

Colorado HR-ToF-AMS

High-Resolution Time-of-Flight Aerodyne Aerosol Mass Spectrometer

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- Chemical comp. of Non-Refractory Aerosols
 - Up to 2 Hz
 - One-minute DLs of $\sim 6\text{-}80 \text{ ng m}^{-3}$
 - High-resolution, (~ 2000 in m/z space)
- Size-resolved ($\sim 50 \text{ nm}$ to $1 \text{ }\mu\text{m}$ d_{va})
 - Lower SNR and time-resolution than total mode
- Intermittent volatility measurements
 - Tentatively 100 C

Colorado HR-ToF-AMS (2)

- Operation Requirements:
 - Pump-down time before take off: 3 hrs (longer would be better)
 - Non-condensing inside aircraft
 - Don't have experience with very cold operating conditions (near 0 C)
 - All suitcase scenarios, calibration equipment to Thule (50 lbs)
 - Real-time serial feed with CO, nephelometer
 - Seat removal would be required for certain component failures
 - Calibration each non-flight day, ~ 3-4 hrs
- Other operational information
 - Working on particle transmission at high altitudes (> 8 km)
- Issues for discussion
 - Assessment of shared (Anderson) aerosol inlet losses?
 - Intercomparison with other AMS & composition instruments
 - Clock synchronization (problem during MIRAGE)
 - Concerned about badging & escorting in Fairbanks
 - Two main operators are non-US citizens
 - Has led to much wasted time in previous campaigns