GeoSpatial Open Source Software

Compiled by:
Cameron Shorter
http://lisasoft.com

March 2012

Derived from OSGeo-Live Project Overviews, by OSGeo-Live authors

http://live.osgeo.org

OSGeo-Live

Applications
Geospatial
Wed, 07 Sep 18:24
user
Browser Clients
Crisis Management
Databases
Desktop GIS
Navigation and Maps
Spatial Tools
Web Services
OSGeo Software Help
atlasstyler
geopublisher
GRASS GIS
gvSIG
Kosmo
Open Jump
OssimPlanet
Quantum GIS
SAGA GIS
SpatiaLite GIS
uDig
Home
File System
Databases
Crisis Manag..
Trash
Spatial Tools
Navigation a..
Help
Desktop GIS
Web Services

Thumb Drive & Virtual Machine

VirtualBox OSE

File Machine Help

New Settings Start Discard

osgeo-live
Powered Off

Details Snapshots Description

General
Name: osgeo-live
OS Type: Ubuntu

System
Base Memory: 512 MB
Processor(s): 1
Boot Order: Floppy, CD/DVD-ROM, Hard Disk
VT-x/AMD-V: Enabled
Nested Paging: Enabled

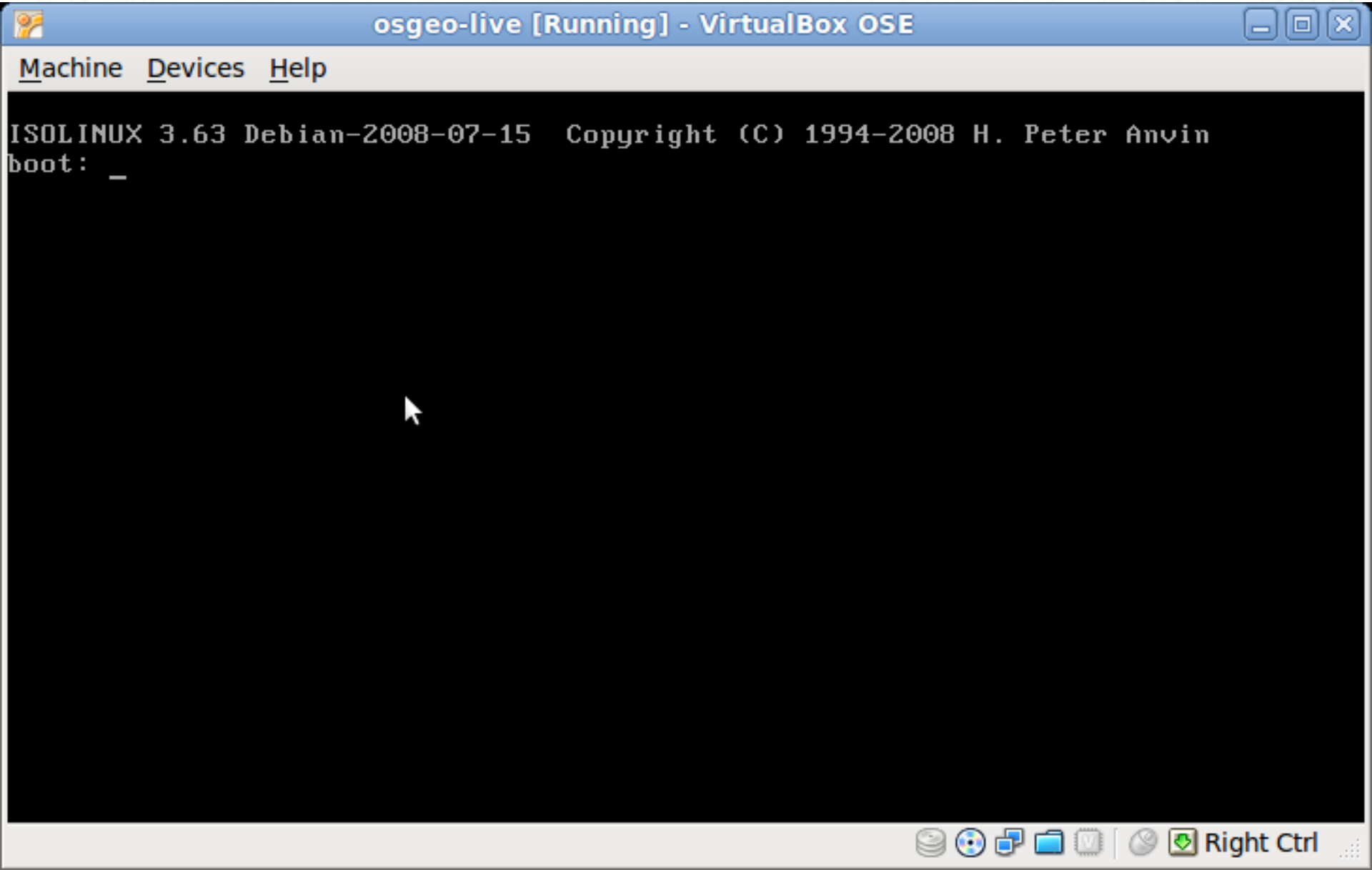
Display
Video Memory: 12 MB
3D Acceleration: Disabled
2D Video Acceleration: Disabled

Storage
IDE Controller
IDE Secondary Master (CD/DVD): osgeolive-4.0.iso (4.74 GB)
Floppy Controller
Floppy Device 0: Empty

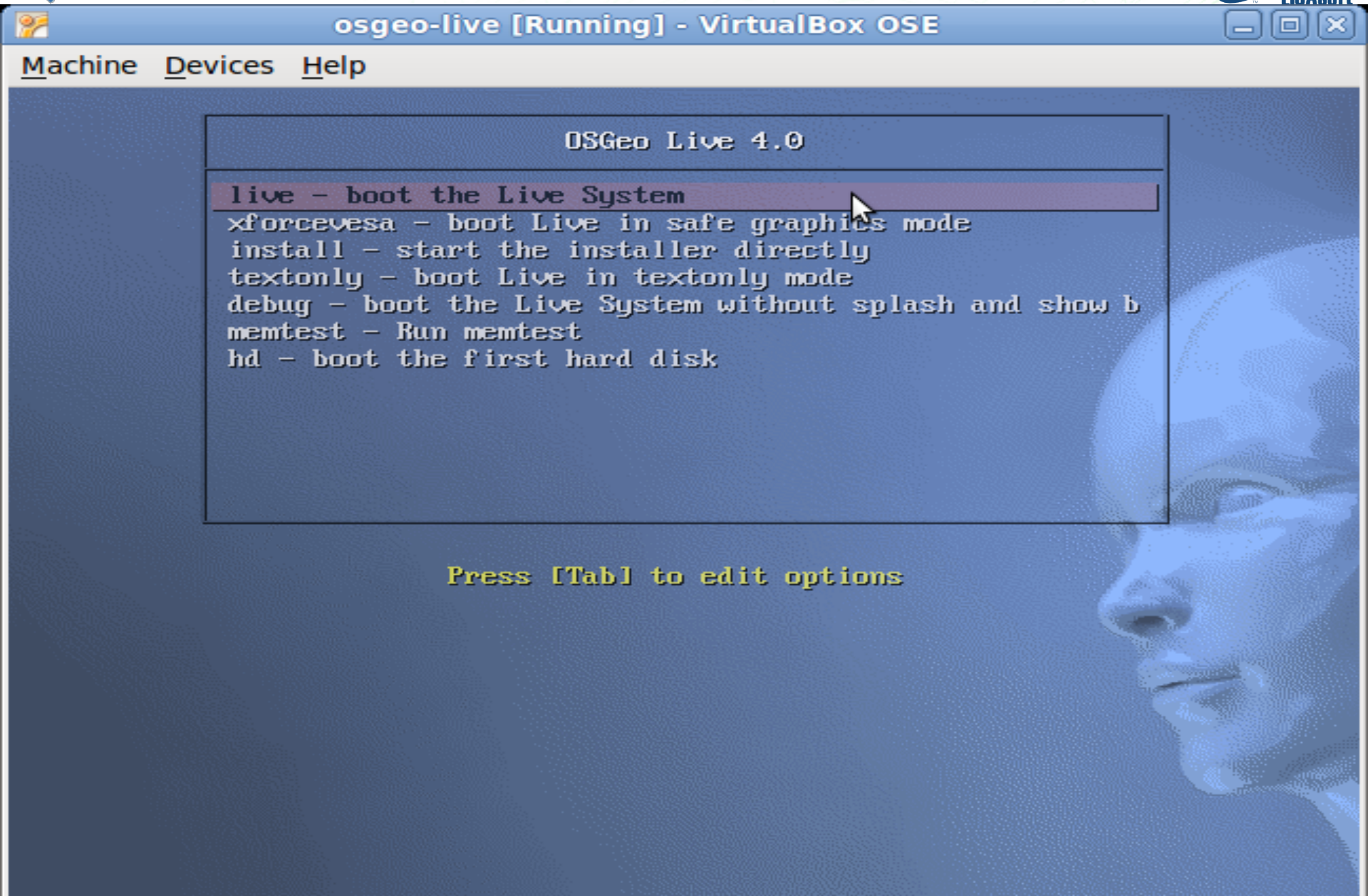
Audio
Host Driver: PulseAudio

Start the selected virtual machine

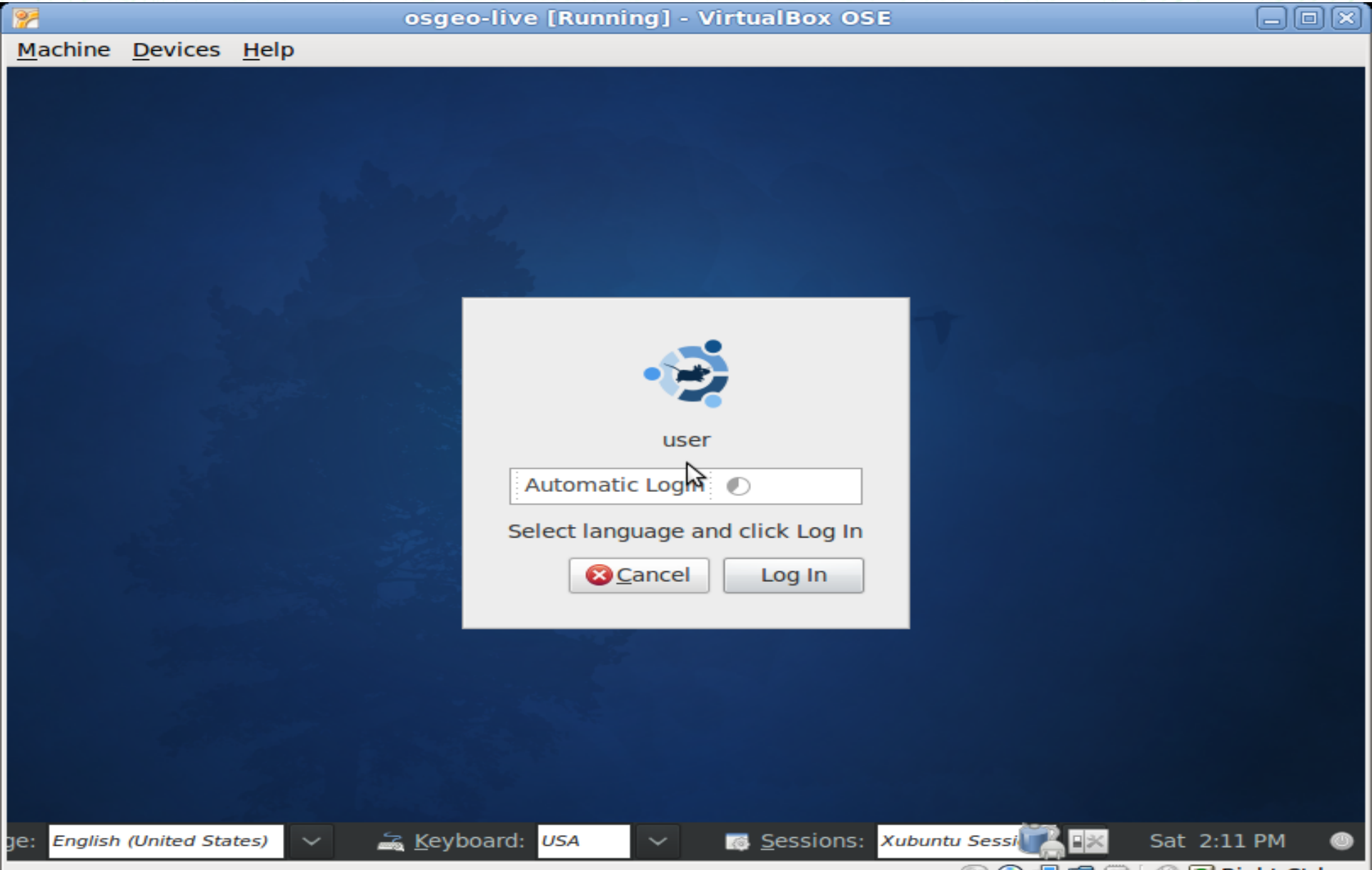
OSGeo-Live


osgeo-live [Running] - VirtualBox OSE
Machine Devices Help
ISOLINUX 3.63 Debian-2008-07-15 Copyright (C) 1994-2008 H. Peter Anvin
boot:
Right Ctrl

OSGeo-Live


osgeo-live [Running] - VirtualBox OSE
Machine Devices Help
OSGeo Live 4.0
live - boot the Live System
xforcevesa - boot Live in safe graphics mode
install - start the installer directly
textonly - boot Live in textonly mode
debug - boot the Live System without splash and show b
memtest - Run memtest
hd - boot the first hard disk
Press [Tab] to edit options

OSGeo-Live


osgeo-live [Running] - VirtualBox OSE
Machine Devices Help
user
Automatic Login
Select language and click Log In
Cancel
Log In
English (United States)
Keyboard:
USA
Sessions:
Xubuntu Sessi
Sat 2:11 PM

OSGeo-Live

Applications
Geospatial
[osgeo - Revision 7187: /li...
Sun, 04 Sep 17:49
user
Browser Clients
Crisis Management
Databases
Desktop GIS
Navigation and Maps
Spatial Tools
Web Services
OSGeo Software Help
atlasstyler
geopublisher
GRASS GIS
gvSIG
Kosmo
Open Jump
OssimPlanet
Quantum GIS
SAGA GIS
SpatiaLite GIS
uDig
Install RELEA
Desktop GIS
passwords.txt
Databases
Spatial Tools
Navigation a...
Log out
Trash
Web Services
Reboot
File System
Browser Clie...
Shut down

Open Source Geospatial Foundation (OSGeo)

Non Profit Umbrella for:

GeoSpatial Open Source Software

Education

Open Data

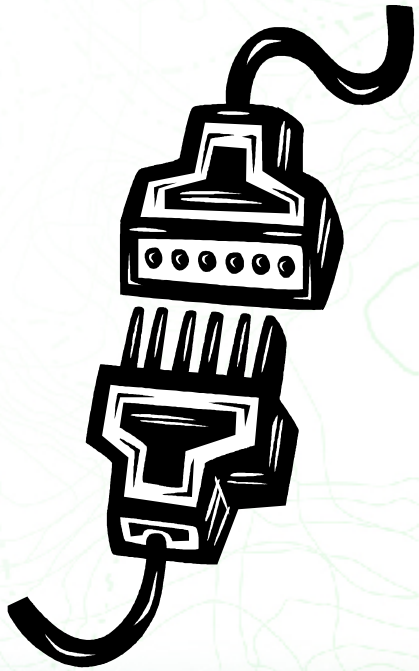
http://osgeo.org

OGC Standards

Interoperability

Future Proof

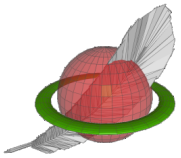
Return on Investment



Databases

PostGIS

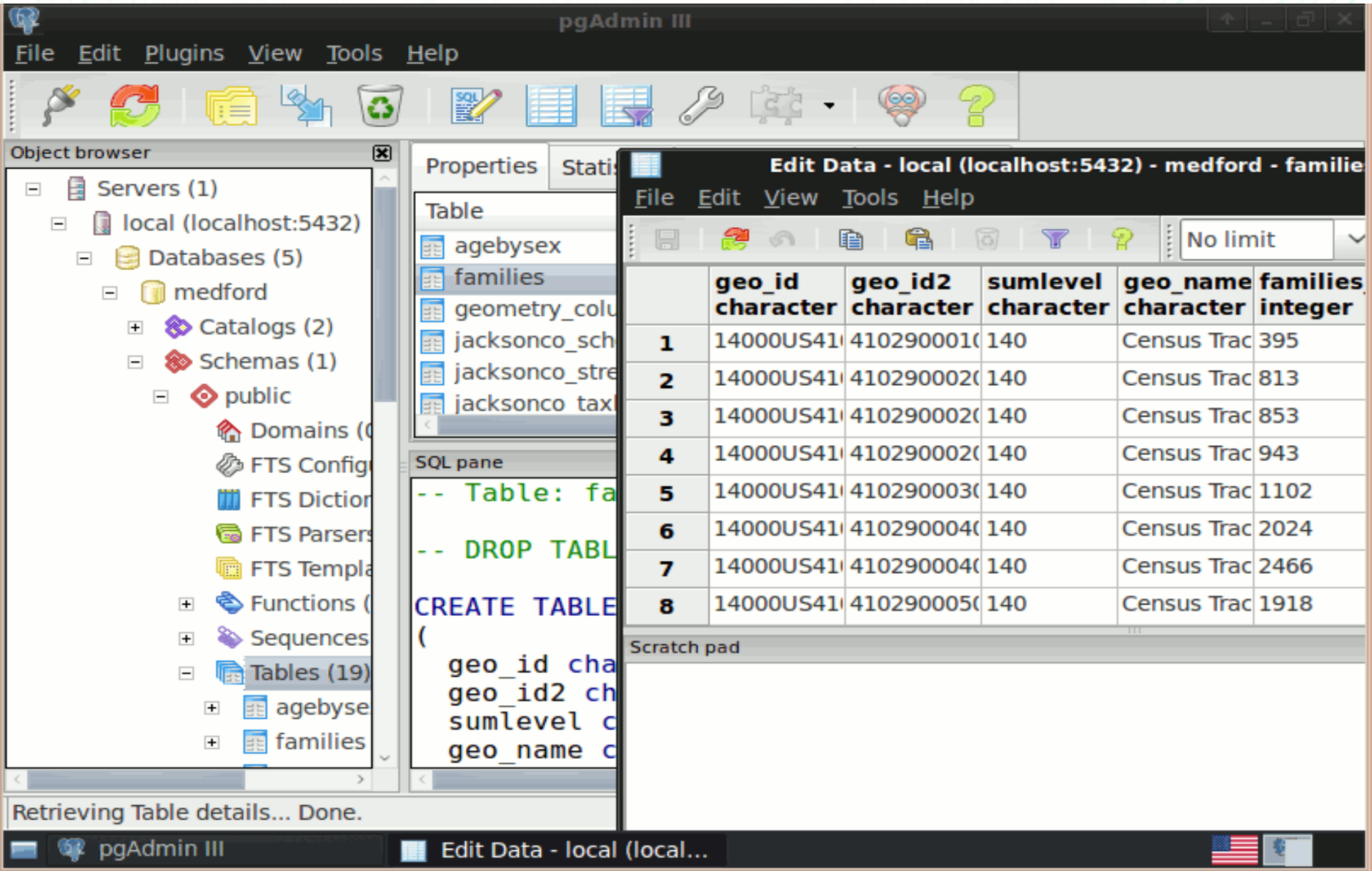
SpatiaLite



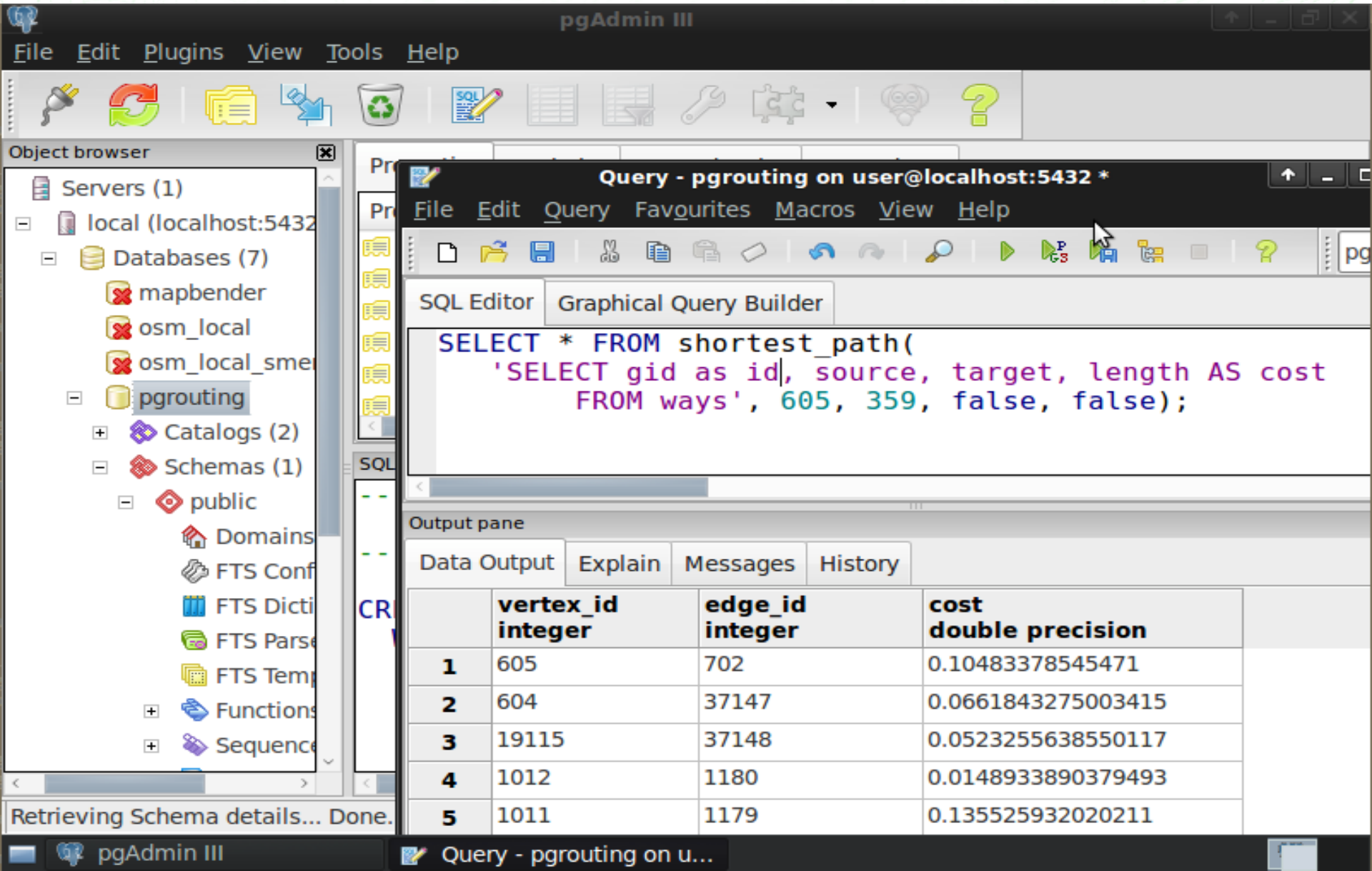
pgRouting

rasdaman
raster data manager

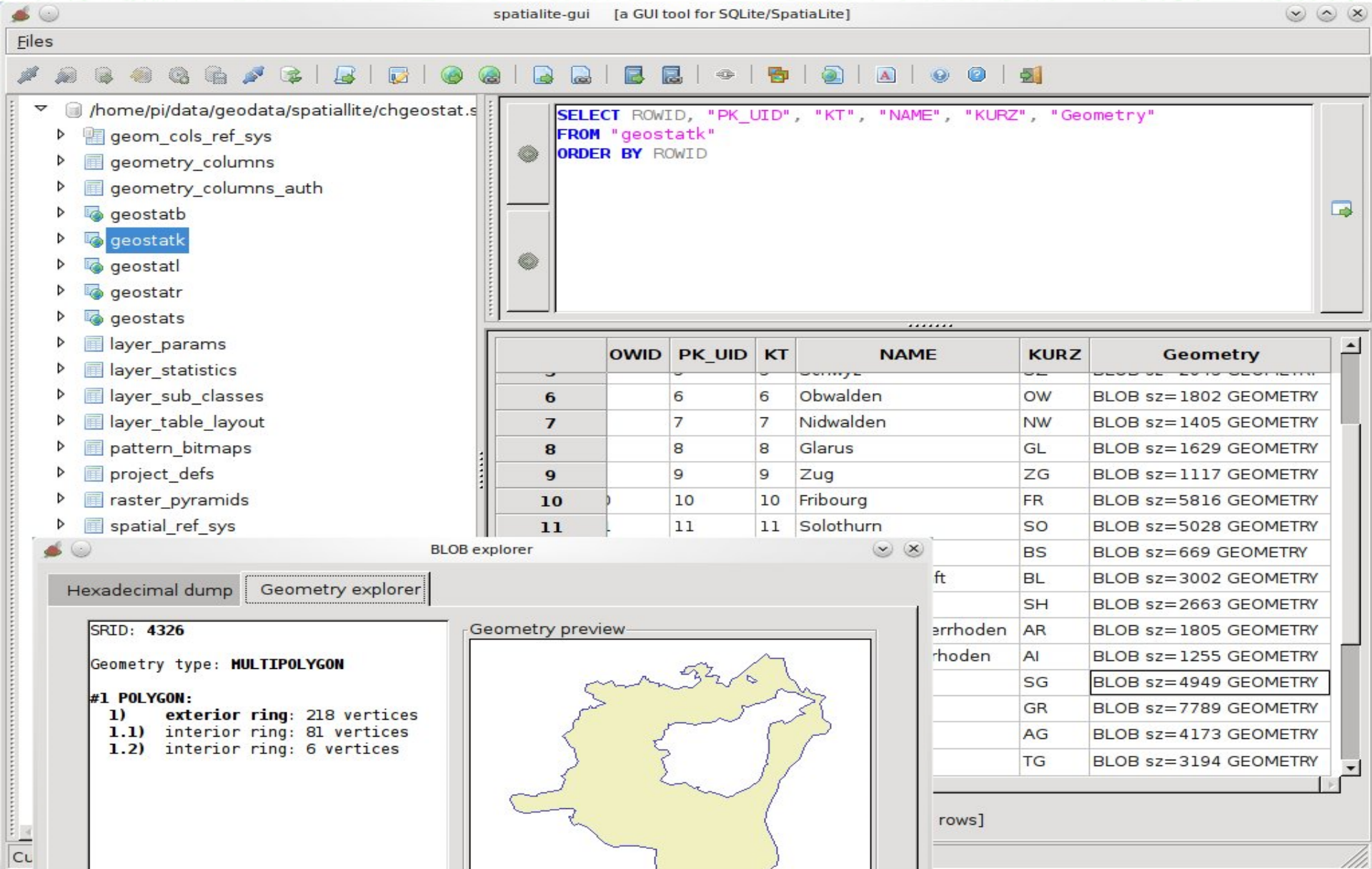
PostGIS – Spatial Database



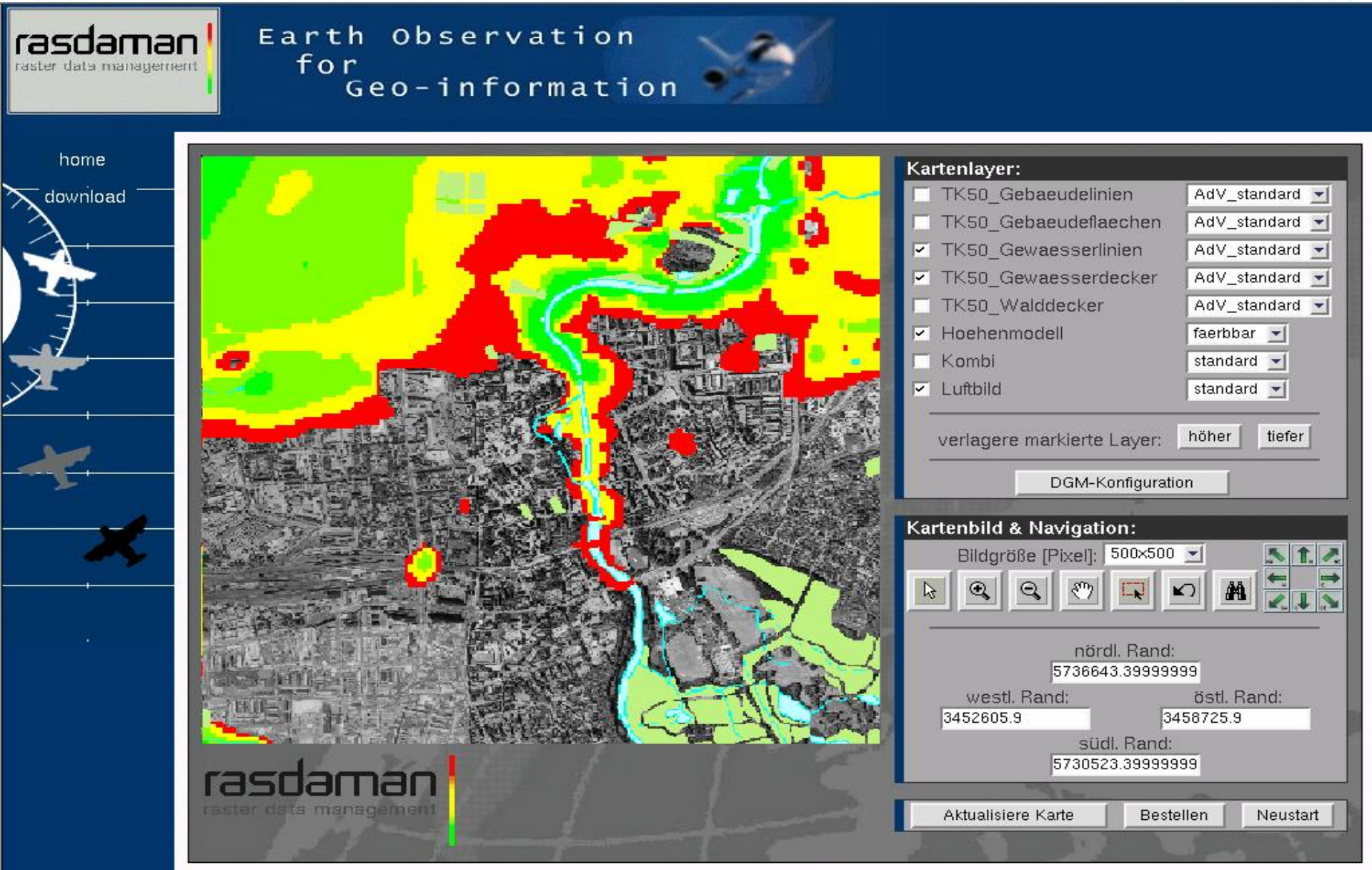
pgRouting – routing for PostGIS



SpatiaLite – Compact Database



Rasdaman – Raster Database



Web Services

MapServer

TinyOWS

GeoServer

deegree

QGIS Server

MapProxy

52°North WSS

52°North SOS

52°North WPS

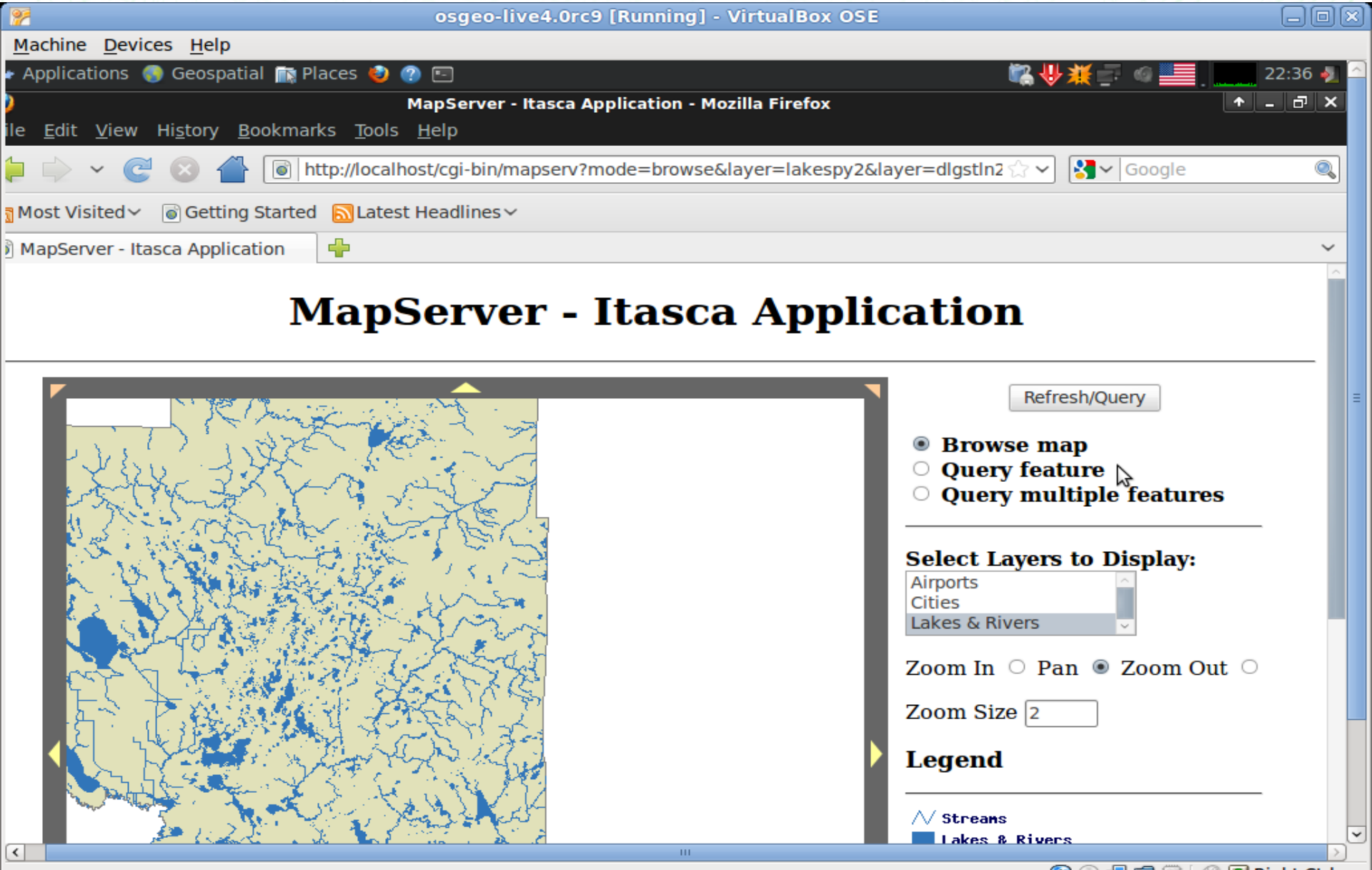
ZOO Project

GeoNetwork

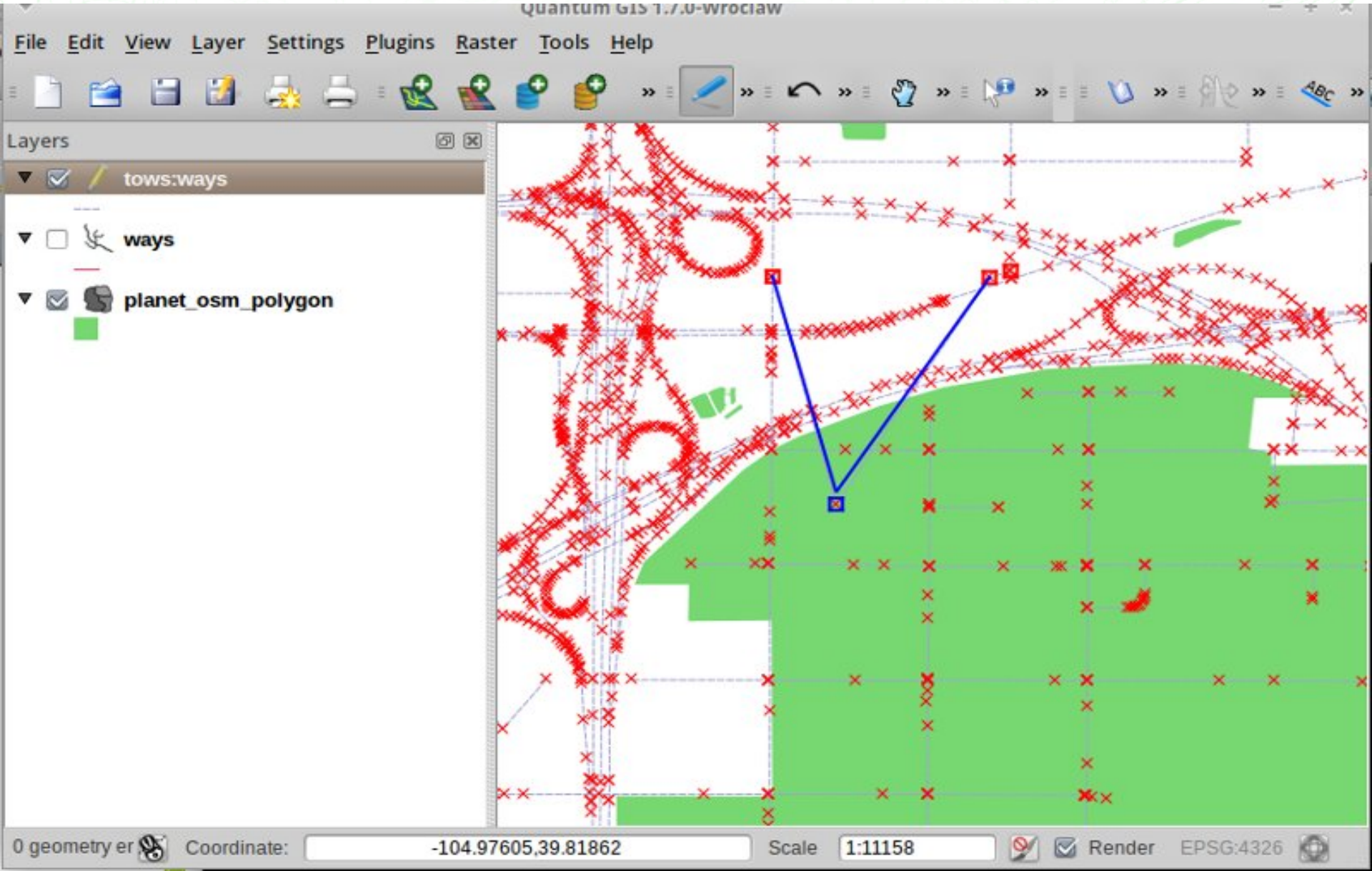
pycsw

http://live.osgeo.org

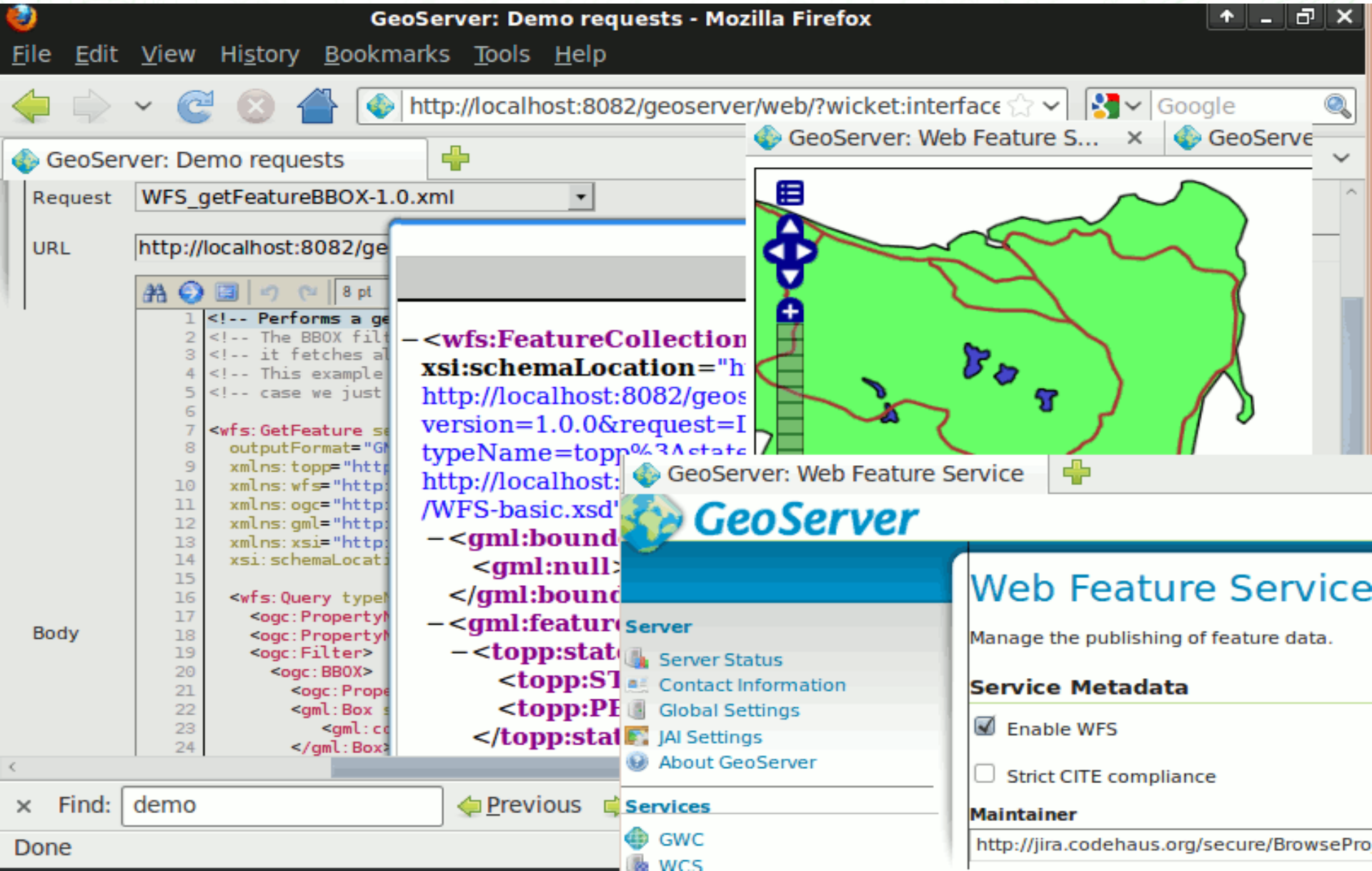
MapServer – Web Services



TinyOWS - WFS-T



GeoServer – Web Services



deegree – Web Services

deegree

OSGeo Project

deegree Web Applications
Services (WMS, WFS, WCS) Client (iGeoPortal)

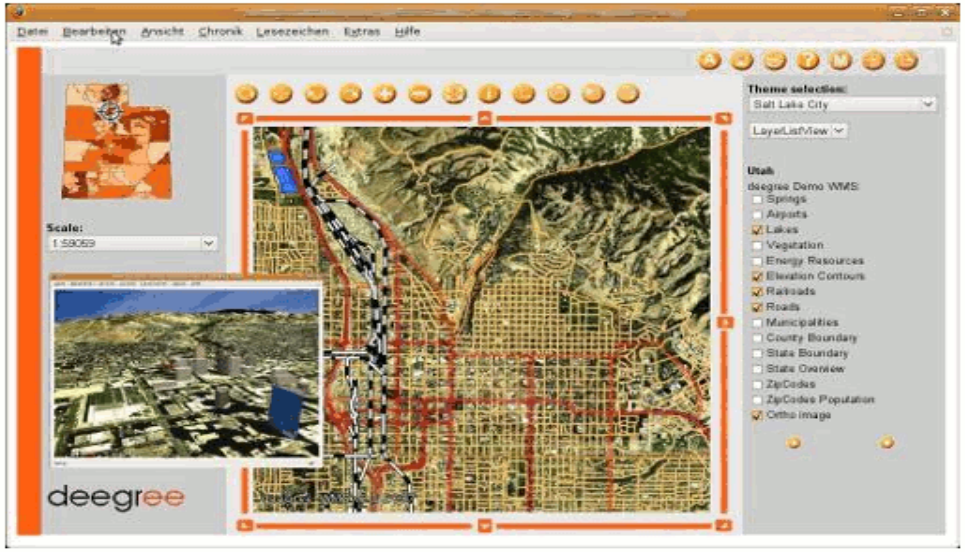
Documentation
WMS deegree WMS [PDF] readme [TXT] **WFS** deegree WFS [PDF] readme [TXT] **WCS** deegree WCS [PDF] readme [TXT] **iGeoPortal** deegree iGeoPortal [PDF] readme [TXT]

deegree online
Home Page Wiki Demo Installation Issue Tracker Users Mailing List Developers Mailing List

deegree is a Java Framework offering the main building blocks for Spatial Data Infrastructures. Its entire architecture is developed using standards of the Open Geospatial Consortium (OGC) and ISO/TC 211 (ISO Technical Committee 211 -- Geographic Information/Geomatics).

deegree encompasses OGC Web Services as well as Clients and security components.

deegree is built by a number of participants. lat/lon and the GIS Research Group of the Department of Geography of University of Bonn are responsible for project coordination.



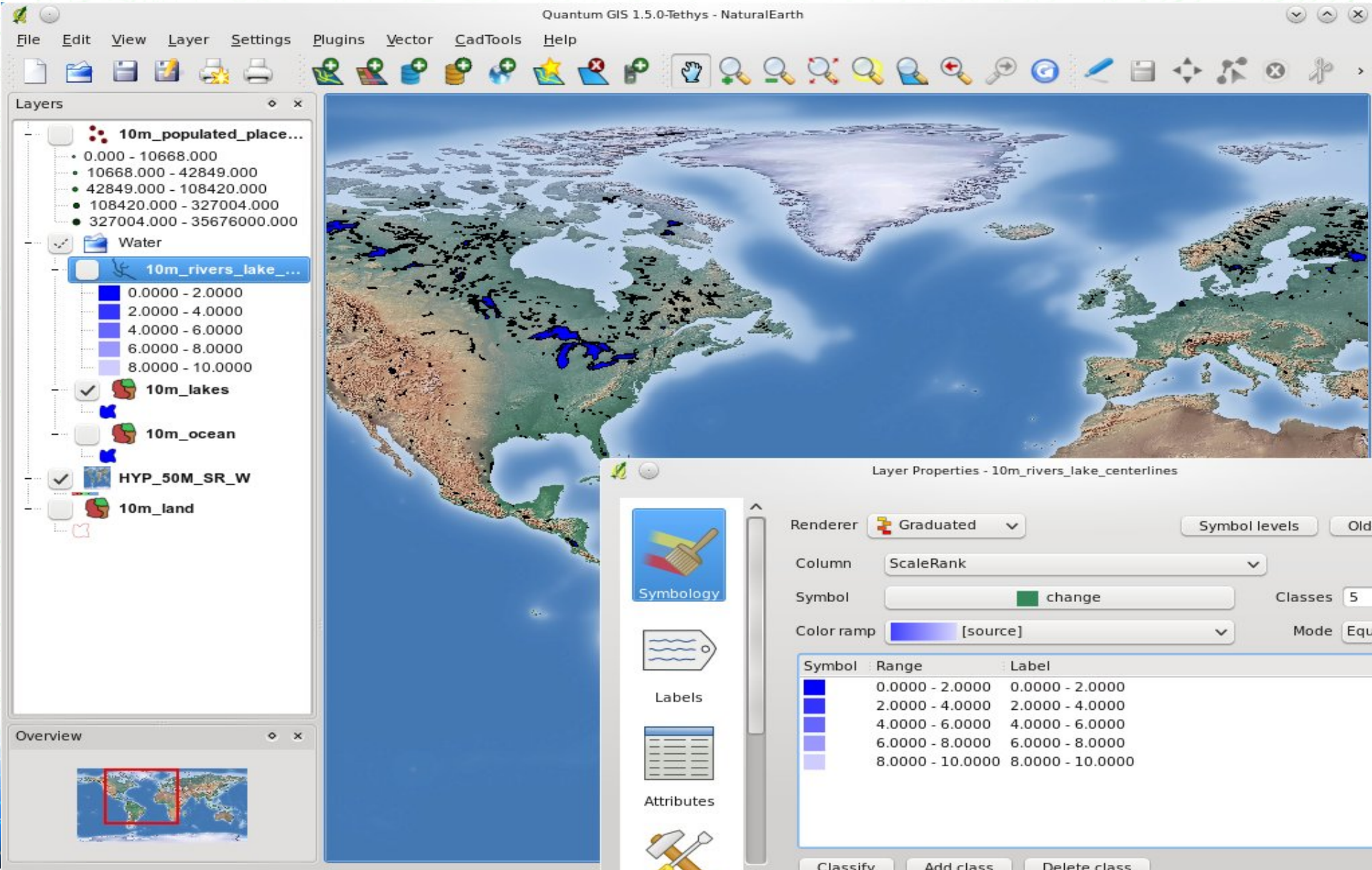
deegree is Free Software:

- deegree web services are protected by the GNU Lesser General Public License (GNU LGPL),
- deegree iGeoPortal is protected by the GNU General Public License (GNU GPL).

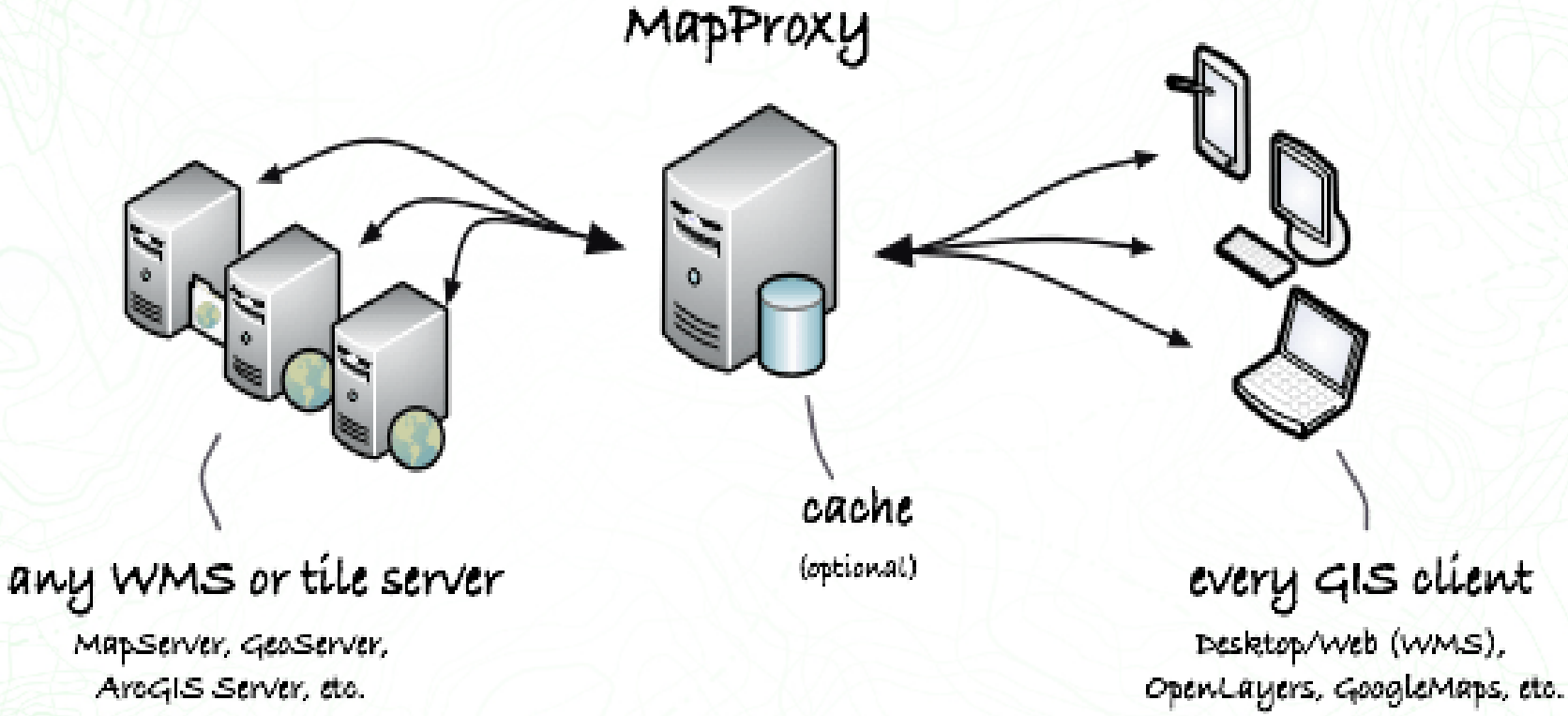
deegree is an OSGeo project.

Thanks for using deegree!

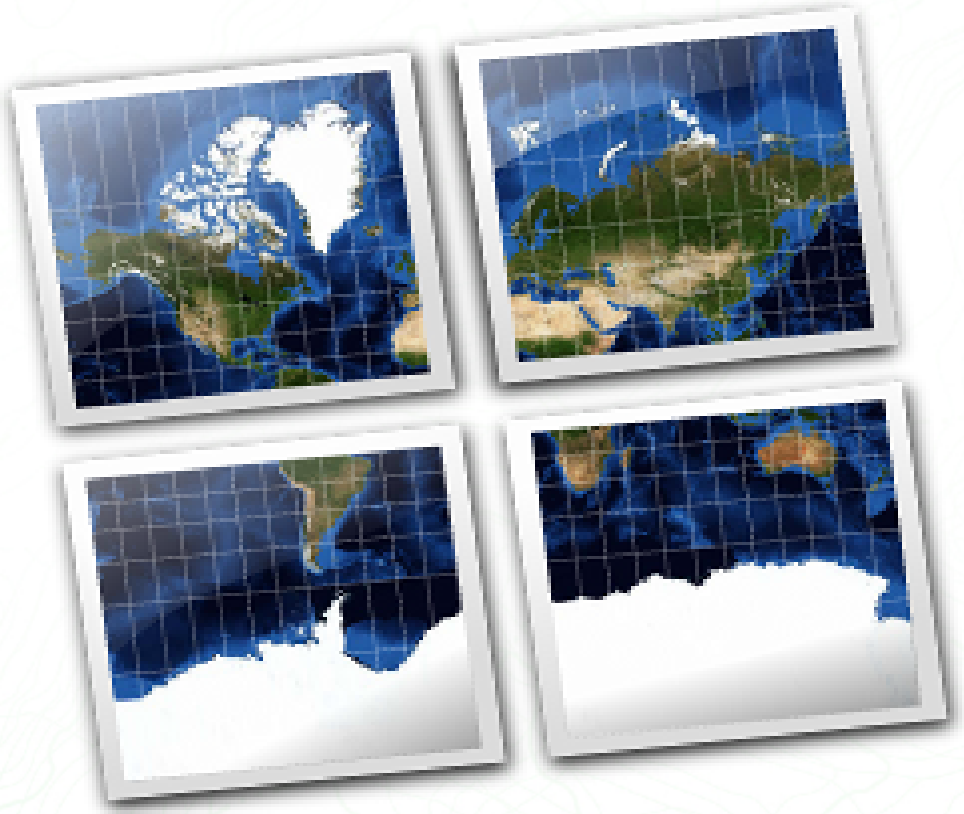
QGIS Server – WMS



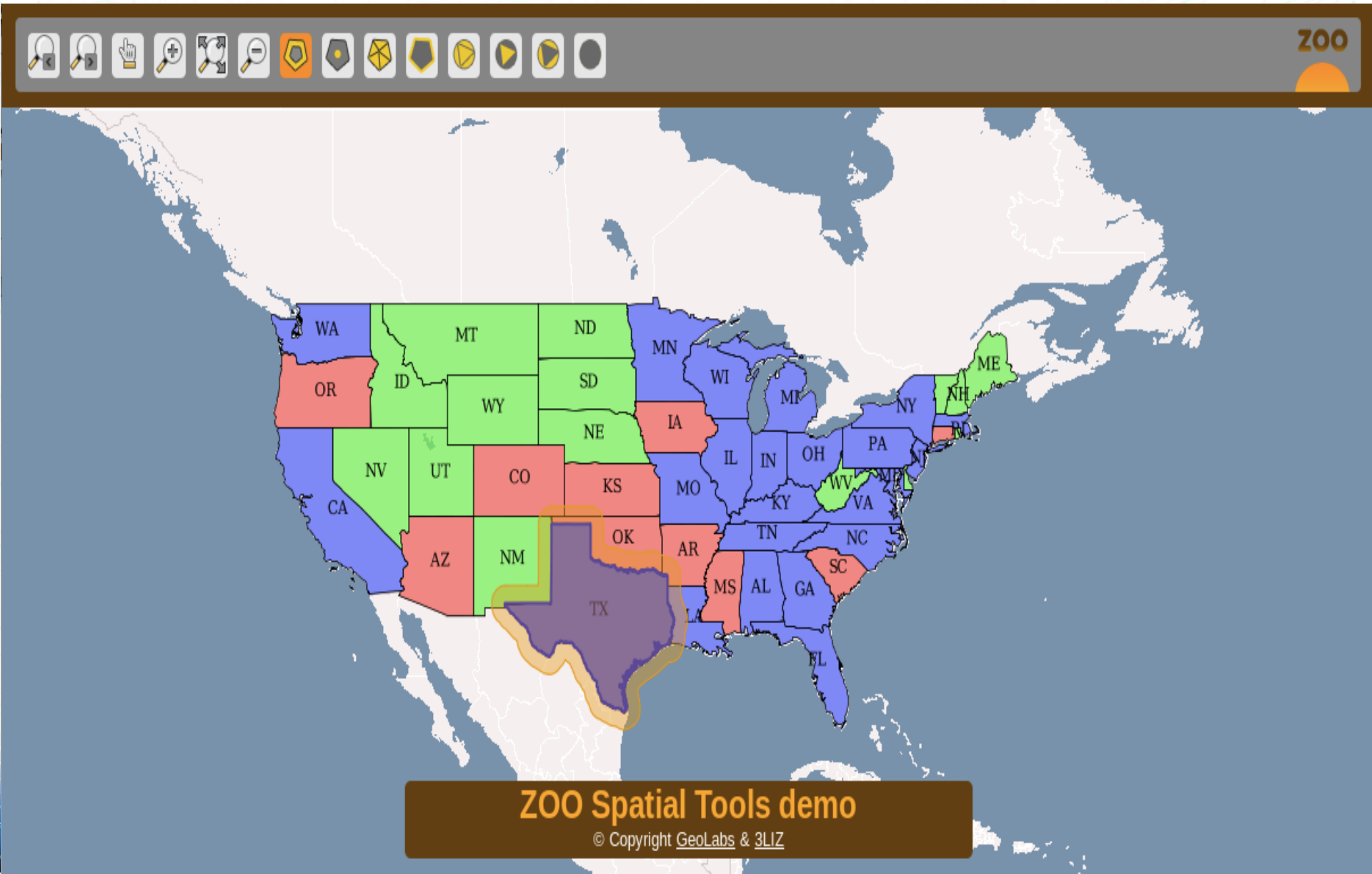
MapProxy – WMS & Tile Proxy



MapTiler



ZOO – Web Processing Service



52°North WPS – Web Processing Service

WPS TestClient...

Server: http://localhost:8083/wps/WebProcessingService

Request:

```
<wps:DataInputs>
 <wps:Input>
  <ows:Identifier>data</ows:Identifier>
  <wps:Reference
schema="http://schemas.opengis.net/gml/2.1.2/feature.xsd"
xlink:href="http://giv-wps.uni-muenster.de:8080/geoserver/wfs">
  <wps:Body>
<wfs:GetFeature service="WFS" version="1.0.0"
 outputFormat="GML2"
 xmlns:topp="http://www.openplans.org/topp"
 xmlns:wfs="http://www.opengis.net/wfs"
 xmlns:ogc="http://www.opengis.net/ogc"
 xmlns:gml="http://www.opengis.net/gml"
 xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
 xsi:schemaLocation="http://www.opengis.net/wfs
                     http://schemas.opengis.net/wfs/1.0.0/WFS-basic.xsd">
 <wfs:Query typeName="topp:states">
   <wfs:PropertyName>topp:STATE_NAME</wfs:PropertyName>
   <wfs:PropertyName>topp:PERSONS</wfs:PropertyName>
   <wfs:PropertyName>the_geom</wfs:PropertyName>
   <ogc:Filter>
```

Clear

Send

52°North SOS – Sensor Observation Service

SOS TestClient Version 2.1 - old version.

For more information about the 52°North Sensor Observation Service visit http://52north.org/sos.
A more sophisticated SOS client is available from 52°North servers. Visit http://sensorweb.demo.52north.org/SOSclient/ for the client and http://52north.org/communities/sensorweb/clients/Thin_SWE_Client/Version_2.0/ for documentation and further information.

Service URL:

http://localhost:8080/52nSOSv3.1.1/sos

Request Examples: GetCapabilities_allSections.xml 1

You can change the examples in the folder [project-directory]/52n-sos-service/src/main/webapp/examples/.

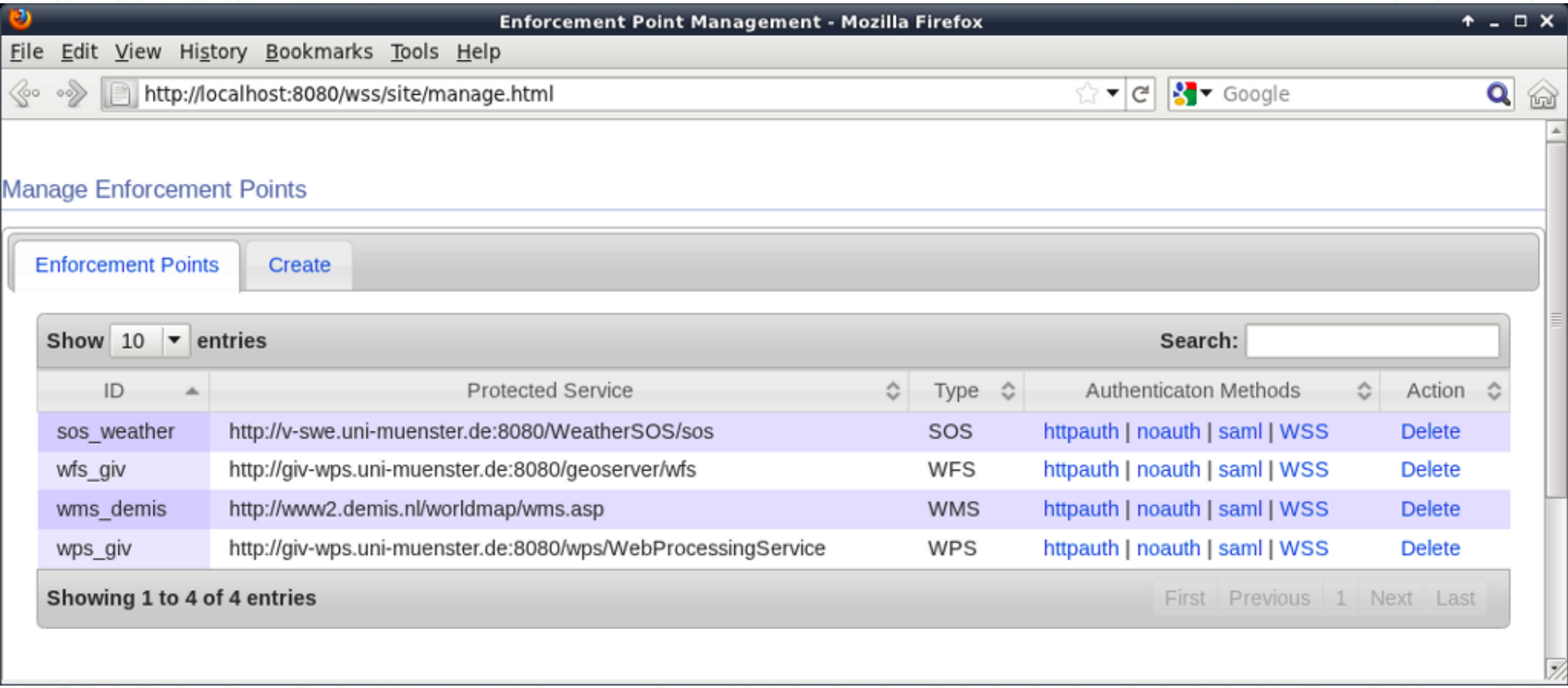
```
<?xml version="1.0" encoding="UTF-8"?>
<GetCapabilities xmlns="http://www.opengis.net/sos/1.0"
  xmlns:ows="http://www.opengis.net/ows/1.1"
  xmlns:ogc="http://www.opengis.net/ogc"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://www.opengis.net/sos/1.0
  http://schemas.opengis.net/sos/1.0.0/sosGetCapabilities.xsd"
  service="SOS">

  <ows:AcceptVersions>
    <ows:Version>1.0.0</ows:Version>
  </ows:AcceptVersions>

  <ows:Sections>
    <ows:Section>OperationsMetadata</ows:Section>
    <ows:Section>ServiceIdentification</ows:Section>
    <ows:Section>ServiceProvider</ows:Section>
    <ows:Section>Filter_Capabilities</ows:Section>
    <ows:Section>Contents</ows:Section>
  </ows:Sections>
```

2

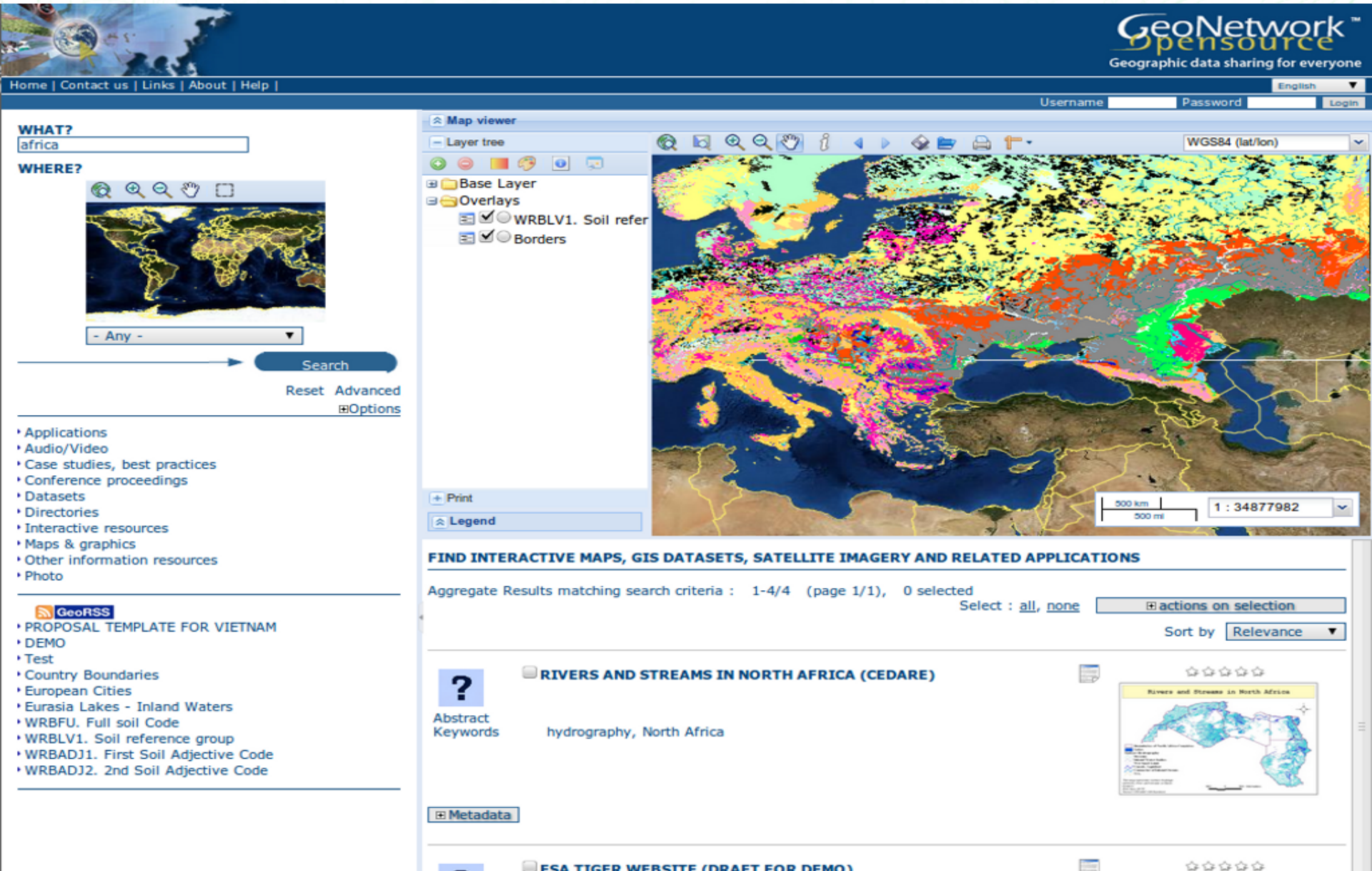
Send Clear

This TestClient was successfully tested in Firefox 3.5.2, Safari 4.0.3, Opera 9.64 and InternetExplorer 8.0.6001.18702 and should work properly in Firefox 1.0 or higher, Safari 1.2 or higher, Opera 8 or higher and InternetExplorer 5 or higher. The editor is based on CodeMirror (http://marijn.haverbeke.nl/codemirror/).

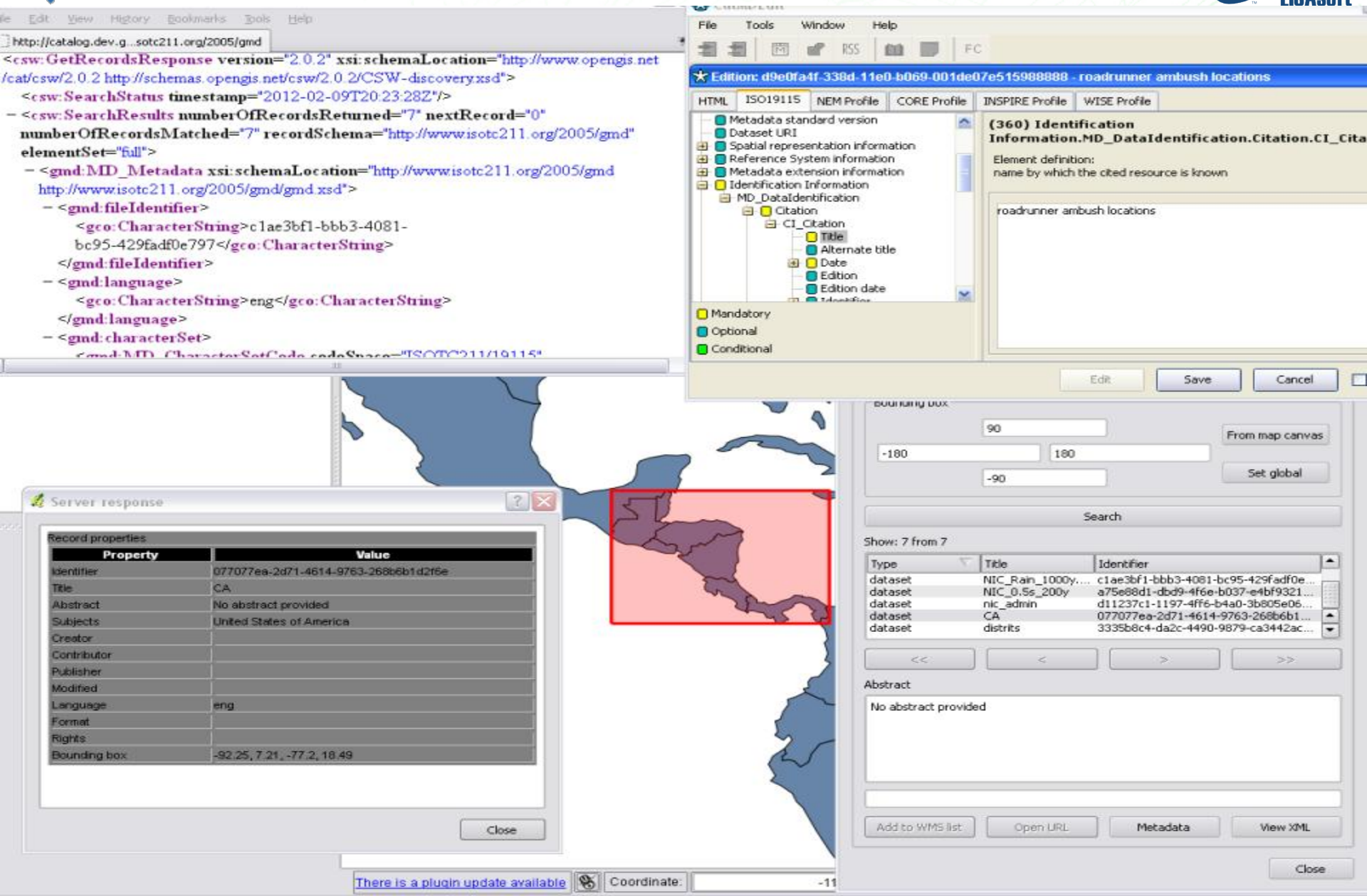
52°North WSS - Security



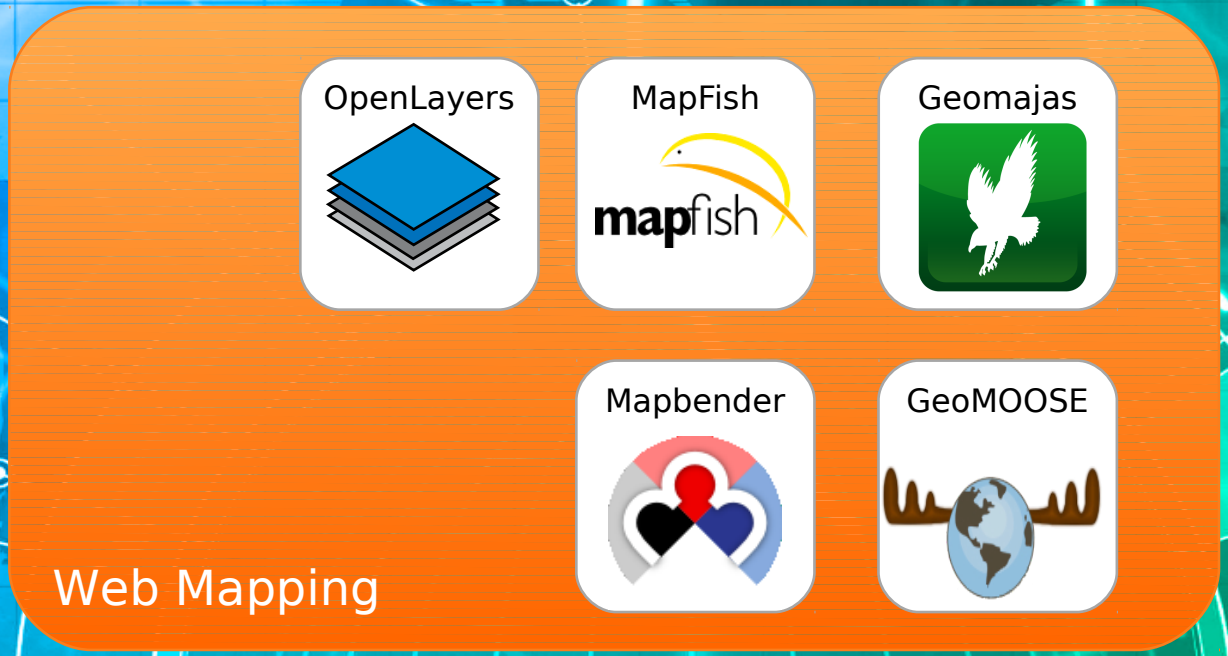
GeoNetwork – Metadata Catalogue



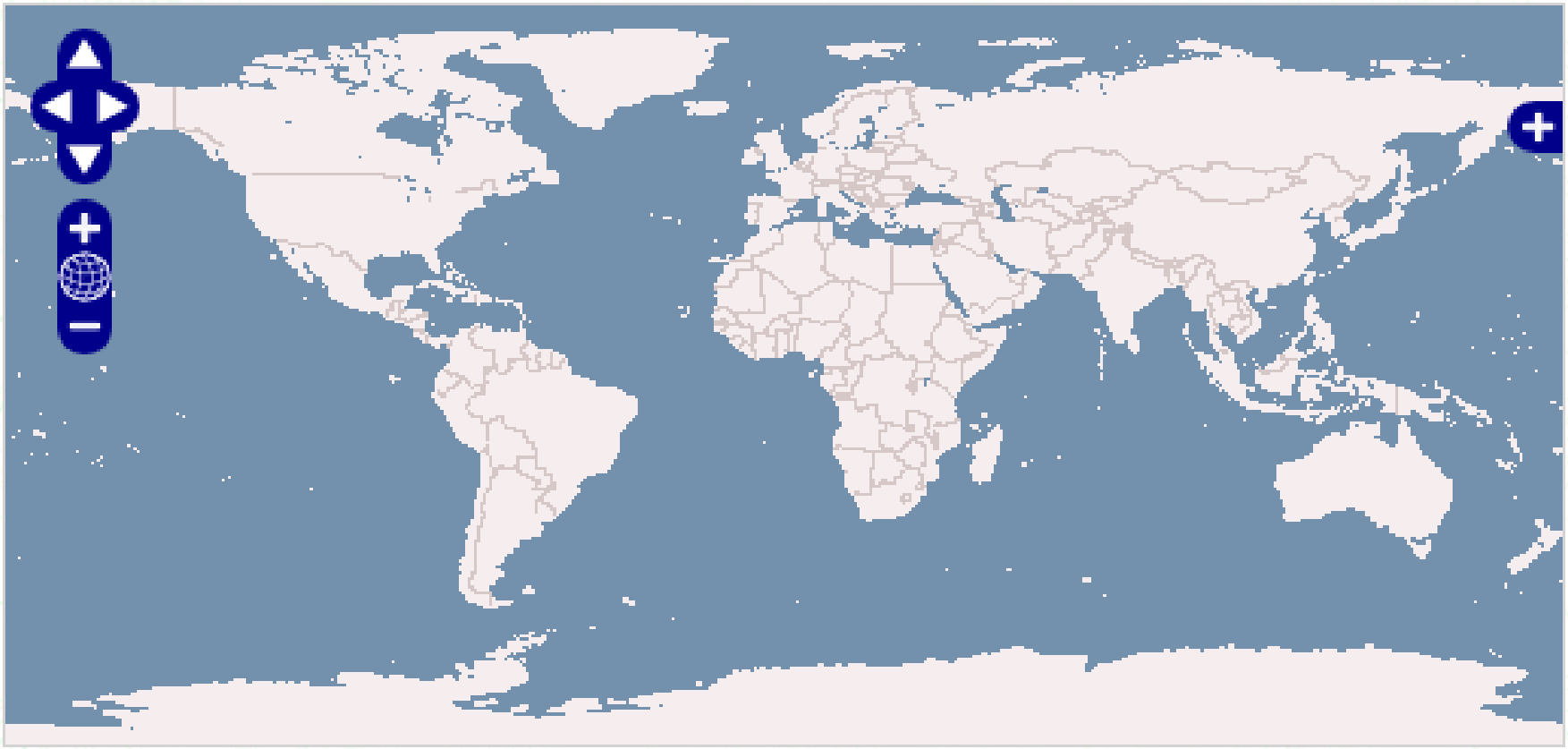
pycsw – Metadata Catalogue



Web Mapping


OpenLayers
MapFish
mapfish
Geomajas
Mapbender
GeoMOOSE
Web Mapping

OpenLayers – Browser client



MapFish – Browser Client

LISAsoft

Schweizerische Eidgenossenschaft
Confédération suisse
Confederazione Svizzera
Confederaziun svizra

Federal Administration admin.ch
Federal Department of Economic Affairs FDEA
Federal veterinary office FVO - InfoSM

Contakt | Help

Deutsch | Français
Italiano | **English**

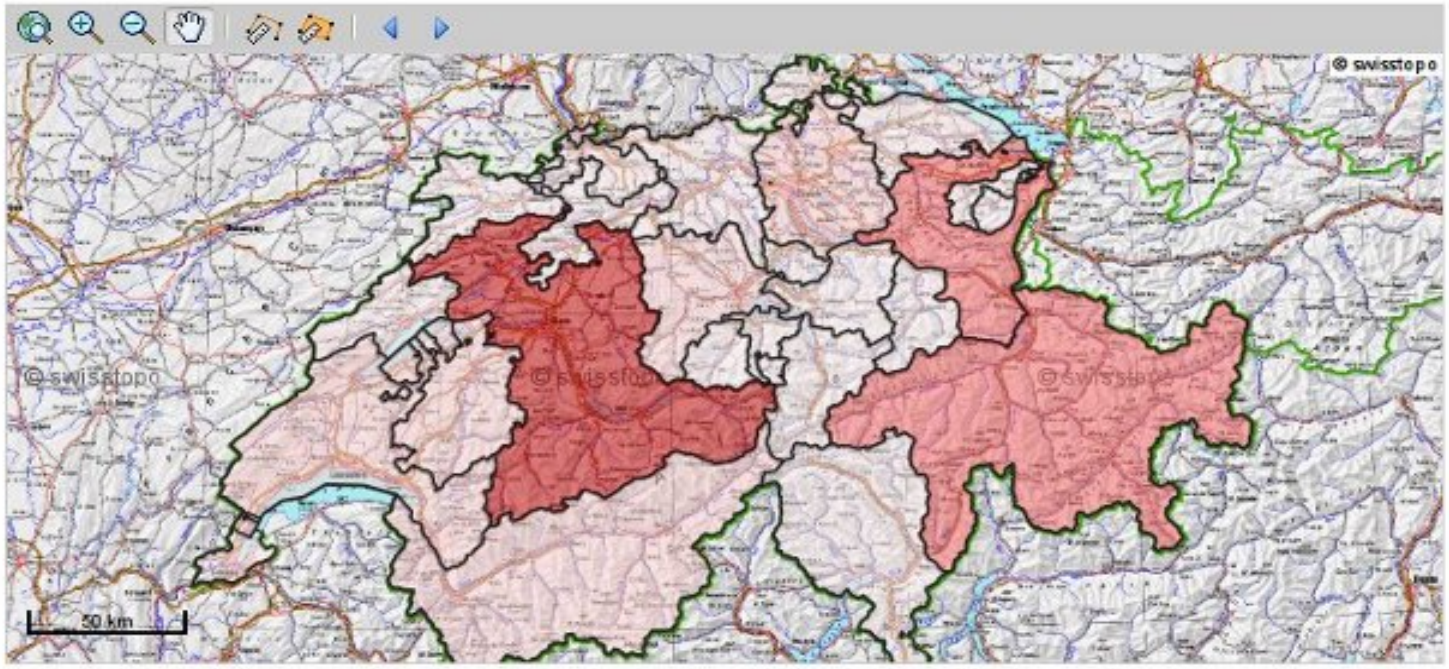
Layer Tree

- Statistiken
  - Aggregierte Daten
- Thematiken
- Background

Print

Overview Map

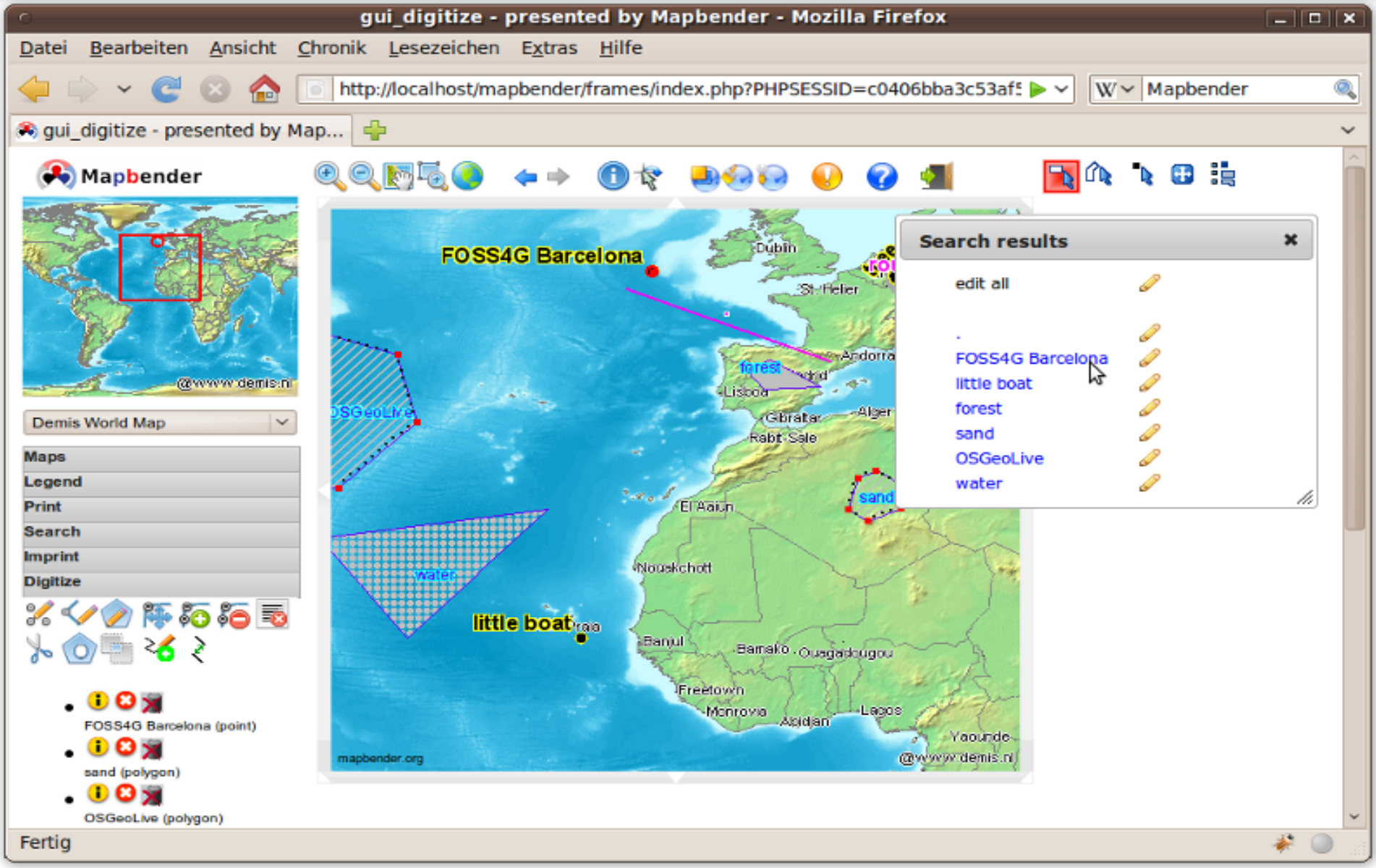
InfoSM > **Geographic analysis**



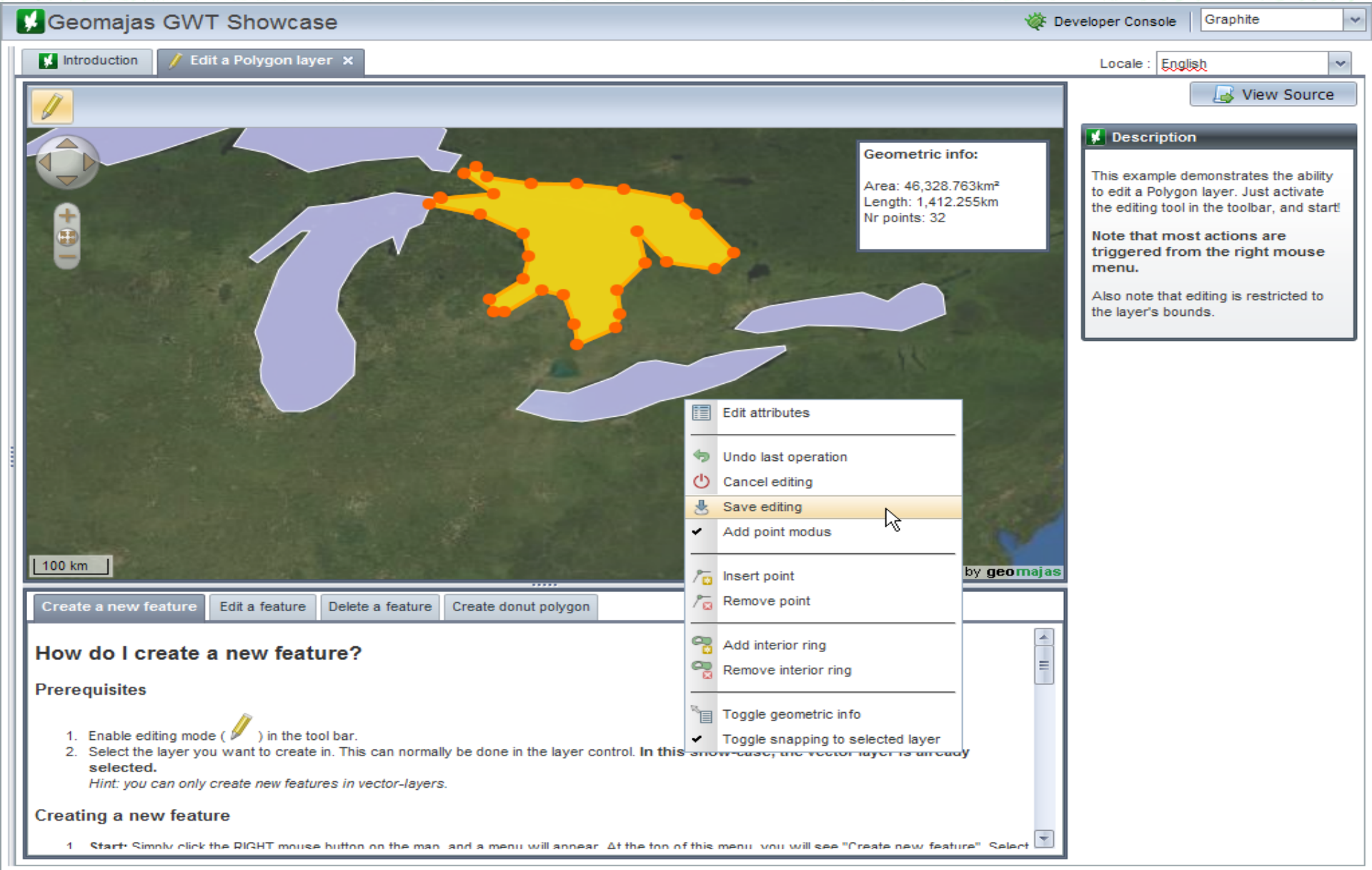
Scale = 1 : 6'500'000
Koordinaten (m): 718825, 165625

Federal veterinary office FVO - InfoSM
Contact | Legal framework

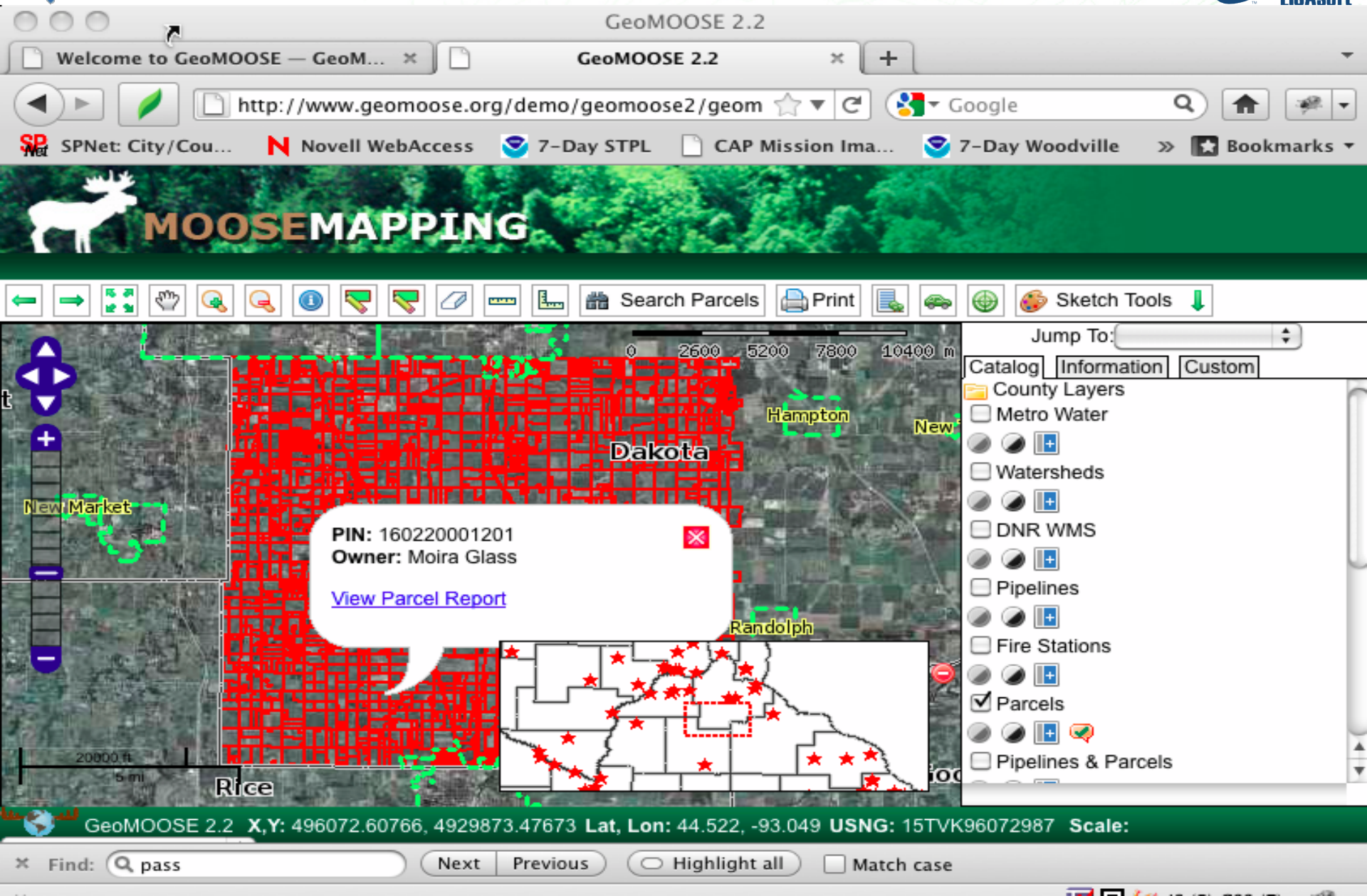
Mapbender – Geoportal Framework



Geomajas – Browser Client



GeoMOOSE – GIS Portal



Desktop Applications

AtlasStyler

Grass GIS

Geopublisher

gvSig

Kosmo

uDig

SAGA

OpenJUMP

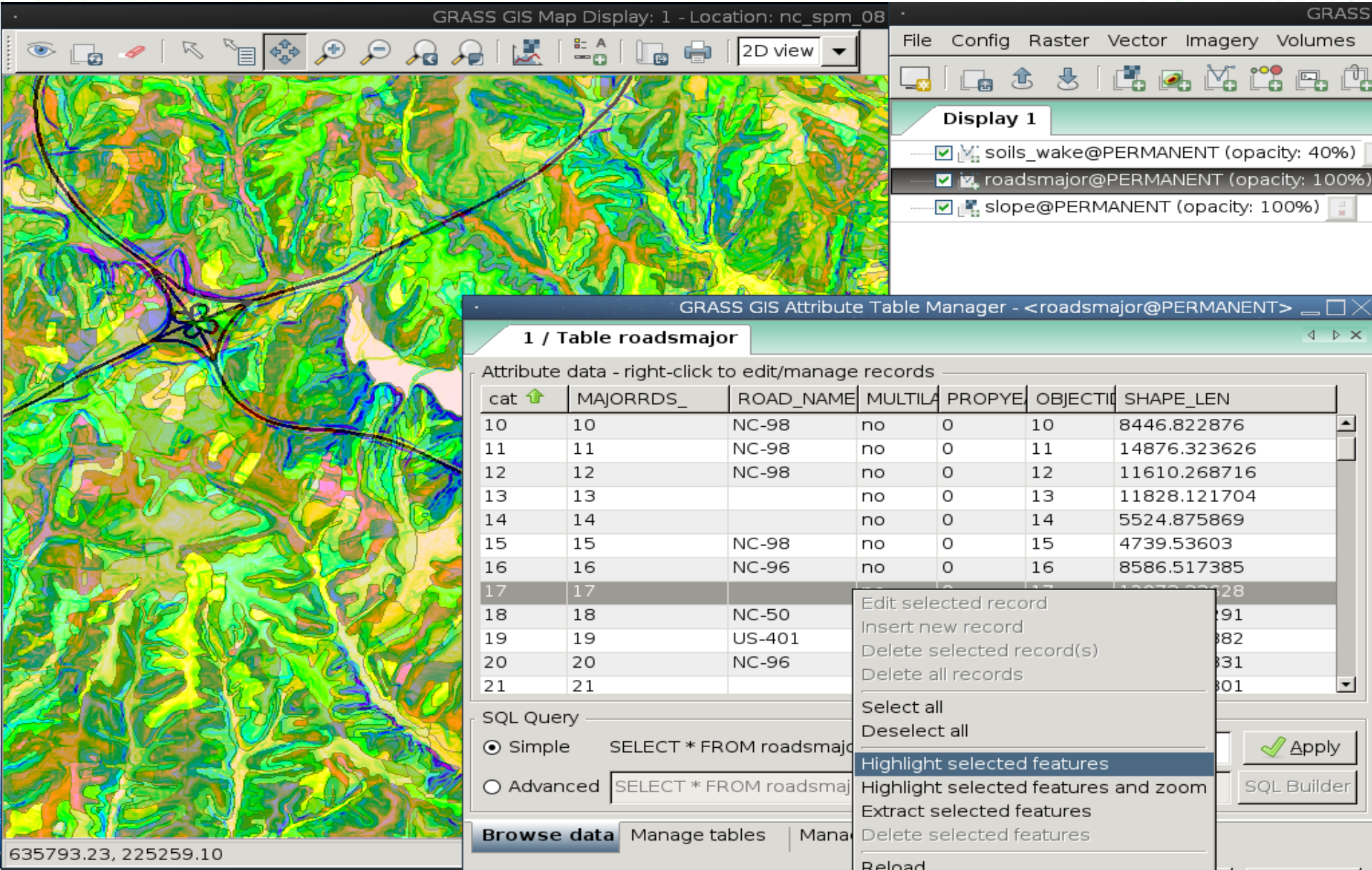
osgEarth

OSSIM

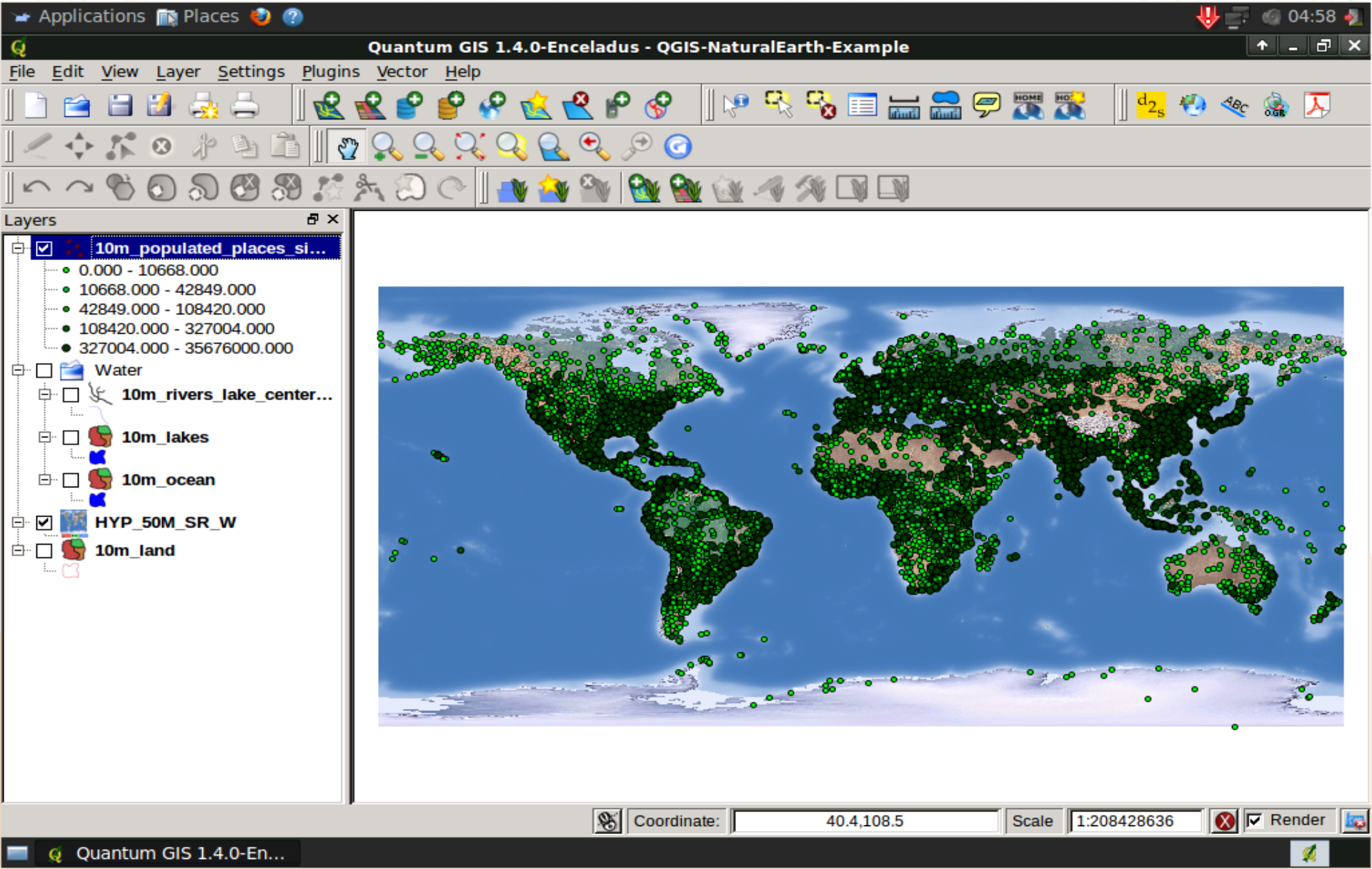
Quantum GIS

MapWindow

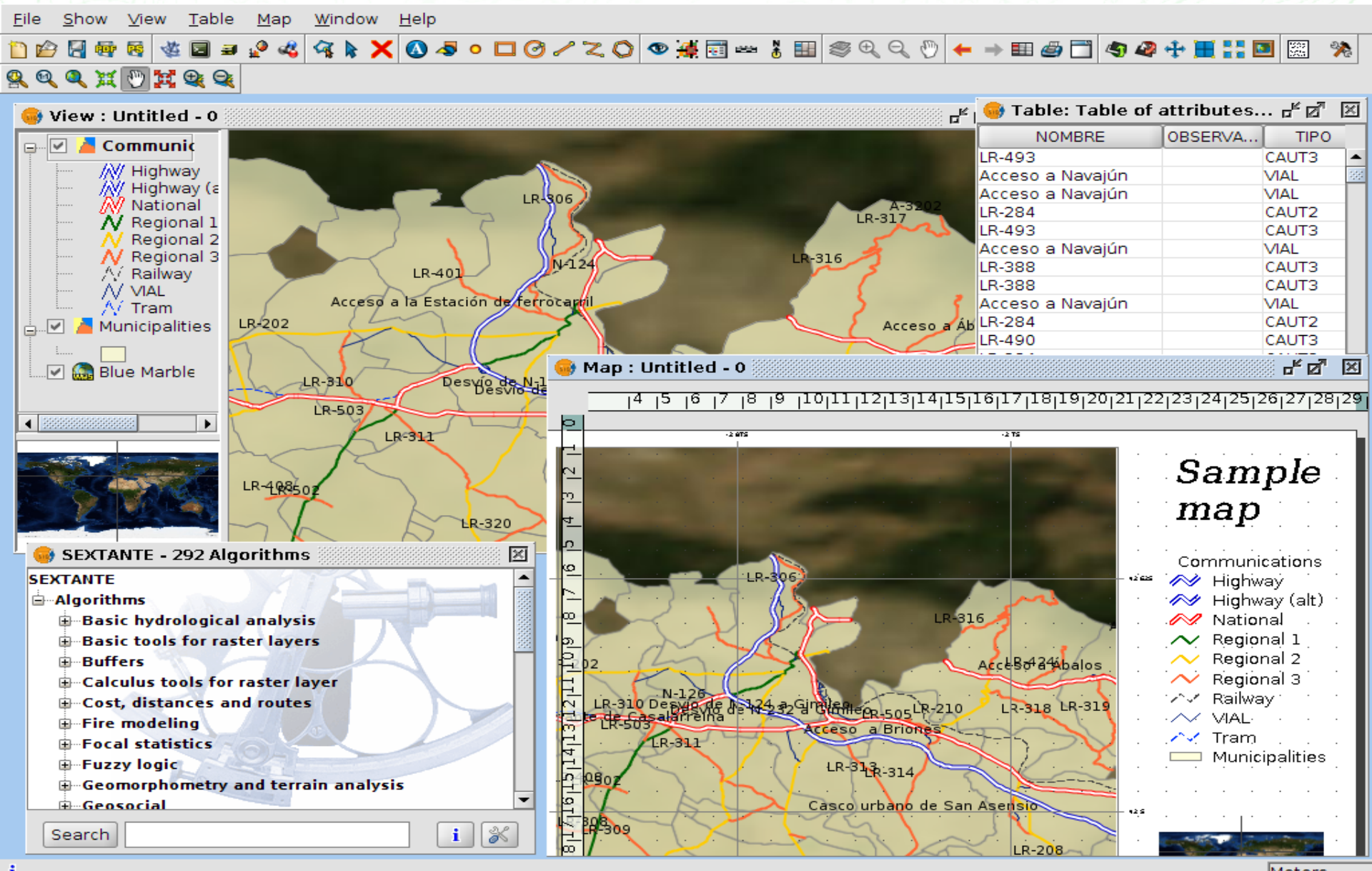
GRASS – Desktop GIS



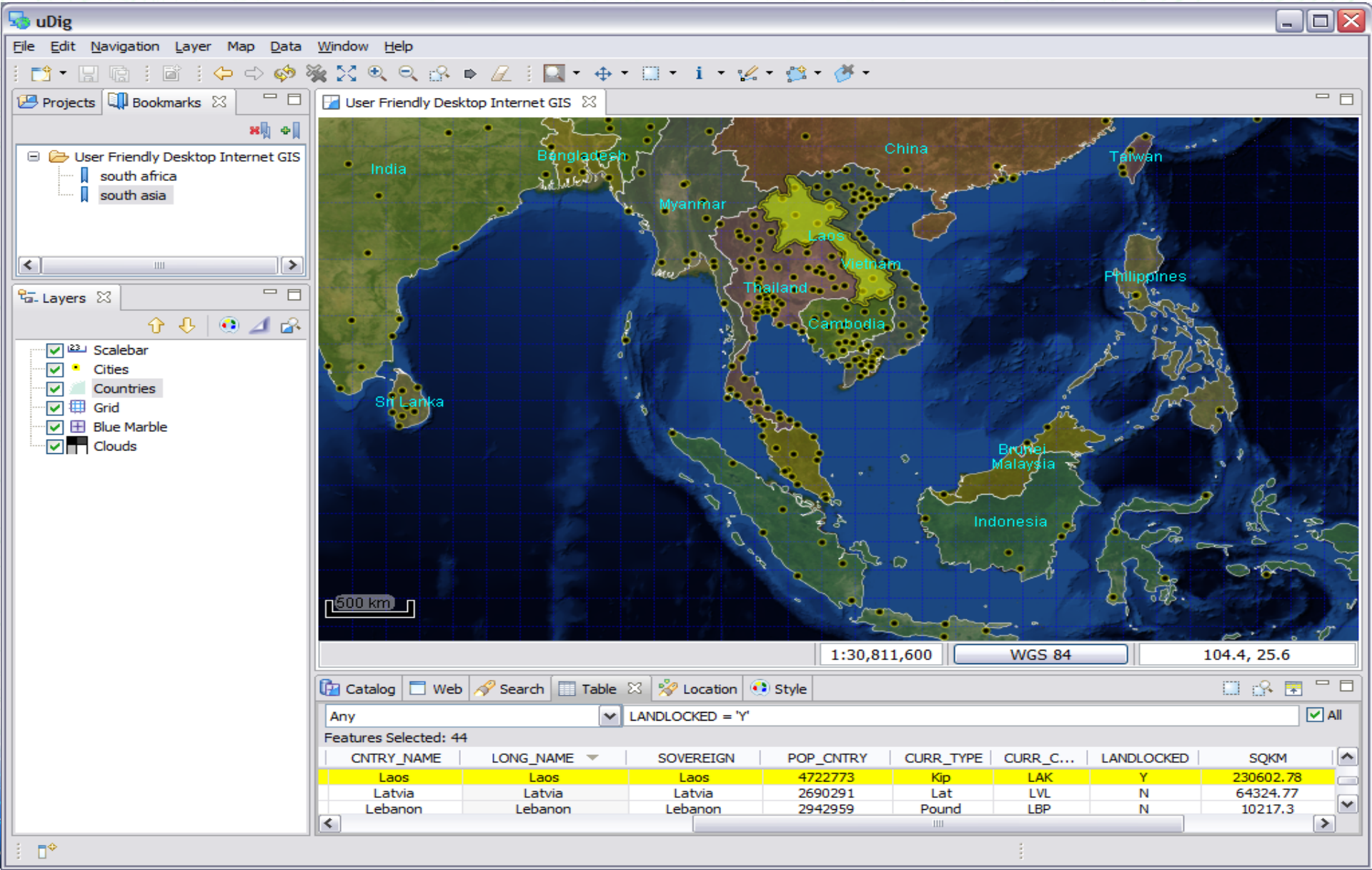
Quantum GIS – Desktop GIS



gvSIG – Desktop GIS

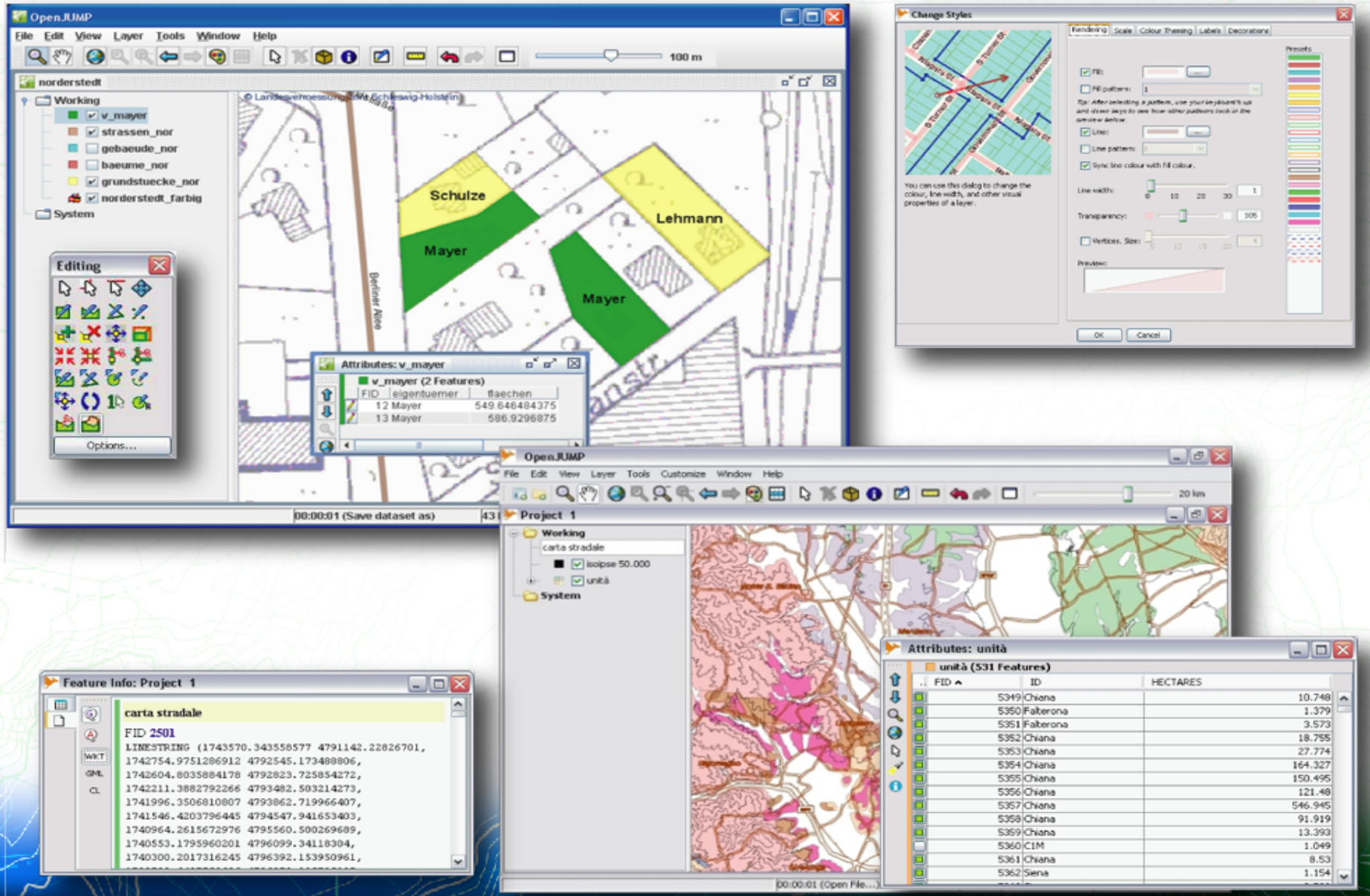


uDig: User-friendly Desktop Internet GIS

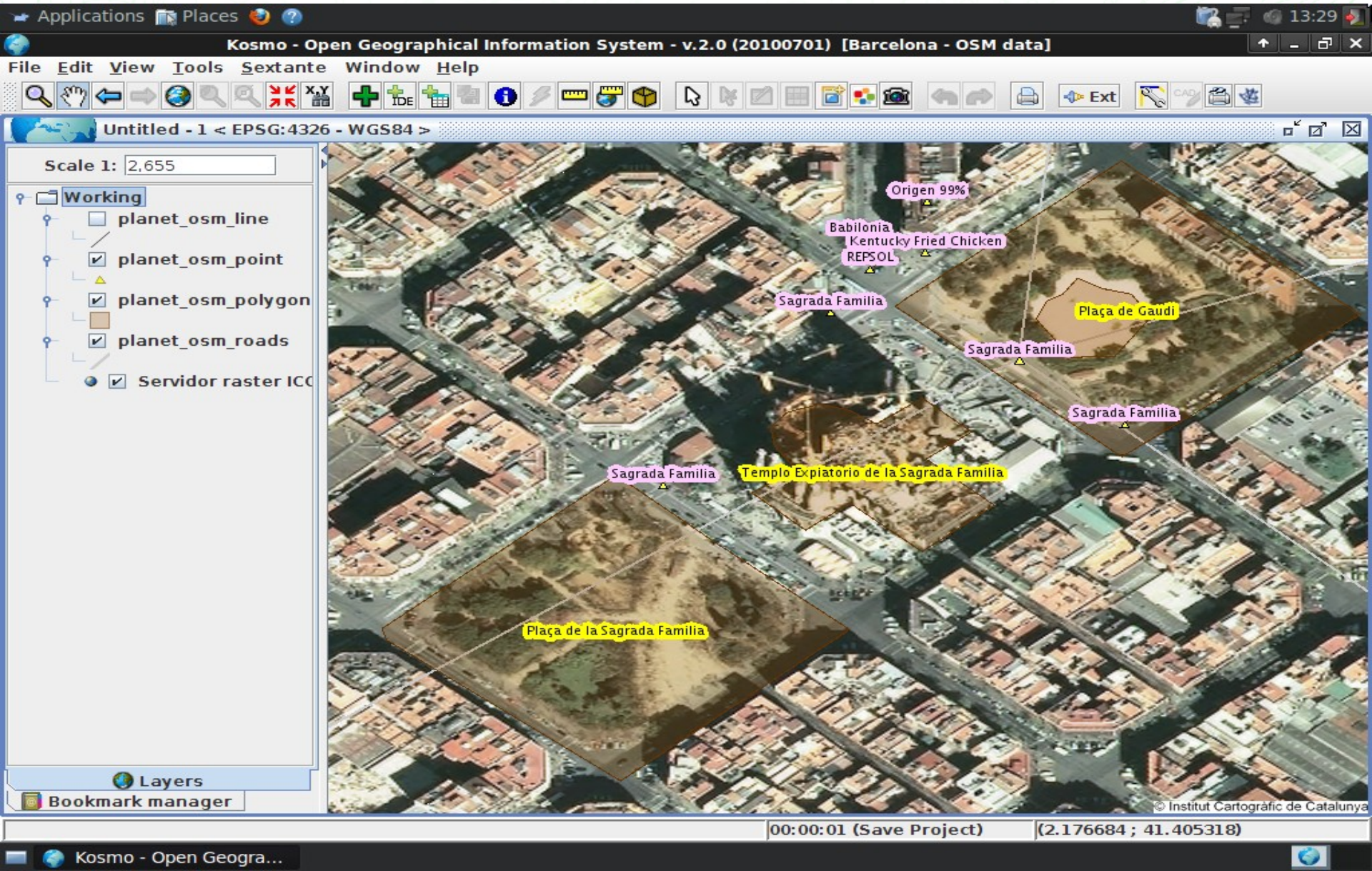


OpenJUMP GIS

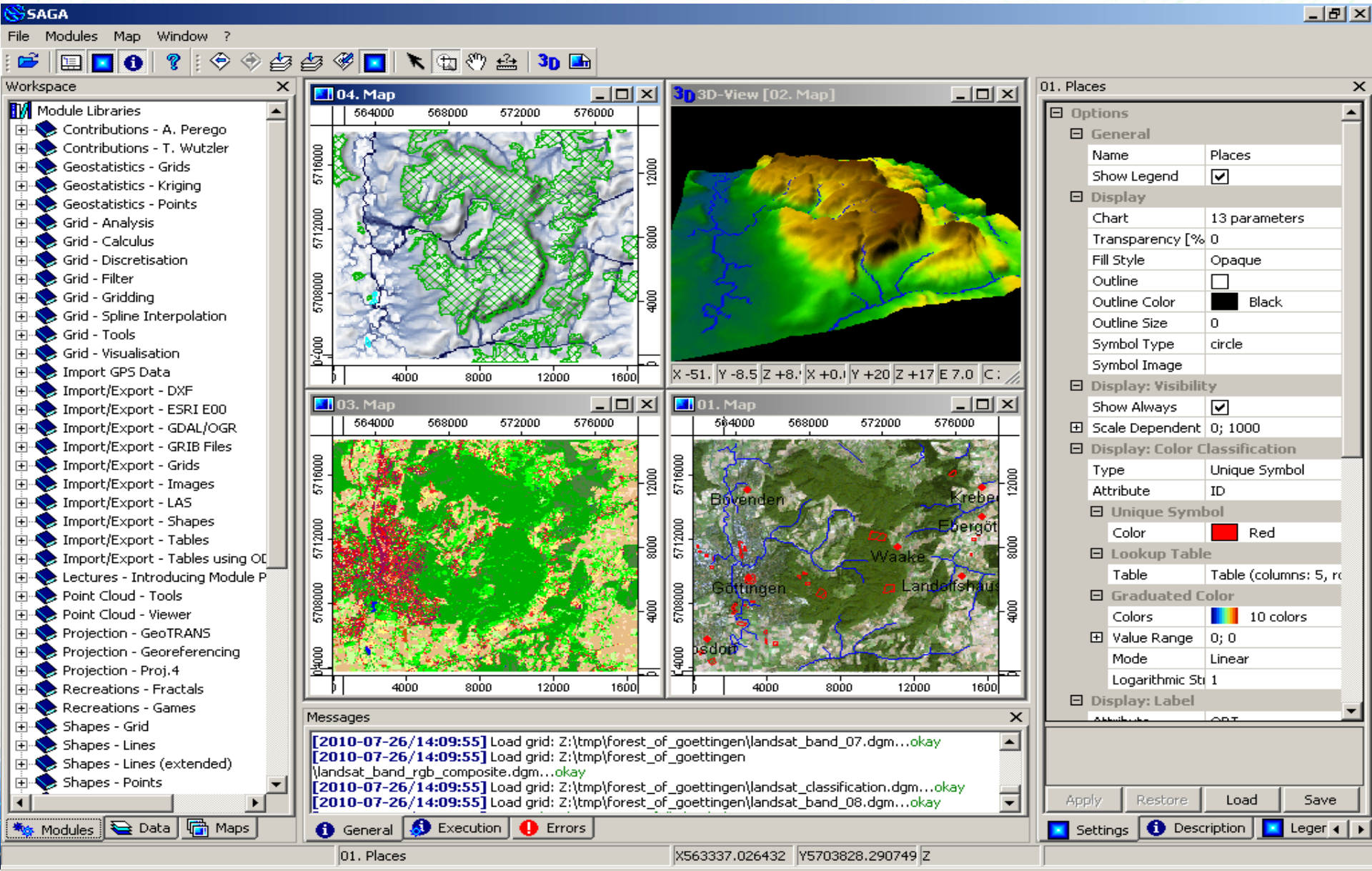
LISAsoft



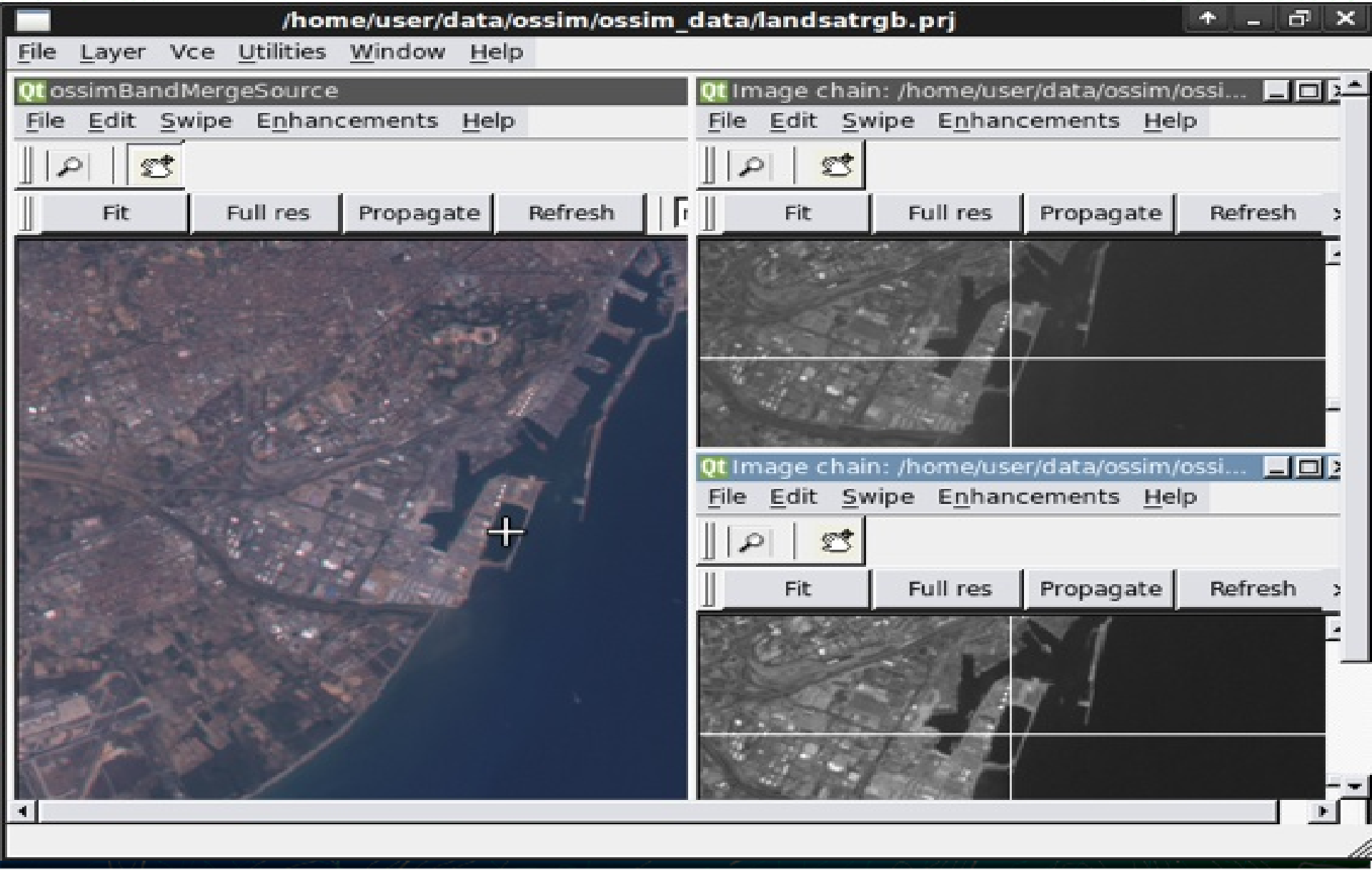
Kosmo – Desktop GIS



SAGA – Desktop GIS

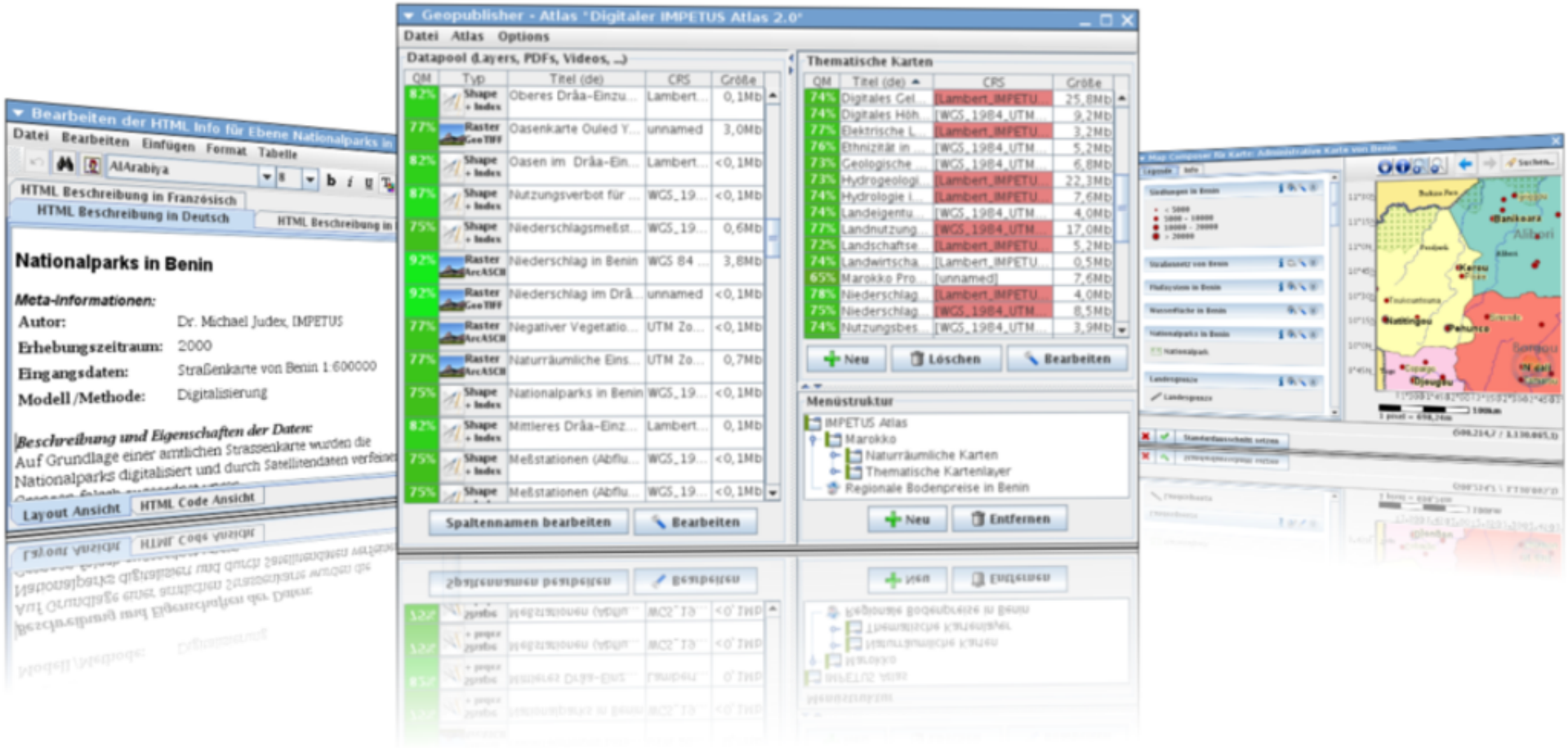


OSSIM - Image Processing



osgEarth - 3 Dimension Terrain Rendering

Geopublisher – Atlas creation



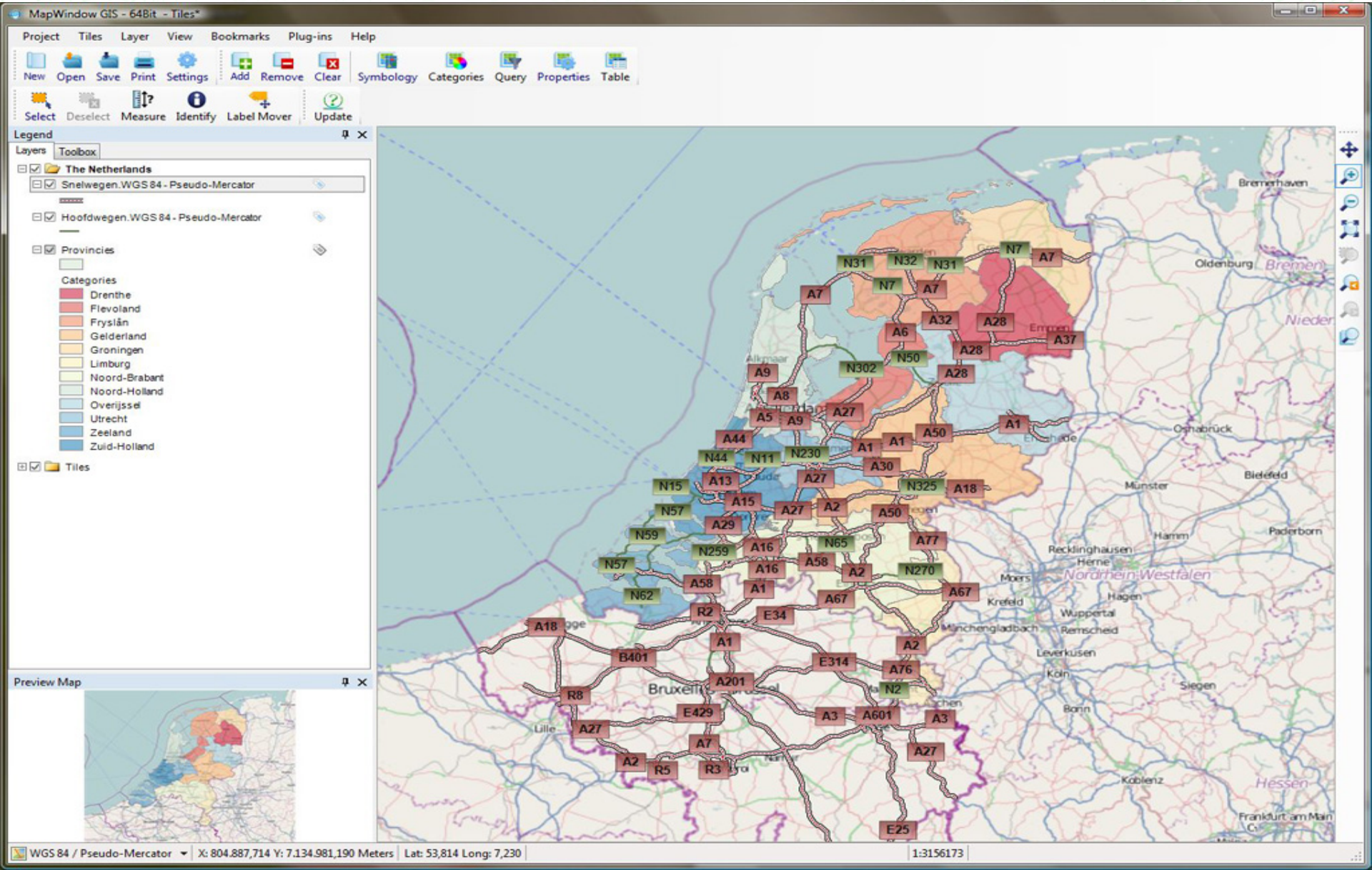
AtlasStyler – Desktop Style Editor

LISAsoft

AtlasStyler

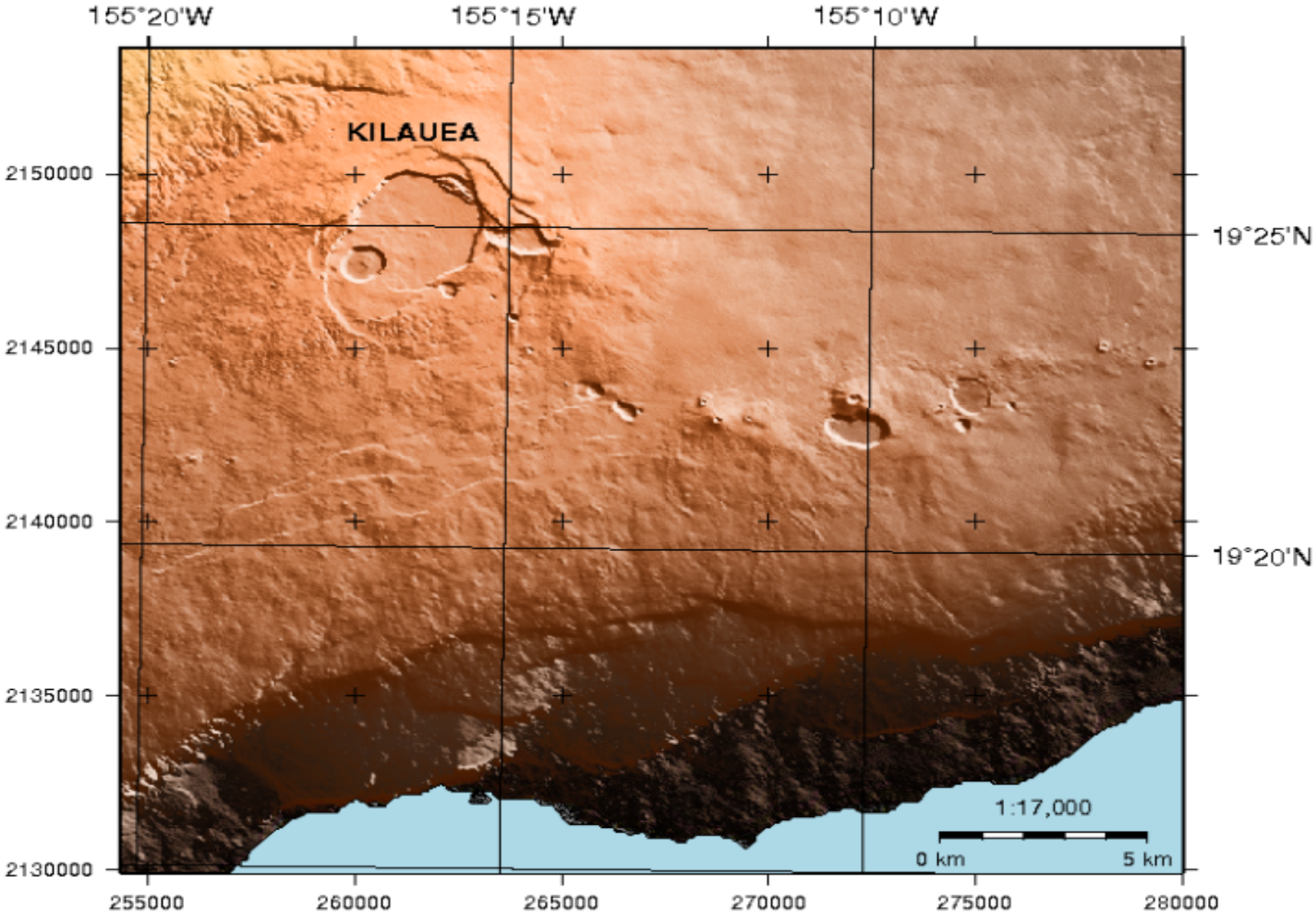
http://live.osgeo.org

MapWindow – for Windows

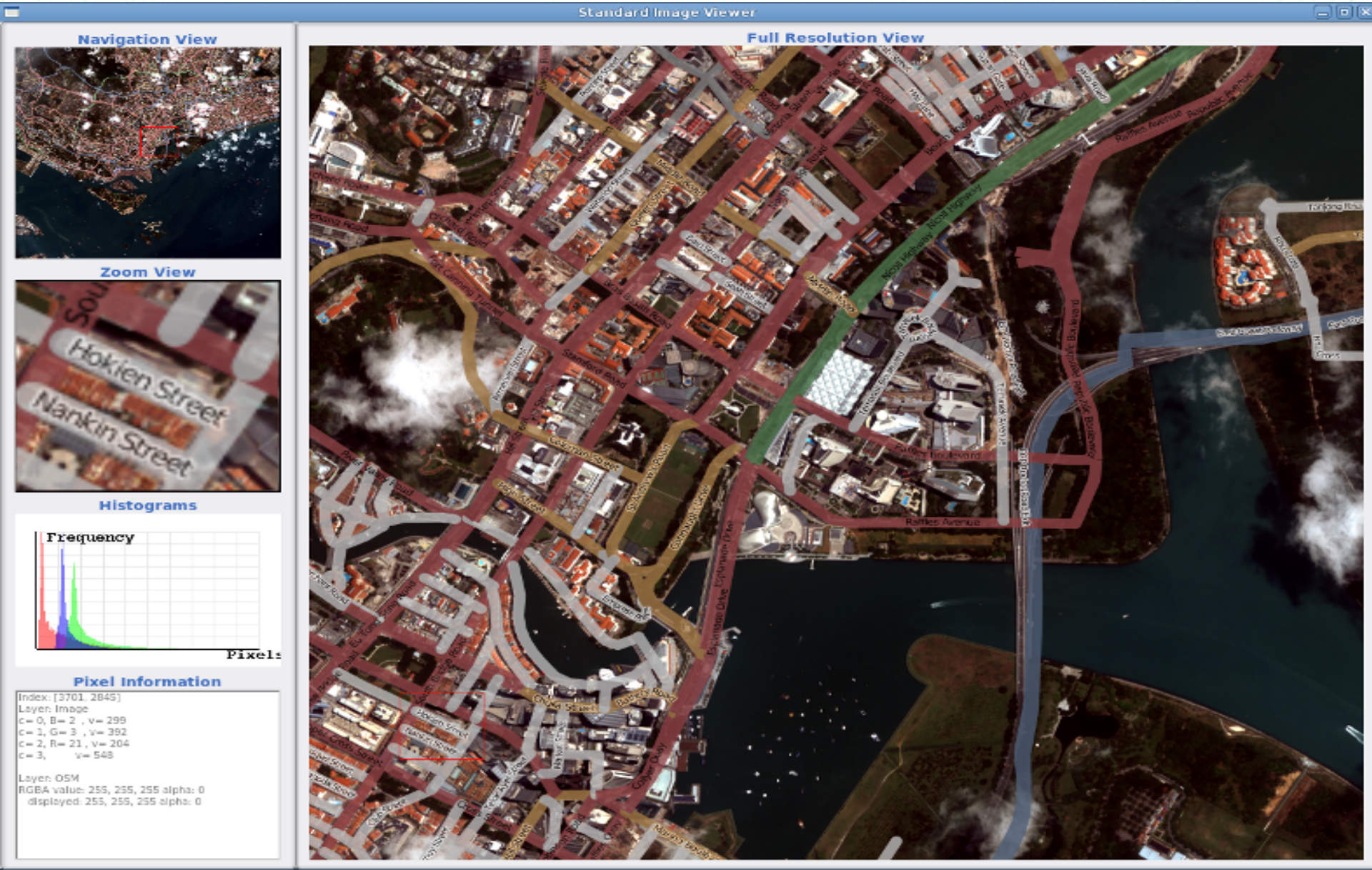


Spatial Tools

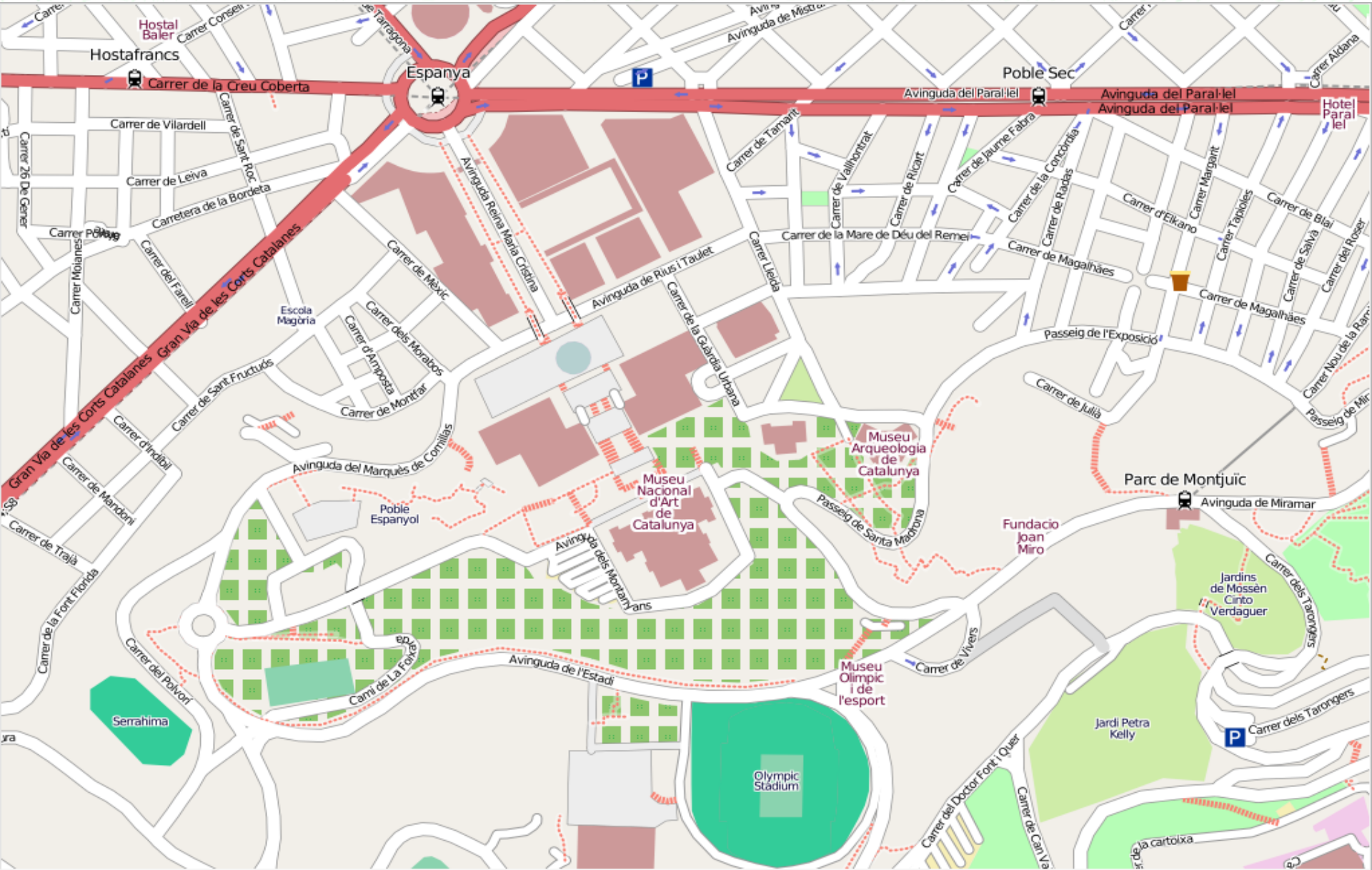
GMT – Generic Mapping Tools



ORFEO Toolbox:Image Processing



Mapnik – Cartographic Rendering



R – Statistical Programing

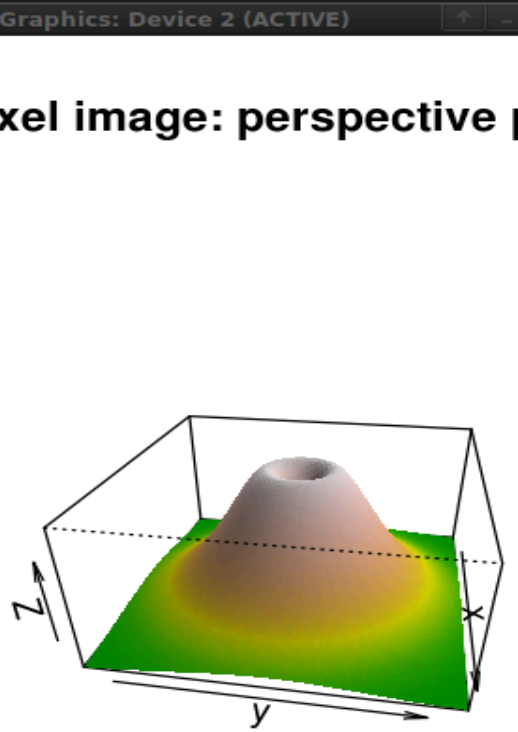
Applications Places 22:33

Terminal - user@osgeolive: ~

File Edit View Terminal Go Help

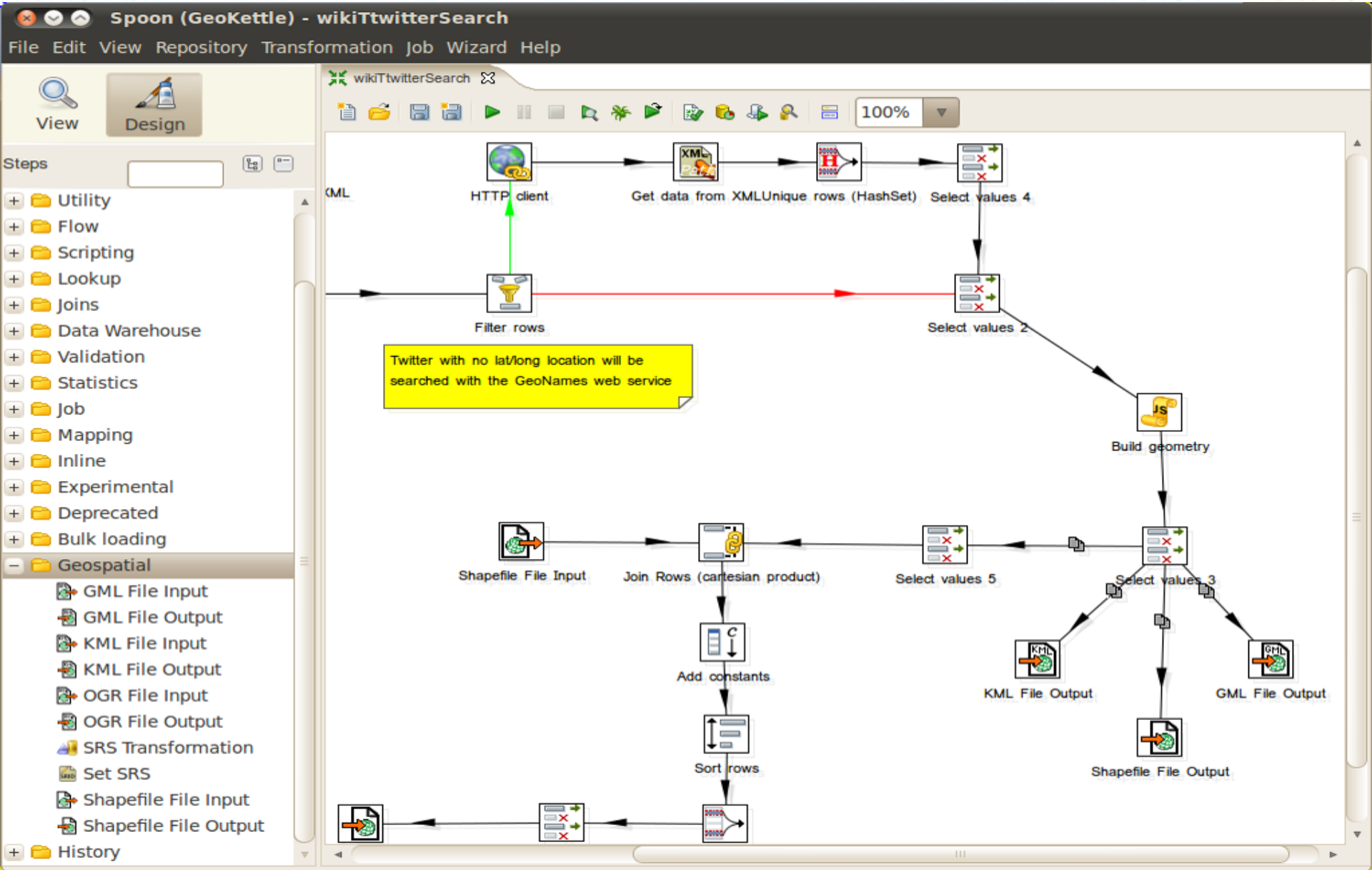
```
> plot(longleaf, markscale=0.09, main="markscale=0.09")

  0  20  40  60  80
0.0 1.8 3.6 5.4 7.2

> par(opa)

> Z <- as.im(function(x,y) { r <- sqrt(x^2+y^2); r * exp(-
r) },
+            owin(c(-5,5),c(-5,5)))

> plot(Z, main="pixel image: image plot")
Hit <Return> to see next plot:

> plot(Z, main="pixel image: image plot (heat colours)", c
ol=heat.colors(256))
Hit <Return> to see next plot:

> contour(Z, main="pixel image: contour plot", axes=FALSE)
Hit <Return> to see next plot:

> plot(Z, main="pixel image: image + contour plot")
Hit <Return> to see next plot:

> contour(Z, add=TRUE)

> persp(Z, colmap=terrain.colors(128), shade=0.3, phi=30,t
heta=100,
+       main="pixel image: perspective plot")
Hit <Return> to see next plot:

> ct <- colourmap(rainbow(20), breaks=seq(-1,1,length=21))

> plot(ct, main="Colour map for real numbers")
Hit <Return> to see next plot:
```

R Graphics: Device 2 (ACTIVE)



Terminal - user@osge... R Graphics: Device 2 (...

GeoKettle – Extract Transform Load (ETL)



Navigation & Maps

Marble

Prune

GpsDrive

OpenCPN

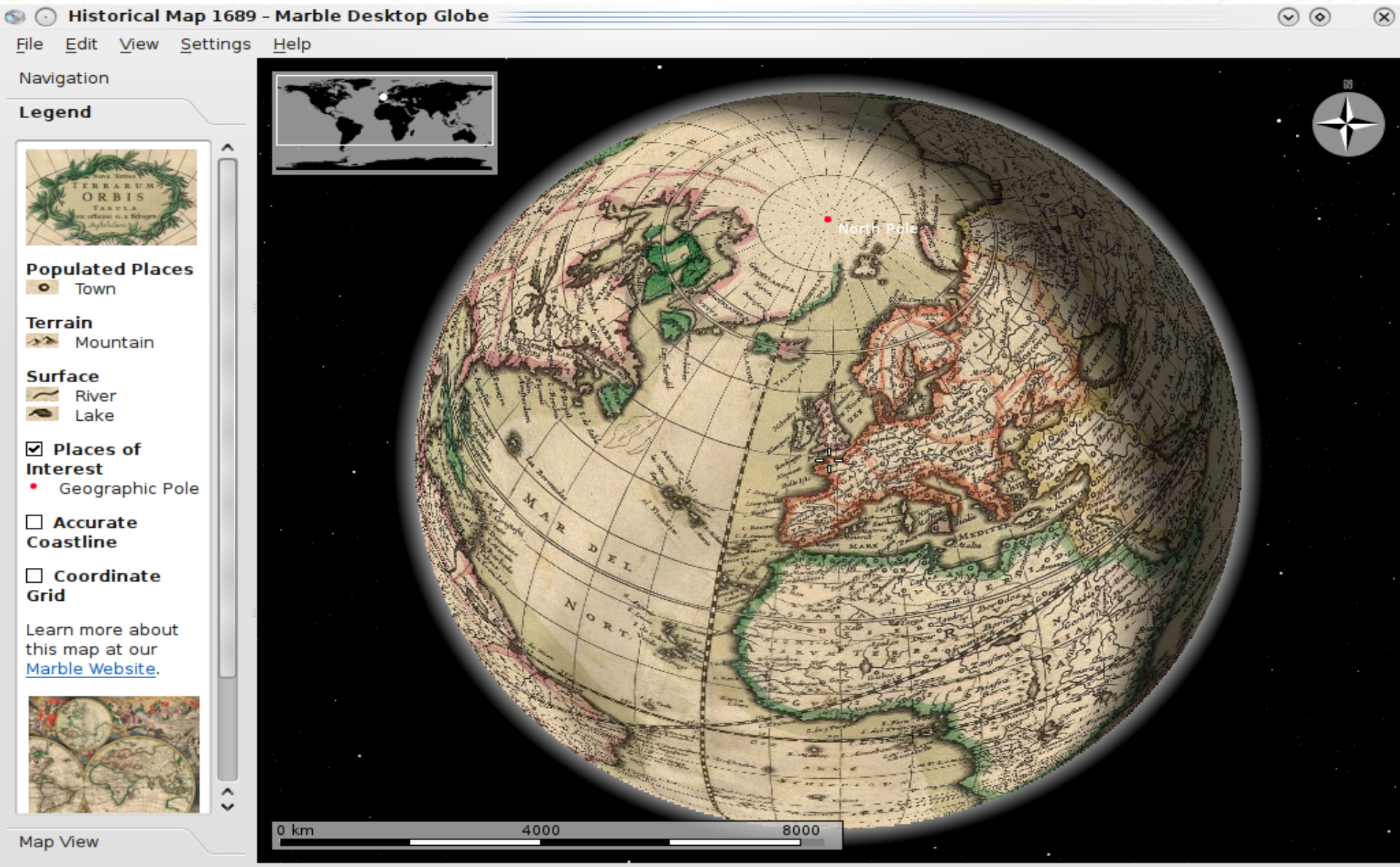
Viking

zyGrib

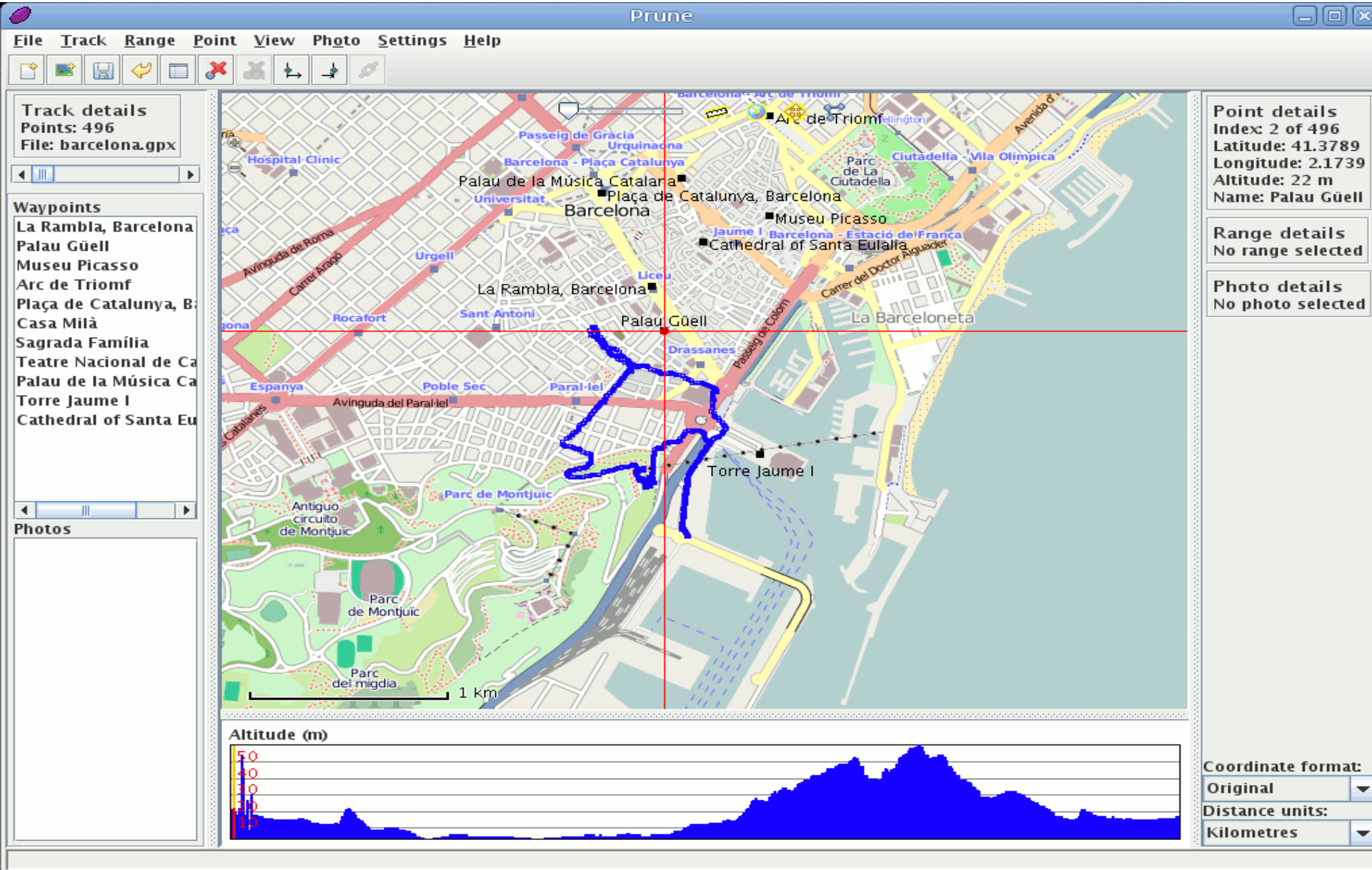
Navigation & Maps

http://live.osgeo.org

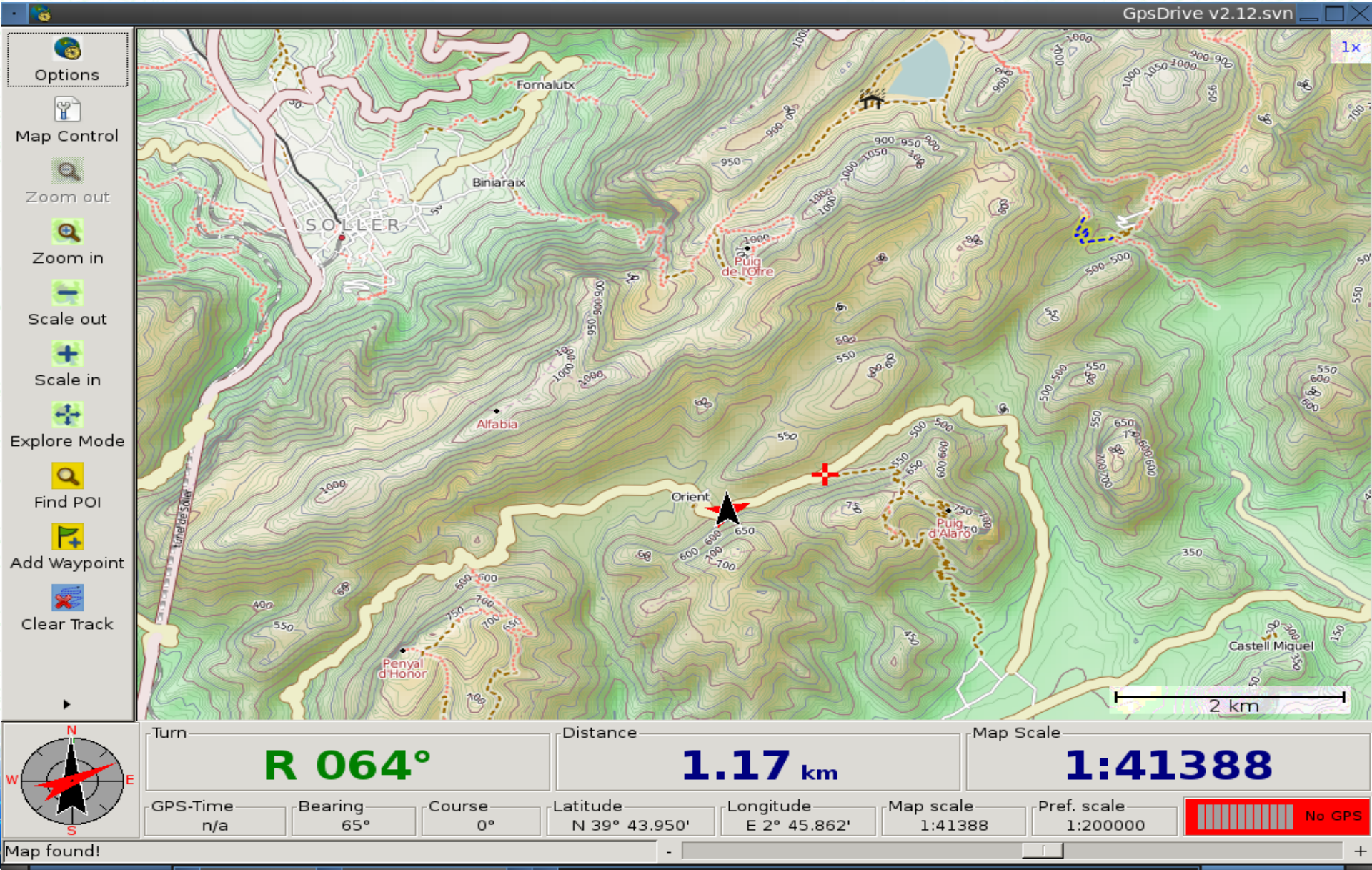
Marble – Spinning Globe



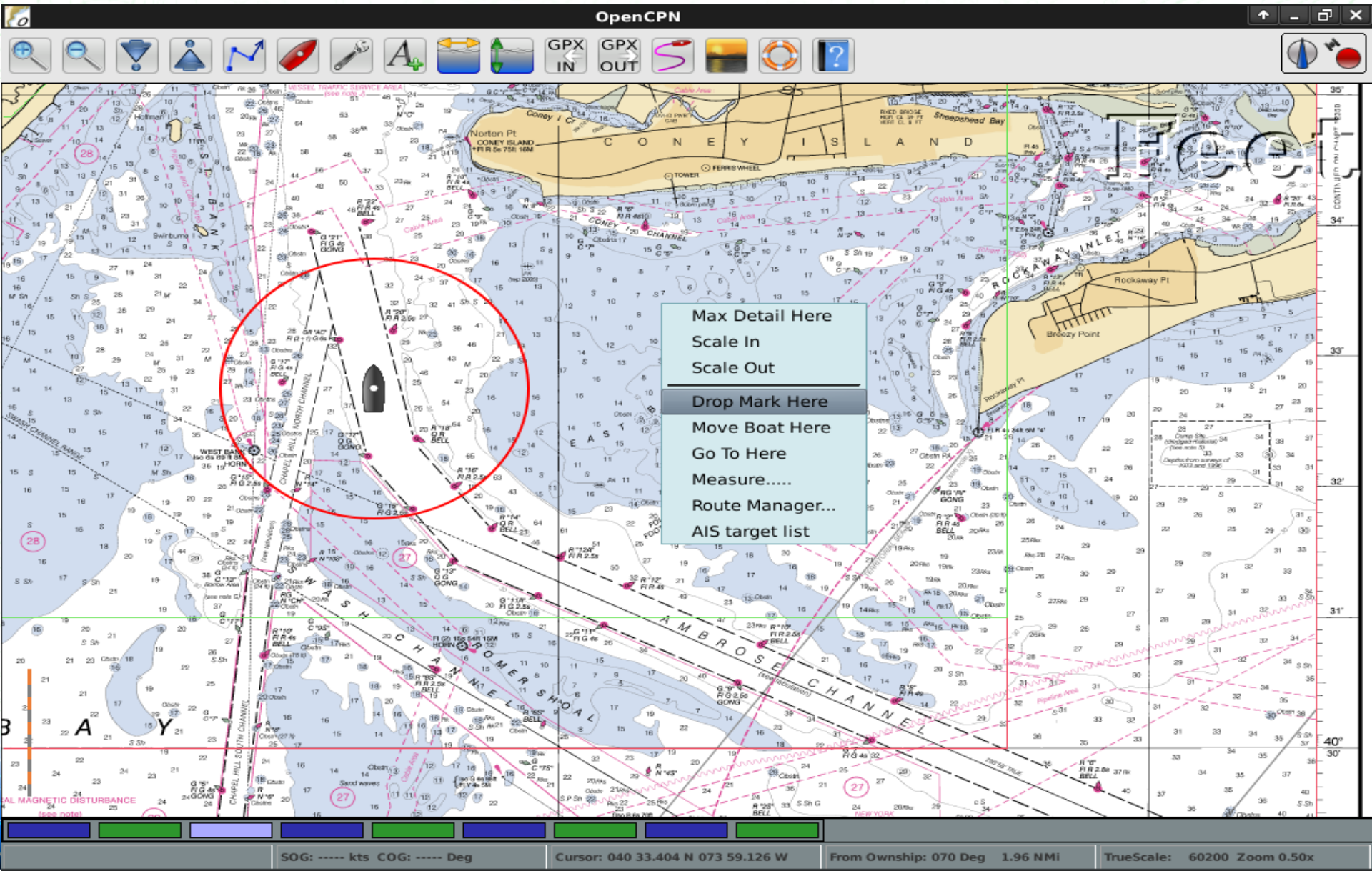
Prune – GPS Track Editing



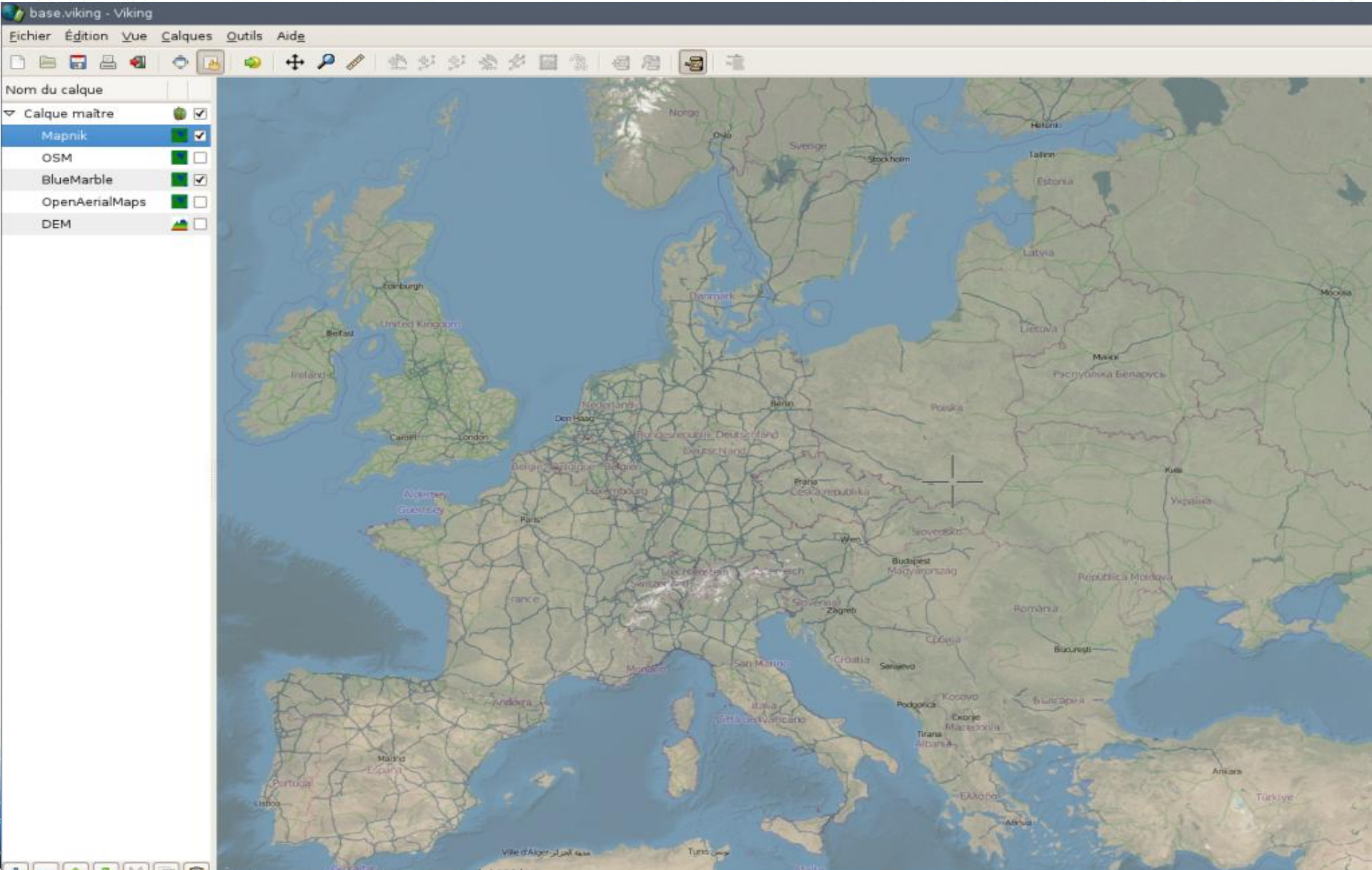
GpsDrive – GPS Navigation



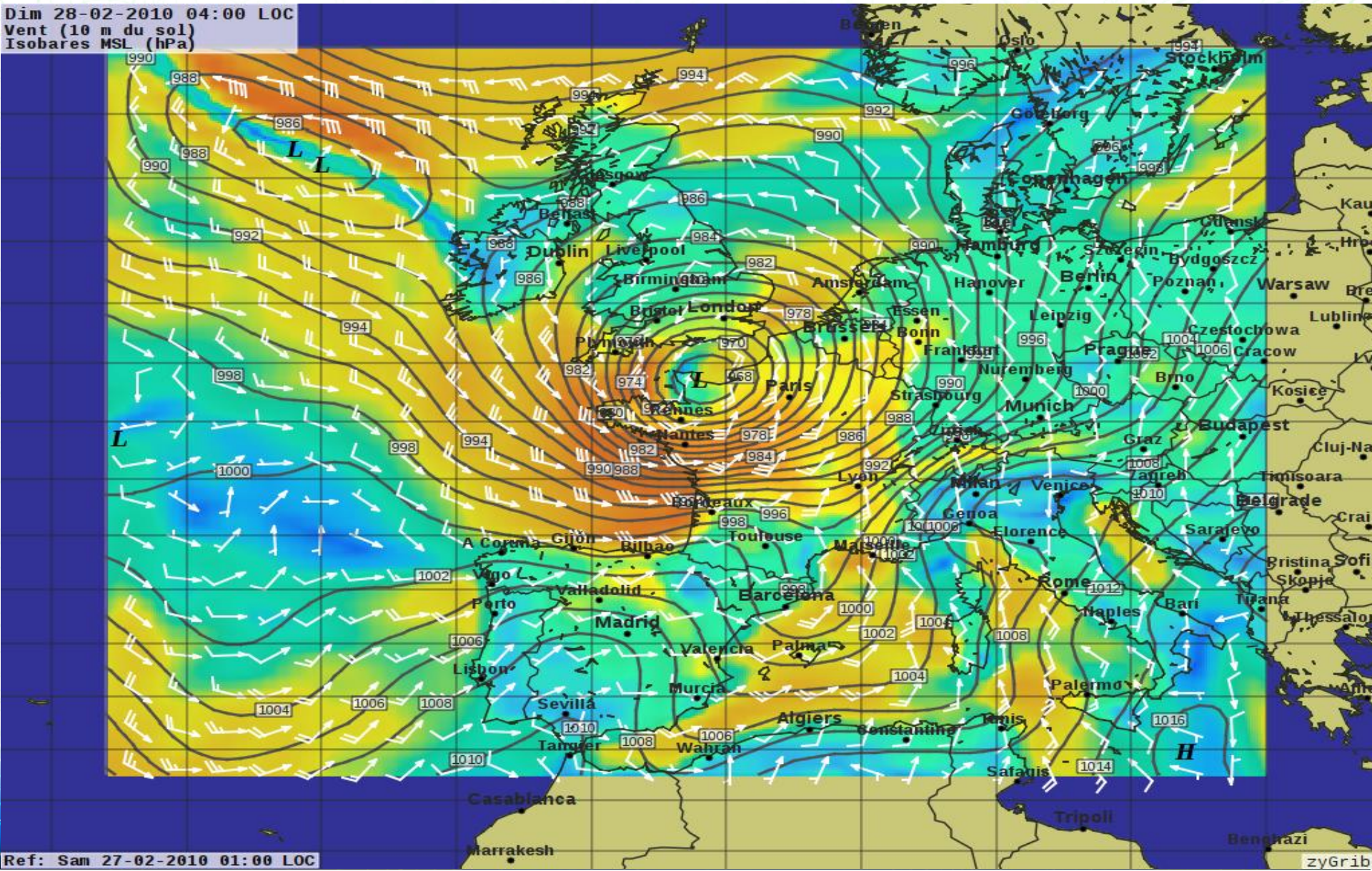
OpenCPN – Marine GPS Navigation



Viking – GPS Navigation



zygrib – Weather Forecasting



Crisis Management

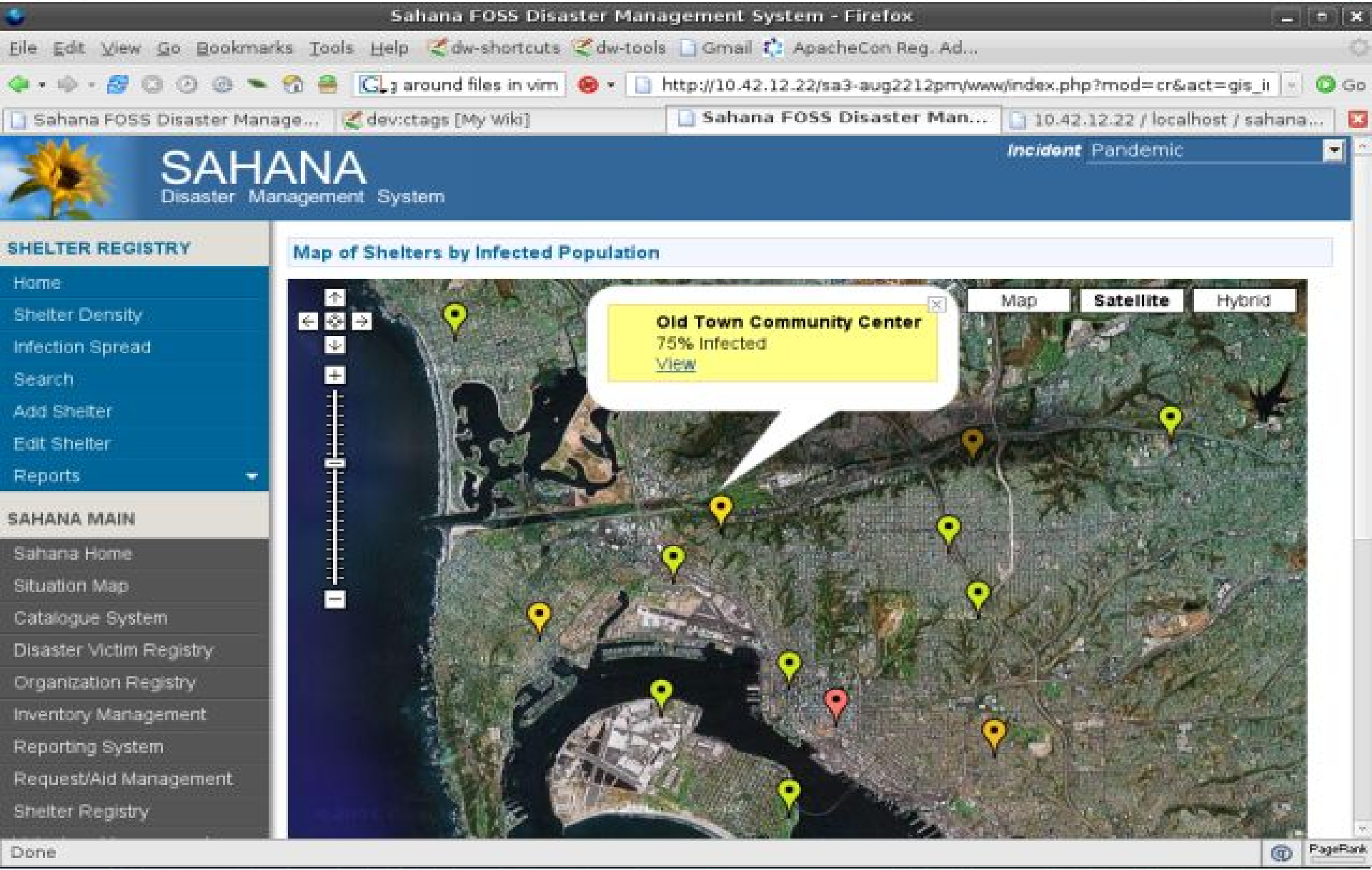
Sahana Agasti

Ushahidi

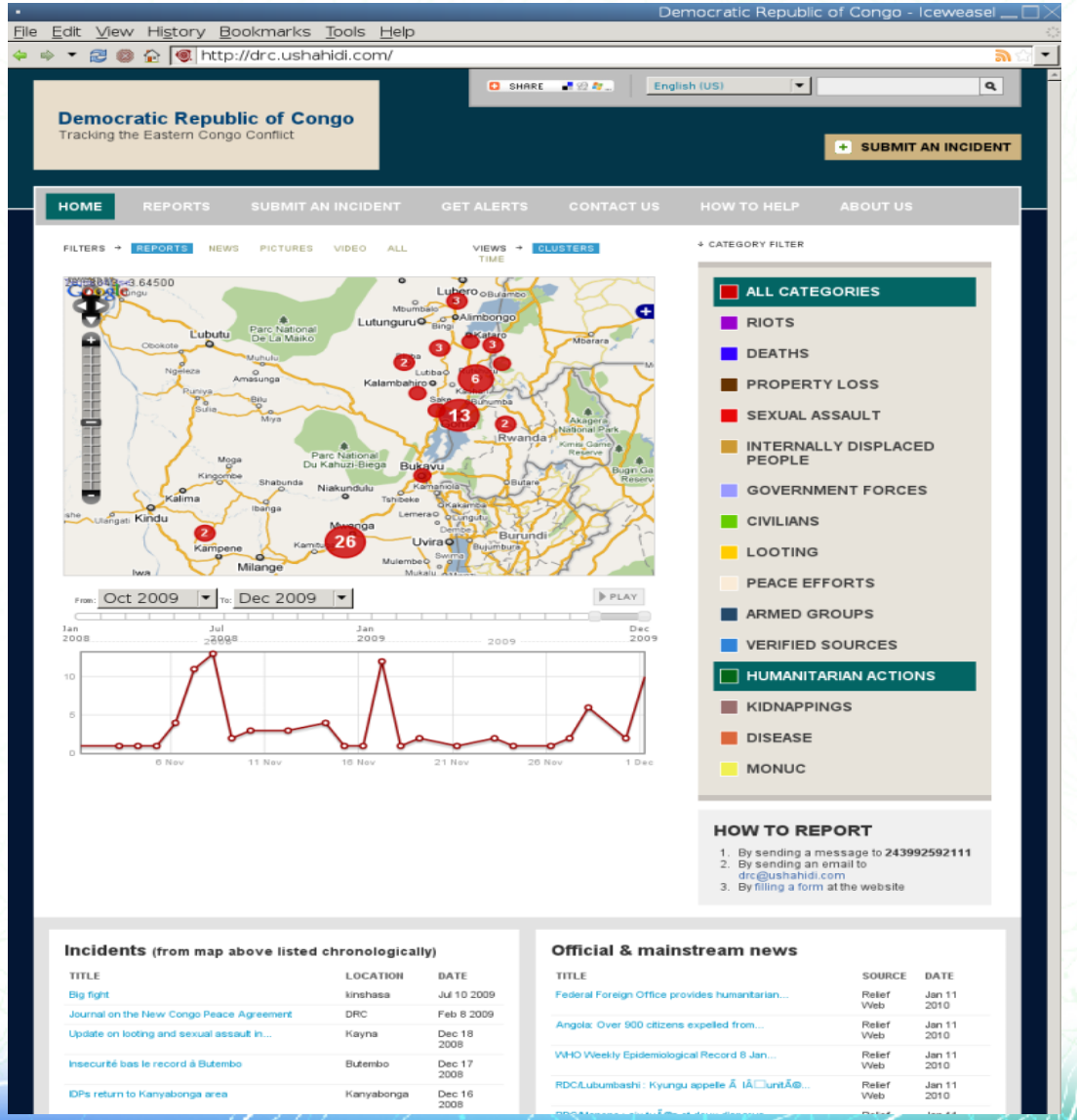
Ushahidi

Crisis Management

Sahana – Disaster Management



Ushahidi – Event Timeline & Maps

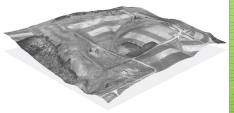


Map Data

Natural Earth

Open Street Map

North Carolina



Map Data

Natural Earth – Map Data

Made with Natural Earth

Free vector and raster map data @ naturalearthdata.com

Large scale data, 1:10m

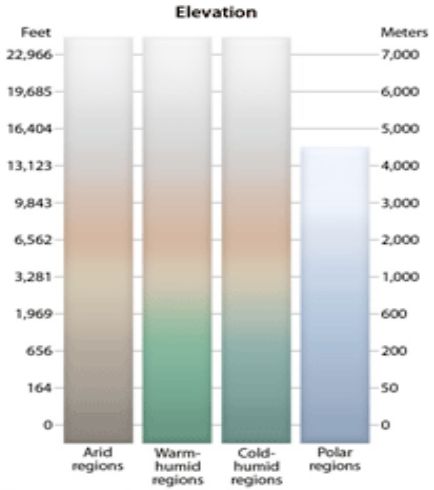
Cultural | Physical | Raster

Medium scale data, 1:50m

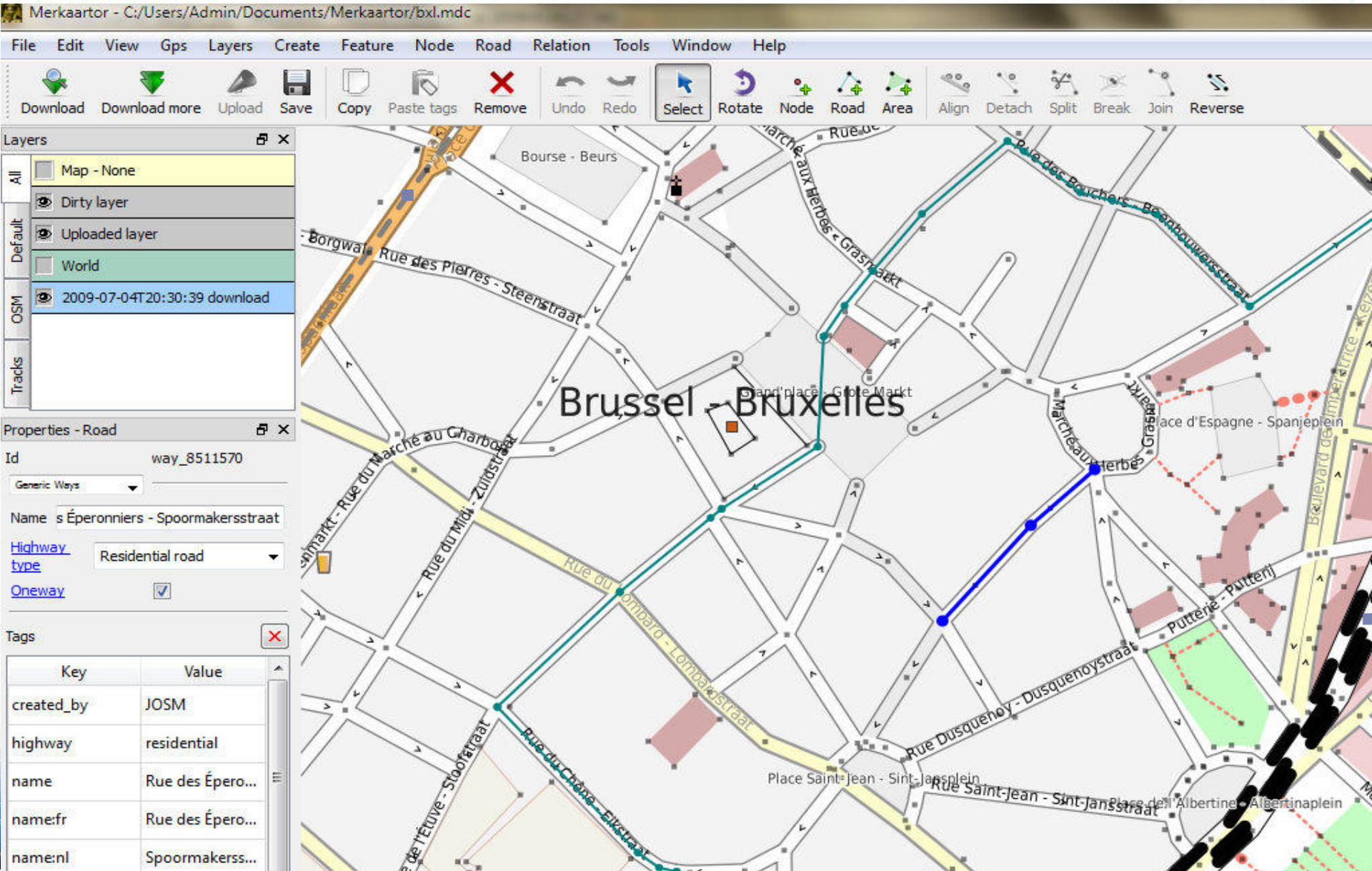
Cultural | Physical | Raster

Small scale data, 1:110m

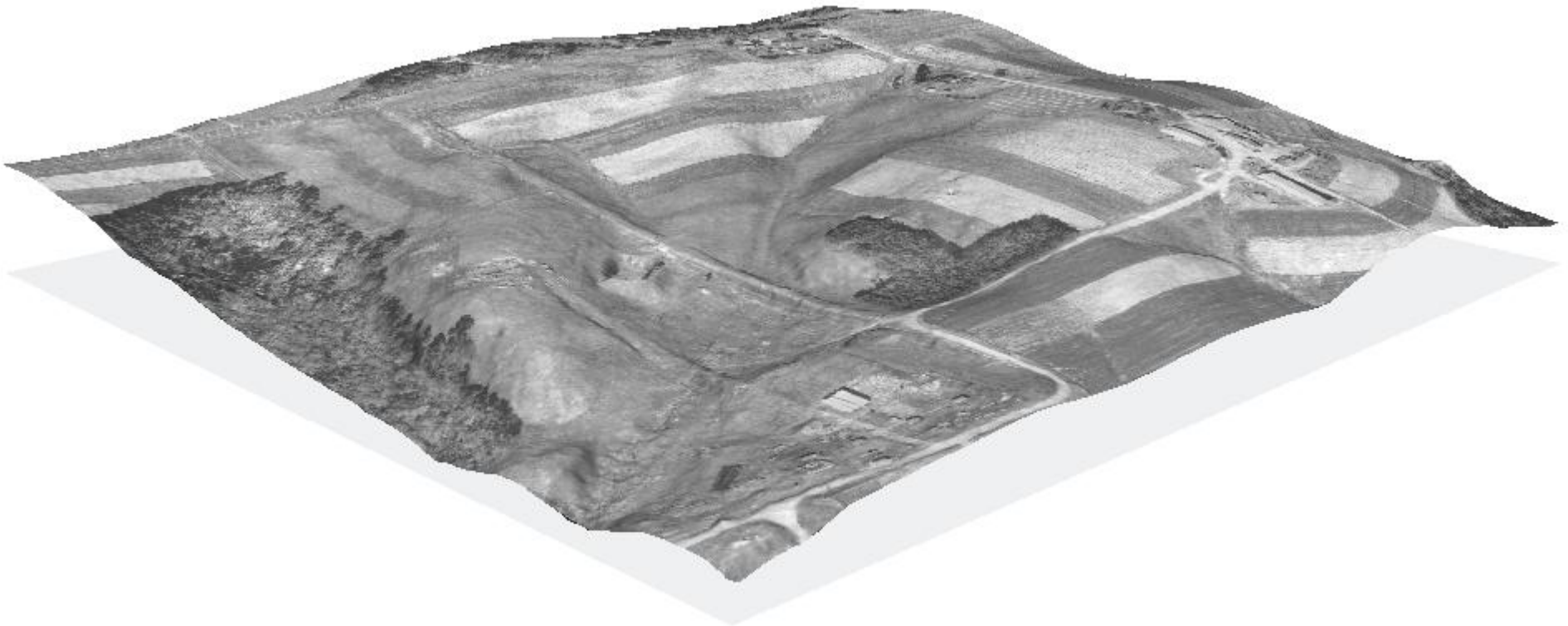
Cultural | Physical



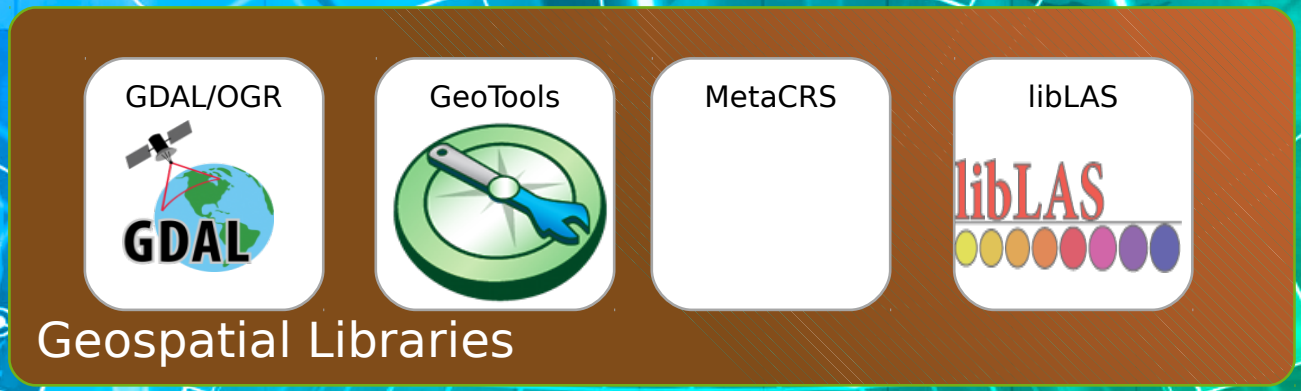
Open Street Map



North Carolina educational dataset



Geospatial Libraries



GDAL/OGR – Data Translation

GDAL/OGR and PROJ.4

http://www.gdal.org

http://proj.osgeo.org

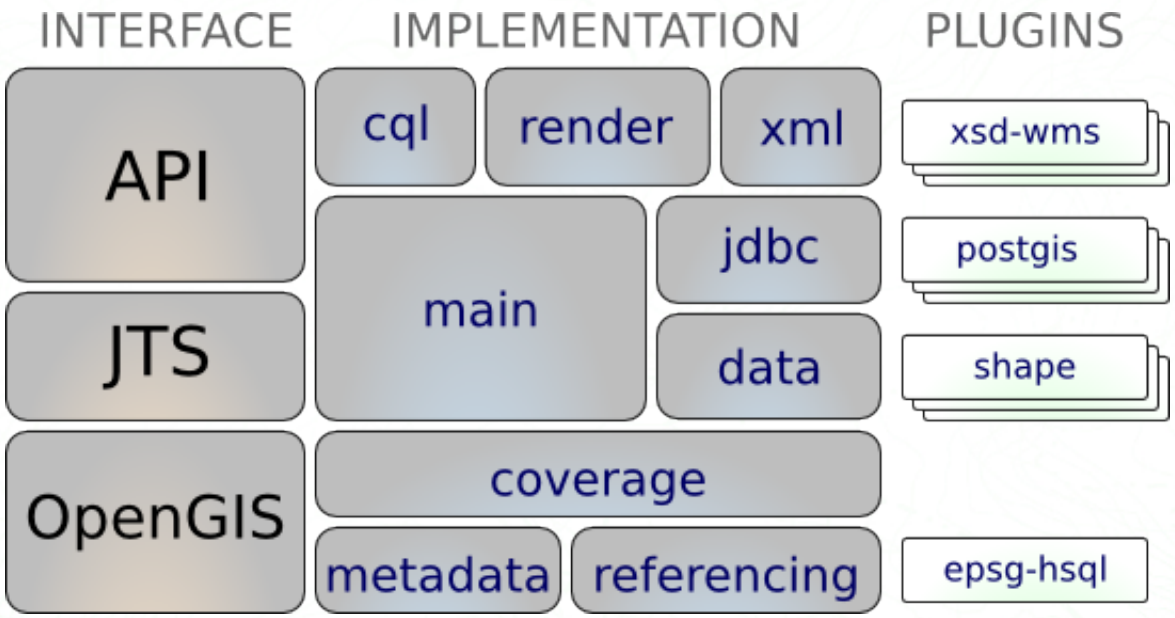
GDAL for Raster Data - The Geospatial Data Abstraction Library

Arc/Info ASCII Grid, **Arc/Info** Binary Grid (.adf), AIRSAR Polarimetric, Microsoft Windows Device Independent Bitmap (.bmp), BSB Nautical Chart Format (.kap), VTP Binary Terrain Format (.bt), CEOS (Spot for instance), First Generation USGS DOQ (.doq), DODS / OPeNDAP, New Labelled USGS DOQ (.doq), Military Elevation Data (.dt0, .dt1), **ERMapper** Compressed Wavelets (.ecw), **ESRI** .hdr Labelled, ENVI .hdr Labelled Raster, Envisat Image Product (.n1), EOSAT FAST Format, FITS (.fits), Graphics Interchange Format (**.gif**), GMT Compatible netCDF, **GRASS Rasters**, Golden Software ASCII Grid, Golden Software Binary Grid, Golden Software **Surfer** 7 Binary Grid, TIFF / **GeoTIFF** (.tif), GXF - Grid eXchange File, Hierarchical Data Format Release 4 (**HDF4**), Hierarchical Data Format Release 5 (HDF5), **Erdas Imagine** (.img), Vexcel MFF2, **Idrisi** Raster, Image Display and Analysis (WinDisp), ILWIS Raster Map (.mpr,.mpl), Japanese DEM (.mem), **JPEG** JFIF (.jpg), **JPEG2000** (JPEG2000, JP2KAK, JP2ECW, JP2MrSID), NOAA Polar Orbiter Level 1b Data Set (**AVHRR**), Erdas 7.x .LAN and .GIS, Daylon Leveller Heightfield, In Memory Raster, Vexcel MFF, Multi-resolution Seamless Image Database, Meteosat Second Generation, NDF, NITF, **NetCDF**, OGDI Bridge, PCI .aux Labelled, PCI Geomatics Database File, Portable Network Graphics (**.png**), PCRaster (.map), Netpbm (.ppm,.pgm), Swedish Grid RIK (.rik), RadarSat2 XML (product.xml), **ArcSDE** Raster, USGS SDTS DEM (*CATD.DDF), Raster Matrix Format (*.rsw, .mtw), SAR CEOS, **SGI** Image Format, USGS ASCII DEM (.dem), OGC Web Coverage Server, X11 Pixmap (.xpm)

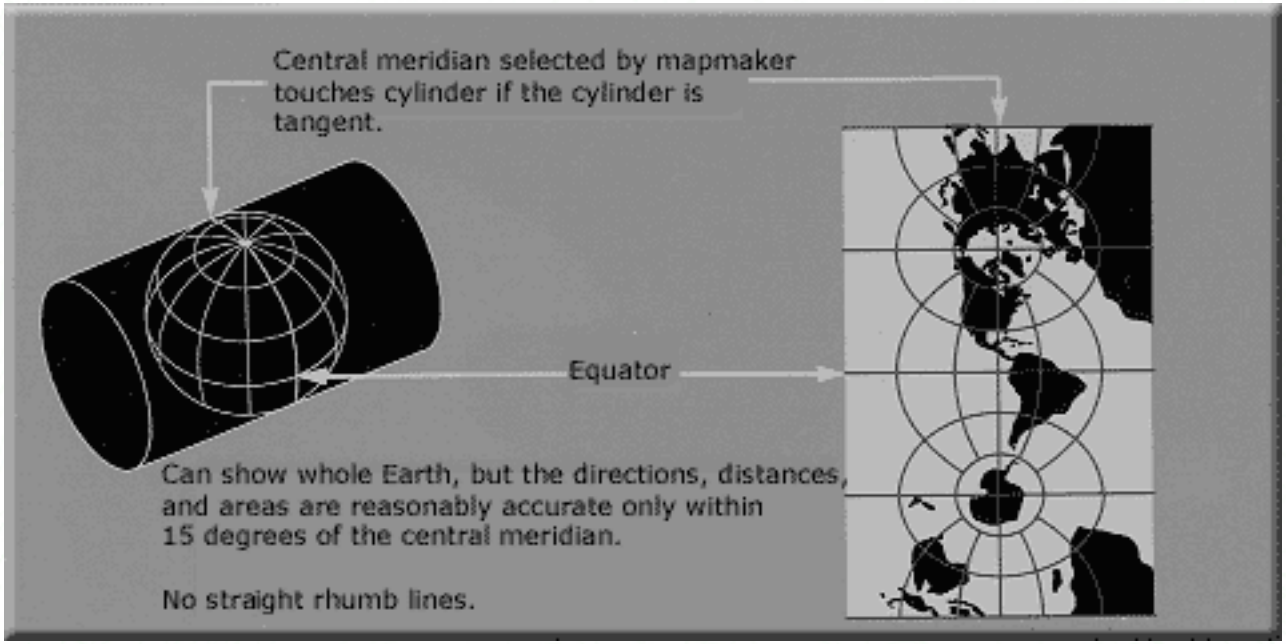
OGR for Vector Data - Simple Feature Library

Arc/Info Binary Coverage, Comma Separated Value (**.csv**), DODS/OPeNDAP, DWG, **DXF**, ESRI Personal GeoDatabase, ESRI ArcSDE, **ESRI Shapefile**, FMEObjects Gateway, GML, **GMT Mapping**, **GRASS Vectors**, INTERLIS, **Google Earth KML**, Mapinfo File, Microstation DGN, Spatial **MySQL**, OGDI Vectors, ODBC generic database access layer, **Oracle** Spatial, PostgreSQL **PostGIS**, S-57 (ENC), SDTS, SQLite, UK .NTF, U.S. Census TIGER/Line, VRT - Virtual Datasource, Informix DataBlade

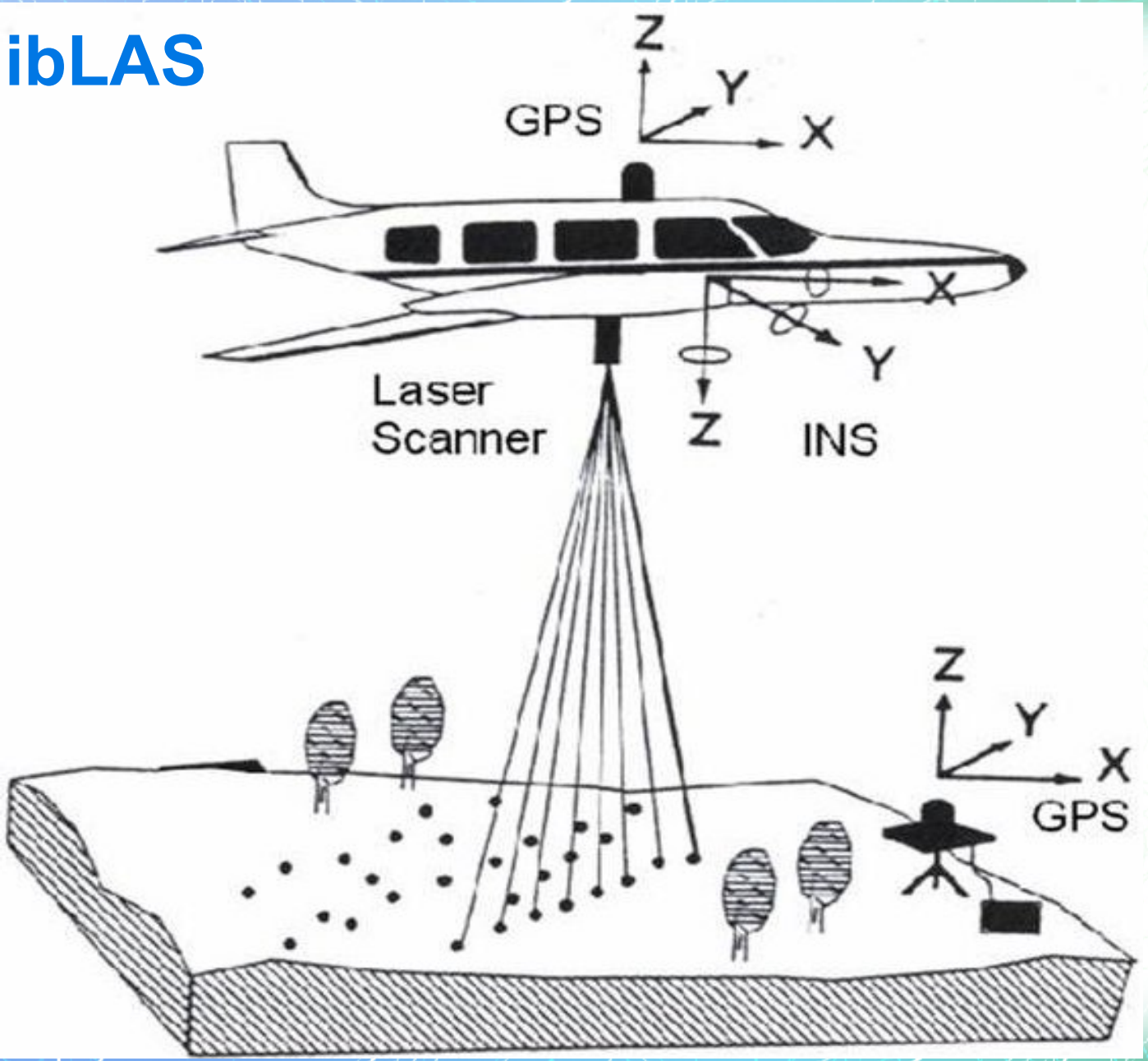
GeoTools


INTERFACE
IMPLEMENTATION
PLUGINS
API
JTS
OpenGIS
cql
render
xml
main
jdbc
data
coverage
metadata
referencing
xsd-wms
postgis
shape
epsg-hsql

MetaCRS


Central meridian selected by mapmaker touches cylinder if the cylinder is tangent.
Equator
Can show whole Earth, but the directions, distances, and areas are reasonably accurate only within 15 degrees of the central meridian.
No straight rhumb lines.

libLAS



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Yoichi Kayama

Information Center for the Environment, University of California, Davis

Want to know more?

http://live.osgeo.org

OSGeo Foundation

http://osgeo.org

Conferences:

http://foss4g.org

Australia/New Zealand support/training

http://lisasoft.com