Average Spectra of Filtered Air
Expanded, 16 JUN 2013

What are peaks at m/z 27.4 and 31.3?

f44 Issue in SENEX data

cToF AMS
Looking at 16 JUN 2013
Last flight before changing MCP set
The sampling altitude seems to be a strong factor, where \( f44 \) increases dramatically at altitudes higher than about 2500 m. The pressure at 2500 m is approximately 763 hPa.

With the filters, the average ratio of \( \text{mz44\_diff/mz28\_diff} = 0.00051277 \). In the frag table, the ratio is slightly higher:

\[
0.00037 \times 1.36 \times 1.28 \times 1.14 = 0.000734269
\]

Changing the coefficient from 0.698341 to 1.05 does not significantly change Org 44 (right). The slope between the two is nearly 1.0.
Signal in time space, with AB correction

From the ambient data, CO2_air is a small fraction of the m/z 44 diff signal.

Changing the coefficient from 0.698341 to 1.05 should not make a big difference in Org44.

Signal at m/z 44 in pToF space

m/z 44 from filters is noisy in pToF space.

Gas phase contribution to m/z 44 is small when viewed in diameter space.

pToF signal for m/z 44:
Gas phase contribution to m/z 44 is relatively larger when looking at signal in pToF time.

Integration of dS/dPTof reveals about 90% of m/z 44 is in the particle phase.

Which x-axis for integration?
**pToF signals**

Particle pToF time:
0.000170867 to 0.00721267 s

Entire pToF time:
0.000428667 to 0.00721267 s

The fraction of organic signal in the aerosol phase (90%) is comparable to the fraction of m/z 44 in the aerosol phase (90%).

On average, 10% of the m/z 44 is in the gas phase.

This contradicts the MS data from the frag table.

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**Strong Dependence of Org44 on Org and f44 on Altitude**

![Graph showing the strong dependence of Org44 on Org and f44 on Altitude](image)
NOAA c-ToF Timing Parameters

MS ratio
Baseline and SI filtered air in high altitude lag

Baseline and SI after landing
AB Correction

Average Spectrum of Filtered Air
16 JUN 2013
Single particle mass from C-TOF and size

Coefficient values ± one standard deviation

\[ a = 0.4544 \pm 0.0223 \]
\[ b = 1.3843 \pm 0.00627 \]

\[ r^2 = 0.96756 \]

Slope = 1.03