# 3d Modeling for Predicting the Environmental Impact of The Aydar-Arnasay Lake System Under Different Scenarios, Changes in the Water Management Situation

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*Abstrsact.* The research is studied spatial distribution of the filtration characteristics of the territories of the Aidar-Arnasay Lake System (AALS) within the Republic of Uzbekistan. The data of natural-technogenic objects obtained as a result of analysis and schematization of hydrogeological conditions are generalized, and the hydrogeological parameters of the aquifer are calculated. The principles of constructing a geo-information system based on modern GIS technologies are developed, the boundary and initial conditions are justified, a regional mathematical model of the AALS territory is developed based on modern modeling programs Vizual Modflow for analyzing and assessing the dynamics of the development of AALS and its relationship with the components of the geological environment. The factors of groundwater formation are given and evaluated taking into account changes in water management conditions, their current state is highlighted, and recommendations are given for substantiating the tasks of groundwater monitoring in these territories.

*Key words:* Underground water, GIS, mathematical modeling, boundary conditions, the influence of the lake system, geofiltration process, data base, groundwater abatement, groundwater monitoring, water resource management.

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