Landslide Recognition by Wavelet-based Textual Feature Extraction and Statistical Feature Fusion

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Abstract:

To monitor landslides in Taiwan based on remotely sensed imagery, the Taiwan-owned FORMOSAT-2 imagery has the advantages of low cost and daily revisit over any other satellite imagery. However, the four spectral bands of the FORMOSAT-2 images are not capable enough to distinguish landslides from other ground cover types. For example, the thinner branches of river are usually misclassified as landslides. Therefore, there is a need to explore more discriminative features for landslide monitoring.

In this paper, we propose a method for increasing the number of discriminative features, such as texture and spatial features. Noting that landslides often occur at high slopes, we utilized the slope data that resulted from the Digital Elevation Model(DEM) as spatial feature. In texture feature, we obtain the coefficient of frequency by utilizing wavelet transformation. The texture features can provide the information about the width of the objects such that thin rivers and landslides can be discriminated between each other.