



Building thematic and integrated services for solid Earth sciences: the EPOS integrated approach

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EPOS has been designed with the vision of creating a pan-European infrastructure for solid Earth science to support a safe and sustainable society. In accordance with this scientific vision, the EPOS mission is to integrate the diverse and advanced European Research Infrastructures for solid Earth science relying on new e-science opportunities to monitor and unravel the dynamic and complex Earth System. EPOS will enable innovative multidisciplinary research for a better understanding of the Earth's physical and chemical processes that control earthquakes, volcanic eruptions, ground instability and tsunamis as well as the processes driving tectonics and Earth's surface dynamics. To accomplish its mission, EPOS is engaging different stakeholders, not limited to scientists, to allow the Earth sciences to open new horizons in our understanding of the planet. EPOS also aims at contributing to prepare society for geo-hazards and to responsibly manage the exploitation of geo-resources. Through integration of data, models and facilities, EPOS will allow the Earth science community to make a step change in developing new concepts and tools for key answers to scientific and socio-economic questions concerning geo-hazards and geo-resources as well as Earth sciences applications to the environment and human welfare.

A long-term integration plan is necessary to accomplish the EPOS mission. EPOS is presently in its implementation phase further extending its pan-European dimension. The EPOS Implementation Phase builds on the achievements of the successful EPOS Preparatory Phase project and consists of two key activities: the legal establishment of the EPOS-ERIC and the EPOS IP project. The EPOS implementation phase will last from 2015 to 2019. Key objectives of the project are: implementing Thematic Core Services (TCS), the domain-specific service hubs for coordinating and harmonizing national resources/plans with the European dimension of EPOS; building the Integrated Core Services (ICS) to provide a novel research platform to different stakeholders; designing the access to distributed computational resources (ICS-d); ensuring sustainability and governance of TCS and EPOS-ERIC.

The research infrastructures (RIs) that EPOS is coordinating include: i) distributed geophysical observing systems (seismological and geodetic networks); ii) local observatories (including geomagnetic, near-fault and volcano observatories); iii) analytical and experimental laboratories; iv) integrated satellite data and geological information services; v) new services for natural and anthropogenic hazards; vi) access to geo-energy test beds.

Here we present the activities planned for the implementation phase focusing on the TCS, the ICS and on their interoperability. We will discuss the data, data-products, software and services (DDSS) presently under implementation, which will be validated and tested during the project lifetime.

Particular attention will be given to showing the progress toward the establishment of EPOS-ERIC Headquarter, to coordinate and harmonize national RIs and EPOS services, and the ICS central hub as a key contribution for providing multidisciplinary services for solid Earth science as well as the glue to keep ICT aspects integrated and rationalized across EPOS. It will be an important and timely opportunity to discuss the EPOS roadmap toward the operation of the novel multidisciplinary platform for discoveries to foster scientific excellence in solid Earth science.