URBAN 2000 SF$_6$ Atmospheric Tracer Results from the Suburban Experiment Domain

Kirk L. Clawson, R. G. Carter, D. J. Lacroix, N. F. Hukari
NOAA Air Resources Laboratory Field Research Division
(http://www.noaa.inel.gov)

K. J. Allwine
Pacific Northwest National Laboratory

J. H. Shinn
Lawrence Livermore National Laboratory
(Funded by DOE CBNP)
NOAA/FRD Deployment Tasks

- SF$_6$ Dissemination
- Stationary SF$_6$ Plume Measurements
- Mobile SF$_6$ Plume Measurements
- Stationary Urban Perfluorocarbon Sampling
- Radar Wind Profiler and SODAR at Raging Waters
- Two 3-D Sonic Anemometers Near the Release Site
Mobile SF$_6$ Analyzer
Mobile SF₆ Analyzer Fleet
$\text{SF}_6$ Experiment Domain—1,2,4,6 km Arcs
IOP 10, Unit 2 (Downtown #2), Plume 6 -- 26 October 2000

SF₆ Concentration (pptv)

Time (MDT)
IOP 10, Unit 5 (2 km arc), Plume 32 -- 26 October 2000

SF₆ Concentration (pptv)

Time (MDT)
Mobile SF₆ Analyzers – IOP 10

$\text{SF}_6$ Concentration (pptv)

Time (MDT)

- 1 km arc
- 2 km arc
- 4 km arc
- 6 km arc

- 0
- 2,000
- 4,000
- 6,000
- 8,000
- 10,000

0 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5 5.0 5.5 6.0 6.5

Mobile SF₆ Analyzers -- IOP 10
Real-time Analyzer Results – IOP 10

VTMX URBAN 2000  IOP #10

Mobile SF6 Analyzer Peak Concentrations:

<table>
<thead>
<tr>
<th>Distance</th>
<th>Peak Concentrations</th>
</tr>
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<tbody>
<tr>
<td>6 km</td>
<td></td>
</tr>
<tr>
<td>4 km</td>
<td></td>
</tr>
<tr>
<td>2 km</td>
<td></td>
</tr>
<tr>
<td>1 km</td>
<td></td>
</tr>
</tbody>
</table>

Dtr #1:

1:00 MDT

Dtr #2:

7:00 MDT

SF6 Peak Concentrations (PPTV):
- Conc > 10000 PPTV
- 10000 PPTV > Conc > 3000 PPTV
- 3000 PPTV > Conc > 1000 PPTV
- 1000 PPTV > Conc > 300 PPTV
- Conc < 300 PPTV

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Real-time Analyzer Results – IOP 2

VTMX URBAN 2000  IOP #2

Mobile SF6 Analyzer Peak Concentrations:
- 6 km
- 4 km
- 2 km
- 1 km
- Dtn #1
- Dtn #2

SF6 Peak Concentrations (PPTV):
- Conc > 10000 PPTV
- 10000 PPTV > Conc > 3000 PPTV
- 3000 PPTV > Conc > 1000 PPTV
- 1000 PPTV > Conc > 300 PPTV
- Conc < 300 PPTV
Summary

• 6 real-time analyzers deployed
  – 4 mobile
  – 2 quasi-stationary

• Considerable plume meander probably due to complex terrain
  – Stationary and mobile analyzers