

## Difference Quickplots for ICON

This tool is developed to get a quick overview between two ICON experiments.  
(AEXP – BEXP)

The Plots are developed for AMIP-runs.

If you need a special edition please write an email  
([renate.brokopf@mpimet.mpg.de](mailto:renate.brokopf@mpimet.mpg.de)).

For the plots all ICON-data 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.

You can see an example in the Swiftbrowser:

[https://swift.dkrz.de/v1/dkrz\\_cc566461dff84e59964ced89d96324d8/Experimente/jsr1001\\_mag0230\\_ANN/index.html](https://swift.dkrz.de/v1/dkrz_cc566461dff84e59964ced89d96324d8/Experimente/jsr1001_mag0230_ANN/index.html)

The Difference-Quickplots-Programme can be found in

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

Please copy `DiffQuickPlots.sh` and  
for higher Grid resolution `DiffQuickPlots.job`.

Adjust the job and start it on mistral with

```
./DiffQuickPlots.sh          or with  
sbatch DiffQuickPlots.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 files must be a one-timestep average of 2d- and 3d ICON-data.

Possible variables for `$ANAME_atm_2d_ml.nc`

`$BNAME_atm_2d_ml.nc` are:

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

<code>clivi</code>	vertically integrated cloud ice
<code>cllvi</code>	vertically integrated cloud water
<code>clt</code>	total cloud cover
<code>evspsbl</code>	evaporation
<code>pr</code>	total precipitation
<code>prw</code>	column water vapor
<code>psl</code>	sea level pressure
<code>sfcwind</code>	10m wind speed
<code>tas</code>	2 m temperature
<code>tauu</code>	zonal wind stress
<code>tauv</code>	meridional wind stress
<code>ts</code>	surface temperature
<code>hfls</code>	latent heat flux
<code>hfss</code>	sensible heat flux
<code>rlds</code>	LW down surface
<code>rldscs</code>	LW down surface clear sky
<code>rlus</code>	LW up surface
<code>rlut</code>	TOA Outgoing longwave radiation
<code>rlutcs</code>	TOA Outgoing longwave radiation clear sky
<code>rsds</code>	SW down surface
<code>rsdscs</code>	SW down surface clear sky
<code>rsdt</code>	top incoming SW radiation
<code>rsus</code>	SW up surface
<code>rsuscs</code>	SW up surface clear sky
<code>rsut</code>	TOA outgoing SW radiation
<code>rsutcs</code>	TOA outgoing SW radiation clear sky

Possible variables for `$ANAME_atm_3d_ml.nc`

`$BNAME_atm_3d_ml.nc` are:

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

<code>cl</code>	cloud cover
<code>cli</code>	cloud ice
<code>clw</code>	cloud water
<code>hus</code>	specific humidity
<code>hur</code>	relative humidity
<code>ta</code>	temperature
<code>ua</code>	zonal wind
<code>va</code>	meridional wind
<code>zg</code>	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

(\$AEXP\_atm\_2d\_\$TYP\_fluxes.pdf,  
\$AEXP\_\$BEXP\_atm\_2d\_\$TYP\_fluxes.pdf,  
\$AEXP\_\$BEXP\_atm\_2d\_\$TYP\_map.pdf,  
\$AEXP\_\$BEXP\_atm\_3d\_\$TYP\_linp.pdf,  
\$AEXP\_\$BEXP\_atm\_3d\_\$TYP\_logp.pdf,  
\$AEXP\_\$BEXP\_atm2\_\$TYP\_map.pdf)  
all variables must be available in  
\$ANAME\_atm\_2d\_ml.nc, \$BNAME\_atm\_2d\_ml.nc,  
\$ANAME\_atm\_3d\_ml.nc and \$BNAME\_atm\_3d\_ml.nc)

ANAME= XXX name of ICON-data files

BNAME= XXX name of ICON-data files

(XXX\_atm\_2d\_ml.nc and XXX\_atm\_3d\_ml.nc)

ADIR= directory for ICON data

\$ANAME\_atm\_2d\_ml.nc and \$ANAME\_atm\_3d\_ml.nc

BDIR= directory for ICON data

\$BNAME\_atm\_2d\_ml.nc and \$BNAME\_atm\_3d\_ml.nc

AEXP= experiment id,

BEXP= experiment id,

appears in the caption of the plots

AYY1= start date of the ICON-data files,

AYY2= end date of the ICON-data files,

BYY1= start date of the ICON-data files,

BYY2= end date of the ICON-data files,

appears in the caption of the plots

TYP= average  
ANN(annual), DJF(dec-feb), MAM(mar-may), JJA(jul-aug),  
SON(sep-nov), JAN ... DEC

AGrdInfoFile= name of the ICON-data grid file  
BGrdInfoFile= 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/

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 ATM\_2d, ATM\_3d, SINGLE and PAGE

**Annotation:** All paths must be specified as absolute paths.