

Weathering Increases Bedrock Water Storage but Not Necessarily Its Temporal Persistence in Humid Karst Hillslopes

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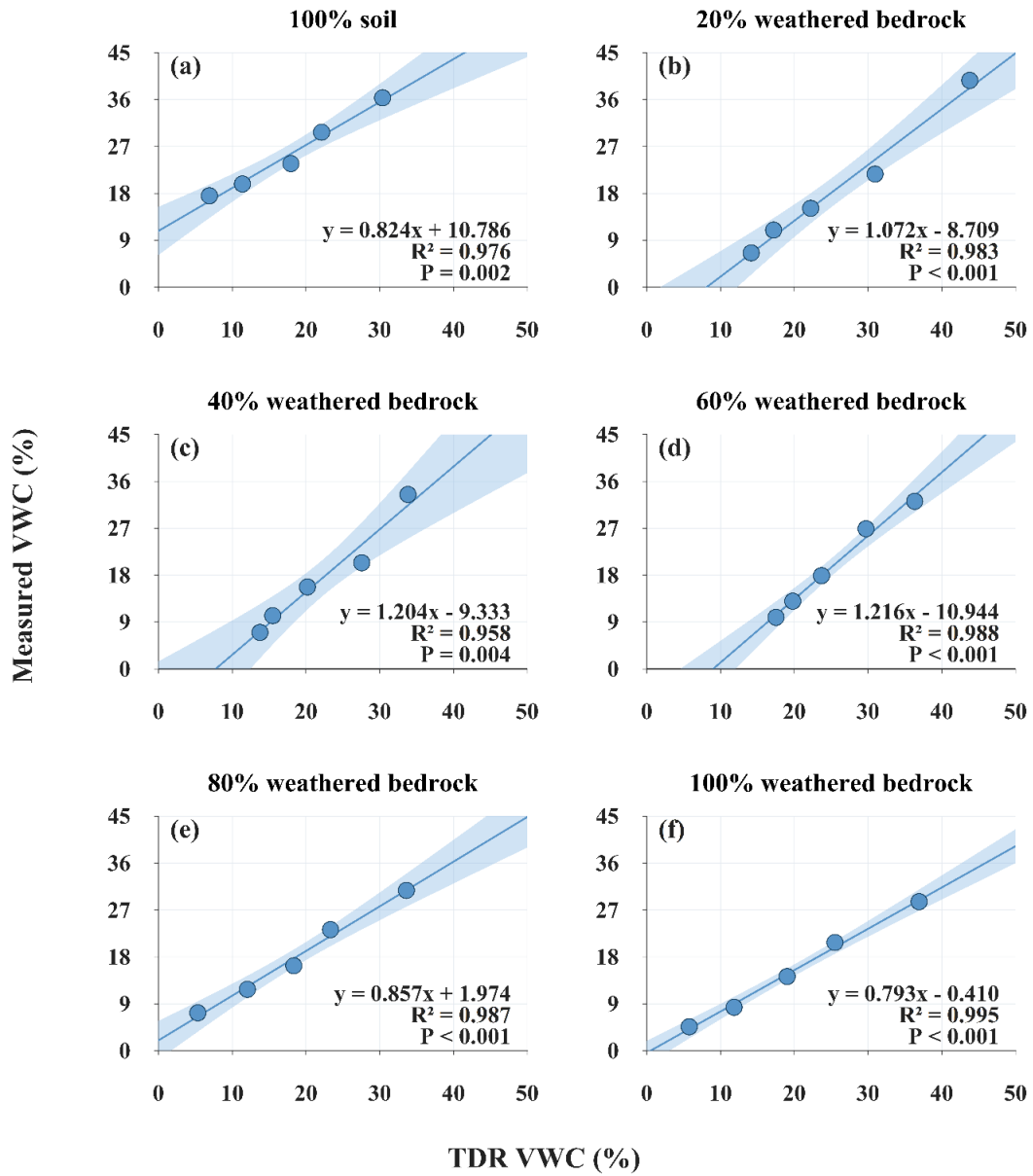


Figure S1: Calibration relationships between TDR-derived and measured volumetric water content (VWC) for different proportions of soil and weathered-bedrock mixtures. Solid lines show linear regressions, and shaded bands represent 95% confidence intervals.

27 **Table S1. Borehole Information (Site, Terrain Position, Soil and Weathered Bedrock Depth (WBD), Slope, Tree**
 28 **Height, and Diameter at Breast Height (DBH)).**

Site	Terrain position	Soil depth (m)	WBD (m)	Slope (°)	Tree height (m)	DBH (cm)
SWH	Downslope	0.5	>3.0	18.7±2.3	3.38±0.16	3.19±1.73
	Midslope	0.6	>3.0	23.2±3.6	2.71±0.22	2.33±1.26
	Upslope	0.2	>2.8	32.9±4.4	1.63±0.24	2.14±1.25
WWH	Downslope	0.3	>3.0	19.2±2.4	4.62±1.50	6.77±0.92
	Midslope	0.7	1.2	22.9±3.0	-	-
	Upslope	0.5	2.0	32.1±5.9	2.45±0.43	6.30±1.35

30 **Table S2. Laboratory calibration statistics for TDR measurements across soil–weathered-bedrock matrix**
31 **treatments.**

Matrix treatment	Slope (95% CI)	Intercept (95% CI) (cm ³ cm ⁻³)	R ²	Mean bias (cm ³ cm ⁻³)	Raw RMSE (cm ³ cm ⁻³)	Residual RMSE (cm ³ cm ⁻³)
100% soil	0.82 (0.59–1.06)	0.11 (0.06–0.15)	0.98	-0.077	0.079	0.011
20% weathered bedrock	1.07 (0.81–1.33)	-0.09 (-0.16–-0.02)	0.99	0.069	0.071	0.015
40% weathered bedrock	1.20 (0.74–1.66)	-0.09 (-0.20–0.01)	0.96	0.048	0.054	0.019
60% weathered bedrock	1.22 (0.97–1.5)	-0.11 (-0.18–-0.04)	0.99	0.054	0.057	0.0092
80% weathered bedrock	0.86 (0.68–1.04)	0.02 (-0.02–0.06)	0.99	0.0067	0.018	0.0093
100% weathered bedrock	0.79 (0.69–0.89)	-0.004 (-0.03–0.02)	0.99	0.045	0.051	0.0060

33 **Table S3. Summary of water deficit characteristics in soil and bedrock layers of SWH and WWH during 2020**
34 **and 2021.**

		2020			2021		
		Mean RWS*	Mean daily deficit (mm)	Low water storage days (%)	Mean RWS*	Mean daily deficit (mm)	Low water storage days (%)
SWH	Soil	0.25±0.16	162.62±37.65	79.78	0.18±0.07	179.68±16.28	93.15
	Bedrock	0.27±0.21	510.78±135.80	74.86	0.19±0.05	585.85±33.84	95.89
WWH	Soil	0.37±0.16	117.39±27.26	35.52	0.32±0.11	116.71±24.53	44.66
	Bedrock	0.35±0.18	421.90±108.17	27.87	0.33±0.14	385.86±120.89	54.80