Innovation Pathways to Sustainability
Distinguished Lecturers Series

Prof. Hannah Cloke
“Preparing for Floods with Earth System models and Imagination”
March 4, 2022, 10 h CET, Zoom

About the Lecture Series
The lecture series on Innovation Pathways to Sustainability is organized by the TRA Sustainable Futures. It is a forum for high profile and internationally visible scientists who are active in academia or at the science-policy interface. The lectures address an interdisciplinary audience of experts from natural, social, and engineering sciences as well as representatives from international and implementation-oriented organizations.

About the Speaker
Professor Dr Hannah L. Cloke OBE is a physical geographer, natural hazards researcher, climate scientist and hydrologist specialising in earth system modelling, flood forecasting, catchment hydrology, applications of Numerical Weather Predictions and science communication. She is Co-Director of Water@Reading at the University of Reading and leads a wide programme of research on the theoretical and practical development of early warning systems for natural hazards, particularly for floods, droughts, heatwaves and disaster risk management. Hannah advises government, forecasting authorities and humanitarian agencies on national and international flooding incidents and forecasting science and provides expert commentary in the media.

Hannah was appointed Officer of the Order of the British Empire (OBE) in 2019 for services to flood forecasting and the development of hazard early warning systems. She has also been awarded the NERC Early Career Impact Award in 2015, the 2018 Plinius Medal of the European Geosciences Union and the 2019 British Hydrological Society's President's Prize. Water@Reading were awarded a 2021 GEO SDG prize for their efforts in the use of state-of-the-art, global-scale flood forecasting models for humanitarian organizations to take early action ahead of flood events. Hannah is a Fellow of the European Centre for Medium-range Weather Forecasts (ECMWF) where she is researching Earth System modelling, land surface processes and flood forecasting. She is also Guest Professor at Uppsala University and Associate Fellow of the Centre for Natural hazards and Disaster Science in Sweden.

Abstract
Last summer terrible floods struck Germany and many parts of Europe leading to more than 200 people losing their lives. Early warnings of weather driven natural hazards can be vital in ensuring that we are better prepared for upcoming events. Increasingly these early warnings are based on the forecasts provided by global weather prediction systems that have invested in an earth system modelling approach.

This approach allows better representations of the feedbacks that are important in predicting floods, heatwaves and other natural hazards. The ‘ensemble’ or probabilistic approach used in these prediction systems also allows more informed decisions to be taken which consider the uncertainty in the forecasts. But what is the point of giant computer models of the earth system predicting floods several days ahead if nobody believes the forecast or nobody knows what to do in a flood?

This talk will illustrate some of our recent successes, the best future opportunities and the critical challenges in forecasting and providing early warnings of floods at the continental and global scale, and consider questions such as: when are global forecasts most useful and to what extent can we take local decisions from global forecasts? To what extent should we forecast the impact of the hazard? How can we communicate complex and uncertain forecasts?

The lecture is held via Zoom and will be recorded and published.
The Zoom access data are:
https://uni-bonn.zoom.us/j/93369202266?pwd=MWNqZ3JUSzFIdGtGZHJkMGtvR2M0Zz09
Meeting-ID: 933 6920 2266; Code: 939753

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