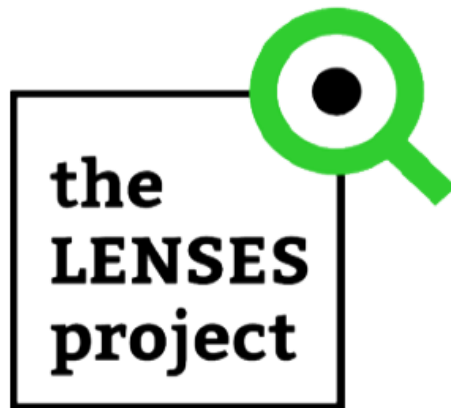# How to use the
LENSES Observatory

Structure

Dataset: The data publishing unit in the LENSES observatory is called "dataset", meaning a parcel of data. For example, it could be the temperature values for a specific location at a specific time. A dataset consists of "metadata" and a number of "resources", which hold the data itself. The data formats can vary, from CSV and Excel files, to images and linked data in RDF format. Moreover, a dataset can contain a large or a small number of resources.

Metadata: A loose term of metadata is "data about data". Metadata identify and describe all aspects of a specific dataset (i.e., the who, why, what, when and where) that allow the understanding of the physical format, content as well as context of the data. The metadata accompany the Datasets and are provided through the Data collection protocol.

Pilots: The datasets of the project, that are included in the Observatory, are related to one of the pilots of the LENSES project, i.e., the "Doñana National Park", "Galilee, Hula Valley", "Gediz Basin and Delta", "Koiliaris Critical Zone Observatory", "Middle Jordan Valley, Deir Alla", "Pinios River Basin" and "Tarquinia Plain". In the first version of the observatory, indicative datasets from all pilots are successfully collected.

Sectors: In order to further categorize the datasets in the Observatory, several sectors are introduced. A dataset can belong to more than one sector. For the first version of the repository, several sectors have been identified and 5 are populated with data: Water, Climate projections, Land use, Climate risk and Pilot data. These sectors represent a simple way to help users search and access data thematically.
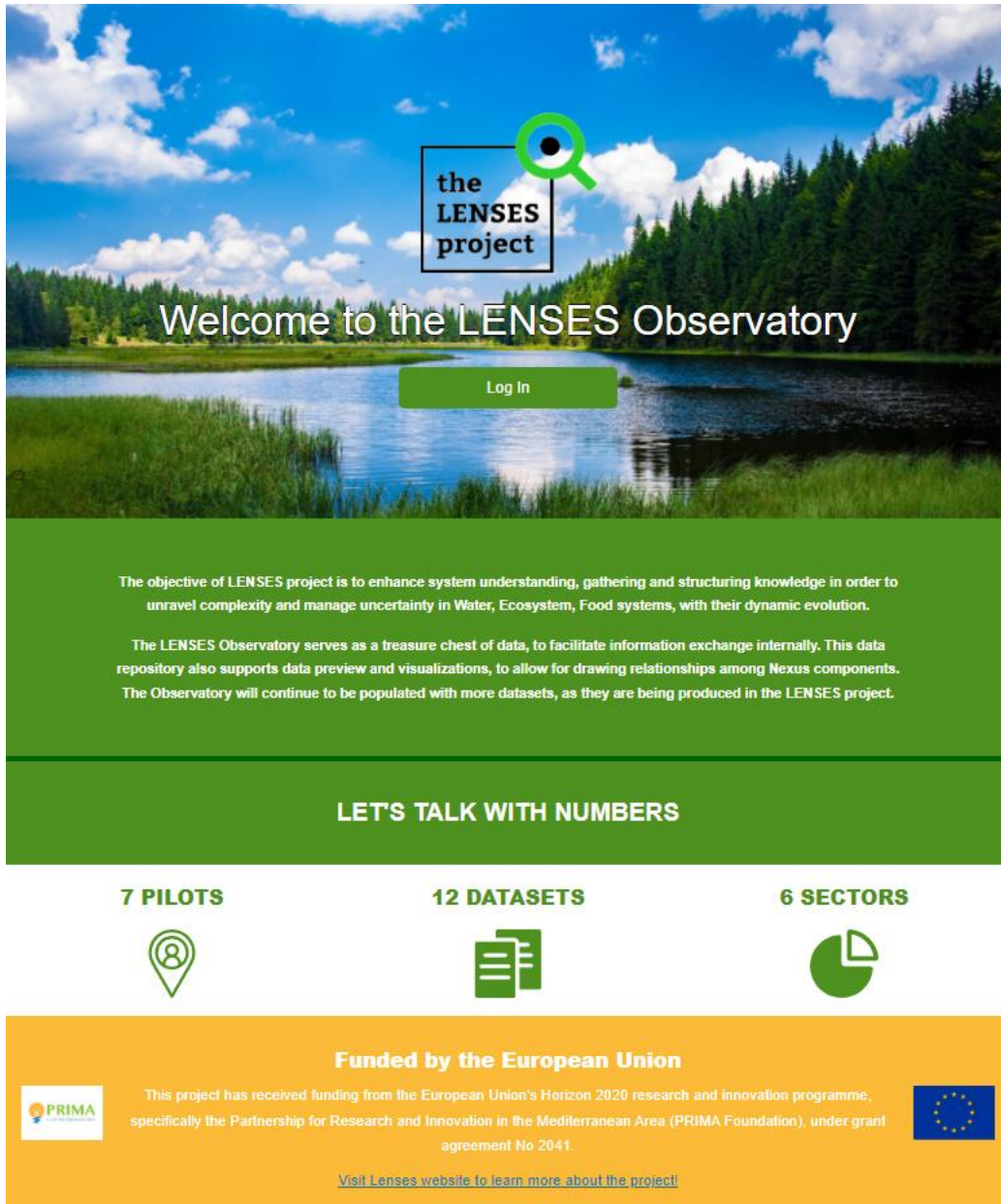
Administrator: There is an administrator for the repository that is responsible for managing the content and the users, as well as assigning authorization rights to users.

User: The repository can be accessed only from the partners of the LENSES project. These users can view the uploaded datasets and access them through the interface.

Welcome Page

The welcome page of the LENSES Observatory introduces you to the Observatory and allows you to login with your credentials, in order to access the datasets. The welcome page contains a small description of the project and the Observatory, along with statistics showing (i) the number of pilots, (ii) the available datasets and (iii) the sectors provided in the tool (Figure 1).

When the login is complete, you will be directed to your "Dashboard", where you will be able to see activity from items you are following, i.e., Pilots, Sectors and Datasets. At the top of the page, there is a menu for allowing you to easily navigate to the Datasets page, the Pilots page, the Sectors page and the About page (Figure 2).

Figure 1: Welcome page of the LENSES Observatory
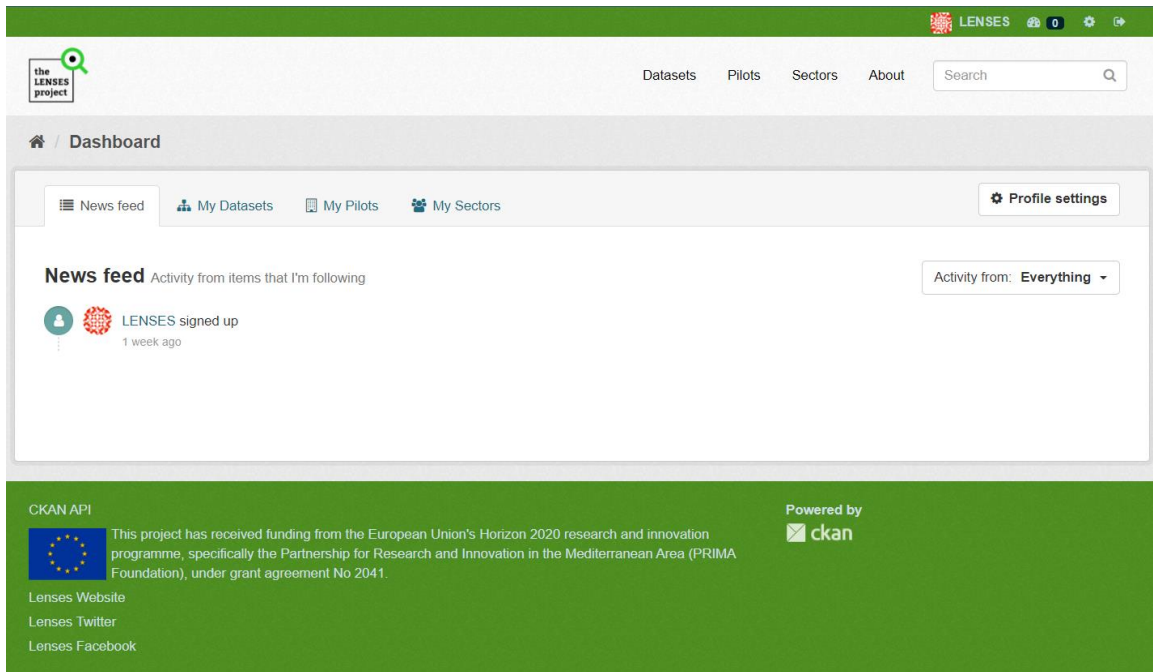
Figure 2: Landing page after Login

Login

At the welcome page you are provided with a login button. In order to have access to the Observatory you should login to the LENSES account that is shared among consortium partners. (Figure 3)

Figure 3: Login page

Pilots

You can navigate to the Pilots page of the Observatory by selecting "Pilots" from the menu (Figure 4). Each pilot has a dedicated page, where you can find information about the pilot (tab "About") and look at the latest activities relating to the datasets of the specific pilot (tab "Activity Stream") (Figure 5).
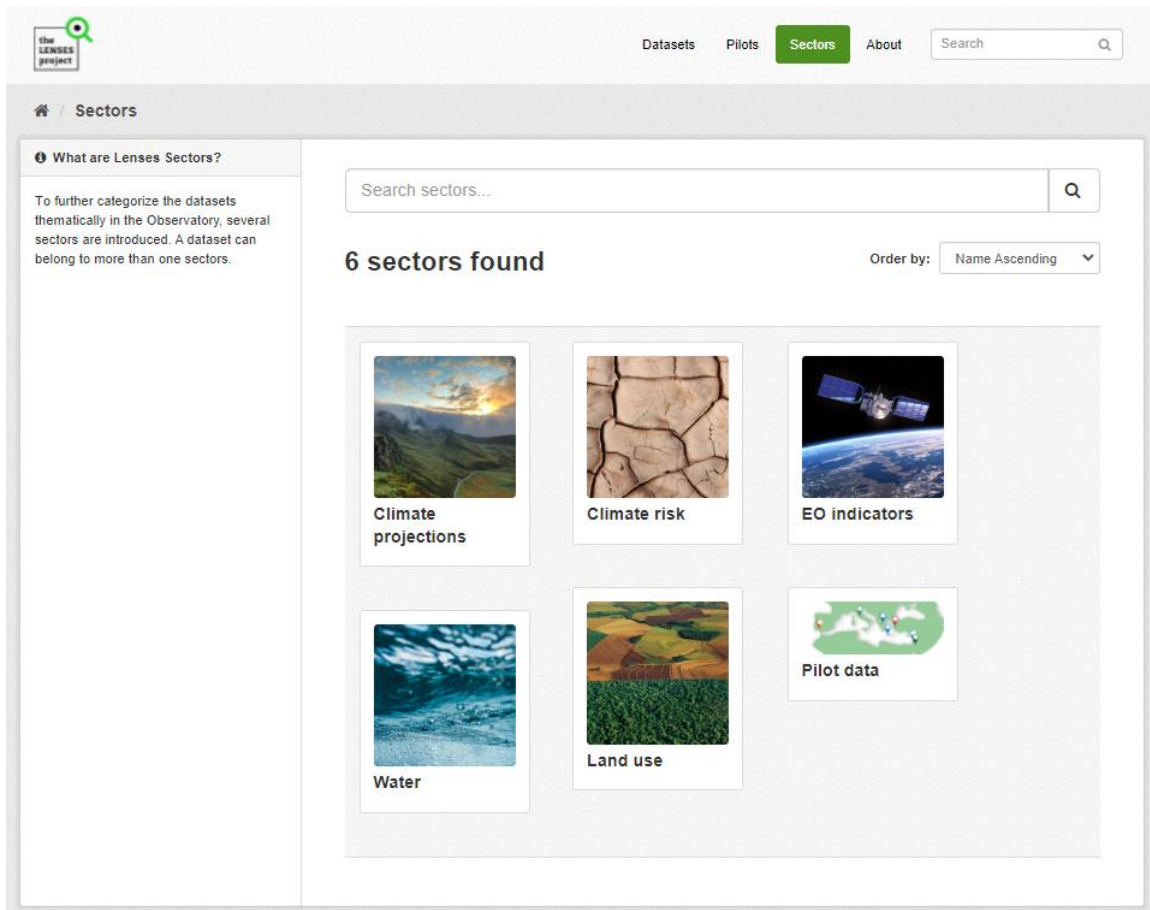

Figure 4: Pilots page

Figure 5: Page of Doñana National Park pilot

Sectors

In the Observatory, you will find different sectors related to the certain thematic aspects of the seven pilots of LENSES pilots, by selecting "Sectors" in the menu bar (Figure 6). Each sector has a dedicated page, where you can search within its datasets (tab "Datasets") and look at the latest activities relating to the datasets of the specific sector (tab "Activity Stream") (Figure 7).

Figure 6: Sectors page

Figure 7: Page of Climate projections sector

Search for datasets

To find datasets in the Observatory, you can type any combination of words (e.g., "climate", "provisional", "demographic", etc.) in the search box on any page. The Observatory will then return all corresponding search results as a list (Figure 8).

Figure 8: Datasets page

On the search result page, you can sort the results based on relevance, name, modification date or popularity by selecting "Order by". You can also limit the results using the filters on the left column (Pilots, Sectors, Tags, Formats). You can combine filters, selectively adding and removing them, and modify and repeat the search within existing filters still in place.

Additionally, you can select "Pilots" from the menu in order to view the seven pilots and then select the one you are more interested in and be directed to that specific pilot's page. By typing a search query in the main search box on the page, the Observatory returns search results as

described above but restricted to datasets from the specific pilot (Figure 9). Apart from typing in the search box, you can explore the datasets in that specific pilot. Respectively, you can select "Sectors" from the menu and follow the same process to explore the datasets thematically.

Figure 9: Datasets in the pilot's page with applied filters

Dataset

Once you find a dataset you are interested in and select it, the Observatory will display the dataset page (Figure 10). On the overview page of a dataset, you will be able to see three tabs: "Dataset", which shows the data and resources belonging to this dataset as well as additional info (metadata), "Sectors", which shows the sectors this dataset belongs to and "Activity stream", which shows the history of recent changes to the dataset. On the left part is a column that displays the title of the dataset and the pilot that it relates to.

Figure 10: Dataset overview page

On the "Dataset" tab you can see all the information of the dataset including the title, the description, the list of data and resources, the keywords associated with the dataset, as well as the additional info. The "Explore" button on the right of each resource offers the following two options:

- **Preview** – which shows the page of the resource including additional information
- **Download** – which downloads the file directly

The list of keywords and the additional information presents the metadata of the dataset, provided through the data collection protocol (Figure 11).

Figure 11: Explore button - Download Data and Resources

Data preview and visualization

In the resource page, information for the specific file is presented and you have several preview options. The type of the file is presented on top, along with a link to its original source and the description of the dataset (Figure 12). Files in the format of CSV and XLS spreadsheets are previewed in a grid view, with map (Figure 14) and graph views also available if the data is suitable.

Figure 12: Dataset explore page, preview of data in grid

The "Graph" option allows you to create diagrams and select which fields of the file you wish to display on the two axes of the graph (Figure 13). As a result, you are able to dynamically create any combination of data and get valuable insights for the dataset.
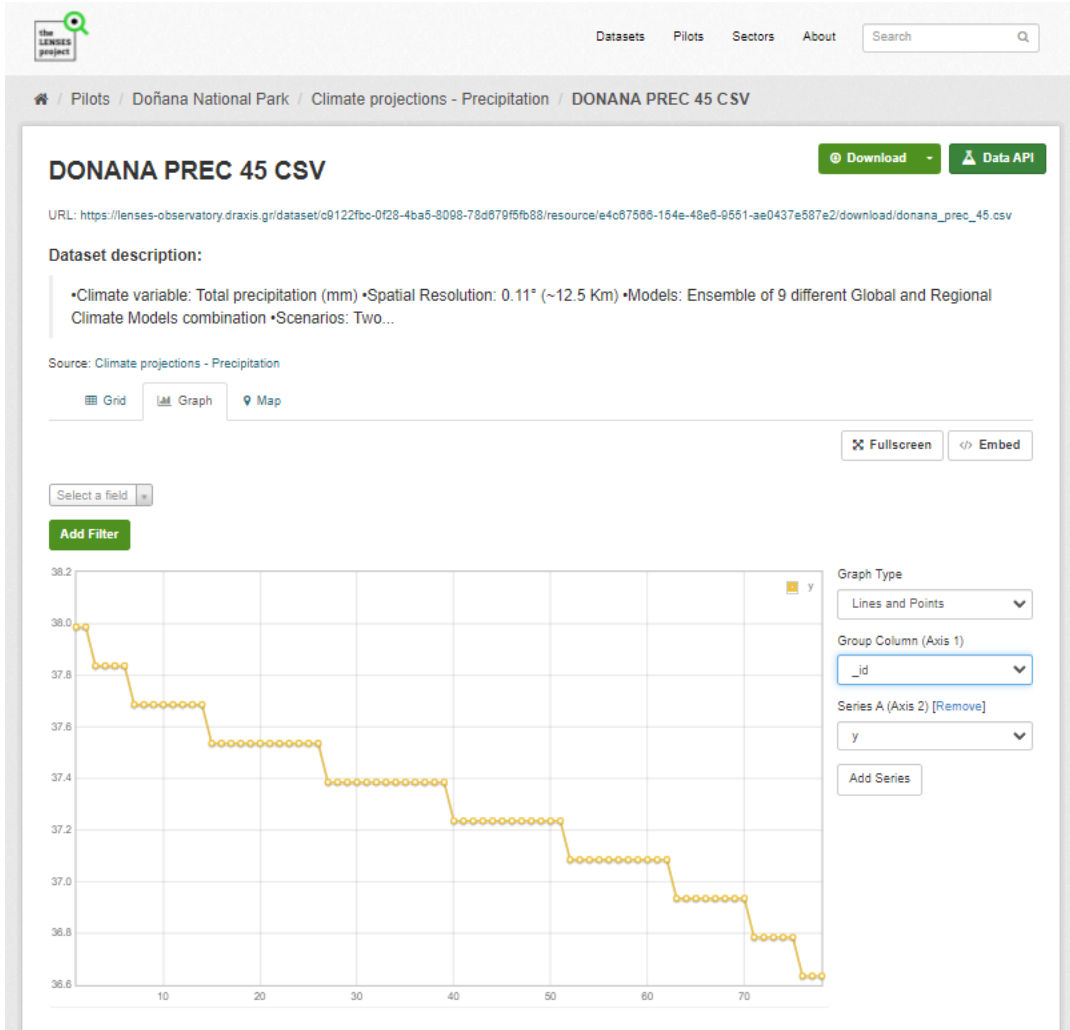
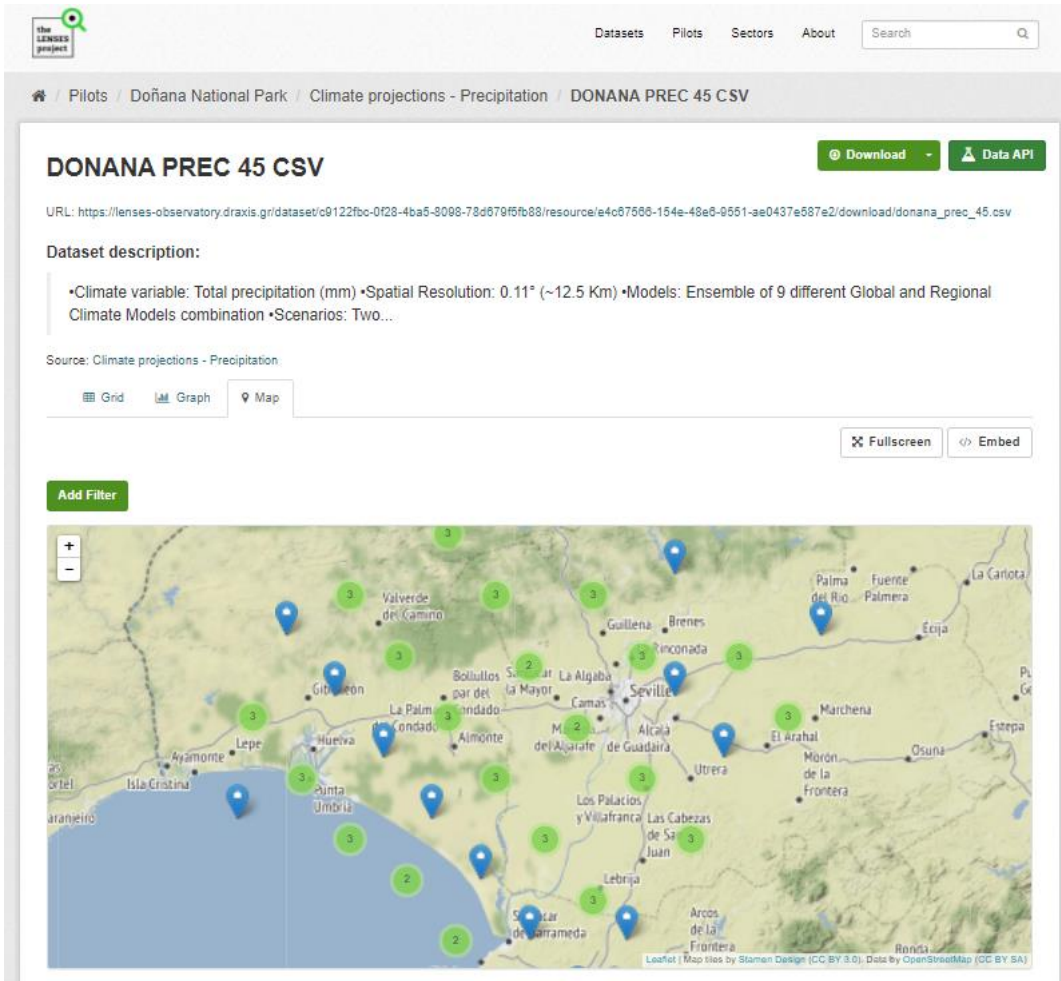*Figure 13: Dataset explore page, preview of data in a line graph*

Figure 14: : Dataset explore page, preview of data in a map

Download and API

Apart from downloading a resource directly from the dataset page, you can navigate to the resource page where you are presented with more options. The download button is still available at the top of the page, where you can select the file format you want to download (Figure 15). Furthermore, the API option is available, which allows you to access the data directly for use in your solutions. By clicking on the "Data API" option, you are presented with a pop-up, where all the information regarding the API is available. More specifically, the available endpoints are presented, along with several examples to guide you. Links to documentation are also included (Figure 16).

Figure 15: Download files in resource page

Figure 16: API available in resource page