

# *Sub-micron Aerosol Chemical Composition at Montseny Site*

Aerodyne High-Resolution Time-of-Flight Mass Spectrometer

University of Colorado team:

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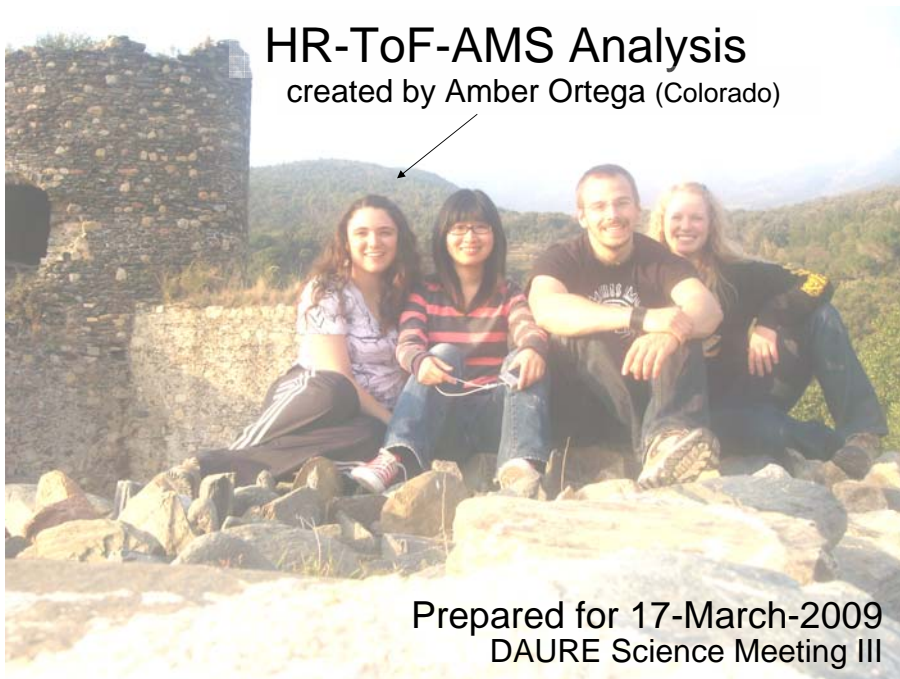
CEH Edinburgh team:

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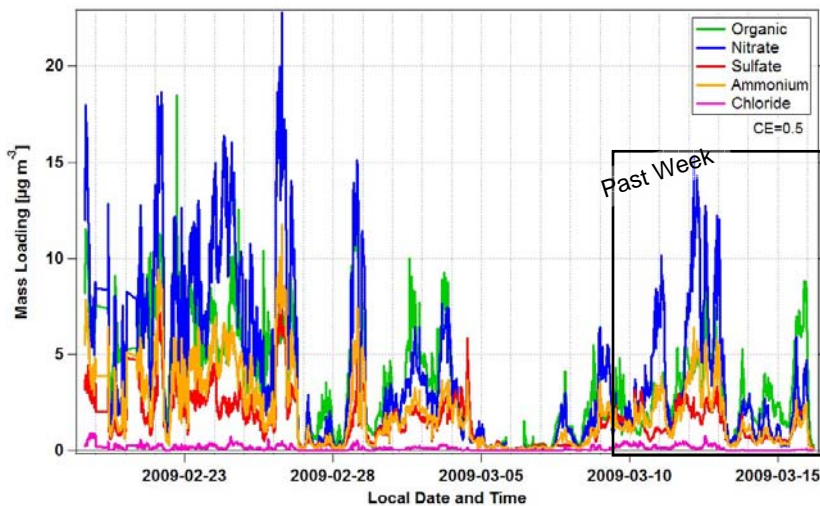
## HR-ToF-AMS Analysis

created by Amber Ortega (Colorado)



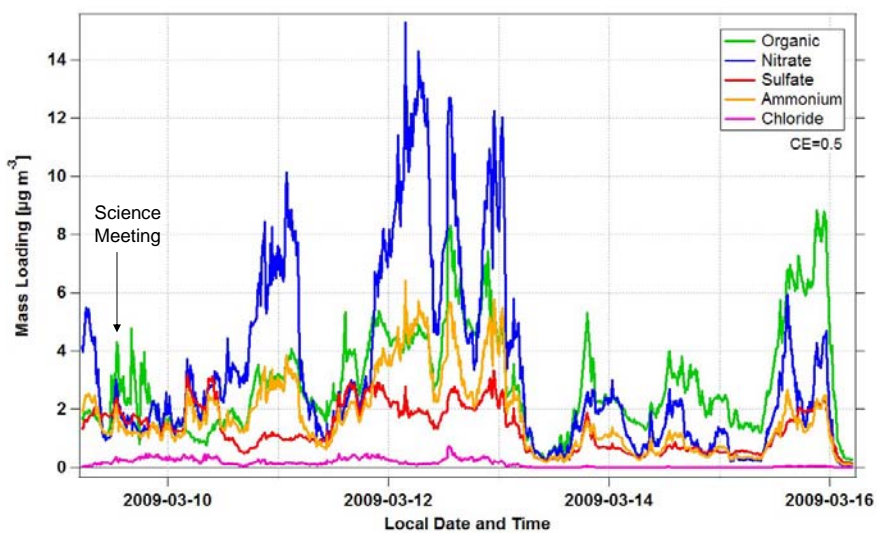
Prepared for 17-March-2009  
DAURE Science Meeting III

# MSY HR-ToF-AMS Time Trace (all data)

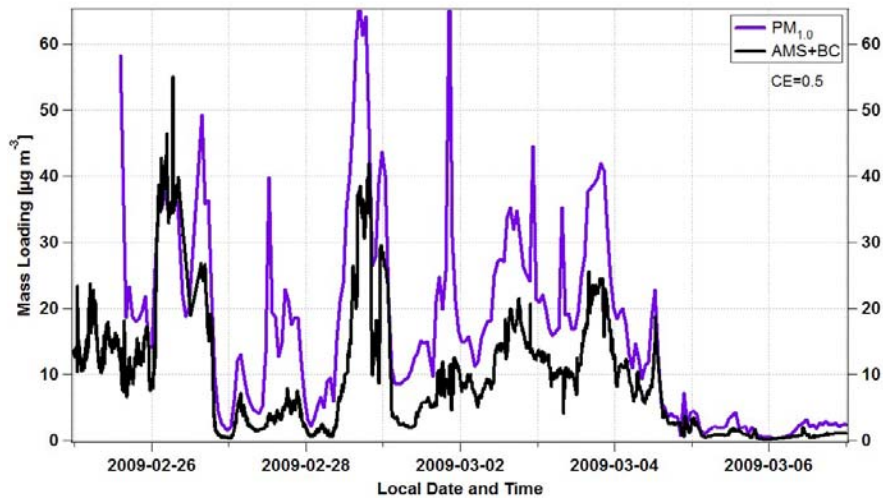


# MSY HR-ToF-AMS Time Trace

(past week)



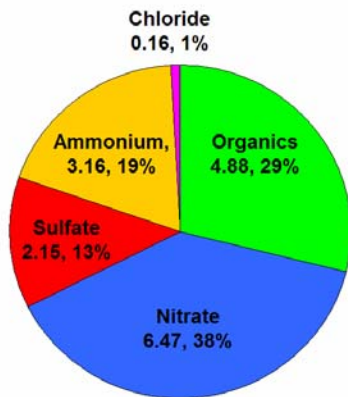
## AMS and Black Carbon Compared to PM<sub>1.0</sub>



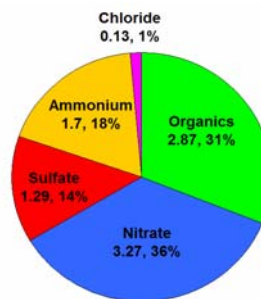
## MSY HR-ToF-AMS: Mass Fractions

units=  $\mu\text{g m}^{-3}$  CE=0.5

All Worked Up Data (fr.2009-02-19)  
Average Total Mass= $16.82 \mu\text{g m}^{-3}$



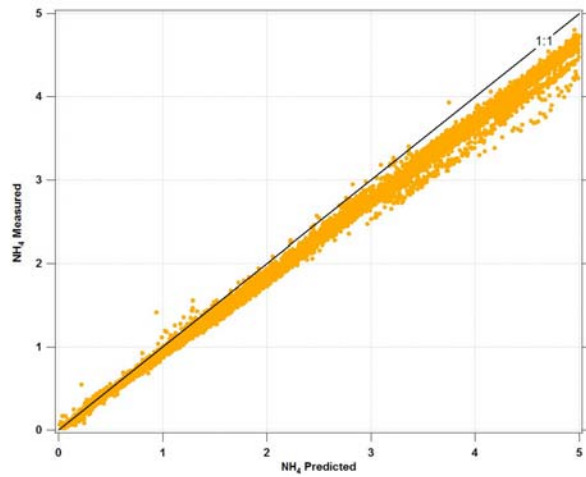
Past Week Data (fr.2009-03-09)  
Average Total Mass= $9.26 \mu\text{g m}^{-3}$



past week: less loading than average  
same fractions as average

## AMS NH<sub>4</sub> Measurement

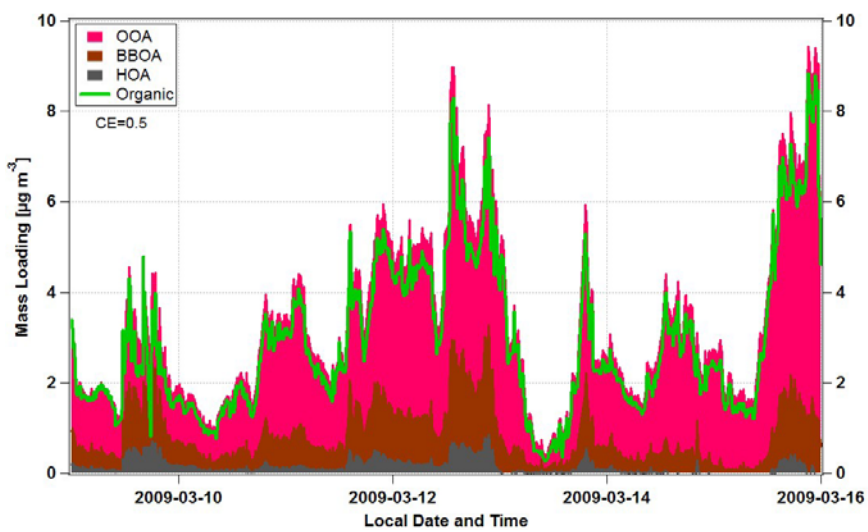
Compared to Predicted from NO<sub>3</sub>, SO<sub>4</sub>, and Chloride



To best estimate in the field NH<sub>4</sub> is completely neutralized by acids (HCl, H<sub>2</sub>SO<sub>4</sub>, HNO<sub>3</sub>)

## AMS Organic Measurement

Compared to Organic Components

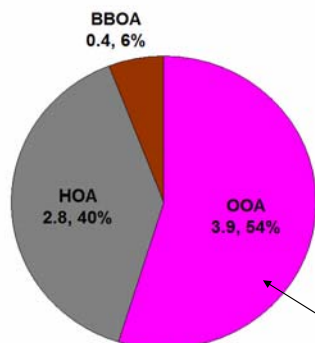


units=  $\mu\text{g m}^{-3}$  CE=0.5

## Comparing MSY and BCN: Rough Estimate of Organic Components

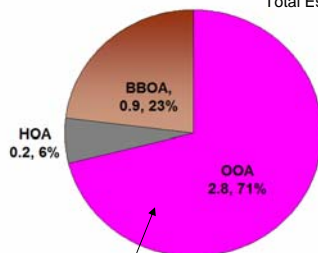
BCN AMS Data (fr.2009-02-24)

Total Est. Ave. Organic Mass = 7.18



MSY AMS Data (fr.2009-02-24)

Total Est. Ave. Organic Mass = 5.29



Both sites have highest component in OOA

BCN: Higher primary emission,  
little fire influence

MSY: Larger fire influences,  
little POA from traffic