**Lateral Seismic Anisotropy Variations in Caucasus Region of West Asia**

**西亞高加索地區的側向震波非均向性變化**

Jing-Hui Tong1, Tai-Lin Tseng1, Pei-Ying Patty Lin2

童靖惠1、曾泰琳1、林佩瑩2

1Department of Geosciences, National Taiwan University, Taipei, Taiwan

2Department of Earth Sciences, National Taiwan Normal University, Taipei, Taiwan

Caucasus region is young and active collision zone in west Asia. In order to clarify the dynamics of continental collision between Arabian and Eurasian Plates, seismic anisotropy can be one of indicators. We have unique opportunity to study Caucasus region where are deficient in analysis of seismic anisotropy and further understand the relationship between asthenosphere and lithosphere.

We mainly used the broad-band seismographs deployed in Georgia and Armenia in 2010-2020. We chose SK(K)S phases of tele-seismic waves and applied the shear-wave splitting (SWS) to measure the fast-direction and delay 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 station. Furthermore, we also confirmed the depth and strength of anisotropy via 1-D forward modeling because shear waves have near-vertical path-integrated effect.

The results of SWS indicate that overall fast-direction shows NE-SW direction which is subparallel with absolute plate motion. Moreover, delay time significantly decreases from 1.06s in western Caucasus to 0.7s in southeastern Caucasus, where were identified volcano 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

＊oral/ Session: GS-S4 觀測地震學