Natural Hazards and Risks in a Changing World

Call for abstracts

2nd International Conference on Natural Hazards and Risks in a Changing World

Organizers

Prof. Axel Bronstert
Dr. Philip Bubeck
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Description

Natural hazards such as floods, wildfires, droughts, earthquakes, landslides, and compound events heavily affect human societies and call for better risk mitigation strategies. In the wake of changing hydro-climatological, geo-physical and socio-economic system conditions the magnitude, frequency and impacts of natural hazards might change as well. Therefore methods are needed for hazard and risk quantification accounting for the transient nature of hazards and risks in response to changing natural and anthropogenic systems.

The purpose of this conference is to bring together researchers from natural sciences (e.g. hydrology, meteorology, geomorphology, hydraulics, environmental sciences, seismology, physical geography), risk research, human geography, nonlinear systems dynamics, and applied mathematics to discuss new insights and developments about impact modeling, risk assessments and risk mitigation, process understanding and the analysis of complex systems. Knowledge transfer, communication and networking will be a key issue of the conference. The conference will comprise keynote speeches and invited talks given by outstanding experts, oral presentations, poster sessions and discussions. In view of the uncertainties related to the COVID-19 pandemic we currently plan a hybrid format of the conference to facilitate participation in case of severe or uncertain conditions in parts of the world.

Universität Potsdam

DFG Deutsche Forschungsgemeinschaft

GeoX

up TRANSFER GmbH

DKKV

IAHS AISH

Keynote speakers

Prof. Susann Cutter, University of South Carolina, USA

Prof. Torsten Dahm, Helmholtz Centre Potsdam German Research Centre for Geosciences GFZ, Germany

Prof. Bruno Merz, Helmholtz Centre Potsdam German Research Centre for Geosciences GFZ, Germany

Dr. Dalia Kirschbaum, Hydrological Sciences Laboratory NASA, US

Abstracts & registration

Registration is now open. Please submit your abstract of up to 300–500 words, including title, names of authors and co-authors, and affiliations by 30 April 2021 via the link: *https://www.conftool.net/natriskchange2021*

Letters of acceptance/rejection will be sent to the main author by 15 June 2021.

For organizational reasons, attendance is limited in number and will be assigned on a first come first served basis. The conference fee will be EUR 180 for on-site participation and EUR 120 for online participation (both formats for students EUR 80). It includes all the symposium documentation, coffee-breaks, lunches and a joint dinner on 5 October 2021. Please register by 31 August 2021 via the link: *https://www.conftool.net/natriskchange2021*

Important dates

Deadline for Abstract submission	30 April 2021
Letter of acceptance/rejection	15 June 2021
Registration opens	1 June 2021
Deadline for registration	31 August 2021
Deadline for decision about on-site or online participation	19 September 2021

Venue

In view of uncertainties related to the COVID-19 pandemic we plan a hybrid format of the conference. The on-site event will take place on 5–6 October 2021 at the
University of Potsdam
Campus Griebnitzsee
Building 6.

Online participation will be enabled.

Contact

Dr. Theresia Petrow: *natrisk@uni-potsdam.de*

More information can be found at:
https://www.uni-potsdam.de/en/natriskchange/activities/second-international-natriskchange-conference-2021

Your health is important to us!

We ask you to respect the below mentioned rules during the conference. You are only allowed to attend the conference if you don't have any symptoms similar to COVID19 like fever, cough, shortness of breath, loss of smell and taste or similar. Please wash your hands before entering the meeting. We will also provide disinfectant.

Maintain distance of at least 1.5 m at all times (especially in situations with potential crowds like entering the lecture hall). If this is not possible, please wear a mask.

Please avoid shaking hands.

Please avoid touching your face.

Please sneeze and cough only into your elbow or into a tissue.

Please use disinfectant as necessary. We will provide it.

Session 1

Impact of land degradation, drought and wildfires on ecosystem services

Climate change is very likely to increase the frequency, intensity and duration of drought and wildfires. In combination with intensifying land-use and the risk of land degradation to negatively affect ecosystem patterns and processes, the portfolio and flow of ecosystem services to society is reduced. While extreme drought and heat waves can lead to extreme wildfires, land degradation can further accelerate impacts of these climate extremes. Attributing these impacts to climate change is a current scientific challenge. Cascading hazards from droughts and wildfires further degrade ecosystems and land and thus, impair ecosystem recovery and related ecosystem services. This session aims at presenting latest research on these interactions from observational field studies, remote-sensing analyses as well as modelling exercises across scales covering single to multiple ecosystem processes and related ecosystem services under different climate and socio-economic conditions. This session focuses on:

- land degradation caused by droughts and/or wildfires
- impact of climate extremes on ecosystem services
- impact of cascading hazards on ecosystem recovery under present and future climate change.

Invited speaker:

Prof. Britta Tietjen, Freie Universität Berlin, Germany (confirmed)

Session 2

Human contributions to climate risks

Climate risks have an enormous impact on societies globally. Floods alone affected 1.65 billion people, and caused economic losses of 651 billion US$ between 2000 and 2019. These risks result from a complex interplay of climate-related hazards, exposure of people, economic assets and critical infrastructure in hazard-prone areas, and their vulnerability to these hazards. Alterations in exposure and vulnerability are often the dominant drivers of changes in climate risks.

This session aims at presenting the latest research focusing on the human contributions to climate risks (i.e. exposure and vulnerability), the interplay of hazard, exposure and vulnerability, societal adaptation, and changes in risks. Contributions may cover:

- quantification and modelling of climate impacts and risks
- factors determining vulnerability to climate risks
- analysis of (changes in) exposure and vulnerability patterns
- statistical modelling of changes in exposure and vulnerability
- analysis of interactions between hazard, exposure and vulnerability.

Please note: Contributions specifically addressing exposure and vulnerability to seismic risks, volcanoes and tsunamis should be submitted to Session 4.

Invited speaker:

Prof. David N. Bresch, ETH Zürich, Switzerland (confirmed)

Session 3

Floods and storms

Floods and windstorms are the most hazardous and dangerous atmospheric and hydrologic natural events in many parts of the Earth. We invite contributions describing and analysing the particular conditions of floods (riverine floods; flash floods; pluvial urban floods; coastal floods) and wind storms (extratropical and tropical cyclones; tornadoes). Contributions to this session may focus on:

- details of physical mechanisms and interactions of particular events
- possible changes of internal physical system dynamics, external triggering forces, or exposure and vulnerability of risk prone humans or property
- statistical analysis of changes in disaster severity and/or occurrence frequency.

Invited speaker

Prof. Paul H. Whitfield, Centre for Hydrology, University of Saskatchewan, Canada (confirmed)

Session 4

Causes, impact and mitigations of earthquakes, tsunamis and volcanoes in an urban changing world

We invite contributions describing and analysing the causes, impacts and mitigations actions related to volcanoes, earthquakes and tsunamis. In particular, we encourage contributions that develop innovative tools and concepts as well as new approaches related to the following issues:

- earthquakes/volcanoes/tsunamis detection, characterization or modelling (including induced or cascades events)
- analysis (e.g. machine learning) of new and large datasets, including open- and crowd-sourced data combined with high-resolution modelling
- probabilistic hazard and risk assessment
- development of technological and system solutions for monitoring, operational forecast and/or integrated early warning/rapid response systems
- visualisation and communication to decision-maker.

Invited speaker:

Dr. Helen Crowley, Eucentre, Italy (confirmed)

Session 5

Geomorphological events

Natural disasters almost always involve changes to the Earth surface. Still, the role that such geomorphic dynamics play in terms of modulating hazard, vulnerability, and risk from natural disasters remains underrepresented in research. In that sense damage is often underestimated, if not misattributed to the general causes rather than the physical processes. We solicit contributions that highlight how considering in more detail geomorphic processes and landforms can improve risk appraisals and management of natural disasters. Examples include, but are not limited to:

- strong earthquakes, heavy rainstorms, or tsunamis that induce slope instability and flooding, thus triggering entire cascades of erosion, sediment transport, and deposition
- wildfires that remove protective vegetation cover and promote high rates of runoff and sediment yield
- pisodes of (mega-)drought that are often associated with enhanced wind erosion.

Invited speaker:

Dr. Kristen Cook, Helmholtz Centre Potsdam German Research Centre for Geosciences GFZ, Germany

Session 6

Analysis of complex changing systems

Identifying, quantifying and predicting transient states in natural and societal systems requires a vast set of mathematical and statistical methods. A new challenge is the investigation of compound weather and climate events caused by multiple drivers and/or hazards. The contribution of these compound events to risk and possible impacts to society is still unclear.

We are looking for contributions which carry the research on models and data describing complex systems, compound events and their impacts to society forward. Contributions may focus on:

- complexity science and networks (e.g. complex networks)
- dynamic systems simulation (e.g. agent-based modeling)
- analysis of compound and cascading events
- innovative data collection or processing.

Invited speaker:

Dr. Jakob Zscheischler, University of Bern, Switzerland (confirmed)