

Supplement of Biogeosciences, 13, 3687–3699, 2016
<http://www.biogeosciences.net/13/3687/2016/>
doi:10.5194/bg-13-3687-2016-supplement
© Author(s) 2016. CC Attribution 3.0 License.



Supplement of

Source and flux of POC in a karstic area in the Changjiang River watershed: impacts of reservoirs and extreme drought

Hongbing Ji et al.

Correspondence to: H. Ji (hongbing_ji@163.com)

The copyright of individual parts of the supplement might differ from the CC-BY 3.0 licence.

Supplementary Materials:

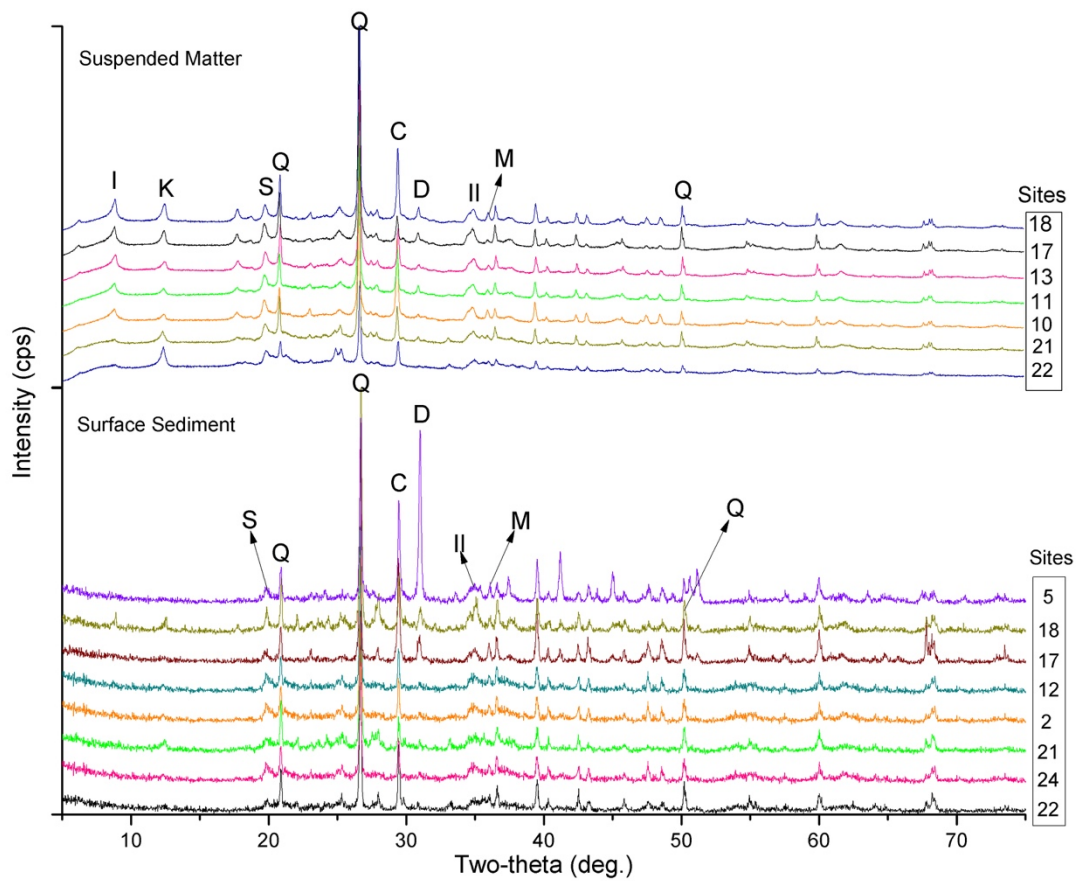


Fig S1 The mineral compositions of suspended particulate and surface sediment in the Wujiang River. The major peaks of respective minerals are labelled (Q quartz, C calcite, D dolomite, I illite, Il ilmenite, K kaolinite, M magnetite, S smectite).

Table S1 Isotopic compositions ($\delta^{13}\text{C}_{\text{POC}}$, $\delta^{15}\text{N}_{\text{TN}}$) and C/N ratios of suspended and surface sediments in the Wujiang River

No.	SPM in May				SPM in August				Surface sediments			
	TSS mg L ⁻¹	C/N	$\delta^{13}\text{C}_{\text{POC}}$ ‰	$\delta^{15}\text{N}_{\text{TN}}$ ‰	TSS mg L ⁻¹	C/N	$\delta^{13}\text{C}_{\text{POC}}$ ‰	$\delta^{15}\text{N}_{\text{TN}}$ ‰	C/N	$\delta^{13}\text{C}_{\text{POC}}$ ‰	$\delta^{15}\text{N}_{\text{TN}}$ ‰	
1	1.53	21.1	-29.71	8.48	2.44	2.8	-29.48	12.27	23.8	-24.14	4.52	
2	1.17	13.2	-25.63	8.16	3.68	5.5	-30.04	4.32	23.7	-25.17	6.05	
3	6.68	11.4	-27.70	6.04	4.8	7.9	-26.85	6.23	17.8	-24.31	5.88	
4	2.09	10.3	-30.18	7.66	–	7.3	-29.65	10.59	10.4	-24.30	4.13	
5	2.56	16.2	-23.80	7.34	2.41	10.2	-25.51	10.32	37.6	-23.96	7.81	
6	–	12.4	-21.09	8.49	2.47	7.9	-27.54	11.49	15.6	-22.73	8.92	
7	1.14	9.7	-26.92	6.05	2.98	10.1	-26.59	9.57	–	–	–	
8	1.94	11.0	-26.50	4.68	1.36	7.6	-31.08	10.14	16.5	-26.40	7.19	
9	8.07	10.1	-26.38	4.09	1.78	7.8	-26.49	8.87	–	–	–	
10	9.31	17.0	-26.11	5.34	1.88	9.8	-26.22	6.1	–	–	–	
11	6.83	22.1	-26.46	5.31	2.43	8.0	-26.97	8.08	23.6	-25.47	6.33	
12	15.17	26.9	-26.16	5.05	1.87	18.7	-30.35	7.17	10.2	-25.77	5.57	
13	16.57	29.1	-25.91	6.48	4.61	16.2	-19.57	7.24	7.7	-25.42	5.87	
14	10.71	5.8	-27.20	7.84	5.2	14.3	-20.12	6.29	8.6	-25.49	4.75	
15	119.56	8.8	-24.84	3.23	4.46	10.8	-25.70	4.35	–	–	–	
16	20.54	6.6	-25.81	4.4	3.91	5.6	-28.60	6.33	–	–	–	
17	67.76	4.3	-25.81	3.66	2.91	3.9	-28.07	5.34	9.7	-24.33	6.42	
18	66.84	4.7	-25.87	4.77	9.89	8.7	-31.90	1.88	14.0	-25.59	2.88	
19	1.8	7.6	-26.34	5.24	5.56	3.4	-28.73	11.12	–	–	–	
20	2.2	29.3	-25.75	5.13	1.07	8.8	-29.21	12.93	9.6	-26.02	9.39	
21	60.64	22.0	-24.49	5.8	16.28	10.7	-24.85	5.91	21.8	-24.19	5.71	
22	17.43	14.8	-24.72	4.74	9.11	12.5	-24.62	8.49	41.1	-23.52	5.63	
23	7.29	7.2	-27.38	9.57	5.04	5.9	-26.26	2.42	21.3	-23.74	3.87	
24	3.23	6.4	-26.80	6.78	4.81	8.9	-28.22	6.56	11.7	-25.16	7.32	
25	0.7	10.7	-29.86	6.92	7.09	7.9	-28.16	5.58	–	–	–	

*The sampling numbers of surface sediments are in accordance with numbers with circles in the sampling-point map (Fig. 1).

5

10

Table S2 Pearson linear correlations between isotopic, elemental and TSS values of the suspended particulate matter in Wujiang River

	$\delta^{13}\text{C}$	$\delta^{15}\text{N}$	POC%	TN%	C/N	TSS	POC- μM
$\delta^{13}\text{C}$	1	-0.094	0.673**	0.328	0.500*	0.192	0.646**
$\delta^{15}\text{N}$	-0.200	1	-0.156	-0.232	-0.115	-0.424*	-0.369
POC%	-0.060	0.326	1	0.638**	0.755**	0.046	0.752**
TN%	-0.207	0.379	0.750**	1	0.035	-0.052	0.479*
C/N	0.104	0.027	0.454*	-0.195	1	0.117	0.552**
TSS	0.415*	-0.535**	-0.541**	-0.477*	-0.197	1	0.656**
POC- μM	0.272	-0.453*	-0.178	-0.385	0.287	0.759**	1

5 The left lower part and right upper part represent the correlation coefficient between isotopic, elemental and TSS values of the suspended particulate matter in May and August, respectively.

*Correlation is significant at the 0.05 level (2-tailed).

**Correlation is significant at the 0.01 level (2-tailed).

10

15

20

25

30

Table S3 Suspended sediments load in Wulong Hydrologic Station and Three Gorges Dam¹

Year	Wulong Station		Three Gorges Dam
	TSS kg m ⁻³	TSS Load 10 ¹⁴ g	Input ² 10 ¹⁴ g
2007	0.198	0.104	2.204
2008	0.079	0.039	2.178
2009	0.04	0.014	1.83
2010	0.135	0.056	2.288
2011	0.049	0.015	1.016
2012	0.024	0.012	2.19
2007-2012 mean ³	0.045	0.0952	54.08
2013	0.028	0.009	1.268
Ratios (2013/mean)	0.20	0.29	0.21

¹Data were obtained from the Yangtze River Sediments Bulletin for 2007, 2008, 2009, 2010, 2011, 2012 and 2013 (website: www.cjw.gov.cn).

²Input of suspended sediment load.

³Data of 2011 was not included because of the drought event.