OceanGliders/JCOMMOPS: The monitoring system we are building.

Dear OceanGliders community,

Since June this year, JCOMMOPS and the OceanGliders program are developing their monitoring system. Important progress has already been made in the last 6 months to integrate properly the specificities of a glider mission in the monitoring system of the GOOS. Those evolutions are partly implemented and will soon be accessible to anyone willing to visualize information about their gliders and register or update glider mission's metadata. Still a lot needs to be done, but it is a major step forward for the OceanGliders program.

The big picture.

The biggest challenges we are tackling is to set up a machine to machine architecture that will avoid repetition of the data and metadata management effort for all glider users, whether you are data manager, PI or glider operator. "Do the job once and not repeat it again". Everything we are developing today goes in that sense, saving everyone's time and

make users available to improve quality of the metadata and develop their activity. It will also encourage new glider groups to integrate the system and facilitate the internationalization of the program in new regions of the world where gliders are active today but not integrated in our program yet.

Organizing, standardizing and brokering.

To achieve this goal, lots of background effort must be made. Some has been achieved in the last 6 months, some has already started, the rest will be initiated in 2020.

- adapt the current monitoring system to glider specificities – online release early 2020.
- harmonize format and define good practices for data management – see special focus below.
- enhance the data flow and centralize the data sets,
- define machine to machine communications,
- track the information and feedback.

Each evolution is an important piece of a larger puzzle. Its prerequisites are coordination between partners, alignment with top level requirements and a profound understanding of the impact on users to minimize.

The strategy is to provide support for metadata management and fit for purpose services to all glider users through JCOMMOPS online application to encourage glider groups to join the program, increase their visibility and benefit from the community development.

- standardize vocabularies and support for metadata management,
- statistical tools and reports about networks and National glider program,
- data and metadata visualization services,
- demo and tutorial for easy use of the services.

It will not be trivial, and lots must be done to offer these services.

2 years are needed to implement and operationalize such system and services. In the meantime, we will monitor the past, present and future glider activity on a regular basis with the support of the international glider communities and data assembly centers to demonstrate the importance and the role of the gliders network in the Global Ocean Observing System.

We wish you festive greetings in advance and write to you all again soon.

Technical Coordinator and the OceanGliders Steering Team,

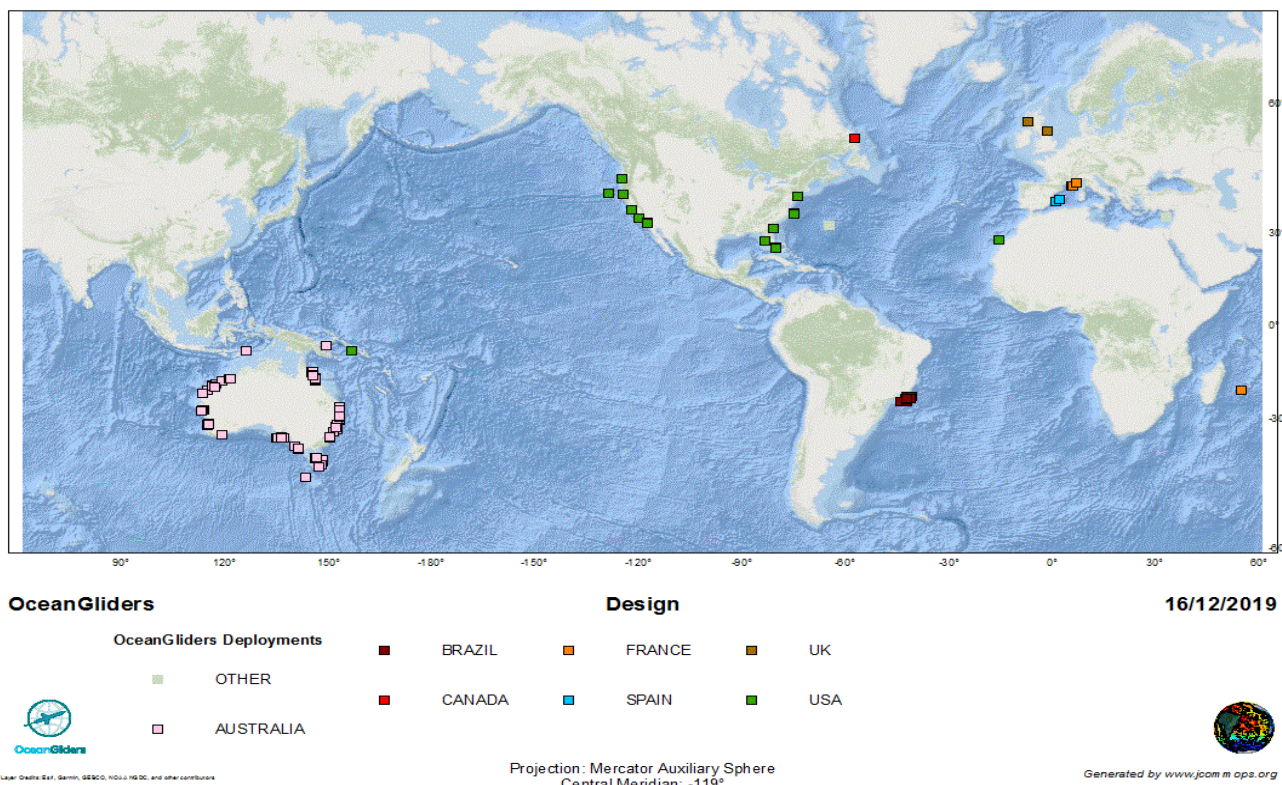# Focus on the OceanGliders activity integrated in the GOOS system so far.

Figure 1:map of the gliders' mission deployments registered in the system

332 are registered today in the system – coming from different sources with different levels of metadata quality that will be leveled up.

- US/IOOS glider missions available at US Glider DACs from 01/01/2019 to 30/06/2019
- EU glider mission available at Coriolis GDAC from 01/01/2019 to 30/06/2019
- Historical IMOS glider missions available at AODN until the 30/07/2019
- PROOCEANO glider mission from beginning to 30/11/2019

This is "in progress" and lots will be done in the next months. Indeed, this map represents just a piece of what will be ingested by the system.

Some Key features:

- **1300 gliders missions** - this is the approximate number of gliders missions gathered by IOOS, Coriolis and IMOS DACs and GDACs so far.

- **1/4 of the way** - Considering GDACs only. Then will come the time to harvest glider missions that are not available in any GDAC yet.

Create your glider program to register your glider mission:

The first step to add your glider activity in the JCOMMOPS system is to create your glider program. Only JCOMMOPS staff can do it. Get it touch with us at vturpin@jcommops.org, or support@jcommops.org if you like to create it.

Then every person linked to the program can register glider mission and update metadata online.

Focus on the OG1.0 format harmonization process

The harmonization of the format is a strong requirement from OceanGliders steering team to strengthen the network and enhance the capabilities of the glider communities. This format, called OG1.0, is currently discussed with the OceanGliders data management community.
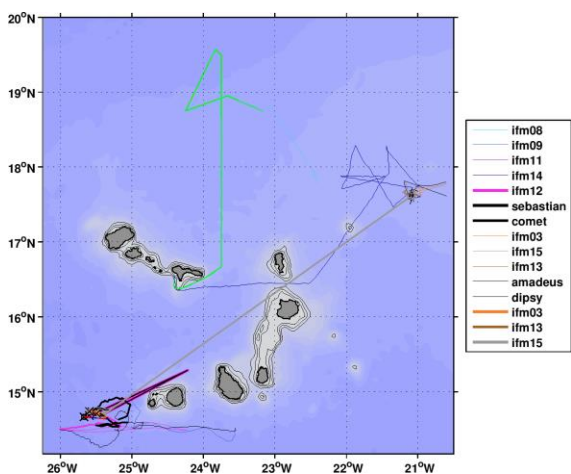
After 6 months of review of the format, analysis and discussion with partners, we have drafted a "Term of Reference" (ToR) document for harmonization and implementation of OG1.0. ToR is being reviewed by OceanGliders steering Team, DACs and GDACs.

If we reach an agreement on the ToR, then we plan 18 months for implementation of the format and 6 months as a transition phase from current format to 0G1.0. Obviously, this timing is part of the ToR and will be discussed early 2020.

OceanGliders steering team will ensure to limit the impact on glider users and make the transition as smooth as possible.

The ToR will be available to the community early next year.

Focus on The MOSES II Project – An HZG and GEOMAR join experiment with multiple glider missions in the vicinity of Cape Verde in the Easter Atlantic.

The gliders were used to map mesoscale eddies and the submesoscale processes at frontal system associated with eddies. The observations include T, S, oxygen, Chl-a/Turbidity, Microstructure, Nitrate profiles. Two gliders had a Rhodamine sensor to trace a dye tracer we released in two frontal zones.

In particular the submesoscale mapping was supported by two saildrones, two wave gliders, the RV Meteor and the Stemme S10 sailplane equipped with various remote sensing sensors.

12 of the 15 gliders missions are registered at JCOMMOPS already. Metadata for the 3 missing glider missions are not yet available. Below is an example of the "statics" you can quickly produce online today through JCOMMOPS.
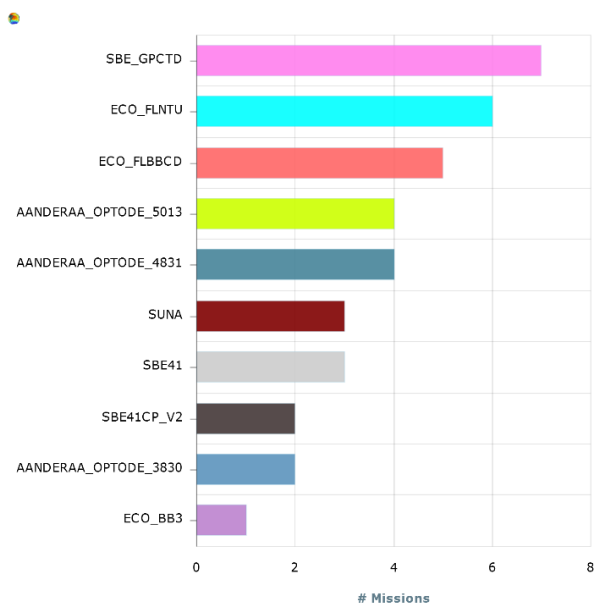

Figure 2: Number of sensors deployed during MOSES II
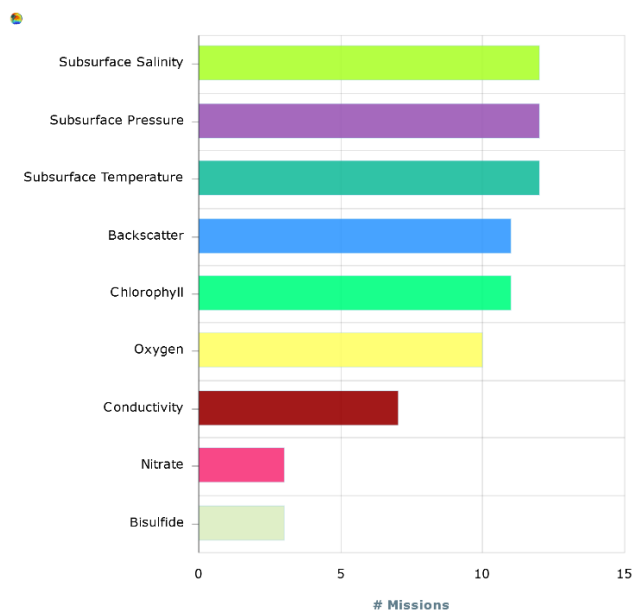

Figure 3: intensity of Ocean variables sampled during MOSES II

Today those statistics are still basic, tomorrow we will be able to plot the glider path, see operational gliders versus recovered, count the number of profiles, days at sea, etc. All this online or on demand at support@jcommops.org.