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# **Supplementary Material:**

## **Risk-oriented, bottom-up modelling of building portfolios with faceted taxonomies**

### **1 RAW DATASET**

The dataset containing the taxonomic descriptions of the screened buildings is provided as '.csv' file and related metadata (Pittore et al., 2018)

- *RRVS\_survey\_Alsace\_Destress\_21032018.csv* - Dataset
- *RRVS Building survey for exposure modelling in Alsace (France)\_201803211610.xml* - Metadata

The buildings have been surveyed using the Remote Rapid Visual Survey (RRVS) platform, developed by GFZ-Potsdam (CITE rrvs). The platform allows for the remote analysis of built-structures using a combination of omnidirectional images and satellite / GIS data. The omnidirectional images can be collected in-situ using a mobile mapping system (CITE) or can be queried to existing services (e.g., Google Streetview<sup>TM</sup> where available). In this case the latter service has been used. The surveyed buildings have been randomly selected from the footprints made available by the OpenStreetMap (see [www.openstreetmap.org](http://www.openstreetmap.org) database. Each row in the dataset refers to a different building, and includes the spatial coordinates of the centroid of the polygon defining the footprint of the building, and its taxonomic description in terms of the GEM taxonomy 2.0 (Brzev et al., 2013) attribute and values. The height of the buildings is defined in terms of number of storeys.

### **2 SERIALISATION OF CLASS DEFINITION SCHEMES**

The class definition schemes listed above are also provided as JSON (<https://www.json.org>) and YAML (<http://yaml.org>) files.

### **3 EXAMPLE SOFTWARE - IPYTHON NOTEBOOK**

A software code implementing the proposed methodology (Pittore and Haas, 2018) is also provided as a Jupyter (IPython) Notebook ([ipython.org/notebook](http://ipython.org/notebook)). The development version of the code can be downloaded from the github repository [https://github.com/GFZ-Centre-for-Early-Warning/bottom\\_up\\_exposure\\_modelling](https://github.com/GFZ-Centre-for-Early-Warning/bottom_up_exposure_modelling).

### **REFERENCES**

- Brzev, S., Scawthorn, C., Charleson, A. W., Allen, L., Greene, M., Jaiswal, K. S., et al. (2013). *GEM Building Taxonomy Version 2.0*. GEM Technical Report 2013-02 v1.0.0, GEM
- [Dataset] Pittore, M. and Haas, M. (2018). GFZ-Centre-for-Early- Warning/bottom\_up\_exposure\_modelling: first public release. doi:10.5281/zenodo.1205555
- [Dataset] Pittore, M., Haas, M., and Megalooikonomou, G. K. (2018). Remote Rapid Visual Screening (RRVS) Buildings Survey Data - DESTRESS - France. doi:<http://doi.org/10.5880/GFZ.2.6.2018.002>