

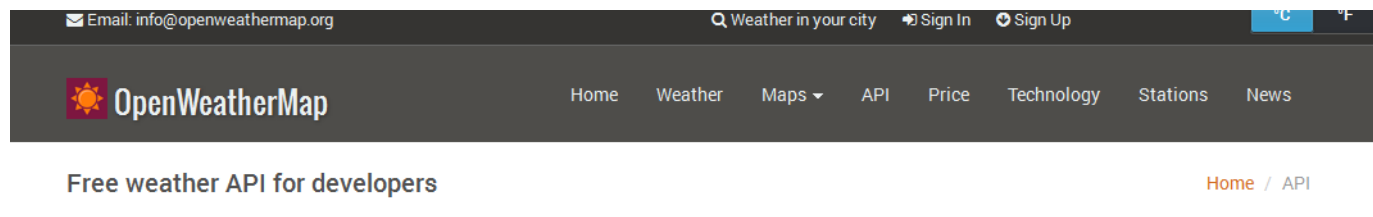
# 데이터과학

open weather API

# 목표

- Open API를 활용한 날씨 데이터 이용하는 법 학습
  - Weather API 이용 프로그래밍하기

# OpenWeatherMap



## Free weather API for developers

Our weather API is simple, clear and free. We also offer higher levels of support, please see our [paid plan options](#). To access the API you need to sign up for an [API key](#) if you are on a free or paid plan.

### Current weather data

- Access current weather data for any location on Earth including over 200,000 cities!
- Current weather is frequently updated based on global models and data from more than 40,000 weather stations
- Data is available in JSON, XML, or HTML format

[more](#)

### 5 and 16 day forecast

- Both 5 day forecasts and 16 day forecasts are available at any location or city
- 5 day forecasts include weather data every 3 hours and 16 day forecasts include daily weather
- Forecasts are available in JSON, XML, or HTML format

[more](#)

### Historical data

- Through our API we provide both city historical weather data and raw data from weather stations
- Historical data is available for 1 month previous in both free and developer accounts, for 1 year previous in Professional accounts, and is unlimited in Enterprise accounts

[more](#)

### Weather stations

- Access recent data from weather stations
- Search weather stations close to a geographic location
- Get historical weather station data
- More than 40,000 weather stations around the world are connected to OpenWeatherMap
- Join our network of private weather stations and get convenient data gathering and monitoring for your weather station

[more](#)

### Weather map layers

- Weather maps include precipitation, clouds, pressure, temperature, wind, and more!
- Connect our weather maps to your mobile applications and websites
- Use as layers in Direct Tiles, WMS, OpenLayers, Leaflet, Google Maps, and Yandex maps

[more](#)

# OpenWeatherMap.org

## How to work with API key

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To get access to weather API you need an API key whatever account you chose from Free to Enterprise.

### How to get API key (APPID)

- 1 Register on the [Sign up](#) page
- 2 Get unique API key on your personal page

### How to use API key

- Add the following parameter to the GET request: APPID=APIKEY  
Example: [api.openweathermap.org/data/2.5/forecast/city?id=524901&APPID=1111111111](https://api.openweathermap.org/data/2.5/forecast/city?id=524901&APPID=1111111111)
- OR add the following line to http header of request to the server: x-api-key:APIKEY

### How to work with API in more effective way

- Do not send requests more then 1 time per 10 minutes from one device. Normally the weather is not changing so frequently.
- Use the name of the server as [api.openweathermap.org](#). Please never use the IP of the server.
- It is better to use city ID or city name instead of city coordinates. In this case we can use cache server in more effective way.
- Free account has limitation of capacity. If you do not get respond from server please do not try to repeat your request immediately, but repeat it after 10 min. Also please store your previous request data.
- If you need secured SLA please contact us [info@OpenWeatherMap.org](mailto:info@OpenWeatherMap.org).

# API Examples

- <http://openweathermap.org/examples>

## Examples of API using

### For Android developers

- Build real weather app: JSON, HTTP and OWM <http://www.survivingwithandroid.com/2013/05/build-weather-app-json-http-android.html>

In this post I want to describe how to create a weather app for **Android** that gives current weather information. This app will use JSON, HTTP connection and AsyncTask to get this information..

- <https://code.google.com/p/weather-notification-android/>

Simple application which displays the air temperature and other weather conditions in the Android notification bar. The air temperature is always visible like a system clock.

### Java

- Java library to retrieve weather information and forecasts from Open Weather Map <https://github.com/migtavares/owmClient>
- <http://go.aksingh.net/owm-japis-src>

### JavaScript

- <http://weatherjs.com>

There really should be a conclusive Javascript weather library. Weather.js fetches data from openweathermap.org and makes querying all kinds of weather related information easy.

- JavaScript libraries for OpenStreetMap applications <https://github.com/alno/osm-js-lib/>
- <https://github.com/nils-werner/owm-display>
- How to create charts with weather data <http://openweathermap.org/tutorial/charts>
- Charts and widgets <http://openweathermap.org/tutorial/widgets>

### CMS

#### Drupal

- OpenLayers Open Weather Map <http://drupal.org/project/olowm>
- Open Weather <http://drupal.org/sandbox/kherda/1777890>

#### WordPress

- Awesome Weather Widget <http://wordpress.org/extend/plugins/awesome-weather/>
- HD Weather Widget by The Waypoint <http://wordpress.org/plugins/waypoint-hd-weather-widget/>

### Maps

#### Leaflet

- OpenWeatherMap for Leaflet based maps <https://github.com/buche/leaflet-openweathermap>
- JavaScript libraries for OpenStreetMap applications <https://github.com/alno/osm-js-lib/>
- Leaflet-providers <https://github.com/leaflet-extras/leaflet-providers/>

# Python OpenWeatherMap Wrapper

- Pyowm: <https://github.com/csparpa/pyowm>

```
import pyowm

owm = pyowm.OWM('your-API-key')

# Will it be sunny tomorrow at this time in Milan (Italy) ?
forecast = owm.daily_forecast("Milan,it")
tomorrow = pyowm.timeutils.tomorrow()
forecast.will_be_sunny_at(tomorrow) # Always True in Italy, right? ;-)

# Search for current weather in London (UK)
observation = owm.weather_at_place('London,uk')
w = observation.get_weather()
print(w)                # <Weather - reference time=2013-12-18 09:20,
                        # status=Clouds>

# Weather details
w.get_wind()             # {'speed': 4.6, 'deg': 330}
w.get_humidity()         # 87
w.get_temperature('celsius') # {'temp_max': 10.5, 'temp': 9.7, 'temp_min': 9.0}

# Search current weather observations in the surroundings of
# lat=22.57W, lon=43.12S (Rio de Janeiro, BR)
observation_list = owm.weather_around_coords(-22.57, -43.12)
```

# 실습

- 대전날씨를 open weather API를 이용하여 보여주기
- Google classroom으로 제출하기