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Assessment of wildfire emissions using satellite and reanalysis data: A review

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Wildfires are among the major and prevalent environmental disturbance agents of our time and affect human health, the infrastructure and the earth-atmosphere mechanisms. Wildfires can be ignited naturally by lightning or humans, either accidentally or to accomplish management objectives such as clearing and reduction in fuel loads. Wildfires are unique in themselves as they are driven by various factors such as fuel type, topology, and meteorology. In this work we highlight studies that have observed emissions of gases and aerosols from different regions globally and how they compare. The work further looks at the spatial distribution of black carbon (BC), carbon monoxide (CO) and smoke from wildfires. The emissions of BC, CO, and smoke are retrieved from the Modern-Era Retrospective Analysis for Research and Applications version 2 (MERRA-2), Sentinel-5P and Cloud-Aerosol Lidar and Infrared Pathfinder Satellite Observations (CALIPSO), respectively. Lastly, in this work we report on the relationship between the meteorological parameters, vegetation conditions and emission parameters using the Pearson's correlation. Overall, this work demonstrates the value of multisource remotely sensed data in characterising long-term wildfire patterns and associated emissions.

Apply to be considered for a student ; award (Yes / No)?

No

Level for award;(Hons, MSc, PhD, N/A)?

N/A

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