

OSGeoLive Project Report

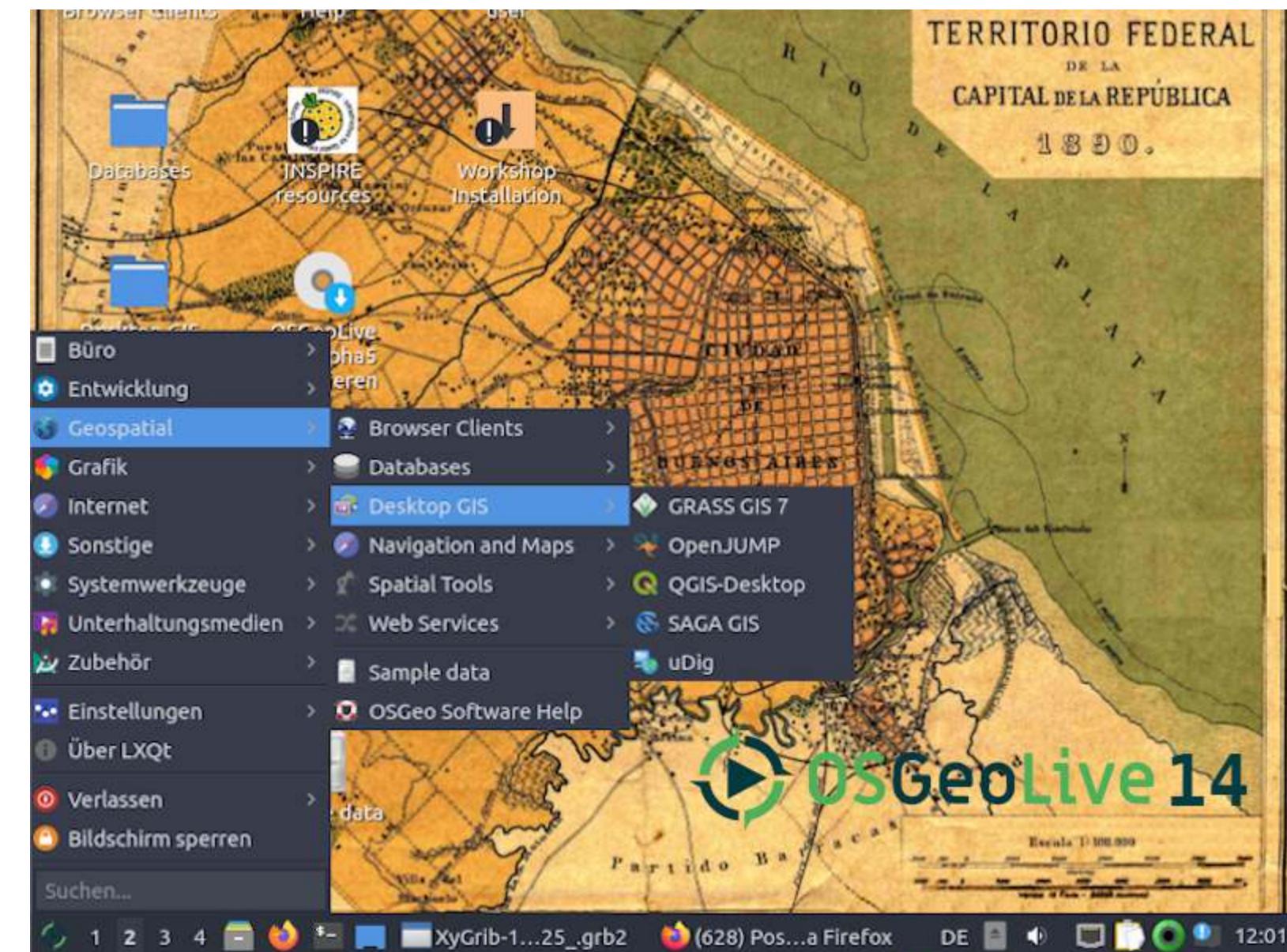
Your Open Source Geospatial Toolkit



Angelos Tzotsos, Astrid Emde, Nicolas Roelandt
OSGeoLive Team

FOSS4G 2021 Buenos Aires

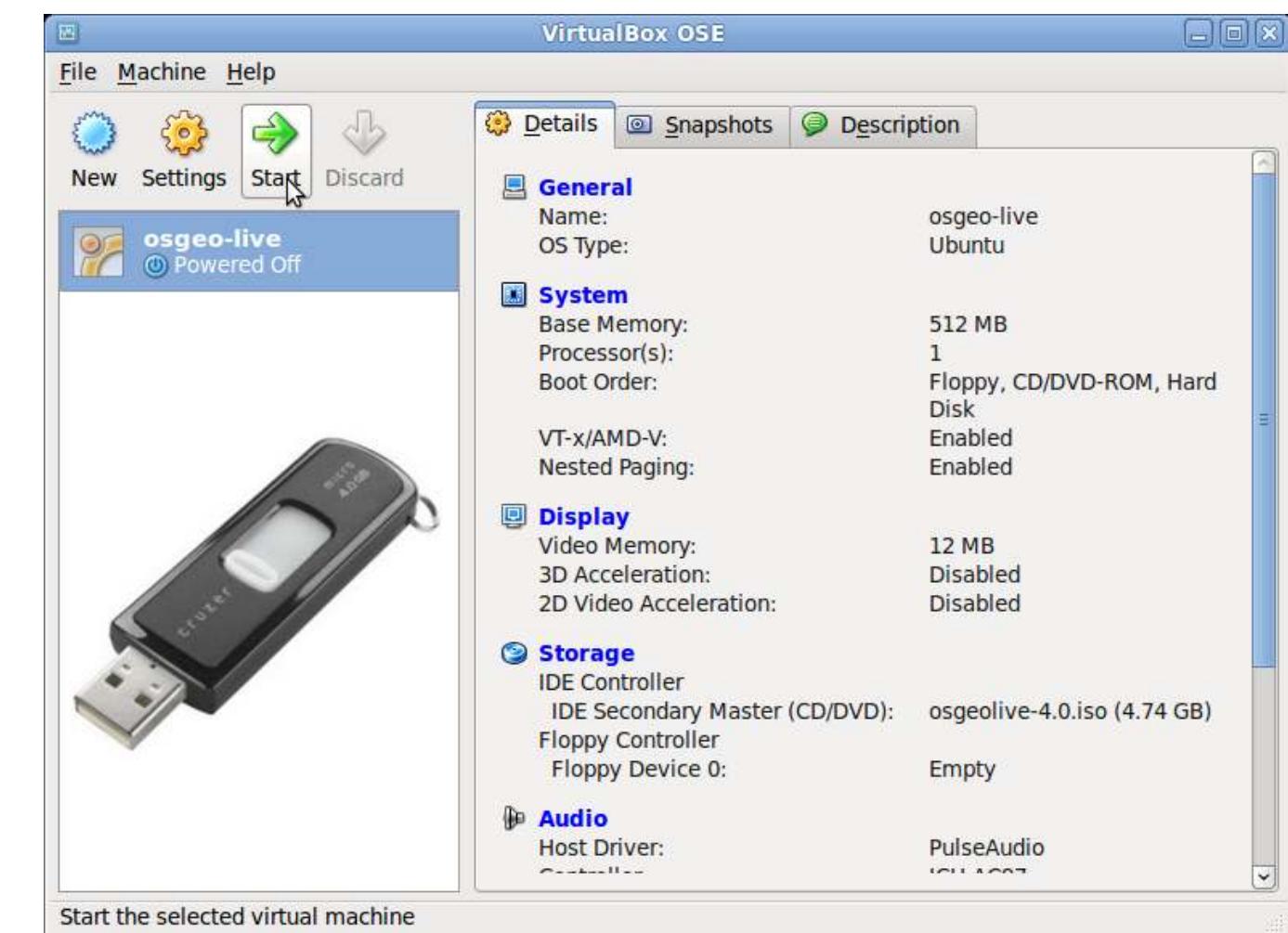
What is OSGeoLive?



Components on OSGeoLive

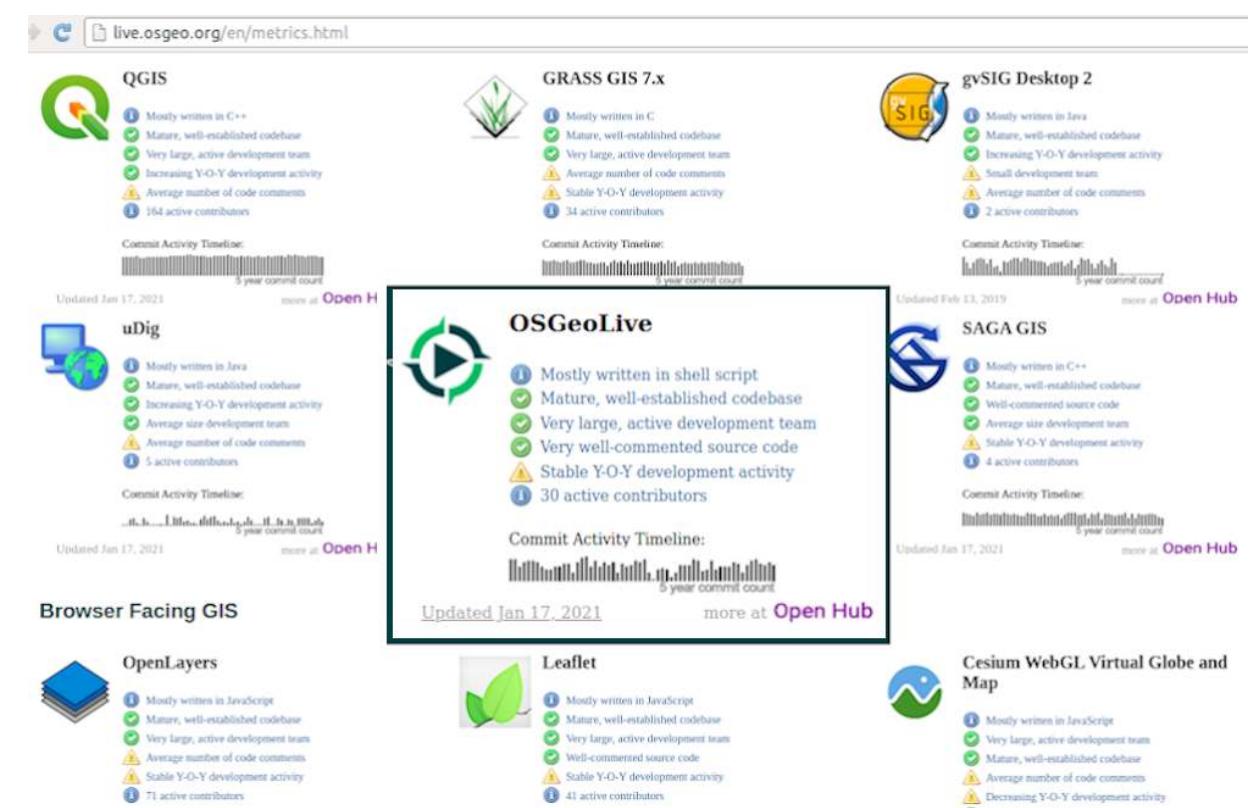
- 50+ Open Source Geospatial Applications
- Sample Datasets
- Consistent Overviews & Quickstarts
- Translations

DVD / USB / Virtual Machine

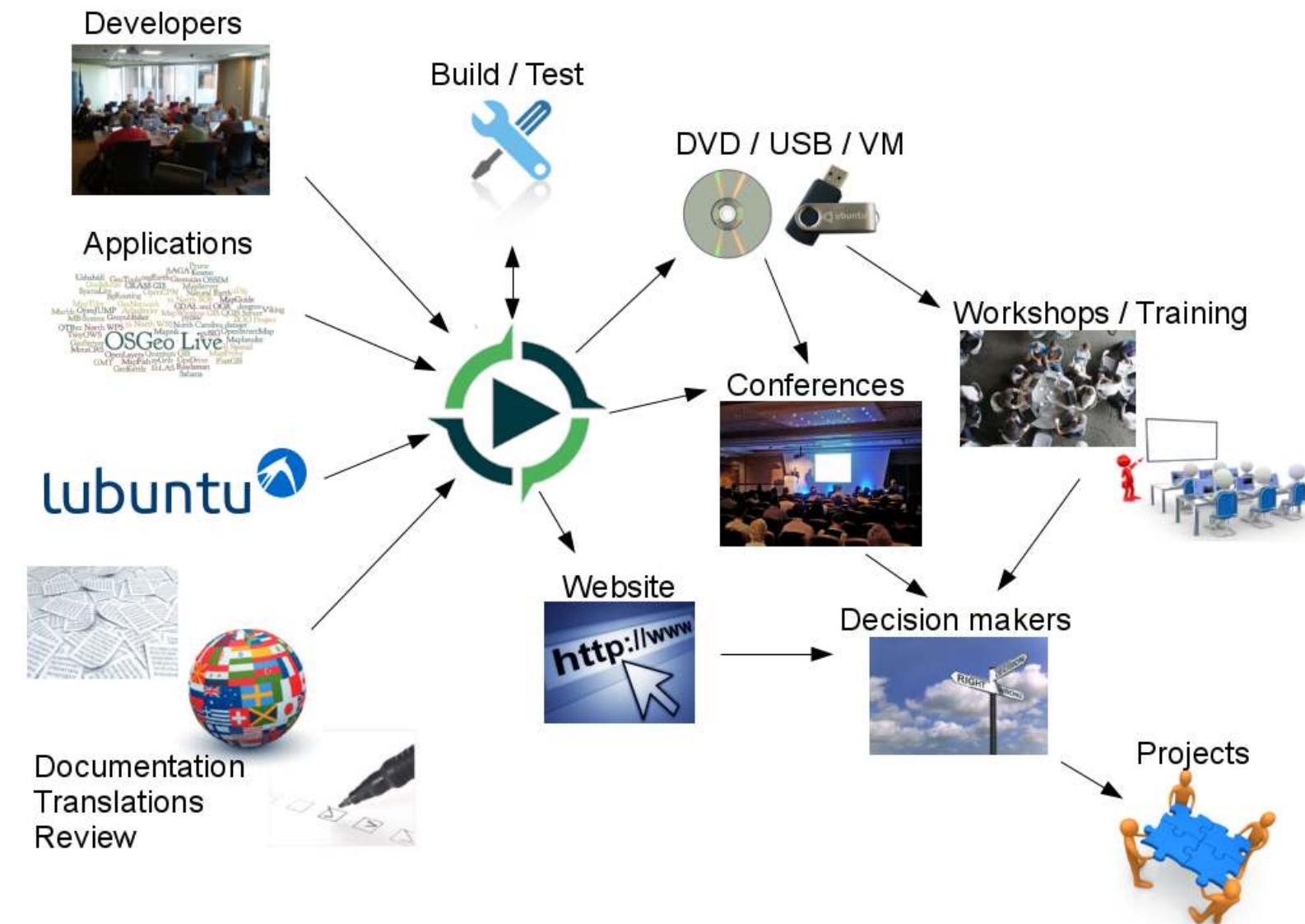


Quality Criteria

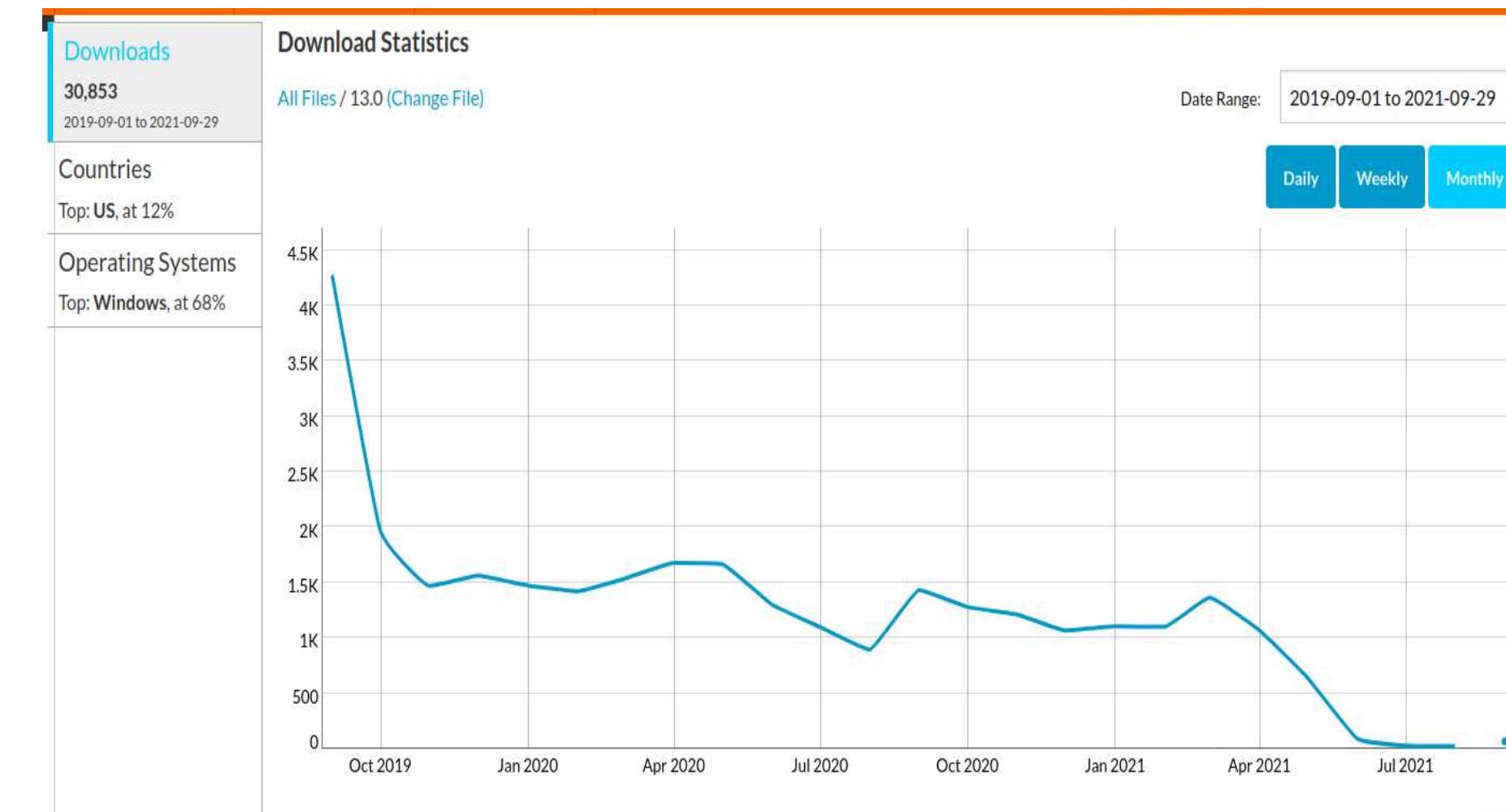
- Established, stable, working software
- Active community
- Metrics



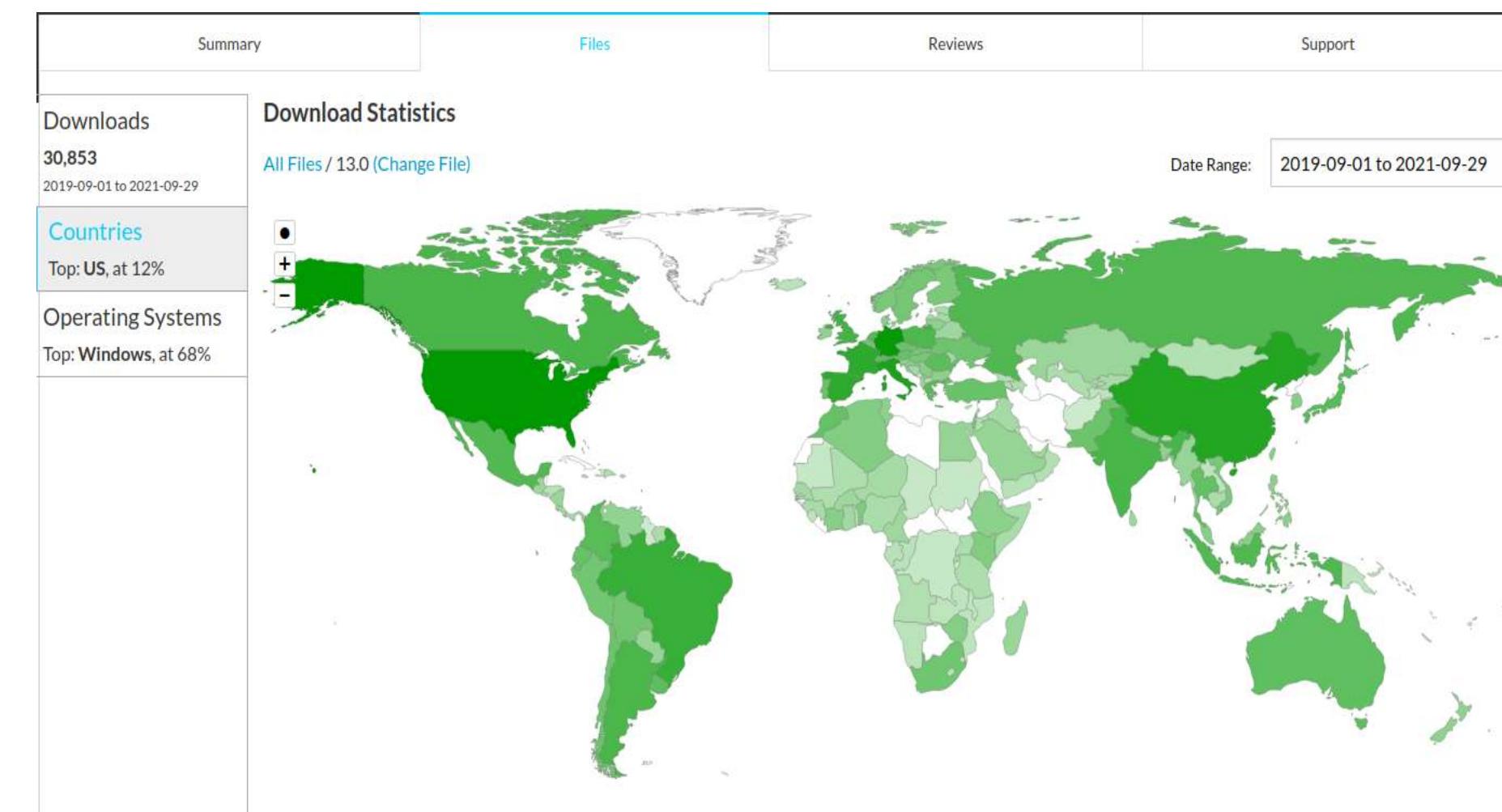
Production & Marketing



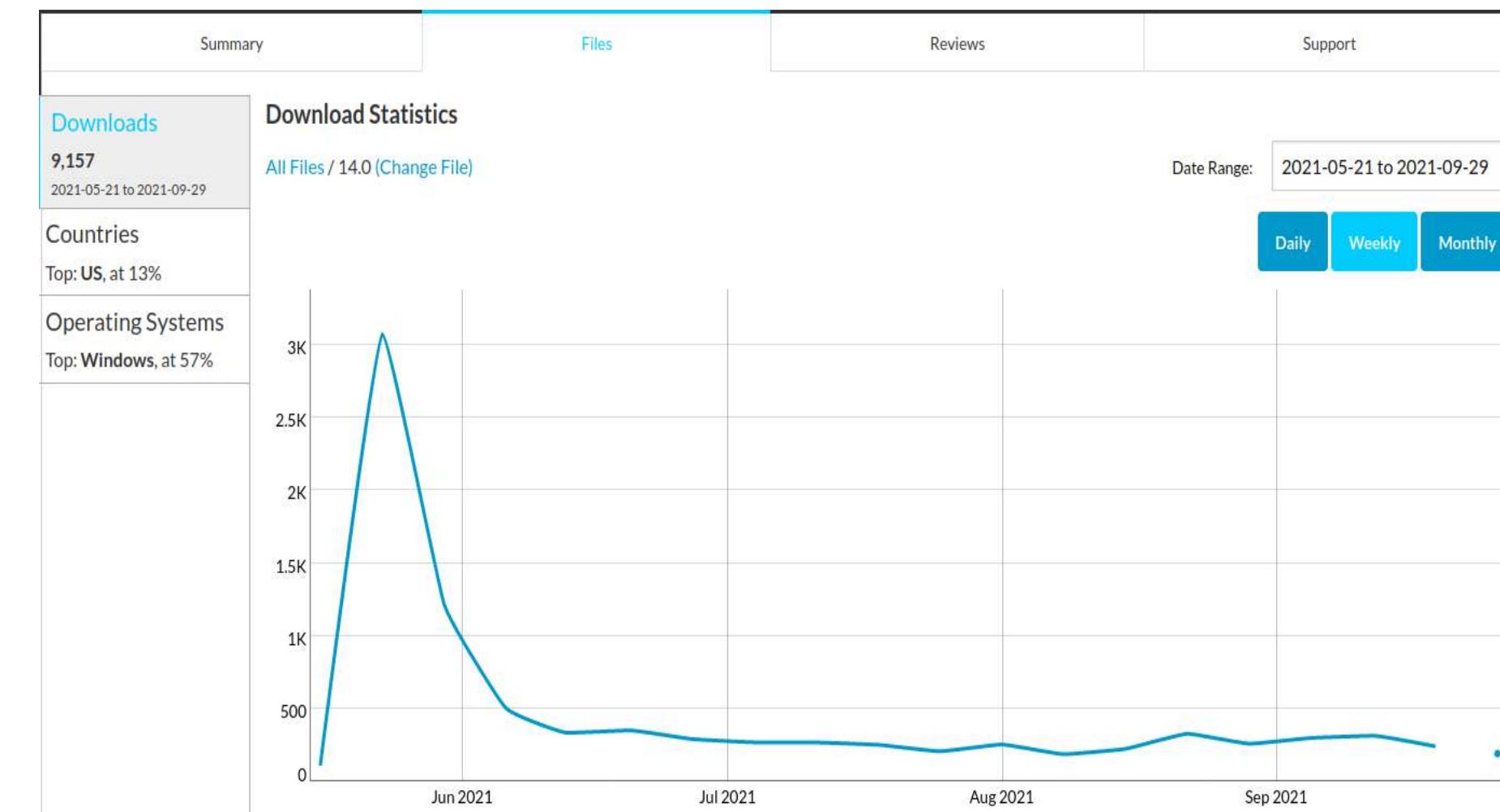
Downloads Version 13



Downloads Version 13



Downloads Version 14



OSGeoLive 14.0

OSGeoLive 14 "Malena"

We would like to dedicate this version to our friend Malena Libman who passed away shortly before OSGeoLive 14.0 was released. FOSS4G 2021 Buenos Aires was her dream. Farewell Malena, we will miss you.

What is new in 14.0

- Updated to Lubuntu 20.04 LTS
- LXQt from LXDE - Major UI changes
- Updated core packages based on [DebianGIS](#)
- Updated packages contributed back to [UbuntuGIS](#)
- QGIS 3.10.13, GDAL 3.2.1, PROJ 7.2.1, PostGIS 3.1.0, GRASS 7.8.5, GeoServer 2.18.0, MapServer 7.6.1 and many more...
- New projects added: [pygeoapi](#), [GeoStyler](#), [Re3gistry](#)
- Additional Python modules like Fiona, rasterio, cartopy, pandas, geopandas, mappyfile, Jupyter.
- Download OSGeoLive either as ISO or VMDK (with even more software)
- [Press release 93](#)
- [Full changelog](#)

What is new in 14.0

- Documentation updates
- New command line tutorial - thanks to Enock Seth Nyamador and Astrid Emde
- Improvements on the OpenStreetmap tutorial in cooperation with the HOT team - thanks to Enock Seth Nyamador and Astrid Emde
- Many great Jupyter Notebooks prepared by Brian Hamlin
- OpenStreetMap data for Buenos Aires

What is new in 14.0

- New languages
- Now supporting: English | Deutsch | Español | Suomen kieli | Français | Italiano | 日本語 | Hungarian
- 100 % translation to Hungarian
- 100 % translation to Spanish. Special thanks to Martha Vergara that did 99% of the translation.

Challenges of version 14.0

- LXQt instead of LXDE
- Many upstream ubuntu changes blocked our development for a while
- Packaging efforts slower than usual due to pandemic
- Not enough testers, please join us!

OSGeoLive in the Cloud

- DebianGIS and UbuntuGIS packages are used in Docker and VMs on the cloud
- OSGeoLive has been reported to work fine in Cloud environments
- Works under OpenStack
- Used in ESA's DIAS infrastructure: [Creodias](#)

OSGeoLive in Action

Marco Minghini, Scientific Project Officer at the European Commission, says

"Open source geospatial software is a key building block of many data infrastructures managed and operated by the European Commission, powering high-level, pan-European initiatives such as INSPIRE and Copernicus. The role of OSGeoLive to teach and promote the use of open source geospatial software has no equivalent. Big thanks to OSGeo and the OSGeoLive team!"

OSGeoLive 14 is ready to be used at events. It was used at FOSSGIS Konferenz 2021 in June and is used at FOSS4G 2021 (2 workshops already used it).

Roadmap

- OSGeoLive 15.0 for FOSS4G 2022 - August 2022 Firenze (Italy)
- Lubuntu 22.04
- Include all new OSGeo Community Projects
- Plan to include Glossary from Lexicon Committee
- Write documentations for projects that are already installed e.g. PDAL
- Improve usability for HOT users (OSGeo-HOT MoU)
- Improve translations
- Please apply with your project!
- Get involved! You can learn a lot and share ideas.

Desktop GIS

General GIS viewing, editing and analysis on the desktop

QGIS

GRASS GIS

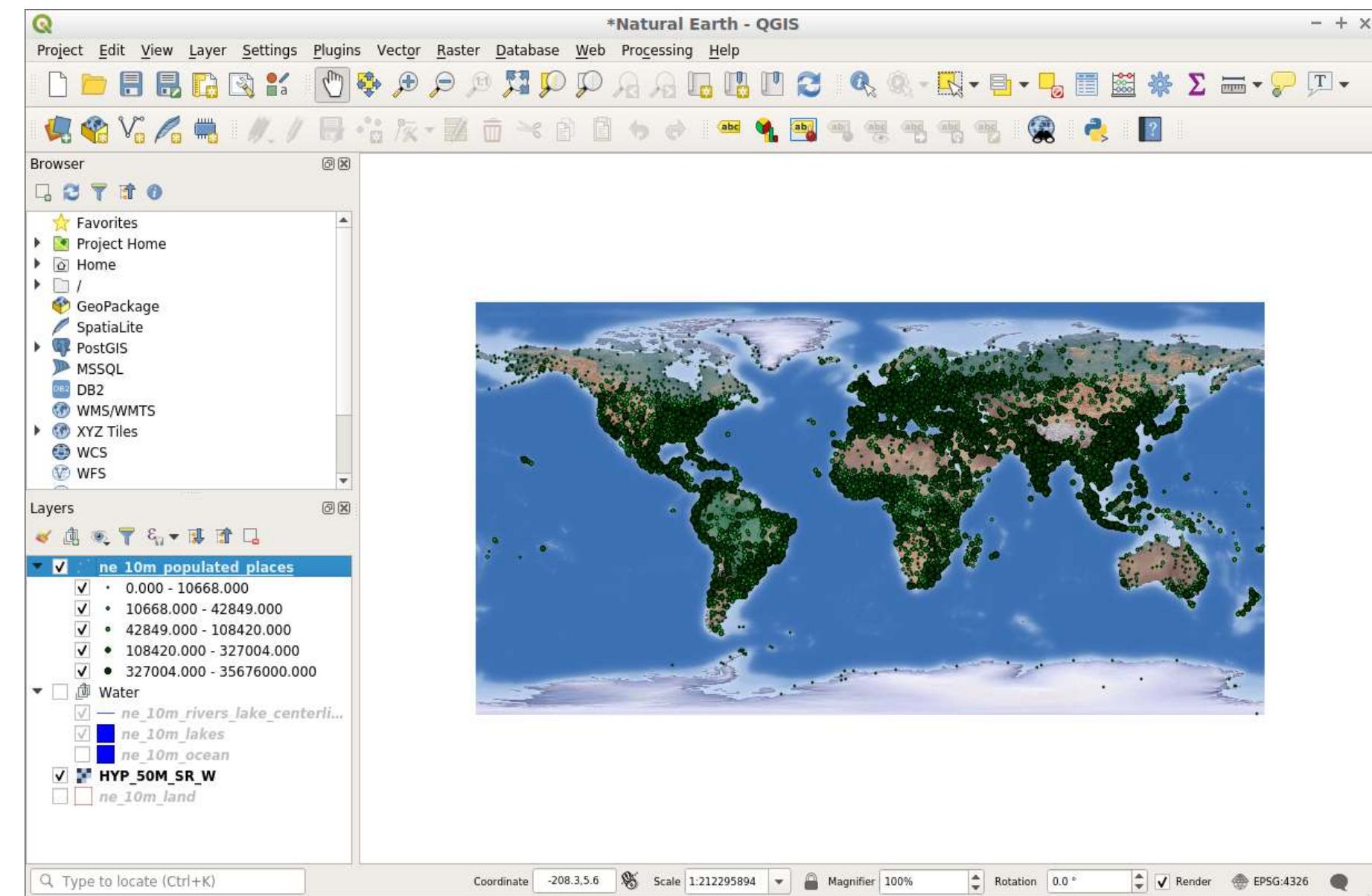
*gvSIG
Desktop*

uDig

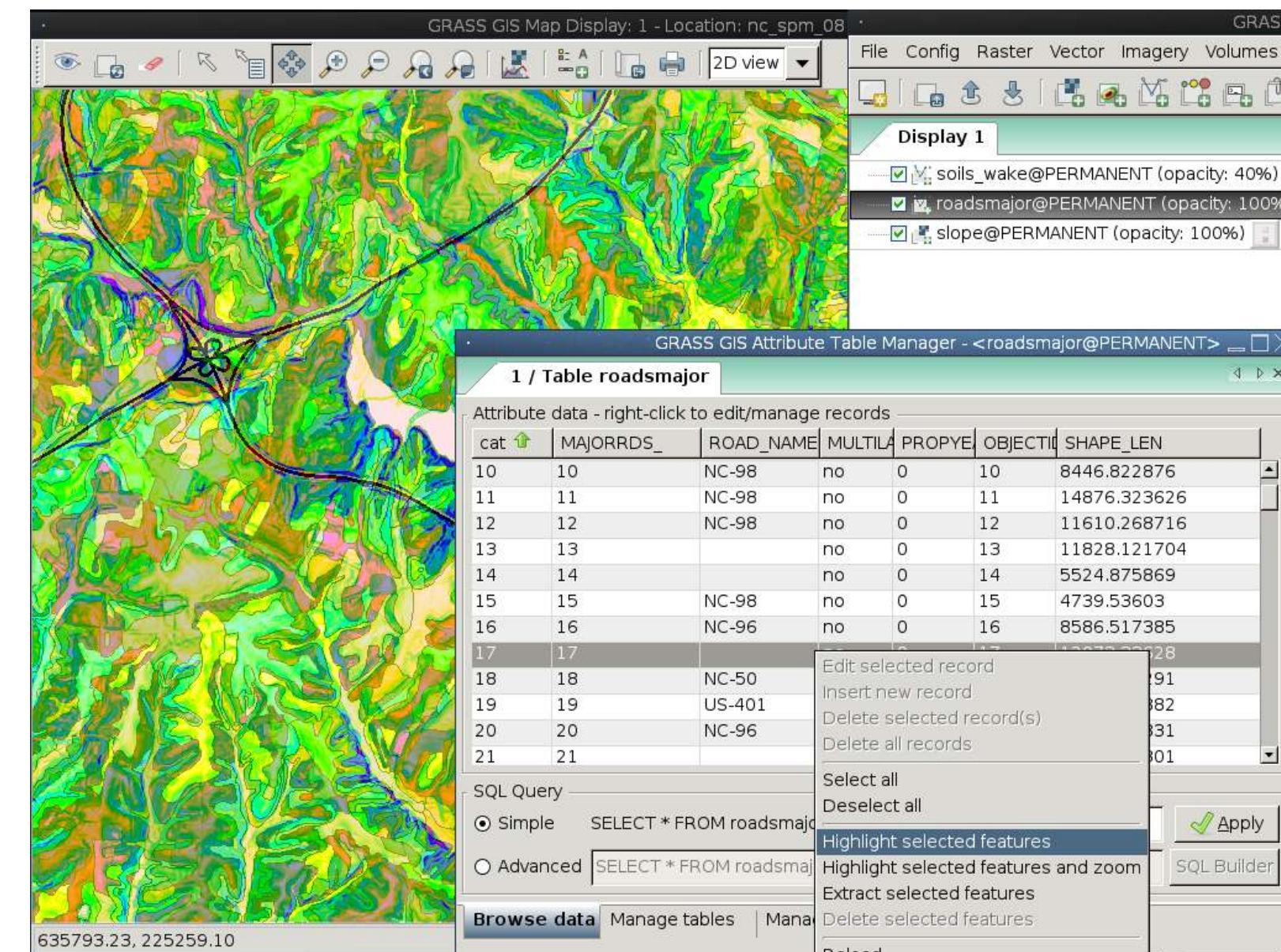
OpenJUMP GIS

SAGA

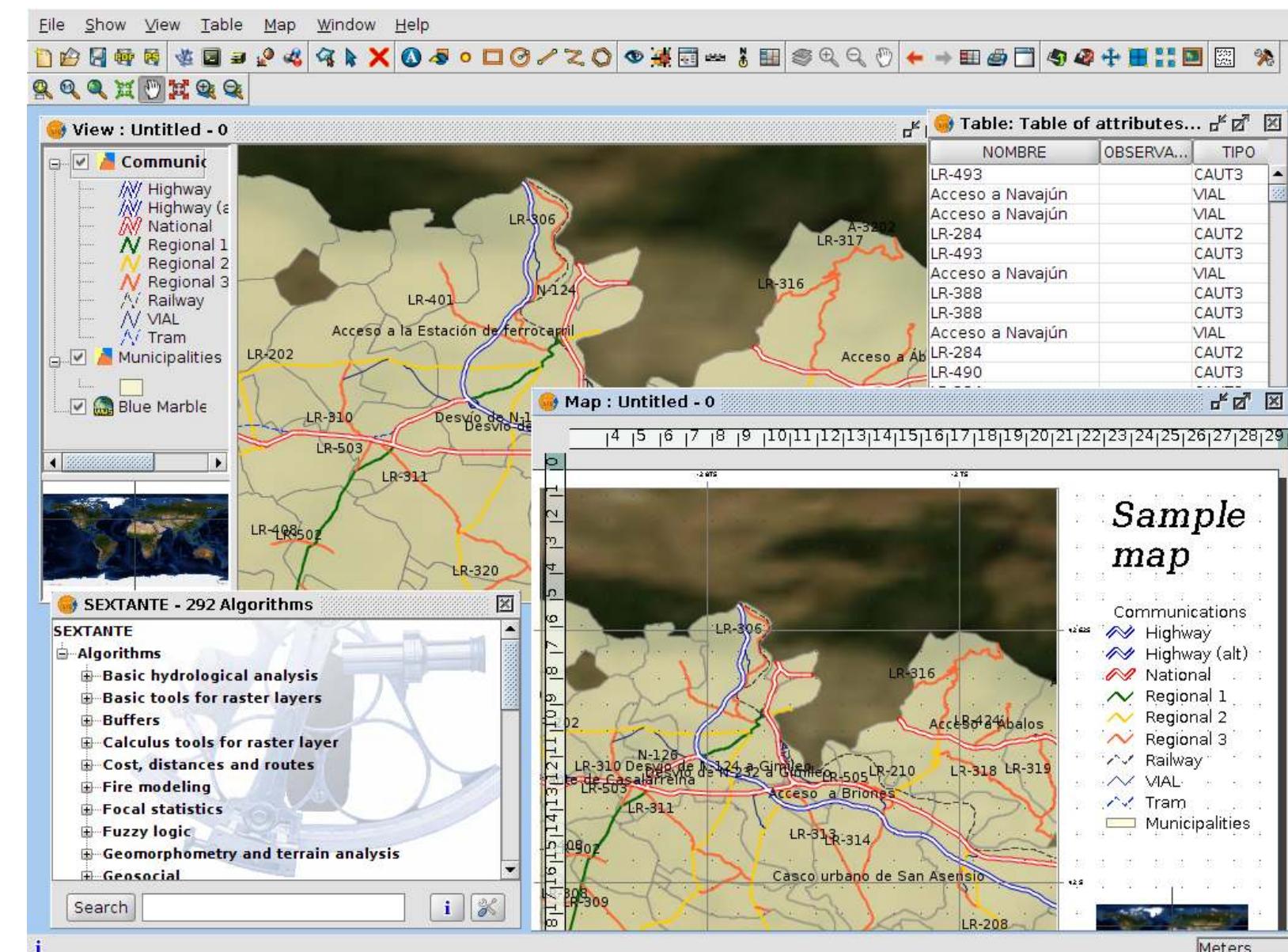
QGIS



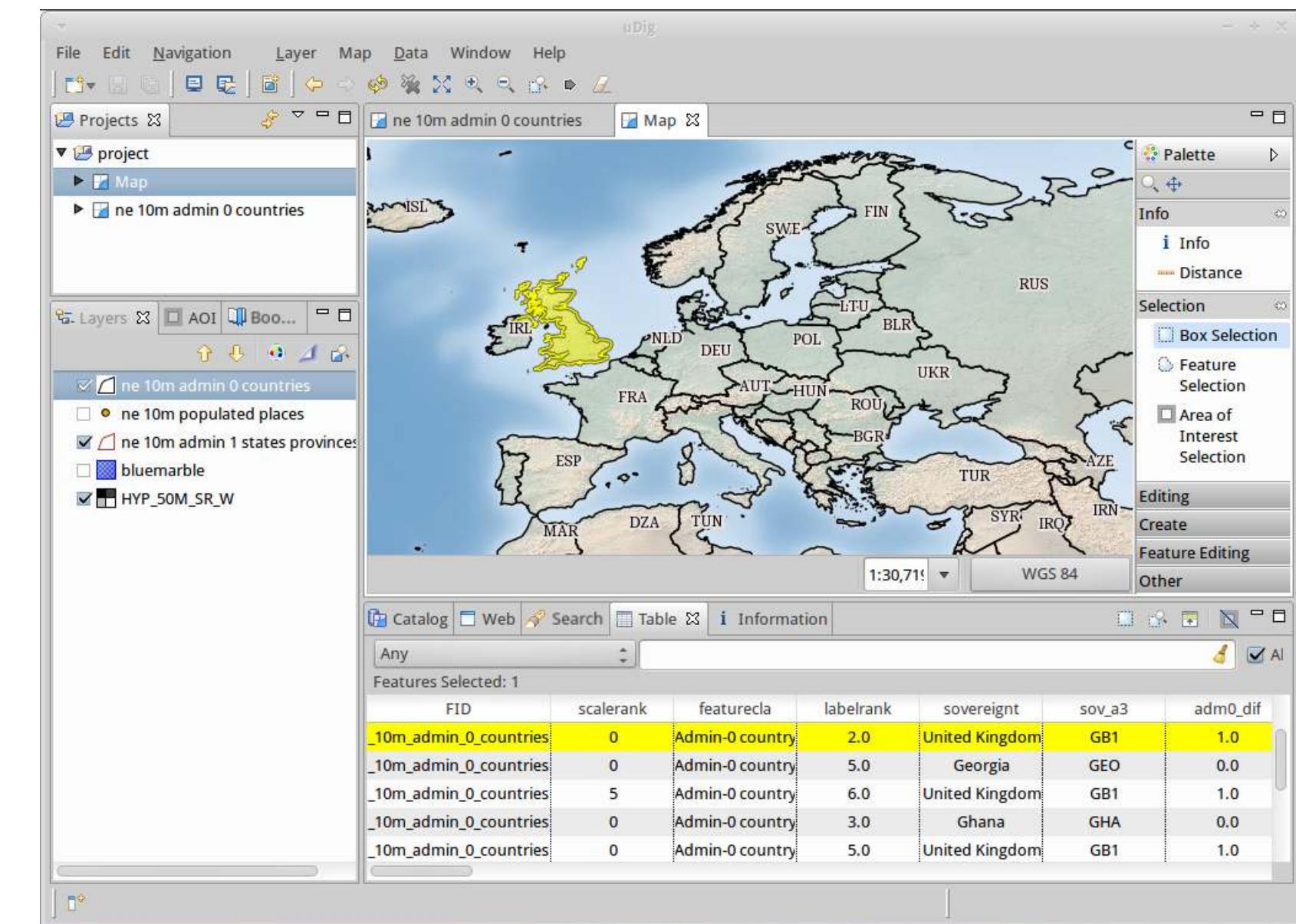
GRASS GIS



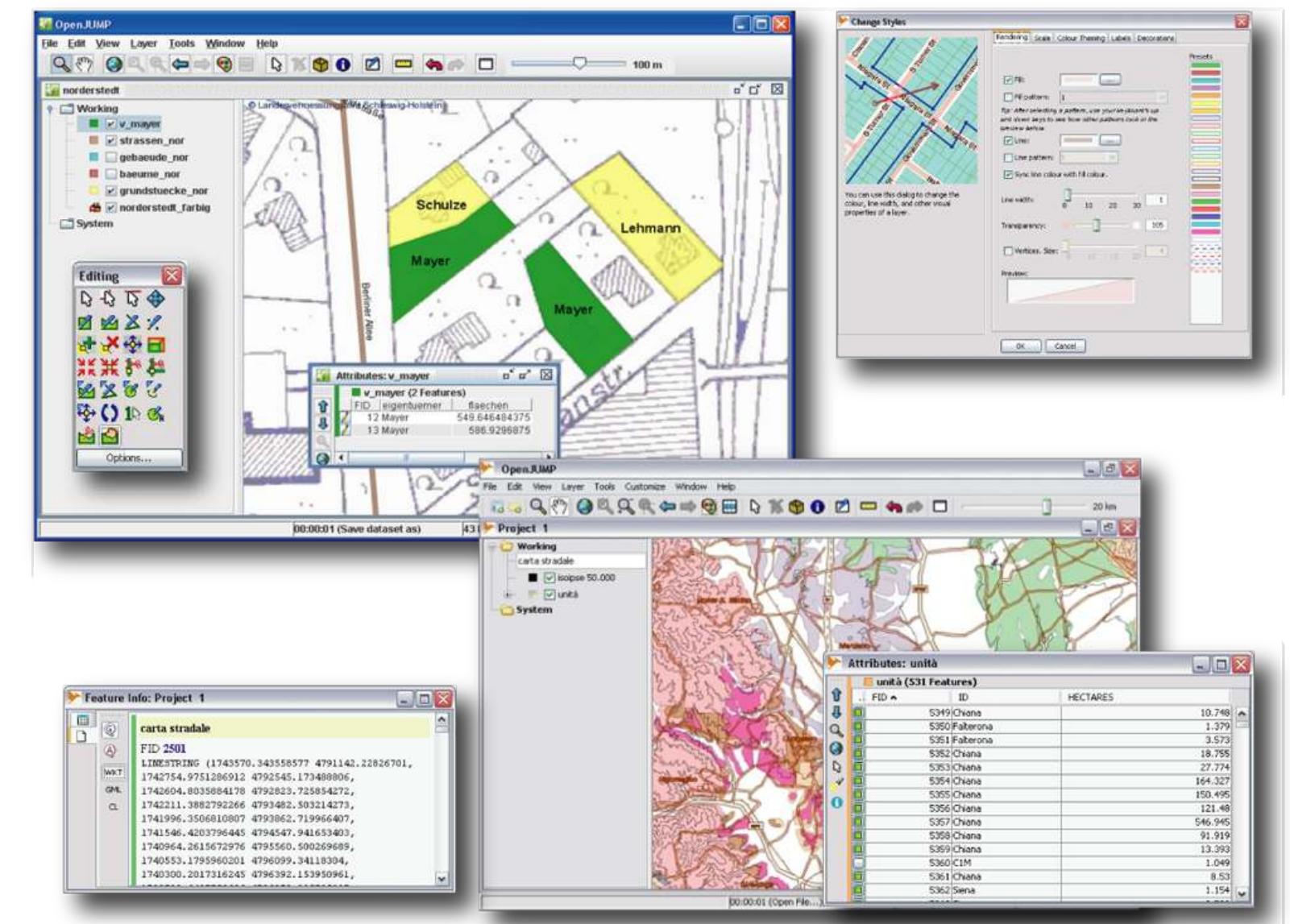
gvsIG Desktop



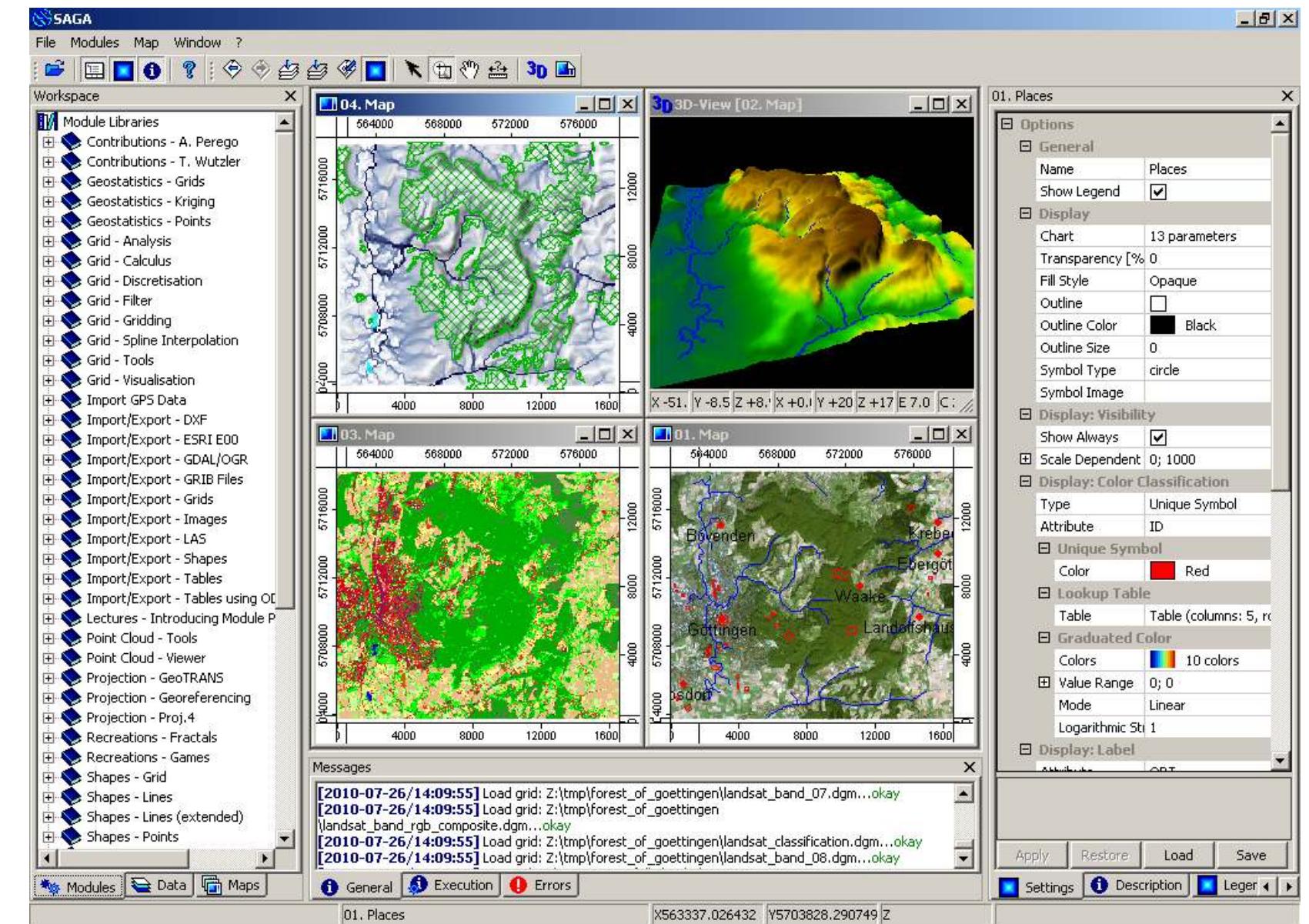
uDig



OpenJUMP GIS



SAGA



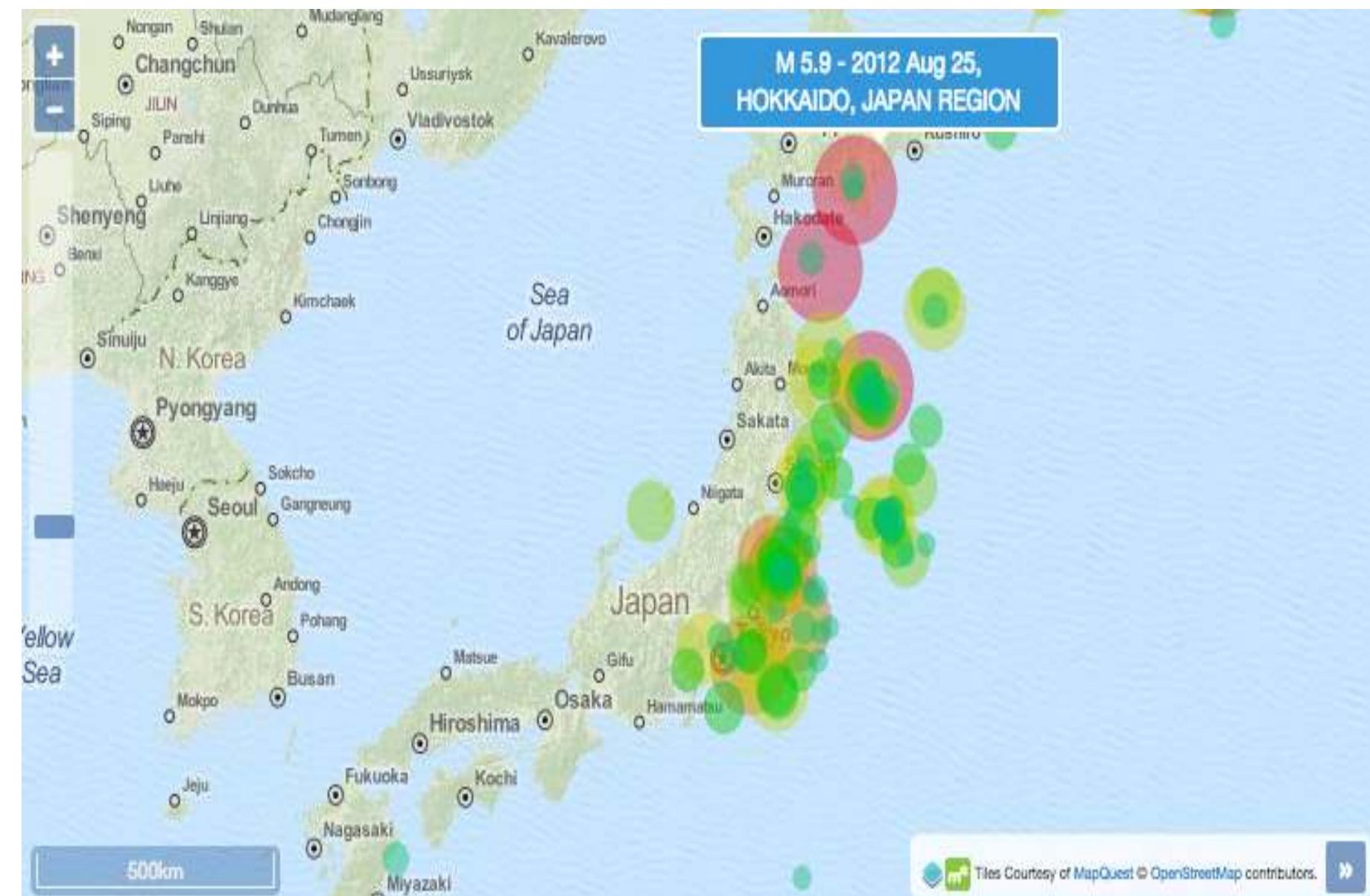
Browser Facing GIS

General GIS viewing, editing and analysis in the browser

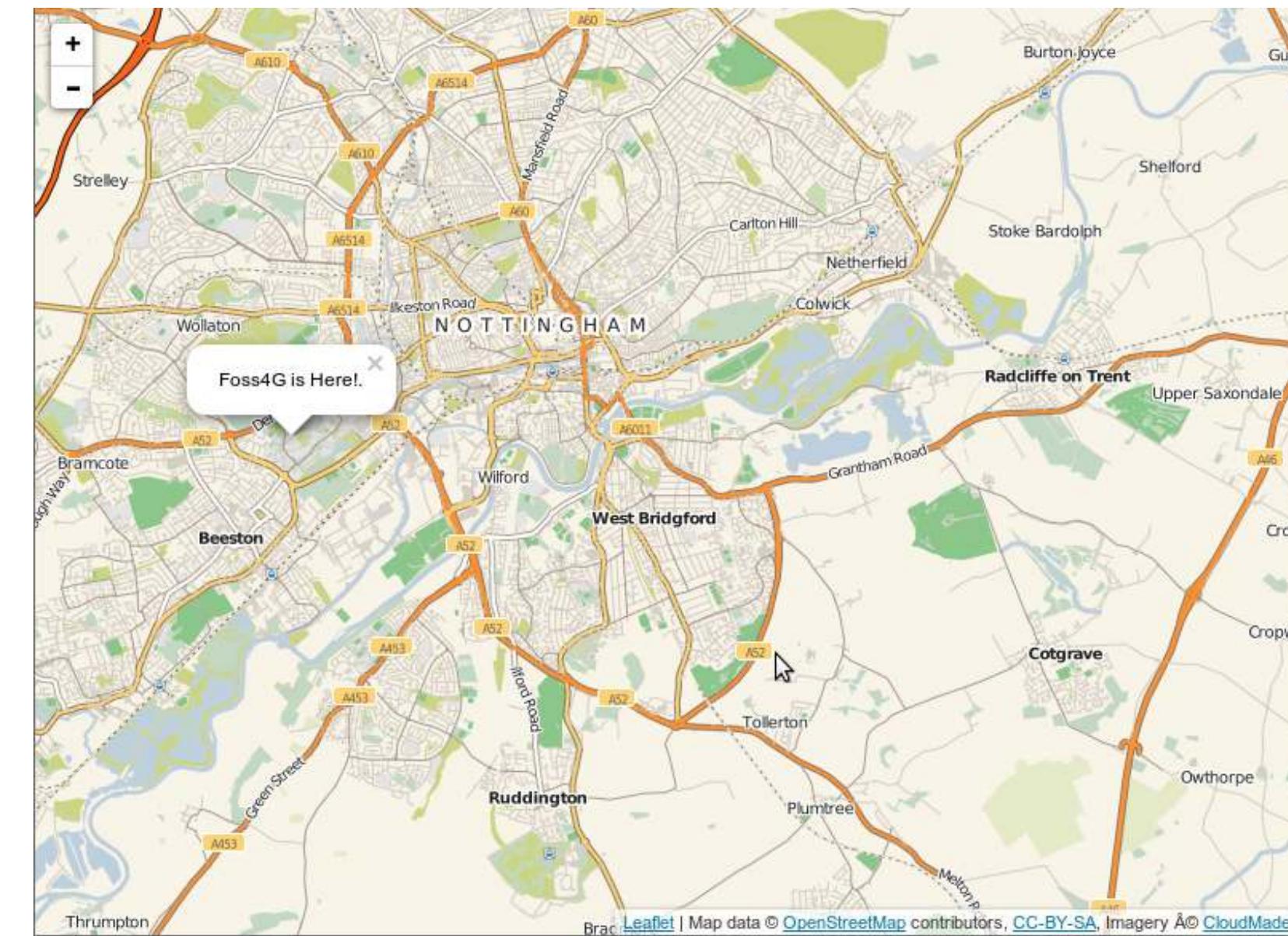
OpenLayers Leaflet Cesium GeoStyler

Mapbender GeoExt GeoMoose GeoNode

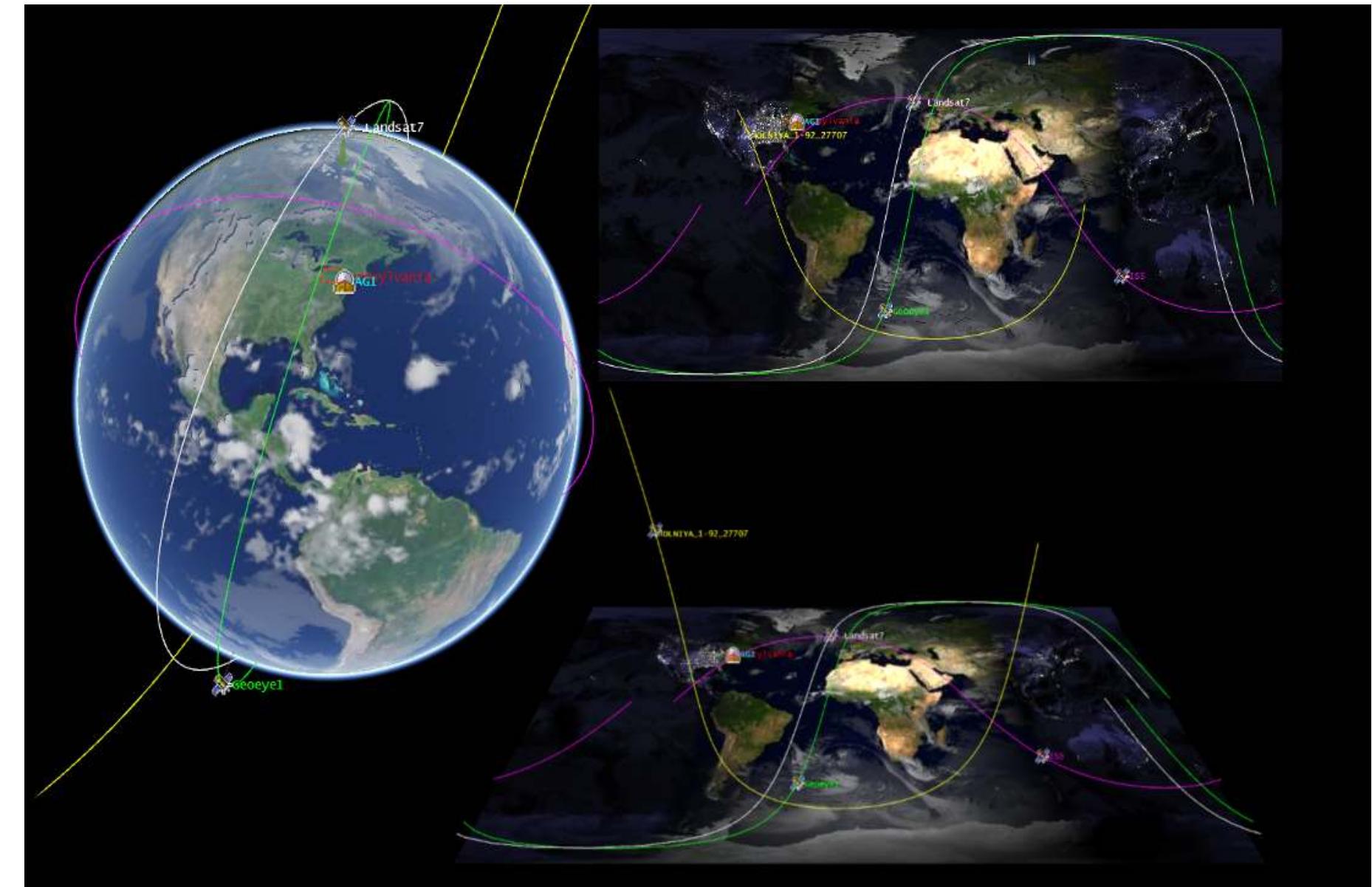
OpenLayers



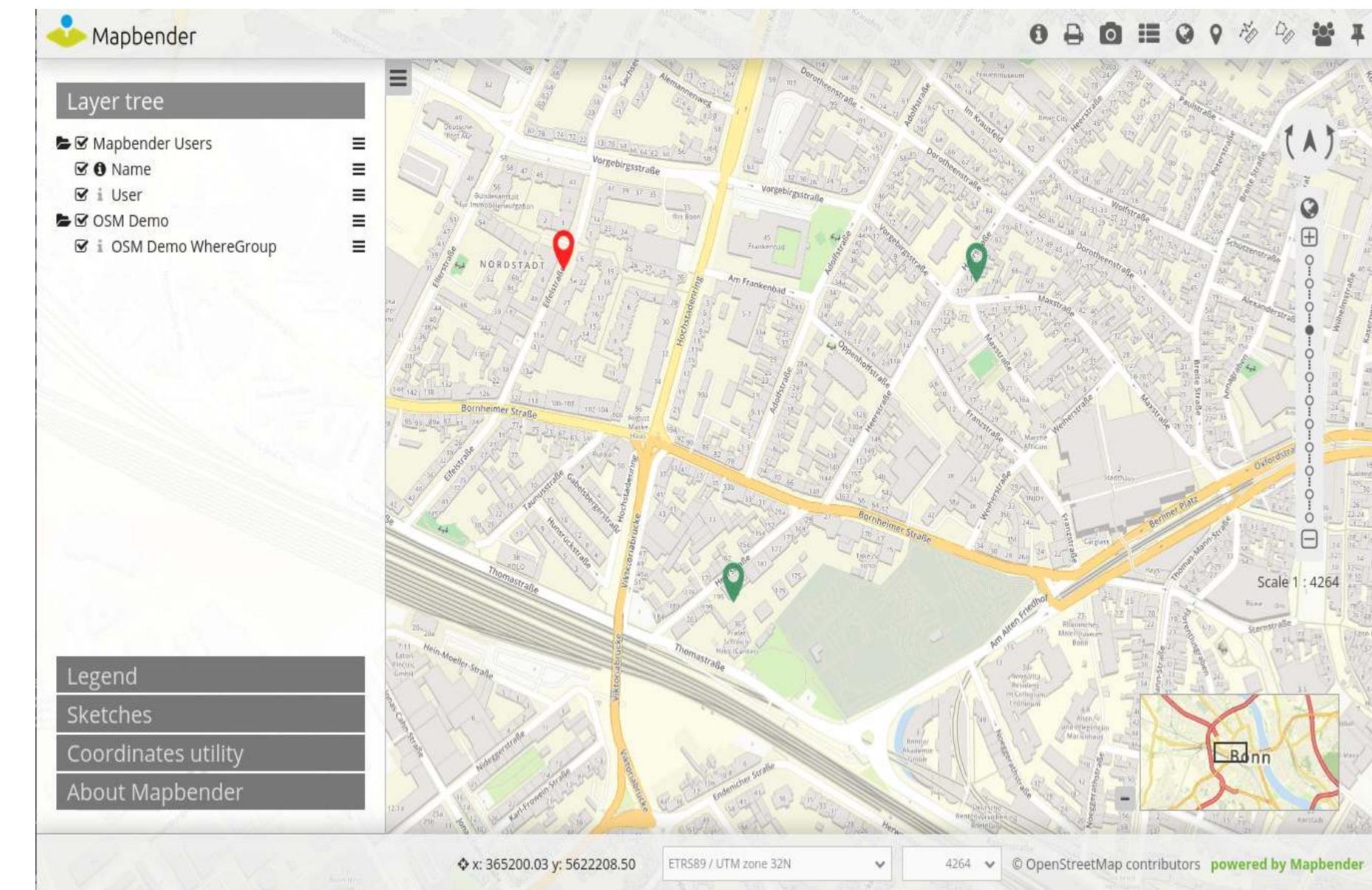
Leaflet



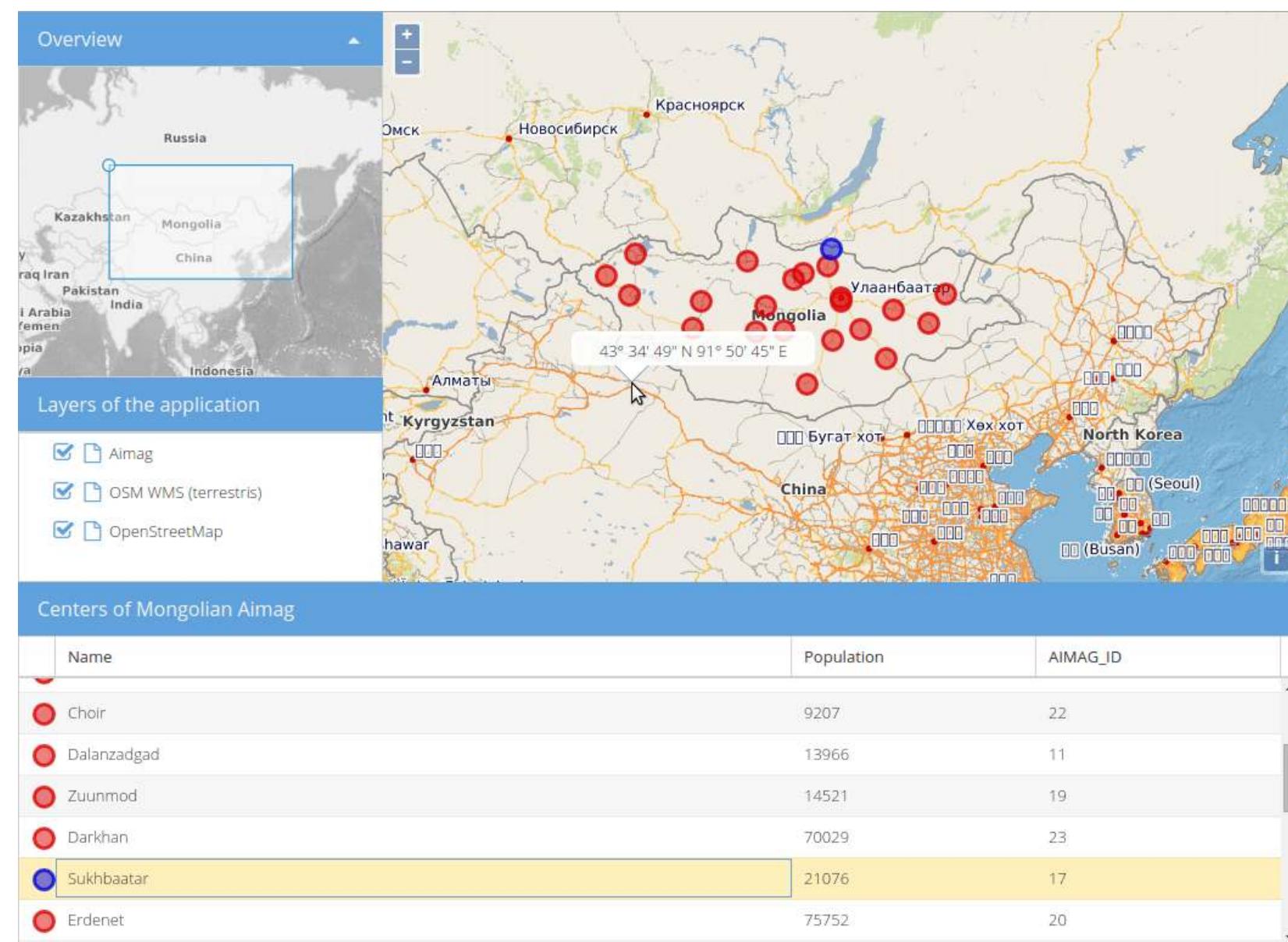
Cesium



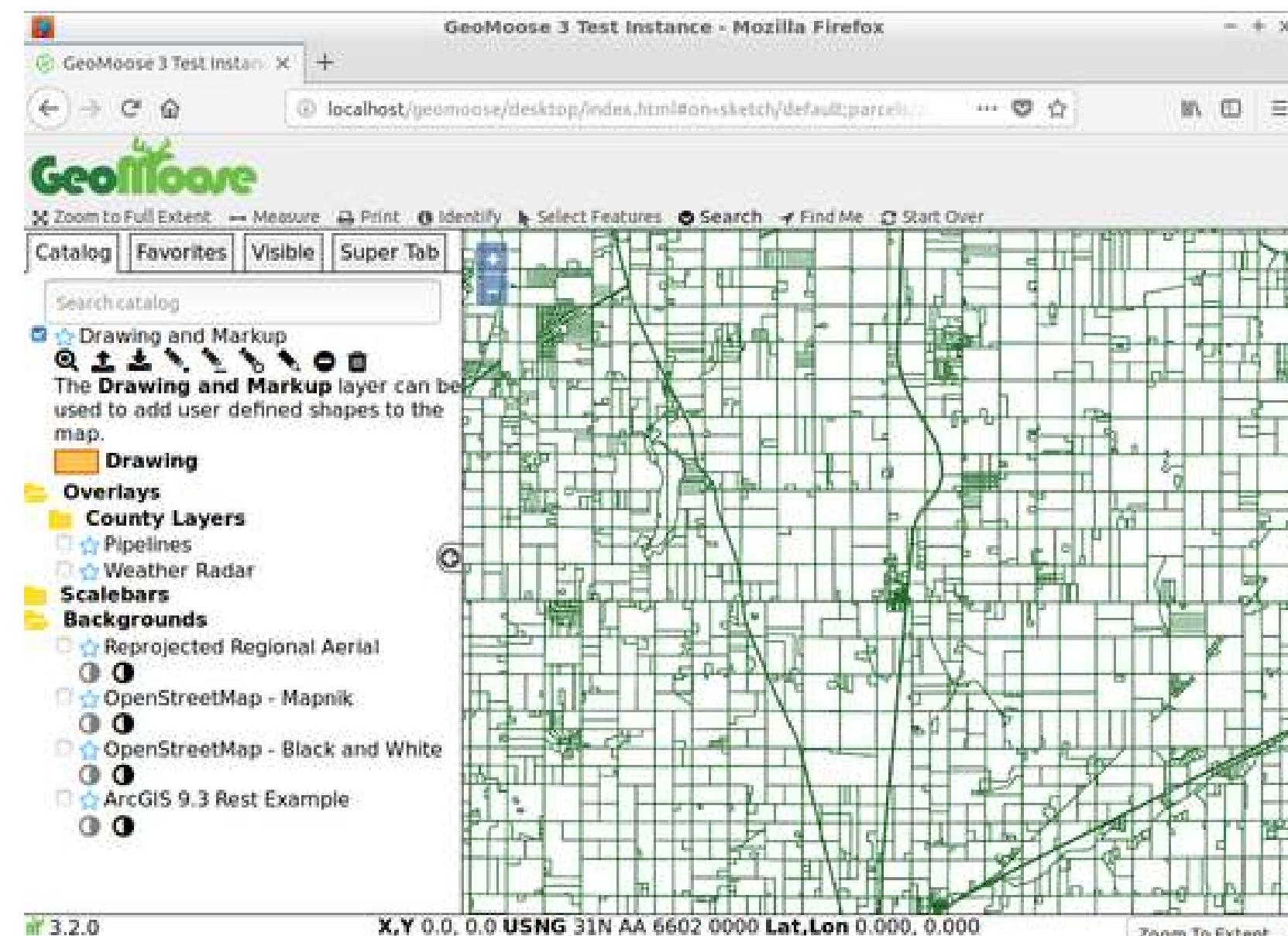
Mapbender



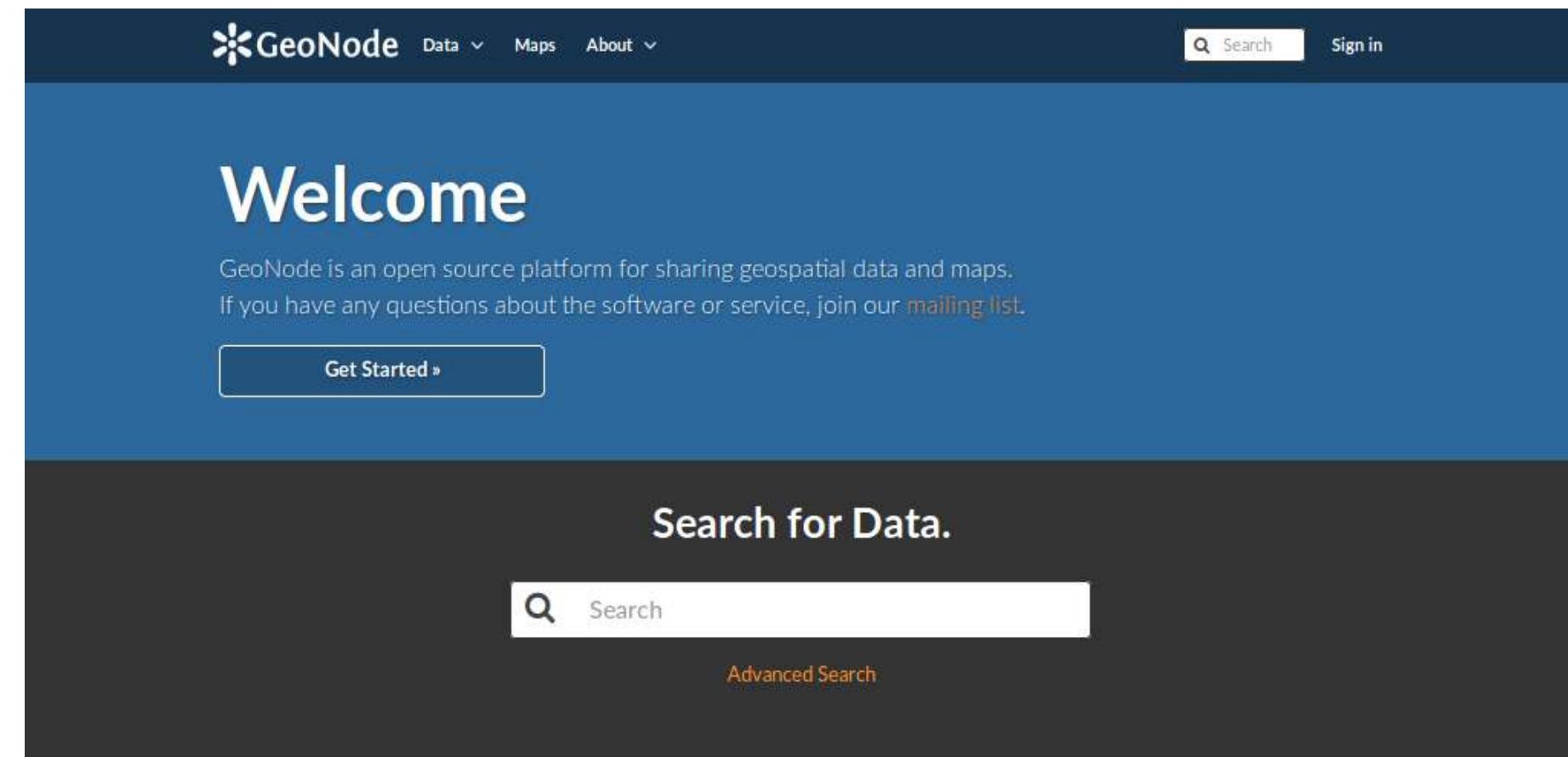
GeoExt



GeoMoose



GeoNode

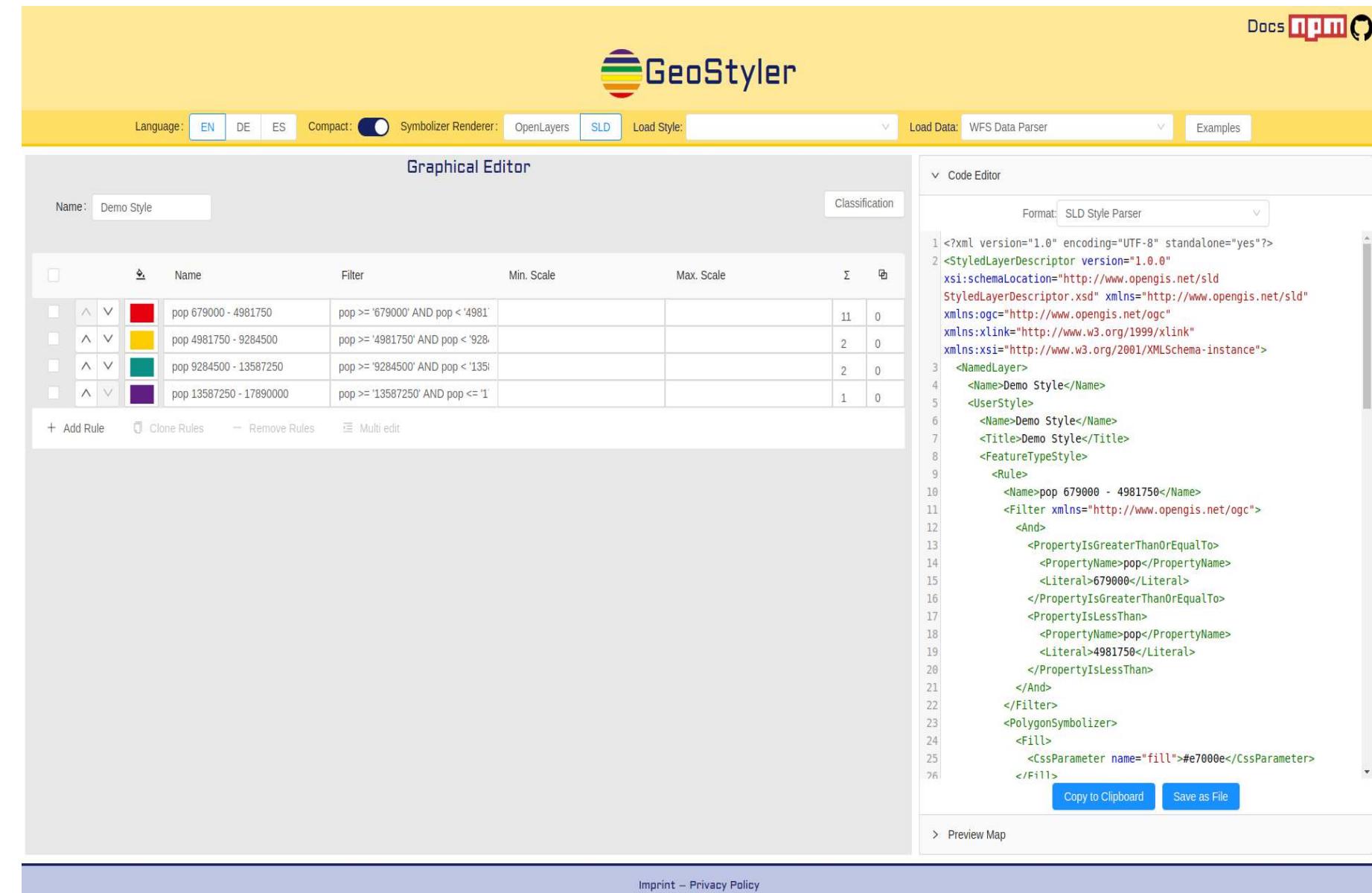


The screenshot shows the GeoNode homepage. At the top, there is a dark header bar with the GeoNode logo, a "Data" dropdown, a "Maps" link, an "About" dropdown, a search bar containing "Search", and a "Sign in" button. Below the header is a large blue section with the word "Welcome" in white. A subtext explains that GeoNode is an open source platform for sharing geospatial data and maps, and provides a link to a mailing list. A "Get Started »" button is also present. Below this is a dark grey section with the text "Search for Data." and a search bar with a magnifying glass icon. Underneath the search bar is a link to "Advanced Search".

Discover the available datasets.



GeoStyler



The screenshot shows the GeoStyler application interface. At the top, there is a navigation bar with links for Language (EN, DE, ES), Compact mode, Symbolizer Renderer (OpenLayers, SLD selected), Load Style, Load Data (WFS Data Parser), and Examples. On the right side of the header, there are links for Docs and NPM.

The main area is divided into two sections: the Graphical Editor on the left and the Code Editor on the right.

Graphical Editor:

- Name: Demo Style
- Classification: (button)
- Table of Rules:

	Name	Filter	Min. Scale	Max. Scale	Σ	\exists
1	pop 679000 - 4981750	pop >= '679000' AND pop < '4981'			11	0
2	pop 4981750 - 9284500	pop >= '4981750' AND pop < '928'			2	0
3	pop 9284500 - 13587250	pop >= '9284500' AND pop < '13587250'			2	0
4	pop 13587250 - 17890000	pop >= '13587250' AND pop <= '1'			1	0

- Buttons: + Add Rule, Clone Rules, Remove Rules, Multi edit.

Code Editor:

- Format: SLD Style Parser
- Code (SLD XML):

```

1 <?xml version="1.0" encoding="UTF-8" standalone="yes"?>
2 <StyledLayerDescriptor version="1.0.0"
  xsi:schemaLocation="http://www.opengis.net/sld
  StyledLayerDescriptor.xsd" xmlns="http://www.opengis.net/sld"
  xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xlink="http://www.w3.org/1999/xlink"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance">
3   <NamedLayer>
4     <Name>Demo Style</Name>
5     <UserStyle>
6       <Name>Demo Style</Name>
7       <Title>Demo Style</Title>
8       <featureTypeStyle>
9         <Rule>
10        <Name>pop 679000 - 4981750</Name>
11        <filter xmlns="http://www.opengis.net/ogc">
12          <And>
13            <PropertyIsGreaterThanOrEqualTo>
14              <PropertyName>pop</PropertyName>
15              <Literal>679000</Literal>
16            </PropertyIsGreaterThanOrEqualTo>
17            <PropertyIsLessThan>
18              <PropertyName>pop</PropertyName>
19              <Literal>4981750</Literal>
20            </PropertyIsLessThan>
21          </And>
22        </filter>
23        <PolygonSymbolizer>
24          <fill>
25            <CssParameter name="fill">#e700e</CssParameter>
26          </fill>
    
```

- Buttons: Copy to Clipboard, Save as File.

At the bottom of the interface, there are links for Imprint – Privacy Policy and a button for Preview Map.

Web Services

Publishing spatial data to the internet

<i>GeoServer</i>	<i>MapServer</i>	<i>MapCache</i>	<i>deegree</i>
<i>ncWMS</i>	<i>E0xServer</i>	<i>GeoNetwork</i>	<i>pycsw</i>

Web Services

PyWPS

MapProxy

QGIS Server

istSOS

52 North SOS

*52 North
WPS*

Zoo Project

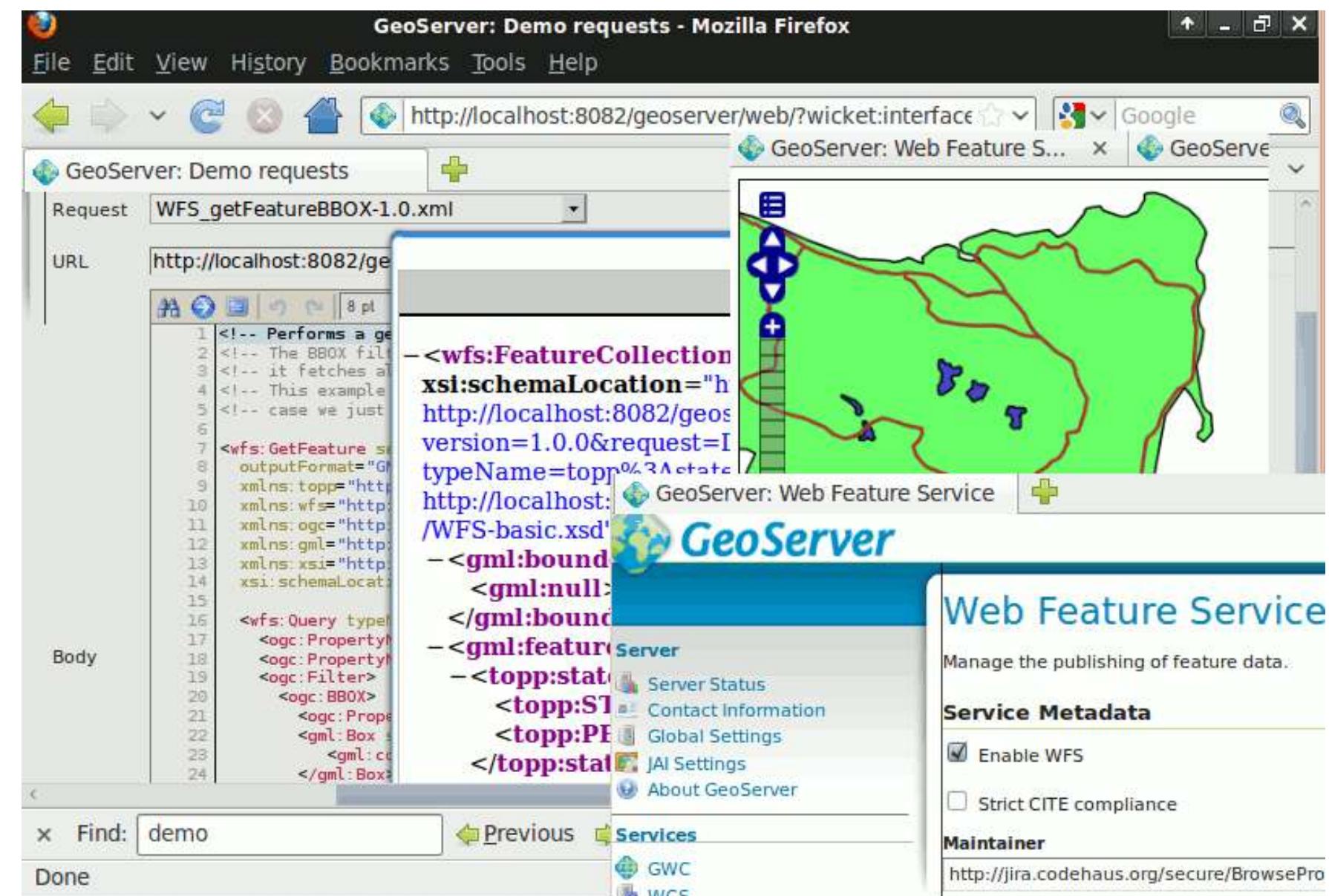
t-rex

Actinia

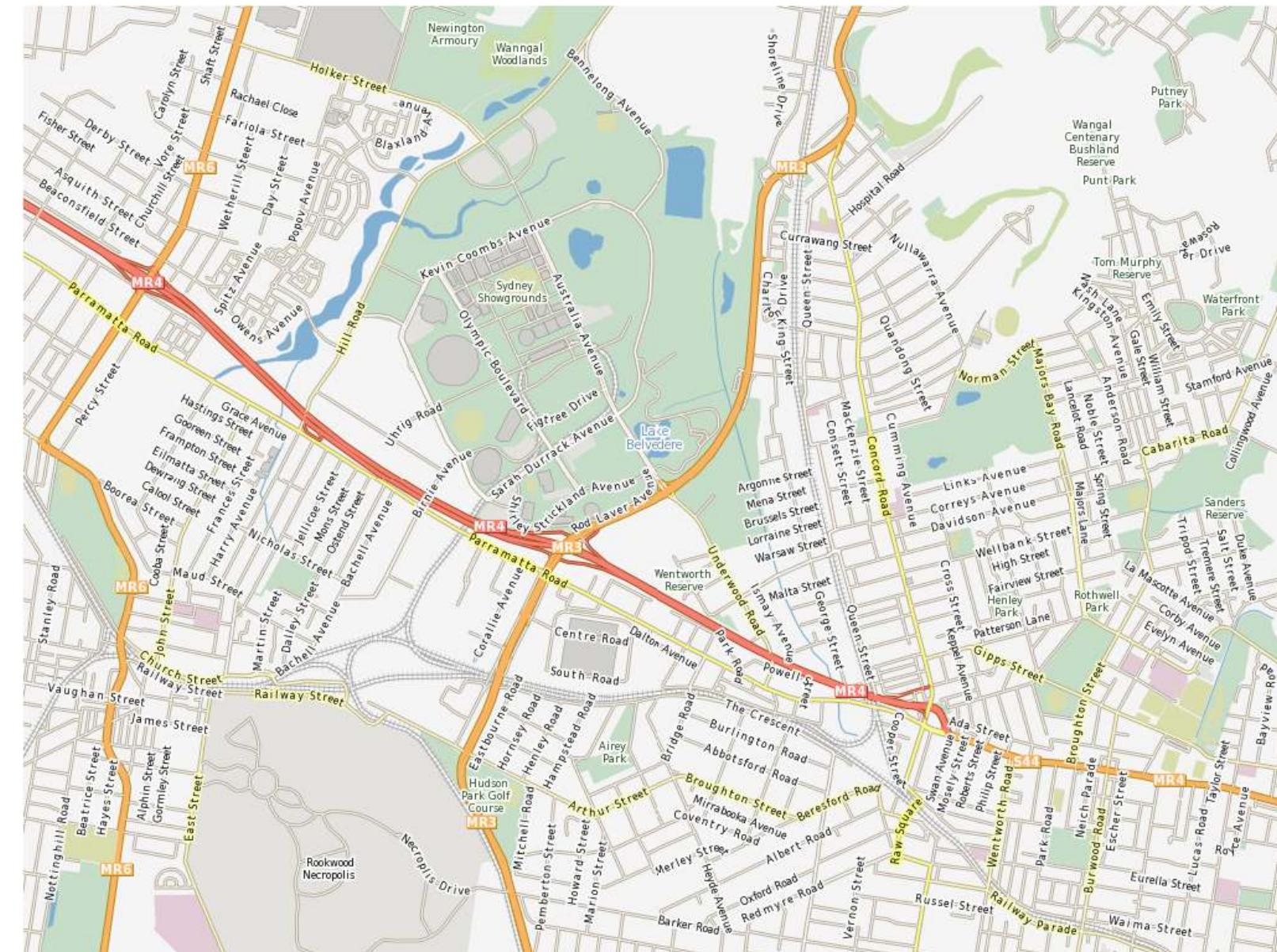
Re3gistry

pygeoapi

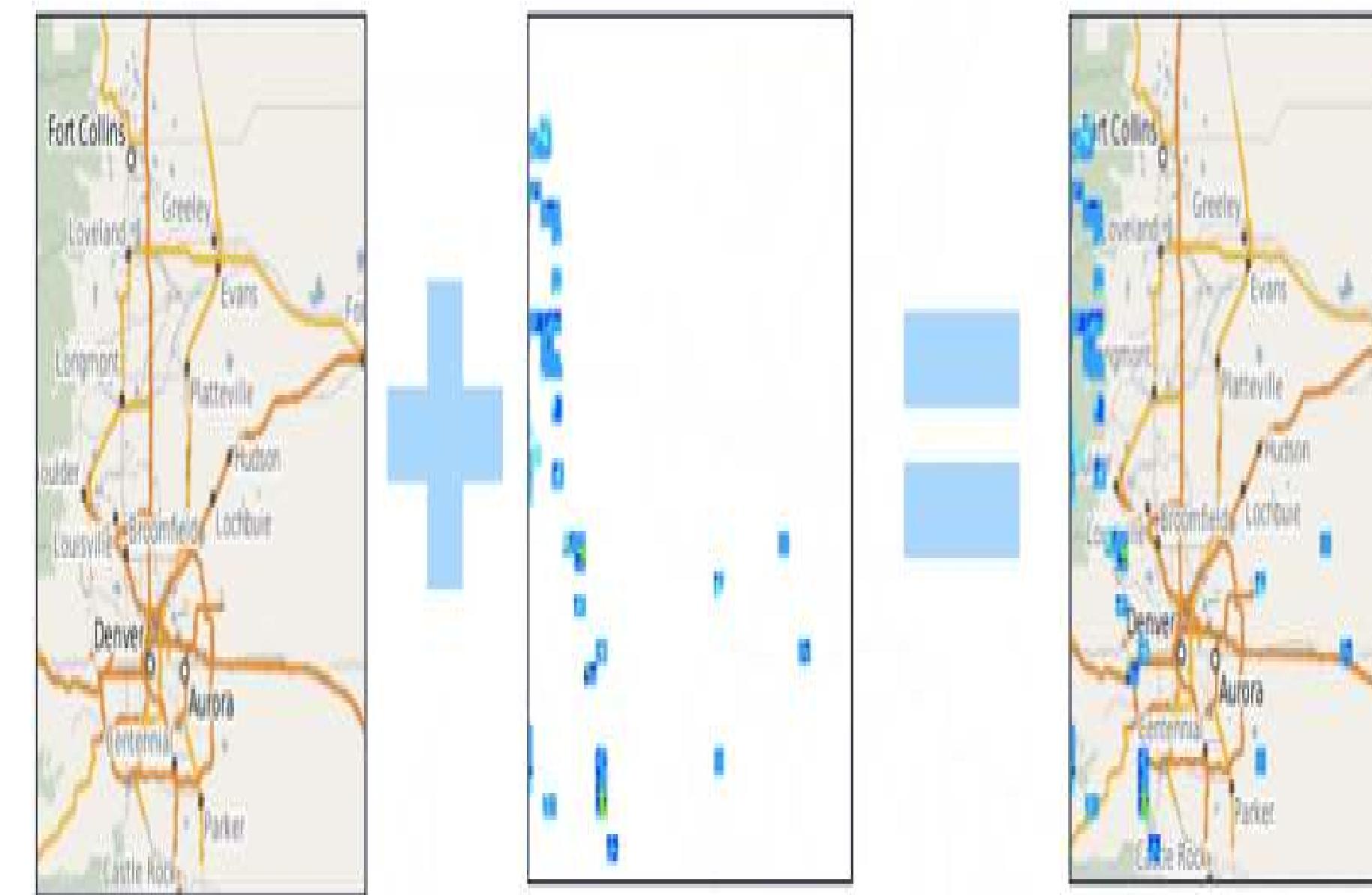
GeoServer



MapServer



MapCache



degree

degree 3

Active workspace: degree-workspace-inspire [Reload]

general
workspaces
proxy
password
module info
send requests
see layers

webservices
services
data stores
coverage
feature
metadata
tile

map layers
layers
styles
themes

connections
databases
remote services

processes
provider

Feature stores

On inspire Deactivate Edit Delete Info Loader

Create new

<wfs:member>

<cp:CadastralParcel gml:id="NL.KAD.CP.LNK00D.237

On AD_Address_Def<cp:beginLifespanVersion xsi:nil="true" nilReason=

On AU_Administrativ<cp:endLifespanVersion xsi:nil="true" nilReason=

On AU_Administrativ<cp:geometry>

On CP_CadastralBoun<gml:MultiSurface gml:id="MultiSurface_NL.KA1

On CP_CadastralParcel_B<gml:surfaceMember>

On CP_CadastralParcel_Defe<gml:Surface gml:id="Surface_NL.KAD.CP.LN

On CP_CadastralZoning <gml:patches>

<gml:PolygonPatch>

<gml:exterior>

<gml:LinearRing>

<gml:posList>

52.266657 6.932919 52.266749 6.93

6.926723 52.268542 6.926403 52.27

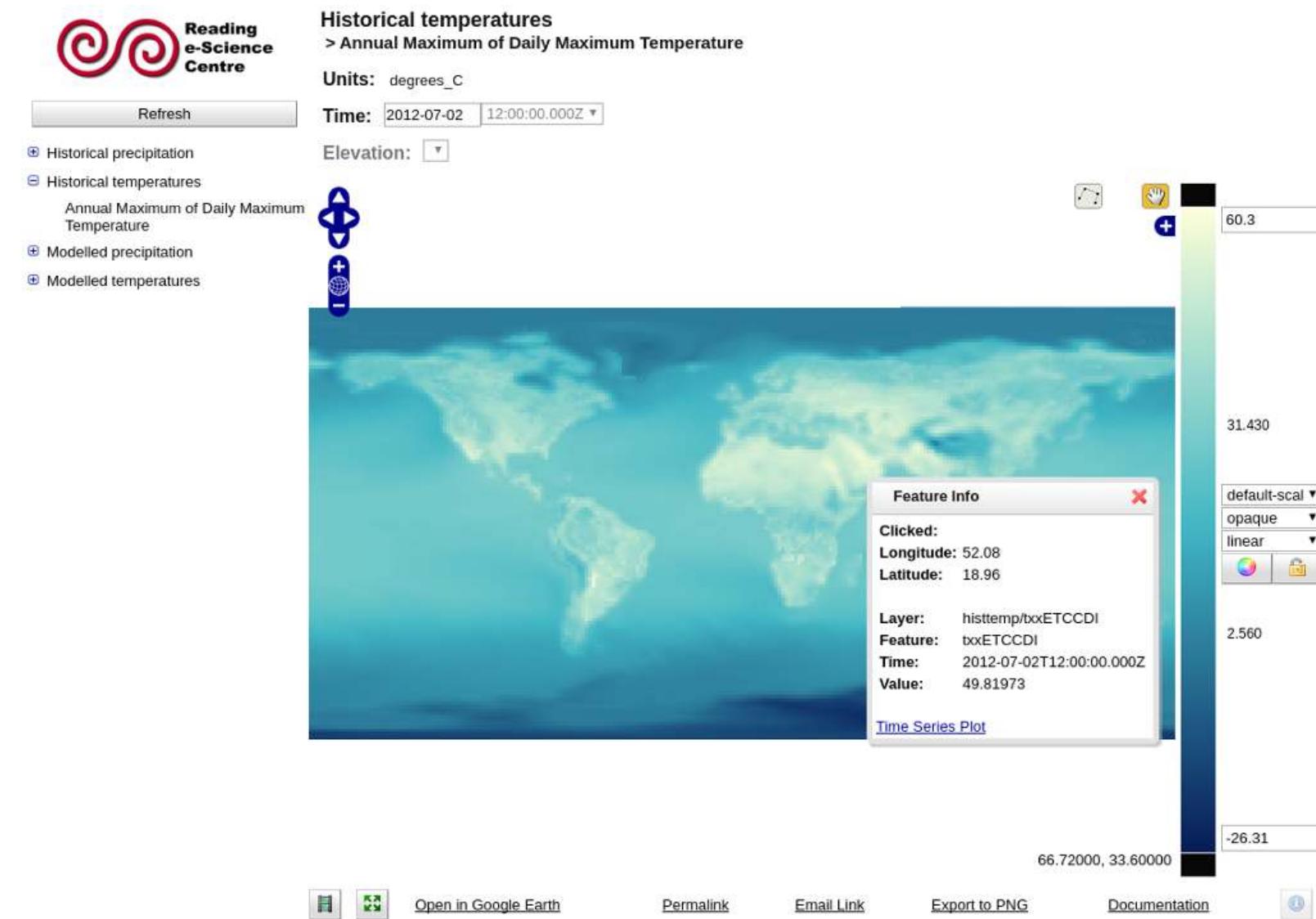
Editing XML resource: CP_CadastralParcel_BoundariesOnly (org.degree.style.persistence.StyleStoreP

```

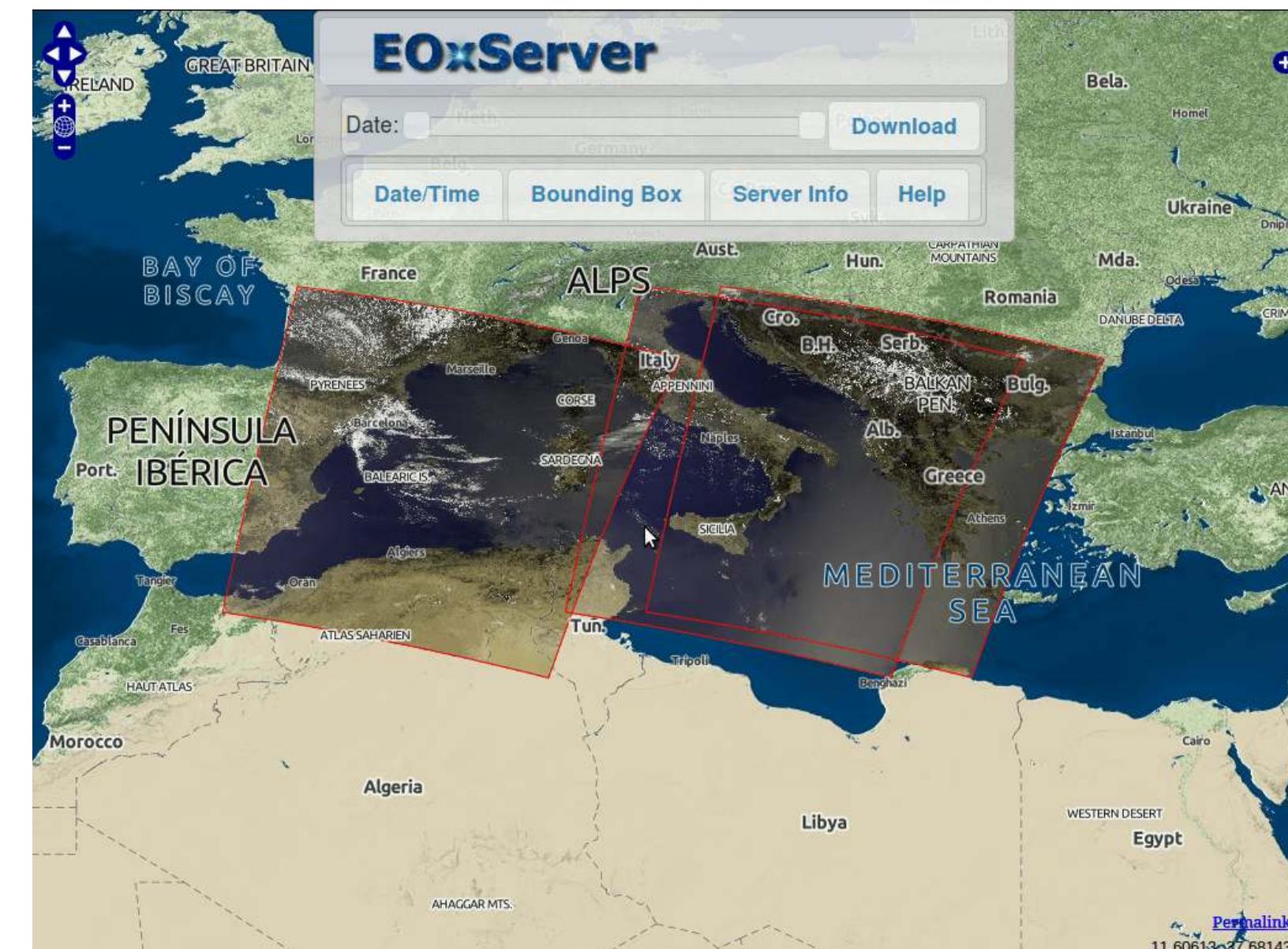
1  <?xml version="1.0" encoding="UTF-8"?>
2  <se:FeatureTypeStyle version="1.1.0" xmlns:se="http://www.opengis.net/se"
3    xmlns:cp="urn:x-inspire:specification:gmlas:CadastralParcels:3.0" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="http://www.opengis.net/se FeatureTypeStyle.xsd">
4    <se:Name>CP.CadastralParcel.Default</se:Name>
5    <se:Description>
6      <se:Title>Cadastral Parcel - outlines only</se:Title>
7      <se:Abstract> Parcel outline carried by the attribute geometry.
8      Parcel outlines: black (#000000) line 1 pixel.</se:Abstract>

```

ncWMS



E0xServer



GeoNetwork

My GeoNetwork catalogue Search Map Contribute Admin console admin admin (Administrator) Sign out English

Search ... Sort by relevancy 1 - 6 on 6 < >

TYPE OF RESOURCES	
Dataset	(3)
Maps and graphics	(1)
Collection session	(1)
Service	(1)
TOPICS	
Geoscientific information	(1)
Boundaries	(1)
Inland waters	(1)
KEYWORDS	
Polar ecosystem	(1)
Physiography, soil	(1)
Eurasia	(1)
GeoscientificInformation	(1)
BOUNDARIES-Administrative	(1)
10 more	
CONTACT FOR THE RESOURCE	
FAO - Land and Water Development Division	(1)
Department of Sustainability and Environment (DSE)	(1)
YEARS	
2010	(1)
2007	(1)
2000	(1)
FORMATS	
Web page	(1)

Categories  

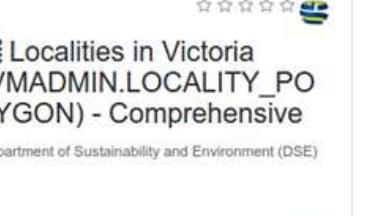
Hydrological Basins in Africa (Sample record, please remove!)

Categories  

Geoscience Australia's Open Day Photographs 26th August 2007

Categories  

The Geoffrey's Tube Z3950 Server (Sample Record - Please Delete!)

Categories  

Localities in Victoria (VMADMIN.LOCALITY_POLYGON) - Comprehensive

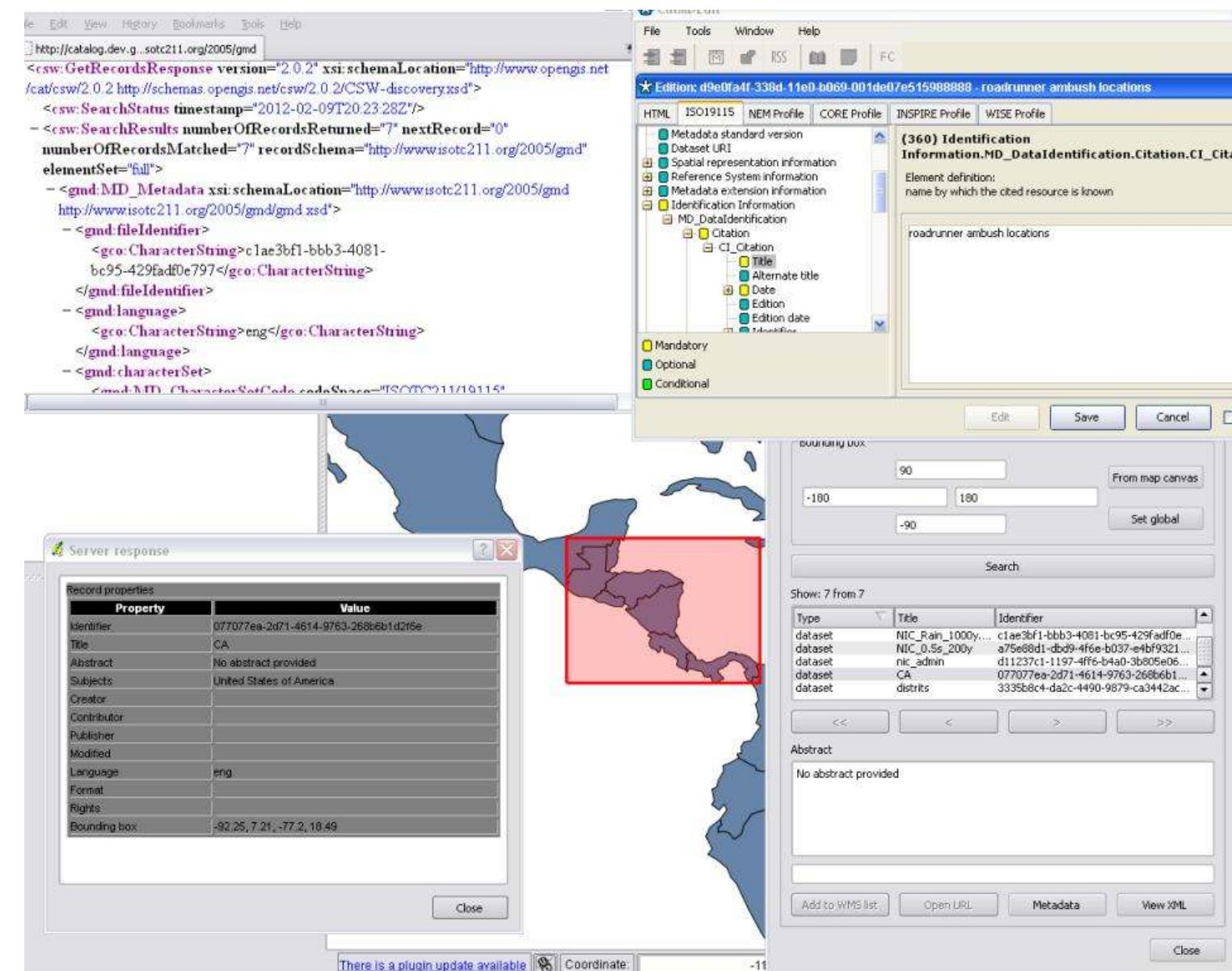
Categories  

Natural polar ecosystems

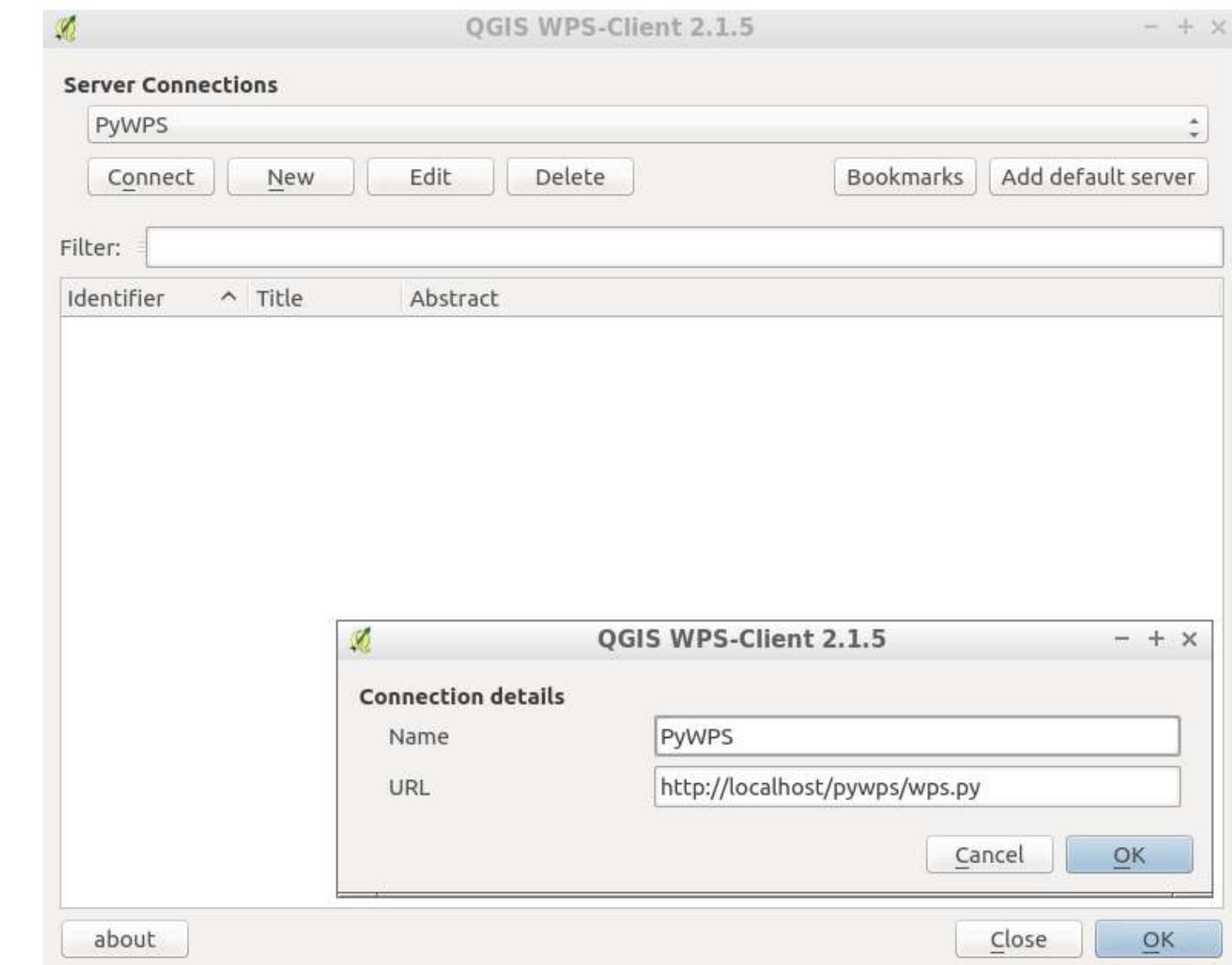
Categories  

Physical North and South Polar Regions (Sample record)

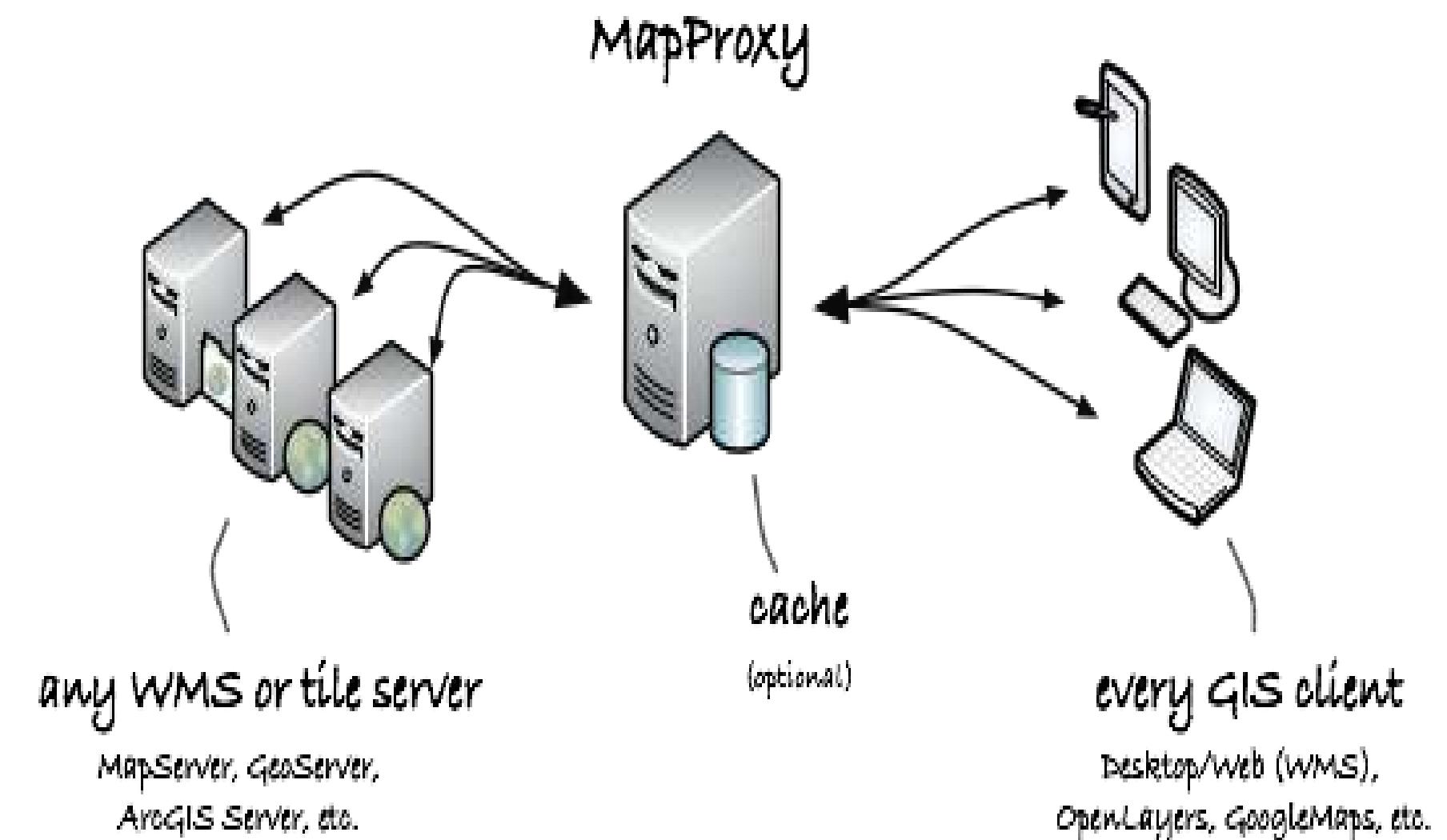
pyCSW



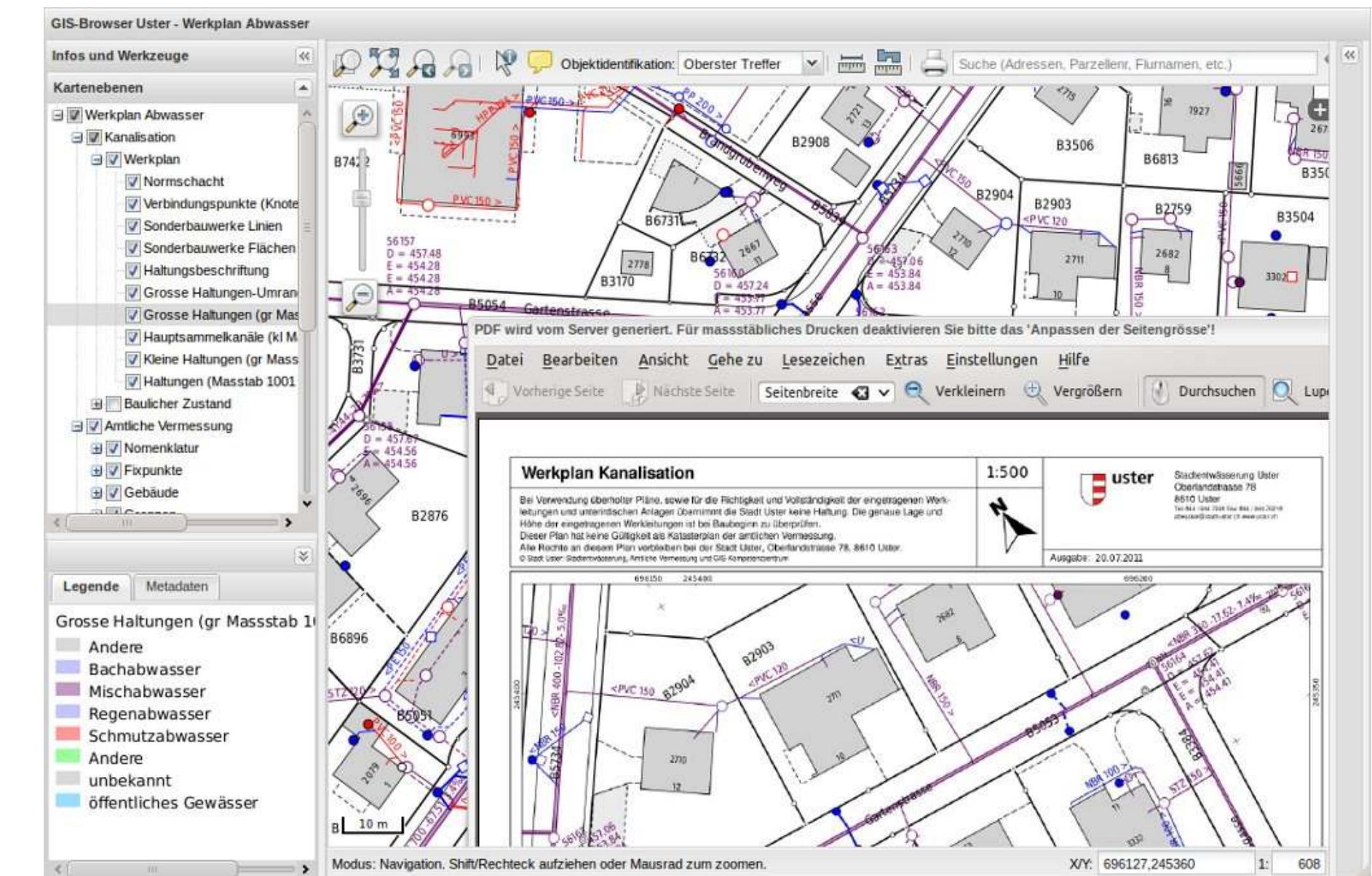
PyWPS



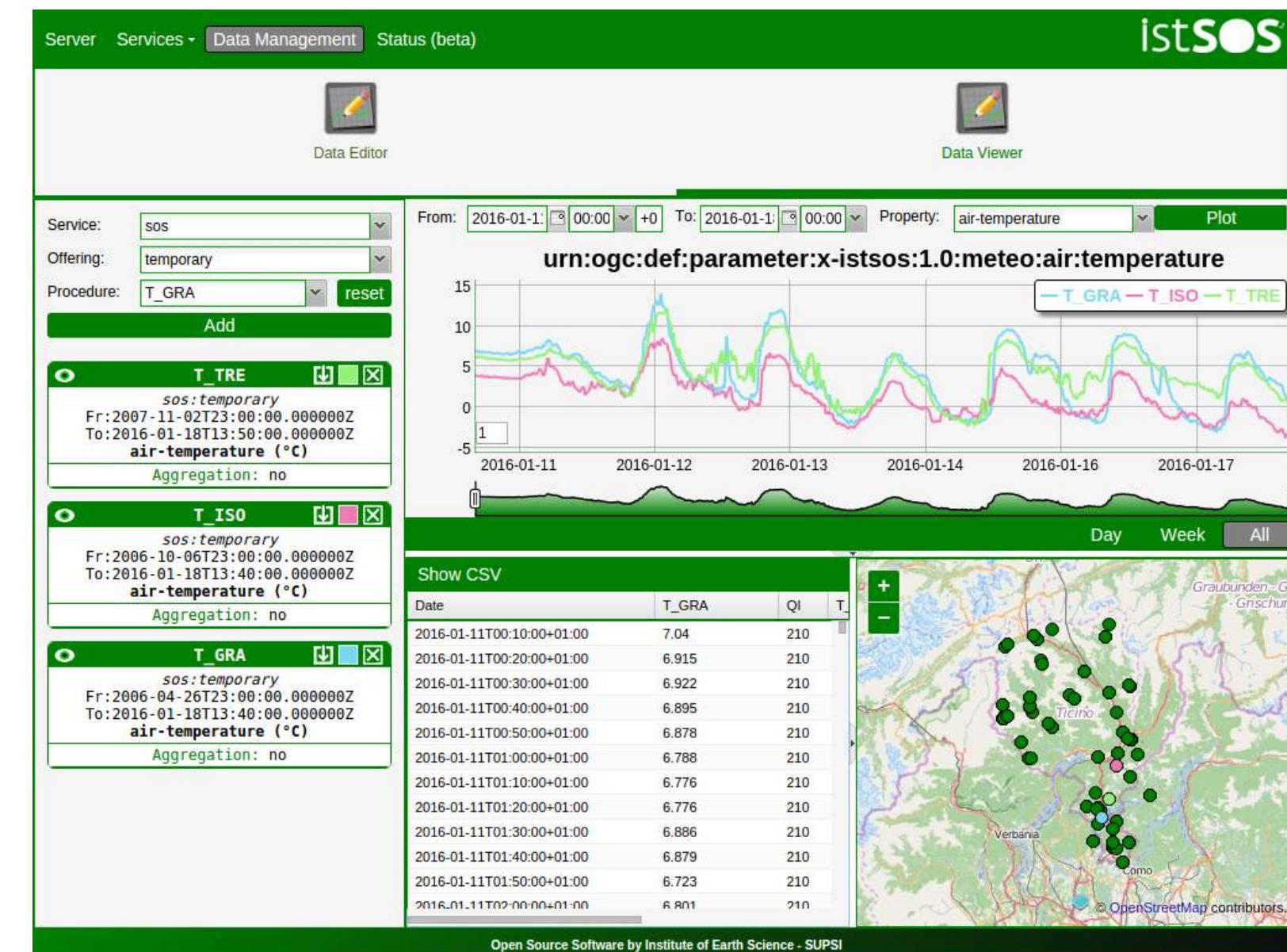
MapProxy



QGIS Server



istSOS



52 North SOS

Home Client Documentation Admin

52° North SOS Test Client

Choose a request from the examples or write your own to test the SOS.

Examples

NOTE: Requests use example values and are not dynamically generated from values in this SOS. Construct valid requests by changing request values to match values in the Capabilities response.

NOTE: For security reasons, the transactional SOS operations are only allowed IPs 127.0.0.1. The transactional operations can be configured in the [Transactional Security tab of the settings](#).

SOS Load a example request ...

Service URL

<http://localhost:8080/52nSOS/service>

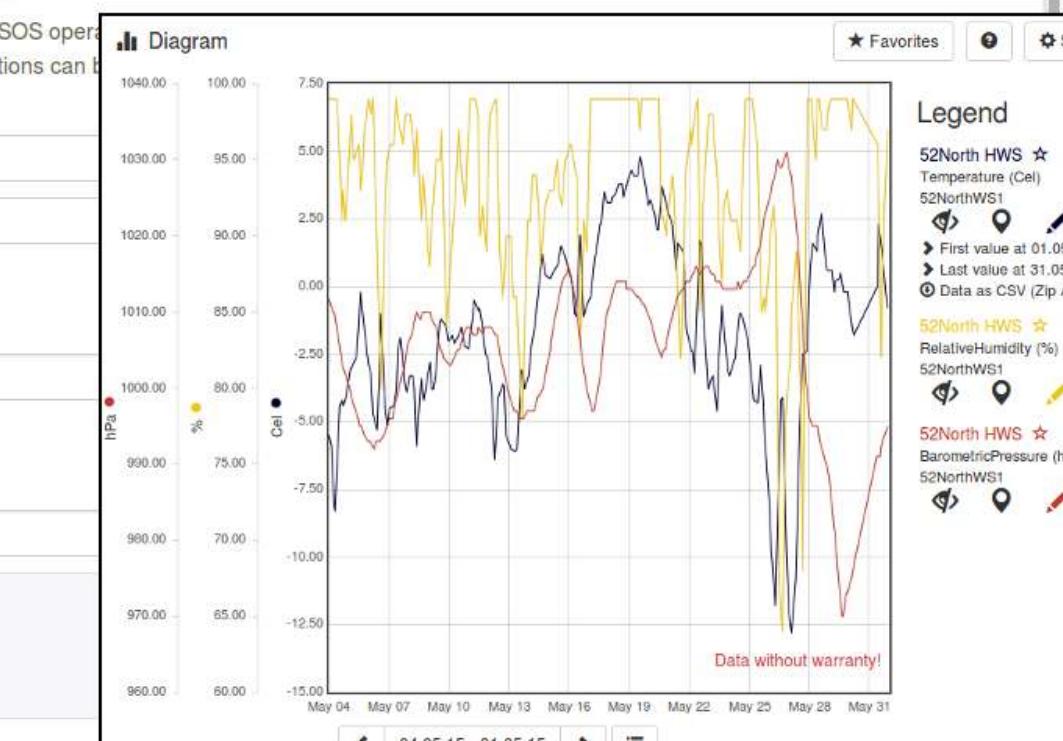
Request

POST

```

1  {
2    "request": "GetCapabilities",
3    "service": "SOS",
4    "sections": [
5      "Contents"
6    ]
7  }

```



52 North WPS

52°North WPS

This is the welcome site for the 52°North Web Processing Service 1.0.0 implementation.



Usage

Requests

- [GetCapabilities request using HTTP GET](#)

Clients

- [52°North WPS form client](#) can be used to submit XML-based requests this WPS instance manually.
- [R Image Rendering](#) demonstrates a simple client for mobile devices using an R process to render images.

Documentation

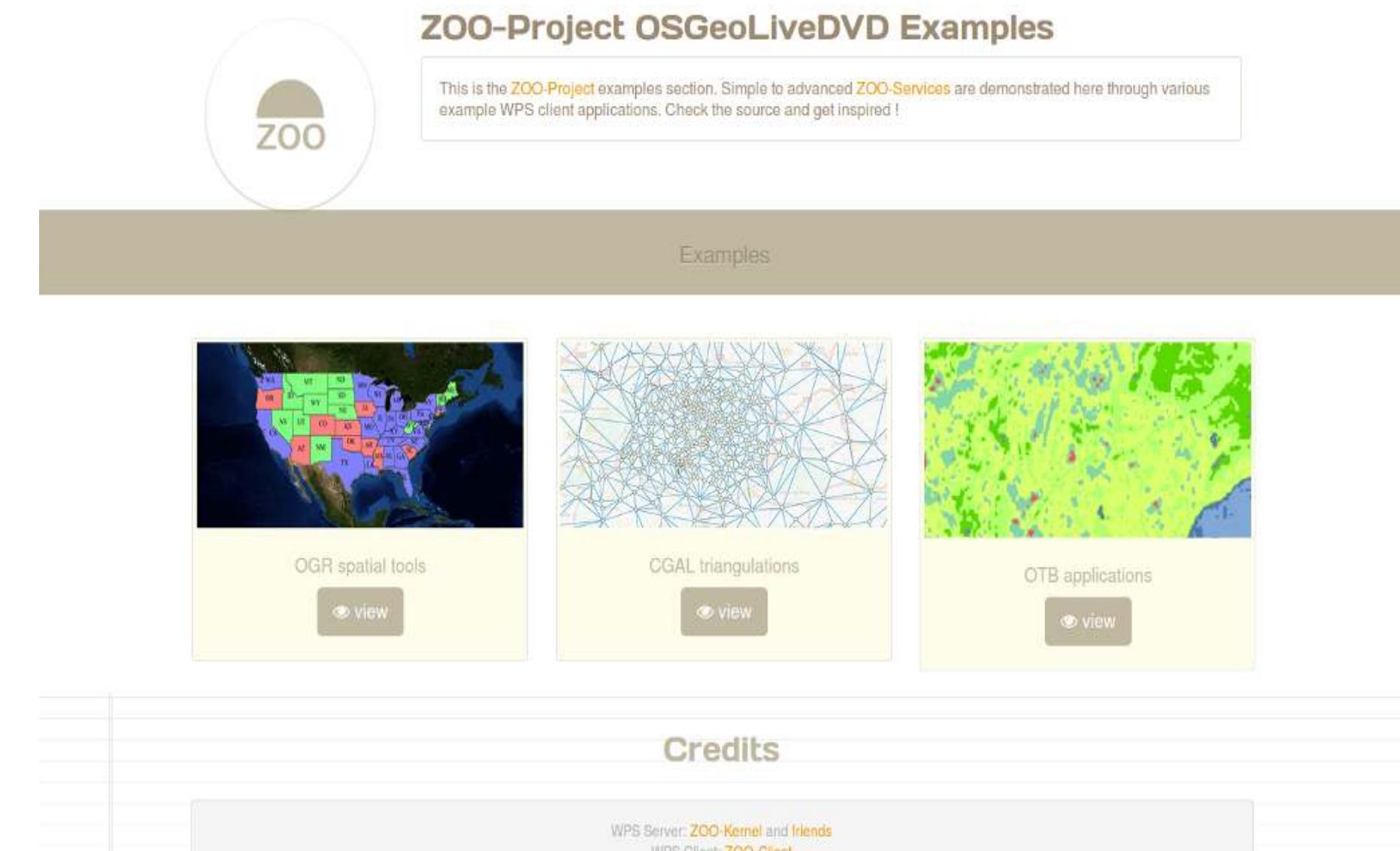
- To learn more about the specification visit the [OGC website](#).
- To learn more about this implementation visit the [52° North Geoprocessing Community website](#).
- This is an [open source project on GitHub](#)
- Find [developer documentation](#) in the 52° North Wiki

Administration

[52° North WPS webAdmin console](#)

52n-wps-webapp-3.3.0 based on .a25672e2caaffd48675d5f1b191ecbe876a3b1b2 built at 2014-07-04 12:26:43

Zoo Project



The screenshot shows the 'ZOO-Project OSGeoLiveDVD Examples' section. At the top left is a circular icon with a sun-like shape and the word 'ZOO'. To its right is the title 'ZOO-Project OSGeoLiveDVD Examples'. Below the title is a box containing the text: 'This is the [ZOO-Project](#) examples section. Simple to advanced [ZOO-Services](#) are demonstrated here through various example WPS client applications. Check the source and get inspired !'. A large brown bar spans across the middle with the word 'Examples' in white. Below this bar are three examples: 'OGR spatial tools' (a map of North America with state boundaries), 'CGAL triangulations' (a network graph), and 'OTB applications' (a green-toned satellite image). Each example has a 'view' button below it. At the bottom is a 'Credits' section with text: 'WPS Server: [ZOO-Kernel and friends](#)
WPS Client: [ZOO-Client](#)'.

ZOO-Project OSGeoLiveDVD Examples

This is the [ZOO-Project](#) examples section. Simple to advanced [ZOO-Services](#) are demonstrated here through various example WPS client applications. Check the source and get inspired !

Examples

OGR spatial tools

CGAL triangulations

OTB applications

view

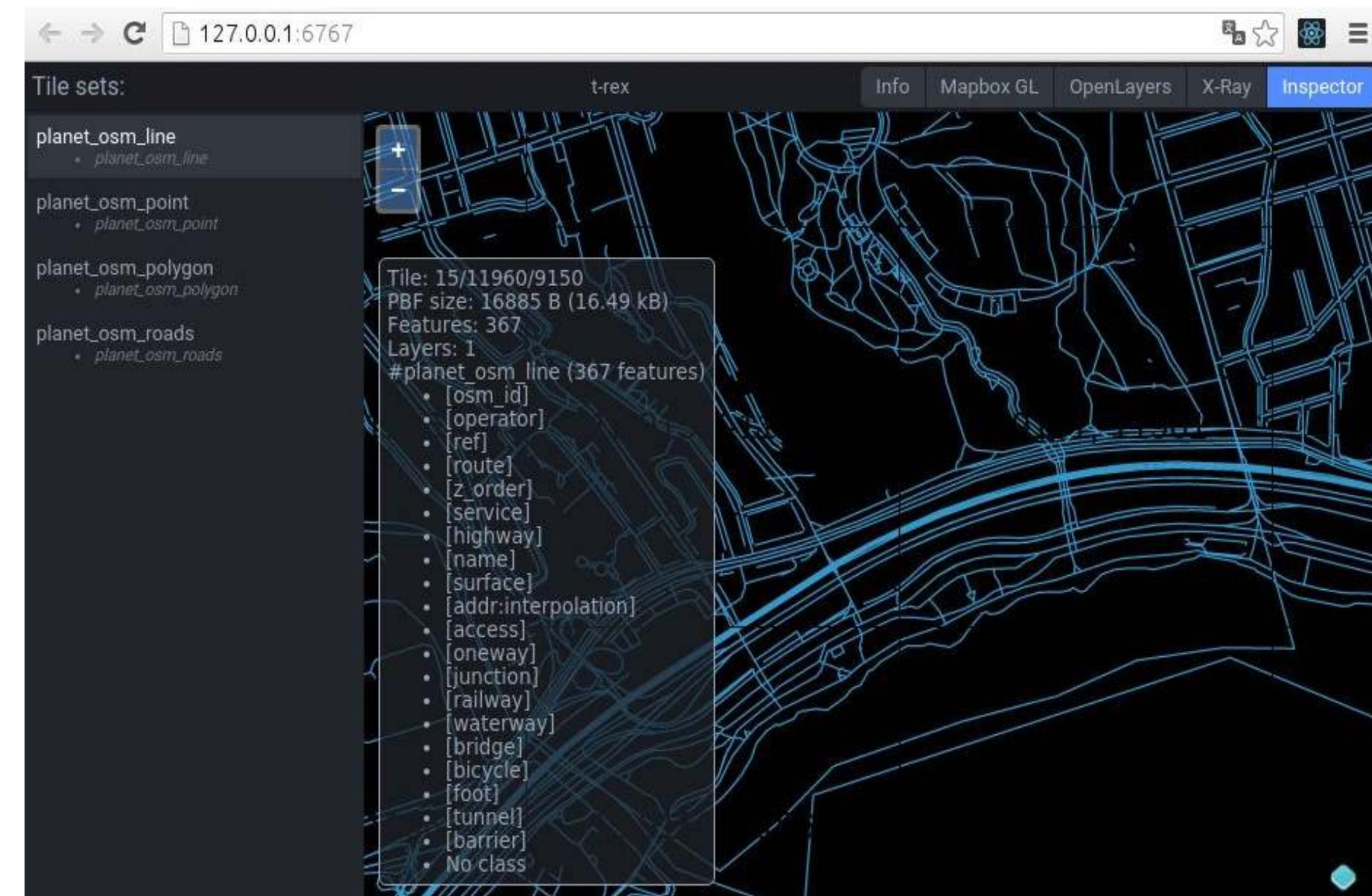
view

view

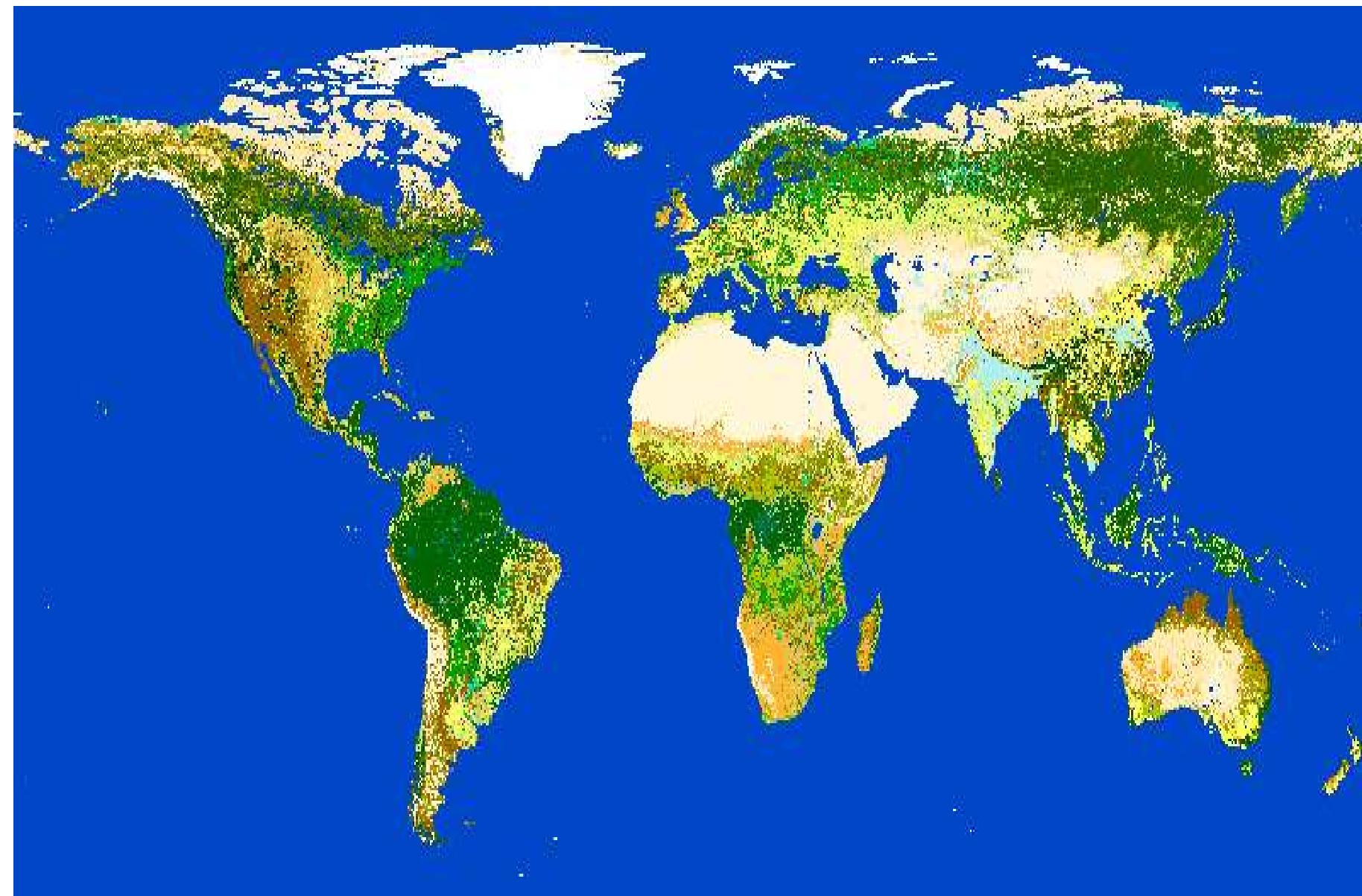
Credits

WPS Server: [ZOO-Kernel and friends](#)
WPS Client: [ZOO-Client](#)

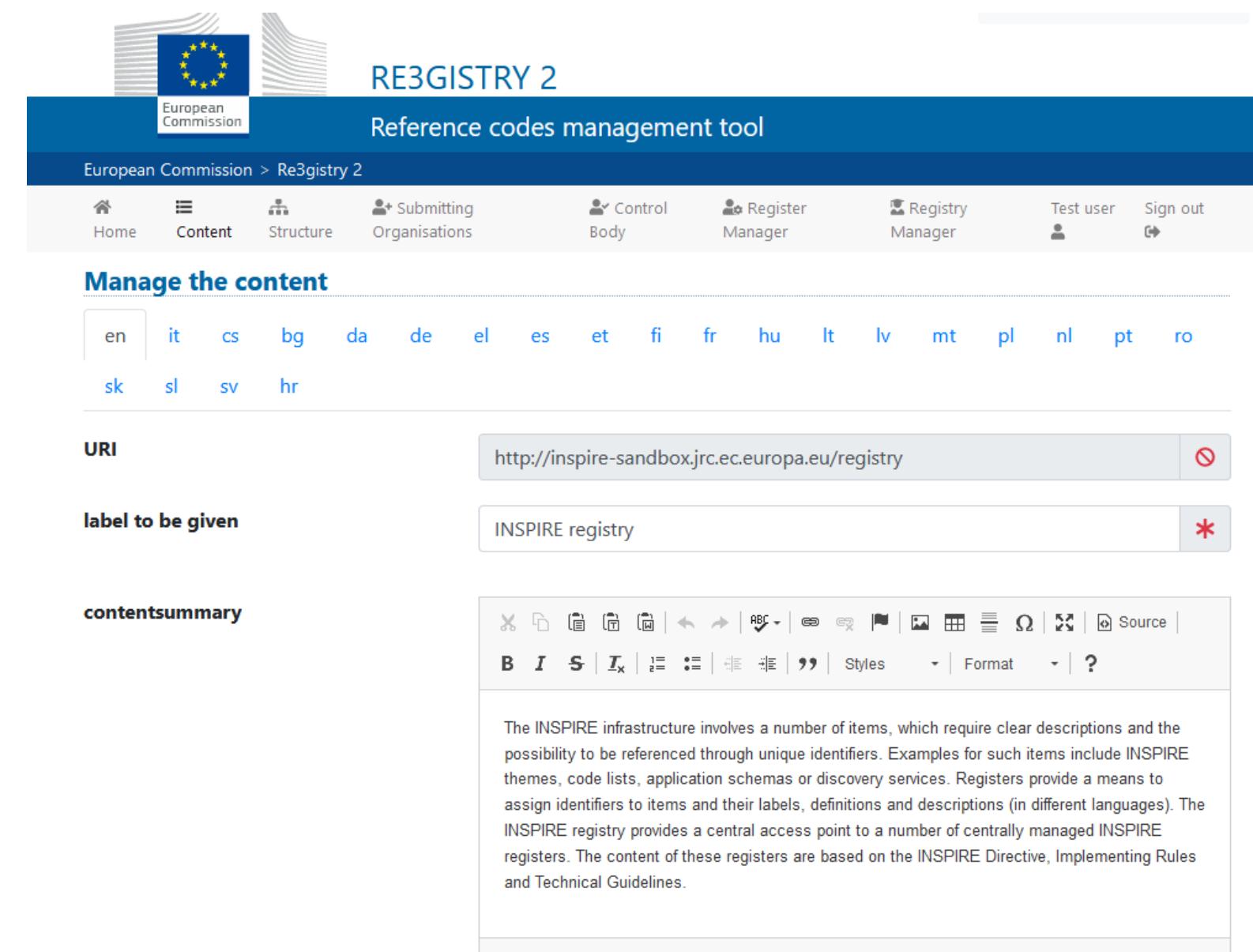
t-rex



Actinia



Re3gistry



The screenshot shows the Re3gistry 2 interface, a reference codes management tool developed by the European Commission. The top navigation bar includes the European Commission logo and links for Home, Content, Structure, Submitting Organisations, Control Body, Register Manager, Test user, and Sign out. Below this is a section titled "Manage the content" with language selection buttons for en, it, cs, bg, da, de, el, es, et, fi, fr, hu, lt, lv, mt, pl, nl, pt, ro, sk, sl, sv, and hr. The main form contains fields for "URI" (http://inspire-sandbox.jrc.ec.europa.eu/registry) and "label to be given" (INSPIRE registry). A rich text editor toolbar is shown above a content summary box. The content summary box contains text about the INSPIRE infrastructure and its registers.

RE3GISTRY 2

Reference codes management tool

European Commission > Re3gistry 2

Home Content Structure Submitting Organisations Control Body Register Manager Test user Sign out

Manage the content

en it cs bg da de el es et fi fr hu lt lv mt pl nl pt ro
sk sl sv hr

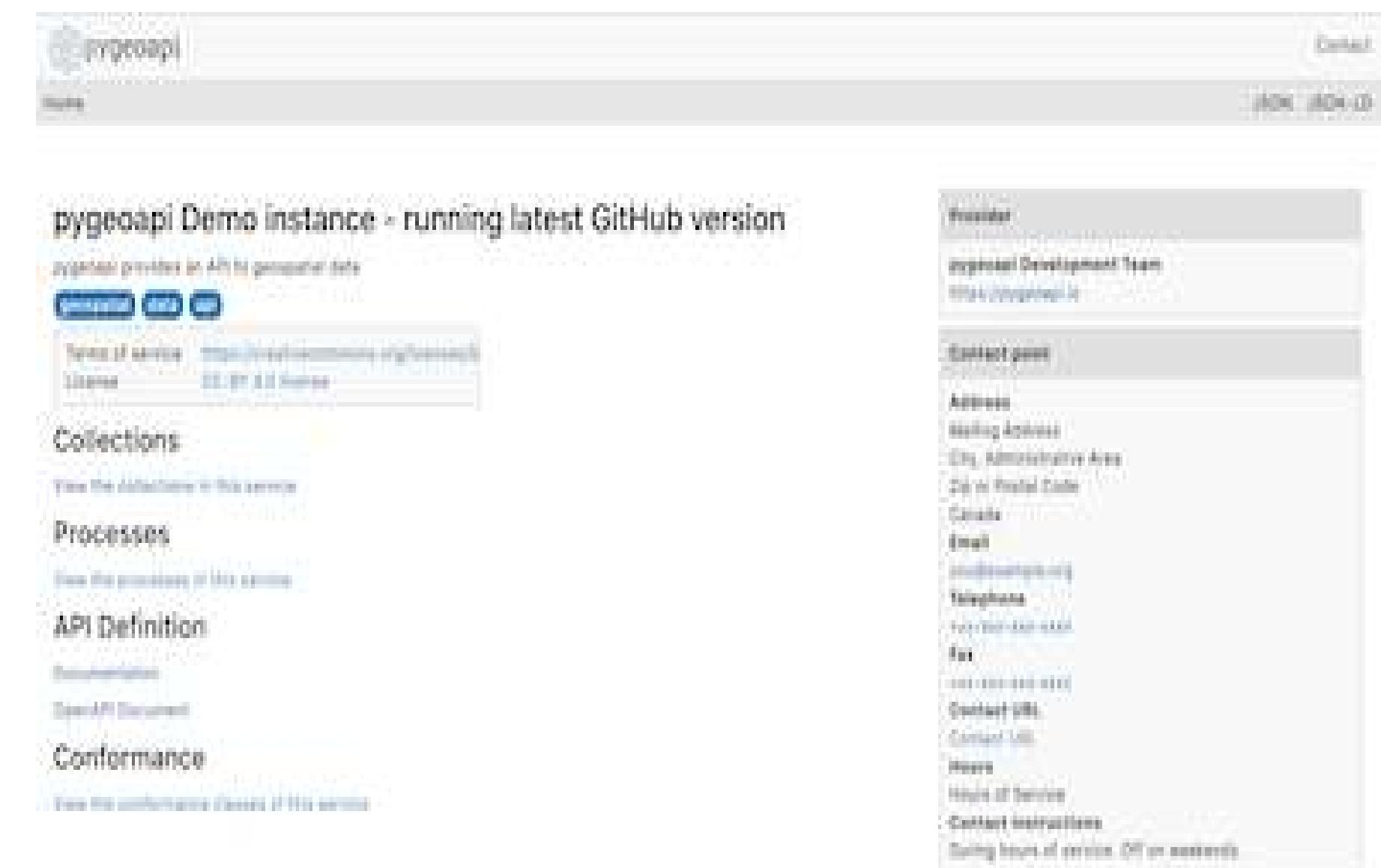
URI ✖

label to be given *

contentsummary

The INSPIRE infrastructure involves a number of items, which require clear descriptions and the possibility to be referenced through unique identifiers. Examples for such items include INSPIRE themes, code lists, application schemas or discovery services. Registers provide a means to assign identifiers to items and their labels, definitions and descriptions (in different languages). The INSPIRE registry provides a central access point to a number of centrally managed INSPIRE registers. The content of these registers are based on the INSPIRE Directive, Implementing Rules and Technical Guidelines.

pygeoapi



The screenshot shows the pygeoapi service interface. At the top, there's a navigation bar with links for Home, Contact, and API (WPS-OA). Below the header, the title "pygeoapi Demo instance - running latest GitHub version" is displayed, along with a note that it "provides geospatial services for generating data". There are three blue circular buttons below the title.

On the left side, there are several sections:

- Collections:** Shows the datasets available in the service.
- Processes:** Shows the processes offered by the service.
- API Definition:** Includes links to "Documentation" and "Raw API Document".
- Conformance:** Shows the conformance classes supported by the service.

On the right side, there's a sidebar titled "Contact person" containing fields for:

- Name
- Address
- Postal Address
- City, Administrative Area
- State, Postal Code
- Country
- Email
- Phone number
- Telephone
- Fax
- Comments
- Contact URL
- Contact ID
- Hours
- Hours of Service
- Contact Information
- Using hours of service, Other methods

Data Stores

Storing spatial data

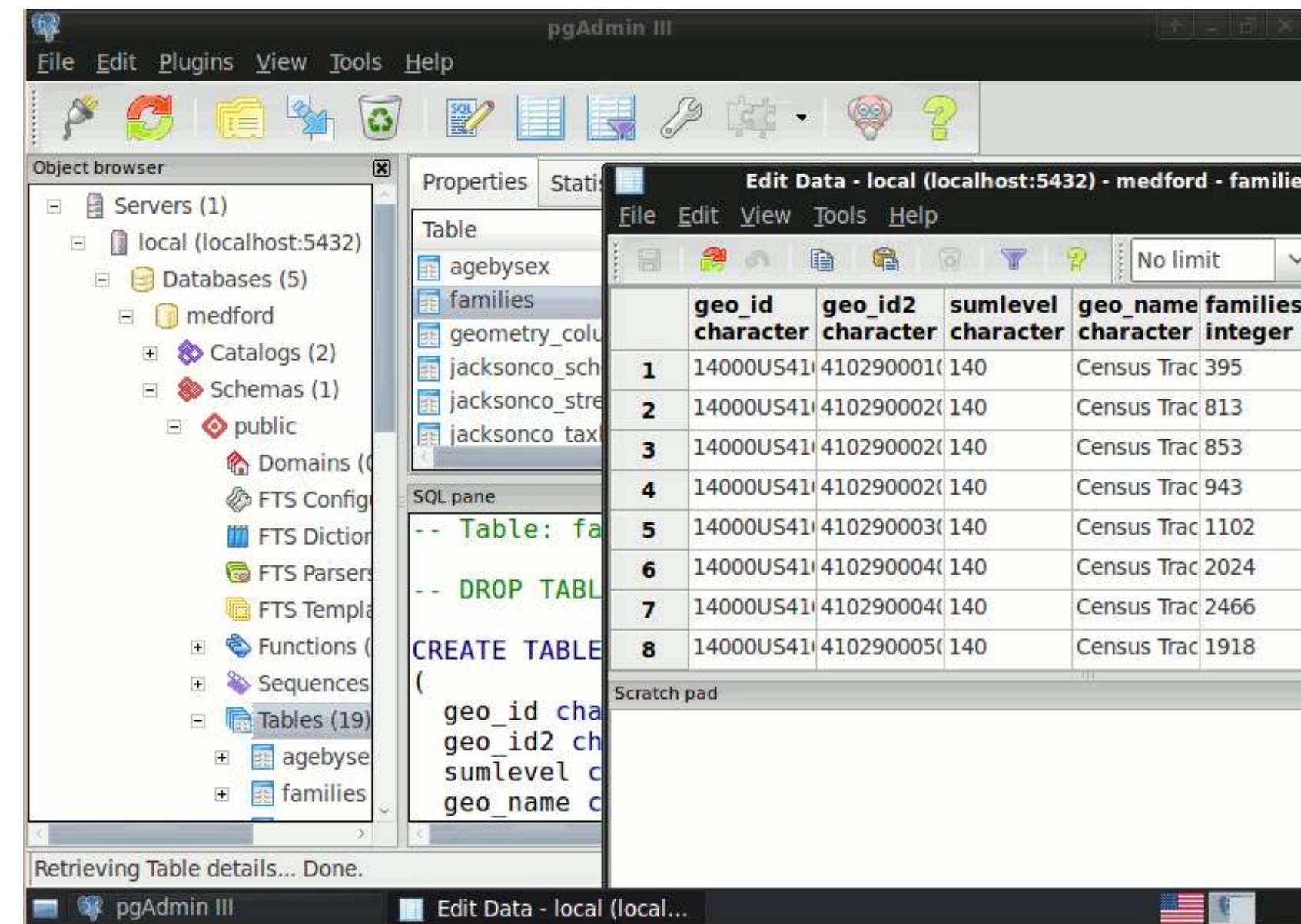
PostGIS

Spatialite

Rasdaman

pgRouting

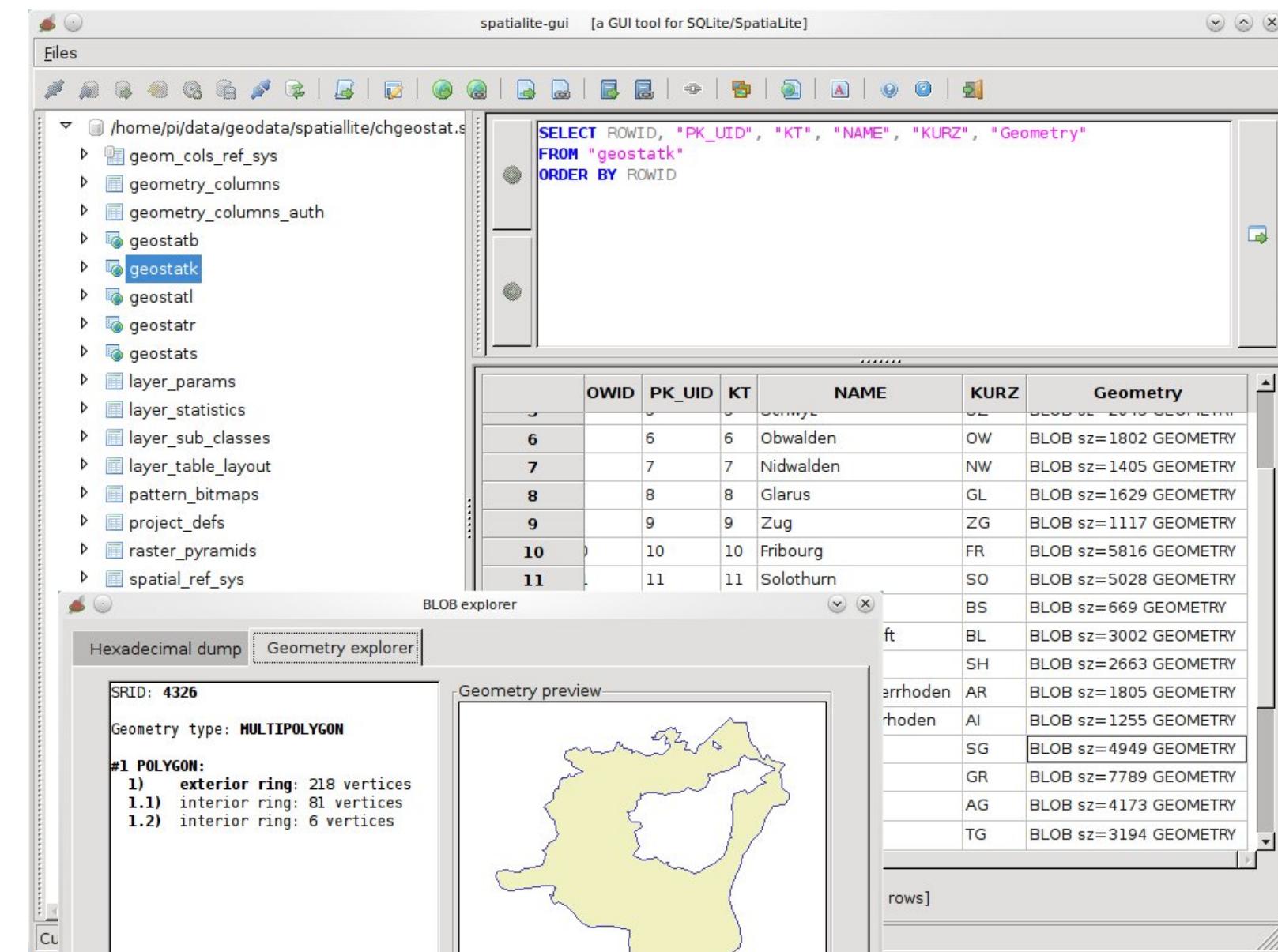
PostGIS



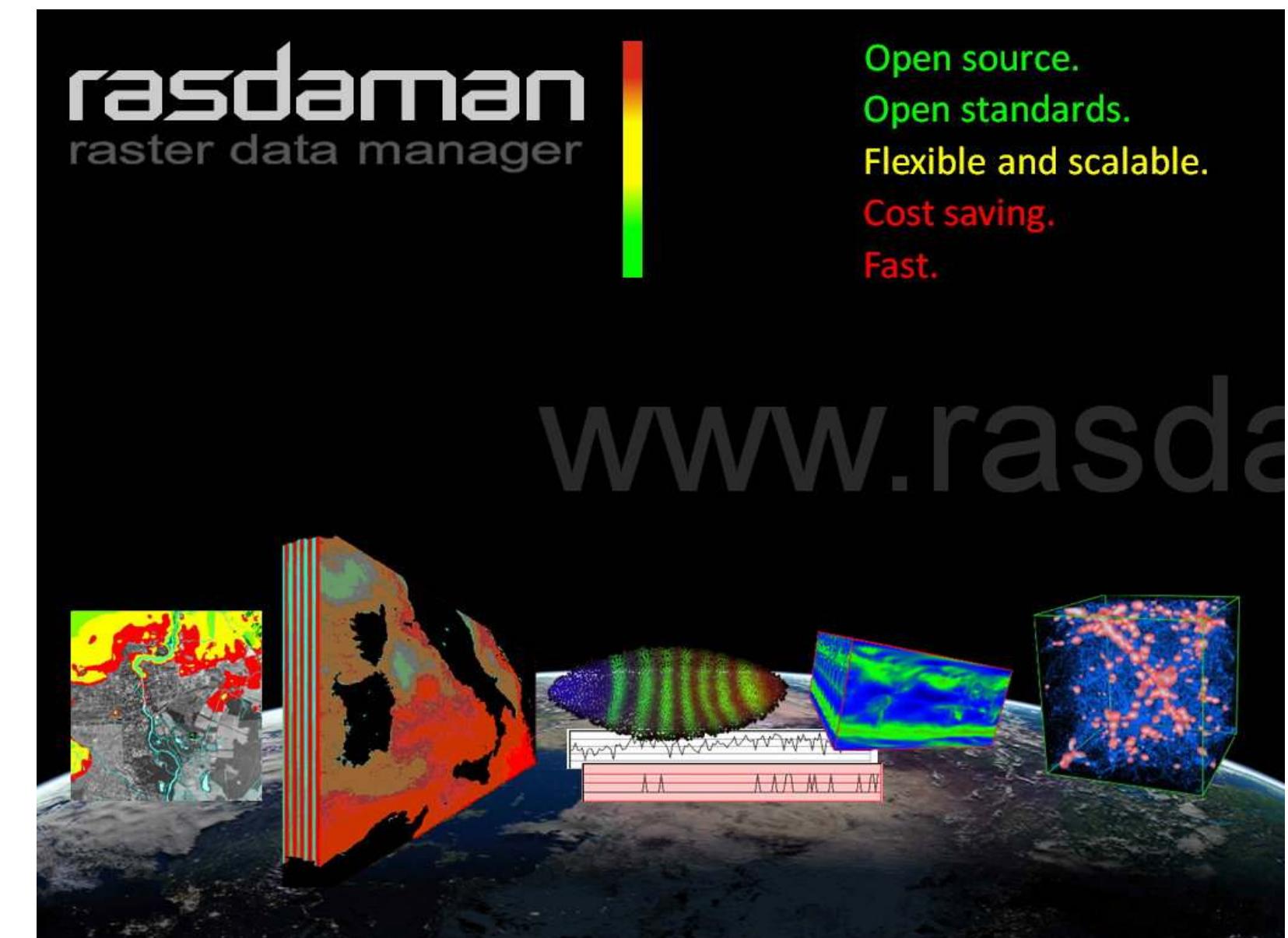
The screenshot shows the pgAdmin III interface. The left pane is the Object browser, displaying a tree structure of servers, databases, catalogs, schemas, and tables. A table named 'families' is selected in the browser. The middle pane is the Properties pane, which is currently inactive. The right pane is the Edit Data pane, titled 'Edit Data - local (localhost:5432) - medford - familie'. It displays the data from the 'families' table in a grid format. The table has columns: geo_id (character), geo_id2 (character), sumlevel (character), geo_name (character), and families (integer). The data consists of 8 rows, each representing a census tract with its ID, name, and family count. The bottom pane is the SQL pane, showing the CREATE TABLE statement for the 'families' table.

	geo_id	geo_id2	sumlevel	geo_name	families
	character	character	character	character	integer
1	14000US41	410290001	140	Census Trac	395
2	14000US41	410290002	140	Census Trac	813
3	14000US41	410290002	140	Census Trac	853
4	14000US41	410290002	140	Census Trac	943
5	14000US41	410290003	140	Census Trac	1102
6	14000US41	410290004	140	Census Trac	2024
7	14000US41	410290004	140	Census Trac	2466
8	14000US41	410290005	140	Census Trac	1918

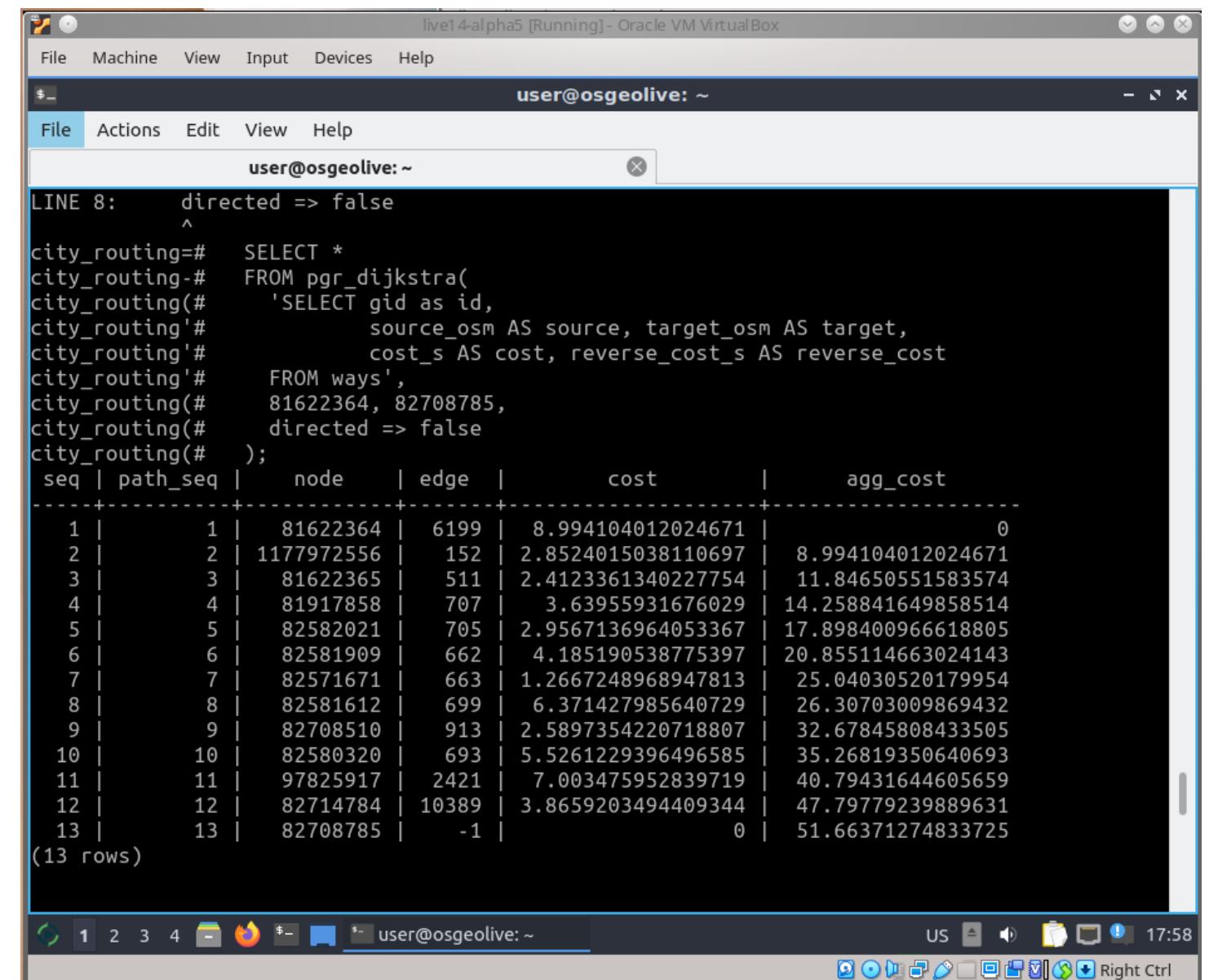
SpatiaLite



Rasdaman



pgRouting



The screenshot shows a terminal window titled "user@osgeolive: ~" running on a Linux desktop environment. The window displays a command-line interface for pgRouting. The user has run a query to calculate shortest paths between two specific OSM nodes (81622364 and 82708785) using the pgr_dijkstra function. The output is a table with columns: seq, path_seq, node, edge, cost, and agg_cost. The table contains 13 rows of data, showing the sequence of nodes and edges along the shortest path.

seq	path_seq	node	edge	cost	agg_cost
1	1	81622364	6199	8.994104012024671	0
2	2	1177972556	152	2.8524015038110697	8.994104012024671
3	3	81622365	511	2.4123361340227754	11.84650551583574
4	4	81917858	707	3.63955931676029	14.258841649858514
5	5	82582021	705	2.9567136964053367	17.898400966618805
6	6	82581909	662	4.185190538775397	20.855114663024143
7	7	82571671	663	1.2667248968947813	25.04030520179954
8	8	82581612	699	6.371427985640729	26.30703009869432
9	9	82708510	913	2.5897354220718807	32.67845808433505
10	10	82580320	693	5.5261229396496585	35.26819350640693
11	11	97825917	2421	7.003475952839719	40.79431644605659
12	12	82714784	10389	3.8659203494409344	47.79779239889631
13	13	82708785	-1	0	51.66371274833725

(13 rows)

Navigation and Maps

GpsPrune

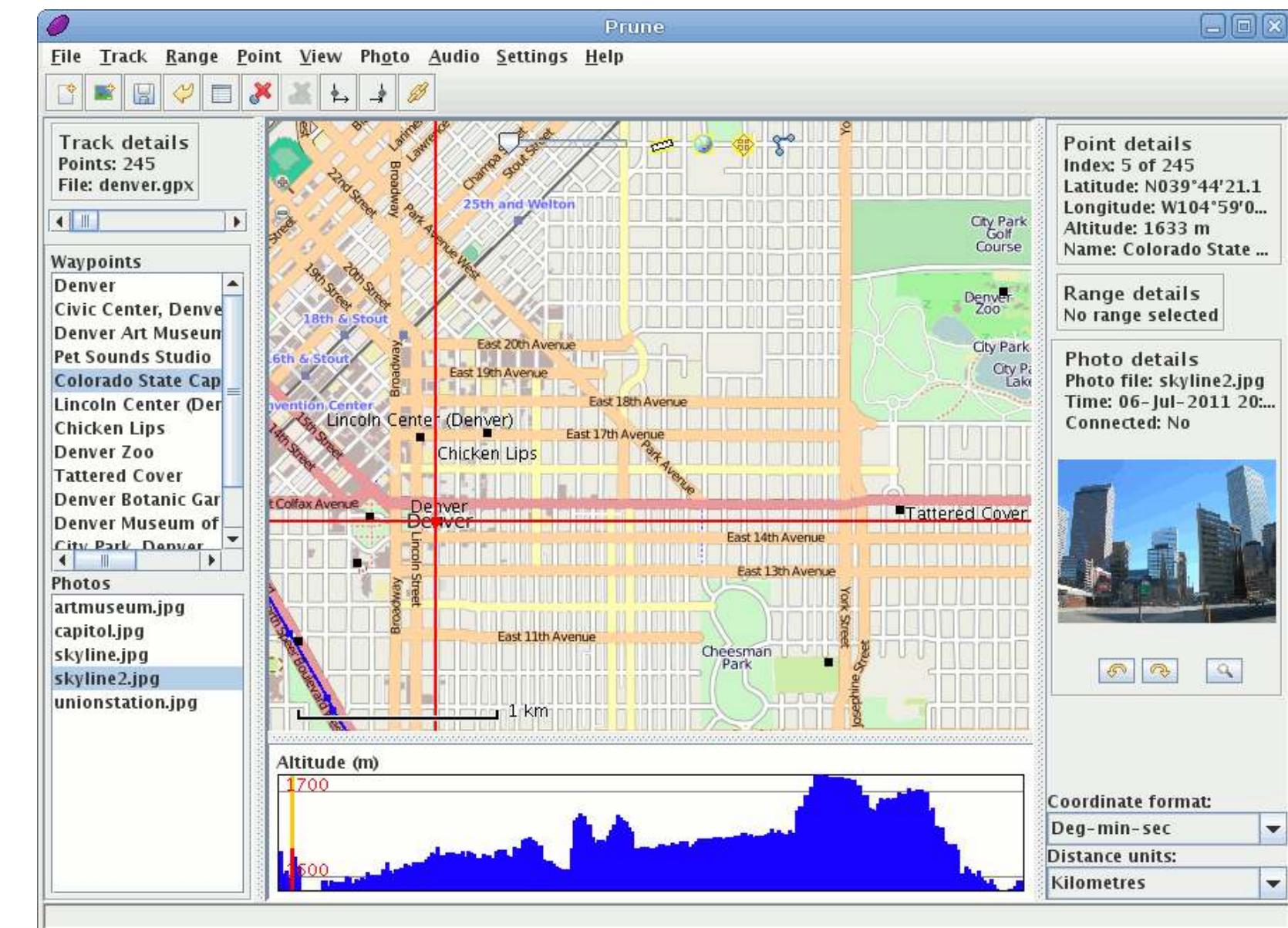
Marble

OpenStreetMap iD editor

JOSM

OpenCPN

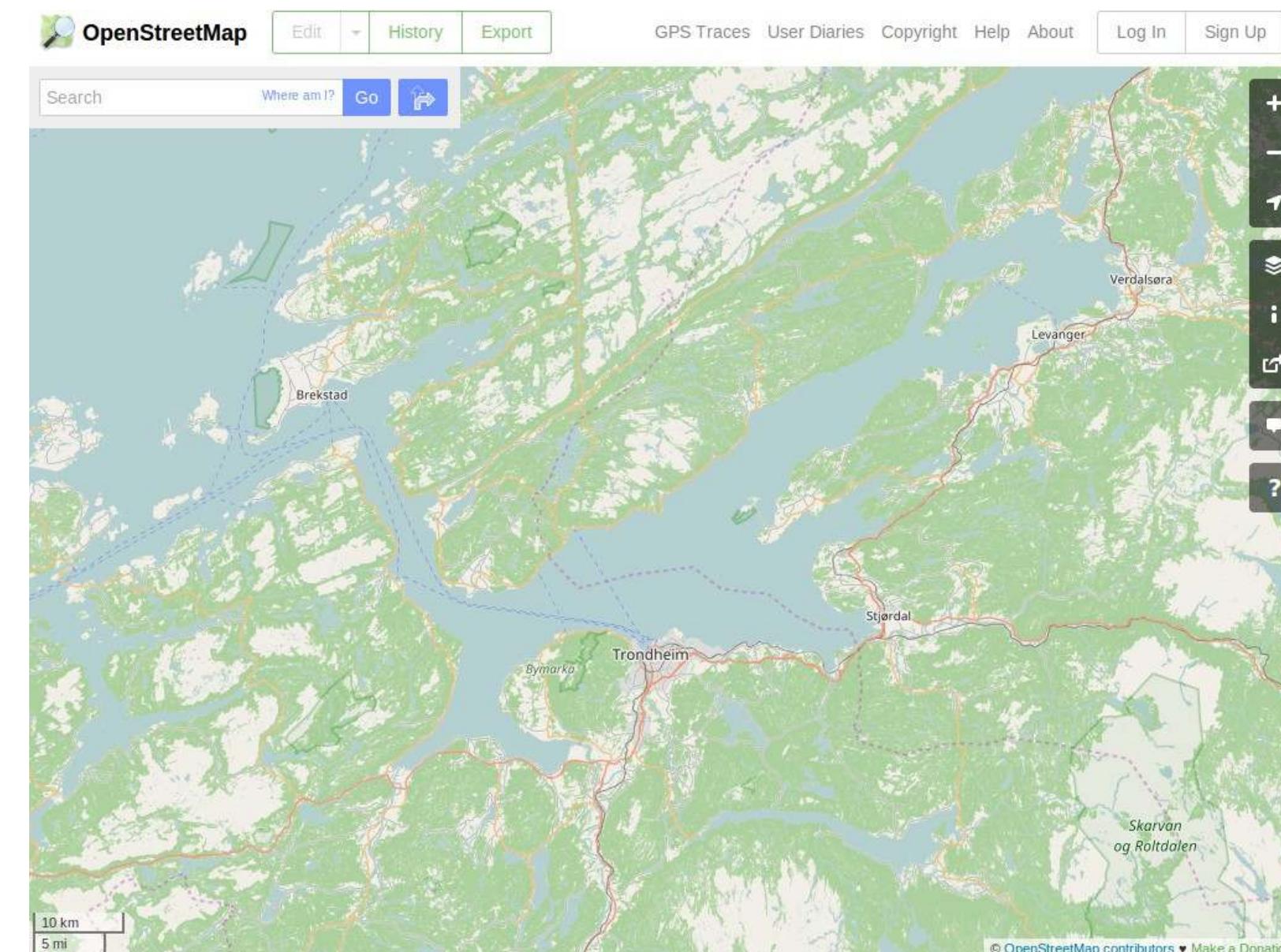
GpsPrune



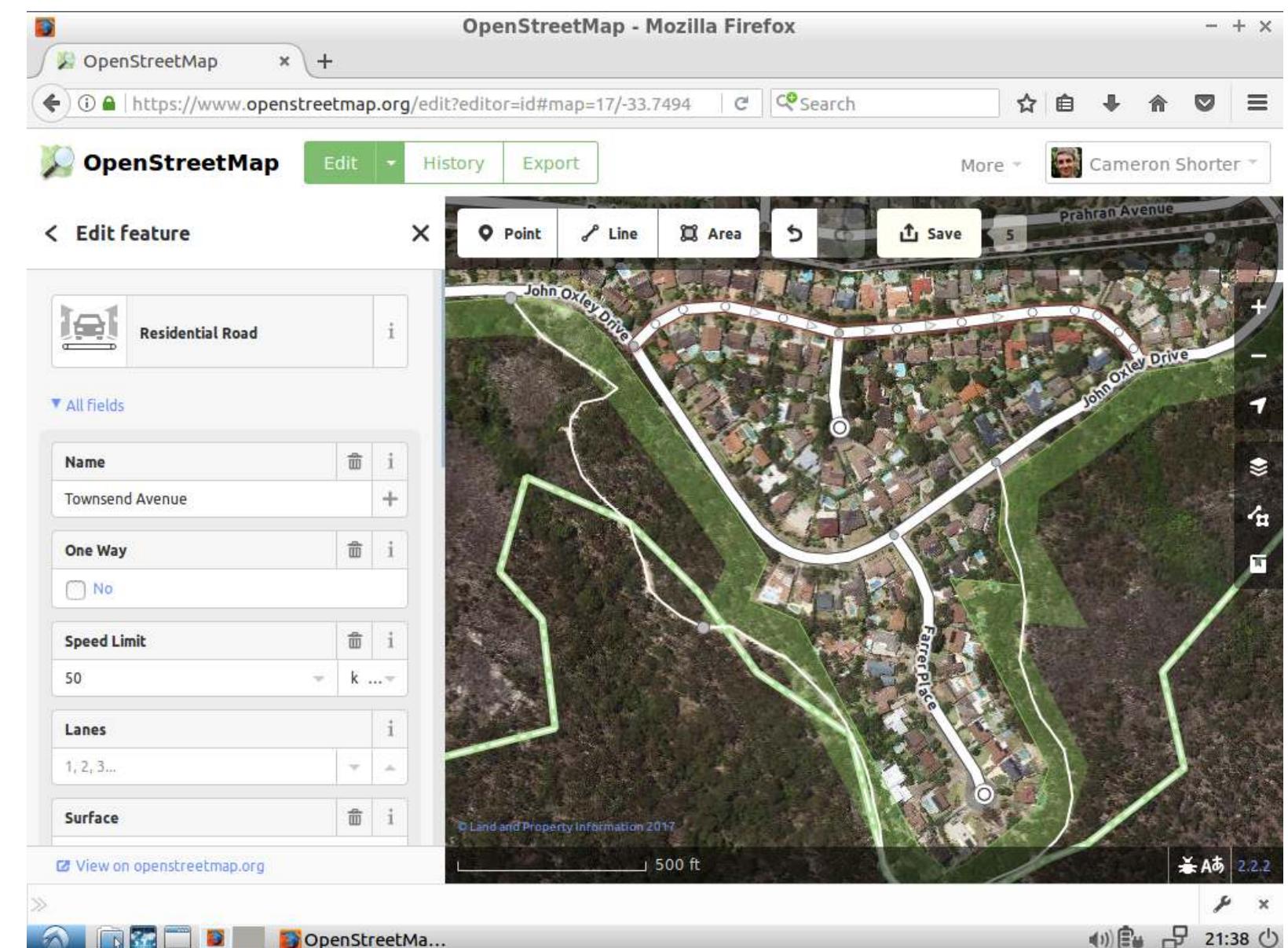
Marble



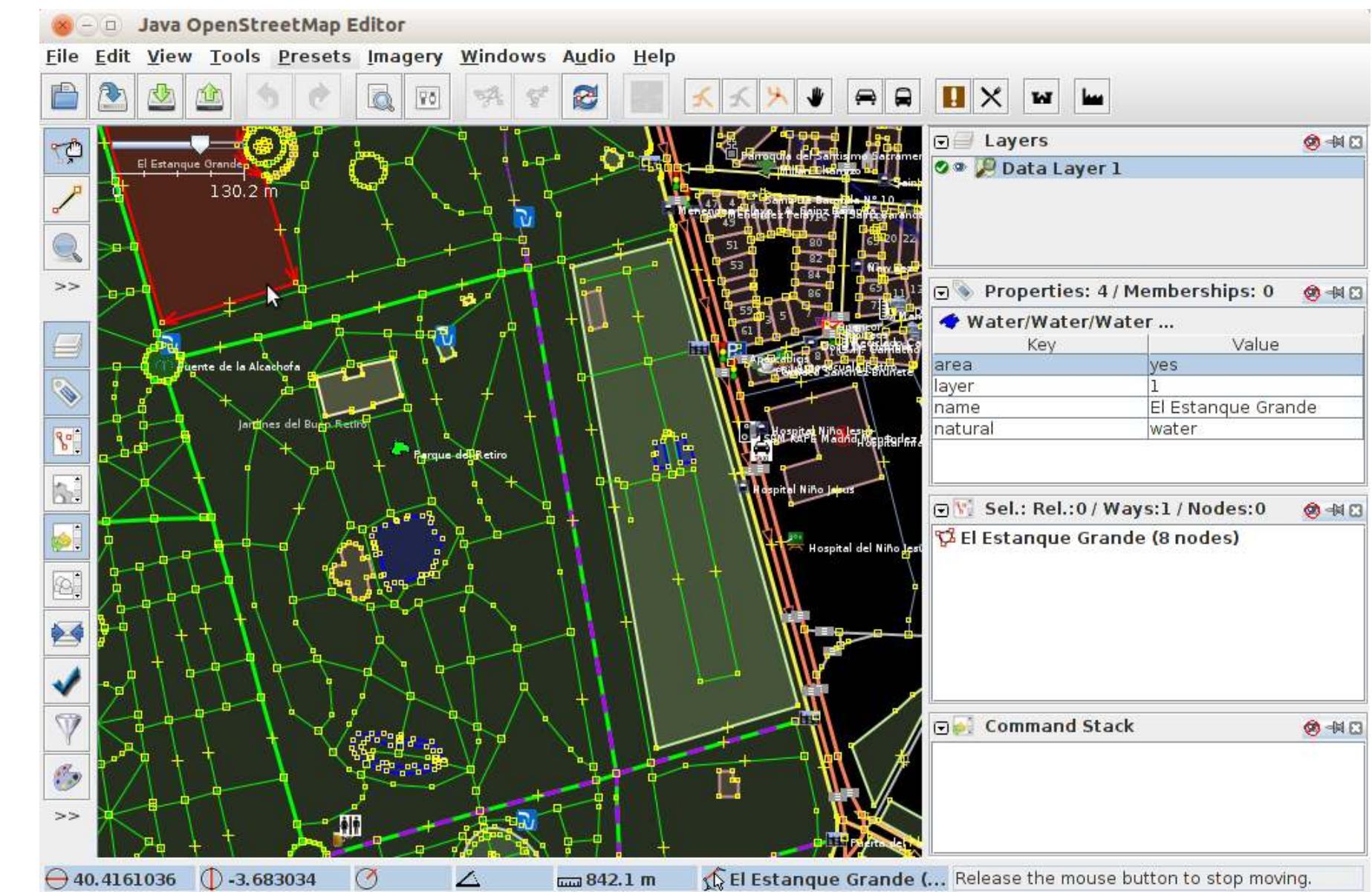
OpenStreetMap



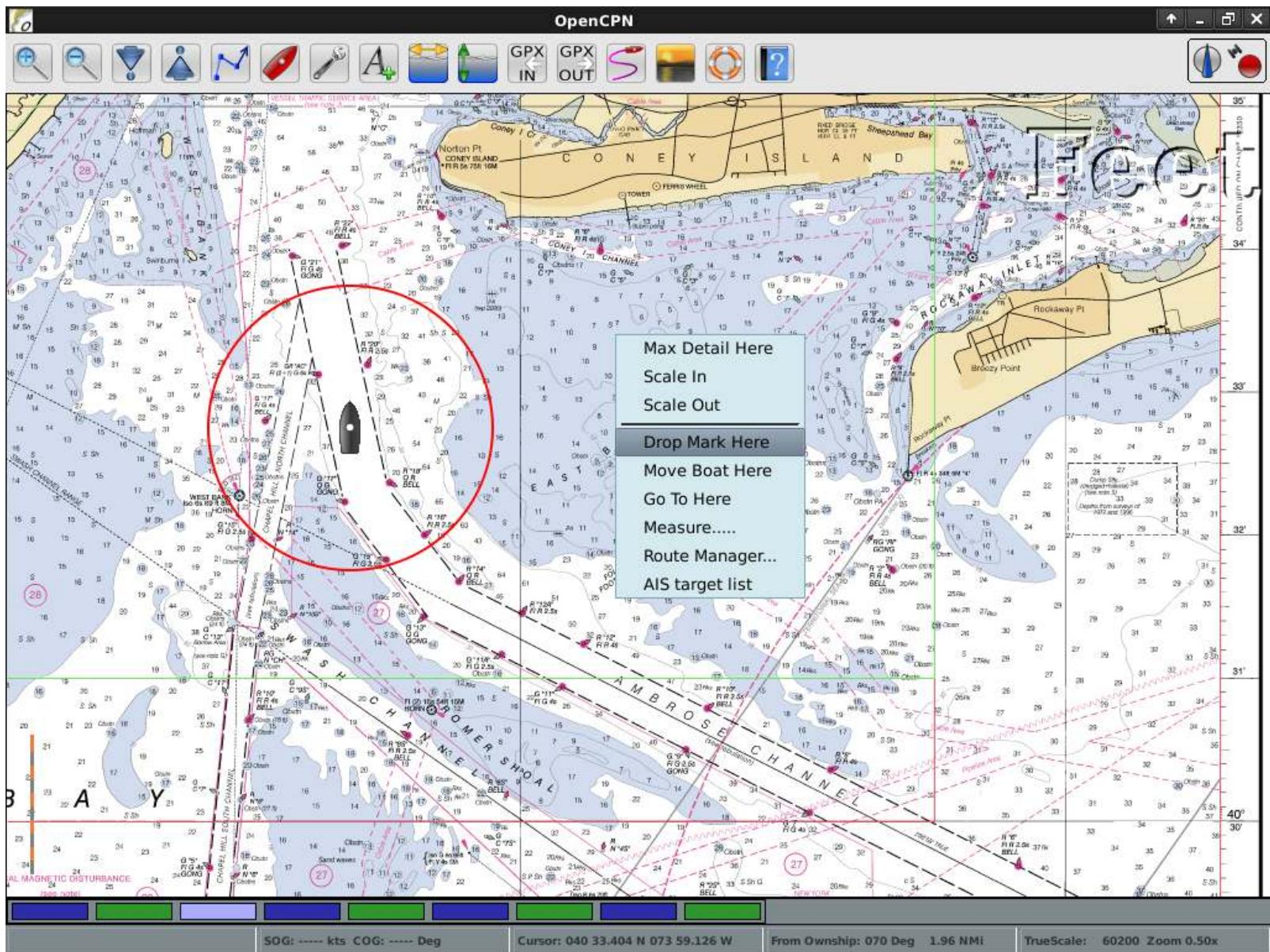
iD editor



JOSM



OpenCPN



Spatial Tools

Specific analysis tools

GMT

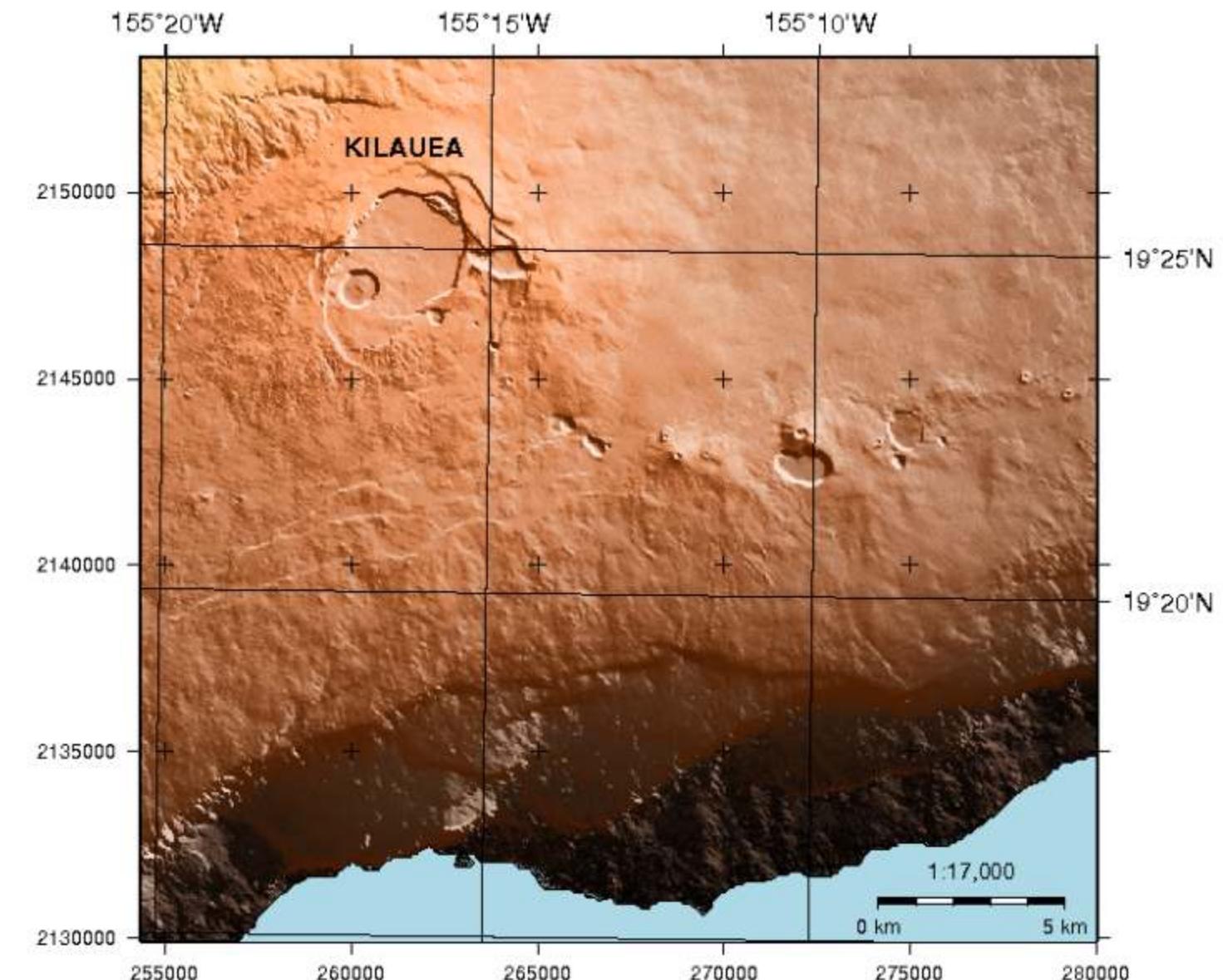
OTB

R

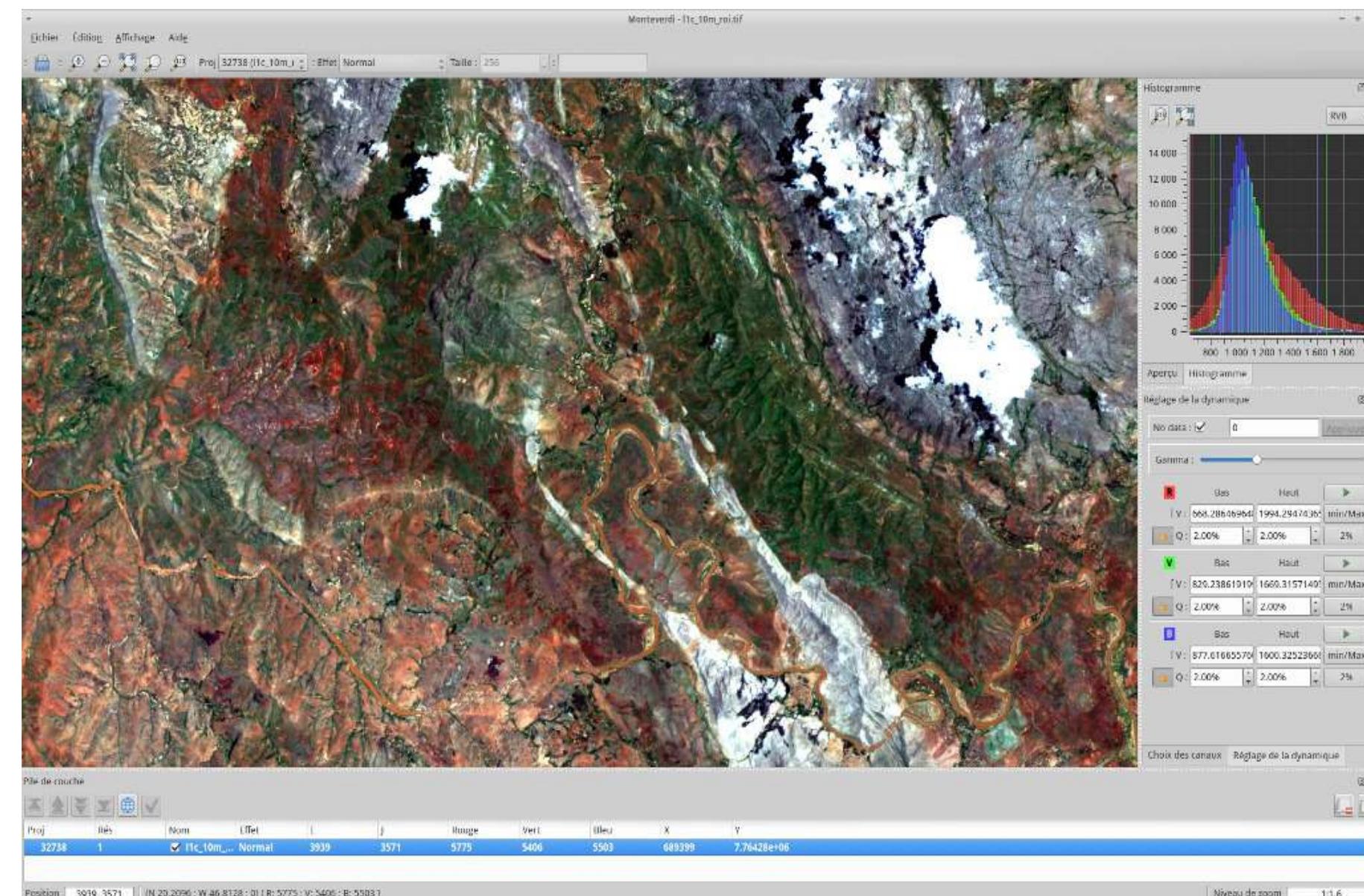
Mapnik

Jupyter Notebook

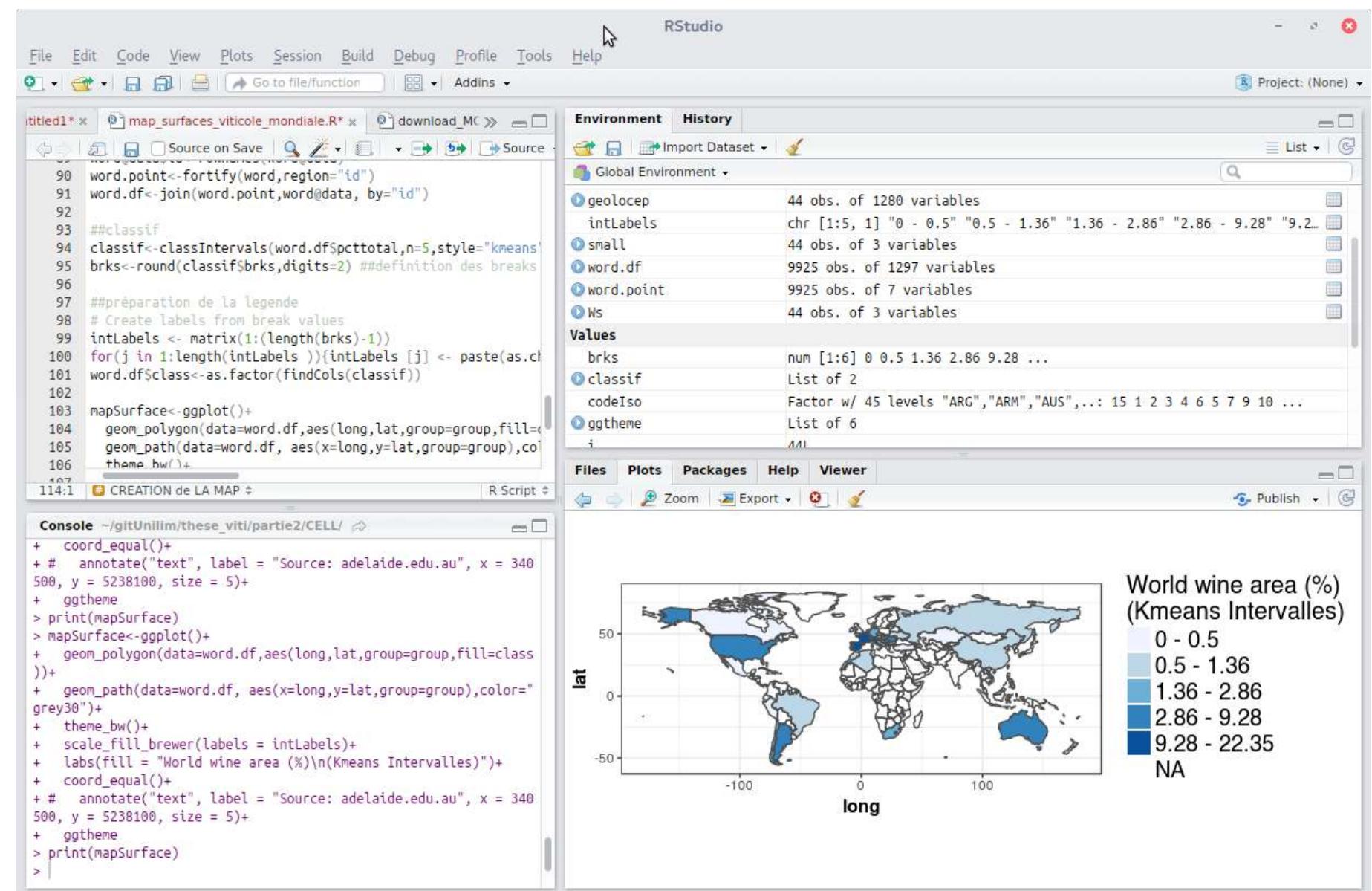
GMT



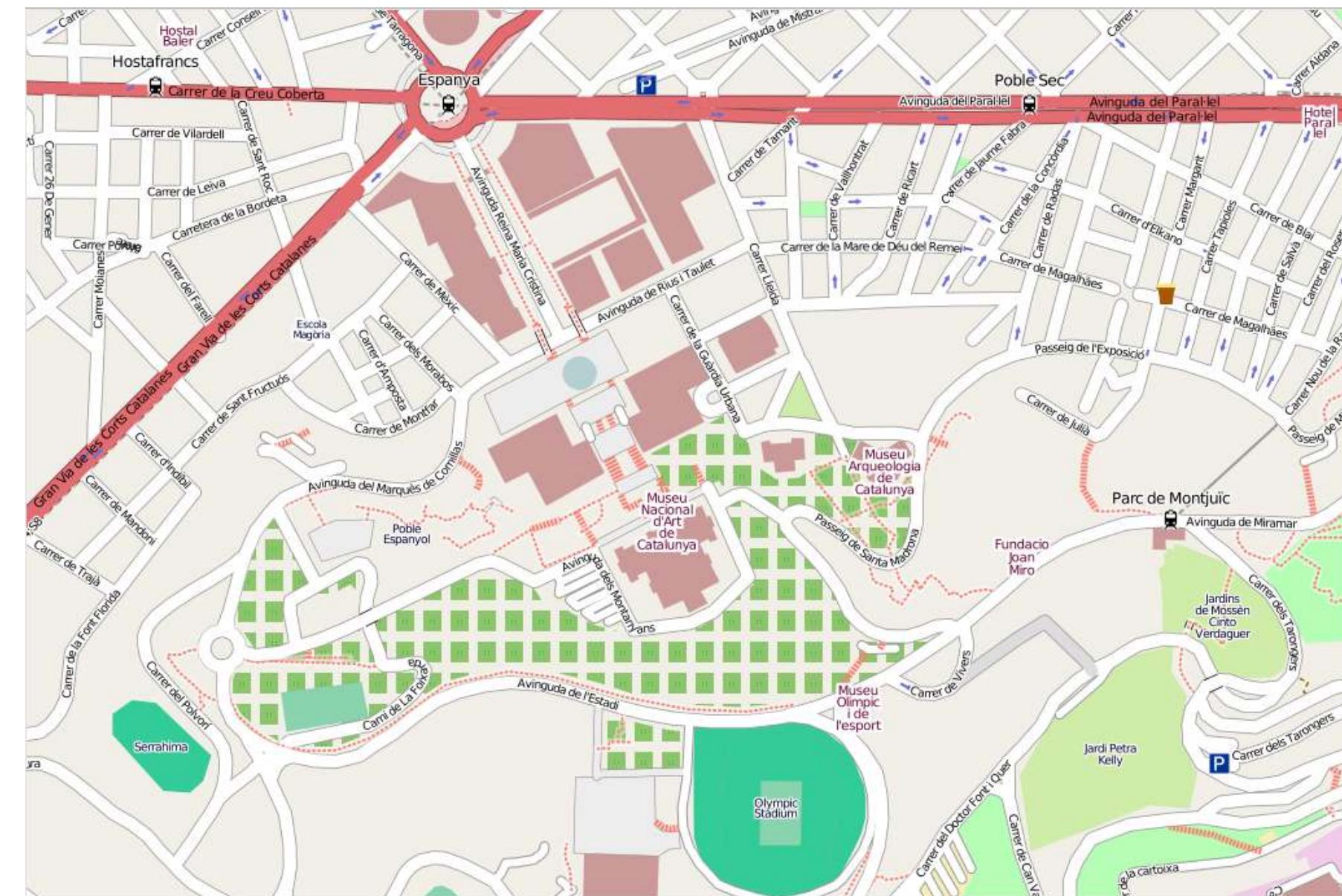
OTB - ORFEO Toolbox



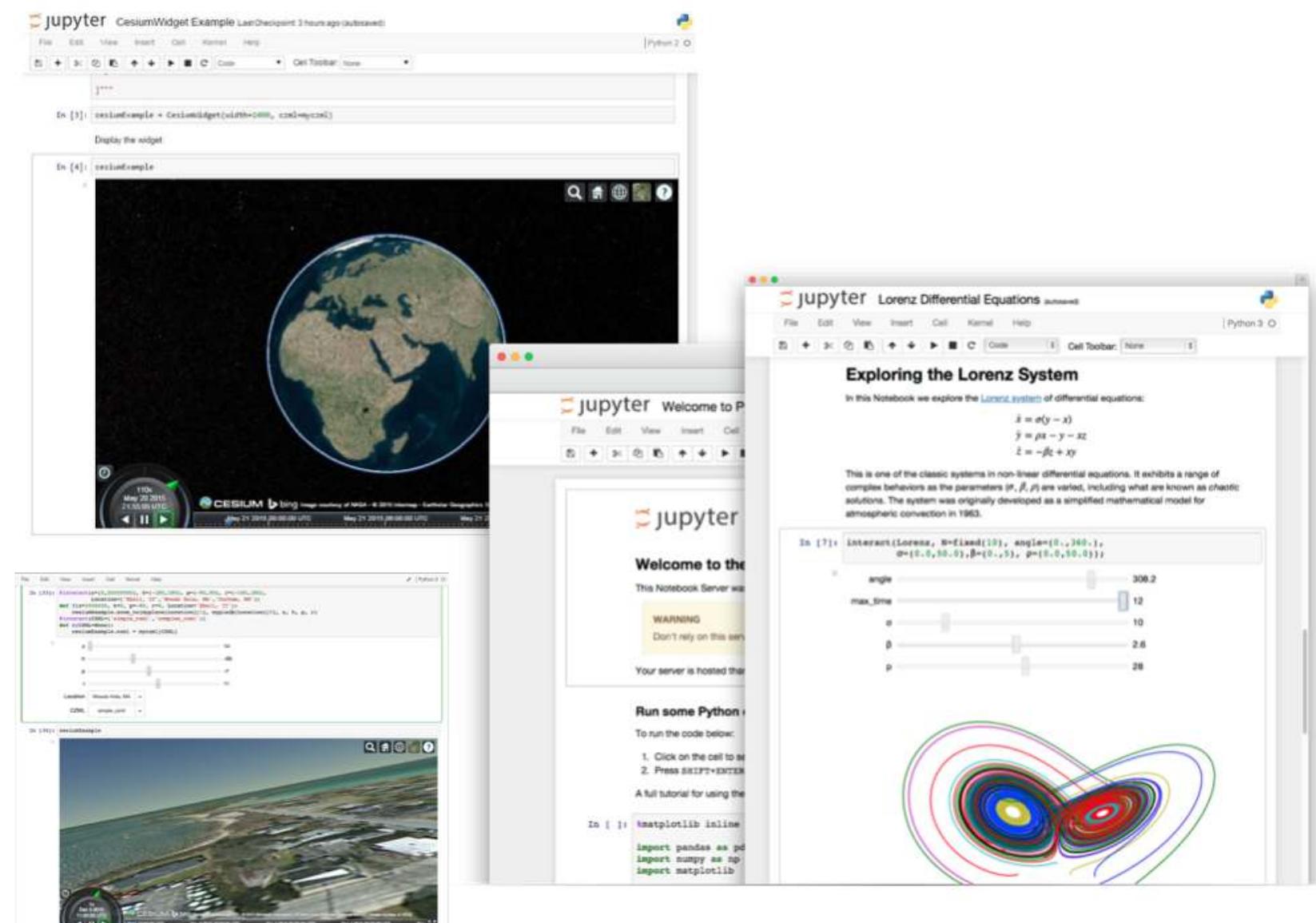
R



Mapnik



Jupyter Notebook



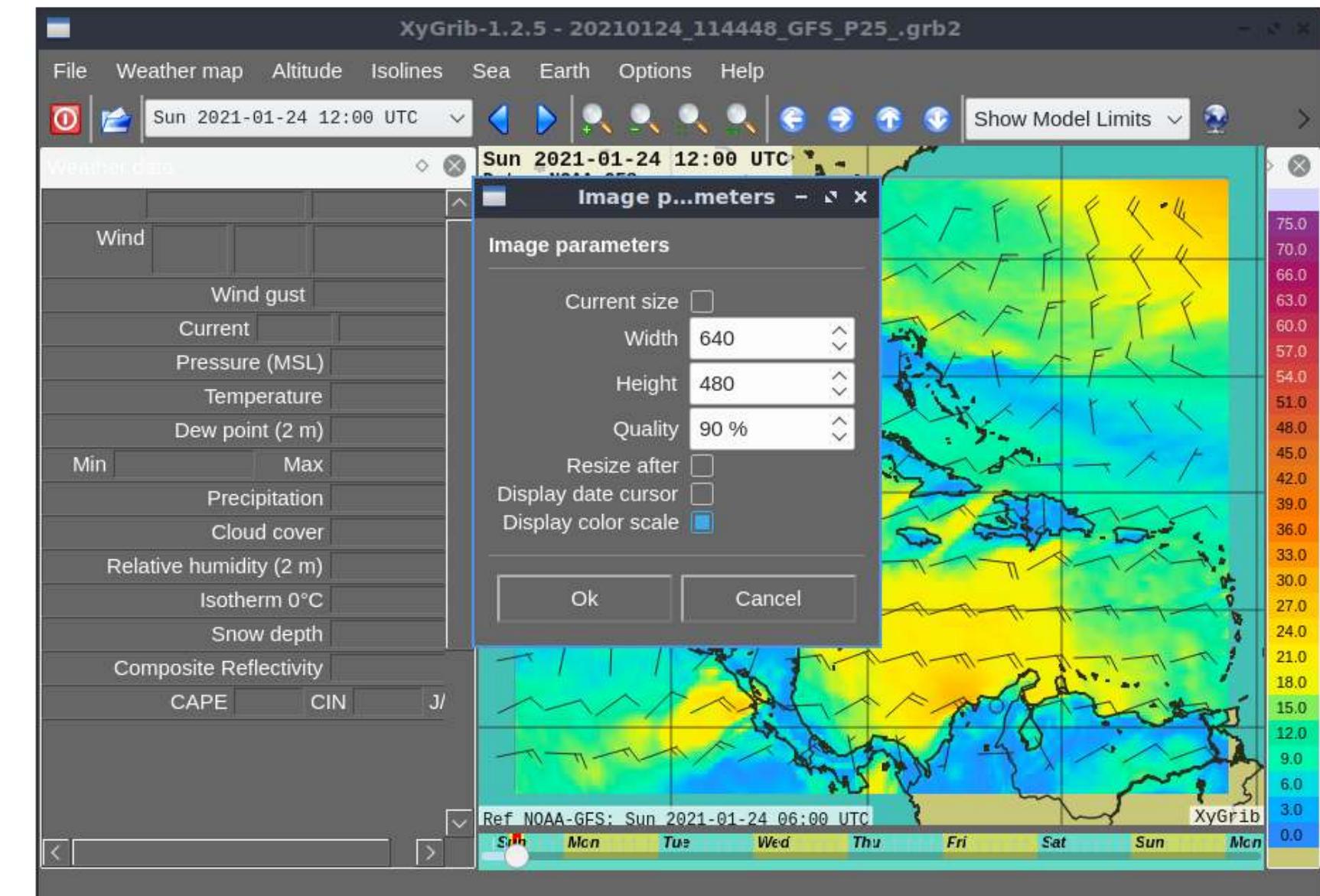
Domain Specific GIS

Applications targeted at a specific domain



XyGrib

XyGrib



Data

Spatial data sets

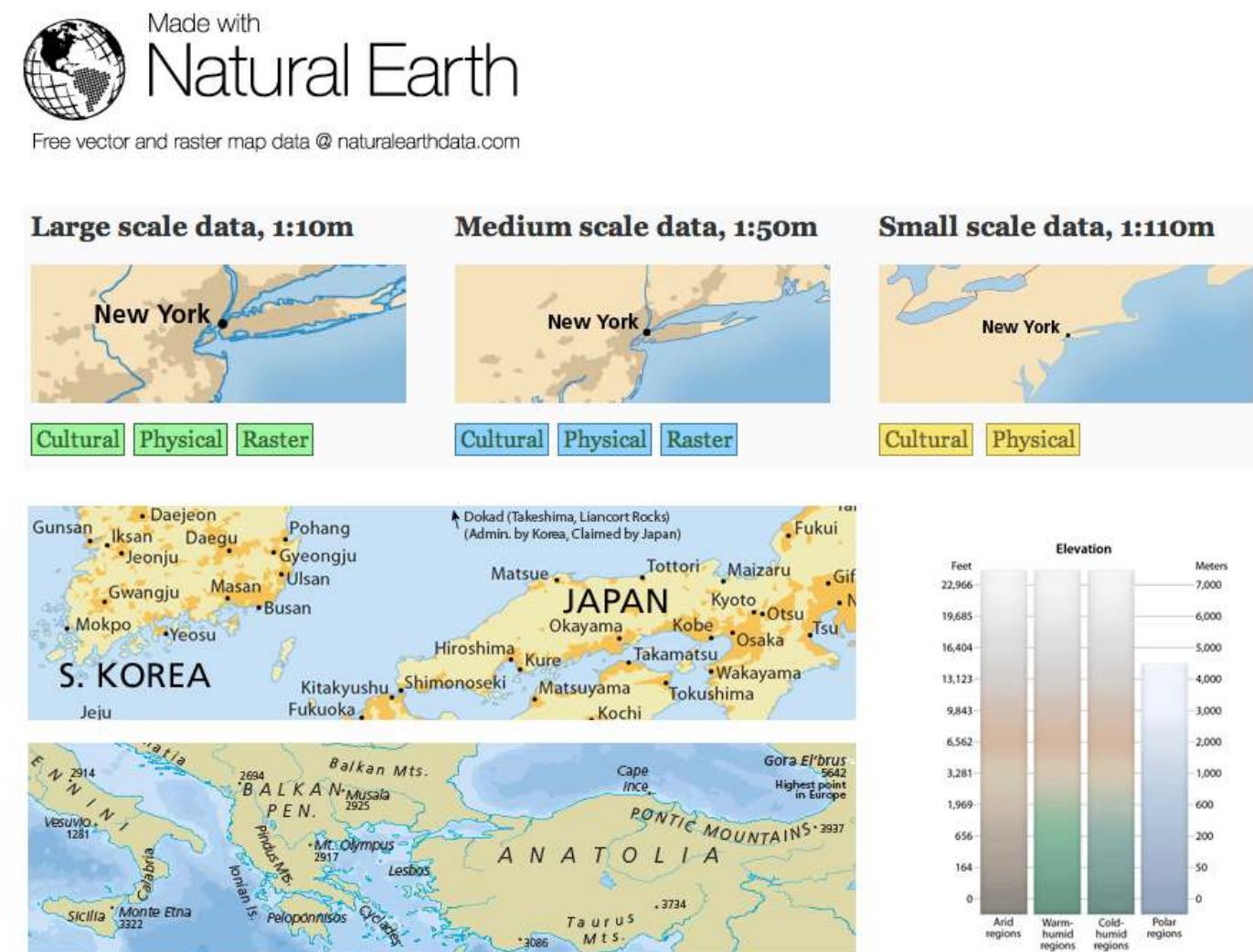
*Natural
Earth*

*North Carolina
USA Educational
dataset*

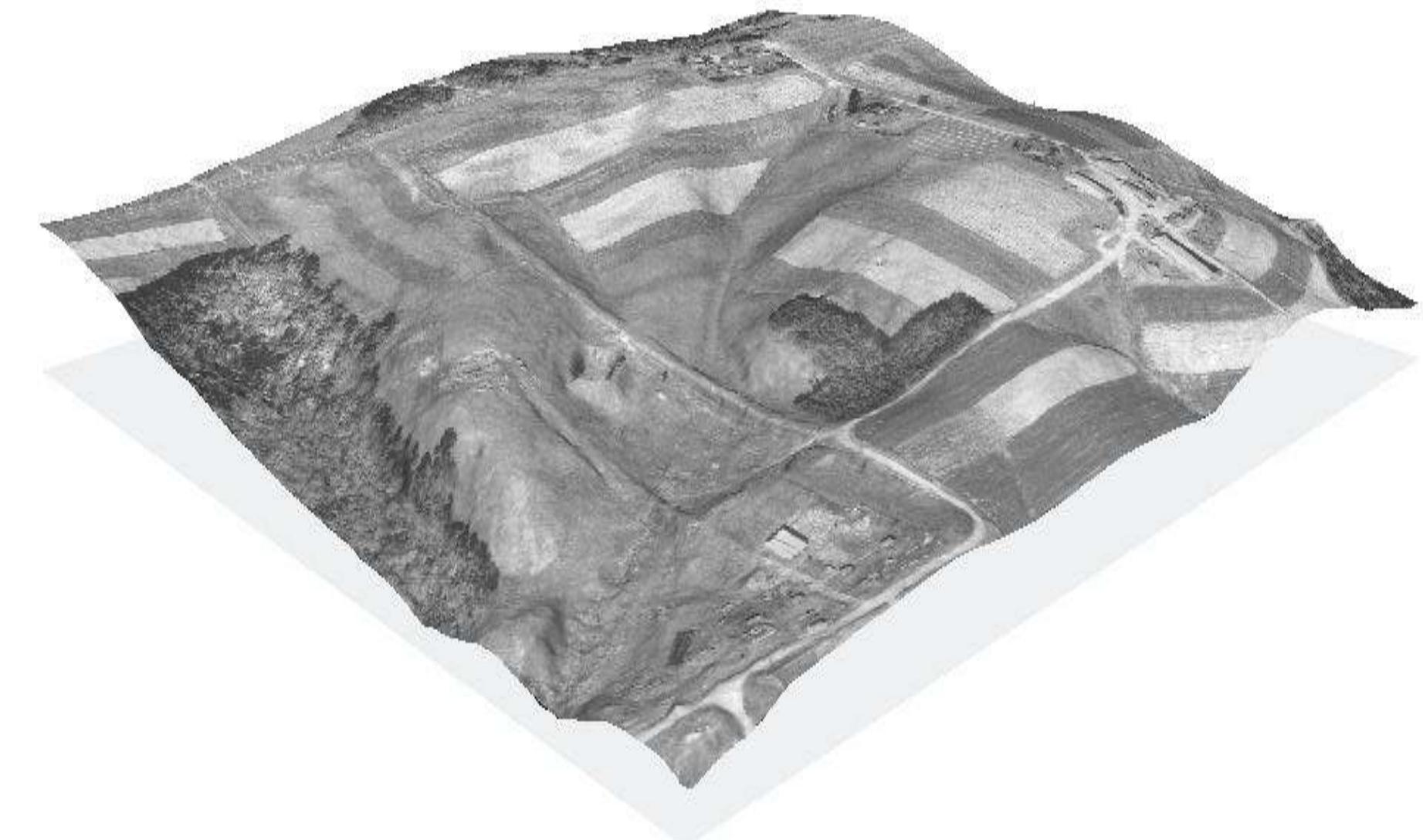
OpenStreetMap

*NetCDF
Data Set*

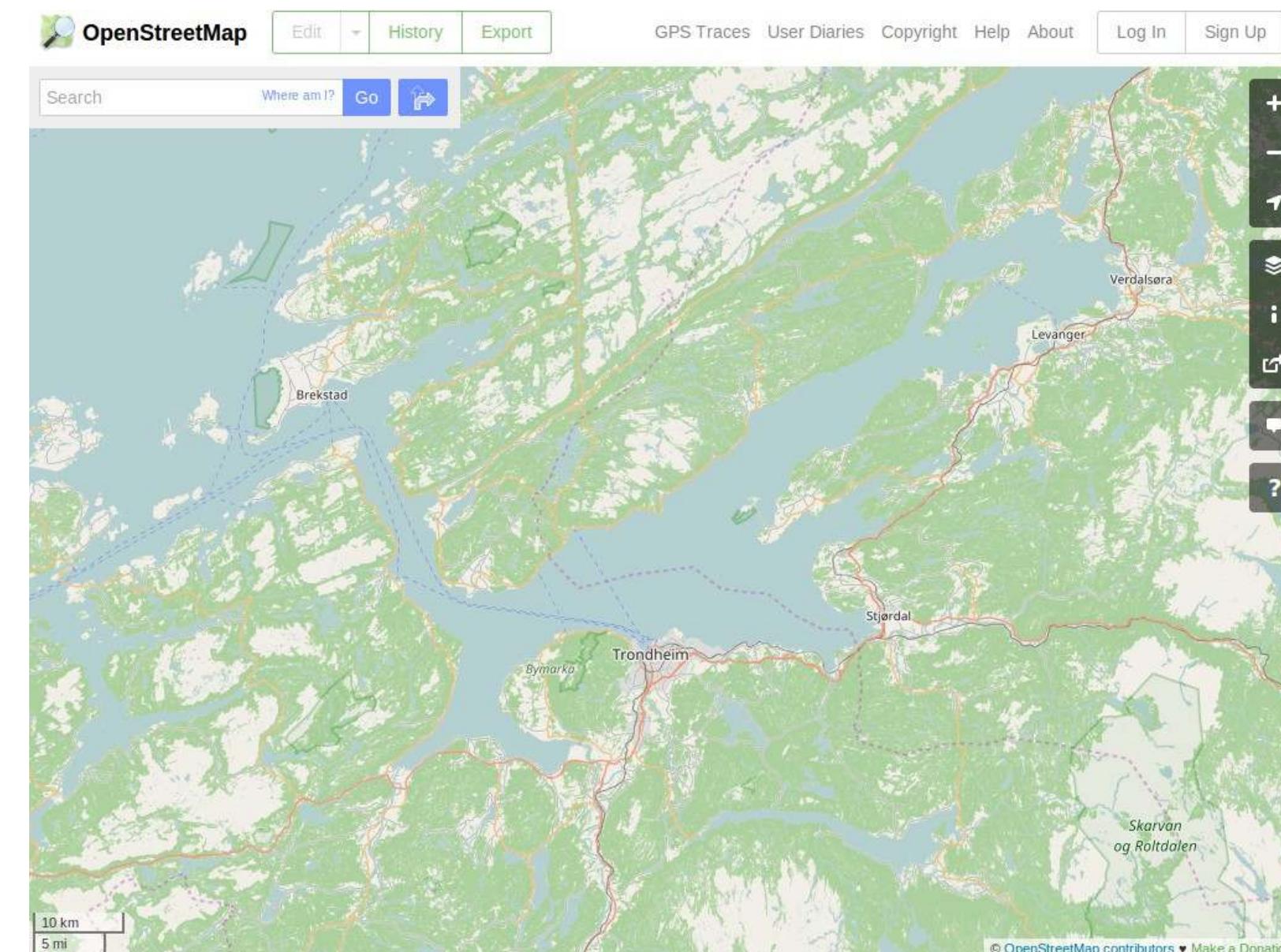
Natural Earth



North Carolina USA Educational dataset

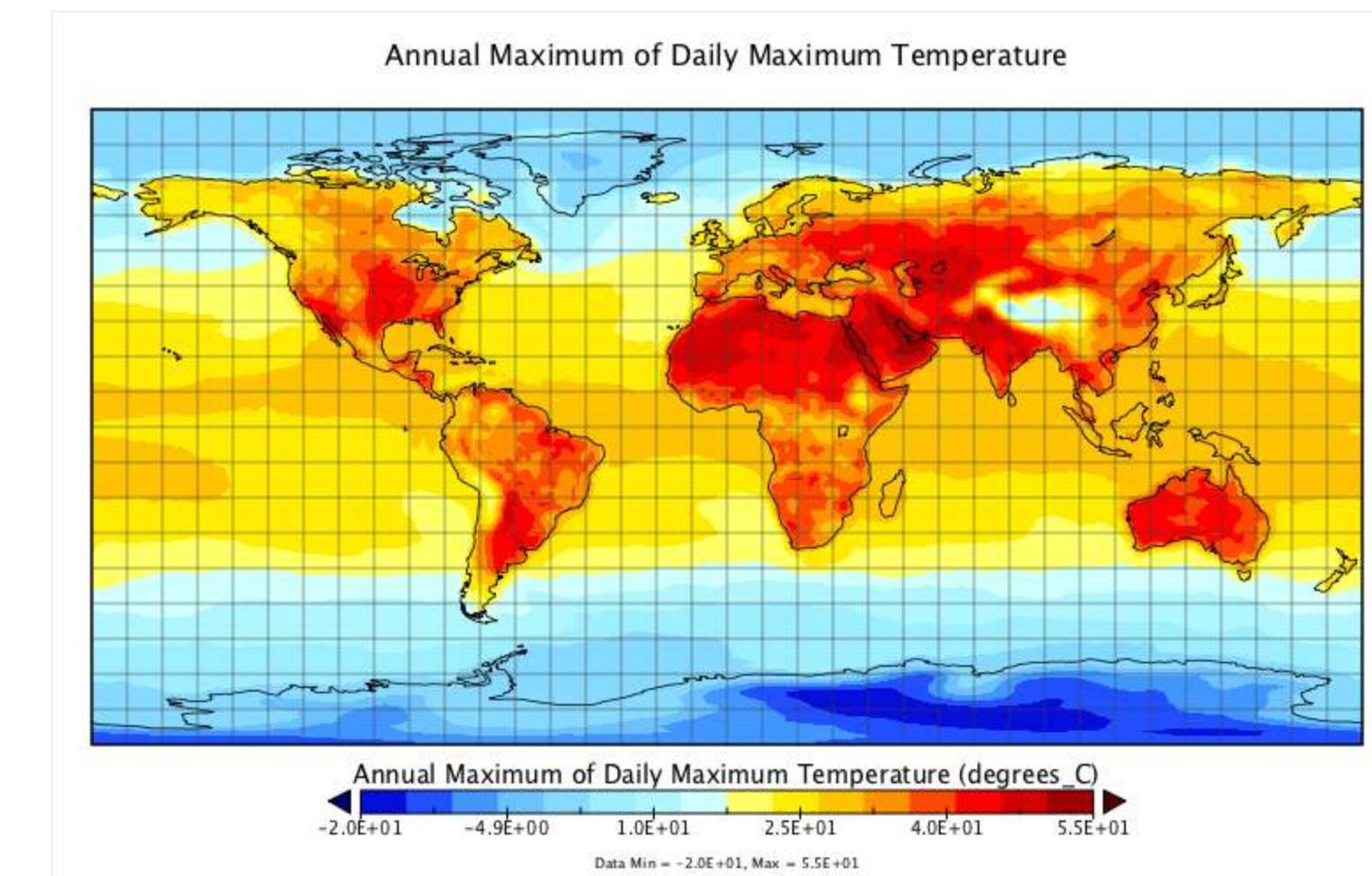


OpenStreetMap



NetCDF Data Set

txxETCCDI_yr_MIROC5_historical_r2i1p1_1850-2012.nc



Geospatial Libraries

GDAL/OGR

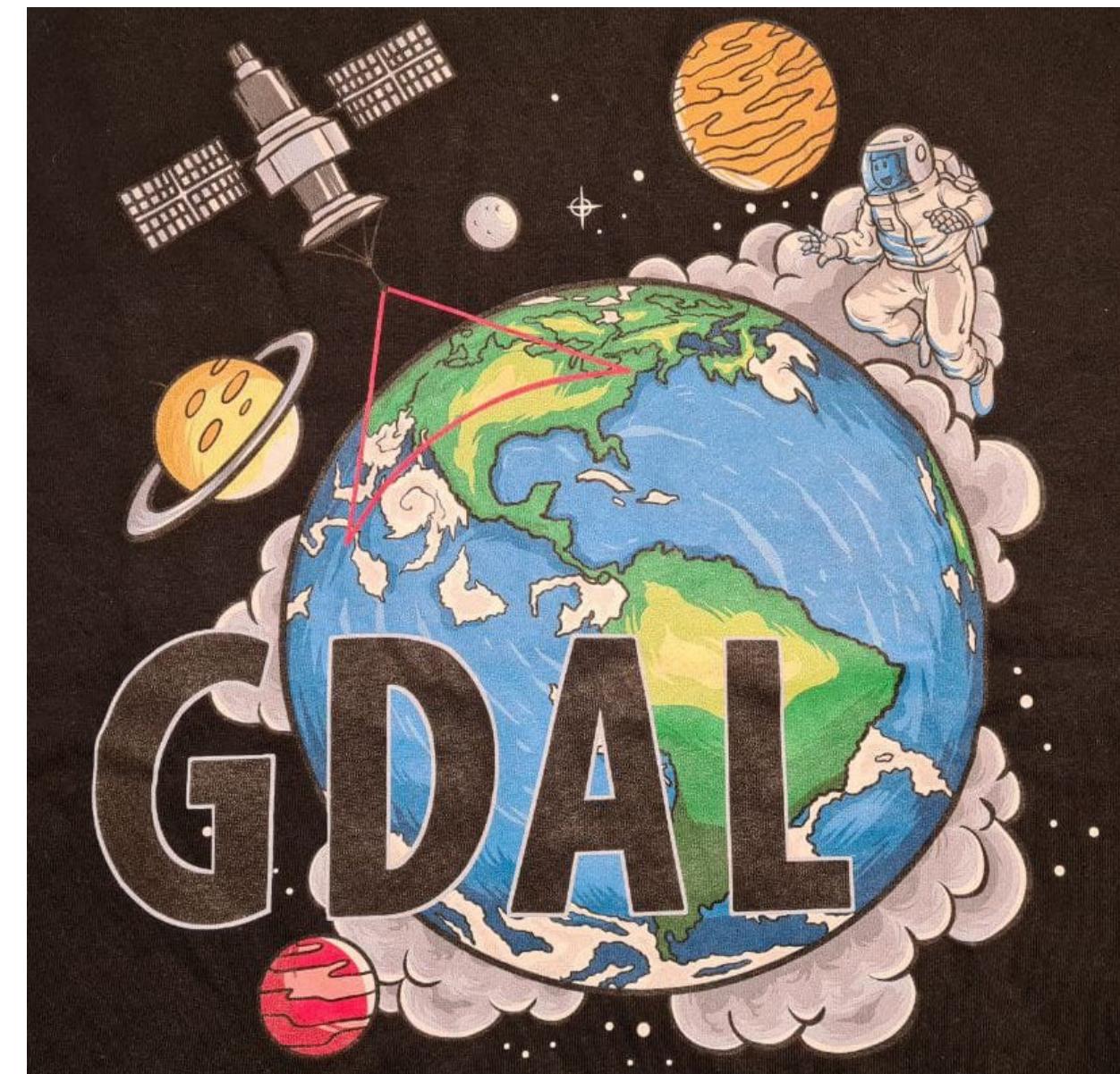
GeoTools

GEOS

PROJ

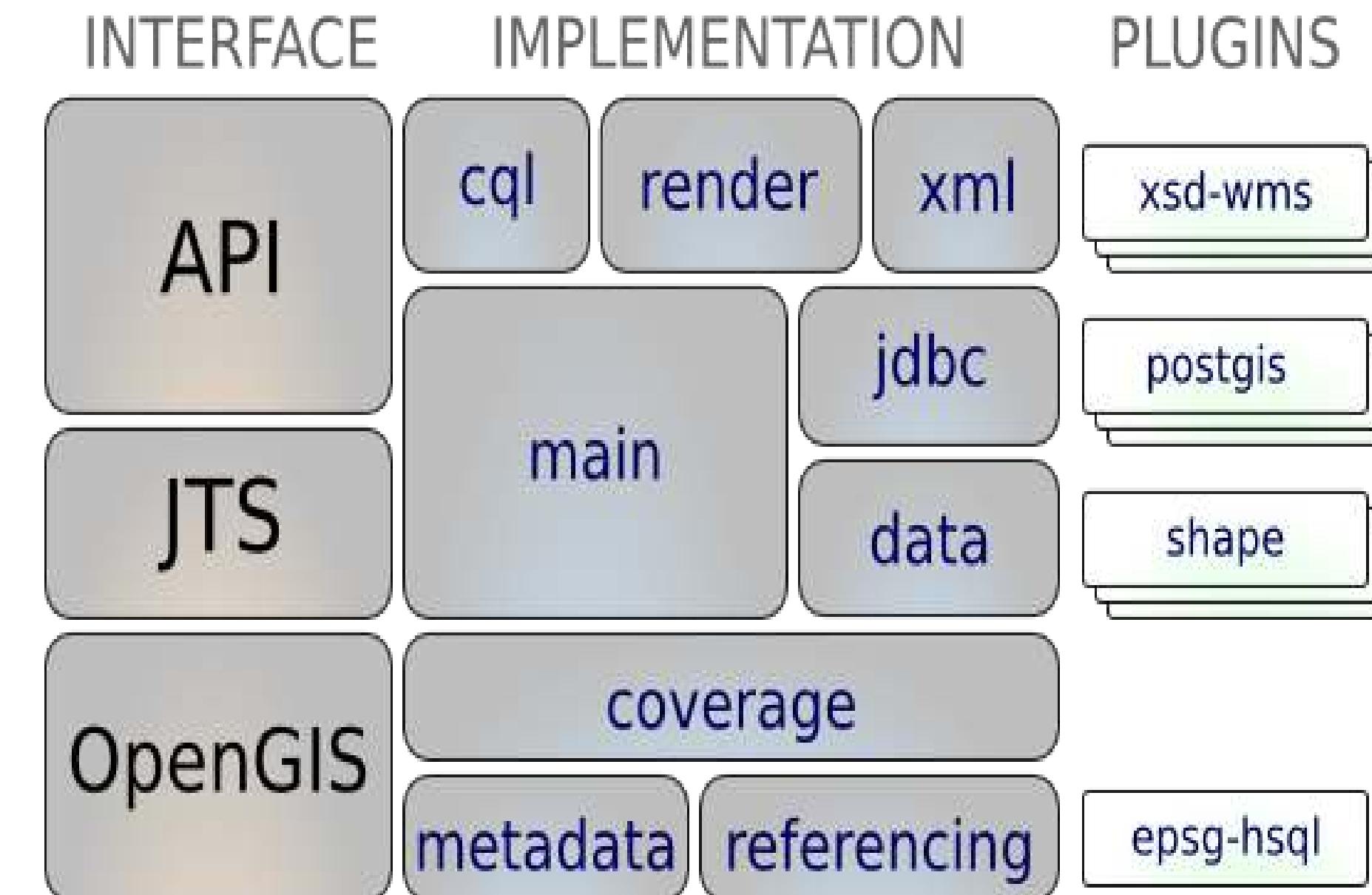
JTS

GDAL/OGR

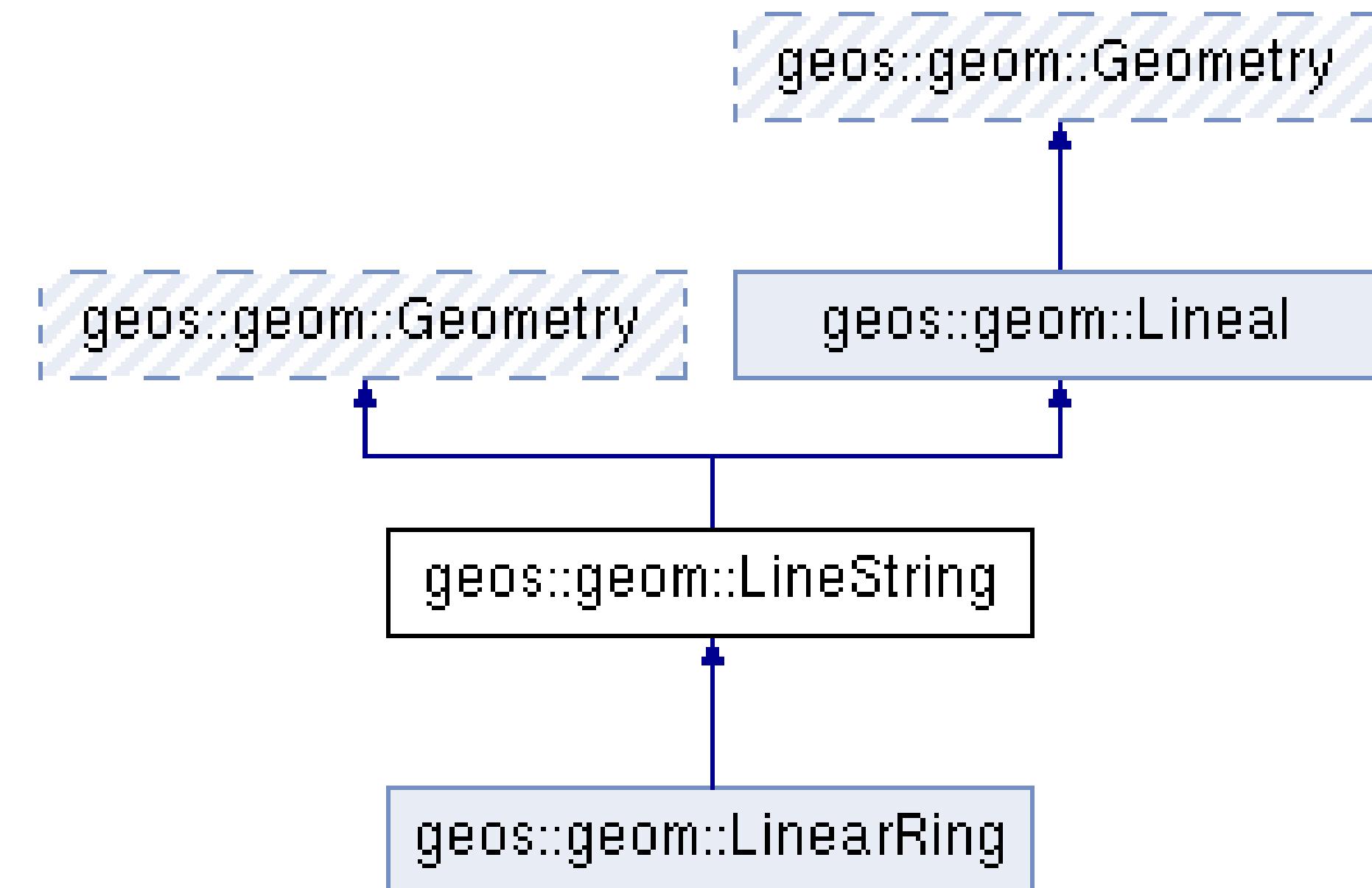


Get your own GDAL T-Shirt!

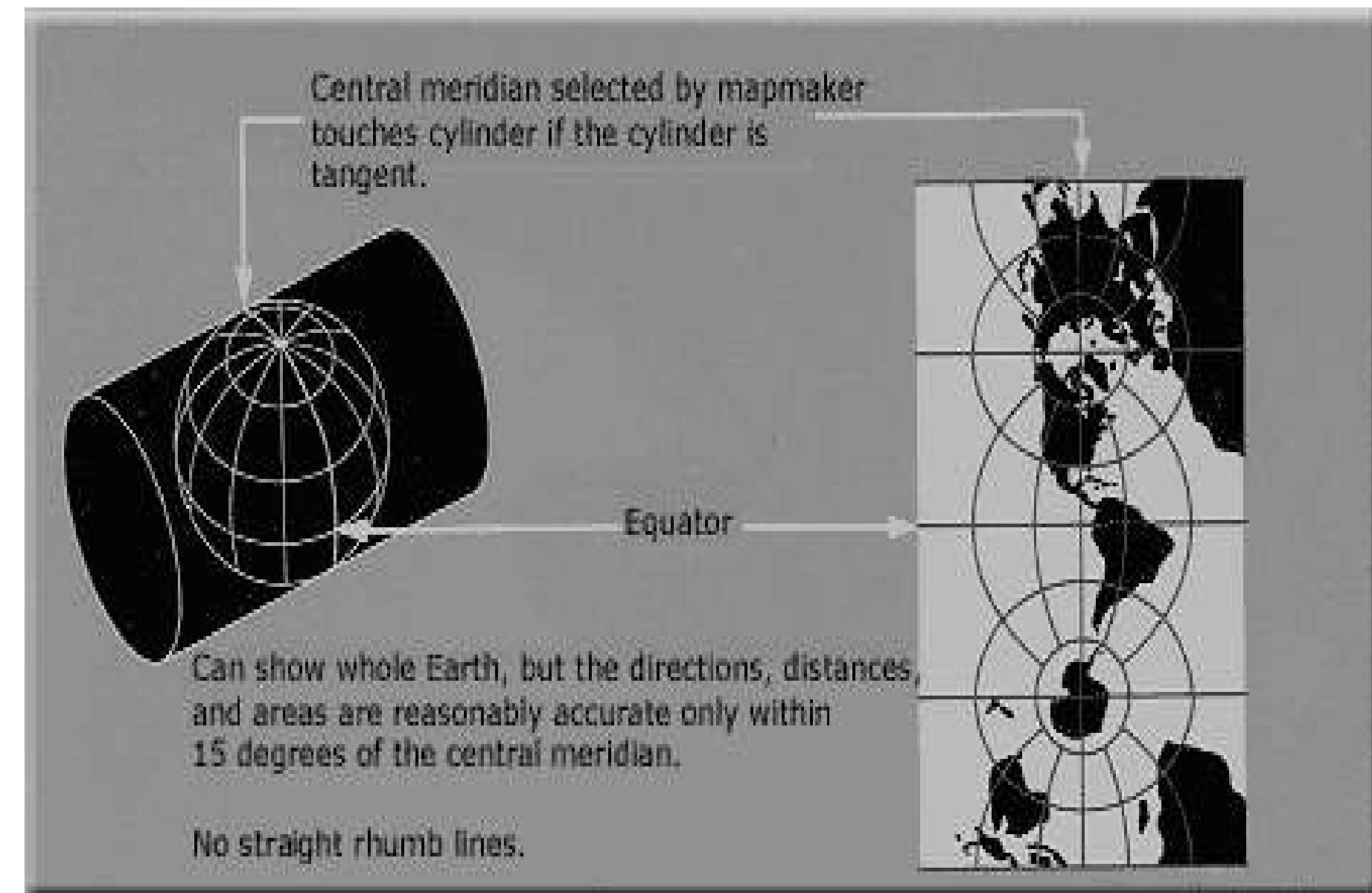
GeoTools



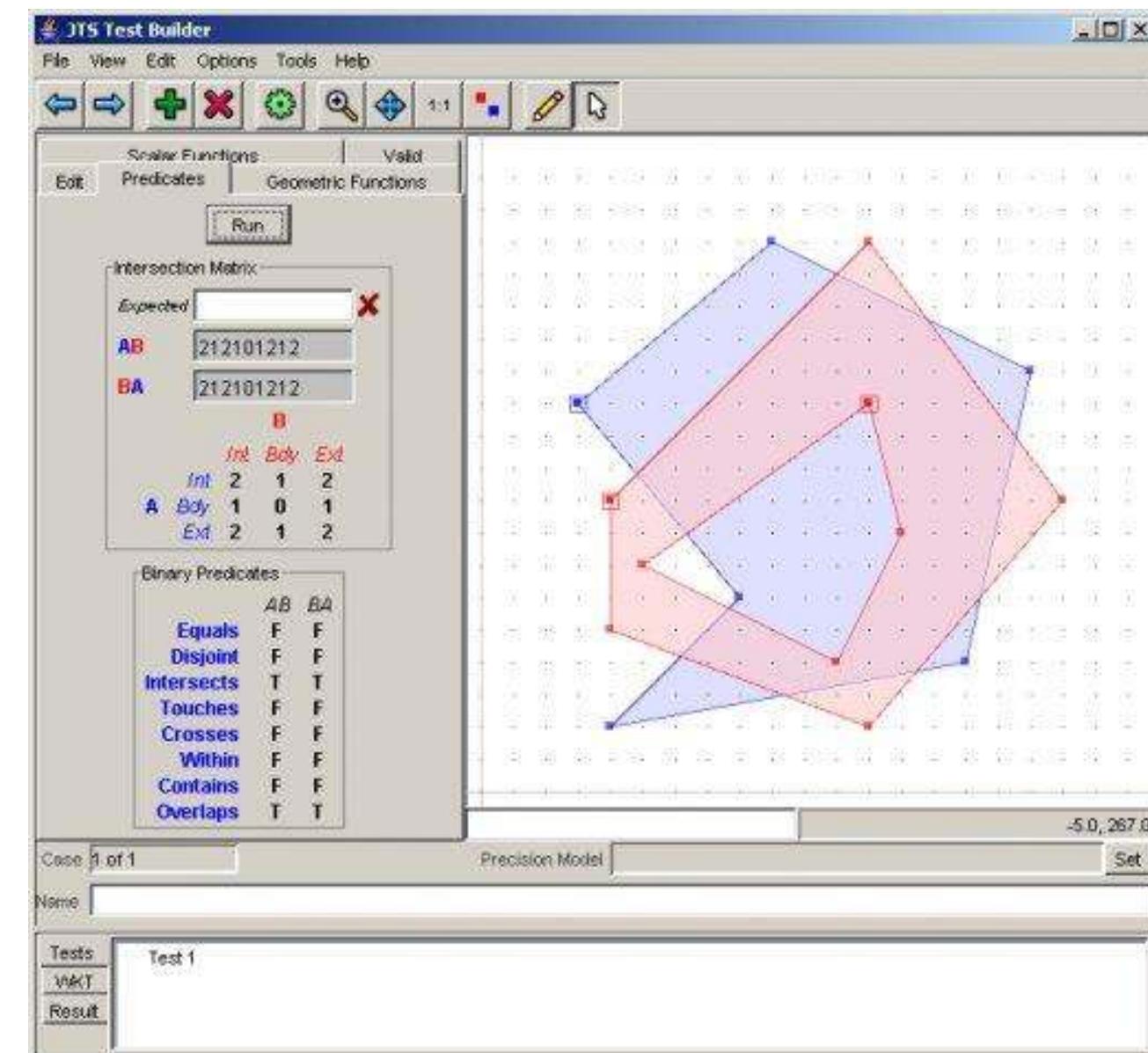
GEOS



PROJ



JTS



Credits

- Developers and project maintainers
- Authors and reviewers of the documentation
- Translators

Credits

Project Steering Committee

- Angelos Tzotsos (Chair)
- Brian M Hamlin
- Cameron Shorter
- Alex Mandel
- Johan Van de Wauw
- Bas Couwenberg
- Massimo De Stefano
- Astrid Emde
- Nicolas Roelandt
- Vicky Vergara
- Enock Seth Nyamador

Sponsors

OSGeo

UCD ICE

NTUA

DebianGIS

okeanos

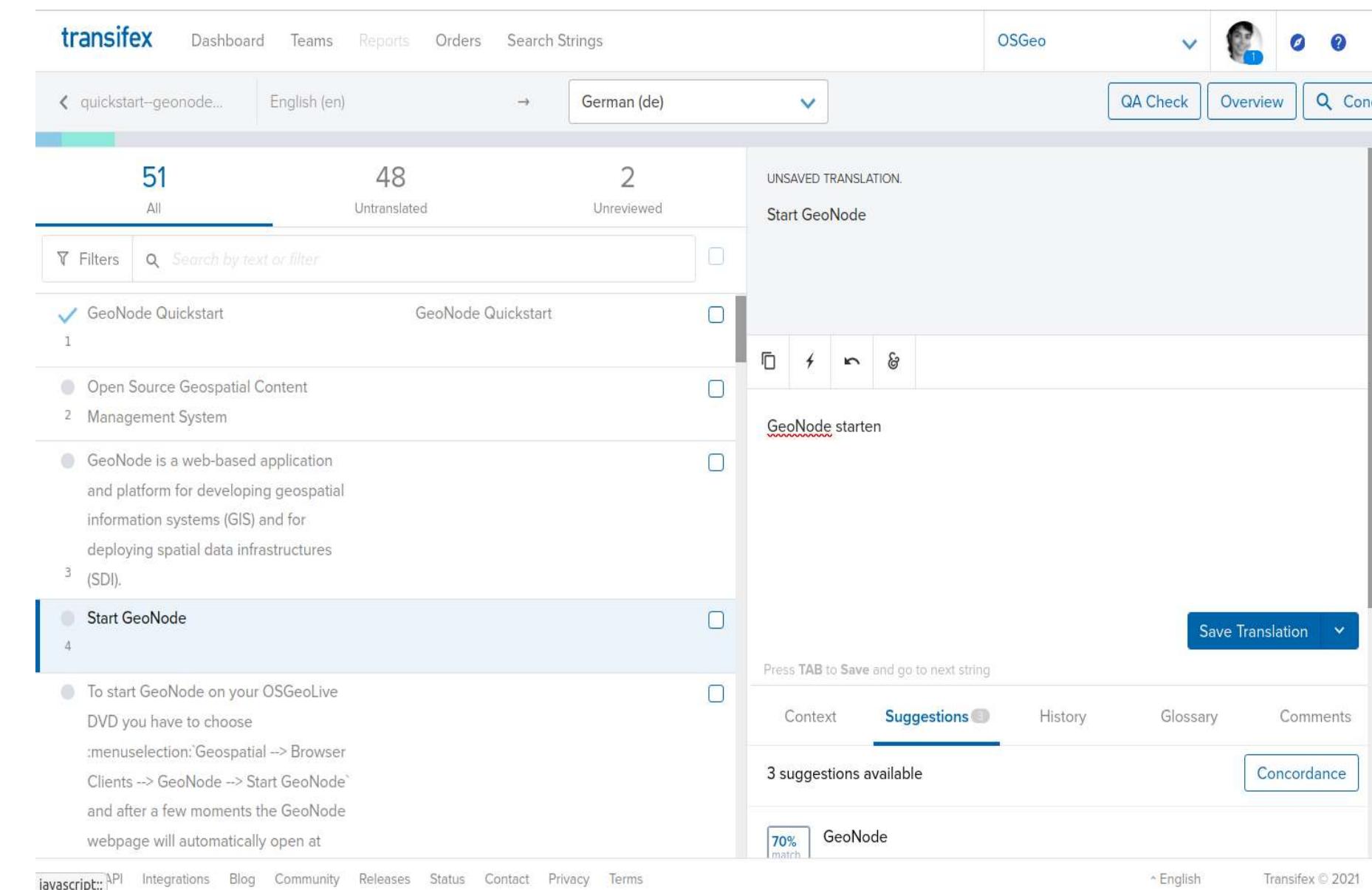
Georepublic

How can you get involved?

Become a member of our team

- Join our [Mailing List](#) and introduce yourself
- Take part in our weekly [IRC](#) meetings (channel `#osgeolive` on [libera.chat](#) and [Matrix](#))
- There are several ways to get involved
 - Help improve OSGeoLive website and documentation
 - Submit new projects
 - Help with the translation

Translation on Transifex



The screenshot shows the Transifex web interface for translating strings from English (en) to German (de). The left sidebar lists several sections, with 'GeoNode Quickstart' currently selected. The main content area displays the untranslated string 'Start GeoNode' in English, which is then translated into German as 'GeoNode starten'. A context menu is open over the German translation, showing options like 'Edit', 'Copy', 'Paste', and 'Delete'. Below the German text, there are three suggestion cards for 'GeoNode'. At the bottom right of the main content area, there is a 'Save Translation' button.

All	Untranslated	Unreviewed
51	48	2

Start GeoNode

GeoNode starten

Save Translation

Press TAB to Save and go to next string

Context Suggestions History Glossary Comments

3 suggestions available

Concordance

70% match GeoNode



Join us at the next OSGeo community sprint
2 October 2021