input parameter name	nom	unit	standard value from Mcgrath et al. [2012] table 1	other standard value	description
landscape and time scale					
m		[cells]			number of rows
n		[cells]			number of colums
dx	Δx	[m]	$5.0\,\mathrm{m}$		Grid size (spatial dimesions of a lattice cell); $\geq 1\,\mathrm{m}$
roughness					surface roughness
nSteps	t_{max}	[yr]			total number of "years"
climate					
pa	D	[mm]	$0.2\,\mathrm{m} = 200\,\mathrm{mm}$	$160 \leq D \leq 790$ [Deblauwe et al., 2008]	Mean annual rainfall
np				$np = pa/4$	number of particles of rain falling
	v	[m³]	0.1		Volume of a water particle
ts	t_c,t_r	[yr]	$1 - 0.97 = 0.03$	0.0128767	Duration of time raining in years (e.g.: days raining/days of year); $1 - t_e$
	t_e	[yr]	0.97		Mean annual dry duration; $1 - t_c$
plant growth					
-	$\widetilde{w}_c$	$[-]$	0.048		$\widetilde{w}_c = w_c/\Delta x$
storEmerge	w_c	[mm]	$0.048 \cdot 5.0\,\mathrm{m} \cdot 1000\,{}^{\mathrm{mm}}/_{\mathrm{m}} = 240\,\mathrm{mm}$	120	At bare sites vegetation establishes where storage is over a threshold amount of water remaining in the soil at the end of a year; $w_c = \widetilde{w}_c \cdot \Delta x$
useStorEmerge		[logic]		T	flag denotes whether to use random collonisation pc or storage based sEmerge
etPersist	T_c	[mm]		200	Threshold transpiration rate over which plants start to grow
-	$\widetilde{T}_c$	$[-]$	2		$\widetilde{T}_c = T_c t_e/D$
-	T_a	$[\mathrm{L}/\mathrm{T}]$			actual transpiration rate of plant
tSteps				200	number of iterations for evap calcs between veg change
	$\Delta\widetilde{b}$	$[-]$	$0.1 \widehat{=} 0.2\,{}^{\mathrm{kg}}/_{\mathrm{m}^2\mathrm{yr}}$		Dimensionless increment of biomass change (dimensionless)
vegmax				9	maximum biomass
-	S	[%]	0.4	$\leq 2\%$ [Deblauwe et al., 2008]	Mean slope (hardcoded, no input parameter yet)
	$\widetilde{K}_0$	$[-]$	0.1		Intrinsic hydraulic conductivity (dimensionless)

input parameter name	nom	unit	standard value from Mcgrath et al. [2012] table 1	other standard value	description
	$\widetilde{K}_{max}$	$[-]$	0.9		Maximum potential hydraulic conductivity (dimensionless)
	$\widetilde{k}_c$	$[-]$	1.0		Competition parameter (dimensionless)
infiltration kernel parameter:					
K0	K_0	$[\mathrm{mm/yr}]$		0.2546103	intrinsic hydraulic conductivity of the soil in the absence of plants in
-	$\widetilde{K}_0$	$[-]$	$\widetilde{K}_0 = \frac{K_0}{P}$		
Kmax	K_{max}	$[\mathrm{mm/yr}]$	$1 \leq \frac{K_{max}}{K_0} \leq 30$	2.0461027	potential maximum hydraulic conductivity
-	$\widetilde{K}_{max}$	$[-]$	$\widetilde{K}_{max} = \frac{K_{max}}{P}$		
kf	k_f	$[1/\mathrm{m}]$	$\widetilde{k}_f \Delta x = 5$	1.0,0.8	rate of decline in plant effect on infiltration (facilitation parameter)
	$\widetilde{k}_f$	$[-]$	1.0		$\widetilde{k}_f = k_f \Delta x$
rf		$[\mathrm{m}]$		5	maximum length for plant effect on infiltration
evaporation kernel parameters					
Emax		$[\mathrm{mm/yr}]$		876	$\mathrm{mm/h} \cdot 24\mathrm{h/d} \cdot 365\mathrm{d/yr} = \mathrm{mm/yr}$
	T_{max}		$T_{max} = \frac{\beta_t D}{t_e}$		potential transpiration rate (maximum rate of transpiration by any plant)
kc	k_c	$[1/\mathrm{m}]$		0.6,0.8	rate of decline in plant water uptake with distance (competition parameter); Schenk and Jackson [2002]: $0.05\,\mathrm{m}^{-1} \leq \mathrm{k_c} \leq 2\,\mathrm{m}^{-1}$, geometric mean: $0.3\,\mathrm{m}^{-1}$(trees) $0.9\,\mathrm{m}^{-1}$ (shrubs); other parameters in **?** and **?**
-	$\widetilde{k}_c$	$[-]$			$\widetilde{k}_c = k_c \Delta x$
rc		$[\mathrm{m}]$		5	maximum radius for plant water uptake
gamma				0.5	relative reduction of soil evap under canopy
	β_v	$[-]$	0.03		Scaling factor for soil evaporation from vegetated site (dimensionless)
	E_v		$E_v = \beta_v D / t_e$		Soil evaporation rates from vegetated sites
*Esv			gamma*Esb		maximum soil evap from under canopy
bav	β_b	$[-]$	0.06	0.1	Bare soil evaporation scaling factor (dimensionless); scaling factor for Esb calc; **?**: $\beta_b \approx 2\beta_v$
	E_b		$E_b = \beta_b D / t_e$		Soil evaporation rates from bare sites;

input parameter name	nom	unit	standard value from Mcgrath et al. [2012] table 1	other standard value	description
*Esb			bav*Emax		maximum bare soil evap rate
	β_t	$[-]$	2.1		Transpiration rate scaling factor (dimensionless); ≥ 1[Deblauwe et al., 2008]
erosion					
kv				$0.1; 10$	
kb				0.1	
Dv				$0.1; 1$	
Db		$\left[\mathrm{m}^2/\mathrm{kyr}\right]$?		0.1	
flags					
tapogRoute				T	if true, then use topography to route flows
simErosion				F	if true, then simulate erosion and update flow pathways
simEvap				T	if true, then simulate evaporation
simVegEvolve				T	if true, then simulate evolving vegetation
RandomInVeg					if true, then allow vegetation to be randomly distributed initially, othewrwise set all veg to 0
useRandomSeed				T	if true, set random seed by clock
BCs				-3 -3 0 0	top, left, bottom and right boundaries codes; -3 should mean periodic, -2 means a generic outflow cell, -1 is reserved for the Gd8's general lowest cell; devide numbers with tabs (\t)
technical details					
title					title of simulation run (used in output files)
description					description for this simulation run
outputFormat				csv	
run				T	should this parameter set be run?

topic	formula
evaporation	$f_v\left(T_{max}+E_v\right)+\left(1-f_v\right)E_b \leq D/t_e$
	$f_v \ldots$fraction of area vegetated

Literatur

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