

Multi-sensor geohazard assessment along key transportation corridors in high mountain Nepal

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Purpose: Improve NASA's ability to understand, detect and accurately predict landslides in support of disaster mitigation and response efforts

Study Objective: Create multi-temporal landslide inventory for three key transportation corridors in Nepal: the Karnali, Arniko and Trishuli Highway

Imagery: PlanetScope and RapidEye

Findings: We were able to detect up to 94% more landslides when compared to Landsat, and 74% more when compared to Sentinel-2. Access to PlanetScope and Rapideye imagery has been game changer in terms of supporting the timely mapping of major landslides with a high degree of accuracy, and for creating inventories aimed at advancing NASA's landslide modeling capability.

Number of landslides detected:

PlanetScope = 176

Sentinel-2 = 46

Landsat 8 = 11

Percentage of landslides missed relative to PlanetScope:

Sentinel-2 = 74%

Landsat 8 = 94%

Comparison of landslide areas detected by Landsat (black), Sentinel-2 (blue) and PlanetScope (Green). The results highlight the improved accuracy of PlanetScope in identifying smaller landslide areas relative to the other coarser resolution products. The images were acquired on November of 2018 over the Arniko Highway, Nepal.

