

**INTERGOVERNMENTAL OCEANOGRAPHIC
COMMISSION (OF UNESCO)**

DATA BUOY COOPERATION PANEL

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WORLD METEOROLOGICAL ORGANIZATION

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ITEM: 6.1

ENGLISH ONLY

REPORT BY THE TASK TEAM ON DATA MANAGEMENT (TT-DM)

(Submitted by Mayra Pazos, TT-DM Chair, USA)

Summary and purpose of the document

This document contains the report by the chairperson of the DBCP Task Team on Data Management.

ACTION PROPOSED

The Panel will review the information contained in this report and comment and make decisions or recommendations as appropriate. See part A for the details of recommended actions.

- Appendices:**
- A. Report by the Task Team on Data Management.
 - B. Terms of Reference of the DBCP Task Team on Data Management

-A- DRAFT TEXT FOR INCLUSION IN THE FINAL REPORT

6.1.1 Mrs Mayra Pazos, Chairperson of the Task Team on Data Management (TT-DM) reported on the progress during the intersessional period. The Task Team promoted discussion between its members, revised the recommendations proposed last year to assess actions taken, and proposed new recommendations.

6.1.2 The meeting agreed on the following:

- (i.) The conversion to use 7-digits numbers instead of the 5-digit numbers must continue until all cross-reference lists are changed.
- (ii.) Move forward to complete, review and publish the document “An Oceanographer’s Marine Meteorologist’s Cookbook for submitting Data in Real Time and In Delayed Mode (action: TC, ASAP)
- (iii.) SOC Meteo-France and GDAC-DB_ISDM continue to work toward the implementation of a routine procedure to compare GTS Bulletin Headers between the two centers.

6.1.3 The Panel thanked Mrs. Pazos and members of the Task Team for their efforts. It was agreed that Ms Mayra Pazos would continue as chairperson of the Task Team for the intersessional period. The full report of the Task Team is provided in Appendix A of DBCP-29 preparatory document No. 6.1 as well as in the CD-ROM accompanying the DBCP Session final report.

Appendices: 2

APPENDIX A

REPORT BY THE DBCP TASK TEAM ON DATA MANAGEMENT

During the intersessional period, the TT-Data Management Team promoted discussion between members, revised the proposed recommendations from last year to assess actions taken and proposed new recommendations.

1. Receive and Review reports

SOC Meteo-France and GDAC-DB-ISDM continued to work toward the implementation of a routine procedure to compare GTS Bulletin Headers and overall message counts between the two centres. Initial comparisons identified a few inconsistencies in the ISDM data stream that were quickly resolved by Environment Canada and Washington.

Work is on-going at Meteo-France to develop a platform monitoring application that will use the agreed upon exchange report formats for both FM18-Buoy Code and BUFR message data streams, including data buoys, VOS, argo floats and XBTs.

2. Table Driven coding requirements for data buoy observations

At DBCP-28 the Panel reaffirmed that separate BUFR templates should be defined for drifting and moored buoys as the present (invalidated) template for buoy data was not optimal for either drifters or moored buoys. The TT-MB and TT-DM were tasked to finalize the proposed templates and submit them to CBS through the JCOMM Task Team on Table Driven Codes (TT-TDC). The proposed templates were circulated to TT-MB and TT-DM in December 2012 and a few amendments were made. In May 2013 the updated templates were forwarded to the JCOMM TT-TDC for review and a number of further amendments made. Subsequently the revised templates were passed to the WMO Inter Programme Expert Team on Data Reporting Maintenance and Monitoring (IPET-DRMM), who met in early July, with a recommendation to approve them for validation with a request that (subject to minimal changes being needed) they are fast-tracked for operational acceptance by May 2014. IPET-DRMM only suggested a few minor changes. The agreed templates should soon be published by them to start the validation process.

As soon as the templates are received, as agreed by the IPET-DRMM they will be circulated to all. These templates should be used, in place of the present buoy template, as soon as possible. For drifters, it is anticipated that NOAA, Meteo-France, CLS and Canada (Joubeh/ScotiaWeather Services) will move to the new drifter template.

3. Real Time Distribution of Data

The DAC continues to distribute and monitor all data from AOML's drifters on the GTS. During this intersessional period the DAC insured that all drifters in the array, were placed on the GTS as soon as deployed. The DAC takes immediate action after recommendations from the QC centres are received regarding suspicious data on the GTS.

The DAC at AOML encountered problems with some drifters not reporting on the GTS after their insertion. CLSA and CLS were contacted and the problem was found. At least 3 buoys from the same batch and from the same manufacturer had exactly the same problem, the sensor time transmitted values out of range with raw values always = 65535. The observation time sensor is supposed to be the number of 15 minutes spent since 1st January of the current year. It seems there is a bug in the hardware for this series of drifters. To correct this problem, CLS used the time of the Argos satellite pass instead of the observation time sensor value in the GTS template.

Meteo-France reported the first 37 Argos SVP-B drifters deployed for SPURS by the end of 2012,

reported many wrong data onto the GTS for several weeks. The checksum was not taken into account to filter communication errors. In addition, observation times were not correctly computed. Meteo-France worked with CLS to fix these problems.

Meteo-France continues to report Iridium buoy data on to the GTS in FM18-BUOY and FM94-BUFR formats for E-SURFMAR and its partners. In mid-August, Meteo-France processed the data of 225 Iridium buoys: 186 SVP-B, 34SVP, 11 SVP-BS (salinity) and 3 SVP-BTC (thermistor chain).

Some buoys have a 7-digit WMO ID not convertible to a 5-digit one, the data from these buoys are sent in BUFR only. For the moment, this only concerns SVP drifters but it will also concern other type of drifters in the future. GTS data users must be aware of that.

The TC reported that JCOMMOPS has not yet migrated to using 7 digit WMO numbers in its current operations. They are very close to implementing the new database and web structure and it will be included in the new design. But, many drifters are starting to use BUFR only to report to the GTS and in this case, 7 digit WMO ids are used.

The DAC reported that many drifters, originally placed in the manufacturers test programs, remained in such programs, even after deployment. This problem was discovered when the DAC was looking for the data to check if the drifters were transmitting successfully after deployment. The DAC urges manufacturers to please transfer the drifters when testing is completed, to ensure data is being collected at the DAC center, without interruption. The DAC thanks CLS-America for providing the data from the manufacturer's testing program.

Some manufacturers continue to send inaccurate specification sheets, by either cutting or pasting without checking them first, or with incomplete information. The DAC needs the details provided in the specification sheets to correctly process all types of drifters in a timely manner, and assumes the information provided is accurate.

2012-2013 GTS processing enhancements and operations at CLS
GTS BUFR version upgraded to V4 on September 18, 2012 on both CLS processing centers (France and US).

Both Alphanumeric (BUOY, TESAC, SYNOP, SHIP) AND BUFR bulletins are produced for each observation reported by ocean & meteorological platforms.

Around 1000 active GTS platforms are processed every day at CLS & CLS America including 700 to 900 drifting buoys. An average of 25 000 GTS BUFR bulletins displayed per day into the GTS

GTS delays in May 2013, have been added with slowdown on the entire Argos data processing at CLS due to a disk bay issue between May-27 and May-30 (solved now). Several GTS backup happened during this period due to CLS America architecture maintenance and the CLS France issues on disk bay. Consequently, some old bulletins have been resent onto the GTS (duplicates) end of May. Procedures and hardware solutions have been setup to avoid this kind of issue.

4. Delayed mode distribution and archiving of data

ISDM and DAC at AOML agreed to use the ISDM processing systems to reformat and submit the AOML quality controlled interpolated SVP data to NODC as is done for the ISDM GTS buoy data. After ISDM receives and processes AOML SVP data submission it should be straightforward for ISDM to use their existing procedures to submit both the SVP and GTS data products to NODC. AOML has already sent ISDM the link to the web page where the entire dataset of the interpolated QC data resides

The DAC is working on the next submission to ISDM that will contain data through December 2012 (all 3 levels of processing).

The most recent QC interpolated drifter dataset updated through June 2013, can be downloaded from the AOML web page at: www.aoml.noaa.gov/phod/dac/dacdata.php.

Following the last ETMC meeting, Sylvain de Margerie, director of GDAC-DB-ISDM and Dr. Lin director of National Marine Data and Information Service (NMDIS), State Oceanic Administration (SOA), China, initiated a project to look into the integration of meta-data with data for improved DBCP products. This project has begun with Dr. Yu Ting (Julia) initial proposal for suitable meta-data fields for buoy data.

Methodology and results from an automatic drogue presence reassessment was published in the /Journal of Atmospheric and Oceanic Technology/ (Lumpkin, R., S. Grodsky, M.-H. Rio, L. Centurioni, J. Carton and D. Lee, 2013: Removing spurious low-frequency variability in surface drifter velocities/. J. Atmos. Oceanic Techn./, *30* (2), 353—360, doi:10.1175/JTECH-D-12-00139.1). This article also described the criteria used for a full manual reevaluation of drogue presence completed during the intersessional period by the drifter DAC.

The GDP monitors the lifetime statistics of drifters from different manufacturers on a year-by-year basis; results are given in the GDP report, and actions taken to improve lifetimes are given in the report from the Task Team on Best Practices. During the intersessional period, the GDP monitored changes in the composition of the global drifter array on a weekly basis, in order to assess the value of recent manufacturing changes.

In France the delayed mode data processing for salinity drifters is ensured by LOCEAN (Gille Reverdin's team).

Meteo-France continues to archive raw Iridium buoy data as well as GTS data for all surface marine platforms (moored and drifting buoys, VOS shios and shipborne AWS).

5. Format Issues

Meteo-France maintains a list and description of Iridium drifters recommended formats, available at: http://esurfmar.meteo.fr/doc/o/db/others/DB_Iridium_formats.pdf. Data formats #002 (for SVP-B deployed on sea ice), #031 and #032 (for SVP-BTC drifters), were added to the list during the intersessional period. These two latter should replace data format #30 which should be no longer used.

Some manufacturers continue to send inaccurate specification sheets, by either cutting or pasting without checking them first, or with incomplete information. The DAC needs the details provided in the specification sheets to correctly process all types of drifters in a timely manner, and assumes the information provided is accurate.

7. Review all relevant JCOMM Publications

The TC reports that the document titled “An Oceanographer’s and Marine Meteorologist’s Cookbook for Submitting Data in Real Time and In Delayed Mode” has not been finalized. The next step will be to work closely with experts to fill in certain missing sections but there has not been time to focus on this action. The TC will meet with Bob Keeley in Silver Springs and perhaps can move forward on this item. Once it is in a more complete state, it will be circulated to the TT-DM team for review, before its final submission.

8. Action Items Completed during the intersessional period

Regarding DBCP-28 action item No. 49 (i.e. to have a methodology to compare non-GTS buoy data with Ocean models, open to anyone via the web has been eliminated from the action list.

Two new columns have been added to the GDP/DAC: List and Details of all Buoys in Database on the web (<http://www.aoml.noaa.gov/phod/dac/dirall.html>) to show latitude and longitude of where drifters lost their drogues.

The Chair of the Task Team on Data Management would like to thank members for their hard work during the intersessional period and for providing inputs to this report.

APPENDIX B

Terms of Reference for the DBCP Task Team on Data Management

The DBCP Task Team on Data Management shall:

1. Receive and review reports from the Data Management Centres specializing in buoy data, i.e. (i) the Meteo-France SOC/DB, and (ii) the ISDM, Canada RNODC/DB; reconcile any overlaps with emphasis on differences.
2. Liaise with the DBCP Task Team on Quality Management for compiling table driven coding requirements for data buoy observations, for all relevant applications, and submit them in a consolidated way to the DMPA Task Team on Table Driven Codes.
3. Address issues to do with real time distribution of data, including GTS issues, timeliness and methods to improve data/flows.
4. Address issues relating to delayed mode distribution and archiving of the data.
5. Seek input from data users on which instrumental metadata is most important and how it is best managed and coordinate these activities with the JCOMM Meta-T Project.
6. Review all relevant JCOMM Publications, to make sure they are kept up to date and comply with Quality Management terminology.
7. Follow up with regard to the development of the WIGOS Pilot Project for JCOMM and make sure that the developments proposed by the Task Team are consistent with the WIGOS and WIS requirements.
8. Make recommendations to the DBCP Executive Board or the DBCP for addressing the issues above.
9. Report to the DBCP Executive Board and the DBCP at its biennial Sessions.

Membership:

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

Mayra Pazos (TT Chairperson and GDP representative)
Bruce Bradshaw (RNODC representative)
Jean Rolland (SOC representative)
Richard Crout (NDBC Chief Data Officer)
Yann Bernard (CLS Technical Manager)
Kelly Stroker (DBCP Technical Coordinator)
Jeff Wingenroth (Representative from buoy manufacturers)
Pierre Blouch (E-SURFMAR Program Manager, Meteo-France)
Basanta Kumar Jena (Scientist, NIOT, India)
Tony Chedrawy (Metocean)