

RAMASWAMY, Venkatachalam
NOAA/Geophysical Fluid Dynamics Laboratory (GFDL)
Princeton University (Forrestal Campus), 201 Forrestal Road, Princeton, NJ 08540, USA

EDUCATION

Bachelor's [1975] and Master's [1977] in Physics, University of Delhi, India
Ph.D. in Atmospheric Science, State University of New York at Albany [1982]

EMPLOYMENT

1983-1985 Fellow, Advanced Study Program, National Center for Atmospheric Research, Boulder
1985-1995 Visiting Scientist/Research Staff/Research Scholar, Geophysical Fluid Dynamics Program/Atmospheric and Oceanic Sciences (AOS) Program, Princeton University
1995-2000 Physical Scientist (GS-15), and Group Leader (Middle Atmos. Sciences), NOAA/ GFDL
1995-present Lecturer with rank of Professor, AOS Program, Department of Geosciences and Princeton Environmental Institute, Princeton University
2000-2008 Senior Scientist (*ST*), NOAA/ GFDL; Group Leader (Atmos. Physics and Chemistry)
2008-present Director (*Senior Executive Service*), NOAA/ GFDL

RESEARCH EXPERIENCE

My research has focused on problems in atmospheric physics with applications to climate and climate change. This has comprised investigations ranging from the fundamentals of atmospheric radiation to its links with other disciplines e.g., roles of long- and short-lived greenhouse gases, aerosols and clouds in the climate system; interactions between radiation, clouds, chemistry, aerosols and circulation; and quantifying the changes in climate over the Industrial era from the surface through the troposphere into the stratosphere. My interests include the three-dimensional numerical modeling of the climate system, utilizing high-performance computing to develop and apply state-of-the-art models for diagnosing the physical processes, investigating the climatic impacts due to natural and human-influenced drivers, with the understanding of the global and regional climate change leading to improved projections and predictions of the Earth system. As a Lecturer with the rank of Professor at Princeton University, I have mentored, and engaged in productive collaborative research with, graduate students and postdoctoral scientists in a variety of areas in the atmospheric and climate sciences, which includes syntheses of modeling and observations from multiple platforms to infer the atmospheric properties and behavior of the climate system. I have led/ co-led multi-institutional science teams, and contributed as an author to major scientific reports (e.g., National Research Council) and international scientific assessments (e.g., Intergovernmental Panel on Climate Change, World Meteorological Organization) for over two decades. GFDL's atmosphere, climate and Earth Systems science research outcomes are a key source of information to the community on climate variations, change, impacts, adaptation and mitigation.

PUBLICATIONS

1. Bollasina, M., [Y. Ming](#), and [V Ramaswamy](#), 2013: Earlier onset of the Indian Monsoon in the late 20th century: The role of anthropogenic aerosols. *Geophys. Res. Lett.*, 40, doi:[10.1002/grl.50719](#)
2. Paynter, D., and V. Ramaswamy, 2012: Variations in water vapor continuum radiative transfer with atmospheric conditions, *J. Geophys. Res.*, Vol. 117, doi: 10.1029/2012JD017504, 1-23.
3. Ocko, I., V. Ramaswamy, P. Ginoux, Y. Ming, L. W. Horowitz, 2012: Sensitivity of scattering and absorbing aerosol direct radiative forcing to physical climate factors, *J. Geophys. Res.*, Vol.117, doi: 10.1029/2012JD018019.
4. Bollasina, M. A., Y. Ming, and V. Ramaswamy, 2011: Anthropogenic Aerosols and the Weakening of the South Asian Summer Monsoon, *Science*, 334, 502-505.

5. Freidenreich, S. M., and V. Ramaswamy, 2011: Analysis of the biases in the downward shortwave surface flux in the GFDL CM2.1 General Circulation Model. *J. Geophys. Res.*, 116, D08208, doi:10.1029/2010JD014930.
6. Ming, Y., V Ramaswamy, and G. Persad, 2010: Two opposing effects of absorbing aerosols on global-mean precipitation. *J. Geophys. Res.*, 37, doi:10.1029/2010GL042895.
7. Li, F., P. Ginoux, and V. Ramaswamy, 2008: Distribution, transport, and deposition of mineral dust in the Southern Ocean and Antarctica: Contribution of major sources. *J. Geophys. Res.*, 113, D10207, doi:10.1029/2007JD009190.
8. Ming, Y., and V Ramaswamy, 2009: Nonlinear climate and hydrological responses to aerosol effects. *J. Climate*, 22(6), 1329-1339.
9. Randles, C. A. and V. Ramaswamy, November 2008: Absorbing aerosols over Asia: A GFDL GCM sensitivity study of model response to aerosol optical depth and aerosol absorption, *J. Geophys. Res.*, 113, D21203,10.1029/2008JD(<http://dx.doi.org/10.1029/2008JD010140>).
10. Huang, Y., V. Ramaswamy, and B. Soden, 2007: An investigation of the sensitivity of the clear-sky outgoing longwave radiation to atmospheric temperature and water vapor. *J. Geophys. Res.*, 112, D05104, doi:10.1029/2005JD006906.
11. Ramaswamy, V., M. D. Schwarzkopf, W. J. Randel, B. D. Santer, B. J. Soden, and G. L. Stenchikov, 2006: Anthropogenic and natural influences in the evolution of lower stratospheric cooling. *Science*, 311(5764), 1138- 1141.
12. Ramaswamy, V., M.-L. Chanin, J. Angell, J. Barnett, D. Gaffen, M. Gelman, P. Keckhut, Y. Koshelkov, K. Labitzke, J.-J. R. Lin, A. O'Neill, J. Nash, W. Randel, R. Rood, K. Shine, M. Shiotani, and R. Swinbank, 2001: Stratospheric temperature trends: Observations and model simulations. *Rev. of Geophys.*, 39(1), 71-122.
13. Haywood, J. M., V. Ramaswamy, and B. J. Soden, 1999: Tropospheric aerosol climate forcing in clear-sky satellite observations over the oceans. *Science*, 283(5406), 1299-1303.
14. Haywood, J. M., and V. Ramaswamy, 1998: Global sensitivity studies of the direct radiative forcing due to anthropogenic sulfate and black carbon aerosols. *J. Geophys. Res.*, 103, 6043-6058.
15. Ramaswamy, V., and V. Ramanathan, 1989: Solar absorption by cirrus clouds and the maintenance of the tropical upper troposphere thermal structure. *J. Atmos. Sci.*, 46, 2293-2310.
16. Ramaswamy, V., and S. M. Freidenreich, 1991: Solar radiative line-by-line determination of water vapor absorption and water cloud extinction in inhomogeneous atmospheres. *J. Geophys. Res.*, 96, 9133-9157.
17. Ramaswamy, V., and J.T. Kiehl, 1985: Sensitivities of the radiative forcing due to large loadings of smoke and dust aerosols. *J. Geophys. Res.*, 90:5597-5613.

AWARDS and HONORS

American Meteorological Society, Henry G. Houghton Award (1994)
 Fellow, American Meteorological Society (2005)
 Fellow, American Geophysical Union (2008)
 World Meteorological Organization Norbert Gerbier-MUMM International Award (1998, 2003, 2013)
 Professor K. R. Ramanathan Distinguished Professor, Physical Res. Lab., Ahmedabad, India (2004)
 Bert Bolin Lecturer, Stockholm University (2009)
 Sir Gilbert Walker Distinguished Professorship, Indian Institute of Technology, Delhi, India (2013-2016)
 US Presidential Rank Award for Meritorious Senior Professional (2005)
 Department of Commerce: Gold Medal (2002, 2007); Silver Medal (2005)
 NOAA Distinguished/Outstanding Authorship (1992, 1993, 1996, 2000, 2002, 2008)
 NOAA Administrator Award (2008)