

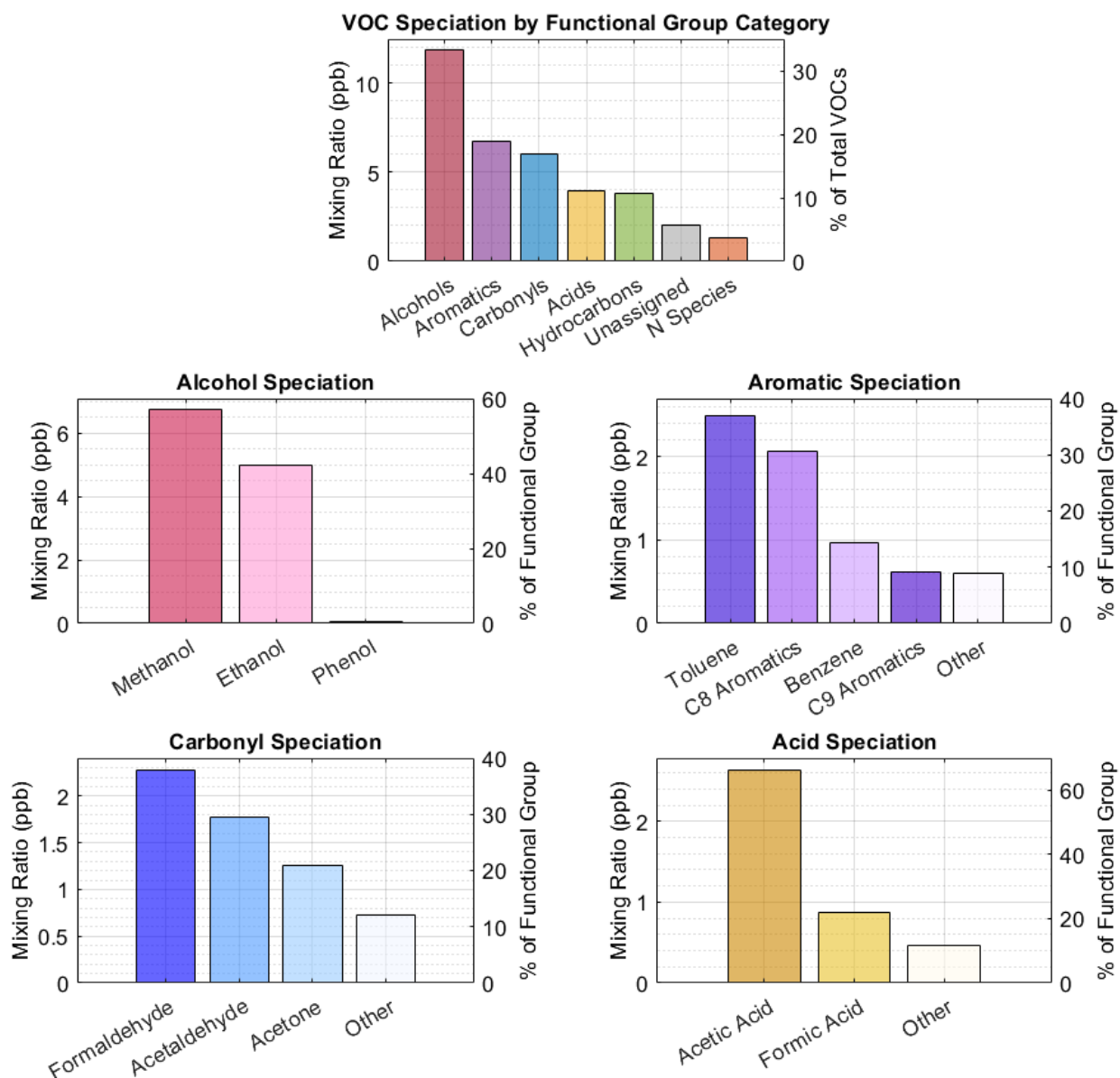


Figure 1. Mean composition of VOCs categorized by their functional groups during ALPACA campaign. The “Unassigned” group is made of up of about 290 species whose individual campaign means are all less than 0.05 ppb.

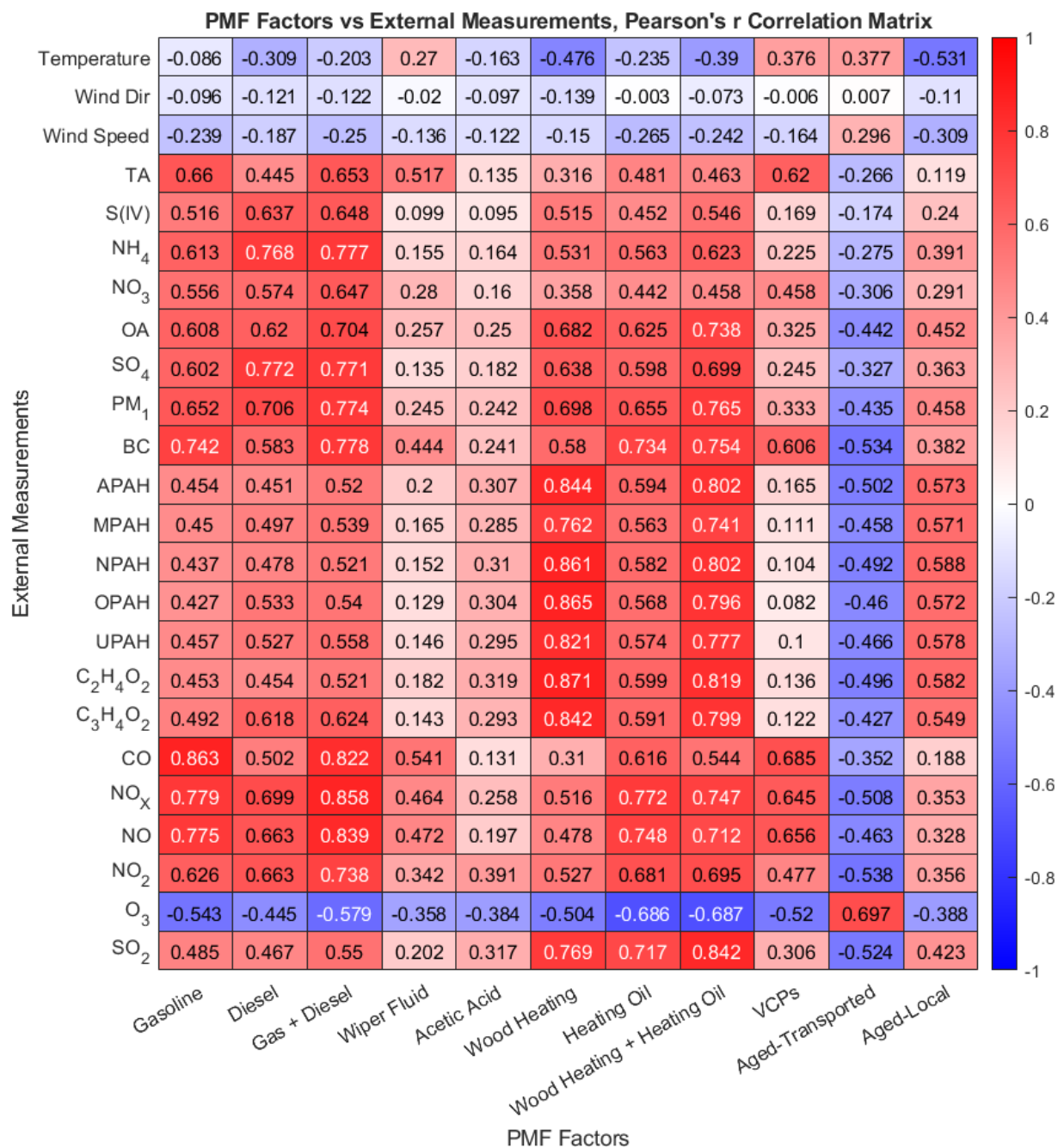


Figure 4. Correlation matrix of PMF factors versus external species. TA (total ammonium) includes both gas-phase and aerosol-phase measurements. Species from S(IV) to C₃H₄O₂ are all measurements in the aerosol phase. Species from CO to SO₂ are all measurements in the aerosol phase.

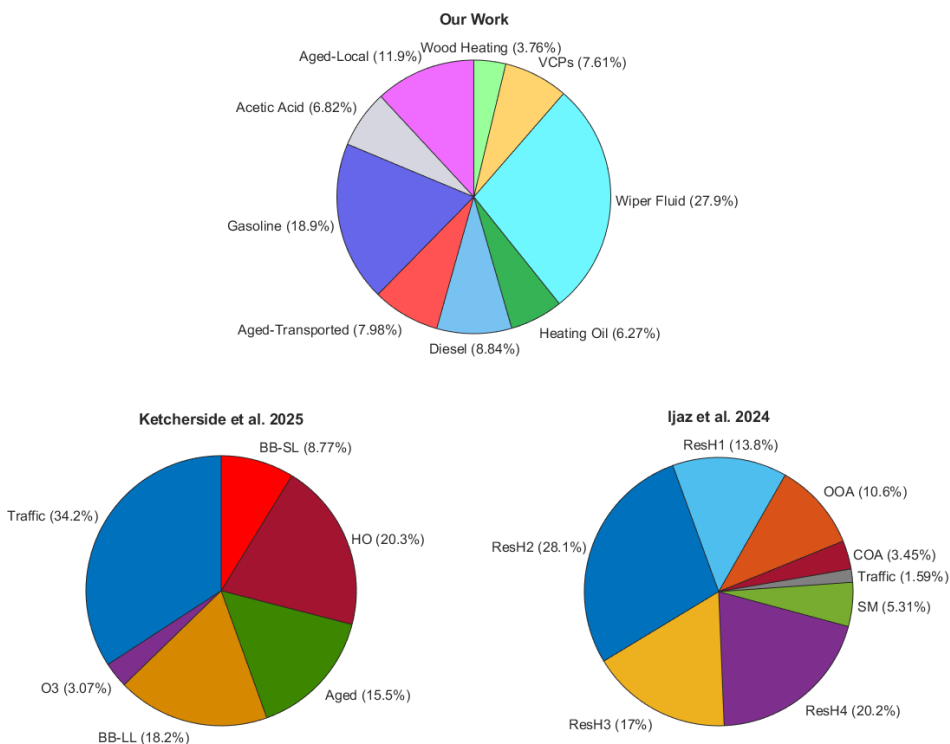


Figure 5. Comparison of the PMF factor solutions used in this work, Ketcherside et al. (2025), and Ijaz et al. (2024). In Ijaz et al. (2024), the factors ResH1, ResH2, and ResH4 originate from biomass burning, while ResH3 originates from heating oil.

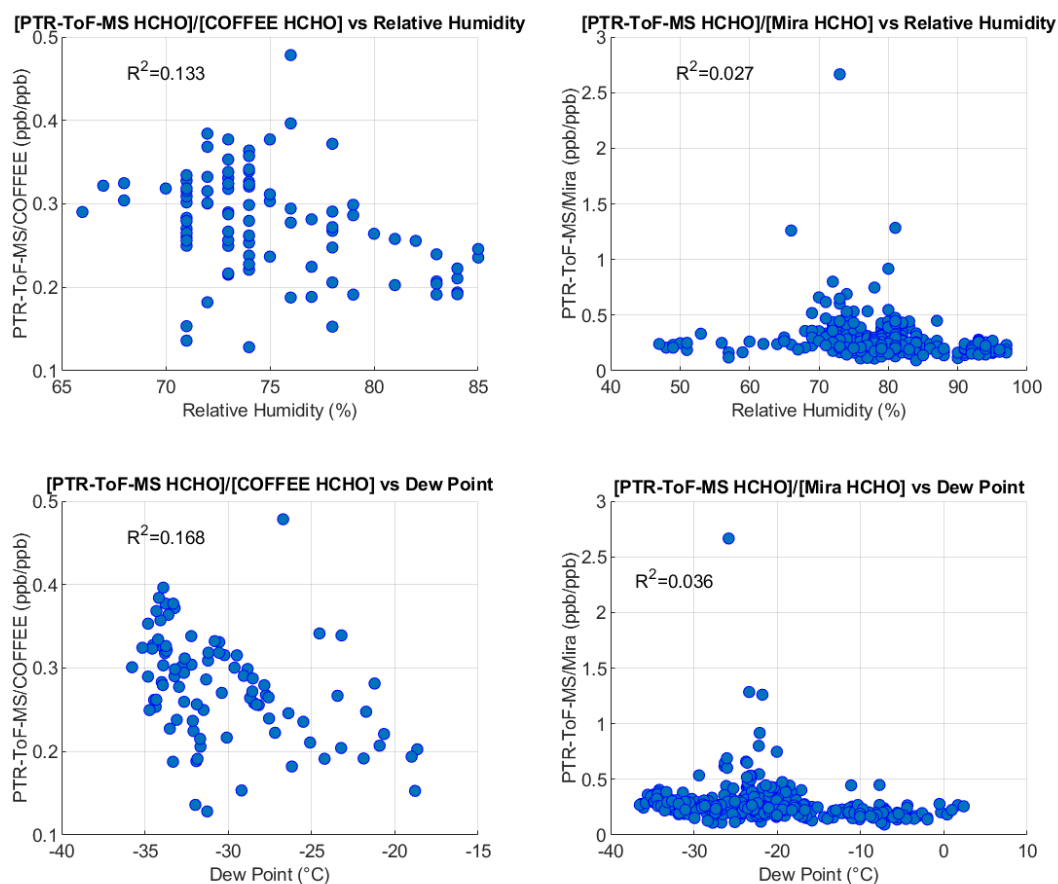


Figure S2. Comparison of the difference between PTR-ToF-MS/COFFEE formaldehyde measurements and PTR-ToF-MS/Mira formaldehyde measurements with relative humidity and dew point.

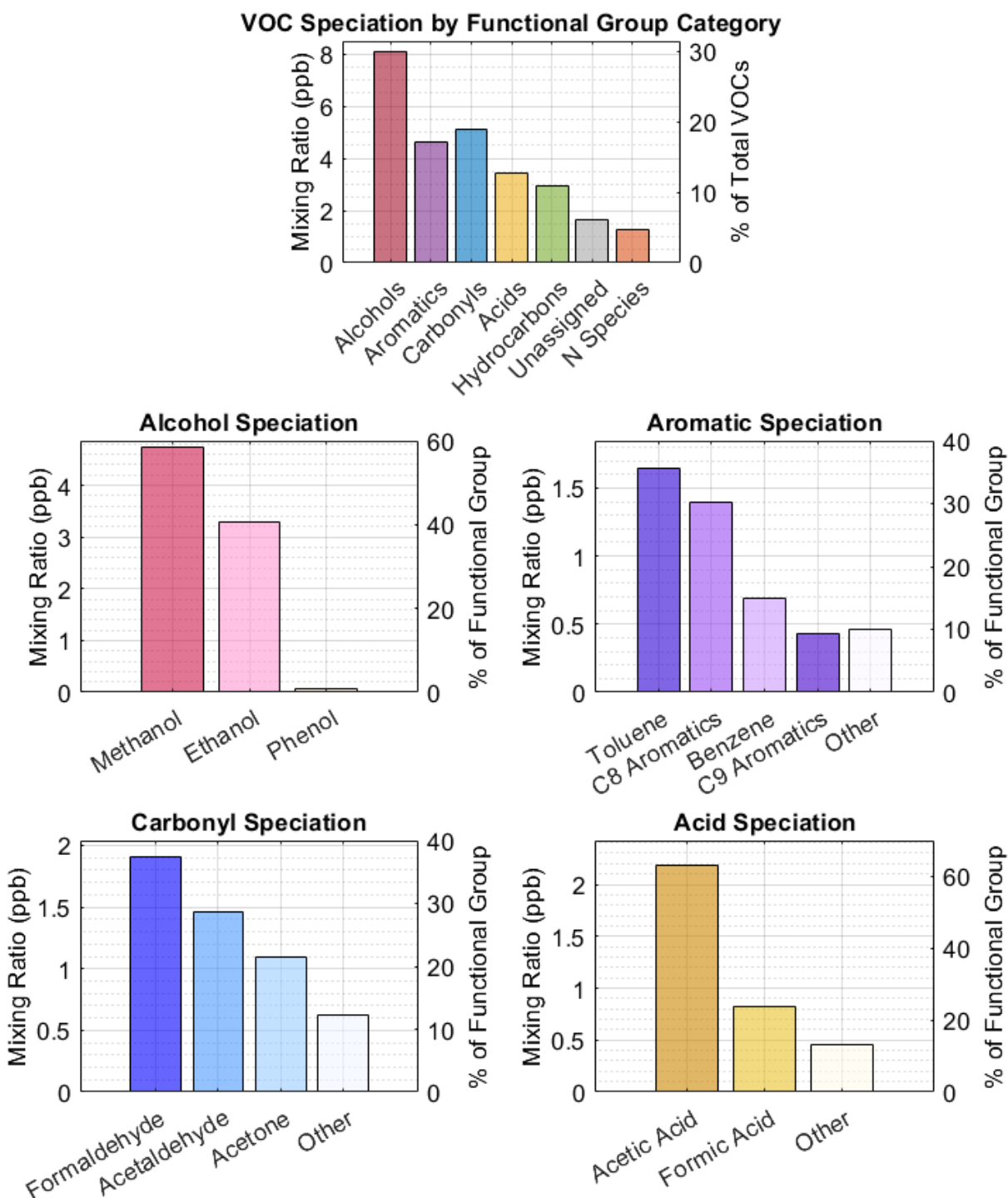


Figure S4. Median composition of VOCs categorized by their functional groups during ALPACA campaign. The “Unassigned” group is made up of up of about 290 species whose individual campaign means are all less than 0.05 ppb.

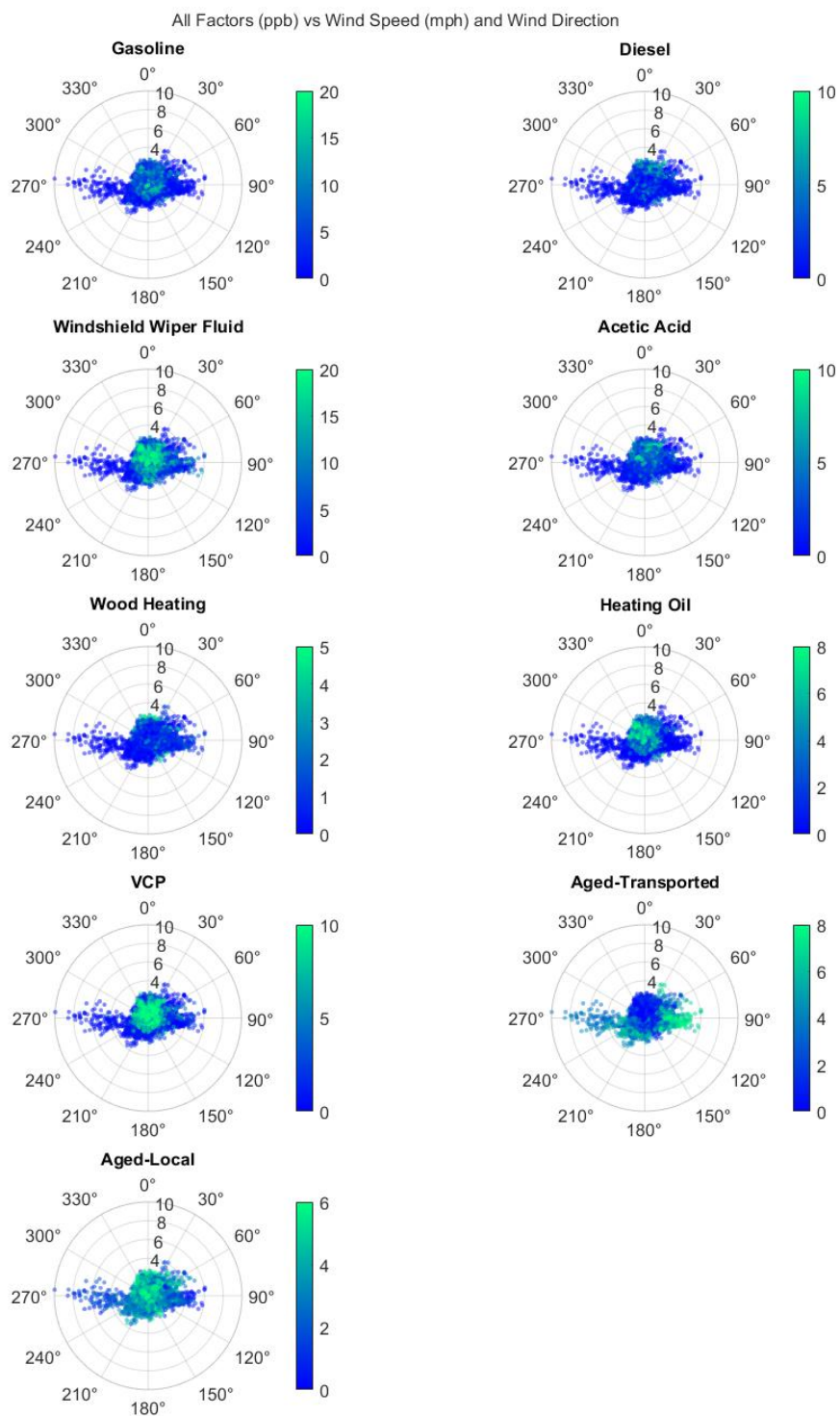


Figure S16. Windrose plots of all factors. The colorbar was reduced between 1/4 to 1/2 the maximum mixing ratio of the factor in order to better highlight the relationship with wind.

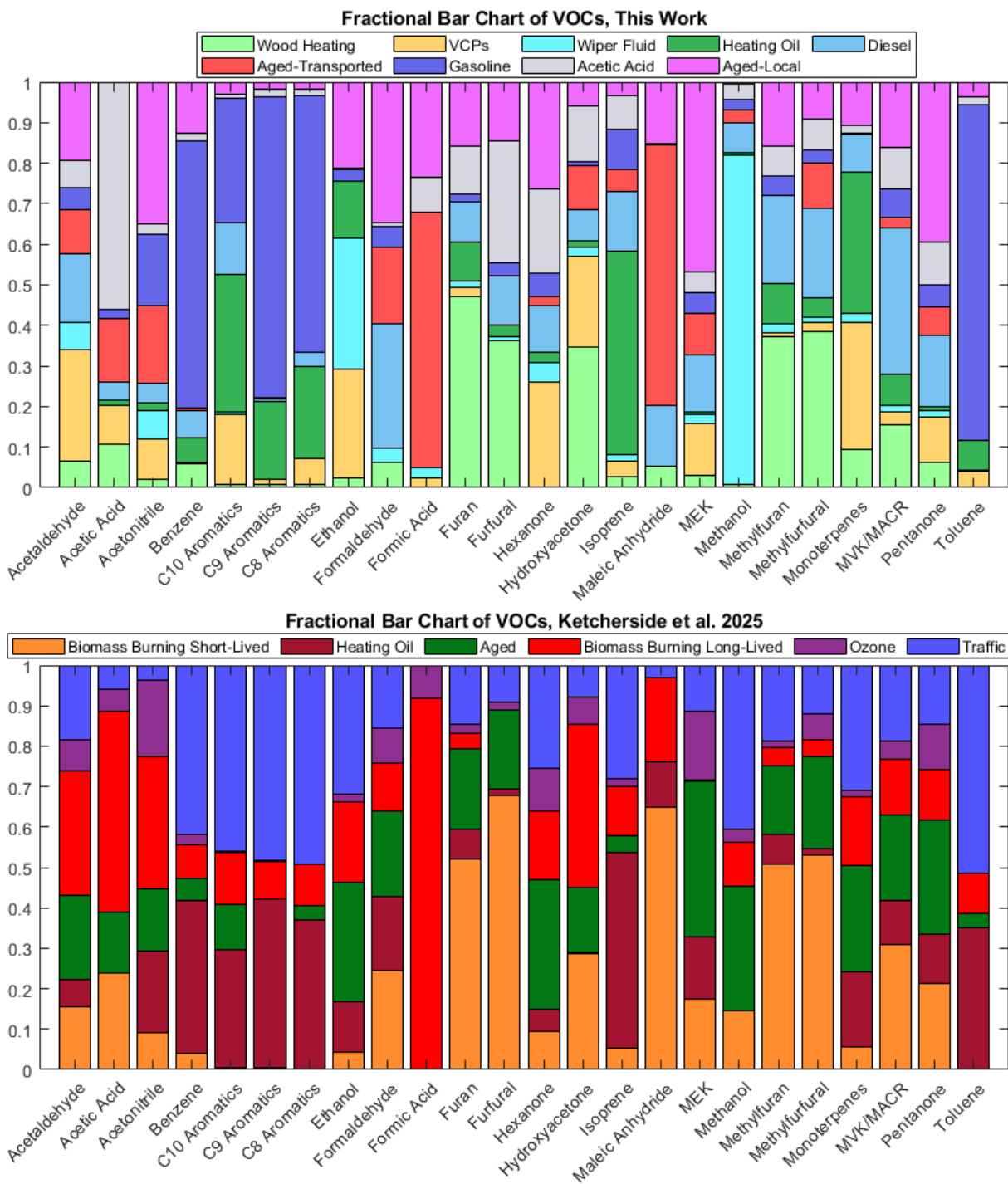


Figure S18. Top: fractional bar chart of VOC species assigned to each factor in this work. Bottom: recreation of Figure S5 in Ketcherside et al. (2025) for comparison with our work.

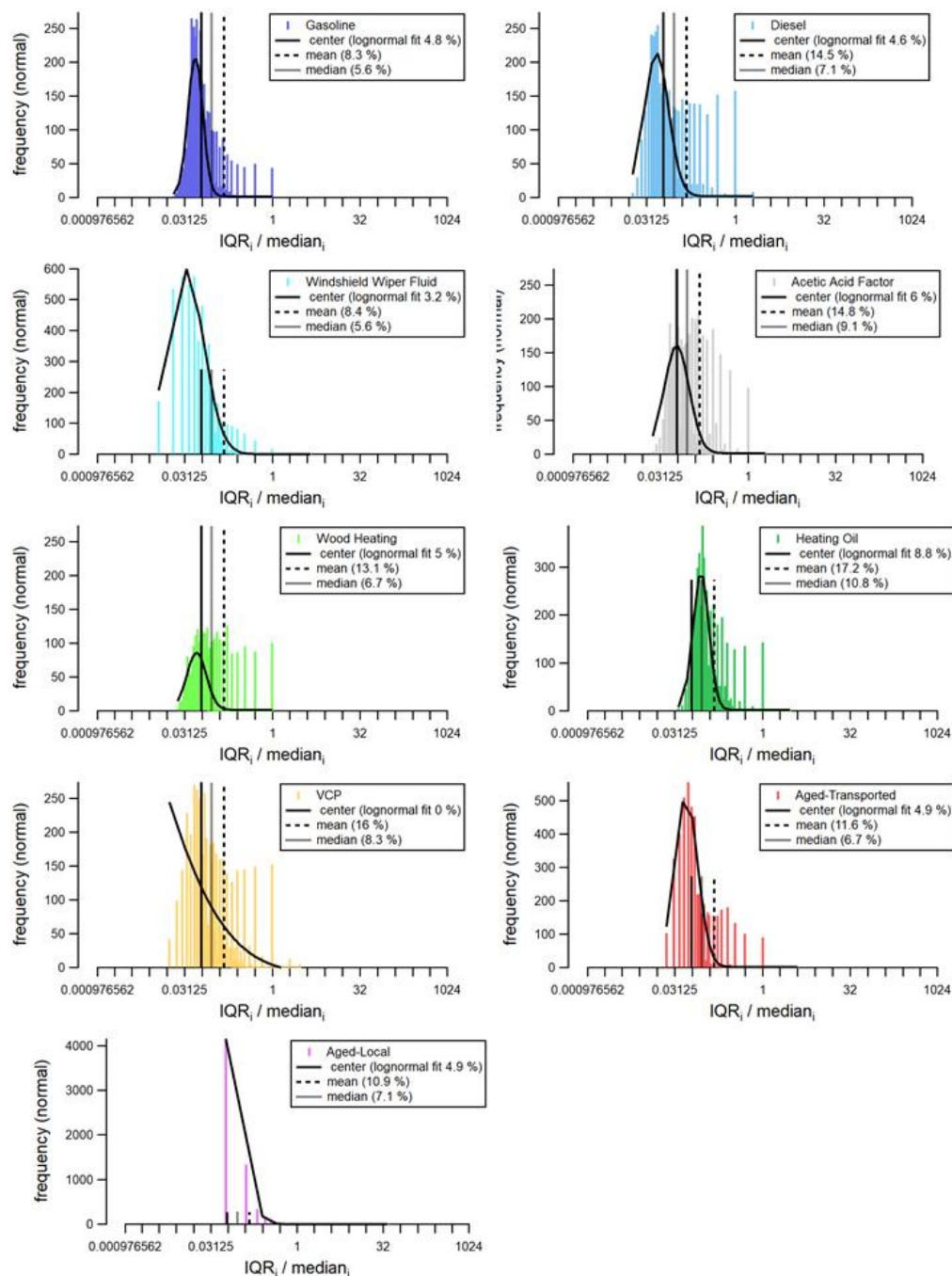
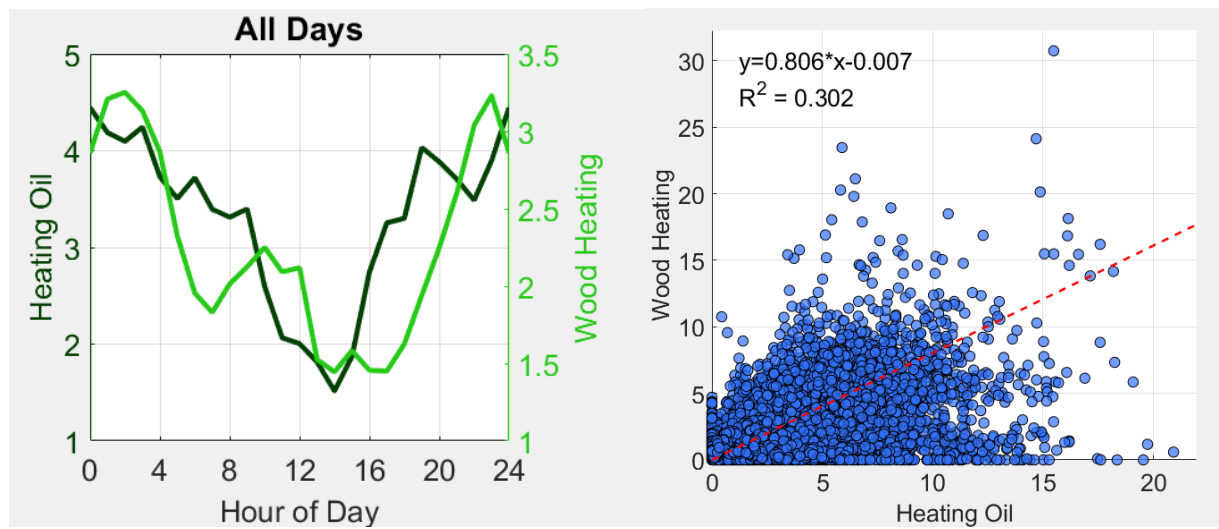


Figure S25. The statistical and rotational uncertainty (also known as PMF error) of each factor from the 100 bootstrap runs. The SoFi 9 manual describes the PMF error as $\pm$ one half of the median value shown in the plots above.



Figures for comment 11.