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Further development of FLEMOps for the modelling of damage to residential buildings caused by high groundwater levels

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Flood mitigation measures at the surface cause an increasing importance of losses due to high groundwater levels. Although problems are severe, losses caused by high groundwater levels are often neglected in loss assessment studies. However, reliable damage models are required to evaluate the cost-effectiveness of mitigation measures and to support a comprehensive risk management. Therefore, the "Flood Loss Estimation Model for the private sector" FLEMOps was further developed for modelling damage due to high groundwater levels. FLEMOps is empirically based and considers several damage influencing factors. In addition to water depth, information on the quality and type of building as well as the level of precaution and contamination are taken into account. After performing a sensitivity analysis, FLEMOps for groundwater flooding was successfully validated at the micro- and meso-scale by simulating the 2002 flood in the city of Dresden, Germany.