

## 1) 1<sup>st</sup> 150-yr simulation: 15 loops of 10 years (<=> 10 first years of the atmospheric forcing)

- copy-paste OOL\_SEC\_STO\_FG1trans => OOL\_SEC\_STO\_MICT\_ini
- in config.card: rename the JobName
- in PARAM/run.def: MICT options + ATM\_CO2 = 296.64ppm (i.e., 1901 level), RIVER\_ROUTING = n
- in COMP/orchidee\_ol.card: change the forcing files (by default: CRU-NCEP v5.3.2)
- in COMP/sechiba.card: VEGET\_UPDATE = 0Y, HARVEST\_AGR1=y; change the PFT map; put output\_level\_sechiba\_history = 6, output\_level\_sechiba\_history\_4dim = NONE
- in COMP/stomate.card: put output\_level\_stomate\_history = 5

At each step and for each config.card, launch the ins\_job script and adapt the number of processors

------(Fabienne's diagnostics to check C evolution)-----

## 2) Spinup simulation: 1 year ORCH + (1 year ORCH + 1 call forcesoil) x 10 loops + 1 year ORCH

- copy-paste SPINUP (no SPINUP\_ANALYTIC\_FG1) => SPINUP\_MICT
- in config.card: put the restarts from the 1<sup>st</sup> 150-yr simulation (from **step 1**), WriteFrequency="1Y" for SRF and SBG, RebuildFrequency = TimeSeriesFrequency = 10Y, PackFrequency = SeasonalFrequency = NONE
- in PARAM/run.def: copy-paste the run.def from the 1<sup>st</sup> 150-yr simulation (from **step 1**)
- in COMP/spinup.card: ok\_newhydrol=y, VEGET\_UPDATE = 0Y, HARVEST\_AGR1=y; put duree\_sechiba = 1, duree\_stomate = 0, n\_iter = 10, duree\_carbonsol = 10000, duree\_final = 1; change the forcing files
- in SUBJOB/FORCESOIL/:
  - in config.card: periodlength = WriteFrequency = 10000Y
  - in PARAM/run.def: TIME\_LENGTH = 10000Y
  - in COMP/stomate.driver: add ORCHIDEE\_def STOMATE\_CFORCING\_PF\_NM stomate\_Cforcing\_permafrost.nc
  - in COMP/stomate.card: add (\${config\_SBG\_RestartPath}/\${config\_SBG\_RestartJobName}/SBG/Restart/\${config\_SBG\_RestartJobName}\_\${Date\_Restarts}\_stomate\_Cforcing\_permafrost.nc, stomate\_Cforcing\_permafrost.nc)
- in SUBJOB/OOL\_SEC\_STO/:
  - in PARAM/run.def: copy-paste the run.def from the 1<sup>st</sup> 150-yr simulation (from **step 1**) and add FORCESOIL\_STEP\_PER\_YEAR=12
  - in COMP/orchidee\_ol.card: change the forcing file
  - in COMP/sechiba.card: NEWHYDROL=y, HARVEST\_AGR1=y; change the PFT map
  - in COMP/sechiba.driver: comment the 4 lines related to PFTmap in the IF loop sechiba\_UserChoices\_LAND\_USE and the line IGCM\_sys\_Mv -f PFTmap\_IPCC\_\${year\_p1}.nc PFTmap.nc
  - in COMP/stomate.driver: add ORCHIDEE\_def STOMATE\_CFORCING\_PF\_NM stomate\_Cforcing\_permafrost.nc; add IGCM\_sys\_Put\_Out stomate\_Cforcing\_permafrost.nc \${R\_OUT\_SBG\_R}/\${config\_UserChoices\_JobName}\_\${PeriodDateEnd}\_stomate\_Cforcing\_permafrost.nc

In the main job of the spinup, I had a problem with libIGCM and I had to change in the config.card: SPIN= ("", SPIN) into SPIN= ("", script\_SPIN.ksh)

In the run.def, I had to comment the options which were equal to \_AUTO\_ that were not recognized

------(Fabienne's diagnostics to check C evolution)-----

## 3) 2<sup>nd</sup> 150-yr simulation: 15 loops of 10 years (<=> 10 first years of the atmospheric forcing)

- copy-paste OOL\_SEC\_STO\_MICT\_ini (from **step 1**) => OOL\_SEC\_STO\_MICT\_afterspin
- in config.card: put the restarts from the spinup simulation (from **step 2**), rename the JobName and adjust the time begin/end

------(Fabienne's diagnostics to check C evolution)-----

## 4) Final simulation

- copy-paste OOL\_SEC\_STO\_FG2 => OOL\_SEC\_STO\_MICT
- in config.card: put the restarts from the 2<sup>nd</sup> 150-yr simulation (from **step 3**), rename the JobName, adjust the time begin/end, put PackFrequency = RebuildFrequency = TimeSeriesFrequency = SeasonalFrequency = 10Y
- in COMP/sechiba.card: HARVEST\_AGR1=y; change the PFT map (with \${year} for LCC)
- in COMP/orchidee\_ol.card: change the forcing files
- in PARAM/run.def: copy-paste the run.def of the 2<sup>nd</sup> 150-yr simulation (from **step 3**) but ATM\_CO2 should vary now (use the txt file), RIVER\_ROUTING = y (if needed)
- in COMP/stomate.card and sechiba.card: adjust the levels of your outputs