Supplement of

Monitoring snowpack outflow volumes and its isotopic composition to better understand streamflow generation during rain-on-snow events

Andrea Rücker[1,2], Stefan Boss[1], James W. Kirchner[2,1], von Freyberg, Jana[2,1]
[1]Swiss Federal Institute for Forest, Snow and Landscape Research (WSL), Zürcherstrasse 111, 8903 Birmensdorf, Switzerland
[2] Department of Environmental System Science, ETH Zürich, Universitätsstrasse 16, 8092 Zurich, Switzerland

Correspondence to: Andrea Rücker (andrea.ruecker@wsl.ch)

- Figure A1 with the data of the winter period 2018 (1 November 2017 – 30 April): MF site (snowpack outflow, air temperature, snow depth) and discharge of the catchment outlet
- Table A1 with the contributions of rainfall or snowpack outflow to streamflow during peak flow based on two-component isotope hydrograph separation using on $\delta^{18}O$

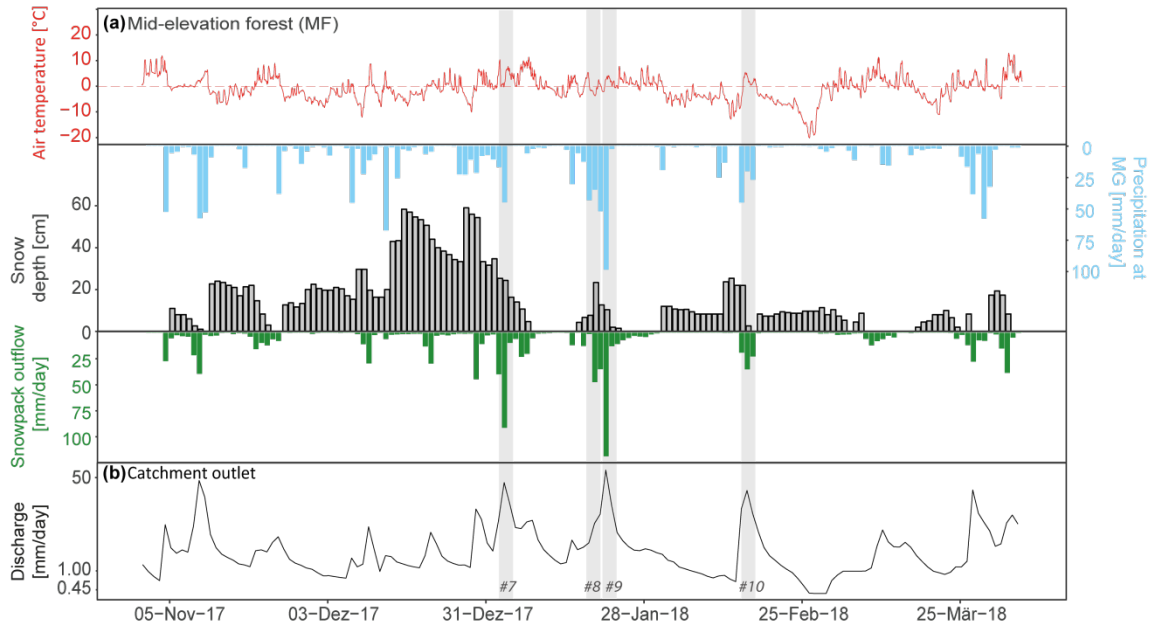

Figure A 1: Measurements of daily precipitation (snow-and rainfall) volumes measured at the MG site during the winter 2018 period, as well as hourly air temperature, snow depth, and snowpack outflow volumes measured at the (a) mid-elevation forest site (MF, green) for the study period 1 November 2017 – 6 April 2018. Panel (b) shows daily discharge at the Erlenbach catchment outlet (on log scale). Vertical grey bars indicate the four rain-on-snow (ROS #7-#10) events that are analysed in this study.

Table A1: Contributions of rainfall or snowpack outflow to streamflow during peak flow based on two-component isotope hydrograph separation using on $\delta^{18}O$ (HG: high-elevation grassland site; MG: mid-elevation grassland site; MF: mid-elevation forest site).

	Contribution to discharge ±SE (%)			
ROS event number	Snowpack outflow HG	Snowpack outflow MG	Snowpack outflow MF	Rainfall MG
#1	[a]	1.17 ± 0.21	1.91 ± 1.18	0.68 ± 0.11
#2	0.43 ± 0.09	[b]	1.67± 0.92	[b]
#3	-0.19 ± 0.15	-0.59 ± 0.61	0.26 ± 0.19	0.11 ± 0.08
#4	[a]	0.30 ± 0.12	0.51 ± 0.16	2.05 ± 9.47
#5	1.70 ± 0.61	0.41 ± 0.09	0.30 ± 0.06	0.2 ± 0.04
#6	0.78 ± 0.26	0.12 ± 0.05	0.22 ± 0.08	0.09 ± 0.04

[a] no snowpack outflow occurred

[b] data gap