



## **RIDE: the Research Infrastructure Database for EPOS**

Daniele Bailo (1), Alessandro Bartoloni (1), Keith G Jeffery (2), Alice Clemenceau (3), and Thomas L. Hoffmann (4)

(1) INGV - Istituto Nazionale di Geofisica e Vulcanologia, Roma, Italy, (2) Science and Technology Facilities Council, Harwell Oxford, UK, (3) CNRS-INSU - Institut national des sciences de l'Univers, France, (4) GFZ – GeoForschungsZentrum, Germany

The European Plate Observing System (EPOS) is a European initiative which aims to promote and make possible innovative approaches for a better understanding of the physical processes laying behind natural events and geo-science phenomena (earthquakes, volcanic eruptions, unrest episodes and tsunamis etc.) by integrating existing national and trans-national Research Infrastructures (RIs). Such integration will increase access and use of the multidisciplinary data recorded by solid Earth monitoring networks, acquired in laboratory experiments and/or produced by computational simulations.

Here we present the Research Infrastructures Database for EPOS (RIDE), a database containing technical information about the different RIs declared by EPOS partners and EPOS associate partners, which will eventually compose the EPOS distributed Research Infrastructure.

The main goals of RIDE are (i) to allow the EPOS RI to be organized, with interactive access and information mining available to a broad community of users and stakeholders, (ii) to have a first set of information to be stored in the EPOS catalogue, which will be used as a basis for the development of EPOS Core Services, (iii) to enable EPOS partners to revise and update the current RI information, (iv) to show the contents of the EPOS integration plan to all stakeholders, (v) to facilitate the dissemination of existing data infrastructures to different communities and to promote a discussion within the community to implement the present data infrastructures.

RIDE – whose driving technology is Apache CouchDB - contains at the current status detailed information on more than 200 Research Infrastructures. It enables any user to visualize RIs and sensors on a map, to carry out statistics on the stored data and to browse through the details of any RI.

Based on the content of RIDE it is now possible to estimate the potential size of the new EPOS distributed RI: EPOS is going to integrate more than 7000 sensors (seismic stations, GPS stations and other kind of sensor stations), 66 seismic networks, 44 Laboratories, 31 GPS networks, 12 Volcano Observatories, 8 Geomagnetic Observatories, 5 Marine Research RIs and over 30 other kinds of RIs. The overall data volume to be handled will be more than 500 Terabytes, while the data storage capacity will exceed the limit of 1 Petabyte. More than 80 laboratories also included in EPOS RI, will be able to provide access to 622 instruments in order to carry out cutting edge science.

With the help of RIDE it was also possible to carry out financial estimations about the national RIs involved in the EPOS integration plan, thus having a correlation between technical and economic details. Such a correlation enables us to have a clear picture of the economic value and operational cost of the facilities involved, including an in-depth estimation of instrument/sensor values, labour costs, installation costs and other parameters.