CESM Atmosphere / Whole Atmosphere / Chemistry-Climate WINTER WORKING GROUP MEETING

12 February - 14 February 2024

Monday, February 12

** All times are MST; **Speakers**: 10-12 min. talk. Please leave 3-5 min at the end of your slot for questions.*

Time	Topic	Speakers
Overview: CESM Atmosphere, Whole Atmosphere and Climate Chemistry *Mesa Lab Main Seminar Room*		
12:30	**Welcome and logistics**	
12:35	AMWG Overview (incl. CAM-SIMA)	Peter Lauritzen
12:55	WAWG Overview	Nick Pedatella
13:10	CCWG Overview	Simone Tilmes
13:25	***Additional discussion period for all overview talks***	
13:40	***Break***	
AMWG/CCWG/WAWG Joint Session: Current developments for CESM3/CAM7 (AMWG) *Mesa Lab Main Seminar Room*		
14:05	The impact of vertical resolution on the representation of the large scale circulation within CAM	Isla Simpson
14:20	Changes to the hydrostatic spectral-elements dynamical core for CESM3: SE-CSLAM	Peter Lauritzen
14:35	**Break**	
14:50	Assembling tropospheric physics in a pre-industrial coupled setup	Adam Herrington
15:05	Comparing the CLUBB-L and CLUBB-taus damping algorithms in CAM and CESM experiments	Ben Stephens
15:20	Convective gustiness	Meg Fowler
15:35	Drag parameterizations and stratospheric wind biases	Julio Bacmeister
15:50	RRTMG-P update	Brian Medeiros
16:05	***Discussion***	
16:30	***ADJOURN***	

Tuesday, February 13

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Time	Topic	Speakers
AMWG/CCWG/WAWG Joint Session: Current developments for CESM3 (CCWG)		
9:00	Welcome and Logistics	
9:05	Soil NOx scheme and implications for chemistry (remote)	Maria ValMartin
9:20	New dust emission scheme	Danny Leung
9:35	A simpler chemistry scheme for climate simulations	Louisa Emmons
9:50	Inclusion of Inline photolysis module (TUV-x) in CESM WACCM	Doug Kinnison
10:05	Extension of CESM atmosphere models to the ionosphere-thermosphere	Hanli Liu
10:20	***Discussion***	
10:40	***Break***	
CGD Seminar ***Mesa Lab Main Seminar Room***		
11:00	**CGD Seminar** - Towards a workflow for ESM Tuning using Perturbed Parameter Ensembles: Some perspectives from NASA/GISS and LEAP Marcus van Lier-Walqui Youtube link: https://www.youtube.com/c/NCARCGD Questions on Slido.com	
12:00	**Lunch (on your own) no**	
AMWG/CCWG/WAWG Joint Session ***Mesa Lab Main Seminar Room***		
13:00	Evaluating the Impact of Resolving Hourly Anthropogenic Emissions on Air Pollutant Simulations in the United States Using the MUSICAv0 Model	Madankui Tao
13:15	Sectional Cloud Model for CESM2 (CESM2-CARMA Cloud)	Lu Wang
13:30	Implementing a parameterization of convective gravity waves due to the obstacle effect in CAM/WACCM	Martina Bramberger
13:45	Investigating the impact of uncertainties in CH4 emissions and halogen chemistry on CH4 abundance and lifetime (remote)	Mohammad Mirrezaei
14:00	Investigating the runaway of CESM under extreme warm conditions	Jiang Zhu
14:15	**Break**	
14:45	Deriving a historical global dust emission dataset in CESM2 to estimate 1850–2000 historical dust radiative forcings	Danny Leung
15:00	Advances in Earth system modeling of dust aerosol: Bridging gaps for comprehensive understanding	Longlei Li
15:15	Effective radiative forcing of stratospheric wildfire smoke simulated by CESM/MAM3	Cheng-Cheng Liu

15:30	Evaluation the nitrate containing aerosols in the upper troposphere and lower stratosphere during the Asian summer monsoon season using CESM/CARMA	Yunqian Zhu
15:45	Modeling nitrate aerosol over East Asia using variable-resolution CESM2-MOSAIC (remote)	Weiyi Wang
16:00	***Discussion***	
16:15	***ADJOURN***	

Wednesday, February 14

** All times are MST;* ***Speakers****: 10-12 min. talk. Please leave 3-5 min at the end of your slot for questions.*

Time	Topic	Speakers
AMWG: Boundary layers and microphysics ***Mesa Lab Main Seminar Room* (see CCWG/WAWG for agenda of parallel sessions)**		
9:00	Welcome and logistics	
9:05	Unified Boundary Layer and Convection Parameterization CPT Project: Recent Developments	Joao Teixeira and Adam Herrington
9:30	Diagnostics to Assess the Impact of Experimental CLUBB Parameters on Global and Regional Metrics in CAM6	Kyle Nardi
9:45	A Global-Seasonal Assessment of Homogeneous Ice Nucleation in Cirrus Clouds and the Corresponding Impact on TOA Cloud Radiative Effect Using CAM6	David Mitchell
10:00	A Bayesian Approach for Statistical-Physical Bulk Parameterization of Warm Microphysics	Kaitlyn Loftus
10:15	**Break**	
10:45	CAM6 SST patch experiments	Margaret Duffy
11:00	Evaluating Efficient SOM Designs for Estimating Changes in Equilibrium Climate Sensitivity during CESM model development.	Cecile Hannay
11:10	Semi-aride Snow characteristics as simulated by High Resolution CMIP6 Forced-Atmosphere Runs, compared to remote and in-situ observations	Hamid Chaabani
11:25	AMWG Diagnostics Framework: Updates	Justin Richling
11:40	***Break - LUNCH (on your own)***	
AMWG: Machine learning + ultra high resolution ***Mesa Lab Main Seminar Room***		
12:45	ML-enhanced Unified Ice Microphysics Scheme Development	Kara Lamb
13:00	Informing Depositional Ice Growth Models Through 3-D Reconstruction of Ice Crystal Images Using Machine Learning	Joseph Ko
13:15	EarthWorks progress report	David Randall
13:30	Upcoming Innovations for CAM's Spectral Element Dynamical Core and CESM	Christiane Jablonowski

13:45	The future of dynamical cores in CESM	Peter Lauritzen
14:00	***Break***	
14:30	***Wrap-up Discussion***	
15:00	**ADJOURN**	

Wednesday, February 14

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Time	Topic	Speakers
Joint CCWG/WAWG Session ***Damon Room*** **(see AMWG for agenda of parallel sessions)**		
9:00	Welcome and logistics	
9:05	Mesospheric Temperature and Circulation Response to the Hunga Tonga-Hunga-Ha'apai Volcanic Eruption	Wandi Yu
9:20	Gravity Waves in the FV3-based Models Extended into Mesosphere and Thermosphere	Valery Yudin
9:35	Data Imbalance, Uncertainty Quantification, and Generalization via Transfer Learning in Data-driven Parameterizations: Lessons from the Emulation of Gravity Wave Momentum Transport in WACCM	Hamid Pahlavan
9:50	WACCM-X Nature Run	Hanli Liu
10:05	AERO-MAP: A data compilation and modelling approach to understand the fine and coarse mode aerosol composition	Natalie Mahowald
10:20	***Break***	
10:35	Data Assimilation studies with CESM	Ben Gaubert
10:50	Interannual variability of the stratospheric hydrogen chloride simulated with SD-WACCM in recent years	Mijeong Park
11:05	Evaluating the Model Representation of Asian Summer Monsoon UTLS Transport and Composition using Airborne In Situ Observations	Ren Smith
11:20	WACCM-X simulations of the response of thermospheric hydrogen to increases in greenhouse gases and to changes in solar activity	Susan Nossal
11:35	Global Intercomparison of Tropospheric Oxidant Chemistry in a Common Earth System Model Environment using GEOS-Chem (v14.1.1) and CAM-chem Chemistry within the Community Earth System Model version 2 (CESM2)	Haipeng Lin
11:50	WACCM/Chemistry ADF diagnostics	Shawn Honomichl, Rebecca Buchholz
12:05	***Wrap-up Discussion***	
12:30	**ADJOURN**	