

Exercises “Working with ICON”

Exercise 2

Problem 6

Generate the run scripts for the experiments `atm_amip_test` and `atm_amip`. Look into the resulting runscript of the `atm_amip_test` experiment and answer the following questions:

- (i) Which non-empty namelists are written into the file `NAMELIST_atm_amip_test_atm`?
- (ii) When does the experiment start, when does it stop? Will a restart be performed in between and if so, when?
- (iii) Which output files will be generated, what is the frequency of the output?
- (iv) How many tracers are defined, what is the model integration time step?
- (v) Which parameterized physics processes are switched on, give the frequency at which they are calculated.

Problem 7

Perform a simulation of the `atm_amip_test` experiment and rename the folder `~icon/experiments/atm_amip_test` by `~icon/experiments/atm_amip_test_save`. In `exp.atm_amip_test.run`, add the following SLURM submission options:

```
#SBATCH --account=mh1049
#SBATCH --qos=mh1049
```

Problem 8

Modify the `atm_amip_test` experiment such that the output grid for the atmospheric output files is a regular grid with $n_{\text{lon}} = 192$, $n_{\text{lat}} = 96$ points and $\lambda_{\text{min}} = 0^\circ \text{ E}$, $\lambda_{\text{max}} = 358.125^\circ \text{ E}$ with a spacing $\Delta\lambda = 1.875^\circ$, $\phi_{\text{min}} = -89.0625^\circ$, $\phi_{\text{max}} = +89.0625^\circ$ with a spacing of $\Delta\phi = 1.875^\circ$.

Use `ncview` to look at your results. `ncview` is available after execution of the command `module load ncview`.

Problem 9

Perform a three-month amip simulation using the `atm_amip` experiment. Interpolate the output onto the regular grid of Problem 8. What is the integration time step in that case? In `exp.atm_amip.run`, modify and set the following SLURM submission options:

```
#SBATCH --nodes=8
#SBATCH --ntasks-per-node=24
#SBATCH --time=00:60:00
```