Spencer Koncius Clark

219 Sayre Hall, 300 Forrestal Rd, Princeton, NJ 08544
(703)-380-9690 skclark@princeton.edu spencerkclark

Education

Princeton University, Princeton, NJ
Ph.D., Atmospheric and Oceanic Sciences Sept. 2014 - Present
Advisor: Yi Ming

Princeton University, Princeton, NJ
M.A., Atmospheric and Oceanic Sciences Sept. 2016

Cornell University – College of Engineering, Ithaca, NY
B.S., Engineering Physics; Honors in Research; magna cum laude May 2014
Thesis Advisor: Natalie Mahowald

Research Experience

Princeton University, Program in Atmospheric and Oceanic Sciences, Princeton, NJ
Research Assistant May 2015 - Present

- Studied the role of water vapor in the ITCZ response to hemispherically asymmetric perturbations.
- Currently investigating the extent to which monsoon low pressure systems can be simulated in an idealized moist GCM.

Cornell University, Department of Earth and Atmospheric Sciences, Ithaca, NY
Research Assistant Jan. 2011 - Mar. 2017

- Characterized the episodicity of forest and grass fires and developed 7 new prescribed emissions cases to test the impact of fire episodicity on fire's aerosol direct and indirect radiative forcings.
- Implemented 8 GCM lightning parameterizations in CAM5, compared their results to LIS/OTD observations, and studied their future projections.

Teaching Experience

Cornell University, Department of Applied and Engineering Physics, Ithaca, NY
Mathematical Physics II (AEP 4220) Spring 2014
Grader

- Held weekly office hours, wrote official solutions to and graded homework and exam problems.

Princeton University, Princeton Environmental Institute, Princeton, NJ
Modeling the Earth System (ENV367) Fall 2017
Assistant in Instruction

- Modified an existing implementation of a compact Earth System Model (Gasser et al. 2017), which formed the basis of the course. Modifications were required to make the model more user-friendly, and better suited to be run in an interactive Jupyter notebook.
- Wrote comprehensive web-based documentation to describe the model as well as its new interface.
- Created lab exercises to help students learn about the features and limitations of the model, and illustrate Earth System Modeling concepts.

Refereed Publications

Clark, S. K., Ming, Y., Held, I. M., and Phillipps, P. J. (2018). "The Role of the Water Vapor Feedback in the ITCZ Response to Hemispherically Asymmetric Forcings." *Journal of Climate*, 31(9), 3659-3678.

Clark, S. K., Ward, D. S., and Mahowald, N. M. "Parameterization-based uncertainty in future lightning flash density." *Geophysical Research Letters*, 44(6), (2017), 2893-2901.

Clark, S. K., Ward, D. S., and Mahowald, N. M. "The sensitivity of global climate to the episodicity of fire aerosol emissions." *Journal of Geophysical Research: Atmospheres*, 120(22) (2015), 11589-11607.

Selected Honors and Awards

Arnold Guyot Teaching Award, *Princeton University Department of Geosciences*	2018
NDSEG Fellowship, *American Society for Engineering Education*	2016-2019
Honorable Mention, NSF Graduate Research Fellowship, *National Science Foundation*	2014, 2015, 2016
Dorothy and Fred Chau Award (Excellence in Undergraduate Research), *Cornell AEP*	May 2014
Intercollegiate Tennis Association Scholar Athlete, *ITA*	2012, 2013
Rawlings Cornell Presidential Research Scholar, *Cornell*	2010-2014

Professional Experiences

Contributor, *Pangeo-data*	November 2016 - Present
Organizer, *Princeton AOS Workshop*	2016
Participant, *Dynamical Core Model Intercomparison Project Workshop*	June 2016

Software

Contributor to `aospy`, `xarray`, `cftime`, and `dask-jobqueue`.

Service

Assistant mentor to NOAA Hollings Scholar Bridgette Befort (2017).

Reviewing

Peer-reviewed manuscripts for the following journals: *Nature*, *Nature Climate Change*, *Journal of Geophysical Research – Atmospheres*.

Presentations

Clark, S. K., Ming, Y., Adames, Á. F. "An idealized framework for simulating monsoon low pressure systems and their potential sensitivity to the mean state." AGU Fall Meeting 2018, Washington D.C., December 2018. Poster Presentation.

Clark, S. K., Ming, Y. "Investigating synoptic-scale monsoonal disturbances in an idealized moist model." AGU Fall Meeting 2017, New Orleans, LA, December 2017. Poster Presentation.

Clark, S. K., Ming, Y., Held, I. M., and Phillipps, P. J. "The role of water vapor in the ITCZ response to hemispherically asymmetric forcings." Dynamics seminar series, Princeton Universtiy, Princeton, NJ, November 2017. Oral Presentation.

Clark, S. K., Ming, Y., and Held, I. M. "The role of water vapor in the ITCZ response to hemispherically asymmetric forcings." AGU Fall Meeting, San Francisco, CA, December 2016. Poster Presentation.

Hill, S. A., **Clark, S. K.** "The other 'aospy': automated climate data analysis and management." AOSPy Workshop at Columbia University, New York, NY, November 2016. Oral Presentation.

Clark, S. K., Ming, Y., and Held, I. M. "The role of water vapor in the ITCZ response to hemispherically asymmetric forcings." WCRP Model Hierarchies Workshop, Princeton, NJ, November 2016. Poster Presentation.

Clark, S. K., Ming, Y., and Held, I. M. "The role of water vapor in the ITCZ response to hemispherically asymmetric forcings." Dynamical Core Model Intercomparison Project, Boulder, CO, June 2016. Poster Presentation.

Clark, S. K., Ming, Y., and Held, I. M. "Climate Impacts of Inter-hemispherically Asymmetric Radiative Forcing." AGU Fall Meeting, San Francisco, CA, December 2015. Poster Presentation.

Clark, S. K., Ming, Y., and Held, I. M. "Climate Impacts of Inter-hemispherically Asymmetric Radiative Forcing." Gordon Research Conference, Lewiston, ME, July 2015. Poster Presentation.

Clark, S. K., Ward, D. S., and Mahowald, N. M. "The implementation and evaluation of five lightning parameterizations in a global climate model." Cornell Applied and Engineering Physics Honors Thesis Presentation, Ithaca, NY, May 2014.

Clark, S. K., Ward, D. S., and Mahowald, N. M. "The sensitivity of global climate to the episodicity of fire aerosol emissions." SESSA Spring Research Symposium, Ithaca, NY, May 2013. Poster Presentation.

Clark, S. K., Ward, D. S., and Mahowald, N. M. "Climate Model Responses to Increased Episodicity in Prescribed Fire Aerosol Emissions." CESM Workshop, Breckenridge, CO, June 2012. Poster Presentation.

Clark, S. K., Ward, D. S., and Mahowald, N. M. "Climate Model Responses to Increased Episodicity in Prescribed Fire Aerosol Emissions." SESSA Spring Research Symposium, Ithaca, NY, May 2012. Poster Presentation.

Activities

Varsity Tennis, Cornell University — Sept. 2010 - May 2014