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The European Supersites coordination: joining efforts for a federated data infrastructure

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The integration of satellite and in-situ Earth observations envisioned in 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 earthquakes, volcanoes or other environmental hazards. The initiative began 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 key players involved in the GSNL initiative are the space agencies and satellite operators providing SAR data, the national agencies in charge of the monitoring of earthquakes and volcanic areas that provide in-situ data and the global geo-hazard scientific community.
The development of the GSNL and the integration of in-situ and spaceborne Earth observations require the implementation of in-situ e-infrastructures and services to scientific users and stakeholders. These e-science implementation plans must be coherent and coordinated in order to guarantee interoperability among the different Supersites. In this work, we will present the strategic approach for promoting the European Supersites. The establishment of a network of supersites in Europe will facilitate the link with the Global Earth Observation System of Systems (GEOSS). Here we present the EPOS federated approach to integrating Research Infrastructures for solid Earth science in Europe and we will discuss the synergies with the three European supersites projects: FUTUREVOLC for the Icelandic volcanoes, MED-SUV for Mt. Etna and Campi Flegrei/Vesuvius (Italy), and MARSITE for the Marmara Sea (Turkey). The EPOS federated approach might be considered as an example for other regions of the world and therefore it could contribute to develop the supersite initiative globally.
In this work, we will present 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 to 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. This will facilitate new scientific discoveries through the availability of unprecedented data sets and it will increase resilience and preparedness in the society.
Making observations of solid Earth dynamic processes controlling natural phenomena immediately available and promoting their comparison with numerical simulations and their interpretation through theoretical analyses will represent a multidisciplinary platform for discoveries which will foster scientific excellence in solid Earth research.