



*Supplement of*

## **Simulating the formation of carbonaceous aerosol in a European Megacity (Paris) during the MEGAPOLI summer and winter campaigns**

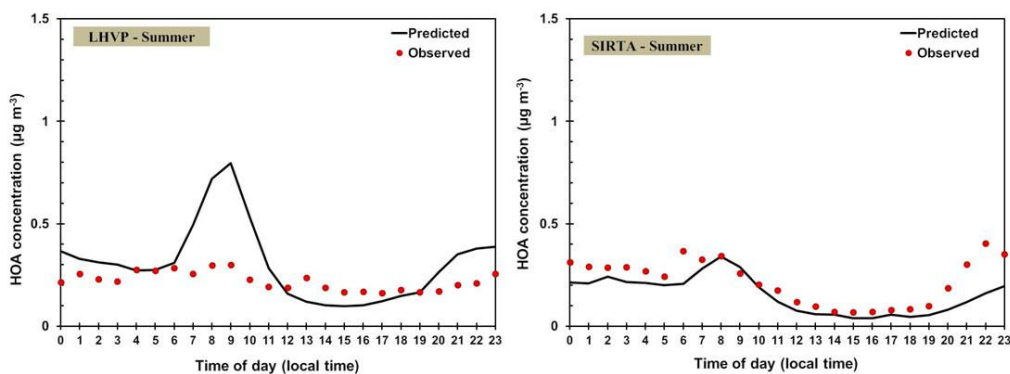
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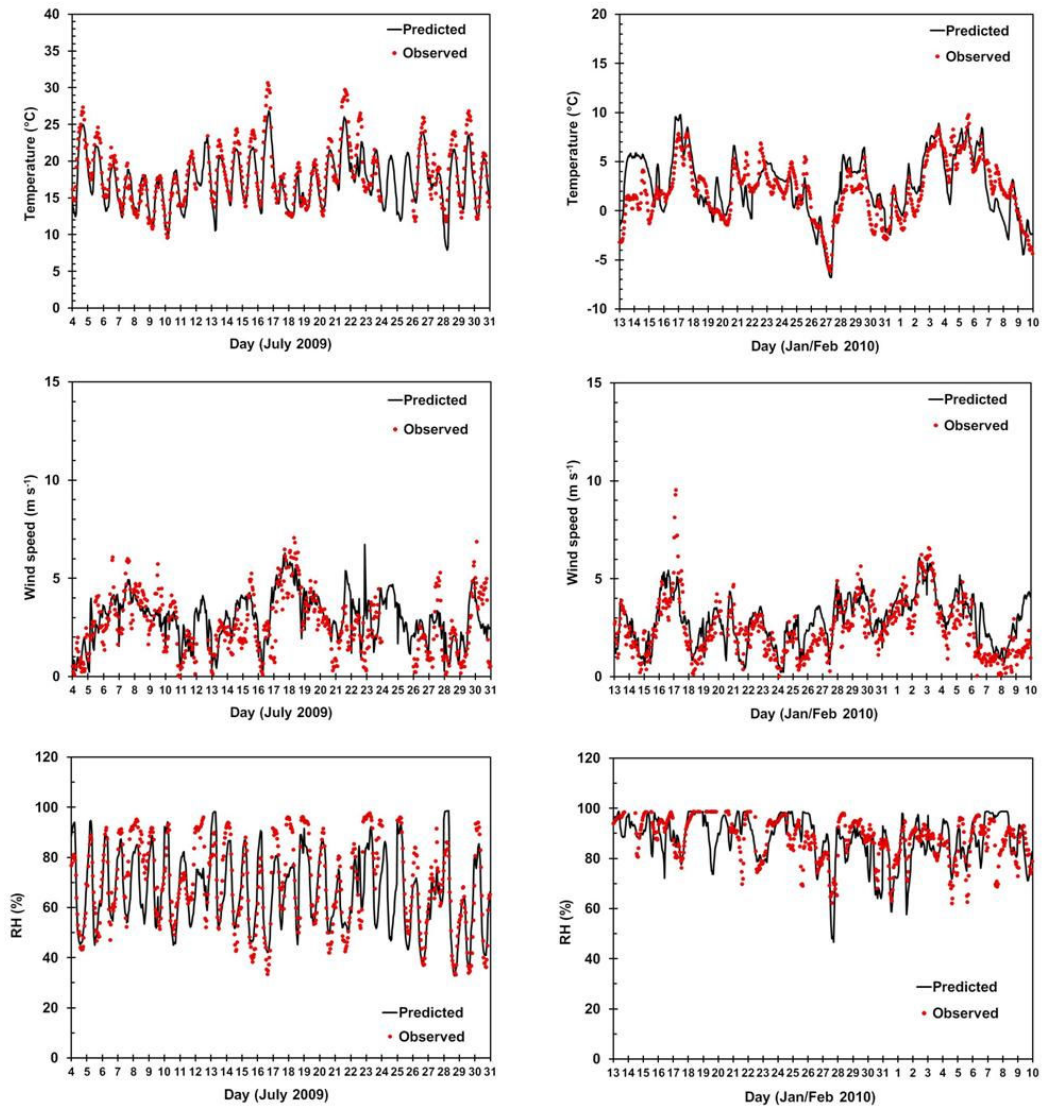
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**Table S1.** Prediction skill metrics of PMCAMx against factor-analysis AMS data for HOA.

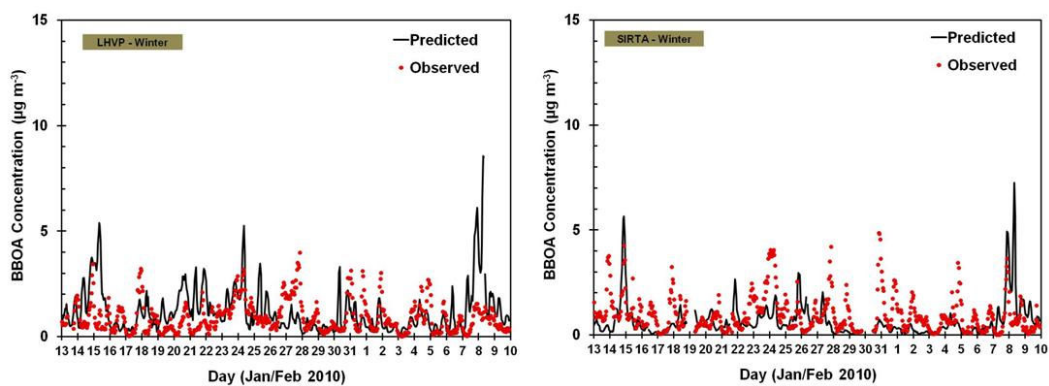
HOA	Summer				Winter			
	LHVP	SIRTA	GOLF	Average	LHVP	SIRTA	GOLF	Average
Mean predicted ( $\mu\text{g m}^{-3}$ )	0.3	0.15	0.2	0.25	0.35	0.2	0.25	0.3
Mean observed ( $\mu\text{g m}^{-3}$ )	0.2	0.2	-	0.2	0.7	0.8	0.65	0.7
FERROR	0.6	0.5	-	0.6	0.8	1.2	0.9	1
FBIAS	0.3	-0.4	-	0.1	-0.7	-1.2	-0.8	-0.9
MAGE ( $\mu\text{g m}^{-3}$ )	0.2	0.15	-	0.2	0.4	0.6	0.4	0.5
MB ( $\mu\text{g m}^{-3}$ )	0.15	-0.1	-	0.05	-0.4	-0.6	-0.3	-0.4



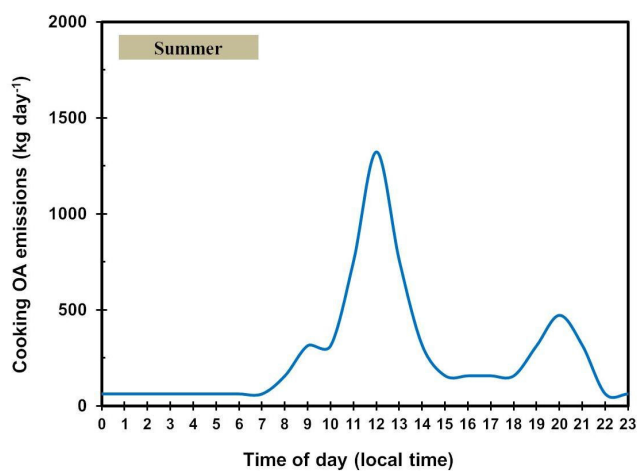
**Figure S1.** Average diurnal profiles of predicted and measured HOA concentrations on LHVP and SIRTA during the MEGAPOLI summer campaign.



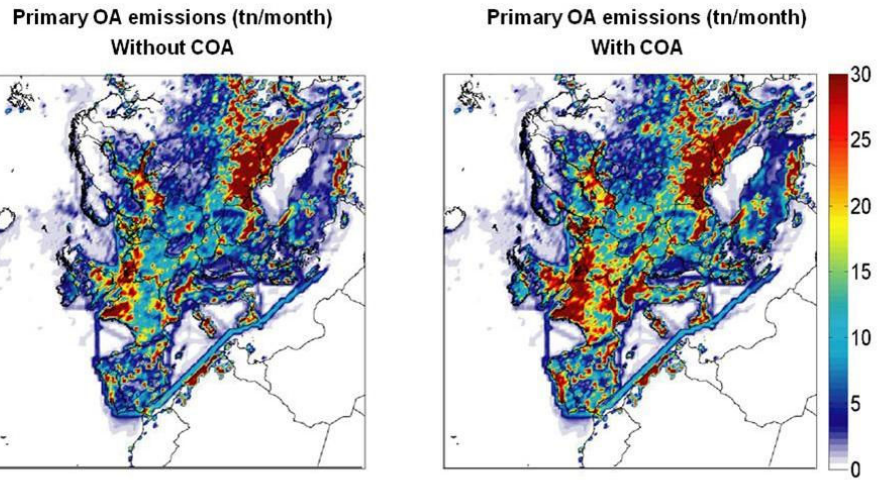
**Figure S2:** Comparison of simulated (black lines) and observed (red dots) temperature, wind velocity, and relative humidity at Sirta during the MEGAPOLI summer and winter campaigns.



**Figure S3:** Comparison of simulated (black lines) and observed (red dots) BBOA concentrations at LHVP and SIRTA during the MEGAPOLI winter campaign.



**Figure S4.** Temporal profile of cooking OA emissions added in the Paris inventory during the MEGAPOLI summer campaign.



**Figure S5.** Total primary OA emissions during the July 2009 period in Europe.