

AirNow-Tech

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for

National Air Quality Conference
Austin, TX

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Sonoma Technology, Inc.



What Is AirNow-Tech?

- Interactive Web-based data management, analysis, and decision-support tool supporting the AirNow program
- Password-protected
 - Access mainly limited to federal, state, tribal, and local air quality organizations
- Submit and analyze air quality data in real time
- Hub for AirNow air quality forecasting
 - EnviroFlash administration

<https://www.AirNowTech.org>

The screenshot shows the AirNow Tech website dashboard. At the top, there is a navigation bar with the AirNow Tech logo and links for Dashboard, Data, Navigator, Forecasts, Polling, Notifier, Tools, and Help. A welcome message for forecasters is also present.

The main content area is divided into several sections:

- News and Events:** A notice about "Monthly System Maintenance" from 7:30 pm EDT Tuesday, August 29, to 2:30 am EDT Wednesday, August 30. It states that the AirNow Data Management Center will be performing routine system maintenance during this time, and data feeds and products will not be updated or delayed until maintenance is completed. The notice is dated August 28, 2017.
- My Agency's Forecasts:** A table showing forecast data for various cities. The columns are "Today", "Tomorrow", and "Action Day". The data is as follows:

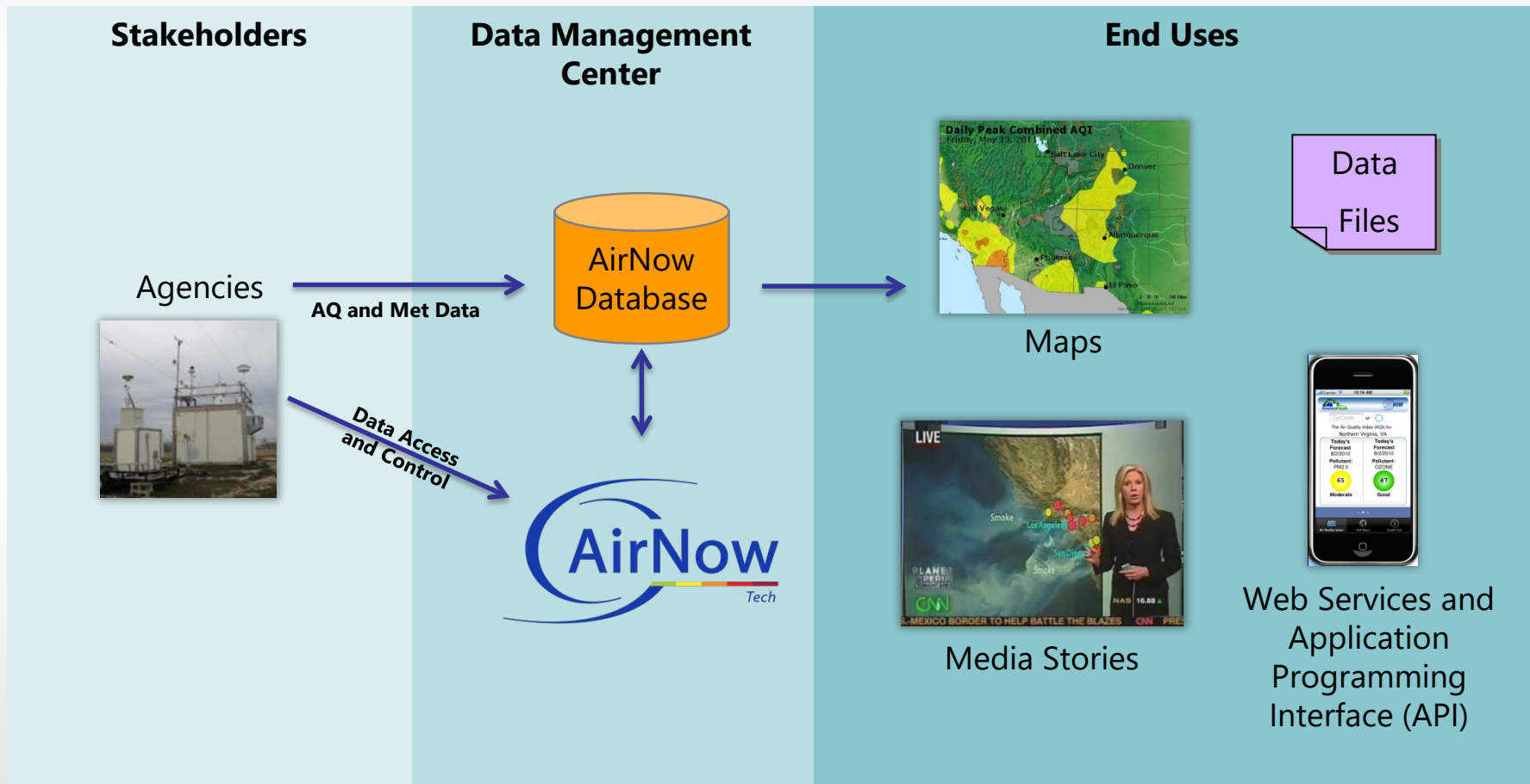
City	Today	Tomorrow	Action Day
Arden Arcade-Del Paso Manor	O3	O3	X
Auburn	O3	O3	X
Colfax	O3	O3	X
Cool	O3	O3	X
Elk Grove	O3	O3	X
Folsom	O3	O3	X
Lincoln	O3	O3	X
Natomas	O3	O3	X
North Highlands	O3	O3	X
Placerville	O3	O3	X
Roseville-Rocklin	O3	O3	X
Sacramento	O3	O3	X
Sloughhouse	O3	O3	X
- My Agency's Polling Summary:** A table showing polling data for Agency CA1. The columns are "Ozone", "PM_{2.5}", and "PM₁₀". The data is as follows:

Agency	Ozone	PM _{2.5}	PM ₁₀
CA1	08/28 16:00	08/28 16:00	08/27 03:00

Major Functions

- Data Analysis Tools
- Data Visualization Tools
- Site/Data Management
- Forecast Submittal System

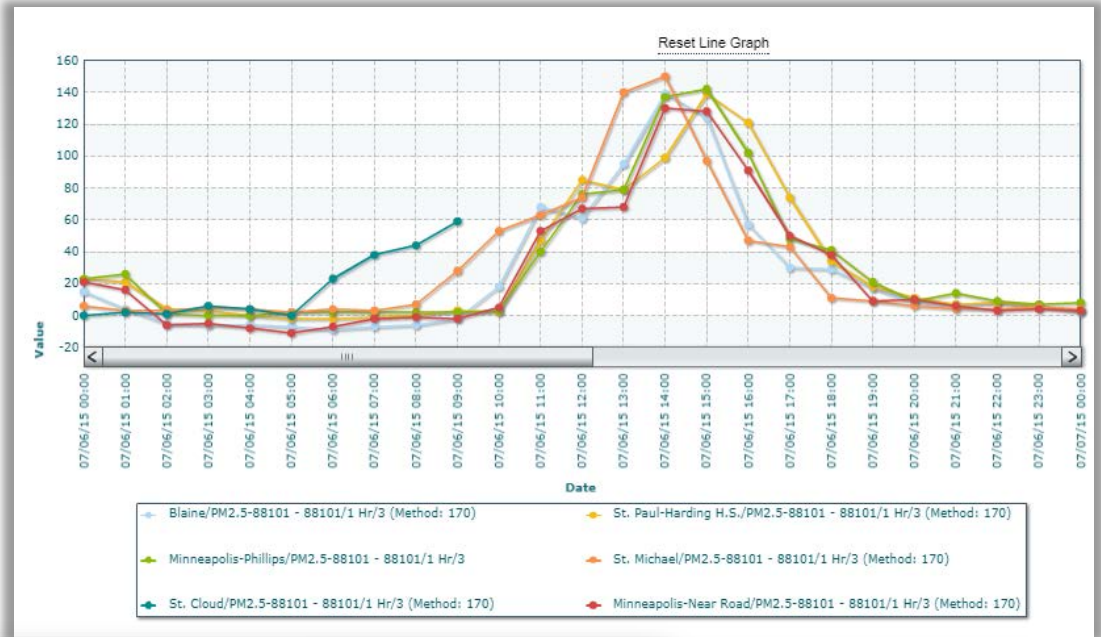
Journey of Data Through AirNow



Data Queries & Reports

Data view

- View hourly, daily, and 8-hour concentration averages and AQI
- Create line graphs, bar graphs, and scatter plots
- Edit values and QC codes with data editor rights
- Export to CSV



Site/Site AQS/Param/POC	Date	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Copan/401470217/PM2.5-88101/3	11/29/16	2.9	3.6	3.3	2.9	2.9	3	3.4	3.8	4	3.7	3.9	3.8				
Glenpool/401430174/PM2.5-88101/3	11/29/16	4.1	4.5	3.2	2.3	2.3	2.4	2.4	2.7	2.7	2.4	2.1	2.1				
Healdton/400190297/PM2.5-88101/3	11/29/16	3	3.1	3.1	3.5	3.4	3.8	4.1	4.4	3.6	2.4	2.1	2.3				
Lawton North/400310651/PM2.5-88101/3	11/29/16	1.4	1.7	1.9	1.1	1.6	1.4	1.7	1.8	1.4	1.5	1.8	1.3				
McAlester/401210415/PM2.5-88101/3	11/29/16	3.4	3.7	3.5	3.5	3	2.6	2.5	3	4	3.4	2.8	1.8				
Moore/400270049/PM2.5-88101/3	11/29/16	1.7	1.8	2.2	2.2	1.9	1.7	2.2	2.5	2.6	2.5	3.9	3.8				
North OKC/401091037/PM2.5-88101/3	11/29/16	2.8	2.5	2	1.9	2	1.7	1.7	2.2	2.4	3.4	2.8	1.9				
Ponca City/400710604/PM2.5-88101/3	11/29/16	4.5	4.3	3.6	3.3	3.2	2.4	2.4	3.5	6.5	4.2	7	1.4				
Seiling/400430860/PM2.5-88101/3	11/29/16	2.5	2.4	2	1.9	1.7	1.7	2	1.8	1.5	1.5	1.6	1.6				
Tulsa/401431127/PM2.5-88101/3	11/29/16	5.1	4.5	2.1	1.9	2.5	2.1	2.8	3.8	2.6	1.5	1	1.7				

Editing Site:

Date:

Parameter:

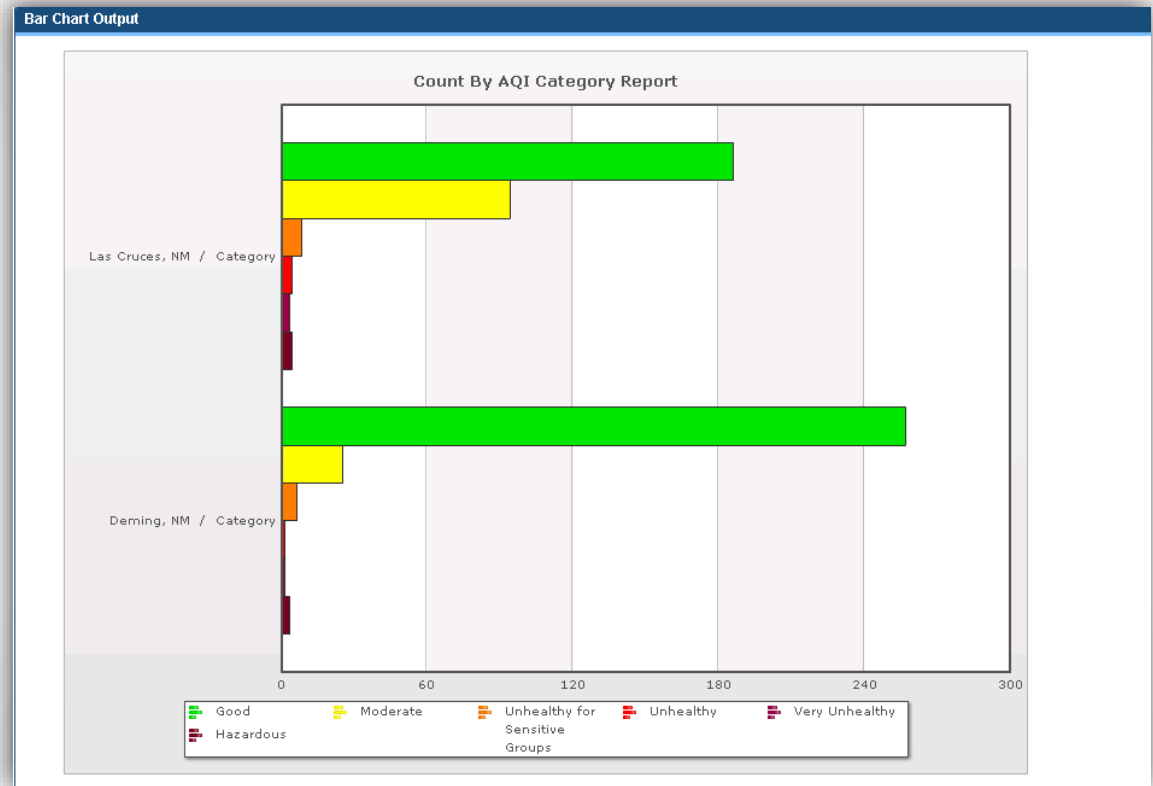
QC Code:

Value:

Data Queries & Reports

Data view

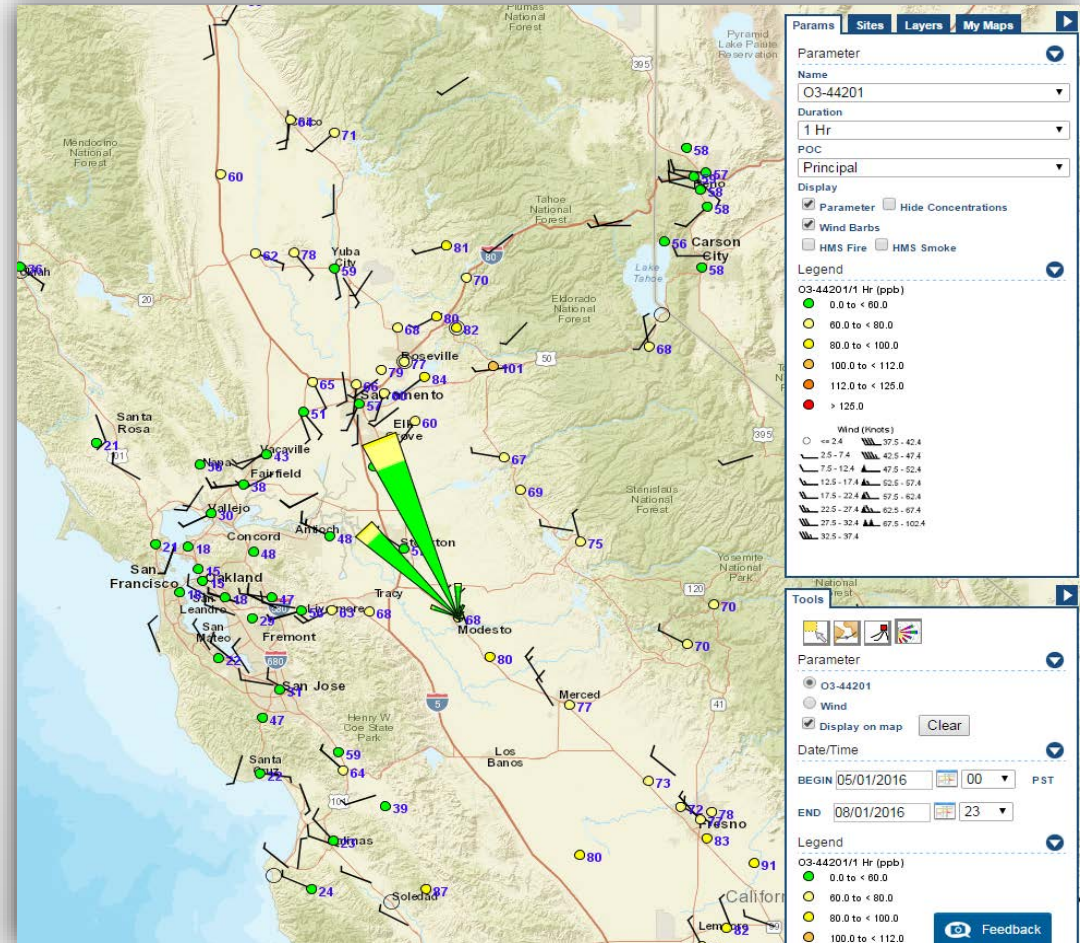
- View hourly, daily, and 8-hour concentration averages and AQI
- Create line graphs, bar graphs, and scatter plots
- Edit values and QC codes with data editor rights
- Export to CSV



Navigator (1)

Data view

- View concentrations for each parameter from every agency
- MADIS weather data from NOAA (temperature, wind, etc.)
- HYSPLIT trajectories
- Wind and pollution roses

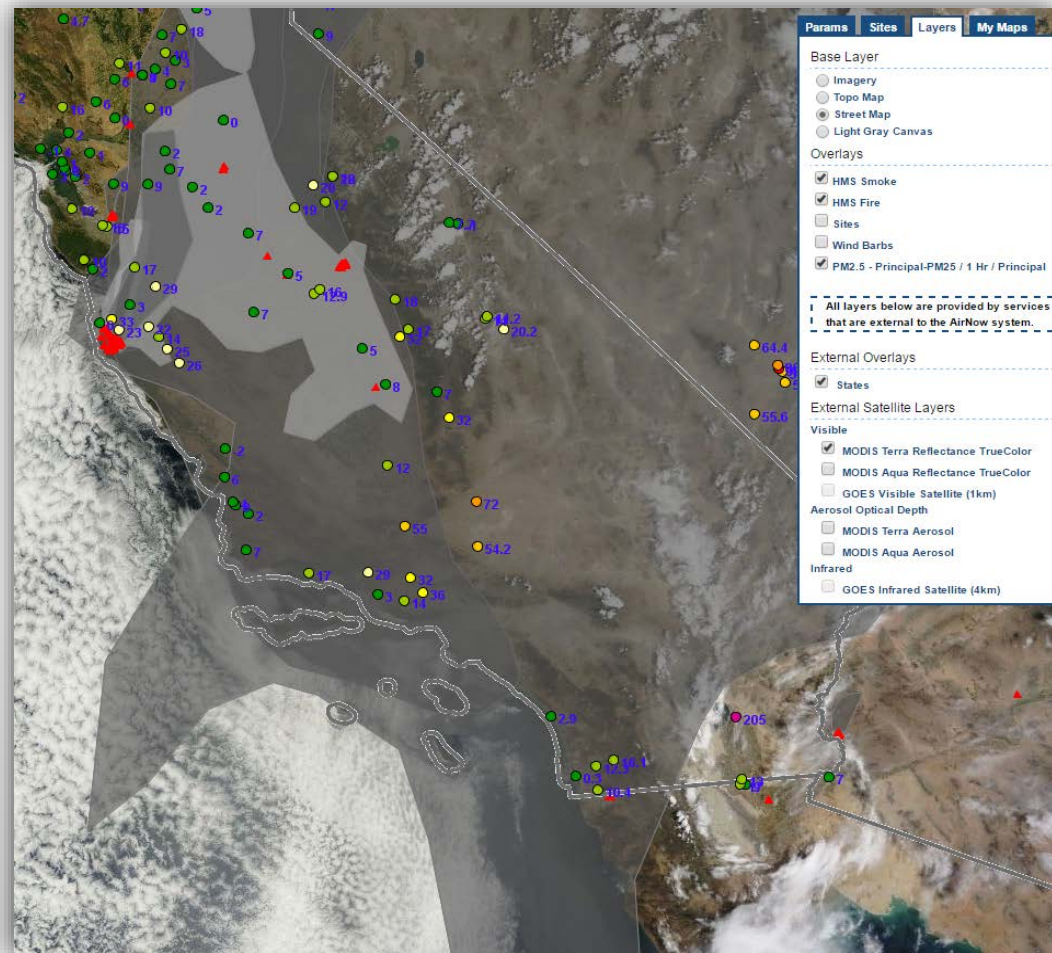


August 13, 2016, at 18:00 PDT: 1-hour ozone (ppb) with wind barbs and a pollution rose. Source: AirNow-Tech.

Navigator (2)

External Layers

- Visible satellite imagery
- MODIS Aerosol Optical Depth (AOD)
- Hazard Mapping System (HMS) smoke and fire detections



July 30, 2016, at 14:00 PDT: 1-hour $PM_{2.5}$ ($\mu g/m^3$), HMS smoke and fire detections, and MODIS satellite image. Source: AirNow-Tech.

Forecast Dissemination

EnviroFlash Emails



Air Quality Notifications

Forecast for Youngstown, OH
Today and Tomorrow's Forecast

Monday, Nov 28:	53 AQI	Moderate	Yellow	Particle Pollution (2.5 microns)
Tuesday, Nov 29:	38 AQI	Good	Green	Particle Pollution (2.5 microns)

API Web Services and File Products

Forecasts

By Zip code

Get current or historical forecasted AQI values and categories for a reporting area by Zip code.

[Documentation](#)

[Query Tool](#)

By latitude/longitude

Get current or historical forecasted AQI values and categories for a reporting area by latitude and longitude.

[Documentation](#)

[Query Tool](#)

AirNow.gov

Air Quality Forecast			
Today's High		Tomorrow's High	
Air Quality Index (AQI)		Air Quality Index (AQI)	
38	Good	50	Good
Health Message: None		Health Message: None	
AQI - Pollutant Details			
Particles (PM2.5)	38	Good	Particles (PM2.5)
			50
			Good
<p>Forecast Discussion: Tuesday, November 29: An upper-level trough of low pressure will move through northeastern Ohio, enhancing mixing in the atmosphere. In addition, moderate and gusty southerly winds at the surface will disperse pollutants. As a result, AQI levels will be Good. Wednesday, November 30: Light southeasterly winds during the morning hours will gradually bring regional pollutants and moisture into the Mahoning Valley, increasing particle production. However, a cold front will move through Ohio in the afternoon, generating moderate westerly winds. These winds will bring a cleaner air mass into the region and keep AQI levels Good. Thursday through Saturday, light to moderate westerly to southwesterly winds will aid pollutant dispersion and continue to bring clean air into Youngstown-Warren. As a result, AQI levels will be Good on all three days. Sunday, a surface high pressure system will move over the Ohio River Valley, producing light southerly winds in the Youngstown area. These conditions will limit pollutant dispersion. However, low pollutant carryover from previous days will keep AQI levels Good.</p>			

Data Analysis and Reporting Tool (DART)

- Upload user data sets or request AQS data
- Plot, review, and analyze data, perform manual and automated quality control checks
- Export data and statistics in .csv and AQS file formats
- Chemical Speciation Network (CSN) data validation
- Photochemical Assessment Monitoring Stations (PAMS) data analysis

Welcome, Dart User | [My Account](#) | [Contact Us](#) | [Log Out](#)

AirNow
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DART

Welcome to DART

Manage | Explore | Validate | Export | Help

DART is your personal platform for air quality data validation and analysis!

You can upload your own air quality data or request it from AQS Data Mart.

Create graphs and use custom screening checks for data validation.

And use the DART export to prepare data for AQS submission.

Watch an introductory webinar on DART from May 2015 [here](#)

Time Series

Time Series

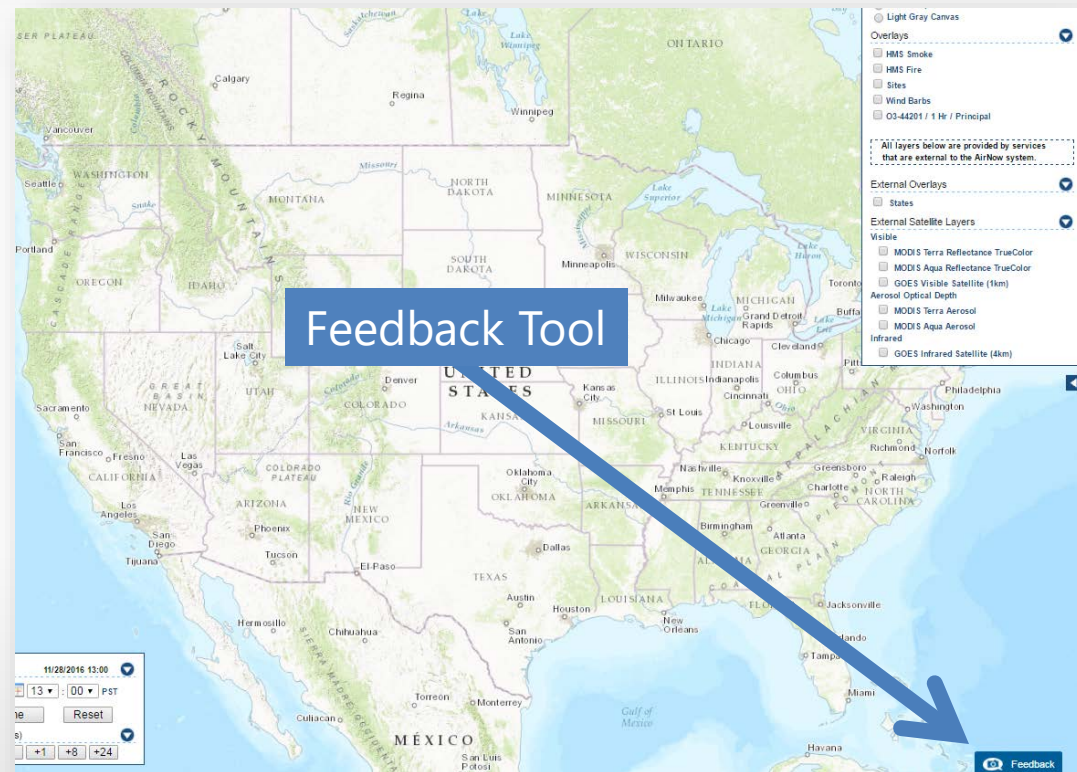
Here's how to get started...

1 Add data to DART

Upload your AQS, crosstab or TXO-formatted files to store your data in the DART server

AirNow and AirNow-Tech Help

- Email questions to AirNowInfo@sonomatech.com
- Review Resources page in AirNow-Tech
- Use the Feedback Tool in AirNow-Tech to send your comments and questions directly to the AirNow Data Management Center (DMC)
 - Located at the bottom right of each page in AirNow-Tech



AirNow Discussion Forum

- Ask questions, get answers
- Information on a variety of AirNow topics
- Forum.airnowtech.org



all categories ▾ **Categories** Latest New Unread Top

Category Latest

Announcements

Announcements about the AirNow Platform, usually pertaining to new features, bug fixes, and system downtime.

AQI Info

Ask questions or find answers regarding the Air Quality Index (AQI) for ozone, PM2.5, and PM10, including the NowCast and Daily AQI calculations.

General AirNow-Tech

Ask questions or find answers for general AirNow-Tech website use, including account management, compatible browsers, and bug reporting. Select AirNow-Tech FAQ to see common questions that have already been answered.

AirNow-Tech FAQ

Daily and Hourly AQI - Ozone

AQI Info



mwhyhton Marcus Hylton AirNow-Tech Guru

2 Jul 5

Daily Ozone AQI

The daily ozone AQI is calculated by taking the maximum 8 hour concentration from 07:00-23:00 LST, and then converting to AQI. There are 17 8-hour averages considered in each day. Each 8-hour average requires 6 of 8 hours (75%) for a valid calculation. In addition, 75% or 13/17 of the 8-hour averages are needed for a valid daily ozone AQI calculation.

8-hour average	
Hour	0 1 2 3 4 5 6 7
Raw PPB	44 46 50 54 58 66 60 58
8-hr PPB	54
Daily AQI	50

Following 7 hours

Example 1: Valid

		Day 1														Day 2															
Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6
Raw PPB	34	35	40	41	40	39	43	47	52	63	78	89	82	80	78	73	77	84	80	68	54	48	45	47	41	48	47	47	45	40	43
8-hr PPB	39	42	45	50	56	61	66	71	74	77	80	80	77	74	70	66	62	58	53	49	47	46	45	44							
Daily AQI															133																

Example 2: Valid with Missing Data

		Day 1														Day 2															
Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6
Raw PPB	46	45	43			26	26	32				69	76	77	77	76	75	72	65	51	43	36	31	31	29	27	27		26	26	
8-hr PPB	36	34	31	28	38	45	56	66	75	75	74	73	71	67	61	56	50	44	39	34	32	30	28	27							
Daily AQI															115																

Example 3: Insufficient Data

		Day 1														Day 2															
Hour	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	0	1	2	3	4	5	6
Raw PPB																															
8-hr PPB																															
Daily AQI																															

4 / year

Requesting an AirNow-Tech Account

Click "Register for an AirNow-Tech Account" on the home page

- Fill out information and choose your Agency from the dropdown
- Other rights (Data editor, Forecaster, EnviroFlash) can be requested in the Comment section

AirNow-Tech

Dashboard Data Navigator

About

AirNow-Tech is a password-protected website for air quality data management analysis, and decision support. AirNow-Tech is primarily used by the federal, State, Tribal, and local air quality organizations that provide data and forecasts to the AirNow system, as well as researchers and other air data users. It allows users to:

- Access monitoring site data, information, and polling status
- Analyze current and past air quality events and episodes
- Submit and analyze air quality forecasts
- Configure EnviroFlash email services for public dissemination of air quality forecasts
- View meteorological and air quality data
- Generate data reports
- Create GIS-based maps with air quality and meteorological conditions
- Sign up for the AirNow Notifier listserv

[Register for an AirNow-Tech Account](#)

[A comprehensive list of EPA air pollution data sources](#)

[Register with AirNow API for an automatic feed of AirNow air quality data](#)

AirNow API

<https://www.airnowapi.org>

Available for public use

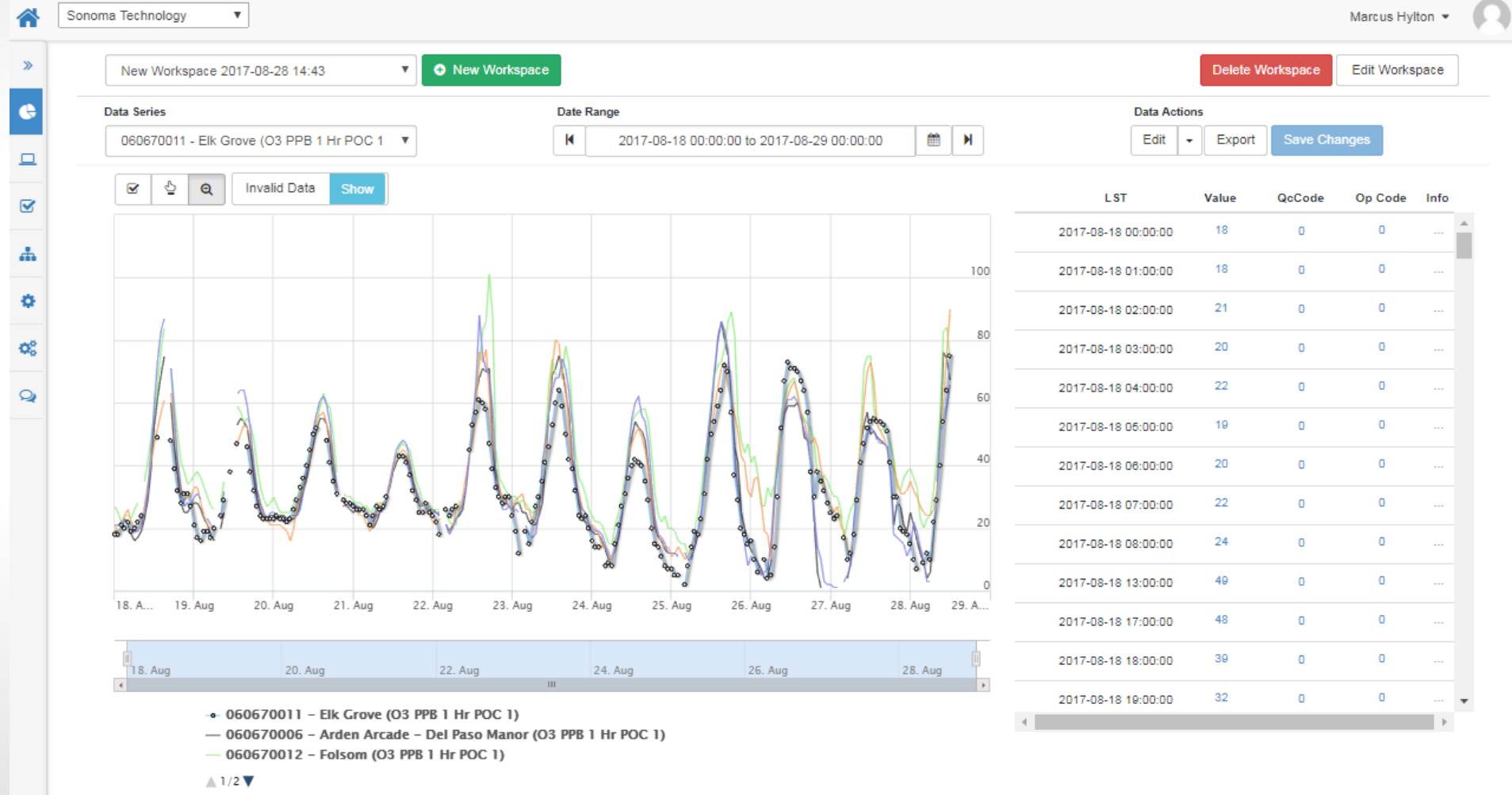
- Web Services (e.g., Observations by Monitoring Site, Forecasts by Zip Code, etc.)
- RSS Feeds
- Hundreds of hourly and daily file products

The screenshot displays the AirNow Developer Tools interface. The top navigation bar includes links for Home, Web Services, Data Feeds, File Products, FAQ, Air Quality 101, and Analytics. The current page is titled "Web Services > Data Query". On the left, there are links for "Documentation" and "Query Tool". The main content area is titled "1 Start" and contains the following fields:

- Start:** 2018-01-16 16 UTC
- End:** 2018-01-16 17 UTC
- Bounding Box (degrees):**
 - Max Y: 31.544433
 - Min X: -99.40162
 - Max X: -95.57838
 - Min Y: 28.963521
- Parameters:**
 - O3 (Ozone)
 - PM_{2.5}
 - PM₁₀
 - CO
 - NO₂
 - SO₂
- Data Type:** A (AQI)
- Format:** text/csv
- Verbose:**
 - Yes
 - No

On the right, there is a map of Texas with a bounding box drawn around the Austin area. The map includes labels for Dallas, San Antonio, Houston, Austin, and Monterrey. Navigation controls (compass, zoom, pan) are visible on the map. A "Build" button is located at the bottom right of the form.

New AirNow-Tech!



Contact



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Innovative Environmental Solutions

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