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*Supplement of*

## **Trends and variability of atmospheric PM<sub>2.5</sub> and PM<sub>10–2.5</sub> concentration in the Po Valley, Italy**

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Table S1: Results of the weekly cycle analysis on PM<sub>2.5</sub> and PM<sub>10-2.5</sub>: black dots indicate a significant weekend effect magnitude (WEM) or weekly cycle (WCY) or 7-days periodicity (MTM) at a 95% confidence level. Results shown are from test application on the complete series, winter and summer by grouping data in 7-day weeks (this latter applies only to WEM and WCY).

Station	Complete Series			Winter		Summer	
	WEM	WCY	MTM	WEM	WCY	WEM	WCY
PM <sub>2.5</sub>							
Alessandria							
Ballirana		•		•			
Bergamo	•	•				•	•
Besenzone	•	•				•	•
Biella		•					
Bologna G.M.							
Bologna P.S.F.		•				•	•
Borgofranco		•				•	•
Brescia	•	•				•	•
Calusco d'Adda	•	•				•	•
Casirate d'Adda	•	•				•	•
Castano Primo		•					•
Chivasso	•	•				•	•
Cornale							
Faenza		•					
Ferrara		•					
Forli'		•					•
Gavello		•					•
Guastalla			•				•
Jolanda di Savoia		•					
Langhirano		•					•
Leiní	•	•					
Lodi	•	•				•	•
Mantova	•	•				•	•
Merate	•	•				•	•
Milano	•	•				•	•
Modena	•	•					•
Mortara	•	•					
Novara							
Padova		•					
Parma		•	•				
Piacenza							
Ponti sul Mincio	•	•					
Reggio Emilia	•	•				•	
Rimini	•	•	•				
San Clemente							
Saronno	•	•				•	•
Schivenoglia	•	•					
Seriate	•	•				•	•
S. Pietro C.							
Torino C.	•						
Torino L.	•	•					•
Vercelli		•					
Vinchio							
PM <sub>10-2.5</sub>							
Borgofranco	•	•	•			•	•
Brescia	•	•	•	•	•	•	•
Calusco d'Adda	•	•		•	•	•	•
Casirate d'Adda	•	•	•	•		•	•
Lodi	•	•				•	•
Mantova	•	•			•		
Merate	•	•	•	•	•	•	•
Milano	•	•	•	•	•	•	•
Parma	•	•	•		•	•	•
Ponti sul Mincio	•	•		•	•	•	•
Reggio Emilia	•	•		•	•	•	•
Rimini	•	•	•	•	•	•	•
Saronno	•	•		•	•	•	•
Schivenoglia	•	•					•
Torino L.	•	•		•	•	•	•

## Complete series

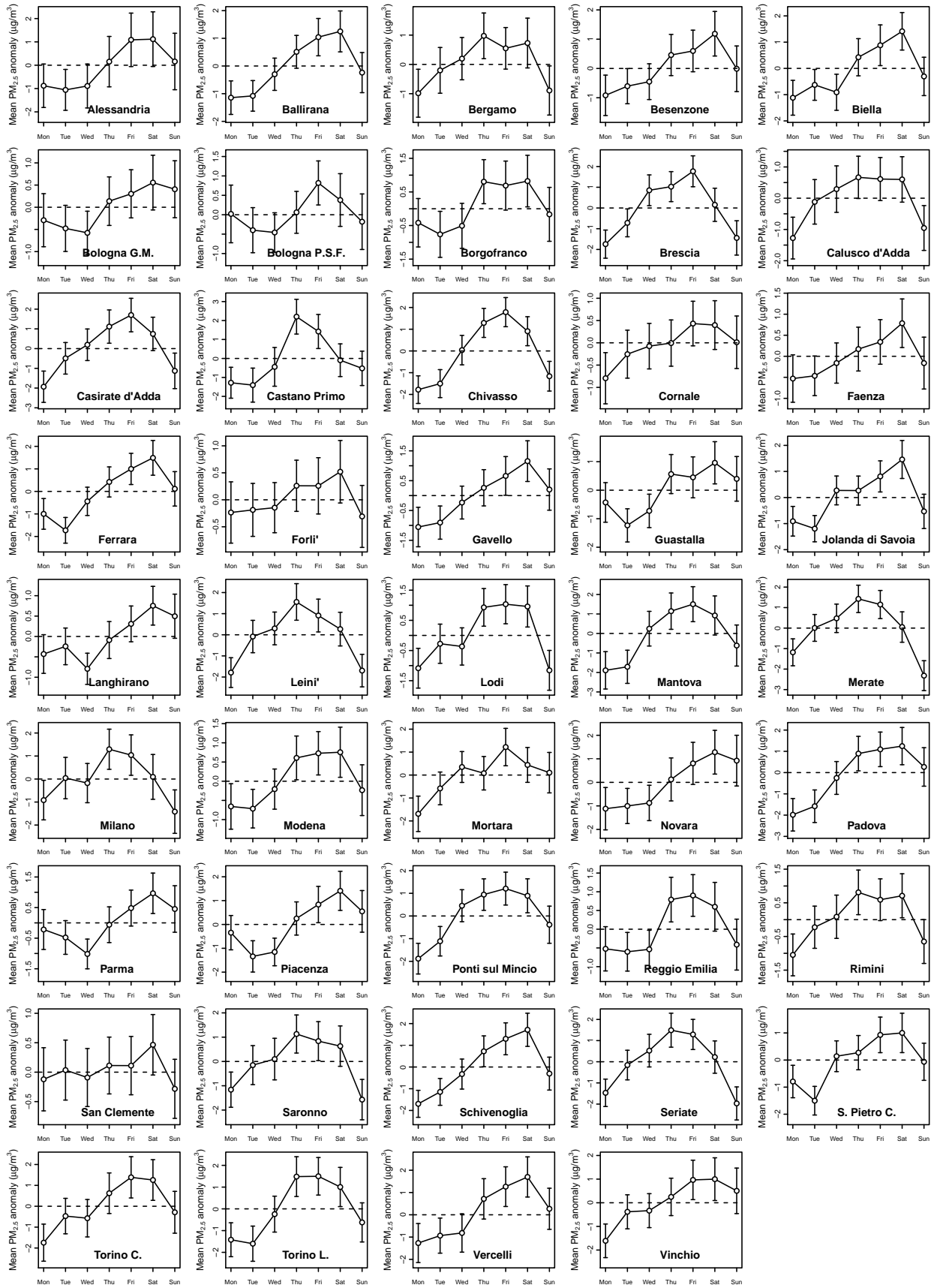


Figure S1: 7 day week mean PM<sub>2.5</sub> anomaly for all sites listed in table 1 (vertical bars indicate standard deviation).

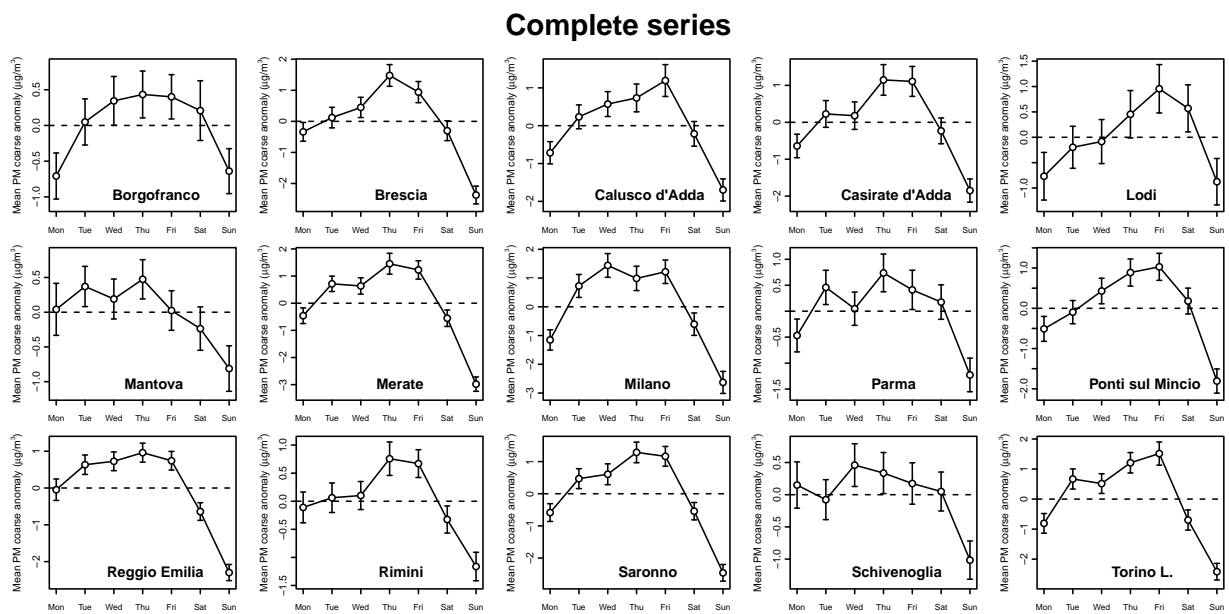


Figure S2: 7 day week mean  $PM_{10-2.5}$  anomaly for all sites listed in boldface in table 1 (vertical bars indicate standard deviation).

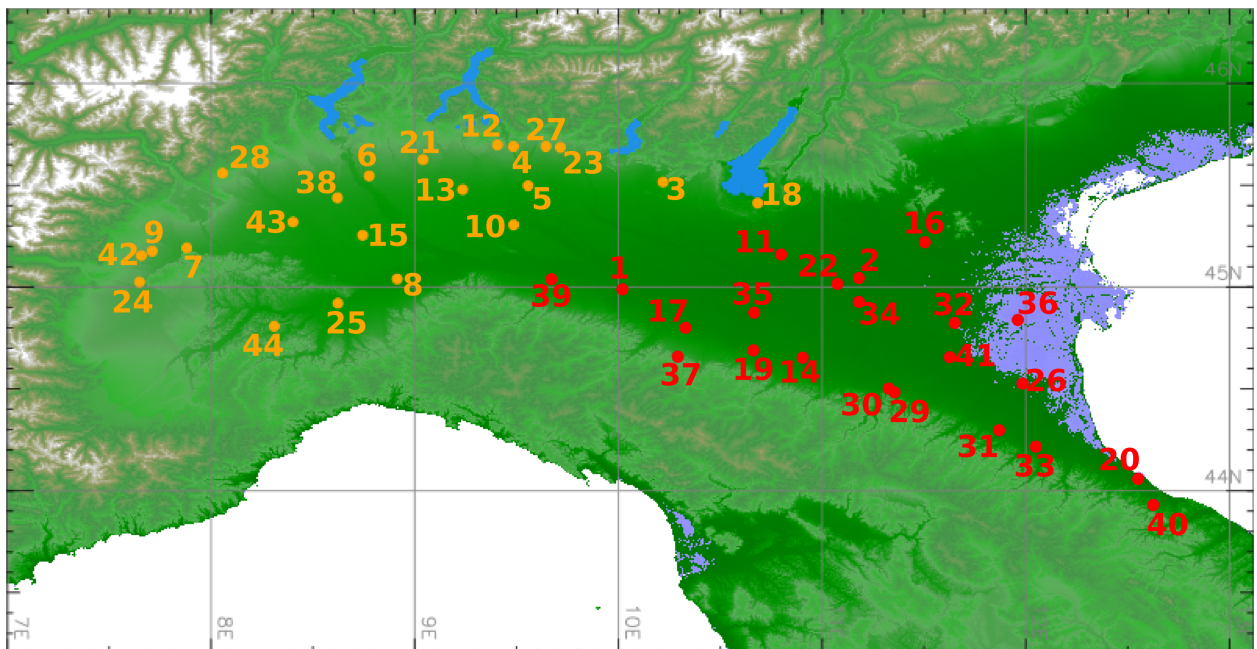


Figure S3: Map result for the cluster analysis using partition around medoids algorithm: sites within the same cluster have the same colour. Results of the cluster analysis using a divisive algorithm are in Figure 1. Key for ID number is found in Table 1. More details are in sections 2.3 and 3.3.

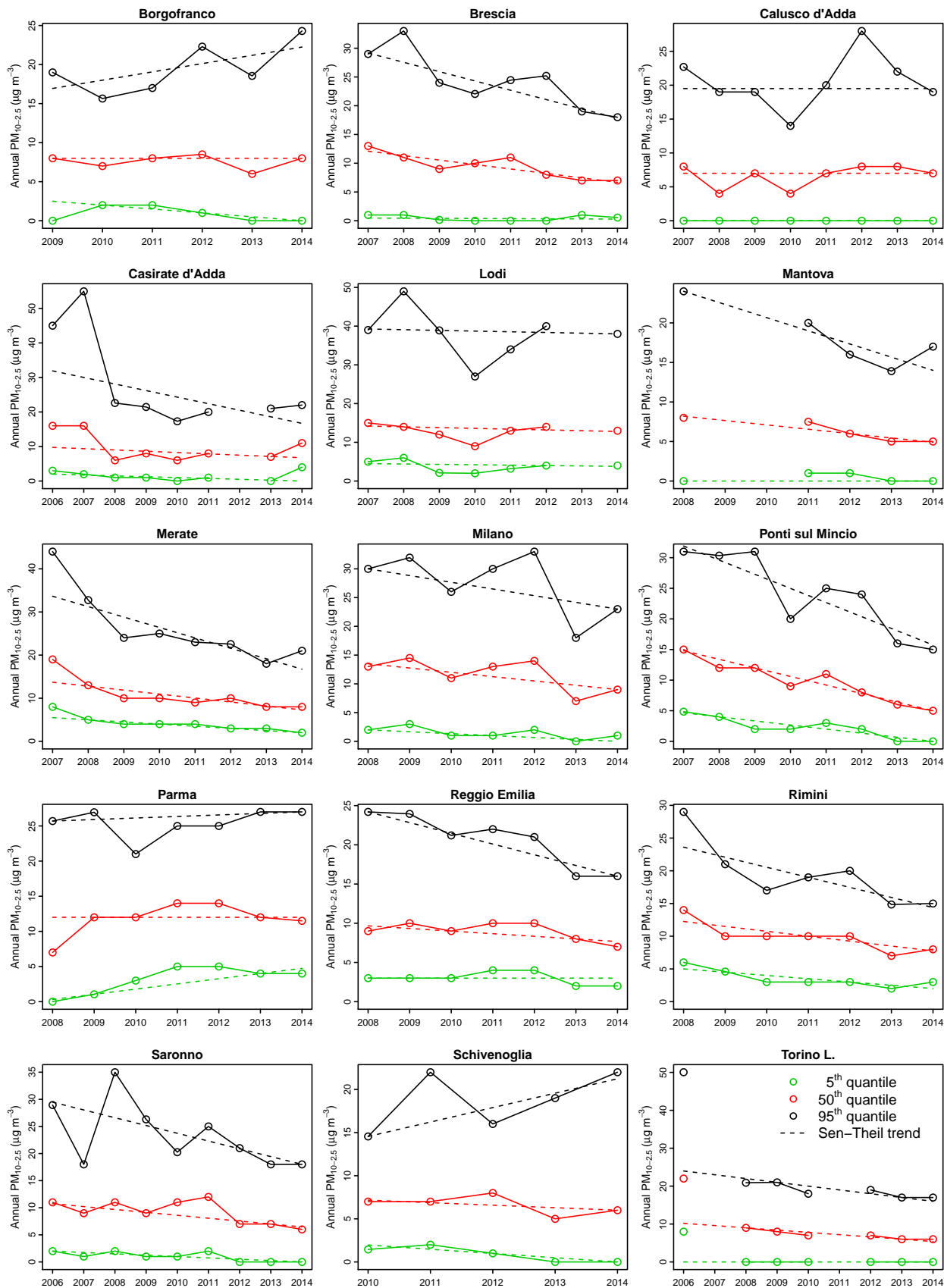


Figure S4: Annual quantile and Sen-Theil trend for daily PM<sub>10-2.5</sub>. Slope estimate and significance are found in table 3.

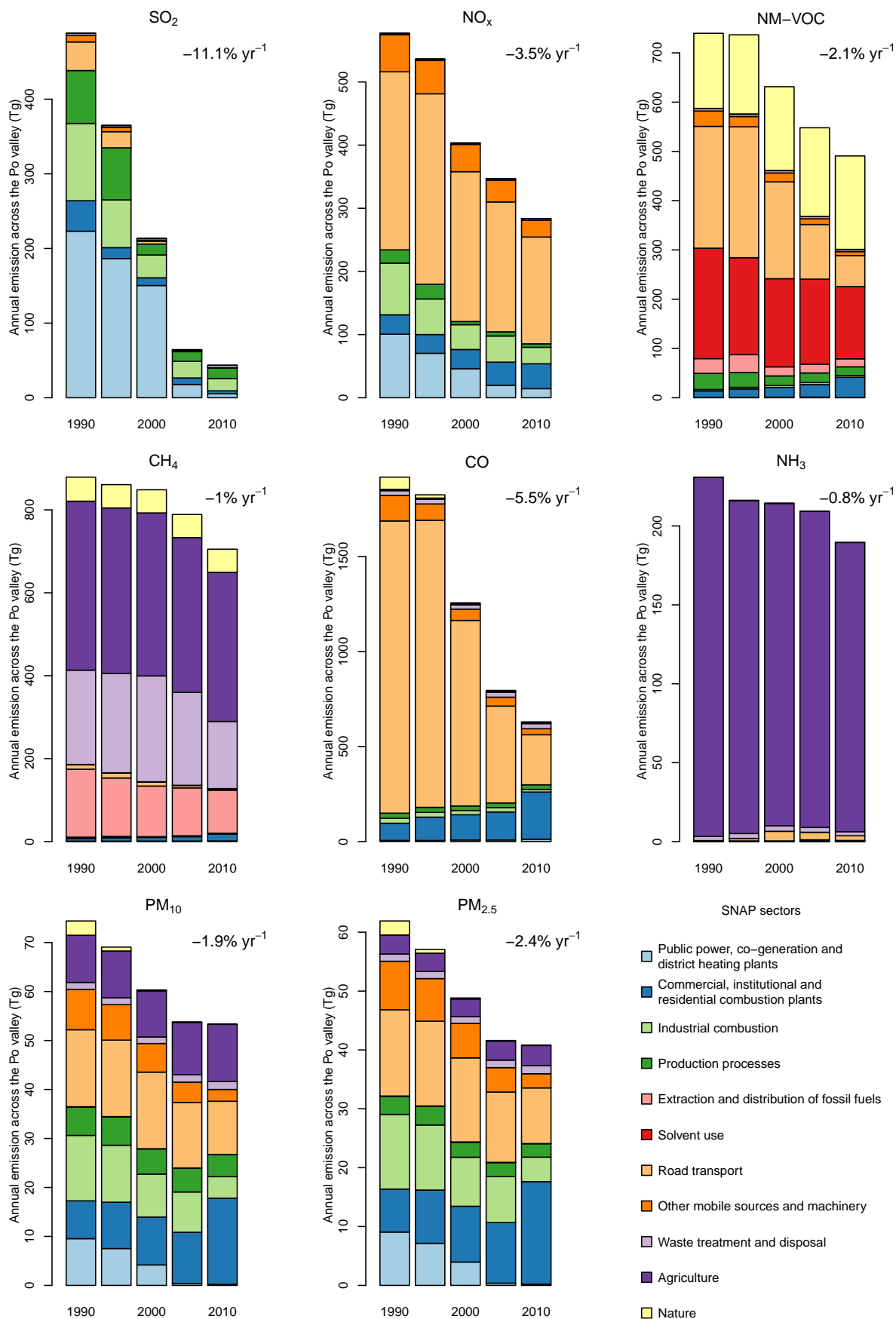


Figure S5: Emissions of selected compounds from all provinces on the Po valley, segregated by SNAP factor, over the period 1990–2010.

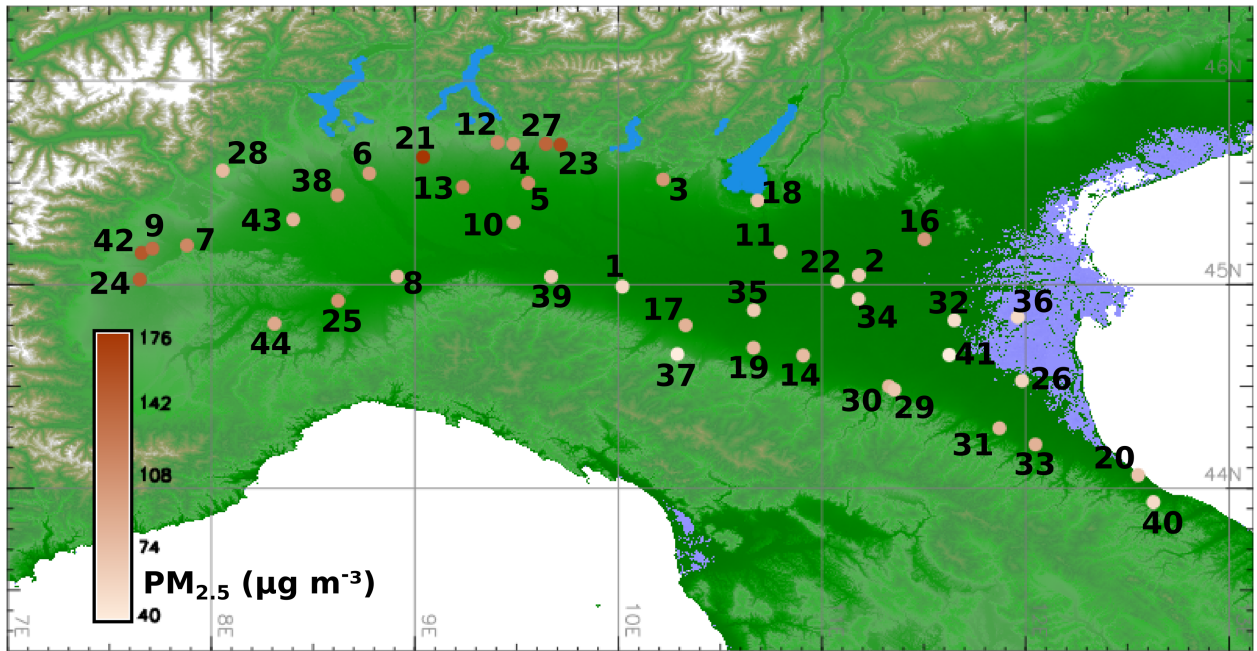


Figure S6: Maximum daily PM<sub>2.5</sub> observed over the Po valley over the January pollution episode.

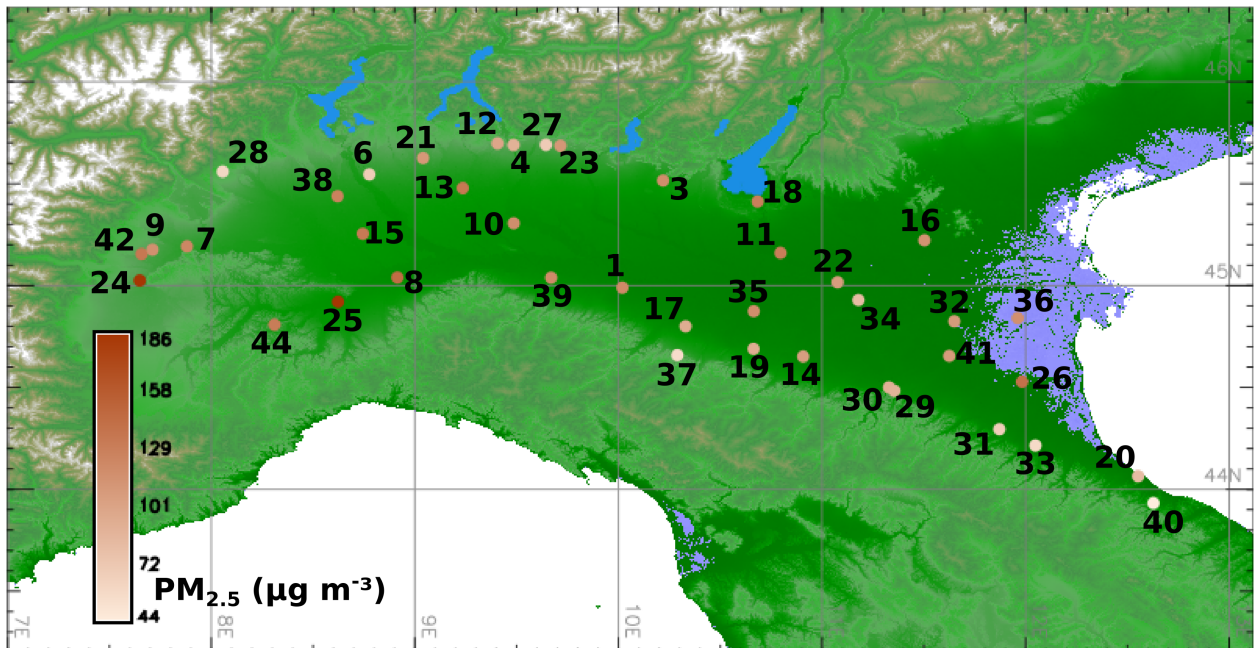


Figure S7: Maximum daily PM<sub>2.5</sub> observed over the Po valley over the February pollution episode.