

UNIVERSITETET I BERGEN



8th Annual Meeting of the
Society for Risk Analysis Europe
Nordic Chapter

27th - 29th of September 2022
Bergen, Norway



EUROPE-NORDIC
Society for Risk Analysis

Theme:
The Return of Risk and Rivalry



Centre for Climate
and Energy Transformation



Welcome!

A warm welcome to the *8th Annual Meeting of the Society for Risk Analysis Europe - Nordic Chapter!*

The world seems to be faced with an unprecedented accumulation of global crises and with types of conflicts that were believed to be overcome. A new war started in Europe; an event that many had considered unthinkable. Record temperatures and droughts are recorded simultaneously in North America, Europe, and China. Old fears and conflicts are re-emerging, from nuclear weapons to nationalism. Ideological rivalries between nations and social groups (re-) occur. At the same time, globalization and digitalization change the rules of the game and bring new threats such as cybercrime and fake news. And this at a time when urgent societal transformations, for example concerning energy and food, are needed to address climate change and meet sustainability goals, and when a pandemic is far from being over.

This situation let us ask what risk research can contribute to tackling these global crises and choose the following conference theme: **The Return of Risk and Rivalry.**

We are more than happy that our call has attracted a great number of highly interesting contributions that provide a wide diversity of perspectives on the theme. In a variety of formats – ranging from keynotes, roundtables, and symposia to individual paper presentations – we will look at risk, decision, communication, and policy on both the individual and societal level, and address a multitude of issues, such as fake news, climate change, the COVID pandemic, and survey research methodology.

We believe that this promises to be an inspiring and exciting conference. With your submissions and your willingness to come here, you have made it possible for us to assemble this program. We thank you for joining us and we wish you three days filled with intriguing presentations, lively discussions, and worthwhile social encounters.

The SRA Nordic 2022 Organizing Committee

Table of contents

<u>Program Overview</u>	5
<u>Keynote 1 - Ortwin Renn</u>	9
<u>Roundtable 1 - Risk Communication</u>	10
<u>Keynote 2 - Ann Bostrom</u>	11
<u>MECCA symposium</u>	13
<u>Individual papers session 1 - Security</u>	19
<u>Keynote 3 - Ingvar Tjøstheim</u>	21
<u>Individual papers session 2 - Cooperation</u>	22
<u>Roundtable 2 - Social Surveys in Risk Research</u>	24
<u>Individual papers session 3 - Uncertainty</u>	25
<u>Individual papers session 4 - Risk perception and communication</u>	28
<u>Locations</u>	33

Program Overview

27 SEPTEMBER

Tuesday

Litteraturhuset

- 11:00
- 13:00 **Registration and snacks**
- 13:00 **Opening of the SRA-E Nordic Chapter Conference 2022**
Norman Anderssen, *Dean of the Faculty of Psychology, University of Bergen*
Ullrika Sahlin, *President of SRA Nordic Chapter*
Gisela Böhm, *Local Organizer*
- 13:30 **Keynote 1: Risk management and communication in an era of postfactual irritations**
Ortwin Renn
Chair: Trygve Skjold
- 14:30 **Lunch**
- 15:30 **Roundtable 1: New knowledge and lessons learned on risk communication in the wake of the pandemic**
Kristin S. Scharffscher, Frederic E. Boudier,
Sanjana Arora, Ortwin Renn
Chair: Ann Bostrom
- 17:00 **Break**
- 17:15 **Keynote 2: Correcting alluring misconceptions about climate change: results from science communication survey experiments in the U.S.**
Ann Bostrom
Chair: Gisela Böhm
- 19:00 **Reception**
At Ulrike Pihls Hus

Program Overview

28 SEPTEMBER

Wednesday

Litteraturhuset

09:00 **MECCA symposium**

Karlijn van den Broek, Stefan Liersch,
Charles Ogunbode, Usman Isyaku, Tobias Pilz
Chair: Wouter Poortinga

10:45 **Break**

11:15 **Individual papers session 1: Security**

Presenters: Dieter Roehrich, Sasan Zarghooni-Hoffmann
Chair: Bjørn Sætrevik

12:00 **Lunch**

13:30 **Keynote 3: The citizens' perspective on inverse panopticon, devices that can protect privacy**

Ingvar Tjøstheim
Chair: Ortwin Renn

14:30 **Break**

14:45 **Individual papers session 2: Cooperation**

Presenters: Elisa Tedaldi, Natalia Bełdyga
Chair: Ingvar Tjøstheim

15:30 **Break**

Enjoy a couple of leisure hours

18:00 **Roundtable 2: Social Surveys in Risk Research**

- 19:45 Sofia Axelsson, Aistė Balžekienė,
Jon Krosnick*, Wouter Poortinga
Chair: Endre Meyer Tvinnereim

*Will be attending online

20:00 **Conference dinner**

At Bien Centro

Program Overview

29 SEPTEMBER

Thursday

Ulrike Pihls Hus

- 09:00 **Individual paper session 3: Uncertainty**
Presenters: Brynhild Stavland, Trygve Skjold, Bjørn Sætrevik
Chair: Karlijn van den Broek
- 10:00 **Break**
- 10:30 **Individual paper session 4: Risk perception and communication**
Presenters: Wouter Poortinga, Thea Gregersen, Rouven Doran, Sebastian Bjørkheim
Chair: Charles Ogunbode
- 11:50 **Closing of the conference**
- 12:00 **Lunch**
- 13:30 **Optional tour of the House of Public Safety -**
-15:00 **Samfunnssikkerhetens hus - Bergen**

Tuesday 27 September

Litteraturhuset

11:00 - 13:00

Registration and snacks

13:00 - 13:30

Opening of SRA-E Nordic Chapter Conference 2022

Norman Anderssen, *Dean of the Faculty of Psychology, University of Bergen*

Ullrika Sahlin, *President of SRA Nordic Chapter*

Gisela Böhm, *Local Organizer*

13:30 - 14:30

Keynote 1: Risk management and communication in an era of postfactual irritations

Ortwin Renn

Chair: Trygve Skjold

Abstract

In an era of post-truth claims and fake news, scientific input to risk management and risk communication seems to be more required than ever. However, the nature of what risk analysis can and should offer to risk managers has been under severe scrutiny by science philosophers and sociologists of knowledge. Are the results of risk analysis neutral and impartial to the various interests that like to use scientific insights for legitimizing their positions? How universal is scientific risk knowledge and how much is it dependent on context and situational conditions and constraints? These questions are particularly pertinent for complex challenges such as systemic risks. The lecture will provide an analysis of how science, policymaking and society deal with these issues in the presence of fake news and post-truth claims.

Bio

Ortwin Renn is a Scientific Director at the Institute for Transformative Sustainability Research (Institute for Advanced Sustainability Studies, IASS) in Potsdam and Professor of Environmental and Sociology of Technology at the University of Stuttgart. He also heads the DIALOGIK research institute. His main research fields are risk analysis (governance, perception and communication), theory and practice of citizen participation in public projects, transformation research as well as social and technical change towards sustainable development.



14:30 - 15:30

Lunch

at Colonialen, Litteraturhuset

15:30 - 17:00

Roundtable 1: New knowledge and lessons learned on risk communication in the wake of the pandemic

Participants:

- Kristin S. Scharffscher, *University of Stavanger*
- Frederic E. Boudier, *University of Stavanger*
- Sanjana Arora, *University of Stavanger*
- Ortwin Renn, *IASS Potsdam*

Chair: Ann Bostrom

Abstract

Fighting pandemics with enhanced risk communication: Messages, compliance and vulnerability (PAN-FIGHT) is a two-year international research project that has investigated authorities' pandemic risk communication strategies and people's compliance in five European countries. Our research teams in Norway, Germany, Sweden, Switzerland and the United Kingdom have mapped national risk communication strategies in the period before vaccines were rolled out, and investigated how different population groups in these countries have translated information into adjustments of their daily routines during the pandemic. In our analysis, we have paid particular attention to the significance of gender, as well as factors such as age, income, cultural background, household composition and home location. The purpose of PAN-FIGHT has been to identify correlations between risk communication and social vulnerability during the COVID-19 outbreak. At this roundtable, we will present our findings and recommendations for improved risk communication strategies, and explore implications for future response practices. Our roundtable participants will discuss how the pandemic has changed our understanding of risk, crisis management and vulnerability.

17:00 - 17:15

Break

17:15 - 18:15

Keynote 2: Correcting alluring misconceptions about climate change: results from science communication survey experiments in the U.S.

Ann Bostrom

Chair: Gisela Böhm

Abstract

Communicating environmental risk science generally requires some kind of simplification, but not all simplifications are equal. Some cognitive simplifications may lead people astray regarding how best to address global environmental problems. For example, thinking that slowing or stopping emissions means that greenhouse gas concentrations will fall rapidly allows for a wait-and-see attitude. Thinking that greenhouse gases are equivalent to common air pollution (i.e., smog, particulate matter) also implies a similar rapid resolution. To address these climate change misconceptions, we develop two communication approaches based on the types of simplifications and mental models found in prior studies. In pre-registered survey experiments, conducted with adults in the U.S in spring 2022, we find that these communication approaches influence reported beliefs and even some attitudes. As found in prior studies, political orientation is strongly associated with beliefs and attitudes toward climate change and climate change mitigation strategies. Results also suggest that effects of such communication strategies vary by participant characteristics, such as political orientation.

Bio

Ann Bostrom is the Weyerhaeuser endowed Professor in Environmental Policy in the Evans School of Public Policy & Governance at the University of Washington, Seattle. She studies risk perceptions, risk communication, and mental models of hazardous processes—that is, how people understand and make decisions under uncertainty about environmental, health, and technological hazards such as climate change, extreme weather, and earthquakes. She co-directs the NSF-funded Cascadia Coastlines and Peoples Hazards Research Hub (cascadiacopeshub.org/), co-leads risk communication research for the NSF AI Institute for Research on Trustworthy AI in Weather, Climate, and Oceanography AI2ES (ai2es.org/), and serves on the editorial board of the international journal *Risk Analysis*. A fellow and former President of the Society for Risk Analysis and fellow and elected Board member of the American Association for the Advancement of Science (AAAS) as well as of the Washington State Academy of Sciences, Ann holds a Ph.D. in policy analysis from Carnegie Mellon University, an M.B.A. from Western Washington University, and a B.A. in English from the University of Washington.

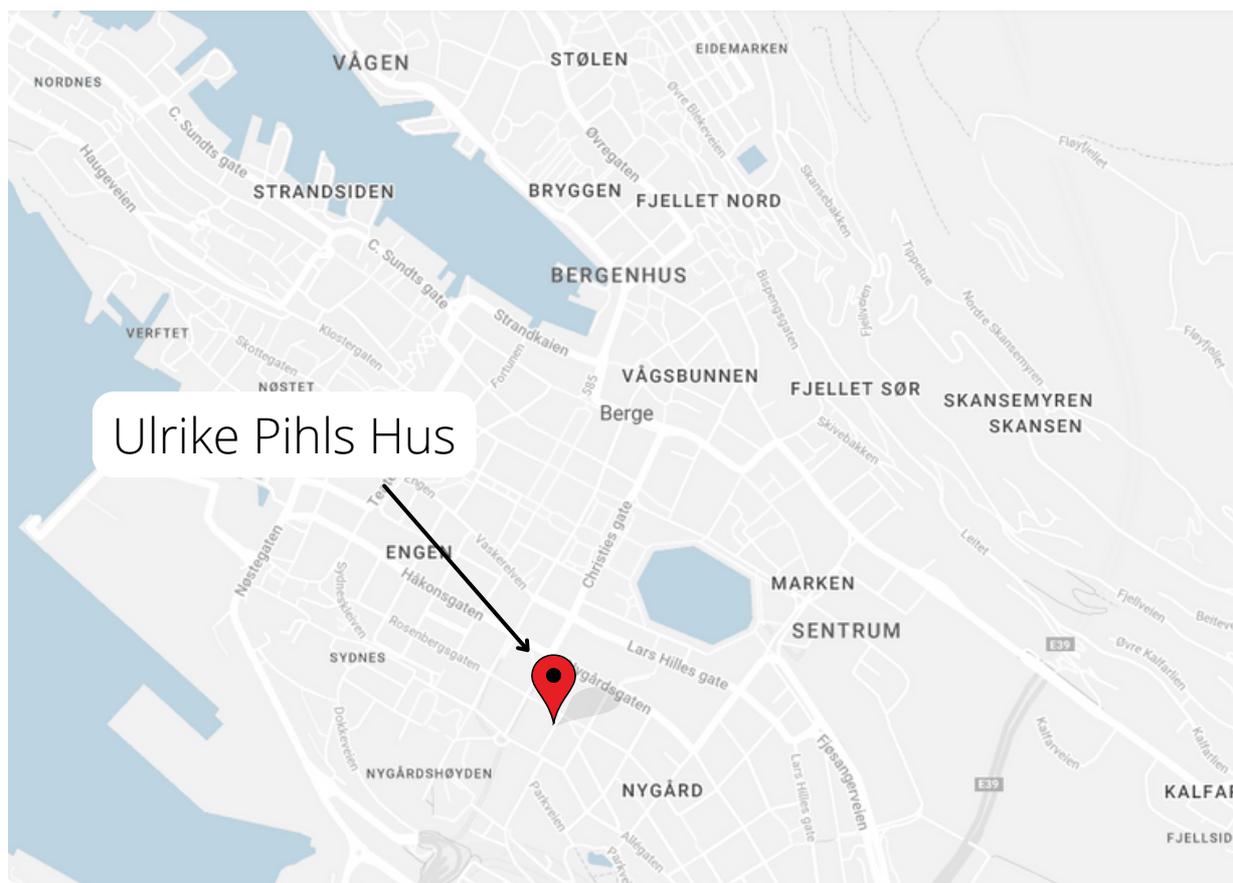


19:00

Reception

At Ulrike Pihls hus

Professor Keyers gate 1



Wednesday 28 September

Litteraturhuset

09:00 - 10:45

MECCA symposium - Targeting Mental Models of Climate Change Risk to facilitate Climate Action

Karlijn van den Broek

Utrecht University

Co-authors: Stefan Liersch, Charles Ogunbode, Usman Isyaku, Tobias Pilz, Gisela Böhm, Maryse Chappin, Hagen Koch

Chair: Wouter Poortinga

Symposium Abstract

This symposium is presented by an interdisciplinary team of social and natural scientists working with local partner organisations and stakeholders on the MECCA project. The MECCA project aims to identify adaptation and mitigation strategies by analyzing the gap between stakeholders' perceptions of change and risk and the projected impacts of human activities under changing climatic conditions in East Africa (Lake Victoria) and West Africa (Lagos). This is a promising avenue to induce climate action as divergence in perceptions limits effective approaches for sustainable development. Moreover, it is crucial to study developing regions as they are particularly susceptible to the impact of climate change due to its far-reaching impact on livelihoods, health, safety, and economic and political instability. These regions have been selected due to their high vulnerability to climate change impacts and the fact that they span large populations. In the MECCA project, we are developing eco-hydrological models of the climate challenges of Lagos and Lake Victoria. Furthermore, we assess the climate change risk perception among communities and explore how risk perceptions are shaped by sociocultural influences and how they can contribute to facilitating appropriate responses to climate change. We use a novel mental model elicitation tool to investigate perceptions of climate change. As a climate service, scenario simulations considering climate change and human interventions into the environment will be conducted with ecohydrological to test and evaluate stakeholders' perceptions and possible action. In a series of talks, this symposium will showcase the initial findings of the MECCA project. Dr Stefan Liersch will present the role of different domains held responsible for the causes, consequences, and actions of climate change in the Lake Victoria basin. Dr Charles Ogunbode will explore the relationship between risk perception and climate emotions in Lagos, Nigeria. Dr. Usman Isyaku will report local perceptions of experts and communities about climate change risk in Lagos and Lake Victoria. Dr. Tobias Pilz will demonstrate how climate change intensifies extreme rainfall and leads to higher flood risk in Lagos, Nigeria. Dr. Karlijn van den Broek will present a new tool for capturing mental models and illustrate its use in the MECCA project to capture mental models of climate change risk in West and East Africa.

On the role of different domains held responsible for the causes, consequences, and actions of climate change

Stefan Liersch

Potsdam Institute for Climate Impact Research (PIK)

Co-authors: Hagen Koch, Tobias Pilz, Karlijn van den Broek,

Usman Isyaku

Abstract

Understanding the perceptions of people in the Lake Victoria region of East Africa regarding the causes, consequences, adaptation, and mitigation of climate change can be an important step toward informed collective action. For this reason, we conducted two surveys in which responses to open-ended questions were coded. Whether we map the mental models of experts or people without expertise in climate change, both groups reach similar conclusions when it comes to attributing responsibilities to different domains. We distinguish four domains: Environmental, Human activities, Governance, and Societal. The visualization of the importance of the domains shows that for a question about the already felt consequences of climate change, categories of the domain Environmental were mentioned most often, while Governance and Human activities were given greater importance when it came to questions about adaptation and mitigation. We find it encouraging that people seem to have a good understanding, or at least an opinion, about who or what the causes and consequences of climate change are and who should act and how. To draw a full picture of the main processes, drivers, variables and their interconnections in the Lake Victoria region, the individual mental models of experts were transformed into concept maps. These provide a sound basis for discussing the current understanding of the system, identifying drivers, and developing scenarios for climate action. The effectiveness of the proposed adaptation and mitigation measures will be tested in the next step using biophysical models.

Risk as feelings – The relationship between risk perception and climate emotions in Lagos, Nigeria

Charles Ogunbode

University of Nottingham

Co-authors: Usman Isyaku, Gisela Böhm

Abstract

Lagos is one of Africa's largest megacities and the foremost port city in West Africa. It is highly vulnerable to a range of climatic impacts including rising sea levels, storm surges and severe flooding. This study reports findings based on data from the largest systematic survey of climate change perceptions and attitudes among Lagos residents conducted to date. Specifically, we examined the range of emotions Lagos residents express regarding climate change and how this relates to the perceived severity and likelihood of negative climate change impacts in the area. Climate emotions were assessed through an open-ended question asking people how they feel about climate change. Deductive content analysis was conducted on responses to this question using a framework derived from Pikhala's (2022) taxonomy of climate emotions to determine the most prevalent categories of emotion. Risk perception was measured using closed-ended questions assessing the perceived severity of climate change impacts on individuals, Lagosians as a whole, and on the natural environment. Participants were categorised into ordered groups according to their scores on these questions. We examined the relationship between climate emotions and risk perception by mapping how the relative prevalence of different categories of climate emotions varies across different levels of climate risk perceptions. Our findings are discussed in terms of their implications for climate risk communication in the African context.

“These drainages are blocked with wastes”! Local knowledge and experiences of climate change among urban residents in Lagos, Nigeria

Usman Isyaku

University of Bergen

Co-authors: Gisela Böhm, Charles Ogunbode

Abstract

Local knowledge is an approach to understanding subjective, experiential and culturally oriented information that do not necessarily fit into popular scientific narratives. This exploratory study uses in-depth interviews to investigate the knowledge and experiences of climate change among urban residents in Lagos. The aim is to identify causal relations, experiences, future expectations, and adaptation and mitigation strategies. Lagos is particularly important because it is a densely populated coastal city where residents have greater risk to the impact of sea level rise and other climate change-induced disasters. Thematic analysis was used to systematically organize and interpret patterns and common topics from the transcripts. Waste management; government intervention; environmental hazards such as flooding and heat waves; diseases outbreak; and coping strategies are the dominant themes that emerged from the analysis. Participants' narratives about blocking of drainages with wastes that exacerbates flooding, coupled with weak government intervention and enforcement of environmental regulations appear to be their own interpretation of climate change causes. These issues are discovered to have negative effects on their living standards and health, and often lead to the feelings of disenchantment and despair. We suggest that understanding local knowledge will help policy makers to design effective climate change communication strategies for the study area because environmental awareness is poor and climate action is urgently needed.

Climate change intensifies extreme rainfall and leads to higher flood risk in Lagos, Nigeria

Tobias Pilz

Potsdam Institute for Climate Impact Research (PIK)

Abstract

Intense rainfall events are a recurrent phenomenon in the city of Lagos. They may lead to flash floods and cause damages and casualties. Climate change may exacerbate rainfall extremes and flooding due to an intensification of the water cycle. The quantification of potential impacts, however, is difficult due to limited data availability. Therefore, instead of merely using stations located directly within the study area, rainfall measurements of high temporal resolution from similar climate regions along the coast of West Africa were pooled. This allowed for the derivation of an intensity-duration-frequency (IDF) relation to statistically describe extreme rainfall occurrence. As a next step, the pooled time series was used to calibrate a rainfall disaggregation model to transfer daily rainfall projections from global climate models to the sub-daily resolution of observations and likewise fit an IDF relation. By using a delta-change approach, the hazard of future extreme rainfall was estimated. Eventually, design storms under current and projected future conditions were derived and used as input to a hydrodynamic model to derive flood frequencies for a flood-prone area in Lagos. It turned out that until the end of the century unlimited climate change may result in hourly rainfall intensities about 25 %, in extreme model projections even more than 40 % higher than observed nowadays. This will result in much larger areas being prone to flooding in the study area. However, the most optimistic emission scenario shows a lower increase in rainfall intensity of about 10 % which underlines mitigation potential and the need to reduce greenhouse gas emissions as much as possible.

Measuring mental models of climate change risk in West and East Africa

Karlijn van den Broek

Utrecht University

Co- authors: Usman Isyaku, Gisela Böhm, Maryse Chappin

Abstract

Mental models, or internal constructs that structure an external environment, facilitate the interpretation of complex systems and guide individual decision-making. Understanding mental models of complex social or environmental challenges, and the differences in these perceptions across decision-makers, will help identify barriers to collaborations between stakeholders and may illuminate how to effectively address such challenges. Here we present the M-Tool, which is the first standardized mental model methodology that is suitable for less literate populations. We illustrate the use of the tool in the MECCA project, in which we elicit mental models of community members, local authorities and policymakers in Lagos, Tanzania, Kenya and Uganda (N=800). To ensure comparability of the mental models, we used a two-step approach, in which we first developed a set of mental model concepts based on survey responses, and then have participants create their mental models with this set of concepts in M-Tool. We present the aggregate mental models for each country and share the initial findings on the differences in mental models within the samples. We invite researchers to use the tool and present ways in which the tool can be applied to investigate differences in mental models across countries, across stakeholder groups, between experts and the general public.

10:45 - 11.15

Break

11:15 - 12:00

Individual papers session 1: Security

Presenters: Dieter Roehrich, Sasan Zarghooni-Hoffmann

Chair: Bjørn Sætrevik

What do nuclear submarines in Tromsø have to do with the war in the Ukraine?

Dieter Roehrich

University of Bergen

Abstract

In 2020, the Bulletin of the Atomic Scientists set the doomsday clock to 100 seconds to midnight - closer than ever. The main reason was the retreat from several arms control treaties which created a new dangerous nuclear reality. In the North, we see signs of this new nuclear reality: nuclear submarines in Tromsø and four US bases in Norway. To which extent is the catastrophic conflict in the Ukraine a consequence of political decisions and technical developments regarding missiles and nuclear warheads? What needs to be done to avoid such disasters in the future?

The need for maintenance of nuclear weapons has been used by the US to modify strategic warheads into low-yield, tactical warheads, which are not limited by the NEW START treaty. Technical specifications of nuclear weapons and their delivery systems will be analysed. By combining technical aspects with official documents by DOD (Nuclear Posture Review) and the US congress one can show that the nuclear risk has increased considerably in the last few years.

Risk Science Contributions to Intelligence in the Customs and Border Control Context

Sasan Zarghooni-Hoffmann

University of Stavanger

Abstract

Risk science and intelligence studies both deal with the analysis and prevention of unwanted future states. Although both disciplines attempt to give decision-makers an advantage through qualified predictions, there are few signs of interaction between them. In this presentation intelligence refers to the collection, sharing, processing, analysis, and dissemination of information about threats. Recent intelligence articles argue that there is a need to integrate philosophy more broadly and collectively into intelligence theory and practice, to test the assumptions that the field rests on. In risk science, meanwhile, this has been part of the research agenda for decades, so it is not unreasonable that some ideas may be of benefit to intelligence studies. The aim of this presentation is to explore the extent to which some risk science and philosophical concepts can improve our understanding of intelligence in the customs and border control context, beginning with an overview of the selected concepts and then a discussion of a case from the Norwegian Customs. Customs and border control is tasked with preventing the transfer of diseases and dangerous goods across borders, and the persistent involvement of professionalized organized crime networks necessitates a coordinated intra- and inter-institutional cognitive activity that involves intelligence. This kind of intelligence has traditionally been based on judgements from case to case but is becoming increasingly data driven. While this may simplify object selection for further customs control, it can also amplify systematic errors, leading to injustice as well as failure to detect harmful substances entering society. Furthermore, the World Customs Organization has newly recommended its members to use a risk-based approach in their intelligence management. Therefore, an ethically conscious interaction between risk science and intelligence studies, particularly in the field of customs and border control, can be beneficial for societal safety.

12:00 - 13:00

Lunch

at Colonialen, Litteraturhuset

13:30 - 14:30

Keynote 3: The citizens' perspective on inverse panopticon, devices that can protect privacy

Ingvar Tjøstheim

Chair: Ortwin Renn

Abstract

The panopticon is a type of institutional building and a system of control designed by the English philosopher Jeremy Bentham. Usually, we think of a panopticon as embodying an oppressive, top-down system of observation and control. It is not that well known that Bentham distinguished between four different types of panopticon. One of the types is the constitutional panopticon also referred to as the inverse panopticon, a bottom-up surveillance through which governing functionaries are monitored through panoptic methods. What is the citizens opinion about devices that can inform them about surveillance? A smart speaker is a device that is listening to you and others that are in the vicinity of the speaker. We recruited participants from a national panel in Norway and presented an ultrasonic jammer that prevents smart speakers from recording human speech. In this talk, key findings from studies on the ultrasonic as well as on a device that can detect cameras in the persons vicinity are presented. Furthermore, I will present data from national surveys on how the cognitive reflection test can be used to measure risk propensity concerning the sharing of nude pictures and sharing of personal data as examples of risk behaviour.

Bio

Ingvar Tjøstheim, PhD, is a senior researcher at the Norwegian Computing Center. He has been working in a number of contract research projects with national or international funding and is recognized for his expertise in human factor studies, telepresence and digital experiences, privacy, sharing of personal data, experimental methods and tools for surveys and data-collection. He has approximately 150 publications and has in recent years focused on interdisciplinary research with experts in computer science, psychology and decision science.



14:30 - 14:45

Break

14:45 - 15:30

Individual papers session 2: Cooperation

Presenters: Elisa Tedaldi, Natalia Bełdyga

Chair: Ingvor Tjøstheim

Climate change vs. the pandemic: how much do people cooperate?

Elisa Tedaldi

University of Padua

Co-Authors: Beatrice Conte, Enrico Rubaltelli

Abstract

In the last two years, we have all faced a global threat, the SARS-CoV-2 pandemic. From the very beginning, most people realized that the only way to cope with the pandemic was by cooperating with each other (e.g., social support, vaccinations, economic aid). However, the coronavirus is not the only global issue we are all facing at this moment, right now: so is climate change as well. For both these two risks, collective action is useful (or even necessary) to avoid catastrophic consequences. How do people perceive these two global issues? And, more importantly, do they cooperate to cope with such risks? In this pre-registered study, 423 participants were recruited to study how they perceive the risk of either climate change (N = 220) or the SARS-CoV-2 pandemic (N = 203). Further, two different economic games - the Public Good Game (PGG) and the Intergenerational Good Game (IGG) - measured people's cooperation with the present and the future generations, respectively. Through a mediation model, we found an indirect effect of type of risk (climate change vs. the SARS-CoV-2 pandemic) on cooperation in both games. This effect was mediated by risk perception and by its effect on the perceived benefits of cooperating. Climate change elicited higher risk perception than the SARS-CoV-2 pandemic. This led to perceive a higher risk, the higher the perceived benefit in cooperating and, as a result, to consequently, the more cooperative the behavior. Our findings suggest the central role of risk perception in driving cooperation and making people more aware of the benefits of investing in the future. Both communicators and policy-makers can use these results to address global threats.

“Riskscape” of Suwalki Gap: community of first responders in Ukraine refugee crisis and uncertainty

Natalia Bedyga

Kaunas University of Technology

Abstract

Space provides the arena for the overlapping of multiple risks in particular places and regions. The concept of ‘riskscape’ allows the analysis of multiple risks and how people manage them and also indicates how individual actors and social groups develop personal visions of risk and translate them into spatial settings (Müller-Mahn 2013). Russian invasion of Ukraine on 24th February 2022, has led to disruption, increased risks, chaos, uncertainty, powerlessness, hopelessness, insecurity and fear felt not merely in Ukraine but also in other parts of the world affected by this unprecedented event.

What has given individual actors and social groups a sense of agency and defined as social actors possessing knowledgeability and capability which they use in responding and reacting to structures and events (Long and Long 1992), and what has enabled them to develop and enhance community resilience in this complex setting and disturbed as well as uncertain reality, has been helping people from Ukraine through bottom-up spontaneous, voluntary, selfless initiatives and social actions according to values reflected in their own lives.

Already a few days after the invasion, people from Ukraine were welcomed by the community of first responders in Suwałki, a city in north-eastern Poland with a population of 70 000, in the proximity of the borders with Lithuania, Russia and Belarus. Recent introduction of a military concept of "Suwalki Gap" - the land corridor between Belarus and Kaliningrad constituting one of the most vulnerable places in Europe and NATO's weakest point due to potential threats, has made Suwałki a center of attention and a ‘riskscape’.

The aim of this presentation is to deconstruct the response to external crisis and uncertainty caused by Russian invasion of Ukraine, made by the community of first responders from ‘riskscape’ of Suwalki Gap, built around bottom up, spontaneous, voluntary, selfless initiatives and social actions.

15:30 - 18:00

Longer break

Enjoy a couple of leisure hours

You can, for example, take a trip with the Fløibanen to Mount Fløyen

18:00 - 19:45

Roundtable 2: Social Surveys in Risk Research

Participants:

- Sofia Axelsson, *University of Gothenburg*
- Aistė Balžekienė, *Kaunas University of Technology*
- Jon Krosnick*, *Stanford University*
- Wouter Poortinga, *Cardiff University*

Chair: *Endre Meyer Tvinnereim*

**Will be attending online*

Abstract

Discussion on cross-national comparability in survey research. Social science risk research in areas such as climate change, energy, and natural hazards increasingly use large-scale, international social surveys. This roundtable addresses the opportunities and challenges of such surveys, ranging from limited survey space to the question of how we can ensure that multi-lingual instruments ask the same questions to different populations.

20:00

Conference dinner

at Bien Centro

Nordahl Bruns gate 9

Thursday 29 September

Ulrike Pihls hus

09:00 - 10:00

Individual paper session 3: Uncertainty

Presenters: Brynhild Stavland, Trygve Skjold, Bjørn Sætrevik

Chair: Karlijn van den Broek

Strength of knowledge – aspects that might contradict the value of risk assessments as decision support

Brynhild Stavland

University of Stavanger

Co-Author: Ove Njå

Abstract

Risk may be perceived as an ambiguous concept in which there are an abundance of diverging definitions and perspectives which in turn makes the modelling of risk a complex issue. In recent years, the matter of uncertainty has become an increasingly important topic. At the same time, the concept of Strength of Knowledge (SoK) has been developed to address uncertainties and evaluate the quality of background information that is used as input in quantitative risk assessments. Several attempts have been made to operationalize the concept. Aven presents four statements to assess whether the background knowledge can be considered weak or strong – the issue of simplifications, availability and reliability of data, consensus among experts, and general understanding of the phenomena in question. Furthermore, the scientific environment operationalizes quality in quantitative and qualitative studies, which introduces other metrics. Risk analysis is solely a decision-making tool. How does the search for SoK influence the decisions made, and what can be achieved through it? Analysts are dependent on an overall understanding of the activity etc. in question, in which risk assessments are used as a tool to consider possible implications. In this way we claim that in addition to being a decision-making tool risk analysis is also a tool to obtain deeper knowledge about the system at hand. However, this understanding is rarely seen amongst actors in the entire system, for example within the hydrogen systems being introduced to society. Thus, we claim that specific focus on SoK will blur the messages from the risk analyses. We question if the operationalization of SoK through the mentioned four statements provide a valuable input to decision-maker support. We postulate several pitfalls, which are perspectives that need to be followed up in regulatory works intended to frame the implementation of hydrogen as an energy carrier in society.

Challenges associated with widespread use of hydrogen and hydrogen-based fuels as energy carriers in industry and society:

Trygve Skjold

University of Bergen

Co-Author: Efthymia Derempouka

Abstract

There is growing interest in hydrogen and hydrogen-based fuels as green and versatile energy carriers: existing technologies can convert energy from renewable or non-renewable sources into hydrogen, hydrogen can be stored and distributed in compressed, liquid or chemical form, and energy converters such as fuel cells and turbines can deliver electrical or mechanical energy and heat on demand. At the same time, many hydrogen systems entail emerging technologies, there is a shift from systems operated within controlled industrial facilities to the public domain, and hydrogen is the most reactive and easily ignitable of all energy carriers ever considered for widespread use in society. As such, it is not straightforward to achieve and document an equivalent level of safety for hydrogen systems, compared to similar systems based on conventional fuels. Contemporary research on hydrogen safety tends to focus on particular technologies and applications, explored within conventional disciplines, mostly supported by experiments performed at laboratory scale, and with the presumed outcome of widespread use of hydrogen as an energy carrier in society. At the same time, results from benchmark studies reveal orders of magnitude variation in blind-predictions for representative accident scenarios explored in full-scale experiments. The inherent uncertainty in risk assessment for hydrogen systems represents a considerable technological and organisational challenge for all stakeholders, and the stakes with respect to the potential for severe losses will increase dramatically as the use of hydrogen shifts from controlled environments in industrial facilities to the public domain, encompassing applications that extend from passenger cars to buses, ferries and airplanes. The paper discusses the strength of knowledge (SoK) in risk assessments for hydrogen systems within the framework of the crude direct grading approach proposed by Aven (Practical implications of the new risk perspectives, *Reliability Engineering and System Safety*, Vol. 115, pp. 136-145).

A Taxonomy for Quantification of Norwegian Probability Phrases

Bjørn Sætrevik

University of Bergen

Co-Author: Sebastian Bjørkheim

Abstract

When we communicate about risk and uncertainty, it is important to know how the audience interprets the verbal phrases we use to indicate the probability of an event. Phrases may vary in whether they refer to higher or lower probabilities, whether they refer to a narrow or a broad range of probabilities, and whether the population agrees on the interpretation. Previous research has provided a taxonomy for how English phrases refer to different ranges of quantified probabilities, and has categorized them as describing high or low probabilities, and having broad or narrow ranges of probabilities. The current study started from 22 probability phrases that had been examined in previous research, and identified their Norwegian language counterparts. A preregistered online survey (N = 537 Norwegians) found that the Norwegian translations referred to roughly the same probability ranges as their English counterparts. The phrases that were expected to express higher probabilities (H1) were in fact assigned higher point-estimates. Further (H2), the phrases that describe broader ranges of probabilities were indeed assigned wider ranges of probabilities than the narrow phrases. Our study also included an experimental manipulation where participants were asked to quantify hypothetical medical statements that included the phrases. Each statement was presented in both a positive frame about a medical treatment outcome and a negative frame about developing a medical symptom. There were medium sized effects that phrases were assigned lower probabilities when used in either positive (H3a) or negative frames (H3b), compared to when used without a frame. The current study suggests a taxonomy for how Norwegian phrases are interpreted as expressing probabilities of an event. Further research may be needed on how the framing context influences the interpretation of probability phrases. The current research may have relevance for settings such as medical decision-making, clinician/patient interaction and public health communication.

10:00 - 10:30

Break

10:30 - 11:50

Individual paper session 4: Risk perception and communication

Presenters: Wouter Poortinga, Thea Gregersen, Rouven Doran, Sebastian Bjørkheim

Chair: Charles Ogunbode

Generational differences in climate-related beliefs, risk perceptions and emotions

Wouter Poortinga
Cardiff University

Abstract

It is widely believed that younger generations are more engaged with climate change than older generations. However, the evidence on generational differences in climate-related perceptions and concern is mixed. We propose that inconsistencies in the literature may be due to the use of different outcome variables that reflect distinct types and degrees of engagement with the topic. Using data from two nationally-representative surveys conducted in 2020 (n=of 1,893) and 2021 (n=1,001) in the UK, we show there is an overall pattern of higher levels of climate-related beliefs, risks perceptions and emotions among younger generation groups. However, generational differences are larger for climate-related risk perceptions and emotions than for climate-related beliefs. While similar generational differences in climate-related risk perceptions and emotion were found in 2021 as in 2020, the overall generational gap had disappeared due to narrowing climate-related beliefs. These results suggest that the main differences are in their emotional engagement and evaluation of risks rather than in their beliefs about the existence and anthropogenic nature of climate change. The distinct patterns for the different measures show the importance of clearly distinguishing between the different climate perception constructs in order to make claims about generational gaps in engagement with climate change.

Emotional researchers: Showing anger and sadness when communicating about climate change

Thea Gregersen

NORCE & Centre for Climate and Energy Transformation (CET)

Abstract

How should researchers communicate about (politicized) risks, such as climate change? As we are falling short of meeting the climate goals and the impacts of climate change become more severe, emotionless communication can be challenging and seem cold and artificial. On the one hand, one could argue that researchers should show more emotions to emphasize the seriousness of the climate issue and persuade the public to take action. On the other hand, researchers might suppress their emotions to avoid being seen as irrational, manipulative, or non-objective. The current project aims to gain knowledge about the consequences of researchers showing emotions when communicating about climate change. Are researchers who show emotions taken less seriously and the information they give perceived as less trustworthy? To what degree can this be influenced by the type of emotion they show (anger versus sadness)? Further, do the researcher's gender and the audience's own emotions towards climate change influence the outcome of emotional communication? This presentation will report findings from a survey experiment currently being fielded among a representative sample of the adult Norwegian population. The aim of the study is to give new practical and theoretical insights into the role of emotions in science communication.

A matter of style: the use of information in risk communication about ocean acidification

Rouven Doran

University of Bergen

Co-Author: Charles Ogunbode

Abstract

Ocean acidification is an environmental issue of emerging importance, and studies suggest that exposure to expository facts could help to raise public awareness. One shortcoming is that these studies often failed to juxtapose the obtained effects against a control (baseline) condition. The presentation reports preliminary results from an online study that used a 2 (time: prior message, post message) x 3 (message: control, expository, narrative) design for assessing the effectiveness of different messaging styles. Participants (N = 304) were drawn from a convenience sample of the public in Norway. A primary objective was to determine whether information exposure produces a significant change in the extent to which people construe ocean acidification as a threat, over and above a control condition in which participants completed an associative task in response to imagining an outdoor scene. Results showed that the effects on risk perception and worry were most pronounced among participants receiving information about ocean acidification via the narrative message condition rather than the expository message condition, yet these differences were not accounted for by varying degrees of mental imageability. The presentation concludes with a discussion of possible implications for risk communication about ocean acidification, emphasizing the role of narrative (storytelling) components.

Risk of infection and appeal to public benefit increase compliance with infection control measures

Sebastian Bjørkheim

University of Bergen

Co-Author: Bjørn Sætrevik

Abstract

To limit an infectious outbreak, the public must be informed about the infection risk and be motivated to comply with infection control measures. Perceiving a situation as threatening and seeing benefits to complying may be necessary to motivate for compliance. The current study used a preregistered survey experiment with a 2-by-2 between-subject design to investigate if emphasizing high infection risk and appealing to societal benefits impacted intention to comply with infection control measures. The results from a representative Norwegian sample (N = 2533) show that describing a high (as opposed to low) personal risk scenario had a small main effect on compliance. Further, appealing to public (as opposed to self-interested) benefits also had a small main effect. There was no interaction between risk scenario and motivational emphasis. The results suggest that to maximize compliance, information about disease outbreak should emphasize the individual risk of contracting the disease, and could also underline the public value of limiting infection spread. These findings can inform health authorities about the motives underlying compliance with infection control measures during an infectious disease outbreak.

11:50 - 12:00

Closing of the conference

12:00

Lunch

13:30 - 15:00

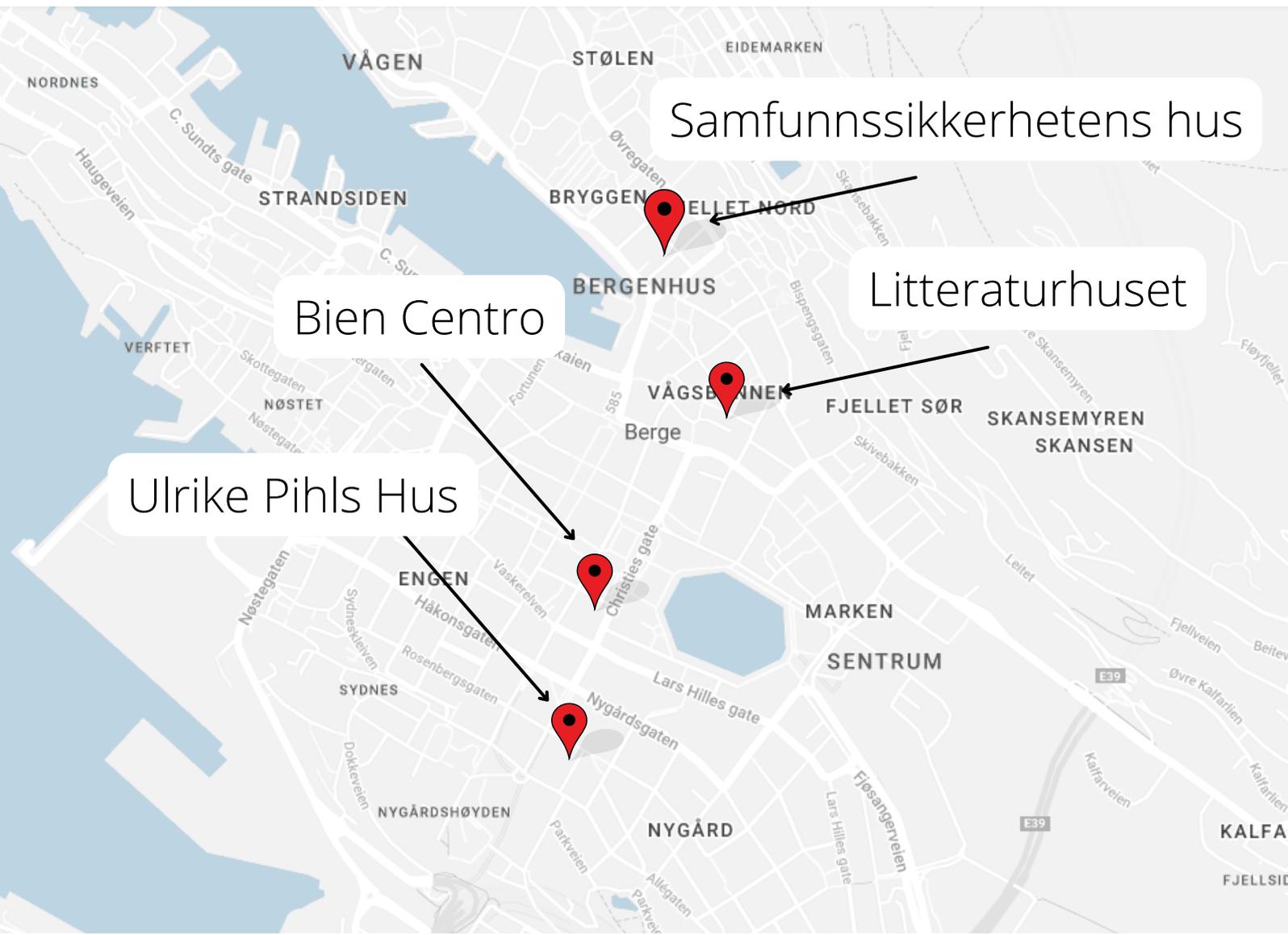
Optional tour: the House of Public Safety - Samfunnssikkerhetens hus - Bergen

Rosenkrantzgate 3

Locations

- Litteraturhuset
Østre Skostredet 5
- Ulrike Pihls Hus
Professor Keyers gate 1
- Bien Centro
Nordahl Bruns gate 9
- Samfunnssikkerhetens hus
Rosenkrantzgate 3

Contact details organizing committee:
Nienke Böhm, +4746270924





Thank you for taking part in this conference!

Have a safe journey home!

