

## **Efficacy of Deep Seismic Reflection and Refraction Studies in Imaging Crustal Scale Shear Zones – Experiences in Southern Granulite Terrain of South India and Strategies for the New Initiative**

**P.R. Reddy**

*National Geophysical Research Institute, Hyderabad – 500 007, India*

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Present day structural images, as a window, help us to know about the past. India and Sri Lanka as segments of the East Gondwana supercontinent contributed considerably in building up assembly, break-up and re-assembly models. In spite of availability of a good wealth of geological, geochronological and geochemical data, for want of quality deep crustal structural models an amount of subjectivity has crept in building up the lithospheric evolutionary models of East Gondwana. Realizing the importance of having quality models, through an integrated inter-disciplinary approach, under its deep continental studies program, Department of Science & Technology (DST), India provided necessary support to build up structural and evolutionary models of the South Indian craton and adjoining mobile belts, especially the Dharwar craton and Southern Granulite Terrain. The integrated geological, geochemical, geochronological and geophysical studies carried out by the National Geophysical Research Institute (NGRI), Hyderabad have brought into focus the varied crustal structure in different parts of the western and eastern Dharwar craton and the Southern Granulite Terrain apart from bringing into focus the finer structural details of the Moyar-Bhavani, Mettur and Palghat-Cauvery shear zones. Enthused by the success of these studies, especially the coincident deep seismic reflection and refraction, DST in collaboration with some national and international agencies is planning, with NGRI as the nodal executing authority, for detailed deep seismic reflection and refraction studies along a 300 km long transect cutting across the Madurai block and the Achan-Kovil shear zone.

Strategies for successful implementation of this program that includes specific details of all recording parameters/geometry would be detailed. Also suggestions would be made to extend this study as a continent-continent and continent-ocean experiment involving India and Sri Lanka.