

Supplement of Biogeosciences, 13, 6683–6698, 2016
<http://www.biogeosciences.net/13/6683/2016/>
doi:10.5194/bg-13-6683-2016-supplement
© Author(s) 2016. CC Attribution 3.0 License.



Supplement of

Variations in triple isotope composition of dissolved oxygen and primary production in a subtropical reservoir

Hana Jurikova et al.

Correspondence to: Mao-Chang Liang (mcl@rcec.sinica.edu.tw)

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

Date	Analysis no.	$\delta\text{Ar}/\text{O}_2$ (‰, vs. O2ARWR)	$\delta^{17}\text{O}$ (‰, vs. O2ARWR)	$(\delta^{18}\text{O}$ ‰, vs. O2ARWR)	Δ^{17} (per meg, vs. O2ARWR) $\lambda = 0.518$
29-Dec-14	32591	-148	2.338	4.602	-43
29-Dec-14	32595	-149	2.368	4.634	-30
30-Dec-14	32603	-145	2.351	4.595	-27
30-Dec-14	32607	-146	2.361	4.610	-24
31-Dec-14	32615	-147	2.346	4.594	-31
31-Dec-14	32619	-147	2.348	4.596	-30
13-Jan-15	32919	-147	2.332	4.563	-29
13-Jan-15	32923	-144	2.347	4.606	-36
13-Jan-15	32927	-143	2.335	4.579	-34
13-Jan-15	32931	-142	2.341	4.582	-29
13-Jan-15	32935	-143	2.317	4.557	-41
15-Jan-15	32987	-149	2.365	4.618	-24
28-Jan-13	33515	-146	2.344	4.587	-29
28-Jan-13	33531	-144	2.336	4.573	-30
5-Feb-15	33679	-132	2.382	4.646	-22
5-Feb-15	33697	-133	2.360	4.621	-31
5-Feb-15	33701	-135	2.368	4.626	-25
13-Feb-15	33825	-139	2.374	4.653	-34
13-Feb-15	33833	-140	2.371	4.649	-34
13-Feb-15	33841	-141	2.335	4.580	-35
26-Feb-15	34186	-140	2.373	4.643	-30
26-Feb-15	34190	-142	2.367	4.622	-24
26-Feb-15	34195	-145	2.369	4.650	-36
8-May-15	35900	-151	2.346	4.595	-32
8-May-15	35904	-150	2.359	4.595	-19
8-May-15	35908	-148	2.343	4.586	-30
14-May-15	36028	-139	2.355	4.607	-29
14-May-15	36032	-140	2.354	4.625	-39
14-May-15	36036	-142	2.349	4.588	-25
28-May-15	36339	-134	2.393	4.678	-28
28-May-15	26343	-137	2.382	4.675	-37
15-Jun-15	36665	-147	2.370	4.619	-20
15-Jun-15	36673	-149	2.351	4.589	-24
8-Jul-15	36949	-140	2.343	4.600	-37
8-Jul-15	36953	-142	2.330	4.574	-36
8-Jul-15	36957	-143	2.337	4.585	-36
Average		-143	2.354	4.608	-31
Standard deviation		5	0.017	0.030	6

Table S1. Long term precision for measurements of atmospheric O₂ (collected on the 4th floor of Institute of Earth Sciences, Academia Sinica). Values are shown with respect to ‘O2ARWR’, our O₂-Ar working reference gas.

8	23-Sep-14	10	34215	1.190	2.259	21	2	-1.160	-2.344	55
8	23-Sep-14	5	34220	1.163	2.188	30	1	-1.187	-2.415	65
8	23-Sep-14	1	34223	1.045	1.897	63	1	-1.305	-2.705	97
10	28-Oct-14	90								
10	28-Oct-14	70								
10	28-Oct-14	50	34227	7.066	13.477	107	-66	4.686	8.855	108
10	28-Oct-14	30	34231	9.035	17.222	150	-63	6.652	12.578	156
10	28-Oct-14	20	34235	1.824	3.418	55	-25	-0.531	-1.185	83
10	28-Oct-14	15	34239	0.980	1.818	38	-11	-1.371	-2.781	70
10	28-Oct-14	10	34243	0.905	1.629	61	-8	-1.446	-2.970	94
10	28-Oct-14	5	34251	0.939	1.749	33	-8	-1.412	-2.850	66
10	28-Oct-14	1	34247	0.950	1.783	27	-7	-1.401	-2.817	60
11	09-Dec-14	90								
11	09-Dec-14	70								
11	09-Dec-14	50	33845	2.019	3.807	48	-39	-0.339	-0.793	72
11	09-Dec-14	30	33853	2.007	3.825	28	-22	-0.347	-0.780	57
11	09-Dec-14	20	33857	2.010	3.813	36	-21	-0.345	-0.793	66
11	09-Dec-14	15	33861	2.002	3.801	35	-21	-0.352	-0.805	65
11	09-Dec-14	10	33865	1.981	3.759	36	-20	-0.373	-0.847	66
11	09-Dec-14	5	33869	1.982	3.781	25	-21	-0.373	-0.825	55
11	09-Dec-14	1	33873	1.990	3.777	35	-19	-0.365	-0.830	65
13	20-Jan-15	90								
13	20-Jan-15	70	35912	3.568	6.799	52	-39	1.207	2.185	75
13	20-Jan-15	50	35920	2.314	4.454	9	-10	-0.040	-0.157	41
13	20-Jan-15	30	35924	2.256	4.301	30	-9	-0.098	-0.310	62
13	20-Jan-15	20	35932	2.246	4.252	46	-10	-0.108	-0.359	78
13	20-Jan-15	15	35928	2.114	4.041	23	-9	-0.239	-0.569	56
13	20-Jan-15	10	35936	2.315	4.433	21	-10	-0.039	-0.178	53
13	20-Jan-15	5	35940	2.201	4.179	39	-5	-0.152	-0.432	72
13	20-Jan-15	1	35944	2.175	4.182	10	-9	-0.179	-0.428	43
14	10-Feb-15	90								
14	10-Feb-15	70	36068	3.910	7.454	56	-51	1.545	2.844	72
14	10-Feb-15	50	36072	3.658	6.996	40	-34	1.297	2.379	66
14	10-Feb-15	30	36076	2.402	4.545	50	-11	0.048	-0.066	82
14	10-Feb-15	20	36080	2.414	4.633	17	-11	0.060	0.021	49
14	10-Feb-15	15	36084	2.424	4.612	38	-12	0.070	0.000	70
14	10-Feb-15	10	36088	2.388	4.546	36	-11	0.033	-0.066	68
14	10-Feb-15	5	36092	2.282	4.373	20	-11	-0.072	-0.238	52
14	10-Feb-15	1	36096	2.273	4.354	20	-11	-0.081	-0.257	52
15	14-Apr-15	90	36387	5.408	10.233	120	-58	3.037	5.616	131
15	14-Apr-15	70	36391	3.718	7.122	35	-26	1.358	2.502	63
15	14-Apr-15	50	36395	3.388	6.492	30	-23	1.030	1.874	59
15	14-Apr-15	30	36399	3.219	6.145	40	-21	0.862	1.528	70
15	14-Apr-15	20	36403	2.701	5.120	52	-5	0.347	0.504	86
15	14-Apr-15	15	36407	1.754	3.306	43	-8	-0.598	-1.301	76

15	14-Apr-15	10	36411	0.571	0.965	71	0	-1.779	-3.633	105
15	14-Apr-15	5	36415	0.944	1.751	37	3	-1.406	-2.850	71
15	14-Apr-15	1	36419	1.575	2.982	31	2	-0.776	-1.625	66
16	19-May-15	90	36355	7.043	13.327	161	-76	4.654	8.723	144
16	19-May-15	70	36359	4.023	7.726	28	-29	1.663	3.105	55
16	19-May-15	50	36363	3.658	6.933	73	-24	1.299	2.314	101
16	19-May-15	30	36367	2.765	5.220	64	-21	0.409	0.608	94
16	19-May-15	20	36371	0.327	0.481	78	-4	-2.021	-4.114	112
16	19-May-15	15	36375	-0.436	-0.998	82	4	-2.782	-5.587	116
16	19-May-15	10	36379	-1.061	-2.118	37	18	-3.405	-6.703	73
16	19-May-15	5	36383	-0.322	-0.703	43	16	-2.667	-5.295	79
16	19-May-15	1	36351	1.453	2.755	27	6	-0.898	-1.852	62
17	23-Jun-15	90								
17	23-Jun-15	70	36917	4.673	8.963	39	-36	2.309	4.339	64
17	23-Jun-15	50	36921	4.206	8.055	41	-31	1.844	3.432	68
17	23-Jun-15	30	36925	2.242	4.147	96	-22	-0.114	-0.461	125
17	23-Jun-15	20	36929	0.858	1.475	95	-10	-1.492	-3.123	127
17	23-Jun-15	15	36933	-0.100	-0.496	157	-2	-2.448	-5.086	190
17	23-Jun-15	10	36937	-1.785	-3.704	136	30	-4.127	-8.283	173
17	23-Jun-15	5	36941	0.641	1.154	43	11	-1.708	-3.445	79
17	23-Jun-15	1	36945	1.095	2.053	33	8	-1.254	-2.551	68
18	14-Jul-15	90								
18	14-Jul-15	70	37278	2.159	3.893	144	-22	-0.196	-0.713	174
18	14-Jul-15	50	37274	4.026	7.597	98	-34	1.665	2.978	123
18	14-Jul-15	30	37282	4.773	9.106	66	-41	2.408	4.483	88
18	14-Jul-15	20	37270	2.121	3.800	154	-23	-0.234	-0.805	183
18	14-Jul-15	15	37266	0.971	1.563	161	-11	-1.381	-3.035	193
18	14-Jul-15	10	37262	0.372	0.571	76	10	-1.976	-4.026	112
18	14-Jul-15	5	37258	0.499	0.882	42	12	-1.849	-3.717	78
18	14-Jul-15	1	37254	0.604	1.088	40	11	-1.745	-3.511	76

Table S2. Summary of the dissolved O₂ results from the Feitsui Reservoir. The δ values with respect to the working reference O2ARWR are taken directly from the mass spectrometer; the values reported against “air” have all corrections (residual gas remained in water samples during extraction and Ar interference) included.

Trip No.	Date	Depth (m)	$\delta^{18}\text{O}$ (‰, vs. VSMOW)	δD (‰, vs. VSMOW)	Δ^{17} (per meg, vs. VSMOW) $\lambda = 0.528$
–	15-Jul-14	~60 ^a	-2.4±0.5 ^{a,b}	–	38±10 ^a
5	19-Aug-14	1	-3.92 ^b	–	37
8	23-Sep-14	90	-5.875	-28.524	
8	23-Sep-14	70	-5.936	-28.715	
8	23-Sep-14	50	-6.027	-30.096	
8	23-Sep-14	30	-6.407	-34.471	
8	23-Sep-14	20	-6.262	-33.637	
8	23-Sep-14	15	-6.241	-34.139	
8	23-Sep-14	10	-5.916	-33.873	
8	23-Sep-14	5	-5.916	-34.391	47
8	23-Sep-14	1	-6.029	-36.252	
10	28-Oct-14	90	-5.909	-28.469	
10	28-Oct-14	70	-5.911	-29.063	
10	28-Oct-14	50	-6.459	-35.304	
10	28-Oct-14	30	-6.491	-34.860	
10	28-Oct-14	20	-6.397	-35.596	
10	28-Oct-14	15	-6.333	-35.129	
10	28-Oct-14	10	-6.295	-35.188	
10	28-Oct-14	5	-6.265	-35.217	35
10	28-Oct-14	1	-6.340	-34.647	
11	09-Dec-14	90	-5.947	-29.192	
11	09-Dec-14	70	-5.848	-29.623	
11	09-Dec-14	50	-6.025	-31.274	
11	09-Dec-14	30	-6.332	-35.028	
11	09-Dec-14	20	-6.269	-34.920	
11	09-Dec-14	15	-6.217	-34.548	
11	09-Dec-14	10	-6.292	-34.564	
11	09-Dec-14	5	-6.235	-34.717	66
11	09-Dec-14	1	-6.407	-37.127	
13	20-Jan-15	90	-5.819	-29.464	
13	20-Jan-15	70	-5.753	-30.484	
13	20-Jan-15	50	-6.015	-33.064	
13	20-Jan-15	30	-6.042	-33.158	
13	20-Jan-15	20	-5.890	-32.879	
13	20-Jan-15	15	-6.122	-35.008	
13	20-Jan-15	10	-6.214	-32.773	
13	20-Jan-15	5	-6.206	-32.759	34
13	20-Jan-15	1	-6.026	-31.701	
14	10-Feb-15	90	-5.725	-28.496	
14	10-Feb-15	70	-5.860	-29.944	
14	10-Feb-15	50	-5.907	-31.316	
14	10-Feb-15	30	-6.048	-33.446	
14	10-Feb-15	20	-5.975	-32.694	

14	10-Feb-15	15	-6.014	-32.939	
14	10-Feb-15	10	-6.019	-32.750	
14	10-Feb-15	5	-6.019	-32.776	31
14	10-Feb-15	1	-6.003	-32.516	
15	14-Apr-15	90	-5.861	-29.091	
15	14-Apr-15	70	-5.776	-27.925	
15	14-Apr-15	50	-6.003	-30.725	
15	14-Apr-15	30	-6.038	-31.798	
15	14-Apr-15	20	-6.083	-32.157	
15	14-Apr-15	15	-5.842	-31.154	
15	14-Apr-15	10	-6.009	-31.852	
15	14-Apr-15	5	-5.810	-30.257	33
15	14-Apr-15	1	-5.724	-29.981	
16	19-May-15	90	-5.683	-27.450	
16	19-May-15	70	-5.686	-27.542	
16	19-May-15	50	-6.074	-31.800	
16	19-May-15	30	-5.983	-31.881	
16	19-May-15	20	-6.033	-31.833	
16	19-May-15	15	-5.952	-31.328	
16	19-May-15	10	-5.733	-29.671	
16	19-May-15	5	-5.463	-27.782	
16	19-May-15	1	-5.297	-27.147	
17	23-Jun-15	90	-5.583	-25.673	
17	23-Jun-15	70	-5.538	-25.426	
17	23-Jun-15	50	-5.996	-31.555	
17	23-Jun-15	30	-5.851	-30.335	
17	23-Jun-15	20	-5.814	-31.469	
17	23-Jun-15	15	-5.536	-27.014	
17	23-Jun-15	10	-5.403	-27.480	
17	23-Jun-15	5	-4.950	-24.751	17
17	23-Jun-15	1	-4.908	-24.709	
18	14-Jul-15	90	-6.055	-30.915	
18	14-Jul-15	70	-5.988	-30.552	
18	14-Jul-15	50	-6.368	-35.480	
18	14-Jul-15	30	-6.099	-33.138	
18	14-Jul-15	20	-5.992	-31.999	
18	14-Jul-15	15	-6.006	-32.235	
18	14-Jul-15	10	-5.648	-31.984	
18	14-Jul-15	5	-5.654	-32.282	15
18	14-Jul-15	1	-5.770	-34.487	

Table S3. Summary of water sample results from the Feitsui Reservoir.

^aThe reported values are averaged over the waters taken at depths 30, 50, 70, and 90 m, with 1- σ standard deviation shown.

^bThe $\delta^{18}\text{O}$ values were measured using the CoF_3 fluorination method.