



## **Possible mechanism of tabular ice formation**

**S.A. Sokratov**, V.N. Golubev, G.A. Rzhanitsyn, A.V. Shishkov

Faculty of Geography, Moscow State University, Moscow, Russia (sokratov@geol.msu.ru)

Numerous theories attempting explain the genesis of ground ice (particularly the tabular ice) formation are suggested. In relation to the tabular ice, the proposed either intra-soil (injection, segregation, their mixture) or atmospheric origin of the ice explains only part of the observed ice characteristics.

One more possible mechanism of appearance of frozen grounds with high ice content proposed by the authors and modeled in cold laboratory represents interplay of fresh ground and salty sea waters in coastal zones. As the result of the periodic variation of the sea water level (from tides to long-term variation) the ground waters can be backed up by the sea water and follow the sea water level varying up to considerable amplitudes. The conditions of sea basin regression accompanied by freezing of sea sediments such variations can periodically overmoisten top ground layers thus activating the ice formation processes. The fresh water ground ice found in salty sediments can be the result of such mechanism. Dynamical breaks in form of cracks filled by ice are also not excluded for the territories where the proposed mechanism can take place.

The work is supported by Russian Fund of Basic Research grant 05-05-65115-a.