



Patterns in Landslides Activity in a Changing Climate over High Mountain Asia

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Landslide activity over the High Mountain Asia (HMA) region is primarily driven by seasonal monsoon rainfall and causes fatalities and significant damage to infrastructure each year. Understanding how these patterns may be modulated due to climate change requires a robust characterization of the current conditions over this region in order to extrapolate to future trends. This work applies the Landslide Hazard Assessment for Situational Awareness (LHASA) model that incorporates landslide susceptibility with a 7-day antecedent rainfall triggering to estimate potential landslide activity. Using LHASA we establish a baseline for landslide activity over the past two decades leveraging satellite and Global Climate Model (GCM) precipitation products. We then evaluate the potential changes in landslide activity over the HMA region by 2100 using GCM precipitation data. This work demonstrates the utility of GCMs and remote Earth observation products to look at landslide impacts at timescales impacted by anthropogenic climate change. This work also highlights potential for applying this type of analysis in other landslide prone regions around the world.