

Introduction to Geospatial Raster and Vector Data with Python

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Who are we?

- The Netherlands eScience Center is a national center for **innovative software solutions in academic research**.
- Established to bridge the gap between digital technologies and scientific and scholarly inquiry.
- Our Research Software Engineers
 - help researchers interpret results,
 - make tools and methods reusable for the wider research community,
 - co-author research and methodological publications.



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EPISODES

- **Summary and Setup**

1. Introduction to Raster Data
2. Introduction to Vector Data
3. Coordinate Reference Systems
4. The Geospatial Landscape
5. Access satellite imagery using Python
6. Read and visualize raster data
7. Vector data in Python
8. Crop raster data with rioxarray and geopandas

Summary and Setup

Data Carpentry's teaching is hands-on, so participants are encouraged to use their own computers to ensure the proper setup of tools for an efficient workflow. To most effectively use these materials, please make sure to download the data and install everything before working through this lesson.

The data used in this lesson includes optical satellite images from [the Copernicus Sentinel-2 mission](#) and public geographical datasets from [the dedicated distribution platform of the Dutch government](#). These are real-world data sets that entail sufficient complexity to teach many aspects of data analysis and management. They have been selected to allow students to focus on the core ideas and skills being taught while offering the chance to encounter common challenges with geospatial data.

[Next: Introduction to...](#) 

Data Sets

carpentries-incubator.github.io/geospatial-python



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Case: Wildfire in Rhodes, 2023



https://www.esa.int/ESA_Multimedia/Images/2023/07/Rhodes_wildfire_forces_thousands_to_flee



<https://news.sky.com/story/wildfires-on-rhodes-force-hundreds-of-holidaymakers-to-flee-their-hotels-12925583>

Overview of the course

- Access satellite imagery
- Access open vector data
- Vector/Raster data handling
- Raster calculation
- Zonal statistics



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