

# CNDS NEWS FLASH

*Thank you for  
this year!*

*The end of the semester brings thoughts of joy and gratitude, and there's no better time to express our thanks and sincere appreciation for your amazing hard work, creativity, and dedication.*

*Stay safe and see you in 2022!*



# RESEARCH PORTRAIT

Get to know [Daniel Nohrstedt](#), CNDS Research Coordinator and Professor at the Department of Government, Uppsala University in this short interview.



*What is your area of expertise?*

- I study hazards and disasters through a governance and public policy lens, which means that I am interested in questions about collective-action and the way environmental problems are defined and addressed in contexts with multiple stakeholders with diverging interests and beliefs. For example, I study how networks of organizations form and respond to disaster events and how disruptive disasters may be leveraged as opportunities for policy learning and change toward enhanced risk reduction and sustainable development. I am also interested in conditions for success and failure in disaster management and public policy.

*What sparked your interest in natural hazards and disaster science?*

- This came out of a broader interest in societal security, including foreign policy and international relations. These fields share a common interest in how governments and other organizations cope with complex problems, but do not come all the way to describe the “nuts and bolts” how this happens. In this regard, I see hazards and disasters as great social science laboratories that allows us to study various processes of collective action in society. Also, providing safety is a key responsibility of the state in democratic society, thus studying how this plays out in practice is a core topic for political science.

*If you could only work on one problem/issue/challenge in natural hazards and disaster science it would be a **life-long field-study of hazard planning activities in Hawaii**, because **Hawaii has a fascinating history of natural hazard events**. I could not think of a better place for a field study, plus I have to work on my surfing skills.*

*What book or paper has been most influential to your career and why?*

- Essence of Decision, Graham Allison’s book on the Cuban Missile Crisis. Elegant design, carefully executed empirical analysis, and a must-read for anyone interested in crisis management. Inspiring in many ways, state of the art theory and methods.

*What do you like to do when you’re not working on research?*

- Write grant proposals, teach, and hang out in an endless stream of Zoom-meetings.

*What is your golden tip for early career scientists?*

- Anywhere sunny and warm where you can talk to disaster management practitioners in a relaxed atmosphere. The annual Natural Hazards conference outside Denver, Colorado, is a personal favorite.

In addition to Daniel's research portrait, [the research portraits of other CNDS fellows can be found on CNDS website](#).



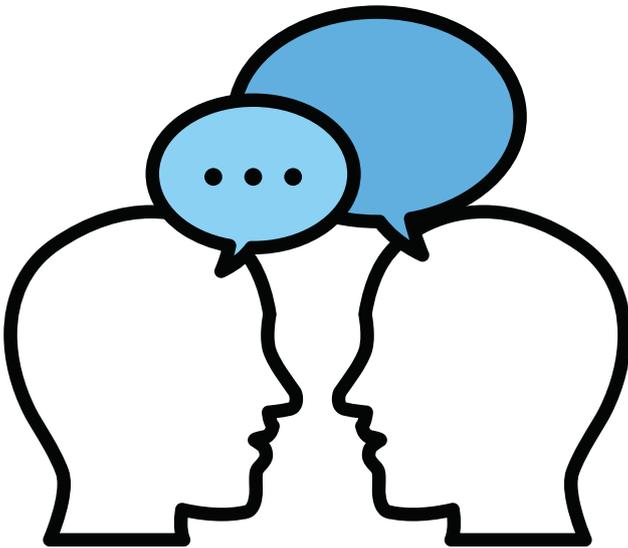
# Call for CNDS Interdisciplinary Grants 2022!

CNDS offers Interdisciplinary Grants to encourage research activities that go beyond disciplinary boundaries. The grants can be applied for until **31 January 2022** (total funds available for this year's call is 150,000 SEK including 39% OH). The requirements for attaining the grant is that the proposed activities involve research tasks, analytical methods, and/or other efforts spanning across disciplines on a topic related to natural hazards and disaster science. Disciplines that currently are not represented within CNDS (e.g., public health, economics, and cognitive sciences) can also be covered.

**Who can apply?** Early career scientists (PhD students and postdocs) from any department of CNDS partnering universities, i.e. Uppsala University, Karlstad University and Swedish Defence University.

**How to apply?** Send your applications to [johanna.maard@geo.uu.se](mailto:johanna.maard@geo.uu.se) by latest 31 January 2022 (23:59 CET). The application should consist of the proposal and description of the activity, a statement of the interdisciplinary nature of the proposal and how the proposed activity will benefit your research, and budget (including OH) with budget motivation, and period (maximum two pages). Applications must also include 1-page resumes of all applicants.

For any questions related to the call, please contact [johanna.maard@gmail.com](mailto:johanna.maard@gmail.com).



# CNDS Summer School 2021

This year's CNDS Summer School "Exploring Frontiers in Natural Hazards Science: Drivers, Impacts, and Responses" gathered 20 PhD students from earth-, engineering, and social sciences from 13 different countries for an introduction on the interplay between natural hazards (e.g., floods, droughts, wildfires and earthquakes) and vulnerable societies. The one-week course offered intensive training on concepts and tools for Disaster Risk Reduction (DRR), where the disaster management cycle (mitigation, preparation, response and recovery) was compared to alternative concepts and critically analysed in relation to recent catastrophic events. Together with senior researchers in the forefront of this field, students discussed and proposed solutions to complex problems in DRR. Due to the ongoing pandemic, the summer school was offered as an online course over Zoom during 23-27 August.

For accessing the CNDS Summer School 2021 evaluation report, please email [andra.covaciu@geo.uu.se](mailto:andra.covaciu@geo.uu.se).



## CNDS Forum 2021

This year's digital forum focused on the challenges and success factors in managing multiple natural hazards and disasters during a looming global crisis, as well as dilemmas with competing interests, resources, and priorities - from local events to global crises. The morning session was focusing on the practitioner perspective and was held in Swedish. The afternoon session was focusing on the research and international perspectives and was held in English.

The event was well attended (over 100 participants between the morning and the afternoon session). For accessing the CNDS Forum 2021 evaluation report, please email [andra.covaciu@geo.uu.se](mailto:andra.covaciu@geo.uu.se).

### CNDS Forum 2022

CNDS Forum is planned for 2022.

**More information will be available on our website ([www.cnds.se](http://www.cnds.se))**



# RESEARCH HIGHLIGHTS

## CNDS Manifest paper featured on Prevention Web

In the paper "Disaster risk reduction and the limits of truisms: Improving the knowledge and practice interface", a team of CNDS fellows, led by [Daniel Nohrstedt](#), challenge oversimplified or unsubstantiated claims/assumptions in disaster risk reduction (DRR).

The CNDS fellows co-authoring Daniel on the paper are: [Charles Parker](#), [Nina von Uexkull](#), [Johanna Mård](#), [Kristina Petrova](#), [Malin Göteman](#), [Jacob Hileman](#), [Gabriele Messori](#), [Giuliano Di Baldassarre](#) (Uppsala University), [Frederike Albrecht](#) (Swedish Defence University) and [Lars Nyberg](#) (Karlstad University).

[The paper can be accessed on PreventionWeb](#) or on [ScienceDirect](#).

## Elena Mondino is CNDS newest doctor

One of the first CNDS supported PhD students has recently and successfully defended her thesis. [Elena Mondino](#) wrote her thesis on the topic "Changes in Hydrological Risk Perception and Implications for Disaster Risk Reduction" and defended it in front of her opponent, Prof. Teun Terpstra from HZ University of Applied Sciences. Her work was supervised by CNDS Director, [Giuliano Di Baldassarre](#) and CNDS Project Coordinator, [Johanna Mård](#).

[Elena's thesis can be accessed via Diva portal.](#)

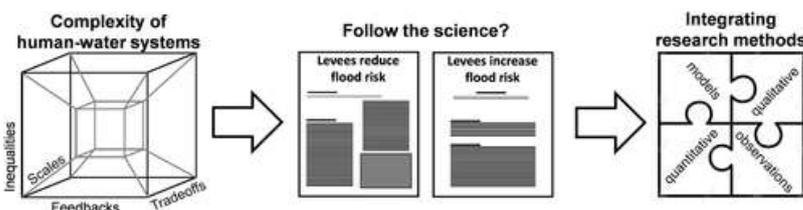


## CNDS Fellows' paper on research methods to unravel human-water systems' complexity has been featured in the Editors' Highlights!

CNDS Fellows, [Giuliano Di Baldassarre](#), [Sara Lindersson](#), [Maurizio Mazzoleni](#), [Elena Mondino](#), [Johanna Mård](#), [Vincent Odongo](#), [Elena Raffetti](#), [Elena Ridolfi](#), [Maria Rusca](#), [Elisa Savelli](#), [Faranak Tootoonchi](#) (Uppsala University) and [Hannah Cloke](#) (University of Reading) have recently published a paper on "Integrating multiple research methods to unravel the complexity of human-water systems". The paper has been published in the AGU Advances Journal, volume 2, issue 3 and featured in the Editors' Highlights.

This happens to fewer than 2% journal articles so we would like to take this opportunity to congratulate our fellows for their tremendous work!

[The paper can be accessed on AGU's website.](#)



# RECENT PUBLICATIONS



## COLLABORATIVE CRISIS MANAGEMENT

Building upon the field of collaborative crisis management, CNDS fellows, [Erik Persson](#) and [Mikael Granberg](#) (Karlstad University) published an article on events that can have broad and disastrous impacts on society, high degrees of uncertainty and potentially cascading effects, by conducting an in-depth case study of collaborative crisis management tasked with contingency planning for dam failure risk in a large river basin in central Sweden. They found that there was a lack in reach of the collaboration potentially limiting capacity and capacity building in ways that can limit preparedness and increase vulnerability in a crisis situation. They also found that contingency planning was treated as a demarcated project with a beginning and an end and not entirely as a continuous process.

[Read the entire article on Taylor & Francis Online.](#)



## CLIMATE CRISIS & THE MONTREAL PROTOCOL

CNDS Board Deputy Chair, [Charles Parker](#) (Uppsala University) has co-authored, together with the climate scientist Paul Young, a blog post in Nature discussing the Montreal Protocol and the lessons it holds for tackling the climate crisis in advance of the COP26 summit in Glasgow.

[The entire blog post can be read on the Springer Nature Sustainability Community webpage.](#)



## ANCIENT ORAL TRADITIONS AND MASTERY OF NATURAL HAZARDS

CNDS fellows [Valentin Troll](#) and [Frances Deegan](#), together with their colleague Nadhirah Seraphine (Uppsala University) have researched the role of local legends in rationalizing the dynamic interaction between the volcano and the frequent regional earthquakes through the rich oral traditions and ceremonies in the districts around Merapi volcano in central Java. They found out that, for instance, evacuation plans are not always readily accepted by some of the local population on Merapi's slopes due to sometimes opposing religious and cultural beliefs. Societies and individuals can hold multiple convictions simultaneously, and the cultural perception of a hazard greatly influences preparedness and the capacity to respond appropriately in times of crisis.

[Read the full article on Wiley Online Library.](#)



## BUILDING A SUSTAINABLE SOCIETY

CNDS fellow, [Mikael Granberg](#) (Karlstad University), together with his colleagues, has recently published a new article on sustainable societies and procurement, investigating the tension between politically charged objectives and technological processes and market logics. Their research focused on studying policies related to sustainable public procurement of the built environment in the European Union.

[The entire article can be accessed on MDPI's website.](#)



# RECENT PUBLICATIONS



## ARCHING FROM FUNCTION TO FORM

"The increasing uncertainty with regard to emerging multi-hazard events, compound and cascading disasters, or complex emergencies requires well-suited, adequate preparedness and response structures able to anticipate the complexities of indistinct future risks."

This complexity is what CNDS Project Coordinator, [Andra Covaciu](#), together with co-authors tried to address in their article by describing some of the important design elements of simulation exercises (SimEx) in Emergency Response and Disaster Risk Management.

[The entire article can be accessed on MDPI's website.](#)



## ETNA'S ERUPTION AND HISTORICAL SIGNIFICANCE

CNDS fellows, [Valentin Troll](#) and [Frances Deegan](#) (Uppsala University), together with their colleagues, have recently published an article on the recent eruptive activity of Etna as well as the ancient myths and legends that surround this volcano, from the underground forge of Hephaestus to the adventures of Odysseus, including the benefits and dangers the volcano provides to those living on its flanks today.

[Read the entire article on Wiley Online Library.](#)

## MUNICIPAL ORGANISATION OF RESPONSE TO PANDEMIC

One of CNDS Reference Group members, the [Swedish Civil Contingencies Agency \(MSB\)](#), has recently published a real-time study conducted on the local resilience of the Swedish municipalities in response to the ongoing pandemic.

CNDS Fellow, [Mikael Granberg](#) (Karlstad University), is one of the co-authors and the study can be found on [MSB's website \(in Swedish\)](#).

Find more information about  
CNDS publications on  
our website: [www.cnds.se](http://www.cnds.se).



# CNDS IN MEDIA



## ABOUT EXTREME WEATHER EVENTS ON RADIO SWEDEN

CNDS Fellow, [Anna Rutgersson](#) (Uppsala University) visited the Swedish radio show Morgonpasset i P3 and talked about this summer's extreme weather events and how these can be related to global warming.

The discussion can be listened to via the link below (in Swedish): <https://lnkd.in/ec6GNsup>.



## THE MAP OF LA PALMA IN NEED OF REDESIGN

CNDS Fellow, [Steffi Burchardt](#) (Uppsala University) has discussed, on national television, about the development of the volcanic eruption on La Palma, underlining the need for remapping the area, based on the changes the eruption has resulted into.

[The interview is available on SVT's website \(in Swedish\).](#)



## ACT BEFORE THE CREEPING CLIMATE CRISIS BECOMES ACUTE

CNDS Fellows, [Mikael Granberg](#) and [Lars Nyberg](#) (Karlstad University) are debating the importance of climate change adaptation and underline that this is more important than municipalities' pursuit of growth.

They also argue that climate changes can be understood as a creeping crisis since its effects are long-term, have low intensity but are gradually increasing.

[Read more about their discussion in the debate article on Dagens Samhälle's website \(in Swedish\).](#)



## THE CLIMATE QUESTION PODCAST

CNDS fellow, [Ashok Swain](#), has joined Graihagh Jackson and Neal Razzell in an episode of The Climate Question podcast by BBC World Service, which discusses stories on why we find it so hard to save our own planet, and how we might change that. Ashok discussed whether climate change can cause more water conflicts and aimed to answer the question on how we can help countries reach agreements over equal access to water, and ensure they stick to them in the future?

[The episode can be listened to BBC's website.](#)



# What are our PhDs working on?

(excerpt)



**Emma Allwright (UU)**



**Åsa Davidsson (KAU)**

## LONG-RANGE PREDICTABILITY OF HEAT WAVES UNDER GLOBAL CHANGE

This project will analyse European heatwaves in present and future climates from a mathematical perspective. More specifically, the goal of this project is to first develop a statistical understanding of the ECMWF long range weather forecasts used to predict summer heatwaves in Europe. The work will also focus on analysing the skill of the forecasting system and identifying high vs low predictability cases and their related atmospheric configurations. After this the focus will shift to developing an understanding of the key physical processes affecting long range weather forecasting skill and uncertainty. These previously identified key processes and regimes will then be examined in the context of climate and global change using metrics from the mathematical theory of dynamical systems. Finally, the techniques developed in this project will be applied to data associated with climate mortality forecasts.

## DESIRABLE EFFECTS FROM DISTURBANCE ECOLOGY

Natural disturbances such as fire, wind, and flooding strongly influence ecosystems by creating short and long-term ecological processes. The purpose of this study is to explore how and if natural disturbances are incorporated in the management of Swedish national parks and to identify possible examples of barriers for this incorporation. The design of the study is a multiple comparative case study based on a document study and completed with qualitative interviews. The cases consist of propositions and management plans for 15 Swedish national parks established between 1962 and 2018. The results indicate that there are positive perceptions concerning the inclusion of disturbance ecology in the management of national parks. However, there are also obstacles and challenges around natural disturbances within Swedish national parks.



**Samuel Forsberg (UU)**



**Sara Lindersson (UU)**

## GRID STABILITY AND RESILIENCE TO NATURAL HAZARDS

The purpose of this research project is to analyse the Nordic (Norway, Sweden, eastern Denmark and Finland) transmission grid's ability to handle a high penetration of renewable energy sources and at the same time be resistant to disturbances caused by natural hazards. The methodology of the research project mainly consists of mathematical models, input data and assumptions. The mathematical models are used to construct simulation algorithms in order to simulate the grid. The input data includes e.g., number of nodes, connections, loads and generators as well as the corresponding values for these elements. The project aims to generate mostly quantitative, but in some cases also qualitative, results.

## LARGE SCALE FLOOD RISK AND SOCIAL DISPARITIES

How do socioeconomic conditions influence flood risk across the world? One way of researching this topic is through large-scale geospatial analysis, for instance by comparing results across many locations or events. This project investigates opportunities and limitations of large-scale flood risk analysis - focusing on the hazard, exposure and vulnerability aspects respectively. Investigating these limitations of large-scale data sources, and the resulting implications on our understanding of flood risk, has been the focus of the first half of the doctoral thesis project. For the second half, the focus will be on two common ways in which scholars working with large-scale geospatial analysis of flood risk address and/or measure vulnerability



# What are our PhDs working on?

(excerpt)



**Ferran López Martí (UU)**



**Kristina Petrova (UU)**

## **AIR-SEA INTERACTIONS & EUROPEAN WET AND WINDY EXTREMES**

This project aims to understand how air-sea interactions can modulate the occurrence and characteristics of atmospheric rivers in terms of both open-water processes in the source areas of the rivers and of coastal processes at landfall that can lead to extreme precipitation. An atmospheric-wave-ocean coupled modelling system UU-CM will be used to simulate different types of atmospheric rivers events coupled with extreme conditions. By doing so, several sensitivity experiments will be performed. Also, the simulations with the UU-CM model will be compared with convection-permitting simulations to evaluate the differences in water vapour transport and heat release within the cyclones and atmospheric rivers. A better understanding of the life cycle of atmospheric rivers and the underlying processes involved will improve the predictability capacity of extreme precipitation due to atmospheric rivers.

## **CLIMATIC CHANGES, VIOLENT CONFLICT AND INSTITUTIONAL CAPACITY**

This project explores the link between climate change, natural hazard-related disasters and the likelihood of various kinds of violent and non-violent conflicts. It further investigates the relationship by looking into potential intervening mechanisms and conditioning factors such as quality of national and local political institutions. The research objectives include gathering data on and evaluating the role of governmental, civic and customary institutions on global, national and local level that respond to natural hazard-related disasters and violent conflict; These research objectives are accomplished through mapping institutions on various levels for Sub-Saharan Africa and Southeast Asia - regions that are particularly vulnerable to the social impacts of climatic changes. At a later stage, a set of recommendations will be developed to help practitioners and policy-makers strengthen their response plans.



**Emma Rhodes (UU)**



**Elisa Savelli (UU)**

## **WILL IT BLOW AND HOW WILL I KNOW?**

The conditions of the magma chamber that feeds a volcano such as its size, depth, pressure, composition and gas content influence the eruption potential of the magma. As active magma chambers are underground, how the magma may be moving or mobilising is often hard to identify during periods of volcanic unrest. The project aims at researching the emplacement processes of the magma chamber, whether it erupted, and the physical conditions of the magma. In addition, it aims at answering to the question - How can we best be prepared for an eruption, and how should we as scientists communicate?

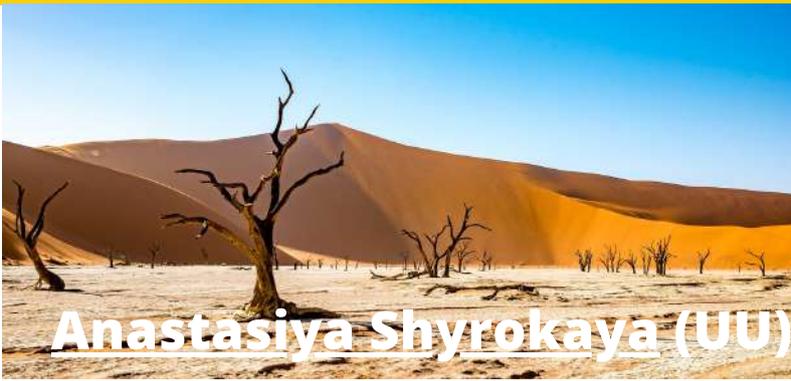
## **THE PRODUCTION AND DISTRIBUTION OF DROUGHT RISK**

This research seeks to retrace the mutual interactions between hydrological flows and social power to understand how they influence the production and distribution of extreme hydrological events across socio-natural systems. To do so, it combines socio-hydrological insights with political ecology perspectives and draw empirical evidence from two areas in the Western Cape, South Africa — respectively Ladismith rural community and Cape Town Metropolitan area — which both experienced an extreme and prolonged drought.



# What are our PhDs working on?

(excerpt)



Anastasiya Shyrokaya (UU)

## IMPACT-BASED DROUGHT FORECASTING

The aim of this PhD project is to shift from traditional statistical approaches (e.g. discharge predictions below a given low threshold or the Standardized Precipitation Index) and focus on developing forecasts of impacts in terms of agricultural losses and affected population. Such state-of-the-art prototype system will offer hydro-climatic impact-based drought forecast information at the European scale with a focus on the long (~45 days) to seasonal (up to 7 months) ranges. Scientifically advanced methods (i.e. multi-modelling, seamless subseasonal-to-seasonal) will be explored to quantify the expected added value in forecasting skill, followed by a cost-benefit analysis (added forecast accuracy versus computational demands) to guide towards potential operationalisation.



Maximilian Wanner (UU)

## DRIVERS OF PROGRESS IN DISASTER GOVERNANCE

Soft law has replaced hard law in international environmental regimes. The first study provides an understanding of how international environmental regimes that do not rely on hard law help reach our targets and goals. The study was investigating DRR on a global scale from the perspective of regime effectiveness, and could document not only the variation on the country level but also serves as a guide to stories of success. Study 2 investigates what drivers led to the changes in national disaster governance under the Hyogo Framework. There is a positive effect of government effectiveness, which is offset when frequent natural hazard events overburden the system. The third study investigates Fiji and Nepal as unexpected cases of change in disaster governance.



Patrick Wennström (UU)

## CONFLICT, CATTLE, AND CLIMATE CHANGE

Why do some pastoralist conflicts turn more violent than others? Previous research has provided ambiguous answers to this question, often by examining how single environmental factors correlate with high intensity conflict. This paper fills that gap by illustrating how specific combinations of environmental and sociopolitical conditions interact and affect pastoralist conflict intensity in Karamoja, Uganda. The results show that environmental conditions are important for incentivizing pastoralist conflict, but their effect should not be overstated since they only work in combination with opportunities created by sociopolitical conditions.





# UPCOMING CNDS ACTIVITIES

## **18 January - CNDS Research Seminar (Extreme rainfall events)**

The seminar organizer, Lars Nyberg (Karlstad University), is planning for a discussion on extreme rainfall events and will be inviting colleagues from different sub-disciplines to share their insights on the topic.

## **11 March - CNDS Research Seminar (2 years of pandemic)**

CNDS Board Chair, Fredrik Bynander (Swedish Defence University) is planning to organize a seminar at exactly two years since Covid-19 was declared a pandemic, inviting practitioners and/or researchers to present and discuss their experiences and studies.

## **26 April - CNDS Research Seminar (Scientific integrity & ethics)**

CNDS Fellow, Steffi Burchardt is planning to organize a discussion with researchers and practitioners on the importance of scientific integrity and research ethics.

## **10 June - CNDS Research Seminar**

CNDS Early Career Scientists will be organising a seminar where they will present their approach and insights into the natural hazards area.

[More information about CNDS upcoming events can be found in the Calendar on CNDS website.](#)



# Reminders

- Please send your updates (new publications, conference participation, video footage, news items or any other exciting events we should share) via email to [Andra Covaciu](#) or [Johanna Mård](#).
- Please remember to add your CNDS affiliation (and logo where appropriate) in your correspondences and publications. *Example:* Name, Department, University, "Centre of Natural Hazards and Disaster Science"

# Outreach



Keep the rest of us updated on what's happening with your research and see what your colleagues are up to by visiting our [Twitter](#) and [LinkedIn](#) accounts.

# Links to the CNDS units

- [Centre for Societal Risk Research \(CSR\), Karlstad University](#)
- [Centre for Societal Security, Swedish Defence University](#)
- [Department of Earth Sciences, Uppsala University](#)
- [Department of Government, Uppsala University](#)
- [Department of Peace and Conflict Research, Uppsala University](#)
- [Department of Materials Science and Engineering, Uppsala University](#)
- [Department of Electrical Engineering, Uppsala University](#)
- [Department of Information Technology, Uppsala University](#)

