Erosion model in function of the concentration of suspended sediment and fluid flow during floods and the hysteresis phenomenon

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Abstract

The watershed of the river Mina tributary of the left bank of Cheliff near Sidi Khettab North of Relizane extends over 6000 km². It is situated between 0 ° 10 'and 1 ° 10' East longitude and 35 ° 40 'and 34 ° 40' North latitude. It is part of the Western Oran Algeria tell or Atlas (apart from a small area just upstream part of SERSOU). This basin represents approximately 13% of the area of the entire Cheliff Zahrez-basin, it is pretty much representative of many basins of the semi-arid northern fringe of Algeria regarding the physical and climatic parameters and their influences on erosion in general and sediment transport in particular.

Indeed, the relationship between the concentration of suspended sediment (C) and the liquid flow rate (Q), of a watercourse, is a relationship that will not only determine the sediment transport in the river, but also to study the evolution of suspension concentrations and liquid flow for hydrological event such as floods.

We look first to analyze the relationship "flow / concentration" at flood scale. Thus, analysis of the evolution of suspension concentrations based on flow during the floods in su-basins of the oued Mina did show three (03) curve models (in the sense of a needle of watch 'clockwise "in the opposite direction of a needle of watch " counterclockwise loop "and a form of eight).The models of classes II and V are the most common, reflecting high sediment availability after dry season when the soil is particularly fragile and appeared suspension concentrations show up before the peak of flow.

Key words: wadi Mina, Cheliff, concentration of suspended sediment, flood, model class II and V, peak flow.