Supplement of:
Wet-dry cycles effects on sequential reaction of DOM with subsurface soils

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Table S1. Quantitative XRD analysis for JRB and SCM soils

	JRB	SCM
NON-CLAYS	%	%
Quartz	24.1	28.38
Kspar	12.1	
Oligoclase	14.2	
Goethite	4.3	1.60
Albite		19.84
Gibbsite		2.48
Orthoclase		18.61
CLAYS		
Kaolinite	6.5	5.79
Illite	23.7	
Illite-Smectite	11.8	15.54
Vermiculite	3.3	
Chlorite		4.55
Biotite		3.21

Table S2. Major cations in JRB and SCM soil extract and DOM

	JRB	SCM	JRB	SCM
	Soil extract 1:10		DOM	
Na (mg L^{-1})	0.8 ± 0.1	0.8 ± 0.1	0.6 ± 0.1	0.5 ± 0.1
K (mg L^{-1})	4.9 ± 2.0	1.5 ± 0.4	1.7 ± 0.4	1.1 ± 0.2
Ca (mg L^{-1})	3.1 ± 1.2	2.2 ± 0.4	10.7 ± 3.4	9.0 ± 1.8
Mg (mg L^{-1})	0.5 ± 0.1	0.5 ± 0.1	17.3 ± 3.3	6.8 ± 0.8

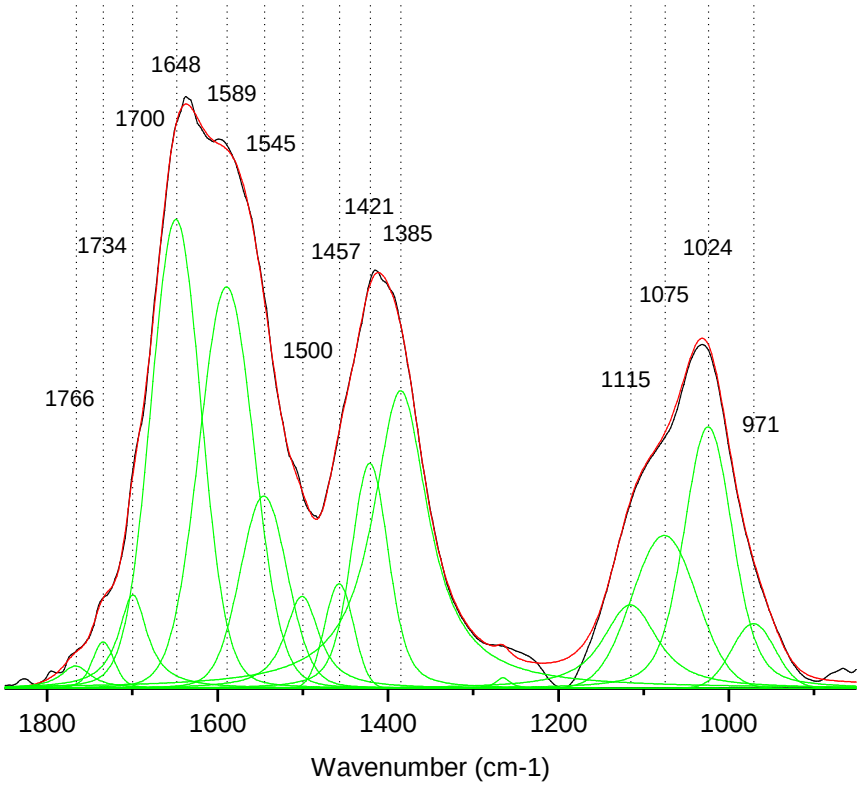

Figure S1: Transmission FTIR spectra of the unreacted JRB DOM dried solution. Original spectra (black line), fitted spectra (red line), deconvoluted peaks (green lines).

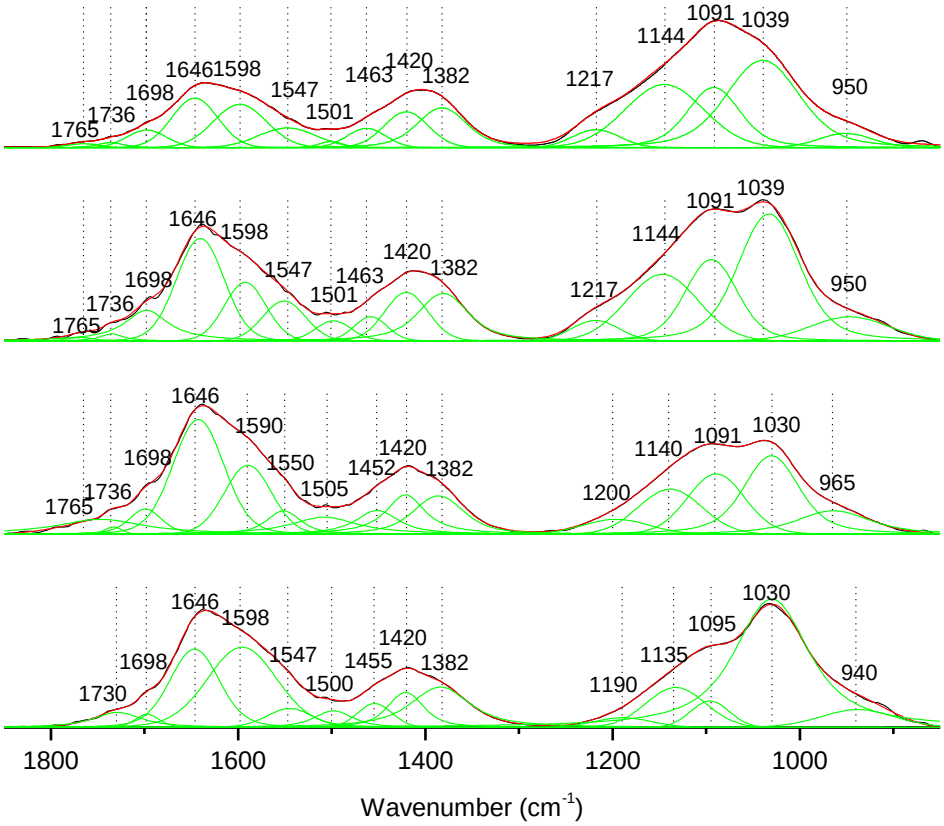

Figure S2: Transmission FTIR spectra of the wet-dry reacted JRB DOM dried solution, 1 to 4 reaction steps from top to bottom. Original spectra (black line), fitted spectra (red line), deconvoluted peaks (green lines).

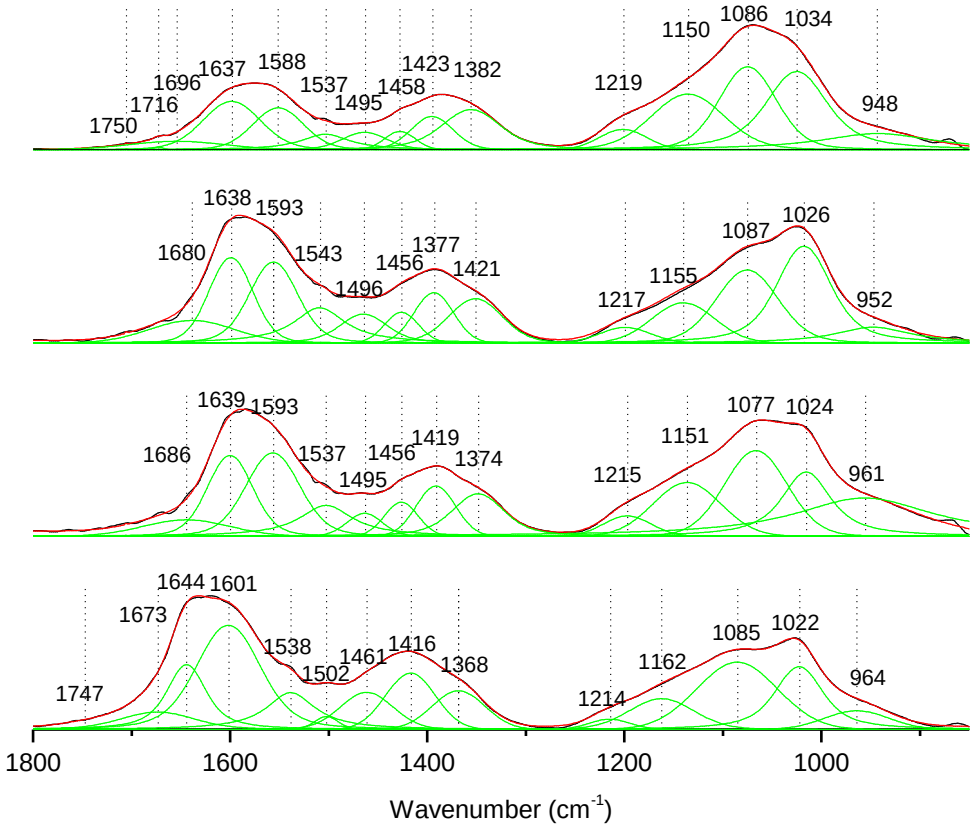

Figure S3: Transmission FTIR spectra of the continually wet reacted JRB DOM dried solution, 1 to 4 reaction steps from top to bottom. Original spectra (black line), fitted spectra (red line), deconvoluted peaks (green lines).

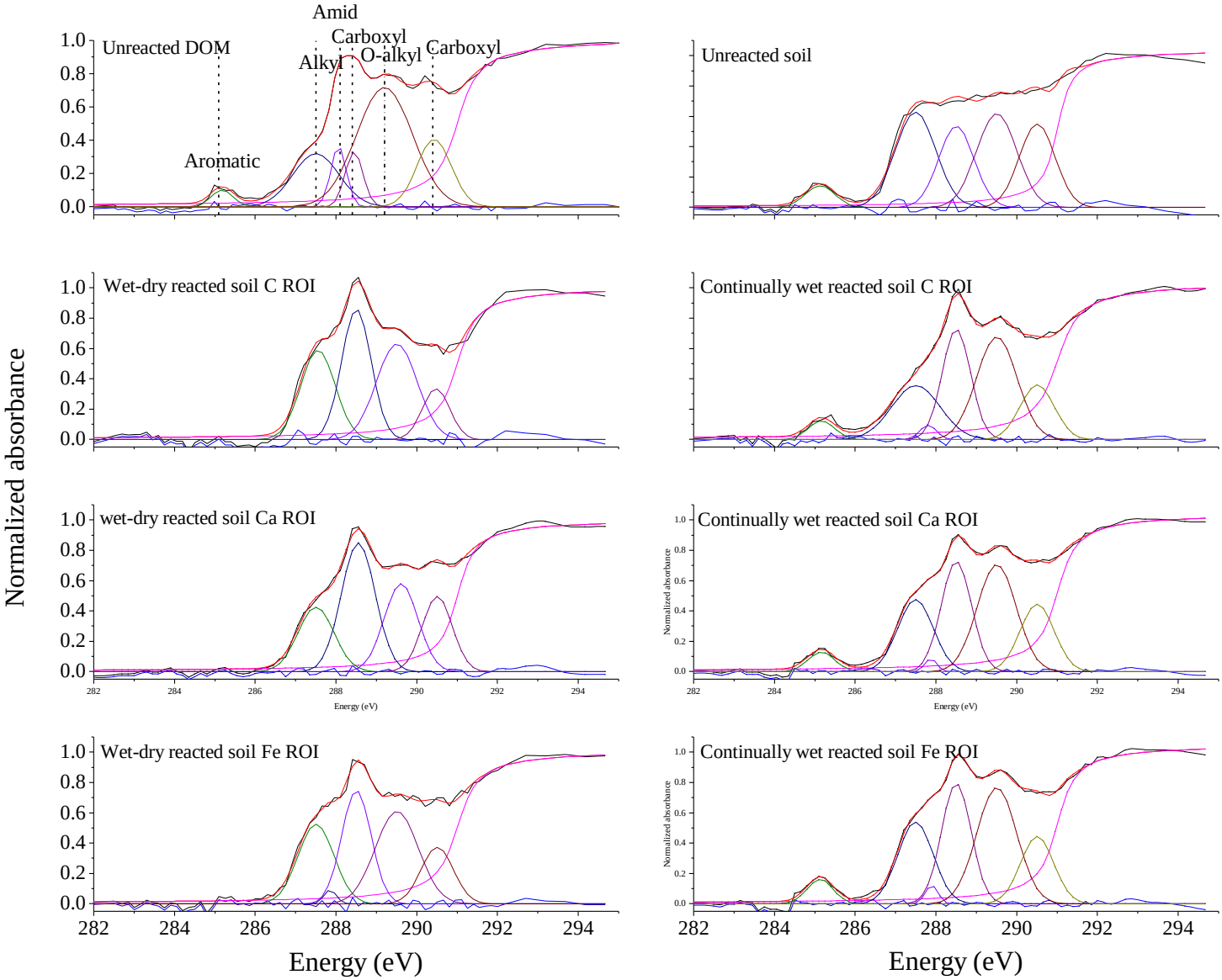

Figure S4: Fitted NEXAFS spectra. Original spectra (black line), fitted spectra (red line), arctangent step (magenta line), deconvoluted peaks (multiple colors lines) and residual (blue line).