

Developing a Web GIS Tool for the Evaluation of Soil Erosion of a Watershed

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Abstract : The soil erosion by water has become one of the biggest problems of the environment in the world, threatening the majority of countries. There are several models to evaluate erosion. These models are still a simplified representation of reality. They permit the analysis of complex systems, measurements are complementary to allow an extrapolation in time and space and may combine different factors. The empirical model of soil loss proposed by Wischmeier and Smith (Universal Soil Loss Equation), is widely used in many countries. He considers that erosion is a multiplicative function of five factors: rainfall erosivity (the R factor) the soil erodibility factor (K), topography (LS), the erosion control practices (P) and vegetation cover and agricultural practices (C). In this work, we tried to develop a tool based on Web GIS functionality to evaluate soil losses caused by erosion taking into account five factors. This tool allows the user to integrate all the data needed for the evaluation (DEM, Land use, rainfall ...) in the form of digital layers to calculate the five factors taken into account in the USLE equation (R, K, C, P, LS). Accordingly, and after treatment of the integrated data set, a map of the soil losses will be achieved as a result. We tested the proposed tool on a watershed basin located in the weste of Algeria where a dataset was collected and prepared.

Keywords : USLE, erosion, web gis, Algeria

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