Big Data Analytics Lab, UMBC
ERA5 Reanalysis Climate Dataset Collection
Date: 11th June 2023
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Goal: This document describes the process of the ERA5 reanalysis climate data collection. Here we will download the hourly data for one year from the European Copernicus Climate Data Store for seven variables used for the unsupervised clustering task.

Follow these steps to download the dataset:

Step-1:

Create a new user in the Copernicus Climate Data Store using the following URL. Skip this step if you already have a user in the system.

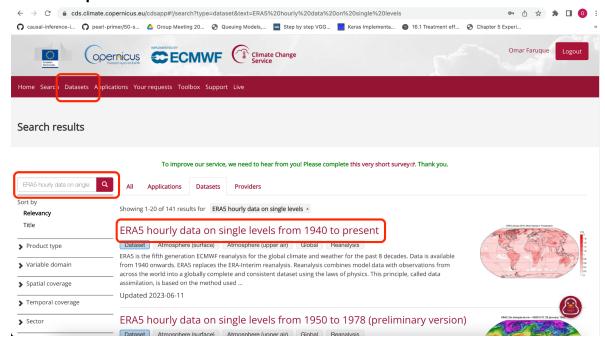https://cds.climate.copernicus.eu/user/register?destination=%2Fcdsapp%23!%2Fhome

Step-2:

Login to the Copernicus Climate Data Store using your email ID and password through the following URL.

https://cds.climate.copernicus.eu/user/login?destination=%2Fcdsapp%23!%2Fhome
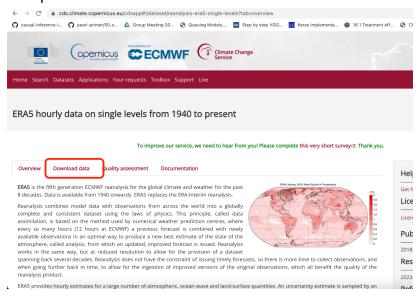
Step-3:

After login click the "**Datasets**" option from the top menu bar. On the dataset page, you will see all the datasets available to download. In the search bar type "**ERA5 hourly data on single**" and click the search button. Then from the search result select the dataset with the title "**ERA5 hourly data on single levels from 1940 to present**".

Step-4:

The next page will show the overview of the dataset and the description of all variables included in this dataset. Here click on the "**Download data**" option as shown in the picture.

Step-5:

On this page, we have to choose different options according to our dataset requirements. We have to select **reanalysis** from the product type. Then select the variables as shown in the picture. Here we have selected 7 variables from the "**Popular**" and "**Radiation and heat**" subsets. Then select the target **"Year", "Month", "Day", "Time",** and "**Geographical area**". Select the "**NetCDF**" from the data format. Finally, **submit** the form after selecting the "**Terms of use**" option.

▸ Mean rates

▼ Radiation and heat

☐ Clear-sky direct solar radiation at surface
☐ Forecast logarithm of surface roughness for heat
☐ Near IR albedo for diffuse radiation
☑ Surface latent heat flux
☐ Surface net solar radiation, clear sky
☐ Surface net thermal radiation, clear sky
☐ Surface solar radiation downward, clear sky
☐ Surface thermal radiation downward, clear sky
☐ TOA incident solar radiation
☐ Top net solar radiation, clear sky
☐ Top net thermal radiation, clear sky
☐ UV visible albedo for diffuse radiation

☐ Downward UV radiation at the surface
☐ Instantaneous surface sensible heat flux
☐ Near IR albedo for direct radiation
☐ Surface net solar radiation
☐ Surface net thermal radiation
☑ Surface sensible heat flux
☐ Surface solar radiation downwards
☐ Surface thermal radiation downwards
☐ Top net solar radiation
☐ Top net thermal radiation
☐ Total sky direct solar radiation at surface
☐ UV visible albedo for direct radiation

Select all   Clear all

▸ Clouds

▸ Lakes

Year

☐ 1940 ☐ 1941 ☐ 1942 ☐ 1943 ☐ 1944 ☐ 1945
☐ 1946 ☐ 1947 ☐ 1948 ☐ 1949 ☐ 1950 ☐ 1951
☐ 1952 ☐ 1953 ☐ 1954 ☐ 1955 ☐ 1956 ☐ 1957
☐ 1958 ☐ 1959 ☐ 1960 ☐ 1961 ☐ 1962 ☐ 1963
☐ 1964 ☐ 1965 ☐ 1966 ☐ 1967 ☐ 1968 ☐ 1969
☐ 1970 ☐ 1971 ☐ 1972 ☐ 1973 ☐ 1974 ☐ 1975
☐ 1976 ☐ 1977 ☐ 1978 ☐ 1979 ☐ 1980 ☐ 1981
☐ 1982 ☐ 1983 ☐ 1984 ☐ 1985 ☐ 1986 ☐ 1987
☐ 1988 ☐ 1989 ☐ 1990 ☐ 1991 ☐ 1992 ☐ 1993
☐ 1994 ☐ 1995 ☐ 1996 ☐ 1997 ☐ 1998 ☐ 1999
☐ 2000 ☐ 2001 ☐ 2002 ☐ 2003 ☐ 2004 ☐ 2005
☐ 2006 ☐ 2007 ☐ 2008 ☐ 2009 ☐ 2010 ☐ 2011
☐ 2012 ☐ 2013 ☐ 2014 ☐ 2015 ☐ 2016 ☐ 2017
☐ 2018 ☐ 2019 ☐ 2020 ☑ 2021 ☐ 2022 ☐ 2023

Select all   Clear all

Month

☑ January   ☑ February   ☑ March   ☑ April   ☑ May   ☑ June
☑ July   ☑ August   ☑ September ☑ October ☑ November ☑ December

Clear all

Day

- ☑ 01
- ☑ 02
- ☑ 03
- ☑ 04
- ☑ 05
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- ☑ 07
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Clear all

Time ⑦

- ☑ 00:00
- ☐ 01:00
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- ☐ 22:00
- ☐ 23:00

Select all   Clear all

Geographical area ⑦

○ **Whole available region**

With this option selected the entire available area will be provided

◉ **Sub-region extraction** ⑦

North
43

West
-33

East
-23

South
33

Format

○ GRIB

◉ NetCDF (experimental)

Clear all

Terms of use

✔ Licence to use Copernicus Products   View terms

Show API request   Show Toolbox request

Submit Form

Step-6:

   After the successful submission of the form, you will see the request on the next page, and the status will be "**In Process**". The dataset will be ready for download after 1 to 2 minutes and you will see the green "**Download**" button in the status. You can also view all of your previous data requests from the "**Your requests**" option in the top menu.

Home Search Datasets Applications Your requests Toolbox Support Live

Your requests

To improve our service, we need to hear from you! Please complete this very short survey ↗. Thank you.

All   Queued   In progress   Failed   Unavailable   Complete

Auto refreshed : 21:26:47   Delete selected

Product	Submission date ▾	End date	Duration	Size	Status	
▸ ERA5 hourly data on single levels from 1940 to present	2023-06-11 18:27:47	2023-06-11 18:29:20	0:01:32	8.6 MB	⬇ Download	☐
▸ ERA5 hourly data on single levels from 1940 to present	2023-06-11 18:21:02	2023-06-11 18:22:54	0:01:51	9.8 MB	⬇ Download	☐