QUANTIFICATION OF RILL EROSION USING CONTACTLESS METHODS

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In line with the rapid development of geoinformation and communication technologies, new possibilities are emerging for mapping and quantifying erosional processes caused by torrential rainfall. The quality, density and scope of input data are important to obtaining relevant results. The fast and relatively inexpensive collection of accurate geodata is enabled by unmanned aerial vehicles (UAV). The aerial images captured can be used to reconstruct the terrain morphology corresponding to the time of measurement using digital photogrammetry methods. The selected location affected by significant rill erosion was scanned in the monitoring campaign by an unmanned aerial system consisting of a TAROT 690 hexacopter and Sony Alpha 6000 camera. For subsequent topographical and altitudinal determination of the digital surface model (DSM), ground control points (GCP) were captured by a Trimble R2 GNSS rover. The total volume of eroded soil was set at 4 274 m^3. The deviations of the control points ranged in the first units of centimeters. The article describes the preparation and work in the field, contactless mapping of the area of interest, processing of the acquired data and the resulting calculation and quantification volume of the material carried away from the agricultural parcel damaged by the erosion.