Fifth Northeast Tropical Workshop

May 17th – 19th, 2011

MIT Endicott House

Dedham, Massachusetts

Workshop Program

Monday, May 16th

Afternoon: Check-in

6:00: Reception, Gun Room

7:00: Dinner, Dining Room

Tuesday, May 17th

7:15 – 8:15: Breakfast, Dining Room

1. General circulation of the Tropics *Lance Bosart, Session Chair*

8:30 – 10:00: Presentations

Tropical circulation driven by a weak SST gradient – Zhiming Kuang

Cloud system-resolving simulations and a simple model of an idealized Walker cell – Jonathan Wofsy and Zhiming Kuang

A subtropical cyclonic gyre of midlatitude origin – John Molinari and David Vollaro

The tropospheric response to tropical and subtropical zonally-asymmetric torques – William Boos and Tiffany Shaw

Interannual variability of monsoon precipitation and sub-cloud entropy – John Hurley and William Boos

10:00 – 10:30: Break

10:30 – 11:30: Discussion of the general circulation of the Tropics

12:00 – 1:30: Lunch, Endicott Terrace

2. The Madden-Julian Oscillation and equatorial waves *John Molinari, Session Chair*

1:30 – 2:45: Presentations

An idealized semi-empirical framework for modeling the Madden-Julian oscillation – Adam Sobel and Eric Maloney

A mechanism denial study on the Madden-Julian Oscillation – Daehyun Kim, Adam Sobel, and In-Sik Kang

Insights from analysis of associations between equatorial Rossby waves, the Madden-Julian Oscillation, and the extratropical atmospheric circulation – Paul Roundy and Lawrence Gloecker

The generation of Ertel's potential vorticity by convectively coupled atmospheric Kelvin waves that propagate through the convective region of the MJO – Kyle MacRitchie and Paul Roundy

2:45 – 3:15: Break

The Madden-Julian Oscillation and equatorial waves – continued

3:15 – 4:45 Presentations

Kinetic energy budget for the Madden-Julian oscillation in a multi-scale framework – Lei Zhou and Adam Sobel

Moist static energy budget of MJO-like disturbances in the atmosphere of a zonally symmetric aquaplanet – Joseph Anderson and Zhiming Kuang

Kelvin wave interaction with the diurnal cycle of precipitation at the West African coast – Alan Brammer

The role of convectively-coupled Kelvin waves on tropical cyclogenesis over the tropical Atlantic – Michael Ventrice and Chris Thorncroft

The structural evolution of African easterly waves – Matthew Janiga

4:45 – 5:45: Discussion of the MJO and equatorial waves

6:00: Reception, Gun Room

7:00: Dinner, Dining Room

Wednesday, May 18th

7:15 – 8:15: Breakfast, Dining Room

3. Tropical cyclones *Adam Sobel, Session Chair*

8:30 – 10:00: Presentations

Flow-dependent predictability of tropical cyclones – Fuqing Zhang, Yonghui Weng, Xuyang Ge, Erin Munsell, and Dandan Tao

A WRF simulation of the asymmetric rapid intensification of Tropical Storm Gabrielle (2001) – Diana Thomas and John Molinari

Self-stratification of tropical cyclone outflow: Implications for storm structure and intensity – Kerry Emanuel and Richard Rotunno

Dry Air in the Tropical Cyclone Environment – Jason Dunion

The rapid intensification of Hurricane Irene (1999) – Leon Nguyen

10:00 – 10:30: Break

10:30 – 11:30: Discussion of tropical cyclones

12:00 – 1:30: Lunch, Endicott Terrace

4. Tropical cyclones and climate *Zhiming Kuang, Session Chair*

1:30 – 2:45: Presentations

Tropical cyclogenesis index: an application to climate change – Suzana Camargo, Michael Tippett, Adam Sobel, Gabriel Vecchi, and Ming Zhao

Recurving TC-jet stream interactions over the western North Pacific: Part 1 - A climatology and composite analysis – Heather Archambault, Jason Cordeira, Lance Bosart, and Daniel Keyser

Recurving TC-jet stream interactions over the western North Pacific: Part 2 - Case studies and the influence on the general circulation – Jason Cordeira, Lance Bosart, and Daniel Keyser

Mechanisms by which aerosols may affect tropical cyclone frequency and intensity – Amato Evan

2:45 – 3:15: Break

Tropical cyclones and climate – continued

3:15 – 4:45: Presentations

Tropical cyclone return periods: comparison of a stochastic track model with an extreme value analysis of historic data – Jan Klein and Timothy Hall

A statistical model of tropical cyclone tracks in the Western North Pacific with ENSO-dependent cyclogenesis – Emmi Yonekura and Timothy Hall

Simulation of tropical cyclones over the 1880-2007 period Using a 100km global atmospheric general circulation model – Gabriel Vecchi, Ming Zhao, and Isaac Held

TC-permitting GCM simulations of hurricane frequency response to sea surface temperature anomalies projected for the late 21st century – Ming Zhao and Isaac Held

2300 years of tropical cyclone rainfall and cave flooding events in Yucatán, Mexico recorded by a muddy calcite stalagmite – Amy Frappier

4:45-5:45: Discussion of tropical cyclones and climate

6:00: Reception, Gun Room

7:00: Dinner, Dining Room

Thursday, May 19th

7:00 – 8:00: Breakfast, Dining Room

5. Extratropical transition of TCs, tropical convection, and precipitation *Kerry Emanuel, Session Chair*

8:00 – 9:30: Presentations

Extratropical transition in the Southwest Indian Ocean – Kyle Griffin and Lance Bosart

An analysis of multiple predecessor rain events ahead of tropical cyclones Ike and Lowell: 10-15 September 2008 – Lance Bosart, Jason Cordeira, Thomas Galarneau, Jr., Benjamin Moore, and Heather Archambault

A closer look at the climatology of tropical precipitation – Michela Biasutti, Sandra Yuter, Casey Burleyson, and Adam Sobel

Regression analyses of Mounier's quasi bi-weekly zonal dipole mode – Jeffry Cerrato and Chris Thorncroft

9:30 – 10:00: Break

5. Extratropical transition of TCs, tropical convection, and precipitation (continued)

10:00 – 11:30: Presentations

Understanding the response of shallow convection to perturbations using LES and a stochastic parcel model – Ji Nie and Zhiming Kuang

Response of tropical precipitation extremes to ENSO and climate change – Paul O'Gorman

The mean air flow as Lagrangian dynamics approximation and the thermodynamic analysis of convective systems – Olivier Pauluis

Responses of tropical convection to relative SST and imposed drying in a cloud resolving model – Shuguang Wang and Adam Sobel

11:30 – 12:30: Discussion of Extratropical transition of TCs, tropical convection, and precipitation

12:30: Lunch, Dining Room

Workshop ends