



National Award for Geoscience & Technology

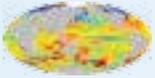
Prof. Shyam Sundar Rai



Shyam Sundar Rai is a Professor, and the Chairperson of the Department of Earth and Climate Science at the Indian Institute of Science Education and Research (IISER) Pune. Dr Rai came to IISER Pune from the CSIR-National Geophysical Research Institute (NGRI) in Hyderabad, India, where he worked as a scientist from 1978 to 2014 and also as the leader of the Seismic Tomography Group. Prof. Rai studied Physics Honors (BSc, 1973) at the Banaras Hindu University at Varanasi, India; Geophysics at the Indian Institute of Technology at Roorkee (MTech, 1977) and at the Indian School of Mines at Dhanbad (PhD, 1988).

Prof. Rai's research provided a new view of the causes and explanation for the deforming of the Indian and Himalayan crust and lithosphere. The research objectives have been accomplished by working cooperatively with a large number of researchers in India and across the globe. His research has been disseminated through 100 research papers published in international peer-reviewed journals and has resulted in 15 students earning their PhDs.

Shyam Sundar Rai's early work made notable analytical contributions to interpretation of geo-electromagnetic exploration data, mathematical modelling of Geophysical fields, and a creative application to the exploration of diamond bearing Kimberlites in the eastern Dharwar Craton of South India. Later, he brought to bear his competent blend of theory and practice to explore the evolution of the Indian continent by imaging the crust and upper mantle structure of the varied terranes of the Indian continent using broadband seismology. His approach to the problem is distinguished by the focus on bold experimental design aimed at maximizing the information content of anticipated data using the largest instrument arrays used in India. Some of the significant results from his research include : (a) Evidence for the earliest operation of the global plate tectonic process, 3.4 billion years ago, from a directed enquiry in the structure of the deep crust in South India , (b) First work on the underthrusting of the Indian crust beneath Himalaya and Tibet right up to the Karakoram, providing significant constraint on to the mechanism of Indo-Tibetan collision process .This is critical to understanding the Himalayan dynamics and its earthquake cycles. (c) First image of the seismic pattern and



the localised flexing of the Indian crust beneath the central Himalaya (d) Evidence for self-sustained dynamic triggering of small local earthquakes in the Central Himalaya.

Prof. Rai has been closely involved with promoting academic scholarship in Earth System Science in India at all levels. He is Fellow of all the three Indian Science Academies. He has served on the council of the Indian Academy of Sciences (2013-15), and the sectional committee of the Indian Academy of Sciences (2008-09; 1999-2002) and of the Indian National Science Academy (2011-13). Prof. Rai is honoured with JC Bose National Fellowship (2010), Distinguished Alumnus Award of IIT-Roorkee (2011), SS Bhatnagar Prize (1996), National Geoscience Award (2004), Senior Associate of the Abdus Salam ICTP Italy (1994-2008), Krishnan Medal of Indian Geophysical Union (1991) and CSIR Young Scientist Award (1988).

In recognition of his outstanding contribution to Geoscience & Technology, the Ministry of Earth Sciences honors Prof. Shyam Sundar Rai with “National Award in Geoscience & Technology” for the year 2016.