Using open source building information in the development of exposure datasets for catastrophe risk modeling

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One of the necessary components to perform catastrophe risk modeling is information on the buildings at risk, such as their spatial location, geometry, height or other characteristics. This is commonly referred to as the exposure dataset. Developing datasets with the relevant information about every building in a large area, such as a country, is not practicable. At the same time, there are uncertainties in the hazard and vulnerability components that make such a high level of detail in the exposure dataset unessential. Often, census data is used as the starting point for the creation of such datasets, after which disaggregation to a finer resolution is carried out using different methodologies, such as population distribution or nightlights. Using such proxies is an acceptable method, but certainly not ideal. Nowadays, the availability of open source data is increasing and it is possible to obtain information about buildings for some regions. Although this type of information alone cannot be used to generate an exposure dataset, it can still be useful in its development. In this paper, building information is used to develop an exposure dataset, by disaggregating existing census data at coarser resolutions. The results are compared with exposure datasets obtained using other proxies.