

Report of the CCSM Atmosphere Model Working Group Meeting
The Village at Breckenridge
21 June 2005

The Atmosphere Model Working Group (AMWG) met as part of the 10th Annual Community Climate System Model (CCSM) Workshop. Summaries of recent development studies with the CCSM Atmosphere Model (CAM) were presented, and a brief discussion followed.

Ben Johnson (NCAR) presented single-column and global-model results using a statistical cloud parameterization based on sub-grid water PDFs. The parameterization has been incorporated in a version of CAM with current boundary layer and convective physics. Early global model results show two few low clouds. Experiments with the characteristics of the water PDFs are planned.

Chris Bretherton (University of Washington) described CAM behavior with the University of Washington planetary boundary layer parameterization. Aside from minor technical issues, the implementation is essentially complete. Simulated climate changes modestly from current CAM.

Phil Rasch (NCAR) presented preliminary results from changing the closure for the CAM cumulus parameterization. A closure developed by Guang Zhang, which restricts CAPE changes during convection to those produced by boundary layer variations, improves CAM's tropical seasonal cycle and intraseasonal variability. Mean precipitation biases are increased in some regions. Phil also reported that a configuration of the model with Kerry Emanuel's cumulus parameterization and the University of Washington planetary boundary layer is undergoing analysis.

A task team to deal with problems in tropical variability has been formed. The issue of planning for treating indirect effects of aerosols was raised during discussion. To a large extent, the possibilities for treating indirect effects depend on the sub-grid cloud and convection parameterizations, since aerosol activation depends critically on vertical velocity. As paths forward emerge for new cloud and convective physics, incorporation of indirect effects becomes an immediate and urgent priority.

A sub-group to deal with CAM microphysics was formed. Andrew Gettelman, Steve Ghan, and Dave Mitchell will head this group. They will seek a SGER grant from NSF for a planning workshop prior to the spring AMWG meeting.

Attendees:

Leo Donner, GFDL, Co-chair

Philip Rasch, NCAR, Co-chair

Ernest Afiesimama, Nigerian Meteorological Agency

Caspar Ammann, NCAR

Bruce Anderson, Boston University

Anjuli Bamzai, US Department of Energy

Rainer Bleck, Los Alamos National Laboratory
James Bossert, Lawrence Livermore National Laboratory
Jennifer Brauch, University of Victoria
Chris Bretherton, University of Washington
Brian Bush, Los Alamos National Laboratory
George Carr, Jr., NCAR
Jim Carton, University of Maryland
Ching-Yee Chang, University of Maryland
John Chiang, University of California, Berkeley
Irene Cionni, University of L'Aquila
Gerardo Cisneros, Silicon Graphics SA de CV
Gabriel Clauzet, University of Sao Paulo
Danielle Coleman, NCAR
Andrew Conley, NCAR
Matthew Cordery, Cray Inc.
Gokhan Danabasoglu, NCAR
Cecelia DeLuca, NCAR
Clara Deser, NCAR
Noah Diffenbaugh, Purdue University
John Drake, Oak Ridge National Laboratory
Brian Eaton, NCAR
Hans-Martin Fuessel, Stanford University
Inez Fung, University of California, Berkeley
Gerald Geernaert, Los Alamos National Laboratory
Andrew Gettelman, NCAR
Steven Ghan, Pacific Northwest National Laboratory
Arthur Greene, IRI, Columbia University
Michael Ham, Oak Ridge National Laboratory
Cecile Hannay, NCAR
Natalia Hasler, NCAR
Yun He, Lawrence Berkeley National Laboratory
Yanping He, Georgia Institute of Technology
Colette Heald, Harvard University
Cara Henning, University of California, Berkeley
Forrest Hoffman, Oak Ridge National Laboratory
Elizabeth Hunke, Los Alamos National Laboratory
Charles Jackson, University of Texas, Austin
Robert Jacob, Argonne National Laboratory
Ben Johnson, NCAR
Renu Joseph, University of Maryland
Jong Kim, Argonne National Laboratory
Anil Kumar, University of Pune
Jean-François Lamarque, NCAR
Benjamin Lampte, Penn State University
Peter Lawrence, University of Colorado
Frank Ling, University of California, Berkeley

William Lipscomb, Los Alamos National Laboratory
Xiaohong Liu, University of Michigan
Paulo Lucio, Center of Geophysics of Evora
Eric Maloney, Oregon State University
Pavel Mankevich, ZAO Intel AO
Andrew Marshall, Monash University
Richard Neale, NOAA-CIRES Climate Diagnostics Center
Keiichi Nishizawa, CRIEPI
David Noone, University of Colorado
Jerry Olson, NCAR
Christina Pencarski, University of Toronto
William Putman, NASA Goddard Space Flight Center
Kevin Raeder, NCAR
Ramasamy Gowder Jaganathan, University of Madras
Marilyn Raphael, University of California, Los Angeles
Diandong Ren, University of Oklahoma
Kelvin Richards, University of Hawaii
Richard Rood, NASA
Nan Rosenbloom, NCAR
Fabrizio Sassi, NCAR
Ulrike Seibt, Carnegie Institution
Alexander Semenov, Intel Corp.
Karen Shell, NCAR
Christine Shields, NCAR
Richard Smith
Michael Sobczay
Thomas Socci, Los Alamos National Laboratory
Claudia Spinett, University of Rome
William Spatz, Sandia National Laboratory
Eric Sundquist, US Geological Survey
Haiyan Teng, NCAR
Peter Thornton, NCAR
Junichi Tsutsui, CRIEPI
Silverio Vasquez, NCAR
Ilana Wainer, University of Sao Paulo
Faming Wang, University of Texas, Austin
Minghuai Wang, University of Michigan, Ann Arbor
Shuyu Wang, State University of New York, Albany
Vincent Wayland, NCAR
David Williamson, NCAR
Steve Yeager, NCAR
Jinho Yoo, University of Maryland
Masaru Yoshioka, NCAR and University of California, Santa Barbara
Mi Zhou, Georgia Institute of Technology