

Contribution to the integrated water resources management in a watershed of Tipaza region

The purpose of this work is the integrated water resources management in the watershed of Algiers onshore. Our monitored fields focused on Tipaza region, located around 100 Kms to the west of Algiers. The aforesaid area straddles two sub-basins; those of Nador and El Hachem wadis. It is an area of strong economic expansion by virtue of its population explosion, its tourism and cultural development and its high agronomic suitability. Considering its agronomic suitability and inadequate allocation of water intended for domestic consumption, knowledge of the water needs and water deficiency, simulated over a 50 year period, revealed the reality of water resources development in this Wilaya. Models of Rojas, Eldin and Lhomme allowed the development of water balance, with the insertion of the parameters; rain, P/E, runoff, infiltration and soil.

A methodological approach was developed for water deficiency calculation. It is based on the one hand, on the Principal Component Analysis (PCA) for the simulation of meteorological parameters that are a part of its modeling, and on the other hand, on the concept of neural networks for its application at monthly step time.

Results of pluviometry and E/P simulations, injected into the neural model provided palpable indications of the demand for water (potable, industrial, irrigation) with regard to the water yield offered by study area. The best model was selected after results validation.