

Initial Results from the Northeast Aerosol Oxidant Study (NEAOS)

NEAOS Objectives

- Conduct a regional scale survey of aerosol precursors, and aerosol chemical and microphysical properties.*
- Test and evaluate new instrumentation for measurement of aerosol properties*

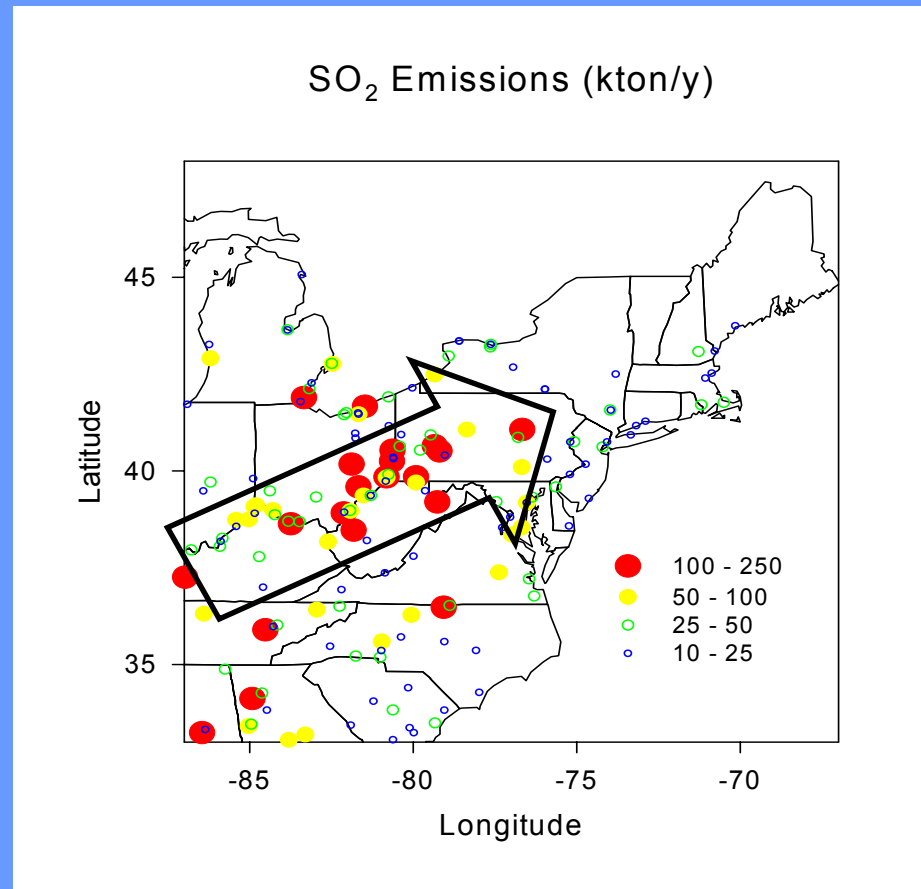
Aerodyne aerosol mass spectrometer

DMA system for measurement of particle number concentrations and size distributions (3 nm - 3 μ m)

New aerosol inlet

Why Study the Northeast?

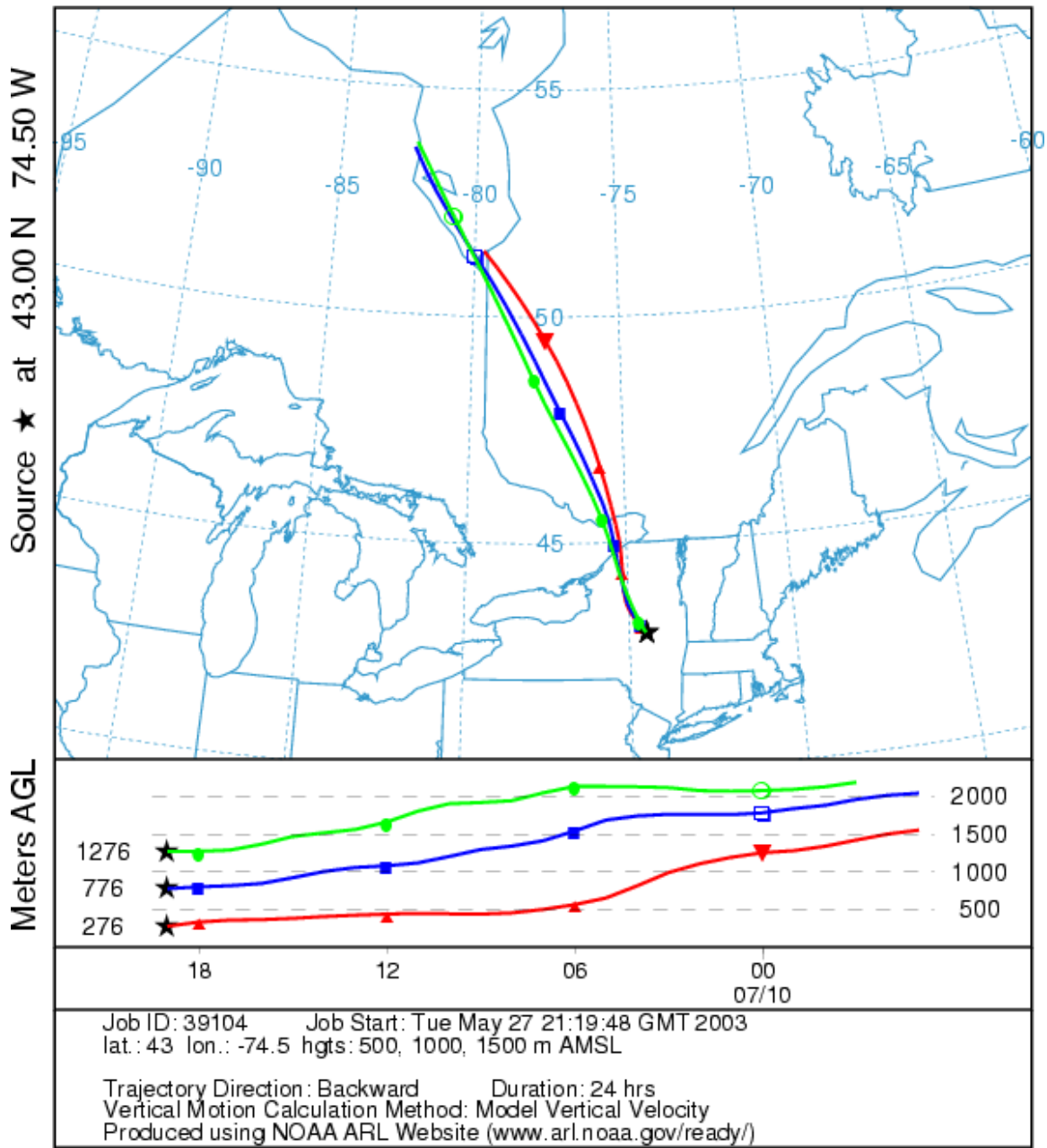
Prevailing winds bring aerosols and aerosol precursors (SO_2) from the source regions to the west. These aerosols have health consequences and cause significant reductions in visibility throughout much of the Northeast. They can also have significant climate effects both directly and indirectly through alteration of the properties of clouds.



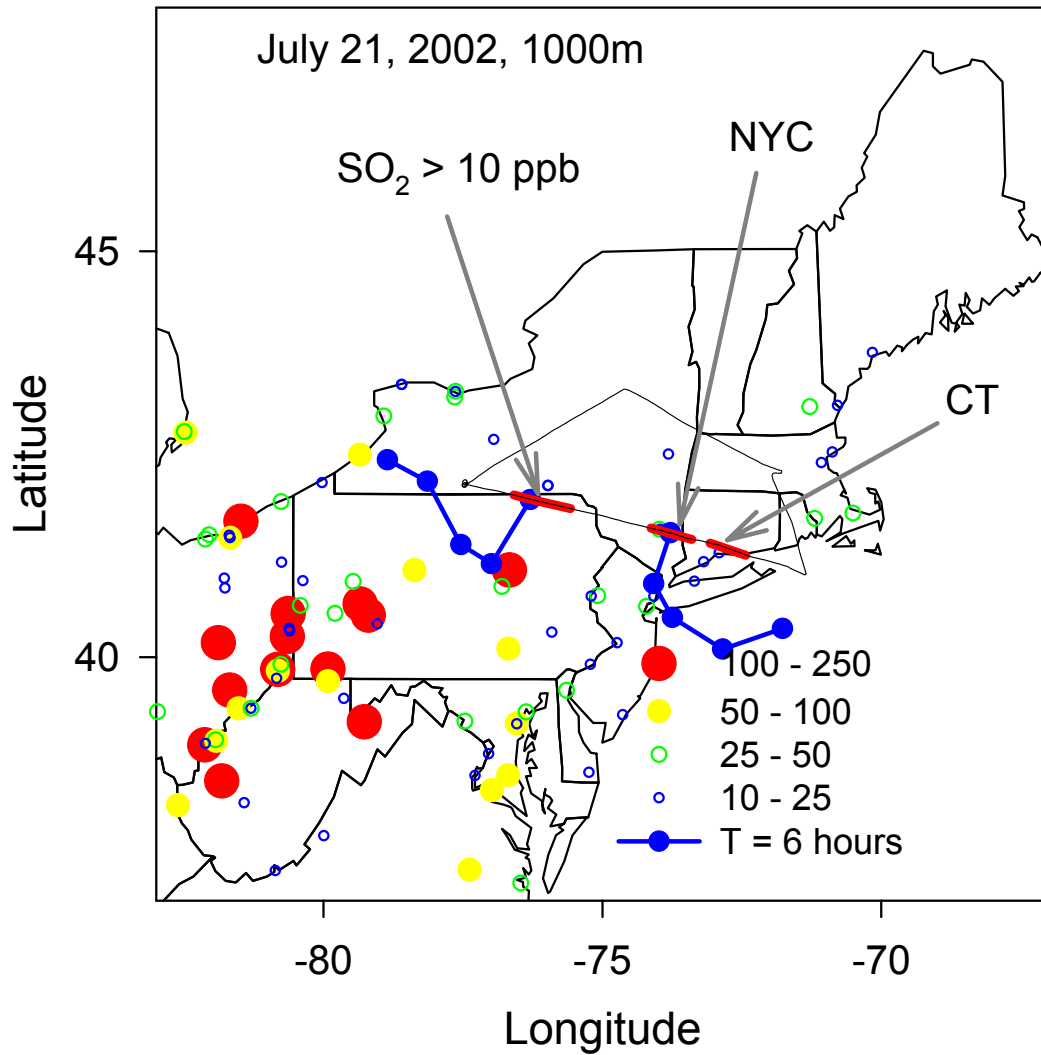
NEAOS Flights

| | |
|-------------|------------------------------------------------|
| <i>7/10</i> | <i>Albany – Regional characterization</i> |
| <i>7/12</i> | <i>Pinnacle Park-Regional characterization</i> |
| <i>7/13</i> | <i>Boston-upwind/downwind</i> |
| <i>7/14</i> | <i>Pinnacle Park-Regional characterization</i> |
| <i>7/16</i> | <i>Eastern Pa Refineries / Ron Brown</i> |
| <i>7/17</i> | <i>Boston-upwind/downwind / Ron Brown</i> |
| <i>7/21</i> | <i>Pinnacle Park-Regional characterization</i> |
| <i>7/22</i> | <i>Boston-upwind/downwind / Ron brown</i> |

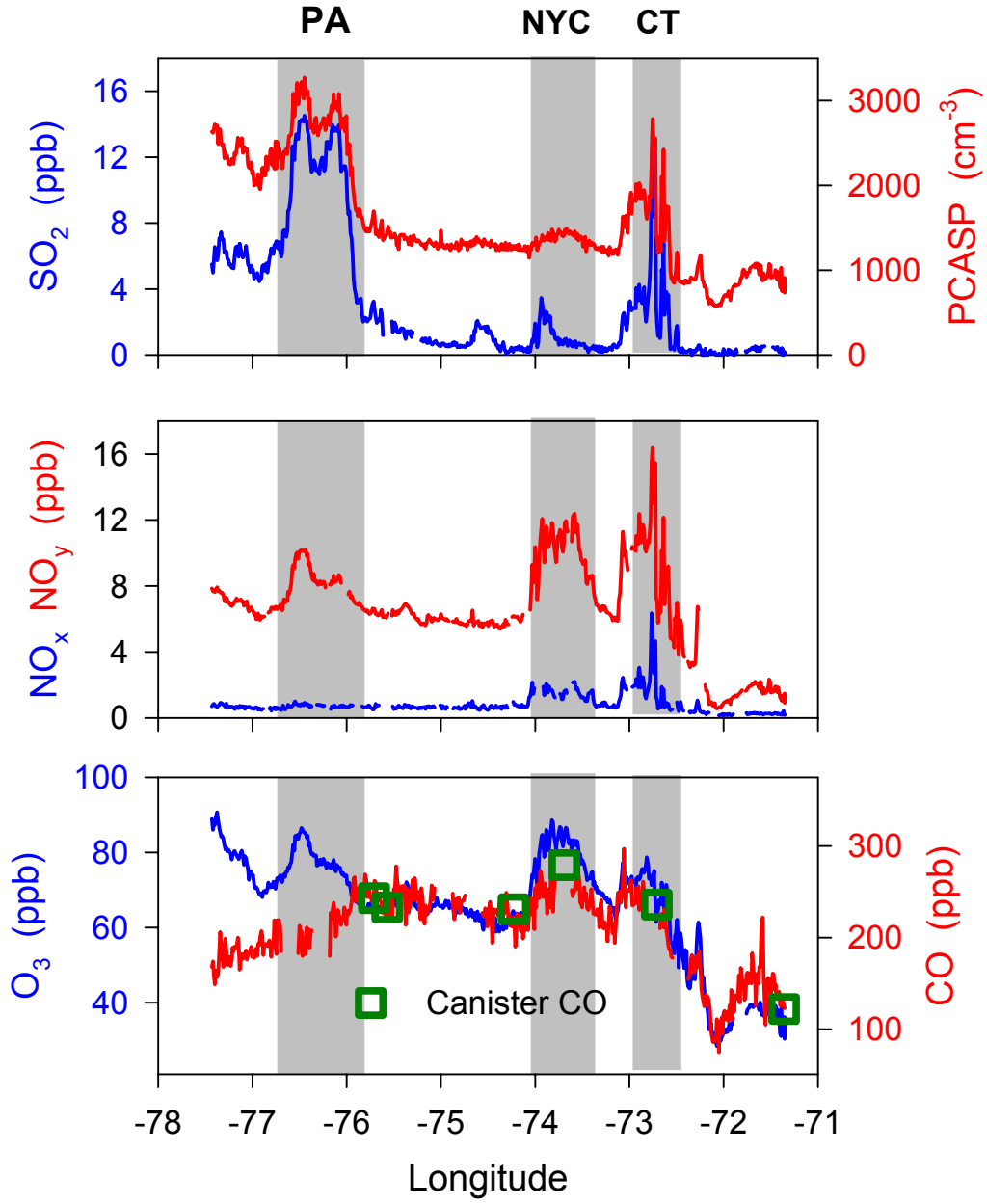
NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION
 Backward trajectories ending at 19 UTC 10 Jul 02
 EDAS Meteorological Data



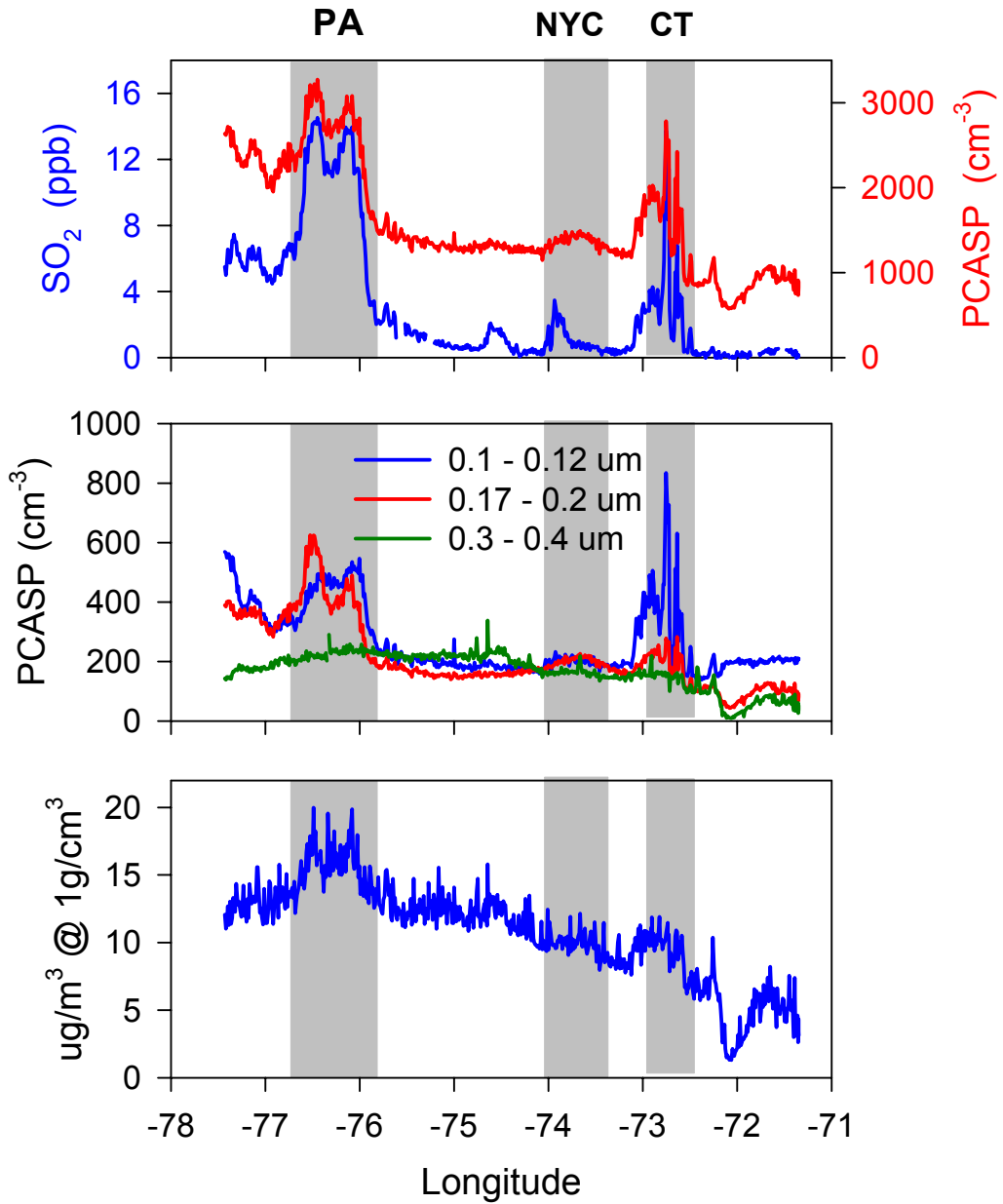
July 21 2002 Groundtrack, Back Trajectories & SO₂ Emissions (kton/y)



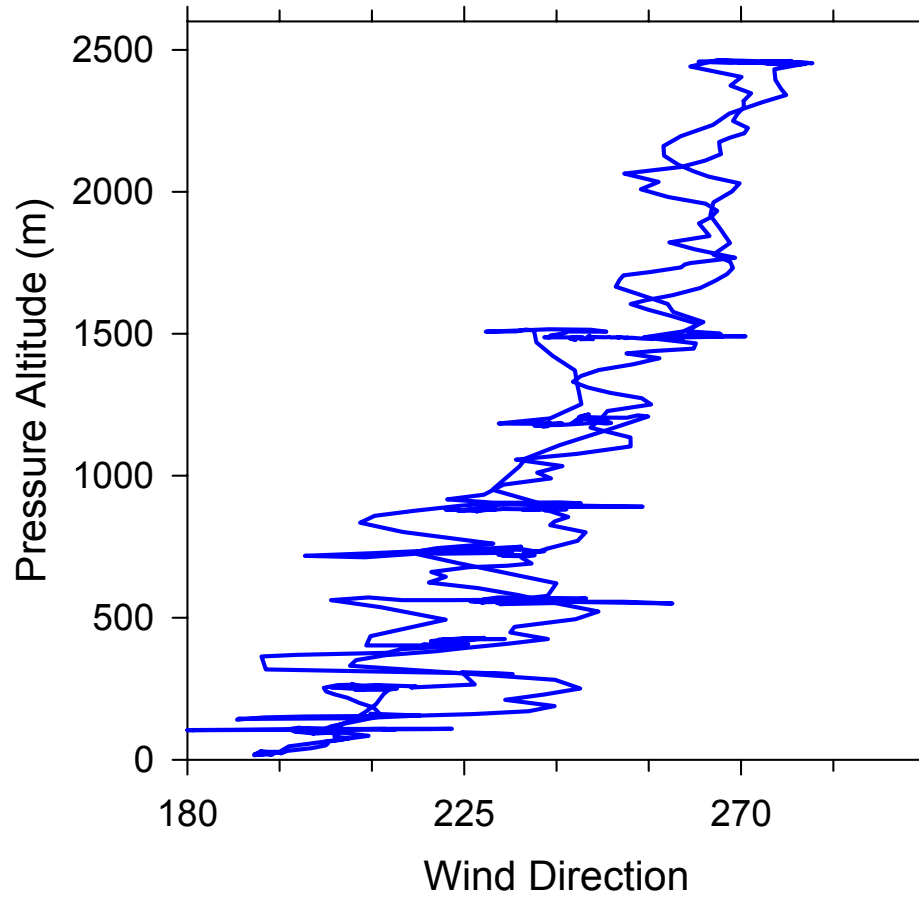
July 21, Regional Flight



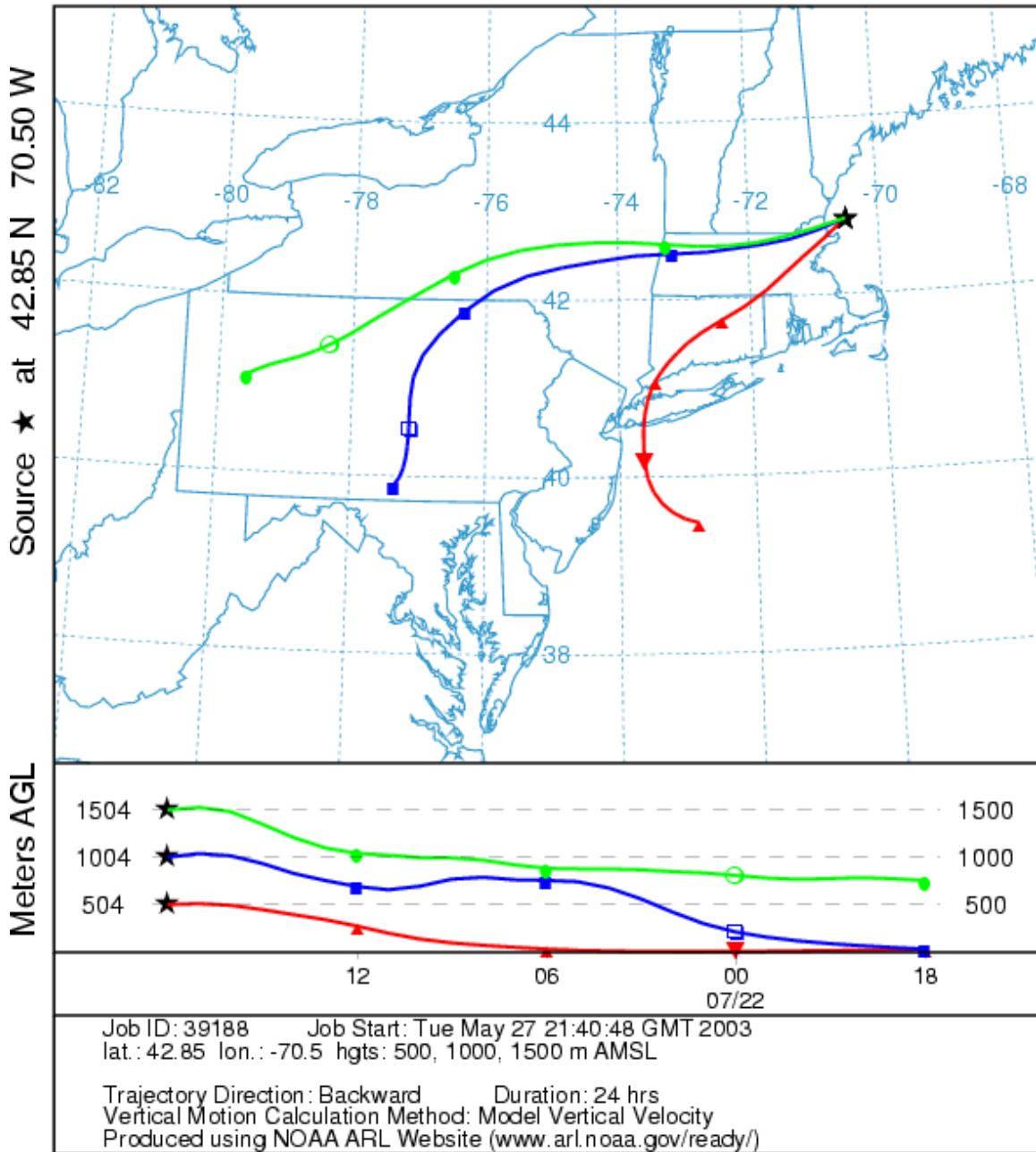
July 21, Regional Flight



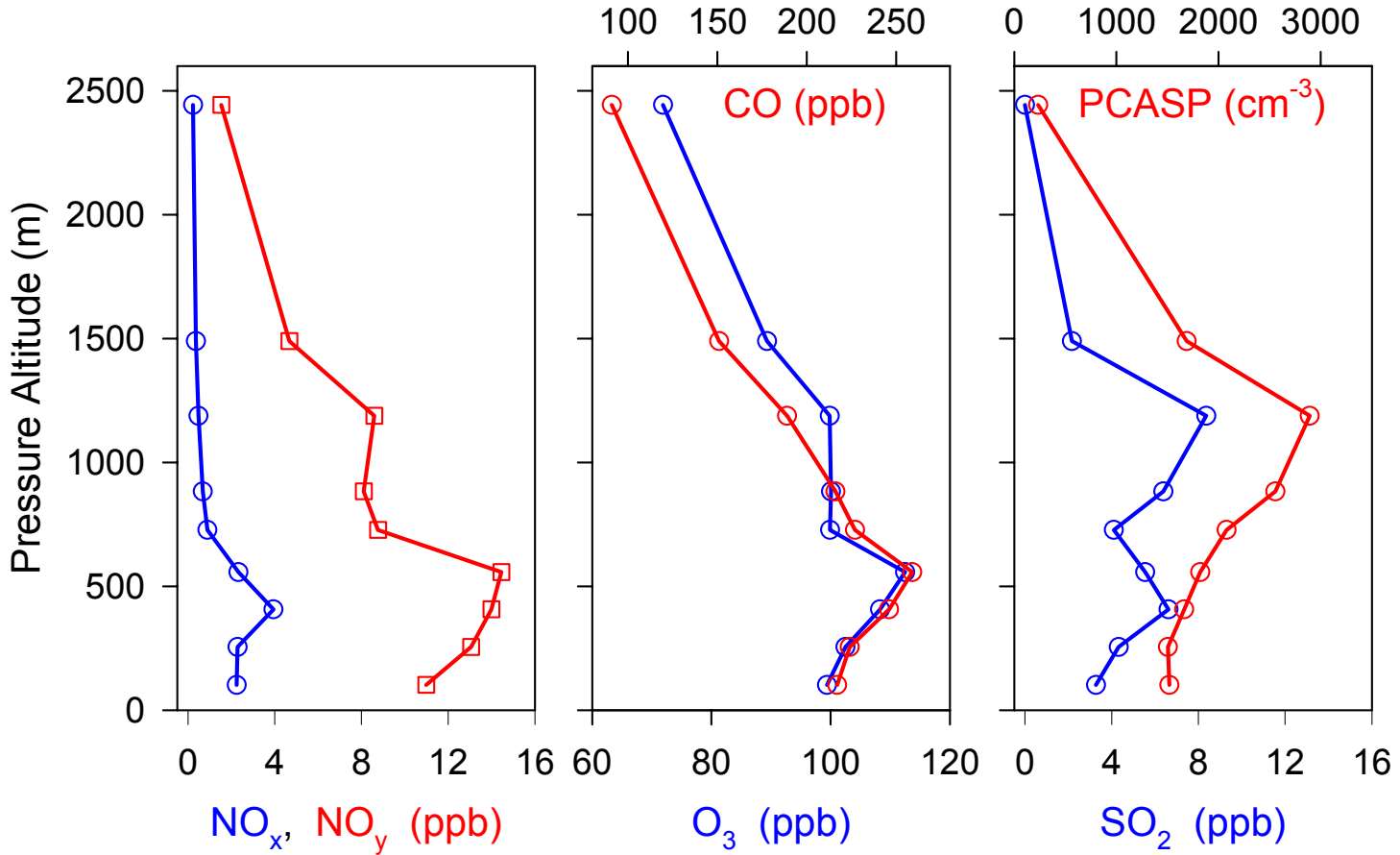
July 22, 2002
Ladder over Ron Brown



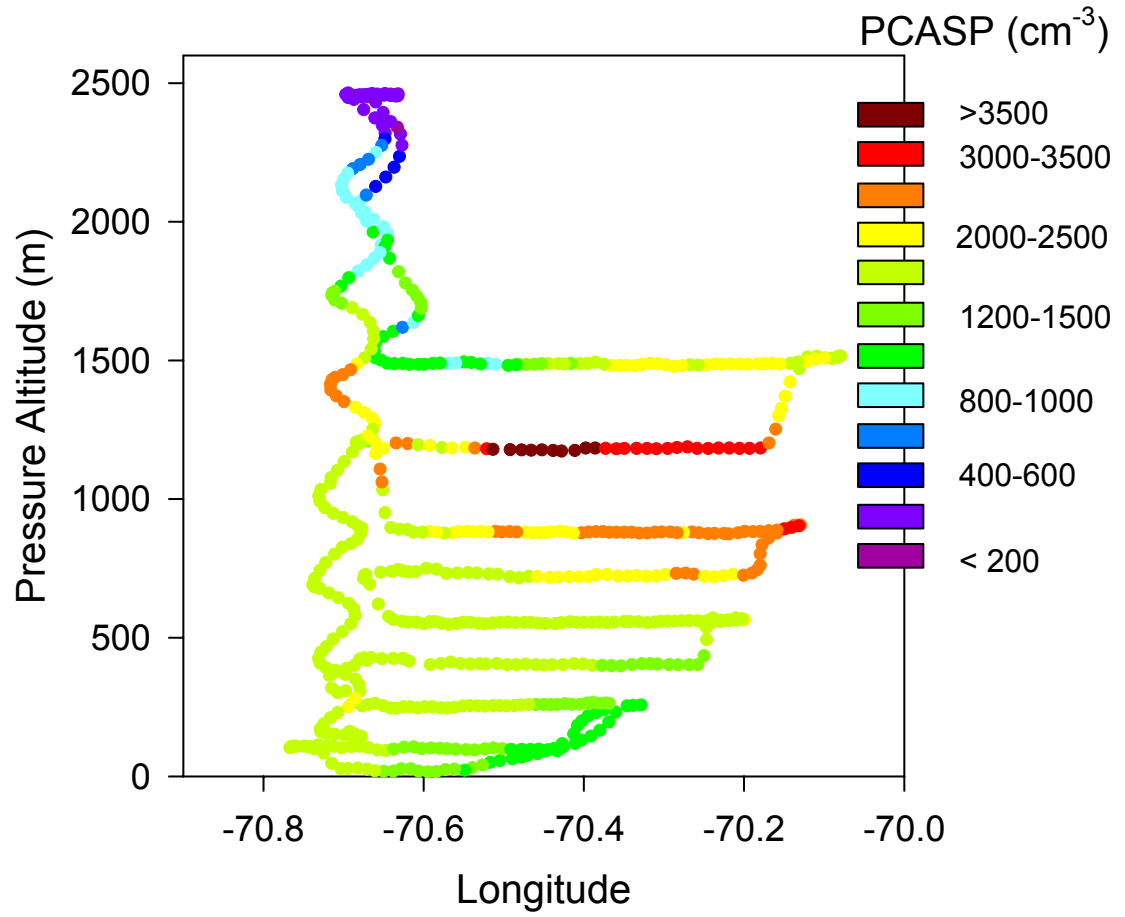
NATIONAL OCEANIC ATMOSPHERIC ADMINISTRATION
 Backward trajectories ending at 18 UTC 22 Jul 02
 EDAS Meteorological Data



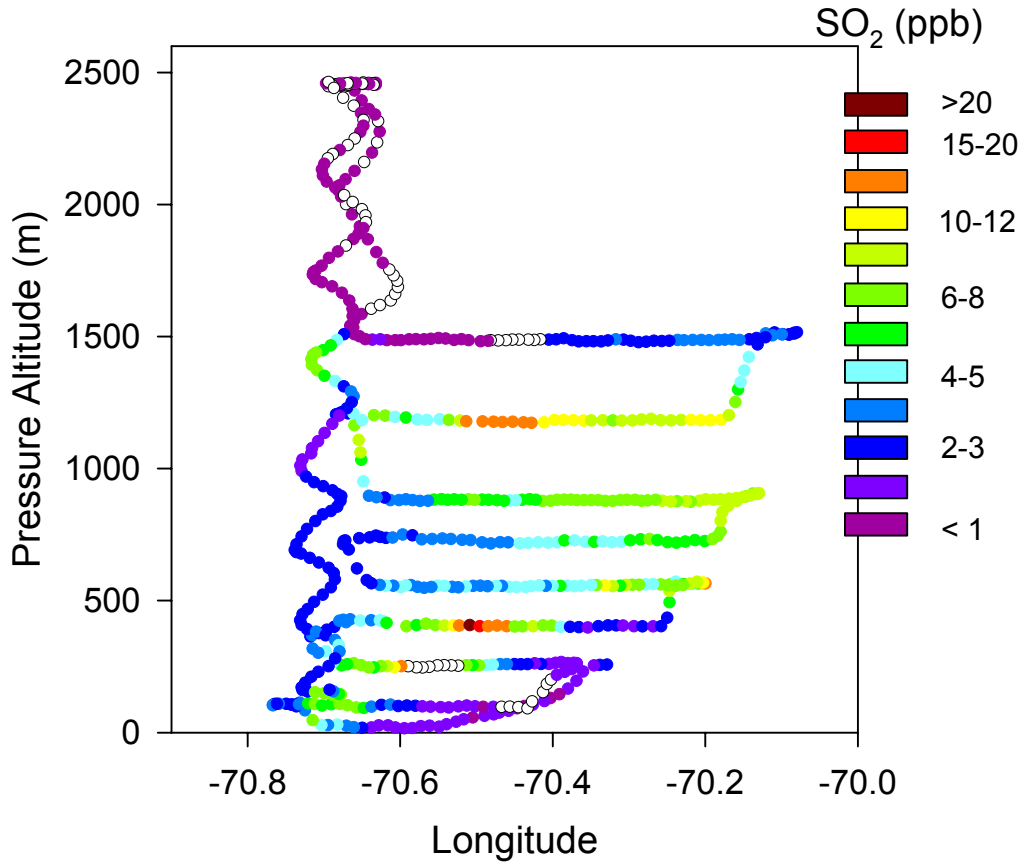
Ladder over Ron Brown, July 22, 2003



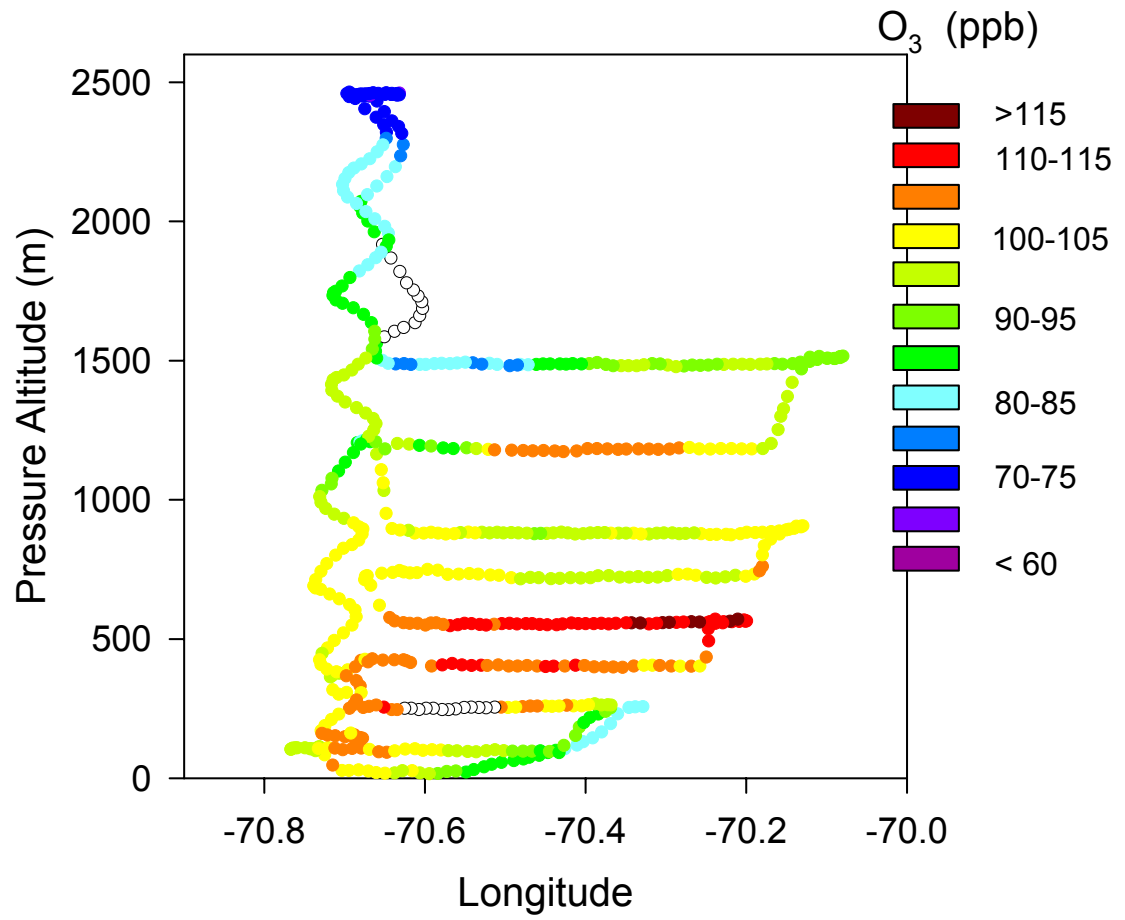
July 22, 2002
Ladder over Ron Brown



July 22, 2002
Ladder over Ron Brown



July 22, 2002
Ladder over Ron Brown



We've Seen:

- Dirty Air
- Clean Air
- Local and Long-range Transport in Layers

We'll be Looking at (02 & 04):

- Properties of Regional Haze
- What Distinguishes a Hazy Day from a **REALLY HAZY DAY?**
 - It's the sulfur, stupid (G. Allen)
 - organics, RH, ventilation, oxidants, in-cloud oxidation of SO₂?
- Process Studies in Urban, Utility, and Industrial Plumes