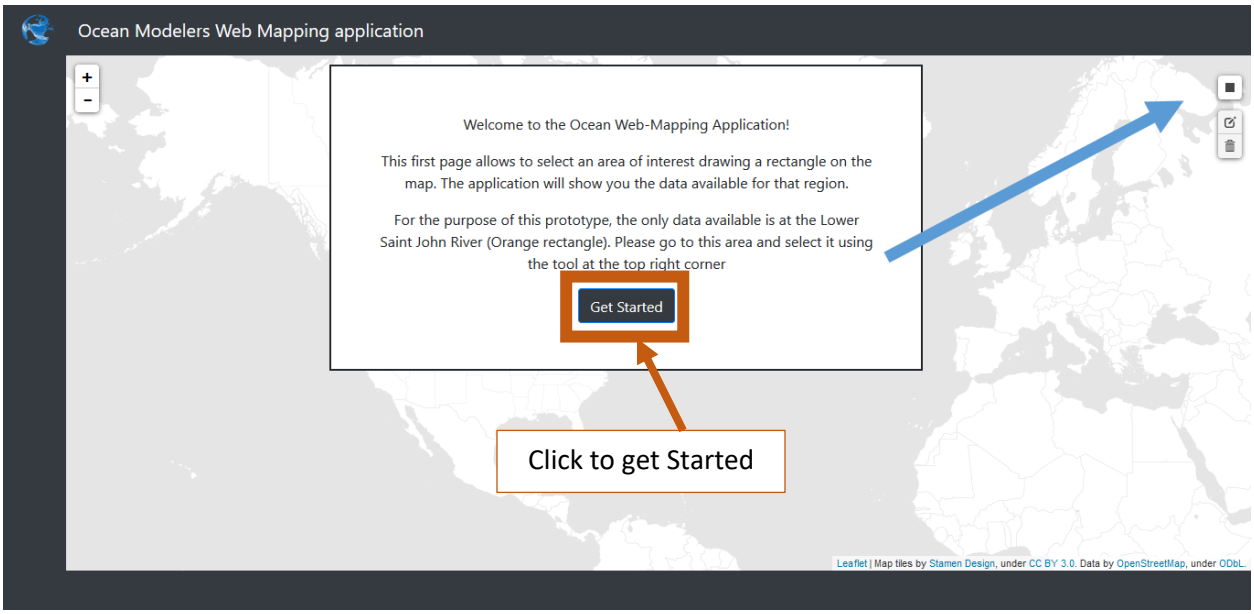
User manual

Accessing the site

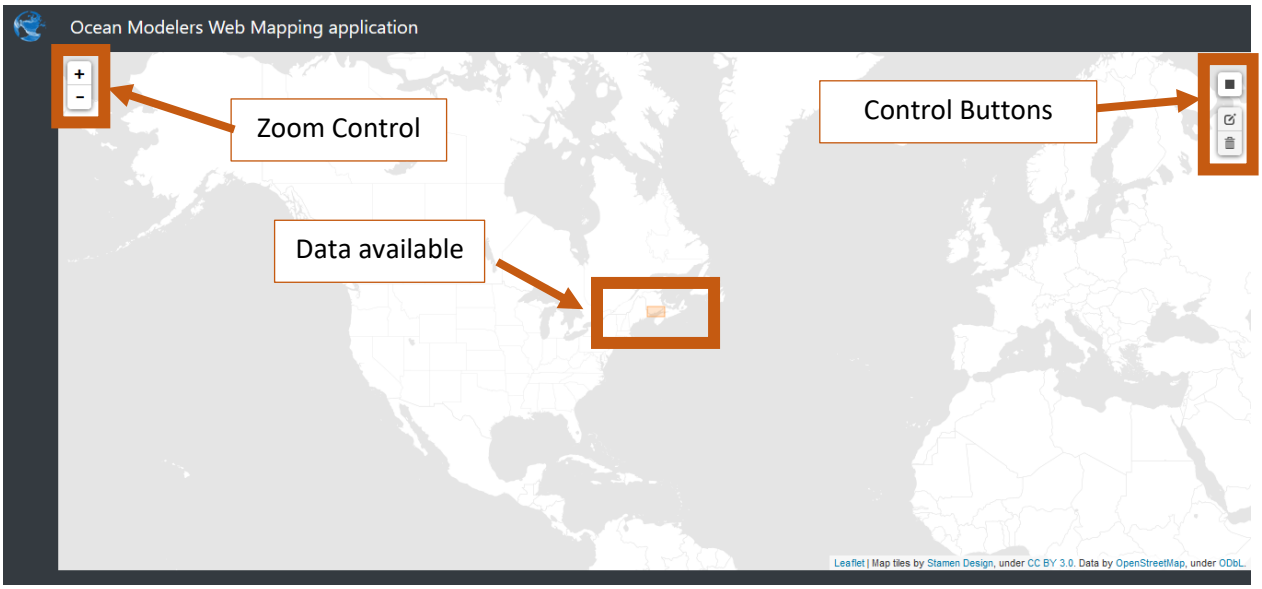
Once the web page is loaded, a welcome page is presented to the user. To access the site, please click the access site button.

After clicking this button, a new page will appear, showing a map and a welcome message to the user, indicating the instructions to get started and select the area of interest.

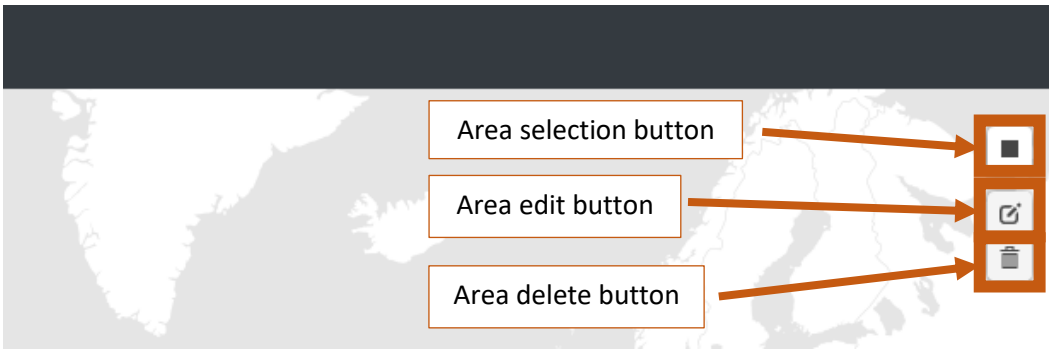


Clicking on the Get Started button, the popup window disappear, and the user can explore the data available on the site (shown by orange rectangles). In this map view, the basic zoom controls for

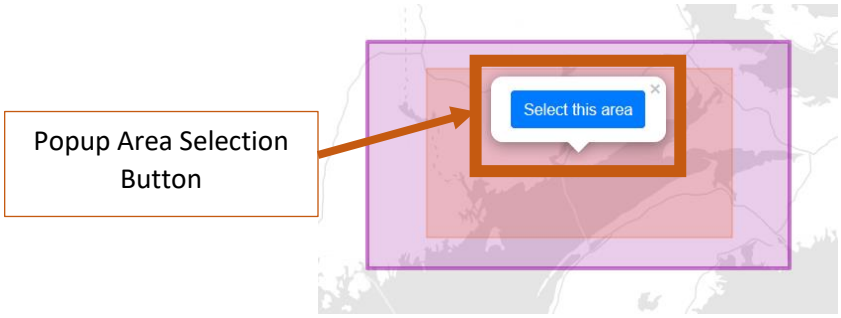
the map are situated at the upper left corner, and the tool control buttons situated at the upper right corner. Hovering over the orange rectangles, the name of the area will be shown.



There are three map control buttons: Area selection button, Area edit button and Area delete button. To select the area of interest, the user needs to click Area selection button, represented on the map by a rectangle image button. The drawing mode is activated (mouse changes to a cross), and the user can click on the map to start drawing (inserting upper left corner) and click again to finish the drawing (inserting bottom right corner). After creating an area to select, the user can edit it or delete it using the other two buttons.



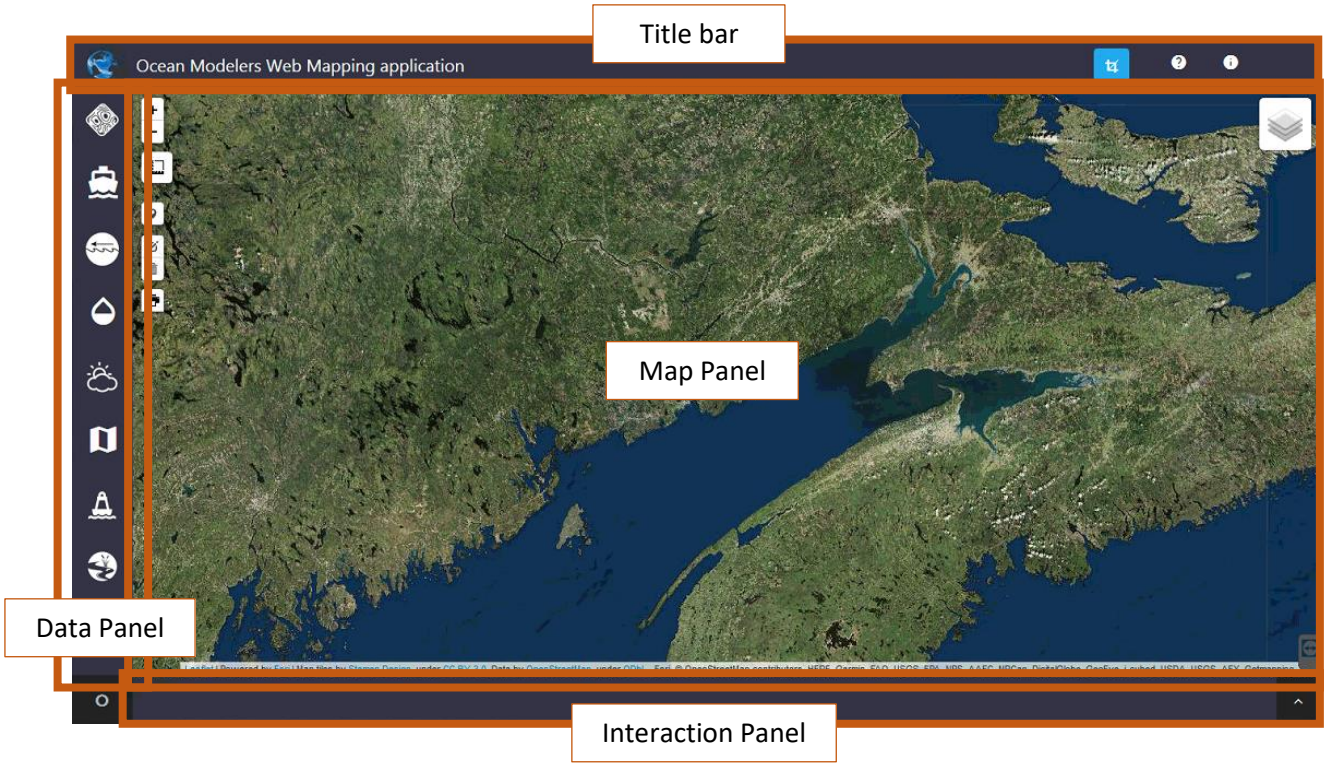
After drawing the rectangle for the desired area, a pop up window will be shown with a button to select this area. This allows the user to modify their selection if desired.



After clicking the popup area selection button, the application will show the web application main page, centered in the area of interest selected by the user.

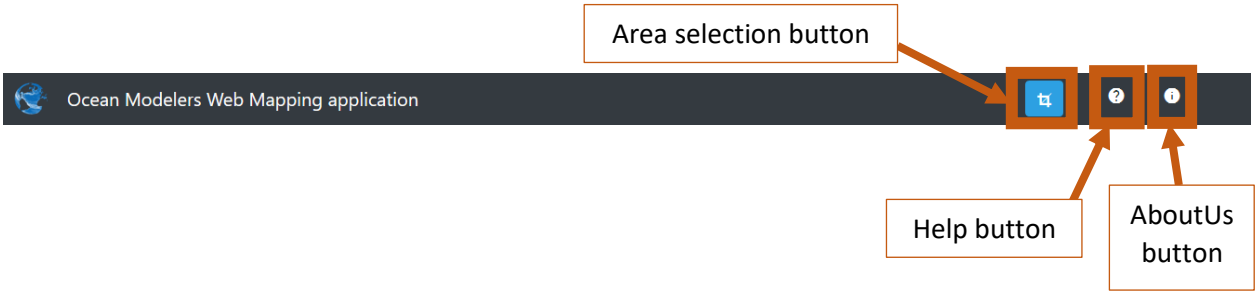
Main Page description

The main page allows to access the data that is available in the platform, and it is divided in a title bar and three main Panels: Map Panel, Data panel and Interaction Panel.



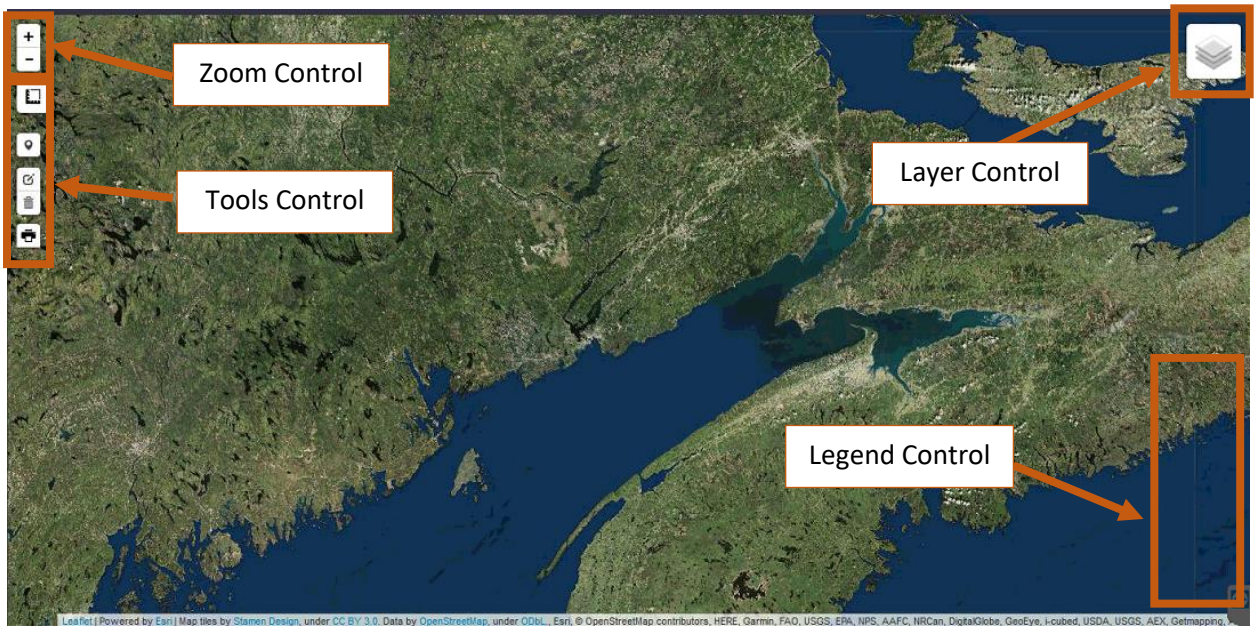
Title bar

The title bar includes the logo and title of the app, and three simple functions: select the map area again, help (tutorial) and about. To select the area again, click on the button and it will take the user to the previous select area page. The help and about button redirect to the tutorial and the Ocean Mapping Group page respectively.

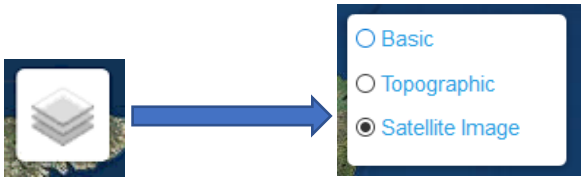


Map view

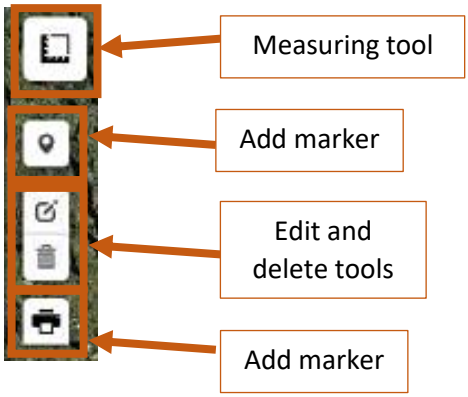
The map view is the interface where all the data will be loaded. It includes the following controls:



- Basic zoom controls: it allows to zoom in and zoom out the map.
- Layer control: to change between basemaps and turn on/off overlay layers.



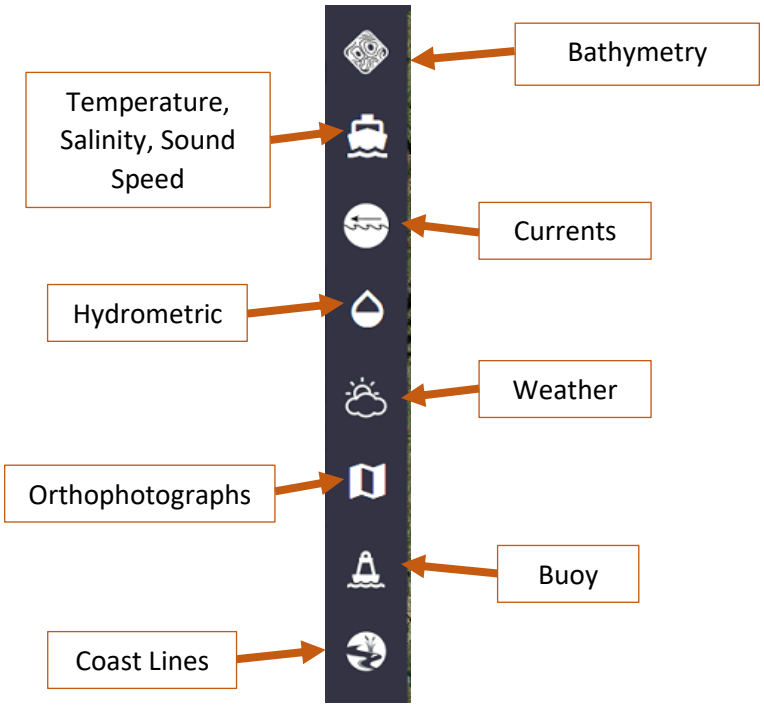
- Tools control: it includes the following: measuring tools, adding markers, editing and deleting tools, and printing tools.



- Legend control: it will change depending on which data is load on the map.

Data Panel

The Data Panel provides the controls to load the different datasets on the map: Bathymetry, Temperature, Salinity and Sound Speed, Water Velocity (currents), Weather, Hydrometric data, Buoys and Coast lines. Only one data set can be loaded at a time. Each data is represented by a characteristic icon.

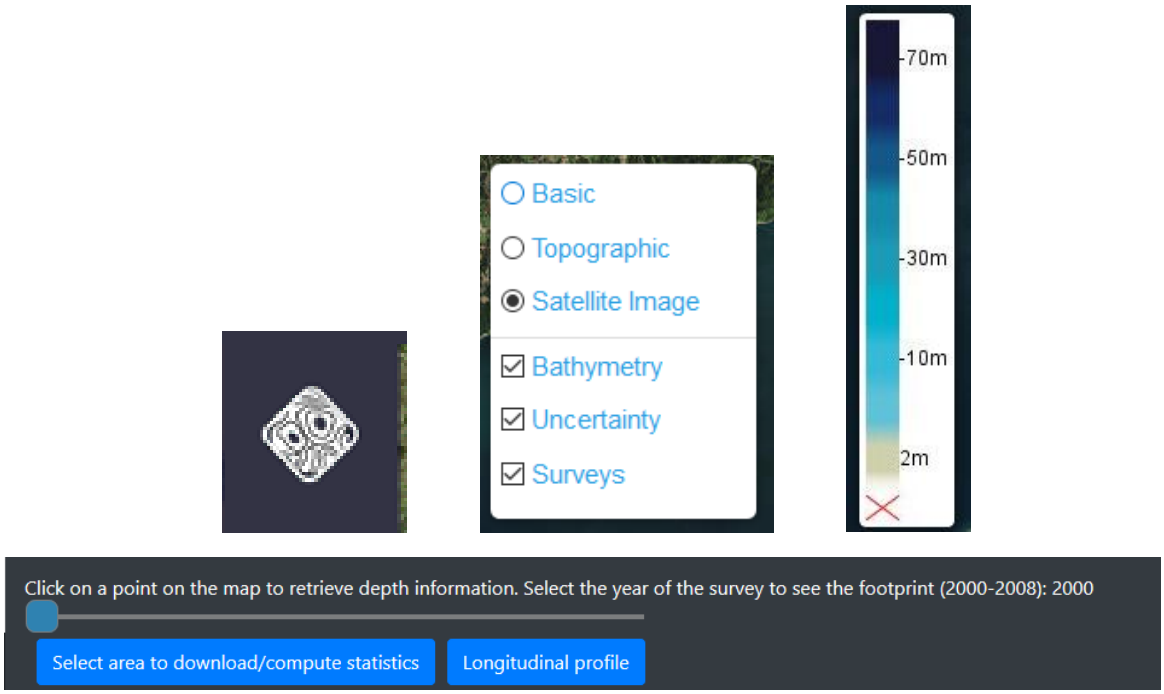


Interaction Panel

The interaction panel will be opened every time a dataset is loaded on the map, changing the options depending on the data layer. Therefore, it will provide with the specific tools for each layer (download data, plots, profiles, time filter/search…).

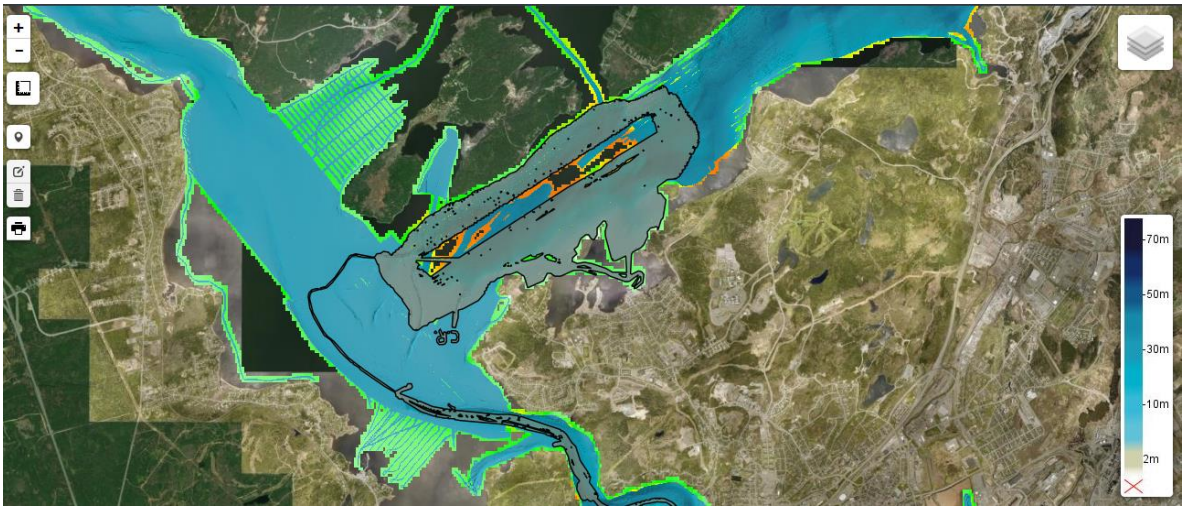
Bathymetry data

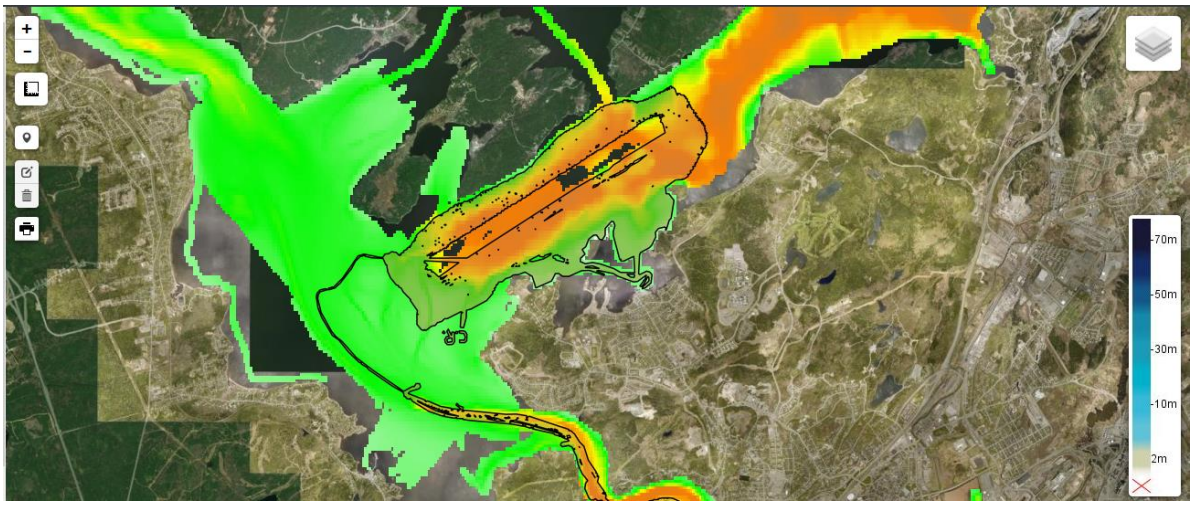
Bathymetry is loaded on the map clicking on the correspondent icon in the Data panel. This action will open the interaction panel, that will show the function controls for the Bathymetry data: time filter, select area to download or compute statistics, calculate a longitudinal profile. Bathymetry data consists of three kinds of data: Bathymetry (depths), Uncertainty (uncertainty associated to each depth measurement) and surveys (survey footprints for each year). These layers can be turned on and off in the layer control. Also, when bathymetry is activated, the legend will be shown in the legend control.



Visualize bathymetry data

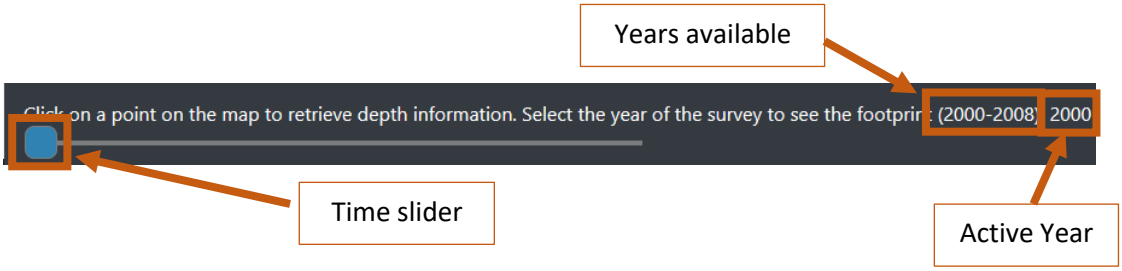
Once activated, the user can navigate the map to visualize the bathymetry, uncertainty and survey data. The bathymetry is represented as a blue color ramp colored by depth, the uncertainty is a color ramp by uncertainty values and each survey polygon is colored by a different color in order to distinguish them.

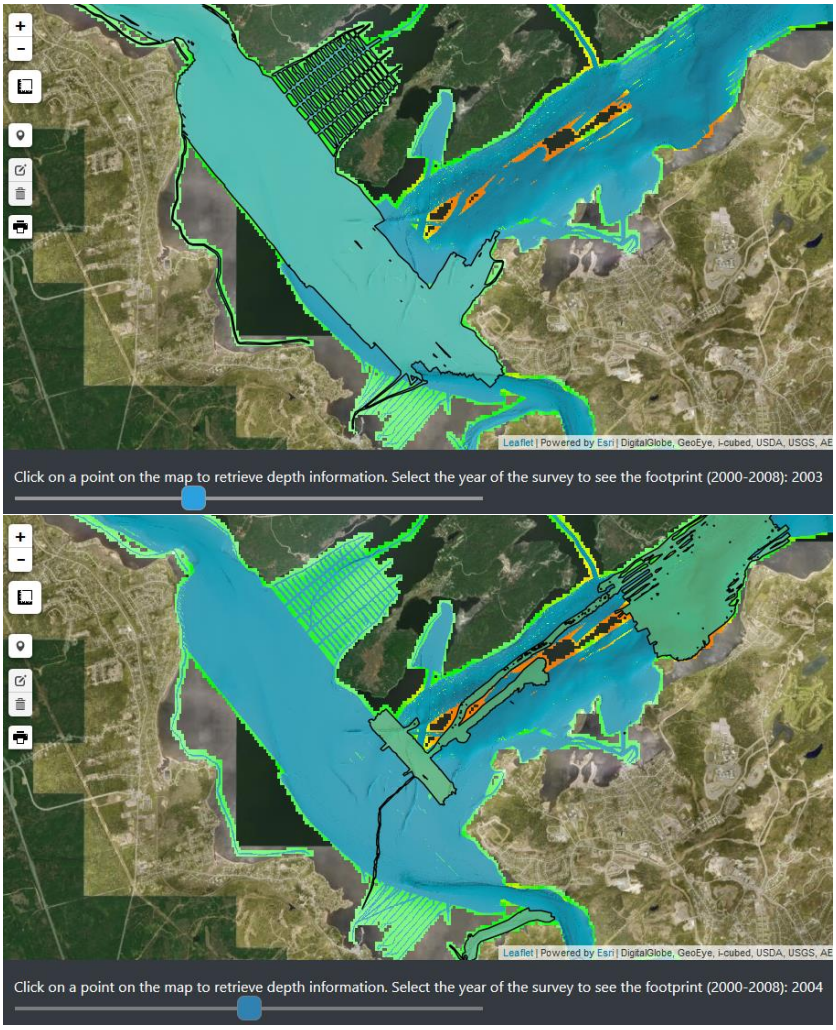




Time Filter

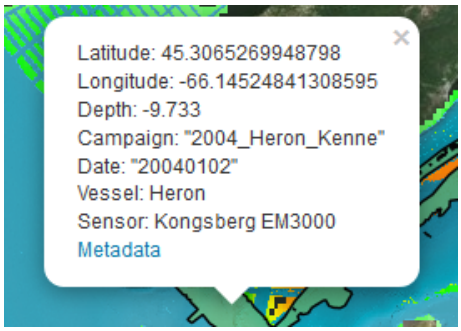
The time filter functionality for the bathymetry data allows to change the year of the surveys displayed on the map. It consists of a time slider which the user can interact with. Sliding left and right will change the year on the map display.





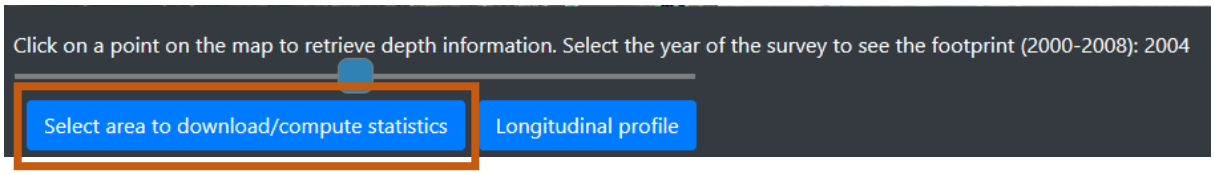
Query coordinates and metadata

In order to query coordinates on the map (latitude, longitude and depth) and access the metadata of each survey, the user needs to click on the bathymetry layer. Once clicked, a pop up window will be shown, including the coordinates, information about the survey and a link to the metadata.

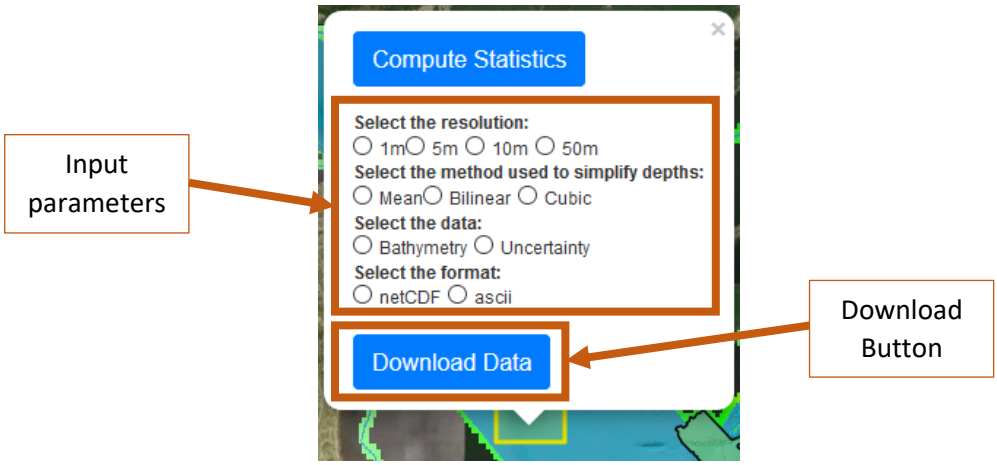


Download data

To download data, the “Select area to download/compute statistics” button needs to be clicked.

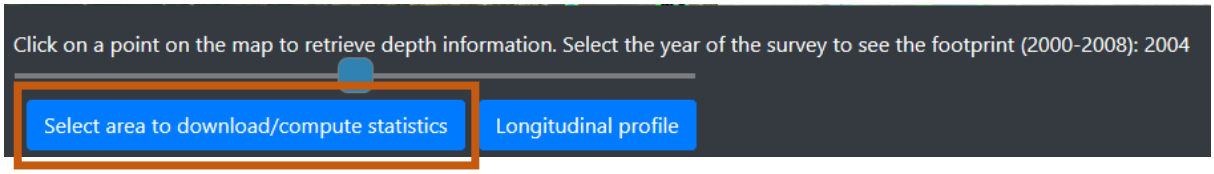


After clicking the button, the drawing tool is activated and the user can draw a rectangle on the map (first click for the upper left corner and last click for bottom right corner). After the area is drawn, a popup window appear, showing all the different parameters that the user can select regarding bathymetry data: resolution, resampling method, data (bathymetry or uncertainty) and format (NetCDF or ASCII). After selecting the parameters, the user needs to click on the download button, which will retrieve the data in the desired format.

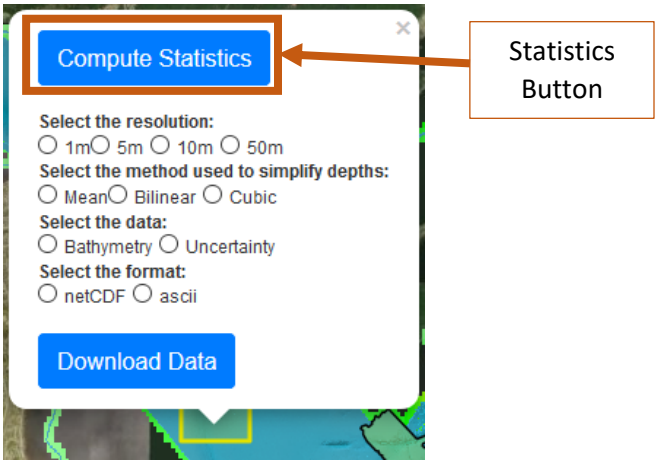


Compute Statistics

To compute the statistics for a bathymetry area, the “Select area to download/compute statistics” button needs to be clicked.



After clicking the button, the drawing tool is activated and the user can draw a rectangle on the map (first click for the upper left corner and last click for bottom right corner). After the area is drawn, a popup window appear, showing a button to compute the statistics. After clicking this button, the statistics are computed and showed in a new window.



Area covered:

POLYGON((-66.17322921752931 45.30833794299046,-66.17322921752931 45.31208038574603,-66.16516113281251 45.31208038574603,-66.16516113281251 45.30833794299046,-66.17322921752931 45.30833794299046))

Total number of Depths: 410262

Maximum depth: -5.89499998093

Minimum depth: -12.3109540939

Average depth: -9.0193332067

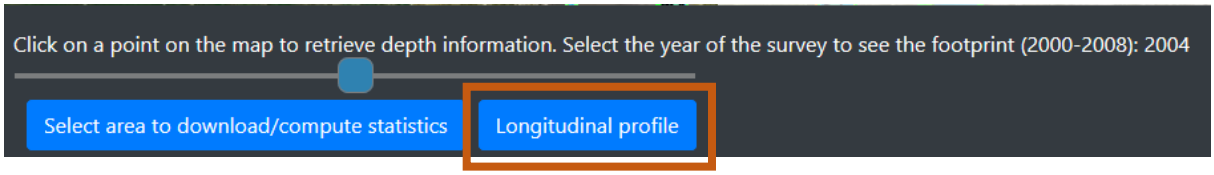
Standard deviation: 0.977552735684

The results show the following outputs:

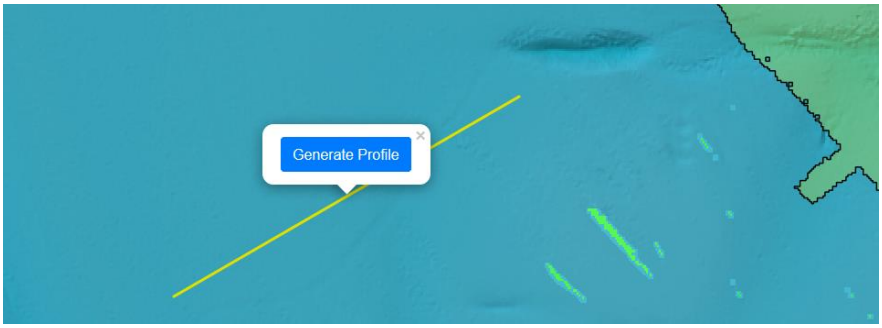
- Area covered: the coordinates for the area that the user selected (in WKT format).
- Total number of Depths: total number of depths in the area, which were used to compute the statistics.
- Maximum depth: the shallowest depth on the area.
- Minimum depth: the deepest depth on the area.
- Average depth: the average depth of the area.
- Standard deviation: the standard deviation of the area.

Calculate Longitudinal Profile

To calculate a longitudinal profile for an input line, the “Longitudinal Profile” button needs to be clicked.



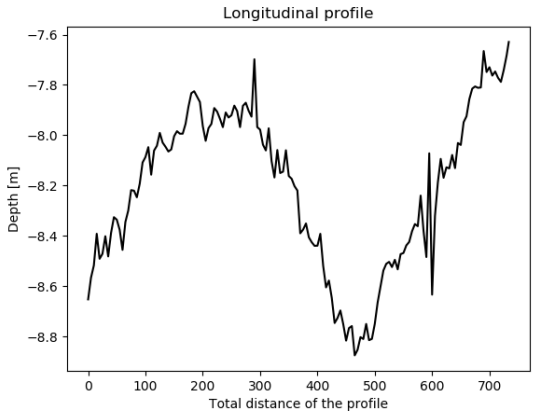
After clicking the button, the drawing tool is activated and the user can draw a two points line on the map (first click for the first point and last click for second point that will close the drawing tool). After the line is drawn, a popup window appear, showing a button to Generate the profile. After clicking this button, the profile is calculated and showed in a new window.



Total length of the profile: 733.734913011

Starting point: [-66.1644744873047, 45.303961469764886]

Ending point: [-66.15636348724367, 45.307251464813774]



Download profile png

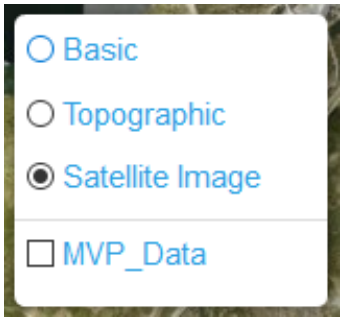
Download csv file

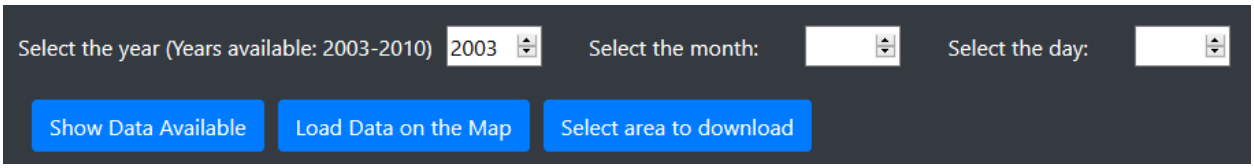
The results show the following outputs:

- Total length of the profile: the total length of the inputted line in meters.
- Starting point: the coordinates for the first point of the profile.
- Ending point: the coordinates for the last point of the profile.
- Longitudinal profile plot: an image showing the profile calculated.
- Button to download profile in png format: clicking this button the profile will be downloaded as an image.
- Button to download profile in csv format: clicking this button the profile will be downloaded as a csv file, including the point number, latitude, longitude and depth.

Temperature, Salinity and Sound Speed data

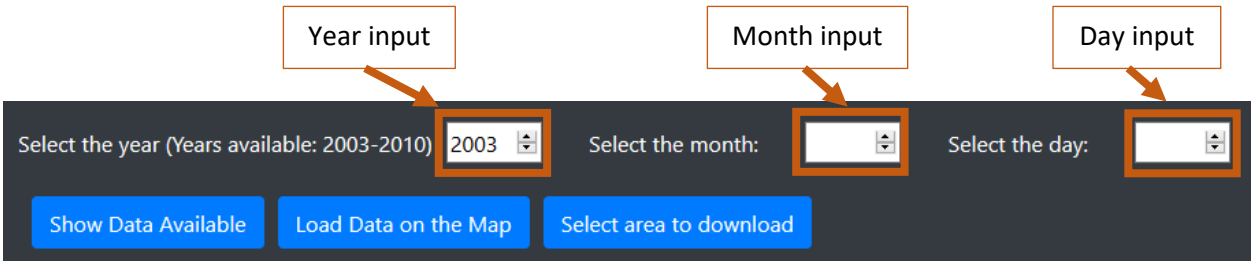
Temperature, Salinity and Sound Speed data is loaded on the map clicking on the correspondent icon in the Data panel. This action will open the interaction panel, that will show the function controls for this data: time filter/Search, show data available, Load data on the map and select an area to download. The T/S/SS layer can be turned on and off in the layer control. Also, when the layer is activated, the legend will be shown in the legend control.





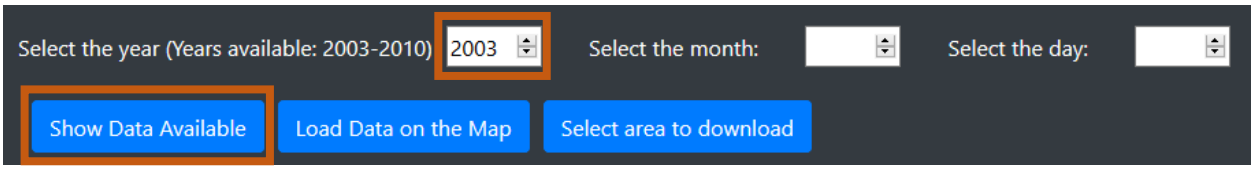
Time Filter/Search

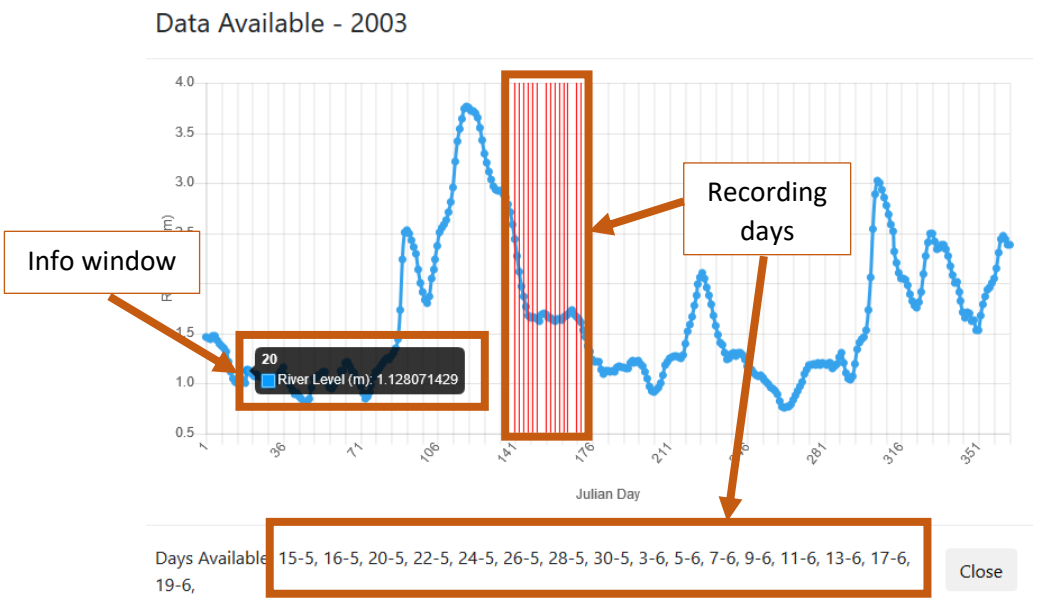
The time filter functionality for the T/S/SS data allows to show the data available for a particular year, and to load data on the map for a particular time period (year, month and day). It consists of three inputs: year input, month and day input.



Show data Available

This functionality allows to show the T/S/SS data available for a year. After the year is inputted in the year input box, clicking on the data available button will popup a graph showing all the data recorded that year.

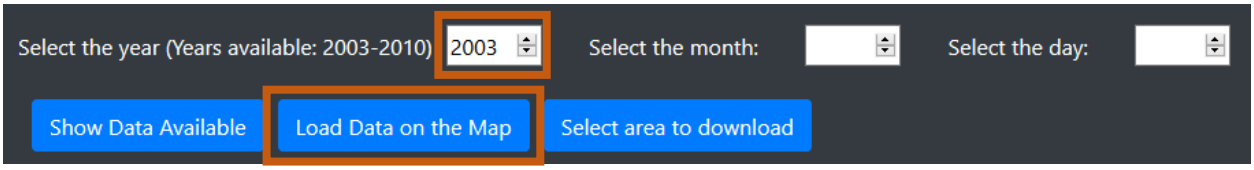




The graph shows river levels for each day of the year, represented as a blue line; as well as recording days plotted as vertical red lines. At the bottom of the graph, the days available are presented as a Day-Month format (so the user can take the day and month and show the data on the map). Hovering over the river levels, an info window will show the river level and day of the year.

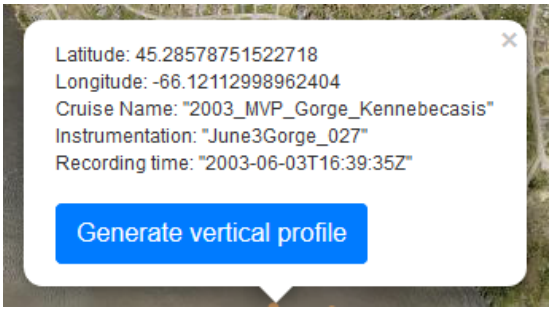
Visualize data on the map

To visualize the data on the map, a time period needs to be selected. The data can be loaded for a whole year (only filling the year input box), for a month (filling year and month box) and for a specific day (filling the three input boxes).



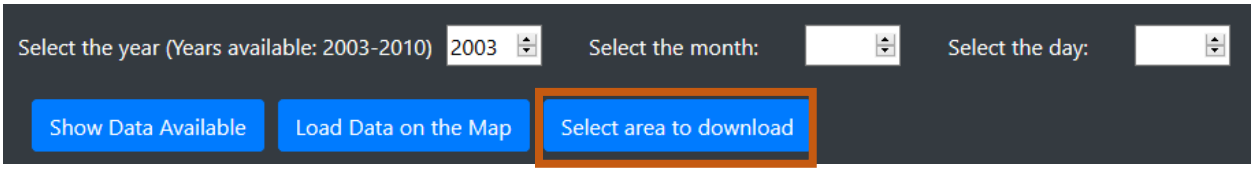
Once the Load Data on Map button is clicked, the data can be visualized on the map. The data is represented as points colored by the season they were recorded in.

Clicking on a point on the map, information about point coordinates, time, and the survey the data was recorded.



Select an area to download

To download data, the “Select area to download” button needs to be clicked.



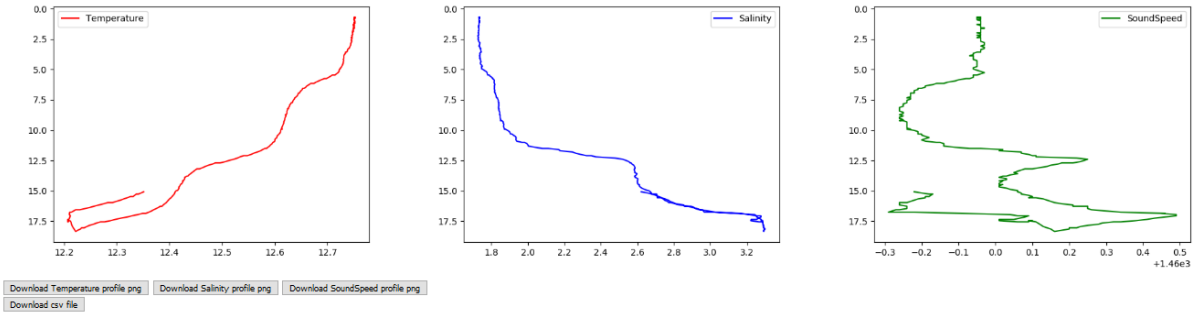
After clicking the button, the drawing tool is activated and the user can draw a polygon on the map (clicking consecutive points and clicking on the first point to finish the drawing). After the area is drawn, a popup window appear showing a download profiles button. After clicking on the button the user recieves the data in a csv format, showing the coordinates for each selected point (as a header) and the Temperature, Salinity, Sound Speed values for each Depth.

Calculate Vertical profile

To calculate a vertical profile, the T/S/SS data must be loaded to the map first and then a point must be selected. In the popup window that appears after selecting a point, there will be a Generate Vertical Profile button.

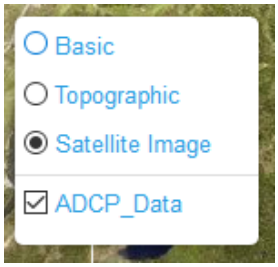
Clicking on this button opens a new window where the vertical profiles for the selected points are generated. The results show the following outputs:

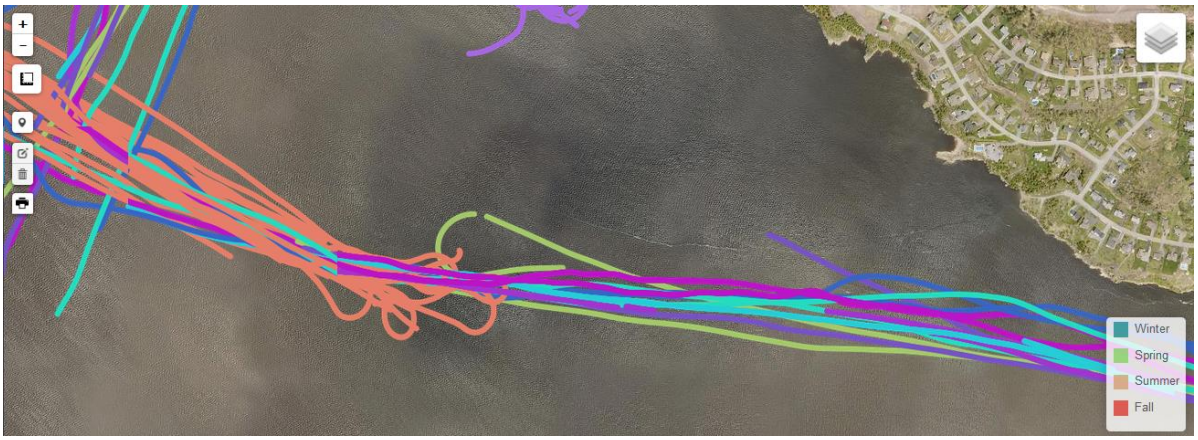
- Vertical profile red plot representing temperature over Depth.
- Vertical profile blue plot representing salinity over Depth.
- Vertical profile green plot representing sound speed over Depth.
- One Button to download each profile in png format: clicking this button each profile will be downloaded as an image.
- Button to download profile in csv format: clicking this button the profile will be downloaded as a csv file, including a header (cruise, station, lon, lat, timestamp, bottomDepth) and the data as Depth, Temperature, Salinity, Sound Speed.



Current data

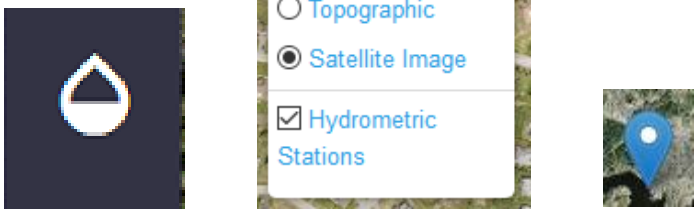
Current data has the same format and functionalities than Temperature, Salinity and Sound Speed data. Please refer to this section for further details. At the moment of writing this tutorial, the data download functionality is not available yet, neither profiles generation.

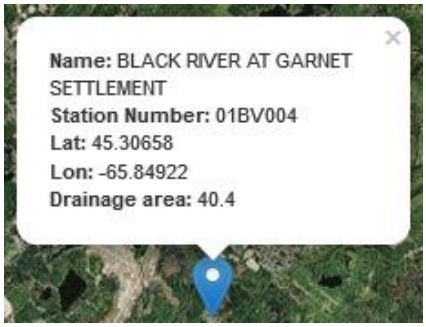


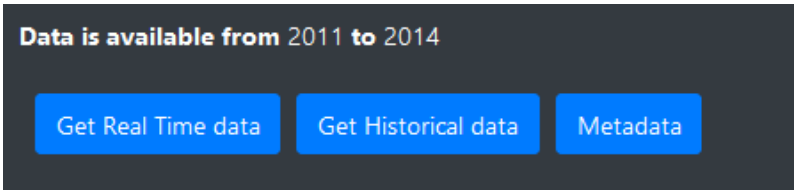


Hydrometric Data

Hydrometric data is loaded on the map clicking on the correspondent icon in the Data panel. The data are hydrometric stations represented as blue markers on the map. Clicking on a station will open a popup window with the station information, as well as the interaction panel, showing the year range the data is available, and the function controls for the station: Get real time data, Get historical data and access the metadata.



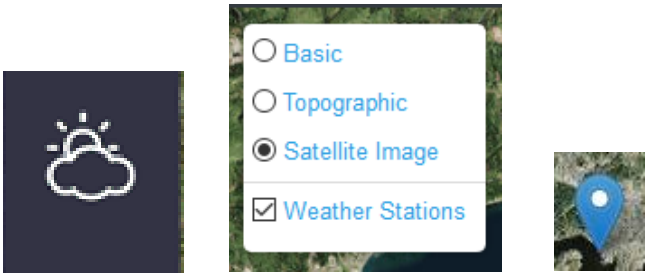


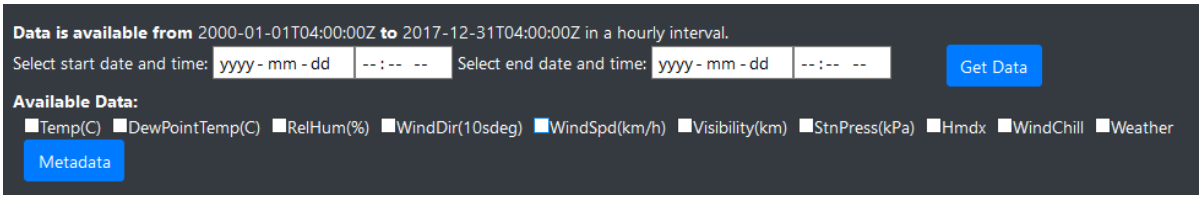


Get Real Time and Historical data buttons will open a new window with the station data from the Government of Canada web page. Following the instruction in that page will allow the user to download data for a particular station.

Weather data

Weather data is loaded on the map clicking on the correspondent icon in the Data panel. The data are weather stations represented as blue markers on the map. Clicking on a station will open a popup window with the station information, as well as the interaction panel, showing a form for data download and the link to the metadata.

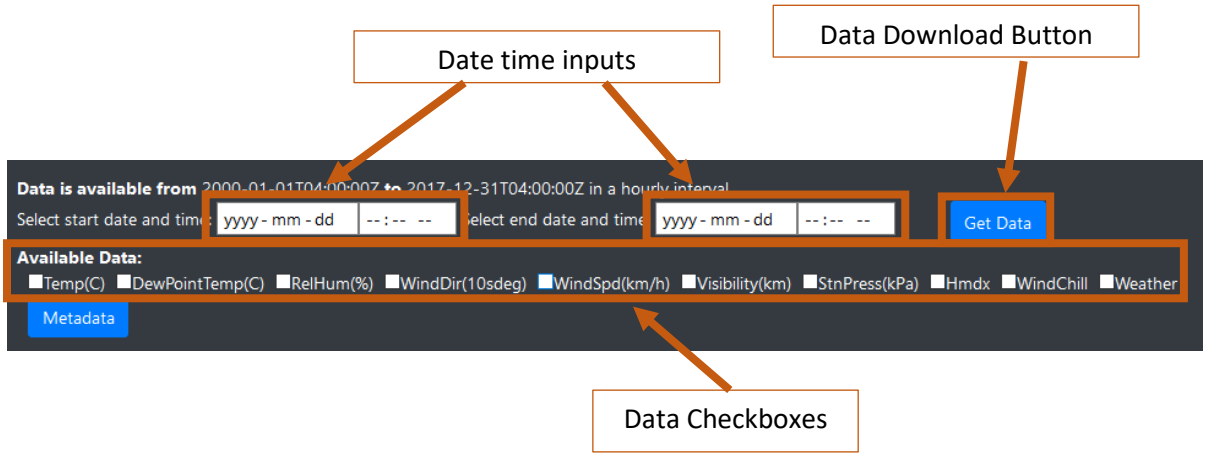




Download weather data

Weather data is downloaded through the form showed in the interaction panel after clicking on a station. The parameters that needs to be imputed are: starting date and time, end date and time and the kind of data that wants to be downloaded (check boxes). The format for the date and time is the following:

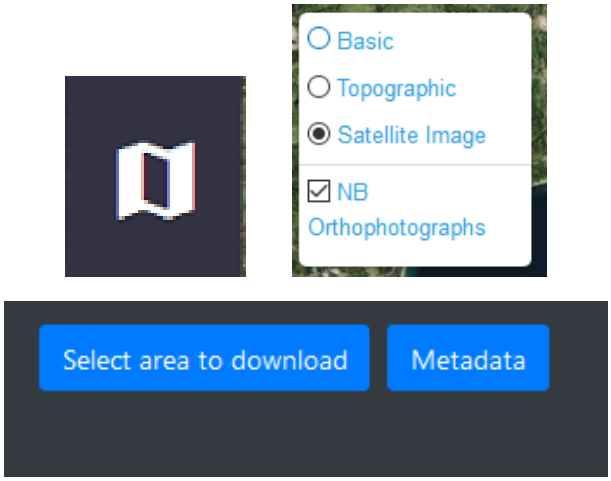
yyyy-mm-dd hh:mm AM/PM



After entering the input data on the form, the Get Data button must be clicked to download the data. The data is downloaded in a csv file containing all the variables selected on the checkboxes.

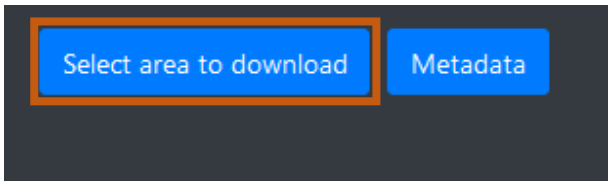
Orthophotographs

Orthophotographs are loaded on the map clicking on the correspondent icon in the Data panel. This action will open the interaction panel, that will show the function controls for the Orthophotographs data: Select area to download and access the metadata. The layer can be turned on and off in the layer control.

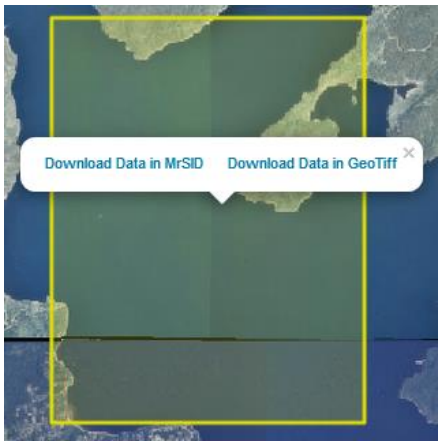


Download an orthophoto area

To download data, the “Select area to download” button needs to be clicked.

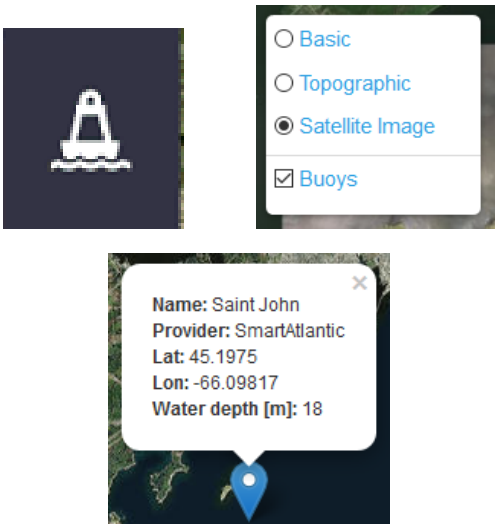


After clicking the button, the drawing tool is activated and the user can draw a rectangle on the map (first click for the upper left corner and last click for bottom right corner). After the area is drawn, a popup window appear, showing the formats available (MrSID or GeoTIFF). After clicking on any of the links, the data will be retrieved in the desired format.



Buoy Data

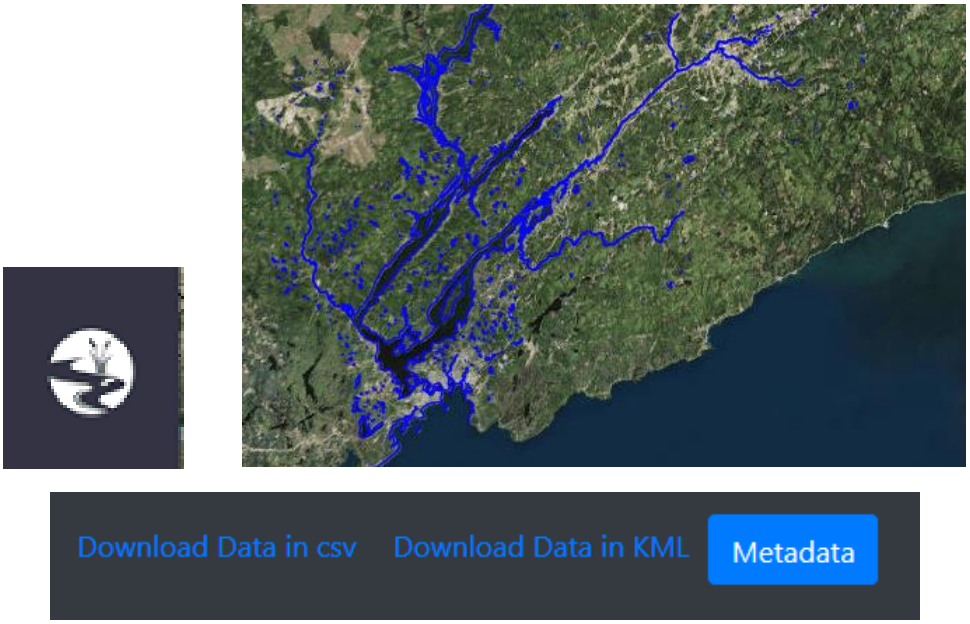
Buoy data is loaded on the map clicking on the correspondent icon in the Data panel. The data are Buoy stations represented as blue markers on the map. Clicking on a station will open a popup window with the station information, as well as the interaction panel, showing all the sensors available for that buoy, and a button to access that buoy data.



The access buoy data button will open a new window with the station data from the smart atlantic Canada provider. Following the instruction in that page will allow the user to download data for a particular buoy.

Coast Lines Data

Coast Lines data is loaded on the map clicking on the correspondent icon in the Data panel. The coast lines data is represented as blue lines on the map. This action will open the interaction panel, that will show the function controls for the Coast Line data



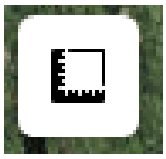
The only options available for coast lines data is to download in two different formats: CSV and KML. Clicking in any of the links will retrieve the data and send it to the user in the clicked format.

Other tools

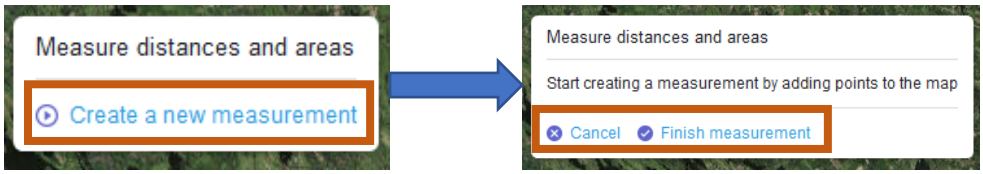
The Tools control on the map page includes additional basic functionality.

Measuring tool

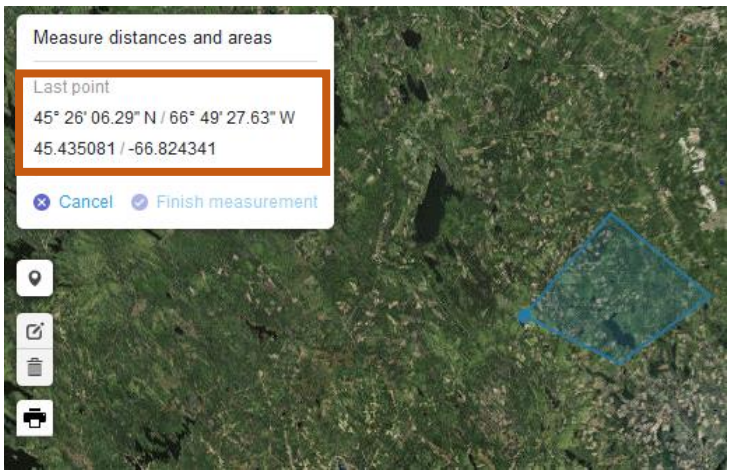
The measuring tool allows to measure distances and areas, and it is represented as a ruler icon situated at the upper left corner of the map.



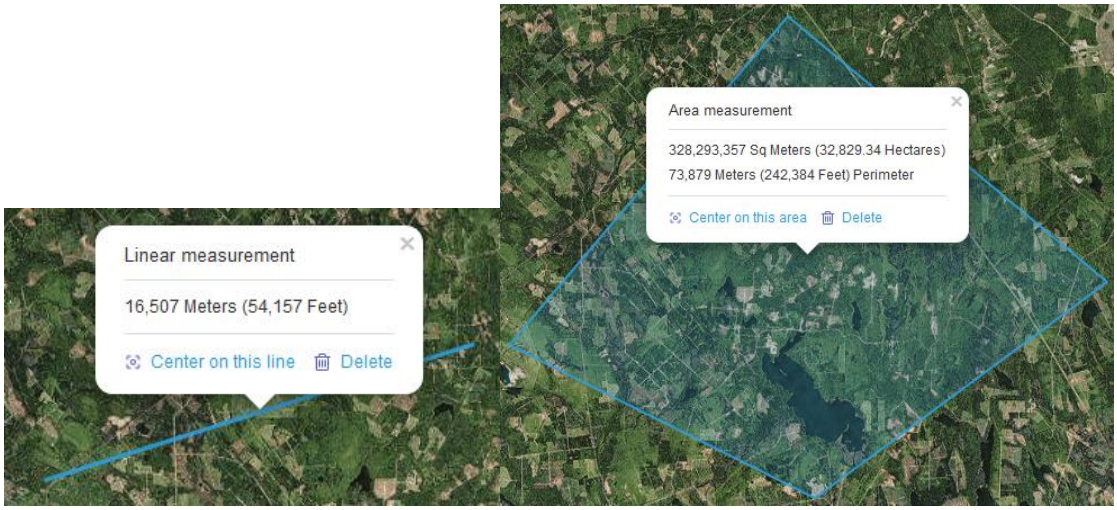
To start a new measurement, hover over the tool and select create a new measurement. After clicking on the link, the dialog changes and the user can start adding points to the map for the measurement. To cancel the measurement, click on cancel. To finish the measurement click on Finish measurement.



After inserting each point, the dialog changes to show the coordinates of the last point added.



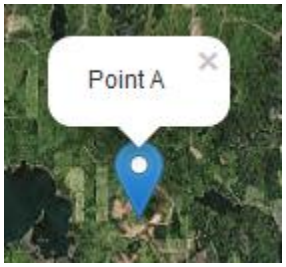
After finishing the measurement (linear or area) a popup window will be attached to the entered points, showing the linear/area measurement results.



Add a Marker

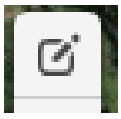
The add marker tool allows to add a marker on the map and insert a comment on the popup window. To activate this tool, click on the marker symbol at the upper left corner of the map.

After clicking on the icon, a marker is attached to the pointer and can be dropped anywhere on the map. After dropping the marker, a dialog will popup to enter the information for the market. Click enter to attach the information to the marker.

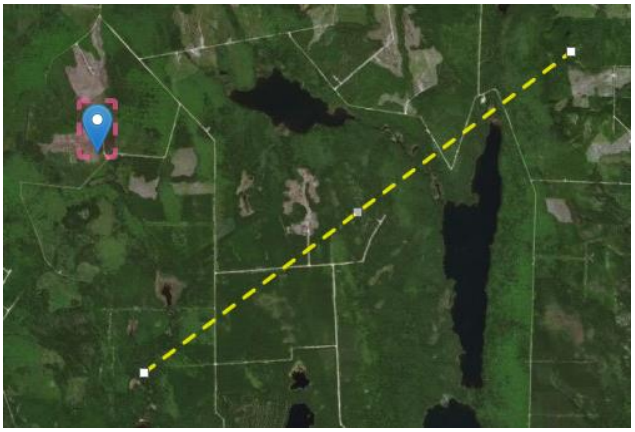


Edit Features

The editing feature tool allows to edit any vector feature on the map. To activate this tool, click on the editing icon at the upper left corner of the map.



This tool allows to drag and drop existing markers and to change vertex of existing lines and polygons.

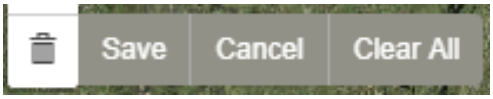


After editing any feature, the save button that appeared at the right of the icon needs to be clicked to save the changes. Clicking the cancelling button, all the edits will be cancelled.

Delete Features

The delete feature tool allows to delete any vector feature on the map. To activate this tool, click on the delete icon (garbage can) at the upper left corner of the map.

After activating the tool, clicking in any added feature will delete it from the map. There are three buttons attached to the tool after activating, Save (it will save the changes), Cancel (it will cancel the changes), Clear All (it will delete all the features from the map at once).



Print Map

The print map tool allows to print the current view of the map (included any feature added to it). To activate this tool, hover over the printer icon at the upper left corner of the map.

Hovering over the printer icon, shows three available options: printing the current size of the map (two arrows icon), printing an A4 portrait of the map (portrait sheet icon) and printing an A4 landscape of the map (landscape sheet icon).