

Open Yale courses

© Yale University 2012. Most of the lectures and course material within Open Yale Courses are licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 license. Unless explicitly set forth in the applicable Credits section of a lecture, third-party content is not covered under the Creative Commons license. Please consult the Open Yale Courses Terms of Use for limitations and further explanations on the application of the Creative Commons license.

GG 140 - The Atmosphere, the Ocean and Environmental Change with Professor Ronald B. Smith

Lecture 25 – Ice and Climate Change

1. Patagonia. Image credit: Google Earth
2. Patagonia. Image credit: Ron Smith
3. Patagonia. Image credit: Ron Smith
4. Patagonia. Image credit: Ron Smith
5. Mountain Glaciers Trends. Image credit: Dyurgerov and Meier. <http://maps.grida.no/go/graphic/glacier-cumulative-mass-balance> (Accessed Oct. 31, 2011)
7. Greenland’s Top Glacier “Losers.” Image credit: Byrd Polar Research Center. <http://bprc.osu.edu/MODIS/> (Accessed Oct. 31, 2011)
8. Petermann Glacier. Image credit: Byrd Polar Research Center. <http://bprc.osu.edu/MODIS/> (Accessed Oct. 31, 2011)
9. Greenland melt extents in 1992 and in 2002. Image credit: Konrad Steffen and Russell Huff, CIRES. <http://serc.carleton.edu/eet/greenlandmelt/> (Accessed Oct. 31, 2011)
10. Greenland glacier melt. Image credit: Sabotage Times. <http://www.sabotagetimes.com/travel/greenland-in-a-world-of-its-own/> (Accessed Oct. 31, 2011)
11. Greenland. Image credit: unknown. <http://www.openyoureyesnews.com/tag/arctic-antarctica/> (Accessed Oct. 31, 2011)
13. Geologic time scale. Image credit: USGS. <http://www.nature.nps.gov/geology/usgsnps/gtime/gtime1.html> (Accessed Oct. 31, 2011)

Open Yale courses

© Yale University 2012. Most of the lectures and course material within Open Yale Courses are licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 license. Unless explicitly set forth in the applicable Credits section of a lecture, third-party content is not covered under the Creative Commons license. Please consult the Open Yale Courses Terms of Use for limitations and further explanations on the application of the Creative Commons license.

15. Mammals of the Pliocene era. Image credit: The Visual Dictionary. http://www.infovisual.info/02/016_en.html (Accessed Oct. 31, 2011)
16. Pliocene Vegetation. Image credit: Harry J. Dowsett, John A. Barron, Richard Z. Poore, Robert S. Thompson, Thomas M. Cronin, Scott E. Ishman and Debra A. Willard. <http://pubs.usgs.gov/of/1999/of99-535/> (Accessed Oct. 31, 2011)
18. Human Evolution. Image credit: Robin Lloyd and Robert Roy Britt. <http://www.kirstenwinkler.com/the-evolution-of-teaching/> (Accessed Oct. 31, 2011)
19. Temperature and CO2 over the last 400,000 years. Image credit: J.R. Petit, J. Jouzel, et al. Climate and atmospheric history of the past 420,000 years from the Vostok ice core in Antarctica, Nature 399, pp 429-439, 1999.
20. LGM Ice Sheets. Image credit: unknown. http://anthro.palomar.edu/homo/homo_3.htm (Accessed Oct. 31, 2011)
22. Holocene Temperature Variations. Image credit: Robert A. Rohde. http://en.wikipedia.org/wiki/File:Holocene_Temperature_Variations.png (Accessed Oct. 31, 2011)
25. Terminal Moraine. Image credit: Hansel, A. K. 2003. End moraines – the end of the glacial ride. Geobit 2, Illinois State Geological Survey, Champaign, Illinois. <http://academic.emporia.edu/aberjame/student/dahms4/web1.htm> (Accessed Oct. 31, 2011)
26. Terminal Moraine. Image credit: J. Alean. <http://www.swisseduc.ch/glaciers/glossary/terminal-moraine-en.html> (Accessed Oct. 31, 2011)
27. Terminal Moraine. Image credit: Dr John Grattan. http://www.swisseduc.ch/glaciers/new_zealand/tasman_lake_2008/index-en.html?id=20 (Accessed Oct. 31, 2011)
28. Terminal Moraine, esker, drumlin. Image credit: unknown. <http://www.ccsd.edu/south/SCIENCE/esci/glaciers.htm> (Accessed Oct. 31, 2011)

Open Yale courses

© Yale University 2012. Most of the lectures and course material within Open Yale Courses are licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 license. Unless explicitly set forth in the applicable Credits section of a lecture, third-party content is not covered under the Creative Commons license. Please consult the Open Yale Courses Terms of Use for limitations and further explanations on the application of the Creative Commons license.

29. Esker. Image credit: unknown. <http://www.landforms.eu/cairngorms/esker.htm> (Accessed Oct. 31, 2011)
30. Esker in Manitoba. Image credit: Lynda Dredge. <http://libwiki.mcmaster.ca/clip/index.php/Main/SharpCrestedEskers> (Accessed Oct. 31, 2011)
31. Glacial Striations. Image credit: Charles Cannon. https://picasaweb.google.com/lh/photo/BOz-lhyHchW-SfyJ9d_feQ (Accessed Oct. 31, 2011)
32. Glacial Striations. Image credit: Wikipedia user "Rmhermen." http://www.enotes.com/topic/Glacial_striation (Accessed Oct. 31, 2011)
33. Glacial Erratic in Patagonia. Image credit: Robert Siegel. <http://www.stanford.edu/~siegelr/chile/patagonia.html> (Accessed Oct. 31, 2011)
34. Glacial Erratic in Denali. Image credit: National Park Service. <http://www.nature.nps.gov/geology/tour/glaciers.cfm> (Accessed Oct. 31, 2011)
35. Glacial Erratic near Calgary. Image credit: Royal Alberta Museum. http://www.royalalbertamuseum.ca/natural/geology/research/_erratic.htm (Accessed Oct. 31, 2011)
36. Drumlin Shape. Image credit: unknown. <http://www.geography-site.co.uk/pages/physical/glaciers/drum.html> (Accessed Oct. 31, 2011)
37. Drumlin. Image credit: unknown. <http://withfriendship.com/user/neeha/Drumlin.php> (Accessed Oct. 31, 2011)
38. Drumlins. Image credit: Carl Guell collection from Images of Wisconsin. <http://drumlinarealandtrust.org/what-is-the-drumlin-area.html> (Accessed Oct. 31, 2011)

Open Yale courses

© Yale University 2012. Most of the lectures and course material within Open Yale Courses are licensed under a Creative Commons Attribution-Noncommercial-Share Alike 3.0 license. Unless explicitly set forth in the applicable Credits section of a lecture, third-party content is not covered under the Creative Commons license. Please consult the Open Yale Courses Terms of Use for limitations and further explanations on the application of the Creative Commons license.

39. Field of Drumlins. Image credit: Her Majesty the Queen in Right of Canada, reproduced from the collection of the National Air Photo Library with permission of Natural Resources of Canada. <http://nesoil.com/images/drumlins.htm> (Accessed Oct. 31, 2011)

40. Last Glacial Maximum. Image credit: Sonoma.edu

41. Laurentide Ice Sheets. Image credit: unknown. <http://www.bio.umass.edu/biology/conn.river/iceages.html> (Accessed Oct. 31, 2011)

42. Glacial ice sheets forming Long Island. Image credit: Y. W. Isachsen, Ed Landing, J. M. Laubert, L. V. Rickard and W. SB. Rogers. http://www.geo.sunysb.edu/esp/589_99/mandell/Caumsett_report_files/image002.jpg (Accessed Oct. 31, 2011)

43. Long Island topography. Image credit: USGS. http://pubs.usgs.gov/ha/ha730/ch_m/M-text3.html (Accessed Oct. 31, 2011)