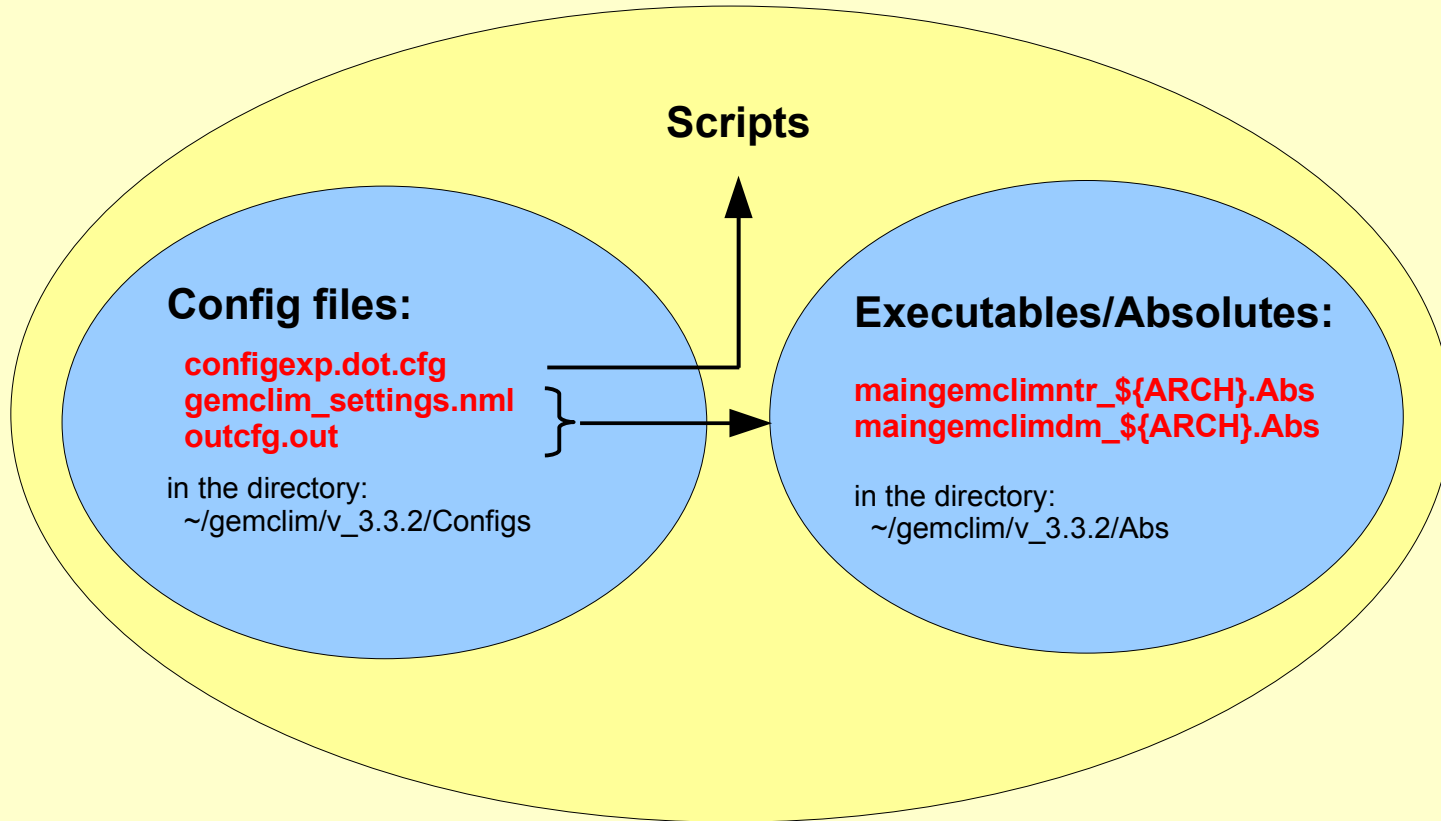


CRCM5

Katja Winger, UQAM
with contributions from Bernard Dugas, RPN
UQAM, 28. Jan. 2010



Scripts

Config files:

`configexp.dot.cfg`
`gemclim_settings.nml`
`outcfg.out`

in the directory:
~/gemclim/v_3.3.2/Configs

Executables/Absolutes:

`maingemclimntr_${ARCH}.Abs`
`maingemclimdm_${ARCH}.Abs`

in the directory:
~/gemclim/v_3.3.2/Abs

Executables

can be same for several simulations

Entry

- always runs on **1 cpu**
- usually fairly short job (in comparison to the model jobs)
- **prepares** for the model
 - the geophysical fields
 - the initial conditions
 - the pilot files (only LAM)
- for global grid (uniform or stretched) only run at the very beginning of the run
- in LAM mode the entry is run at the beginning of each month (to create that month's pilot files).

Model

- contains the **dynamics** and the **physics**
- can be run parallel on **multiple cpu's** with MPI and/or OpenMP (OpenMP not yet on marvin).

Config files

usually different for each simulation

configexp.dot.cfg

This file controls the name of the simulation, where to send the batch run, how much cpu time allowed, which period to run, which absolutes to use, which input files to use, which post processing to do, where to place the model output, etc.

Read only by **scripts**

gemclim_settings.nml

This file contains all the namelists to control the grid and the different schemes and parameters for the entry program (gemclimntr) and the main program (gemclimdm).

Read partly by **entry** and **model**

outcfg.out

This file controls the RPN standard file output. Such as frequency of output, which fields, at what levels, etc.

Read only by **model**

Input files

- **Geophysical fields**
(land/sea mask, orography, vegetation type and fraction soil types, etc.)
Always needs to **match your grid!**
- **Analysis or initial condition file**
Fields needed to initialize soil and atmospheric variables
Always needs to **match your start date!**
- **SST and Sea Ice** boundary conditions
- **Climatology** file
- **Ozone** file
AMIP2 ozone climatology (2-D: 61 latitudes and 59 levels)
- **Pilot files** (LAM mode only)
 - Reanalysis data i.e. from ECMWF (ERA40, ERA-Interim) or NCAR
 - Model output i.e. from CRCM5 or CGCM

Output

RPN standard format:

- "normal" 2-D and 3-D output
 - dp...** : **d**ynamics on **p**ressure level
 - dm...** : **d**ynamics on **m**odel levels
 - pm...** : **p**hysics on **m**odel levels
 - pp...** : **p**hysics on **p**ressure levels
- time series (station data)
- pilot files
- analysis files

Restart files

Copy of all dynamic and permanent physics fields

Archiving

On archiving machine in the archive directory:

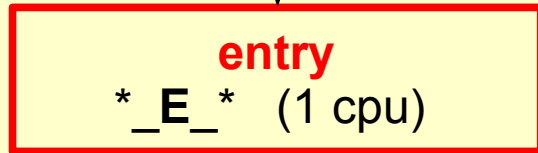
- Samples:** Original 2-/3-D model output; one subdirectory per month
- Timeseries:** Station time series; 1 RPN standard file per month
- Diagnostics:** Monthly diagnostics; 1 CMC-archive per month
- Pilots:** Monthly pilot files; 1 CMC-archive per month
- Analysis:** Analysis files; 1 RPN standard file per time step
- Restarts:** Restart files; 1 gzipped CMC-archive per job
- Listings:** Listings from all machines; 1 *.zip file per job
- Jobs:** At runtime created jobs/scripts; 1 *.zip file per job

CRCM5 flowchart

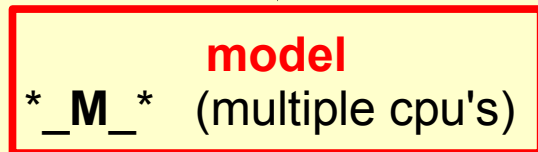
Model output flow

execute: launching script

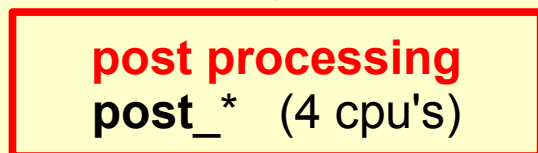
submits



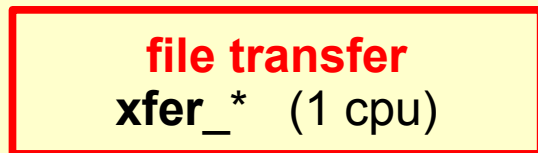
submits



submits



submits



listings

~/listing/headnode

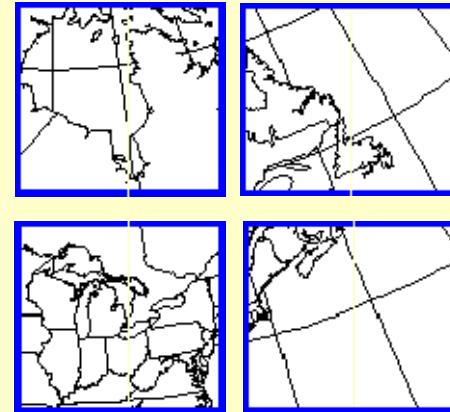
output per tile

input

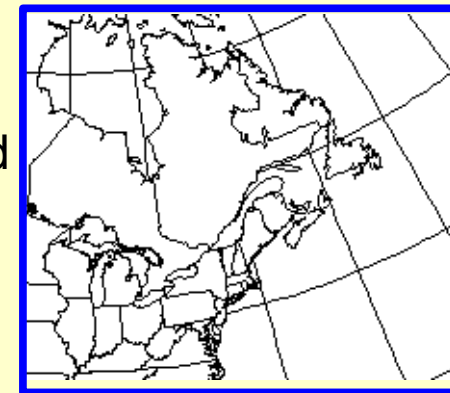
output whole field

input

output



in directory
\${CLIMAT_outrep}



in directory
\${CLIMAT_xfer}

Transfer of post processed
model output and listings to directory
\${CLIMAT_archdir} on
\${CLIMAT_arch_mach}