AlpArray in Austria & Slovakia: The network and current status

AlpArray project
AlpArray is a unique transnational research initiative to study the Earth’s subduction process in the northern and central portions of the Alps with a large-scale temporary broadband seismological network which complements the existing permanent stations. 64 research institutes from 17 countries join their expertise to advance our knowledge about the structure and evolution of the lithosphere beneath the entire alpine area.

AlpArray in Austria and Slovakia is co-ordinated by the Department of Meteorology and Geophysics (IMGW) at the University of Vienna and funded by the Austrian Science Fund (FWF).

Scientific goals
AlpArray Austria will shed light on the detailed geological structure and seismicity evolution of the Eastern Alps and the subduction zone. Utilising seismological methods such as shear wave splitting, receiver functions and body wave dispersion, the AlpArray Austria network will allow for a detailed characterisation of the stress regime in the Alpine orogenic belt and its interaction with the adjacent European and Apulian systems. By performing joint analyses with international partners, focus on seismicity patterns in the upper mantle, the location of inter-plate earthquakes or on the evolution of the Alpine orogenic belt and its interaction with the European and Apulian systems. By performing joint analyses with international partners.

While the primary scope of AlpArray Austria is fundamental research, the unique dataset will help improve our knowledge about near-surface processes and structures, and to assess the seismic hazard in Austria.

AlpArray Austria facts
- 37 temporary broadband stations (by IMGW, GFZ, LMU)
- 12 permanent stations operated by ZAMG
- 2 new permanent stations planned by ZAMG
- 40 km average station spacing

AlpArray in Austria & Slovakia: Seismic network
Status of deployment by mid-September 2015 (expected completion by end of 2015)

Instrumentation
The temporary network will be equipped with:
- 30 instruments from IMGW
  - Retek 130 data logger
  - Retek 151 60s sensor
- 10 instruments from GFZ
  - EDR 210 data logger
  - Trillum 240 240s sensor
- 6 instruments from LMU
  - Retek 130 data logger
  - Trillum Com. 120s sensor

Data acquisition
Live data transmitted via cellular network
stored on memory cards
data will be distributed through ORFEUS / EIDA

Abbreviations
GFZ = Seismology Section | German Research Centre for Geosciences | Potsdam, Germany
IMGW = Department of Meteorology & Geophysics | University of Vienna | Vienna, Austria
LMU = Department of Earth and Environmental Sciences | Munich University | Fürstenfeldbruck, Germany
ZAMG = Zentralanstalt für Meteorologie & Geodynamik | Federal Ministry of Science, Research and Economy | Vienna, Austria

Installation
Typical installation inside basements, unused huts or wine cellars

Expected duration of deployment: 2 - 3 years