

# Professor P. R. Pisharoty

## Distinguished Lecture



**“Climate Science, Information and Impacts in the 21st Century”**

by

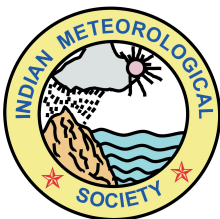
**Prof. V. Ramaswamy**

**Director, NOAA/ Geophysical Fluid Dynamics Laboratory (GFDL),  
Princeton University, Princeton, New Jersey, USA**

**On 30 April 2022 at 14.30 hrs IST**

**At Meghdoot Auditorium,  
Indian Institute of Tropical Meteorology (IITM),  
Dr. Homi Bhabha Road, Pashan, Pune-411008, India**

**To be organized by**



*IMSP*

*Indian Meteorological Society, Pune Chapter*

**(A Scientific Society registered under Govt. of India, New Delhi)**

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Professor **Pisharoth Rama Pisharoty** - the father of the Indian Remote Sensing Programme, a distinguished meteorologist and a space scientist of international repute was born on 10<sup>th</sup> February 1909 at Kollengode, Palghat District, Kerala. Starting with his early education in Kerala, Prof. Pisharoty had a brilliant academic career in Trichinopoly and Chennai (Madras State), Bangalore and Los Angeles, and worked with the Nobel Laureate Sir C.V. Raman, at the Indian Institute of Science, Bangalore. He began his professional career as a Lecturer in Loyola College, Chennai in 1935 and later joined as a Senior Officer in the India Meteorological Services in 1942, where he conducted research on thunderstorms, western disturbances, monsoon depressions, orographic rain etc. Prof. Pisharoty then joined the University of California where he came in close contact with world renowned meteorologists like Professors Jacob Bjerknes, Holmboe, Jule Charney, Neillburger, Yale Mintz and Wurtele. During this time, he was engaged in investigations of atmospheric general circulation and published two reports entitled “*Some aspects of geostrophic poleward flux of sensible heat*” and “*The kinetic energy of the atmosphere*”. After obtaining his MS and PhD degrees in 1954, he returned to India.

Prof. Pisharoty was the Director of the Colaba Observatory, Mumbai (Bombay) during 1959-1962 and also directed the International Indian Ocean Expedition (IIOE) programme (1961-62). He became the Founder Director of the Institute of Tropical Meteorology, Pune (now known as the Indian Institute of Tropical Meteorology, IITM) in 1962 and was instrumental in nurturing the Institute in its initial formative years. Following his retirement from IITM in February 1967, Prof. Pisharoty was invited by Prof. K.R. Ramanathan and Dr. Vikram Sarabhai as a senior professor of Aeronomy at the Physical Research Laboratory (PRL), Ahmedabad. At this point, he was instrumental in introducing remote sensing technology to India. His pioneering experiment of detection of coconut wilt-root disease using Soviet aircraft and US equipment was considered to be the first success in remote sensing in India.

Prof. Pisharoty served as the Director, Remote Sensing and Satellite Meteorology, at the ISRO Space Applications Centre, Ahmedabad during 1972-75. He was a Member of the Scientific Advisory Board of World Meteorological Organization from 1963 to 1968 and later its Chairman. He also served as the Vice-President of the International Association of Meteorology and Atmospheric Sciences, and as a Executive Member of the Joint Organising Committee for Global Atmospheric Research Programme from 1969 to 1977. He worked at the PRL until the early nineties when he retired for health reasons. Prof. Pisharoty contributed to a good number of research papers in national and international journals and wrote a number of books on the Indian Monsoon and related topics.

Prof. Pisharoty was elected a Fellow of the Indian Academy of Sciences in 1957 and a Fellow of the Indian National Science Academy in 1978. In recognition of his contributions, he was awarded the prestigious Padma Shri national civilian award of the Indian government in 1970. He was the first recipient of the Raman Centenary Medal in 1988. He was awarded the IMO Prize by the WMO in 1989. He was also conferred the K. R. Ramanathan Medal established by the Indian National Science Academy in 1990. He died on the morning of September 24, 2002 at Pune, at the age of 93. Prof. Pisharoty continues to remain as a major inspiration for many young meteorologists and will be fondly remembered for his inimitable style of inaugurating scientific meetings, seminars and symposia with invocation of Sanskrit verses and explaining their meaning very carefully.



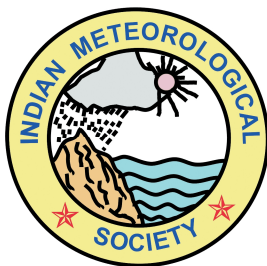
Professor **Venkatachalam (“Ram”) Ramaswamy** is Director of NOAA’s Geophysical Fluid Dynamics Laboratory (GFDL) and a member of the Atmospheric and Oceanic Sciences Program Faculty at Princeton University. Ram holds a Ph. D. in Atmospheric Sciences from the State University of New York at Albany, Albany (NY). He was a Fellow in the Advanced Study Program at the National Center for Atmospheric Research, Boulder (CO) before joining GFDL and Princeton. His principal interests are understanding and prediction of the Earth System, quantifying the natural and anthropogenic forcings, climate feedbacks and responses using numerical models and observations. At NOAA, the fundamental physical understanding is utilized to provide information, data, and products, including the prediction and projection of global-to-regional climate variability and change and impacts on ecosystems. Applications with NOAA/ GFDL models scope a wide range of climate extremes of societal and policy concerns spanning weather-to-centennial timescales e.g., hurricanes, storms, droughts, floods, snowpack, ice and glacier melt, ocean heat uptake, sea-level rise, heat waves, land and living marine ecosystems.

Prof. Ram has served on the Intergovernmental Panel on Climate Change (IPCC) Working Group I scientific assessments (1992-2021) and Joint Scientific Committee of the World Climate Research Program (2003-2010). He is an author or co-author of over 180 peer-reviewed papers. He was: Co-chair of the Panel on Climate Variability and Change, National Research Council (2017) Decadal Survey for Earth Science and Applications from Space; Co-author, International Committee on Space Research (COSPAR) Roadmap for 2016-2025 on “*Observation and integrated Earth-system science*”; and Member, Working Group 4, “*A Predictive Ocean*”, *UN Oceans Decade (Arctic Region)* (2020-2021). He is currently serving on the WMO Executive Council Panel on Polar and High Mountain Observations, Research, and Services.

Prof. Ram is a Fellow of the American Meteorological Society (AMS), American Geophysical Union (AGU), American Association for the Advancement of Science, and American Physical Society. He is a recipient of the: AMS Houghton award, Roberts Lectureship, Rossby medal; AGU Charney Lectureship; US Distinguished Executive Presidential Rank award; and three-time WMO Norbert Gerbier MUMM International awardee. He was a member of the IPCC team that was co-recipient of the 2007 Nobel Peace Prize.

## **ABSTRACT**

The 21<sup>st</sup> Century traversed thus far is already setting a hectic pace for the manifestation of changes in climate and increased vulnerability. The nature of extreme weather and climate events that are affecting society are becoming increasingly notable, and impactful, in terms of increased frequency, severity, and duration. Many of the events of concern in this century occurring regionally are and will stem from the warming of the planet, deficit/excess of moisture, and sea-level rise. The effective utilization of scientific advances can provide a robust platform for trustworthy information on extremes. The principal challenge arises of predicting extreme weather events occurring on the background of the changing climate, from the daily to multi-decadal timescales. State-of-the-art prediction systems keying off robust observations and numerical models can give us a stable science platform. The information required by stakeholders for assessing risks and decision-making must also account for the human, and other ecosystems', vulnerability and exposure factors. Of urgent necessity is also the capability to predict extreme events and impacts ahead of time in order to facilitate enhanced societal resilience. The optimism is that actionable information and sustainability can be derived on a reliable basis for many of the different stressful climate impacts in the 21<sup>st</sup> century.



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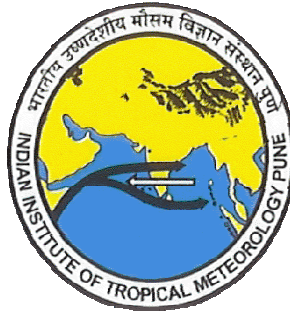
## List of Eminent Speakers

Lecture No.	Name of the Speaker	Year
1	<b>Prof. Jagadish Shukla</b> “Climate Change: Science and Politics”	2010
2	<b>Prof. Mike Wallace</b> “Climate Change: Science and Politics”	2010
3	<b>Dr. Raghu Murtugudde</b> “Earth, Life and Sustainability”	2011
4	<b>Dr. Kamal Puri</b> “Modelling Weather and Climate – current status and further directions”	2011
5	<b>Dr. Toshio Yamagata</b> “Using Cutting Edge Science to Understand Climate Variation and its Impact on Society”	2012
6	<b>Prof. Sir Brian Hoskins</b> “The potential for Skill across the range of the Seamless- Weather Climate Prediction Problem – a Stimulus for our Science”	2013
7	<b>Dr. Madhav Gadgil</b> “Climate change: A socio – ecological perspective”	2015
8	<b>Dr. Mitchell W. Moncrieff</b> “Organized convection in a new era for Global models”	2016
9	<b>Prof. C.K. Shum</b> “Improved estimates of 20th and early 21st century global sea-level rise”	2016
10	<b>Prof. Christian Jakob</b> “The interaction of tropical convection with the large-scale atmosphere - New insights and modelling approaches”	2017
11	<b>Dr. Harry H. Hendon</b> "Role of the tropical Indian Ocean for promoting record low sea ice extent in Antarctica in 2016"	2019
12	<b>Mr. Ashish Lahiri</b> "Life and works of Sri Radhanath Sikdar: a Pioneer Indian Meteorologist of 19th Century (who measured the height of Mt. Everest)"	2020

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