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Citizen Science in Global Earth Observation Systems (6-GTS.1)

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COOPERATIVE OPEN ONLINE LANDSLIDE REPOSITORY (COOLR) TO ENHANCE DISASTER RESEARCH AND PREDICTION

Abstract

Landslides impact all countries, often resulting in unexpected loss of life or destruction of property. Despite their widespread occurrence, limited geospatial and temporal information exist for individual landslide events on a global scale. NASA's Global Landslide Catalog (GLC) is a worldwide record of over 11,000 rainfall-triggered landslide events compiled since 2007 from media reports and other sources. The GLC has contributed to the identification of landslide-prone areas. A landslide susceptibility map and a landslide nowcast model, developed using satellite rainfall data from the Global Precipitation Measurement (GPM) mission, were validated using the GLC. The robustness and completeness of the GLC is challenged by media search tool limitations and the availability of staff. To further the development of landslide models using Earth Observation data, we introduce a new citizen science-enabled landslide catalog, the Cooperative Open Online Landslide Repository (COOLR). The COOLR system comprises two web applications for interacting with the data. Landslide Viewer is a GIS application for viewing landslide events with landslide nowcasts, landslide susceptibility and other environmental factors. Landslide Reporter is a citizen science platform that invites citizen scientists worldwide to contribute landslide events to supplement GLC data, improving the robustness and reducing biases to the overall landslide catalog. Future additions to COOLR include the insertion of other landslide inventories and the continued development of the citizen science effort, increasing the composition of landslide data in the open catalog and expanding the effort to record all landslides exponentially. With the power of citizen science, COOLR will benefit access to and extent of landslide information available for use within the Earth Observation, landslide research, and disaster communities.