

paramcalc.py

paramcalc param=param paramValue=paramValue rasterout=rasterout
elevationRaster=elevationRaster daymetRaster=daymetRaster

param is the daymet data type we'll be working on: param=

tmin, tmax, swe, vp, dayl

rasterout is the name of the file that will contain the output raster.

elevationRaster is the raster map of the openTopo data being worked on.

daymetRaster is the raster map of the 1KM daymet dem (na_dem).

Description: The idea is to reuse this script for each of the parameter calculations we need to make. This script, if written correctly, will work for every piece of daymet data obtained from the CSV file.

Usage: \$ paramcalc param=tmin paramValue=\$tmin rasterout=tmin_loc
elevationRaster=sosierra_warp daymetRaster=na_dem

slopeaspect.py

slopeaspect elevationRaster=elevationRaster slope=slope aspect=aspect

elevationRaster is the raster map obtained by by OpenTopo that we're currently working on

slope is the slope raster outfile

aspect is the aspect raster outfile

Description: will simply call r.slope.aspect and output slope and aspect rasters for r.sun

Usage: \$ slopeaspect elevationRaster=sosierra_warp slope=slope aspect=aspect

sun.py

sun elevationRaster=elevationRaster slope=slope aspect=aspect day=day step=step
beam_rad=beam_rad isol_time=isol_time diff_rad=diff_rad refl_rad=refl_rad glob_rad=glob_rad

elevationRaster the OpenTopo elevation raster

slope slope input from previous

aspect aspect input from previous

day current day we're working on

step time step (this is in hours so Tyson said 0.05 is about every 4 minutes)

beam_rad beam_rad raster outfile

isol_time isol_time raster outfile

diff_rad diff_rad outfile

refl_rad refl_rad outfile

glob_rad glob_rad outfile

Description: Ok, this is essentially the heart of the project. The loop to run this script is going to have to come from outside so it can be parallelized. The input parameters are fairly simple -- the slope and aspect models obtained from slopeaspect.py, the day in which to work on and the step value. Also the output files (I don't know if tyson needs all of these, but he included them in his gui example, so we're going to include them) beam_rad, insol_time, diff_rad, refl_rad and glob_rad. I believe these are all different kinds of radiation maps. I'm going to leave Tyson's example below for reference purposes.

```
r.sun elevin=tmp1414703925037 aspin=tmp1414703925038 slopein=tmp1414703925039 day="1" step="0.5"
declin="0" dist="1" -s beam_rad=beam_rad7a3de19caf71412e9703e50b15d252d7
insol_time=insol_time7a3de19caf71412e9703e50b15d252d7
diff_rad=diff_rad7a3de19caf71412e9703e50b15d252d7
refl_rad=refl_rad7a3de19caf71412e9703e50b15d252d7
glob_rad=glob_rad7a3de19caf71412e9703e50b15d252d7 --overwrite
```

Usage: \$ sun elevationRaster=sosierra_warp slope=slope aspect=aspect day=\$day step=0.05
beam_rad=beam_rad isol_time=isol_time diff_rad=diff_rad refl_rad=refl_rad glob_rad=glob_rad