

Data Sources for “The Surface Distribution of $\Delta^{14}\text{C}$ ” (Toggweiler et al., submitted to JGR, 2014)

The data sources for *The Surface Distribution of $\Delta^{14}\text{C}$* are organized below by ocean basin. The data are then subdivided by time period (pre-bomb, 1990s, and 2000s) and by geographic region. The individual regions are listed in **Tables S1, S3, and S5** for the Atlantic, Pacific, and Indian Oceans, respectively, and are shown on the maps in **Figures S1, S3, and S5**. $\Delta^{14}\text{C}$ values from the seawater samples collected during the World Ocean Circulation Experiment (WOCE) are given as colored dots on the maps in **Figures S2, S4, and S6**.

The location, month/year of growth/collection, depth, temperature, salinity, and $\Delta^{14}\text{C}$ values of the samples within the individual regions are listed in **Tables S2, S4, and S6**. The $\Delta^{14}\text{C}$ values are averaged and the average is differenced from the appropriate reference value to produce the *anomalies* that are mapped in **Figures 3, 4, and 5** in the main paper. References to the studies that produced the observations in **Tables S2, S4, and S6** follow **Table S6**.

$\Delta^{14}\text{C}$ values from the 1940s and early 1950s are derived entirely from corals and shells. Much of this information has been made available by archaeologists who have used corals and shells to document how the initial ^{14}C age of marine samples (the so-called reservoir effect) varies from place to place across the ocean. This information has been compiled by Paula Reimer and colleagues at <http://calib.qub.ac.uk/marine>.

$\Delta^{14}\text{C}$ information from the WOCE and CLIVAR eras is mainly from seawater samples. The seawater data is available from CCHDO (<http://cchdo.ucsd.edu>). The data from CCHDO has been supplemented by information from Nydal (1998), Bhushan et al. (2000), and Kumamoto et al. (2007, 2011, and 2013).

The seawater samples used in this study are from the upper 50 m. If measurements from more than one depth are available, the $\Delta^{14}\text{C}$ value from the shallowest depth is generally the only one used. Measurements from additional depths are used if their temperatures and salinities are the same as those in the shallowest sample.

Coral and shell measurements are normally reported as Δ , whereas seawater measurements are reported as $\Delta^{14}\text{C}$ (Stuiver and Polach, 1977). The two are equivalent if the time between seawater collection and measurement is short. Δ and $\Delta^{14}\text{C}$ are assumed to be equivalent for our samples.

Table S1 Atlantic Regions

Region	Location (lat, long)
1	Norwegian Sea (64-70N, 10E-5W)
2	North of Iceland (66N, 19W)
3	South of Iceland (62N, 20W)
4	W. Subpolar Gyre (58N, 30-65W)
5	Southern Great Britain (51N, 4W)
6	50N, 20W
7	Grand Banks (44N, 50W)
8	Georges Bank (42N, 68W)
9	35N, 50W
10	Bermuda (32N, 64W)
11	Madeira (32N, 20W)
12	Florida Keys (25N, 80W)
13	Central N. Atlantic (25N, 56W)
14	Central N. Atlantic (25N, 40W)
15	Central N. Atlantic (25N, 24W)
16	Northern Gulf of Mexico (28N, 94W)
17	Southern Gulf of Mexico (19N, 95W)
18	Belize (17N, 87W)
19	Puerto Rico (18N, 67W)
20	Cape Verde (16N, 24W)
21	Cariaco Basin (11N, 66W)
22	Guiana Current (8N, 53W)
23	ITCZ/NECC (5N, 20W)
24	Equatorial Atlantic (0N, 10W-35W)
25	NE Brazil (10S, 32W)
26	SE Brazil (20S, 37W)
27	Central S. Atlantic (30S, 40W)
28	Central S. Atlantic (32S, 22W)
29	Northern Cape (30S, 16E)

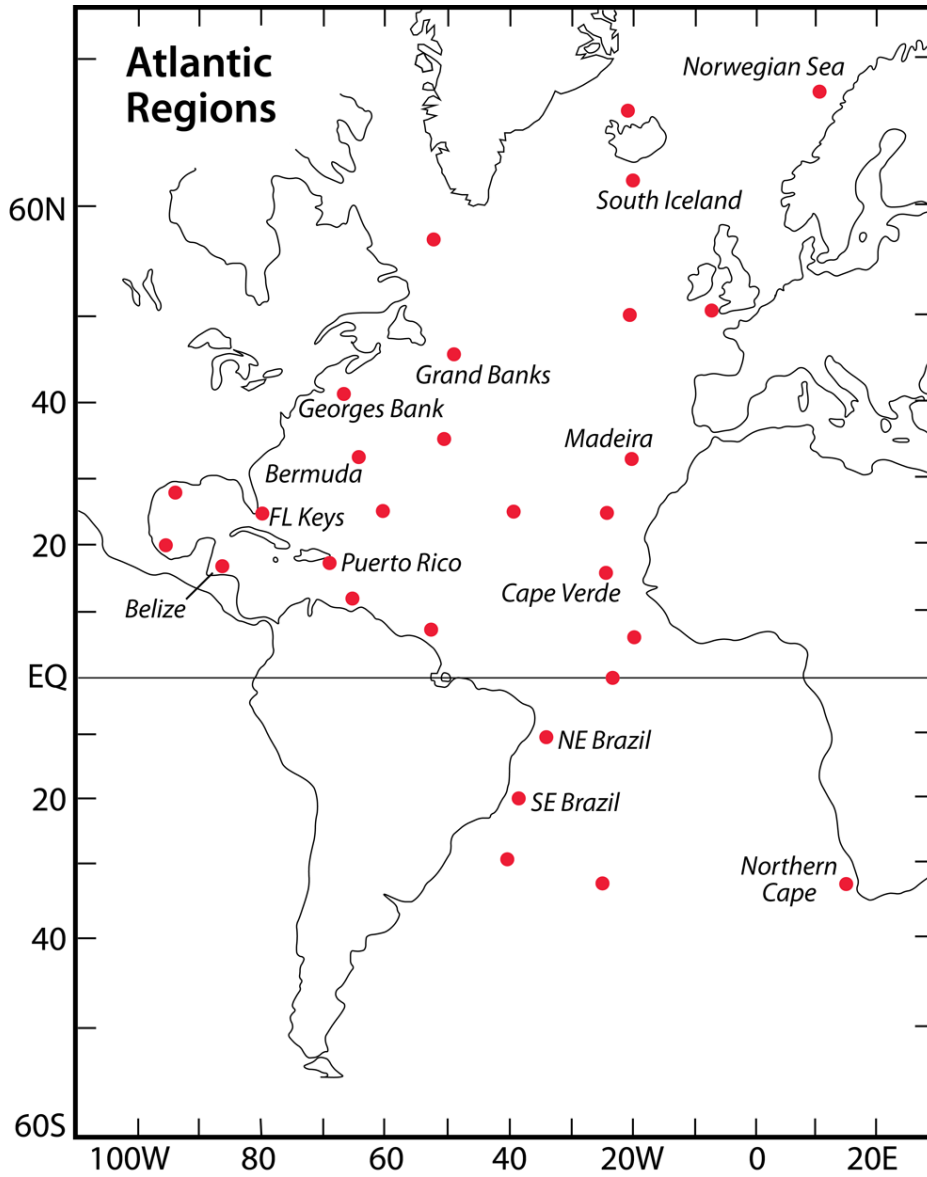


Figure S1. Regions of the Atlantic Ocean with surface $\Delta^{14}\text{C}$ measurements.

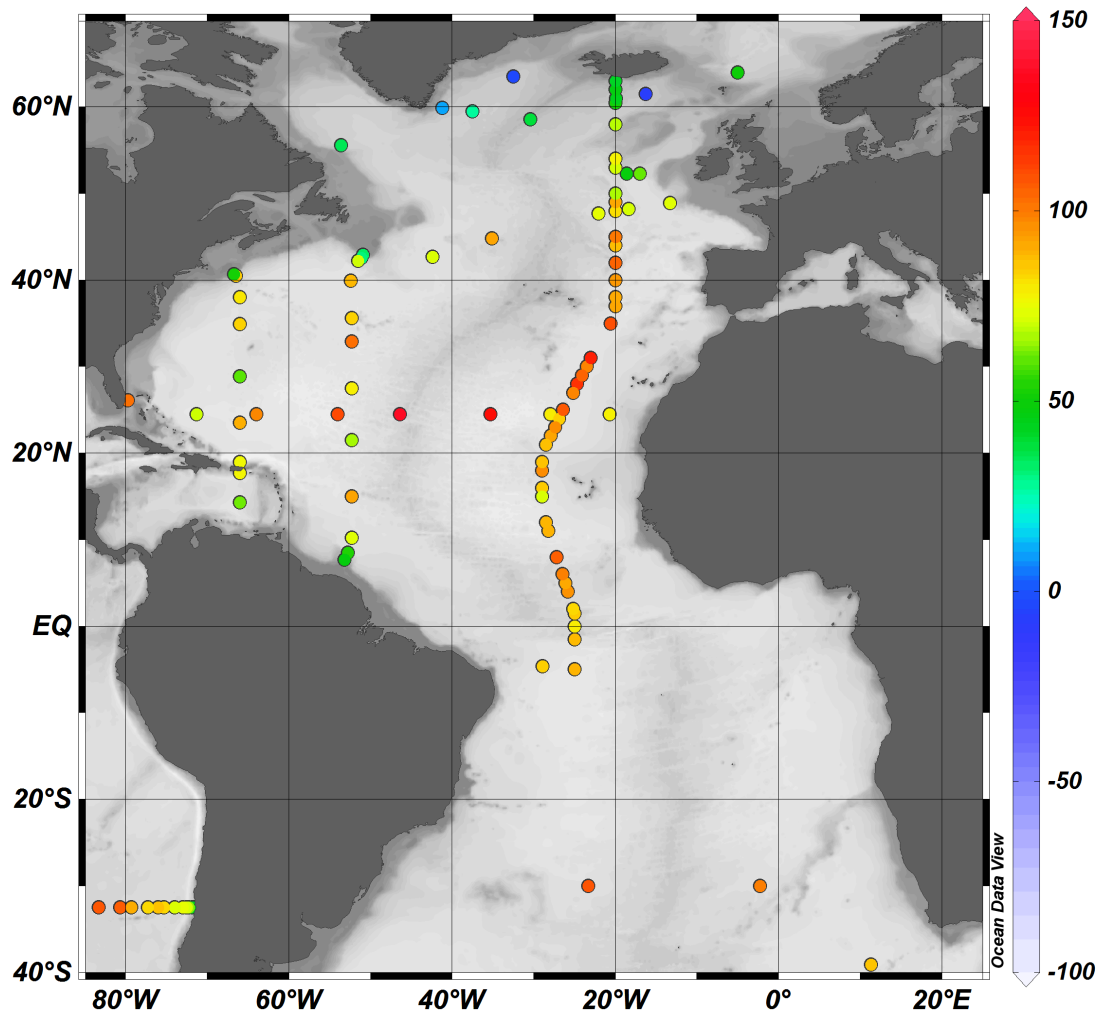


Figure S2. Surface distribution of $\Delta^{14}\text{C}$ in the Atlantic Ocean based on seawater samples collected between 1990 and 1998 during WOCE.

Table S2. Data Sources – Atlantic

1940s

1 Norwegian Sea

Two growth bands from a large clam shell collected near Tromsø, Norway in 1993 (70N, 19E) (Scourse et al., 2012)

1940 -44.5

1946 -62.2

Avg -53‰, -6 relative to Bermuda

2 North of Iceland

Two growth bands from clam shells collected near Grimsey Island and Siglufjörður, Iceland (66N, 19W) (Scourse et al., 2012)

1945 -67.2

1946 -54.8

Avg -61‰, -14 relative to Bermuda

3 South of Iceland

Two shells from SW coast of Iceland (64N, 22W)

1939 -60.3 (Håkansson, 1983, 1984)

1946 -65.4 (Broecker and Olson, 1961)

Avg -63‰, -16 relative to Bermuda

4 W. Subpolar Gyre

Two solitary corals recovered from 414m near the mouth of Hudson Strait (60.5N, 61.4W) (Sherwood et al., 2008).

1946 -70.3

1949 -70.2

Avg -70‰, -23 relative to Bermuda

5 Southern Great Britain

Three shells collected from the west and south coasts of Great Britain (Harkness, 1983).

1934 -53.5 Anglesey (53N, 4W)

1938 -60.4 Castle Rock (55.0N, 6.8W)

1947 -52.2 English Channel (50.3N, 0.6E)

Avg -55‰, -8 relative to Bermuda

7 Grand Banks

Solitary coral recovered from 713m on SW flank of Grand Banks (44.1N, 52.9W) (Sherwood et al., 2008).

1943 -68.8

Avg -69‰, -22 relative to Bermuda

8 Georges Bank

Three growth bands from a large clam shell collected in 1990 off Cape Cod (41N, 69W) (Weidman and Jones, 1993)

1942	-64.4
1945-46	-70.6
1948-49	-65.3

Solitary coral recovered from 275-450m in Northeast Channel, Gulf of Maine (42N, 65.5W) (Sherwood et al., 2008).

1942	-71.6
1948	-80.3

Avg -70‰, -23 relative to Bermuda

10 Bermuda

Five biannual growth bands from coral head collected from North Rock in 1983 (32.5N, 64.8W) (Druffel, 1997)

1941.3	-45.6
1943.3	-44.9
1945.3	-51.8
1947.3	-52.9
1949.3	-41.3

Avg -47‰

12 Florida Keys

Six growth bands from coral head collected at The Rocks off Plantation Key (24.95N, 80.55W) in June 1975 (Druffel and Linick, 1978)

1944	-53
1945	-50
1946	-60
1947	-55
1948	-61
1949	-58

Avg -56‰, -9 relative to Bermuda

16 Northern Gulf of Mexico

Four growth bands from coral collected at Flower Garden Banks (27.9N, 93.8W) in 1990 (Wagner et al. 2009)

1945.5	-52.0
1946.5	-52.5
1947.5	-52.8
1948.5	-60.1

Avg -54‰, -7 relative to Bermuda

17 Southern Gulf of Mexico

Five growth bands from coral collected at Santiaguillo Reef off Veracruz, Mexico (19.1N, 95.8W) in 1991 (Wagner et al. 2009)

1945.5	-52.7
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1946.5	-56.8
1947.5	-51.4
1948.5	-50.0
1949.5	-53.1

Avg -53‰, -6 relative to Bermuda

18 Belize

Three growth bands from coral collected at Glover Reef (16.8N, 87.8W) in June 1977 (Druffel, 1980)

1941	-55.5
1944	-52
1947	-53

Avg -54‰, -7 relative to Bermuda

19 Puerto Rico

Two growth bands from coral head collected from Turrumote Reef (17.9N, 67.0W) in 2004 (Kilbourne et al., 2007)

1940	-53.6
1945	-56.7

Avg -55‰, -8 relative to Bermuda

20 Cape Verde

Single shell collected in 1947 from the coast of Mauritania (18.1N, 16.1W) (Nydeye, 2008)

1947	-69.8
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Three shells collected from the the coast of Senegal (14.4N, 17.4W) (Nydeye, 2008)

1939	-66.8
1942	-91
1945	-80

Avg -77‰, -30 relative to Bermuda

21 Cariaco Basin

Average of 42 samples from coral collected in 1998 off Boca de Medio Island (11.9N, 66.6W) (Guilderson et al., 2005)

1942-48	-53.4
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Average of 53 samples from coral collected in 1996 from Los Testigos Archipelago (11.3N, 63.1W) (Guilderson et al., 2005)

1934-46	-54.3
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Average of 40 samples from coral collected in 1996 off Isla Tortugas (10.9N, 65.2W) (Guilderson et al. (2005)

1938-43	-51.9
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Average of 4 samples from coral collected in 1996 off Isla Tortugas (10.9N, 65.2W) (Wagner et al., 2009)

1945-49	-53.9
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Avg -53‰, -6 relative to Bermuda

26 SE Brazil

Seven shells collected from SE coast of Brazil

1940	-55.7	Ilha do Mel, Paranagua, Brazil (25.5S, 48.3W) Angulo et al. (2005)
1940	-49.8	(Ilha do Mel)
1942	-47.4	Ponta das Canas, Ilhabela (23.7S, 45.3W) Nadal de Masi (1999)
1942	-54.5	(Ponta das Canas)
1942	-61.5	(Ponta das Canas)
1942	-54.5	(Ponta das Canas)
1944	-49.0	Fazenda, Rio de Janeiro State (23S, 43W) Eastoe et al. (2002)

Single growth band from coral head collected from Abrolhos Is., Brazil
(18S, 39W) in 1982 (Druffel, 1996)

1949.5	-66.3	
Avg -55‰, -8 relative to Bermuda		

29 Northern Cape

Single shell from Hondeklip Bay (30.3S, 17.3E) collected in 1940
(Dewar et al. 2012)

1940	-68.4	
-68‰, -21 relative to Bermuda		

1950-1954

1 Norwegian Sea

Single growth band from a large clam shell collected near Tromsø,
Norway in 1993 (70N, 19E) (Scourse et al., 2012)

1951	-54.7	
Avg -55‰, -7 relative to Bermuda		

2 North of Iceland

Single growth band from a large clam shell collected in 2006 near
Grimsey Island, Iceland (66N, 18W) (Scourse et al., 2012)

1950	-54.8	
Avg -55‰, -7 relative to Bermuda		

4 W. Subpolar Gyre

Two solitary corals recovered from 414 m near the mouth of
Hudson Strait (60.5N, 61.4W) (Sherwood et al., 2008)

1953	-72.6	
1955	-71.1	
Avg -72‰, -24 relative to Bermuda		

7 Grand Banks

Two shells from Newfoundland coast (McNeely et al., 2006)

1951 -72.0 (46.5N, 51.5W)

1954 -59.2 (45.5N, 50.5W)

Avg -66‰, -18 relative to Bermuda

8 Georges Bank

Two growth bands from a large clam shell collected in 1990 off Cape Cod (41N, 69W) (Weidman and Jones, 1993)

1951-52 -74.6

1954-55 -66.0

Two solitary corals recovered from 275-450m in Northeast Channel, Gulf of Maine (42N, 65.5W) (Sherwood et al., 2008).

1951 -70.5

1953 -77.3

Avg -72‰, -24 relative to Bermuda

10 Bermuda

Four growth bands from coral head collected from John Smith's Bay in 1983 (32.3N, 64.7W) (Druffel, 1989)

1950.8 -45.6

1951.8 -54.6

1952.8 -52.4

1954.8 -40.2

Avg -48‰

12 Florida Keys

Five growth bands from coral head collected at The Rocks off Plantation Key (24.95N, 80.55W) (Druffel and Linick, 1978)

1950 -53

1951 -65

1952 -66

1953 -58

1954 -55

Avg -59‰, -11 relative to Bermuda

16 Northern Gulf of Mexico

Five growth bands from coral collected at Flower Garden Banks (27.9N, 93.8W) in 1990 (Wagner et al. 2009)

1950.5 -50.5

1951.5 -49.4

1952.5 -54.0

1953.5 -52.4

1954.5 -55.0

Avg -53‰, -5 relative to Bermuda

17 Southern Gulf of Mexico

Five growth bands from coral collected at Santiaguillo Reef off Veracruz, Mexico (19.1N, 95.8W) in 1991 (Wagner et al. 2009)

1950.5	-44.6
1951.5	-54.2
1952.5	-46.9
1953.5	-50.5
1954.5	-57.2

Avg -51‰, -3 relative to Bermuda

18 Belize

Two growth bands from coral collected at Glover Reef (16.8N, 87.8W) in June 1977 (Druffel, 1980)

1950	-54
1952	-66

Avg -60‰, -12 relative to Bermuda

19 Puerto Rico

Five growth bands from coral head collected from Turrumote Reef (17.9N, 67.0W) in 2004 (Kilbourne et al., 2007)

1950	-53.5
1951	-63.3
1952	-64.5
1953	-64.9
1954	-63.4

Avg -62‰, -14 relative to Bermuda

21 Cariaco Basin

Five growth bands from coral collected in 1998 off Boca De Media Island (11.9N, 66.6W) (Wagner et al., 2009)

1950.5	-48.4
1951.5	-52.2
1952.5	-54.2
1953.5	-49.0
1954.5	-57.9

Two growth bands from coral collected in 1996 off Isla Tortugas (10.9N, 65.2W) (Wagner et al., 2009)

1950.5	-53.2
1951.5	-53.2

Avg -53‰, -5 relative to Bermuda

25 NE Brazil

Single growth band from coral collected in 1963 from Porto de Galinhas, Pernambuco, Brazil (8.5S, 35W) (Druffel, 1996)

1952.5	-64
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-64‰, -16 relative to Bermuda

26 SE Brazil

Four growth bands from coral head collected from Abrolhos Is., Brazil (18S, 39W) in 1982 (Druffel, 1996)

1950.5	-54.2
1951.5	-55.8
1952.5	-54.4
1953.5	-58.7

Avg -56‰, -8 relative to Bermuda

WOCE ERA (1990-94)

1 Norwegian Sea

Single growth band from a large clam shell collected near Tromsø, Norway in 1993 (70N, 19E) (Scourse et al., 2012)

1992	64.6
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Single water sample from Nydal (1998) station S03

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
S03	70.0N	9.6E	Aug	1990	4.0	12.2	34.76	65.1

Single water sample from Cruise 58JH19920712 (AR18)

933	64.0N	5.0W	July	1992	5.5	7.50	34.80	49.2
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Avg 60‰, -53 relative to Bermuda

2 North of Iceland

Two growth bands from clam shells collected near Grimsey Island and Siglufjörður, Iceland (66N, 19W) (Scourse et al., 2012)

1991	35.7
1994	35.1

Avg 35‰, -78 relative to Bermuda

3 South of Iceland

Five water samples from northern end of OACES93 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
79	60.5N	20.0W	Aug	1993	4.5	10.84	35.09	50.9
80	61.0N	19.9W	Aug	1993	2.7	10.37	35.06	42.0
80	61.0N	19.9W	Aug	1993	21.1	10.38	35.06	42.6
81	62.0N	20.0W	Aug	1993	21.9	10.50	35.06	45.6
82	63.0N	20.0W	Aug	1993	21.4	10.47	35.02	40.6

Single water sample from Cruise 64TR19900417 (A16N)

81	60.0N	20.0W	May	1990	21	9.66	35.25	34.3
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Single water sample from Nydal (1998) station S05

S05	62.6N	15.5W	Sept	1991	4.5	11.5	35.17	35.4
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Single water sample from Cruise 58JH19920712 (AR18)

943	61.5N	16.3W	July	1992	6.5	10.73	35.10	-9.2
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Avg 35‰, -78 relative to Bermuda

4 W. Subpolar Gyre

Three water samples from 06MT18_1 (A01E)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
562	59.9N	41.2W	Sept	1991	9.0	8.54	34.89	9.0
567	59.5N	37.5W	Sept	1991	13.9	7.89	34.67	26.0
579	58.6N	30.4W	Sept	1991	8.1	10.24	34.97	37.0

Single water sample from Cruise 58JH19920712 (AR18)

948	63.5N	32.5W	July	1992	6.4	8.25	34.89	-4.4
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Single water sample from Cruise 06MT19941115 (A01)

495	55.6N	53.6W	Nov	1994	13	4.24	34.22	33.8
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Avg 20‰, -93 relative to Bermuda

6 50N, 20W

Eight water samples from OACES93 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
63	44.0N	20.0W	Aug	1993	19.6	19.31	35.85	86.0
64	45.0N	20.0W	Aug	1993	3.0	19.28	35.78	99.4
66	48.0N	20.0W	Aug	1993	19.9	17.55	35.53	80.6
67	49.0N	20.0W	Aug	1993	0.5	17.92	35.71	89.9
68	50.0N	20.0W	Aug	1993	0.2	17.71	35.68	67.7
68	50.0N	20.0W	Aug	1993	19.2	17.59	35.67	65.8
71	53.0N	20.0W	Aug	1993	19.2	14.88	35.26	69.7
72	54.0N	20.0W	Aug	1993	0.8	15.36	35.47	76.4

Eight water samples from Nydal (1998) station S07B

S07B	47.2N	18.0W	July	1990	10.6	16.5	35.80	76.4
S07B	48.0N	17.9W	July	1990	9.4	-9999	35.54	78.9
S07B	47.3N	18.0W	Apr	1991	10.8	12.7	35.68	68.8
S07B	47.0N	18.0W	Apr	1991	10.3	12.9	35.66	82.8
S07B	49.8N	17.7W	Aug	1992	11.0	17.8	34.47	71.6
S07B	46.8N	23.7W	Jan	1992	9.0	12.4	35.24	77.8
S07B	47.2N	19.5W	Mar	1993	9.5	11.6	35.78	83.7
S07B	48.9N	17.3W	Apr	1994	9.7	13.0	34.57	69.1

Single water sample from Cruise 06MT19941012 (A02)

450	48.2N	18.4W	Oct	1994	20	14.69	35.51	69.9
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Avg 77‰, -36 relative to Bermuda

7 Grand Banks

Three water samples from Nydal (1998) station S09

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
S09	46.0N	45.0W	May	1989	10.9	6.1	-9999	44.3
S09	43.7N	45.0W	July	1990	6.4	16.0	32.71	61.1
S09	43.6N	46.1W	July	1993	9.2	10.0	32.42	47.7

Avg 51‰, -62 relative to Bermuda

10 Bermuda

Two-year growth band from coral head collected off John Smith's Bay
In 2000 (Druffel, unpublished)

1990-91 112.9

Avg 113‰

11 Madeira

Three water samples from OACES93 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
49	27.0N	25.2W	Aug	1993	19.2	23.05	37.24	96.4
50	29.0N	24.1W	Aug	1993	0.8	22.99	37.23	103.6
51	31.0N	23.0W	Aug	1993	0.4	23.45	36.93	118.3

Four water samples from Nydal (1998) station S17

S17	29.6N	20.0W	Dec	1989	5.0	21.1	-9999	117.2
S17	30.0N	15.2W	Mar	1990	10.0	18.9	36.63	109.0
S17	30.2N	14.7W	Mar	1990	5.0	18.4	-9999	100.8
S17	30.0N	14.7W	Dec	1990	10.5	20.7	36.54	101.1

Avg 107‰, -6 relative to Bermuda

12 Florida Keys

Five growth bands from coral head collected at The Rocks off Plantation Key (24.95N, 80.55W) in 2010 (Druffel, unpublished)

1990	103.9
1991	100.3
1992	94.8
1993	91.1 (triplicate measurement)
1994	90.7

Avg 96‰, -17 relative to Bermuda

13 Central N. Atlantic (25N, 59W)

Two water samples from Cruise 29HE06_1 (A05)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
66	24.5N	54.0W	Aug	1992	23.0	27.82	36.72	109.0
81	24.5N	64.0W	Aug	1992	16.8	28.71	36.74	96.0

Avg 103‰, -10 relative to Bermuda

14 Central N. Atlantic (25N, 40W)

Two water samples from Cruise 29HE06_1 (A05)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
35	24.5N	35.3W	July	1992	11.6	25.14	37.63	123.0
53	24.5N	46.4W	Aug	1992	12.2	26.71	37.47	135.0

Avg 129‰, +16 relative to Bermuda

15 Central N. Atlantic (25N, 24W)

Two water samples from Cruise 29HE06_1 (A05)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
13	24.5N	20.7W	July	1992	11.8	23.24	36.83	77.0
24	24.5N	28.0W	July	1992	9.9	24.15	37.32	78.0

Avg 78‰, -35 relative to Bermuda

19 Puerto Rico

Four growth bands from coral head collected from Turrumote Reef (17.9N, 67.0W) in 2004 (Kilbourne et al., 2007)

1990	100.3
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1991 90.1
 1993 88.4
 1994 84.3
 Avg 91‰, -22 relative to Bermuda

20 Cape Verde

Three water samples from OACES93 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
41	18.0N	29.0W	Aug	1993	19.8	24.67	36.83	95.3
42	16.0N	29.0W	Aug	1993	3.0	24.53	36.60	83.8
43	15.0N	29.0W	Aug	1993	19.0	25.98	36.45	70.3

Four water samples from Nydal (1998) stations S19 and S20

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
S19	17.4N	20.0W	Dec	1989	5.0	24.2	-9999	77.8
S19	16.7N	20.9W	Mar	1990	5.0	22.7	-9999	71.6
S20	17.0N	17.9W	Mar	1990	10.0	22.8	36.18	61.0
S20	17.0N	17.8W	Dec	1990	10.5	23.4	36.24	72.7

Avg 76‰, -37 relative to Bermuda

22 Guiana Current

Eight water samples from AmasSeds Leg 5 in deep water north of the mouth of the Amazon River (approx 7N, 47W) (Druffel et al., 2005)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
6	2.93N	47.7W	Nov	1991	10.0	-9999	35.01	88
7a	5.67N	43.8W	Nov	1991	10.0	-9999	33.79	63
9	6.35N	44.5W	Nov	1991	10.0	-9999	34.05	86
10	6.37N	45.2W	Nov	1991	10.0	-9999	35.21	116
11	7.10N	45.2W	Nov	1991	10.0	-9999	-9999	94
12	7.47N	46.1W	Nov	1991	10.0	-9999	33.40	94
14	9.00N	50.0W	Nov	1991	10.0	-9999	32.64	91
15	16.67N	56.8W	Nov	1991	10.0	-9999	35.03	89

Avg 90‰, -23 relative to Bermuda

23 ITCZ/NECC

Four water samples from OACES93 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
20	4.0N	25.8W	July	1993	1.5	27.68	35.82	94.3
22	5.0N	26.1W	July	1993	19.0	27.88	35.90	90.2
22	5.0N	26.1W	July	1993	49.0	27.87	35.90	89.7
23	6.0N	26.5W	July	1993	1.1	27.59	34.90	97.5

Two water samples from Nydal (1998) station An0

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
An0	5.1N	23.9W	Dec	1989	5.0	27.5	-9999	86.1
An0	4.8N	26.1W	Mar	1990	5.0	28.5	-9999	89.1

Avg 91‰, -22 relative to Bermuda

24 Equatorial Atlantic

Six water samples from OACES93 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
9	1.5S	25.0W	July	1993	0.6	26.02	36.15	86.7

12	0.0N	25.0W	July	1993	19.5	25.11	36.13	77.9
15	1.5N	25.0W	July	1993	1.4	26.93	35.60	83.8
16	2.0N	25.2W	July	1993	0.2	27.14	35.57	81.5
16	2.0N	25.2W	July	1993	18.7	27.14	35.57	88.1
16	2.0N	25.2W	July	1993	44.2	27.14	35.57	82.8

Four water samples from Nydal (1998) stations An0 and S22

An0	0.4N	25.7W	Dec	1989	5.0	27.5	-9999	86.1
An0	0.4S	28.5W	Mar	1990	5.0	28.5	-9999	89.1
S22	0.0N	9.5W	Mar	1990	9.9	29.1	35.24	96.6
S22	0.0N	9.5W	Dec	1990	10.5	28.7	35.37	92.3

Single water sample from 318MHYDROS4

376	0.0N	36.5W	Apr	1989	11	27.23	36.31	90.1
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Avg 87‰, -26 relative to Bermuda

25 NE Brazil

Three water samples from Nydal (1998) station An0

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
An0	9.8S	29.0W	Dec	1989	5.0	26.9	-9999	79.5
An0	9.6S	32.7W	Mar	1990	5.0	27.8	-9999	91.7
An0	13.4S	34.5W	Mar	1990	5.0	27.8	-9999	93.9

Avg 88‰, -25 relative to Bermuda

26 SE Brazil

Three water samples from Nydal (1998) station An0

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
An0	14.8S	30.8W	Dec	1989	5.0	26.6	-9999	93.6
An0	24.6S	37.8W	Dec	1989	5.0	24.9	-9999	104.0
An0	25.0S	42.7W	Mar	1990	5.0	26.9	-9999	101.4

Single water sample from 318MHYDROS4

332	21.5S	25.0W	Mar	1989	11	27.68	37.18	105.7
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Avg 101‰, -12 relative to Bermuda

27 Central S. Atlantic (30S, 42W)

Two water samples from Nydal (1998) station An0

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
An0	30.1S	45.8W	Dec	1989	5.0	22.6	-9999	115.0
An0	30.4S	41.6W	Mar	1990	5.0	24.0	-9999	118.9

Single water sample from 318MSAVE5

302	33.2S	41.8W	Mar	1989	11	23.15	35.83	117.4
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Avg 117‰, +4 relative to Bermuda

28 Central S. Atlantic (32S, 25W)

Single water sample from 318MSAVE5

243	35.5S	25.0W	Feb	1989	6	20.23	35.37	116.5
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Single water sample from 318MHYDROS4

316	30.8S	25.0W	Mar	1989	11	23.95	36.14	118.4
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Avg 117‰, +4 relative to Bermuda

29 Northern Cape

Two water samples from Nydal (1998) station S27

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
S27	30.0S	14.4E	Mar	1990	9.9	22.1	35.38	74.5
S27	30.0S	14.4E	Dec	1990	10.5	20.3	35.28	62.4

Single water sample from 318MSAVE2

233	30.0S	14.1E	Jan	1989	4	20.48	35.27	77.9
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Avg 72‰, -41 relative to Bermuda

1997/1998

7 Grand Banks

Three water samples from northern end of 316N151_3 (A20)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
7	42.9N	50.9W	July	1997	1.6	13.91	33.03	32.4
10	42.6N	51.1W	July	1997	6.4	10.35	32.47	29.6
12	42.2N	51.5W	July	1997	9.2	16.25	32.89	69.1

Avg 44‰, -50 relative to Bermuda

8 Georges Bank

Single water samples from northern end of 316N151_4 (A22)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
75	40.7N	66.7W	Sept	1997	52.5	15.23	34.27	50.9

51‰, -43 relative to Bermuda

9 35N, 50W

Two water samples from 316N151_3 (A20)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
30	35.6N	52.3W	July	1997	10.0	26.24	36.57	82.5
34	32.9N	52.3W	July	1997	13.1	27.38	36.80	101.1

Avg 92‰, -2 relative to Bermuda

10 Bermuda

Three growth bands from coral head collected from off John Smith's Bay in 2000 (Druffel, unpublished)

1996-97 95.1

1998-00 90.3

1998-00 95.2

Avg 94‰

12 Florida Keys

Single growth band from coral head collected at The Rocks off Plantation Key (24.95N, 80.55W) in 2010 (Druffel, unpublished)

1997-98 81.2

81‰, -13 relative to Bermuda

13 Central N. Atlantic (25N, 56W)

Three water samples from 31RBOACES24N_2 (A05)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
66	24.5N	52.6W	Feb	1998	5.0	24.33	37.29	105.6
71	24.5N	55.9W	Feb	1998	6.0	24.15	36.97	61.7
82	24.5N	64.0W	Feb	1998	4.0	24.05	36.80	95.2

Avg 88‰, -6 relative to Bermuda

14 Central Atlantic (25N, 40W)

Six water samples from 31RBOACES24N_2 (A05)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
31	24.5N	30.3W	Jan	1998	5.0	22.95	37.55	85.7
34	24.5N	32.7W	Jan	1998	5.0	23.28	37.55	100.0
38	24.5N	36.0W	Feb	1998	3.0	23.35	37.51	107.7
42	24.5N	39.2W	Feb	1998	3.0	24.16	37.50	77.1
50	24.5N	43.5W	Feb	1998	5.0	24.03	37.49	95.4
58	24.5N	48.2W	Feb	1998	5.0	24.20	37.48	107.6

Avg 96‰, +2 relative to Bermuda

15 Central N. Atlantic (25N, 24W)

Three water samples from 31RBOACES24N_2 (A05)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
21	24.8N	22.8W	Jan	1998	6.0	22.26	37.22	65.2
26	24.5N	26.4W	Jan	1998	6.0	22.64	37.41	73.5
26	24.5N	26.4W	Jan	1998	6.0	22.64	37.41	69.6

Avg 69‰, -24 relative to Bermuda

19 Puerto Rico

Two growth bands from coral head collected from Turrumote Reef (17.9N, 67.0W) in 2004 (Kilbourne et al., 2007)

1997 81.0

1998 70.4

Two water samples from 316N151_4 (A22)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
20	17.7N	66.0W	Aug	1997	1.8	28.69	35.65	75.9
32	19.0N	66.0W	Aug	1997	5.2	28.73	36.20	74.8

Avg 76‰, -18 relative to Bermuda

21 Cariaco Basin

Single water sample from southern end of 316N151_4 (A22)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
12	14.3N	66.0W	Aug	1997	2.4	28.63	35.39	60.8

61‰, -33 relative to Bermuda

22 Guiana Current

Three water samples from southern end of 316N151_3 (A20)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
68	10.2N	52.3W	Aug	1997	9.3	28.29	35.03	71.4

76	8.5N	52.8W	Aug	1997	2.2	29.05	32.94	52.6
82	7.7N	53.2W	Aug	1997	10.5	28.34	35.13	46.5
Avg 57‰, -37 relative to Bermuda								

CLIVAR ERA (2003-2005)

2 North of Iceland

Single growth band from a large clam shell collected in 2006 near Grimsey Island, Iceland (66N, 18W) (Scourse et al., 2012)

2005 5.9
Avg 6‰, -75 relative to Bermuda

3 South of Iceland

Five water samples from northern end of 33RO200306_01 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
4	62.7N	20.0W	June	2003	1.7	10.65	35.26	70.4
7	61.6N	20.0W	June	2003	2.2	11.10	35.26	65.6
9	61.0N	20.0W	June	2003	2.4	11.26	35.23	52.2
12	59.5N	20.0W	June	2003	1.6	11.63	35.25	58.0
13	59.0N	20.0W	June	2003	2.3	11.70	35.27	54.0
Avg 60‰, -21 relative to Bermuda								

6 50N, 20W

Eight water samples from 33RO200306_01 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
26	52.5N	20.0W	June	2003	2.5	12.44	35.39	55.1
31	50.0N	20.0W	June	2003	3.1	14.38	35.69	74.7
37	47.0N	20.0W	June	2003	9.4	15.22	35.79	80.5
Avg 70‰, -11 relative to Bermuda								

7 Grand Banks

Three water samples from northern end of 316N200309 (A20)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
1	43.2N	50.6W	Sept	2003	6.9	14.98	32.25	36.8
3	43.1N	50.7W	Sept	2003	7.8	13.17	32.18	33.4
5	42.9N	50.9W	Sept	2003	8.1	12.12	32.27	33.1
7	42.6N	51.1W	Sept	2003	3.6	16.98	33.34	42.8
Avg 37‰, -44 relative to Bermuda								

8 Georges Bank

Two water samples from northern end of 316N200310 (A22)

station	latitude	longitude	month	year	depth	temp	salinity	Δ14C
75	39.0N	69.3W	Nov	2003	2.9	16.86	34.43	60.9
79	39.8N	69.8W	Nov	2003	3.1	15.30	34.02	45.7
53‰, -28 relative to Bermuda								

9 35N, 50W

Two water samples from 316N200309 (A20)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
26	35.6N	52.4W	Oct	2003	7.3	24.80	36.60	76.5
29	32.2N	52.4W	Oct	2003	5.1	26.30	36.92	86.2

Avg 81‰, same value as Bermuda

10 Bermuda

Two water samples from 316N200310 (A22)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
49	28.9N	66.0W	Nov	2003	2.5	26.36	36.65	83.0
61	34.7N	66.6W	Nov	2003	3.4	24.26	36.48	79.6

Avg 81‰

11 Madeira

Four water samples from 33RO200306_01 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
62	34.5N	20.8W	July	2003	2.9	23.25	36.84	91.1
68	31.5N	22.5W	July	2003	3.2	23.75	37.07	95.2
71	30.0N	23.4W	July	2003	3.2	24.08	37.02	104.8
77	27.5N	24.8W	July	2003	3.2	24.48	37.44	80.9

Avg 93‰, +12 relative to Bermuda

12 Florida Keys

Three growth bands from coral head collected at The Rocks off
Plantation Key (24.95N, 80.55W) in 2010 (Druffel, unpublished)

2002-03	69.0
2004	66.8
2005	60.4

Avg 65‰, -16 relative to Bermuda

13 Central N. Atlantic (26N, 52W)

Two water samples from A20 repeat

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
32	27.5N	52.3W	Oct	2003	8.5	27.82	37.39	83.3
41	23.5N	52.4W	Oct	2003	9.8	28.40	37.32	89.1

Avg 86‰, +5 relative to Bermuda

15 Central N. Atlantic (25N, 26W)

Two water samples from 33RO200306_01 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
77	27.5N	24.8W	July	2003	3.2	24.48	37.44	80.9
82	25.0N	26.2W	July	2003	4.0	24.46	37.31	86.6
87	22.5N	27.6W	July	2003	3.5	24.67	36.92	77.3

Avg 82‰, +1 relative to Bermuda

19 Puerto Rico

Two growth bands from coral head collected from Turrumote Reef (17.9N, 67.0W) in 2004 (Kilbourne et al., 2007)

2003 65.1
2004 70.5

Two water samples from 316N200310 (A22)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
24	18.0N	65.1W	Nov	2003	2.9	28.98	35.05	72.9
31	19.0N	66.0W	Nov	2003	2.9	29.19	35.33	71.9

Avg 70‰, -11 relative to Bermuda

20 Cape Verde

Two water samples from 33R0200306_01 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
96	18.0N	29.0W	July	2003	3.1	25.43	36.51	63.2
105	13.5N	29.0W	July	2003	3.1	27.66	36.44	63.8

Avg 64‰, -17 relative to Bermuda

21 Cariaco Basin

Three water samples from southern end of 316N200310 (A22)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
1	11.3N	64.8W	Oct	2003	2.5	28.90	36.71	74.7
4	11.5N	66.0W	Oct	2003	2.3	29.14	36.57	77.6
12	14.4N	66.0W	Oct	2003	2.0	29.90	33.72	66.8

73‰, -8 relative to Bermuda

22 Guiana Current

Seven water samples from southern end of 316N200309 (A20)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
65	9.2N	52.5W	Oct	2003	2.9	29.13	33.81	73.2
69	8.5N	52.8W	Oct	2003	3.1	29.47	33.78	75.5
76	7.6N	53.2W	Oct	2003	2.8	29.39	33.93	68.8
79	7.4N	53.4W	Oct	2003	3.3	29.48	32.69	80.3
82	7.2N	53.4W	Oct	2003	2.7	29.95	-9999	77.6
86	7.1N	53.5W	Oct	2003	2.3	29.14	32.14	73.2
88	7.0N	53.6W	Oct	2003	3.6	28.87	-9999	69.2

Avg 74‰, -7 relative to Bermuda

23 ITCZ/NECC

Three water samples from 33R0200306_01 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
17	7.5N	27.3W	July	2003	3.5	27.66	35.25	64.3
22	5.0N	26.0W	Aug	2003	2.8	28.05	35.75	66.4
26	3.0N	25.0W	Aug	2003	3.2	27.13	35.56	73.8

Avg 68‰, -13 relative to Bermuda

24 Equatorial Atlantic

Four water samples from 33R0200306_01 (A16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
32	1.0N	25.0W	Aug	2003	3.2	25.42	36.00	79.4
35	0.0N	25.0W	Aug	2003	3.8	25.50	36.08	76.3
38	1.0S	25.0W	Aug	2003	2.6	26.14	36.14	62.0
41	2.0S	25.0W	Aug	2003	2.9	26.41	36.05	68.9

Single water sample from northern end of 33R0200501 (A16S)

121	2.3S	25.0W	Feb	2005	1.7	28.56	36.13	59.6
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Avg 69‰, -12 relative to Bermuda

25 NE Brazil

Three water samples from 33R0200501 (A16S)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
103	11.0S	25.0W	Feb	2005	2.0	27.56	36.61	57.1
109	8.0S	25.0W	Feb	2005	1.9	27.54	36.46	62.5
109	8.0S	25.0W	Feb	2005	49.0	27.55	36.46	78.1

Avg 66‰, -15 relative to Bermuda

26 SE Brazil

Three water samples from 33R0200501 (A16S)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
79	23.0S	25.0W	Feb	2005	2.5	25.79	36.76	70.0
85	20.0S	25.0W	Feb	2005	2.0	26.80	37.26	83.6
91	17.0S	25.0W	Feb	2005	2.0	27.08	37.44	56.0

Avg 70‰, -11 relative to Bermuda

27 Central S. Atlantic (30S, 40W)

Six water samples from 49NZ20031106 (A10)

629	28.0S	46.1W	Nov	2003	11.3	22.74	36.38	86.4
3	28.8S	43.6W	Nov	2003	9.2	20.84	36.13	92.6
7	29.6S	41.2W	Nov	2003	10.4	18.98	35.71	84.5
12	30.1S	39.0W	Nov	2003	10.3	20.26	36.09	92.2
21	30.0S	35.5W	Nov	2003	9.6	20.11	36.06	77.4
29	30.0S	32.0W	Nov	2003	9.8	20.01	35.91	93.4

Avg 88‰, +7 relative to Bermuda

28 Central S. Atlantic (31S, 22W)

Four water samples from 33R0200501 (A16S)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
53	36.0S	25.3W	Feb	2005	2.6	18.54	35.44	74.0
61	32.0S	25.0W	Feb	2005	2.4	22.69	36.12	73.6
61	32.0S	25.0W	Feb	2005	39.3	22.64	36.12	79.7
67	29.0S	25.0W	Feb	2005	2.5	23.25	36.26	64.3

Seven water samples from 49NZ20031106 (A10) (Kumamoto et al., 2011)

35	30.0S	29.0W	Nov	2003	10.0	20.53	36.14	85.6
38	30.0S	26.7W	Nov	2003	10.1	18.77	35.62	102.1
40	30.2S	25.0W	Nov	2003	10.4	19.39	35.72	81.0

43	30.0S	22.5W	Nov	2003	10.4	19.50	35.78	75.8
47	30.1S	19.0W	Nov	2003	10.5	20.39	36.06	97.4
51	30.0S	16.3W	Nov	2003	10.4	20.82	36.12	70.6
55	30.0S	13.7W	Nov	2003	9.9	20.39	36.02	76.2

Avg 80‰, -1 relative to Bermuda

29 Northern Cape

Single water sample from 49NZ20031106 (A10)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta 14C$
93	29.4S	12.8E	Dec	2003	10.1	18.89	35.49	68.8

69‰, -12 relative to Bermuda

Table S3 Pacific Regions

Region	Location (lat, long)
1	Kodiak Island, Alaska (58N, 155W)
2	Kamchatka (53N, 166E)
3	Gulf of Alaska (53N, 152W)
4	Sitka, Alaska (57N, 137W)
5	Vancouver Island, BC (49N, 125W)
6	Korean Peninsula (35N, 127E)
7	Southern California (34, 120W)
8	30N, 165E
9	30N, 150W
10	Okinawa (26N, 128E)
11	Baja California (22N, 110W)
12	Hawaii (19.5N, 155W)
13	Guatemala (13.5N, 92W)
14	South China Sea (9N, 107E)
15	10N, 135W
16	9N, 110W
17	ITCZ/Panama (8N, 85W)
18	Palau (7N, 135E)
19	Palmyra (6N, 162W)
20	Fanning (4N, 159W)
21	Nauru (0.5S, 166E)
22	Equatorial Upwelling (0S, 143W)
23	Equatorial Upwelling (0S, 110W)
24	Galapagos Islands (1S, 88W)
25	South Equatorial Current (3S, 165E)
26	Makassar Strait (5S, 119E)
27	Solomon Sea (7S, 156E)
28	Marquesas Islands (9S, 140W)
29	10S, 103W
30	Peru (11S, 86W)
31	Vanuatu (15S, 167E)
32	Fiji (18S, 179E)
33	Tahiti (18S, 150W)
34	18S, 103W
35	Rarotonga (21S, 160W)
36	Southern Great Barrier Reef (22.5S, 152E)
37	New Caledonia (22.5S, 166E)
38	Easter Island (29S, 109W)
39	Central Chile (33S, 72W)
40	North Island, NZ (35S, 175E)
41	Tasman Sea (37S, 155E)

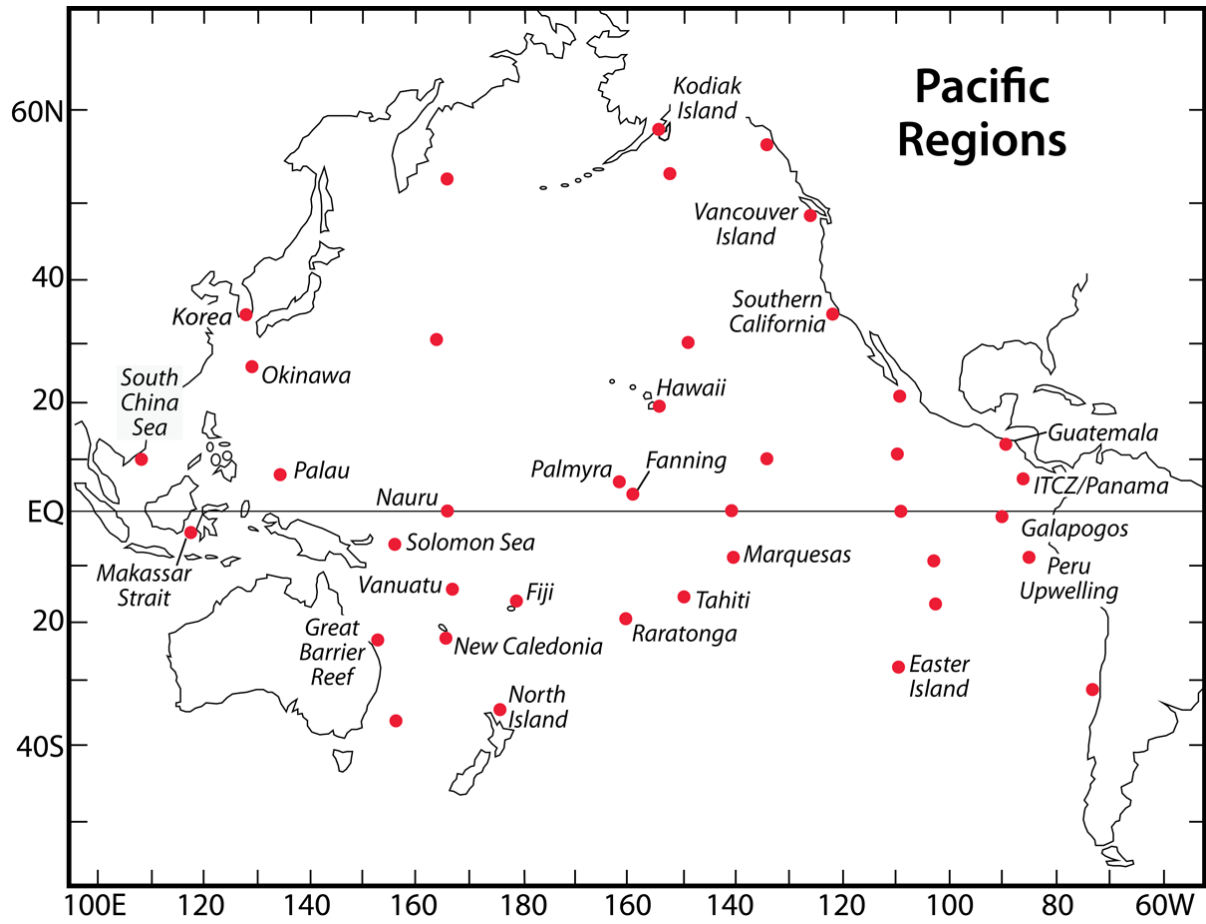


Figure S3. Regions of the Pacific Ocean with surface $\Delta^{14}\text{C}$ measurements.

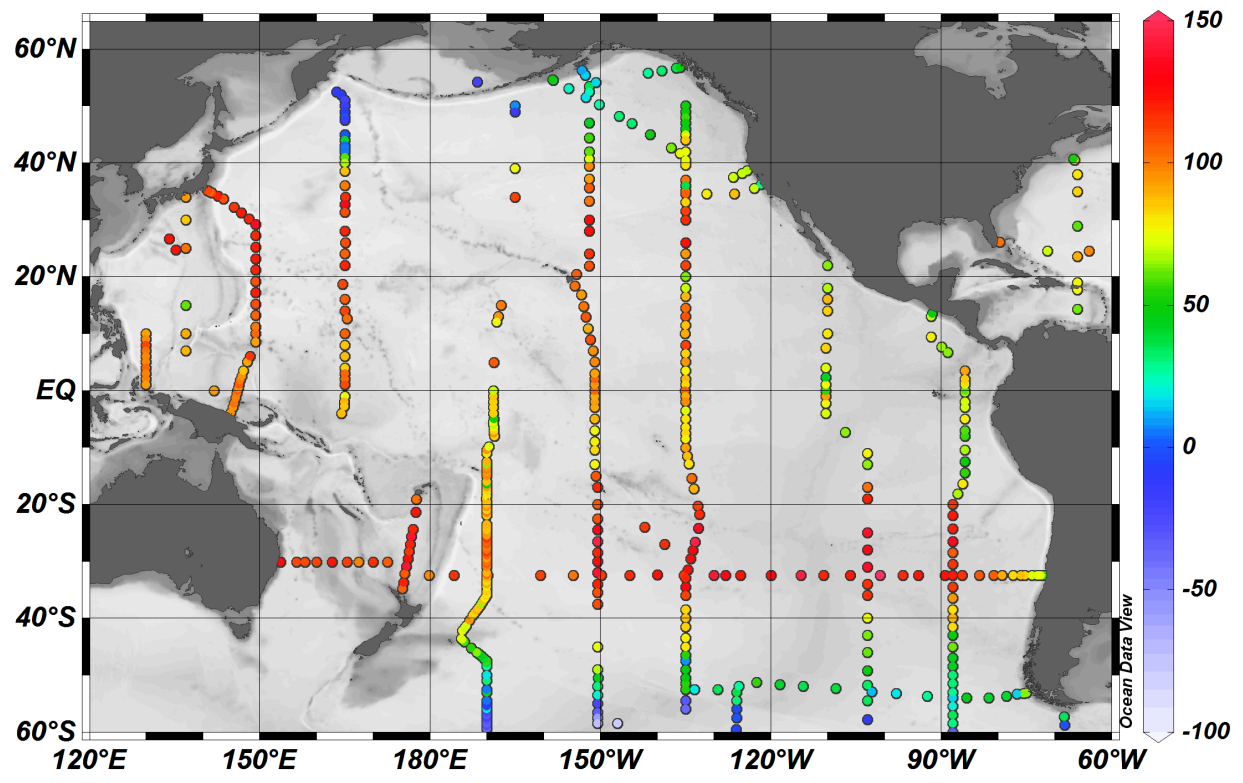


Figure S4. Surface distribution of $\Delta^{14}\text{C}$ in the Pacific Ocean based on seawater samples collected between 1991 and 1996 during WOCE.

Table S4. Data Sources – Pacific

Pre-bomb (1940 – 1954)

1 Kodiak Island, Alaska

Single shell collected from northwestern coast (landward side) of Kodiak Island in 1939 (McNeely et al. 2006)

1939 -92.5
-93‰, -53 relative to Okinawa

5 Vancouver Is., B. C.

Shell collected off Wickaninnish Bay (49.1N, 125.7W) in 1955

1955 -97.0 (McNeely et al. 2006)

Shell collected off Tofino, B.C. (49.1N, 125.9W) in 1955

1955 -111.5 (McNeely et al. 2006)

Two shells collected off Chemainus Bay (48.9N, 123.7W) in 1955

1955 -94.8 (McNeely et al. 2006)

1955 -101.5 (McNeely et al. 206)

Shell collected off Nanoose Bay (49.3N, 124.2W) in 1955

1955 -100.4 (McNeely et al. 2006)

Shell collected off Comox, B.C. (49.5N, 124.2W) in 1954

1954 -101.5 (McNeely et al. 2006)

Avg -101‰, -61 relative to Okinawa

6 Korean Peninsula

Shell collected off southeastern coast of South Korea (34.7N, 128.2E) in 1942 (Kong and Lee, 2005)

1942 -37.5

Shell collected off west coast of South Korea (36.0N, 126.3E) in 1942 (Kong and Lee, 2005)

1942 -42.6

Avg -40‰, same as Okinawa

7 Southern California

Single shell collected from Morro Bay (35.4N, 121.0W) in 1947 (Robinson and Thompson, 1981)

1947 -89.1

Single shell collected off La Jolla Shores (32.9N, 117.3W) in 1953 (Bien et al. 1960)

1953 -84.0

Avg -87‰, -47 relative to Okinawa

10 Okinawa

Twelve growth bands from two coral heads collected at 26.2N, 127.7E and 26.6N, 127.9E in 1980 (Konishi et al., 1982)

1938 -36

1940 -43

1942 -41

1943	-42
1944	-37
1946	-41
1948	-40
1949	-43
1950	-36
1952	-42
1953	-43
1954	-41

Avg -40‰

12 Hawaii

Thirteen growth bands from coral head collected from the Kona coast off the Big Island of Hawaii (19.5N, 156.0W) in April 1992 (Druffel et al., 2001)

1940.1	-51.5
1941.1	-54.6
1942.2	-50.4
1943.2	-48.8
1944.2	-49.1
1945.2	-51.0
1946.2	-47.9
1947.1	-48.9
1948.1	-48.4
1949.1	-52.3
1950.1	-52.1
1951.1	-50.8
1951.9	-53.4

Avg -51‰, -11 relative to Okinawa

14 S. China Sea

Seven growth bands from coral head collected from Con Dao Is., Vietnam (8.7N, 106.6E) in May 2000 (Mitsuguchi et al., 2007)

1948.3	-44.0
1949.3	-45.1
1950.3	-53.0
1951.3	-47.6
1952.3	-50.1
1953.3	-47.5
1954.3	-47.8

Avg -48‰, -8 relative to Okinawa

17 ITCZ/Panama

Three growth bands from coral head collected off Uva Is., Panama (7.8N, 81.8W) in 1980 (Druffel, 1987)

1950.5	-64
1952.5	-59

1953 -58
Avg -60‰, -20 relative to Okinawa

18 Palau

Nine growth bands from coral head collected near Palau Is.
(7.3N, 134.3E) in Nov 2008 (Glynn et al., in press)

1945.5	-54.7
1946.5	-52.6
1947.5	-54.1
1948.5	-51.8
1949.5	-57.9
1950.5	-57.5
1951.5	-54.9
1952.5	-54.3
1953.5	-56.7

Avg -55‰, -15 relative to Okinawa

19 Palmyra

Fourteen growth bands from coral head collected from Palmyra atoll
(5.8N, 162.1W) in June 2005 (Druffel-Rodriguez et al., 2012)

1940	-55.6
1941	-59.3
1942	-55.5
1943	-57.8
1944	-59.6
1945	-57.2
1946	-56.4
1947	-57.8
1948	-57.2
1949	-60.3
1950	-58.9
1951	-58.7
1952	-59.4
1953	-60.0

Avg -58‰, -18 relative to Okinawa

20 Fanning

Six growth bands from coral head collected at 3.9N, 159.4W in 1979
(Druffel, 1987)

1949.5	-68
1950.5	-58
1951.5	-61
1952.5	-55
1953.5	-53
1954.5	-56

Avg -59‰, -19 relative to Okinawa

21 Nauru

Nine growth bands from coral head collected from the north side of Nauru Island (0.5S, 166.5E) in August 1995 (Guilderson et al., 1998)

1947	-60 (2 samples)
1947	-55.2 (10 samples)
1948	-59.5 (11 samples)
1949	-54.5 (13 samples)
1950	-60.7 (13 samples)
1951	-60.5 (10 samples)
1952	-59.0 (9 samples)
1953	-56.4 (10 samples)
1954	-58.2 (16 samples)

Avg -58‰, -18 relative to Okinawa

24 Galapagos Islands

Thirteen growth bands sampled from uplifted coral head in Urvina Bay on the west coast of Isabella Is. (0.3S, 91.4W) in 1986 (Druffel, et al. 2007; Druffel et al., 2014)

1941	-69.4
1942	-68.6
1943	-72.0
1944	-71.3
1945	-71.7
1946	-67.6
1947	-66.5
1948	-65.9
1949	-69.8
1950	-63.7
1951	-66.2
1952	-70.3
1953	-65.6

Avg -68‰, -28 relative to Okinawa

26 Makassar Strait

Thirteen growth bands from coral head collected off Langkai Island (5.0S, 119.1E) (Fallon and Guilderson, 2008)

1941	-55.2 (monthly samples)
1942	-57.0 (monthly samples)
1943	-56.0 (monthly samples)
1944	-54.9 (monthly samples)
1945	-55.6 (monthly samples)
1946	-58.3 (monthly samples)
1947	-53.9 (monthly samples)
1948	-56.6 (monthly samples)
1949	-57.2 (monthly samples)
1950	-57.0 (monthly samples)

1951	-57.0 (monthly samples)
1952	-57.2 (monthly samples)
1953	-54.2 (monthly samples)
Avg -56‰, -16 relative to Okinawa	

27 Solomon Sea

Shell collected off Bouganville Is. (6S, 155E) in 1944 (Petchey et al. 2004)

1944	-58
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Thirteen growth bands from coral head collected off the southwestern Side of Guadalcanal (9S, 160E) in 1995 (Guilderson et al., 2004)

1942	-59.2 (5 samples)
1943	-51.4 (7 samples)
1944	-49.8 (8 samples)
1945	-51.8 (9 samples)
1946	-59.0 (8 samples)
1947	-51.0 (8 samples)
1948	-53.4 (9 samples)
1949	-53.4 (7 samples)
1950	-52.3 (9 samples)
1951	-57.6 (9 samples)
1952	-62.3 (10 samples)
1953	-61.0 (6 samples)
1954	-61.1 (8 samples)

Ten growth bands from coral head collected off Rabaul, Papua New Guinea (4S, 152E) (Burr et al., 2009)

1945	-58.1 (4 3-mos samples)
1946	-55.5 (4 3-mos samples)
1947	-57.4 (4 3-mos samples)
1948	-58.5 (4 3-mos samples)
1949	-59.9 (4 3-mos samples)
1950	-59.3 (3 samples)
1951	-57.5 (4 samples)
1952	-60.5 (4 samples)
1953	-58.7 (4 samples)
1954	-60.9 (4 samples)

Avg -57‰, -17 relative to Okinawa

28 Marquesas Islands

Thirteen coral bands from coral head collected off the Marquesas Islands (9S, 140W) (Burr et al., 2009)

1942	-59.0 (1 sample)
1943	-57.3 (3 samples)
1944	-59.9 (2 samples)
1945	-66.0 (2 samples)
1946	-58.2 (1 samples)

1947	-66.1 (2 samples)
1948	-58.4 (2 samples)
1949	-61.5 (2 samples)
1950	-66.2 (2 samples)
1951	-65.2 (2 samples)
1952	-67.6 (2 samples)
1953	-55.7 (1 sample)
1954	-66.4 (2 samples)

Avg -62‰, -22 relative to Okinawa

31 Vanuatu

Five coral samples collected off Espiritu Santo Island (15S, 167E)
(Burr et al., 1998)

1950	-59.9
1950	-54.2
1950	-69.9
1953	-59.6
1953	-59.6

Avg -61‰, -21 relative to Okinawa

32 Fiji

Eight growth bands from coral head collected from 18S, 179E in 1979
(Toggweiler et al., 1991)

1940.5	-53.2
1941.5	-56.5
1942.5	-61.8
1943.5	-66.8
1944.5	-63.7
1947.5	-62.0
1948.5	-66.4
1949.5	-57.4
1950.5	-67.6
1951.5	-65.2
1952.5	-51.9
1954.8	-61.8

Avg -61‰, -21 relative to Okinawa

33 Tahiti

Gastropods collected off Tahiti (18S, 149W) in 1957 (Broecker and
Olson, 1961)

1957	-62
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-62‰, -22 relative to Okinawa

35 Rarotonga

Five growth bands collected from coral head at 21.2S 159.8W in March
1997 (Guilderson et al., 2000)

1950	-49.1 (18 samples)
1951	-49.7 (19 samples)

1952	-49.4 (16 samples)
1953	-54.2 (21 samples)
1954	-51.6 (15 samples)
Avg -51‰, -11 relative to Okinawa	

36 Southern Great Barrier Reef

Eleven growth bands from coral head collected from Abraham Reef (22S, 153E) in May 1991 (Druffel and Griffin, 1995)

1941.3	-44.1
1943.3	-49.1
1945.3	-54.1
1947.3	-48.7
1948.3	-49.0
1949.3	-48.2
1950.3	-52.2
1951.3	-55.4
1952.3	-56.3
1953.3	-56.5
1954.3	-52.1

Nine growth bands from coral head collected off Heron Is. (23S, 152E) in November 1983 (Druffel and Griffin, 1999)

1940.8	-52.8
1942.8	-49.4
1944.8	-45.3
1946.8	-54.8
1948.8	-53.9
1950.3	-52.4
1951.3	-47.5
1952.8	-44.9
1954.3	-47.7

Avg -51‰, -11 relative to Okinawa

37 New Caledonia

Four growth bands from coral head collected off the south coast of New Caledonia (22.5S, 166.5E) in July 1992 (Quinn et al., 1996; Guilderson, personal comm.)

1951	-59.5 (10 samples)
1952	-60.8 (10 samples)
1953	-56.4 (9 samples)
1954	-55.5 (10 samples)

Avg -58‰, -18 relative to Okinawa

38 Easter Island

Five samples from coral collected off Ovahe, Easter Island, Chile (27S, 109W) (Burr et al., 2009)

1952	-48.0
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1953 -48.5
 1953 -49.9
 1954 -48.1
 1954 -45.3

Single coral sample from 27.2S, 109.3W (Beck et al., 2003)

1950 -43.2 (5 samples)
 Avg -47‰, -7 relative to Okinawa

40 North Island, NZ

Shell collected off Muriwai Beach (37.0S, 174.5E) (McFadgen and Manning, 1990; Higham and Hogg, 1995)

1953 -61.0
 Avg -61‰, -21 relative to Okinawa

41 Tasman Sea

Shell collected off Narooma, N.S.W. (36.2S, 150.1E) in 1950 (Gillespie, 1977; Gillespie and Polach, 1979)

1950 -58.0

Shell collected in Bass Strait (40.2S, 148.1E) in 1956 (Gill, 1983)

1956 -55.1
 Avg -57‰, -17 relative to Okinawa

WOCE Era

1 Kodiak Island (Alaska Coastal Current)

Four water samples from the northern ends of 31DSCGC91_1 (P16N) and 325021_1 (P17N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
64	56.3N	153.2W	Apr	1991	7.1	3.70	32.66	19.7
64	56.3N	153.2W	Apr	1991	29.2	3.72	32.67	9.3
97	54.6N	158.4W	June	1993	2.1	8.13	31.94	48.9
95	54.5N	158.3W	June	1993	2.3	8.41	32.39	30.2

Avg 27‰, -88 relative to Okinawa

2 Kamchatka

Eight water samples from northern end of 3220CGC92_1 (P13)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
5	54.2N	171.7W	Aug	1992	6.0	8.47	32.94	-22.1
5	54.2N	171.7W	Aug	1992	21.0	8.46	32.94	-22.3
14	52.5N	163.6E	Aug	1992	8.0	10.37	32.93	-30.6
14	52.5N	163.6E	Aug	1992	21.0	10.36	32.93	-13.2
15	52.0N	164.3E	Aug	1992	7.0	10.30	32.84	-8.4
17	51.0N	165.0E	Aug	1992	8.0	9.83	32.84	-23.3
19	50.0N	165.0E	Aug	1992	7.0	9.87	32.88	-10.7
19	50.0N	165.0E	Aug	1992	21.0	9.87	32.88	-17.7

Avg -19‰, -134 relative to Okinawa

3 Gulf of Alaska

Eight water samples from 31DSCGC91_1 (P16N) and 325021_1 (P17N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
58	53.5N	152.0W	Mar	1991	34.7	4.05	32.77	34.7
60	55.4N	152.6W	Mar	1991	6.4	3.08	32.86	12.8
60	55.4N	152.6W	Mar	1991	7.8	3.14	32.86	13.3
74	50.2N	150.2W	June	1993	3.3	7.07	32.64	24.5
78	51.5N	152.5W	June	1993	3.2	6.54	32.65	15.7
78	51.5N	152.5W	June	1993	31.8	6.54	32.65	22.8
83	53.1N	155.6W	June	1993	2.8	6.56	32.52	22.2
127	54.1N	150.8W	June	1993	2.3	7.80	32.51	14.5

Avg 20‰, -95 relative to Okinawa

4 Sitka, Alaska

Two water samples from eastern spur of 325021_1 (P17N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
144	56.7N	136.6W	June	1993	29.4	7.72	32.22	35.6
146	56.8N	136.0W	June	1993	2.8	12.69	31.70	45.1

Avg 40‰, -75 relative to Okinawa

7 Southern California

Two water samples from eastern spur of 31WTTUNES_1 (P17C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
1	36.2N	121.7W	June	1991	2.1	10.12	33.74	28.3
1	36.2N	121.7W	June	1991	11.0	9.90	33.79	25.9

Avg 27‰, -88 relative to Okinawa

8 30N, 165E

Five water samples collected along 3220CGC92_1 (P13)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
54	31.3N	165.0E	Sept	1992	7.0	27.30	34.87	119.9
54	31.3N	165.0E	Sept	1992	21.0	27.30	34.87	108.5
65	28.0N	165.0E	Oct	1992	7.0	26.09	35.09	113.5
65	28.0N	165.0E	Oct	1992	22.0	26.10	35.09	115.8
65	28.0N	165.0E	Oct	1992	44.0	26.10	35.09	117.4

Avg 115‰, same as Okinawa

9 30N, 150W

Three water samples from 31DSCGC91_1 (P16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
28	28.0N	153.2W	Mar	1991	7.0	20.03	35.37	122.9
31	30.0N	152.0W	Mar	1991	51.3	18.87	35.26	123.5
36	33.3N	152.0W	Mar	1991	31.6	15.52	34.39	100.2

Avg 116‰, +1 relative to Okinawa

10 Okinawa

Three growth bands from coral collected off Kikai Is., Japan (28.3N, 130.0E) in July 1998 (Morimoto et al., 2004).

1991 117.9 (8 samples)

1992 109.4 (14 samples)

1993 105.3 (14 samples)

Three growth bands from coral collected off Ishigaki Is., Japan (24.6N, 124.3E) in September 1993 (Mitsuguchi et al., 2004).

1991 125.5 (6 samples)

1992 108.7 (7 samples)

1993 106.1 (7 samples)

Sixteen water samples from northern end of 3250TN026_1 (P10)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
62	21.2N	149.3E	Oct	1993	21.8	28.43	34.86	117.7
62	21.2N	149.3E	Oct	1993	47.2	28.45	34.87	117.9
65	23.2N	149.3E	Oct	1993	16.2	27.30	35.01	120.2
68	25.2N	149.3E	Nov	1993	7.6	26.94	35.13	110.3
71	27.2N	149.3E	Nov	1993	7.0	26.02	35.11	116.5
74	29.2N	149.3E	Nov	1993	16.3	25.54	35.01	134.7
76	30.2N	148.1E	Nov	1993	5.8	24.65	34.78	118.2
78	31.2N	146.3E	Nov	1993	16.8	23.93	34.57	119.8
80	32.2N	145.5E	Nov	1993	7.5	24.12	34.69	113.8
83	33.7N	143.7E	Nov	1993	15.0	23.11	34.63	107.9
85	34.2N	142.7E	Nov	1993	21.9	24.11	34.72	110.4
85	34.2N	142.7E	Nov	1993	47.0	24.11	34.72	119.2
88	34.7N	141.6E	Nov	1993	16.3	23.22	34.74	110.2
90	34.9N	141.2E	Nov	1993	6.7	20.84	34.49	101.3
92	35.1N	140.9E	Nov	1993	12.5	22.80	34.72	118.2
93	35.1N	140.9E	Nov	1993	16.1	22.93	34.74	110.1

Avg 115‰

11 Baja California

Single water sample from northern end of 31DSCG94_1 (P18) off the southern tip of Baja California

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
190	22.0N	110.0W	April	1994	22.9	20.69	34.32	62.3

62‰, -53 relative to Okinawa

12 Hawaii

Two growth bands from coral head collected from the Big Island of Hawaii (19.5N, 156.0W) in April 1992 (Guilderson, personal comm.)

1991 104.2 (8 samples)

1992 100.0 (4 samples)

Two water samples from the southern end of 31DSCGC91_1 (P16N) and northern end of 31WTTUNES_3 (P16C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
17	20.4N	154.2W	Mar	1991	6.9	23.77	34.91	104.6
319	18.4N	154.5W	Sept	1991	7.2	26.62	34.77	101.1

Avg 102‰, -13 relative to Okinawa

13 Guatemala

Single water sample from station 422 at the northern end of
316N138_12 (P19C) in 200 m of water off the coast of Guatemala

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
422	13.5N	91.6W	April	1993	2.1	29.22	34.12	47.5

Avg 48‰, -67 relative to Okinawa

14 S. China Sea

Three growth bands from coral head collected from Con Dao Is., Vietnam
(8.7N, 106.6E) in May 2000 (Mitsuguchi et al., 2007)

1991.3 109.0

1992.3 105.9

1993.3 100.1

Avg 105‰, -10 relative to Okinawa

15 10N, 135W

Three water samples collected along 31WTTUNES_1 (P17C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
63	11.5N	135.0W	June	1991	0.2	27.96	34.04	85.7
66	10.0N	135.1W	June	1991	0.2	28.33	33.85	89.6
70	8.0N	135.0W	June	1991	0.4	28.25	33.78	110.7

Avg 95‰, -20 relative to Okinawa

16 9N, 110W

Four water samples collected along 31DSCG94_1 (P18)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
163	7.5N	110.3W	Apr	1994	8.5	28.93	33.94	79.4
163	7.5N	110.3W	Apr	1994	25.0	28.94	33.94	82.5
168	10.0N	110.0W	Apr	1994	8.9	28.82	34.00	74.7
168	10.0N	110.0W	Apr	1994	24.2	28.74	34.00	78.6

Avg 79‰, -36 relative to Okinawa

17 ITCZ/Panama

Five water samples collected along 316N138_12 (P19C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
382	2.0N	85.8W	Apr	1993	1.4	28.64	33.43	83.6
386	3.5N	85.8W	Apr	1993	1.6	29.71	32.16	90.3
395	6.7N	88.8W	Apr	1993	1.0	29.33	32.90	62.6
398	7.7N	89.9W	Apr	1993	1.7	28.69	34.29	64.0
403	9.4N	91.8W	Apr	1993	1.7	28.88	33.92	76.9
413	13.0N	91.8W	Apr	1993	1.7	29.73	33.67	68.2

Avg 74‰, -41‰ relative to Okinawa

18 Palau

Three growth bands from coral head collected near Palau Is.
(7.3N, 134.3E) in Nov 2008 (Glynn et al., in press)

1991.5 106.1

1992.5 102.0

1993.5 98.5

Seventeen water samples from southern end of 3250TN026_1 (P10)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
1	4.0S	144.8E	Oct	1993	8.4	28.17	34.52	102.6
3	3.9S	144.9E	Oct	1993	5.3	28.44	34.41	94.9
6	3.0S	145.3E	Oct	1993	17.7	28.56	34.22	93.9
9	2.3S	145.5E	Oct	1993	6.1	28.51	34.21	100.5
13	1.3S	145.8E	Oct	1993	16.9	28.54	34.30	97.3
16	0.5S	146.0E	Oct	1993	7.7	28.47	34.35	97.6
18	0.0N	146.1E	Oct	1993	15.1	28.10	34.34	103.8
20	0.5N	146.3E	Oct	1993	19.9	28.58	34.34	94.0
22	1.0N	146.4E	Oct	1993	19.8	28.66	34.20	105.0
25	1.8N	146.6E	Oct	1993	10.6	28.96	34.06	99.3
28	2.5N	146.9E	Oct	1993	8.6	29.07	34.05	104.6
28	2.5N	146.9E	Oct	1993	20.4	29.02	34.05	94.3
31	3.5N	147.2E	Oct	1993	14.9	28.86	34.09	84.8
34	5.0N	147.9E	Oct	1993	16.4	29.01	33.52	91.3
36	6.0N	148.3E	Oct	1993	7.1	28.85	33.71	114.2
41	8.5N	149.3E	Oct	1993	14.3	29.03	33.81	91.5
45	10.0N	149.3E	Oct	1993	8.4	29.00	34.08	103.4

Avg 99‰, -16 relative to Okinawa

19 Palmyra

Three growth bands from coral head collected from Palmyra atoll (5.8N, 162.1W) in June 2005 (Druffel-Rodriguez et al., 2012)

1991 100.9
1992 96.1
1993 92.4

Avg 96‰, -19 relative to Okinawa

20 Fanning

Four water samples from 31WTTUNES_3 (P16C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
280	2.0N	151.0W	Sept	1991	6.0	27.62	34.74	98.6
280	2.0N	151.0W	Sept	1991	44.9	27.53	34.74	103.3
286	3.0N	151.0W	Sept	1991	5.3	27.62	34.75	91.0
290	5.0N	151.0W	Sept	1991	5.8	28.90	34.48	96.0

Avg 97‰, -18 relative to Okinawa

21 Nauru

Three growth bands from coral head collected from the north side of Nauru Island (0.5S, 166.5E) in August 1995 (Guilderson et al., 1998)

1991 90.3 (4 samples)
1992 94.4 (9 samples)
1993 96.1 (9 samples)

Avg 94‰, -21 relative to Okinawa

22 Equatorial Upwelling (1N-2S, 143W)

Nine water samples from 31WTTUNES_1 (P17C) and 31WTTUNES_3 (P16C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
92	1.0N	135.0W	June	1991	0.2	27.28	35.05	81.3
98	0.0N	135.1W	July	1991	0.2	27.43	35.35	104.0
104	1.0S	135.0W	July	1991	0.2	27.44	35.36	89.4
110	2.0S	135.0W	July	1991	0.2	27.73	35.38	95.5
256	2.0S	151.0W	Sept	1991	4.9	27.58	35.43	89.0
256	2.0S	151.0W	Sept	1991	47.4	27.54	35.42	92.2
262	1.0S	151.0W	Sept	1991	5.4	27.92	35.42	88.9
268	0.0N	151.0W	Sept	1991	41.7	26.18	35.03	102.8
274	1.0N	151.0W	Sept	1991	36.5	26.71	34.87	93.0

Avg 93‰, -22 relative to Okinawa

23 Equatorial Upwelling (1N-2S, 110W)

Four water samples collected along 31DSCG94_1 (P18)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
138	2.3S	110.3W	Apr	1994	8.7	26.67	35.08	75.4
142	1.0S	110.3W	Apr	1994	9.1	25.69	35.16	91.7
145	0.0N	110.3W	Apr	1994	9.0	24.72	35.14	54.4
148	1.0N	110.3W	Apr	1994	7.6	25.26	34.91	75.7

Avg 74‰, -41 relative to Okinawa

24 Galapagos Islands

Four water samples collected along 316N138_12 (P19C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
364	2.0S	85.8W	Mar	1993	1.5	28.41	34.54	69.7
371	0.3S	85.8W	Mar	1993	1.2	27.53	34.58	66.6
373	0.0N	85.8W	Mar	1993	2.1	26.83	34.43	59.1
379	1.0N	85.8W	Mar	1993	2.2	27.25	34.19	69.2

Three water samples from Nydal (1998) station S74

S74	1.8S	90.0W	July	1990	6	21.9	34.9	50
S74	0.0N	88.0W	Apr	1991	3	26.8	34.4	76
S74	1.1S	84.1W	Oct	1992	8	28.0	33.3	78

Avg 67‰, -48 relative to Okinawa

25 South Equatorial Current 165°E

Six water samples from southern end of 3220CGC92_1 (P13N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
80	1.0S	165.0E	Oct	1992	7.0	30.22	34.58	72.5
82	2.0S	164.9E	Oct	1992	7.0	30.35	34.73	84.8
82	2.0S	164.9E	Oct	1992	22.0	30.35	34.74	87.6
83	2.8S	164.9E	Oct	1992	21.0	30.10	34.69	84.7
86	4.0S	164.4E	Oct	1992	7.0	30.15	34.77	92.2
86	4.0S	164.4E	Oct	1992	22.0	30.16	34.78	86.6

Avg 85‰, -30‰ relative to Okinawa

26 Makassar Strait

Last growth band from coral head collected off Langkai Island (5.0S, 119.1E) in 1990 (Fallon and Guilderson, 2008). The six samples from the last growth band are from the first half of 1990.

1990 107.3 (6 samples)
Avg 107‰, -8 relative to Okinawa

27 Solomon Sea

Three growth bands from coral head collected off the southwestern side of Guadalcanal (9S, 160E) in 1995 (Guilderson et al., 2004)

1991 99.7 (9 samples)
1992 102.2 (9 samples)
1992 102.1 (8 samples)
Avg 101‰, -14 relative to Okinawa

28 Marquesas Islands

Nine water samples from 31WTTUNES_2 (P17S) and 31WTTUNES_3 (P16C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
127	7.5S	135.0W	July	1991	10.3	27.65	35.16	81.9
129	8.5S	135.0W	July	1991	0.2	27.69	35.31	77.0
132	10.1S	135.0W	July	1991	0.2	27.40	35.79	91.7
132	10.1S	135.0W	July	1991	5.9	27.47	35.77	76.5
235	10.5S	151.0W	Sept	1991	4.0	28.56	35.83	95.0
235	10.5S	151.0W	Sept	1991	49.8	28.55	35.83	81.5
238	9.0S	151.0W	Sept	1991	4.5	28.45	35.79	77.3
242	7.0S	151.0W	Sept	1991	5.3	28.27	35.31	77.2
242	7.0S	151.0W	Sept	1991	48.8	28.29	35.35	74.5

Avg 81‰, -34 relative to Okinawa

29 10S, 103W

Three water samples collected along 31DSCG94_1 (P18)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
117	11.0S	103.0W	Apr	1994	9.6	26.60	35.51	59.8
117	11.0S	103.0W	Apr	1994	25.1	26.60	35.51	75.8
126	7.3S	106.9W	Apr	1994	7.4	27.66	34.84	62.7

Avg 66‰, -49 relative to Okinawa

30 Peru

Five water samples collected along 316N138_12 (P19C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
338	14.5S	85.8W	Mar	1993	2.4	25.34	35.84	54.0
342	12.5S	85.8W	Mar	1993	1.7	26.20	35.84	48.2
346	10.5S	85.8W	Mar	1993	2.0	27.38	35.62	65.8
351	8.0S	85.8W	Mar	1993	2.4	27.52	34.83	55.3
353	7.0S	85.8W	Mar	1993	1.8	28.05	35.05	57.9

Avg 56‰, -59 relative to Okinawa

32 Fiji

Single water sample from northern end of 316N138_7 (P14C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
47	19.1S	177.6E	Sept	1992	2.1	25.04	35.66	101.0

101‰, -14 relative to Okinawa

33 Tahiti

Three water samples from 31WTTUNES_2 (P16S) and 31WTTUNES_3 (P16C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
215	20.0S	150.5W	Aug	1991	1.5	25.47	36.11	106.4
222	17.0S	150.5W	Sept	1991	4.2	26.66	35.98	117.0
226	15.0S	150.8W	Sept	1991	5.8	27.42	36.23	108.1

Avg 111‰, -4‰ relative to Okinawa

34 18S, 103W

Three water samples collected along 31DSCG94_1 (P18)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
101	19.0S	103.0W	Apr	1994	24.0	24.25	36.34	118.4
105	17.0S	103.0W	Apr	1994	10.1	24.47	36.28	81.3
105	17.0S	103.0W	Apr	1994	23.8	24.23	36.28	101.1

Avg 100‰, -15 relative to Okinawa

35 Rarotonga

Three growth bands collected from coral head at 21.2S 159.8W in March 1997 (Guilderson et al., 2000)

1991	105.0 (7 samples)
1992	107.9 (8 samples)
1993	106.4 (8 samples)

Avg 106‰, -9 relative to Okinawa

36 Southern Great Barrier Reef

Single growth band from coral head collected from Abraham Reef (22S, 153E) in May 1991 (Druffel and Griffin, 1995)

1991.1	109.9
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Avg 110‰, -5 relative to Okinawa

38 Easter Island

Five water samples from 316N138_3 (P06E) and 31DSCG94_1 (P18)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
62	32.5S	106.0W	May	1992	6.3	19.15	34.78	129.0
62	32.5S	106.0W	May	1992	49.5	19.16	34.78	120.5
69	32.5S	110.7W	May	1992	12.0	18.97	34.75	117.6
89	25.0S	103.0W	Mar	1994	10.2	24.46	36.02	117.9
83	28.0S	103.0W	Mar	1994	9.6	23.71	35.79	135.4

Avg 124‰, +9‰ relative to Okinawa

39 Central Chile

Four water samples from eastern end of 316N138_3 (P06E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
5	32.5S	71.7W	May	1992	3.2	15.47	34.30	72.8
6	32.5S	71.8W	May	1992	28.9	15.76	34.31	41.2
9	32.5S	72.3W	May	1992	20.9	16.83	34.42	50.3
9	32.5S	72.3W	May	1992	30.2	16.83	34.42	63.0

Avg 57‰, -58‰ relative to Okinawa

40 North Island, NZ

Three water samples from southern end of 316N138_7 (P14C) and western end of 316N138_4 (P06C)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
5	34.8S	175.2E	Sept	1992	1.6	15.27	35.45	104.5
8	33.7S	175.4E	Sept	1992	1.9	15.51	35.47	118.2
82	32.5S	179.9W	July	1992	17.7	16.51	35.59	96.0

Single water samples from Nydal (1998) station S84

S84	36.1S	180.0E	July	1990	2	16.0	35.4	94
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103‰, -12 relative to Okinawa

41 Tasman Sea

Three water samples from Nydal (1998) station S83

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
S83	36.9S	160.0E	July	1990	40	14.1	35.4	97
S83	38.5S	160.0E	Apr	1991	40	20.8	35.5	119
S83	36.9S	157.9E	Feb	1992	5	20.8	35.3	112

109‰, -6 relative to Okinawa

CLIVAR Era

1 Kodiak Island (Alaska Coastal Current)

Three water samples from the northern end of 325020060213 (P16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
78	55.7N	153.0W	Mar	2006	4.8	4.18	32.62	-6.3
80	55.9N	153.0W	Mar	2006	6.5	4.66	32.44	-2.2
83	56.2N	153.2W	Mar	2006	4.4	4.48	32.11	0.3

Avg -3‰, -93 relative to Okinawa

3 Gulf of Alaska

Five water samples from 325020060213 (P16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
72	51.0N	152.0W	Mar	2006	34.7	4.59	32.67	-31.4
74	53.0N	152.0W	Mar	2006	6.8	3.45	32.85	-23.3
74	53.0N	152.0W	Mar	2006	35.8	3.45	32.86	-22.2
76	55.0N	152.7W	Mar	2006	5.7	3.39	32.83	-17.3
76	55.0N	152.7W	Mar	2006	35.0	3.27	32.84	-19.3

Avg -23‰, -113 relative to Okinawa

7 Southern California

Single water sample collected at Station M (34.8N, 123.0W)
(Druffel et al., 2010).

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
M	34.8N	123.0W	Oct	2004	0-5	17.5	-9999	32.1

Two water samples from eastern end of 318M200406 (P02)

84	32.3N	119.1W	Aug	2004	3.4	18.46	33.42	29.4
84	32.3N	119.1W	Aug	2004	18.4	17.83	33.45	35.4

Avg 32‰, -58 relative to Okinawa

8 30N, 165E

Four water samples from 318M200406 (P02)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
50	30.0N	156.8E	July	2004	10.4	26.18	34.64	75.8
54	30.0N	159.8E	July	2004	7.9	26.51	34.81	82.2
64	30.0N	166.7E	July	2004	10.5	26.35	35.23	53.4
70	30.0N	170.7E	July	2004	10.1	26.00	35.21	76.7

Avg 72‰, -18 relative to Okinawa

9 30N, 150W

Seven water samples from 325020060213 (P16N) and 318M200406 (P02)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
50	28.0N	152.0W	Mar	2006	6.1	19.91	35.30	78.5
50	28.0N	152.0W	Mar	2006	34.9	19.92	35.30	82.4
52	30.0N	152.0W	Mar	2006	4.9	19.76	35.26	72.7
54	32.0N	152.0W	Mar	2006	5.0	18.08	34.94	72.9
129	30.0N	152.7W	Aug	2004	7.0	25.34	35.42	86.8
133	30.0N	149.7W	Aug	2004	11.7	25.08	34.93	80.1
137	30.0N	146.6W	Aug	2004	6.4	24.87	35.04	72.4

Avg 78‰, -12 relative to Okinawa

10 Okinawa

Five water samples from 49NZ20050525 (P10)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
64	22.5N	149.4E	June	2005	9.9	29.08	34.64	75.5
68	25.2N	149.3E	June	2005	10.8	26.28	34.98	88.4
73	28.5N	149.3E	June	2005	9.6	21.84	34.81	104.0
100	32.2N	149.3E	June	2005	10.6	21.33	34.51	100.4
110	35.0N	148.7E	June	2005	9.2	21.42	34.62	82.6

Avg 90‰

12 Hawaii

Two water samples from 325020060213 P16N

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
41	19.0N	152.0W	Mar	2006	5.0	23.84	34.50	60.4
43	21.0N	152.0W	Mar	2006	4.9	22.98	35.09	69.0

Avg 65‰, -25 relative to Okinawa

18 Palau

Four growth bands from coral head collected near Palau Is.
(7.3N, 134.3E) in Nov 2008 (Glynn et al., in press)

2003.5	72.2
2004.5	70.1
2005.5	65.6
2006.5	63.1

Seven water samples from 49NZ20050525 (P10) (Kumamoto et al., 2013)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
5	3.3S	145.1E	June	2005	10.1	29.34	34.16	74.3
10	2.0S	145.6E	June	2005	9.8	29.99	34.06	81.3
17	0.2S	146.1E	June	2005	10.6	29.79	34.21	76.6
24	1.5N	146.6E	June	2005	10.2	29.73	34.27	77.6
29	2.8N	146.9E	June	2005	10.1	29.64	34.02	78.6
34	5.0N	147.9E	June	2005	10.1	29.67	33.98	73.6
40	8.0N	149.2E	June	2005	10.0	29.52	33.94	93.4

Avg 75‰, -15 relative to Okinawa

19 Palmyra

Three growth bands from coral head collected from Palmyra atoll (5.8N,
162.1W) in June 2005 (Druffel-Rodriguez et al., 2012)

2003	69.4
2004	64.0
2005	64.4

Avg 66‰, -24 relative to Okinawa

22 Equatorial Upwelling (1N-2S, 143W)

Five water samples from 325020060213 (P16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
16	2.0S	151.0W	Feb	2006	5.7	25.91	35.23	71.7
16	2.0S	151.0W	Feb	2006	35.4	25.86	35.23	70.1
18	1.0S	151.0W	Feb	2006	5.7	25.92	35.30	59.0
20	0.0N	151.0W	Feb	2006	5.4	25.49	35.39	65.9
22	1.0N	151.0W	Feb	2006	4.4	25.30	35.13	63.0

Avg 66‰, -24 relative to Okinawa

28 Marquesas Islands

Three water samples from 325020060213 (P16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
8	10.0S	151.0W	Feb	2006	5.2	29.21	35.97	52.8
8	10.0S	151.0W	Feb	2006	14.7	29.22	35.98	60.0
11	7.0S	151.0W	Feb	2006	6.0	28.54	35.90	66.0

Avg 60‰, -30 relative to Okinawa

33 Tahiti

Five water samples from northern end of 33RR200501 (P16S)
and southern end of 325020060213 (P16N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
1	17.0S	150.0W	Feb	2006	6.5	28.74	35.86	70.4
1	17.0S	150.0W	Feb	2006	24.3	28.69	35.94	65.3
3	15.0S	150.8W	Feb	2006	5.0	29.37	36.02	59.6
3	17.0S	150.0W	Jan	2005	2.9	28.69	36.13	63.8
7	19.0S	150.0W	Jan	2005	3.3	28.54	36.08	77.4

Avg 67‰, -23 relative to Okinawa

38 Easter Island

Three water samples from 49NZ20030909 (P06E)
(Kumamoto et al., 2007)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
63	32.5S	106.7W	Sept	2003	9.4	16.54	34.52	88.5
67	32.5S	109.3W	Sept	2003	10.1	16.06	34.70	98.5
71	32.5S	112.0W	Sept	2003	8.3	17.17	34.93	95.4

Avg 94‰, +4‰ relative to Okinawa

39 Central Chile

Two water samples from eastern end of 49NZ20030909
(P06E) (Kumamoto et al., 2007)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
11	32.5S	72.7W	Oct	2003	10.2	13.55	34.24	44.9
15	32.5S	74.7W	Oct	2003	10.1	14.44	34.16	47.9

Avg 46‰, -44‰ relative to Okinawa

40 North Island, NZ

Two water samples from 49NZ20030803 (P06W) (Kumamoto et al., 2007)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
82	32.5S	179.9E	Aug	2003	11.2	17.00	35.59	87.2
82	32.5S	179.9E	Aug	2003	50.6	17.00	35.59	77.0

Avg 82‰, -8‰ relative to Okinawa

Table S5 Indian Regions

Region	Location (lat, long)
1	Northern Arabian Sea (21N, 63E)
2	Gulf of Aden (13N, 48E)
3	Yemen/Oman (14.5N, 55E)
4	Central Arabian Sea (15N, 62E)
5	Mumbai, India (17N, 70.5E)
6	Northern Bay of Bengal (16N, 92W)
7	Somali Coast (8.5N, 55E)
8	Southern Arabian Sea (8.5N, 64E)
9	Laccadive Sea (8.5N, 73E)
10	Southern Bay of Bengal (10.0N, 90E)
11	4N, 80E
12	Northern Sumatra (4N, 92E)
13	Equator, 55E (0N, 57E)
14	Equator, 80E (0N, 80E)
15	Equator, 95E (0N, 93.5E)
16	Mombasa, Kenya (5S, 44E)
17	5S, 80E
18	Central Sumatra (4S, 95E)
19	Seychelles (8S, 57E)
20	Diego Garcia (8S, 73E)
21	9S, 90E
22	South of Sumatra (9S, 102E)
23	South of Java (11S, 109E)
24	North of Madagascar (11S, 48E)
25	12.5S, 55W
26	12.5S, 80W
27	Cocos (Keeling) Is. (14S, 95E)
28	Mauritius (20S, 56E)
29	20S, 80E
30	20S, 95E
31	Northwest Australia (21S, 111E)
32	Mozambique Channel (25S, 39E)
33	Southeast Madagascar (26S, 52E)
34	26S, 84E
35	Agulhas Current (32S, 33E)
36	33S, 42E
37	32S, 51E
38	32S, 100E
39	Perth, Australia (32.5S, 114E)
40	Southwest Australia (36.5S, 115E)

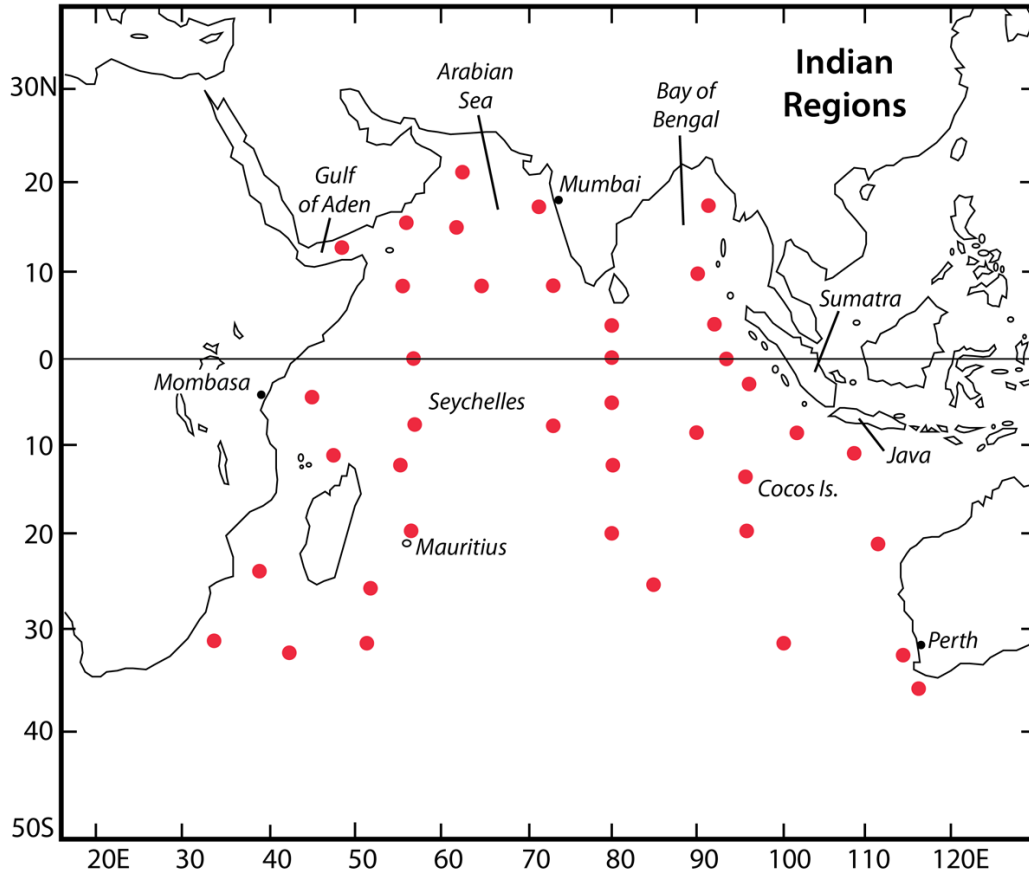


Figure S5. Regions of the Indian Ocean with surface $\Delta^{14}\text{C}$ measurements.

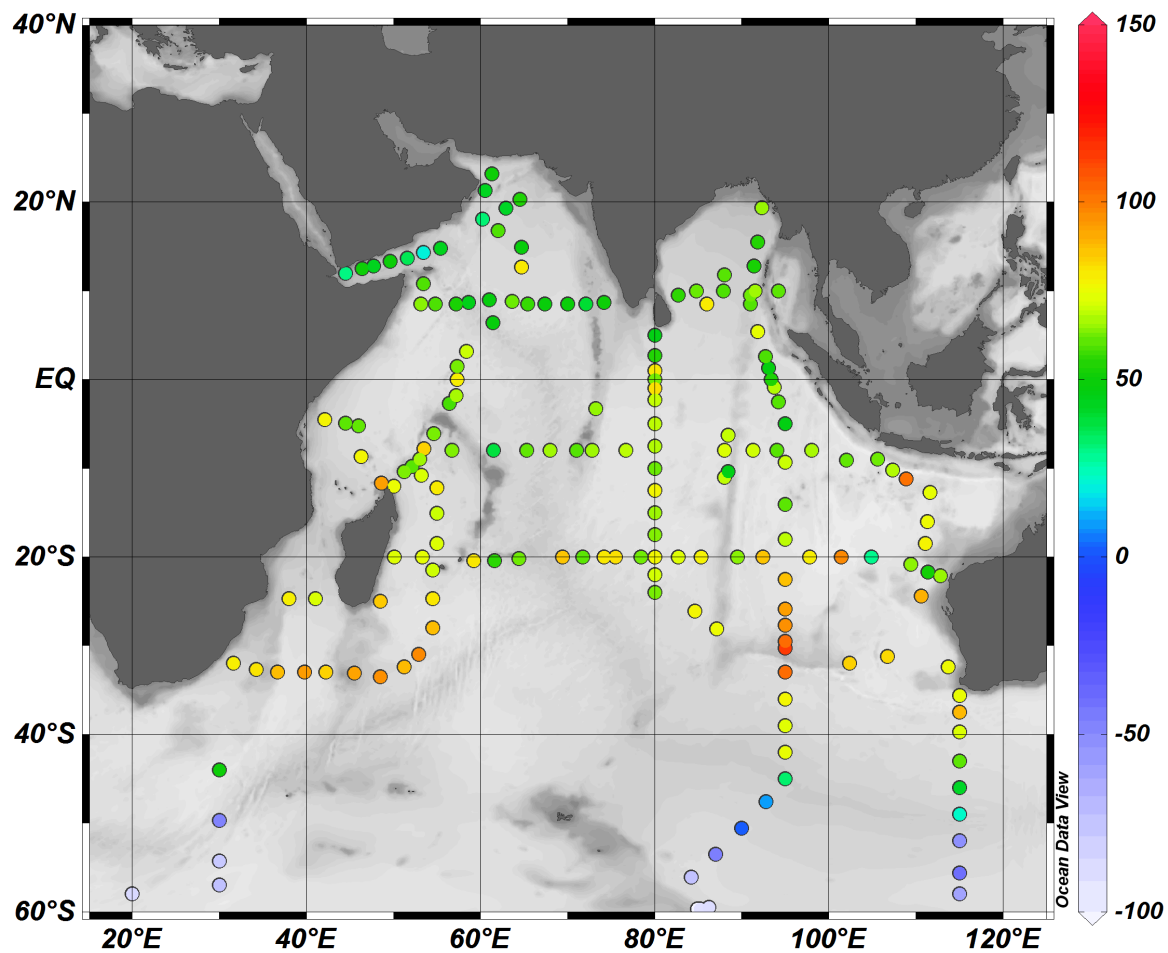


Figure S6. Surface distribution of $\Delta^{14}\text{C}$ in the Indian Ocean based on seawater samples collected between December 1994 and January 1996 during WOCE.

Table S6. Data Sources – Indian**WOCE Era****1 Northern Arabian Sea**

Four water samples from the northern end of 316N145_10 (I07N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
814	19.3N	62.9E	Aug	1995	9.1	26.83	36.27	40.2
818	20.3N	64.5E	Aug	1995	14.0	27.49	36.77	52.4
837	21.3N	60.5E	Aug	1995	9.1	25.69	36.19	41.4
842	23.2N	61.3E	Aug	1995	3.9	24.66	36.17	49.1

Single water sample from Bhushan et al. (2000) station H-12

H-12	19.8N	64.7E	Mar	1995	5	25.28	36.61	33
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Avg 43‰, -47 relative to 90‰

2 Gulf of Aden

Five water samples from 316N145_11 (I01W)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
875	12.0N	44.5E	Sept	1995	8.3	24.99	35.92	29.0
878	12.5N	46.4E	Sept	1995	6.3	29.31	36.52	49.5
880	12.8N	47.7E	Sept	1995	8.0	30.08	36.53	42.0
883	13.3N	49.6E	Sept	1995	4.6	31.20	36.52	48.9
892	13.7N	51.6E	Sept	1995	10.7	27.66	36.15	33.9

Avg 41‰, -49 relative to 90‰

3 Yemen/Oman

Two water samples from 316N145_11 (I01W)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
864	14.8N	55.4E	Sept	1995	7.8	25.28	35.67	42.1
868	14.3N	53.4E	Sept	1995	8.9	23.81	35.77	18.6

Avg 30‰, -60 relative to 90‰

4 Central Arabian Sea

Four water samples from 316N145_10 (I07N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
794	14.9N	64.7E	Aug	1995	9.5	26.97	36.35	47.2
800	16.8N	62.0E	Aug	1995	4.8	26.19	36.06	57.9
804	18.1N	60.2E	Aug	1995	4.3	25.81	35.97	30.4

Two water samples from Bhushan et al. (2000)

3271	13.0N	64.5E	April	1995	5	29.17	35.52	57
3272	13.3N	58.3E	April	1995	5	29.00	36.48	41

Avg 47‰, -43 relative to 90‰

5 Mumbai, India

Four water samples off the west coast of India (Bhushan et al., 2000)

H-1	22.5N	68.3E	Mar	1995	5	24.88	36.24	41
F-6	18.0N	70.3E	Mar	1995	5	23.26	35.67	37
E-8	15.3N	71.5E	Mar	1995	5	27.84	35.66	31

3269	12.8N	71.6E	April	1995	5	30.33	34.98	40
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Avg 37‰, -53 relative to 90‰

6 Northern Bay of Bengal

Three water samples from 316N145_6 (I09N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
239	12.8N	91.4E	Feb	1995	14.5	27.06	32.15	51.5
244	15.5N	91.8E	Feb	1995	11.6	26.73	32.44	53.2
251	19.4N	92.3E	Feb	1995	13.2	25.12	32.04	63.8

Avg 56‰, -34 relative to 90‰

7 Somali Coast

Five water samples from 316N145_11 (I01W)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
893	10.8N	53.4E	Sept	1995	11.3	26.06	35.70	58.0
906	8.5N	53.1E	Sept	1995	7.7	27.39	35.66	62.8
910	8.5N	54.8E	Sept	1995	6.4	26.08	35.66	57.8
914	8.5N	57.2E	Sept	1995	7.1	26.43	35.66	51.7
918	8.7N	58.6E	Sept	1995	5.2	26.87	35.89	43.3

Single water sample from Bhushan et al. (2000) station 3273

3273	5.7N	56.2E	May	1995	5	30.33	35.17	55
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Avg 55‰, -35 relative to 90‰

8 Southern Arabian Sea

Three water samples from 316N145_10 (I07N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
776	6.4N	61.4E	Aug	1995	9.2	28.29	36.73	46.7
782	8.8N	63.6E	Aug	1995	9.8	27.82	36.51	52.9
790	12.7N	64.7E	Aug	1995	9.9	27.33	36.50	78.6

Three water samples from 316N145_11 (I01W)

924	9.0N	61.0E	Sept	1995	9.6	27.74	36.14	46.5
933	8.5N	65.4E	Sept	1995	31.3	28.26	36.60	55.5
937	8.5N	67.4E	Sept	1995	10.1	27.27	36.75	48.0

Single water sample from Bhushan et al. (2000) station 3274

3274	6.2N	64.4E	May	1995	5	29.99	34.88	57
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Avg 55‰, -35 relative to 90‰

9 Laccadive Sea

Three water samples from 316N145_11 (I01W)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
942	8.5N	70.0E	Sept	1995	11.6	28.20	36.45	48.3
946	8.5N	72.1E	Sept	1995	4.7	28.45	35.78	38.1
952	8.7N	74.2E	Sept	1995	5.2	28.42	35.18	49.1

Single water sample from Bhushan et al. (2000) station 3275

3275	8.0N	74.0E	May	1995	5	29.73	34.40	56
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Avg 48‰, -42 relative to 90‰

10 Southern Bay of Bengal

Four water samples from 316N145_12 (I01E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
980	10.0N	84.8E	Oct	1995	6.7	29.01	33.45	60.3
991	10.0N	87.9E	Oct	1995	7.0	28.57	33.58	57.8
998	10.0N	91.5E	Oct	1995	6.8	28.60	32.68	64.6
1005	10.0N	94.2E	Oct	1995	6.5	28.19	32.58	59.1

Four water samples from 316N145_6 (I09N)

231	8.5N	91.0E	Feb	1995	11.9	28.76	33.95	58.5
233	9.5N	91.0E	Feb	1995	11.4	28.58	34.01	60.7
265	11.8N	88.0E	Feb	1995	12.4	27.64	33.53	58.7
270	8.5N	86.0E	Mar	1995	11.9	27.82	32.93	78.2

Avg 62‰, -28 relative to 90‰

11 4N, 80W

Two water samples from 316N145_7 (I05E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
286	5.0N	80.0E	Mar	1995	2.3	28.42	33.46	44.0
293	2.7N	80.0E	Mar	1995	2.0	29.49	34.60	52.9

Avg 48‰, -42 relative to 90‰

12 Northern Sumatra

Two water samples from 316N145_6 (I09N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
219	2.6N	92.7E	Feb	1995	12.1	29.73	33.25	57.7
225	5.4N	91.8E	Feb	1995	11.7	29.27	34.10	72.6

Avg 65‰, -25 relative to 90‰

13 Equator, 55E

Five water samples from 316N145_10 (I07N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
752	2.7S	56.4E	July	1995	8.6	26.69	35.25	57.0
754	1.8S	57.2E	July	1995	8.2	27.19	35.26	65.3
759	0.0N	57.3E	July	1995	8.5	27.39	35.30	77.5
764	1.5N	57.3E	July	1995	5.1	27.61	35.35	61.4
768	3.2N	58.4E	July	1995	7.9	27.41	35.38	68.6

Avg 66‰, -24 relative to 90‰

14 Equator, 80E

Three water samples from 316N145_7 (I05E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
298	1.0N	80.0E	Mar	1995	35.0	29.33	34.49	78.7
302	0.0N	80.0E	Mar	1995	2.3	29.48	34.33	61.4
306	1.0S	80.0E	Mar	1995	31.5	28.90	34.47	80.3

Avg 73‰, -17 relative to 90‰

15 Equator, 95E

Three water samples from 316N145_6 (I09N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
208	0.9S	93.7E	Feb	1995	11.9	29.48	33.68	66.2
211	0.0N	93.4E	Feb	1995	15.7	29.51	33.62	52.2
215	1.3N	93.1E	Feb	1995	16.4	29.73	33.59	45.9
Avg 55‰, -35 relative to 90‰								

16 Mombasa, Kenya

Three water samples from 316N145_15 (I02W)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
232	5.2S	46.0E	Jan	1996	10.1	27.90	35.44	59.6
234	4.9S	44.5E	Jan	1996	7.7	29.50	35.62	59.1
238	4.5S	42.1E	Jan	1996	9.2	28.66	35.49	76.1
Avg 65‰, -25 relative to 90‰								

17 5S, 80E

Three water samples from 316N145_7 (I05E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
310	2.3S	80.0E	Mar	1995	2.1	29.59	34.36	68.0
316	5.0S	80.0E	Mar	1995	3.1	29.12	34.11	67.1
321	7.5S	80.0E	Mar	1995	3.3	29.36	34.07	66.2
Single water sample from 316N145_15 (I02W)								
162	3.3S	73.2E	Jan	1996	10.8	28.62	34.65	63.5
Avg 66‰, -24 relative to 90‰								

18 Central Sumatra

Two water samples from 316N145_6 (I09N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
197	5.0S	95.0E	Feb	1995	7.3	29.49	33.97	44.8
203	2.5S	94.2E	Feb	1995	12.6	29.34	33.77	58.5
Avg 52‰, -38 relative to 90‰								

19 Seychelles

Four water samples from 316N145_10 (I07N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
728	9.8S	52.1E	July	1995	8.3	25.97	35.22	58.8
740	7.8S	53.5E	July	1995	9.0	26.41	35.24	82.6
744	6.1S	54.6E	July	1995	8.8	26.47	35.23	63.9
744	6.1S	54.6E	July	1995	40.8	26.48	35.23	61.5

Six water samples from 316N145_15 (I02W)

171	8.0S	68.0E	Jan	1996	11.7	27.99	34.68	64.6
175	8.0S	65.3E	Jan	1996	10.5	28.59	34.32	59.6
181	8.0S	61.5E	Jan	1996	7.9	28.95	34.42	36.6
190	8.0S	56.7E	Jan	1996	11.6	28.52	34.91	58.8
200	9.0S	53.0E	Jan	1996	8.7	28.35	35.18	64.5
207	10.4S	51.2E	Jan	1996	11.1	28.43	35.05	61.8
Avg 61‰, -29 relative to 90‰								

20 Diego Garcia

Three water samples from 316N145_14 (I02E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
143	8.0S	76.7E	Dec	1995	12.6	28.45	34.12	67.0
150	8.0S	72.8E	Dec	1995	13.0	28.69	33.94	64.5
155	8.0S	71.0E	Dec	1995	8.0	28.52	34.25	58.5

Avg 63‰, -27 relative to 90‰

21 9S, 90E

Six water samples from 316N145_14 (I02E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
96	8.0S	94.0E	Dec	1995	8.6	26.81	34.31	58.7
100	8.0S	91.3E	Dec	1995	11.5	27.06	34.30	69.2
111	6.3S	88.4E	Dec	1995	11.4	27.77	33.74	67.9
115	8.0S	88.0E	Dec	1995	11.8	27.62	34.23	70.6
120	11.0S	88.0E	Dec	1995	13.0	27.37	34.30	67.4
126	10.4S	88.4E	Dec	1995	10.3	27.63	34.27	43.8

Single water sample from 316N145_6 (I09N)

189	9.3S	95.0E	Feb	1995	17.7	28.29	34.56	68.6
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Avg 64‰, -26 relative to 90‰

22 South of Sumatra

Three water samples from the eastern end of 316N145_14 (I02E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
78	9.0S	105.6E	Dec	1995	20.4	28.16	33.62	60.7
84	9.1S	102.0E	Dec	1995	12.8	28.62	33.25	59.6
90	8.0S	98.0E	Dec	1995	4.6	28.03	33.72	65.4

Avg 62‰, -28 relative to 90‰

23 South of Java

Three water samples from the northern end of 316N145_13 (I10)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
59	12.7S	111.6E	Nov	1995	2.5	28.29	34.58	72.7
67	11.2S	108.9E	Nov	1995	2.8	28.43	34.51	100.5
71	10.2S	107.3E	Nov	1995	2.4	29.14	34.28	66.3

Avg 80‰, -10 relative to 90‰

24 North of Madagascar

Three water samples from 316N145_15 (I02W)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
211	12.0S	50.0E	Jan	1996	32.1	28.17	35.09	73.5
220	11.7S	48.6E	Jan	1996	30.4	27.62	35.09	91.6
226	8.7S	46.3E	Jan	1996	10.6	29.65	35.50	75.9

Avg 80‰, -10 relative to 90‰

25 12.5S, 55W

Three water samples from 316N145_10 (I07N)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
715	15.1S	55.0E	July	1995	8.1	26.14	34.87	68.5

720	12.2S	55.0E	July	1995	9.0	25.85	34.85	78.3
724	10.8S	53.2E	July	1995	8.9	26.12	34.91	70.4

Avg 72‰, -18 relative to 90‰

26 12.5S, 80W

Three water samples from 316N145_7 (I05E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
326	10.0S	80.0E	Mar	1995	2.3	29.36	34.39	60.4
331	12.5S	80.0E	Mar	1995	1.9	28.92	34.60	75.8
336	15.0S	80.0E	Mar	1995	3.1	28.45	34.71	64.4

Avg 67‰, -23 relative to 90‰

27 Cocos (Keeling) Island

Single water sample from 316N145_6 (I09N)

180	14.1S	95.0E	Feb	1995	11.8	28.20	34.37	59.1
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Avg 59‰, -31 relative to 90‰

28 Mauritius

Five water samples from 316N145_8 (I03)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
526	20.2S	64.4E	May	1995	7.1	25.05	34.89	60.8
531	20.4S	61.6E	May	1995	8.5	25.03	35.22	54.3
535	20.4S	59.2E	May	1995	7.4	24.55	35.27	79.1
550	20.0S	53.3E	May	1995	5.0	25.95	35.00	72.5
557	20.0S	50.1E	June	1995	7.0	26.23	35.10	71.2

Single water sample from 316N145_9 (I04)

702	21.5S	54.5E	July	1995	3.2	23.88	35.27	69.1
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Avg 68‰, -22 relative to 90‰

29 20S, 80E

Seven water samples from 316N145_8 (I03)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
491	20.0S	85.3E	May	1995	6.3	25.60	35.12	76.4
495	20.0S	82.7E	May	1995	6.1	25.97	35.07	71.3
501	20.0S	78.4E	May	1995	11.4	25.87	35.01	61.0
505	20.0S	75.5E	May	1995	6.2	25.86	34.67	80.2
507	20.0S	74.2E	June	1995	7.4	24.31	35.12	78.9
512	20.0S	71.7E	May	1995	5.6	25.40	34.71	59.1
517	20.0S	69.4E	May	1995	5.5	24.84	35.19	84.6

Three water samples from 316N145_7 (I05E)

341	17.5S	80.0E	Mar	1995	3.9	28.07	34.76	62.3
346	20.0S	80.0E	Mar	1995	3.2	27.30	35.05	75.3
350	22.0S	80.0E	Mar	1995	3.2	27.02	34.96	69.5

Avg 72‰, -18 relative to 90‰

30 20S, 95E

Four water samples from 316N145_8 (I03)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
465	20.0S	101.4E	May	1995	9.1	25.80	35.47	95.8
469	20.0S	97.8E	May	1995	6.9	24.46	35.59	77.6

476	20.0S	92.4E	May	1995	7.8	25.66	35.17	84.8
482	20.0S	89.5E	May	1995	6.9	25.99	35.14	62.8
Avg 80‰, -10 relative to 90‰								

31 Northwest Australia

Three water samples from 316N145_8 (I03)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
449	22.1S	112.8E	April	1995	9.2	28.01	35.26	63.9
452	21.7S	111.4E	April	1995	12.4	27.74	35.28	50.4
455	20.8S	109.4E	April	1995	13.4	27.55	35.09	63.1

Three water samples from 316N145_13 (I10)

15	24.4S	110.6E	Nov	1995	3.4	21.26	35.66	88.2
45	18.5S	111.1E	Nov	1995	3.7	25.28	35.06	76.4
51	16.0S	111.3E	Nov	1995	3.2	25.99	34.69	73.9

Avg 69‰, -21 relative to 90‰

32 Mozambique Channel

Two water samples from 316N145_9 (I04)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
593	24.7S	41.0E	June	1995	4.3	22.06	35.50	70.3
599	24.7S	38.0E	June	1995	3.4	24.00	35.37	77.3

Avg 74‰, -16 relative to 90‰

33 Southeast Madagascar

Six water samples from 316N145_9 (I04)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
578	25.0S	48.5E	June	1995	5.5	24.76	35.24	78.4
578	25.0S	48.5E	June	1995	40.4	24.76	35.24	84.0
684	28.0S	54.5E	July	1995	3.8	20.51	35.68	85.1
684	28.0S	54.5E	July	1995	31.5	20.50	35.68	86.3
694	24.7S	54.5E	July	1995	5.2	22.45	35.38	82.2
694	24.7S	54.5E	July	1995	24.9	22.47	35.38	79.0

Avg 83‰, -7 relative to 90‰

34 26S, 84E

Three water samples from 316N145_7 (I05E)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
354	24.0S	80.0E	Mar	1995	3.5	26.52	35.42	61.5
361	26.1S	84.6E	Mar	1995	26.8	25.57	35.77	75.9
389	28.1S	87.1E	April	1995	3.1	22.88	36.09	73.7

Four water samples from 316N145_6 (I09N)

156	27.7S	95.0E	Jan	1995	11.8	23.95	36.06	94.6
159	25.9S	95.0E	Jan	1995	13.8	24.25	36.15	89.9
159	25.9S	95.0E	Jan	1995	19.1	24.24	36.15	91.6
165	22.5S	95.0E	Feb	1995	13.8	25.27	35.29	85.5

Avg 82‰, -8 relative to 90‰

35 Agulhas Current

Three water samples from 316N145_9 (I04)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
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622	32.0S	31.6E	June	1995	3.5	21.36	35.54	71.8
622	32.0S	31.6E	June	1995	46.3	21.35	35.54	77.4
628	32.7S	34.2E	June	1995	3.4	20.35	35.61	79.7
Avg 76‰, -14 relative to 90‰								

36 33S, 42E

Six water samples from 316N145_9 (I04)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
638	33.0S	36.7E	June	1995	3.3	19.28	35.67	86.2
644	33.0S	39.8E	June	1995	4.3	19.29	35.68	69.0
644	33.0S	39.8E	June	1995	47.5	19.30	35.68	92.2
650	33.0S	42.2E	June	1995	4.8	18.56	35.69	83.5
650	33.0S	42.2E	June	1995	41.9	18.54	35.69	82.5
660	33.1S	45.5E	June	1995	4.3	17.91	35.65	80.4
Avg 82‰, -8 relative to 90‰								

37 32S, 51E

Six water samples from 316N145_9 (I04)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
666	33.5S	48.5E	July	1995	3.6	18.24	35.66	90.9
666	33.5S	48.5E	July	1995	28.1	18.24	35.66	97.1
666	33.5S	48.5E	July	1995	47.8	18.24	35.66	94.6
672	32.4S	51.2E	July	1995	2.9	18.17	35.66	86.5
676	31.0S	52.9E	July	1995	4.5	18.13	35.65	86.5
676	31.0S	52.9E	July	1995	27.2	18.13	35.65	95.8
Avg 92‰, +2 relative to 90‰								

38 32S, 100E

Two water samples from 316N145_5 (I08S)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
4	30.3S	95.0E	Dec	1994	9.8	21.10	35.94	112.2
9	33.0S	95.0E	Dec	1994	13.9	18.96	35.83	101.8

Two water samples from 316N145_7 (I05E)

419	32.0S	102.4E	April	1995	2.8	20.87	36.05	82.7
426	31.2S	106.7E	April	1995	2.6	21.39	36.16	81.3
Avg 95‰, +5 relative to 90‰								

39 Perth, Australia

Single water sample from 316N145_7 (I05E)

435	32.4S	113.7E	April	1995	3.1	24.95	35.71	74.2
Avg 74‰, -16 relative to 90‰								

40 Southwest Australia

Two water samples from 316N145_5 (I08S)

station	latitude	longitude	month	year	depth	temp	salinity	$\Delta^{14}\text{C}$
138	37.5S	115.0E	Jan	1995	13.9	17.71	35.49	86.9
143	35.6S	115.0E	Jan	1995	9.9	19.45	35.66	89.8
Avg 88‰, -2 relative to 90‰								

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