Buoy metadata collection scheme

(Submitted by the Technical Coordinator)

Summary and purpose of document

This document reports on developments and operations of the buoy metadata collection system which had been implemented at JCOMMOPS following DBCP 20th session recommendations.

ACTION PROPOSED

The panel will be invited to comment, and particularly make decisions or recommendations, as appropriate on the following topics:

(a) Note and comment on the information contained in this document;

(b) Recommend that Action Groups, buoy operators and manufacturers make use of the system;
DISCUSSION

Discussion

At its last session, the Panel had endorsed the proposal and related JCOMMOPS developments for a web based buoy metadata collection system. It thanked EGOS, now merged under E-SURFMAR as its Data Buoy Technical Advisory Group (DB-TAG) for funding the developments. It recommended that the Action Groups, Panel members, buoy operators, and manufacturers comply with it as soon as it is implemented operationally. The Panel also agreed that notification by the manufacturers should be considered by them as a requirement and part of the services they provide to their customers.

Scheme has been operationally implemented on 18 January 2005. Users and reference guides have been prepared and can be downloaded from the system home page:

- Home page: http://wo.jcommops.org/cgi-bin/WebObjects/meta

User guide is copied in annex A. It includes details about scheme rationale, usage, and screenshots of the web application.

E-SURFMAR DB-TAG is now using it to notify new buoy deployments. EGOS historical database has been uploaded into JCOMMOPS database thanks to the metadata collection system.

IABP agreed to use it for the collection of its own metadata.

Global Drifter Programme is also using it through specific procedures that had been discussed between GDC and JCOMMOPS.

Managers of National buoy programmes, including in Australia, France, New Zealand, and Ukraine, started using it.

The following buoy manufacturers also started using the system:

- Technocean
- Marlin-Yug

Other DBCP Actions Groups and national buoy programmes are encouraged to make use of it when buoys are being deployed, and to require manufacturers to use it upon buoy purchase.
ANNEX A

DBCP buoy purchase and deployment notification system

User guide

February 2005

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Introduction

JCOMMOPS operationally deployed on 18 January 2005 a web based application to collect buoy metadata (http://w4.jcommops.org/cgi-bin/WebObjects/meta). System was funded by the European Group on Ocean Station (EGOS, now replaced by E-SURFMAR Data Buoy Advisory Team).

The Scheme has been endorsed by the Data Buoy cooperation Panel (DBCP) for global use.

Scheme permits to maintain a reliable, consistent, and comprehensive database potentially useful to serve the following purposes:

- Global programme coordination, including for the DBCP Action Groups
- Observational programme monitoring and provision of accurate status information
- Instrument performance and evaluation
- Data assimilation and ocean field analysis
- Ocean modelling
- Ocean modelling validation
- Climate forecast
- Seasonal to decadal climate variability
- Numerical weather prediction
- Satellite calibration and validation

Also, with such a scheme the following issues are addressed:

- Updating the drifting buoy quarterly report
- Collecting metadata and delivering these to interested parties (e.g. JCOMM ODAS Metadata Database of the JCOMM sub-group on marine climatology, data centres such as RNODC/DB, etc.)
- Updating JCOMMOPS database.
- Automatic notification of the GDP of SVP type buoys deployed to update their deployment log (unless notification is done via the GDP deployment log directly).
- Automatic notification of the DBCP Action Group Coordinators regarding buoy deployments.

Buoy operators and manufacturers are invited to use it. Only manufacturers and buoy operators are authorized to enter information in the system so they are invited to contact the Technical Coordinator of the DBCP (support@jcommops.org) for registration.

The scheme works as following:

- **Buoy purchase**: manufacturer goes to the web page, logs in, and enters information for a batch of identical buoys ordered by a buoy operator (“New batch order”). Manufacturer can work on a batch order, save changes, and go back later to complete it (“Edit batch of buoys”). When the batch is ready, manufacturer saves changes and generates corresponding platforms (button “Save & Generate platforms”), and then sends specification sheet (button “Send spec sheet”). Once spec sheet has been generated the manufacturer cannot make any changes to the batch of platforms. Further information describing buoy models of the manufacturer can also be entered in the system through specific screens.
• **Buoy deployment:** When one or more buoys from the batch of ordered buoys are eventually deployed, the buoy operator goes to the web page, logs in, and searches for the platforms that were generated by the manufacturer for this given batch. At this point, platforms are identified in the system by their batch name and telecommunication numbers. Each individual platform can be edited in order to fill in deployment information, including WMO number, date of deployment, position of deployment, and deployment conditions. More information specific to each platform can also be entered there. Once deployment information has been entered, buoy operator can lock it to avoid further changes.

• **Buoy life-time:** Buoy operator can come back to any platform during its operational life-time in order to adjust required fields (e.g. GTS starting date, drogue off date, sensor failure date, ending date and cause, etc.).
How to use the system

Access the system via: [http://w4.jcommops.org/cgi-bin/WebObjects/meta](http://w4.jcommops.org/cgi-bin/WebObjects/meta)

And you’ll obtain a log-in page as following:

To log in you need a username and password. If you don’t already have one please ask JCOMMOPS (support@jcommops.org).

Once logged-in you will be recognized as a manufacturer, buoy operator, or none of these. If you are not associated to the DBCP, the system will ask you to indicate the programme profile in which you want to work (i.e. Argo, DBCP, SOOP, VOS)

Once proper programme profile is associated to you, you access the application main page:
Buoy purchase

For manufacturers.

When you purchase a set of identical buoys (a batch of buoys), ask the manufacturer to log in the system, define a new batch order (suggest a name for the batch), then generate the platforms, enter the Argos Identification numbers, and generate the specifications sheet. Specifications sheet will then automatically be sent to the Global Drifter Centre (GDC) in case this is a Lagrangian Drifter. Please indicate also to the manufacturer to what programme(s) the buoys should be associated:

- DBCP
- Action group
- National programme

Steps for the manufacturer:

Creating a new batch order:

Click here:

![New batch order (identical buoys)](image)

This will give a page like;
### Platform Batch: E-SURFMAR-200502

<table>
<thead>
<tr>
<th><strong>Name</strong></th>
<th>E-SURFMAR-200502</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Number of buoys</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>Creator</strong></td>
<td>Blouch Pierre</td>
</tr>
<tr>
<td><strong>Purchase Date</strong></td>
<td>04/02/2005 Format: DD/MM/YYYY</td>
</tr>
<tr>
<td><strong>Purchasing agency</strong></td>
<td>CMN</td>
</tr>
<tr>
<td><strong>Manufacturer</strong></td>
<td>TECHNOCEAN</td>
</tr>
<tr>
<td><strong>Platform model</strong></td>
<td>TECH491</td>
</tr>
</tbody>
</table>

### Telecommunication System
- **Telecommunication System**: ARGOS
- **Telecommunication Format**: DBCP-M1-64
- **Location System**: ARGOS

### Repetition Period (s)
- **Repetition Period (s)**: 90

### Duty Cycle
- **Duty Cycle**: Full on

### Obs./day
- **Obs./day**: 24

### National Programmes
- **National Programmes**: MF-SVP

### International Programmes
- **E-SURFMAR**
- **DBCP**

### Equipments
- Insert equipment

### Sensors
- Insert sensor
- **Sensors**
  - AIR PRESSURE AP
  - SST SST
  - SUBMERGENCE SUBM
Remarks:

1) Fields with a red (*) asterix are mandatory.

2) If the person logged in is a known manufacturer then the field “Manufacturer” will be automatically set and it won’t be possible to modify it; only models made by this manufacturer will appear in the possible list of models (drop list) associated with field “Platform model”. As a buoy programme manager can also create a batch order, then he/she will have to indicate the manufacturer in “Manufacturer” drop list; then click on “Show manuf models” button to limit the list of models in the “Platform model” drop list only to those made by the selected manufacturer.

3) To insert a programme, select it in the appropriate drop list, and the click on the button. I recommend you add your national programme in the “National Programmes” category, and then DBCP, and Action Group in the “International Programmes” category.

4) To insert an equipment (e.g. a battery, drogue, hull, transmitter, receiver, GPS, data processing unit, antenna, etc.), click on the button that follows “Insert equipment”, fill in appropriate fields, and save it. You can then edit, view, or delete equipment by clicking on the, or icons.

5) To insert a sensor, click on the button that follows “Insert sensor”, fill in appropriate fields, and save it. You can then edit, view, or delete sensors by clicking on the, or icons.

Before platform generation, the bottom of the page looks like this:

<table>
<thead>
<tr>
<th>Generated platforms</th>
<th>Serial no.</th>
<th>Telecom num.</th>
<th>Ref.</th>
<th>Manuf. date (DD/MM/YYYY)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>[ID]</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If all needed fields have been filled in, then you can generate corresponding platforms by clicking on the “Save & Generate platforms” button to obtain this:

<table>
<thead>
<tr>
<th>Generated platforms</th>
<th>Serial no.</th>
<th>Telecom num.</th>
<th>Ref.</th>
<th>Manuf. date (DD/MM/YYYY)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ID-470043</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ID-470044</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ID-470045</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Serial numbers have been automatically generated but you can change their values with appropriate ones. Note that two platforms cannot have the same serial number in the database. Before being allowed to generate the specification sheet you’ll have to enter the telecom numbers (e.g. Argos IDs): for each platform, enter its telecom number in the field and click on the “OK” button. The system will check whether that telecom number already exists in the database and whether it is assigned to another platform; if the number is free, then the red icon on its left will turn green, and the telecom number assigned to the platform:
If the telecom number already existed, the page will look like this:

<table>
<thead>
<tr>
<th>Serial no.</th>
<th>Telecom num.</th>
<th>Ref.</th>
<th>Manuf. date (DD/MM/YYYY)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ID-470043</td>
<td>000037</td>
<td>1</td>
<td>04/02/2005</td>
</tr>
<tr>
<td>ID-470044</td>
<td></td>
<td>2</td>
<td>04/02/2005</td>
</tr>
</tbody>
</table>

Two telecom number lines are proposed; first line corresponds to the existing telecom number in the database, and second line corresponds to a new telecom number record that you may want to create. Check the check-box of the telecom number which you want to assign to the platform and possibly change the start & end allocation dates to avoid overlaps (a date of 01/01/3000 for the ending data means that the number is still assigned, i.e. open); then click “validate”. As you know Argos numbers can be re-used so you have to be careful not to make changes to a telecom number actually associated to an older platform. Normally the new record should be the one to pick. In case the system detects that an active platform has the same telecom number, it will assume that the two platforms are the same and it will merge them.

You can also provide edit each platform individually to enter platform specific information by clicking on the button. Note that in order to be able to save changes when editing platforms individually you’ll have to provide the WMO number so if you don’t know it at that time then it’s useless to edit platforms individually here (i.e. this will be done by the platform operator upon deployment).

When all platforms have their appropriate serial numbers and telecom numbers, then you can send the specifications sheet by clicking on the “Send spec. sheet” button. The specifications sheet will be prepared and will be sent to the Global Drifter Centre if this is a Lagrangian drifter.

**How to create a new batch from a previous one ?**

In the home page, instead of clicking on the “New batch order” button, click on the “Edit batch of buoys” button:

![Edit batch of buoys](image)

Search for the batch order that you’d like to use for the new one, e.g.
click “Search” and you’ll obtain a list of batch orders:

For the batch order that you’d like to re-use (e.g. E-SURFMAR-200502), click on the icon. This will copy the batch E-SURFMAR-200502 onto a new one named “COPY OF E-SURFMAR-200502”. Attention, this operation can take a few minutes, be patient and do not close the web page or interrupt the process; at the end you won’t have to fill in many fields and overall the process saves time. When the platform is copied, it won’t necessarily appear in the list so you may have to search the database again for the new batch by entering “COPY” in the search page:
This will give you the list of copied batch order:

![Batch list]

Edit the new batch by clicking on the icon, and then immediately rename the batch order to a more appropriate name in the “Name” field:

![Batch edit]

**How a manufacturer can manage its platform models?**

Simply click on “Platform model” icon from the home page:

![Platform models]

That will display the following page:
Creating a new model: click on “New model of platform”.

Editing an existing model: Search for the model by entering values in query fields, click “Search”, this will produce a list, e.g.

<table>
<thead>
<tr>
<th>Model</th>
<th>Platform type</th>
<th>Agency</th>
<th>Contact</th>
</tr>
</thead>
<tbody>
<tr>
<td>PACG013</td>
<td>SVP</td>
<td>TECHNOCEAN</td>
<td>Wingenroth</td>
</tr>
<tr>
<td>SVPB_T0</td>
<td>SVPB</td>
<td>TECHNOCEAN</td>
<td>Wingenroth</td>
</tr>
<tr>
<td>TECH091</td>
<td>SVP</td>
<td>TECHNOCEAN</td>
<td>Wingenroth</td>
</tr>
</tbody>
</table>

Click on icon for the model you want to edit, and edit the model (note a manufacturer can only edit a model of its own):
<table>
<thead>
<tr>
<th>Platform model: PACG013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model: PACG013</td>
</tr>
<tr>
<td>Platform type: Standard Lagrangian Drifter</td>
</tr>
<tr>
<td>Contact: Wigneronth Jeffrey</td>
</tr>
<tr>
<td>Agency: TECHNOCEAN</td>
</tr>
<tr>
<td>Image: - none -</td>
</tr>
<tr>
<td>Expected life time: 18 months (indicate units used)</td>
</tr>
<tr>
<td>Drogue: Yes</td>
</tr>
<tr>
<td>Drogue type: Holey sock</td>
</tr>
<tr>
<td>Drogue depth: 15.00 m</td>
</tr>
<tr>
<td>Total height: m</td>
</tr>
<tr>
<td>Height above: m</td>
</tr>
<tr>
<td>Width: m</td>
</tr>
<tr>
<td>Weight: kg</td>
</tr>
<tr>
<td>Hull type:</td>
</tr>
<tr>
<td>Spec:</td>
</tr>
<tr>
<td>Air depl. certif.: Yes</td>
</tr>
<tr>
<td>Commercial product: Yes</td>
</tr>
<tr>
<td>URL:</td>
</tr>
<tr>
<td>XML:</td>
</tr>
<tr>
<td>Comment:</td>
</tr>
<tr>
<td>Cancel</td>
</tr>
</tbody>
</table>
Buoy deployment

For buoy operators or DBCP Action Group coordinators.

Once the manufacturer has done its work, the batch should be identified by a name. When a buoy is deployed, log in the system, and go to “Deployment notification”:

Finding your platforms

This will display a search page:

Enter the batch name or Argos ID in appropriate box and search the database for the corresponding buoy. In the list, obtained, click on the (see below) to edit the deployment information. If there is no and just a (see below) it means that you don’t have the rights to edit that particular buoy. To be allowed to edit a buoy, one should be Programme GTS Coordinator for one the programme(s) which is associated to the buoy

Note that the icon is used to delete a buoy from the database.

Editing platform deployment

When editing a buoy, you’ll have the following page displayed which brings you directly into the deployment section:
You’ll notice that there is also a “platform information” section where you can edit everything related to the buoy as well as a “Deployment” section.

**Deployment section**

Under the deployment section there are the following sub-sections:

- **Identification**: WMO number, Argos number, telecom system, platform model, etc.
- **Deploy. Position**: Deployment date, ocean basin where the buoy was deployed, latitude and longitude of deployment.
- **Deploy condition**: Type of packaging, type of deployment, name of the ship from which the deployment was made, deployment height, weather at time of deployment, sea state at time of deployment, etc.

The following fields are mandatory:

- **Identification**: WMO number, platform model, country and agency providing the deployment.
- **Deploy. Position**: Deployment date, latitude, and longitude

In case the specification sheet had not been generated and sent, then the “Send spec. sheet” button appears. Once minimum information has been filled in, you may click that button and the sheet will be generated and sent to the Global Drifter Programme. In case the specifications sheet had been generated before, the button is hidden as spec. sheet can only be issued once.

Once you are sure that deployment information defined for the platform is correct, you may click the “Lock & notify depl.” in order to lock such important information and to notify programme PGC about the deployment (i.e. email prepared and sent): it won’t be possible to modify WMO number, telecom number, and deployment information afterwards (only database administrator can unlock a platform, ask JCOMMOPS to do so if absolutely necessary).
Platform information section

The following sub sections appear in the “Platform information” section:

Data processing section

GTS: Check this checkbox if the data are meant for GTS distribution.
WWW: Check this checkbox if the data are meant for distribution via the web (i.e. through your own means).
Obs./Day: Average observation frequency.
Location system: Name of location system used.

Technical description section

Watch circle: for moorings, this is the radius (m) of the circle where the buoy is supposed to stay around its mooring position.
Lagrangian: Check this checkbox if this is a Lagrangian drifter.
Duty cycle: Description of satellite transmission cycle, e.g. full on, 2 days off/1 day on, etc.
XML: click on button to edit XML field:

<table>
<thead>
<tr>
<th>Payload type</th>
<th>Hull colour</th>
<th>Hull markings</th>
<th>Antifouling</th>
<th>Argos programme</th>
<th>GTS format</th>
</tr>
</thead>
</table>

**Life-time section**

This page permits to enter important dates within the life-time of the platform:

- **Manufacturer**: Date when the platform was made.
- **GTS**: GTS distribution starting and ending dates.
- **Transmission**: Satellite transmission starting date.
- **Drogue loss date**: Date when the drifter lost its drogue.
- **Life-time**: Deployment date and date when the buoy ceased to operate.
- **Ending cause**: Why the buoy ceased to operate.
- **Retired**: whether the buoy is now retired, i.e. the buoy was recovered but is not operational but may be redeployed in the future.
- **Scraped**: Buoy is not operational anymore and there is no chance that it will be operational again.

**Programs section**

This section is for adding and deleting programmes associated to the buoy.
To insert a programme, select it in the appropriate drop list, and click on the button. I recommend you add your national programme in the “National Programmes” category, and then DBCP, and Action Group in the “International Programmes” category.

**Sensors section**

<table>
<thead>
<tr>
<th>Sensor</th>
<th>Name</th>
<th>Start date</th>
<th>End date</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AIR PRESSURE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SST</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUBMERGENCE</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

To insert a sensor, click on the button, fill in appropriate fields, and save it. You can then edit, view, or delete sensors by clicking on the , , or icons.

**Equipments section**

To insert an equipment (e.g. a battery, drogue, hull, transmitter, receiver, GPS, data processing unit, antenna, etc.), click on the button, fill in appropriate fields, and save it. You can then edit, view, or delete equipment by clicking on the , , or icons.

**Telecom section**

To change the telecom number, enter new value in the corresponding field and click OK. Note that if the platform is locked, then it won’t be possible to change the telecom number.

Telecom format: Name of the telecommunication format (e.g. Argos message format such as DBCP-M2) that is used to transmit the raw data via the satellite.

Repetition period: Period between two satellite transmissions in seconds.

**WMO allocation section**

New WMO: 

Note: The WMO (World Meteorological Organization) allocation is used to identify the satellite transponder.
To change WMO number, enter new value in the field and click OK. The system will check whether the WMO number is free. If that’s the case, the following is displayed:

At this point you can’t change it again. To change it in case you entered a bad value you’ll have to save the platform and go back to it. Then the following appears:

And you may enter another number.

In case the WMO number already existed and/or was linked to another platform, the following would appear:

You can see 3 sections in this page that show different WMO number allocations. A WMO number allocation is a record in the database that specifies starting and end dates for using a particular WMO number. When a WMO number is re-used for another platform, then a new WMO number allocation is created in the database. An ending date 01/01/3000 means that the WMO number is still allocated (open):

- WMO allocation(s) linked to the platform: These are WMO numbers already linked to the current platform that we are editing.

- Existing WMO allocation(s) corresponding to entered number: These are WMO number allocations that exist in the database (records) and that have as WMO number the entered value. One or more other platform may already be linked to such records. That’s the case in the example above where platform ARGOS:17193 was already linked to a WMO number allocation ‘00000’. If necessary, the link to the platform can be deleted by clicking on the icon.

- New WMO allocation to link to the platform: This is a new WMO allocation record that would be created if you chose to link the platform to this new record (by checking the checkbox).

Modify if necessary the starting and ending dates for the displayed WMO number allocations and check the check box for the one that you want to link to the platform. Uncheck checkbox for the WMO number allocations that you do not want linked to the platform.

Note that if the platform is locked, then it won’t be possible to change the WMO number.

**Deployment section**

This section is to go back to the deployment sections.
Creating a buoy from scratch

From the main page, click on the following button:

![Edit buoy button]({image_url})

This will display the following screen:

![New platform screen]({image_url})

Click on the “New platform” hyperlink:
Enter a reference name, and a serial number. For all other aspects, editing the platform is similar to what is described in paragraph 0 above.

**Editing a buoy**

From the main page, click on the following button:

This will display the following screen:
From there you can search for platforms that you want to edit. Enter query fields, and search the database.

Remark on search field “Operational period”: This is typically for moored buoys where we can define different operational periods for the mooring position. An operational period is treated as a platform, so when you change instruments on a mooring you would create a new operational period and define the new sensors for it. Hence sensors from preceding operational periods are not deleted from the database. A mooring is defined by its serial number, and an operational period is defined by its serial number (i.e. the mooring) and a period number (starting from 1 and then incremented for each new operational period). If this checkbox is checked, then all operational periods corresponding to the selection will be displayed when editing a platform, otherwise only the selected operational period will be displayed.

After submitting the query, you obtain the list of platforms selected and you can edit, inspect, or delete the platforms by clicking on the , , or icons.
Example of editing screen when the “Operational period” checkbox was checked:

This lists all the operational periods with the same serial number. By clicking on the ✏ icon you would select the period to edit. By clicking on the “New period” button, you can create a new platform operational period for the current serial number. Some of the information from the last operational period would be copied onto the new one in that case.

For all other aspects, editing the platform is similar to what is described in paragraph 0 above.