User training material

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UERRA user workshop, 30.11.2017,

Tarragona, Spain

1. How to get data access?

- Access and download via MARS archive at ECMWF:
  - Web based user interface (recommended for little test data download)
  - MARS request (recommended for larger data, many time steps, several variables…)

```
retrieve,
    class=ur,
    date=2007-01-01/to/2007-01-31,
    expver=prod,
    levtype=sfc,
    number=0,
    origin=edzw,
    param=207,
    step=1/2/3/4/5/6,
    stream=enda,
    time=00:00:00/01:00:00/02:00:00/03:00:00/04:00:00/
05:00:00/06:00:00/07:00:00/08:00:00/09:00:00/10:00:00/
11:00:00/12:00:00/13:00:00/14:00:00/15:00:00/16:00:00/
17:00:00/18:00:00/19:00:00/20:00:00/21:00:00/22:00:00/
23:00:00
    type=an,
    target=„Crea12_10mWS_ana0_2007-01.grb"
```

2. How to handle the data format?

- All UERRA products are saved in grib2 format
- For handling grib2 data grib api/eccodes (https://software.ecmwf.int/wiki/display/ECC/ecCodes+Home) and

  cdo (https://code.mpimet.mpg.de/projects/cdo/files)is useful
- Converting to netcdf:

cdo –f nc copy *Crea12_10mWS_ana0_2007-01.grb Crea12_10mWS_ana0_2007-01.nc*

- Short listing of grid information:

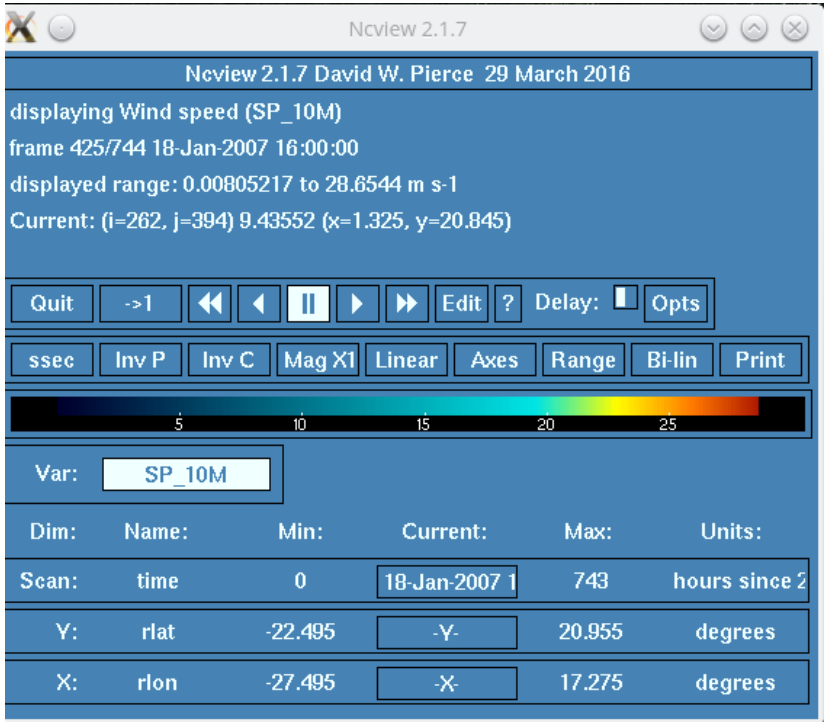
cdo griddes *Crea12_10mWS_ana0_2007-01.grb*

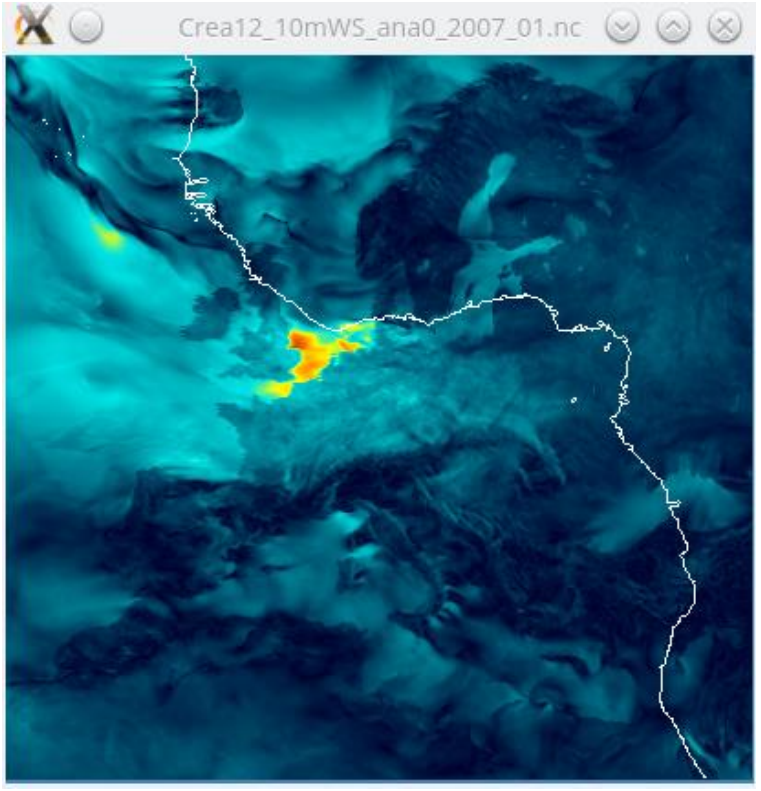
```
gridtype  = lonlat
gridsize  = 161568
xname     =rlon
xlongname = longitude in rotated pole grid
xunits    = degrees
yname     = rlat
ylongname = latitude in rotated pole grid
yunits    = degrees
xsize     = 408
ysize     = 396
xnpole    = -162
ynpole    = 39.25
xfirst    = -27.495
xinc      = 0.11
yfirst    = -22.495
yinc      = 0.11
```

3. How to simple illustrate?

➔ To get a first impression of the model data ncview is a simple way of illustrating netcdf data

ncview *Crea12_10mWS_ana0_2007-01.nc*

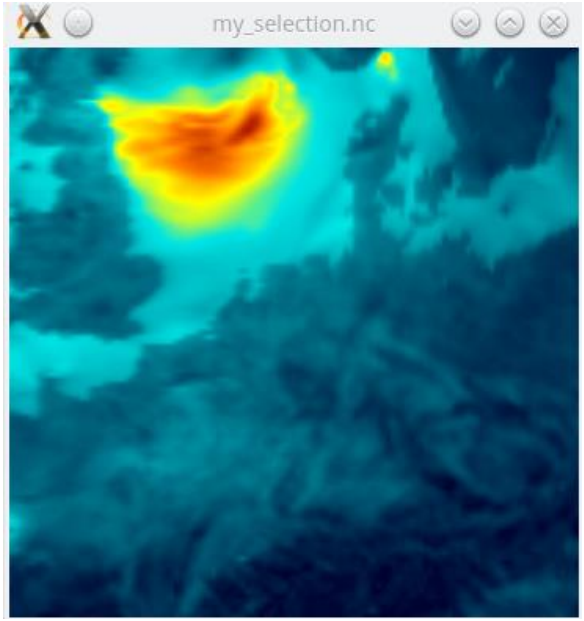




4. How to cut area of interest?

- From the web interface it is only possible to download the whole fields of UERRA data (European CORDEX domain)
- Selecting a specific region of interest can simplify the following data handling

***cdo selindexbox**,130,250,160,280 Crea12_10mWS_ana0_2007-01.nc my_selection.nc*



5. How to find right coordinates?

- The reanalyses use different coordinate systems (rotated lon lat by UM and COSMO-REA12, lambert conformal conic projection by Harmonie and Mescan)
- For comparison of model data with observations the regular longitude and latitude information are necessary

Possibility 1:

For computation of regular longitudes and latitudes a python script of ECMWF can be used:
https://software.ecmwf.int/wiki/display/GRIB/iterator.py
Output: ASCII file

Possibility 2:

Remapping RRA files:
cdo remapcon,*outgrid.txt Crea12_10mWS_ana0_2007-01.nc Crea12_10mWS_ana0_2007-01_remap.nc*

Outgrid.txt

```
gridtype = lonlat
xsize    = 400
ysize    = 370
xfirst   = -13
yfirst   = 30
xinc     = 0.11
yinc     = 0.11
```