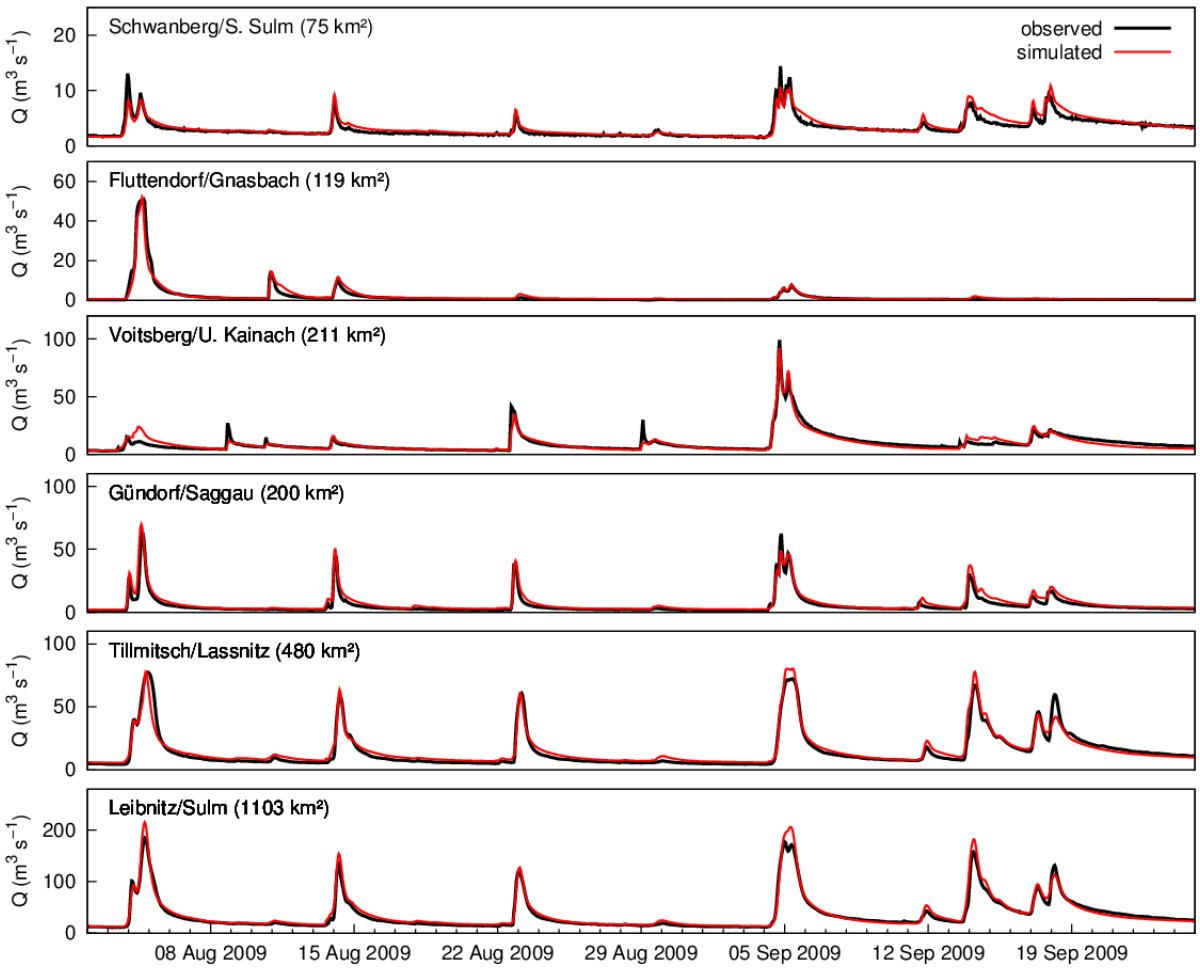

Figure S1: Model calibration: several flood events at the selected gauges in August/September 2009.

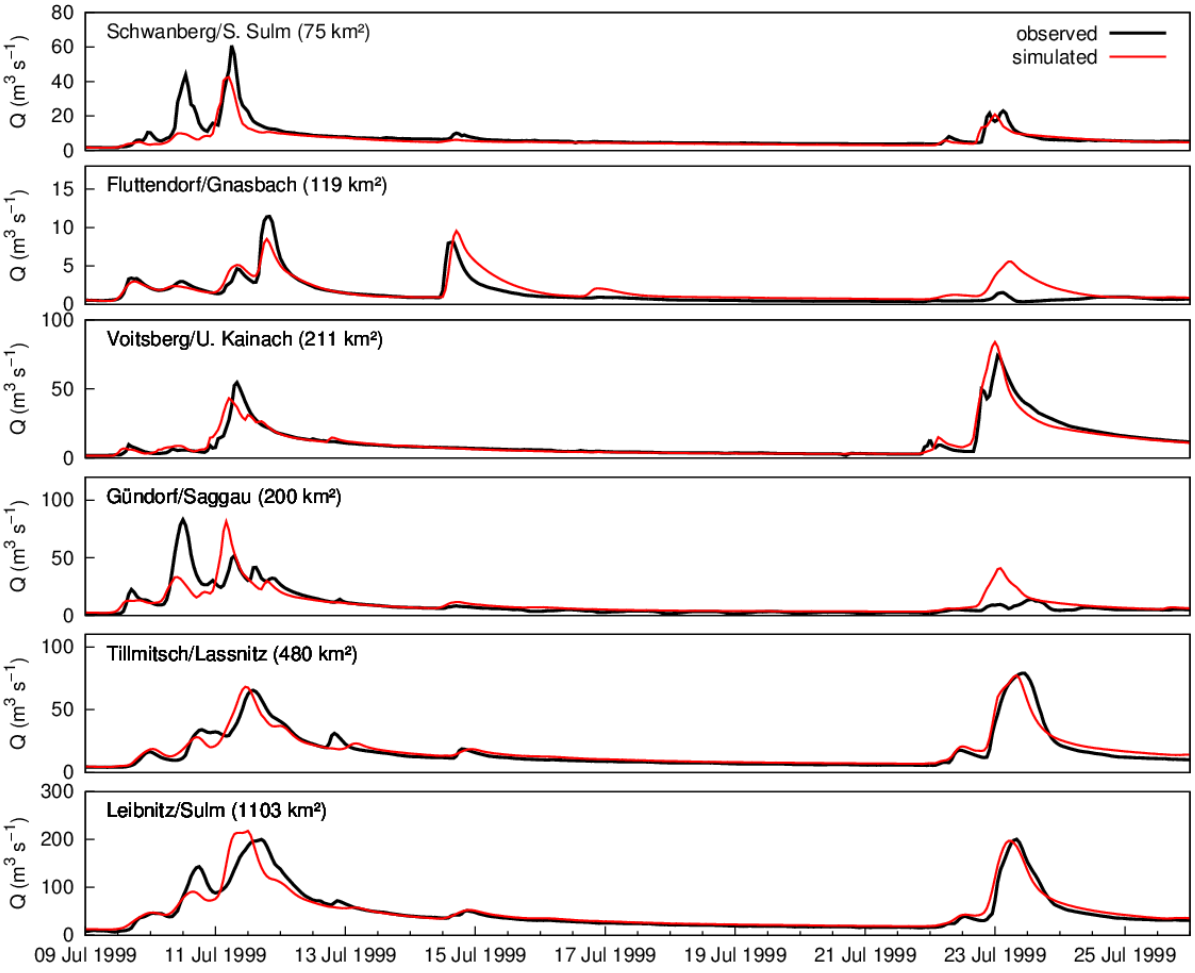

Figure S2: Model validation: two events at the selected gauges in July 1999.

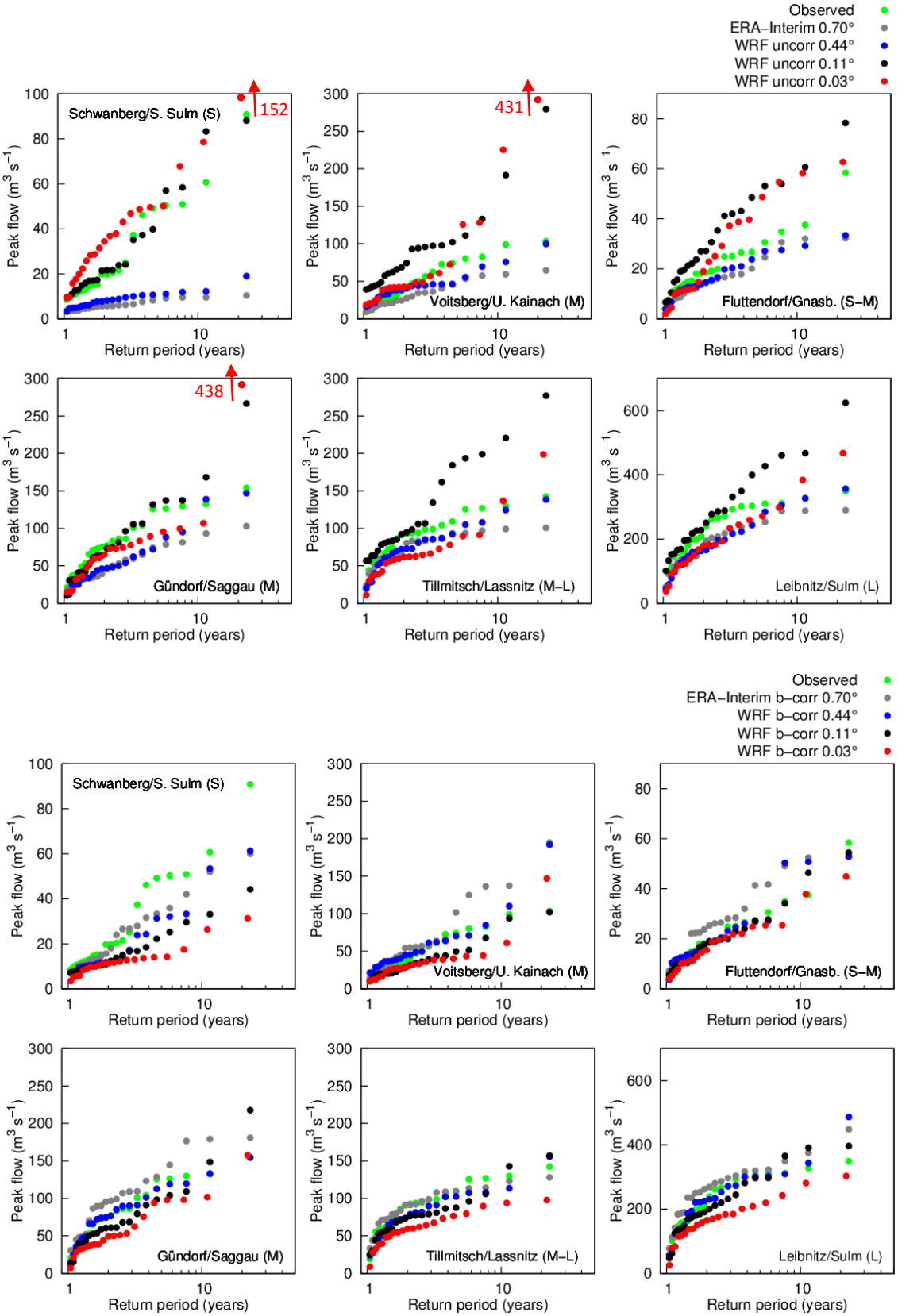

Figure S3: Simulated maximum annual flood peaks using raw (above) and bias corrected (below) WRF data as input and observed maximum annual flood peaks vs. empirical return periods of the selected gauges in the period 1989-2010. Note that the WRF 0.03° simulation (red points) crashed in 2010, so that MAF series length is 21 years (RPmax = 22 years).

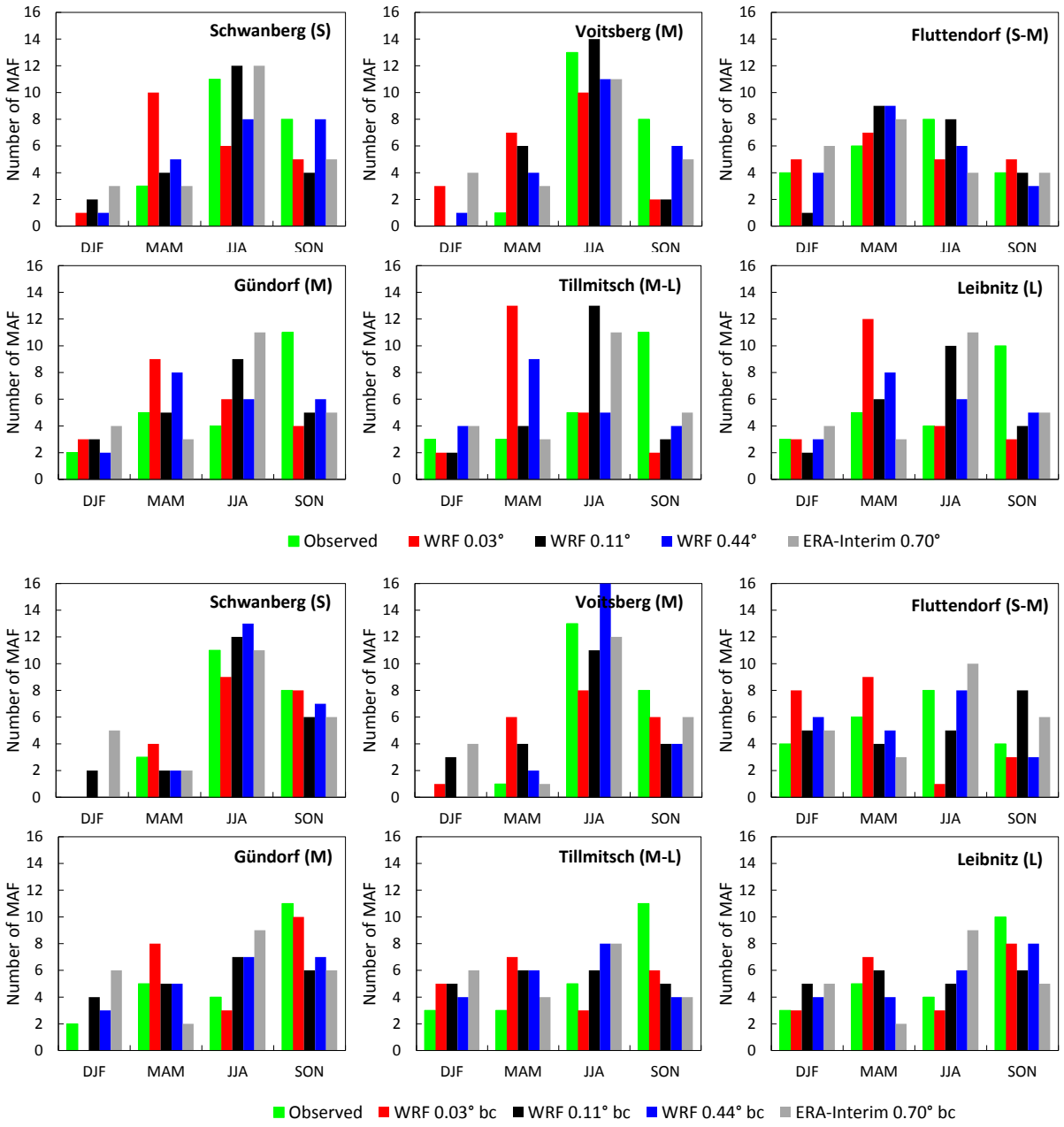

Figure S4: Number of maximum annual floods in the four seasons (seasonality) from the simulation using raw (above) and bias corrected (below) WRF data as input compared to the observation at the selected gauges in the period 1989-2010. Note that the WRF 0.03° simulation (red bars) crashed in 2010, so that total MAF number is 21.

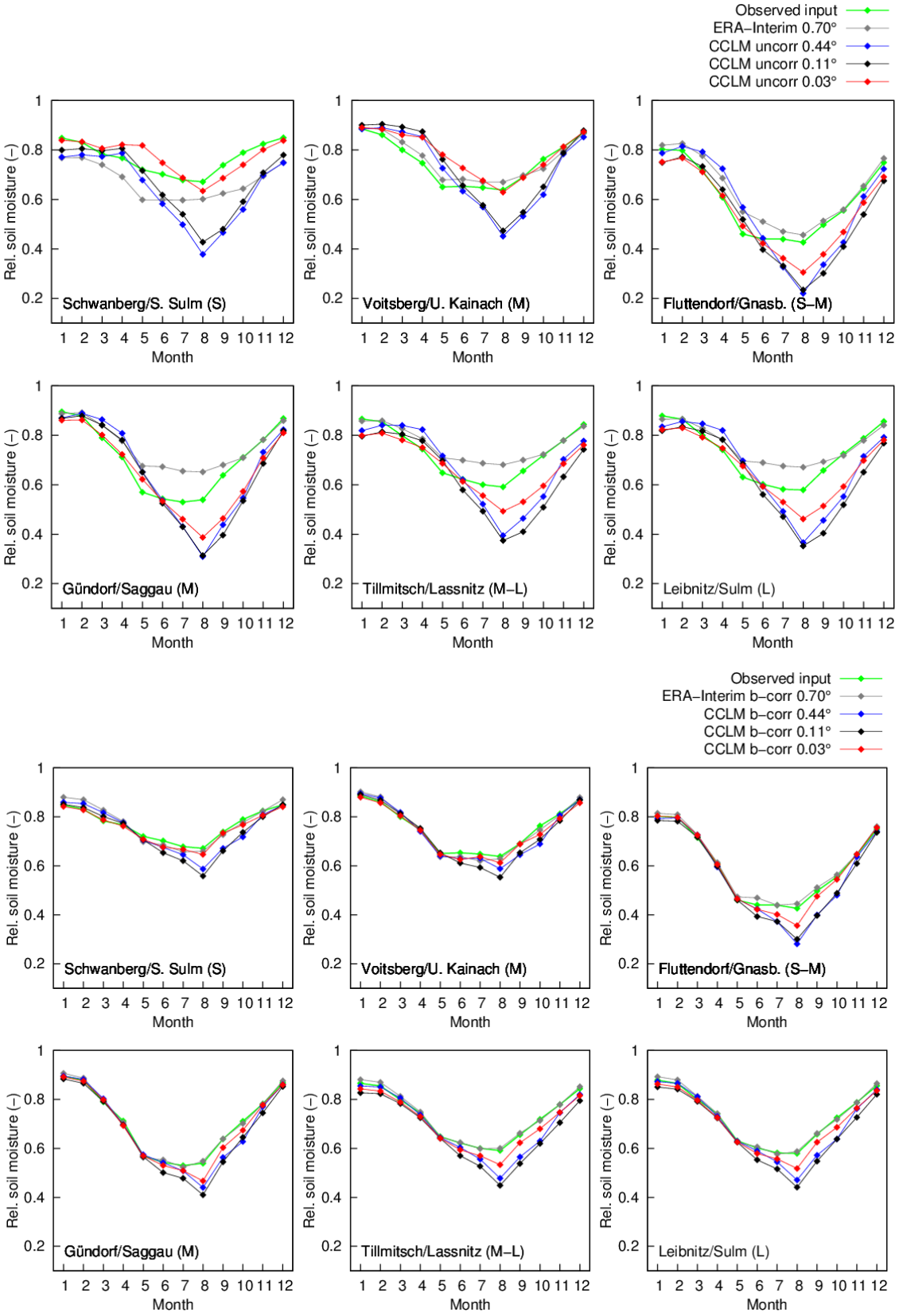

Figure S5: Simulated soil moisture on monthly basis using raw (above) and bias corrected CCLM data (below) as input compared to the simulations with observed input (green). In the model KAMPUS, soil moisture is defined as the total amount of water stored in the upper soil zone, which can be depleted by evapotranspiration. Relative values related to the maximum storage capacity are used.

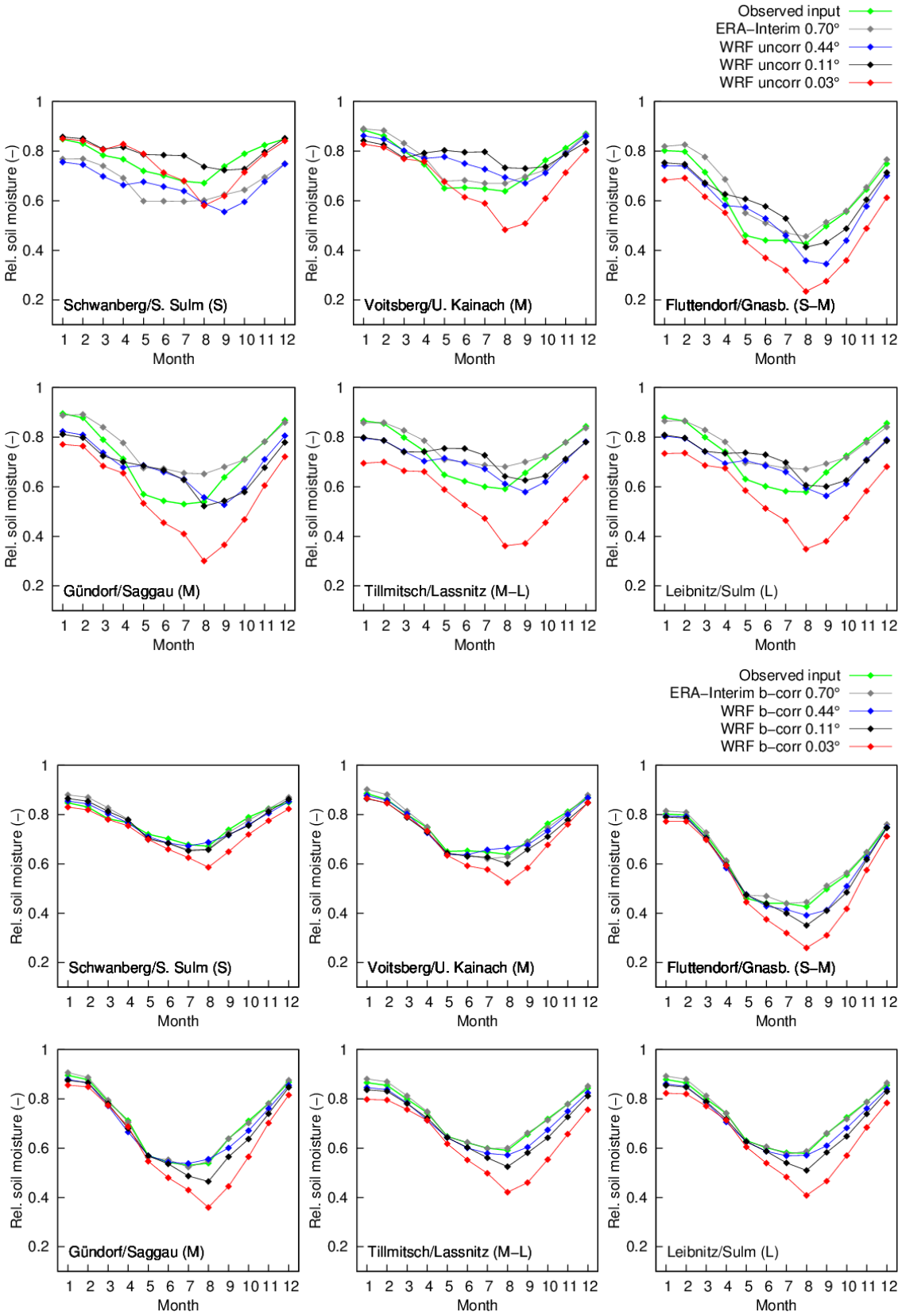

Figure S6: As above using raw (above) and bias corrected WRF data (below) as input compared to the simulations with observed input (green). In the model KAMPUS, soil moisture is defined as the total amount of water stored in the upper soil zone, which can be depleted by evapotranspiration. Relative values related to the maximum storage capacity are used.