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AlpArray – Probing Alpine geodynamics with the next generation of geophysical experiments and techniques

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AlpArray is a European initiative to advance our understanding of orogenesis and its relationship to mantle and plate dynamics, surface processes, seismotectonics and seismic hazard in the Alps and the surrounding Apennines-Carpathians-Dinarides orogenic system. The initiative will integrate present-day Earth observables with high-resolution geophysical imaging of 3D structure and physical properties of the lithosphere and of the upper mantle, with focus on a high-end seismological array.
With nearly three years of scientific and technical preparation, the start of AlpArray experiments is now on the horizon. In this presentation we overview the general idea and purpose of AlpArray, reason why the initiative focuses on the greater Alpine area and discuss some of the outstanding scientific questions. We provide an overview of the planned field efforts, mainly the overall AlpArray seismic network with 40 km average station spacing and a large aerial coverage. Further plans of targeted seismological experiments with regional interests as well as of other field measurement techniques (magnetotellurics, gravity) are also presented. The outline of collaborative projects between the numerous participating institutions and researchers are described in the frame of seven main AlpArray themes. These include state-of-the-art modelling techniques that will ultimately describe the dynamic evolution of the orogenic system in great detail. Finally, the most recent news regarding the organization of the AlpArray project will be summarized.