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Hot spots - cold spots - what dots? A critical reflection on integrated climate risk assessments – example flood risk in Austria

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Climate risk, and related impacts, are determined by a variety of natural, climatological and socio-economic factors. In its fifth Assessment Report, the Intergovernmental Panel on Climate Change has adapted the concept and terminology in this respect. The challenge is: How can relevant influencing factors be identified and integrated? And, how can these factors be represented spatially and integratively in order to provide decision makers with a sound basis for adaptation measures? The central starting question is: Where do I do what (and when)? Within the Austrian ACRP project 'RESPECT', a novel climate change risk analysis for the natural hazard 'flooding' was developed. Special attention is paid to the modelling of socio-economic and physical vulnerability and its integration into a spatially explicit climate risk analysis. As a result, spatial and thematic hotspots of social and physical vulnerability and climate risk for Austria are identified, which serve as a basis for the identification of adaptation measures.

As a result, climate risk maps are available for Austria, which show risk and vulnerability hotspots as homogeneous spatial regions, independent from administrative boundaries and traditional raster-based approaches. These hotspots are quantitatively evaluated by an index value as a measure of climate risk. In addition to the purely quantitative evaluation, it is also possible to characterise and present the spatial units qualitatively, in terms of 'problem areas' and contributing factors. This is a significant development compared to 'traditional' spatial units (grid cell based; based on administrative units). Thus the question mentioned at the beginning can be answered - where are which intervention measures necessary. The results are available for socio-economic and physical climate risk, which are flanked by corresponding hazard and vulnerability maps. Results for the present and the future have been produced using proxy indicators from the high-resolution Austrian climate change scenario data (ÖKS15). This makes it possible to identify future hot spots under the assumption of different climate scenarios. The presentations presents the adapted risk concept and methodological approach, respectively, and reflects critically on the opportunities and challenges of climate risk analysis in Austria and in general for the planning of climate change adaptation measures.