

Table SM.5. Descriptions, values and units used in the CAETÊ equations. IPAR: incident photosynthetically active radiation.

Parameter	Description	Value/units
c_{srU}	Water uptake capacity	$\text{mmH}_2\text{O kgC}^{-1}\text{day}^{-1}$
g_0	Minimal stomatal conductance	$0.001 \text{ molm}^{-2}\text{s}^{-1}$
g_1	Conductance sensibility to the carbon assimilation	$\text{kPa}^{1/2}$
g_m	Upscaling of stomatal conductance to canopy	3.26 mms^{-1}
H_{max}	Water maximum holding capacity	500 mm
k_1	Photosynthesis co-limitation coefficient	0.93
k_{10}	Function Q_{10} parameter	0.57
k_{11}	Function Q_{10} reference temperature	$25 \text{ }^\circ\text{C}$
k_{12}	CO_2 Michaelis-Menten constant parameter	30 Pa
k_{13}	CO_2 Michaelis-Menten constant parameter	2.1
k_{14}	O_2 Michaelis-Menten constant parameter	30.000 Pa
k_{15}	O_2 Michaelis-Menten constant parameter	1.2
k_{16}	Maximum ratio between intern and extern CO_2	0.9
k_{17}	Critical moisture deficit	0.1
k_{18}	Rubisco carboxylation rate parameter	2
k_{19}	Rubisco carboxylation rate parameter	0.3
k_2	Photosynthesis co-limitation coefficient	0.83
k_{20}	Rubisco carboxylation rate parameter	$36 \text{ }^\circ\text{C}$
k_{21}	Light extinction coefficient for direct IPAR (sun)	$0.5/\text{sen}(90^\circ)$
k_{22}	Light extinction coefficient for direct IPAR (shade)	$0.5/\text{sen}(20^\circ)$
k_3	Oxygen atmospheric concentration	21.200 Pa
k_4	Quantum efficiency	$0.08 \text{ mol electrons/Ein}$
k_5	Light scattering rate	0.15
k_6	J_L parameter	2
k_7	Ratio between photosynthesis limited by light and by rubisco carboxylation	0.5
k_8	Photorespiration point compensation parameter	5.2
k_9	Photosynthesis co-limitation coefficient	0.1
nc_{leaves}	N:C ratio for leaves	0.034
nc_{sapwood}	N:C ratio for sapwood	0.003
$nc_{\text{fineroots}}$	N:C ratio for fine roots	0.034
rc_{min}	The minimum stomatal resistance	100 sm^{-1}

V_{cmax}	Maximum rate of Rubisco carboxylation	0.00004 molCO ² m ⁻² s ⁻¹
γ_{m}	Maximum Priestley-Taylor coefficient	1.391