INDIAN ACADEMY OF SCIENCES

91ST ANNUAL MEETING

14 - 16 November 2025 | Venue: Coliseum, IISER Tirupati, Tirupati

Host
Indian Institute of Science Education and Research Tirupati

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In association with
Sri Venkateswara University, Tirupati,
Indian Institute of Technology Tirupati and
National Atmospheric Research Laboratory, Tirupati

SPECIAL LECTURE

Sunday 16th November 2025, 12:40-01:20 PM

Chairperson: **Parthasarathi Mukhopadhyay,** IISER Berhampur

Ravi S Nanjundiah

IISc, Bengaluru

Heat stress forecasts: Its importance in present day changing climate

Rising temperatures due to anthropogenic activity is likely to increase the probability of hot weather events. According to many studies India is likely to be one of the most severely impacted countries with increased probability of extreme hot weather events. However hot weather events could be due to both increased temperatures and humidity. Forecasting this as heat stress, a term combining various factors including moisture and temperature is a difficult task. One of the reasons for this could be that heat stress and related discomfort for a person depends on one's adaptation to the surroundings e.g. a resident adapted to a hotter climate may tolerate heat stress better than one from cooler climates.

In this work, I will discuss our efforts to forecast heat-related events for Karnataka using AI-based models, which are further enhanced with local data to generate finer-grain, community-relevant forecasts. Importantly, this work also attempts to provide a translational research component aimed at democratising data, models, and insights, so that scientific advancements can directly support public health, local governance, and climate resilience planning.

About the Speaker:

Ravi Nanjundiah is Professor at the Centre for Atmospheric and Oceanic Sciences and the Divecha Centre for Climate Change, IISc Bengaluru. He served as Director of the Indian Institute of Tropical Meteorology, Pune (2017–2021). His research focuses on monsoon dynamics, climate variability, and the use of machine learning in weather and climate modelling. A Fellow of the Indian Academy of Sciences and the India Meteorological Society, he received the Sir C. V. Raman Young Scientist Award and the Nvidia Innovation Award. He has guided numerous doctoral and postdoctoral researchers and contributed extensively to national climate missions.

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