

Considerations in Displaying the Air Quality Index for NO₂ and SO₂ on AirNow

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Communicating Air Quality Conference

Chicago, IL

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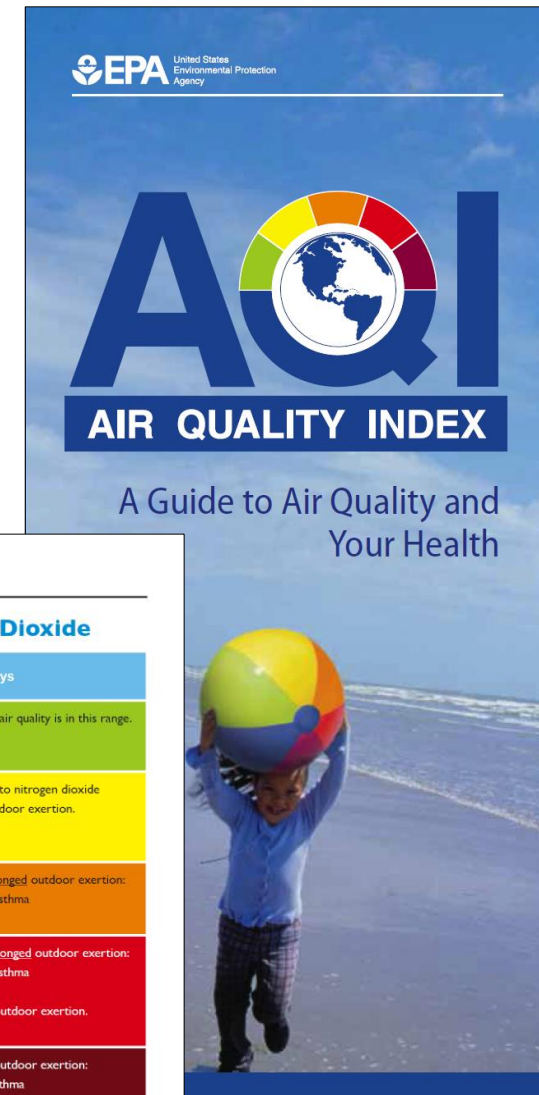


Overview

- AQI for NO₂ and SO₂
- Key issues
- NO₂ network characteristics
- SO₂ network characteristics
- AirNow mapping challenges
- Opportunities for future discussion

AQI for NO₂ and SO₂

- AQI sub-indices for NO₂ and SO₂
- Health and exposure information for these pollutants is available on AirNow
- Monitoring information for these pollutants is not available on AirNow
 - Monitoring data coming in to AirNow Tech
 - Community has not decided how to display data
- Sensor availability and messaging likely to speed up consideration of displaying AQI for these pollutants on AirNow



Air Quality Guide for Nitrogen Dioxide

Air Quality Index	Protect Your Health Near Roadways
Good (0-50)	No health impacts are expected when air quality is in this range.
Moderate (51-100)	Individuals who are unusually sensitive to nitrogen dioxide should consider limiting prolonged outdoor exertion.
Unhealthy for Sensitive Groups (101-150)	The following groups should limit prolonged outdoor exertion: <ul style="list-style-type: none">• People with lung disease, such as asthma• Children and older adults
Unhealthy (151-200)	The following groups should avoid prolonged outdoor exertion: <ul style="list-style-type: none">• People with lung disease, such as asthma• Children and older adults Everyone else should limit prolonged outdoor exertion.
Very Unhealthy (201-300)	The following groups should avoid all outdoor exertion: <ul style="list-style-type: none">• People with lung disease, such as asthma• Children and older adults Everyone else should limit outdoor exertion.

What You Should Know About Nitrogen Dioxide and Your Health

- Nitrogen dioxide comes from vehicles, power plants, industrial emissions and off-road sources such as construction, lawn and gardening equipment. All of these sources burn fossil fuels.
- People who live or work near busy roadways can experience high exposures.
- Find out more about air quality through TV, radio, newspapers, AirNow (www.airnow.gov) and EnviroFlash (www.enviroflash.info), so you can take steps to protect your health.

Key Issues

- Primary NAAQS for NO₂ and SO₂ were revised in 2010 to a 1-hour averaging time
- AQI breakpoints revised at that time
- AQS reports and statistics were also revised
- Less emphasis was placed on updating AIRNOW public maps
- This is becoming more important as NO₂ and SO₂ monitoring networks are being revised

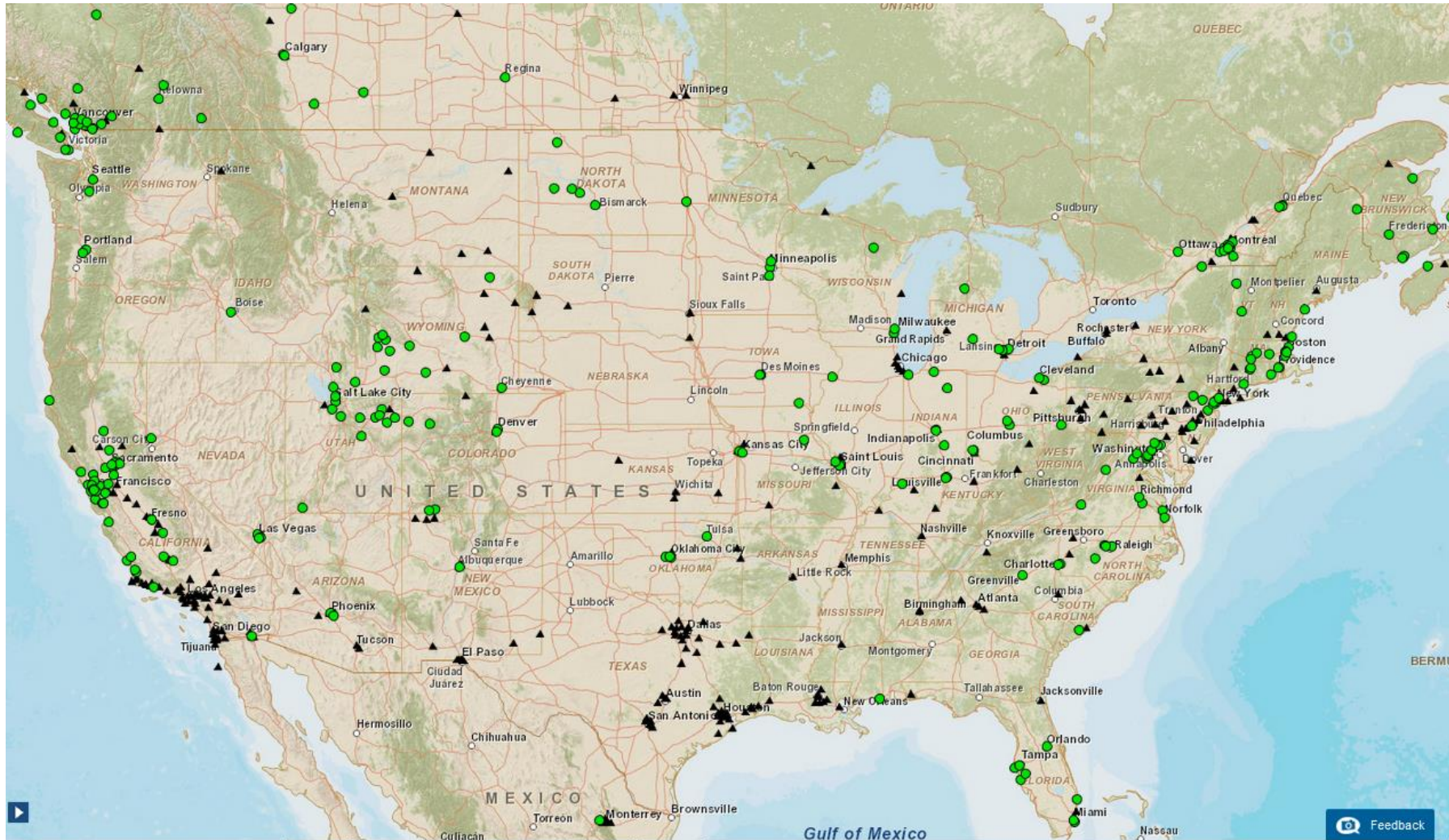
NO₂ Network Characteristics

- Approximately 450 sites
- Focused on near-road, neighborhoods, and susceptible and vulnerable populations
- Near-road NO₂ sites still being developed – 63 operational as of Jan 2016
- Ambient data to date are not threatening the NAAQS although rare exceedances of the 1-hour standard have occurred



Charlotte NC Near-road site

Map of Current NO₂ Monitoring Network



Source: AirNow Tech Navigator as of 3/2/16

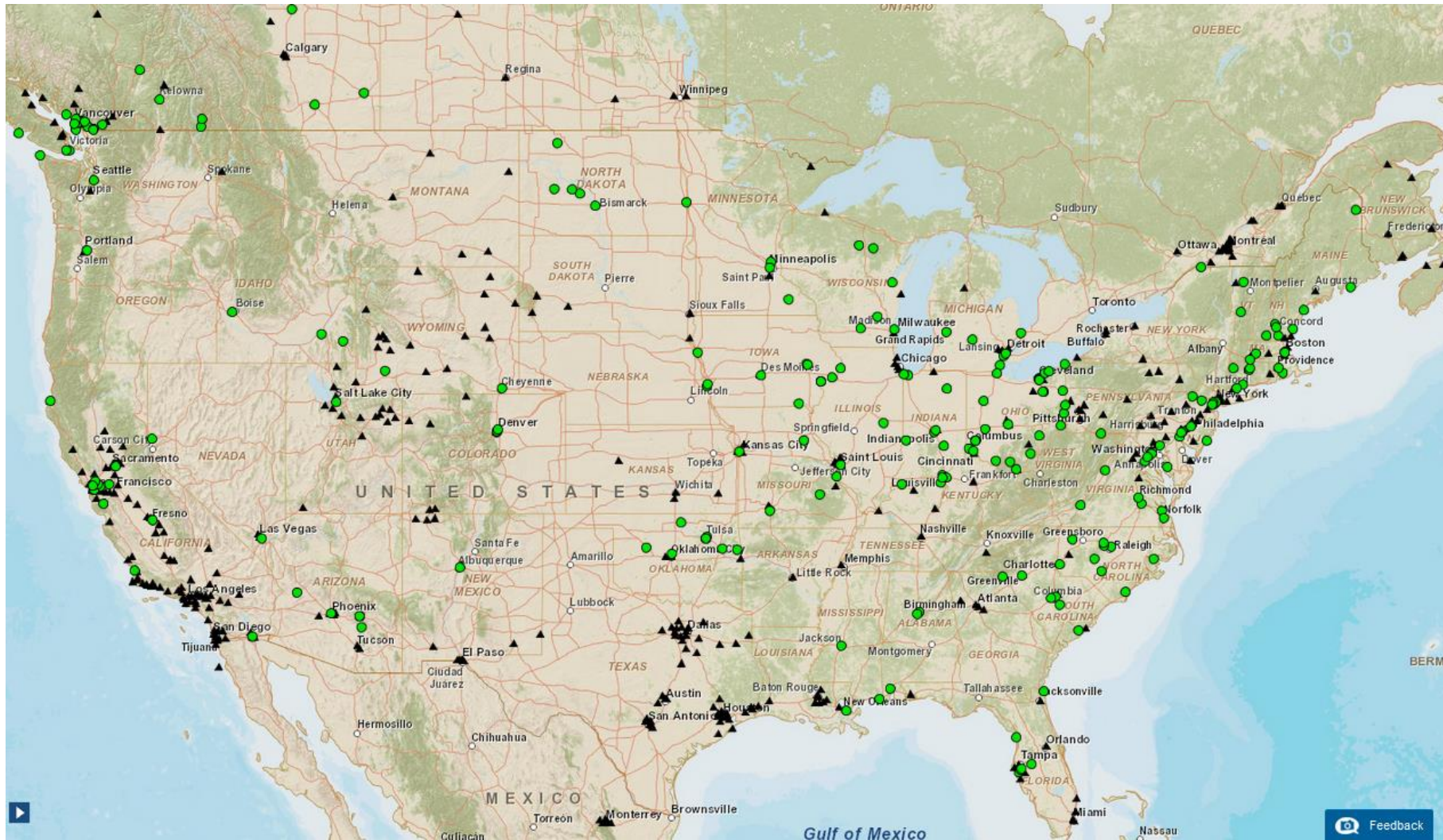
Note: Black triangles represent monitoring sites not reporting data

SO₂ Network Characteristics

- Approximately 475 sites
- Currently focused on neighborhoods, source-oriented monitoring, and background surveillance
- Source-oriented monitoring component may grow by Jan 2017 in response to Data Requirements Rule and SO₂ Consent Decree
- Difficult to predict measured concentrations and resulting impact on the AQI



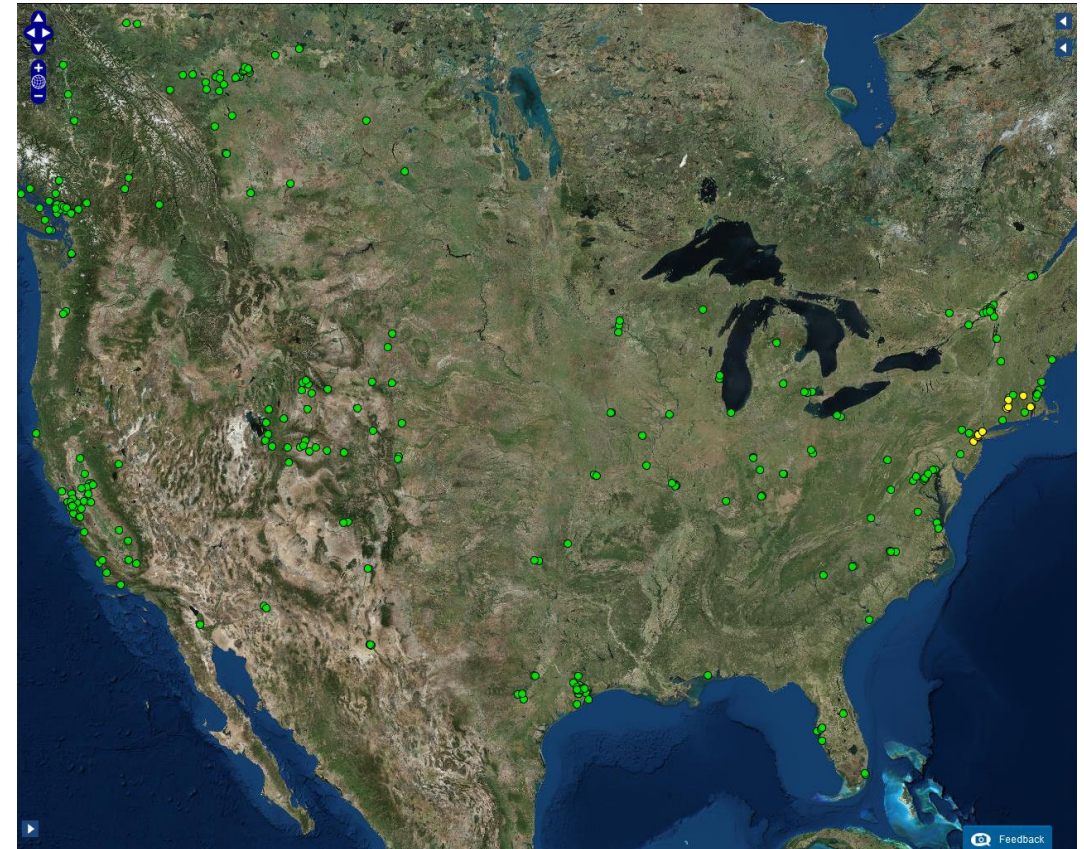
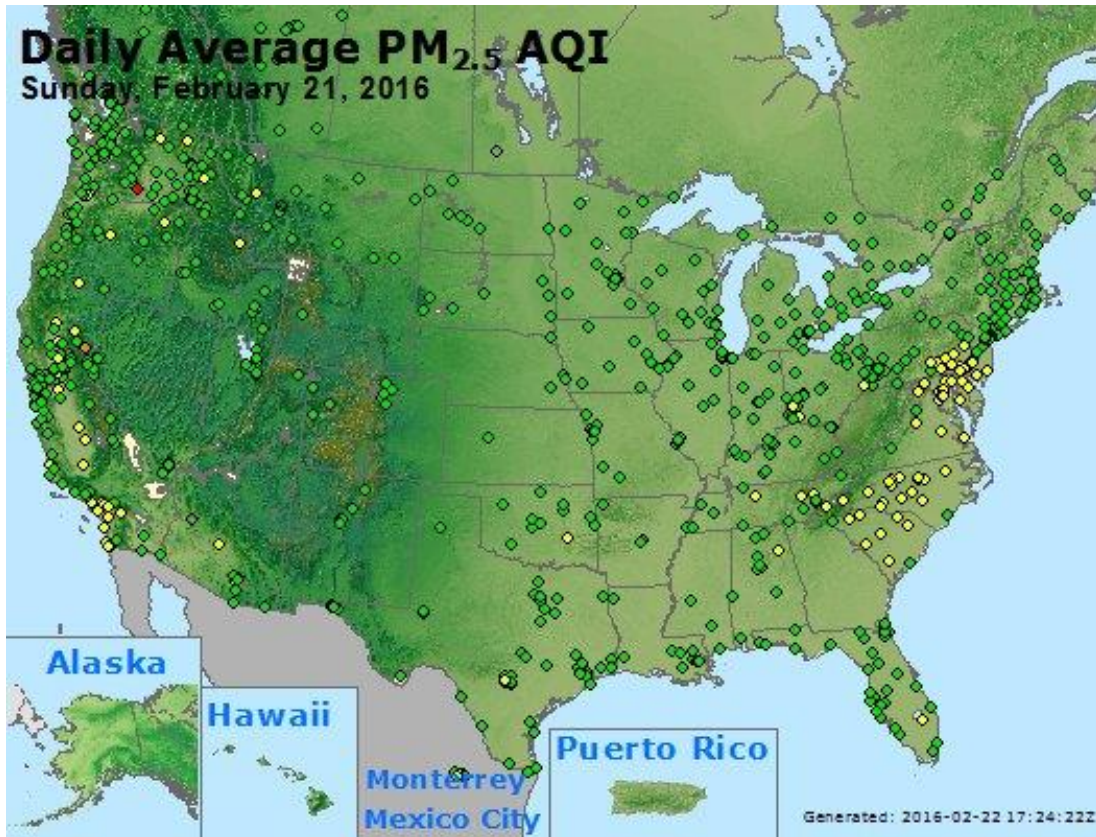
Map of Current SO₂ Monitoring Network



Source: AirNow Tech Navigator as of 3/2/16

Note: Black triangles represent monitoring sites not reporting data

How NO₂ or SO₂ Map Might Look



Hourly AQI for NO₂ from AirNow Tech Navigator
(March 10, 2015)

AirNow Mapping Challenges

- Encouraging more complete real-time transmission of NO₂ and SO₂ data to AirNow
 - Current public maps focus on O₃, PM_{2.5}, and PM₁₀
- Displaying data from smaller networks that are more geographically diverse than O₃ and PM_{2.5}, for example
- Handling rapidly changing AQI values based on 1-hour metrics
 - No NowCast needed!
- Explaining the applicability of AQI values based on near-road or point-source driven concentrations

Opportunities for Further Discussion

- National Ambient Air Monitoring Conference
 - August 8-11, 2016, St. Louis, MO
 - <https://www3.epa.gov/ttn/amtic/files/2016conference/2016-save-the-date.pdf>
- National Air Quality Conference – Spring 2017
- AirNow Steering Committee calls
- More?

For Further Information

- Questions about AQI and pollutant-specific information: Susan Lyon Stone, stone.susan@epa.gov
- Questions about SO₂ and NO₂ monitoring: Neelson Watkins, watkins.neelson@epa.gov
- Questions about AirNow Tech: John White, white.johne@epa.gov