



VARIATIONS IN THE LgQ SEISMIC ATTENUATION IN TARIM BASIN, TIBET AND BENGAL BASIN

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Several studies have been made with respect to the structural and physical characteristics of the upper mantle under the Tibet region. The Indian crust collides with the Tarim basin at about 80°E and reaches the Bangong Nuijiang Suture (BNS) belt around 88°E. Currently, the collision between the Indian and Eurasian plates to the southwest results in the upliftment of the Tibetan plateau. The areas of active tectonics are known to have LgQ values relatively higher than the areas of passive tectonics or where there is a presence of craton. At the Bengal basin, previous research based on the depth of Moho discontinuity shows us that the crust is more likely to be continental in nature in the western and middle parts of the basin and is significantly thinned in the eastern and south-eastern parts. The variation of LgQ has been studied for the central and southern Tibet, Bengal basin and the area around Tarim basin. By using the standard Two-Station method, we have studied all available good quality events keeping epicentral distance within 20°, maximum depth of 100 km, M_b greater than 4.5 and Lg group wave velocity between 2.5 km/s to 3.6 km/s, we calculate the interstation Q_0 (1 Hz LgQ) and η values, generate contour plots and perform LgQ attenuation tomography to study the variations in the LgQ. Based on the overall results obtained from these calculations, the Q_0 values are observed to be lower in the Tarim basin and Bengal basin but relatively higher (but low) near the central and southern Tibet areas. The underthrusting of the Indian lithosphere and presence of fluid-like materials in the upper crust might be one of the causes of a relatively higher Lg attenuation being seen in these regions. The trend seen in the Bengal basin is that the LgQ values increase as we move from northeast to southwest. Further, studies based on the LgQ attenuation tomography tells us about the possible crustal type in the Bengal basin. The results obtained are found to be comparable with other parts of our areas of study.