Vulkan: the European gateway for EPOS-IP
Volcano Observations Thematic Core Services

Giuseppe Puglisi1, Kristin S. Vogfjörð2, Sigurður Fjarl Sigurðarson2, Danilo Reitano3, Philippe Labazuy4, Arnaud Lemarchand4, Adeline Geyer5, Carlos Primo6

1Istituto Nazionale di Geofisica e Vulcanologia, Observatorio Etneo, Catania, Italy
2Icelandic Meteorological Office, Reykjavík, Iceland
3Observatoire de Physique du Globe de Clermont-Ferrand, France
4Institut de Physique du Globe de Paris, Paris, France
5Consejo Superior de Investigaciones Científicas, Barcelona, Spain
6Istituto de Investigación en Vulcanología y Avalancha de Riscos, Azores, Spain

The Epos Project
EPOS, the European Plate Observing System (EPOS), is a long-term plan to facilitate the integrated use of data, data products, and facilities from distributed research infrastructures for solid Earth science in Europe.

The EPOS Implementation Phase project (EPOS-IP 2015 - 2019) is a joint project of 47 partners, 6 associate partners (including the European Space Agency, EuroGeoSurveys, Global Earthquake Model) and several international organisations (ORFEUS, EMSC, EURE, INTERMAGNET) for a total of 25 countries involved.

The conceptual portal currently has the working title "Vulkan" and will be a smart connection between data providers (e.g. ICS) and common users such as researchers, students, industry, and enthusiasts.

The role of Vulkan is to harmonize different kind of data, products and service and create multidisciplinary environment, supporting specifically standards widely used by the community of European researchers.

The EPOS IP project is organized in three main strategic actions:

• Implementation of services for data provision in an effective legal and financial framework;
• Harmonisation of EPOS implementation with national priorities and strategies;
• Management guaranteeing an efficient running of the work plan from the technical, administrative, and financial perspective as well as ensuring effective links with the establishment of EPOS-ERIC.

In particular Epos will implement the Thematic Core Services (TCS) for the diverse communities contributing to EPOS.

Introduction

Volcano Observations is the theme for the TCS of the volcanological community (VO-TCS). The WP Package 11 of EPOS-IP aims to the implementation of the VO-TCS. The TCS is organized in a layered structure, where at the lower level there are the national/local DDSS providers (Figure 2).

Due to their broad variety of phenomena, active volcanoes are quite different from other geological environments and the relevant data needs to be characterized and organized according to specific approaches and exploiting the experience of a large community. The European volcanological community, represented by Volcano Observatories (VO) and Volcano Research Institutions (VRI) participating to EPOS-IP project, will implement services to enable open access to data, data products, software and services (DDSS) provided from the community.

The DDSS managed in the VO-TCS include seismic, geodetic, geochronological, volcanological, remote-sensing, hazard and modelling data, products and tools. The VO-TCS is also preparing the framework for providing Trans- National Access (TNA) to the European volcanological facilities. Beside the technical work, the VO-TCS is also defining the legal, governmental and financial issues in agreement with the overall frame of EPOS.

Technical Implementation

Technical implementation of these services in the Volcano Observations Thematic Core Service (VO-TCS), is aimed at coordinating the activities among the contributing VOs and VRIs to ensure the interoperability with of the VO DDSS with the EPOS Integrated Core services (ICS).

To this aim, the VO-TCS plans to implement the first European volcanic portal.

To gain better overview over the current state of the Priority list DDSSs and IT infrastructure of each DDSS provider participating in WP11, a survey was carried out by using a questionnaire properly implemented, aimed at defining the maturity level of each single service. The questionnaire was sent out in the beginning of November 2016 and results were collected from the 25th of November and until the end of the year. Summarisation of results and analysis were conducted and compiled during January/February 2017.

Roadmap and Conclusions

• WP11 Team has chosen four test candidates providing them to WP6/7
• Implement web services for those DDSS reported at high priority level according to the Maturity Score Card
• Schedule testing with WP6
• Harmonize WP11 DDSS elements present also in other WPs
• Validate metadata description

Inside the framework of the EPOS project, WP11 will provide a Portal for Volcano Observatories. It will be developed using the existing Volcano observation gateways experience, gained inside national or European projects like: FutureVolc (http://futurevolc.wur.nl) MED-SUV (http://med-suva.eu/) the TSD System (http://tsd-cl.ingv.it/) and the HotVolc Observing System (http://hotvolc.ogp.eu/). All contributions among the existing VOs and VRIs will ensure the interoperability with the EPOS Integrated Core services (ICS) and will provide the first European Volcanic Portal.