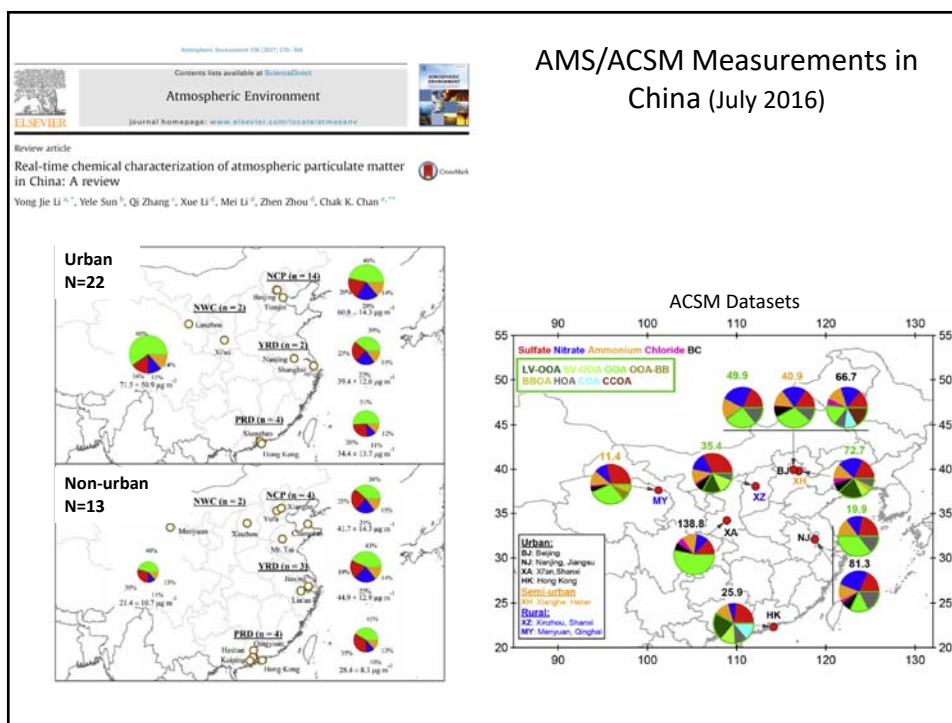


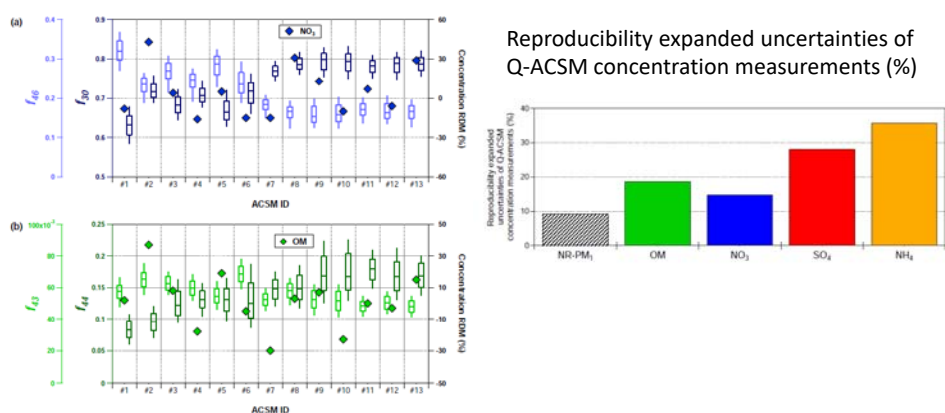
Inter-comparisons between HR-ToF-AMS and ACSM

Yele Sun

Institute of Atmospheric Physics, CAS

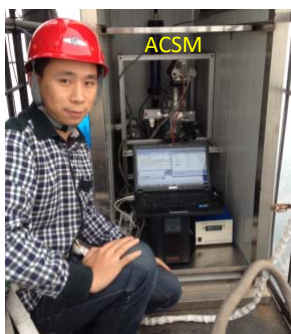


ACTRIS ACSM Inter-comparisons



Crenn et al., AMT, 2015

Tower Measurements



HR-ToF-AMS



•PM₁ Composition:

- Organics, sulfate, nitrate, ammonium, and chloride
- Time res.: 5min

•Gaseous species:

- CO, SO₂, O₃
- Time res.: 1min

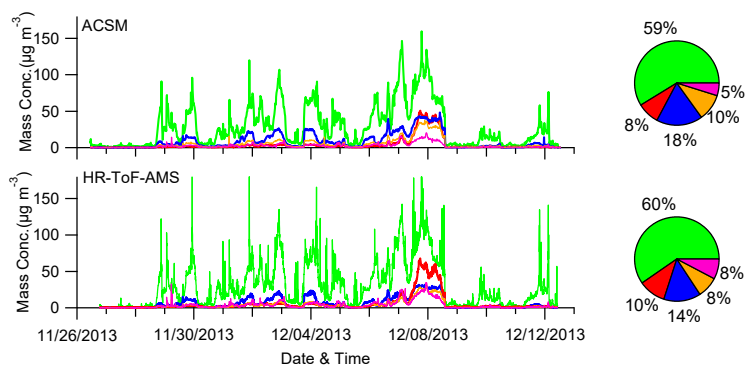
•CAPS + AE33:

- Particle ext (1 s)
- BC (1 min)

•SMPS:

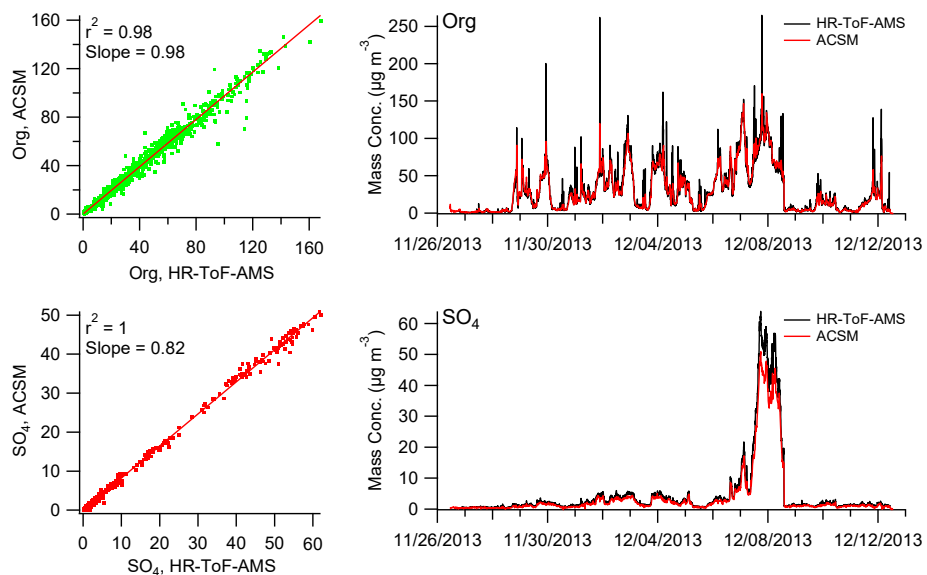
- Particle number size distributions (5 min)

ACSM vs. HR-ToF-AMS

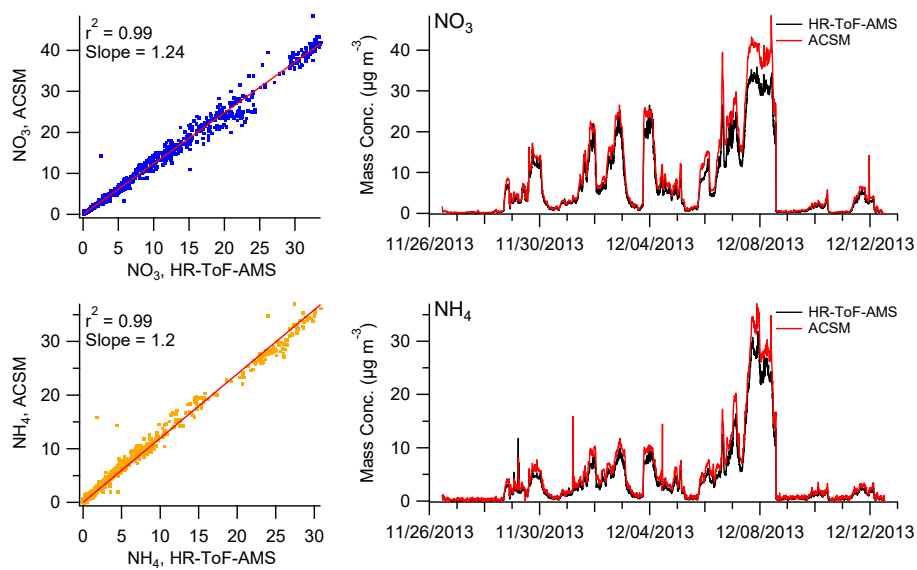


Same Inlet
Default RIEs except ammonium

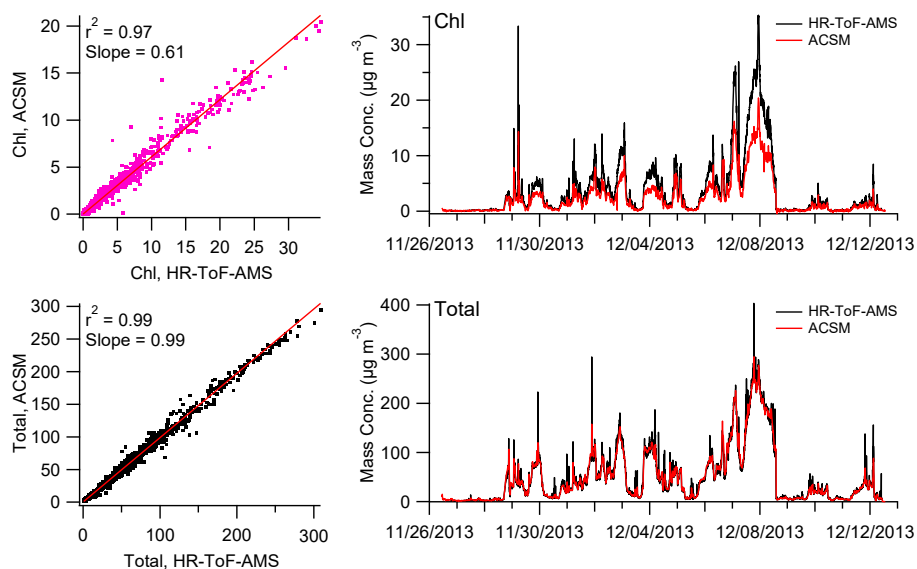
ACSM vs. HR-ToF-AMS



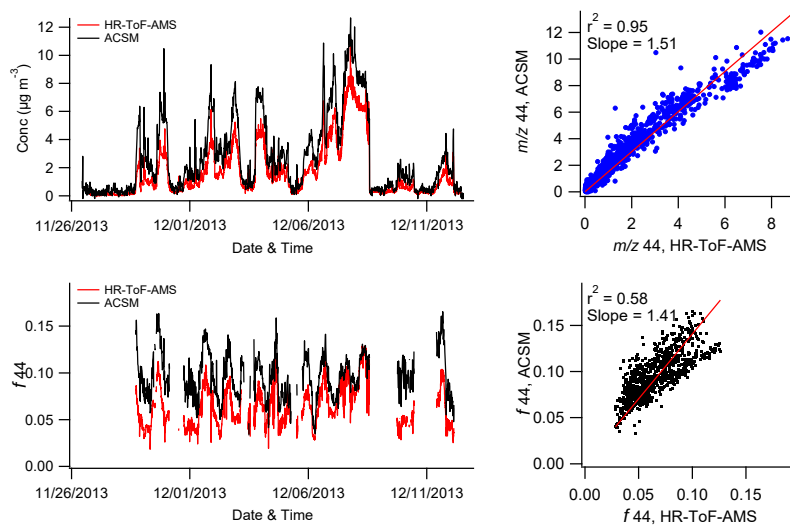
ACSM vs. HR-ToF-AMS



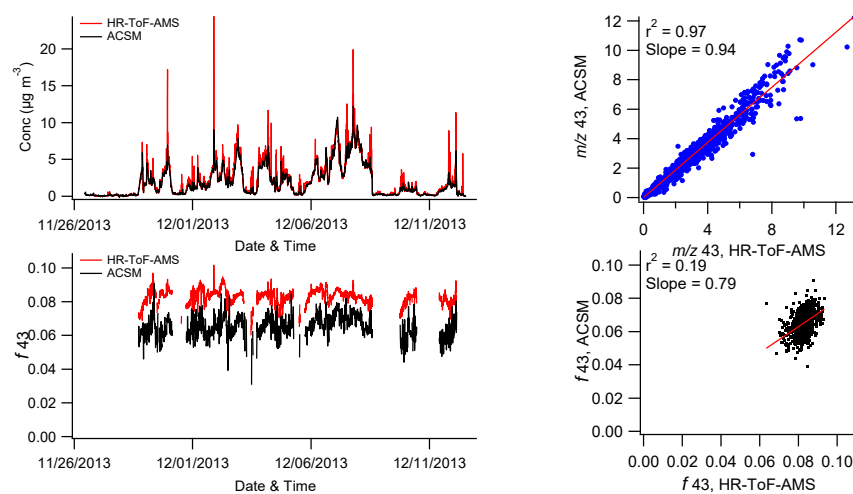
ACSM vs. HR-ToF-AMS



44: ACSM vs. HR-ToF-AMS

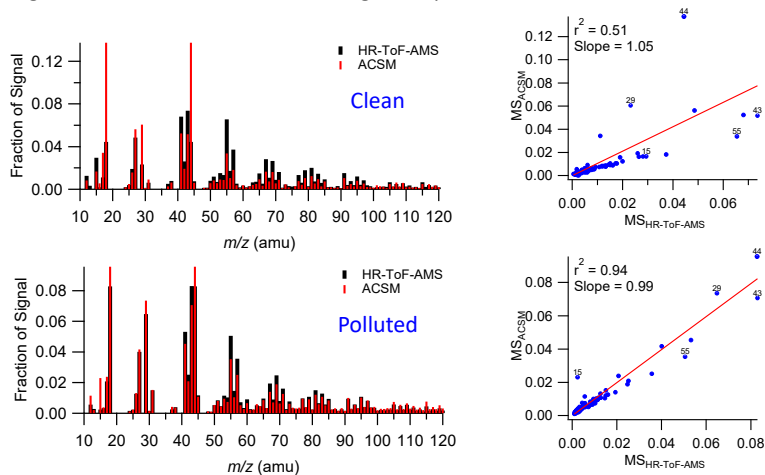


43: ACSM vs. HR-ToF-AMS

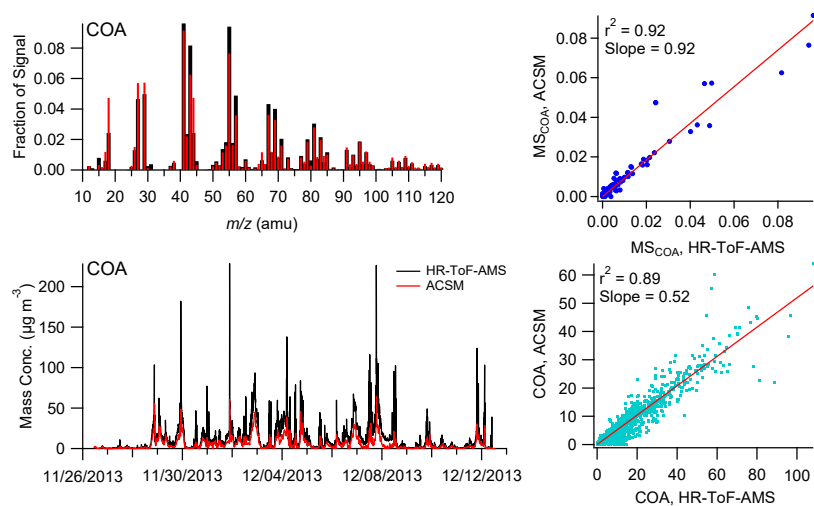


AMS vs. ACSM: Mass Spectra

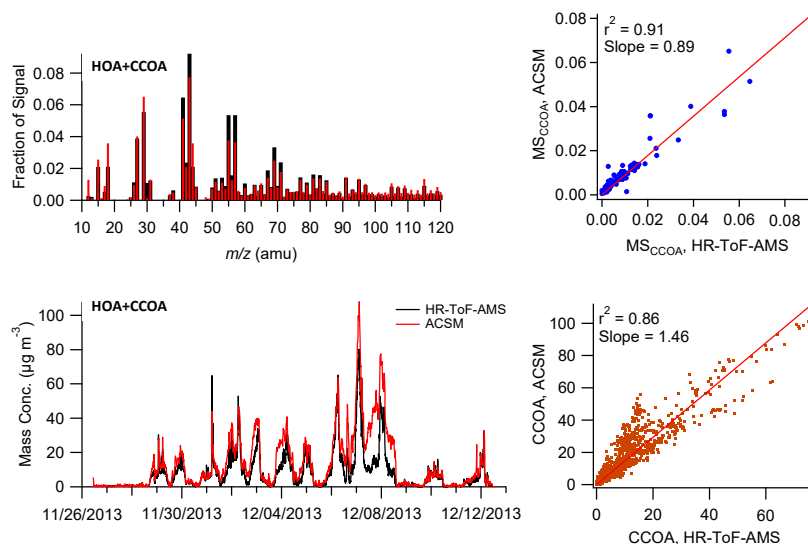
Large overestimation of m/z 44 during clean periods



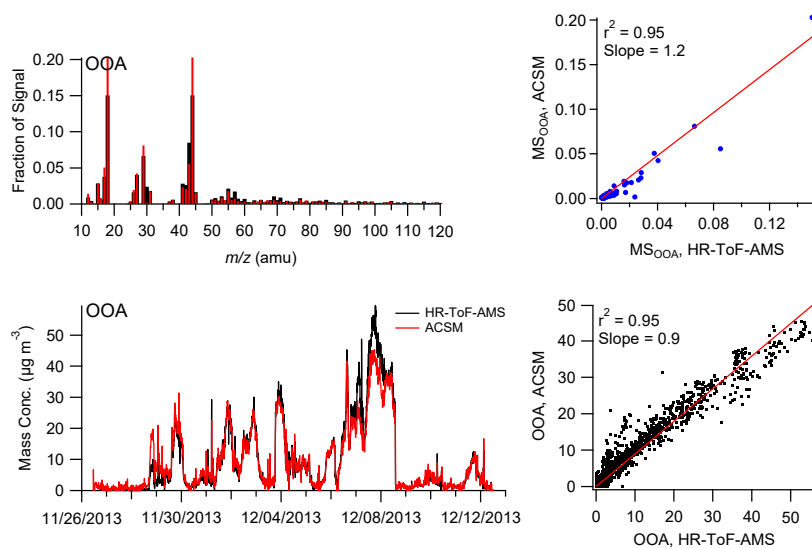
OA Factors: ACSM vs. HR-ToF-AMS



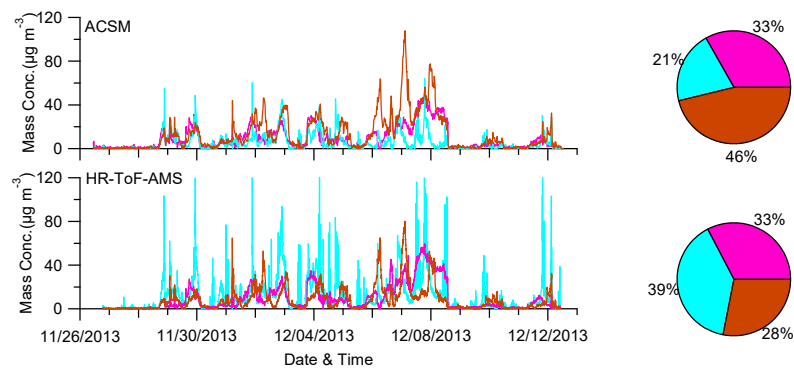
OA Factors: ACSM vs. HR-ToF-AMS



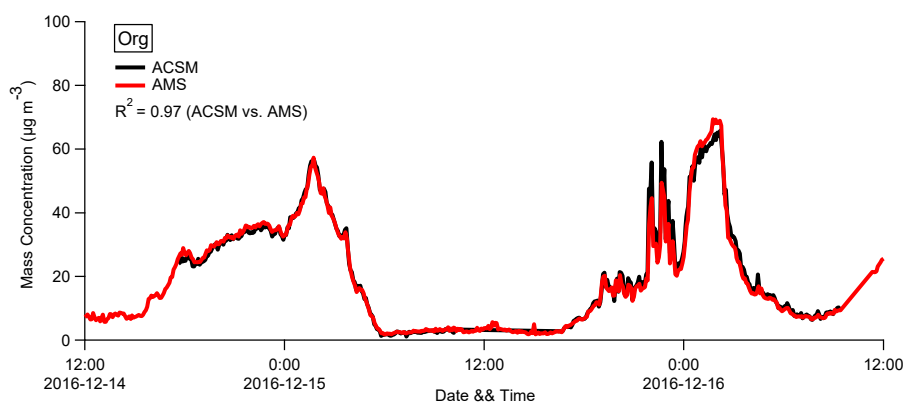
OA Factors: ACSM vs. HR-ToF-AMS

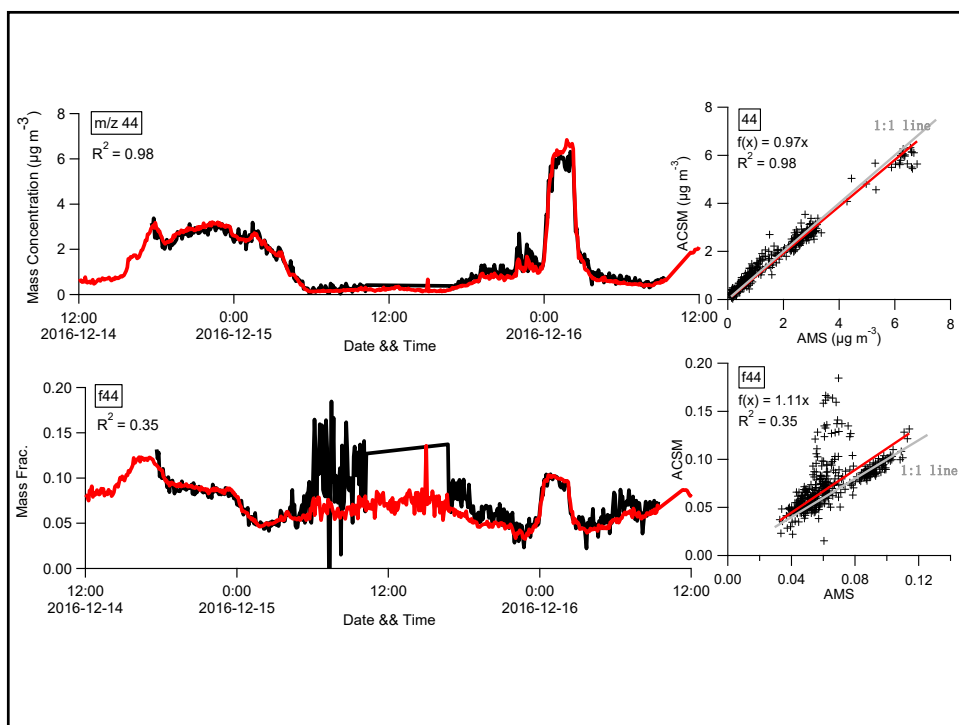
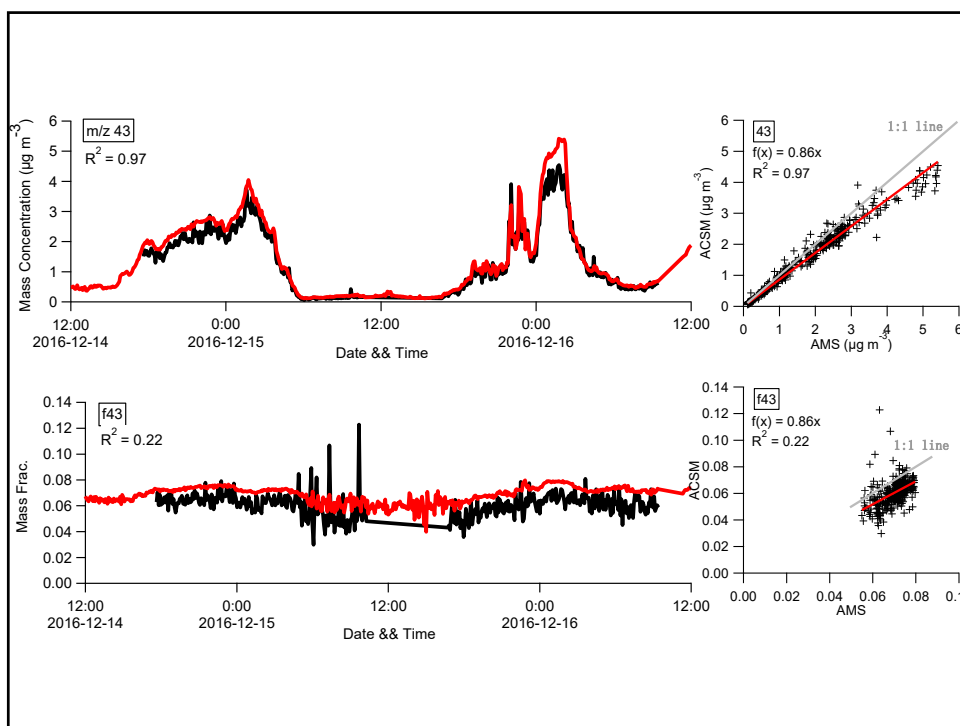


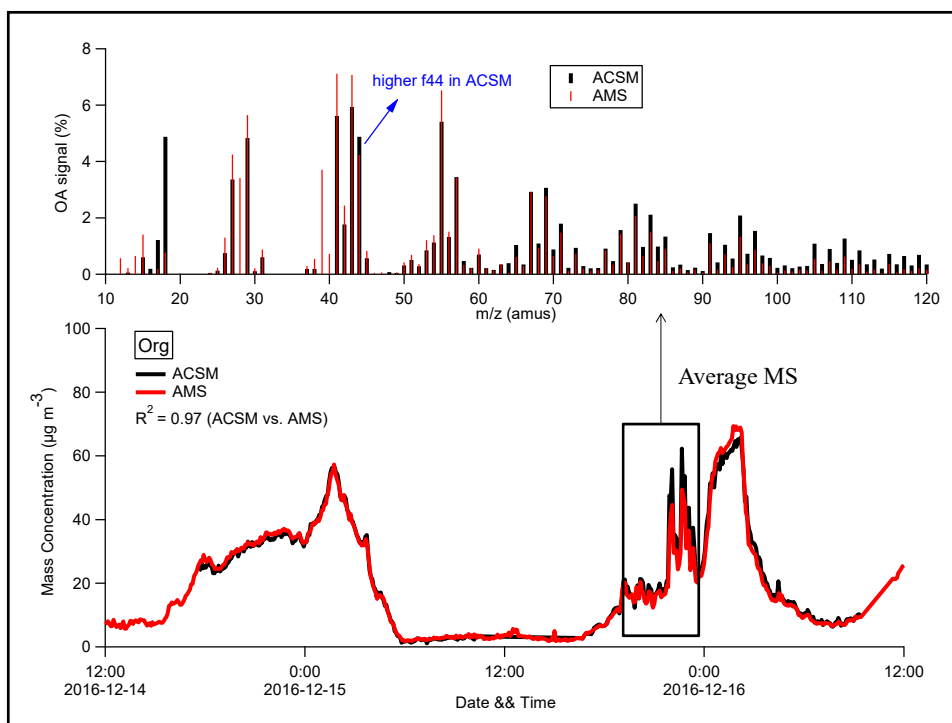
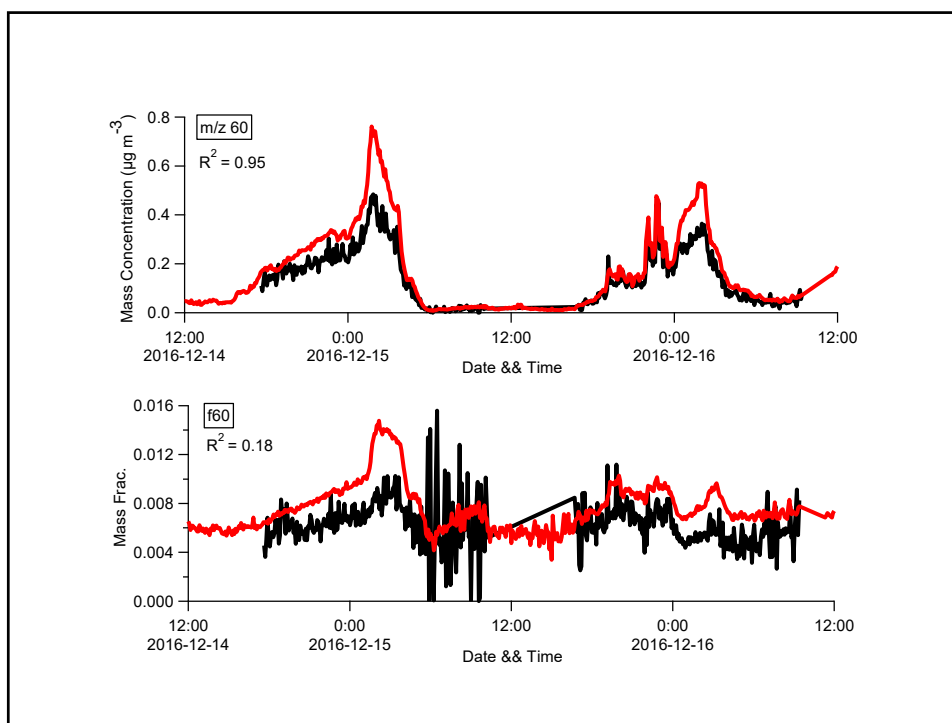
OA Factors: ACSM vs. HR-ToF-AMS

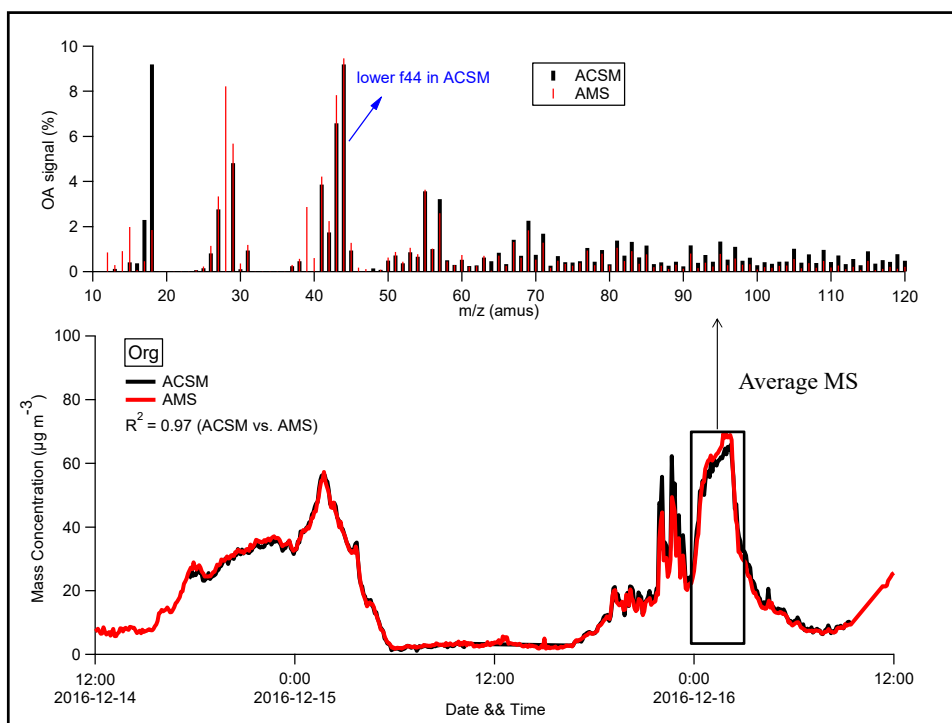


ACSM: Filament 2









Conclusions

- ACSM NO₃ vs. SO₄
- ACSM f44 → triangle plot → O/C
- ACSM f60
- PMF ACSM OA: Split of POA factors
- ME2: AMS spectra as constrains

Field characterization of the PM_{2.5} Aerosol Chemical Speciation Monitor: insights into the composition, sources and processes of fine particles in Eastern China

Yunjing Zhang^{1,4}, Lili Tang^{1,2}, Philip L. Croteau³, Olivier Favez³, Yele Sun⁴, Manjula R. Canagaratna³, Zhiqiang Wang³, Florian Couvidat³, Alexandre Albini³, Hongliang Zhang², Jean Sciare³, André S. H. Prévôt³, John T. Jayne³, Douglas R. Worsnop³

PM₁ ACSM vs. PM_{2.5} ACSM

