



**PLANET
CHANGE**

Tutorial EO Browser



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Planet change is the short name of an EU Erasmus+ project aimed at VET teachers and their students. With small activities, the idea is to create awareness about sustainability and acquire 21st century skills. All this is done in a technical context, mostly from space technology.

www.planetchange.eu



Introduction to EO Browser

EO Browser is a powerful online tool to display and analyse satellite images. This is very popular in the educational sector. Planet Change will use this on-line tool in several activities. This introduction/tutorial pretends to help to train and be familiar with the user interface and main features.

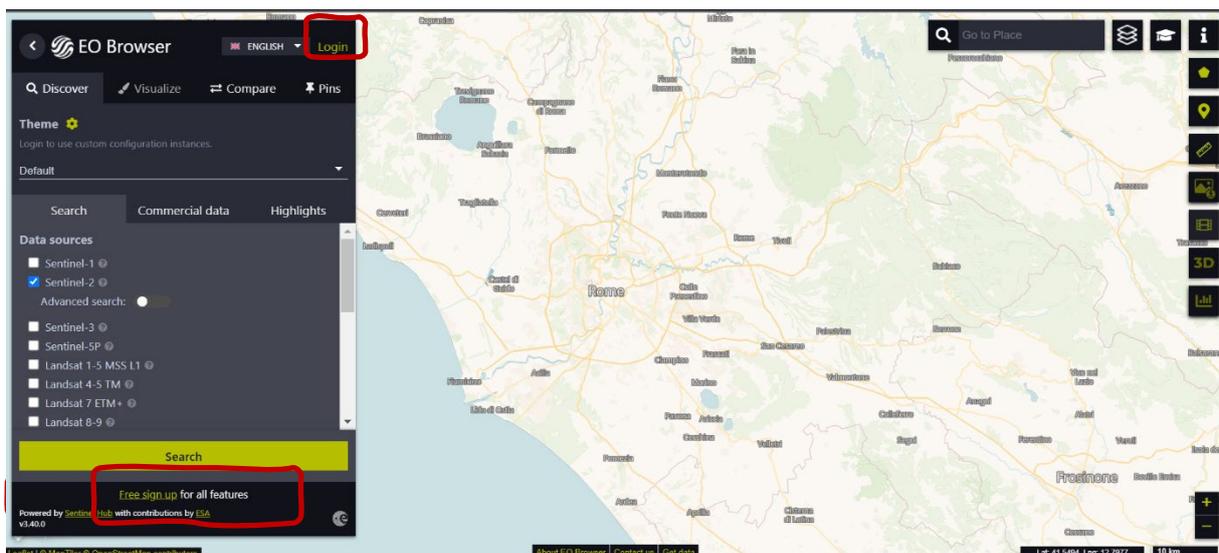
This tutorial goes through the basic functionalities. This should be enough to learn the main features needed to complete several activities. You can find a more complete tutorial [at this link](https://youtu.be/pbpB8KIOF8k?feature=shared) (<https://youtu.be/pbpB8KIOF8k?feature=shared>) but note that this does not use the latest version of *EO Browser* so some details of the user interface may appear a little different. You can find more advanced tutorials and further possibilities on the [website of EO Browser](https://www.sentinel-hub.com/explore/eobrowser/) (<https://www.sentinel-hub.com/explore/eobrowser/>).

Tutorial

EO Browser is a free application to access to satellite images. All the Copernicus family is included. Using *EO Browser* we can analyse the entire collection of Sentinel 2 images, which is the satellite we will use for several activities. We can access not only to the raw information but also to processed images ready to show relevant information for several purposes, including vegetation and agriculture monitoring.

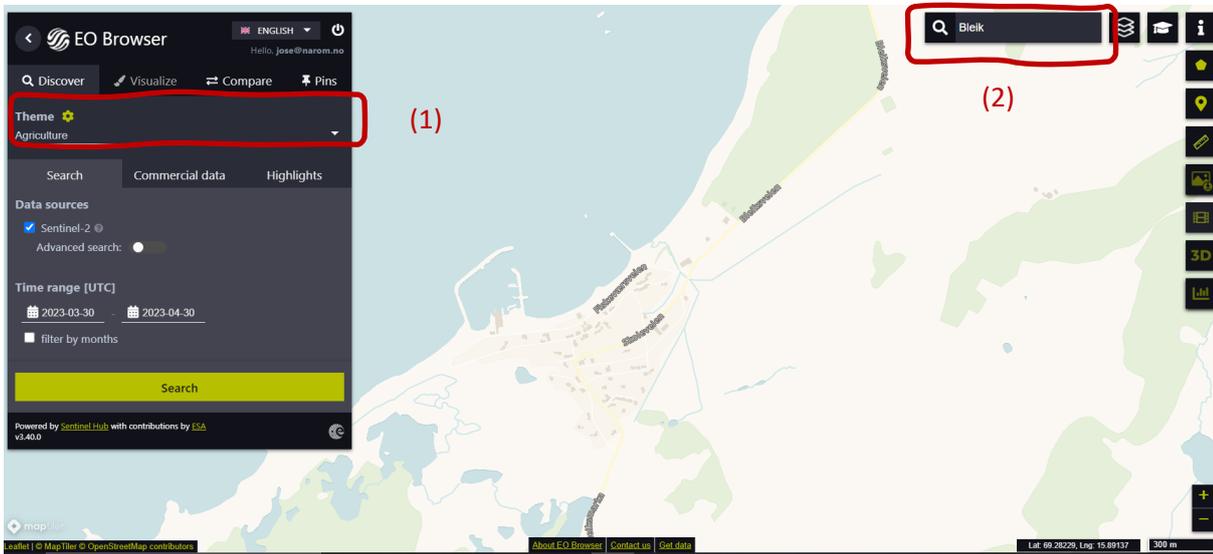
Follow the steps below to practise the main features of *EO browser* needed for this task:

Open the application using the following link: <https://apps.sentinel-hub.com/eo-browser/>. You need to register to be able to access all the functionalities needed for this activity. This is a free and easy task. Click over “Free sign up” and fill up the form. After receiving your account user and password, login using this information.



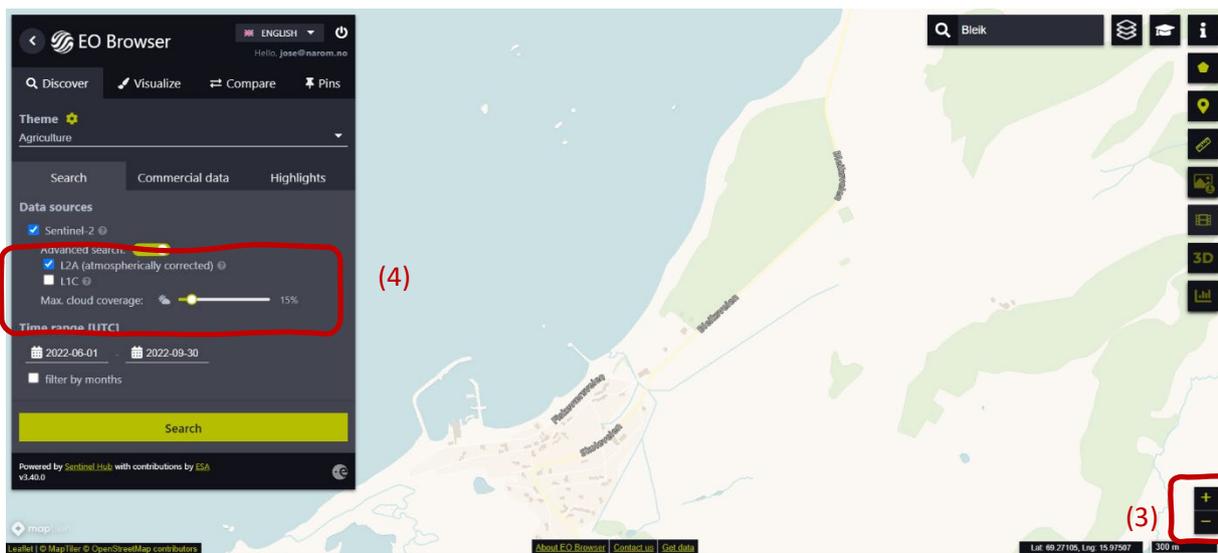
Up to the left, you can find the *Theme* selected. This is set to “Default” when the application starts. We can access to other themes by clicking and selecting in the theme list. Select “Agriculture” – see next image (1). The application will display only the relevant features for this theme. For example, now we see only Sentinel 2 in data sources since this is the satellite for monitoring agriculture. The area we will explore is Bleik, in the north of Norway. This is done by writing this info in the searching place area (top-right in the user interface) (2).





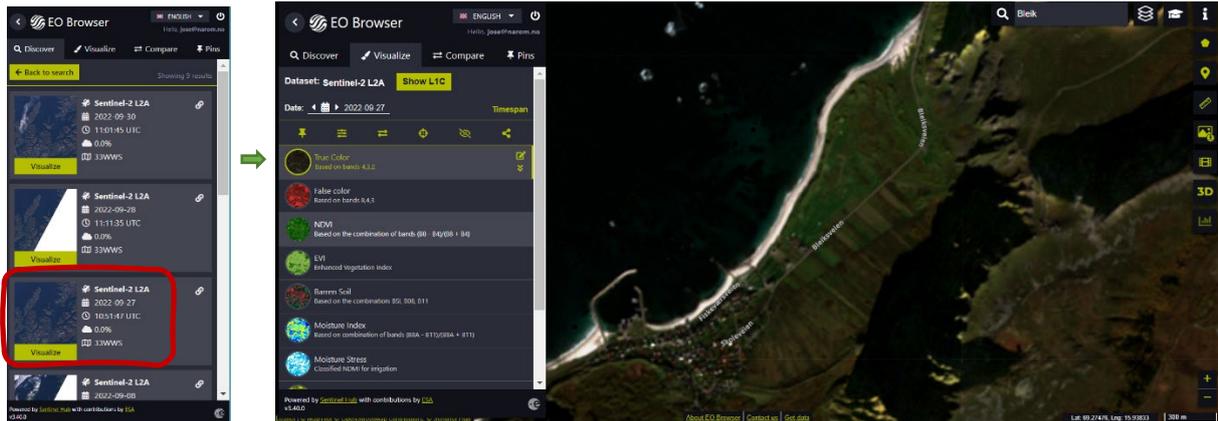
The next steps are (see next image):

- Select the area to explore like the one presented below: to proceed use the Zoom buttons (3), and move around by moving the mouse while holding down the left button.
- Activate “Advance search” (4): Select L2A (normally is selected by default”) and set “Max cloud coverage” down to around 15%. This will discard all the relative cloudy images.



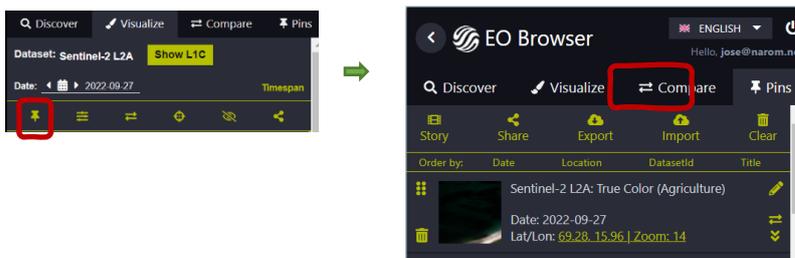
Now we proceed selecting the “Time range” to define the time interval for searching images. Click in the two dates (small calendars). In this case, we select from **2022-06-01** to **2022-09-30**. Click on the button “Search” (green button, see picture above). The Search window changes into a new window showing the results. We proceed choosing one image. Select the image taken **September 27**.





EO Browser displays the satellite image. The interface offers different kind of images. By default it displays the *True Color* image, like these from our normal cameras. This is the one we use in this introduction.

Pin your image! Before proceeding, we need to *pin* this image. This option will save it so we can use it afterwards. Click on the pin button  to save it. In the main menu, the window will change to display the *Pins* section. Now you can see the image added to your list (see below).



Visualize again the image by selecting *Visualize*  from the main menu.

Activity 1

Use the satellite image obtained in the preparations.

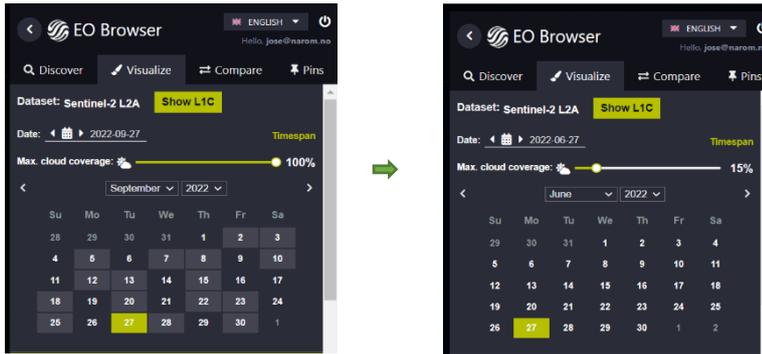
- Analyse the satellite image. Describe the place.
- Now concentrate in the vegetation features and explain further details about what you can see. Do you think we have agriculture in the area? Explain. Do you see interesting features?

Activity 2

Let's compare this satellite image with another taken earlier in the summer. Click on the calendar icon of the "Date" field (see below). The calendar opens showing all the days that Sentinel 2 has observed the area. By default, the calendar shows all images, with no cloud restrictions (100%). Set the *Max. cloud coverage* back to



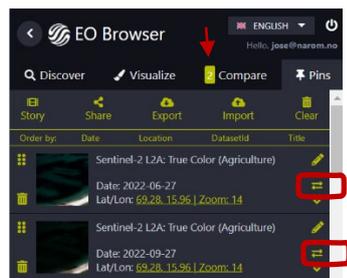
15%. Select June to consult the available images. We only have one image for this coverage, taken on June 27. Select it by clicking on the day.



Pin the image! Proceed as before and pin this image. Use the button . Now you will see the 2 images in *Pins* section. Remember that you can go back to visualize the image by selecting *Visualize* from the main menu.

Let's compare the images: You can easily compare the images. Proceed as follow:

- In the main menu click in the *Pins* section
- Select the images you want to compare by clicking in the “add to compare” icon . In this case we will select 2 images. You can see that the number showing the images selected appears in the Compare section.



- Select the section *Compare*. The program will display the two images, one on the top of the other. You can uncover to see the one below by using the “Spit position” bar. You can gradually uncover and cover to compare the images:

