

Supplementary materials

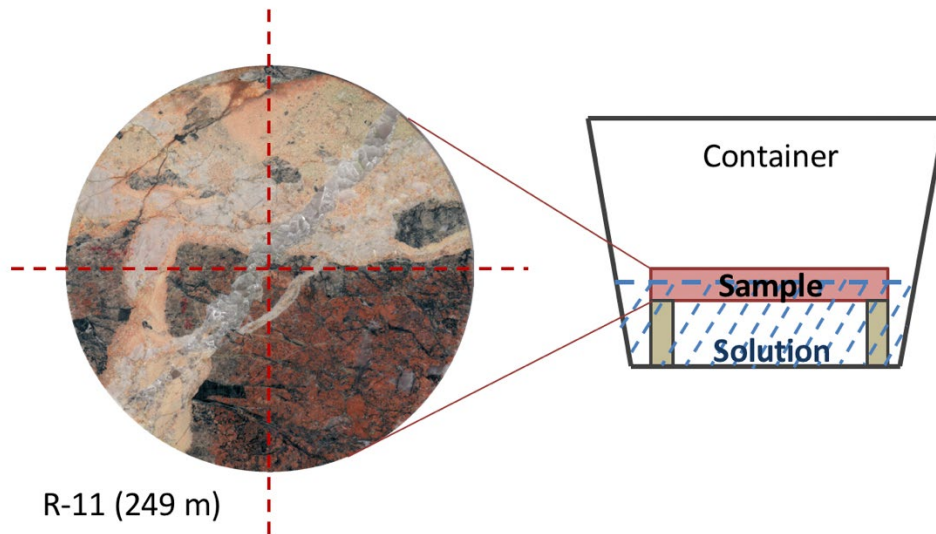


Figure S1. Scheme of sorption experiments on polished discs of fractured rock sample R-11.

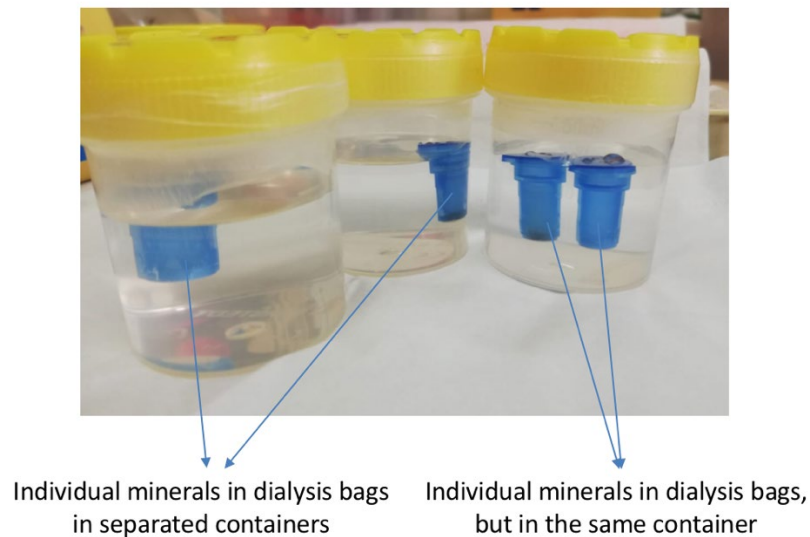


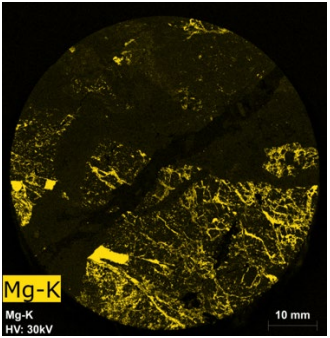
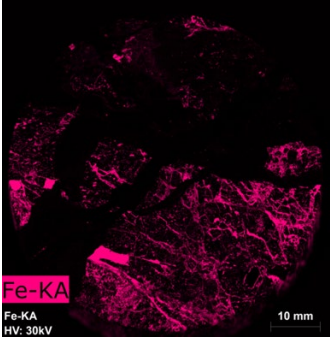
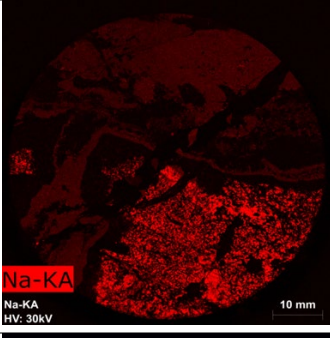
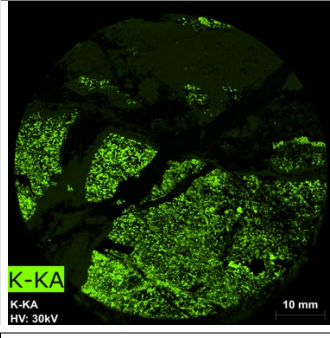
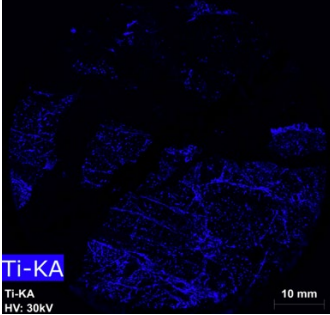
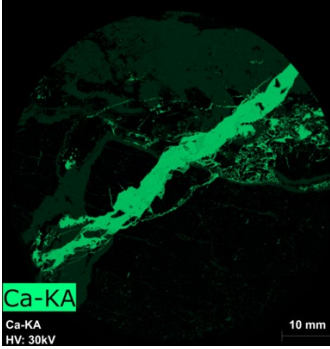
Figure S2. Sorption cesium on crushed quartz and biotite in separated containers and in the same container.

Table S1. Composition of core sample from borehole R-11 (249 m) of «Yeniseisky» site.

Element content, wt. %									Minerals
Na	Mg	Al	Si	K	Ca	Ti	Fe	O	
-	8.2	11.5	11.9	-	-	-	21.6	45.5	(Fe ²⁺ , Mg, Al, Fe ³⁺) ₆ (Si,Al) ₄ O ₁₀ (OH,O) ₈ Chlorite (<i>chamosite</i>)
-	-	12.3	17.4	-	16.3	-	10.3	43.5	{Ca ₂ }{Al ₂ Fe ³⁺ }(Si ₂ O ₇)(SiO ₄)O(OH) Epidote
-	-	0.8	14.5	-	20.5	23.2	0.7	41.2	TiO ₂ , CaCO ₃

									Rutile with Calcite
3.0	-	10.6	27.5	3.8	13.1	-	-	42.9	K(Na-Ca)[AlSi ₃ O ₈]
									Feldspars
1.4	-	11.0	23,6	0.6	6.7	-	-	50.0	(Ca,K ₂ ,Na ₂)[Al ₂ Si ₄ O ₁₂] ₂ ·12H ₂ O
									Zeolite (<i>chabazite-Ca</i>)
-	-	-	46.0	-	-	-	-	54	SiO ₂
									Quartz

Table S2. Determination of mineral phases of a core sample R-11 by the micro XRF method.

Mineral phases	Elemental maps	
Chlorite (Fe ²⁺ , Mg, Al, Fe ³⁺) ₆ (Si,Al) ₄ O ₁₀ (OH,O) ₈ determining elements: Mg, Fe		
Feldspars K(Na)[AlSi ₃ O ₈], Zeolite (Ca,K ₂ ,Na ₂)[Al ₂ Si ₄ O ₁₂] ₂ ·12H ₂ O determining elements: K, Na		
Rutile TiO ₂ determining element: Ti		
Calcite CaCO ₃ Zeolite-Ca (Ca,K ₂ ,Na ₂)[Al ₂ Si ₄ O ₁₂] ₂ ·12H ₂ O determining element: Ca		

Zeolite-Ca $(\text{Ca}, \text{K}_2, \text{Na}_2)[\text{Al}_2\text{Si}_4\text{O}_{12}]_2 \cdot 12\text{H}_2\text{O}$
Chlorite $(\text{Fe}^{2+}, \text{Mg}, \text{Al}, \text{Fe}^{3+})_6(\text{Si}, \text{Al})_4\text{O}_{10}(\text{OH}, \text{O})_8$
Feldspars $\text{K}(\text{Na})[\text{AlSi}_3\text{O}_8]$,
Quartz SiO_2
determining element: Al, Si

