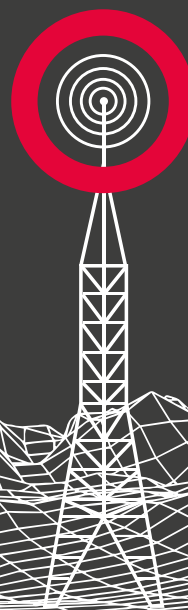




Creating Effective Warnings For All

Conference Brochure

London, September 11–13, 2023



About the UCL Warning Research Centre

The Warning Research Centre (WRC) at UCL is a unique academic centre bringing together global expertise to explore the role of warnings in managing vulnerabilities, hazards, risks, and disasters for all natural and human-made hazards and threats.

Established in 2020 as an interdepartmental centre between the Department of Science and Technology Studies (STS) and the Institute for Risk and Disaster Reduction (IRDR), the WRC integrates warning expertise at UCL with international universities and institutions to work with businesses, government, and intergovernmental organisations to address the growing need for effective warning and alert systems via cutting-edge research, policy guidance, applications, and collaborative expertise.

The WRC focuses on:

- designing, implementing, and maintaining effective warnings
- understanding what makes warnings successful or fail
- working across a wide range of hazards and threats to develop MHEWS
- integrating people and society into warnings, whilst also integrating technological advancements.

The **IRDR** are uniquely well-placed to lead research and teaching in risk and disaster reduction, with at least 70 academics across 12 departments and seven faculties involved in world-class research and practice in the field. The IRDR are home to the **UCL Humanitarian Institute** that aims to mobilise UCL's research, expertise and teaching to impact global humanitarian challenges and to promote education for global citizenship and the connected curriculum at UCL, through co-produced programmes spanning natural, social, engineering and medical sciences, the built environment, humanities, laws and ethics.

The **Department of Science and Technology Studies (STS)** is an interdisciplinary centre for the integrated study of science. It is unique in combining in one department history and philosophy of science with the social studies of science (sociology, science policy and science communication). STS has a strong focus on engagement: interacting with community groups, schools and other public audiences, from London to global communities. Founded in 1921 STS works across all of UCL and is pushing the agenda in relation to AI, Responsible Research and Innovation, and Science Communication.

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The UCL Portico during Freshers Week (©UCL Educational Media, 2023)

A Warm Welcome to UCL

Welcome to the 'Creating Effective Warnings for All' conference at University College London (UCL), the first UCL Warning Research Centre International Conference.

This conference aims to provide an opportunity to break down silos between stakeholders, sectors, hazard types, geographies, and technologies used in warnings to generate better understanding and more effective warnings in the future, for all. Held at UCL, one of the world's leading research institutions, this conference offers research knowledge and skills from within academia, alongside lessons from the many stakeholders we work with, to help explore not just the creation and implementation of warnings, but how they can be effective, inclusive, sustainable, and people-centred, and generate action. Quality research, that goes beyond a single case study and/or hazard, and provides evidence-based solutions can provide valuable insights. In addition, we aim to help bridge research, action, and policy to help support the UN Secretary General's *Early Warnings For All* initiative alongside UN Sendai Target G, and the International pandemic agreement (WHO CA+).

We have identified three key issues that are critical to ensure effective warnings for all hazards and human-made threats:

1. The fundamental issues that link the four individual elements of warnings as outlined by the UN [(i) risk knowledge, (ii) monitoring and warning services, (iii) dissemination and communication and (iv) response capability] are often the points where warnings fail. It is critical to examine the 'core element' otherwise the four elements stand alone and do not achieve their goal.

2. Contributions from all stakeholders are needed to make sure warnings result in actions. This means bringing together and working across the silos in international organizations, private sector, civil society organizations, local communities, academia, across a range of geographies, institutions and stakeholders, hazards (both natural and human-made), vulnerabilities, and disciplines to better understand what makes warnings effective for all.
3. Valuable insights can be made by academia and the public to make sure warnings are people-centred and lessons have been identified, learnt, and implemented. Different approaches to public engagement can be integrated to make sure that warnings engage with the vulnerable as part of the 'first' mile, so the public are co-producers of knowledge and any warning system.

All issues require a substantial shift in the way we frame warnings and we hope this conference will bring together a wide range of stakeholders to explore how to work across these silos, particularly pertinent for multiple-hazard early warning systems.

We hope by the end of the event, concrete next steps can be established, and with the influence of artists, graphical reporters, and networking that creativity will emerge to prepare the global community to create effective warnings for all. Enjoy the UCLWRC2023 and being in the heart of London.



Prof. Carina Fearnley
Director
UCL WRC



Prof. Ilan Kelman
Deputy Director
UCL WRC

Organising Committee

We would like to thank our amazing teams across UCL for making this event happen:

Organising Chairs: Carina Fearnley, Ilan Kelman, Claudia Fernandez de Cordoba Farini

Conference Organisation and social media: Amanda Gallant

Conference Finance: Susan Walsh

Management and HR support: Giuseppe La Rosa and Victoria Mounsey

UCL Estates and the porters and teams at ICH, especially Bill and Dan

Catering: Gather & Gather

AV Team: Diana Ursu and the team

Legal Team: Michael Dimas and VWV Services

Graphic Design: optics.london

In addition we would like to thank our sponsors for their input, ideas, and discussions around the event and its implementation. Particular thanks goes to:

Lorenzo Marchetti (Everbridge)

Maria Brighenti and Andrea Atzori
(*Doctors with Africa CUAMM*)

Ed Morrow (Lloyd's Register Foundation)

Ben Webster, Gavin White, and Simon Loveday (REAP)

Yelena Minasyan (CREWS)

We would also like to thank the MAPS facility, including the Dean Prof Ivan Parkin, Vice Dean of Research Prof Andrew Wills, and Director of Operations Ms Donna Williamson for their financial and management support for the WRC.

We are hugely grateful to our guiding and supportive Heads of Departments: Prof Emma Tobin and Prof Jon Agar (Science and Technology Studies), and Prof Joanna Faure-Walker (Institute of Risk and Disaster Reduction).

Several volunteers support us during the event, and we would like to thank them for their hard work and support:

Support from WRC and UCL PhD students:

Claudia Fernandez de Cordoba Farini
Mhari Gordon
Nicholas Buchan
Rebekah Yore
Kim-Anh Anastasia Chau
Rob Davis

Volunteers:

Jasmine Andean
Savane Belliard
Iman Chaudhry
Melanie Larre Gilmet
Linda Jakschies
Hadia Khalid
Lucy Maun
Isobel Passey
Ameeqa Qureshi
Reynie Purnama Raya
Olivia Rix
Richard Rushworth
Mengxi Zhang

Thanks also to:

Lorna Schütte for graphic recording and illustration of the event



A view of London, looking south east towards The City. In the foreground are the streets of Bloomsbury, the British Museum and Senate House. On the horizon can be seen many of London's landmarks including St Paul's Cathedral, The Gherkin, Tower Bridge, The Barbican and Canary Wharf. (iStockphoto.com)

Overview Timetable Day 1 –

Monday, 11 September 2023

	<i>Live stream</i>	
	Kennedy Lecture Theatre	
9:00–9:30 Registration and light breakfast		
9:30–10:45	Welcome and keynote panel discussion: Multi-sectoral, multi-hazard collaboration. Welcome: Dr. Carina Fearnley (UCL WRC Director) and UCL Provost Office. Keynotes: Mami Mizutori (UNDRR), Loretta Hieber Girardet (UNDRR) and Pablo Suarez (Red Cross Climate Centre).	
10:45–11:15 Tea and coffee break		
11:15–12:45	Session 1A: Integrating DRR and One Health: working across different sectors and timelines in warnings. Convenors: Claudia Fernandez de Cordoba Farini (UCL WRC) and DEFRA (UK Gov). Speakers: Professor Dame Sally Davies (UK Special Envoy on Antimicrobial Resistance AMR), Professor Virginia Murray (Head of Global Disaster Risk Reduction at UKHSA), Professor Grant D Stentiford (Chief Scientist at the Centre for Environment, Fisheries and Aquaculture Science Cefas) and Dr Alex Tasker (Senior Lecturer University of Bristol).	
12:45–13:30 Lunch		
13:30–15:00	Session 2A: Research progress, gaps and challenges for High Impact Weather. Convenors: WMO WWRP HIWeather Project – Sally Potter (GNS Science, NZ), Brian Golding (UK Met Office). Speakers: Sally Potter (GNS Science, NZ), Brian Golding (UK Met Office) and Dr David Hoffmann, Australian Bureau of Meteorology.	
15:00–15:30 Tea and coffee break		
15:30–17:00	Session: 3A: Accelerating early action: Integrating EWS and trigger-based finance with national and international financial mechanisms. Convenors: Simon Young and Viktoria Seifert (Willis Tower Watson), Rachele Gianfranchi and Glynnis Kellaway (Everbridge). Speakers: Simon Young (WTW), Viktoria Seifert (WTW), Kez Baskerville-Muscutt (WTW), Rachele Gianfranchi (Everbridge), Glynnis Kellaway (Everbridge), Manuel Cornelisse (Everbridge), Shreya Wadhawan (CEEW India), Emma Reyburn (UNICEF), Jen Stephens (Global Lead, Disaster Risk Reduction UNICEF) and Paul Wilson (Pacific Catastrophe Risk Insurance Company).	
17:00–19:00 Poster session discussions		
17:00–19:00 Evening drinks reception at ICH		

	<i>Live stream</i>	<i>No live stream</i>	<i>Posters available online</i>
	Leolin Price Lecture Theatre	Breakout Room Cluster 1	Breakout Room Cluster 2
	<p>Session 1B: Building better risk communication, and multidisciplinary understanding of risk. Convenors and speakers: Lisa Robinson (BBC Media Action) and Dr Mirianna Budimir (Practical Action).</p>	<p>Session 1C: Scenario: What can you do before the **** hits the fan? Dealing with forecast uncertainty in anticipatory action. Convenors: Helen Caughey, Nyree Pinder, Helen Ticehurst (UK Met Office). Speakers: Helen Caughey (UK Met Office) and Nyree Pinder (UK Met Office) with support from partners including WMO, Red Cross Climate Centre and WFP.</p>	Posters
	<p>Session 2B: Collaborative decision making for anticipatory humanitarian action. Convenors: Milli Cooper, Technical Partnerships Advisor Crisis Anticipation and Risk Financing, Start Network. Speakers: Milli Cooper (Start Network) and Alice Castillejo (Programme Development Manager, CLEAR Global) and other partners.</p>	<p>Session 2C: Scenario: Epidemic & pandemic warnings. Convenors: Doctors with Africa CUAMM (CUAMM) and Bournemouth University Disaster Management Centre (BUDMC). Speakers: Richard Gordon (BUDMC) and Veronica Censi (CUAMM).</p>	Posters
	<p>Session 3B: Voices from the Field: Learning from Past Disasters for Effective Early Warnings. Convenors: Loretta Hieber Girardet (UNDRR). Speakers: Ben Webster (REAP), Marc Harvey (Resurgence), Jonathan Stone (WMO and UNDRR Center of Excellence), Zoe Hamilton (GSMA) and Dorothy Heinrich (IFRC Climate Centre).</p>	<p>Session 3C: Performing Warnings: The role of co-creation, humour and cardboard theatre. Convenors and speakers: Hameed Khan and Eugenia Rojo (Independent artists). Up to 30 people.</p>	Posters

Overview Timetable Day 2 –

Tuesday, 12 September 2023

	<i>Live stream</i>	
	Kennedy Lecture Theatre	
9:00–9:30 Registration and light breakfast		
9:30–10:45	Keynote panel discussion: Making the last mile, the first: Integrating bottom-up and top-down approaches at the WRC Warning Conference. Panel: Lord Toby Harris (UK Parliament), Valerie Risk (Everbridge), Catalina Jaimie (The Climate Centre and Anticipation Hub), John Harding (CREWS). Chair: Prof Joanna Faure Walker (UCL IRDR).	
10:45–11:15 Tea and coffee break		
11:15–12:45	Session 4A: Juggling and planning: methods to address compound, cascading, and unprecedented risks. Convenors and speakers: Dorothy Heinrich, Tilly Alcayna, Catalina Jaime (Anticipation Hub/Red Cross Red Crescent Climate Centre), Devin O’Donnell (Red Cross Red Crescent Climate Centre), Nico Cassinelli (Artist).	
12:45–13:30 Lunch		
13:30–15:00	Session 5A: The role of technology in warnings – now and the future. Convenors and speakers: Vanessa Gray (ITU), Manuel Cornelisse (Everbridge), John Tacken (Netherlands Government) and Mr. Anil Pokhrel (NDRRMA, Nepal Secretary).	
15:00–15:30 Tea and coffee break		
15:30–17:00	Session 6A: Accessible Early Warnings and Early Action in a Fragile Context. Convenors: Catalina Jaime (Red Cross Red Crescent Climate Centre), Helen Ticehurst (UK Met Office), Prof Andrew Kruczkiewicz (Columbia University), John Harding, (CREWS), Niels Holm-Nielsen (World Bank). Speakers: John Harding (CREWS), Catalina Jaime (Red Cross Red Crescent Climate Centre, Marcelin ESTERLIN (Ing. Coordonateur de l’UHM Représentant Permanent d’Haïti auprès de l’OMM), Nyree Pinder (UK Met Office), Prof Andrew Kruczkiewicz (Columbia University) and Niels Holm-Nielsen (World Bank).	
17:00–19:00	Warning Film Night: DARAJA: Local impact, sustainability and scaling – what are the considerations? Followed by panel discussion. ‘A Pluriverse Siren’ (2023). Followed by discussion Dr. Aura Satz, (Royal College of Art).	
18:00–19:30 Conference dinner – pizza / finger food / beverages		

	<i>Live stream</i>	<i>No live stream</i>	<i>Posters online</i>
	Leolin Price Lecture Theatre	Breakout Room Cluster 1	Breakout Room Cluster 2
			Posters
	Session 4B: Warning about attacks: the effectiveness of warning processes in foreign and national security policy. Convenors and speakers: Suzanne Raine (RUSI) and Prof Mike Goodman (King's College London).	Session 4C: Multi-hazard warning role play in a semi-fictional ocean. Convenor: Dr Andrew Tupper (Natural Hazards Consulting).	Posters
	Session 5B: Designing Inclusive, Accessible Early Warning Systems: Good Practices and Entry Points. Convenors: Cristina Otano and Zoe Trohanis (GFDRR/WB). Speakers: Niels Holms-Nielsen (WB/GFDRR), Dr Carina Fearnley (UCL WRC), Anna-Maria (Masha) Bogdanova (WB), Maria Campuzano Peres (UNWomen), Rahel Steinbach (UNWomen), John Harding (CREWS) and Reel Ahmed (UK FCDO).	Session 5C: Campfire event – Integrating state and non-state actors. Convenor: Mirianna Budimir (Practical Action), Helen Bye (UK Met Office). Speakers: Dr Mirianna Budimir (Practical Action), Helen Bye (Met Office International) and Ben Webster (REAP Secretariat).	Posters
	Session 6B: GRAVITY PLAY: An experimental co-creation session on early warnings for mental health, via juggling and acrobatics. Convenors: Wellcome Policy Lab and Red Cross Red Crescent Climate Centre. Speakers: Pablo Suarez (Red Cross Red Crescent Climate Centre) and Martin Smith (Head of Policy Lab, Wellcome Trust).	Session 6C: Solution Room: Translating warnings from technology, to action, and filling the gaps. Convenors and speakers: Peter Sanders and Chris vanArum (Everbridge).	
	Artist performance / exhibition: Hameed Khan and Eugenia Rojo (Independent artists) – A Warning Performance.	Game: Flood Warning Decisions. Olaf Neussner (Disaster Risk Management Specialist).	

Overview Timetable Day 3 –

Wednesday, 13 September 2023

	<i>Live stream</i>	
	Kennedy Lecture Theatre	
9:00–9:30 Registration and light breakfast		
9:30–10:45	<p>Keynote panel discussion: Integrating warnings over space and time. Panel: Andrea Atzori (CUAMM – Doctors with Africa), Dr Ruth Boumphrey (Lloyds Register Foundation), Ben Webster (REAP), Dr. Monique Kuglitsch (Fraunhofer HHI and ITU/WMO/UNEP) Focus Group on AI for Natural Disaster Management. Chair: Prof Ilan Kelman (UCL WRC / IRDR / IGH).</p>	
10:45–11:15 Tea and coffee break		
11:15–12:45	<p>Session 7A: Reflecting on Critical Points of Failure In Disaster Management. Convenors: Prof Lee Miles and Richard Gordon MBE (Bournemouth University Disaster Management Centre, BUDMC). Speakers: Prof Lee Miles (BUDMC), Martin Travers (BUDMC) and Isatu Joy-Carew Sesay (Emergency Preparedness and Response, Ministry of Health and Sanitation, Sierra Leone and Country Facilitator, EVALDIS project, Sierra Leone).</p>	
12:45–13:30 Lunch		
13:30–15:00	<p>Session 8A: Making Early Warnings Count: Enabling Action and Inclusivity. Convenors and speakers: Dr Jessica Ports Robbins (Global Disaster Preparedness Center / American Red Cross) and Susanna Acland (GSMA Mobile for Development).</p>	
15:00–15:30 Tea and coffee break		
15:30–16:30	Closing session and next steps. Convenor: UCL WRC	

	<i>Live stream</i>	<i>No live stream</i>	<i>Posters available online</i>
	Leolin Price Lecture Theatre	Breakout Room Cluster 1	Breakout Room Cluster 2
			Posters
	Session 7B: Single natural hazards: opportunities for enhancing warnings of unfamiliar threats. Convenors: Prof Christopher Kilburn and Dr Emma Nicholson (UCL Hazard Research Centre). Speakers: Dr Frances Beckett (UK Met Office), Prof. Amy Donovan (University of Cambridge), Dr Liz Gaunt (UCL HRC) and Dr Carmen Solana (University of Portsmouth).	Session 7C: The Voice of Warning: Sizewell C and Hearing Warnings. Convenors and speakers: Dr Aura Satz and Dr Francesca Laura Cavallo (Royal College of Art) and Alison Downes (Stop Sizewell C).	Posters
	Session 8B: How technology and risk communication can influence the use of warnings in cascading events. Convenors: Dr Sarah Dryhurst, Dr Gianluca Pescaroli, Dr Saman Ghaffarian (UCL IRDR). Speakers: Dr Monique Kuglitsch (Fraunhofer HHI and ITU/WMO/UNEP Focus Group on AI for Natural Disaster Management), Dr George Karagiannis (Resilience First and Former Deputy Secretary General at Civil Protection Greece), Dr Saman Ghaffarian (UCL IRDR), Dr Sarah Dryhurst (UCL IRDR) and Dr Gianluca Pescaroli (UCL IRDR).	Session 8C: Serious fun: Communicating Hazard Warnings. Convenors and speakers: Pablo Suarez (Red Cross Red Crescent Climate Centre) and Lara Mani (Centre for the Study of Existential Risk, University of Cambridge).	Posters

Conference Logistics

Location and Maps

The conference will be held at the Institute of Child Health 30 Guilford Street, London, WC1N 1DP ([View Map](#)).

A downloadable campus map can be found on the UCL website; the ICH is located within grid G6.



[rates.panic.filer](#)

Travel to UCL

In the interests of the environment, please use public transport to join us wherever possible. Find extensive transportation information via the main UCL website, including options by Tube, bus, National Rail, Eurostar and coach.

The closest Tube station to the ICH site is Russell Square where there are plenty of shops, cafes, and restaurants (see in the Brunswick Centre).

Details for those who require accessibility can be found on [AccessAble](#).

Nearby Accommodation

London School of Economics: offers low-cost options in halls of residence outside of term time.

Nearby Chain Hotels:

hub by Premier Inn, London Goodge Street
 Travelodge London Central, Euston
 Travelodge London Central, Kings Cross
 Premier Inn, London Holborn
 Holiday Inn London, Bloomsbury

Local Hotels in the Area:

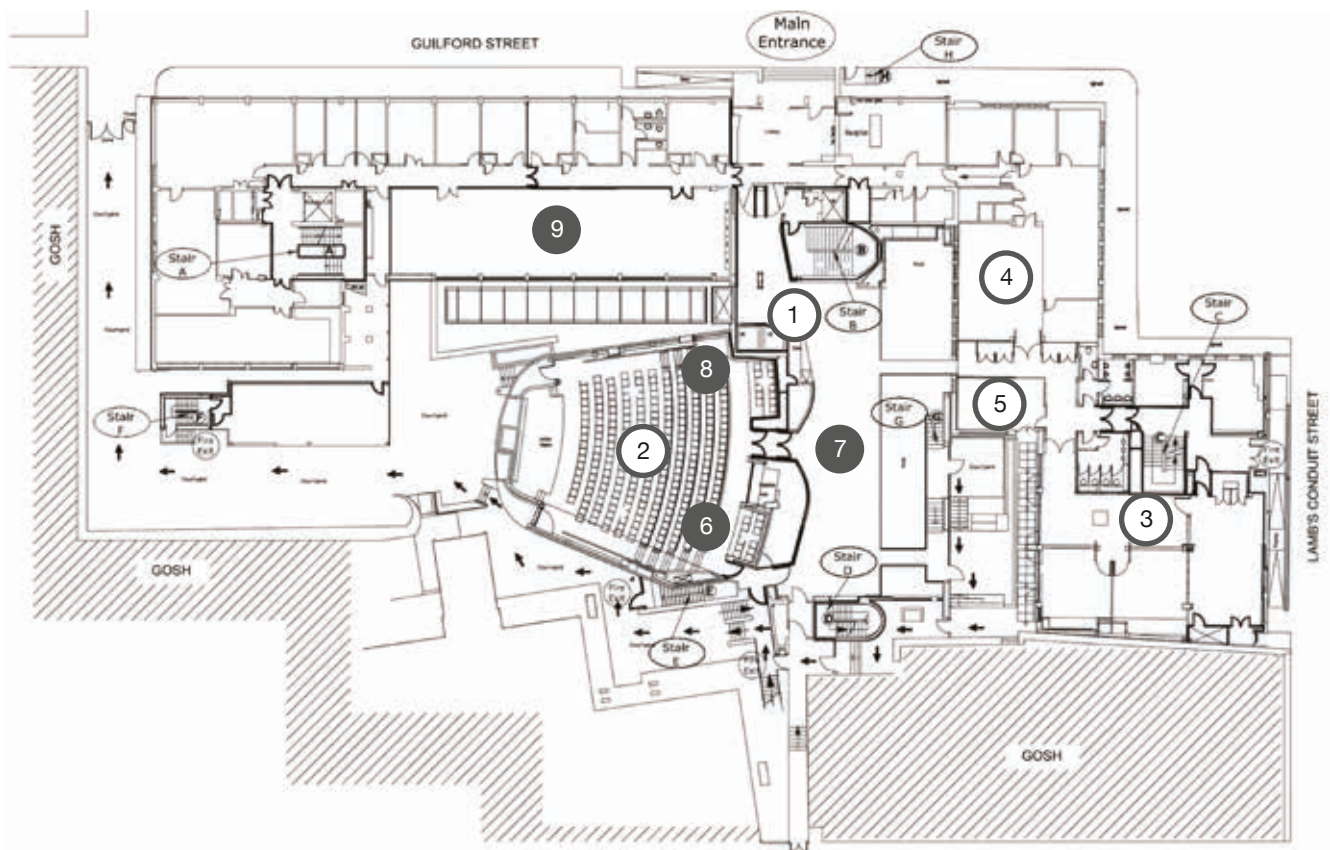
The Montague on the Gardens Hotel
 Euston Square Hotel
 Arran House Hotel
 Euro Hotel
 Judd Hotel
 Harlingford Hotel
 Alhambra Hotel
 Avonmore Hotel



Russell Square at night (iStockphoto.com)



Location of conference venue



Ground Floor

- ① Registration Area
- ② Kennedy Lecture Theatre
- ③ Workshop Seminar Rooms
- ④ June Lloyd Room
- ⑤ Meeting Room

Downstairs on level -1

- ⑥ Leolin Price Lecture Theatre
- ⑦ Winter Garden – Refreshment and Reception Space
- ⑧ Lower Ground Seminar Room
- ⑨ Refectory Conservatory – The ICH Café and Refectory

Floorplan of UCL Great Ormond Street Institute of Child Health (GOS ICH)

Our Sponsors & Supporters

We would like to take this opportunity to acknowledge and thank the organisations that have partnered with us to deliver this event. We are grateful to our sponsorship partners for their recognition of our work, their passion for warnings, inclusion, and their support of this event. For more information about our sponsors, please see the following pages.

Our Gold Sponsors



CUAMM | Everbridge | Lloyds Register Foundation

Our Silver Sponsor



Risk-informed Early Action Partnership

Our Bronze Sponsor



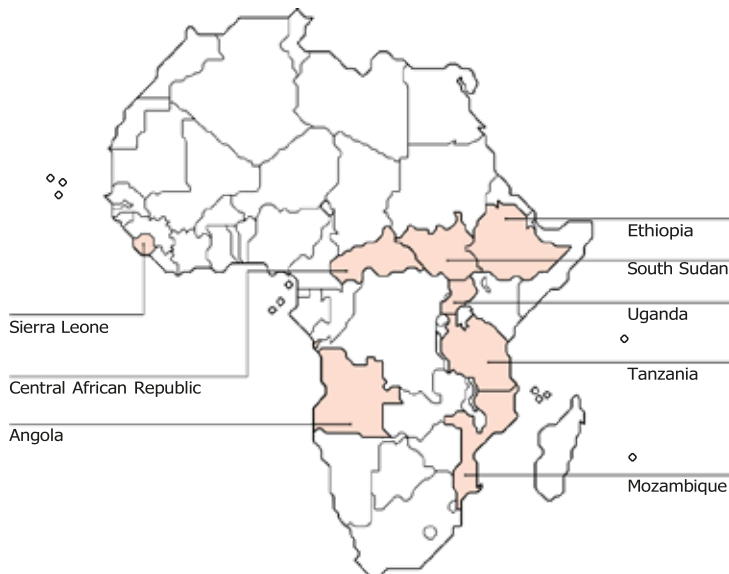
CREWS

We would also like to thank supporters of the conference who have provided resources to enable the conference to operate, alongside our session convenors.

Anticipation Hub



Doctors with Africa CUAMM



Doctors with Africa CUAMM is the largest Italian NGO working to improve the health of vulnerable communities in Sub-Saharan Africa. Founded in 1950, CUAMM carries out long-term projects in **8 African countries** in close partnership with the Ministry of Health and local health authorities.

The NGO has more than 70 years of experience planning and implementing health cooperation projects, providing quality health services along the continuum of care, from communities to health centers to hospitals. CUAMM intervenes in stable and fragile contexts in a long-term development perspective as well as in emergencies.

The NGO has long experience **training local health professionals** (doctors, nurses, midwives, lab technicians and community health workers), ensuring the creation of local capacity for stronger and sustainable health systems. CUAMM also conducts **operational research** in partnership with universities and national and international research institutes, with **200 published research** articles from 2013 to 2022. CUAMM's focus areas are maternal and child health, adolescent health, nutrition, NCDs, infectious diseases and universal health coverage.



Doctors with Africa CUAMM currently operates in Angola, Central African Republic, Ethiopia, Mozambique, Sierra Leone, South Sudan, Tanzania and Uganda.

8
countries in Sub-Saharan Africa

21
hospitals

124
districts (for public health activities, mother-child care, the fight against HIV/AIDS, tuberculosis and malaria, training)

4
nursing schools

1
university (Mozambique)

200
published research articles from 2013 to 2022



Maternal and child health



Infectious and tropical diseases



Public health and universal coverage



Nutrition



Chronic diseases

<https://doctorswithafrica.org>



Everbridge empowers enterprises and government organizations to anticipate, mitigate, respond to, and recover stronger from critical events. In today’s unpredictable world, resilient organizations minimize impact to people and operations, absorb stress, and return to productivity faster when deploying critical event management (CEM) technology. Everbridge digitizes organizational resilience by combining intelligent automation with the industry’s most comprehensive risk data to Keep People Safe and Organizations Running.

Everbridge’s public safety solutions support the UN’s **“Early Warnings for All” initiative**, the goal of which is to protect every person on Earth with an early warning system by 2027. Everbridge’s solutions enable disaster risk and resilience teams to be prepared, know earlier, respond and recover, and reach everyone in a disaster.

Everbridge is also an active institutional member of both the International Telecommunications Union (ITU) and the UNDRR Private Sector Alliance for Disaster Resilient Societies (ARISE) and takes part in the European Union research and innovation program **Horizon 2020** through **Project ENGAGE**. As an Industry Sector Member of the ITU Development Sector, Everbridge advocates for and collaborates on cell-broadcast public warning technology as the most effective means to reach citizens in an emergency.

Since 2022, Everbridge has engaged with UNDRR by attending the UNDRR Global Platform in Indonesia in 2022, the Regional Forum in Uruguay in 2023 and the High-Level Meetings in New York in 2023. Everbridge delegates also participated in the Midterm review of the Sendai Framework, a 15-year, voluntary, non-binding agreement that aims to reduce disaster risk and build resilience in communities around the world, particularly in the face of climate-fueled threat, advocating for increasing the role of the private sector in disaster risk reduction.

Everbridge is committed to expanding the reach of early warning systems to cover Small Island Developing States (SIDS) and the Least Developed Countries (LDCs). In 2022, Everbridge announced the **successful deployment** of its Public Warning technology in the State of Maharashtra, the seventh statewide deployment of Everbridge in India. In 2023, Everbridge also successfully deployed its public warning solutions in Mauritius and the smaller islands of Rodrigues, Agaléga, and St. Brandon. Together, this increased the coverage of Everbridge technology by 150 million residents and tourists, and brought Everbridge’s public safety footprint to 25 countries across the Americas, EMEA, and APAC regions.

Earlier this year, Everbridge announced the **successful deployment** of its Public Warning technology within “Six European Countries in Six Months” – Germany, the United Kingdom, Spain, Denmark, Norway, and Estonia all successfully deployed Everbridge Public Warning in recent months.

www.everbridge.com

The Lloyd’s Register Foundation World Risk Poll

The Lloyd’s Register Foundation World Risk Poll is the first global study of worry about, and harm from, risks to people’s safety.

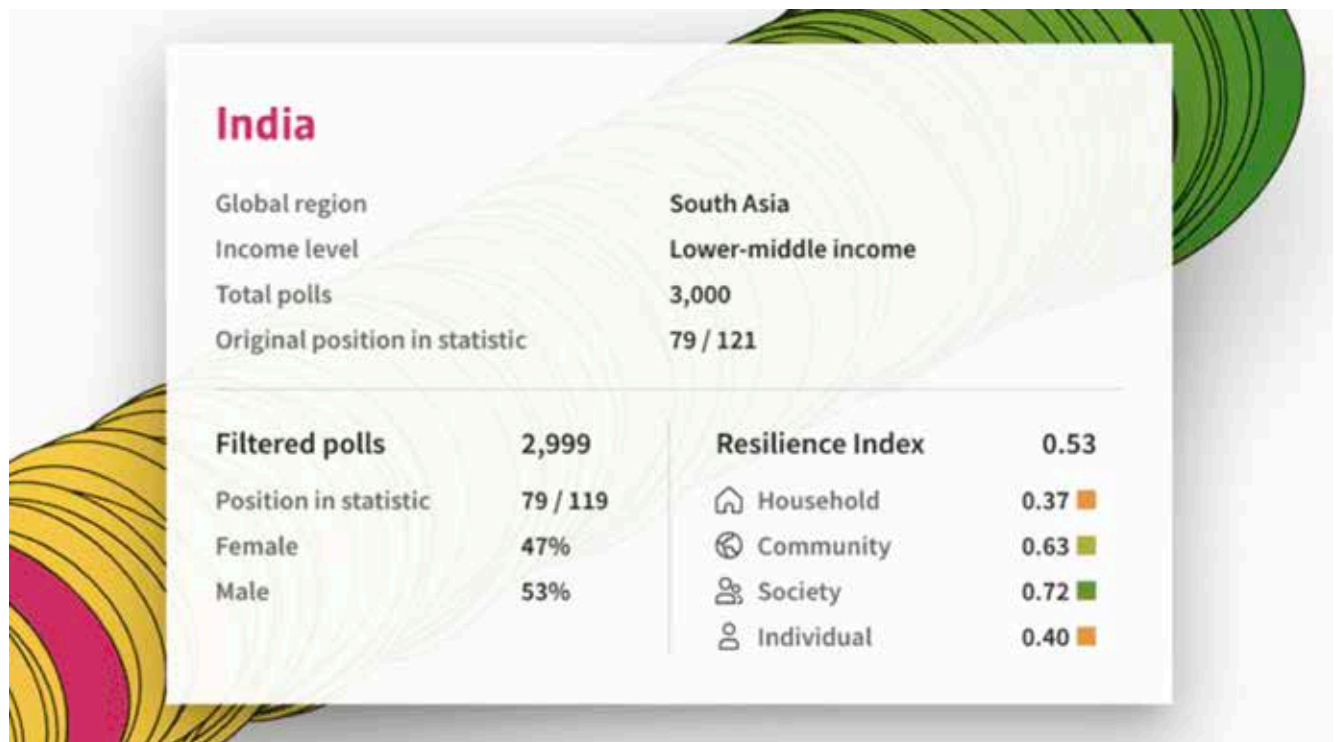
The most recent edition of the Poll is based on around 125,000 interviews conducted by Gallup in 121 countries during 2021, while the next edition – currently in the field – will be published in 2024.

The World Risk Poll includes places where little or no official data on safety and risk exists, and so constitutes a unique resource for defining the nature and scale of safety challenges across the world, as reported first-hand by those who experience them.

The Poll also offers a direct comparison between how people around the world perceive risks and how they experience them, differences which can be crucial to informing effective risk management policies and communications.

As part of the 2021 Poll, the Foundation explored factors that affect the resilience of countries and communities to disasters and natural hazards, including factors that influence the effectiveness of early warning systems.

Find out more and access the full dataset at lrfworldriskpoll.com.



India

Global region

South Asia

Income level

Lower-middle income

Total polls

3,000

Original position in statistic

79 / 121

Filtered polls

2,999

Resilience Index

0.53

Position in statistic

79 / 119

🏠 Household

0.37

Female

47%

👥 Community

0.63

Male

53%

👤 Society

0.72

👤 Individual

0.40



The Risk-informed Early Action Partnership (REAP) brings together an unprecedented range of stakeholders across the climate, humanitarian and development communities with the aim of making 1 billion people safer from disasters by 2025. REAP currently counts 80 partners across governments, IGOs, NGOs, CSOs, the UN, academia and the private sector.

REAP is driven by four ambitious targets that, together, will enable early action at scale so it becomes the default approach to disasters. The partnership has committed to achieving these targets in three broad ways: by increasing global commitment around early action policy and practice; by enabling country- and local-level leadership on early action; and by bringing together early action stakeholders to drive greater impact through collaboration and coherence, rather than relying on siloed approaches. REAP works with its partners to deliver on individual and shared objectives, leveraging the incredible diversity of the partnership to ensure that no one gets left behind.

Knowledge building is also a key driver of success in scaling up early action, and REAP has issued a number of publications to build understanding around how to effectively scale early action. These include: the *Glossary of Early Action Terms*, a report on *Finance for Early Action*, as well as the flagship *Early Action: The State of Play* reports, among others. For more information, navigate to <https://www.early-action-reap.org/> or scan the QR code (above).



Target 1

50 countries have reviewed and integrated their crisis/disaster risk management and climate adaptation laws, policies and/or plans to ensure that they reduce climate change impacts and exposure on people and the environment.



Target 2

1 billion more people are covered by financing and delivery mechanisms connected to effective early action plans, ensuring they can act ahead of predicted disasters and crises.



Target 3

\$500 million invested in early warning system infrastructure and institutions to target early action in 'last/first mile' communities, building on existing initiatives.



Target 4

1 billion more people are covered by new or improved early warning systems, including heatwave early warning, connected to longer-term risk management systems, and supported by effective risk communication and public stakeholder dialogue to prompt informed action.

Venue Information

The 3-day international conference will be held in person, with some virtual and hybrid capacity. This will not be a traditional style conference but one that adopts:

Workshop Seminar Rooms

- Scenario events for delegates to partake in and learn in person the challenges and potential solutions for effective warnings
- Stakeholder mapping / mind mapping and analysis as part of 'problem based sessions'
- A range of discursive events including: Games, Campfires, storytelling, and 'Solution Rooms'
- Workshops

Kennedy and Leolin Price Lecture Theatre

- Panels, presentations, discussions and Q&A
- Artists / performative events
- Film Screenings

Social Activities

- Evening reception event on Monday 11th September
- Conference Pizza Dinner for Warnings Movies and Performances Tuesday 12th September
- Poster sessions and presentations

General Information

Emergency Contacts:

For any emergency situations please call 020 7679 2222 or UCL ext 222 before ringing 999. This allows the team to direct the emergency services to the correct location.

UCL Security 24/7: 020 7679 2108 (UCL ext 32108).

Police: 999 (emergencies) or 101 (non-emergencies).

If you notice a hazard that is likely to cause harm please ring the customer helpdesk immediately on 020 7679 0000 or UCL ext 30000.

Exhibition Areas

The Ground Floor Balcony will host sponsor booths. The Winter Garden space will exhibit materials produced by the artists.

Language

The UCLWRC2023 language is English. No simultaneous translation will be provided.

Registration Desk

The Registration Desk is onsite located outside the Kennedy Lecture Theatre. Should you have any questions or need assistance the desk will be attended throughout the conference.

Food and Refreshments will be provided: a light breakfast prior to the conference starting, morning tea and coffee in the morning break, lunch, afternoon tea and coffee in the break. Should you wish to purchase other food or drink, the Refectory Conservatory houses the ICH Café and Refectory (8:30am-4pm), and there are numerous cafes, restaurants and pubs nearby.

WiFi

Free WiFi access is available via UCL Guest. A guide to connecting to UCLGuest Wi-Fi via The Cloud can be found [here](#).



Flooding In Norton-on-Derwent, North Yorkshire, England, UK. Image: Prof Ilan Kelman (UCL WRC)

Detailed Timetable and Session Details – Day 1

Monday, 11 September 2023 – 9:30–10:45

Session	Welcome and Introduction. Theme: Multi-sectoral, multi-hazard collaboration
Location	Kennedy Lecture Theatre
Convenors	Dr. Carina Fearnley (UCL WRC – STS) Prof Ilan Kelman (UCL WRC – IRDR/IGH)
Summary	This session provides a welcome to the conference and an overview of key areas of progress, challenges ahead for warnings, and the value of multi-sectoral, multi-hazard, multi-vulnerability collaboration
Speakers	Dr. Carina Fearnley (Director of UCL WRC) – Welcome and conference rationale and aims UCL Provost Office – Welcome to UCL Mami Mizutori (UNDRR) – Keynote presentation on the Mid-term Review of the Sendai Framework Loretta Hieber Girardet (UNDRR) – Keynote presentation on the Early Warning For All initiative Pablo Suarez (Red Cross Climate Centre)
Style	Presentations and engagement activities

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On behalf of UNDRR, I am pleased to welcome the UCL Warning Research Centre to the rich network of organisations and individuals seeking to change the way we create safer and more resilient communities.

MAMI MIZUTORI

Special Representative of the Secretary-General for Disaster Risk Reduction and Head of UNDRR



Day 1 – Monday 11th September – 11:15–12:45

Session 1A	Integrating DRR and One Health: working across different sectors and timelines in warnings
Location	Kennedy Lecture Theatre
Convenors	Claudia Fernandez de Cordoba Farini (UCL WRC) and DEFRA (UK Gov)
Defra (UK Gov)	Dr. Carina Fearnley (Director of UCL WRC). Welcome and conference rationale and aims
Summary	<p>This conference session brings together representatives involved in One Health initiatives from various government departments. They will provide a holistic perspective on multi-sectoral collaboration and its significance in Disaster Risk Reduction (DRR) and warning systems.</p> <p>The session will shed light on the importance of integrating One Health considerations in DRR by looking at different hazards, threats, and case studies. It will include:</p> <ul style="list-style-type: none"> • A short opening by Dame Sally Davies on the integration of One Health in DRR with a focus on antimicrobial resistance. • A presentation by Dr Tasker featuring a series of One Health case studies to demonstrate the nature and importance of the highly dynamic, yet often overlooked health systems at the margins of state control. • A discussion by Professor Stentiford on the nexus between animal, human, and environmental health within food systems. He will examine how One Health principles and policies may be further applied to minimise hazard interaction with food systems and maximise benefits for people, biodiversity, and the climate. • An exploration by Professor Virginia Murray on the advancement of multi-hazard early warning systems, focusing on their integration with health, as well as examining the role of both international and national governance in this process
Speakers	<p>Opening by Professor Dame Sally Davies (UK Special Envoy on Antimicrobial Resistance AMR, previous Chief Scientific Advisor for the Department of Health)</p> <p>Followed by Professor Virginia Murray (Head of Global Disaster Risk Reduction at UK Health Security Agency and Affiliate of the UCL Warning Research Centre)</p> <p>Prof Grant D Stentiford (Chief Scientist at the Centre for Environment, Fisheries and Aquaculture Science Cefas)</p> <p>Dr Alex Tasker (Senior Lecturer in One Health and Trusted Research Environments at the University of Bristol. Lead of the project One Health in Complex Settings OHICS)</p>
Style	Presentations, followed by a panel session, and some interactive elements with the audience

11:15–12:45

Session 1B	Building better risk communication, and multidisciplinary understanding of risk
Location	Leolin Price Lecture Theatre
Convenors	Lisa Robinson (BBC Media Action) Dr Mirianna Budimir (Practical Action)
Summary	A live workshop to demonstrate how risk communication across disciplines can result in success or mess across early warning systems – and what we can do to improve it. Participants will develop a stronger practical appreciation of risk communication as a process that underpins decision-making across multi-disciplinary early warning systems, with calls to action for (1) sufficient financing; (2) increased rigor of risk communication strategies; (3) increased collaboration. Participants leave knowing what contributes to an effective risk communication strategy so they can be more discerning when commissioning or planning their own
Speakers	Lisa Robinson (BBC Media Action) Dr Mirianna Budimir (Practical Action)
Style	Workshop with team activities. Facilitation for online participants

11:15–12:45

Session 1C Scenario	What can you do before the **** hits the fan? Dealing with forecast uncertainty in anticipatory action
Location	Workshop Seminar Rooms
Convenors	Helen Caughey (Met Office, Deputy Chief and International Meteorologist) Nyree Pinder (Met Office, Global Strategic Partnership Manager) Helen Ticehurst (Met Office, Senior International Development Manager)
Summary	National Hydrological and Meteorological Services (NHMSs) are sometimes anxious and hesitant to issue forecasts/warnings when confidence is low for fear of criticism or the perception of being wrong. They hold off for greater confidence, but this risks the forecast/warning coming too late for some anticipatory actions to take place. So how do we overcome this? Co-development of services is critical with users understanding forecast limitations and forecast uncertainty, and NHMSs understanding risk appetite of users, no-regrets actions users may take to mitigate against hydrometeorological hazards, and the lead time at which these actions need to be implemented. This session will explore why forecasts are uncertain, how we can use the uncertainty to help communicate the likelihood of potential scenarios, and how these scenarios can then inform users' anticipatory actions and action-based advice through the simulation of a meteorologically significant event
Speakers	Helen Caughey (Met Office) Nyree Pinder (Met Office) with support from partners including WMO, Red Cross Climate Centre and WFP
Style	Combination including thought-led exercises, interactive activities, simulations and group exercises

Day 1 – Monday 11th September –13:30–15:00

Session 2A	Research progress, gaps and challenges for High Impact Weather
Location	Kennedy Lecture Theatre
Convenors	WMO WWRP HIWeather Project – Sally Potter (GNS Science, NZ) Brian Golding (UK Met Office)
Summary	<p>With an increase in weather-related impacts occurring globally, and the UN-led initiative to have Early Warnings for All by 2027, there is a recent emphasis on connecting weather forecasts with action. This interactive session has a focus on findings and activities from the World Meteorological Organization (WMO) World Weather Research Programme's (WWRP) High Impact Weather project, which is entering its final year</p> <p>Speakers will outline progress relating to value chain research and how you can get involved, citizen science, and impact-based forecasts and warnings. A hybrid workshop session will invite contributions from all participants to identify further research gaps and challenges relating to warnings</p>
Speakers	Sally Potter (GNS Science, NZ) Brian Golding (UK Met Office) Dr David Hoffmann (Australian Bureau of Meteorology)
Style	Presentations, workshop activities, and discussions

13:30–15:00

Session 2B	Collaborative decision making for anticipatory humanitarian action
Location	Leolin Price Lecture Theatre
Convenors	Milli Cooper (Technical Partnerships Advisor Crisis Anticipation and Risk Financing, Start Network)
Summary	<p>This session will demonstrate multi-hazard, multi-sectoral collaboration by highlighting the value of dynamic human decision making for anticipatory action, the flexibility it can provide, and how in particular contexts it can be more appropriate than automated triggers. First, we will outline the challenges that face decision makers who have to make choices about allocating funding to a crisis based on a forecast, and some of the solutions Start Network has developed. This will be illustrated with a case study, showing the value of expert input for anticipatory action. Finally, participants will be asked to try it out for themselves, as we lead them through a simulation – deciding whether or not to allocate funding to a fictional forecast crisis – to demonstrate the value of multi-disciplinary collaboration. The session will conclude with a reflection on the session to determine how the ideas might be taken forward and key takeaways developed with the participants</p>
Speakers	Milli Cooper (Start Network) Alice Castillejo (Programme Development Manager, CLEAR Global), and other partners
Style	Combination of presentations and simulation activities

13:30–15:00

Session 2C Scenario	Epidemic & pandemic warnings
Location	Workshop Seminar Rooms
Convenors	Doctors with Africa CUAMM (CUAMM) Bournemouth University Disaster Management Centre (BUDMC)
Summary	The session commences with a unique online simulation experience using the amazing Nest platform: https://www.stormkestrel.com/nest . This will allow participants to role-play a (short) developing pandemic scenario. Delegates will be logged onto the simulation either as National level, Regional level or Local level decision makers and responders and will identify some of the issues impacting EW when strategic communication and decision making moves between different levels of governance. The simulation will be followed by a fascinating case study of the Covid pandemic in Tanzania
Speakers	Richard Gordon (Director BUDMC) Veronica Censi (Regional Partnership and Advocacy Manager CUAMM)
Style	This session is highly interactive. A simulation experience will be followed by a real case study in order to encourage discussion

15:30–17:00

Session 3A	Accelerating early action: Building and integrating EWS and trigger-based finance with national and international financial mechanisms
Location	Kennedy Lecture Theatre
Convenors	Simon Young and Viktoria Seifert (WTW) Rachele Gianfranchi and Glynnis Kellaway (Everbridge)
Summary	Globally, a lack of awareness for the importance, benefits and lives saved through early warnings as well as unmet resource requirements to translate early warnings into active preparedness continue to remain barriers to building resilience against climate risks. Furthermore, while recent years have seen an increased focus on pre-arranged, trigger-based financial instruments to fund rapid disaster response efforts, less attention has been paid to the role these instruments could play to incentivise and enhance early action and preparedness. In addition, the benefits of more strongly linking preparedness and response measures, both in terms of lives saved and cost-effectiveness, remain under-capitalized. Using practice examples from highly climate-vulnerable regions such as Asia-Pacific and India, this session will explore how early warning systems, including tailorable software solutions, and trigger-based finance such forecast-based finance and parametric insurance, can support particularly countries, but also humanitarian organisations, in mobilising preparedness and relief efforts, while also building on new and additional resources, such as private (risk) capital

Session 3A details continue overleaf on page 28

Session 3A details continued from page 27

Speakers	Simon Young (WTW), Viktoria Seifert (WTW), Kez Baskerville-Muscutt (WTW), Rachele Gianfranchi (Everbridge), Glynnis Kellaway (Everbridge), Manuel Cornelisse (Everbridge), Shreya Wadhawan (CEEW India), Emma Reyburn (UNICEF), Jen Stephens (Global Lead Disaster Risk Reduction UNICEF) and Paul Wilson (Pacific Catastrophe Risk Insurance Company)
Style	Two introductory panel presentations on early warning systems and pre-arranged, trigger-based finance, followed by breakout sessions focused on the related benefits and challenges of building and integrating preparedness and response systems – technically and from a financing perspective – followed by a concluding panel discussion amongst practitioners, sharing real-world examples and contextualising the findings of the break-out group discussions

Day 1 – Monday 11th September – 15:30–17:00

Session 3B	Voices from the Field: Learning from Past Disasters for Effective Early Warnings
Location	Leolin Price Lecture Theatre
Convenors	Loretta Hieber Girardet (UNDRR)
Summary	<p>Early warning systems are key elements of disaster risk reduction and climate change adaptation, as they help reduce or avoid the detrimental impacts of hazardous events. To be effective, early warning systems need to be risk-informed, target communities most at risk, disseminate messages and warnings efficiently, ensure preparedness and support early action. However, the successful implementation and maintenance of early warning systems face several challenges that must be carefully addressed</p> <p>This session, titled ‘Voices from the Field: Learning from Past Disasters for Effective Early Warnings’ will examine the barriers to effective learning from past disasters and discuss strategies to overcome them. Recent disaster events have shown that while considerable progress has been made in the development of early warning systems, notable gaps remain in their application, and the incorporation of lessons learned into their ongoing improvement. This session will delve into various experiences with implementing early warning systems and the conditions for effective learning. The discussion will foster a deeper understanding of the challenges faced by different regions in terms of gaps in early warning systems during disasters. By featuring pre-recorded video testimonies from experts in the field, this session provides recent case examples, where early warning systems have faced limitations in their ability to mitigate the impacts of various disasters. These real-world experiences shed light on the complexities and intricacies of implementing effective early warning systems, highlighting valuable lessons for enhancing their efficacy. They thus serve as a backdrop for the subsequent panel discussion</p>
Speakers	Ben Webster (REAP), Marc Harvey (Resurgence), Jonathan Stone (WMO and UNDRR Center of Excellence), Zoe Hamilton (GSMA) and Dorothy Heinrich (IFRC Climate Centre).
Style	In the context of pre-recorded video testimonies, distinguished representatives and seasoned experts will share their experiences and insights concerning recent disaster incidents. These narratives will delve into discernible deficiencies within early warning frameworks, as well as the challenges faced in learning from these events. Against this backdrop, a panel discussion will convene to explore the following inquiries: Why are we not learning? How can we do better? Following this panel, an interactive Q&A segment will ensue, offering attendees the opportunity to engage with the panelists and the video testimonies

15:30–17:00

Session 3C	Performing Warnings: The role of co-creation, humour and cardboard theatre
Location	Workshop Seminar Rooms
Convenors	Hameed Khan (Independent artist) Eugenia Rojo (Independent artist)
Summary	The use of cartooning and absurd theatre (utilizing cardboard theatre) to better message awareness of the importance and benefits of early warnings, active preparedness and community resilience
Speakers	Eugenia Rojo and Hameed Khan
Style	An introductory talk followed by a cardboard theatre presentation and then a hands-on session by all (willing) participants in the creation and presentation of stories related to Early Warnings

17:00–19:00 **Evening drinks reception at ICH**

Detailed Timetable and Session Details – Day 2

Tuesday 12th September – 9:30–10:45

Session	Panel on Making the last mile, the first: Integrating bottom-up and top-down approaches at the WRC Warning Conference
Location	Kennedy Lecture Theatre
Convenors	Chair: Prof Joanna Faure Walker (UCL IRDR)
Summary	An exploration on making the last mile the first from a range of stakeholder perspective.
Speakers	Lord Toby Harris (UK Parliament) Valerie Risk (Vice President Public Safety, Everbridge) Catalina Jaimie (The Climate Centre and Anticipation Hub) John Harding (CREWS)
Style	Presentations, Discussion and Q&A

11:15–12:45

Session 4A	Juggling and planning: methods to address compound, cascading, and unprecedented risks
Location	Kennedy Lecture Theatre
Convenors	Dorothy Heinrich (Anticipation Hub/Red Cross Red Crescent Climate Centre) Tilly Alcayna , (Anticipation Hub/Red Cross Red Crescent Climate Centre) Catalina Jaime (Anticipation Hub/Red Cross Red Crescent Climate Centre) Devin O'Donnell (Red Cross Red Crescent Climate Centre) Nico Cassinelli (Artist)
Summary	Humanitarians and disaster risk practitioners are currently facing a wave of new and emerging threats and overlapping shocks. Can early warning truly help us juggle these realities? Join us for a fun and interactive session where we will be discussing compound, cascading, and unprecedented risks, and the role and limitations of early warning in helping reduce their impacts. Wear clothes you can move around in! Hosted by the Anticipation Hub and its compound risk working group
Speakers	Anticipation Hub (Compound Risk Working Group)
Style	Presentations, discussions, and interactive activities

11:15–12:45

Session 4B	Warning about attacks: the effectiveness of warning processes in foreign and national security policy
Location	Leolin Price Lecture Theatre
Convenors	Suzanne Raine (Visiting Professor, King's College London) Prof Mike Goodman (King's College London)
Summary	This session will consider the discipline and doctrine of warning in the field of international relations. It will examine the UK's system for providing early / strategic warning of changing risk in foreign policy, looking at the current structures and how they have evolved. It will also look what makes effective warning in relation to terrorism, mass atrocities, violent conflict and surprise attacks, and the differences between these, considering what lessons might be applied more widely in foreign policy. It will include historic examples of warning failure, and discuss methods for increasing knowledge about the unknown where the unknown is a political actor
Speakers	Suzanne Raine (Visiting Professor, King's College London) Prof Mike Goodman (King's College London)
Style	The panellists will each to do a short presentation covering complementary elements of warning in geopolitical scenarios, and then seek to draw out “dos” and “dons” of warning, with which the conference audience can then engage and which should lead to conclusions for policy makers

11:15–12:45

Session 4C	Multi-hazard warning role play in a semi-fictional ocean
Location	Workshop Seminar Rooms
Convenors	Dr Andrew Tupper (Natural Hazards Consulting)
Summary	This will be an interactive role play to explore how organisations and countries need to work together to successfully manage a multi-hazard, international event
Speakers	Dr Andrew Tupper (Natural Hazards Consulting)
Style	Role Play. Participants will be split into table groups and asked to role play fictitious countries in a developing situation in the Pacific

Day 2 – Tuesday 12th September – 13:30–15:00

Session 5A	The role of technology in warnings – now and the future
Location	Kennedy Lecture Theatre
Convenors	Vanessa Gray (ITU) Manuel Cornelisse (Everbridge) John Tacken (Netherlands Government) Mr. Anil Pokhrel (NDRRMA, Nepal Secretary)
Summary	The objective of the session, which will be 90 minutes, is to convey to the audience the key role of technology for the dissemination of warnings to the population during/before emergencies, and the technology development from past to present, with a hint into the future
Speakers	Vanessa Gray (ITU) Manuel Cornelisse (Everbridge) John Tacken (Netherlands Government) Mr. Anil Pokhrel (NDRRMA, Nepal Secretary)
Style	Panel discussion with presentations

13:30–15:00

Session 5B	Designing Inclusive, Accessible Early Warning Systems: Good Practices and Entry Points
Location	Leolin Price Lecture Theatre
Convenors	Cristina Otano (GFDRR/WB) Zoe Trohanis (GFDRR/WB)
Summary	Climate change is leading to an increasing number of emergencies caused by disasters. Robust multi-hazard impact-based early warning systems are crucial in mitigating impact, yet one-third of the world's population remains without a warning system. In this session we will explore entry points to make early warning systems more inclusive and we learn of existing good practices
Speakers	Introduction by Niels Holms-Nielsen (WB Practice Manager and Head of GFDRR) Presentation by Carina Fearnley (Director UCL Warning Research Center) Speakers: Anna-Maria (Masha) Bogdanova (Disaster Risk Management Specialist, Latin America and Caribbean, World Bank), Maria Campuzano Peres (UNWomen), Rahel Steinbach (UNWomen, Global Coordinator, DRR and Resilience), John Harding (CREWS Secretariat, Head), and Reel Ahmed (UK FCDO, Senior Climate Change Advisor)
Style	A presentation of the guidelines to more inclusive early warning systems followed by a panel discussion and a Q&A session

13:30–15:00

Session 5C	Integrating state and non-state actors
Location	Workshop Seminar Rooms
Convenors	Mirianna Budimir (Practical Action) Helen Bye (UK Met Office)
Summary	Effective Early Warning Systems require collaboration between multiple stakeholders performing a variety of roles across Early Warning System components and the value chain. The roles and mandates of state actors such as national hydrometeorological agencies and disaster risk management departments are well articulated in guidance materials and mandates. However, the specific role, responsibilities, and activities of non-state actors such as civil society organisations, the media, the private sector, academia, and non-governmental organisations is less well articulated. This session will provide an informal setting to seek input to and discuss a draft working paper developed by the Risk Informed Early Action Partnership’s Early Warning Initiative Working Group on the role of state and non-state actors in Early Warning Systems and how they can and do work together to achieve effective early warning that is suitable for everyone
Speakers	Dr Mirianna Budimir (Practical Action) Helen Bye (Met Office International) Ben Webster (REAP Secretariat)
Style	Campfire

15:30–17:00

Session 6A	Accessible Early Warnings and Early Action in a Fragile Context
Location	Kennedy Lecture Theatre
Convenors	Catalina Jaime (Red Cross Red Crescent Climate Centre) Prof Andrew Kruczkiewicz (Columbia University) John Harding (CREWS Secretariat) Niels Holm-Nielsen (World Bank Group’s Global Technical Lead for Resilience and Disaster Risk Management DRM)
Summary	This conference session aims to explore the challenges and opportunities in developing and implementing effective early warning systems in conflict-affected communities as well as to explore innovative approaches and sustainable financing mechanisms to support early warning systems and early actions in protracted humanitarian crises. It will bring together experts, practitioners, researchers, and policymakers to share their experiences, best practices, and lessons learned in order to enhance the resilience of these communities and to discuss the challenges and opportunities in financing early warning systems and early action initiatives in prolonged humanitarian crises
Speakers	John Harding (CREWS), Catalina Jaime (Red Cross Red Crescent Climate Centre, Marcelin ESTERLIN (Ing. Coordonnateur de l’UHM Représentant Permanent d’Haïti auprès de l’OMM), Nyree Pinder (UK Met Office), Prof Andrew Kruczkiewicz (Columbia University) and Niels Holm-Nielsen (World Bank).
Style	Panel discussions with interactive games

Day 2 – Tuesday 12th September – 15:30–17:00

Session 6B	GRAVITY PLAY: An experimental co-creation session on early warnings for mental health, via juggling and acrobatics
Location	Leolin Price Lecture Theatre
Convenors	Wellcome Policy Lab Red Cross Red Crescent Climate Centre
Summary	It's getting scary: it is clear that unbearable suffering is coming. The climate crisis is amplifying conditions for mental health disorders, trauma, and distress, and increasing risks for those with pre-existing conditions. Unfortunately, early warning systems are not appropriately addressing the mental health dimensions of turning science into action to save lives. What can we do to help understand, anticipate, and address this issue? With support from the Wellcome Policy Lab, the Red Cross Red Crescent Climate Centre and partners have been developing creative approaches to learning and dialogue. Join this unconventional workshop to explore and experience the remarkable opportunities offered by acrobatics, juggling, and other circus arts that truly embody the concept of risk management. Through designed interaction and serious fun, we will dive into the complex interactions between thrill, narrative, and analytical rigor. Importantly, we will co-create tangible and actionable ideas to support mental health via early warnings for all
Speakers	Pablo Suarez (Red Cross Red Crescent Climate Centre) Martin Smith (Head of Policy Lab, Wellcome Trust)
Style	Interaction session

15:30–17:00

Session 6C	Solution Room: Translating warnings from technology, to action, and filling the gaps
Location	Workshop Seminar Rooms
Convenors	Peter Sanders (Sr. Product Manager, Everbridge) Chris vanArum (Public Safety Manager, Everbridge)
Summary	This interactive session will serve to showcase the technology behind two of the most common dissemination systems behind early warning systems: Cell broadcast and Location Based SMS
Speakers	Peter Sanders (Sr. Product Manager – Everbridge) Chris vanArum (Public Safety Manager – Everbridge)
Style	Combination of presentation and video simulations with demos

17:00–19:30 **Movies and conference dinner – pizza / finger food / beverages**

Detailed Timetable and Session Details – Day 3

Wednesday 13th September – 9:30–10:45

Session	Integrating warnings over space and time
Location	Kennedy Lecture Theatre
Convenors	Chair: Prof Ilan Kelman (UCL WRC / IRDR / IGH)
Summary	This session draws on data, AI, experience, and partnerships to explore how to integrate warnings over space and time
Speakers	Andrea Atzori (CUAMM – Doctors with Africa) Dr Ruth Boumphrey (Lloyds Register Foundation) Ben Webster (REAP) Dr. Monique Kuglitsch (Fraunhofer HHI and ITU/WMO/UNEP Focus Group on AI for Natural Disaster Management)
Style	10-minute presentations each, then discussion and Q&A

11:15–12:45

Session 7A	Reflecting on Critical Points of Failure In Disaster Management
Location	Kennedy Lecture Theatre
Convenors	Prof Lee Miles (Bournemouth University Business School) Richard Gordon MBE (Bournemouth University Disaster Management Centre, BUDMC)
Summary	This session will examine and reflect upon the demands of understanding extreme criticality and single points of failure in the application of early warning processes and procedures at the municipal and community-based level in African Less/Least Developed Countries (LDCs). Drawing initially upon experiences and reflections relating to early warning criticality in Sierra Leone, especially in relation to the award winning Driving African Capacity Building in Disaster Management (AFRICAB) and Evaluating Local Disaster Management in Sierra Leone (EVALDIS) research projects, the session will consider if and how early warning processes, procedures and systems can effectively operate in those disaster-prone countries facing consistent challenges with scarce resourcing at the municipal and community level
Speakers	Prof Lee Miles (Professor of Crisis and Disaster Management – Bournemouth University Business School) Martin Travers (BUDMC Associate Lecturer and former Tony Blair Institute Advisor to the Mayor of Freetown) Isatu Joy-Carew Sesay (Planning Lead, Emergency Preparedness and Response, Ministry of Health and Sanitation and Country Facilitator, EVALDIS project, Sierra Leone)
Style	Short presentations and interactive panel discussion

Day 3 – Wednesday 13th September – 11:15–12:45

Session 7B	Single natural hazards: opportunities for enhancing warnings of unfamiliar threats
Location	Leolin Price Lecture Theatre
Convenors	Prof Christopher Kilburn (UCL Hazard Centre) Dr Emma Nicholson (UCL Hazard Centre)
Summary	Our session seeks to learn how lessons from single threats can be used to enhance the design of warnings in general. Volcanic eruptions are a classic example of a threat that is often misunderstood by the stakeholders at risk. Misunderstanding leads to doubt; doubt leads to lack of trust; and lack of trust leads to warnings being ignored. We will present real-world examples of delivering warnings in times of crisis to the public and to non-scientific decision makers. Through our panel of experts, we invite an open discussion of methods that have worked well and not so well, and how we can build on our experience to better prepare for unfamiliar hazards of all kinds.
Speakers	Dr Frances Beckett (UK Met Office) Prof Amy Donovan (University of Cambridge) Dr Liz Gaunt (UCL) Dr Carmen Solana (University of Portsmouth)
Style	Short presentations and interactive panel discussion

11:15–12:45

Session 7C	The Voice of Warning: Sizewell C and Hearing Warnings
Location	Workshop Seminar Rooms
Convenors	Dr Aura Satz (Royal College of Art) Dr Francesca Laura Cavallo (Royal College of Art) Alison Downes (Stop Sizewell C)
Summary	What does it mean to be the voice that warns? How can we reimagine sirens and emergency signals to warn across different space and time scales? Connecting artistic practice to civil society and deliberative democracy, this interactive session will be an opportunity to discuss and further develop an ongoing collaboration between the Royal College of Art, UCL WRC and affected communities in Sizewell: the site chosen for the controversial EDF nuclear power station in the UK. Thinking about warning methods through the prism of sirens and taking artist Aura Satz's film <i>Preemptive Listening</i> as a starting point for an interrogation of how we listen to emergency signals, this session will be an opportunity to test and assess the possibilities that art and participatory creative practices can offer in the creation of more inclusive (or citizen-led) warning methods and preparedness strategies. The session will involve an artist talk (Aura Satz), a presentation by Stop Sizewell C, a civil society organisation opposing the power station (Alison Downes), and an invite to reflect on how art and civil society can work together to generate 'risk knowledge' and shape discussions, consultations, and policy (Francesca Laura Cavallo). A chapter of Aura Satz's film <i>A Pluriverse Siren</i> (2023) will be screened as a part of the conference on Tuesday 12 from 5.00pm
Speakers	Dr Aura Satz (Royal College of Art) Alison Downes (Stop Sizewell C) Dr Francesca Laura Cavallo (Royal College of Art)
Style	Combination of presentation, panel and workshop

13:30–15:00

Session 8A	Making Early Warnings Count: Enabling Action and Inclusivity
Location	Kennedy Lecture Theatre
Convenors	Dr Jessica Ports Robbins (Global Disaster Preparedness Center / American Red Cross) Susanna Acland (GSMA Mobile for Development)
Summary	Early warning messages are only as effective as their ability to reach all segments of society, and the actions taken in response to them. This session will explore how we can collectively work towards making early warning messages more accessible and contextually relevant and how communities at risk can be engaged to ensure that their voices, needs and experiences are integrated along the early warning early action value chain. We will share current research that explores the inclusivity of risk communications, including the barriers to receiving, understanding and actioning warnings. Interactive discussions will allow attendees to jointly explore good practices on the design and contextualization of messages, the identification of adequate delivery mechanisms and linking to response measures to enable action at the local level
Speakers	Dr Jessica Ports Robbins (Global Disaster Preparedness Center / American Red Cross) and Susanna Acland (GSMA Mobile for Development)
Style	Presentation, discussions, Q&A

13:30–15:00

Session 8B	How technology and risk communication can influence the use of warnings in cascading events
Location	Leolin Price Lecture Theatre
Convenors	Dr Gianluca Pescaroli (UCL IRDR Lead convener) Dr Saman Ghaffarian (UCL IRDR) Dr Sarah Dryhurst (UCL IRDR)
Summary	This panel will address how new technology such as AI can enhance the effectiveness of warning systems by facilitating aspects such as early detection and real-time data analysis. We will discuss the connection with the human components of the system, including consideration on communicating uncertainties and risk perceptions. The panel will try to improve understanding of how warning systems might be enhanced to mitigate cascading disasters for all
Speakers	Dr Monique Kuglitsch (Innovation Manager at Fraunhofer HHI and Chair of the ITU/WMO/UNEP Focus Group on AI for Natural Disaster Management), Dr George Karagiannis (Engineering Leadership Group Director at Resilience First; Former Deputy Secretary General at Civil Protection Greece), Dr Saman Ghaffarian (Lecturer in Geospatial Data Science at Institute for Risk and Disaster Reduction, University College London), Dr Sarah Dryhurst (Lecturer in Risk Perception and Risk Communication at Institute for Risk and Disaster Reduction, University College London) and Dr Gianluca Pescaroli (Associate Professor in Operational Continuity and Disaster Resilience at Institute for Risk and Disaster Reduction, University College London)
Style	All panellists will make a short presentation which will then be followed by a panel discussion

Day 3 – Wednesday 13th September – 13:30–15:00

Session 8C	Serious fun: Communicating Hazard Warnings
Location	Workshop Seminar Rooms
Convenors	Pablo Suarez (Red Cross, Red Crescent Climate Centre) Lara Mani (Centre for the Study of Existential Risk, University of Cambridge)
Summary	This intensely interactive session will explore how we can use different creative approaches to communicate risk and hazard warnings through games, humour, and aerial acrobatics. Where games can help us to capture how to make complex decisions, humour can help us reflect on difficult topics and themes, and aerial acrobatics can help us appreciate the value of art for communicating what can go wrong and what to do about it. Building on how we've been infusing creativity into our work for communicating risk, a series of engaging activities will help inspire participants to co-create tailor-made innovations to support their own ongoing and upcoming work
Speakers	Pablo Suarez (Red Cross Red Crescent Climate Centre) and Lara Mani (Centre for the Study of Existential Risk, University of Cambridge)
Style	Interactive and participatory session for all participants (virtual and in-person)

16:00–17:00

Session	Closing Session and next steps
Location	Kennedy Lecture Theatre
Convenors	Dr. Carina Fearnley (UCL WRC – STS) Prof Ilan Kelman (UCL WRC – IRDR/IGH)
Summary	This session provides an overview of the conference and what the key successes have been, what remain as challenges within the warnings world, what next steps are needed, and how this can best be done. The aim is to come away from the conference with some key themes and action points
Speakers	Dr. Carina Fearnley Prof Ilan Kelman
Style	Short presentation, discussion and interactive session

Poster Abstracts

Sensing it coming: the aesthetics of risk

Dr Francesca Laura Cavallo, Royal College of Art, UK.
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Warnings and popular risk representation technologies deploy aesthetic techniques to construct particular understandings of risk situations. However, a systematic visual analysis of such technologies is missing right from the fields where it's best suited: art and visual culture. This poster presentation will offer a broad taxonomy of the *methods (or visual vocabulary)* designers and artists have adopted to translate abstract (or hypothetical) risks into visual experiences. From black-out posters to cigarette images, insurance ads to survivalist booklets, emergency drills to crime maps, and financial forecasts to predictive modelling, the poster-presentation will be an effort to map the visual repertoire of risk and its insinuations in artistic practises. It will feature historical designs and many artworks that can help us re-imagine how to warn and be warned better.

The presentation will map many approaches for risk communication (and management): posters and instructions, images for deterrence, how-to guides, pre-enactments (or drills), data visualisations and predictive modelling. It will provide an opportunity to glance at the aesthetic features and artistic legacy of the visual vocabulary of risk and how it reorients perceptions of safety or threat. Providing an insight into how we prepare for 'disasters' as societies, the poster will show how the rhetoric of risk exposes us to practices of predictive memorialisation where present, past and future are reorganised and aesthetically experienced and point to the critical tools necessary to recognise, disentangle and reflect on the role of images and artworks in today risk society.

A phenomenological approach to investigating the equity of International Partnerships in Disaster Risk Reduction (DRR) through a post-colonial and intersectional lens: Initial takeaways and insights from interviews conducted within the discipline

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The process of developing effective warnings within the field of Disaster Risk Reduction (DRR) starts with research, collaboration, and funding. International projects and research programs in this discipline span across the Global North and Global South, leading to partnerships intended to be fair and scientifically progressive. [1]. Funding is usually provided by Global North institutions, already causing some imbalance of power within these dynamics. Additionally the post-colonial socio-political landscape also puts into focus some of the challenges that these international partnerships will face when striving for not only equity and equality but also robust and exciting scientific and social advancement [2].

Conducting online 1-2-1 interviews with individuals from a range of backgrounds in the DRR discipline, has led to beneficial insights into the creation and management of international partnerships. The *lived experience* of each participant in the discipline has been a valuable contribution to how the researchers not only managed the research and outcomes within the partnerships, but also highlighted how they *felt* [3]. This research underlines the importance of understanding their perspectives, training needs, and how their diverse identities influence their involvement, thereby influencing research impact.

The interviews indicate a gap in current training and awareness. The existing international partnerships are seen to be lacking equity and often leave participants feeling ill-equipped, anxious, and uncomfortable in their roles. The current system is not the most effective way of working in this discipline, or within the international partnerships. These findings offer a foundation to reflect upon and foster personal growth within the field, and will be presented in this conference poster as an opportunity for attendees to engage with these insights by providing a space for personal reflection within a conference space for individuals attending.

[1] Price, R., Snijder, M. & Apgar, M. (2020). *Defining and evaluating equitable partnerships: a rapid review*. Tomorrow's Cities: Urban Risk in Transition. Working Paper 003. DOI: <http://dx.doi.org/10.7488/era/817>

[2] Fransman, J., Hall, B., Hayman, R., Narayanan, P., Newman, K. & Tandon, R. (2018). *Promoting fair and equitable research partnerships to respond to global challenges: Research findings*. Rethinking Research Collaborative. [Retrieved From: <https://rethinkingresearchcollaborative.com/2018/10/04/research-report-promoting-fair-and-equitable-research-partnerships-to-respond-to-global-challenges/>]

[3] Creswell, J. W., & Poth, C. N. (2018). *Qualitative inquiry & research design: Choosing among five approaches* (Fourth edition.). SAGE.

Integrated Volcano Early Warning Systems: reconceptualizing as a complex adaptive system of communication networks

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Social contexts affect the use and success of Volcano Early Warning Systems (VEWS) far more than previously acknowledged. Volcanic crises management requires careful consideration and understanding of how to act in the context of extreme uncertainty and complexity, both scientifically and socially. To do this successfully a VEWS should be fully integrated to cover everything from monitoring, to the analysis and interpretation of the data, establishing and analysing the risks, to communicating information to stakeholders, and generating an effective response. This requires a number of different processes such as: planning, cooperation, the execution of drills, education, and discussion; and using a wide range of communication tools such as alerts, bulletins, SMS messages, phone conversations, between all actors so that effective and timely decisions can be made. Essentially this requires reconceptualizing a VEWS as a complex adaptive system of communication networks.

This research highlights some key findings following a review of the evolution of early warning systems from linear to complex systems over the last 100 years. Of most relevance to VEWS includes the need to be (i) multi-directional between stakeholders; (ii) focus on the

links and relationships between key aspects of the EWS (in contrast to UN based models), (iii) to use standardisation with caution, and (iv) be adaptive and simple by using complexity models and concepts. These four findings enable a more nuanced understanding of how VEWS can better manage and interact with a number of complex systems, including the volcano, society, and environment.

Displaced People's Experiences of Natural Hazards, Disasters, and Warnings

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Natural hazards and disasters affect individuals and communities to different extents; due to social and cultural processes which can marginalise people. Asylum seekers and refugees are often identified as vulnerable and marginalised groups in their countries of asylum. Such individuals are subject to the country's social, economic, and political policies and practices for migrants. Scholars have suggested that such policies and practices, compounded with experiences of racism, harassment, trauma, and other forms of marginalisation, can act as predefined limitations of how asylees and refugees can prepare, respond, and recover from natural hazards and disasters. Furthermore, recent studies have shown that asylees and refugees are often found to experience language barriers and limited access to resources and warnings during disasters. If a country's risk communication strategies are not inclusive of the linguistic and cultural diversity of its population, including those seeking asylum, then warnings can be misunderstood or not reach marginalised populations. Moreover, this can result in individuals or groups being further marginalised and at-risk. To date, there remains a gap in an empirical-rich understanding of asylees' and refugees' experiences of natural hazards and disasters, the role of such asylum policies in negotiating such experiences, as well as how hazard warnings are (or are not) received and acted upon.

This PhD study aims to explore individuals' experiences of hazards, disasters, and warnings, whilst seeking asylum or with a refugee status. To address this aim, the research will be framed by Constructivist Grounded Theory using a mixed methods approach of semi-structured interviews, the researcher's notebook, and a creative, open-ended method. The latter will consist of offering participants the option of including material, art, or other mediums to support their interviews – as stories are not just carried

in words and conversation, but in objects, acts, and places. This will provide a more nuanced and deeper understanding of such experiences. Moreover, it is argued that this type of participation may be a more appropriate form of conducting research with participants who have been forcibly displaced and are likely to have experienced trauma and high-stress conditions. This study will be conducted in London, UK, over 12-18 months. The UK has experienced different natural hazards, including flooding, extreme temperatures and weather, tornadoes, volcanic ash and gases, earthquakes, landslides, wildfires, space weather, and tsunamis; some more frequently than others. It is important that everyone in the UK is included in risk and disaster prevention planning and response regardless of immigration status and nationality. It is hoped that this study will contribute to academic discourses and public policies by providing: a greater understanding of how different and multi- hazards are experienced in the UK; a further understanding of how an immigration status can influence an individual's experience of hazards and disasters; and more insight as to how warnings of hazards are experienced and acted on in the UK, with perspectives from a marginalized group.

Secondary forecast-based financing for flood impact mitigation using data assimilation

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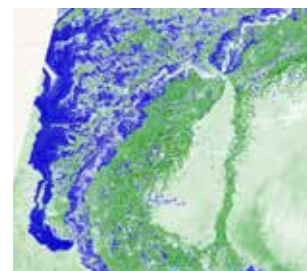
Mitigating against the impacts of extreme weather events leading to catastrophic flooding requires funding for the communities at risk, ahead of an event. Forecast-based financing (FbF) schemes use hydrometeorological (ideally ensemble) predictions, linked to flood inundation maps that can overlay local population (or other) impact maps to trigger a financial payment in advance of a major flood occurring. Flood Foresight is a simulation library flood forecasting system being deployed for FbF applications. The FbF trigger is usually automated and relies on the accuracy of the flood inundation forecast. This reliance can lead to missed events that were forecast below the trigger threshold required or were not predicted at all. However, earth observation data from satellite-based synthetic aperture radar (SAR) sensors can reliably detect most large flooding events (Fig.1), although their use is limited in urban areas. Data assimilation (DA) combines forecast information with observation information to

improve the current state (the analysis) and future predictions. A new DA framework is presented to update the flood map selection from Flood Foresight using the SAR data, taking account of observation uncertainties.

By utilising flood extent likelihood data derived from Sentinel-1 SAR images, we iterate through the flood map library to optimise the flood map selection per sub-catchment. We have applied our DA method to the Pakistan 2022 flood. During this flood, the Indus River in the Sindh province downstream of the Sukkur barrage was not forecast to reach flood levels, which resulted in a non-trigger of the FbF scheme for this region. Our experiments have focused on three different scenarios: a large city area with limited SAR flood detection (due to a dense urban area); sub-catchments with mixed rural and urban areas; and flood edge sub-catchments. We found that the flood map selection could be triggered in four out of five sub-catchments tested, with the exception occurring in the dense urban area. Thus, the analysis flood map, created by assimilating observations from SAR flood likelihood data, has potential to be used to trigger a secondary finance scheme during a flood event and avoid missed financing opportunities for humanitarian action.



Sentinel – 2
31 August 2022



Sentinel – 2 NDWI
31 August 2022



Sentinel – 1 SAR
31 August 2022

Figure 1: Earth observation-derived flood extent, Pakistan 2022.

Quantifying and Forecasting Heat Risks for Cotton Farmers in Bangladesh

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The frequency and intensity of heat waves are increasing across the globe due to climate change. There is an urgent need for education, warning systems and mitigation systems to address the risks these new heat regimes pose to people's health in various environments.

Agricultural workers in the tropics are a group that are highly exposed to heat waves, especially those working in regions without electricity to provide artificial cooling.

Combat Against Climate Change on Cotton Communities (C5) is a European Space Agency funded pilot project to assess the impact of increasing temperatures on cotton workers in Bangladesh, and set up a demonstration heat-related health stress index, which incorporates an early warning system for dangerous heat conditions.

All cotton growing regions will be mapped across the whole of Bangladesh using satellite imagery and machine learning.

A proxy for "lost labour time" will be generated using work-rest guidelines and wet bulb globe temperature datasets covering a 40 year period. This will allow investigation into trends of how increasing heat is affecting people's ability to work.

Finally a heat risk warning system is being developed in consultation with public health officials, farmer groups, outreach workers, in country-representatives, and meteorological specialists.

WISER Africa: Delivering transformational change in the generation and use of co-produced weather and climate services to support decision-making at local, national and regional levels

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The Met Office Weather and Climate Information Services (WISER) programmes aims to deliver transformational change in the generation and use of co-produced weather and climate services to support decision making at local, national, and regional levels, building resilience to the impacts of climate change.

The Met Office has taken learnings from the previous two phases of WISER (between 2015 and 2021) and used these to inform the design and delivery of a new programme, WISER Africa. The aim is to build on the achievements of the earlier phases of WISER, highlights of which include £207.5m of avoided losses in East Africa, 8.2 million people with strengthened resilience to anticipate and prepare for changes in weather and climate, 3.3 million households with improved access to enhanced weather and climate information services (WCIS) and more than 6000 people trained, improving knowledge and skills required to produce, access and use co-produced WCIS. The programme will draw on some familiar approaches from WISER, such as co-production, innovation, and partnerships across the value chain.

WISER Africa aims to benefit those people and communities disproportionately impacted by extreme weather, seasonal events, and climate change by improving resilience and response preparedness through the use of WISER and other WCIS. This phase of WISER has geographically extended from previously working in East Africa and the Sahel, to encompass East, West and Southern Africa. With this increased geography it is necessary that it adopts a regional approach to build on WISER learning, maximise impact and ensure that WISER is contextually relevant.

Across each of the three regions, there will be one or more large scale projects. Complementing this will be a Technical Assistance and Partnerships (TAP) Regional Approach. TAP is the mechanism through which the Met Office can provide targeted support based on skills and experience and will comprise several different elements including policy action mapping, enhanced seasonal

forecast Capability, enhancement of impact-based forecasting to inform anticipatory action, business, scientific and capacity development, and continued stakeholder engagement including collaboration with other programmes and regional activities.

This poster provides an overview of the lessons learnt to date as well as an overview of the plans for WISER Africa, running through to the end of 2025.

Women Leadership in Disaster Management: The Case of the Beirut Blast

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Disaster affects men and women differently. Some research shows that women are more vulnerable than men in disasters. Due to gender inequality, women are more affected disproportionately by disasters, such as they are more likely to lose their livelihoods and houses, gender-based violence, and loss of life pre and post-disaster. Although that, women show their capability to respond and recover from crisis through building community resilience and participating in disaster risk reduction.

Some theoretical approaches indicate the possibilities for Women's grassroots and non-profit organizations to adopt self-protective action in disasters based on their community work. In addition, some research indicates that women describe themselves as transformational leaders which have effective and impacted roles in disaster response plans. Even though, there is still a lack of research on women and disaster, particularly women leaders' roles in disaster management in Beirut Blast 2020.

This research explores women's leadership in disaster management in Beirut Blast 2020 focusing on disaster response, mitigation, and recovery phase. The importance of the research is to broaden the literature on women's leadership and disaster management and to identify the significance of women's leadership and building its resilience in disaster risk reduction and social change. Data were based on different resources mainly the UNDRR - Regional Office for Arab States' Publication which is the first publication in the Arab States region that includes a collection of best practices based on documented experiences of mainstreaming gender in disaster risk reduction. These documented experiences

are from different Arab countries including Lebanon.

The present research will benefit researchers as a testimony to the crucial role of women leaders in disaster management in the Beirut Blast. Furthermore, the information generated by the interviewees allowed us to get a comprehensive picture of the status of Lebanese women leaders in Beirut Blast (roles, challenges, motivations, and actions). Revealed findings provide a specific roadmap for conceptualizing and enhancing Women's Leadership in Beirut Blast.

The United Nations has two main roles in the roadmap. Firstly, they are advocating with Feminist activists and women's rights groups in Lebanon for gendering the response and being pure for gender differences of such disasters on both parts and including women in the decision-making process and the response plan. Second, the UN Women in Lebanon have created a Feminist Civil Society Platform in which women's rights NGOs and Feminist activists and scholars can implement pre-disaster (Warning) plan and monitor the disaster response plan to ensure that women's needs are taken into consideration in the long term. In addition, the platform includes referral mechanisms in terms of lobbying, advocacy, and consultancy to demand a fair and equitable space for women in the public sphere.

The need for harmonization of early warning alerts

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There is a confusing multitude of early warning messages, signages and colour codes in different countries. The growing importance of international business and trade, high tourist arrivals as well as increased labour and refugee migration call not only for local or national, but also internationally recognized warning schemes.

Investments in early warning systems have improved the detection of approaching extreme natural events significantly in the past decades, however, the wide range of warning schemes makes it difficult for citizens to understand the warning and initiate adequate responses. Therefore, it is deemed necessary that warning messages follow consistent schemes across different hazards and countries, including colour codes (for example yellow, orange, red, for increasing dangers), wordings, pictograms and other features like acoustic signals. Alert levels in a standardised system will be quickly recognized by the public as demonstrated by the traffic lights scheme

all over the world. Confusion would be further reduced if multi-hazard early warning systems follow the same numbers of alert levels for different hazards. The alert levels may have different thresholds in the respective countries but the basic message would be the same.

International institutions like the United Nations would be in a good position to push such an agenda in line with the multi-hazard early warning approach of the Sendai Framework.

All early warnings for all at once and without chaos – do we have what it takes?

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All early warning systems have their measure of inconsistencies, odd choices, bespoke elements, and long-running sores – even where those systems have been spectacularly successful and those involved are justifiably proud of the outcomes. Tropical cyclone (typhoon, tropical storm, hurricane) warning systems, for example, have advanced extraordinary well during the satellite era, and yet have inconsistencies in definition, terminology, categories, wind averaging period, storm naming, public confusion over accountability and even political interference. Tsunami warning systems have a well-known vulnerability around non-seismic sources. Space weather and meteorite warnings barely exist. Volcanic warnings vary radically according to the local investment in monitoring systems, without any UN-level coordination. Flood warning systems also have a plethora of challenges.

If we are serious about our commitment to Sendai, and Early Warnings For All, we could not seriously contemplate simply extending each of these systems across every country and border without an effort to make them work in harmony – otherwise, we are putting an unendurable burden on stretched emergency managers who do not want to have master fifty ways of doing warnings (let alone when they start to compound), alongside their other duties.

But how do we move past our entrenched and well publicised ways that Things Are Done, particularly when many of us have emotionally tinged resistance to changing systems that we have bled with each other to build?

Perhaps the advent of impact-based warnings, alongside the urgency of Early Warnings For All, is our opportunity. Is it potentially easier to create and sign-up to a new global early warnings framework than to reconcile the Saffir-Simpson scale with Southern Hemisphere cyclone categories? Can we finally discover the universal colour code? Will families split across borders be able to receive the same coordinated message and act accordingly?

The answer to the questions above has to be some form of ‘yes’. If we expand our warning systems coverage without improving harmonisation, we will be institutionalising inefficiencies, with drags on warning system performance that will ultimately cost lives.

Please use this poster as an opportunity to discuss ideas for doing stuff better.

Warning systems: the extreme vs the regular hazard. Case studies from Japan, the Philippines and Dominica

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³ University of Victoria, British Columbia, Canada

⁴ International Research Institute for Disaster Science (IRIDeS), Tohoku University

⁵ International Research Institute for Disaster Science (IRIDeS), Tohoku University

In order to be effective, warning systems not only need to be heard by all of those at risk, but they need to prompt appropriate action to keep people safe. We study the efficacy of the warnings ahead of three very severe hazards occurring in countries that experience these hazards on a smaller scale relatively regularly: the Great East Japan Earthquake and Tsunami in Japan (2011), Typhoon Yolanda in the Philippines (2013), and Hurricane Maria in Dominica (2017). These events were all extreme in their impact but also featured aspects that surprised residents, such as the size of the tsunami, the arrival of a deadly storm surge and the late change in track and windspeed intensity. These factors all left the public with information gaps and an unclear picture of the risks they faced, exposing severe challenges with these warnings.

No one source of warning was found to reach all residents at risk in all three locations, so while warnings must offer information that is complete, transparent, personal, meaningful and available, they must also be disseminated through multiple sources. There is also a need to account for varying experiences of regular and extreme impact hazards, and to distinguish between warnings transmitted for more frequent, lower-intensity events and those occurring less frequently but with higher-intensity, carrying greater risk, and with potentially more disastrous impacts. It is important that recipients understand that uncertainty exists within the science of forecasting, and this can only be done by designing warning systems with and around the people for whom they are created.

The solution does not lie in technological advancement alone and cannot take an overarching, one-size-fits-all-hazards approach. We must consider where and how people live their everyday lives, what is most important and valuable to them, what freedoms and constraints they face, and how they interact with their environment every day, as well as in times of crisis. We emphasise that warnings are processes in which “scientific”, “communication”, “social” and “infrastructure” components must be considered as highly interrelated, accounting for culture, context, understanding, trust, perception and decision-making.

Quantifying and communicating future wildfire risk across Pakistan under different climate change scenarios

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Wildfires are becoming more intense and more frequent, with record-breaking fire seasons witnessed across the world in recent years. Amid rising global temperatures, the challenge to understand, communicate and ultimately reduce wildfire risk is critical. A recent report published by the United Nations Environment Programme noted a particular increase in fire prevalence across regions that were not previously considered fire-prone, including the

Indian subcontinent. In Pakistan, wildfire has gradually emerged as a significant environmental and societal threat, particularly across forested regions of Baluchistan, Kashmir, Khyber Pakhtunkhwa and Punjab. It is unclear how such threats will evolve under climate change, and to what extent Pakistan’s ongoing afforestation projects, such as the *Ten Billion Tree Tsunami*, take changes in risk into account.

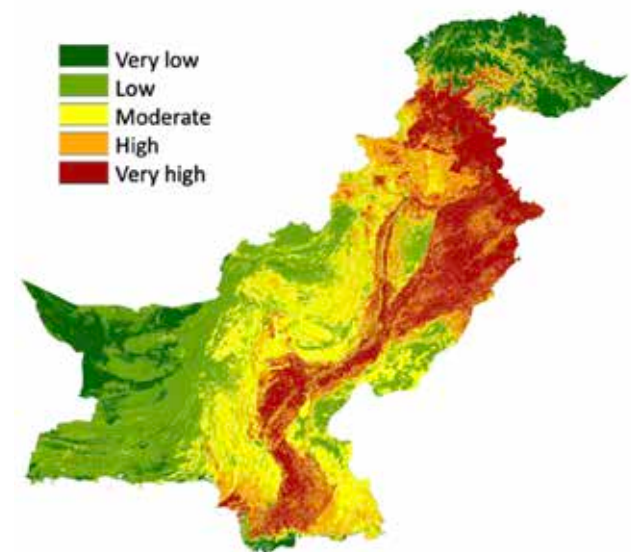


Figure 1: Wildfire risk map for Pakistan generated using AHP.

Here, we present a spatiotemporal analysis of present and future wildfire danger across Pakistan alongside a prototype mechanism for simple risk communication. Firstly, we use Analytical Hierarchy Process (AHP) based on a set of environmental, geographical and societal parameters to generate a countrywide map of present wildfire risk (Figure 1). Up to 84% of satellite-detected fires between 2001 and 2020 fell in within the *high* and *very high*-risk categories.

Secondly, we assess how the meteorological conditions conducive to fire occurrence, termed fire weather, are likely to respond to a changing climate. Using the *fire* weather index (FWI) derived from the latest set of climate change projections simulated by state-of-the-art of global climate models, we quantify changes in fire danger throughout the 21st century under a set of climate change scenarios defined by the Intergovernmental Panel on Climate Change (IPCC) *Shared Socioeconomic Pathways*. The magnitude of seasonal mean FWI is projected to increase by as much as 10% by the end of the century under the highest emissions scenario, with up to 20 additional days of *extreme* fire weather projected per year.

Finally, we present a prototype web portal as a mechanism to disseminate results and communicate near-, medium- and long-term wildfire risk under four different IPCC scenarios to a range of potential stakeholders. Further work will focus on the resilience of wildfire forecasting and early warning systems in a changing climate.

Factors Affecting Individual and Household Evacuation Decision-Making in Response to Disaster, Case Study from 2021 South Kalimantan Indonesia Floods

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***lead presenter**

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Understanding the factors that influence evacuation decisions is crucial for optimizing resource allocation and formulating an effective emergency plan, particularly in the communication and implementation of warnings. This study investigates the extent to which different variables determine flood evacuation decision-making during the 2021 South Kalimantan, Indonesia, Floods in both an urban and rural setting. A binomial regression model has been constructed capturing the sociodemographic, capacity-related, hazard-related and warning factors based on responses from 205 and 170 residents in West Banjarmasin (urban area) and 170 respondents in Tabuk River (rural area) respectively who were asked about their evacuation decisions during the extreme floods of January 2021 and the more typical experienced at annual frequency floods of December 2021. It was found that families with partial ownership of their house (renting or living with other family) and those with a higher number of members are less likely to evacuate, as are those with a lack of knowledge about evacuation shelter and routes. External factors influencing people's evacuation decisions included the flood height and duration as well as whether there was an unofficial warning to evacuate.

The findings suggest the following actions for increasing safety-seeking behaviour through evacuation (1) prioritize evacuation instructions for larger families; (2) include evacuation instructions with warnings; and (3) conduct regular evacuation drills with information about the flood risk map, evacuation shelter location and route.

UCL WRC Members and Affiliates

We list some of our outstanding academic and practitioner members at UCL, and affiliates that provide global expertise.

WRC Members at UCL

Dr Ayesha Ahmad

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Honorary Lecturer at Institute of Global Health Institute and UCL Centre for Gender and Global Health. Dr Ayesha Ahmad is a Senior Lecturer in Global Health at St Georges University of London, Honorary Lecturer at the Institute for Global Health, University College London, and Associate Research Fellow at the University of Johannesburg, South Africa. Her background is Philosophy and Medical Ethics, and her areas of specialisation are conflict, health, and humanitarianism with a particular focus on psychological trauma and gender-based violence. She is the co-editor of the edited book volume Humanitarian Action and Ethics and also provides expert reports for asylum seeker cases in the United Kingdom.

Full profile: <http://www.ighgc.org/fellows/dr-ayesha-ahmad>

Dr Bayes Ahmed

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Lecturer in Risk and Disaster Science (Institute for Risk & Disaster Reduction). My background includes research into the field of landslide early warning system development, community vulnerability assessment, GIS and remote sensing, climate change adaptation, and forced migration.

I obtained a PhD in Disaster Risk Reduction from UCL, a joint MSc degree in Geospatial Technologies from Spain, Germany, and Portugal; and a Bachelor of Urban and Regional Planning degree from Bangladesh University of Engineering and Technology (BUET).

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Professor David Alexander

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Professor of Risk and Disaster Reduction (Institute for Risk & Disaster Reduction). David Alexander has conducted research on disasters since 1980. His main foci of interest are emergency management and planning, earthquake science, disaster epidemiology, and theoretical issues in disaster risk reduction.

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Dr Ayesha Ahmad



Dr Bayes Ahmed



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Dr Gemma Cremen**g.cremen@ucl.ac.uk**

Research Fellow in Earthquake Engineering (Department of Civil, Environmental & Geomatic Engineering). I am a Research Fellow in Earthquake Engineering at University College London, developing statistical tools to support decision-making related to seismic activity. My research interests include seismic hazard characterisation, probabilistic seismic risk analysis, and disaster resilience.

Full profile: **<https://sites.google.com/stanford.edu/gemmacremen>**

Dr Jessica Field**jessica.field@ucl.ac.uk**

Dr Jessica Field is an interdisciplinary humanities scholar interested in humanitarian history, policy and practice.

Dr Field currently focuses on Indian humanitarianism and has published research on humanitarian assistance, refugee self-reliance, and the politics of disaster governance in South and Southeast Asia.

Full profile: **TBC**

Professor Maureen Fordham**m.fordham@ucl.ac.uk**

Maureen Fordham has a strong interest in broadening access to warning systems for excluded and marginalized social groups including women and youth.

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Dr Carmine Galasso**c.galasso@ucl.ac.uk**

Associate Professor of *Catastrophe Risk Engineering* (Department of Civil, Environmental & Geomatic Engineering). My research focuses on the development and use of probabilistic and statistical tools for modelling and managing risk caused by extreme loads on the built environment, with emphasis on developing new tools for hazard-consistent seismic input assessment, engineering applications of earthquake early warning systems, structural reliability, wind and flood risk assessment.

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Professor of Security and Crime Science (Department of Security and Crime Science). Conducts inter-disciplinary research on the behavioural underpinnings of violent extremism with a view to optimising risk assessment and management processes.

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Dr Gemma Cremen



Dr Jessica Field



Professor Maureen Fordham



Dr Carmine Galasso



Professor Paul Gill

Professor Lucie Green**lucie.green@ucl.ac.uk**

Professor of Physics (Department of Physics). A solar physicist and space weather scientist whose research focuses on the origin of solar activity and its impact on the geomagnetic environment. Lucie is also heavily active in public engagement and public policy.

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Professor of Geographical Information Science. Prof Muki Haklay has extensive experience in interdisciplinary research, and he is the co-director of the Extreme Citizen Science (ExCiteS) research group. His research interest includes participatory mapping and GIS, Citizen Science, Human-Computer Interactions (HCI) and usability aspects of GIS, and public access to environmental information.

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Associate Professor in Experimental Psychology. Adam is a psychologist whose expertise includes the perception and communication of risk. This research has included collaborations with geologists, meteorologists, health practitioners and crime scientists. Recent projects include measuring and evaluating impact thresholds in weather forecasters using Impact Based weather forecasts within

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Professor of Climatology (Department of Geography). Mark Maslin is a Professor of Earth System Science at UCL. He also co-founded RezaTec Ltd which is one of the world's leading geospatial analytics company providing AI "big data" environmental solutions for companies, NGOs, and local and national Governments and is currently valued at £30-50m. Maslin is a leading scientist with particular interest in understanding the Anthropocene and the major challenges facing humanity in the 21st century.

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are *Waking the Giant: How a Changing Climate Triggers Earthquakes, Tsunamis and Volcanoes* – ranked 5th in a Guardian list of the best ever eco books – and *Global Catastrophes: a Very Short Introduction*.

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with stakeholders. Erica has a long standing collaboration with humanitarian agencies on use of forecasts for crisis anticipation. I worked specifically on anticipation of heatwave in Pakistan and cyclone in Madagascar and am now most interested in questions about scale up (/viability) of financing schemes given data scarcity, imperfect models and evolving risks.

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Honorary Professor (EPICentre). John Twigg is an Honorary Professor at University College London, an independent researcher and consultant on disaster risk reduction, and a co-editor of the journal Disasters. His research interests include community-based approaches, early warning systems, socio-economic vulnerability to disasters, policy and institutional aspects of disaster management, post-disaster transitions and urban resilience.

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Professor Chris Rapley CBE is Professor of Climate Science at University College London (UCL). He is a Fellow of UCL and of St Edmund's College Cambridge, a member of the Academia Europaea, Chair of the European Science Foundation's European Space Sciences Committee, Member of the Advisory Board of the UK government's Clean Growth Fund, Patron of the Surrey Climate Commission, a member of the UK Science Museum Group's Science Advisory Board, a member of the Science Advisory board of Scientists' Warning, and a member of the UK Parliamentary and Scientific Committee. His previous posts include Director of the Science Museum, Director of the British Antarctic Survey, Chairman of the London Climate Change Partnership, President of the Scientific Committee on Antarctic Research, Executive Director of the International Geosphere-Biosphere Programme, and Distinguished Visiting Scientist at NASA's Jet Propulsion Laboratory.

More recently Chris has focused on the role of climate scientists in delivering value to society through decision making, public policy and more effective communication. He is Chair of the UCL Policy Commission on Communicating Climate Science and Chair of the Advisory Board of the UCL Climate Action Unit.

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Associate Professor, Institute for Risk and Disaster Reduction. Joanna investigates the efficacy of warning systems, temporary housing and shelter, microinsurance and quantitative risk assessments in building resilience through encouraging evidence-based and informed decision-making. Her research has demonstrated the need to consider all of these in context of the local conditions, capacity and culture and discusses how to compare case studies from different settings.

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Thematic Lead Disaster Risk Reduction. Sarah Brown is Thematic Lead for Disaster Risk Reduction for Practical Action, with over 15 years of experience in disaster risk reduction, adaptation, early warning, and conflict sensitivity across Asia, Africa, Latin America and the Caribbean. Her work at Practical Action focuses on disaster risk, early warning, improving decision making under complexity, end-mile communication, gender and inclusion. She is a Co-Investigator on the NERC/DFID LANDSLIP Project (research into practice on landslide early warning). She heads the Knowledge Broker (joint with Red Cross Climate Centre) for the DFID/NERC Science for Humanitarian Emergencies and Resilience (SHEAR) Programme, with a focus on forecasting and early warning. She was team leader on research on disaggregated impact data for UN Women and UNICEF, and also led research on gender transformative early warning systems.

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Associate Professor in Geotechnical Engineering. Michele Calvello currently teaches “Soil mechanics” and “Landslide Risk” at the University of Salerno, Italy. His main research interests are focused on the analysis and management of landslide risk, both at slope and regional scales, with special attention devoted to the following inter-disciplinary topics: early warning systems for rainfall-induced landslides, landslide zoning, risk

perception, risk education and community resilience. He is a founding member and President of LandAware – the international network on landslide early warning systems. He is the Coordinator of the LARAM School, an International School for PhD students on “Landslide Risk Assessment and Mitigation”. He is Secretary of the Technical Committee TC-306 “Geo-Engineering Education” and member of the Technical Committees TC-304 “Engineering Practice of Risk Assessment and Management” and TC-309 “Machine Learning and Big Data” of the International Society of Soil Mechanics and Geotechnical Engineering.

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Sophie Dannreuther

Sophie is the co-founder and director of a non-profit that connects policymakers to leading academics who work on some of the most important long-term challenges of our time. She is also a Research Affiliate at Cambridge University's Centre for the Study of Existential Risk. Her interests include facilitating engagement with academics and government decision-makers; improving institutional decision-making and communicating extreme risks. Sophie has worked across seven government departments, most recently as a Strategy Consultant at the Cabinet Office and a Policy and Partnership Officer at the UK Department for International Development.

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Professor of Geography. JC is Professor of Geography at the University of Auckland. His work focuses on power and inclusion in disaster. It includes developing participatory tools for engaging minority groups in disaster risk reduction with an emphasis on ethnic and gender minorities, prisoners, children and homeless people.

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A risk management scientist with interdisciplinary focus. She has participated in several interdisciplinary projects in both Latin America and Europe, involving both the academy and NGO's. She is a Lecturer of different Universities, is a volunteer in different social and academic organizations and also works as a consultant on disaster risk reduction, sustainable development and

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Director of the Consortium for Capacity Building (CCB). Michael H. Glantz, Director of the CCB, earlier was a Senior Scientist at the National Center for Atmospheric Research (NCAR), where he served as the Head of the Environmental and Societal Impacts Group (ESIG). The author has been the only Senior Scientist from the social sciences in NCAR's 50-year history. Until August 2008, he served as NCAR's Director of the Center for Capacity Building, an innovative program focused on, but not limited to, undergraduate educators and students. His research and applications activities center on how climate, water, and weather affect society as well as how society affects climate. The author's research relates to African drought and desertification; food production problems and prospects; societal impacts of climate anomalies related to El Niño and La Niña events, climate variability and change; to the development of methods of forecasting possible societal responses to the regional impacts of climate variability and change; and the use of climate-related information for economic development. He also has coordinated joint research in the Central Asian Republics of Uzbekistan and Turkmenistan. Dr. Glantz, who was honored with the United Nations Environment Program's Global 500 Award in 1990, has authored or edited over 30 multidisciplinary books on climate and development-related issues.

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Director, Disaster Management Centre, Bournemouth University. After a successful career in the army during which he was awarded an MBE, Richard joined the Bournemouth University Disaster Management Centre (BUDMC) in 2002, becoming its Director in May 2005. Since then, the Disaster Management Centre has grown considerably, now employing six members of staff and six associate members. Richard's experience covers the full spectrum of disaster management and he uses that experience to deliver innovative training and advice both in the United Kingdom and overseas, fusing best practice education, training, research and professional practice. His global experience spans the Middle East, West and West and North Africa, South and East Asia, Eastern Europe, South America and the Caribbean. He regularly delivers executive disaster management seminars to senior government ministers and their representatives, including key military appointments and overseas delegations. Working closely with Professor John Fletcher and Dr Yeganeh Morakabati of Bournemouth University, Richard pioneered new research and education into the integration of travel and tourism with disaster management. He successfully developed an MSc in Disaster Management which is currently delivered both run the UK and internationally via in-country Continuous Professional Development (CPD) courses supported by attractive online e-learning materials and seminars. He became a Fellow of the Institute of Civil Defence and Disaster Studies in 2005 and is a Founding Fellow of the Institute of Civil Protection and Emergency Management, currently holding the position of Vice Chair (External Affairs).

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Catalina Jaime



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Senior Risk Adviser at Red Cross Red Crescent Climate Centre. Catalina coordinates the global strategic development of Forecast-based Financing as well as the technical support for the design and implementation of the global anticipatory funding mechanism of the IFRC, along with technical advice to Early Action projects at global level. Catalina is the knowledge manager of the Science for Humanitarian Emergencies & Resilience (SHEAR) programme and is currently PhD at the University of Twente on Early Warning and Early Action in conflict-affected settings. She has 16 years experience in the humanitarian sector. Her main areas of expertise are Disaster Risk Reduction, Climate Change Adaptation, Early Warning and Early Action. Her background is in Industrial Engineering with a Masters in International Humanitarian Action.

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Bio: https://stratus.meteo.noa.gr/METEUnit/CVs/Lagouvardos_Konstantinos.pdfProfile / website: <https://www.meteo.gr/meteogroup/index.cfm>**Dr. Jonatan A. Lassa****jonatan.lassa@cdu.edu.au**

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Ian Mannix is a journalist with a special interest in emergency warnings. In 2002 he created “Emergency Broadcasting” at the Australian Broadcasting Corporation to issue warnings for emergency services during bushfires and floods in Victoria, Australia. Since then, he has refined the process in conjunction with emergency agencies, police and local government throughout Australia. He has coordinated warnings for floods, cyclones, bushfires; chemical spills; dam bursts; water contamination; equine flu; locust plague; severe weather and storm surge. He was awarded the Australian Public Service Medal for his work, and is a Fellow of Emergency Media and Public Affairs, Australia. In 2019, he self-published “The Principles of Effective Warnings” a book which outlines the ethics of warnings; how people respond when they receive warnings (including a chapter on cognitive response written by trauma psychologist Dr Rob Gordon); warnings for women and vulnerable people; health warnings and how to create warnings to result in behavioural and attitudinal change. Ian has written two books which explore the individual behaviours of people who survived floods and bushfires in Australia: “Great Australian Bushfire Stories” and “Great Australian Flood Stories.”

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PhD in Sociology. Victor Marchezini has studied the sociology of disasters in Latin America and Caribbean since 2004 (<https://victormarchezini.weebly.com/>). He worked as disaster risk analyst in the monitoring room of the Brazilian Warning Center (Cemaden) (2012-2014). Since 2014 he has worked as researcher at Cemaden (<http://www.cemaden.gov.br/autor/victor/>), bridging scientists, practitioners, communities and policymakers. One result of this collective effort was the free e-book entitled Reduction of Vulnerability to Disasters: From Knowledge to Action (<https://preventionroutes.weebly.com/capiacutetuloschapters.html>). Victor is also professor at the Doctorate Program on Earth System Science at the National Institute for Space Research (CCST/INPE), and at the Postgraduate Program on Disaster Science (ICT/UNESP). Twitter account: @VMarchezini.

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Dr Dwayne Ryan Menezes

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Founder and Managing Director. Dr Dwayne Ryan Menezes is the Founder and Managing Director of two London-based international think-tanks, Polar Research and Policy Initiative (PRPI) and Human Security Centre (HSC). While PRPI focuses on Arctic, Nordic, North Atlantic, North Pacific and Antarctic affairs, HSC is dedicated to addressing current and emerging threats to human security around the world. Dr Menezes is also a Founder and Partner of C Change Arctic, Greenland IceWater and High North Fisheries, three London-based, Arctic-focused firms that are engaged with infrastructure, ice and water, and fisheries respectively. In addition, he serves as the Vice-President of Arctic Today and an Advisory Board Member at JONAA Magazine, both Arctic media outlets. Over his policy career, he has also served as Consultant to the Secretary-General of the Commonwealth, Principal Consultant to the European Parliament Intergroup for the Freedom of Religion or Belief, Research Associate to a UN Special Rapporteur, Head of the Secretariat of the All-Party Parliamentary Group for Yemen in the UK Parliament and Researcher at the social policy think-tank ResPublica. Over his academic career, Dr Menezes read History at the LSE and the University of Cambridge, graduating from the latter with a PhD, and later pursued postdoctoral, associate or visiting fellowships at research centres at the Universities of Cambridge, Oxford and London. He is currently an Honorary Fellow of the UCL Institute for Risk and Disaster Reduction and an Associate Fellow at the Institute of Commonwealth Studies, University of London. He is also a Fellow of the Royal Historical Society, the Royal Geographical Society and the Royal Society of Arts, and the Associate Producer of four award-winning films.

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Sally is a researcher in social science and natural hazards, specialising in the communication of warnings. Her research is regularly applied to improve forecasts and warnings in New Zealand. Examples include producing guidelines for writing short warning messages in 2018, which were subsequently used as a template for New Zealand's Emergency Mobile Alerts, and her PhD research on New Zealand's Volcanic Alert Level system resulted in a new version being implemented for all of NZ's volcanoes in 2014. She works with hazard scientists to write aftershock and eruption forecasts for GeoNet, the monitoring project at GNS Science. She is the co-lead of the World Meteorological Organization's High Impact Weather Communication Task Team, the co-lead of New Zealand's Resilience Challenge Weather & Wildfire research programme; and on the International Working Group for Volcanic Alert Levels. In 2019 she received the Science New Zealand award for Early Career Researcher.

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Suzanne Raine is an Affiliate Lecturer at the Centre for Geopolitics at Cambridge University and a Visiting Professor in the Department of War Studies at KCL. Her areas of expertise are terrorism, risk management and warning and the role of assessment in government decision-making. She served for 24 years in the British Foreign and Commonwealth Office on foreign policy and national security issues. This included postings in Poland, Iraq and Pakistan. She specialised in counter-terrorism,

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Dewald van Niekerk is Professor in Disaster Risk Reduction and the founder and head of the African Centre for Disaster Studies at North-West University, Potchefstroom Campus. Dewald is a South African C2 NRF graded researcher. He obtained his PhD in 2005 and was promoted to professor in 2012. He has authored and co-authored more than 100 publications which includes peer reviewed articles, books and chapters in books and international and national research reports. He has been project leader for local, national as well as international disaster risk reduction projects, and has undertaken disaster risk reduction research and consultancy in numerous countries world-wide. He is the programme manager for the Disaster Risk Sciences research group of the Unit for Environmental Sciences and Management. He is the founder and Editor in Chief of the accredited journal *Jàmbá: Journal of Disaster Risk Studies*. In 2012 he played a significant role in the establishment of the Southern Africa Society for Disaster Reduction. His research is motivated by a desire to reduce the possible impacts of natural hazards and unknowns like climate change on communities most at-risk. His interests include resilience building, community based disaster

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Interdisciplinary geographer working on the socio-physical dynamics of disaster risk, particularly in volcanic areas.

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Hamilton Bean, Ph.D., MBA, APR, is Associate Professor in the Department of Communication at the University of Colorado Denver. He also serves as Director of the University of Colorado Denver's International Studies Program. He specializes in the study of communication and security. His research has been published in numerous international academic journals and edited volumes, and he has won multiple awards for scholarship from the National Communication Association. He has earned research grants from the U.S. Federal Emergency Management Agency, U.S. Department of Homeland Security, U.S. National Oceanic and Atmospheric Administration, and the Japan Foundation's Center for Global Partnership. He is a member of seven editorial boards for top journals across multiple fields. In 2021, he served as a Visiting Professor at Kyoto University's Disaster Prevention Research Institute (DPRI) where he investigated mobile public alert and warning developments in Japan and globally.

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Dr Brenda Mackie is a disaster sociologist with a deep interest in understanding decision-making under stress and public response to severe weather and disaster warnings. Her PhD from the University of Canterbury, NZ, explored the phenomena of warning fatigue, concluding that, far from being one of the disaster myths, it is contextual and a combination of over-warning, false alarms, scepticism, helplessness and trust. She has experience in a variety of applied research contexts, from public health education campaigns to post-event bushfire community engagement, and is a strong advocate for using qualitative methodologies. Having lived through the 2011 Christchurch earthquakes, she brings a lived-experience perspective to all her work. Brenda's research continues to focus on the challenges of risk communication, effective warning messaging including issues of uncertainty and how to warn for compound and complex disasters

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Sarah DeYoung is a community psychologist by training. She is a core faculty member of the Disaster Research Center and the Department of Sociology and Criminal Justice at the University of Delaware (United States). She is an expert in evacuation decision-making, maternal and infant well-being in emergencies, management of companion animals in disasters, and the study of

community-based groups providing services to vulnerable populations such as refugees and precariously housed people.

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Linda Speight**linda.speight@ouce.ox.ac.uk**

Linda Speight is a hydrometeorologist whose research seeks to develop early warning systems to improve disaster risk management, particularly for flooding. She is interested in global flood forecasting, surface water flood forecasting, ensemble forecasts, impact-based forecasts, risk communication, decision making and climate resilience. Linda joined the University of Oxford in 2021, moving from the University of Reading where she was a postdoctoral researcher. Prior to joining the University of Reading, Linda was a Senior Scientist at the Scottish Environment Protection Agency (SEPA) where she was involved in operational flood forecasting and led the scientific development of the Scottish Flood Forecasting Service. Linda has a BSc from the University of Bristol (2005) and an MSc from Newcastle University (2006). Her PhD research, completed at the University of Newcastle in 2013, sought to develop a methodology for understanding dependencies in flood risk exposure in the UK. Linda has also held associate lecturing positions at the University of Lincoln and the University of Portsmouth. She started her career as a flood risk analyst at JBA Consulting.

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Brenda Mackie



Sarah E. DeYoung



Linda Speight

Lisa Robinson**Lisa.Robinson@bbc.co.uk**

Lisa advises on media and communication strategies for mass audiences, particularly towards disaster risk reduction and emergency response. She works across disciplines to understand the needs of people at risk and to inform media and communication that prompts dialogue and risk-informed decision making at multiple levels of society. She has contributed to the work of leaders in the sector such as UNDRR, WHO, the World Bank's GFDRR and others. In the humanitarian sector, she supports local media and first responders to prepare to communicate effectively with people affected by crisis and she has led a number of humanitarian communication responses. Lisa co-founded the Communication with Disaster Affected Communities (CDAC) Network. She studied Global Media and Communication at the London School of Economics (LSE) and the USC Annenberg School for Communication. She teaches courses on media and social and behaviour change for USC Annenberg.

Hannah Cloke**h.i.cloke@reading.ac.uk**

Prof. Dr Hannah L. Cloke, OBE, is a physical geographer, natural hazards researcher, climate scientist and hydrologist specialising in earth system modelling, flood forecasting, catchment hydrology, applications of Numerical Weather Predictions and science communication. She leads a wide programme of research on the theoretical and practical development of early warning systems for natural hazards, particularly for floods, droughts, heatwaves and disaster risk management.

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Asim Zia**Asim.Zia@uvm.edu**

Professor of Public Policy and Computer Science, University of Vermont. Asim Zia's research, teaching and outreach activities focus on advancing the sustainability and resilience of integrated socio-environmental systems. He has led NSF, USDA and McArthur foundation funded Team Science projects aimed at developing computational models of Social Ecological Systems, Complex Adaptive Systems and Coupled Natural and Human Systems. Foresight generated from these computational models is used widely to enable early warnings of systemic risks, design early actions and anticipatory policies, configure governance systems and implement adaptive management. Asim Zia is serving as a Professor of Public Policy and Computer Science in the Department of Community Development and Applied Economics, with a secondary appointment in the Department of Computer Science, at the University of Vermont (UVM). He is Director of the Institute for Environmental Diplomacy and Security (IEDS) and a founding Co-Director of the Social Ecological Gaming and Simulation (SEGS) lab at the UVM.

Profile / website: https://www.uvm.edu/cals/cdae/profiles/asim_zia



Lisa Robinson



Hannah Cloke



Asim Zia

Andrew Tupper**andrewtupper@naturalhazardsconsulting.com**

Principal Consultant, Natural Hazards Consulting. Andrew is a meteorologist with extensive experience in natural hazard warnings. His career roles include thirteen years in senior leadership positions for the Australian Bureau of Meteorology, including the Bureau's Northern Territory Manager, the head of the National Operations Centre (where he was also the co-director of Australia's Joint Australian Tsunami Warning Centre), and the Victorian State Manager. He was also the inaugural Chair of the Northern Territory Environment Protection Authority. As a volcanic clouds specialist, he has played a large part in the development of the International Airways Volcano Watch, and earlier in his career was the first full-time manager of the Darwin Volcanic Ash Advisory Centre. Andrew has managed the operational warnings strategy for numerous tropical cyclone, flood, severe thunderstorm, volcanic eruption, tsunami, and bushfire events through his career. His current focus as an independent consultant is in improving multi-hazard early warning systems, at the international, regional, national and local levels. He is particularly interested in bridging operational gaps between disciplines, and doing so on a sustainable, long-term basis.

Profile / website: <https://naturalhazardsconsulting.com/>

Professor Virginia Murray**Virginia.Murray@UKHSA.gov.uk**

Head of Global Disaster Risk Reduction, UK Health Security Agency. Virginia Murray is a public health doctor committed to improving health emergency and disaster risk management. She was appointed as Head of Global Disaster Risk Reduction for UK Health Security Agency (formerly Public Health England) in April 2014. She is a member of the Integrated Research on Disaster Risk

(IRDR) scientific committee and Co-Chair of IRDR's Disaster Loss Data (DATA) and is currently the Chair of the UNDRR/ISC Hazard Classification and Review Technical Working Group, with the report published in 2020 and the UNDRR-ISC Hazard Information Profiles: Supplement in 2021. She is co-chair of the WHO Thematic Platform Health and Disaster Risk Management Research Network, and by working in collaboration with this network, she is one of the editors of the WHO Guidance on Research Methods for Health and Disaster Risk Management, published in October 2021. She is a member of CODATA Executive Committee and a member of the UNSDSN TReNDS network. She is a visiting/honorary Professor and fellow at several universities.

Profile/Website: **Virginia Murray – UK Health Security Agency (ukhsa.gov.uk)**

Ross Thompson**ross.thompson@ukhsa.gov.uk / ross.thompson@lshtm.ac.uk**

Ross is a Principal Environmental Public Health Scientist within the Extreme Events and Health Protection (EEHP) team at UK Health Security Agency, who are the operational leads for the Heatwave and Cold Weather Plans for England and the underpinning Heat-Health/ Cold Weather Alerting systems. Ross has been involved in the planning for and responding to extreme temperature events for over seven years and is leading a piece of work on moving England's Heat-Health and Cold Weather Alerting systems towards impact-based alerting in collaboration with the Met Office. Ross is also currently undertaking a PhD at the London School of Hygiene and Tropical Medicine looking at individual level risk modifying factors during periods of high temperature.

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Andrew Tupper



Professor Virginia Murray



Ross Thompson

Dr Sarah Jenkins**s.c.jenkins@leeds.ac.uk**

Lecturer in Applied Decision Making – Uni. Of Leeds & Social Scientist – Met Office. I am an interdisciplinary researcher investigating how people understand, communicate and make decisions concerning risk and uncertainty across a variety of contexts, including natural hazards, food safety and medicine. Using a variety of social science methods, I am interested in exploring how such communications can be improved to guide decision-making. I hold a joint position between the Centre for Decision Research and the Met Office, where I am applying techniques and insights from social science to deliver high impact decision research in areas related to weather and climate.

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Mirianna Budimir**mirianna.budimir@practicalaction.org.uk**

Dr Mirianna Budimir is the Senior Climate and Resilience Expert in the Impact, Influence and Innovation team at Practical Action. Her work at Practical Action focuses on disaster risk reduction, early warning systems, gender, equity and social inequalities, science and risk communication, forecast-based early action and decision making, and international development. She has over thirteen years of disaster risk reduction research experience. She holds a Doctor of Philosophy degree on the topic of cascading multi-hazards and risk and an MSc in the Science of Natural Hazards, with a dissertation on urban flood modelling. She has significant experience of qualitative and quantitative research and analysis,

excellent communication skills, and is practised at working within and leading interdisciplinary teams. She works closely with UK academics and in-country stakeholders to ensure research is useful, usable, and used.

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Pedram Rowhani**P.Rowhani@sussex.ac.uk**

Pedram is a Reader in Geography and International Development at the University of Sussex where he works on interdisciplinary projects to better understand the drivers of global land use and land cover change and their impacts on society and the planet. One particular aspect of my research focuses on developing novel approaches to forecast the condition of vegetation using satellite-based earth observation data and to work with relevant users to identify appropriate and effective early actions in order to mitigate the impacts of drought in East Africa.

Profile/website: <https://profiles.sussex.ac.uk/p267938-pedram-rowhani/about>



Dr Sarah Jenkins



Mirianna Budimir



Pedram Rowhani

WRC Advisory Board

We would also like to thank our newly established advisory board for their guidance and support to help the WRC achieve its goals, and support the development of a global warning academic community:

UCL

Prof Jon Agar – STS

Prof Graham J Hart – IGH and UCL Faculty of Population Health Sciences

Dr Alexandra Lewis – Institute of Education – IOE

Prof Ivan Parker – MAPS Faculty Dean

Prof Tiziana Rosetta – EPICentre – CEGE

Prof Peter Sammonds – IRDR

Prof Emma Tobin – STS

Prof Joanna Faure Walker – IRDR

External advisors

Dr Senaka Basnayake – Asian Disaster Preparedness Center

Dr Lalit Dashora – Asian Disaster Preparedness Center

Dr Carolina Garcia Londoño – Consultant on Disaster Risk Reduction, Climate Change, and Sustainable Development, and President of the Antioquia Chapter Geological Society of Colombia

Prof John Rees – British Geological Survey

Lisa Robinson – BBC Media Action

Lucy Stanbrough – Willis Tower Watson

Dr Anawat Suppasri – International Research Institute of Disaster Science (IRIDeS), Tohoku University



Loudspeaker system (iStockphoto.com)

Recent Publications

The WRC have published a number of recent publications and invited blogs, we list a selected few below:

1. GFDRR / World Bank Report: **‘Designing Inclusive, Accessible Early Warning Systems: Good Practices and Entry Points’**.
2. IFRC / GDPC Report: **‘Translating Warnings into Actions: How We Can Improve Early Warning Systems’**.
3. PreventionWeb Blog on **‘How can we enhance inclusivity in warnings? The 5 elements’**. by Carina Fearnley. See: https://lnkd.in/eHbd_bFX
4. **‘Enhancing Warnings’**, commissioned by the National Preparedness Commission.

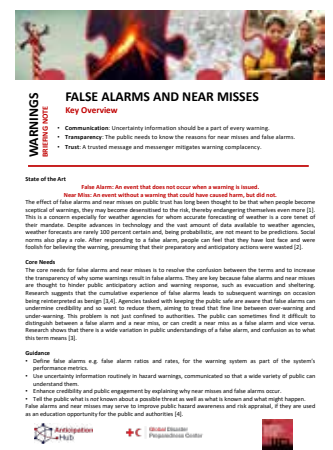
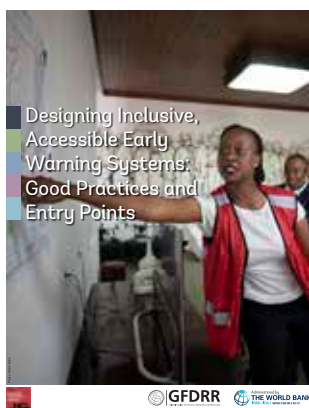
Warning Briefing Note series:

Our Warning Briefing Notes series are two-page documents that are designed to provide quick and accessible insight into various aspects of warnings, providing state of the art of research, core needs, and high-level guidance and recommendations. The series is supported by Anticipation Hub and Global Disaster Preparedness Centre (GDPC).

www.ucl.ac.uk/sts/warning-research-centre/wrc-publications-and-reports

This conference is also part of an **EU Grant, ‘The HuT: Building a safe haven to cope with climate extremes’**. The HuT is a European-funded project studying the nexus between human behaviours, science and technology, and governance and policy in order to build a safe haven to cope with climate extremes.

The HuT involves 10 areas around Europe where new ways to limit/manage risks associated to climate change will be tested. Representatives of the scientific and technical communities, practitioners such as climate experts, policy-makers and local communities across Europe will play a key role in this mission. Report **‘The evolution and state-of-the-art of weather and climate warnings’** is published and will soon be available online. <https://thehut-nexus.eu>



Services the UCL WRC offers:

Teaching:

- Teaching undergraduate and post graduate modules on warnings
- Attract MSc dissertations with partner organisations
- Internships and work placements



Research:

- Conducting large and small scale research projects from a number of international funding bodies
- PhD research projects



Training (CPD):

- Bringing together teaching excellence and research to develop training courses and lectures / seminars on warning systems to increase peoples awareness of warnings, and understand how better to integrate into their own setting



If you wish to receive our newsletter, please sign up [here](#).

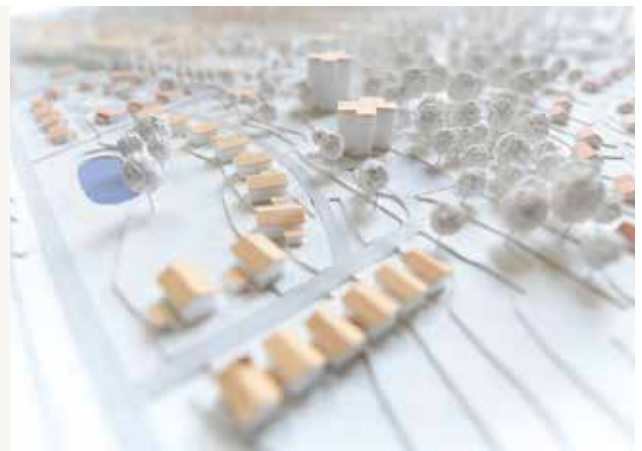
Consultation projects:

- This has including setting up new hubs, writing reports and policy documents, developing and delivering training, and conference session convenors



Events:

- Every year we organise several Webinars with world leading warning experts on a range of topics. All events are recorded and made available via our YouTube Channel
- We also run in person events such as the Global Warning Conference held at UCL in 2022, workshops, and support external conferences e.g. #NoNaturalDisasters



Website:

- Our website is updated with resources and blogs. Over the next year we will be focusing on enhancing warning databases, extending resources, and writing more briefing notes



Engagement:

- Via news, newsletters, online social media presence, and public engagement events
- Keep in touch to find out more on our upcoming events on: Climate warnings, Flash Flood warnings and Terrorism warnings





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