

## EPOS integration plan: community building for open science

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The European Plate Observing System (EPOS) mission is to integrate the diverse and advanced European Research Infrastructures (RIs) for solid Earth Science relying on new e-science opportunities to monitor and unravel the dynamic and complex Earth System. To this goal, a long-term plan to facilitate integrated use of data and products as well as access to facilities from mainly distributed existing and new research infrastructures has been designed. EPOS will enable innovative multidisciplinary research for a better understanding of the Earth's physical processes that control earthquakes, volcanic eruptions, ground instability and tsunamis as well as the processes driving tectonics and Earth surface dynamics.

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. In this framework, the big challenge to be addressed by EPOS is enabling the use of research infrastructures and services across traditional disciplines. To not only provide access to a wealth of observational data, but also the data products to offer intelligible integrated knowledge and solutions. Once the EPOS integrated services will be operational, this new infrastructure will further facilitate sharing the outcomes of research, not solely by linking data to publications, by guaranteeing data traceability and re-use, but also in convincing scientists to share the products of their investigations (that is, generating new data products). Geoscientists are generating products through their research activities (such as maps, Earth models, earthquake source models, lava flow simulations...) and most of these new data products can be further integrated and made accessible through the new platform.

The presentation will also deal with the implications for the user community and funding agencies associated with the adoption of open data policies and access rules to facilities as well as the implications for the proper assessment of socio-economic impact of distributed, multidisciplinary RIs. The resources needed to tackle the challenge of fostering data driven research and big data applications will be also discussed. For Earth scientists, the prevalent problem is represented by the need of data, which must be promptly discovered, made accessible and downloadable, curated, minable and transferrable together with appropriate processing software and e-infrastructure resources. In general, there are a number of overlapping issues that regard data organization and their access, data transfer from (and to) super computing centres (HPC) and among the platforms of the federated communities. The capacity of EPOS to provide a robust sustainability plan in the framework of a well-defined governmental structure is therefore connected to the procurement policies toward national and/or European scale initiatives.

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