

G&G 742a, Seminar in Ocean and Atmosphere Dynamics: Essential Reading

Instructors: Mary-Louise Timmermans & Florian Sévellec

Meeting time: TBA, once per week for 1.5 hours

Overview: This course is a forum for reading, discussion and understanding a selection of fundamental papers in ocean, atmosphere and climate dynamics. The class will meet once a week to discuss a selected paper. The paper's content will be first presented to the class by a group of pre-assigned students followed by a class discussion, facilitated by the instructors. All are expected to read the paper prior to class, and the presenting students may find it helpful to read one or more related papers. The presenting group will meet with the instructors for clarification and discussion prior to their presentation.

Papers:

Week 1, Sept. 6-10: Bjerknes, J., 1969: Atmospheric teleconnections from the equatorial Pacific. *Monthly Weather Review*, 97, 163–172.

Week 2, Sept. 13-17: Rossby, C-G., 1945: On the propagation of frequencies and energy in certain types of oceanic and atmospheric waves. *Journal of Meteorology*, 2, 187–204.

Week 3, Sept. 20-24: Charney, J.G. and DeVore, J.G., 1979: Multiple flow equilibria in the atmosphere and blocking. *Journal of the Atmospheric Sciences*, 36, 1205–1216.

Week 4, Sept. 27-Oct. 1: Zebiak, S.E. and Cane, M., 1987: A model El Niño—Southern Oscillation. *Monthly Weather Review*, 115, 2262–2278.

Week 5, Oct. 4-8: Ekman, V.W., 1905: On the influence of the Earth's rotation on ocean currents. *Arkiv for Matematik Astronomi och Fysik*, 2, 1–52.

Week 6, Oct. 11-15: Stommel, H., 1979: Determination of water mass properties of water pumped down from the Ekman layer to the geostrophic flow below. *Proceedings of the National Academy of Sciences*, 76, 3051–3055.

Week 7, Oct. 18-22: Stommel, H. 1948: The westward intensification of wind-driven ocean currents. *Transactions, American Geophysical Union*, 29 (2), 202–206.

Week 8, Oct. 25-29: 1. Stommel, H. and Arons, A.B., 1961: On the abyssal circulation of the world ocean—I. Stationary planetary flow patterns on a sphere. *Deep-Sea Research*, 6, 140–154.
2. Stommel, H., and Arons, A.B., 1960: On the abyssal circulation of the world ocean—II. An idealized model of the circulation pattern and amplitude in oceanic basins. *Deep-Sea Research*, 6, 217–233.

Week 9, Nov. 1-5: Luyten, J., Pedlosky, J. and Stommel, H., 1983: The ventilated thermocline. *Journal of Physical Oceanography*, 13, 192–309.

Week 10, Nov. 8-12: Stommel, H. 1961: Thermohaline convection with two stable regimes of flow. *Tellus*, 13, 224–230.

Week 11, Nov. 15-19: Munk, W. and Wunsch, C., 1998: Abyssal recipes II: energetics of tidal and wind mixing. *Deep Sea Research*, 45, 1977–2010.