

# ClimXtreme

A RESEARCH NETWORK ON CLIMATE CHANGE AND EXTREME EVENTS

## ABOUT US

We are a network of different research institutions in Germany with the common goal to advance research on extreme events in the context of climate change. With the framework programme Research for Sustainable Development (FONA3), the Federal Ministry of Education and Research (BMBF) aims to support sustainability research in Germany. Understanding the occurrence of extreme weather and climate events will help to deal with them more effectively. What are the pressing questions?



142

SCIENTISTS



39

PROJECTS

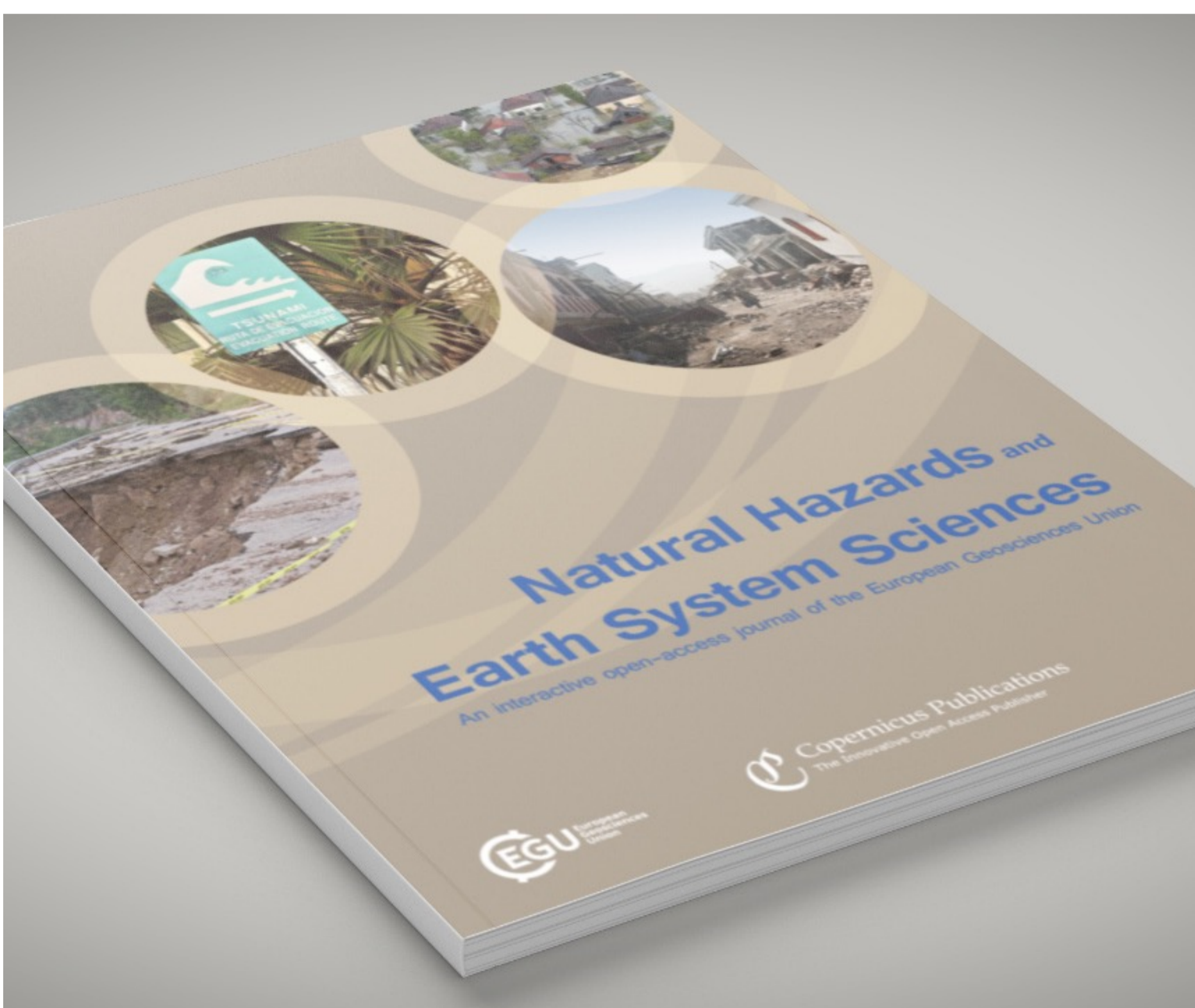


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INSTITUTES

## OUR MISSION

Our mission is to improve the assessment of extreme weather events and their changes, uncertainties and impacts in Central Europe both in the past and in the coming decades. We focus in particular on the hazard types heat waves, droughts, heavy precipitation, including hail, and storms. Since this raises a wide range of research questions, how do we approach them? The entire project is divided into four modules, which form a well-connected research network.



## PUBLICATION

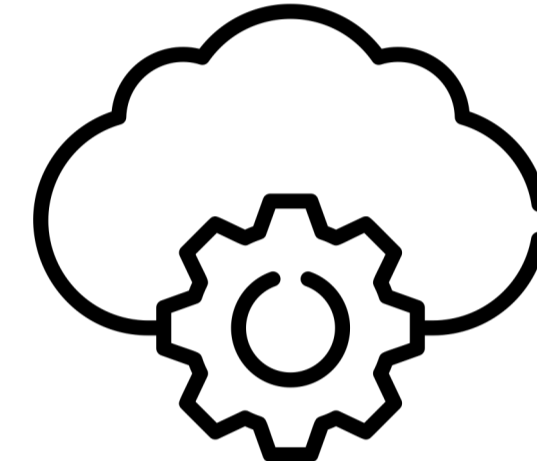
Initiated by ClimXtreme, but open to all relevant submissions, the objective of the inter-journal special issue "Past and future European atmospheric extreme events under climate change" is to compile research results and recent advances in research exploring if and how extreme weather events have changed in the past, and what is to be expected under future climate scenarios. NHES (Natural hazards and Earth System Science) is the lead journal of the Special Issue.



## MODULE A

The overall objective of Module A is to significantly improve the understanding of scale interactions and links between atmospheric circulation, their natural variability and the resulting extreme events. This comprises identifying large-scale atmospheric patterns associated with the extreme weather events and understanding whether these large-scale attributes are consistent with changes in the planetary circulation and with the identified dynamics. This analysis is required for a robust estimate of future changes.

Karlsruhe Institute of Technology  
Potsdam Institute for Climate Impact Research  
Max Planck Institut für Meteorologie  
Freie Universität Berlin  
Alfred Wegener Institute  
University of Hamburg  
Technische Universität Dresden



## MODULE C

Module C focuses on extreme events that have an impact on socio-economic systems. This means that it is not only a local extreme value of a meteorological parameter that is of interest, but the combination of specific environmental attributes that make it impact relevant. This may include the spatial extent of extremes, nonlinearities in dependencies, the combination of meteorological parameters, so-called compound events, the influence of non-climatic human factors or vulnerability and exposure.

University of Potsdam  
Freie Universität Berlin  
University of Giessen  
Potsdam Institute for Climate Impact Research  
GFZ German Research Centre for Geosciences  
Technische Universität Dresden  
University Bonn, Forschungszentrum Jülich  
Climate Service Center Germany (GERICS)  
Karlsruhe Institute of Technology  
Deutscher Wetterdienst  
Freie Universität Berlin  
Universität Vechta  
University Freiburg  
University of Koblenz-Landau



## MODULE B

Module B aims at detecting and classifying extreme weather events under past and future climate change. With statistical approaches the modified intensity and frequency for clearly defined spatio-temporal scales, which are derived together with module A or defined by the impact from module C, will be assessed. Furthermore, the attribution of man-made changes in the statistics of extreme events will be investigated. This includes various extreme indices, statistical significance of changes, influence of large-scale anomalies as well as advanced detection and attribution methods.

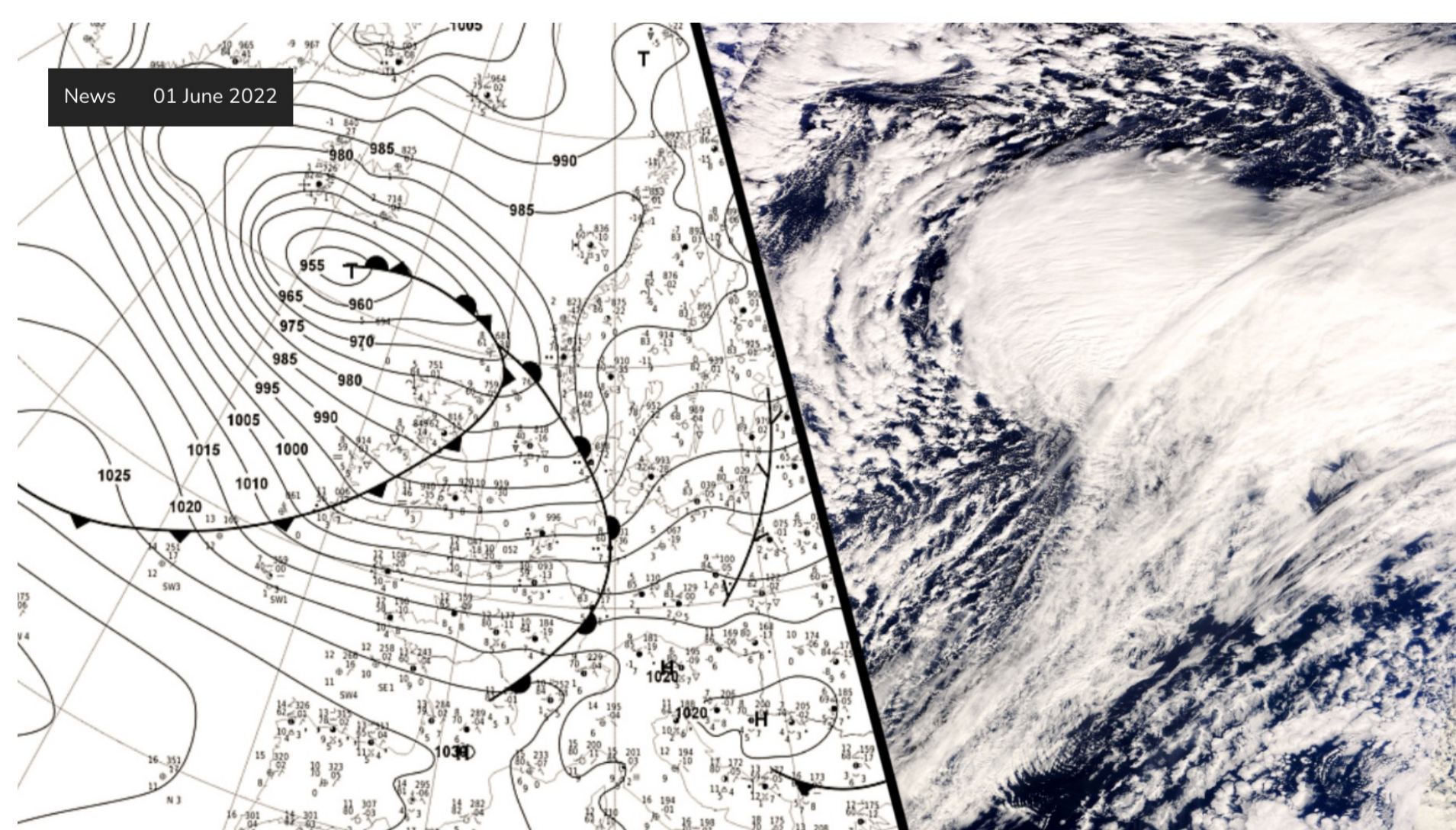
University of Bonn  
Deutscher Wetterdienst  
University of Leipzig  
University Hannover  
University Stuttgart  
Potsdam Institute for Climate Impact Research  
TU Dortmund  
University Düsseldorf  
University of Applied Science Bochum  
wbu consulting engineers GmbH  
Karlsruhe Institute of Technology  
BTU Cottbus  
University Hohenheim  
University Hamburg  
Freie Universität Berlin



## MODULE D

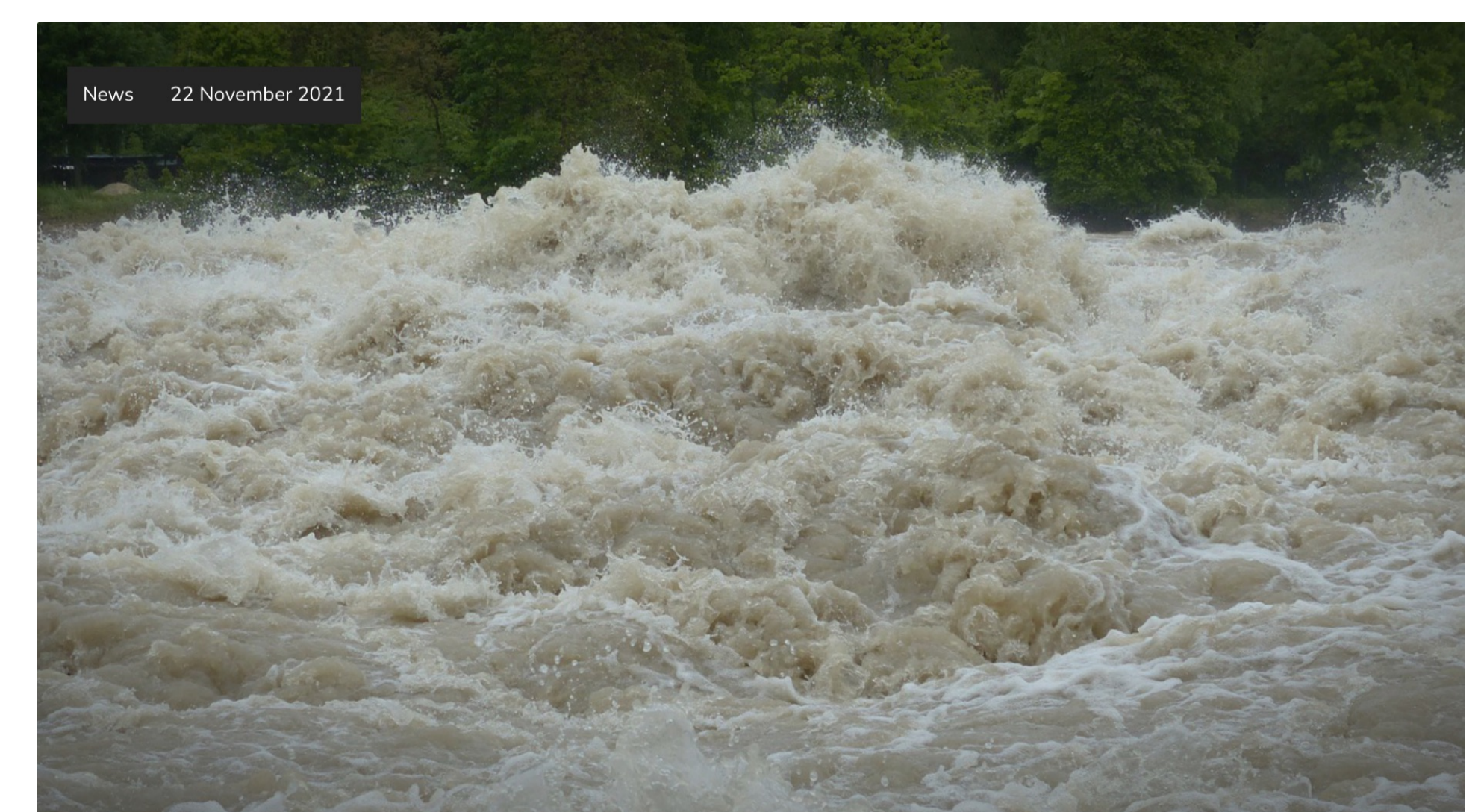
The overall objective of Module D is to provide support to the scientific activities in the modules A, B, and C through the coordination of the modelling, data and software management activities. In addition, the work within module D also includes the development of a common central evaluation system, the provision and evaluation of fundamental datasets for the assessment of climate extreme events, as well as an infrastructure for the climXtreme research community based on achievements of previous BMBF programs.

Deutsches Klimarechenzentrum  
University Hamburg  
Freie Universität Berlin



## STORM SERIES IN FEB 2022

ClimXtreme has published an official statement on the damaging storm series Ylenia, Zeynep, and Antonia (internationally named: Dudley, Eunice, Franklin), which occurred in February 2022



## EXTREME RAINFALL IN JUL 2021

A Response of the BMBF project ClimXtreme to the heavy rainfall events in July 2021 in North Rhine Westphalia, the Rhineland Palatine, and the Maas region can be found at the following link.

