

5th International Conference on

GEOLOGY & EARTH SCIENCE

October 16, 2020 | Virtual Conference

Surface Features of Grains from Sediments Affected by Periglacial Conditions (Abalakh High Accumulative Plate, Central Yakutia, Russia)

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The paper considers periglacial sediments within Abalakh high accumulative plate (AHAP) in Central Yakutia. This territory occupies Lena-Amga interfluvium. In borehole 18/1 five Complexes (I-V) of sediments was recognized: alluvial in the bottom (Complex I), overlaying by alluvial-lake sediments (Complex II), lake (Complex III) and Ice Complex (Yedoma) (Complex IV). The top of sediment succession is occupied by the Holocene deposits (Complex V). Micromorphology of quartz sand and silt grains analyzed in scanning electron microscope (SEM) and mineralogical analyses were introduced to reconstructed accumulation conditions, influence of periglacial conditions and source of sediments. Based on the obtained results, it can be concluded that the accumulation of deposits of the Complex I took place as a result of multiple retransporting of the same material and a limited supply of new material in a fluvial environment. Up the profile, the activity of fluvial processes decreased in favor of lake accumulation. Syngenetically frozen ice-rich silty deposit (Yedoma, Ice Complex) of the Complex IV is made of grains with a precipitated surface, but with a different degree of crusting and mineralogical different from the deposits lying below. Aeolian processes are responsible for their transport. They are a compilation of a variety of sediments, including supply older sediments, including retransported loess, and mechanical weathering took place in parallel with sediment accumulation.

Biography:

Anna Kut, PhD, researcher of the Melnikov Permafrost Institute (Yakutsk, Russia). Key points of studying is reconstruction of sedimentation environment of the Ice Complex sediments within Central Yakutia and Arctic region and frost weathering processes in sediments in the Pleistocene and Holocene sediments and its regional manifestation. Using method is morphoscopy analyze is based on the roundness degree and frosting of quartz grain's surface rating.