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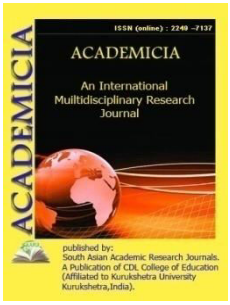

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MATHEMATICAL MODELING IN HYDROGEOLOGICAL RESEARCH

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[1,2]Mathematical Modeling In Hydrogeological Research,
UZBEKISTAN

ABSTRACT

In the article the application issues of geographic information technologies and methods of mathematical modeling of geofiltration and geomigration processes of hydrogeological systems were discussed, as well as for information support of the groundwater monitoring system. The object of research are the Akhangaran aquifer, which is a large industrial area with intensification of agriculture, as well as densely populated, where industrial reproduction of water resources is established by designing water intake facilities using groundwater, also having huge data on regime, geological and hydrogeological aspects. The main goal of these researches is to learn the methodology for assessing groundwater resources by modeling to the GIS basis, theoretical and applied methods of mathematical analyses. The features are considered and the boundary and initial conditions are justified. The results are a research technique has been developed to simulate geofiltration and geomigration processes, to determine the balance of groundwater, and the hydro geological parameters of the aquifer have been calculated from it. The calculated values of the natural resources of groundwater by the parameters of their level mode in the Ahangaran pool allowed establish the permissible convergence of resource estimates according to the amplitudes of fluctuations in the level of groundwater and according to geoinformation modeling.

KEYWORDS: *Mathematical Modeling, Geofiltration Processes, Geoinformation Technology, Topographic Surfaces, Groundwater, Geofiltration Schematization, Finite-Difference Schemes, Monitoring Of The Underground Hydrosphere.*

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