

## Frontier of the underthrusting Indian lithosphere beneath the central Tibet from finite frequency tomography

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Combining the new collected teleseismic body waves recorded by Cuoqin-Dangxiong passive seismic array of 59 broadband stations with waveforms from several previous temporary local seismic arrays of 301 broadband stations, we carried out finite-frequency tomographic inversions to image the three-dimensional velocity structure beneath southern-central Tibet to examine the roles of the upper mantle in the formation of the Tibetan plateau. This new dataset significantly improved the station coverage for the teleseismic body-wave tomography research of eastern Tibetan plateau.

There are some new features shown in our preliminary tomographic images. The strong low P- and S-wave velocity anomalies that extends from the lower crust to at least 200 km depth beneath the Coma rift, Yadong-Gulu rift, Tangra Yum Co rift, suggesting that rifting in southern Tibet is probably a process that involves the entire lithosphere. At the same time these low velocities are limited in southern Tibet and do not extend further north to central Tibet. This observation implies that the underthrusting Indian lithosphere may not go further than 31°N, where our Cuoqin-Dangxiong array is located. Another low velocity anomaly is occupied northeast of Gyaring Co fault, showing a possible transferring zone linking north-south trending Cenozoic extensional structures in the Lhasa and Qiangtang Terranes. A high velocity anomaly locates at northeast of Peng Co fault, where the Amdo basement is. The strong velocity contrast reflects the Central Tibet conjugate fault zone might develop under the ancient micro plate structure.