



INFRASTRUCTURES IN SICILY TO STUDY THE UNDERSEA FAULT LINES WITH FIBRE OPTICS

There is an idea for making use of optical fibers to identify small movements caused by fault lines on the sea bed off the coast of Sicily, involving the undersea infrastructure of the INFN National Laboratories of the South, which is currently under construction (the Idmar Project, realized thanks to funds by the Region of Sicily). This is the idea of the French scientist Marc-André Gutscher (CNRS-University of Brest) in which the European Research Council (ERC) has decided to invest by assigning an Advanced Grant to the FOCUS project, amounting to 3.5 million Euros over 5 years. FOCUS will validate a new technology, by testing the technique of laser reflectometry, which is commonly used for monitoring engineering structures, to detect small seismic movements of the undersea fault lines of Mount Alfeo, to the East of the coast of Catania, jointly with INFN and the National Institute of Geophysics and Volcanology (INGV). The project is a demonstration of how investments in infrastructures that were originally intended for basic research aims can then offer chances to carry out multidisciplinary studies. FOCUS will use a 28 km undersea optical-fibers power cable, crossing the Mount Alfeo fault line, which was mapped recently. Once Sicily has been tested and calibrated, the aim is to extend to other existing optical-fiber cable networks the technique for monitoring fault lines, thus making further additions to the number of international scientific users joining the INFN undersea infrastructures in Sicily. ■