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NERIES Seismology IT Infrastructure

Linus Kamb (1), Laurent Frobert (1), Alessandro Spinuso (2), Luca Trani (2), Remy Bossu (1), and Torild van Eck (2)

(1) EMSC, France (kamb@emsc-csem.org), (2) ORFEUS, Netherlands (torild.van.eck@knmi.nl)

The Seismic Data Portal (http://www.seismicportal.eu) provides a collection of tools to discover, visualize, and access a variety of seismological data sets, including earthquake parameters, broadband and accelerometric data, European tomography, and historical earthquake catalogs. The Portal was developed as part of the Network of Research Infrastructures for European Seismology project (NERIES, http://www.neries-eu.org, contract no RII3-CT-2006-026130), which was funded under the 6th European Framework Programme to integrate data and service resources for the seismological community. The NERIES project brought together 25 participating institutions and organizations under 19 work packages to produce numerous scientific results through coordinated research, development, networking, and integration activities.

The Seismic Data Portal provides a single point of access to the heterogeneous and distributed data sets developed or made available through the NERIES project. These tools operate in a coordinated manner to provide a cohesive distributed search environment, linking data search and access across multiple data providers. Through interactive, map-based tools, a researcher is able to build queries linking event parametric data with seismological broadband or accelerometric waveform data.

The Portal architecture is based on a suite of standards and standard technologies, allowing interoperability between tools and the integration of new tools as they become available. As new tools are made available, they are easily integrated into the Data Portal. The data tools are supported by web services running at their respective data centers. These web services provide the programmatic interface between the interactive, web-based tools, and the underlying data archives. These web services are in turn available to external applications, allowing direct programmatic queries to the data archives.

Work on the Data Portal, access tools, and services architecture will continue under the Network of European Research Infrastructures for Earthquake Risk Assessment and Mitigation project (NERA, http://www.nera-eu.org, grant no. 262330), funded under the 7th European Framework Programme. As part of this work, the Data Portal will be extended to include new data sets and access tools from new partners in the Seismology and Earthquake Engineering communities. The NERA project brings together 27 European-Mediterranean institutes and organizations under 22 different work packages.

As part of this continuing effort, we will implement a Common Services Architecture based on OGC services APIs. This services layer API provides Resource-Oriented common interfaces across the data access and processing services to improve interoperability between tools and across projects, enabling the development of higher-level applications that can uniformly access the data and processing services of all participants, such as a Virtual Data Workbench providing a user console to manage data queries and result sets, processing requests, and workflows.