PLOT-SCALE SIMULATIONS WITH MAIN-FRAME

VARIABLE	UNITS	TYPE	DESCRIPTION
ALB	[-]	Res. Time series [h] element average	Albedo
ANPP_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Above Ground Net Primary Production High Vegetation
ANPP_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Above Ground Net Primary Production Low Vegetation
AgeDL_H	[day]	Res. Time series [d] for each C_{crown}	Dead Leaf Age High Vegetation
AgeDL_L	[day]	Res. Time series [d] for each C_{crown}	Dead Leaf Age Low Vegetation
AgeL_H	[day]	Res. Time series [d] for each C_{crown}	Leaf Age High Vegetation
AgeL_L	[day]	Res. Time series [d] for each C_{crown}	Leaf Age Low Vegetation
AgePl_H (only for VCA)	[day]	Res. Time series [d] for each C_{crown}	Age of the forest stand or plantation, High Vegetation
AgePl_L (only for VCA)	[day]	Res. Time series [d] for each C_{crown}	Age of the forest stand or plantation, Low Vegetation
An_H	[µmol CO_2/ m^2 PFT s]	Res. Time series [h] for each C_{crown}	Net Assimilation High Vegetation
An_L	[µmol CO_2/ m^2 PFT s]	Res. Time series [h] for each C_{crown}	Net Assimilation Low Vegetation
BLit	[kg DM /m2]	Res. Time series [d]	Total litter content on the surface
BA_H (only for VCA)	[m2 / ha PFT]	Res. Time series [d] for each C_{crown}	Stand Basal Area, High Vegetation
BA_L (only for VCA)	[m2 / ha PFT]	Res. Time series [d] for each C_{crown}	Stand Basal Area, Low Vegetation
B_H	[gC / m^2 PFT]	Res. Time series [d] for each C_{crown} and for each carbon pool	Carbon Pool Biomass (Foliage (1), Liv. Sapwood (2), Fine Roots (3), Carbohydrate Reserve (4), Fruit and Flowers (5), Heartwood/Dead sapwood (6), Standing dead foliage (7), Aux. (8)), High Vegetation
B_L	[gC / m^2 PFT]	Res. Time series [d] for each C_{crown} and for each carbon pool	Carbon Pool Biomass (Foliage (1), Liv. Sapwood (2), Fine Roots (3), Carbohydrate Reserve (4), Fruit and

			Flowers (5), Heartwood/Dead sapwood (6), Standing dead foliage (7), Aux. (8)), LowVegetation
Bfac_dayH	[0-1]	Res. Time series [d] for each C_{crown}	Plat stress factor integrated at the daily scale, High Vegetation
Bfac_dayL	[0-1]	Res. Time series [d] for each C_{crown}	Plat stress factor integrated at the daily scale, Low Vegetation
Bfac_weekH	[0-1]	Res. Time series [d] for each C_{crown}	Plat stress factor integrated at the weekly scale, High Vegetation
Bfac_weekL	[0-1]	Res. Time series [d] for each C_{crown}	Plat stress factor integrated at the weekly scale, Low Vegetation
BfixN	[gN/m2 ground]	Res. Time series [d]	Biological Nitrogen Fixation
CK1	[mm/h]	Res. Time series [h] element average	Check on Mass Balance - 1
CK2 (wrong)	[mm/h]	Res. Time series [h] element average	Check on Mass Balance - 2
Ccrown_t (only for VCA)	[-]	Res. Time series [d] for each C_{crown}	Time dynamic vegetated fraction for each C_{crown}
Ci_sunH	[ppm]	Res. Time series [h] for each C_{crown}	CO_2 sunlit leaf internal concentration High Vegetation
Ci_sunL	[ppm]	Res. Time series [h] for each C_{crown}	CO_2 sunlit leaf internal concentration Low Vegetation
Ci_shdH	[ppm]	Res. Time series [h] for each C_{crown}	CO_2 shaded leaf internal concentration High Vegetation
Ci_shdL	[ppm]	Res. Time series [h] for each C_{crown}	CO_2 shaded leaf internal concentration Low Vegetation
Cice	[-]	Res. Time series [h] element average	Boolean operator for presence [1] or absence of ice [0]
Cicew	[-]	Res. Time series [h] element average	Boolean operator for presence [1] or absence of frozen water [0]
Ck	[mm]	Scalar	Total Mass Balance Closure
CkExC	[gC/m2]	Scalar	Difference between plant carbon exported from the plant and litter input to the soil
CkC_ALL	[gC/m2]	Scalar	Total Carbon Balance Closure
CkC_H	[gC/m2 PFT]	Scalar	High Vegetation Carbon

			Balance Closure
CkC_L	[gC/m2 PFT]	Scalar	Low Vegetation Carbon Balance Closure
CkK_H	[gK/m2 PFT]	Scalar	High Vegetation Potassium Balance Closure
CkK_L	[gK/m2 PFT]	Scalar	Low Vegetation Potassium Balance Closure
CkN_H	[gN/m2 PFT]	Scalar	High Vegetation Nitrogen Balance Closure
CkN_L	[gN/m2 PFT]	Scalar	Low Vegetation Nitrogen Balance Closure
CkP_H	[gP/m2 PFT]	Scalar	High Vegetation Phosporus Balance Closure
CkP_L	[gP/m2 PFT]	Scalar	Low Vegetation Phosporus Balance Closure
Computational_Time	[s]	Scalar	Total Computational time
Csno	[-]	Res. Time series [h] element average	Boolean operator for presence [1] or absence of snow [0]
Csnow	[-]	Res. Time series [h] element average	Boolean operator for presence [1] or absence of snow above frozen water [0]
DQ	[W/m^2]	Res. Time series [h] element average	Residual of the energy budget* This might have a different meaning according to the land-surface composition (e.g., snow/ice/ice with debris)
DT	[°C]	Res. Time series [h] element average	Residual temperature difference in the energy budget* This might have a different meaning according to the land-surface composition (e.g., snow/ice/ice with debris)
Dr_H	[mm]	Res. Time series [h] for each C_{crown}	Total Drainage from intercepted water High Vegetation
Dr_L	[mm]	Res. Time series [h] for each C_{crown}	Total Drainage from intercepted water LowVegetation
EG	[mm/h]	Res. Time series [h] element average	Evaporation from Bare soil

EICE	[mm/h]	Res. Time series [h] element average	Evaporation/sublimation from Ice
EIn_H	[mm/h]	Res. Time series [h] for each C_{crown}	Evaporation from intercepted water High Vegetation
EIn_L	[mm/h]	Res. Time series [h] for each C_{crown}	Evaporation from intercepted water Low Vegetation
EIn_rock	[mm/h]	Res. Time series [h] element average	Evaporation from Rocks
EIn_urb	[mm/h]	Res. Time series [h] element average	Evaporation from impervious surface (e.g., roads). In case of Glacier Debris, this is Evaporation from the Debris surface.
EK	[J /mm^2]	Res. Time series [h] element average	Cumulate Kinetic Energy of Precipitation
ELitter	[mm/h]	Res. Time series [h] element average	Evaporation from the Litter
ESN	[mm/h]	Res. Time series [h] element average	Evaporation from the snowpack at the ground
ESN_In	[mm/h]	Res. Time series [h] element average	Evaporation from intercepted snow
ET	[mm/h]	Res. Time series [h] element average	Total Evapotranspiration
EWAT	[mm/h]	Res. Time series [h] element average	Evaporation from water and ponds
FNC_H	[0-1]	Res. Time series [d] for each C_{crown}	Nitrogen Stress Factor for High Vegetation
FNC_L	[0-1]	Res. Time series [d] for each C_{crown}	Nitrogen Stress Factor for Low Vegetation
FROCK	[mm]	Res. Time series [h] element average	Water Storage in fractured rocks
G	[W/m^2]	Res. Time series [h] element average	Ground Heat Flux force restore method
Gfin	[W/m^2]	Res. Time series [h] element average	Ground Heat Flux heat diffusion
H	[W/m^2]	Res. Time series [h] element average	Sensible Heat Flux
HV	[W/m^2]	Res. Time series [h] element average	Sensible Heat Flux from vegetation in presence of snow, Csnow=1
ICE	[mm]	Res. Time series [h] element average	Ice water equivalent
ICE_D	[m]	Res. Time series [h] element average	Ice thickness
IP_wc	[mm]	Res. Time series [h] element average	Ice pack water content
ISOIL_H	[gX/m2 day]	Res. Time series [18xd] for each C_{crown}	Plant exports to Litter and soil High Vegetation

			Composed of 18 different components of Export Types/Element
ISOIL_L	[gX/m2 day]	Res. Time series [18xd] for each C_{crown}	Plant exports to Litter and soil Low Vegetation Composed of 18 different components of Export Types/Element
Imelt	[mm]	Res. Time series [h] element average	Ice melt
In_H	[mm]	Res. Time series [h] for each C_{crown}	Intercepted water (storage) High Vegetation
In_L	[mm]	Res. Time series [h] for each C_{crown}	Intercepted water (storage) Low Vegetation
In_Litter	[mm]	Res. Time series [h] element average	Intercepted water in Litter
In_SWE	[mm]	Res. Time series [h] element average	Intercepted snow water equivalent (storage) High Vegetation
In_max_H	[mm]	Res. Time series [h] for each C_{crown}	Maximum Intercepted water (storage) High Vegetation
In_max_L	[mm]	Res. Time series [h] for each C_{crown}	Maximum Intercepted water (storage) Low Vegetation
In_max_SWE	[mm]	Res. Time series [h] element average	Maximum Intercepted snow water equivalent (storage) High Vegetation
In_rock	[mm]	Res. Time series [h] element average	Intercepted water (storage) Rocks
In_urb	[mm]	Res. Time series [h] element average	Intercepted water (storage) in impervious surface (e.g., roads). In case of Glacier Debris, this is Intercepted Water over the Debris surface.
Jsx_H	[mm/h]	Res. Time series [h] for each C_{crown}	Water flux from soil to plant stem High Vegetation
Jsx_L	[mm/h]	Res. Time series [h] for each C_{crown}	Water flux from soil to plant stem Low Vegetation
Jxl_H (not active)	[mm/h]	Res. Time series [h] for each C_{crown}	Water flux from plant stem to leaf High Vegetation
Jxl_L (not active)	[mm/h]	Res. Time series [h] for each C_{crown}	Water flux from plant stem to leaf Low Vegetation
Kleaf_H (not active)	[mmolH20/ MPa s m^2	Res. Time series [h] for	Leaf Hydraulic

	PFT]	each C_{crown}	Conductivity High Vegetation
Kleaf_L (not active)	[mmolH20/ MPa s m^2 PFT]	Res. Time series [h] for each C_{crown}	Leaf Hydraulic Conductivity Low Vegetation
Kreserve_H	[gK /m2 PFT]	Res. Time series [d] for each C_{crown}	Mobile Reserve of Potassium in High Vegetation
Kreserve_L	[gK /m2 PFT]	Res. Time series [d] for each C_{crown}	Mobile Reserve of Potassium in Low Vegetation
Kuptake_H	[gK /m2 PFT day]	Res. Time series [d] for each C_{crown}	Plant uptake of Potassium in High Vegetation
Kuptake_L	[gK /m2 PFT day]	Res. Time series [d] for each C_{crown}	Plant uptake of Potassium in Low Vegetation
Kx_H (not active)	[mmolH20 /m^2 PFT s MPa]	Res. Time series [h] for each C_{crown}	Xylem Hydraulic Conductivity High Vegetation
Kx_L (not active)	[mmolH20 /m^2 PFT s MPa]	Res. Time series [h] for each C_{crown}	Xylem Hydraulic Conductivity Low Vegetation
LAI_H	[m^2 LAI/ m^2 PFT]	Res. Time series [d] for each C_{crown}	Leaf Area Index High Vegetation
LAI_L	[m^2 LAI/ m^2 PFT]	Res. Time series [d] for each C_{crown}	Leaf Area Index Low Vegetation
LAIdead_H	[m^2 LAI/ m^2 PFT]	Res. Time series [d] for each C_{crown}	Dead Leaf Area Index High Vegetation
LAIdead_L	[m^2 LAI/ m^2 PFT]	Res. Time series [d] for each C_{crown}	Dead Leaf Area Index Low Vegetation
LEAK_DOC	[gC/m2 day]	Res. Time series [d]	Leakage of DOC from soil bottom
LEAK_DON	[gN/m2 day]	Res. Time series [d]	Leakage of DON from soil bottom
LEAK_DOP	[gP/m2 day]	Res. Time series [d]	Leakage of DOP from soil Bottom
LEAK_K	[gK/m2 day]	Res. Time series [d]	Leakage of K from soil Bottom
LEAK_NH4	[gN/m2 day]	Res. Time series [d]	Leakage of NH4 from soil bottom
LEAK_NO3	[gN/m2 day]	Res. Time series [d]	Leakage of NO3 from soil bottom
LEAK_P	[gP/m2 day]	Res. Time series [d]	Leakage of P from soil bottom
L_day	[h]	Res. Time series [d]	Day-Light Length
LitFirEmi	[gX/m2 day]	Res. Time series [dx2]	Fire Emission from Litter (1) Carbon (2) Nitrogen
Lk	[mm/h]	Res. Time series [h] element average	Bottom Leakage soil to bedrock (recharge)
Lk_rock	[mm/h]	Res. Time series [h]	Leakage rock surface to

		element average	bedrock (recharge)
Lk_wat	[mm]	Res. Time series [h] element average	Leakage water pond to bedrock (recharge)
Lpho	[W/m2]	Res. Time series [h]	Energy consumed in the photosynthesis process
ManIH	[-]	Single Value – last time step	Management Indicator (0) Nothing (1) Fire (-1) Logging, High Vegetation
ManIL	[-]	Single Value – last time step	Management Indicator (0) Nothing (1) Fire (-1) Logging, Low Vegetation
Min_N	[gN/m2 day]	Res. Time series [d]	Nitrogen mineralization
Min_P	[gP/m2 day]	Res. Time series [d]	Phosphorous mineralization
N2flx	[gN/m2 day]	Res. Time series [d]	N2 emission from soil
NBLI_H	[gC/m2 day]	Res. Time series [d] for each C_{crown}	Integral of New Leaf Biomass over 30 days - High Vegetation
NBLI_L	[gC/m2 day]	Res. Time series [d] for each C_{crown}	Integral of New Leaf Biomass over 30 days - Low Vegetation
NBLeaf_H	[gC/m2 day]	Res. Time series [d] for each C_{crown}	New Leaf Biomass- High Vegetation
NBLeaf_L	[gC/m2 day]	Res. Time series [d] for each C_{crown}	New Leaf Biomass- Low Vegetation
NEE	[gC/m2 day]	Res. Time series [d]	Net Ecosystem Exchange at the element scale
NDVI	[-]	Res. Time series [h] element average	Normalized Difference Vegetation Index
NIce	[mm]	Res. Time series [h] element average	New formed Ice
NIn_SWE	[mm]	Res. Time series [h] element average	New Intercepted Snow Water Equivalent
NPP_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Net Primary Production High Vegetation
NPP_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Net Primary Production Low Vegetation
NPPI_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Integral of Net Primary Production over 7 days High Vegetation
NPPI_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Integral of Net Primary Production over 7 days Low Vegetation
NavlI	[gX/m^2]	Res. Time series [dx3]	Mineral Nutrient available in the soil mean of last 365 days for (1) Nitrogen (2) Phosphorous (3) Potassium;
Nreserve_H	[gN /m2 PFT]	Res. Time series [d] for each C_{crown}	Mobile Reserve of Nitrogen in High

			Vegetation
Nreserve_L	[gN/m2 PFT]	Res. Time series [d] for each C_{crown}	Mobile Reserve of Nitrogen in Low Vegetation
NupI_H	[gX/m2 PFT day]	Res. Time series [dx3] for each C_{crown}	Integrated nutrient uptake over 365 days (1) Nitrogen (2) Phosphorous (3) Potassium; High Vegetation
NupI_L	[gX/m2 PFT day]	Res. Time series [dx3] for each C_{crown}	Integrated nutrient uptake over 365 days (1) Nitrogen (2) Phosphorous (3) Potassium; Low Vegetation
Nuptake_H	[gN/m2 PFT day]	Res. Time series [d] for each C_{crown}	Plant uptake of Nitrogen in High Vegetation
Nuptake_L	[gN /m2 PFT day]	Res. Time series [d] for each C_{crown}	Plant uptake of Nitrogen in Low Vegetation
NuLit_H	[gX /m2 PFT]	Res. Time series [dx3] for each C_{crown}	Nutrient Content in the Litter for (1) Nitrogen (2) Phosphorous (3) Potassium; High Vegetation
NuLit_L	[gX /m2 PFT]	Res. Time series [dx3] for each C_{crown}	Nutrient Content in the Litter for (1) Nitrogen (2) Phosphorous (3) Potassium; Low Vegetation
O	[-]	Res. Time series [h] for each Soil Layer	Soil Moisture – Liquid volumetric Soil Water Content
Oice	[-]	Res. Time series [h] for each Soil Layer	Frozen volumetric Water content
OF	[-]	Res. Time series [h]	Soil Moisture First Soil Layer
OH	[-]	Res. Time series [h]	Soil Moisture available to roots High Vegetation
OL	[-]	Res. Time series [h]	Soil Moisture available to roots Low Vegetation
OS	[-]	Res. Time series [h]	Soil Moisture for Bare Evaporation Layers
P	[gX /m^2 d]	Res. Time series [d] for each Pool	55 Pools in the Soil biogeochemistry model (details to follow)
PARI_H	[W/m^2]	Res. Time series [dx3] for each C_{crown}	Smoothed average of PAR radiation over (1) 30 days (2) 45 days (3) 10 days average of the difference of (2) and (1); High Vegetation

PARI_L	[W/m^2]	Res. Time series [dx3] for each C_{crown}	Smoothed average of PAR radiation over (1) 30 days (2) 45 days (3) 10 days average of the difference of (2) and (1); Low Vegetation
PHE_S_H	[#]	Res. Time series [d] for each C_{crown}	Phenology State High Vegetation
PHE_S_L	[#]	Res. Time series [d] for each C_{crown}	Phenology State Low Vegetation
POT	[mm]	Res. Time series [h] for each Soil Layer	Soil Water Potential
Pr_liq	[mm/h]	Res. Time series [h]	Liquid Precipitation
Pr_sno	[mm/h]	Res. Time series [h]	Solid (snow) Precipitation
Preserve_H	[gP /m2 PFT]	Res. Time series [d] for each C_{crown}	Mobile Reserve of Phosporus in High Vegetation
Preserve_L	[gP/m2 PFT]	Res. Time series [d] for each C_{crown}	Mobile Reserve of Phosporus in Low Vegetation
Prod_B	[gC / m^2 day]	Res. Time series [d]	Bacteria Gross Production
Prod_F	[gC / m^2 day]	Res. Time series [d]	Saprotrophic Fungi Gross Production
Psi_l_H	[MPa]	Res. Time series [h] for each C_{crown}	Leaf water potential in the leaves, High Vegetation
Psi_l_L	[MPa]	Res. Time series [h] for each C_{crown}	Leaf water potential in the leaves, Low Vegetation
Psi_s_H	[MPa]	Res. Time series [h] for each C_{crown}	Soil water potential felt by the roots, High Vegetation
Psi_s_L	[MPa]	Res. Time series [h] for each C_{crown}	Soil water potential felt by the roots, Low Vegetation
Psi_x_H	[MPa]	Res. Time series [h] for each C_{crown}	Soil water potential in the stem xylem, High Vegetation
Psi_x_L	[MPa]	Res. Time series [h] for each C_{crown}	Soil water potential in the stem xylem, Low Vegetation
Puptake_H	[gP/m2 PFT day]	Res. Time series [d] for each C_{crown}	Plant uptake of Phosporus in High Vegetation
Puptake_L	[gP /m2 PFT day]	Res. Time series [d] for each C_{crown}	Plant uptake of Phosporus in Low Vegetation
QE	[W/m^2]	Res. Time series [h] element average	Latent Heat
QEV	[W/m^2]	Res. Time series [h]	Latent Heat from

		element average	vegetation in presence of snow, Csnow =1
Qfm	[W/m^2]	Res. Time series [h] element average	Heat for freezing or melting
Qi_in	[mm/h]	Res. Time series [h] for each Soil Layer	Incoming Lateral subsurface flow
Qi_out	[mm/h]	Res. Time series [h] for each Soil Layer	Outgoing Lateral subsurface flow
Qv	[W/m^2]	Res. Time series [h] element average	Heat advected by Precipitation
RA_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Autotrophic Respiration High Vegetation
RA_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Autotrophic Respiration Low Vegetation
RB_H	[gC / m^2 PFT day]	Res. Time series [d] three pools for each C_{crown}	Removed or Harvested Biomass (Foliage (1), Liv. Sapwood (2), Fine Roots (3), Carbohydrate Reserve (4), Fruit and Flowers (5), Heartwood/Dead sapwood (6), Standing dead foliage (7))High Vegetation
RB_L	[gC / m^2 PFT day]	Res. Time series [d] three pools for each C_{crown}	Removed or Harvested Biomass (Foliage (1), Liv. Sapwood (2), Fine Roots (3), Carbohydrate Reserve (4), Fruit and Flowers (5), Heartwood/Dead sapwood (6), Standing dead foliage (7)) Low vegetation
R_bacteria	[gC / m^2 day]	Res. Time series [d]	Bacteria Respiration
R_ew	[gC / m^2 day]	Res. Time series [d]	Macrofaunal Respiration
R_litter	[gC / m^2 day]	Res. Time series [d]	Litter Respiration
R_litter_sur	[gC / m^2 day]	Res. Time series [d]	Surface Litter Respiration
R_microbe	[gC / m^2 day]	Res. Time series [d]	Microbial Respiration
Rd	[mm]	Res. Time series [h]	Saturation excess runoff
Rdark_H	[µmol CO_2/ m^2 PFT s]	Res. Time series [h] for each C_{crown}	Leaf Dark Respiration High Vegetation
Rdark_L	[µmol CO_2/ m^2 PFT s]	Res. Time series [h] for each C_{crown}	Leaf Dark Respiration Low Vegetation
Rexmyl	[gC / m^2 ground day]	Res. Time series [dx3]	Integral over 365 days and element scale of Root exudates (1), export of carbon toward mycorrhiza (2) and export to root-noduli (3), High vegetation

Rexmy_H	[gC / m^2 PFT day]	Res. Time series [dx3] for each C_{crown}	Root exudates (1), export of carbon toward mycorrhiza (2) and export to root-noduli (3), High vegetation
Rexmy_L	[gC / m^2 PFT day]	Res. Time series [dx3] for each C_{crown}	Root exudates (1) and export of carbon toward mycorrhiza (2) and export to root-noduli (3), Low vegetation
Rg_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Growth Respiration High Vegetation
Rg_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Growth Respiration Low Vegetation
Rh	[mm]	Res. Time series [h]	Infiltration excess runoff
Rmc_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Maintenance Respiration Carbohydrate reserve High Vegetation
Rmc_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Maintenance Respiration Carbohydrate reserve Low Vegetation
Rmr_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Maintenance Respiration roots High Vegetation
Rmr_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Maintenance Respiration roots Low Vegetation
Rms_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Maintenance Respiration sapwood High Vegetation
Rms_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Maintenance Respiration sapwood Low Vegetation
RmycAM	[gC / m^2 day]	Res. Time series [d]	Respiration AM mycorrhizal
RmycEM	[gC / m^2 day]	Res. Time series [d]	Respiration EM mycorrhizal
Rn	[W/m^2]	Res. Time series [h] element average	Net radiation
Rrootl_H	[m root / m^2 PFT]	Res. Time series [d] for each C_{crown}	Root length index, High Vegetation
Rrootl_L	[m root / m^2 PFT]	Res. Time series [d] for each C_{crown}	Root length index, Low Vegetation
SAI_H	[m^2 SAI/ m^2 PFT]	Res. Time series [d] for each C_{crown}	Stem Area Index High Vegetation
SAI_L	[m^2 SAI/ m^2 PFT]	Res. Time series [d] for each C_{crown}	Stem Area Index Low Vegetation
SE_rock	[mm]	Res. Time series [h]	Runoff on rocks
SE_urb	[mm]	Res. Time series [h]	Runoff on in impervious surface (e.g., roads). In

			case of Glacier Debris, this is Runoff from the Debris surface
SIF_H	[W m-2 sr-1 um-1]	Res. Time series [h] for each C_{crown}	Solar induced chlorophyll fluorescence SIF, High Vegetation
SIF_L	[W m-2 sr-1 um-1]	Res. Time series [h] for each C_{crown}	Solar induced chlorophyll fluorescence SIF, Low Vegetation
SND	[m]	Res. Time series [h]	Snow Depth
SP_wc	[mm]	Res. Time series [h]	Snowpack water content
SWE	[mm]	Res. Time series [h]	Ground snowpack Snow Water Equivalent
Smelt	[mm]	Res. Time series [h]	Snow melt
Sfr_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Fruit maturation rate, High Vegetation
Sfr_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Fruit maturation rate, Low Vegetation
Slf_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Leaf fall rate , High Vegetation
Slf_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Leaf fall rate , Low Vegetation
Sll_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Leaf mortality rate , High Vegetation
Sll_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Leaf mortality rate , Low Vegetation
Sr_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Fine root turnover rate, High Vegetation
Sr_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Fine root turnover rate, Low Vegetation
SupN_H	[0-1]	Res. Time series [d] for each C_{crown}	Index of suppression of Nitrogen uptake, High Vegetation
SupN_L	[0-1]	Res. Time series [d] for each C_{crown}	Index of suppression of Nitrogen uptake, Low Vegetation
SupP_H	[0-1]	Res. Time series [d] for each C_{crown}	Index of suppression of Phosphorus uptake, High Vegetation
SupP_L	[0-1]	Res. Time series [d] for each C_{crown}	Index of suppression of Phosphorus uptake, Low Vegetation
SupK_H	[0-1]	Res. Time series [d] for each C_{crown}	Index of suppression of Potassium uptake, High Vegetation
SupK_L	[0-1]	Res. Time series [d] for each C_{crown}	Index of suppression of Potassium uptake, Low Vegetation
Swm_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Heartwood conversion rate, High Vegetation
Swm_L	[gC / m^2 PFT day]	Res. Time series [d] for	Heartwood conversion

		each C_{crown}	rate, Low Vegetation
TNIT_H	[gN / m^2 PFT]	Res. Time series [d] for each C_{crown}	Total Structural Nitrogen Plant, High Vegetation
TNIT_L	[gN / m^2 PFT]	Res. Time series [d] for each C_{crown}	Total Structural Nitrogen Plant, Low Vegetation
TPHO_H	[gP / m^2 PFT]	Res. Time series [d] for each C_{crown}	Total Structural Phosphorus Plant, High Vegetation
TPHO_L	[gP / m^2 PFT]	Res. Time series [d] for each C_{crown}	Total Structural Phosphorus Plant, Low Vegetation
TPOT_H	[gK / m^2 PFT]	Res. Time series [d] for each C_{crown}	Total Structural Potassium, Plant, High Vegetation
TPOT_L	[gK / m^2 PFT]	Res. Time series [d] for each C_{crown}	Total Structural Potassium Plant, Low Vegetation
T_H	[mm/h]	Res. Time series [h] for each C_{crown}	Transpiration High Vegetation
T_L	[mm/h]	Res. Time series [h] for each C_{crown}	Transpiration Low Vegetation
TBio_Ht (only for VCA)	[ton DM / ha]	Res. Time series [d] for each C_{crown}	Total standing biomass temporally variable, High vegetation
TBio_Lt (only for VCA)	[ton DM / ha]	Res. Time series [d] for each C_{crown}	Total standing biomass temporally variable, Low vegetation
Tden_H (only for VCA)	[n° ind/ ha]	Res. Time series [d] for each C_{crown}	Tree density, High vegetation
Tden_L (only for VCA)	[n° ind/ ha]	Res. Time series [d] for each C_{crown}	Tree density, Low vegetation
Tdamp	[°C]	Res. Time series [h]	Soil/snow Temperature at Dampening depth
Tdeb	[°C]	Res. Time series [h] for each debris layer	Temperature of the Debris layer
Tdp	[°C]	Res. Time series [h] for each soil layer	Soil Temperature of the layer
TdpI_H	[°C]	Res. Time series [d] for each C_{crown}	Soil Temperature of the root zone integrated in 30 days, High vegetation
TdpI_L	[°C]	Res. Time series [d] for each C_{crown}	Soil Temperature of the root zone integrated in 30 days, Low vegetation
Tdp_H	[°C]	Res. Time series [h] for each C_{crown}	Soil Temperature of the root zone, High vegetation
Tdp_L	[°C]	Res. Time series [h] for each C_{crown}	Soil Temperature of the root zone, Low

			vegetation
TexC_H	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Carbon export to Litter, High vegetation
TexC_L	[gC / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Carbon export to Litter, Low vegetation
TexK_H	[gK / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Potassium export to Litter, High vegetation
TexK_L	[gK / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Potassium export to Litter, Low vegetation
TexN_H	[gN / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Nitrogen export to Litter, High vegetation
TexN_L	[gN / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Nitrogen export to Litter, Low vegetation
TexP_H	[gP / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Phosphorus export to Litter, High vegetation
TexP_L	[gP / m^2 PFT day]	Res. Time series [d] for each C_{crown}	Plant Phosphorus export to Litter, Low vegetation
Tice	[°C]	Res. Time series [h]	Ice Temperature in presence of an icepack (Upper temperature)
Ts	[°C]	Res. Time series [h]	Soil/snow Prognostic Temperature for the energy balance
TsV	[°C]	Res. Time series [h]	Vegetation Temperature for the energy balance in presence of snow (Csno==1).
U_SWE	[mm]	Res. Time series [h]	Unloaded snow water equivalent from intercepted snow
V	[mm]	Res. Time series [h] for each Soil Layer	Volume of liquid water stored in the soil layer
Vice	[mm]	Res. Time series [h] for each Soil Layer	Volume of frozen water stored in the soil layer
VOL	[gN / m^2 day]	Res. Time series [d]	Ammonium Volatilization Flux
Vl_H (not active)	[mm m^2 ground/ m^2 PFT]	Res. Time series [h] for each C_{crown}	Water Volume in the leaves, High vegetation
Vl_L (not active)	[mm m^2 ground/ m^2 PFT]	Res. Time series [h] for each C_{crown}	Water Volume in the leaves, Low vegetation
Vx_H (not active)	[mm m^2 ground/ m^2 PFT]	Res. Time series [h] for each C_{crown}	Water Volume in the xylem, High vegetation
Vx_L (not active)	[mm m^2 ground/ m^2 PFT]	Res. Time series [h] for each C_{crown}	Water Volume in the xylem, Low vegetation
WAT	[mm]	Res. Time series [h]	Volume of water in the lakes/ponds
WIS	[mm]	Res. Time series [h]	Water flux incoming to the soil
WR_IP	[mm]	Res. Time series [h]	Water released from the ice pack
WR_SP	[mm]	Res. Time series [h]	Water released from the

			snow pack
WTR	[mm]	Res. Time series [h] for each Soil Layer	Water flow due to water table rising
Ws_under	[m/s]	Res. Time series [h]	Wind speed in the under-canopy (used for soil resistance)
ZWT	[mm]	Res. Time series [h]	Water table depth
alp_soil	[-]	Res. Time series [h]	Soil relative humidity
b_soil	[-]	Res. Time series [h]	Soil resistance beta factor
dQ	[W m^{-2}]	Res. Time series [h]	Residual from energy budget. This might have a different meaning according to the land-surface composition (e.g., snow/ice/ice with debris)
dQVEG	[W m^{-2}]	Res. Time series [h]	Residual from energy budget of snow free vegetation
dflo_H	[day]	Res. Time series [d] for each C_{crown}	Days from leaf onset High Vegetation
dflo_L	[day]	Res. Time series [d] for each C_{crown}	Days from leaf onset Low Vegetation
dw_SNO	[-]	Res. Time series [h]	Fraction of leaf covered by snow
e_relN_H	[-]	Res. Time series [d] for each C_{crown}	Relative Efficiency of the photosynthesis apparatus due to N Limitations
e_relN_L	[-]	Res. Time series [d] for each C_{crown}	Relative Efficiency of the photosynthesis apparatus due to N Limitations
e_rel_H	[-]	Res. Time series [d] for each C_{crown}	Relative Efficiency of the photosynthesis apparatus due to Age/Day-length
e_rel_L	[-]	Res. Time series [d] for each C_{crown}	Relative Efficiency of the photosynthesis apparatus due to Age/Day-length
e_sno	[-]	Res. Time series [h]	Emissivity of the snow
er	[kg/h m^2]	Res. Time series [h] element average	Splash erosion
f	[mm/h]	Res. Time series [h] element average	Infiltration
fapar_H	[-]	Res. Time series [h] for each C_{crown}	Fraction of absorbed PAR, High Vegetation
fapar_L	[-]	Res. Time series [h] for each C_{crown}	Fraction of absorbed PAR, Low Vegetation

gsr_H	[mmol H20 / m^2 ground s MPa]	Res. Time series [h] for each C_{crown}	Soil to Root Hydraulic Conductance, High Vegetation
gsr_L	[mmol H20 / m^2 ground s MPa]	Res. Time series [h] for each C_{crown}	Soil to Root Hydraulic Conductance, Low Vegetation
hc_H	[m]	Res. Time series [d] for each C_{crown}	Vegetation Height High Vegetation
hc_L	[m]	Res. Time series [d] for each C_{crown}	Vegetation Height Low Vegetation
jDay	[#]	Res. Time series [d]	Day of the year
q_runon	[mm/h]	Res. Time series [h]	Runon
r_litter	[s/m]	Res. Time series [h]	Litter resistance
r_soil	[s/m]	Res. Time series [h]	Soil resistance
ra	[s/m]	Res. Time series [h]	Aerodynamic resistance
rap_H	[s/m]	Res. Time series [h] for each C_{crown}	Undercanopy resistance High Vegetation
rap_L	[s/m]	Res. Time series [h] for each C_{crown}	Undercanopy resistance Low Vegetation
rb_H	[s/m]	Res. Time series [h] for each C_{crown}	Leaf boundary resistance High Vegetation
rb_L	[s/m]	Res. Time series [h] for each C_{crown}	Leaf boundary resistance Low Vegetation
rKc_H	[-]	Res. Time series [d] for each C_{crown}	Relative potassium concentration in the plant relative to default, High vegetation
rKc_L	[-]	Res. Time series [d] for each C_{crown}	Relative potassium concentration in the plant relative to default, Low vegetation
rNc_H	[-]	Res. Time series [d] for each C_{crown}	Relative nitrogen concentration in the plant relative to default, High vegetation
rNc_L	[-]	Res. Time series [d] for each C_{crown}	Relative nitrogen concentration in the plant relative to default, Low vegetation
rPc_H	[-]	Res. Time series [d] for each C_{crown}	Relative phosphorous concentration in the plant relative to default, High vegetation
rPc_L	[-]	Res. Time series [d] for each C_{crown}	Relative phosphorous concentration in the plant relative to default, Low vegetation
ros	[kg / m^3]	Res. Time series [h]	Snow density
rs_sunH	[s/m]	Res. Time series [h] for each C_{crown}	Stomatal Resistance sunlit leaves, High Vegetation

rs_sunL	[s/m]	Res. Time series [h] for each C_{crown}	Stomatal Resistance, sunlit leaves, Low Vegetation
rs_shdH	[s/m]	Res. Time series [h] for each C_{crown}	Stomatal Resistance, shaded leaves, High Vegetation
rs_shdL	[s/m]	Res. Time series [h] for each C_{crown}	Stomatal Resistance, shaded leaves, Low Vegetation
t_sls	[s]	Res. Time series [h]	Time since last snowfall
tau_sno (not active)	[-]	Res. Time series [h]	??

VARIABLE	UNITS	TYPE	DESCRIPTION
Ca	[ppm]	Input Time series [h]	CO2 atmospheric concentration
Datam	[Year Month Day Hour]	Input Time series [h] four columns	Explicit Date
Date	[Matlab Format]	Input Time series [h]	Date
Ds	[Pa]	Input Time series [h]	Vapor Pressure Deficit
N	[-] or [W /m^2]	Input Time series [h]	Cloud Cover or Longwave Incoming Radiation
PARB	[W /m^2]	Input Time series [h]	PAR radiation Direct
PARD	[W /m^2]	Input Time series [h]	PAR radiation Diffuse
Pr	[mm/h]	Input Time series [h]	Precipitation
Pre	[mbar]	Input Time series [h]	Atmospheric Pressure
SAB1	[W /m^2]	Input Time series [h]	First band Direct radiation
SAB2	[W /m^2]	Input Time series [h]	Second band Direct radiation
SAD1	[W /m^2]	Input Time series [h]	First band Diffuse radiation
SAD2	[W /m^2]	Input Time series [h]	Second band Diffuse radiation
Ta	[°C]	Input Time series [h]	Air Temperature
Tdew	[°C]	Input Time series [h]	Dew Point Temperature
U	[-]	Input Time series [h]	Relative Humidity
Ws	[m/s]	Input Time series [h]	Wind speed
ea	[Pa]	Input Time series [h]	Vapor Pressure
esat	[Pa]	Input Time series [h]	Vapor Pressure at saturation
DeltaGMT	[h]	Input scalar	Difference with Greenwich Meridian Time
Lat	[°]	Input scalar	Latitude
Lon	[°]	Input scalar	Longitude
Zbas	[m a.s.l.]	Input scalar	Elevation

Lmax_day	[h]	Input Internally Computed	Maximum length of day in a given place
Oa	[µmolO_2/mol]	Input scalar	Intercellular partial pressure oxygen
t_aft	[h]	Input scalar	Integration interval for solar variables – Hours or fraction before
t_bef	[h]	Input scalar	Integration interval for solar variables – Hours or fraction after
IrD (optional)	[mm/h]	Input Time series [h]	Dripping Irrigation
B_IO	[-]	Internal Elaboration	Nutrient Input Fertilization and Deposition structure
B_IO.DepN	[gN / m^2 day]	Input scalar	Nitrogen Deposition Total
B_IO.DepP	[gP / m^2 day]	Input scalar	Phosphorous Deposition Total
B_IO.DepK	[gK / m^2 day]	Input scalar	Potassium Deposition Total
B_IO.FertN	[gN / m^2 day]	Input time series for each day of the year	Nitrogen Fertilization Total
B_IO.FertP	[gP / m^2 day]	Input time series for each day of the year	Phosphorous Fertilization Total
B_IO.FertK	[gK/ m^2 day]	Input time series for each day of the year	Potassium Fertilization Total
HIST	[0/1]	Input option	Switcher for nutrient deposition (0) Current deposition (1) Pre-industrial deposition
Upl	[mm / year]	Input scalar	Tectonic Uplift
PHs	[-]	Input scalar	Soil pH
x1	[-]	Input scalar	First time step of input time series used for simulation
x2	[-]	Input scalar	Last time step of input time series used for simulation
zatm	[m]	Input scalar	Reference height of measurements

Parameter	UNITS	TYPE	DESCRIPTION
Deb_Par (optional)	-	Internal or Assigned Parameter, a structure	.alb (albedo [-]) .e_sur (emissivity [-]) .lan (Thermal conductivity [W / m K]) .rho (density [kg/m3]) .cs (thermal capacity [J/kg K]

			.zom (roughness [m])
Interc_Param	-	Internal Parameter, a structure	It is grouping interception parameters
SnowIce_Param	-	Internal Parameter, a structure	It is grouping snow and ice parameters
Soil_Param	-	Internal Parameter, a structure	It is grouping soil and ice parameters
VegH_Param	-	Internal Parameter, a structure for each C_{crown}	It is grouping vegetation physiological parameters, High Vegetation
VegH_Param_Dyn	-	Internal Parameter, a structure for each C_{crown}	It is grouping vegetation dynamic parameters, High Vegetation
VegL_Param	-	Internal Parameter, a structure for each C_{crown}	It is grouping vegetation physiological parameters, Low Vegetation
VegL_Param_Dyn	-	Internal Parameter, a structure for each C_{crown}	It is grouping vegetation dynamic parameters, Low Vegetation
Mpar_H	-	Internal or Assigned Parameter, a structure for each C_{crown}	Management Parameter for High Vegetation jDay_cut LAI_cut jDay_harv B_harv Date_log fract_log Date_fire fire_eff funb_nit Date_girdling fract_girdling fract_resprout fract_left fract_left_fr fract_left_AB fract_left_BG
Mpar_L	-	Internal Parameter, a structure for each C_{crown}	Management Parameter for Low Vegetation
ParEx_H	-	Internal Parameter, a structure for each C_{crown}	Exudation Parameter for High Vegetation
ParEx_L	-	Internal Parameter, a structure for each C_{crown}	Exudation Parameter for Low Vegetation

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Parameter	UNITS	TYPE	DESCRIPTION
Aice	[-]	Assigned Parameter	Ice albedo
Ared	[-]	Assigned Parameter	Reduction factor for stone content in soil (1-content)
Asur	[m^2 /m^2]	Internal Parameter	Ration between actual-area and projected area
Axyl_H (not active)	[cm^2 xylem /m^2 PFT]	Assigned Parameter for each C_{crown}	Xylem area over PFT area
Axyl_L (not active)	[cm^2 xylem /m^2 PFT]	Assigned Parameter for each C_{crown}	Xylem area over PFT area
Bfac_lo_H	[-]	Assigned Parameter for each C_{crown}	Phenology water stress threshold for β parameter, High Vegetation
Bfac_lo_L	[-]	Assigned Parameter for each C_{crown}	Phenology water stress threshold for β parameter, Low Vegetation
Bfac_ls_H	[-]	Assigned Parameter for each C_{crown}	Multiple meanings: (1) If NaN is inactive, (2) if > 0, it is the soil moisture β threshold to re-start to growth and accelerate the phenology recover of soil moisture stress, from 1 week to 1 day, (3) If it is <-2 represents the days of maximum growth after a grass-cut, High Vegetation
Bfac_ls_L	[-]	Assigned Parameter for each C_{crown}	Multiple meanings: (1) If NaN is inactive, (2) if > 0, it is the soil moisture β threshold to re-start to growth and accelerate the phenology recover of soil moisture stress, from 1 week to 1 day, (3) If it is <-2 represents the days of maximum growth after a grass-cut, Low Vegetation
Bio_Zs	[-]	Internal Parameter for each Soil Layer	Fraction of biogeochemical activity in a specific soil layer
CT_H	[3/4]	Assigned Parameter for each C_{crown}	Photosynthetic pathway C3 or C4, High Vegetation
CT_L	[3/4]	Assigned Parameter for each C_{crown}	Photosynthetic pathway C3 or C4, , Low Vegetation

Cbare	[-]	Assigned Parameter	Bare soil area fraction
Ccrown	[-]	Assigned Parameter for each C_{crown}	Vegetated fraction for each C_{crown}
CcrownFIX (only for VCA)	[-]	Internal Parameter for each C_{crown}	Reference Maximum Vegetated fraction for each C_{crown}
Cl_H (not active)	[mmolH20 / m^2 leaf MPa] or [MPa] – [gDM / gFresh Leaf]	Assigned Parameter for each C_{crown}	Parameters of Leaf capacitance, if length == 1, leaf capacitance, if length == 2, Leaf Elastic Module and LDMC, High Vegetation
Cl_L (not active)	[mmolH20 / m^2 leaf MPa] or [MPa] – [gDM / gFresh Leaf]	Assigned Parameter for each C_{crown}	Parameters of Leaf capacitance, if length == 1, leaf capacitance, if length == 2, Leaf Elastic Module and LDMC, Low Vegetation
Cx_H (not active)	[kg / m^3 sapwood MPa] or [MPa], [MPa]	Assigned Parameter for each C_{crown}	Parameters of Stem capacitance, if length == 1, stem capacitance, if length == 2, stem water potential at 88% and 50% or Relative Water Content, High Vegetation
Cx_L (not active)	[kg / m^3 sapwood MPa] or [MPa], [MPa]	Assigned Parameter for each C_{crown}	Parameters of Stem capacitance, if length == 1, stem capacitance, if length == 2, stem water potential at 88% and 50% or Relative Water Content, Low Vegetation
Color_Class	[0-20]	Assigned Parameter	Soil Class Parameters from Oleson et al., 2010 (updated color class)
Crock	[-]	Assigned Parameter	Rock area fraction
Curb	[-]	Assigned Parameter	Impervious (e.g., roads) area fraction
Cwat	[-]	Assigned Parameter	Water Surface area fraction
DSE_H	[kJ/mol]	Assigned Parameter for each Ccrown	Activation Energy in Photosynthesis for Rubisco Capacity, High Vegetation
DSE_L	[kJ/mol]	Assigned Parameter for each C_{crown}	Activation Energy in Photosynthesis for Rubisco Capacity, Low Vegetation
Do_H	[Pa]	Assigned Parameter for each C_{crown}	Empirical coefficient for the role of vapor

			pressure in the biochemical model of photosynthesis, High Vegetation
Do_L	[Pa]	Assigned Parameter for each C_{crown}	Empirical coefficient for the role of vapor pressure in the biochemical model of photosynthesis, Low Vegetation
Dz	[mm]	Internal Parameter for each Soil Layer	Differential depth between the middle point of soil layers
EvL_Zs	[-]	Internal Parameter for each Soil Layer	Fraction of evaporation depth in a specific soil layer
ExEM	[-]	Assigned Parameter	Fraction of EM mycorrhizal on the total mycorrhizal
FI_H	[$\mu molCO_2\ \mu molPhotons^{-1}$]	Assigned Parameter for each C_{crown}	Intrinsic quantum efficiency, High Vegetation
FI_L	[$\mu molCO_2\ \mu molPhotons^{-1}$]	Assigned Parameter for each C_{crown}	Intrinsic quantum efficiency, Low Vegetation
Ha_H	[kJ mol^{-1} K^{-1}]	Assigned Parameter for each C_{crown}	Activation energy, High Vegetation
Ha_L	[kJ mol^{-1} K^{-1}]	Assigned Parameter for each C_{crown}	Activation energy, Low Vegetation
Ice_wc_sp	[-]	Assigned Parameter	Ice pack maximum specific water content
In_max_rock	[mm]	Assigned Parameter	Maximum interception capacity in rocks
In_max_urb	[mm]	Assigned Parameter	Maximum interception capacity in impervious surface (e.g., roads). In case of Glacier Debris, this is Maximum interception above the Debris.
Inf_Zs	[-]	Internal Parameter for each Soil Layer	Fraction of infiltration depth in a specific soil layer
K_usle	[kg h /J mm]	Internal Parameter	Erosivity Factor
Kbot	[mm/h]	Assigned Parameter	Conductivity of the bedrock
KcI	[mm/h]	Assigned Parameter	Interception drainage rate coefficient
Kct	[-]	Assigned Parameter	Foliage cover decay factor for throughfall
Kfc	[mm/h]	Assigned Parameter	Conductivity at field

			capacity
Kleaf_max_H (not active)	[mmolH20 / m^2 leaf s MPa]	Assigned Parameter for each C_{crown}	Leaf maximum hydraulic conductivity, High vegetation
Kleaf_max_L (not active)	[mmolH20 / m^2 leaf s MPa]	Assigned Parameter for each C_{crown}	Leaf maximum hydraulic conductivity, Low vegetation
Klf_H	[1/day]	Assigned Parameter	Dead leaf fall turnover, High vegetation
Klf_L	[1/day]	Assigned Parameter	Dead leaf fall turnover, Low vegetation
KnitH	[-]	Assigned Parameter for all C_{crown}	Canopy nitrogen decay coefficient, High vegetation
KnitL	[-]	Assigned Parameter for all C_{crown}	Canopy nitrogen decay coefficient, Low vegetation
Krock	[mm/h]	Assigned Parameter	Hydraulic conductivity fractured rock
Ks (overridden by Ks_Zs)	[mm/h]	Internal Parameter	Hydraulic conductivity at saturation – Reference Value
Ks_mac (optional)	[mm/h]	Assigned Parameter for each Soil Layer	Hydraulic conductivity at saturation for each Soil Layer - Structural Component
Ks_Zs	[mm/h]	Internal Parameter or Optionally assigned for each Soil Layer	Hydraulic conductivity at saturation for each Soil Layer
Kx_max_H (not active)	[mmolH20 /m s MPa]	Assigned Parameter for each C_{crown}	Xylem maximum hydraulic conductivity, High vegetation
Kx_max_L (not active)	[mmolH20 /m s MPa]	Assigned Parameter for each C_{crown}	Xylem maximum hydraulic conductivity, Low vegetation
L	[-]	Internal Parameter or Optionally assigned for each Soil Layer	Slope of logarithmic tension-moisture curve
LAI_min_H	[m^2 LAI/ m^2 PFT]	Assigned Parameter for all C_{crown}	Minimum Leaf Area Index for complete defoliation, High Vegetation
LAI_min_L	[m^2 LAI/ m^2 PFT]	Assigned Parameter for all C_{crown}	Minimum Leaf Area Index for complete defoliation, Low Vegetation
LDay_cr_H	[h]	Assigned Parameter for each C_{crown}	Threshold for senescence: hours of light , High Vegetation
LDay_cr_L	[h]	Assigned Parameter for each C_{crown}	Threshold for senescence: hours of light, Low Vegetation

LDay_min_H	[h]	Assigned Parameter for each C_{crown}	Threshold for leaf onset: hours of light , High Vegetation
LDay_min_L	[h]	Assigned Parameter for each C_{crown}	Threshold for leaf onset: hours of light , Low Vegetation
LtR_H	[-]	Assigned Parameter for each C_{crown}	Leaf to root biomass maximum ratio, High Vegetation
LtR_L	[-]	Assigned Parameter for each C_{crown}	Leaf to root biomass maximum ratio, Low Vegetation
Mf_H	[1/day]	Assigned Parameter for each C_{crown}	Fruit maturation turnover, High Vegetation
Mf_L	[1/day]	Assigned Parameter for each C_{crown}	Fruit maturation turnover, Low Vegetation
NCP	[#]	Internal Parameter	Number of carbon pools
NN	[#]	Assigned Parameter	Hourly Time step number
NNd	[#]	Assigned Parameter	Daily Time step number
Nl_H	[gC gN^{-1}]	Assigned Parameter for each C_{crown}	Leaf carbon nitrogen ratio, High Vegetation
Nl_L	[gC gN^{-1}]	Assigned Parameter for each C_{crown}	Leaf carbon nitrogen ratio, Low Vegetation
O33	[-]	Internal Parameter for each Soil Layer	Soil water content at -33 [kPa] of water potential
OM_H	[-]	Assigned Parameter for each C_{crown}	Within canopy clumping factor
OM_L	[-]	Assigned Parameter for each C_{crown}	Within canopy clumping factor
Ofc	[-]	Internal Parameter for each Soil Layer	Water content at field capacity
Ohy		Internal Parameter or Optionally assigned for each Soil Layer	Residual/Hygroscopic water content
Omac (optional)	[-]	Assigned Parameter for each Soil Layer	Additional Porosity due to Macroporosity
Osat	[-]	Internal Parameter or Optionally assigned for each Soil Layer	Water content at saturation
PAR_th_H	[W/m2]	Assigned Parameter for each C_{crown}	Tropical phenology ΔPAR threshold, High Vegetation
PAR_th_L	[W/m2]	Assigned Parameter for each C_{crown}	Tropical phenology ΔPAR threshold, Low Vegetation
PFT_opt_H	-	Internal Parameter, a structure for each C_{crown}	Vegetation optical parameter set given a PFT

PFT_opt_L	-	Internal Parameter, a structure for each C_{crown}	Vegetation optical parameter set given a PFT
Pcla	[-]	Assigned Parameter	Fraction of clay in the soil
Pe	[kPa]	Internal Parameter or Optionally assigned for each Soil Layer	Suction in the soil at air entry
Phy	[kPa]	Assigned Parameter	Suction at the residual/hygroscopic water content
Porg	[-]	Assigned Parameter	Fraction of organic material in the soil
Psan	[-]	Assigned Parameter	Fraction of sand in the soil
PsiG50_H	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% impairment of growth and allocation control, High Vegetation
PsiG50_L	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% impairment of growth and allocation control, Low Vegetation
PsiG99_H	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 99% impairment of growth and allocation control, High Vegetation
PsiG99_L	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 99% impairment of growth and allocation control, Low Vegetation
PsiL00_H	[MPa]	Assigned Parameter for each C_{crown}	Water potential at the beginning of leaf hydraulic conductivity decrease, High Vegetation
PsiL00_L	[MPa]	Assigned Parameter for each C_{crown}	Water potential at the beginning of leaf hydraulic conductivity decrease, Low Vegetation
PsiL50_H	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% of leaf hydraulic conductivity, High Vegetation
PsiL50_L	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% of leaf hydraulic conductivity, Low Vegetation
PsiX50_H	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% of xylem hydraulic conductivity and limit for

			water extraction from soil, High Vegetation
PsiX50_L	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% of xylem hydraulic conductivity and limit for water extraction from soil, Low Vegetation
Psi_sto_00_H	[MPa]	Assigned Parameter for each C_{crown}	Water potential at the beginning of stomatal closure, High Vegetation
Psi_sto_00_L	[MPa]	Assigned Parameter for each C_{crown}	Water potential at the beginning of stomatal closure, Low Vegetation
Psi_sto_50_H	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% of stomatal closure, High Vegetation
Psi_sto_50_L	[MPa]	Assigned Parameter for each C_{crown}	Water potential at 50% of stomatal closure, Low Vegetation
RfH_Zs	[-]	Internal Parameter or Optionally assigned for each Soil Layer and for each C_{crown}	Fraction of fine roots in the soil layers, High Vegetation
RfL_Zs	[-]	Internal Parameter or Optionally assigned for each Soil Layer and for each C_{crown}	Fraction of fine roots in the soil layers, Low Vegetation
SN	[-]	Assigned Parameter	Boolean operator [0/1] for stream identification
SPAR	[-]	Assigned Parameter	Soil-Hydraulic parameterization (1-Van Genuchten with correction approaching residual water content, 2-Saxton-Rawls, 3- Van Genuchten + Soil Structural Effects, 4 -Van Genuchten without correction)
Sl_H	[m^2 gC^{-1}]	Assigned Parameter for each C_{crown}	Specific leaf area, High Vegetation
Sl_L	[m^2 gC^{-1}]	Assigned Parameter for each C_{crown}	Specific leaf area, Low Vegetation
Sllit	[m^2 Litter / kg DM]	Assigned Parameter	Specific leaf area of Litter
Slo_pot	[-]	Internal Parameter for each Soil Layer	Slope of the hydraulic head for each soil layer
Slo_top	[-]	Assigned Parameter	Topographic slope
Sp_LAI_H_In	[mm LAI^{-1}]	Assigned Parameter for each C_{crown}	Specific Interception of rainfall for unit leaf area, High Vegetation
Sp_LAI_L_In	[mm LAI^{-1}]	Assigned Parameter for	Specific Interception of

		each C_{crown}	rainfall for unit leaf area, Low Vegetation
Sp_SN_In	[mm LAI^{-1}]	Assigned Parameter	Specific Interception of snow for unit leaf area, Average of High Vegetation
Stoich_H	-	Internal or Assigned Parameter, a structure for each C_{crown}	Vegetation stoichiometric parameters, High Vegetation Nl: Ns: Nr: Nf: Nh: Phol: Phos: Phor: Phof: Phoh: Kpotl: Kpots: Kpotr: Kpotf: Kpoth: ftransR: ftransL: FiS: Lig_fr_l: Lig_fr_fr: Lig_fr_h: Lig_fr_r:
Stoich_L	-	Internal or Assigned Parameter, a structure for each C_{crown}	Vegetation stoichiometric parameters, Low Vegetation
SvF	[-]	Assigned Parameter	Sky View Factor
Tcold_H	[°C]	Assigned Parameter for each C_{crown}	Air temperature threshold for shedding of leaves, High Vegetation
Tcold_L	[°C]	Assigned Parameter for each C_{crown}	Air temperature threshold for shedding of leaves, Low Vegetation
Th_Pr_sno	[mm/day]	Assigned Parameter	Threshold on intensity of snow to consider a new snowfall and refresh albedo
Tlo_H	[°C]	Assigned Parameter for each C_{crown}	Threshold temperature for leaf onset, High Vegetation

Tlo_L	[°C]	Assigned Parameter for each C_{crown}	Threshold temperature for leaf onset, Low Vegetation
Tls_H (not active)	[°C]	Assigned Parameter for each C_{crown}	Threshold temperature for leaf shedding, High Vegetation
Tls_L (not active)	[°C]	Assigned Parameter for each C_{crown}	Threshold temperature for leaf shedding, Low Vegetation
TmaxS	[°C]	Assigned Parameter	Threshold temperature for precipitation to be fully in liquid form
TminS	[°C]	Assigned Parameter	Threshold temperature for precipitation to be fully in solid form
Trr_H	[gC / m^2 PFT day]	Assigned Parameter for each C_{crown}	Translocation rate from carbohydrate reserve, High Vegetation
Trr_L	[gC / m^2 PFT day]	Assigned Parameter for each C_{crown}	Translocation rate from carbohydrate reserve, Low Vegetation
Vmax_H	[µmol CO_2/ m^2 s]	Assigned Parameter for each C_{crown}	Maximum Rubisco capacity at 25°C leaf level, High Vegetation
Vmax_L	[µmol CO_2/ m^2 s]	Assigned Parameter for each C_{crown}	Maximum Rubisco capacity at 25°C leaf level, Low Vegetation
WatFreez_Th	[°C]	Assigned Parameter	Threshold for freezing lake water
Wm_H	[1/day]	Assigned Parameter for each C_{crown}	Heartwood turnover coefficient, High Vegetation
Wm_L	[1/day]	Assigned Parameter for each C_{crown}	Heartwood turnover coefficient, LowVegetation
ZR50_H	[mm]	Assigned Parameter for each C_{crown}	Root depth 50 percentile, High Vegetation
ZR50_L	[mm]	Assigned Parameter for each C_{crown}	Root depth 50 percentile, Low Vegetation
ZR95_H	[mm]	Assigned Parameter for each C_{crown}	Root depth 95 percentile, High Vegetation
ZR95_L	[mm]	Assigned Parameter for each C_{crown}	Root depth 95 percentile, Low Vegetation
ZRmax_H	[mm]	Assigned Parameter for each C_{crown}	Maximum Root depth, High Vegetation
ZRmax_L	[mm]	Assigned Parameter for each C_{crown}	Maximum Root depth, Low Vegetation
Zbio	[mm]	Assigned Parameter	Depth of the active

			Biogeochemistry zone
Zdes	[mm]	Assigned Parameter	Depth of evaporation layer (=first layer)
Zinf	[mm]	Assigned Parameter	Depth of infiltration layer (=first layer)
Zs	[mm]	Assigned Parameter for each Soil Layer +1	Depth of top of the soil layer
Zs_deb (only in case of debris)	[mm]	Assigned Parameter for each Debris Layer +1	Depth of top of the debris layer
a1_H	[-]	Assigned Parameter for each C_{crown}	Empirical parameter connecting stomatal aperture and net assimilation, High Vegetation
a1_L	[-]	Assigned Parameter for each C_{crown}	Empirical parameter connecting stomatal aperture and net assimilation, Low Vegetation
aR	[-]	Assigned Parameter	Anisotropy ratio
aSE_H	[0-3]	Assigned Parameter for each C_{crown}	Plant type broad category: 0 Evergreen, 1 Deciduous, 2 Grass, 3 Tropical Evergreen
aSE_L	[0-3]	Assigned Parameter for each C_{crown}	Plant type broad category: 0 Evergreen, 1 Deciduous, 2 Grass, 3 Tropical Evergreen
aTop	[mm]	Assigned Parameter	Ratio between Area and Contour Length for lateral transfer
a_dis	[-]	Assigned Parameter	Rainfall disaggregation parameter
age_cr_H	[day]	Assigned Parameter for each C_{crown}	Critical Leaf Age, High Vegetation
age_cr_L	[day]	Assigned Parameter for each C_{crown}	Critical Leaf Age, Low Vegetation
alpVG	[mm^{-1}]	Assigned Parameter for each Soil Layer	Alpha parameter Van-Genuchten soil water retention curve
alpVGM (optional)	[mm^{-1}]	Assigned Parameter for each Soil Layer	Alpha parameter Van-Genuchten soil water retention curve – Structural Component
bVG	[-]	Internal Parameter	Correction parameter of Van-Genuchten soil water retention curve approaching residual water content
cc	[-]	Assigned Parameter	Crown Area Number
cellsize	[m]	Assigned Parameter	Size of the cell
cv_s	[J m^{-3} K^{-1}]	Assigned Parameter for	Volumetric heat capacity

		each Soil Layer	soil solid
d_leaf_H	[cm]	Assigned Parameter for each C_{crown}	Leaf characteristic dimension, High Vegetation
d_leaf_L	[cm]	Assigned Parameter for each C_{crown}	Leaf characteristic dimension, Low Vegetation
dbThick (only in case of debris)	[mm]	Assigned Parameter	Debris thickness
dc_C_H	[day $^{-1}$ °C^{-1}]	Assigned Parameter for each C_{crown}	Factor for increasing mortality with cold, High Vegetation
dc_C_L	[day $^{-1}$ °C^{-1}]	Assigned Parameter for each C_{crown}	Factor for increasing mortality with cold, Low Vegetation
dd_max_H	[day $^{-1}$]	Assigned Parameter for each C_{crown}	Maximum leaf mortality factor for drought, High Vegetation
dd_max_L	[day $^{-1}$]	Assigned Parameter for each C_{crown}	Maximum leaf mortality factor for drought, Low Vegetation
dmg_H	[day]	Assigned Parameter for each C_{crown}	Days of maximum growth, High Vegetation
dmg_L	[day]	Assigned Parameter for each C_{crown}	Days of maximum growth, Low Vegetation
drn_H	[day $^{-1}$]	Assigned Parameter for each C_{crown}	Fine root turnover rate, High Vegetation
drn_L	[day $^{-1}$]	Assigned Parameter for each C_{crown}	Fine root turnover rate, Low Vegetation
dsn_H	[day $^{-1}$]	Assigned Parameter for each C_{crown}	Living sapwood turnover rate, High Vegetation
dsn_L	[day $^{-1}$]	Assigned Parameter for each C_{crown}	Living sapwood turnover rate, Low Vegetation
dz	[mm]	Internal Parameter for each Soil Layer	Soil layer thickness
dz_ice	[mm/h]	Assigned Parameter	Lake Water Freezing Velocity without snow cover
eps_ac_H	[0-1]	Assigned Parameter for each C_{crown}	Parameter for allocation to carbon reserves, High Vegetation
eps_ac_L	[0-1]	Assigned Parameter for each C_{crown}	Parameter for allocation to carbon reserves, Low Vegetation
fab_H	[-]	Assigned Parameter	Fraction of above-ground sapwood and reserve, High Vegetation
fab_L	[-]	Assigned Parameter	Fraction of above-ground sapwood and

			reserve, Low Vegetation
fbe_H	[-]	Internal Parameter	Fraction of below-ground sapwood and reserve, High Vegetation
fbe_L	[-]	Internal Parameter	Fraction of below-ground sapwood and reserve, Low Vegetation
ff_r_H	[-]	Assigned Parameter for each C_{crown}	Reference allocation to Fruit and reproduction, High Vegetation
ff_r_L	[-]	Assigned Parameter for each C_{crown}	Reference allocation to Fruit and reproduction, Low Vegetation
fpr (not used)	[-]	Assigned Parameter	???
gR_H	[-]	Assigned Parameter for each C_{crown}	Growth respiration coefficient, High Vegetation
gR_L	[-]	Assigned Parameter for each C_{crown}	Growth respiration coefficient, Low Vegetation
gcI	[mm^{-1}]	Internal Parameter	Interception parameter
gcoef_H (not used)	[gC/m^2 day]	Assigned Parameter for each C_{crown}	Parameter for maximum growth in perfect conditions, related to Env. Controls of growth, High Vegetation
gcoef_L (not used)	[gC/m^2 day]	Assigned Parameter for each C_{crown}	Parameter for maximum growth in perfect conditions, related to Env. Controls of growth, Low Vegetation
gmes_H (not used)	[mol CO_2 s^{-1} m^{-2}]	Assigned Parameter for each C_{crown}	Mesophyll conductance, High Vegetation
gmes_L (not used)	[mol CO_2 s^{-1} m^{-2}]	Assigned Parameter for each C_{crown}	Mesophyll conductance, Low Vegetation
go_H	[mol CO_2 s^{-1} m^{-2}]	Assigned Parameter for each C_{crown}	Minimum stomatal conductance, High Vegetation
go_L	[mol CO_2 s^{-1} m^{-2}]	Assigned Parameter for each C_{crown}	Minimum stomatal conductance, Low Vegetation
lan_dry	[W m^{-1} K^{-1}]	Internal Parameter for each Soil Layer	Thermal conductivity dry soil
lan_s	[W m^{-1} K^{-1}]	Internal Parameter for each Soil Layer	Thermal conductivity soil solid
lVG	[-]	Assigned Parameter for each Soil Layer	Tortuosity parameter in van Genucthen soil hydraulic conductivity function
lVGM (optional)	[-]	Assigned Parameter for each Soil Layer	Tortuosity parameter in van Genucthen soil

			hydraulic conductivity function– Structural Component
mSl_H (not to be used)	[m2 LAI/gC * m2 PFT / m2 LAI]	Assigned Parameters for each C_{crown}	Linear coefficient of increasing specific leaf area with LAI, High Vegetation
mSl_L (not to be used)	[m2 LAI/gC * m2 PFT / m2 LAI]	Assigned Parameters for each C_{crown}	Linear coefficient of increasing specific leaf area with LAI, High Vegetation
mjDay_H	[1-365]	Assigned Parameters for each C_{crown}	Maximum day of the year for leaf onset (if negative minimum day), High Vegetation
mjDay_L	[1-365]	Assigned Parameters for each C_{crown}	Maximum day of the year for leaf onset (if negative minimum day), Low Vegetation
ms	[-]	Assigned Parameter	Number of soil layers
nVG	[-]	Assigned Parameter for each Soil Layer	n parameter Van-Genuchten soil water retention curve
nVGM (optional)	[-]	Assigned Parameter for each Soil Layer	n parameter Van-Genuchten soil water retention curve - Structural Component
pow_dis	[-]	Assigned Parameter	Rainfall disaggregation parameter
r_H	[gC gN^{-1} day^{-1}]	Assigned Parameters for each C_{crown}	Maintenance respiration rate at 10°C, High Vegetation
r_L	[gC gN^{-1} day^{-1}]	Assigned Parameters for each C_{crown}	Maintenance respiration rate at 10°C, Low Vegetation
rjv_H	[µmol Eq/ µmol CO_2]	Assigned Parameters for each C_{crown}	Scaling factor between Jmax and Vmax, High Vegetation
rjv_L	[µmol Eq/ µmol CO_2]	Assigned Parameters for each C_{crown}	Scaling factor between Jmax and Vmax, Low Vegetation
ros_Ice_thr	[kg m^{-3}]	Assigned Parameter	Density threshold to transform snow into ice
ros_max1	[kg m^{-3}]	Assigned Parameter	Maximum snow density parameter melting conditions
ros_max2	[kg m^{-3}]	Assigned Parameter	Maximum snow density parameter freezing conditions
rsd	[kg m^{-3}]	Internal Parameter	Normal density dry soil
s_SVG	[-]	Internal Parameter	Correction parameter of

			Van-Genuchten soil water retention curve approaching residual water content

Numerical	UNITS	TYPE	DESCRIPTION
dt	[s]	Assigned Value	Time step
dtd	[day]	Internal Value	Time step
dth	[hours]	Internal Value	Time step
CASE_ROOT	[1/2/3/4]	Assigned Option	Type of root profile (1) Exponential Profile (2) Linear Dose Response (3) Constant Profile (4) Linear dose with tap roots
OPT_ALLOME (only for VCA)	[1/2/3/4]	Assigned Option	Choice of Allometric Equation to describe Biomass, DBH, Crown Area, BA, Height, SAI relations. (1) Oil Palm; (2) Generic Forest; (3) Empty; (4) Eucalyptos Regnans
Opt_CR	[ppm]	Assigned Option	Numerical tolerance for solution of coupled photosynthesis, Ci, gs
OPT_EnvLimitGrowth	[0/1]	Assigned Option	Option for introducing Environmental Limitation of Growth
OPT_FR_SOIL	[0/1]	Assigned Option	Option for introducing computation of ice content in the soil / frozen soil
OPT_PH	[mmolH20 /m^2 PFT]	Assigned Option	Numerical tolerance for internal Plant Hydraulic Volumes
OPT_PlantHydr	[0/1]	Assigned Option	Option for introducing Plant Hydraulic or not
OPT_SM	[-]	Assigned Option	Numerical tolerance for soil moisture differential equations (solution of Richards)
Opt_ST	[°C]	Assigned Option	Numerical tolerance for energy budget (temperature) solution
OPT_STh (not used)	[°C]	Assigned Option	Numerical tolerance for heat transfer differential equations- Alternative to CN-numerical scheme

OPT_SoilBiogeochemistry	[0/1]	Assigned Option	Option for introducing computation of Soil-Biogeochemistry
OPT_SoilTemp	[0/1]	Assigned Option	Option for computing soil temperature profile or not
OPT_VCA	[0/1]	Assigned Option	Option for computing forest structural attributes including a variable Crown Area
OPT_VD	[gC /m2 day]	Assigned Option	Numerical tolerance for carbon budget differential equations
OPT_VegSnow	[0/1]	Assigned Option	Option for computing energy budget of vegetation when there is snow at the ground
i	[-]	Internal	Hourly step of calculation
j	[-]	Internal	Daily step of calculation