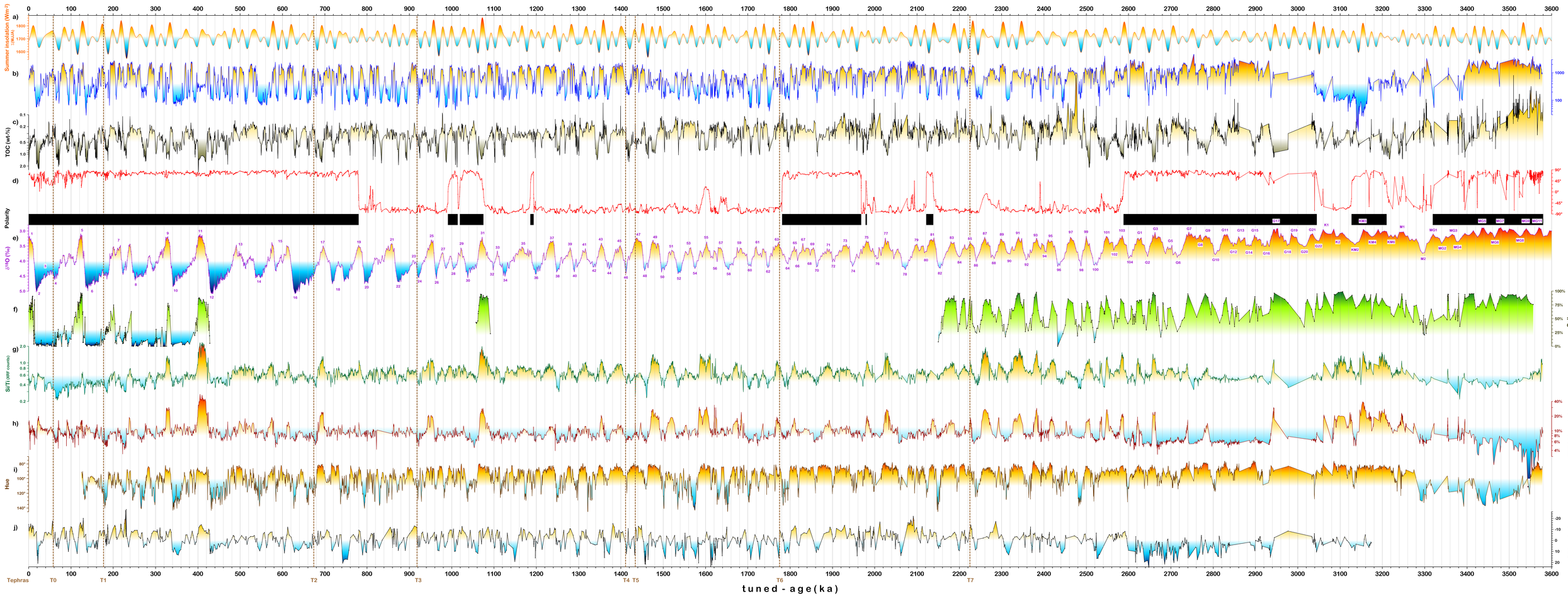
The 3 600 000 years long paleoclimate record from Lake El'gygytgyn - Far East Russian Arctic (67° 30' N, 172° 6' E)

ICDP Site 5011-1



a) **Northern hemisphere cummulative summer insolation (May to August) for 67.5°N, according to Laskar et al. (2004).**
b) **High-resolution record of magnetic susceptibility.**
c) **Total organic carbon (TOC).**
d) **Inclination of the characteristic remanent magnetisation (ChRM) and associated polarity pattern. Black indicates normal polarity, white indicates reversed polarity,**
e) **Marine benthic oxygen isotope stack LR04 by Lisiecki and Raymo (2005), with numbers/labels indicating marine isotope stages,**
f) **Tree & shrub pollen percentages: The first 430 ka include also data from PG1351 and Lz1024.**
g) **Ratio of silica to titanium (Si/Ti) obtained from X-ray fluorescence scanning (XRF, counts).**
h) **Biogenic silica (BSi, weight-%), inferred from Fourier transform infrared spectroscopy (FTIRS).**
i) **Hue angle (color), obtained from color photospectrometry.**
j) **Grain size data from priciple component analysis, with negative (positive) values representing fine (coarse) grained sediments.**

References:

Laskar, J., Robutel, P., Joutel, F., Gastineau, M. Correia, A.C.M., and Levrard, B.: A long-term numerical solution for the insolation quantities of the Earth. *Astron. Astrophys.*, **428**, 261-285, 2004.

Lisiecki, L.E. and Raymo, M.E.: A Pliocene-Pleistocene stack of 57 globally distributed benthic $\delta^{18}O$ records. *Paleoceanography*, **20**, PA1003, doi: 10.1029/2004PA001071, 2005.

Melles, M., Brigham-Grette, J., Minyuk, P., Koeberl, C., Andreev, A., Cook, T., Fedorov, G., Gebhardt, C., Haltia-Hovi, E., Kukkonen, M., Nowaczyk, N, Schwamborn G., Wennrich, V. and the El'gygytgyn Scientific Drilling Project, 2001: Conquering Arctic challenges through continental drilling. *Sci. Drilling*, **11**, 29-40, 2011.

Melles, M., Brigham-Grette, J., Minyuk, P. S., Nowaczyk, N. R., Wennrich, V., DeConto, R.M., Anderson, P. M., Andreev, A. A., Coletti, A., Cook, T. L., Haltia-Hovi, E., Kukkonen, M., Lozhkin, A. V., Rosén, P., Tarasov, P., Vogel, H., Wagner, B., 2012, 2.8 Million Years of Arctic Climate Change from Lake El'gygytgyn, NE Russia. *Science*, **337**, 6092, 315-320.

Brigham-Grette, J., Melles, M., Minyuk, P., Andreev, A., Tarasov, P., DeConto, R., Koenig, S., Nowaczyk, N., Wennrich, V., Rosén, P., Haltia-Hovi, E., Cook, T., Gebhard, C., Meyer-Jacob, C., Snyder, J. and Herzschuh, U.: Pliocene warmth, polar amplification, and stepped Pleistocene cooling recorded in NE Arctic Russia, *Science*, 2013, doi: 10.1126/science.1233137.

Nowaczyk, N.R., Haltia, E.M., Ulbricht, D., Wennrich, V., Sauerbrey, M.A., Rosén, P., Vogel, H., Francke, A., Meyer-Jacob, C., Andreev, A.A., and Lozhkin, A.V.: Chronology of Lake El'gygytgyn sediments. Clim. Past., 2013.

Haltia, E.M., and Nowaczyk, N.R.: Magnetostratigraphy of sediments from Lake El'gygytgyn ICDP site 5011-1: paleomagnetic age constraints for the longest continental record from the Arctic. Clim. Past, 2013.

created by: **Norbert R. Nowaczyk**
Helmholtz Centre Potsdam GFZ
German Research Centre for Geosciences
Section Climate Dynamics and Landscape Evolution
Telegrafenberg, D 14473 Potsdam, Germany

Status: May 2013