J. G. Negi (1936–2016)

The theoretical geophysicist, Janardan Ganpatrao Negi passed away on 9 November 2016 in Hyderabad. He was born on 1 August 1936 at Khirgaon, a village near Khandwa, Madhya Pradesh, where there were no schools in those days. Although Negi experienced travails of poverty in his youth, he overcame the odds to be invited to contribute to the NASA space mission efforts in 1968 at age of 32 years. His early schooling was in Indore and later he graduated from Gwalior with a B Sc degree (1956) and then earned his M Sc in Physics with specialization in electronics (DSB College Nainital, Agra University, 1958). He served briefly as a Lecturer at Holkar College, Indore, during 1958–59, before joining as a research scholar at the Indian Institute of Technology (IIT), Kharagpur. He obtained his Ph D in Exploration Geophysics from IIT Kharagpur (1962) and served as a project officer there till 1964. Negi joined the National Geophysical Research Institute (NGRI), Hyderabad in 1964 and founded the Society for Theoretical Geophysics with his co-workers. He was keenly interested to mentor younger research fellows and was associated with the Geophysics Department at Banaras Hindu University, Varanasi; Dhanbad School of Mines, and Centre for Exploration Geophysics, Osmania University. He had guided/mentored more than 20 students for their Ph D.

At NGRI, Negi started as a Senior Scientific Officer in 1964 and superannuated in 1996 as a Director-grade scientist. Subsequently, he was emeritus scientist from 1996. He served as the Director General, Madhya Pradesh Council of Science and Technology, and Science Advisor to the Government of Madhya Pradesh (1992–94 and 2005–06). He was a Visiting Fellow (1968) at the Cooperative Institute for Research in Environmental Sciences, Boulder, Colorado, USA a partnership institute of National Oceanic and Atmospheric Administration, USA and the University of Colorado, Boulder. He was also a Visiting Professor in Geophysics (1975–77) at the Universidad Federal Da Bahia, Institute De Fisica, Bahia, Brazil and also at the Federal University of Para, Belem, Brazil. As a UNESCO lecturer, Negi lectured on geophysics in Romania, Czechoslovakia and had toured almost 20 universities in USA.

He was invited to set up the Institute of Seismological Research in Gujarat, where he served as the founder Director-General till 2004.

Negi has published more than 200 research papers in various fields of electromagnetism, seismology, signal processing, etc. During his stay at Boulder, USA, he had worked on communication with re-entering space vehicles, propagation of seismic and electromagnetic waves, anisotropy, etc. He has written an excellent book along with P. D. Saraf on *Anisotropy in Geoelectromagnetism*.

Some of the significant works by Negi include lateral velocity gradients for prediction of the 1985 Mexico earthquake; seismic surface waves for thickness estimate in Western Himalayas, nonlinear transparency of propagation of seismic pulses, effect of seismic anisotropy in seismic surface-wave fields, discovery of biological mass extinction due to asteroid impact near Bombay offshore, 33 million year periodicity of geomagnetic reversals and continental magnetism, discovery of Subterranean Himalayan fold in Central India from magnetic satellite data, super mobility of the Indian subcontinent, phenomenon of negative electromagnetic screening, astronomical theory of climate, predictability limits of the effects of monsoon-like bodies and strange attractors in fluctuations of length of the day. He has also made significant contributions for estimating the effects of seismic and electric anisotropy of the earth. He worked on the problems involved in techniques of signal processing of satellites, airborne, sea-borne and surface geophysical data to delineate subsurface and geo-processes, and examine predictability of nonlinear critical geophysical phenomena. He applied mathematical methods like Walsh transforms, Fourier transforms, maximum entropy spectral methods, adaptive signal processing, and time-series analyses for linear and nonlinear earth process analyses. One of his important contributions is the discovery of unstable Kurudwadi rift leading to the 1993 Latur earthquake.

Negi was a recipient of several awards. He was awarded the Shanti Swarup Bhatnagar Prize (1980) for 'significant contribution in theoretical geophysics, particularly in geoelectromagnetics and geomagnetism. His work has led to the development of important conceptual frameworks for delineating the earth's internal features from the distribution of its gravity, heat flow and electromagnetic fields at the surface.' In 1974, he was awarded the Krishnan Medal for his outstanding contributions in theoretical geophysics by the Indian Geophysical Union (IGU). He was also recognized for his contributions and was elected Life Fellow of the Royal Astronomical Society, London (1979) and Fellow of the National Academy of Sciences, India (1984). He was awarded as National Lecturer (1984–85) in Geophysics by the University Grants Commission, New Delhi. Negi received the Association of Exploration Geophysicists Award (1991). He delivered the prestigious Dr H. N. Siddique Memorial Lecture (Gold Medal) at IGU (2003). He was also awarded the Holkar Science College Centenary Award, and Vigyan Ratna amongst other recognitions. He was honoured by the Association of Exploration Geophysicists in 1991 for his 'contributions to cause of Geophysics in India'. He was a member of research advisory bodies for the National Institute of Oceanography, Goa and National Institute of Science, Technology and Developmental Studies, New Delhi.

Negi is survived by his wife and two sons.

ARUN BAPAT

1/11, Tara Residency, 20/2, Kothrud, Pune 411 038, India
e-mail: arunbapateq@gmail.com