

## ABSTRACT

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The erosion of the soil is characterized for the disaggregation and transport of the superficial material, promoted by the hydric or eolic action, leading to the impoverishment of the soil, and in extreme cases to the desertification. This process is complex and depends on a multiplicity of factors that differ in the time and space, whose universality and simultaneous particularities, becomes it difficult to equate and to quantify.

The quantification and prediction of the erosion present a great importance due to the problems of ecological, economic and social order that the erosive phenomenon can cause, being each time plus a subject that affect the decision of the management entities of the environment and responsible for the planning.

In this dissertation it was done the calculation from the erosion through two methodologies, with resource to the Geographical Information Systems (GIS), applied to a practical case.

The study area is Hydrographic Sub-Basin of the Cobres River and the select methodologies has been "Universal Soil Loss Equation" (USLE), classic methodology and the "Water Erosion Prediction Project" (WEPP), recent methodology. With this study have intended to demonstrate the capacities and possible advantages in the use of the Geographical Information Systems in the modeling of the hydric erosion and give a contribution for in a next future if it can develop a model of prediction of the erosion that allows giving trust worth and suitable information the national level.

In this work the model USLE present results in terms of annual average erosion very next to the gotten ones carried through experimental works in the Hydrographic Basin of the Guadiana. In meanwhile, it has limitations of use in surfaces where it is necessary to esteem the space distribution of the sediments.

Model WEPP presents some advantages by other technologies of erosion prediction, as the capacity esteem the space distribution and time of the loss of soil and deposition, draining and quantification of the some types of eroded sediments, however, it is very sensible to the parameters of entrance in the model. The model WEPP, in this work, under predicted the erosion and draining, needing therefore validation and calibration for attainment of more precise results.

**WORDS - KEY:** EROSION, MODELING, GIS, USLE AND WEPP