Spinup for C with MICT 6.5
Towards a default set-up of spinup for MICT ?

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

– copy/paste OOL_STO => OOL_STO_MICT_ini

– in config.card: add CyclicBegin and CyclicEnd and adjust the time begin/end; put PackFrequency = RebuildFrequency = TimeSeriesFrequency = SeasonalFrequency = 10Y, WriteFrequency="1Y" for SRF and SBG

– in PARAM/run.def: MICT options + ATM_CO2 = 296.64ppm (i.e., 1901 level), STOMATE_HISTLEVEL = 5 and SECHIBA_HISTLEVEL = 6

– in COMP/orchidee_ol.card: change the forcing files; replace ${Year} by ${CyclicYear}

– in COMP/sechiba.card: VEGET_UPDATE = 0Y, ROUTING = n, NEWHYDROL = y, OKCO2 = y, HARVEST_AGRI=y; change the PFT map

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

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

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)

– copy/paste SPINUP (no SPINUP_ANALYTIC) => SPINUP_MICT

– in config.card: put the restarts from the 150-yr simulation, WriteFrequency="1Y" for SRF and SBG, RebuildFrequency = TimeSeriesFrequency = 10Y, PackFrequency = SeasonalFrequency = NONE

– in PARAM/run.def: copy/paste the run.def from the 150-yr simulation

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

– in COMP/spinup.card: VEGET_UPDATE = 0Y, ROUTING = n, NEWHYDROL = y, OKCO2 = y, HARVEST_AGRI=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 150-yr simulation and add FORCESOIL_STEP_PER_YEAR=12

  • in COMP/orchidee_ol.card: change the forcing file

  • in COMP/sechiba.card: VEGET_UPDATE = 0Y, ROUTING = n, NEWHYDROL = y, OKCO2 = y, HARVEST_AGRI=y and 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

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

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

– copy/paste OOL_STO_MICT_ini (from the step 1) => OOL_SEC_STO_MICT_afterspin

– in config.card: put the restarts from the SPINUP simulation, adjust the time begin/end

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

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

4) Final simulation

– copy/paste OOL_SEC_STO => OOL_SEC_STO_MICT

– in config.card: put the restarts from the 2nd 150-yr simulation, adjust the time begin/end, put PackFrequency = RebuildFrequency = TimeSeriesFrequency = SeasonalFrequency = 10Y

– in COMP/sechiba.card: VEGET_UPDATE = 1Y, ROUTING = y, NEWHYDROL = y, OKCO2 = y, HARVEST_AGRI=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 2nd 150-yr simulation but ATM_CO2 varies now

– adjust the levels of your outputs in ioipslctrl.f90 (if not XIOS) + recompile

LSCE