**The Landslide Detection in Kaohsiung City using the Integration of Sudden Landslide Identification Product and Remote Sensing Data**

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***ABSTRACT***

Due to the frequent occurrence of typhoons, heavy rain and earthquakes in Taiwan, severe landslide disasters are common. Detecting landslides in target areas like Kaohsiung City requires advanced methodologies. This study integrates the Taiwan Data Cube (TWDC) platform, which incorporates multiple optical remote sensing data, with the Sudden Landslide Identification Product (SLIP) model for effective landslide identification. We utilized prior and post event satellite imagery from TWDC, processed through cloud masking and custom mosaic techniques. The SLIP model was applied to retrive land coverage change, involving the estimatation of Normalized Difference Water Index (NDWI) from prior and post event satellite images and a red band Change Vector Analysis (CVA). In this system, a digital elevation model (DEM) was incorporated into the SLIP model for slope analysis. Then the thresholds for spectral indices differences, CVA and slope angles were defined to identify land coverage changes. The land coverage changes were regarded as the landslide area.

Base on disaster information derived from Central Weather Administration, we observed that landslides predominantly occur near mountains and valley regions, and are associated with earthquakes and rainfalls events in Kaohsiung City.

**Keywords:** Taiwan Data Cube, Sudden Landslide Identification Product, landslide detection, geomatics, satellite images