The relevance of climate information in the assessment of flood regulating ecosystem services

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Extreme weather events, failure of climate-change mitigation and adaptation, and biodiversity loss and ecosystem collapse are some of the main global risks. Climate change is one of the major drivers for ecosystem and biodiversity loss as well as for higher frequency and intensity of natural disasters and extreme weather events. Consequently, ecosystem health and the provision of ecosystem services (ES) is affected by the increasing pressures.

However, the provision of ecosystems must be ensured in order to guarantee and maintain human well-being. To define the benefits that people obtain from ecosystems there exist the concept of ES that links social and environmental systems to achieve sustainable use and discover trade-offs between different ES.

With respect to the increasing number of flood events (pluvial and fluvial) and of affected persons in the last years, one important key ES under external pressure is flood regulation. It describes the capacity to reduce flood hazards. Amongst other factors, climate change has a high impact on flood characteristics. Currently, most studies analyse the present status of flood regulating ES. Changing climate conditions and associated functionalities of the flood regulating ES are mostly not taken into account. This study shows the importance of assessing the current and future functionalities of flood regulating ES. In order to adapt ecosystems and their functionalities to projected climate impacts, it is important to consider regional climate information in the estimation process for flood regulating ES.