# Numerical modeling of the ice-snow cover forming process in water body of different mineralization

T. Grankina

Institute for Water and Environmental Problems, Novosibirsk Department (Siberian Branch of the Russian Academy of Sciences) 2, Morskoy prospect, Novosibirsk, Russia, 630090, grankina@ad-sbras.nsc.ru

One-dimensional model describing ice cover growth in mineralized water body is developed. As a result of salt-free ice increasing before a crystallization front a layer with higher mineralization is formed. The last phenomenon affects of the freezing-point. The mathematical statement based on Stefan's problem comes to the solution of the equations of heat conductivity for temperature conditions and diffusion for distribution of mineralization in three conjugated areas with three desired moving boundaries and conjugating conditions. The conditions of heat and mass balances as well as freezing-point changing are taken into account. The front rectification method allowing to setting the equations in a regular domain is used. The problem is numerically realized by the so called contradirectional sweep method (Voevodin A.F. at all. Thermodiffusion task of sphere crystallizations//Dinamika sploshnoi sredy, 1982, N5, pp 118-123).