

**Table S1.** Monthly water yield calculated in different climate change scenarios.

<b>WY (<math>1 \times 10^6</math> m<sup>3</sup>)</b>		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual</b>
	Baseline	0.83	1.58	1.19	1.07	2.86	3.25	3.94	3.95	7.81	5.5	1.9	1.26	46.25
RCP2.6	CCSM4	0.9	1.4	0.83	0.56	2.13	3.37	5.76	5.51	6.3	5.45	1.71	1.58	46.81
	CESM1-CAM5	0.57	0.42	0.35	0.62	2.33	4.04	4.82	3.91	10.1	2.75	1.46	0.52	43.2
	GISS-E2-R	0.92	1.59	1.1	0.47	2.85	2.63	3.47	3.41	6.76	5.03	1.09	1.32	41.9
	HadGEM2-AO	1.18	2.63	0.72	1.75	0.57	2.97	4.26	4.38	10.18	4.89	1.85	0.41	46.97
	MIROC5	1.21	1.2	1.15	0.57	2.37	4.16	5.2	4.72	6.91	5.89	2.47	0.95	48.02
RCP8.5	CCSM4	0.66	1.58	0.99	0.12	1.94	2.7	4.95	5.88	8.26	4.13	1.95	1.06	45.41
	CESM1-CAM5	0.9	1.29	0.63	0.43	2.9	4.71	4.31	3.79	10.48	7.03	1.22	0.83	49.97
	GISS-E2-R	0.92	0.34	0.96	1.06	1.94	3.05	4.57	3.58	7.9	8.65	2.25	1.5	48.03
	HadGEM2-AO	0.1	1.74	0.34	0.41	1.7	2.16	3.82	4.71	7.71	3.15	1.31	0.2	38.39
	MIROC5	0.89	1.15	0.65	0.25	2.63	4.28	6.09	5.93	9.23	2.84	1.06	1.34	47.52

**Table S2.** Monthly sediment export calculated in different climate change scenarios.

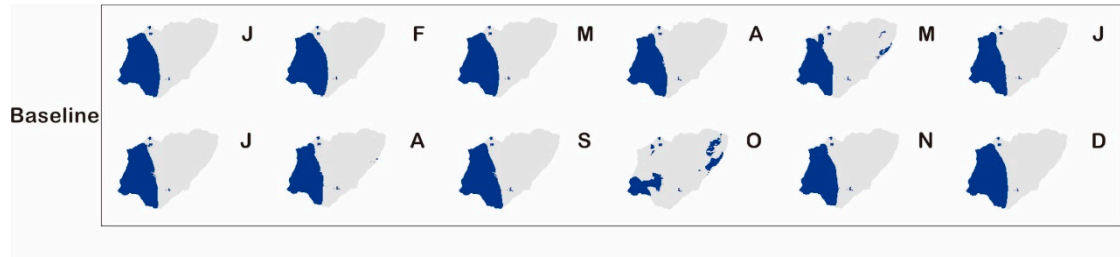
<b>S Export (tons)</b>		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual</b>
	Baseline	2.29	2.79	5.26	3.89	5.23	85.96	79.82	104.34	160.95	92.47	18.40	9.51	511.33
RCP2.6	CCSM4	2.46	2.09	3.70	2.68	19.13	94.13	131.72	169.82	124.84	95.83	15.54	12.61	527.12
	CESM1-CAM5	1.56	0.96	1.82	2.72	17.38	127.33	106.80	99.70	215.26	46.28	12.77	3.85	459.41
	GISS-E2-R	2.56	2.79	4.95	2.41	25.60	68.34	72.92	84.90	123.81	76.05	11.05	12.01	438.39
	HadGEM2-AO	3.61	4.89	3.31	6.31	3.72	76.99	79.16	133.71	225.70	95.24	17.30	2.97	523.26
	MIROC5	3.52	2.13	4.91	2.47	19.73	113.36	114.27	122.96	130.97	120.35	21.81	6.48	535.00
RCP8.5	CCSM4	2.02	2.87	4.47	1.24	16.77	75.40	110.02	190.30	177.50	72.62	18.74	7.02	514.44
	CESM1-CAM5	2.65	1.98	3.19	2.39	23.64	145.75	89.78	92.48	246.95	142.49	8.83	6.50	568.63
	GISS-E2-R	2.56	0.96	4.33	4.15	15.85	85.43	104.31	92.45	162.24	194.42	25.10	13.22	562.14
	HadGEM2-AO	0.48	2.47	1.94	2.03	10.58	54.00	76.50	152.96	157.43	41.16	12.05	2.20	379.35
	MIROC5	2.43	2.12	3.00	1.80	22.60	118.63	146.81	188.15	168.71	51.38	10.69	10.19	529.06

**Table S3.** Monthly N export calculated in different climate change scenarios.

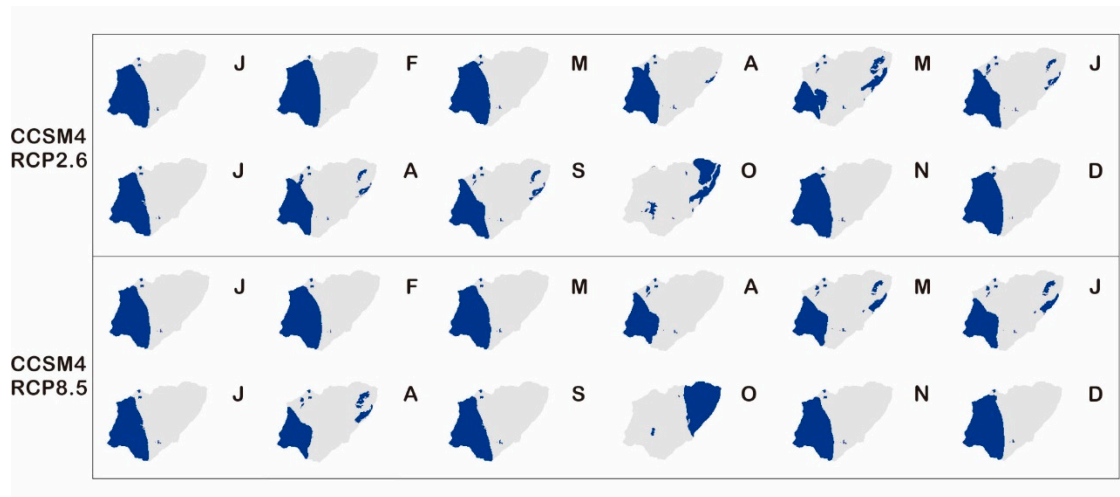
<b>N Export (kg)</b>		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual</b>
	Baseline	30.31	30.13	30.34	31.08	31.11	31.02	30.73	30.93	30.62	30.93	30.89	30.40	364.29
RCP2.6	CCSM4	30.13	29.17	30.05	32.14	31.73	31.22	30.64	30.96	30.87	31.14	30.59	30.17	364.91
	CESM1-CAM5	30.04	30.65	29.37	31.25	30.54	31.50	30.76	30.74	30.19	32.56	30.61	30.57	364.01
	GISS-E2-R	30.22	30.03	30.31	32.26	31.20	31.20	31.09	30.86	30.37	30.69	31.74	31.30	363.98
	HadGEM2-AO	30.66	30.06	30.15	31.39	29.42	31.01	30.18	31.42	30.35	31.83	30.69	30.10	364.16
	MIROC5	30.32	30.07	30.07	31.19	31.12	30.76	30.64	30.51	30.48	31.61	30.04	29.97	363.73
RCP8.5	CCSM4	30.73	30.25	30.30	32.04	31.61	31.49	30.74	31.05	30.67	31.78	30.75	29.77	365.85
	CESM1-CAM5	30.50	29.31	30.55	32.33	30.64	31.10	30.67	30.54	30.52	31.11	29.69	30.85	363.77
	GISS-E2-R	30.21	31.66	30.30	31.62	31.35	31.42	31.06	30.98	30.55	31.04	31.25	30.82	366.18
	HadGEM2-AO	30.40	28.96	29.91	31.09	29.85	31.20	30.63	31.55	30.58	30.97	31.00	33.02	363.24
	MIROC5	30.08	30.36	29.90	33.26	31.06	30.77	30.76	30.93	29.78	32.90	31.72	30.23	363.89

**Table S4.** Monthly P export calculated in different climate change scenarios.

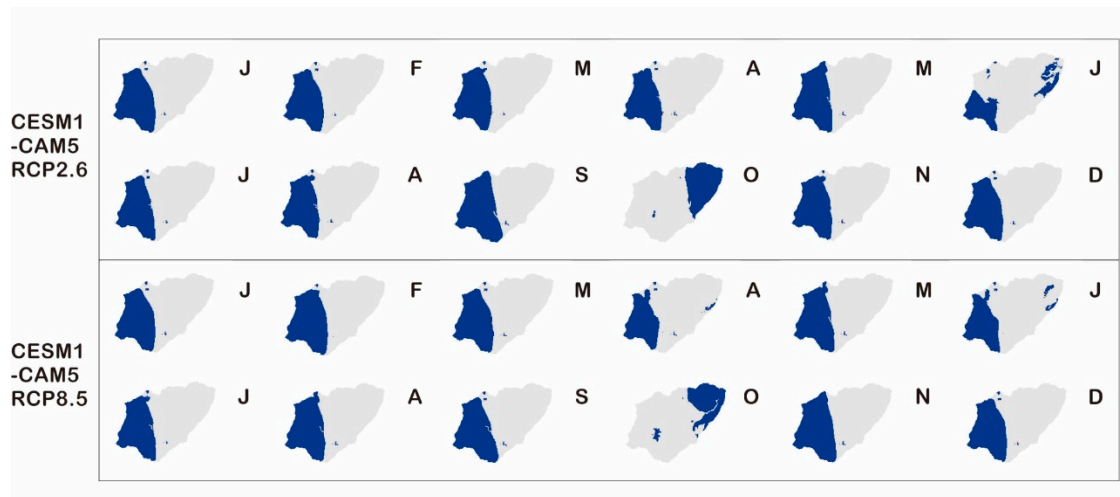
<b>P Export (kg)</b>		<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>	<b>Annual</b>
	Baseline	1.66	1.66	1.67	1.93	2.09	2.04	1.92	2.04	1.97	2.09	2.01	1.75	22.71
RCP2.6	CCSM4	1.59	1.23	1.47	2.17	2.31	2.13	1.93	2.08	2.07	2.18	1.87	1.67	22.96
	CESM1-CAM5	1.46	1.57	0.96	1.83	1.82	2.25	1.96	1.95	1.81	2.72	1.85	1.64	22.60
	GISS-E2-R	1.63	1.63	1.64	2.15	2.13	2.10	2.05	1.99	1.87	1.99	2.27	2.13	22.58
	HadGEM2-AO	1.85	1.69	1.47	2.15	1.08	2.02	1.70	2.25	1.87	2.47	1.93	1.41	22.69
	MIROC5	1.73	1.60	1.56	1.78	2.07	1.95	1.92	1.88	1.91	2.38	1.67	1.52	22.48
RCP8.5	CCSM4	1.78	1.71	1.62	1.55	2.24	2.21	1.96	2.12	1.99	2.44	1.95	1.45	23.38
	CESM1-CAM5	1.74	1.27	1.60	2.16	1.88	2.10	1.91	1.87	1.95	2.18	1.44	1.85	22.49
	GISS-E2-R	1.61	1.93	1.60	2.15	2.13	2.20	2.07	2.04	1.95	2.15	2.17	1.94	23.49
	HadGEM2-AO	1.00	1.18	1.18	1.63	1.49	2.05	1.89	2.32	1.96	2.09	2.01	2.31	22.29
	MIROC5	1.57	1.71	1.36	2.29	2.07	1.96	1.98	2.08	1.63	2.87	2.27	1.68	22.56



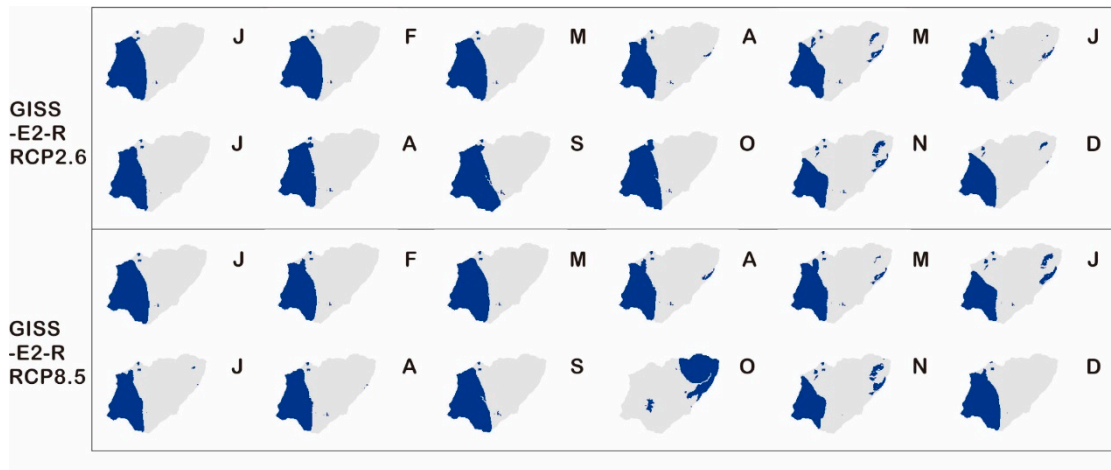
**Figure S1.** LISA simulated water yields (baseline). Note: Alphabets from J-D present months from January to December.



**Figure S2.** LISA simulated water yields by CCSM4 under RCP2.6 and 8.5. Note: Alphabets from J-D present months from January to December.



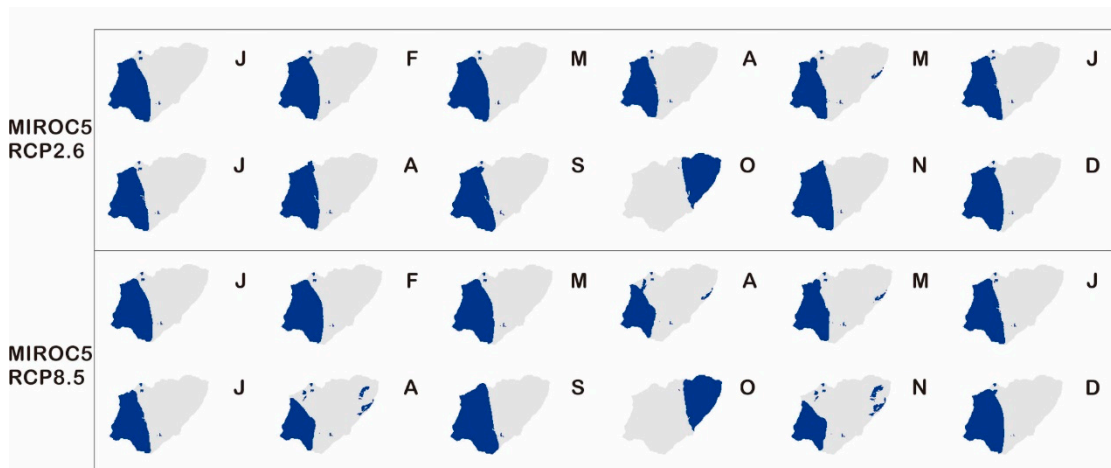
**Figure S3.** LISA water yields by CESM1-CAM5 under RCP2.6 and 8.5. Note: Alphabets from J-D present months from January to December.



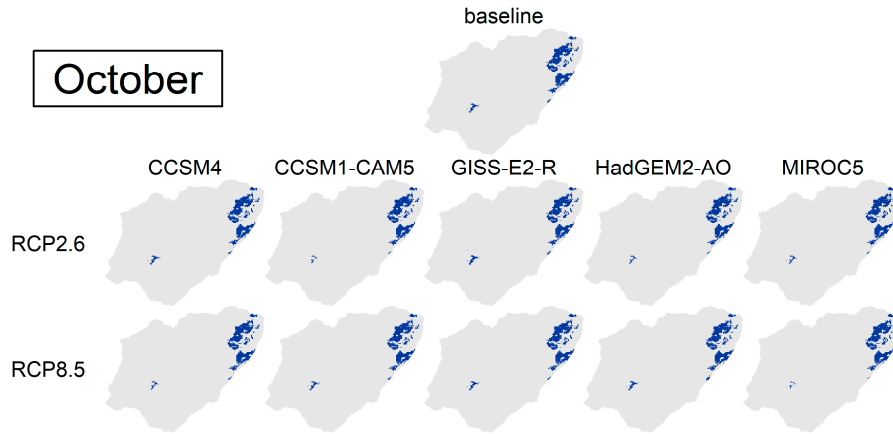
**Figure S4.** LISA simulated water yields by GISS-E2-R under scenarios RCP2.6 and 8.5. Note: Alphabets from J-D present months from January to December.



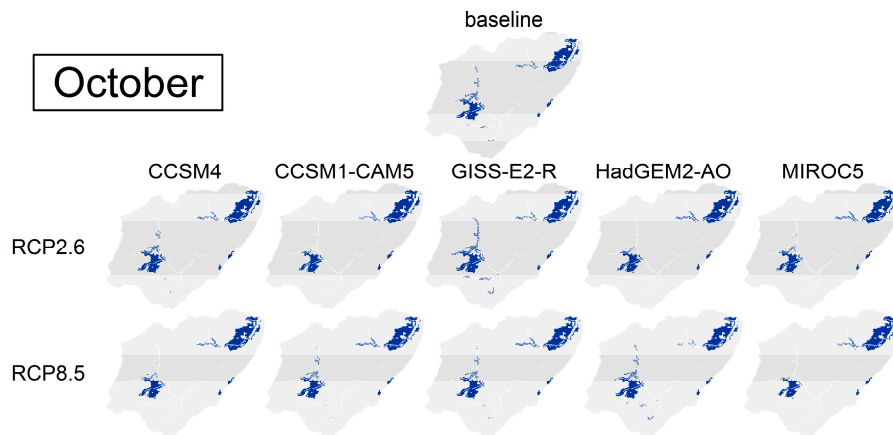
**Figure S5.** LISA simulated water yields by HadGEM-2-AO under scenarios RCP2.6 and 8.5. Note: Alphabets from J-D present months from January to December.



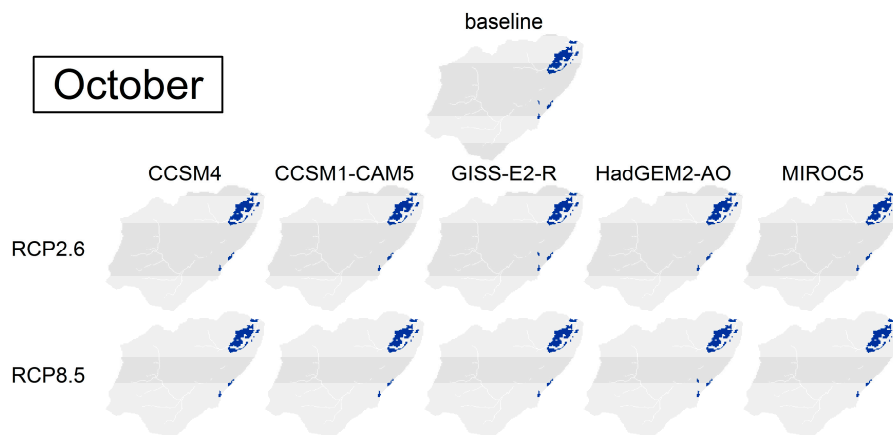
**Figure S6.** LISA simulated water yields by MIROC5 under scenarios RCP2.6 and 8.5. Note: Alphabets from J-D present months from January to December.



**Figure S7.** Sediment export of October simulated by LISA using 5 GCMs under RCP2.6 and 8.5, respectively.



**Figure S8.** N export of October simulated by LISA using 5 GCMs under RCP2.6 and 8.5, respectively.



**Figure S9.** P export of October simulated by LISA using 5 GCMs under RCP2.6 and 8.5, respectively.