/home/melannie/NetCDFTools/

To build the executable (netcdfTools):

Required source code and makefile:

main.F90
- uses clm_netcdf_tools

clm_netcdf_tools.F90
- uses canopy_model, casacnp_model

shr_kind_mod.F90

clm_common.F90
- uses shr_kind_mod

canopy_model.F90
- uses clm_common

casacnp_model.F90
- uses clm_common

Makefile.txt

To compile any code updates:

> rm *.mod *.o
> make -f Makefile.txt netcdfTools

To execute the program:

Update the input text file, ***files.ini***
> ./netcdfTools

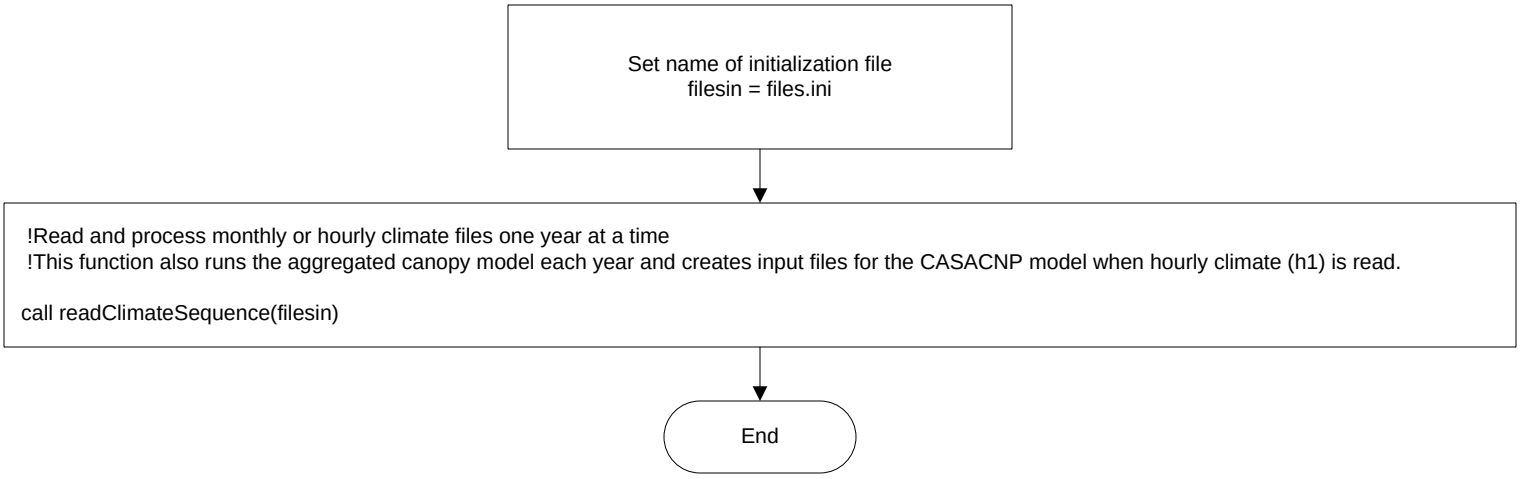
NCL script to generate maps of annual GPP

/home/melannie/NetCDFTools/NCL/gpp_netcdf.ncl:
Update “filedir”, “file1” and “year” in this NCL script.
> ncl gpp_netcdf.ncl

Main Program

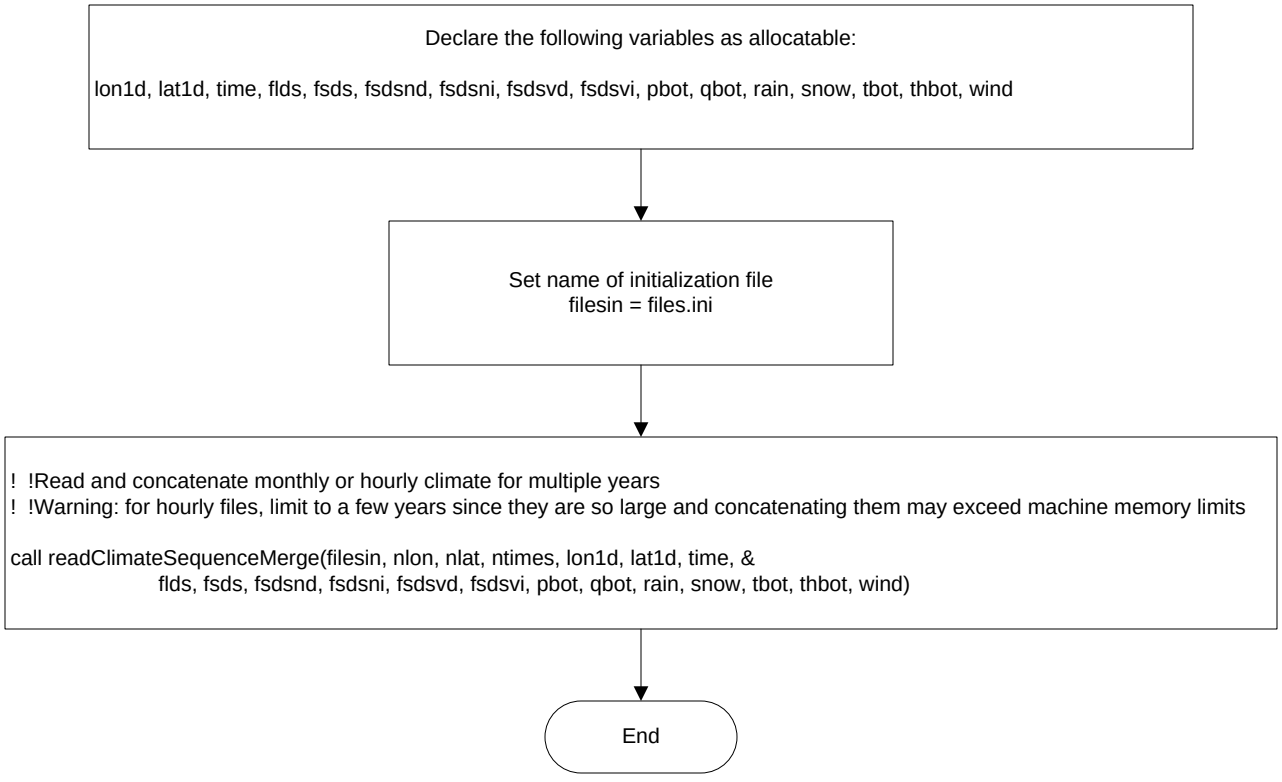
***Option 1:**

Call readClimateSequence to read Monthly or Hourly history files one year at a time.
Run and produce input files for other models each year.

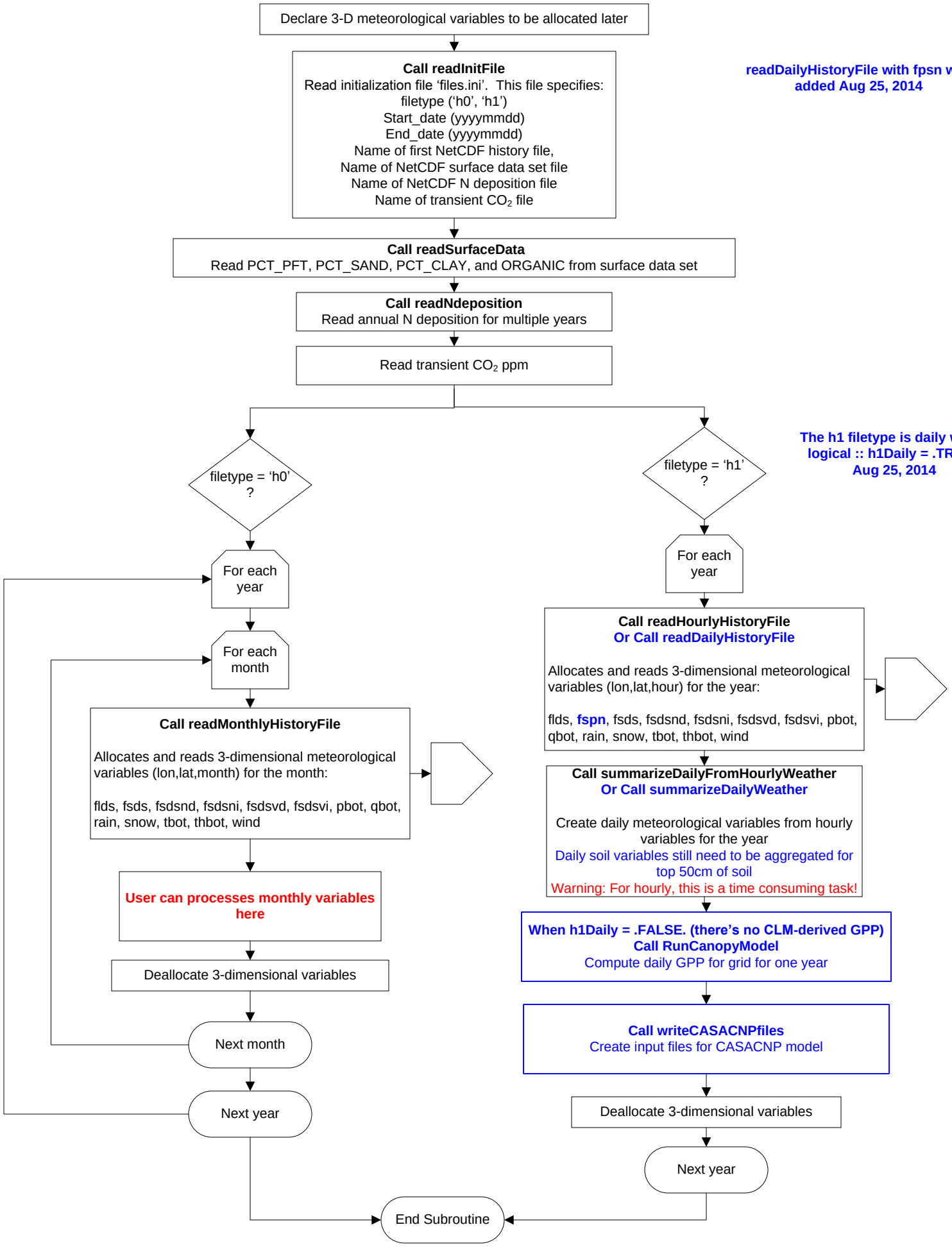


Option 2:

Call readClimateSequenceMerge to read and concatenate monthly or hourly history files for multiple years and return the arrays to the main program



readClimateSequence(filesin)

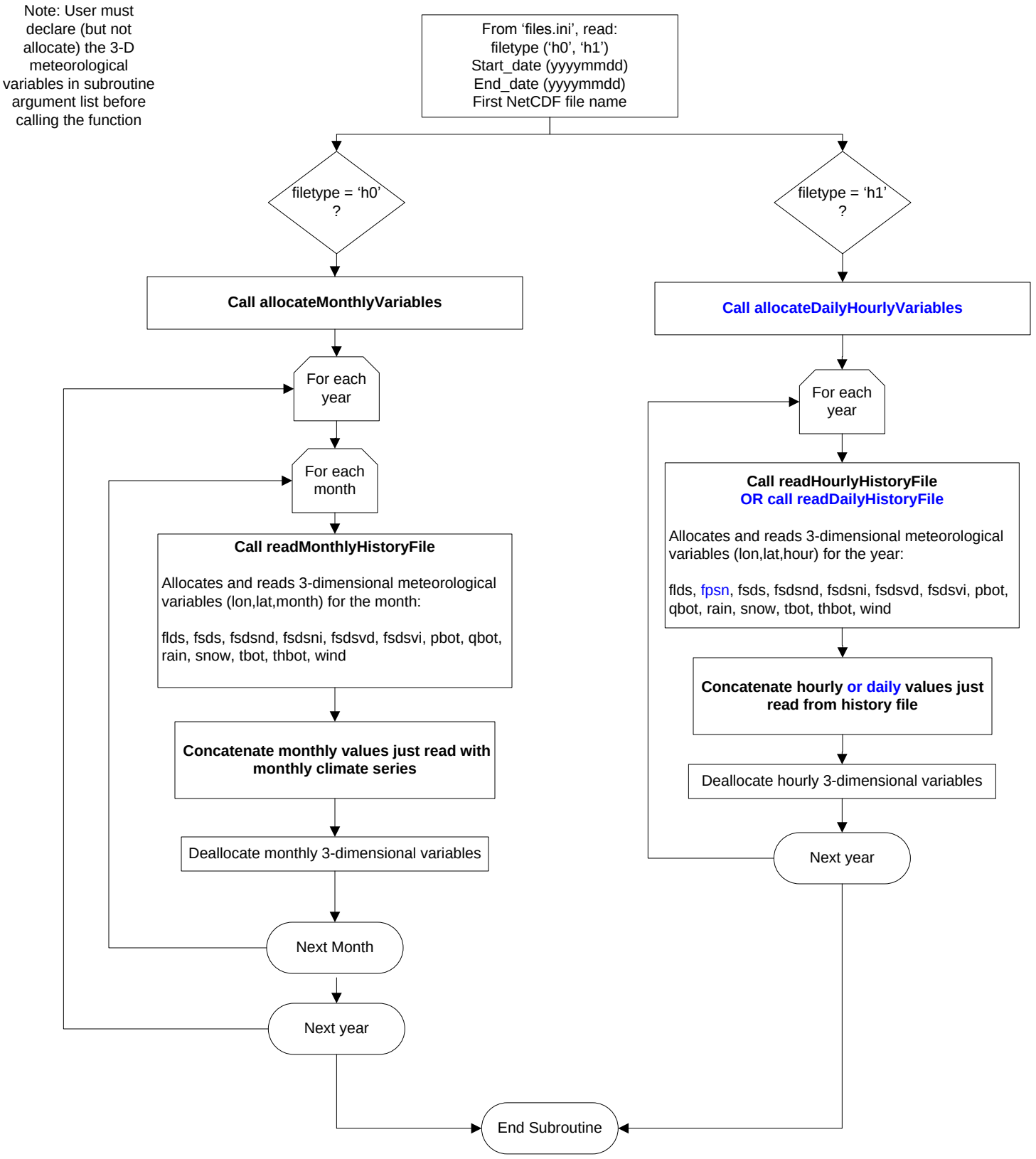


August 25, 2014

readClimateSequenceMerge(filesin, nlon, nlat, ntimes, lat1d, lon1d, time, flds, fpsn, fsds, fsdsnd, fsdsni, fsdsvd, fsdsvi, pbot, qbot, rain, snow, tbot, thbot, wind)

Description: Read and concatenate monthly or hourly history files for multiple years and return the arrays to the main program. If calling this subroutine for hourly (h1) files, limit the number of years to 5-10 to avoid exceeding the limits if machine memory.

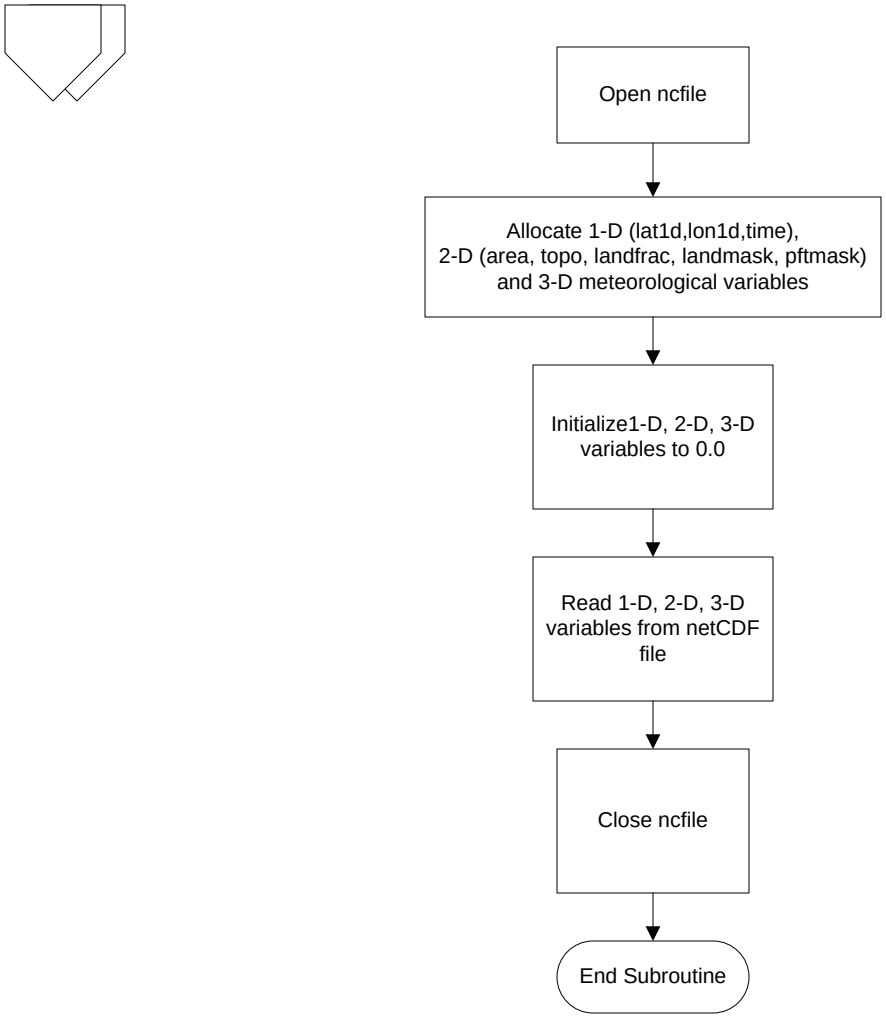
fpsn was added Aug 25, 2014



readMonthlyHistoryFile(ncfile, nlon, nlat, ntime, lon1d, lat1d, time, &
flds, fsds, fsdsnd, fsdsni, fsdsvd, fsdsvi, pbot, qbot, rain, snow, tbot, thbot, wind)
or
readHourlyHistoryFile(ncfile, nlon, nlat, ntime, nlevgrnd, lon1d, lat1d, &
area, topo, landfrac, landmask, pftmask, time, levgrnd, &
flds, fsds, fsdsnd, fsdsni, fsdsvd, fsdsvi, pbot, qbot, rain, snow, tbot, thbot, wind, tlai, h2osoi, tsoi)
or
readDailyHistoryFile(ncfile, nlon, nlat, ntime, nlevgrnd, lon1d, lat1d, &
area, topo, landfrac, landmask, pftmask, time, levgrnd, &
flds, fpsn, fsds, fsdsnd, fsdsni, fsdsvd, fsdsvi, pbot, qbot, rain, snow, tbot, thbot, wind, tlai, h2osoi, tsoi)

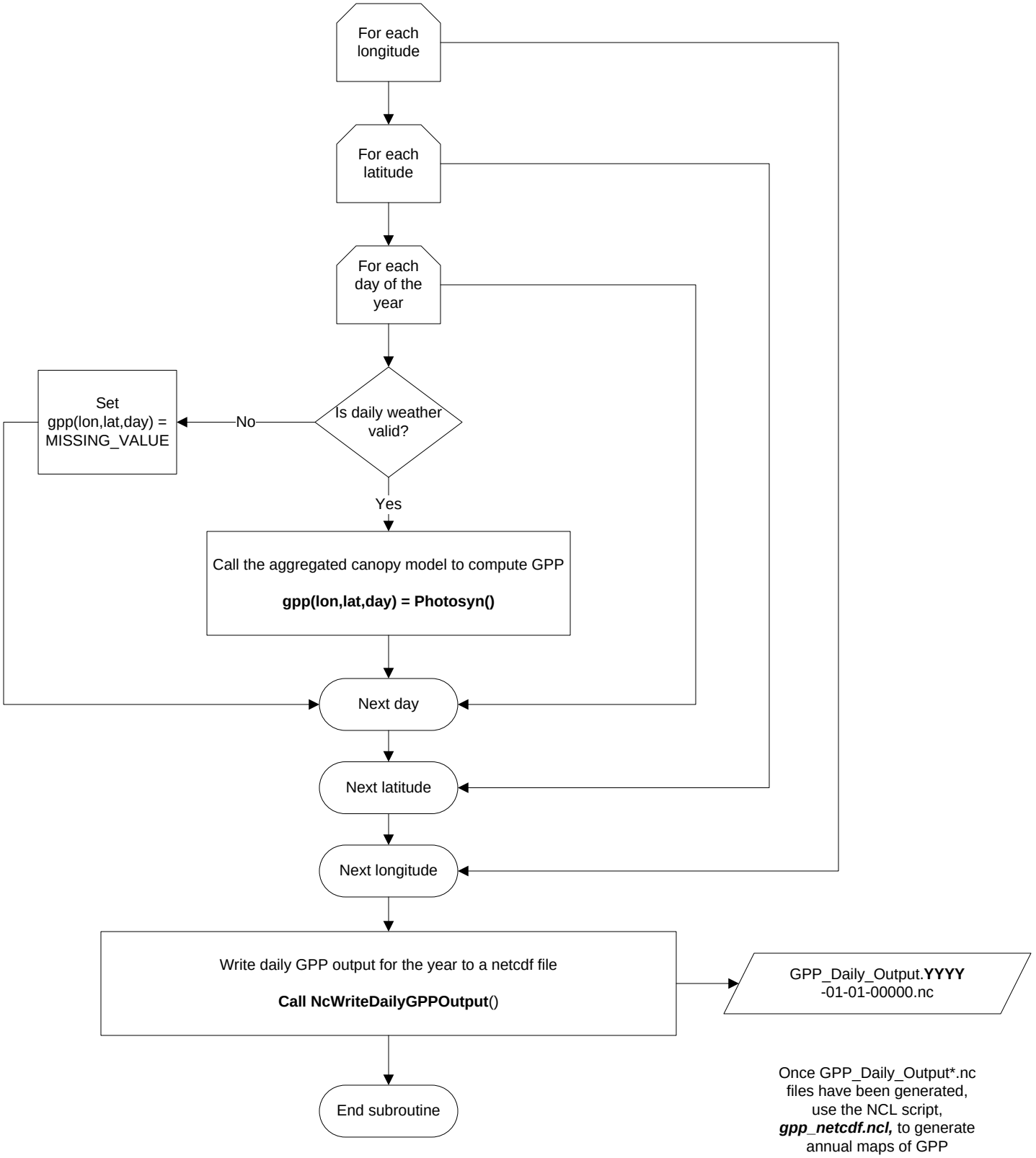
readDailyHistoryFile with fpsn was added Aug 25, 2014

Description: Read longitude, latitude, and meteorological variables from a monthly or hourly history file.



RunCanopyModel(iyr, nlon, nlat, ndays, lon1d, lat1d, &
area, topo, landfrac, landmask, pftmask, &
tminday, tmaxday, fsdsday, tlaiday, soipsiday, co2ppm(ystart), gpp)

Description: Run the Aggregated Canopy Model for a CLM grid and to save daily GPP output in NetCDF format. Called once a year.
Note: this model is not called when CLM-derived GPP is read from daily history files.

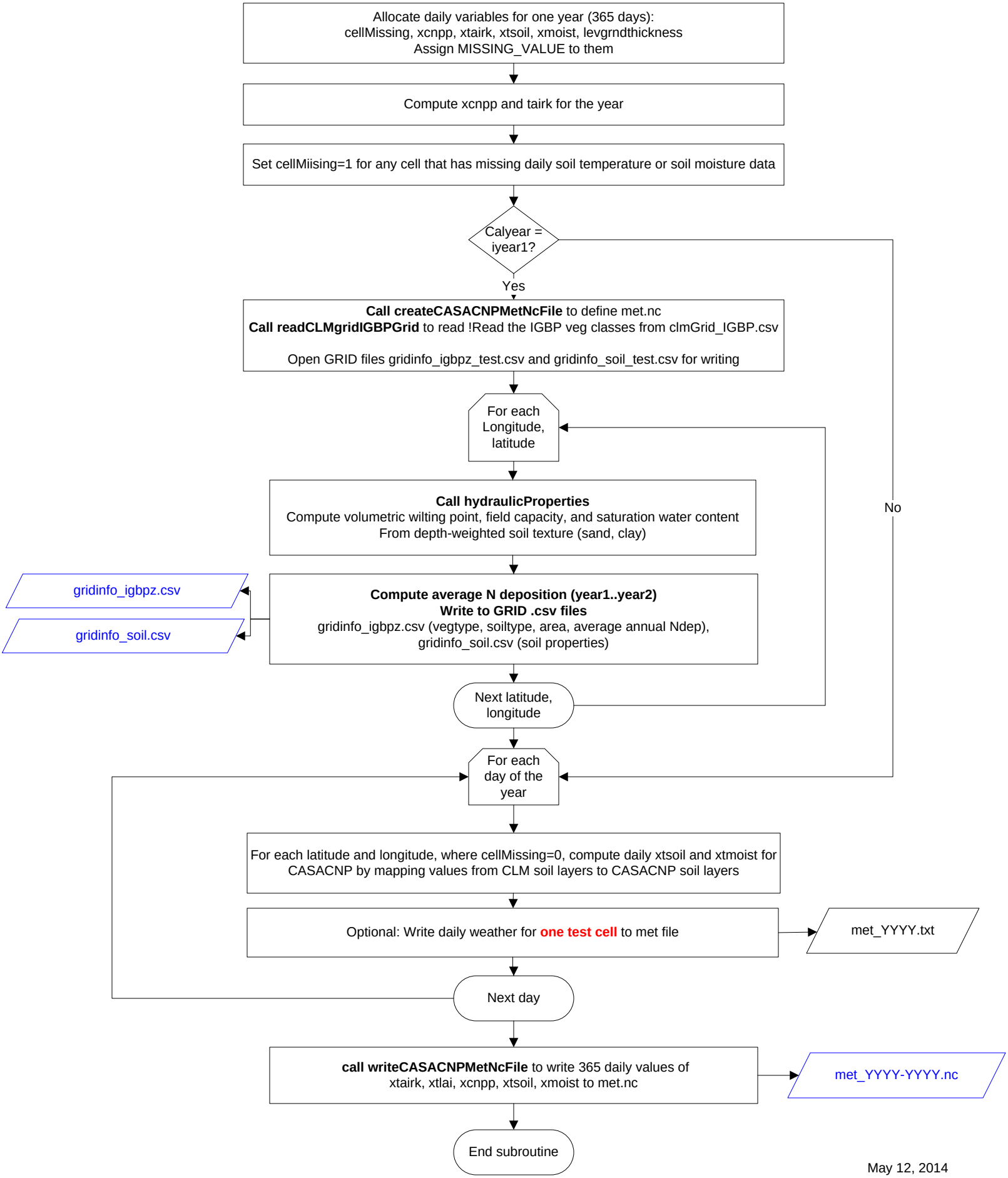


Once GPP_Daily_Output*.nc files have been generated, use the NCL script, ***gpp_netcdf.ncl,*** to generate annual maps of GPP

AnnualGPP_yyyy.ps

writeCASACNPfiles(calyear, iyear1, iyear2, nlon, nlat, npft, nlevgrnd, nlevsoi, ndays, ndtime,
lon1d, lat1d, levgrnd, area, landfrac, landmask, pftmask,
ndep, tminday, tmaxday, tlaiday, gpp, h2osoiday, tsoiday, pctpft, pctsand, pctclay)

Description: Create input files for the CASACNP model. Called once a year.
The CASACNP model is a separate executable and is not run here.



May 12, 2014