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Future Flood Risk and Adaptation Strategies in the Tisza Region: A dynamic risk-layer approach

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Many regions and sectors in Europe are vulnerable to increasing disaster risks and climate adaptation is moving to the forefront of EU and national policy. Yet, little is known about changing risks and possible adaptation options under dynamic conditions. The Tisza region, severely exposed to flooding, is one of the hot spots in Europe and a prime case to study new risk assessment methods and risk management techniques in light of a changing climate in the future. Based on a catastrophe modeling approach indicative quantitative results on the part of climate change on future flood losses for Hungary and the Tisza region are presented. Furthermore, a risk-layer approach is developed to determine most suitable adaptation strategies under changed conditions. The method allows distinguishing changes in the high- and low layers of risks and therefore the question of risk prevention or risk financing can be treated simultaneously. Utilizing this approach for the Tisza region it turns out that the required risk management strategies to avoid increases in risk in the future can be very different within the sub-regions.