Fact Sheet

Hourly AQ Obs File

Updated: June 2019

Introduction

The U.S. Environmental Protection Agency's (EPA) nationwide, voluntary program, AirNow (www.airnow.gov), provides real-time air quality data and forecasts to protect public health across the United States, Canada, and parts of Mexico. AirNow receives real-time air quality data from over 2,500 monitors and collects air quality forecasts for more than 500 cities.

As part of the Global Earth Observation System of Systems (GEOSS) program, the AirNow API system broadens access to AirNow data and data products. AirNow API produces data products in several standard data formats and makes them available via FTP and web services. This document describes the Hourly AQ Obs text file format.

All data provided by AirNow API are made possible by the efforts of more than 150 local, state, tribal, provincial, and federal government agencies (www.airnow.gov/index.cfm?action=airnow.partnerslist). These data are not fully verified or validated; they should be considered preliminary and are subject to change. Data and information reported to AirNow from federal, state, local, and tribal agencies are for the express purpose of reporting and forecasting the Air Quality Index (AQI). Therefore, they should not be used to formulate or support regulation, trends, guidance, or any other government or public decision making. Official regulatory air quality data must be obtained from EPA's Air Quality System (AQS) (https://www.epa.gov/aqs). See the AirNow Data Exchange Guidelines at http://airnowapi.org/docs/DataUseGuidelines.pdf.

About the Air Quality Index

The EPA developed the AQI, which reports levels of ozone, particle pollution, and other common air pollutants on the same scale. An AQI reading of 101 corresponds to a level that is above the national air quality standard—the higher the AQI rating, the greater the health impact.

The AQI is divided into color-coded categories, and each category is identified by a simple informative descriptor. The descriptors are intended to convey information to the public about how air quality within each category relates to public health. The table below defines the AQI categories.

AQI Numbers	AQI Category (Descriptor)	AQI Color	Color Formulas (RGB)	(CMYK)
0 - 50	Good	Green	0,228,0	40,0,100,0
51 - 100	Moderate	Yellow	255,255,0	0,0,100,0
101 - 150	Unhealthy for Sensitive Groups	Orange	255,126,0	0,52,100,0
151 - 200	Unhealthy	Red	255,0,0	0,100,100,0
201 - 300	Very Unhealthy	Purple	143,63,151	51,89,0,0
301 - 500	Hazardous	Maroon	126,0,35	30,100,100,30

File Format Specifications

Data are stored in an ASCII file that contains

1) **Site information** including site ID, site name, site status, EPA region, site coordinates and elevation, UTC offset, country, and state (if applicable).
2) **Reporting Areas** to which the monitoring site is assigned (if applicable).
3) **Hourly NowCast AQI** for ozone, PM_{10}, and $PM_{2.5}$, and **Hourly AQI** for NO_2.
4) **Observation flags** if the monitoring site measures ozone, PM_{10}, $PM_{2.5}$, or NO_2.
5) **Raw Hourly Concentrations and Units** for ozone, PM_{10}, $PM_{2.5}$, NO_2, CO, and SO_2.

Only valid data are reported in the data file. The data file is updated once per hour (at ~:35 minutes past the hour). All Hourly AQ Obs files for the preceding 72 hours will be updated every hour to ensure data completeness and quality. The date and hour specification in the filename and within the file is in GMT. File specifications are as follows:

File name format:	**HourlyAQObs_yyyymmddhh.dat**
Update frequency:	**hourly**
Field delimiter:	**, (The Reporting Area field has a sub-delimiter using | -ASCII character 124)**
Field specifications:	**see table on the next page**

Location of files: The latest available file can be found in the date directories

Address:	https://files.airnowtech.org
Directory:	/?prefix=airnow/YYYY/YYYYMMDD/

File start date: May 28, 2019. Files from earlier dates are not available at this time.

Report units: Various. See the table on the next page.

Field Names:

AQSID,SiteName,Status,EPARegion,Latitude,Longitude,Elevation,GMTOffset,CountryCode,StateName,ValidDate,ValidTime,DataSource,ReportingArea_PipeDelimited,OZONE_AQI,PM10_AQI,PM25_AQI,NO2_AQI, Ozone_Measured,PM10_Measured,PM25_Measured,NO2_Measured,PM25,PM25_Unit,OZONE,OZONE_Unit, NO2,NO2_Unit,CO, CO_Unit,SO2,SO2_Unit,PM10,PM10_Unit

For Data Field Definitions, see the table on the last page.

Sample records:

"320030540","Jerome Mack","Active","R9","36.141875","-115.078742","538.3","-8.0","US","NV","05/31/19","10:00", "Clark County Department of Air Quality","","39.0","11.0","15.0","8.0","1","1","1","1","3.7","UG/M3","35.0","PPB", "9.0","PPB","0.13","PPM","0.0","PPB","12.0","UG/M3"

"240050009","Baltimore County Near Road","Active","R3","39.371679","-76.746814","132.7","-5.0","US","MD", "05/31/19","10:00","Maryland Department of the Environment","","","","","23.0","0","0","0","1","","","","","24.0","PPB", "","","","","","","

"840540110007","HUNTINGTON","Active","R3","38.410242","-82.432436","0.0","-5.0","US","WV","05/31/19", "10:00","West Virginia Division of Air Quality - Wheeling","Huntington","13.0","","","","1","0","0","0","","","15.0", "PPB","","","","","","","","","","

Field Specifications (1 of 2)

Field Name	Characters	Units/Format	Description	Sample
AQSID	9 or 12	Numeric	Nine-digit or twelve-digit EPA AQS identifier. Sites created in the AirNow system after June 2018 have twelve-digit codes which prepend a 3 digit country code ("840" for the U.S.) to the traditional nine-digit AQS site code.	060250005 or 840540110007
SiteName	Variable	Text	Name of the monitoring site.	Calexico - Ethel Street
Status	Variable	Text	The site may be active or inactive.	Active
EPARegion	Variable	Text	EPA region the site is located in. Some other options are available, such as USEPA (mainly for Forest Service and National Park Service sites), CA (Canada), and MX (Mexico). Regions starting with "DS" are specific regions created for Department of State monitoring sites.	R9
Latitude	Variable	Decimal Degrees	Latitude of the site location.	32.67618
Longitude	Variable	Decimal Degrees	Longitude of the site location.	-115.48307
Elevation	Variable	Meters	Elevation of the site location.	0.9
GMTOffset	Variable	Hours	Number of hours to add or subtract to the ValidTime to convert to local *STANDARD* time zone. Daylight savings is not considered in these offsets.	-8
CountryCode	2	Text	Two-character, alphabetic FIPS country code.	US
StateName	2	Text	Two-digit FIPS state code. Other countries or monitor types may have substitutions in this field. Examples: CC= Canada, MM=Mobile Monitor, MX= Mexico, PR= Puerto Rico.	CA
ValidDate	8	mm/dd/yy	Valid GMT Date	05/31/19
ValidTime	5	hh:mm	Time of the measured data value. Note that time is reported in GMT and corresponds to the beginning of the sampling period. For example, a data value with a timestamp of 10:00 represents a sample measured between 10:00 and 10:59 UTC.	10:00
DataSource	Variable	Text	Agency responsible for the monitoring site and data transmission.	California Air Resources Board
ReportingArea_PipeDelimited	Variable	Text	Pipe delimited field that displays all reporting areas that the monitoring site is assigned to.	Calexico|Imperial Valley
OZONE_AQI	1-4	Numeric	NowCast Air Quality Index for Ozone at the given hour.	27
PM10_AQI	1-4	Numeric	NowCast Air Quality Index for PM10 at the given hour.	26
PM25_AQI	1-4	Numeric	NowCast Air Quality Index for PM2.5 at the given hour.	27
NO2_AQI	1-4	Numeric	Air Quality Index for NO2 at the given hour.	4

Field Specifications (cont'd)

Field Name	Characters	Units/Format	Description	Sample
OZONE_Measured	1	Numeric	1 if the site measures ozone. 0 if it does not measure ozone. Note:	1
PM10_Measured	1	Numeric	1 if the site measures PM10. 0 if it does not measure ozone.	1
PM25_Measured	1	Numeric	1 if the site measures PM2.5. 0 if it does not measure ozone.	1
NO2_Measured	1	Numeric	1 if the site measures NO2. 0 if it does not measure ozone.	1
PM25	Variable	Numeric	Hourly raw concentration of PM2.5	6
PM25_Unit	5	Text	Concentration units for PM2.5	UG/M3
OZONE	Variable	Numeric	Hourly raw concentration of Ozone	31
OZONE_Unit	3	Text	Concentration units for Ozone	PPB
NO2	Variable	Numeric	Hourly raw concentration of NO2	5
NO2_Unit	3	Text	Concentration units for NO2	PPB
CO	Variable	Numeric	Hourly raw concentration of CO	0.2
CO_Unit	3	Text	Concentration units for CO	PPM
SO2	Variable	Numeric	Hourly raw concentration of SO2	2
SO2_Unit	3	Text	Concentration units for SO2	PPB
PM10	Variable	Numeric	Hourly raw concentration of PM10	22
PM10_Unit	5	Text	Concentration units for PM10	UG/M3

Contacts

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