Using the EOSC services in Geohazard research

Manage and preserve the research work, make it available
and discover new knowledge

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Reliance overview

• RELIANCE is contributing to the EOSC Exchange with a set of services for
  • open, efficient, and cross-disciplinary management of the research lifecycle in support of FAIR and Open Science

• RELIANCE services
  • manage the research lifecycle as a first-class entity
  • enhance the discovery of and access to research data, including large EO datasets (Copernicus)
  • extract relevant knowledge from scientific text
Exchange services

RoHub

EOC Resource Catalogue

Notebook
Binder

zenodo

B2SHARE
B2DROP

AAI check-in

OpenAIRE RESEARCH
GRAPH

OpenAIRE EXPLORER

E. Trasatti
EOSC User Day
16 May 2023
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Overview

Collaborate with other researchers
https://reliance.rohub.org/

InSAR ground velocity map and deformation time series of Askja Volcano - Iceland
Christian Sigurðsson
Published by: Institute of Geology and Geophysics

This is a preliminary output of multi-temporal InSAR application based on LC3DBA method and Sentinel-1 data.

LOCATION:
Area 1

CONTENT:
Interactions
- Reference point for LC3DBA in KML format (1.1MB)
- List of the used images (396kB)
- Jupyter notebook used to process SAR data based on LC3DBA in... (671MB)
- Final connection graph (119MB)
- Askja inner ground velocity map from LC3DBA processing (489kB)
- new data

AUTHORS
Christian Sigurðsson

COMPLETENESS
100%
Overview

InSAR ground velocity map and deformation time series of Askja Volcano - Iceland

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Overview

Discover and access others’ work to be re-used in another use case

Modelling of the 2011-2012 inflation at Santorini (Greece) detected by remote sensing and GPS data

Michael Fourneris

Contributed by Dina Tsakanikaki
Published by: National Observatory of Athens

This Research Object contains results based on the Copernicus ENVISAT data and GNSS data of the summit phase of Santorini (Greece) detected form March 2011 - March 2012. For more details on geodetic data modeling of the volcanic sources using the VSM tool, the ENVISAT data are provided in the descending orbit. Cumulative uplift of the volcano reached about 6 cm on Line of Sight at the end of the observation period, while the maximum deflation of 14 cm on Line of Sight was observed at Cape Skaros NNW of Fira. This notebook demonstrates the use of RStudio and the RMarkdown R Markdown to document a complete scientific process (from input data to results) with the creation of a Research Object.

VSM - Volcanic and Seismic source Modelling is a Python code to perform inversions of geodetic data.

Code: https://github.com/ascipple/vsm

License: MIT (c) 2017, C. I. Scipierre, licensed under GNU GPL License

Install libraries

```
import sys
(Copy from repository) - pip install --user /home/jupyter/databases/RelianceAndEnvironmental/vsm
```

Reference


Install libraries

```
import sys
(Copy from repository) - pip install --user /home/jupyter/databases/RelianceAndEnvironmental/vsm
```
Overview

Copernicus data analysis and modelling of the volcanic activity at Santorini (Greece) using the RELIANCE Services

This notebook provides results based on the Copernicus ROSELT data and EMSDS data of the active phase of Santorini (Greece) during March 2017 - March 2018. It contains details on geothermal monitoring of the volcanic activity using the ROSELT data. The ROSELT data provides the long-term monitoring of the active phase of Santorini (Greece) during March 2017 - March 2018, and includes information on geothermal monitoring of the volcanic activity using the ROSELT data.

Data

Post Processing

Plot Data, model and residuals

```python
# Import necessary libraries
# Requirements: matplotlib, numpy, scipy

# Define function to plot data, model, and residuals
def plot_data_model_residuals(data, model, residuals):
    # Plot data
    plt.subplot(3, 1, 1)
    plt.plot(data[:, 0], data[:, 1], 'o', label='Data
    # Plot model
    plt.subplot(3, 1, 2)
    plt.plot(model[:, 0], model[:, 1], '-', label='Model
    # Plot residuals
    plt.subplot(3, 1, 3)
    plt.plot(residuals[:, 0], residuals[:, 1], 's', label='Residuals
```

References

Monitoring Santorini volcano (Greece) satellite data from 2011 to 2018. http://www.santorinivolcano.org

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Thanks for your attention

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