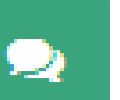


Sentinel processing in GRASS GIS: A growing toolset for downloading, preprocessing and multitemporal analysis of Copernicus Sentinel data



2021-10-01, 08:00–08:30, Aconcagua

The growing abundance of Copernicus Sentinel Earth Observation data has triggered community- and project-driven development of a set of tools to exploit its potential using GRASS GIS. This talk will give an overview of the existing functionalities, current developments, and application examples: The `i.sentinel` toolset allows for querying Sentinel data coverage for a region of interest, downloading from various data sources, importing into GRASS GIS, performing atmospheric and topographic correction and cloud/shadow masking. Preparation of data for multitemporal analysis is made possible in the `t.sentinel` and `t.rast.mosaic` extensions by automatic creation of space time raster datasets (`strds`) and temporal aggregation to achieve up to cloud-free temporal mosaics. Furthermore, a dedicated add-on based on ESA's SNAP software handles Sentinel-1 SAR data preprocessing (radiometric calibration, speckle-filtering, geometric terrain-correction) and import. In all add-ons, effort is put in parallelization wherever possible to speed up the processing times of heavyweight Earth Observation data. This toolset allows the use of the entire range of GRASS GIS functionality for image analysis in various applications. We show use case examples for nationwide landcover classification, small-scale forest monitoring, flood mapping and more.

See also the following GRASS GIS resources:

- GRASS GIS [Addons overview](#)
- Manuals for the [i.sentinel toolset](#)
- The GRASS GIS [Addons repository](#)
- The [t.sentinel](#) and [t.rast.mosaic](#) repositories

Examples of Sentinel Addons in action:

- [Flood mapping in Ecuador](#)
- [Nationwide land cover classification](#)
- [Tropical forest regrowth monitoring](#)

Authors and Affiliations –

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Track –

Software

Topic –

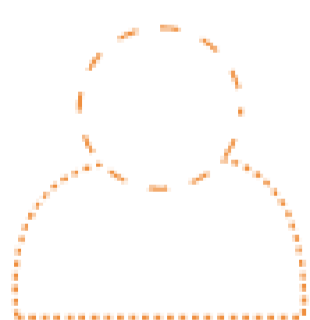
Sensors, remote sensing, laser-scanning, structure from motion

Level –

2 - Basic. General basic knowledge is required.

Language of the Presentation –

English

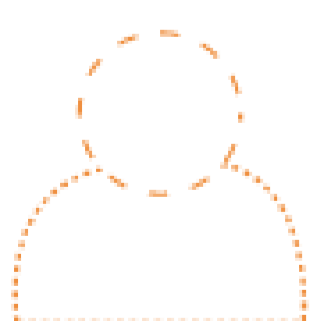


Markus Neteler

Markus Neteler is co-founder of mundialis in Bonn (<https://www.mundialis.de/>). His main interests are Earth observation, geospatial analysis of massive amounts of data and development of free and open GIS, especially GRASS GIS.

This speaker also appears in:

- [News from actinia](#)
- [Cold war reconnaissance imagery reloaded: orthorectifying the 1960s in high resolution](#)

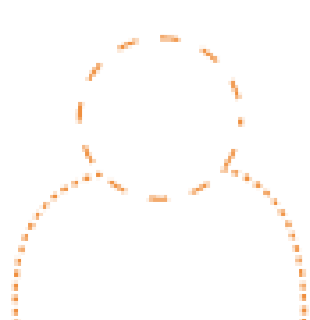


Guido Riembauer

Guido studied Geoinformation and Visualisation at University of Potsdam and worked as a trainee for ESA's Earth Observation Programme before joining mundialis in 2020. He is a developer and data analyst at mundialis and has specialized in (radar) remote sensing.

This speaker also appears in:

- [Cold war reconnaissance imagery reloaded: orthorectifying the 1960s in high resolution](#)



Luca Delucchi

Luca is an OSGeo and OSM contributor and advocate. He is interested in all features about GIS: desktop, web, geodatabase, developing and geodata. He is core developer and translator of GRASS GIS project, main developer of pyModis library and OSGeoLive and ZOO-Project contributor.