A framework for nowcasting and forecasting of rainfall-triggered landslide activity using remotely sensed data

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Remote sensing data offers the unique perspective to provide situational awareness of hydrometeorological hazards over large areas in a way that is impossible to achieve with in situ data. Recent work has shown that rainfall-triggered landslides, while typically local hazards that occupy small spatial areas, can be approximated over regional or global scales in near real-time. This work presents a regional and global approach to approximating potential landslide activity using the landslide hazard assessment for situational awareness (LHASA) model. This system couples remote sensing data, including Global Precipitation Measurement rainfall data, Shuttle Radar Topography Mission and other surface variables to estimate where and when landslide activity may be likely. This system also evaluates the effectiveness of quantitative precipitation estimates from the Goddard Earth Observing System Model, Version 5 to provide a 24 forecast of potential landslide activity. Preliminary results of the LHASA model and implications for are presented for a regional version of this system in Central America as well as a prototype global approach.