



Western
Centre for Multi-hazard
Risk & Resilience

SPARK:

Seminar Platform for Adaptive Resilience Knowledge

IMERG-based Antecedent Precipitation Index for Hydrological Status Assessment and Shallow Landslide Forecasting

Date: Friday, September 25, 2026, 10:00 AM EST
Online via Teams

This talk presents an integrated framework that uses satellite-based GPM-IMERG rainfall estimates to calculate a gridded Antecedent Precipitation Index (API). This simple soil moisture proxy serves as the foundation for two complementary products: hydrological status indicators and shallow landslide forecasts.

The hydrological status compares current soil moisture conditions against a 25-year reference record, providing a dynamic measure of antecedent basin moisture conditions, in support of flood risk assessment in light of potential extreme storm events. For landslide forecasting, the method integrates static susceptibility factors, such as slope and soil properties, with daily API to anticipate rainfall-triggered shallow landslides. In forecast mode, the API is propagated three days ahead using quantitative precipitation forecasts from numerical weather prediction models, enabling short-term hazard outlooks. By combining long-term satellite rainfall data with geotechnical parameters and short-term forecasts, this robust approach enhances hazard monitoring and supports resilience planning in vulnerable regions.



Prof. Marcelo Uriburu Quirno

Comisión Nacional de Actividades Espaciales
(CONAE; National Commission for Space Activities),
Argentina

Further event details can be found in:

https://uwo.ca/multihazard_risk_resilience/SPARK_Seminar/index.html