Massive ground ices of a modern and ancient Arctic shelf.

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The purpose of researches. The solving of a fundamental problem of cryolithology, connected to studying underground ice of the Russian Arctic regions in system a shelf-land

A brief substantiation. It is supposed to investigate massive ground ice (up to tens meters on a vertical and hundreds meters on extent). Laws of their distribution are not revealed, a common opinion about their origin is not produced. Some researchers indicate these ground ice as buried ices. Other researchers indicate count these ice as underground formations and by that - the certificate these ices absence of an ancient ice sheet cover. The establishment of genesis massive sheet ice will allow solving a so-called return problem fundamental cryolithology and paleogeography: reconstruction of an environment of the last epoch proceeding from the analysis of character of modern underground ice.

By present time there is an extensive material on massive ground ice of the Russian Arctic regions. Authors of the project create the Database which contains the information on 130 points. The list of references has made 270 names, covering 100-years period of studying of Arctic regions. Some spatial laws are established. However the question of genesis of massive sheet ice still remains disputable. Especially it concerns some ice on sea plains. Authors of the project offer classification massive sheet ice, based on close cause and effect interrelation between conditions ice creation and a structure (textural features) of the formed ice. It is allocated four genetic types of massive sheet ice differing by the mechanism of formation: syngenetic submarine, syngenetic sea-shore, epigenetic injective and buried primarily ground ices. For the two first types authors on the basis of studying the big number of cuts with massive sheet ice within the limits of ancient (Pleistocene) sea plains, mainly in the north of Western Siberia and on Chukotka, offer completely new mechanism of formation - syngenetic freezing collecting ground sea deposits directly in submarine and sea shore conditions. The distinguishing of these two types of massive sheet ice shows that at all stages of Pleistocene during sea transgressions on an ancient shelf in submarine conditions the permafrost with large deposits of ice was formed. After regress of the sea of adjournment with massive sheet ice compose extensive spaces of sea plains practically on all stages of Pleistocene.

Genetic communication between cryopegs, massive sheet ice and breeds containing them is established by authors of the project and proves to be true their similar isotope and a chemical compound in cuts Pleistocene sea plains (ancient shelves).

Planned result. Allocation of areas relic and modern increasing submarine frozen thickness, revealing of an orientation of development shelf cryolithozone, paleogeographical conclusions, publications, recommendations under the account of corresponding character shelf cryolithozone in concrete areas.

The basic kinds of researches. Field (sea) researches, drilling on a shelf with selection of a core, visual research of a structure of frozen breeds on a core, analytical researches of a core.

Time, places and resources of field works. Field seasons during time MPG: New Land, Karsky sea, the Western Yamal, Mare-Sale, Yenisey river mouth, Taimyr peninsula. Complex
expeditions of the Moscow State University, IKZ the Siberian Branch of the Russian Academy of Science,