VirES for Aeolus

© ESA/AOES Medialab

European Space Agency

Table of Content

European Space Agency

Layers

Layers widget provides the possibility to select the specific data to be visualized. It can be activated by clicking on the "Layers" button on the dashboard and a panel is opened for selection
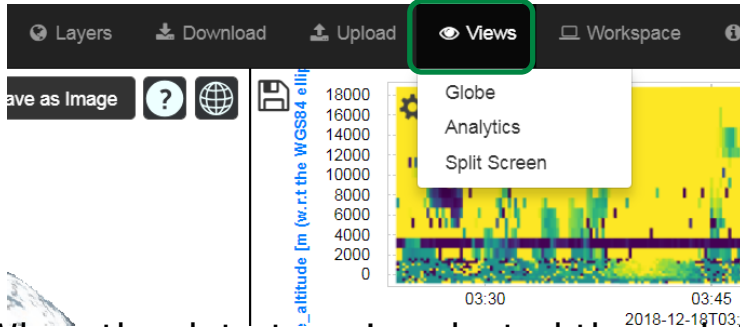
Available layers:
- Cartographic layers: Coastlines and Countries
- Aeolus products L1B, L2A, L2B, L2C, Auxiliary products, ADAM albedo
- Raster textures

Once the layer is activated, the data availability is shown in the time bar.
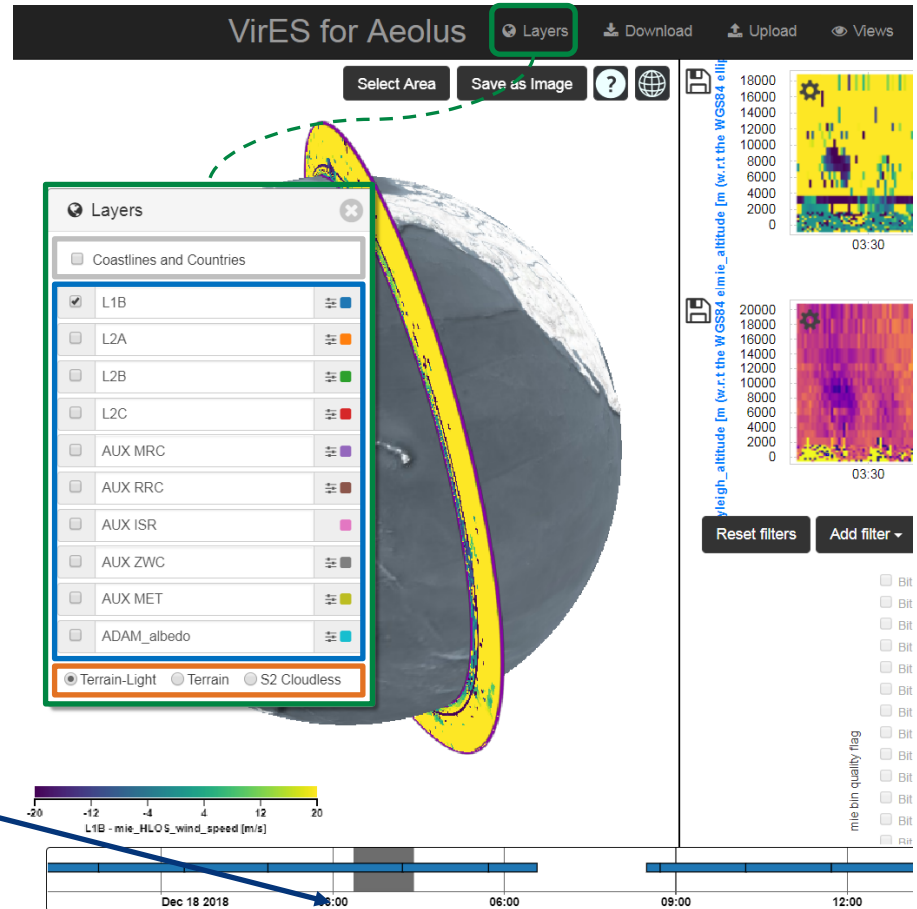
Views

When the data type is selected through the "Layers" widget the "Views" on VirES are updated accordingly
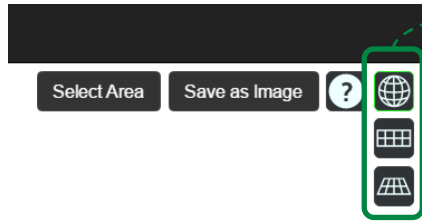
The available views are:

- Globe View: world map
- Analytics View: plots and histograms
- Split Screen: combination of world map and analytic plots (default).

It is possible to change the active view by clicking on the "Views" button on the dashboard.
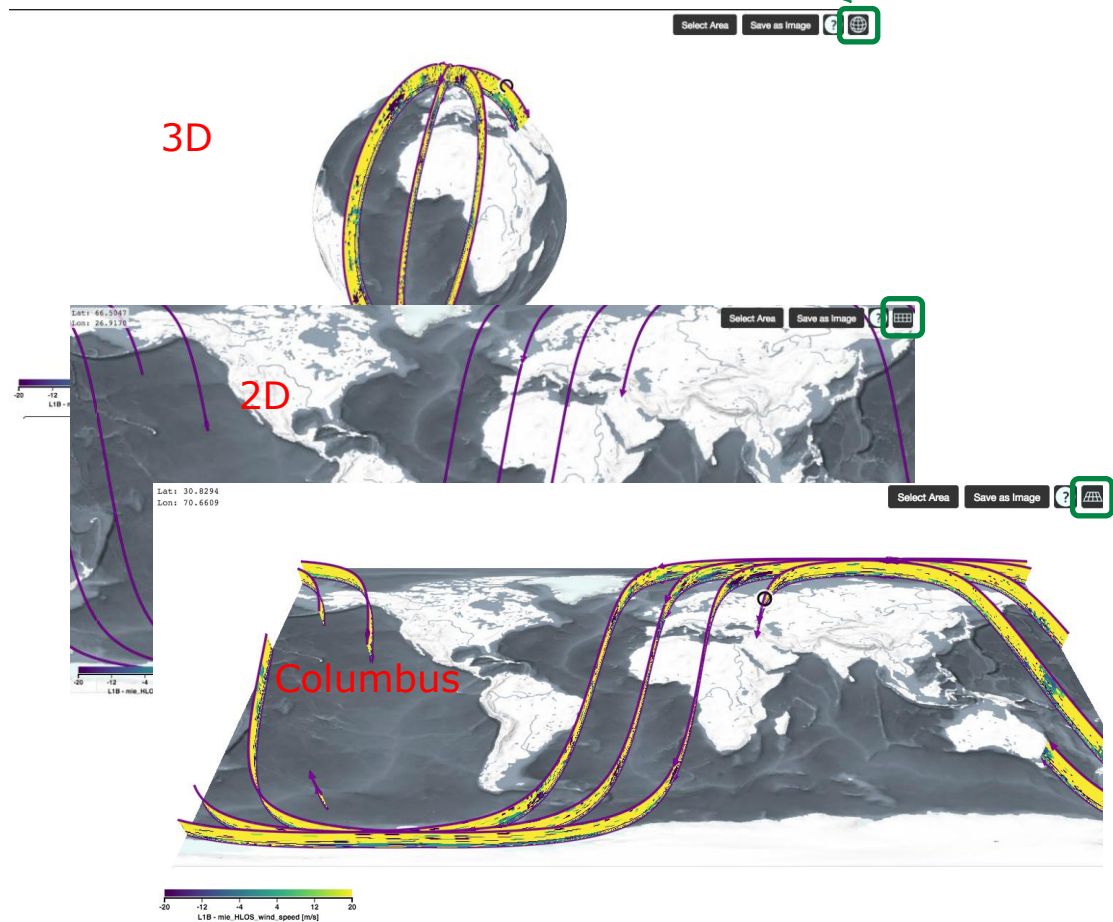
European Space Agency
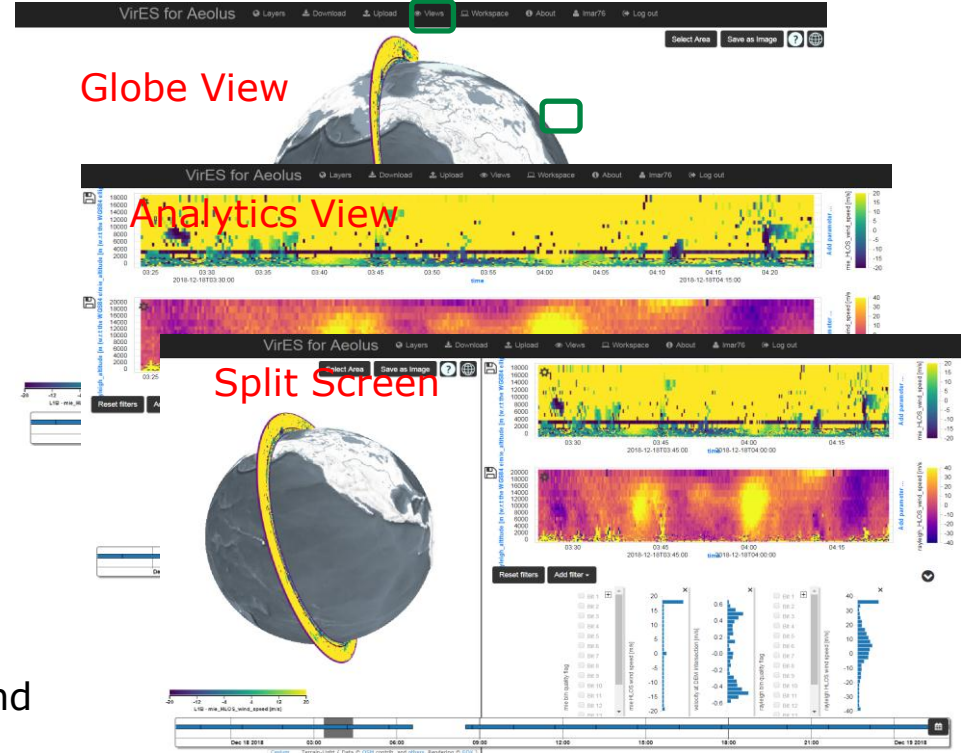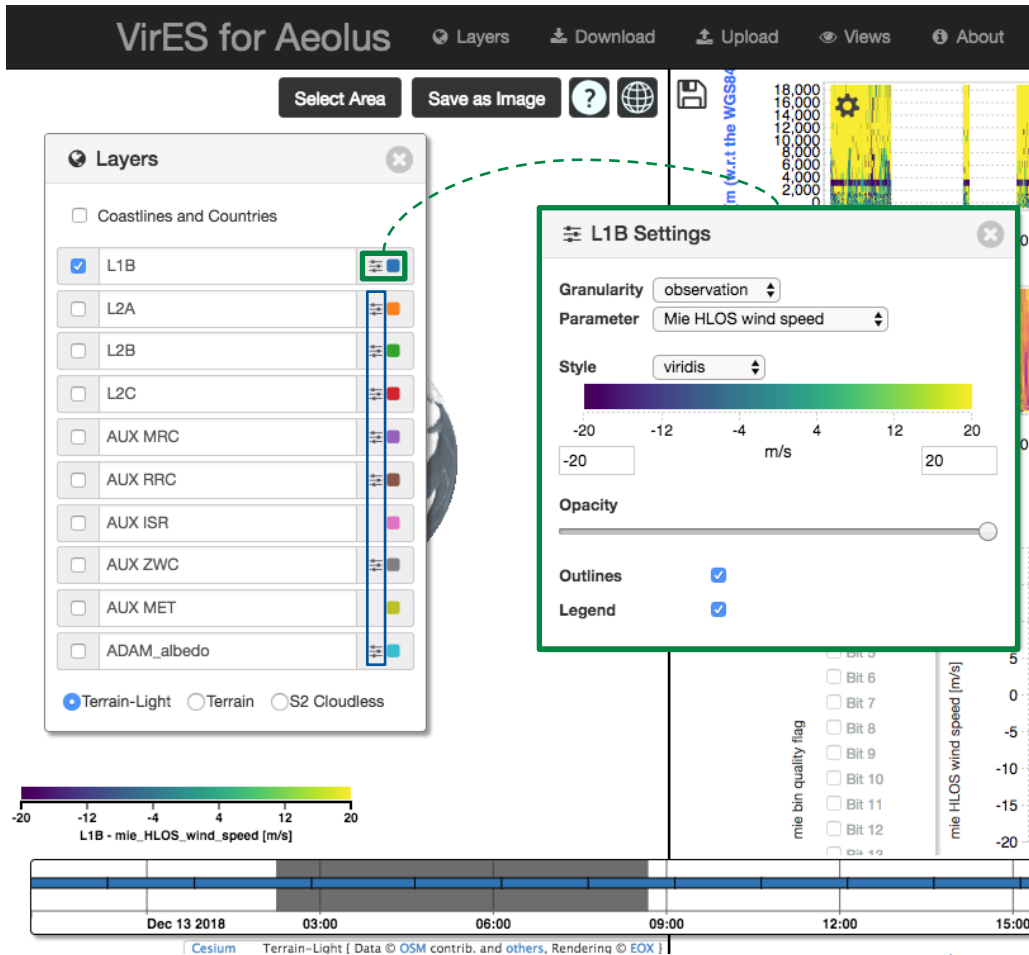
View Projections

In the **Globe View**, the map projection can be changed between:

- Globe View (3D)
- Cartesian Grid (2D)
- Columbus View

The "Save as Image" button allows to save the map into a file.

3D

2D

Columbus

European Space Agency

Product parameters and settings

Settings widget can be activated clicking on the button near the product's name.

Available settings:

- **Granularity**: it depends on the product type e.g. Measurement/Observation for L1B.
- **Parameter**: to be visualized on the map. A list of parameters is available for any product product type (e.g. Mie "HLOS wind speed" for L1B products).
- **Style**: colour palette and scale range of the parameter visualized on the map.
- **Opacity**: opacity of the plot over the map
- **Outlines**: activate/deactivate outlines.
- **Legend**: activate/deactivate legend.

Spatial and Temporal Data Selection
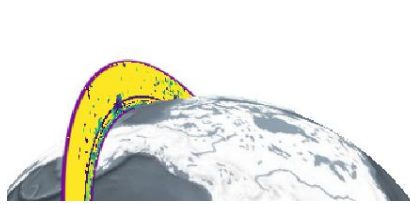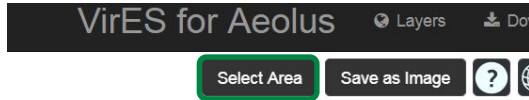
It is possible to select a specific area of interest by clicking on the "**Select Area**" button and drawing a rectangle on the map.
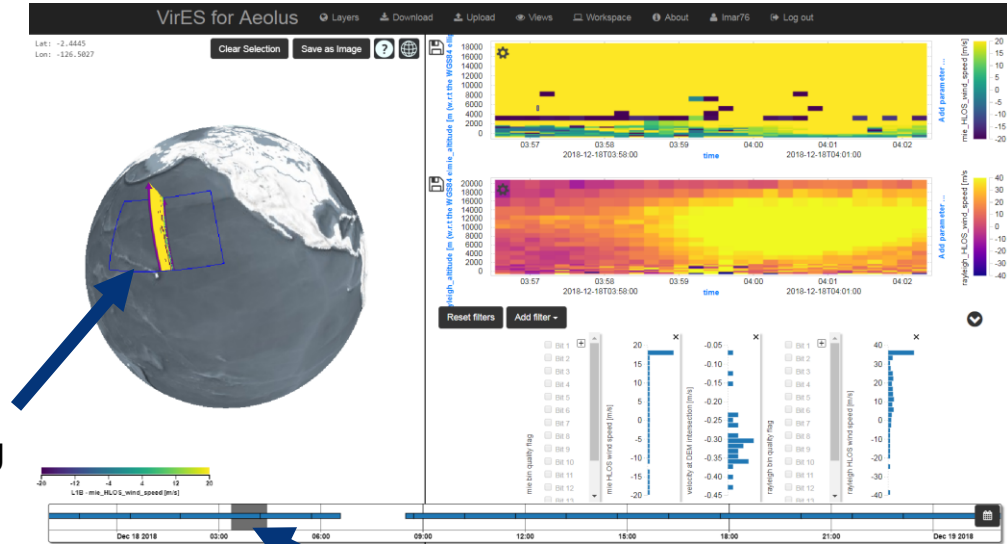
The area can be de-selected with the "Clear Selection" button.

It is possible to select the desired time-span by clicking and dragging an area on the time slider.
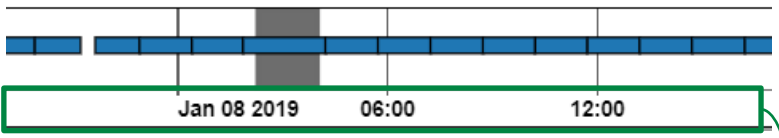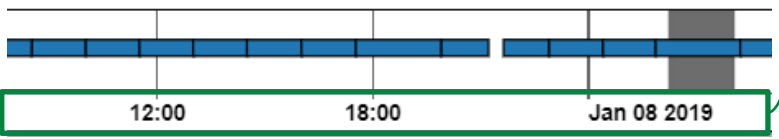
The line visualized over the time slider represents the data availability and depends on the selected layer.

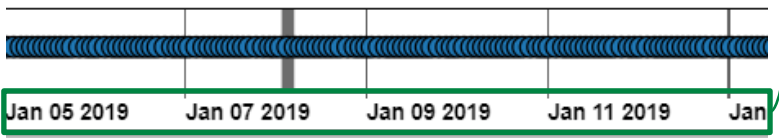Plot and histograms are automatically updated according to the spatial and temporal selections.
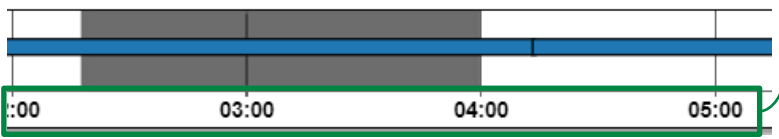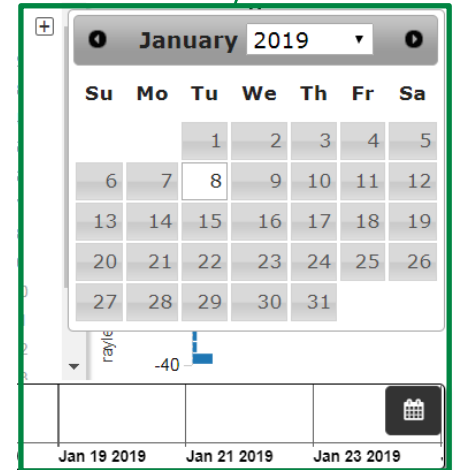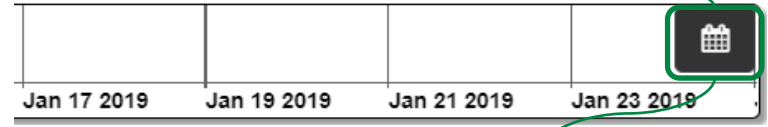
Time Slider: date selection
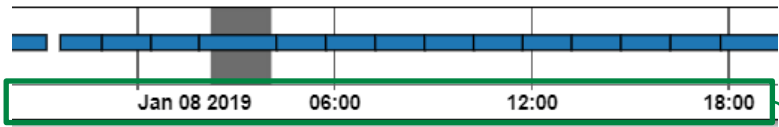
Left button + drag left/right: change date

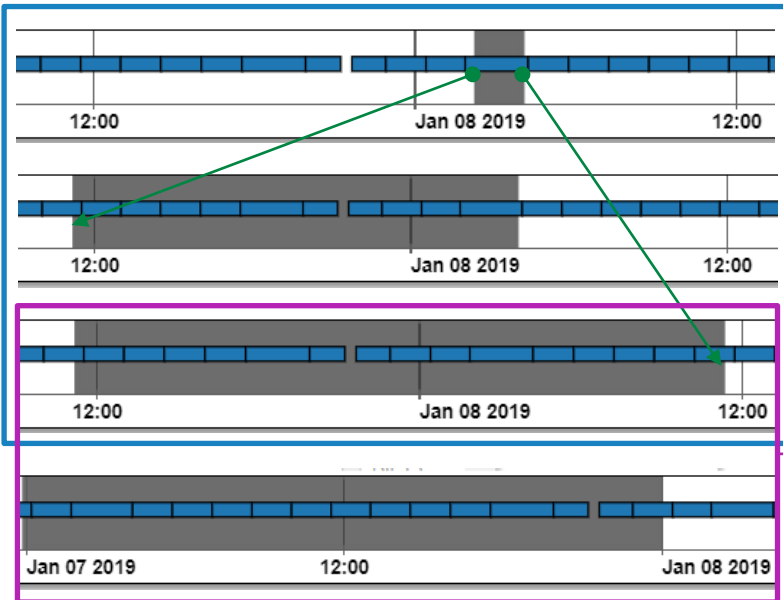Wheel mouse: zoom in/out time scale

Jump to date: click the button on the top right corner of the time slider to easily select the date
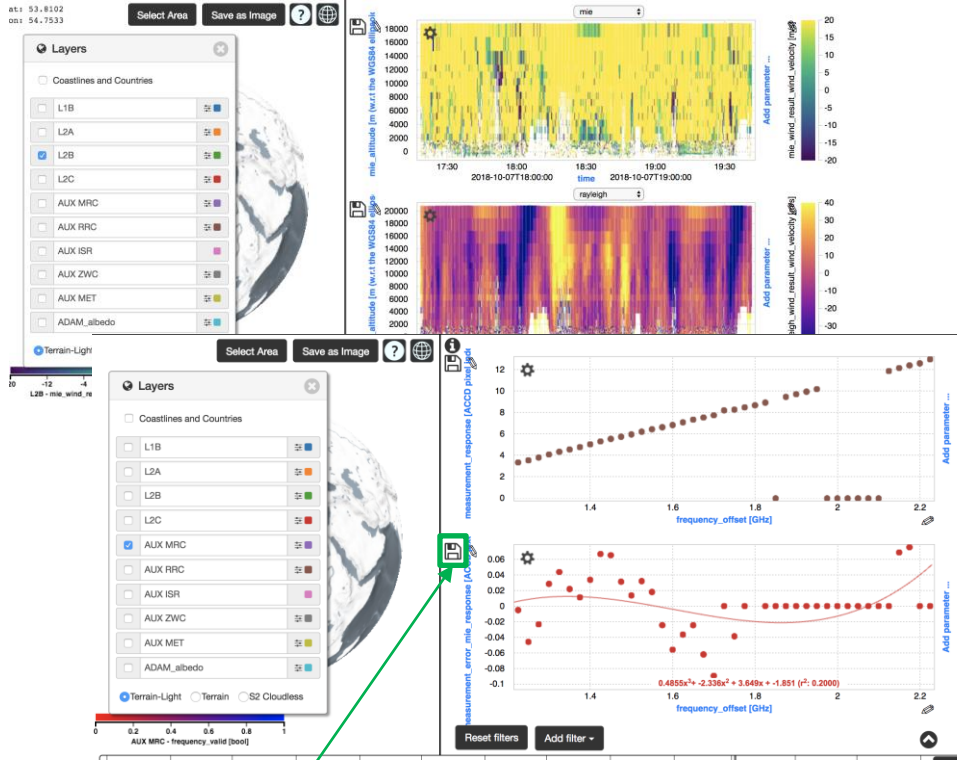
European Space Agency

Time window update

Click and drag the time selection borders to increase/decrease size

Click and drag the time window to move it leaving its size unchanged

European Space Agency

Analytics View: data visualization

For each product type available for selection from the Layer widget a default visualization is available on the Analytic View

Data are rendered in scatter plots/2D colour plot depending on the parameter's dimension.

The parameters in the X-axis/Y-axis as well as the third parameter (if applicable) can be customized

The "Save as Image" button can be used to save the plot into a file.
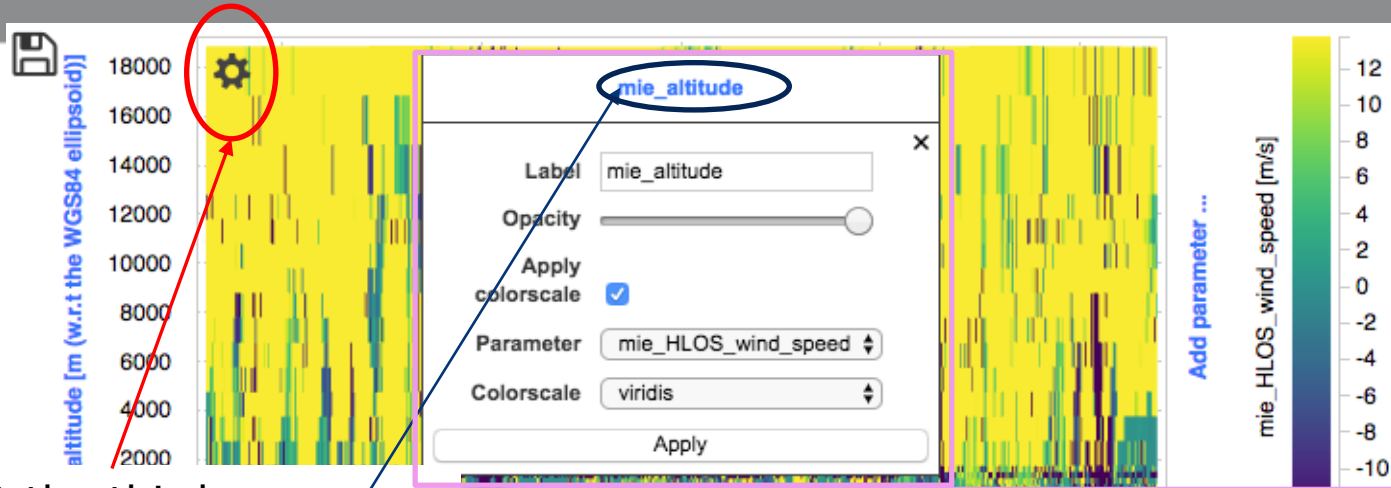
European Space Agency

Analytics View: parameters selection

Clicking on the X-axis/Y-axis current label a panel is open for selecting the parameter to be displayed on the axis
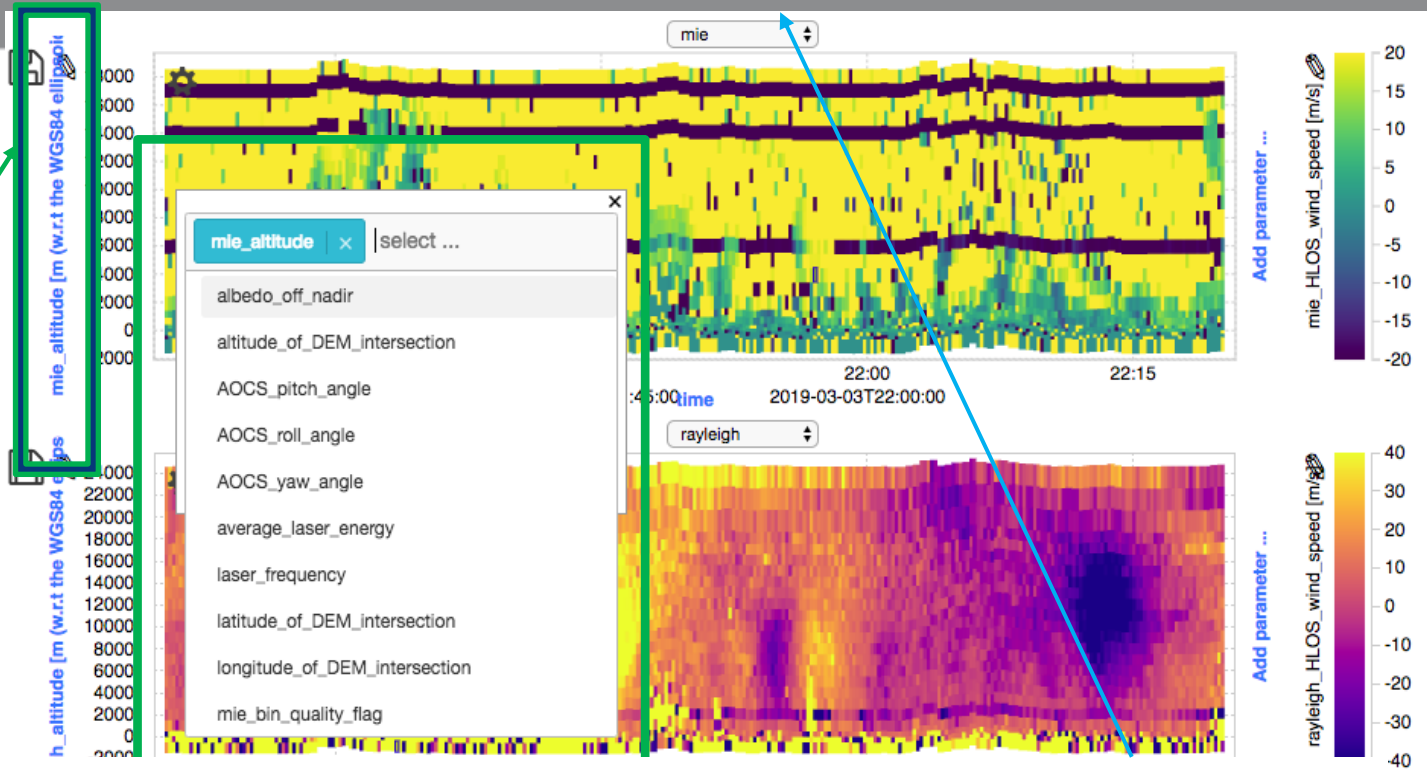
For L1B, L2B and L2A products two plots are available in the View panel
For each plot is possible to select alternatively Mie/Rayleigh related parameters

To set the third parameter in the 2D visualization it necessary to select the cog symbol on the top left The label of the y-Axis parameter is displayed.

Clicking on the label a list of options is opened.

- **Label**: string to be visualized on the plot can be set
- **Opacity:** plot opacity can be adjusted
- **Apply colorscale:** when selected the field **Parameter** is activated below
- **Parameter**: provides list of parameter to be visualized by color scale
- **Colorscale**: provides a list of predefined color scale to be set

European Space Agency

Analytics View: zoom and range settings

Changing the zoom level:

- Mouse pointer over one axes + mouse wheel: change zoom level on a single axes

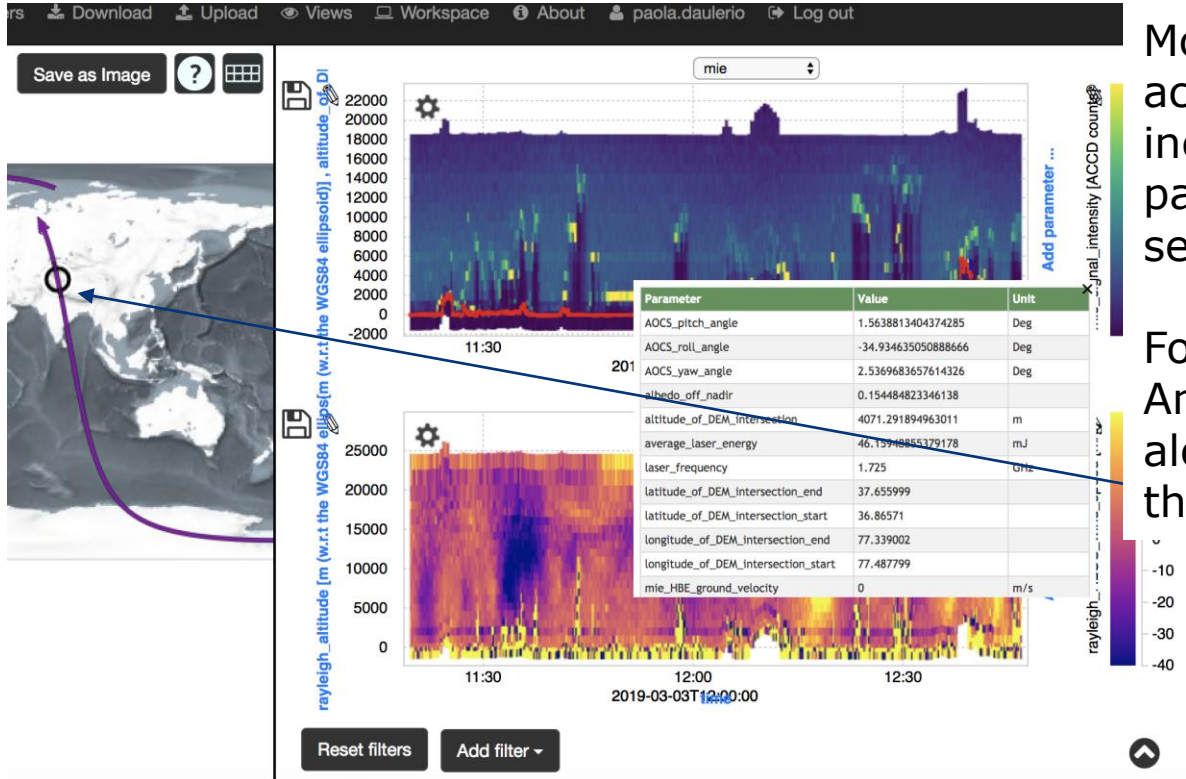- Mouse pointer on the plot + mouse wheel: change zoom level on both axis
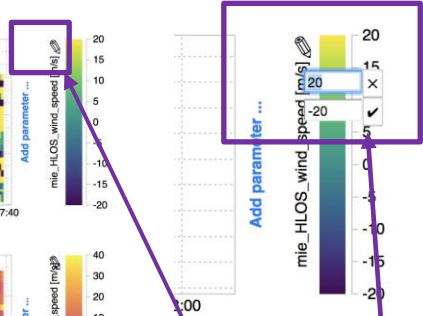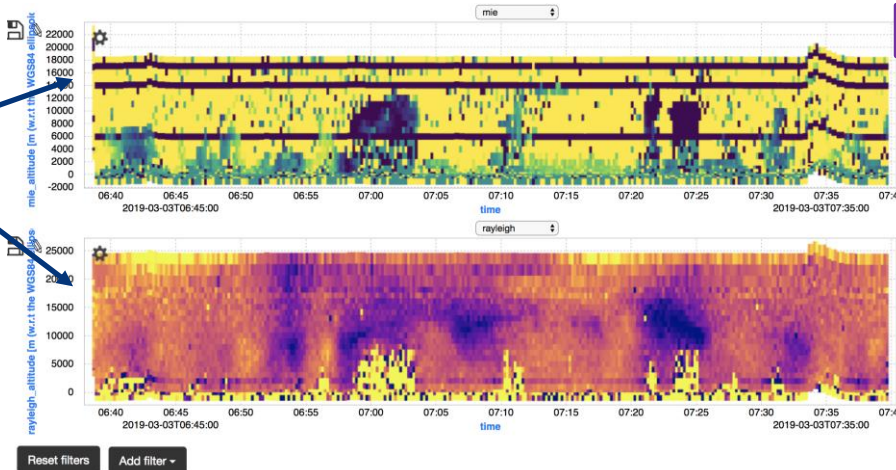
Changing axis or color scale scale range is possibile alternatively by:

- Mouse pointer over the current range + mouse drag

- Selecting the pencil symbol. This opens edit buttons for typing min and max of the desired range
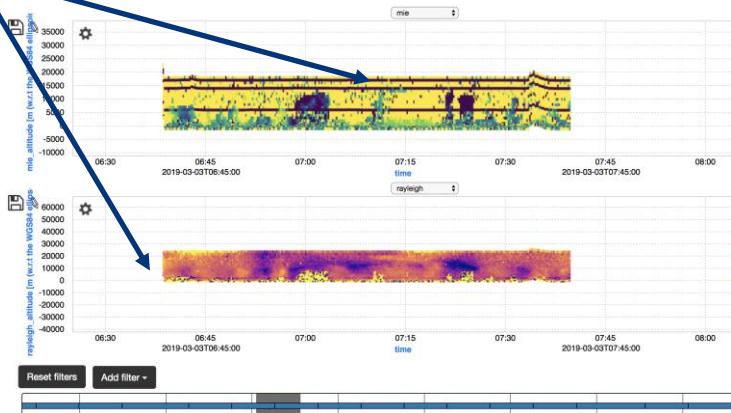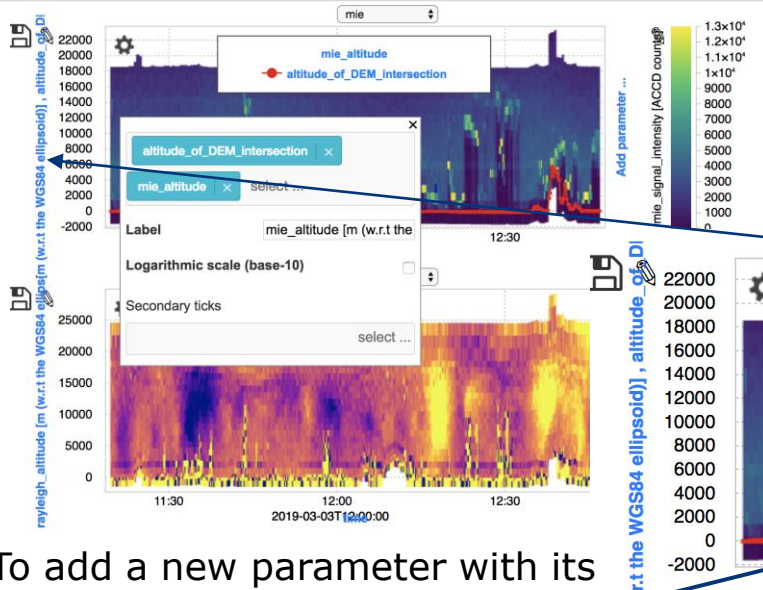
Analytics View: get data information

Mouse click on the plot area activates an information window including the values of all the parameters available for the selected pixel

For each selected point in the Analytics View the position along the track is highlighted in the Globe view

European Space Agency

Data over-plotting & data combination

It is possible to select different combinations of layers to visualize more parameters in the same plot.

In the example "altitude of DEM intersection" (red line) is overlaid to the Mie Signal intensity. This is obtaining adding the parameter on the Y-axis clicking on the parameter label

To add a new parameter with its own scale select «Add parameter…» and provide parameter selection (e.g. Laser Energy cyan line in the plot). In this case the corresponding scale is visualized in the right axis

European Space Agency
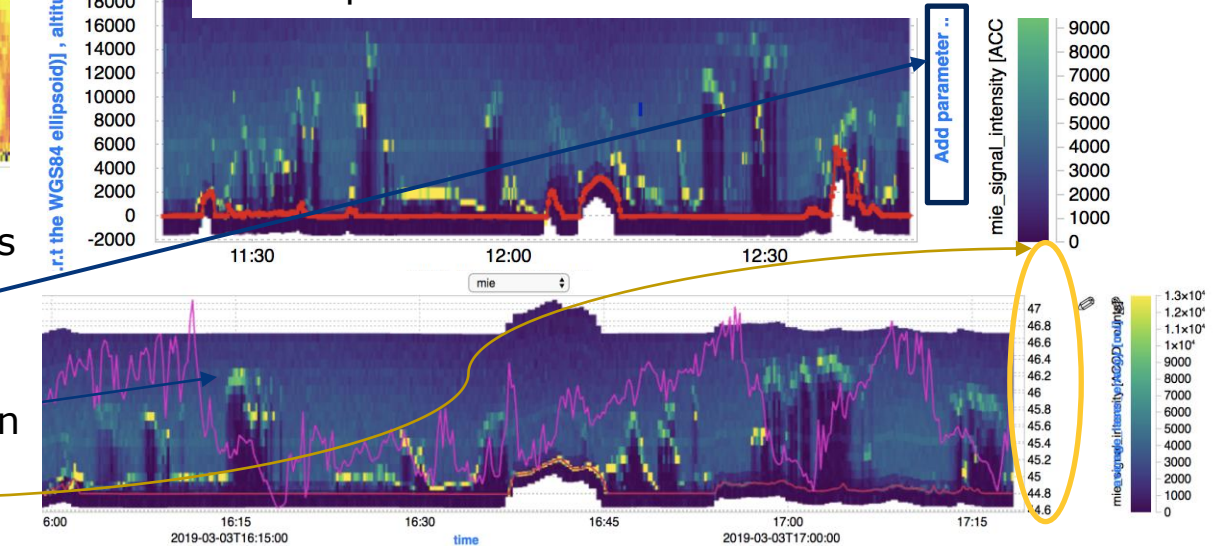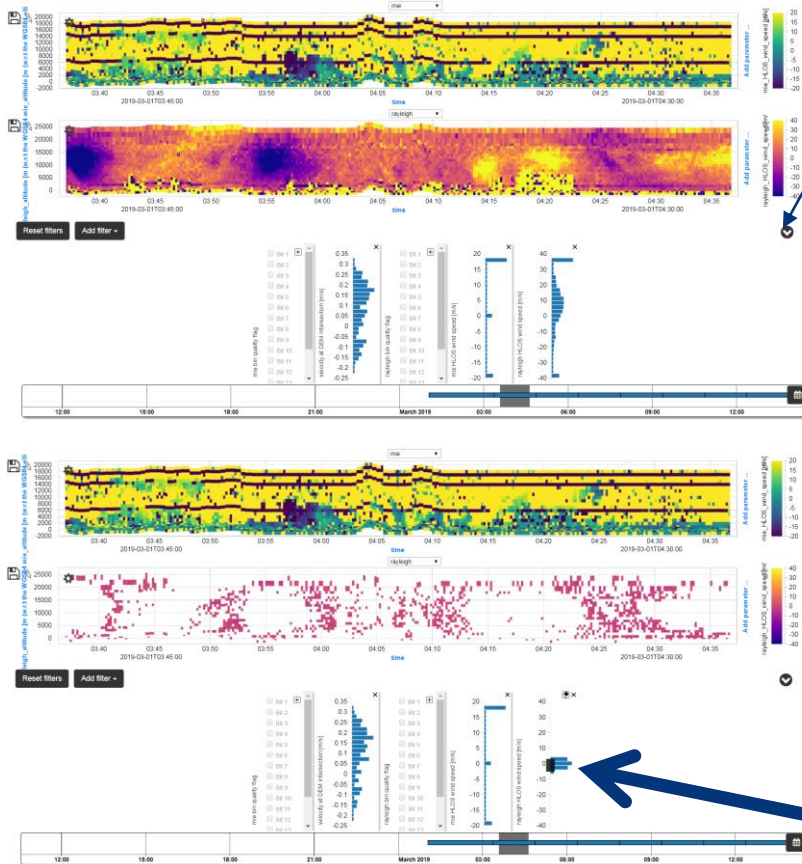
At the bottom of the Analytics View it is possible show/hidden a Filter panel

The system provides a set of a predefined parameters to be used to filter data depending on the active product

It is possible to filter data according to a specific parameter by clicking and dragging with the mouse over the desired histogram or selecting/deselecting quality flags (if available)

If the parameter is not present in the histograms list, it can be added clicking on the "**Add filter**" button.

Original data visualization can be resumed clicking on the "**Reset filters**" button.

E.g.: -4.4 m/s ≤ rayleigh HLOS wind speed ≤ 3.9 m/s

European Space Agency

Data Download

The Download Manager allows the user to download the selected product.

It can be activated by clicking on the "Download" button.

Download Manager: settings

Download links section reports the links to the products already prepared and their details.

Filters section reports, by default, the currently selected start and stop dates (it can be modified), the selected area of interest (if any) and any selected filter on the histograms.

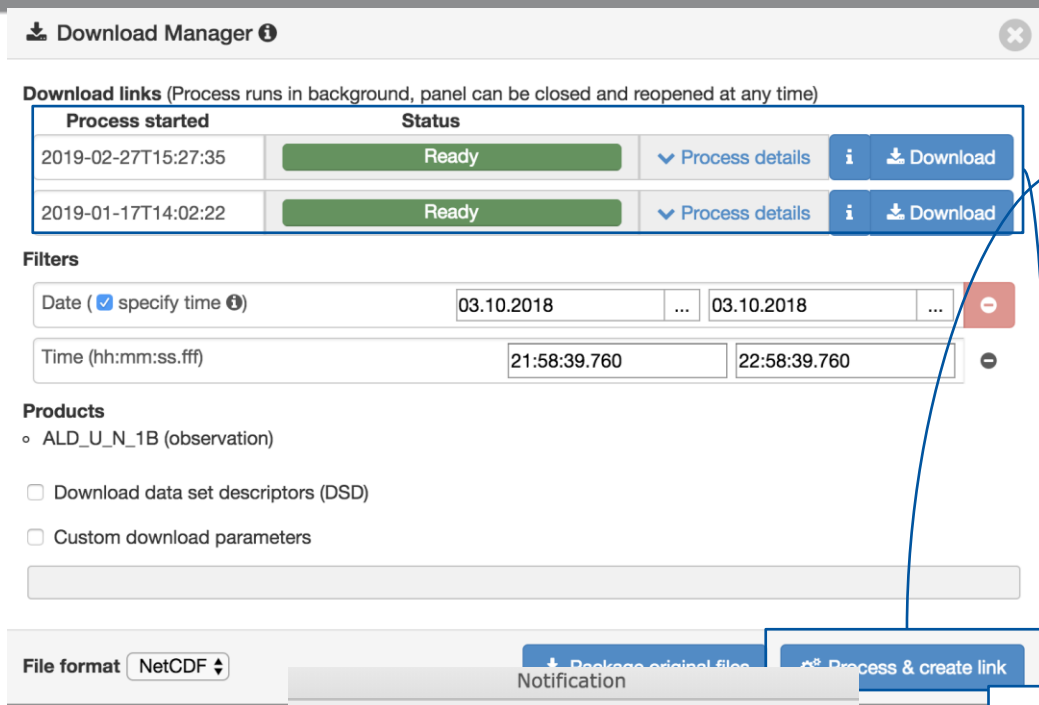**Products** section reports the currently selected products and models.
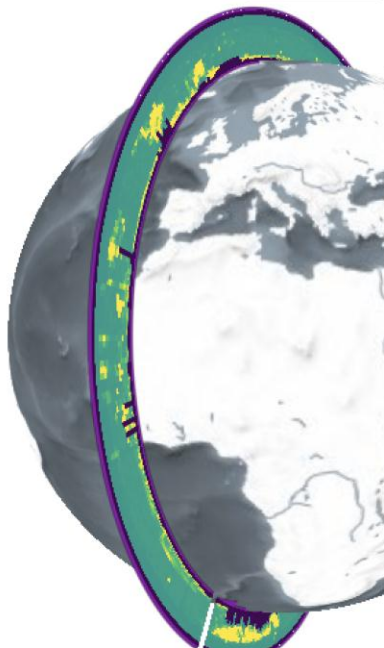
Custom download parameters section allows the user to select a specific subset of the parameters to be included in the output product.
Download data set descriptors (DSD) if selected the relevant section from the original Aeolus product is added to the netCDF

File format allows the user to download the output in NetCDF format.

Package original files allows the user to select products in the original format

Process & create link button allows the user to start the creation of the selected product file. Once the file is ready to be download, a download button appears.
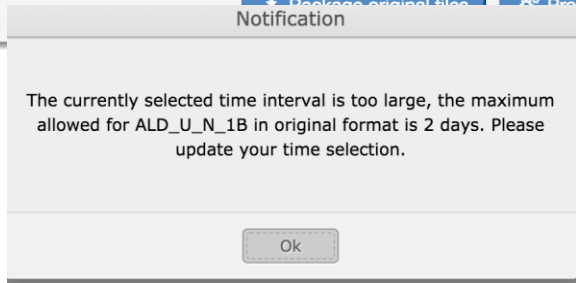
European Space Agency

Download Manager: product preparation and download

After the customization by the Download Manager the product can be processed by clicking on the "Process & create link" button.

The download link appears with a progress indicator. Once the product is ready, it can be downloaded by clicking on the "Download" button.

Note that for each product type there is a limit on the data size to be downloaded at time. If the request exceeds the limit an alert is provided

European Space Agency

Data Upload

Click on Upload in the Top bar Menu gives possibility to upload Self-generated file with same format then Aeolus files by
- Drag and drop file or browsing the file system

The upload file will be available on the time slider. If the selected time includes both the uploaded and the original files, user generated parameters and (for some predefined) differences will be available for plotting. These can be selected from the parameters list

VirES workspace
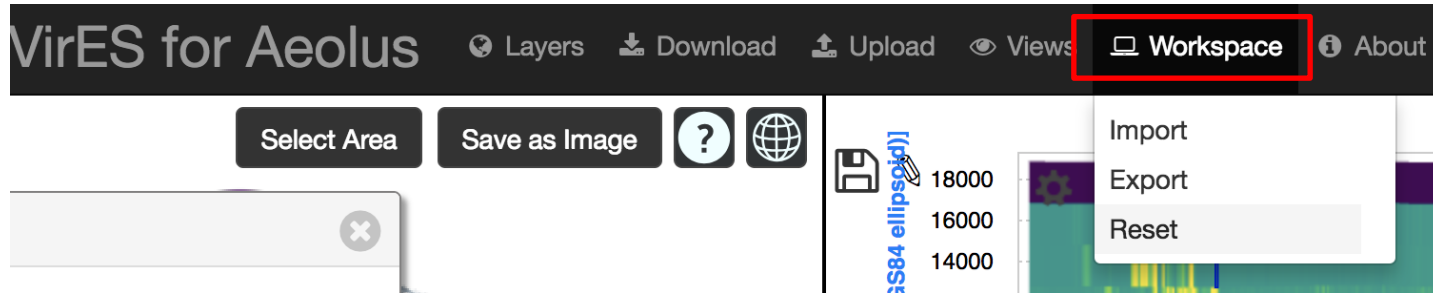
Selecting Workspace from the top bar menu 3 options are available:

- Import: import grapical settings previously saved by the user

- Export: save the current graphical settings as «.json» file to be resumed by the user using the Import function

- Reset: reset the current view to the VirES default configuration

European Space Agency