

Prof. Vinod K Gaur



Vinod Gaur studied Geophysics at Banaras University and at Imperial College where he discovered the hitherto unsuspected 'host rock effect' in geo-electromagnetics. For this discovery in 1959, he earned the degree of Doctor of Philosophy from the University of London. His academic career began, immediately thereafter, as a Scientist at the National Physical Laboratory, UK. Later in 1966, he joined the University of Roorkee as Professor

where he initiated a modern academic programme in Geophysics stimulated by the insightful contents of signal analysis, inverse theory and computational geophysics. These were subsequently propagated by the UGC to other universities by sponsoring short-term intensive courses that were organized by Gaur at Roorkee. In 1983, he moved to Hyderabad as Director of the National Geophysical Research Institute and set about restructuring the Institute's research programmes with scientific rigour, guided by hypothesis formulation and experiment design (Nature, April 12, 1984).

Gaur's landmark contributions to science include: i) discovery and explanation of the host-rock effect in the electromagnetic response of subsurface geological conductors (1959), ii) experimental confirmation of the hypothesis that the Indian plate under-thrusts the Asian plate, and its numerical estimate along the Main Himalayan Fault (1971) by direct measurement of slow deformation across a tunnel in the Tons valley, Uttaranchal : @ ~ 1 cm /year, iii) discovery of the thick Deccan lithosphere, using the first seismic tomography experiments in India (1986) , iv) the first quantitative measurement of the Indian plate velocity with respect to the Eurasian, using Global Positioning System (GPS) Geodesy and an upper bound for the strain rate in the Southern Peninsula (1995), v) the first high resolution crustal images using broadband seismology, of the south Indian shield (1996) and of northeastern India (2005), and vi) the first Indian experiment to constrain global Carbon fluxes (2007) , over India and Central Asia, through inversion of ultra-high precision atmospheric carbon concentrations (0.1 ppm), measured at the Greenhouse gases laboratory established by him at the Indian Astronomical Observatory, Hanle, Ladakh. His current researches include an enquiry into the anomalous distribution of elastic strains in northeastern India and at the western extremity of the Indo-Eurasian convergence zone, as well as ways to minimize uncertainties in the inverted estimates of global carbon fluxes

Professor Gaur is intensely passionate about catalyzing learning amongst the young at a deeper conceptual level. His courses are accordingly designed with focus on deductions from first principles, and recognition of homologies

to unify the apparent diversity of processes and phenomena as well as visualizations of new applications. He continues to indulge this passion energetically by engaging with the young at various levels from doctoral students to Summer Fellows and Inspire programmes.

His contributions (PHYSICS TODAY, 2001) to advancing Indian Scientific endeavours include: i) design of modern Geophysics curricula (UGC,1970s), ii) restructuring of NGRI research programmes, iii) integrated design and writing of CBSE VIII and X class Science books (1990), design and implementation of Marine Satellite and Ocean Information Services, and modern Antarctic Research (1989-92), as Secretary to the Government of India, and v) founding of a Science to People programme in Hyderabad (1984), now matured in a vibrant State- wide movement. Currently, he is deeply engaged with active scientists in the field of Hydrological sciences in the design and review of research programmes aimed at rigorous characterization and modeling of critical watersheds in important river basins of the country and also providing quantitative guides to water management decisions such as the quantum of necessary environmental flows.

Professor Gaur is a Fellow of the Indian National Science Academy (INSA), the Indian Academy of Sciences and the Third World Academy of Sciences. The honours conferred on him, include the Bhatnagar Prize (1980), the Flinn Award of the American Geophysical Union (2000), the Saha Birth Centenary Award of the Indian Science Congress (2006), and INSA Lecture Awards: the GP Chatterji Memorial Lecture(1991) and the D N Wadia Medal Lecture(2007). He has also been conferred Doctorate of Science Degrees (Honoris Causa) by the Banaras Hindu University, the Andhra University at Waltair and the Jawahar Lal Nehru Technical University at Hyderabad .

In recognition of his outstanding contributions to Earth System Science, the Ministry of Earth Sciences honors Prof. Vinod K Gaur with "Lifetime Excellence Award in Earth System Science for the year 2014".