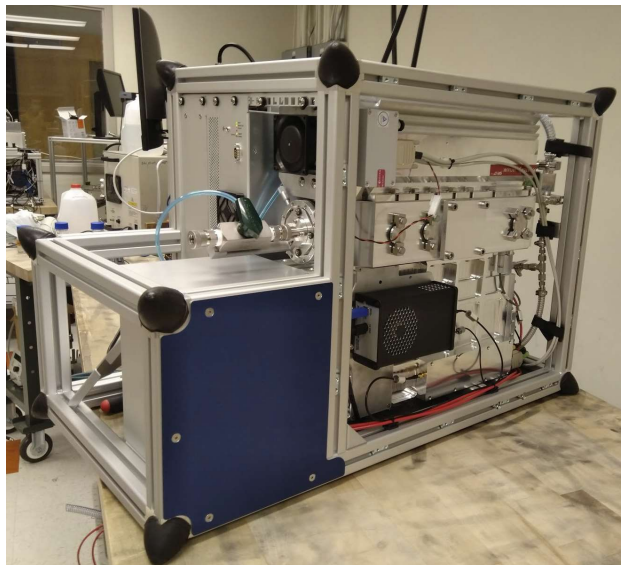




# TOF-ACSM X

## Time-of-Flight Aerosol Chemical Speciation Monitor with eXtra resolution

*Real-time, continuous monitoring of  
aerosol chemical composition with  
improved mass resolution for better  
H:C, O:C, and NH<sub>4</sub><sup>+</sup> quantification*



### APPLICATIONS

- Continuous on-line measurement of ambient aerosol mass concentrations and chemical composition.
- Routine air quality monitoring.
- Field measurements from high-pollution at urban sites to pristine background at remote locations.
- Aerosol chamber studies.
- Mobile laboratory measurements.
- Source characterization.
- Industrial process monitoring.

### ADVANTAGES

- Improved elemental analysis (O:C, H:C) and NH<sub>4</sub><sup>+</sup> compared to standard Q- and TOF-ACSM
- Direct linear detection of sulfate, nitrate, ammonium, chloride and organic aerosol species.
- Automated zeroing (filter).
- Minimal maintenance, remote control ready
- Separation and quantification of organic aerosol species including HOA (hydrocarbon-like organic aerosol, linked to primary combustion sources) and OOA (oxygenated organic aerosol, linked to secondary aerosol sources).



## TOF-ACSM X

### SPECIFICATIONS:

#### Detection Limits

( $\mu\text{g m}^{-3}$ , 10 minute,  $3\sigma$ ):

Organics: 0.06

Sulfate 0.006

Nitrate: 0.007

Chloride: 0.003

Ammonium: 0.06 (better with high resolution peak fitting)

#### Mass-to-charge:

**Resolution:** up to 2000 m/dm, **Range:** Adjustable, typically 1-400 m/z.

#### Data Rate:

Adjustable, typically 10 minutes.

#### Data Format:

HDF5 mass spectral data, delimited text for mass loadings.

Custom acquisition and analysis software.

Specialized routines for high resolution data analysis (O:C ratios).

#### Sample Flow:

$0.085 \text{ l min}^{-1}$

#### Aerosol Size Range:

0.04 to  $1 \mu\text{m}$  or 0.11 to  $3.5 \mu\text{m}$  vacuum aerodynamic diameter, depending on aerodynamic lens configuration.

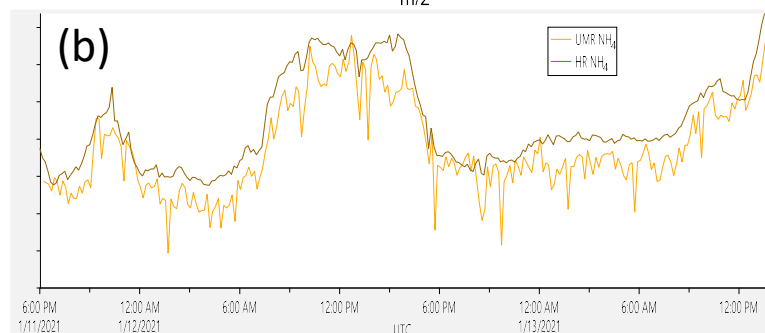
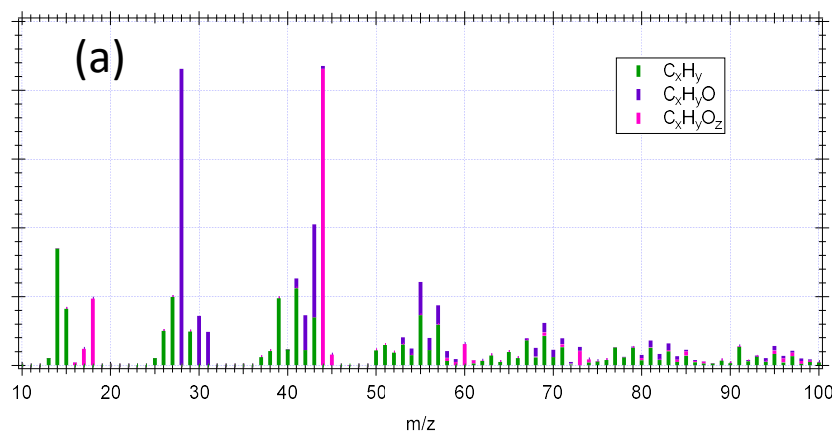
#### Size/Weight:

Bench top 26" x 20" x 24", 210 lbs.

[65 cm x 51cm x 60 cm, 95 kg]

#### Electrical:

110 VAC, 60 Hz or 220 VAC, 50 Hz



- High resolution analysis of the organic aerosol mass spectrum to determine H:C and O:C ratios.
- Improved signal-to-noise in ammonium with high resolution (HR) compared to unit-mass resolution (UMR) analysis.
- Separation of ammonium ions from air and water ions.

