

◆ Research Paper ◆

Erosion and Sediment Yield Time-Space Distribution Characteristics Research of Slope-Gully System Based On Simulated Rainfall

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Abstract: Using the automatic artificial rainfall system of MWR loess plateau soil and water loss process and control key laboratory, the researchers did simulation experiments of three different rainfall intensity to artificial simulation bare slope gully system, and analyzed erosion and sediment yield time-space distribution characteristics of slope-gully system. Results indicate that: erosion and sediment yield process of slope-gully system with the increase of rainfall duration showed a trend of increased volatility; the middle of gully slope and transition region of slope-gully system developed earlier and fastest-growing; ditch slope sediment yield and ditch slope runoff sediment concentration have the largest contribution to the export of slope-gully system runoff sediment concentration; in slope-gully system, lower-middle part and slope-ditch slope transition area are erosion prone areas; which shows that it is effective to control the erosion and sediment yield of loess plateau slope gully unit by adopting stress governance ditch and also measures of slope setting in practice.

Keywords: Slope-Gully System; Erosion and Sediment Yield; Runoff Sediment Concentration; Time-Space Distribution Characteristics