



Geo-observers: participatory sensing of disasters in a remote setting

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Effective disaster risk reduction is often hampered by a general scarcity of reliable data collected on disastrous events, particularly in the Global South. Novel approaches are therefore necessary to alleviate this constraint, particularly with regard to reducing extensive risks. A geo-observer network, consisting of 21 reporters, was established in the Rwenzori region (Uganda) in February 2017 to collect data on eight different disasters using smartphone technology. Within the first 15 months of operation, a total of 319 disaster reports were submitted. A large majority of the reported disasters were reached by the geo-observers within 2 days after their occurrence. The analysis of reporting activity shows a large divergence in terms of reporting activity with 30% of the most active geo-observers accounting for nearly 75% of all reports. By using existing landslide susceptibility maps as a proxy of expected landslide prevalence, this reporting divergence is demonstrated to be at least partially driven by a difference in disaster occurrences. This is confirmed by the results of a survey held among the geo-observers. Survey results also showed that the participants are more driven by non-pecuniary benefits rather than financial compensation. The data collected during the first 15 months of operation indicates that extensive risks in the region are underestimated and demonstrates the added value of participatory sensing to compensate for the current lack of well-functioning official data collection mechanisms. This pilot project is a proof of concept for participatory sensing to collect high quality data even in remote contexts where smartphone technology is not generally adopted. It can serve as a precedent or example for other regions where extensive risks are poorly understood but pose significant threat to the population.