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LAND-deFeND 1.1 - a database structure for landslide, floods, sinkholes and their effects

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Collecting, organizing and using historical information on natural hazards (NH) is crucial for developing methods, systems and procedures aimed at protecting citizens, structures and infrastructures, for planning mitigation actions, and for increasing risk awareness. Information on past events is essential e.g., to update the catalogue of flood events required by the EU Flood Directive, to develop and test empirical rainfall thresholds for landslide occurrence, and to identify areas subject to specific or multiple hazards. LAND-deFeND - LANDslides and Floods National Database, is a freely available database structure designed to collect information about past landslides and floods (geo-hydrological hazards, GHH). The structure is flexible, allowing to: (i) collect, in a single platform, information on different phenomena (i.e. landslides, floods, sinkholes), (ii) store information on the location of the GHHs, on the damaged sites, and of the remedial / mitigation works, using different types go geometries (i.e. points, lines, polygons), and a to (iii) manage, separately and jointly, the uncertainty inherent to the temporal and the spatial information on the GHHs. In addition, LAND-deFeND is compliant with the EC INSPIRE and Flood Directives. Here we present a new version of the database structure - LAND-deFeND 1.1 - which was recently developed, and we discuss the rationale behind the implementation of new features, including the possibility to (i) collect and store information on sinkholes, (ii) collect and store information on the rainfall event responsible for landslide occurrence, (iii) to store the bounding box of individual meteorological triggers, (iv) to manage information about the warning level issued by civil protection authorities before and during a GHHs, and to (v) produce reports and output / exchange data in formats compliant to the EC Flood Directive, and to the Italian Department for Civil Protection (DPC). The new release of the LAND-deFeND database allows regional civil protection offices to maintain regional GHH databases potentially interoperable at national level.

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