EGU2020-20734
https://doi.org/10.5194/egusphere-egu2020-20734
EGU General Assembly 2020

Towards multi-method and multi-scale attribution of global wildfire danger

Zhongwei Liu[1], **Jonathan Eden**[1], Bastien Dieppois[1,2], and Matthew Blackett[1]
[1]Centre for Agroecology, Water and Resilience, Coventry University, UK (ac6218@coventry.ac.uk)
[2]Department of Oceanography, MARE Institute, University of Cape Town, RSA

Wildfires constitute a major natural hazard and pose huge risk to many regions of the world. The series of large fires across both hemispheres in recent years have led to inevitable questions about how human-induced climate change may be altering the character of such events. Providing answers to these questions is a crucial step to increasing resilience to major wildfires.

Long-term projections produced by state-of-the-art climate models, even when reliable, are not always a suitable means of communicating risk. Methodologies to attribute trends in meteorological phenomena associated with high-impact events to anthropogenic influence have the potential to better communicate risk and guide adaptation strategies. While the link between a warming world and heat-related extremes (e.g. heatwaves and droughts) is reasonably well-understood, there is a lack of consensus on the most appropriate and effective methodological approach for many variables, potentially impacted by warming climate, such as wildfire attribution. The link with climate change remains poorly understood and wildfires have been largely ignored by attribution studies to date.

As a first step towards the development of a seamless, globally-applicable framework for assessing past, present and future risk in wildfire danger, we present a global attribution analysis of wildfire danger. With initial focus on observational records, we use both established and novel empirical-statistical methods to attribute historical trends in episodes of extreme weather and climate conducive to wildfire ignition and spread. Particular consideration is given to the sensitivity of attribution findings to the spatial scale upon which the analysis is conducted. We also draw attention to a series of important, often overlooked, conceptual and technical challenges in event attribution, including validation and bias-correction of climate models and discuss the value of linking attribution of recent wildfire events with future risk assessment.