

Parameters						
	Description	Units	Initial sampling distribution	Feasible range	$s^2$	Max allowable daily rate of change ( $m_{\max}$ )
$\beta$	Soil moisture exponent	( )	$N(2, 0.1)$	0–7	0.003	$1.8 \times 10^{-3}$
fcap	Maximum soil moisture store depth	(mm)	$N(467, 10)$	10–2000	0.003	0.4
hl1	Threshold for generation of near-surface flow	(mm)	$N(120, 10)$	0–400	0.003	0.1
$K$	Near-surface flow routing coefficient	( )	$N(0.3, 0.005)$	0.0625–1	0.003	$2 \times 10^{-4}$
$K1$	Interflow routing coefficient	( )	$N(0.09, 5 \times 10^{-4})$	0.02–0.1	0.003	$9 \times 10^{-6}$
perc	Percolation rate	(mm d <sup>-1</sup> )	$N(1.3, 10^{-4})$	0–3	0.003	$10^{-3}$
$K2$	Baseflow routing coefficient	( )	$N(0.01, 10^{-6})$	$5 \times 10^{-5}$ –0.02	0.003	$9 \times 10^{-6}$
States						
sowat	Soil moisture store	(mm)	$N(0,1)$	(0, fcap)		
stw1	Shallow layer store	(mm)	$N(0,1)$	(0, $\infty$ )		
stw2	Deep layer store	(mm)	$N(0,0.1)$	(0, $\infty$ )		