New workflow for processing daymet data for use with LPJ-GUESS

Steps completed by Katie, December 2015

NOTES:

* If simply extracting data for a new region: start with step 6
* If adding data for a new year:
  + start by changing the year range in scripts 1, 2, & 4 and run those
  + change end year in script 5 and run that

STEPS and SCRIPTS:

1. run1-getdaymetmosaics.sh
   1. Downloads the mosaicked data for the entire US
   2. took ~ 6 hours on hyalite
2. run2-makemonthly-CDO.sh
   1. Converts data from daily to monthly. Two parts:
      1. calculates the monthly mean for all variables except precipitation, for which it calculates the sum
      2. extracts just the variable of interest- I added this step to deal with the fact that in the 2014 daymet data, the variables are in a different order, and so the years couldn’t be merged
   2. takes ~ 30 hours on hyalite. Can split the script up to run 1-2 variables at a time and run them all at once to cut the time down
3. run3-weightgen.sh
   1. Creates the weights file necessary for regridding. This step takes a long time, uses a lot of memory, and only needs to be done once
   2. for this to work, the script ESMF-weightgen-orig.csh needs to be in the same folder. No need to change anything on this script.
4. run4-regrid-NCL-monthly.sh
   1. Re-grids all of the monthly data from curvilinear to latlon.
   2. For this to work, the script regrid\_with\_weights-orig.csh must be stored in the same scripts folder. Setting the grid corners is now automated based on the input data.
   3. The three netCDFs generated in the previous step must also be present
   4. Took 6.5 hours on hyalite
5. run5-merge-and-prep.sh
   1. Merges the individual year files for each variable to create one netcdf containing all of the data from 1980-2014.
   2. Calculates wetdays from precipitation
   3. Calculates tmean from tmin and tmax
   4. Converts srad to value compatible with LPJ-GUESS
6. run6-clip.sh
   1. clips the full data set to user’s region of interest to reduce file size
   2. also converts to “zip” format to further reduce size
   3. user must specify coordinates of bounding box
   4. Takes around 3 hours to run
7. run7-detrend\_daymet
   1. Removes trend from climate data to create spinup files for LPJ-GUESS