

Table S1. Details of the samples collected during the COCA cruise.

Day start	Day end	Local start time	Local end time	Initial latitude	Initial longitude	Final latitude	Final longitude	Nitrate concentration	$\Delta^{17}\text{O}(\text{nitrate})$
day/month/year	day/month/year	HH:MM	HH:MM	°N	°E	°N	°E	$\mu\text{g m}^{-3}$	‰
5/16/2003	5/17/2003	18:00	18:00	29.4	-16.7	29.4	-16.7	2.39	25.3
5/17/2003	5/18/2003	17:00	17:00	29.4	-16.7	29.4	-16.7	2.61	24.2
5/18/2003	5/19/2003	17:20	09:30	29.4	-16.7	29.4	-16.7	1.34	22.1
5/21/2003	5/22/2003	07:00	07:00	27.5	-14.4	27.4	-14.5	2.23	25.5
5/22/2003	5/22/2003	07:30	20:46	27.4	-14.5	26.5	-16.0	0.75	25.4
5/22/2003	5/23/2003	21:00	16:00	26.5	-16.0	26.6	-16.0	2.51	26.7
5/23/2003	5/24/2003	20:00	13:15	26.6	-16.0	26.0	-18.0	1.50	25.8
5/24/2003	5/25/2003	14:32	12:00	26.0	-18.0	26.0	-18.0	3.45	25.5
5/25/2003	5/26/2003	12:00	12:00	26.0	-18.0	26.0	-20.8	1.85	22.5
5/26/2003	5/28/2003	12:00	16:00	26.0	-20.8	26.0	-24.8	3.42	27.8
5/30/2003	6/02/2003	15:35	11:30	23.9	-26.0	21.0	-23.0	2.75	25.3
6/02/2003	6/04/2003	12:00	07:15	21.0	-23.0	21.0	-21.0	1.61	26.7
6/04/2003	6/06/2003	07:30	08:40	21.0	-21.0	21.0	-19.0	1.68	22.6
6/06/2003	6/07/2003	19:50	11:30	20.9	-19.0	21.0	-17.9	1.28	25.8
6/07/2003	6/08/2003	11:45	11:50	21.0	-17.9	21.4	-17.4	7.00	23.8
6/08/2003	6/09/2003	12:00	16:00	21.4	-14.4	26.3	-15.7	8.38	24.2