

GEOPHYSICAL MONITORING OF HYDROTECHNICAL OBJECTS IN PERMAFROST ZONE (WEST YAKUTIYA)

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The dam of Vilui hydroengineering unit is the first one among big hydrotechnical constructions raised in permafrost zone. This area is characterized by a complex geocryological situation. Many parameters of this dam are unique therefore it's exploitation needs continual attention. Until the end of 70th - beginning of 80th the state of right-bank contiguity as well of the whole dam was considered. To obtain more electric power after proper preparation of the construction the water level was lifted above project level. Quick thawing of frozen ground in the basement of right-bank contiguity and appearance of filtration flow transferring heat has began in 1995. We present results of complex experimental control observation of the development of filtration process. Due to a difficult and hardly predictable geocryological situation in this area, the geophysical methods were included into the system of local monitoring. We demonstrate several examples showing the possibilities of geophysical methods for monitoring of different types of instability (like landsliding, position of the boundaries of thawed and frozen grounds, new-forming filtration flows, etc.) The results presented in our paper are based on long-term observation in the permafrost zone in Vilui river area.