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Supplement of

New molecular evidence for surface and sub-surface soil erosion controls on the composition of stream DOM during storm events

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Table S1: List of the analysed compounds and their appropriate m/z ratio and mass spectra factor (MSF). * indicate compounds retained for PCA analysis

Compound name	m/z	MSF
Lignin phenols		
* 3,4-dimethoxyacetophenone (acetovanillone)	165	2,8
* 3,4-dimethoxybenzaldehyde (vanillin)	166	4,2
* 3,4-dimethoxybenzoic acid, methyl ester (vanillic acid)	196	5,6
* 3,4,5-trimethoxyacetophenone (acetosyringone)	195	4,8
* 3,4,5-trimethoxybenzaldehyde (syringaldehyde)	196	6,7
* 3,4,5-trimethoxybenzoic acid, methyl ester (syringic acid)	226	5,3
* 3-(4-methoxyphenyl)-prop-2-enoic acid, methyl ester (p-coumaric acid)	192	6,7
* 3-(3,4-dimethoxyphenyl)-prop-2-enoic acid, methyl ester (ferulic acid)	222	3,7
* 4-methyl-1,2-dimethoxybenzène	152	5,7
* 1,2,4-trimethoxybenzène	168	4,3
* 1,3,5-trimethoxybenzène	168	3,0
* 3-methoxybenzoic acid methylester	135	3,9
* 4-methoxybenzoic acid methylester	135	2,8
1,2,3,4-tetramethylbenzène	198	3,5
* 1,2,3,5-tetramethylbenzène	198	13,5
* cis-1,2-Dimethoxy-4-(2-methoxyethenyl)benzene	194	5,1
* trans-1,2-Dimethoxy-4-(2-methoxyethenyl)benzene	194	5,1
1,2-Dimethoxy-4-(1-methoxy-1-propenyl)benzene	208	6,2
cis-1,2-Dimethoxy-4-(2-methoxy-1-propenyl)benzene	208	5,7
trans-1,2-Dimethoxy-4-(2-methoxy-1-propenyl)benzene	208	5,7
trans-1,2-Dimethoxy-4-(3-methoxy-1-propenyl)benzene	208	5,6
* cis-1,2,3-Trimethoxy-5-(2-methoxyethenyl)benzene	224	7,0
trans-1,2,3-Trimethoxy-5-(2-methoxyethenyl)benzene	224	7,0
* erythro-1,2-dimethoxy-4-(1,2,3-trimethoxypropyl)benzene	181	3,6
threo-1,2-dimethoxy-4-(1,2,3-trimethoxypropyl)benzene	181	3,6
cis-1,2,3-Trimethoxy-5-(2-methoxy-1-propenyl)benzene	238	7,0
trans-1,2,3-Trimethoxy-5-(2-methoxy-1-propenyl)benzene	238	7,0
cis-1,2-Dimethoxy-4-(2,3-dimethoxy-1-propenyl)benzene	238	8,5
trans-1,2-Dimethoxy-4-(2,3-dimethoxy-1-propenyl)benzene	238	8,5
* erythro-1,2,3-Trimethoxy-5-(1,2,3-trimethoxypropyl)benzene	211	2,1
threo-1,2,3-Trimethoxy-5-(1,2,3-trimethoxypropyl)benzene	211	2,1
benzoic acid methyl ester	105	2,9
Carbohydrates		
* xylose (C5)	129	4,0
* rhamnose (deoxyC6)	129	4,0
* fucose (deoxy C6)	129	4,0
* glucose (C6)	129	4,0
* galactose (C6)	129	4,0

Table S1 continued

Compound name	m/z	MSF
Fatty acids		
* $C_{12:0}$	74	3,0
* $C_{13:0}$	74	4,1
* br$C_{14:0}$	74	3,1
* $C_{14:0}$	74	3,1
* iso$C_{15:0}$	74	3,3
* ante$C_{15:0}$	74	3,3
* $C_{15:0}$	74	3,3
* br$C_{16:0}$	74	4,9
* $C_{16:1}$	74	14,5
* $C_{16:0}$	74	4,9
* iso$C_{17:0}$	74	3,9
* ante$C_{17:0}$	74	3,9
* $C_{17:0}$	74	3,9
* $C_{18:1}$	74	14,6
* $C_{18:0}$	74	4,5
* ω-OH $C_{16:0}$	74	12,1
* $C_{19:0}$	74	4,3
* α,ω diacid $C_{16:0}$	74	11,3
$C_{20:0}$	74	4,9
* ω-OH $C_{18:0}$	74	17,3
$C_{21:0}$	74	7,5
* α,ω diacid $C_{18:0}$	74	17,7
$C_{22:0}$	74	4,9
* ω-OH $C_{20:0}$	74	12,9
$C_{23:0}$	74	8,4
* α,ω diacid $C_{20:0}$	74	10,8
$C_{24:0}$	74	4,4
* ω-OH $C_{22:0}$	74	13,5
* $C_{25:0}$	74	7,7
* α,ω diacid $C_{22:0}$	74	10,8
* $C_{26:0}$	74	4,5
* ω-OH $C_{24:0}$	74	13,5

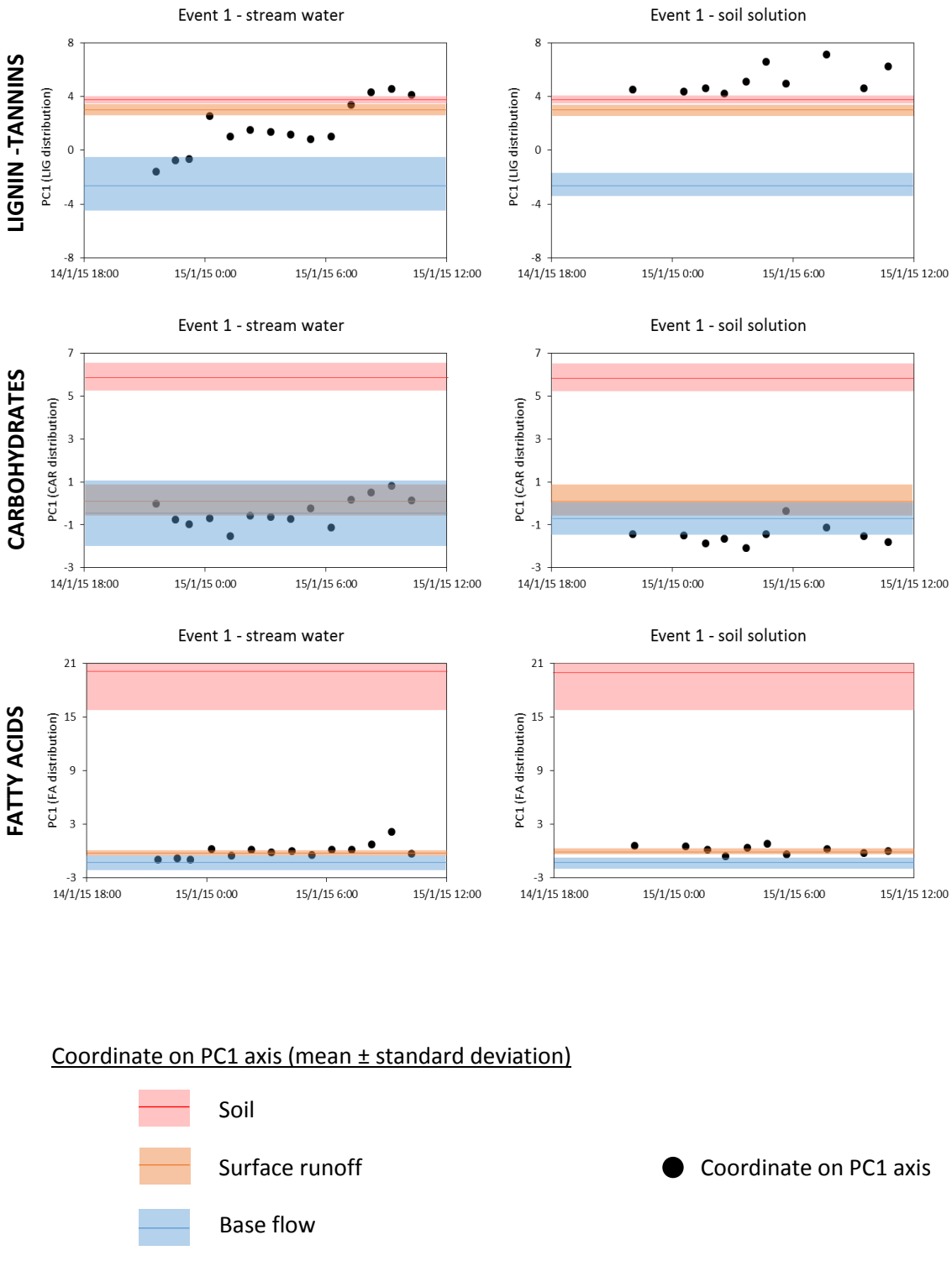

Figure S1: Evolution of LIG, CAR and FA distribution during the three events. Base flow, surface runoff and soil values are indicated by mean and standard deviation.

Figure S1 (continued)

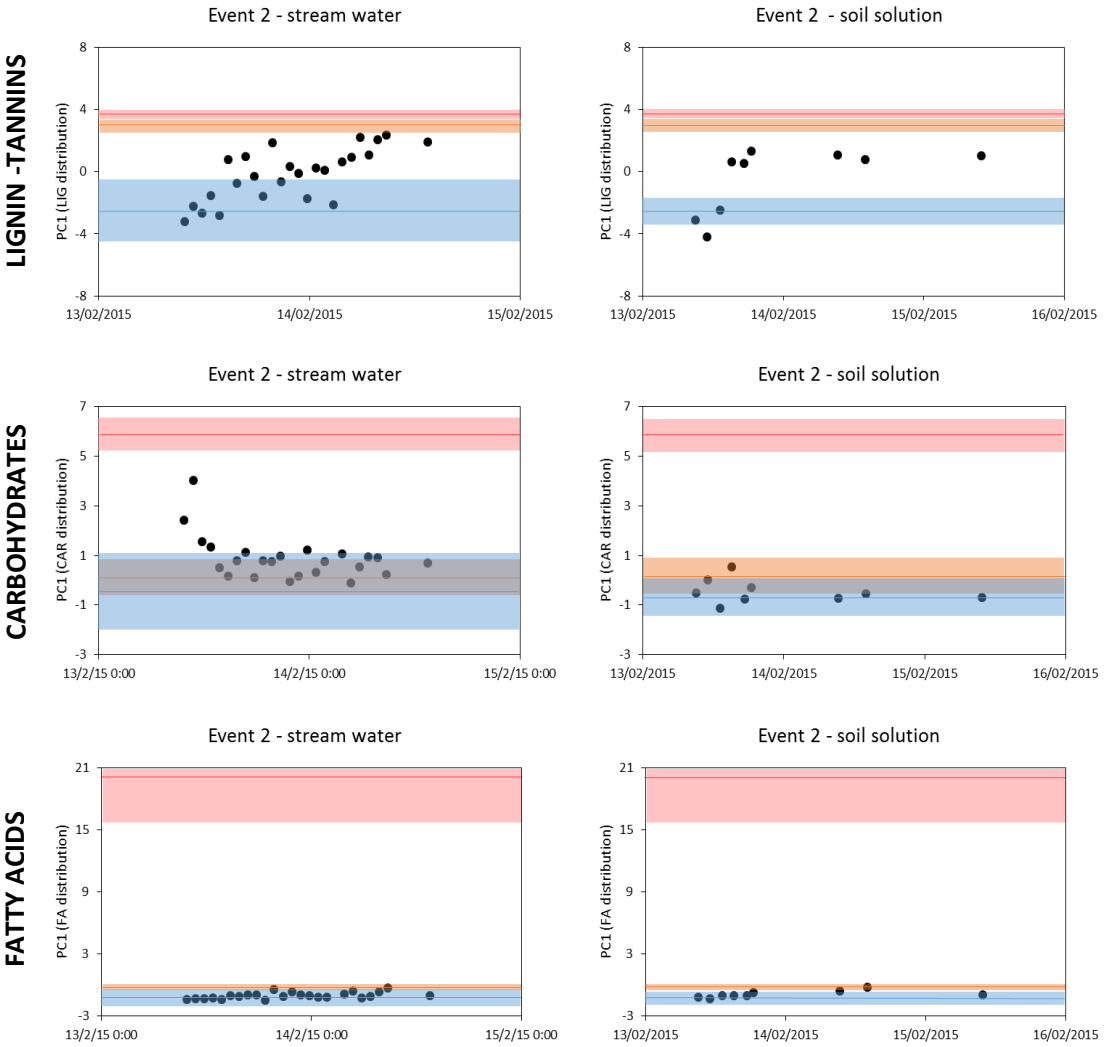

Figure S1 (continued)

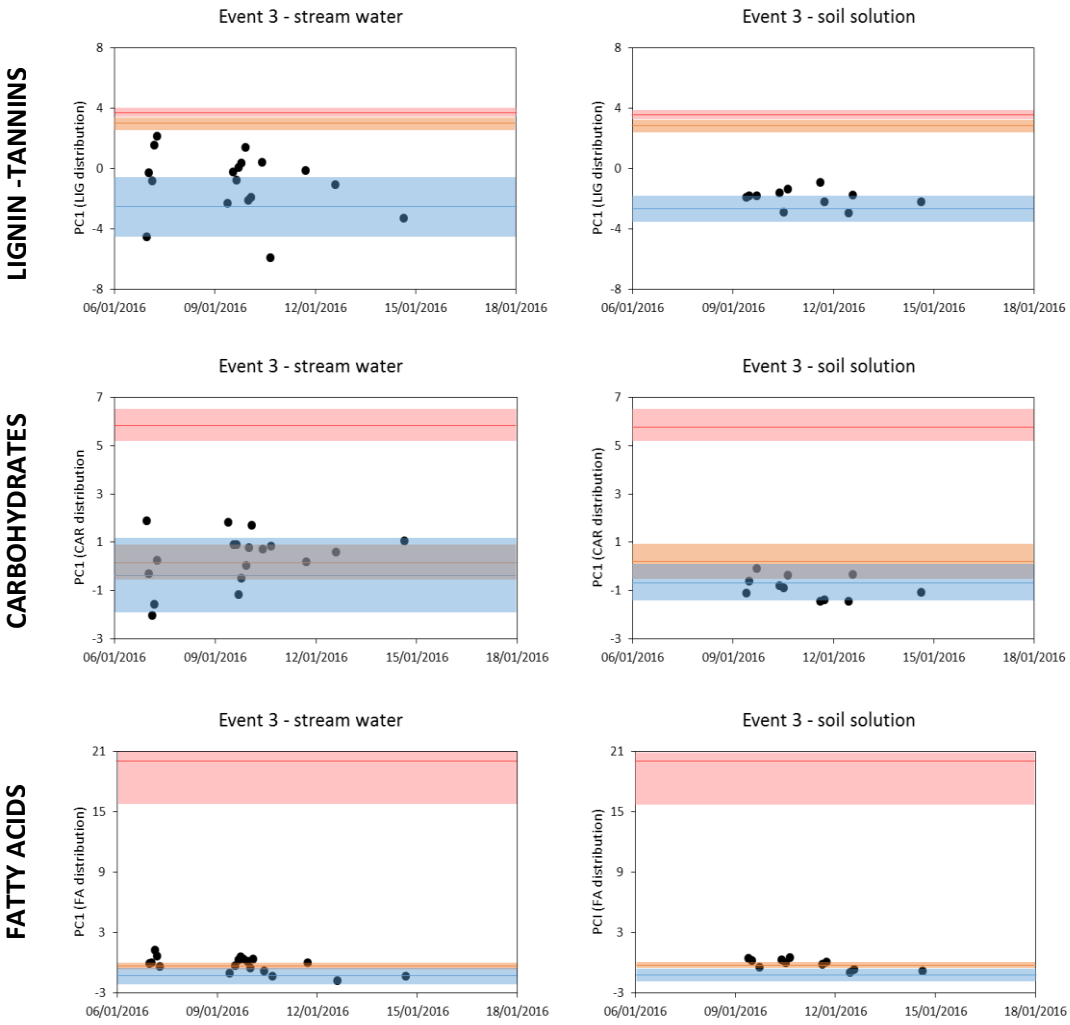

Figure S1 (continued)

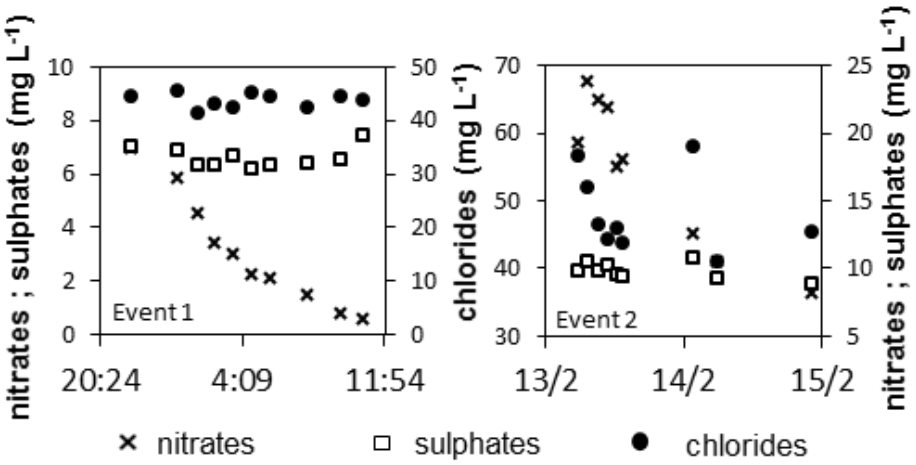

Figure S2: Concentration of nitrates, sulphates and chlorides in soil solutions during events 1 and 2.

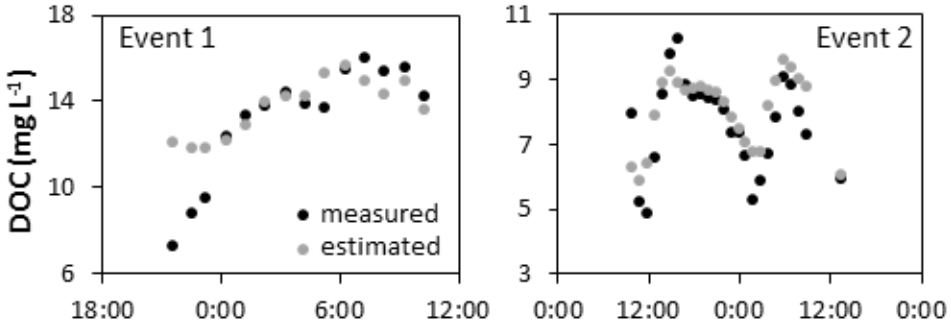

Figure S3: Comparison of DOC concentration measured at the outlet and DOC concentration estimated from deep groundwater, soil solution, surface runoff concentrations and their relative contribution to the discharge for events 1 and 2.