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Supplementary Methods

Mentawai coral $\delta^{18}\text{O}$ records. The 140-year coral $\delta^{18}\text{O}$ record from the Mentawai Islands was developed using three coral colonies (Supplementary Fig. 6). The majority of the record was obtained from a 2.7 m long core (PG01-A-2) extracted from a dead modern *Porites* sp. coral in June 2001 using an underwater hydraulic drill-rig. This coral colony is located at 0°08'S, 98°31'E and is part of a fringing reef system approximately 400 m offshore of Penang Island, a small coral cay in the northern Mentawai Island chain. The coral colony was located in ~6 m water depth (~3 m to top of coral) on a sandy fore-reef slope that was exposed to open ocean conditions. Due to the widespread death of the Mentawai reef ecosystem¹ during December 1997, and the subsequent bioerosion of coral colonies (including the PG01-A-2 coral), two additional short coral cores were collected from nearby sites to ensure a complete modern coral $\delta^{18}\text{O}$ record up to the time of reef death. One core was collected from a dead modern *Porites* sp. coral in 1.2 m water depth at a fore-reef slope offshore of Tanabala Island (TN99-A-4; 0°24'S, 98°31'E; 29 cm long core collected July 1999). The other core was sampled from a live *Porites* sp. coral growing in ~6 m water depth on the fore-reef slope of a fringing reef on Tanamasa Island (TM01-A-10; 0°23'S, 98°33'E; 33 cm long core collected June 2001).

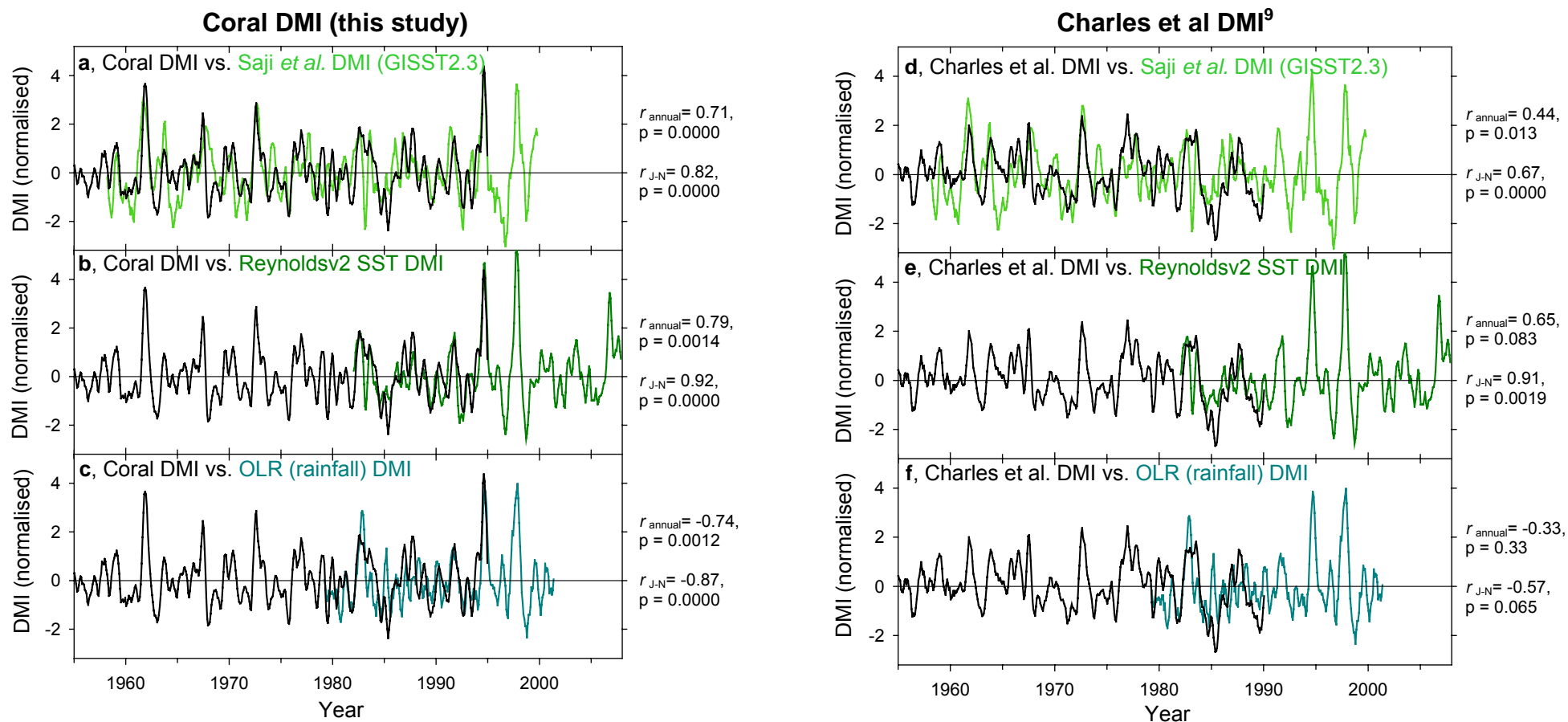
The corals were subsampled along the major growth axis. Subsampling transects were first reduced to 2.5 mm thickness, ultrasonically cleaned in milli-Q H₂O and dried in an oven at 40°C. A low-speed automated milling system was then used to continuously microsample the corals at 0.3 mm – 0.5 mm resolution. The coral samples were analysed for $\delta^{18}\text{O}$ at approximately monthly resolution. The uppermost ages of the coral cores were established by matching distinctive interannual excursions in the coral $\delta^{18}\text{O}$ records with the blended ship, buoy and satellite SST record for this site (Supplementary Fig. 6). A full chronology was established by assigning the annual $\delta^{18}\text{O}$ maxima to November, the month of coolest SST in the Mentawai region. ARAND software (P. Howell) was used to interpolate monthly $\delta^{18}\text{O}$ records from the original data sets.

The individual coral records span 1858-1992 (PG01-A-2), 1990-1996 (TN99-A-4), and 1993-1997 (TM01-A-10). Although the TM01-A-10 coral was alive at the time of its collection in 2001, the $\delta^{18}\text{O}$ record does not extend beyond the 1997 Mentawai reef death event due to an unconformity in coral growth at this time¹. Adjustments of +0.27‰ for the TN99-A-4 coral and -0.09‰ for the TM01-A-10 coral were applied to match the mean $\delta^{18}\text{O}$ values of these shorter records to the PG01-A-2 $\delta^{18}\text{O}$ record². Following these adjustments, the periods of overlap between the individual $\delta^{18}\text{O}$ time series were averaged to produce the Mentawai coral $\delta^{18}\text{O}$ record (Supplementary Table 1). A record of coral $\delta^{18}\text{O}$ anomalies was also calculated by removing the average annual $\delta^{18}\text{O}$ cycle from the Mentawai coral record.

ICOADS wind data. The wind data used in Fig. 3 is ICOADS data³ from the eastern IOD upwelling region off the coast of Sumatra (90-104°E, 0-10°S). This region lies on a shipping lane between Indonesia and Europe, via the Suez canal, and because of this has reasonable coverage since the mid-1880s. Some spurious trends have been noted in the ICOADS wind data, and these are attributed to gradual changes in the methods of measuring wind strength between the 1950s to

1980s^{3,4}. However, comparison of the IOD season wind data with the non-IOD season data for this region reveals that the 20th century strengthening of wind anomalies is much greater and more sustained during the IOD season. Our findings are also consistent with an analysis of corrected trends in ICOADS wind data between 1948-1988 that suggested there had been an intensification of the easterlies in the tropical southeastern Indian Ocean⁴. This, in conjunction with the excellent agreement that we find between the eastern Indian Ocean IOD season winds and changes in Indian Ocean climate since the mid 19th century (Fig. 3), gives us confidence that the strengthening of the southeasterly winds in the eastern Indian Ocean is a real climate feature.

Supplementary Figures



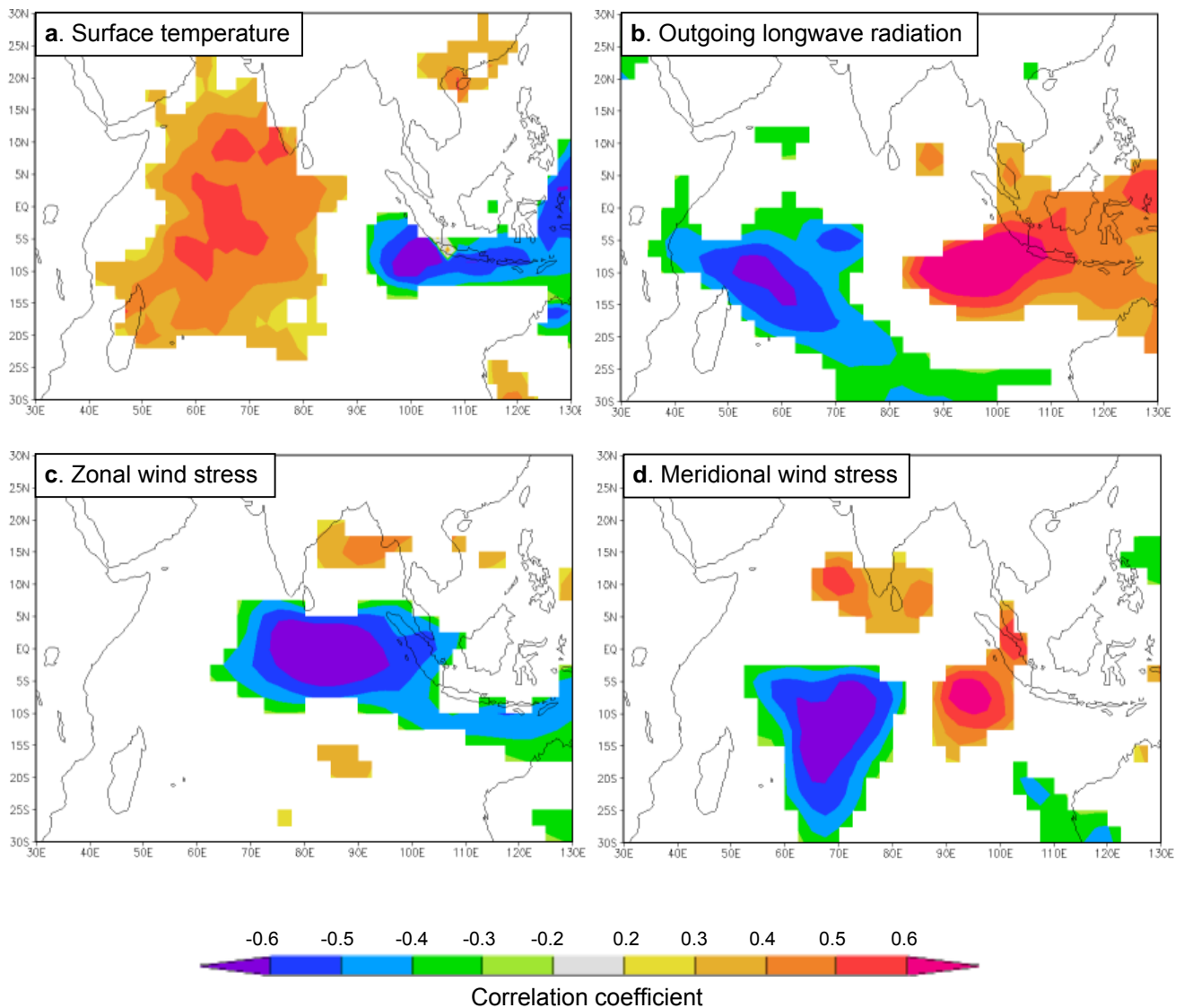
Supplementary Figure 1 Comparison of the coral DMI with instrumental records. The monthly coral DMI reconstruction (black curve) is shown with **a**, the Saji *et al.*, instrumental DMI⁵ derived from the GISST2.3 dataset, **b**, an instrumental DMI derived from the NOAA Reynolds *et al.* v2 SST dataset⁶, and **c**, an instrumental DMI derived from satellite measurements of outgoing longwave radiation (a proxy for rainfall anomalies associated with the IOD; shown on an inverted scale). The coral DMI has highly significant correlations with each of the instrumental DMI records (details given beside figures for correlations using

annual averages and July-November averages), demonstrating that the coral DMI reconstruction is a robust measure of the coupled ocean-atmosphere anomalies of the IOD.

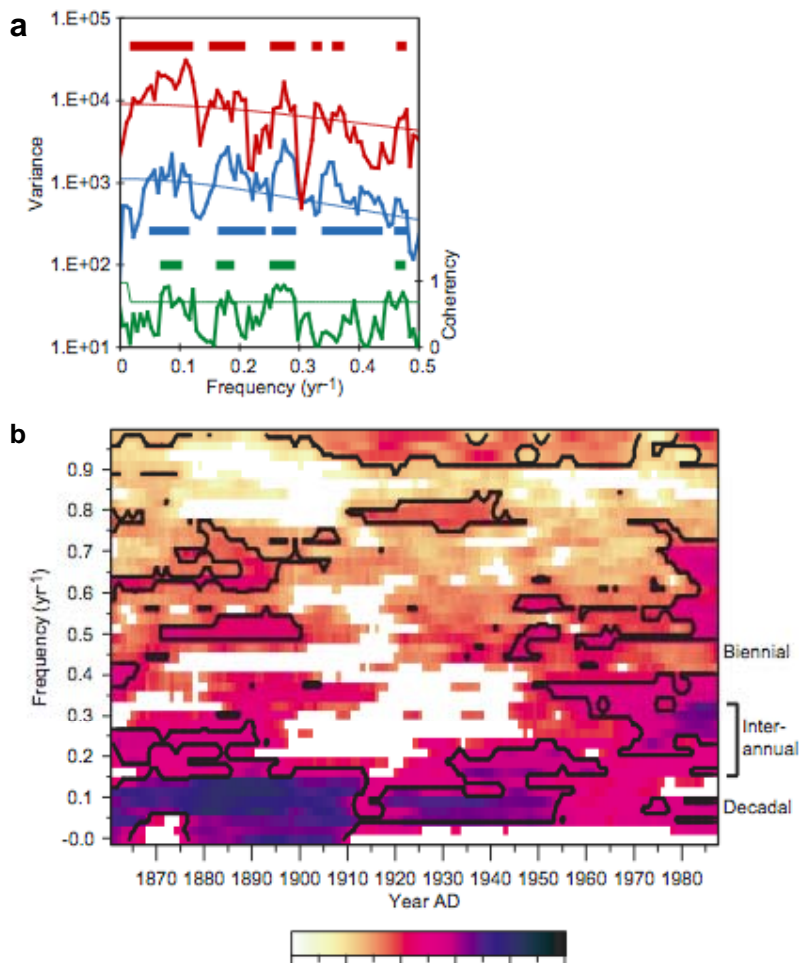
The Saji *et al.*, DMI only extends back to 1958 AD, because before this time SST measurements are too sparse within the DMI regions for reliable reconstructions⁵. Longer SST datasets (e.g. Kaplan, GISST/HADISST, ERSST) are poorly suited to DMI reconstructions for two reasons. Firstly, they do not capture the full extent of the local upwelling and cooling in the key eastern IOD region near Sumatra⁷. Secondly, the models used to generate these long SST records from sparse data rely on SST patterns related to ENSO variability, so they are not ideal for independently assessing how the interaction between ENSO and the IOD might have changed over time⁸. Despite this, our coral DMI displays robust correlations ($p < 0.0001$) with the extended DMI reconstructions from the GISST and Kaplan SST fields. However, these correlations do break down during the first half of the 20th century when ENSO teleconnections to the Indian Ocean were reduced, suggesting a limited utility of extended SST fields for studies of IOD variability.

A previous study⁹ by Charles *et al.*, also used coral records to reconstruct the Dipole Mode Index. Their study utilised the Bali coral and one of the Seychelles coral records for the reconstruction. Replicating our analysis using only these two corals (**d**, **e**, and **f**), we find the reconstruction produces weaker and much less significant correlations with instrumental records of the IOD. This demonstrates the greatly improved skill in capturing the IOD signal that is achieved by using four coral records including the new Mentawai record from the key eastern IOD upwelling region offshore of Sumatra.

Instrumental DMI datasets are available at www.jamstec.go.jp/frcgc/research/d1/iod/dmi.html

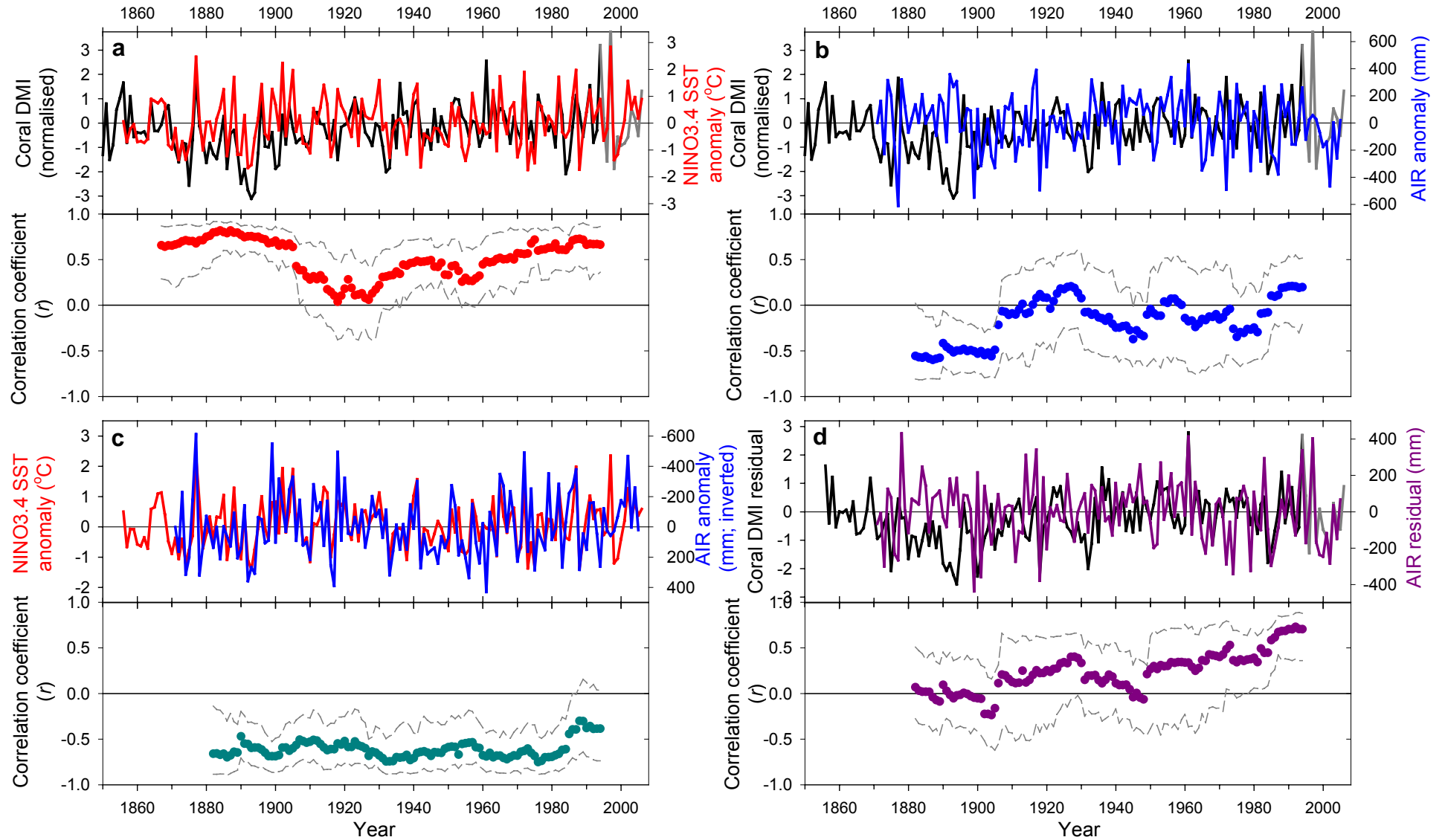


Supplementary Figure 2 Spatial correlation maps for the coral DMI. Maps are shown for the spatial correlation of July-November averages of the coral DMI with NCEP/NCAR reanalysis fields¹⁰ of **a**, surface temperature, **b**, OLR, **c**, zonal wind stress and **d**, meridional wind stress. Correlation intervals span 1948 – 1994 (a, b, c) and 1958 – 1994 (b). Shading is restricted to correlations that are significant above the 90% level. The spatial correlation maps demonstrate that the coral DMI reliably reflects the coupled ocean-atmosphere processes of IOD events across the equatorial Indian Ocean¹¹. The coral DMI correlates with: a, strong SST cooling along the Java-Sumatran coasts and broad SST warming in the western Indian Ocean; b, reduced rainfall in western Indonesia (particularly near Sumatra), and enhanced rainfall in the western Indian Ocean and equatorial east Africa; c, easterly wind anomalies along the equator and offshore of Java and Sumatra; and d, southerly wind anomalies offshore of Sumatra and northerly wind anomalies across the southwestern Indian Ocean. Correlation maps were constructed using the Climate Explorer website at <http://climexp.knmi.nl>



Supplementary Figure 3 Spectral analysis of the coral DMI. **a**, Multi-taper spectral analysis¹² of the coral DMI (red; filtered at ≥ 100 y (i.e. detrending only)), NINO3.4 SST (blue), and their coherency (green) plotted as a function of frequency. The 90% significance level, estimated using a red-noise background assumption, is shown by the finer line of the same colour. Coloured bars indicate frequencies with significant concentrations of variance or coherency. The IOD shows high-frequency variance that exceeds 90% significance at biennial (~ 2 y) and interannual (~ 3 y, 5-7y) periods. There is also a significant concentration of variance over a broad low-frequency band between 8-56y, peaking in a quasi-decadal (10-14y) range. Variance of the IOD is coherent (linearly correlated) with NINO3.4 variance at biennial, interannual, and decadal periods.

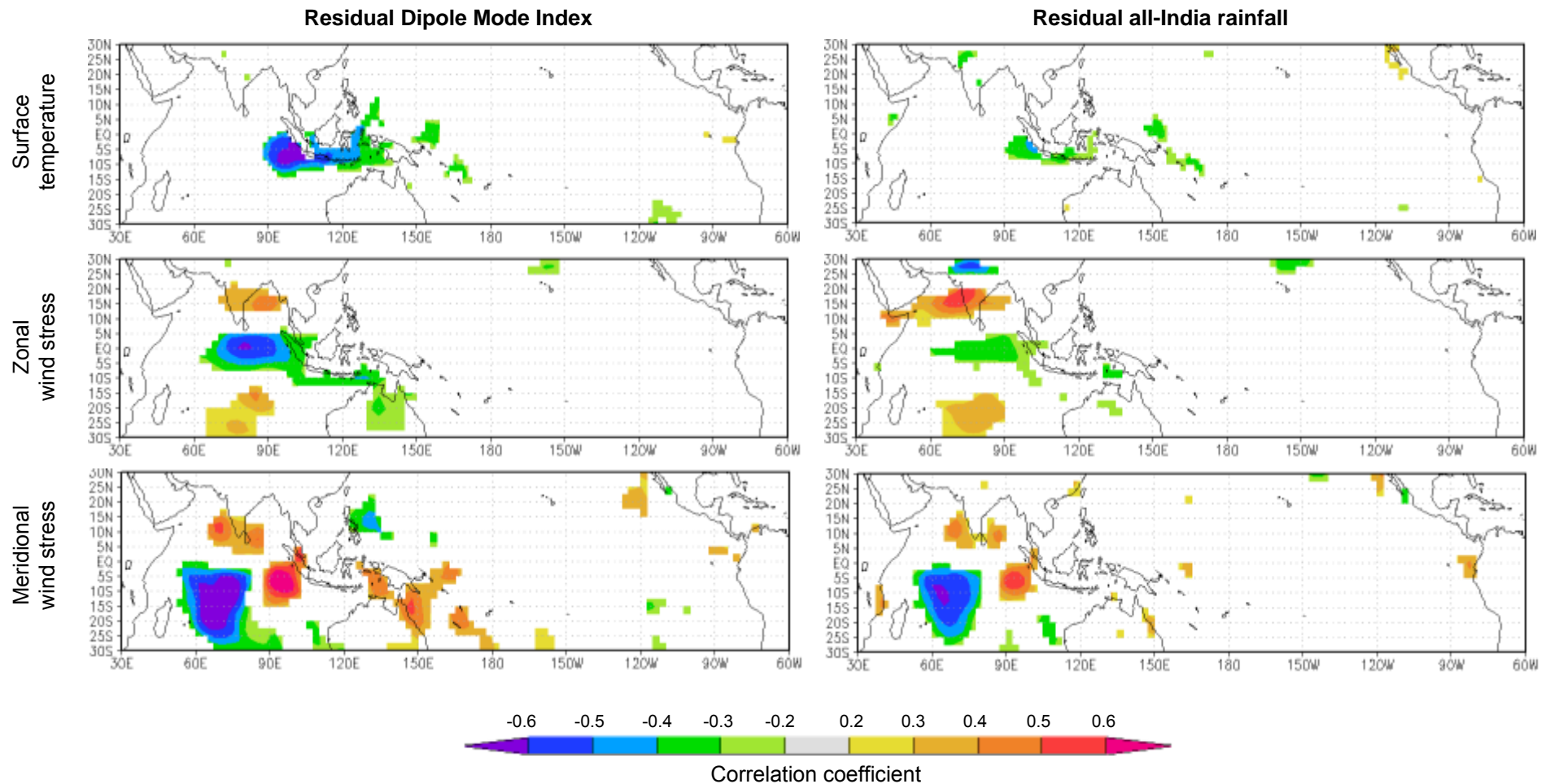
b, Evolutive spectral analysis of the DMI (filtered at ≥ 100 yr; 40yr intervals stepped by 1yr) shows the changing strength of the periodicities of IOD variance through time. Decadal variability is strongest before 1910, variance was generally weak between 1910-1960, and interannual variance has strengthened since 1960. The evolutive history of these periodicities in IOD variability are similar to those observed in numerous ENSO sensitive records^{9,13}.



Supplementary Figure 4 Comparison of IOD, ENSO and monsoon indices. July–November averages of the unfiltered coral DMI (black curve; extended in grey using the Reynolds2 instrumental SST DMI⁶) are shown with (a) July–November averages of the NINO3.4 index¹⁴, and (b) June–September averages

of the all-India rainfall anomaly¹⁵. (c) Comparison of June-September averages of NINO3.4 and the all-India rainfall anomaly. Also shown is (d) the July-November residual of the DMI and June-September residual of all-India rainfall, which were estimated by removing the expected influence of ENSO from both timeseries (based on their seasonal correlation with the NINO3.4 index). The selected seasonal averages optimise the correlations between these climate indices and represent the seasonal timing of IOD events (July-November) and Indian summer monsoon rainfall (June-September). The lower panel of each plot shows the 25-year moving correlation coefficients (circles), along with a moving 95% confidence window determined using 1000 Monte Carlo simulations (dashed lines). Correlations were also performed between the timeseries over three discrete intervals (pre-1905, 1905-1960 and post-1960), and the results summarised in Supplementary Table 5).

Correlation analysis and the calculation of residual indices were performed using the Climate Explorer website at <http://climexp.knmi.nl>.

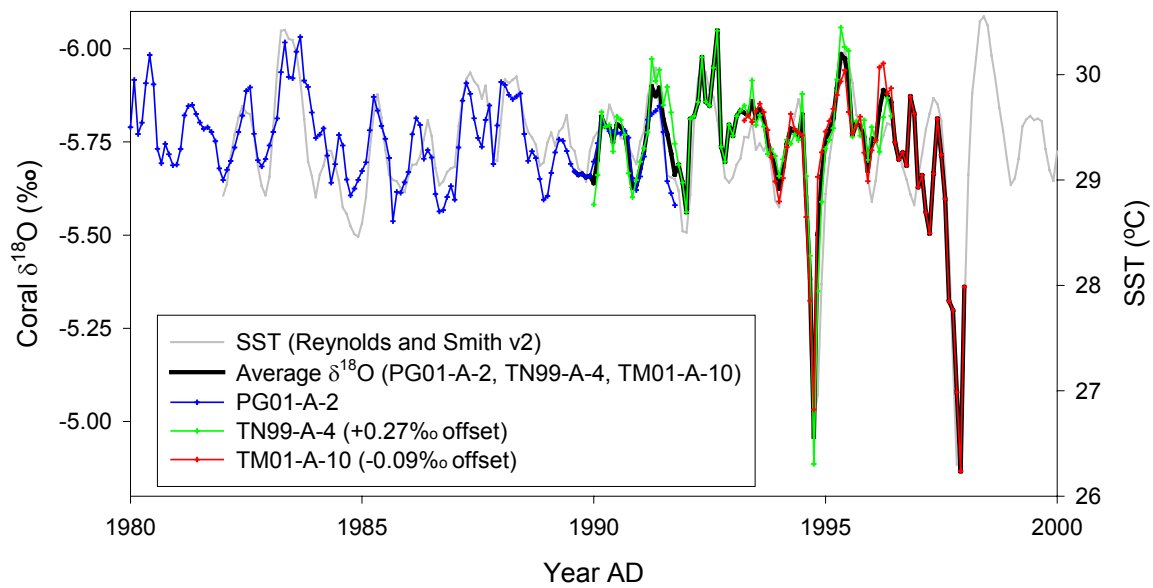


Supplementary Figure 5 Correlation maps of the residual DMI and the residual all-India monsoon rainfall records with NCEP/NCAR reanalysis fields¹⁰ since 1948. Correlations are shown for surface temperature, zonal wind stress and meridional wind stress across the tropical Indian and Pacific Oceans. The residual records of the IOD and Asian monsoon system were constructed by removing the common influence of ENSO from both systems (Supplementary Fig. 4d). Correlations were performed using July-November averages for the residual DMI record and June-September averages for the

residual all-India rainfall record, which correspond to the seasonal timing of IOD events and Asian monsoon rainfall, respectively. Shading is restricted to correlations that are significant above the 10% level. The residuals do not show any correlation with ENSO-like patterns in the Pacific Ocean, confirming that the ENSO influence has been adequately removed.

The IOD and monsoon rainfall residuals both display significant correlations with surface temperature and wind stress in the tropical Indian Ocean, and the spatial pattern and sign of these correlations is remarkably similar for both residual records. This suggests that, in addition to the common influence of ENSO on both systems, the IOD and Asian monsoon systems also interact directly via processes internal to the Indian Ocean region. The correlation maps suggest that the direct IOD-monsoon connection involves upwelling and southeasterly wind anomalies in the eastern equatorial Indian Ocean, easterly wind anomalies along the equatorial Indian Ocean, and southwesterly wind anomalies over southern India.

Correlation maps were constructed using the Climate Explorer website at <http://climexp.knmi.nl>



Supplementary Figure 6 Mentawai coral $\delta^{18}\text{O}$ records. Overlapping $\delta^{18}\text{O}$ records from three Mentawai corals were used to ensure that the Mentawai $\delta^{18}\text{O}$ record extended to the time of reef death at the end of 1997. The coral $\delta^{18}\text{O}$ records are shown along with the Reynolds v2 SST record⁶ for the Mentawai Islands. The uppermost ages of the corals were established by matching distinctive interannual excursions in the coral $\delta^{18}\text{O}$ records with the instrumental SST record for this site. These distinctive features included strong cooling during the 1994 and 1997 IOD upwelling events, and distinct warm anomalies during the 1982/83, 1987/88 and 1991/92 El Niño events.

Supplementary Plates

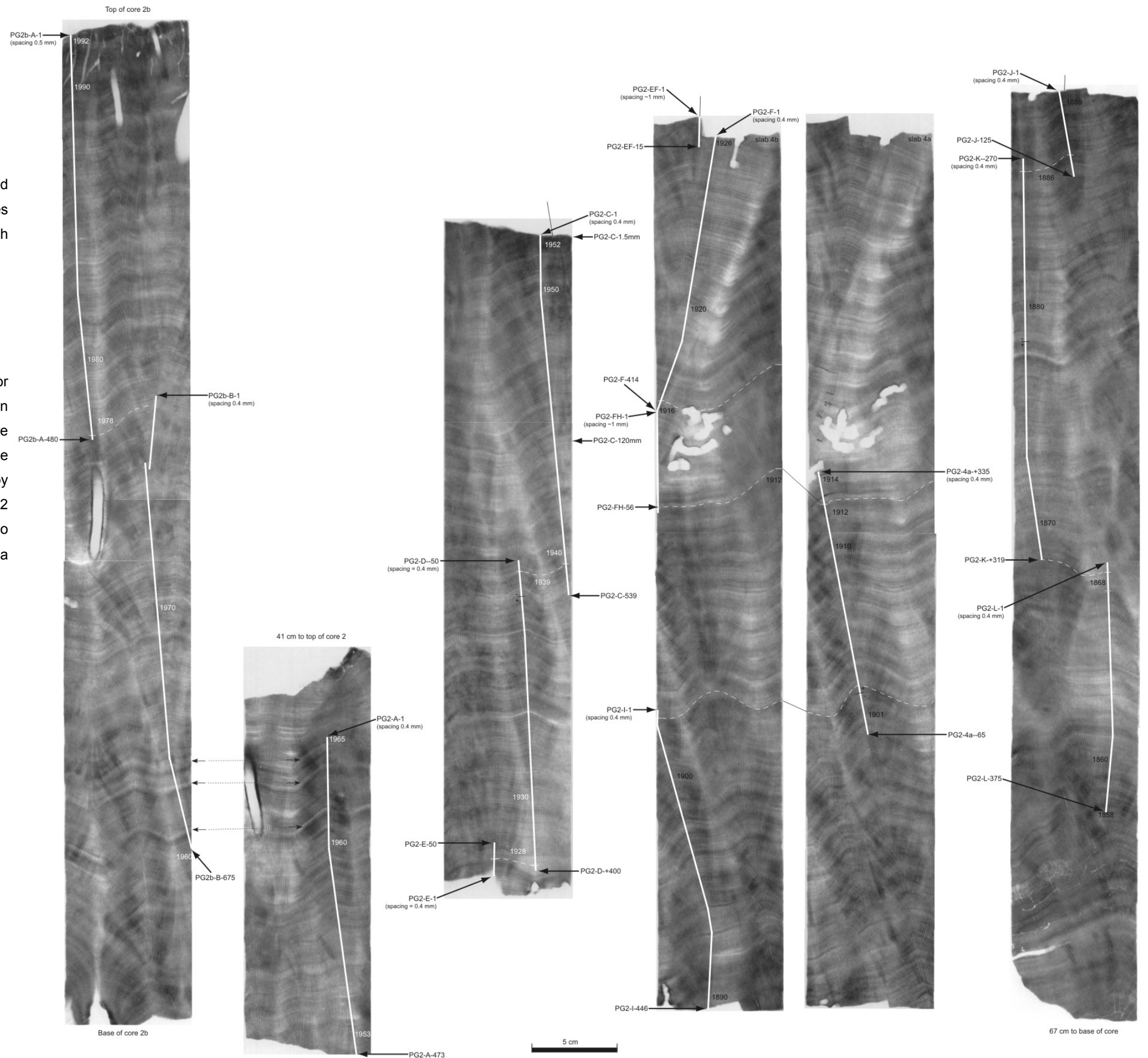
Supplementary Plate 1 X-radiograph of coral PG01-A-2,2b

Age: Modern (presumed dead 1997; collected 2001)

White lines show transects where coral $\delta^{18}\text{O}$ has been analysed at high resolution. Black arrows show the identification prefixes and numbers of microsamples at the beginning and end of each transect.

Core sections shown: 0 cm – 58 cm depth in core 2b
41 cm – 205 cm depth in core 2

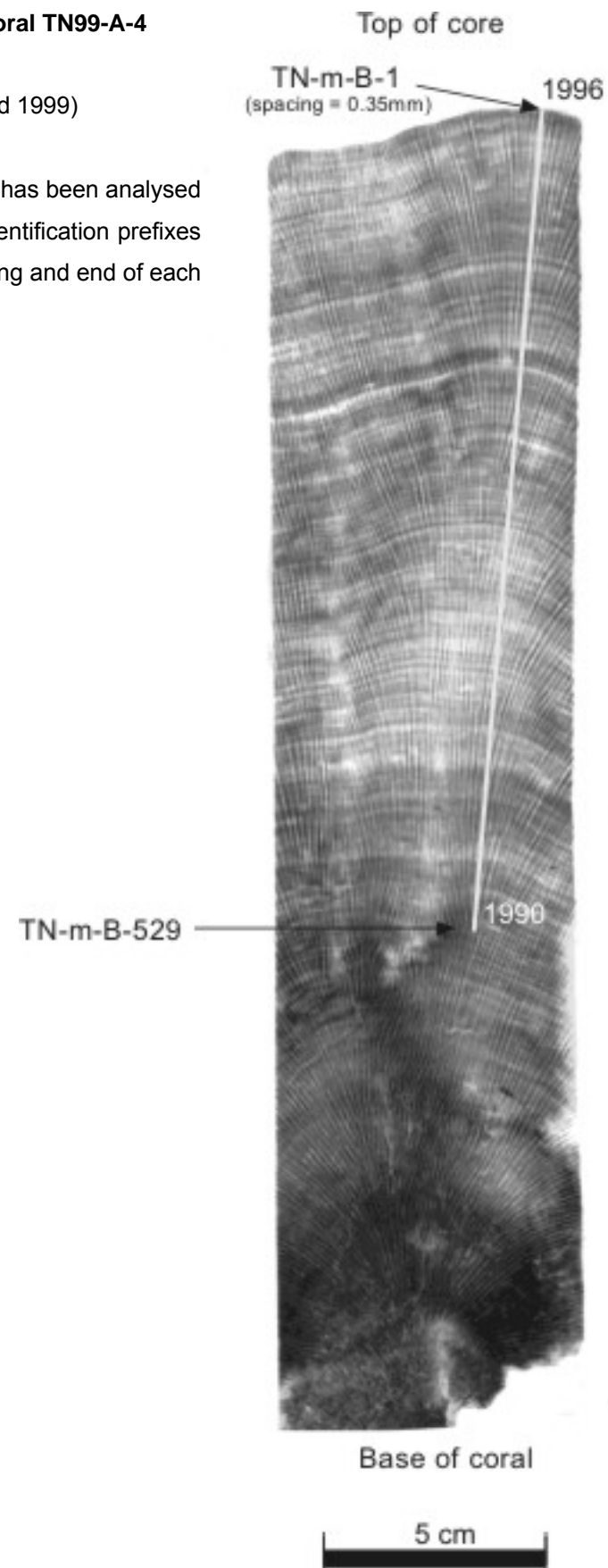
Note: the upper 41 cm of core PG01-A-2 was not suitable for geochemical analysis because of a large molluscan boring in this portion of the core. Because of this an adjacent 2b core was drilled to provide the uppermost part of this coral. A precise chronological match between the two cores was achieved by matching three distinct coral density bands between cores 2 and 2b (dashed arrows). The distinct 1961 IOD event was also identified in the $\delta^{18}\text{O}$ records of both cores and provided a further chronological tie-point.



Supplementary Plate 2 X-radiograph of coral TN99-A-4

Age: modern (presumed dead 1997; collected 1999)

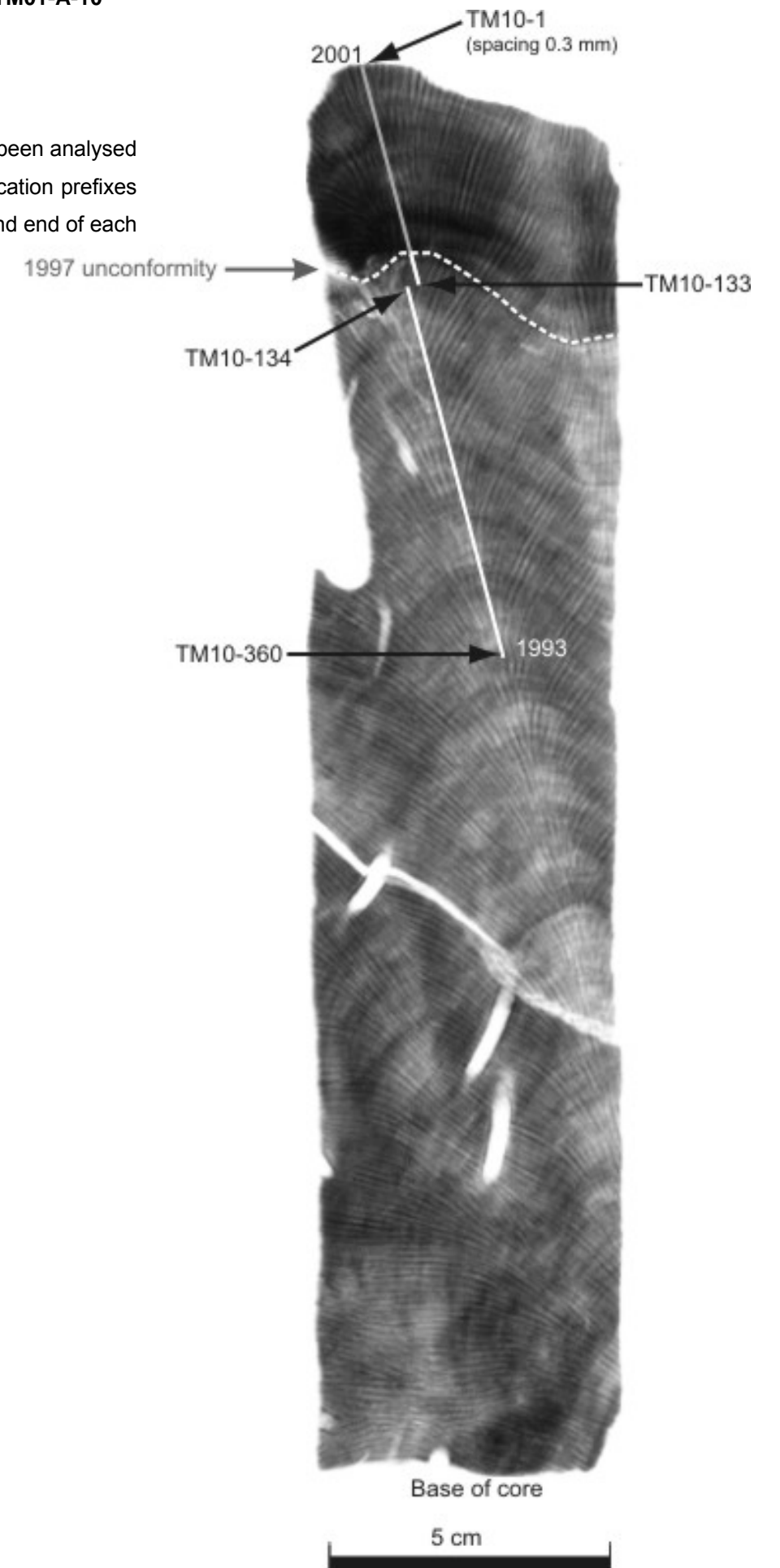
White lines show transects where coral $\delta^{18}\text{O}$ has been analysed at high resolution. Black arrows show the identification prefixes and numbers of microsamples at the beginning and end of each transect.



Supplementary Plate 3 X-radiograph of coral TM01-A-10

Age: modern (collected alive 2001)

White lines show transects where coral $\delta^{18}\text{O}$ has been analysed at high resolution. Black arrows show the identification prefixes and numbers of microsamples at the beginning and end of each transect.



1876.37	-5.73	0.00	1882.46	-5.63	0.09	1888.54	-5.74	-0.05	1894.62	-5.70	-0.03
1876.46	-5.73	-0.01	1882.54	-5.65	0.04	1888.63	-5.71	-0.05	1894.71	-5.66	-0.04
1876.54	-5.71	-0.01	1882.62	-5.62	0.05	1888.71	-5.62	0.00	1894.79	-5.64	-0.04
1876.62	-5.68	-0.02	1882.71	-5.56	0.06	1888.79	-5.58	0.02	1894.87	-5.53	0.03
1876.71	-5.65	-0.03	1882.79	-5.51	0.09	1888.88	-5.55	0.00	1894.96	-5.58	0.03
1876.79	-5.58	0.02	1882.87	-5.31	0.25	1888.96	-5.61	0.01	1895.04	-5.61	0.03
1876.87	-5.63	-0.07	1882.96	-5.40	0.21	1889.04	-5.65	-0.01	1895.12	-5.61	0.07
1876.96	-5.76	-0.14	1883.04	-5.47	0.17	1889.13	-5.68	-0.01	1895.21	-5.61	0.08
1877.04	-5.57	0.07	1883.12	-5.55	0.13	1889.21	-5.78	-0.08	1895.29	-5.56	0.15
1877.12	-5.54	0.13	1883.21	-5.63	0.06	1889.29	-5.83	-0.12	1895.37	-5.71	0.02
1877.21	-5.55	0.14	1883.29	-5.68	0.03	1889.38	-5.87	-0.14	1895.46	-5.79	-0.07
1877.29	-5.56	0.15	1883.37	-5.71	0.01	1889.46	-5.99	-0.27	1895.54	-5.81	-0.12
1877.37	-5.74	-0.02	1883.46	-5.73	-0.01	1889.54	-5.89	-0.20	1895.62	-5.71	-0.05
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1877.54	-5.71	-0.02	1883.62	-5.66	0.00	1889.71	-5.68	-0.06	1895.79	-5.48	0.12
1877.62	-5.56	0.10	1883.71	-5.60	0.02	1889.79	-5.66	-0.06	1895.87	-5.39	0.16
1877.71	-5.45	0.17	1883.79	-5.56	0.04	1889.88	-5.64	-0.08	1895.96	-5.59	0.02
1877.79	-5.25	0.35	1883.87	-5.53	0.03	1889.96	-5.58	0.03	1896.04	-5.69	-0.05
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1878.04	-5.43	0.21	1884.12	-5.44	0.24	1890.21	-5.45	0.24	1896.29	-5.68	0.02
1878.12	-5.59	0.09	1884.21	-5.44	0.26	1890.29	-5.42	0.29	1896.37	-5.70	0.03
1878.21	-5.66	0.03	1884.29	-5.49	0.22	1890.37	-5.77	-0.04	1896.46	-5.72	0.00
1878.29	-5.70	0.00	1884.37	-5.55	0.18	1890.46	-5.81	-0.09	1896.54	-5.79	-0.10
1878.37	-5.57	0.15	1884.46	-5.61	0.11	1890.54	-5.74	-0.04	1896.62	-5.78	-0.12
1878.46	-5.66	0.06	1884.54	-5.66	0.03	1890.62	-5.64	0.02	1896.71	-5.69	-0.06
1878.54	-5.73	-0.04	1884.62	-5.64	0.02	1890.71	-5.58	0.04	1896.79	-5.60	0.00
1878.62	-5.69	-0.03	1884.71	-5.52	0.10	1890.79	-5.52	0.08	1896.87	-5.53	0.03
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1878.96	-5.62	0.00	1885.04	-5.51	0.13	1891.12	-5.56	0.12	1897.21	-5.88	-0.18
1879.04	-5.55	0.09	1885.12	-5.52	0.15	1891.21	-5.64	0.05	1897.29	-5.95	-0.24
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1879.62	-5.67	0.00	1885.71	-5.61	0.02	1891.79	-5.70	-0.10	1897.87	-5.79	-0.23
1879.71	-5.52	0.10	1885.79	-5.58	0.02	1891.87	-5.91	-0.35	1897.96	-5.79	-0.18
1879.79	-5.49	0.11	1885.87	-5.48	0.07	1891.96	-5.97	-0.36	1898.04	-5.78	-0.14
1879.87	-5.48	0.08	1885.96	-5.77	-0.15	1892.04	-5.99	-0.35	1898.12	-5.76	-0.08
1879.96	-5.49	0.13	1886.04	-5.76	-0.11	1892.12	-6.00	-0.33	1898.21	-5.73	-0.03
1880.04	-5.51	0.13	1886.12	-5.74	-0.06	1892.21	-5.89	-0.20	1898.29	-5.71	0.00
1880.12	-5.56	0.12	1886.21	-5.80	-0.11	1892.29	-5.80	-0.10	1898.37	-5.72	0.00
1880.21	-5.60	0.09	1886.29	-5.83	-0.12	1892.37	-5.79	-0.06	1898.46	-5.79	-0.07
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1880.37	-5.71	0.02	1886.46	-5.74	-0.02	1892.54	-5.69	0.00	1898.62	-5.64	0.03
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1881.54	-5.60	0.09	1887.63	-5.40	0.26	1893.71	-5.61	0.02	1899.79	-5.62	-0.02
1881.62	-5.54	0.12	1887.71	-5.46	0.16	1893.79	-5.56	0.04	1899.87	-5.54	0.02
1881.71	-5.53	0.09	1887.79	-5.47	0.13	1893.87	-5.54	0.02	1899.96	-5.57	0.05
1881.79	-5.54	0.06	1887.88	-5.47	0.09	1893.96	-5.58	0.03	1900.04	-5.59	0.05
1881.87	-5.57	-0.01	1887.96	-5.48	0.13	1894.04	-5.60	0.04	1900.12	-5.60	0.07
1881.96	-5.58	0.03	1888.04	-5.52	0.12	1894.12	-5.59	0.08	1900.21	-5.59	0.10
1882.04	-5.59	0.05	1888.13	-5.60	0.08	1894.21	-5.66	0.03	1900.29	-5.85	-0.14
1882.12	-5.60	0.07	1888.21	-5.67	0.02	1894.29	-5.72	-0.01	1900.37	-5.86	-0.13
1882.21	-5.66	0.03	1888.29	-5.75	-0.04	1894.37	-5.77	-0.04	1900.46	-5.87	-0.15
1882.29	-5.68	0.03	1888.38	-5.75	-0.02	1894.46	-5.73	-0.01	1900.54	-5.87	-0.17
1882.37	-5.61	0.12	1888.46	-5.74	-0.02	1894.54	-5.70	-0.01	1900.62	-5.80	-0.14

1900.71	-5.71	-0.09	1906.79	-5.37	0.23	1912.88	-5.45	0.11	1918.96	-5.70	-0.09
1900.79	-5.64	-0.04	1906.88	-5.32	0.24	1912.96	-5.45	0.17	1919.04	-5.78	-0.14
1900.87	-5.57	-0.02	1906.96	-5.44	0.17	1913.04	-5.45	0.19	1919.13	-5.68	0.00
1900.96	-5.63	-0.02	1907.04	-5.41	0.24	1913.13	-5.49	0.18	1919.21	-5.60	0.10
1901.04	-5.68	-0.04	1907.13	-5.44	0.24	1913.21	-5.54	0.16	1919.29	-5.57	0.14
1901.12	-5.67	0.00	1907.21	-5.47	0.22	1913.29	-5.59	0.11	1919.38	-5.55	0.18
1901.21	-5.70	0.00	1907.29	-5.58	0.13	1913.38	-5.63	0.09	1919.46	-5.50	0.22
1901.29	-5.69	0.02	1907.38	-5.69	0.04	1913.46	-5.66	0.06	1919.54	-5.59	0.10
1901.37	-5.75	-0.03	1907.46	-5.62	0.10	1913.54	-5.68	0.01	1919.63	-5.57	0.10
1901.46	-5.90	-0.18	1907.54	-5.54	0.15	1913.63	-5.69	-0.02	1919.71	-5.50	0.13
1901.54	-5.99	-0.30	1907.63	-5.53	0.13	1913.71	-5.70	-0.07	1919.79	-5.46	0.14
1901.62	-5.98	-0.32	1907.71	-5.52	0.10	1913.79	-5.64	-0.04	1919.88	-5.45	0.10
1901.71	-5.84	-0.21	1907.79	-5.47	0.13	1913.88	-5.59	-0.03	1919.96	-5.54	0.07
1901.79	-5.68	-0.08	1907.88	-5.41	0.15	1913.96	-5.60	0.02	1920.04	-5.60	0.04
1901.87	-5.60	-0.04	1907.96	-5.49	0.12	1914.04	-5.65	-0.01	1920.13	-5.76	-0.09
1901.96	-5.60	0.01	1908.04	-5.52	0.12	1914.13	-5.72	-0.05	1920.21	-5.76	-0.07
1902.04	-5.58	0.07	1908.13	-5.48	0.20	1914.21	-5.93	-0.24	1920.29	-5.65	0.06
1902.12	-5.58	0.09	1908.21	-5.46	0.24	1914.29	-5.89	-0.19	1920.38	-5.64	0.09
1902.21	-5.60	0.09	1908.29	-5.46	0.25	1914.38	-5.72	0.01	1920.46	-5.70	0.02
1902.29	-5.60	0.10	1908.38	-5.49	0.23	1914.46	-5.61	0.11	1920.54	-5.64	0.05
1902.37	-5.60	0.12	1908.46	-5.50	0.22	1914.54	-5.68	0.01	1920.63	-5.48	0.19
1902.46	-5.63	0.09	1908.54	-5.49	0.21	1914.63	-5.71	-0.05	1920.71	-5.51	0.11
1902.54	-5.70	-0.01	1908.63	-5.48	0.18	1914.71	-5.74	-0.12	1920.79	-5.65	-0.05
1902.62	-5.78	-0.11	1908.71	-5.50	0.13	1914.79	-5.66	-0.06	1920.88	-5.45	0.11
1902.71	-5.74	-0.11	1908.79	-5.54	0.06	1914.88	-5.59	-0.03	1920.96	-5.60	0.02
1902.79	-5.58	0.02	1908.88	-5.55	0.00	1914.96	-5.61	0.00	1921.04	-5.63	0.01
1902.87	-5.44	0.12	1908.96	-5.56	0.06	1915.04	-5.64	0.01	1921.13	-5.72	-0.04
1902.96	-5.60	0.02	1909.04	-5.52	0.12	1915.13	-5.76	-0.08	1921.21	-5.78	-0.08
1903.04	-5.66	-0.02	1909.13	-5.54	0.14	1915.21	-5.94	-0.25	1921.29	-5.80	-0.09
1903.12	-5.77	-0.10	1909.21	-5.60	0.10	1915.29	-5.94	-0.23	1921.38	-5.78	-0.05
1903.21	-5.91	-0.22	1909.29	-5.65	0.06	1915.38	-5.84	-0.12	1921.46	-5.69	0.03
1903.29	-5.84	-0.13	1909.38	-5.62	0.10	1915.46	-5.83	-0.11	1921.54	-5.64	0.05
1903.37	-5.73	0.00	1909.46	-5.50	0.22	1915.54	-5.83	-0.14	1921.63	-5.69	-0.02
1903.46	-5.70	0.02	1909.54	-5.50	0.19	1915.63	-5.79	-0.12	1921.71	-5.54	0.08
1903.54	-5.77	-0.08	1909.63	-5.52	0.14	1915.71	-5.74	-0.12	1921.79	-5.51	0.09
1903.63	-5.78	-0.12	1909.71	-5.44	0.18	1915.79	-5.69	-0.09	1921.88	-5.52	0.04
1903.71	-5.81	-0.19	1909.79	-5.38	0.22	1915.88			1921.96	-5.50	0.12
1903.79	-5.83	-0.23	1909.88	-5.28	0.27	1915.96			1922.04	-5.45	0.19
1903.88	-5.80	-0.24	1909.96	-5.38	0.23	1916.04			1922.13	-5.45	0.22
1903.96	-5.67	-0.05	1910.04	-5.32	0.32	1916.13			1922.21	-5.59	0.11
1904.04	-5.60	0.04	1910.13	-5.37	0.31	1916.21			1922.29	-5.69	0.02
1904.13	-5.51	0.17	1910.21	-5.42	0.28	1916.29			1922.38	-5.64	0.08
1904.21	-5.41	0.28	1910.29	-5.43	0.28	1916.38			1922.46	-5.62	0.10
1904.29	-5.41	0.30	1910.38	-5.43	0.29	1916.46	-5.69	0.03	1922.54	-5.58	0.11
1904.38	-5.49	0.23	1910.46	-5.40	0.32	1916.54	-5.63	0.06	1922.63	-5.55	0.11
1904.46	-5.54	0.18	1910.54	-5.36	0.33	1916.63	-5.59	0.07	1922.71	-5.58	0.05
1904.54	-5.57	0.12	1910.63	-5.37	0.29	1916.71	-5.50	0.13	1922.79	-5.60	0.00
1904.63	-5.57	0.10	1910.71	-5.37	0.25	1916.79	-5.60	0.00	1922.88	-5.55	0.00
1904.71	-5.41	0.21	1910.79	-5.36	0.24	1916.88	-5.50	0.06	1922.96	-5.59	0.02
1904.79	-5.36	0.24	1910.88	-5.36	0.20	1916.96	-5.61	0.01	1923.04	-5.59	0.05
1904.88	-5.36	0.20	1910.96	-5.39	0.23	1917.04	-5.50	0.14	1923.13	-5.74	-0.07
1904.96	-5.38	0.23	1911.04	-5.24	0.40	1917.13	-5.63	0.05	1923.21	-5.80	-0.10
1905.04	-5.48	0.16	1911.13	-5.32	0.36	1917.21	-5.66	0.03	1923.29	-5.69	0.01
1905.13	-5.64	0.04	1911.21	-5.28	0.41	1917.29	-5.73	-0.02	1923.38	-5.74	-0.02
1905.21	-5.66	0.03	1911.29	-5.31	0.40	1917.38	-5.70	0.03	1923.46	-5.58	0.14
1905.29	-5.69	0.01	1911.38	-5.33	0.39	1917.46	-5.61	0.11	1923.54	-5.62	0.07
1905.38	-5.71	0.01	1911.46	-5.35	0.37	1917.54	-5.57	0.12	1923.63	-5.62	0.04
1905.46	-5.72	0.00	1911.54	-5.37	0.32	1917.63	-5.51	0.16	1923.71	-5.64	-0.02
1905.54	-5.68	0.01	1911.63	-5.38	0.28	1917.71	-5.42	0.21	1923.79	-5.67	-0.07
1905.63	-5.63	0.03	1911.71	-5.40	0.23	1917.79	-5.45	0.15	1923.88	-5.69	-0.13
1905.71	-5.57	0.06	1911.79	-5.45	0.15	1917.88	-5.35	0.21	1923.96	-5.74	-0.13
1905.79	-5.52	0.08	1911.88	-5.50	0.06	1917.96	-5.40	0.22	1924.04	-5.62	0.02
1905.88	-5.49	0.07	1911.96	-5.50	0.11	1918.04	-5.56	0.08	1924.13	-5.69	-0.02
1905.96	-5.63	-0.02	1912.04	-5.50	0.14	1918.13	-5.61	0.06	1924.21	-5.75	-0.06
1906.04	-5.75	-0.11	1912.13	-5.56	0.11	1918.21	-5.64	0.05	1924.29	-5.75	-0.04
1906.13	-5.86	-0.19	1912.21	-5.63	0.07	1918.29	-5.66	0.05	1924.38	-5.76	-0.04
1906.21	-5.74	-0.04	1912.29	-5.83	-0.12	1918.38	-5.67	0.05	1924.46	-5.90	-0.18
1906.29	-5.72	-0.02	1912.38	-5.79	-0.06	1918.46	-5.71	0.01	1924.54	-5.61	0.08
1906.38	-5.82	-0.10	1912.46	-5.69	0.03	1918.54	-5.75	-0.06	1924.63	-5.67	0.00
1906.46	-5.72	0.00	1912.54	-5.59	0.10	1918.63	-5.76	-0.10	1924.71	-5.66	-0.03
1906.54	-5.61	0.08	1912.63	-5.53	0.13	1918.71	-5.64	-0.02	1924.79	-5.61	-0.01
1906.63	-5.50	0.17	1912.71	-5.47	0.16	1918.79	-5.71	-0.11	1924.88	-5.55	0.01
1906.71	-5.43	0.20	1912.79	-5.46	0.14	1918.88	-5.71	-0.15	1924.96	-5.57	0.04

1925.04	-5.56	0.08	1931.13	-5.73	-0.05	1937.21	-5.42	0.27	1943.29	-5.87	-0.16
1925.13	-5.59	0.08	1931.21	-5.65	0.04	1937.29	-5.42	0.28	1943.37	-5.68	0.04
1925.21	-5.62	0.08	1931.29	-5.71	-0.01	1937.37	-5.42	0.31	1943.46	-5.82	-0.10
1925.29	-5.62	0.09	1931.38	-5.67	0.05	1937.46	-5.42	0.30	1943.54	-5.64	0.06
1925.38	-5.69	0.04	1931.46	-5.83	-0.11	1937.54	-5.42	0.27	1943.62	-5.63	0.03
1925.46	-5.76	-0.04	1931.54	-5.87	-0.18	1937.62	-5.45	0.21	1943.71	-5.61	0.01
1925.54	-5.75	-0.05	1931.63	-5.84	-0.18	1937.71	-5.48	0.14	1943.79	-5.57	0.03
1925.63	-5.68	-0.02	1931.71	-5.97	-0.35	1937.79	-5.47	0.13	1943.87	-5.57	-0.01
1925.71	-5.65	-0.03	1931.79	-5.83	-0.23	1937.87	-5.42	0.14	1943.96	-5.72	-0.10
1925.79	-5.70	-0.10	1931.88	-5.67	-0.12	1937.96	-5.49	0.12	1944.04	-5.64	0.00
1925.88	-5.67	-0.11	1931.96	-5.74	-0.13	1938.04	-5.47	0.17	1944.12	-5.62	0.05
1925.96	-5.80	-0.19	1932.04	-5.75	-0.11	1938.12	-5.66	0.02	1944.21	-5.67	0.03
1926.04	-5.94	-0.30	1932.12	-5.69	-0.02	1938.21	-5.64	0.06	1944.29	-5.70	0.01
1926.12	-5.80	-0.12	1932.21	-5.72	-0.02	1938.29	-5.49	0.22	1944.37	-5.73	0.00
1926.21	-5.74	-0.05	1932.29	-5.71	-0.01	1938.37	-5.46	0.27	1944.46	-5.64	0.08
1926.29	-5.81	-0.10	1932.37	-5.64	0.09	1938.46	-5.46	0.26	1944.54	-5.56	0.14
1926.37	-5.90	-0.18	1932.46	-5.67	0.05	1938.54	-5.46	0.23	1944.62	-5.50	0.16
1926.46	-5.93	-0.21	1932.54	-5.72	-0.03	1938.62	-5.45	0.21	1944.71	-5.47	0.16
1926.54	-5.95	-0.26	1932.62	-5.75	-0.09	1938.71	-5.52	0.10	1944.79	-5.43	0.17
1926.62	-5.92	-0.25	1932.71	-5.79	-0.16	1938.79	-5.55	0.05	1944.87	-5.40	0.16
1926.71	-5.85	-0.23	1932.79	-5.81	-0.21	1938.87	-5.47	0.09	1944.96	-5.56	0.06
1926.79	-5.84	-0.24	1932.87	-5.78	-0.22	1938.96	-5.56	0.06	1945.04	-5.51	0.13
1926.87	-5.83	-0.27	1932.96	-5.90	-0.29	1939.04	-5.62	0.03	1945.12	-5.58	0.10
1926.96	-5.82	-0.21	1933.04	-5.98	-0.34	1939.12	-5.69	-0.01	1945.21	-5.69	0.00
1927.04	-5.81	-0.17	1933.12	-5.92	-0.25	1939.21	-5.69	0.01	1945.29	-5.73	-0.02
1927.12	-5.75	-0.08	1933.21	-5.85	-0.15	1939.29	-5.70	0.00	1945.37	-5.79	-0.07
1927.21	-5.68	0.01	1933.29	-5.76	-0.05	1939.37	-5.68	0.05	1945.46	-5.61	0.11
1927.29	-5.61	0.10	1933.37	-5.78	-0.06	1939.46	-5.61	0.11	1945.54	-5.51	0.18
1927.38	-5.54	0.18	1933.46	-5.78	-0.06	1939.54	-5.57	0.13	1945.62	-5.54	0.12
1927.46	-5.51	0.21	1933.54	-5.72	-0.03	1939.62	-5.54	0.12	1945.71	-5.60	0.03
1927.54	-5.63	0.06	1933.62	-5.73	-0.07	1939.71	-5.57	0.06	1945.79	-5.59	0.01
1927.63	-5.64	0.03	1933.71	-5.74	-0.12	1939.79	-5.55	0.05	1945.87	-5.50	0.06
1927.71	-5.64	-0.01	1933.79	-5.75	-0.15	1939.87	-5.50	0.05	1945.96	-5.52	0.09
1927.79	-5.61	-0.01	1933.87	-5.46	0.10	1939.96	-5.53	0.08	1946.04	-5.55	0.09
1927.88	-5.50	0.06	1933.96	-5.57	0.04	1940.04	-5.57	0.07	1946.12	-5.64	0.04
1927.96	-5.52	0.09	1934.04	-5.61	0.04	1940.13	-5.57	0.10	1946.21	-5.65	0.04
1928.04	-5.57	0.08	1934.12	-5.60	0.07	1940.21	-5.62	0.08	1946.29	-5.75	-0.04
1928.13	-5.69	-0.01	1934.21	-5.63	0.06	1940.29	-5.67	0.03	1946.37	-5.78	-0.06
1928.21	-5.67	0.02	1934.29	-5.69	0.02	1940.38	-5.75	-0.02	1946.46	-5.69	0.02
1928.29	-5.74	-0.03	1934.37	-5.70	0.03	1940.46	-5.77	-0.05	1946.54	-5.68	0.01
1928.38	-5.77	-0.04	1934.46	-5.63	0.09	1940.54	-5.74	-0.04	1946.62	-5.62	0.04
1928.46	-5.68	0.04	1934.54	-5.56	0.14	1940.63	-5.65	0.01	1946.71	-5.55	0.08
1928.54	-5.65	0.04	1934.62	-5.62	0.04	1940.71	-5.64	-0.01	1946.79	-5.59	0.01
1928.63	-5.68	-0.02	1934.71	-5.60	0.03	1940.79	-5.62	-0.02	1946.87	-5.63	-0.08
1928.71	-5.58	0.05	1934.79	-5.54	0.06	1940.88	-5.60	-0.04	1946.96	-5.63	-0.01
1928.79	-5.59	0.01	1934.87	-5.45	0.11	1940.96	-5.63	-0.02	1947.04	-5.50	0.14
1928.88	-5.54	0.02	1934.96	-5.48	0.13	1941.04	-5.68	-0.04	1947.12	-5.52	0.15
1928.96	-5.56	0.05	1935.04	-5.52	0.12	1941.13	-5.67	0.00	1947.21	-5.52	0.18
1929.04	-5.66	-0.02	1935.12	-5.59	0.09	1941.21	-5.55	0.14	1947.29	-5.57	0.13
1929.13	-5.73	-0.06	1935.21	-5.58	0.12	1941.29	-5.62	0.09	1947.37	-5.64	0.09
1929.21	-5.72	-0.03	1935.29	-5.55	0.16	1941.38	-5.69	0.03	1947.46	-5.60	0.12
1929.29	-5.64	0.06	1935.37	-5.70	0.02	1941.46	-5.79	-0.08	1947.54	-5.54	0.15
1929.38	-5.78	-0.06	1935.46	-5.80	-0.08	1941.54	-5.94	-0.25	1947.62	-5.56	0.10
1929.46	-5.82	-0.10	1935.54	-5.74	-0.04	1941.63	-5.82	-0.15	1947.71	-5.61	0.02
1929.54	-5.60	0.10	1935.62	-5.75	-0.09	1941.71	-5.73	-0.10	1947.79	-5.63	-0.03
1929.63	-5.75	-0.09	1935.71	-5.69	-0.07	1941.79	-5.66	-0.06	1947.87	-5.61	-0.05
1929.71	-5.61	0.01	1935.79	-5.68	-0.08	1941.88	-5.58	-0.02	1947.96	-5.74	-0.13
1929.79	-5.59	0.01	1935.87	-5.75	-0.19	1941.96	-5.66	-0.05	1948.04	-5.75	-0.11
1929.88	-5.60	-0.04	1935.96	-5.74	-0.13	1942.04	-5.70	-0.06	1948.12	-5.75	-0.08
1929.96	-5.63	-0.01	1936.04	-5.85	-0.21	1942.13	-5.83	-0.16	1948.21	-5.77	-0.08
1930.04	-5.67	-0.03	1936.12	-5.71	-0.04	1942.21	-5.85	-0.15	1948.29	-5.77	-0.06
1930.13	-5.76	-0.09	1936.21	-5.65	0.05	1942.29	-5.78	-0.07	1948.37	-5.78	-0.06
1930.21	-5.84	-0.15	1936.29	-5.66	0.05	1942.38	-5.78	-0.05	1948.46	-5.84	-0.12
1930.29	-5.81	-0.10	1936.37	-5.62	0.11	1942.46	-5.87	-0.15	1948.54	-5.69	0.00
1930.38	-5.62	0.11	1936.46	-5.40	0.32	1942.54	-5.94	-0.25	1948.62	-5.65	0.01
1930.46	-5.73	-0.01	1936.54	-5.37	0.32	1942.62	-5.92	-0.26	1948.71	-5.67	-0.05
1930.54	-5.89	-0.19	1936.62	-5.40	0.26	1942.71	-5.79	-0.16	1948.79	-5.63	-0.03
1930.63	-5.92	-0.26	1936.71	-5.47	0.16	1942.79	-5.72	-0.12	1948.87	-5.52	0.04
1930.71	-5.81	-0.19	1936.79	-5.47	0.13	1942.87	-5.64	-0.08	1948.96	-5.70	-0.09
1930.79	-5.64	-0.04	1936.87	-5.45	0.11	1942.96	-5.75	-0.13	1949.04	-5.80	-0.16
1930.88	-5.55	0.01	1936.96	-5.42	0.20	1943.04	-5.71	-0.07	1949.12	-5.79	-0.12
1930.96	-5.57	0.04	1937.04	-5.36	0.29	1943.12	-5.68	0.00	1949.21	-5.83	-0.14
1931.04	-5.65	-0.01	1937.12	-5.40	0.28	1943.21	-5.69	0.01	1949.29	-5.79	-0.08

1949.37	-5.69	0.04	1955.46	-5.58	0.13	1961.54	-5.75	-0.06	1967.63	-5.82	-0.16
1949.46	-5.61	0.11	1955.54	-5.59	0.10	1961.62	-5.68	-0.02	1967.71	-5.98	-0.35
1949.54	-5.55	0.15	1955.62	-5.62	0.05	1961.71	-5.48	0.14	1967.79	-6.11	-0.51
1949.62	-5.62	0.04	1955.71	-5.65	-0.03	1961.79	-5.20	0.40	1967.88	-6.03	-0.47
1949.71	-5.61	0.02	1955.79	-5.68	-0.08	1961.87	-5.13	0.43	1967.96	-5.93	-0.31
1949.79	-5.62	-0.02	1955.87	-5.59	-0.03	1961.96	-5.27	0.34	1968.04	-6.01	-0.36
1949.87	-5.71	-0.15	1955.96	-5.61	0.00	1962.04	-5.36	0.28	1968.13	-6.08	-0.40
1949.96	-5.75	-0.14	1956.04	-5.62	0.02	1962.12	-5.54	0.14	1968.21	-6.11	-0.42
1950.04	-5.86	-0.22	1956.12	-5.64	0.04	1962.21	-5.72	-0.03	1968.29	-6.11	-0.40
1950.12	-5.88	-0.20	1956.21	-5.74	-0.05	1962.29	-5.83	-0.12	1968.38	-6.05	-0.32
1950.21	-5.78	-0.08	1956.29	-5.75	-0.05	1962.37	-5.85	-0.13	1968.46	-5.94	-0.22
1950.29	-5.74	-0.03	1956.37	-5.69	0.04	1962.46	-5.84	-0.12	1968.54	-5.90	-0.20
1950.37	-5.65	0.07	1956.46	-5.68	0.04	1962.54	-5.81	-0.11	1968.63	-5.88	-0.21
1950.46	-5.69	0.03	1956.54	-5.63	0.07	1962.62	-5.76	-0.10	1968.71	-5.86	-0.24
1950.54	-5.72	-0.02	1956.62	-5.59	0.07	1962.71	-5.73	-0.11	1968.79	-5.84	-0.24
1950.62	-5.67	-0.01	1956.71	-5.57	0.06	1962.79	-5.70	-0.10	1968.88	-5.82	-0.26
1950.71	-5.64	-0.02	1956.79	-5.56	0.04	1962.87	-5.67	-0.11	1968.96	-5.91	-0.30
1950.79	-5.58	0.02	1956.87	-5.59	-0.03	1962.96	-5.70	-0.09	1969.04	-6.01	-0.37
1950.87	-5.45	0.10	1956.96	-5.61	0.01	1963.04	-5.70	-0.06	1969.13	-6.09	-0.42
1950.96	-5.62	-0.01	1957.04	-5.69	-0.05	1963.12	-5.68	-0.01	1969.21	-6.11	-0.42
1951.04	-5.62	0.02	1957.12	-5.68	-0.01	1963.21	-5.75	-0.05	1969.29	-6.03	-0.32
1951.12	-5.68	-0.01	1957.21	-5.72	-0.03	1963.29	-5.82	-0.11	1969.38	-5.90	-0.17
1951.21	-5.69	0.01	1957.29	-5.90	-0.19	1963.37	-5.87	-0.14	1969.46	-5.75	-0.03
1951.29	-5.62	0.09	1957.37	-5.99	-0.26	1963.46	-5.89	-0.17	1969.54	-5.71	-0.02
1951.37	-5.64	0.09	1957.46	-5.89	-0.17	1963.54	-5.77	-0.08	1969.63	-5.70	-0.04
1951.46	-5.61	0.11	1957.54	-5.70	-0.01	1963.62	-5.64	0.02	1969.71	-5.76	-0.13
1951.54	-5.56	0.13	1957.62	-5.59	0.07	1963.71	-5.65	-0.02	1969.79	-5.84	-0.24
1951.62	-5.58	0.08	1957.71	-5.56	0.06	1963.79	-5.60	0.00	1969.88	-5.70	-0.14
1951.71	-5.51	0.11	1957.79	-5.55	0.05	1963.87	-5.54	0.02	1969.96	-5.92	-0.30
1951.79	-5.44	0.16	1957.87	-5.54	0.02	1963.96	-5.86	-0.25	1970.04	-5.88	-0.23
1951.87	-5.46	0.10	1957.96	-5.81	-0.20	1964.04	-5.84	-0.19	1970.13	-5.86	-0.18
1951.96	-5.53	0.08	1958.04	-5.89	-0.25	1964.12	-6.01	-0.33	1970.21	-5.84	-0.15
1952.04	-5.68	-0.04	1958.12	-5.88	-0.20	1964.21	-6.05	-0.36	1970.29	-5.84	-0.13
1952.12	-5.64	0.04	1958.21	-5.90	-0.21	1964.29	-6.00	-0.29	1970.38	-5.81	-0.08
1952.21	-5.61	0.08	1958.29	-5.82	-0.11	1964.37	-5.90	-0.17	1970.46	-5.84	-0.12
1952.29	-5.61	0.10	1958.37	-5.88	-0.15	1964.46	-5.81	-0.09	1970.54	-5.67	0.03
1952.37	-5.73	0.00	1958.46	-5.99	-0.27	1964.54	-5.71	-0.02	1970.63	-5.75	-0.09
1952.46	-5.72	0.00	1958.54	-6.03	-0.33	1964.62	-5.67	0.00	1970.71	-5.71	-0.09
1952.54	-5.75	-0.06	1958.62	-5.94	-0.27	1964.71	-5.65	-0.03	1970.79	-5.67	-0.07
1952.62	-5.80	-0.14	1958.71	-5.81	-0.19	1964.79	-5.58	0.02	1970.88	-5.61	-0.06
1952.71	-5.79	-0.17	1958.79	-5.72	-0.12	1964.87	-5.55	0.01	1970.96	-5.76	-0.15
1952.79	-5.71	-0.11	1958.87	-5.73	-0.17	1964.96	-5.61	0.00	1971.04	-5.75	-0.11
1952.87	-5.60	-0.04	1958.96	-5.67	-0.06	1965.04	-5.71	-0.07	1971.13	-5.81	-0.14
1952.96	-5.70	-0.09	1959.04	-5.65	-0.01	1965.13	-5.75	-0.07	1971.21	-5.80	-0.11
1953.04	-5.62	0.02	1959.12	-5.67	0.01	1965.21	-5.60	0.09	1971.29	-5.65	0.06
1953.12	-5.59	0.09	1959.21	-5.72	-0.03	1965.29	-5.70	0.01	1971.38	-5.73	0.00
1953.21	-5.58	0.11	1959.29	-5.74	-0.03	1965.38	-5.61	0.12	1971.46	-5.78	-0.06
1953.29	-5.57	0.14	1959.37	-5.79	-0.07	1965.46	-5.68	0.04	1971.54	-5.87	-0.18
1953.37	-5.66	0.06	1959.46	-5.85	-0.13	1965.54	-5.72	-0.03	1971.63	-5.80	-0.14
1953.46	-5.76	-0.04	1959.54	-5.87	-0.17	1965.63	-5.68	-0.01	1971.71	-5.71	-0.09
1953.54	-5.73	-0.04	1959.62	-5.89	-0.22	1965.71	-5.72	-0.10	1971.79	-5.70	-0.10
1953.62	-5.67	0.00	1959.71	-5.84	-0.21	1965.79	-5.75	-0.15	1971.88	-5.57	-0.02
1953.71	-5.65	-0.02	1959.79	-5.78	-0.18	1965.88	-5.84	-0.28	1971.96	-5.66	-0.05
1953.79	-5.51	0.09	1959.87	-5.65	-0.09	1965.96	-5.86	-0.25	1972.04	-5.70	-0.06
1953.87	-5.63	-0.07	1959.96	-5.77	-0.16	1966.04	-5.77	-0.13	1972.13	-5.80	-0.12
1953.96	-5.72	-0.10	1960.04	-5.80	-0.15	1966.13	-5.97	-0.29	1972.21	-5.89	-0.20
1954.04	-5.74	-0.10	1960.12	-5.76	-0.09	1966.21	-5.93	-0.24	1972.29	-5.88	-0.17
1954.12	-5.88	-0.20	1960.21	-5.73	-0.03	1966.29	-5.91	-0.20	1972.38	-5.75	-0.03
1954.21	-5.78	-0.08	1960.29	-5.73	-0.02	1966.38	-5.88	-0.15	1972.46	-5.63	0.09
1954.29	-5.70	0.00	1960.37	-5.75	-0.02	1966.46	-5.74	-0.02	1972.54	-5.71	-0.01
1954.37	-5.69	0.04	1960.46	-5.77	-0.05	1966.54	-5.82	-0.12	1972.63	-5.81	-0.15
1954.46	-5.71	0.01	1960.54	-5.79	-0.10	1966.63	-5.81	-0.15	1972.71	-5.85	-0.22
1954.54	-5.70	-0.01	1960.62	-5.78	-0.12	1966.71	-5.79	-0.17	1972.79	-5.83	-0.23
1954.62	-5.58	0.08	1960.71	-5.74	-0.12	1966.79	-5.69	-0.09	1972.88	-5.93	-0.37
1954.71	-5.59	0.03	1960.79	-5.67	-0.07	1966.88	-5.56	0.00	1972.96	-5.95	-0.34
1954.79	-5.59	0.01	1960.87	-5.68	-0.12	1966.96	-5.69	-0.08	1973.04	-5.89	-0.24
1954.87	-5.53	0.03	1960.96	-5.65	-0.04	1967.04	-5.69	-0.05	1973.13	-5.88	-0.20
1954.96	-5.57	0.04	1961.04	-5.64	0.00	1967.13	-5.75	-0.08	1973.21	-5.86	-0.16
1955.04	-5.62	0.02	1961.12	-5.64	0.03	1967.21	-5.83	-0.14	1973.29	-5.78	-0.07
1955.12	-5.68	-0.01	1961.21	-5.65	0.05	1967.29	-5.78	-0.08	1973.38	-5.79	-0.06
1955.21	-5.76	-0.07	1961.29	-5.75	-0.04	1967.38	-5.77	-0.05	1973.46	-5.73	-0.02
1955.29	-5.82	-0.11	1961.37	-5.87	-0.14	1967.46	-5.78	-0.06	1973.54	-5.71	-0.02
1955.37	-5.70	0.03	1961.46	-5.75	-0.03	1967.54	-5.79	-0.09	1973.63	-5.73	-0.06

1973.71	-5.78	-0.16	1979.79	-5.68	-0.08	1985.88	-5.64	-0.08	1991.96	-5.56	0.05
1973.79	-5.79	-0.19	1979.88	-5.64	-0.08	1985.96	-5.67	-0.06	1992.04	-5.81	-0.17
1973.88	-5.51	0.04	1979.96	-5.79	-0.18	1986.04	-5.77	-0.13	1992.13	-5.82	-0.14
1973.96	-5.62	0.00	1980.04	-5.92	-0.27	1986.13	-5.81	-0.14	1992.21	-5.86	-0.16
1974.04	-5.67	-0.03	1980.13	-5.77	-0.10	1986.21	-5.80	-0.10	1992.29	-5.98	-0.27
1974.13	-5.74	-0.06	1980.21	-5.80	-0.11	1986.29	-5.70	0.00	1992.38	-5.86	-0.13
1974.21	-5.76	-0.06	1980.29	-5.91	-0.20	1986.38	-5.73	0.00	1992.46	-5.85	-0.13
1974.29	-5.70	0.01	1980.38	-5.98	-0.26	1986.46	-5.71	0.01	1992.54	-5.95	-0.26
1974.38	-5.74	-0.01	1980.46	-5.90	-0.19	1986.54	-5.61	0.08	1992.63	-6.05	-0.39
1974.46	-5.68	0.04	1980.54	-5.73	-0.04	1986.63	-5.56	0.10	1992.71	-5.74	-0.11
1974.54	-5.68	0.01	1980.63	-5.69	-0.03	1986.71	-5.57	0.06	1992.79	-5.70	-0.10
1974.63	-5.66	0.01	1980.71	-5.74	-0.12	1986.79	-5.60	0.00	1992.88	-5.80	-0.24
1974.71	-5.66	-0.03	1980.79	-5.72	-0.12	1986.88	-5.63	-0.07	1992.96	-5.77	-0.15
1974.79	-5.70	-0.10	1980.88	-5.69	-0.13	1986.96	-5.60	0.02	1993.04	-5.82	-0.18
1974.88	-5.62	-0.06	1980.96	-5.69	-0.07	1987.04	-5.74	-0.09	1993.13	-5.83	-0.16
1974.96	-5.62	-0.01	1981.04	-5.73	-0.09	1987.13	-5.86	-0.18	1993.21	-5.83	-0.13
1975.04	-5.67	-0.03	1981.13	-5.82	-0.15	1987.21	-5.91	-0.21	1993.29	-5.82	-0.11
1975.13	-5.73	-0.06	1981.21	-5.85	-0.15	1987.29	-5.88	-0.17	1993.38	-5.86	-0.13
1975.21	-5.79	-0.09	1981.29	-5.85	-0.14	1987.38	-5.81	-0.09	1993.46	-5.81	-0.10
1975.29	-5.77	-0.07	1981.38	-5.82	-0.10	1987.46	-5.76	-0.04	1993.54	-5.84	-0.14
1975.38	-5.77	-0.04	1981.46	-5.80	-0.08	1987.54	-5.74	-0.04	1993.63	-5.81	-0.15
1975.46	-5.65	0.07	1981.54	-5.78	-0.09	1987.63	-5.81	-0.15	1993.71	-5.75	-0.13
1975.54	-5.68	0.01	1981.63	-5.79	-0.13	1987.71	-5.85	-0.22	1993.79	-5.72	-0.12
1975.63	-5.71	-0.04	1981.71	-5.78	-0.15	1987.79	-5.69	-0.09	1993.88	-5.68	-0.12
1975.71	-5.66	-0.04	1981.79	-5.75	-0.15	1987.88	-5.79	-0.24	1993.96	-5.62	-0.01
1975.79	-5.57	0.03	1981.88	-5.68	-0.12	1987.96	-5.91	-0.30	1994.04	-5.68	-0.04
1975.88	-5.42	0.13	1981.96	-5.65	-0.03	1988.04	-5.90	-0.26	1994.13	-5.75	-0.07
1975.96	-5.57	0.05	1982.04	-5.68	-0.03	1988.13	-5.88	-0.20	1994.21	-5.79	-0.09
1976.04	-5.69	-0.05	1982.13	-5.70	-0.02	1988.21	-5.86	-0.17	1994.29	-5.78	-0.07
1976.13	-5.66	0.01	1982.21	-5.74	-0.04	1988.29	-5.87	-0.16	1994.38	-5.77	-0.04
1976.21	-5.70	-0.01	1982.29	-5.78	-0.07	1988.38	-5.88	-0.15	1994.46	-5.82	-0.10
1976.29	-5.70	0.01	1982.38	-5.82	-0.09	1988.46	-5.77	-0.05	1994.54	-5.60	0.09
1976.38	-5.69	0.04	1982.46	-5.89	-0.17	1988.54	-5.70	-0.01	1994.63	-5.38	0.28
1976.46	-5.70	0.01	1982.54	-5.90	-0.20	1988.63	-5.73	-0.06	1994.71	-4.96	0.66
1976.54	-5.63	0.06	1982.63	-5.77	-0.11	1988.71	-5.71	-0.08	1994.79	-5.50	0.10
1976.63	-5.61	0.05	1982.71	-5.70	-0.08	1988.79	-5.65	-0.05	1994.88	-5.66	-0.10
1976.71	-5.65	-0.02	1982.79	-5.68	-0.08	1988.88	-5.59	-0.04	1994.96	-5.75	-0.14
1976.79	-5.66	-0.06	1982.88	-5.70	-0.15	1988.96	-5.60	0.01	1995.04	-5.78	-0.14
1976.88	-5.70	-0.14	1982.96	-5.74	-0.13	1989.04	-5.67	-0.02	1995.13	-5.81	-0.14
1976.96	-5.75	-0.14	1983.04	-5.78	-0.13	1989.13	-5.72	-0.05	1995.21	-5.90	-0.20
1977.04	-5.81	-0.17	1983.13	-5.81	-0.14	1989.21	-5.76	-0.06	1995.29	-5.98	-0.28
1977.13	-5.77	-0.10	1983.21	-5.94	-0.24	1989.29	-5.75	-0.05	1995.38	-5.97	-0.25
1977.21	-5.76	-0.07	1983.29	-6.02	-0.31	1989.38	-5.73	0.00	1995.46	-5.91	-0.19
1977.29	-5.79	-0.09	1983.38	-5.92	-0.20	1989.46	-5.69	0.03	1995.54	-5.77	-0.08
1977.38	-5.93	-0.21	1983.46	-5.92	-0.20	1989.54	-5.67	0.02	1995.63	-5.80	-0.14
1977.46	-5.99	-0.27	1983.54	-5.99	-0.30	1989.63	-5.66	0.00	1995.71	-5.79	-0.17
1977.54	-5.95	-0.26	1983.63	-6.03	-0.37	1989.71	-5.66	-0.04	1995.79	-5.76	-0.16
1977.63	-5.77	-0.11	1983.71	-5.91	-0.29	1989.79	-5.66	-0.06	1995.88	-5.67	-0.12
1977.71	-5.73	-0.10	1983.79	-5.90	-0.30	1989.88	-5.66	-0.10	1995.96	-5.76	-0.14
1977.79	-5.72	-0.12	1983.88	-5.83	-0.27	1989.96	-5.64	-0.03	1996.04	-5.75	-0.11
1977.88	-5.64	-0.09	1983.96	-5.76	-0.15	1990.04	-5.70	-0.06	1996.13	-5.84	-0.16
1977.96	-5.79	-0.18	1984.04	-5.77	-0.13	1990.13	-5.82	-0.14	1996.21	-5.89	-0.19
1978.04	-5.88	-0.24	1984.13	-5.79	-0.11	1990.21	-5.79	-0.10	1996.29	-5.87	-0.17
1978.13	-5.88	-0.20	1984.21	-5.71	-0.02	1990.29	-5.79	-0.08	1996.38	-5.86	-0.13
1978.21	-5.86	-0.17	1984.29	-5.64	0.07	1990.38	-5.75	-0.02	1996.46	-5.75	-0.03
1978.29	-5.96	-0.25	1984.38	-5.69	0.04	1990.46	-5.80	-0.08	1996.54	-5.70	-0.01
1978.38	-6.06	-0.33	1984.46	-5.77	-0.05	1990.54	-5.79	-0.10	1996.63	-5.72	-0.06
1978.46	-6.06	-0.34	1984.54	-5.74	-0.05	1990.63	-5.77	-0.11	1996.71	-5.69	-0.06
1978.54	-6.07	-0.38	1984.63	-5.65	0.01	1990.71	-5.71	-0.09	1996.79	-5.87	-0.27
1978.63	-5.87	-0.21	1984.71	-5.61	0.02	1990.79	-5.63	-0.03	1996.88	-5.83	-0.27
1978.71	-5.76	-0.13	1984.79	-5.62	-0.02	1990.88	-5.63	-0.08	1996.96	-5.63	-0.01
1978.79	-5.70	-0.10	1984.88	-5.65	-0.09	1990.96	-5.68	-0.06	1997.04	-5.66	-0.02
1978.88	-5.66	-0.10	1984.96	-5.67	-0.06	1991.04	-5.72	-0.08	1997.13	-5.56	0.12
1978.96	-5.70	-0.09	1985.04	-5.70	-0.05	1991.13	-5.79	-0.12	1997.21	-5.51	0.19
1979.04	-5.73	-0.09	1985.13	-5.78	-0.11	1991.21	-5.90	-0.20	1997.29	-5.67	0.04
1979.13	-5.76	-0.08	1985.21	-5.87	-0.18	1991.29	-5.87	-0.17	1997.38	-5.81	-0.09
1979.21	-5.80	-0.11	1985.29	-5.83	-0.13	1991.38	-5.89	-0.17	1997.46	-5.71	0.00
1979.29	-5.82	-0.11	1985.38	-5.79	-0.07	1991.46	-5.81	-0.09	1997.54	-5.60	0.09
1979.38	-5.92	-0.19	1985.46	-5.76	-0.04	1991.54	-5.77	-0.08	1997.62	-5.32	0.34
1979.46	-5.96	-0.24	1985.54	-5.71	-0.01	1991.63	-5.72	-0.06	1997.71	-5.30	0.33
1979.54	-5.81	-0.12	1985.63	-5.54	0.13	1991.71	-5.66	-0.04	1997.79	-5.08	0.52
1979.63	-5.68	-0.02	1985.71	-5.62	0.01	1991.79	-5.69	-0.09	1997.87	-4.87	0.69
1979.71	-5.67	-0.04	1985.79	-5.61	-0.01	1991.88	-5.64	-0.08	1997.96	-5.36	0.25

Supplementary Table 2 Coral reconstruction of the Dipole Mode Index (DMI). The coral DMI was derived from coral $\delta^{18}\text{O}$ anomaly records from the Mentawai Islands (this study; Supplementary Table 1), Bali⁹, and Seychelles^{18,19}. The filtered DMI⁵ was calculated using the method described by Saji *et al.*, where variability at periods longer than 7 years has been removed. The unfiltered DMI retains IOD variability at periods longer than 7 years. Both coral DMIs have been normalised over the 1960-1990 interval.

Year	Coral DMI (Saji method)	Unfiltered coral DMI	1850.96	0.61	-0.35	1856.12	0.33	0.79	1861.29	-0.71	-0.86
1846.04	-0.16	-0.92	1851.04	0.58	-0.34	1856.21	-0.03	0.46	1861.37	-1.00	-1.13
1846.12	0.23	-0.60	1851.12	0.31	-0.56	1856.29	-0.12	0.36	1861.46	-1.18	-1.30
1846.21	0.41	-0.47	1851.21	0.49	-0.36	1856.37	-0.70	-0.17	1861.54	-0.67	-0.85
1846.29	0.63	-0.31	1851.29	0.61	-0.21	1856.46	-0.15	0.32	1861.62	-0.34	-0.56
1846.37	0.37	-0.61	1851.37	0.97	0.14	1856.54	0.53	0.93	1861.71	0.02	-0.24
1846.46	0.69	-0.38	1851.46	1.56	0.72	1856.62	0.79	1.15	1861.79	0.17	-0.11
1846.54	0.85	-0.29	1851.54	2.19	1.33	1856.71	1.25	1.55	1861.87	-0.01	-0.28
1846.62	1.05	-0.17	1851.62	2.15	1.33	1856.79	2.15	2.35	1861.96	-0.26	-0.52
1846.71	1.49	0.17	1851.71	1.81	1.05	1856.87	2.13	2.32	1862.04	-0.46	-0.71
1846.79	1.18	-0.15	1851.79	1.10	0.44	1856.96	1.29	1.53	1862.12	-0.70	-0.93
1846.87	0.90	-0.44	1851.87	0.41	-0.16	1857.04	0.61	0.89	1862.21	-0.66	-0.91
1846.96	0.67	-0.69	1851.96	0.45	-0.08	1857.12	-0.62	-0.25	1862.29	-0.42	-0.69
1847.04	0.35	-1.01	1852.04	0.10	-0.37	1857.21	-1.73	-1.29	1862.37	-0.33	-0.62
1847.12	-0.26	-1.59	1852.12	-0.44	-0.83	1857.29	-2.80	-2.29	1862.46	-0.06	-0.37
1847.21	-0.57	-1.90	1852.21	-0.59	-0.93	1857.37	-2.91	-2.41	1862.54	0.23	-0.11
1847.29	-0.89	-2.22	1852.29	-0.43	-0.76	1857.46	-2.75	-2.29	1862.62	0.13	-0.21
1847.37	-1.33	-2.64	1852.37	-1.06	-1.29	1857.54	-2.19	-1.81	1862.71	-0.22	-0.53
1847.46	-1.60	-2.92	1852.46	-1.38	-1.55	1857.62	-1.54	-1.25	1862.79	-0.15	-0.47
1847.54	-1.86	-3.17	1852.54	-1.46	-1.60	1857.71	-1.06	-0.84	1862.87	-0.10	-0.42
1847.62	-1.58	-2.94	1852.62	-1.60	-1.69	1857.79	-0.49	-0.35	1862.96	0.02	-0.32
1847.71	-1.65	-3.02	1852.71	-1.62	-1.68	1857.87	0.21	0.26	1863.04	0.05	-0.30
1847.79	-1.45	-2.85	1852.79	-1.46	-1.50	1857.96	0.17	0.19	1863.12	0.26	-0.10
1847.87	-0.93	-2.39	1852.87	-1.02	-1.07	1858.04	-0.13	-0.11	1863.21	-0.01	-0.35
1847.96	-0.94	-2.42	1852.96	-0.76	-0.80	1858.12	-0.01	0.01	1863.29	-0.35	-0.65
1848.04	-0.61	-2.12	1853.04	-0.87	-0.87	1858.21	0.21	0.23	1863.37	-0.68	-0.95
1848.12	-0.24	-1.79	1853.12	-0.67	-0.66	1858.29	-0.02	0.05	1863.46	-0.71	-0.98
1848.21	-0.09	-1.66	1853.21	-0.38	-0.37	1858.37	0.30	0.37	1863.54	-0.84	-1.09
1848.29	-0.26	-1.82	1853.29	-0.12	-0.10	1858.46	0.91	0.96	1863.62	-0.72	-0.98
1848.37	-0.33	-1.89	1853.37	-0.18	-0.12	1858.54	1.23	1.25	1863.71	-0.35	-0.64
1848.46	-0.64	-2.17	1853.46	-0.24	-0.15	1858.62	1.24	1.25	1863.79	-0.05	-0.37
1848.54	-0.61	-2.13	1853.54	-0.68	-0.53	1858.71	1.30	1.29	1863.87	0.12	-0.21
1848.62	-0.64	-2.16	1853.62	-1.33	-1.10	1858.79	0.96	0.98	1863.96	0.10	-0.22
1848.71	-0.49	-2.01	1853.71	-1.78	-1.48	1858.87	0.70	0.74	1864.04	0.32	-0.01
1848.79	-0.18	-1.72	1853.79	-1.38	-1.09	1858.96	0.48	0.53	1864.12	0.43	0.09
1848.87	0.20	-1.37	1853.87	-0.53	-0.29	1859.04	0.39	0.44	1864.21	0.51	0.17
1848.96	0.37	-1.20	1853.96	-0.02	0.20	1859.12	0.27	0.32	1864.29	0.80	0.44
1849.04	0.56	-1.02	1854.04	0.35	0.56	1859.21	0.54	0.56	1864.37	1.13	0.75
1849.12	0.58	-0.99	1854.12	0.63	0.84	1859.29	0.47	0.48	1864.46	1.19	0.81
1849.21	0.51	-1.03	1854.21	0.37	0.62	1859.37	0.26	0.29	1864.54	1.44	1.05
1849.29	0.13	-1.35	1854.29	-0.25	0.08	1859.46	-0.23	-0.17	1864.62	1.46	1.08
1849.37	-0.17	-1.61	1854.37	-0.50	-0.13	1859.54	-1.01	-0.90	1864.71	1.42	1.05
1849.46	-0.16	-1.58	1854.46	-0.30	0.07	1859.62	-0.99	-0.89	1864.79	1.20	0.86
1849.54	-0.43	-1.81	1854.54	-0.14	0.24	1859.71	-0.71	-0.64	1864.87	0.60	0.32
1849.62	-0.57	-1.91	1854.62	0.28	0.64	1859.79	-0.39	-0.36	1864.96	-0.22	-0.41
1849.71	-0.29	-1.63	1854.71	0.42	0.78	1859.87	-0.05	-0.06	1865.04	-0.62	-0.76
1849.79	-0.26	-1.58	1854.79	0.26	0.65	1859.96	0.44	0.37	1865.12	-1.29	-1.36
1849.87	-0.50	-1.77	1854.87	0.01	0.43	1860.04	0.29	0.22	1865.21	-1.41	-1.46
1849.96	-0.24	-1.50	1854.96	-0.55	-0.06	1860.12	0.25	0.18	1865.29	-1.05	-1.12
1850.04	0.29	-0.99	1855.04	-1.00	-0.46	1860.21	0.56	0.45	1865.37	-0.60	-0.70
1850.12	-0.28	-1.49	1855.12	-1.15	-0.58	1860.29	0.74	0.60	1865.46	-0.31	-0.42
1850.21	-0.89	-2.01	1855.21	-1.24	-0.66	1860.37	0.77	0.62	1865.54	-0.01	-0.14
1850.29	-1.02	-2.10	1855.29	-1.02	-0.45	1860.46	0.50	0.35	1865.62	0.03	-0.08
1850.37	-0.85	-1.91	1855.37	-0.51	0.02	1860.54	-0.09	-0.19	1865.71	-0.27	-0.35
1850.46	-1.08	-2.09	1855.46	-0.28	0.24	1860.62	-0.68	-0.74	1865.79	-0.40	-0.45
1850.54	-0.85	-1.85	1855.54	-0.02	0.48	1860.71	-0.84	-0.89	1865.87	-0.56	-0.58
1850.62	-0.37	-1.38	1855.62	0.55	1.00	1860.79	-0.12	-0.25	1865.96	-0.22	-0.26
1850.71	-0.18	-1.17	1855.71	0.69	1.13	1860.87	0.32	0.13	1866.04	-0.06	-0.10
1850.79	-0.26	-1.21	1855.79	0.77	1.21	1860.96	0.77	0.53	1866.12	0.09	0.06
1850.87	0.01	-0.93	1855.87	0.98	1.39	1861.04	1.07	0.80	1866.21	-0.13	-0.13
			1855.96	1.05	1.45	1861.12	0.79	0.53	1866.29	-0.47	-0.43
			1856.04	0.82	1.24	1861.21	-0.12	-0.31	1866.37	-0.99	-0.88

1866.46	-1.40	-1.24	1872.54	-0.78	-1.59	1878.62	-0.68	-0.25	1884.71	0.37	-0.55
1866.54	-1.38	-1.21	1872.62	-0.84	-1.66	1878.71	-1.04	-0.59	1884.79	0.60	-0.31
1866.62	-0.99	-0.84	1872.71	-0.87	-1.71	1878.79	-0.72	-0.33	1884.87	0.68	-0.20
1866.71	-0.47	-0.35	1872.79	-0.68	-1.55	1878.87	-0.15	0.17	1884.96	0.82	-0.05
1866.79	0.06	0.14	1872.87	-0.60	-1.50	1878.96	0.60	0.83	1885.04	0.45	-0.35
1866.87	0.57	0.62	1872.96	-0.67	-1.58	1879.04	1.05	1.22	1885.12	0.49	-0.28
1866.96	0.83	0.88	1873.04	-0.58	-1.51	1879.12	1.42	1.52	1885.21	0.56	-0.19
1867.04	0.83	0.88	1873.12	-0.04	-1.03	1879.21	1.23	1.32	1885.29	0.54	-0.18
1867.12	0.51	0.61	1873.21	0.40	-0.64	1879.29	0.73	0.83	1885.37	0.53	-0.16
1867.21	0.03	0.19	1873.29	0.83	-0.26	1879.37	-0.17	-0.04	1885.46	0.97	0.27
1867.29	-0.44	-0.23	1873.37	1.35	0.20	1879.46	-0.76	-0.60	1885.54	0.94	0.27
1867.37	-0.75	-0.51	1873.46	1.50	0.33	1879.54	-1.05	-0.91	1885.62	0.91	0.27
1867.46	-1.13	-0.84	1873.54	1.15	0.01	1879.62	-1.11	-1.01	1885.71	1.06	0.43
1867.54	-0.93	-0.65	1873.62	0.66	-0.43	1879.71	-0.91	-0.87	1885.79	0.98	0.38
1867.62	-0.63	-0.37	1873.71	0.11	-0.93	1879.79	-0.61	-0.64	1885.87	0.60	0.06
1867.71	-0.26	-0.02	1873.79	-0.25	-1.26	1879.87	-0.33	-0.43	1885.96	0.10	-0.38
1867.79	0.04	0.26	1873.87	-0.31	-1.31	1879.96	-0.23	-0.39	1886.04	-0.27	-0.69
1867.87	0.24	0.45	1873.96	-0.26	-1.26	1880.04	-0.35	-0.55	1886.12	-0.71	-1.07
1867.96	0.12	0.35	1874.04	-0.26	-1.25	1880.12	-0.77	-0.98	1886.21	-0.97	-1.28
1868.04	0.02	0.26	1874.12	0.07	-0.94	1880.21	-1.16	-1.38	1886.29	-1.02	-1.31
1868.12	-0.24	0.03	1874.21	0.17	-0.84	1880.29	-1.78	-2.00	1886.37	-1.16	-1.42
1868.21	-0.45	-0.16	1874.29	0.08	-0.91	1880.37	-2.14	-2.37	1886.46	-1.52	-1.74
1868.29	-0.41	-0.12	1874.37	0.01	-0.95	1880.46	-2.16	-2.44	1886.54	-1.68	-1.87
1868.37	-0.30	-0.02	1874.46	0.16	-0.80	1880.54	-1.89	-2.25	1886.62	-1.84	-2.00
1868.46	-0.15	0.12	1874.54	-0.01	-0.93	1880.62	-1.67	-2.09	1886.71	-1.88	-2.03
1868.54	0.22	0.45	1874.62	-0.11	-1.00	1880.71	-1.22	-1.74	1886.79	-1.75	-1.90
1868.62	0.40	0.62	1874.71	-0.01	-0.88	1880.79	-0.68	-1.29	1886.87	-1.45	-1.61
1868.71	0.44	0.65	1874.79	0.08	-0.77	1880.87	-0.08	-0.79	1886.96	-1.32	-1.49
1868.79	0.20	0.43	1874.87	0.11	-0.71	1880.96	0.36	-0.43	1887.04	-0.70	-0.92
1868.87	0.05	0.28	1874.96	0.32	-0.50	1881.04	0.76	-0.12	1887.12	-0.61	-0.84
1868.96	-0.02	0.21	1875.04	0.27	-0.51	1881.12	0.86	-0.07	1887.21	-0.45	-0.70
1869.04	0.19	0.40	1875.12	0.20	-0.54	1881.21	0.45	-0.49	1887.29	0.00	-0.28
1869.12	0.32	0.50	1875.21	0.12	-0.58	1881.29	0.04	-0.90	1887.37	0.48	0.15
1869.21	0.62	0.76	1875.29	-0.15	-0.79	1881.37	-0.18	-1.14	1887.46	0.19	-0.12
1869.29	0.71	0.83	1875.37	-0.63	-1.19	1881.46	-0.29	-1.27	1887.54	0.38	0.05
1869.37	0.73	0.83	1875.46	-1.15	-1.62	1881.54	0.04	-1.02	1887.62	0.30	-0.03
1869.46	0.51	0.62	1875.54	-1.79	-2.17	1881.62	0.61	-0.53	1887.71	-0.21	-0.50
1869.54	0.48	0.57	1875.62	-2.25	-2.55	1881.71	0.64	-0.53	1887.79	-0.52	-0.80
1869.62	0.50	0.58	1875.71	-2.54	-2.77	1881.79	0.38	-0.80	1887.87	-0.59	-0.88
1869.71	0.70	0.74	1875.79	-2.61	-2.79	1881.87	-0.07	-1.23	1887.96	-0.80	-1.08
1869.79	0.84	0.85	1875.87	-2.35	-2.52	1881.96	-1.03	-2.13	1888.04	-0.49	-0.82
1869.87	0.90	0.88	1875.96	-2.02	-2.17	1882.04	-1.76	-2.82	1888.12	-0.39	-0.74
1869.96	1.17	1.10	1876.04	-1.86	-1.99	1882.12	-2.30	-3.34	1888.21	-0.37	-0.75
1870.04	1.31	1.21	1876.12	-1.43	-1.55	1882.21	-2.53	-3.56	1888.29	-0.12	-0.54
1870.12	0.92	0.83	1876.21	-1.06	-1.17	1882.29	-2.58	-3.63	1888.37	0.11	-0.35
1870.21	0.26	0.20	1876.29	-0.75	-0.85	1882.37	-2.23	-3.32	1888.46	-0.01	-0.49
1870.29	-0.24	-0.28	1876.37	-0.61	-0.67	1882.46	-1.95	-3.08	1888.54	0.45	-0.10
1870.37	-0.77	-0.79	1876.46	-0.69	-0.70	1882.54	-1.28	-2.47	1888.62	0.49	-0.09
1870.46	-1.10	-1.12	1876.54	-0.86	-0.82	1882.62	-0.64	-1.89	1888.71	0.29	-0.30
1870.54	-1.04	-1.09	1876.62	-0.90	-0.82	1882.71	0.16	-1.18	1888.79	0.21	-0.41
1870.62	-0.68	-0.80	1876.71	-0.93	-0.80	1882.79	0.86	-0.53	1888.87	0.10	-0.54
1870.71	-0.32	-0.50	1876.79	-0.87	-0.71	1882.87	1.18	-0.25	1888.96	-0.21	-0.86
1870.79	-0.11	-0.34	1876.87	-0.47	-0.31	1882.96	1.09	-0.32	1889.04	-0.40	-1.06
1870.87	0.03	-0.25	1876.96	-0.05	0.11	1883.04	0.81	-0.57	1889.12	-0.39	-1.09
1870.96	0.11	-0.20	1877.04	0.05	0.23	1883.12	0.09	-1.22	1889.21	-0.43	-1.17
1871.04	0.18	-0.17	1877.12	-0.04	0.18	1883.21	-0.65	-1.89	1889.29	-0.59	-1.35
1871.12	0.12	-0.26	1877.21	0.07	0.31	1883.29	-0.85	-2.06	1889.37	-0.87	-1.65
1871.21	-0.14	-0.52	1877.29	0.06	0.33	1883.37	-0.84	-2.04	1889.46	-0.63	-1.47
1871.29	-0.38	-0.77	1877.37	0.14	0.43	1883.46	-0.85	-2.03	1889.54	-0.46	-1.36
1871.37	-0.50	-0.92	1877.46	0.06	0.38	1883.54	-0.50	-1.70	1889.62	-0.35	-1.31
1871.46	-0.63	-1.07	1877.54	0.44	0.74	1883.62	-0.12	-1.33	1889.71	-0.16	-1.18
1871.54	-0.64	-1.12	1877.62	0.83	1.11	1883.71	-0.23	-1.41	1889.79	0.07	-1.01
1871.62	-0.52	-1.03	1877.71	1.49	1.74	1883.79	-0.29	-1.45	1889.87	0.03	-1.10
1871.71	-0.53	-1.08	1877.79	2.28	2.47	1883.87	-0.30	-1.43	1889.96	-0.08	-1.24
1871.79	-0.51	-1.09	1877.87	3.10	3.23	1883.96	-0.49	-1.58	1890.04	-0.02	-1.23
1871.87	-0.35	-0.97	1877.96	3.21	3.34	1884.04	-0.74	-1.79	1890.12	0.13	-1.14
1871.96	-0.38	-1.04	1878.04	3.08	3.22	1884.12	-1.01	-2.00	1890.21	-0.09	-1.40
1872.04	-0.24	-0.93	1878.12	2.82	2.98	1884.21	-1.28	-2.23	1890.29	-0.51	-1.83
1872.12	-0.03	-0.77	1878.21	2.37	2.57	1884.29	-1.35	-2.26	1890.37	-0.82	-2.15
1872.21	0.01	-0.77	1878.29	1.74	2.00	1884.37	-1.17	-2.07	1890.46	-1.15	-2.51
1872.29	-0.24	-1.02	1878.37	1.21	1.51	1884.46	-0.94	-1.83	1890.54	-1.62	-2.98
1872.37	-0.44	-1.23	1878.46	0.62	0.97	1884.54	-0.55	-1.44	1890.62	-1.47	-2.89
1872.46	-0.67	-1.46	1878.54	-0.01	0.37	1884.62	-0.06	-0.97	1890.71	-1.09	-2.60

1890.79	-0.56	-2.16	1896.87	1.62	0.98	1902.96	0.97	0.69	1909.04	-0.76	-1.17
1890.87	-0.13	-1.81	1896.96	1.28	0.70	1903.04	0.33	0.14	1909.12	-0.71	-1.13
1890.96	0.30	-1.46	1897.04	1.10	0.55	1903.12	-0.10	-0.24	1909.21	-1.00	-1.39
1891.04	0.34	-1.48	1897.12	0.97	0.46	1903.21	-0.12	-0.23	1909.29	-1.12	-1.49
1891.12	0.19	-1.66	1897.21	0.60	0.14	1903.29	-0.19	-0.27	1909.37	-1.13	-1.50
1891.21	0.07	-1.81	1897.29	0.58	0.14	1903.37	-0.22	-0.28	1909.46	-1.02	-1.39
1891.29	0.28	-1.66	1897.37	0.57	0.16	1903.46	-0.10	-0.15	1909.54	-0.90	-1.28
1891.37	0.68	-1.34	1897.46	0.44	0.05	1903.54	-0.20	-0.22	1909.62	-0.60	-0.99
1891.46	0.93	-1.14	1897.54	0.04	-0.30	1903.62	-0.64	-0.61	1909.71	-0.31	-0.72
1891.54	1.30	-0.85	1897.62	-0.20	-0.51	1903.71	-1.11	-1.02	1909.79	-0.57	-0.95
1891.62	1.22	-0.95	1897.71	-0.73	-0.99	1903.79	-1.47	-1.33	1909.87	-0.52	-0.89
1891.71	0.35	-1.79	1897.79	-1.24	-1.44	1903.87	-1.34	-1.20	1909.96	-0.56	-0.92
1891.79	-0.59	-2.67	1897.87	-1.34	-1.54	1903.96	-0.74	-0.64	1910.04	-0.66	-1.00
1891.87	-1.15	-3.21	1897.96	-1.26	-1.46	1904.04	0.06	0.10	1910.12	-0.90	-1.20
1891.96	-1.58	-3.64	1898.04	-0.98	-1.21	1904.12	0.81	0.81	1910.21	-0.47	-0.79
1892.04	-1.85	-3.91	1898.12	-0.70	-0.96	1904.21	1.24	1.20	1910.29	-0.31	-0.64
1892.12	-1.57	-3.67	1898.21	-0.55	-0.83	1904.29	1.26	1.24	1910.37	-0.06	-0.40
1892.21	-1.28	-3.43	1898.29	-0.64	-0.91	1904.37	0.91	0.92	1910.46	0.09	-0.24
1892.29	-1.25	-3.43	1898.37	-0.58	-0.86	1904.46	0.73	0.76	1910.54	0.05	-0.26
1892.37	-1.45	-3.63	1898.46	-0.70	-0.98	1904.54	0.64	0.68	1910.62	-0.28	-0.54
1892.46	-1.76	-3.92	1898.54	-0.85	-1.12	1904.62	0.67	0.72	1910.71	-0.58	-0.81
1892.54	-1.67	-3.85	1898.62	-0.79	-1.08	1904.71	0.56	0.62	1910.79	-0.78	-0.97
1892.62	-1.24	-3.47	1898.71	-0.73	-1.04	1904.79	0.68	0.73	1910.87	-0.64	-0.83
1892.71	-0.61	-2.90	1898.79	-0.59	-0.92	1904.87	0.47	0.54	1910.96	-0.45	-0.64
1892.79	0.21	-2.16	1898.87	-0.44	-0.81	1904.96	0.11	0.21	1911.04	-0.11	-0.32
1892.87	1.02	-1.42	1898.96	-0.20	-0.60	1905.04	-0.07	0.05	1911.12	-0.05	-0.24
1892.96	1.04	-1.41	1899.04	-0.16	-0.58	1905.12	-0.24	-0.12	1911.21	0.13	-0.07
1893.04	0.80	-1.62	1899.12	0.00	-0.45	1905.21	-0.35	-0.22	1911.29	-0.09	-0.25
1893.12	0.36	-2.01	1899.21	0.27	-0.21	1905.29	-0.18	-0.07	1911.37	0.13	-0.04
1893.21	-0.11	-2.43	1899.29	0.43	-0.08	1905.37	-0.04	0.05	1911.46	0.36	0.18
1893.29	-0.55	-2.82	1899.37	0.57	0.03	1905.46	0.09	0.16	1911.54	0.71	0.52
1893.37	-0.63	-2.87	1899.46	0.65	0.09	1905.54	0.30	0.34	1911.62	0.68	0.51
1893.46	-0.66	-2.88	1899.54	0.64	0.06	1905.62	0.23	0.27	1911.71	0.71	0.54
1893.54	-0.74	-2.94	1899.62	0.42	-0.15	1905.71	-0.18	-0.12	1911.79	0.66	0.51
1893.62	-0.84	-3.00	1899.71	0.11	-0.45	1905.79	-0.55	-0.47	1911.87	0.27	0.17
1893.71	-0.90	-3.04	1899.79	-0.07	-0.62	1905.87	-1.14	-1.02	1911.96	0.13	0.05
1893.79	-1.02	-3.12	1899.87	-0.19	-0.74	1905.96	-1.60	-1.45	1912.04	0.01	-0.05
1893.87	-1.41	-3.44	1899.96	-0.33	-0.88	1906.04	-1.41	-1.29	1912.12	-0.09	-0.13
1893.96	-1.80	-3.76	1900.04	-0.58	-1.12	1906.12	-0.99	-0.93	1912.21	0.07	0.02
1894.04	-1.93	-3.84	1900.12	-1.10	-1.60	1906.21	-0.39	-0.40	1912.29	0.63	0.54
1894.12	-1.82	-3.70	1900.21	-1.59	-2.06	1906.29	0.14	0.07	1912.37	0.81	0.70
1894.21	-1.64	-3.50	1900.29	-1.79	-2.25	1906.37	0.43	0.32	1912.46	1.05	0.92
1894.29	-1.12	-2.98	1900.37	-1.94	-2.38	1906.46	0.18	0.07	1912.54	1.26	1.12
1894.37	-0.60	-2.46	1900.46	-2.07	-2.51	1906.54	-0.23	-0.32	1912.62	0.91	0.80
1894.46	-0.54	-2.36	1900.54	-1.71	-2.18	1906.62	-0.75	-0.82	1912.71	0.34	0.28
1894.54	-0.73	-2.49	1900.62	-1.53	-2.02	1906.71	-1.00	-1.06	1912.79	0.02	0.00
1894.62	-1.11	-2.79	1900.71	-1.37	-1.87	1906.79	-0.95	-1.03	1912.87	0.03	0.00
1894.71	-1.49	-3.09	1900.79	-1.26	-1.77	1906.87	-0.68	-0.81	1912.96	0.40	0.33
1894.79	-1.54	-3.08	1900.87	-1.01	-1.54	1906.96	-0.52	-0.68	1913.04	0.34	0.27
1894.87	-1.34	-2.85	1900.96	-0.87	-1.41	1907.04	-0.08	-0.30	1913.12	0.13	0.07
1894.96	-1.10	-2.58	1901.04	-0.73	-1.28	1907.12	0.52	0.23	1913.21	0.01	-0.04
1895.04	-0.80	-2.25	1901.12	-0.40	-0.97	1907.21	0.85	0.51	1913.29	-0.28	-0.31
1895.12	-0.57	-1.98	1901.21	-0.02	-0.61	1907.29	1.11	0.73	1913.37	-0.73	-0.73
1895.21	-0.59	-1.95	1901.29	-0.07	-0.64	1907.37	1.27	0.85	1913.46	-0.64	-0.65
1895.29	-0.71	-2.00	1901.37	-0.32	-0.86	1907.46	0.98	0.58	1913.54	-0.28	-0.34
1895.37	-0.90	-2.13	1901.46	-0.59	-1.10	1907.54	0.39	0.02	1913.62	0.08	-0.03
1895.46	-0.66	-1.85	1901.54	-1.26	-1.69	1907.62	0.01	-0.34	1913.71	0.33	0.19
1895.54	-0.56	-1.71	1901.62	-1.67	-2.05	1907.71	-0.53	-0.85	1913.79	0.30	0.15
1895.62	-0.31	-1.42	1901.71	-1.66	-2.02	1907.79	-0.76	-1.07	1913.87	0.07	-0.07
1895.71	-0.01	-1.10	1901.79	-1.34	-1.71	1907.87	-0.79	-1.11	1913.96	-0.30	-0.43
1895.79	0.21	-0.85	1901.87	-0.70	-1.12	1907.96	-0.69	-1.04	1914.04	-0.86	-0.95
1895.87	-0.11	-1.09	1901.96	-0.18	-0.63	1908.04	-0.29	-0.68	1914.12	-1.21	-1.29
1895.96	-0.26	-1.17	1902.04	0.19	-0.26	1908.12	0.08	-0.35	1914.21	-1.39	-1.47
1896.04	-0.24	-1.10	1902.12	0.41	-0.04	1908.21	0.24	-0.22	1914.29	-1.22	-1.33
1896.12	-0.41	-1.21	1902.21	0.46	0.02	1908.29	0.51	0.02	1914.37	-0.79	-0.96
1896.21	-0.16	-0.94	1902.29	0.38	-0.03	1908.37	0.80	0.27	1914.46	-0.08	-0.34
1896.29	0.38	-0.41	1902.37	0.57	0.17	1908.46	0.65	0.13	1914.54	0.44	0.11
1896.37	0.91	0.12	1902.46	0.33	-0.02	1908.54	0.45	-0.06	1914.62	0.37	0.03
1896.46	1.35	0.56	1902.54	0.25	-0.08	1908.62	0.27	-0.23	1914.71	0.44	0.07
1896.54	1.93	1.13	1902.62	0.68	0.33	1908.71	-0.11	-0.58	1914.79	0.22	-0.15
1896.62	1.96	1.19	1902.71	0.79	0.46	1908.79	-0.39	-0.83	1914.87	-0.07	-0.44
1896.71	1.91	1.18	1902.79	0.66	0.37	1908.87	-0.61	-1.04	1914.96	-0.46	-0.81
1896.79	1.86	1.17	1902.87	0.91	0.61	1908.96	-0.69	-1.11	1915.04	-0.26	-0.66

1915.12	-0.45	-0.84	1921.21	-1.40	-1.44	1927.29	-0.04	0.04	1933.37	-0.05	-1.02
1915.21	-0.14	-0.59	1921.29	-1.59	-1.58	1927.37	-0.38	-0.28	1933.46	-0.25	-1.19
1915.29	-0.02	-0.50	1921.37	-1.51	-1.48	1927.46	-0.89	-0.75	1933.54	-0.53	-1.43
1915.37	0.07	-0.44	1921.46	-1.16	-1.12	1927.54	-1.26	-1.10	1933.62	-0.78	-1.64
1915.46	0.21	-0.33	1921.54	-0.74	-0.71	1927.62	-1.24	-1.10	1933.71	-0.94	-1.78
1915.54	0.40	-0.19	1921.62	-0.23	-0.22	1927.71	-0.81	-0.72	1933.79	-1.36	-2.14
1915.62	-0.01	-0.58	1921.71	-0.02	0.01	1927.79	-0.36	-0.31	1933.87	-1.50	-2.25
1915.71	-0.48	-0.86	1921.79	0.40	0.41	1927.87	0.24	0.22	1933.96	-1.38	-2.12
1915.79	-0.60	-0.82	1921.87	0.88	0.88	1927.96	0.79	0.70	1934.04	-1.28	-2.01
1915.87	-0.51	-0.59	1921.96	1.15	1.15	1928.04	1.28	1.15	1934.12	-1.39	-2.08
1915.96	-0.31	-0.25	1922.04	0.81	0.87	1928.12	1.36	1.20	1934.21	-1.31	-1.98
1916.04	-0.60	-0.37	1922.12	0.62	0.73	1928.21	1.17	1.02	1934.29	-1.22	-1.87
1916.12	-0.79	-0.58	1922.21	0.16	0.33	1928.29	1.05	0.90	1934.37	-1.02	-1.66
1916.21	-1.10	-0.89	1922.29	-0.36	-0.12	1928.37	0.97	0.82	1934.46	-0.59	-1.23
1916.29	-1.42	-1.37	1922.37	-0.80	-0.49	1928.46	0.43	0.32	1934.54	0.01	-0.66
1916.37	-1.45	-1.58	1922.46	-0.49	-0.19	1928.54	0.04	-0.06	1934.62	0.73	0.04
1916.46	-0.58	-0.97	1922.54	-0.11	0.18	1928.62	-0.39	-0.46	1934.71	1.23	0.53
1916.54	0.04	-0.59	1922.62	0.06	0.36	1928.71	-0.89	-0.92	1934.79	1.43	0.74
1916.62	0.35	-0.48	1922.71	0.36	0.65	1928.79	-1.50	-1.48	1934.87	1.58	0.92
1916.71	0.49	-0.37	1922.79	0.56	0.85	1928.87	-1.78	-1.76	1934.96	1.59	0.97
1916.79	0.16	-0.68	1922.87	0.46	0.78	1928.96	-2.00	-1.97	1935.04	1.38	0.82
1916.87	-0.55	-1.34	1922.96	0.21	0.57	1929.04	-1.65	-1.66	1935.12	1.12	0.62
1916.96	-0.96	-1.73	1923.04	0.25	0.62	1929.12	-1.06	-1.14	1935.21	0.53	0.13
1917.04	-0.97	-1.75	1923.12	0.37	0.75	1929.21	-0.33	-0.49	1935.29	0.12	-0.20
1917.12	-0.72	-1.53	1923.21	0.53	0.90	1929.29	0.41	0.17	1935.37	-0.07	-0.34
1917.21	-0.36	-1.21	1923.29	0.93	1.28	1929.37	1.11	0.80	1935.46	-0.32	-0.52
1917.29	0.23	-0.68	1923.37	1.27	1.60	1929.46	1.22	0.88	1935.54	-0.62	-0.75
1917.37	0.86	-0.12	1923.46	1.37	1.70	1929.54	1.08	0.73	1935.62	-0.56	-0.65
1917.46	1.28	0.26	1923.54	1.18	1.54	1929.62	0.80	0.46	1935.71	-0.87	-0.89
1917.54	1.24	0.22	1923.62	1.07	1.44	1929.71	0.32	0.01	1935.79	-1.40	-1.32
1917.62	1.30	0.27	1923.71	0.55	0.97	1929.79	-0.18	-0.47	1935.87	-1.65	-1.51
1917.71	1.34	0.30	1923.79	0.22	0.68	1929.87	-0.55	-0.82	1935.96	-1.60	-1.42
1917.79	1.20	0.17	1923.87	0.07	0.55	1929.96	-0.88	-1.14	1936.04	-1.31	-1.11
1917.87	0.58	-0.39	1923.96	-0.01	0.48	1930.04	-0.73	-1.02	1936.12	-1.12	-0.90
1917.96	-0.05	-0.97	1924.04	-0.26	0.25	1930.12	-0.44	-0.78	1936.21	-0.82	-0.58
1918.04	-0.85	-1.70	1924.12	-0.36	0.16	1930.21	0.30	-0.12	1936.29	-0.44	-0.20
1918.12	-1.47	-2.25	1924.21	-0.43	0.10	1930.29	1.01	0.50	1936.37	-0.02	0.23
1918.21	-1.61	-2.38	1924.29	-0.65	-0.11	1930.37	1.56	0.98	1936.46	0.42	0.66
1918.29	-0.94	-1.76	1924.37	-0.72	-0.17	1930.46	1.59	0.99	1936.54	1.04	1.26
1918.37	-0.35	-1.22	1924.46	-0.47	0.04	1930.54	1.49	0.87	1936.62	1.53	1.75
1918.46	0.12	-0.79	1924.54	-0.24	0.25	1930.62	0.88	0.29	1936.71	1.63	1.88
1918.54	0.35	-0.58	1924.62	-0.06	0.41	1930.71	0.21	-0.34	1936.79	1.46	1.76
1918.62	-0.02	-0.90	1924.71	0.15	0.59	1930.79	-0.18	-0.72	1936.87	1.16	1.52
1918.71	-0.87	-1.66	1924.79	0.09	0.53	1930.87	-0.31	-0.86	1936.96	1.24	1.62
1918.79	-1.38	-2.12	1924.87	-0.17	0.28	1930.96	-0.25	-0.83	1937.04	1.36	1.76
1918.87	-1.61	-2.31	1924.96	-0.44	0.03	1931.04	0.30	-0.35	1937.12	1.56	1.98
1918.96	-1.82	-2.49	1925.04	-0.53	-0.06	1931.12	0.73	0.02	1937.21	1.82	2.24
1919.04	-1.25	-1.96	1925.12	-0.63	-0.16	1931.21	1.02	0.26	1937.29	1.75	2.20
1919.12	-0.23	-1.02	1925.21	-0.62	-0.16	1931.29	1.17	0.37	1937.37	1.27	1.80
1919.21	0.64	-0.21	1925.29	-0.52	-0.08	1931.37	1.08	0.27	1937.46	0.82	1.41
1919.29	1.29	0.40	1925.37	-0.27	0.13	1931.46	0.78	-0.03	1937.54	0.35	1.00
1919.37	1.80	0.89	1925.46	0.00	0.36	1931.54	0.40	-0.39	1937.62	-0.32	0.41
1919.46	1.69	0.81	1925.54	0.22	0.55	1931.62	-0.02	-0.80	1937.71	-0.70	0.08
1919.54	1.34	0.51	1925.62	0.30	0.61	1931.71	-0.29	-1.06	1937.79	-0.71	0.10
1919.62	1.00	0.22	1925.71	0.35	0.64	1931.79	-0.32	-1.11	1937.87	-0.59	0.22
1919.71	0.58	-0.15	1925.79	0.21	0.50	1931.87	-0.57	-1.36	1937.96	-0.38	0.43
1919.79	0.10	-0.56	1925.87	-0.27	0.05	1931.96	-0.33	-1.16	1938.04	0.23	0.99
1919.87	-0.23	-0.84	1925.96	-0.41	-0.09	1932.04	0.10	-0.79	1938.12	0.94	1.65
1919.96	-0.71	-1.25	1926.04	-0.33	-0.03	1932.12	0.51	-0.44	1938.21	1.08	1.79
1920.04	-1.09	-1.57	1926.12	-0.26	0.01	1932.21	0.86	-0.13	1938.29	1.13	1.84
1920.12	-1.25	-1.69	1926.21	-0.32	-0.05	1932.29	1.02	0.01	1938.37	1.15	1.86
1920.21	-1.09	-1.51	1926.29	-0.29	-0.03	1932.37	0.75	-0.25	1938.46	0.80	1.54
1920.29	-0.83	-1.25	1926.37	-0.40	-0.15	1932.46	0.27	-0.70	1938.54	0.14	0.95
1920.37	-0.32	-0.75	1926.46	-0.68	-0.42	1932.54	-0.33	-1.26	1938.62	-0.13	0.71
1920.46	0.26	-0.20	1926.54	-0.83	-0.57	1932.62	-1.10	-1.97	1938.71	-0.37	0.49
1920.54	0.58	0.12	1926.62	-0.84	-0.59	1932.71	-1.47	-2.32	1938.79	-0.66	0.22
1920.62	0.48	0.05	1926.71	-0.69	-0.47	1932.79	-1.51	-2.35	1938.87	-0.85	0.04
1920.71	0.36	-0.02	1926.79	-0.44	-0.25	1932.87	-1.29	-2.16	1938.96	-0.84	0.05
1920.79	0.20	-0.13	1926.87	-0.20	-0.05	1932.96	-0.91	-1.81	1939.04	-0.91	-0.02
1920.87	-0.12	-0.40	1926.96	0.07	0.18	1933.04	-0.36	-1.32	1939.12	-0.72	0.15
1920.96	-0.46	-0.68	1927.04	0.37	0.45	1933.12	-0.05	-1.03	1939.21	-0.57	0.28
1921.04	-0.73	-0.89	1927.12	0.39	0.45	1933.21	0.00	-0.98	1939.29	-0.75	0.10
1921.12	-1.04	-1.14	1927.21	0.23	0.30	1933.29	-0.04	-1.01	1939.37	-0.73	0.11

1939.46	-0.77	0.06	1945.54	-0.49	-0.97	1951.62	0.77	0.90	1957.71	0.78	0.33
1939.54	-1.21	-0.35	1945.62	-0.52	-0.99	1951.71	0.45	0.63	1957.79	0.71	0.26
1939.62	-1.53	-0.65	1945.71	-0.69	-1.14	1951.79	0.27	0.49	1957.87	0.66	0.21
1939.71	-1.41	-0.56	1945.79	-0.69	-1.13	1951.87	0.14	0.39	1957.96	0.89	0.42
1939.79	-1.45	-0.60	1945.87	-0.80	-1.22	1951.96	0.08	0.35	1958.04	0.78	0.33
1939.87	-1.44	-0.61	1945.96	-0.49	-0.94	1952.04	0.08	0.37	1958.12	0.43	0.00
1939.96	-1.26	-0.46	1946.04	-0.34	-0.78	1952.12	-0.04	0.28	1958.21	0.25	-0.16
1940.04	-0.88	-0.14	1946.12	0.13	-0.35	1952.21	-0.21	0.14	1958.29	-0.13	-0.50
1940.12	-0.52	0.17	1946.21	0.56	0.05	1952.29	-0.21	0.15	1958.37	-0.63	-0.95
1940.21	-0.32	0.34	1946.29	1.16	0.61	1952.37	-0.27	0.12	1958.46	-0.58	-0.91
1940.29	-0.23	0.40	1946.37	1.56	0.98	1952.46	-0.18	0.21	1958.54	-0.29	-0.64
1940.37	-0.42	0.20	1946.46	1.91	1.30	1952.54	0.01	0.40	1958.62	0.17	-0.21
1940.46	-0.30	0.29	1946.54	1.88	1.28	1952.62	0.43	0.80	1958.71	0.47	0.07
1940.54	-0.14	0.42	1946.62	1.50	0.95	1952.71	0.71	1.06	1958.79	0.78	0.36
1940.62	0.06	0.58	1946.71	0.87	0.38	1952.79	0.91	1.25	1958.87	0.91	0.50
1940.71	0.19	0.67	1946.79	0.44	0.01	1952.87	1.20	1.53	1958.96	1.08	0.66
1940.79	0.62	1.04	1946.87	0.63	0.19	1952.96	1.52	1.83	1959.04	1.03	0.62
1940.87	0.65	1.04	1946.96	0.87	0.41	1953.04	1.72	2.02	1959.12	1.23	0.82
1940.96	0.61	0.98	1947.04	1.39	0.90	1953.12	1.77	2.07	1959.21	1.02	0.64
1941.04	0.61	0.95	1947.12	1.89	1.35	1953.21	1.59	1.91	1959.29	0.70	0.37
1941.12	0.77	1.07	1947.21	2.12	1.58	1953.29	0.93	1.31	1959.37	0.28	0.00
1941.21	0.65	0.94	1947.29	1.68	1.18	1953.37	0.07	0.53	1959.46	-0.35	-0.56
1941.29	0.51	0.79	1947.37	1.21	0.76	1953.46	-0.39	0.11	1959.54	-0.90	-1.04
1941.37	0.33	0.60	1947.46	0.60	0.21	1953.54	-0.43	0.07	1959.62	-0.82	-0.95
1941.46	0.27	0.52	1947.54	0.12	-0.22	1953.62	0.08	0.53	1959.71	-0.79	-0.91
1941.54	0.37	0.58	1947.62	-0.19	-0.50	1953.71	0.71	1.10	1959.79	-0.88	-0.97
1941.62	0.70	0.85	1947.71	-0.52	-0.79	1953.79	1.17	1.51	1959.87	-0.85	-0.93
1941.71	0.95	1.05	1947.79	-0.83	-1.07	1953.87	1.24	1.58	1959.96	-0.72	-0.78
1941.79	1.09	1.15	1947.87	-0.99	-1.21	1953.96	0.86	1.22	1960.04	-1.05	-1.07
1941.87	1.11	1.14	1947.96	-1.03	-1.24	1954.04	0.21	0.61	1960.12	-0.95	-0.96
1941.96	1.22	1.21	1948.04	-0.81	-1.04	1954.12	-0.29	0.15	1960.21	-0.81	-0.81
1942.04	1.17	1.14	1948.12	-0.52	-0.77	1954.21	-0.45	0.00	1960.29	-0.63	-0.62
1942.12	1.09	1.03	1948.21	-0.28	-0.54	1954.29	-0.57	-0.13	1960.37	-0.75	-0.72
1942.21	1.21	1.11	1948.29	-0.09	-0.37	1954.37	-0.42	-0.01	1960.46	-0.70	-0.65
1942.29	1.03	0.92	1948.37	0.21	-0.09	1954.46	-0.23	0.15	1960.54	-0.88	-0.79
1942.37	0.51	0.42	1948.46	0.43	0.11	1954.54	-0.12	0.24	1960.62	-0.77	-0.67
1942.46	0.09	0.01	1948.54	0.62	0.29	1954.62	-0.10	0.23	1960.71	-0.62	-0.51
1942.54	-0.23	-0.31	1948.62	0.80	0.45	1954.71	0.00	0.31	1960.79	-0.47	-0.35
1942.62	-0.45	-0.54	1948.71	0.85	0.51	1954.79	-0.03	0.26	1960.87	-0.28	-0.16
1942.71	-0.32	-0.44	1948.79	0.57	0.26	1954.87	0.11	0.37	1960.96	-0.19	-0.06
1942.79	0.01	-0.17	1948.87	0.09	-0.17	1954.96	0.27	0.49	1961.04	-0.36	-0.19
1942.87	0.39	0.15	1948.96	-0.21	-0.44	1955.04	0.30	0.50	1961.12	-0.64	-0.43
1942.96	0.60	0.32	1949.04	-0.50	-0.71	1955.12	0.06	0.26	1961.21	-0.85	-0.60
1943.04	0.51	0.22	1949.12	-0.49	-0.68	1955.21	-0.15	0.04	1961.29	-0.82	-0.55
1943.12	0.19	-0.11	1949.21	-0.10	-0.33	1955.29	-0.46	-0.27	1961.37	-0.67	-0.40
1943.21	-0.08	-0.38	1949.29	0.25	0.00	1955.37	-0.42	-0.25	1961.46	-0.16	0.09
1943.29	-0.64	-0.90	1949.37	0.64	0.36	1955.46	-0.21	-0.08	1961.54	0.70	0.88
1943.37	-0.67	-0.95	1949.46	0.93	0.63	1955.54	0.03	0.11	1961.62	1.78	1.88
1943.46	-0.56	-0.87	1949.54	0.92	0.64	1955.62	0.17	0.22	1961.71	2.79	2.82
1943.54	-0.30	-0.65	1949.62	0.51	0.27	1955.71	0.13	0.15	1961.79	3.56	3.54
1943.62	-0.32	-0.70	1949.71	-0.02	-0.20	1955.79	-0.14	-0.12	1961.87	3.65	3.64
1943.71	-0.21	-0.60	1949.79	-0.75	-0.86	1955.87	-0.13	-0.13	1961.96	3.53	3.55
1943.79	-0.72	-1.09	1949.87	-1.47	-1.50	1955.96	-0.17	-0.19	1962.04	2.97	3.05
1943.87	-1.09	-1.44	1949.96	-2.05	-2.02	1956.04	-0.39	-0.41	1962.12	2.12	2.29
1943.96	-1.41	-1.75	1950.04	-2.29	-2.22	1956.12	-0.43	-0.48	1962.21	1.34	1.59
1944.04	-1.60	-1.93	1950.12	-2.03	-1.98	1956.21	-0.54	-0.60	1962.29	0.81	1.13
1944.12	-1.49	-1.84	1950.21	-1.40	-1.39	1956.29	-0.87	-0.93	1962.37	0.28	0.65
1944.21	-1.12	-1.52	1950.29	-0.49	-0.55	1956.37	-1.00	-1.06	1962.46	-0.22	0.21
1944.29	-0.94	-1.37	1950.37	-0.01	-0.09	1956.46	-0.74	-0.84	1962.54	-0.60	-0.13
1944.37	-0.50	-0.97	1950.46	0.09	0.01	1956.54	-0.62	-0.76	1962.62	-0.88	-0.37
1944.46	-0.09	-0.60	1950.54	-0.13	-0.17	1956.62	-0.53	-0.69	1962.71	-1.23	-0.68
1944.54	0.19	-0.35	1950.62	-0.55	-0.54	1956.71	-0.42	-0.61	1962.79	-1.44	-0.87
1944.62	0.41	-0.16	1950.71	-0.99	-0.92	1956.79	-0.16	-0.39	1962.87	-1.45	-0.87
1944.71	0.55	-0.04	1950.79	-1.21	-1.10	1956.87	-0.01	-0.28	1962.96	-1.54	-0.95
1944.79	0.21	-0.35	1950.87	-1.10	-0.99	1956.96	0.18	-0.12	1963.04	-1.72	-1.10
1944.87	0.06	-0.49	1950.96	-1.12	-0.98	1957.04	0.10	-0.20	1963.12	-1.62	-1.00
1944.96	-0.50	-1.00	1951.04	-1.26	-1.09	1957.12	-0.02	-0.33	1963.21	-1.40	-0.80
1945.04	-1.00	-1.45	1951.12	-1.18	-1.00	1957.21	-0.17	-0.47	1963.29	-1.05	-0.48
1945.12	-1.20	-1.63	1951.21	-0.79	-0.63	1957.29	-0.56	-0.85	1963.37	-0.57	-0.05
1945.21	-1.21	-1.65	1951.29	-0.23	-0.09	1957.37	-0.64	-0.92	1963.46	0.03	0.51
1945.29	-1.10	-1.54	1951.37	0.27	0.38	1957.46	-0.24	-0.58	1963.54	0.45	0.89
1945.37	-0.71	-1.18	1951.46	0.74	0.83	1957.54	0.07	-0.29	1963.62	0.77	1.18
1945.46	-0.34	-0.84	1951.54	0.90	1.00	1957.62	0.30	-0.10	1963.71	0.94	1.34

1963.79	0.83	1.23	1969.87	0.17	-0.29	1975.96	-0.80	-0.38	1982.04	-0.95	-0.98
1963.87	0.68	1.09	1969.96	0.08	-0.37	1976.04	-0.15	0.21	1982.12	-0.62	-0.70
1963.96	0.30	0.74	1970.04	0.34	-0.12	1976.12	0.44	0.76	1982.21	-0.03	-0.18
1964.04	-0.10	0.38	1970.12	0.54	0.06	1976.21	0.91	1.19	1982.29	0.67	0.44
1964.12	-0.38	0.12	1970.21	0.82	0.33	1976.29	1.26	1.52	1982.37	1.06	0.77
1964.21	-0.33	0.16	1970.29	1.09	0.58	1976.37	1.20	1.47	1982.46	1.41	1.07
1964.29	-0.41	0.08	1970.37	1.22	0.70	1976.46	0.97	1.27	1982.54	1.84	1.44
1964.37	-0.23	0.23	1970.46	1.04	0.54	1976.54	0.55	0.89	1982.62	1.86	1.44
1964.46	0.03	0.47	1970.54	0.78	0.32	1976.62	0.64	0.98	1982.71	1.65	1.22
1964.54	0.07	0.50	1970.62	0.42	0.00	1976.71	0.79	1.12	1982.79	1.52	1.08
1964.62	-0.18	0.25	1970.71	0.09	-0.29	1976.79	0.90	1.22	1982.87	1.50	1.04
1964.71	-0.34	0.10	1970.79	-0.33	-0.66	1976.87	1.29	1.58	1982.96	1.54	1.05
1964.79	-0.42	0.01	1970.87	-0.63	-0.92	1976.96	1.74	2.00	1983.04	1.20	0.72
1964.87	-0.66	-0.21	1970.96	-0.88	-1.14	1977.04	1.57	1.84	1983.12	0.86	0.39
1964.96	-0.70	-0.26	1971.04	-0.94	-1.18	1977.12	1.26	1.56	1983.21	0.90	0.40
1965.04	-0.35	0.04	1971.12	-0.93	-1.16	1977.21	1.09	1.41	1983.29	0.89	0.36
1965.12	-0.04	0.31	1971.21	-0.86	-1.08	1977.29	0.53	0.90	1983.37	0.74	0.20
1965.21	0.13	0.45	1971.29	-0.53	-0.77	1977.37	-0.14	0.29	1983.46	1.02	0.44
1965.29	0.26	0.56	1971.37	-0.42	-0.66	1977.46	-0.38	0.08	1983.54	1.30	0.67
1965.37	0.27	0.55	1971.46	-0.27	-0.50	1977.54	-0.31	0.14	1983.62	1.16	0.52
1965.46	0.24	0.51	1971.54	-0.26	-0.49	1977.62	-0.11	0.32	1983.71	0.97	0.33
1965.54	0.28	0.53	1971.62	-0.32	-0.52	1977.71	0.27	0.66	1983.79	0.84	0.18
1965.62	0.52	0.73	1971.71	-0.48	-0.66	1977.79	0.39	0.77	1983.87	0.63	-0.03
1965.71	0.54	0.74	1971.79	-0.52	-0.68	1977.87	0.35	0.73	1983.96	0.46	-0.20
1965.79	0.39	0.58	1971.87	-0.66	-0.80	1977.96	0.28	0.67	1984.04	0.47	-0.22
1965.87	0.24	0.43	1971.96	-0.88	-0.98	1978.04	0.08	0.47	1984.12	0.40	-0.30
1965.96	-0.01	0.18	1972.04	-1.17	-1.23	1978.12	0.02	0.42	1984.21	0.25	-0.46
1966.04	-0.50	-0.29	1972.12	-1.22	-1.26	1978.21	-0.12	0.28	1984.29	-0.06	-0.76
1966.12	-0.69	-0.48	1972.21	-0.61	-0.69	1978.29	-0.41	0.02	1984.37	-0.43	-1.11
1966.21	-0.43	-0.26	1972.29	0.42	0.26	1978.37	-0.87	-0.41	1984.46	-0.75	-1.42
1966.29	-0.01	0.10	1972.37	1.24	1.01	1978.46	-1.12	-0.64	1984.54	-1.20	-1.84
1966.37	0.22	0.29	1972.46	2.09	1.80	1978.54	-1.09	-0.62	1984.62	-1.65	-2.26
1966.46	0.49	0.52	1972.54	2.71	2.38	1978.62	-0.64	-0.22	1984.71	-1.72	-2.34
1966.54	0.71	0.70	1972.62	2.86	2.53	1978.71	-0.17	0.21	1984.79	-1.47	-2.13
1966.62	0.69	0.66	1972.71	2.13	1.88	1978.79	0.34	0.66	1984.87	-1.16	-1.86
1966.71	0.39	0.37	1972.79	1.62	1.42	1978.87	0.80	1.07	1984.96	-0.67	-1.42
1966.79	0.35	0.30	1972.87	1.36	1.20	1978.96	1.02	1.27	1985.04	-0.71	-1.46
1966.87	0.45	0.38	1972.96	1.00	0.89	1979.04	1.01	1.25	1985.12	-1.05	-1.77
1966.96	0.40	0.32	1973.04	0.52	0.46	1979.12	1.01	1.24	1985.21	-1.58	-2.26
1967.04	0.21	0.12	1973.12	0.61	0.55	1979.21	0.69	0.94	1985.29	-2.00	-2.65
1967.12	0.42	0.29	1973.21	0.80	0.74	1979.29	-0.37	-0.04	1985.37	-2.37	-2.98
1967.21	0.87	0.68	1973.29	0.81	0.76	1979.37	-1.26	-0.85	1985.46	-2.02	-2.67
1967.29	1.40	1.15	1973.37	0.74	0.70	1979.46	-1.65	-1.22	1985.54	-1.64	-2.32
1967.37	1.94	1.62	1973.46	0.53	0.53	1979.54	-1.74	-1.31	1985.62	-1.12	-1.85
1967.46	2.45	2.05	1973.54	0.02	0.07	1979.62	-1.45	-1.06	1985.71	-0.62	-1.38
1967.54	2.16	1.77	1973.62	-0.59	-0.47	1979.71	-0.54	-0.24	1985.79	-0.36	-1.14
1967.62	1.30	0.98	1973.71	-0.95	-0.80	1979.79	0.12	0.35	1985.87	-0.34	-1.11
1967.71	0.27	0.02	1973.79	-1.18	-0.99	1979.87	0.53	0.72	1985.96	-0.18	-0.95
1967.79	-0.72	-0.90	1973.87	-1.15	-0.95	1979.96	0.94	1.08	1986.04	-0.08	-0.85
1967.87	-1.57	-1.69	1973.96	-0.97	-0.78	1980.04	0.83	0.97	1986.12	0.02	-0.75
1967.96	-1.84	-1.96	1974.04	-0.76	-0.58	1980.12	0.22	0.40	1986.21	-0.09	-0.83
1968.04	-1.80	-1.94	1974.12	-0.71	-0.52	1980.21	-0.33	-0.11	1986.29	-0.21	-0.92
1968.12	-1.72	-1.88	1974.21	-0.65	-0.45	1980.29	-0.73	-0.48	1986.37	-0.18	-0.87
1968.21	-1.36	-1.57	1974.29	-0.36	-0.18	1980.37	-1.16	-0.88	1986.46	-0.21	-0.89
1968.29	-1.01	-1.26	1974.37	-0.01	0.15	1980.46	-0.93	-0.69	1986.54	-0.23	-0.88
1968.37	-0.78	-1.07	1974.46	0.19	0.34	1980.54	-0.45	-0.26	1986.62	0.09	-0.57
1968.46	-0.57	-0.89	1974.54	0.18	0.35	1980.62	0.00	0.14	1986.71	0.54	-0.14
1968.54	-0.42	-0.77	1974.62	0.10	0.28	1980.71	0.16	0.27	1986.79	0.98	0.28
1968.62	-0.42	-0.78	1974.71	-0.21	0.01	1980.79	0.07	0.18	1986.87	1.24	0.55
1968.71	-0.39	-0.76	1974.79	-0.40	-0.16	1980.87	-0.25	-0.13	1986.96	1.46	0.78
1968.79	-0.49	-0.86	1974.87	-0.43	-0.18	1980.96	-0.27	-0.16	1987.04	1.20	0.57
1968.87	-0.71	-1.07	1974.96	-0.55	-0.27	1981.04	-0.24	-0.14	1987.12	0.78	0.22
1968.96	-0.71	-1.08	1975.04	-0.67	-0.37	1981.12	-0.05	0.01	1987.21	0.28	-0.21
1969.04	-0.87	-1.22	1975.12	-0.56	-0.26	1981.21	0.22	0.25	1987.29	0.06	-0.38
1969.12	-1.16	-1.50	1975.21	-0.65	-0.33	1981.29	0.36	0.36	1987.37	0.03	-0.38
1969.21	-1.14	-1.48	1975.29	-0.44	-0.13	1981.37	0.18	0.19	1987.46	0.47	0.05
1969.29	-0.84	-1.21	1975.37	-0.38	-0.07	1981.46	-0.05	-0.04	1987.54	0.98	0.55
1969.37	-0.30	-0.72	1975.46	-0.46	-0.13	1981.54	-0.46	-0.43	1987.62	1.58	1.12
1969.46	0.35	-0.13	1975.54	-1.00	-0.62	1981.62	-0.97	-0.91	1987.71	1.81	1.37
1969.54	1.01	0.47	1975.62	-1.38	-0.95	1981.71	-1.25	-1.18	1987.79	1.80	1.39
1969.62	1.07	0.52	1975.71	-1.75	-1.28	1981.79	-1.24	-1.19	1987.87	1.62	1.26
1969.71	1.05	0.51	1975.79	-1.78	-1.30	1981.87	-1.30	-1.26	1987.96	1.14	0.86
1969.79	0.54	0.05	1975.87	-1.56	-1.08	1981.96	-1.23	-1.22	1988.04	0.28	0.11

1988.12	-0.14	-0.24
1988.21	-0.49	-0.53
1988.29	-0.63	-0.62
1988.37	-0.74	-0.68
1988.46	-0.48	-0.41
1988.54	-0.12	-0.06
1988.62	0.12	0.20
1988.71	0.32	0.41
1988.79	0.64	0.74
1988.87	0.69	0.81
1988.96	0.42	0.59
1989.04	0.16	0.39
1989.12	-0.39	-0.09
1989.21	-0.81	-0.44
1989.29	-1.19	-0.76
1989.37	-1.26	-0.79
1989.46	-1.48	-0.96
1989.54	-1.33	-0.80
1989.62	-1.32	-0.77
1989.71	-1.08	-0.52
1989.79	-1.05	-0.47
1989.87	-0.78	-0.21
1989.96	-0.45	0.12
1990.04	-0.03	0.52
1990.12	0.23	0.79
1990.21	0.47	1.04
1990.29	0.57	1.15
1990.37	0.43	1.04
1990.46	0.27	0.91
1990.54	0.09	0.74
1990.62	-0.05	0.61
1990.71	-0.23	0.43
1990.79	-0.31	0.36
1990.87	-0.42	0.25
1990.96	-0.62	0.05
1991.04	-0.83	-0.15
1991.12	-0.80	-0.14
1991.21	-0.87	-0.21
1991.29	-0.57	0.04
1991.37	-0.14	0.42
1991.46	0.29	0.79
1991.54	0.76	1.20
1991.62	1.23	1.61
1991.71	1.29	1.65
1991.79	1.49	1.81
1991.87	1.20	1.52
1991.96	0.77	1.11
1992.04	0.51	0.85
1992.12	0.39	0.72
1992.21	0.09	0.42
1992.29	0.02	0.33
1992.37	-0.37	-0.05
1992.46	-1.13	-0.77
1992.54	-1.35	-0.99
1992.62	-1.45	-1.10
1992.71	-1.42	-1.11
1992.79	-0.96	-0.71
1992.87	-0.26	-0.09
1992.96	0.04	0.15
1993.04	0.10	0.18
1993.12	0.02	0.08
1993.21	-0.34	-0.27
1993.29	-0.66	-0.59
1993.37	-1.12	-1.03
1993.46	-1.46	-1.36
1993.54	-1.25	-1.20
1993.62	-0.81	-0.82
1993.71	-0.34	-0.41
1993.79	0.37	0.21
1993.87	0.91	0.68
1993.96	1.09	0.83
1994.04	1.14	0.89
1994.12	1.09	0.87

1994.21	0.87	0.69
1994.29	0.86	0.71
1994.37	1.46	1.28
1994.46	2.41	2.14
1994.54	4.00	3.59
1994.62	4.37	3.91
1994.71	4.08	3.65
1994.79	3.19	2.83
1994.87	2.32	2.03
1994.96	0.72	0.57

Supplementary Table 3 Correlations of individual and combined Indian Ocean coral records with SST and OLR (rainfall) records. SST data are from the HadISST dataset¹⁶ (since 1958; update of GISSTv2.3)⁵, and the Reynolds v2 dataset⁶ (since 1982). OLR data are from the NOAA NCEP CPC dataset (since 1979). All correlations are based on July-November averages (IOD season), with correlation coefficients (*r*) and probability values (*p*) shown. Correlations for individual coral records use data from the individual grid square encompassing each site. The combined eastern and western coral records were correlated with the average SST and OLR anomalies in the eastern and western IOD sectors⁵, respectively. The eastern and western coral records correlate with SST and rainfall anomalies, reflecting the coupled ocean-atmosphere processes of the IOD. Correlations with SST are similarly strong for the eastern and western sector coral records. Correlations with OLR are stronger for the eastern region corals than the western region corals, perhaps reflecting the significantly higher amount of rainfall in the eastern IOD region and its potentially greater influence on coral $\delta^{18}\text{O}$.

Correlations with sea surface temperature (SST; HadISST) ¹⁶		
Bali ⁹ $\delta^{18}\text{O}$: <i>r</i> = -0.62, <i>p</i> = 0.0002	Combined eastern coral $\delta^{18}\text{O}$: <i>r</i> = -0.70, <i>p</i> = 0.0000	Coral Dipole Mode Index: <i>r</i> = 0.82, <i>p</i> = 0.0000
Mentawai $\delta^{18}\text{O}$: <i>r</i> = -0.58, <i>p</i> = 0.0002		
Seychelles ¹⁸ $\delta^{18}\text{O}$: <i>r</i> = -0.44, <i>p</i> = 0.0059	Combined western coral $\delta^{18}\text{O}$: <i>r</i> = -0.64, <i>p</i> = 0.0000	
Seychelles ¹⁹ $\delta^{18}\text{O}$: <i>r</i> = -0.69, <i>p</i> = 0.0000		
Correlations with sea surface temperature (SST; Reynolds v2) ⁶		
Bali ⁹ $\delta^{18}\text{O}$: <i>r</i> = -0.92, <i>p</i> = 0.0013	Combined eastern coral $\delta^{18}\text{O}$: <i>r</i> = -0.87, <i>p</i> = 0.0000	Coral Dipole Mode Index: <i>r</i> = 0.92, <i>p</i> = 0.0000
Mentawai $\delta^{18}\text{O}$: <i>r</i> = -0.90, <i>p</i> = 0.0000		
Seychelles ¹⁸ $\delta^{18}\text{O}$: <i>r</i> = -0.70, <i>p</i> = 0.0073	Combined western coral $\delta^{18}\text{O}$: <i>r</i> = -0.87, <i>p</i> = 0.0001	
Seychelles ¹⁹ $\delta^{18}\text{O}$: <i>r</i> = -0.83, <i>p</i> = 0.0008		
Correlations with outgoing longwave radiation (OLR)		
Bali ⁹ $\delta^{18}\text{O}$: <i>r</i> = 0.66, <i>p</i> = 0.027	Combined eastern coral $\delta^{18}\text{O}$: <i>r</i> = 0.86, <i>p</i> = 0.0000	Coral Dipole Mode Index: <i>r</i> = -0.87, <i>p</i> = 0.0000
Mentawai $\delta^{18}\text{O}$: <i>r</i> = 0.76, <i>p</i> = 0.0001		
Seychelles ¹⁸ $\delta^{18}\text{O}$: <i>r</i> = 0.28, <i>p</i> = 0.29	Combined western coral $\delta^{18}\text{O}$: <i>r</i> = 0.45, <i>p</i> = 0.081	
Seychelles ¹⁹ $\delta^{18}\text{O}$: <i>r</i> = 0.34, <i>p</i> = 0.22		

Supplementary Table 4 Correlations of individual and combined Indian Ocean coral records with the instrumental Dipole Mode Index⁵ since 1958. All correlations are based on July-November averages (i.e. the IOD season). Correlation coefficients (r) and probability values (p) are shown. The combined use of a number of coral $\delta^{18}\text{O}$ records from the key regions of IOD activity increases the skill of reconstructing the IOD.

Bali ⁹ : $r = 0.56, p = 0.0010$	Combined eastern corals: $r = 0.64, p = 0.0000$	Coral Dipole Mode Index: $r = 0.82, p = 0.0000$
Mentawai: $r = 0.34, p = 0.030$		
Seychelles ¹⁸ : $r = -0.50, p = 0.0015$	Combined western corals: $r = -0.55, p = 0.0003$	
Seychelles ¹⁹ : $r = -0.49, p = 0.0025$		

Supplementary Table 5 Correlations between tropical climate indices during discrete time intervals. Correlation coefficients (r) and probability values (p) are given, and bold values denote correlations that are significant above the 95% confidence level. All correlations were based on seasonally averaged data, with July-November (IOD season) averages used for the Dipole Mode Index (DMI) and June-September (monsoon season) averages used for all-India rainfall (AIR). Selection of the time intervals for correlation analysis was based on the approximate timing of changes in tropical climate activity and interactions found in this study. The significant differences in correlations for different intervals confirm that the conclusions reached using moving correlation analysis (Supplementary Fig. 4) are robust²⁰.

	Entire records	Pre-1905	1905-1960	Post-1960
NINO3.4 vs. AIR	$r = -0.59$ $p = 0.0000$	$r = -0.62$ $p = 0.0001$	$r = -0.65$ $p = 0.0000$	$r = -0.50$ $p = 0.0004$
DMI vs. NINO3.4	$r = 0.51$ $p = 0.0000$	$r = 0.72$ $p = 0.0000$	$r = 0.29$ $p = 0.031$	$r = 0.61$ $p = 0.0000$
DMI vs. AIR	$r = -0.14$ $p = 0.10$	$r = -0.57$ $p = 0.0003$	$r = -0.13$ $p = 0.35$	$r = 0.10$ $p = 0.53$
Residual DMI vs. Residual AIR	$r = 0.30$ $p = 0.0005$	$r = -0.11$ $p = 0.53$	$r = 0.13$ $p = 0.35$	$r = 0.62$ $p = 0.0000$

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