

Dynamics of Groundwater and Its Impact on Ground Stability

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The seminar focuses on the hydrodynamic and engineering aspects of groundwater, as well as the adverse effects it exerts on ground stability. The paper discusses the origin and classification of groundwater, the mechanisms of its movement, as well as the specific characteristics of infiltration and filtration processes. It also examines the recharge sources of phreatic waters, along with their thermal and chemical regimes. Particular attention is given to the interaction between groundwater and surface water, the conditions of spring formation, and the properties of aquifer rocks. The seminar presents information on modern research methods that are commonly employed in the study of groundwater systems. The paper examines the detrimental geological processes triggered by groundwater, including landslides, karst development, suffosion, soil heaving, and the formation of flow-prone rocks, as well as the engineering approaches used to mitigate these phenomena. The aim of the seminar is to highlight the close relationship between subsurface hydrodynamic processes and ground stability, and to emphasize the importance of research in this field in the context of geological safety and sustainable spatial planning.