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G-1 HR-ToF-AMS Overview

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AMS Data Overview

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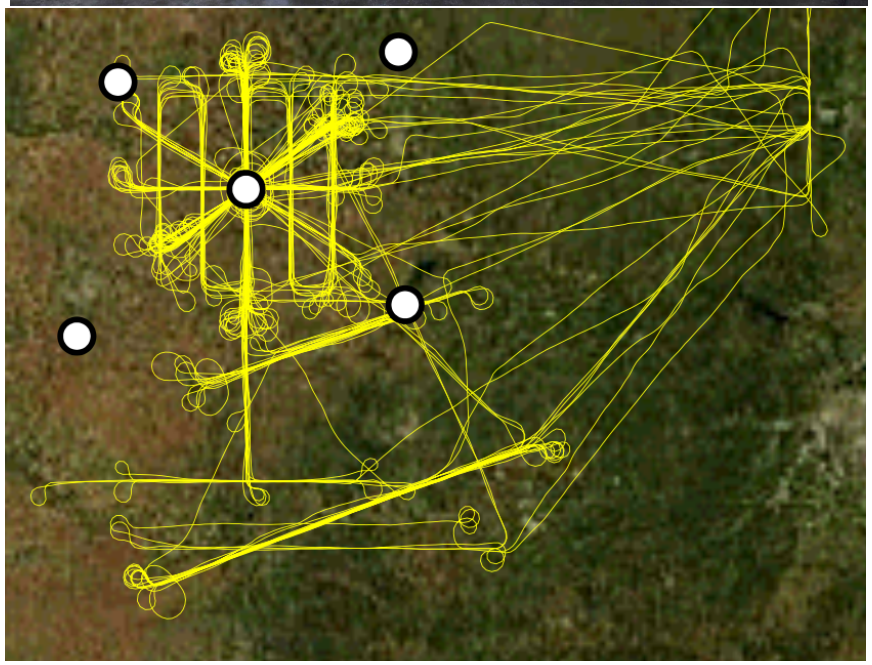
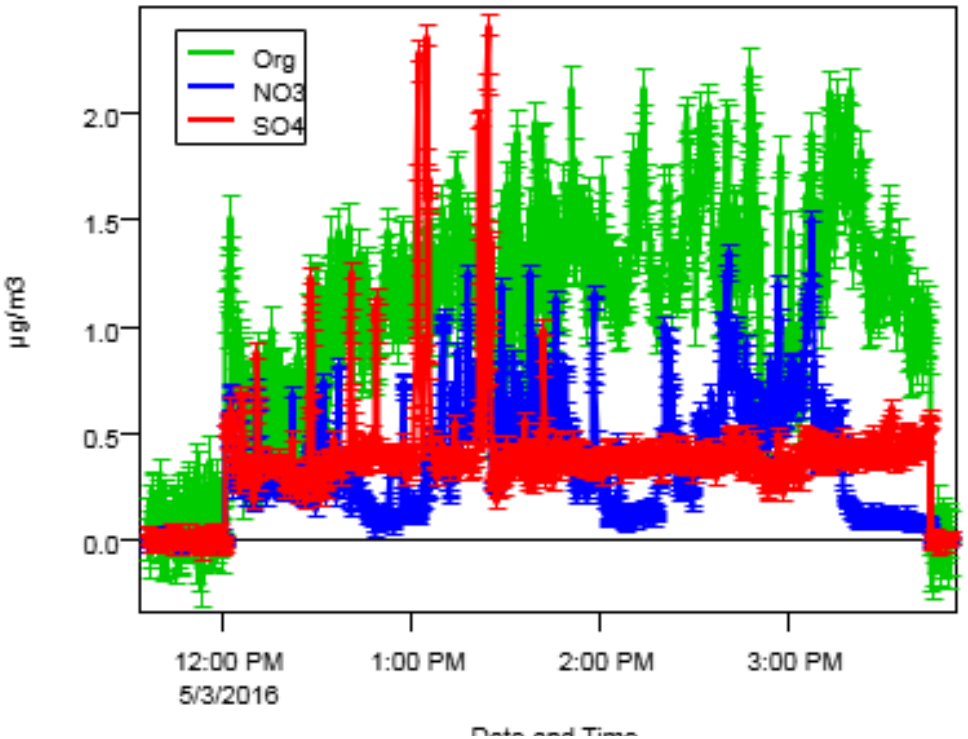
- Aerodyne HR-ToF-AMS alternated between sampling behind the G-1 isokinetic inlet and CVI inlet.
  - Isokinetic Inlet samples clear air.
  - CVI samples cloud droplets.
  - CVI data is complicated so please contact me if you plan on using that data.
- Data available for 17 flights in IOP1, 12 flights in IOP2.
  - No data for 8/30 – 9/8 flights due to electronics failure.
- Time traces of SO4, NO4, NH4, organics on ARM server.
  - HR products available by collaboration.



Aerosol Heterogeneity: May 3rd Flight

- This flight illustrates the complexity and heterogeneity in the aerosol sources in the region.
- Clear-air flight.
- Sulfate and nitrate, though both from anthropogenic sources, are not correlated.
- Intense, narrow sulfate plumes are observed on top of a relatively constant background.
- Intense narrow nitrate peaks are also observed, though the nitrate background is more variable.
- Organics have trends entirely different from the inorganics.



Example of CVI Sampling: September 15th flight.

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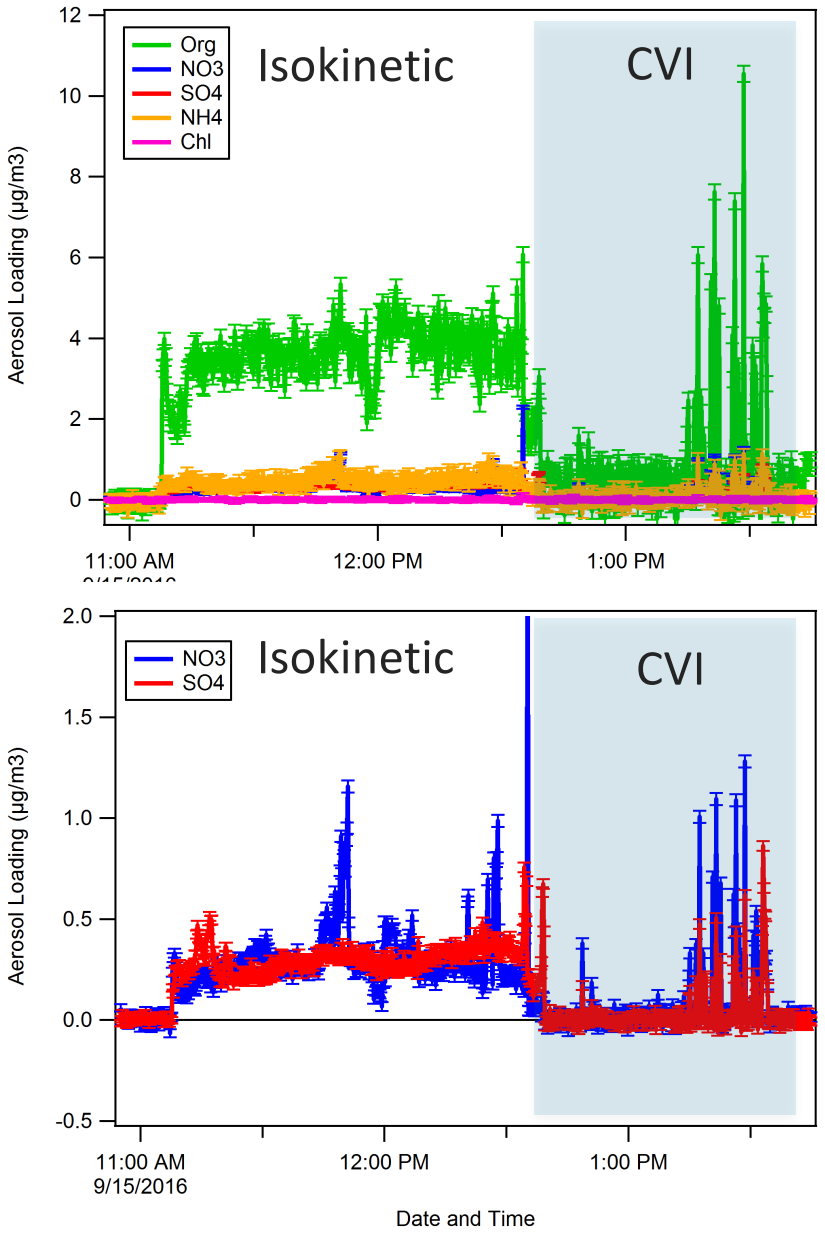
- AMS sampled from both isokinetic inlet and from CVI on the 9/15 flight.
- Significant aerosol signal from cloud residuals was observed when flying through clouds and behind CVI.
- Fractional composition of organics, NO_3, and SO_4 all change when flying through the cloud field.



Comparison of CVI and IsoK Spectra from September 15th flight.

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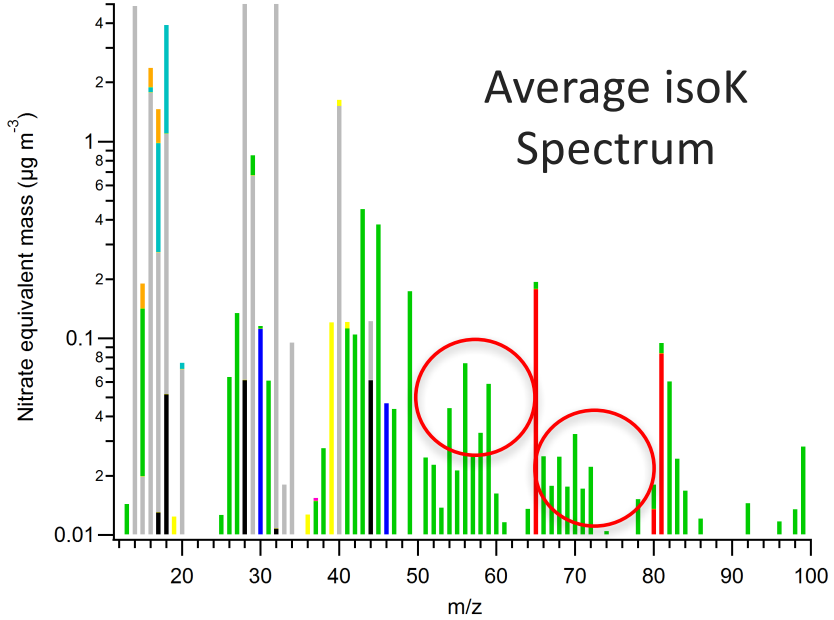
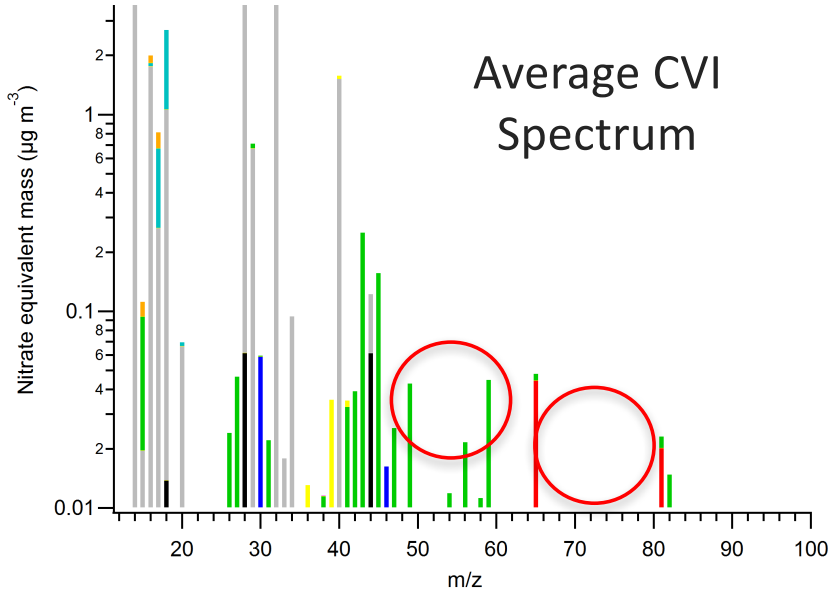
- Subtle differences exist in aerosol composition between cloud residuals (CVI) and interstitial aerosol (isoK).
- Aside from differences in ratios of components organic chemical composition appears to be somewhat different.
- These data are promising, but very preliminary and require further examination.






ARM
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Back Trajectories May 3rd

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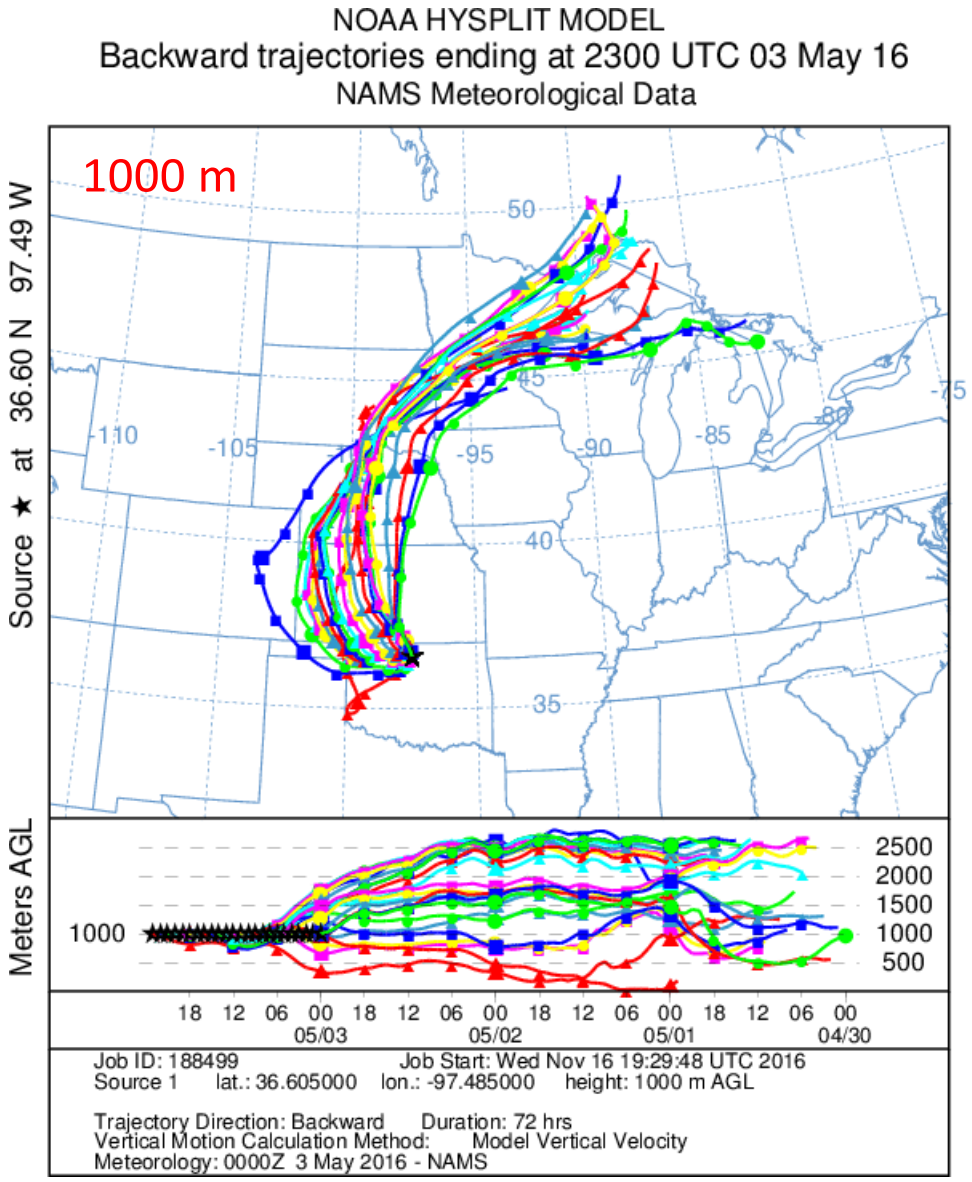

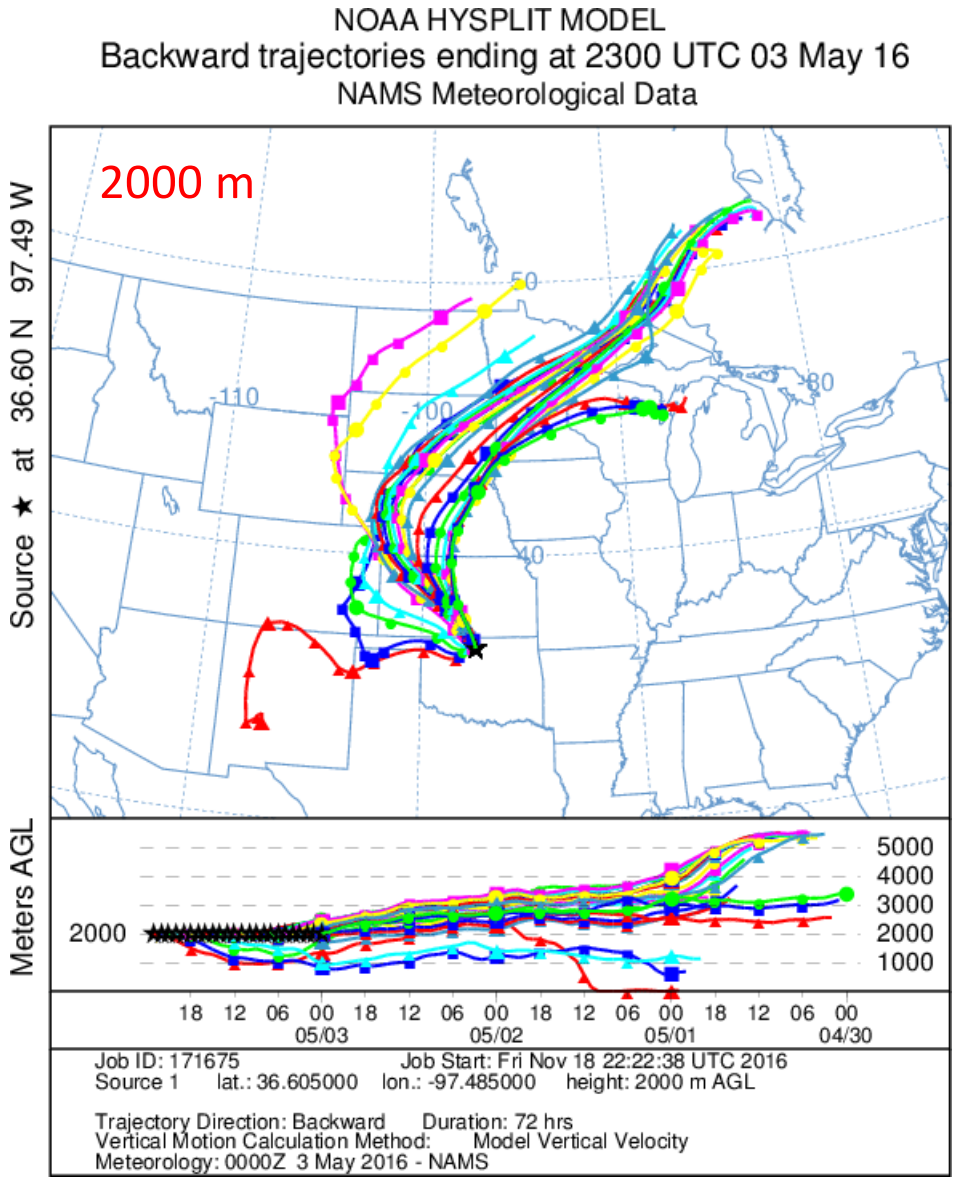

September 15th Flight Pattern