

I.1 SOCIB Data-Center

I.1.a Introduction

SOCIB Data Centre (DC, <http://socib.es/?seccion=dataCenter>) is the responsible Facility for the data management and distribution for all the other facilities, including the Glider Facility. The main principles behind the data distribution is that the data have to be 1. discoverable and accessible, 2. freely available and 3. interoperable and standardized.

The in situ and gridded data are made available in NetCDF CF-compliant files, distributed through a thredds server (<http://thredds.socib.es/thredds/catalog/auv glider/catalog.html> ; see Data Distribution section). In addition to the NetCDF files, the DC produces static images and also provides specific applications for the near-real-time monitoring of the mission (see next section).

Any questions concerning the data access and the corresponding web applications should be sent to ctroupin@socib.es.

I.1.b Glider Functionalities and Tools

Near-real-time monitoring

On top of the thredds server, several applications have been designed to improve the overall data access. The Deployment Application (Dapp, <http://apps.socib.es/dapp/>) has been designed to locate and provide access to all the mobile platforms managed by SOCIB. This includes drifters, profiling buoys, research vessel, and obviously the glider fleet.

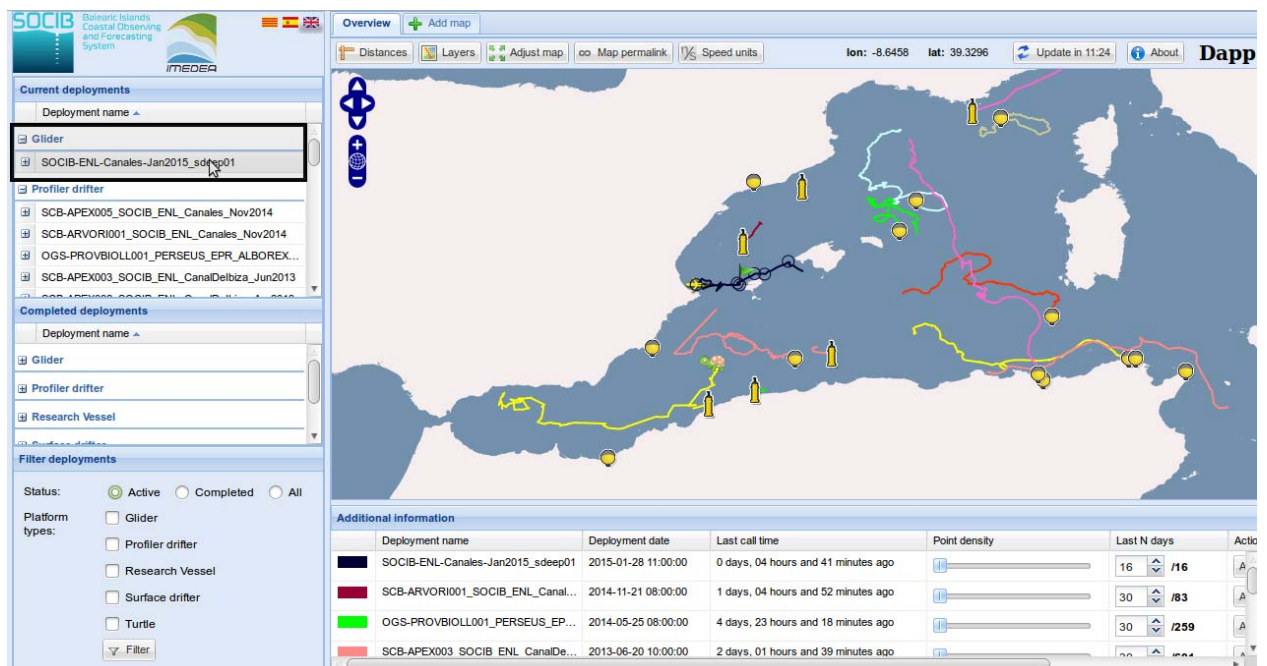


Figure 1. Screenshot of SOCIB's Deployment Application (DAPP)

As shown in the figure, the deployments, both the active and archive deployments are available. For viewing only the selected platforms, click on the “Add map” button (top panel) and drag the deployment you want into the main viewing window.

Dapp functionalities are detailed in the next figure, in the case of a deployment in the Ibiza Channel:

1. The “Add map” button, to create an empty map (no deployment);
2. The “Layer” button, to add WMS layers such as bathymetry or altimetry-derived velocities;
3. The glider latest position ; a click on the glider icon open a windows with complementary information;
4. “Action and links” gives access to images and to the data files themselves.

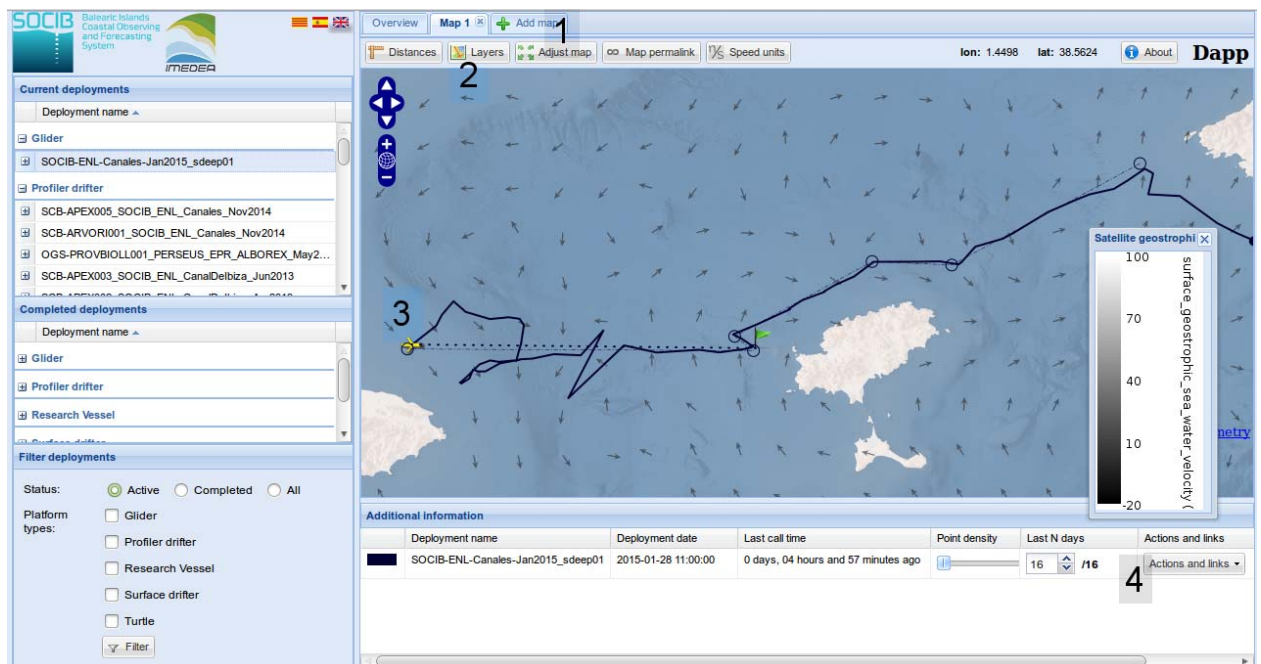


Figure 2. Screenshot showing DAPP's functionalities

The monitoring is also possible via the SOCIB App for smart-phones, available for Android and iOS (see <http://apps.socib.es/> for installation). An example for a previous mission, viewed with the App, is shown in the next figure. The App development goes in line with DC principles of easy data access for a wide range of users.

Delayed-mode post-processing

After every mission, all the data files are processed in order to produce the final data files. To this end, the DC has developed a Glider Toolbox in Matlab/Octave. The toolbox aims to make easier the processing of native files

obtained from a glider fleet. It is available at https://github.com/socib/glider_toolbox and can deal with Slocum G1, G2 and SeaGlider models.

The toolbox covers all the steps required to go from raw data files to figures and NetCDF products. An extensive description can be obtained from the previous link.

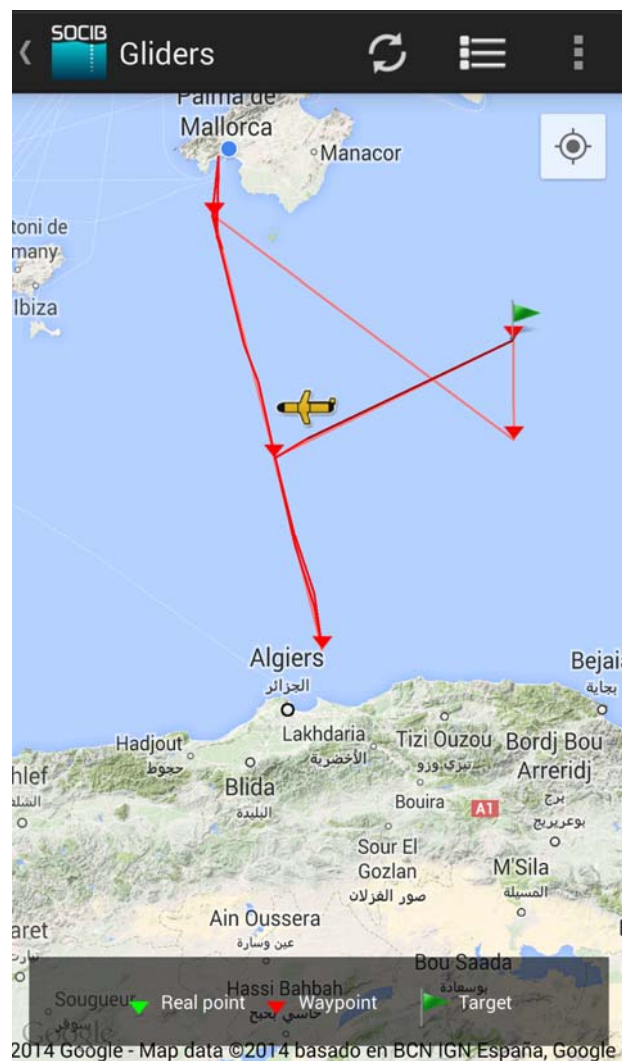


Figure 3. Screenshot of mobile application

I.1.c Data Distribution

There are several ways to obtain the data from SOCIB web. The main distribution tool for the data is the thredds. The server can be directly accessed from <http://thredds.socib.es/thredds/catalog.html>, where all SOCIB platforms are visible. Another possibility is to browse the Glider Facility main page (<http://socib.es/?seccion=observingFacilities&facility=glider>) and click on the link corresponding to the deployment of interest. Finally, the data can also be access from the Dapp, using the “Action and links” button.

SOCIB Deployments web client application



Dapp is a web based client application, developed by the **SOCIB Data Center**, intended to display and download deployments data from SOCIB. Dapp provides additional features such as:

- Browse and display any deployments made by SOCIB
- Create customized maps with several deployments and **WMS** map layers

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Current deployments	Dapp	Chart	Download	Data access
SOCIB-ENL-Canales-Jan2015_sdeep01			Kmz NetCDF	Thredds
Archived deployments	Dapp	Chart	Download	Data access
SOCIB-ENL-Canales-Nov2014_ideep00			Kmz NetCDF	Thredds
GF-MR-0030_JERICO_TNA_Abacus_Nov2014_sdeep01_4th_Deployment			Kmz NetCDF	Thredds
GF-MR-0030_JERICO_TNA_Abacus_Nov2014_sdeep01_3rd_Deployment			Kmz NetCDF	Thredds
SOCIB-ENL-Canales-Oct2014_ideep00			Kmz NetCDF	Thredds
GF-MR-0030_JERICO_TNA_Abacus_Sep2014_sdeep01_2nd_Deployment			Kmz NetCDF	Thredds
GF-MR-0030_JERICO_TNA_Abacus_Sep2014_sdeep01_1st_Deployment			Kmz NetCDF	Thredds

Figure 4. Glider mission data access through SOCIB webpage

For real-time and delayed mode data, 3 levels of processing are provided:

- Level 0 : the NetCDF files contain exactly the same as the raw files.
- Level 1 : processed glider data: sequences of measurements along the glider trajectory, with position reference coordinates interpolated, and with unit conversions, filters and/or corrections. Also, new time series derived from existing ones. The attributes of each variable keep track of those modifications.
- Level 2 : gridded glider data: Level 1 data interpolated to produce regular homogeneous vertical instantaneous profiles from each up- or down-cast.

A web dedicated to students and teachers, called Follow-the-Glider (<http://followtheglider.socib.es/en/explorar/>), presents the same data, but in a more adapted way. In addition to the glider trajectory and measurement, Follow-the-Glider provides interesting facts about the platform and how it works. An example is provided for one of the Jerico mission in November 2014.

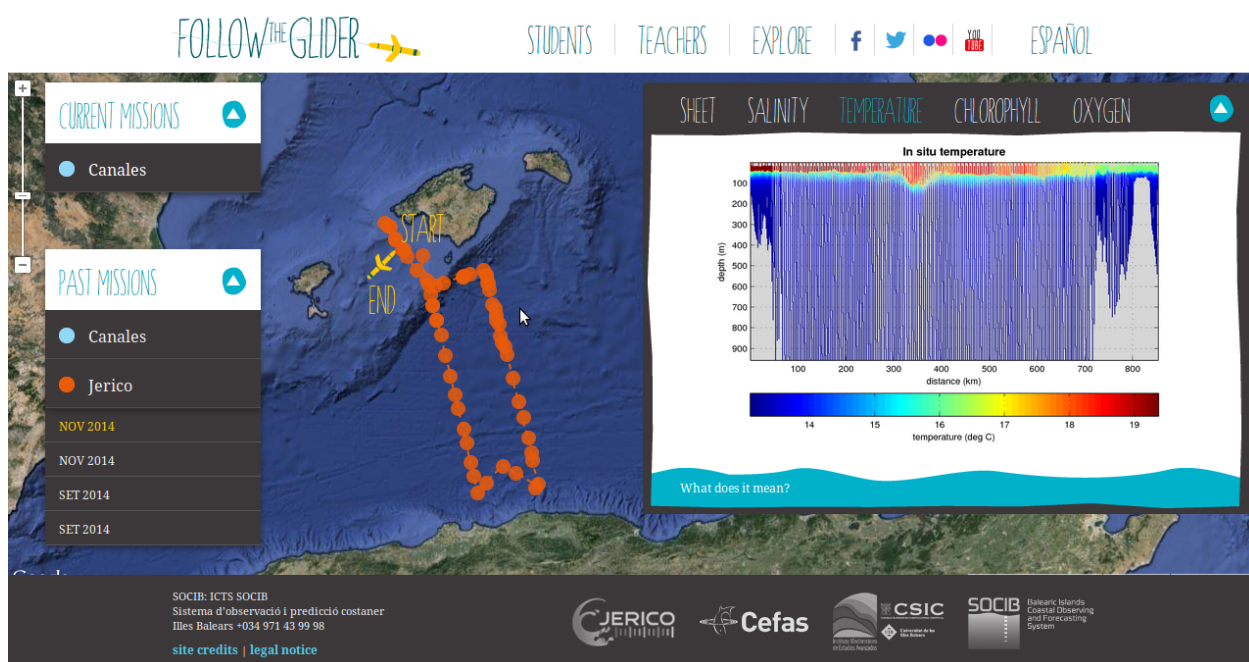


Figure 5. Screenshot of "Follow the Glider" educational tool

Data access from other databases

Strong efforts have been made in order to ensure that glider data acquired by SOCIB glider fleet can be downloaded from other databases, such as EGO (Everyone's Gliding Observations, www.ego-network.org) or Coriolis (<http://www.coriolis.eu.org/Observing-the-Ocean/GLIDERS>).

While this has been achieved for some of the missions, divergence in terms of data format makes it difficult the effective and automatic transfer of data between SOCIB and the aforementioned databases.