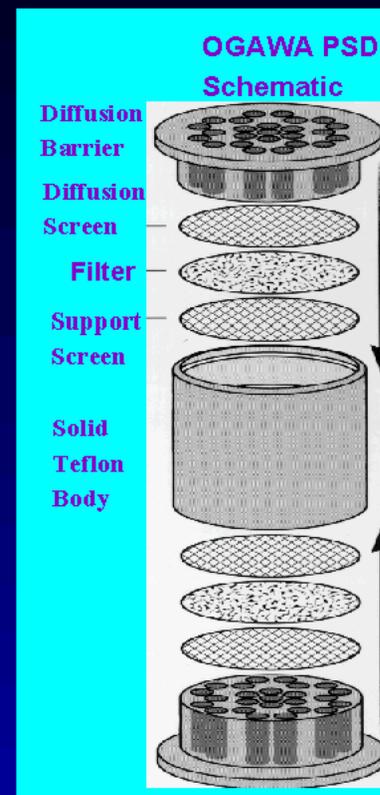
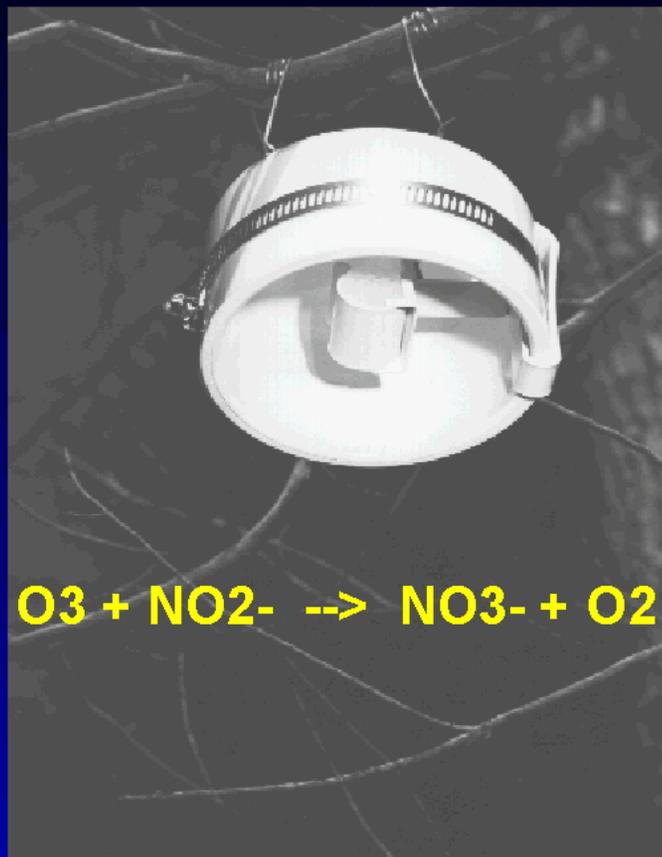


Update on Passive Ozone Monitoring Special Projects in EPA Region 6

- September, 2003
- Regional Technical Contact: Mark Sather, Air Quality Analysis Section
- E-mail: sather.mark@epa.gov
- Phone: (214) 665-8353

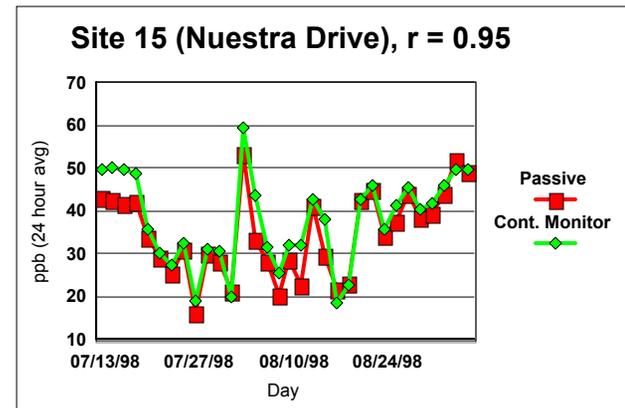
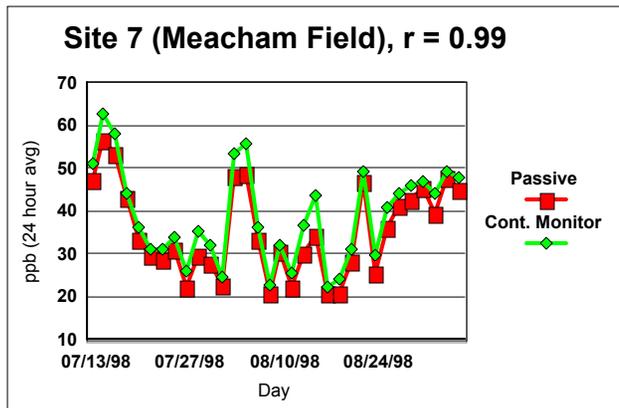
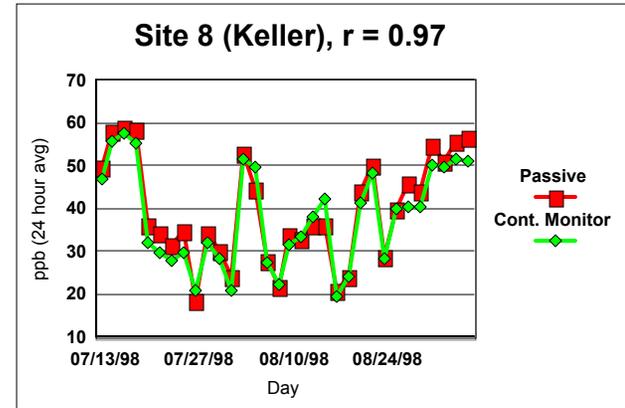
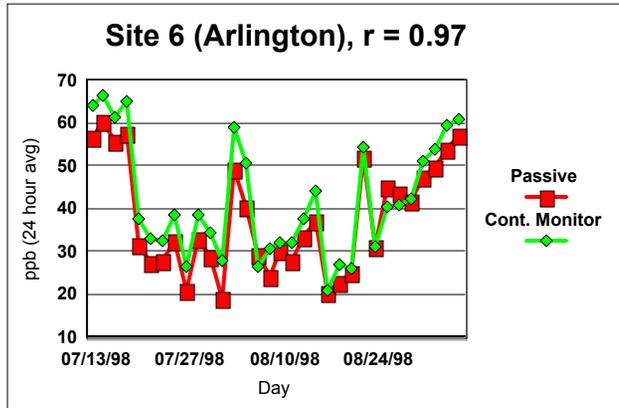
Networking an Ozone Passive Sampling Device



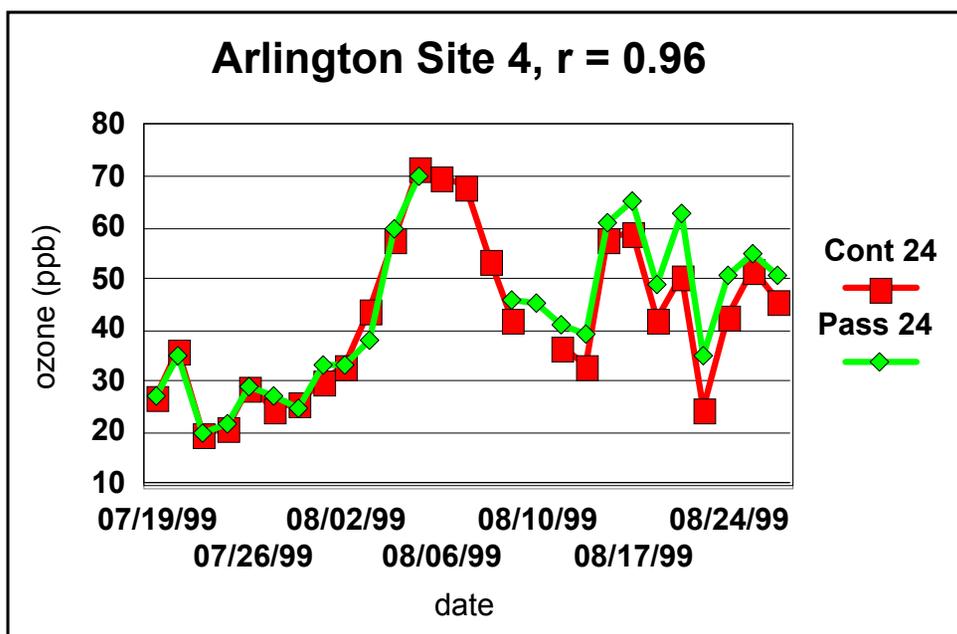
Background

- Benefits of passive ozone sampling: very easy to use; no power required; where cost is an issue passive sampling provides an inexpensive alternative to continuous sampling; can provide credible ozone monitoring data to help fill in data gaps and to screen new areas, including more remote rural areas.
- EPA Region 6 collaborated with ORD and the contractor Mantech in 1998 and 1999 for the Passive Ozone Network of Dallas (POND). Results published in two *Environmental Science and Technology* journal articles (March 1 and November 15, 2001).
- The passive sampling devices for ozone produced excellent correlations with conventional continuous ozone samplers.

1998 Passive/Continuous Ozone Monitoring Correlations 24-hour Samples



1999 Passive/Continuous Ozone Monitoring Correlation 24-hour Samples

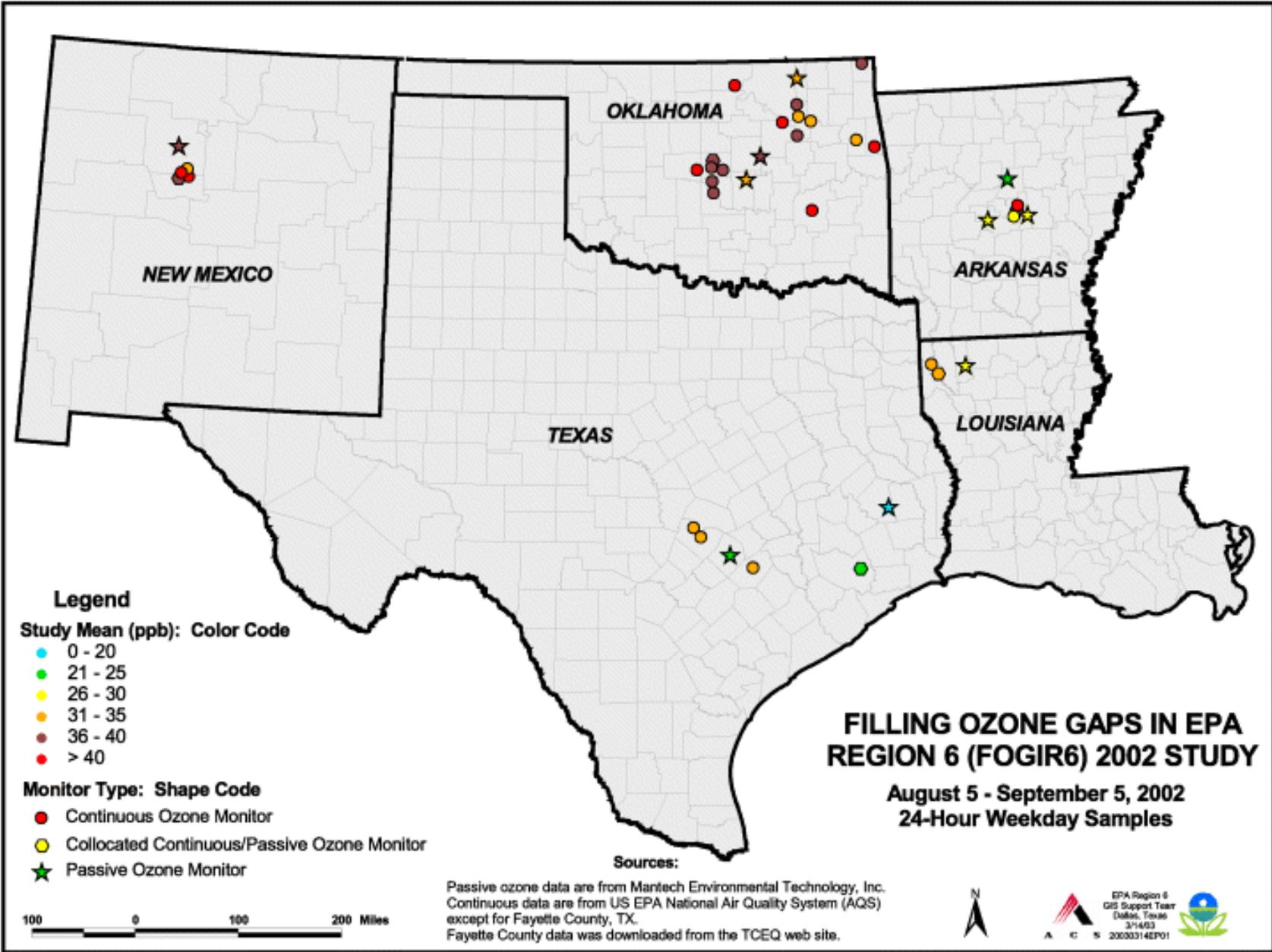


Innovative Highlights of the 1998-1999 POND Studies

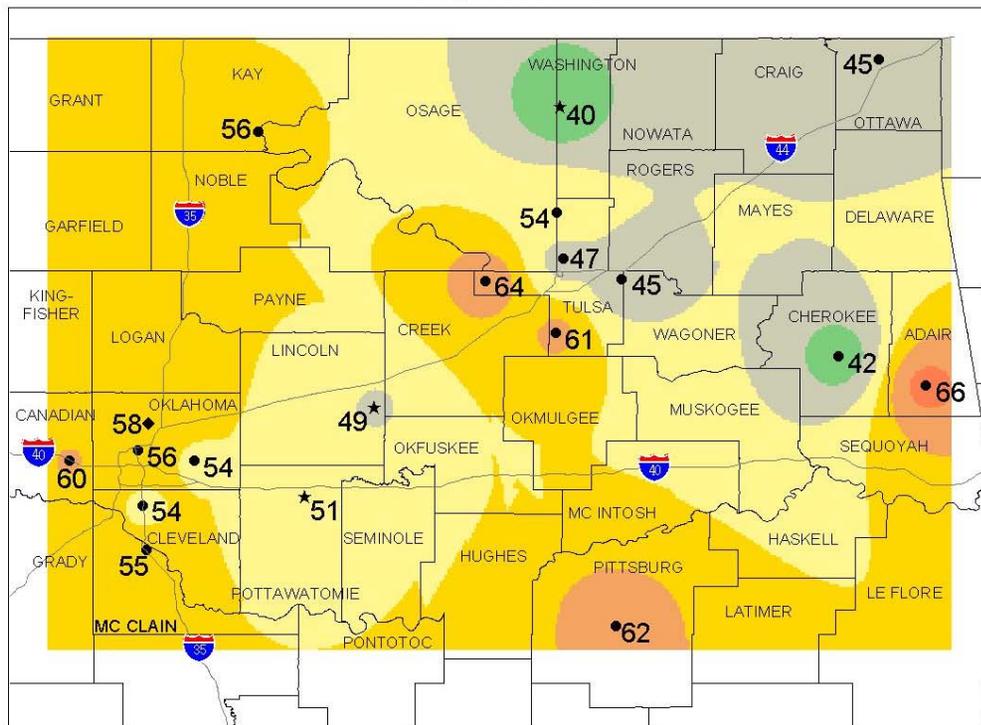
- First report of passive devices to be used outdoors on a daily basis for up to 8 weeks by trained and interested community volunteers to collect a quality ground-level ozone database for a large geographical area.
- First demonstration of a diurnal passive ozone network that differentiated between rural and urban-dominated areas.

First Time Regional Daily Passive Ozone Monitoring Study in 2002 in Region 6

- FOGIR6 2002 – Filling Ozone Gaps in Region 6; 15 sites, including four tribal land sites and five collocated sites with continuous monitors. Funding provided by OAQPS Futures.



Central and Northeast Oklahoma 24-hour Ozone Contours August 8, 2002



- 49 Continuous Ozone Monitor
24-Hour Value (ppb)
- ★ 49 Passive Ozone Monitor
24-Hour Value (ppb)
- ◆ 49 Collocated Continuous and
Passive Ozone Monitor
24-Hour Value (ppb)
- ↗ Interstate

Value Ranges (ppb)

<ul style="list-style-type: none"> 0-19 20-24 25-29 30-34 35-39 40-44 45-49 50-54 	<ul style="list-style-type: none"> 55-59 60-64 65-69 70-79 80-89 90-99 100 or more
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Sources: Passive ozone data from Mantech Environmental Technology, Inc. Continuous data from EPA National AQS Database. Base features from 2000 Census Bureau TIGER/Line Files.

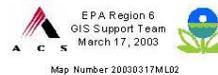
10 0 10 20 Miles



Dominant resultant wind direction: SE
 Average resultant wind speed (mph): 5
 Daily low 24-hr ozone value (ppb): 40
 Daily high 24-hr ozone value (ppb): 66

All Meteorological data analyzed from
 6 AM to 6 AM local daylight time from
 AQS site #40-109-1037 in Oklahoma City.

Values rounded to the nearest integer.
 Contours are shaded in ranges of 5 ppb.
 19 monitors reported for this date.

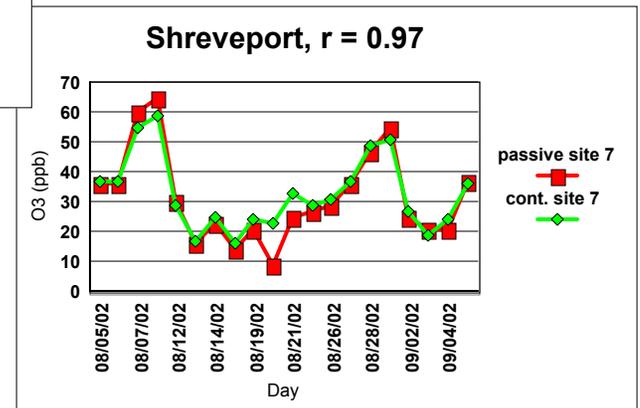
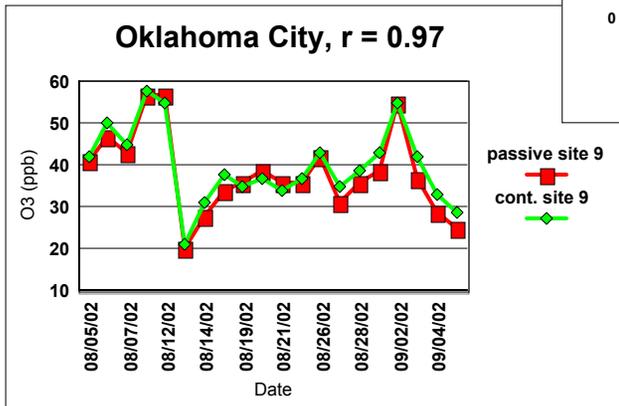
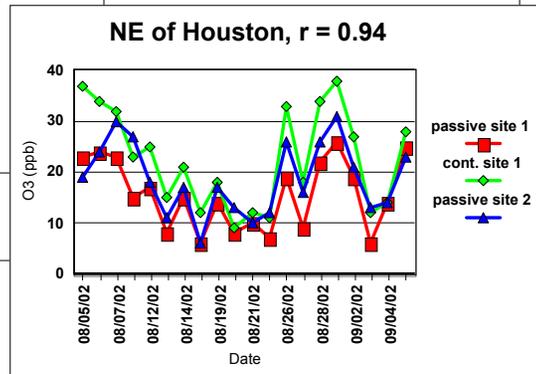
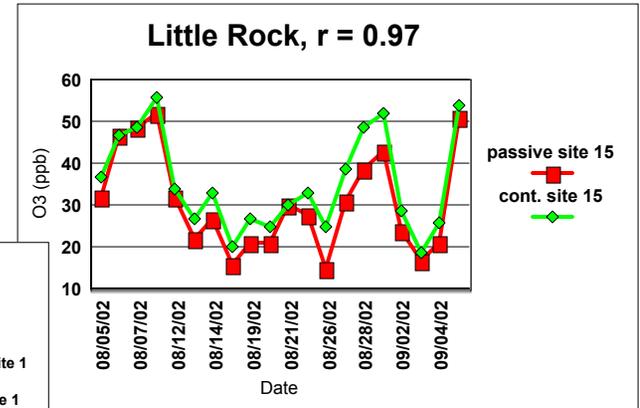
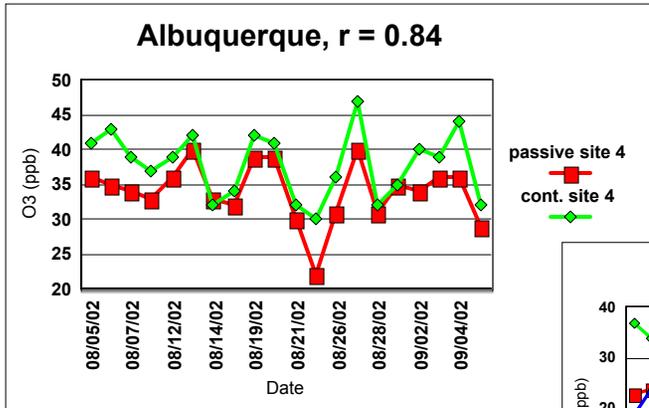


Map Number 20030317ML02

FOGIR6 2002 Studies

- Again, excellent correlations obtained between passive sampling ozone monitoring devices and continuous monitors.

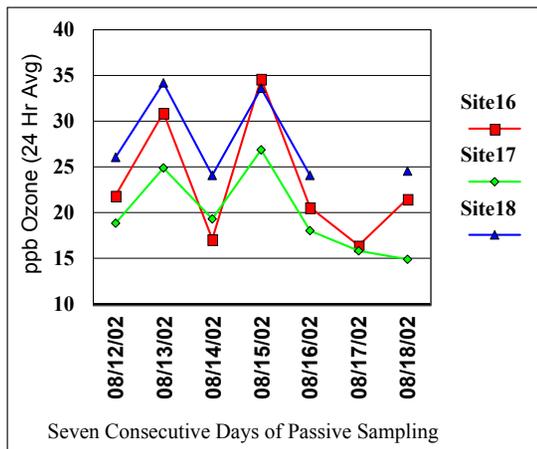
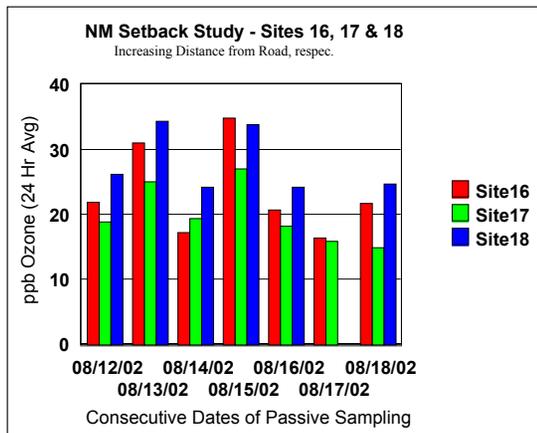
2002 Passive/Continuous Ozone Monitoring Correlations 24-hour Samples



Las Cruces, NM Set-Back Study

- Rich Scheffe's group (Lee Byrd contact) provided funding for a one week set-back study in Las Cruces, NM.
- Study results showed ozone scavenging at a continuous ozone site next to a major arterial and close to an Interstate which still met current neighborhood scale criteria in the CFR.
- Recommend that the table in 40 CFR Part 58 App. E be revised to reflect greater minimum separation distances, especially at the low end of the table.

Las Cruces, NM Set-Back Study

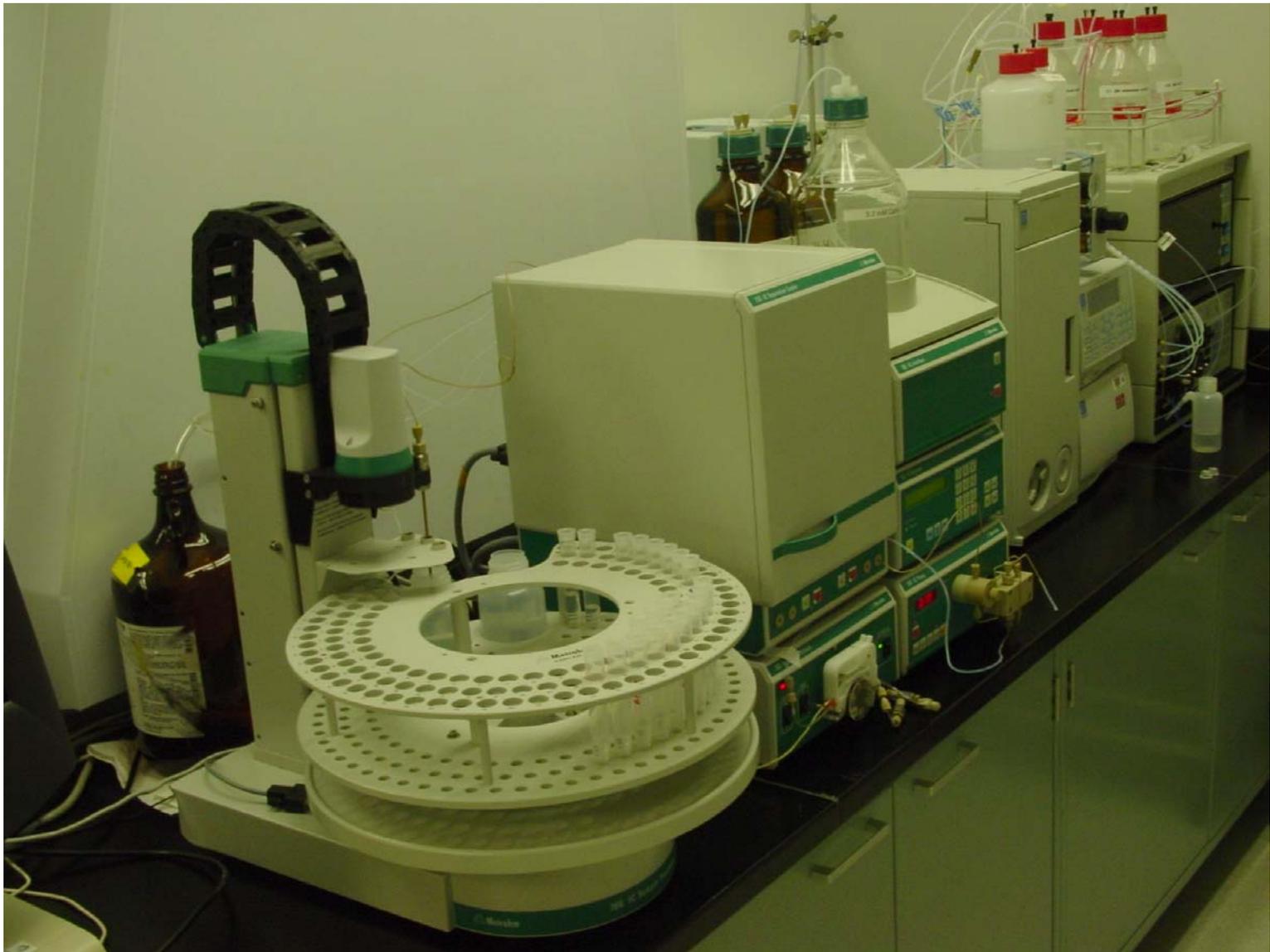


- Site 16 – about 100 meters from I-10 freeway.
- Site 17 – long-term ozone site about 200 meters from I-10 but only about 10 meters away from main arterial ($\leq 10,000$ ADT)
- Site 18 – neighborhood site about a mile away from site 17.

Region 6 Houston Laboratory Now Doing Passive Ozone Chemical Analysis

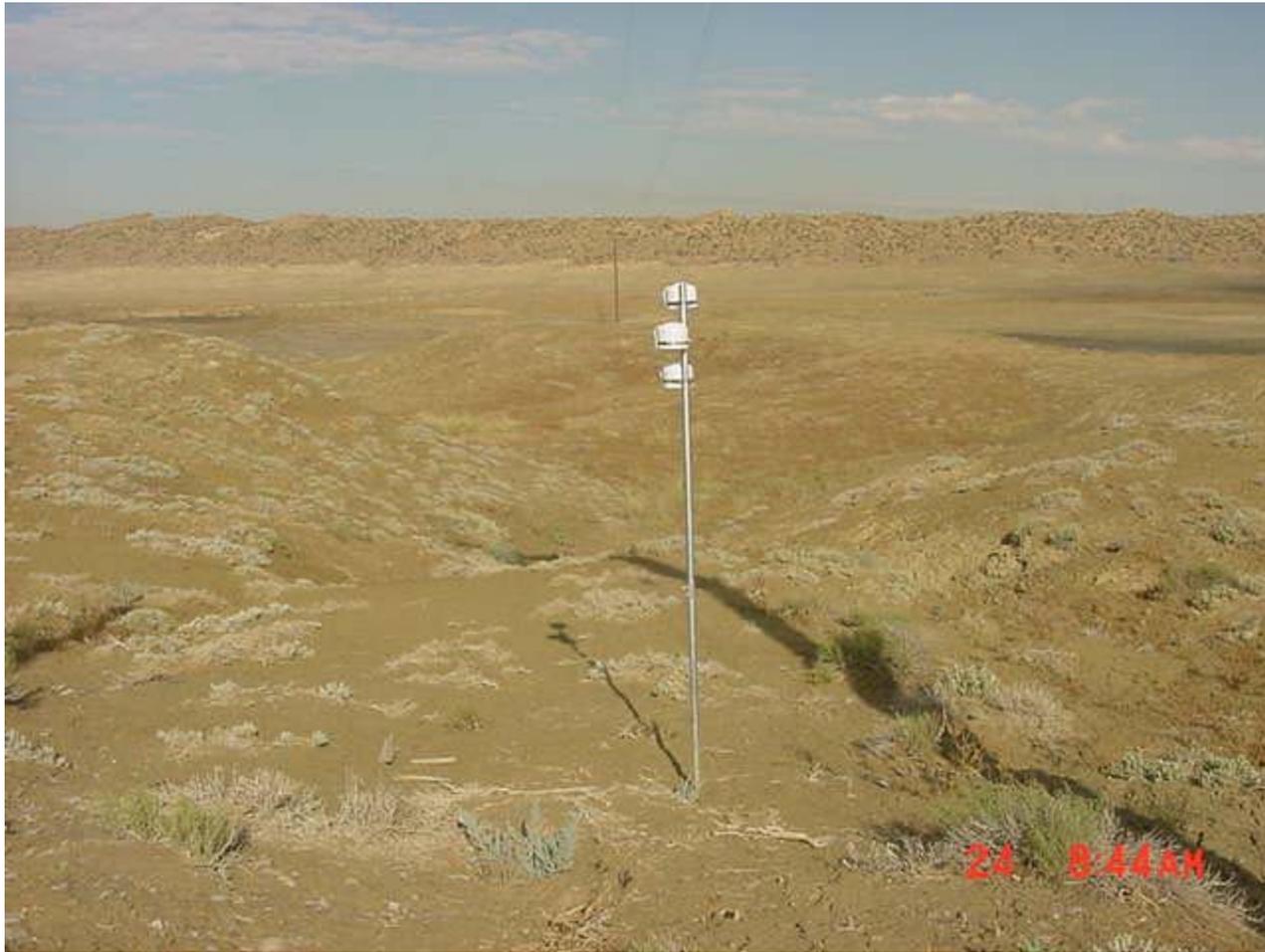
- The Region 6 Houston Laboratory is now becoming engaged in the passive ozone monitoring program, and plans to also become proficient in passive SO₂ and passive NO_x chemical analysis.
- The Houston Lab has just purchased a high sensitivity IC for passive ozone chemical analysis which will also have the capability to measure low SO₂ passive concentrations.





FOGIR6 2003

- 32 site follow-up project to summer 2002 regional passive ozone monitoring study, including two new sites in EPA Region 7.
- Additional important gap-filling ozone data collected from July 21-August 29, 2003, including ozone monitoring information on 10 Tribal Land sites in Region 6 and 2 Tribal Land sites in Region 7.
- New sites added in NE Kansas (Region 7), San Juan County, NM (8 site saturation study), Otero County, NM, New Orleans area, additional coverage around Oklahoma City and Tulsa, far SE Oklahoma, and NE of Little Rock, Arkansas.





Ozone Monitoring Site in Reserve, Kansas.

Lat. 39°58'44.85581"N
Long. 95°34'05.55297"W



Site #31

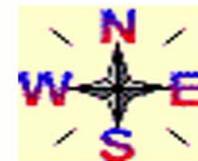


Ozone Monitoring Site on the
Sac and Fox Nation of Missouri
Reservation (located in Kansas
and Nebraska)

Lat. 40° 00' 11.05121"N
Long. 95° 27' 47.53680"W



Site #32



Future Passive Monitoring Projects

- First time detailed comparison of NO₂/SO₂ passive sampling devices with the FRM continuous samplers.
- Funding from Border Dollars.
- Project Area: The El Paso, Texas and Southern Dona Ana County, NM areas along the U.S./Mexico Border.
- Project Time Period: Calendar Year 2004.

Future Passive Monitoring Projects (cont.)

- Albuquerque, NM passive ozone (3 sites) and passive NO_x (3 sites) studies in Bernalillo County, Summer 2004. Funded by Congressional add-on FY 03 dollars and chemical analysis proposed to be done under contract with RTP lab, with some extracts sent to Houston Lab for comparison testing.
- Jemez, NM Tribal Land SO₂ and NO_x passive screening monitoring (1 site), Winter 2004; Houston Lab proposed for handling chemical analyses of samples.
- Summer 2004: Passive ozone sampling on new Tribal Land sites (e.g. San Ildefonso in New Mexico), new State/Local sites, or on existing passive ozone sites with high concentrations from 2003 study. The Houston Lab will be able to provide chemical analysis for a fair amount of sites (exact number to be determined), which will further reduce the cost of passive ozone sampling to the States/Locals/Tribes.