



Connecting Observations to Global Circulation Modeling Challenges

July 16 - 21, 2017

Chairs

David Turner and Dargan Frierson

Vice Chairs

Andrew Gettelman and Bastiaan van Dierenhoven

Bates College

2 Andrews Road
Lewiston, ME, US

Conference Description

The goal of the 2017 Radiation and Climate GRC/GRS will be to bring modelers and theorists together with observationalists to identify and tackle outstanding questions and significant uncertainties that are present in current global circulation models. The GRC is organized into eight sessions. Each session will start with one or two presentations from a global modeler and/or theorist, which outlines important uncertainties and unknowns in a particular research area (e.g., convective organization, mixed-phase cloud processes, global teleconnections and clouds, etc.). This will be followed by a presentation from an expert in observational technology, which highlights our current capability to provide the measurements needed to address the uncertainties outlined in the previous talk and extrapolates to how future technologies might be brought to bear on the problem. The talks, which will be tightly coupled, will spur discussion on the open scientific questions, the ability of the observations to answer them, and the analysis strategies that will more efficiently couple observations and modeling to advance our understanding of these important uncertainties.

Related Meeting



This GRC will be held in conjunction with the "Radiation and Climate (GRS)" Gordon Research Seminar (GRS). Those interested in attending both meetings must submit an application for the GRS in addition to an application for the GRC. Refer to the [associated GRS program page](#) for more information.

Conference Program

Sunday	
2:00 pm - 9:00 pm	Arrival and Check-in
6:00 pm - 7:00 pm	Dinner
7:30 pm - 7:40 pm	Introductory Comments by GRC Site Staff / Welcome from the GRC Chair
7:40 pm - 9:30 pm	Stability and Moisture Around the Globe Discussion Leader: Leo Donner (Geophysical Fluid Dynamics Laboratory, NOAA, USA)
7:40 pm - 8:20 pm	David Romps (University of California, Berkeley, USA) "Theories for the Distribution of Clouds and Humidity in the Tropics"
8:20 pm - 8:35 pm	Discussion
8:35 pm - 9:15 pm	Helene Brogniez (Université de Versailles Saint-Quentin-en-Yvelines, France) "Space-Borne Observations of Humidity: State-of-the-Art and Future Challenges"
9:15 pm - 9:30 pm	Discussion
Monday	
7:30 am - 8:30 am	Breakfast
8:30 am - 9:00 am	Group Photo
9:00 am - 12:30 pm	Arctic Mixed-Phase Cloud Processes Discussion Leader: Matthew Shupe (CIRES, University of Colorado Boulder, USA)

9:00 am - 9:40 am	Jennifer Kay (University of Colorado, USA) "Clouds in a Changing Arctic"
9:40 am - 10:00 am	Discussion
10:00 am - 10:30 am	Coffee Break
10:30 am - 11:10 am	Gunilla Svensson (Stockholm University, Sweden) "The Challenge of Modeling Arctic Clouds"
11:10 am - 11:30 am	Discussion
11:30 am - 12:10 pm	Hans Verlinde (Pennsylvania State University, USA) "Observations to Unravel Arctic Cloud Processes"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Representing Aerosols in Climate Models Discussion Leader: Allison McComiskey (NOAA Earth System Research Laboratory, USA)
7:30 pm - 8:10 pm	Nicole Riemer (University of Illinois at Urbana-Champaign, USA) "A Multi-Scale Modeling Framework for Simulating Aerosol Climate Impacts"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 9:10 pm	Jens Redemann (NASA, USA) "Answering the Call for 'Model-Relevant' Observations of Aerosols and Clouds"
9:10 pm - 9:30 pm	Discussion
Tuesday	
7:30 am - 8:30 am	Breakfast

9:00 am - 12:30 pm	Ice Surface and Radiation Interactions Discussion Leader: Larry Berg (Pacific Northwest National Laboratory, USA)
9:00 am - 9:40 am	Gijs de Boer (University of Colorado Boulder, USA) "Drivers of Spatial Variability in Arctic Surface Energy Budgets: An Observational Perspective"
9:40 am - 10:00 am	Discussion
10:00 am - 10:30 am	Coffee Break
10:30 am - 11:10 am	Mark Flanner (University of Michigan, USA) "The Second Life of Snow-Deposited Aerosols: Radiative Impacts and Post-Depositional Processes"
11:10 am - 11:30 am	Discussion
11:30 am - 12:10 pm	Peter Thornton (Oak Ridge National Laboratory, USA) "Land Model Sensitivity to Radiation Forcing in an Arctic Tundra Environment"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Teleconnections and Clouds in the General Circulation Discussion Leader: Sarah Kang (Ulsan National Institute of Science and Technology, South Korea)
7:30 pm - 8:10 pm	George Tselioudis (Goddard Institute for Space Studies, NASA, USA) "The Dominant Role of Atmospheric Dynamics in Determining Cloud Radiative Effect Variability"
8:10 pm - 8:30 pm	Discussion

8:30 pm - 9:10 pm	Ying Li (Colorado State University, USA) "The Role of Cloud Radiative Effects on the Large-Scale Atmospheric Circulation"
9:10 pm - 9:30 pm	Discussion
Wednesday	
7:30 am - 8:30 am	Breakfast
9:00 am - 12:30 pm	Marine Clouds and Processes Discussion Leader: Paquita Zuidema (University of Miami, USA)
9:00 am - 9:40 am	Simon De Szoeki (Oregon State University, USA) "The Radiative Feedbacks and the Boundary-Layer Footprints of Tropical Intraseasonal Convection"
9:40 am - 10:00 am	Discussion
10:00 am - 10:30 am	Coffee Break
10:30 am - 11:10 am	Tim Myers (University of California, Los Angeles, USA) "Importance of Positive Low Cloud Feedback in Coupled Atmosphere-Ocean Variability"
11:10 am - 11:30 am	Discussion
11:30 am - 12:10 pm	Sandra Yuter (North Carolina State University, USA) "Rapid Rollbacks of Marine Stratocumulus Clouds off the West Coast of Subtropical Africa"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner

7:30 pm - 9:30 pm	Organization of Convection Discussion Leader: Caroline Muller (Laboratoire de Meteorologie Dynamique, France)
7:30 pm - 8:10 pm	Kerry Emanuel (MIT, USA) "Aggregation of Moist Convection: What We have Learned from Cloud-Permitting Models and Theory"
8:10 pm - 8:30 pm	Discussion
8:30 pm - 9:10 pm	Sandrine Bony-Lena (Laboratoire de Météorologie Dynamique (LMD), France) "Does Convective Aggregation Matter for Climate? Insights from General Circulation Models and Observations"
9:10 pm - 9:30 pm	Discussion
Thursday	
7:30 am - 8:30 am	Breakfast
8:30 am - 9:00 am	Business Meeting <i>Nominations for the Next Vice Chair; Fill in Conference Evaluation Forms; Discuss Future Site and Scheduling Preferences; Election of the Next Vice Chair</i>
9:00 am - 12:30 pm	Cirrus from Tropics to Poles Discussion Leader: Thomas Ackerman (University of Washington, USA)
9:00 am - 9:40 am	Ann Fridlind (Goddard Institute for Space Studies, NASA, USA) "Cirrus Cloud Simulations Using Detailed Microphysics Compared with <i>In Situ</i> Observations"
9:40 am - 10:00 am	Discussion
10:00 am - 10:30 am	Coffee Break
10:30 am - 11:10 am	Andrew Gettelman (National Center for Atmospheric Research, USA) "Critical Uncertainties in Simulating Cirrus Clouds for Climate Prediction"

11:10 am - 11:30 am	Discussion
11:30 am - 12:10 pm	Greg McFarquhar (University of Illinois at Urbana-Champaign, USA) "Cirrus Cloud Impacts on Radiation and Climate From <i>In Situ</i> Observations"
12:10 pm - 12:30 pm	Discussion
12:30 pm - 1:30 pm	Lunch
1:30 pm - 4:00 pm	Free Time
4:00 pm - 6:00 pm	Poster Session
6:00 pm - 7:00 pm	Dinner
7:30 pm - 9:30 pm	Selected Poster Presentations Discussion Leader: Christopher Terai (Lawrence Livermore National Laboratory, USA)
7:30 pm - 7:50 pm	Rosa Gierens (University of Cologne, Germany) "Investigating Arctic Mixed Phase Clouds Using a Synergy of Ground Based Remote Sensing Measurements"
7:50 pm - 8:00 pm	Discussion
8:00 pm - 8:20 pm	Kuan-Ting O (University of Washington, USA) "Ultra-Clean Layers and Low Albedo Clouds in the Marine Boundary Layer"
8:20 pm - 8:30 pm	Discussion
8:30 pm - 8:50 pm	Carolyn Klinger (NOAA Earth System Laboratory, USA) "3D Thermal Radiative Heating Rates – Parameterization and Their Effects on Cloud Development"
8:50 pm - 9:00 pm	Discussion
9:00 pm - 9:20 pm	Wei Zhao (University of Washington, USA) "Diurnal Cycle of Clouds and Precipitation at the ARM SGP Site"
9:20 pm - 9:30 pm	Discussion

Friday

7:30 am - 8:30 am	Breakfast
9:00 am	Departure

Contributors

 <p>Gordon Research Conferences</p>	 <p>Carl Storm Underrepresented Minority Fellowship</p>	
		