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Modelling the Moho depth and Flexure parameters across the Indo-Burma subduction zone.

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Indo-Burma subduction zone is one of the seismically active regions in India where the Indian plate is underthrusting the Burmese arc. However, the nature of the slab subduction in this region and its associated stress-regime are less understood due to the lack of deep crustal information. In the present study, we analyze the vertical gravity component of the Gravity Field and Steady-State Ocean Circulation Explorer (GOCE) and topography data to model the Moho depth interface and flexure parameters of the Indo-Burmese subduction region. Here, Moho depths are obtained by performing the non-linear gravity inversion using tesseroids in spherical coordinates. It is observed that the Moho interface in the Bay of Bengal (Indian plate) lies at a depth of 20-30 km and then deepens to a depth of 50-60 km towards the Burmese region. Beneath the Shan Plateau, Moho depth varies gently from 35 to 40 km and shows an eastward dip at Sagaing fault. We also constructed eight profiles across the subduction zone to model the flexure parameters such as effective elastic thickness (Te), forebulge, and bending moments (Mo). The modelling results indicate that both Te (15-55 km) and Mo (1.12×10-19 to 2.84×10-19 N.m) values vary significantly along the subduction zone and show correlation with slab depth. Larger values of Te (55 km) and Mo (2.84×10-19 N.m) are noticed in the central Indo-Burmese subduction zone, where the slab depth is around 110-120 km. Whereas the lowest values of Te (15 km) and Mo (1.12×10-19 N.m) are inferred for the profiles lying in the southern Indo-Burmese subduction.