



## **Different impacts of extreme weather events on biosphere and economy**

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Extreme weather events have severe impacts on ecosystems, economy, and hence society. While the impacts of particular extreme events such as floods or heat waves are well studied, there is a lack of comparative analyses. Addressing this gap, in this study we are comparing the impacts of different types of extreme events across Europe, at national level. In particular, we analyze droughts, floods, heat waves, frost, and wind storms occurring during 2001-2015. We assess and compare their respective impacts on the biosphere (considering net carbon ecosystem exchange, crop yields, human mortality), economy (considering monetary damage), and societal interest (considering Google search interest). With this comprehensive approach we aim to compensate for shortcomings and uncertainties associated with the individual impact datasets.

We find that floods and wind storms have comparatively little impact on the biosphere at the analyzed spatial scale, but are causing comparatively high monetary damage and are attracting most societal attention. Vice versa, temperature extremes and drought have strong impacts on the biosphere, but are less relevant to the economy, and capture little attention. We further focus on the role of compound extremes. While respective impacts are not generally intensified, particularly elevated biospheric anomalies are found in the case of jointly occurring heat and drought.

Resolving these impact patterns enables more focused extreme event management and adaptation. Consequently, this contributes to reduce disaster risks and impacts in support of ecosystems and society.