

Variable	Data source	Resolution
T	Daily mean temperature ($^{\circ}\text{C}$) on a $\sim 2\text{ km} \times 2\text{ km}$ grid provided by MeteoSwiss	basin-averaged, daily, 1975–2015
P	Daily total precipitation (mm day^{-1}) on a $\sim 2\text{ km} \times 2\text{ km}$ grid provided by MeteoSwiss	basin-averaged, daily, 1975–2015
Q	Daily mean discharge ($\text{m}^3\text{ s}^{-1}$) at three stations (Porte du Scex, Blatten, Blatten bei Naters) provided by FOEN	daily, 1975–2015
SSC	Suspended sediment concentration (mg L^{-1}) at Porte du Scex provided by FOEN	2 times per week, 1975–2012
SCF	Snow-cover fraction [0–1] simulated by the Snowmelt model on a $250\text{ m} \times 250\text{ m}$ grid, and calibrated with MODIS satellite data for the period 2000–2009	basin-averaged, daily, 1975–2012
SM	Snowmelt rate (mm day^{-1}) simulated by the Snowmelt model on a $250\text{ m} \times 250\text{ m}$ grid	basin-averaged, daily, 1975–2012
IM	Ice-melt rate (mm day^{-1}) simulated by the ice-melt model on a $250\text{ m} \times 250\text{ m}$ grid, and calibrated at Blatten and Blatten bei Naters	basin-averaged, daily, 1975–2012
ER	Effective rainfall (mm day^{-1}) (rainfall on snow-free pixels), estimated from P , T and SCF on a $250\text{ m} \times 250\text{ m}$ grid	basin-averaged, daily, 1975–2012