



Supplement of

Meteorological controls on atmospheric particulate pollution during hazard reduction burns

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11 **Figure S1**. Auto-correlation plots for the residuals obtained by applying GAM models on the complete time series for each monitoring

12 location. Correlation in the residuals is evident at both short and longer lags. Lag is in days.



14 **Figure S2**. Auto-correlation plots for the residuals obtained by applying GAMM models on the complete time series for each monitoring

15 location. The short-term, residual correlation is no longer present. Lag is in days.



- **Figure S3**. The contribution by the prescribed burn distance component of the model linear predictor to the fitted values (PM_{2.5} µg/m3
- 18 centred) in the intermediate GAMM see main text for further explanation.



Frequency of counts by wind direction (%)

- 20
- 21 Figure S4. Wind rose diagrams showing wind speed/direction frequencies split by season at
- 22 each of four locations in Sydney. Wind speeds are split according to the intervals shown by
- 23 the scale bar to the right of the figure. Wind roses were generated using the *openair*
- 24 package (Carslaw & Ropkins, 2012).



Figure S5. The contribution by the rainfall component of the GAMM linear predictor to fitted PM_{2.5} values (μg m⁻³, centred).



Figure S6. The contribution by the MSLP component of the GAMM linear predictor to fitted $PM_{2.5}$ values (µg m⁻³, centred).



Figure S7. The contribution by the wind speed component of the GAMM linear predictor to fitted $PM_{2.5}$ values ($\mu g m^3$, centred).



34 Figure S8. Chullora: Mean diurnal variation of PBLH, total cloud cover, temperature and wind speed for low versus high PM_{2.5} pollution

35 during prescribed burning days in Sydney. Shading represents the 95 % confidence intervals of the means.



38 Figure S9. Earlwood: Mean diurnal variation of PBLH, total cloud cover, temperature and wind speed for low versus high PM_{2.5} pollution

39 during prescribed burning days in Sydney. Shading represents the 95 % confidence intervals of the means.



Figure S10. Richmond: Mean diurnal variation of PBLH, total cloud cover, temperature and wind speed for low versus high PM_{2.5} pollution
during prescribed burning days in Sydney. Shading represents the 95 % confidence intervals of the means. Note the lower mean PBLH and

44 temperatures at Richmond, relative to at the other sites.

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45 **References**

46 Carslaw, D.C. & Ropkins, K. (2012) openair - An R package for air quality data analysis. *Environmental Modelling & Software*, **27-28**, 52-61.