

CLIM796 - Fall 2025

Masters Reading and Research: *Land-Climate Directed Reading* (3 credits)

Prof. Paul Dirmeyer

This is a directed reading course for M.S. students who are pursuing a thesis topic related to climate science, particularly the interaction between the atmosphere and land surface components of the climate system. The reading material consists of published research papers, including seminal works in the field plus a selection of recent publications highly germane to the research interests and dissertation subject of the student.

Papers to be read will include:

Betts, A. K., 2004: Understanding hydrometeorology using global models. *Bull. Amer. Meteor. Soc.*, 85, 1673-1688.

Koster, R. D., P. A. Dirmeyer, Z. Guo, G. Bonan, E. Chan, P. Cox, H. Davies, T. Gordon, S. Kanae, E. Kowalczyk, D. Lawrence, P. Liu, S. Lu, S. Malyshev, B. McAvaney, K. Mitchell, T. Oki, K. Oleson, A. Pitman, Y. Sud, C. Taylor, D. Verseghy, R. Vasic, Y. Xue, and T. Yamada, 2004: Regions of strong coupling between soil moisture and precipitation. *Science*, 305, 1138-1140.

Santanello, J. A., and Coauthors, 2018: Land-Atmosphere Interactions: The LoCo Perspective. *Bulletin of the American Meteorological Society*, 99, 1253–1272.

Seneviratne, S. I., T. Corti, E. L. Davin, M. Hirschi, E. B. Jaeger, I. Lehner, B. Orlowsky, and A. J. Teuling, 2010: Investigating soil moisture–climate interactions in a changing climate: A review. *Earth-Science Reviews*, 99, 125-161.

Students are expected to build their own extended reading list with instructor oversight, based on literature searches that will be tailored toward their own dissertation topics particularly focusing on the most recent and up-to-date published works. Relevant data analysis, including reproduction of published results with the same or similar data, is encouraged.

There will be weekly meetings throughout the semester – a classroom assignment is not required. Results of the class are expected to contribute significantly to the literature review portion of the student's dissertation, and the opening sections of manuscripts to be submitted by students to peer-reviewed research journals.