

Introductory remarks

- **Meteorological science is threefold**

- technical work (hand craft)
- thinking (hardest part?)
- communicating (presenting/writing)

- **Layout of exercises**

- relevant technical work: analyse and visualise scientific data
- analyse and interpret results
- show the conclusions

Technical part

- **Data in NetCDF format (Network Common Data Format)**
 - `ncdump -h <file.nc> | more`

- **Data processing**
 - CDO (Climate Data Operators)
 - <https://code.zmaw.de/projects/cdo>

- **Plotting options**
 - NCL (US National Center for Atmospheric Research Command Language)
 - <http://www.ncl.ucar.edu/>

 - python

 - ferret
 - <http://ferret.wrc.noaa.gov>

- **Tutoring**
 - Enrico Metzner <enrico.paul.metzner@gmail.com>

Start working

■ First exercise

```
> ncdump -h /home_local/quaas/data/ERA_ps_mean.nc | more
> cdo mulc,0.01 /home_local/quaas/data/ERA_ps_mean.nc ps_hpa.nc
> cdo timmean ps_hpa.nc ps_hpa_annmean.nc
```

```
> cp /home_local/quaas/plotdistr.ncl .
> emacs plotdistr.ncl &
> ncl plotdistr.ncl
> xpdf ps.pdf
```

```
> source /home_local/quaas/util/ferret_paths
> /opt/ferret/bin/ferret
& use ps_hpa_annmean.nc
& sh d
& shade SP_GDS0_SFC_123
& go land thick
```

```
> cp /home_local/quaas/ex1.py .
> emacs ex1.py &
> python ex1.py
```