

Supplementary Information

Sediment and water geochemistry record of water-rock interaction under the influence of Maritime, Antarctica: Insights from Admiralty Bay, King George Island

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Table S1. Types and coordinates of the samples.

Sample ID	Sample Type	Coordinates	
		Latitude	Longitude
PFC1	stream water, sediment	62° 9'52.97"S	58°29'20.85"W
PFC2		62° 9'51.65"S	58°28'43.81"W
PFC3		62° 9'43.68"S	58°28'39.06"W
PFC4		62° 9'42.45"S	58°28'40.04"W
PFC5		62° 9'39.96"S	58°28'36.74"W
PFC6		62° 9'36.27"S	58°28'31.45"W
PFC7		62° 9'33.69"S	58°28'27.52"W
UL1	lake water, sediment	62°12'55.29"S	58°27'18.98"W
UL2		62°12'58.05"S	58°27'17.73"W
UL3		62°12'55.73"S	58°27'22.88"W
UL4		62°12'56.66"S	58°27'20.77"W
UL5		62°12'57.19"S	58°27'19.21"W
UL6		62°12'57.42"S	58°27'17.34"W
ML1		62°13'09.43"S	58°27'20.21"W
ML2		62°13'10.39"S	58°27'27.53"W
ML3		62°13'11.34"S	58°27'26.12"W
ML4		62°13'12.36"S	58°27'24.37"W
ML5	62°13'12.74"S	58°27'13.17"W	
MC1	lake outflow water, sediment	62°13'16.40"S	58°27'09.05"W
MC2		62°13'25.40"S	58°26'55.22"W
UC1		62°13'07.32"S	58°27'12.12"W
UC2	62°13'08.84"S	58°26'50.48"W	
UC3	62°13'15.25"S	58°26'31.12"W	
TC	creek water, sediment	62°12'59.65"S	58°27'25.21"W
VC		62°10'12.00"S	58°28'46.00"W
EG1		62°10'26.00"S	58°29'10.00"W
EG2		62°10'12.00"S	58°28'26.00"W
IV1		62°10'20.00"S	58°30'59.00"W
IV2		62°10'22.00"S	58°31'02.00"W



Fig S1. Field views of studied lakes; a=Upper Lake, b=Mud Lake.

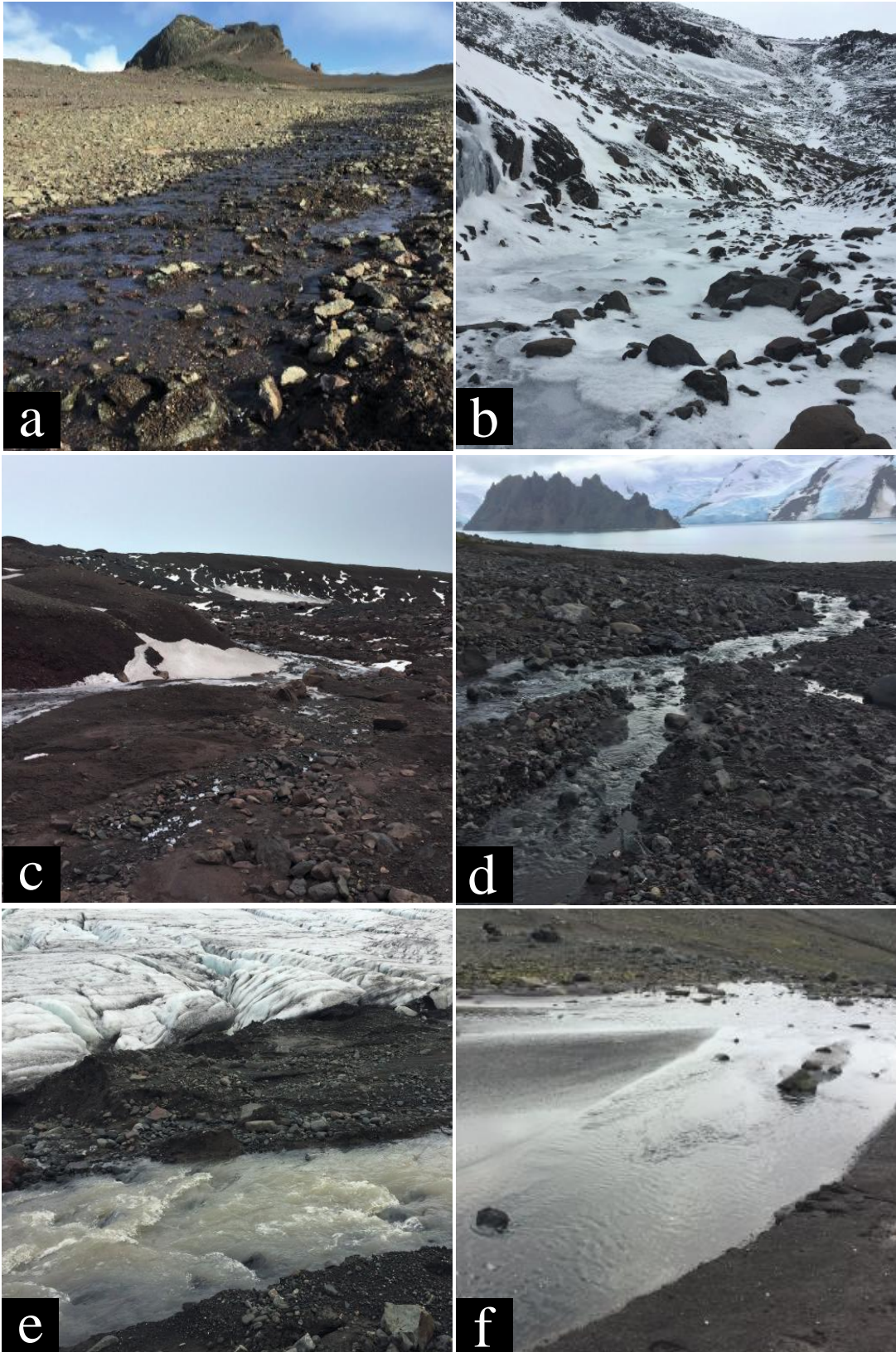


Fig S2. Field views of streams. a and b= Petrified Forest Creek, c= Tower Creek, d= Italia Valley Creek, e= Ecology Glacier Creek, f=Vanishing Creek.

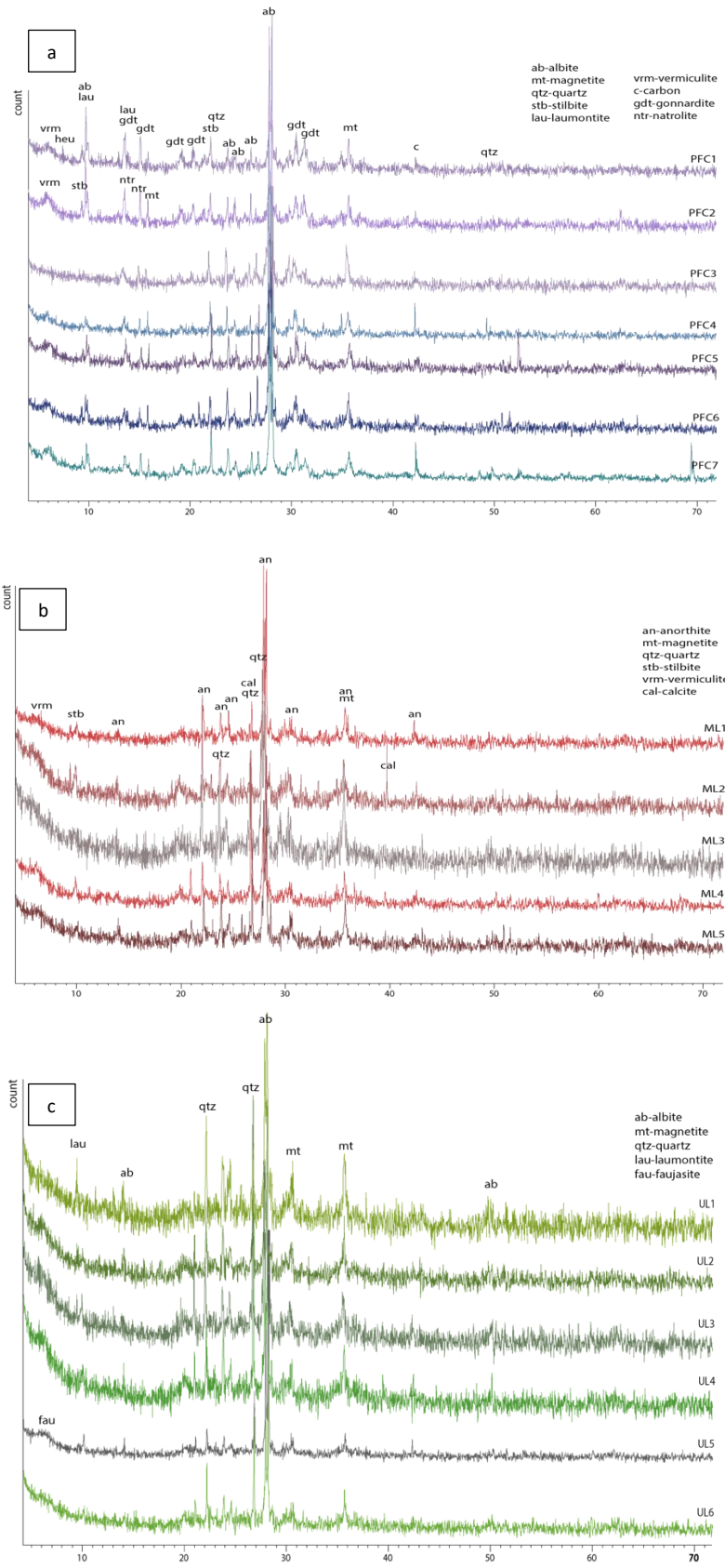


Fig S4. XRD patterns and mineral compositions of the sediment of Petrified Forest Creek (a), Mud Lake (b) and Upper Lake (c).

Table S2. Grainsize distribution and sieve analysis of selected sediments (wt %).

Samples		Master Sizer Analysis (%)						
		Clay-Silt					Sand	
		<4 μ m	4-8 μ m	8-16 μ m	16-31 μ m	31-63 μ m	63 μ m-2mm	
PFC1		2.72	3.08	3.33	3.55	5.23	82.08	
PFC2		1.89	2.36	2.70	2.83	4.02	86.19	
PFC3	Petrified	1.85	2.12	2.23	2.00	3.31	88.49	
PFC4	Forest	1.63	2.11	2.36	2.30	3.16	88.44	
PFC5	Creek	2.11	2.63	2.86	2.99	4.56	84.85	
PFC6		2.73	3.47	3.81	3.90	6.21	79.87	
PFC7		2.02	2.42	2.68	2.81	4.73	85.34	
ML4	Lakes	15.1	3.1	4.1	7.1	15.7	55.0	
UL4		10.8	9.8	8.4	8.0	10.1	52.8	
MC1	Lake	17.9	3.7	4.2	7.7	12.7	53.9	
UC2	outflows	8.6	10.6	11.9	11.5	11.8	45.7	
Samples		Grain Size Distribution (%)						
		Silt	Sand				Coarse-Very Coarse Sand	Granules
			<63 μ m	Very Fine-Fine Sand		Medium Sand		
		63-75 μ m	75-106 μ m	106-250 μ m	250-500 μ m	500 μ m-2mm	>2mm	
PFC1	0.35	0.15	0.44	2.63	7.90	54.84	33.67	
PFC2	0.02	0.09	0.31	2.41	10.65	72.34	14.17	
PFC3	0.25	0.07	0.33	2.58	10.13	38.43	48.19	
PFC4	0.19	0.08	0.45	4.43	14.28	28.64	51.92	
PFC5	0.17	0.13	0.36	2.65	11.00	60.48	25.19	
PFC6	0.12	1.05	0.34	2.48	7.71	49.94	38.34	
PFC7	0.06	0.16	0.18	1.45	8.29	63.73	26.12	
ML4	3.30	14.55	13.96	21.49	15.05	15.88	15.07	
UL4	1.34	6.10	6.04	13.93	10.30	25.54	36.63	
MC1	0.12	0.01	0.29	1.67	5.24	38.92	53.75	
UC2	0.17	0.33	0.39	1.44	3.24	33.82	60.60	