Understanding High-Risk Events

Mini-Symposium

Safe Landing Climates - Understanding High-Risk Events Working Group

We look forward to meeting you at this mini-symposium, which is an opportunity to discuss progress being made towards better understanding high-risk events and to pinpoint the areas where we can make significant progress in the next few years. Below is an agenda of short 3-minute talks, where some of our affiliate members will outline their research interests and what they think are the top research priorities of the next 3-5 years in relation to high-risk events.

A reminder that slides should be sent to Narelle at the WCRP Secretariat before the event (nvanderwel@wmo.int) to ensure that we have a backup copy. You can share the slides yourself on the day.

Agenda

Note: If anyone cannot make the talk time allocated, please email nvanderwel@wmo.int
If your talk is marked as tentative and you can confirm your presence or you want to add/change a talk title, please let Narelle know so we can update the agenda.

Session 1: Morning Europe/Africa; Afternoon and Evening Asia/Oceania;

6 April 2022, 9:00-11:00 CEST

- 9:00 Introduction/Opening (15 mins)
- 9:15 Introduction presentations (15 mins; 3 mins per talk)
  - **Alois Tilloy** - Extremes and Multi-Hazards
  - **Thanasis Sfetsos** - Multi-Hazard climate extremes
  - ***Unable to join*** **Emanuele Bevacqua** - Compound events and worst-case global climate storylines (see his note at the end of this agenda)
  - **Zengchao Hao** – Compound events or extremes
  - **Kevin Bourne** - Integrating extreme climate risk into financial markets
- 9:30 Discussion (10 mins)
- 9:40 Introduction presentations (15 mins; 3 mins per talk)
  - **Timo Kelder** - UNprecedented Simulated Extremes using ENsembles (UNSEEN)
  - **Erich Fischer** - Probing the unfathomable: ensemble boosting for storylines of unseen extremes
  - **Hasibun Naher** – TBD
  - **Roshin. P. Raj** – TBD
  - **Christian Franzke** - TBD
- 9:55 Discussion (10 mins)
- 10:05 Short break (5 mins)
- 10:10 Introduction presentations (12 mins; 3 mins per talk, allow 15 minutes)
  - **Ana Bastos** - Extreme events' risks to forests & C-cycle feedbacks

    - ***Cancelled*** **Mastawesha Engdaw** - Risk assessment for compound extreme events
    - **Naeem Shahzad** - TBD
    - **Peter Watson** – On Extreme Weather (will join after 10-10:30)
- 10:25 Possible extra presentations (allow 10 mins)
    - **Gad Levy** – Extremes in Monsoons (tentative)
    - **Oliver Bothe** – TBD (tentative)
- 10:35 Discussion (20 mins)
- 10:55 Final discussion, way forward, and closing (5 mins)

Total 2 hours

Session 2: Evening Europe/Africa; Day Americas;

6 April 2022, 20:00-22:00 CEST

- 20:00 Introduction/Opening (15 mins)
- 20:15 Introduction presentations (20 mins; approx. 3 mins per talk)
    - **Gabi Hegerl** - Extreme heat risk and observational constraints
    - **Andreas Prein** - High-Resolution Modeling of Extreme Events
    - **Tim Cowan** - Predicting extremes that impact northern Australian livestock
    - **Abdalla Osman Adam Abdalla** - The effects of droughts in Sudan
    - **Yangyang Xu** - Joint hydroclimate and air quality extreme and potential public health impacts
    - **Nasim Hossein Hamzeh** – TBD
- 10:35 Possible extra presentations (allow 10 mins)
    - **Gad Levy** – Extremes in Monsoons (tentative)
    - **Oliver Bothe** – TBD (tentative)
- 20:45 Discussion (20 mins)
- 21:05 Final discussion, way forward, and closing (5 mins)

Total 1 hour 10 minutes

Written update by Affiliate Members unable to attend:

Chris Little – my focus is in ice-sheet driven “rapid” changes in the rate of sea level change, particularly changes in the ocean circulation around Antarctic continental shelves leading to regime changes/rapid warming of subsurface water and consequent increases in ice shelf basal melting. I am also interested in the means by which these “events” are incorporated into projections/assessments.

Emanuele Bevacqua - Hi everyone! I am Emanuele Bevacqua from UFZ (Leipzig) and I study weather and climate extremes with a focus on compound events. For example, I have investigated (i) the present and future dynamics of compound coastal flooding arising from precipitation and storm surge, (ii) precipitaiton extremes from consecutive

cyclones and associated landslides, and (iii) summers that are simultaneously extremely hot and dry.

I am interested in studying worst-case evolutions of the climate, including storylines of individual extreme events. We are currently developing a simple general framework that identifies sector-specific global worst-case future climates from available climate model simulations. For example, considering global crop production, the approach allows for identifying storylines characterised by a high frequency of simultaneous droughts over breadbasket regions worldwide, which may threaten global food security.

In the next years, I would essential to assess the plausibility of simulated worst-case storylines, as well as quantifying and communicating their associated ultimate socio-economic impacts.

Hope to see you soon!
Emanuele
