

# Changes to Carbon Measurements in the Chemical Speciation Network (CSN)

**Joann Rice**

IMPROVE SC Meeting

Okefenokee

October 28-29, 2008

# PM<sub>2.5</sub> Speciation Carbon Network

- PM<sub>2.5</sub> Chemical Speciation Network (CSN)
  - Speciation Trends Network (STN)
    - 54 Trends sites: Largely static urban monitoring stations and protocols for sampling and analysis
  - Speciation State and Local Air Monitoring Stations (SLAMS)
    - Currently ~150 sites: monitors for state and local agency directed monitoring objective

# CSN Carbon Conversion

- CSN data has many uses...modeling, air quality trends, supporting State Implementation Plans (SIPs), health and air quality research, more...
- CSN data often used in conjunction with IMPROVE data to increase spatial coverage and meet multiple data use needs
- Changes in the CSN are being made to address inconsistencies in carbon sampling and analysis procedures between urban CSN and rural IMPROVE programs

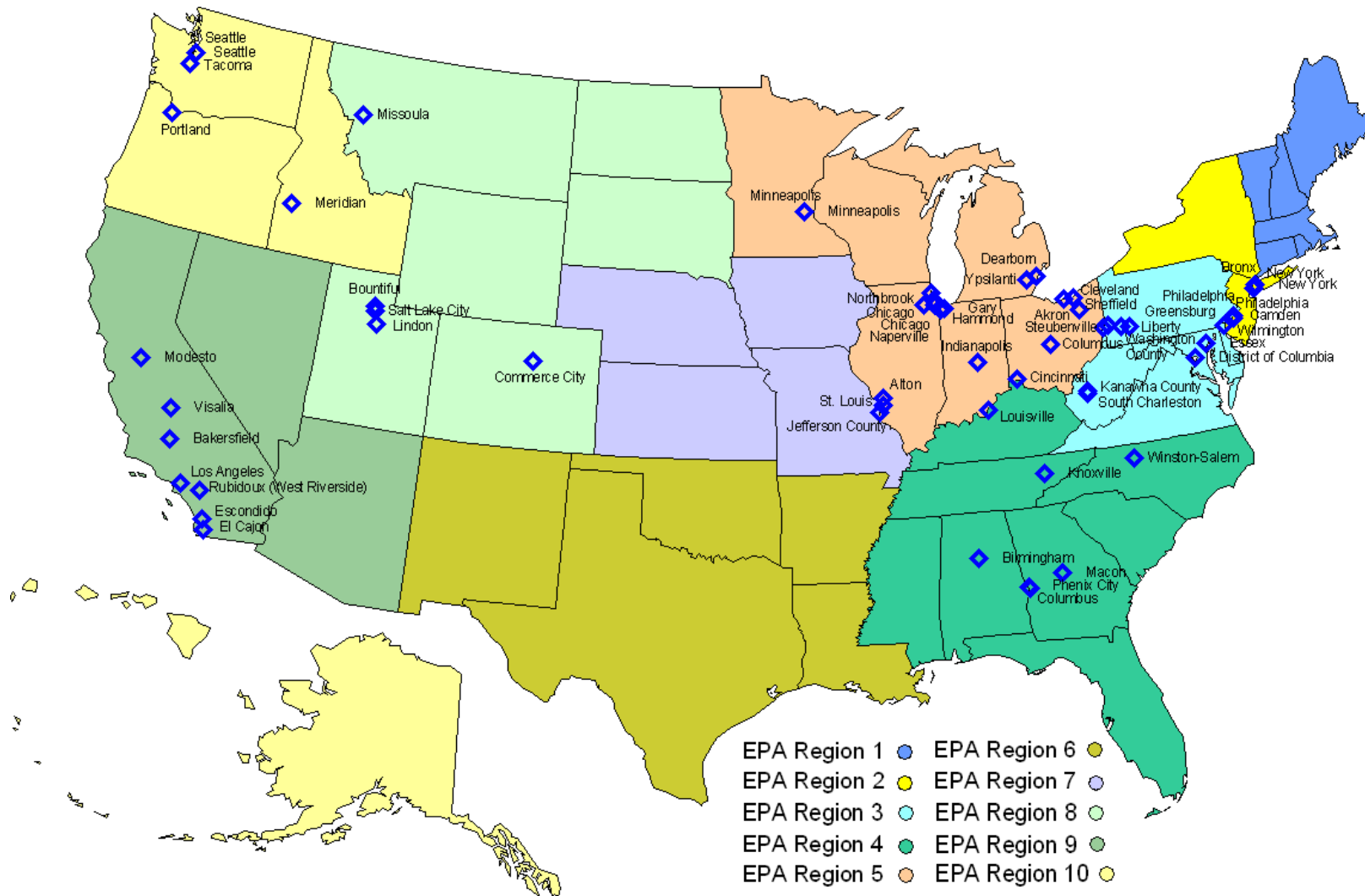
# Carbon Sampling & Analysis Changes

- URG-3000N Carbon Sampler
  - Identical to the IMPROVE sampler except:
    - URG has mass flow control
    - Shortened inlet height to match other CSN sampler
    - Filters shipped cold
  - Differs from “typical” CSN sampler
    - 22-Lpm flow rate
    - 25-mm Pallflex Quartz filter
    - Collection of backup quartz filters
    - Collection of long-term field blanks
- Carbon Analysis
  - IMPROVE\_A TOR method
  - No artifact adjustments



# Phase I Sites (56)

Started May 2007



# CSN Carbon Conversion Status

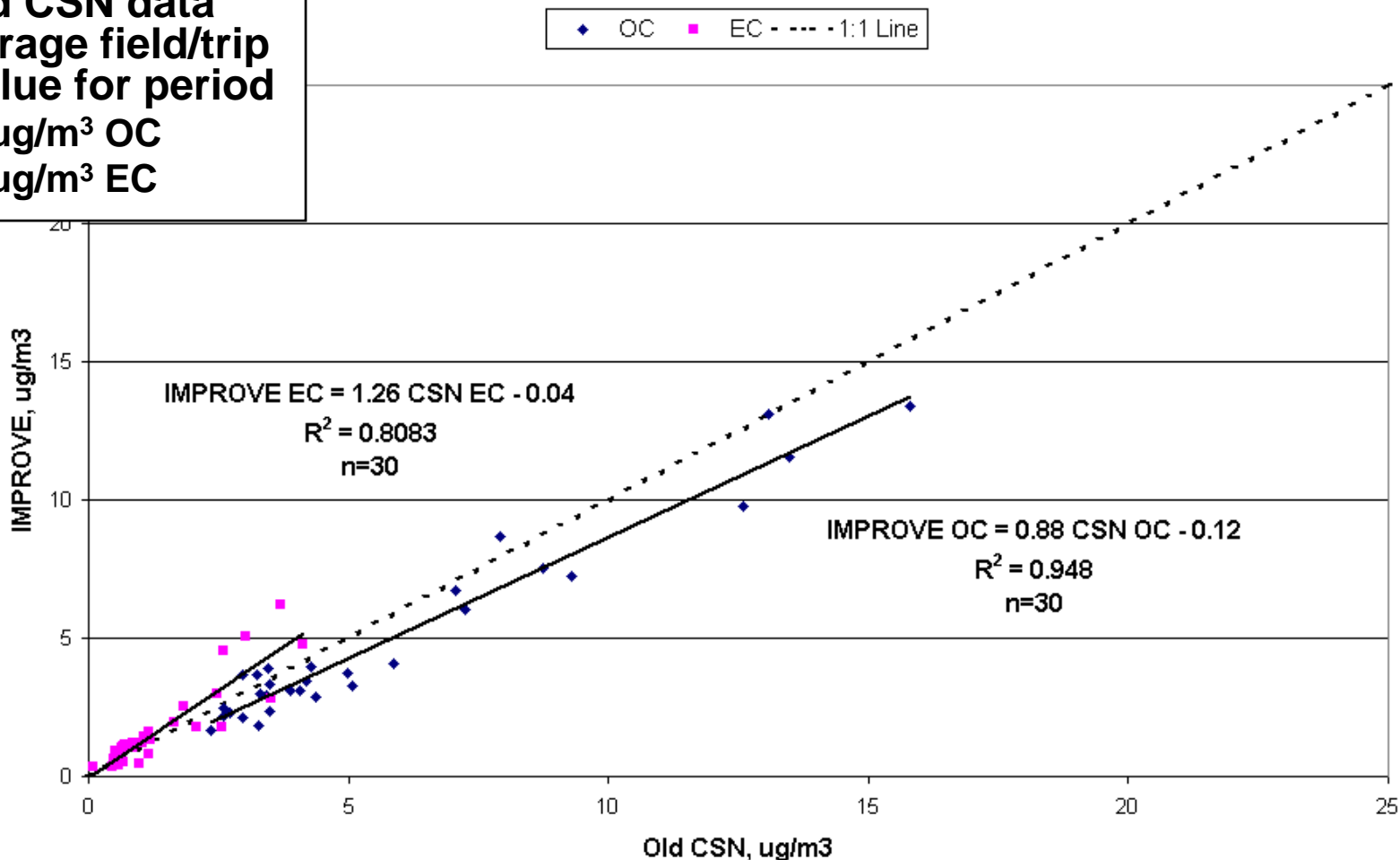
- Phase 1 Started May 1, 2007
  - Website for project information:  
[www.epa.gov/ttn/amtic/specurg3000.html](http://www.epa.gov/ttn/amtic/specurg3000.html)
- Status of remaining CSN sites
  - Phase 2 (61 sites)
    - Projected sampler installation to begin late 2008
    - Target start date April 2009
  - Phase 3 (~76 sites)
    - Funding in progress
    - Projected sampler installation to start late 2009

# Old CSN (SASS) and IMPROVE

Birmingham, AL (May 3 – July 29, 2004)

Collocated Old CSN and IMPROVE

- Adjusted CSN data with average field/trip blank value for period
  - 0.91 ug/m<sup>3</sup> OC
  - 0.02 ug/m<sup>3</sup> EC

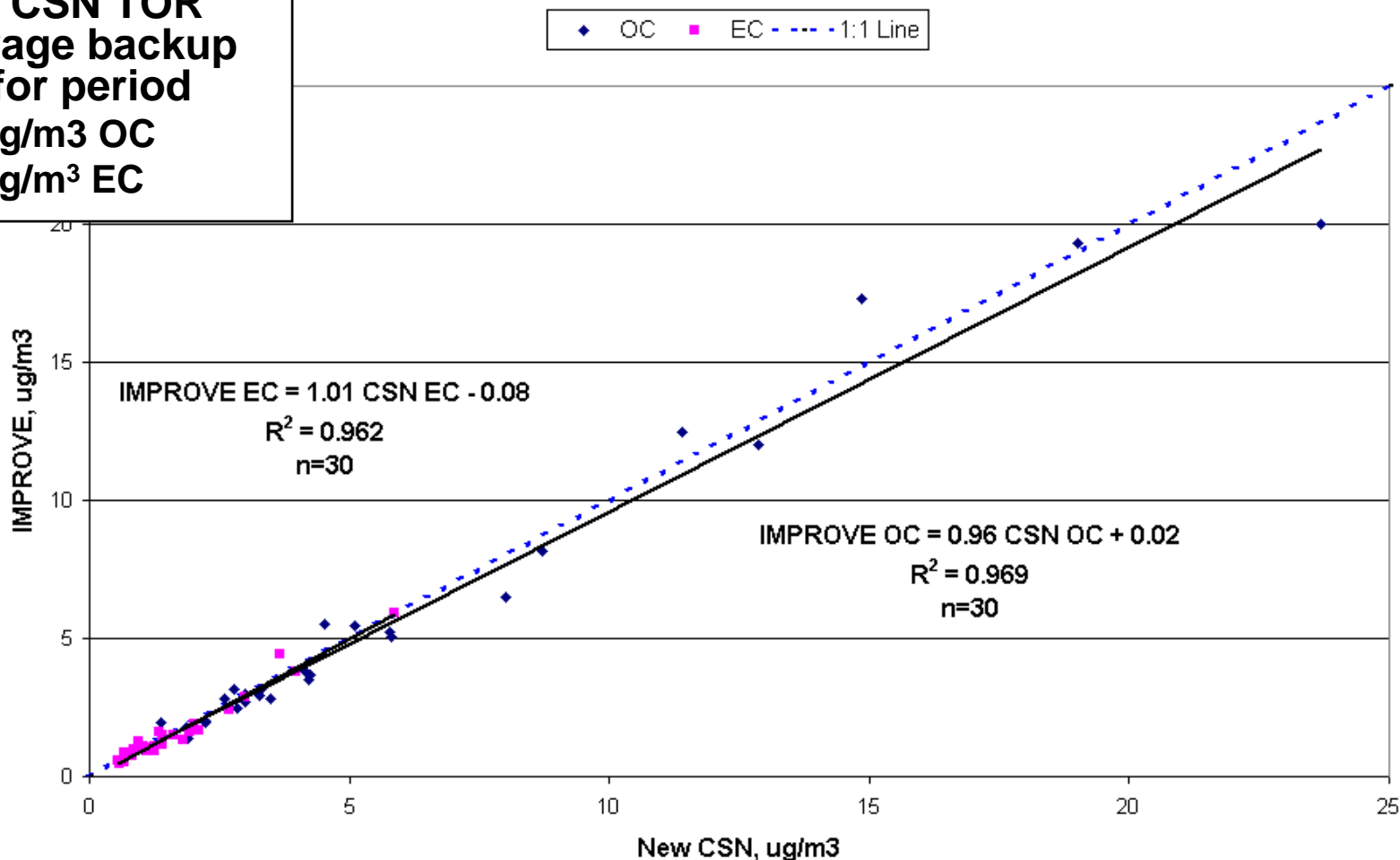


# New CSN (3000N) and IMPROVE

Birmingham, AL (May 3 – July 29, 2007)

Collocated New CSN and IMPROVE

- Adjusted CSN TOR with average backup filter EC for period
  - 0.55 ug/m<sup>3</sup> OC
  - 0.02 ug/m<sup>3</sup> EC



# Summary

- Changes to CSN carbon sampling and analysis in progress
- Phase 2 installation ready to start
- Phase 3 installation next year
- Goal of consistent CSN and IMPROVE OC and EC measurements found in Birmingham, AL for May-July 2007
- More evaluations needed