

Comparative study of suspended sediment transport between the sub-basins of Zeddine and Tikazale wadies (Wilaya of Chélif)

Hydrological and stream sediments transport analyzes were conducted on Chélif basin (Central Algeria) for half a century. These analyzes were performed successively to develop a set of elements and decision-making tools for a better water management for the major dams of Chélif. A prior definition of all geomorphological, geological, hydrological and climatic parameters of the two neighboring sub-watersheds belonging to the Higher Chélif (Zeddine wadi and Tikazale wadi) was performed. Detailed quantitative and qualitative analysis of stream discharges and sediment discharges measured at our sub-watershed purpose of the study, has enabled drawing relationships between sediment transport of the wadis and their flow rates, and that, to estimate a sediment transport identifier parameter for the two basins, i.e. the specific erosion. This parameter allowed us to compare our basins between them and properly understand the sediment transport process at surface and time scale. The review of concentrations relations, depending on flood flows by using the hysteresis curves, enabled identifying the main trend classes, which are in most cases, simple curves, clockwise curves then counterclockwise curves and finally figure-of-eight ones for each study basin. The simple curve model reflects an instantaneous erosive action and a rapid suspended sediment transport caused by short and driving showers on soils generally dry, fragile and not very protected.