	O horizon	E horizon	B1 horizon	B2 horizon
Soil layer thickness (cm)	5	5	20	15
Bulk density ($kg\,m^{-3}$)	156	773	749	836
Annual discharge ($m^3\,m^{-2}$)	0.55	0.5	0.45	0.45
Soil moisture ($m^3\,m^{-3}$)	0.3	0.3	0.3	0.3
Temperature (°C)	8	8	8	8
Organic C ($g\,kg^{-1}$)	400	50	60	50
SO_4 adsorption	None	none	some[a]	some[a]
DOC ($mg\,L^{-1}$)	35	12.6	9.8	9.8
Dissolved NO_3^- ($\mu mol\,L^{-1}$)	0.5	0.4	0.4	0.4
Dissolved NH_4^+ ($\mu mol\,L^{-1}$)	0.5	2.6	4.2	4.2
CO_2 pressure (atm)	1×10^{-3}	2×10^{-3}	7×10^{-3}	1×10^{-2}
$\log^* K_s$, $Al(OH)_3(s)$[b]	−4.2	−7.7	−9.4	−9.4
PROFILE parameters				
Mineral surface area ($m^2\,g^{-1}$)	0	1.2	1.1	2.0
K feldspar (%)	0	15	18	19
Plagioclase (%)	0	14	15	16
Hornblende (%)	0	0.5	1.5	1.5
Epidote (%)	0	0.5	0.75	1.0
Garnet (%)	0	0.1	0.1	0.1
Biotite (%)	0	0.5	0.5	0.5
Chlorite (%)	0	0.4	0.4	0.4
Vermiculite (%)	0	3.0	15	5.0
Apatite (%)	0	0.1	0.2	0.3
Parameters specific for ion-exchange model[c]				
CEC ($cmol_c\,kg^{-1}$)	18.7/23.9	3.62/4.85	4.89/6.49	4.73/5.61
$\log K_{GT,Al-Ca}$	−5.15/−5.04	−3.50/−3.38	−1.54/−1.42	0.13/0.20
$\log K_{GT,Al-Mg}$	−3.50/−2.43	−1.11/−0.99	0.48/0.60	2.31/2.38
$\log K_{GT,Al-Na}$	−1.54/−1.33	−1.00/−0.74	−0.35/−0.10	0.35/0.50
$\log K_{GT,Al-K}$	−6.41/−6.20	−6.32/−6.07	−4.72/−4.47	−4.11/−3.96
$\log K_{GT,Al-H}$	−/−4.80	−/−6.76	−/−7.73	−/−7.11
Parameters specific for SHM				
Active humic acid ($g\,kg^{-1}$)	180	25	22.5	22.5
Active fulvic acid ($g\,kg^{-1}$)	60	25	22.5	22.5
Geochemically active Al ($mmol\,kg^{-1}$)	40	50	80	80