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Oxygenated volatile organic carbon in the western Pacific convective center: ocean cycling, air–sea gas exchange and atmospheric transport

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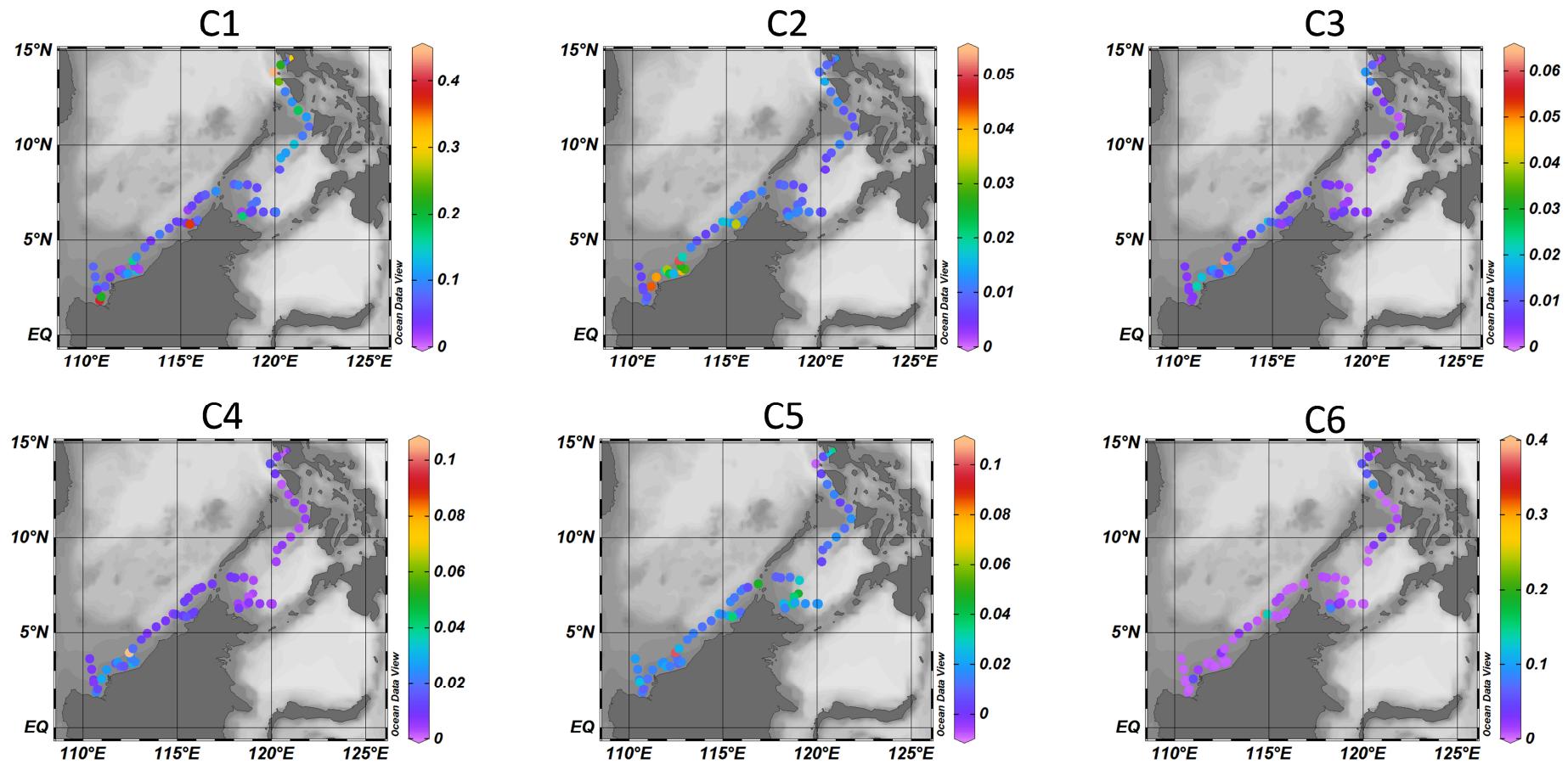


Figure S1: Distribution pattern of 6 different FDOM groups given in excitation wavelength in the South China Sea and Sulu Sea.

Table S1: All physical parameters, O VOCs, fluxes and FDOM data that are used in this study. Empty spaces show not measured data.

lat	lon	DOY	Salinity	Temperature		wind speed	Water	Propanal	Acet-tone	Bu-tanal	Bu-tanone	Air	Propanal	Acet-tone	Bu-tanal	Bu-tanone	Ni-trat	Flux				FDOM					
				[°C]	[m s^-1]													[μmol L^-1]	[μmol m^2 d^-1]				[nm]				
3.63	110.34	321.9167	32.6	29.1		6.8	8.85		67.76	1.64	2.14								0.073	0.007	0.005	0.009	0.019	0.004			
3.07	110.45	322.0417	32.4	29.1		8.2	3.00		21.32	0.93	1.21								0.076	0.006	0.004	0.008	0.015	0.002			
2.53	110.55	322.1667	32.6	29.7		8.4	5.97		33.92	1.50	2.14								0.098	0.006	0.004	0.010	0.015	0.003			
2.41	110.57	322.2917	32.6	30.1		1.8	5.18		39.76	1.64	1.74								0.102	0.007	0.006	0.012	0.011	0.003			
2.41	110.57	322.4167	32.6	30.1		4.0			0.29	2.03									0.051	0.011	0.007	0.011	0.016	0.008			
2.41	110.57	322.5417	32.6	29.6		4.2			0.27	1.02									0.051	0.006	0.003	0.007	0.010	0.010			
2.41	110.57	322.6667	32.6	29.6		6.0	7.71		21.70	1.03	0.93																
2.41	110.57	322.7917	32.6	29.5		5.7	4.80		22.82	1.41	1.09						0.14					0.041	0.008	0.003	0.005	0.016	0.006
2.41	110.57	322.9167	32.6	29.4		5.4	4.80		18.71	0.58	0.87						0.14					0.036	0.007	0.004	0.007	0.026	0.003
2.10	110.64	323.0417	32.1	29.4		8.2	8.06		27.33	1.42	1.21																
1.85	110.70	323.1667	31.3	29.4		2.6	6.62		39.31								0.15					0.393	0.010	0.003	0.022	0.013	0.005
2.04	110.78	323.2917	31.6	30.1		8.8	2.96		19.99	0.92	0.73						0.13					0.212	0.008	0.004	0.013	0.009	0.002
2.58	110.99	323.4167	32.1	29.6		10.9	4.62		25.95	0.75	0.88						0.22					0.066	0.044	0.022	0.028	0.012	0.049
3.06	111.24	323.5417	31.6	29.4		6.9	5.87		34.75	0.79	0.83						0.20					0.039	0.041	0.019	0.026	0.014	0.016
3.39	111.72	323.6667	32.0	29.3		6.3	4.07		19.17	0.48	0.51						0.16					0.022	0.019	0.010	0.017	0.020	0.004
3.44	111.84	323.7917	32.1	29.2		3.3	7.26		23.55								0.18					0.016	0.033	0.016	0.026	0.017	0.004
3.23	111.97	323.9167	30.6	28.8		4.4	3.92		12.58	0.45	0.41						0.18					0.073	0.023	0.012	0.018	0.022	0.006
3.23	112.16	324.0417	31.1	29.2		8.7	3.21		14.23	0.29	0.33											0.109	0.016	0.008	0.015	0.014	0.004

6.07	115.91	327.1667	32.0	29.7	31.4	0.9	3.03	1.06	17.37	0.00		0.19	0.03	0.45	0.03	0.06	0.19	0.20	0.05	0.05			0.078	0.012	0.008	0.012	0.011	0.004
5.85	115.49	327.2917	32.0	29.7	29.1	8.1	2.06	1.25	23.35	0.98	0.86	0.21	0.02	0.36	0.03	0.05	0.00	5.65	-0.81	1.04	0.86	0.00	0.367	0.034	0.003	0.014	0.036	0.005
5.98	114.90	327.4167	32.2	29.1	28.0	7.0	7.43	1.80	42.34	1.63	2.23	1.78	0.16	2.35	0.16	0.35	0.00	-10.91	-13.82	0.07	0.31	-1.98	0.052	0.017	0.011	0.012	0.016	0.132
6.29	115.04	327.5417	32.5	28.9		15.9	1.54	0.83	27.72	1.17	1.13						0.00											
6.62	115.37	327.6667	32.5	28.9	28.1	8.2	4.17	1.42	35.47	1.03	1.02	0.43	0.04	0.56	0.05	0.03	0.00	7.92	-1.79	0.96	0.67	0.30	0.020	0.012	0.007	0.011	0.016	0.011
6.83	115.58	327.7917	32.4	28.8	27.6	16.2	4.81	0.77	21.34	0.88	0.84	0.67	0.04	0.62	0.03	0.02	0.00	1.56	-10.11	0.80	1.54	0.62	0.050	0.010	0.006	0.008	0.013	0.013
7.20	115.93	327.9167	32.4	28.7	27.1	15.1	2.22	0.77	26.05	1.08	0.52		0.02	0.40	0.02	0.01	0.00	10.75		0.97	2.12	0.48	0.045	0.009	0.004	0.007	0.014	0.003
7.33	116.06	328.0417	32.4	28.8	27.4	7.5	3.32	1.95	45.96	2.96	2.19	2.45	0.64	14.48	1.21	35.46	0.00	-158.1	-26.63	-4.53	-6.56	-344.8	0.057	0.009	0.004	0.007	0.012	0.003
7.41	116.30	328.1667	32.4	28.8	27.3	12.2	6.68	3.06	50.67	3.35	2.05	2.35	0.49	7.27	0.24	0.74	0.00	-117.7	-40.53	-3.92	2.49	-10.67	0.067	0.011	0.007	0.008	0.005	0.004
7.60	116.85	328.2917	32.2	28.4	26.3	12.0	6.35	3.29	63.59	2.84	2.26	1.37	0.26	3.44	0.14	0.17	0.00	-31.09	-20.51	0.28	2.64	-0.84	0.100	0.011	0.008	0.009	0.046	0.003
7.97	117.22	328.4167	32.6	29.1		14.0																						
7.94	117.81	328.5417	32.7	29.0	28.0	12.7		2.33	35.44	2.34	3.22		0.54	8.86	0.21	0.23	0.00	-166.1		-5.95	1.41	-0.71	0.071	0.009	0.006	0.008	0.009	0.010
7.90	118.05	328.6667	32.6	29.1	28.6	9.4		1.02	28.27	1.15	1.02		0.48	7.25	0.20	0.35	0.22	-97.38		-4.83	-0.49	-3.63	0.089	0.010	0.005	0.009	0.008	0.009
7.93	118.53	328.7917	32.6	29.1	26.5	14.2	4.38	1.08	13.93				0.22	4.40	0.11	0.09	0.00	-97.59		-2.80			0.060	0.007	0.004	0.005	0.012	0.006
7.76	119.03	328.9167	32.7	29.2		9.2	4.40	1.63	32.08	1.21	0.97						0.01						0.055	0.006	0.002	0.003	0.028	0.003
7.11	118.99	329.0417	32.7	28.9		6.0											0.00											
7.06	118.99	329.1667	32.7	29.0	28.2	7.2	3.74	1.25	25.76	1.42	1.29	1.64	0.17	2.15	0.18	2.87	0.00	-15.08	-15.44	-0.52	0.05	-25.64	0.083	0.008	0.003	0.003	0.044	0.001
6.89	118.75	329.2917	32.5	28.9	28.2	2.3	4.97	1.03	21.63	0.96	0.99		0.35	4.07	0.20	0.37	0.00	-10.51		-0.52	-0.13	-0.71	0.083	0.009	0.003	0.002	0.036	0.002
6.52	118.21	329.4167	32.4	29.0	28.0	3.3	6.73	1.27	23.47	1.21	1.04		0.65	7.72	0.43	1.56	0.00	-33.09		-1.76	-0.70	-5.39	0.017	0.007	0.003	0.004	0.024	0.013
6.29	118.27	329.5417	32.3	29.0	28.6	6.4		1.13	21.21	1.37	1.08	0.88	0.20	1.63	0.10	0.19		-9.35		-0.72	0.49	-1.03	0.175	0.013	0.006	0.008	0.014	0.080
6.49	118.67	329.6667	32.6	28.9	28.9	13.7	6.41	1.25	21.61	0.71	0.56		0.15	2.05	0.08	0.09	0.00	-30.80		-0.43	0.26	-1.05	0.052	0.012	0.005	0.003	0.035	0.027
6.56	118.80	329.7917	32.6	29.0	29.0	14.1	2.70	0.78	12.79	0.64	0.41		0.16	1.55	0.03	0.02	0.00	-26.76		-1.60	1.01	0.02	0.045	0.012	0.007	0.007	0.022	0.020
6.53	119.37	329.9167	32.6	28.9	29.0	14.0		1.04	14.57	0.70	0.94	0.87	0.10	1.40	0.04	0.02	0.00	-21.60		0.00	1.00	0.69	0.059	0.011	0.004	0.006	0.017	0.004
6.51	119.95	330.0417	32.6	29.4	28.8	10.2	4.03	1.83	25.70	1.03	1.14	8.50	0.15	2.76	0.04	0.05	0.00	-32.10	-139.4	0.42	1.10	0.32	0.054	0.008	0.002	0.004	0.016	0.002

6.50	120.03	330.1667	32.6	29.3		2.7	3.39	1.03	20.28	0.55	0.34					0.00						0.048	0.007	0.002	0.005	0.024	0.002	
6.51	120.03	330.2917	32.6	29.8	28.6	6.0	2.23	1.07	15.99	0.67	0.65	4.24	0.15	4.51	0.07	0.03	0.03	-37.35	-36.61	-0.37	0.12	0.06	0.087	0.007	0.003	0.003	0.018	0.003
7.08	120.08	330.4167	32.8	29.7		10.2											0.00											
7.55	120.12	330.5417	32.8	29.4		6.8																						
7.55	120.12	330.6667	32.8	29.3		5.9											0.01											
8.05	120.16	330.7917	32.8	29.4		12.7											0.17											
8.47	120.20	330.9167	33.2	29.3		5.4											0.00											
8.47	120.20	331.0417	33.3	29.3		5.3																						
8.74	120.23	331.1667	33.2	29.4		10.3	2.77	0.95	9.72	0.53	0.28						0.00						0.062	0.005	0.002	0.004	0.004	0.001
9.36	120.29	331.2917	33.1	29.5		11.0	4.57	1.05	10.17	0.56	0.41						0.00						0.120	0.007	0.004	0.004	0.008	0.002
9.39	120.30	331.4167	33.1	29.2		5.5																						
9.63	120.55	331.5417	33.1	29.2	28.6	11.2	4.57	0.91	8.52	0.40	0.22	5.26	0.57	4.69	0.44	0.41	0.00	-82.42	-109.3	-7.49	-4.98	-6.15	0.110	0.008	0.006	0.006	0.013	0.024
10.07	121.00	331.6667	33.0	29.2	28.7	12.2	3.80	0.98	10.00	0.44	0.26	0.86	0.19	3.85	0.18	0.06	0.00	-72.17	-14.38	-1.70	-1.68	-0.73	0.135	0.012	0.004	0.003	0.017	0.036
10.50	121.44	331.7917	33.0	29.1	28.8	11.7	4.31	0.60	8.59	0.23	0.19		0.12	2.22	0.00		0.08	-37.92	7.27	-0.96			0.088	0.009	0.004	0.002	0.011	0.019
11.00	121.78	331.9167	33.0	29.3		7.1	0.94		4.48	0.00							0.09						0.079	0.008	0.002	0.005	0.017	0.012
11.52	121.65	332.0417	33.0	29.2		11.5	4.15		9.86	0.00							0.18						0.107	0.008	0.001	0.004	0.008	0.003
11.86	121.20	332.1667	33.2	28.1		15.0	6.38		7.19	0.00							0.00						0.183	0.008	0.009	0.005	0.003	0.001
12.31	120.89	332.2917	32.8	30.0		8.5											0.00						0.102	0.012	0.004	0.003	0.015	0.002
12.82	120.52	332.4167	32.9	29.4		8.1			8.63	0.00							0.01						0.091	0.010	0.005	0.002	0.013	0.092
13.37	120.19	332.5417	32.9	29.4		12.0	3.66			0.00							0.18						0.249	0.015	0.013	0.009	0.004	0.059
13.90	119.92	332.6667	32.9	28.5	28.3	10.2	6.75		14.32	0.00		3.90	0.29	4.65	0.19	0.03	0.00	-70.64	-68.02				0.444	0.010	0.015	0.014	-0.009	0.058
14.25	120.30	332.7917	32.9	28.1	28.0	12.1	5.83		26.82	0.00		1.80	1.42		0.06	0.02	0.00		-33.92				0.220	0.009	0.010	0.007	0.006	0.030
14.45	120.67	332.9167	32.3	27.8	26.6	8.0	3.23		10.89	0.30	0.49		0.36	5.29	0.14	0.02	0.00	-64.76	3.15		-0.93	0.10	0.081	0.009	0.002	0.001	0.026	0.004
14.59	120.97	333.0417	32.9	27.5		2.6	2.94		8.79	0.20	0.30						0.13						0.304	0.012	0.005	0.005	0.034	0.002

