SD3/P4/ID43 - **PYRENEAN CROSS-BORDER SHAKE MAP: TECHNICAL AND SCIENTIFIC CHALLENGE**

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One of the main scopes of the SISPyr Interreg project is to implement a NRT Pyrenean Shake map. Do this cross-border Shakemap presents both technical and scientific challenges. The technical challenge is having Near Real Time (NRT) Peak Ground Motion (PGM) and macroseismic data from the two border sides and to process them in NRT too.
A sharing agreement was signed and 50 stations continuous waveforms will be shared NRT. This will be done by a server that will storage temporary continuous waveforms, and will allow to extract them NRT. These NRT waveforms will be processed in order to compute the PGM parameters and trigger the Shake map process. For the macroseismic data, sharing conventions will be proposed during next months, with SISPyr and non-SISPyr agencies, in order to share automatic or non-automatic interpreted data, in a common ftp. This data will allow improving the Shakemaps, especially no-NRT Shakemaps. An automatic localization by one of the project agencies will trigger the first shake map (NRT). After this first NRT shake map 2 more automatic generated maps will be done 1-3h and 12-24h after the earthquake. This shake map will incorporate all the available PGM data and more macroseismic data (automatic interpreted).
The shake map process will be done by a regional adaptation of the USGS ShakeMap v3.5 software.
The scientific challenge is to define the proper physical parameters relationship for the Pyrenees. Past data have been collected to define the better relationships. For the PGM data around 1.800 M≥3 (3 components) Pyrenean accelerometric records and 120 M≥4 BB Pyrenean records have been collected and the PGM values computed. For the macroseismic data more than 7.000 MDPs from the two border sides are being collected. With this data proper Intensity Prediction Equation (IPE), Ground Motion Prediction Equation (GMPE) and Intensity versus PGM (IvsPGM) relations have to be defined: For the M<5.5 IPE, GMPE and IvsPGM definition, different approaches are being investigated.
As a first approach, a complete residuals study (including the *Scherbaum, 2004* method) is being done for all the data and a broad list of relationships. The last main issue for the Shakemap generation is to determine the amplification due to the site effects. For doing this, a geology simplification done for the SISPyr project will be used in order to obtain different soil classes and assign different amplification to each of them using existing Pyrenean data.