

Area Hourly AQI API

**Environmental monitoring
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Introduction

NB: The material contained in this document is confidential and proprietary to Sparrow Analytics SA.

The Area Hourly AQI API is a web service which allows you to request and retrieve averaged AQI and pollutants data collected by Sparrow nodes fleet, aggregated by hours and geohashes (by rectangular areas of 76 m²) for specified area and list of dates (between 1 and 31 days).

The API is using REST-Like operations over HTTP GET requests with parameters encoded into the URL address. The response is encoded in JSON format, using HTTP status codes to verify successful data retrieval. It is designed to be easy to use and implement in any third-party software or service that is using web requests for data interchange. Web service is using a scalable cloud infrastructure to be responsive and sustainable for numerous simultaneous connections.

Please, note that dates and times in the API are always in GMT (UTC +0) timezone.

In order to use the Area Hourly AQI API you must receive a private authentication. Please make sure to keep the API key safe and unexposed to the public.

Get Hourly AQI Data for Area

Endpoint URL

GET <https://api.sparrow.city/get/aqi/>

Request Parameters

All parameters are required.

Parameter	Type	Description
api_key	String	Private API key for authorization
dates	String	Dates separated by comma [1-31] (see Datetime Format)
start_lat	Float	Area starting latitude
start_lon	Float	Area starting longitude
end_lat	Float	Area ending latitude
end_lon	Float	Area ending longitude

Successful JSON Response

Parameter	Type	Description
result	Integer	Result code (see Result Codes)
body	Object	Array of measurements objects
↪ date	String	Measurements date key (see Date Format)
↪ hour	String	Measurements time key (see Time Format)
↪↪ geohash	String	Measurements geohash key (see Geohash)
↪↪↪ aqi	Integer	Averaged AQI value for area (see AQI)
↪↪↪ pollutants	Object	List of averaged pollutants values
↪↪↪↪ pm1	Float	Fine particulate matter with a size of 1 μm ($\mu\text{g}/\text{m}^3$)

↔↔↔↔ pm25	Float	Fine particulate matter with a size of 2.5 μm ($\mu\text{g}/\text{m}^3$)
↔↔↔↔ pm10	Float	Fine particulate matter with a size of 10 μm ($\mu\text{g}/\text{m}^3$)
↔↔↔↔ co	Float	Carbon monoxide concentration (ppb)
↔↔↔↔ co2	Integer	Carbon dioxide concentration (ppm)
↔↔↔↔ no2	Float	Nitrogen dioxide concentration (ppb)
↔↔↔↔ o3	Float	Ozone concentration (ppb)

Unsuccessful JSON Response

Parameter	Type	Description
result	Integer	Result code (see Result Codes)
message	String	Short error description

Date Format

Date is using an [ISO-8601](#) date format (YYYY-MM-DD). Example, for the 31st of January 2024:

2024-01-31

Time Format

Time is using an [ISO-8601](#) date format (HH:MM). Example, for the eight hours of evening time:

20:00

Result Codes

Result Code	Description
200 ●	Successful request
400 ●	Bad request
401 ●	Unauthorized
403 ●	Forbidden
404 ●	Not found
405 ●	Method not allowed
429 ●	Too many requests
500 ●	Internal server error
501 ●	Not implemented
503 ●	Service unavailable

Request Example

```
$ curl -X GET  
'https://api.sparrow.city/get/aqi/?dates=2024-07-30,2024-07-31&start_lat=46.51629&start_lon=6.53995&end_lat=46.55236&end_lon=6.70475&api_key={API_KEY}'
```

Successful Response Example

```
{  
  "result": 200,  
  "body": {  
    "2024-07-31": {  
      "11:00": {  
        "u0k8wmn": {  
          "aqi": 39,  
          "pollutants": {  
            "pm1": 5.95,  
            "pm25": 8.45,  
            "pm10": 8.45,
```

```
        "co": 165.15,  
        "co2": 628,  
        "no2": 41.6,  
        "o3": 38.8  
      }  
    }  
  },  
  "2024-07-30": {  
    "12:00": {  
      "u0k8wmq": {  
        "aqi": 33,  
        "pollutants": {  
          "pm1": 5.6,  
          "pm25": 8.1,  
          "pm10": 12.4,  
          "co": 201.5,  
          "co2": 16701.5,  
          "no2": 35,  
          "o3": 39.55  
        }  
      },  
      "u0k8wsb": {  
        "aqi": 42,  
        "pollutants": {  
          "pm1": 6.23,  
          "pm25": 7.83,  
          "pm10": 7.83,  
          "co": 264.47,  
          "co2": 634,  
          "no2": 44.9,  
          "o3": 35.33  
        }  
      }  
    },  
    "13:00": {  
      "u0k8wsd": {  
        "aqi": 45,  
        "pollutants": {  
          "pm1": 8.5,  
          "pm25": 11.8,  
          "pm10": 24.3,  
          "co": 434.6,  
          "co2": 674,  
          "no2": 48.1,  
          "o3": 35.2  
        }  
      },  
      "u0k8wse": {  
        "aqi": 45,
```

```
    "pollutants": {
      "pm1": 6.15,
      "pm25": 7,
      "pm10": 8,
      "co": 399.6,
      "co2": 674,
      "no2": 47.2,
      "o3": 32.7
    }
  },
  "u0k8wst": {
    "aqi": 43,
    "pollutants": {
      "pm1": 5.1,
      "pm25": 5.1,
      "pm10": 5.1,
      "co": 231.2,
      "co2": 679,
      "no2": 45.8,
      "o3": 37.6
    }
  }
}
```

Unsuccessful Response Example

```
{
  "result": 401,
  "message": "Unauthorized"
}
```