Continuous Samplers Used

Mass

TEOM Monitor (Nonvolatile mass)

RAMS (Total $PM_{2.5}$, including semi-volatile)

Composition

Aethalometer (EC, UV)

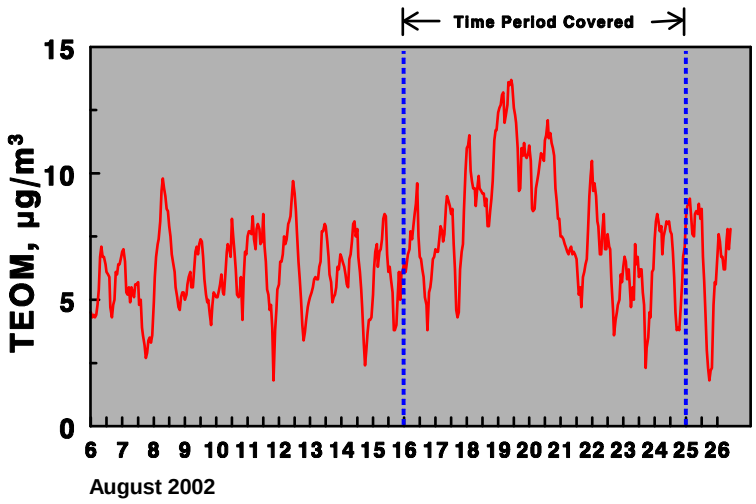
R&P Model 5400 (Carbonaceous material)

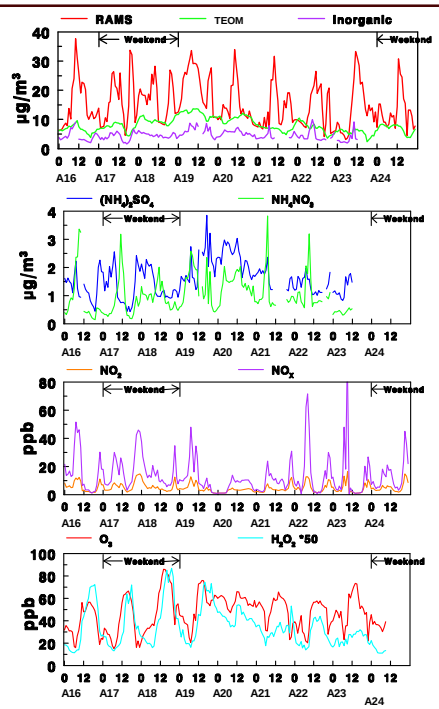
Denuder Sampler with IC Analysis (Sulfate, nitrate, etc)

Gases

NO_x, NO_2, O_3 and H_2O_2

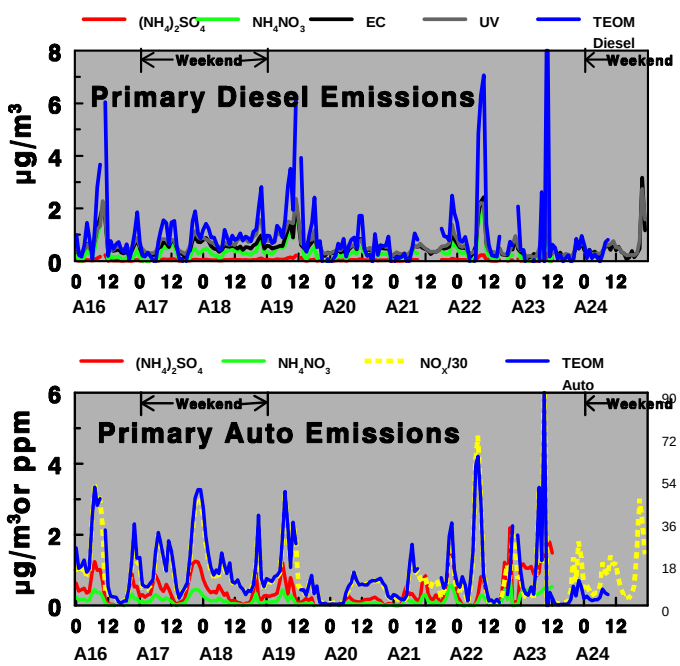
Hourly Averaged Data at Lindon UT

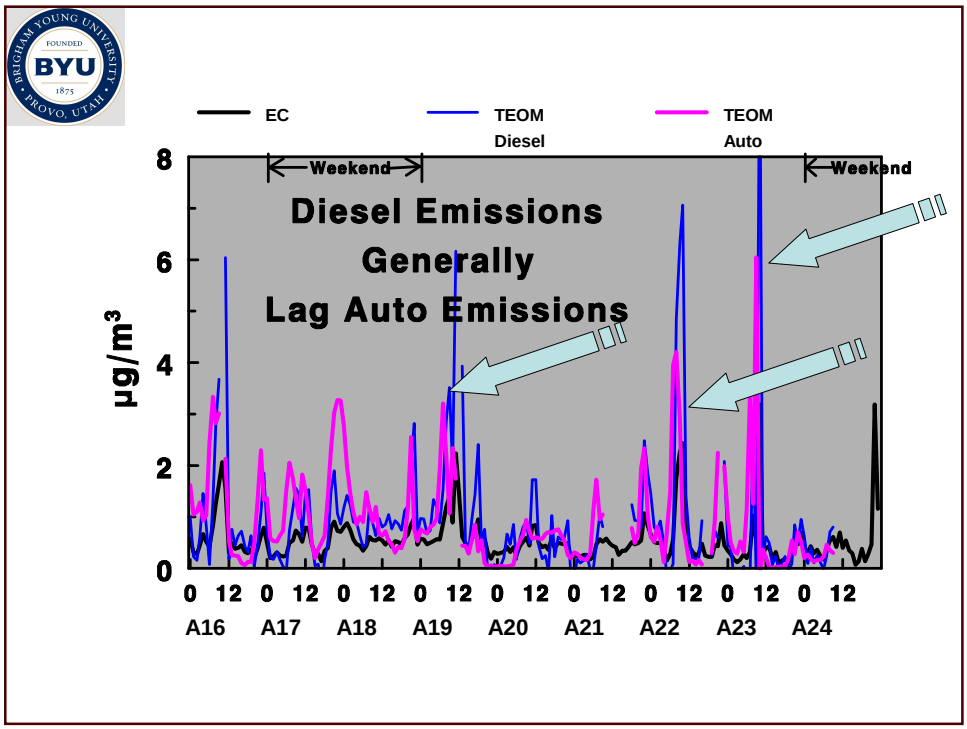


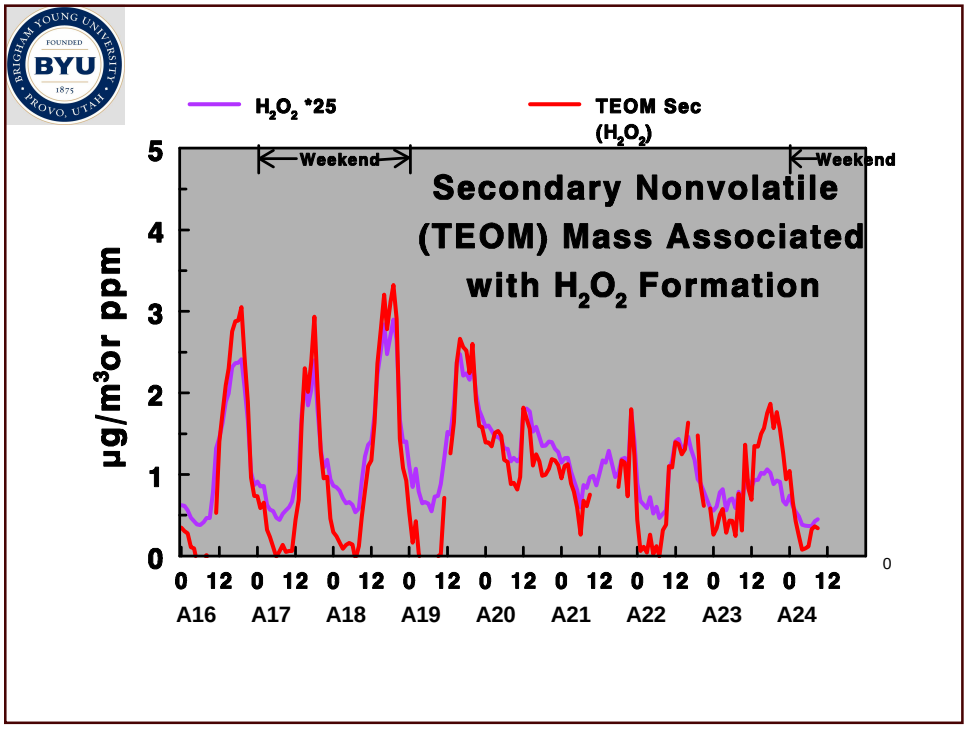


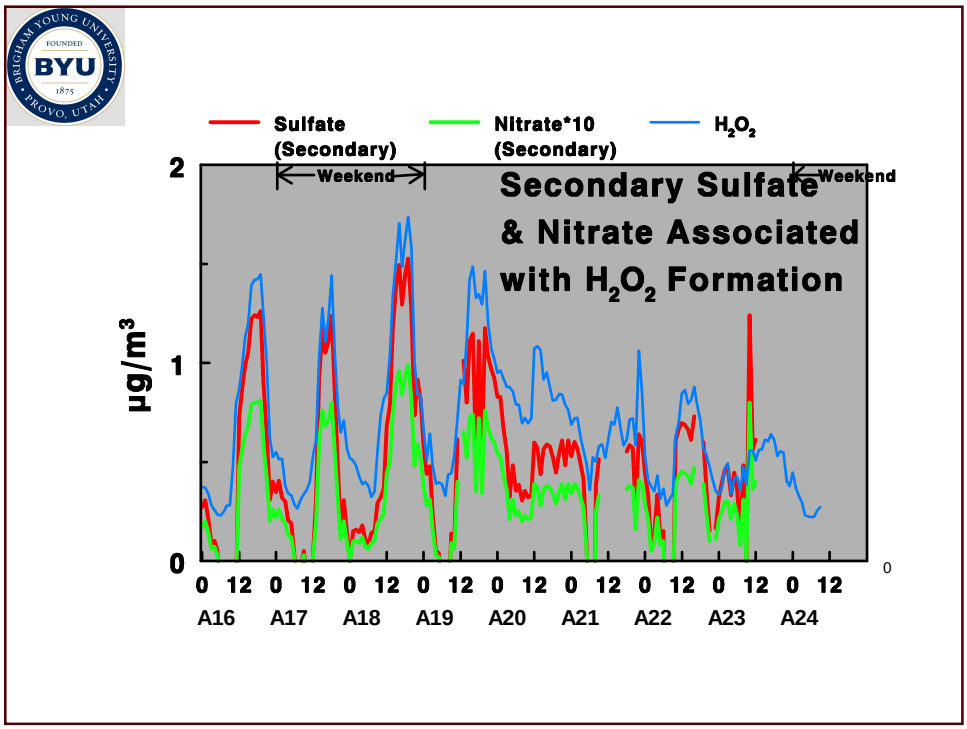
1-h Data at Lindon

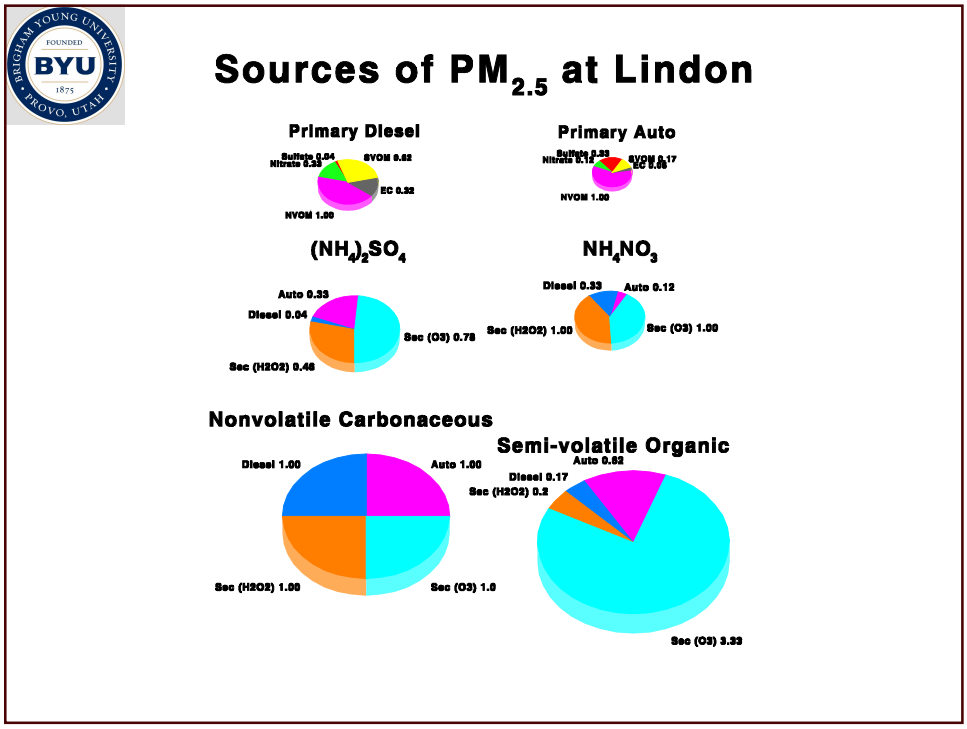
- RAMS > TEOM
- TEOM > Inorganic
- NO_X, NO_2, O_3, H_2O_2 Markers of Primary Emissions and Secondary Formation Processes




EC
TEOM Diesel
TEOM Auto
Weekend
Weekend
Diesel Emissions Generally Lag Auto Emissions
µg/m³
8
6
4
2
0
0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12
A16 A17 A18 A19 A20 A21 A22 A23 A24


H2O2 *25
TEOM Sec (H2O2)
Weekend
Weekend
Secondary Nonvolatile (TEOM) Mass Associated with H2O2 Formation
µg/m³or ppm
5
4
3
2
1
0
0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12
A16 A17 A18 A19 A20 A21 A22 A23 A24


Sulfate (Secondary)
Nitrate*10 (Secondary)
H_2O_2
Weekend
Weekend
Secondary Sulfate & Nitrate Associated with H_2O_2 Formation
µg/m³
2
1
0
0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12 0 12
A16 A17 A18 A19 A20 A21 A22 A23 A24


Sources of $PM_{2.5}$ at Lindon
Primary Diesel
Sulfate 0.04
Nitrate 0.33
SVOM 0.62
EC 0.32
NVOM 1.00
Primary Auto
Sulfate 0.33
Nitrate 0.12
SVOM 0.17
EC 1.00
NVOM 1.00
$(NH_4)_2SO_4$
Auto 0.33
Diesel 0.04
Sec (O3) 0.78
Sec (H2O2) 0.46
NH_4NO_3
Diesel 0.33
Auto 0.12
Sec (H2O2) 1.00
Sec (O3) 1.00
Nonvolatile Carbonaceous
Diesel 1.00
Auto 1.00
Sec (H2O2) 1.00
Sec (O3) 1.0
Semi-volatile Organic
Auto 0.62
Diesel 0.17
Sec (H2O2) 0.2
Sec (O3) 3.33