



EPOS

**a Novel Geoscience Open Data Platform for a better
understanding of Planet Earth**

Daniele Bailo, Rossana Paciello, Carmela Freda

A unique Research Infrastructure for solid Earth science

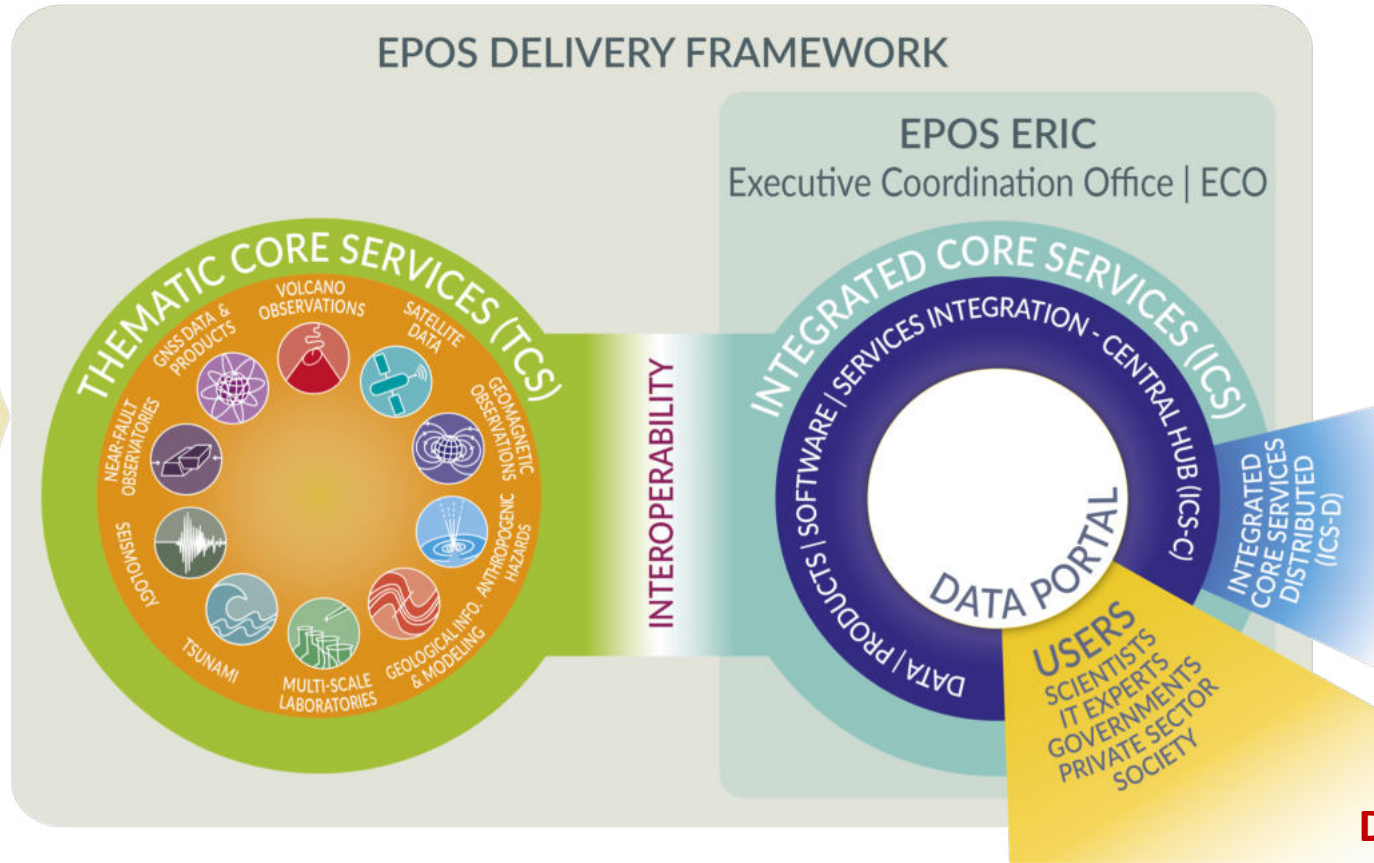
EPOS (European Plate Observing System) is the unique, distributed pan-European Research Infrastructure in the solid Earth domain.

EPOS is built for promoting collaboration, and harmonization of heterogeneous datasets, practices, and methods from different solid Earth communities.



National Ris
generate data for science and society

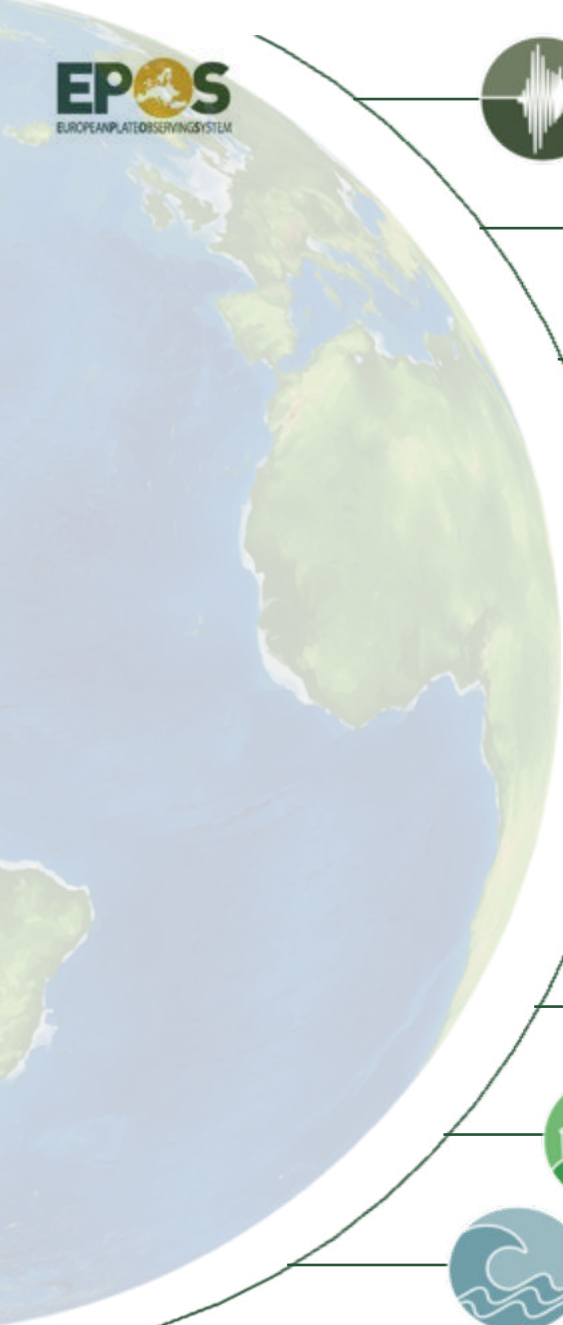
NATIONAL RESEARCH
INFRASTRUCTURES (NRI)
& DATA CENTERS



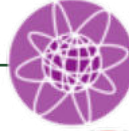



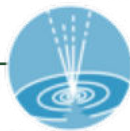





Integrated Core Services (ICS) represent the new interface that by adopting data access policies aligned to Open Science principles, provides data and products in a **FAIR** form for users

Data Portal allows the access to all data, products and services made available by the NRIs through the TCS for different **users and stakeholders** (including Society)

Each community integrates its own data and services into a **Thematic Core Service (TCS)**
TCS are responsible for integrating data, metadata and services from various infrastructures for each discipline and for guaranteeing access to standardized, quality-controlled data and services



-  Seismology
-  Near Faults Observatories
-  GNSS Data and Products
-  Volcano Observations
-  Satellite Data
-  Geomagnetic Observations
-  Anthropogenic Hazard
-  Geological Information and Modelling
-  Multi-scale Laboratories
-  Tsunami



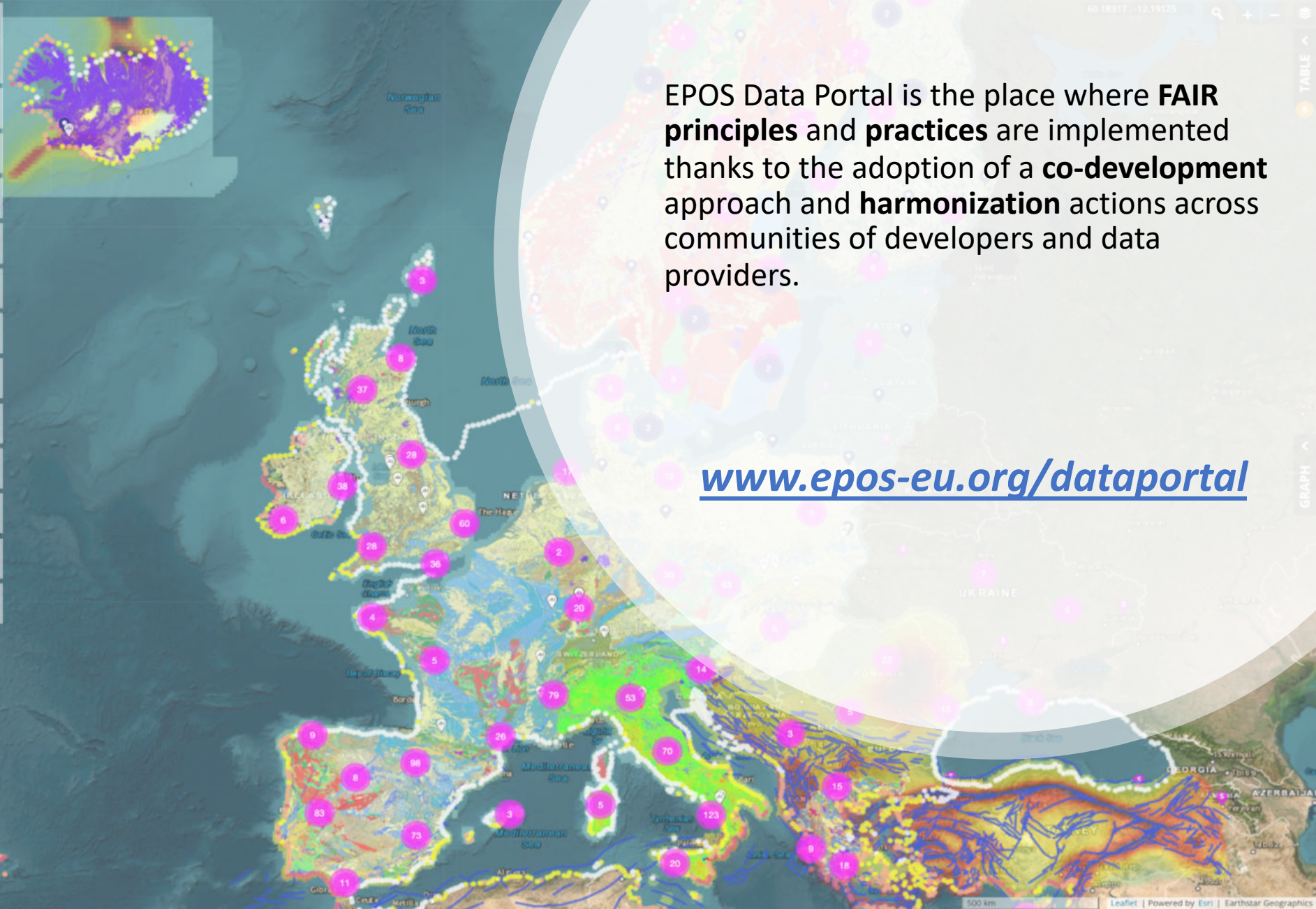
One-stop shop portal that enables any user to access **Solid Earth data** in an **integrated way**

EPOS Data Portal

Free text search

Filters

All data and services	242
Seismology	63
Near Fault Observatories	40
GNSS Data and Products	13
Volcano Observations	31
Satellite Data	8
Geomagnetic Observations	15
Anthropogenic Hazards	38
Geological Information and Modeling	8
Multi-scale Laboratories	6
Tsunami	20
Favourites	8



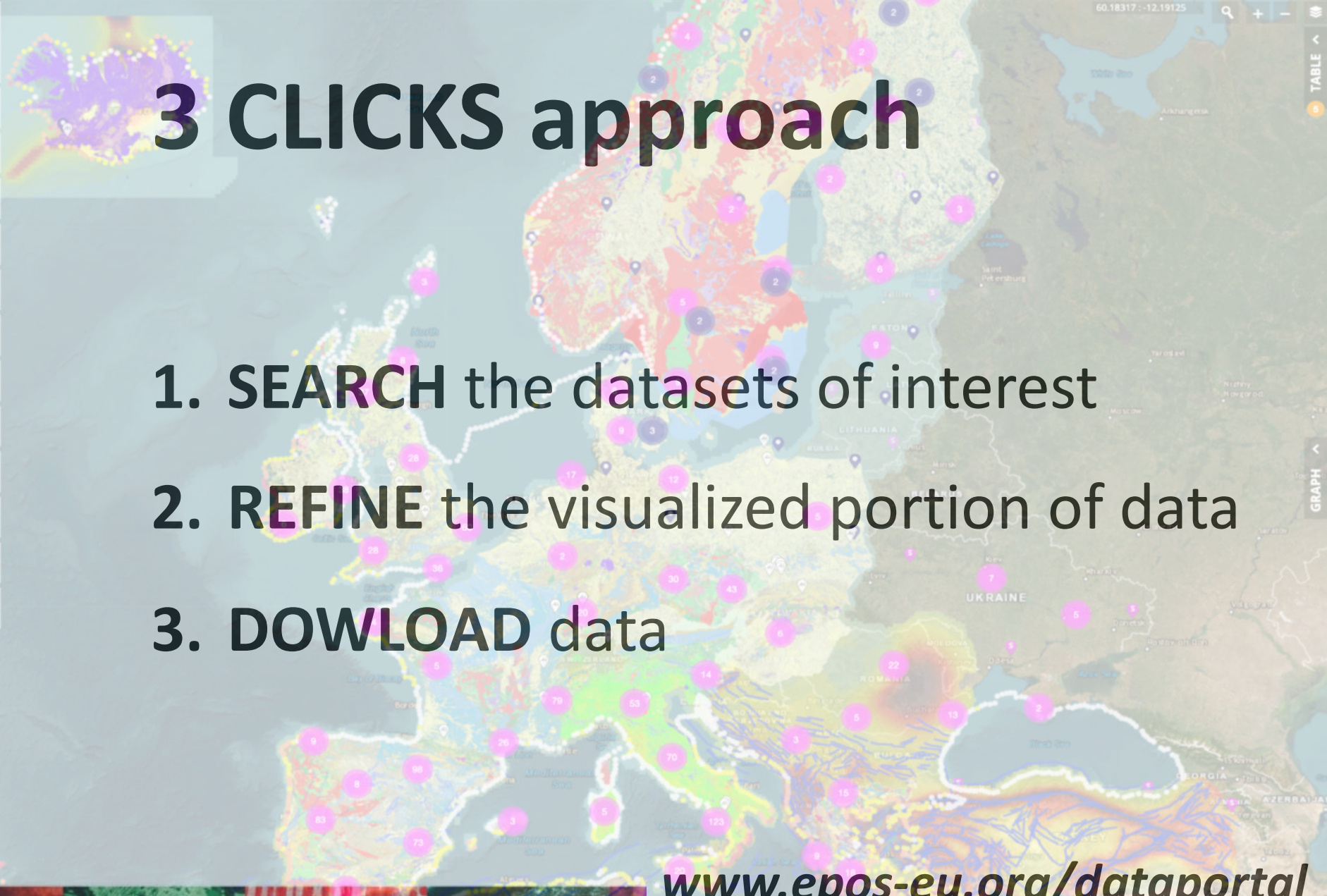
EPOS Data Portal is the place where **FAIR principles** and **practices** are implemented thanks to the adoption of a **co-development** approach and **harmonization** actions across communities of developers and data providers.

www.epos-eu.org/dataportal

Free text search

Filters

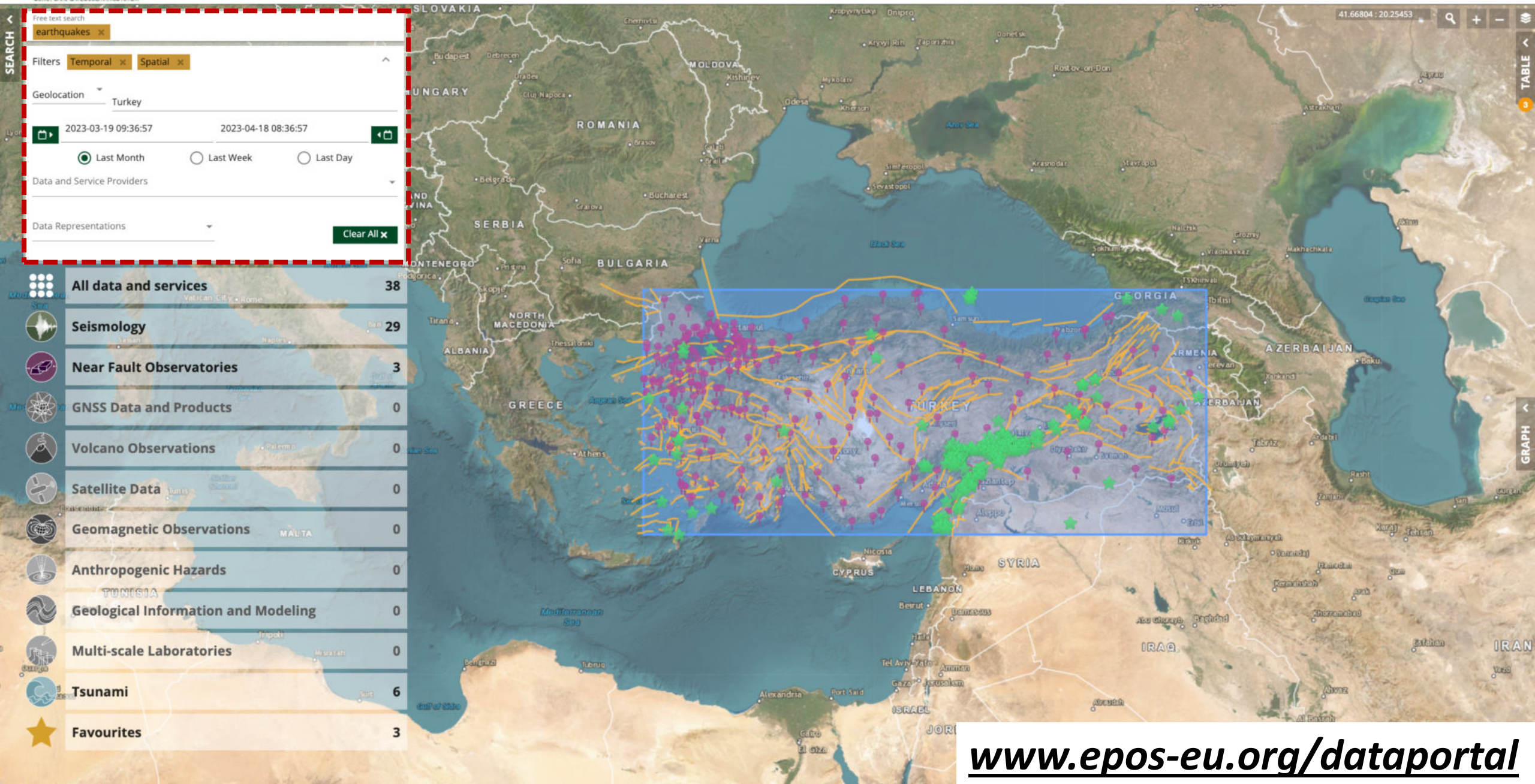
All data and services	242
Seismology	63
Near Fault Observatories	40
GNSS Data and Products	13
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Anthropogenic Hazards	38
Geological Information and Modeling	8
Multi-scale Laboratories	6
Tsunami	20
Favourites	8



3 CLICKS approach

1. **SEARCH** the datasets of interest
2. **REFINE** the visualized portion of data
3. **DOWNLOAD** data

EPOS Data Portal - SEARCH



EPOS Data Portal - REFINE

SEARCH

Free text search
earthquakes

Filters Temporal Spatial

Geolocation Turkey

2023-03-19 09:36:57 2023-04-18 08:36:57

Last Month Last Week Last Day

Data and Service Providers

Data Representations Clear All

Seismology 29

Parameters of modern earthquakes (1998-present) - FDSN event

Categories: Seismological products service... > Earthquake parameters

Visible on: Map Table

Status:

Advanced search filters (4 of 17)

Coordinates: 42,14 35,82 26,04 44,79

2023-03-19 09:36: 2023-04-18 08:36:

* Limit the no. of output entries
250

Contributor Event Identifier

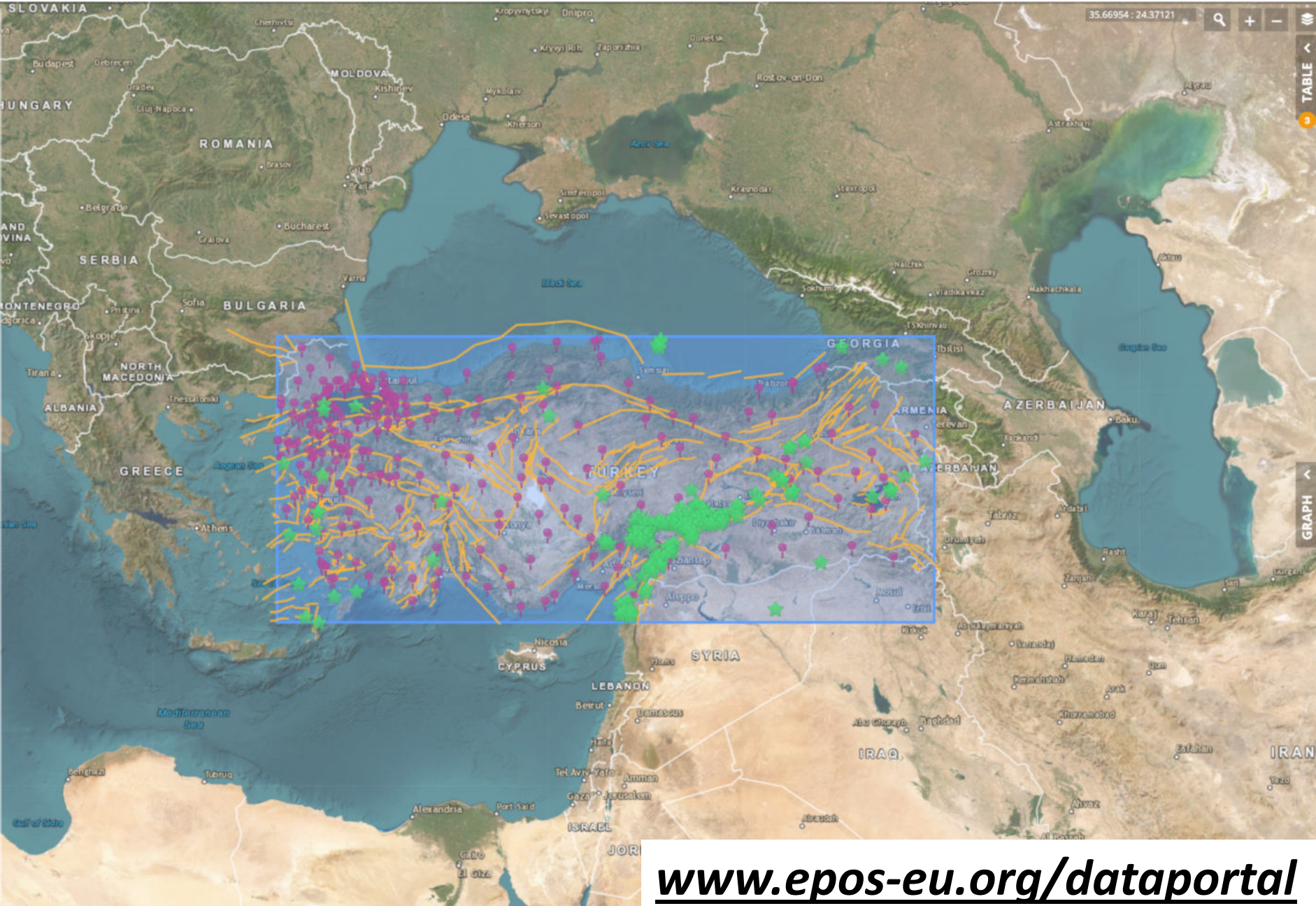
Include All Arrivals Include All Origins

Maximum depth (km) Maximum magnitude

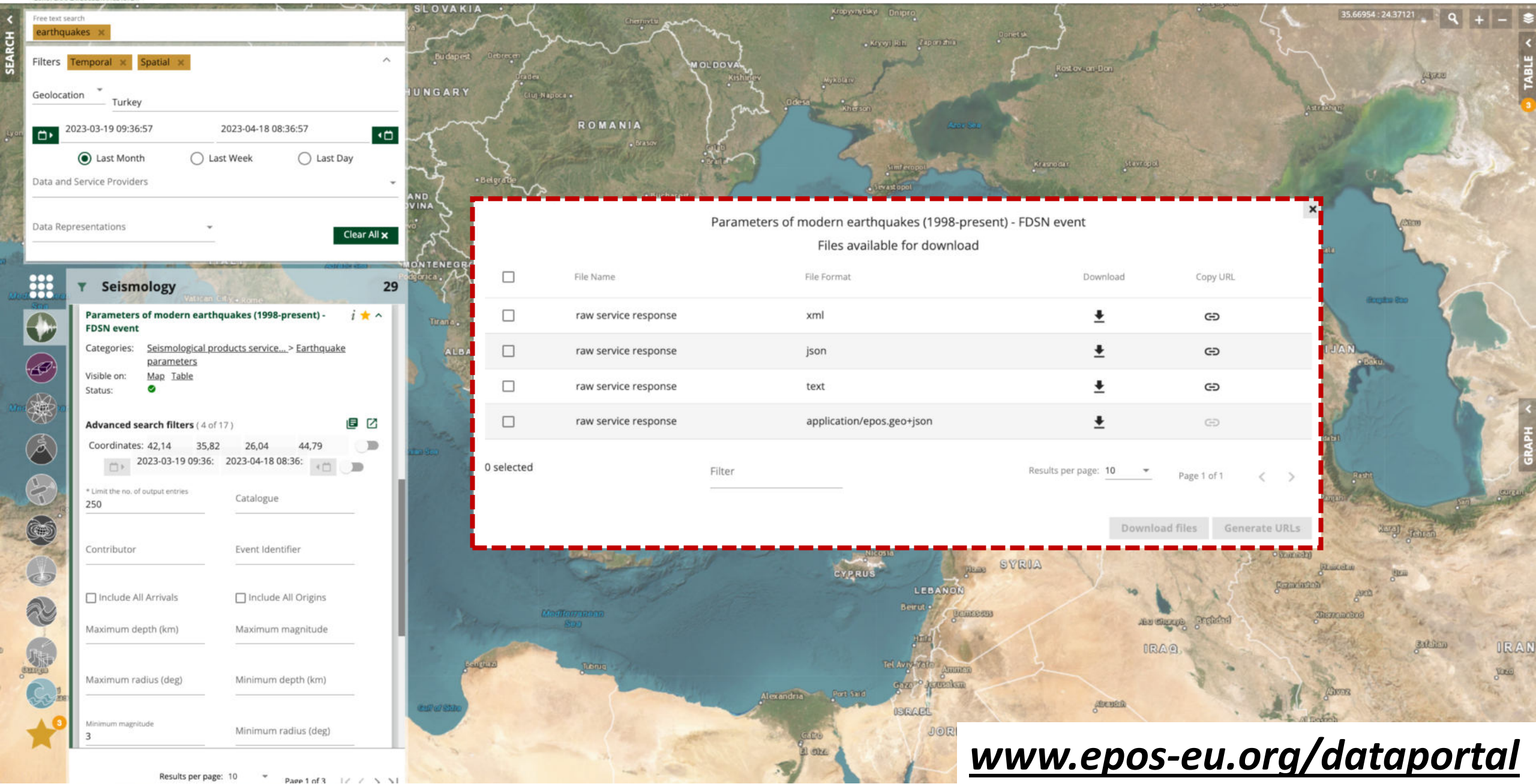
Maximum radius (deg) Minimum depth (km)

Minimum magnitude 3 Minimum radius (deg)

Results per page: 10 Page 1 of 3



EPOS Data Portal - DOWNLOAD



The screenshot displays the EPOS Data Portal interface. On the left, there is a search sidebar with filters for 'earthquakes', 'Temporal' (Last Month, Last Week, Last Day), and 'Spatial' (Turkey). The main map shows the Eastern Mediterranean region, including parts of Europe, the Middle East, and the Black Sea. A red dashed box highlights a modal window titled 'Parameters of modern earthquakes (1998-present) - FDSN event'. This window contains a table of files available for download:

<input type="checkbox"/>	File Name	File Format	Download	Copy URL
<input type="checkbox"/>	raw service response	xml	↓	🔗
<input type="checkbox"/>	raw service response	json	↓	🔗
<input type="checkbox"/>	raw service response	text	↓	🔗
<input type="checkbox"/>	raw service response	application/epos.geo+json	↓	🔗

Below the table, it shows '0 selected', a search filter, 'Results per page: 10', and 'Page 1 of 1'. At the bottom of the modal, there are buttons for 'Download files' and 'Generate URLs'. The background interface includes a sidebar with 'Seismology' and 'Parameters of modern earthquakes (1998-present) - FDSN event' details, and a bottom navigation bar with 'Results per page: 10' and 'Page 1 of 3'.

- Seismic Faults
- Modern Earthquakes
- Hazard map

SEARCH ^

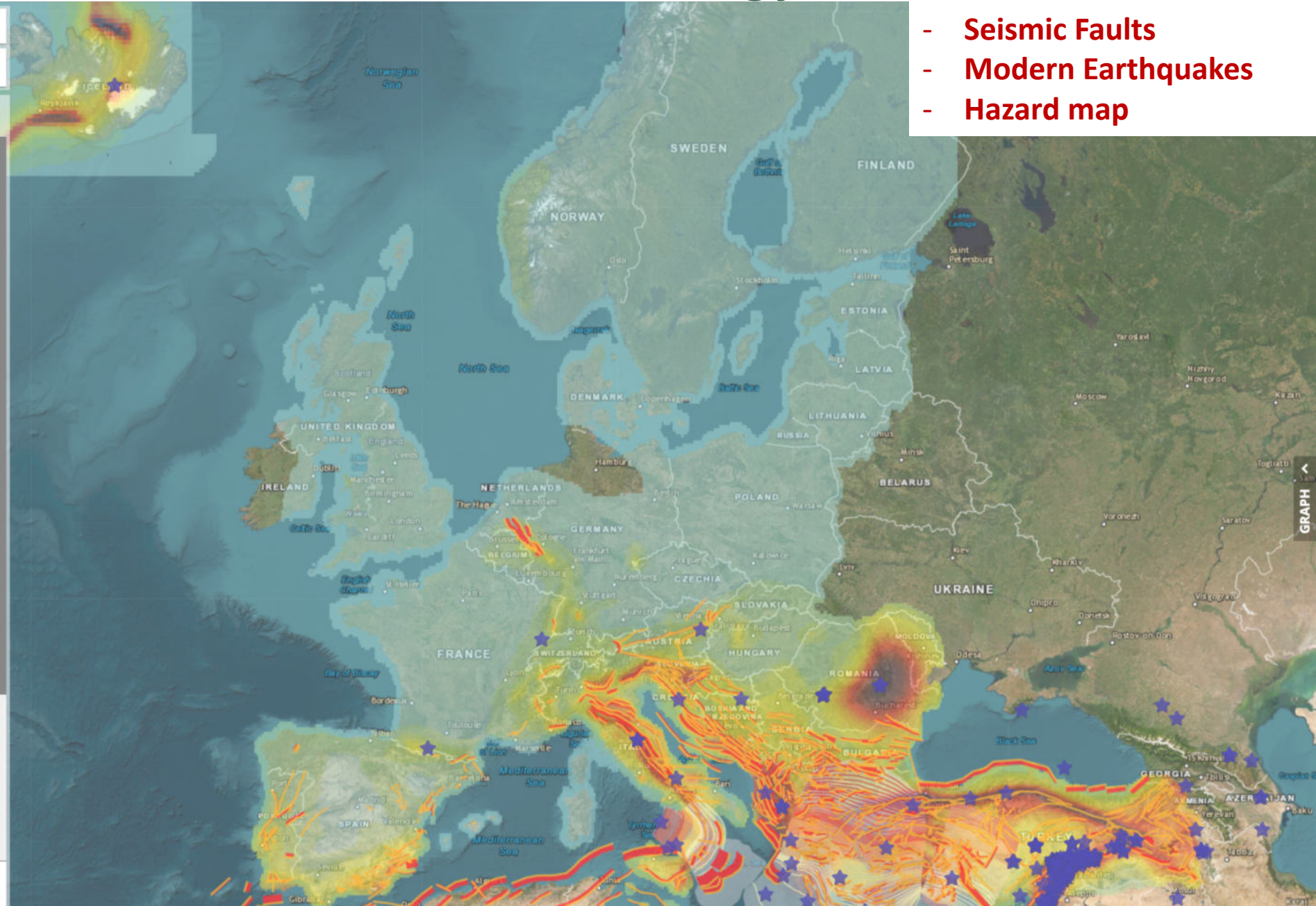
Free text search

Filters

Seismology 63

- Parameters of historical earthquakes (1000-1899) - OGC WMS**
Categories: [Seismological products service... > Earthquake parameters](#)
Visible on: [Map](#)
Status: ✔
- Parameters of modern earthquakes (1998-present) - FDSN event**
Categories: [Seismological products service... > Earthquake parameters](#)
Visible on: [Map](#) [Table](#)
Status: ✔
- RRSM peak-motion information (USGS ShakeMap format)**
Categories: [Waveform and peak-motion servi... > Waveform parameters](#)
Status: ✔
- Seismic Event Identifier mapping service**
Categories: [Seismological products service...](#)
Status: ✔
- Seismic waveforms distributed by BGR (Federal Institute for Geosciences and Natural Resources, Germany)**
Categories: [Waveform and peak-motion servi... > Waveform data > Seismic waveforms distributed ...](#)
Status: ▲
- Seismic waveforms distributed by EIDA (federated access)**
Categories: [Waveform and peak-motion servi... > Waveform data](#)
Status: ✔
- Seismic waveforms distributed by GFZ (German Research Centre for Geosciences)**
Categories: [Waveform and peak-motion servi... > Waveform data > Seismic waveforms distributed ...](#)
Status: ✔
- Seismic waveforms distributed by ICGC (Cartographic and Geological Institute of Catalonia)**
Categories: [Waveform and peak-motion servi... > Waveform data > Seismic waveforms distributed ...](#)
Status: ✔

Results per page: 10 Page 3 of 7



- LOS Displacement
- Wrapped Interferograms

SEARCH

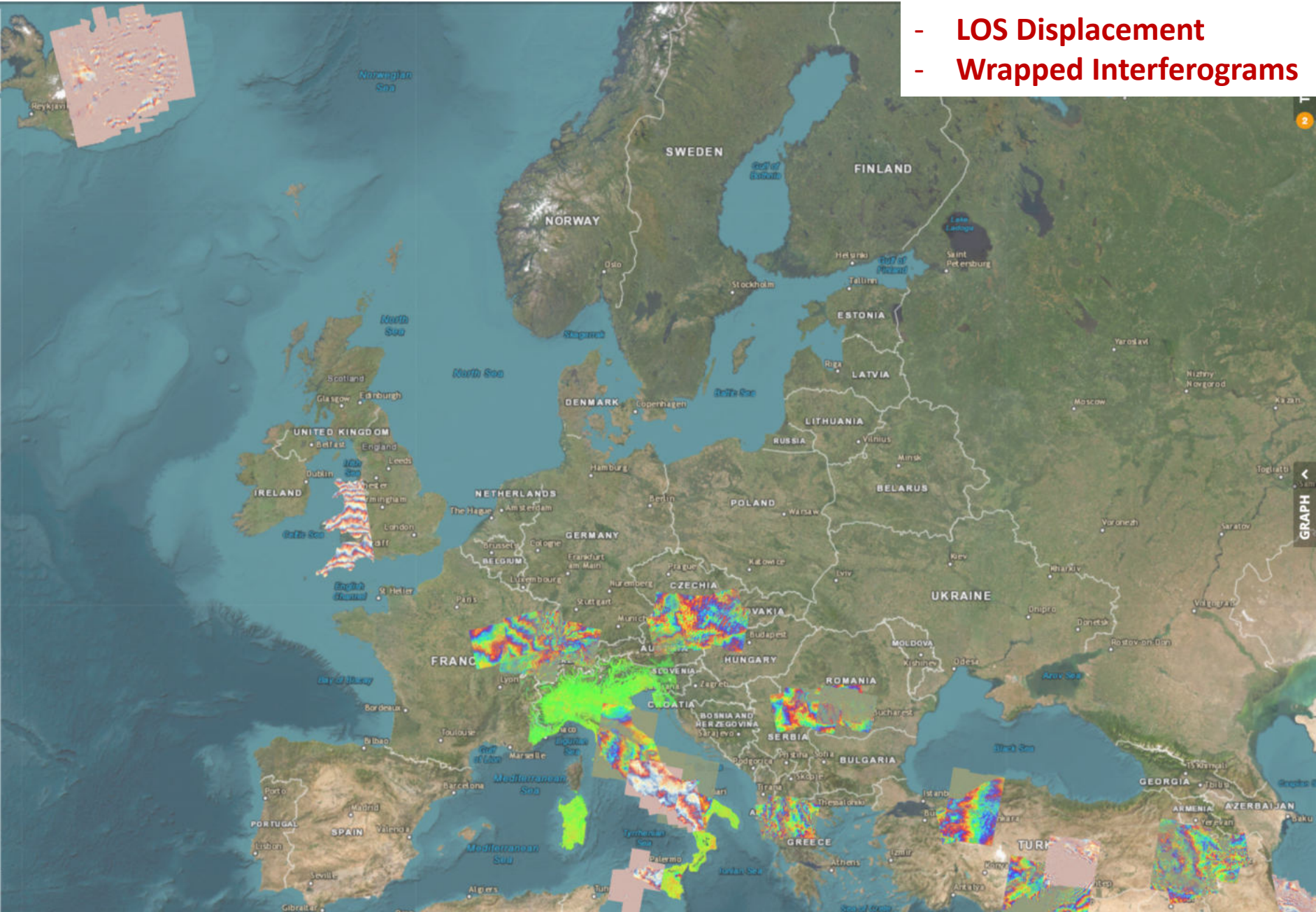
Free text search

Filters

Satellite Data 8

- DEM in radar geometry** *i* ☆ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Interferogram Atmospheric Phase Screen from Global Atmospheric Model** *i* ☆ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- LOS Displacement Time Series** *i* ★ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Lookup table from radar coordinates to ground coordinates** *i* ☆ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Map of LOS Vector** *i* ☆ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Spatial Coherence** *i* ☆ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Unwrapped Interferograms** *i* ☆ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Wrapped Interferograms** *i* ★ ▼
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓

Results per page: 10 Page 1 of 1



EPOS Data Portal – Tsunami

SEARCH

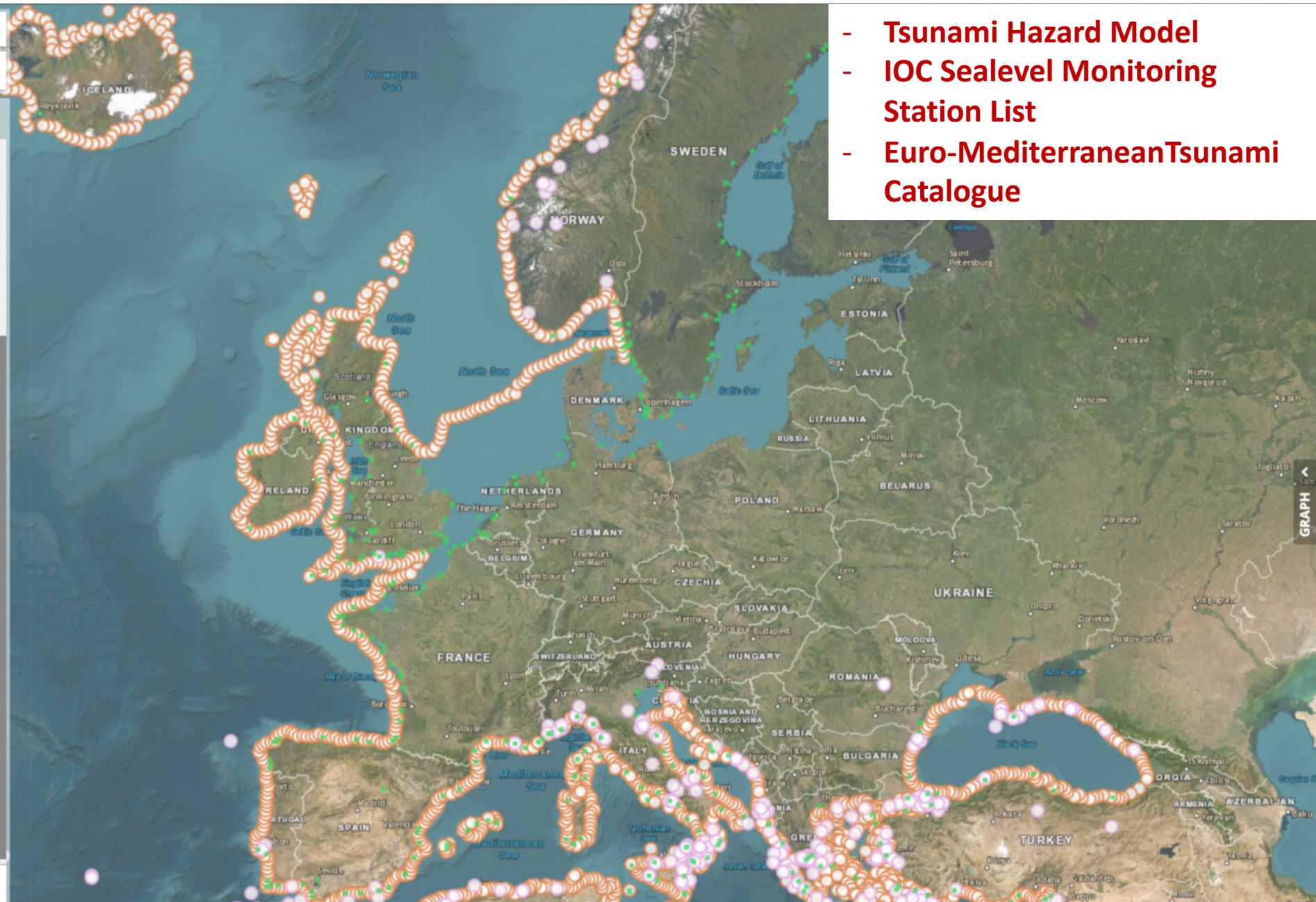
Free text search

Filters

Tsunami 20

- Italian Tsunami Effects Database - Tsunami Observation Points WMS (ITED V1)** *i* ☆
Categories: [Tsunami Catalogue > Euro-Mediterranean Tsunami Cat...](#)
[Tsunami Catalogue > Italian Tsunami Effects Databa...](#)
Visible on: [Map](#)
Status:
- NEAM Tsunami Hazard Map ARP 2475 yr (OGC WMS)** *i* ☆
Categories: [Hazard and Risk Products > North-eastern Atlantic, Medite...](#)
Visible on: [Map](#)
Status:
- NEAM Tsunami Hazard Map ARP 475 yr (OGC WMS)** *i* ☆
Categories: [Hazard and Risk Products > North-eastern Atlantic, Medite...](#)
Visible on: [Map](#)
Status:
- NEAM Tsunami Hazard Map ARP 4975 yr (OGC WMS)** *i* ☆
Categories: [Hazard and Risk Products > North-eastern Atlantic, Medite...](#)
Visible on: [Map](#)
Status:
- NEAM Tsunami Hazard Map ARP 975 yr (OGC WMS)** *i* ☆
Categories: [Hazard and Risk Products > North-eastern Atlantic, Medite...](#)
Visible on: [Map](#)
Status:
- NEAM Tsunami Hazard Map ARP 9975 yr (OGC WMS)** *i* ☆
Categories: [Hazard and Risk Products > North-eastern Atlantic, Medite...](#)
Visible on: [Map](#)
Status:
- NEAM Tsunami Hazard Model 2018 full dataset (OGC WFS)** *i* ★
Categories: [Hazard and Risk Products > North-eastern Atlantic, Medite...](#)
Visible on: [Map](#) [Table](#)
Status:

Results per page: 10 Page 2 of 2



- Tsunami Hazard Model
- IOC Sealevel Monitoring Station List
- Euro-Mediterranean Tsunami Catalogue

- Geological features
- Boreholes

SEARCH

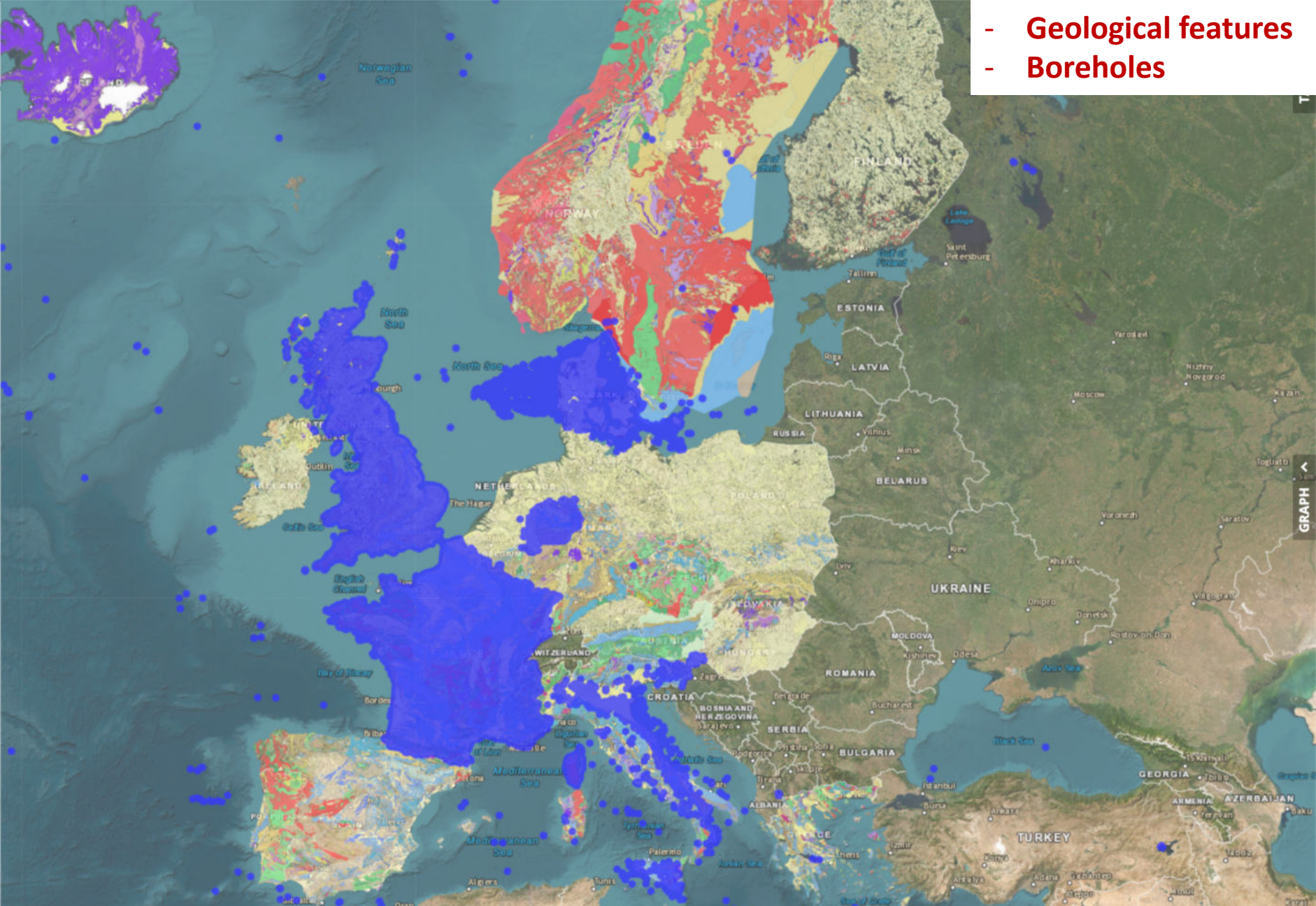
Free text search

Filters

Geological Information and Modeling 8

- 3D/4D Model Download Service** *i* ☆ ▼
Categories: 3D/4D Models
Visible on: Map Table
Status: ✓
- 3D/4D Model View Service** *i* ☆ ▼
Categories: 3D/4D Models
Visible on: Map
Status: ✓
- Borehole Download Service** *i* ☆ ▼
Categories: Boreholes
Visible on: Map Table
Status: ✓
- Borehole View Service** *i* ★ ▼
Categories: Boreholes
Visible on: Map
Status: ✓
- Geological Feature Download Service** *i* ☆ ▼
Categories: Geological Maps
Visible on: Map Table
Status: ✓
- Geological Feature View Service (EGDI Geological Map 1:1,000,000)** *i* ★ ▼
Categories: Geological Maps
Visible on: Map
Status: ✓
- Mine Download Service based on Min4EU dataset** *i* ☆ ▼
Categories: Mineral resources
Visible on: Map Table
Status: ✓
- Mine View Service based on Min4EU dataset** *i* ☆ ▼
Categories: Mineral resources
Visible on: Map
Status: ✓

Results per page: 10 Page 1 of 1



Use case

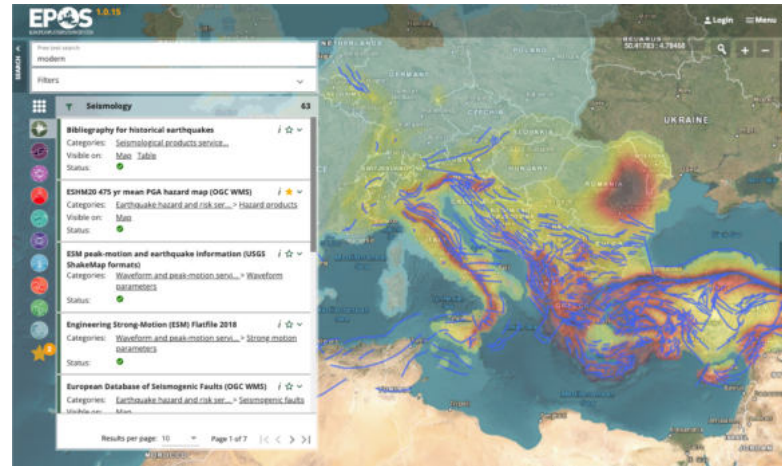




Dr. Roberto Basili
Senior Researcher
(INGV-Roma1).
TCS Seismology
& TCS Tsunami

Teaching with the EPOS Data Portal

- In the framework of **Earth Sciences PhD courses** at **Sapienza University in Rome**
- Short course on “Building and using databases in Earth Sciences”.
- **Students familiarize with curiosity-driven data discovery, retrieval, and reuse in a multi-disciplinary environment.** Practical exercises focus on developing skills in using and querying data offered through web services, while exploring metadata to address critical issues with data reuse in scientific projects and publications (e.g., processing level, persistent identifiers, versioning, licensing, citation).



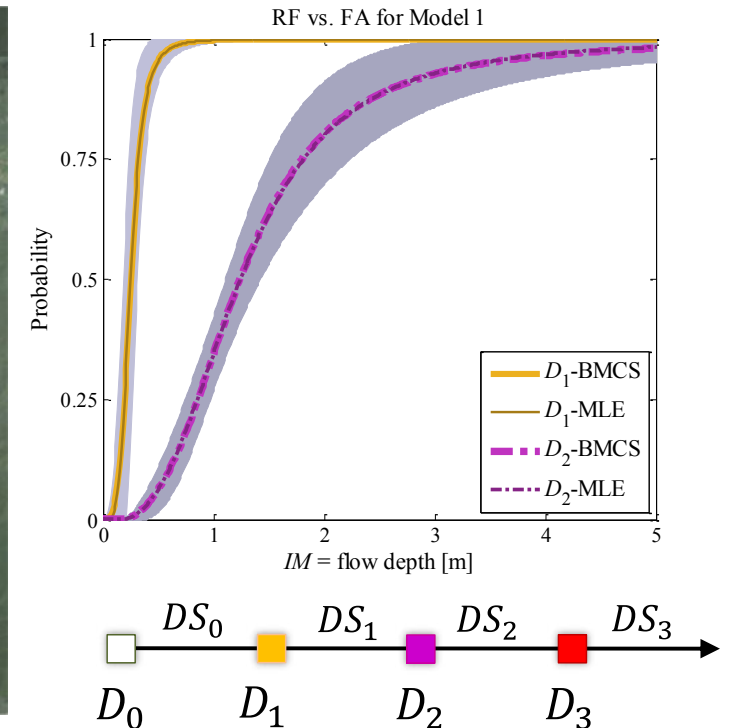
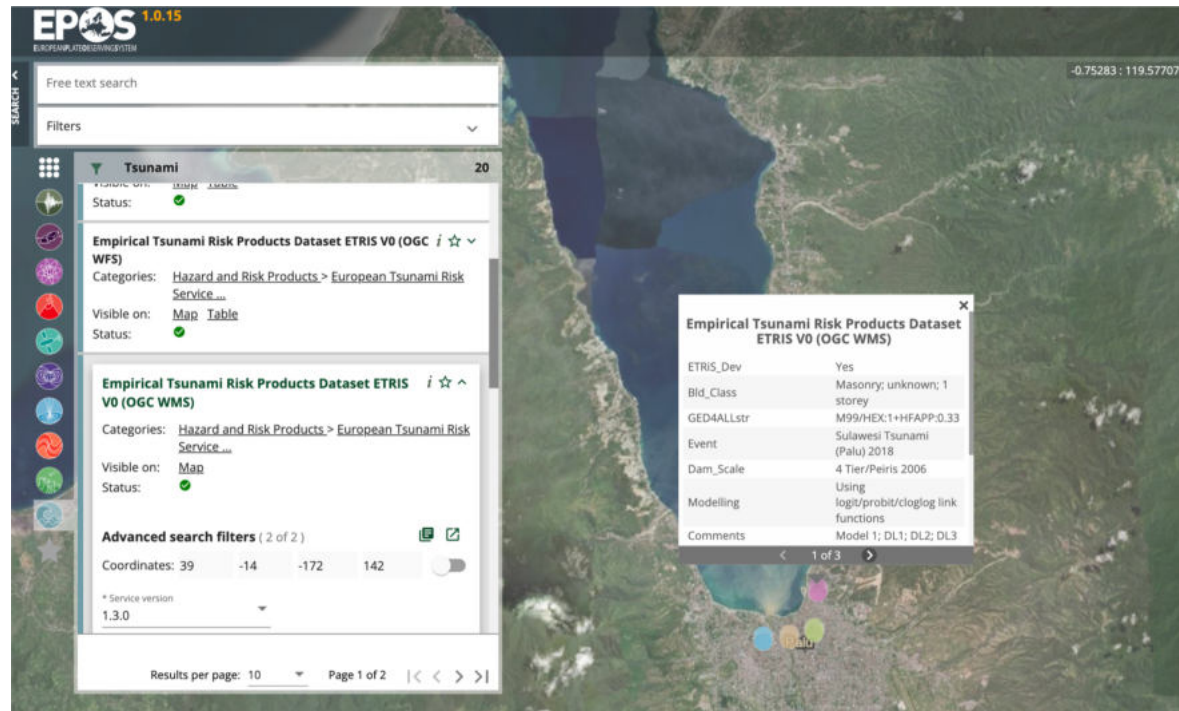
EPOS Data Portal – Usage in Teaching

Teaching to graduate students with the EPOS Data Portal...

- ✓ I am using EPOS Data portal for designing my new course (2024) **Statistical Modelling of Hazards and Risks**, Masters Program in Risk and Disaster Science.
- ✓ For example, I use the services in **TCS Tsunami, Seismology, Anthropogenic Hazards, Geological Modelling** to design hands-on practical sessions for the students.
- ✓ The portal is ideal for providing the students the possibility of working with and overlaying data across different hazards.



Fatemeh Jalayer
Professor of Geophysical
Hazard Risks
Institute for Risk and
Disaster Reduction
University College London

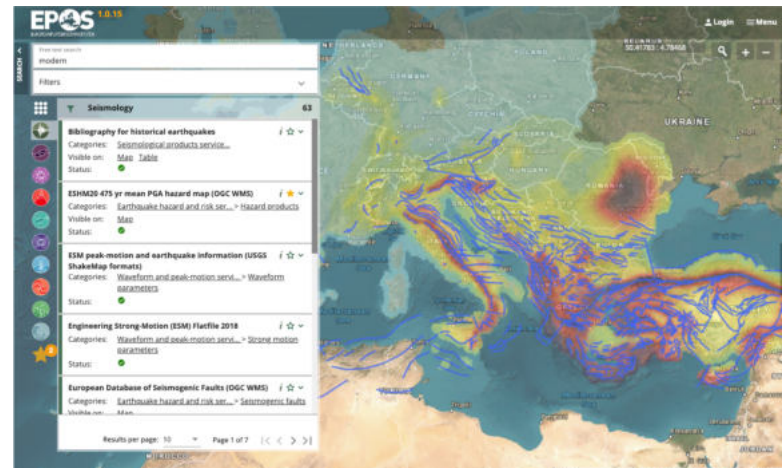


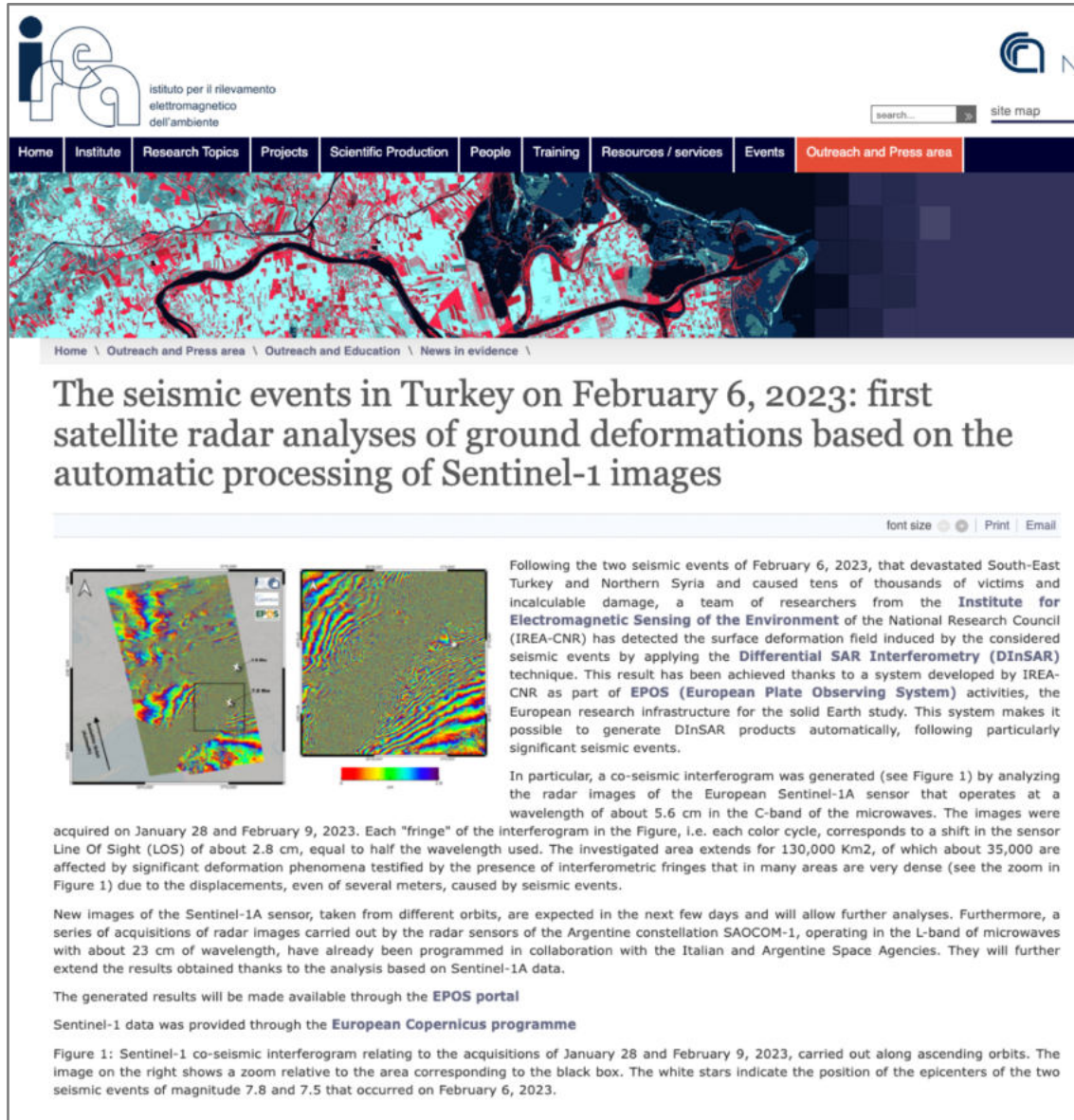


Eng. Danilo Reitano
Senior Technologist
(INGV-OE).
TCS VO

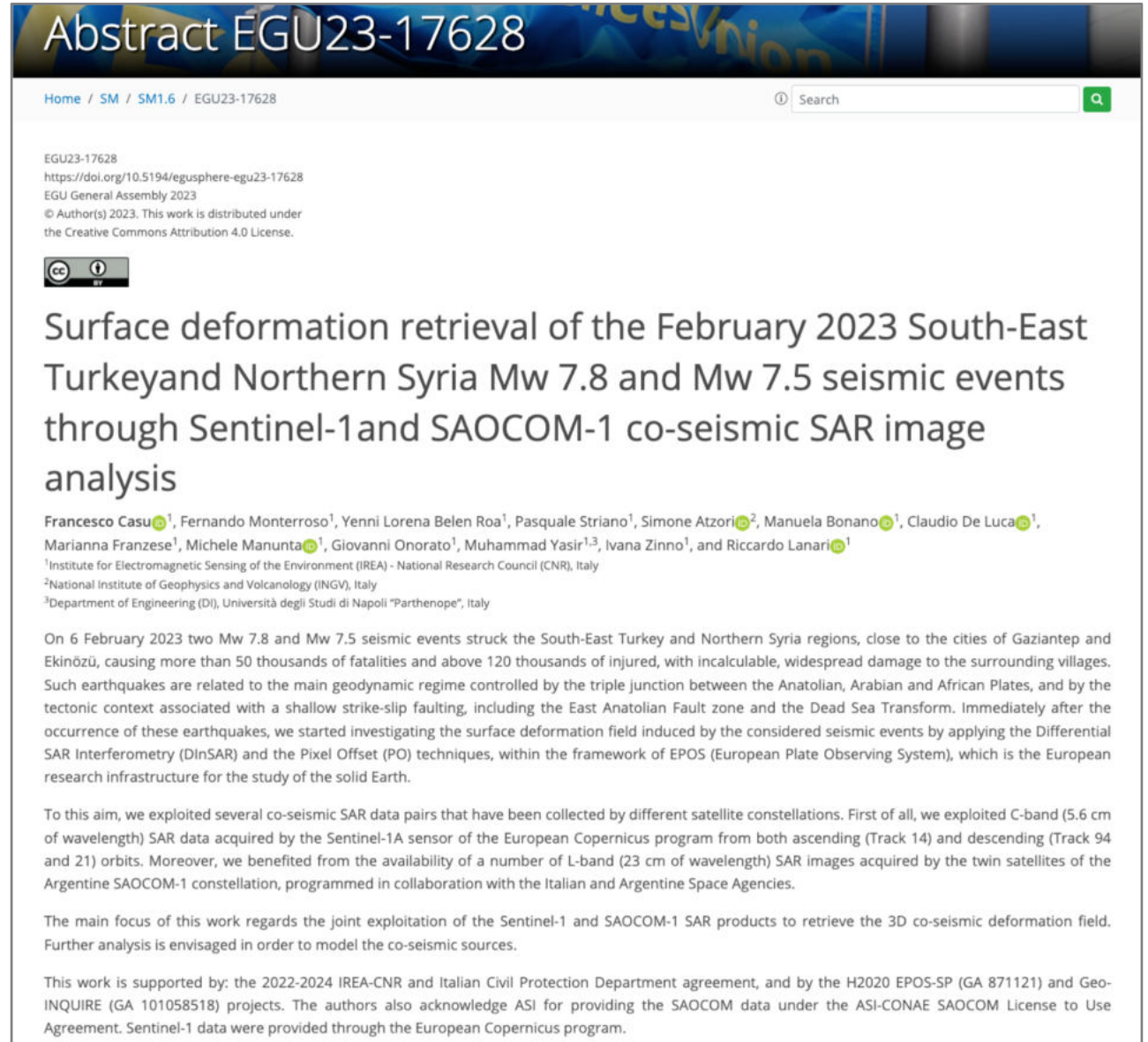
Teaching with the EPOS Data Portal

- In the framework of **Erasmus Plus - K2 3DTelC** project (<https://www.3dtelc.com/>) **Sicily Summer School** (held in Catania, 5th-14th May 2019), a lecture was based on EPOS Data Portal and its on going future developments.
- Next October 2023 the new **Sicily Summer School** will take place in Acitrezza (Catania-Italy) under the **Erasmus+ BridgET project: A European partnership to renew teaching in marine geosciences**. A specific task will teach students how to use the EPOS e-infrastructure Data Portal.



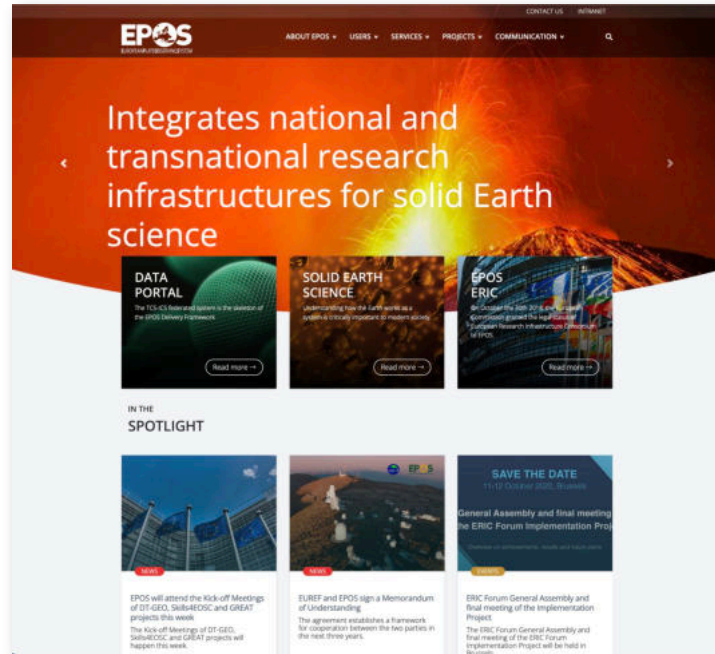


The screenshot shows the EPOS Data Portal website. At the top left is the IREA logo (Istituto per il rilevamento elettromagnetico dell'ambiente). The navigation menu includes Home, Institute, Research Topics, Projects, Scientific Production, People, Training, Resources / services, Events, and Outreach and Press area. A search bar and site map are also visible. The main content area features a large satellite image of a region with red and blue patterns, likely representing ground deformation. Below the image is the article title: "The seismic events in Turkey on February 6, 2023: first satellite radar analyses of ground deformations based on the automatic processing of Sentinel-1 images". The article text describes the seismic events in Turkey and Northern Syria on February 6, 2023, and the use of Differential SAR Interferometry (DInSAR) to analyze Sentinel-1 radar images. It mentions that the investigated area extends for 130,000 Km², with about 35,000 areas affected by significant deformation. The article also notes that new images of the Sentinel-1A sensor are expected in the next few days and that a series of acquisitions of radar images carried out by the radar sensors of the Argentine constellation SAOCOM-1, operating in the L-band of microwaves with about 23 cm of wavelength, have already been programmed in collaboration with the Italian and Argentine Space Agencies. The generated results will be made available through the EPOS portal. Sentinel-1 data was provided through the European Copernicus programme. Figure 1: Sentinel-1 co-seismic interferogram relating to the acquisitions of January 28 and February 9, 2023, carried out along ascending orbits. The image on the right shows a zoom relative to the area corresponding to the black box. The white stars indicate the position of the epicenters of the two seismic events of magnitude 7.8 and 7.5 that occurred on February 6, 2023.



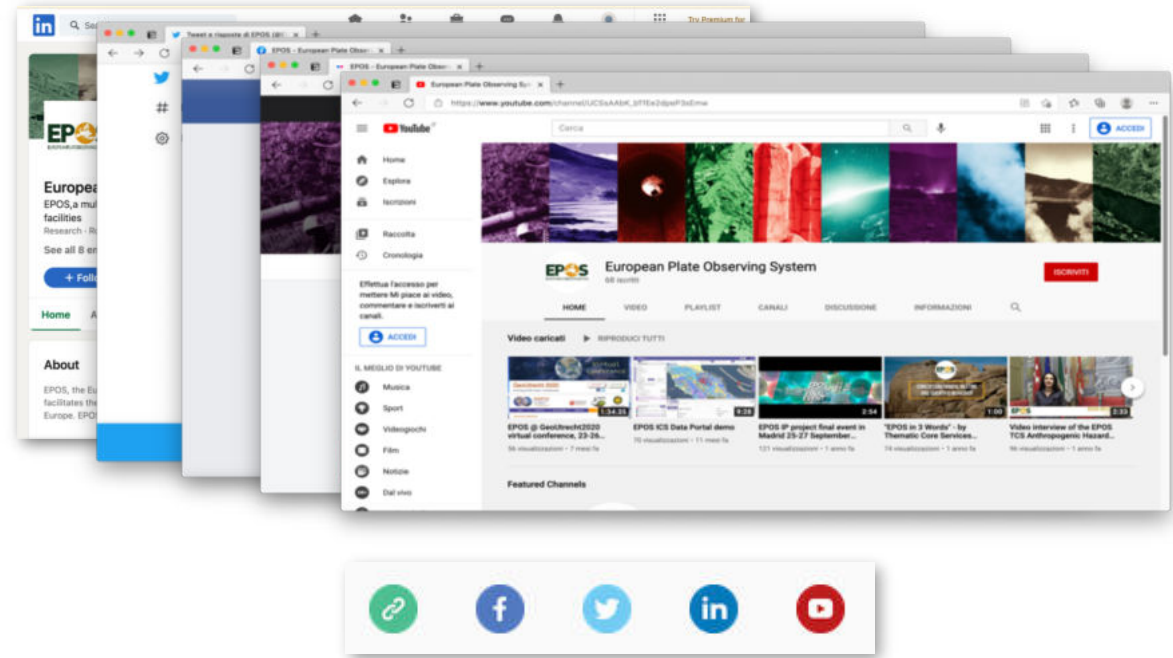
The screenshot shows the abstract page for EGU23-17628. The title is "Surface deformation retrieval of the February 2023 South-East Turkey and Northern Syria Mw 7.8 and Mw 7.5 seismic events through Sentinel-1 and SAOCOM-1 co-seismic SAR image analysis". The authors listed are Francesco Casu¹, Fernando Monterroso¹, Yenni Lorena Belen Roa¹, Pasquale Striano¹, Simone Atzori², Manuela Bonano¹, Claudio De Luca¹, Marianna Franzese¹, Michele Manunta¹, Giovanni Onorato¹, Muhammad Yasir^{1,3}, Ivana Zinno¹, and Riccardo Lanari¹. The abstract text describes the seismic events on 6 February 2023, which struck the South-East Turkey and Northern Syria regions, causing significant damage and fatalities. The authors investigated the surface deformation field induced by these events using Differential SAR Interferometry (DInSAR) and the Pixel Offset (PO) techniques, within the framework of EPOS (European Plate Observing System). The abstract also mentions that the authors exploited several co-seismic SAR data pairs collected by different satellite constellations, including Sentinel-1A and SAOCOM-1. The main focus of the work is the joint exploitation of Sentinel-1 and SAOCOM-1 SAR products to retrieve the 3D co-seismic deformation field. Further analysis is envisaged to model the co-seismic sources. The work is supported by the 2022-2024 IREA-CNR and Italian Civil Protection Department agreement, and by the H2020 EPOS-SP (GA 871121) and Geo-INQUIRE (GA 101058518) projects. The authors also acknowledge ASI for providing the SAOCOM data under the ASI-CONAE SAOCOM License to Use Agreement. Sentinel-1 data were provided through the European Copernicus program.

Web site



www.epos-eu.org

Social media



Thank You!

Turkey earthquake 6 February 2023



EPOS Data Portal – Turkey Earthquake

39.94311 : 30.70472

ESHM20 475 yr mean PGA hazard map (OGC WMS) i ★ ▼

Categories: Seismology > Earthquake hazard and risk ser... > Hazard products

Visible on: [Map](#)

European Fault Source Model 2020 (OGC WMS) i ★ ▼

Categories: Seismology > Earthquake hazard and risk ser... > Seismogenic faults

Visible on: [Map](#)

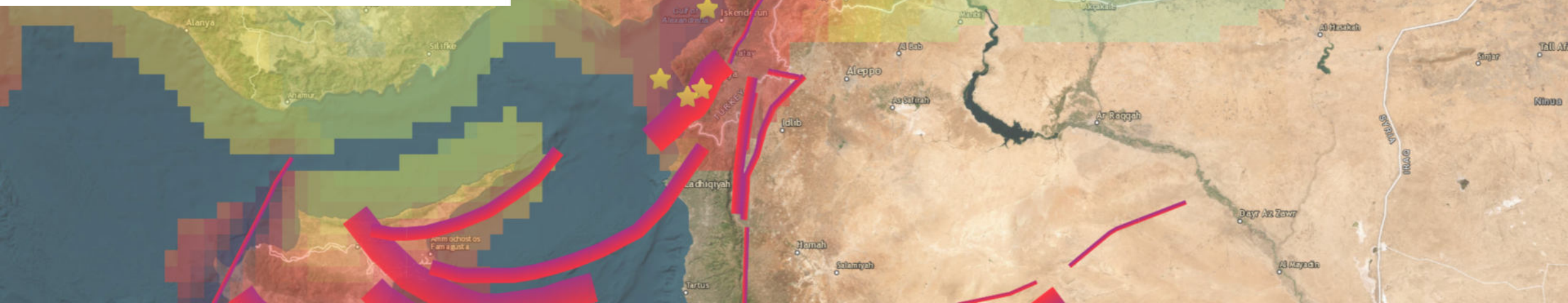
Status: ✔

Parameters of modern earthquakes (1998-present) - FDSN event i ★ ▼

Categories: Seismology > Seismological products service... > Earthquake parameters

Visible on: [Map](#) [Table](#)

Status: ✔



EPOS Data Portal – Turkey Earthquake

39.94311 ; 30.70472

ESHM20 475 yr mean PGA hazard map (OGC WMS) i ★ ▼

Categories: Seismology > Earthquake hazard and risk ser... > Hazard products

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European Fault Source Model 2020 (OGC WMS) i ★ ▼

Categories: Seismology > Earthquake hazard and risk ser... > Seismogenic faults

Visible on: [Map](#)

Status: ✔

Parameters of modern earthquakes (1998-present) - FDSN event i ★ ▼

Categories: Seismology > Seismological products service... > Earthquake parameters

Visible on: [Map](#) [Table](#)

Status: ✔

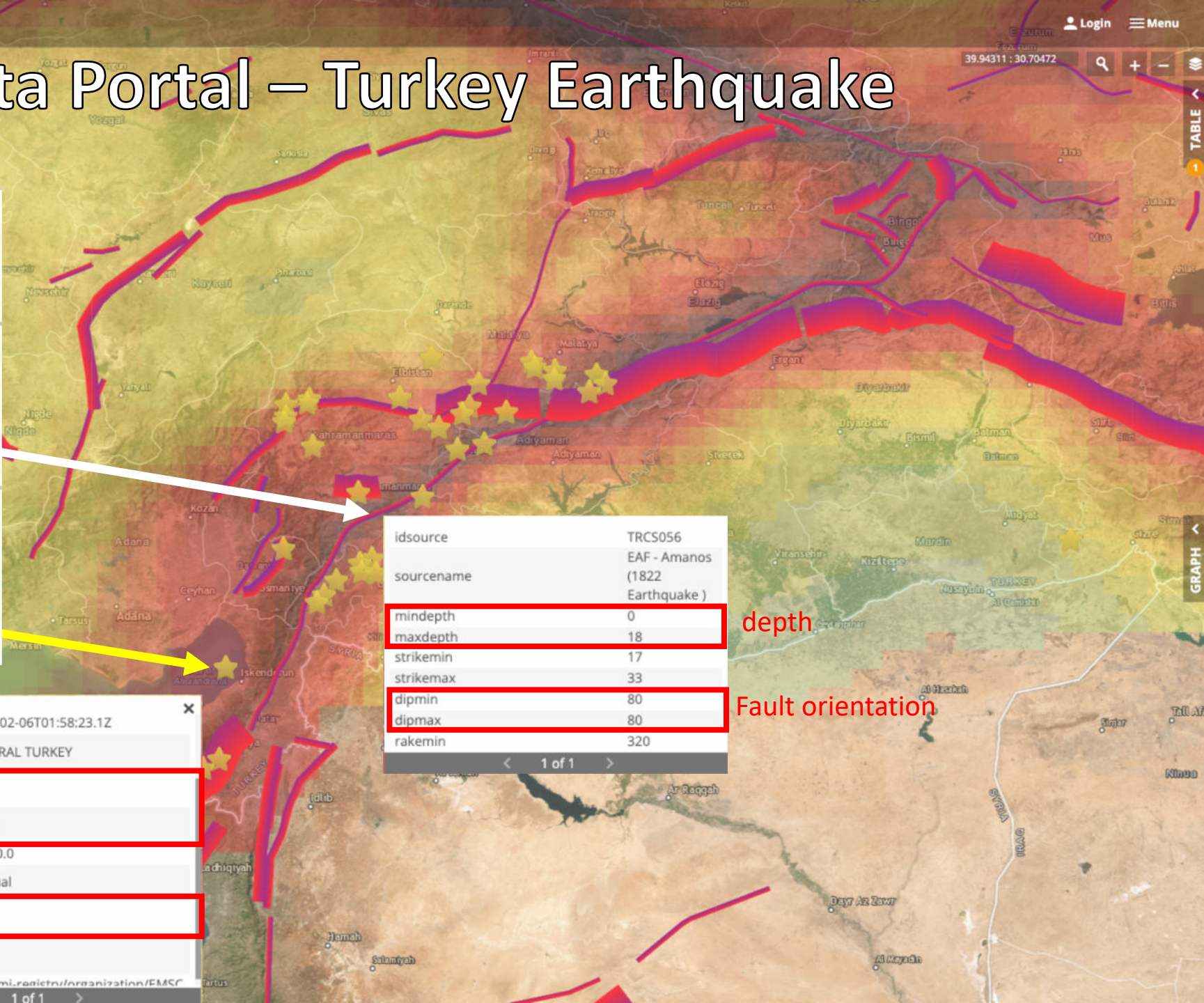
Origin time	2023-02-06T01:58:23.1Z
Epicentral area	CENTRAL TURKEY
Epicentre latitude	37.01
Epicentre longitude	36.68
Depth	10000.0
Evaluation mode	manual
Magnitude value	5.1
Magnitude type	mb
Agency	emisci:registn/organization/EMSC

EPOS Data Portal – Turkey Earthquake

ESHM20 475 yr mean PGA hazard map (OGC WMS) i ★ ▼
Categories: Seismology > Earthquake hazard and risk ser... > Hazard products
Visible on: [Map](#)

European Fault Source Model 2020 (OGC WMS) i ★ ▼
Categories: Seismology > Earthquake hazard and risk ser... > Seismogenic faults
Visible on: [Map](#)
Status: ✔

Parameters of modern earthquakes (1998-present) - FDSN event i ★ ▼
Categories: Seismology > Seismological products service... > Earthquake parameters
Visible on: [Map](#) [Table](#)
Status: ✔



idsource	TRCS056
sourcename	EAF - Amanos (1822 Earthquake)
mindepth	0
maxdepth	18
strike	17
strikemax	33
dipmin	80
dipmax	80
rakemin	320

depth

Fault orientation

Origin time	2023-02-06T01:58:23.1Z
Epicentral area	CENTRAL TURKEY
Epicentre latitude	37.01
Epicentre longitude	36.68
Depth	10000.0
Evaluation mode	manual
Magnitude value	5.1
Magnitude type	mb
Agency	emisci-registrn/organization/EMSC

EPOS Data Portal – Turkey Earthquake

ESHM20 475 yr mean PGA hazard map (OGC WMS)

Categories: Seismology > Earthquake hazard and risk ser... > Hazard products

Visible on: [Map](#)

European Fault Source Model 2020 (OGC WMS)

Categories: Seismology > Earthquake hazard and risk ser... > Seismogenic faults

Visible on: [Map](#)

Status: ✔

Parameters of modern earthquakes (1998-present) - FDSN event

Categories: Seismology > Seismological products service... > Earthquake parameters

Visible on: [Map](#) [Table](#)

Status: ✔

Likelihood of an earthquake of a certain intensity occurring in a specific area, based on historical data

idsource	TRCS056
sourcename	EAF - Amanos (1822 Earthquake)
mindepth	0
maxdepth	18
strikemin	17
strikemax	33
dipmin	80
dipmax	80
rakemin	320

depth
Fault orientation

Origin time	2023-02-06T01:58:23.1Z
Epicentral area	CENTRAL TURKEY
Epicentre latitude	37.01
Epicentre longitude	36.68
Depth	10000.0
Evaluation mode	manual
Magnitude value	5.1
Magnitude type	mb
Agency	emisci-registrn/organization/EMSC

EPOS Data Portal – Turkey Earthquake

- ESHM20 475 yr mean PGA hazard map (OGC WMS)**

Categories: Seismology > Earthquake hazard and risk ser... > Hazard products

Visible on: [Map](#)
- European Fault Source Model 2020 (OGC WMS)**

Categories: Seismology > Earthquake hazard and risk ser... > Seismogenic faults

Visible on: [Map](#)

Status: ✔
- Parameters of modern earthquakes (1998-present) - FDSN event**

Categories: Seismology > Seismological products service... > Earthquake parameters

Visible on: [Map](#) [Table](#)

Status: ✔
- European Exposure Model - Admin 1 Level Data**

Categories: Seismology > Earthquake hazard and risk ser... > Exposure models

Visible on: [Map](#)

Status: ▲

Likelihood of an earthquake of a certain intensity occurring in a specific area, based on historical data

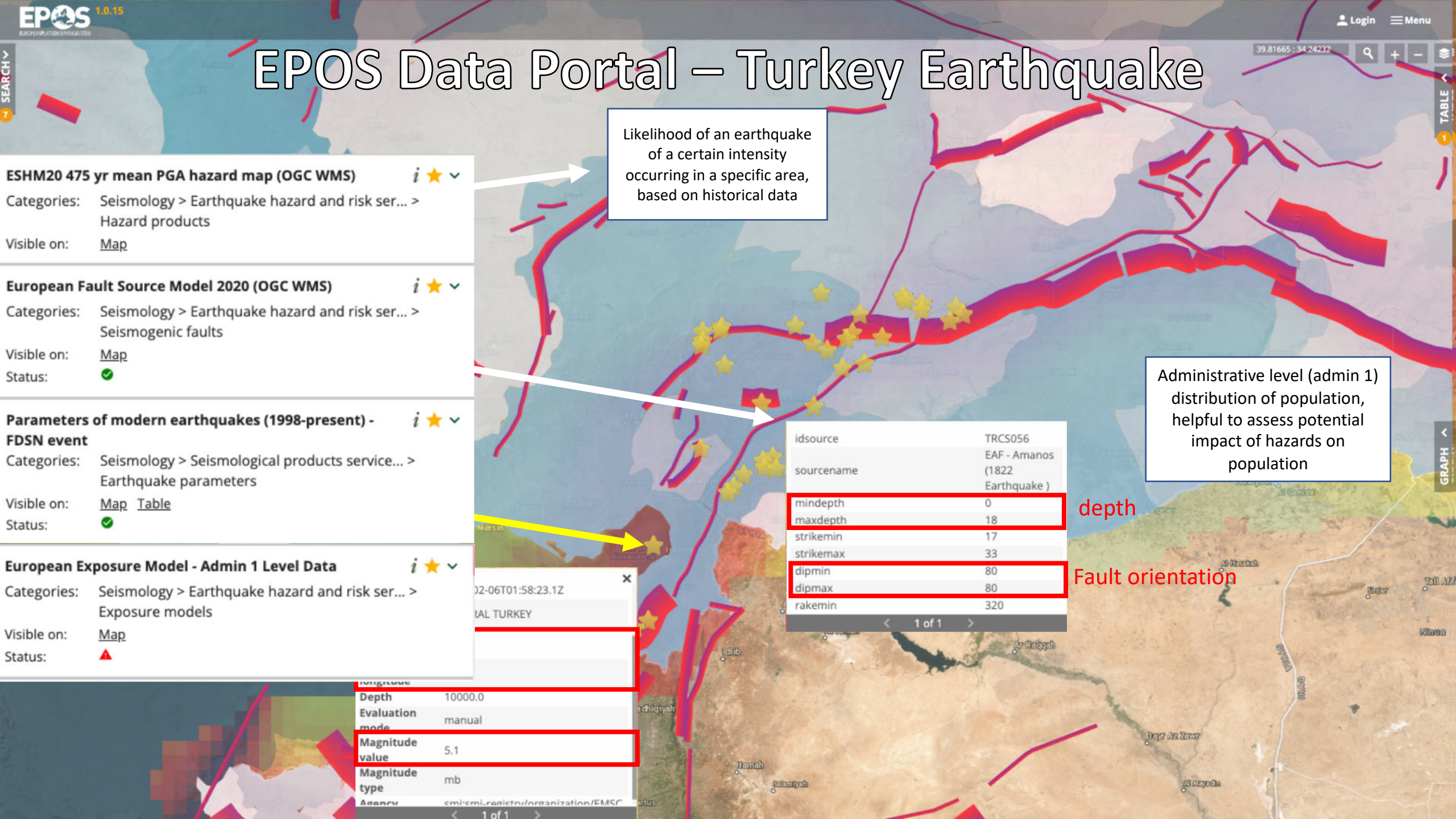
Administrative level (admin 1) distribution of population, helpful to assess potential impact of hazards on population

idsource	TRCS056
sourcename	EAF - Amanos (1822 Earthquake)
minddepth	0
maxdepth	18
strike	17
strike	33
dip	80
dip	80
rake	320

depth

Fault orientation

Depth	10000.0
Evaluation mode	manual
Magnitude value	5.1
Magnitude type	mb
Agency	emisci:registn/organization/EMSC



Free text search

Filters **Temporal**

Satellite Data 8

Map of LOS Vector i ☆ v
 Categories: [InSAR](#)
 Visible on: [Map](#) [Table](#)
 Status: ✔

Spatial Coherence i ☆ v
 Categories: [InSAR](#)
 Visible on: [Map](#) [Table](#)
 Status: ✔

Unwrapped Interferograms i ☆ v
 Categories: [InSAR](#)
 Visible on: [Map](#) [Table](#)
 Status: ✔

Wrapped Interferograms i ☆ v
 Categories: [InSAR](#)
 Visible on: [Map](#) [Table](#)
 Status: ✔

Advanced search filters (4 of 9) [] []

Coordinates: 72 15 -25 60 [] []

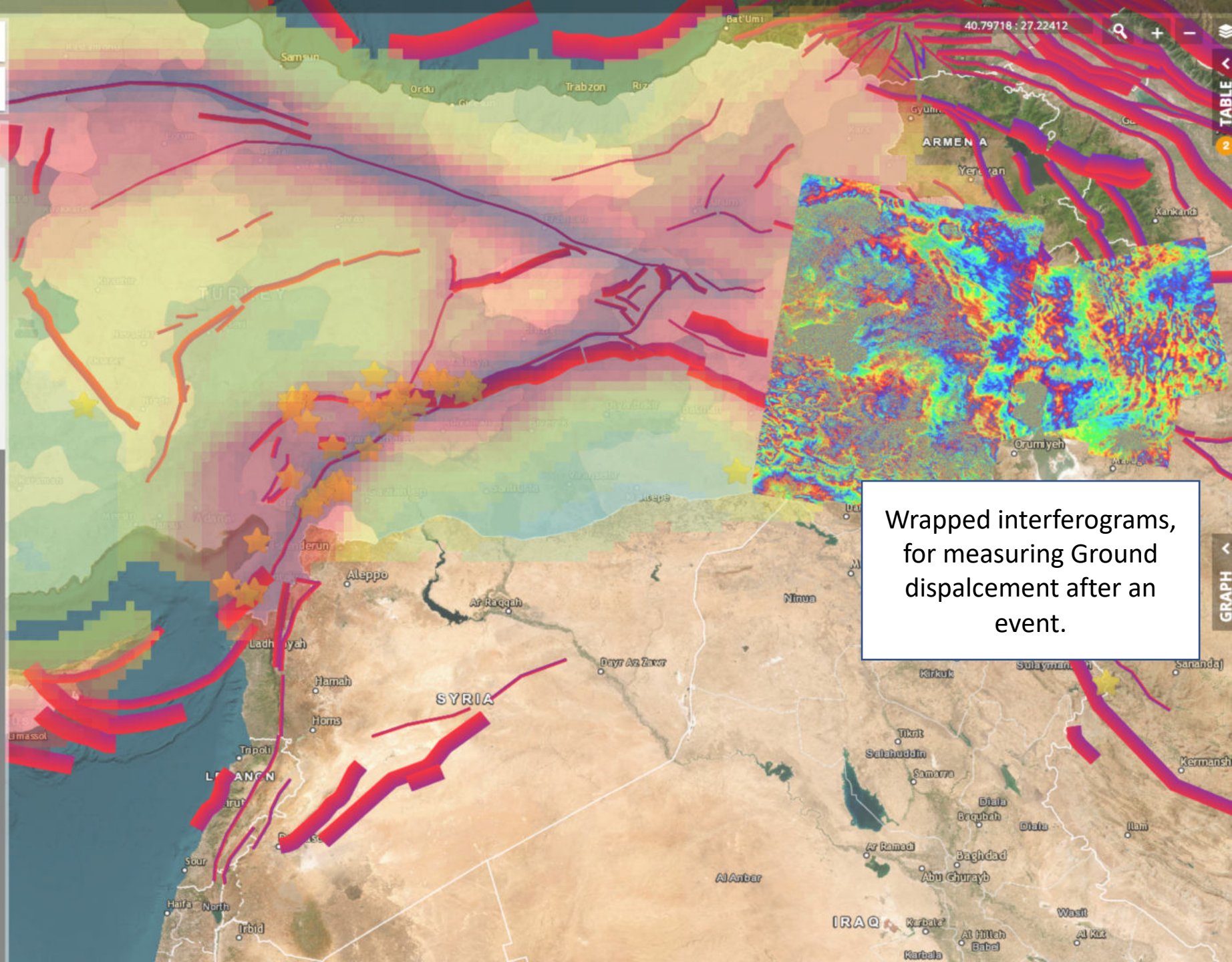
2023-02-01 15:5 YYYY-MM-DD HI [] []

Data Provider: --EMPTY-- Number of returned results: 20

Orbit Direction: --EMPTY-- Product Name (insert the ...)

Relative Orbit Number (Tr...): Satellite Platform: S1

Search Area in WKT form...

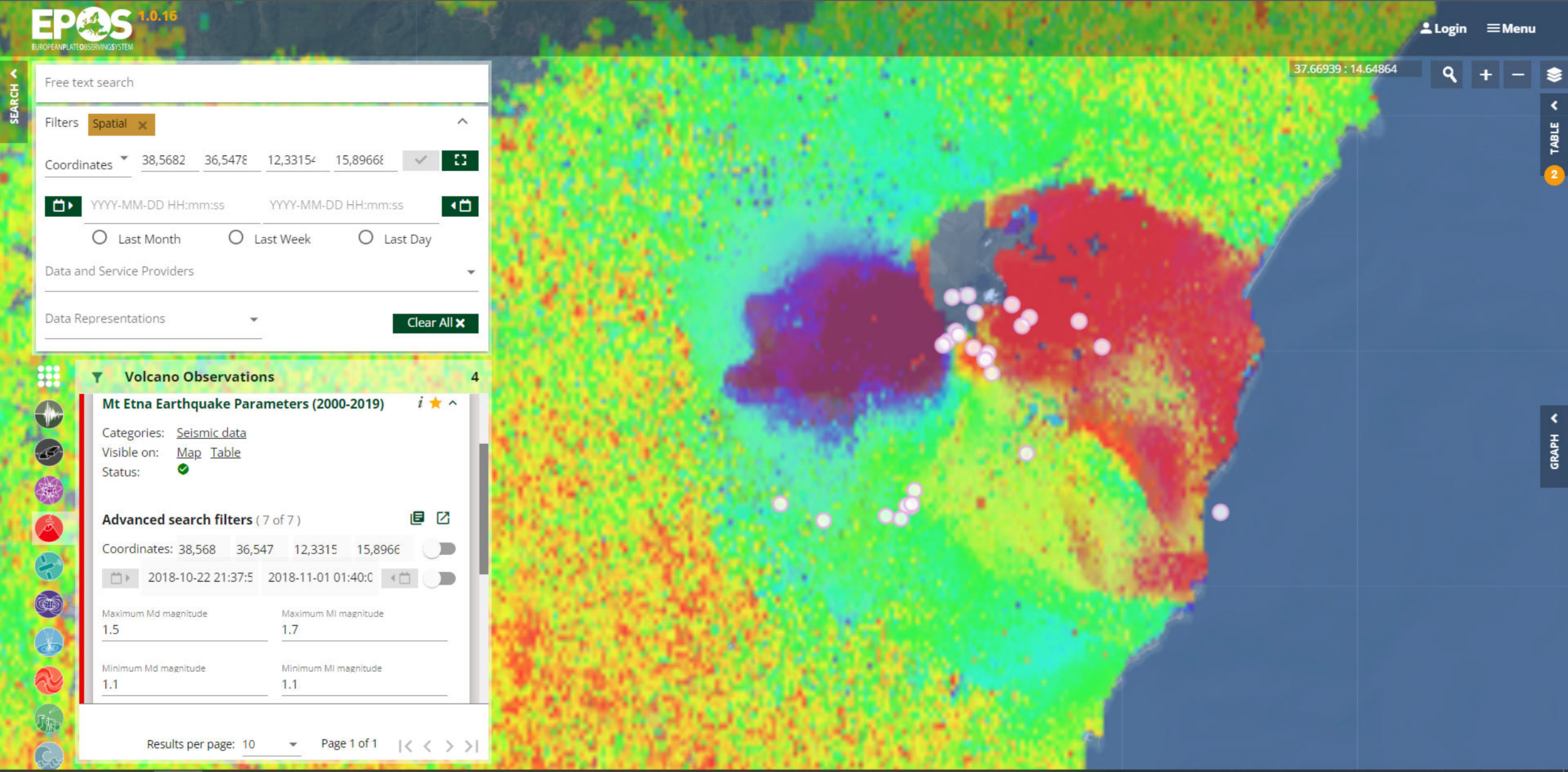


Wrapped interferograms, for measuring Ground displacement after an event.

EPOS Data Portal Training

By: Harald Nedrebø,
EPOS,
University of Bergen

Use case for Volcanism and earthquakes for Etna, Italy



Use the magnifying glass to search for «Sicily»

The screenshot displays the EPOS 1.0.16 web interface. At the top left, the logo 'EPOS 1.0.16 EUROPEAN PLATE OBSERVING SYSTEM' is visible. A search bar with the placeholder text 'Free text search' is located at the top left. To the right of the search bar, there are 'Login' and 'Menu' links. The main map area shows a satellite view of Europe, with a search bar in the top right corner containing the coordinates '70.80618 : -62.02797'. A red box highlights the magnifying glass icon in the search bar. On the left side, there is a sidebar with a 'SEARCH' button and a 'Filters' dropdown. Below the search bar, there is a list of satellite data products under the heading 'Satellite Data' (8 items). The products listed are:

- DEM in radar geometry** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Interferogram Atmospheric Phase Screen from Global Atmospheric Model** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- LOS Displacement Time Series** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Lookup table from radar coordinates to ground coordinates** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓
- Map of LOS Vector** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status: ✓

At the bottom of the sidebar, there is a 'Results per page: 10' dropdown and 'Page 1 of 1' with navigation arrows.

The map will zoom to the location around Sicily.

EPOS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Free text search

Filters

Coordinates: °North °South °West °East

Time Range: YYYY-MM-DD HH:mm:ss to YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations: Clear All

All data and services	242
Seismology	63
Near Fault Observatories	40
GNSS Data and Products	13
Volcano Observations	31
Satellite Data	8
Geomagnetic Observations	15
Anthropogenic Hazards	38
Geological Information and Modeling	8
Multi-scale Laboratories	6
Tsunami	20
Favourites	0

38.48369 : 12.56901

50 km | Leaflet | Powered by Esri | Earthstar Geographics

Select the rectangular section to refine the services in the area

The screenshot displays the EPOS 1.0.16 web interface. On the left, a search panel is visible with the following sections:

- Free text search
- Filters
- Coordinates: °North, °South, °West, °East, and a checked dropdown menu. A red box highlights a rectangular selection tool icon.
- Time range: YYYY-MM-DD HH:mm:ss to YYYY-MM-DD HH:mm:ss, with radio buttons for Last Month, Last Week, and Last Day.
- Data and Service Providers
- Data Representations
- Clear All x

Below the search panel is a list of data categories with their respective counts:

Category	Count
All data and services	242
Seismology	63
Near Fault Observatories	40
GNSS Data and Products	13
Volcano Observations	31
Satellite Data	8
Geomagnetic Observations	15
Anthropogenic Hazards	38
Geological Information and Modeling	8
Multi-scale Laboratories	6
Tsunami	20
Favourites	0

The main map area shows a satellite view of the Mediterranean region, with a coordinate display of 38.48369 : 12.56901. The bottom right corner includes a 50 km scale bar and the text: Leaflet | Powered by Esri | Earthstar Geographics.

Notice the services in the left menu is reduced

The screenshot displays the EPOS 1.0.16 web interface. The top left corner features the EPOS logo and version number. The top right corner includes a 'Login' button and a 'Menu' icon. The main area is a map of the Mediterranean region, with a blue box highlighting a specific area. On the left side, there is a search panel and a service menu.

Search Panel:

- Free text search
- Filters: Spatial
- Coordinates: 38,5682 36,547E 12,33154 15,8966E
- Time range: YYYY-MM-DD HH:mm:ss (Last Month, Last Week, Last Day)
- Data and Service Providers
- Data Representations
- Clear All

Service Menu:

Service	Count
All data and services	126
Seismology	54
Near Fault Observatories	0
GNSS Data and Products	13
Volcano Observations	4
Satellite Data	8
Geomagnetic Observations	11
Anthropogenic Hazards	2
Geological Information and Modeling	8
Multi-scale Laboratories	6
Tsunami	20

Select Satellite Data - «LOS Displacement Time Series»

The screenshot displays the EPOS 1.0.16 web interface. The top left corner features the EPOS logo and version number. The top right corner includes a 'Login' button and a 'Menu' icon. A search bar is located at the top left, with a 'Free text search' input field. Below the search bar, there are filter sections: 'Filters' with a 'Spatial' tag, 'Coordinates' with four input fields (38,5682, 36,547E, 12,3315, 15,8966) and a 'Clear' button, and 'Data and Service Providers' with a dropdown menu. A 'Data Representations' dropdown and a 'Clear All' button are also present. The main content area shows a list of 'Satellite Data' products, with 8 items in total. The selected product is 'LOS Displacement Time Series', which is highlighted in blue. The product details include: 'DEM in radar geometry', 'Interferogram Atmospheric Phase Screen from Global Atmospheric Model', and 'LOS Displacement Time Series'. Each product entry shows its categories (InSAR), visible on options (Map, Table), and status (checked). The background is a satellite map of Turkey, with a blue rectangular box highlighting the country's outline. The map includes a coordinate display (37.21283 : 9.3384) and navigation controls (search, zoom in, zoom out, and a 'TABLE' button). A 'GRAPH' button is visible on the right side of the map.

EPOS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Free text search

Filters **Spatial**

Coordinates 38,5682 36,547E 12,3315 15,8966

YYYY-MM-DD HH:mm:ss YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

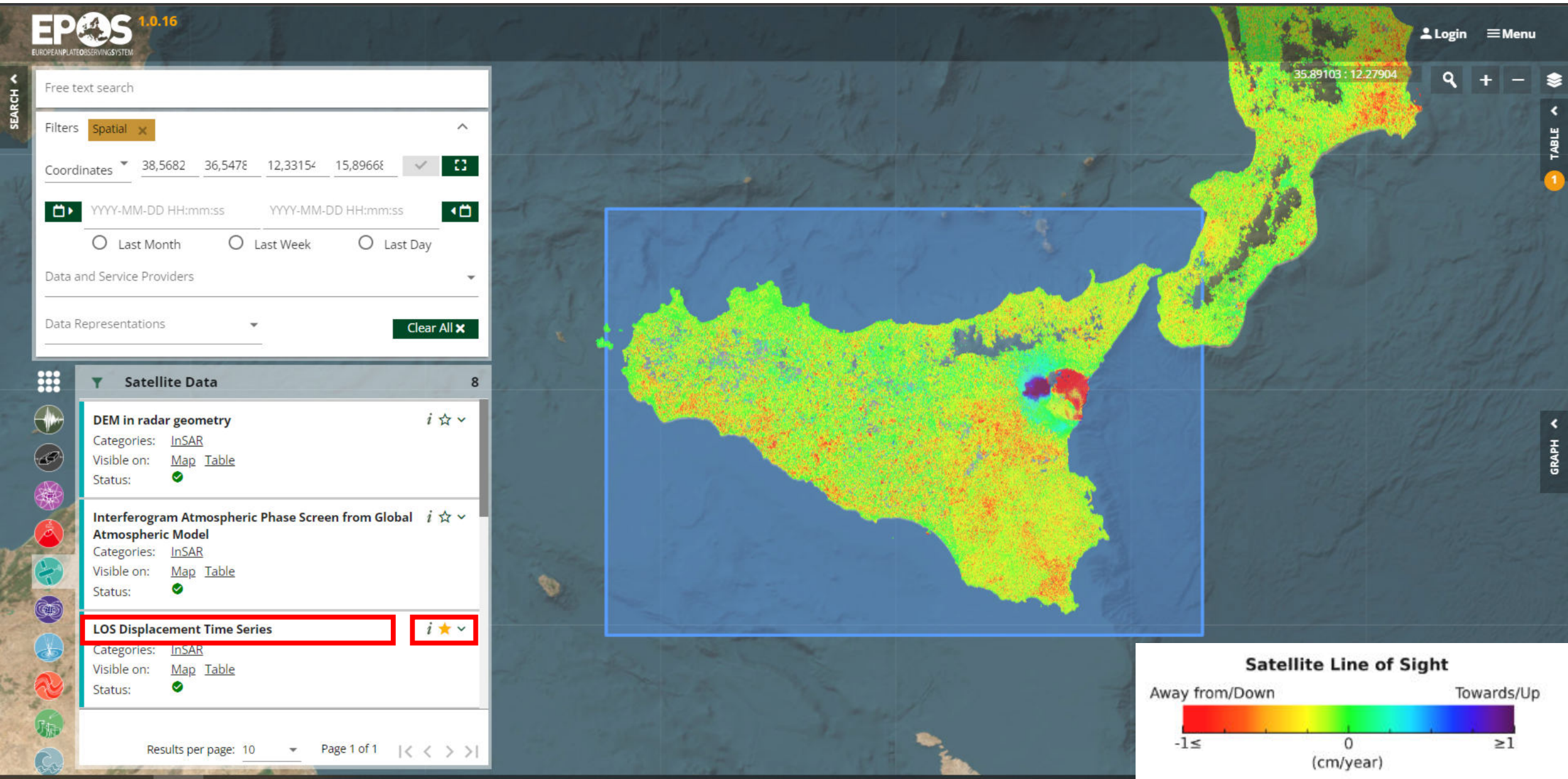
Data Representations **Clear All**

Satellite Data 8

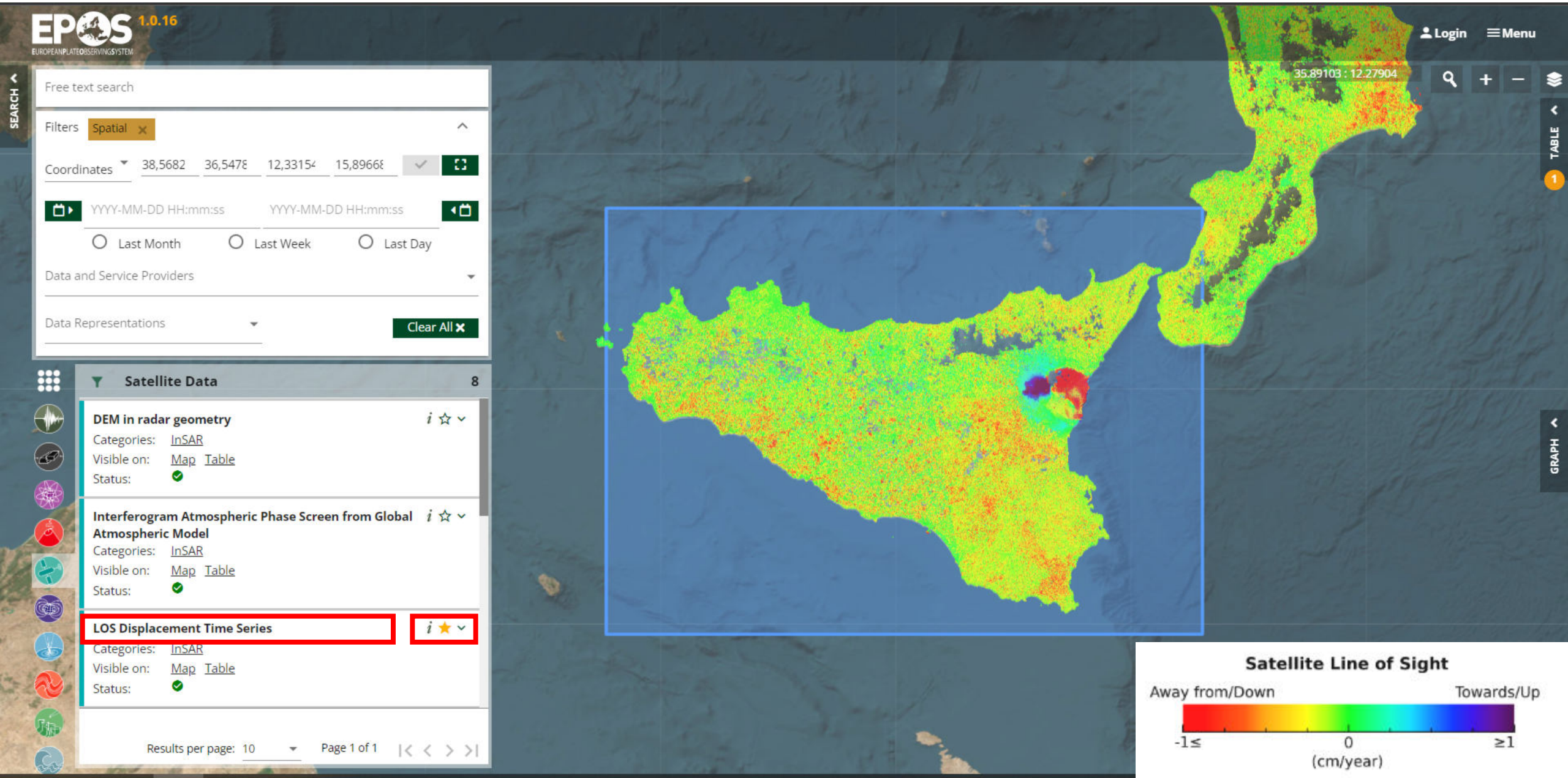
- DEM in radar geometry** *i* ☆ v
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status:
- Interferogram Atmospheric Phase Screen from Global Atmospheric Model** *i* ☆ v
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status:
- LOS Displacement Time Series** *i* ☆ v
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status:

Results per page: 10 Page 1 of 1

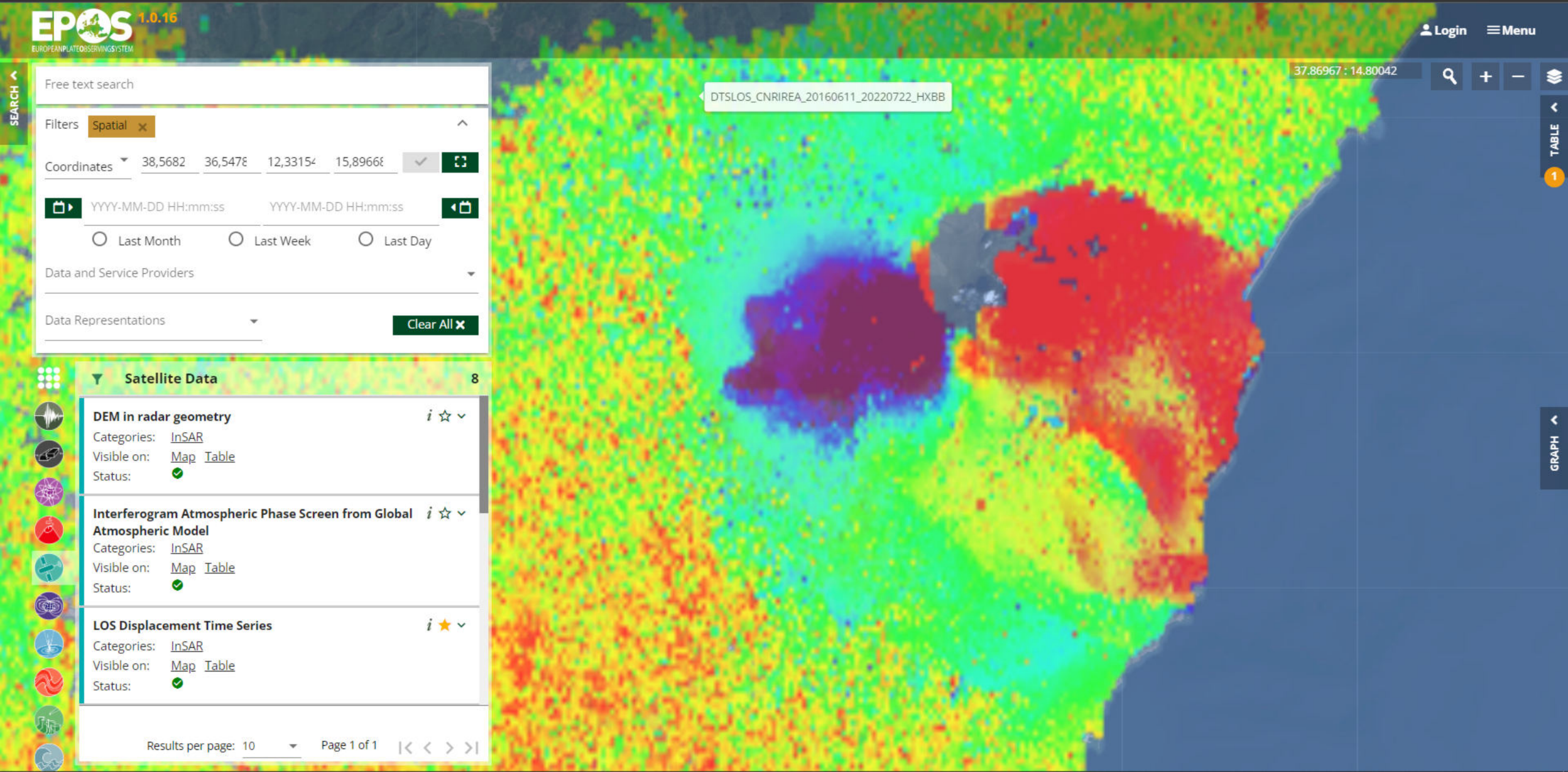
This will provide INSAR Sattelite images



Notice the areas that has high uplift and sinking



Zooming further in provide more detail



You can change opacity in the layer/legend tool

The screenshot displays the EPOS 1.0.16 web interface. The top left corner features the EPOS logo and version number. The top right corner includes a 'Login' button and a 'Menu' icon. The main map area shows a color-coded InSAR displacement map with a tooltip for 'DTSLOS_CNRIREA_20160611_20220722_HXBB' at coordinates 37.86967, 14.80042. The left sidebar contains a search bar and filter options. The 'Satellite Data' section is expanded, showing three layers: 'DEM in radar geometry', 'Interferogram Atmospheric Phase Screen from Global Atmospheric Model', and 'LOS Displacement Time Series'. Each layer has a visibility icon, a star, and a dropdown arrow. The bottom of the sidebar shows 'Results per page: 10' and 'Page 1 of 1'.

EPOS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Login Menu

37.86967 : 14.80042

DTSLOS_CNRIREA_20160611_20220722_HXBB

Free text search

Filters Spatial

Coordinates 38,5682 36,5478 12,3315 15,8966

YYYY-MM-DD HH:mm:ss YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations Clear All

Satellite Data 8

DEM in radar geometry i ☆ v
Categories: InSAR
Visible on: Map Table
Status: ✓

Interferogram Atmospheric Phase Screen from Global Atmospheric Model i ☆ v
Categories: InSAR
Visible on: Map Table
Status: ✓

LOS Displacement Time Series i ☆ v
Categories: InSAR
Visible on: Map Table
Status: ✓

Results per page: 10 Page 1 of 1

You can change opacity in the layer/legend tool

The screenshot displays the EPOS 1.0.16 web interface. The main map area shows a color-coded region, likely representing a DEM in radar geometry, with a tooltip for 'DTSLOS_CNIREA_20160611_20220722_HXBB' showing coordinates 37.86967 : 14.80042. The left sidebar contains a search bar and a filter panel. The filter panel includes a 'Spatial' filter, coordinate input fields (38,5682, 36,547E, 12,3315, 15,8966), a date range selector (Last Month, Last Week, Last Day), and a 'Data and Service Providers' dropdown. Below the filter panel is a 'Satellite Data' section with 8 items. The first three items are visible:

- DEM in radar geometry** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status:
- Interferogram Atmospheric Phase Screen from Global Atmospheric Model** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status:
- LOS Displacement Time Series** (i ☆ v)
Categories: [InSAR](#)
Visible on: [Map](#) [Table](#)
Status:

At the bottom of the sidebar, there is a pagination control: 'Results per page: 10 Page 1 of 1 |< < > >|'. The top right corner of the interface shows 'Login' and 'Menu' buttons. The bottom right corner has a 'GRAPH' button.

You can change opacity in the layer/legend tool

The screenshot displays the EPOS 1.0.16 web interface. The main map area shows a color-coded LOS Displacement Time Series. A search and filter panel is on the left, and a layer/legend tool is open on the right. The tool is titled 'LOS Displacement Time Series' and contains a sub-panel for 'LOS Displacement Time Series (images)'. Within this sub-panel, there is a 'Legend' tab and a 'Customize' button. The 'Opacity' slider is highlighted with a red box, indicating that the opacity of the layer can be adjusted. The map also shows a 'Basemap' section at the bottom right of the tool, with 'Selected Basemap: Imagery' and a toggle switch.

Free text search

Filters Spatial

Coordinates 38,5682 36,5478 12,33154 15,89668

YYYY-MM-DD HH:mm:ss YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations Clear All

Satellite Data 8

- DEM in radar geometry
Categories: InSAR
Visible on: Map Table
Status: ✓
- Interferogram Atmospheric Phase Screen from Global Atmospheric Model
Categories: InSAR
Visible on: Map Table
Status: ✓
- LOS Displacement Time Series
Categories: InSAR
Visible on: Map Table
Status: ✓

Results per page: 10 Page 1 of 1

LOS Displacement Time Series

LOS Displacement Time Series (images)

Legend Customize

Opacity

Basemap Selected Basemap: Imagery

To see how it corresponds with the map image

The screenshot displays the EPOS 1.0.16 web interface. The top left corner features the EPOS logo and version number. The top right corner includes a 'Login' button and a 'Menu' icon. The main area is a satellite map of Europe. On the left side, there is a search panel with a 'Free text search' field, a 'Filters' section with a 'Spatial' filter, and a 'Coordinates' section with input fields for X, Y, Z, and W coordinates. Below this are date range filters for 'Last Month', 'Last Week', and 'Last Day'. The bottom left shows a 'Satellite Data' list with three items: 'DEM in radar geometry', 'Interferogram Atmospheric Phase Screen from Global Atmospheric Model', and 'LOS Displacement Time Series'. The bottom right shows a 'LOS Displacement Time Series' layer control panel with a 'Legend' tab, an 'Opacity' slider, and a 'Customize' button. The bottom of the interface shows 'Basemap' and 'Selected Basemap: Imagery'.

EPoS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Login Menu

37.89135 : 14.32105

Free text search

Filters Spatial

Coordinates 38,5682 36,5478 12,33154 15,89668

YYYY-MM-DD HH:mm:ss YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations Clear All

Satellite Data 8

DEM in radar geometry
Categories: InSAR
Visible on: Map Table
Status: ✓

Interferogram Atmospheric Phase Screen from Global Atmospheric Model
Categories: InSAR
Visible on: Map Table
Status: ✓

LOS Displacement Time Series
Categories: InSAR
Visible on: Map Table
Status: ✓

Results per page: 10 Page 1 of 1

LOS Displacement Time Series

LOS Displacement Time Series (images)

Legend Customize

Opacity

Basemap Selected Basemap: Imagery

To see the effect for Etna volcano

The screenshot displays the EPOS 1.0.16 web interface. The top left corner features the EPOS logo and version number. The top right corner includes a 'Login' button and a 'Menu' icon. The main area is a satellite map of Etna volcano, with coordinates 37.47347 : 14.77982 displayed in the top right. A search panel on the left contains a 'Free text search' field, a 'Filters' section with a 'Spatial' filter, and coordinate input fields. Below the search panel is a 'Satellite Data' section with 8 results. The first three results are: 'DEM in radar geometry', 'Interferogram Atmospheric Phase Screen from Global Atmospheric Model', and 'LOS Displacement Time Series'. Each result includes category information, visibility options, and a status indicator. The bottom of the search panel shows 'Results per page: 10' and 'Page 1 of 1'. The bottom right corner of the map area includes a scale bar (10 km) and footer text: 'Leaflet | Powered by Esri | Earthstar Geographics'.

EPoS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Login Menu

SEARCH

Free text search

Filters Spatial

Coordinates 38,5682 36,547E 12,33154 15,8966E

YYYY-MM-DD HH:mm:ss YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations Clear All

Satellite Data 8

DEM in radar geometry i ☆ v
Categories: InSAR
Visible on: Map Table
Status: ✓

Interferogram Atmospheric Phase Screen from Global Atmospheric Model i ☆ v
Categories: InSAR
Visible on: Map Table
Status: ✓

LOS Displacement Time Series i ☆ v
Categories: InSAR
Visible on: Map Table
Status: ✓

Results per page: 10 Page 1 of 1

10 km Leaflet | Powered by Esri | Earthstar Geographics

Select Volcano Observations – Mt. Etna Earthquakes

EPOS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Free text search

Filters: **Spatial**

Coordinates: 38,5682 36,547E 12,33154 15,8966E

Time Range: YYYY-MM-DD HH:mm:ss to YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations

Clear All

Volcano Observations 4

- Mt Etna Bulk Rock Analysis**
Categories: [Geochemical data](#)
Visible on: [Map](#) [Table](#)
Status:
- Mt Etna Earthquake Parameters (2000-2019)**
Categories: [Seismic data](#)
Visible on: [Map](#) [Table](#)
Status:
- Volcano Observatory Notice for Aviation Italy**
Categories: [Volcanological/petrological da...](#)
Visible on: [Map](#) [Table](#)
Status:

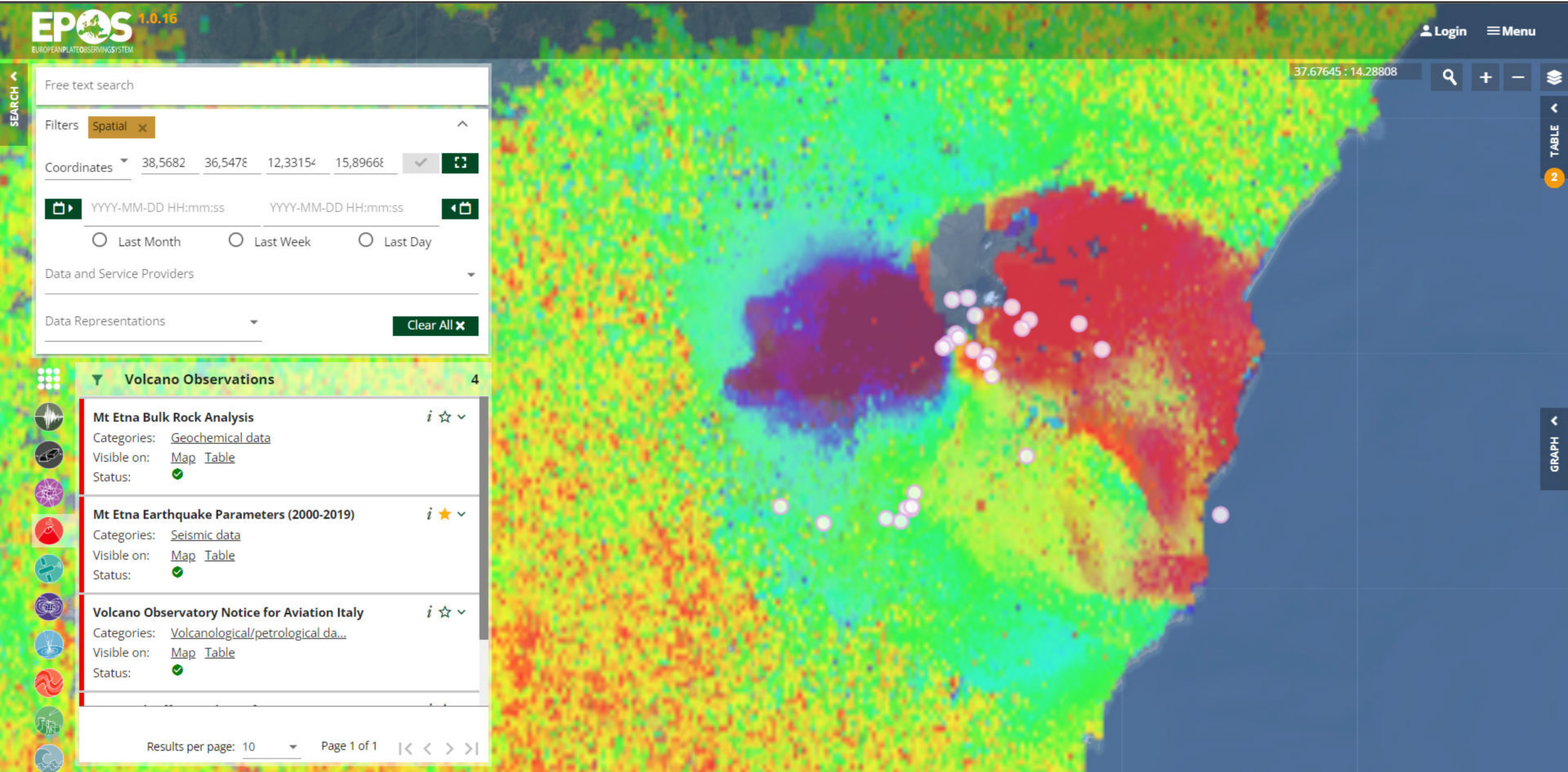
Results per page: 10 Page 1 of 1

37.66613 : 14.29014

TABLE 1

GRAPH

Earthquakes related to the volcano is displayed in circles



Parameters for space, time and magnitude can be changed

The screenshot displays the EPOS 1.0.16 web interface. The main map shows a color-coded seismicity distribution around Mt Etna, with several white circular markers. The search filter panel on the left is titled "Volcano Observations" and shows 4 results. The selected result is "Mt Etna Earthquake Parameters (2000-2019)". The "Advanced search filters" section is highlighted with a red box and includes the following parameters:

Parameter	Value	Toggle
Coordinates	38,568 36,547 12,3315 15,8966	On
Time Range	2018-10-22 21:37:5 - 2018-11-01 01:40:0	On
Maximum Md magnitude	1.5	
Maximum MI magnitude	1.7	
Minimum Md magnitude	1.1	
Minimum MI magnitude	1.1	

At the bottom of the filter panel, it shows "Results per page: 10" and "Page 1 of 1". The interface also includes a search bar, a "Clear All" button, and navigation options like "Table" and "Graph".

By pressing the circles, you see the metadata

EPOS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Free text search

Filters **Spatial**

Coordinates 38,5682 36,5478 12,3315 15,8966

YYYY-MM-DD HH:mm:ss YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations **Clear All**

Volcano Observations 4

Advanced search filters (7 of 7)

Coordinates: 38,568 36,547 12,3315 15,8966

2018-10-22 21:37:5 2018-11-01 01:40:0

Maximum Md magnitude 1.5
Maximum MI magnitude 1.7

Minimum Md magnitude 1.1
Minimum MI magnitude 1.1

Minimum depth 4

Set to defaults Apply

Results per page: 10 Page 1 of 1

Mt Etna Earthquake Parameters (2000-2019)

View on Table

id	12735
isodate	2018-10-29T02:17:50Z
md	1.4
ml	1.3
site	Mt.Etna
country	Italy
lat	37.736
lon	15.085
depth	6.19
depth_m	6190

1 of 1

37.46638 : 14.27847

SEARCH TABLE GRAPH

There is also an option to see earthquakes in table view

EPOS 1.0.16
EUROPEAN PLATE OBSERVING SYSTEM

Free text search

Filters **Spatial**

Coordinates 38,5682 36,5476 12,33154 15,89666

YYYY-MM-DD HH:mm:ss YYYY-MM-DD HH:mm:ss

Last Month Last Week Last Day

Data and Service Providers

Data Representations **Clear All**

Volcano Observations 4

Advanced search filters (7 of 7)

Coordinates: 38,568 36,547 12,3315 15,8966

2018-10-22 21:37:5 2018-11-01 01:40:0

Maximum Md magnitude 1.5 Maximum MI magnitude 1.7

Minimum Md magnitude 1.1 Minimum MI magnitude 1.1

Minimum depth 4

Set to defaults **Apply**

Results per page: 10 Page 1 of 1

Mt Etna Earthquake Parameters (2000-2019) 37.49635 : 14.27847

View on Table

LOS Displacement Time Series **Mt Etna Earthquake Parameters (2000-2019)**

Page 1 of 6

Filter: 27/27 Rows Select Columns 8/18 id, isodate, md, ml, site, c... Expand all

Page number: 1 Results per page: 5 Total Results: 27

	id	isodate	md	ml	site	country	lat	lon
📍	12686	2018-10-24T01:0...	1.3	1.2	Mt.Etna	Italy	37.738	15.048
📍	12687	2018-10-24T01:1...	1.1	1.1	Mt.Etna	Italy	37.733	15.042
📍	12692	2018-10-24T06:2...	1.3	1.2	Mt.Etna	Italy	37.721	15.102
📍	12694	2018-10-24T13:2...	1.3	1.2	Mt.Etna	Italy	37.715	15.015

TABLE

GRAPH