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DATA BUOY COOPERATION PANEL

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DBCP-30/ Doc. 6.1 Rev. 1  
(18-Sep-14)

THIRTIETH SESSION

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ITEM: 6.1

WEIHAI, CHINA  
27-31 OCTOBER 2014

ENGLISH ONLY

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

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

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**SUMMARY AND PURPOSE OF DOCUMENT**

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

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**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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- Appendix:**
- A.** Report by the Task Team on Data Management.
  - B.** Terms of Reference of the DBCP Task Team on Data Management
  - C.** BUFR Migration Monitoring – Data Buoys

## DISCUSSION

6.1.1 Mrs. Mayra Pazos (USA), Chairperson of the DBCP Task Team on Data Management (TT-DM) reported on the progress of the Task Team during the last 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 Panel noted with appreciation that good progress has been made with regard to the transition to Table Driven Codes (TDCs).

6.1.2 The meeting agreed on the following:

1. The conversion to use 7-digits numbers instead of the 5-digit numbers must continue until all cross-reference lists are changed.
2. 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. Recommend if it should be published on the WEB or hard copy and advise who will be in charge of maintaining relevant sections up to date.
3. The trial JCOMM Global Data Assembly Centres (GDACs) for drifting buoys of Météo-France (former SOC) and ISDM (former RNODC/DB) to continue to work towards the implementation of a routine procedure to compare GTS Bulletin Headers between the two centres.
4. Make sure all buoy manufacturers adhere to the standard and approved DBCP data formats.

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-30 preparatory document No. 6.1, and will be included in the DBCP annual report for 2014.

## 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

The trial JCOMM Global Data Assembly Centres (GDACs) of Météo-France (former SOC/DB) and ISDM (former RNODC/DB) had begun to work toward the implementation of a routine procedure to compare GTS Bulletin Headers and overall message counts between the two centres.

ISDM reported they are planning to resume on the monthly exchange of bulletin header message counts with Météo-France. During this intersessional period, there has not been progress in this regards. Météo-France reported the automatic monitoring of GTS bulletins containing surface and sub-surface marine observations in TAC or BUFR codes and most especially the counting of observation messages per TTAAii CCCC headers has not been implemented yet. This is an action to do prior to the exchange of information between SOC Météo-France and GDAC-DB-ISDM.

#### 2. Table Driven coding requirements for data buoy observations

During the last intersessional period, the proposed BUFR templates for drifters (TM 3 15 009) and moored buoys (TM 3 15 008) were validated by WMO and declared operational from May 2014. The new templates were distributed to Members and should now be implemented to replace the existing (invalidated) templates. Météo-France reported that as of the end of August 2014, no BUFR messages have been exchanged on the GTS using the new templates. These templates should be implemented before the distribution of TAC messages are stopped, originally planned for November 2014, but it could be delayed.

A new BUFR template for data from fixed platforms (e.g. offshore rigs) was also submitted to the WMO IPET-DRMM in April 2014 and discussions on its progress are ongoing. This is desirable as neither the templates for moored buoys or ships (VOS) are well suited to fixed platforms.

CLS reported they have developed and tested the new BUFR template for drifting buoys and they are waiting for the official launching date to start implementing it. They will start using the new BUFR template for moored buoys (TM 315008) in the CLS GTS processing in early 2015.

ISDM is also working to start reporting data using BUFR template.

E-SURFMAR and Meteo-France are trying to maintain a webpage on ECMWF wikisite with information about observation data sent onto the GTS in BUFR for surface marine and oceanographic platforms.

See <https://software.ecmwf.int/wiki/display/TCBUF/E-SURFMAR>

#### 3. Real Time Distribution of Data

The drifter DAC continues to assign WMO numbers to all Global Drifter Program drifters and monitors all data from AOML's drifters going on the GTS and advises to stop the distribution of any sensor data after detecting faulty readings or following recommendations received from the QC centres. During this intersessional period the DAC insured that all drifters in the array were placed on the GTS as soon as deployed.

At the moment, all DAC drifters that use the Argos system are released to the GTS by CLS; drifters that use Iridium are posted to the GTS as follows:

VAR	GTS
Pacific Gyre	Meteo-France (for Barometer upgrades only)
Pacific Gyre	Scripts Institution of Oceanography (SIO)
Joubeh	Joubeh
CLS	CLS

The DAC would like to report a much improved situation encountered in previous years. Drifter data in manufacturers programs while the instruments are being tested are being transfer out to the owner's program on time, before transmissions have started, minimizing the delayed of getting initial data after deployment.

The TC reported NDBC updated the TAO buoys headers to be compliant with the WMO rules and the data are now being seen via all the GTS nodes.

Recommendation to GTS data processing centres:

When moving from one template to another, change the GTS headers of observation data.

Meteo-France continues to report Iridium buoy data on the GTS in FM18-BUOY and FM-94 BUFR (invalidated template) formats for E-SURFMAR and Meteo-France partners under condition their formats is one of those recommended by the DBCP. In mid-August, Meteo-France processed the data of 247 Iridium buoys: 223 SVP-B, 6 SVP, 10 SVP-BS (salinity) and 8 SVP-BTC (thermistor chain).

CLS reports that both Alphanumeric (BUOY, TESAC, SYNOP, SHIP) and BUFR bulletins are produced for each observation reported by ocean & meteorological platforms.

From 900 to almost 1200 active GTS platforms are processed every day at CLS & CLS America including 700 to almost 1100 drifting buoys.

Improvements on the Global Drifter Program network can be seen in the figures attached below. The number of drifting buoys and BUFR bulletins inserted on the GTS increased since March 2014.

From 25 000 to more than 30 000 GTS BUFR bulletins have been inserted daily into the GTS between July 2013 and July 2014 by CLS.

CLS reports that the average delivery time of observation from Argos platforms on the GTS is around 60 minutes.

ISDM reported they have recently added two new GTS bulletin headers to their incoming BUFR data stream.

**4. Delayed mode distribution and archiving of data**

While the AOML drifter DAC was working on the next submission to ISDM that would have covered data through December 2012, the system being used at the time for drifter data processing collapsed and DAC's attention and efforts were concentrated on making the new Linux system work. This caused a delay in the submission of delayed mode data to ISDM. The new data set will cover through December 2013.

The most recent QC interpolated drifter dataset updated through March 2014 can be downloaded from the AOML web page at: [www.aoml.noaa.gov/phod/dac/dacdata.php](http://www.aoml.noaa.gov/phod/dac/dacdata.php)

Météo-France continues to archive raw Iridium buoy data as well as GTS data for all surface marine platforms: moored and drifting buoys, VOS ships and ship borne AWS.

At the present time, AOML is receiving, on a weekly basis, ASCII Iridium drifter data from Météo-France on their FTP server. These data will be processed, quality controlled and added to the DAC database in the next months. AOML will also process shortly Iridium data from drifters being processed at SIO. Iridium drifters processed at Joubeh and CLS are added and routinely processed.

ISDM will work during the inter-sessional period in the integration of existing inventories of GTS BUFR with GTS BUOY data to submit on a yearly basis to US NODC.

ISDM also reported they will enhance their website information to offer a product to visualize data inventories where there are existing gaps

## 5. Format Issues

The accuracy of specification sheets received at the DAC during this intersessional period has **dramatically improved** and we would like to commend and thank the manufacturers for the improvement in this area.

The Task Team on Data Management continues to recommend to all buoy manufacturers to adhere to the standard message formats approved by DBCP, including offset/slope coefficients (as much as possible).

During the intersessional period, one manufacturer delivered tens of drifting buoys having a non-validated data format. Fortunately, the buoys could be re-programmed thanks to the Iridium SBD downlink.

Météo-France maintains the list and description of Iridium recommended formats at: [http://esurfmar.meteo.fr/doc/o/db/others/DB\\_Iridium\\_formats.pdf](http://esurfmar.meteo.fr/doc/o/db/others/DB_Iridium_formats.pdf). These formats are suitable for conversion in BUFR.

In order to not invent too many formats for the same data streams, buoy operators and manufacturers are invited to approach Météo-France in case they would propose new formats.

Météo-France reports that a manufacturer is presently working to compress Iridium wave spectra buoy data. It would be wise if the data format would follow features of the existing formats: ex: format identifier given in the first byte, timestamp, etc.

Regarding the conversion to 7 digit WMO number IDS, the technical coordinator reports that JCOMMOPS is not finished doing it. The reason being that the data on the GTS comes in 2 formats now (for many buoys), FM-18 and BUFR. When the format is BUFR, it has the 7 digit WMO number. When the format is BUOY it is still the 5 digit ID. Some drifters (and wave buoys) are ONLY sending data in BUFR using 7 digits WMO numbers. It is very difficult to try to sort out through all the different formats at the moment. When the switch over to BUFR happens, all data (metadata) will hold the 7 digit WMO ID.

## 7. Review all relevant JCOMM Publications

The technical coordinator reports the document "An Oceanographer's Marine Meteorologist's Cookbook for submitting Data in Real Time and in Delayed Mode" cookbook was dropped from her list temporarily. It will be up to the DBCP Executive Board and the JCOMM Observations Coordination Group (OCG) if it will be picked up to be finished or not. When soliciting input there was a question of the value and a question on why the TC was putting it together. Many members agreed that such a resource is very valuable and it should exist but that it needs to be a living document on the website and not a hard document as there will need to be revisions. It needs to be decided who would do these revisions in particular for the data buoy related parts. Perhaps it would be a good thing for JCOMMOPS as they have their hands in all the different programs. The TC e-mailed to the WMO Secretariat her concerns about this issues to be further discussed.

## **8. Action Items Completed during the intersessional period**

The DAC added extra links at the top of three of its main web pages for easy access to information on drifter data formats, acquiring, processing, archiving and distribution of drifter data, as well as information on how to deploy drifters, as suggested by reviewers of the document:

“An Oceanographer’s Marine Meteorologist’s Cookbook for submitting Data in Real Time and in Delayed Mode” cookbook

<http://www.aoml.noaa.gov/phod/dac/dacdata.php>

[http://www.aoml.noaa.gov/phod/dac/gdp\\_information.php](http://www.aoml.noaa.gov/phod/dac/gdp_information.php)

[http://www.aoml.noaa.gov/phod/dac/gdp\\_doc.php](http://www.aoml.noaa.gov/phod/dac/gdp_doc.php)

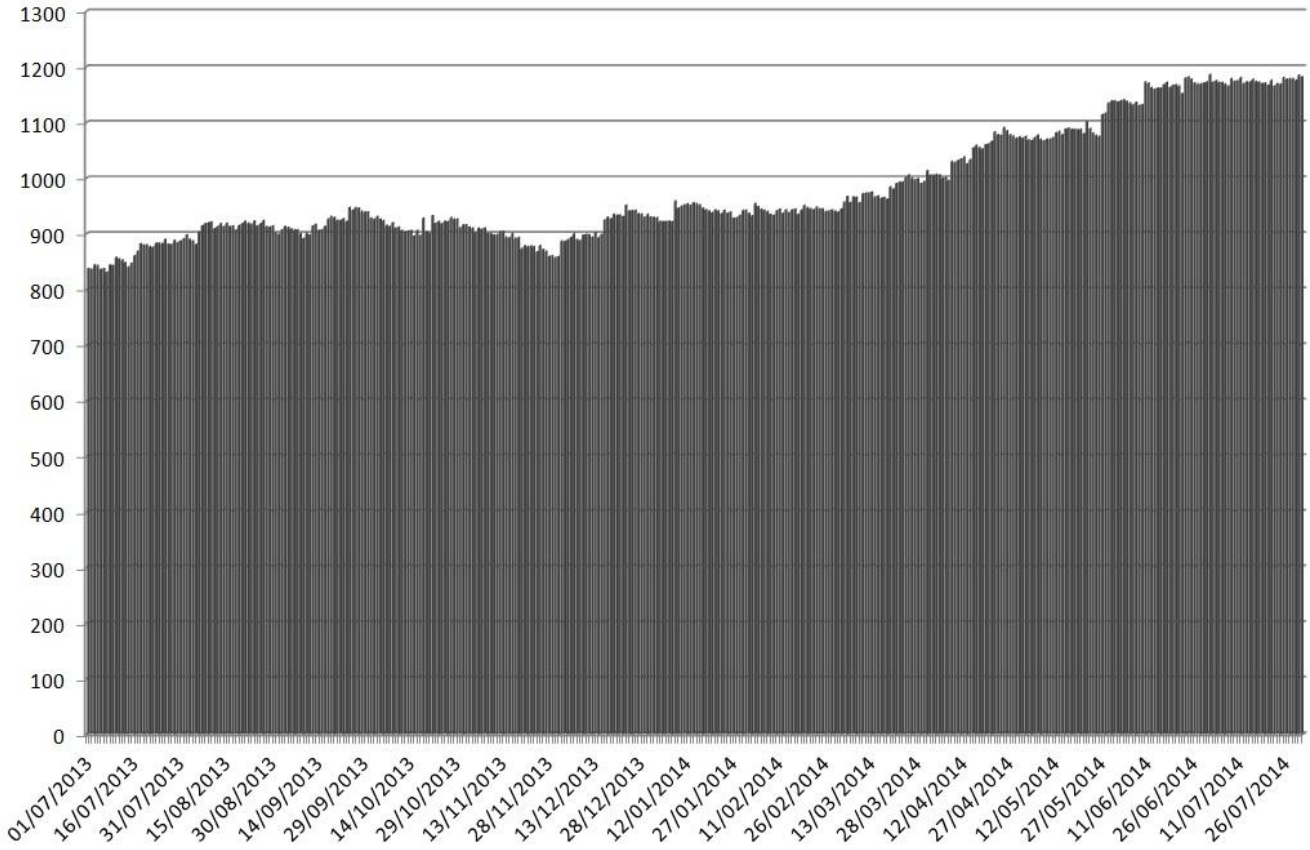
## **9. Acknowledgments**

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.

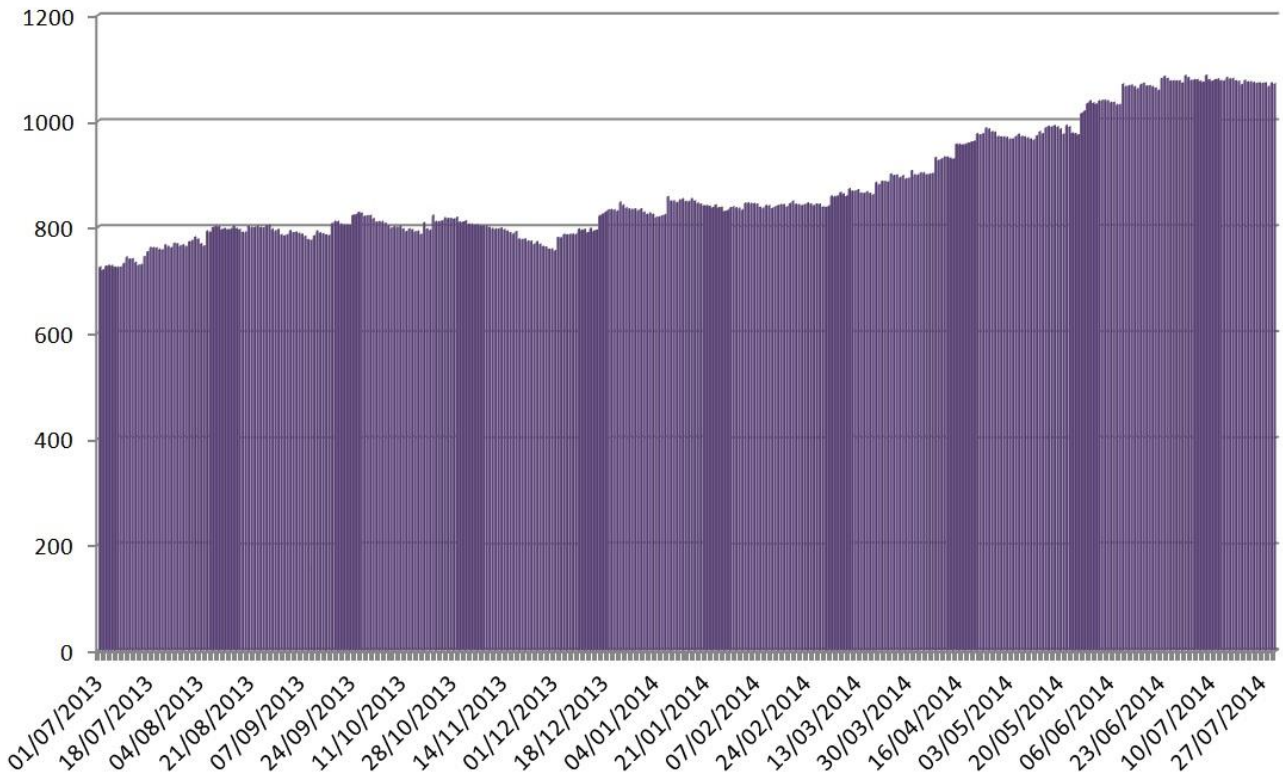
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2013-2014 GTS processing statistics – Graphs provided by CLS

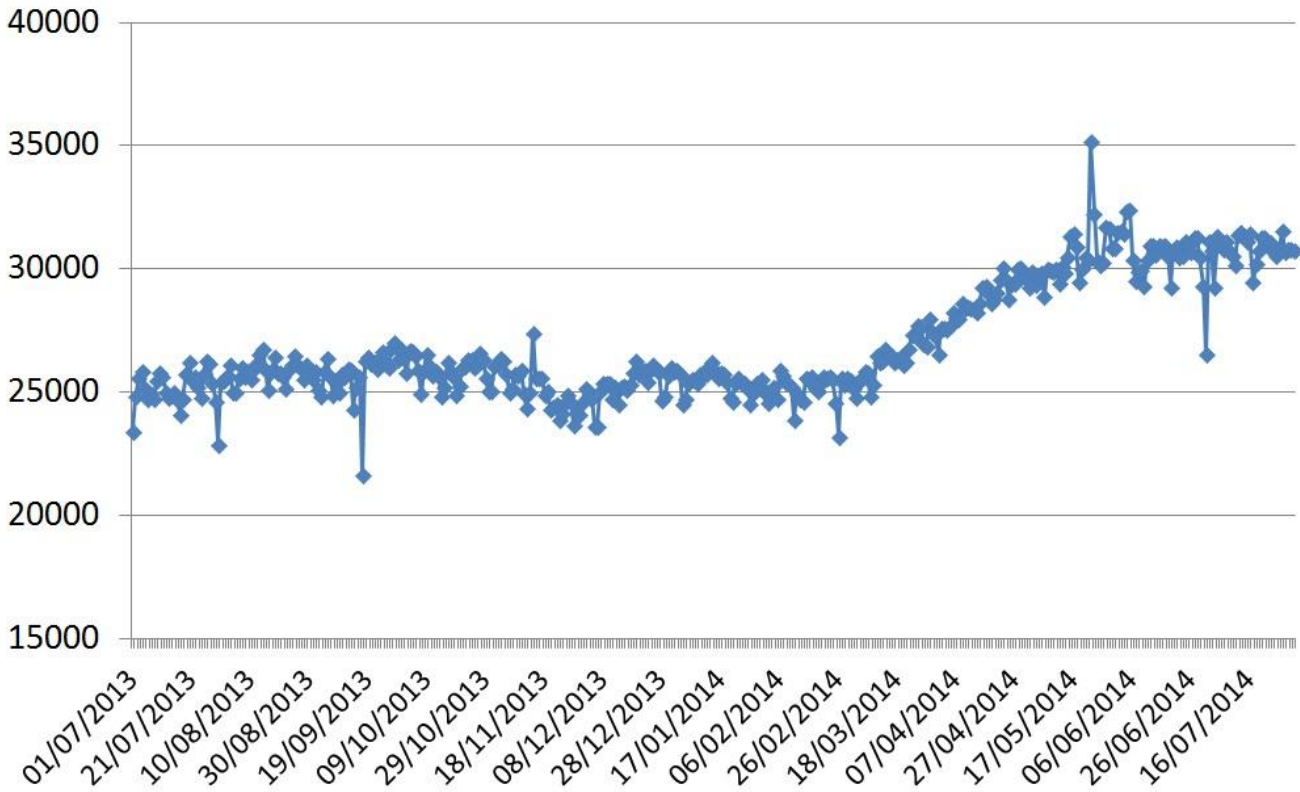
Number of WMO platforms GTS processed per day



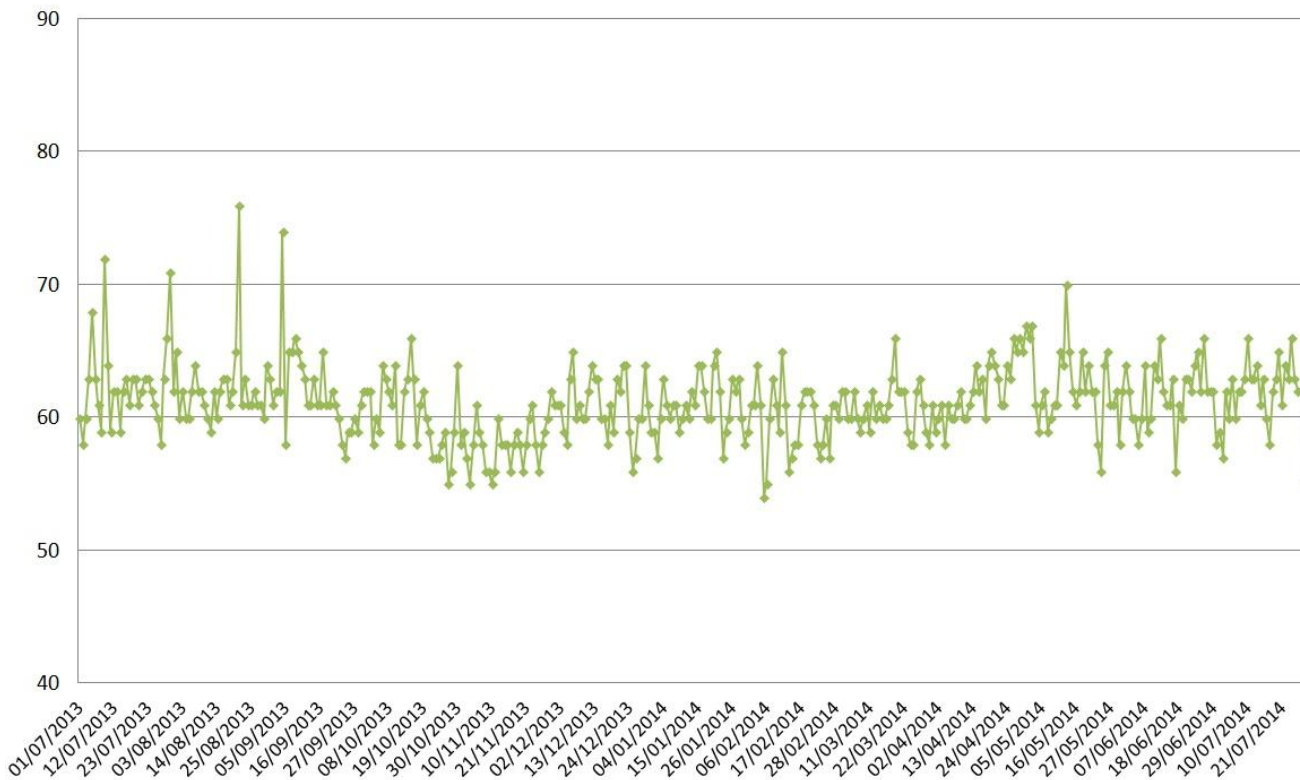
Number of drifters GTS processed per day



### Number of BUFR bulletins sent on GTS per day



### Daily average delivery time (in min) of GTS bulletins





## APPENDIX B

### TERMS OF REFERENCE OF THE DBCP TASK TEAM ON DATA MANAGEMENT (TT-DM) (as adopted at DBCP-29)

#### **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. Take the lead on managing 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 coordinated.
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 annual Sessions.

#### **Membership:**

The membership is open to all Panel members. The Chairperson<sup>1</sup>, appointed by the Panel, has selected the following team members:

1. Mayra Pazos (TT Chairperson and GDP representative)
2. Yann Bernard (CLS Technical Manager)
3. Pierre Blouch (E-SURFMAR Service Manager, Eumetnet)
4. Bruce Bradshaw (RNODC representative)
5. Tony Chedrawy (Metocean)
6. Basanta Kumar Jena (Scientist, NIOT, India)
7. Jean Rolland (SOC representative)
8. Johan Stander (SA Weather Service)
9. Jon Turton (UK Met Office)
10. Jeff Wingenroth (Data Buoy Instrumentation)
11. Kelly Stroker (DBCP Technical Coordinator, *exofficio*)

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<sup>1</sup> The Chair and Co-Chair of the Task Team should not be in a situation of conflict of interest.

**APPENDIX C**

**BUFR MIGRATION MONITORING – BUOY DATA**

*Pierre Blouch – Météo-France*

Study performed on buoy data received and processed at Météo-France on September 16th, 2014. The following tables give the number of buoys for which the BUFR data were correctly processed and those for which FM18-BUOY messages were only processed.

**Drifting buoys**

CCCC	Data Provider	FM94-BUFR	FM18-BUOY only	Remark
CWAO	Joubeh	3	89	
KARS	CLS America	22	1035	See § 2 here below
KWBC	Pacific Gyre	16	0	BUFR only
KWNB	NDBC	0	1	
LFPW	Météo-France	239	0	
LFVW	CLS Toulouse	18	0	
RJTD	JMA	5	0	
	Total	303	1125	1428 buoys in all

1. All observations sent in BUFR are also sent in FM18-BUOY code in parallel, excepted those of KWBC.
2. BUFR messages received from KARS for 1035 buoys have been wrong since the 10<sup>th</sup> of September, 2014. They could not be processed.

**Moored buoys**

CCCC	Data Provider	FM94-BUFR	FM18-BUOY only	Remark
CWAO	Joubeh	0	2	
DEMS	IMD	0	17	
EIDB	Met Éireann	0	3	
KARS	CLS America	34	0	See § 3 here below
KWNB	NDBC	0	41	
LEMM	Puertos/AEMET	14	0	BUFR only
LFPW	Météo-France	0	13	
LFVW	CLS Toulouse	20	0	See § 3 here below
LGAT	HCMR/HNMS	4	0	BUFR only
LIIB	ISPRA/USAM	10	0	BUFR only
LPMG	IPMA	0	2	
RKSL	KMA	0	11	
	Total	82	89	171 buoys in all

3. Observations sent in BUFR by CLS Toulouse and CLS America are also sent in FM18-BUOY code in parallel.