



The large-N and large-T Maupasacq experiment - A very dense seismic network to image the deep architecture of the western Pyrenees

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A dense seismic network of about 450 three-component (3C) sensors recording continuously for 6 months, from March to October 2017, was deployed in the Mauleon basin which is located in the northern foothills of the western Pyrenees. Three different types of sensors were used: 191 SG-10 3C SERCEL nodes, 197 3C 5 Hz Seismotech short period stations, and 54 broad-band stations (Guralp CMG40, Trillium Compact, and Trillium 120 seismometers). The experiment was designed to sample the wavefield with a regular grid of sensors spaced by ~ 1 km along E-W and N-S profiles and covering an area of 30x50 km. This network was complemented by additional outer-rings of stations in order to increase the spatial aperture of the acquisition, a key point for a better resolution of deep structures. These outer-ring stations will also provide virtual sources for ambient noise tomography with a very good azimuthal coverage. During the experiment, we performed 3 shots of 50 kg of dynamite that will be used to calibrate the crustal velocity models. The main scientific objective of this experiment is to image the remnants of the hyper-extended European distal rift margin buried beneath the Mauleon basin with passive imaging approaches. Another major goal is to get a better picture of the local seismicity and its relationship with geological structures. In this presentation, we will give an overview of the deployment and the signals that were collected, and present some preliminary results obtained with different types of classical imaging techniques such as receiver functions, travel time tomography, and ambient noise tomography.