



## RESEARCH INFRASTRUCTURES

### THE EINSTEIN TELESCOPE - THE GEOPHYSICAL SURVEYING CAMPAIGN TAKES OFF

In Sardinia, the installation of the first network of seismic sensors on a large scale has begun for an extensive geophysical surveying campaign near the Sos Enattos metal mine, in Lula, the site Italy put forward to host the Einstein Telescope (ET). The ET is the observatory for third-generation gravitational waves, to which INFN, the Italian National Institute for Geophysics and Volcanology (INGV), and the National Institute for Astrophysics (INAF), and the Universities of Sassari and Cagliari are contributing. In detail, the campaign involves the installation of 15 seismometer stations for measuring vibrations in the earth that constitute seismic background noise, using techniques adapted from radar signal analysis. The aim is to identify and trace the evolution, over time, of the main sources - both natural and artificial - of seismic noise. The first surveys necessary for carrying out seismic tomography: an image of the subsoil obtained by recording the seismic waves artificially produced by a vibrating mass, activated by a special, heavy vehicle, will also be performed. With the involvement among others of the Physics Department of the University of Cagliari, the data will also be used to study the newtonian noise of the site, an effect of seismic noise that acts directly on the interferometer optics. The campaign will last two weeks and will have two goals: further quantify the exceptional “seismic silence” of the area, a fundamental requirement for the ET’s operations, and reconstruct the geology of the subsoil, with a view to planning the ET tunnel system. The results of these measurements will constitute one of the assessment criteria for the final choice between two site candidates (the other is located on the border of Belgium, Germany, and the Netherlands, in the region of Limburg). ■