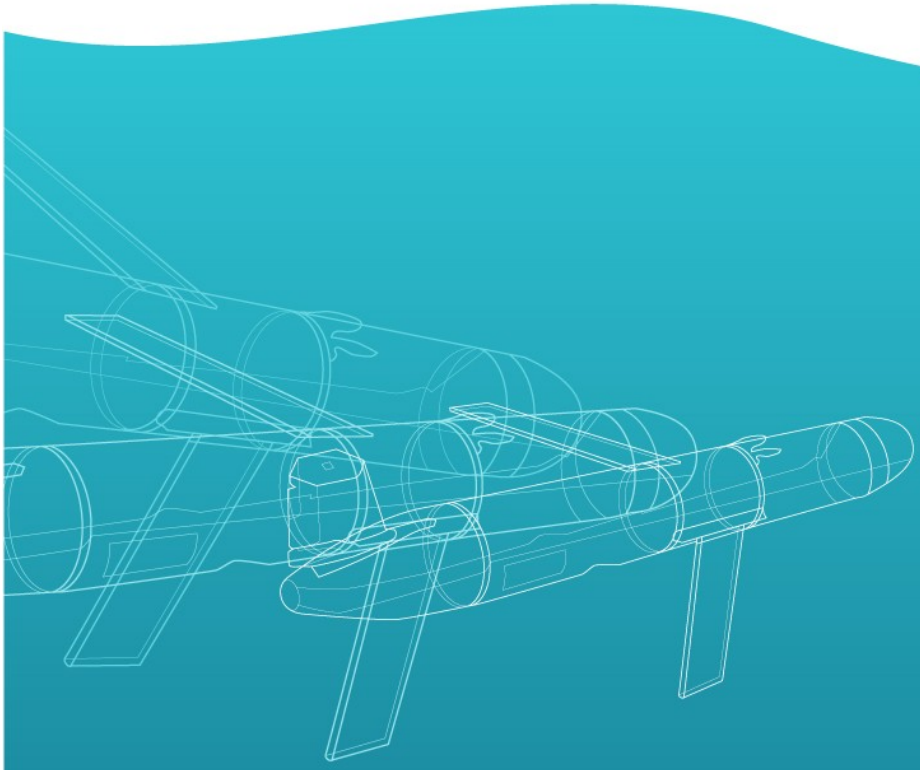

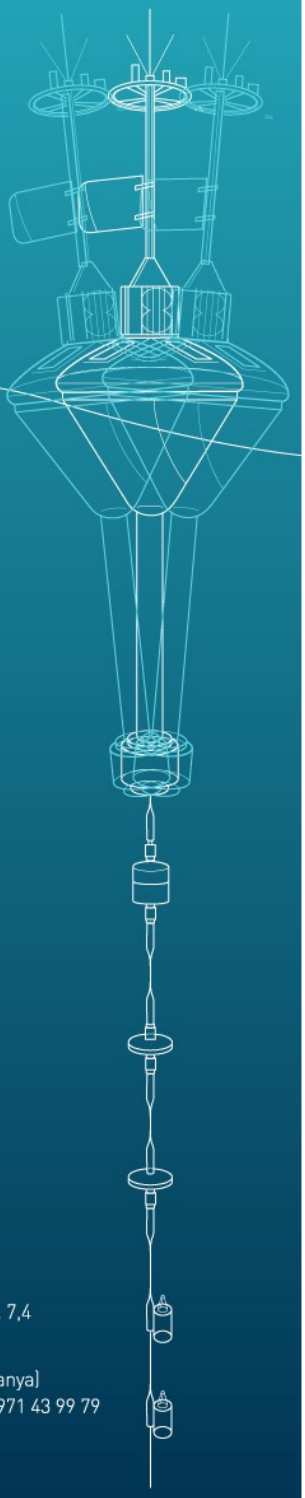

SOCIB Mooring facility web site

User guide and Implementation details

Socib Data Center

2012-09-18

SOCIB Balearic Islands Coastal Observing and Forecasting System

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Version	Date	Changes description	Author	Supervisor
v1.0	2011-11-01	Initial writting	K.Sebastian , S.Lora	G.Vizoso
v1.1	2012-09-18	Adding parameter mode section instructions	S.Lora	

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1. Brief description

This document describes the functionality implemented in the fixed stations facility web application for SOCIB site.

Mainly, this applications allows to browse data by two browsing criteria:

- Browse data by platform
- Browse data by parameter

For each station deployed by SOCIB, this application allows:

1. Display information, working state and latest data of each station
2. Plot the latest data of each parameter provided by the stations
3. Download (several file formats such as NetCDF or CSV) and access full data catalog with tools such as SOCIB THREDDS catalog

2. User manual

The SOCIB mooring facility site allows the user getting information about this facilities. Following is detailed the functionality of each view for make easy to use the new site.

2.1. View 1: Fixed stations home

As told before, this application allows the user to browse de fixed stations data by two main criteria:

- browse data by platform: displaying all fixed stations states and types
- browse data by parameter: allows to select one parameter type and display all the values of this type provided by the several platforms

2.1.1. View 1.1: Browsing by platform

This is default view mode. When browsin by platform at the fixed stations home the following elements are displayed:

- Map-based component
- Table-based component

The map-based (see illustration 1) component allows the user to get a quick snap of which fixed stations are currently deployed by SOCIB. Obviously, the location of each platform will be displayed over the map.

Note that the icons have colored border. The color meanings are:

- Green: all the instruments within the platform are working
- Orange: not all the instruments within the platform are working
- Red: all the instruments within the platform aren't working
- Blue: this platform is only providing data in delayed mode

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By clicking over a platform at the map, the user will get summarized information about the platform such as: the name, the latest time of received data, the instrument or platform product that provides the parameters and a list of the most important variables offered by each instrument or platform product (eight variables at most). If there is present any platform product for a particular platform, only these will be shown. The user can access to the information of one of the displayed platforms by clicking over the platform name displayed at map balloons and table.

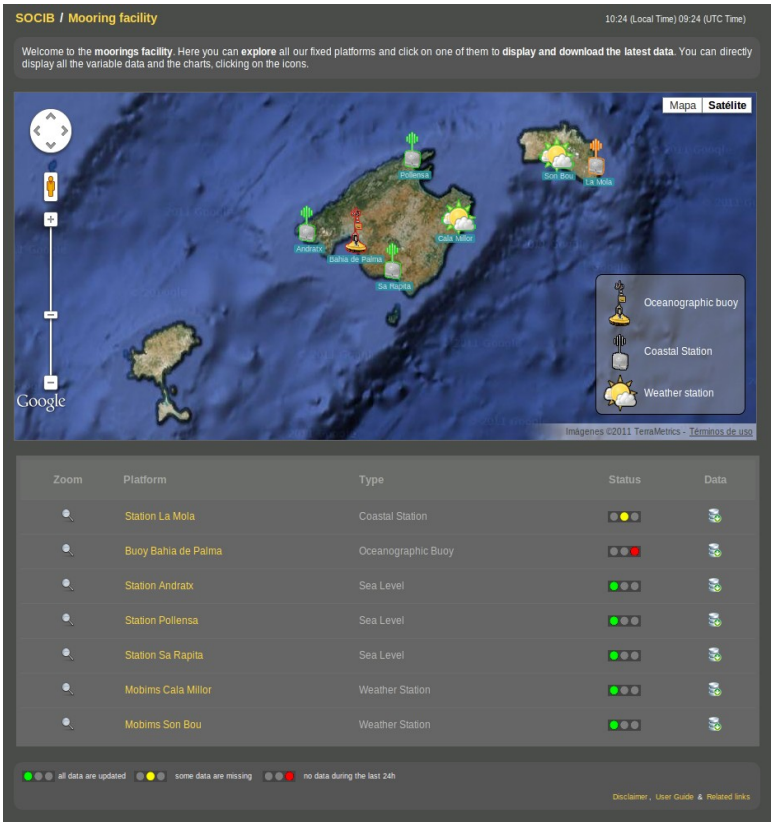

illustration 1: Fixed stations home view

In addition, the table-based component displays information about which platforms are deployed and it grants direct access to the platform details, latest data and chart views. This views will be described int the following sections.

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2.1.2. View 1.2: browsing by parameter

When selecting the 'browse by parameter' mode  at the fixed stations home page, the following elements are displayed (see illustration 2):

- A map displaying all the measures taken by the different platforms representing the selected parameter type (e.g. sea water temperature). By clicking on an icon, the user will get summarized information about the variable in these concrete paltform and also access to an individual chart of the latest data
- A multi-chart based graphic that allows the user to have a quick vision of any phenomena or anomaly related with de displayed variable

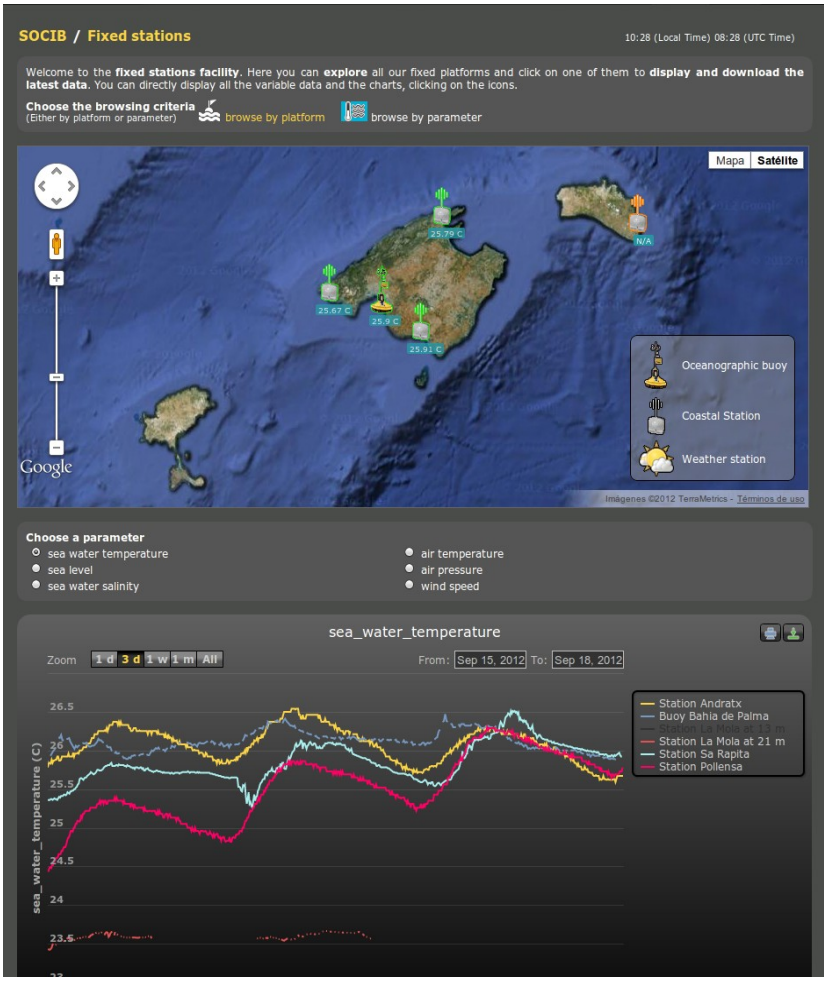

illustration 2: Fixed stations parameter mode view

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2.2. View 2: Platform overview

When the user access (by clicking over the platform name at the fixed stations home view) to the platform, the first view shown is the platform overview (see illustration 2).

The elements of this view are: header with details, data overview and instrumentation description.

Header contains details related with the platform such as picture, static map, state of the working order, platform category, last time of data reception and position.

The left bottom menu will always contain a data overview item and many instruments as the platform contains.

The data overview menu displays each platform product (if present) and instrument within the platform. Each of these elements is presented with the latest reception time and state of working order. Additionally, a list of the most important parameters (three at most) provided by the platform product or instrument are displayed.

By clicking over one instrument on the left bottom menu it will be displayed information about the instruments such as technical name, manufacturer, model, installed sensors, etc.

illustration 3: Fixed station overview example

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2.3. View 3: Platform latest data and data chart

The latest data view is a table-based component that provides specific information about the parameters which are being processed in a concrete platform (see illustration 3).

The user can perform

For each parameter is displayed the next information:

- Instrument (or platform product if present) type and name
- Parameter standard name and short name
- Latest sample value
- Chart link for plotting the parameter directly
- CSV link for generating a csv format file containing the last data of this parameter (two months back at most)
- NC file provide a link for direct downloading the instrument nc file

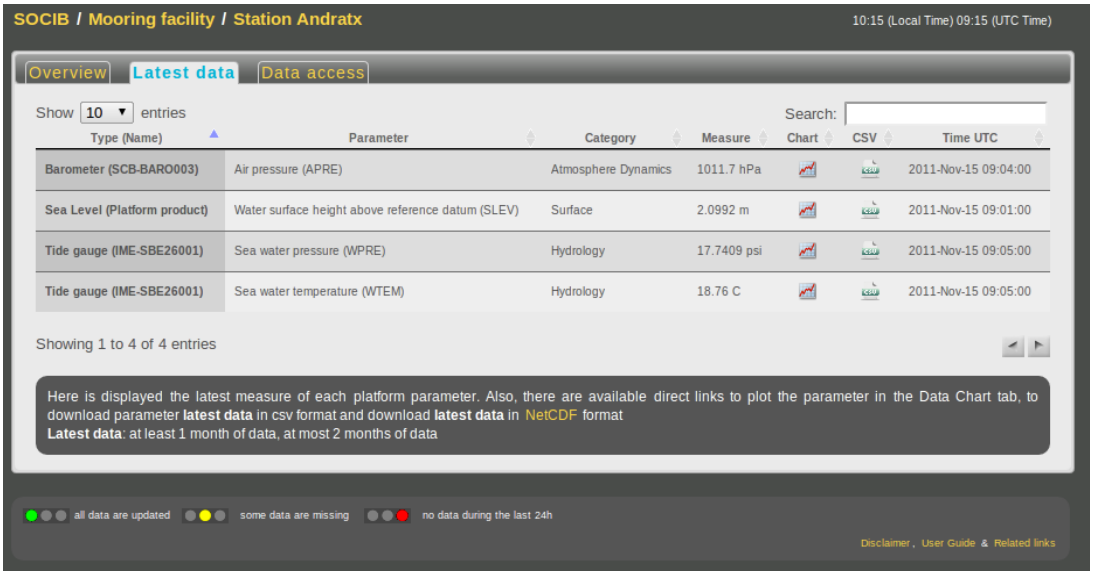

illustration 4: Platform latest data view example

The platform data chart view allows the user plotting parameter data individually. When the user access to the view, shows a table with the available platform variables.

Clicking over the variable name the user can plot the variable latest data, see Illustration 4. Back to the available platform variables clicking the “Back to variable list” button.

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ilustration 5: Sea level variable data chart

Note: The chart view is meant to be an easy and fast tool for displaying purposes only. If the user needs more detailed chart information, such as quality control values or better time resolution, please use jWebChart tool. It can be found at the “Data access” tab within this web site section.

2.4. View 4: Platform data access

The platform services allow the user access the services available (see Illustration 5). These services are:

- Access to all data via the SOCIB Thredds Catalog
- Plot the latest data via the jWebChart web application, which allows to compare and display more than one variable together.
- Download the latest data in NetCDF format.

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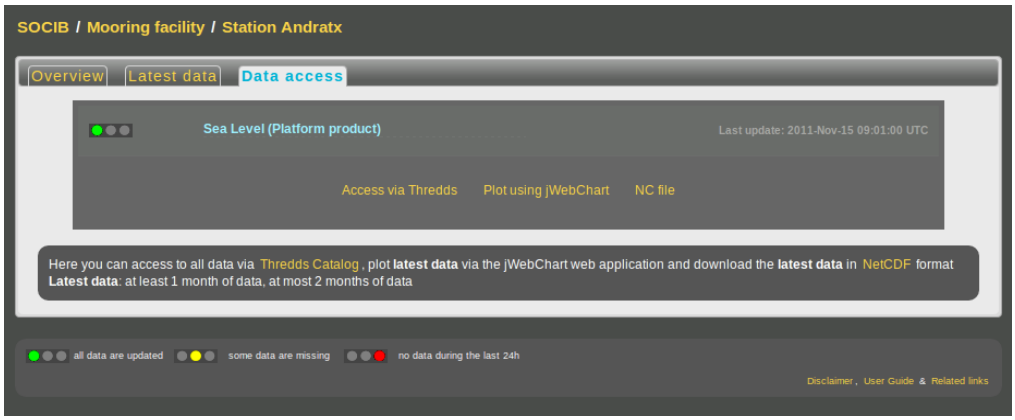

illustration 6: Fixed station services view

3. Architecture

More specifically, the application is presented as a multi-layer architecture: the data discovery service and the web application.

3.1. SOCIB Data Discovery Service (SDDS) layer

SOCIB Data Center is working on building a data treatment architecture that covers all data stages. This architecture is composed by the following stages: acquisition, processing, quality controls, storage and distribution.

The SDDS is a layer of RESTful web services intended to provide information and data of SOCIB platforms. This layer is located at the distribution stage.

Please, note that only fixed stations are available for now.

3.1.1. List of services

Fixed station list

- Description: Fixed station list provides the deployed platform list of type fixed. Each platform have information about his name, the bounding box position, the platform type, the icon to be displayed, the state, the last time sample received and the instrument list. The instrument list contains the instrument name, the state (updated = true or false) and the most important variables. If the platform generate platform products then instrument list will only contain the products. Each variable contains the variable name, the standard name and the last time sample received.
- url: apps.socib.es/DataDiscovery/list-moorings

Fixed station brief information

- Description: Fixed station brief information provides the platform name, bounding box, platform type, image, last time sample received and the state.
  Servlet request: id_platform = the platform id

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- url: apps.socib.es/DataDiscovery/mooring-details?id_platform=<requested_id_platform>. E.g.apps.socib.es/DataDiscovery/mooring-details?id_platform=14

Fixed station last data (overview mode)

- Description: Fixed station last data (overview mode) provides platform information and the latest most important data. Each platform has information about his name, the bounding box position, the platform type, the state, the latest time sample received and the instrument list. The instrument list contains the name, the instrument type, the position (latitude and longitude), the state (updated = true or false), the last time sample received and the most important variables (three variables at most). If the fixed station generates platform product then will be added to the instrument list. The information will be the state and the variable list. Each instrument variable contains the name, the standard name, and the last sample value.
  Servlet request: id_platform = the platform id, mode = overview
- url: apps.socib.es/DataDiscovery/mooring-last-data?id_platform=<requested_id_platform>&mode=overview. E.g. apps.socib.es/DataDiscovery/mooring-last-data?id_platform=14&mode=overview

Fixed station last data (detail mode)

- Description: Fixed station last data (detail mode) provides the same information than overview mode, additionally it provides a link to the SOCIB Thredds catalog of each instrument. The instrument variable list contains all the instrument variables. The platform product only contains the derived variables, not the variables from instruments.
  Servlet request: id_platform = the platform id, mode = detail
- url: apps.socib.es/DataDiscovery/mooring-last-data?id_platform=<requested_id_platform>&mode=detail.E.g. apps.socib.es/DataDiscovery/mooring-last-data?id_platform=14&mode=detail

Fixed station last data (catalog mode)

- Description: Fixed station last data (catalog mode) provides the same information than overview mode, additionally it provides the variable category.
  Servlet request: id_platform = the platform id, mode = catalog
- url: apps.socib.es/DataDiscovery/mooring-last-data?id_platform=<requested_id_platform>&mode=catalog.E.g. apps.socib.es/DataDiscovery/mooring-last-data?id_platform=14&mode=catalog

Fixed station variable data

- Description: Fixed station variable data, provides the variable name, standard name, units and data list. The each measure of variable data list contains the time stamp in milliseconds and parameter value associated to this time. The data time coverage will be at least one month and at maximum two months. The sample interval can be defined as parameter request(sample = 1 means show all meassures, 10 means show 1 per each 10 messures. If non-defined, default value is 50). The output could be json or csv comma separated.

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Servlet request: id_platform = the platform id, id_instrument = the instrument id (Omit if is platform product), id_variable = the variable id, sample = the number of meassures to be shown, output = {json|csv}

- url: apps.socib.es/DataDiscovery/mooring-variable-plotting-data?id_platform=<requested_platform_id>&id_variable=<requested_variable_id>&output=<output_mode>. E.g.apps.socib.es/DataDiscovery/mooring-variable-plotting-data?id_platform=14&id_variable=10477&output=json

Fixed station services

- Description: Fixed station services provides information related with platform data distribution services. It includes the platform name, platform type and the instrument list with platform product if available. Each instrument contains the name, the type, the state, thredds link to the instrument data, jweb chart link to plot the instrument data and link to download the latest data in NetCDF format.
  Servlet request: id_platform = the platform id

- url: apps.socib.es/DataDiscovery/mooring-services?id_platform=<requested_id_platform>. E.g.apps.socib.es/DataDiscovery/mooring-services?id_platform=14

Fixed station info

- Description: Fixed station info provides technical information of the platform. This information includes the information of each instrument associated to the platform and information of each sensor associated to the instrument (name, model, manufacture and type). Also the information of the variables it is able to measure, like the standard name and units.
  Servlet request: id_platform = the platform id

- url: apps.socib.es/DataDiscovery/mooring-info?id_platform=<requested_id_platform>. E.g.apps.socib.es/DataDiscovery/mooring-info?id_platform=14

3.2. Web application layer

The web application gets the information from the list of services defined.

3.2.1. Fixed station home

The fixed station home view gets the information from the service “fixed station list”.

3.2.2. Platform overview

The fixed station overview view gets the information from the services “Fixed station brief information”, “Fixed station last data (overview mode)” and “Fixed station info”.

The “Fixed station brief information” service retrieve the needed information to be displayed in the following part of the view, see Illustration 6.

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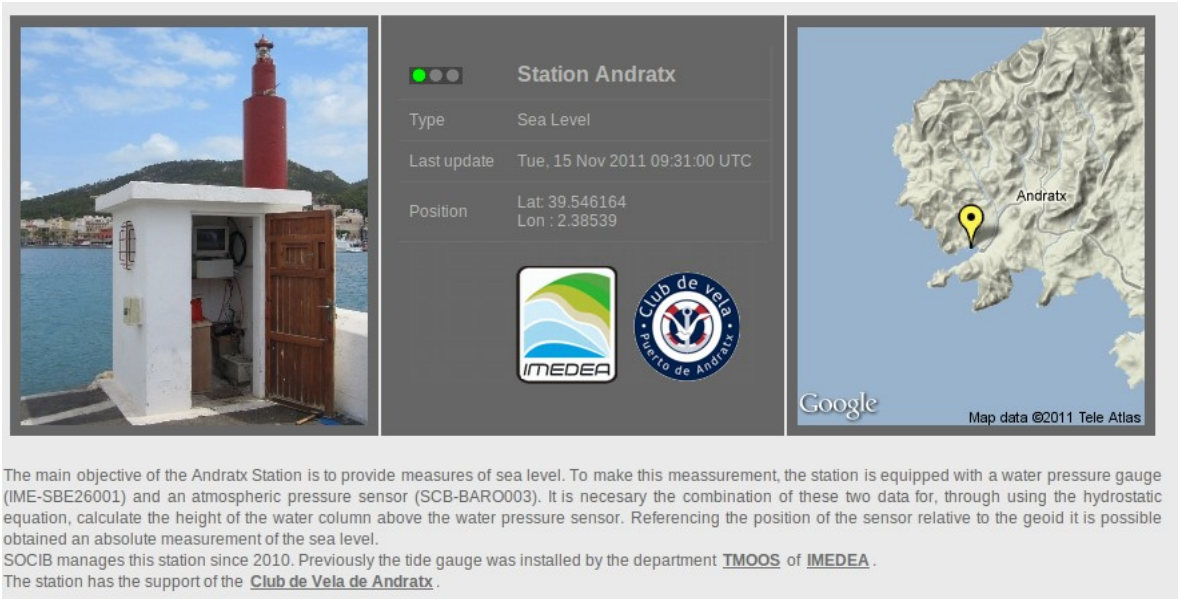

illustration 7: Fixed station brief information

The “Fixed station latest data (overview mode)” service retrieve the needed information to be displayed in the following part of the view, see Illustration 7.

illustration 8: Fixed station latest data (mode overview)

The “Fixed station info” service retrieve the needed information to be displayed in the following part of the view, see Illustration 8 .

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illustration 9: Fixed station info

3.2.3. Fixed station latest data

The fixed station latest data view gets the information from the service “Fixed station last data (detail mode)”.

The fixed station data chart view gets the information from the services “Fixed station last data (catalog mode)” and ”Fixed station variable data”.

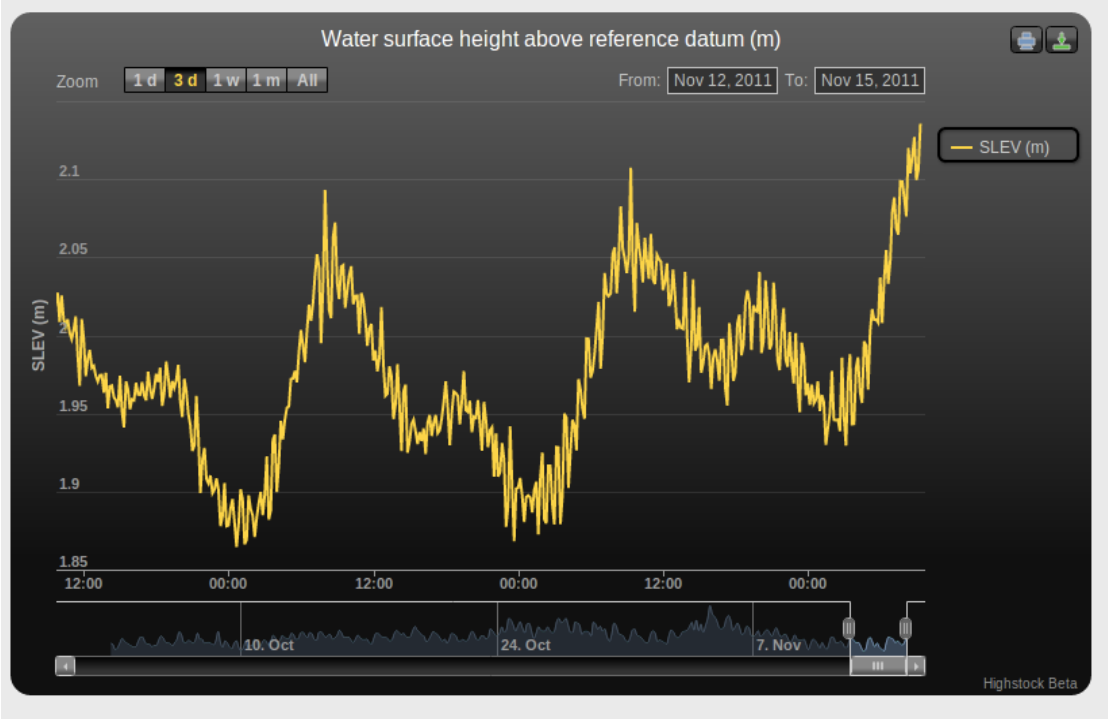

illustration 10: Fixed station variable data. Plot the variable data

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The “Fixed station variable data” service retrieve the needed information to be displayed in the following part of the view, see Illustration 9.

3.2.4. Fixed station data access

The fixed station data access view retrieve the information from the service “Fixed station services”.

4. Glossary

Bounding box position: [geospatial_lat_min, geospatial_lat_max, geospatial_lon_min, geospatial_lon_max]

Coastal station: Station composed by instruments of different types such as tide gauges, weather station, barometers, ct-recorders, etc.

CSV: Comma-Separated Values

NC: **NetCDF** abbreviation.

Platform: Association of instruments deployed jointly with a common goal.

Platform product: Is the result of deriving new variables by using the information collected from different instruments within the platform.

QC: Quality Control.

State: Indicates the platform instrument state.

- all-outdated: all instruments data are out dated in time
- all-updated: all instruments data are updated in time
- some-updated: some instruments data are updated in time

THREDDS: **Thematic Realtime Enviromental Distributed Data Services** Thematic Realtime Environmental Distributed Data Services.

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