FOSS4G
In the
Academe

(from my siloed perspective)

Hello my name is

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marxT

Open Data

For the common good!

Global Flood Monitoring

Greece, Thessaly, September 2023 | Large floods after heavy rainfalls | from Sentinel-1-based Copernicus Global Flood Monitoring (GFM)

2) flood progression from individual Sentinel-1 scenes
sea / lake urban area S-1 footprint GFM flood
Sep 6 Sep 12 Sep 18
Sep 7 Sep 13 Sep 19

1) extreme rainfall from cyclone Daniel
snapshot Sep 6 morning
weather radar (by windy.com)

3) total flooded area from aggregating GFM flood maps
AOI in Thessaly
total flooded area
from 6 images: 638 km²

N 0 10km 50km normal water flooded area no water / terrain hillshade

https://www.tuwien.at/en/mg/geo/rs/open-data/gfm

Open Data

Still for the common good!
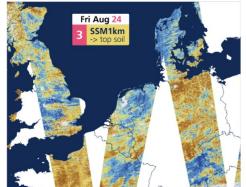

Western Europe, August 2018 | Summer rains & storms
Surface Soil Moisture (SSM1km) and Soil Water Index (SWI1km) @ Copernicus Global Land Service (CGLS)

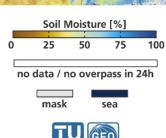5-day sequence of CGLS daily products at 1km sampling | detail over western Europe

Wed Aug 22 — 1 SSM1km -> top soil
Fri Aug 24 — 3 SSM1km -> top soil
Sun Aug 26 — 5 SWI1km -> root soil
Thu Aug 23 — 2 SSM1km -> top soil
Sat Aug 25 — 4 SSM1km -> top soil

Soil Moisture [%]
0   25   50   75   100
no data / no overpass in 24h
mask   sea

https://www.tuwien.at/en/mg/geo/rs/open-data/cgls

Open Data

Also for SCIENCE!!!

Data Availability Statement

The data presented in this study are openly available at: https://doi.org/10.48436/vtfkq-snz36.

Not yet the norm... but we're getting there.

Conflicts of Interest

The authors declare no conflict of interest.

SCIENCE

F=ma

OPEN SCIENCE: JUST SCIENCE DONE RIGHT

Image by Melanie Imming

Open (Geo)Science

Not there yet!

F indable   A ccessible   I nteroperable   R eusable

F indable   A ccessible   I nteroperable   R eusable

Image by Sangya Pundir

Prefers openness

0. RUN

1. STUDY

4 THE
FREEDOMS
WE PROMOTE

3. SHARE

4. IMPROVE

https://www.softwarefreedomday.org/about/why-foss

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OSGeo

Home » Projects

Projects

The projects listed here offer freely available tools and technologies under an open source license. This list promotes the work of teams and organizations world wide. Projects marked *OSGeo Community* have joined OSGeo, while those marked *OSGeo Project* have undergone an extensive mentorship with our organization.

Filter ⌄   Search in Projects 🔍

GRASS GIS
GRASS GIS, commonly referred to as GRASS (Geographic Resources Analysis Support ...

🌐 Website   ⟨⟩ Source   ▢ Documentation

gvSIG Desktop
gvSIG is a powerful, user-friendly, interoperable GIS used by thousands o...

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Marble
Versatile, yet easy to use. Use Marble similar to a desktop globe; pan around an...

🌐 Website   ⟨⟩ Source

Orfeo ToolBox
Orfeo ToolBox is an open-source project for state-of-the-art remote sensing, inc...

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QGIS Desktop
QGIS is the leading Free and Open Source Desktop GIS. It allows you to create, e...

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Giswater
An intelligent technology, free and open source for the integral water cycle man...

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Opticks
Opticks is an expendable remote sensing and imagery analysis software platform t...

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OSGeo4W
OSGeo4W is a binary distribution of a broad set of open source geospatial softwa...

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GET-IT - Geoinformation Enabling ToolKIT starterkit®
The Geoinformation Enabling ToolKIT starterkit® (GET-IT) is the software suite f...

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◁   1   2   ▷

And many more outside the OSGeo umbrella...

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https://www.youtube.com/watch?v=3pXQ21auk4M

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FOSS4G Academic Track

Deadlines

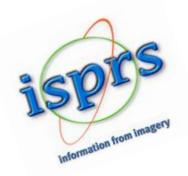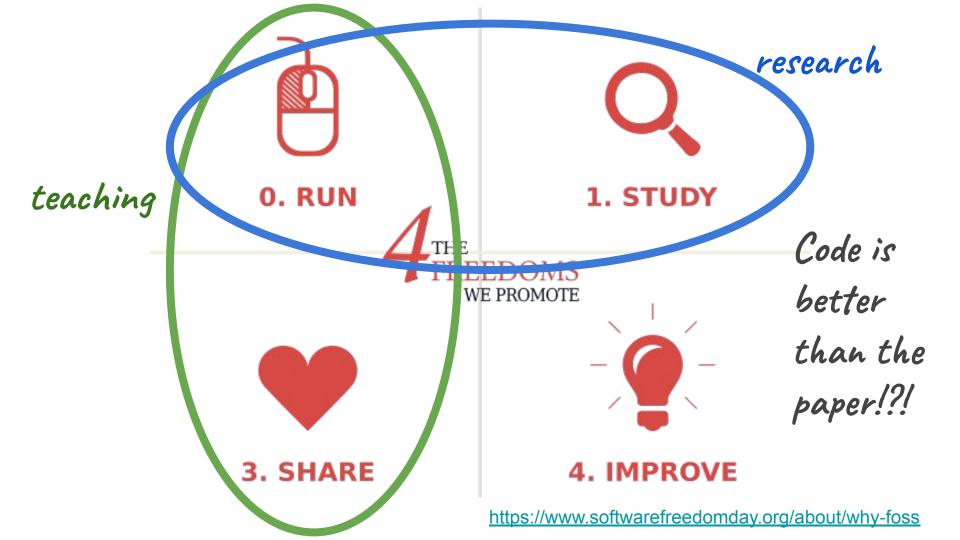|		
Submission of academic abstracts	from 15/12/2022	to 28/02/2023 23:59 UTC
Announcement of accepted abstracts		15/03/2023
Submission of full academic papers		23/04/2023

Description

Following an established tradition, FOSS4G organizes an Academic Track which will run over the days of the Conference. The Scientific Committee of FOSS4G 2023 invites original research contributions addressing any topic or domain connected to Open Source Geospatial Software, including (but not limited to) Open Hardware, Open software development, Open GIScience, Open Geospatial Data, (Geo)Spatial Data Sharing Systems, Open (Geospatial) Cloud Platforms and Services, Open (Geo)Education, Participatory Mapping, Digital Twins, GeoAI and Geospatial Machine Learning.
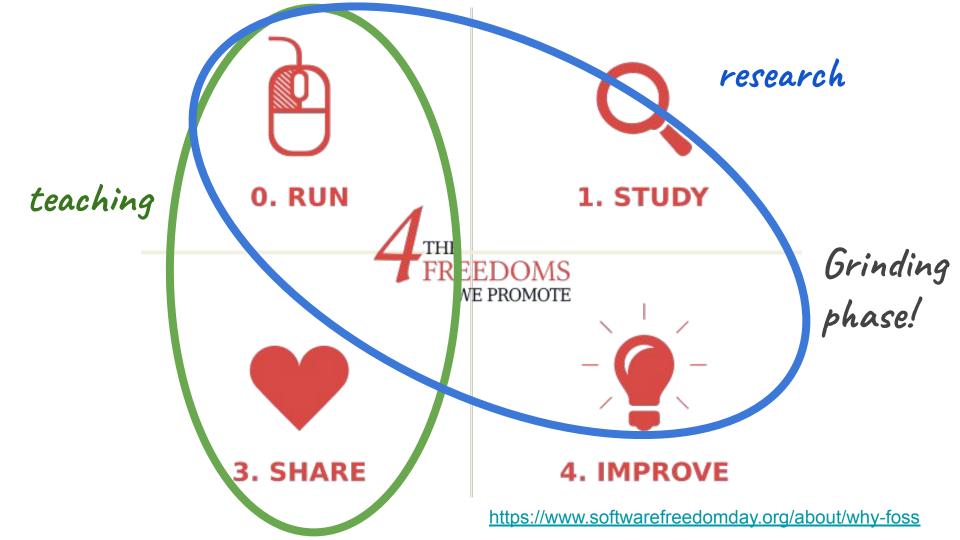
All types of papers are welcome, including on results achieved, case studies, work in progress, reviews and demos. We discourage, however, mere presentations of technology or use cases without properly justifying originality against the scientific state of the art and without particular novelty. In addition, the use of open source geospatial software should be properly highlighted. Contributions from PhD students and early-stage researchers are particularly encouraged.

In the evaluation of proposals, the Scientific Committee will pay particular attention to the reproducibility of the research (where this is applicable). Reproducibility is ensured when the research makes all artefacts (input data, computational steps, methods and code) openly available to obtain consistent results. When available, the code shall be publicly released under an open source license.

How to Submit a Paper

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research

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THE 4 FREEDOMS WE PROMOTE

Code is better than the paper!?!

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Grinding phase!

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4. IMPROVE

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Journal of Open Source Software

https://joss.theoj.org/

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TU Wien - Department of Geodesy and Geoinformation

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48 followers   Vienna, Austria   http://geo.tuwien.ac.at

To exploit and analyze Open Data!!!

Popular repositories

pytesmo   Public

python Toolbox for the Evaluation of Soil Moisture Observations

Python   ☆ 73   ⑂ 43

ecmwf_models   Public

Python package for downloading ECMWF reanalysis data and convert it into a time series format.

Python   ☆ 36   ⑂ 15

Equi7Grid   Public

Definition of the Equi7Grid - a spatial reference optimized for global high-resolution raster data.

Python   ☆ 35   ⑂ 11

ismn   Public

Readers for the data from the International Soil Moisture Network

Python   ☆ 24   ⑂ 20

pygeogrids   Public

Python package for generation and handling of discrete global grids

Python   ☆ 23   ⑂ 16

ascat   Public

Read and visualize data from the Advanced Scatterometer (ASCAT) on-board the series of Metop satellites

Python   ☆ 17   ⑂ 16

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You can create a README file visible to anyone.

People

View all

Top languages

● Python   ● JavaScript   ● Makefile
● HTML   ● C++

Most used topics

Manage

python   remote-sensing   soil-moisture
earth-science   modelling

Repositories

Find a repository…

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ascat   Public

Read and visualize data from the Advanced Scatterometer (ASCAT) on-board the series of Metop satellites

EOMaps

| Tests | Package | Documentation | License | Citation | |:-:|:-:|:-:|:-:|:-:| | test_Maps passing | codecov 75% | pypi v7.3.3 | conda-forge v7.3.3 |
docs passing | License GPLv3 | DOI 10.5281/zenodo.10410254 |

Chat on gitter

Buy me a coffee

EOmaps - Interactive maps in python!

EOmaps is a `python` package to visualize and analyze geographical datasets.

It is built on top of matplotlib and cartopy and provides an intuitive and easy-to-use interface to speed up and simplify the creation and comparison of maps.

> For a quick hands-on introduction, checkout this article on dev.to:
> Geographic data visualization and analysis with EOmaps: Interactive maps in python!

What can EOmaps do for you?

- Create ≣ multi-layered maps and interactively compare different layers with each other
- 🔴 Visualize datasets with millions of datapoints and handle reprojections
- Provide a comprehensive set of tools to customize the map
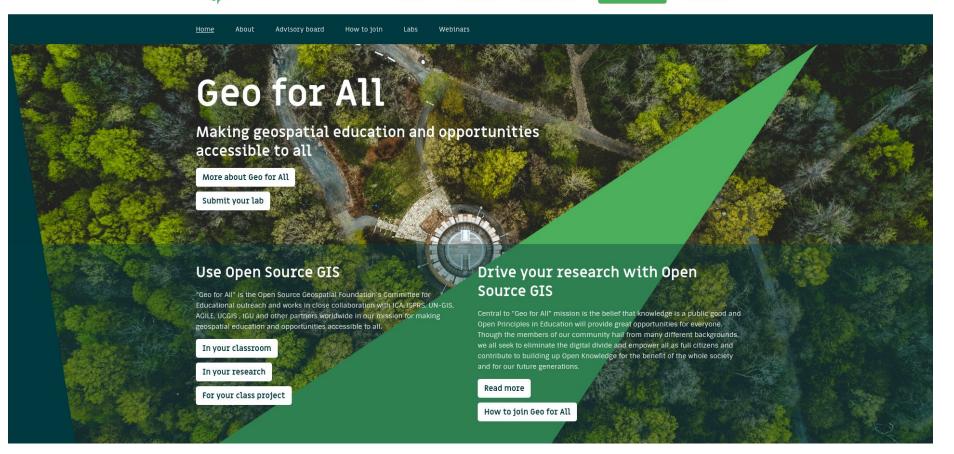
https://raphaelquast.github.io/EOmaps/
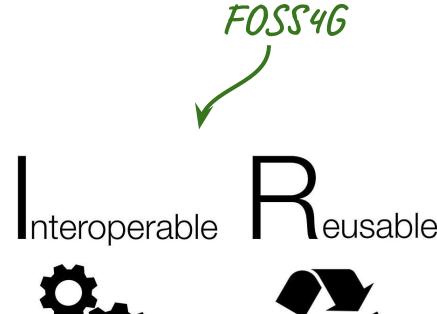
OSGeo

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"Geo for All" is the Open Source Geospatial Foundation's Committee for Educational outreach and works in close collaboration with ICA, ISPRS, UN-GIS, AGILE, UCGIS , IGU and other partners worldwide in our mission for making geospatial education and opportunities accessible to all.

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For your class project

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Central to "Geo for All" mission is the belief that knowledge is a public good and Open Principles in Education will provide great opportunities for everyone. Though the members of our community hail from many different backgrounds, we all seek to eliminate the digital divide and empower all as full citizens and contribute to building up Open Knowledge for the benefit of the whole society and for our future generations.

Read more

How to join Geo for All

https://www.osgeo.org/initiatives/geo-for-all/

FOSS4G

F indable
A ccessible
I nteroperable
R eusable

FOSS4G

OPEN SCIENCE:
JUST SCIENCE
DONE RIGHT

Image by Melanie Imming

Hello
my name is

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marxT

student
@
TU WIEN | GEO

faculty
(on leave)
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FOSS4GPH volunteer

Maraming Salamat!