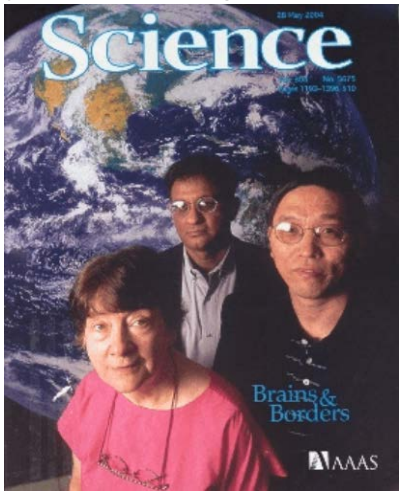
Sumant Nigam got his M.Sc. degree in Physics from the 5-year integrated science and engineering program at the Indian Institute of Technology, Kanpur in 1978, supported by the National Science Talent scholarship. Sumant obtained his Ph.D. in Geophysical Fluid Dynamics from Princeton University in 1984. From 1984 to 1987, he did postdoctoral work with Richard Lindzen at MIT. Sumant came to the University of Maryland in 1987, where he is currently Professor with appointments in the Atmospheric & Oceanic Science department and the Earth System Science Interdisciplinary Center. From 2000-2002, Sumant was Director of the Large-scale Dynamic Meteorology program of the US National Science Foundation.

Sumant's interests are in climate dynamics, with a focus on the structure and mechanisms of circulation variability. His analyses of observations, theoretical diagnosis, and numerical modeling efforts have advanced understanding of wintertime stationary waves, Asian and American monsoons, and the leading modes of climate variability, such as ENSO, NAO and the NPO. Sumant proposed (with Lindzen) a new mechanism for tropical air-sea interaction that explains the seasonal/interannual evolution of surface winds over the tropical oceans, challenging the venerable Gill-model view of 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.

Sumant is currently involved in dynamical diagnosis of decadal climate variability rooted in the Pacific and Atlantic basins (e.g., North Pacific decadal variability, Atlantic Multidecadal Variability) and its role in generating multidecadal trends in Arctic sea ice extent, Asian monsoon rainfall, North American droughts, and Atlantic hurricane counts. This research seeks to unravel the natural variability and secular change contributions in the modern climate record, and advance understanding of the recent warming of the planet. Sumant is also investigating the extent of human influence on the South Asian summer monsoon, from increasing anthropogenic aerosols and land-surface degradation/desertification.



Sumant serves on the International Commission on Dynamic Meteorology (IAMAS) and UCAR's Nominating Committee. He 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 has previously served as co-chair of the Climate Variability working group of NCAR's Community Climate System Model; co-chair of the US CLIVAR panel on Phenomena, Observations and Synthesis; and as Editor of the Journal of Climate. 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."