		Symbol used	Description	Entity (1)	Unit	GO+ Code variable name
Forcing variables		CO_2	Air CO_2 concentration	Air	mol CO_2 mol air^{-1}	microclim.CO2
		e_w	Air vapour pressure at reference level (10m)	Air	Pa	microclim.e
		$LW\downarrow$	Downward flux density of longwave radiation	Atmosphere	W m^{-2}	climate.microclim.LWDw
		O_2	Air O_2 concentration	Air	mol O_2 mol air^{-1}	internal
		P	Atmospheric pressure	Air	Pa	microclim.P
		Rain	Bulk precipitation	Atmosphere	kg H_2O m^{-2} h^{-1}	climate.microclim.Rain
		$SW\downarrow$	Downward flux density of shortwave radiation, split into	Atmosphere	W m^{-2}	climate.microclim.SWDif / SWDif
		T_a	Air temperature at reference level (10m)	Air	°C	climate.microclim.TaC
		T_{ref}	Soil reference temperature	Soil	°C	forest.soil.carbonCycle.Ts_resp
		U_{ref}	Horizontal wind speed at reference level (10m)	Air	m s^{-1}	climate.microclim.u
		δe_w	Air vapour pressure saturation deficit at reference level	Air	Pa	climate.microclim.d
Output variables	Aerodynamic transfer	$d, z0$	Zero plane displacement height and roughness length for momentum	T, U, S	m	internal to the canopy module
		g_H	Aerodynamic conductance for molentum and heat	T,U, S	m.s^{-1}	forest.treeStand.canopy.Ga
		gs_H	Surface + aerodynamic equivalent conductance for	T,U, S	m.s^{-1}	forest.treeStand.canopy.Gsa
		r_H	Resistance to momentum tranfer	T, U, S	m.s^{-1}	forest.treeStand.canopy.R_H
		$u*$	Friction velocity	T, U, S	m.s^{-1}	forest.treeStand.canopy.Ustar
	Radiation transfer	r_R	Resistance analog to radiative tranfer	T, U, S		forest.treeStand.canopy.R_R
		r_{HR}	Resistance analog to combined heat and radiative tranfer	T, U, S		forest.treeStand.canopy.R_HR
		β	Solar elevation angle		radians	sunLocal.SinSunElevation
		$SW\uparrow,\downarrow$	Upward and downward flux densities of shortwave radiation scattered by the canopy or soil	T, U, S	W m^{-2}	forest.treeStand.canopy.SW_Sct_Up - or - Dw
		LW_a	Flux density of longwave radiation absorbed by the canopy or soil layer	T, U, S	W m^{-2}	forest.treeStand.canopy.LW_Abs
		LW_e	Flux density of longwave radiation emitted by the canopy or soil layer	T, U, S	W m^{-2}	forest.treeStand.canopy.LW_Emi
		SW_a	Shortwave radiation absorbed by canopy layers, each separated into shaded and sunlit fractions.	T, U, S	W m^{-2}	forest.treeStand.canopy.SW_Abs
		LAI_{sun}	Sunlit Leaf Area index and shaded Leaf Area Index	T,U,	m^2 m^{-2}	forest.treeStand.canopy.sunLayer.LAI
		LAI_{shade}	Shaded Leaf Area Index	T,U,	m^2 m^{-2}	forest.treeStand.canopy.shadeLayer.LAI
		LAI	Total Layer LAI	T,U,	m^2 m^{-2}	forest.treeStand.canopy.LAI
	Energy balance	$g_{s,c}$	Surface conductance to water vapour of layer *c*	T, U, S	m s^{-1}	forest.treeStand.canopy.g_stom
		$g_{s,H}$	Equivalent total conductance to water vapour of layer *c*	T, U, S	m s^{-1}	forest.treeStand.canopy.Gsa
		G	Heat storage in the soil	S	W m^{-2}	not implemented
		H	Sensible heat flux	T, U, S	W m^{-2}	forest.treeStand.canopy.H
		λE	Latent heat flux	T, U, S	W m^{-2}	forest.treeStand.canopy.LE
		λE_{wet}	Latent heat flux from wet surface	T, U, S	W m^{-2}	forest.treeStand.canopy.LE_DrySurface
		λE_{dry}	Latent heat flux from dry surface	T, U, S	W m^{-2}	forest.treeStand.canopy.LE_WetSurface
		Rnet	Net radiation	T, U, S	W m^{-2}	forest.treeStand.canopy.Rnet
		T_s (or T_K)	Surface temperature	T, U, S	°C (or K)	forest.treeStand.canopy.dTsTa
	Water balance and	E	Evapotranspiration	T, U, S, E	kg H_2O m^{-2} h^{-1}	forest.treeStand.canopy.ETR
		E_{wet}	Evaporation from wet surfaces	T, U, S	kg H_2O m^{-2} h^{-1}	forest.treeStand.canopy.LE_WetSurfac
		E_{dry}	Transpiration	T, U, S	kg H_2O m^{-2} h^{-1}	forest.treeStand.canopy.Transpiration
		S_W	Water stored on the canopy	T,U,S	kg H_2O m^{-2}	forest.treeStand.canopy.WaterSurfaceContent
		$Rain_I$	Rainfall intercepted by canopy elements (foliage+woody parts)	T,U	kg H_2O m^{-2} h^{-1}	forest.treeStand.canopy.InterceptedRain
		$Rain_{TS}$	Water dripping from the canopy in excess of the canopy water storage	T,U	kg H_2O m^{-2} h^{-1}	forest.treeStand.canopy.Dripping
		$S_{W,c}$	Water stored on the canopy surface	T,U	kg H_2O m^{-2}	forest.treeStand.canopy.WaterSurfaceContent
		f_{dry}	Dry fraction of the canopy or soil surface	T, U, S	none	forest.treeStand.canopy.DrySurfaceFraction
		I_{stress}	Stress index[0, 1]	T	none	forest.treeStand.IStress
		$g_{s,c}$	Surface conductance of layer *c*	T, U, S	m s^{-1}	forest.treeStand.g_stom
		θ_A	Water content of the A soil layer	S	kg H_2O m^{-3}	forest.soil.waterCycle.w_A
		$\theta_{rootlayer}$	Water content of the soil rooted zone	S	kg H_2O m^{-3}	forest.soil.waterCycle.w_RootLayer
		$r_{xyl,c}$	Root-to-leaf hydraulic resistance	T	[kg H_2O m^{-2} s^{-1} Pa^{-1}]$^{-1}$	RhydXyl (local within forest.treeStand)
		r_{soil}	Soil hydraulic resistance	S	[kg H_2O m^{-2} s^{-1} Pa^{-1}]$^{-1}$	soil.waterCycle.RhydSoil
		z_{AB}	Depth of Layer B	S	m	forest.soil.waterCycle.Dp_B
		z_{BC}	Groundwater depth (LayerC)	S	m	forest.soil.waterCycle.Dp_C
		D	Groundwater discharge in absence of evaporation	S	kg H_2O m^{-2} d^{-1}	forest.soil.waterCycle.discharge
		ψ_{soil}	Soil water potential	S	Pa	forest.soil.waterCycle. / RootLayerWaterPotential
	Photosynthesis	*Anet*	Net assimilation (split among sunlit and shaded fractions of foliage)	T, U, E	gC m^{-2} soil area.h^{-1}	forest.treeStand.canopy.Assimilation
		g_s	Stomatal conductance to CO2	T, U	mol CO_2 m^{-2} leaf area.s^{-1}	forest.treeStand.canopy.gsCO2
		g_m	Mesophyll conductance to CO2	T, U	mol CO_2 m^{-2} leaf area.s^{-1}	forest.treeStand.canopy.gm
		R_d	Mitochondrial foliage respiration during day	T, U	gC m^{-2} soil area.h^{-1}	forest.treeStand.canopy.Respiration
	Respiration	*Rm*	Respiration part linked to the tissues maintenance (without leaves)	t	gC m^{-2} soil area.h^{-1}	forest.treeStand.RmXXXX where XXX is either Stem, Branches, TapRoot, CoarseRoots, SmallRoots, FineRoots, Roots, Leaf,
		Rg	Respiration part linked to the tissues production (growth)	T, U	gC m^{-2} soil area.h^{-1}	forest.treeStand.Rg
		none	Part of the respiration above soil	T, U	gC m^{-2} soil area.h^{-1}	forest.treeStand.R_Aboveground
		none	Part of the respiration under soil	T, U	gC m^{-2} soil area.h^{-1}	forest.treeStand.R_Belowground
		none	Annual growth respiration	T, U	gC m^{-2} soil area y^{-1}	forest.treeStand.Annual_Rg

	none	Annual maintenance respiration	T, U	gC m^{-2} soil area y^{-1}	forest.treeStand.Annual_Rm
	none	Annual foliage maintenance respiration	T, U	gC m^{-2} soil area.h^{-1}	forest.treeStand.Annual_RmLeaf
	none	Part of the growth respiration above soil	T, U	gC m^{-2} soil area.h^{-1}	forest.treeStand.Rg_Aboveground
	none	Part of the growth respiration under soil	T, U	gC m^{-2} soil area.h^{-1}	forest.treeStand.Rg_BelowGround
	none	Nitrogen content of the tree stand biomass	T	gN m^{-2}	forest.treeStand.Tree_N
Biomass	$dW_{,a,r,}$	Net increment in biomass , partitionned between above-(a) and below-(r)ground parts	T	kg d.m. m^{-2} y^{-1}	forest.treeStand.Wa -or r- Producted
	W_T	Carbon stock in tree biomass (split into stem, branches, leaf, stump, coarse root, small roots, fine roots). Calculated as both canopy integral and individual trees.	T, t	kg d.m. m^{-2}	forest.treeStand.WXXXX where XXXX may be: Stem, Branch, Leaf, TapRoot, CoarseRoot, SmallRoot, FineRoot
	none	Pool of carbon available for the biomass production of understorey vegetation	U	gC m^{-2}	forest.UnderStorey.foliage.Cpool
	dW_s	net daily increment in understorey biomass (split into leaves, perennial part, roots)	U	kg d.m. m^{-2} y^{-1}	forest.UnderStorey.foliage/roots/perennial.Wgrowth
	W_U	Carbon stock in understorey biomass (split into leaves, perennial part, roots)	U	gC m^{-2}	forest.UnderStorey.foliage/roots/perennial.W
	W	Total biomass carbon stock	E	gC m^{-2}	forest.BiomCarbon
	none	Litterfall from tree parts	T	gC m^{2} d^{-1}	forest.treeStand.LitterfallXXXX where XXXX is for either Stem, Leaf, Br or Root.
	none	Litterfall from understorey parts	U	gC m^{2} d^{-1}	forest.UnderStorey.foliage/roots/perennial.Litterfall
Soil carbon	BIO	Carbon stock in soil: biological fraction	S	gC m^{-2}	forest.soil.carbonCycle.BIO
	DPM	Carbon stock in soil: decomposable fraction	S	gC m^{-2}	forest.soil.carbonCycle.DPM
	HUM	Carbon stock in soil: humified fraction	S	gC m^{-2}	forest.soil.carbonCycle.HUM
	RPM	Carbon stock in soil: resistant fraction	S	gC m^{-2}	forest.soil.carbonCycle.RPM
	R_h	Soil microbial respiration (or heterotrophic respiration)	S	gC m^{-2} h^{-1}	forest.soil.carbonCycle.Rh
	none	Amplification of soil organic matter decomposition following plowing	S		forest.soil.carbonCycle.PlowEffect
	C_{soil}	Total stock of carbon in soil	S	gC m^{-2}	forest.SoilCarbon
Harvest and mortality	T_h	Trees harvested	T	number of trees ha^{-1} $year^{-1}$	manager.harvest_density
	W_h	Carbon exported (split into stem, branch, foliage, stump). Calculated as both canopy integral and individual trees.	T, t	kg d.m. m^{-2}	manager.harvest_WXXXX / where XXXX stands for Stem, BranchWood, Foliage orTapRoot
	none	Carbon input into the soil from plant mortality (harvest excluded)	T, U	gC m^{-2} d^{-1}	
	M	Mortality (harvest excluded)	T	number of trees ha^{-1} $year^{-1}$	
	dbh_h	Stem diameter at 1.3m height of trees harvested	T,t	m	manager.harvest_DBHmean
	none	Standard deviation of the diameter at z=1.3 m ofharvested	T	cm	manager.harvest_DBHsd
	none	Quadratic tree diameter at z=1.3 m aboveground	T, t	cm^2	manager.harvest_DBHquadratic
	h_h	Stem height of trees harvested	T	m	manager.harvest_HEIGHTmean
	none	Standard deviation of the height of trees harvested	T	m	manager.harvest_HEIGHTsd
Canopy structure and growth	none	Foliage area to sapwood area ratio	t	m^2 leaf area cm^2 sapwood area	forest.treeSizes_Al_As_ratio
	W*	Fraction of living tissues in a tree part XXXX (stem, branch, coarse-, small-, fine- or tap- roots)	t	-	forest.treeSizes._PaliveXXXX
	none	Total amount of N in an individual tree	t	gN $tree^{-1}$	forest.treeSizes.N
	H_c	Mean tree height	T, t, U	m	forest.treeStand.Heightmean
	none	Mean height of the 100 thickext trees per ha	T	m	forest.treeStand.Heightdom
	none	Standard deviation of tree height	T	m	forest.treeStand.Heightsd
	D_{130}	Tree diameter at z=1.3 m aboveground	T, t	cm	forest.treeStand.DBHmean
	none	Mean tree diameter of the 100 thickest trees per ha.	T, t	cm	forest.treeStand.DBHdom
	none	Standard deviation of tree diameter at z=1.3 m	T	cm	forest.treeStand.DBHsd
	none	Quadratic tree diameter at z=1.3 m aboveground	T, t	cm^2	forest.treeStand.DBHquadratic
	LAI	Canopy leaf area index	T, U	m^2 m^{-2}	forest.treeStand.canopy.LAI
	ΔH_c	Annual increment in height	T, t, U	m $year^{-1}$	not implemented
	ΔD130	Annual increment in stem diameter	T, t	m $year^{-1}$	not implemented
	none	Stemwood production in cubic meters	T	m^3 ha^{-1} $year^{-1}$	forest.treeStand.canopy.PROD_VOL
	BA	Basal area (project cross sectional area of tree stems)	T	m^2 m^{-2}	forest.treeStand.BasalArea
	none	Number of trees in the plot simulated	T		forest.treeStand.treesCount
	SD	Stocking density	T, U	ha^{-1}	forest.treeStand.density
		Relative Density Index	T		forest.treeStand.RDI
	WAI	Branch and stem area index	T, t	m^2 m^{-2}	forest.treeStand.canopy.WAI
Water relations	ψ_c	Leaf water potential (canopy average)	T,U	Pa	forest.treeStand.canopy.WaterPotential
	none	Root water potential (canopy average)	T	Pa	forest.treeStand.SoilRootsWaterPotential
	$r_{xyl,c}$	Rroot-to-leaf hydraulic resistance	T,U	[kg H_2O m^{-2} s^{-1} Pa^{-1}]$^{-1}$	RhydXyl (internal to forest.treeStand)
	C_T	Plant capacitance	T,U	kg H_2O m^{-2} s^{-1} Pa^{-1}	C (internal to forest.treeStand)
Phenology	DOY_B	Budburst date	T	days since start of the	forest.treeStand.cohort.DateOfBB
	DOY_S	Senescence date	T	day of year	forest.treeStand.cohort.DOYOfBB
	none	Sum of chilling units	T	°C days	forest.treeStand.Sch
	none	Sum of forcing units	T	°C days	forest.treeStand.Sfor
	none	Sum of SW radiation accumulated from budburst to DOY	leaf cohort	°C days	forest.treeStand.cohort.SumSW
	none	Degree days accumulated since 1st January, base T=0°C	leaf cohort	°C days	forest.treeStand.cohort.HeatSum
	none	Dry mass of the current year leaf cohort	leaf cohort	kg d.m. m^{-2}	forest.treeStand.cohort.HeatSum
Management		Last thinning date	T	(date, YYYY)	forest.treeStand.lastThinningYear
		Number of thinnings within a rotation	T		forest.treeStand.thinnings
		seedingYear	T	(date, YYYY)	forest.treeStand.seedingYear
		First thinning boolean	T	1/0	forest.treeStand.FirstThinning
		Number of trees cut by a thinning	T		forest.treeStand.cohort.NbCutTrees
		Number of clearcuts	T		forest.treeStand.cohort.clearcuts
Variables integrated over the	none	Carbon content in ecosystem biomass	E	gC m^{-2}	forest.BiomCarbon
	ETR	Evapotranspiration	E	kg H_2O m^{-2} h^{-1}	forest.ETR

ecosystem	GPP	Gross primary production	E	gC m^{-2} h^{-1}	forest.GPP
	H	Sensible heat flux	E	W m^{-2}	forest.H
	none	Rainfall interpreted by the canopy layers	E	kg H_2O m^{-2} h^{-1}	forest.INTER
	λE	Latent heat flux	E	W m^{-2}	forest.LE
	NEE	Net Ecosystemexchange of CO2	E	gC m^{-2} h^{-1}	forest.NEE
	NPP	Net primary production	E	gC m^{-2} h^{-1}	forest.NPP
	R_m	Autotrophic respiration	E	gC m^{-2} h^{-1}	forest.Rauto
	R_{ECO}	Ecosystem respiration	E	gC m^{-2} h^{-1}	forest.Reco
	R_g	Net radiation	E	W m^{-2}	forest.Rnet
		Soil carbon	E	gC m^{-2}	forestSoilCarbon
	E_{dry}	Transpiration of Ecosystem (tree and understorey)	E	kg H_2O m^{-2} h^{-1}	forest.T

(1) The indices in capitals T, U, S and E stand for tree canopy, understorey canopy, soil and ecosystem respectively. The indice "t" --in lower case-- stands for individual trees.