

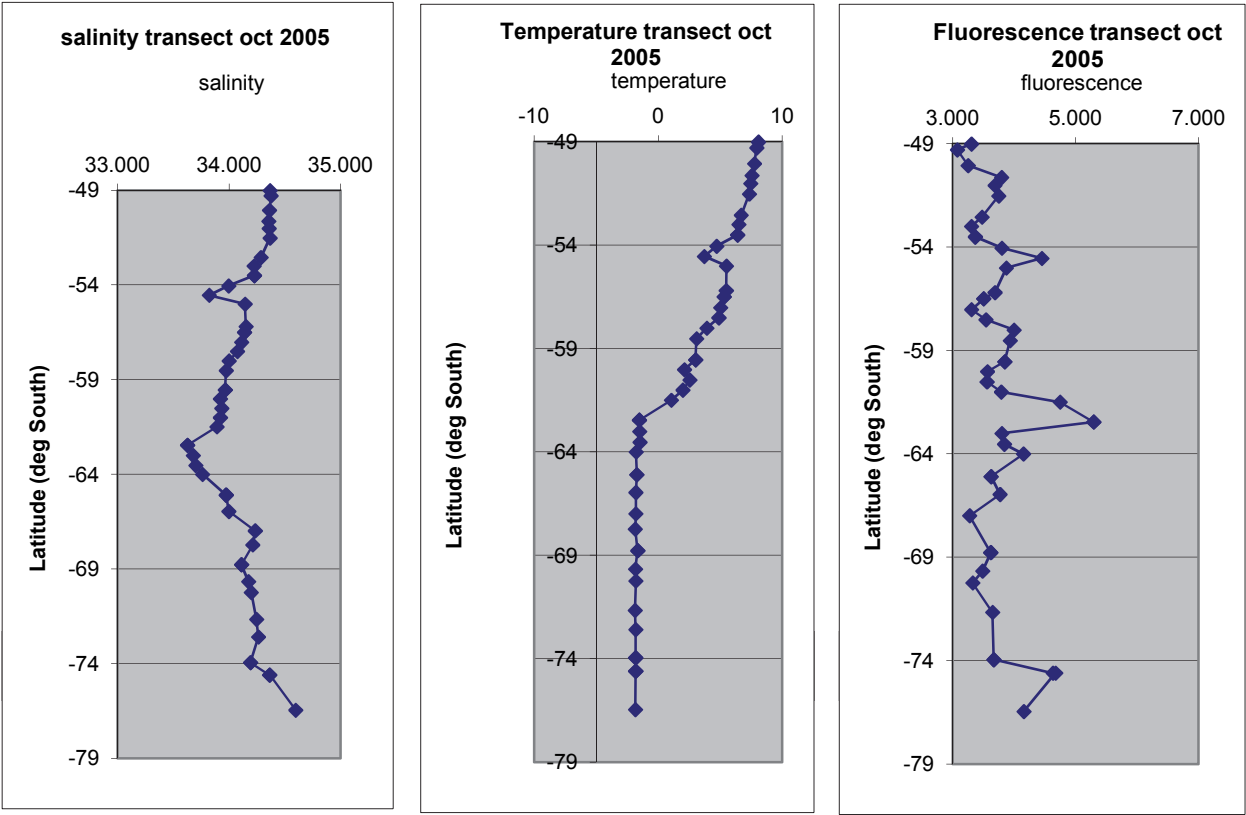
Kiene-Kieber Transect data collection

NBP05-08

Related Publications:

Kiene, R.P., Kieber, D.J., Slezak, D., Toole, D.A., del Valle, D.A., Bisgrove, J., Brinkley, J., Rellinger, A., 2007. Distributic

All transect samples without trailing letters are from underway pump system with intake at 4 m. Samples with letters are a Bucket or CTD (Nisking collected) samples are indicated with light blue background.

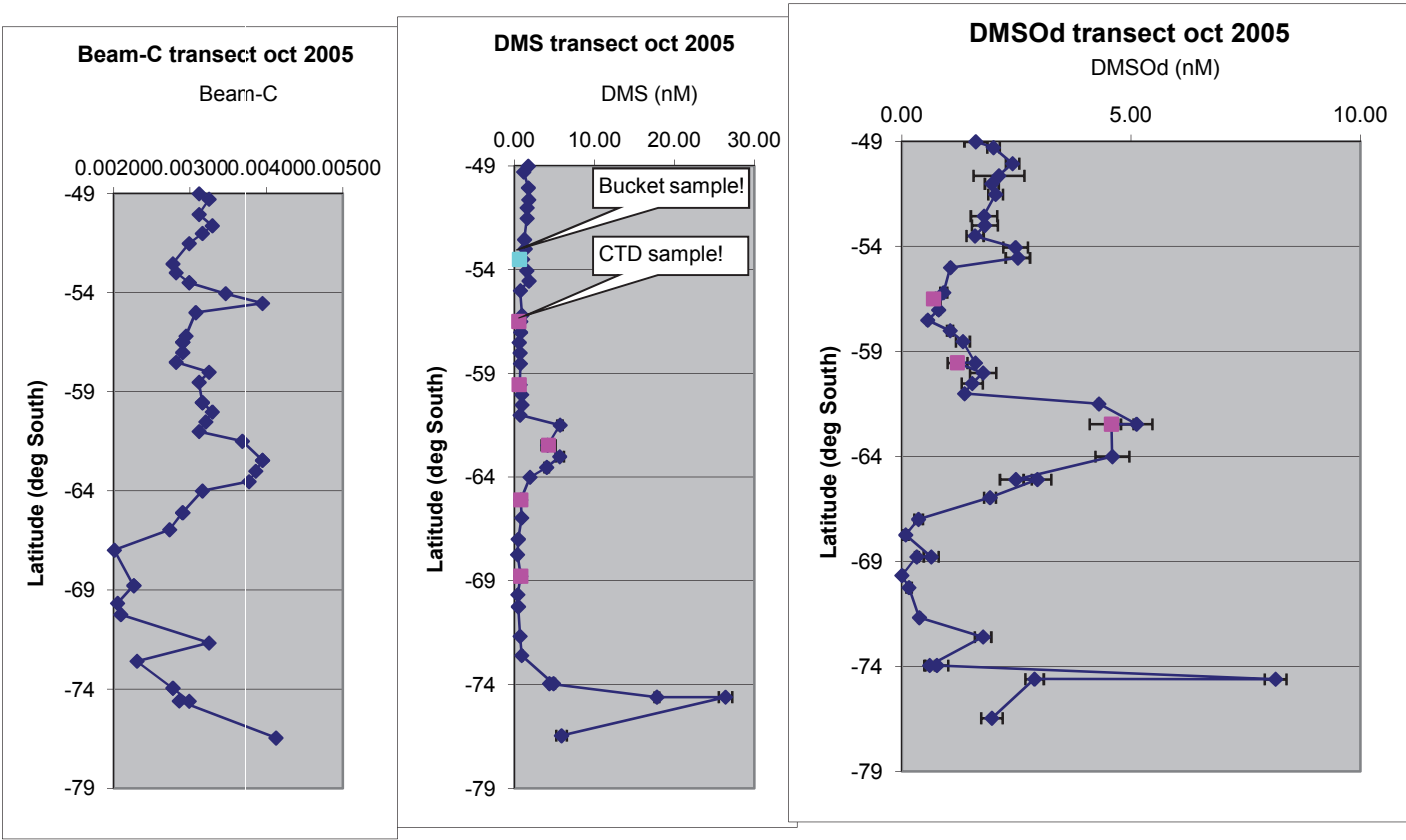


Transect samples

Sample #	Local date & time	Julian date (GMT)	time (GMT)	Decimal Lat	Decimal Lon	Salinity	Ext. SW temp	Fluor (V)
1	28.10.05 08:49	300	20:14:31	-49.014	174.172	34.368	8.076	3.305
2	28.10.05 11.14	300	23:14:40	-49.293	174.293	34.377	7.933	3.075
3	28.10.05 15:14	301	2:15:50	-50.056	174.417	34.363	7.758	3.251
4	28.10.05 18:38	301	5:38:17	-50.634	174.550	34.355	7.541	3.797
5	28.10.05 21:02	301	7:59:50	-51.021	174.644	34.360	7.448	3.687
6	29.10.05 00:00	301	11:00:58	-51.525	174.766	34.367	7.336	3.750
7	29.10.05 06:38	301	17:36:47	-52.553	175.019	34.286	6.683	3.476
8	29.10.05 08:51	301	20:44:12	-52.998	175.129	34.225	6.484	3.305
9	29.10.05 13:45	302	0:41:04	-53.504	175.254	34.226	6.398	3.366
9B	29.10.05 13:45	302	0:41:04	-53.504	175.254	34.226	6.398	3.366
10	29.10.05 20:40	302	9:36:23	-54.049	175.400	33.996	4.707	3.8
11	29.10.05 17:37	302	7:41:36	-54.543	175.539	33.821	3.715	4.45
12	29.10.05 23:35	302	10:33:40	-55.009	175.737	34.143	5.498	3.874
13	30.10.05 07:02	302	17:59:02	-56.197	176.246	34.151	5.476	3.688
14	30.10.05 10:40	302	21:40:56	-56.499	176.392	34.139	5.305	3.504
14C	30.10.05 10:50	302	21:40:56	-56.499	177.392	34.139	5.305	3.504

on and cycling of dimethylsulfide, dimethylsulfoniopropionate, and dimethylsulfoxide during spring and early summer in the Southern Ocean

s follows: B= bucket sample. C= CTD sample 4m

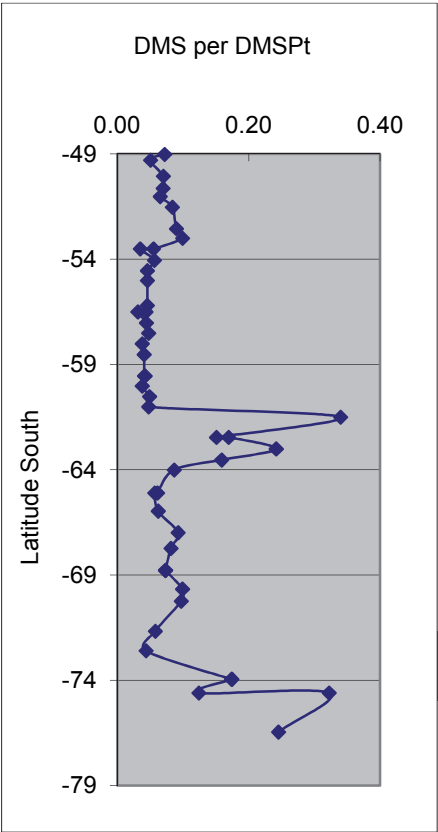
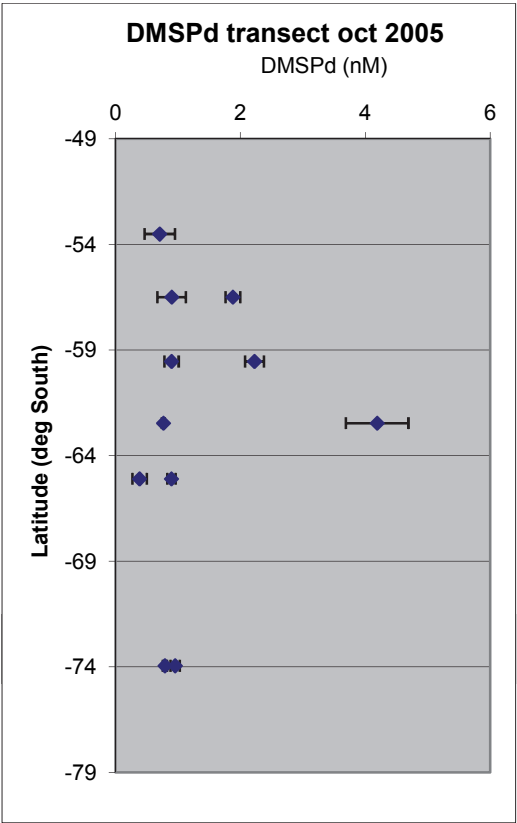


Beam C	pCO2	DMS (nM)	Stdev (DMS)	DMSPt (nM)	Stdev (DMSPt)	DMSPd (nM)	Stdev (DMSPd)	DMSOd (nM)	Stdev (DMSO)	DMS/DMSPt
0.00312	365.1	1.71	0.082	23.81	1.46			1.61	0.25	0.07
0.00325	365.5	1.15	0.041	22.74	0.42			2.00	0.14	0.05
0.00312	371.3	1.74	0.060	24.87	0.94			2.41	0.15	0.07
0.00329	375.2	1.78	0.089	25.65	1.18			2.11	0.56	0.07
0.00316	376.3	1.57	0.069	24.05	2.73			1.96	0.15	0.07
0.00299	377.8	1.56	0.079	18.61	0.92			2.04	0.16	0.08
0.00277	380.7	1.24	0.040	13.75	0.70			1.79	0.29	0.09
0.00282	379.3	1.31	0.035	13.26	1.21			1.81	0.28	0.10
0.00299	381.9	1.00	0.095	18.17	0.70			1.59	0.19	0.06
0.00299	381.9	0.62	0.042	17.76	1.52	0.71	0.24			0.03
0.00347	373.2	1.52	0.120	27.01	1.09			2.48	0.27	0.06
0.00395	374.4	1.79	0.132	39.15	3.88			2.53	0.27	0.05
0.00308	376.5	0.73	0.019	15.82	1.08			1.06	0.02	0.05
0.00295	376.6	0.93	0.040	20.45	0.24			0.91	0.08	0.05
0.00290	379.0	0.75	0.030	17.34	2.92	1.88	0.12	0.73	0.10	0.04
0.00290	379.0	0.56	0.041	17.84	1.19	0.90	0.23	0.69	0.10	0.03

[illegible]

[illegible]

ean south of New Zealand. Aquat. Sci. 305-319.



## Methods - Transect sampling - NBP-0508.

Most transect sample were collected from the ship's underway pumping system in the aft laboratory. Additional CTD casts with Niskin bottle sampling was conducted approximately once per day. The CTD samples are designated with a C after the sample number. In one case (9B) a bucket sample was collected.

**DMS** - Samples were collected from the ship underway system by attaching a 0.2  $\mu$ m PolyCap Nylon filter capsule to the pump outflow and filling a 60 ml teflon bottle with minimal gas exchange. These filtered samples were analyzed by purge and trap gas chromatography within 1 h of collection.

**DMSP-Total** - Ten ml of unfiltered seawater was collected directly from the pump outflow into 15 ml storage tube containing 50  $\mu$ l of 50%  $\text{H}_2\text{SO}_4$ . Two replicate storage tubes per sample. After >12 h to allow DMS to oxidize, a 1.5 ml sub-sample from storage tube was pipetted into 14 ml serum vial and treated with 1 ml of 5 N NaOH. Sample was purged entirely into cryotrap for quantification of DMS by FPD. Corrections were made for Air-NaOH blanks which were low or absent during the cruise.

**NOTE:** Post cruise, we discovered that the acidification procedure may result in loss of DMSP in samples containing colonial *Phaeocystis* sp.. Acidification causes a very rapid loss of DMSP and some conversion into DMS. This was not noticed on the cruise and no corrections could be made. The amount of loss for these samples is not known. Because we found this only when colonial *Phaeocystis* was present and since during NBP-0409 (January 2005) the phytoplankton population was dominated by single celled *Phaeocystis* and diatoms, it is likely not as severe a problem as it was during NBP-0508 (November cruise). We will publish a paper on effects of acidification on DMSP storage soon.

**DMSPd.** Samples for DMSP were collected by Niskin bottle on CTD casts to 4 m and subjected to the gentle, small volume drip filtration procedure described in Kiene & Slezak (2006). Briefly, unfiltered water samples were collected from Niskins directly into Plastic Gelman magnetic filter tower. bout 50 ml of water was allowed to fill the tower but, but only the first 3.5 ml of filtrate was collected into a 15 ml centrifuge tube that already contained 50  $\mu$ l of 50%  $\text{H}_2\text{SO}_4$ . Filter towers were rinsed with Q water and thoroughly dried between each use. Analysis was as for DMSP-total only that 3 ml of sample were analyzed. For more details, see: Kiene, R.P., Slezak, D., 2006. Low dissolved DMSP concentrations in seawater revealed by small volume gravity filtration and dialysis sampling. Limnol. Oceanog. Methods 4, 80-95.

Occasionally, samples from the underway pump system were also collected by the small volume drip filtration procedure for comparison to the Niskin collections.

**DMSOd** - Samples were collected from the ship underway system by attaching a 0.2 um PolyCap Nylon filter capsule to the pump outflow and filling a 60 ml teflon bottle. The samples were then frozen for later analysis. After thawing the samples were sparged to remove any pre-existing DMS, and then a sub-sample of 1 ml was treated with 0.3 ml of Acros TiCl<sub>3</sub> (30%) and the vial immediately capped with a teflon faced septum. After capping with a new teflon faced septum, vials were heated at 50 deg C for 60 minutes. After cooling to room temperature, the samples were analyzed by sparging the entire sample into the cryotrap. Samples were corrected for TiCl<sub>3</sub> blanks. Q water on the NBP was an inappropriate blank because it had some DMSO in it.

**Fluorescence** - A flow through fluorometer (Turner Designs) was used to collect data.

All other readings are from the ship underway system.