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Supplement of

Spatial and temporal dynamics of CO₂ partial pressure in the Yellow River, China

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Spatial and temporal dynamics of CO₂ partial pressure in the Yellow River, China

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Total alkalinity (TAlk) and pCO₂ in the Yellow River basin (arithmetic mean ± standard deviation).

River	Station	Coordinates		Temperature	pH	Talk	pCO ₂
		Latitude	Longitude	°C		µmol/l	µatm
Yellow River	Xiliugou	103.58	36.13	14.69±6.78	8.08±0.18	3250±815	1613±631
Yellow River	Lanzhou	103.82	36.07	12.19±6.42	8.56±0.19	3026±456	510±308
Yellow River	Xiaheyan	105.05	37.45	12.42±7.02	8.29±0.26	3276±347	1139±814
Yellow River	Qingtongxia	105.99	37.90	11.02±8.53	8.01±0.26	3318±783	2145±1797
Yellow River	Shizuishan	106.78	39.25	12.61±8.45	8.37±0.23	3374±419	930±587
Yellow River	Zhaojunfen	109.68	40.48	13.04±9.60	8.11±0.09	3349±916	1499±485
Yellow River	Wubao	110.72	37.45	15.28±9.63	8.06±0.22	3132±732	1766±1105
Yellow River	Longmen	110.58	35.67	17.76±9.35	7.98±0.31	3944±850	3246±2965
Yellow River	Sanmenxia	111.37	34.82	18.01±9.24	8.01±0.26	3874±805	2846±2027
Yellow River	Huayuankou	113.67	34.91	19.14±8.38	8.05±0.31	3467±636	2565±1550
Yellow River	Luokou	116.98	36.73	16.19±9.61	7.94±0.23	3337±726	2614±2483
Yellow River	Xiaolangdi	112.37	34.93	18.42±8.97	7.96±0.22	3220±785	2372±1995
Yellow River	Toudaoguai	111.07	40.27	10.83±9.16	7.95±0.32	3837±729	3132±2500
Yellow River	Lijin	118.30	37.52	15.03±9.65	8.17±0.15	3390±629	1389±548
Daxiahe	Chaiqiao	103.27	35.63	11.23±4.99	8.12±0.32	3289±421	1797±1730
Daxiahe	Xiahe	102.52	35.20	4.51±4.10	8.20±0.29	4049±468	1556±1015
Daxiahe	Shuangcheng	103.05	35.48	8.01±4.96	8.11±0.55	3462±823	3575±1709
Taohe	Luqu	102.42	34.63	7.24±4.95	7.95±0.25	3955±405	2792±2289
Taohe	Xiabagou	103.02	34.70	9.08±5.70	7.98±0.41	3676±551	3546±1721

Taohe	Lijiacun	103.82	35.27	9.46±5.91	8.05±0.30	3426±560	2222±2082
Taohe	Hongqi	103.57	35.80	11.89±6.31	7.94±0.41	3291±477	3351±2360
Dayugou	Duoba	103.58	34.57	5.71±3.99	8.11±0.39	2718±361	1499±1191
Guangtonghe	Sanjiaji	103.73	35.55	9.39±6.37	7.84±0.37	3095±413	3311±2512
Huangshui	Haiyan	101.02	36.90	5.30±4.98	8.23±0.26	3514±435	1333±1301
Huangshui	Shiyazhuang	101.35	36.67	7.11±6.20	8.29±0.24	3310±518	1049±875
Huangshui	Xining	101.78	36.63	8.85±6.22	8.19±0.25	3115±642	1289±973
Huangshui	Xiangtang	102.83	36.35	8.97±6.89	8.10±0.19	3288±557	1573±915
Huangshui	Minhe	102.80	36.33	9.47±7.17	8.20±0.32	3459±779	1678±1154
Halijianhe	Haiyan	101.02	36.90	4.46±4.35	8.18±0.19	2820±784	1038±769
Beichuanhe	Qiaotou	101.68	36.93	6.22±5.12	8.26±0.21	2414±457	779±497
Mapisihe	Haiyan	101.02	36.90	3.99±3.68	8.27±0.19	3547±284	1082±702
Dongyugou	Lintao	103.87	35.40	11.34±5.94	7.96±0.40	3488±1416	2773±2107
Datonghe	Xiangtang	102.83	36.35	8.09±6.15	8.21±0.19	3600±717	1257±582
Datonghe	Tiantang	102.50	36.95	11.34±6.23	7.99±0.27	3060±650	1940±1057
Datonghe	Liancheng	102.82	36.60	10.69±4.92	8.03±0.45	2984±498	2373±2316
Zhuanglanghe	Wushengyi	103.18	36.87	8.61±6.10	7.78±0.28	3548±514	3758±2660
Zhuanglanghe	Hongyazi	103.43	36.18	10.62±7.39	7.99±0.37	3634±898	2648±2089
Zulihe	Huining	105.08	35.72	12.90±5.67	7.82±0.49	2943±774	4674±3857
Zulihe	Guochengyi	104.88	36.22	14.25±5.71	7.38±0.49	2645±1037	9659±8248
Zulihe	Jingyuan	104.67	36.55	14.29±7.50	7.42±0.42	2763±709	8431±7582
Guanchuanhe	Chankou	104.55	35.68	11.46±5.64	7.59±0.47	3224±1231	8308±5865
Qingshuihe	Shilipu	106.75	36.00	6.89±6.24	7.89±0.46	5457±932	6079±4266
Qingshuihe	Guyuan	106.30	36.02	11.64±7.07	7.82±0.47	4933±1209	7058±6144
Qingshuihe	Hanfuwan	106.15	36.60	12.39±8.92	7.53±0.42	3786±1256	8693±8027
Qingshuihe	Quanyanshan	105.55	37.47	11.57±8.17	7.62±0.42	3449±1241	6333±5830
Nanhezi	Nanhezi	105.87	37.57	8.87±7.84	7.87±0.35	5276±2353	5242±3575
Hongliugou	Mingshazhou	105.88	37.57	10.19±8.31	7.67±0.45	4129±1520	7653±6409
Qingshuiigou	Xinhuaqiao	106.23	37.98	9.60±7.52	7.81±0.40	6996±2930	8796±4674
Kushuihe	Guojiaqiao	106.25	37.98	10.18±8.36	7.83±0.37	5587±2598	5851±5000
Xiaohe	Xiaoquan	106.58	37.43	8.81±7.68	7.92±0.36	5720±1762	5126±2504
Wuliangshuai	Xishanzui	108.70	40.78	12.01±7.78	8.82±0.37	8633±1466	819±647
Sanchuanhe	Houdacheng	110.75	37.42	14.42±8.32	7.98±0.65	3557±869	2367±1671
Wudinghe	Baijiachuan	110.42	37.23	16.68±9.50	8.02±0.31	3730±797	2677±2374
Dalihe	Suide	110.23	37.50	15.76±9.47	8.24±0.31	4664±1307	1804±1222

Yanshui	Ansai	109.32	36.87	13.52±7.76	8.13±0.26	3814±1793	1664±1040
Yanshui	Ganguyi	109.80	36.70	14.69±8.81	8.12±0.34	4831±1604	2795±2082
Jindihe	Puyang	115.02	35.50	20.38±9.32	7.72±0.33	3475±1380	4980±3633
Dawenhe	Laiwu	117.63	36.20	16.11±9.29	7.45±0.26	2446±954	5818±4702
Dawenhe	Beiwang	117.18	36.07	16.53±10.48	7.60±0.29	2807±1324	4641±3558
Dawenhe	Linwen	116.98	35.95	17.23±9.95	7.63±0.29	2385±677	3860±2707
Dawenhe	Daicunba	116.45	35.90	17.16±10.67	7.71±0.26	2367±1040	2867±1856
Dawenhe	Dongzhou dam	117.80	35.90	16.03±9.54	7.67±0.24	1971±478	2813±1710
Dawenhe	Guli dam	117.55	35.92	14.38±9.08	7.58±0.29	3060±1672	5175±3924
Dongpinghu	Chenshankou	116.20	36.12	16.04±11.00	8.05±0.21	2600±635	1503±814
Yingwenhe	Xueye dam	117.58	36.40	15.92±9.26	7.76±0.26	2158±587	2430±1399
Shiwenhe	Huangqian dam	117.23	36.30	18.26±9.41	7.59±0.31	1617±641	3010±2045
Guangminghe	Guangming dam	117.60	35.88	17.84±9.77	7.70±0.23	2275±527	3132±2120
Yangliuhe	Ruiguzhuang	117.52	35.97	17.38±8.72	7.29±0.35	2103±913	6894±3877
Kangwanghe	Bailou	116.62	36.17	18.76±9.78	7.63±0.32	4032±1749	6190±2784
Yufuhe	Wohushan dam	116.97	36.50	16.20±9.76	7.92±0.31	3074±350	2801±2644
Yiluohe	Heishiguan	112.93	34.72	19.08±7.86	7.93±0.32	3612±1090	3551±2750
Qinhe	Runcheng	112.52	35.47	18.22±6.70	7.94±0.15	2986±997	2160±987
Qinhe	Wulongkou	112.68	35.15	16.51±8.91	7.95±0.29	3422±653	2739±2386
Qingjianghe	Yimenzhen	107.10	34.33	10.93±6.43	7.30±0.36	1368±639	4405±3384
Qianhe	Qianyang	107.13	34.63	13.15±7.33	7.85±0.29	3973±986	3651±2400
Qishuihe	Haoshihe	108.05	34.60	13.28±8.43	7.92±0.32	4284±771	3844±3282
Bahe	Maduwang	109.15	34.23	14.60±7.03	7.84±0.30	2449±990	2243±1579
Jinghe	Tuliping	106.52	35.53	10.43±6.24	8.18±0.48	3172±658	2044±1927
Jinghe	Pingliang	106.63	35.57	12.35±9.12	8.30±0.45	3554±779	1636±1259
Jinghe	Zhangjiashan	108.60	34.63	17.71±7.08	7.92±0.22	4366±1199	3457±2133
Jinghe	Yangjiaping	107.73	35.33	13.29±8.19	8.17±0.25	3882±823	1707±1160
Daluhe	Jiaofengtou	106.92	35.48	11.07±7.61	8.05±0.54	4356±1787	4622±2101
Ruihe	Ankou	106.83	35.25	12.56±7.10	8.14±0.40	3298±734	2062±1787
Shibaozhe	Huating	106.68	35.22	10.85±7.35	8.18±0.49	3549±771	2278±1893
Xiaohe	Huangjiahe	106.48	35.98	11.62±6.06	7.82±0.33	4254±1325	4075±2628
Ruhe	Pengyang	106.65	35.83	13.24±6.65	7.69±0.48	3885±1996	6629±5448
Ruhe	Kaibian	107.07	35.77	11.93±7.20	8.10±0.34	4116±941	2412±1950
Malianhe	Yuluoping	107.88	35.33	15.39±8.03	7.93±0.36	4121±1115	3620±2984
Daxihe	Baili	107.38	35.02	10.52±8.77	8.01±0.44	4181±1060	3160±3047

Beiluohe	Jiaokou	109.35	35.65	15.83±8.85	8.16±0.27	4346±1365	2026±1728
Beiluohe	Zhuangtou	109.01	35.05	20.50±6.09	7.91±0.21	4638±1225	4049±3497
Zhouhe	Zhidan	108.77	36.82	14.06±8.40	8.24±0.25	3973±1202	1534±1262
Yinchuanhe	Yinchuan	103.07	35.68	11.84±7.04	8.28±0.67	2384±292	1651±1550
Weihe	Linjiachun	107.05	34.38	13.03±7.81	7.91±0.16	3335±738	2488±1136
Weihe	Weijiabao	107.70	34.30	14.70±7.69	7.79±0.24	3670±1155	3776±2169
Weihe	Xianyang	108.70	34.32	14.61±8.74	7.97±0.17	3244±737	2107±1009
Weihe	Huaxian	109.77	34.58	18.01±7.25	7.92±0.32	4063±1392	3716±3475
Huluhe	Qin'an	105.67	34.90	10.31±7.65	8.09±0.22	4287±1058	2095±1206
Huluhe	Beixia	105.75	35.57	12.10±6.87	8.02±0.44	4185±1279	3242±3164
Nanhe	Renda	105.75	35.17	11.49±7.14	8.06±0.34	4057±1056	2633±2116
Wujiuhe	Shagaibulong	108.73	41.07	13.74±7.40	7.83±0.41	3060±802	4098±2240
Beihezi	Beihezi	106.15	36.97	9.31±7.40	7.76±0.38	5009±1487	6218±5538
Yuanhe	Yuanhe	105.43	36.57	9.72±6.87	8.14±0.39	3996±614	2090±1407
Xianmahe	Xianmahe dam	106.03	36.38	9.31±7.29	7.70±0.55	2877±1418	5820±2106
Daheihe	Qixiaying	112.12	40.97	5.53±4.41	8.01±0.10	4872±229	2521±541
Tianshuihe	Weizhou	106.48	37.28	8.29±7.44	7.78±0.32	4155±2081	4961±4188
Kuyehe	Wenjiachuan	110.75	38.43	14.93±9.08	8.20±0.10	3330±816	1212±357
Qiushuihe	Linjiaping	110.87	37.70	13.98±9.47	8.06±0.26	3587±1370	1917±1168
Pianguanhe	Pianguan	111.48	39.43	9.88±7.96	8.17±0.34	3167±804	1529±635
Luhe	Hengshan	109.28	37.97	12.41±8.75	8.20±0.17	4706±880	1747±626
Qingjianhe	Yanchuan	110.18	36.88	14.28±8.59	8.11±0.31	4782±1493	2533±1827
Xiaohe	Lujiazhuang	113.05	37.73	12.81±8.65	8.32±0.44	3309±774	1718±1323
Fenhe	Yitang	111.86	37.05	14.40±9.45	8.24±0.26	3950±994	1568±1074
Fenhe	Jingle	111.92	38.33	14.81±8.42	8.08±0.29	3930±1312	2201±1265
Fenhe	Lanchun	112.45	37.99	12.86±5.19	8.27±0.19	3436±725	1101±469
Fenhe	Dongmuzhuang	112.38	37.60	14.58±9.97	7.78±0.24	3824±600	4136±2285
Fenhe	Shitan	111.68	36.45	15.73±6.02	8.01±0.42	3502±654	2988±2292
Fenhe	Hejin	110.80	35.57	17.56±9.06	7.86±0.32	4809±1444	4989±3673
Wenyuhe	Wenyuhe dam	112.02	37.50	12.86±6.65	8.37±0.33	3063±450	967±833
Sushuihe	Zhangliuzhuang	110.32	34.83	15.50±9.23	8.52±0.20	7641±989	1452±660
Yiluohe	Luhun	112.18	34.20	15.73±7.09	7.82±0.25	3046±608	3290±2330
Yihe	Longmenzhen	112.47	34.55	16.97±7.67	7.83±0.23	3137±991	3088±1903
Luohe	Yiyang	112.17	34.52	16.05±8.29	7.96±0.22	3152±483	2230±1357
Luohe	Baimashi	112.58	34.72	17.72±7.68	7.84±0.21	3006±802	2796±1716

Runhe	Xin'an	112.15	34.72	13.38±10.10	7.87±0.23	3487±851	2765±1108
Danhe	Shanluping	112.92	35.24	17.28±5.62	7.82±0.25	3814±695	3705±1710
Ruihe	Jingchuan	107.35	35.33	12.67±7.95	8.01±0.23	3388±713	2189±1491
Puhe	Bajiazhui	107.50	35.68	13.63±8.31	8.17±0.24	4057±989	1775±1338
Xichuan	Qingyang	107.88	36.00	14.83±8.79	8.18±0.25	3959±1285	1693±1259
Yellow River ^a	Madoi	98.18	34.88	2.8	8.89	3327	211
Yellow River ^a	LB trib.	99.86	35.59	6.6	8.84	2228	165
Yellow River ^a	Tangnag	100.20	35.60	11.7	8.83	2489	199
Yellow River ^a	RB trib.	103.11	35.51	9.9	8.94	2808	170
Yellow River ^a	Lanzhou #1	103.82	36.07	13.1	8.60	3044	423
Yellow River ^a	Lanzhou #2	103.82	36.07	19.5	8.33	2889	813
Kachu ^a	Tangku	102.46	33.47	11	8.27	891	261
Mochu ^a	Ruoergai	102.81	33.63	10.4	8.22	1128	368
Weihe ^a	Wushan	104.88	34.73	16.8	8.54	3062	511
Taohe ^a	Headwaters	102.69	34.50	6.8	8.86	2459	174
Taohe ^a	LB trib.	103.00	34.70	6.5	8.92	2396	147
Taohe ^a	Mianxian	104.02	34.43	18.1	8.93	3085	209
Taohe ^a	Lintao	103.85	35.42	23.7	8.25	3016	1080
Datonghe ^a	Minhe #1	102.83	36.35	14.1	8.73	3183	330
Datonghe ^a	Minhe #2	102.83	36.35	18.3	8.47	3011	603
Huangshui ^a	Huangyuan	101.24	36.69	9.2	8.71	3493	360
Huangshui ^a	Minhe	102.79	36.36	21.7	8.20	3015	1180
Yellow River ^b	Toudaoguai	111.07	40.27	13.75±8.63	8.14±0.19	3664±399	1624±778
Yellow River ^b	Tongguan	110.33	34.61	14.42±8.74	7.80±0.28	4075±796	4770±4500
Yellow River ^b	Lijin	118.30	37.52	17.17±9.28	8.25±0.17	3622±292	1348±689

^a from Wu et al. (2005) for the upper Yellow River; sampled in May and June of 1999 and 2000.

^b for the Yellow River mainstem during the period 2011-2012 based on weekly sampling.