

## Damage Assessment Based on Full-Polarimetric Decompositions in the 2017 Colombia Landslide

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**Abstract :** Synthetic Aperture Radar (SAR) is an effective tool for damage assessment induced by disasters due to its all-weather and night/day acquisition capability. In this paper, the 2017 Colombia landslide was observed using full-polarimetric ALOS/PALSAR-2 data. Polarimetric decompositions, including the Freeman-Durden decomposition and the Cloude decomposition, are utilized to analyze the scattering mechanisms changes before and after-landslide. These analyses are used to detect the damaged areas induced by the landslide. Experimental results validate the efficiency of the full polarimetric SAR data since the damaged areas can be well discriminated. Thus, we can conclude the proposed method using full polarimetric data has great potential for damage assessment of landslides.

**Keywords :** Synthetic Aperture Radar (SAR), polarimetric decomposition, damage assessment, landslide

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