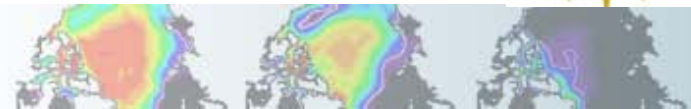


Atmosphere Model Working Group CESM 2010 Workshop

Tuesday, June 29th
8:30am-12pm

NCAR is sponsored by the National Science Foundation

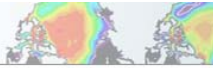


CCSM4 and CESM1 Model Release

April 1, 2010 – CAM4

Community Climate System Model

CCSM



ABOUT CCSM 4.0

The Community Climate System Model (CCSM) is a coupled climate model for simulating the earth's climate system. Composed of four separate models simultaneously simulating the earth's atmosphere, ocean, land surface and sea-ice, and one central coupler component, the CCSM allows researchers to conduct fundamental research into the earth's past, present and future climate states. Please see the brief overview of the [notable model improvements](#)

MODEL OUTPUT DATA AND DIAGNOSTICS

- Model Output Diagnostic Plots
- Model Output Data (ESG)
- Post Processing Utilities

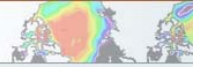
MODEL DOCUMENTATION

<p>Complete Coupled System</p> <p>▶ CCSM4.0 User's Guide</p>	<p>Atmosphere Models</p> <p>▶ Community Atmosphere Model (CAM4)</p> <p>▶ Climatological Data Model (DATM)</p>	<p>Ice Models</p> <p>▶ Community Ice Code (CICE4)</p> <p>▶ Climatological Ice Model (DICE)</p>
<p>Land Models</p> <p>▶ Community Land Model (CLM4)</p> <p>▶ Climatological Data Model (DLND)</p>	<p>Ocean Models</p> <p>▶ CCSM POP (POP2)</p> <p>▶ Climatological/Slab-Ocean Data Model (DOCN)</p>	<p>Coupler</p> <p>▶ CCSM Coupler (CPL7)</p>

June 25, 2010 – CAM4/CAM5

Community Earth System Model

CESM



ABOUT CESM 1.0

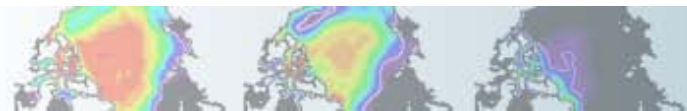
The Community Earth System Model (CESM) is a coupled climate model for simulating the earth's climate system. Composed of four separate models simultaneously simulating the earth's atmosphere, ocean, land surface and sea-ice, and one central coupler component, the CESM allows researchers to conduct fundamental research into the earth's past, present and future climate states. Please see the brief overview of the [notable model improvements](#).

MODEL OUTPUT DATA AND DIAGNOSTICS

- Model Output Diagnostic Plots
- Model Output Data (ESG)
- Post Processing Utilities

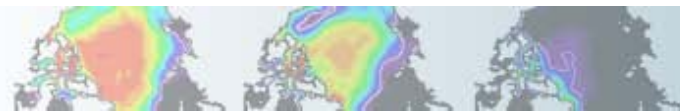
MODEL DOCUMENTATION

<p>CESM1.0</p> <p>▶ User's Guide</p>		
<p>Atmosphere Models</p> <p>▶ Community Atmosphere Model (CAM5)</p> <p>▶ Climatological Data Model (DATM)</p>	<p>Land Models</p> <p>▶ Community Land Model (CLM4)</p> <p>▶ Climatological Data Model (DLND)</p>	<p>Sea Ice Models</p> <p>▶ Community Ice Code (CICE4)</p> <p>▶ Climatological Ice Model (DICE)</p>
<p>Ocean Models</p> <p>▶ CESM POP (POP2)</p> <p>▶ Climatological/Slab-Ocean Data Model (DOCN)</p>	<p>Land Ice Models</p> <p>▶ Community Ice Sheet Model (Glimmer - CISM)</p>	<p>CESM Coupler</p> <p>▶ CESM Coupler (CPL7)</p>



CAM Evolution

Model	CCSM3 (2004)	CCSM3.5 (2007)	CCSM4 (Apr 2010)	CESM1 (Jun 2010)
Atmosphere	CAM3 (L26)	CAM3.5 (L26)	CAM4 (L26)	CAM5 (L30)
Boundary Layer	Holtslag and Boville (93)	Holtslag and Boville	Holtslag and Boville	UW <i>Diagnostic TKE</i> Park et al. (09)
Shallow Convection	Hack (94)	Hack	Hack	UW <i>TKE/CIN</i> Park et al. (09)
Deep Convection	Zhang and McFarlane (95)	Zhang and McFarlane Neale et al.(08), Richter and Rasch (08) mods.	Zhang and McFarlane Neale et al., Richter and Rasch mods.	Zhang and McFarlane Neale et al., Richter and Rasch mods.
Stratiform Cloud	Rasch and Kristjansson (98) <i>Single Moment</i>	Rasch and K. <i>Single Moment</i>	Rasch and K. <i>Single Moment</i>	Morrison and Gettelman (08) <i>Double Moment</i> Park Macrophysics Park et al. (10)
Radiation	CAMRT (01)	CAMRT	CAMRT	RRTMG Iacono et al. (2008)
Aerosols	Bulk Aerosol Model (BAM)	BAM	BAM	Modal Aerosol Model (MAM) Ghan et al. (2010)
Dynamics	Spectral	Finite Volume (96,04)	Finite Volume HOMME	Finite Volume HOMME
Ocean	POP2 (L40)	POP2.1 (L60)	POP2.2	POP2.2 – BGC
Land	CLM3	CLM3.5	CLM4 – CN	CLM4
Sea Ice	CSIM4	CSIM4	CICE	CICE



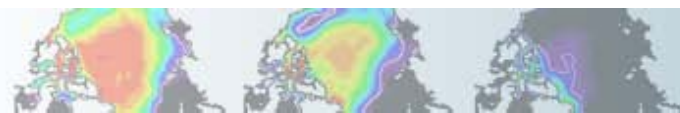
Atmosphere Model Working Group (AMWG)

Tuesday AM1, June 29 2010

- 8:30 am - Introduction (Rich Neale)
CAM4/CCSM4
- 8:35 am - CAM4/CCSM4 configuration and simulations (Rich Neale)
CAM5/CESM1
- 9:00 am - CAM5 configuration (Phil Rasch)
- 9:15 am - CAM5 simulations (Cecile Hannay)
- 9:30 am - CESM1-CAM5 coupled simulations (Rich Neale)
- 9:45 am - Climate sensitivity in CCSM4/CESM1-CAM5 (Andrew Gettelman)
- 10:00 am - CAM strategic plan (Minghua Zhang)
- 10:10 am - Discussion (lead Minghua Zhang)
- 10:30 am - Break

AMWG Virtual Poster Session After Lunch

**** SPEAKERS PLEASE SIGN WEBCAST RELEASE FORM ****



Atmosphere Model Working Group (AMWG)

Tuesday AM2, June 29 2010



Short contributions (5 mins each - strictly enforced)

11:00 Art Mirin *Progress on advanced dynamical cores for CAM*

11:05 Kate Evans *Progress in the development of a high-resolution spectral and spectral element atmospheric capability in the CCSM4*

11:10 Sungsu Park *A CPT for improving the representation of stratocumulus to cumulus transitions in the Community Atmosphere Model.*

11:15 Andrew Gettelman *A CPT for cloud parameterization and aerosol indirect effects*

11:20 Peter Caldwell *Using a statistical representation of subgrid cloudiness to improve the Community Atmosphere Model*

11:25 Joe Tribbia *A neural network approach to parameterization*

11:30 Donald Lucas *CAM Uncertainty Quantification*

11:35 Phil Rasch *Porting and evaluating the CAM5 physics suite into Weather Research and Forecasting Model*

11:40 Julio Bacmeister *High resolution CAM5 simulations with and without parameterized deep convection*

11:45 Tao Zhang *An evaluation of ENSO asymmetry in the Community Climate System Models: A view from the subsurface*

11:50 Jen Kay *The Arctic climate response to 2xC02 and present day aerosol forcing in CAM4 and CAM5 slab ocean model experiments*

11:55 Brian Medeiros *Climate feedbacks in Aqua-planet CAM4 and CAM5*

12 pm – End

**** SPEAKERS PLEASE SIGN WEBCAST RELEASE FORM ****

