CLM4.0 Release planning

CLM4.0 Release Planning Checklist

Requirements

Science Requirements DONE

List of things we require to accomplish before the release happens.

- Ehthalpy not always conserved for snow combination DONE
- CNDV (on branch) DONE
- Problems with CNDV in tropics for temperate trees which get exploding LAI (fix from Sam) DONE
- New Megan VOC (DONE)
- Reduce CN output fields list and standardize fields such as NEE, NBP, NEP, FPSN, GPP, total-land-use-flux, total-fire-flux etc. (units consistent with C5MIP, make variable definitions obvious and understandable). DONE
- Regional script to create datasets from global datasets. DONE

Software Requirements DONE

- Develop users-guide. (Early version done)
- Document on error growth testing (DONE)
- Document how to do CO2 ramping in I cases (DONE)
- Document how to get in new finidat files (DONE)
- Add Important Notes about Best Practices for operation (use spunup files etc.) (DONE)
- Fix weights so that use surface dataset weights rather than weights from finidat files. DONE
- Use finidat files from ccsm4init DONE
- finidat files for 1-deg, 2-deg and T31, and fsurdat files for all standard resolutions DONE
- fsurdat files for half-degree DONE
- Driver namelist to write out history data as needed for spinup (DONE)
- Document CN spinup (DONE)
- Share subroutine in mksurfdata for pftdyn and standard. (DONE)
- Remove local build files/run-ibm.csh (DONE)

Things NOT required

Things that are NOT required for the release that may happen shortly afterwards.

- Move aerdep and ndep into datm8
- Work with CN-spinup so can use hourly data and so faster
- Special regional mode NOT requiring datasets
- Read ccsm cpl7 domain datasets in place of clm grid/frac datasets
- Check for NaNS on input/output
- Being able to use time-bounds on datm8 data rather than offsets
- coszen is on column level should be on grid level
- Add time-bounds to datm8 forcing data
- Speed up threading
- pft-physiology to netcdf (remove VCMAX)
- Speed up single-column
- Simpler scaling for solar for datm8
- Ability to ramp CO2 from datm easily
- Single-column mode read global finidat and restart
- Infrastructure change from Peter T. adds functionality for above and below ground BGC. (on branch)
- Support for CASA below ground
- Remove UNICOS stuff
- Add support for GFORTRAN/G95 (Reto)
- Remove *.h files
- Fix T62 mode (works with new data model)
- Support for urban single-point datasets (will be done in CESM release)

Use Cases (Science scenarios that MUST work and be well-tested)

- Resolutions:

– Global: T31_gx3v7, 2.65x3.33, f1.9, f0.9, f05 DONE
– Urban Single-point: brazil, 5x5, tropicAtl test DONE
– Urban Single-point: Mexico-City, Vancouver, urbanc_alpha (for CESM release)
– Pts_mode:

- Configurations:

– CN and non-CN [CLM4 with SP (Satellite phenology) CLM4 with BGC (Carbon/Nitrogen)] DONE
– Carbon only CN (in-house science for Gordon/Sam) (although too productive, some changes needed in CESM release to make it usable).
– CN spinup using CCSM output
– CPLHIST atm input data

Run-time:

- Transient pftdyn, but also ability to turn off transients for: CO2, pftdyn, aerdepdyn, and ndepdyn

Known bugs

Known bugs that we will release clm with...

- COLS and PFTS averaging aborts
- build-namelist list options require config_cache file
- Problems with CN spinup
- Problems with usrdat (Sean)
- Soil color problem when changing soil colors (bug 452)
- Issues with fine mesh
- Leapyear problem
- interpinic will NOT work with CNDV mode
- Y10K problem
- Problems creating 0.1 degree surface datasets
- Restart issues with PTS_MODE and reading global finidat files
- Problems running with Lahey
- Energy of grid cell for transient isn't quite accurate
- VOC input raw data file has reverse coordinates and hence looks incorrect
- Restart problems using CCSM spinup data
- Problems doing restart over year boundary with transient and CN
- Problems with urban single-point datasets because need new datasets: mexicocityMEX, vancouverCAN, urban_calpha.
- Qtr degree and T85 won't work either because need new surfdata.
- Carbon only model (supln) is too productive (will be fixed in CESM release)

Alpha Release (Jan 15th)

Checklist

List of things to do leading up to the releases on Jan 15th/2010, April 1/2010 and June/1/2010.

Checklist of things TO DO for alpha release Jan/15th/2010

- Update/finalize single-point mode documentation
- Validate use of user datasets
- Run regression testing on release version - fix any problems
- Run testing on: bluefire, jaguar, intrepid, breeze, coral, edinburgh (lahey,ifort,pgi): DONE (bluefire) WONT DO (dublin/lahey)

Checklist of things DONE or WONTDO for alpha release Jan/15th/2010

- Add in f4x5_gx3v7 DONE
- Work on compset names for consistency, usage, support DONE
- Review code documentation for high level subroutines: lnd_comp, clm_comp, clm_initializeMod, clmtype, clm_driver, histFileMod, histFldsMod, controlMod. DONE
- Develop outline of Users-Guide in docbook. DONE
- Verify log output from clm is useful/correct. WONT DO
- Make sure documentation in xml files in the bld directory is correct/complete DONE
- Make sure xml documentation displays well on the web with xsl files. DONE
- Identify use-cases, communities, and compilers that we want to work/support for release: (single-point mode, regional mode, regional/single-point with input from tower sites, global I-case at standard resolutions, global I-case at non-standard, 20thC_transient, 1850_control, 2000_control, BGC=CN,none,CNDV, B and F cases), CN-spinup: DONE
- Go through and update all README/Quickstart documents DONE
- Update CopyRight WONTDO
- Move top level README Quickstart files to clm doc directory, and put a README file at top level to point to them. DONE
- Develop list of major changes since clm3.5 public release. DONE
- Add note about CASA and C13 has NOT being validated and will NOT be supported and scientifically documented. Current VOC version is old version same one documented in the old CLM3.0 tech-note. MEGAN version will be upcoming in the official CLM4 public release. DONE

Checklist of things TO DO for main release April 1/2010

- Make sure list of tests done make sense, correctly divided out among machines and all tests are in the regression tests.

Checklist of things DONE or WONT DO for CCSM4.0 release

- Make sure testing documentation is good. DONE
- Run regression testing on release version - fix any problems WONTDO
- Test out being able to run model at remote site from svn guest download and datasets. WONTDO
- Update/finalize UG single-point/regional documentation. DONE
- Update documentation on all of the clm tools DONE
- Run each of the tools – ensure results correct and easy to use. Also make sure input datasets to the tools are up to date. DONE
- Validate use of user datasets DONE
- Make sure all known problems are documented well in KnownProblems and in Users-Guide (urban single-point, qtr-deg, restart issues, etc.) DONE
- Run Protex on code to produce auto-doc DONE
- Review clm cpl7 scripts documentation make sure is useful well-written. (DONE)
- Develop Users-Guide (DONE)
- Update CopyRight WONTDO
- Go through and update all README/Quickstart documents DONE
- Make sure documentation in xml files in the bld directory is correct/complete DONE
- Make sure xml documentation displays well on the web with xsl files. DONE
- Remove tools NOT needed (DONE)
- Develop list of major changes since clm3.5 public release. (DONE)
- Decide what to do with old clm documentation: Dev, UsersGuide, CodeReference - Delete – DONE

Checklist of things to do for CESM1.0 release

- Have our group review cpl7 documentation.
- Make any updates needed to cpl7 scripts documentation.
- Remove TCX_REMOVE_SEE_NOTES_ABOVE (bug 901)
- Check that endrun statements are useful and easily understood
- Make sure all write statements write to iulog, and properly have if (masterproc)
- Verify log output from clm is useful/correct
- Evaluate CPP tokens and namelist input items – make sure needed.
- Review code documentation for high level subroutines: lnd_comp, clm_comp, clm_initializeMod, clmtype, clm_driver, histFileMod, histFldsMod, controlMod.
- Update code documentation for high level subroutines.
- Briefly review code documentation for everything else – update as needed.

Checklist of things WONT DO for CESM1 release

- Improve usage of xmlchange script.
- Update/finalize CLM Developers Guide?
- Make sure developers guide is followed?

- Use or remove clm/src/main/system_messages.F90
- Remove scam_setlatlonidx – use csm_share equivalent
- Convert protec to Doxygen comments
- Update testing to use new cprnc
- Move CROP to trunk

Checklist of things DONE for CESM1 release

- Move Glacier Multiple Elevation classes to trunk

Machines to require working on for all resolutions and configurations

List of machines that should be extensively tested and validated for all resolutions and configurations of clm.

- bluefire
- jaguar
- jaguarpf
- edinburgh_pgi
- edinburgh_ifort
- edinburgh_gfortran

Machines that may work (or not)

These machines will have support in the cpl7 scripts – but may or may NOT work, and won't be extensively tested (intrepid and kraken are the only one that Erik has access to).

- edinburgh_lahey (currently doesn't work because of datm8)

- intrepid ** (make sure at least compiles and runs)
- kraken **
- coral **
- atlas
- columbia
- franklin
- midnight

- nyblue
- ranger
- schirra
- surveyor
- generic (make sure generic script option works for some local machines)

** Machines that Erik has access to.

Code to disable/remove?

- CASA (leave in, but NOT supported – document about limited support) (DONE)

Develop Users Guide

- Develop list of people who will work on (slevis, erik) / review (oleson, dlawren, lawrence, swensosc, efischer, bonan, eholland, julial, gochis) DONE
- Decide document format to use (DocBook convert to both HTML and PDF) DONE
- Figure out how it will link with the: protex, scripts, and xml documentation. DONE
- Develop outline of chapters: (Changes from clm3.5, Quickstart, using ccsm scripts for clm, clm compsets, using datm8 for clm, clm namelists, Spin-up of CN, changing the model) DONE
- Develop each chapter DONE
- Review panel reviews each chapter DONE
- Update document
- Final review/update