



Supplement of

Tracing near-surface runoff in a pre-Alpine headwater catchment

Anna Leuteritz et al.

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Table S1: Overview of the samples of overland flow (OF) and topsoil interflow (TIF) that were analysed for bromide and deuterium for the tracer experiments in the clearing and the grassland. The time of application of deuterium labelled water is indicated with grey shading. The time of application of NaBr is indicated with blue shading.

Clearing			Grassland		
Date and time	Overland flow	Topsoil interflow	Date and time	Overland flow	Topsoil interflow
2023-08-09 9:47		x	2023-11-08 14:04	x	x
2023-08-09 9:58	x		2023-11-08 14:20	x	x
2023-08-09 10:05		x	2023-11-08 14:21	x	
2023-08-09 10:12	x		2023-11-08 14:22	x	x
2023-08-09 12:02	x	x	2023-11-08 14:23	x	
2023-08-09 12:07	x	x	2023-11-08 14:24	x	x
2023-08-09 12:08			2023-11-08 14:25	x	
2023-08-09 12:10	x	x	2023-11-08 14:26	x	x
2023-08-09 12:11	x		2023-11-08 14:27	x	
2023-08-09 12:12	x	x	2023-11-08 14:28	x	x
2023-08-09 12:13	x		2023-11-08 14:29	x	
2023-08-09 12:14	x	x	2023-11-08 14:30	x	x
2023-08-09 12:15	x		2023-11-08 14:32	x	x
2023-08-09 12:16	x	x	2023-11-08 14:34	x	x
2023-08-09 12:17	x		2023-11-08 14:36	x	x
2023-08-09 12:18	x	x	2023-11-08 14:37		
2023-08-09 12:19	x		2023-11-08 14:38	x	x
2023-08-09 12:20	x	x	2023-11-08 14:40	x	x
2023-08-09 12:22	x	x	2023-11-08 14:42	x	x
2023-08-09 12:24	x	x	2023-11-08 14:44	x	x
2023-08-09 12:26	x	x	2023-11-08 14:46	x	x
2023-08-09 12:28	x	x	2023-11-08 14:48		x
2023-08-09 12:30	x	x	2023-11-08 14:50	x	x
2023-08-09 12:32	x	x	2023-11-08 14:54	x	x
2023-08-09 12:34	x	x	2023-11-08 14:58	x	x
2023-08-09 12:36	x	x	2023-11-08 15:02	x	
2023-08-09 12:38		x	2023-11-08 15:06	x	x
2023-08-09 12:40	x	x	2023-11-08 15:10	x	x
2023-08-09 12:44	x	x	2023-11-08 15:14	x	x
2023-08-09 12:48	x	x	2023-11-08 15:18	x	x
2023-08-09 12:52	x	x	2023-11-08 15:20	x	
2023-08-09 12:56	x	x	2023-11-08 15:22		x
2023-08-09 13:00	x	x	2023-11-08 15:26		x
2023-08-09 13:04		x	2023-11-08 15:30	x	x
2023-08-09 13:08		x	2023-11-08 15:35		x
2023-08-09 13:10	x		2023-11-08 15:40	x	x
2023-08-09 13:12		x	2023-11-08 15:45		x
2023-08-09 13:16		x	2023-11-08 15:50	x	x
2023-08-09 13:20	x	x	2023-11-08 16:00	x	x

2023-08-09 13:25		x	2023-11-08 16:10	x	x
2023-08-09 13:30	x	x	2023-11-08 16:20	x	x
2023-08-09 13:35		x	2023-11-08 16:30	x	x
2023-08-09 13:40	x	x			
2023-08-09 13:50	x	x			
2023-08-09 14:00	x	x			
2023-08-09 14:10		x			
2023-08-09 14:15	x				
2023-08-09 14:20		x			
2023-08-09 14:30	x	x			
2023-08-09 14:40		x			
2023-08-09 14:45	x				
2023-08-09 14:50		x			
2023-08-09 15:00	x	x			
2023-08-09 15:10		x			
2023-08-09 15:20		x			
2023-08-09 15:30	x	x			
2023-08-09 15:40		x			
2023-08-09 15:45		x			
2023-08-09 16:00	x	x			
2023-08-09 16:15		x			
2023-08-09 16:30	x	x			
2023-08-09 16:45		x			
2023-08-09 17:00	x	x			
2023-08-09 17:25		x			
2023-08-09 17:35	x				
2023-08-09 17:55		x			
2023-08-09 18:05	x				
2023-08-09 18:15		x			
2023-08-09 18:48		x			
2023-08-09 19:00	x				
2023-08-09 21:00	x				
2023-08-09 23:00	x				
2023-08-10 1:00	x				
2023-08-10 3:00	x				
2023-08-10 5:00	x				
2023-08-10 7:00	x				
2023-08-10 9:00	x				
2023-08-10 10:50	x	x			
2023-08-10 11:50		x			
2023-08-10 13:17		x			

Table S2: Average of the volumetric soil moisture content from the sensors installed at three depths (5, 15 and 25 cm below the soil surface) at three locations in the plot before the experiment (before) and at steady state (steady state) for the water pulse and tracer experiments for the plots in the natural clearing and the grassland.

	5cm		15 cm		25 cm	
	before (%)	steady state (%)	before (%)	steady state (%)	before (%)	steady state (%)
<i>Clearing</i>						
Water pulse experiments	41	51	57	58	51	56
Tracer experiments	41	51	57	58	52	56
<i>Grassland</i>						
Water pulse experiments	78	75	59	59	55	55
Tracer experiments	76	76	58	60	54	54

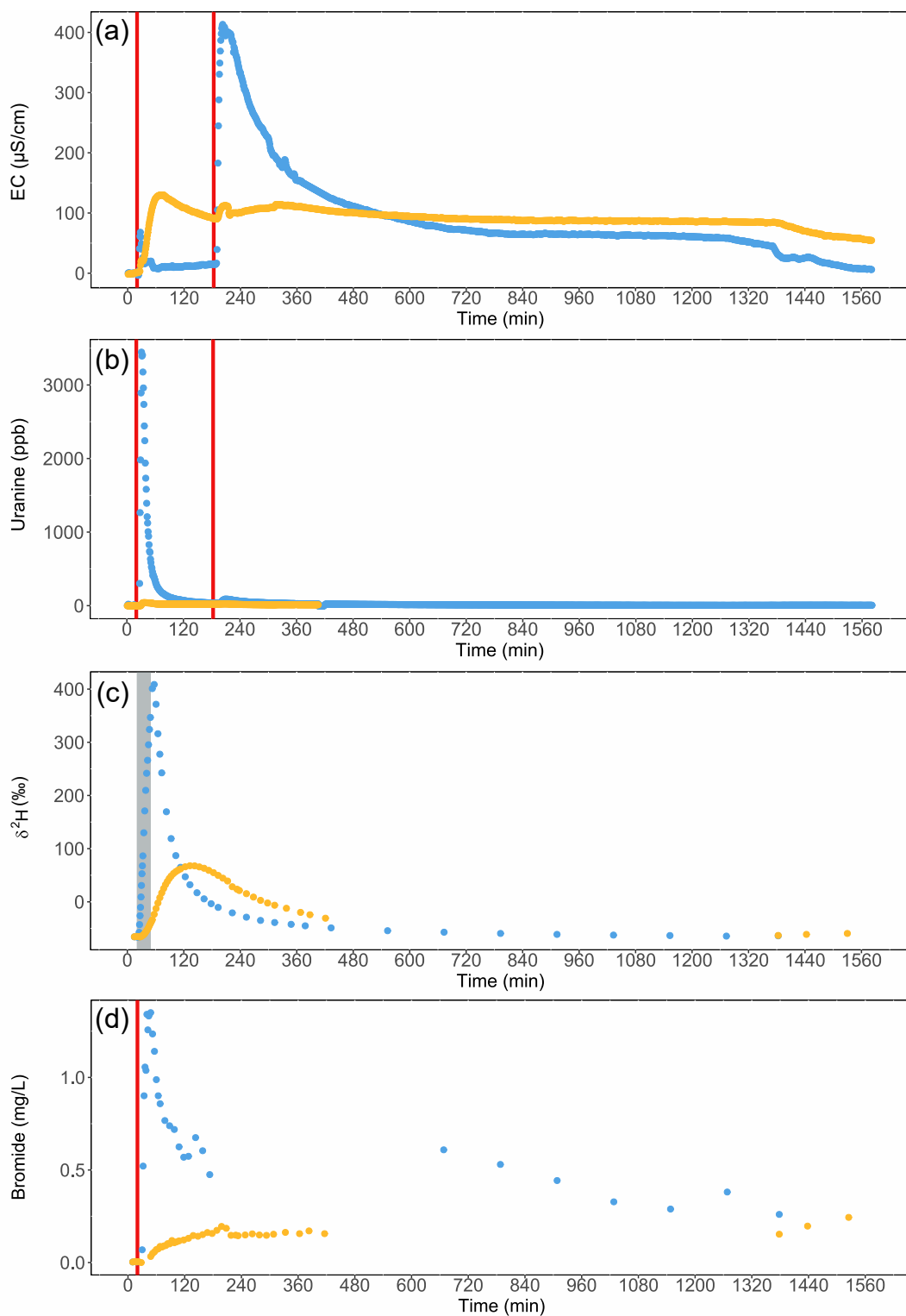


Figure S1: Breakthrough curves for the lines of NaCl (EC minus background EC; first row) and uranine (second row added to the surface), the deuterium-labelled water that was added via the sprinklers ($\delta^2\text{H}$; third row), and the NaBr tracer that was applied to the subsurface (fourth row) for OF (blue) and TIF (orange) for the plot in the natural clearing. Note that time 0 corresponds to minute 138 in Figure 4a. The grey shaded area indicates the time of the tracer application of the deuterium-labelled water. The red vertical lines indicate the times of the application of the NaCl, uranine, and NaBr.

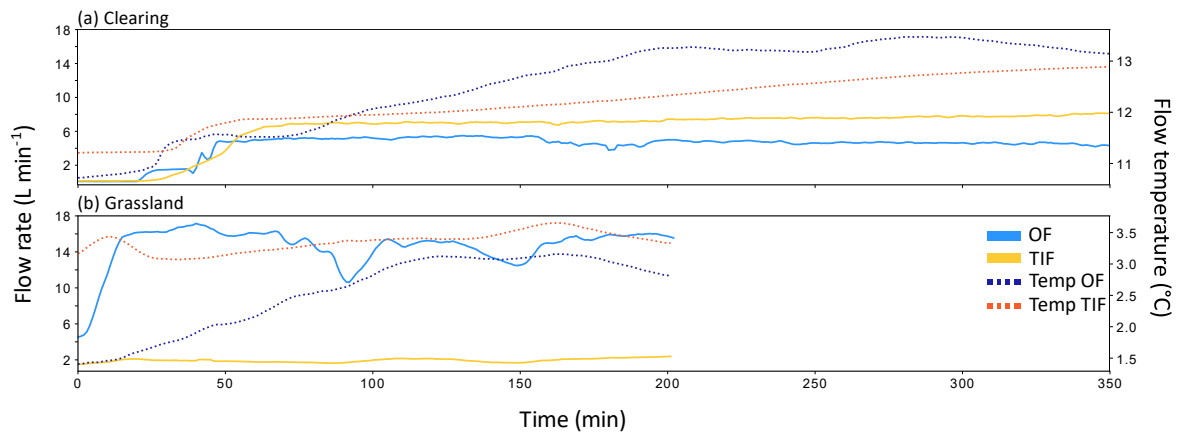


Figure S2: Time series of the OF (blue) and TIF (orange) flow rates (L min⁻¹) during the tracer experiments on the plot in the clearing (a) and the plot in the grassland (b). The associated temperatures are shown with dashed lines (dark blue for OF and orange for TIF).