

INVESTIGATION OF GEOPHYSICAL PARAMETERS USING COSMIC RAYS

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It is well-known that snow is the main component of water resources for river flows. The snow being a source of water determines for a long period of time the mode of moisture in the upper layer of soil, waterways, and drainage system as a whole. The practical importance of information on stocks and the dynamics of snow accumulation at large areas, as well as soil moisture are enormous. The main methods for the investigation of moisture reserves in snow and soil moisture still are contact methods depending on measurements including selection of snow or soil. The method is realized using neutron detectors which have low level of confounding factors, the lack of isotopic sources, simple calibration and the possibility of measurement automation. The neutron component of cosmic radiation is useful for measuring snow water stocks in a wide range, although it accounts for a small fraction of the total radiation flux. The paper presents studies of cosmic radiation interaction with environment, development of methods for determining moisture reserves in snow for the forecast of flow of mountain rivers; short-term forecast of avalanches probability; development of software for solving problems.

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