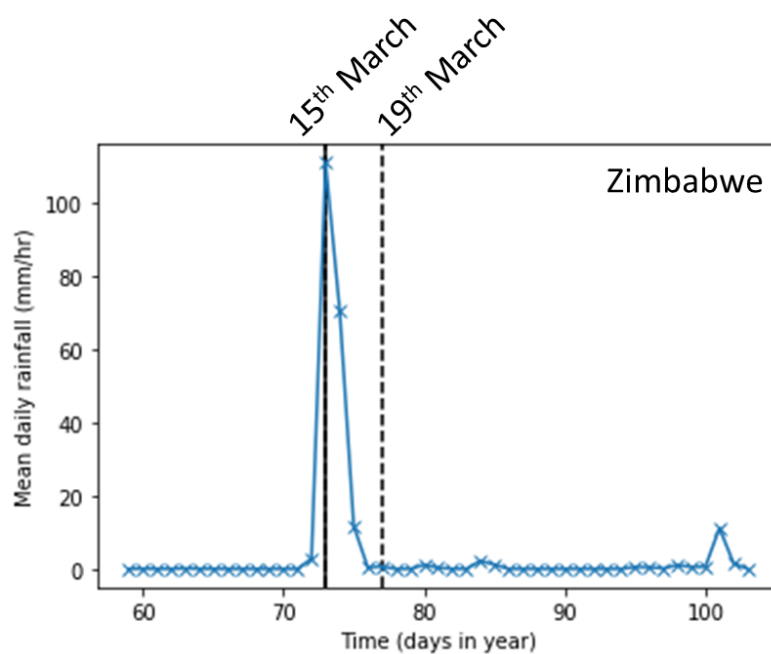
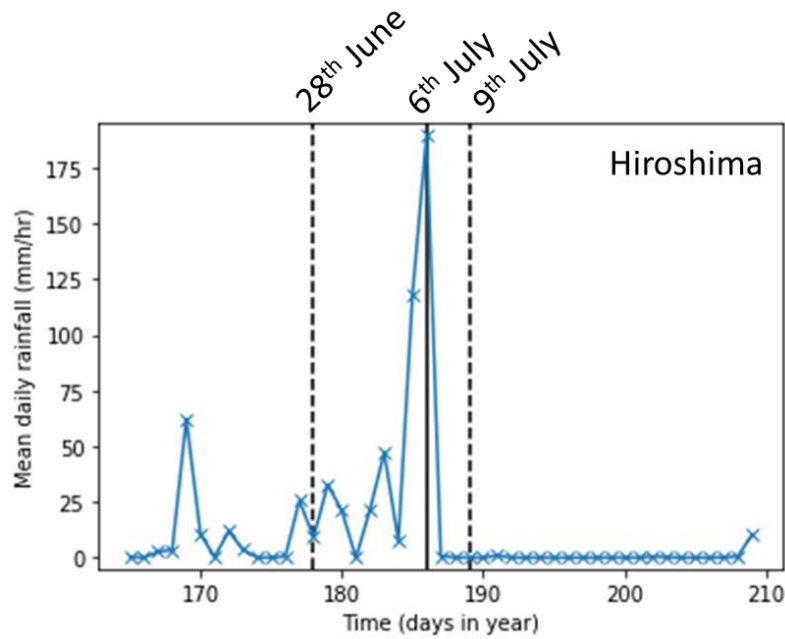


Supplementary Material 1: Time series of the mean daily rainfall across the study area for Zimbabwe and Hiroshima. These time series were obtained using the NASA Global Precipitation Measurement (GPM) with Google Earth Engine (see https://developers.google.com/earth-engine/datasets/catalog/NASA_GPM_L3_IMERG_V06 for further details)

We present these time series to better illustrate the evolution of the triggering rainfall through time. The peak rainfall in each case is shown by the solid black line.



Supplementary material 2: A comparison of the results shown in Table 2 of the main manuscript when calculated with VV and VH-polarised Sentinel-1 data.

	Hiroshima, VV		Hiroshima, VH		Zimbabwe, VV		Zimbabwe VH	
Orbit direction	desc	asc	desc	asc	desc	asc	desc	asc
Total landslides	543		543		383		383	
non-masked	543	540	543	540	383	383	383	383
<i>Individual techniques</i>								
Landslide-background inc	44/177	39/97	4/38	25/88	39/67	27/72	6/17	3/17
Landslide-background dec	56/182	121/226	81/182	164/275	41/172	55/147	62/252	80/256
Pixel variability	101/258	101/167	55/128	144/252	79/158	52/112	41/140	38/98
Geometric shadows	50/144	143/192	78/154	211/323	35/60	48/75	57/148	78/181
Geometric bright spots	35/89	50/68	3/20	6/21	28/43	10/11	0/2	1/1
<i>Combined techniques, single track</i>								
Combined ($\geq 2Te$)	55/71	91/105	34/42	112/139	40/52	39/43	23/56	40/74
Combined ($\geq 3Te$)	14/16	31/32	1/1	2/3	11/11	2/2	0/0	0/0
Combined (4Te)	1/1	5/5	0/0	0/1	0/0	0/0	0/0	0/0
<i>Combined techniques, combined tracks (final method)</i>								
Asc & desc (total)	135/171		171/227		82/113		65/144	
Asc & desc (2Te, 1Tr)	80/111		142/191		76/95		57/126	
Asc & desc ($\geq 3Te$)	55/60		29/36		17/18		8/18	
Random baseline	7%	17%	7%	17%	10%	7%	10%	7%

In some cases, for example the descending track on Hiroshima, VH is able to correctly identify more landslide timings when applying the landslide-background decrease technique. This is expected, since VH is generally more sensitive to volume scattering (here within the forest canopy) and this scattering component is expected to be lower for an unvegetated landslide scar than it was prior to the failure when the area was forested. However, for the other methods, VV generally outperforms VH, so that when the techniques are combined, a better result is obtained using VV than VH. Therefore, we chose to present the results using VV in the main manuscript. Working with VV data also has the advantage of more Sentinel-1 images being available, since almost all images acquired by Sentinel-1 prior to 2017 are single-pol rather than dual-pol.