



## Using VRE to align geodata

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**IR0000032 – ITINERIS, Italian Integrated Environmental Research Infrastructures System**  
(D.D. n. 130/2022 - CUP B53C22002150006) Funded by EU - Next Generation EU PNRR-  
Mission 4 “Education and Research” - Component 2: “From research to business” - Investment  
3.1: “Fund for the realisation of an integrated system of research and innovation infrastructures”



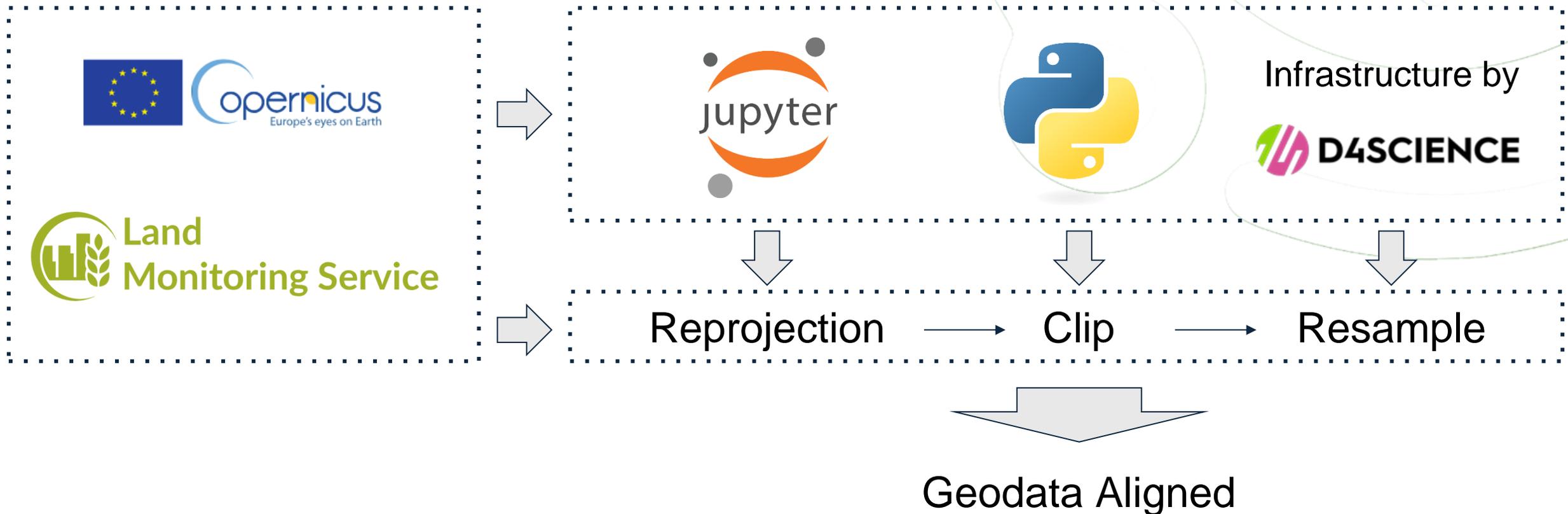
## Use Case: The Wetland Area of Massaciuccoli Lake



# Geodata Alignment

## Geodata Collection

## Geodata Processing



## GeoData Alignment - Collection

Register your account on the “Copernicus Land Monitoring Service (CLMS)”

<https://land.copernicus.eu/en>



Register/Login



×

**This website uses EU Login for user authentication.**

EU Login, the European Commission Authentication Service, enables you to access various web applications centrally using the same e-mail and password. You can read more [here](#).

If you have EU Login account, please click 'Login using EU Login'.

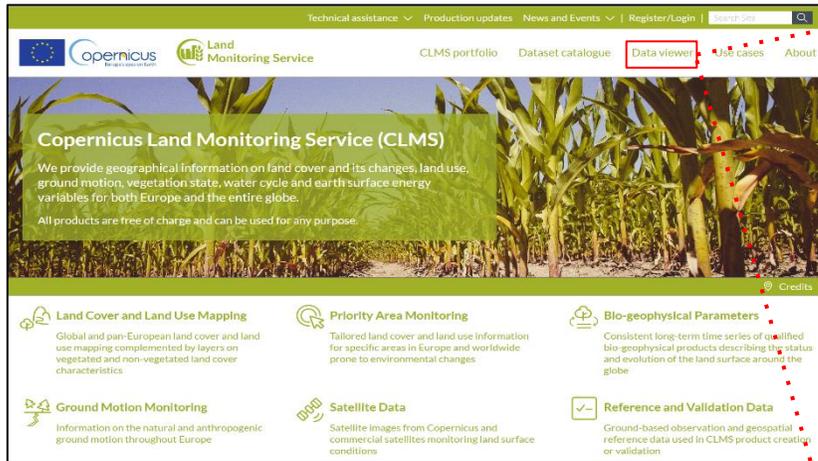
If you don't have EU Login account, please follow this [link](#) to create it.

If you have other questions, please contact our [Service desk](#).

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# GeoData Alignment - Collection



## Download dataset from CLMS:

Define the download area:

In the data viewer draw a bounding box  
or

From the Workspace download BBOX of area of interest: <https://data.d4science.net/Nrcx>

Download Layer:

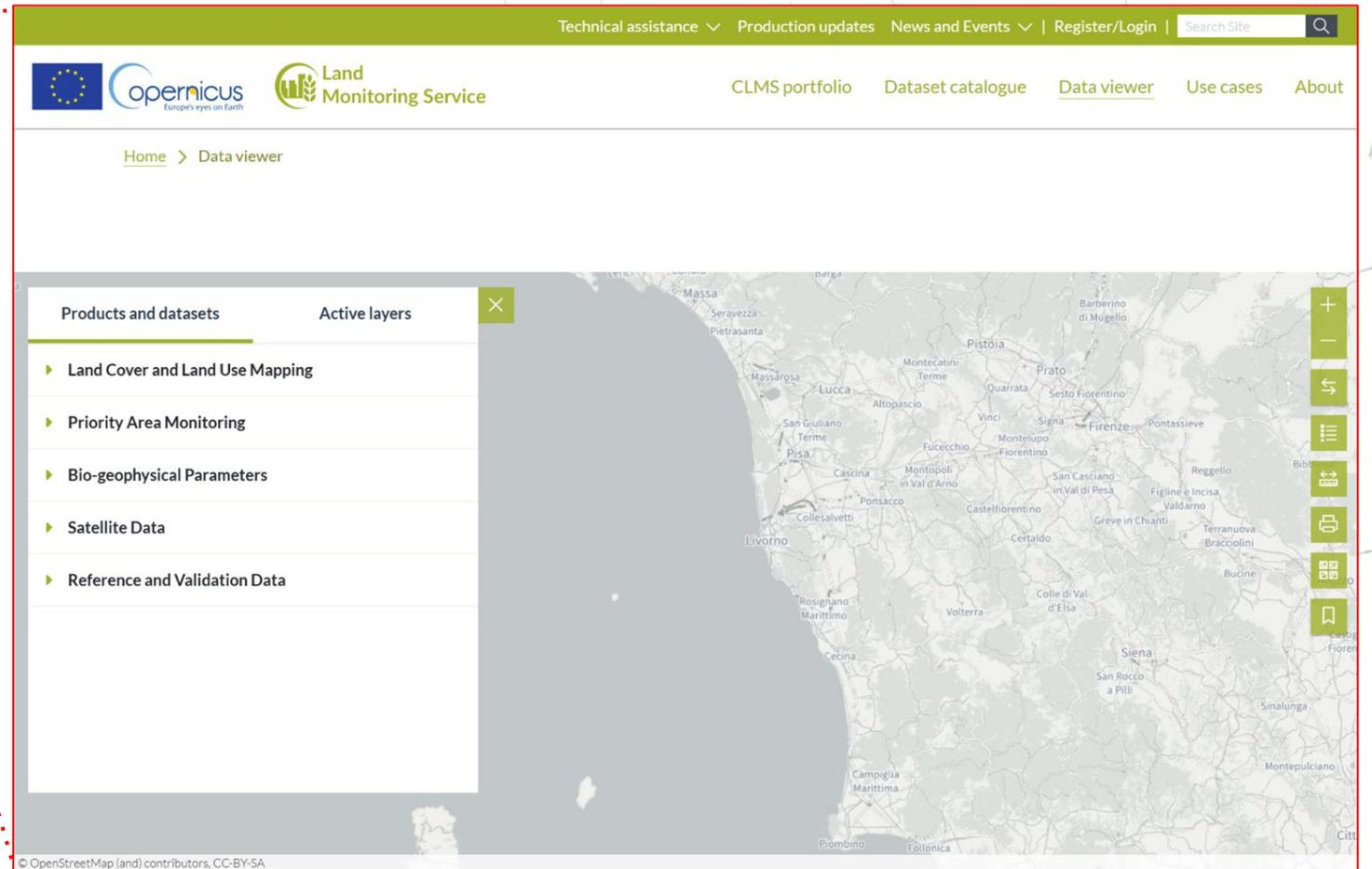
CLC+Backbone 2018

Imperviousness Density 2018

Dominant Leaf Type 2018

Tree Cover Density 2018

Water and Wetness status 2018



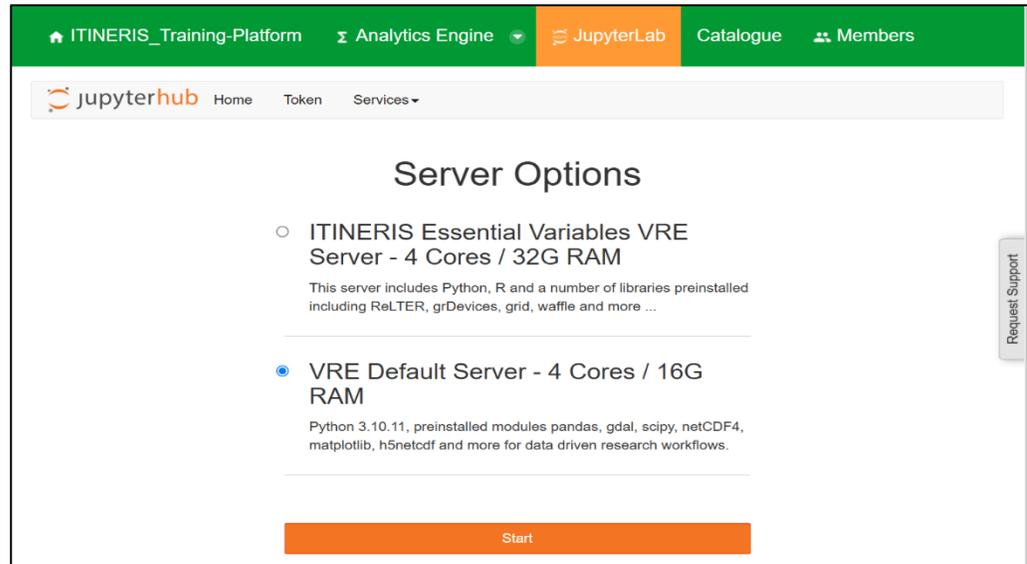
<https://land.copernicus.eu/en/map-viewer>

# GeoData Alignment - Processing

## JupyterLab in the Itineris VRE

[https://itineris.d4science.org/group/itineris\\_training-platform/jupyterlab](https://itineris.d4science.org/group/itineris_training-platform/jupyterlab)

## GeoData Alignment via Python Notebook



ITINERIS\_Training-Platform Analytics Engine JupyterLab Catalogue Members

jupyterhub Home Token Services

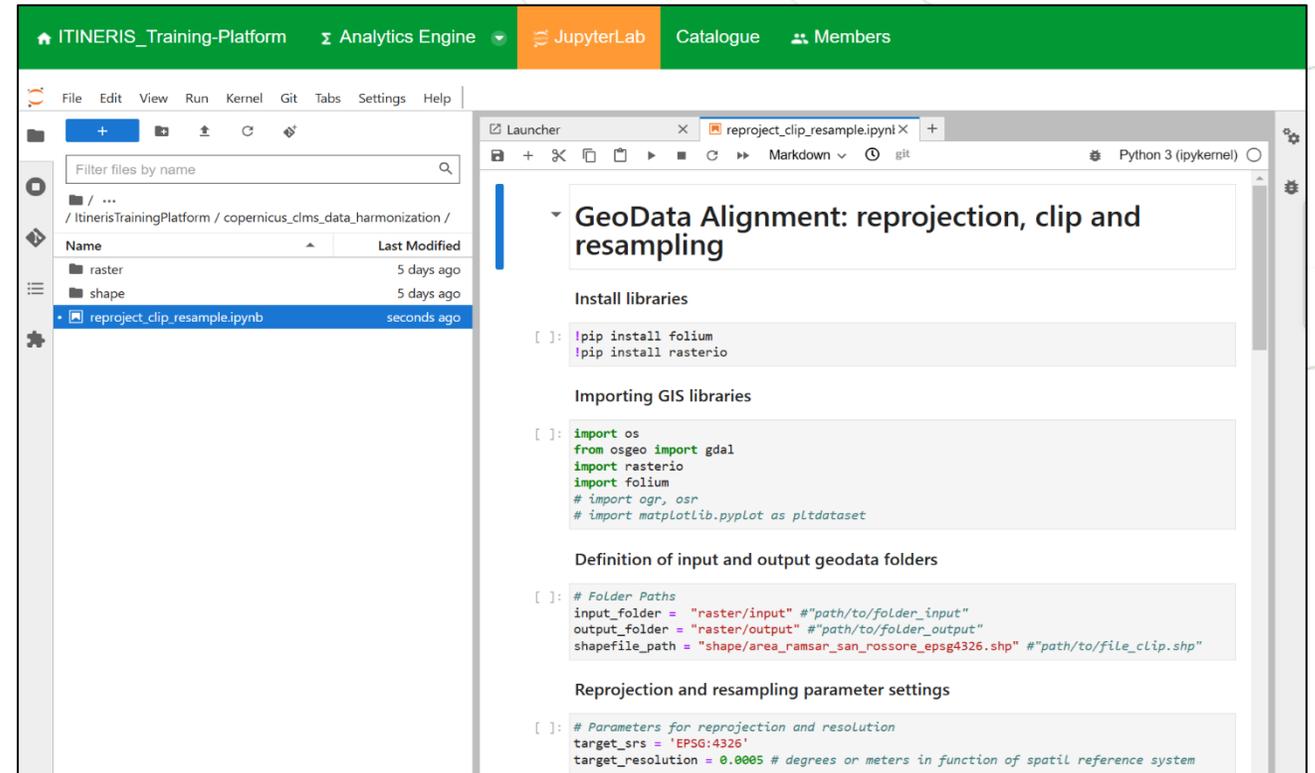
### Server Options

- ITINERIS Essential Variables VRE Server - 4 Cores / 32G RAM  
This server includes Python, R and a number of libraries preinstalled including ReLTER, grDevices, grid, waffle and more ...
- VRE Default Server - 4 Cores / 16G RAM**  
Python 3.10.11, preinstalled modules pandas, gdal, scipy, netCDF4, matplotlib, h5netcdf and more for data driven research workflows.

Start

Choose a server

Use a Jupiter notebook



ITINERIS\_Training-Platform Analytics Engine JupyterLab Catalogue Members

File Edit View Run Kernel Git Tabs Settings Help

Filter files by name

/ ItinerisTrainingPlatform / copernicus\_clms\_data\_harmonization /

Name	Last Modified
raster	5 days ago
shape	5 days ago
reproject_clip_resample.ipynb	seconds ago

reproject\_clip\_resample.ipynb Python 3 (ipykernel)

### GeoData Alignment: reprojection, clip and resampling

Install libraries

```
[ ]: pip install folium
pip install rasterio
```

Importing GIS libraries

```
[ ]: import os
from osgeo import gdal
import rasterio
import folium
# import ogr, osr
# import matplotlib.pyplot as pltdataset
```

Definition of input and output geodata folders

```
[ ]: # Folder Paths
input_folder = "raster/input" #path/to/folder_input"
output_folder = "raster/output" #path/to/folder_output"
shapefile_path = "shape/area_ramsar_san_rossore_eps4326.shp" #path/to/file_clip.shp"
```

Reprojection and resampling parameter settings

```
[ ]: # Parameters for reprojection and resolution
target_srs = 'EPSG:4326'
target_resolution = 0.0005 # degrees or meters in function of spatil reference system
```



# THANKS!

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