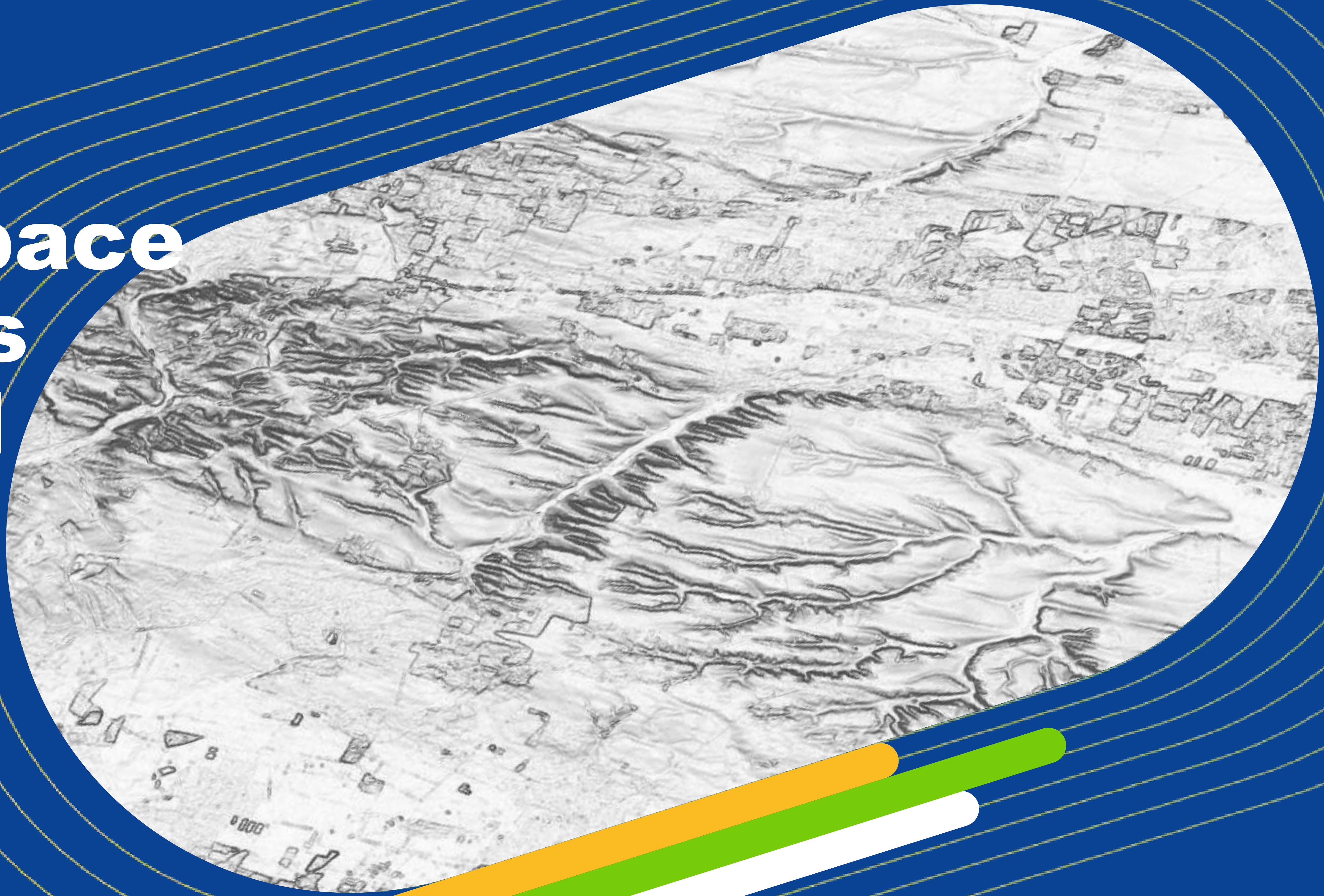
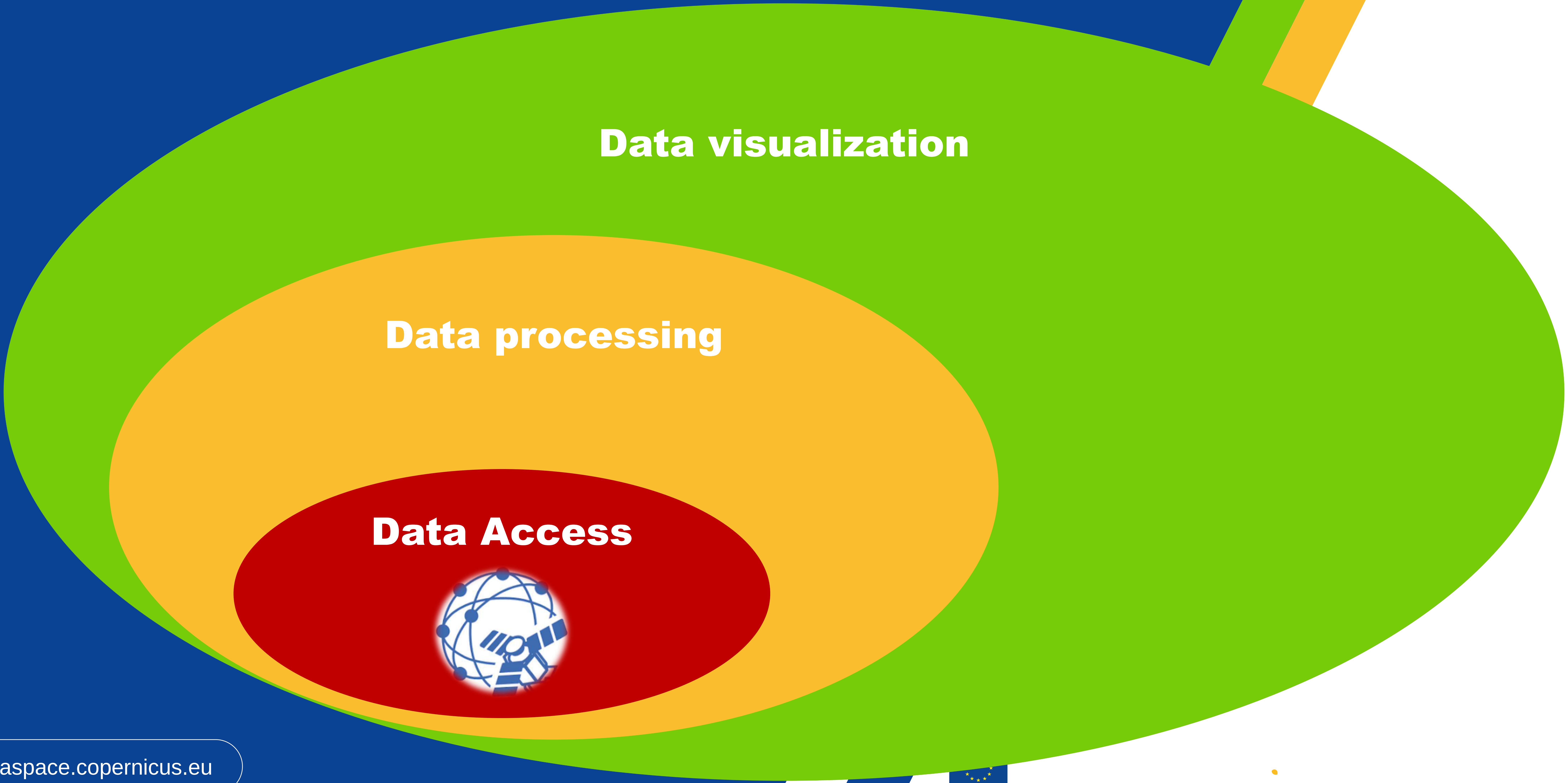
Copernicus Data Space Ecosystem provides free tools for global soil erosion risk estimation



ESA Symposium on Earth Observation for Soil Protection and Restoration

6-7.03.2024, Frascati, Italy

What is Copernicus Data Space Ecosystem?



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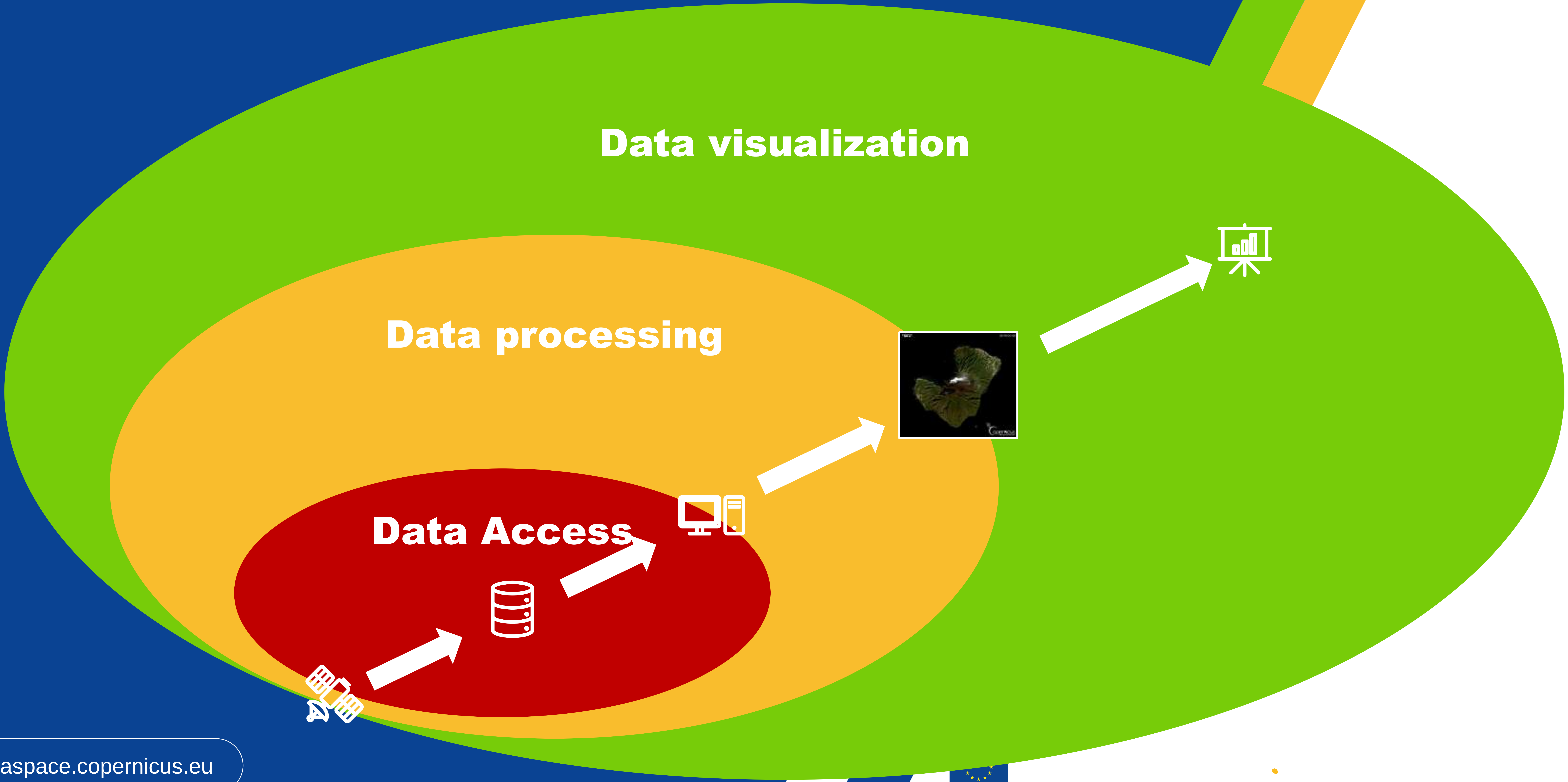

dataspace.copernicus.eu

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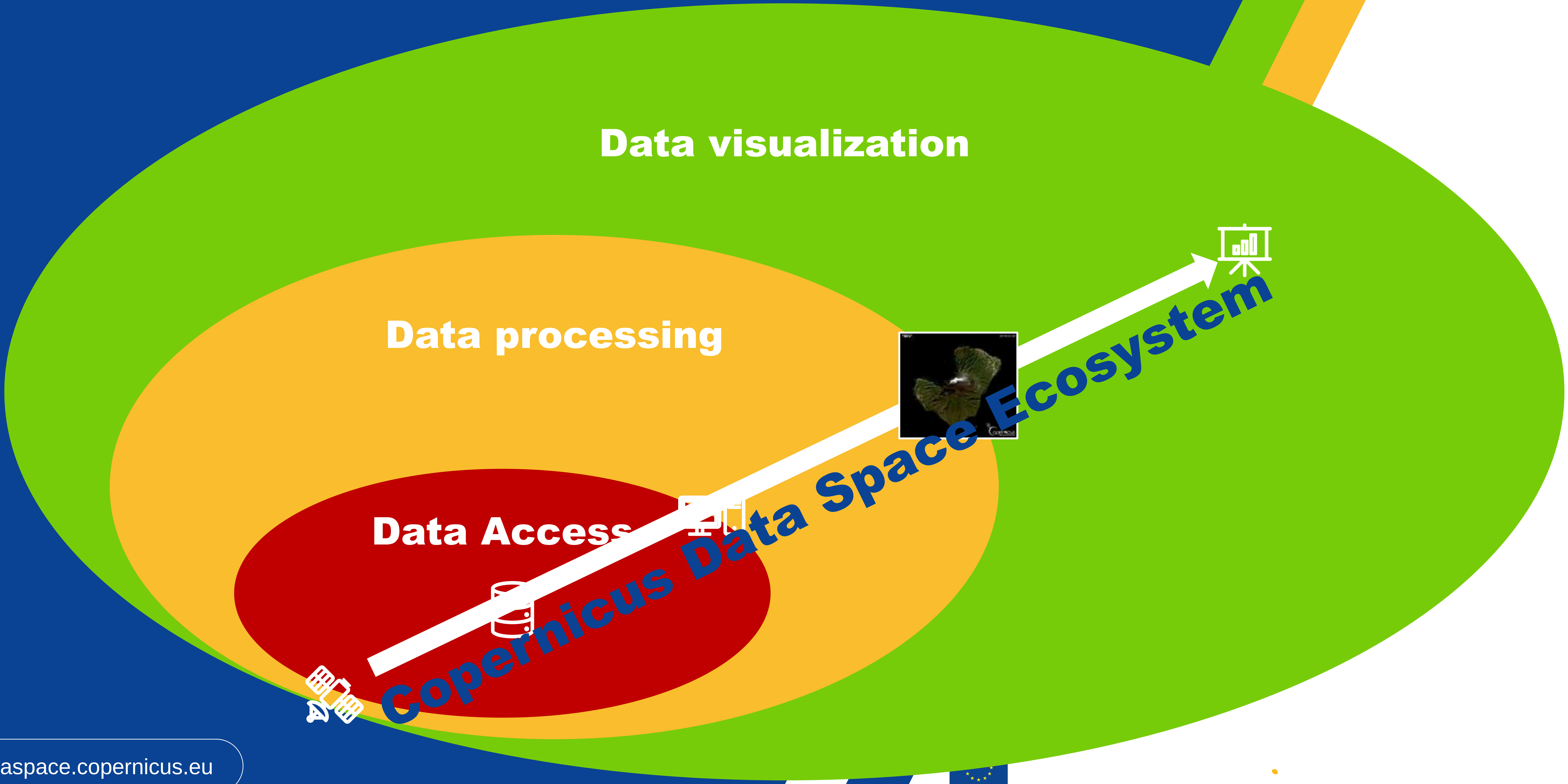

Main features of Copernicus Data Space Ecosystem

All Copernicus Sentinel Data

- Copernicus Contributing Missions
- Federated datasets
- Complementary data

API-based open data distribution service

- Platform for building new software solutions
- Access to imagery and data products

Copernicus Browser

- Interactive visualization
- Custom processing and analysis
- Time series
- Image download

Cloud computing with adjustable capacity and performance

- CloudFerro Cloud
- Open Telekom Cloud
- Third-party resources

Onboard code lab and resources

- OpenEO
- Requests Builder
- Jupyter Notebooks

Open ecosystem

Use case example – global erosion risk estimation in JupyterLab

- JupyterLab has all Sentinel Data Collections, CDSE API-s and a set of EO Code libraries → no need to set up anything locally - **https://github.com/eu-cdse/notebook-samples/blob/main/sentinelhub/soil_erosion_risk.ipynb**
- **jupyterhub.dataspace.copernicus.eu**

- Start notebook, import dependencies
- Define study area (Somogybabod, Hungary)
- Calculate number of bare soil days from Sentinel-2
- Collect terrain slopes – pre-calculated with GDAL on CREODIAS and ingested with BYOC API
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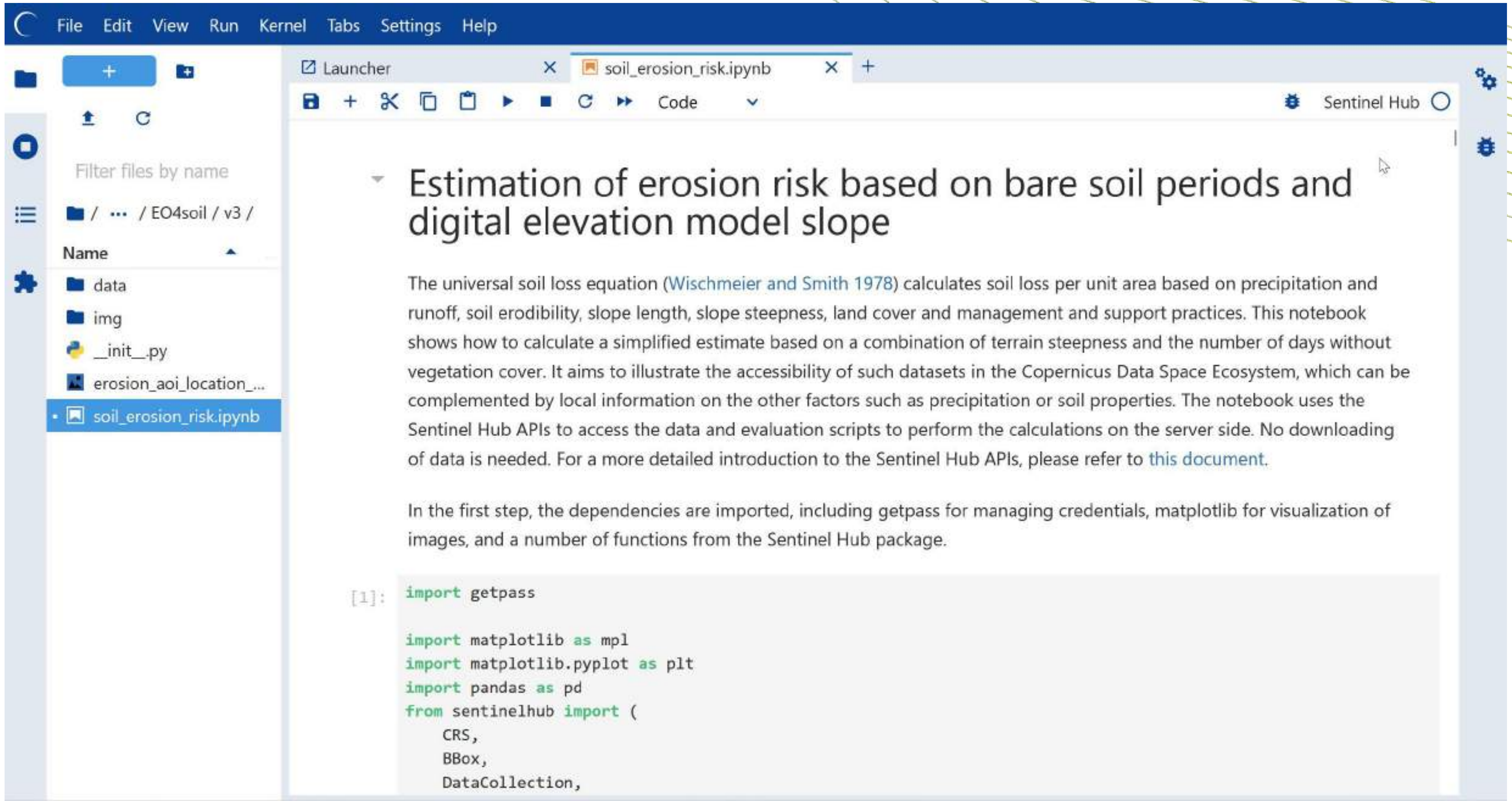

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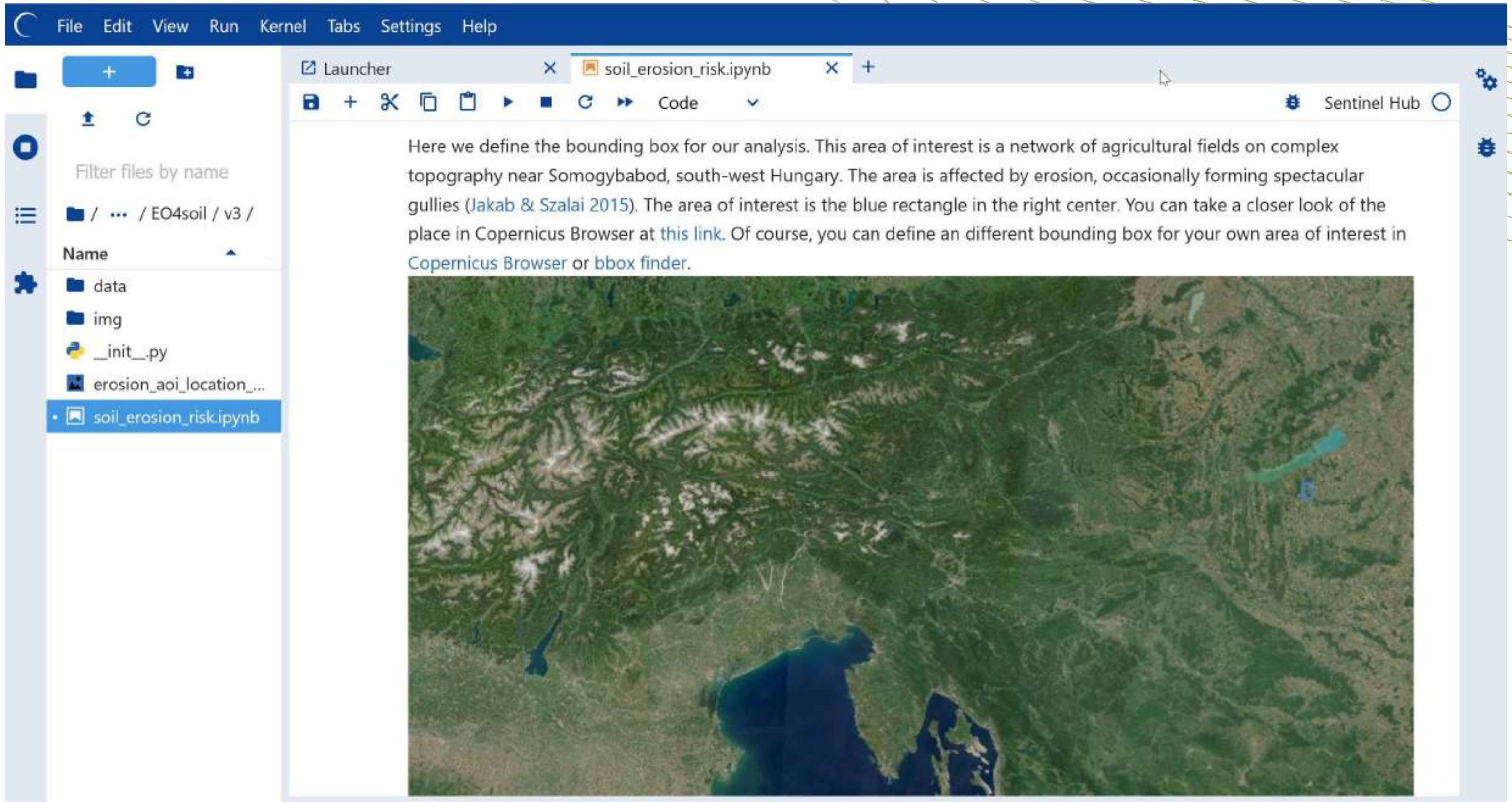

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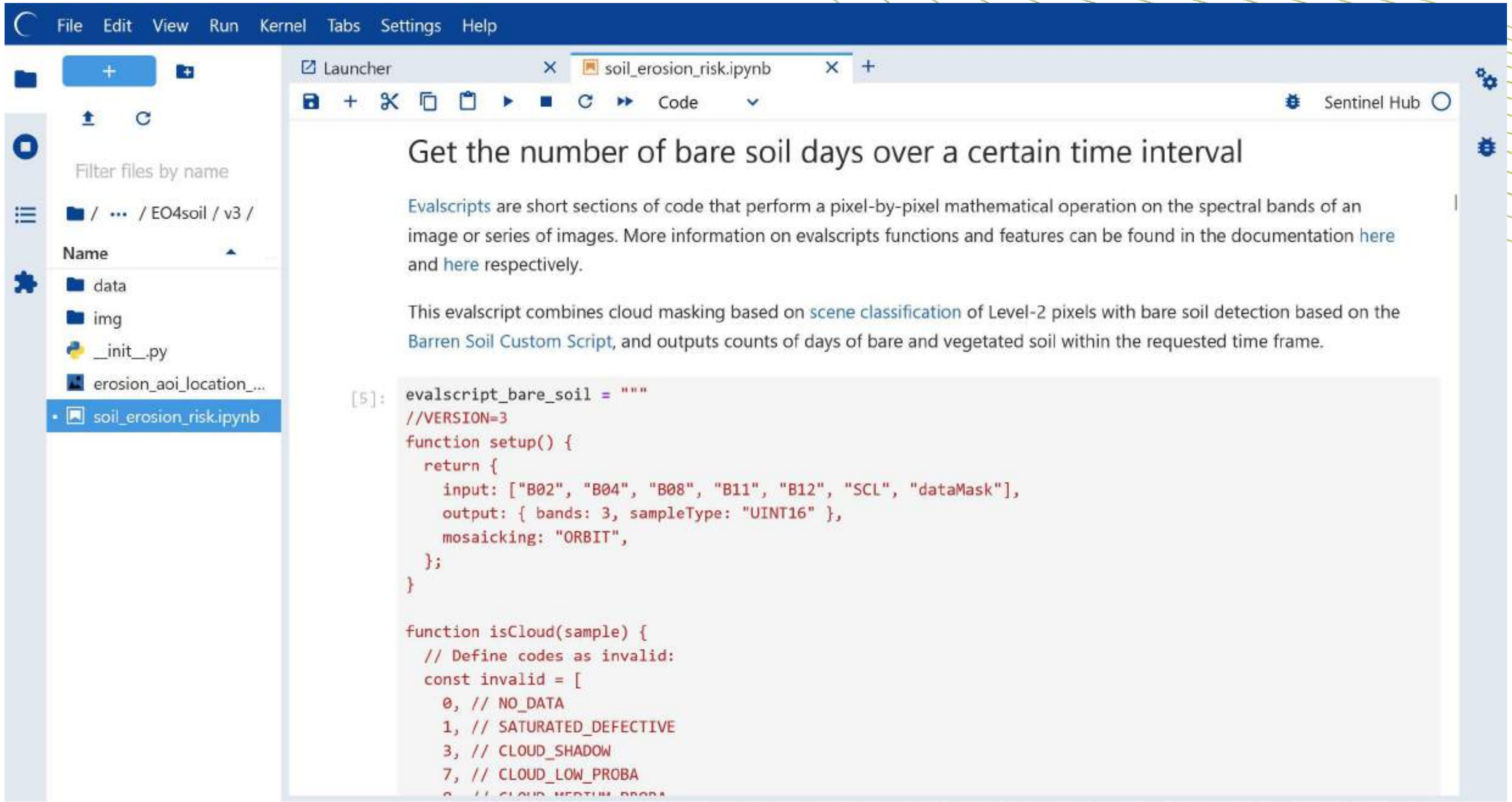

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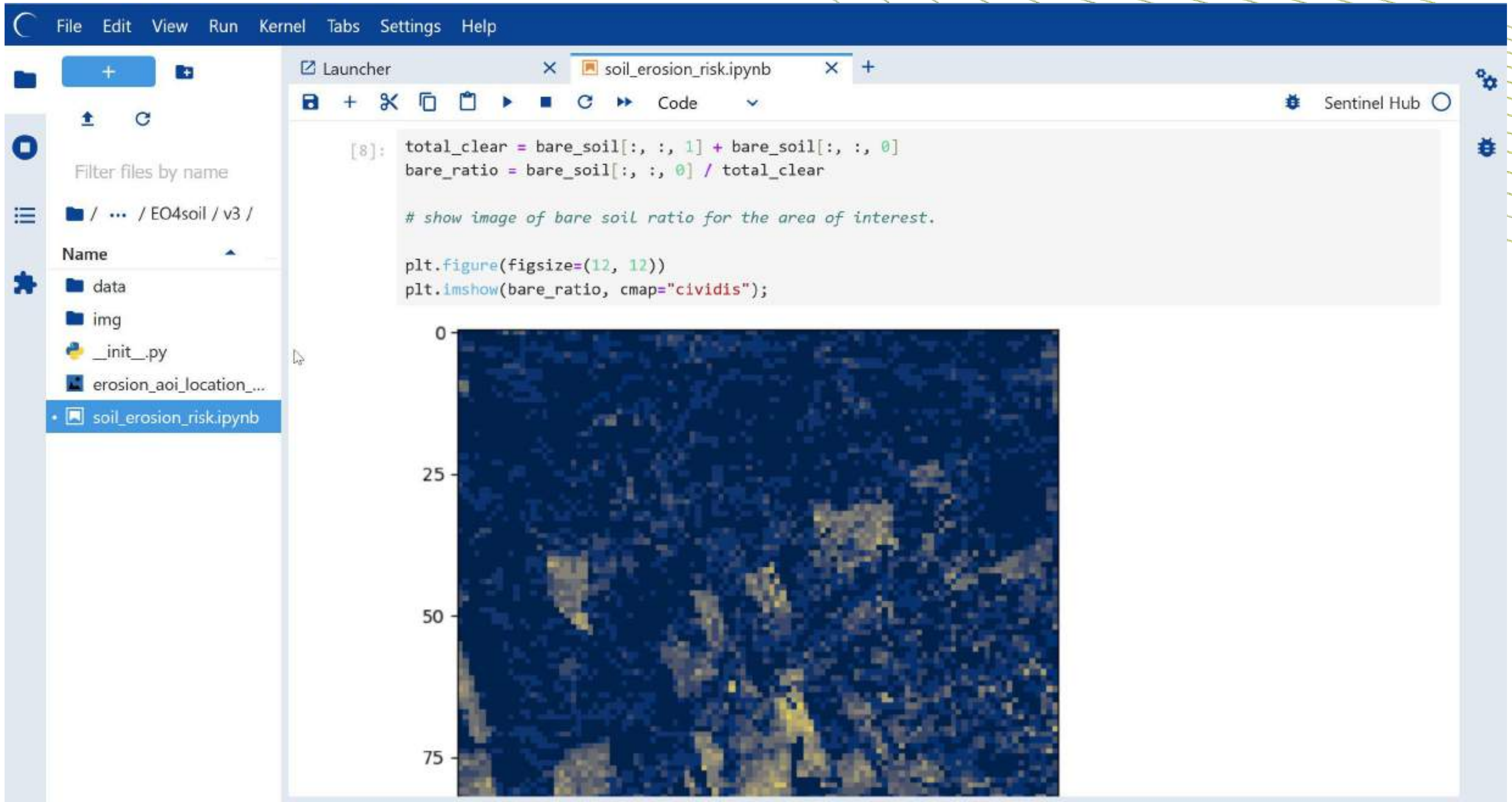

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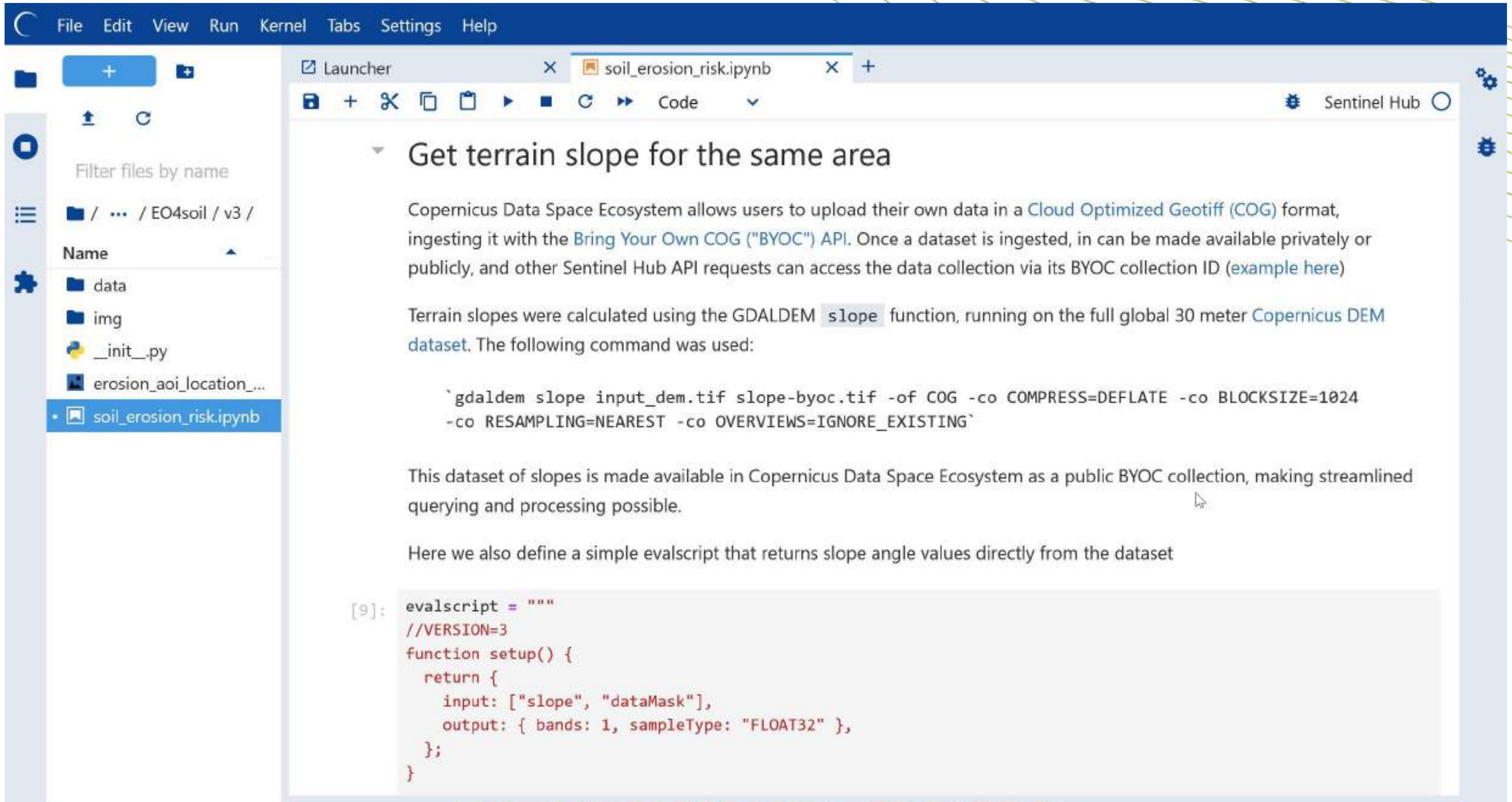

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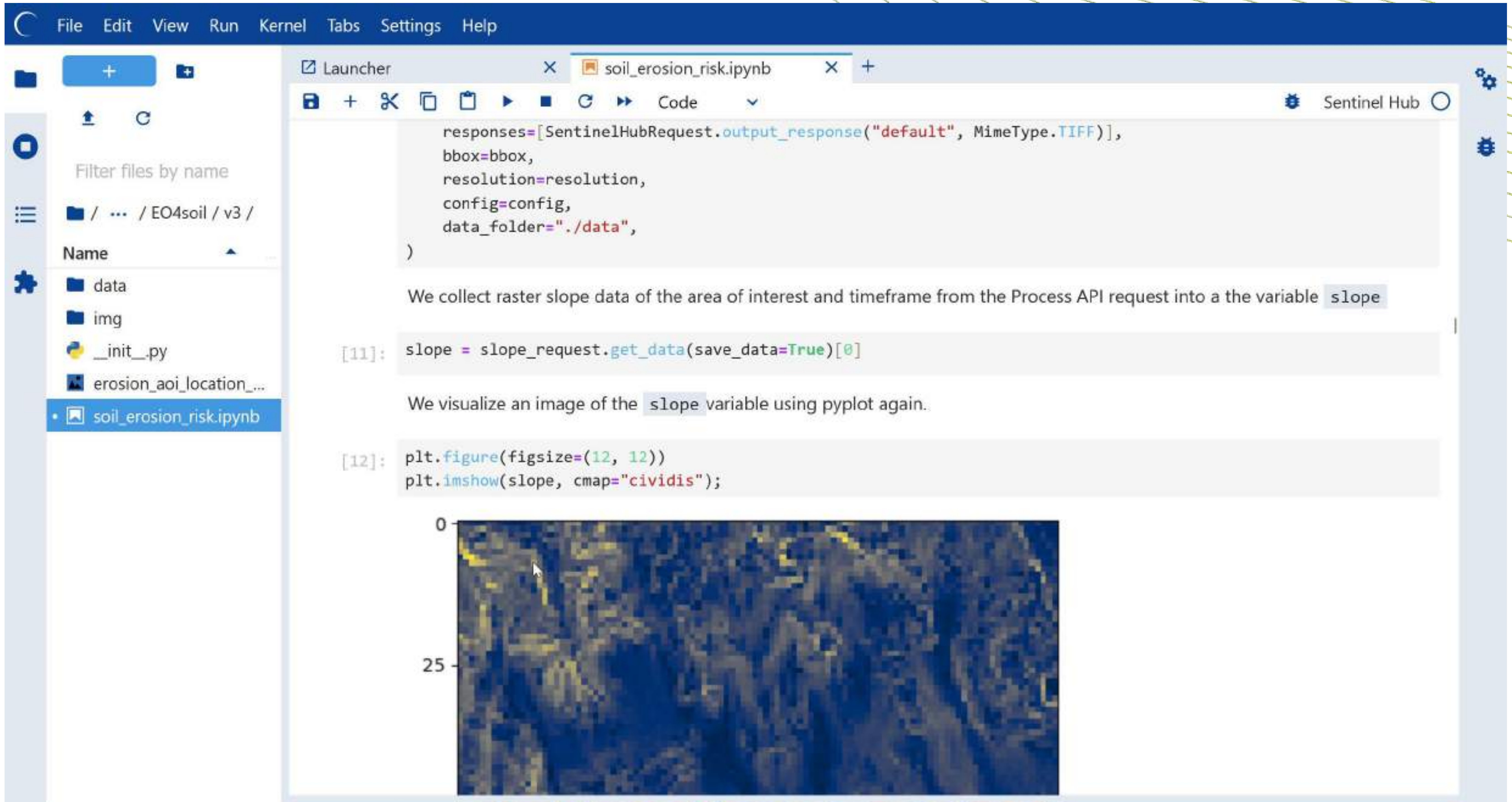

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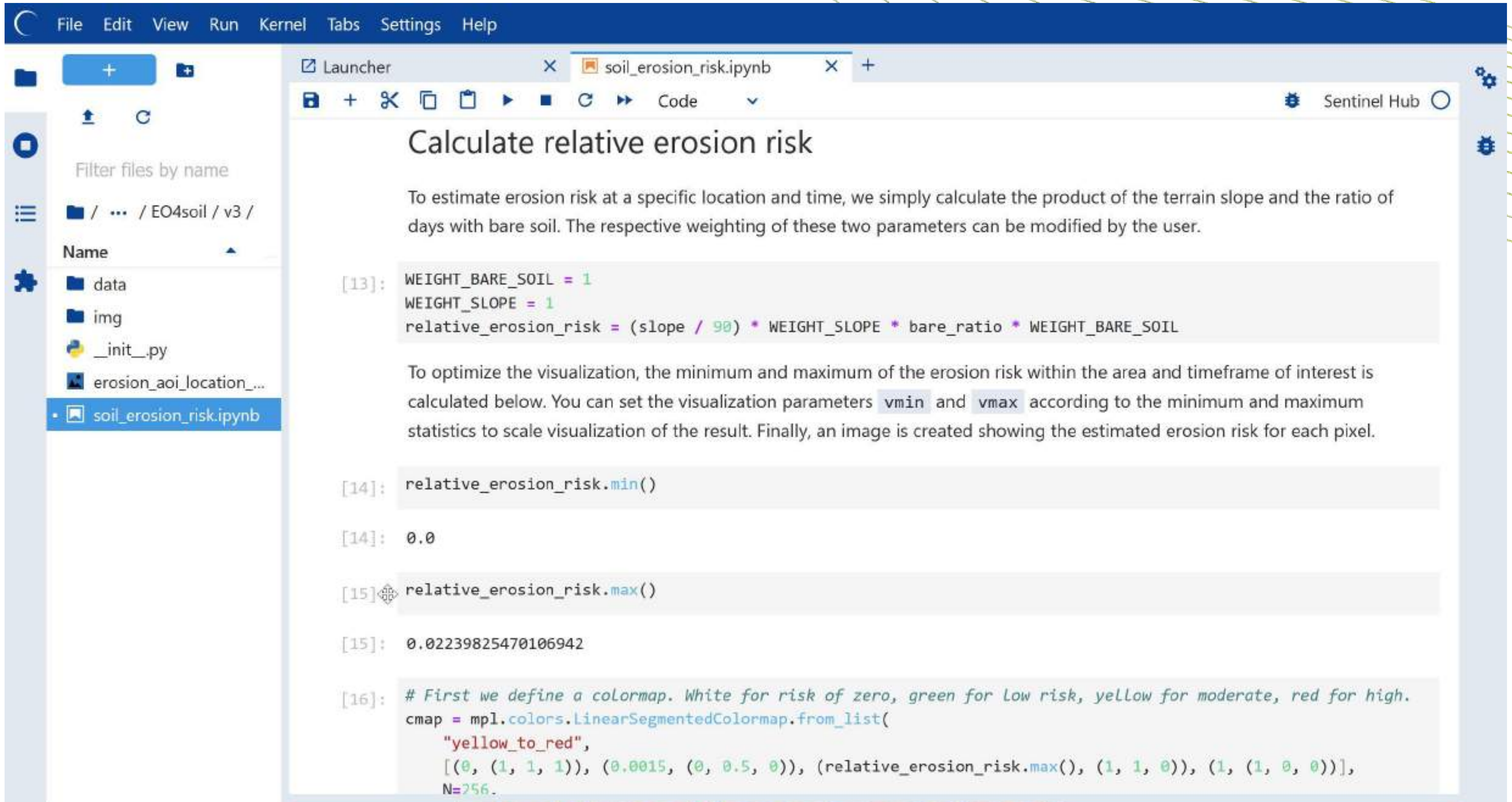

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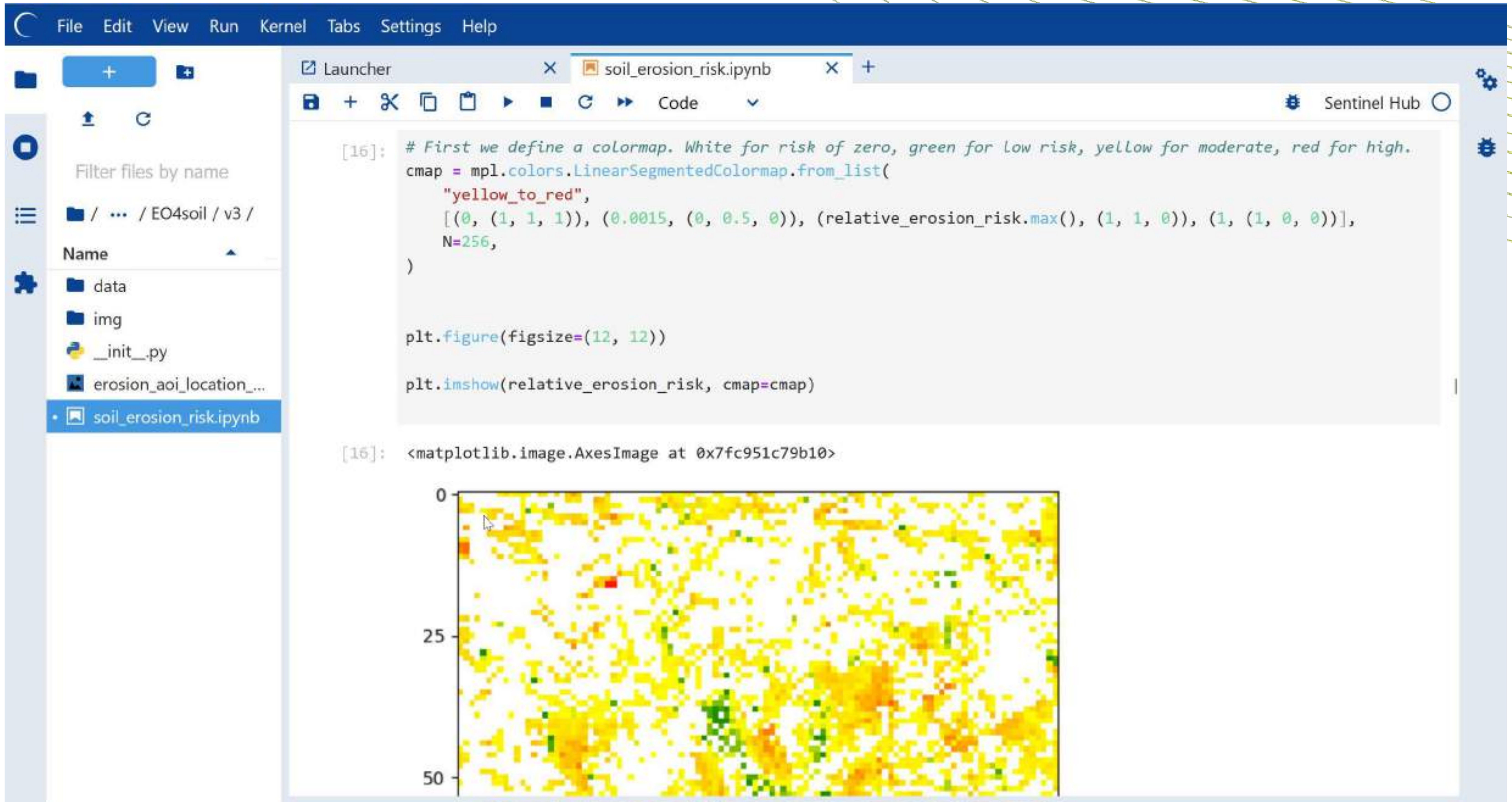

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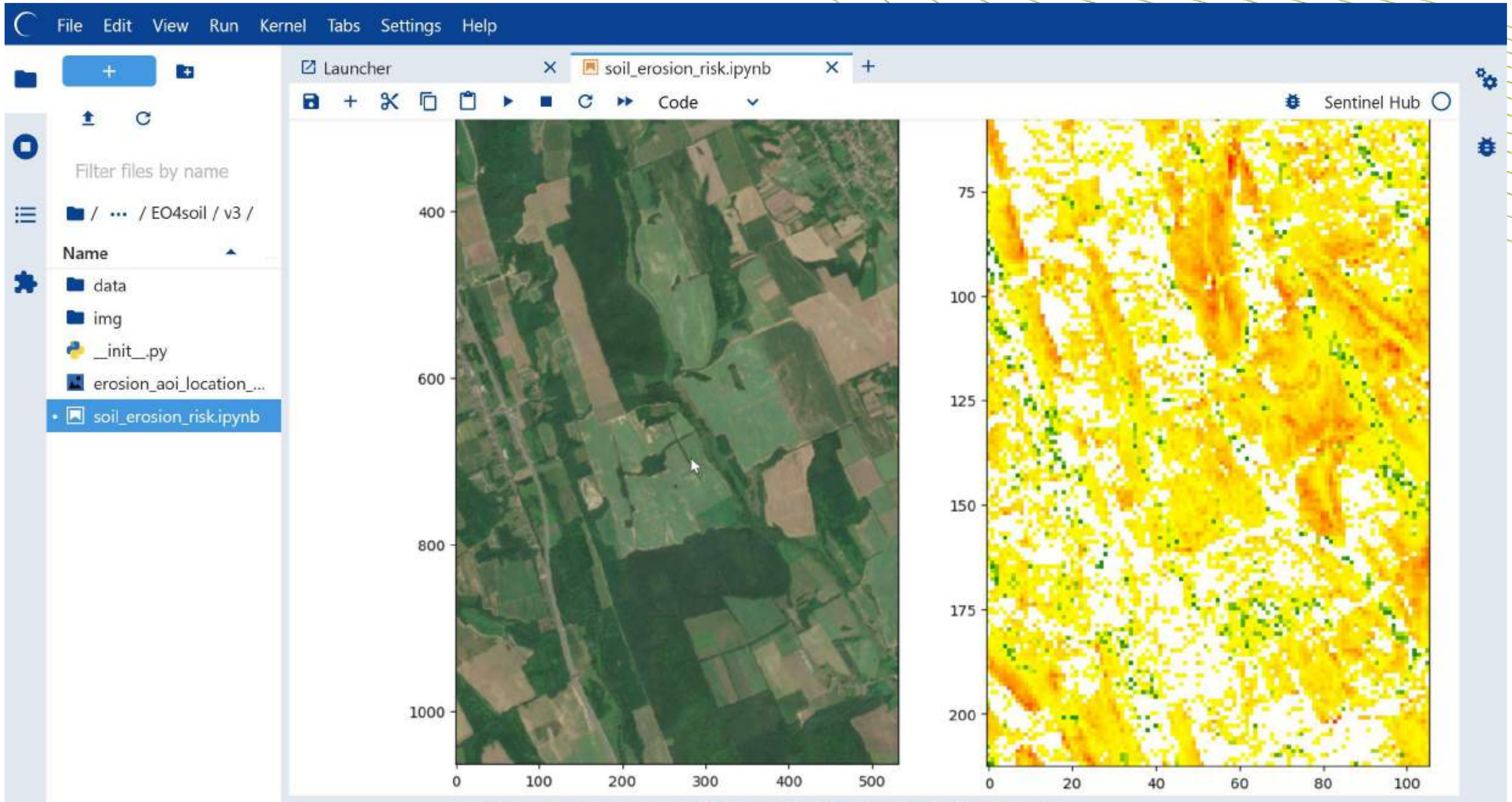

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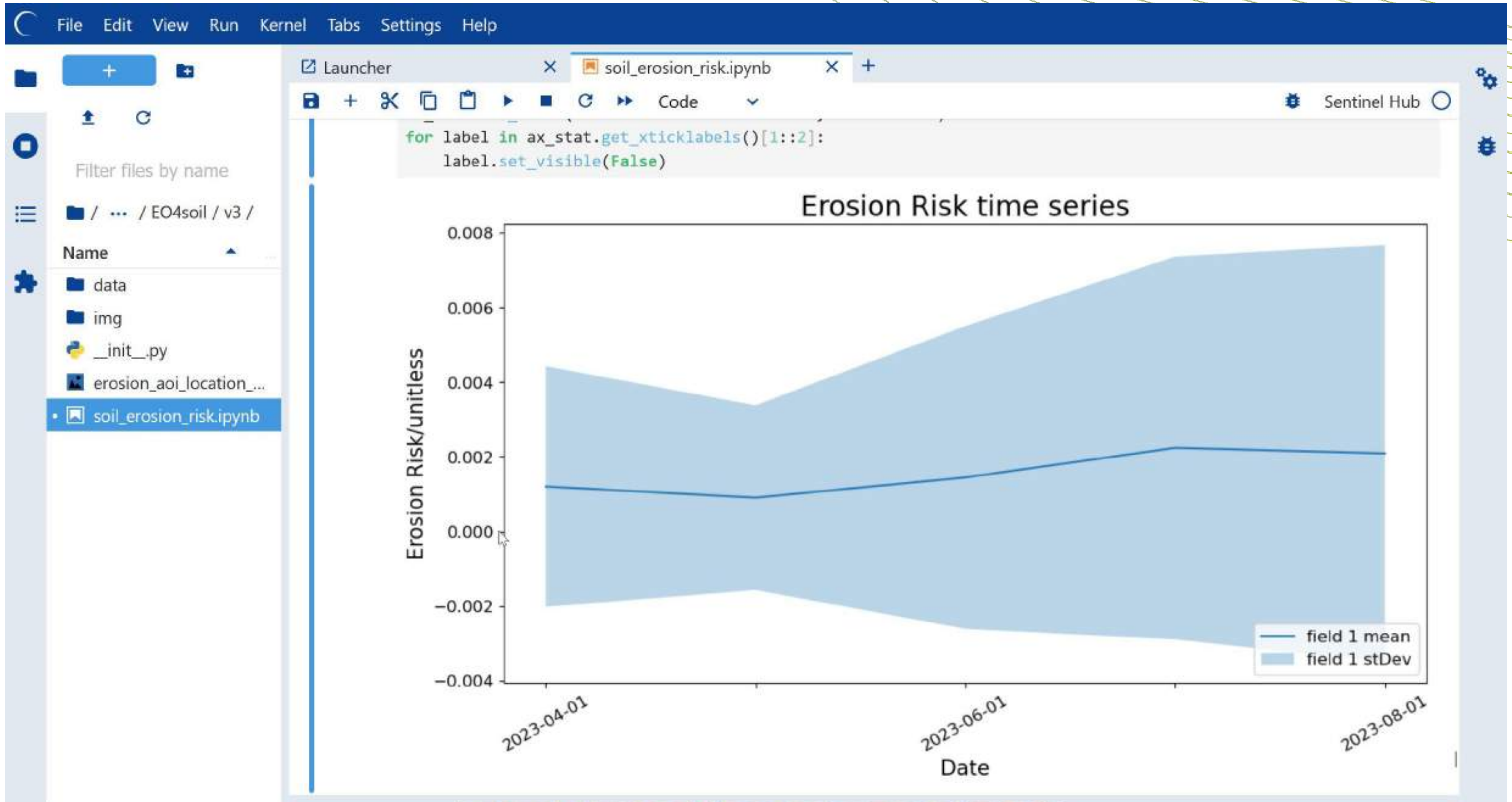

Roadmap overview – New datasets and functionality 2024

January 2024

- STAC – relation links
- openEO: generating netCDF larger than 1GB

February 2024

- On-Demand Production S-1, S-2 and S-3
- Availability of S-1 SLC and S-1 RAW EO compressed products in OData interface
- Additional Sentinel-3 products in openEO
- openEO: HR-VPP collections
- openEO: best available pixel compositing

March 2024

- Gradual start of CCM data access
- VHR 2021 and VHR 2018 in Copernicus Browser
- VHR 2015 (CCM)
- STAC - Support for Assets in newly published Sentinel products
- openEO: Random forest support
- openEO: Client-based-processing

April 2024

- Complete time series of Sentinel-2 Collection 1
- Monthly Sentinel -1 mosaics
- S-1 SLC Burst

May 2024

- VHR 2015 in Copernicus Browser
- STAC - availability of Assets in historical Sentinel products
- Access to historical AUX data for S-1, S-2 and S-3
- SAR Sea Ice (CCM)

June 2024

- Sentinel-3 Level 2 support in Copernicus Browser and Sentinel Hub API's

Copernicus data infrastructure is ready for upscaling of EO-based soil monitoring

- Building and selling/opening EO solutions is possible without major investment in data infrastructure
- Bandwidth, processing capacity or data storage is not a limit any more
- International initiatives can be supported by highly scaleable EO solutions

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