EITP09: Puna Plateau regional P and S-waves travel time tomography

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We performed a P- and S-waves travel time tomography for the Puna Plateau, northern Argentina, using the LOTOS software. We obtained a good resolution between 5 and 70 km depth using local and regional events. The data used were recorded at temporary stations part of the Puna project developed by GeoForschungZentrun (GFZ) and Cornell University between the years of 2007 and 2009. The 3D images show a large low-velocity anomaly at the center of the area that was associated to the Southern Puna Magmatic Body. A small feature with depths shallower than 30 km showing as high velocities was mapped at the southeastern part of tomography that was related to the Sierras Pampenas block. The Hombre Muerto block already pointed by other works, could not be imaged in this works probably due to lack of rays in the northeastern part of the model. While we obtained S-wave velocities, results for the Vp/Vs anomalies were proved to be related to variations in the final model resolution and could not be interpreted. Finally two different synthetic models were proposed to explain the observed anomalies, however, both of them generate similar results when compared to real inversion making it unable to differentiate which was the correct one. We still notice a relationship between the low velocities anomalies with the presence of Holocene volcanoes as reported in the literature.

Key words: Local tomography, travel time, central Andes, Puna Plateau.