



## Seismic anisotropy distribution in Southern Italy and Dinaric region: new results from "Central Adriatic Seismic Experiment" (CASE) project.

Simone Salimbeni (1), Snježan Prevolnik (2), Silvia Pondrelli (1), Irene Molinari (1), Josip Stipcevic (2), Iva Dasović (2), Vesna Šipka (4), Marijan Herak (2), Edi Kissling (3), and the ALPARRAY-CASE working group\*

(1) INGV, Sez. Bologna, Bologna, Italy (simone.salimbeni@ingv.it), (2) Department of Geophysics, Faculty of Science, University of Zagreb, Croatia, (3) Institute of Geophysics, Department of Earth Science, ETH Zürich, Switzerland, (4) Republic Hydrometeorological Service of Republic of Srpska, Banja Luka, Bosnia and Herzegovina

In the framework of the AlpArray project (AlpArray Seismic Network, 2015), the complementary "Central Adriatic Seismic Experiment" (CASE; AlpArray Seismic Network, 2016) was established as a collaboration between ETH Zürich, University of Zagreb, INGV and Republic Hydrometeorological Service of Republic of Srpska. The CASE project consists of 10 temporary stations, installed in October 2016, working until October 2018, and located in Bosnia and Herzegovina, Croatia and Italy. Temporary broadband seismic stations, together with the permanent stations located in the region and shared by the Croatian Seismological Service, INGV and MedNet networks, make an almost continuous transect cutting the Central-Southern Apennines, the central Adriatic region, External and Internal Dinarides. The presence of the Apenninic and the Dinarides slabs, verging in opposite directions and plunging along the opposite sides of the Adriatic plate, makes this area a peculiar spot to understand the complexities of the region. Various tomographic images (e.g. Bijwaard and Spakman, 2000; Piromallo and Morelli, 2003) do not indicate continuous slabs under the Apennines and the Dinarides, suggesting the presence of slab-gaps right beneath the region covered by the CASE experiment.

Here we present the results of the SKS splitting analysis performed on the data recorded by the temporary and permanent seismic stations included in the CASE project. These new results, in combination with the results obtained by previous work in the area, evidence the occurrence of a clear change in anisotropic properties moving from Italian to the Dinarides regions. The newest distribution of the seismic anisotropic parameters in combination with previous interpretations, provide us clues about depth connection between Northern and Southern Apennines and give us more details about how the slab rollback of the Apennines and Dinaric thrust belt acted. Together with the measurements from previous studies and from those coming by the AlpArray project, our new data will support the mapping of the seismic anisotropy deformation pattern from the Western Alps to the Pannonian region.

### References:

- AlpArray Seismic Network (2015), "AlpArray Seismic Network (AASN) temporary component", AlpArray Working Group. Other/Seismic Network. doi:10.12686/alparray/z3\_2015, <http://www.alparray.ethz.ch/home/Datacite> Link: [http://data.datacite.org/10.12686/alparray/z3\\_2015](http://data.datacite.org/10.12686/alparray/z3_2015)
- AlpArray Seismic Network; (2016): "Central Adriatic Seismic Experiment (CASE)" - AlpArray; AlpArray Working Group. Other/Seismic Network. [https://doi.org/10.12686/alparray/8x\\_2016](https://doi.org/10.12686/alparray/8x_2016), Datacite Link: [http://data.datacite.org/10.12686/alparray/8x\\_2016](http://data.datacite.org/10.12686/alparray/8x_2016)
- Bijwaard, H., Spakman, W., (2000). "Non-linear global P-wave tomography by iterated linearized inversion". *Geophys. J. Int.* 141, 71–82. <http://dx.doi.org/10.1046/j.1365-246X.2000.00053.x>.
- Piromallo, C., Morelli, A., (2003). "P wave tomography of the mantle under the Alpine- Mediterranean area". *J. Geophys. Res. Solid Earth* 108, <http://dx.doi.org/10.1029/2002JB001757>

\* AlpArray-CASE Working Group: Irene Molinari, Edi Kissling and John Clinton (ETH); Josip Stipčević, Iva Dasović, Marijan Herak and Snježan Prevolnik (UniZg); Vesna Šipka, Zoran Božović and Dejan Jarić (RHMZ RS); Simone Salimbeni, Salvatore Mazza and Ciriaco D'Ambrosio (INGV)