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Recent increase in winter hazy days over Central India

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The Indian subcontinent is greatly vulnerable to air pollution, especially during the dry winter season. Here, we use 15 years (2003-2017) of satellite and model reanalysis datasets over India and adjoining Seas to estimate the trends in the number of days with high aerosol loading (i.e. hazy days) from October to February. The number of days with high aerosol loading in recent years (2013-2017) is increasing at the rate of ~2.6 days/year over Central India, which is surprisingly higher than the more polluted Indo-Gangetic Plain (~1.7 days/year). Similar increment in absorbing aerosols is also visible in recent years. As a result, the estimated atmospheric warming over Central India is two-fold higher than that over Indo-Gangetic Plain. This anomalous increase in hazy days over Central India is attributed to a relatively higher increase in biomass burning over this region. The number of days with high aerosol loading in recent years are also higher over the Arabian Seas, which is located downwind to Central India, as compared to the Bay of Bengal. Thus, our findings not only draw attention to deteriorating air quality over Central India but also underlines the significance of enhanced biomass burning activities under recent climate change.