



Bulk data download using APIs

Proyectos en ingeniería de datos e inteligencia artificial



ecmwf/cdsapi

Python API to access the Copernicus Climate Data Store (CDS)



What is an API

Application Programming Interface

What is an API

API Functionality

APIs enable communication and data exchange between different software systems seamlessly and efficiently.

What is an API

Automation and Scalability

APIs automate data retrieval processes and support scalable data processing essential for modern data science tasks.

Registration



Andres Navarro

Climate Data Store

Datasets

Applications

User guide

Live

Your requests

Info

3 Sep 2025 To improve our C3S service, we need to hear from you! Please complete this very short [survey](#). Thank you.

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Dive into this wealth of information about the Earth's
past, present and future climate

Search



<https://cds.climate.copernicus.eu/>

The .cdsapirc file

1. Setup the CDS API personal access token

Here is how to setup the CDS API personal access token:

1. If you do not have an account yet, please [register](#)
2. If you are not logged in, please [login](#)
3. Once logged in, copy the code displayed below to the file `$HOME/.cdsapirc` (in your Unix/Linux environment)

```
url: https://cds.climate.copernicus.eu/api  
key: 1d70d144-5623-4d9c-8ab9-b517c2b2f316
```



`https://cds.climate.copernicus.eu/how-to-api`

```
andres — python • conda install conda-forge::cdsapi — 126x29
~ — python • conda install conda-forge::cdsapi

environment location: /usr/local/Caskroom/miniconda/base/envs/xarray

added / updated specs:
- conda-forge::cdsapi

The following packages will be downloaded:
```

package	build		
attrs-24.3.0	py313hecd8cb5_0	174 KB	
brotlicffi-1.0.9.2	py313h6d0c2b6_1	393 KB	
cdsapi-0.7.6	pyhd8ed1ab_0	17 KB	conda-forge
certifi-2025.8.3	py313hecd8cb5_0	161 KB	
cffi-1.17.1	py313h9205ec4_1	294 KB	
ecmwf-datastores-client-0.4.0	pyhd8ed1ab_0	25 KB	conda-forge
idna-3.7	py313hecd8cb5_0	110 KB	
multiurl-0.3.7	pyhd8ed1ab_0	22 KB	conda-forge
pysocks-1.7.1	py313hecd8cb5_0	35 KB	
requests-2.32.4	py313hecd8cb5_0	178 KB	
tqdm-4.67.1	py313h653c010_0	161 KB	
typing_extensions-4.12.2	py313hecd8cb5_0	83 KB	
urllib3-2.5.0	py313hecd8cb5_0	360 KB	
Total:		2.0 MB	

```
The following NEW packages will be INSTALLED:
```

conda install conda-forge::cdsapi

Example.py

```
import cdsapi

client = cdsapi.Client()

dataset = 'reanalysis-era5-pressure-levels'
request = {
    'product_type': ['reanalysis'],
    'variable': ['geopotential'],
    'year': ['2024'],
    'month': ['03'],
    'day': ['01'],
    'time': ['13:00'],
    'pressure_level': ['1000'],
    'data_format': 'grib',
}
target = 'download.grib'

client.retrieve(dataset, request, target)
```



Product codes

Código del producto	Descripción
reanalysis-era5-pressure-levels	Datos de ERA5 en niveles de presión
reanalysis-era5-single-levels	Datos de ERA5 en niveles únicos (superficie)
seasonal-original-single-levels	Predicciones estacionales en niveles únicos
sis-agriculture-indicators	Indicadores agroclimáticos
satellite-sea-surface-temperature	Temperatura superficial del mar por satélite

Var names

- Temperatura y viento:
 - 2m_temperature
 - 10m_u_component_of_wind
 - 10m_v_component_of_wind
 - surface_pressure
- Precipitación y humedad:
 - total_precipitation
 - 2m_dewpoint_temperature
- Radiación y energía:
 - surface_solar_radiation_downwards
 - net_surface_solar_radiation
- Océano y olas:
 - sea_surface_temperature
 - significant_height_of_combined_wind_waves_and_swell
- Nieve y suelo:
 - snow_depth
 - volumetric_soil_water_layer_1

Assignment

Download data from Copernicus Climate Data Store

- ERA5_T2M_SINGLE-LEVEL_DAILY-2024
 - Compute Monthly mean with cdo