



Supplement of

Snowmelt-mediated isotopic homogenization of shallow till soil

Filip Muhic et al.

Correspondence to: Filip Muhic (filip.muhic@oulu.fi)

The copyright of individual parts of the supplement might differ from the article licence.

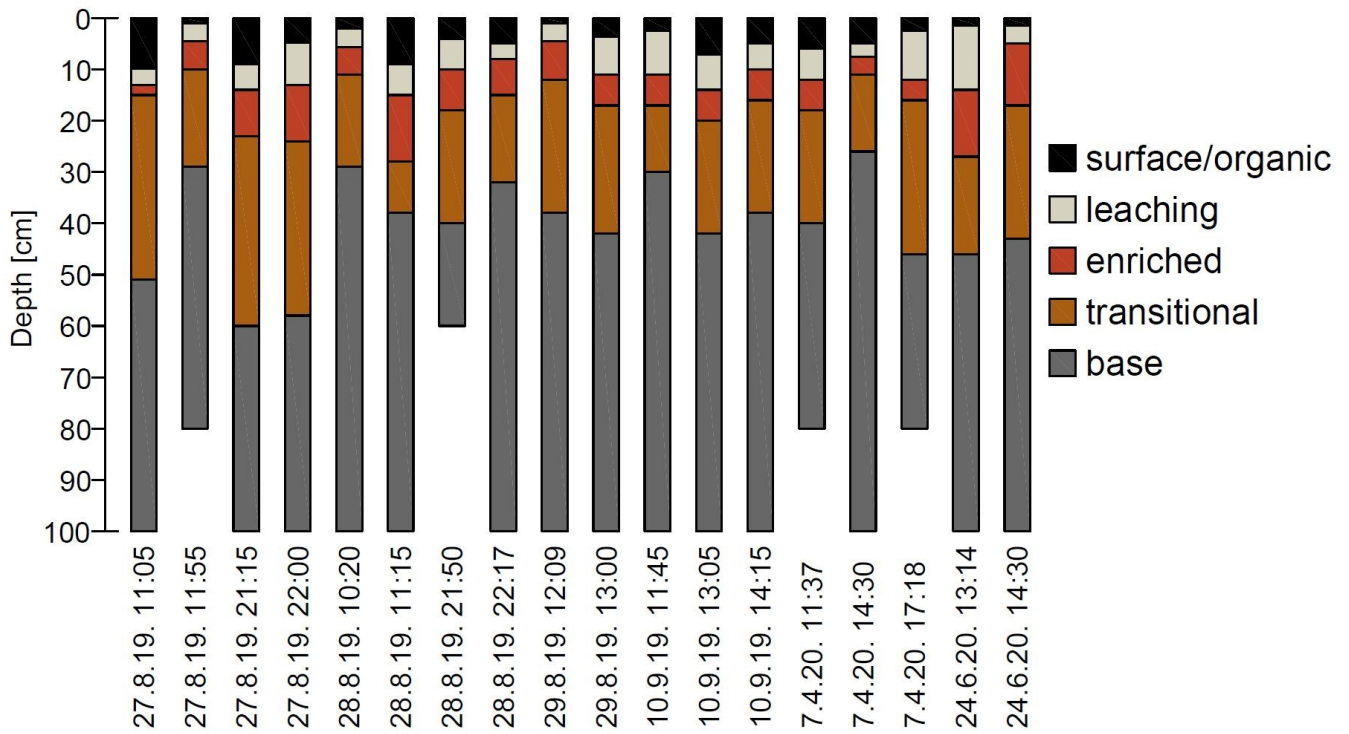


Figure S1. Soil horizons in soil cores sampled at the Kenttäröva hilltop.

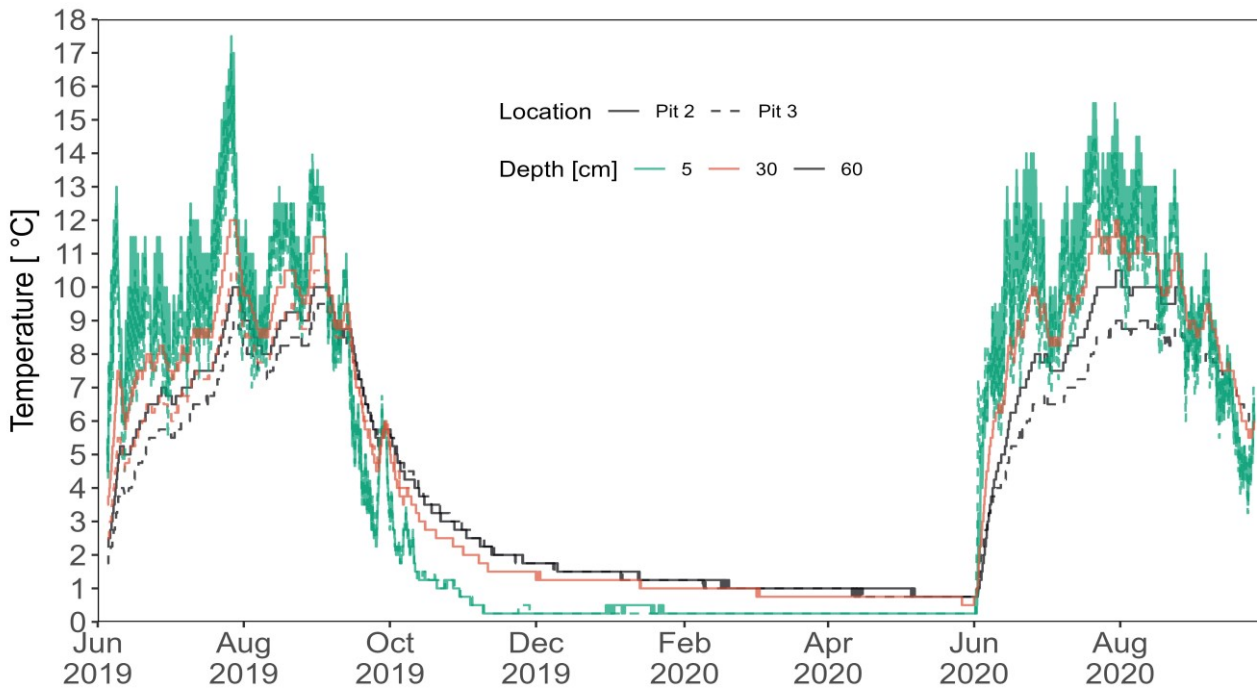
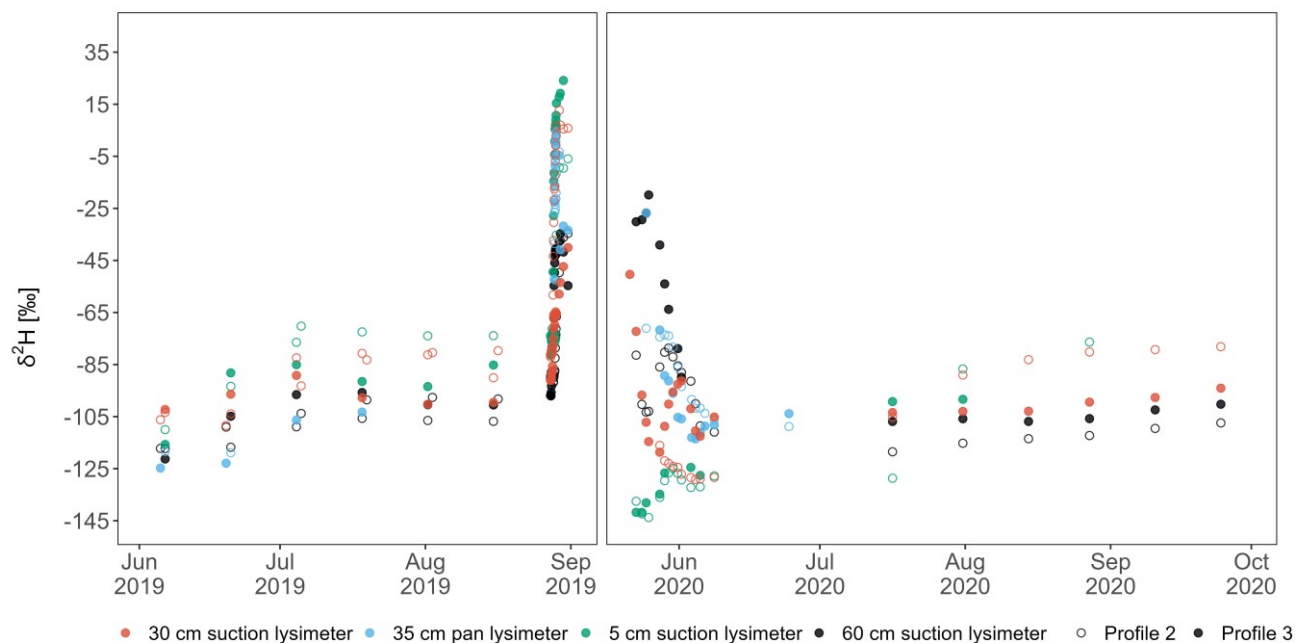


Figure S2. Soil temperatures in the EP during the whole observation period.



5

Figure S3. Seasonal dynamics of soil lysimeter $\delta^2\text{H}$ signal in 2019 and 2020.



Figure S4. Surface ponding in the EP during irrigation.

10

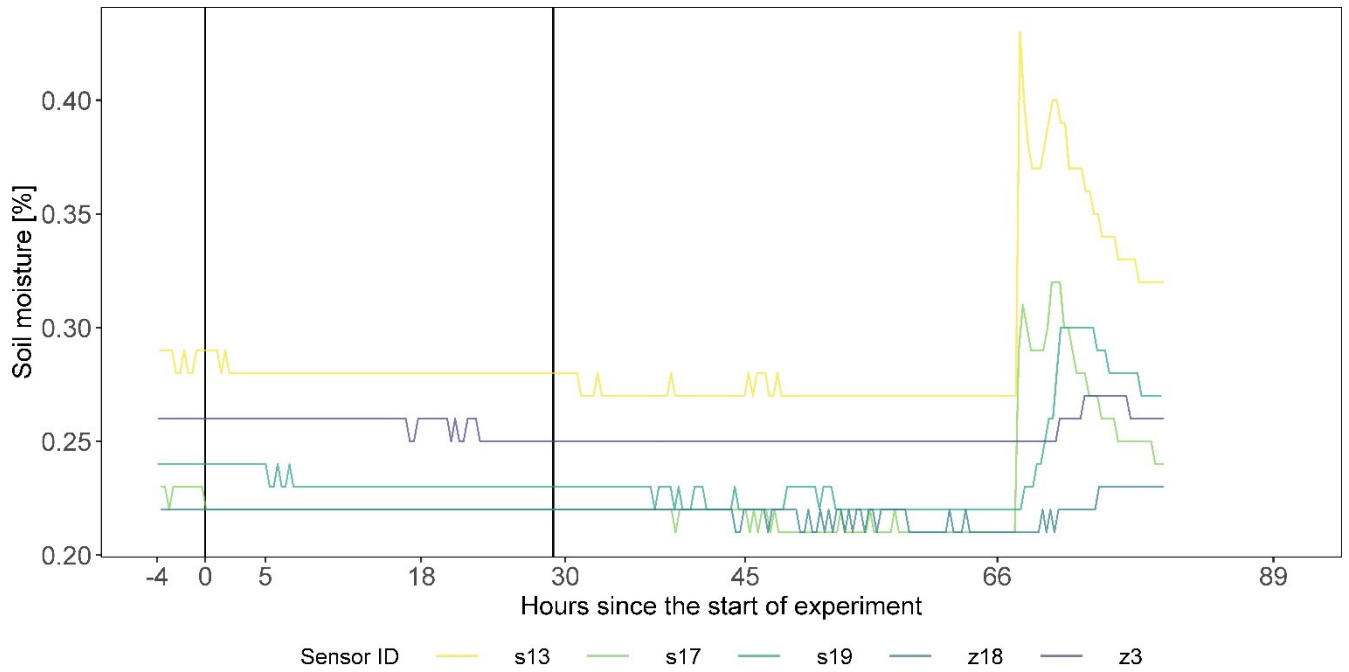
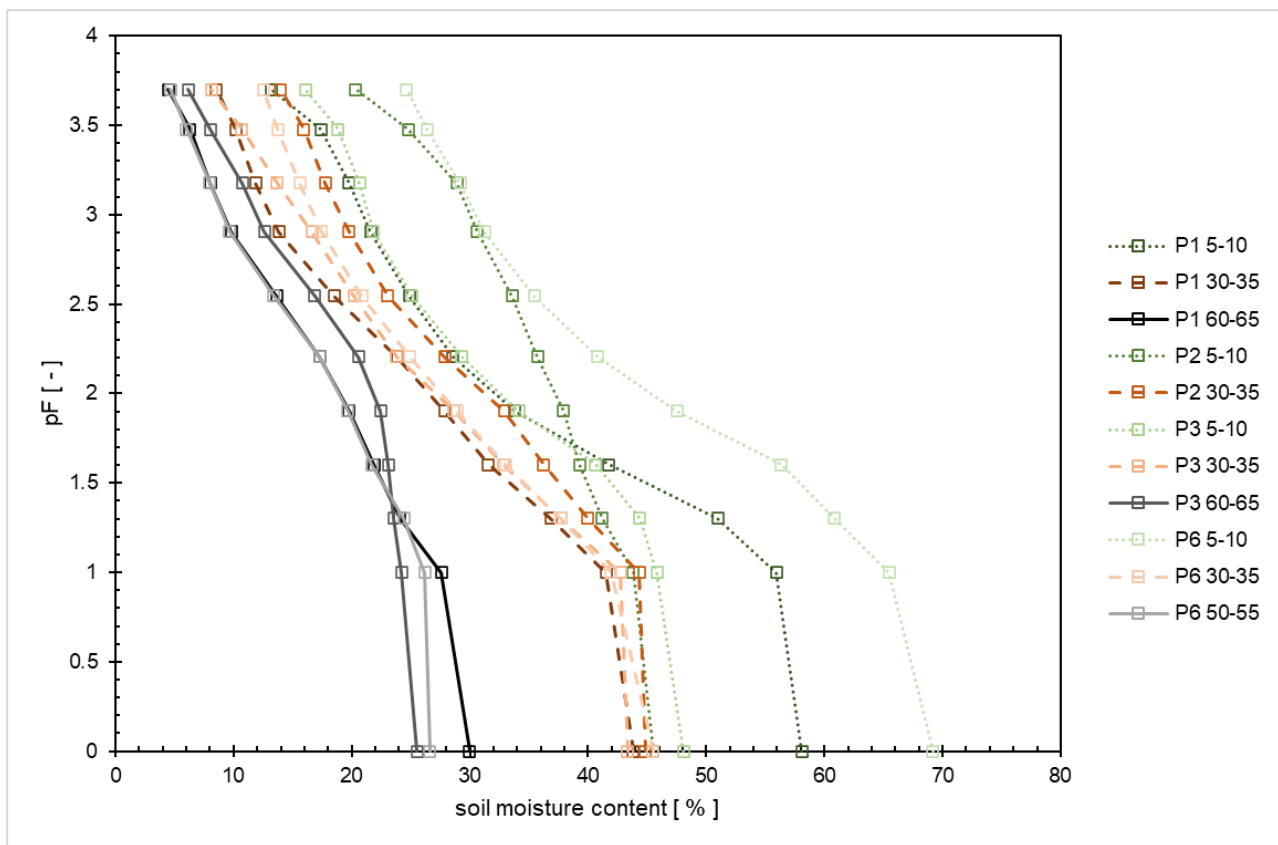


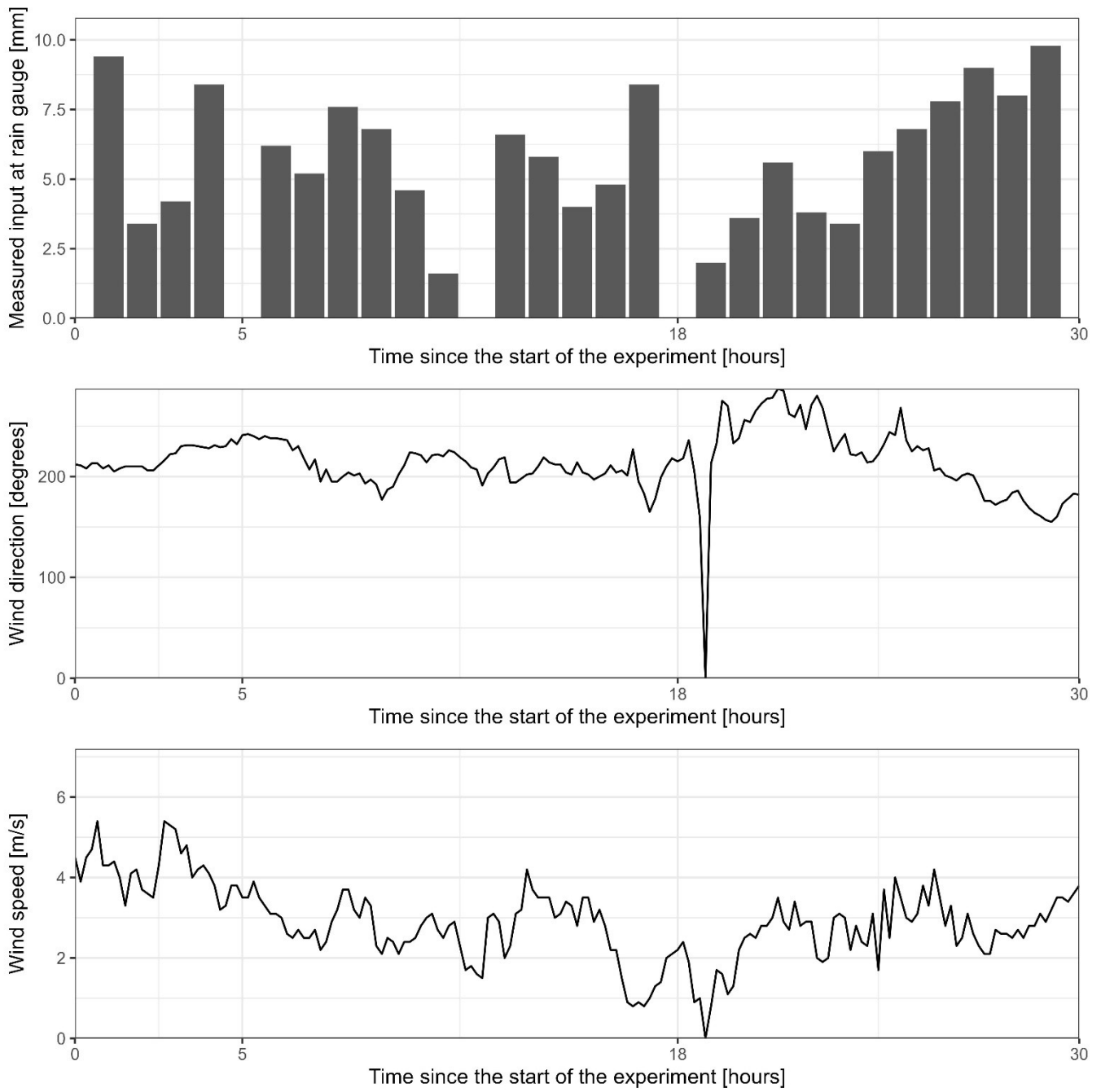
Figure S5. Soil moisture dynamics upslope of the EP during the irrigation period. Black vertical lines denote start and end time of irrigation



15 **Figure S6.** pF curves for soil samples collected within or in the vicinity of experimental plot, at depths of 5-10 (green lines), 30-35 (red lines) and 60-65 cm (black lines).

Table S1. Soil properties at the Kenttäröva hilltop.

Soil property	Depth	Minimum	Maximum	Mean	Profile S2	Profile S3
Hydraulic conductivity [m/s]	5-10	1.40E-06	1.25E-05	4.25E-06	2.34E-06	6.16E-06
Hydraulic conductivity [m/s]	30-35	9.78E-07	8.92E-06	7.66E-06	9.78E-07	8.92E-06
Dry bulk density [g/cm ³]	5-10	0.69	1.39	0.90	0.74	1.39
Dry bulk density [g/cm ³]	30-35	1.32	1.46	1.44	1.45	1.43
Dry bulk density [g/cm ³]	60-65	1.78	1.91	1.89	1.89	1.91
Porosity [%]	5-10	45.48	69.19	53.10	45.48	48.10
Porosity [%]	30-35	43.35	45.48	44.32	44.83	43.35
Porosity [%]	60-65	25.54	29.98	26.62	26.62	25.54
Organic matter content [%]	5-10	4.21	14.60	7.48	8.18	5.58
Organic matter content [%]	30-35	1.55	4.32	2.49	3.82	1.89
Organic matter content [%]	60-65	0.68	1.02	0.77	0.77	1.02



20 **Figure S7. Irrigation rate, wind speed and wind direction dynamics during the irrigation period.**