

EPOS

EUROPEAN PLATE OBSERVING SYSTEM

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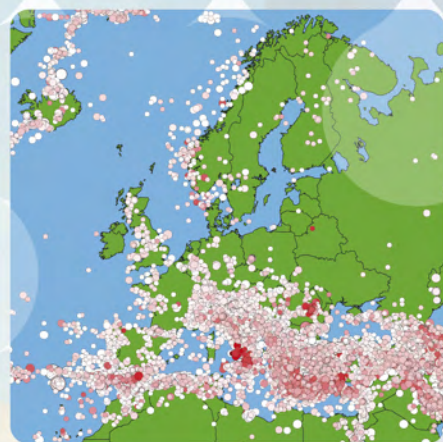
The European Plate Observing System (EPOS) is the integrated solid Earth Sciences research infrastructure approved by the European Strategy Forum on Research Infrastructures (ESFRI) and included in the ESFRI Roadmap in December 2008. EPOS is a long-term plan for a European layer integrating the work of national existing RIs.

The driver for EPOS is to promote and make possible innovative approaches for a better understanding of the physical processes controlling earthquakes, volcanic eruptions, unrest episodes and tsunamis, as well as those driving tectonics and Earth surface dynamics. Integration of the existing national and trans-national RIs will increase access and use of the multidisciplinary data recorded by the solid Earth monitoring networks, acquired in laboratory experiments and produced by computational simulations. Establishment of EPOS will foster worldwide interoperability in Earth Sciences and provide services to a broad community of users.

EPOS is aimed at a broad stakeholder community including European and Mediterranean countries. We have identified the following stakeholder categories:

- Geoscience data providers
- Scientific user community (including Academia)
- National research organisations and funding agencies
- Data and services providers and users outside the research community (including industry)

Several thousands of researchers in and beyond the Earth sciences will benefit from the services provided by EPOS, fostering major advances in the understanding of the processes occurring in the dynamic Earth.



Timely initiative

EPOS is a timely initiative responding to the current European need for a comprehensive and integrated solid Earth RI. The European solid Earth science community is well prepared for the task. EPOS will be the currently lacking solid Earth science component complementing other large scale RI studying the planet Earth.

Training the new generation

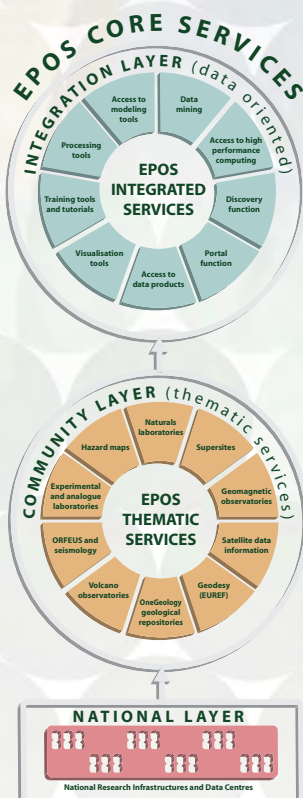
EPOS will be an open access infrastructure. Several thousand researchers in the Earth sciences will benefit from the services provided and this will foster major advances in the understanding of the dynamic processes occurring in the Earth.

EPOS is aimed at serving as primary source of data and tools for creative young researchers whose scientific discoveries will point the way to improve the infrastructure itself and the level of the service provided.

To reach such an objective and contribute to the creation of a new work and scientific environment that empowers all researchers regardless of their physical location, a coherent training programme for the user community will be launched to ensure that the beneficiaries will be able to exploit the full potential of the integrated research infrastructure and the e-science facility incorporated.

How will EPOS function?

The existing national Research Infrastructures (RIs) for solid Earth science in Europe generate data and information and are responsible for the operation of instrumentation in each country. These RIs will be integrated into the **EPOS Thematic Services**, which provide dedicated services (data archiving and mining, access to data products...) relevant to each specific community. They will be further joined up to create the **EPOS Integrated Services** consisting of a variety of multidisciplinary services that will allow access to data and data products, processing and visualization tools, and computational codes and resources for various stake-holders, not limited to the scientific community.

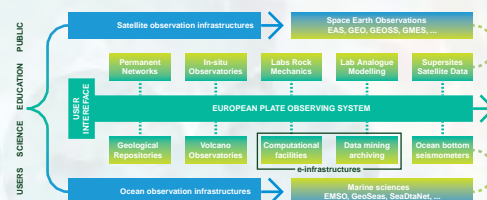


EPOS and Mean Sea Level data

Measurements of Mean Sea Level lie at the boundary between solid Earth science and Oceanography. It is therefore very likely that the MSL community will wish to integrate their data with that from other communities available through EPOS, and the MSL community may wish to take advantage of EPOS to make their data available for integration by others.

The technical mechanism to make MSL data available within EPOS may well be as simple as setting up a link between the intended EPOS Integrated Core Services centre and PSMSL or BODC. Currently, a very active EPOS Working Group on GNSS measurements, led by Rui Fernandes of University of Beira Interior, Portugal, is taking a general interest in geodetic and related issues. There are also mechanisms within EPOS to set up additional working groups if that is appropriate.

EPOS plans to work with EMSO, the European Multidisciplinary Seafloor Observatory, to find ways to integrate related on- and off-shore datasets.



The EPOS Vision - the challenge of integration

Integrating Earth science infrastructures in Europe presents a double challenge - firstly, a highly heterogeneous geographical pattern of both observational and experimental multidisciplinary data must be integrated to facilitate complex analysis and modelling. Secondly, e-infrastructure and e-science must be developed to support the EPOS construction.

The Earth science community has significant experience of coordinating and using standards for data exchange, especially since the International Geophysical Year established systems for international data exchange. For example, the seismological community in Europe is well co-ordinated through NGOs such as ORFEUS (since 1987) and EMSC (since 1975), and a series of EU-funded projects including current initiatives such as NERA and VERCE.

EPOS will work with the various communities to ensure that relevant data from across Europe is available in a form that will facilitate inter-disciplinary integration. Critically, EPOS will provide researchers with access to appropriate tools, computational platforms and support for that integration, which will allow new information of immediate societal value to be extracted. In this way, and because of its multidisciplinary nature, EPOS will have impact on fields outside Earth Science.

