

AT 750: *Climate dynamics: Atmospheric variability*
Fall 2012

Credits: 3

Textbook: No textbook required.

Instructor:

David Thompson

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Office hours:

By appointment.

Evaluation.

Two writing projects. First is due Oct. 16. Second is due Dec. 6. The writing projects include an in-depth review of the research topics discussed in class. Projects should be 3 pages of text (single spaced) plus 2 figures.

Outline (outline will evolve as the class progresses).

The class will be divided into two sections. During the first eight weeks we will discuss in detail the atmospheric response to anthropogenic forcing. During the latter eight weeks, we will cover a second “hot” topic in the field of climate dynamics.

The goal of the class is to develop a thorough understanding of the state-of-the-literature on two prominent topics in climate dynamics, and to develop the ability to identify and synthesize the primary themes that are driving the current research from a large number of studies. Rather than read in detail a handful of “classic” papers, we will instead work through as much of the relevant literature as possible, with particular emphasis placed on papers written in the past few years. By necessity, we will need to be selective regarding the amount of detail given to each individual paper. Some papers will be discussed in detail; some in passing. It depends on how important we decide each paper is. Realistically, this is how research works.

The class sessions will include: 1) Discussions of paper sets (i.e., rather than individual papers), led by students and myself; and 2) lectures on key dynamical concepts, led by myself.

Meeting times:

Tuesday/Thursday: 10:30-11:45 AM.

**References on the circulation response to anthropogenic forcing
(As of Aug. 20, 2012; will be updated continuously)**

- Allen, R. J., S. C. Sherwood, J. R. Norris, and C. S. Zender, 2012a: The equilibrium response to idealized thermal forcings in a comprehensive GCM: implications for recent tropical expansion. *Atmos. Chem. Phys.*, 12, 4795–4816, doi:10.5194/acp-12-4795-2012.
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- Ceppi, P., and D.L. Hartmann, 2012: On the Speed of the Eddy-Driven Jet and the Width of the Hadley Cell. *J. Climate*, submitted.
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- Chen, G., R. A. Plumb, and J. Lu, 2010: Sensitivities of zonal mean atmospheric circulation to SST warming in an aqua-planet model. *Geophys. Res. Lett.*, 37, L12 701, doi:10.1029/2010GL043473.
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