AGU CHAPMAN CONFERENCE

Santa Fe, NM, USA | 27-31 July 2015

The Width of the Tropics: Climate Variations and Their Impacts

Program Committee

Conveners

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The organizers of this Chapman Conference wish to acknowledge the generous support for this conference.

Scientific Program

MONDAY, 27 JULY

5:00 p.m.– 8:00 p.m.	**Registration (Full Conference Attendees Only)**
5:30 p.m.– 6:30 p.m.	**Public Lecture**
	Open to the general public; no registration is required.
5:30 p.m. –5:40 p.m.	**Dian J Seidel |** Welcome and Introduction
5:40 p.m. –6:30 p.m.	**Robert E Davis |** Global Warming and Human Health
5:30 p.m.– 6:30 p.m.	**Conference Keynote**
	Presiding: Sean Davis
	Keynote: Robert Davis
6:30 p.m.– 7:30 p.m.	**Icebreaker Reception (Registered Attendees Only)**
	Presiding: Sean Davis

TUESDAY, 28 JULY

8:00 a.m.– 8:30 a.m.	**Registration and Poster Set-up**
8:30 a.m.– 12:00 p.m.	**Session 1: What determines the width of the tropical belt?**
	Presiding: Thomas Birner
8:30 a.m. –8:45 a.m.	**Sean M Davis |** Welcoming Remarks
8:45 a.m. –9:25 a.m.	**Isaac Held |** What determines the width of the tropical belt? *(Invited)*
9:25 a.m. –9:45 a.m.	**Kristopher B Karnauskas |** On the Dynamics of the Hadley Circulation and Subtropical Drying
9:45 a.m. –10:05 a.m.	**Nicholas Davis |** A Climate Model Grid Size Bias in the Width of the Tropical Belt

10:05 a.m. –10:25 a.m.	**Xavier J Levine |** Changes in the Hadley Circulation with Climate in a Simple Axisymmetric Model of the Tropical Atmosphere
10:25 a.m. –10:40 a.m.	Break
10:40 a.m. –11:00 a.m.	**Paul Staten |** Investigating dynamical mechanisms behind tropical widening
11:00 a.m. –11:20 a.m.	**Ori Adam |** Role of Changes in Mean Temperatures vs. Temperature Gradients in the Recent Widening of the Hadley Circulation
11:20 a.m. –11:40 a.m.	**Melody A Avery |** High, Tropical Cirrus Clouds as Indicators of the Tropical Belt Extent and Changes
11:40 a.m. –12:00 a.m.	**Susann Tegtmeier |** Widening of the Cold Point Tropopause and Implications for Stratospheric Composition
12:00 p.m.– 1:30 p.m.	**Lunch (*on own*)**
1:30 p.m.– 5:30 p.m.	**Session 2A: How and why has the tropical width changed in the past?**
	Presiding: Lorenzo Polvani
1:30 p.m. –2:10 p.m.	**Karen Hepler Rosenlof |** What do we know about past changes in the latitudinal extent of the tropics? --- An incomplete understanding *(Invited)*
2:10 p.m. –2:30 p.m.	**Caroline Ummenhofer |** Late Holocene Expansion/Contraction of the Indo-Pacific Tropical Rain Belt
2:30 p.m. –2:50 p.m.	**Sharon E Nicholson |** Variations in the width of the tropics over Africa during the last one and a half centuries
2:50 p.m. –3:10 p.m.	**Ian D Goodwin |** Latitudinal variability and intensity of the South Pacific subtropics over the past 1200 years
3:10 p.m. –3:30 p.m.	**Seok-Woo Son |** Robust widening of the Hadley cell from LGM to future (RCP8.5) climate
3:30 p.m. –3:50 p.m.	Break

3:50 p.m. –4:10 p.m.	**Martin P Hoerling |** Mechanisms for Extreme Hadley Cell Expansion
4:10 p.m. –4:30 p.m.	**Seung-Ki Min |** Attribution of the Southern Hemisphere Hadley cell widening
4:30 p.m. –4:50 p.m.	**Darryn W Waugh |** Drivers of the recent tropical expansion in the Southern Hemisphere: Changing SSTs or ozone depletion?
4:50 p.m. –5:10 p.m.	**Daehyun Kang |** Intensified ENSO Teleconnection to Extratropical Winter Climate Variabilities after Mid-1990s and Seasonal Prediction
5:10 p.m. –5:30 p.m.	**Christopher Lucas |** The relationship between tropical warm pool sea surface temperature and Hadley circulation
5:30 p.m.– 7:00 p.m.	**Poster Session: Topic 1. What determines the width of the tropical belt?/Topic 2. How and why has the tropical width changed in the past?**
	All Posters will be displayed Tuesday, Wednesday and Thursday
T-1	**Xavier J Levine |** Baroclinic Eddies and the Extent of the Hadley Circulation: An Idealized GCM Study
T-2	**Dian J Seidel |** Changes in the Width of the Tropical Belt due to Simple Radiative Forcing Changes in GeoMIP Simulations
T-3	**Oliver W Wingenter |** Changing Sea-to Air Flux of Aerosol Chemical Material and the Positive Feedback with Planetary Scale Ocean and Atmospheric Dynamics
T-4	**Chi O Ao |** Trends and Variability of the Tropical Width from GPS Radio Occultation
T-5	**Seok-Woo Son |** Further Observational Evidence of Hadley Cell Widening in the Southern Hemisphere
T-6	**Talal Alharbi |** Impact of Climate Change over the Arabian Peninsula
T-7	**Sean M Davis |** Can stratospheric ozone measurements be used to quantify tropical width changes?

T-8	**Sean M Davis |** An updated tropical width timeseries intercomparison
T-9	**Justin P Stachnik |** Regional Changes in Clouds and Precipitating Systems Associated with Hadley Circulation Intensity and Width Extremes
T-10	**Thomas Birner |** Longitudinal variability of the width of the tropical belt
T-11	**Christopher Lucas |** Understanding the Causes of Southern Hemisphere Tropical Expansion
T-12	**Hong Yan |** Contraction of The Intertropical Convergence Zone Over The Western Pacific During The Little Ice Age
T-13	**Carl A Mears |** Satellite-based Diagnostics of Tropical Extent

WEDNESDAY, 29 JULY

8:30 a.m.– 12:00 p.m.	**Session 2B: How and why has the tropical width changed in the past?** Presiding: Lorenzo Polvani
8:30 a.m. –8:50 a.m.	**Joy Monteiro |** The contribution of ENSO variability to the recent expansion of the tropical belt
8:50 a.m. –9:10 a.m.	**Christopher Lucas |** Regional Characteristics of Tropical Expansion and the Role of Climate Variability
9:10 a.m. –9:30 a.m.	**Ryan M Eastman |** Expansion of the Tropical Belts and Poleward Migration of the Storm Tracks Shown by Variations in Surface-Observed Cloud Cover
9:30 a.m. –9:50 a.m.	**Sneha Susan Mathew |** Expansion of Hadley Cell in Climate Change Scenario: A Study Using Reanalysis And Global Radiosonde Observations
9:50 a.m. –10:10 a.m.	Break
10:10 a.m. –10:30 a.m.	**Gloria L Manney |** Climatology and Variability of UTLS Jets in Reanalyses: A Three-Dimensional Perspective of Changes in Upper Tropospheric Jet and Tropopause Characteristics

10:30 a.m. –10:50 a.m.	**Laura Wilcox |** The Role of Anthropogenic Aerosol in Tropical Expansion
10:50 a.m. –12:00 a.m.	Discussion
12:30 p.m.– 6:30 p.m.	**Lunch/Afternoon (*on own*)**
7:00 p.m.– 9:00 p.m.	**Conference Dinner**

THURSDAY, 30 JULY

9:00 a.m.– 11:50 a.m.	**Session 3: How and why might the tropical width change in the future?**
	Presiding: Sean Davis
9:00 a.m. –9:40 a.m.	**Qiang Fu |** How and Why Might the Tropical Width Change in the Future? *(Invited)*
9:40 a.m. –10:00 a.m.	**Yongyun Hu |** Poleward Expansion of the Hadley Circulation in CMIP5 Simulations
10:00 a.m. –10:20 a.m.	**Kevin M Grise |** Is Tropical Expansion Related to Climate Sensitivity? Lessons from CMIP5 Models
10:20 a.m. –10:40 a.m.	**Robert Allen |** Aerosol Indirect Effects and 21st Century Northern Hemisphere Tropical Widening
10:40 a.m. –11:00 a.m.	Break
11:00 a.m. –11:50 a.m.	Discussion
11:50 a.m.– 1:20 p.m.	**Lunch (*on own*)**
1:20 p.m.– 4:30 p.m.	**Session 4: What are the impacts for the oceans, cryosphere, hydrologic cycle, human society, and ecosystems?**
	Presiding: Dian Seidel
1:20 p.m. –2:00 p.m.	**Kerry H Cook |** Impacts of Variations in the Width of the Tropics *(Invited)*

2:00 p.m. –2:20 p.m.	**Gabriela De La Cruz Tello |** Links between changes in the Hadley Circulation and Oceanic Oxygen Minimum Zones
2:20 p.m. –2:40 p.m.	**Robert D Hudson |** Relation Between the Movement of the Sub-Tropical and Polar Fronts and the Stall (Hiatus) in the Global Earth Surface Temperature.
2:40 p.m. –3:00 p.m.	**Laifang Li |** North Atlantic Salinity as a Predictor of Sahel Precipitation
3:00 p.m. –3:20 p.m.	**Molly E Brown |** Environmental risk factors and child nutritional status and survival in tropical West Africa
3:20 p.m. –3:40 p.m.	Break
3:40 p.m. –4:30 p.m.	Discussion
4:30 p.m.– 5:30 p.m.	**Poster Session: Topic 3. How and why might the tropical width change in the future?/Topic 4. What are the impacts for the oceans, cryosphere, hydrologic cycle, human society, and ecosystems?**
	All Posters will be displayed Tuesday, Wednesday and Thursday
R-1	**Zachary D Lawrence |** JETPAC and CAVE-ART: Jet, Tropopause, and Vortex Products for Dynamical and Climatological Studies
R-2	**Joshua Ndiwa Ngaina |** Variability and Trends in Past, Current and Future Climate in East Africa
R-3	**Caroline Binkley |** Are Tropical Ocean Mixed Layer Heat Flux Trends Indicative of Intensifying Hadley Circulation?
R-4	**Edward K Vizy |** Multi-Decadal Variations in the Southeastern Atlantic Climate
R-5	**Jie He |** Anthropogenic Weakening of the Tropical Circulation: The Relative Roles of Direct CO_2 Forcing and Sea Surface Temperature Change
R-6	**Md Mizanur Rahman |** Response of Pioneer Mangrove Tree Species of the Sundarbans to Increased Salinity

R-7	**Seok-Woo Son |** Uncertainty in Future Projection of the North Pacific Subtropical High and Its Implication to California Winter Precipitation
R-8	**Amanda C Maycock |** The Brewer Dobson circulation climate feedback

FRIDAY, 31 JULY

9:00 a.m.– 12:30 p.m.	**Wrap-up Discussion**

Outstanding Scientific Questions

Research Needs

Possible Post-Conference Activities