

Earth 450: Advanced Topics in the Geosciences
“Arctic Environments: Past, Present, Future”

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READING LIST

Introduction to course

Harris, R. 2014. Epilogue: The end of the Arctic as we know it. In J. Norwine, ed., *A World After Climate Change and Culture-Shift*. Dordrecht, Netherlands. Pp 393-403.

Jeffries, M.O. et al. 2013. The Arctic shifts to a new normal. *Physics Today* Oct. 2013, 35-40.

Arctic amplification and climate feedbacks

Chapin, F.S., III, et al. 2005. Role of land-surface changes in arctic summer warming. *Science* 310, 657-660.

Miller, G.H. et al. 2010. Arctic amplification: can the past constrain the future? *Quaternary Science Reviews* 29, 1779-1790.

Schuur, E.A.G. et al. 2009. The effect of permafrost thaw on old carbon release and net carbon exchange from tundra. *Nature* 459, 556-559.

Serreze, M.C., and Barry, R.G. 2011. Processes and impacts of Arctic amplification: A research synthesis. *Global and Planetary Change* 77, 85-96.

Past warm times in the Arctic

Ballantyne, A.P. et al. 2013. The amplification of Arctic terrestrial surface temperatures by reduced sea-ice extent during the Pliocene. *Palaeogeography, Palaeoclimatology, Palaeoecology* 386, 59-67.

Melles, M. et al. 2012. 2.8 million years of arctic climate change from Lake El'gygytgyn, NE Russia. *Science* 337, 315-319.

Overpeck, J.T. et al. 2006. Paleoclimatic evidence for future ice-sheet instability and rapid sea-level rise. *Science* 311, 1747-1750.

Otto-Bliesner, B.L. 2006. Simulating arctic climate warmth and icefield retreat in the Last Interglaciation. *Science* 311, 1751-1753.

Oerlemans, J. et al. 2006. Ice sheets and sea level (and Response by Overpeck et al.). *Science* 313, 1043-1045.

Cenozoic history of the Arctic

Moran, K. et al. 2006. The Cenozoic palaeoenvironment of the Arctic Ocean. *Nature* 441, 601-605.

Sluijs, A. et al. 2006. Subtropical Arctic Ocean temperatures during the Palaeocene/Eocene thermal maximum. *Nature* 441, 610-613.

De Vernal, A. et al. 2008. Natural variability of Greenland climate, vegetation, and ice volume during the past million years. *Science* 320, 1622-1625.

Lunt, D.J. et al. 2008. Late Pliocene Greenland glaciations controlled by a decline in atmospheric CO₂ levels. *Nature* 454, 1102-1106.

Optional:

Darby, D.A. 2014. Ephemeral formation of perennial sea ice in the Arctic Ocean during the middle Eocene. *Nature Geoscience*. Available online.

Pagani, M. 2006. Arctic hydrology during global warming at the Palaeocene/Eocene thermal maximum. *Nature* 442, 671-675.

The Greenland Ice Sheet: Past, present, future

Colville, E.J. et al. 2011. Sr-Nd-Pb isotope evidence for ice-sheet presence on southern Greenland during the Last Interglacial. *Science* 333, 620-623.

Roberts, J.M. et al. 2004. Threatened loss of the Greenland ice sheet. *Nature* 428, 616.

Shepherd, A. et al. 2012. A reconciled estimate of ice-sheet mass balance. *Science* 338, 1183-1189.

Straneo, F., and Heimbach, P. 2013. North Atlantic warming and the retreat of Greenland's outlet glaciers. *Nature* 504, 36-43.

Permafrost, rivers and hydrology

Frey, K.E. and Smith, L.C. 2005. Amplified carbon release from vast West Siberian peatlands by 2100. *Geophysical Research Letters* 32, L09401.

McCallister, S.L., and del Giorgio, P.A. 2012. Evidence for the respiration of ancient terrestrial organic C in northern temperature lakes and streams. *Proceedings of the National Academy of Sciences* 109, 16963-16968.

Sistla, S.A. et al. 2013. Long-term warming restructures Arctic tundra without changing net soil carbon storage. *Nature* 497, 615-619.

Slemmons, K.E.H. et al. 2013. The influence of glacial meltwater on alpine aquatic ecosystems: a review. *Environmental Science Processes & Impacts* 15, 1794-1806.

Optional:

Kling, G.W. et al. 1991. Arctic lakes and streams as gas conduits to the atmosphere: implications for tundra carbon budgets. *Science* 251, 298-301.

Oechel, W.C. et al. 1993. Recent change of Arctic tundra ecosystems from a net carbon dioxide sink to a source. *Nature* 361, 520-523.

Postglacial landscape development

Boyle, J. et al. 2013. Soil mineral depletion drives early Holocene lake acidification. *Geology* 41, 415-418.

Engstrom, D.R. et al. 2000. Chemical and biological trends during lake evolution in recently deglaciated terrain. *Nature* 408, 161-166.

Fritz, S.C., and Anderson, N.J. 2013. The relative influences of climate and catchment processes on Holocene lake development in glaciated regions. *Journal of Paleolimnology* 49, 349-362.

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The Little Ice Age and recent environmental change

Kaufman, D.S. et al. 2009. Recent warming reverses long-term arctic cooling. *Science* 325, 1236-1239.

- Miller, G.H. et al. 2013. Unprecedented recent summer warmth in Arctic Canada. *Geophysical Research Letters* 40, GL057188.
- Miller, G.H. et al. 2012. Abrupt onset of the Little Ice Age triggered by volcanism and sustained by sea-ice/ocean feedbacks. *Geophysical Research Letters* 39, GL02708.
- Smol, J.P. and Douglas, M.S.V. 2007. From controversy to consensus: making the case for recent climate change in the Arctic using lake sediments. *Frontiers in Ecology and the Environment* 5, 466-474.