

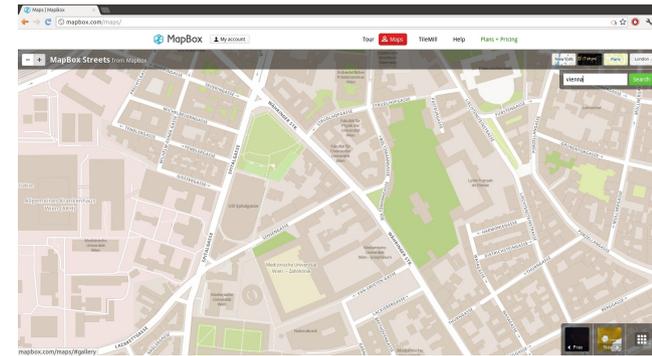
**EOxServer**

**Accessing Large Archives of Earth  
Observation Data Online**

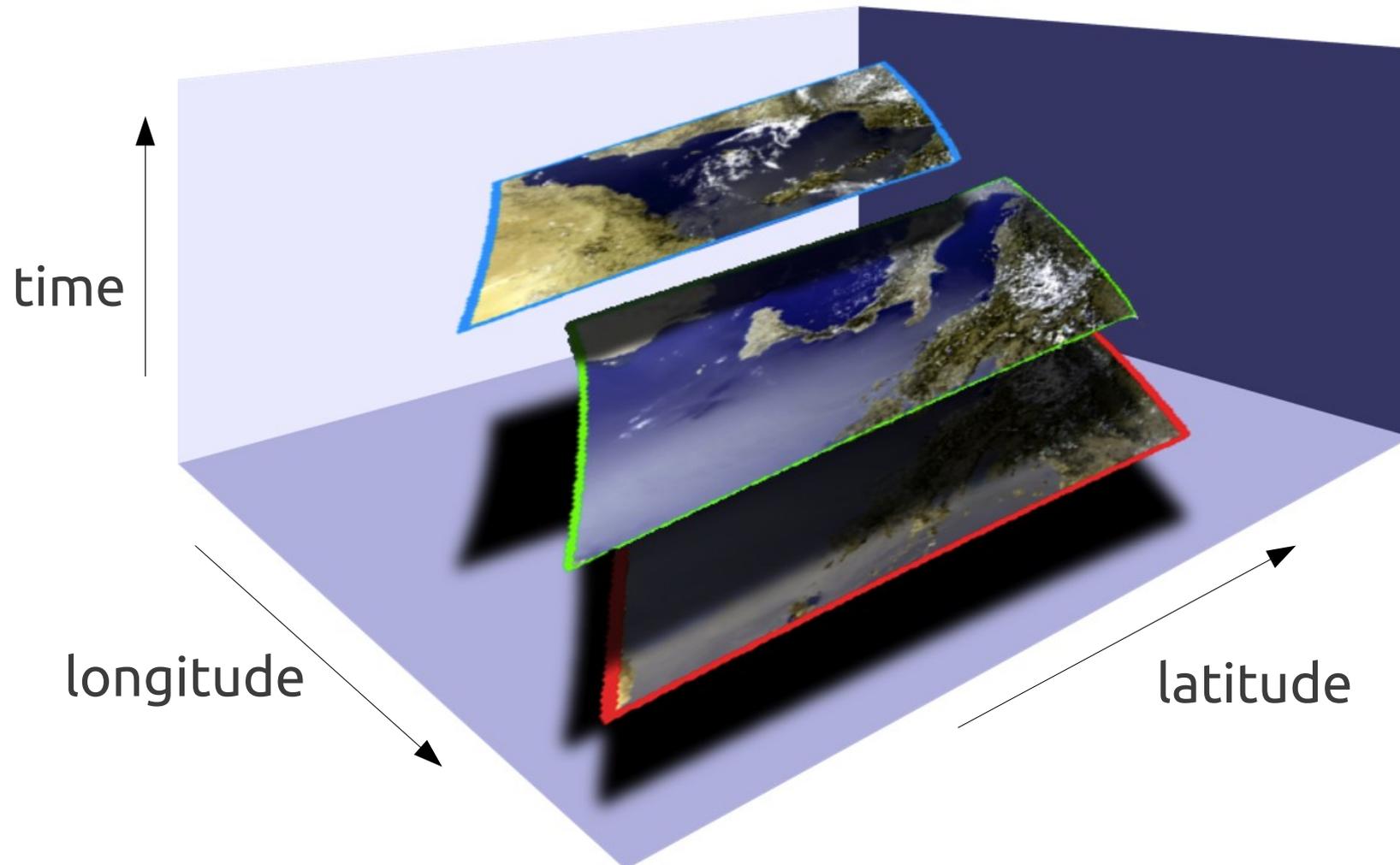
- Earth Observation & Standards
- EOxServer
- Web Mapping

# OGC Standards

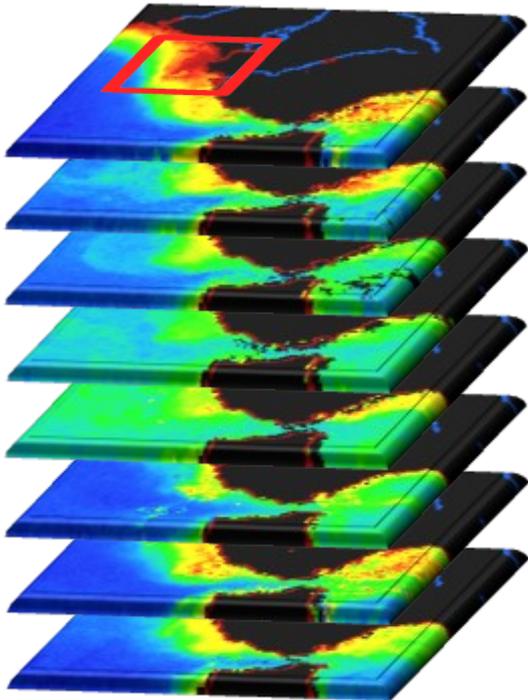
- WMS
- WFS
- WCS
- EO Application Profile



# Identification of EO data

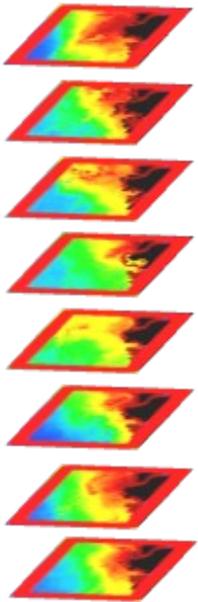


# „Traditional“ approach



- Catalog Service:
  - Area of Interest/Time of Interest (AOI/TOI) → List of files
- Per image:
  - FTP download
  - Waiting ...
  - Crop
  - „Throw away“ the rest

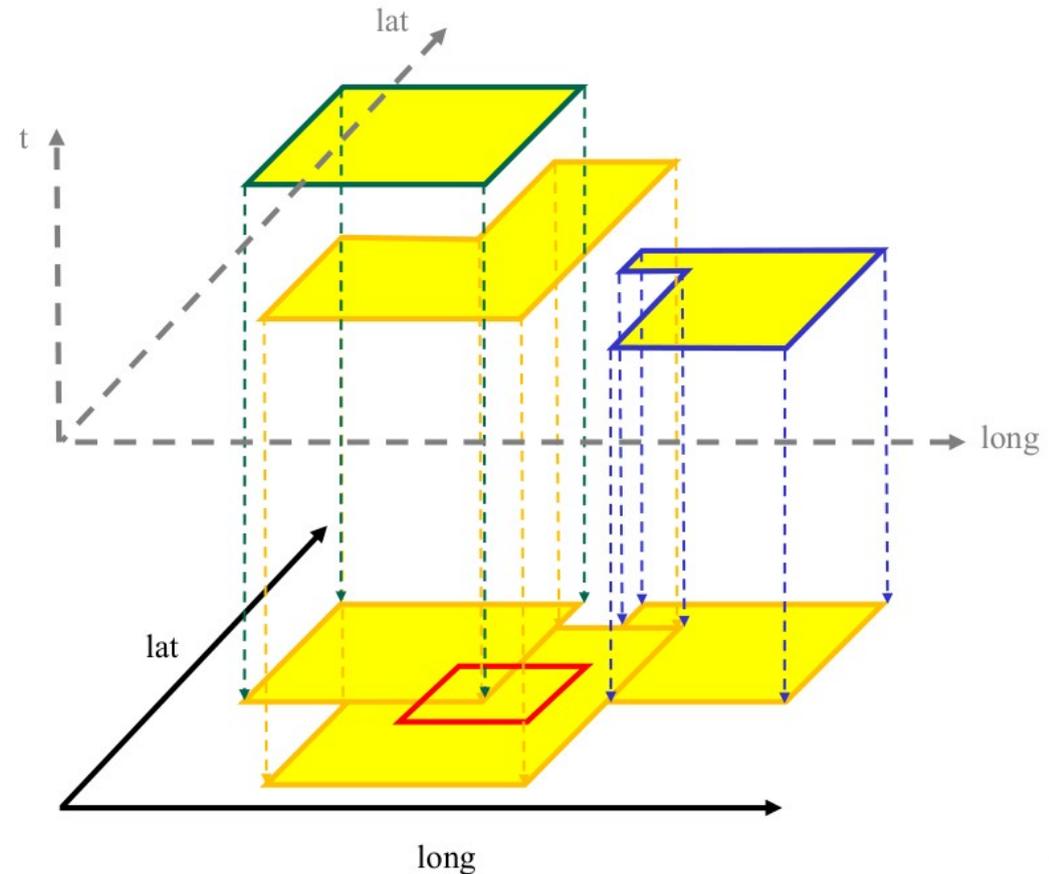
# EO-WCS improvements



- GetCapabilities
  - List of available coverages
- DescribeEOCoverageSet
  - AOI/TOI → List of IDs
- per ID
  - GetCoverage with customized:
    - Area of interest
    - Time of interest
    - Format

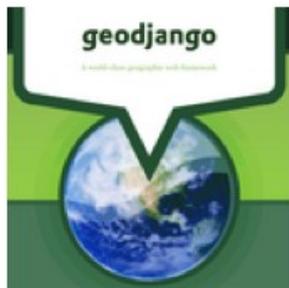
# EO-WCS

- RectifiedGridCoverage
- ReferenceableGridCoverage
- Stitched Mosaic
- Dataset Series
- DescribeEOCoverageSet



# EOxServer Open Source Stack

<http://eoxserver.org>



# Web Mapping?

The image displays the EOxServer web interface. The main area is a map of Europe with a red grid overlay. A control panel is positioned at the top center of the map area, featuring the title "EOxServer" and several interactive elements:

- A "Date:" label followed by a date selection field and a "Download" button.
- A row of four buttons: "Date/Time", "Bounding Box", "Server Info", and "Help".

On the left side of the map, there is a vertical toolbar with navigation icons (compass, zoom in, zoom out, home, and a globe icon). A small blue "+" icon is visible in the top right corner of the map area.

In the bottom right corner of the map, there is a "Permalink" label and a URL: "87.28083, 28.16873".

**EOxServer**

Date:

**Overlays**

- IMAGE2009\_rgb Outlines
- IMAGE2009\_rgb Preview
- Base Layer
- OpenLayers WMS

Permalink  
66.45075, 80.28787

The image displays the EOxServer web interface. The main area shows a satellite map of Europe with a grid of image tiles overlaid. A control panel is positioned at the top center, featuring the title "EOxServer", a "Date:" input field, a "Download" button, and four buttons: "Date/Time", "Bounding Box", "Server Info", and "Help". On the left side, there is a vertical toolbar with navigation icons. On the right side, an "Overlays" panel is visible, listing "IMAGE2009\_rgb Outlines", "IMAGE2009\_rgb Preview", "Base Layer", and "OpenLayers WMS". In the bottom right corner, there is a "Permalink" and the coordinates "66.97809, 81.66990".

**EOxServer**

Date:

**Overlays**

- IMAGE2009\_rgb Outlines
- IMAGE2009\_rgb Preview

Base Layer

- OpenLayers WMS

[https://earthserver.eox.at/restricted/client/IMAGE2009\\_rgb#](https://earthserver.eox.at/restricted/client/IMAGE2009_rgb#)

Permalink  
41.84137, 62.44607

**EOxServer**

Date:  [Download](#)

[Date/Time](#) [Bounding Box](#) [Server Info](#) [Help](#)

Min X:  Max X:   
Min Y:  Max Y:

[Draw BBOX](#) [Clear BBOX](#)

**Overlays**

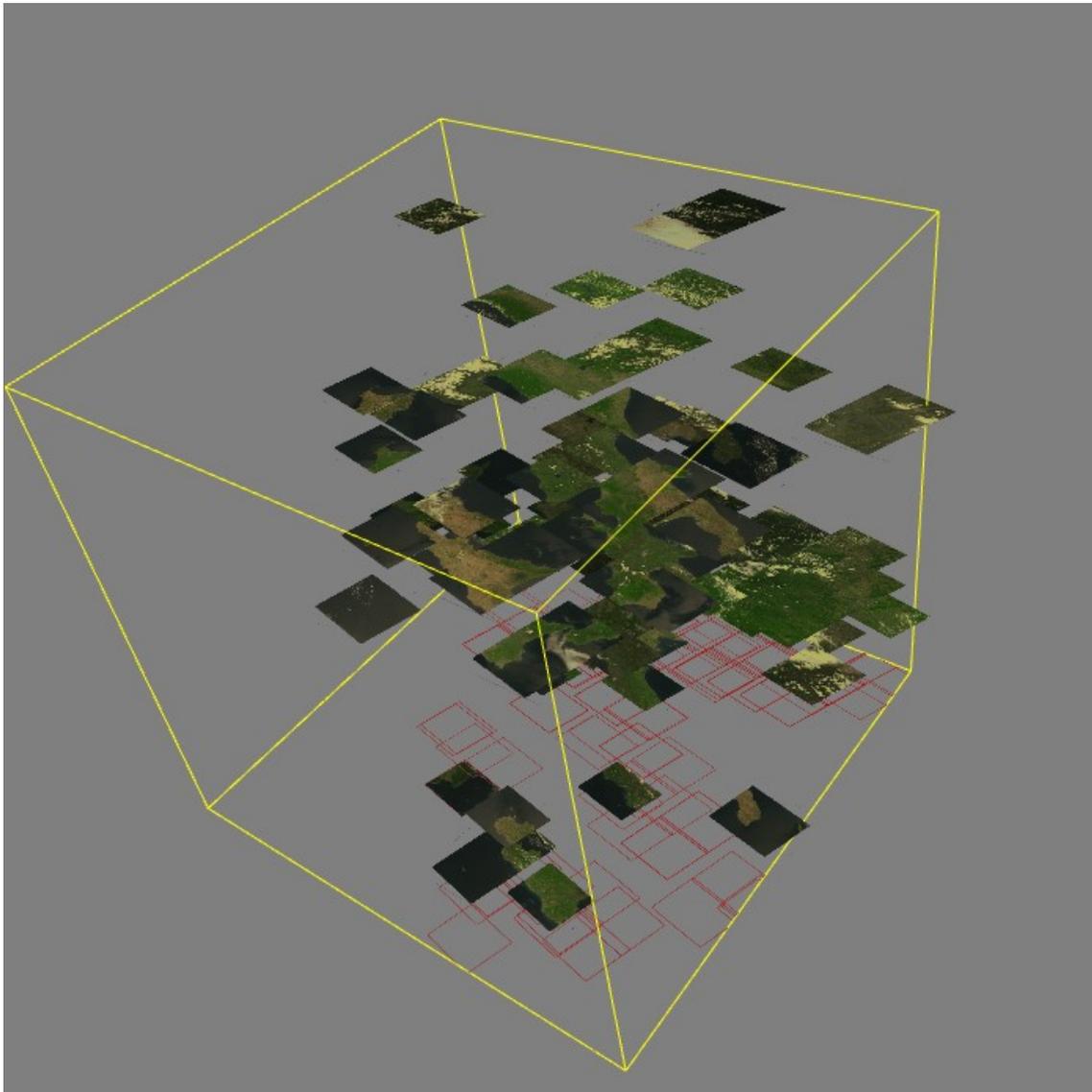
- IMAGE2009\_rgb Outlines
- IMAGE2009\_rgb Preview
- Base Layer
- OpenLayers WMS

[Permalink](#)  
14.71064, 47.13662

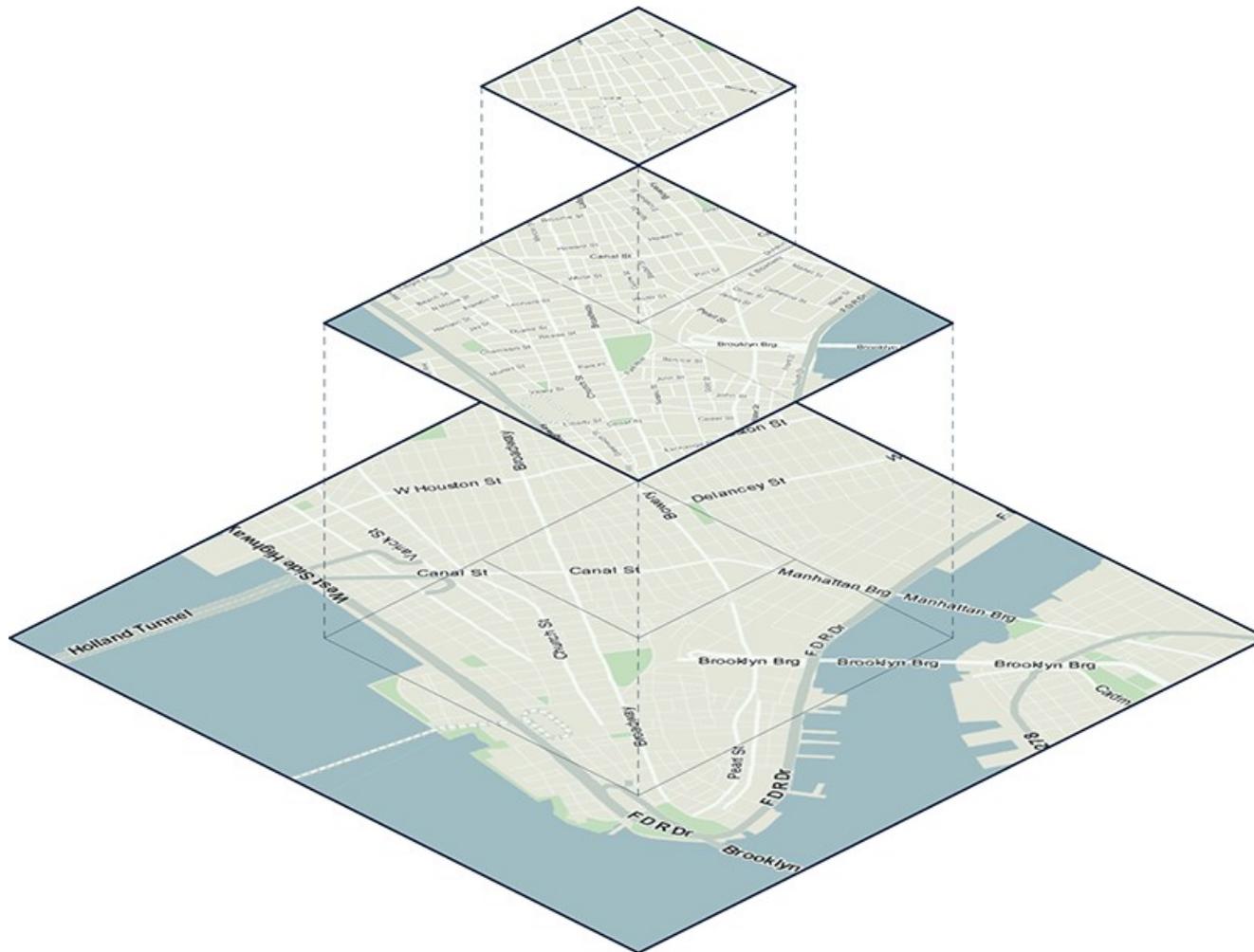
The screenshot displays the EOxServer web interface. A central dialog box titled "Select Coverages for Download" is open, listing four coverage options. Each option includes a checked checkbox, a unique identifier, and input fields for Width and Height. The CRS is set to EPSG:4326 for all. Buttons for "Select Bands" and "Show Info" are provided for each. At the bottom of the dialog are "Select All" and "Deselect All" buttons, and a "Start Download" button. The background shows a satellite map with a red bounding box and a "Download" button in the top right. An "Overlays" panel on the right lists "IMAGE2009\_rgb Outlines" and "IMAGE2009\_rgb Preview" as checked, with "Base Layer" and "OpenLayers WMS" as unchecked. The EOxServer logo and a "Date:" field are visible at the top of the interface.

Coverage ID	Width	Height	CRS	Select Bands	Show Info
<input checked="" type="checkbox"/> urn-eop-NSG-080701P600300034L0000S4_RGB	<input type="text"/>	<input type="text"/>	EPSG:4326	<input type="button" value="Select Bands"/>	<input type="button" value="Show Info"/>
<input checked="" type="checkbox"/> urn-eop-NSG-080701P600300035L0000S4_RGB	<input type="text"/>	<input type="text"/>	EPSG:4326	<input type="button" value="Select Bands"/>	<input type="button" value="Show Info"/>
<input checked="" type="checkbox"/> urn-eop-NSG-080706P600310034L0000S4_RGB	<input type="text"/>	<input type="text"/>	EPSG:4326	<input type="button" value="Select Bands"/>	<input type="button" value="Show Info"/>
<input checked="" type="checkbox"/> urn-eop-NSG-080706P600310035L0000S4_RGB	<input type="text"/>	<input type="text"/>	EPSG:4326	<input type="button" value="Select Bands"/>	<input type="button" value="Show Info"/>

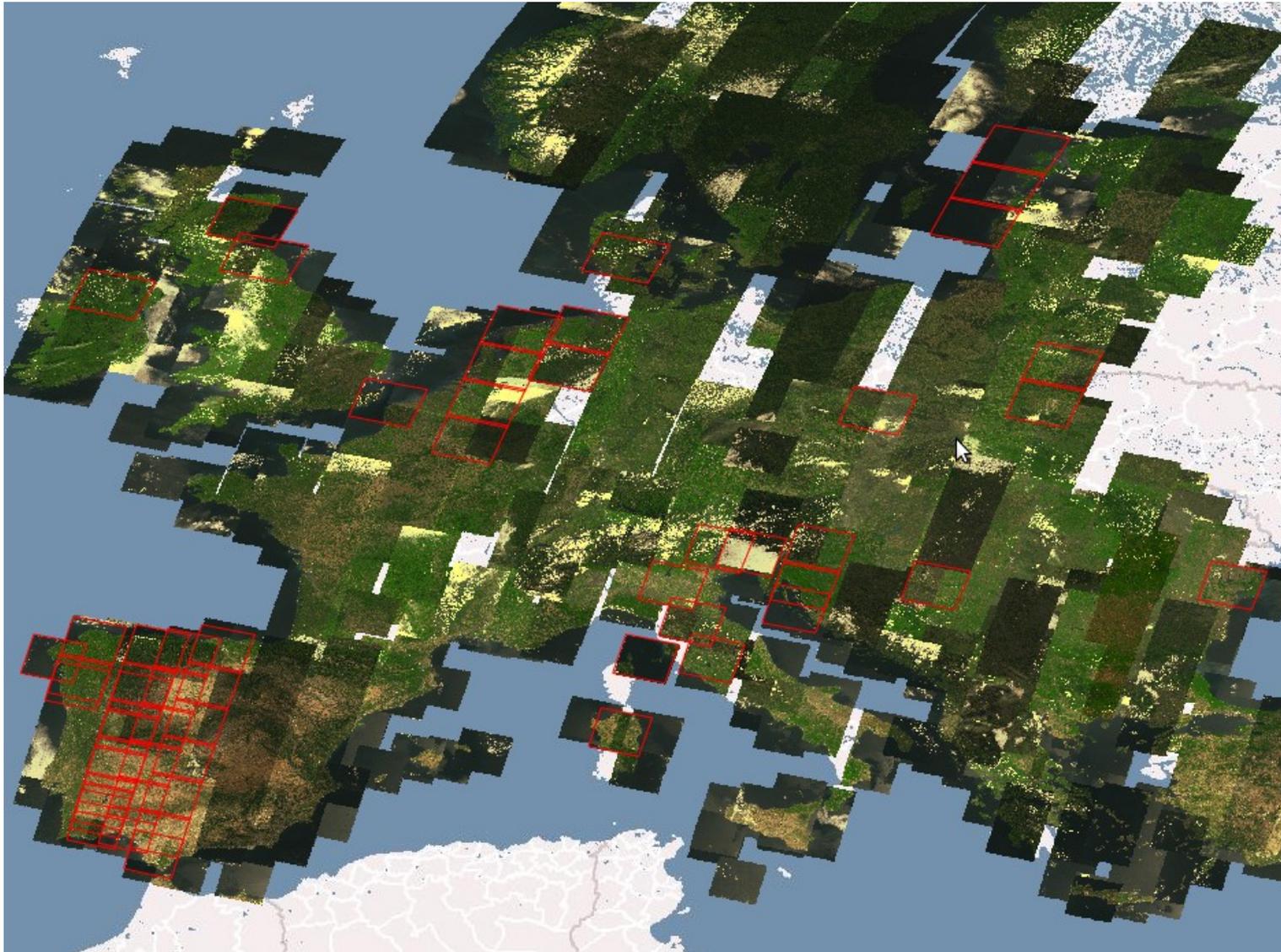
# WebGL Cube



# Tile Cache / WMTS

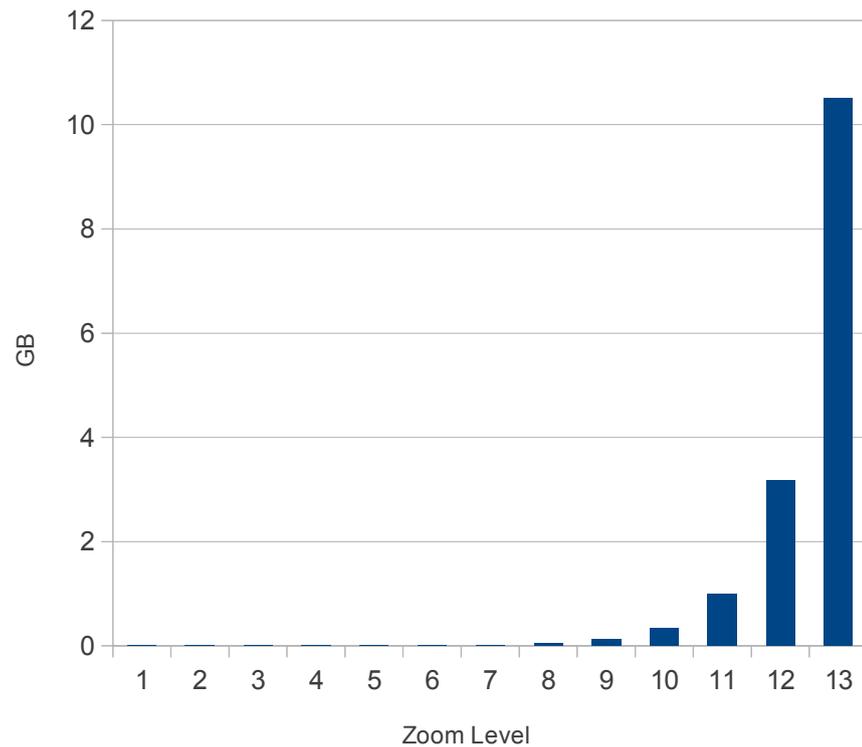


# Tile Cache / WMTS

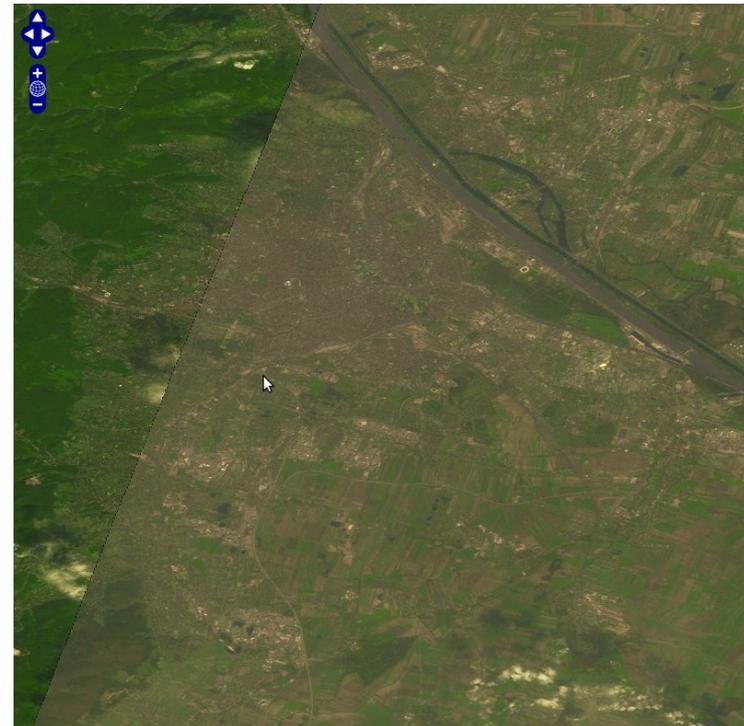


# IMAGE2009 example

Disk Usage per Zoom Level



- 13 Zoom Levels: ~16 GB
- Original data: ~ 330 GB



EOxServer's mission is to provide an **open source** software framework to **ease** the **online provision** of big earth observation data archives via **open standard** services for efficient exploitation by users.