

Table S1. Mean annual water balance of the mineral and peat soils domains derived from model results for the period 2001–2013.

Water balance domain	mm yr ⁻¹			m ³ yr ⁻¹		
	Peat soils	Mineral soils	Combined	Peat soils	Mineral soils	Combined
Precipitation	1267	1267	1267	466872	1583059	2049931
Actual evapotranspiration	696	560	591	256615	699643	956258
- incl. from interception	20	237	187	7203	295935	303138
- incl. from ponded water	443	18	115	163208	22849	186057
- incl. from UZ	99	287	244	36353	358145	394498
- incl. from SZ	135	18	45	49851	22714	72565
OL boundary inflow	1586	80	2	584416	99971	2923
OL boundary outflow	280	466	2	103026	581980	3542
OL to river	2534	30	600	933881	37398	971278
Infiltration from OL to UZ	160	948	769	59004	1184801	1243806
Infiltration from OL to SZ	8	4	5	3007	4547	7554
Seepage from SZ to OL	983	337	484	362371	421264	783635
Percolation from UZ to SZ	61	662	525	22661	827106	849766
SZ boundary inflow	1310	92	20	482919	114691	31700
- to upper layer (peat)	19	NA	NA	6950	NA	NA
- to lower layer (mineral)	1292	NA	NA	475969	NA	NA
SZ boundary outflow	246	408	21	90825	509492	34407
- from upper layer (peat)	1	NA	NA	203	NA	NA
- from lower layer (mineral)	246	NA	NA	90622	NA	NA
Upper to lower SZ layer	36	NA	NA	13153	NA	NA
Lower to upper SZ layer	1070	NA	NA	394375	NA	NA
SZ to river exchange	15	4	6	5591	4476	10067
- upper SZ layer (peat) to river	4	NA	NA	1479	NA	NA
- lower SZ layer (mineral) to river	11	NA	NA	4112	NA	NA
River to SZ exchange	0	0	0	5	23	27
- river to upper SZ layer (peat)	0	NA	NA	2	NA	NA
- river to lower SZ layer (mineral)	0	NA	NA	3	NA	NA
Change in total storage	0	-5	-4	23	-6163	-6140
- incl. change in OL storage	0	0	0	21	-103	-82
- incl. change in UZ storage	0	0	0	-1	-247	-248
- incl. change in SZ storage	0	-5	-4	3	-5814	-5810
- incl. in upper layer (peat)	0	NA	NA	2	NA	NA
- incl. in lower layer (mineral)	0	NA	NA	1	NA	NA
Total error	-391	23	-71	-144252	29082	-115170
- incl. overland error	-392	18	-75	-144310	23113	-121196
- incl. UZ error	0	0	0	10	203	211
- incl. SZ error	0	5	4	49	5766	5815
- incl. in upper layer (peat)	0	NA	NA	64	NA	NA
- incl. in lower layer (mineral)	0	NA	NA	-15	NA	NA

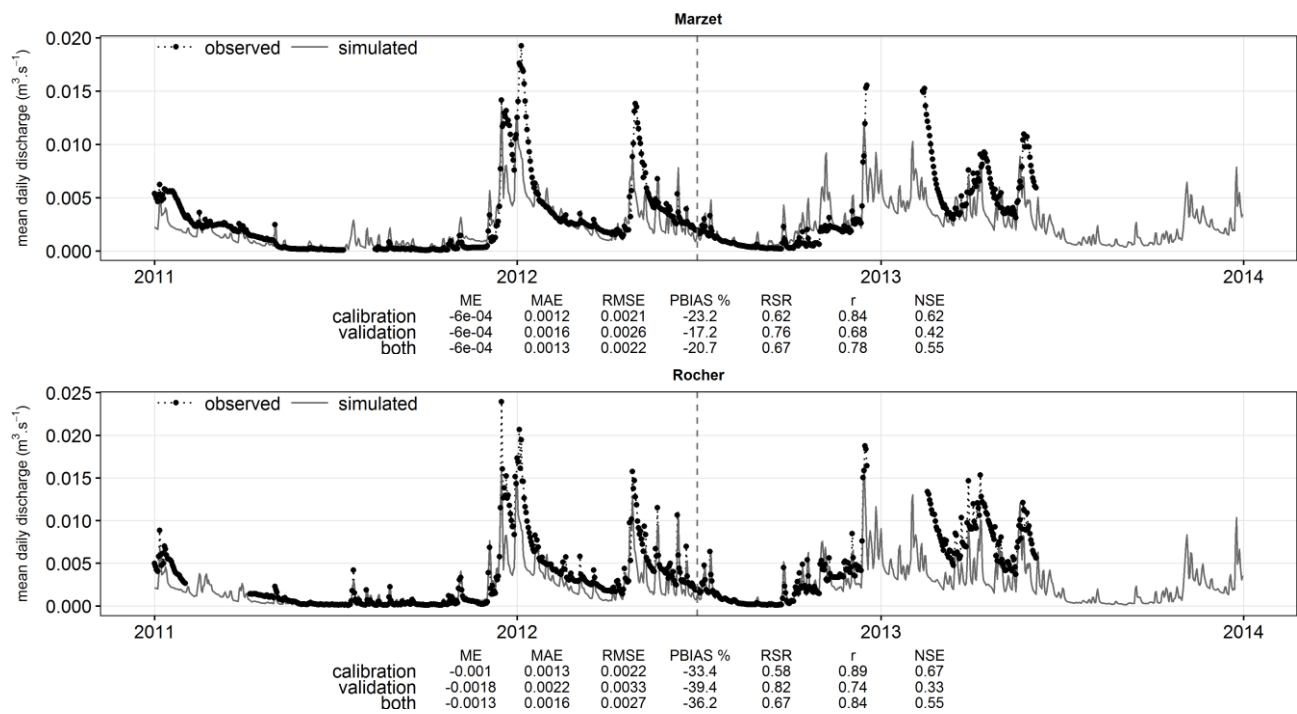


Figure S1. Observed and simulated stream discharge and model performance statistics for two locations within the Dauges catchment (01/01/2011–31/12/2013). Note different y-axis ranges.

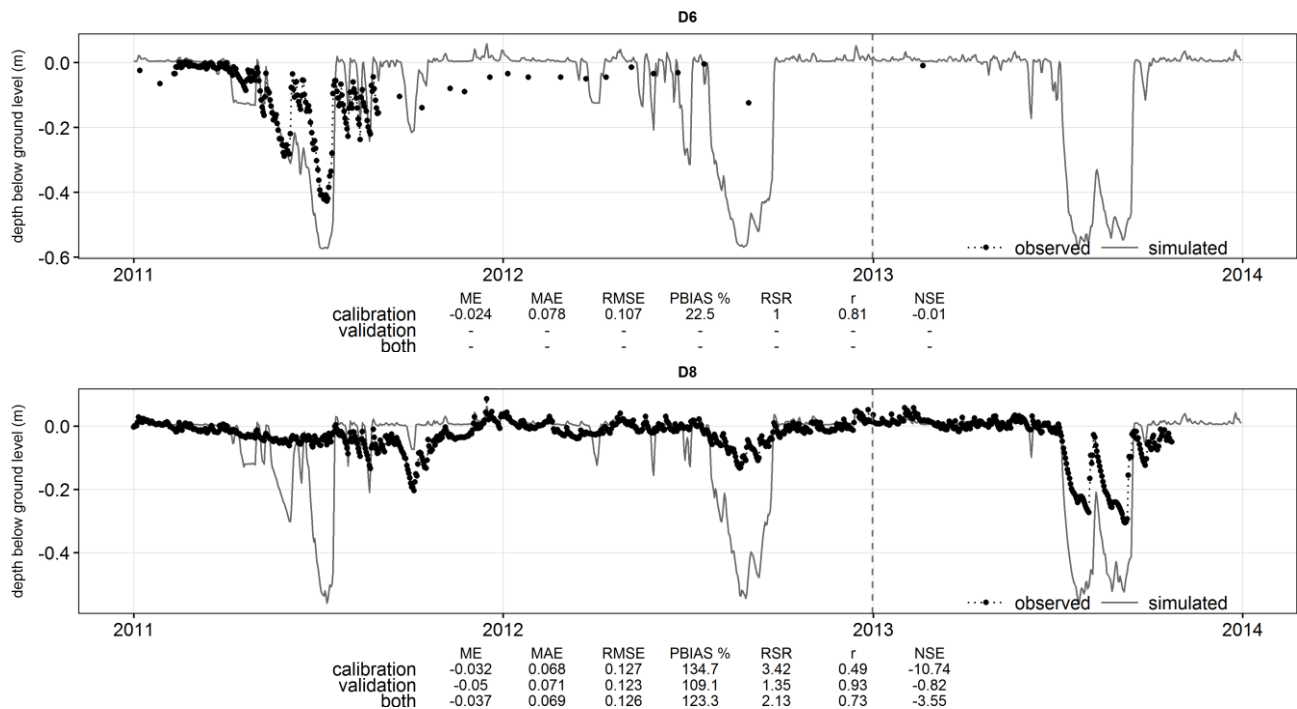
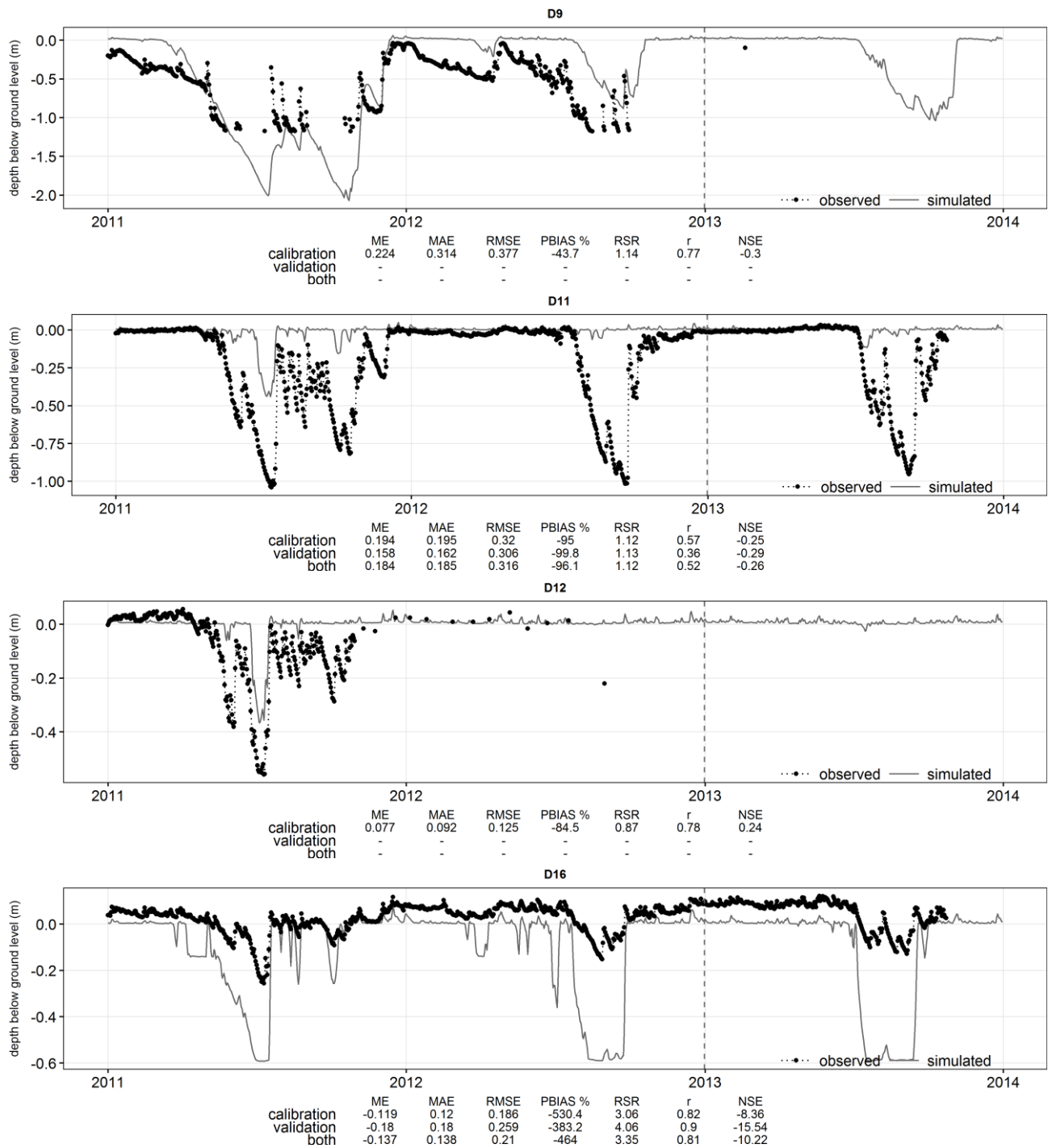


Figure S2. Observed and simulated groundwater table depth and model performance statistics for selected dipwells within the Dauges catchment (01/01/2011–31/12/2013). Note different y-axis ranges.



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Figure S2 (continued). Observed and simulated groundwater table depth and model performance statistics for selected dipwells within the Dauges catchment (01/01/2011–31/12/2013). Note different y-axis ranges.

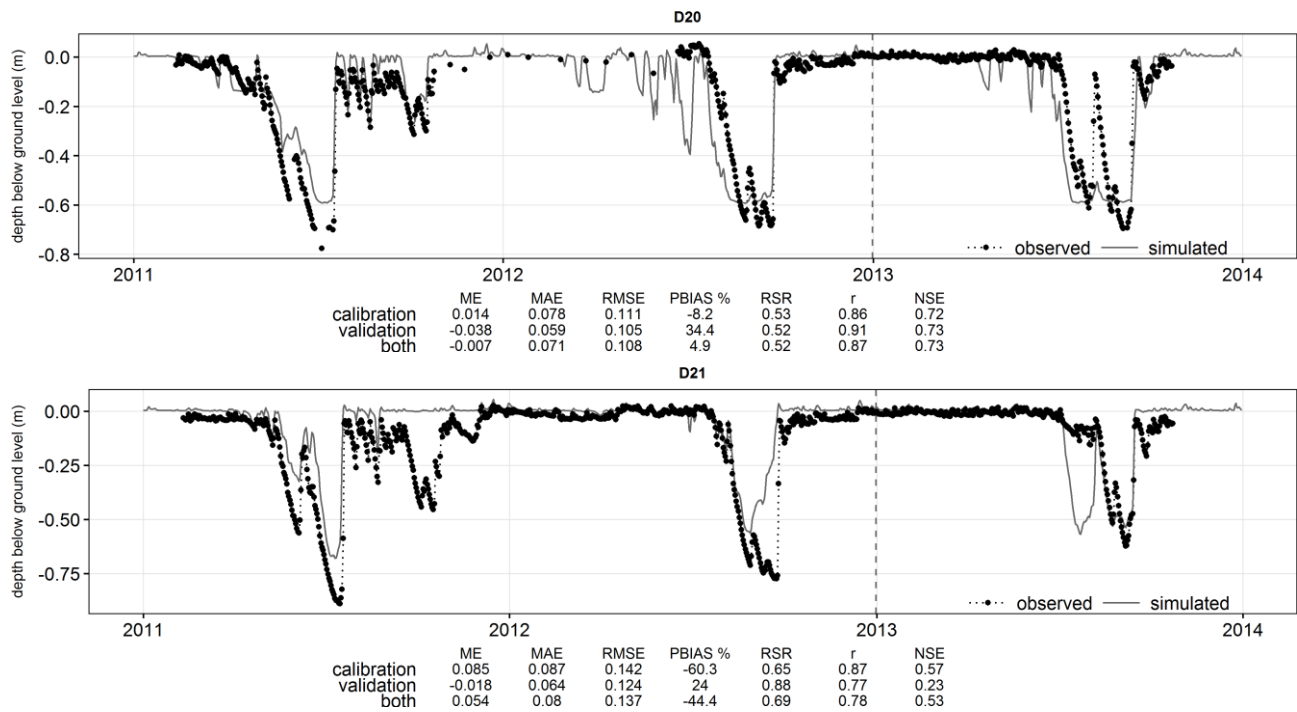


Figure S2 (continued). Observed and simulated groundwater table depth and model performance statistics for selected dipwells within the Dagues catchment (01/01/2011–31/12/2013). Note different y-axis ranges.

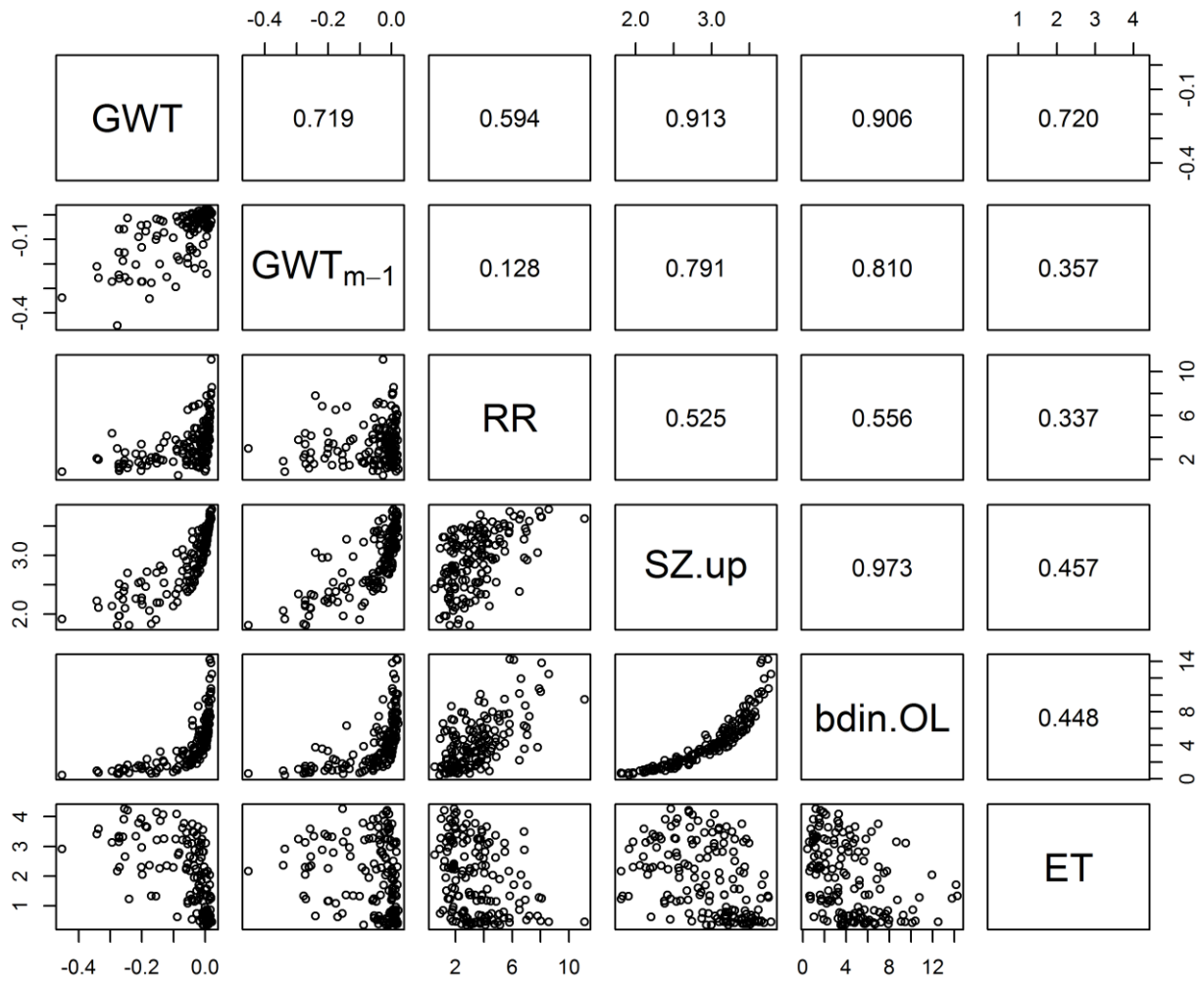


Figure S3. Scatterplot matrix of selected items of the mire water balance (simulated monthly means). GWT: groundwater table depth (m), GWT_{m-1} : groundwater table depth in preceding month, RR: precipitation (mm day^{-1}), SZ.up: groundwater upwelling (mm day^{-1}). bdin.OL: overland boundary inflow (mm day^{-1}), ET: actual evapotranspiration (mm day^{-1}). The top right panels show Spearman's rank correlation.

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