

The Thrill to Drill in the Chill:

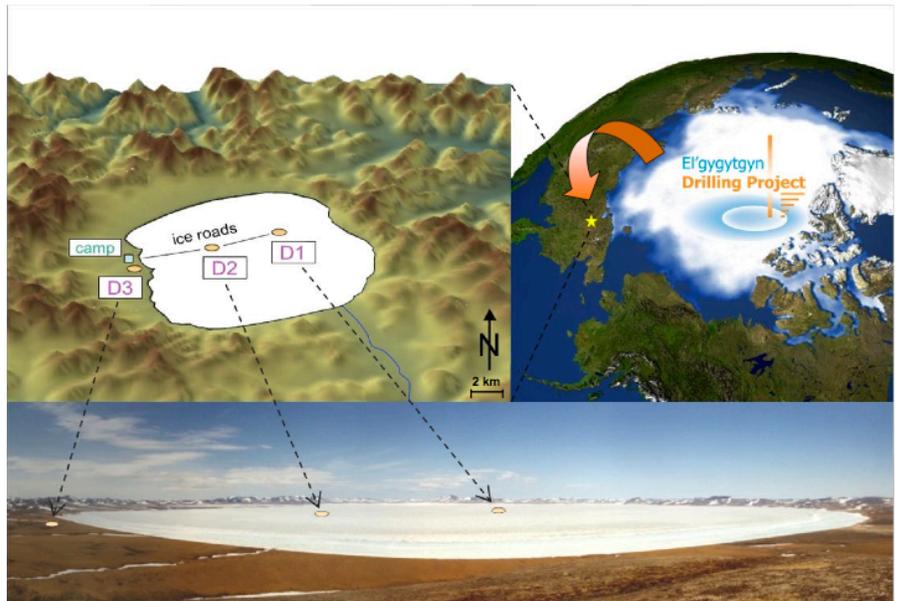
Lake El'gygytgyn Drilling unlocks secrets of Arctic Climate Change

Why a lake in Chukotka?

Lake El'gygytgyn was created 3.6 million years ago when a meteor hit the earth creating a 18 km wide basin in the remote mountains of Chukotka. The lake is now the focus of a challenging interdisciplinary multi-national scientific drilling campaign as part of the International Continental Drilling Program (ICDP). With drilling initiated in Nov. 2008, the goal is to collect the longest time-continuous record of past climate change in the terrestrial Arctic and to compare this record with oceanic and land based records from the lower latitudes to better understand hemispheric global climate change and polar amplification. Lake E is truly unique because the meteorite landed in the center of what was to become Beringia -- the largest contiguous landscape in the Arctic to have escaped Northern Hemisphere glaciation.

Drilling Objectives:

After several years of preparation, pre-site survey work, and arduous logistical planning, Lake El'gygytgyn is now the focus of a challenging interdisciplinary multi-national drilling campaign as part of the International Continental Drilling Program (ICDP). With drilling initiated in November 2008, the goal is to collect the longest time-continuous record of climate change in the terrestrial Arctic and to compare this record with those from lower latitude marine and terrestrial sites to better understand hemispheric and global climate change. Coring objectives include replicate overlapping lake sediment cores of 330 m and 420 m length at 2 sites (D1 and D2) near the deepest part of the lake. Coring shall be continued into the underlying impact breccia and brecciated bedrock in order to investigate the impact process and the response of the volcanic bedrock to the impact event. One additional land-based core (site D3) to ca. 200 m in lake sediments now overlain by frozen alluvial sediments on the lake-shore will allow better understanding of sediment supply to the lake and spatial depositional heterogeneity since the time of impact.



Principle investigators:

Brigham-Grette, Julie, Dept. of Geosciences, University of Massachusetts, Amherst, MA 01003 USA;
juliebg@geo.umass.edu; +1-413-545-4840

Martin Melles, Institute for Geology and Geophysics, University of Leipzig, Leipzig, GERMANY; mmelles@uni-koeln.de;
+49 221 470 2262 (currently at the drill site).

Pavel Minyuk, North East Interdisciplinary Science Research Institute FEB RAS, 685000, Magadan, 16 Portovaya St., RUSSIA; Minyuk@neisri.ru (currently at the drill site).

Christian Koeberl, Center for Earth Sciences, University of Vienna, Althanstrasse 14, 1090 Vienna, AUSTRIA.
christian.koeberl@univie.ac.at ; +43-1-4277-53110



Funding and collaborations:

The Lake El'gygytyn Drilling Project is an international effort funded by the International Continental Drilling Program (ICDP), the US National Science Foundation Earth Sciences Division and Office of Polar Programs (NSF/EAR/OPP), the German Federal Ministry for Education and Research (BMBF), Alfred Wegener Institute (AWI), and GeoForschungsZentrum-Potsdam (GFZ), and the Russian Academy of Sciences Far East Branch (RAS/FEB). The leading Russian institutions include Roshydromet's Arctic and Antarctic Research Institute (AARI), the Northeastern Interdisciplinary Scientific Research Institute (NEISRI) and the Far East Geological Institute (FEGI). The deep drilling system for Arctic operations was developed by DOSECC, Inc.



Web Links:

- ICDP Main website -- <http://www.elgygytyn.icdp-online.de/> ; click on “news”, then “Daily news” for blogs and pictures. Click on “public data” for weekly news updates for download in English and German.
- US Science Team -- http://www.geo.umass.edu/lake_e/index.html
- German Science Team -- <http://www.elgygytyn.uni-koeln.de>
- Educational Outreach -- <http://www.polartrec.com/geologic-climate-research-in-siberia>. Follow 8th grade earth science teacher Tim Martin, on his “Polar Trec” with support from the US National Science Foundation. Tim will post a public blog for his school system but be linked to teachers and classrooms from anywhere. He will hold webinars, send pictures and talk about the science from the field.
- Boston Globe graphic -- http://www.boston.com/interactive/graphics/20090316_siberia

