**(temp) Shear-wave Splitting and Anisotropy Observed**

**in the Caucasus Region of West Asia**

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Caucasus Organic Belt is composed of Caucasus-Iran-Anatolian/Armenia (CIA), was formed by continental collision between Arabian Plate and Eurasian Plate. We can know surface deformation by direct observation and mantle flow by seismic anisotropy which rock and mineral in Earth interior record the history of forcing. Therefore, seismic anisotropy can be used to infer the direction of flow within the mantle. Most previous studies in CIA focused on Iranian Plateau and Anatolian Plateau. However, the seismic anisotropy in the mantle of Caucasus region is still unclear and ambiguous. We have unique opportunity to study Caucasus region where are deficient in analysis of seismic anisotropy and further clarify the dynamics of continental collision between Arabian and Eurasian Plates.

We mainly used the data of broad-band seismographs deployed in Georgia, Armenia and Turkey of Caucasus region during 2010-2020. We chose SKS and SKKS phases of tele-seismic waves and applied the shear-wave splitting (SWS) to measure the fast-direction and splitting time of seismic anisotropy. Especially, we utilized principal components analysis to improve our SWS measurement. Totally, we used 46 stations and 1346 shear waves with high quality to map the anisotropy below the stations. Furthermore, we also confirmed the depth and strength of anisotropy via 1-D forward modeling because shear wave integrates the anisotropy of ray path.

The results of SWS indicate that overall fast-direction shows NE-SW direction, which is subparallel with absolute plate motion. Moreover, splitting time significantly decreases from 1.06s in western Caucasus to 0.7s in southeastern Caucasus, where were identified volcanic plateau in Armenia. We propose that the large-scale seismic anisotropy is asthenosphere dominate and obvious variation of strength may be related to small-scale thermal anomaly caused by upwelling of upper mantle.

**Keywords:** Caucasus, seismic anisotropy, shear-wave splitting, asthenosphere, mantle flow