

Description

Germany's National Meteorological Service, the Deutscher Wetterdienst (DWD), provides a selection of its latest forecast simulation for free. The data can be accessed via <https://opendata.dwd.de/>. For this exercise we are interested in the latest forecast run for the EU-nested ICON region and focus on the 2 meter temperature.

In this exercise you will:

1. Handle the download of the data
2. Generate a textual representation of the latest temperature forecast

01 - Download

Download manually the first timestep of the 2m temperature. You can download it via your web browser or do it via cmd (e.g. with `wget` or `curl`). The first timestep is called:

```
icon-eu_europe_regular-lat-lon_single-level_2021102000_000_T_2M.grib2.bz2
```

You have to adjust the date to the current or last day. You can make yourself familiar with the file content using `cdo` or `ncview`.

Downloading the files by hand becomes quickly cumbersome, you want to automatise this process. You need to pay attention to the fact, that each timestep resides in a single file and are compressed. Therefore there are three steps your script must achieve:

1. Download all 2m temperature files from the server to a local directory.
2. Decompress all the files
3. Merge all timesteps

Hints

- You can use the `urllib` package to download the timesteps.
- You can use the `bz2` package to decompress the files.
- You can use the `cdo` package to merge the files. Pay attention to not mix the order of the single timesteps.

02 - Textual representation

Your script shall be executed with two parameters: longitude and latitude. Based on this input your script shall write on the terminal, what the current and expected weather could look like.

Extra

You can add an additional variable, which shall be considered in all three steps (e.g. total precipitation).