

## Abstract

The phenomenon of suspended sediment load is very complex in Mina River basin because of its important soil heterogeneity, vegetation deficiency and rainfall variability in time and space. The methodological approach adopted in this paper consists of finding a regressive power model, which may explain better the suspended sediment discharge as a function of the flow discharge collected at Wadi El-Abtal and Sidi AEK Djilali hydrometric stations by studying this relation at various temporal scales: daily, annual, monthly and seasonal. The obtained monthly power relations, explaining the greatest part of the variance, lead to interpolate, extrapolate and analyse suspended and bed loads deposited on Sidi M'hamed Ben Aouda (SMBA) reservoir since being in service in 1977/1978. These allow authors to find relations between specific erosion and effective rainfall and propose some solutions for river basin managers and policy makers to reduce the silting of SMBA reservoir