SUPPLEMENTARY MATERIALS FOR:

An Efficient Data Driven-Based Model for Prediction of the Total Sediment Load in Rivers

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This file includes:

Tables S1 and S2

Figures S1 to S10

Table S1. The main statistical characteristics of the raw database used in this study. StD is the standard deviation.

Variable	Mean	Median	Minimum	Maximum	StD
q (m^3/s)	0.098	0.022	0.00003	4.614	0.315
H (m)	0.130	0.089	0.008	1.243	0.120
S	0.004	0.002	0.00006	0.049	0.005
d_{50} (mm)	1.443	0.620	0.088	28.65	2.746
C (g/L)	2352	385	0.003	50	4.75

Table S2. Symmetrical correlation matrix among the drivers.

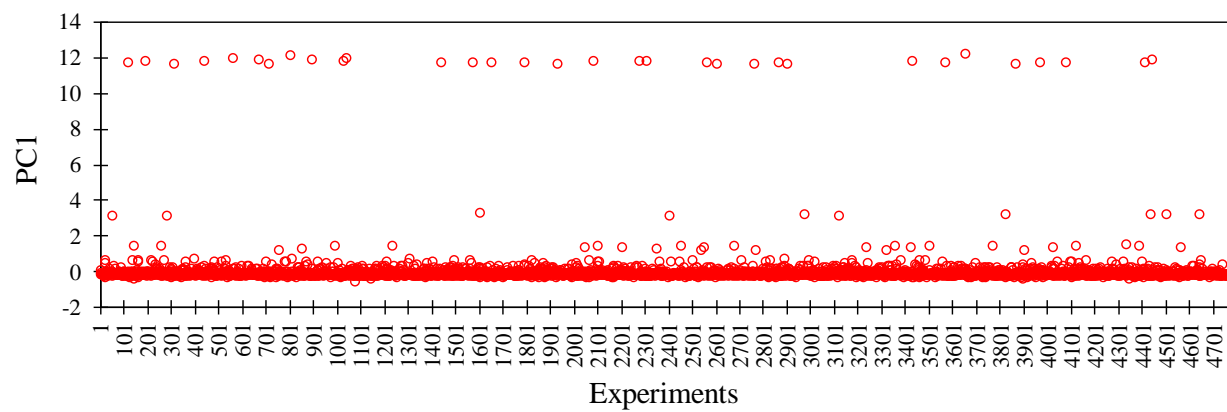|	S	H/d_{50}	$u^3/gH\omega$	u^*d_{50}/v	$HS/(G-1)d_{50}$	u/ω	ω/u^*	$u/(sqrt(G-1)gd_{50})$	$\omega d_{50}/v$	uS/ω
S	1.00	-0.25	0.19	0.19	0.16	-0.11	0.15	0.17	0.08	0.33
H/d_{50}	-0.25	1.00	0.34	-0.10	0.56	0.70	-0.11	0.53	-0.05	0.29
$u^3/gH\omega$	0.19	0.34	1.00	-0.06	0.47	0.76	-0.07	0.77	-0.03	0.83
u^*d_{50}/v	0.19	-0.10	-0.06	1.00	-0.08	-0.08	0.94	-0.12	0.95	-0.09
$HS/(G-1)d_{50}$	0.16	0.56	0.47	-0.08	1.00	0.48	-0.12	0.71	-0.05	0.64
u/ω	-0.11	0.70	0.76	-0.08	0.48	1.00	-0.08	0.73	-0.03	0.62
ω/u^*	0.15	-0.11	-0.07	0.94	-0.12	-0.08	1.00	-0.16	0.94	-0.11
$u/(sqrt(G-1)gd_{50})$	0.17	0.53	0.77	-0.12	0.71	0.73	-0.16	1.00	-0.07	0.79
$\omega d_{50}/v$	0.08	-0.05	-0.03	0.95	-0.05	-0.03	0.94	-0.07	1.00	-0.05
uS/ω	0.33	0.29	0.83	-0.09	0.64	0.62	-0.11	0.79	-0.05	1.00

Figure S1. The first principal component (PC1) calculated by principal component analysis (PCA).
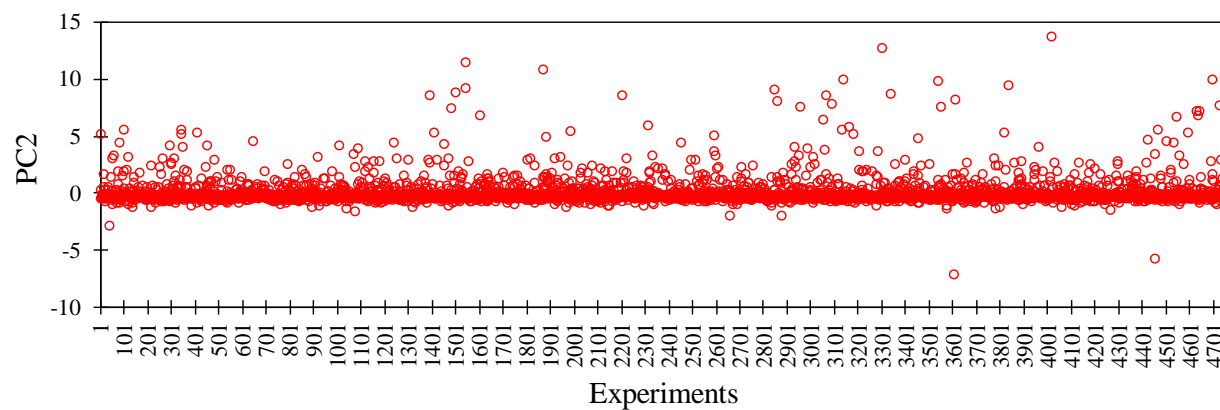
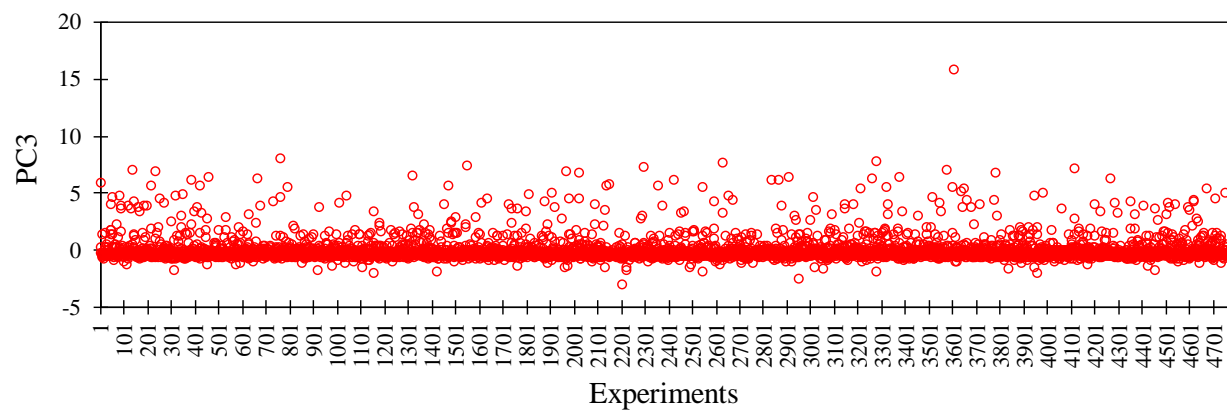**Figure S2.** The second principal component (PC2) calculated by principal component analysis (PCA).

Figure S3. The third principal component (PC3) calculated by principal component analysis (PCA).
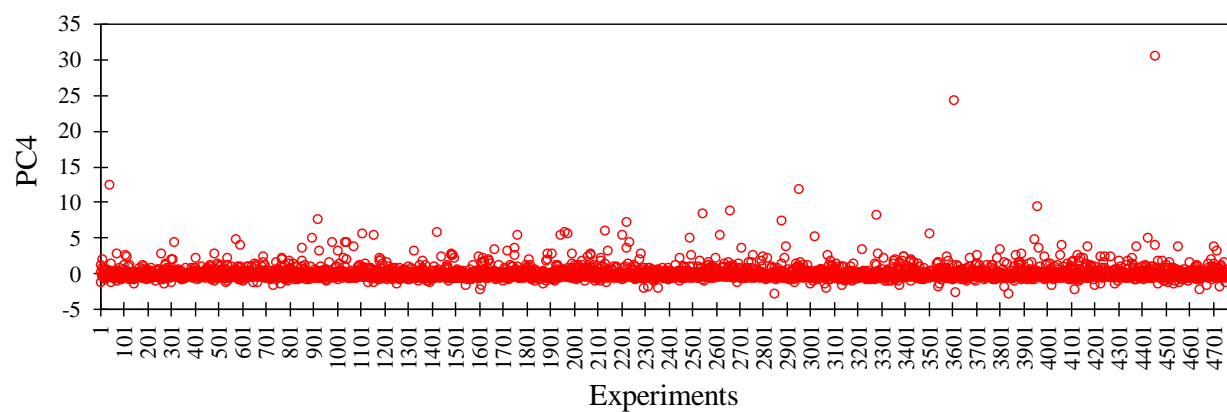
Figure S4. The fourth principal component (PC4) calculated by principal component analysis (PCA).
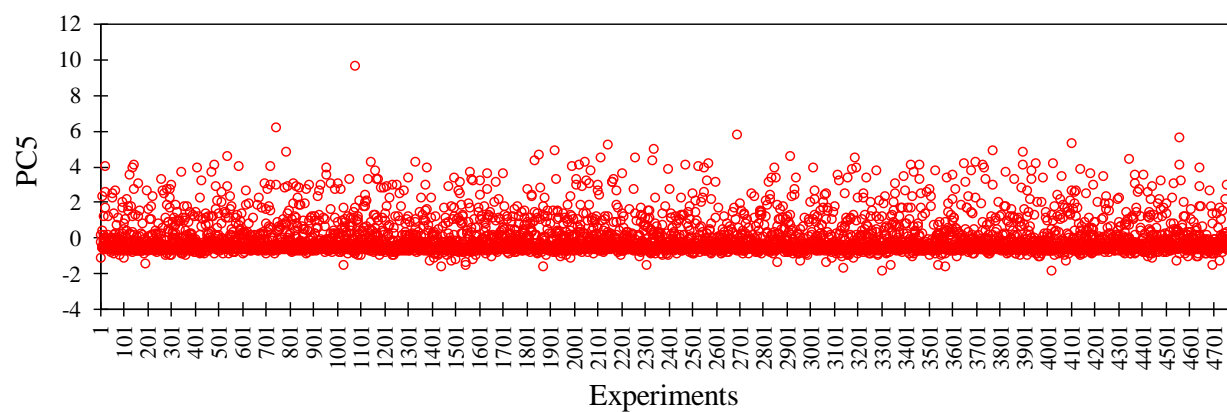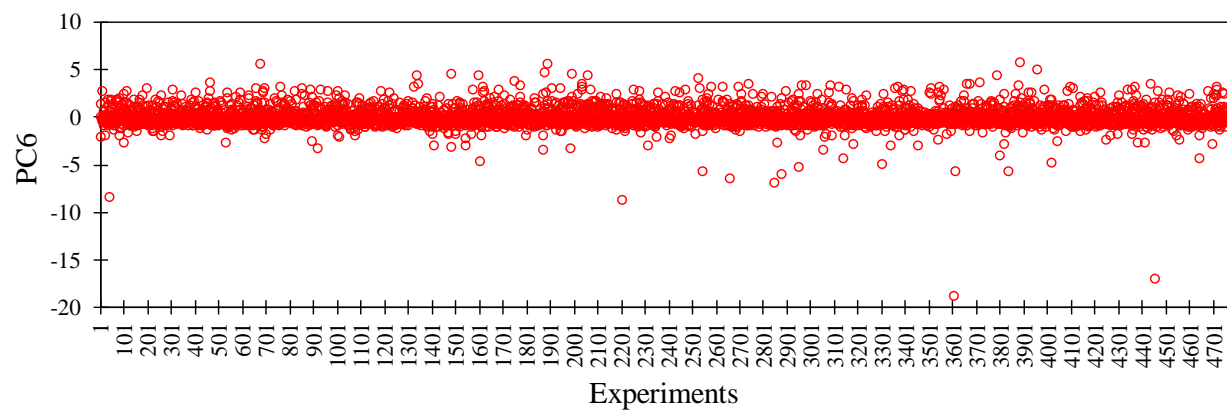
Figure S5. The fifth principal component (PC5) calculated by principal component analysis (PCA).

Figure S6. The sixth principal component (PC6) calculated by principal component analysis (PCA).
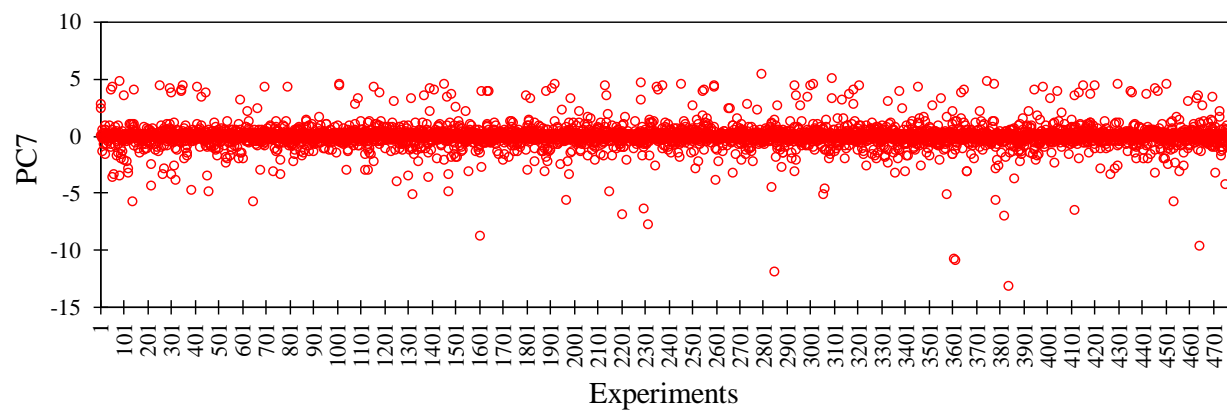
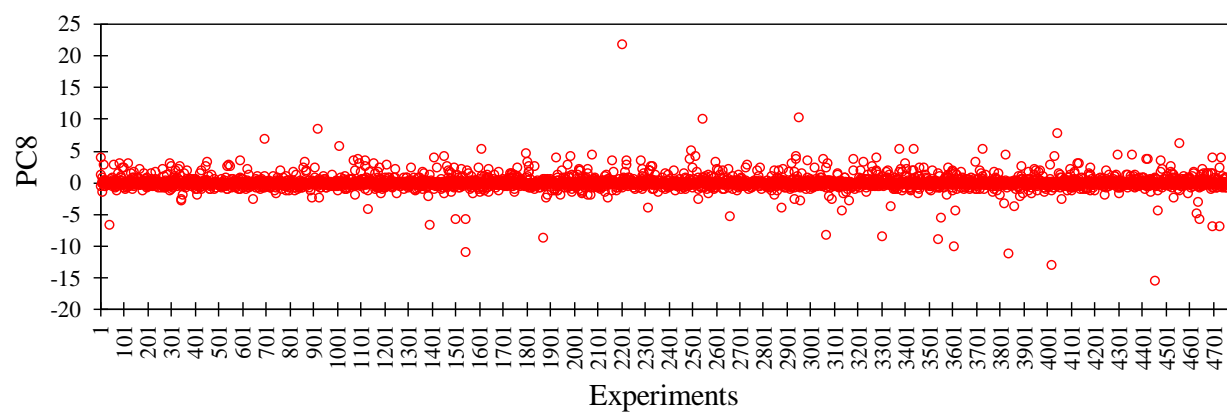**Figure S7.** The first principal component (PC7) calculated by principal component analysis (PCA).

Figure S8. The first principal component (PC8) calculated by principal component analysis (PCA).
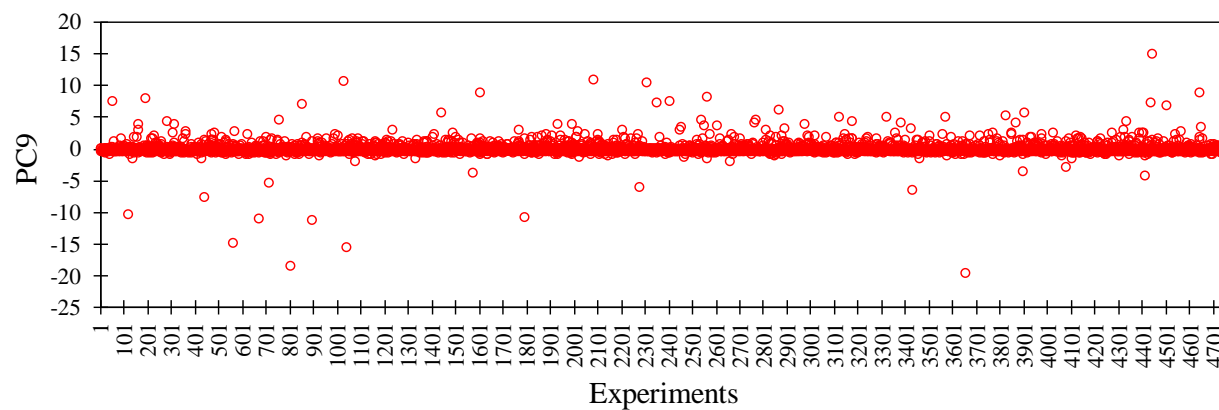
Figure S9. The ninth principal component (PC9) calculated by principal component analysis (PCA).
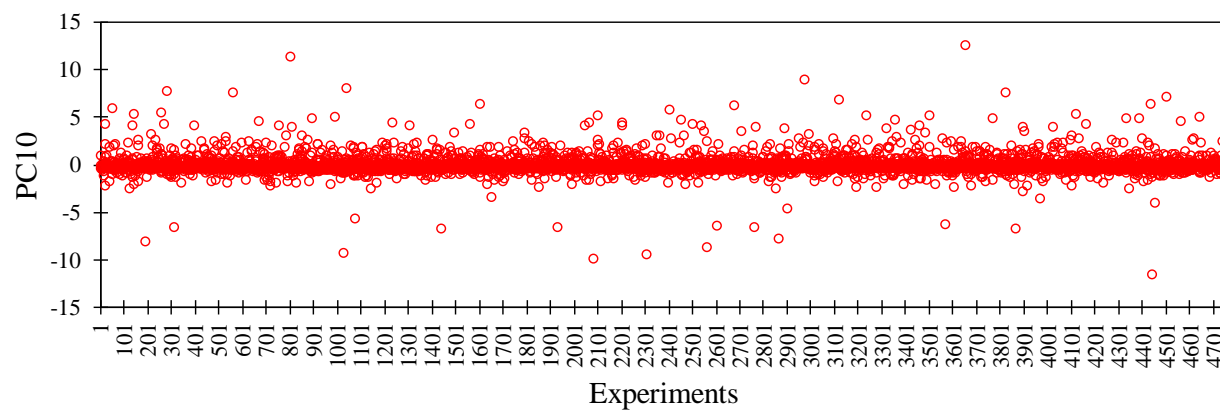
Figure S10. The tenth principal component (PC10) calculated by principal component analysis (PCA).