Determination of Landslide and Driftwood Potentials by Fixed-wing UAV-Borne RGB and NIR images: A Case Study of Shenmu Area in Taiwan

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This study is aimed at determining the landslide and driftwood potentials at Shenmu area in Taiwan by Unmanned Aerial Vehicle (UAV). High-resolution orthomosaics and digital surface models (DSMs) are both obtained from several UAV practical surveys by using a red-green-blue(RGB) camera and a near-infrared(NIR) one, respectively. Couples of artificial aerial survey targets are used for ground control in photogrammtry. The algorithm for this study is based on Logistic regression. 8 main factors, which are elevations, terrain slopes, terrain aspects, terrain reliefs, terrain roughness, distances to roads, distances to rivers, land utilizations, are taken into consideration in our Logistic regression model. The related results from UAV are compared with those from traditional photogrammetry. Overall, the study is focusing on monitoring the distribution of the areas with high-risk landslide and driftwood potentials in Shenmu area by Fixed-wing UAV-Borne RGB and NIR images. We also further analyze the relationship between forests, landslides, disaster potentials and upper river areas.