A review of Open Access Software Packages for Risk and Open Loss Data globally - what software packages and loss data are available for my peril?

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There have been previous evaluations of freely available risk modelling tools across various natural hazards individually, but this study represents only the second multi-hazard systematic review using a set of consistent criteria. The analysis covers hazard risk models for cyclone (wind), storm surge and tsunami, earthquake, volcano, drought and flood. It has been 5 years since the first global review of open access disaster loss software packages (Daniell et al., 2014). An update of this review in report form has been made in conjunction with an upcoming paper (Daniell et al., 2019).

The existing software packages are becoming ever better coded, including more features, however some have become deprecated. In addition, a significant number of new software packages or those omitted from the original study have been sourced with over 100 open access software packages tested in the database including various multi-hazard packages such as RiskScape, HAZUS, CAPRA and CLIMADA.

As we achieve greater interoperability between modelling tools, we will also achieve a future in which open source and open access modelling tools are connected and adapted to unified multi-risk model platforms and highly customized solutions.

In this edition of the open access software package review, the sources for open loss data such as CAT-DAT, Desinventar(s), EM-DAT, SwissRe Sigma are also characterised for the globe in terms of criteria such as accessibility, quality, and scope; as well as the potential link to each software package where the geographic and modelling methodologies can use the data.

The two concepts go hand in hand, as to check a risk assessment or post-disaster scenario using a software, accurate past or present loss data is often required for calibration with sufficient metadata or knowledge as to the collection behind it.

The review presents the state-of-art and a good baseline for the session on "Open Loss Data, Databases and data-driven Risk Transfer: Connecting insurance, academia and governments".