

Wind Direction Frequency

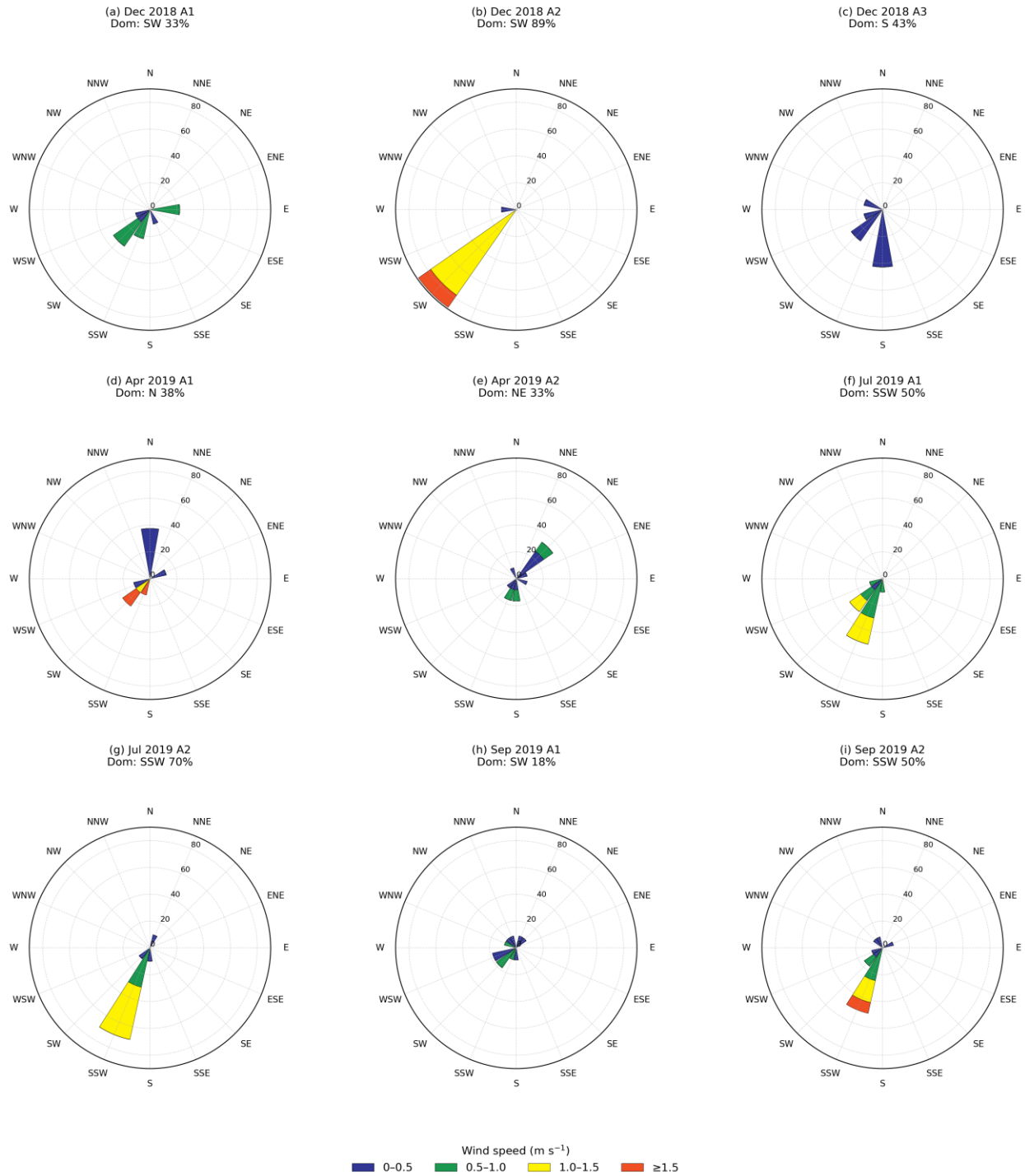


Figure S1 Event-window wind direction frequency during BLH-pollutant interaction periods. Wind roses show the frequency distribution of 10 mint surface wind direction during selected accumulation events. The radial axis denotes wind-direction frequency (%), and colors indicate wind-speed classes.

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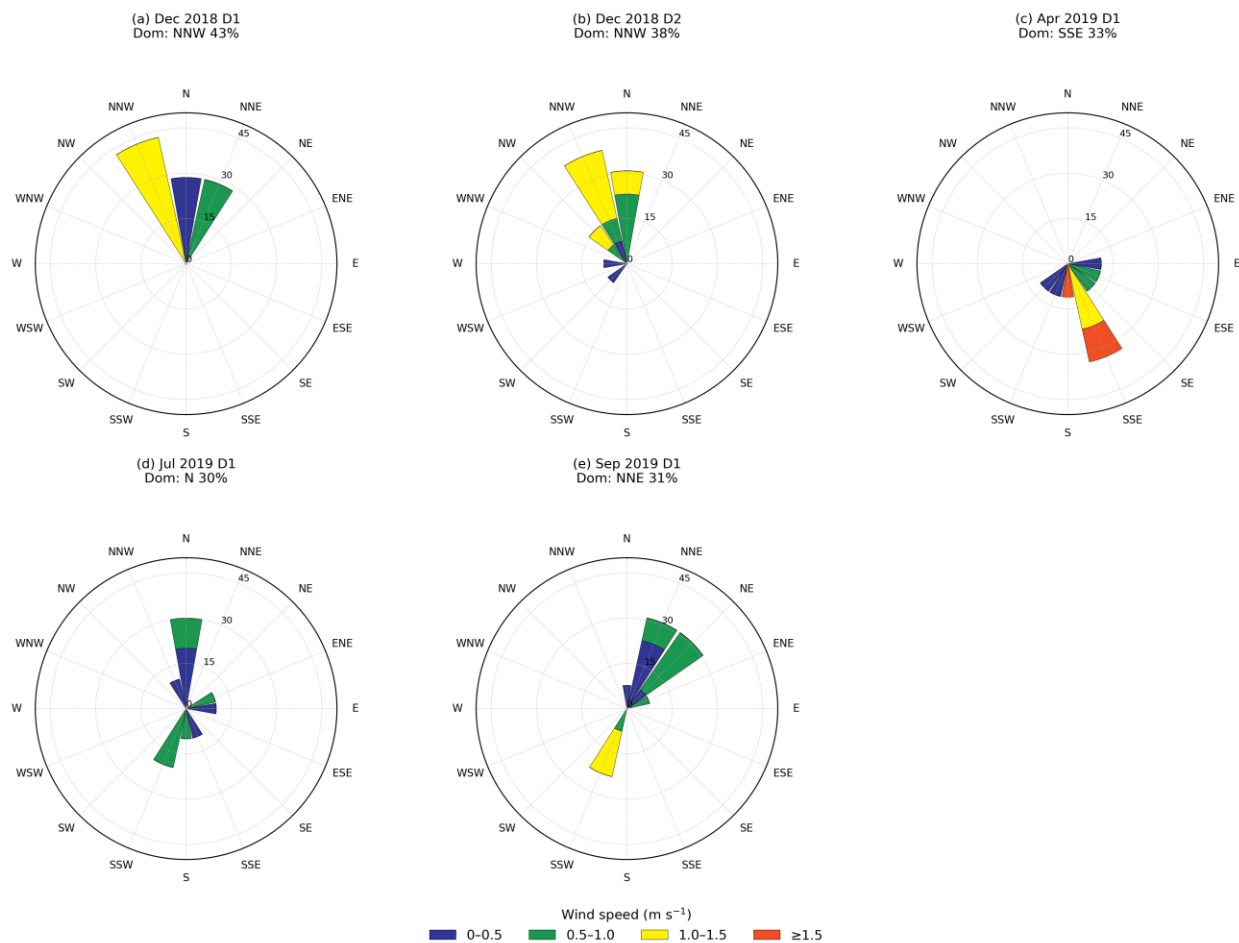


Figure S2 Event-window wind direction frequency during BLH-pollutant interaction periods. Wind roses show the frequency distribution of 10 mint surface wind direction during selected dilution events. The radial axis denotes wind-direction frequency (%), and colors indicate wind-speed classes.

Wind Direction Frequency

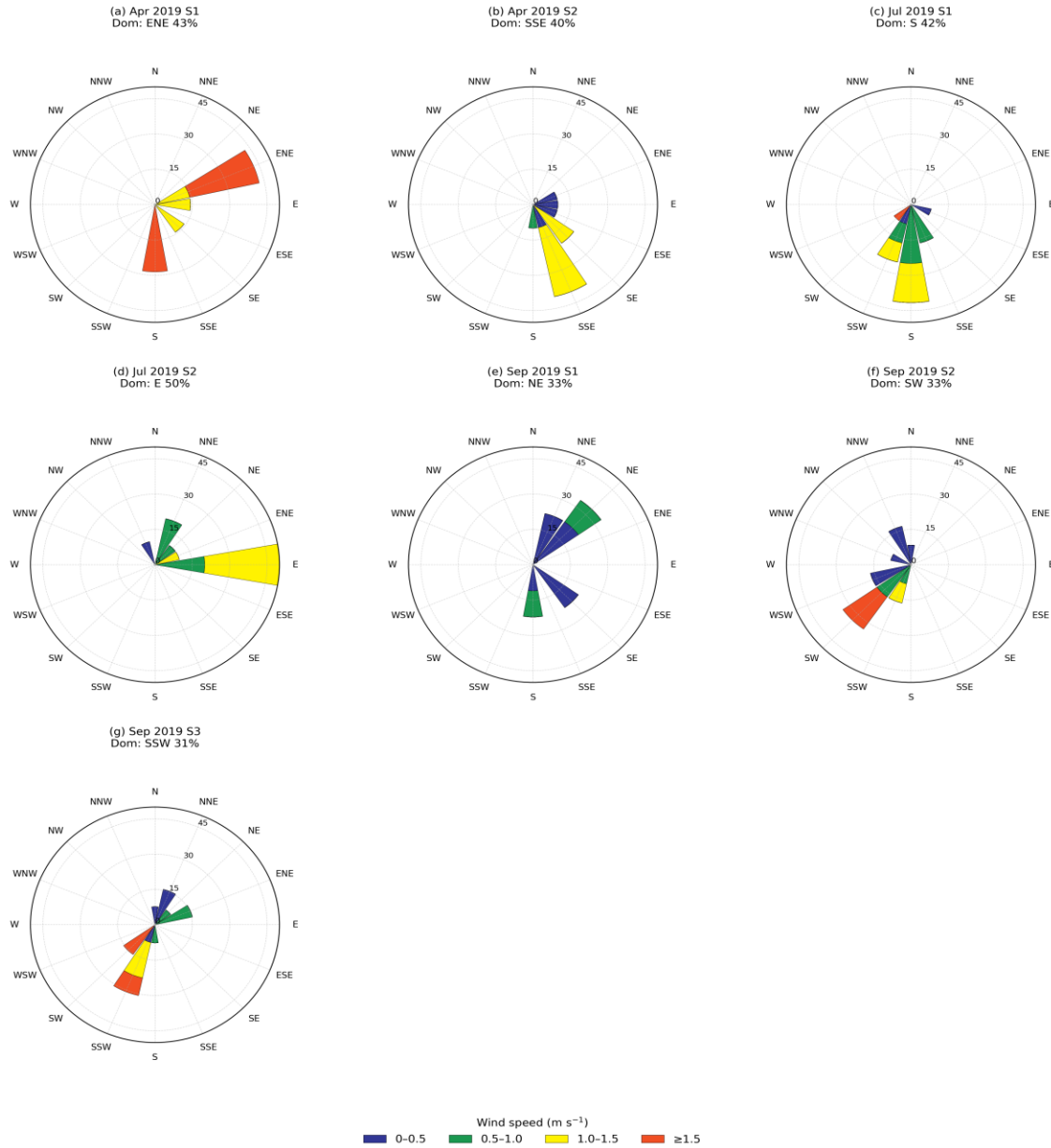


Figure S3 Event-window wind direction frequency during BLH–pollutant interaction periods. Wind roses show the frequency distribution of 10 mint surface wind direction during selected special events. The radial axis denotes wind-direction frequency (%), and colors indicate wind-speed classes.

Table S1: Seasonal Spearman Correlations between BLHs and air pollutants

Season	Pollutant	Thermal PBLH	Dynamic PBLH	Material PBLH
December	PM _{2.5}	-0.426 ***	-0.591 ***	-0.083 ns
	PM ₁₀	-0.338 ***	-0.474 ***	-0.135 **
	NO ₂	-0.599 ***	-0.748 ***	-0.205 ***
	SO ₂	-0.381 ***	-0.481 ***	0.010 ns
	CO	-0.529 ***	-0.703 ***	-0.142 **
	O ₃	0.664 ***	0.777 ***	0.254 ***
April	PM _{2.5}	-0.141 ***	-0.337 ***	-0.163 ***
	PM ₁₀	-0.190 ***	-0.177 **	-0.080 ns
	NO ₂	-0.472 ***	-0.683 ***	-0.403 ***
	SO ₂	-0.072 ns	0.138 *	0.098 *
	CO	-0.106 **	-0.453 ***	-0.150 ***
	O ₃	0.181 ***	0.253 ***	0.361 ***
July	PM _{2.5}	0.006 ns	-0.083 *	0.032 ns
	PM ₁₀	-0.038 ns	-0.030 ns	0.004 ns
	NO ₂	-0.554 ***	-0.520 ***	-0.566 ***
	SO ₂	0.059 ns	0.017 ns	0.094 *
	CO	-0.027 ns	-0.077 *	0.017 ns
	O ₃	0.599 ***	0.615 ***	0.616 ***
September	PM _{2.5}	-0.051 ns	-0.092 *	-0.039 ns
	PM ₁₀	-0.073 ns	0.002 ns	-0.055 ns
	NO ₂	-0.585 ***	-0.408 ***	-0.596 ***
	SO ₂	0.371 ***	0.368 ***	0.406 ***
	CO	-0.072 ns	-0.033 ns	-0.064 ns
	O ₃	0.586 ***	0.452 ***	0.604 ***

*Significance codes: *** p < 0.001, ** p < 0.01, * p < 0.05, ns = not significant.*