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FOSDEM, Brussels 31/1/2015



- GIS/Geo/Location/OSM..
 - Packaging in Debian
 - Debian pure blend
 - Debian packages
 - Small community
- GIS/Geo/Location/OSM..
 - Live Disk/USB/VM
 - based on Lubuntu
 - Documentation
 - Workshops
 - Large community (upstream, [documentation](#), translation, ...)

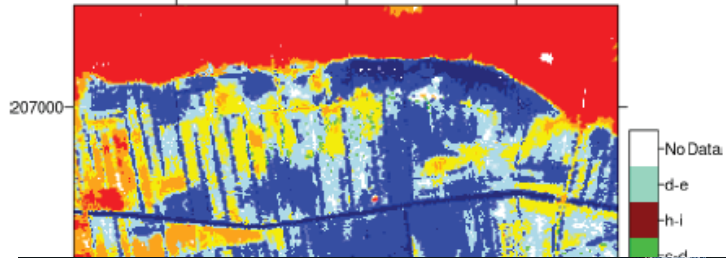
My Talk

- GIS / Geo – what why how
- OSGeo Live – Debian GIS in detail

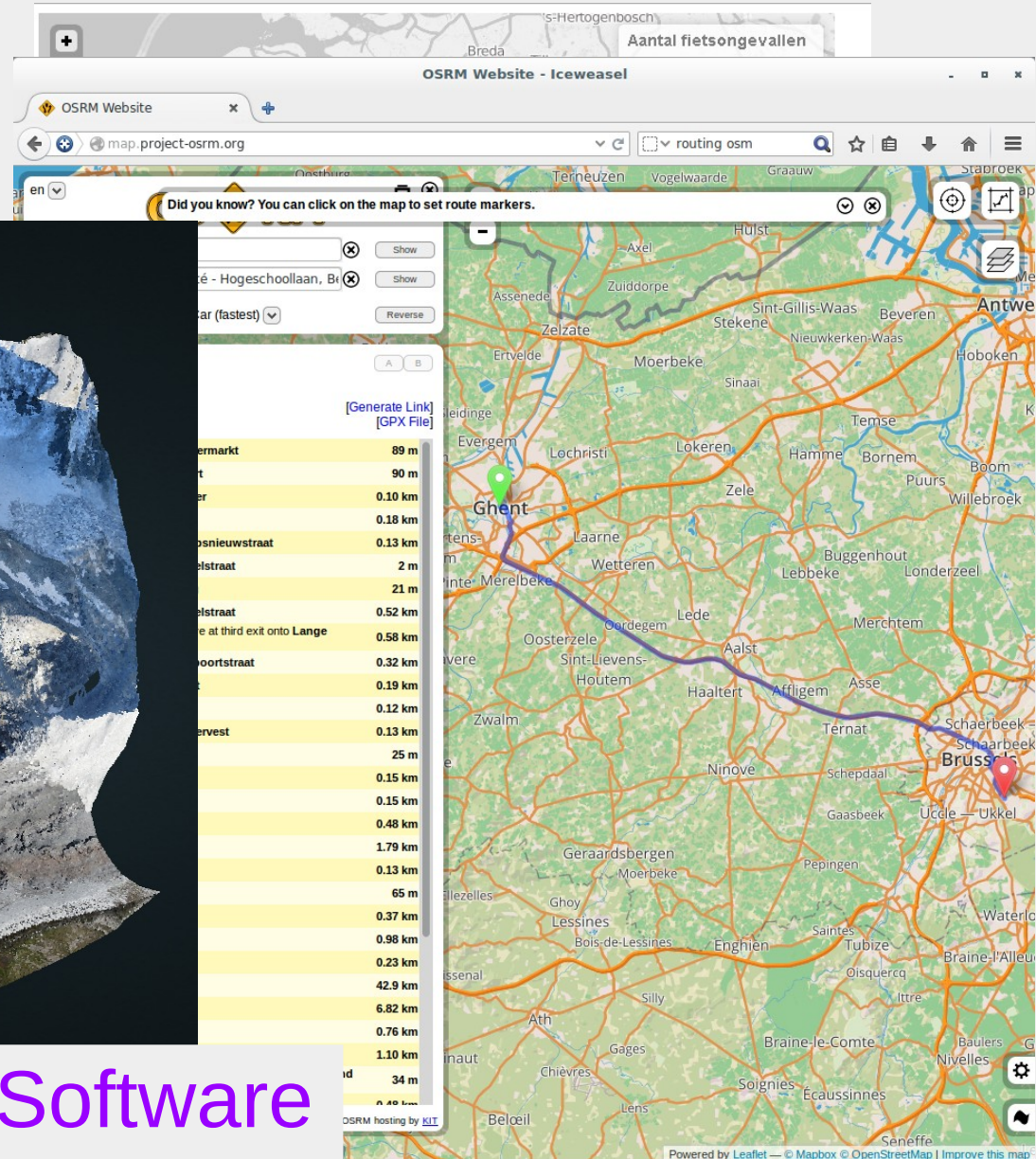
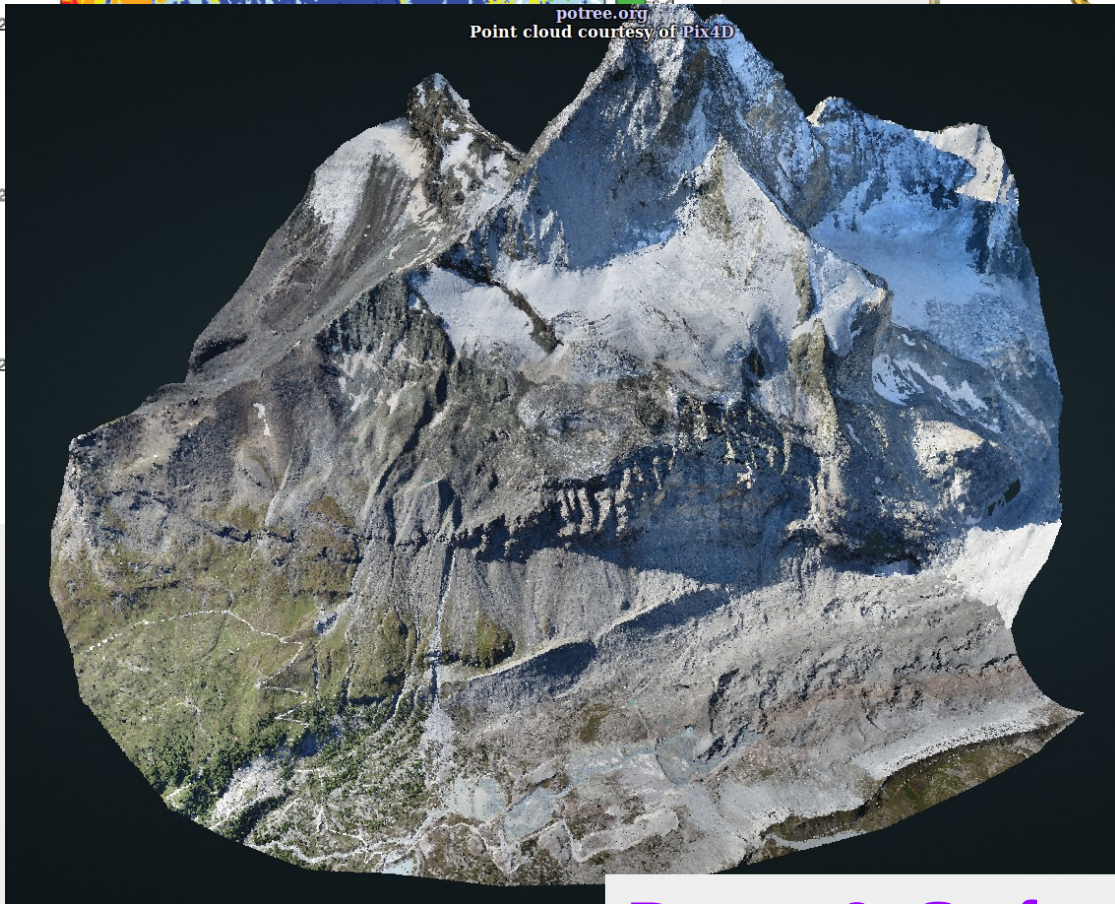


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What is this GIS/geo stuff about?



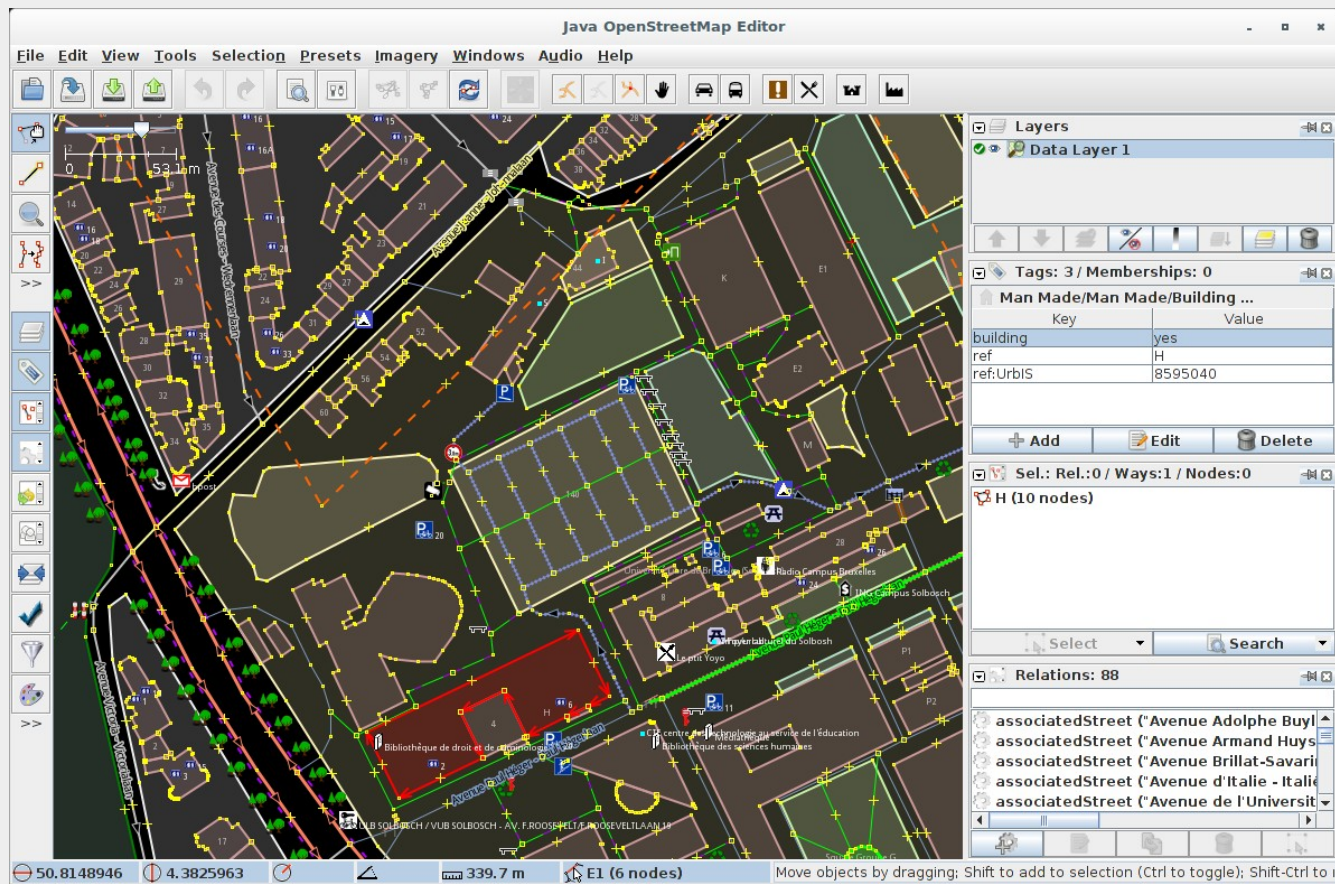
potree.org
Point cloud courtesy of Pix4D



Data & Software

OSM in Debian GIS

- JOSM is an extensible editor for OpenStreetMap (OSM) written in Java 7.
- Others: osmosis, routino, ...



Aerial photographs/satellite imagery

The screenshot displays the ESA Landsat 8 Web Portal interface. At the top, the ESA logo and 'landsat 8' branding are visible. Below the navigation bar, there are 'Login' and 'Register' buttons. A search bar is present with the text 'Find place on map'. The main content area shows a map of Europe with a search result popup for scene ID LC81990242015030MTI00. The popup contains the following details:

LC81990242015030MTI00

Scene ID: LC81990242015030MTI00
Acquisition time: 2015-01-30 10:39:41
Mission name: LANDSAT 8
Sensor ID: OLI_TIRS
WRS2 path: 199
WRS2 row: 24
Product type: L1GT

Viewing angle: -0.001
Sun azimuth: 160.11155764
Sun elevation: 18.684240060000004
Cloud coverage: 55

Resolution: 240.0
Height: 1002
Width: 988
Bands: 10
Data type: SHORT
Number of bits: 16
Byte order: I

The interface also includes a 'Search Results' section with a list of scene IDs and icons for 'TIF', 'GT2', and 'TIF4'. A large 3D rendering of the Landsat 8 satellite is overlaid on the right side of the screen, showing the satellite's solar panels and instruments against the Earth's horizon.

Copyright 2013 © European Space Agency. All rights reserved.

Data → libraries

Why is the 'straight line' path across continent so curved?



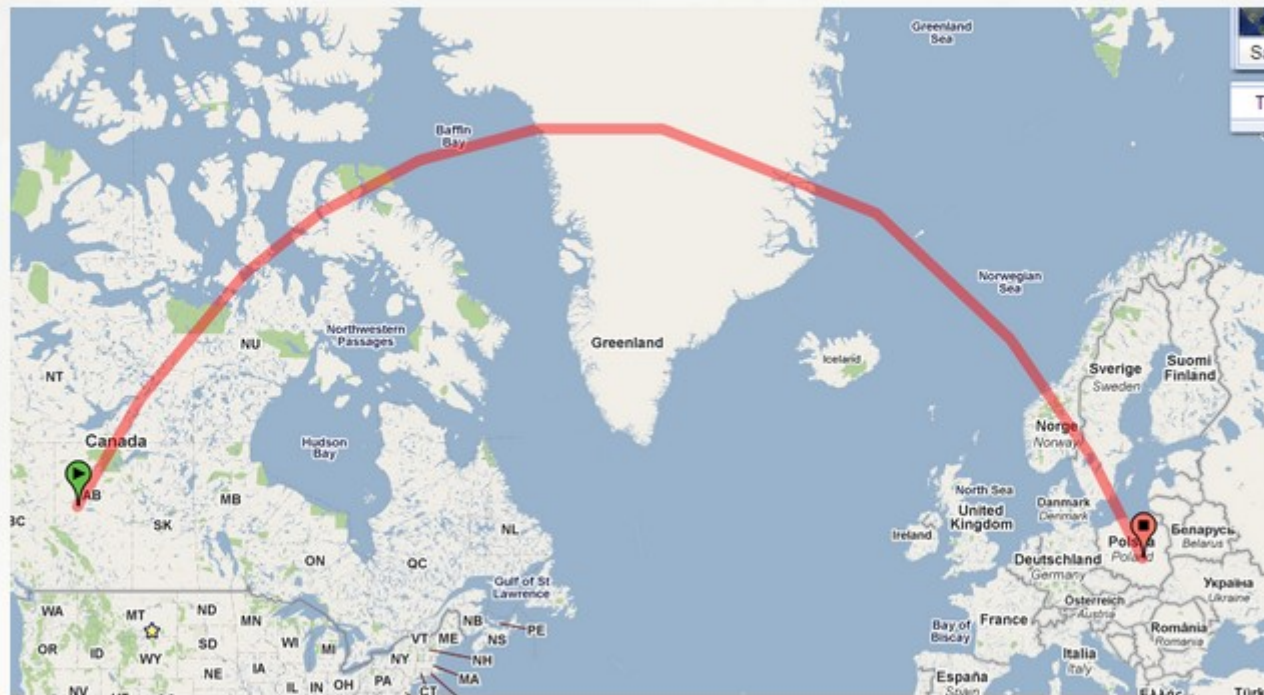
38



10

This is the result of mapping the straight line path from a point in US to Poland using [Distance Measurement Tool](#).

Also, planes from Asia to US would travel almost over North Pole.



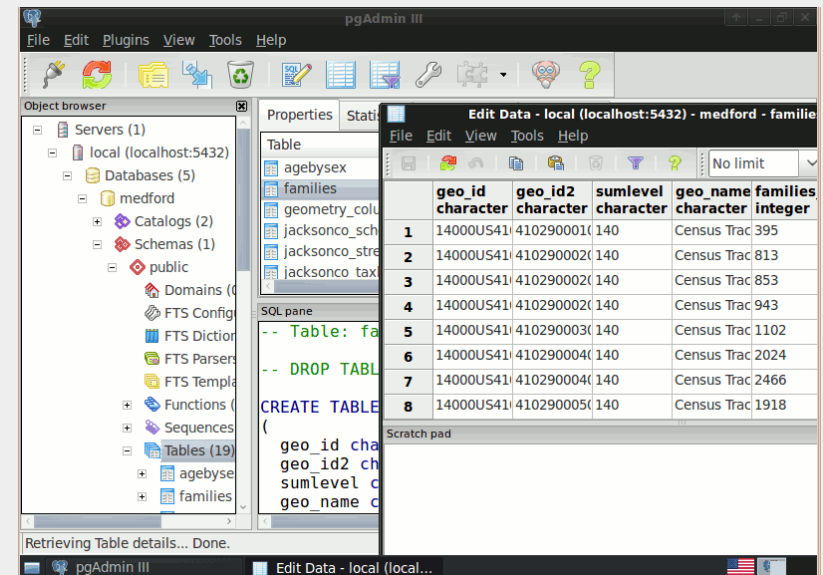
Why is the path so curved? I agree that this is a flat representation of a sphere, so I do expect some arc, but I don't think earth has this much curvature.

What am I missing here?



Spatial Database

- **PostGIS** – spatially enabled database
 - `SELECT census.*, customers.*`
`FROM census JOIN customers ON`
`ST_Contains(census.geom,customers.geom);`



Desktop GIS: QGis

The screenshot displays the QGIS 2.4.0-Chugiak desktop environment. The main window shows a street map with various road types color-coded. A red line highlights a specific road segment. The 'Identify Results' window is open on the right, showing the following data:

Feature	Value
planet_osc_line	
addr:housename	NULL
(Actions)	
(Derived)	
(clicked coordinate)	-13655358.7223, 5704...
feature id	49610776
firstX	-13,655,340.89
firstY	5,704,245.145
lastX	-13,655,290.75
lastY	5,704,243.413
Length	35.209 m
access	NULL
addr:housename	NULL
addr:housenumber	NULL
addr:interpolation	NULL
admin_level	NULL
aerialway	NULL
aeroway	NULL
amenity	NULL
area	NULL
barrier	NULL
bicycle	designated
boundary	NULL
brand	NULL
bridge	bascule
building	NULL
construction	NULL
covered	NULL
culvert	NULL

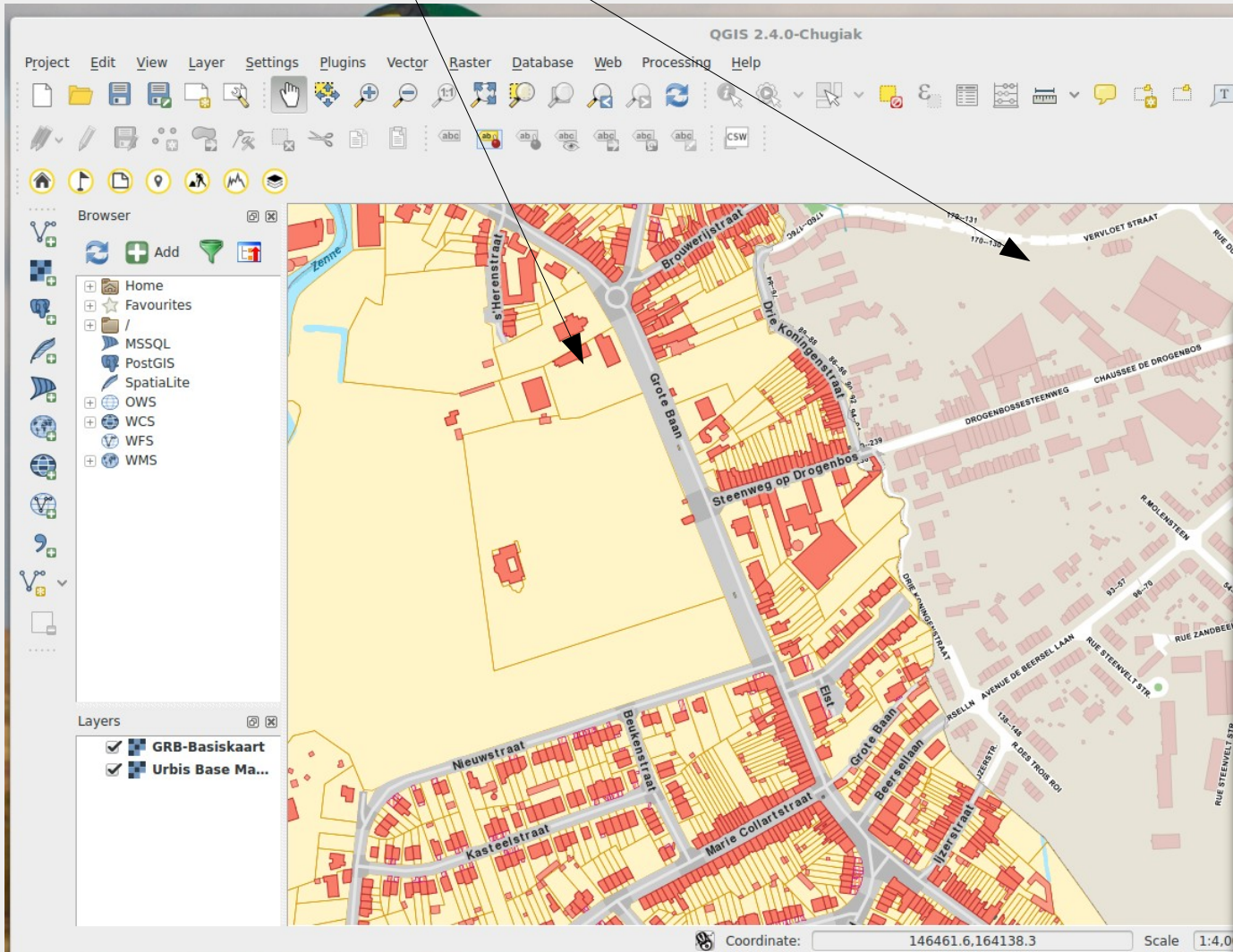
The interface includes a menu bar (Project, Edit, View, Layer, Settings, Plugins, Vector, Raster, Database, Web, MMQGIS, Processing, Help), a toolbar, and a Layers panel on the left. The Layers panel shows 'planet_osc_line' selected, with a legend for various road types like 'construction', 'cycleway', 'footway', etc. The status bar at the bottom shows the coordinate as -13655659,5705127 and a scale of 1:11.025.

Standard Services

Show rendered maps
Web Mapping Services (WMS)
Geoserver
Mapserver (d)
TinyWMS (d)

Search for data/metadata
Catalog Service for Web (CSW)
Geonetwork
PyCSW (d)

OGC[®]
Making location count.
www.opengeospatial.org



MetaSearch

Search Services Settings

Find

Keywords From Databank ondergrond Vlaanderen

.3126432 781982 303468 0.787669 Map extent Set global

Search 10 Records

Results

Showing 1 - 10 of 190 results View search results as XML

Type	Title
service	INSPIRE Downloaddienst Databank Ondergrond Vlaanderen
service	INSPIRE Raadpleegdienst Databank Ondergrond Vlaanderen
dataset	Historische bodemprofielen Aardewerk-Vlaanderen-2010
dataset	Aardewerk-Vlaanderen-2010
dataset	Krijt breuken top
dataset	Krijt breuken basis
dataset	...

Abstract

INSPIRE compliant downloaddienst voor de kaartlagen m.b.t. bodem en ondergrond in Vlaanderen

Download Service

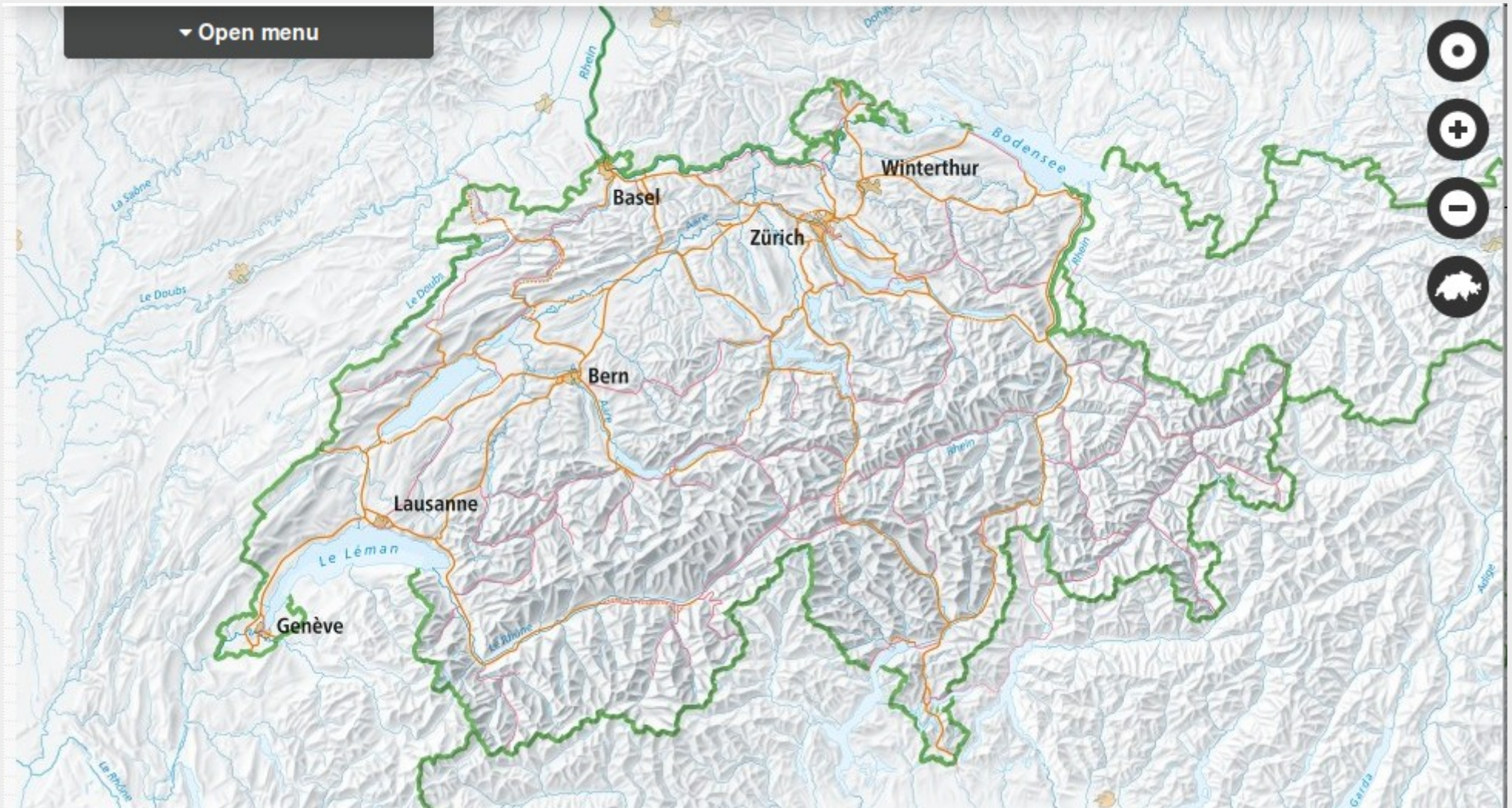
Web Feature Service (WFS)

Add WMS/WMTS Add WFS Add WCS

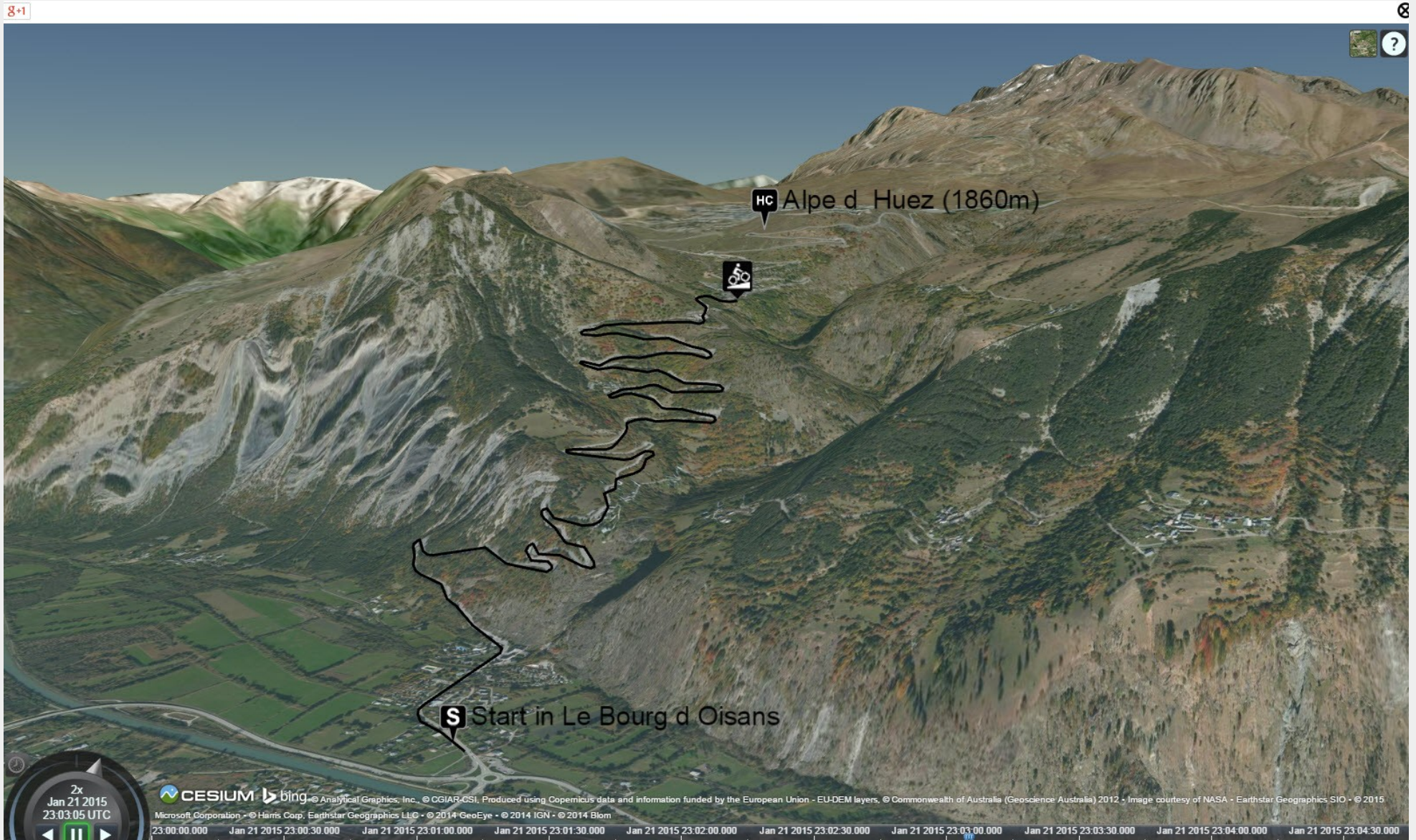
Help Close

Web mapping (javascript)

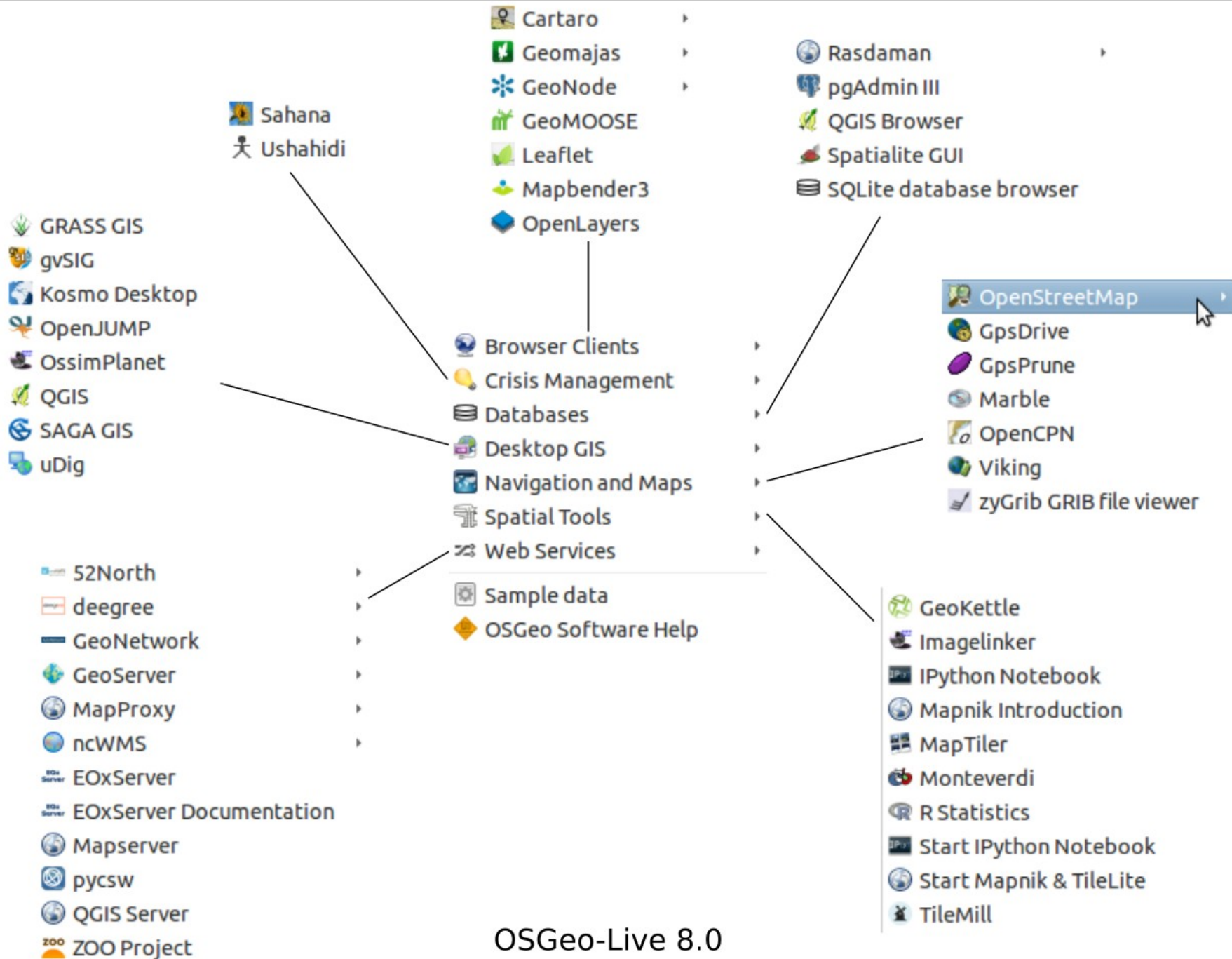
- Leaflet, OpenLayers and Cesium (3D)



Web Mapping

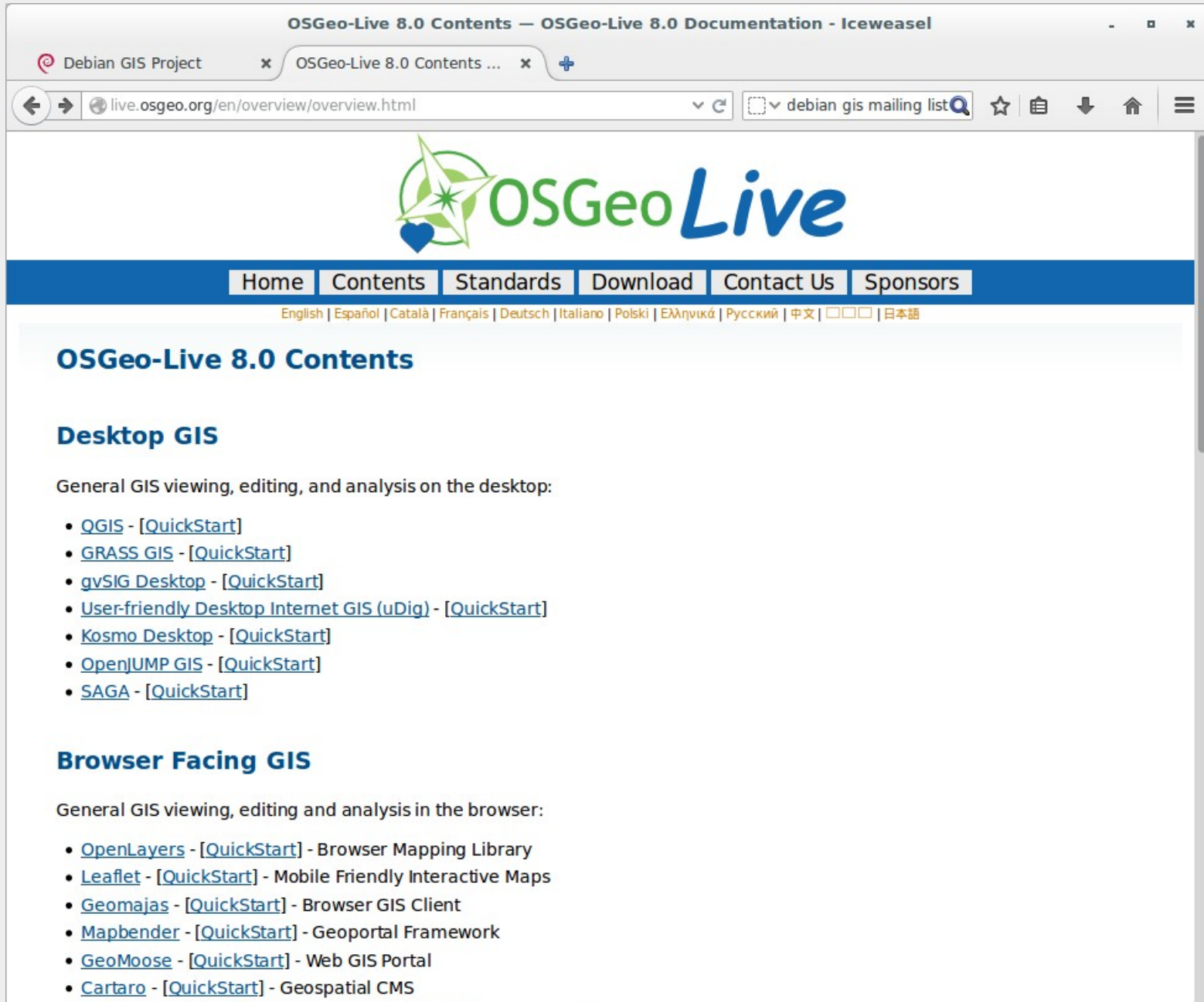






OSGeo-Live 8.0
Portland

Documentation



The screenshot shows a web browser window with the title "OSGeo-Live 8.0 Contents — OSGeo-Live 8.0 Documentation - Iceweasel". The address bar shows the URL "live.osgeo.org/en/overview/overview.html". The page features the OSGeoLive logo, a navigation menu with links for Home, Contents, Standards, Download, Contact Us, and Sponsors, and a language selection bar. The main content area is titled "OSGeo-Live 8.0 Contents" and is divided into two sections: "Desktop GIS" and "Browser Facing GIS".

OSGeo-Live 8.0 Contents

Desktop GIS

General GIS viewing, editing, and analysis on the desktop:

- [QGIS](#) - [QuickStart]
- [GRASS GIS](#) - [QuickStart]
- [gvSIG Desktop](#) - [QuickStart]
- [User-friendly Desktop Internet GIS \(uDig\)](#) - [QuickStart]
- [Kosmo Desktop](#) - [QuickStart]
- [OpenJUMP GIS](#) - [QuickStart]
- [SAGA](#) - [QuickStart]

Browser Facing GIS

General GIS viewing, editing and analysis in the browser:

- [OpenLayers](#) - [QuickStart] - Browser Mapping Library
- [Leaflet](#) - [QuickStart] - Mobile Friendly Interactive Maps
- [Geomajas](#) - [QuickStart] - Browser GIS Client
- [Mapbender](#) - [QuickStart] - Geoportal Framework
- [GeoMoose](#) - [QuickStart] - Web GIS Portal
- [Cartaro](#) - [QuickStart] - Geospatial CMS



OSGeo live

- Live disk
 - Demo datasets
 - [Quickstarts](#)
 - Applications
- Education
- Handed out as Open Source GIS events
 - >25 in 2014
- Often used in workshops
- 68% of downloads are Windows users



OSGeo live under the hood

- Based on Ubuntu LTS
- 2 releases /year
- **Coordination**
 - Weekly meetings on IRC
 - Project Manager
- Documentation using **Sphinx**
- Packaging in a **PPA**
- Install scripts

<http://trac.osgeo.org/osgeo/browser/livedvd/gisvm/trunk>

svn checkout <https://svn.osgeo.org/osgeo/livedvd/gisvm/trunk>

Install scripts

```
if [ "$FULL" -eq 1 ] ; then
    apt-get -q update
    apt-key update
    apt-get install --no-install-recommends --assume-yes $PACKAGES
fi

if [ $? -ne 0 ] ; then
    echo "ERROR: package install failed."
    exit 1
fi

# download and install rasdaman
if [ ! -d rasdaman ] ; then
    git clone git://kahlua.eecs.jacobs-university.de/rasdaman
fi

cd "rasdaman"

# switch to current osgeo live tag
git checkout "$OSGEO_LIVE_TAG"

mkdir -p "$RASDAMAN_HOME/log"
chgrp users "$RASDAMAN_HOME/log/" -R
chmod g+w "$RASDAMAN_HOME/log/" -R
adduser "$USER_NAME" users
autoreconf -fi

./configure --with-logdir="$RASDAMAN_HOME"/log \
    --prefix="$RASDAMAN_HOME" --with-wardir="$WARDIR" \
    --with-netcdf

if [ $? -ne 0 ] ; then
    echo "ERROR: configure failed."
    pkg_cleanup
    exit 1
fi

make version
make
if [ $? -ne 0 ] ; then
    echo "ERROR: compilation failed."
    pkg_cleanup
fi

TMP_DIR=/tmp/build_mapserver
mkdir "$TMP_DIR"
cd "$TMP_DIR"

# Install MapServer and its php, python bindings.
apt-get install --yes cgi-mapserver mapserver-bin php5-mapscript \
python-mapscript

# Download MapServer data
wget -c --progress=dot:mega \
    "http://download.osgeo.org/livedvd/data/mapserver/mapserver-6-2-html-docs.zip"
wget -c --progress=dot:mega \
    "http://download.osgeo.org/livedvd/data/mapserver/mapserver-itasca-ms60.zip"

# Install docs and demos
if [ ! -d "$MAPSERVER_DATA" ] ; then
    mkdir -p "$MAPSERVER_DATA"/demos

    echo -n "Extracting MapServer html doc in $MAPSERVER_DATA/..."
    unzip -q "$TMP_DIR/mapserver-6-2-html-docs.zip" -d "$MAPSERVER_DATA/"
    echo -n "Done\nExtracting MapServer itasca demo in $MAPSERVER_DATA/demos/..."
    unzip -q "$TMP_DIR/mapserver-itasca-ms60.zip" -d "$MAPSERVER_DATA"/demos/
    echo "Done"

    mv "$MAPSERVER_DATA/demos/workshop" "$MAPSERVER_DATA/demos/itasca"
    mv "$MAPSERVER_DATA/mapserver-6-2-docs" "$MAPSERVER_DATA/doc"
    rm -rf "$MAPSERVER_DATA/demos/ms4w"

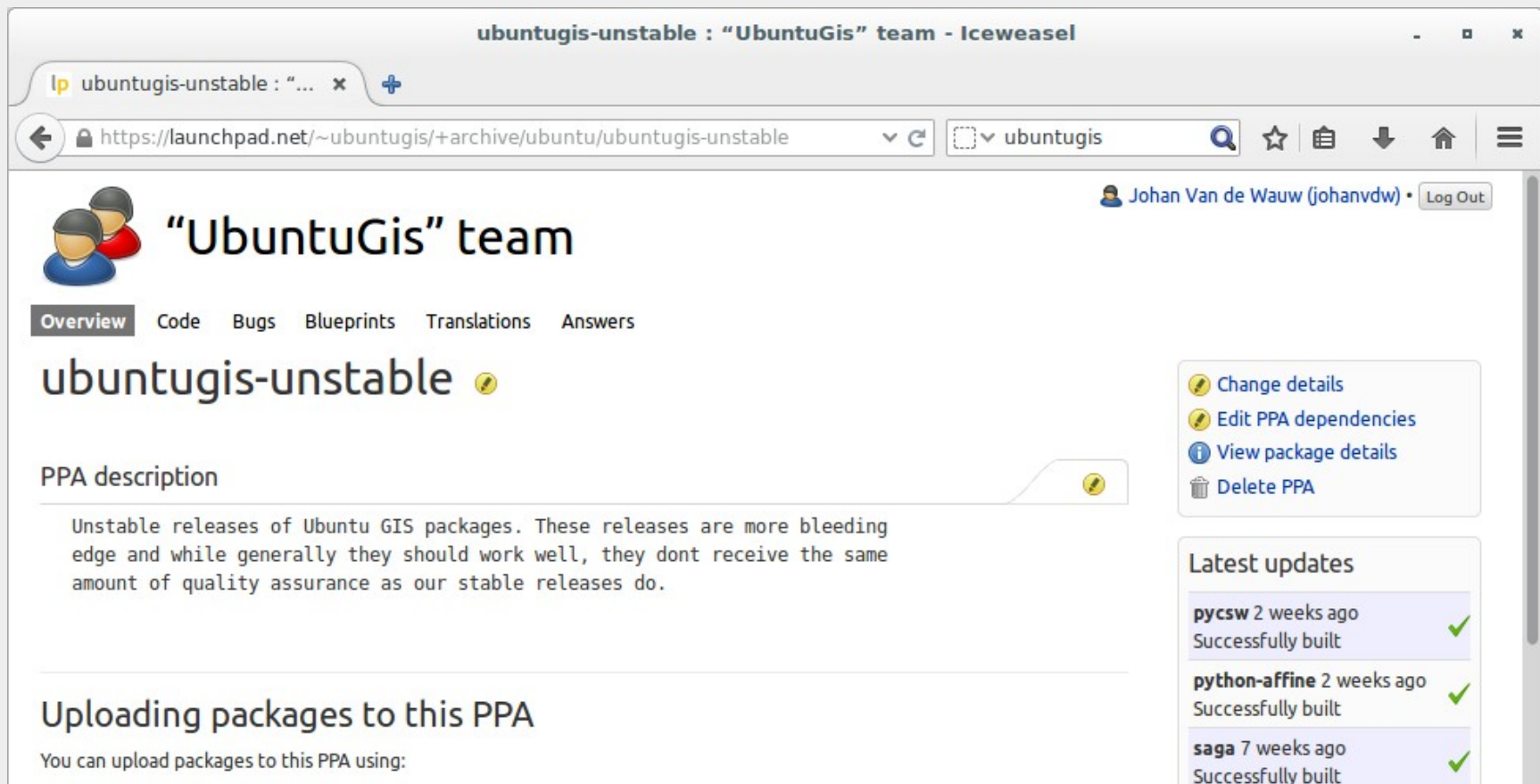
    echo "Configuring the system...."
    # Itasca Demo hacks
    mkdir -p /usr/local/www/docs_maps/
    ln -s "$MAPSERVER_DATA"/demos/itasca "$MAPSERVER_DATA"/demos/workshop
    ln -s /usr/local/share/mapserver/demos /usr/local/www/docs_maps/mapserver_de

```

People Do install OsGeo Live on Desktops and Servers

Packaging in UbuntuGIS

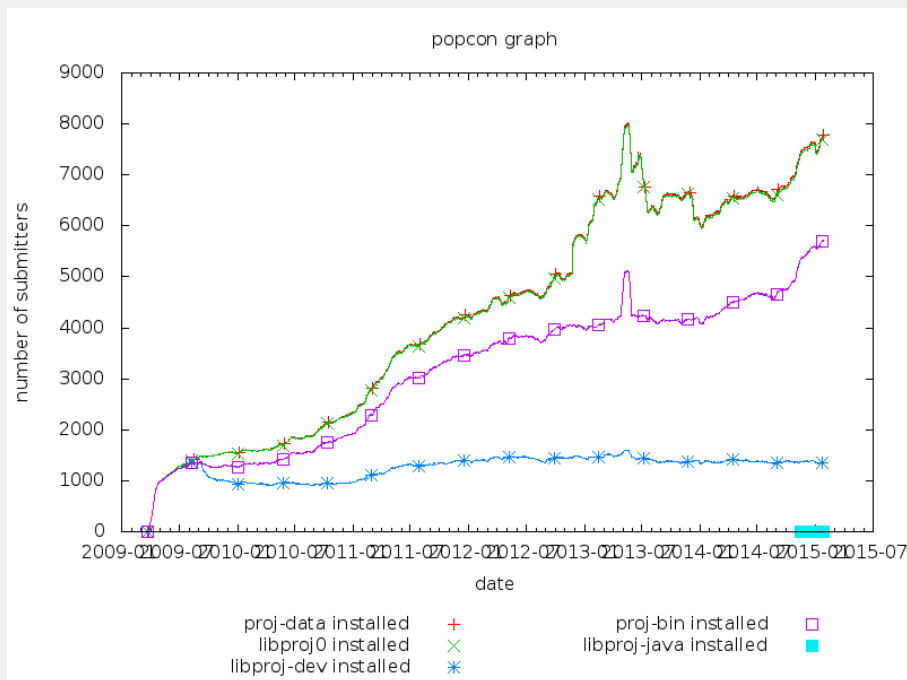
- UbuntuGIS/Unstable
 - 30000+ downloads of GDAL library
- Up to one year ago more up-to-date than Debian unstable + with more contributors



The screenshot shows a web browser window displaying the Launchpad page for the 'ubuntugis-unstable' PPA. The browser title is 'ubuntugis-unstable : "UbuntuGis" team - Iceweasel'. The address bar shows the URL 'https://launchpad.net/~ubuntugis/+archive/ubuntu/ubuntugis-unstable'. The page header includes the 'UbuntuGis' team logo and name, and the user 'Johan Van de Wauw (johanvdw)' is logged in. The main content area shows the PPA name 'ubuntugis-unstable' with a lightning bolt icon, and a 'PPA description' section containing the text: 'Unstable releases of Ubuntu GIS packages. These releases are more bleeding edge and while generally they should work well, they dont receive the same amount of quality assurance as our stable releases do.' To the right, there are action buttons: 'Change details', 'Edit PPA dependencies', 'View package details', and 'Delete PPA'. Below the description, there is a section for 'Uploading packages to this PPA' with the text 'You can upload packages to this PPA using:'. On the right side, there is a 'Latest updates' section listing three packages: 'pycsw' (2 weeks ago, Successfully built), 'python-affine' (2 weeks ago, Successfully built), and 'saga' (7 weeks ago, Successfully built), each with a green checkmark.



- The goal of the DebianGis project is about improving Debian to make it the best distribution for Geographical Information Systems applications and users.
- Most important libraries packaged
- Many **important applications** packaged



Why is xxx not in Debian (GIS)

- Often Non-free files
 - Typical for scientific software (free for non-commercial use)
 - OGC documents
 - Projection definitions
 - Nobody answered my questions
 - Hard to find a sponsor
 - New processing / freeze takes a long time
 - Transitions take a long time
 - GDAL
 - Many packaging guides/styles out there – not easy to pick the right one
 - Dependencies are missing
 - Java
 - ==>It takes time
 - ==> Often too much time for upstream
- Suggestions for different licenses?

Debian GIS blend

- Typical issues also encountered in Debian Med and Debian Science
- Specialised software has a comparatively small user base
- Non-programmers
- <https://wiki.debian.org/DebianPureBlends>

A Debian Pure Blend is a Debian *internal* project which assembles a set of packages that might help users to solve certain tasks of their work.

Issues of Debian (GIS)

- Often Non-free files
 - Typical for scientific software (free for non-commercial use)
 - OGC documents
 - Projection definitions
- ~~Nobody answered my questions~~ ==> Responsive team
- ~~Hard to find a sponsor~~ ==> Sponsoring of Blends (Andreas Tille)
- New processing / freeze takes a long time
- Transitions
 - GDAL
- ~~Many packaging guides/styles out there~~ ==> Debian GIS policy
- It takes time
- ==> Too much work for upstream

Suggestions for different licenses?

Debian GIS policy

Packaging - Iceweasel

Packaging

pkg-grass.alioth.debian.org/policy/packaging.html#packaging-guidelines

Starting a new package

When the upstream sources are distributed as compressed **tar** archives (tar.gz, ...):

```
mkdir <package>
cd <package>
git init
git import-orig --pristine-tar ../package_version.orig.tar.gz
git clone git://git.debian.org/git/pkg-grass/package_template.git
mv package_template/debian/ .
rm -rf debian/.git/ package_template/
```

The above steps will create a repository with the appropriate layout for **git-buildpackage**, with three branches:

- master, where the Debian development will happen,
- pristine-tar, used by the **pristine-tar** tool during the package build process to recreate the original tarball, and
- upstream, which will contain the upstream source.

Additionally the content of the `debian/` directory is taken from the Debian GIS package template.

Change the placeholders in the files under the `debian/` directory for the package in question following the requirements documented in the [Policy](#) section, and you can start [building the package](#).

Working with existing packages

When the package is already in the Debian archive, you can use the **debcheckout** command with its `--git-track='*'` option.

```
debcheckout --git-track='*' <package>
```

<http://pkg-grass.alioth.debian.org/policy/index.html>

To update the master, upstream and pristine-tar branches from an existing clone at once, use the **abn-pull** command.



Summary

A [Debian Pure Blend](#) is a Debian internal project which assembles a set of packages that might help users to solve certain tasks of their work. The list on the right shows the tasks of Debian GIS.

Tasks page

This is a list of the Tasks Debian GIS is made of:

Data - [Debian GIS data](#)

This metapackage will install some packages providing data that can be used by different GIS applications.

Development - [Geographic Information Systems \(GIS\) development](#)

This task sets up your system for GIS development.

Gps - [GPS related programs](#)

Set of Debian packages which are dealing with GPS devices and data.

Openstreetmap - [OpenStreetMap related programs](#)

Set of Debian packages which are dealing with OpenStreetMap data.

Remote sensing - [Remote sensing and earth observation](#)

Debian packages which are dealing with Remote Sensing (for instance Synthetic Aperture Radar – SAR) processing (interferometry, polarimetry, data visualization, etc) and earth observation.

Statistics - [Statistics with geographical data](#)

Set of Debian packages which are useful for doing statistics with geographical data.

Map server - [Present geographic information via web map server](#)

Debian packages which are dealing with geographical information to be presented for the web on so called map tile servers. These are pretty useful when trying to setup an OpenStreetMap tile server but not restricted to OpenStreetMap data only.

Workstation - [Geographic Information Systems \(GIS\) workstation](#)

This task sets up your system to be a GIS workstation to process geographical information and make maps.

This page is also available in the following languages:

[česky](#) [dansk](#) [Deutsch](#) [español](#) [suomi](#) [français](#) [magyar](#) [Italiano](#) [日本語 \(Nihongo\)](#) [ᱵᱟᱲᱟᱢ](#) (Hangul) [Nederlands](#) [polski](#) [Português](#) [Русский \(Russkij\)](#) [slovensky](#) [српски\(srpski\)](#) [svenska](#) [українська \(ukrajins'ka\)](#) [中文\(简\)](#) [中文\(正\)](#)

[How to set the default document language](#)

Last update: Fri, 30 Jan 2015 15:30:06 -0000



- Since last year: many new contributions
- Many packages updated – also old packages
 - Qgis, GDAL, GRASS have recent version in jessie
- Many NEW packages

Search results for "debian gis" (0,35 seconden)

Web Afbeeldingen Nieuws Video's Maps Meer ▾ Zoekhulpmiddelen

Ongeveer 373.000 resultaten (0,35 seconden)

DebianGis - Debian Wiki
<https://wiki.debian.org/DebianGis> ▾ [Vertaal deze pagina](#)
9 feb. 2014 - Thanks to efforts of the **DebianGis** team, we currently have many exciting GIS packages in Debian's main archives. Other programs are well ...
U heeft deze pagina diverse keren bezocht. Laatste bezoek: 9/01/15

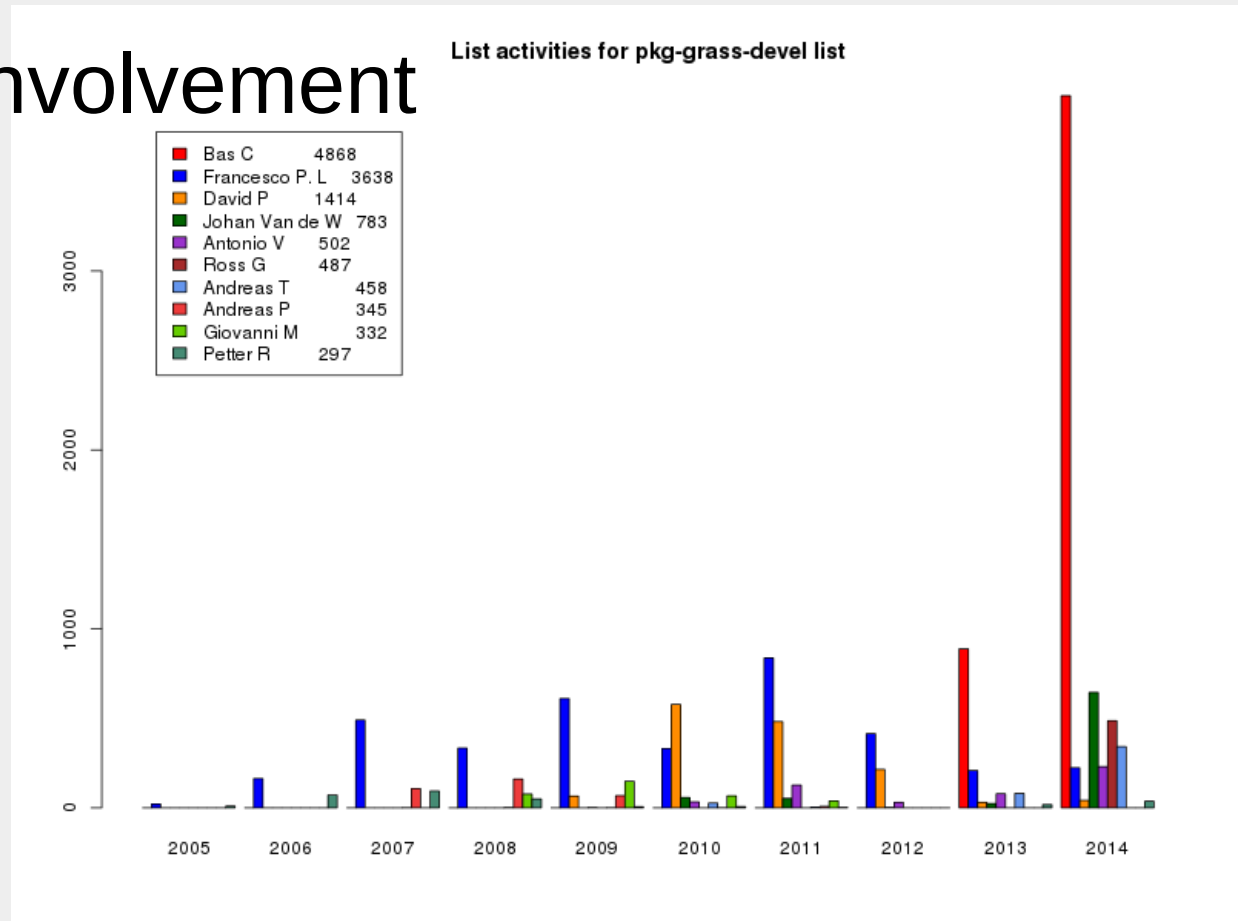
DebianGis/PackageList
This page lists binary packages proposed for inclusion in ...
[Meer resultaten van debian.org »](#)

DebianGis/Repository
Therefore at the end of June 2007 the DebianGIS repository ...

Debian NEW and BYHAND Packages
<https://ftp-master.debian.org/new.html> ▾ [Vertaal deze pagina](#)
libgeotiff-dfsg · 1.4.1-1~exp1, source i386, experimental, 1 month, Maintainer: **Debian GIS Project** Changed-By: Bas Couwenberg Sponsor: frankie@debian.org
U heeft deze pagina diverse keren bezocht. Laatste bezoek: 16/01/15



- Still we could use help....
- Still Few DD's and uploaders
- More upstream involvement
- Documentation
- Java





Summary

Workstation

Geographic Information Systems (GIS) workstation

This task sets up your system to be a GIS workstation to process geographical information and make maps.

The list to the right includes various software projects which are of some interest to the Debian GIS Project. Currently, only a few of them are available as Debian packages. It is our goal, however, to include all software in Debian GIS which can sensibly add to a high quality Debian Pure Blend. For a better overview of the project's availability as a Debian package, each head row has a color code according to this scheme:

- Official Debian packages with high relevance
- Official Debian packages with lower relevance
- Debian packages in contrib or non-free
- Debian packages in experimental
- Debian packages in New queue (hopefully available soon)
- Packaging has started and developers might try the packaging code in VCS
- No known packages available but some record of interest (WNPP bug)
- No known packages available

If you discover a project which looks like a good candidate for

Debian GIS Workstation packages

Official Debian packages with high relevance

Avce00

Conversion of ESRI Arcinfo Vector Coverage in E00 format
<http://avce00.maptools.org/avce00/>
 Maintainer: Debian GIS Project (Johan Van de Wauw)

Popcon: 24 users (7 upd.)^{*}

Versions and Archs

Edit Debtags

License: DFSG free
 Official Debian package
 Git

AVCE00 is a C library and group of tools that makes Arcinfo (binary) Vector Coverages appear as E00. It allows you to read and write binary coverages just as if they were E00 files.

Upload screenshot

E00compr

A program to read/write Arcinfo compressed E00 files
<http://avce00.maptools.org/e00compr/>
 Maintainer: Debian GIS Project (Francesco Paolo Lovergine)

Popcon: 25 users (6 upd.)^{*}

Versions and Archs

Edit Debtags

License: DFSG free
 Official Debian package
 Git

E00compr is an ANSI C library that reads and writes Arcinfo compressed E00 files. Both "PARTIAL" and "FULL" compression levels are supported. E00 files are the vector import/export format for Arcinfo. It is plain ASCII and is meant as an interchange format. ESRI considers the format to be proprietary, so this package may not read all E00 files as ESRI may change the format.

This package is useful for importing E00 files into the grass GIS system. It contains the e00conv command-line program, which takes a E00 file as input (compressed or not) and copies it to a new file with the requested compression level (NONE, PARTIAL or FULL). The library is not included at this stage.

Upload screenshot

Earth3d

Map client displaying a 3D model of the world
 Maintainer: Petter Reinholdtsen (Luk Claes)

Popcon: 15 users (1 upd.)^{*}

Versions and Archs

Edit Debtags

License: DFSG free
 Official Debian package

The map data is fetched from a server on the net, and the client will display recent satellite images and map data.





- OsGeo live test sprint: next weekend 5-7/2
- Debian GIS meeting *after this talk*

Debian-gis@lists.debian.org
<https://wiki.debian.org/DebianGis>

live-demo@lists.osgeo.org
<http://live.osgeo.org/>