

## **Potential use of synthetic color-contrast aggregates and a digital image processing technique in soil splash measurements**

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**Abstract** A digital computer-based method for measuring soil splash was evaluated in the present study. Accordingly, Synthetic Color-Contrast Aggregates (SCCA), having the same size, shape and specific gravity as those of natural soil aggregates were used as tracers for detecting particle movement. Subsequently, the amount and intensity of sheet erosion was inferred with the help of Digital Image Processing (DIP) techniques using MATLAB. The present study was conducted under laboratory conditions with a simulated rainfall intensity of some 90 mm h<sup>-1</sup> and a slope of 30%, using sandy-loam soils taken from a summer rangeland in the Alborz Mountains, northern Iran. Soil erosion was mapped based on the DIP technique and finally compared with the density distribution of SCCA to evaluate the accuracy of the approach. The results show that the method can be used for measuring soil splashed downslope, and for estimating the amount and intensity of splash.

**Key words** Alborz Mountains, Iran; digital image processing; erosion tracers; sheet erosion; soil splash; synthetic color-contrast aggregates