

Copernicus User Support ERA5 Tutorial Transcript

TITLE SLIDE 1:

Copernicus User Support ERA5 Tutorial:

How to discover and check ERA5 data availability.

This tutorial is a demonstration of how users can easily check the availability of ERA5 data before attempting to retrieve it.

SLIDE 2:

The Copernicus User Support provides ERA5 documentation online including a full list of parameters but the best way to dynamically check the availability of ERA5 parameters and how it is stored in the archive is through the ERA5 Catalogue web interface at

<http://apps.ecmwf.int/data-catalogues/era5/?class=ea>

Please keep in mind that the ERA5 Catalogue web interface is a browse-only interface - you will not be able to retrieve ERA5 data this way. This interface is used to discover all the ERA5 data availability and also to view the associated python script for the web-API download call.

Let's do a demonstration.

SLIDE 3:

We are now on the ERA5 Catalogue web interface which is quite simple and self-explanatory.

It presents a fixed menu bar on the Left-hand side and the ERA5 Catalogue display on the right hand side. The catalogue display on the right hand side changes as the user starts navigating through the content of the ERA5 archive.

The fixed menu bar has links to Documentation which points to the ERA5 Landing page on the Copernicus Climate Change Service website. The Download link takes you to the procedure on "How to download ERA5 data via the ECMWF Web API", prepared by the Copernicus User Support team at ECMWF.

"Job list" allows you to check the status of your submitted jobs i.e. whether the job is being queued, is running, aborted or completed.

"Mars Activity" shows the overall usage of the "Meteorological Archive and Retrieval System". Similarly, "Web-API activity" shows the overall usage of the ECMWF Web-API.

"ERA5 retrieval efficiency" points to another C3S User Support Knowledge Base article which gives some important guidelines on how to best retrieve ERA5 data and avoid disappointment.

Now let's take an example of ERA5 data that we want to find availability for.

We are here at the top of the ERA5 archive tree where users can find Deterministic Forecast, Ensemble Data Assimilation, Monthly Means products. The Deterministic forecast contains ERA5 hourly analysis and forecast fields. Ensemble Data Assimilation contains 3 hourly and monthly means ensemble data also known as uncertainties. The Monthly means products contain the forecast monthly means and synoptic monthly means. There is an article in the Copernicus User Support Knowledge Base explaining the difference between the two.

Now, let's say that we are looking for hourly analysis data for geopotential and specific humidity on model levels.

So under Deterministic Forecast, we select Atmospheric model, Analysis, the Year (say 2016), the month (say January). Then we select the type of level - in this case model levels. And now you find yourself at the parameters level, which is the bottom of the ERA5 tree archive. All the fields that a user can see and select

on this page are available for retrieval and should be stored on the same tape. Now you can narrow down your search by selecting the date, time and level and of course parameter in this case Geopotential and Specific humidity.

At this point, you have found the available parameters as per your specifications. Now to download the data, you will need to build a web-API script. The link to “View the MARS Request” is the starting point for this as it allows you to view your data selection in Python language.

To retrieve data efficiently and get your data quicker, you should retrieve all the data you need from one tape, then from the next tape and so on. In most cases, this means retrieving all the data you need for one month, then for the next month, and so on.

The link to “Check for availability” will not provide any additional useful information to users and so may be ignored.

To go back to the top of the ERA5 archive tree, click on “class” link at the bottom of the page.

And you can repeat the same procedure we have just gone through for ERA5 ensemble data or ERA5 Monthly means.

SLIDE 4:

Now that you have a general understanding of how to check for ERA5 data availability by navigating through its archive content, you are ready to retrieve ERA5 data.

For more details, you may also refer to the Copernicus User Support Knowledge Base ERA5 articles which access is available through the C3S Users Gateway webpage which you can easily find by going to the C3S website at climate.copernicus.eu and clicking on the Help & Support tab.