

Fig. S1. Location map of observation points for river discharge and groundwater levels

Table S1. Observed data of river discharge and groundwater levels at all observation stations

River Discharge (m <sup>3</sup> /day)	16-18 Feb 2025	10-11 Jun 2025	31 July 2025
R2	6322	32832	
R3		99014	
R4	4		
R8	104	2968	1343
R9	919		
R10	1314	5591	1166
R15	934	15582	
R16	5552		
R17	556		
R19	5283	60820	

Groundwater level (m)	16-18 Feb 2025	10-11 Jun 2025	31 July 2025
G1	79.19	79.19	79.52
G2		81.89	80.26
G3	124.65		
G4	85.35		
G5	106.27		
G6	99.31		
G7-1	100.16		
G7-2	100.13		
G8			86.28
G9			85.01

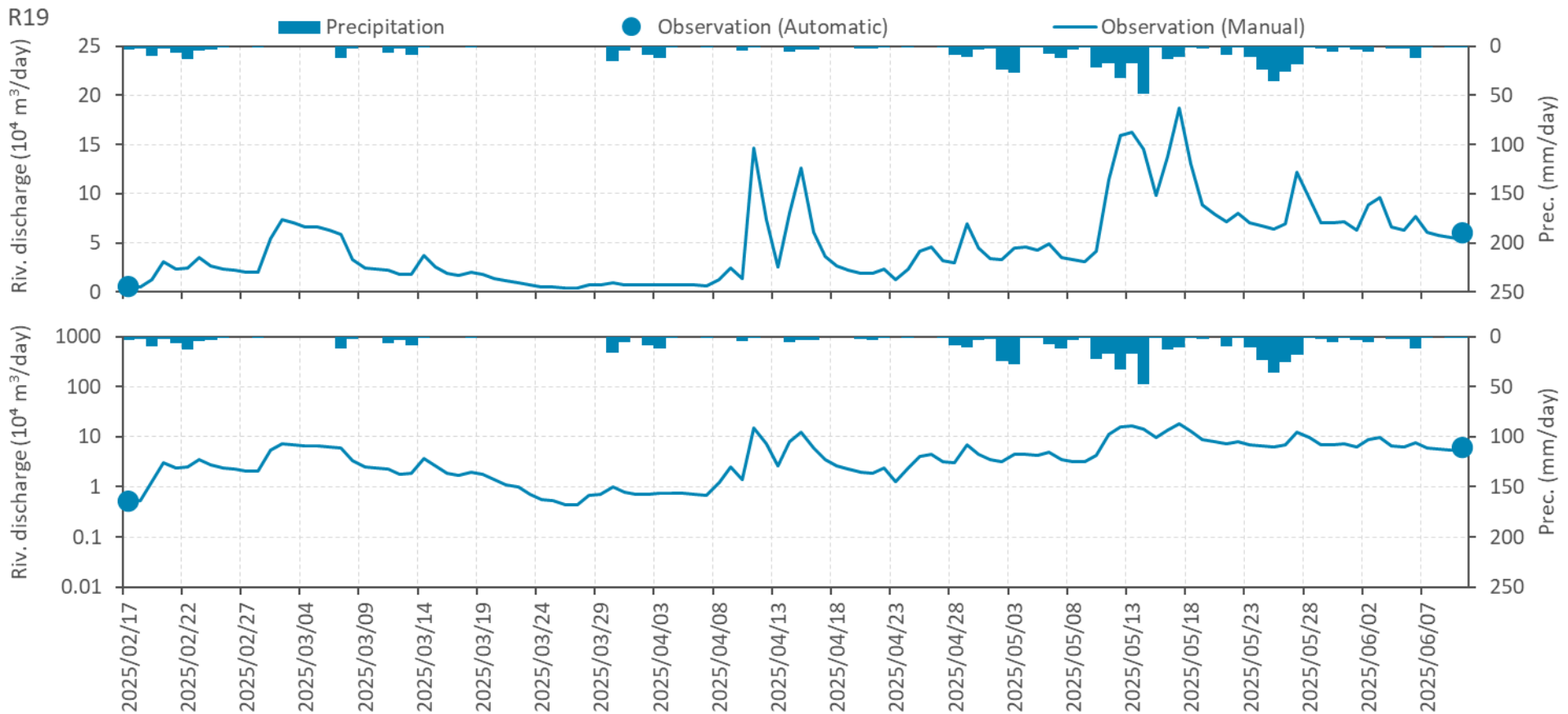


Fig. S2. River discharge converted from observed daily river water levels at R19 observation station

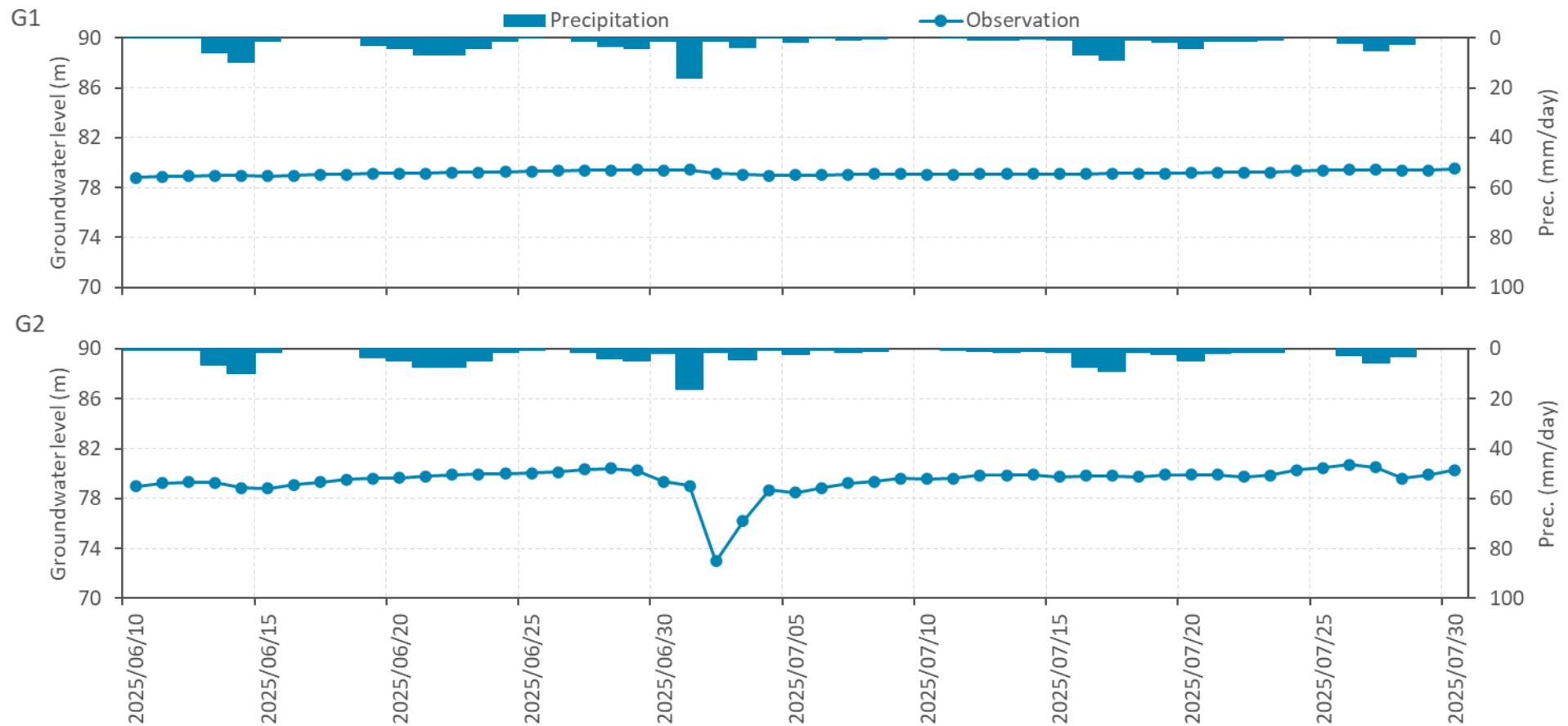


Fig. S3. Observed data of groundwater levels at G1 and G2 observation stations

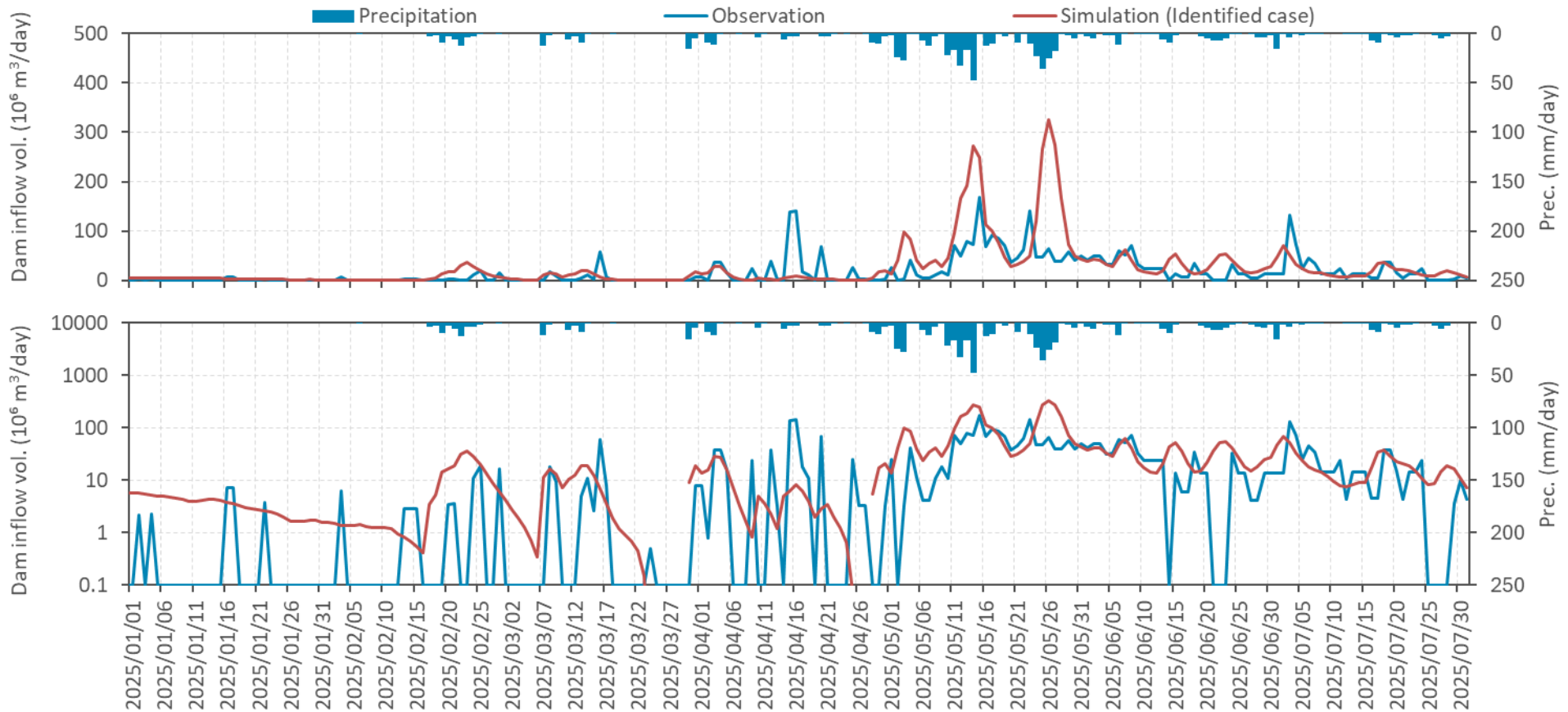


Fig. S4. Comparison of observed and simulated daily dam inflow volume in the identified case

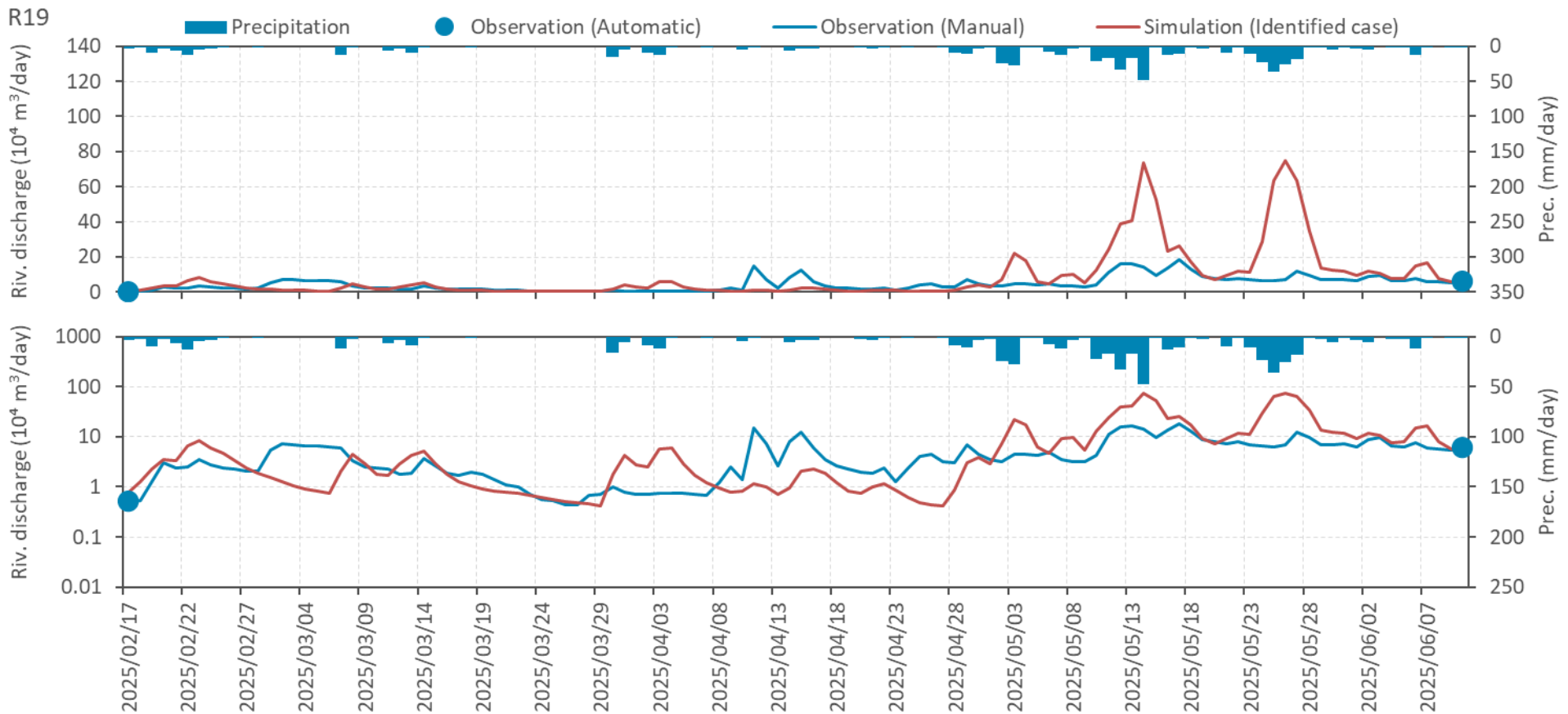


Fig. S5. Comparison of observed and simulated daily river discharge at R19 observation station in the identified case

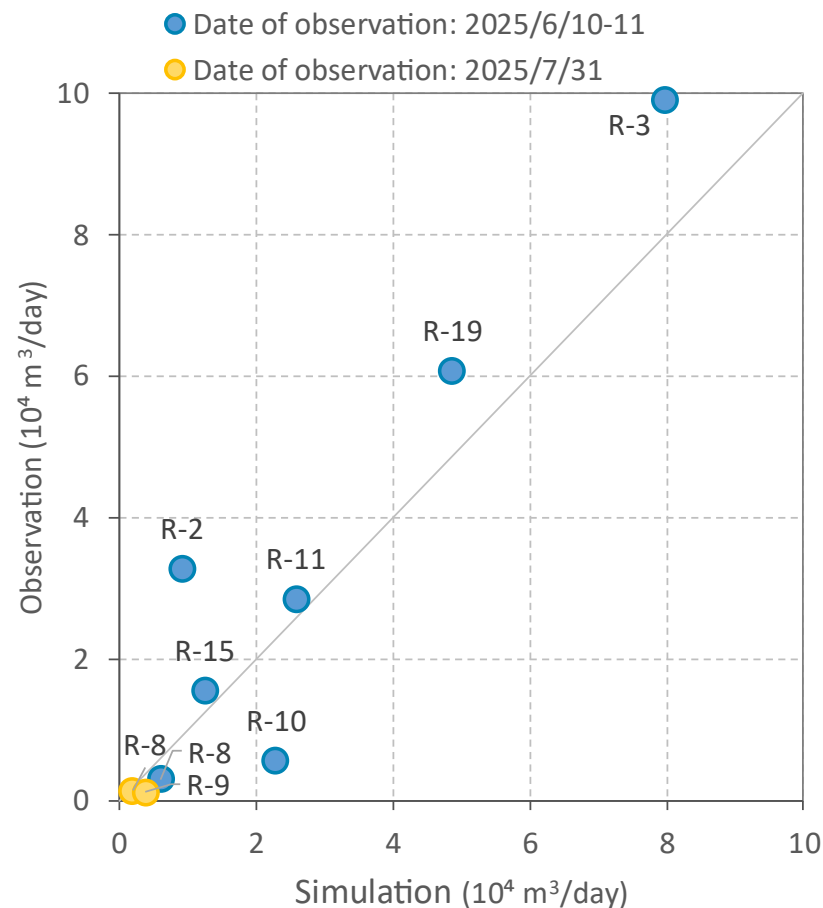
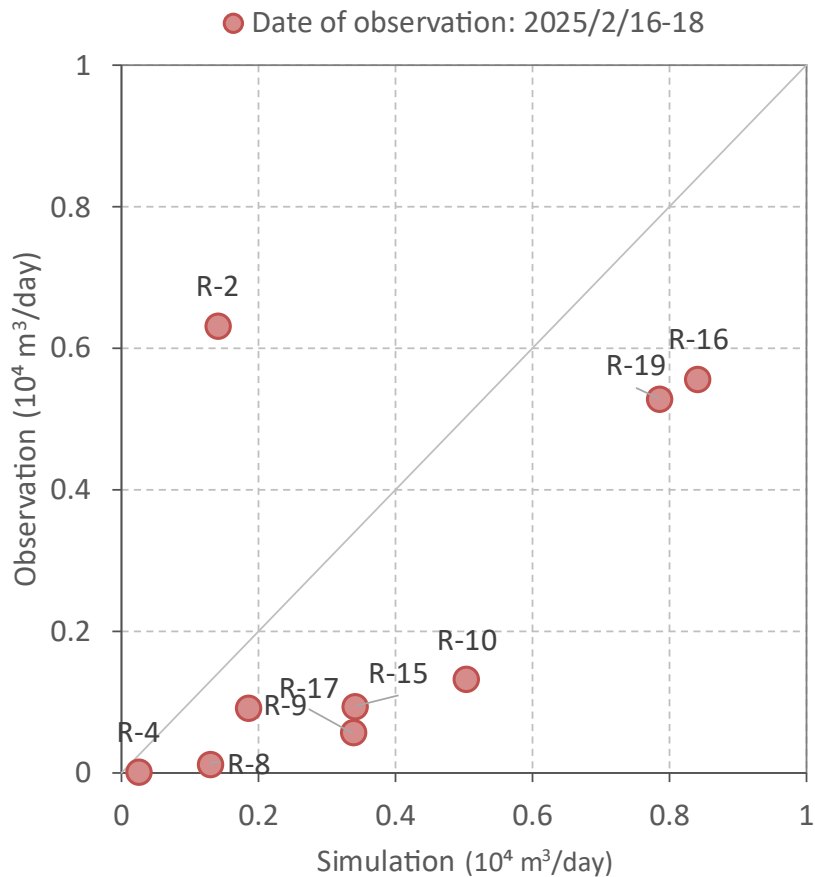


Fig. S6. Comparison of observed and simulated river discharge for (a) the dry season and (b) the rainy season at all observation stations in the identified case

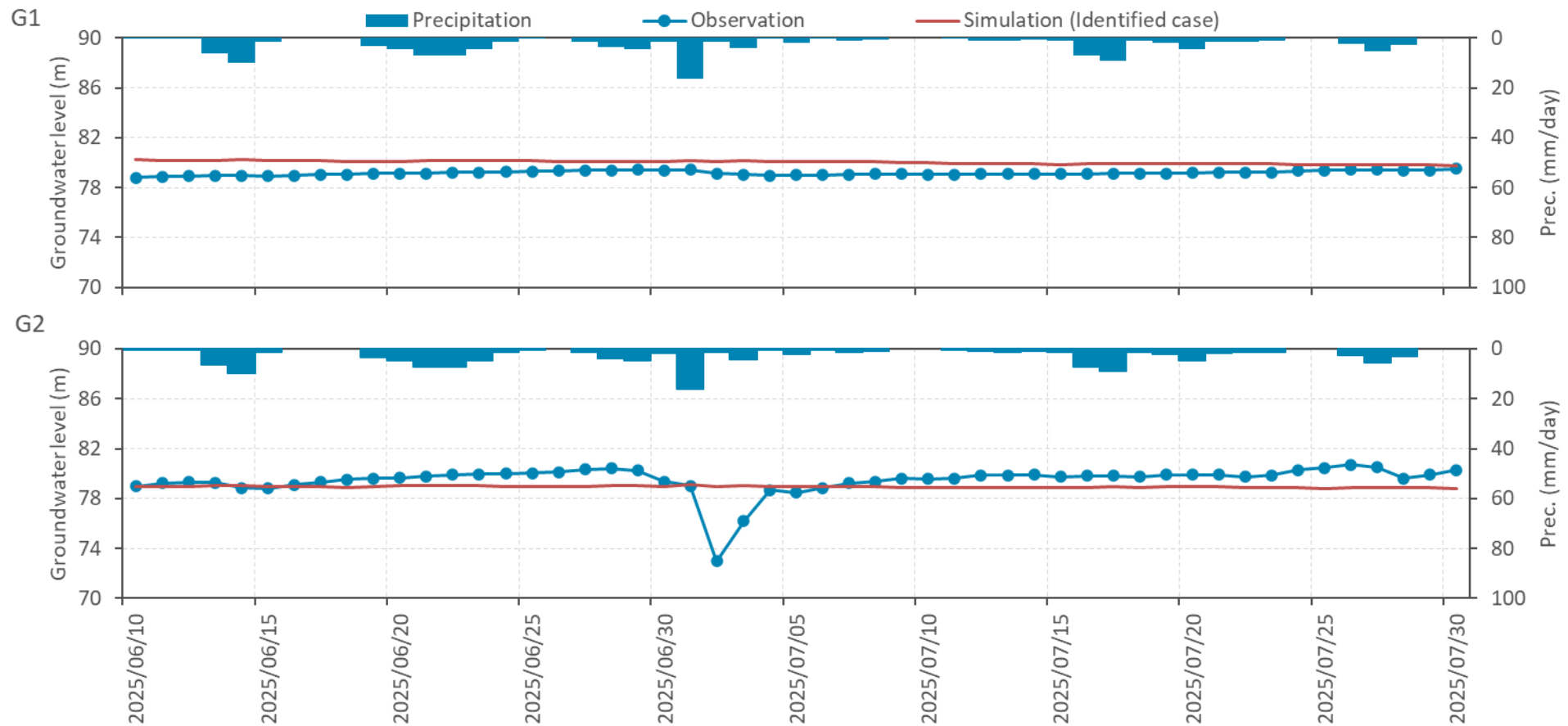


Fig. S7. Comparison of observed and simulated daily groundwater levels at G1 and G2 observation stations in the identified case