VAISHALI NAIK

Woodrow Wilson School of Public and International Affairs
Princeton University
Robertson Hall 409, Princeton, NJ 08544

Phone: (609) 258 9897
Fax: (609) 258 6082
Email: vnaik@princeton.edu

Research Interests

Air Pollution-Climate interactions, International Climate Change Policy, Biosphere-Atmosphere interactions, Numerical Climate and Chemistry Modeling

Education

University of Illinois at Urbana-Champaign, Illinois 1999-2003
Doctor of Philosophy, Atmospheric Science

University of Illinois at Urbana-Champaign, Illinois 1996-1999
Master of Science, Atmospheric Science

University of Delhi, Delhi, India 1992-1995
*Bachelor of Scienc**e***, Chemistry with Honors

Professional Experience

Postdoctoral Research Associate Since October 2003
Woodrow Wilson School, Princeton University

- Co-developing a collaborative research project to perform integrated impact assessment of air pollution in India
- Performing policy research on the feasibility of controlling air pollution for climate change mitigation
- Assessing the sensitivity of global radiative forcing due to tropospheric ozone and aerosols to the geographical location of biomass burning
- Simulated the implications of regional air pollution on climate forcing using three-dimensional models of atmospheric chemistry (MOZART) and the GFDL radiative transfer model (RTM)
- Created IDL/NCL codes to analyze model results, evaluate global emission inventories and perform air quality data mining
- Presented research work at national and international conferences, and published in scientific journals.

Graduate Research Fellow 2000-2003
Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign

- Developed a coupled Biospheric (Integrated Biospheric Simulator IBIS) and Atmospheric Chemistry Model (MOZART) to study climate-related feedbacks of biogenic emissions on the global atmospheric chemistry
- Incorporated numerical algorithms within IBIS to investigate the climate variability of biogenic volatile organic compound emissions
- Computed the influence of Geoengineered Climate on the Biosphere using IBIS
- Presented research work at national and international conferences, and published in scientific journals.

Graduate Research Assistant 1996-2000
Department of Atmospheric Sciences, University of Illinois at Urbana-Champaign

- Modeled the atmospheric chemistry of 28 CFC and Halon replacement compounds within the 2-dimensional UIUC atmospheric chemistry-radiative-transport model

- Computed the atmospheric lifetimes, radiative forcing and Global Warming Potentials for CFC and Halon replacement compounds
- Published research in scientific journals.

Honors

NASA Graduate Student Fellowship in Earth System Science 2000-2003

Publications

In Preparation

Naik, V., D. L. Mauzerall, L. W. Horowitz, M. D. Schwarzkopf, V. Ramaswamy, and M. Oppenheimer, On the sensitivity of radiative forcing due to biomass burning aerosols and ozone to the location of emissions, *submitted to Geophysical Research Letters*, 2006.

West, J. J., A. M. Fiore, **V. Naik**, L. W. Horowitz, M. D. Schwarzkopf, and D. L. Mauzerall, Ozone air quality and radiative forcing consequences of changes in ozone precursor emissions, *Submitted to Geophysical Research Letters,* 2006.

Peer-reviewed

Naik, V., D. Mauzerall, L. Horowitz, D. Schwarzkopf, V. Ramaswamy, and M. Oppenheimer, Net radiative forcing due to changes in regional emissions of tropospheric ozone precursors, *Journal of Geophysical Research, 110,* doi:10.1029/2005JD005908, 2005.

Naik, V., C. Delire, and D. J. Wuebbles, The sensitivity of global biogenic isoprenoids emissions to climate variability and atmospheric CO_2, *Journal of Geophysical Research,* 109(D6), D06301, 10.1029/2003JD004236, 2004.

Naik, V., D. J. Wuebbles, E. DeLucia, and J. A. Foley, Influence of geoengineered climate on the terrestrial biosphere, *Environmental Management*, doi 10.1007/s00267-003-2993-7, 2003.

Jain, A. K., Z. Li, **V. Naik**, and D. J. Wuebbles, Evaluation of the atmospheric lifetime and radiative forcing on climate for 1,2,2,2-tetrafluoroethyl trifluoromethyl ether $CF_3OCHFCF_3$, *Journal of Geophysical Research*, 106(D12), 12615-12618, 2001.

Li, Z., Z. Tao, **V. Naik**, D. A. Good, J. C. Hansen, G. –R., Jeong, J. S. Francisco, A. K. Jain, and D. J. Wuebbles, Global warming potential assessment for $CF_3OCF=CF_2$, *Journal of Geophysical Research,* 105(D3), 4019-4029, 2000.

Naik, V., A. K. Jain, K. O. Patten, and D. J. Wuebbles, Consistent sets of atmospheric lifetimes and radiative forcings on climate for CFC replacements: HCFCs and HFCs, *Journal of Geophysical Research,* 105(D5), 6903-6914, 2000.

Conference Proceedings

Wuebbles, D. J., **V. Naik**, K. Hayhoe, and A. Jain, Interactive nature of biosphere processes, atmospheric chemistry and climate: methane, a case study. *Proceedings of the Millennium Symposium on Atmospheric Chemistry: Past, Present, and Future of Atmospheric Chemistry*, American Meteorological Society, Boston, MA, 2001.

Dissertation

Naik, V, Interactions of terrestrial biosphere with climate and atmospheric chemistry, *Ph.D. Dissertation*, University of Illinois at Urbana-Champaign, October 2003.

Naik, V., Effects of Chlorofluorocarbon and Halon Replacement Compounds on the Global Environment, *M. S. Thesis in Atmospheric Sciences*, University of Illinois at Urbana-Champaign, May 1999.

Book Chapters, and Reports

Wuebbles, D. J., **V. Naik**, A. K. Jain, and K. O. Patten, Lifetimes and GWPs of replacement compounds: final report on new evaluations. *Report for the Alternative Fluorocarbon Environmental Acceptability Study*, 1999.

Wuebbles, D. J., A. K. Jain, R. Kotamarthi, **V. Naik**, and K. O. Patten, Replacements for CFCs and Halons and their effects on stratospheric ozone in *Recent Advances in Stratospheric Processes*, Nathan and Cordero (Eds), Research Signpost, Kerala, India, 1998.

Presentations

Naik, V., D. L. Mauzerall, L. W. Horowitz, D. Schwarzkopf, V. Ramaswamy, and M. Oppenheimer, Net radiative forcing due to changes in regional emissions of tropospheric ozone precursors, Mitigation of air pollution and climate change in China: A policy workshop on co-benefits and co-control, November 22-23, Bejing, China, 2005.

Naik, V., D. L. Mauzerall, L. W. Horowitz, D. Schwarzkopf, V. Ramaswamy, and M. Oppenheimer, Sensitivity of global tropospheric O_3 distribution and its radiative forcing to regional biomass burning emissions, 2005 Joint Assembly, May 23-27, New Orleans, LA, 2005.

Naik, V., D. L. Mauzerall, L. W. Horowitz, D. Schwarzkopf, V. Ramaswamy, and M. Oppenheimer, Attribution of regional radiative forcing due to tropospheric O_3: A step towards climate credit for reductions in emissions of O_3 precursors, Air Pollution as a Climate Forcing: A Second Workshop, April 4-6, Honolulu, HI, 2005.

Naik, V., D. L. Mauzerall, L. W. Horowitz, D. Schwarzkopf, V. Ramaswamy, and M. Oppenheimer, Regional attribution of ozone production and associated radiative forcing: a step to crediting NO_x emission reductions, American Geophysical Union Fall meeting, December 13-17, San Francisco, CA, 2004.

Naik, V., D. L. Mauzerall, L. W. Horowitz, D. Schwarzkopf, V. Ramaswamy, and M. Oppenheimer, Regional attribution of ozone production and associated radiative forcing: a step to crediting ozone reductions, 8th International Global Atmospheric Chemistry Conference, September 4-9, Christchurch, New Zealand, 2004.

Naik, V., Interactions of the Terrestrial Biosphere with Climate and Atmospheric Chemistry, Department of Atmospheric Sciences Seminar Series, University of Illinois at Urbana-Champaign, IL, 2003.

Naik, V., C. Delire, and D. J. Wuebbles, Modeling the climate variability of biogenic isoprene and monoterpenes, American Geophysical Union Fall meeting, December 6-10, San Francisco, CA, 2002.

Wuebbles, D. J., V. Naik, E. Delucia, and J. A., Foley, Influence of geoengineered climate on the terrestrial biosphere, American Geophysical Union Fall meeting, December 10-14, San Francisco, CA, 2001.

Naik, V., Potential feedbacks and interactions between biogeochemical cycles and climate change with emphasis on methane, Workshop on Atmospheric Composition, Biogeochemical Cycles and Climate Change, Aspen Global Change Institute, Aspen 2000.

Naik, V., D. J. Wuebbles, K. O. Patten, and A. K. Jain, Effects of CFC and Halon Replacements on the Global Environment (poster), American Geophysical Union Fall Meeting, San Francisco, CA, 1998.

Naik, V., Effects of CFC and Halon replacements on Global Environment, Department of Atmospheric Sciences Seminar Series, University of Illinois, 1998.

Computer Skills

- Windows 9x/NT/XP, DOS, UNIX (ORIGIN 2000, HP, IBM), LINUX, MacOS
- Basic, C, Fortran 77/90, HTML, Interactive Data Language (IDL), some experience with MPI, OpenMP
- Microsoft Office Suite, Kaleidagraph, GrADS, NCO, NCAR Command Language

Professional Activities

- ***Participant*****,** Dissertations Initiative for the Advancement of Climate Change Research (DISCCRS II), March 26 – April 2 2006, Pacific Grove, CA.
- ***Thesis Co-supervisor*** for a Geosciences Undergraduate student at Princeton University
- ***Co-convener*** of special session in 2005 Joint Assembly, May 23-27, New Orleans, LA.
- ***Ad-hoc Reviewer*** for research papers submitted for publication in Earth Interactions, Geophysical Research Letters, and Atmospheric Chemistry and Physics
- ***Member*** American Geophysical Union, American Meteorological Society, Sound Science Initiative of Union of Concerned Scientists and Phi Kappa Phi
- ***Guest lecturer*** for Global Biogeochemical Cycles, a graduate level course in the Department of Atmospheric Sciences
- ***Student Representative***, Department of Atmospheric Sciences, UIUC, 2001 - 2002.
- ***Student Member***, Department of Atmospheric Sciences, UIUC, Admissions/Recruitment Committee, 2001 - 2002.