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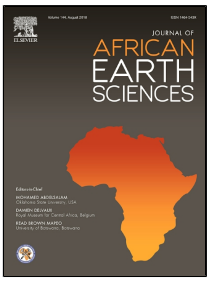

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The assessment of soil erosion risk, sediment yield and their controlling factors on a large scale: Example of Morocco

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Abstract

We combined the RUSLE model with a calibrated sediment delivery ratio SDR to obtain a simulated suspended sediment yield, which is compared with the observed ones founded in 42 catchments of the biggest and important dams of Morocco. The comparison allowed us to understand areas where the model can give suitable results and also understand the factors controlling the suspended sediment yield. The analysis of the long-term observed values of sedimentation in all selected reservoirs in Morocco shows an annual mean Sediment Yield (SY) of 1.51 million m^3 with a standard deviation of 2.09 million $m^3 \cdot year^{-1}$. A very strong positive relationship was determined between sedimentation in reservoirs and the corresponding drainage area ($R^2 = 0.77$); reservoirs with high sediment yield are those characterized by large drainage areas. We converted the sediment yield values into Suspended Sediment Yield (SSY) ($t \cdot ha^{-1} \cdot year^{-1}$) in order to better understand its spatial distribution all over the studied watersheds. The average founded is 6.40 $t \cdot ha^{-1} \cdot yr^{-1}$, with the highest values observed in the North of the country dominated

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