

Table S1. The statistical parameters of the data used in the study.

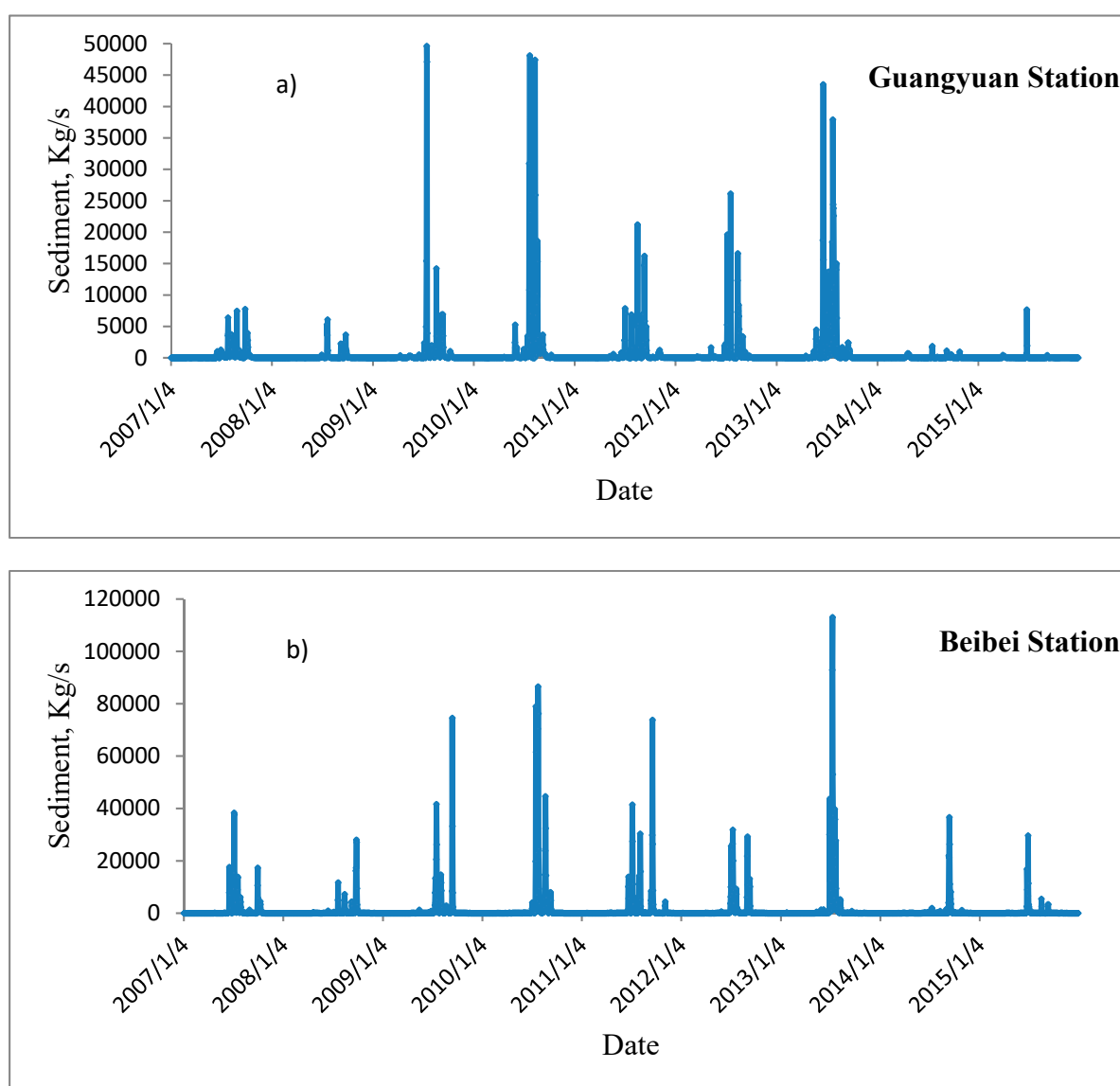
	Guangyuan			Beibei		
	Whole data	Training	Test	Whole data	Training	Test
Streamflow (Q), m³/s						
Mean	175	171	179	2138	2027	2249
Min.	4.5	16.2	4.5	105	105	276
Max	6290	6290	3780	34700	30600	34700
Median	77.7	69.5	85.6	1080	975	1190
Skewness	6.8	7.6	5.3	4.3	4.4	4.2
Std. dev.	336	366	304	3232	3061	3393
Sediment (S), kg/s						
Mean	432	409	454	972	938	1007
Min.	0	0	0.35	0.11	0.11	0.79
Max	49600	49600	43500	86500	86500	11300
Median	12.7	12.8	12.6	10.8	9.8	12.1
Skewness	12	13.5	9.7	10.5	10.3	10.7
Std. dev.	2675	2844	2496	5685	5591	5781

Table S2. Performance of the best ANFIS, M5Tree, MARS and MARS-KM models in sediment prediction at Guangyuan Station

Statistics	Data set	ANFIS	M5Tree	MARS	MARS-KM
RMSE	1 st training-test	1649	1428	1225	1003
	2 nd training-test	1677	1651	1399	1282
	Mean	1663	1540	1312	1143
MAE	1 st training-test	340	249	265	187
	2 nd training-test	323	269	217	167
	Mean	332	259	241	177
NSE	1 st training-test	0.563	0.672	0.759	0.838
	2 nd training-test	0.652	0.663	0.758	0.797
	Mean	0.608	0.668	0.759	0.818

Table S3. Performance of the best ANFIS, M5Tree, MARS and MARS-KM models in sediment prediction at Beibei Station

Statistics	Data set	ANFIS	M5Tree	MARS	MARS-KM
RMSE	1 st training-test	3591	3221	3265	2377
	2 nd training-test	2668	2953	2650	2478
	Mean	3130	3087	2958	2428
MAE	1 st training-test	715	495	575	434
	2 nd training-test	474	451	462	367
	Mean	595	473	519	401
NSE	1 st training-test	0.614	0.689	0.681	0.831
	2 nd training-test	0.772	0.721	0.775	0.803
	Mean	0.693	0.705	0.728	0.817

**Figure S1.** Time variation graph of sediment load for a) Guangyuan and b) Beibei Station

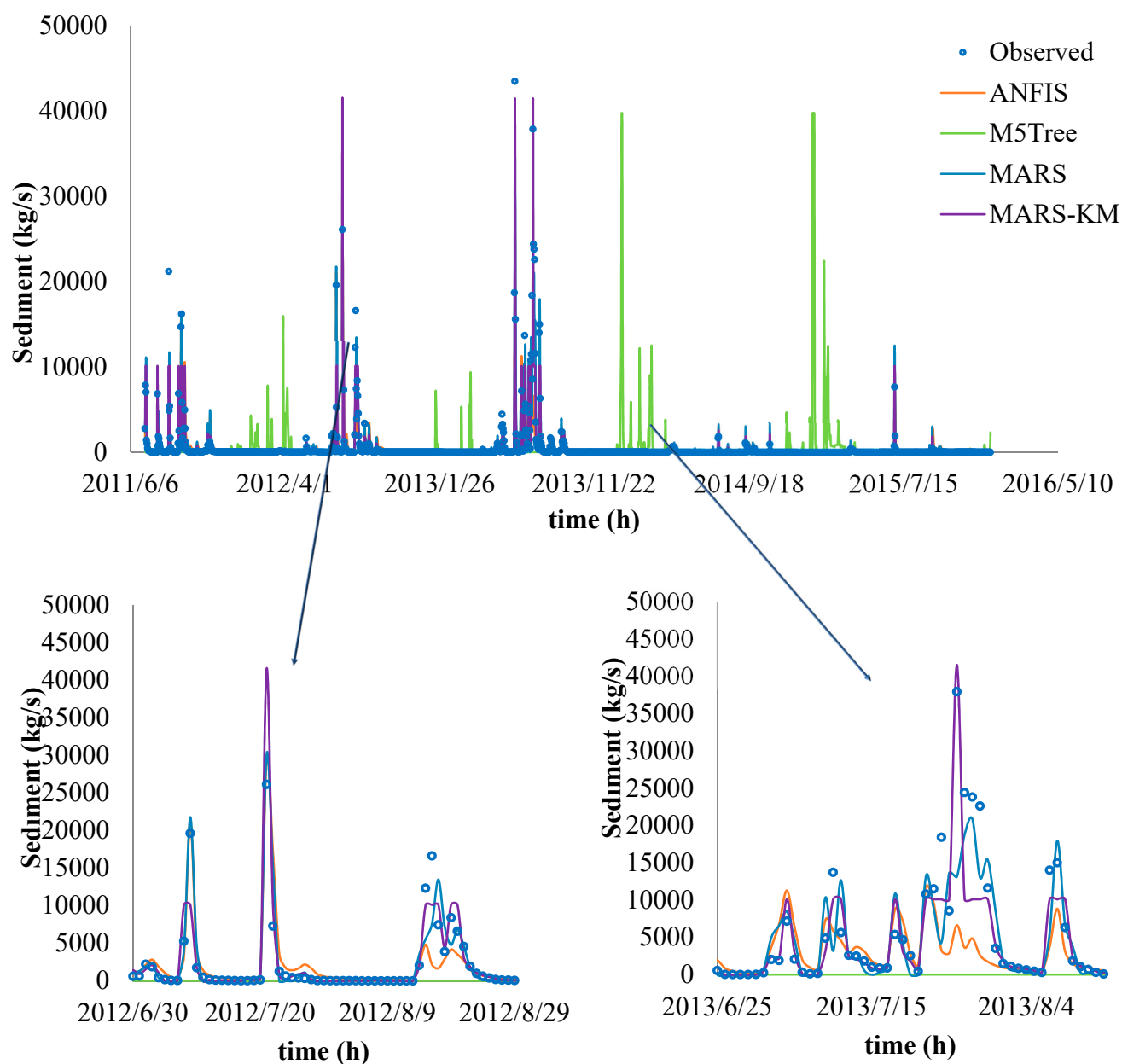


Figure S2. Time variation graphs of the observed and estimated sediments by ANFIS, M5Tree, MARS and MARS-KM models in the test period at Guangyuan Station for the 1st training-test scenario

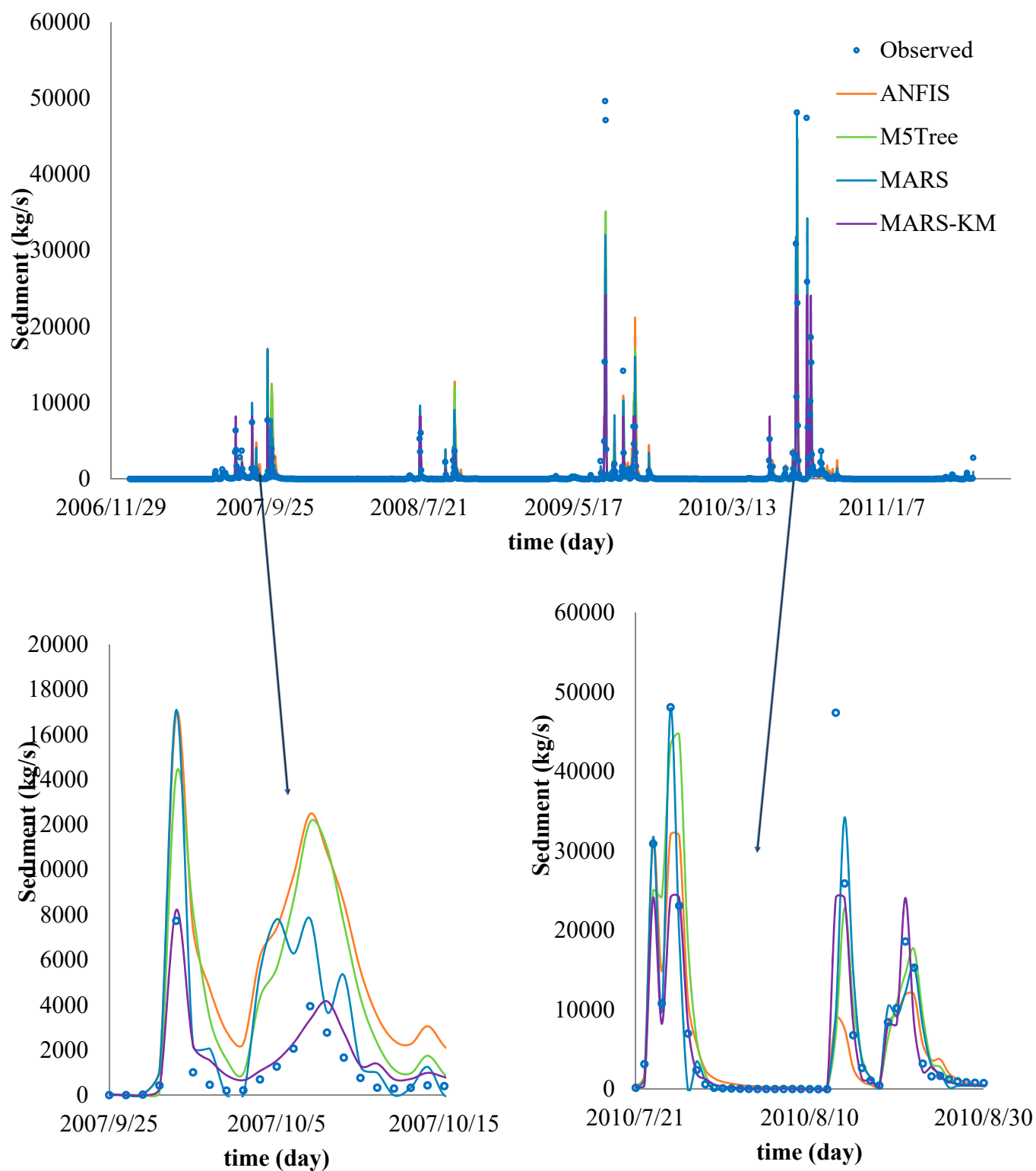


Figure S3. Time variation graphs of the observed and estimated sediments by ANFIS, M5Tree, MARS and MARS-KM models in the test period at Guangyuan Station for the 2nd training-test scenario

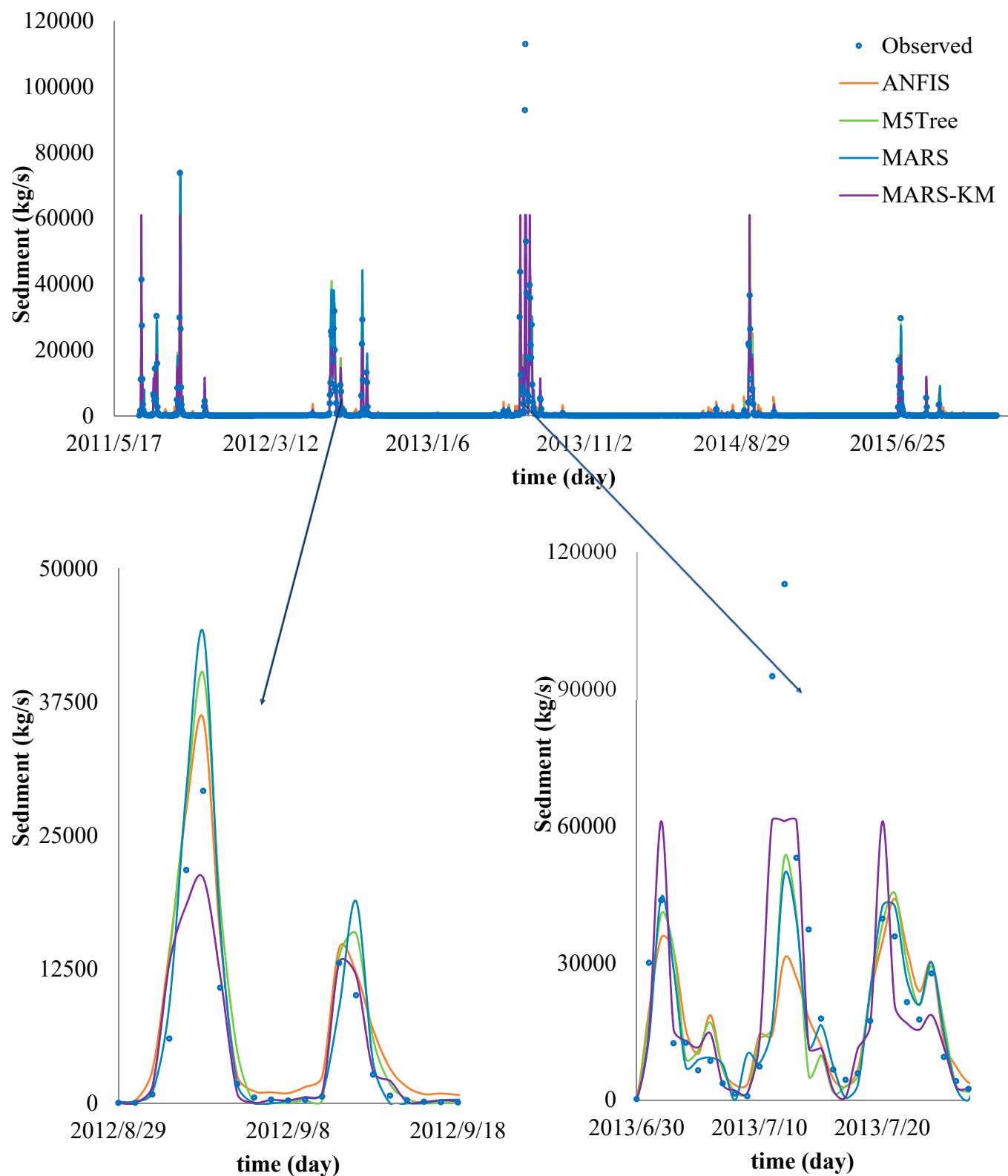


Figure S4. Time variation graphs of the observed and estimated sediments by ANFIS, M5Tree, MARS and MARS-KM models in the test period of Beibei Station – 1st training-test scenario

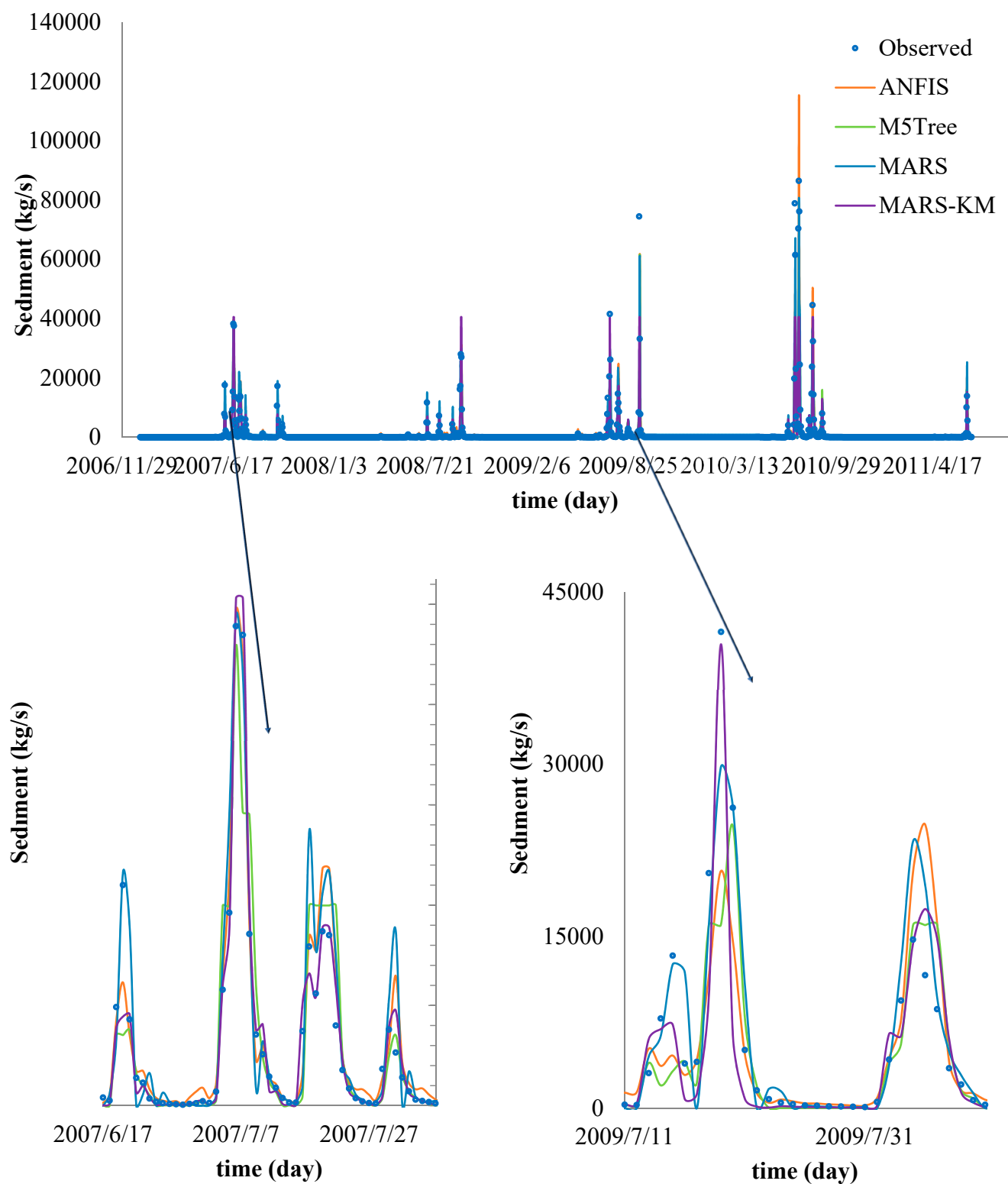


Figure S5. Time variation graphs of the observed and estimated sediments by ANFIS, M5Tree, MARS and MARS-KM models in the test period at Beibei Station for the 2nd training-test scenario