



Challenges in integrating multidisciplinary data into a single e-infrastructure

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The European Plate Observing System (EPOS) aims to create a pan-European infrastructure for solid Earth science to support a safe and sustainable society. The mission of EPOS is to monitor and understand the dynamic and complex Earth system by relying on new e-science opportunities and integrating diverse and advanced Research Infrastructures in Europe for solid Earth Science. 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 tsunami as well as the processes driving tectonics and Earth's surface dynamics. EPOS will improve our ability to better manage the use of the subsurface of the Earth. 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 to human welfare.

EPOS is now getting into its Implementation Phase (EPOS-IP). One of the main challenges during the implementation phase is the integration of multidisciplinary data into a single e-infrastructure. Multidisciplinary data are organized and governed by the Thematic Core Services (TCS) and are driven by various scientific communities encompassing a wide spectrum of Earth science disciplines. TCS data, data products and services will be integrated into a platform "the ICS system" that will ensure their interoperability and access to these services by the scientific community as well as other users within the society. This requires dedicated tasks for interactions with the various TCS-WPs, as well as the various distributed ICS (ICS-Ds), such as High Performance Computing (HPC) facilities, large scale data storage facilities, complex processing and visualization tools etc. Computational Earth Science (CES) services are identified as a transversal activity and as such need to be harmonized and provided within the ICS. In order to develop a metadata catalogue and the ICS system, the content from the entire spectrum of services included in TCS, ICS-Ds as well as CES activities, need to be organized in a systematic manner taking into account global and European IT-standards, while complying with the user needs and data provider requirements.