

Data Repository Items

Table 1. Results

Run #	Soil size (mm)	Porosity	$\log K_s$ (cm sec ⁻¹)	Runoff volume (ml)	Contact time (s)	Dissolved salt (g) *	Bedrock erosion (g cm ⁻²)	Dissolution rate (g cm ⁻² s)
1	No soil	1	N.A. [†]	895	19	1.54	0.0028	1.48×10^{-4}
2	4	0.43	0.312	880	86	6.61	0.0120	1.40×10^{-4}
3	2.8	0.49	0.121	900	142	8.38	0.0152	1.07×10^{-4}
4	0.71	0.55	-0.658	880	360	16.08	0.0292	8.12×10^{-5}
5	0.212	0.37	-0.959	690	1200	16.56	0.0301	2.51×10^{-5}
6	No soil	1	N.A. [†]	900	17	1.52	0.0028	1.63×10^{-4}
7	4	0.43	0.312	890	70	7.54	0.0137	1.96×10^{-4}
8	2.8	0.49	0.121	905	90	7.98	0.0145	1.61×10^{-4}
9	0.71	0.55	-0.658	690	480	13.43	0.0244	5.09×10^{-5}
10 [#]	0.212	0.37	-0.959	390	960	9.98	0.0181	1.89×10^{-5}
11	No soil	1	N.A. [†]	960	15	2.23	0.0041	2.71×10^{-4}
12	4	0.43	0.312	930	60	9.41	0.0171	2.85×10^{-4}
13	2.8	0.49	0.121	990	140	11.66	0.0212	1.51×10^{-4}
14	0.71	0.55	-0.658	680	375	12.84	0.0233	6.23×10^{-5}
15	0.212	0.37	-0.959	810	720	16.79	0.0305	4.24×10^{-5}

* These values include salt dissolved in the runoff and in the pore water.

[†] N.A. = not appropriate.

[#] The runoff volume from Run #10 was ~50% less than the others, indicating that the soil had not been sufficiently pre-wetted and that a large proportion of the pulse was drawn up into the top layer of the pseudo-soil by capillary tension and did not interact with the bedrock.

Table 2. Parameter values

Parameter	Calcite	K feldspar
V (cm ³)	1	1
A (cm ²)	1	1
ϕ	0.5	0.5
C _{eq} (g cm ⁻³) *	6 x 10 ⁻⁶	8.3 x 10 ⁻⁸
k (g cm ⁻² s ⁻¹)	10 ⁻⁸ †	10 ⁻¹⁶ #
x (m)	10	10

* (Berner, 1978)
† (White et al., 2001)
(Chou et al., 1989)

- Berner, R.A., 1978, Rate control of mineral dissolution under earth surface conditions: American Journal of Science, v. 278, p. 1235-1252.
- Chou, L., Garrels, R.M., and Wollast, R., 1989, Comparative study of the kinetics and mechanisms of dissolution of carbonate minerals: Chemical Geology, v. 78, p. 269-282.
- White, A.F., Bullen, T.D., Schulz, M.S., Blum, A.E., Huntington, T.G., and Peters, N.E., 2001, Differential rates of feldspar weathering in granitic regoliths: Geochimica et Cosmochimica Acta, v. 65, p. 847-869.

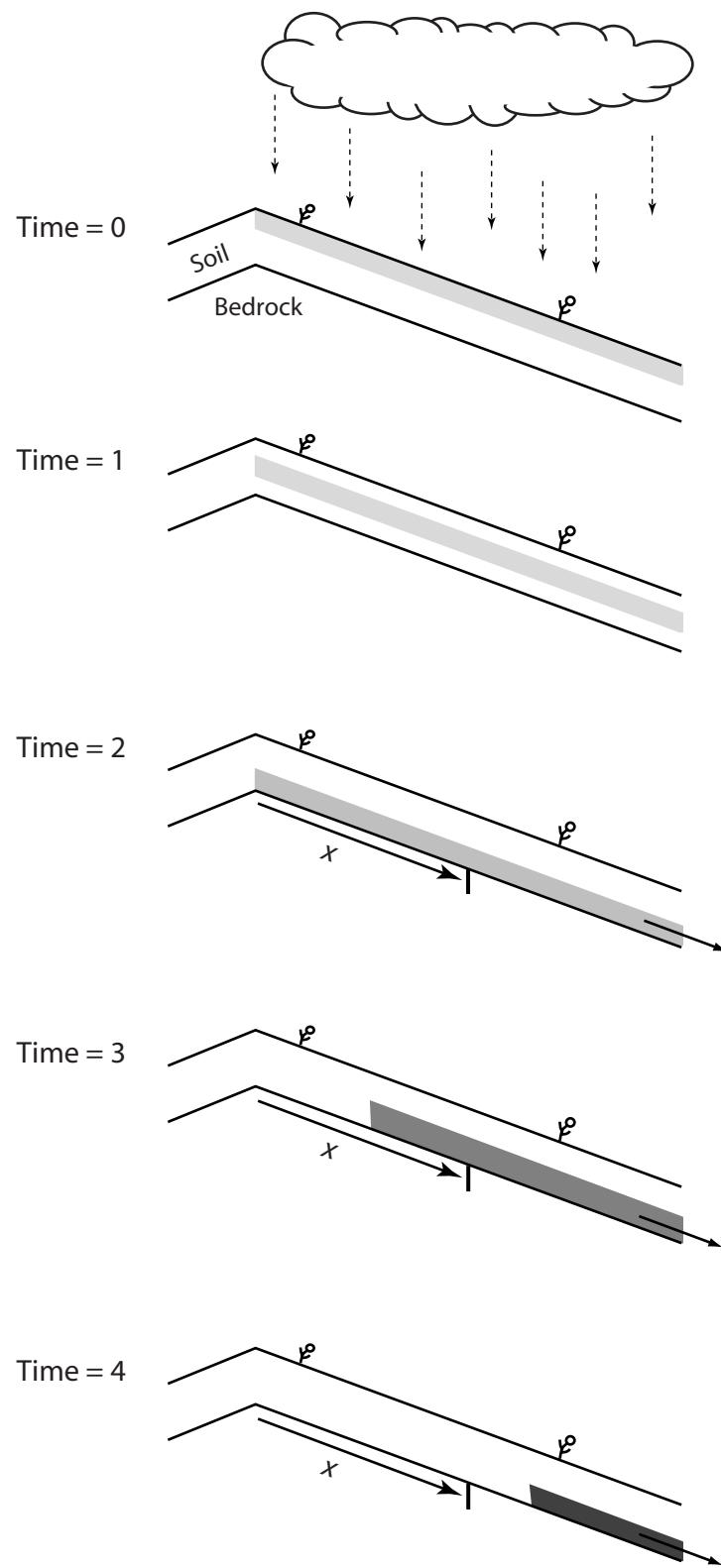


Figure 1, Data Repository