

## Modeling Sediment Yield Using the SWAT Model: A Case Study of Upper Ankara River Basin, Turkey

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**Abstract :** The Soil and Water Assessment Tool (SWAT) was tested for prediction of water balance and sediment yield in the Ankara gauged basin, Turkey. The overall objective of this study was to evaluate the performance and applicability of the SWAT in this region of Turkey. Thirteen years of monthly stream flow, and suspended sediment, data were used for calibration and validation. This research assessed model performance based on differences between observed and predicted suspended sediment yield during calibration (1987-1996) and validation (1982-1984) periods. Statistical comparisons of suspended sediment produced values for NSE (Nash Sutcliffe efficiency), RE (relative error), and  $R^2$  (coefficient of determination), of 0.81, -1.55, and 0.93, respectively, during the calibration period, and NSE, RE (%), and  $R^2$  of 0.77, -2.61, and 0.87, respectively, during the validation period. Based on the analyses, SWAT satisfactorily simulated observed hydrology and sediment yields and can be used as a tool in decision making for water resources planning and management in the basin.

**Keywords :** calibration, GIS, sediment yield, SWAT, validation

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