Quickplots for ICON

This tool is developed for having a fast rough overview of ICON experiments.
It performs figures for long-term means of many variables, and also the differences with respect to observational data (see below). In addition, there exists a version that compares two different experiments

The Plots are developed for AMIP-runs.
If you need a special edition please write an email (renate.brokopf@mpimet.mpg.de).
ICON-data compared with ERA5 (European Re-Analysis observation data) and CERES (Clouds and the Earth´s Radiant Energy System).
For the plots all data (ICON and observation) will be interpolated in a 1 by 1 cartesian grid (done by the Quickplots-Programme). The interpolation to a common grid makes it possible to compare ICON-data with different resolutions and observation data.
You can see an example in the Swiftbrowser:

https://swift.dkrz.de/v1/dkrz_cc566461dff84e59964ced89d96324d8/Experimente/mag0230_ANN/index.html

The Quickplots-Programm can be found in

"/pool/data/ICON/post/QuickPlots_1x1_1.4.0.1/"

Please copy **Quickplots.sh** and
for higher Grid resolution **Quickplots.job**.

Adjust the job and start it on mistral with

./Quickplots.sh or with
sbatch Quickplots.job

A valid swift-token is required to start the job. Please check it with the command:

module load swift

If your token is expire, follow the instructions.

Your input file must be a one-timestep average of 2d- and 3d ICON-data.

Possible variables for `$NAME_atm_2d_ml.nc` are:

(Surface Icon-data, default output-variables from AMIP-runs,
if WEBPAGE= 1 all variables must be available)

```
clivi   vertically integrated cloud ice
cllvi   vertically integrated cloud water
clt     total cloud cover
evspsbl evaporation
pr      total precipitation
prw     column water vapor
psl     sea level pressure
sfcwind 10m wind speed
tas     2 m temperature
tauu    zonal wind stress
tauv    meridional wind stress
ts      surface temperature

 hfls    latent heat flux
 hfss    sensible heat flux
 rlds    LW down surface
 rldscs  LW down surface clear sky
 rlus    LW up surface
 rlut    TOA Outgoing longwave radiation
 rlutcs  TOA Outgoing longwave radiation clear sky
 rsds    SW down surface
 rsdscs  SW down surface clear sky
 rsdt    top incoming SW radiation
 rsus    SW up  surface
 rsuscs  SW up  surface clear sky
 rsut    TOA outgoing SW radiation
 rsutcs  TOA outgoing SW radiation clear sky
```

Possible variables for `$NAME_atm_3d_ml.nc` are:

(atmosphere 3d ICON-data, default output-variables from AMIP-runs,
if WEBPAGE= 1 all variables must be available)

```
  cl  cloud cover
  cli cloud ice
  clw cloud water
  hus specific humidity
  hur relative humidity
  ta  temperature
  ua  zonal wind
  va  meridional wind
  psi computed from va with cdo-function mastrfu
  zg  geopotential height
```

Please adjust the following variables in the script:

```
 ATM_3d= 1 plot of atmosphere data

         interpolation from model level to pressure level
         does this programme automatically

         zonal mean (linear) pressure levels (17) in hPa:
              1000,925,850,775,700,600,500,400,300,250,
              200,150,100,70,50,30,10
         zonal mean (logarithmic) pressure levels (47)in hPa:
             100900,99500,97100,93900,90200,86100,81700,77200,
             72500,67900,63300,58800,54300,49900,45700,41600,
             37700,33900,30402,27015,23833,20867,18116,15578,
             13239,11066,9102,7406,5964,4752,3743,2914,2235,
             1685,1245,901,637,440,296,193,122,74,43,23,11,4,1
         lat/lon: ta 850 hPa, zg 500hPa

 ATM_2d= 1 plot of surface data

 SINGLE=1 each plot is saved as png

 PAGE=1 all plots saved in pdf-files

($EXP_atm_2d_$TYP_map.pdf,$EXP_atm_2d_$TYP_fluxes_CERES.pdf,
 $EXP_atm_2d_$TYP_fluxes.pdf, $EXP_atm_3d_$TYP_linp.pdf,
 $EXP_atm_3d_$TYP_logp.pdf, $EXP_atm_3d_$TYP_map.pdf)
   all variables must be available in $NAME_atm_2d_ml.nc
   and in $NAME_atm_3d_ml.nc

 TAB= 1 Table of Surface-Fieldmeans

 NAME= XXX name of ICON-data files
      (XXX_atm_2d_ml.nc and XXX_atm_3d_ml.nc)

 DATDIR= directory for ICON data
         $NAME_atm_2d_ml.nc and $NAME_atm_3d_ml.nc

 EXP= experiment id,
      appears in the caption of the plots

 YY1= start date of the ICON-data files,
      appears in the caption of the plots
 YY2= end date of the ICON-data files,
      appears in the caption of the plots

 TYP= average to compare with ERA5(1979-2019) and
      CERES (2001-2016)
     ANN(annual), DJF(dec-feb), MAM(mar-may), JJA(jul-aug),
     SON(sep-nov), JAN ... DEC

 GrdInfoFile= name of the ICON-data grid file
```

```
WORKDIR= working directory
```

Default variables in the script:

```
MODELDIR= model directory (default:
          /pool/data/ICON/post/QuickPlots_1x1_1.4.0.0/
          all requierd scripts in
          $MODELDIR/scripts/postprocessing/amip_quickplots/

ERA5 (time frame: 1979-2019)
      default: same time frame as data files
ERAystrt=$YY1
ERAylast=$YY2

WEBPAGE= 1 Quickplots will be available through
           a web-interface (default)
WEBPAGE= 0 no web-interface, only then it is possible to make a
           selection of TAB, ATM_2d, ATM_3d, SINGLE and PAGE
```

Annotation: All paths must be specified as absolute paths.