 is provided in this report.

**Future Work for 2022-2023 Intersessional Period**

OCG Data/metadata Round table continue into next intersessional period. November 2022 RT will focus on machine-to-machine (m2m) exchange of metadata with Networks and OceanOPS.

TT-DM will participate in ongoing OCG round table discussions and contribute comments and feedback, as necessary.

**Acknowledgements**

TT-DM thanks the panel for their ongoing support.

### B. ACTIONS/DECISIONS/Recommendations:

(a) Adopt draft Action/Decision/Recommendation*;*

* What, By who, Completion deadline
* Rational

# C. BACKGROUND INFORMATION (not to be included in the session report):

### References (if any):

1. ...........

2. ...........