

**Sharing scientific data and products in solid Earth sciences:
the EPOS (European Plate Observing System) research infrastructure experience**

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Progress in the understanding the physical processes controlling earthquakes, volcanic eruptions and tsunamis as well as those driving tectonics and Earth surface dynamics requires a long-term plan to facilitate integrated use of data, models and facilities from distributed research infrastructures for solid Earth science. The European Plate Observing System (EPOS, www.epos-eu.org) represents such a plan. EPOS brings together European nations and combines solid Earth science infrastructures and their associated data and services together with the scientific expertise into one integrated delivery system for solid Earth science. By improving and facilitating the integration, access, use, and re-use of solid Earth science data, data products, services and facilities EPOS is developing a holistic, sustainable, multidisciplinary research platform to provide coordinated access to harmonized and quality-controlled data from diverse Earth science disciplines, together with tools for their use in analysis and modelling. EPOS, relying on new e-science solutions, gives open access to solid Earth data enabling a step change in multidisciplinary scientific research in many, diverse solid Earth disciplines. Earth scientists have a long-lasting tradition in data acquisition, collection, quality-control and standardization. They are also the key actors for feeding and implementing metadata and services for qualification, storage and accessibility. Research infrastructures represent the facilities and resources to strengthen data management and interoperability through e-science innovation. The integration of research infrastructures is a strategic action to tackle sustainability challenge from a technical, legal, governance and financial point of view. The Open Science agenda contains the ambition to make FAIR (Findable, Accessible, Interoperable and Re-usable) data sharing the default for scientific research by 2020. In this framework, data FAIRness is considered a necessary target for research infrastructures in different scientific domains and at global level. To this goal, FAIR guiding principles for research data have been recently proposed to the scientific communities as the new horizon for sharing data. The FAIR principles create the conditions to foster data sharing and improve data stewardship, provided that several normative, organizational and ethical issues are addressed. Waiting for the establishment of these normative and organizational conditions to apply FAIR principles, the research infrastructures have the responsibility to respond to these expectations and fill the current existing gap between FAIR principles and viable practices to FAIRness. Here I present the EPOS strategies and IT solutions to make solid Earth science data FAIR, coherently with data management plans shared with the different scientific communities participating in the integration plan.