Considerations in Displaying the Air Quality Index for NO_2 and SO_2 on AirNow

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Communicating Air Quality Conference

Chicago, IL
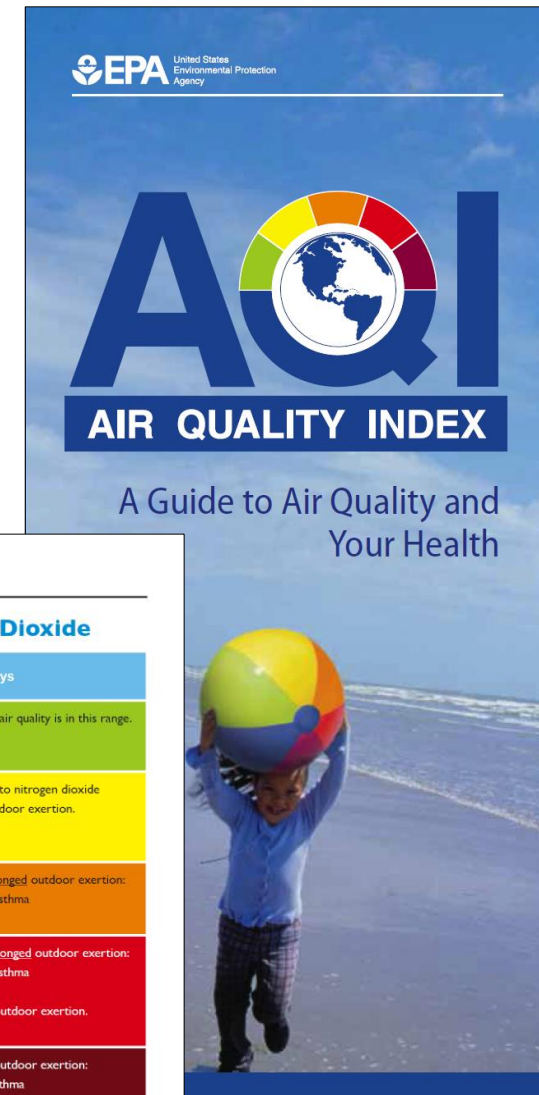
March 16, 2016

Overview

- AQI for NO_2 and SO_2
- Key issues
- NO_2 network characteristics
- SO_2 network characteristics
- AirNow mapping challenges
- Opportunities for future discussion

AQI for NO_2 and SO_2

- AQI sub-indices for NO_2 and SO_2
- 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

Key Issues

- Primary NAAQS for NO_2 and SO_2 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 NO_2 and SO_2 monitoring networks are being revised

NO$_2$ Network Characteristics

- Approximately 450 sites

- Focused on near-road, neighborhoods, and susceptible and vulnerable populations

- Near-road NO$_2$ 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 NO$_2$ Monitoring Network
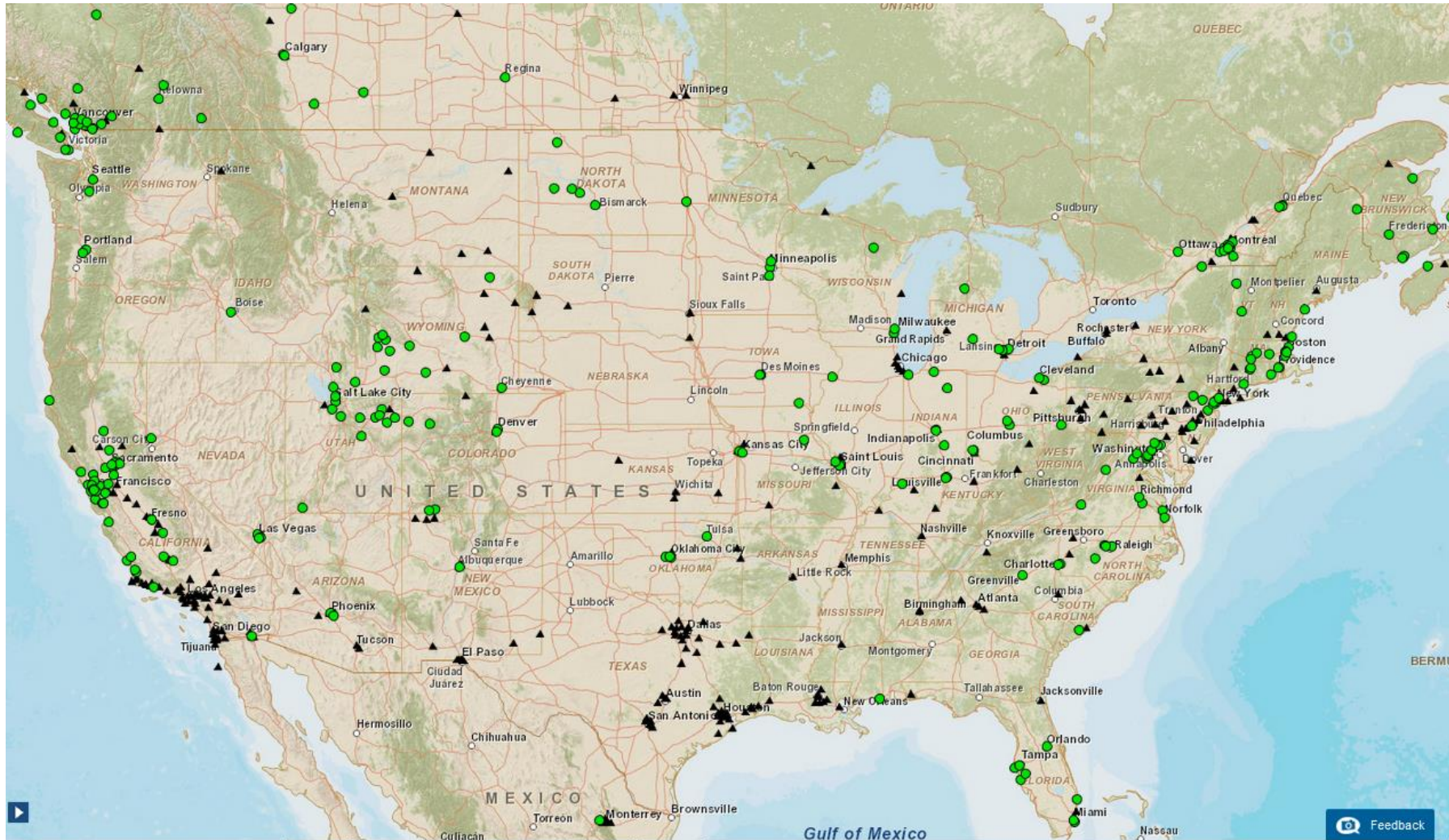
Source: AirNow Tech Navigator as of 3/2/16
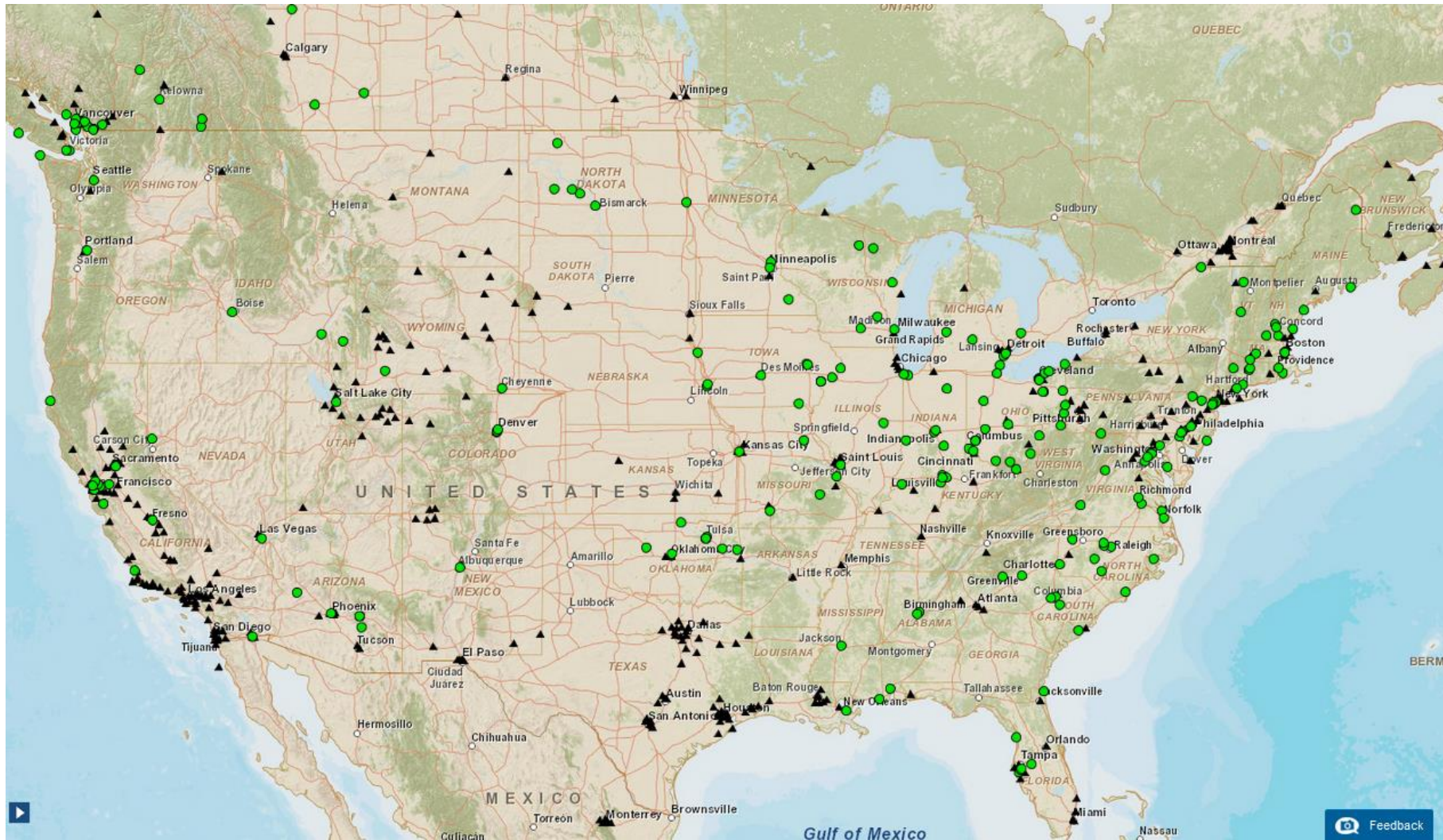*Note: Black triangles represent monitoring sites not reporting data*

SO$_2$ 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 SO$_2$ Consent Decree

- Difficult to predict measured concentrations and resulting impact on the AQI
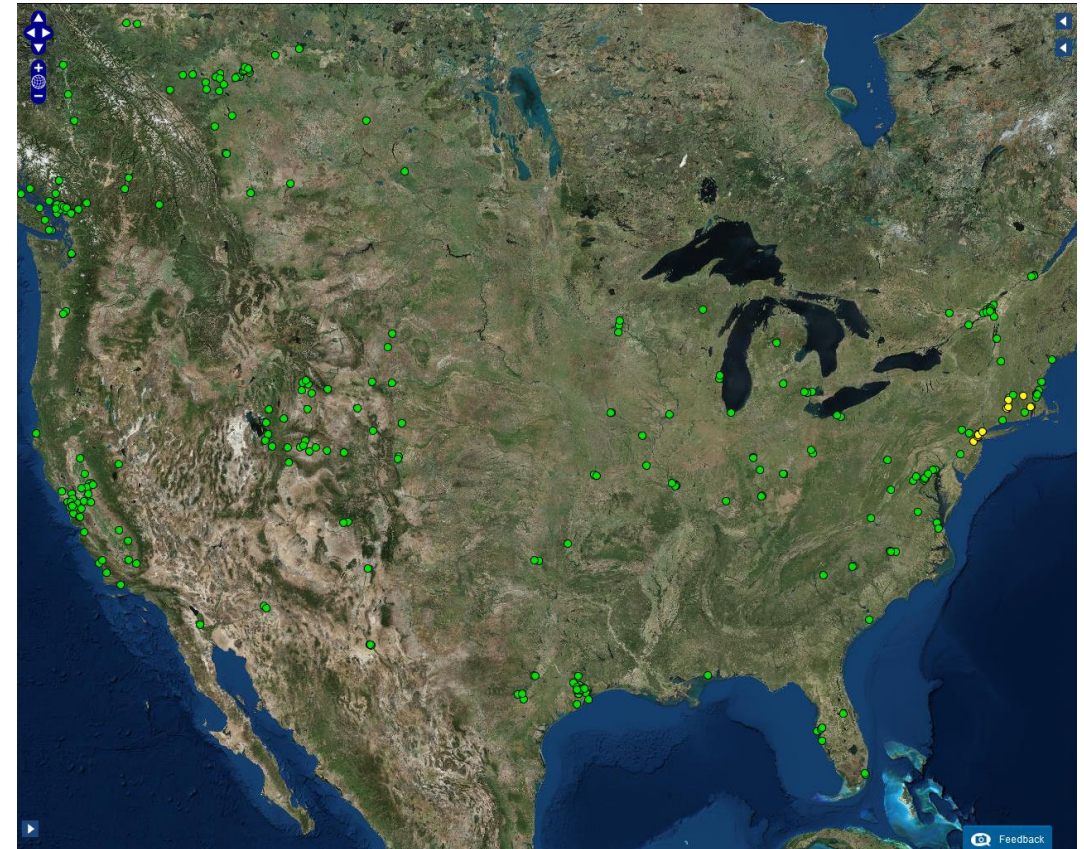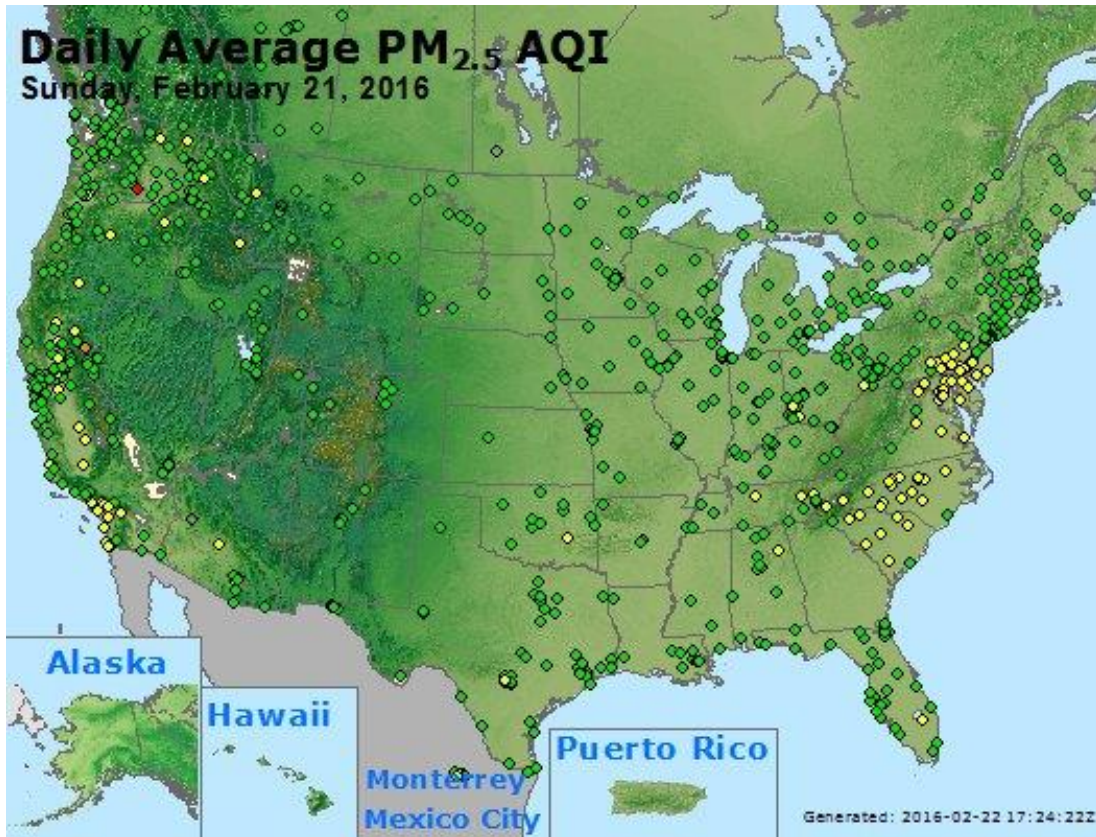
Map of Current SO$_2$ Monitoring Network

Source: AirNow Tech Navigator as of 3/2/16
Note: Black triangles represent monitoring sites not reporting data

How NO$_2$ or SO$_2$ Map Might Look

Hourly AQI for NO$_2$ from AirNow Tech Navigator (March 10, 2015)

AirNow Mapping Challenges

- Encouraging more complete real-time transmission of NO_2 and SO_2 data to AirNow
  - Current public maps focus on O_3, $PM_{2.5}$, and PM_{10}
- Displaying data from smaller networks that are more geographically diverse than O_3 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: Nealson Watkins, watkins.nealson@epa.gov

- Questions about AirNow Tech: John White, white.johne@epa.gov