Spatial geochemical variations of Quaternary collision related volcanism of Armenia linked with seismic data on regional crustal thickness.

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Territory of Armenia is a part of Anatolian-Armenian-Iranian orogenic plateau, formed as a result of Arabia-Eurasia collision. It is noteworthy to highlight that geochemical variations in composition of magmas in NW to SE direction in Armenia are manifested in the increase of alkalinity and appearance of alkaline silica undersaturated rocks in SE.

Spatial geochemical variations of Quaternary volcanism coupled with seismic data, attempting to link Sr/Y and La/Yb ratios with variations of crustal and lithospheric thickness in NE part of Arabia-Eurasia collision zone are discussed. Substantial variations (from 35 to 42 km) in regional crustal thickness in north and central Armenia have been revealed based on seismic receiver functions that are in a good agreement with Sr/Y ratios and empirical model proposed by Hu et al., (2015). However, this relationship does not work for volcanism manifested farther in southeast, south Armenia and NW Iran, since very high Sr/Y ratios in magmas are beyond reasonable values for crustal thickness by the model of Hu et al., (2015). We assume that in such cases, regional geochemical variations are linked to lithospheric thickening and increase of lower crustal melting processes.