



## **Hot wet spots of Swiss buildings – detecting clusters of flood exposure**

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Where are the hotspots of flood exposure in Switzerland? There is no single answer but rather a wide range of findings depending on the databases and methods used.

In principle, the analysis of flood exposure is the overlay of two spatial datasets, one on flood hazard and one on assets, e.g. buildings. The presented study aims to test a new developed approach which is based on public available Swiss data. On the hazard side, these are two different types of flood hazard maps each representing a similar return period beyond the dimensioning of structural protection systems. When it comes to assets we use nationwide harmonized data on building, namely a complete dataset of building polygons to which we assign features as volume, residents and monetary value. For the latter we apply findings of multivariate analyses of insurance data. By overlaying building polygons with the flood hazard map we identify the exposed buildings. We analyse the resulting spatial distribution of flood exposure at different levels of scales (local to regional) using administrative units (e.g. municipalities) but also artificial grids with a corresponding size (e.g. 5 000 m). The presentation focuses on the identification of hotspots highlighting the influence of the applied data and methods, e.g. local scan statistics testing intensities within and without potential clusters or log relative exposure surfaces based on kernel intensity estimates. We find a major difference of identified hotspots between absolute values and normalized values of exposure. Whereas the hotspots of flood exposure in absolute figures mirrors the underlying distribution of buildings, the hotspots of flood exposure ratios show very different pictures.

We conclude that findings on flood exposure vary depending on the data and moreover the methods used and therefore need to be communicated carefully and appropriate to different stakeholders who may use the information for decision making on flood risk management.