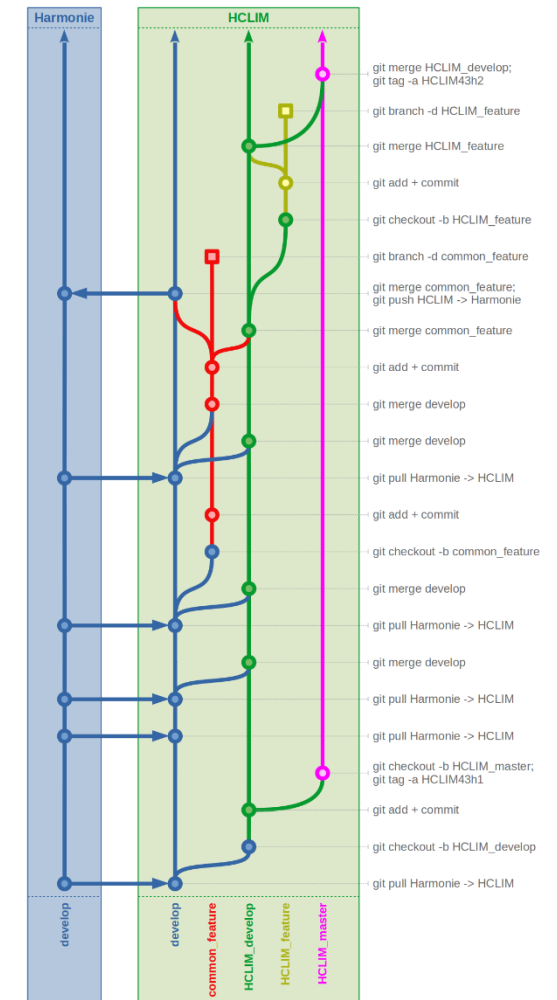




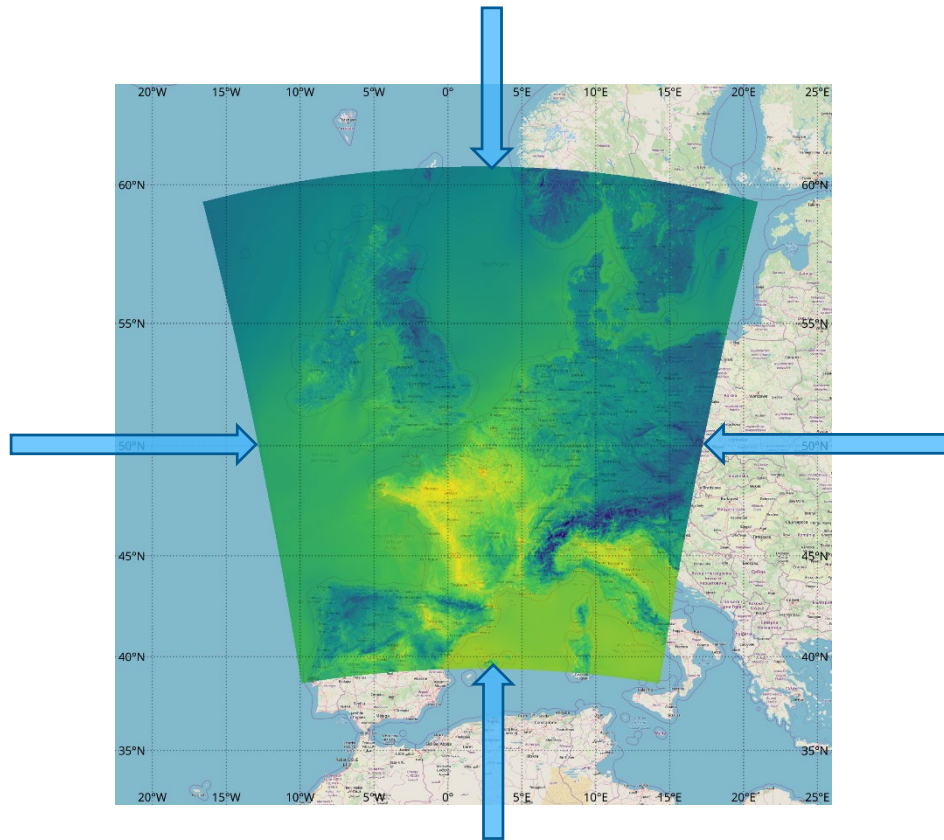
HARMONIE-climate System developments & plans

HCLIM38 --> HCLIM43

- > Build on Samuel's HCLIM43 work
- > HCLIM git repo, coupled to Harmonie (NWP)
- > HCLIM-AROME works
- > HCLIM-ALARO/ALADIN not
- > Copy HCLIM38 features
- > Stable version? --> Evaluation runs



Future projections: CMIP5/6 GCM support



- > ESGF nodes
- > netCDF per variable
- > EC-Earth, GFDL-CM3
- > --> ERA-like grib per DTG
- > Soil N/A: ERA & spinup

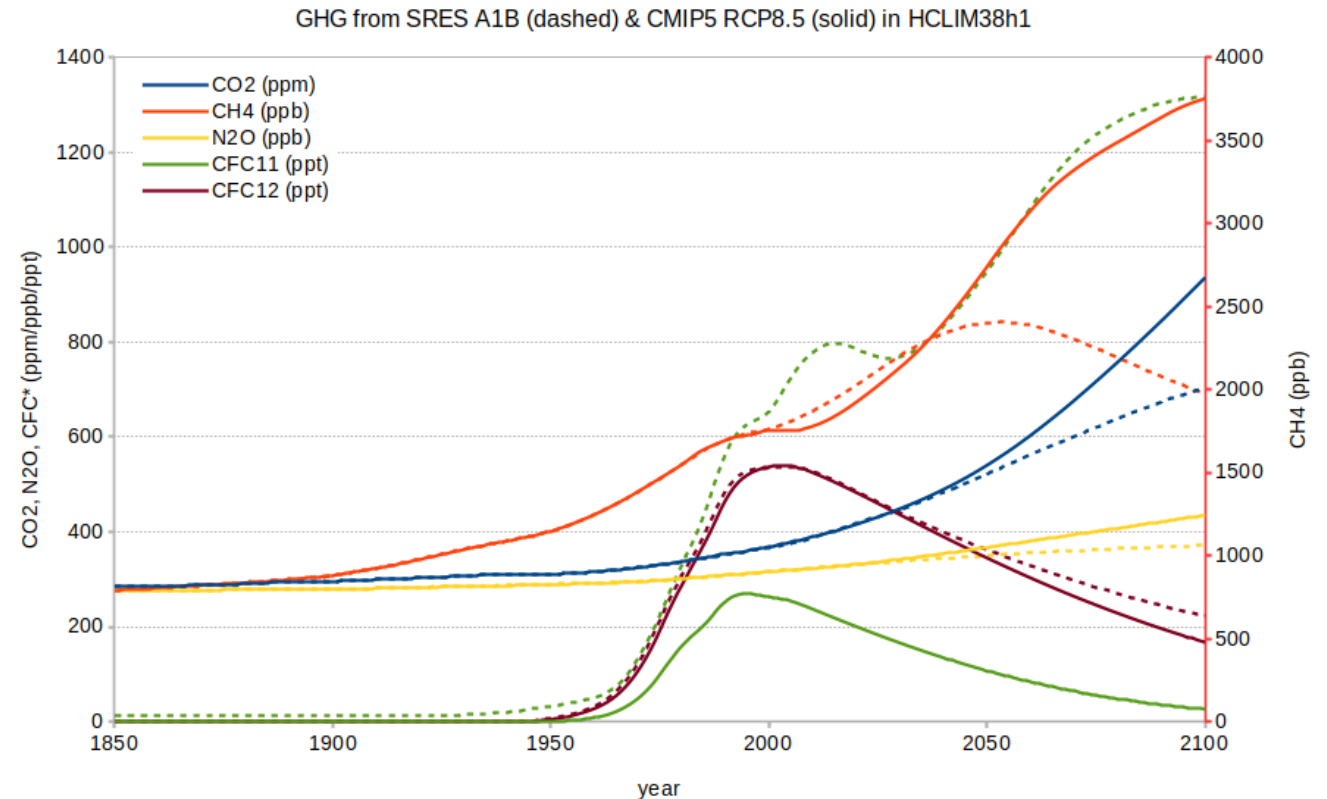
- > More models
- > Store in ECFS
- > 360day / no leap

Future projections: greenhouse gases

- > SRES (TAR & AR4)
- > RCP (AR5) --> CMIP5 models
- > SSP (AR6) --> CMIP6 models

- > HCLIM38: hardcoded
- > HCLIM43: external files

- > Aerosol: ?



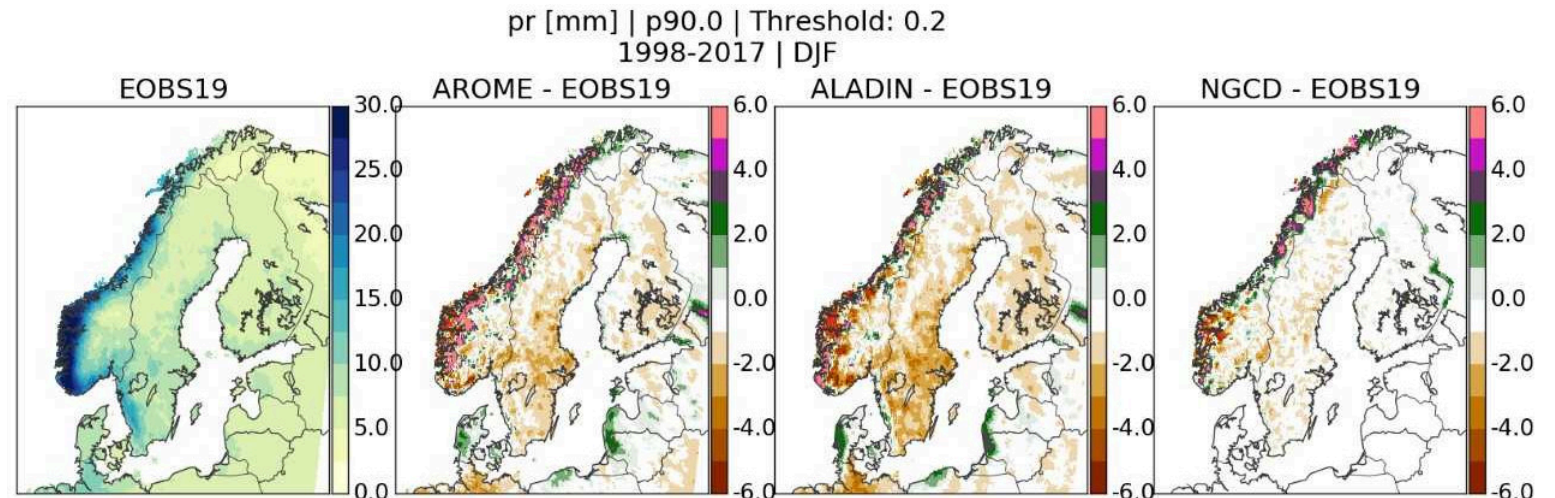
Output: project compliant netCDF

- > gl: FA --> netCDF
- > Project specific output: CORDEX
 - Variable list
 - Names
 - De-rotate, de-accumulate fields
 - Units
 - Metadata
- > QA-DKRZ checker?



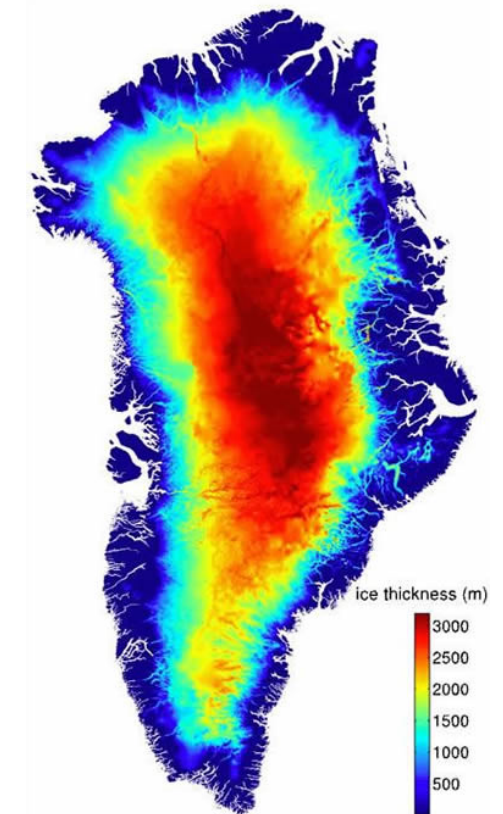
Output: RCAT analysis package

- > 1 var hourly for 10yr \approx 150GB
- > Python, modular, parallel
- > Statistics --> netCDF
- > Plots
- > Runs at SMHI/NSC
- > Module conflicts
- > Documentation

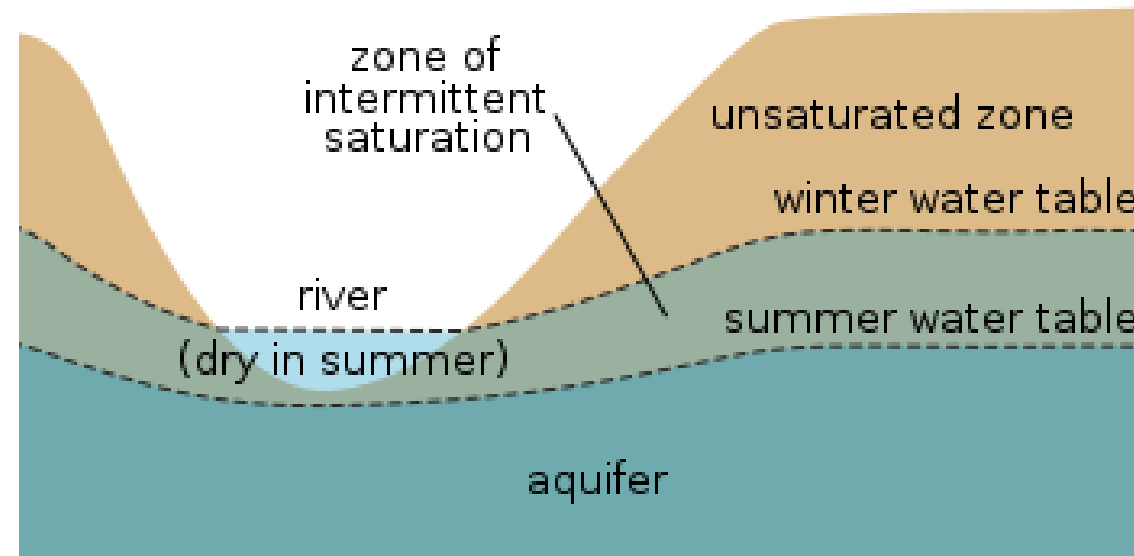


Polar regions

- > Climate run over Greenland
 - HCLIM-ALADIN
 - Regional HCLIM-AROME
- > Compare with CARRA
- > Improve model (SURFEX)
- > Learn from CARRA, other (polar) RCMs



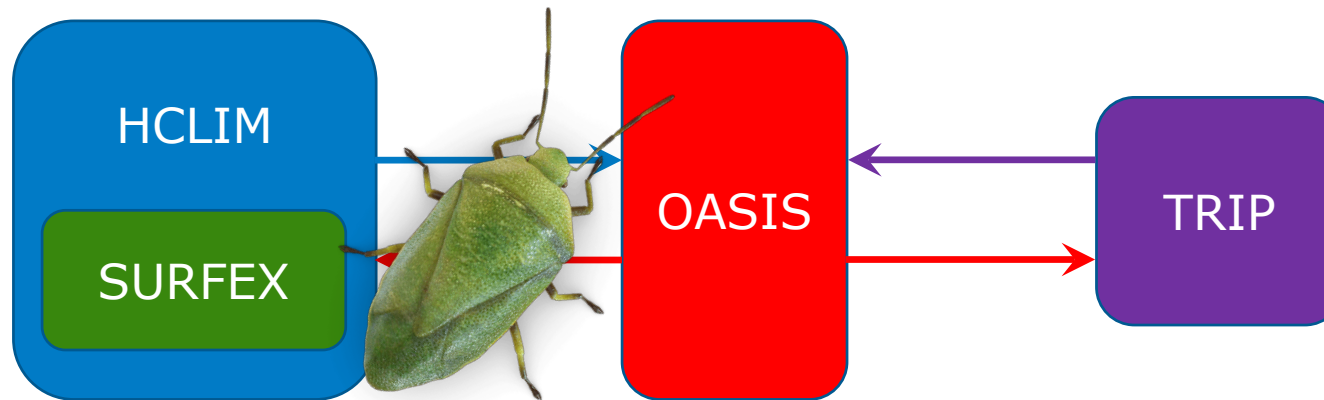
Water table parametrization



- > Groundwater affects soil moisture
- > When shallow affects surface fluxes
- > --> Could prevent drying of soil in summer

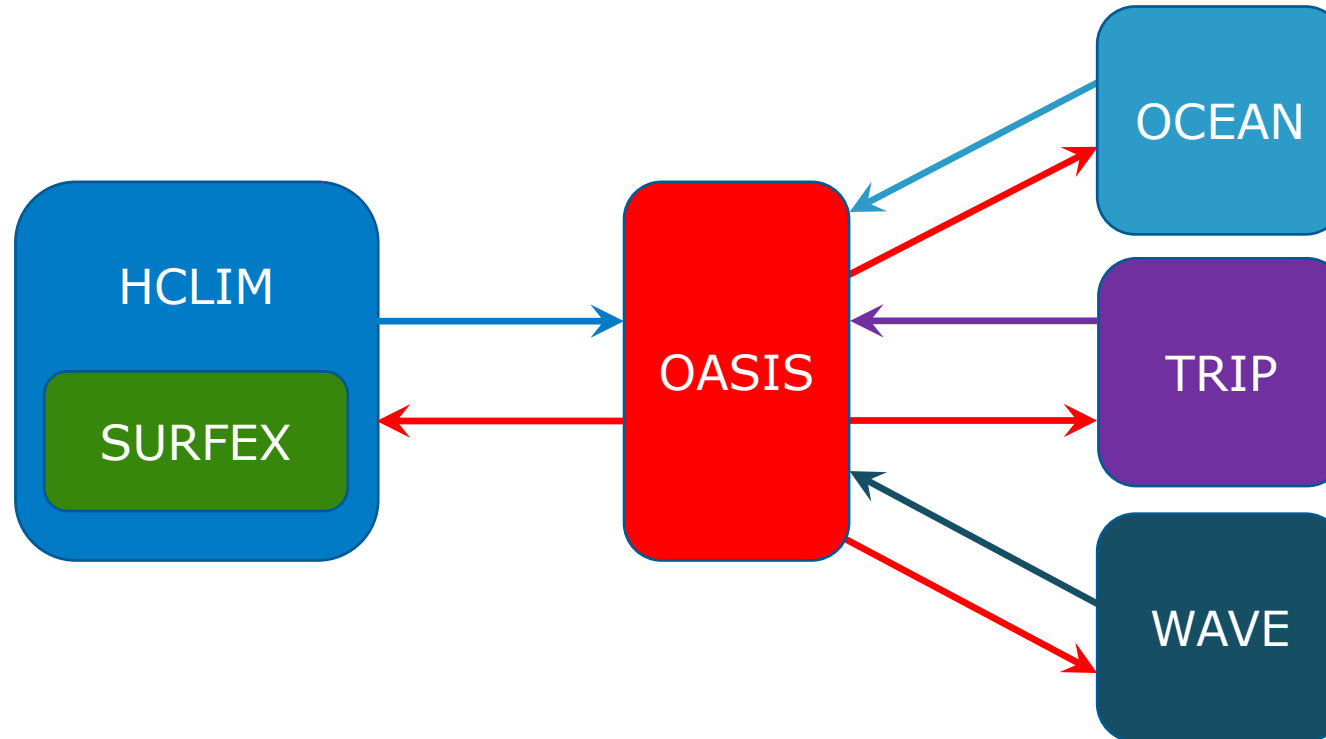
Water table parametrization

- > Coupling HCLIM to TRIP



- > Evaluation runs
- > ISBA-DIF + LEAFHYDRO || HYPE

Coupling to ESM components





Questions?