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Drivers of recent trends in African landscape fires

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Wildfires play an important role in savannah ecosystem dynamics and are an important source of emissions of (greenhouse) gasses and aerosols. Africa is nowadays responsible for about 70% of global burned area and about 50% of fire carbon emissions. Although it has been reported that fire activity varies according to climatic and anthropogenic influences, much remains unclear about the drivers of the spatial distribution of fire activity over the continent and its temporal dynamics. Resolving the drivers of this spatiotemporal variability is crucial to understand the future role of fire on the African continent. Satellite observations are the preferred way to monitor fire activity at this scale and the satellite fire record starts to be long enough to study recent trends in fire occurrence, the subject of our work. We developed a model to account for variations in fire activity due to climate, and investigated the role of sea surface temperatures on rainfall patterns and thus fire dynamics. Spatial variation and trends in land cover were used to improve understanding of underlying trends caused by socio-economic changes. Results elucidate the importance of various drivers on recent trends in African landscape fires and allow new insights in the future of African fire dynamics.