

Supplementary material

Impact of aftertreatment devices on primary emissions and secondary organic aerosol formation potential from in-use diesel vehicles: Results from smog chamber experiments

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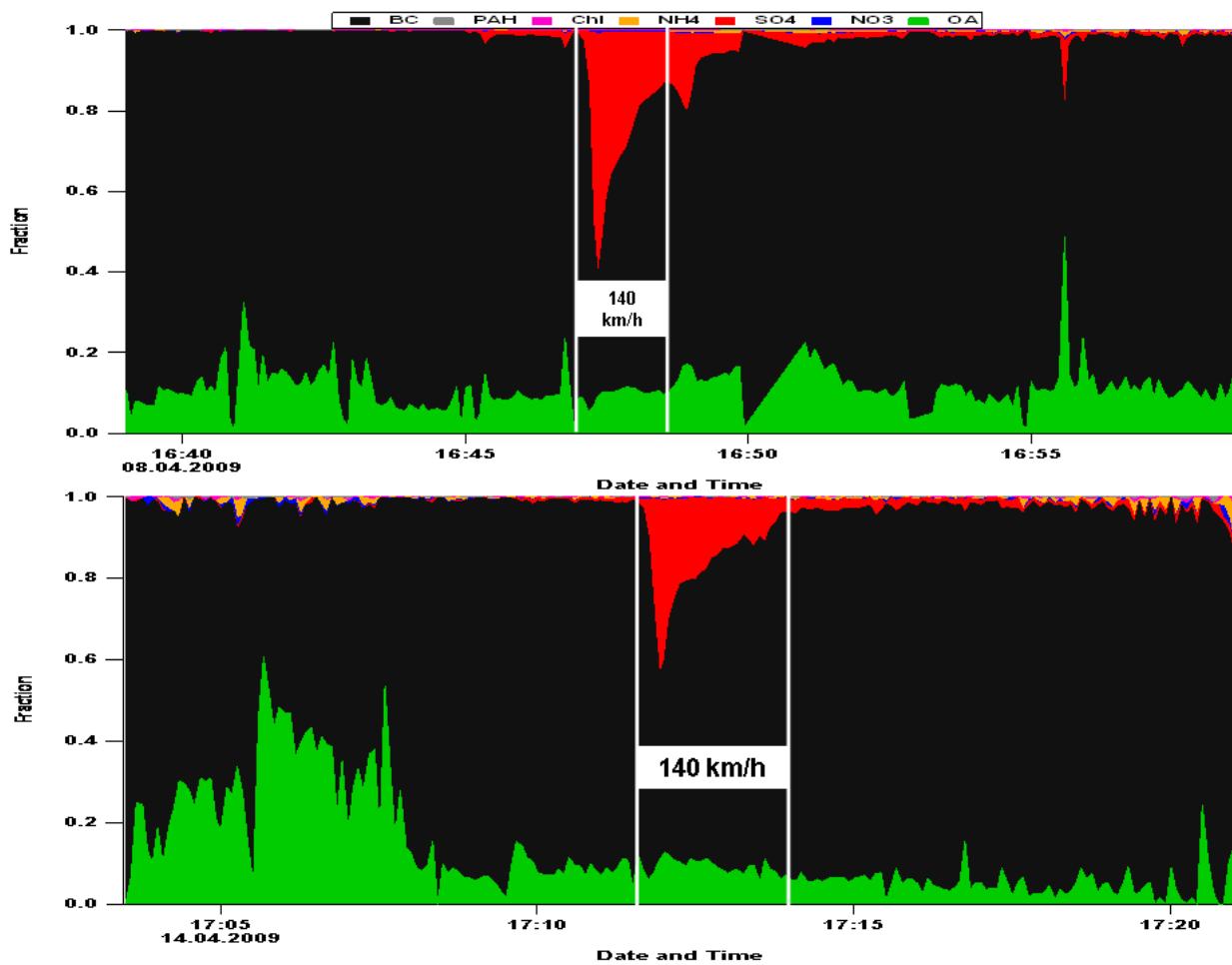


Figure S.1. Time series of AMS species and BC as fraction of the total mass (AMS+BC) during two speed ramp tests (idle-50km/h-90km/h-120km/h-140km/h-120km/h-90km/h-50km/h-idle) on a chassis dynamometer (JRC-Ispra) with the Astra. The white bars define the time interval when the speed was increased from 120 km/h to 140km/h and when it was reduced again to 120 km/h.

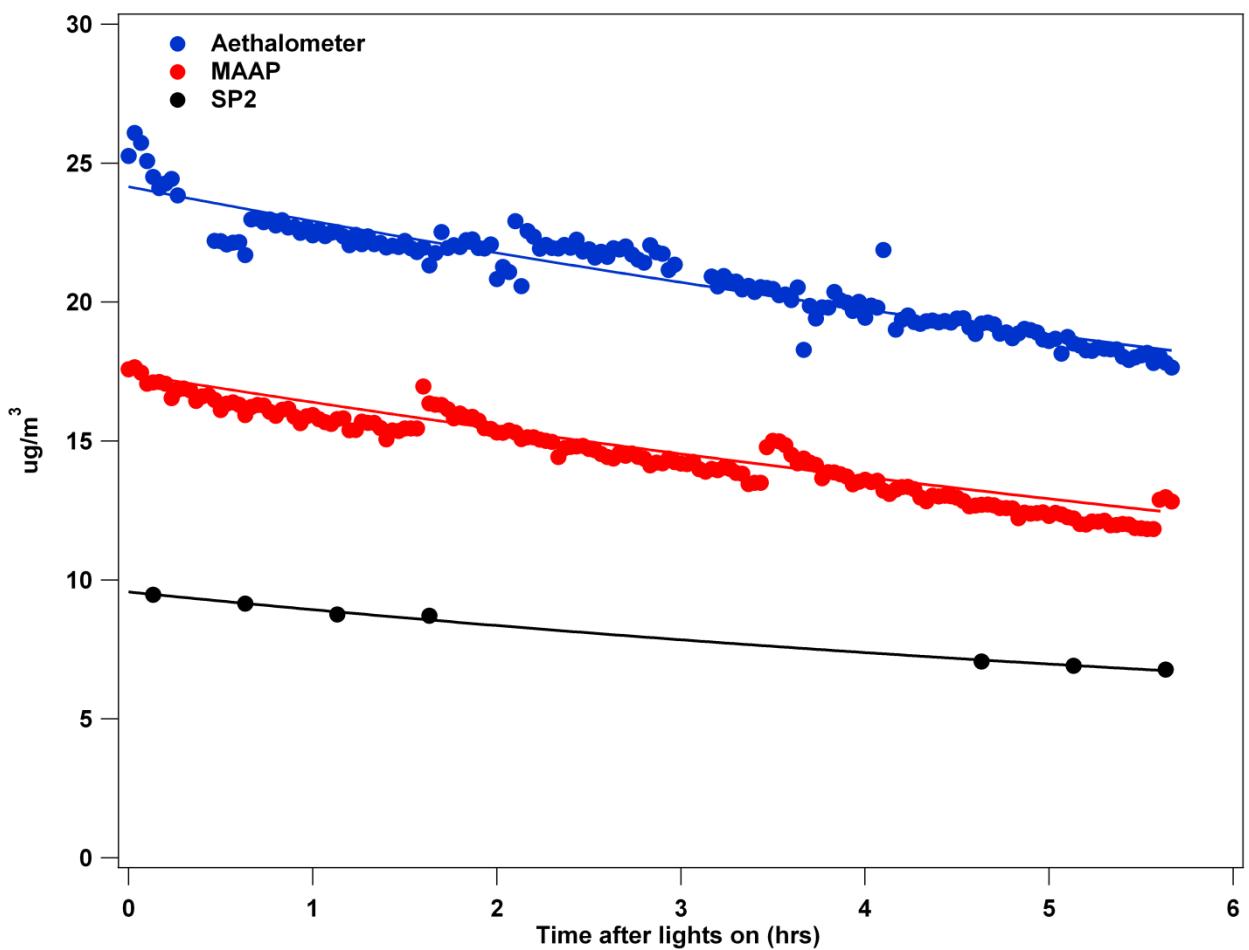


Figure S.2. Time series of BC measured by the Aethalometer, the MAAP and the SP2 for one diesel experiment.

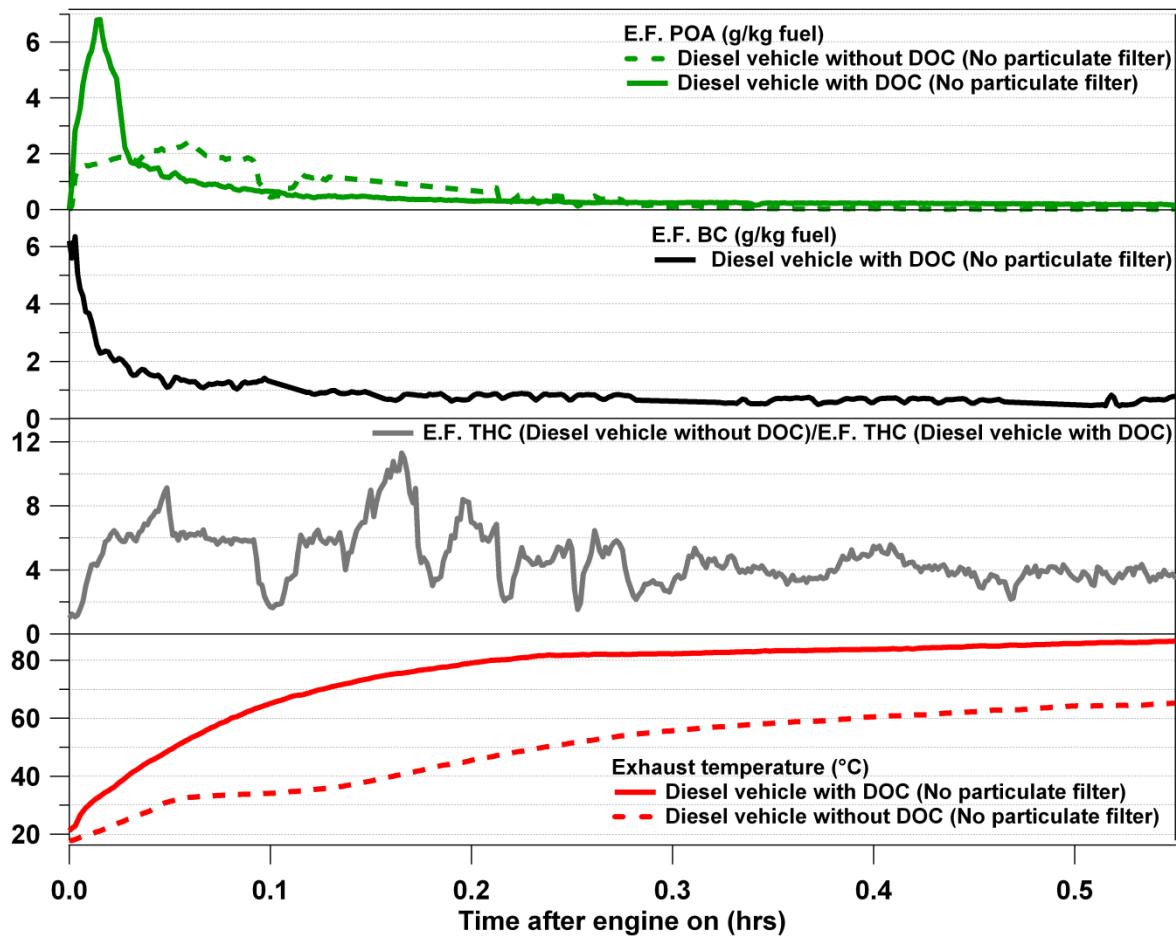


Figure S.3. Emission factors for BC, POA (g/kg fuel) and THC emission factor ratio from direct measurement of the exhaust from two diesel vehicles: one with a DOC and another one without aftertreatments. The instruments were connected to the sampling line of Fig. 1 after the dilution stage (~1:7).

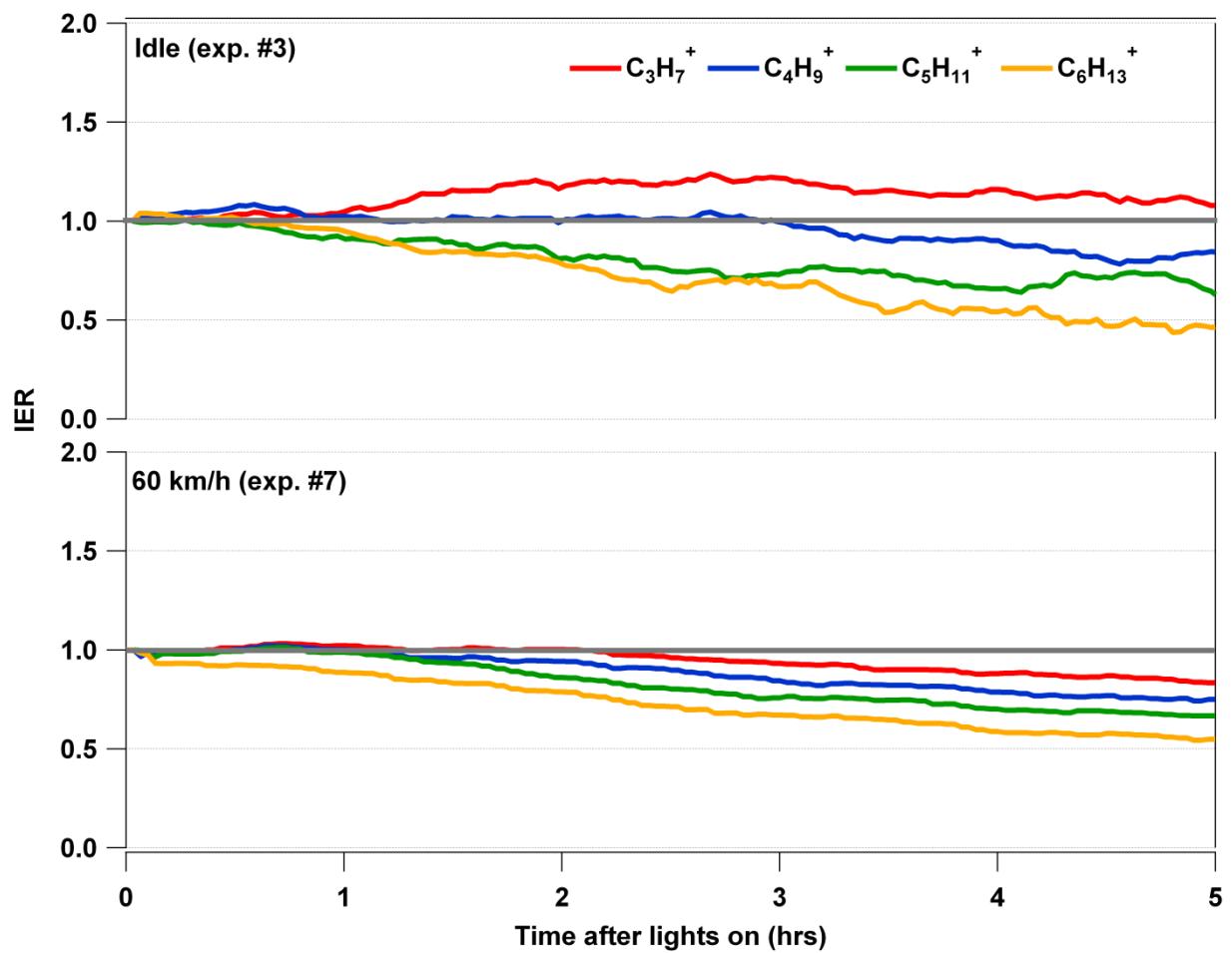


Figure S.4. Temporal evolution of the ion enhancement ratios of selected markers of primary organic aerosols for two characteristic experiments with the Astra (idle, deactivated DOC; 60 km/h).

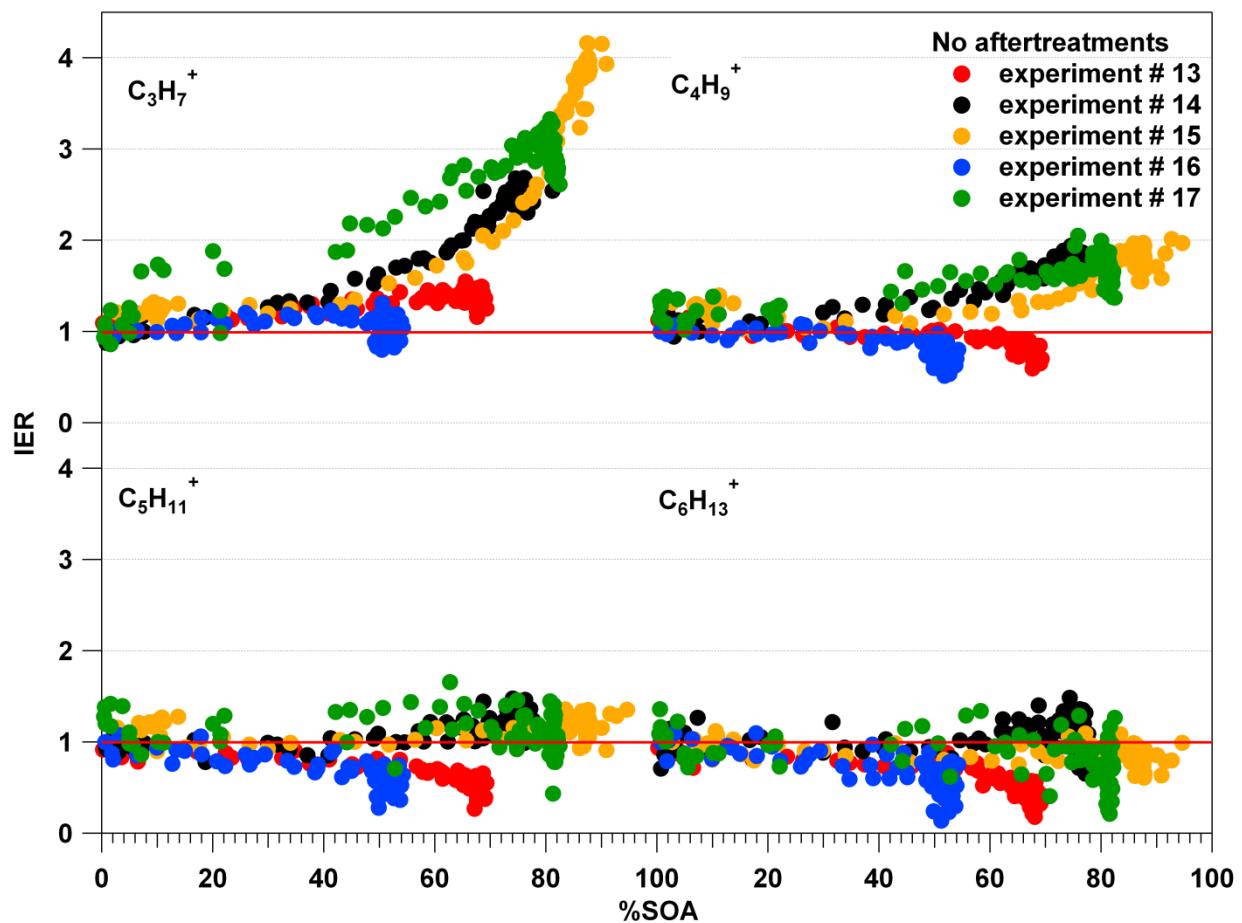


Figure S.5. Ion enhancement ratios of selected markers of primary organic aerosol versus the percentage of SOA from experiments with a diesel vehicle lacking aftertreatment devices.

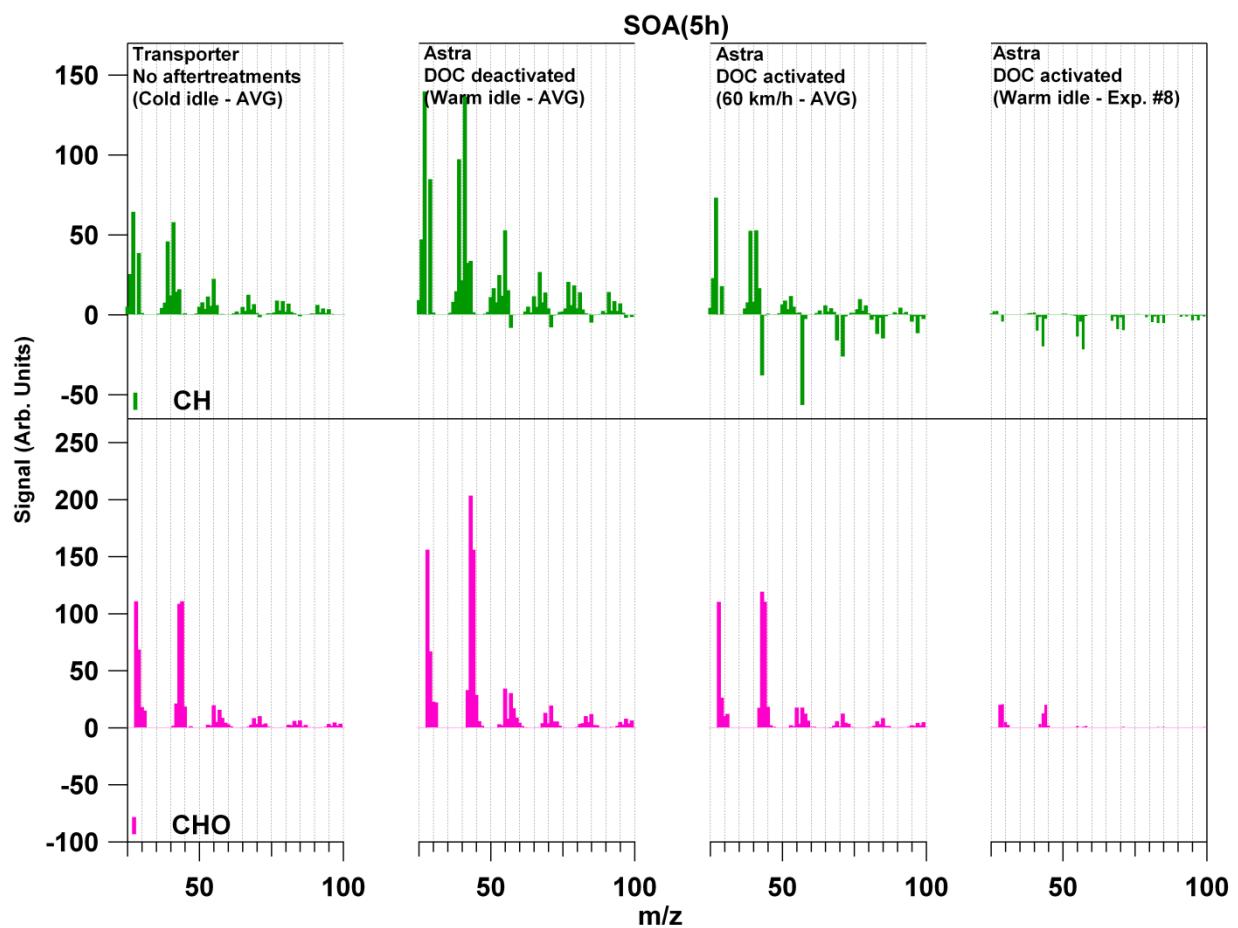


Figure S.6. SOA MS in high resolution (CH and CHO family only) after 5 hours of aging (SOA(5h)) obtained with the Equation 7. Each m/z is represented by the average signal intensity.

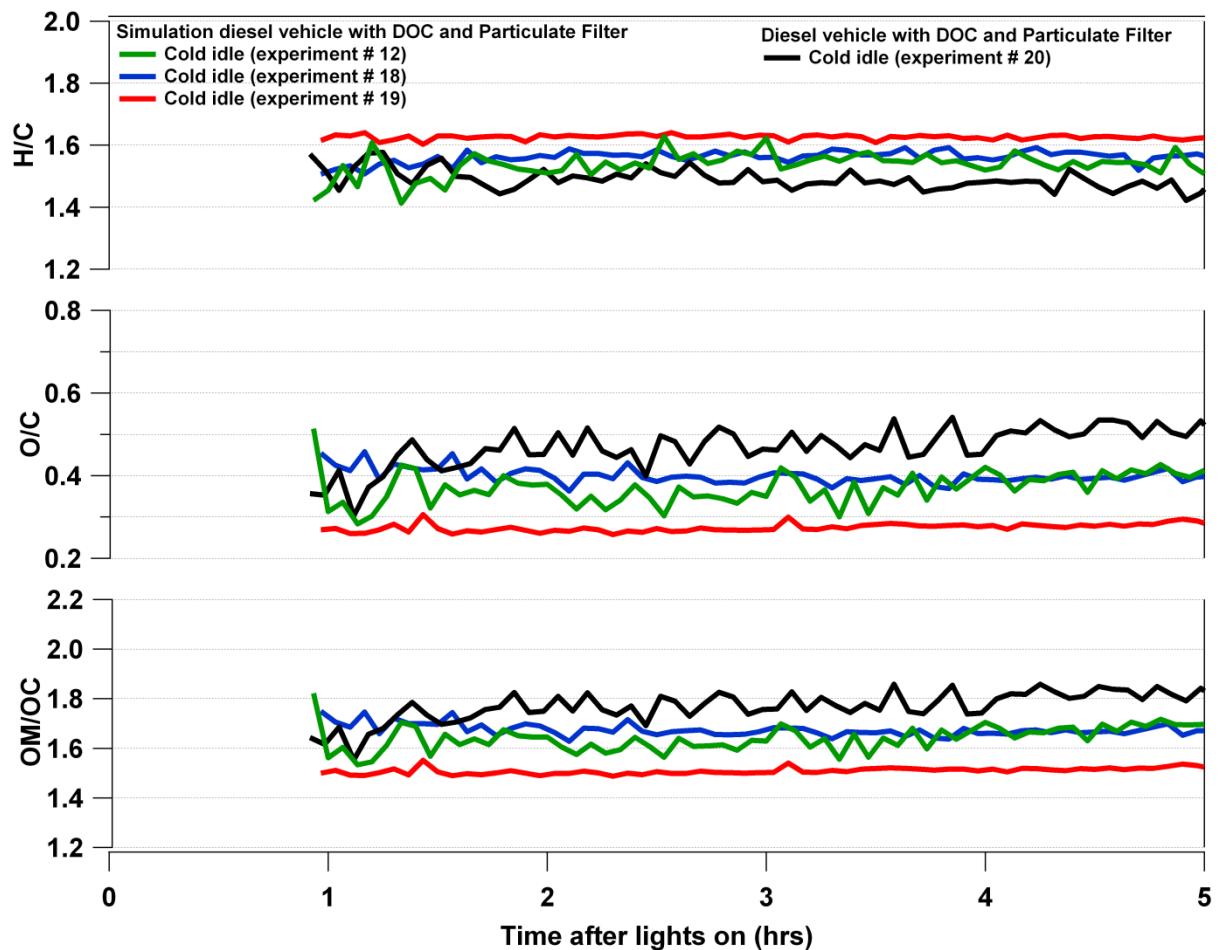


Figure S.7. Time series of O/C and H/C atomic ratios and OM/OC ratios from the diesel gas-phase only experiments.