

## **Use of GIS in Groundwater Modelling: Advantages in Fitting Processes**

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The water resources are subject of several modern methods, in particular: the computational techniques which based on mathematical methods.

It's not anymore to disassemble the role that the mathematical and numeric models play in the water resources management. The most important phase in the process of modelling of the phenomena of the groundwater is the fitting of the model and it's validation. The fitting is done to restore the physical parameters (generally the Transmissivity and the Storage coefficient in the case of the flows or the Kinematic Porosity and the Dispersivity coefficients in case of simulation of the pollution) is complicated in the case of the resolution of the direct problem by try and errors method. Numerous data must be injected and possibly controlled to be introduced in the model.

At the time of the fitting of the Gharb aquifer complex model, we had to manipulate an important data bases necessary to this model: data relative to boundary conditions, reference piezometry, type of geological materiel given by the boreholes, land use, irrigation water quantity, others uses of water,.... The integration of the GIS in this phase for the management the visualization and the spatial distribution of these data proved to be of a big utility to accelerate the phase of fitting and to verify the adequacy of the results discounted with the physical data of the area. This study chows that the GIS techniques will give assistance to numerical model in particular to identify the hydrodynamics parameters by the resolution of direct problem.

Key Words: GIS, Hydrodynamic modelling, fitting, Gharb aquifer.