

4th AMS Users' Meeting

Brief Discussion of AMS Terminology & Description of Chemical Results

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AMS Terminology

- D_{va} (Vacuum aerodynamic diameter)
 - NOT: D_a , D_p , D , “aerodynamic diameter”, “diameter”
- “Vaporizer”
 - NOT: “Oven” or “Heater” or “Filament”
- Non-Refractory
 - NOT: “Volatile and Semivolatile”
 - Always in introduction
 - Specify the vaporizer temperature!!
 - Use it for species? E.g. NR Nitrate?

AMS Terminology II

- $PM_{1.0}$ or “Submicron”
 - NOT: $PM_{2.5}$
 - In introductions, conclusions: “AMS measures approx. $NR-PM_{1.0}$ ”
- m/z 35
 - NOT: “ m/z 35 Da”, “ m/z 35 amu”, etc.
- “Oxidized” or “Oxygenated” species
 - not “Secondary” or “Photochemical”

Description of Chemical Results

- We have to be more careful about what we deduce from our mass spectra
 - E.g. “57 is traffic”
 - It is seen for all combustion sources, including wood combustion
 - E.g. “44 is fulvic acid” or “44 is photochemical” or “44 is secondary” or “30 is amines”
 - All we know is that 44 is generally oxidized
 - But it can be $C_2H_6N^+$
 - Meat cooking?

Chemical Results: What to do?

- Acknowledge the uncertainties and lack of definitiveness
 - E.g. “our mass spectra **are consistent with** fulvic acid type compounds dominating the organic aerosol, **although AMS data by themselves are not enough to give a definitive answer**”
- Always look at (and show in your talks / papers) multiple peaks or whole mass spectra, rather than individual peaks
 - Support assignments with correlations in your study or very similar ones
 - E.g. “due to the correlation between m/z 57 and CO we believe this m/z can be used as a tracer of mobile source aerosols **during this study for the periods with high correlation**”
 - *What you do affects the perception of all of us by the community*