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Geospatial analysis of Arctic fires in the MODIS era: 2003–2020

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MODIS has provided an 18-year continuous record of global fire activity. Here we present a geospatial analysis of MODIS hotspots in the high latitudes of the northern hemisphere from 2003 through to 2020. By combining the hotspot data with multiple land-cover datasets relating to vegetation cover, permafrost, and peat, we investigate boreal and tundra wildfire regimes, including an assessment of a significant northwards shift and increase in fire activity in 2019 and 2020. We focus on the distribution of hotspots on high latitude peatlands and permafrost and the associated difficulties in confirming residual smouldering compustion of peat soils using current remote sensing technology.