

*Talking together about climate risks and dynamics  
so it enables resilience and trust*

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[EGU22-6631](#)



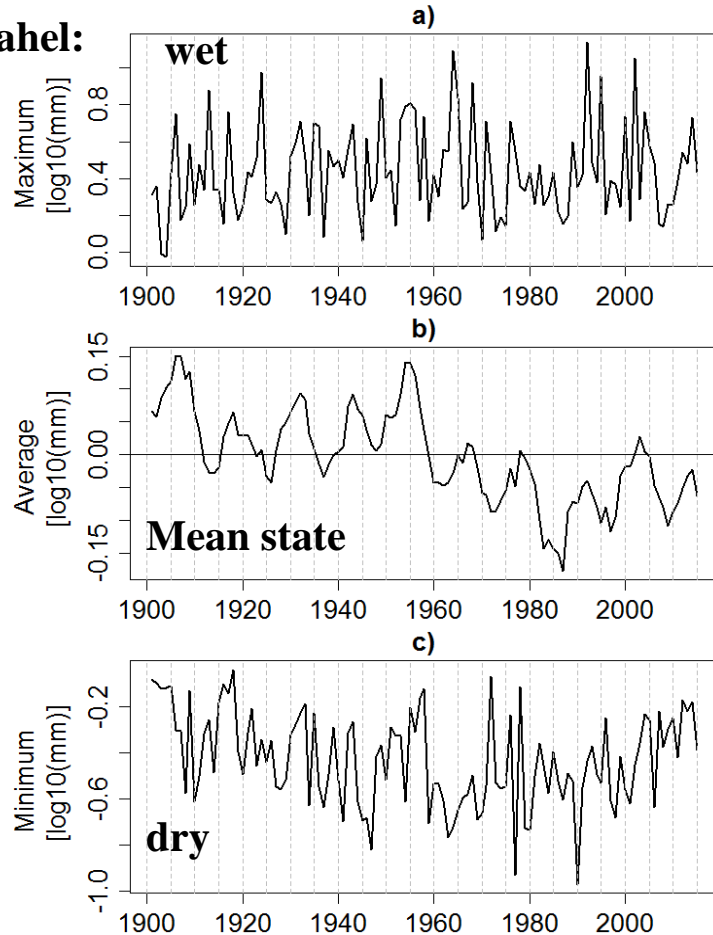
## *Talking together about climate risks and dynamics so it enables resilience and trust*

- The earth is warming up due to long term Anthropogenic use of fossil fuels (see also EGU22-6631 Tuesday Climate Sensitivity discussion).
- We live in an interconnected world.
- Climatic warming and its consequences is altering the way that extreme weather is experienced by and impacts communities all over the world.
- Some communities are more vulnerable than others. This especially prominent when we view the resilience and risks through the lens of Equality, Diversity and Inclusivity (EDI). The '**EDI lens**' reveals where the current way we establish interconnections can create value system biases.
- Those with less access to resource are at higher impact risk when extreme and adverse weather conditions occur.
- EDI work we are doing (University of Exeter, Provost Commission, Diversity Champion programme and Institute of Physics: Limit Less campaign) are aimed to provide a re-framing of our STEM culture with this **EDI lens**. In our climatic resilience setting this is working to help provide interconnected community resilience that is fair, equitable and provides balance for everyone. There is more to do, its important..
- What is your experience of this, and, what do you think we could do more of?

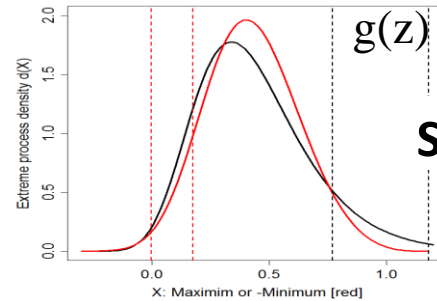
# Understanding risks better e.g. Precipitation extremes (Africa - Sahel and SE Asia)

Using instrumental era records (GPCC here), the STEM work and analysis we do helps to show and locate where extreme climatic weather events tend to occur (here precipitation: wet and dry in the Tropics). Extreme risks can also be mitigated via understanding the physical mechanism better.

**Sahel:**

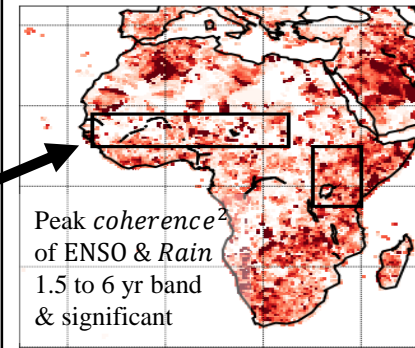
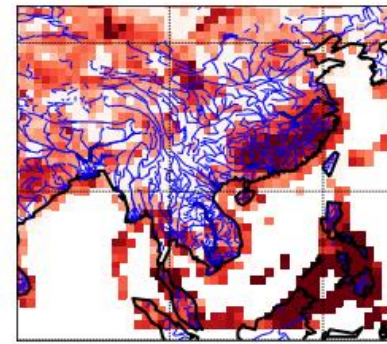


**Sahel extremes  $g(z)$ :**  
wet and dry have GEV shape parameter  $\xi \leq 0$   
so this implies a Weibull type system (i.e. an upper bound).



**Sahel**

**SE Asia**



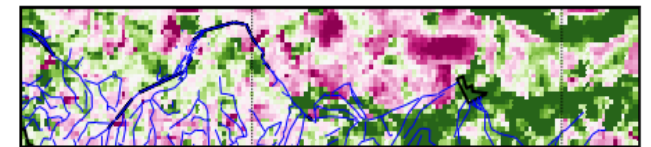
**Climate mechanism investigations:**

ENSO Teleconnection influence (co-spectrum ENSO ~ Precipitation) implied via Tropical wave guide and mode locking properties.

Suggests ITCZ over Sahel (Sahara heat low, Atlantic convection) and Asia (Tibetan plateau and Maritime Continent) effects.

**Within Sahel:** dry extreme shape  $\xi_{Min}$  directionally suggests  $\xi \sim > 0$  in West (Lake Chad area).

This may be evidence of Anthropocene induced heat stress / tipping?



TEJ intensity also appears to be a mechanism.



# *The IOP is confronting these EDI Lens issues*

**IOP Limit Less campaign:** *Support young people to change the world. Limit Less is our new campaign to support young people to change the world and fulfil their potential by doing physics.*

*We should support their drive to change the world and improve their future, not limit or deny it.*

*Unfortunately, some young people are put off by the misconceived ideas they are told about what physics is. Others are denied the opportunity to study physics due to the prejudice and stereotypes that they experience because of who they are. Many girls are told that physics is more suited to boys, and both girls and boys are told that physics is not for the likes of them based on their ethnicity, their sexual orientation, their disability and their social background.*

*As a result, too many young people are made to feel that they can't do physics, or they just don't fit in. No young person should be made to feel locked out of physics. Help us ensure that there are no limits on who can take part.*



**IOP Strategy/ Society review:** over the past decade the framing and direction of how we practice Physics and the National ambition has been concisely deliberated and articulated – thankyou IOP.

**Project Juno:** accreditation of Physics degree inclusive provision and culture.

# *Our organisations (Universities, UKRI / Industry) are confronting these **EDI Lens** issues*

## **What activities are occurring (some examples):**

- EDI Learning workshops
- EDI Champions, Diversity Champions/ Mentoring
- EDI Staff training, Education Incubator activity (sandpit deliberations)
- University/Industry initiatives to frame and give voice at all levels (At Exeter we have the Provost Commission to frame this complexity)
- Decolonising network's, use of Maker spaces to cede power to minority groups
- **Provide wider routes into STEM culture to enable Mathematical skill to be developed more comprehensively** (for example with Natural Sciences, Data Science themes).
- Curriculum development standards
- UKRI / Wellcome trust: UK REF 2021 follow-on EDI implications
- Project Juno / Athena Swan

# *Talking together about climate risks and dynamics so it enables resilience and trust*

- We live in an interconnected world.
- Climatic warming and its consequences is altering the way that extreme weather is experienced by and impacts communities all over the world.
- Some communities are more vulnerable than others.
- Using the EDI Lens – we have the opportunity to develop resilience better across the whole spectrum of society.
- My perception is that this enables much more trust and STEM capability.
- What is your experience of this, and, what do you think we could do more of?

