Final Report: ETT - SOCIB research agreement

SOCIB-Data Center Facility

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1. Purpose

This document summarizes actions and achievements carried out by SOCIB from July to December 2018, in the framework of the ETT - SOCIB 2018 Agreement. It summarizes the goals of the work and the specific actions that were performed to achieve these objectives. This document includes actions that were explained in the mid-term report provided on July 2018 as well as the new achievements since this date.

2. Specific actions foreseen

As specified in contract from January 2018:

1) **Glider data distribution & processing & availability:** support for designing the architecture for glider data flow in Europe (RT & DM) and including glider data -raw data or processed-, data processing and offering data, looking for the best formats and methods to make the data available

2) **Glider data management workshop:** 1,5 days likely with ETT, SOCIB and others, in Brussels or Milan

3) **System architecture and developments:** taking into account the results from the glider data management workshop, SOCIB will help to define architecture for support and development.

3. Specific actions carried out

3.1. Glider data distribution, processing and availability

It was agreed at the Milan meeting that EGO formats would be used to distribute glider data. RT through Coriolis and DM with CDI through DAC and GDAC that mirror the data. In this framework:

- RT data: SOCIB has adapted its Glider Data Toolbox to comply with this model and was ready in July to push EGO format to Coriolis FTP server. The EGO format is used in regular SOCIB operations for specific missions since September 2018. Further development in the framework of other projects will involve the use of the SOCIB API to gather and collect data in a more automatic approach.
- DM data: SOCIB has started the implementation of QC for DM data which will be provided to GDAC through the new SOCIB API and thredds server. The work involves the historical analysis of variable value ranges, the implementation of the QC in the glider toolbox and the

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application of salinity calibrations based on vessel CTD measurements. The latest is being applied to most of the SOCIB glider missions and will be operational in an automatic way.

In addition, SOCIB supported EMODnet and the glider community by:

- Mapping between SOCIB Data format and EGO variable for DAC format harmonization (see Annex 1.1) and support Sensor - EGO mapping by BODC
- Providing recommendations of EGO format

SOCIB also contributed to the **European meeting of the glider data management community** (Connecting Glider Data Flow in Europe and Beyond on September 18th -20th 2018, Genoa) with 4 presentations that addressed important topics related to the Glider data distribution, processing and availability.

- Data management and data flows (4.1, 4.4)
- Quality control (4.2)
- Best practices (4.3)

Moreover, as a member of the organization committee and glider TT it actively participated in defining follow up actions and a map road to continue with the efforts to push the glider data flow to the next step. During this meeting, the glider community discussed the challenges for implementing the data flow scheme in the community based on the current status of the glider data management. In particular, it was recommended to define an international glider data standard OG1 which should be easily added to the current implementation of the SOCIB glider toolbox.

3.2. Glider data management workshop

The workshop was carried out in Milan at the ETT office (Viale Abruzzi 20) on the 26th and 27th of March 2018 (see Meeting Agenda Annex 2.1). It required a preparatory meeting on December 12th 2017 of 1.5h. It also required preparatory actions including a presentation about the glider toolbox for the meeting and coordination emails and skype meetings. The meeting minutes are detailed in the next section. The Milan workshop led to the definition of a proposed architecture for the glider data management at European level as well as a set of actions to achieve its implementation (see Annex 3.1 Workshop Minutes).

3.3. System architecture and developments

The Milan workshop led to the definition of a proposed architecture for the glider data management at European level as well as a set of actions to achieve its implementation (see Annex 3.1 Workshop Minutes). SOCIB has participated in this design and in the follow up meetings and actions to achieve its implementation.

Follow up skype meetings:

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4. May 27th: Follow up of specific actions agreed in Milan workshop by participants (see 3.1)
5. June 8th: Coordination for the organization of **a European meeting of the glider data management community** that was discussed in Milan meeting (Connecting Glider Data Flow in Europe and Beyond) - September 18th -20th 2018, Genova
6. July 10th: Discussion of the **glider data management** meeting agenda and leaflet (see Annex 3.2 and 3.3)
7. August 6th: Preparation of the **glider data management** meeting
8. September 5th: Preparation of the **glider data management** meeting
9. January 17th: Follow-up to the Glider Data Meeting in Septembre

SOCIB has designed and developed a prototype of a processing system allowing european organizations to process recovery data using SOCIB architecture in the framework of the European glider data flow. This system was introduced during the European glider meeting in Génoa as a solution to the challenges of the data management and distribution at a European or global level. Further development of the architecture is expected to happen in the context of international projects such as JERICO-S3. The SOCIB glider toolbox has been refactored to respond to the needs of the European glider community. The most important modifications are:

- Use of dictionaries to define data output formats allowing the generation of custom and standard formats such as EGO or OG1.
- Modular approach of processing steps helping the collaboration for the development of specific needs of various organizations
- Extensive use of configuration files helping the use of the glider toolbox by the international community and customization to specific needs.

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John Allen
Joaquín Tintoré
Emma Heslop (from January to April, 2018)

References

1.1 Variable mapping
2.1 Workshop agenda
3.1 Workshop minutes, agreed actions and follow up meetings
3.2 Agenda: Connecting Glider Data Flow in Europe and Beyond
3.3 Leaflet: Connecting Glider Data Flow in Europe and Beyond
4.1 Networking the glider community: SOCIB
4.2 Quality Control of data observations from gliders
4.3 A Global Ocean Best Practices System: Towards a harmonized Glider Data management
4.4 The SOCIB data management system for glider operations

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