MMF

getvar.c – memcpy fix, use int instead of long, may have copied too much info

putvar.c – memcpy fix, use int instead of long, may have copied too much info

mmf.c – if parameter read error encountered in a file, exit instead of keep reading

setup\_cont.c – added control parameters strmtemp\_humidity\_flag, nhruOut\_format, nsubOut\_format, nsegmentOut\_format

read\_params.c – need to look at more, maybe I broke it from being able to read matrix

MODFLOW

New: gwf2drn7\_NWT.f, gwf2drt7.f, gwf2ets7.f, gwf2evt7.f, gwf2hydmod7.f, gwf2ibs7.f, gwf2rch7.f, gwf2res7.f, gwf2riv7\_NWT.f, gwf2str7.f, gwf2sub7\_NWT.f, gwf2swr7.f, gwf2swr7util.f, mhc7.f, nogmg.f, obs2drn7.f, obs2riv7.f, obs2str7.f

gwf2bas7\_NWT.f

gwf2hfb7\_NWT.f

gwf2lak7\_NWT.f

gwf2mnw17\_NWT.f

gwf2mnw27\_NWT.f

gwf2sfr7\_NWT.f

gwf2upw1.f

gwf2uzf1\_NWT.f

gwf2wel7\_NWT.f

gwflakmodule\_NWT.f

gwfuzfmodule\_NWT.f

Irestart.f

lmt8\_NWT.f

NWT1\_gmres.f90

NWT1\_solver.f

obs2bas7.f

utl7.f

remove gwf\_other\_modules.f90

GSFLOW

gsflow\_budget.f90

gsflow\_modflow.f

gwflow\_prms.f90

gsflow\_sum.f90

PRMS

New: muskingum\_lake.f90, dynamic\_param\_read.f90, water\_use\_read.f90, convert\_params.f90, prms\_summary.f90: temp\_sta is a new module, use obs value with additive adjustment only

snowcomp.f90 – use snowpack\_init if init\_vars\_from\_file = 0, 2 or 3, init\_vars\_from\_file>0, allow init variables to be used for init\_vars\_from\_file = 2 or 3 and reordered some code to allow for various values of init\_vars\_from\_file, add SNGL in double to single assignments, BUG FIX: initial Ai values set incorrectly, all HRU values set to last HRU instead of individually, last value of depletion curve passed as first depletion curve value to initialize snowcov\_area, use hru\_ppt instead of basin\_ppt to set emissivity and energy related to convection or condensation, make use tcal is set to 0 at the beginning of each timestep, have to specify depletion curves, was optional if ndepl = 0, fewer variables written to restart file

soilzone.f90 – code related to declare and initialize soil\_moist\_init, ssstor\_init, and soil\_rechr\_init moved to climateflow to allow for PRMS4/PRMS5 option, init\_vars\_from\_file>0, cascade\_flag>0, allow init variables to be used for init\_vars\_from\_file = 2 or 5 and reordered some code to allow for various values of init\_vars\_from\_file, add SNGL in double to single assignments, bug fix make sure slowcoef\_lin and slowcoef\_sq or fastcoef\_lin and fastcoef\_sq are > 0 before using and make sure interflow values are computed as < 0, allow ssr2gw\_rate to be specified as a value between 0 and NEARZERO, previously if a value was <= NEARZERO it was set to 0, fewer variables written to restart file

climateflow.f90 – use tmax\_allrain\_offset instead of tmax\_allrain and soil\_rechr\_init\_frac, soil\_moist\_init\_Frac, ssstor\_init\_frac, and soil\_rechr\_max\_frac for PRMS5, add lake\_vol when needed, init\_vars\_from\_file>0, allow init variables to be used for init\_vars\_from\_file = 2 or 5 and reordered some code to allow for various values of init\_vars\_from\_file, don’t allocate gwres\_stor for GSFLOW mode, add code related to use of temp\_sta, use MAXTEMP (200.0) and MINTEMP (-150.0) parameters from basin.f90 for valid temperature ranges instead of values in code that might vary by module, were -99 to 150, fewer variables written to restart file

srunoff.f90 – added water use code, use sro\_to\_dprst\_perv instead of sro\_to\_dprst for PRMS5, init\_vars\_from\_file>0, allow dprst\_frac\_init to be used for init\_vars\_from\_file = 2 or 7, cascade\_flag>0, , add SNGL in double to single assignments, fewer variables written to restart file

cascade.f90 – allow setting of cascades based on hru\_segment when cascade\_flag = 2, if true don’t need cascade\_tol, cascade\_flg, and circle\_switch or other cascade parameters and used for HRU and GWR cascades

xyz\_dist.f90 - removed restart code, so can change for restart, add SNGL in double to single assignments

basin\_sum.f90 - init\_vars\_from\_file>0, output basin\_swrad instead of basin\_potsw, which were the same

utils\_prms.f90 - use I0 format and I6 to output appropriate number of digits, write to model output file only when print\_debug > -2, but write to log file, cleaner format for writing error messages, remove unused routines check\_param\_value, checkint\_param\_limits, and check\_nhru\_params

ide\_dist.f - removed restart code, so can change for restart, add SNGL in double to single assignments

routing.f90 – add water use code, add code to read Muskingum parameters and compute coefficients so not needed in muskingum.f90 and muskingum\_lake.f90, added code related to declaring variables to accumulate flows based on segment\_type, init\_vars\_from\_file>0, allow for cascade\_flag>0, obsout\_segment added, added message with more detail when a circle is found in segment routing, messages related to checking parameters written if parameter\_check\_flag = 1 instead of print\_debug > -1, new code added by Markstrom to deal with computing values used in stream\_temp for sward and potet when HRUs aren’t associated with a segment, fewer variables written to restart file

gwflow.f90 – add code related to flow to/from the lake bed, init\_vars\_from\_file>0, code added for update for init\_vars\_from\_file = 2 or 6 to use gwstor\_init, added code for water use, fewer variables are written to restart file

water\_balance.f90 – TOOSMALL value changed from 1.0E-05 to 3.1E-05, so could be fewer messages for roundoff error, allow for cascade\_flag>0, add print of net\_apply and apply, add code for water use additions

map\_results.f90 - prms\_warmup in Control File and read in gsflow\_prms where Begyr and End\_year are set, use I0 format and I6 to output appropriate number of digits, gvr\_cell\_id used from gsflow\_prms, variable gvr\_cell\_id now named gvr\_map\_id in code; still the name of the parameter, allow some warnings to be printed only when print\_debug > -1

subbasin.f90 – uncommented code related to lakes

climate\_hru.f90 - use MAXTEMP (200.0) and MINTEMP (-150.0) parameters from basin.f90 for valid temperature ranges instead of values in code that might vary by module, were -99 to 150, add SNGL in double to single assignments

intcp.f90 – added water use code, init\_vars\_from\_file>0, fewer variables are written restart file

basin.f90 – add MAXTEMP (200.0) and MINTEMP (-150.0), some code related to lakes simplified, add lake\_type to set weir\_gate\_flag and puls\_lin\_flag, allow for use of dprst\_frac\_hru and dprst\_area for PRMS 4 and dprst\_frac for PRMS 5, removed declared variable hru\_frac\_dprst, moved some code around, cleaned up output of basic basin characteristics and only write if print\_degub>-2

temp\_dist2.f90 - init\_vars\_from\_file>0, use MAXTEMP (200.0) and MINTEMP (-150.0) parameters from basin.f90 for valid temperature ranges instead of values in code that might vary by module, were -99 to 150

nsub\_summary.f90 – add nsubOut\_format (1 = ES10.3; 2 = F0.2; 3 = F0.3; 4 = F0.4; 5 = F0.5), prms\_warmup in Control File and read in gsflow\_prms where Begyr and End\_year are set, use I0 format and I6 to output appropriate number of digits, allow output of integer variables, simplified code a little, allow any real or double nhru variable to be summarized by subbasins.

muskingum.f90 – code related to Muskingum routing parameters and coefficients moved to routing.f90 so it didn’t need to be in muskingum\_lake and muskingum, add variables that accumulate flows for each segment\_type, init\_vars\_from\_file>0, added obsout\_segment, added code to check for negative flows as water use could cause negative flows, fewer variables written to restart file

nhru\_summary.f90 – allow header of output file to be based on parameter nhm\_id, add nhruOut\_format (1 = ES10.3; 2 = F0.2; 3 = F0.3; 4 = F0.4; 5 = F0.5), prms\_warmup in Control File and read in gsflow\_prms where Begyr and End\_year are set, use I0 format and I6 to output appropriate number of digits, allow output of integer variables, simplified code a little

precip\_dist2.f90 – removed unneeded reference to declvar

nsegment\_summary.f90 – allow header of output file to be based on parameter nhm\_seg, add nsegmentOut\_format (1 = ES10.3; 2 = F0.2; 3 = F0.3; 4 = F0.4; 5 = F0.5), prms\_warmup in Control File and read in gsflow\_prms where Begyr and End\_year are set, use I0 format and I6 to output appropriate number of digits, simplified code a little

temp\_1sta\_laps.f90 – use MAXTEMP (200.0) and MINTEMP (-150.0) parameters from basin.f90 for valid temperature ranges instead of values in code that might vary by module, were -99 to 150, added code for temp\_sta, which is like temp\_1sta but only has additive calibration adjustment and no lapse adjustment, init\_vars\_from\_file>0

obs.f90 – removed restart code, so can change for restart

basin\_summary.f90 – prms\_warmup in Control File and read in gsflow\_prms where Begyr and End\_year are set, use I0 format and I6 to output appropriate number of digits

potet\_pm\_sta.f90 – removed restart code, so can change for restart, add SNGL in double to single assignment

ccsolrad.f90 – reordered some code, not sure why

potet\_pm f90 – removed restart code, so can change for restart, add SNGL in double to single assignment

transp\_tindex.f90 - init\_vars\_from\_file>0

potet\_pt.f90 – removed restart code, so can change for restart, add SNGL in double to single assignment

strmflow\_in\_out.f90 – add variables that accumulate flows for each segment\_type, added obsout\_segment

potet\_pan.f90 - init\_vars\_from\_file>0