Ambient Sampling in Tokyo

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- Aircraft/Balloon Measurements of NOx and NOy (e.g., PEM-West, SOLVE, TRACE-P).
- The AMS was installed in our lab in April 2002.

Mt. Fuji (100 km away)

Hazy day (usual)

Very clear day (sometimes)

Where are we?

Synoptic-Scale Meteorology

Winter
Siberian High

Asian outflow

Spring
Subtropical High

Summer
N. Pacific High

Tokyo

-> Background variability in Tokyo
University of Tokyo is located near the center of the city. Heavy traffic roads ~2 km away from our building.

**Local Meteorology**
- Daytime: Southerly (from sea)
- Nighttime: Northerly

**Ambient Sampling (June 2002)**

**Inlet (temporal)**
- Height ~20 m above the ground
- Length ~4 m, 3/8 SUS tubing (sticking out of the window)

**Parameters**
- Emission current: 2.5 mA
- Heater temp: ~600°C
- Ionization eff (NO$_3$): 1e-6
- Air Beam: 1.2 MHz

**Simultaneous measurements**
- Not available in June
  - (O$_3$, CO, SO$_2$, NO$_x$, TEOM, and Met data are now available)
Mass Loadings (June 11-13)

Case 1 (0:00-5:00)

Case 2 (4:00-12:00)

Mass Spectra

Case 1 (0:00-5:00)  Case 2 (4:00-12:00)

Fragment patterns are similar
Ambient measurements were conducted at the University of Tokyo in June 2002.

Overall, the instrument worked well.

Enhancements of Nitrate, Sulfate, and Organic were observed in midnight - early morning.

The size-distributions for cases 1 and 2 were clearly different. (case 1 -> fresh, case 2 -> aged)

Future work …
- Continuous measurements of aerosols and gas-phase species in Tokyo (and onboard aircraft?).
- Simultaneous measurements with other AMSs (NIES, JCAP)
  -> spatial variation of aerosols in Japan.
Acknowledgements

We thank John, Jose, Manjula, James, and many other people who provided useful information and supports.