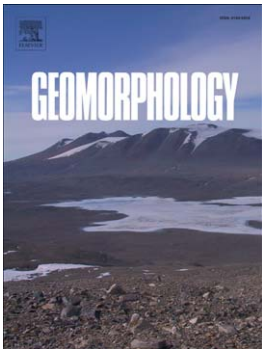

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Can DEM time series produced by UAV be used to quantify diffuse erosion in an agricultural watershed?

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Abstract

Erosion and deposition modelling should rely on field data. Currently these data are seldom available at large spatial scales and/or at high spatial resolution. In addition, conventional erosion monitoring approaches are labour intensive and costly. This calls for the development of new approaches for field erosion data acquisition.

As a result of rapid technological developments and low cost, unmanned aerial vehicles (UAV) have recently become an attractive means of generating high resolution digital elevation models (DEMs). The use of UAV to observe and quantify gully erosion is now widely established. However, in some agro-pedological contexts, soil erosion results from multiple processes, including sheet and rill erosion, tillage erosion and erosion due to harvest of root crops. These diffuse erosion processes often represent a particular challenge because of the limited elevation changes they induce. In this study, we propose to assess the reliability and development perspectives of UAV to locate and quantify erosion and deposition in a