

Open-source techniques for automated landslide inventory generation for rapid response.

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Manual mapping is the most used method for generating landslide inventories. For rapid response scenario this method becomes tedious and time consuming. The Landslide team at NASA Goddard Space Flight Center has been developing open-source landslide mapping systems for rapid generation of landslide inventories. We have developed a Python-based landslide mapping framework known as the Semi-Automatic Landslide Detection (SALaD) system that uses Object-based Image Analysis and machine learning. For production of event-based inventories, SALaD was modified to include a change detection module (SALaD-CD). Utilizing high-resolution imagery from Planet and Maxar, we have generated multiple rapid response landslide inventories that have been used by emergency responders on the ground, the NASA Disasters program, and academia. Currently, we are exploiting deep learning frameworks for landslide mapping. We are interested to learn about efficient way to harmonize multi-sensor data for creating a long-term record of landslides, training strategies and ongoing deep learning-based efforts for natural hazard characterization within NASA and UMD.