Swift version of the CESM Land Diagnostic Package

This version allows you to make the same diagnostic plots using the task-parallel Swift system.
Task-parallelism should reduce the total time needed to produce the plots.
Currently the swift version is supported only on the NWSC Geyser cluster.

Development of this version was sponsored by the Office of Biological and Environmental Research of the U.S. Department of Energy's Office of Science.

Installation:

1. Follow the instructions for installing the regular land diagnostic package.
(In short, you will need installations of NCL, NCO and the "convert" tool from ImageMagick and the latest version of the land diagnostic package). If you are running on geyser, you will not need to install the package and all of the support tools. Instead, complete the following steps and then proceed to step 2.

   A. mkdir /glade/u/home/$YOUR_USER_NAME/lnd_diag
   B. mkdir /glade/u/home/$YOUR_USER_NAME/lnd_diag/run
   C. cd /glade/u/home/$YOUR_USER_NAME/lnd_diag/run
   D. cp /glade/p/cesm/lmwg/diag/lnd_diag4.2/lnd_template4.2.XX.csh . , where XX is the latest version of this script

2. You will need the Swift executable in your path. E.g., in your .tcshrc:
setenv PATH /glade/u/home/mickelso/swift/swift-0.94.1-RC1/bin/:$PATH
See http://www.ci.uchicago.edu/swift/wwwdev/downloads/index.php.
Swift requires a current version of Java.

3. From the local land diag installation at /glade/p/cesm/lmwg/diag/lnd_diag4.2, copy the following files from swift/swift_configs/geyser to your run directory (where your lnd_template4.2.XX.csh is located, e.g., /glade/u/home/$YOUR_USER_NAME/lnd_diag/run):
sites.xml
fs.data
cf.properties
tc.data
Also, from the top level directory of the local land diag installation at /glade/p/cesm/lmwg/diag/lnd_diag4.2, copy the files lnd_diag.swift and regrid_history.swift to your run directory.

4. Create a directory for storing temporary files Swift creates while processing the diag script. This should be in a large scratch space you have access to (e.g., /glade/scratch/$YOUR_USER_NAME/ANALYSIS/swift_scratch).

Configuration

1. To turn the swift option on, edit the lnd_template4.2.XX.csh script and set "use_swift" to 1.

2. Edit the lnd_template4.2.XX.csh script and change “swift_scratch_dir” to be the full path of the directory you created in step 4 above (e.g., /glade/scratch/$YOUR_USER_NAME/ANALYSIS/swift_scratch).

3. Edit the lnd_template4.2.XX.csh script and change “RUNDIR” to the location of the lnd_template4.2.XX.csh script and the swift configuration files (e.g., /glade/u/home/$YOUR_USER_NAME/lnd_diag/run).

4. Edit the sites.xml file and change “workdirectory” to your swift_scratch directory (e.g., /glade/scratch/$YOUR_USER_NAME/ANALYSIS/swift_scratch). You must put in your actual “user name” here, not an environment variable.

5. Edit the tc.data file and fix the paths of any executables that are not correct (in column 3). Several of these files are located in the swift/swift_utils directory of your local land diag installation. If you are running on geyser and using the standard land diag installation (i.e., /glade/p/cesm/lmwg/diag/lnd_diag4.2), you shouldn’t need to change this file.

Running:

Run this version from the command line just like the original package (e.g., ./lnd_template4.2.XX.csh >&! lnd_template4.2.XX.out &).

Further Information:

Most error messages can be found in the last several lines of $swift_scratch_dir/lnd_diag-*.log file.
If you need help with the package, to report bugs, or have any suggestions, please contact Sheri Mickelson (mickelso@mcs.anl.gov).

tc.data is a list of all the executables Swift will need to execute the diagnostic package.

To learn about other options for the sites.xml file, see http://www.ci.uchicago.edu/swift/guides/release-0.92/userguide/sitecatalog.php.

See also the ParVis website for more information:
http://trac.mcs.anl.gov/projects/parvis/wiki/SwiftWork/SwiftAtm

HISTORY

Date:	May 2015
LMWG diag version	lnd_diag4.2.29
Author:	Keith Oleson (NCAR)

Date:	June 2013
LMWG diag version	lnd_diag4.2.14
Author:	Sheri Mickelson (Argonne National Laboratory), Keith Oleson (NCAR)

Date:	March 2013
LMWG diag version	lnd_diag4.2.08

Author: Sheri Mickelson (Argonne National Laboratory), Keith Oleson (NCAR)

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Author: Sheri Mickelson (Argonne National Laboratory)