RESEARCH ON THE CURRENT STATUS OF THE GEODESIC BASE FOR MONITORING DISPLACEMENTS AT DAMS

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Abstract

Monitoring displacements at storage dams requires the presence of a geodetic network of a certain complexity. Dams in Romania were built over long periods of time, and most of them have an operating life of over 50-70 years. The geodetic network for monitoring displacements at these dams was executed according to the topographic plans existing at the time of design. At the current stage, the movement tracking system at a dam is carried out using the microtriangulation method. This system must be updated and optimized for the use of modern data acquisition equipment, for their rapid processing and transmission to decision-makers. Research conducted on a series of dams in eastern Romania has highlighted a series of problems that create a risk in the classic monitoring of dam displacements. A main problem at a series of dams is the updating of topographic plans, the geodetic tracking network and the equipment provided. Satellite techniques for taking over geodetic data are effective for monitoring displacements in "real time". Real-time monitoring of parameters at a dam allows for rapid intervention in assessing a risk and adopting safety measures. To this end, the current geodetic networks of dams must be analyzed and modernized by attaching modern equipment and software that can take over real-time displacements.

Keywords: displacements, geodetic network, GNSS, real time, robotic total stations