
b40.lm850-1850.1deg.001

Contents:

- [Run Specifications](#)
 - [Run Checklist](#)
 - [Comments](#)
 - Status: completed
-

Run Specifications

=====
General Information
=====

Purpose of Run: CMIP5 (TIER1 CCSM4 Last Millennium 850-1850) Last Millennium simulation. Boundary conditions (trace gases, solar irradiance, Volcanic aerosols, Landcover/landuse change are per PMIP3 protocol.

Scientific Lead: Bette Otto-Bliesner

Software Engineering Lead: Laura Landrum

Assigned to: mai

Date: 2010-07-27

Run Length: 1001y

=====
Case Creation Information (all fields are required)
=====

CCSM tag: cesm1_0_beta05

Case Name: b40.lm850-1850.1deg.001

Machine: bluefire

Compset: B_1850-2000_CN

Resolution: f09_g16

=====
Pre-Configuration Information
=====

Runtype: hybrid

RUN_REFCASE = b40.850hf.1deg.001

RUN_REFDATE = 0953-01-01

env_conf.xml mods

```
-----  
xmlchange -file env_conf.xml -id RUN_TYPE -val hybrid  
xmlchange -file env_conf.xml -id RUN_STARTDATE -val 0850-01-01  
xmlchange -file env_conf.xml -id RUN_REFDATE -val 0953-01-01  
xmlchange -file env_conf.xml -id RUN_REFCASE -val b40.850hf.1deg.001  
xmlchange -file env_conf.xml -id CCSM_CO2_PPMV -val 279.265
```

env_mach_pes.xml mods

```

xmlchange -file env_mach_pes.xml -id NTASKS_CPL -val 160
xmlchange -file env_mach_pes.xml -id NTASKS_GLC -val 1
xmlchange -file env_mach_pes.xml -id NTASKS_LND -val 64
xmlchange -file env_mach_pes.xml -id NTASKS_ICE -val 160
xmlchange -file env_mach_pes.xml -id NTASKS_ATM -val 224
xmlchange -file env_mach_pes.xml -id NTASKS_OCN -val 32
xmlchange -file env_mach_pes.xml -id ROOTPE_LND -val 160
xmlchange -file env_mach_pes.xml -id ROOTPE_OCN -val 224
xmlchange -file env_mach_pes.xml -id NTHRDS_ATM -val 2
xmlchange -file env_mach_pes.xml -id NTHRDS_LND -val 2
xmlchange -file env_mach_pes.xml -id NTHRDS_ICE -val 2
xmlchange -file env_mach_pes.xml -id NTHRDS_OCN -val 2

```

```

=====
Post-Configuration Information
=====

```

```

env_run.xml:
  xmlchange -file env_run.xml -id DOUT_L_MS -val TRUE
  xmlchange -file env_run.xml -id DOUT_L_MSROOT -val '/CCSM/csm/$CASE'

```

```

Buildconf
-----

```

```
% vi Buildconf/cice.buildnml.csh
```

```

=====
SourceMods Information
=====

```

```
* [put any special SourceMods instructions here]
```

```

=====
Performance/Cost Estimates
=====

```

```
* 14.3 SYPD
```

```

=====
Special Instructions
=====

```

```

Landuse/landcover change files need to be updated every 250 simulation years.
Run 850 to January 1, 1100 with clm_inparm in clm.buildnml.csh:
  fpftdyn = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata.pftdyn_0.9x1.25_hist_simyr0850-1100_c100804.nc'
  fsurdat = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata_0.9x1.25_simyr0850_c100527.nc'
Stop on January 1, 1100. Change clm_inparm in clm.buildnml.csh:
  fpftdyn = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata.pftdyn_0.9x1.25_hist_simyr1100-1350_c100804.nc'
  fsurdat = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata_0.9x1.25_simyr1100_c100804.nc'
Run until January 1, 1350. Change clm_inparm in clm.buildnml.csh:
  fpftdyn = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata.pftdyn_0.9x1.25_hist_simyr1350-1600_c100804.nc'
  fsurdat = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata_0.9x1.25_simyr1350_c100804.nc'
Run until January 1, 1600. Change clm_inparm in clm.buildnml.csh:
  fpftdyn = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata.pftdyn_0.9x1.25_hist_simyr1600-1850_c100805.nc'
  fsurdat = '$DIN_LOC_ROOT/lnd/clm2/surfddata/surfddata_0.9x1.25_simyr1600_c100805.nc'

```

```

=====
Pre-Run Instructions
=====

```

```

* Run create_production_test

* Run debug smoke test

* Add NCAR Software Levels info to checklist

```

```

=====
Run Instructions

```

=====

Run Length: 1001 years

Account key: 93300417

Priority/Targeted queue: regular

Other:

=====

Diagnostics Plan

=====

* Run 30 years then do standard diagnostics; difference of 30-year averages every 200 years (1049, 1249, 1449, 1649, 1850) vs corresponding years from b40.1850.track1.1deg.006 control

=====

Additional Information

=====

* Major changes to cam.buildnml.csh include:

Adding atmospheric forcing file locations for solar irradiance (TSI),
greenhouse gases, volcanic aerosols:

```
solar_data_file = '$DIN_LOC_ROOT/atm/cam/solar/SOLAR_TSI_VK_Lean_849-2007_annual_c100806.nc'
prescribed_volcaero_file = 'IVI2LoadingLatHeight501-2000_L18_c20100518.nc'
bndtvghg = '$DIN_LOC_ROOT/atm/cam/ggas/ghg_pmip3_850-2007_annual_c100517.nc'
```

Changing ozone, aerosol interpolated, transient forcings to cyclical:

```
prescribed_ozone_file = 'ozone_1.9x2.5_L26_1850clim_c090420.nc'
prescribed_ozone_type = 'CYCLICAL'
prescribed_ozone_ymd = 18500101
prescribed_aero_type = 'CYCLICAL'
prescribed_aero_ymd = 18500101
prescribed_aero_file = 'aero_1.9x2.5_L26_1850clim_c090420.nc'
aerodep_flx_file = 'aerosoldep_monthly_1850_mean_1.9x2.5_c090421.nc'
aerodep_flx_type = 'CYCLICAL'
aerodep_flx_ymd = 18500101
```

Adding cam_inparm QREFHT to fincl2

Adding cam_inparms:

```
modc_sw_cdcore = 1
modc_hs_cdcore = .false.
modc_send_cdcore = .false.
modc_mxreq_cdcore = -1
modc_sw_dynrun = 1
modc_hs_dynrun = .false.
modc_send_dynrun = .false.
modc_mxreq_dynrun = -1
modc_sw_tracer = 1
modc_hs_tracer = .false.
modc_send_tracer = .false.
modc_mxreq_tracer = -1
modc_tracers = 3
modc_onetwo = 2
geopktrans=2
geopkblocks = 3
```

* We want to delete the CFC computation and output from the ocn (this was not done until 23 Aug 2010 10:40, model date 0925-01-01):

```
Delete the characters " cfc" from line 80 (OCN_TRACER_MODULES) of
/gpfs/proj2/fis/cgd/cseg/csm/runs/ccsm4_0/b40.lm850-1850.1deg.001/env_build.xml
Re-build and re-submit
```

[Setup Overview](#)

[CLM Forcing Files](#)

[Nanr Notes](#)

[Return to Top](#)

Run Checklist

Complete the following checklist prior to beginning the production run:

1. Update status file: /web/web-data/cseg/ccsm4_0_runs/b40.lm850-1850.1deg.001/status.html:

```

assigned
pending
running
completed
stopped

```

2. Document NCAR software levels at beginning of run (use the spinfo command on bluefire)

```

*****
NCAR SOFTWARE LEVELS: Thu Aug 12 20:47:15 MDT 2010.
*****
AIX:                bos.mp                5.3.10.1
CSM:                csm.core              1.7.1.4
LoadLeveler:       LoadL.full            3.5.1.3
GPFS:              gpfs.base             3.2.1.14
VSD:               rsct.vsd.vsd          4.1.0.23
POE:               ppe.poe               5.1.1.3
PESSL:             pessl.rte.smp         3.3.0.2
ESSL:              essl.rte.smp          4.4.0.1
FORTRAN:           xlfрте                12.1.0.7
PERL:              perl.rte              5.8.2.100
C:                 xlc.rte               10.1.0.3

```

3. Complete the following table, as necessary, showing the component liaison's name and the date the setup was approved.

Component	Liaison/ Reviewer	Date Approved
atm	hannay	08/19/2010
cpl	kauff	08/16/2010
ice	dbailey	08/16/2010
lnd	slevis, kluzek	08/11/2010
ocn	norton	08/05/2010
env_file settings	[mvertens,other]	----
data	strand-CAM	08/05/2010

4. Create_production_test completed mai 2010-08-11

5. Debug smoke test completed mai 2010-08-11

6. Performance review completed [who,when]

[Return to Top](#)

Comments

NOTE: 16aug10 (pers comm Erik Kluzek):

The griddata file used to create the surfdataset and the pftdyn file is not the same griddata file used in the transient experiment.

```
-- 1850 Control, b40.lm850-1850.1deg.001:
   /fis/cgd/cseg/csm/inputdata/lnd/clm2/griddata/griddata_0.9x1.25_070212.nc
-- LM Surface Dataset, pftdyn, and 850hf spinup:
   /fis/cgd/cseg/csm/inputdata/lnd/clm2/griddata/griddata_0.9x1.25_c070928.nc
```

However, to maintain consistency with the 1850 control, we used the griddata file used by that experiment (070212.nc). Differences between the two griddata files are roundoff level (10e-14) and within CLM tolerance for gridfile differences.

Notably, griddata differences are influential for the surface dataset, making it important to use the same griddata file to create the surface datasets. The inconsistency between griddata files should have RO level effect on the simulation.

Starting at 0925-01-01-00000 we recompiled without CN? to allow for quicker computation and smaller pop.h. history files. Performance improved from 13.1 SYPD to 14.2 SYPD.

Starting at 1200-01-01-00000 we changed the run script slightly at line 96:

```
mpirun.lsf /contrib/bin/ccsm_launch /contrib/bin/job_memusage.exe ./ccsm.exe >&! ccsm.log.$LID
```

became:

```
mpirun.lsf /contrib/bin/ccsm_launch /contrib/bin/job_memusage.exe ./ccsm.exe >&! ccsm.log.$LID
mpirun.lsf /contrib/bin/ccsm_launch /contrib/bin/job_memusage.exe ./ccsm.exe >>&! ccsm.log.$LID
mpirun.lsf /contrib/bin/ccsm_launch /contrib/bin/job_memusage.exe ./ccsm.exe >>&! ccsm.log.$LID
```

to allow us to get three years per job and still get the orbital correct for each year.

On 31 October 2010 and at model date 1600-01-01-00000 the above change to the run script was backed out because it was noticed that only the log files from the third run were saved. The log files from the first and second runs were apparently over-written, that of the first run by the second and that of the second run by the third. At this time we are still searching for a solution to this problem.

[Return to Top](#)