Frequently Asked Questions About AQMIS
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What is AQMIS?

The Air Quality and Meteorological Information System (AQMIS) is a web-based source for real-time and official (historical) air quality and meteorological data. AQMIS contains the most recent data (measured within the past two hours) from over 200 air quality sites and over 800 meteorological sites. The system collects, summarizes, and displays 25 air quality and 16 meteorological parameters using a web-based interface. Users can choose the parameters and statistics to display. To get a visual picture, the parameters can also be displayed on a map of the State of California. The Air Resources Board is continuously enhancing AQMIS to make the site as accurate and user-friendly as possible. In addition, data streams are continually added to provide more data coverage throughout the state. During the peak ozone season, approximately May-October, AQMIS receives additional data from seasonal ozone sites (https://www.arb.ca.gov/aqmis2/MainPgLinks/Seasonal_Ozone.pdf).

The web pages contained on this system provide links to specialized ozone pages, data query tools, and other products such as the ability to plot or download data. The data query tools can provide detailed information that can be summarized by area or by site and can provide hourly, daily, or summarized statistics. In addition, the query tools provide a variety of reports that can give details on sites or data availability. Please note that the real-time data are so new that they have not undergone a rigorous QA process at the time of release and hence are considered “preliminary” data. AQMIS always reports data in Pacific Standard Time (PST).

Who uses AQMIS?

AQMIS is available to anyone with an interest in current or historical air quality and meteorological data. It is used in a variety of ways by different groups of people throughout the state such as state and local officials and the public. For instance, AQMIS is used internally by the Meteorology Group for smoke management, by modelers to exercise and validate air quality models, and by management to understand air quality trends and to track progress made on air quality. It is used externally by the general public, businesses, air districts, and researchers to get information about air quality in selected regions.
How does AQMIS help me on a day-to-day basis?

The data and reports provided by AQMIS can be useful in a variety of ways. For example, real-time air quality data can provide valuable information on public health and exposure on any given day (and whether air pollution advisories are warranted), and can be used to track an area’s progress against air quality standards. The meteorological data can be used to support smoke and air pollution forecasting, both in real-time and historically. The data downloads of air quality and meteorological data can be very helpful in research and analytical projects.

To visualize the data that are gathered, the concentrations are color-coded and displayed on a map of California. A brief description of the two different maps is provided below. Further details can be found on the respective map pages.

1. The Ozone and PM2.5 Map Pages use an open source program called MapServer to show the most recent air quality on a map. In order to view the latest data for many sites, we go back approximately three hours and select the latest available data for each site. This means that if the time is 11am we would use 8am as the start hour. Different sites can have different hours of data (i.e., with start hours of 8am, 9am, or 10am, whichever comes latest).

2. The Google Map Pages allow the user to customize what data are displayed on the map. The user can view either air quality or meteorological parameters, can change to another day or hour, can advance and retreat hours, and can show all air quality sites for the selected year. In addition, the user can use Google map features such and panning and zooming to a particular geographic area, can change the view to satellite or terrain views, and can click on dots to obtain more information.

How does AQMIS handle the ozone floating point decimals?

Different databases have slight differences in the way they handle floating point decimals. As a result, ozone concentrations listed in AQMIS may occasionally differ from other data sources, such as the Air Resources Board’s Aerometric Data Analysis and Management (ADAM) system, by one part per billion (ppb). For official air quality data and statistics, see the iADAM web site (https://www.arb.ca.gov/adam/index.html).

Why do I sometimes see negative values?

All monitors have established method detectable limits (MDLs). These MDLs define the lowest pollution level that a monitor can accurately measure. When ambient air is clean, the amount of pollutants in the air approaches the MDL of a monitor and can cause the monitor to record a slight negative number. In 2011, the U.S. Environmental Protection Agency (USEPA) provided guidance on the reporting of negative values (https://www.epa.gov/aqs/aqs-addendum-negative-values). In compliance with the USEPA documentation, it is acceptable to report
readings down to the negative of a monitor’s MDL. This is done to avoid bias in calculations near zero.

**How do I use AQMIS?**

AQMIS is available by accessing the following link: [https://arb.ca.gov/airqualitytoday/](https://arb.ca.gov/airqualitytoday/). Users can choose from the available menus to specify the parameter, date, and area of interest, and AQMIS will generate a report or summary with the requested information. The following paragraphs give detailed instructions and examples for using AQMIS.

Begin by launching the AQMIS homepage: [https://arb.ca.gov/airqualitytoday/](https://arb.ca.gov/airqualitytoday/). From the homepage, click on the topic of interest. The following categories are available:

- **Breathe Well Mobile App**: How are pollutant concentrations now?
  
  Click this link to view the most up-to-date ozone and PM2.5 concentrations at over 150 cities across California.

- **Latest Ozone Air Quality**: What do recent ozone exceedances look like?
  
  By clicking on this link, the user can view maximum ozone concentrations for today, yesterday, the past week, and the year to date for selected areas within the state. To obtain further details, the user can click on the items displayed as links. Details up to a specific hour of a day for an individual site can be seen.

- **Recent Years’ Ozone Air Quality**: How does the current ozone season compare to the previous three years for each of the large planning areas?
  
  This link shows information on ozone exceedances for the last three years and includes exceedances so far in the current year for selected areas within the state. The results can be viewed at the site level if desired. The “Click Here” near the top of the “Annual Ozone Summaries for Selected Regions” page can be used to compare partial data for each of the four years up to a specific date. Further details on the items displayed as links can be obtained by clicking on the link. Data up to a specific hour of a day can be seen. Concentrations that exceed the national 8-hour standard are highlighted in red.

Sample questions that can be answered are shown below:

1) **What did the basin look like for the whole year?**
   
   a. Click on a year to see a summary of exceedances and peak levels for each site within the region, or
   
   b. Click on any exceedance days or maximum concentration value to see peak values by day for the whole region.
2) What did the individual sites within the basin look like on any given day?
   After 1b above, click on a value for the chosen day to see peak values by day and site.

3) What did the whole day look like for a given day and site?
   After 2 above, click on a value for the chosen day and site to see hourly data.

- Real-Time Query Tools for Air Quality, Meteorological, and Greenhouse Gas Data: What do the hourly data, daily max, and daily average values look like for selected parameters?

These query tools allow you to select real-time air quality or meteorological data, a time frame, an area of the state, and the type of report. Results can be clicked through for more detail.

To utilize these tools:
Select a desired parameter (a pollutant or meteorology variable).
Select the end date and time of day. (Optional) Default is today.
Select a county, air basin, or part of the state.
Select a type of report. (Optional) Default is “Week-at-a-Glance”.
Select a sort order. (Optional) Default is “Basin/County/Site”.
Hit the “Retrieve Data” button. You will be able to get hourly data, daily averages, and daily max data for a week using the selection.

Sample questions that can be answered are shown below:

1) What do the daily max values look like for a 7-day period for a specific region?
   Select a desired parameter, “Daily Max”, end date, location, “Week-at-a-Glance”, and preferred sort order, then hit “Retrieve Data”. Daily max data for 7 days will be displayed. Click on a specific site to see the daily max values for that site. Then click a specific date to see the hourly data for the site on that day.

2) What do the daily average values look like for a 7-day period for a specific region?
   Select a desired parameter, “Daily Average”, end date, location, “Week-at-a-Glance”, and preferred sort order, then hit “Retrieve Data”. Daily average data for 7 days will be displayed. Click on a specific site to see the daily average values for that site. Then click a specific date to see the hourly data for the site on that day.

3) What do the hourly values look like for a specific date for a specific region?
   Click on the “Hourly Data” tab, select desired parameter, date, time of day, location, “Hourly Data”, and preferred sort order, then hit “Retrieve Data”. Daily max, daily average, and hourly data will be displayed for the selected date. Click the site name to see the hourly data for a 31 day period at a specific site.
• **Google Map Pages**

Mapping is available for Ozone, PM2.5, and PM10 air quality parameters and for several meteorological parameters.

1. Select one air quality or meteorological parameter to view.
2. Enter the date by using the calendar or typing it in the format: mm/dd/yyyy.
3. Select a start hour from the pull down list.
4. Click on the “Update Map” button to display the map.
5. Click on a dot to see the site name and parameter value.
6. Zoom in to any area using the cursor.
7. Change the hour displayed by entering a number or using the “Advance Hour” slider.

• **Related Links on the lower left side of the page**

1. **Official Air Quality Data**
   Official air quality data through the Air Resources Board’s Aerometric Data Analysis and Management (ADAM) system.
2. **Air Quality Index**
   Information about the Air Quality Index (AQI) and links to websites that publish the AQI.
3. **Air Monitoring Site Information**
   Detailed information on air monitoring sites. For information on a specific site, either click on one of the maps, then a basin/county/district name, then a specific site name, or enter the site number/name and click “Get Site Data”. Information such as site name, number, address, longitude/latitude, start date, county, air basin, pollutants measured, site location map, and pictures can be obtained.
4. **Ambient Air Quality Monitoring**
   Links to detailed information on specific air quality monitoring programs.
5. **Emission Inventory Data**
   Links to ARB’s various emission inventory programs.
6. **Possible Wildfire Impacts on Air Quality**
   Lists of large wildfires that may have contributed to higher than normal particulate matter concentrations in some regions.

➢ **Can I graph or download the data?**

On any of the tabular reports, you may graph the data presented. For site data, you are allowed to graph up to four different sites at a time. Other reports, such as hourly, monthly, and annual data, also let you graph the data on the page. Just look for the “Graph It” button.

Many tables displayed in AQMIS also offer the option of downloading data. Look for “Download Data” at the bottom of the page and choose a download option. “Quick” will create a comma
separated text file with just a single mouse click. “Select Format” allows the user to choose the file name and file format (either an Excel file or a comma, pipe, or tab separated text file).

For more data download options, use the Air Quality, Meteorological, or Greenhouse Gas Data query tools, click on the “Special Reports” tab, and select “Pick Data for Download” in Step 4 (Type of Report). On the next screen, select the dates and sites of interest. After clicking either “All Sites” or “Only if Checked”, choose the file type, file name, and data format. Users may download up to 80,000 rows of data at a time.

➤ How can I tell others about AQMIS?

We are very excited about AQMIS and encourage as many people as possible to use the site. If you know people who are interested in air quality data, please feel free to provide them with the link information to the web site or have them contact ARB directly to discuss how to access and use AQMIS. ARB welcomes any suggestions on improving AQMIS and on expanding its user base.

Please send questions or comments to: aqmis@arb.ca.gov.