

Modeling using the SWAT model of water flow and transport in suspension in the watershed of the valley of Wadi El-Hachem

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In the Maghreb, dams regularly suffer from excessive siltation due to erosion problems present in the catchment areas. The origins of this erosion are multiple: land use, deforestation, land affectation, ... Hydrology coupled with geographic information systems allows using distributed and physically based models to predict the evolution of siltation of dams. The application of these models in Algeria will finally predict the impact of anti-erosion measures, land use patterns on the siltation of dams accurately estimating the amount of sediment produced by erosion runoff and the degree of filling. A methodology based on the map data (digital terrain model, map soil science, geology map and mapping of land use) and daily meteorological data (temperature, relative humidity, wind speed, solar radiation) is being development and testing of the dam Bourkourdane. The SWAT model is used to predict the amount of sediment accumulating in the dam, the water flow rate inbound, outbound, and the volumes of water and sediment stored in the dam. Adequate management of releases, coupled with better management of erosion upstream of the dam will extend the life of dams Algerians. Especially for Boukourdane, improved management of releases is paramount to improve groundwater recharge, fight against the intrusion of marine waters and prevent the accumulation of fine particles that reduce soil permeability.