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Climate Drivers of Fire Activity: a Global Assessment

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Abstract

A better understanding of the links between climate and fires in a context of global changes is still a scientific challenge. This is due to the complexity of the processes involved, the limitation of observational data and the compound effect of multiple drivers. In particular, it is still not clear enough the relative importance of the direct effect of climate change in regulating fuel moisture (e.g. warmer conditions increasing fuel dryness) and the indirect effects on fuel structure (e.g. drier conditions limiting fuel amount). Here we analyze and model the impact of coincident and antecedent climate conditions on the Burned Area (BA) across the whole global burnable area. We show a statistically significant relationship between fire activity and same-fire season fire weather index, especially over climatologically wet regions, while antecedent wet conditions play a major role over dry regions. The developed model allows a better understanding of the relationships between climate and fires, and appears to be promising for developing a seasonal forecast system that can be a very useful tool in decision-making (Turco et al., 2018).

Keywords: climate drivers, fire activity

References

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