

## Internal deformation of lithosphere beneath the central Tibet

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We use P-wave data from the Hi-CLIMB and ANTILOPE-II project to determine azimuthal and radial anisotropy tomography in central Tibet. Beneath the Himalayan block, variant FVD (fast velocity directions) are observed between crust and upper mantle. In contrast, the FVD in the Lhasa block exhibits only a slight variation between the lower crust and upper mantle, reflecting a coherent deformation there. Different FVD are revealed near the Bangong-Nujiang suture, which may reflect different parts of the underthrusting Indian plate. In the upper mantle of the Qiangtang block, a E-W trending azimuthal anisotropy with positive radial anisotropy is revealed in the shallower part, whereas a weak anisotropy appears in the deeper part, implying a two-layer anisotropic model. A two-layer lithosphere is detected in the Lhasa block, and both layers are located in high velocity zones. Moreover, the character of lithosphere shows significantly E-W variations beneath the Lhasa block. Our results support a geodynamical model that strong deformation has occurred on both Indian and Eurasian lithosphere.

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