

Supplementary material

Characterising weather patterns associated with fire in a seasonally dry tropical forest in southern India

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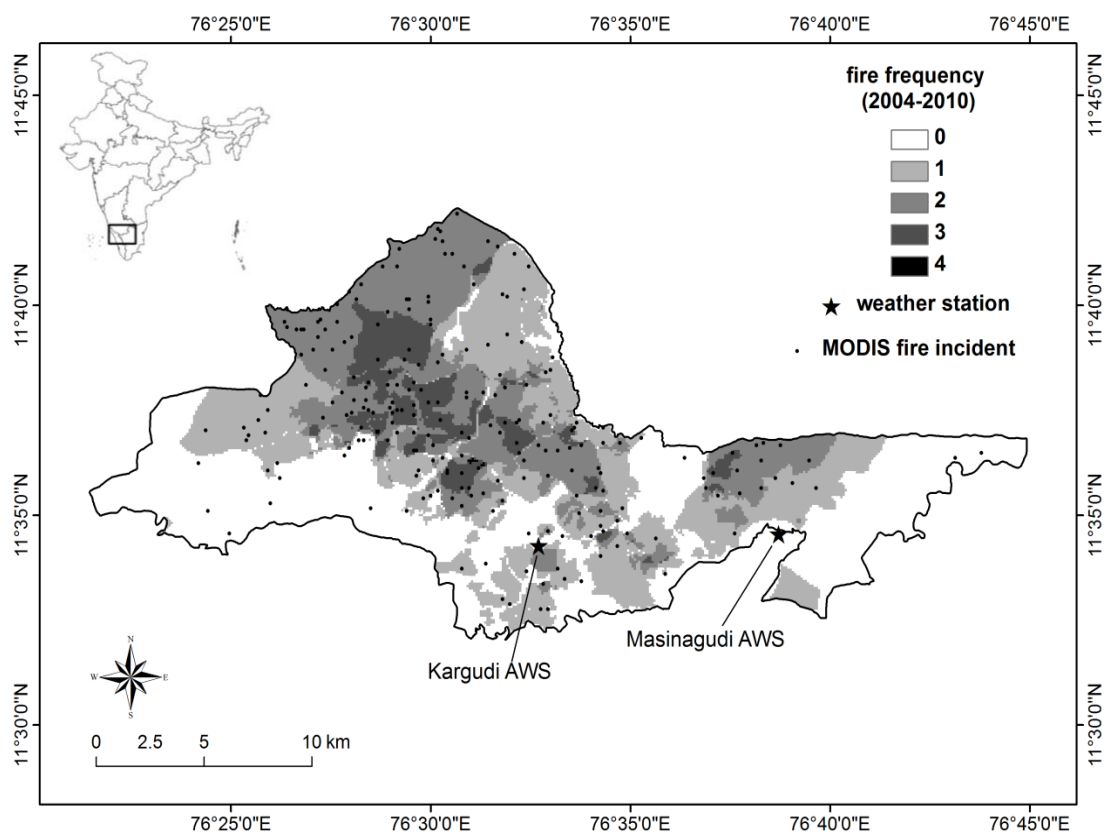


Fig. S1. Location of fire incidents as recorded by MODIS over the years 2004 to 2010 within Mudumalai and the two weather stations. Fire frequencies from 2004 to 2010 developed from field data are presented in shades of grey. The inset at the top-left corner indicates the location of the study area in India.

Imputation of missing weather data

Weather data were incomplete for certain periods (Kargudi AWS, April 2004 and January–April in 2007; Masinagudi AWS, 3 days in April 2009). As data from the two weather stations were highly correlated for both RH and temperature (Pearson’s correlation r between stations was 0.95 for RH and 0.98 for temperature, $P \ll 0.001$, $n = 687$ days for both weather variables; Fig. 1 in main text), missing data for a station were imputed from a linear regression of data between the two stations.

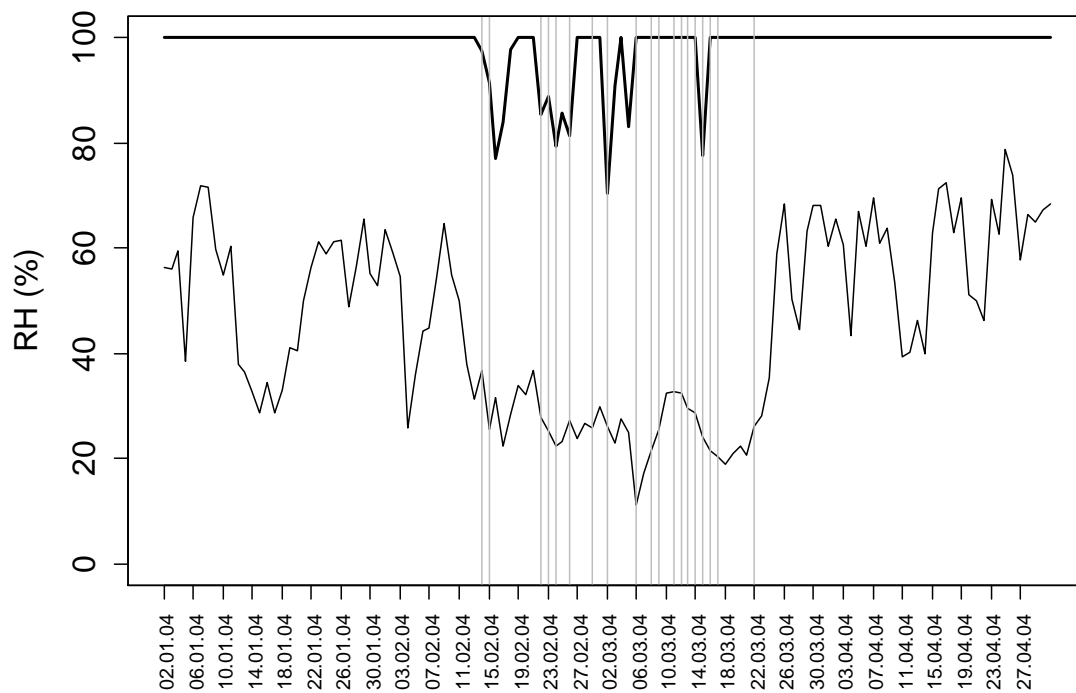


Fig. S2. Diurnal variation in relative humidity (RH) between 1200 hours of a day and 1100 hours of the next day between January and April of the year 2004 at Masinagudi AWS. The solid, dark line is the maximum RH and solid, faint line is the minimum RH for the 24-h period. Grey lines mark fire days in 2004. Note: maximum RH (top line) as well as minimum RH (bottom line) dips on or before fire days.

Table S1. Number of fire days for each month across the 7-year study period (2004–2010) at Mudumalai

Note: only fire days from January to April were used in the analysis

Year	Jan	Feb	Mar	Apr	May
2004	0	7	12	0	0
2005	2	2	0	0	0
2006	0	1	0	0	1
2007	1	5	7	1	0
2008	1	2	3	1	0
2009	3	12	3	1	0
2010	0	0	1	0	0
total	7	29	26	3	1

Table S2. Proportion of days that are fire days in 10% daily average RH (between 1200 hours of a day to 1100 hours of the next day) categories

24-h average RH categories (lower limit, upper limit) (%)	Non-fire day	Fire day	Total number of days	Proportion of days that are fire days
30, 40	0	5	5	1.00
40, 50	6	7	13	0.54
50, 60	22	7	29	0.24
60, 70	65	15	80	0.19
70, 80	184	24	208	0.12
80, 90	360	7	367	0.02
90, 100	139	0	139	0.00
Total	776	65	841	