



Flood and landslide events database for the municipalities monitored by Brazilian Center for Monitoring and Early Warnings of Natural Disasters – Cemaden

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After its creation in 2011 the Brazilian Center for Monitoring and Early Warnings of Natural Disasters – Cemaden, has significantly increased its observational network, monitored municipalities and historical flood and landslide events. However, from 2011 to 2016 the records were not standardized, thus a single integrated analysis of the events were not viable. The compiled information was spread over a wide variety of sources and formats making it difficult to be assessed as a whole. Therefore, this study aimed the development of a method to facilitating the structuring of a national database of flood and landslide events adequately categorized taking into account the type of processes and its characteristics. A set of criteria was created in order to aid analysts to interpret and transcript the original heterogeneous information into a single database and a classified event system based on type and magnitude of the events, accuracy and level of impact. The main sources of information are questionnaires answered by municipalities civil defense, daily reports from Brazilian center for risk and disasters management – CENAD, institution databases, news reports and online media. The available information was translated into the following main parameters: type and date of the event, magnitude, location, time, accuracy of location, accuracy of time, impact (affected people). Additional parameters are also registered if pertinent, like level of rivers or municipality requests for federal support to deal with the event. In our first assessment we considered the events which occurred in 2017. In that year 463 flood events were registered (including flash floods and ponding) and 267 landslides. About 64% of floods were considered small, 28% intermediate and 8% large events. Landslides are also mostly minor events (91%) while 7% were considered intermediate and 2% large events. Flood events resulted in more than a million affected people (1,019,640) and landslides affected approximately one hundred thousand people (94,642). While the number of floods almost double the number of landslides and impacted 10 times more people, landslides caused virtually the same number of fatalities – 24 deaths by landslides and 23 deaths by floods. The most of events (594) took place from January to May and November/December - 2017 - which corresponds to the rainy season in Brasil. From June to October they were registered only 137 events mainly on North and part of Northeast region where the rainy season occurs those months. Although improvements are still required the database is growing permanently since the monitoring teams that feed the system work uninterruptedly on six hour shifts 24 hours a day, seven days a week. The biggest challenge on structuring a national catalog encompassing different types of hydrological disasters in Brazil, which should include small events, consists in reducing uncertainties derived from a wide range of information in terms of availability, detailing, typology and terminology of processes, magnitude, time and location precision and associated impacts.