



Building a federated data infrastructure for integrating the European Supersites

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The integration of satellite and in-situ Earth observations fostered by the GEO Geohazards Supersites and National Laboratories (GSNL) initiative is aimed at providing access to spaceborne and in-situ geoscience data for selected sites prone to earthquake, volcanic eruptions and/or other environmental hazards. The initiative was launched with the "Frascati declaration" at the conclusion of the 3rd International Geohazards workshop of the Group of Earth Observation (GEO) held in November 2007 in Frascati, Italy.

The development of the GSNL and the integration of in-situ and space Earth observations require the implementation of in-situ e-infrastructures and services for scientific users and other stakeholders. The European Commission has funded three projects to support the development of the European supersites: FUTUREVOLC for the Icelandic volcanoes, MED-SUV for Mt. Etna and Campi Flegrei/Vesuvius (Italy), and MARSITE for the Marmara Sea near fault observatory (Turkey). Because the establishment of a network of supersites in Europe will, among other advantages, facilitate the link with the Global Earth Observation System of Systems (GEOSS), EPOS (the European Plate Observing System) has supported these initiatives by integrating the observing systems and infrastructures developed in these three projects in its implementation plan aimed at integrating existing and new research infrastructures for solid Earth sciences.

In this contribution we will present the EPOS federated approach and the key actions needed to: i) develop sustainable long-term Earth observation strategies preceding and following earthquakes and volcanic eruptions; ii) develop an innovative integrated e-infrastructure component necessary to create an effective service for users; iii) promote the strategic and outreach actions to meet the specific user needs; iv) develop expertise in the use and interpretation of Supersites data in order to promote capacity building and timely transfer of scientific knowledge. All these will facilitate new scientific discoveries through the availability of unprecedented data sets and it will increase resilience and preparedness in the society.

Making straightway available observations of natural processes controlling natural phenomena and promoting their comparison with numerical simulations and their interpretation through theoretical analyses will foster scientific excellence in solid Earth research. The EPOS federated approach might be considered as a proxy for other regions of the world and therefore it could contribute to develop the supersite initiative globally.