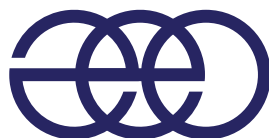


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INFLUENCE OF NATURAL FACTORS ON PERMAFROST STABILITY ON SVALBARD IN THE CURRENT CLIMATE

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One of the components of the natural environment of Svalbard is the permafrost. Its degradation can lead to negative phenomena, both for the natural environment, and for engineering structures and communications due to the loss of strength of the foundations of structures and activation of slope processes. The loss of stability of permafrost is caused by the formation of non-merging permafrost transient to talik. This occurs with incomplete freezing of the seasonally thawed layer due to climatic changes and variability of the surface cover and soil parameters.

The formation of non-merging permafrost is due to both climatic changes and a number of natural factors affecting the soil thermal regime. The influence of the snow and moss cover parameters on the temperature regime, soil freezing and melting, both separately and in combination with climatic changes, is considered. The studies show the need for interdisciplinary research (glaciological, botanical, climatic, soil) on the effect of climatic changes on the parameters and thermal characteristics of the snow cover, vegetation and soil.

To determine the time of the beginning of the formation of non-merging permafrost under current climatic changes, calculations were made on the mathematical model. For calculations, the forecast values of air temperature from the global and regional climate models were used. The time of the beginning of the formation of non-merging permafrost is determined depending on the thickness of snow and moss cover, and soil moisture content.

Keywords: permafrost, degradation, climatic changes, snow and moss cover, mathematical model.