**CABLE-POP simulation output variable list.**

variables:

float local\_lat(land) ;

local\_lat:units = "degrees\_north" ;

float local\_lon(land) ;

local\_lon:units = "degrees\_east" ;

double time(time) ;

time:units = "seconds since 2006-1-1 00:00" ;

time:coordinate = "" ;

time:calendar = "noleap" ;

float latitude(y, x) ;

latitude:units = "degrees\_north" ;

float longitude(y, x) ;

longitude:units = "degrees\_east" ;

float x(x) ;

x:units = "degrees\_east" ;

x:comment = "x coordinate variable for GrADS compatibility" ;

float y(y) ;

y:units = "degrees\_north" ;

y:comment = "y coordinate variable for GrADS compatibility" ;

float SWdown(time, patch, land) ;

SWdown:units = "W/m^2" ;

SWdown:long\_name = "Downward shortwave radiation" ;

SWdown:\_FillValue = -1.e+33f ;

SWdown:missing\_value = -1.e+33f ;

float LWdown(time, patch, land) ;

LWdown:units = "W/m^2" ;

LWdown:long\_name = "Downward longwave radiation" ;

LWdown:\_FillValue = -1.e+33f ;

LWdown:missing\_value = -1.e+33f ;

float Tair(time, patch, land) ;

Tair:units = "K" ;

Tair:long\_name = "Surface air temperature" ;

Tair:\_FillValue = -1.e+33f ;

Tair:missing\_value = -1.e+33f ;

float Rainf(time, patch, land) ;

Rainf:units = "kg/m^2/s" ;

Rainf:long\_name = "Rainfall+snowfall" ;

Rainf:\_FillValue = -1.e+33f ;

Rainf:missing\_value = -1.e+33f ;

float Snowf(time, patch, land) ;

Snowf:units = "kg/m^2/s" ;

Snowf:long\_name = "Snowfall" ;

Snowf:\_FillValue = -1.e+33f ;

Snowf:missing\_value = -1.e+33f ;

float Qair(time, patch, land) ;

Qair:units = "kg/kg" ;

Qair:long\_name = "Surface specific humidity" ;

Qair:\_FillValue = -1.e+33f ;

Qair:missing\_value = -1.e+33f ;

float Wind(time, patch, land) ;

Wind:units = "m/s" ;

Wind:long\_name = "Scalar surface wind speed" ;

Wind:\_FillValue = -1.e+33f ;

Wind:missing\_value = -1.e+33f ;

float PSurf(time, patch, land) ;

PSurf:units = "hPa" ;

PSurf:long\_name = "Surface air pressure" ;

PSurf:\_FillValue = -1.e+33f ;

PSurf:missing\_value = -1.e+33f ;

float CO2air(time, patch, land) ;

CO2air:units = "ppmv" ;

CO2air:long\_name = "Surface air CO2 concentration" ;

CO2air:\_FillValue = -1.e+33f ;

CO2air:missing\_value = -1.e+33f ;

float Qle(time, patch, land) ;

Qle:units = "W/m^2" ;

Qle:long\_name = "Surface latent heat flux" ;

Qle:\_FillValue = -1.e+33f ;

Qle:missing\_value = -1.e+33f ;

float Qh(time, patch, land) ;

Qh:units = "W/m^2" ;

Qh:long\_name = "Surface sensible heat flux" ;

Qh:\_FillValue = -1.e+33f ;

Qh:missing\_value = -1.e+33f ;

float Qg(time, patch, land) ;

Qg:units = "W/m^2" ;

Qg:long\_name = "Surface ground heat flux" ;

Qg:\_FillValue = -1.e+33f ;

Qg:missing\_value = -1.e+33f ;

float Qs(time, patch, land) ;

Qs:units = "kg/m^2/s" ;

Qs:long\_name = "Surface runoff" ;

Qs:\_FillValue = -1.e+33f ;

Qs:missing\_value = -1.e+33f ;

float Qsb(time, patch, land) ;

Qsb:units = "kg/m^2/s" ;

Qsb:long\_name = "Subsurface runoff" ;

Qsb:\_FillValue = -1.e+33f ;

Qsb:missing\_value = -1.e+33f ;

float Evap(time, patch, land) ;

Evap:units = "kg/m^2/s" ;

Evap:long\_name = "Total evapotranspiration" ;

Evap:\_FillValue = -1.e+33f ;

Evap:missing\_value = -1.e+33f ;

float ECanop(time, patch, land) ;

ECanop:units = "kg/m^2/s" ;

ECanop:long\_name = "Wet canopy evaporation" ;

ECanop:\_FillValue = -1.e+33f ;

ECanop:missing\_value = -1.e+33f ;

float TVeg(time, patch, land) ;

TVeg:units = "kg/m^2/s" ;

TVeg:long\_name = "Vegetation transpiration" ;

TVeg:\_FillValue = -1.e+33f ;

TVeg:missing\_value = -1.e+33f ;

float gsw\_sl(time, patch, land) ;

gsw\_sl:units = "mol/m^2/s" ;

gsw\_sl:long\_name = "stomatal conductance sl leaves" ;

gsw\_sl:\_FillValue = -1.e+33f ;

gsw\_sl:missing\_value = -1.e+33f ;

float gsw\_sh(time, patch, land) ;

gsw\_sh:units = "mol/m^2/s" ;

gsw\_sh:long\_name = "stomatal conductance sh leaves" ;

gsw\_sh:\_FillValue = -1.e+33f ;

gsw\_sh:missing\_value = -1.e+33f ;

float scale\_factor\_sunlit(time, patch, land) ;

scale\_factor\_sunlit:units = "[ ]" ;

scale\_factor\_sunlit:long\_name = "canopy scaling factor sl leaves" ;

scale\_factor\_sunlit:\_FillValue = -1.e+33f ;

scale\_factor\_sunlit:missing\_value = -1.e+33f ;

float scale\_factor\_shaded(time, patch, land) ;

scale\_factor\_shaded:units = "[ ]" ;

scale\_factor\_shaded:long\_name = "canopy scaling factor sh leaves" ;

scale\_factor\_shaded:\_FillValue = -1.e+33f ;

scale\_factor\_shaded:missing\_value = -1.e+33f ;

float leaf\_to\_air\_vpd(time, patch, land) ;

leaf\_to\_air\_vpd:units = "kPa" ;

leaf\_to\_air\_vpd:long\_name = "leaf to air vapour pressure difference" ;

leaf\_to\_air\_vpd:\_FillValue = -1.e+33f ;

leaf\_to\_air\_vpd:missing\_value = -1.e+33f ;

float ci\_sl(time, patch, land) ;

ci\_sl:units = "ppm" ;

ci\_sl:long\_name = "ci, sunlit leaves" ;

ci\_sl:\_FillValue = -1.e+33f ;

ci\_sl:missing\_value = -1.e+33f ;

float ci\_sh(time, patch, land) ;

ci\_sh:units = "ppm" ;

ci\_sh:long\_name = "ci, sunlit leaves" ;

ci\_sh:\_FillValue = -1.e+33f ;

ci\_sh:missing\_value = -1.e+33f ;

float ESoil(time, patch, land) ;

ESoil:units = "kg/m^2/s" ;

ESoil:long\_name = "Evaporation from soil" ;

ESoil:\_FillValue = -1.e+33f ;

ESoil:missing\_value = -1.e+33f ;

float HVeg(time, patch, land) ;

HVeg:units = "W/m^2" ;

HVeg:long\_name = "Sensible heat from vegetation" ;

HVeg:\_FillValue = -1.e+33f ;

HVeg:missing\_value = -1.e+33f ;

float HSoil(time, patch, land) ;

HSoil:units = "W/m^2" ;

HSoil:long\_name = "Sensible heat from soil" ;

HSoil:\_FillValue = -1.e+33f ;

HSoil:missing\_value = -1.e+33f ;

float RnetSoil(time, patch, land) ;

RnetSoil:units = "W/m^2" ;

RnetSoil:long\_name = "Net radiation absorbed by ground" ;

RnetSoil:\_FillValue = -1.e+33f ;

RnetSoil:missing\_value = -1.e+33f ;

float NEE(time, patch, land) ;

NEE:units = "umol/m^2/s" ;

NEE:long\_name = "Net ecosystem exchange of CO2" ;

NEE:\_FillValue = -1.e+33f ;

NEE:missing\_value = -1.e+33f ;

float SoilMoist(time, soil, patch, land) ;

SoilMoist:units = "m^3/m^3" ;

SoilMoist:long\_name = "Average layer soil moisture" ;

SoilMoist:\_FillValue = -1.e+33f ;

SoilMoist:missing\_value = -1.e+33f ;

float SoilMoistIce(time, soil, patch, land) ;

SoilMoistIce:units = "m^3/m^3" ;

SoilMoistIce:long\_name = "Average layer frozen soil moisture" ;

SoilMoistIce:\_FillValue = -1.e+33f ;

SoilMoistIce:missing\_value = -1.e+33f ;

float SoilTemp(time, soil, patch, land) ;

SoilTemp:units = "K" ;

SoilTemp:long\_name = "Average layer soil temperature" ;

SoilTemp:\_FillValue = -1.e+33f ;

SoilTemp:missing\_value = -1.e+33f ;

float BaresoilT(time, patch, land) ;

BaresoilT:units = "K" ;

BaresoilT:long\_name = "Bare soil temperature" ;

BaresoilT:\_FillValue = -1.e+33f ;

BaresoilT:missing\_value = -1.e+33f ;

float SWE(time, patch, land) ;

SWE:units = "kg/m^2" ;

SWE:long\_name = "Snow water equivalent" ;

SWE:\_FillValue = -1.e+33f ;

SWE:missing\_value = -1.e+33f ;

float SnowMelt(time, patch, land) ;

SnowMelt:units = "kg/m^2/s" ;

SnowMelt:long\_name = "Snow Melt Rate" ;

SnowMelt:\_FillValue = -1.e+33f ;

SnowMelt:missing\_value = -1.e+33f ;

float SnowT(time, patch, land) ;

SnowT:units = "K" ;

SnowT:long\_name = "Snow surface temperature" ;

SnowT:\_FillValue = -1.e+33f ;

SnowT:missing\_value = -1.e+33f ;

float SnowDepth(time, patch, land) ;

SnowDepth:units = "m" ;

SnowDepth:long\_name = "Snow depth" ;

SnowDepth:\_FillValue = -1.e+33f ;

SnowDepth:missing\_value = -1.e+33f ;

float SWnet(time, patch, land) ;

SWnet:units = "W/m^2" ;

SWnet:long\_name = "Net shortwave radiation absorbed by surface" ;

SWnet:\_FillValue = -1.e+33f ;

SWnet:missing\_value = -1.e+33f ;

float LWnet(time, patch, land) ;

LWnet:units = "W/m^2" ;

LWnet:long\_name = "Net longwave radiation absorbed by surface" ;

LWnet:\_FillValue = -1.e+33f ;

LWnet:missing\_value = -1.e+33f ;

float Rnet(time, patch, land) ;

Rnet:units = "W/m^2" ;

Rnet:long\_name = "Net radiation absorbed by surface" ;

Rnet:\_FillValue = -1.e+33f ;

Rnet:missing\_value = -1.e+33f ;

float Albedo(time, patch, land) ;

Albedo:units = "-" ;

Albedo:long\_name = "Surface albedo" ;

Albedo:\_FillValue = -1.e+33f ;

Albedo:missing\_value = -1.e+33f ;

float visAlbedo(time, rad, patch, land) ;

visAlbedo:units = "-" ;

visAlbedo:long\_name = "Surface vis albedo:total, beam, diffuse" ;

visAlbedo:\_FillValue = -1.e+33f ;

visAlbedo:missing\_value = -1.e+33f ;

float nirAlbedo(time, rad, patch, land) ;

nirAlbedo:units = "-" ;

nirAlbedo:long\_name = "Surface nir albedo:total, beam, diffuse" ;

nirAlbedo:\_FillValue = -1.e+33f ;

nirAlbedo:missing\_value = -1.e+33f ;

float RadT(time, patch, land) ;

RadT:units = "K" ;

RadT:long\_name = "Radiative surface temperature" ;

RadT:\_FillValue = -1.e+33f ;

RadT:missing\_value = -1.e+33f ;

float VegT(time, patch, land) ;

VegT:units = "K" ;

VegT:long\_name = "Average vegetation temperature" ;

VegT:\_FillValue = -1.e+33f ;

VegT:missing\_value = -1.e+33f ;

float CanT(time, patch, land) ;

CanT:units = "K" ;

CanT:long\_name = "Within-canopy temperature" ;

CanT:\_FillValue = -1.e+33f ;

CanT:missing\_value = -1.e+33f ;

float Fwsoil(time, patch, land) ;

Fwsoil:units = "[-]" ;

Fwsoil:long\_name = "soil moisture modifier to stomatal conductance" ;

Fwsoil:\_FillValue = -1.e+33f ;

Fwsoil:missing\_value = -1.e+33f ;

float CanopInt(time, patch, land) ;

CanopInt:units = "kg/m^2" ;

CanopInt:long\_name = "Canopy intercepted water storage" ;

CanopInt:\_FillValue = -1.e+33f ;

CanopInt:missing\_value = -1.e+33f ;

float LAI(time, patch, land) ;

LAI:units = "-" ;

LAI:long\_name = "Leaf area index" ;

LAI:\_FillValue = -1.e+33f ;

LAI:missing\_value = -1.e+33f ;

float vcmax(time, patch, land) ;

vcmax:units = "-" ;

vcmax:long\_name = "Vcmax at 25 degC [molC/m^2/s]" ;

vcmax:\_FillValue = -1.e+33f ;

vcmax:missing\_value = -1.e+33f ;

float jmax(time, patch, land) ;

jmax:units = "-" ;

jmax:long\_name = "jmax at 25 degC [mol(e)/m^2/s]" ;

jmax:\_FillValue = -1.e+33f ;

jmax:missing\_value = -1.e+33f ;

float Ebal(time, patch, land) ;

Ebal:units = "W/m^2" ;

Ebal:long\_name = "Cumulative energy imbalance" ;

Ebal:\_FillValue = -1.e+33f ;

Ebal:missing\_value = -1.e+33f ;

float Wbal(time, patch, land) ;

Wbal:units = "kg/m^2" ;

Wbal:long\_name = "Cumulative water imbalance" ;

Wbal:\_FillValue = -1.e+33f ;

Wbal:missing\_value = -1.e+33f ;

float AutoResp(time, patch, land) ;

AutoResp:units = "umol/m^2/s" ;

AutoResp:long\_name = "Autotrophic respiration" ;

AutoResp:\_FillValue = -1.e+33f ;

AutoResp:missing\_value = -1.e+33f ;

float RootResp(time, patch, land) ;

RootResp:units = "umol/m^2/s" ;

RootResp:long\_name = "Fine Root Autotrophic respiration" ;

RootResp:\_FillValue = -1.e+33f ;

RootResp:missing\_value = -1.e+33f ;

float StemResp(time, patch, land) ;

StemResp:units = "umol/m^2/s" ;

StemResp:long\_name = "StemWood Autotrophic respiration" ;

StemResp:\_FillValue = -1.e+33f ;

StemResp:missing\_value = -1.e+33f ;

float LeafResp(time, patch, land) ;

LeafResp:units = "umol/m^2/s" ;

LeafResp:long\_name = "Leaf respiration" ;

LeafResp:\_FillValue = -1.e+33f ;

LeafResp:missing\_value = -1.e+33f ;

float HeteroResp(time, patch, land) ;

HeteroResp:units = "umol/m^2/s" ;

HeteroResp:long\_name = "Heterotrophic respiration" ;

HeteroResp:\_FillValue = -1.e+33f ;

HeteroResp:missing\_value = -1.e+33f ;

float GPP(time, patch, land) ;

GPP:units = "umol/m^2/s" ;

GPP:long\_name = "Gross primary production" ;

GPP:\_FillValue = -1.e+33f ;

GPP:missing\_value = -1.e+33f ;

float GPP\_shaded(time, patch, land) ;

GPP\_shaded:units = "umol/m^2/s" ;

GPP\_shaded:long\_name = "Gross primary production from shaded leaves" ;

GPP\_shaded:\_FillValue = -1.e+33f ;

GPP\_shaded:missing\_value = -1.e+33f ;

float GPP\_sunlit(time, patch, land) ;

GPP\_sunlit:units = "umol/m^2/s" ;

GPP\_sunlit:long\_name = "Gross primary production from sunlit leaves" ;

GPP\_sunlit:\_FillValue = -1.e+33f ;

GPP\_sunlit:missing\_value = -1.e+33f ;

float Anet\_shaded(time, patch, land) ;

Anet\_shaded:units = "umol/m^2/s" ;

Anet\_shaded:long\_name = "Anet from shaded leaves" ;

Anet\_shaded:\_FillValue = -1.e+33f ;

Anet\_shaded:missing\_value = -1.e+33f ;

float Anet\_sunlit(time, patch, land) ;

Anet\_sunlit:units = "umol/m^2/s" ;

Anet\_sunlit:long\_name = "Anet from sunlit leaves" ;

Anet\_sunlit:\_FillValue = -1.e+33f ;

Anet\_sunlit:missing\_value = -1.e+33f ;

float GPP\_shaded\_C(time, patch, land) ;

GPP\_shaded\_C:units = "umol/m^2/s" ;

GPP\_shaded\_C:long\_name = "Gross primary production from carboxylation-rate-limited shaded leaves" ;

GPP\_shaded\_C:\_FillValue = -1.e+33f ;

GPP\_shaded\_C:missing\_value = -1.e+33f ;

float GPP\_sunlit\_C(time, patch, land) ;

GPP\_sunlit\_C:units = "umol/m^2/s" ;

GPP\_sunlit\_C:long\_name = "Gross primary production from carboxylation-rate-limited sunlit leaves" ;

GPP\_sunlit\_C:\_FillValue = -1.e+33f ;

GPP\_sunlit\_C:missing\_value = -1.e+33f ;

float GPP\_shaded\_J(time, patch, land) ;

GPP\_shaded\_J:units = "umol/m^2/s" ;

GPP\_shaded\_J:long\_name = "Gross primary production from electron-transport-rate-limited shaded leaves" ;

GPP\_shaded\_J:\_FillValue = -1.e+33f ;

GPP\_shaded\_J:missing\_value = -1.e+33f ;

float GPP\_sunlit\_J(time, patch, land) ;

GPP\_sunlit\_J:units = "umol/m^2/s" ;

GPP\_sunlit\_J:long\_name = "Gross primary production from electron-transport-rate-limited sunlit leaves" ;

GPP\_sunlit\_J:\_FillValue = -1.e+33f ;

GPP\_sunlit\_J:missing\_value = -1.e+33f ;

float eta\_GPP\_cs(time, patch, land) ;

eta\_GPP\_cs:units = "umol/m^2/s" ;

eta\_GPP\_cs:long\_name = "elasticity of Gross primary production wrt cs, multiplied by GPP" ;

eta\_GPP\_cs:\_FillValue = -1.e+33f ;

eta\_GPP\_cs:missing\_value = -1.e+33f ;

float dGPPdcs(time, patch, land) ;

dGPPdcs:units = "(umol/m^2/s)^2" ;

dGPPdcs:long\_name = "sensitivity of Gross primary production wrt cs, multiplied by GPP" ;

dGPPdcs:\_FillValue = -1.e+33f ;

dGPPdcs:missing\_value = -1.e+33f ;

float eta\_TVeg\_cs(time, patch, land) ;

eta\_TVeg\_cs:units = "kg/m^2/s" ;

eta\_TVeg\_cs:long\_name = "elasticity of Transpiration wrt cs, multiplied by Transpiration" ;

eta\_TVeg\_cs:\_FillValue = -1.e+33f ;

eta\_TVeg\_cs:missing\_value = -1.e+33f ;

float gsw\_TVeg(time, patch, land) ;

gsw\_TVeg:units = "mol/m^s/s \* kg/m^2/s" ;

gsw\_TVeg:long\_name = "stomatal conductance, multiplied by Transpiration" ;

gsw\_TVeg:\_FillValue = -1.e+33f ;

gsw\_TVeg:missing\_value = -1.e+33f ;

float CO2s(time, patch, land) ;

CO2s:units = "ppm umol/m^2/s" ;

CO2s:long\_name = "CO2 concentration at leaf surface , multiplied by GPP" ;

CO2s:\_FillValue = -1.e+33f ;

CO2s:missing\_value = -1.e+33f ;

float vcmax\_time\_series(time, patch, land) ;

vcmax\_time\_series:units = "mol/m^2/s" ;

vcmax\_time\_series:long\_name = "vcmax" ;

vcmax\_time\_series:\_FillValue = -1.e+33f ;

vcmax\_time\_series:missing\_value = -1.e+33f ;

float jmax\_time\_series(time, patch, land) ;

jmax\_time\_series:units = "mol/m^2/s" ;

jmax\_time\_series:long\_name = "jmax" ;

jmax\_time\_series:\_FillValue = -1.e+33f ;

jmax\_time\_series:missing\_value = -1.e+33f ;

float NPP(time, patch, land) ;

NPP:units = "umol/m^2/s" ;

NPP:long\_name = "Net primary production" ;

NPP:\_FillValue = -1.e+33f ;

NPP:missing\_value = -1.e+33f ;

float NBP(time, patch, land) ;

NBP:units = "umol/m^2/s" ;

NBP:long\_name = "Net Biosphere Production (uptake +ve)" ;

NBP:\_FillValue = -1.e+33f ;

NBP:missing\_value = -1.e+33f ;

float dCdt(time, patch, land) ;

dCdt:units = "umol/m^2/s" ;

dCdt:long\_name = "Carbon accumulation rate (uptake +ve)" ;

dCdt:\_FillValue = -1.e+33f ;

dCdt:missing\_value = -1.e+33f ;

float TotSoilCarb(time, patch, land) ;

TotSoilCarb:units = "kg C/m^2" ;

TotSoilCarb:long\_name = "Total Soil and Litter Carbon" ;

TotSoilCarb:\_FillValue = -1.e+33f ;

TotSoilCarb:missing\_value = -1.e+33f ;

float TotLittCarb(time, patch, land) ;

TotLittCarb:units = "kg C/m^2" ;

TotLittCarb:long\_name = "Total Litter Carbon" ;

TotLittCarb:\_FillValue = -1.e+33f ;

TotLittCarb:missing\_value = -1.e+33f ;

float SoilCarbFast(time, patch, land) ;

SoilCarbFast:units = "kg C/m^2" ;

SoilCarbFast:long\_name = "Soil Carbon: Fast Turnover" ;

SoilCarbFast:\_FillValue = -1.e+33f ;

SoilCarbFast:missing\_value = -1.e+33f ;

float SoilCarbSlow(time, patch, land) ;

SoilCarbSlow:units = "kg C/m^2" ;

SoilCarbSlow:long\_name = "Soil Carbon: Slow Turnover" ;

SoilCarbSlow:\_FillValue = -1.e+33f ;

SoilCarbSlow:missing\_value = -1.e+33f ;

float SoilCarbPassive(time, patch, land) ;

SoilCarbPassive:units = "kg C/m^2" ;

SoilCarbPassive:long\_name = "Soil Carbon: Passive" ;

SoilCarbPassive:\_FillValue = -1.e+33f ;

SoilCarbPassive:missing\_value = -1.e+33f ;

float LittCarbMetabolic(time, patch, land) ;

LittCarbMetabolic:units = "kg C/m^2" ;

LittCarbMetabolic:long\_name = "Litter Carbon: metabolic" ;

LittCarbMetabolic:\_FillValue = -1.e+33f ;

LittCarbMetabolic:missing\_value = -1.e+33f ;

float LittCarbStructural(time, patch, land) ;

LittCarbStructural:units = "kg C/m^2" ;

LittCarbStructural:long\_name = "Litter Carbon: structural" ;

LittCarbStructural:\_FillValue = -1.e+33f ;

LittCarbStructural:missing\_value = -1.e+33f ;

float LittCarbCWD(time, patch, land) ;

LittCarbCWD:units = "kg C/m^2" ;

LittCarbCWD:long\_name = "Litter Carbon: CWD" ;

LittCarbCWD:\_FillValue = -1.e+33f ;

LittCarbCWD:missing\_value = -1.e+33f ;

float PlantCarbLeaf(time, patch, land) ;

PlantCarbLeaf:units = "kg C/m^2" ;

PlantCarbLeaf:long\_name = "Plant Carbon: leaf" ;

PlantCarbLeaf:\_FillValue = -1.e+33f ;

PlantCarbLeaf:missing\_value = -1.e+33f ;

float PlantCarbFineRoot(time, patch, land) ;

PlantCarbFineRoot:units = "kg C/m^2" ;

PlantCarbFineRoot:long\_name = "Plant Carbon: Fine roots" ;

PlantCarbFineRoot:\_FillValue = -1.e+33f ;

PlantCarbFineRoot:missing\_value = -1.e+33f ;

float PlantCarbWood(time, patch, land) ;

PlantCarbWood:units = "kg C/m^2" ;

PlantCarbWood:long\_name = "Plant Carbon: wood (above- and below-ground" ;

PlantCarbWood:\_FillValue = -1.e+33f ;

PlantCarbWood:missing\_value = -1.e+33f ;

float TotLivBiomass(time, patch, land) ;

TotLivBiomass:units = "kg C/m^2" ;

TotLivBiomass:long\_name = "Total Biomass" ;

TotLivBiomass:\_FillValue = -1.e+33f ;

TotLivBiomass:missing\_value = -1.e+33f ;

float PlantTurnover(time, patch, land) ;

PlantTurnover:units = "umol/m^2/s" ;

PlantTurnover:long\_name = "Total Biomass Turnover" ;

PlantTurnover:\_FillValue = -1.e+33f ;

PlantTurnover:missing\_value = -1.e+33f ;

float PlantTurnoverLeaf(time, patch, land) ;

PlantTurnoverLeaf:units = "umol/m^2/s" ;

PlantTurnoverLeaf:long\_name = "Leaf Biomass Turnover" ;

PlantTurnoverLeaf:\_FillValue = -1.e+33f ;

PlantTurnoverLeaf:missing\_value = -1.e+33f ;

float PlantTurnoverFineRoot(time, patch, land) ;

PlantTurnoverFineRoot:units = "umol/m^2/s" ;

PlantTurnoverFineRoot:long\_name = "FineRoot Biomass Turnover" ;

PlantTurnoverFineRoot:\_FillValue = -1.e+33f ;

PlantTurnoverFineRoot:missing\_value = -1.e+33f ;

float PlantTurnoverWood(time, patch, land) ;

PlantTurnoverWood:units = "umol/m^2/s" ;

PlantTurnoverWood:long\_name = "Woody Biomass Turnover" ;

PlantTurnoverWood:\_FillValue = -1.e+33f ;

PlantTurnoverWood:missing\_value = -1.e+33f ;

float PlantTurnoverWoodDist(time, patch, land) ;

PlantTurnoverWoodDist:units = "umol/m^2/s" ;

PlantTurnoverWoodDist:long\_name = "Woody Biomass Turnover (disturbance)" ;

PlantTurnoverWoodDist:\_FillValue = -1.e+33f ;

PlantTurnoverWoodDist:missing\_value = -1.e+33f ;

float PlantTurnoverWoodCrowding(time, patch, land) ;

PlantTurnoverWoodCrowding:units = "umol/m^2/s" ;

PlantTurnoverWoodCrowding:long\_name = "Woody Biomass Turnover (crowding)" ;

PlantTurnoverWoodCrowding:\_FillValue = -1.e+33f ;

PlantTurnoverWoodCrowding:missing\_value = -1.e+33f ;

float PlantTurnoverWoodResourceLim(time, patch, land) ;

PlantTurnoverWoodResourceLim:units = "umol/m^2/s" ;

PlantTurnoverWoodResourceLim:long\_name = "Woody Biomass Turnover (Resource Limitation)" ;

PlantTurnoverWoodResourceLim:\_FillValue = -1.e+33f ;

PlantTurnoverWoodResourceLim:missing\_value = -1.e+33f ;

float Area(time, patch, land) ;

Area:units = "km2" ;

Area:long\_name = "Patch Area" ;

Area:\_FillValue = -1.e+33f ;

Area:missing\_value = -1.e+33f ;

int iveg(patch, land) ;

iveg:units = "-" ;

iveg:long\_name = "Vegetation type" ;

iveg:\_FillValue = -9999999 ;

iveg:missing\_value = -9999999 ;

float patchfrac(patch, land) ;

patchfrac:units = "-" ;

patchfrac:long\_name = "Fractional cover of vegetation patches" ;

patchfrac:\_FillValue = -1.e+33f ;

patchfrac:missing\_value = -1.e+33f ;

int isoil(patch, land) ;

isoil:units = "-" ;

isoil:long\_name = "Soil type" ;

isoil:\_FillValue = -9999999 ;

isoil:missing\_value = -9999999 ;

float bch(patch, land) ;

bch:units = "-" ;

bch:long\_name = "Parameter b, Campbell eqn 1985" ;

bch:\_FillValue = -1.e+33f ;

bch:missing\_value = -1.e+33f ;

float clay(patch, land) ;

clay:units = "-" ;

clay:long\_name = "Fraction of soil which is clay" ;

clay:\_FillValue = -1.e+33f ;

clay:missing\_value = -1.e+33f ;

float sand(patch, land) ;

sand:units = "-" ;

sand:long\_name = "Fraction of soil which is sand" ;

sand:\_FillValue = -1.e+33f ;

sand:missing\_value = -1.e+33f ;

float silt(patch, land) ;

silt:units = "-" ;

silt:long\_name = "Fraction of soil which is silt" ;

silt:\_FillValue = -1.e+33f ;

silt:missing\_value = -1.e+33f ;

float ssat(patch, land) ;

ssat:units = "-" ;

ssat:long\_name = "Fraction of soil volume which is water @ saturation" ;

ssat:\_FillValue = -1.e+33f ;

ssat:missing\_value = -1.e+33f ;

float sfc(patch, land) ;

sfc:units = "-" ;

sfc:long\_name = "Fraction of soil volume which is water @ field capacity" ;

sfc:\_FillValue = -1.e+33f ;

sfc:missing\_value = -1.e+33f ;

float swilt(patch, land) ;

swilt:units = "-" ;

swilt:long\_name = "Fraction of soil volume which is water @ wilting point" ;

swilt:\_FillValue = -1.e+33f ;

swilt:missing\_value = -1.e+33f ;

float hyds(patch, land) ;

hyds:units = "m/s" ;

hyds:long\_name = "Hydraulic conductivity @ saturation" ;

hyds:\_FillValue = -1.e+33f ;

hyds:missing\_value = -1.e+33f ;

float sucs(patch, land) ;

sucs:units = "m" ;

sucs:long\_name = "Suction @ saturation" ;

sucs:\_FillValue = -1.e+33f ;

sucs:missing\_value = -1.e+33f ;

float css(patch, land) ;

css:units = "J/kg/C" ;

css:long\_name = "Heat capacity of soil minerals" ;

css:\_FillValue = -1.e+33f ;

css:missing\_value = -1.e+33f ;

float rhosoil(patch, land) ;

rhosoil:units = "kg/m^3" ;

rhosoil:long\_name = "Density of soil minerals" ;

rhosoil:\_FillValue = -1.e+33f ;

rhosoil:missing\_value = -1.e+33f ;

float rs20(patch, land) ;

rs20:units = "-" ;

rs20:long\_name = "Soil respiration coefficient at 20C" ;

rs20:\_FillValue = -1.e+33f ;

rs20:missing\_value = -1.e+33f ;

float albsoil(rad, patch, land) ;

albsoil:units = "-" ;

albsoil:long\_name = "Snow free shortwave soil reflectance fraction" ;

albsoil:\_FillValue = -1.e+33f ;

albsoil:missing\_value = -1.e+33f ;

float hc(time, patch, land) ;

hc:units = "m" ;

hc:long\_name = "Height of canopy" ;

hc:\_FillValue = -1.e+33f ;

hc:missing\_value = -1.e+33f ;

float canst1(patch, land) ;

canst1:units = "mm/LAI" ;

canst1:long\_name = "Max water intercepted by canopy" ;

canst1:\_FillValue = -1.e+33f ;

canst1:missing\_value = -1.e+33f ;

float dleaf(patch, land) ;

dleaf:units = "m" ;

dleaf:long\_name = "Chararacteristic length of leaf" ;

dleaf:\_FillValue = -1.e+33f ;

dleaf:missing\_value = -1.e+33f ;

float frac4(patch, land) ;

frac4:units = "-" ;

frac4:long\_name = "Fraction of plants which are C4" ;

frac4:\_FillValue = -1.e+33f ;

frac4:missing\_value = -1.e+33f ;

float rp20(patch, land) ;

rp20:units = "-" ;

rp20:long\_name = "Plant respiration coefficient at 20C" ;

rp20:\_FillValue = -1.e+33f ;

rp20:missing\_value = -1.e+33f ;

float g0(patch, land) ;

g0:units = "-" ;

g0:long\_name = "g0 term in Medlyn Stom Cond. Param" ;

g0:\_FillValue = -1.e+33f ;

g0:missing\_value = -1.e+33f ;

float g1(patch, land) ;

g1:units = "-" ;

g1:long\_name = "g1 term in Medlyn Stom Cond. Param" ;

g1:\_FillValue = -1.e+33f ;

g1:missing\_value = -1.e+33f ;

float rpcoef(patch, land) ;

rpcoef:units = "1/C" ;

rpcoef:long\_name = "Temperature coef nonleaf plant respiration" ;

rpcoef:\_FillValue = -1.e+33f ;

rpcoef:missing\_value = -1.e+33f ;

float shelrb(patch, land) ;

shelrb:units = "-" ;

shelrb:long\_name = "Sheltering factor" ;

shelrb:\_FillValue = -1.e+33f ;

shelrb:missing\_value = -1.e+33f ;

float xfang(patch, land) ;

xfang:units = "-" ;

xfang:long\_name = "Leaf angle parameter" ;

xfang:\_FillValue = -1.e+33f ;

xfang:missing\_value = -1.e+33f ;

float wai(patch, land) ;

wai:units = "-" ;

wai:long\_name = "Wood area index" ;

wai:\_FillValue = -1.e+33f ;

wai:missing\_value = -1.e+33f ;

float vegcf(patch, land) ;

vegcf:units = "-" ;

vegcf:long\_name = "vegcf" ;

vegcf:\_FillValue = -1.e+33f ;

vegcf:missing\_value = -1.e+33f ;

float extkn(patch, land) ;

extkn:units = "-" ;

extkn:long\_name = "Nitrogen extinction coef for vert. canopy profile" ;

extkn:\_FillValue = -1.e+33f ;

extkn:missing\_value = -1.e+33f ;

float tminvj(patch, land) ;

tminvj:units = "C" ;

tminvj:long\_name = "Min temperature for the start of photosynthesis" ;

tminvj:\_FillValue = -1.e+33f ;

tminvj:missing\_value = -1.e+33f ;

float tmaxvj(patch, land) ;

tmaxvj:units = "C" ;

tmaxvj:long\_name = "Max temperature for photosynthesis" ;

tmaxvj:\_FillValue = -1.e+33f ;

tmaxvj:missing\_value = -1.e+33f ;

float vbeta(patch, land) ;

vbeta:units = "-" ;

vbeta:long\_name = "Stomatal sensitivity to soil water" ;

vbeta:\_FillValue = -1.e+33f ;

vbeta:missing\_value = -1.e+33f ;

float xalbnir(patch, land) ;

xalbnir:units = "-" ;

xalbnir:long\_name = "Modifier for albedo in near ir band" ;

xalbnir:\_FillValue = -1.e+33f ;

xalbnir:missing\_value = -1.e+33f ;

float meth(patch, land) ;

meth:units = "-" ;

meth:long\_name = "Canopy turbulence parameterisation choice" ;

meth:\_FillValue = -1.e+33f ;

meth:missing\_value = -1.e+33f ;

float za\_uv(patch, land) ;

za\_uv:units = "m" ;

za\_uv:long\_name = "Reference height (lowest atm. model layer) for momentum" ;

za\_uv:\_FillValue = -1.e+33f ;

za\_uv:missing\_value = -1.e+33f ;

float za\_tq(patch, land) ;

za\_tq:units = "m" ;

za\_tq:long\_name = "Reference height (lowest atm. model layer) for scalars" ;

za\_tq:\_FillValue = -1.e+33f ;

za\_tq:missing\_value = -1.e+33f ;

float ratecp(plant\_carbon\_pools, patch, land) ;

ratecp:units = "1/year" ;

ratecp:long\_name = "Plant carbon rate constant" ;

ratecp:\_FillValue = -1.e+33f ;

ratecp:missing\_value = -1.e+33f ;

float ratecs(soil\_carbon\_pools, patch, land) ;

ratecs:units = "1/year" ;

ratecs:long\_name = "Soil carbon rate constant" ;

ratecs:\_FillValue = -1.e+33f ;

ratecs:missing\_value = -1.e+33f ;

float zse(soil, patch, land) ;

zse:units = "m" ;

zse:long\_name = "Depth of each soil layer" ;

zse:\_FillValue = -1.e+33f ;

zse:missing\_value = -1.e+33f ;

float froot(soil, patch, land) ;

froot:units = "-" ;

froot:long\_name = "Fraction of roots in each soil layer" ;

froot:\_FillValue = -1.e+33f ;

froot:missing\_value = -1.e+33f ;

// global attributes:

:Production = "2023/07/10 at 16:42:55" ;

:Source = "CABLE LSM output file" ;

:CABLE\_input\_file = "plume" ;

:Output\_averaging = "monthly" ;

}