

Supplementary Materials

Supplementary Table S1: SWAT parameters applied for calibration in this study.

S. No.	Parameter	Method	Description	Range
1	GW_DELAY.gw	Replace	Groundwater delay (days)	0 – 500
2	GW_REVAP.gw	Replace	Groundwater "revap" coefficient	0.02 – 0.2
3	REVAPMN.gw	Replace	Threshold depth of water in the shallow aquifer for "revap" to occur (mm)	0 – 100
4	GWQMN.gw	Replace	Threshold depth of water in the shallow aquifer required for return flow to occur (mm)	0 – 5000
5	ALPHA_BF.gw	Replace	Baseflow alpha factor (days)	0 – 1
6	CH_K2.rte	Replace	Effective hydraulic conductivity in main channel alluvium	0 – 500
7	CH_N2.rte	Replace	Manning's "n" value for the main channel	0 – 0.3
8	CANMX.hru	Replace	Maximum canopy storage	0 – 100
9	HRU_SLP.hru	Relative	Average slope steepness	–0.25 – 0.25
10	SLSUBBSN.hru	Relative	Average slope length	–0.25 – 0.25
11	OV_N.hru	Replace	Manning's "n" value for overland flow	0.01 – 30
12	CN2.mgt	Relative	SCS runoff curve number f	–0.25 – 0.25
13	BIOMIX.mgt	Replace	Biological mixing coefficient	0 – 1
14	SFTMP.bsn	Replace	Snowfall temperature	–20 – 20
15	SMTMP.bsn	Replace	Snowmelt base temperature	–20 – 20
16	SMFMX.bsn	Replace	Maximum melt rate for snow during the year (occurs on the summer solstice)	0 – 20
17	SMFMN.bsn	Replace	Minimum melt rate for snow during the year (occurs on winter solstice)	0 – 20
18	TIMP.bsn	Replace	Snowpack temperature lag factor	0 – 1
19	ESCO.bsn	Replace	Soil evaporation compensation factor	0 – 1
20	SNOCVMX.bsn	Replace	Minimum snow water content that corresponds to 100% snow cover	0 – 15
21	EPCO.bsn	Replace	Plant uptake compensation factor	0 – 1

22	SNO50COV.bsn	Replace	Snow water equivalent that corresponds to 50% snow cover	0.05 – 0.8
23	SURLAG.bsn	Replace	Surface runoff lag time	0.05 – 24
24	TLAPS.sub	Replace	Temperature lapse rate	–10 – 10
25	PLAPS.sub	Replace	Precipitation lapse rate	–1000 – 1000
26	SOL_ALB(.).sol	Relative	Moist soil albedo	0 – 0.25
27	SOL_AWC(.).sol	Relative	Available water capacity of the soil layer	–0.25 – 0.25
28	SOL_K(.).sol	Relative	Saturated hydraulic conductivity	–0.25 – 0.25
29	SOL_Z(.).sol	Relative	Depth from the soil surface to the bottom of the layer	–0.5 – 0.5