



# IITM's 'Prof. R. Ananthkrishnan' Colloquium



## Late Prof. R. Ananthkrishnan

(Ex-Director and Honorary Fellow of IITM, Pune started his research career as a research scholar in the field of light scattering under the guidance of noble laureate Prof. C.V. Raman and was awarded D.Sc. in 1937 from University of Madras. Then he joined IMD and occupied several positions up to DDG and then he worked as Director IITM during 1968-1971. He was awarded Padmashree by President of India in 1969 and C.V. Raman Centenary Medal in 1988. He was elected as an INSA Fellow in 1961 and was also member of many learned and professional societies like (Indian Academy of Sciences, Maharashtra Academy of Sciences). He was associated with many technical committees and working groups of WMO Geneva. He was editor of reputed national and international journals in Meteorology.

Prof. Ananthkrishnan was deeply associated in organizing and teaching Msc./M.Tech. Courses in Meteorology at University of Cochin and University of Pune. Under his able guidance 12 persons were awarded Ph.D.

Research contribution of Prof. R. Ananthkrishnan covers a wide range of topics viz. Light scattering and Raman Effect, Solar Physics and Meteor Astronomy and Meteorology. In the field Meteorology his work covers: Aerology, Dynamics, Thermodynamics, monsoon circulation, Tracks of storms and depressions. Atmospheric pressure and oscillations, Indian rainfall and features associated with onset of southwest monsoon and identification of errors in upper air data. To meet defense needs he organized the publications entitled 'Climatology of Himalayas, Tibet and adjoining areas. There are 110 national/international (research papers/technical contributions) papers to his credit and a book entitled 'An Introduction to Meteorology'. This textbook is found to be extremely useful to all the new comers in the field of meteorology. Prof. R. Ananthkrishnan pursued his research and guided researchers in atmospheric science even after his retirement as an honorary fellow of IITM till his last days.



## "Fingerprint of volcanic forcing on the ENSO–Indian monsoon coupling"

**Abstract:** This talk by **Manmeet Singh** is a joint Prof. R. Ananthkrishnan colloquium, PhD proposal seminar for RA/RF committee at IITM and the third Annual Progress Seminar at IIT Bombay. The coupling of the El Niño–Southern Oscillation (ENSO) and Indian monsoon (IM) is central to seasonal summer monsoon rainfall predictions over the Indian subcontinent; although a nonstationary relationship between the two nonlinear phenomena can limit seasonal predictability. Radiative effects of volcanic aerosols injected into the stratosphere during large volcanic eruptions (LVEs) tend to alter ENSO evolution; however, their impact on ENSO-IM coupling remains unclear. Here, we investigate how LVEs influence the nonlinear behavior of the ENSO and IM dynamical systems using historical data, 25 paleoclimate reconstructions, last-millennium climate simulations, large-ensemble targeted climate sensitivity experiments, and advanced analysis techniques. Our findings show that LVEs promote a significantly enhanced phase-synchronization of the ENSO and IM oscillations, due to an increase in the angular frequency of ENSO. The results also shed innovative insights into the physical mechanism underlying the LVE-induced enhancement of ENSO-IM coupling and strengthen the prospects for improved seasonal monsoon predictions. In this ongoing PhD work, the role of volcanic and anthropogenic aerosols on the tropical ocean-atmosphere-land coupled system and Monsoon is proposed to be investigated.

**Date: 30<sup>th</sup> September 2020, 03:30 pm**