

# CNDS NEWS FLASH

*Have a great summer break!*

*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 autumn!*



# Congratulations to the recipients of the CNDS Interdisciplinary Grants 2022!



**Sara Lindersson**

Department of Earth Sciences,  
Uppsala University

*For exploring spatial patterns of human-modified river droughts and conflict events by hiring a research assistant.*



**Kristina Petrova**

Department of Peace and Conflict Research,  
Uppsala University

*For her visit to Columbia Climate School and its Earth Institute at Columbia University in the spring of 2022.*



**Elena Raffetti**

Department of Earth Sciences,  
Uppsala University

*For exploring the effects of extreme temperature on human health in Swedish municipalities, by using data from Swedish registers.*



# RESEARCH PORTRAIT

Get to know [Fredrik Bynander](#), CNDS Board Chair, Associate Professor and the Director of the Centre for Societal Security, Swedish Defence University in this short interview.



*What is your area of expertise?*

- I'm a political scientist specialized in crisis management studies with long experience in outreach and practical implications work.

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

- For a crisis management scholar, disaster science is an area that triggers acute questions regarding societal readiness to hazards that are often predictable (in the long run), but that are undermitigated and undermanaged, especially its social roots and consequences. This allows research that can "control for" a number of variables that are problematic in e.g. terrorism studies, economic crises and other problems that stems from human interaction only.

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

- I always seem to end up thinking about the mechanisms described by Charles Perrow in his Normal Accidents. How we organize safety and security matters and better technology, additional resources or better trained people doesn't always help.

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

- My interests are quite mundane: playing tennis and golf with my family and others, reading a good book and cracking open a beer in the sauna. Cooking and driving are my other decompression methods.

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

- Try more things than one. If it feels like you're falling behind your peers in the publication race, remind yourself that this is a marathon, not a sprint, and that there are finish lines in different places depending on which direction you want to take. Try to do things that matter beyond the niche you might find yourself in – that makes it easier one day to explain to your kids what it is that you do and why.

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



ResearchGate

ACADEMIA

"If I could only work on one problem/issue/challenge in natural hazards and disaster science it would be **identifying generic capabilities and tools for disaster risk reduction.**"



# CNDS/EGU Summer School 2022

## *Natural Hazards in the Anthropocene*

This year's CNDS/EGU Summer School on Natural Hazards in the Anthropocene aims at gathering PhD students in earth-, engineering- and social sciences for an introduction to the dynamics and impacts of natural hazards (e.g., floods, droughts, wildfires and earthquakes) as well as disaster management and social vulnerability under the umbrella of Disaster Risk Reduction (DRR).

The theme of this year's course is diversities in approaches and practices in natural hazards and disaster science. Through lectures, seminars, and project assignments, the course will explore DRR through the disaster management cycle (mitigation, preparation, response and recovery), looking at the interplay between natural hazards and society. Together with senior researchers in the field, students will discuss and propose solutions to complex problems in DRR. The course is an opportunity to compare and analyze the disaster management cycle in relation to alternative concepts of disaster management and recent catastrophic events.

The summer school will take place during 22-26th of August, at the Department of Earth Sciences, Uppsala University, Uppsala, Sweden, if regulations allow and [more information about the school can be found on our website](#).



## CNDS Forum for Natural Hazards and Disasters 2022

The Forum is a conference and meeting place for those working on natural hazards, disaster risk reduction and crisis management which gathers over 100 participants. The event is targeted to policy and decision makers and practitioners in local, national and international governmental agencies, NGOs, and the private sector as well as researchers and early career scientists.

The theme for 2022 is *Looking back & Moving forward: Post-disaster pathways & adapting to a changing risk environment* and the event will take place on the 20th of October at Uppsala University, Uppsala, Sweden.

The morning session will be focusing on the practitioner perspective and will be held in Swedish. The afternoon session will be focusing on the research and international perspectives and will be held in English.

[More information about the event can be found on our website](#).





# Research Highlights

## Multidisciplinary article published in Nature journal Scientific Reports

Our Fellow, [Elena Raffetti](#), together with Elena Mondino and Giuliano Di Baldassarre (Uppsala University), has recently published an article on "Epidemic risk perceptions in Italy and Sweden driven by authority responses to COVID-19" in the multidisciplinary Nature journal Scientific reports. [The article can be accessed on Nature's website](#), while a short interview with the main author is available below:

### 1. Why is the study of public risk perception important?

The interplay between population characteristics, prompt response to the spreading, and preparedness of the health care system influence how a pandemic affects a population. Next to this, from past pandemics we know that the success of policies depends on risk perception and behavioral changes. For example, a high-risk perception is associated with the implementation of personal hygiene measures, adherence to national policies and people's willingness to be vaccinated. As such, uncovering determinants of risk perception and how risk perception influences behaviors are essential steps to support the policies promoting public health and reducing disaster risk.

### 2. What are the main factors influencing the way we think about risks?

Our two papers (referring to another paper recently published - see below) highlight the important role of authorities. Authority response has a key role in influencing the epidemic risk perception. More restrictive and imposed measures in the Italian context are associated with a lower perceived authority knowledge and preparedness compared to Sweden, where the policies have been mainly based on recommendations. In turn, higher trust in authority influence people's willingness to be vaccinated. Next to this, our findings support the theory of lower risk perception among individuals with a traditionally higher status in society. Men, the elderly population and individuals with a higher income perceived a lower risk compared to women, younger generations and individuals with lower income.

### 3. How can we reduce the spread of disease outbreaks?

This is a complex matter. Despite pandemics have shaped human history, the risk of infectious disease outbreaks has increased during the last decades due to the growing human population and other animal-specific species, international mobility and the impact of human activities (e.g. deforestation, urbanization and global warming). Concurrently, technological development has contributed to improve responses to such crises. High-quality health care systems and fast vaccine production are prominent examples.

We do not know which (and when) will be the next pandemic or crisis but we know that it will happen. Here are seven pillars as lessons to learn from the current pandemic: i) implementation of early warning systems to avoid that an outbreak develops into an epidemic and a pandemic; ii) strengthening health care systems and supply chain with diversification; iii) international cooperation and strategic partnerships; iv) community engagement and communities as the center of the response to crises. v) more efficient ways to do research (from competitive to cooperative and complementary projects); vi) application of precautionary principles that considers multiple hazards; and vii) decrease of inequalities.

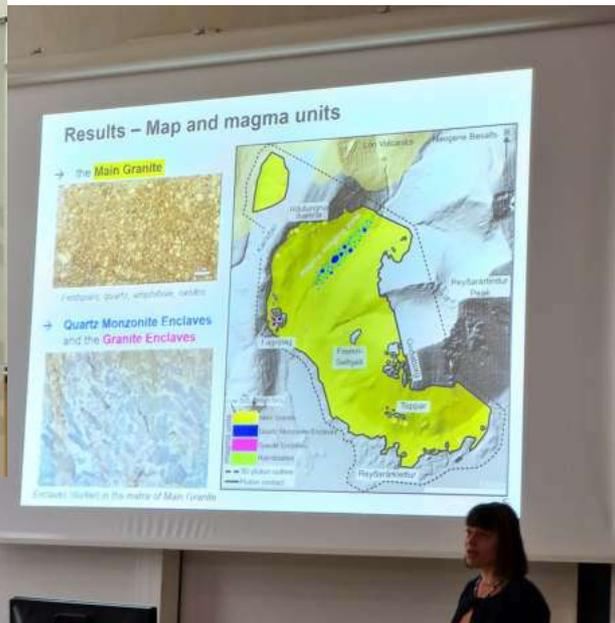
The other article mentioned by Elena in the interview has been recently published in the Scandinavian Journal of Public Health under the title "COVID-19 vaccine hesitancy in Sweden and Italy: The role of trust in authorities". [The article is available on ResearchGate](#).



# Research Highlights

## Emma Rhodes, CNDS newest doctor

On the 9th of June, [Emma Rhodes](#) successfully defended her thesis with the title "Evolution of a silicic magma reservoir in the upper crust: Reyðarártindur pluton, Southeast Iceland." Her opponent was Prof. Sandy Cruden from Monash University, Australia. Emma's supervisors are all CNDS Fellows - [Steffi Burchardt](#), [Abigail Barker](#) and [Charles Parker](#).



# Research Seminars Spring

## 18th of January - Extreme Rainfall Events

- **The German flood in summer 2021: what have we learnt and what are the new questions for flood research?** Presentation by **Prof. Mariele Evers**, Department of Geography, Bonn University, Germany. *Mariele Evers is a CNDS fellow and has many years' experience of disaster risk research in Europe, Asia and Africa.*
- **A catastrophe model for cloudbursts in Sweden based on the Oasis platform.** Presentation by **Msc. Daniel Knös**, catastrophe model developer at the reinsurance broker Guy Carpenter. *Daniel Knös is a member of the CNDS external reference group and has been involved in the research project SPLASH (Swedish pluvial modelling analysis and safety handling).*
- **SPARC: Stakeholder participation for climate adaptation - data crowdsourcing for improved urban flood risk management. Introduction to a new CNDS project, funded by Formas.** Presentation by **Lars Nyberg** (Karlstad University).

## 22nd of March - 2 years of pandemic

- **Staying at home or going out? National responses to the COVID-19 crisis.** Presentation by **Evangelia Petridou**, Mid-Sweden University, Sweden
- **Balancing governance capacity and legitimacy: managing the COVID-19 crisis.** Presentation by **Per Laegreid**, University of Bergen, Norway
- **Evaluating the pandemic: conclusions of the Swedish Corona Commission.** Presentation by **Shirin Ahlbäck Öberg**, Uppsala University, Sweden



# Research Seminars Spring

## 26th of April - Scientific Integrity and Ethics

- **Probabilistic Seismic Hazard Assessment of Sweden.** Presentation by CNDS PhD, [Joshi Niranjana](#), Department of Earth Sciences, Uppsala University. Discussant, CNDS PhD, [Åsa Davidsson](#), Karlstad University.
- **Reflections on whakaari/white island disaster and how a volcanologist thinks about risk.** Presentation by **Ben Kennedy**, University of Canterbury, New Zealand
- **The role of an 'academic' volcanologist/seismologist and interaction with the IGEPN in Ecuador.** Presentation by **Andrew Bell**, University of Edinburgh, Scotland.

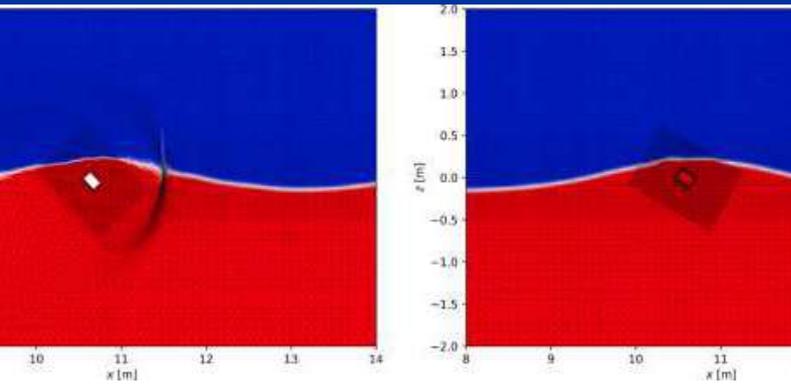


## 10th of June - PhD's approach

- **Change and Progress in Disaster Risk Reduction.** Presentation by CNDS PhD, [Maximilian Wanner](#), Department of Government, Uppsala University.
- **"Kashmir will rise again": Securing the selves.** Presentation by CNDS PhD, [Rasmus Andrén](#), Department of Political Science and Law, Swedish Defence University. Discussant by CNDS PhD, [Eirini Katsidoniotaki](#), Department of Electrical Engineering, Uppsala University.
- CNDS Alumni panel, moderated by CNDS PhD students. Participating alumni:
  - Monica Rydstedt Nyman (Trafikverket (Swedish Transport Agency))
  - Viveca Norén (MSB - Swedish Civil Contingencies Agency)
  - Diana Fuentes-Andino (SMHI (Swedish Metrological and Hydrological Institute))
  - Marc Girons Lopez (SMHI, Sweco (private company, architectural and engineering consulting))



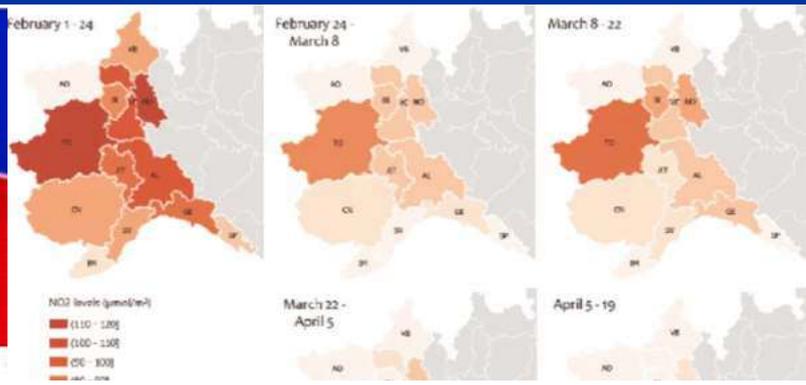
# Recent Publications



## NUMERICAL MODELING OF EXTREME WAVE INTERACTION WITH POINT-ABSORBER USING OPENFOAM

New article on extreme wave interactions published by CNDS fellows, [Eirini Katsidoniotaki](#) and [Malin Göteman](#) (Uppsala University). The two have chosen 100-year extreme waves from the environmental contour of the Humboldt Bay site in California, and modeled their interaction with the WEC using the open-source CFD software OpenFOAM.

[Article available on ScienceDirect's website.](#)



## THE RELATIONSHIP BETWEEN THE CONCENTRATION OF NO2 AND THE COVID-19 EPIDEMIC

CNDS fellow, [Gianmarco Pignocchino](#)'s paper on satellite data and epidemic cartography has been recently published and we recommend reading it if you are interested in understanding the relationship between the concentration of NO2 and the COVID-19 epidemic.

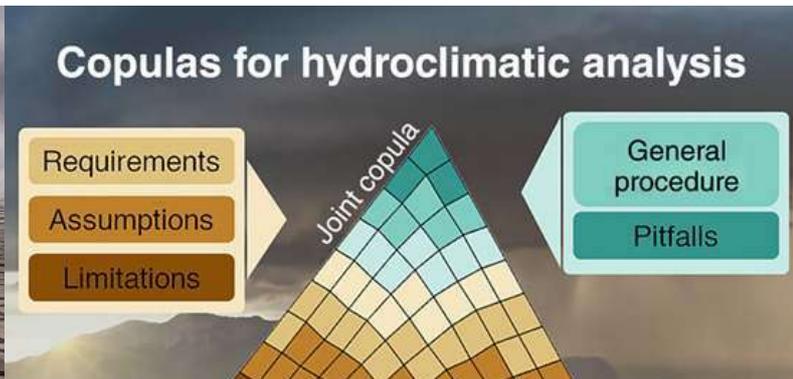
[The conference paper can be accessed on SpringerLink.](#)



## DROUGHT AND SOCIETY: SCIENTIFIC PROGRESS, BLIND SPOTS, AND FUTURE PROSPECTS

CNDS Fellows, [Elisa Savelli](#), [Giuliano Di Baldassarre](#) (Uppsala University), [Maria Rusca](#) (University of Manchester) and [Hannah Cloke](#) (University of Reading) have recently published a review of the physical and engineering sciences on the ways and extent to which they take into consideration the social processes in relation to the production and distribution of drought risk.

[The article can be accessed on WIREs Climate Change website.](#)



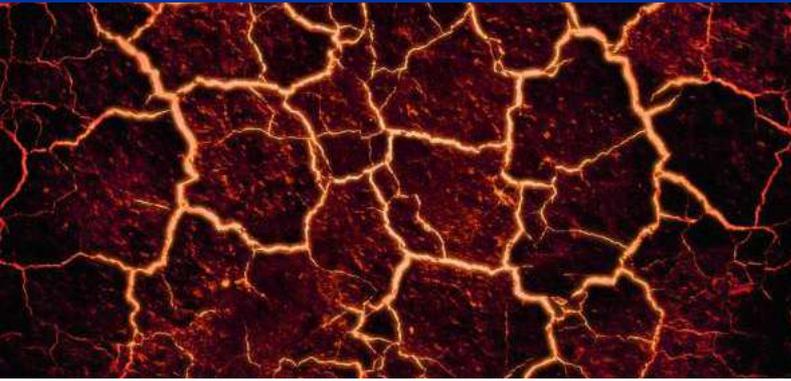
## COPULAS FOR HYDROCLIMATIC ANALYSIS: A PRACTICE-ORIENTED OVERVIEW

One function that can be used in analyzing the risks of compound events, given their disproportionately high adverse impacts is Copula. This mathematical function expresses the joint cumulative probability distribution of multiple variables. CNDS Fellow, [Faranak Tootoonchi](#) (Uppsala University), together with colleagues worked on emphasizing this function's fundamental requirements and application limitations.

[The entire overview can be accessed on WIREs website.](#)



# Recent Publications



## HIDDEN WEAKNESSES WITHIN VOLCANOES MAY CAUSE VOLCANO COLLAPSE

Lava domes form at the top of many volcanoes when viscous lava erupts. When they become unstable, they can collapse and cause a hazard. CNDS Fellows, [Valentin Troll](#) and [Frances Deegan](#), together with colleagues explain summit dome instabilities and associated pyroclastic flows at Merapi volcano, Indonesia. The researchers hope that by understanding the inner processes, volcano collapses can be better forecasted.

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



## CLIMATE EMERGENCIES IN AUSTRALIAN LOCAL GOVERNMENTS

The paper examines the emerging phenomenon of climate emergency declarations. The case study is based on Victoria Australia and 30 other councils which have declared a climate emergency, particularly focusing on three of them. The drivers, meanings, and implications and to what extent the subsequent plans reflect a reframing of local government roles and actions are examined. The authors, including CNDS Fellow, [Mikael Granberg](#), found that the emergency declaration movement is catalysing councils beyond symbolic declarations potentially opening up space for change and disruption.

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

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## Healing the Ozone Layer

The Montreal Protocol and the Lessons and Limits of a Global Governance Success Story

*Frederike Albrecht and Charles F. Parker*

## CNDS FELLOWS CITED IN IPCC REPORT

Two of our Fellows, [Charles Parker](#) (Department of Government, Uppsala University) and [Frederike Albrecht](#) (Department of Political Science and Law, Swedish Defence University) have worked together on a book chapter regarding the Montreal Protocol's success and observes that participating Parties have complied with their targets to reduce ozone depleting substances- which has now been cited in the latest IPCC report.

[The book chapter can be found on Oxford Scholarship Online.](#)



## PEOPLE'S PERCEPTION OF NATURE-BASED SOLUTIONS FOR FLOOD

If you are interested in finding out more about the perceived efficacy of nature-based solutions for flood mitigation, the new study conducted by CNDS Fellow, [Elena Mondino](#) (UU) with colleagues is open-access. The article found, among other results that connectedness to nature is associated with perceived efficacy of the nature-based solutions.

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



# Recent Publications



## FLOODS, COMMUNAL CONFLICT AND THE ROLE OF LOCAL STATE INSTITUTIONS IN SUB-SAHARAN AFRICA

Does the occurrence of flood disaster increase the risk of communal conflict and if so, does trust in state political institutions mitigate the adverse effect?

Our CNDS Fellow, [Kristina Petrova](#), has been looking into this issue and addressed the abovementioned questions by studying the intervening effect of trust in local governmental institutions at a sub-national level. She concludes that climate change is not a local phenomenon regardless of the need for national and local political structures in mitigating its effects.

[The entire article can be accessed on ScienceDirect.](#)



## PANDEMIC RESPONSES AT THE SUBNATIONAL LEVEL

How did Swedish municipalities deal with the pandemic? The national response has been the highlight all over the world but little focus was given to the subnational level.

Thus, CNDS fellow, [Mikael Granberg](#), together with colleagues, dived into the politics, administration and politicization of the municipal response to the pandemic in Sweden.

The article investigates the decision making processes and found, inter alia, that only a quarter of the municipalities activated the extraordinary crisis management committee while a majority of them had an alternate special organization in place.

[The full article is available on Wiley Online.](#)



## EXPLORING DISASTER IMPACTS ON ADAPTATION ACTIONS IN 549 CITIES WORLDWIDE

In a recently published article, CNDS Fellows, [Daniel Nohrstedt](#), [Jacob Hileman](#), [Giuliano Di Baldassarre](#), [Charles Parker](#) and [Maurizio Mazzoleni](#) use regression analysis to explore the effects of disaster frequency and severity on four adaptation action types in 549 cities. More affluent countries incur greater economic damages from disasters, but also have higher governance capacity, creating both incentives and opportunities for adaptation measures.

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



# Recent News



## FELLOW IN ROYAL SWEDISH ACADEMY OF SCIENCE

CNDS Fellow, [Anna Rutgersson](#) (Uppsala University) was elected as new member of the Royal Swedish Academy of Science in the geosciences class. Anna is Professor in meteorology and her research focuses on the interaction between sea and atmosphere, an important part of the climate.

[More information can be found on the Royal Swedish Academy of Science's website](#) (in Swedish).



## WORKSHOP ON ISIMIP FOR IMPACTS OF COMPOUND EVENTS

CNDS Fellow, [Gabriele Messori](#) (Uppsala University) organised a small workshop focussing on the use of ISIMIP data for the study of impacts of compound climate events. The workshop was run from the 21st March to the 22nd March and directed to employees at the Department of Earth Sciences, Uppsala University.

ISIMIP is a compilation of over 130 harmonized climate model simulations data sets aimed at quantifying cross-sectoral climate impacts under different levels of global warming relative to pre-industrial conditions. [Read more about the data sets on UNFCCC's website](#).



## NEWLY AWARDED DOCENTS

Our Reference Group Member, [Ilias Pechlivanidis](#) (SMHI) has just been awarded the title of Docent (Associate Professor) at Uppsala University, Department of Earth Sciences, in Geosciences with a focus on Environmental Analysis.

The same goes for our CNDS Fellow, [Dr. Claudia Teutschbein](#) (Uppsala University), awarded the same title, on the topic of hydrology.

Congratulations!



# CNDS in media



## ACCESS TO WATER - ALSO A POTENTIAL ISSUE IN SWEDEN

CNDS Director, [Giuliano Di Baldassarre](#), Professor of Hydrology and Environmental Analysis at Uppsala University and [Susann Baez Ullberg](#), together with other colleagues from the UU Sustainability Initiatives' network "Water, a Shared Critical Resource" and the CIRCUS network "Aquifers of the Anthropocene" discuss the injustices surrounding the world's water and forward ideas regarding how we, in Sweden, need to approach this matter.

[The interview can be accessed on the university's website](#) (in English) or [in Swedish](#).



## LATEST STATUS AFTER LA PALMA VOLCANO DISASTER

Massive clean up efforts and a major reconstruction are currently underway on the volcanic island of La Palma after the volcano eruption stopped at the end of last year.

Prof. [Valentin Troll](#) (Uppsala University) has been involved in researching the volcano's activity on the ground and the consequences of the eruption on the population and infrastructure of the island.

[His reports on the situation on La Palma are available on Sverigesradio's website](#) (in Swedish and English) or [on SVT's website](#) (in English).



# CNDS at EGU'22

More than 10 CNDS Fellows contributed with presentations and/or convened sessions on topics ranging from multi-hazard assessments to volcanic deformation, resilience building and modelling. Some of the presentation titles were:

- *Relating atmospheric persistence to heatwaves in Europe*
- *An integrated assessment of multi-hazard events in Sweden*
- *How studying solidified, exposed magma chambers helps to interpret volcano deformation and pre-eruptive unrest*
- *School-based disaster preparedness: a route to societal resilience?*
- *A global analysis of economic inequality and flood losses*
- *Enrichment of immobile elements in synmagmatic fractures*

A list of all the presentations can be found on our social media.

# CNDS at IAHS'22

Many CNDS Fellows contributed with presentations and/or posters on topics ranging from risk perception to economic inequality and unknown knowns within hydrology.

[More information about the conference and our fellows' abstracts can be found on the conference website.](#)





# Upcoming CNDS Activities

## 22-26 August - CNDS/EGU Summer School

Under the title "Natural Hazards in the Anthropocene" and focusing on diversities in approaches and practices in natural hazards and disaster science, this one-week course will explore DRR through the disaster management cycle (mitigation, preparation, response and recovery), looking at the interplay between natural hazards and society.

## 29-30 August - Panta Rhei workshop on Drought in the Anthropocene (by invitation only)

The next Panta Rhei workshop on Drought in the Anthropocene will be organised on 29-30 August 2022 at CNDS/Uppsala University. The workshop can be attended by invitation only. As working group, we intend to investigate the interaction between drought and people. We aim to study the influence of people on drought, the impact of drought on people and the feedbacks between drought and society. Our overarching goal with these experiments is to increase understanding of drought-society feedbacks, both positive and negative.

## 15 September - Maximilian Wanner's PhD defence

[More information can be found on Uppsala University's website.](#)

## 14 October - Elisa Savelli's PhD defence

[More information can be found on Uppsala University's website.](#)

## 19 October - CNDS Annual Assembly

An opportunity for CNDS Fellows to meet and discuss progress reports of individual research projects, as well as common topics such as interdisciplinary research collaborations in the centre.

## 20 October - CNDS Forum on Natural Hazards and Disasters

The theme for 2022 is *Looking back & Moving forward: Post-disaster pathways & adapting to a changing risk environment* and the event aims to be a meeting place for those working on natural hazards, disaster risk reduction and crisis management.

## 15 November - CNDS Research Seminar (Transformative potential of extreme events)

## 7 December - CNDS Research Seminar (Natural Hazards Day)

[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 is 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](#)

