

## ELECTROMAGNETIC METHOD FOR GEOPHYSICAL RESEARCH OF PERMAFROST SOIL

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Despite the continuing research of new eco-friendly and accurate geocryological survey methods, current efficiency of geophysical methods for permafrost stress-strain state estimation remains relatively low. The work described in the paper concentrates on the research of Earth's natural pulsed electromagnetic field method capability in locating cryogenic occurrences and permafrost bearing capacity estimation. Unlike previously used geophysical methods applied for such tasks, based on measuring electric and magnetic permafrost properties, for the first time the applied method is based on determining structural, strength and deformational properties of the rocks. Algorithm and software-hardware system implementing the method is tested during engineering-cryological mapping of the Yakutia's Chayadinsk oil, gas and condensate field territory where line facilities are located. Obtained results indicate that the method is applicable for detection of varying morphology cryogenic formations. The work demonstrates method's capacity to monitor geocryological processes in conditions of technogenic influence and global warming, which could give a nudge to a continuing research in that direction.

**Key words:** earth's natural pulsed electromagnetic field, permafrost, geocryological survey, stress-strain state of the rocks, geophysical survey, dangerous geodynamic processes monitoring, freeze-thaw action.

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