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Microzonation of seismic risk in a low-rise Latin American city based on the macroseismic evalua of the vulnerability of residential buildings: Colim México

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Abstract. A macroseismic methodology of seismic risk microzonatio low-rise city based on the vulnerability of residential buildings is pı and applied to Colima city, Mexico. The seismic risk microzonation f Colima consists of two elements: the mapping of residential blocks according to their vulnerability level and the calculation of an expe opinion based damage probability matrix (DPM) for a given level of earthquake intensity and a given type of residential block. A specif exposure time to the seismic risk for this zonation is equal to the ir between two destructive earthquakes. The damage probability ma were calculated for three types of urban buildings and five types o residential blocks in Colima. It was shown that only 9% of 1409 re blocks are able to resist to the Modify Mercalli (MM) intensity VII an earthquakes without significant damage. The proposed DPM-2007 good accordance with the experimental damage curves based on t macroseismic evaluation of 3332 residential buildings in Colima tha carried out after the 21 January 2003 intensity MM VII earthquake. methodology and the calculated PDM-2007 curves may be applied seismic risk microzonation for many low-rise cities in Latin America, and Africa.

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