Fire in the Earth System Abstracts
Vol. 2 FES-238
Granada, Spain, 4-8 July, 2023

Assessing the role of climate change in the rate of spread of wildfires in the Iberian Peninsula

[1]Senande-Rivera, Martín, [2]Insua-Costa, Damián and [1]Miguez-Macho, Gonzalo

[1]*Nonlinear Physics Group, Universidade de Santiago de Compostela, Santiago de Compostela, 15782, Spain*
[2]*Hydro-Climate Extremes Lab (H-CEL), Ghent University, Ghent, 9000, Belgium*

Abstract

Climate change is influencing the rate of spread of wildfires by reducing fuel moisture and by altering vegetation patterns. However, the magnitude of these changes is hard to quantify due to the important role of humans on fire ignition and spread. By using wildfire observations and outputs from different general circulation models, we quantified the influence of climate change on the rate of spread of wildfires that took place in the Iberian Peninsula between 2001 and 2021. A general increase of the rate of spread was found since the pre-industrial period attributable to the reduction in fuel moisture associated with a warmer atmosphere. Climate change and atmospheric CO2 fertilization are also enhancing vegetation growth, whose influence on the rate of spread could potentially be even higher than that of the temperature increase. Although fire behaviour is not determined solely by climate or weather conditions, our results suggest a significant increase in the rate of spread of the Iberian Peninsula wildfires attributable to climate change.

Keywords: Wildfires, Climate change, Attribution