

## SYLLABUS SIO 209, Spring 2014

### Mechanisms of abrupt climate change in the paleo record – Graduate seminar

We will investigate in detail proposed mechanisms for Heinrich events, Dansgaard-Oeschger events, and other prominent abrupt features in the paleoclimate record from ice core, speleothems, and marine and lacustrine high-resolution sediment cores. Emphasis on scientific writing skills and verbal presentation skills. 2 units, S/U grading.

Fri. 2:00-3:20 pm, Vaughan Hall 348

Instructor: Jeff Severinghaus

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822-2483

Prerequisites: *SIO 210* or consent of instructor

Units: 2. Grade: S/U Two scientific writing exercises will be evaluated.

<u>Date</u>	<u>Reading and discussion</u>
Fri. Apr 4	Course overview
Fri. Apr 11	“Heinrich event 1: an example of dynamical ice-sheet reaction to oceanic changes”, Alvarez-Solas et al., <i>Clim. Past</i> 7, 1297-1306 (2011)
Fri. Apr 18	“Millennial-scale ice rafting events...: a review”, Naafs et al., <i>Quat. Sci. Rev.</i> 80, 1-28 (2013).
Fri. Apr 25	“A new mechanism for Dansgaard-Oeschger cycles”, Petersen et al., <i>Paleoceanography</i> 28, 24-30 (2013).
Fri. May 2	“Muted change in AMOC over some glacial-aged Heinrich events” Lynch-Stieglitz et al., <i>Nature Geoscience</i> 7, 144-150 (2014).
Fri. May 9	<b>First manuscript due.</b> “Ice Age Terminations”, Cheng et al. <i>Science</i> 326, 248 (2009).
Fri. May 16	“Millennial-scale precipitation changes in southern Brazil over the past 90,000 years”, Wang et al., <i>Geophys. Res. Lett.</i> 34, L23701 (2007).
Fri. May 23	“Thermohaline ocean circulation”, Rahmstorf, <i>Encyclopedia of Quaternary Sciences</i> , Ed. S. A. Elias, Elsevier, Amsterdam (2006).
Fri. May 30	“Rapid changes of glacial climate simulated in a coupled climate model”, Ganopolski and Rahmstorf, <i>Nature</i> 409, 153-158 (2001)
Fri. June 6	<b>Second manuscript due</b> “Dansgaard-Oeschger cycles: Interactions between ocean and sea ice...”, Dokken et al., <i>Paleoceanography</i> 28, 491-502 (2013).