

SD1/TU/O3 - PYRENEAN NEAR REAL TIME SEISMIC WAVEFORMS SERVER

*J. Jara¹, J. Artero¹, X. Goula², E. Carreño³, P. Dominique⁴,
M. Sylvander⁵*

¹GEOCAT; ²Institut Geològic de Catalunya (IGC); ³Instituto Geográfico Nacional (IGN); ⁴Bureau de Recherche Géologiques et Minières (BRGM); ⁵Observatoire Midi Pyrénées (OMP)

In the scope of the SISPy Interreg IVa project, seismic waveforms exchange between Datacenters is planned between partners, for different purposes, which can be grouped into three types: Real Time, Near Real Time and Post Processing. Regarding Near Real Time (NRT) purposes, a specific centralized NRT Server system will be implemented.

NRT Server will receive continuous seismic waveforms streams from datacenters via Internet and data will be stored according configurable parameters during a defined time window (24 hours by default). NRT Server will support input streams from Seedlink, NaqsServer and Scream data acquisition servers.

Data will be available on demand for all partners through Internet using a specific defined protocol and format.

Clients' requests received by NRT Server will specify desired time window and different type of filters for channel selection should be defined. Available filters will be: an SCNL specified channels list using wildcards or not, a geographical area defined by a rectangle or a maximum distance from a coordinate.

System will include a documented client API (Application Programming Interface) module and a sample client module to facilitate specific clients' development. NRT Server will be developed for Windows in Visual C++ using Earthworm (USGS) tools and Oracle technologies. For system administration and monitoring, web based tools will be developed and implemented using PHP and Apache2 Web Server.

System will be implemented considering different operational criteria: data reliability, service availability, data latency, data access concurrency, efficiency and communication bandwidth optimization.

Motivation of NRT Server is to allow exchanging seismic waveforms between datacenters reducing communication and maintenance costs and to provide an homogeneous seismic dataset to bring results from different organizations closer. This kind of data exchange will be useful for many data computation processes like Moment Tensor (MT) and ShakeMap calculations, where lots of data are needed in case of event. System will not support continuous output streaming for continuous data processing.

For the project, more than 50 accelerometric and Broad Band stations are planned to be received and available at the server and a client will be developed to provide data for NRT Pyrenean ShakeMap calculation. NRT Server is planned to be operational ending 2010.

