# Brest workshop on glider data-management report

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Objectives of the workshop

A workshop on glider data-management funded by COST was organized in Brest last week from December 10th to December 14th .

The objectives of the meeting were to setup a first implementation of glider data-management compliant with the "EGO gliders user's manual".

A series of 13 tasks was initiated and assigned to the participants. These tasks and their status are listed in this message.

Participants

Justin Buck BODC

Mark Hebden BODC

Lise Quesnel BODC

Tomeu Garau CMRE-NATO

Daniele Cecchi CMRE-NATO

Thierry Carval Ifremer

Jean-Philippe Rannou Altran

Here is the status of these 13 tasks.

## Task 1: complete and validate the glider’s data management user’s manual.

Assigned to Thierry

Status : done

The user's manual is now updated in version 1.0.

It is attached to this message for a final review. It will be used to produce the first EGO-gliders NetCDF data files.

## Task 2 : Setup a Glider matlab data processing

For a deployment, from raw Iridium data to the Glider NetCDF file containing:

* Metadata
* Data (times-series with profile information)
* Technical data

Type of gliders : Slocum, seaglider

Subtask 2.1: read Slocum data (Daniele) Done

Subtask 2.2: read Seaglider data (Mark, Justin) Done

Subtask 2.3: generate the glider NetCDF file (Lise) Done

Lise developed a first version of the NetCDF writer

Subtask 2.4: manage metadata (Tomeu) Done

Tomeu presented the json proposal for deployment metadata, for the glider and the sensors, and the system to link these metadata Done

Subtask 2.5: manage technical data Done

Managing navigation commands sent to the glider is not considered as crucial.

We shall manage a subset of transmitted technical and configuration data.

They are managed as a standard time series (such as observations).

## Task 3: Setup real-time QC and apply it on the glider NetCDF glider file

Assigned to: Tomeu

Achieavable by end of January.

It will apply the QC tests on the NetCDF files.

## Task 4: manage the CTD thermal lag errors

The problem exists on pumped and unpumped CTDs. The magnitude of the problem is higher on unpumped CTDs

Task 4.1 : develop a RTQC test that flag as probably bad these data

Assigned to Tomeu.

What is the accuracy expected from real-time data? We should flag as probably bad the data in strong thermal gradients and glider inflexion phase.  
Not achievable this week but start writing a chapter on that topic.

Task 4.2 : develope a correction of data affected, delayed mode activity.

This task should be driven by science -> create a task to contact the groom QC group

non-pumped CTD errors or other sampling issues

The following warning has been added in the User’s manual

*Warning on CTD thermal lag errors*

*The glider CTD data may be affected by a thermal lag error problem. In area with strong thermal gradient such as in the thermocline, the salinity may be over or underestimated.*

*This problem is not detected by the existing real-time quality controls.*

*A new real-time QC test is under study to flag as probably bad (but correctable) the salinity data affected by this problem.*

*In parallel, a method to correct this problem is under study.*

## Task 5: cancelled

## Task 6: convert oxygen observations (MOLAR\_DOXY) to micromole/kg (DOXY) as done on Argo floats

Assigned to Justin, 2013 Q1

This is not a priority of the week

## Task 7: organize a collaborative development infrastructure

Assigned to Thierry

Status : done

Investigate the use of a forge such as Ifremer “Fusion forge”, subversion to distribute the matlab softwares, mantis to manage actions

<https://forge.ifremer.fr>

## Task 8: calculate sea water current from the glider trajectory

Not a priority of the week

The real-time data has to be managed by our group

The delayed-mode activity on trajectory will be driven by science

Mark takes the task for SeaGlider real-time currents (Slocum do not provide these data)

## Task 9: specify a policy for data distribution on GTS

Achieved

The following chapter was added in the user’s manual:

*The EGO glider data received in real-time are quality-controlled. The real-time quality control procedures are described in the EGO glider quality control manual. They are automatically applied, without human intervention to minimize the delay between data observation and data distribution.*

*For each active glider, the data that passed the real-time QC tests are distributed on GTS (the WMO data transmission system). Data distributed on GTS should be less than 30 days old. The target for distribution is within 48 hours of the observation time.*

*The vertical profiles extracted from the glider time-series are distributed as TESAC messages.*

*Each vertical profile should have a vertical length greater or equal to 40 decibars.*

*The glider time-series are distributed as BUOY format messages.*

*In a near future, the glider time-series will be distributed in BUFR format. The glider BUFR template is under construction.*

## Task 10: Manage the time sampling issues from different CPUs, sensors, clock drifts

We have to describe how to manage duplicate times.

Not achievable this week.

Add a chapter in the user’s manual to present the problem.

Assigned to Daniele.

## Task 11: provide an EGO NetCDF file format checker

Develop a JSON metadata validator to check the file provided by the glider deployment teams.

Not achieavable this week

Assigned to Tomeu.

## Task 12: populate the phases and phases number

For Seaglider : the information is from transmitted data (the reader fills the phases)

For Slocum : a post-processing on NetCDF file calculate the phases from the pressure time-series.

Assigned to Jean-Philippe

## Task 13: propose a minimal list of parameters to be transmitted

In particular, when a CTD is fitted on the glider, a minimum sampling scheme should be proposed.

The CTD pressure sensor provides generally better pressure observation than the glider’s pressure sensor. These better observations allow a better monitoring of the glider trajectories.

Assigned to Daniele.