

List of model parameters

	Represents	Value	Range	Reference
F_{CFL}	Prevents breaking CFL	0.50	0.1–0.9	
dt_{max}	Maximum allowable time step	1/12 year	1/36–1 year	
D_r	Percent of water drained to aquifer	2.00 %	0–0.07	Johnson (2002)
dt_{tun}	Time interval between tunnel checks	1/4 year	1/12–1 year	
h_c	Saturated sediment water thickness	1.00 m	0.1–2 m	Person et al. (2012)
k_a	Steepness of conductivity transition	15	5–60	Flowers et al. (2005)
k_b	Affects when conductivity transitions	0.65	0.25–0.95	Flowers et al. (2005)
K_{min}	Minimum hydraulic conductivity	10^{-7} m s^{-1}	10^{-9} – 10^{-5}	Flowers et al. (2005)
K_{max}	Maximum hydraulic conductivity	10^{-5} m s^{-1}	10^{-7} – 10^{-3}	Flowers et al. (2005)
Q_{sc}	Tunnel formation condition multiplier	1.00	10^{-4} – 10^4	
T_c	Complete basal freezing temperature below PMP	$-2.00 \text{ }^\circ\text{C}$	-3 – $-0.5 \text{ }^\circ\text{C}$	
Z_h	Bedrock bump height	0.10 m	0.01–0.5 m	Kamb (1987)