



AQS Data Access Presentation

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Accessing AQS Data

- Background
- Trends in Use
 - Popularity of data
 - Who's getting the data
 - What are they getting
- AQS Reports
- AirData
- Data Mart
- Discoverer Plans



Background

- Context: Several years ago OAQPS embarked on an effort to reduce the number of places public could go to find data
- Pick certain ones to enhance
- Pick others to decommission
 - AQS Discoverer will be decommissioned soon
- Put all that remain in a common place
 - Cut down on maintenance and (more importantly) confusion
 - Present a new set of consistent tools
- The new umbrella site = AirData
- Still some things not under the umbrella
 - AQ Data Sources page: <http://www.epa.gov/air/airpolldata.html>
- Also AQS Still Maintains Reports



User Categories

- Heuristics based on contacts and email addresses
 - Academics – many(!) public health / epidemiologist users
 - NGOs
 - Mostly health related (e.g., ALA “State of the Air”)
 - Corporations
 - Regulated
 - App developers
 - Battery developers (? – apparently some hybrid car batteries affected by ambient levels of certain gases)
 - SLTs (air quality and health departments)
 - Academics - model / satellite verification
 - Interested public



Types of Data

- Anecdotal Trends
 - PM2.5 mass continues to be very popular
 - Gaseous criteria pollutants holding their ground
 - Met data amazingly popular
 - PM2.5 species quite in demand for the right set
 - Lots of interest in AQI (vs. concentrations) [public health]
 - Rising level of interest in HAPs/VOCs



Trends

- Air Quality data is being requested like never before
- OAQPS publicly queryable AQS websites:
 - 2011 : 260,000 queries (~ every 2 minutes 24/7/365)
 - 2013 : 1,000,000+ queries (~ every few seconds 24/7/365)
 - And these are the ones we track – got too expensive to track them all
 - Of what we do track, 20 billion values delivered since 2009
 - Does not include AirNOW
- Plus requests for large extracts (~ 5 entire copies of AQS)
- Plus other locations (file downloads, design values page, etc.)
- Plus AQS reports: 85,000 per year
- Plus Plus Plus Plus
- We output 100 times the amount of data we (you!) input



AQS Reports (AMP xxx)

- Trend also continues upward
 - 60,000 in CY 2011
 - 85,000 in CY 2013
 - This averages to more than one every 2 minutes during business hours
 - Does not include Load Summary/Error reports
 - Does include automatically generated SG inventory report
- We'd like to retire some, but all are used
- We've added more, hopefully helpful (Design Values, AMP251, AMP256, AMP600)
- Eventually we will replace the Reports technology (AMP504 example)



Standard Reports: Criteria Set

Standard Report Criteria Selection (National Air Data Group)

Criteria Set | Data Selection | Sort Order | Report Options | Retrieve Reports

Criteria Set Desc

Owner Type

Report Code Report Name

☐ Run Online
☐ Send via Email

Report Outputs

☐
☐
☐
☐

Generate Report



AQS Report Types (Part 1)

- Site and Monitor metadata
 - Location, nearby streets, Primary Monitor (Site Metadata)
 - Method, Sampling length, Frequency, Agencies Responsible, Objectives, Collocation information Monitor Metadata
 - Which PM_{2.5}, lead or NO₂ Monitor is the Primary Monitor
 - AMP380 (Site Description), AMP 390 (Monitor description), AMP220 (Monitor Networks)
- Raw Data and Extraction Reports
 - Useful for extracting record to load into system (AMP500 series of reports)
 - Raw Data Records (AMP350 series of reports)



Report Types in AQS (Part 2)

- Summary Data Reports
 - Daily, Monthly, Quarterly, Annual, and Site Annual Summaries
 - Examples: AMP450 (Quick Look), AMP435 (Daily Summary), AMP355 (Combined Site Sample Values)
- Quality Assurance and Certification Reports
 - Provide Detail and Summary Data for Quality Assurance Checks and certification
 - AMP251 (QA Raw Assessment), AMP256 (Data Quality Indicator Report) (replacing the AMP250 and AMP255) and the AMP600 (Data Certification Report)



AQS Report Types (Part 3)

- **Raw data Qualifier Report**
 - Null data code qualifiers, Quality assurance qualifiers, Exceptional event qualifiers
 - Includes any Regional Office concurrence information
 - AMP360 – Raw Data Qualifier report
- **Design value Reports**
 - Generates the statistics used for NAAQS determinations.
 - Also allows the 1) assessment of the effect of exceptional event flagging on Design Values, and 2) the assessment of attainment issues based on partial data.
 - AMP480 – Design values report



AirData

Access to monitored air quality data from EPA's Air Quality System (AQS) Data Mart

Basic Information

AirData gives you access to air quality data collected at outdoor monitors across the United States.

[Read more](#)

Reports



Air Quality Index

Display an annual summary of AQI values.



Air Quality Statistics

Display standards-related summary data by city or county.



Monitor Values

Display criteria pollutant summary data.



Monitor Values – HAPs

Display Hazardous Air Pollutant (HAP) summary data.

Visualize Data



AQI Plot

Compare AQI values for a location & time.



Tile Plot

Plot daily AQI values for a location & time.



Concentration Plot

Generate a time series plot for a location.



Concentration Map

Generate concentration maps for a specific time.



More Tools

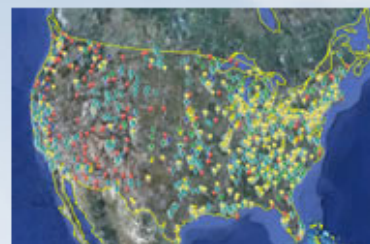
See other visualization tools.

Download Data



Download daily or raw data to a spreadsheet or file.

Interactive Map



See where air quality monitors are located, get information about the monitors, and download monitor data. Select which monitoring networks to display.

Values Report for Hazardous Air Pollutants is now available.

- **March 4, 2014** – Pre-generated files of data for the entire nation are now available at [Download Data Files](#). These are files of our most commonly requested parameters at the annual, daily, and hourly summary levels.

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Other Sources of Air Data

- [AirNow](#) – forecasts and real-time data
- [AirCompare](#) – help with planning a move or vacation
- [Air Emission Sources](#) – national, state, and county summaries
- [More Sources](#)



What's under the Air Data umbrella

- AirData has many “areas”
 - Each targeted towards a different type of user
 - Reports
 - Tabular data (annual) that can also be downloaded
 - Criteria pollutants only, form of the standard
 - Visualizations (Plots)
 - Graphical data (daily data based) that can also be downloaded
 - Criteria pollutants only, form of the standard
 - Maps
 - Geographical data that can also be downloaded
 - Criteria, Speciation, and HAPS



What's Under the Umbrella Cont'd

- AirData “areas” cont'd
 - Download
 - Daily (criteria pollutants only, form of the standard)
 - Raw (all pollutants) “Query Air Data”
 - » Registration required (1,200 registered users)
 - » REST web services – use as GUI or API
 - Files (added this spring)
 - » Pre-generated files of most commonly requested data
 - » Annual, daily, and hourly
 - » National, by year back to 1990 (~800 files)
 - » Updated quarterly, automated, only files that change
 - » CSV (not AQS) format
 - » Replaces TTN data download page
- AirData news available via RSS feed



AQS Data Mart

- AirData is powered by the AQS “Data Mart”
- Copy of AQS
- All Air Quality Data
 - Up to now, no QA, only some standards, and only back to 1980
 - No administrative data (users, audit trails, etc.)
- Updated once per week (Sunday night)
 - Up to now, once per day
- Also has other systems and internal SQL users connected
 - Ozone Watch, AirCompare, MyE, Data.gov, etc.



Discoverer Plans

- An Oracle tool that is being desupported

THE END

