

Remapping from spectral grid to regular grid

The data if available on spectral grid or gaussian grid, needs to be remapped onto a regular lat lon grid, so that it can be analysed using Met.3D. The following code snippet provides a minimal example to perform the remapping.

```
#!/bin/bash

#####
# Minimal examples of basic CDO commands for remapping ERA5 data onto a regular grid
#
# Link to the Met.3D documentation
# https://collaboration.cen.uni-hamburg.de/display/Met3D/Welcome+to+Met.3D
#
# Link to the cdo documentation
# https://code.mpimet.mpg.de/projects/cdo/wiki/Cdo#Documentation
#
# Link to a cdo reference sheet
# https://code.mpimet.mpg.de/projects/cdo/embedded/cdo_refcard.pdf
#
#####

#####
# define path to the folder storing the ERA5 data as provided by the ECMWF
# (GRIB data with spatial coordinate systems "Gaussian Grid" or "Spherical Harmonics")
DATAFOLDER=/path/to/ERA5-data-folder/

#####
# define path to the folder for storing the remapped ERA5 data-files
POSTPROCESSEDDATAFOLDER=/path/to/Results-Folder/
mkdir -p ${POSTPROCESSEDDATAFOLDER}

#####
# define path to a file characterizing the grid to which the ERA5 data will be remapped
TARGETGRIDFILE=/path/to/targetgridfile.txt

# See below for an exemplar gridFile for remapping with CDO to a regular lat-lon grid :
# --> "cdo_gridFile_regular_LatLon_minimalExample.txt"

#####
# define input and output data files
INFILE=/path/to/ERA5_Data_File
OUTFILE=/path/to/ERA5_Data_on_regular_grid

#####
# bilinear remapping from reduced Gaussian grid to regular Lat-Lon grid
# and conversion from GRIB to NETCDF
cdo -f nc4 -remapbil,${TARGETGRIDFILE} -setgridtype,regular ${OUTFILE} ${INFILE}

#####
# bilinear remapping from spectral grid to Gaussian grid to regular Lat-Lon grid
cdo -f nc4 -remapbil,${TARGETGRIDFILE} -sp2gpl ${INFILE} ${OUTFILE}
```

The contents of the 'cdo_gridFile_regular_LatLon_minimalExample.txt' in this example are as below:

```
gridtype = lonlat  
gridsize = 90381  
xsize = 641  
ysize = 141  
xfirst = -80  
xinc = 0.25  
yfirst = 85  
yinc = -0.25
```