



EPOS-ES node

Ramón Carbonell
Adelina Geyer Traver

Agencia Estatal Consejo Superior de Investigaciones Científicas - CSIC

Take Home Messages

Strengthen Data & knowledge Integration within European Framework focus at specific TCS

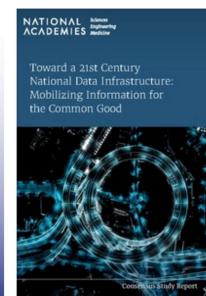
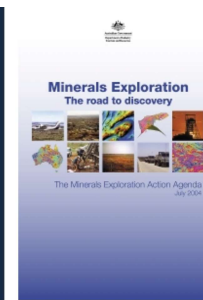
- Promote and strengthen links collaborations with the main EPOS-TCS
- Identify propose and develop (only if necessary) national contribution to EPOS data portal.
- Encourage the use of the EPOS Data Portal (Master and PhD programs)

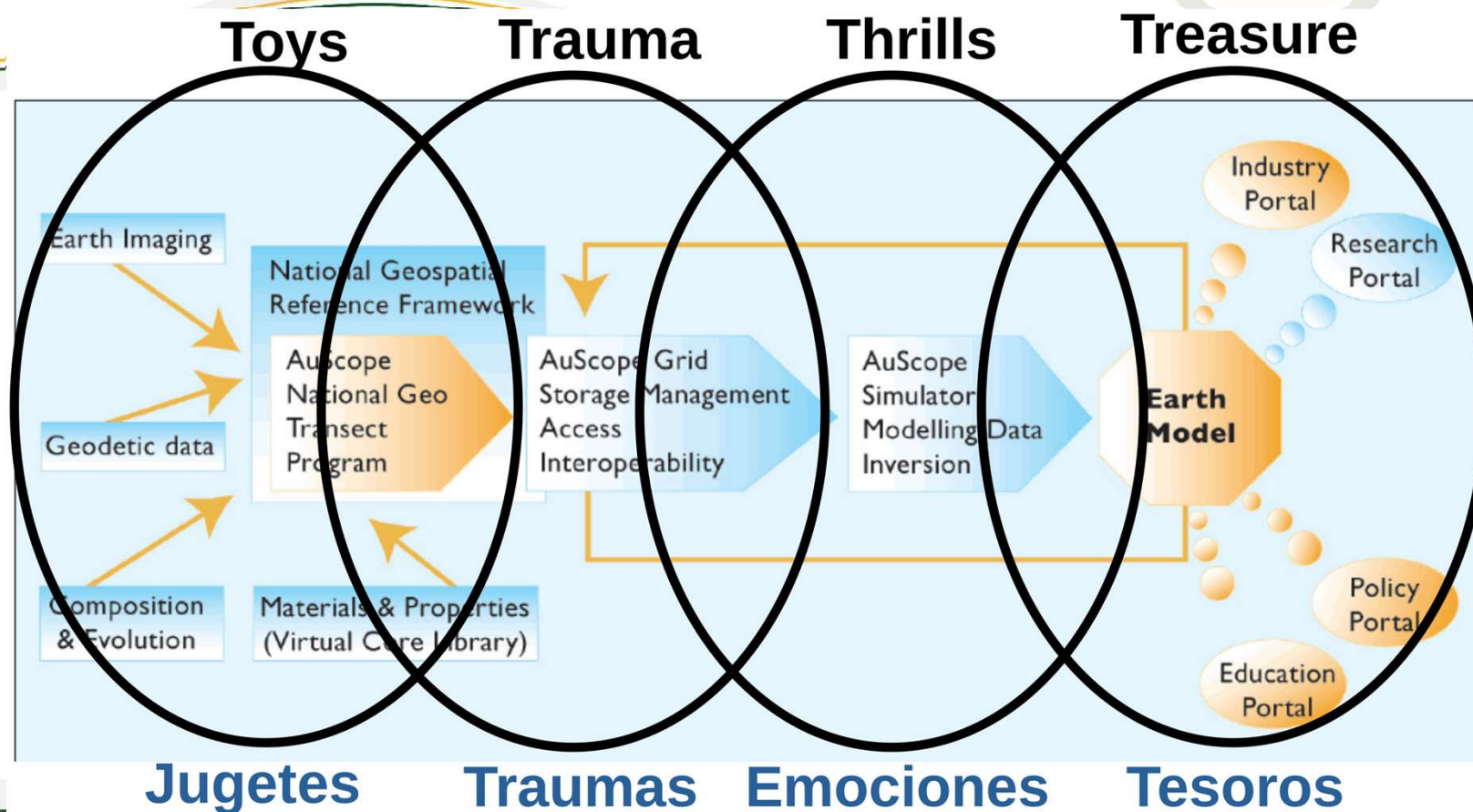
The TCS as a think tank for research opportunities

- Identification of new research targets
- Stimulate discussion (brainstorming) for new developments/contribution data, data products, services
- Foster and strengthen synergies, research proposals & projects (eg. Horizon Europe, ICDP)
- New, next generation research infrastructures for the TCS.

Why a Geoscientific Database?

- Archiving, maintaining, managing acquired data, results and/or services by different groups, the quality level is unknown.
- Locating information and data. Lack of persistent identifiers (DOI).
- Time spent on data download, formats, and compatibility with tools (formats vary depending on the software version).
- Existence of data on maps online, but the actual data is not accessible for analysis, or the information is incomplete (location, measurement scale, units, etc.)
- The juxtaposition of other disciplines (multi-, inter-disciplinarity) makes the problem more critical (formats, units, acronyms, data structure, metadata).
- Part of the solution: standardize the access protocol across all disciplines and/or organizations.

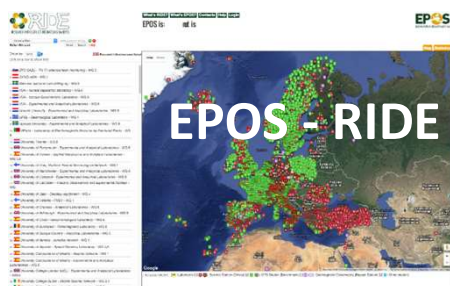




Functions

- Integrated access to data from different disciplines (transparent to specific formats)
- Interdisciplinary platform for education and training in geosciences
- Platform supporting research - foster collaboration
- Direct access tools integrated with high-performance computing (HPC) program implementation
- Ensure FAIR principles and minimum data and service quality standards.
- Adopt legal and governance solutions under principles of open access, transparent data usage, and intellectual property rights (European regulation on data protection).
- Development of 4D services, using real-time observables (e.g., monitoring tasks/studies)
- Integrate and unify European facilities into a single distributed infrastructure that enables leveraging the new opportunities offered by "open science".
- Foundation for the development of digital twins in Geosciences

TRAJECTORY...



EPOS - PP

EPOS
Preparatory Phase

EPOS - IP

EPOS
Implementation Phase

EPOS - SP

EPOS
Sustainability Phase

17 may

2008

2011

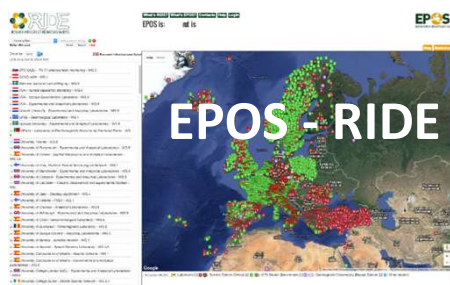
2014 / 2015

2019 / 2020

2023

European Strategy Forum on Research
Infrastructures (ESFRI)

TRAJECTORY...



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EUROVOLC

EUROPEAN FUNDING

DT-GEO

GEO-INQUIRE

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EUROPEAN FUNDING

DT-GEO

GEO-INQUIRE

NATIONAL FUNDING

Thematic network
CGL2016-81965-REDT

18 keuros

Establish national collaboration network
(i.e. organization of meetings, coordination activities)

CSIC Project calls for:

Large European Research Infrastructures

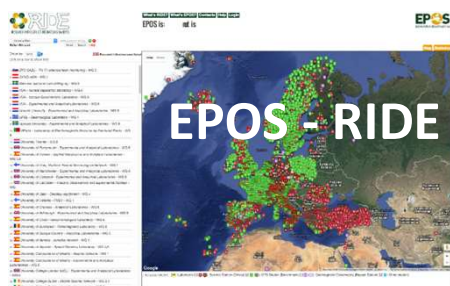
100 keuros

Thematic network
RED2022-134516-E

60 keuros

17 may

TRAJECTORY...



EPOS - PP

EPOS
Preparatory Phase

EPOS - IP

EPOS
Implementation Phase

EPOS - SP

EPOS
Sustainability Phase

EPOS-ES Kick-off meeting

17 may

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2023

European Strategy Forum on
Research Infrastructures (ESFRI)

EUROVOLC

EUROPEAN FUNDING

DT-GEO

GEO-INQUIRE

NATIONAL FUNDING

Thematic network
CGL2016-81965-REDT

CSIC Project calls for:
Large European Research Infrastructures

Thematic network
RED2022-134516-E

Agreement for economic funding of membership fees and the participation of Spain in the ESFRI EPOS-ERIC (5 year credit renewal):

Ministerio de Ciencia e Innovación (MICINN)

Consejo Superior de Investigaciones científicas (CSIC)

Instituto Geográfico Nacional (IGN)

Universidad de Granada (UGR)

Universidad de Alicante (UA)

Universidad de Salamanca (USAL)

Universidad de Barcelona (UB)



Current Spanish ESFRI policy requires the membership fees to be covered by one (or more) institution(s). In case of EPOS-ERIC, the Ministry of Science and Innovation does not provide any economic support.

General Action Protocol (PGA) EPOS – Spain. *Open document agreement* signed by :

Ministerio de Ciencia e Innovación (MICINN)

Consejo Superior de Investigaciones científicas (CSIC)

Instituto Geográfico Nacional (IGN)

Universidad de Granada (UGR)

Universidad de Alicante (UA)

Universidad de Salamanca (USAL)

Universidad de Barcelona (UB)

Observatorio del Ebro (OE)

Universidad Complutense de Madrid (UCM)

Universidad Politécnica de Madrid (UPM)

Universidad Politécnica de Valencia (UPV)

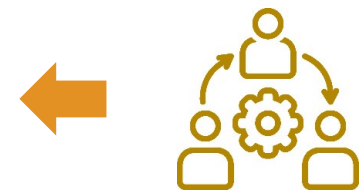


GOALS:

- **Establish an organized structure of EPOS-Spain** that allows coordinating the activities and initiatives and defining the roadmap of actions to be carried out in the short, medium, and long term.
- **Implement and develop the Spanish nodes of the 10 TCSs** and identify the DDSSs that can be integrated into EPOS and those services to be developed in the future.
- **Establish communication channels between TCSs and specialized groups**, to encourage the exchange of knowledge and information, and training in the use and possibilities of EPOS.

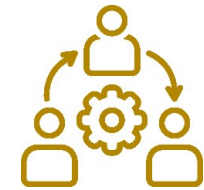
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DDSS: Data, data products, software and services

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GOALS:

- **Strengthen relationships with other international organizations and programs** with converging and complementary objectives (e.g. EarthScope) in a coordinated manner and at the national level.
- Act as a speaker and information point for the rest of the national community in Earth Sciences, of the actions and initiatives that are being carried out at a European level, especially those directly related to EPOS.
- Explore the generation of connections between ICTSs, the Interdisciplinary Thematic Platforms of the CSIC (e.g. PTI TELEDETEC) and the Spanish nodes of other ESFRIs to expand the potential and use of EPOS (e.g. with EMSO).



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GOALS:

- **Promote the use of EPOS** in national and international research programs and initiatives. In particular, explore the possibilities of developing research projects within the framework of European calls.
- Strengthen the digital service base of national institutions that contribute to EPOS with DDSSs.
- Pursue the establishment of links with national HPC resources (Red nacional de supercomputación)



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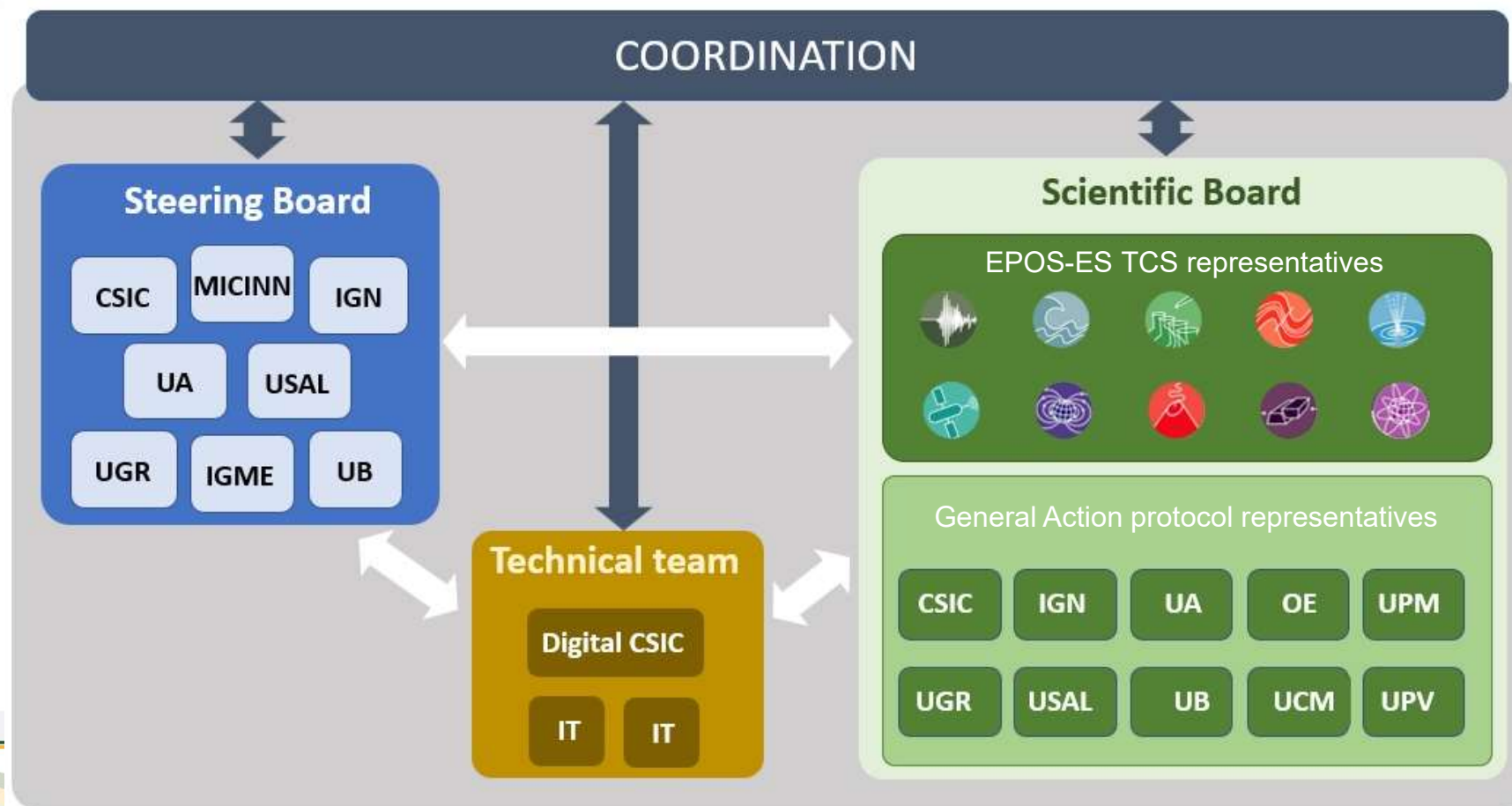
A successful EPOS-Spain will allow:

Generate and promote strong and multidisciplinary groups, the development of transversal research, and national and international collaboration, together with an increase in international visibility.



Set up a Spanish consortium in Solid Earth Sciences within the framework of which high-level joint and multidisciplinary scientific-technical work is developed; promoting innovative lines of research and planning joint activities.

Model of Organization:



EPOS-ES Coordination

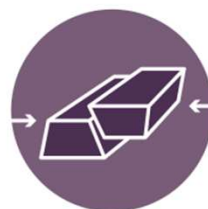
Ramon Carbonell (CSIC)
Adelina Geyer (CSIC)

- Coordinators and TCS representatives are envisaged to rotate among the different institutions signing the general agreement.
- Further details concerning the governance of EPOS-ES will be defined by the Steering Board in future meetings.



SISMOLOGÍA

Juan Vicente Cantavella
(IGN)



OBSERVATORIOS PRÓXIMOS A FALLAS

Antonio Azor
(UGR)



DATOS Y PRODUCTOS GNSS

José Antonio Sánchez
(IGN)



OBSERVACIONES EN VOLCANES

Adelina Geyer
(CSIC)



LABORATORIOS MULTIESCALA

José Luis Fernández
(CSIC)



DATOS SATÉLITE

José Fernández
(UCM – CSIC)



OBSERVACIONES GEOMAGNÉTICAS

Juan José Curto
(OE)



PELIGROS ANTROPOGÉNICOS

Diana Nuñez
(UCM)



INFORMACIÓN Y MODELADO GEOLÓGICO

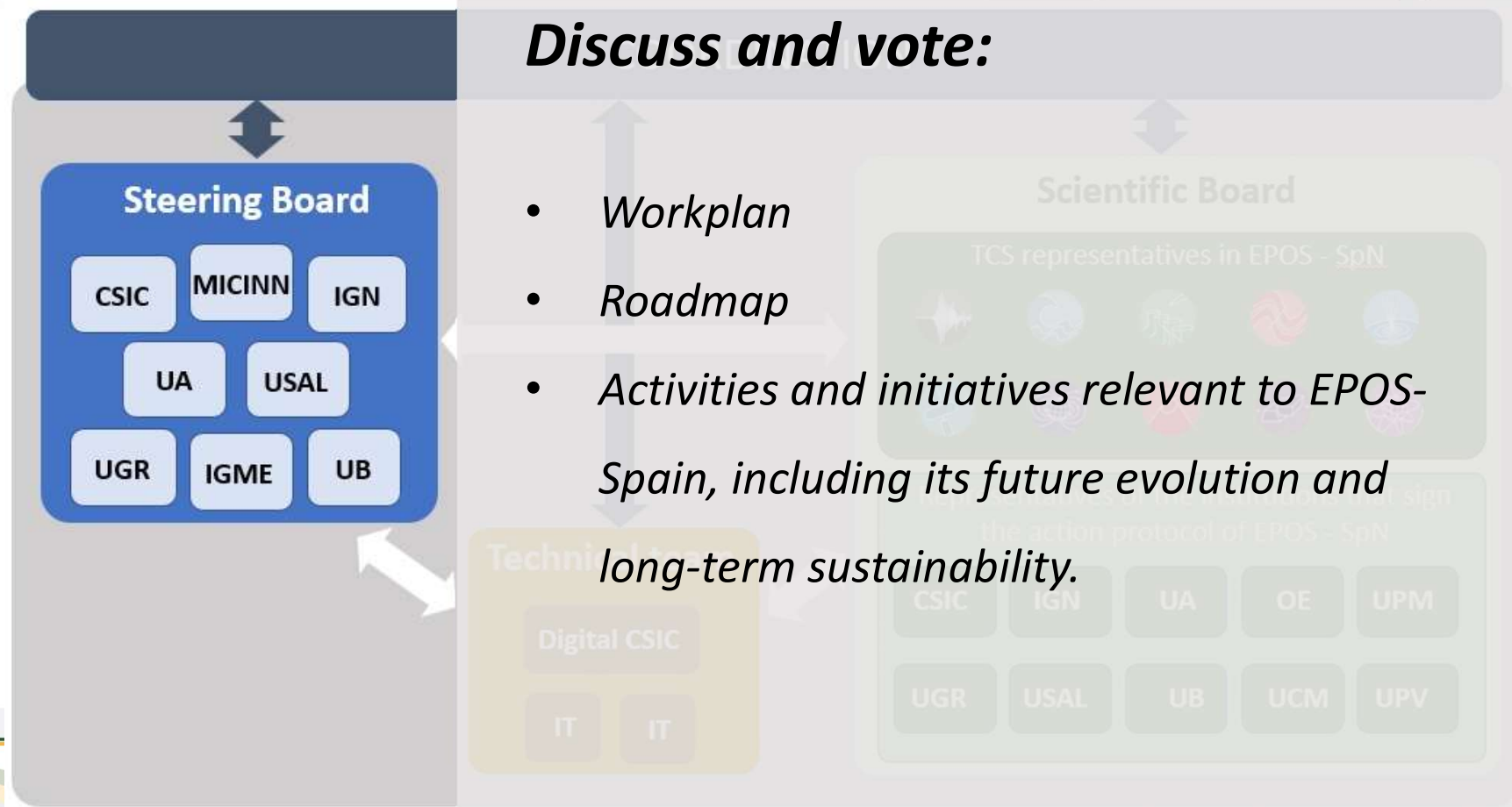
José Román Hernández
(IGME)



TSUNAMIS

Roger Urgelés (CSIC)
Jorge Macías (UM)

Model of Organization:



Model of Organization:

Tasks:

- *Advice on scientific aspects such as the prioritization of the DDSSs to be integrated into EPOS.*
- *Coordinate the presentation of proposals in national and international projects using the capacities and technical opportunities of the infrastructure, etc.*

COORDINATION

Scientific Board

TCS representatives in EPOS - SpN



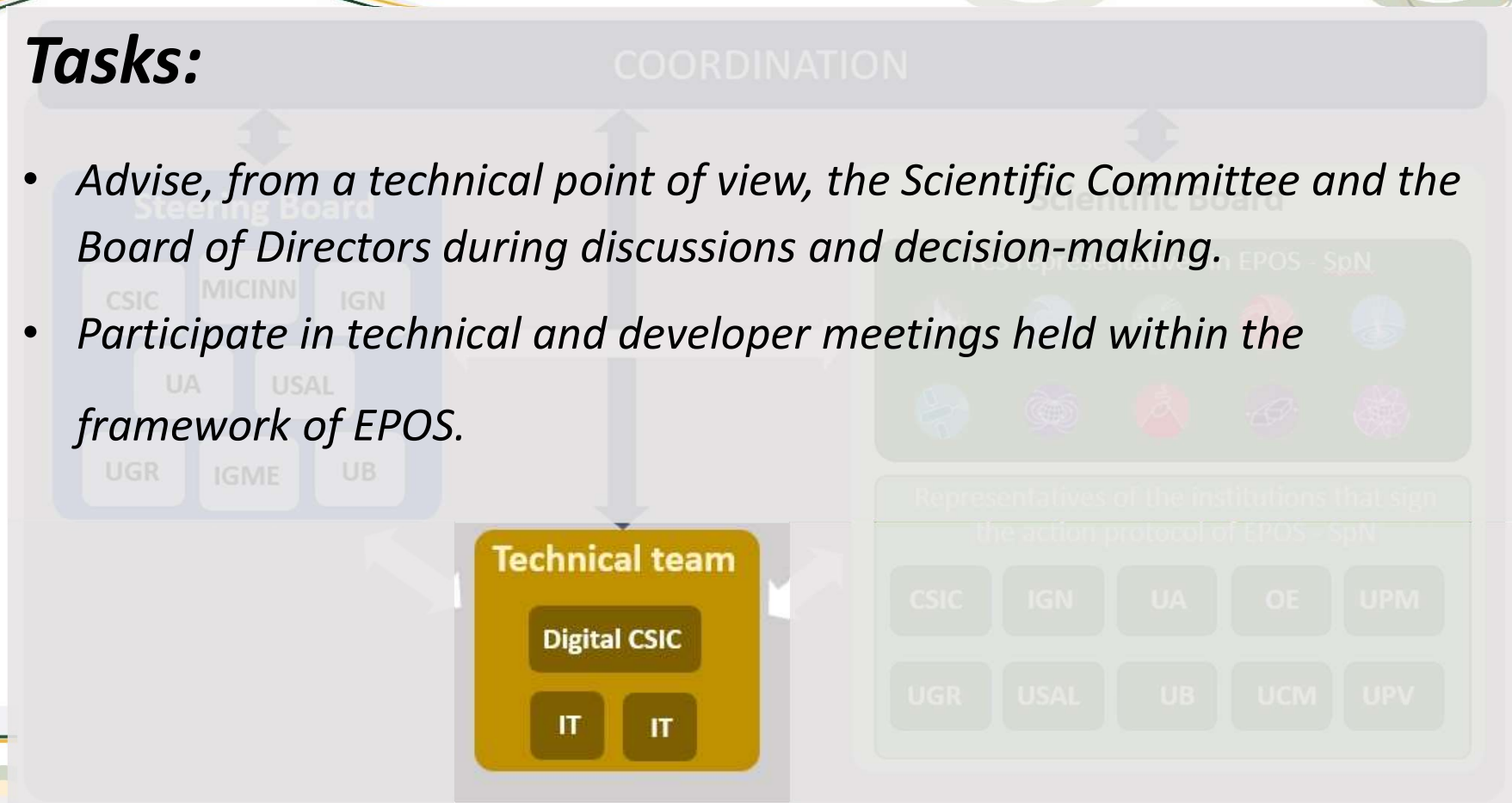
Representatives of the institutions that sign the action protocol of EPOS - SpN

CSIC	IGN	UA	OE	UPM
UGR	USAL	UB	UCM	UPV

Model of Organization:

Tasks:

- Advise, from a technical point of view, the Scientific Committee and the Board of Directors during discussions and decision-making.
- Participate in technical and developer meetings held within the framework of EPOS.



ROADMAP FOR 2023-2024:

- **Database of specialists and working groups**
- **Dissemination plan of activities and results** (web page, social media, etc)
- **Plan the schedule of meetings to be organized** (and/or general assembly, internal TCSs meetings, international conferences attendance)
- **Identification of potential DDSSs to integrate into EPOS**
- **Link EPOS-Spain to other consolidated EU organizations and initiatives (e.g., GeoSurveys)**
- **Extend and encourage the use of EPOS** (national training groups, sharing PhD and Master projects)
- **Development and participation in new projects and/or research initiatives**



ROADMAP FOR 2023-2024:

- **Analyze the infrastructural needs of national Earth Science laboratories and research groups**
- **Coordinate with other international institutions that participate in EPOS, the design and drafting of proposals to the specific calls for HORIZON EUROPE infrastructure**
- **Organize special sessions or conferences** (in General assemblies of national scientific societies, in ICTSs meetings, in CSIC Interdisciplinary Thematic Platforms)
- **Create a Summer School for training in the use of the EPOS portal, explain the potential of the DDSSs integrated to date, and encourage interest in the development of interdisciplinary research**

ROADMAP FOR 2023-2024:

- **Database of specialists and working groups** ✓
 - Specific mailing lists for each TCSs and also for the entire network
- **Dissemination plan of activities and results**
 - Web page ✓
 - Presence in social medias ✓
 - Preparation of press releases
 - Brochure and informative postcards ✓
 - Short informative video for social medias
 - news bulletin



ROADMAP FOR 2023-2024:

Plan the schedule of meetings to be organized and/or

- Organization of the General Assembly of EPOS-Spain
- Organization of internal meetings of each TCSs ✓
- Participation of the Spanish TCSs coordinators in the meetings at the European level ✓
- Attendance at international scientific conferences ✓
- Internal network coordination meetings ✓

ROADMAP FOR 2023-2024:

- **Identification of potential DDSSs to integrate into EPOS**
 - Definition of the roadmap
 - Prioritization for its integration
 - List of in-house services to be developed in the future.

ROADMAP FOR 2023-2024:

- **Link EPOS-Spain to other already consolidated European organizations and initiatives (e.g. GeoSurveys and Geo-8)**
 - Strengthen collaborative ties
 - Establish a direct communication channel
 - Ensure the presence of Spain in discussion forums, strategic meetings, etc.

ROADMAP FOR 2023-2024:

- **Extend and encourage the use of EPOS**
 - Within the framework of national research and training groups
 - In Master's and Doctorate programs, making available to research centers and academics a list of possible scientific projects to be carried out, based on the exploitation of the DDSSs accessible through EPOS.

ROADMAP FOR 2023-2024:

- **Analyze the infrastructural needs of national Earth Science laboratories and research groups**
 - Identify the most appropriate calls and coordinate the submission of applications.
- **Coordinate with other international institutions that participate in EPOS, the design and drafting of proposals to the specific calls for HORIZON EUROPE infrastructure.**

ROADMAP FOR 2023-2024:

Organize special sessions or conferences within the framework of

- General assemblies of national scientific societies (e.g., Sociedad Geológica de España)
- Specific meetings within the framework of ICTSs
- CSIC Interdisciplinary Thematic Platforms

Create a Summer School for

- Scientific staff in training and in the early stages of the research career to train in the use of the EPOS portal, explain the potential of the DDSSs integrated to date, and encourage interest in the development of interdisciplinary research.

PARTICIPANTS:

- Open to any research groups in Solid Earth Sciences at a national level
- Registration Form
 - responses from 93 research groups distributed throughout the national territory

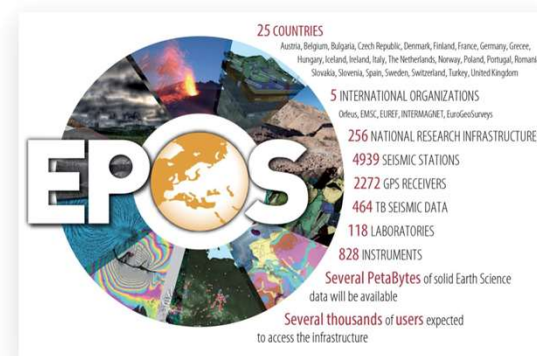
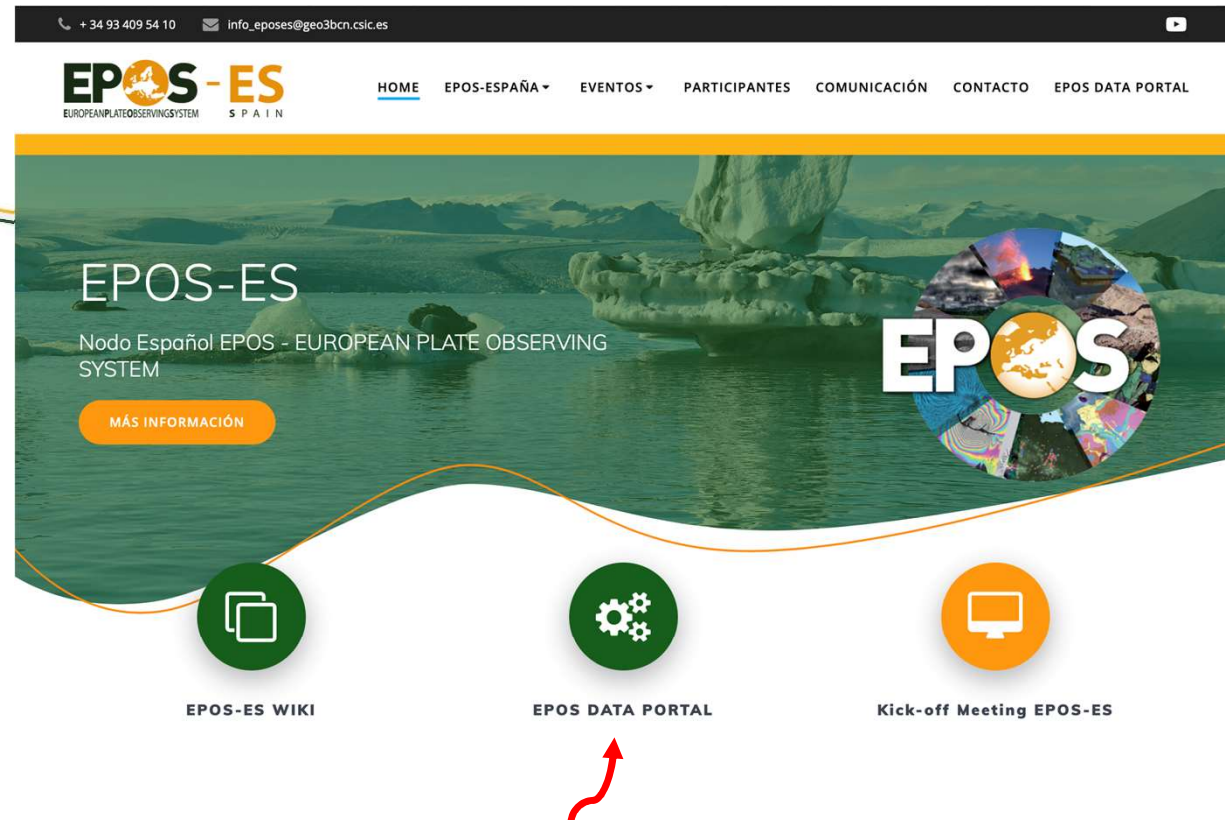


The screenshot shows a banner with the EPOS-ES logo and the text 'EUROPEAN PLATE OBSERVING SYSTEM' and 'EPOS-España'. Below the banner, the title 'EPOS-España' is displayed, followed by the description: 'Formulario para recoger información sobre los grupos de investigación interesados tanto en contribuir como recibir información de EPOS'.

Form remains open and continues to be distributed!

EPOS DATA PORTAL

<https://epos-es.org>



Sobre

EPOS

EPOS (European Plate Observation System) se constituye actualmente como la única Infraestructura europea de Investigación multidisciplinar y global en Ciencias de la Tierra. Integra varios cientos de observatorios nacionales para la observación y medición de la estructura interna y dinámica del planeta, y en particular en Europa, distribuidos en 25 países de Europa, entre ellos España.

[+ INFO](#)

SEARCH <

Free text search

Filters



All data and services

245



Seismology

64



Near Fault Observatories

40



GNSS Data and Products

13



Volcano Observations

31



Satellite Data

8



Geomagnetic Observations

15



Anthropogenic Hazards

39



Geological Information and Modeling

8



Multi-scale Laboratories

6



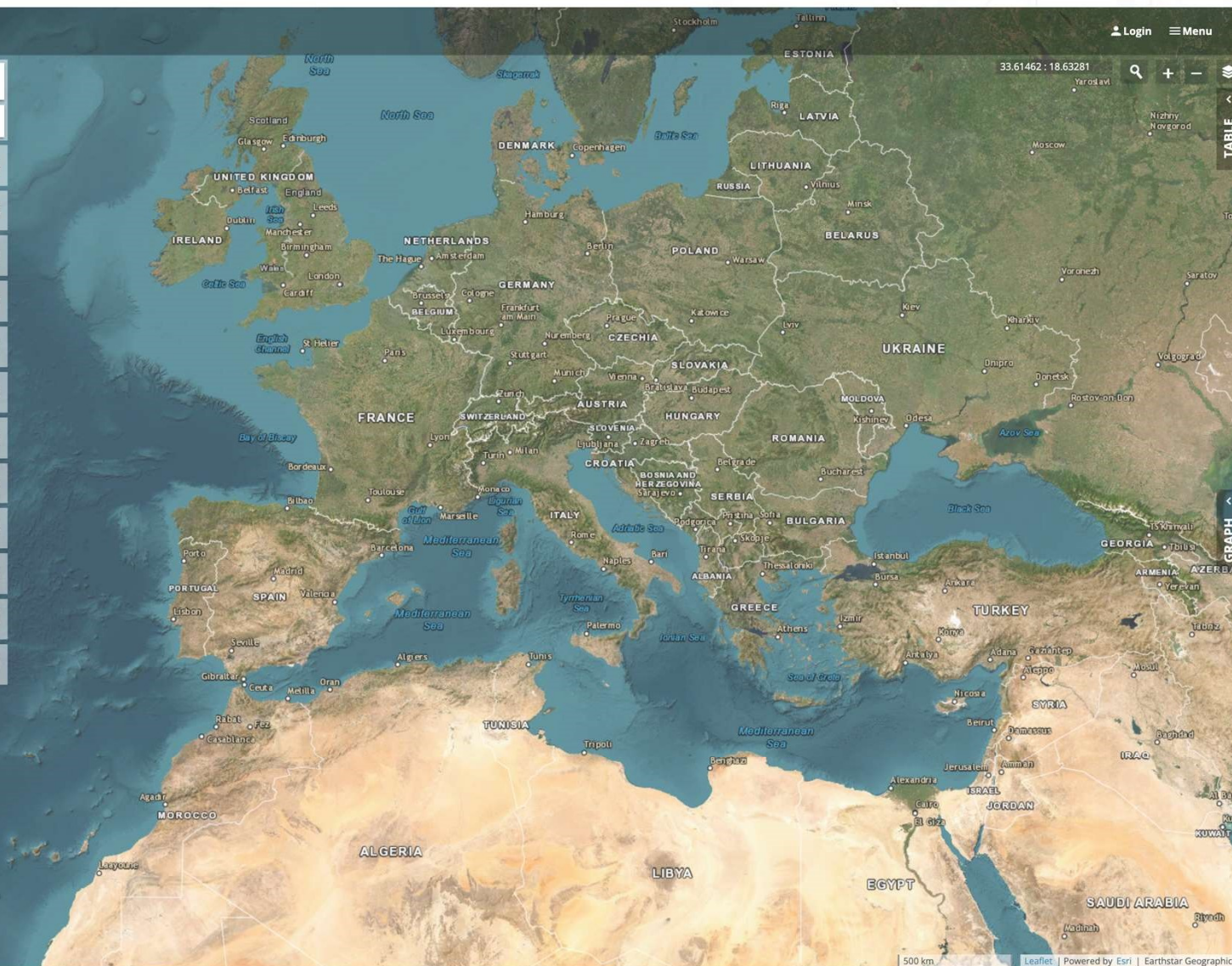
Tsunamis

21



Favourites

0



TABLE

GRAPH

EPOS 1.0.17
EUROPEAN PLATE OBSERVING SYSTEM

Free text search

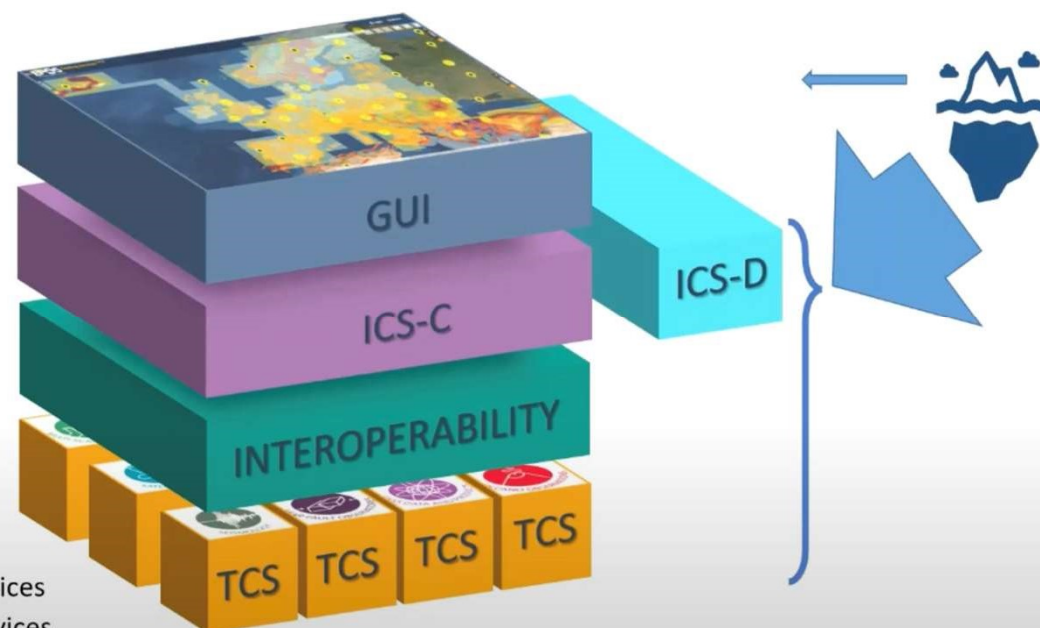
Filters

All data and services	245
Seismology	64
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GNSS Data and Products	13
Volcano Observations	31
Satellite Data	8
Geomagnetic Observations	15
Anthropogenic Hazards	39
Geological Information and Modeling	8
Multi-scale Laboratories	6
Tsunami	21
Favourites	0



EPOS Technical Architecture

How it works ...



TCS ... Thematic Core Services
ICS ... Integrated Core Services

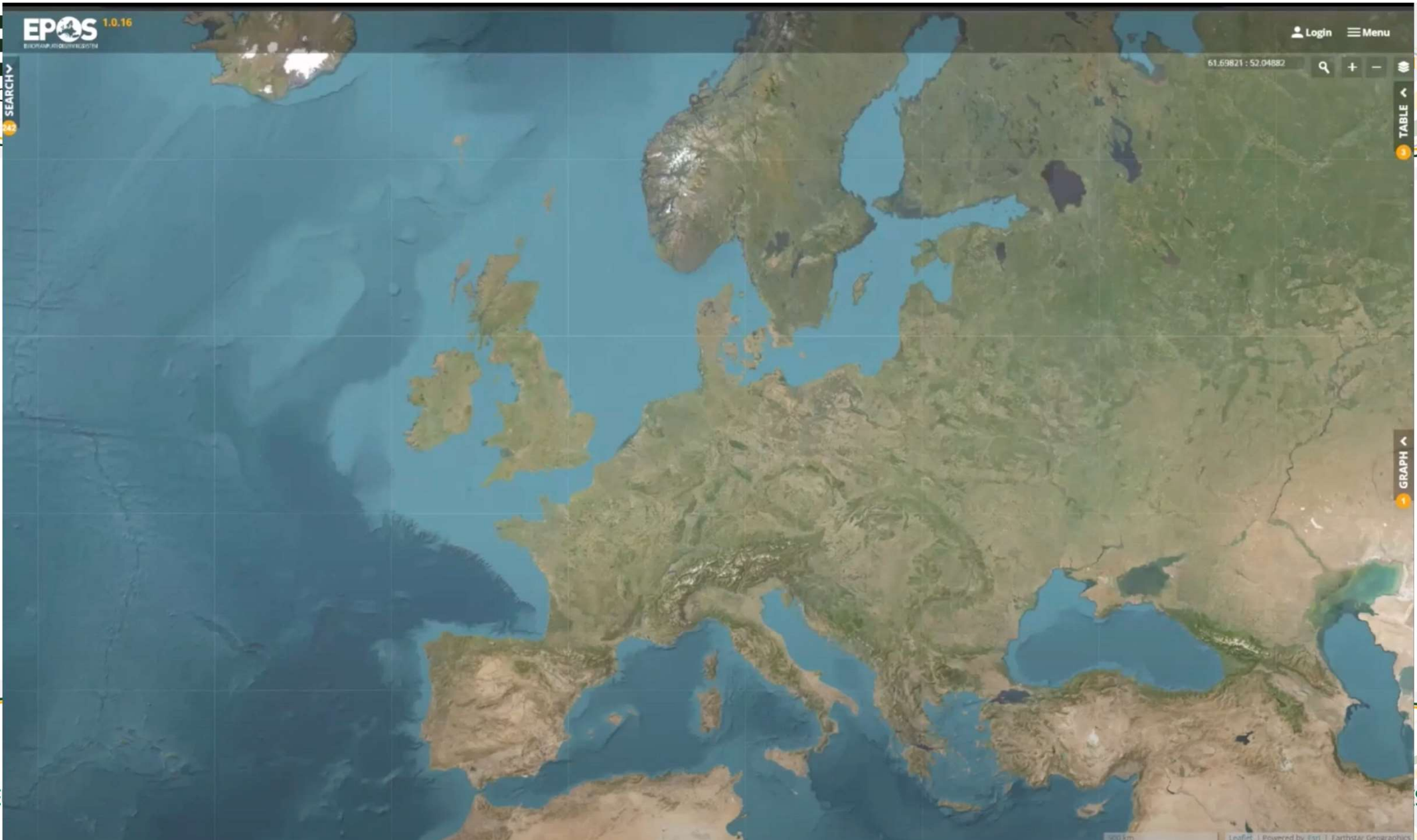
www.epos-eu.org | info@epos-eric.eu THIS WORK IS LICENSED UNDER ATTRIBUTION 4.0 INTERNATIONAL

61.69821 : 52.04882



TABLE

GRAPH



Free text search

Filters



Favourites

7

Clear all favourites ✕

EPOS GNSS Velocities from UGA-CNRS

i ★

Categories: Geodesy > Products > GNSS Station Velocities

EPOS GNSS Daily Position Time Series from INGV

i ★

Categories: Geodesy > Products > GNSS Position Time Series

Visible on: Graph

European Database of Seismogenic Faults (OGC WMS)

i ★

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

Visible on: Map

GNSS Stations with Products

i ★

Categories: Geodesy > Products > Station Information

Visible on: Map Table

Geological Feature View Service (EGDI Geological Map 1:1,000,000)

i ★

Categories: Geology > Geological Maps

Visible on: Map

LOS Displacement Time Series

i ★

Categories: Satellite Observations > InSAR

Visible on: Map Table

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

i ★

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

Visible on: Map Table

Results per page: 10

Page 1 of 1

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

LOS Displacement Time Series

GNSS Stations with Products

European Database of Seismogenic Faults (OGC WMS)

Geological Feature View Service (EGDI Geological Map 1:1,000,000)

Legend

Customize

Opacity

Basemap

Selected Basemap: Imagery

300 km

Leaflet | Powered by Esri | Earthstar Geographics

Take Home Messages

Strengthen Data & knowledge Integration within European Framework focus at specific TCS

- Promote and strengthen links collaborations with the main EPOS-TCS
- Identify propose and develop (only if necessary) national contribution to EPOS data portal.
- Encourage the use of the EPOS Data Portal (Master and PhD programs)

The TCS as a think tank for research opportunities

- Identification of new research targets
- Stimulate discussion (brainstorming) for new developments/contribution data, data products, services
- Foster and strengthen synergies, research proposals & projects (eg. Horizon Europe, ICDP)
- New, next generation research infrastructures for the TCS.

thank you!