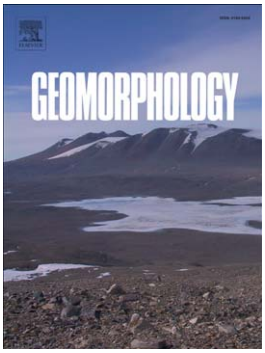

An evaluation of the effectiveness of low-cost UAVs and structure from motion for geomorphic change detection

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An evaluation of the effectiveness of low-cost UAVs and structure from motion for geomorphic change detection

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Abstract

The measurement of topography and of topographic change is essential for the study of many geomorphic processes. In recent years, structure from motion (SfM) techniques applied to photographs taken by camera-equipped unmanned aerial vehicles (UAVs) has become a powerful new tool for the generation of high resolution topography. The variety of available UAV systems continues to increase rapidly, but it is not clear whether increased UAV sophistication translates into improved quality of the calculated topography. To evaluate the lower end of the UAV spectrum, a simple low cost UAV was deployed to calculate high resolution topography in the Daan River gorge in western Taiwan, a site with a complicated