

Environmental Research Communications



CORRIGENDUM

OPEN ACCESS

RECEIVED
17 January 2023ACCEPTED FOR PUBLICATION
27 January 2023PUBLISHED
9 March 2023

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Corrigendum: Effectiveness of emissions standards on automotive evaporative emissions in Europe under normal and extreme temperature conditions (2022 *Environ. Res. Commun.* **4**, 081003)

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This corrigendum addresses an error in the estimation of refueling emissions under the projected Euro7 emissions control scenario, which affects figure 1, figure 2, figure S4, and table 1; the original and revised figures and table are presented herein. The authors unintentionally applied only the Stage II emission reduction factor of 0.6035 to the refueling emissions estimated for the Euro7 scenario rather than the correct emission reduction factor of 0.99207, which includes the combined implementation of ORVR and Stage II controls and reflects the additional efficiency of ORVR in capturing 98% of evaporative NMVOC emissions during refueling.

The correction results in significantly lower per-vehicle evaporative NMVOC emission rates under the Euro7 scenario as depicted in the revised figure 1 (panels c and f). Under the corrected Euro7 scenario, evaporative NMVOC rates decrease by 72.0% on average within the study period and domain relative to the Euro6d scenario. As shown in the revised figure 2 (panels b and d) and revised table 1, the reduction in emission rates under the Euro7 scenario is largely consistent between the representative near-average temperature day (17 July) and the peak heatwave day (25 July)—during which emission rates among the 12 cities in figures 1 and 2 and table 1 increase by an average of 17.4% under Euro7 controls compared to an average increase of 29.4% under Euro6d controls—demonstrating that ORVR-equipped vehicles are more resilient to the breakthrough of emissions during periods of prolonged high temperatures due to the increased canister size.

As shown in the revised figure S4, the correction also results in significantly reduced total emissions within the study period and domain. Applying EEA methodologies to estimate the revised VLY- and VSL-based damage costs results in approximately €10.4 million to €27.1 million, respectively, in avoided damage costs during the study period under the Euro7 scenario relative to current Euro6d standards and controls.

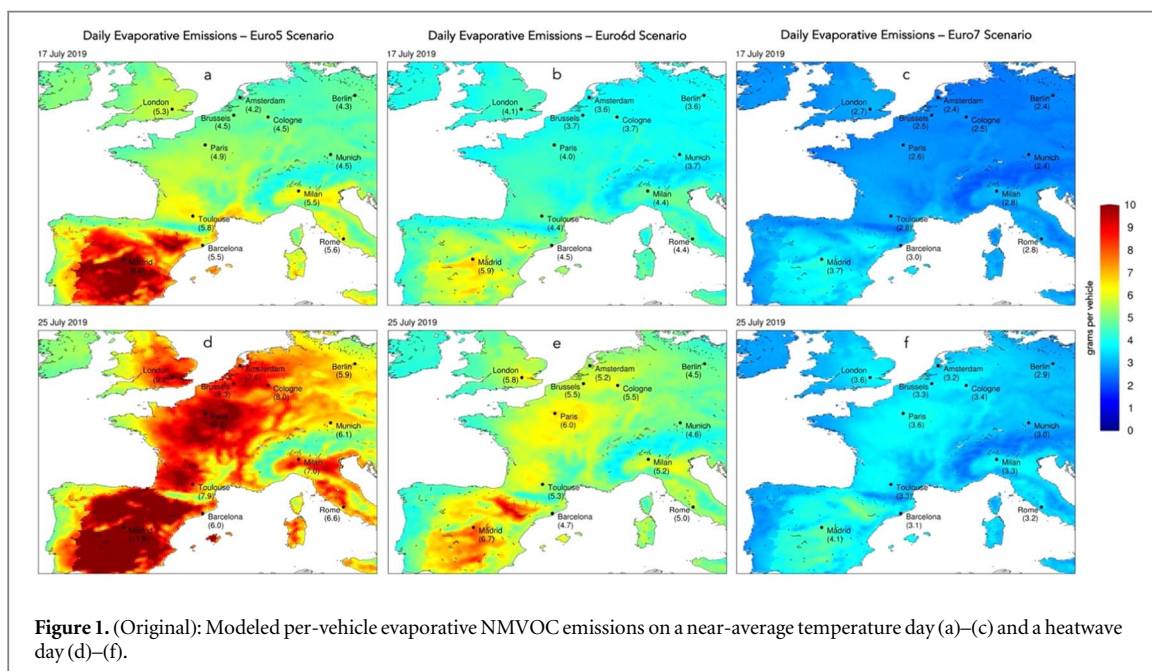


Figure 1. (Original): Modeled per-vehicle evaporative NMVOC emissions on a near-average temperature day (a)–(c) and a heatwave day (d)–(f).

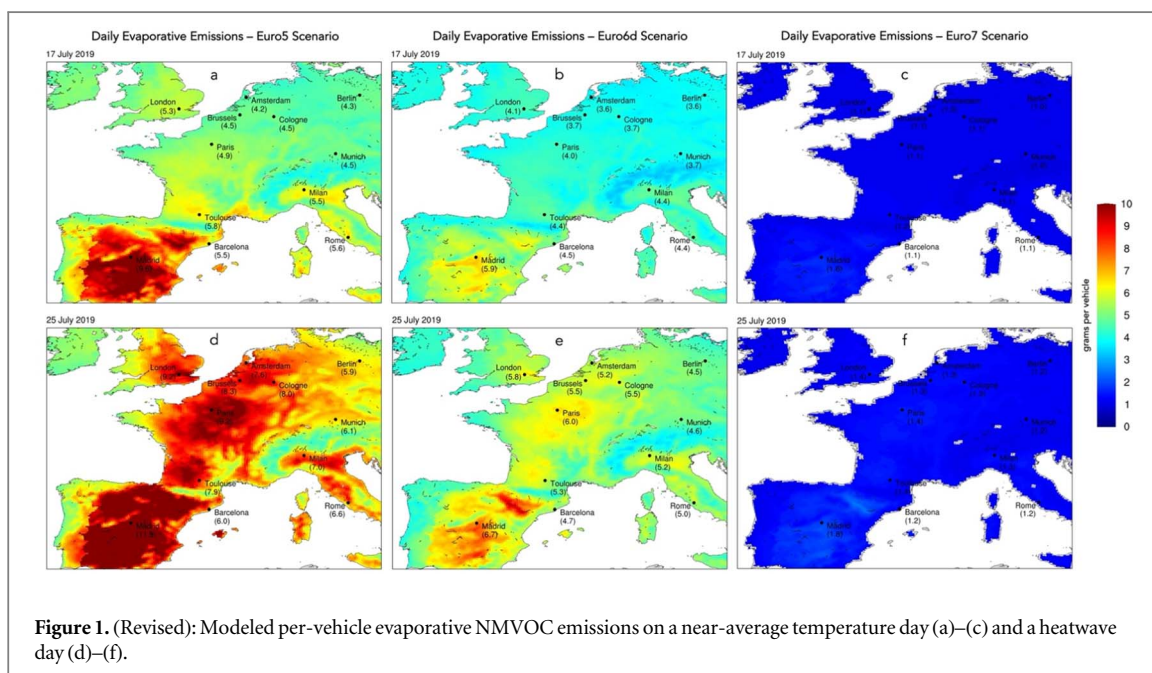


Figure 1. (Revised): Modeled per-vehicle evaporative NMVOC emissions on a near-average temperature day (a)–(c) and a heatwave day (d)–(f).

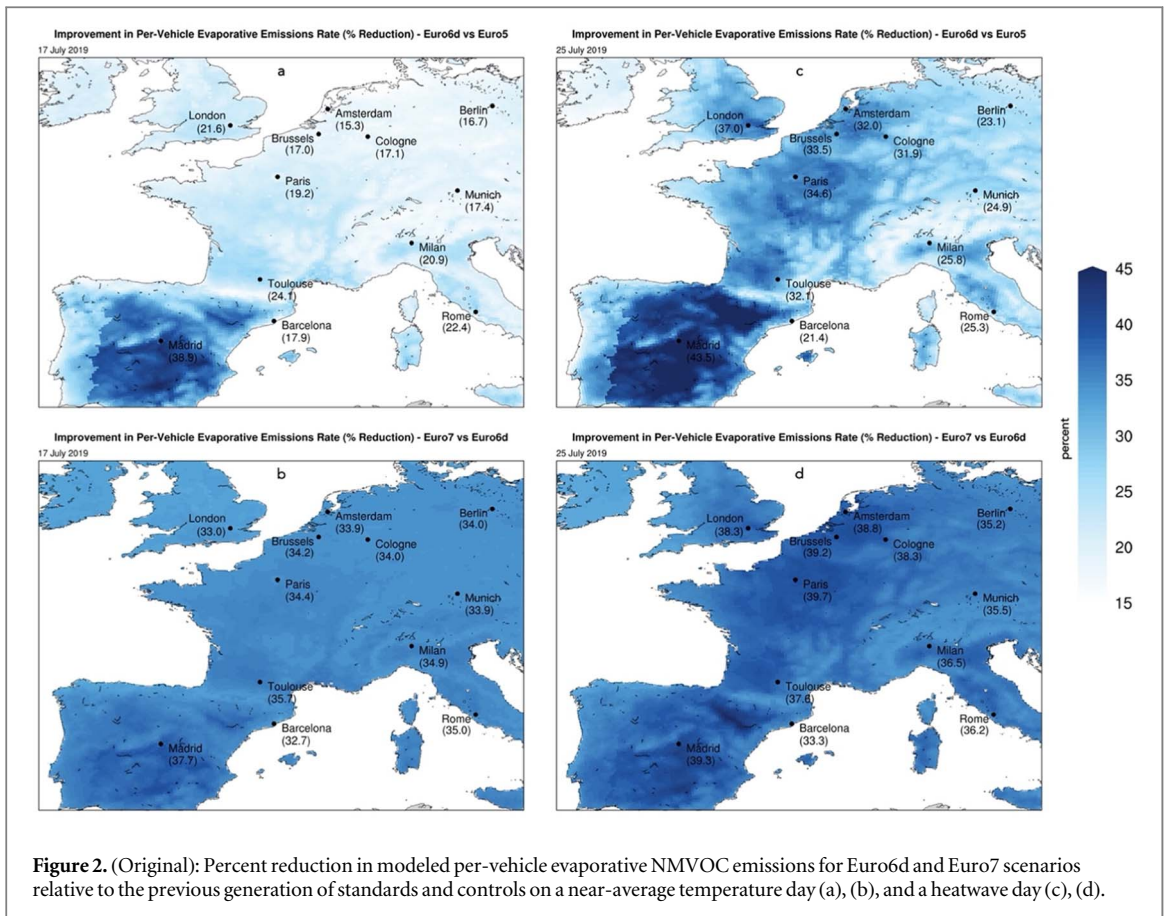


Figure 2. (Original): Percent reduction in modeled per-vehicle evaporative NMVOC emissions for Euro6d and Euro7 scenarios relative to the previous generation of standards and controls on a near-average temperature day (a), (b), and a heatwave day (c), (d).

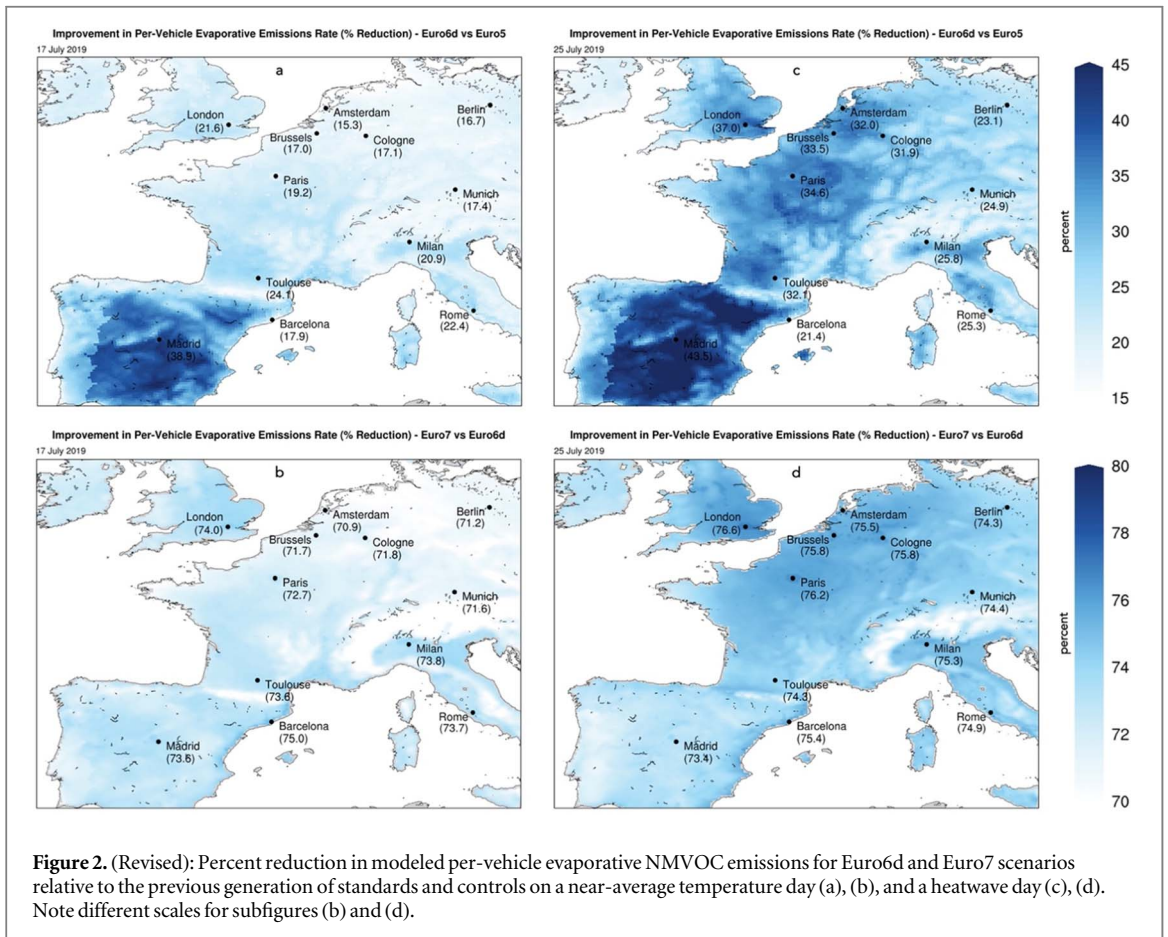


Figure 2. (Revised): Percent reduction in modeled per-vehicle evaporative NMVOC emissions for Euro6d and Euro7 scenarios relative to the previous generation of standards and controls on a near-average temperature day (a), (b), and a heatwave day (c), (d). Note different scales for subfigures (b) and (d).

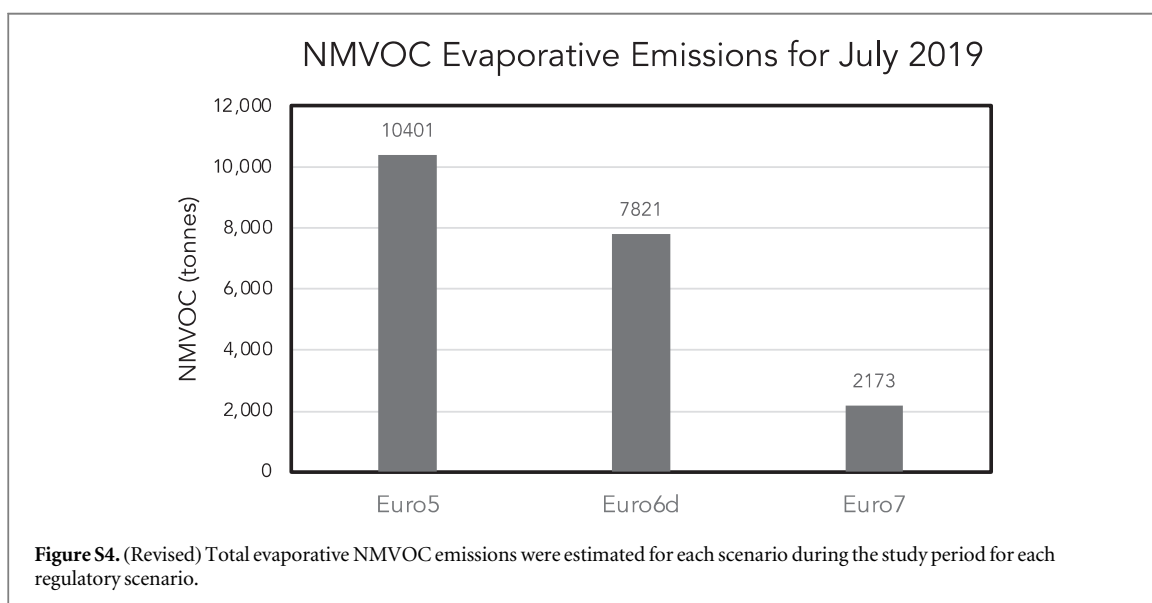
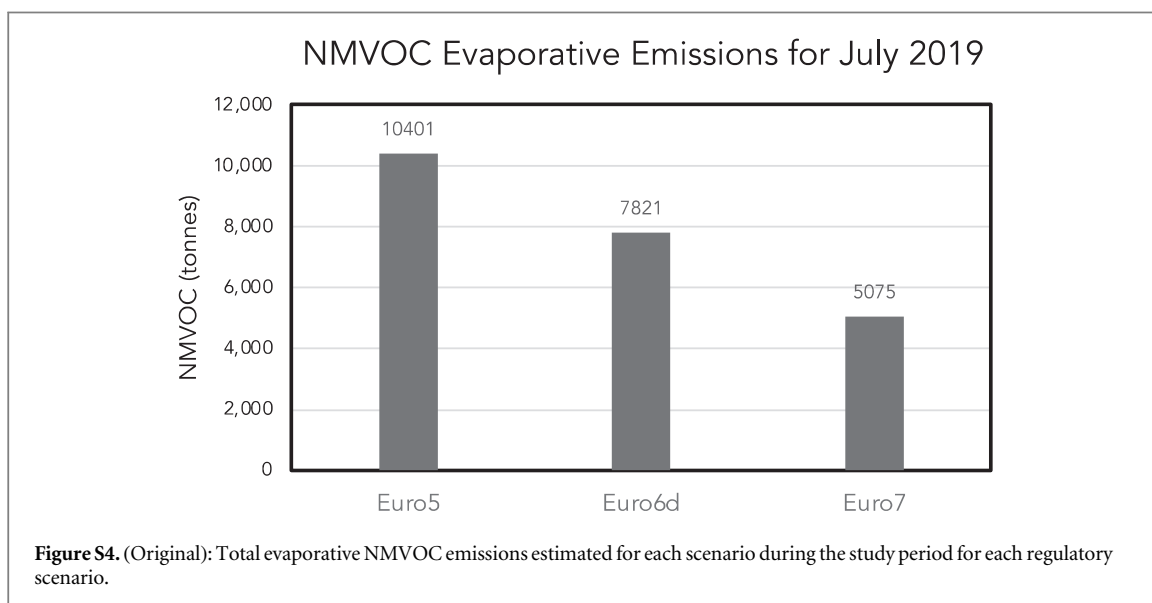
Table 1. (Original): Evaporative NMVOC emissions in grams per vehicle for select cities on a near-average temperature day and the peak heatwave day. Values in parenthesis indicate the percent change in per-vehicle emissions relative to the previous emission controls/standards scenario.

Location	Per-Vehicle Evaporative Emissions - g/vehicle					
	Euro5		Euro6d		Euro7	
	near-avg temperature day	heatwave day	near-avg temperature day	heatwave day	near-avg temperature day	heatwave day
Amsterdam, ND	4.20	7.63	3.56 (-15.3)	5.19 (-32.0)	2.35 (-33.9)	3.17 (-38.8)
Barcelona, ES	5.48	5.95	4.50 (-17.9)	4.68 (-21.4)	3.02 (-32.7)	3.12 (-33.3)
Berlin, DE	4.32	5.86	3.60 (-16.7)	4.51 (-23.1)	2.37 (-34.0)	2.92 (-35.2)
Brussels, BE	4.50	8.26	3.73 (-17.0)	5.49 (-33.5)	2.46 (-34.2)	3.34 (-39.2)
Cologne, DE	4.52	8.04	3.74 (-17.1)	5.47 (-31.9)	2.47 (-34.0)	3.38 (-38.3)
London, UK	5.27	9.18	4.13 (-21.5)	5.79 (-37.0)	2.77 (-33.1)	3.57 (-38.3)
Madrid, ES	9.65	11.89	5.89 (-38.9)	6.71 (-43.5)	3.67 (-37.7)	4.07 (-39.3)
Milan, IT	5.53	7.04	4.37 (-20.8)	5.23 (-25.8)	2.85 (-34.9)	3.32 (-36.5)
Munich, DE	4.46	6.10	3.68 (-17.4)	4.59 (-24.9)	2.43 (-33.9)	2.96 (-35.5)
Paris, FR	4.92	9.22	3.97 (-19.2)	6.03 (-34.6)	2.60 (-34.4)	3.64 (-39.7)
Rome, IT	5.62	6.64	4.36 (-22.4)	4.96 (-25.3)	2.83 (-35.0)	3.17 (-36.2)
Toulouse, FR	5.82	7.85	4.42 (-24.1)	5.33 (-32.1)	2.84 (-35.7)	3.33 (-37.6)

Table 1. (Revised): Evaporative NMVOC emissions in grams per vehicle for select cities on a near-average temperature day and the peak heatwave day. Values in parenthesis indicate the percent change in per-vehicle emissions relative to the previous emission controls/standards scenario.

Location	Per-Vehicle Evaporative Emissions - g/vehicle					
	Euro5		Euro6d		Euro7	
	near-avg temperature day	heatwave day	near-avg temperature day	heatwave day	near-avg temperature day	heatwave day
Amsterdam, ND	4.20	7.63	3.56 (-15.3)	5.19 (-32.0)	1.03 (-71.1)	1.27 (-75.5)
Barcelona, ES	5.48	5.95	4.50 (-17.9)	4.68 (-21.4)	1.13 (-74.9)	1.15 (-75.4)
Berlin, DE	4.32	5.86	3.60 (-16.7)	4.51 (-23.1)	1.04 (-71.1)	1.16 (-74.3)
Brussels, BE	4.50	8.26	3.73 (-17.0)	5.49 (-33.5)	1.06 (-71.6)	1.33 (-75.8)
Cologne, DE	4.52	8.04	3.74 (-17.1)	5.47 (-31.9)	1.05 (-71.9)	1.32 (-75.9)
London, UK	5.27	9.18	4.13 (-21.5)	5.79 (-37.0)	1.08 (-73.9)	1.35 (-76.7)
Madrid, ES	9.65	11.89	5.89 (-38.9)	6.71 (-43.5)	1.56 (-73.5)	1.79 (-73.3)
Milan, IT	5.53	7.04	4.37 (-20.8)	5.23 (-25.8)	1.15 (-73.7)	1.29 (-75.3)
Munich, DE	4.46	6.10	3.68 (-17.4)	4.59 (-24.9)	1.05 (-71.5)	1.17 (-74.5)
Paris, FR	4.92	9.22	3.97 (-19.2)	6.03 (-34.6)	1.09 (-72.6)	1.44 (-76.1)
Rome, IT	5.62	6.64	4.36 (-22.4)	4.96 (-25.3)	1.15 (-73.6)	1.25 (-74.8)
Toulouse, FR	5.82	7.85	4.42 (-24.1)	5.33 (-32.1)	1.17 (-73.5)	1.37 (-74.3)

Supplemental Figures



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