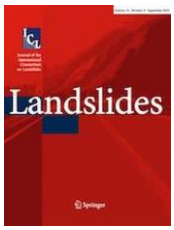

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A comprehensive global database of giant landslides on volcanic islands

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Abstract

The first comprehensive global database of giant landslides on volcanic islands is outlined in this report. This database comprises a total of one hundred and eighty-two entries: the Atlantic Ocean hosts seventy-five giant landslides; the Pacific Ocean hosts sixty-seven giant landslides; and the Indian Ocean hosts forty giant landslides. To determine the spatial characteristics of each giant landslide, it has been necessary to georeference published maps using ArcGIS software coupled with global DTMs. Using the georeferenced outputs, it has been possible to measure the basic morphometric characteristics of each landslide such as its length, width, perimeter, area, and fall height. Landslide volumes have been calculated with a higher degree of certainty in thirty-five cases and with a lower degree of certainty in sixty-three cases while complete outlines of the landslide area have been defined in ninety-six cases. On the basis of these data, it has been possible to interrogate relationships between potentially significant variables. The age distribution of giant landslides on volcanic islands demonstrates that more than half of the records in the database occurred during the last 0.5 Ma. This global database of giant landslides on volcanic islands is hosted on the website of the Institute of Rock Structure & Mechanics: https://www.irsm.cas.cz/ext/giantlandslides. From there, the records can be downloaded as a spreadsheet or as a kml file for interrogation in a number of geospatial software programs including ArcGIS and Google Earth. This work is part of the activities of the International Consortium on landslides, namely, its International Programme on Landslides (Project No. 212).