

DBCP/SOT DRIFTER DONATION PROGRAMME IN SUPPORT OF THE VOS SCHEME FOR DEVELOPING COUNTRIES (VOS-DP)

The Fourth International Port Meteorological Officer Conference (PMO-IV), and support to Global Ocean Observations using Ship Logistics (8-10 December 2010, Orlando, Florida, USA) recommended to initiate a DBCP/SOT drifter donation programme (VOS-DP) to assist developing countries in setting up embryo national VOS Scheme¹ programmes whereby the donated drifter would be installed onboard a newly recruited ship as an autonomous AWS to provide a low cost, quality observation solution. Some countries expressed interest in participating in this programme (see Annex I).

WMO Members or IOC Member States interested in joining the VOS Scheme are eligible to receive a drifter donated by the Global Drifter Programme (GDP) under the following conditions:

- The country is a developing country and has currently no VOS programme;
- The country must identify one or two suitable vessels as prime candidates for installing a “deck drifter” on-board;
- The country shall designate a National Contact Point (NCP) to JCOMMOPS (support@jcommops.org) responsible for managing and operating the embryo national VOS programme;
- The NCP shall request JCOMMOPS to propose a Port Meteorological Officer (PMO) who can assist with regards to the collection of ship metadata, and setting up the VOS programme;
- The ship metadata for WMO Publication No. 47² should be initially collected and provided to the designated PMO. In particular, the route(s) (see Annex III) of each ship, and the reason for selecting each ship shall be indicated;
- The designated PMO shall notify the Chair of the VOS-DP Programme Evaluation Committee (PEC) (see Annex IV for Terms of Reference and membership) when the country is ready to receive the drifter.
- Following decision by the Chair of the PEC, the donor, a participant in the Global Drifter Programme (GDP), will provide the drifter free of charge to the country, and pay for shipping and the associated satellite data telecommunication costs.
- All other related costs shall be supported by the country receiving the drifter.
- All custom issues shall be cleared by the country receiving the drifter. If required (e.g. for custom clearance), JCOMMOPS will issue a letter to formalize the donation

Annex II provides for a template of milestones required to track progress when a developing country is participating in the VOS-DP.

Annex V provides a simple guide for VOS start-up countries participating in the VOS-DP.

1 : <http://www.bom.gov.au/jcomm/vos/>

2 : <http://www.wmo.int/pages/prog/www/ois/pub47/pub47-home.htm>

ANNEX I

COUNTRIES WHICH EXPRESSED INTEREST IN PARTICIPATING IN THE DBCP/SOT DRIFTER DONATION PROGRAMME AT PMO-IV:

- Kenya
- Chile
- Bahamas
- Gambia
- Peru
- Guatemala
- Indonesia

POTENTIAL DRIFTER DONORS:

- Meteorological Services, Canada
- NOAA Atlantic Oceanographic and Meteorological Laboratory (AOML), USA

CANDIDATES AND PMOS WILLING TO ASSIST:

<i>Developing country receiving drifter</i>	<i>Candidate National Contact Points (NCP)</i>	<i>Buddy PMO</i>
Bahamas	Godfrey BURNSIDE - Godfrey.burnside@gmail.com	Ms Paula RYCHTAR - Paula.Rychtar@noaa.gov Mr Robert NIEMEYER - pmojax@noaa.gov
Indonesia	Ms Nelly FLORIDA RIAMA - nelly_frm@yahoo.com	Mr. John WASSERMAN - john.wasserman@noaa.gov
Guatemala	Julio Amilcar MUNOZ - jrico39@hotmail.com	Mr Tim KENEFICK - pmochs@noaa.gov
Chile	LCdr Alejandro DE LA MAZA - adelamazad@dgtm.cl	Mr Tim KENEFICK - pmochs@noaa.gov
Gambia	George STAFFORD - staffordmaria@yahoo.co.uk	Mr David DELLINGER - pmomia@noaa.gov Mr Brian HOLMES - pmolax@noaa.gov
Kenya	Mr David MWARUMA - davidmwaruma@gmail.com	Mr David DELLINGER - pmomia@noaa.gov Mr Brian HOLMES - pmolax@noaa.gov
Peru	Ms Amanda Yolanda LAPA POCOMUCHA - alapa@senamhi.gob.pe	Mr Chris FAKES - pmohou@noaa.gov

ANNEX II

TEMPLATE OF MILESTONES REQUIRED TO TRACK PROGRESS

No.	Step	By	Status
1	National Contact Point (NCP) notified to JCOMMOPS	NCP	
2	Requirements provided to NCP	JCOMMOPS	
3	Candidate ship(s) identified	NCP	
4	NCP provides information to JCOMMOPS and requests assistance from a PMO	NCP	
5	Buddy PMO proposed by the VOS-DP Programme Evaluation Committee (PEC)	PEC	
6	Ship metadata provided to the assisting PMO for each ship, including route, and rationale for recruitment	NCP	
7	Buddy PMO checks metadata and coordinates necessary corrections with the national contact point	Buddy PMO	
8	Buddy PMO notifies the committee about readiness of the candidate country	Buddy PMO	
9	Evaluation by the committee	PEC	
10	Decision by the committee	PEC	
11	Drifter purchased and shipped by donor to the country	Donor	
12	Customs cleared by receiving country	NCP	
13	Drifter received and checked by NCP	NCP	
14	Discussions with recruited vessel for preparing drifter installation	NCP	
15	Drifter installation onboard the ship	NCP	
16	Drifter turned on, and data checked	NCP	
17	NCP requests service Argos to distribute the data on GTS in FM-13 SHIP format ¹	NCP & Donor	
18	Data monitored by JCOMMOPS	JCOMMOPS	
	NCP checks for receipt of buoy data at his local forecast centre ²	NCP	
19	GTS distribution stopped in case of systematic errors; or bias correction in case this can be done	NCP & Donor	
20	NCP to provide feedback to the ship on the usefulness of the buoy data ³	NCP	
21	Recovery of the drifter in case of failure or batteries dead	NCP	
22	Drifter shipped back to the donor for evaluation/refurbishment	NCP	

Note: JCOMMOPS should be regularly informed on progress of each milestone so that it can effectively assist and promote the initiative.

1: Including provision of calibration curves, ship's call sign, GTS bulletin headers, and height of the drifter on the deck of the ship; as of 2013, FM-94 BUFR format shall be used instead
 2: This is to ensure that the country receiving the drifter is able to receive and use the data for local applications
 3: This to build cooperation and trust with the ship

ANNEX III

VOS ROUTES¹

1802

Rte Route

Code	Description/marine area
R90	More than 10 separate marine areas (see Note 2).
R91	Inland sea or river (see Note 3).
R92	Variable or no fixed route (see Note 2).

- Note 1** A maximum of 10 marine areas visited by the ship can be reported individually, otherwise use R90.
- Note 2** For R90 or R92, specify the most visited marine area(s) by the ship in the footnote if this can be determined, e.g. "most visited - R62, R41".
- Note 3** For R91, specify the location in the footnote, e.g. "Black Sea", "Mackenzie River".
- Note 4** Use footnotes as necessary to provide more detail, e.g. "coastal service", "fixed location".
- Note 5** If using the semi-colon delimited metadata exchange format, include the relevant marine area in the footnote if more than one **rte** is defined, e.g. "R73 – Austral Summer only", otherwise format the footnote as shown in the examples for Notes 2 – 4.

1 : From WMO Publication No. 47

ANNEX IV

TERMS OF REFERENCE AND MEMBERSHIP OF THE VOS-DP¹ PROGRAMME EVALUATION COMMITTEE (PEC)

The VOS-DP Programme Evaluation Committee (PEC) shall:

1. Collect all applications from developing countries willing to participate in the VOS-DP;
2. Evaluate the applications;
3. Communicate with the applicants and provide information about requirements as necessary;
4. Propose a Buddy Port Meteorological Officer (PMO) for assisting the applicant with regard to the collection of ship metadata, and setting up the VOS programme;
5. Decide whether applicants are eligible to receive one or more drifter(s);
6. Prepare and maintain a simple guide for VOS start-up countries which will cover the following:
 - Ship selection
 - Obtaining shipping company permission
 - Recording metadata
 - Buoy installation
 - Height offsets for barometer processing
 - GTS data distribution and QC monitoring.

In addition,

1. Applicants shall communicate with the PEC through JCOMMOPS;
2. JCOMMOPS shall record all relevant information collected from the applicants and make it available to the PEC through dedicated web pages; dedicated tracking tools shall also be developed;
3. The designated Buddy PMO shall notify the Chair of the PEC when the country is ready to receive the drifter.

Membership:

Name	Country/Agency	Email
Sarah North (Chair, PEC)	United Kingdom/Metoffice	sarah.north@metoffice.gov.uk
Graeme Ball	Australia/BOM	G.Ball@bom.gov.au
Martin Kramp	JCOMMOPS	kramp@jcommops.org
Etienne Charpentier	WMO	echarpentier@wmo.int
Shaun Dolk	USA/NOAA	Shaun.Dolk@noaa.gov
Rick Lumpkin	USA/NOAA	Rick.Lumpkin@noaa.gov
Chris Marshall	Canada/MSC	Chris.Marshall@ec.gc.ca
Paula Rychtar	USA/NOAA	Paula.Rychtar@noaa.gov
John Wasserman	USA/NOAA	john.wasserman@noaa.gov

1 : DBCP/SOT drifter donation programme in support of the VOS Scheme for developing countries

ANNEX V

GUIDE FOR VOS START-UP COUNTRIES PARTICIPATING IN THE VOS-DP¹

1. Ship Selection

- a. Liaise with NMS Forecasting Centre to determine the preferred sea area for observations
- b. Use JCOMMOPS VOS maps <ftp://ftp.jcommops.org/sot/VOS/Maps> to identify data sparse areas where observations are needed
- c. Use local port and shipping information to find ships which trade in the area of interest
- d. Prioritise suitable ships by considering length of time at sea (long sea time with short port stays is preferable to maximise useful observations), ease of visiting at a local port, the language spoken by ship's personnel, and any information about the shipping company.
- e. Select one or two ships to follow up

2. Obtaining Shipping Company Permission

- a. Contact shipping company or shipping agent to explain the VOS-DP programme
- b. Use the VOS advertising tools such as, the SOT powerpoint presentation, the VOS brochure, the Maritime Safety Committee MSC Circ 1293, all available from from the VOS website
<http://www.bom.gov.au/jcomm/vos/information.html>
- c. Explain that the only requirement from the ship is some space on a deck with a clear view of the sky, on which to install a buoy approximately 60 cm in diameter.
 - i. The buoy is a self-contained system, with its own power and satellite transmitter
- d. Explain that the atmospheric pressure data from the buoy will assist local forecasters in the preparation of marine forecasts and warnings
- e. Request permission to install a buoy on their ship
- f. Request permission to visit the ship to discuss the installation with the Master and crew and to select a suitable installation site

3. Recording Metadata

- a. Visit the ship, taking care to comply with the security and safety regulations for the port and the ship
- b. Meet with the Master to discuss the installation and to select a suitable site
- c. With assistance from the Ship's Officers, and reference to the General Arrangement Plan and the list of 'Ships Particulars', record the ship's metadata in accordance with WMO Pub 47 requirements. For metadata instructions, refer to:
http://www.bom.gov.au/jcomm/vos/documents/pub47_documentation_version3.pdf
- d. Send the metadata to designated Buddy PMO for checking
- e. Send the checked metadata to WMO pub47@wmo.int after the buoy has been installed
 - i. Future metadata to be updated at least quarterly intervals following Pub 47 requirements

4. Buoy Installation

- a. Record the Buoy Identification number – this is currently a 5 digit number usually painted on the antenna or hull
- b. To keep the buoy batteries cool, the buoy should be painted white. Take care not to block the barometer breathing holes at the base of the antenna with paint
- c. The buoy should be installed in an upright manner, it could be lashed to a railing, or secured in a wooden box arrangement to prevent it rolling about.

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- d. Activate the buoy following the manufacturer's instructions, this is generally done by removing a magnet from the hull
- e. When installed, determine height of the buoy/barometer above the sea level. Measure this height from ship plans, or drop a string to the water to measure the distance. This method is suitable for a small ship where the draft does not change much. For larger ships apply an average draft to compute an average height above sea level. The buoy barometer height is metadata element brmH, recorded to 0.1 metres

5. Height offsets for Barometer Processing

- a. Advise Buddy PMO and Buoy Donor that buoy has been activated
- b. Advise Buoy number, Ship name, Ship callsign, Ship position, and buoy height above sea level to Buddy PMO and Buoy Donor
- c. Request Buoy Donor to put buoy on GTS in FM-13 SHIP format, with barometer height offset applied in the Technical File
- d. Request Buoy Donor to advise the name of the GTS Bulletin that the buoy data will be disseminated in.

6. GTS data distribution and QC monitoring

- a. Advise local NMS to ensure arrangements are made to receive the GTS bulletin containing the buoy data.
- b. Use monitoring tools to check the pressure data from the buoy. Tools found at <http://www.meteo.shom.fr/qctools/>

In conjunction with the above information, refer to the VOS website

<http://metSERVICE.com/national/index>

and the Quick Reference Guide for PMOs

http://www.bom.gov.au/jcomm/vos/quick_reference_pmo.html

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