SUPPLEMENTARY MATERIAL

Compilation of *in situ* productivity and flux data for the Southern Ocean from literature published in the last 25 years. The satellite-derived sea surface temperature (SST) was derived from AVHRR Pathfinder Version 5.0 eight-day 4 km data sets.

Date	Latitude	Longitude	Satellite SST	Primary Production	Flux	Depth	Flux method	Reference
			°C	mg C m^{-2} d^{-1}	mg C m^{-2} d^{-1}	m		
12/20/86	-63.210	-61.170	0.150	2590.00	111.46	100	Trap	Karl et al., 1994
12/22/86	-64.230	-61.380	-1.275	1865.00	136.20	100	Trap	Karl et al., 1994
12/25/86	-62.590	-61.650	0.375	1985.00	87.44	100	Trap	Karl et al., 1994
12/27/86	-63.430	-62.580	0.000	1850.00	209.59	100	Trap	Karl et al., 1994
01/25/87	-63.210	-61.170	0.450	1510.00	251.39	100	Trap	Karl et al., 1994
01/26/87	-64.230	-61.380	-1.200	670.00	373.66	100	Trap	Karl et al., 1994
01/28/87	-63.430	-62.580	0.525	1585.00	188.09	100	Trap	Karl et al., 1994
01/30/87	-61.960	-62.710	0.975	325.00	96.69	100	Trap	Karl et al., 1994
01/31/87	-62.590	-61.650	0.750	360.00	101.97	100	Trap	Karl et al., 1994
02/26/87	-63.210	-61.170	0.150	395.00	107.98	100	Trap	Karl et al., 1994
02/28/87	-64.230	-61.380	-1.275	870.00	203.95	100	Trap	Karl et al., 1994
03/02/87	-63.430	-62.580	0.300	1585.00	251.39	100	Trap	Karl et al., 1994
03/03/87	-61.960	-62.710	0.150	365.00	66.42	100	Trap	Karl et al., 1994
03/05/87	-62.590	-61.650	0.150	180.00	124.31	100	Trap	Karl et al., 1994
03/21/87	-64.230	-61.380	-1.275	150.00	36.03	100	Trap	Karl et al., 1994
03/23/87	-61.960	-62.710	0.000	320.00	41.32	100	Trap	Karl et al., 1994
03/25/87	-62.590	-61.650	0.000	445.00	148.82	100	Trap	Karl et al., 1994
03/31/87	-63.210	-61.170	0.000	250.00	36.03	100	Trap	Karl et al., 1994
01/12/90	-76.500	167.500	-0.600	2580.00	19.60	100	Trap	Nelson et al., 1996
01/16/90	-76.500	175.000	0.375	1350.00	16.50	100	Trap	Nelson et al., 1996
01/31/90	-76.500	175.000	0.225	1310.00	81.80	100	Trap	Nelson et al., 1996

02/04/90	-76.500	167.500	-0.150	1020.00	24.60	100	Trap	Nelson et al., 1996
10/20/92	-55.000	-6.000	-1.125	134.62	70.00	100	234Th	Van der Loeff et al., 1997
10/21/92	-53.000	-6.000	-0.375	63.56	16.38	100	234Th	Van der Loeff et al., 1997
10/29/92	-49.000	-6.000	2.100	768.20	165.14	100	234Th	Van der Loeff et al., 1997
11/01/92	-55.000	-6.000	-0.750	269.25	141.12	100	234Th	Van der Loeff et al., 1997
11/06/92	-53.000	-6.000	-0.225	192.68	128.68	100	234Th	Van der Loeff et al., 1997
11/07/92	-51.000	-6.000	0.825	361.83	183.01	100	234Th	Van der Loeff et al., 1997
11/09/92	-49.000	-6.000	2.100	2215.53	185.61	100	234Th	Van der Loeff et al., 1997
11/10/92	-47.500	-6.000	3.600	1139.04	336.80	100	234Th	Van der Loeff et al., 1997
12/07/92	-67.610	-84.940	-0.225	760.00	252.00	100	234Th	Shimmield et al 1995
11/13/94	-76.800	-180.000	-1.500	940.00	153.00	100	Trap	Asper et al 1999
11/17/94	-76.500	168.500	-1.575	130.00	25.70	100	Trap	Asper et al 1999
11/18/94	-76.500	172.900	-1.200	2650.00	66.10	100	Trap	Asper et al 1999
11/23/94	-77.100	173.100	-1.575	1660.00	183.00	100	Trap	Asper et al 1999
11/27/94	-75.000	173.000	-1.200	720.00	227.00	100	Trap	Asper et al 1999
12/06/94	-76.600	173.000	-0.375	2070.00	119.00	100	Trap	Asper et al 1999
12/12/94	-74.000	175.000	-0.525	360.00	4.69	100	Trap	Langone et al, 1997
12/13/94	-74.700	175.000	-0.300	900.00	6.11	100	Trap	Langone et al, 1997
12/24/95	-76.500	171.800	0.000	1080.00	236.00	100	Trap	Asper et al 1999
12/27/95	-76.500	170.800	-0.225	2470.00	186.00	100	Trap	Asper et al 1999
01/02/96	-76.500	165.000	-0.525	1020.00	197.00	100	Trap	Asper et al 1999
01/07/96	-76.500	177.600	0.150	590.00	166.00	100	Trap	Asper et al 1999
01/12/96	-76.500	165.000	-0.525	1160.00	172.00	100	Trap	Asper et al 1999
10/18/96	-76.400	-177.900	-1.800	408.37	19.22	100	234Th	Cochran et al., 2000
10/23/96	-76.400	169.000	-1.800	64.86	20.42	100	234Th	Cochran et al., 2000
11/02/96	-76.400	-177.900	-1.650	408.37	46.84	100	234Th	Cochran et al., 2000
01/13/97	-76.400	169.000	0.075	1068.98	359.13	100	234Th	Cochran et al., 2000
01/19/97	-76.400	-177.900	0.300	540.50	88.88	100	234Th	Cochran et al., 2000
01/24/97	-74.000	176.000	0.150	600.55	142.93	100	234Th	Cochran et al., 2000
02/01/97	-76.400	-177.900	0.300	540.50	386.75	100	234Th	Cochran et al., 2000
10/28/97	-62.317	-170.003	-0.600	228.92	196.57	100	234Th	Buesseler et al., 2001, 2003

11/01/97	-60.500	-169.000	0.975	375.52	182.22	100	234Th	Buesseler et al., 2001, 2003
11/04/97	-59.333	-169.000	2.100	276.33	137.29	100	234Th	Buesseler et al., 2001, 2003
12/04/97	-53.030	-174.729	7.575	1694.75	126.98	100	234Th	Buesseler et al., 2001, 2003
12/07/97	-56.843	-174.154	5.625	381.02	62.93	100	234Th	Buesseler et al., 2001, 2003
12/10/97	-60.231	-170.071	3.150	779.93	110.34	100	234Th	Buesseler et al., 2001, 2003
12/12/97	-60.917	-169.253	2.175	509.07	224.92	100	234Th	Buesseler et al., 2001, 2003
12/14/97	-61.667	-168.833	1.350	765.98	109.19	100	234Th	Buesseler et al., 2001, 2003
12/16/97	-64.153	-169.186	-0.225	1070.65	77.89	100	234Th	Buesseler et al., 2001, 2003
12/18/97	-64.673	-169.186	-0.300	797.82	189.56	100	234Th	Buesseler et al., 2001, 2003
12/19/97	-63.087	-169.186	0.450	911.76	153.49	100	234Th	Buesseler et al., 2001, 2003
12/25/97	-55.671	-171.186	6.075	674.74	63.23	100	234Th	Buesseler et al., 2001, 2003
01/17/98	-67.784	-170.112	0.750	528.44	191.65	100	234Th	Buesseler et al., 2001, 2003
01/18/98	-64.833	-170.100	1.575	2540.12	317.28	100	234Th	Buesseler et al., 2001, 2003
01/20/98	-62.033	-170.100	3.075	1270.66	266.76	100	234Th	Buesseler et al., 2001, 2003
01/25/98	-62.000	-170.100	2.925	1444.80	127.41	100	234Th	Buesseler et al., 2001, 2003
01/28/98	-65.167	-170.100	1.425	1671.79	437.79	100	234Th	Buesseler et al., 2001, 2003
02/16/98	-52.978	-174.733	9.150	700.89	156.90	100	234Th	Buesseler et al., 2001, 2003
02/20/98	-56.848	-171.515	6.600	348.20	192.63	100	234Th	Buesseler et al., 2001, 2003
02/22/98	-60.233	-170.067	4.275	243.83	141.53	100	234Th	Buesseler et al., 2001, 2003
02/24/98	-63.083	-169.883	2.475	209.97	210.42	100	234Th	Buesseler et al., 2001, 2003
03/08/98	-64.700	-169.333	1.350	150.16	183.44	100	234Th	Buesseler et al., 2001, 2003
03/11/98	-61.667	-170.100	3.075	173.65	50.22	100	234Th	Buesseler et al., 2001, 2003
03/15/98	-54.333	-173.333	8.100	230.61	58.89	100	234Th	Buesseler et al., 2001, 2003
01/14/99	-46.010	63.060	10.650	331.50	30.39	100	234Th	Coppola et al., 2005
01/18/99	-45.660	63.110	11.475	380.75	12.13	100	234Th	Coppola et al., 2005
01/24/99	-45.190	63.080	12.675	429.99	27.02	100	234Th	Coppola et al., 2005
02/06/99	-44.070	63.730	14.700	559.71	11.53	100	234Th	Thomalla et al, 2006
02/09/99	-61.023	139.073	2.250	378.95	109.56	110	Trap	Nodder et al., 2001
02/10/99	-44.010	64.730	14.775	530.89	11.89	100	234Th	Thomalla et al., 2006
02/14/99	-42.910	63.080	16.200	527.28	11.29	100	234Th	Thomalla et al., 2006
02/15/99	-60.895	140.000	2.325	926.32	136.05	110	Trap	Nodder et al., 2001

02/20/99	-60.864	140.873	2.400	126.32	78.46	110	Trap	Nodder et al., 2001
02/20/99	-61.037	140.500	2.400	1263.16	188.17	110	Trap	Nodder et al., 2001
01/29/02	-66.000	-172.500	0.375	552.51	19.22	100	234Th	Buesseler et al., 2005
01/30/02	-66.000	-172.500	0.375	396.36	38.44	100	234Th	Buesseler et al., 2005
02/03/02	-66.000	-172.500	0.450	1249.14	102.09	100	234Th	Buesseler et al., 2005
02/13/02	-66.000	-172.500	0.450	1249.14	123.71	100	234Th	Buesseler et al., 2005
02/19/02	-66.000	-172.500	0.525	396.36	56.45	100	234Th	Buesseler et al., 2005
02/20/02	-66.000	-172.500	0.525	1249.14	141.73	100	234Th	Buesseler et al., 2005
11/11/04	-43.884	50.247	6.075	1080.90	205.37	100	234Th	Morris et al., 2007
11/13/04	-46.058	51.781	4.425	528.44	183.75	100	234Th	Morris et al., 2007
11/18/04	-46.042	51.800	4.425	372.31	58.85	100	234Th	Morris et al., 2007
11/20/04	-47.795	52.862	3.825	432.36	63.65	100	234Th	Morris 2007
11/21/04	-49.000	51.490	3.225	235.00	43.30	109	Trap	Salter et al., 2007
11/23/04	-49.003	51.491	3.225	240.20	69.66	100	234Th	Morris et al., 2007
11/25/04	-46.060	51.791	4.500	480.40	166.94	100	234Th	Morris et al., 2007
11/27/04	-45.505	48.987	5.025	768.64	156.13	100	234Th	Morris et al., 2007
11/30/04	-44.917	49.907	5.250	132.11	183.75	100	234Th	Morris et al., 2007
12/02/04	-44.866	49.663	5.700	492.41	164.54	100	234Th	Morris et al., 2007
12/03/04	-43.118	47.185	7.575	684.57	201.77	100	234Th	Morris et al., 2007
12/20/04	-44.518	49.992	6.150	432.36	147.72	100	234Th	Morris et al., 2007
12/23/04	-46.062	51.782	5.025	720.60	309.86	100	234Th	Morris et al., 2007
12/27/04	-45.997	56.152	6.525	408.34	214.98	100	234Th	Morris et al., 2007
12/31/04	-46.064	51.781	5.025	324.27	266.62	100	234Th	Morris et al., 2007
01/03/05	-48.999	51.538	4.200	300.25	219.78	100	234Th	Morris et al., 2007
01/06/05	-47.800	52.848	4.500	204.17	264.22	100	234Th	Morris et al., 2007
01/09/05	-46.147	51.860	6.225	3002.50	245.00	100	234Th	Morris et al., 2007
01/10/05	-46.030	51.870	6.450	2214.00	20.60	90	Trap	Salter et al. 2007
01/10/05	-46.032	51.870	6.450	2209.84	164.54	100	234Th	Morris et al., 2007
01/12/05	-46.040	51.960	6.450	1652.00	11.50	100	Trap	Salter et al., 2007
01/12/05	-46.042	51.962	6.450	1657.38	180.15	100	234Th	Morris et al., 2007
01/28/05	-50.630	72.080	3.375	970.04	126.11	100	234Th	Savoye et al., 2008

01/30/05	-51.102	74.598	3.075	953.29	152.53	100	234Th	Savoye et al., 2008
02/05/05	-51.634	78.118	2.850	252.62	146.52	100	234Th	Savoye et al., 2008
02/07/05	-50.630	72.080	3.600	960.80	461.18	100	234Th	Savoye et al., 2008
01/16/06	-62.254	-62.997	2.925	1078.14	96.45	100	234Th	Charette unpublished
01/17/06	-61.747	-62.000	3.075	1058.29	230.41	100	234Th	Charette unpublished
01/18/06	-61.500	-60.491	2.775	210.55	181.77	100	234Th	Charette unpublished
01/19/06	-61.749	-59.029	2.175	1356.70	43.54	100	234Th	Charette unpublished
01/20/06	-60.261	-57.517	3.225	1162.72	44.86	100	234Th	Charette unpublished
01/21/06	-61.748	-57.007	1.725	1284.79	201.35	100	234Th	Charette unpublished
01/21/06	-60.244	-57.010	2.775	949.35	43.24	100	234Th	Charette unpublished
01/22/06	-61.748	-55.752	1.500	1095.73	154.41	100	234Th	Charette unpublished
01/22/06	-59.996	-55.761	2.850	1138.82	40.95	100	234Th	Charette unpublished
01/23/06	-61.500	-55.001	1.500	395.68	107.42	100	234Th	Charette unpublished
01/23/06	-61.500	-54.000	1.275	334.75	69.44	100	234Th	Charette unpublished
01/23/06	-61.999	-54.998	1.200	203.38	123.26	100	234Th	Charette unpublished
01/24/06	-62.250	-58.002	2.025	258.22	144.60	100	234Th	Charette unpublished
01/24/06	-62.553	-59.348	2.100	445.04	66.24	100	234Th	Charette unpublished
01/21/07	-44.550	143.010	13.500	277.43	146.88	100	234Th	Jacquet et al., 2010
01/25/07	-46.300	140.250	11.925	1305.49	121.90	100	234Th	Jacquet et al., 2010
01/30/07	-49.000	142.600	10.050	383.12	158.17	100	234Th	Jacquet et al., 2010
02/05/07	-54.130	145.960	5.925	475.60	93.92	100	234Th	Jacquet et al., 2010
02/08/07	-50.560	148.350	9.375	625.72	53.44	100	234Th	Jacquet et al., 2010
02/09/07	-50.000	149.260	9.750	539.25	66.30	100	234Th	Jacquet et al., 2010
02/10/07	-48.020	151.130	11.250	951.19	56.33	100	234Th	Jacquet et al., 2010
02/14/07	-45.280	145.260	13.950	749.42	49.00	100	234Th	Jacquet et al., 2010
02/15/07	-44.570	152.280	15.225	2573.74	56.33	100	234Th	Jacquet et al., 2010