ANALYSIS OF INPUT INFLUENCING FACTORS AND SELECTION OF THE TYPE OF A MATHEMATICAL MODEL AT THE STAGES OF THEIR STRUCTURAL AND PARAMETRIC IDENTIFICATION FOR STUDYING DEFORMATION STATE OF THE SAYANO-SHUSHENSKAYA HPP DAM IN 2013-2016

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Assessment of the operational state of a hydraulic structure and its technical safety should be carried out by comparing the obtained quantitative and qualitative diagnostic indicators with their criteria values. For this purpose, predictive mathematical models of the structure's behavior should be developed, which are recommended to be calibrated according to field observations. The article considers features of constructing predictive mathematical models for studying deformation process of displacements of the dam crest of the Sayano-Shushenskaya hydroelectric power plant. For various combinations of input influencing factors, including the results of field observations and calculated values of component displacements, the most successfully designed predictive mathematical models were studied, on the basis of which the dam body points were forecasted for stages of its operation in different times. The advantages of using the created forecast models for various temperature conditions of the structure (medium, warm and cold temperatures of year) are presented.

Key words: high-pressure dam, geodetic data, forecast mathematical model, structural and parametric identification, forecasting, movements of controlled points, discreteness of the mathematical model, deformations of a construction.

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