abstract
one of the main strategies to prevent the loss of under ground water is the control of surface water. Mohammadabad permanent river is one of the important sources of supplying water for Gorgan plain . it is one of the southern main branch of Gorgan river in Golestan province. The average water income of this river according to Sermo satation is 42 milion steres a year. In order to control the water of Mohammadabad river,exploitation of coastal barrier of lands of the dam,flood control around Fazelabad and coastal villages and also for reduce of groundwater withdrawals , Construction of the dam called Mohammadabad was suggested. This dam is of the kind of terrestrial with a clay core and a reservoir of 40 milion steres. On the watery time the water level behind the dam goes up to 71.8 metters that can play a big role in feeding the underground aquifers around and hence increase of stagnation of the level of the aquifers. Mathematical mode MODFLOW is the prevalent mode in simulation of persistent and transitional flows in free and under pressur aquifers. Therefore the aim of the present study is the evaluation of the mode MODFLOW in studying Mohammadabad dam effects on stagnation palne.In this study after preparing the input layers to mode in the context of geographic information system (GIS), boundary conditions and lattice of the aquifer were designated. Then using the information of pysometeric wells and other studying, the calibration of the mode in stable and unstable conditions was done. And to ensure the simulation results ,verification test was conducted.Then 3 scenarios to study the effect of the dam on stagnation level were done separately using the mode MODFLOW. These 3 scenarios were 1-the level of stagnation of the aquifer in the normal reservoir level conditions. 2-the level of stagnation of the aquifer in the 50 percent of reservoir level conditions. 3-drought conditions.The results taken were showing that after the establishment of the dam,the stagnation of the aquifer during the normal reservoir level will be increased,and it will be decreased during the condition of the 50 percent of reservoir level and also in the drought.

Keywords: Mohammadabad River, Management of groundwater resources, Modeling, MODFLOW, Stagnation level

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