BAS Web map services user guide

At British Antarctic Survey (BAS) and within the Mapping and Geographic Information Centre (MAGIC) a series of web map services are hosted and developed for sharing and visualising geospatial data.

These map visualisation sites include:

- Antarctic Digital Database (ADD): http://www.add.scar.org/
- South Georgia GIS : http://www.sggis.gov.gs/
- Antarctic Peninsula Information Portal (APIP) : http://www.add.scar.org/home/apip
- Antarctic Place-names Committee : http://apc.antarctica.ac.uk/
- iSTAR GIS : http://gis.istar.ac.uk/

Each map visualisation provides various tools and features to explore the geospatial data available and this guide provides an in-depth explanation of the various features available on all webmaps.

For each web map visualisation the same web map infrastructure is used which includes a main webmap header panel, the dataset navigation panel (left) and main map viewer window (centre).

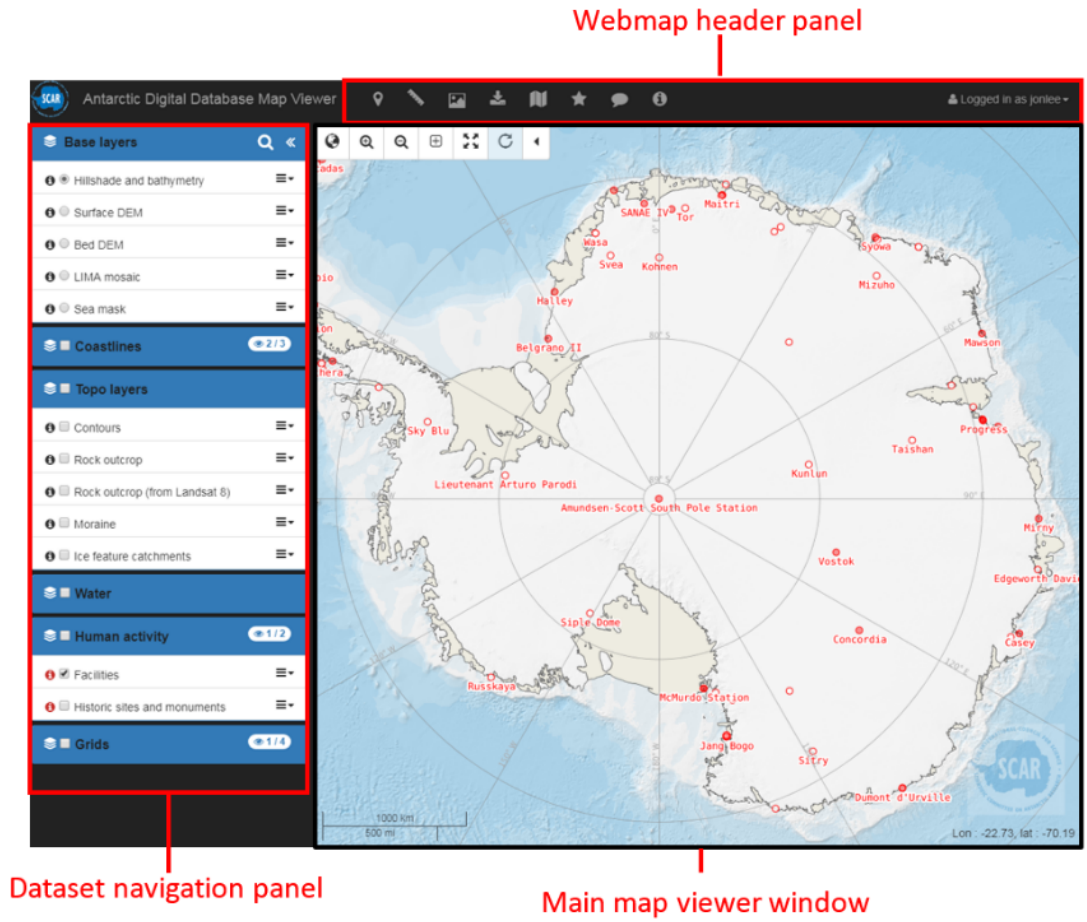


Figure 1: ADD map viewer with main web map features (header panel. navigation panel, map viewer).

1. Main webmap header panel

To access all header panel tools the user must log into the web map services server using their username and password. For certain webmaps no user login is required but for webmaps with restricted datasets (e.g. iSTAR webmap) the user must login to access certain options (e.g. data download repository).

1.1. Place names and locations button

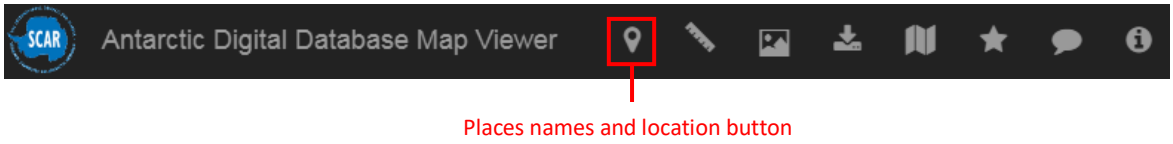


Figure 2: Place names and location button on the webmap header panel

With this tool you can search for a place name (e.g. Rothera) and you the search function to find your place of interest. You may also use the Lat/Long option to locate a precise location using known WGS 1984 GPS coordinates (e.g. -79.54, -84.54).

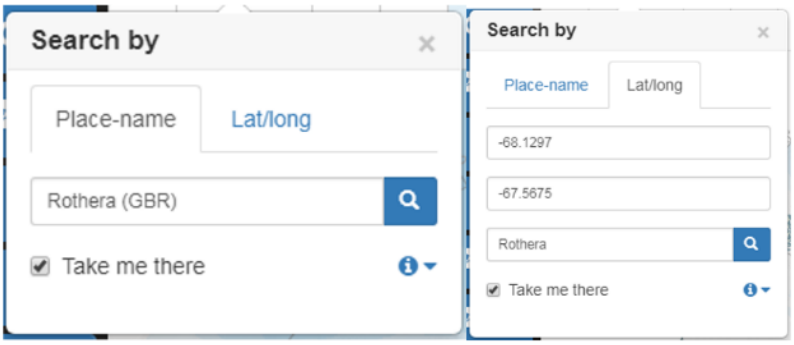


Figure 3: (Left) Place name search using a known location name. (Right) Searching for a point of interesting using GPS coordinates

1.2. Measure button

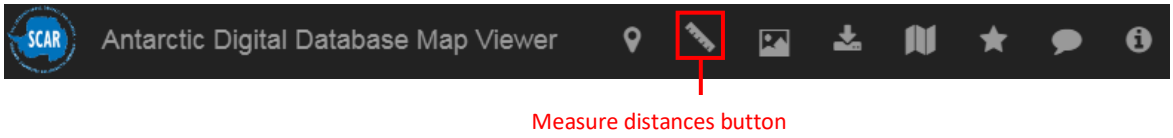


Figure 4: Measure distances button on the webmap header panel

The measure tool allows you to measure a distance (with specific units) of a straight line, the area of a user-defined area and elevation. For a straight line the user can select kilometres, metres, miles and nautical miles and measure line length along multiple vertices.

To measure an area the user can select area units (square kilometres, square metres, square miles, and square nautical miles) and 'draw' the area perimeter by clicking to create shape vertices and 'double clicking' to finalise the drawn area.

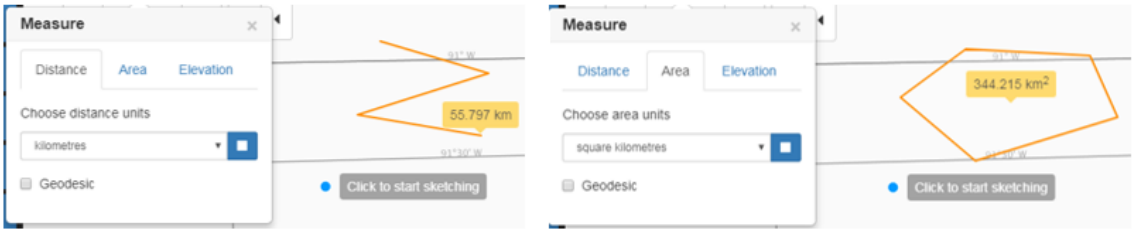
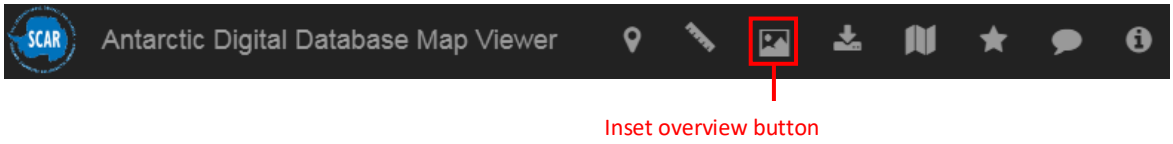


Figure 5: (Left) Measuring a distance of a straight line. (Right) Measuring an area of a polygon with multiple vertices.

1.3. Inset overview button



This button will show an inset overview map of the current map view for the area of interest. This can be useful when zoomed in over a specified area to view the overall position of the map view window.

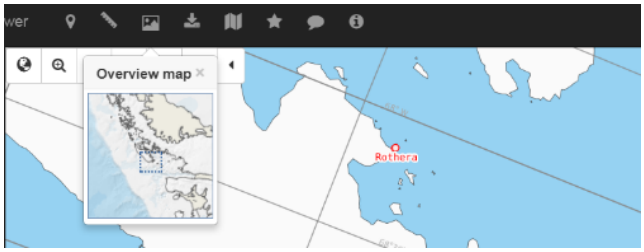
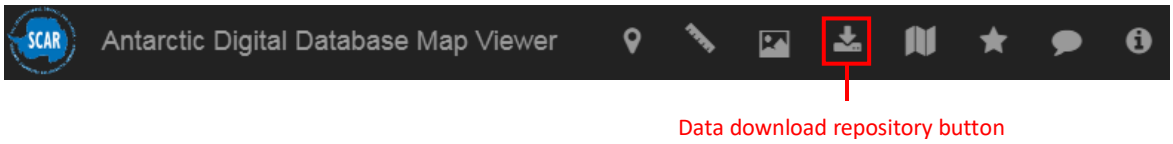


Figure 6: Overview map window when viewing Rothera on the Antarctic Digital Database map viewer.

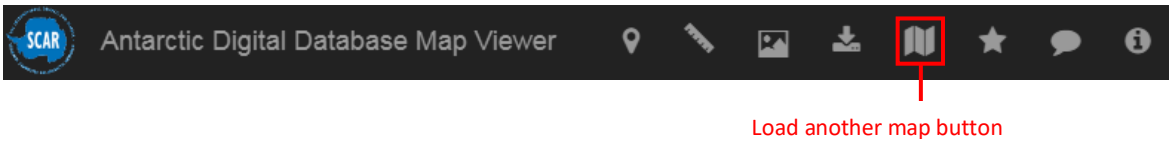
1.4. Data download repository button



This button will open the data download repository of the webmap datasets to the user in a new web browser tab. Most of the datasets provided by BAS are stored within RAMADDA and managed by the Polar Data Centre (PDC). A username and password may be required to access data.

Figure 7: iSTAR GIS data download repository available on RAMADDA and managed by the Polar Data Centre

1.5. Load another map button



This button allows the user to select another webmap associated with the current webmap; this may include sub-set webmaps (e.g. iSTAR sub-maps) or 'sister' webmaps (ADD & APIP portals). To open a new webmap the user can select the webmap of interest in the drop-down menu and the new webmap will be loaded in a new web browser tab.

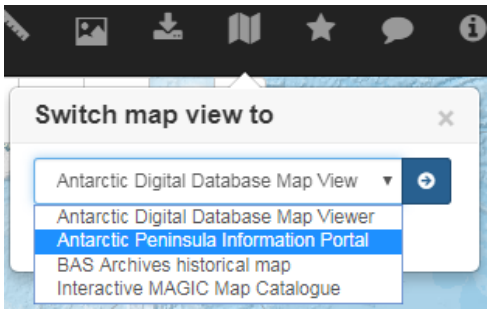
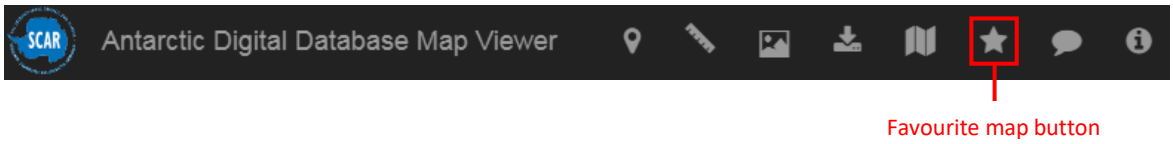


Figure 8: Switch map view button with available webmaps associated with the current map (Antarctic Digital Database)

1.6. Favourite map button



This button allows the user to save the current ‘view’ of the webmap including the zoom level, selected datasets and dataset properties (transparency, style) to a stored map by clicking ‘Add’ on the sub-window . The ‘saved’ webmap can then be reloaded, edited and shared when logged in with your user account.

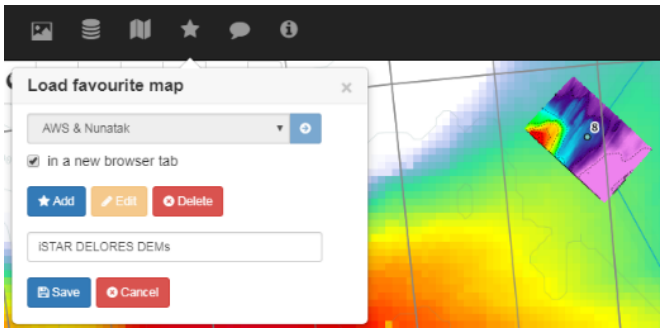
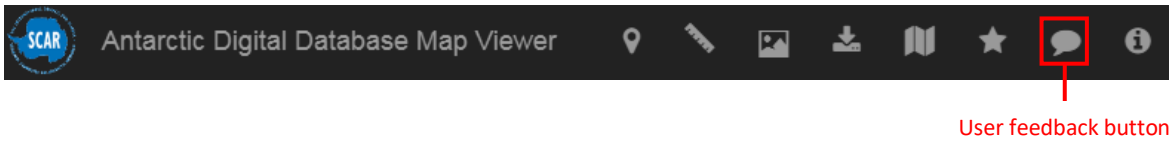


Figure 9: The user can create a new 'favourite' webmap, edit or delete an existing webmap or create a new webmap by selecting their desired datasets, a zoom and a map name.

1.7. User feedback button



Allows the user to provide feedback to the webmap administrator on any issues with datasets or the webmap interface. The user can provide the issue subject (data/interface), a short or detailed description and their email address.

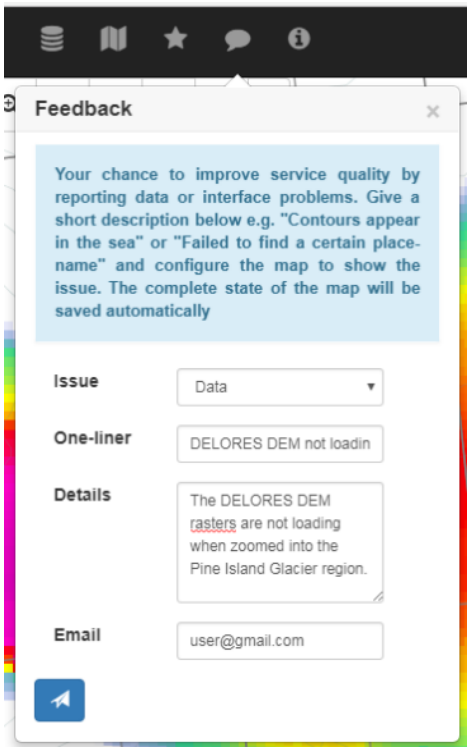
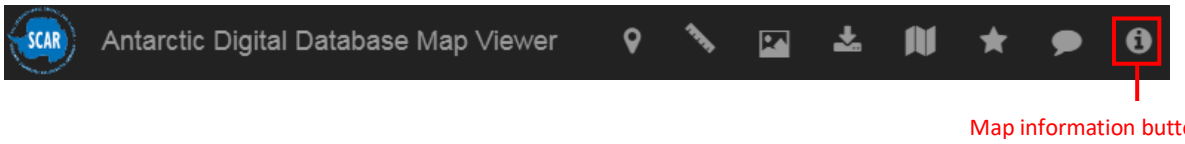


Figure 10: Feedback window allowing the user to identify any issues with the website and provide a description of the problem as well as their email address to the website administrator

1.8. Map information and credit button



The map information button provides the user with a short background detailing the rationale of the webmap and datasets presented as well as any relevant sources and web links of interest. The user can also view other information including software credits (open-source software used to build the webmap).

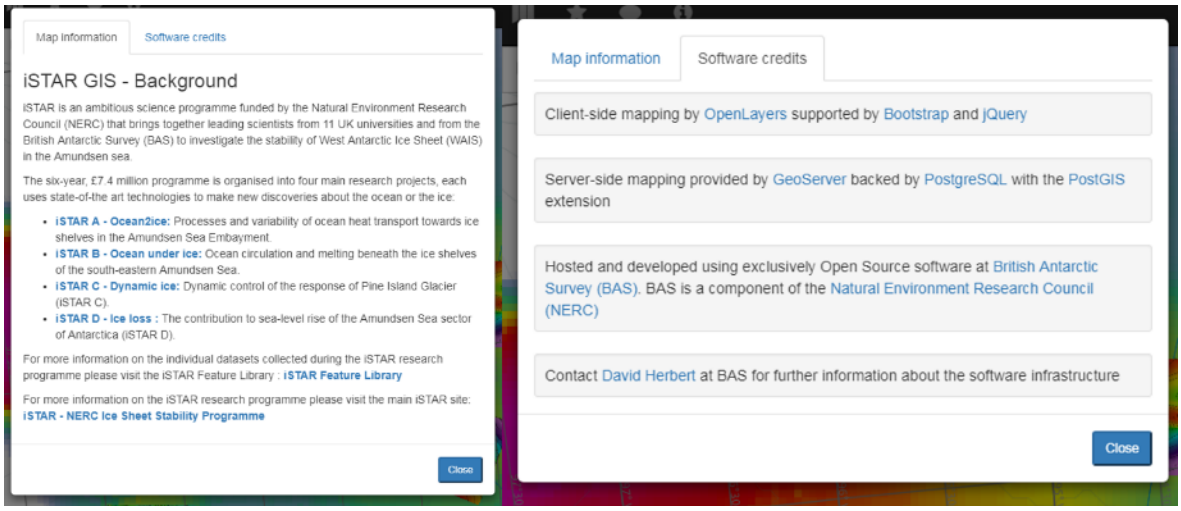


Figure 11: (Left) Map information window displaying all relevant background information for the iSTAR webmap. (Right) The software credits for the web map services developed by BAS

2. Dataset navigation panel

The dataset navigation panels allows the user to interact with the dataset layer tree to access all datasets stored with the hierarchical layer tree. Datasets are categorised within their relevant theme e.g. Marine, Base layers and the user can open/close themes, folders and sub-folders to access their desired within the layer tree.

2.1. Search for data layer

To locate a dataset easily and efficiently use the 'search data layer' button. Enter the dataset name and select the appropriate data; the webmap layer tree will locate and present the selected dataset (highlighted red).

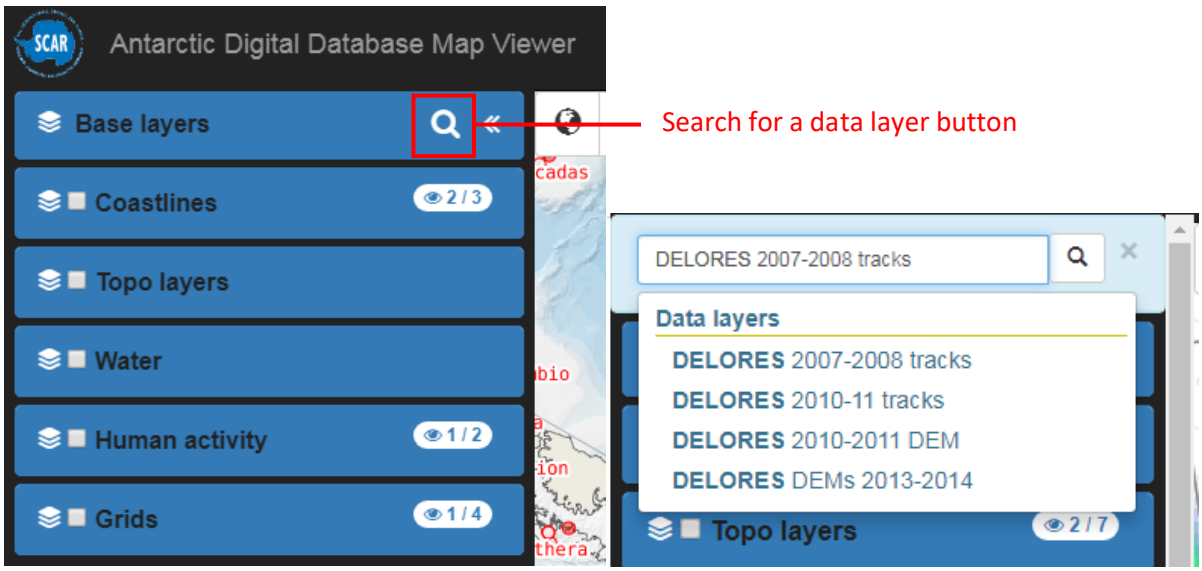


Figure 12: (Left) Search for data layer button at the top of the layer tree menu. (Right) Data layer search text box with related datasets for 'DELORES' search on the iSTAR GIS.

2.2. Expand/collapse the layer tree

When a layer group contains the 'multiple layers' icon it means the layer tree group is expandable and collapsible. To expand a layer tree simply click the group header text ('Expand this group') and the group layers shall be opened. To close the layer tree simply click the same text to reverse the process and collapse the layer group.

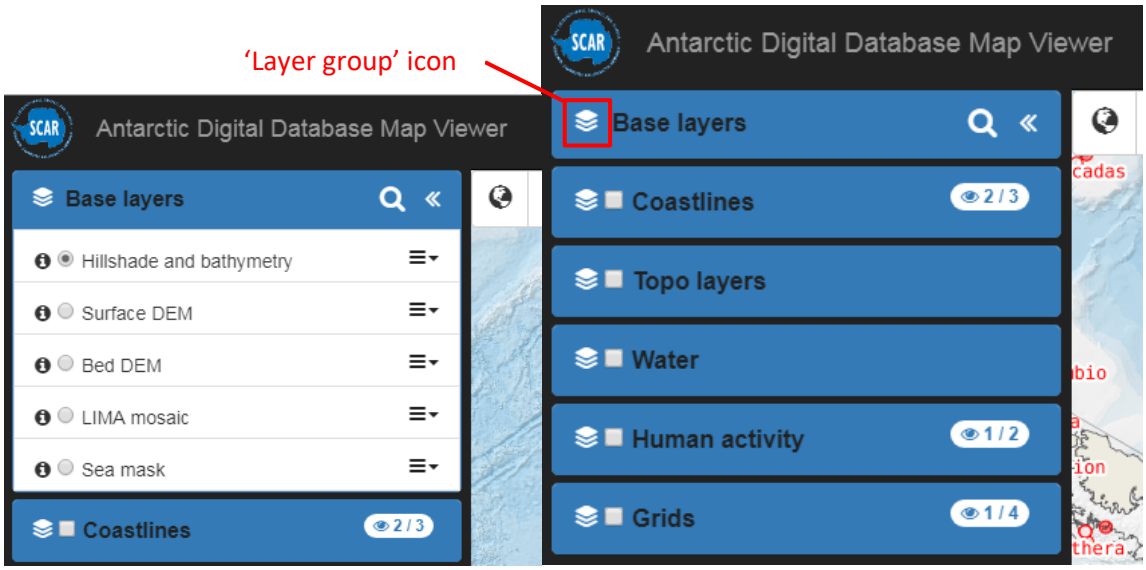


Figure 13: (Left) Expanded layer group showing sub-layers within the layer group. (Right) Collapsed layer group

2.3. Metadata information icon

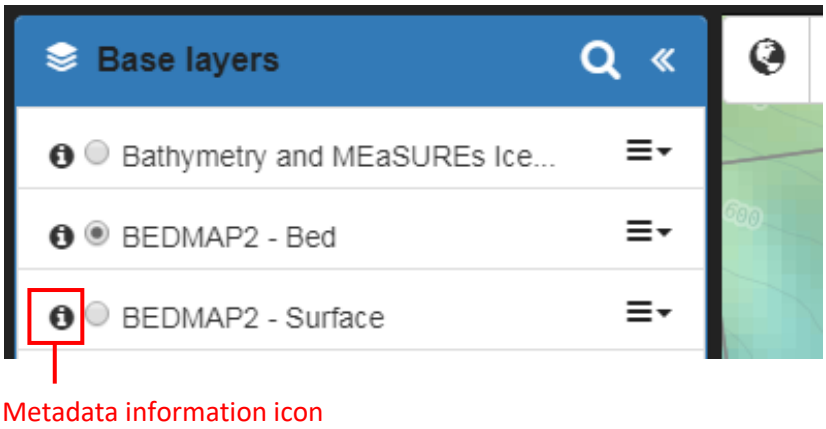


Figure 14: Metadata information icon displayed adjacent to the individual data layer within the layer tree.

The metadata information icon allows the user to view additional metadata for the specific dataset of interest. By selecting the information icon the user can view the dataset legend (dataset name, colour scheme, formatting) and metadata describing the dataset source, scientific use, external links and scientist contact details.

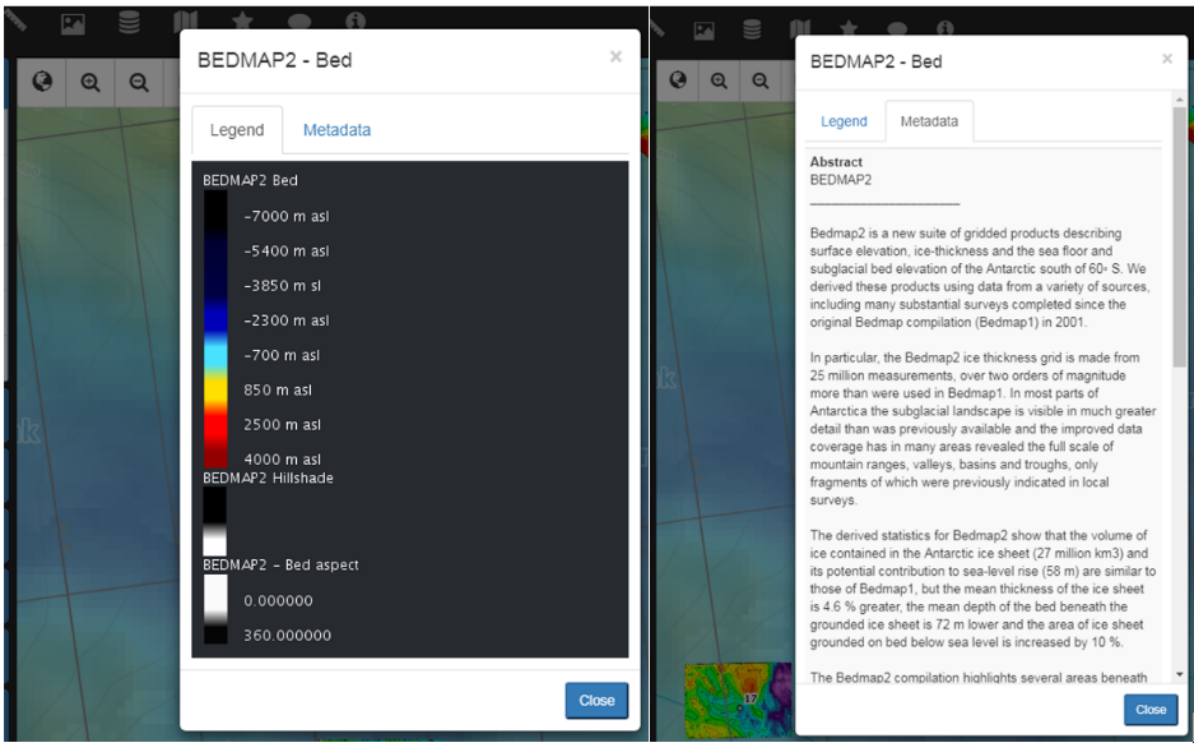


Figure 15: (Left) Metadata information window identifying BEDMAP 2 legend. (Right) Metadata information for BEDMAP2 raster identifying the data source, reference links and main science investigators.

2.4. Drop down icon options

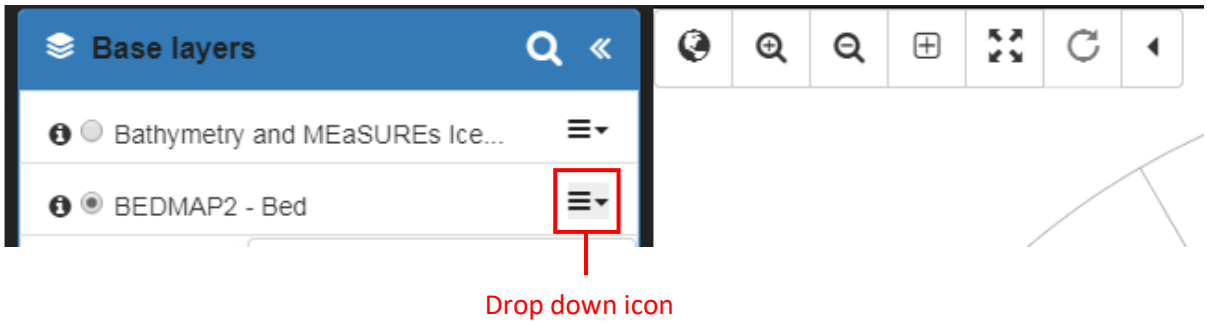


Figure 16: Drop down icon for individual data layer

For each data layer additional styling and viewing options are available via the drop down menu. For each layer the user can:

- 'Zoom to layer extent': change main map view to location of specific data layer.
- 'Apply alternate style': for certain layers the user can change the style of the layer to another assigned layer style.
- 'Filter by attribute': for certain layers the user can filter the layer attribute table to find specific data e.g. filter Antarctic bases with a berth capacity > 300.
- 'Change layer transparency': change the transparency of the layer from 0% to 100 %
- 'View time series': for certain layers the user can viewer a time-series of the dataset information e.g. daily sea ice concentration or daily ship track position.

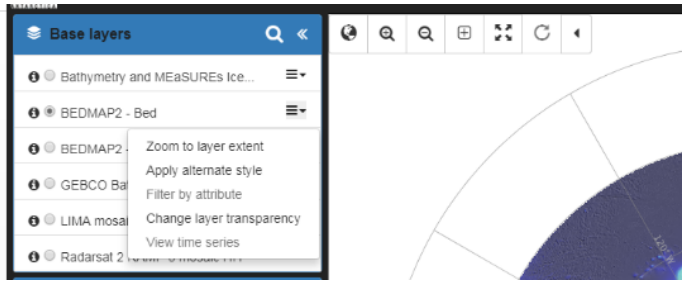


Figure 17: Drop down menu options for an individual data layer

3. Map viewer window

The map viewer window comprises the main display of the map area and interface; allowing the user to explore the spatial extent of the datasets and interact with the dataset by zooming in/out, querying the dataset (clicking point/polyline/polygon/raster).

By using the dataset navigation panel to select the data the user can then see their desired dataset within the main map window.

3.1. Reset to original map extent

When viewing datasets the user can often zoom too close or become confused on their location within the map viewer, the 'reset to original map extent' button allows them to reload the map extent to the original view, a useful tool if they have lost their current location on the webmap.

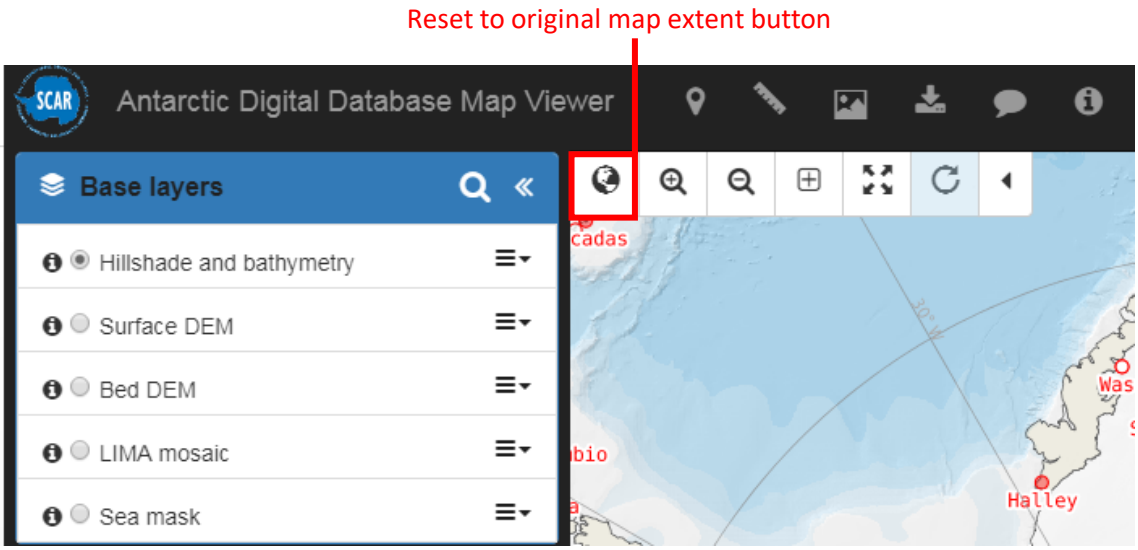


Figure 18: Reset to original map extent button on main map viewer toolbar panel on ADD map viewer.

3.2. Map controls (zooming and out)

The user can interact with the main map window by clicking and dragging to explore the map interface, as well as using the mouse wheel to zoom in and out. The main map window toolbar also contains these interactivity properties, as the user can zoom in, zoom out, and also zoom using the 'zoom by dragging box' option.

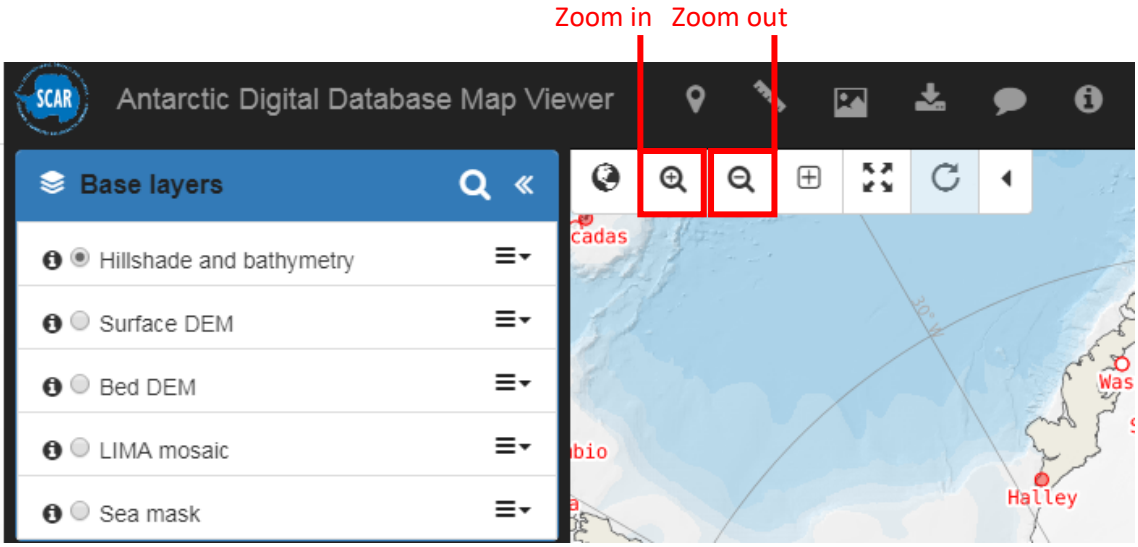


Figure 19: Zoom in and zoom out toolbar buttons available in main map window toolbar

To use the 'zoom by dragging box' tool, select the tool and drag an area of extent within the map window you would like to zoom to; once you have selected the desired area de-select the mouse and the map window will zoom to your designated area.

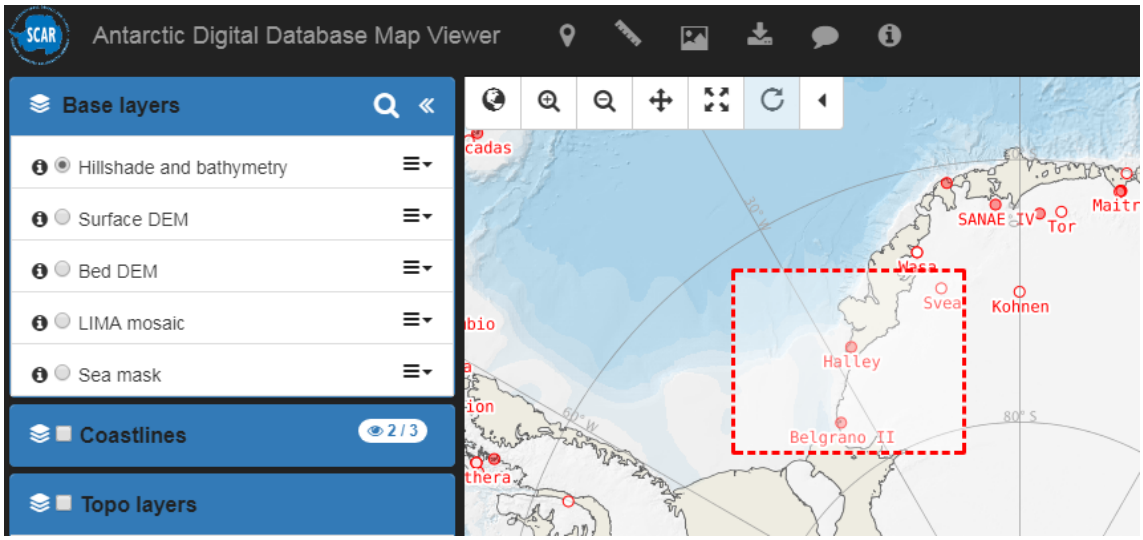


Figure 20: Zoom by dragging tool showing the selected area extent to zoom to. This bounding box area will then be expanded in the current map window view.

3.3. Full screen view

The webmap can also be viewed in full screen view to allow the user to expand the webmap and see the maximum detail of the selected datasets being presented. To view the webmap in full screen mode, the user must select the 'full screen' button on the main map window toolbar tab.

Once within the full screen view the user cannot use the dataset navigation panel but are able to view the main map window individually, to close the 'full screen' setting press 'Escape' on the keyboard

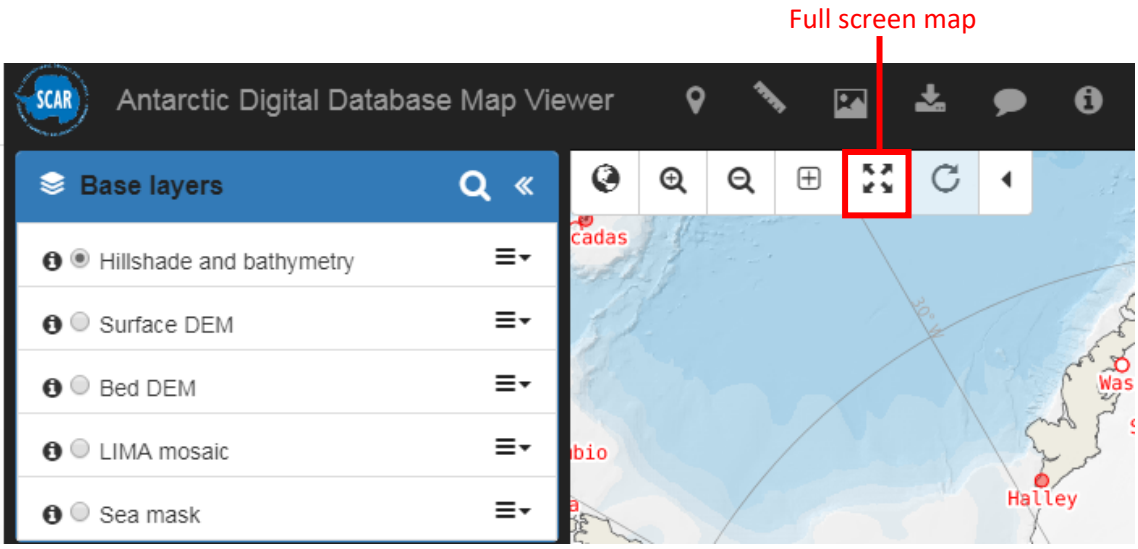


Figure 21: Full screen map window button on the main map window toolbar