

First Lorenz Center Workshop “Water in the Climate System”

February 10-12, 2014

[MIT Endicott House](#)

Dedham, Massachusetts

Workshop Program

Sunday, February 9th

Afternoon: Check-in

6:00: Reception, Gun Room

7:00: Dinner, Dining Room

Monday, February 10th

7:15 – 8:15: Breakfast, Dining Room

8:30 – 8:45: Introduction to the Lorenz Center and to the Workshop – Kerry Emanuel and Dan Rothman

1. Convection *Chris Bretherton, Session Chair*

8:45 – 9:45: Presentations

[Some theoretical questions about convective parameterization](#) – Isaac Held

[New developments related to gross moist stability](#) – David Raymond

[Can a bulk plume represent the effect of aqueous-phase reactions in shallow cumuli?](#) – Ji Nie, Zhiming Kuang, Daniel Jacob, and Jiahua Guo

9:45 – 10:15: Break

10:15 – 11:00: Presentations

[Sensitivity of deep convection to free-tropospheric humidity in a hierarchy of models](#) – Gilles Bellon

[Large-scale structures in moist atmospheric convection](#) – Alexandre Pieri, Jost von Hardenberg, Antonio Parodi, and Antonello Provenzale

11:00 – 12:00: Discussion of Convection

12:15 – 1:30: Lunch, Dining Room

2. Water Vapor, Clouds, and Climate *John Marshall, Session Chair*

2:00 – 3:00: Presentations

[Radiative Convective Equilibrium \(RCE\)](#) – Bjorn Stevens

[Radiative-Convective Instability](#) – Kerry Emanuel, Allison Wing, and Emmanuel Vincent

[Self-Aggregation of Convection in Radiative-Convective Equilibrium](#) – Caroline Muller

3:00 – 3:30: Break

Water Vapor, Clouds, and Climate – continued

3:30 – 4:30 Presentations

[Water vapor as an active scalar](#) – Adam Sobel

[On the role of convective aggregation in climate: observational and modeling perspectives](#) – Sandrine Bony

[Stratospheric water vapor and climate](#) – Ted Shepherd

4:30 – 5:30: Discussion of Water Vapor, Clouds, and Climate

6:00: Reception, Gun Room

7:00: Dinner, Dining Room

Tuesday, February 11th

7:15 – 8:15: Breakfast, Dining Room

3. Moisture and Weather *Sandrine Bony, Session Chair*

8:45 – 9:45: Presentations

[A near-global CRM study of moisture and tropical atmospheric predictability](#) – Chris Bretherton and Marat Khairoutdinov

[The Pliocene Permanent El Nino and Atmospheric Superrotation](#)– Nathan Arnold and Eli Tziperman

[Towards a theory for free-tropospheric relative humidity](#) – David Romps

9:45 – 10:15: Break

10:15 – 11:00: Presentations

[Weather Regimes and a Stochastic/Deterministic Strategy for Ultra-High Resolution Simulation of Earth's Water Cycle](#) – Tim Palmer

[The role of mid-tropospheric humidity in tropical cyclone genesis and intensification](#) – Brian Soden, Eui-Seok Chung, and David Yeoman

11:00 – 12:00: Discussion of Moisture and Weather

12:15 – 1:30: Lunch, Dining Room

4. Potpourri *Alan Betts, Session Chair*

2:00 – 3:00: Presentations

[Freshwater transport in the coupled ocean-atmosphere system: a passive ocean](#) – John Marshall and David Ferreira

[Bistability of the climate around the habitable zone: a thermodynamic investigation](#) – Valerio Lucarini, Robert Boschi, Edilbert Kirk, Nicholas Iro, Frank Lunkeit, and Salvatore Pascale

[The abrupt seasonal transition of the Northern Hemisphere general circulation: mechanisms and future changes](#) – Tiffany Shaw

3:00 – 3:30: Break

Potpourri – continued

3:30 – 4:30: Presentations

[Aridity and the Branching of River Networks](#) – Dan Rothman

[A symmetric energy balance as a macroscopic constraint on Earth's climate?](#) – Graeme Stephens

[Regional feedback patterns and regional climate predictability](#) – Gerard Roe

4:30 – 5:30: Discussion of Potpourri

6:00: Reception, Gun Room

7:00: Dinner, Dining Room

Wednesday, February 12th

7:30 – 8:30: Breakfast, Dining Room

5. Precipitation and Climate *Bjorn Stevens, Session Chair*

9:00 – 9:45: Presentations

[Contrasting responses of mean and extreme snowfall to climate change](#) – Paul O’Gorman

[Variability and Change in Our Water: Some Results from Climate Model Ensembles](#) – Susan Solomon, Ken Strzepek, and Brent Boehlert

9:45 – 10:15: Break

10:15 – 11:00: Presentations

[Coupling Climate to Clouds, Land-use, Precipitation and Snow](#) – Alan Betts

[Rapid adjustments of precipitation to climate forcings - are they real and what can we learn from them?](#) – Piers Forster

11:00 – 12:00: Discussion of Precipitation and Climate

12:00 – 1:15: Lunch, Dining Room

Workshop ends