Dani Bundy Coleman
Associate Scientist III
Climate Modeling Section, Climate and Global Dynamics Division
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Education

M.S. Applied Mathematics	University of Colorado	2000
B.S. Applied Mathematics	University of Colorado	1997

Scientific Interests

Climate modeling, Software design

Technical Experience

Fortran 90, Fortran 77 C, Shell scripting (C), Perl, XML, HTML, Yorick, NCL, IDL, Matlab, Mathematica, OpenMP, MPI, Subversion, CVS, on: Unix, Linux, AIX, SunOS.

Professional Experience and Employment

Associate Scientist III, National Center for Atmospheric Research (2000-present)

Provides scientific support for the use, diagnosis, and development of global numerical models of the atmosphere. Participates in the analysis of model results and observational data with the goal of improving the understanding of the climate system. Contributes to scientific research and writing of scientific papers and reports.

Develops computer programs for scientific research. Runs models (CESM, CCSm CAM), and analyze results of climate and chemical transport simulations. Assists in the software development and validation of computer programs on a variety of computer environments (workstations, Linux Clusters, and Supercomputers). Optimizes and debugs codes for parallel computer environments.

Assists scientific staff, students, visitors, collaborators and model users (one on one, and in groups) with obtaining, modifying and executing models, and analyzing output. Manages development branches of model source code, coordinating efforts from all developers while keeping up-to-date with the main development efforts.

Writes tutorials and presents lectures in workshops on model use. Assists during tutorials on all model components. Develops web pages describing model use and model simulations for collaborative projects.

Intern, NSF Summer Institute in Japan, Tokyo Institute of Technology (Summer 2000)

Numerically modeled free-standing ferroelectric liquid crystal films in a rotating electric field to verify that the experimentally-observed patterns were a result of the different effective elastic constants for various modulations of the materials.

Graduate Research Assistant, Department of Physics, University of Colorado (1998,1999-2000)

Modified a numerical model of free-standing ferroelectric liquid crystal films in order to use different effective elastic constants for various modulations of the materials.

Lead Graduate Teacher, Department of Applied Math, University of Colorado (1998-1999)

Lead week-long orientation for incoming graduate student teaching assistants. Facilitated a 1-credit, weekly pedagogy course for teaching assistants.

Teaching Assistant Department of Applied Math, University of Colorado (1997-1999)
Taught recitations in Calculus I,II,III: graded homework, exams and led review sessions for over 100 students. Assisted in curriculum development and student work in Calculus Work Groups. Tutored students and graded work in Calculus III Computer Lab.

Presentations and Publications

CESM Tutorial at NCAR, Assistant tutor, Summers 2011, 2012.

CCSM Tutorial at NCAR, Assistant tutor, Summers 2008, 2009, 2010.

Rasch P.J., P.J. Crutzen, and D.B. Coleman. 2008: Exploring the Geoengineering of Climate Using Stratospheric Sulfate Aerosols: The Role of Particle Size. *Geophysical Research Letters* 35: Art. No. L02809.

Tutorial: the Community Atmosphere Model, Presentation, The Art of Climate Modeling Summer Colloquium, June 2006, NCAR

Rasch P.J., P.J. Crutzen, and D.B. Coleman. 2006: Geo-Engineering Climate Change with Sulfate. *Geophysical Research Letters* 35:L02809.1-L02809.6

Rasch, P. J., D. B. Coleman, N. Mahowald, D. L. Williamson, S.-J. Lin, B. A. Boville, and P. Hess, 2006: Characteristics of Atmospheric Transport Using Three Numerical Formulations for Atmospheric Dynamics in a Single GCM Framework. *J. Climate*, 19,11, pp2243-2266.

Mahowald, N.M., M. Yoshioka, W.D. Collins, A.J. Conley, D.W. Fillmore, D.B. Coleman, 2005: Climate response and radiative forcing from mineral aerosols during the last glacial maximum, pre-industrial, current, and doubled-carbon dioxide climates. Submitted, *Geophys. Res. Lett.*

Yoshioka, M., N.M. Mahowald, A.J. Conley, W.D. Collins, D.W. Fillmore, C.S. Zender, and D.B. Coleman, 2005: Impact of desert dust radiative forcing on Sahel precipitation: Relative importance of dust compared to sea surface temperature variations, vegetation changes and greenhouse gas warming. Submitted to *J. Climate.*

Simulations of Anisotropic Ring Formation in Free Standing SmC Liquid Crystal Films*, Poster, International Liquid Crystal Conference, Sendai, Japan, 2000.

Colwell, J. E., L. W. Esposito, D. Bundy, 2000: Fragmentation rates of small satellites in the outer solar system. *Journal of Geophysical Research*

Collaborative Learning in Math and Science Recitations, Presentation, Graduate Teacher Program Fall Intensive, Aug 1998, Aug 1999.

Math Anxiety, Presentation, Graduate Teacher Program Fall Intensive, Aug 1998.

References

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