

## **Continental temperature variability in the Beringian Arctic during the past 3.6 Ma: The Lake El'gygytyn MBT/CBT record**

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Drill coring at Lake El'gygytyn (NE Russia) in 2009 recovered sediments spanning the past 3.6 Ma from the largest and oldest unglaciated Arctic lake basin. These sediments provide the first terrestrial Arctic paleoclimate record spanning the Plio-Pleistocene and thus offer a unique opportunity for examining high-latitude climate variability beyond the relatively short 100 Ka interval captured by Greenland ice core records. Proxy data (e.g. pollen, diatom assemblages) generated thus far from Lake El'gygytyn sediments suggest a number of "super"- interglacials (e.g. Marine Isotope Stages (MIS) 11 and 31) characterized by significantly warmer temperatures than at present. Currently, the magnitude of warming during these interglacials, as well as the overall amplitude of glacial-interglacial and Plio-Pleistocene temperature fluctuations, has yet to be quantified at Lake El'gygytyn. Here, we use the MBT/CBT index to reconstruct temperature at Lake El'gygytyn during the past 3.6 Ma, focusing on high-resolution reconstructions of MIS 1-11, MIS 19, MIS 31, the Plio-Pleistocene transition (~2.9 to 2.5 Ma) and MIS M2 (~3.3 Ma). We find that application of the MBT/CBT paleothermometer to Lake El'gygytyn sediments appears to be a promising technique for generating a continuous Plio-Pleistocene temperature record from the terrestrial Arctic.