Supplement to “Data-driven landslide nowcasting at the global scale”

This supplement describes the range of values produced by the Landslide Hazard Analysis for Situational Awareness (LHASA) model over the time period May 1, 2015 to April 30, 2020.

LHASA version 2.0 shows a large dynamic range over most of the Earth’s land surface. The minimum probability produced at each grid cell is very low, even in landslide hotspots (Figure S1). The maximum probability produced at each grid cell is high in many locations, not just landslide hotspots (Figure S1). Because the minimum value is typically near zero, the dynamic range of model outputs depends upon the latter value. That this range is nearly 100% in many landslide-prone regions indicates that the model is truly dynamic—it is not just producing a susceptibility map that varies little from day to day. One limitation of this analysis is the relatively short time period. High-intensity, low-return probability rainfall events will not have impacted many areas during the years 2015-2020. Thus, some areas may be more hazardous than they appear in Figure S2. Therefore, a long-term weather simulation that matches the characteristics of the IMERG and SMAP products would be a minimal requirement for assessing landslide hazard with this model.

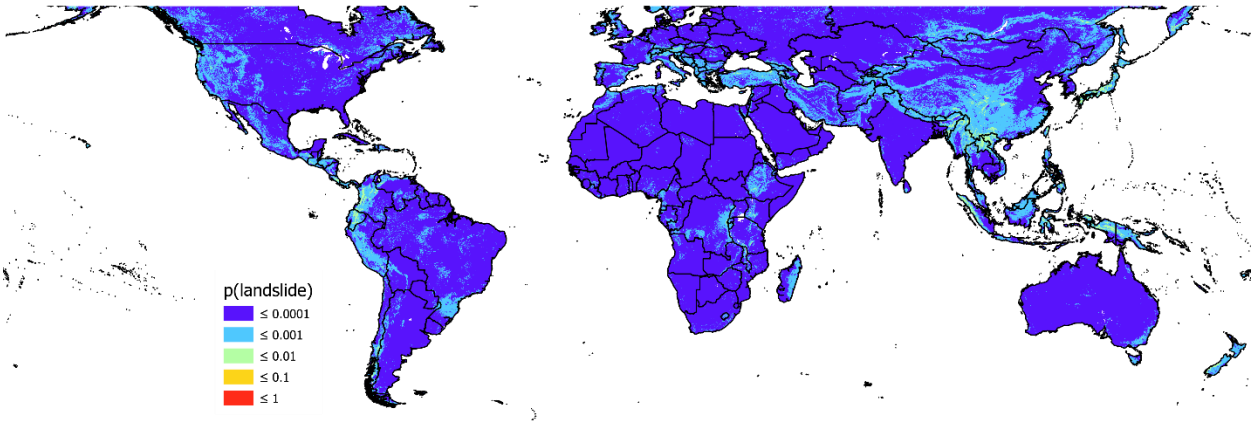

Figure S1: The minimum probability output by LHASA version 2.0 over a 5-year period is very low globally, even in landslide hotspots.

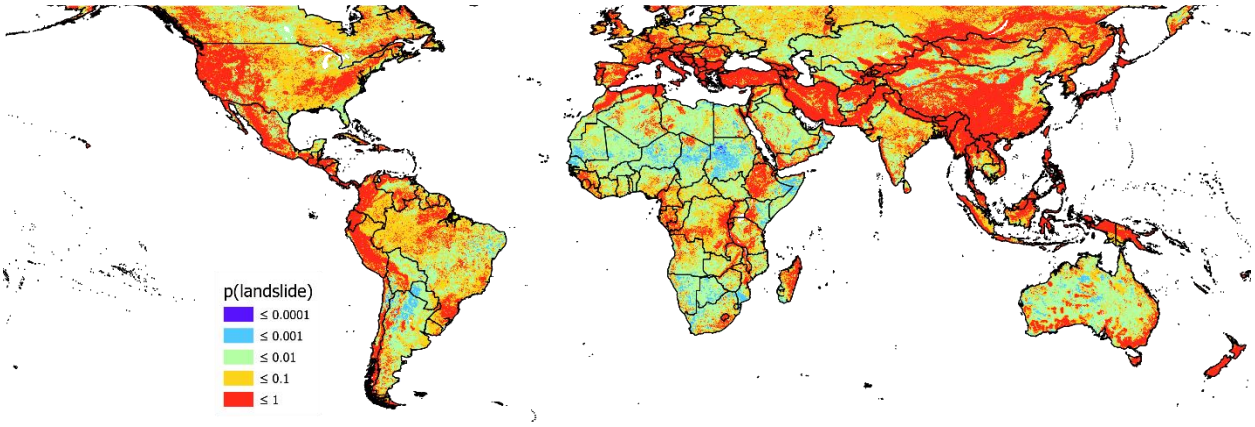

Figure S2: The maximum probability output by LHASA version 2.0 over a 5-year period is very high (over 10%) in many areas, not just landslide hotspots. However, a few areas, such as western Sudan, were never rated as highly hazardous. It is possible that some landslide-triggering rainfall events might occur in these areas, given a longer time period.