



09/2018

## **Alpine research in the Deep Sea how does that fit together? GEOMAR investigates the Ligurian Knot as part of the AlpArray project**

**05.02.2018/Kiel.** The Alps were formed about 130 million years ago by the collision of the Eurasian and the African tectonic plates. Strong tectonic forces are still active in crust. But what exactly happens when two tectonic plates collide? The large-scale European research project AlpArray aims at answering this question. The GEOMAR Helmholtz Centre for Ocean Research Kiel together with the Institut de Physique de Globe in Paris cover the marine part of the project. On 7 February, an expedition will start to the Ligurian Sea off the coast of France and northern Italy.

Europe's largest 'crumple zone', the Alps, lies on the border of two major tectonic plates: Europe and Africa. Between these two plates a number of smaller microplates are trapped in the Alpine region. The formation of the Alps thus takes place in a tectonically complex region, which extends far beyond the mountain chain proper. Understanding the deep structure of the Alpine crust and mantle, and hence mountain building processes, requires a multinational and multidisciplinary approach. As part of the AlpArray project, 50 scientific institutions from 18 European countries have joined forces to cover the Alpine region with a dense network of seismometers to record the signals from the deep in high resolution.

In this mammoth task, the GEOMAR Helmholtz Centre for Ocean Research Kiel together with the Institut de Physique du Globe Paris focus on the marine part. “



this scale, which covers the entire area of the Alps including the Alpine foreland, is only possible on an international European level," Heidrun Kopp stresses. She adds: "In this form, AlpArray is globally unique, in particular because it is supported on the national level by all participating countries. In Germany, a priority program of the German Science Foundation has been established for this purpose. Our job as marine geophysicists is to cover the marine part of the Alps. The use of deep-sea instruments in several thousand meters of water depth is associated with a much greater effort than for the majority of land stations. "

**Expedition at a glance:**

MARIA S. MERIAN, ALPARRAY, MSM71

Chief Scientist: Prof. Heidrun Kopp

Period: 7 February 2018 - 27 February 2018

Departure: Las Palmas (Spain)

Work area: Ligurian Sea

Return: Heraklion (Greece)

**Links**

<http://www.alparray.ethz.ch/en/home> – Information about the AlpArray project