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EPOS as one of the actors in the EUDAT's engagement with the Earth Sciences

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This paper describes the engagement of the EUDAT e-Infrastructure initiative with the Earth Sciences. It focus especially on EUDAT/EPOS collaborations while other collaborations will be only mentioned.
The EUDAT infrastructure initiative is a consortium of several major European data & compute centers and research community centers and organizations that are working towards the development and realisation of the Collaborative Data Infrastructure (CDI) which provides an interoperable layer of common data services and a common model for managing data spanning all European research data centres and data repositories to create a single European data infrastructure.
The Earth Sciences domain is represented in EUDAT through the involvement of three leading pan-European research communities: 1) the Earth Plate Observatory System (EPOS), 2) the European Network for Earth System Modeling (ENES; and 3) the Integrated Carbon Observation System (ICOS).
Within EPOS, EUDAT is working in particular with the Seismology community (EPOS-S) which aims to provide and extend waveform data offerings through ORFEUS/EIDA (the European Integrated Data Archive), which is a federated seismological data centre. EIDA was selected to collaborate and represent EPOS in EUDAT because of its size, culture in data sharing, existing widely accepted standards for data formats and exchange protocol, and well-defined development plan. EPOS is working with EUDAT to enable innovative multidisciplinary research for a better understanding of the Earth's physical and chemical processes that control earthquakes, volcanic eruptions, ground instabilities, and tsunamis. Through the 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. To achieve this integration challenge and the interoperability among all involved communities, EPOS has designed an architecture capable to organize and manage distributed discipline-oriented centers (called Thematic Core Services - TCS). Such design envisages the creation of an integrating e-Infrastructure called Integrated Core Service (ICS), whose aim is to collect and integrate Data, Data Products, Software and Services, and provide homogeneous access to them to the end user, hiding all the complexity of the underlying network of TCS and National data centers. In this respect EUDAT services are particularly suitable to facilitate this interoperability challenge as they can be deployed across the community centers to complement or augment existing services of more mature communities as well as be used by less mature communities as a gateway towards EPOS integration. Concretely over the last few years approximately 20 millions of digital entities have being replicated onto EUDAT resources for long-term preservation and accessibility reasons.