

# **MOHOROVICIC DISCONTINUITY BELOW THE CENTRAL INDIAN OCEAN BASIN DEFORMATION ZONE AS INFERRED FROM GRAVITY MODELLING.**

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## **ABSTRACT**

The equatorial region of the Central Indian Ocean Basin (CIOB) is undergoing tectonic deformation since late Miocene age as a result of continued ocean floor spreading across the South East Indian Ridge and the resistance of shortening across the Himalaya. An attempt has been made here to study the deeper crustal structure based on gravity modeling. For this, two N-S and one E-W trending gravity profiles have been interpreted in terms of a three-layer density distribution using the densities determined from an empirical density versus seismic velocity curve compiled from various sources by Nafe and Drake (1963). The velocity model for intensely folded and fractured anticlinal basement rise near 4°S and 80°E (Fig.8c of Neprochnov et al., 1988) is considered as one of the inputs for modeling the free-air anomaly profiles and to map the Moho underlying the deformation zone. The layer characterized by P wave velocity of 7.6km/sec, referred to as thickness of the crust up to discontinuity (or unconsolidated upper mantle?) by Neprochnov et al.,(1988), was considered in the present study as comprising of two layers or underplating material of variable density, 3.14g/cc to 3.24g/cc resulting from serpentinisation.

**KEYWORDS:** Miocene Age, Earthquake Source Mechanisms, Indian Ocean.