



Fisheries and Oceans Canada
www.dfo-mpo.gc.ca

GDAC for GTS data

Status, Counts and Activity

Observation years 2013-2014

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Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canada

Name Changes

1973 – The Canadian Oceanographic Data Centre becomes the Marine Environmental Data Service (MEDS)

2006 – MEDS becomes a section within the Integrated Science Data Management (ISDM)

2013 – ISDM splits, and the MEDS section becomes part of the newly formed Oceanography and Scientific Data (OSD) branch of DFO



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For convenience, we can refer to **MEDS** as the **Marine Environmental Data Section** of the OSD branch.



Context

- 1978 – The Marine Environmental Data Service takes part in the data management component of First Global GARP Experiment
- 1983 – MEDS offer to provide a central archive for surface currents and temperature
- 1985 – The Drifting Buoy Cooperation Panel (DBCP) is formed under WMO/IOC
- 1986 – MEDS becomes the Responsible National Oceanographic Data Centre (RNODC) for Drifting Buoys under IODE
- 1993 – DBCP becomes the Data Buoy Cooperation Panel
- 2005 – Decision to abolish the RNODC system (IODE)
- 2012 – JCOMM IV approves the recast of Canada's role as RNODC-DB as one of the provisional Global Data Assembly/Acquisition Centers for Drifting Buoys, along with Météo-France



GTS Data Feed / Flow

Code forms:

BUOY FM18 (TAC, ASCII)

BUFR (IOB*, IOZ*) (TDC, binary)

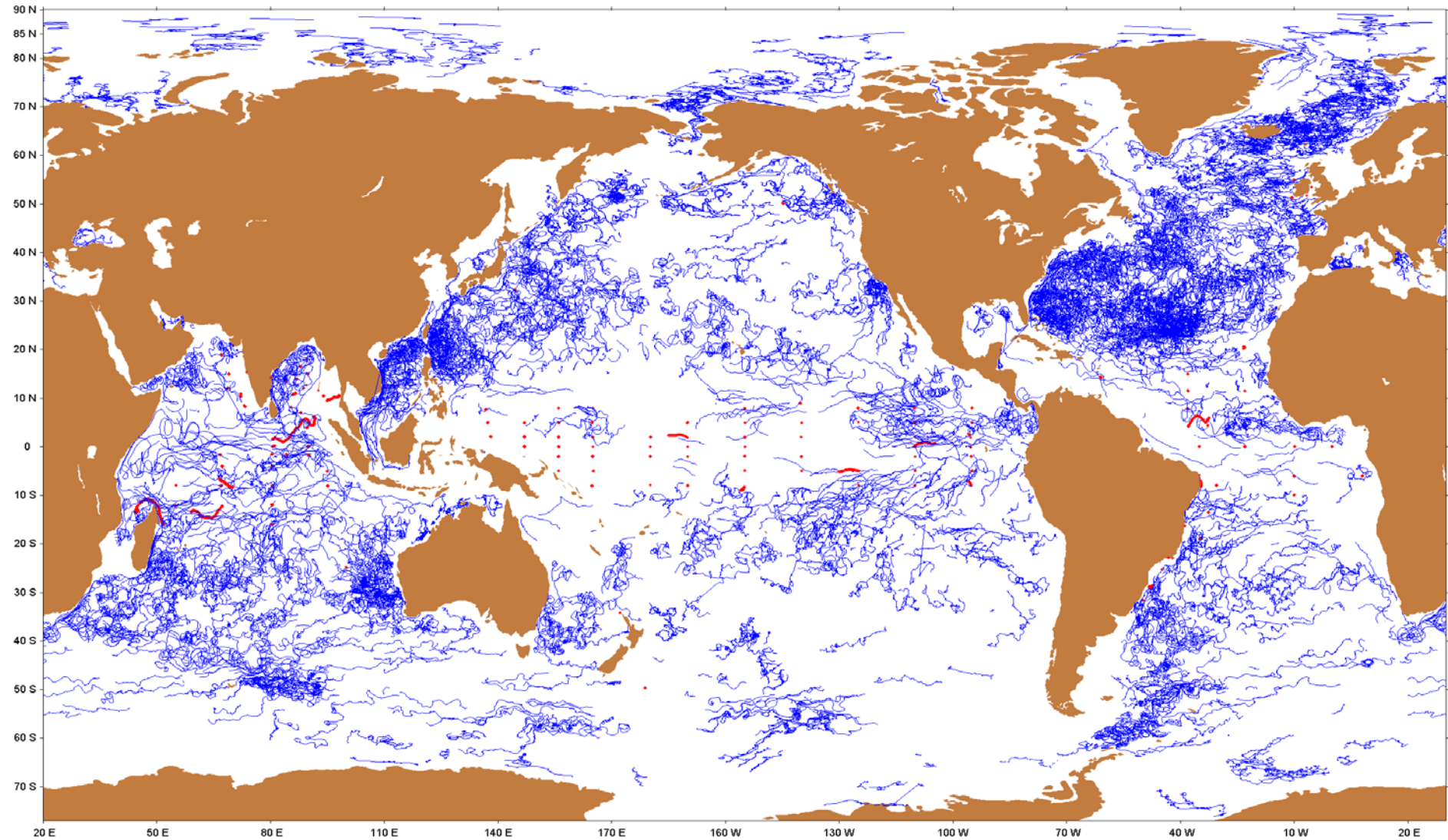
Flow:

(world) → USA → Environment Canada (EC) (Dorval) →
EC Meteorological Ice Service (Ottawa) → MEDS (Ottawa)

Frequency: 30 min



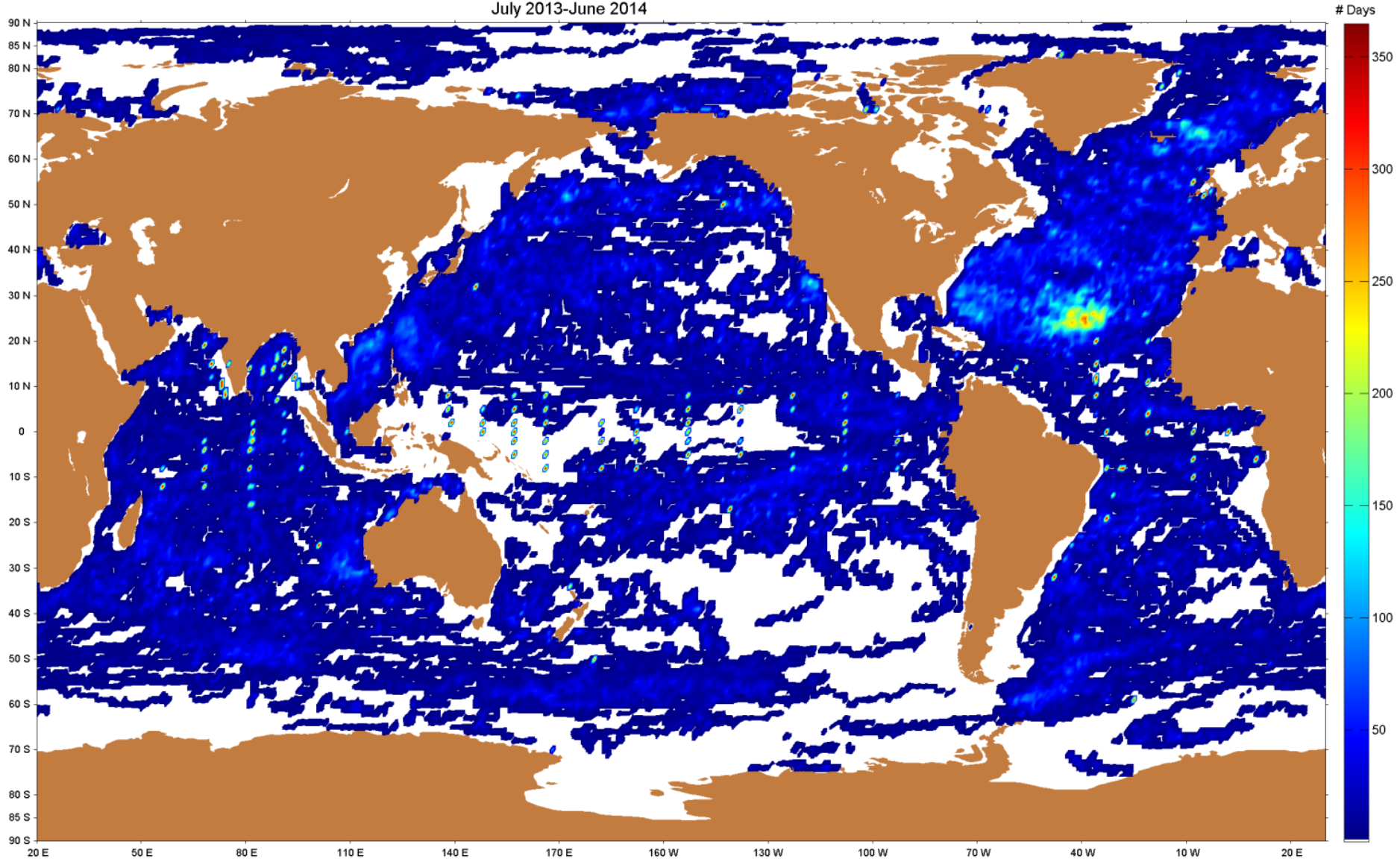
BUOY data received



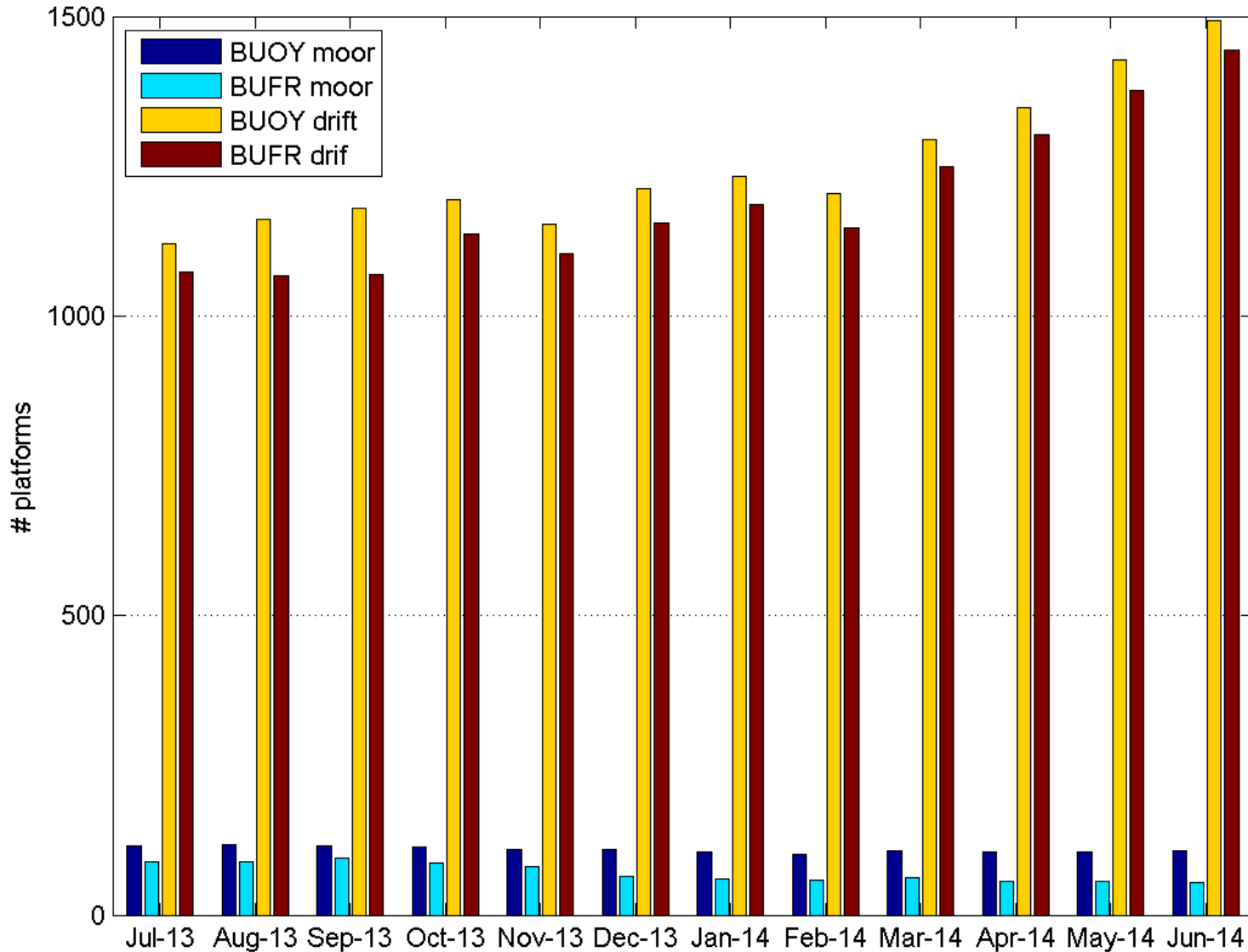
July 2013- June 2014

BUOY data received

Number of days with at least one measurement, per one degree square
July 2013-June 2014



BUOY and BUFR* data



* Successfully decoded

BUFR Progress

Comparisons with Météo-France allowed us to see which bulletin headers we were not receiving.

With collaboration from Shared Services Canada and Environment Canada, bulletin headers:

- IOBB18 KPML
- IOBC18 KPML
- IOBX01 KWBC
- IOBX10 LEMM
- SSVX01 LPMG

were added to routing tables between USA and Canada.



BUFR Progress

As of October 2014, MEDS and Météo-France now receive the same GTS bulletin headers.

Comparison of exact numbers is now dependent on the flexibility of MEDS BUFR decoder and is in progress.

An analysis of all BUFR headers sent on 2014-10-12 revealed that 9 different templates are used for buoys (IOB/IOZ):

- 3 templates consist of a single sequence descriptor ($n=1$)
- 6 templates consist in sequence of element and sequence descriptors ($n>1$)

“In an ideal situation, data in Section 4 should be described by one Bufr Table D entry only.” -Dragosavac, “BUFR User’s Guide”, November 2007

BUFR Progress

<u>Template</u>	<u># bulletins</u>	<u>Headers</u>	<u>CCCC</u>		<u>Description</u>
315008	27	IOB[B-C]	KPML		moored
306028	16	IOZK	AMMC		DART buoy time
306030	34	IOZK	AMMC		DART buoy hourly
(n=059)	1720	IOB[A-L,X]	KARS,KWBC,LFPW,LFVW,LIIB,RJTD		
(n=073)	24	IOBX	KWBC		
(n=084)	8	IOBD	LGAT		
(n=088)	24	IOBD	LIIB		
(n=091)	311	IOBX	LEMM		
(n=101)	71	IOBX	CWAO		

Up until now, MEDS was successfully decoding all messages in the mixed moored/drifted buoy template (n=059).



BUFR Progress (cont'd)

The drifting buoy template (315009) descriptor was still not seen on 2014-10-12.

Comparisons with Météo-France enabled MEDS to identify

- headers that were not received at Environment Canada
- shortcomings of the MEDS BUFR decoder

Steps have been taken to ensure that all BUFR headers received at Météo-France are also received at Environment Canada and improvements of the MEDS BUFR decoder are underway



Data Distribution

- Submission of 2013 BUOY data to NODC (NOAA, USA) (accession #117484), “NODC ASCII” format
- Hourly data sent to CDC (NOAA, USA)
- Ice buoy data to Bedford Institute of Oceanography (DFO)
- Ad-hoc requests (20 in 2013): NODC ASCII, CSV
 - Effort to direct clients to best available products, depending who the requester is
 - Disseminating GTS data several months or years after it has been transmitted
- BUFR data not yet distributed (format ?)
- Web products/inventories



Publications

10 publications in 2013, acknowledging use of Drifting Buoy from MEDS (either GTS or AOML/Krig):

- Met Office Hadley Centre, Exeter
- School of Geography, Beijing Normal University, 100875, China
- Istituto di Scienze dell'Atmosfera e del Clima-Gruppo Oceanografia da Satellite-Roma
- Climate Modeling and Impacts Lab (UTMEA-ENEA), Rome
- Ifremer, Dyneco, BP70, 29280 Plouzané

