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Changes in flood risk in Europe - Holistic perspective

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Fluvial foods, associated with high river flows and stages, have become more abundant and more destructive than ever in many regions of the globe, including Europe.

The present contribution asks: Has flood risk increased in Europe, how, where, and why? How do socio-economic trends and associated land-use change contribute to the risk? Are climate change impacts apparent? The material draws from the multi-authored book "Changes in Flood Risk in Europe" edited by Z. W. Kundzewicz, and published by IAHS Press in March 2012, that embraces many national and regional studies.

Changes in flood risk is regarded in a holistic cradle-to-grave perspective, driven by a chain of processes and variables, from the realm of climatic, terrestrial, and socio-economic systems.

There are multiple factors contributing to the growth of flood risk that differ for various regions and flood generation mechanisms. It can be hypothesised that the anthropogenic influence plays a major role, via increase in exposure to floods and damage potential. The questions about the impact of land-use change and climate change (viz. ubiquitous warming and changes in intense precipitation) on flood hazard and flood risk are more complex. There is little doubt that a multi-factor situation, weakness of the climate change signal and a strong natural variability render the detection and attribution problems very difficult. No ubiquitous, general, and significant changes in observed flood flows can be detected, even at a national scale, and dissemination of this finding is very important. However, in some regions, changes in intense precipitation and in frequency of flood-prone climate circulation patterns were spotted, as well as climate-related trends in flood indicators.