

OSM-Daten in QGIS erfolgreich nutzen

OSM-Daten und QGIS - eine großartige Kombination

Astrid Emde | WhereGroup | FOSSGIS 2020 Freiburg



Astrid Emde

WhereGroup Bonn seit 2002, GIS-Consultant
FOSS-Academy-Schulungen
PostgreSQL/PostGIS, MapServer, GeoServer, QGIS,
QGIS Server, Mapbender, PostNAS-Suite
OSGeo Board, FOSSGIS e.V., Mapbender PSC,
OSGeoLive PSC, QGIS-DE

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Gegründet 2007 als Fusion der Firmen CCGIS,
KARTA.GO GmbH und Geo-Consortium

40+ Mitarbeiter an 3 Standorten in Bonn, Berlin u.
Freiburg (Projektleitung, Consulting, Training,
Softwareentwicklung)

Dienstleister in den Bereichen WebGIS, GDI, Kataster,
Datenbanken mit freier Software

Schulungen, Infoveranstaltungen, Konferenzen

QGIS HelpDesk und QGIS Experience Day

Unterstützer von OSGeo und FOSSGIS

[https://wheringroup.com](https://wherigroup.com)

<https://fossacademy.com>



Was ist QGIS?



Das meist verwendete Open Source Desktop GIS

Was ist QGIS?

- ▶ 2002 in Alaska zur Anzeige von PostGIS-Daten von Gary Sherman entwickelt



- ▶ Desktop GIS mit zahlreichen Funktionen
- ▶ Aktive Entwickler und Anwender auf der ganzen Welt



Andreas Neumann (QGIS PSC) at FOSS4G 2019

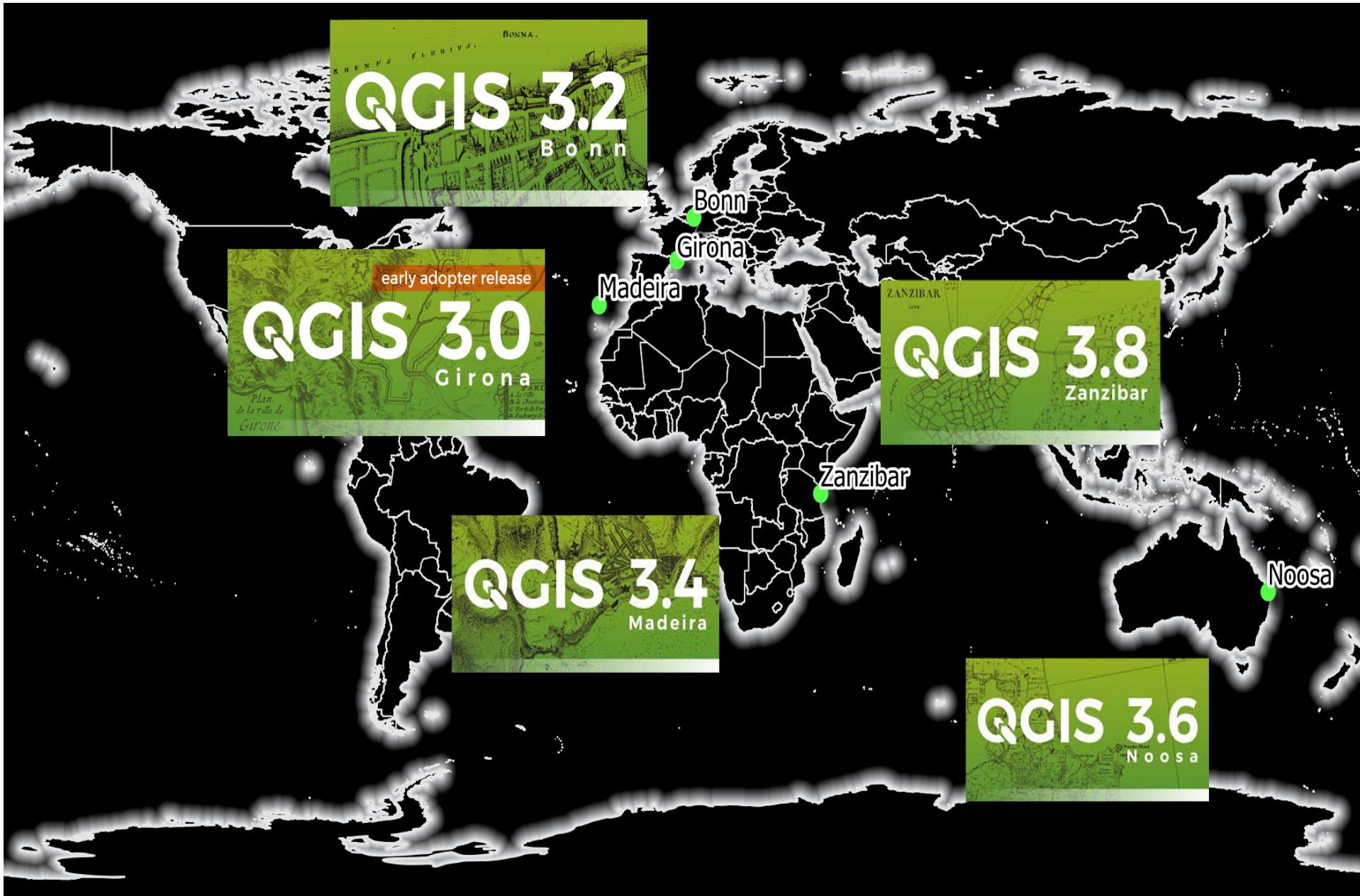
QGIS started 2002 as a Postgis viewer and today it is ...

- ... the most popular Open Source Desktop GIS
- ... the second most popular GIS after ESRI ArcGIS
- ... translated in 48 languages
- ... available for Linux, Windows, MacOS and Android
- ... released every 4 months with LTR releases every year
- ... an amazing cartography toolkit with Atlas and report generation
- ... a powerful analysis and model builder platform with Processing
- ... a mobile data collection solution for Android / Windows (QField, QGIS Roam)
- ... a platform for developers to build custom solutions
- ... an OGC server with ease of use for styling, labeling and printing data
- ... comes with several web clients: QWC 2, LizMap, GISQUICK and more



[Link to FOSS4G 2019 presentation](#) and [presentation video](#)

QGIS Versions



QGIS Community

QGIS Sprint vor der FOSS4G 2019 in Bukarest (Rumänien)



24. Contributor Meeting in 's-Hertogenbosch (13.-15. März 2020)

QGIS Desktop GIS

- ▶ Unterstützung für zahlreiche Datenformate
- ▶ Vektor- und Rasterdaten
- ▶ Dienste



QGIS Desktop GIS

- ▶ Anzeige
- ▶ Erfassung
- ▶ Prozessierung
- ▶ Druck
- ▶ Routing
- ▶ QGIS Server - OGC Services erzeugen
- ▶ QField - QGIS für den mobilen Einsatz
- ▶ ...





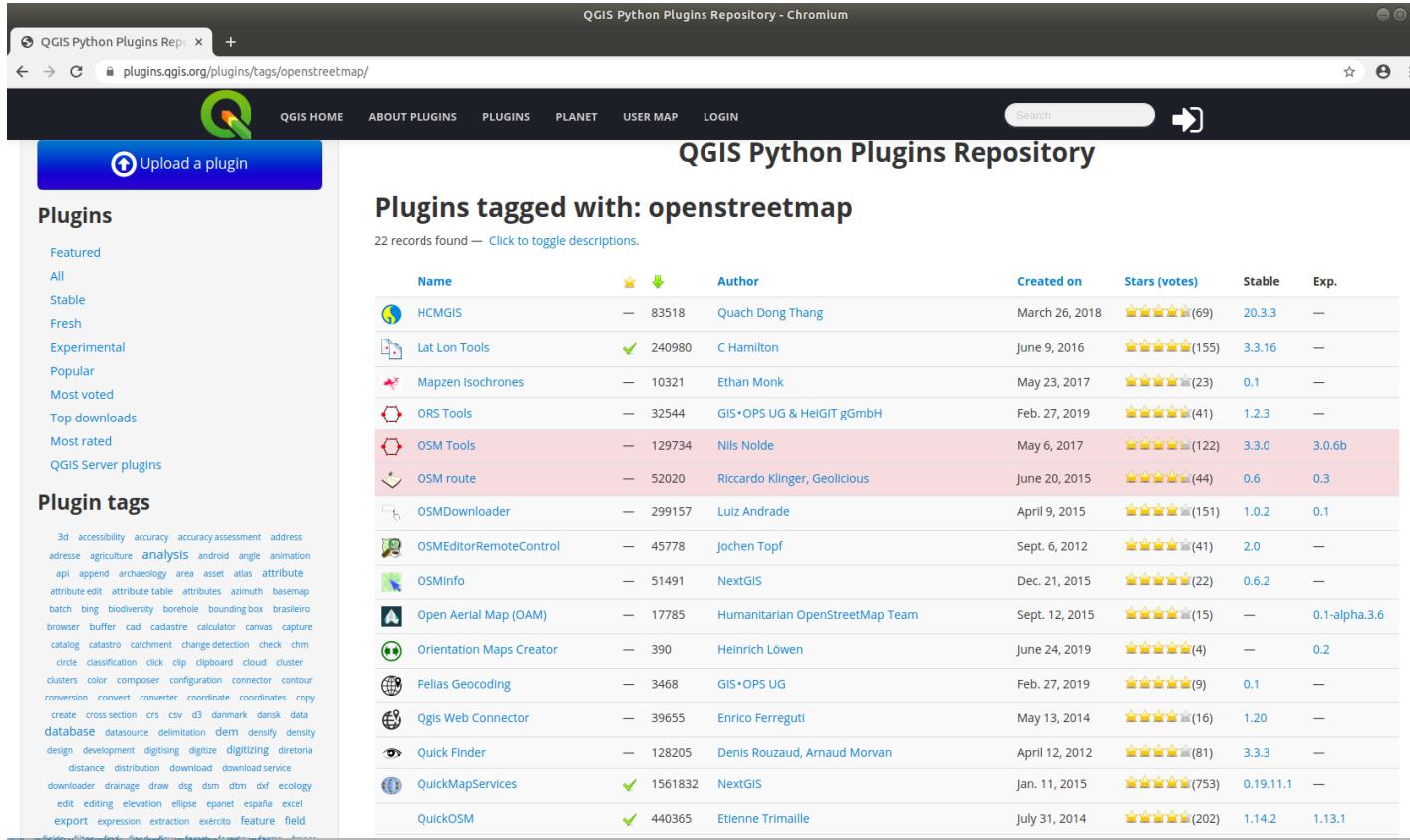
FOSSGIS 2020
Freiburg, 11.-14. März

QGIS und OSM

- ▶ Leichte Visualisierung von OSM-Daten und einfaches Handling
- ▶ Plugins für QGIS

Plugins mit Tag OSM

<https://plugins.qgis.org/plugins/tags/openstreetmap/>



The screenshot shows the QGIS Python Plugins Repository interface. The main title is "QGIS Python Plugins Repository". Below it, the specific search result is titled "Plugins tagged with: openstreetmap". A table lists 22 records found, with columns for Name, Author, Created on, Stars (votes), Stable, and Exp. The table includes entries like "HCMGIS" by Quach Dong Thang, "Lat Lon Tools" by C Hamilton, and various OSM-related tools such as "OSM Tools", "OSM route", "OSMDownloader", and "OSMEditorRemoteControl". The "OSM route" plugin is highlighted with a pink background.

Name	Author	Created on	Stars (votes)	Stable	Exp.
HCMGIS	Quach Dong Thang	March 26, 2018	5(69)	20.3.3	—
Lat Lon Tools	C Hamilton	June 9, 2016	5(155)	3.3.16	—
Mapzen Isochrones	Ethan Monk	May 23, 2017	5(23)	0.1	—
ORS Tools	GIS•OPS UG & HeiGIT gGmbH	Feb. 27, 2019	5(41)	1.2.3	—
OSM Tools	Nils Nolde	May 6, 2017	5(122)	3.3.0	3.0.6b
OSM route	Riccardo Klinger, Geolicious	June 20, 2015	5(44)	0.6	0.3
OSMDownloader	Luz Andrade	April 9, 2015	5(151)	1.0.2	0.1
OSMEditorRemoteControl	Jochen Topf	Sept. 6, 2012	5(41)	2.0	—
OSMInfo	NextGIS	Dec. 21, 2015	5(22)	0.6.2	—
Open Aerial Map (OAM)	Humanitarian OpenStreetMap Team	Sept. 12, 2015	5(15)	—	0.1-alpha.3.6
Orientation Maps Creator	Heinrich Löwen	June 24, 2019	5(4)	—	0.2
Pelias Geocoding	GIS•OPS UG	Feb. 27, 2019	5(9)	0.1	—
Qgis Web Connector	Enrico Ferreguti	May 13, 2014	5(16)	1.20	—
Quick Finder	Denis Rouzaud, Arnaud Morvan	April 12, 2012	5(81)	3.3.3	—
QuickMapServices	NextGIS	Jan. 11, 2015	5(753)	0.19.11.1	—
QuickOSM	Etienne Trimaille	July 31, 2014	5(202)	1.14.2	1.13.1

Laden von OSM-Daten in QGIS

Download .pbf oder ESRI Shape

Geofabrik Download Server - Chromium

Nicht sicher | download.geofabrik.de/europe/germany/baden-wuerttemberg.html

Download OpenStreetMap data for this region:
Baden-Württemberg

[\[one level up\]](#)

The OpenStreetMap data files provided on this server do **not** contain the user names, user IDs and changeset IDs of the OSM objects. These metadata fields contain personal information about the OpenStreetMap contributors and are subject to data protection regulations in the European Union. Please note that these regulations apply even to processing that happens outside the European Union because some OpenStreetMap contributors live in the European Union.

[Extracts with full metadata](#) are available to OpenStreetMap contributors only.

Commonly Used Formats

- [baden-wuerttemberg-latest.osm.pbf](#), suitable for Osmium, Osmosis, imposm, osm2pgsql, mkgmap, and others. This file was last modified 20 hours ago and contains all OSM data up to 2019-09-18T20:15:02Z. File size: 442 MB; MD5 sum: [a5604117fb62b4728a83f1603f62bc](#).
- [baden-wuerttemberg-latest-free.shp.zip](#), yields a number of ESRI compatible shape files when unzipped. ([Format description PDF](#)) This file was last modified 16 hours ago. File size: 741 MB; MD5 sum: [1ff5d174e161d4d523047b57ab805490](#).

Other Formats and Auxiliary Files

- [baden-wuerttemberg-latest.osm.bz2](#), yields OSM XML when decompressed; use for programs that cannot process the .pbf format. This file was last modified 7 days ago. File size: 712 MB; MD5 sum: [039c276427c15e546d3cd0289732](#).
- [baden-wuerttemberg/internal.osm.pbf](#), The history file contains personal data and is available on the [internal server](#) only. See notice above for further information.
- [.poly file](#) that describes the extent of this region.
- [.osm.gz files](#) that contain all changes in this region, suitable e.g. for Osmosis updates
- [raw_directory_index](#) allowing you to see and download older files

Sub Regions

Click on the region name to see the overview page for that region, or select one of the file extension links for quick access.

Sub Region	Quick Links
	.osm.pbf .shp.zip .osm.bz2
Regierungsbezirk Freiburg	[.osm.pbf] (111 MB) [.shp.zip] [.osm.bz2]
Regierungsbezirk Karlsruhe	[.osm.pbf] (103 MB) [.shp.zip] [.osm.bz2]
Regierungsbezirk Stuttgart	[.osm.pbf] (148 MB) [.shp.zip] [.osm.bz2]
Regierungsbezirk Tübingen	[.osm.pbf] (81 MB) [.shp.zip] [.osm.bz2]

Data/Maps Copyright 2018 Geofabrik GmbH and OpenStreetMap Contributors | Map tiles: Creative Commons BY-SA 2.0 Data: ODbL 1.0 | Contact | Legal Notice/Privacy Policy

<https://download.geofabrik.de> (Downloads von der Geofabrik)

Laden von OSM-Daten in QGIS

Daten werden in ein anderes Datenmodell übertragen

von OSM: nodes, way, relations, tags

nach GIS: points, lines, areas, attributes

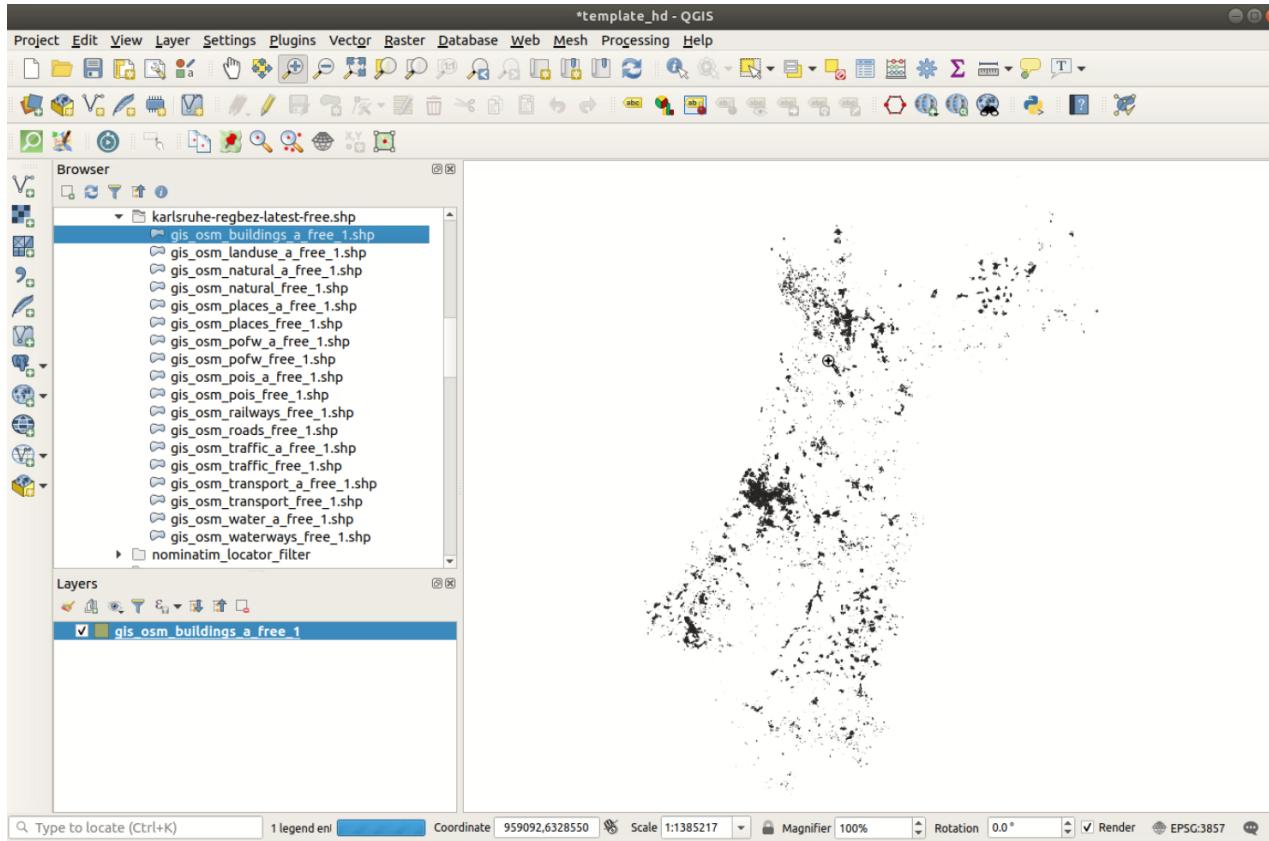
Laden von OSM-Daten in QGIS

GDAL/OGR Bibliothek ist in QGIS integriert

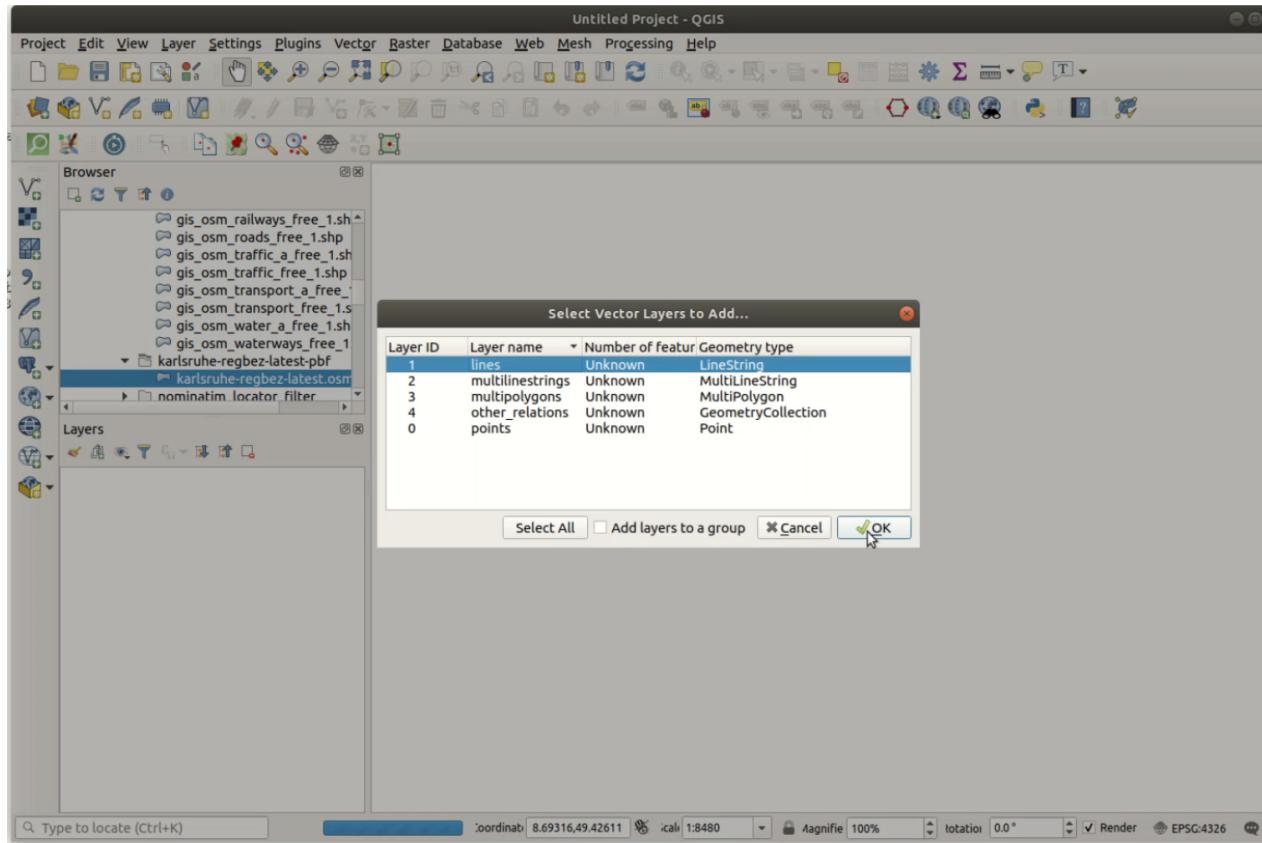


- ▶ Laden von Daten via drag & drop
- ▶ Auswahl des gewünschten Geometrietypes
- ▶ Temporärer Layer wird erzeugt
- ▶ Übertragen der Daten nach Geopackage oder in eine PostgreSQL-Datenbank
- ▶ Stil vergeben

Laden von OSM-Daten über Shape



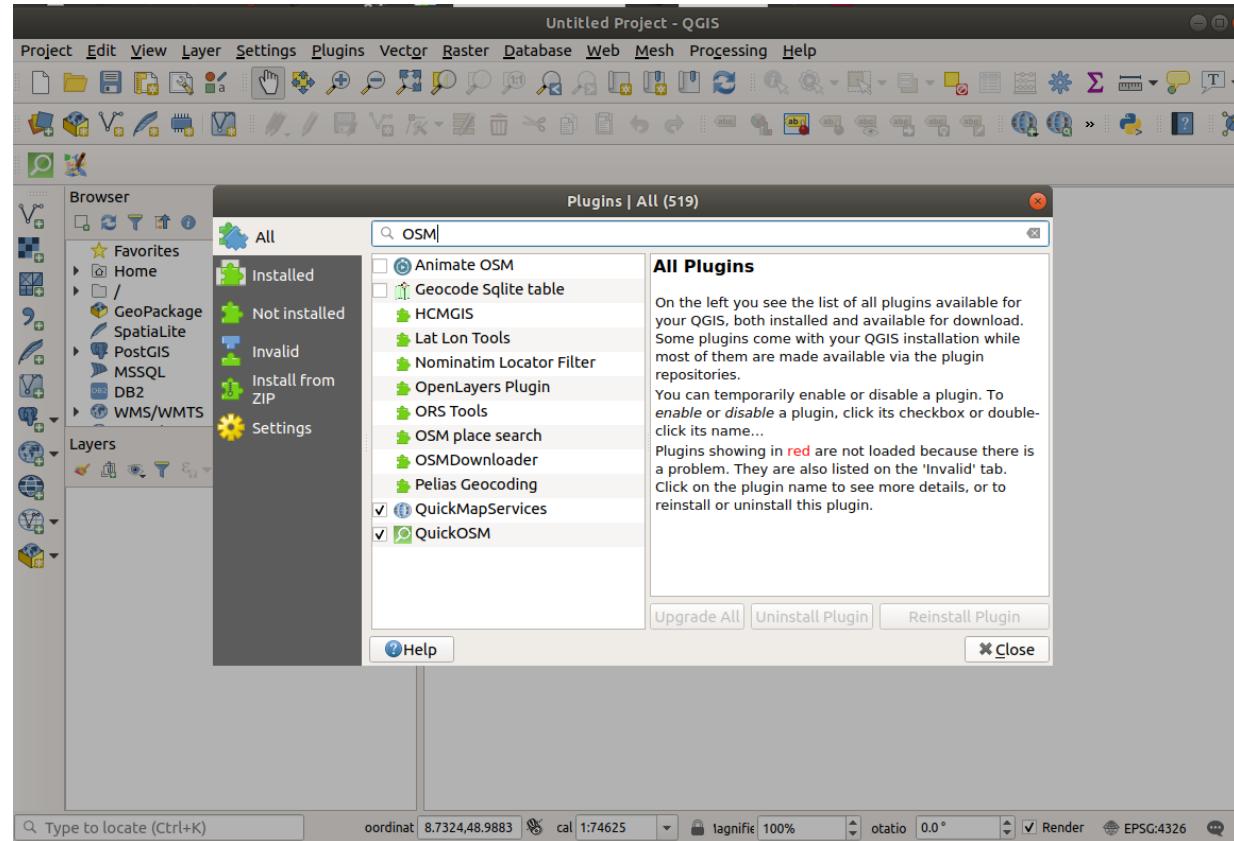
Laden von OSM-Daten über .pbf



QGIS-Plugins

über 500 QGIS-Plugins inklusive der experimentellen Plugins

Es gibt viel zu entdecken!

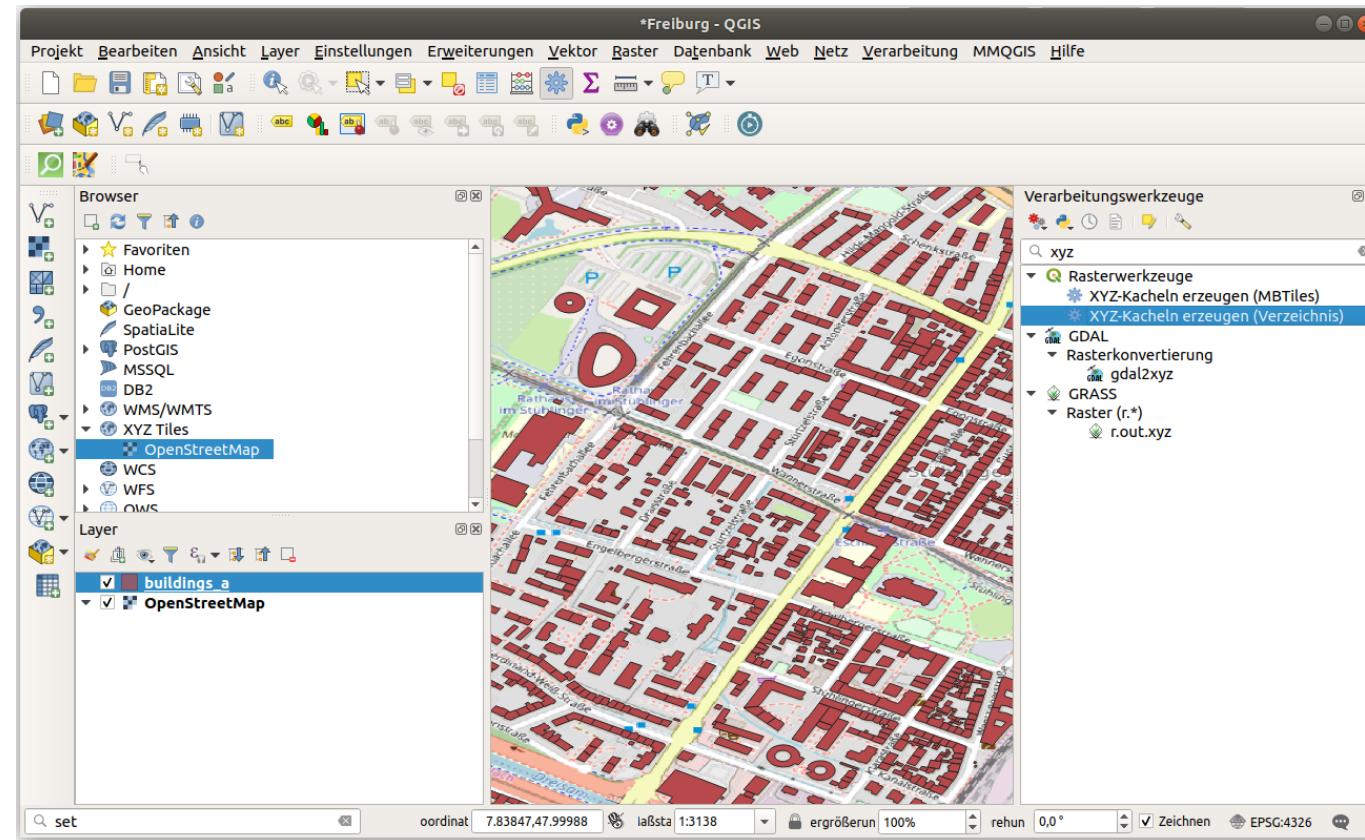


XYZ Tiles

Kacheldienst kann angesprochen werden

XYZ-Tiles cached Daten

Werkzeugkiste: Cache für Offlineeinsatz kann angelegt werden

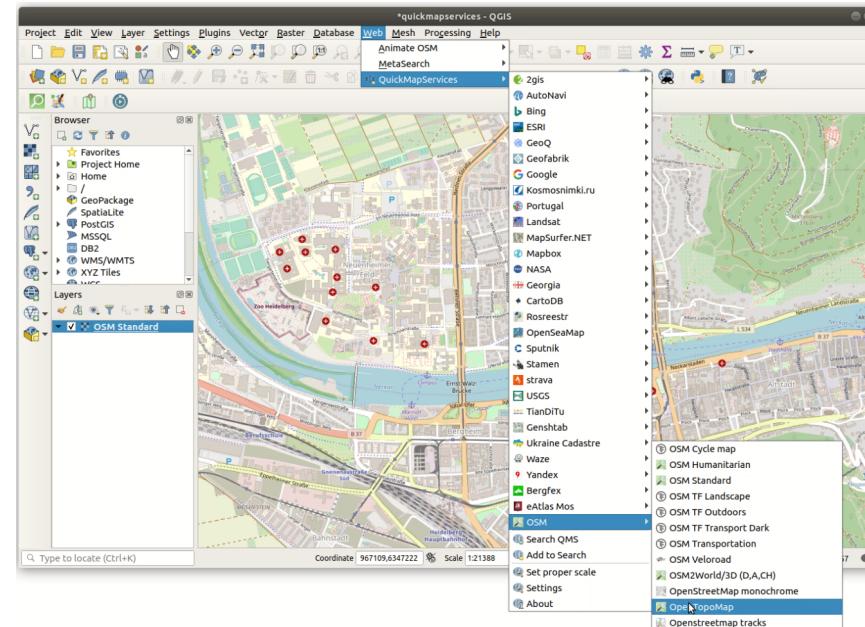


QuickMapServices

Bietet zahlreiche Kartendienste z.B. OSM Standard, OSM Topology, OSM Cycle Map, OSM Hiking map

Auswahl des gewünschten Dienstes und Suche nach Diensten

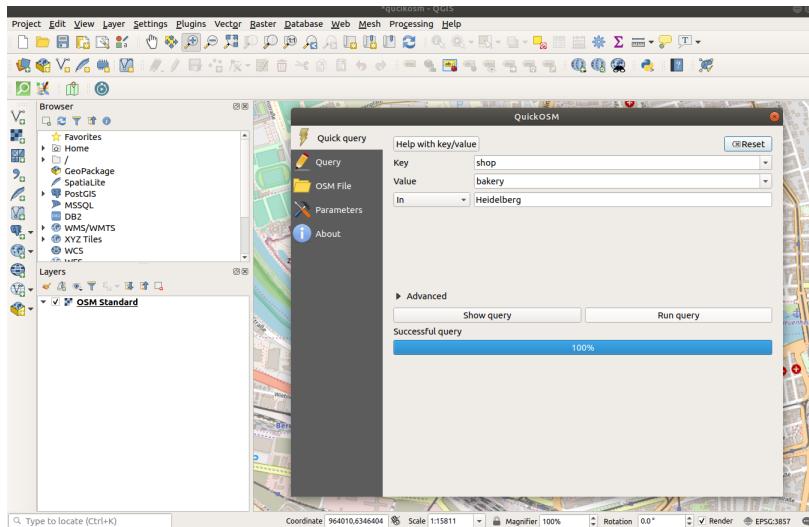
Erweiterung um eigene Dienste



Plugin QuickOSM

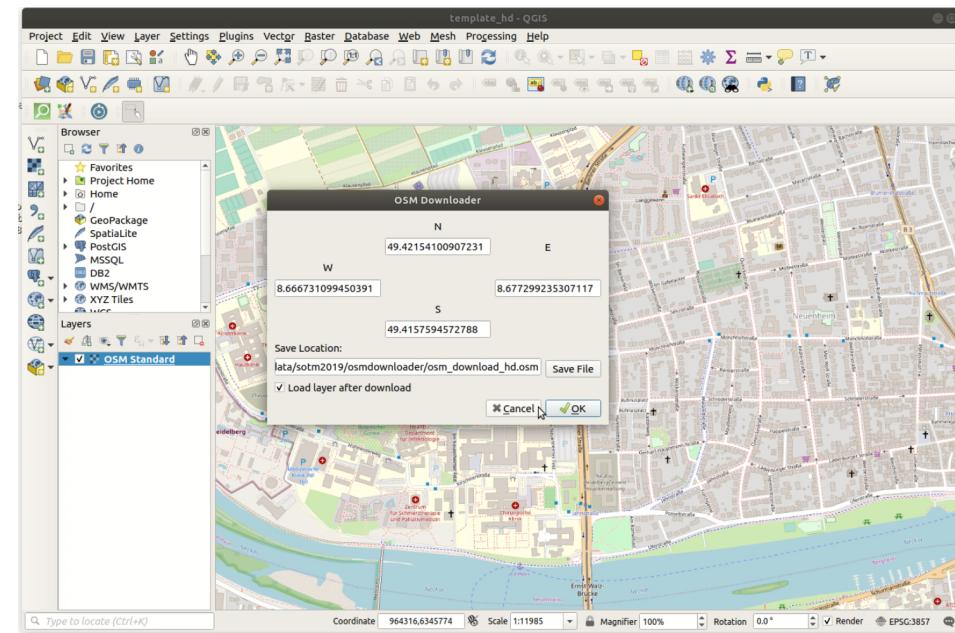
Download von OSM Daten über die Overpass API

- ▶ Auswahl des gewünschten Tags und der gewünschten Region
- ▶ oder Erzeugen von komplexen Abfragen
- ▶ Daten werden frisch nach QGIS importiert (temporäre Layer)



Plugin OSMDownloader

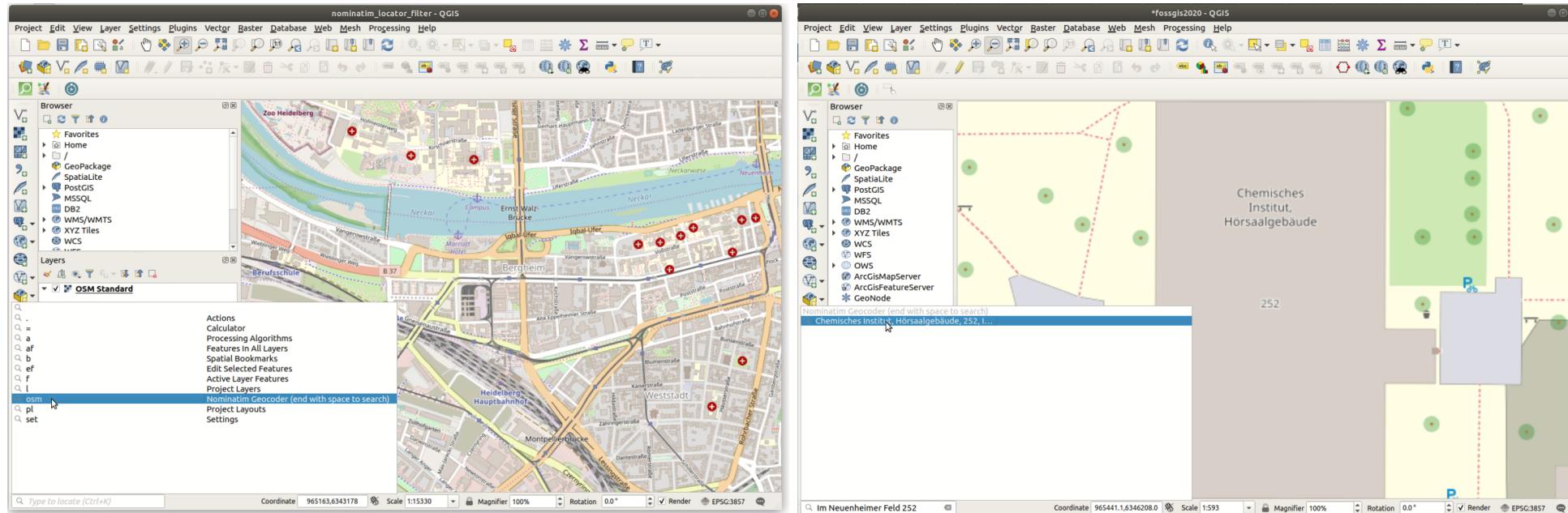
OSM-Daten leicht für einen bestimmten Bereich herunterladen



Plugin Nominatim Locator Filter

Verwendung des Geocoders Nominatim zur Adresssuche

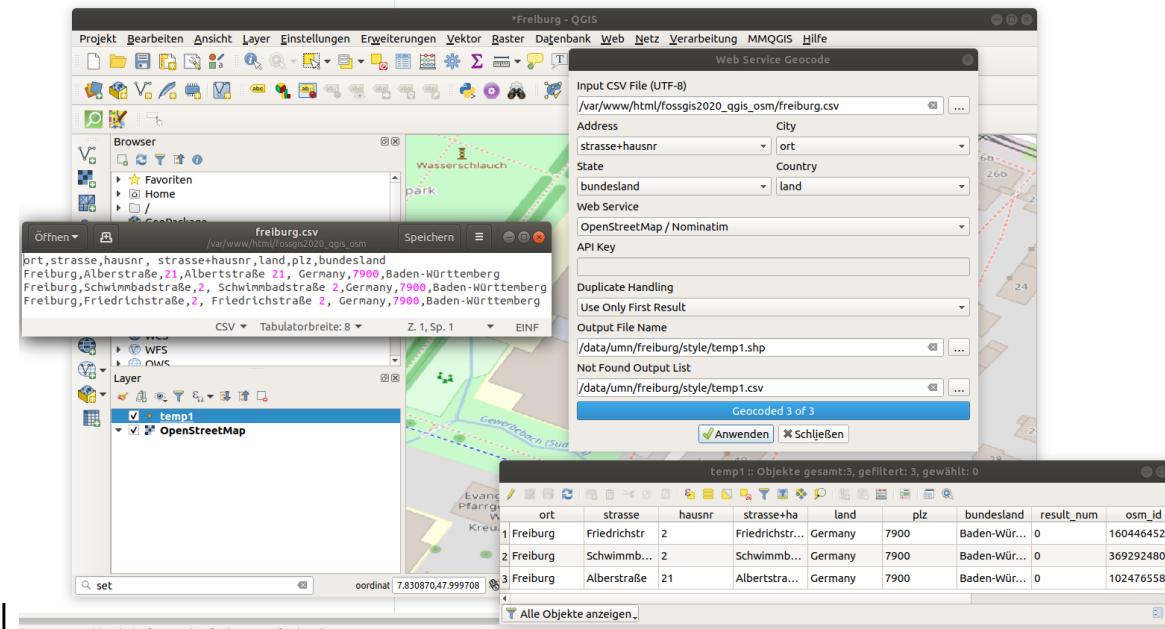
- ▶ Wechsel zum Suchfeld in der Statusleiste
- ▶ Eingabe von **osm** -> gefolgt von einem Leerzeichen. Suche nach einer Adresse z.B. Im Neuenheimer Feld 252 (beenden mit Leerzeichen)



Geocoding

Verschiedene Werkzeuge zum Geocoding und Reverse Geocoding

- ▶ Geocoding von Adressen
- ▶ Plugin GeoCoder
- ▶ Plugin MMQGIS

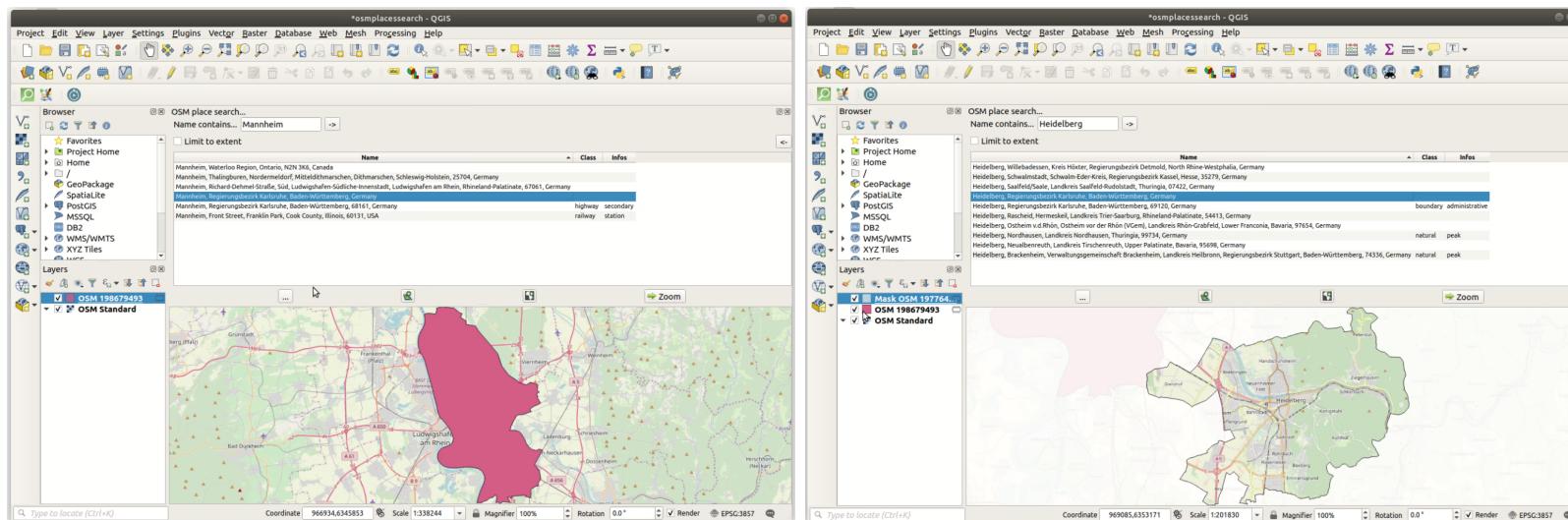


- ▶ Nutzen die Nominatim API

Plugin OSM Place Search

Verwendet ebenfalls den Geocoder Nominatim

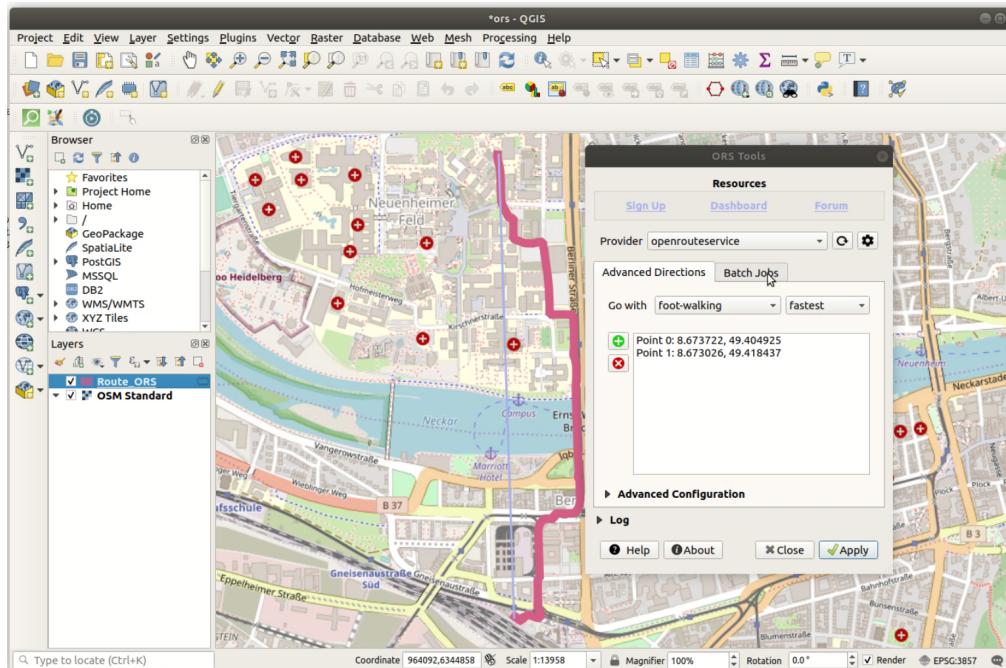
- ▶ Auffinden von Daten
- ▶ Filter anpassen über die Konfiguration
- ▶ Laden der Ergebnisse, Maskierung ist möglich
- ▶ Reverse Geocoding für die aktuelle Position



Plugin ORS Tools zum Routen

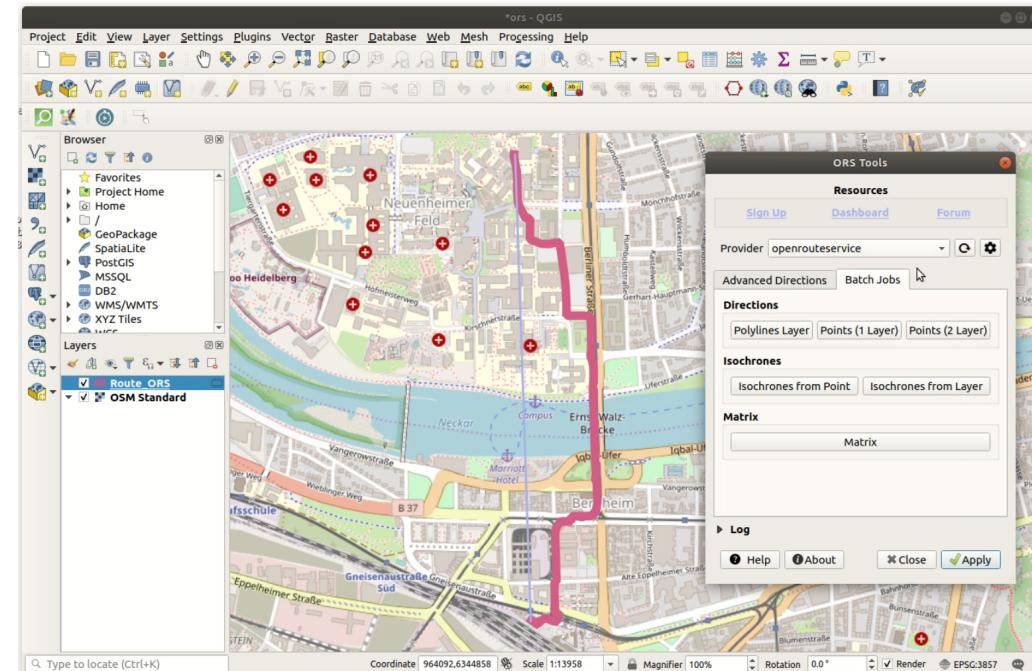
Nutzt openrouteservice.org (basiert auf OpenStreetMap)

- ▶ Interaktives Routing in der Karte
- ▶ Berechnung von Isochronen und Matrixberechnungen



Plugin ORS Tools zum Routen

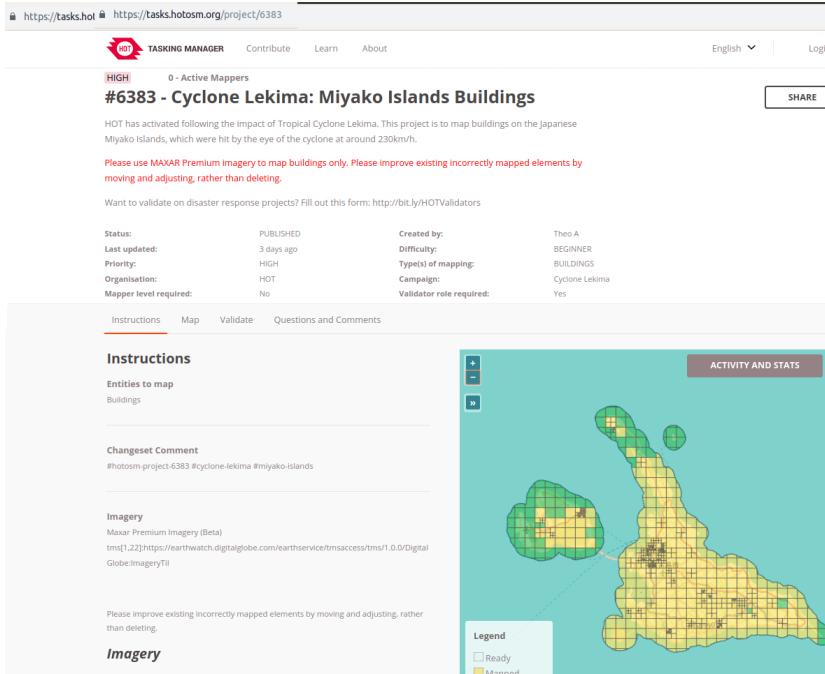
- ▶ Prozessierung von Punktdateien
- ▶ Ausgabe mit Attributen inklusive Dauer, Länge, Start/Endpunkt



Plugin Animate OSM

Visualisierung von erfassten Gebäuden für einen definierten Zeitraum

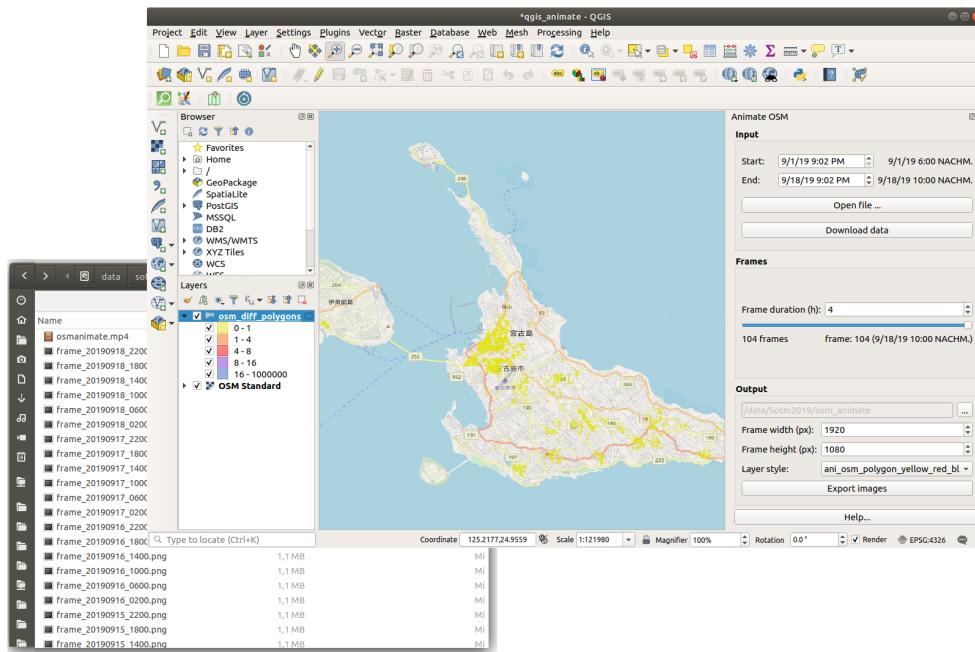
sehr nützlich beispielsweise für Arbeitsauftäge aus dem HOT Tasking Managers



The screenshot shows the HOT Tasking Manager interface for project #6383 - Cyclone Lekima: Miyako Islands Buildings. The page title is "#6383 - Cyclone Lekima: Miyako Islands Buildings". Below the title, there is a note: "HOT has activated following the impact of Tropical Cyclone Lekima. This project is to map buildings on the Japanese Miyako Islands, which were hit by the eye of the cyclone at around 230km/h." A warning message follows: "Please use MAXAR Premium imagery to map buildings only. Please improve existing incorrectly mapped elements by moving and adjusting, rather than deleting." There is also a link to validate disaster response projects: "Want to validate on disaster response projects? Fill out this form: <http://bit.ly/HOTValidators>". The main content area includes a table with project details and tabs for Instructions, Map, Validate, Questions and Comments. The Map tab displays a map of the Miyako Islands with buildings colored according to the legend: white for Ready and yellow for Mapped.

Plugin Animate OSM

- ▶ Definition einer Region und eines Zeitraums
- ▶ Download von Daten für einen Zeitraum
- ▶ Erzeugen von Bildern
- ▶ Erzeugen eines Videos



Plugin Animate OSM

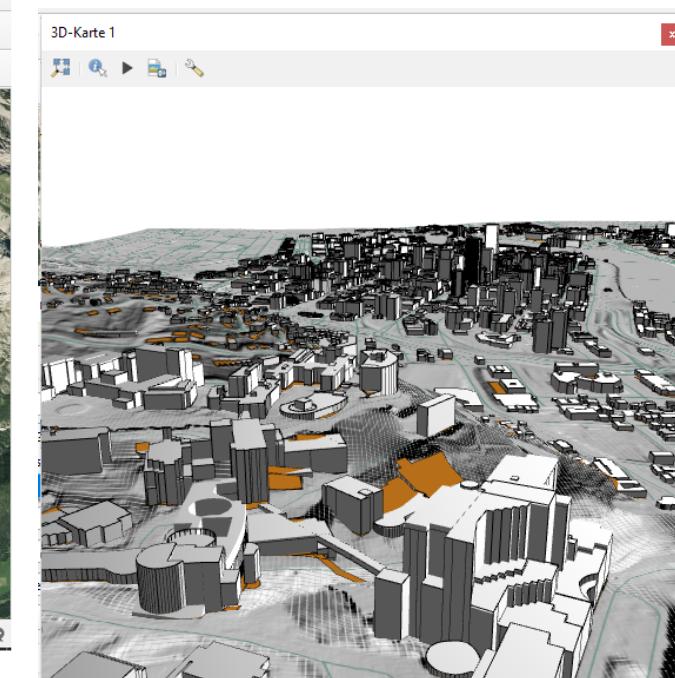
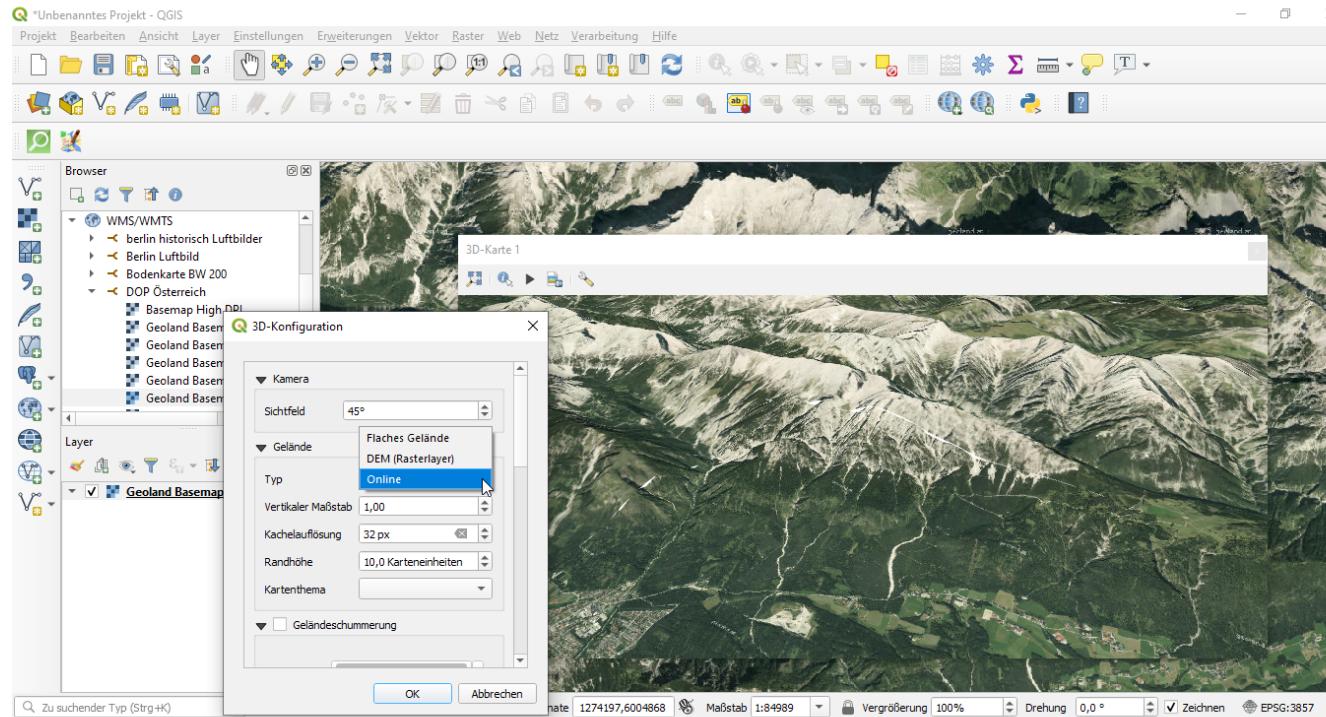
Entwicklung durch Raymond Nijssen

- ▶ Hilfreich für HOT und Missing Maps



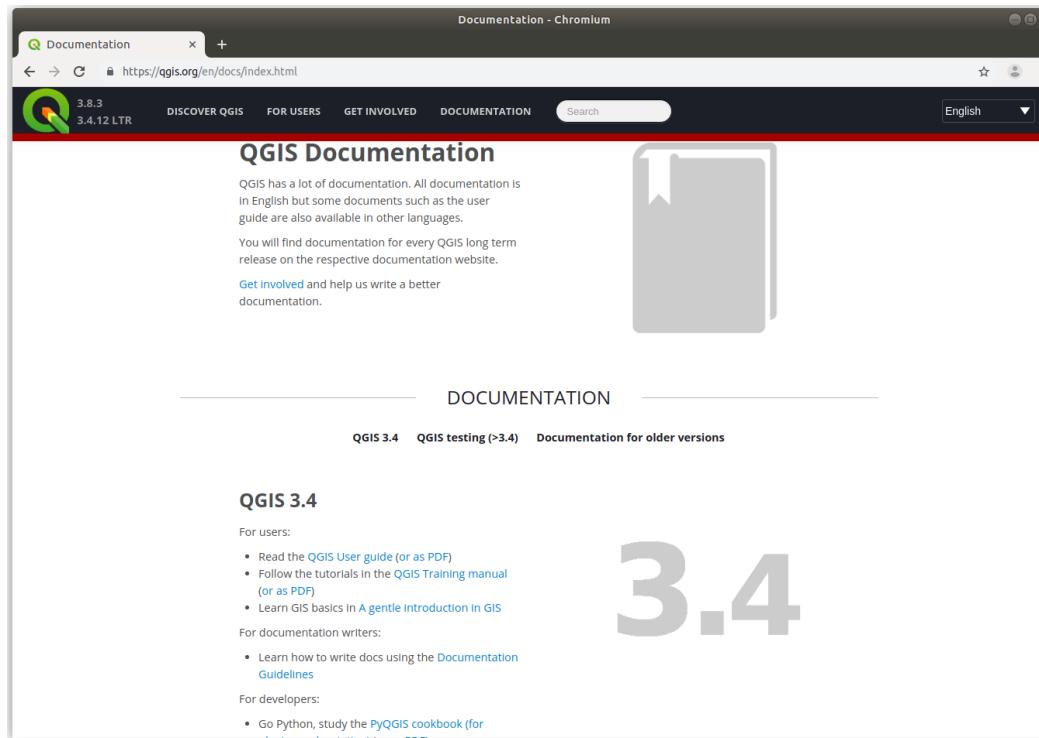
3D

Online Terrain, Gebäude, Bildexport (ab QGIS 3.8)



Hilfe findet sich auf qgis.org

Dokumentation, Tutorials, Visual Change Log ...



<https://qgis.org>

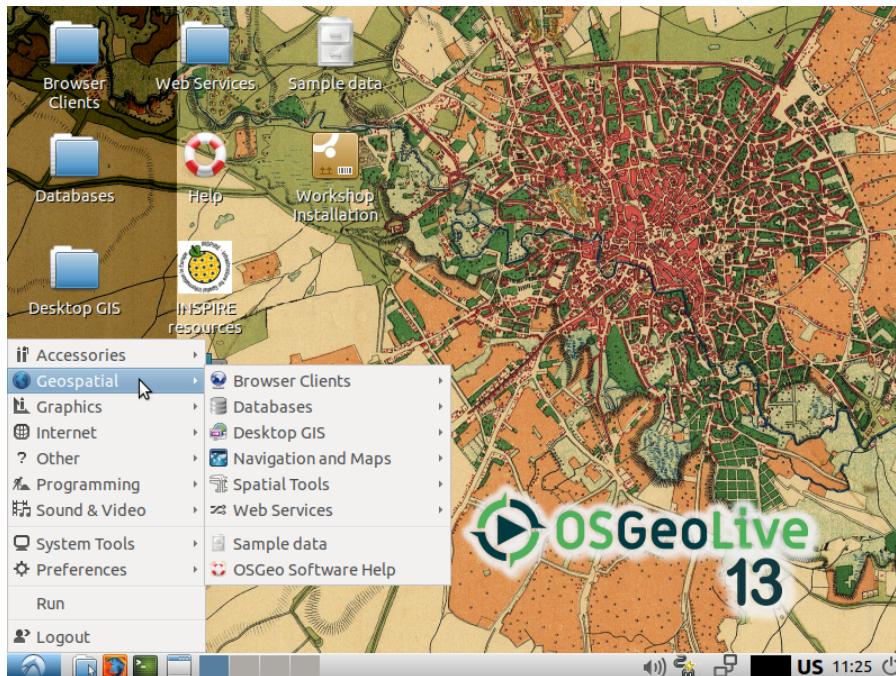


OSGeoLive

Testen Sie OSGeoLive

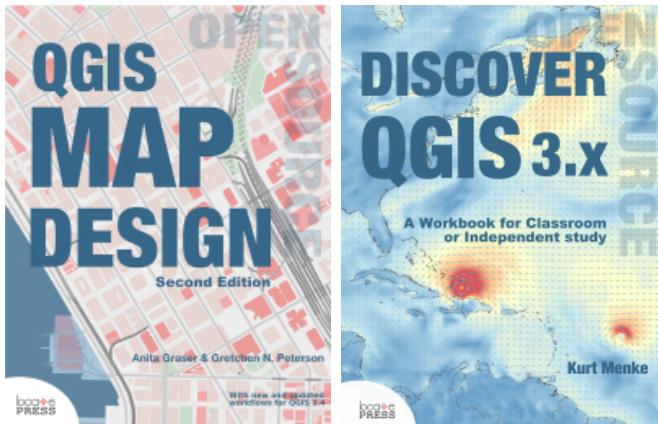
Enthält QGIS, QGIS Server und weitere Open Source GIS Software

iD Editor, JOSM, Mapnik & Daten und Dokumentation



<https://live.osgeo.org>

Bücher



QGIS Map Design Anita Graser and Gretchen N. Peterson LocatePress, 2018

Discover QGIS 3.x Kurt Menke LocatePress, 2019

Blogs & Tweets

zahlreiche Blogs & tweets zu QGIS

- ▶ Anita Graser (@underdark) <https://anitagraser.com/>
- ▶ NorthRoad Advent calendar <https://north-road.com/blog/>

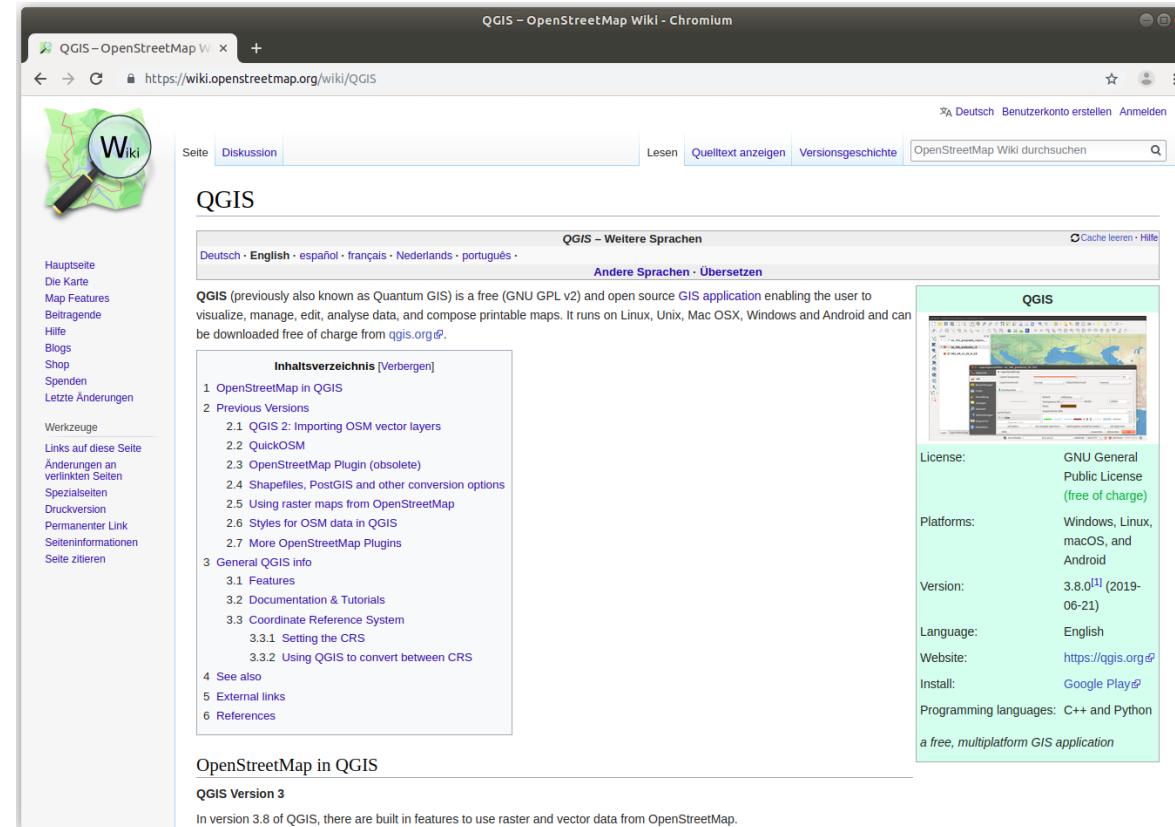
Videos

zahlreiche QGIS-Videos von Veranstaltungen

- ▶ TIB AV-Portal Suche nach QGIS > 400 Treffer 09/2019
- ▶ media.ccc.de <https://media.ccc.de/search/?q=qgis>

OSM Wiki Informationen zu QGIS

<https://wiki.openstreetmap.org/wiki/QGIS>



The screenshot shows the QGIS page on the OpenStreetMap Wiki. The page title is "QGIS". The left sidebar contains links to "Hauptseite", "Die Karte", "Map Features", "Beitragende", "Hilfe", "Blogs", "Shop", "Spenden", "Letzte Änderungen", "Werkzeuge", "Links auf diese Seite", "Änderungen an verlinkten Seiten", "Spezialseiten", "Druckversion", "Permanenter Link", "Seiteninformationen", and "Seite zitieren". The main content area has tabs for "Seite", "Diskussion", "Lesen", "Quelltext anzeigen", "Versionsgeschichte", and "OpenStreetMap Wiki durchsuchen". Below the tabs, there is a "QGIS – Weitere Sprachen" section with links to "Deutsch", "English", "español", "français", "Nederlands", and "português". A "Andere Sprachen · Übersetzen" button is also present. The main text describes QGIS as a free GIS application. To the right, there is a summary box with a screenshot of the QGIS interface, listing its license (GNU General Public License), platforms (Windows, Linux, macOS, and Android), version (3.8.0), language (English), website (<https://qgis.org>), install method (Google Play), and programming languages (C++ and Python). It also notes that QGIS is a "free, multiplatform GIS application".

Vielen Dank

Es gibt viel zu entdecken



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