

Biosketch

Sumant Nigam obtained his M.Sc. degree in Physics from the 5-year integrated science and engineering program at the Indian Institute of Technology Kanpur, supported by the National Science Talent Scholarship. He received his Ph.D. in Geophysical Fluid Dynamics from Princeton University in 1984 under Isaac Held's direction, and postdoctoral training at MIT working with Richard Lindzen during 1984-1987. Sumant came to the University of Maryland in 1987 where he is Professor of Atmosphere, Ocean, and Earth System Science. Sumant served as Director of the Large-scale Dynamic Meteorology program at the US National Science Foundation from 2000-2002, and as Jefferson Science Fellow at the National Academy of Sciences during 2016-2017. He will be a Fulbright-Nehru Fellow during 2019-2020.

Sumant's interests are in climate dynamics, with a focus on the structure and mechanisms of climate variability and change. His analyses of observations, theoretical diagnosis, and numerical modeling have advanced understanding of winter stationary waves, Asian and American monsoons, climate teleconnections (e.g., ENSO, NAO, and NPO), transboundary water issues in the South/Southeast Asian river basins, and ocean-atmosphere interaction in the tropical and subpolar basins. Sumant proposed (with Lindzen) a new mechanism for tropical air-sea interaction, challenging the venerable Gill-model view of the tropical circulation in the large-scale subsidence zones over the eastern basins. More recently, Sumant has focused on the structure and mechanisms of hydroclimate variability, bringing the large-scale circulation perspective to regional hydroclimate problems, especially those of droughts and drying trends.

Sumant is currently involved in dynamical diagnoses of multidecadal climate variability, especially the role of natural variability (e.g., Atlantic Multidecadal Oscillation) in generating multidecadal trends in Arctic sea ice extent, Sahara Desert expanse, and Atlantic hurricane counts, and in the recent warming of Northern Continents. This research seeks to unravel the natural variability and secular change components of the climate record and advance understanding and attribution of recent climate change. Sumant is also investigating the predictability of summer monsoon rainfall from more effective use of the antecedent SST evolution information. The Laboratory for Experimental Hydroclimate Prediction that he directs is generating seasonal forecasts for the South Asian summer monsoon rainfall distribution since May 2016.

Sumant chaired the Climate Variations and Change Committee of the American Meteorological Society (AMS) and the Advisory Panel for NCAR's Climate and Global Dynamics Laboratory until 2018. He led the drafting of the AMS Information Statement on Climate Change. He has served on the advisory committee of NCAR and the NSF-Geosciences directorate. Sumant was a member of the Climate Research Committee and the Board of Atmospheric Sciences and Climate of the US National Academies from 2008-2012. He previously served as Co-Chair of the Climate Variability working group of NCAR's Community Climate System Model; Editor of the Journal of Climate; and as Director of the Large-scale Dynamic Meteorology program at the US National Science Foundation. Sumant was Senior Science Advisor to the US State Department during 2016-17. Sumant is a Fellow of the American Meteorological Society and the Royal Meteorological Society.

Sumant was featured on the cover of SCIENCE in May 2004 in connection with a report on foreign-born US scientists, titled "Brains & Borders: Many Origins, One Destination."

Sumant is listed in

- *Marquis Who's Who*
- *American Men and Women of Science*

