

Estimation of Erosion Volume and Surface Runoff for the Wadi Al-Shanadi Basin, Southwest of Basrah Governorate Using RS & GIS

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Abstract:

The research aims to estimate the volume of erosion and the depth of surface runoff using the Soil Conservation Service Curve Number (SCS-CN) method in conjunction with Geographic Information Systems (GIS). The rainfall-runoff model is a mathematical model that describes the relationships between rainfall and runoff within a watershed or drainage basin. Remote sensing technology significantly enhances traditional methods in the study of rainfall runoff and water erosion. The role of remote sensing generally lies in providing a source of input data or assisting in the estimation of equation coefficients and model parameters.

The purpose of this research is to estimate the volume of soil drift toward the wadi's outlet and to assess the volume of surface runoff. The highest estimated volume of water erosion in the Al-Shanadi Basin reached approximately 82,200 cubic meters per square kilometer per year, while the highest recorded surface runoff in the basin was estimated at about 127.7 cubic meters per second.

Key words: Surface Runoff, Water Erosion, Al-Shanadi Basin, EPM, Curve Number.