

GROUNDWATER RECHARGE OF AQUIFERS IN SEMI-ARID ZONE: EXAMPLE FROM THE KSOUR RIDGE, NW ALGERIA

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In a recharge area characterized by a semiarid or an arid climate, therefore a low annual rainfall, effective rainfall is the hardest item to estimate, as it was demonstrated by classical monthly hydrological balance computations.

The methodology proposed in this work relies on spatial and temporal interpolations of scarce climatic data (fig. 1). This methodology can be used to determine the recharge flow to aquifers of these zones.

The Ain Sefra’s syncline includes the sandstone aquifers of Continental Intercalary and of the Plio-Quaternary layers. Three years, with contrasting annual rainfalls, are chosen in this application: 1983 as dry year, 2006 as average year, and 2008 as humid one. This application requires information about the soil nature, thickness and porosity, the surface and the altitude of the recharge areas.

The rainfall and the recharge flow to aquifers indicate that the principal recharge areas are the Jurassic outcrops, mainly during the humid years, when the annual rainfall exceeds 300 (fig.2).

Keywords: Effective rainfall, Recharge, Semiarid, Space and temporal interpolation.

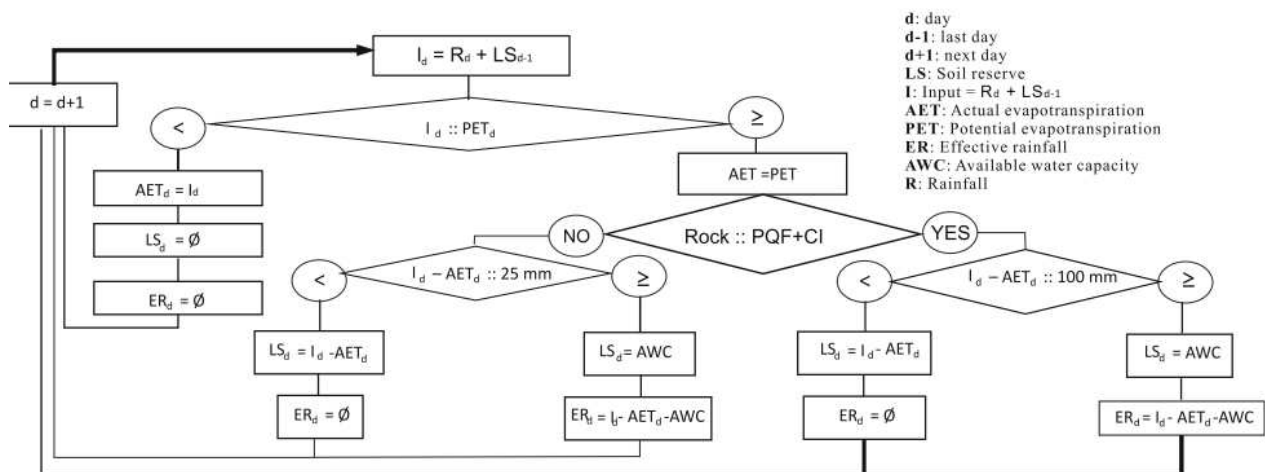


Fig. 1: Flowchart enabling calculation of AET and ER

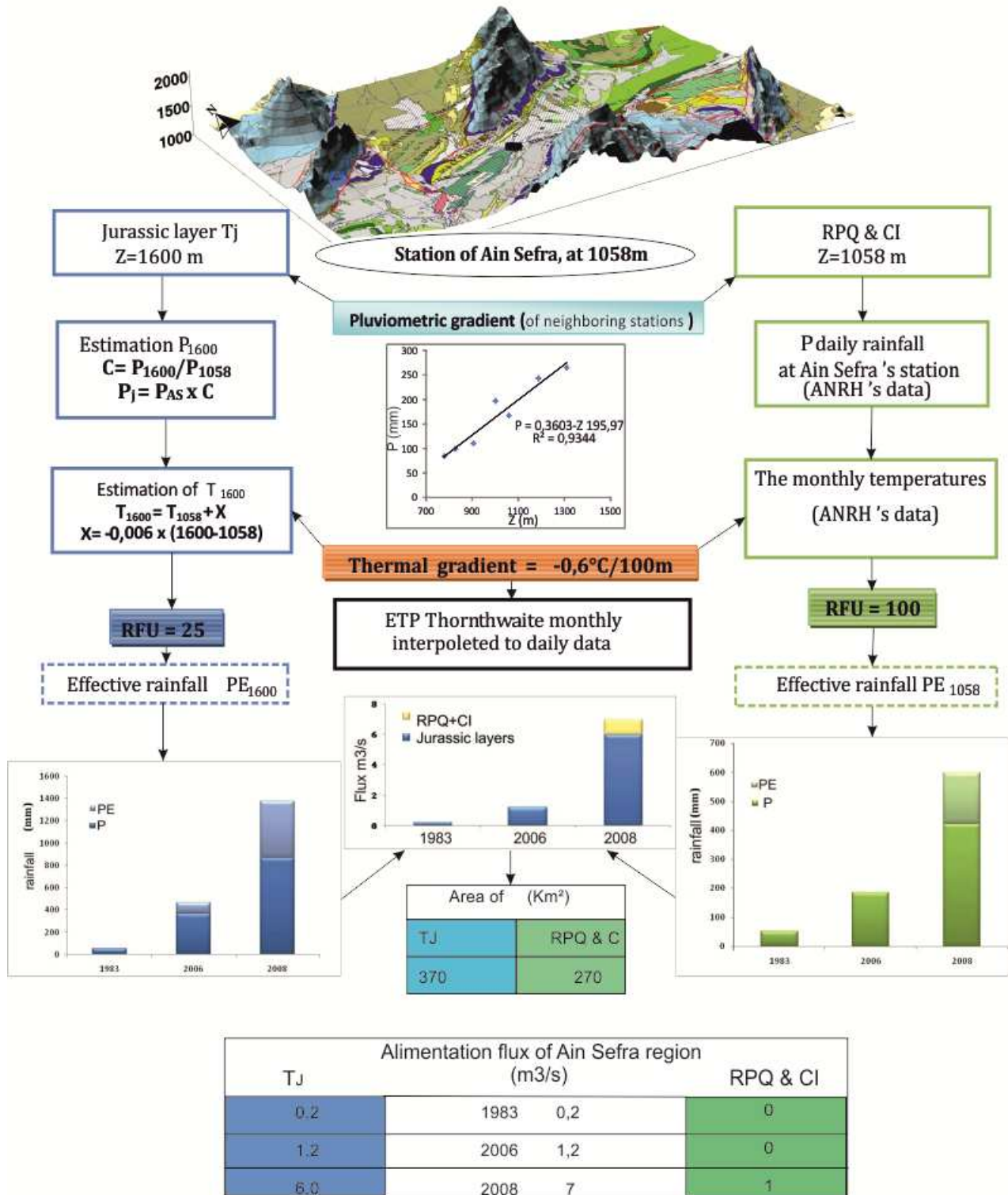


Fig.2: Flow chart of water balance