

Supplementary Material

Correlating Air Pollution Concentrations and Vehicular Emissions in an Italian Roadway Tunnel by Means of Low Cost Sensors

Saverio De Vito ¹, Antonio Del Giudice ¹, Gerardo D'Elia ¹, Elena Esposito ^{1,*}, Grazia Fattoruso ¹, Sergio Ferlito ¹, Fabrizio Formisano ¹, Giuseppe Loffredo ¹, Ettore Massera ¹, Patrizia Bellucci ², Francesca Ciarallo ² and Girolamo Di Francia ¹

¹ ENEA Italian National Agency for New Technologies, Energy and Sustainable Economic Development, Centro Ricerche Portici, 80055, Portici, Italy

² ANAS Azienda Nazionale Autonoma delle Strade Statali S.p.A., 10-00185, Roma, Italy

* Correspondence: elena.esposito@enea.it

Figure S1: CO concentration estimation (4-minutes sampling period) in the tunnel, during the trimester under investigation.

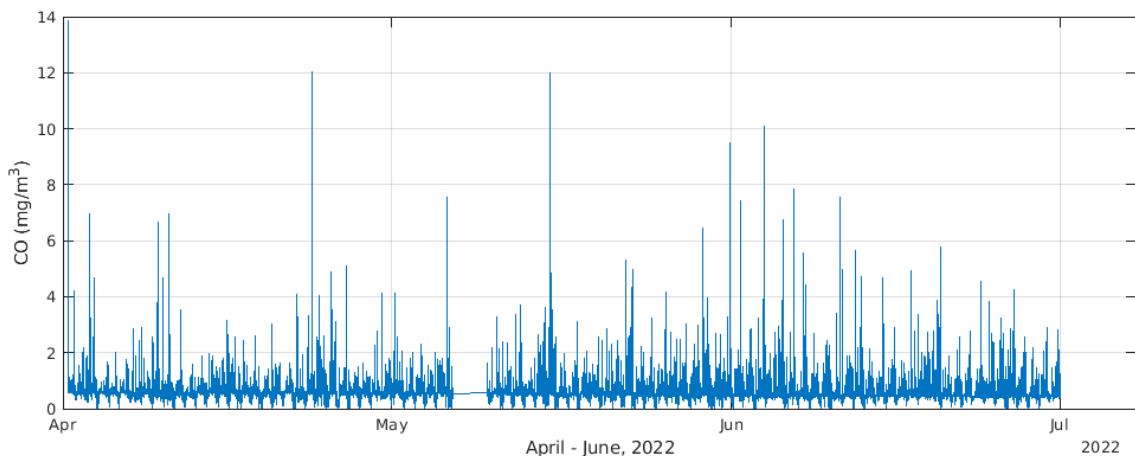


Table S1: Standard error in averaged concentrations computation for gas, PM and environmental parameters monitored by MONICA, inside the tunnel and on the Viaduct, in the trimester April - June.

Parameter	MONICA Tunnel		MONICA Outside	
	Range	Mean (standard error)	Range	Mean (standard error)
T (°C)	(15 - 37)	26 (0.02)	(11 - 48)	29 (0.04)
RH (%)	(19 - 62)	42 (0.04)	(9 - 62)	31 (0.05)
CO (mg/m ³)	(0 - 14)	0.50 (0.01)	(0 - 1.8)	0.38 (5e-04)
NO ₂ (μg/m ³)	(27 - 291)	89 (0.11)	(0 - 125)	33 (0.08)
O ₃ (μg/m ³)	-	-	(0 - 166)	51 (0.14)
PM ₁ (μg/m ³)	(0 - 200)	10 (0.04)	(0 - 130)	8 (0.02)
PM _{2.5} (μg/m ³)	(0 - 312)	12 (0.05)	(0 - 185)	10 (0.03)
PM ₁₀ (μg/m ³)	(0 - 351)	14 (0.06)	(0 - 198)	11 (0.03)

Figure S2: Boxplot of PM₁ concentration estimation in the tunnel during the trimester April - June under investigation.

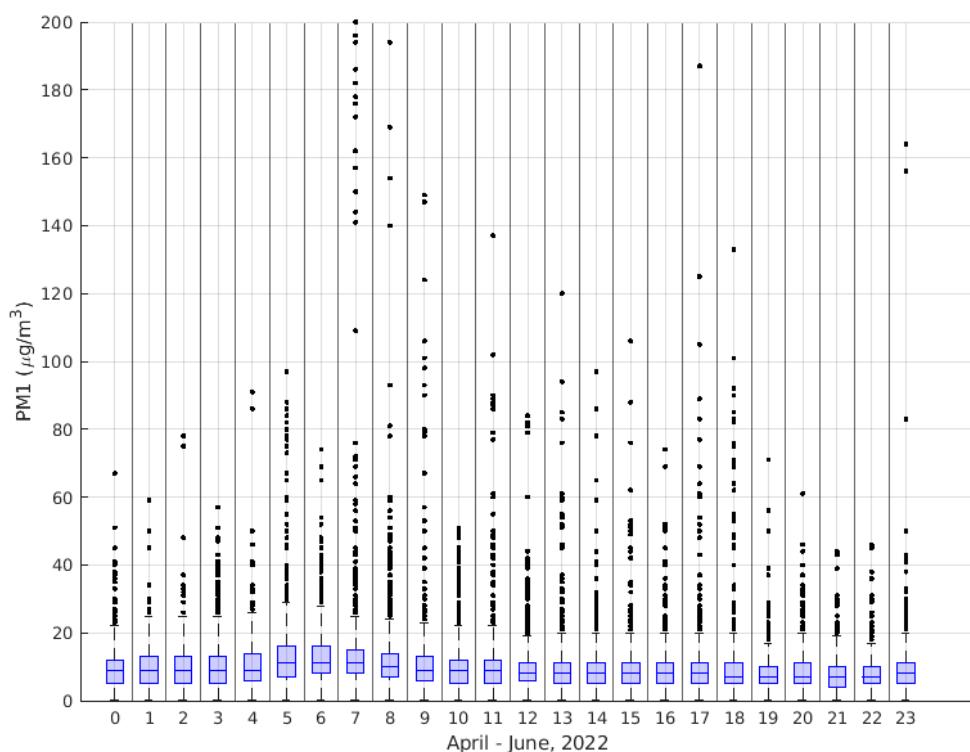


Figure S3: Boxplot of PM_{2.5} concentration estimation in the tunnel during the trimester April - June under investigation.

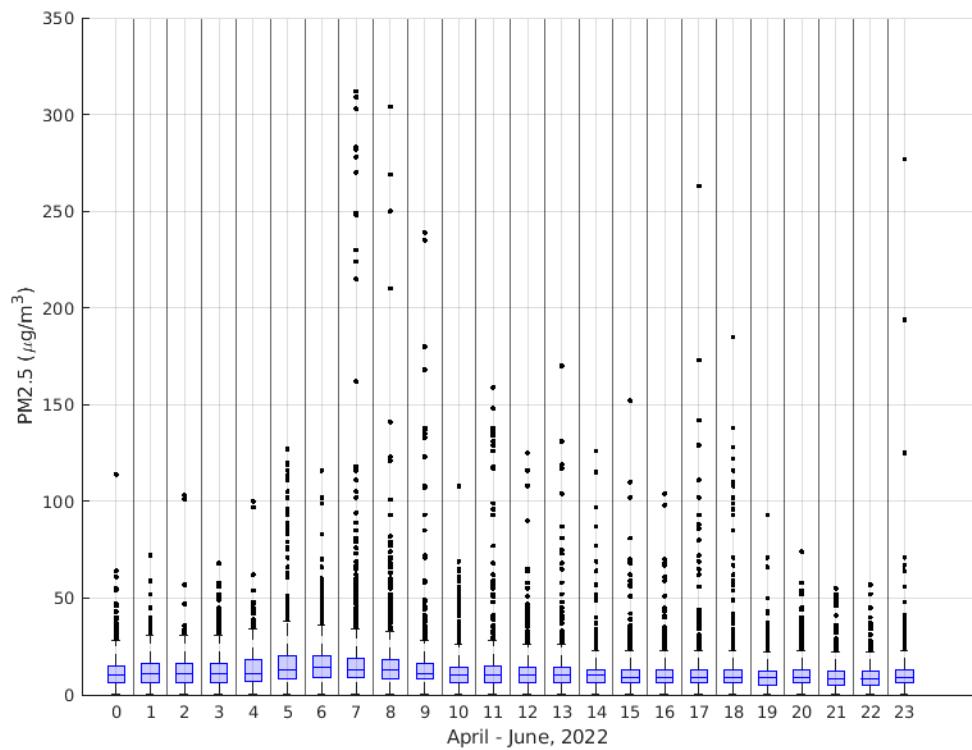


Figure S4: Boxplot of PM₁₀ concentration estimation in the tunnel during the trimester April - June under investigation.

