

Model constructions	Parameters	Unit	Descriptions
Snow model (Eqs. 1, 2, 3, 4, 5, 10)	$P$	mm	Precipitation
	$P_s$		Snowfall in SWE form
	$P_1$		Rainfall
	$h_s$		Snow depth in SWE form
	$M_{sp}$		Potential snowmelt in SWE form
	$M_s$		Snowmelt in SWE form
	$E_{sp}$		Potential snow sublimation in SWE form
	$E_s$		Snow sublimation in SWE form
	$\alpha$ $\beta$	$\text{mm } (^\circ\text{C})^{-1} \text{ day}^{-1}$	Degree-day factor Snow sublimation coefficient
Surface Runoff (Eqs. 6, 11, 14)	$q$	mm	Surface runoff
	$H$		Water depth of surface tank
	$E_{1s}$		Land surface actual evaporation
	$h_0$		Critical value for surface runoff generation
	$h_1$		Critical value for peak runoff
	$k_2$	–	Land surface evaporation conversion coefficient
	$b_1$		Runoff coefficient for normal runoff generation
	$b_2$		Runoff coefficient for peak value
Infiltration and Baseflow (Eqs. 7, 8, 12)	$F$	mm	Infiltration water
	$h_g$		Water depth of underground tank
	$q_g$		Base flow
	$h_2$		Critical value for base flow generation
	$b_0$	–	Infiltration coefficient
	$d$		Base flow coefficient
Lake model (Eqs. 9, 13, 14)	$q_1$	mm	Lake outlet runoff
	$E_1$		Lake water evaporation
	$H_1$		Water depth of lake tank
	$h_{11}$		Critical value for lake outlet runoff generation
	$h_{12}$		Lake outlet runoff coefficient for peak value
	$k_2$	–	Water evaporation conversion coefficient
	$c_0$		Lake outlet runoff coefficient for normal runoff generation
	$c_1$		Lake outlet runoff coefficient for peak value
Common Parameters	$T^+$	$^\circ\text{C}$	Positive temperature
	$T_c$		Critical temperature for melt
	$i$	month	Time step indicator