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# Installation of two high-sensitivity laser strainmeters in a new underground geodynamical observatory (GEODYN) at Canfranc (Spain)

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High-sensitivity wide-band strain measurements allow an advanced study of different geodynamic phenomena, both local and global, in a spectrum ranging from short period seismic waves to tectonic deformation.
Among the latest results produced by the few high-sensitivity wide-band laser interferometers operating allover the world, the analysis of the strain recorded by the Gran Sasso (Italy) laser interferometers before and after the 2009 L'Aquila earthquake allowed putting tight constraints on earthquake nucleation processes and other pre[U+2010]seismic phenomena, and detecting the slow diffusive propagation of an aseismic rupture during the first hours following the main event.The Gran Sasso interferometers are operating since several years, proving their high reliability. An improved version of the Gran Sasso interferometers have been recently installed in the Canfranc (Spain) underground Laboratory (LSC). The LSC is located at depth in one of the most seismically active areas in Western Europe, at the Pyrenean chain that marks the boundary between the European plate and the Iberian microplate. These features make it particularly suitable and interesting for hosting an advanced integrated geodynamic observatory (GEODYN), of which the interferometers are part.
The first tests on strain data evidence a much lower noise level with respect that the Gran Sasso installations, expecially in the frequency band 0.0001 to 0.1 Hz, suggesting the capability of producing clear records of low-frequency seismic waves, Earth free oscillations, and possible local aseismic stress release.
We will give a technical description of the installation, show some examples of recordings, and discuss the local distortion of the deformation field, as obtained by comparing Earth tide predictions and observations.