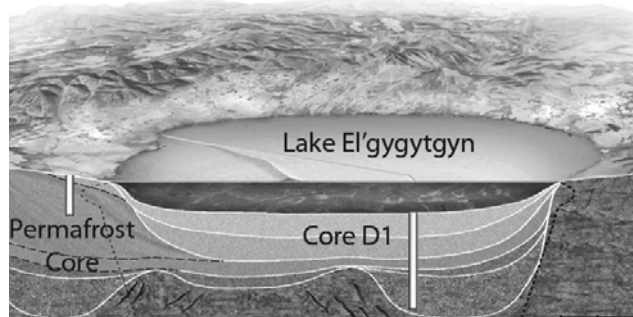


THE ICDP DRILLING PROJECT AT THE EL'GYGYTGYN IMPACT CRATER, ARCTIC RUSSIA: FIRST STUDIES OF THE IMPACTITE CORES

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Introduction: In 2009, an international drilling project, under the auspices of ICDP (the International Continental Scientific Drilling Program) was undertaken at the 18-km-diameter El'gygytgyn impact crater in central Chukotka, northeastern Russia. This crater formed 3.6 million years ago in volcanic rocks of Late Cretaceous age. The main rock types of the crater basement are ignimbrite, tuff and lava of rhyolites, rarely tuff and lava of andesites and dacite lava. The thickness of the strata that are exposed in the crater walls is more than 650 m [e.g., 1]. El'gygytgyn is the only known terrestrial impact structure that formed in siliceous volcanic rocks and thus enable to investigate shock metamorphism in siliceous volcanic rocks [2]. The 12-km-diameter Lake El'gygytgyn occupies part of the crater.



Drilling Project: In late 2008/early 2009, a shallow core was drilled at the shore of Lake El'gygytgyn to study permafrost effects. Subsequently, we recovered sediment and rock from three holes drilled at one location (D1) at the center of the lake. The sediments cover the time span since the formation of the crater at 3.6 Ma. Unfortunately parts of the sequence had bad recovery due to sequences of coarse sand and gravel interbedded with lake mud. These coarser units suggest unexpected glacial sources for these materials. Beneath the lake sediments we also collected various impact breccias and suevites over a depth interval of 207 meters. After an initial curation and documentation phase, sample distribution to science teams commenced in early June 2010.

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