



PCTS Workshop

From Spectroscopy to Climate: Radiative Constraints on the General Circulation

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When: Monday, August 22 - Wednesday, August 24, 2022

Where: Princeton Center for Theoretical Sciences, Princeton University

Draft Agenda

	Monday	Tuesday	Wednesday
0830	Breakfast	Breakfast	Breakfast
0900	Fueglistaler / Welcome, Logistics & Intro (40) Held (20) Thompson (20)	Koll (40) Wordsworth (20) Wijngarden (20)	Feldl (40) Jing Feng (10) Caballero (20)
1020	Coffee break	Coffee break	1010 Coffee break
1040	Shine (40) Yi Huang (20) Xianglei Huang (20)	Cronin (20) Ming (40) Zeyuan (10) Match (10)	1030 Panel discussion
1200	Discussion	Discussion	
1215	Lunch / Poster A	Lunch / Poster B	Adjourn (Lunch for those leaving later.)
1330	Hartmann (40) McKim (20)	DeSouza-Machado (40) Chiu (20)	
1430	Coffee break		
1450	Mlawer/Pincus (10) Freese (10) Liu (10) Jeevanjee (40)	Pu Lin (20) Pincus (20) Merlis (20)	
1550ish	Panel discussion	Panel discussion	
1640	Reception @ PCTS		

Posters: Celeste Tong, Yan-Ting Chen, Pryam Raghuraman, Clarissa Kroll, Han Huang, Youtong Zheng, Chenggong Wang, Osamu Miyawaki, Ilai Guendelman, Yan Xie

List of attendees and titles (as of August 9):

Rodrigo Caballero, Radiation, air mass transformation and the polar climate

Jenny Chang, Eddy equilibration in the idealized models of extratropical troposphere

Yan-Ting Chen, A systematic examination of the spatial pattern of instantaneous CO₂ radiative forcing

Christine Chiu, Cloud, aerosol, and precipitation - their radiative signatures and interactions with climate dynamics

Timothy Cronin, How well do we understand the Planck Feedback?

Sergio DeSouza-Machado, Twenty Years of Infrared Hyperspectral Satellite Measurements

Nicole Feldl, Regional variations in radiative feedbacks: An analytical model and polar perspectives

Jing Feng, The importance of enhanced atmospheric emission in determining the clear-sky longwave feedback

Lyssa Freese, Antarctic Radiative and Temperature Responses to a Doubling of CO₂

Ilai Guendelman, Planetary and Earth's atmospheric dynamics

Dennis Hartmann, Global Radiative Convective Equilibrium with a Slab 2 Ocean: SST Contrast, Sensitivity and Circulation

Isaac Held, TBA

Zeyuan Hu, Cloud-radiative effects strongly modify the strength of convective cooling in the TTL

Han Huang, Nonlinear coupling between longwave radiative climate feedbacks

Xianglei Huang, Studying climate through a spectral lens

Yi Huang, A decomposition of the atmospheric and surface contributions to the outgoing longwave radiation

Nadir Jeevanjee, How high the sky? Water vapor spectroscopy and the depth of the troposphere

Daniel Koll, An Analytical Model for the Clear-Sky Longwave Feedback

Clarissa Kroll, The impact of volcanic aerosol heating on convection and stratospheric ice

Pu Lin, Convective organization simulated in global ultra-high resolution model

Lei Liu, Can climate change be detected by long-term downwelling longwave radiance observations at Southern Great Plains?

Aaron Match, Understanding the response of the ozone layer to greenhouse gas forcing

Brett McKim, The spectroscopic and thermodyn. origin of Earth's fixed tropopause temperature

Timothy Merlis, Radiation and Tropical Circulations

Alison Ming, Interannual variability of tropical lower stratospheric temperatures

Osamu Miyawaki, What mechanism controls the Arctic radiative cooling response?

Robert Pincus, TBA

Shiv Priyam Raghuraman, Direct Infrared Spectral Observations of Global Greenhouse Gas Forcing and Feedback

Ram Ramaswamy, Short-Lived Radiative Species: From Spectral Properties to Climate Forcings

Jake Seeley, The water vapor window in hothouse climates

Keith Shine, A molecular-level look at how carbon dioxide exerts its radiative forcing

Celeste Tong, Seasonal and spatial variations of stratocumulus mesoscale structures

David Thompson, Changes in temperature persistence under climate change

Chengong Wang, Nonconstant cloud feedbacks and its connection to SST

William van Wijngaarden, Effect of Scattering on Radiative Transfer

Robin Wordsworth, From the Schrödinger Equation to Climate Change: A Pedagogic Approach to Global Warming From First Principles

Yan Xie, How can far-IR radiances observed half a century ago help us prepare for the upcoming missions

Youtong Zheng, Physics of shallow clouds and climate