SUPPLEMENTARY INFORMATION

Millennial- and Orbital-scale changes in the East Asian Monsoon over the past 224,000 years

By Yongjin Wang et al., 2007

Supplementary Figures

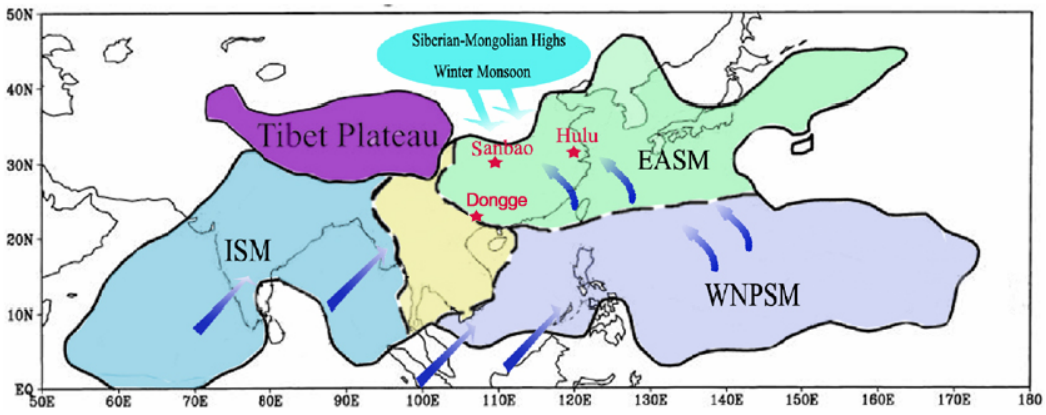

Figure S1. Cave locations in the Asian–Pacific monsoon regions. Three stars indicate locations of Sanbao (110º26'E，31º40'N), Hulu (32°30'N, 119°10'E) and Dongge (25°17'N, 108°5'E) Caves. The distances of Sanbao Cave to both Hulu and Dongge caves are about 800 kilometers. The modern Asian Monsoon system includes both the subtropical East Asian summer monsoon (EASM) and the tropical Indian summer monsoon (ISM)[S1]. All three caves are located in the EASM region. Two tropical monsoon systems, the Indian summer monsoon (ISM) and the western North Pacific summer monsoon (WNPSM), share a broad corridor in the Indochina Peninsula (beige area). Arrows show dominant summer wind directions (blue) and the wind direction of the winter monsoon from the Siberian-Mongolian Highs (light blue).

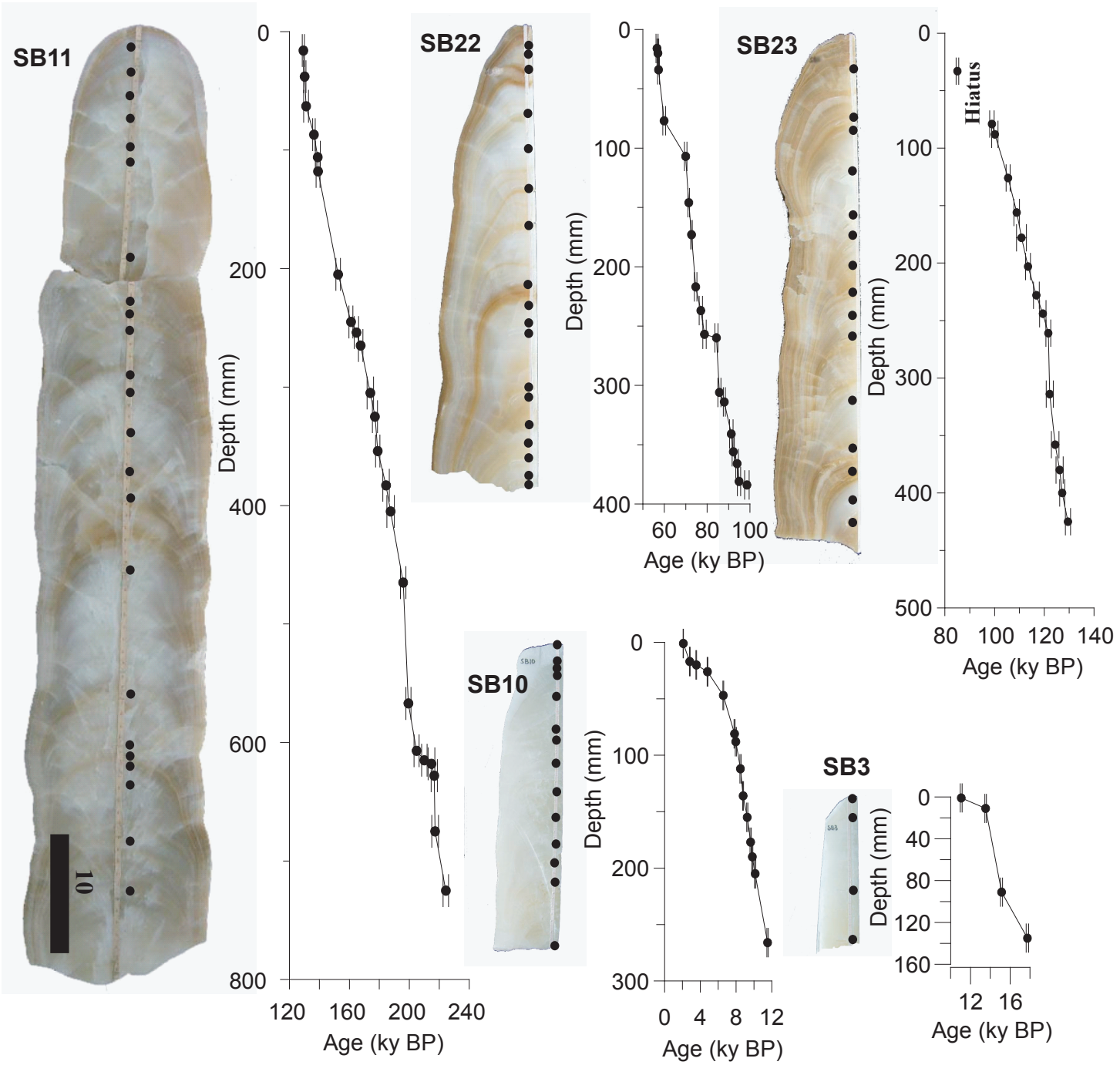

Figure S2. Images of stalagmites SB11, SB22, SB23, SB10 and SB3 that were used to establish the Sanbao Cave $\delta^{18}O$ record (Fig. 1). All ^{230}Th dating positions were marked on the stalagmites with black dots. Plots of age versus depth for each stalagmite were shown on the right of each sample's image. The chronologies were constructed by linear interpolations between ^{230}Th dates.

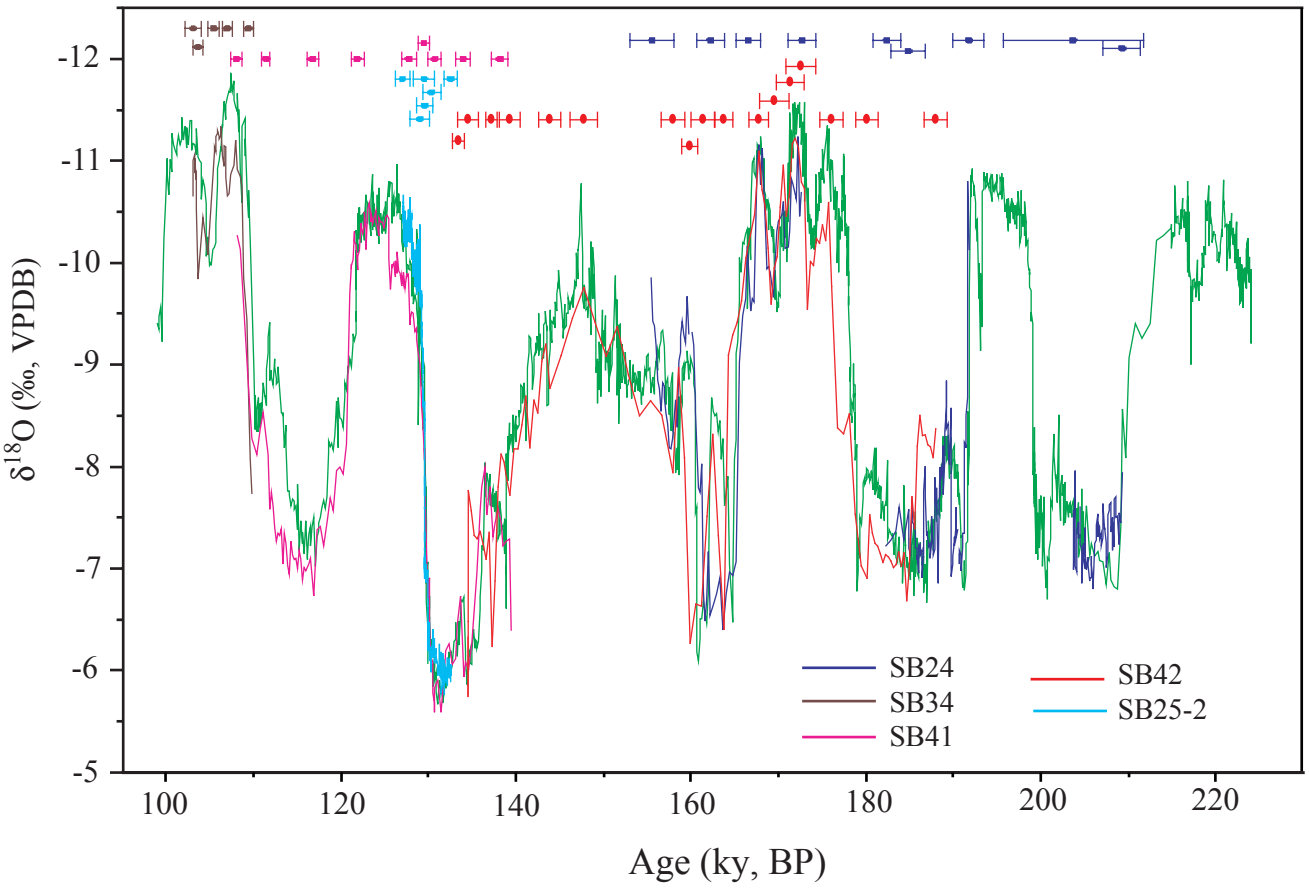

Figure S3. Replication test[S2] among Sanbao Cave $\delta^{18}O$ records. Two records in green are from Fig.1 (SB11 and SB23) and have the best resolution and chronological control over the time range of 224-115 ky BP (thousand years before present, present = 1950 AD). Five additional $\delta^{18}O$ records within the interval are plotted for the replication test (sample SB24, SB25-2, SB34, SB41 and SB42). The $\delta^{18}O$ profiles and dating error bars are color coded as shown by the legend in the figure. Contemporaneous $\delta^{18}O$ records from different stalagmites replicate within dating errors on both orbital and millennial timescales, suggesting equilibrium calcite precipitation.

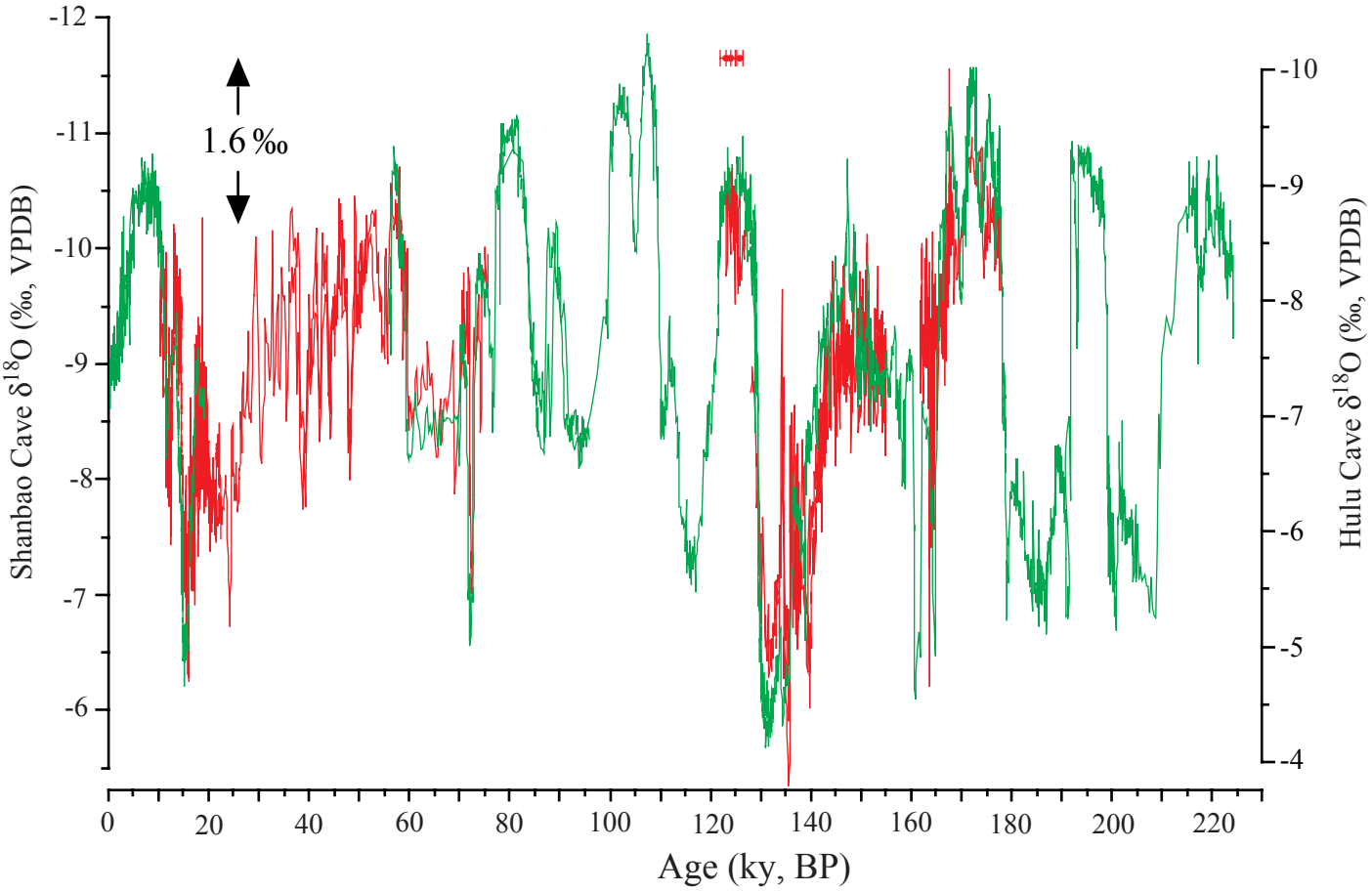

Figure S4. Replication test between Sanbao and Hulu Cave $\delta^{18}O$ records. Current Hulu records (in red) cover four time intervals, 11-75 ky BP[S3], 129-155 ky BP[S4], 162-178 ky BP[S4], and 123-127 ky BP (Sample TF, see Table S2. Two age dates are plotted with error bars in red). The Sanbao records (green, from Fig. 1) replicate Hulu records within dating errors in all contemporaneous growth intervals, providing another robust replication test[S2], and demonstrating regional coherence in the climate signal. Sanbao records exhibit lower $\delta^{18}O$ values, ~1.6 ‰ lower on average, in comparison with Hulu and Dongge records. This offset can be largely explained by the differences in elevations and surface temperatures of the cave sites. The elevation and mean temperature at Sanbao Cave are 1800m higher and 6-7ºC lower than at Hulu Cave. The local altitude effect of precipitation (~ -0.2‰/100m[S5]) at the Sanbao Cave site, combined with the temperature effect of calcite precipitation (-0.24‰/ºC[S6]), will then result in an approximately -2‰ net offset, and therefore, account for the observed Sanbao-Hulu offset.

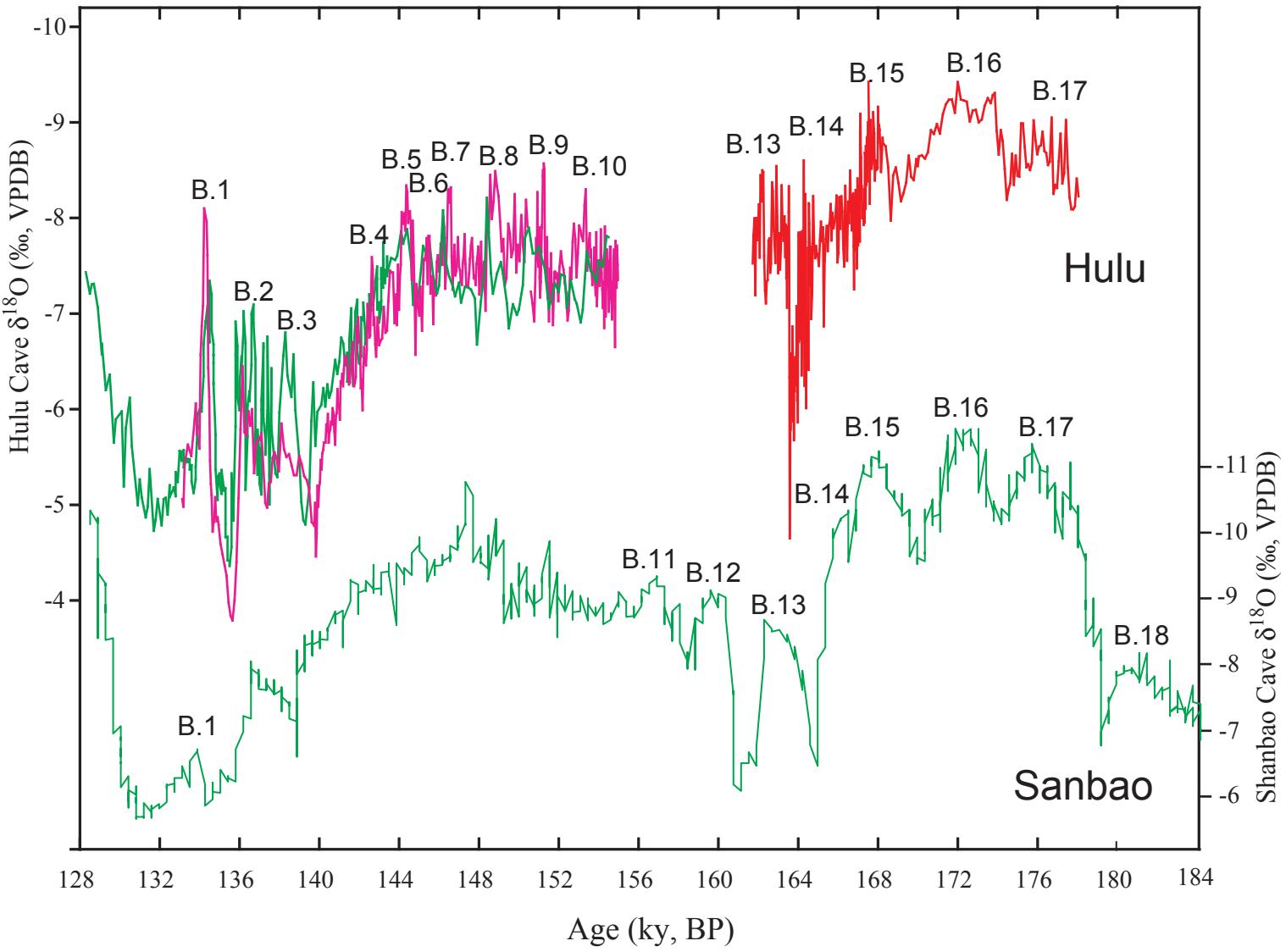

Figure S5. Chinese Interstadials (CIS)[S4] in marine isotope stage 6 (MIS 6). Upper panel: Hulu $\delta^{18}O$ records from three stalagmites (in different colors)[S4]. Lower panel: Sanbao $\delta^{18}O$ records from Fig. 1. Hulu and Sanbao records are broadly similar in terms of millennial (CIS B) events. However, the CIS B events are better recorded in the late portion of MIS 6 in Hulu Cave and in the early portion of MIS 6 at Sanbao Cave.

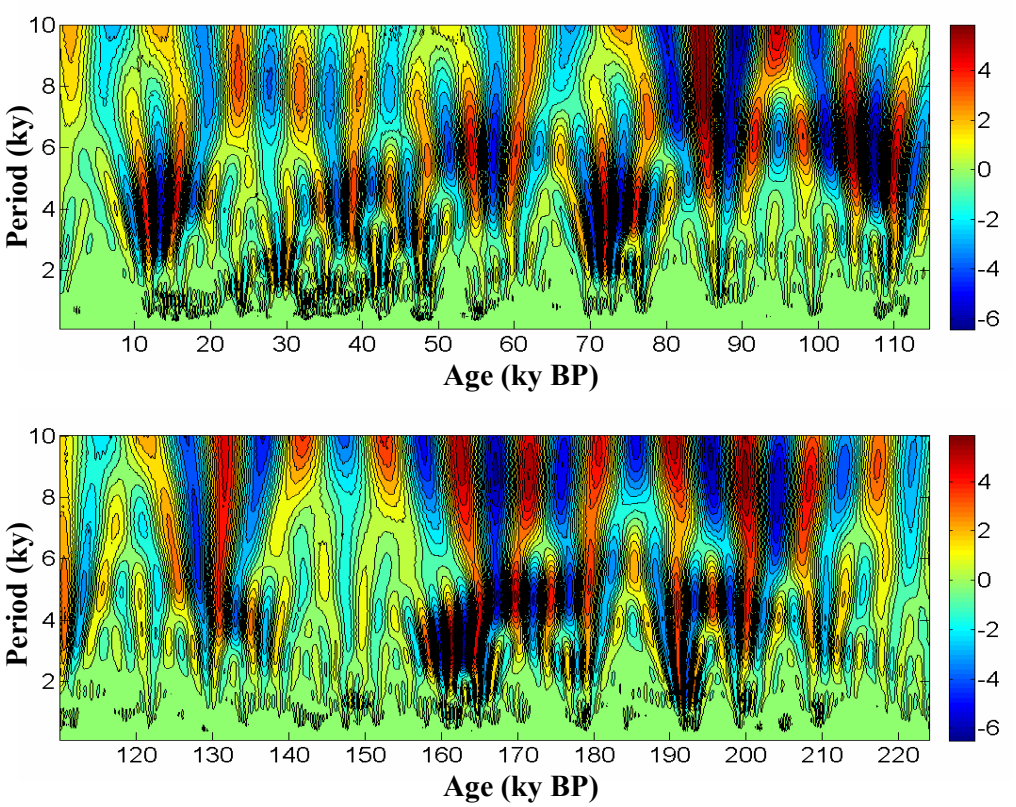

Figure S6. The time–frequency representation of the real part of complex Morlet wavelet coefficients for millennial-scale periods of the Sanbao $\delta^{18}O$ record in the last (upper panel) and penultimate (lower panel) glacial cycles. The method is available at http://atoc.colorado.edu/research/wavelets. The orbital-scale components were removed from the origin series by using Level 8 SWD methods[S7]. X-axis indicates age (ky BP), while Y-axis represents the Fourier period (ky). The color bar on the right indicates amplitudes of coefficients. The time series of the domain cycles is similar between the two glacial periods. The domain periods shift from 8-9ky bands between 80-95ky BP to 2-3ky bands around ~20ky BP, similar to the periodicity shift between 220 and 150ky BP. Furthermore, during both MIS3 (between 60 and 30ky BP) and MIS6 (between 180 and 150ky BP), the pronounced cycles progressively get shorter from ~6 to ~3ky as age decreases. The periodicities between 80–65 ky BP and between 200–185 ky BP show bands of 3-5ky, lower than the general trends, possibly due to larger ice volume effects (approximately corresponding to MIS4 and early MIS6 respectively). Similarly the periodicity of 5-6ky between 115 and 110ky BP is shorter in comparison to the general trend which is likely related to the large ice volume during MIS5.4. In addition to the periodicity time series associated with changes in ice volume, there are weak periodicities of 2-3ky in the most of our records and a relative strong periodicity of 8-9ky between 220-160ky BP.

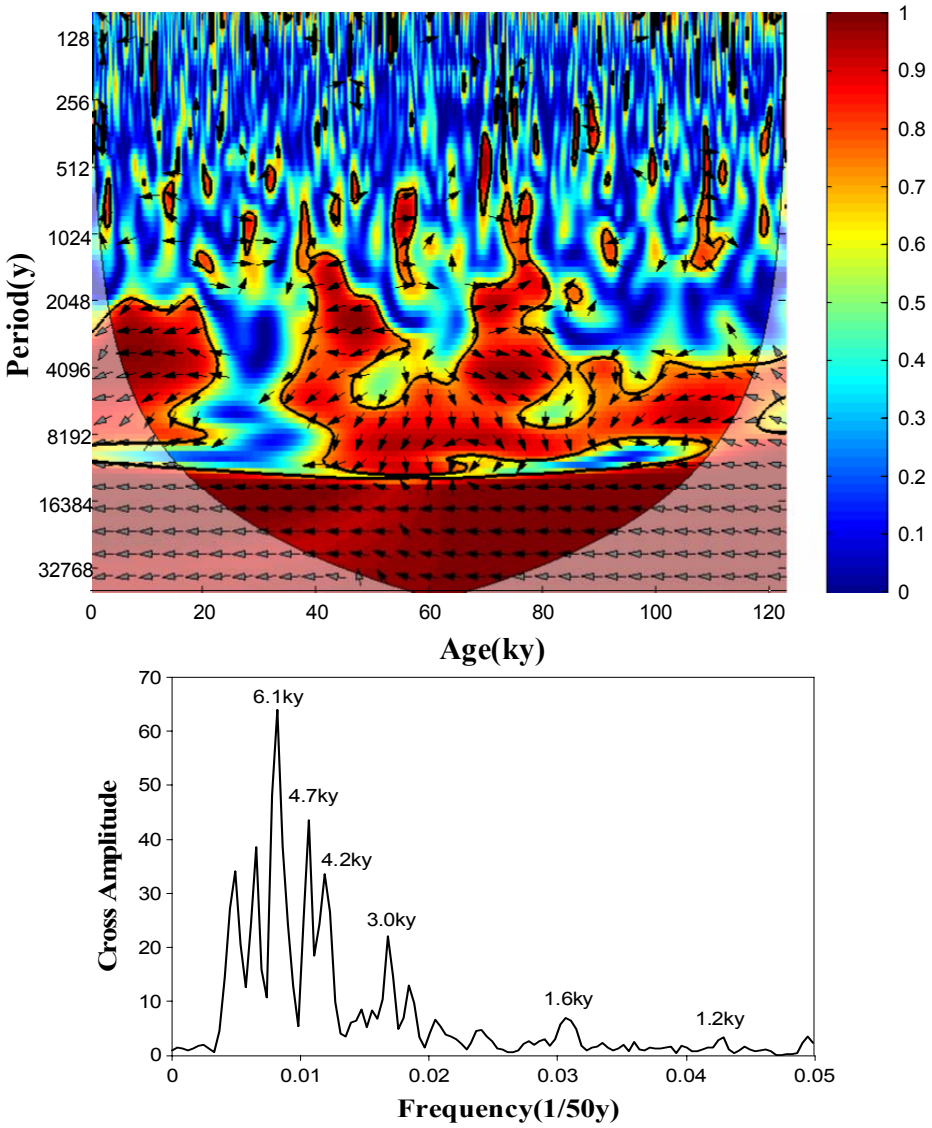

Figure S7. Cross wavelet analysis for the North GRIP ice core[S8] and Sanbao oxygen isotope data over the past 120 ky. The orbital cycles were removed from the North GRIP original time series using the methods described in the Figure S6. Upper Panel: Squared wavelet coherence. The 5% significance level against red noise is shown as the thick contour. Values of coherences (varying between 0.0-1.0) are shown by colors which can be considered as the local correlation between the two continuous wavelet transforms. Lighter shade in the figure indicates the cone of influence (COI) where edge effects might affect the result. X-axis represents coherence changes in time domains, while Y-axis indicates coherence changes in continuous time scales. All data are calculated by the MatLab wavelet coherence package available at http://www.pol.ac.uk/home/research/waveletcoherence/download.html. Lower Panel: Illustration of common cycles between the North GRIP ice core[S8] and the Sanbao oxygen isotope time series. Numbers indicate common cycles of 6.1, 4.7, 4.2, 3.0 1.6 and 1.2 ky that have a confidence level over the 95% in the cross amplitude spectrum analysis.

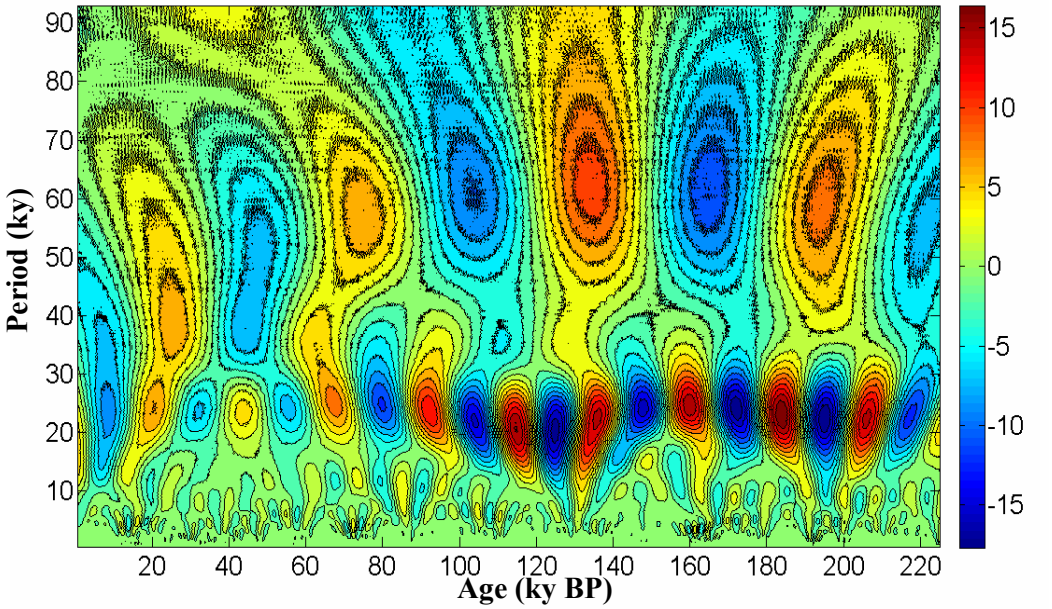

Figure S8. The contours of the real part of Morlet wavelet coefficients constructed by the Morlet wavelet method available at http://atoc.colorado.edu/research/wavelets/ for the Sanbao $\delta^{18}O$ record. X-axis represents age (ky BP) and Y-axis indicates the Fourier period (ky). The color bar on the right indicates amplitudes of coefficients. A pronounced cycle at bands of 20-25ky with an average of ~23ky exists throughout the past 224 ky. Relatively weak cycles of 60-50ky occur from 220 to 100 ky BP, followed by a gradual shift of cycles to about 40ky period in the younger part of the record.

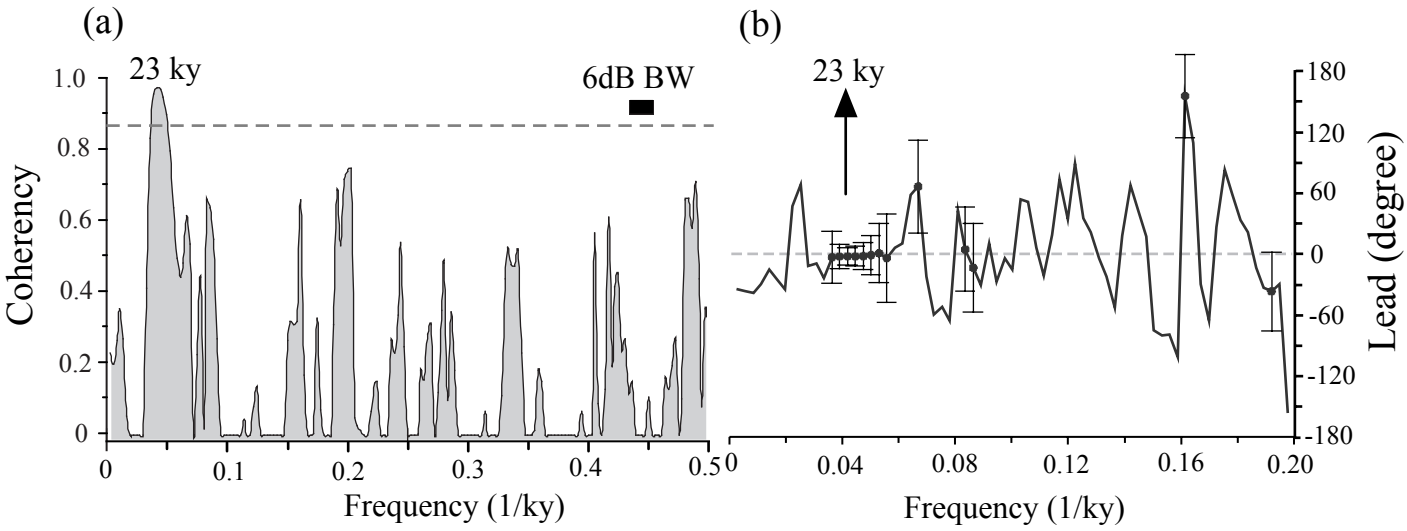

Figure S9. Cross-spectrum analysis results by the SPECTRUM program showing coherence (**a**) and the phase spectrum (**b**) between July 21 insolation at 65ºN and Sanbao/Hulu Cave $\delta^{18}O$ over the past 224 ky. The coherency spectrum (solid line in (**a**)) is compared with the 99% false-alarm level (dash line in (**a**)), resulting in a dominant cyclicity of ~23 ky. The 6-dB bandwidth (BW) as shown by a black bar in (**a**) is 0.177 ky^{-1}, indicating the frequency resolution. OFAC and HIFAC used in (**a**) are 4 and 1, respectively, performed by a Welch-Overlapped-Segment-Averaging procedure with 50% overlapped segments and 4 segments and a Welch I window type is employed for less spectral leakage. Marginal deviation of phase spectrum (**b**) from zero-phase line suggests the cave $\delta^{18}O$ record lags the insolation by 0.77 ±0.45 ky (or 12º ±7º) at the 23 ky period. Detailed methods are described in Ref. S9.

Supplementary Tables

Table S1. ^{230}Th dating results. The error is 2σ.

Sample Number	Distance (mm)	^{238}U (ppb)	^{232}Th (ppt)	^{230}Th / ^{232}Th (atomic x10^{-6})	δ^{234}U* (measured)	^{230}Th / ^{238}U (activity)	^{230}Th Age(ky) (uncorrected)	^{230}Th Age(ky) (corrected)	$\delta^{234}U_{Initial}$** (corrected)
SB3-1	1	478.2±0.6	4720±40	314±3	896.9±1.7	0.1875±0.0010	11.22±0.06	11.1±0.1	925.9±1.8
SB3-11	11	1239±3	860±50	5100±300	827.9±2.6	0.2159±0.0012	13.54±0.08	13.5±0.1	860.3±2.7
SB3-91	91	1186±3	190±50	25000±7000	811.4±3.5	0.2377±0.0014	15.2±0.1	15.1±0.1	847.0±3.7
SB3-135	135	1102±3	7410±50	671±6	789.0±3.3	0.2736±0.0015	17.9±0.1	17.7±0.1	830.0±3.5
SB10-1	1	309.3±0.4	360±30	570±50	1004.2±2.6	0.0393±0.0004	2.11±0.02	2.09±0.02	1010.4±2.6
SB10-17	17	743±3	710±40	900±50	1003.4±6.2	0.0523±0.0008	2.83±0.04	2.81±0.04	1011.6±6.2
SB10-20	20	896±2	340±40	2900±300	993.8±3.9	0.0650±0.0006	3.56±0.04	3.55±0.04	1004.0±4.0
SB10-26	26	708±2	320±30	3100±300	995.7±3.6	0.0872±0.0007	4.81±0.04	4.80±0.04	1009.4±3.6
SB10-47	47	839±2	390±30	4100±300	979.8±3.0	0.1172±0.0008	6.58±0.05	6.57±0.05	998.3±3.1
SB10-81	81	912±2	300±40	7000±1000	976.3±3.2	0.1385±0.0011	7.84±0.06	7.83±0.06	998.3±3.3
SB10-88	88	910±2	250±30	8000±1000	973.1±3.1	0.1407±0.0009	7.98±0.06	7.97±0.06	995.4±3.2
SB10-112	112	1071±2	200±40	14000±3000	995.9±3.3	0.1511±0.0010	8.49±0.06	8.49±0.06	1020.3±3.4
SB10-136	136	1251±3	850±60	3800±300	986.3±3.1	0.1557±0.0010	8.80±0.06	8.79±0.06	1011.3±3.2
SB10-155	155	1254±3	470±20	7200±300	991.9±2.8	0.1638±0.0010	9.25±0.06	9.25±0.06	1018.4±2.9
SB10-177	177	835±2	130±40	19000±6000	980.4±3.5	0.1693±0.0011	9.64±0.07	9.63±0.07	1007.6±3.6
SB10-190	190	1430±3	390±30	10500±700	988.5±2.4	0.1732±0.0009	9.82±0.06	9.82±0.06	1016.5±2.5
SB10-205	205	1229±2	600±50	6100±500	992.6±2.7	0.1790±0.0012	10.15±0.07	10.14±0.07	1021.6±2.8
SB10-266	266	938±2	1210±40	2590±80	990.7±3.4	0.2023±0.0012	11.55±0.08	11.53±0.08	1023.7±3.5
SB26-1	1	758±2	540±30	190±10	955.7±2.8	0.0084±0.0004	0.41±0.02	0.40±0.02	955.7±2.8
SB26-126	126	721±2	3500±60	168±4	956.7±5.6	0.0494±0.0008	2.73±0.05	2.66±0.06	964.2±5.7
SB26-144	144	774±2	530±40	1300±100	954.7±4.9	0.0548±0.0008	3.04±0.04	3.03±0.04	963.1±4.9
SB26-162	162	726±3	130±60	6000±3000	947.9±6.5	0.0607±0.0012	3.39±0.07	3.39±0.07	957.1±6.6
SB26-265	265	762±1	860±10	1380±20	960.5±2.4	0.0948±0.0005	5.34±0.03	5.32±0.03	975.3±2.4
SB25-2-1	1	626±1	3720±30	3670±30	789.3±2.1	1.3192±0.0052	127.1±0.9	127.0±0.9	1130.0±4.0
SB25-2-295	295	883±2	360±50	54000±8000	771.1±3.1	1.3162±0.0064	129.0±1.2	129.0±1.2	1110.6±5.8
SB25-2-348	348	1004±2	160±40	140000±40000	767.7±2.8	1.3161±0.0066	129.5±1.2	129.5±1.2	1107.1±5.4
SB25-2-389	389	833±1	150±20	130000±20000	784.5±1.7	1.3301±0.0049	129.6±0.9	129.6±0.9	1132.0±4.0
SB25-2-420	420	918±2	480±30	42000±3000	761.9±2.1	1.3164±0.0058	130.3±1.0	130.3±1.0	1101.4±4.4
SB25-2-469	469	893±1	3220±10	6100±30	752.8±1.7	1.3219±0.0042	132.6±0.8	132.5±0.8	1095.2±3.4
SB24-73	73	393±1	3300±40	3290±50	1004.0±7.1	1.6700±0.0126	155.6±2.5	155.5±2.5	1559±16
SB24-114	114	331±1	8370±50	1112±8	997.7±3.5	1.7020±0.0080	162.5±1.6	162.2±1.6	1579.7±9.1
SB24-125	125	224.0±0.3	2050±30	3090±50	988.7±3.2	1.7151±0.0063	166.6±1.4	166.5±1.4	1583.3±8.0
SB24-152	152	294.3±0.4	5760±20	1353±7	840.6±2.6	1.6041±0.0061	172.9±1.5	172.7±1.5	1369.7±7.1
SB24-155	155	311.7±0.4	3540±20	2580±20	975.8±2.6	1.7791±0.0065	182.5±1.6	182.4±1.6	1634.1±8.4
SB24-160	160	385.8±0.7	2900±30	3960±50	992.1±3.0	1.8063±0.0080	184.9±1.9	184.8±1.9	1673±10
SB24-259	259	254.8±0.5	2080±±30	3430±50	854.4±3.4	1.6968±0.0061	191.9±1.8	191.8±1.8	1469.4±9.5
SB24-264	264	252±2	630±80	12000±2000	900±21	1.7889±0.0189	203.7±8.0	203.7±8.0	1601±51
SB24-336	336	362.5±0.6	6830±40	1520±10	828.1±2.4	1.7332±0.0067	209.5±2.2	209.3±2.2	1497±10

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Table S1.(Cont.)

Sample Number	Distance (mm)	^{238}U (ppb)	^{232}Th (ppt)	^{230}Th / ^{232}Th (atomic x10^{-6})	$\delta^{234}U$* (measured)	^{230}Th / ^{238}U (activity)	^{230}Th Age(ky) (uncorrected)	^{230}Th Age(ky) (corrected)	$\delta^{234}U_{Initial}$** (corrected)
SB23-79	79	614±2	12760±60	850±6	699.3±3.5	1.0692±0.0058	99.2±0.9	98.9±0.9	925.8±5.2
SB23-88	88	510±1	1650±60	5000±200	555.7±3.7	0.9782±0.0077	100.2±1.3	100.1±1.3	737.7±5.6
SB23-126	126	586±1	650±40	13000±800	550.2±2.7	1.0072±0.0045	105.5±0.8	105.4±0.8	741.3±4.1
SB23-156	156	821±3	600±50	24000±2000	594.9±4.4	1.0602±0.0060	108.9±1.1	108.9±1.1	809.5±6.6
SB23-178	178	1014±4	1270±50	13000±500	482.1±4.9	0.9896±0.0103	110.9±2.0	110.8±2.0	659.5±7.7
SB23-203	203	856±2	1090±40	13100±500	480.8±3.0	1.0029±0.0046	113.5±1.0	113.4±1.0	662.7±4.4
SB23-228	228	1091±3	1680±60	10800±400	458.4±3.6	1.0039±0.0052	116.8±1.1	116.8±1.1	637.9±5.4
SB23-244	244	891±2	1540±60	9800±400	465.0±2.6	1.0222±0.0062	119.5±1.3	119.4±1.3	651.9±4.3
SB23-261	261	737±2	2260±30	5620±70	478.4±2.3	1.0437±0.0045	121.7±1.0	121.6±1.0	674.9±3.7
SB23-314	314	954±3	5507±50	30000±2000	472.7±4.5	1.0420±0.0062	122.2±1.4	122.2±1.4	667.8±6.8
SB23-358	358	745±3	1250±50	10700±400	511.3±4.8	1.0833±0.0066	124.4±1.5	124.4±1.5	726.8±7.4
SB23-380	380	1232±4	1390±60	17200±700	616.7±3.7	1.1762±0.0073	126.2±1.5	126.2±1.5	881.2±6.4
SB23-400	400	737±2	4350±30	3090±20	518.6±2.0	1.1036±0.0048	127.3±1.0	127.2±1.0	743.3±3.6
SB11-16	16	607±1	1640±20	7240±70	604.4±2.0	1.1826±0.0034	129.3±0.7	129.3±0.7	871.2±3.3
SB11-38	38	449±1	1510±30	5800±100	601.2±2.0	1.1850±0.0038	130.2±0.8	130.2±0.8	868.8±3.5
SB11-63	63	631±2	1520±70	8200±400	607.0±4.2	1.1945±0.0075	131.1±1.6	131.1±1.6	879.4±7.3
SB11-87	87	435±1	1070±30	8200±200	603.6±2.1	1.2184±0.0039	136.4±0.9	136.4±0.9	887.6±3.7
SB11-106	106	574±2	400±50	29000±4000	604.6±4.8	1.2316±0.0067	138.9±1.6	138.9±1.6	895.4±8.2
SB11-118	118	483±1	1010±30	9800±300	607.0±4.3	1.2345±0.0053	139.1±1.3	139.1±1.3	899.5±7.2
SB11-205	205	440±1	1330±20	6900±100	568.2±4.1	1.2617±0.0053	152.5±1.5	152.5±1.5	874.5±7.3
SB11-245	245	481±1	1760±20	5870±70	572.3±2.5	1.3009±0.0047	161.2±1.3	161.1±1.3	902.5±5.2
SB11-254	254	280.8±0.5	5100±30	1191±8	566.4±3.1	1.3105±0.0046	165.0±1.4	164.7±1.4	902.3±6.1
SB11-265	265	416.9±0.8	1140±20	7900±200	546.3±2.9	1.3012±0.0045	167.5±1.4	167.5±1.4	877.3±5.9
SB11-305	305	399±1	1740±20	4980±50	534.2±3.9	1.3131±0.0064	174.1±2.2	174.0±2.2	873.8±8.4
SB11-325	325	433.8±0.9	1250±20	7500±100	524.0±2.7	1.3136±0.0048	177.1±1.6	177.1±1.6	864.5±6.0
SB11-354	354	499.6±0.7	1330±20	8200±100	519.9±1.8	1.3159±0.0044	179.0±1.4	178.9±1.4	862.3±4.6
SB11-383	383	570±1	930±20	13500±300	517.0±3.1	1.3308±0.0061	184.5±2.2	184.5±2.2	870.9±7.5
SB11-405	405	490±1	1370±20	7910±100	511.9±3.8	1.3353±0.0066	187.6±2.5	187.5±2.5	870.0±9.0
SB11-465	465	316.9±0.8	6710±30	1062±6	512.8±3.8	1.3619±0.0067	196.2±2.7	195.9±2.7	893.0±9.6
SB11-567	567	259.9±0.4	680±20	8500±200	489.3±2.5	1.3466±0.0038	199.4±1.7	199.4±1.7	859.8±6.1
SB11-607	607	387.6±0.6	750±20	11700±200	497.5±2.4	1.3699±0.0038	204.9±1.7	204.9±1.7	887.9±6.1
SB11-615	615	565.4±0.7	2050±20	6200±50	474.7±1.6	1.3591±0.0043	210.1±1.8	210.0±1.8	859.6±5.3
SB11-618	618	499.0±0.8	460±30	24800±2000	480.5±2.2	1.3769±0.0048	214.8±2.2	214.8±2.2	881.8±6.9
SB11-628	628	277.6±0.4	580±10	11000±2000	477.3±2.4	1.3779±0.0041	216.7±2.1	216.7±2.1	880.7±6.9
SB11-675	675	286.7±0.5	610±20	10600±300	461.9±2.8	1.3626±0.0042	217.3±2.2	217.2±2.2	853.7±7.4
SB11-725	725	355.0±0.4	1350±20	5850±70	436.5±1.5	1.3511±0.0035	224.5±1.8	224.4±1.8	823.4±5.1
SB34-30	30	640±2	770±20	15500±500	770.8±3.3	1.1460±0.0070	103.1±1.0	103.1±1.0	1031.8±5.4
SB34-130	130	674±1	530±10	24900±600	817.0±3.2	1.1820±0.0034	103.7±0.5	103.6±0.5	1095.2±4.6
SB34-160	160	605±1	620±10	19500±400	828.8±3.7	1.2036±0.0035	105.5±0.6	105.4±0.6	1116.6±5.3
SB34-310	310	677±1	590±10	23000±600	811.8±4.0	1.2027±0.0033	107.0±0.6	107.0±0.6	1098.5±5.7
SB34-410	410	620±1	120±10	110000±10000	812.1±4.1	1.2203±0.0028	109.4±0.6	109.4±0.6	1106.6±5.9

Continue to next page

Table S1.(Cont.)

Sample Number	Distance (mm)	^{238}U (ppb)	^{232}Th (ppt)	^{230}Th / ^{232}Th (atomic x10^{-6})	$\delta^{234}U$* (measured)	^{230}Th / ^{238}U (activity)	^{230}Th Age(ky) (uncorrected)	^{230}Th Age(ky) (corrected)	$\delta^{234}U_{Initial}$** (corrected)
SB42-5	5	500.7±0.8	2810±30	4630±50	1047.9±2.6	1.5743±0.0041	133.8±0.7	133.7±0.7	1529.3±4.9
SB42-30	30	342.8±0.9	930±4	9830±60	1096.4±4.9	1.6199±0.0071	134.8±1.2	134.8±1.2	1604.9±9.0
SB42-70	70	445.5±0.6	990±10	12400±200	1120.2±2.4	1.6601±0.0039	137.5±0.6	137.5±0.6	1652.3±4.7
SB42-100	100	454±1	560±4	20000±20000	985.1±4.2	1.5577±0.0065	139.5±1.2	139.5±1.2	1461.6±7.9
SB42-150	150	321.8±0.8	650±4	12960±90	972.9±4.3	1.5754±0.0065	144.1±1.3	144.1±1.3	1462.3±8.3
SB42-165	165	247.9±0.6	4020±10	1709±9	1064.9±5.0	1.6803±0.0085	148.1±1.6	147.9±1.6	1618±10
SB42-205	205	417.6±0.9	310±3	33700±300	829.6±3.2	1.5242±0.0060	158.1±1.4	158.1±1.4	1297.1±7.0
SB42-220	220	426.7±0.6	600±10	18200±400	847.7±2.8	1.5519±0.0037	160.1±0.9	160.0±0.9	1332.8±5.6
SB42-250	250	492.0±0.9	650±10	19300±300	827.9±3.1	1.5522±0.0040	163.9±1.1	163.9±1.0	1316.0±6.2
SB42-290	290	427.7±0.7	340±10	34000±1000	911.1±3.0	1.6495±0.0046	167.9±1.1	167.9±1.1	1464.6±6.7
SB42-410	410	631±1	260±10	63000±2000	768.2±3.2	1.5493±0.0044	176.2±1.3	176.2±1.3	1264.1±7.1
SB42-440	440	412.4±0.8	410±10	29000±800	933.9±3.4	1.7289±0.0046	180.2±1.3	180.2±1.3	1554.3±8.0
SB42-570	570	379.2±0.5	360±10	28200±800	798.7±2.6	1.6268±0.0043	188.1±1.3	188.0±1.3	1359.1±6.7
SB41-110	110	468±1	350±10	31000±1000	1097.2±4.2	1.4171±0.0045	108.1±0.6	108.1±0.6	1489.4±6.2
SB41-150	150	326.7±0.4	500±10	15000±400	1012.6±2.3	1.3831±0.0031	111.4±0.5	114.4±4.5	1387.5±3.6
SB41-290	290	385.9±0.8	940±20	9400±100	960.9±3.7	1.3836±0.0042	116.8±0.7	116.8±0.7	1336.8±5.7
SB41-345	345	469±1	1260±20	8500±100	915.9±3.9	1.3853±0.0039	121.9±0.7	121.9±0.7	1292.6±6.1
SB41-625	625	598±1	80±20	170000±40000	840.1±4.1	1.3640±0.0039	127.8±0.8	127.8±0.8	1205.7±6.4
SB41-695	695	607±1	320±20	46000±2000	966.1±3.4	1.4765±0.0040	129.5±0.7	129.5±0.7	1393.1±5.7
SB41-805	805	438±1	600±20	18900±400	1058.7±3.1	1.5604±0.0045	130.7±0.7	130.7±0.7	1532.1±5.5
SB41-855	855	566.8±0.6	530±10	26500±500	974.3±5.8	1.5129±0.0032	134.0±0.9	134.0±0.9	1422.9±9.2
SB41-925	925	498±1	1030±20	12300±200	964.7±4.2	1.5320±0.0047	138.2±0.9	138.2±0.9	1425.8±7.3
TF-15	15	250.1±0.4	4700±30	766±6	248.2±2.3	0.8719±0.0036	123.5±1.0	123.1±1.0	351.5±3.4
TF-42	42	232.3±0.4	680±30	4900±200	233.3±2.4	0.8632±0.0031	124.2±0.9	124.1±0.9	331.7±3.6
TF-135	135	337±1	1020±10	4850±50	253.2±1.6	0.8858±0.0025	126.0±0.7	125.9±0.7	361.4±2.4
SB22-16	16	440±1	300±80	20000±5000	1153.1±6.8	0.9075±0.0054	56.7±0.5	56.6±0.5	1353.4±8.2
SB22-20	20	429±1	1860±40	3800±80	1347.6±4.8	0.9985±0.0050	57.1±0.4	57.0±0.4	1583.3±5.9
SB22-34	34	604±1	660±60	13000±1000	1067.0±3.8	0.8786±0.0047	57.4±0.4	57.3±0.4	1254.8±4.7
SB22-77	77	294±1	790±60	6700±500	1434.5±12.4	1.0782±0.0071	60.0±0.6	59.9±0.6	1699±15
SB22-107	107	435±1	250±80	30000±10000	1093.7±5.0	1.0400±0.0062	70.0±0.6	70.0±0.6	1333.1±6.5
SB22-146	146	413±1	550±20	12800±400	1059.7±2.7	1.0383±0.0040	71.5±0.4	71.4±0.4	1296.8±3.6
SB22-173	173	551±1	480±20	19700±700	1047.4±2.6	1.0457±0.0039	72.8±0.4	72.7±0.4	1286.9±3.4
SB22-217	217	613±1	770±400	13700±800	1010.9±3.2	1.0468±0.0055	74.7±0.6	74.7±0.6	1248.6±4.5
SB22-237	237	460±1	410±40	20000±2000	1050.6±4.9	1.0935±0.0072	77.1±0.7	77.1±0.7	1306.4±6.7
SB22-257	257	523±2	70±80	100000±100000	923.2±7.1	1.0387±0.0064	78.8±0.8	78.8±0.8	1153.6±9.2
SB22-260	260	505±1	100±60	100000±60000	1049.0±5.9	1.1664±0.0061	84.4±0.7	84.3±0.7	1331.6±7.9
SB22-306	306	735±2	1630±50	8500±300	973.7±4.3	1.1346±0.0062	85.8±0.7	85.7±0.7	1240.8±6.1
SB22-314	314	449±1	940±20	9300±200	1018.3±2.4	1.1833±0.0043	88.1±0.5	88.0±0.5	1306.1±3.6
SB22-341	341	523±1	450±40	22000±2000	960.7±3.8	1.1771±0.0069	91.4±0.8	91.3±0.8	1243.7±5.7

Continue to next page

Table S1.(Cont.)

Sample Number	Distance (mm)	^{238}U (ppb)	^{232}Th (ppt)	^{230}Th / ^{232}Th (atomic x10^{-6})	$\delta^{234}U$* (measured)	^{230}Th / ^{238}U (activity)	^{230}Th Age(ky) (uncorrected)	^{230}Th Age(ky) (corrected)	$\delta^{234}U_{Initial}$** (corrected)
SB22-356	356	525±1	770±10	13800±300	1017.1±2.3	1.2215±0.0044	92.3±0.5	92.2±0.5	1320.1±3.6
SB22-366	366	541±1	290±20	37000±3000	967.6±2.7	1.2055±0.0050	94.1±0.6	94.0±0.6	1262.3±4.2
SB22-381	381	502±1	230±70	40000±10000	933.6±4.5	1.1911±0.0059	95.0±0.8	94.9±0.8	1221.0±6.5
SB22-384	384	270±1	1640±60	3400±100	955.3±7.2	1.2373±0.0073	98.7±1.1	98.6±1.1	1263±10
SB25--1-17	17	394±2	450±60	15000±2000	893.2±8.6	1.0150±0.0067	78.1±0.9	78.0±0.9	1114±11
SB25-1-48	48	639±1	230±20	45000±4000	822.7±2.2	0.9849±0.0040	79.2±0.5	79.1±0.5	1029.0±3.1
SB25-1-92	92	472±1	110±20	76000±10000	834.8±2.4	1.0251±0.0040	82.9±0.5	82.9±0.5	1055.2±3.4
SB25-1-155	155	401±1	1000±20	7500±200	962.3±2.9	1.1390±0.0050	87.0±0.6	87.0±0.6	1230.5±4.3
SB25-1-168	168	363.2±0.5	1010±20	7300±200	1043.1±2.5	1.2218±0.0053	90.5±0.6	90.5±0.6	1347.0±4.0

$\lambda_{230} = 9.1577 \times 10^{-6}\ y^{-1}$, $\lambda_{234} = 2.8263 \times 10^{-6}\ y^{-1}$, $\lambda_{238} = 1.55125 \times 10^{-10}\ y^{-1}$ (S10). Corrected ^{230}Th ages assume the initial $^{230}Th/^{232}Th$ atomic ratio of $4\pm2 \times 10^{-6}$. Those are the values for a material at secular equilibrium, with the crustal $^{232}Th/^{238}U$ value of 3.8. The errors are arbitrarily assumed to be 50%.

Supplement Table 2 Oxygen isotopic data of stalagmites from Shanbao and Hulu Caves. Depths are relative to the top (youngest surface) of the stalagmites and are measured along the growth axis. Ages are linearly interpolated between ^{230}Th dates (*see* Table S1). Oxygen isotope ratios are expressed in δ notation, the per mil derived from the Vienna Pee-Dee Belemnite standard. For example, $\delta^{18}O=[(({}^{18}O/{}^{16}O)\ sample/({}^{18}O/{}^{16}O)_{VPDB})-1]\times1{,}000$. For each measurement, approximately 100μg of powder sample were drilled from the samples and analysed with an on-line, automated, carbonate preparation system (Kiel III), linked to a Finnigan MAT-253 ratio mass spectrummeter at the Isotope Lab at Nanjing Normal University, China. Standards (NBS19) were run every 9 samples to check reproducibility. The standard deviation calculated from the NBS19 measurements is ~0.06‰ for $\delta^{18}O$.

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
Stalagmite SB3											
1	11.13	-8.84	41	14.19	-8.01	81	15.00	-6.67	121	16.97	-8.09
2	11.37	-8.78	42	14.21	-7.99	82	15.02	-6.71	122	17.03	-8.08
3	11.62	-8.68	43	14.23	-7.95	83	15.04	-6.63	123	17.09	-8.19
4	11.86	-8.44	44	14.25	-8.10	84	15.06	-6.43	124	17.15	-8.30
5	12.11	-8.48	45	14.27	-8.00	85	15.08	-6.56	125	17.21	-8.45
6	12.36	-8.72	46	14.29	-7.90	86	15.10	-6.46	126	17.27	-8.29
7	12.60	-9.06	47	14.31	-7.79	87	15.12	-6.75	127	17.33	-8.54
8	12.85	-9.03	48	14.33	-7.90	88	15.14	-6.54	128	17.38	-8.37
9	13.09	-9.16	49	14.35	-8.06	89	15.16	-6.49	129	17.44	-8.71
10	13.34	-9.13	50	14.37	-8.28	90	15.18	-6.41	130	17.50	-8.83
11	13.59	-9.45	51	14.39	-8.02	91	15.20	-6.49	131	17.56	-8.73
12	13.61	-9.38	52	14.41	-7.93	92	15.26	-6.20	132	17.62	-8.91
13	13.63	-9.10	53	14.43	-7.91	93	15.32	-6.39	133	17.68	-9.03
14	13.65	-9.06	54	14.45	-8.10	94	15.38	-6.68	134	17.74	-8.89
15	13.67	-8.92	55	14.47	-7.73	95	15.44	-6.44	135	17.80	-8.85
16	13.69	-9.08	56	14.49	-7.76	96	15.50	-6.76	136	17.86	-8.94
17	13.71	-9.07	57	14.51	-7.78	97	15.56	-6.44	137	17.92	-8.94
18	13.73	-9.15	58	14.53	-7.83	98	15.61	-6.63	138	17.98	-9.14
19	13.75	-8.79	59	14.55	-7.69	99	15.67	-6.75	139	18.03	-8.93
20	13.77	-8.81	60	14.57	-7.77	100	15.73	-6.51	140	18.09	-8.83
21	13.79	-8.84	61	14.60	-7.60	101	15.79	-6.67	141	18.15	-8.75
22	13.81	-8.78	62	14.62	-7.60	102	15.85	-6.71	142	18.21	-8.63
23	13.83	-8.87	63	14.64	-7.56	103	15.91	-6.74	143	18.27	-8.78
24	13.85	-8.84	64	14.66	-7.58	104	15.97	-6.92	144	18.33	-8.74
25	13.87	-8.66	65	14.68	-7.43	105	16.03	-6.82	145	18.39	-8.69
26	13.89	-8.50	66	14.70	-7.39	106	16.09	-6.79	146	18.45	-8.76
27	13.91	-8.38	67	14.72	-7.17	107	16.15	-7.00	147	18.51	-8.80
28	13.93	-8.61	68	14.74	-7.04	108	16.20	-7.23	148	18.57	-8.77
29	13.95	-8.43	69	14.76	-7.00	109	16.26	-7.24	149	18.62	-8.76
30	13.97	-8.61	70	14.78	-7.10	110	16.32	-7.36	150	18.68	-8.67
31	13.99	-8.51	71	14.80	-6.93	111	16.38	-7.33	151	18.74	-8.66
32	14.01	-8.65	72	14.82	-6.89	112	16.44	-7.48	152	18.80	-8.64
33	14.03	-8.67	73	14.84	-6.86	113	16.50	-7.60	153	18.86	-8.71
34	14.05	-8.66	74	14.86	-7.74	114	16.56	-7.77	154	18.92	-8.62
35	14.07	-8.39	75	14.88	-6.76	115	16.62	-7.55	155	18.98	-8.72
36	14.09	-8.36	76	14.90	-6.80	116	16.68	-7.58	156	19.04	-8.79
37	14.11	-8.37	77	14.92	-6.70	117	16.74	-7.68	157	19.10	-8.63
38	14.13	-8.12	78	14.94	-6.73	118	16.79	-7.82	158	19.16	-8.52
39	14.15	-8.20	79	14.96	-6.59	119	16.85	-8.05	159	19.21	-8.74
40	14.17	-8.11	80	14.98	-6.59	120	16.91	-7.89			
SB10											
1	2.14	-9.17	9	2.51	-9.22	17	2.87	-9.15	25	4.65	-10.38
2	2.19	-9.31	10	2.55	-9.18	18	3.11	-9.14	26	4.86	-10.48
3	2.23	-9.35	11	2.60	-9.19	19	3.36	-9.48	27	4.94	-10.22
4	2.28	-9.13	12	2.64	-9.11	20	3.61	-9.53	28	5.02	-10.48
5	2.33	-9.17	13	2.69	-9.18	21	3.81	-9.39	29	5.11	-10.52
6	2.37	-9.07	14	2.73	-9.26	22	4.02	-9.90	30	5.19	-10.35
7	2.42	-9.27	15	2.78	-9.22	23	4.23	-9.16	31	5.28	-10.38
8	2.46	-9.20	16	2.82	-9.13	24	4.44	-10.18	32	5.36	-10.47

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB10(Cont.)						
33	5.45	-10.39	88	8.03	-10.22	143	9.01	-10.54	198	10.04	-10.54
34	5.53	-10.42	89	8.05	-10.27	144	9.04	-10.45	199	10.07	-10.03
35	5.61	-10.50	90	8.07	-10.46	145	9.06	-10.34	200	10.09	-10.14
36	5.70	-10.37	91	8.09	-10.47	146	9.09	-10.66	201	10.11	-10.10
37	5.78	-10.35	92	8.11	-10.65	147	9.11	-10.56	202	10.13	-9.95
38	5.87	-10.41	93	8.14	-10.51	148	9.13	-10.61	203	10.15	-9.95
39	5.95	-10.35	94	8.16	-10.35	149	9.16	-10.54	204	10.17	-10.14
40	6.03	-10.55	95	8.18	-10.55	150	9.18	-10.53	205	10.20	-9.84
41	6.12	-10.20	96	8.20	-10.34	151	9.20	-10.55	206	10.22	-10.15
42	6.20	-10.39	97	8.22	-10.50	152	9.23	-10.67	207	10.24	-10.38
43	6.29	-10.23	98	8.24	-10.58	153	9.25	-10.41	208	10.26	-10.21
44	6.37	-10.34	99	8.26	-10.52	154	9.28	-10.45	209	10.29	-9.96
45	6.46	-10.34	100	8.28	-10.47	155	9.30	-10.11	210	10.31	-10.23
46	6.54	-10.49	101	8.31	-10.50	156	9.32	-10.44	211	10.33	-10.19
47	6.62	-10.57	102	8.33	-10.41	157	9.34	-10.47	212	10.35	-10.16
48	6.66	-10.32	103	8.35	-10.51	158	9.35	-10.33	213	10.38	-10.26
49	6.70	-10.38	104	8.37	-10.22	159	9.37	-10.49	214	10.40	-10.05
50	6.74	-10.32	105	8.39	-10.42	160	9.39	-10.42	215	10.42	-10.00
51	6.77	-10.45	106	8.41	-10.58	161	9.41	-10.48	216	10.45	-10.01
52	6.81	-10.42	107	8.43	-10.41	162	9.42	-10.40	217	10.47	-10.20
53	6.85	-10.47	108	8.45	-10.59	163	9.44	-10.42	218	10.49	-10.16
54	6.88	-10.79	109	8.48	-10.41	164	9.46	-10.54	219	10.51	-10.41
55	6.92	-10.72	110	8.50	-10.30	165	9.48	-10.48	220	10.54	-10.09
56	6.96	-10.61	111	8.52	-10.54	166	9.49	-10.45	221	10.56	-10.07
57	6.99	-10.67	112	8.54	-10.49	167	9.51	-10.68	222	10.58	-9.95
58	7.03	-10.38	113	8.55	-10.21	168	9.53	-10.31	223	10.61	-10.06
59	7.07	-10.62	114	8.57	-10.30	169	9.55	-10.27	224	10.63	-10.06
60	7.11	-10.60	115	8.58	-10.30	170	9.56	-10.47	225	10.65	-9.93
61	7.14	-10.60	116	8.59	-10.22	171	9.58	-10.38	226	10.67	-9.65
62	7.18	-10.51	117	8.60	-10.36	172	9.60	-10.30	227	10.70	-10.06
63	7.22	-10.41	118	8.62	-10.38	173	9.62	-10.31	228	10.72	-9.94
64	7.25	-10.60	119	8.63	-10.22	174	9.64	-10.35	229	10.74	-9.91
65	7.29	-10.66	120	8.64	-10.63	175	9.65	-10.23	230	10.77	-9.87
66	7.33	-10.63	121	8.66	-10.58	176	9.67	-10.38	231	10.79	-9.90
67	7.37	-10.56	122	8.67	-10.37	177	9.69	-10.11	232	10.81	-9.90
68	7.40	-10.59	123	8.68	-10.21	178	9.70	-10.23	233	10.83	-10.03
69	7.44	-10.75	124	8.69	-10.50	179	9.72	-10.31	234	10.86	-9.86
70	7.48	-10.67	125	8.71	-10.45	180	9.73	-10.42	235	10.88	-9.83
71	7.51	-10.55	126	8.72	-10.66	181	9.74	-10.16	236	10.90	-9.64
72	7.55	-10.44	127	8.73	-10.56	182	9.76	-10.48	237	10.93	-9.79
73	7.59	-10.40	128	8.74	-10.64	183	9.77	-10.33	238	10.95	-9.75
74	7.63	-10.44	129	8.76	-10.57	184	9.79	-10.48	239	10.97	-9.67
75	7.66	-10.51	130	8.77	-10.54	185	9.80	-10.54	240	10.99	-9.63
76	7.70	-10.53	131	8.78	-10.62	186	9.82	-10.49	241	11.02	-9.99
77	7.74	-10.46	132	8.80	-10.64	187	9.83	-10.54	242	11.04	-9.68
78	7.77	-10.46	133	8.81	-10.56	188	9.84	-10.41	243	11.06	-9.58
79	7.81	-10.12	134	8.82	-10.49	189	9.86	-10.14	244	11.08	-9.82
80	7.85	-10.21	135	8.83	-10.75	190	9.87	-10.19	245	11.11	-9.63
81	7.89	-10.35	136	8.85	-10.83	191	9.89	-10.15	246	11.13	-9.58
82	7.91	-10.70	137	8.87	-10.69	192	9.92	-10.37	247	11.15	-9.53
83	7.93	-10.44	138	8.89	-10.46	193	9.94	-10.49	248	11.18	-9.40
84	7.95	-10.25	139	8.92	-10.55	194	9.96	-10.48	249	11.20	-9.42
85	7.97	-10.37	140	8.94	-10.45	195	9.98	-10.27	250	11.22	-9.28
86	7.99	-10.29	141	8.97	-10.59	196	10.00	-10.47	251	11.24	-9.37
87	8.01	-10.16	142	8.99	-10.59	197	10.02	-10.54	252	11.27	-9.42

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB10(Cont.)											
253	11.29	-9.38	257	11.38	-9.22	261	11.47	-9.08	265	11.56	-8.33
254	11.31	-9.23	258	11.40	-9.11	262	11.50	-8.63	266	11.59	-8.18
255	11.34	-9.17	259	11.43	-9.25	263	11.52	-8.50			
256	11.36	-9.29	260	11.45	-8.93	264	11.54	-8.40			
SB26											
1	0.46	-8.95	51	1.36	-9.26	101	2.27	-9.08	153	3.27	-9.33
2	0.48	-8.62	52	1.38	-9.03	102	2.28	-9.17	154	3.29	-9.51
3	0.49	-8.80	53	1.40	-9.00	103	2.30	-9.36	155	3.31	-9.24
4	0.51	-8.81	54	1.42	-8.88	104	2.32	-9.04	156	3.33	-9.51
5	0.53	-8.90	55	1.43	-9.16	105	2.34	-9.41	157	3.35	-9.43
6	0.55	-9.05	56	1.45	-9.12	106	2.36	-9.27	158	3.37	-9.44
7	0.57	-8.96	57	1.47	-9.00	107	2.37	-9.26	159	3.39	-9.27
8	0.58	-8.90	58	1.49	-8.95	108	2.39	-9.28	160	3.41	-9.42
9	0.60	-8.95	59	1.51	-9.18	109	2.41	-9.36	161	3.43	-9.34
10	0.62	-9.11	60	1.52	-8.96	110	2.43	-9.32	162	3.45	-9.69
11	0.64	-8.93	61	1.54	-9.04	111	2.45	-9.25	163	3.46	-9.68
12	0.66	-9.04	62	1.56	-9.04	112	2.46	-9.28	164	3.48	-9.65
13	0.67	-8.85	63	1.58	-9.14	113	2.48	-9.50	165	3.50	-9.66
14	0.69	-8.94	64	1.60	-9.06	114	2.50	-9.31	166	3.52	-9.67
15	0.71	-8.81	65	1.61	-9.14	115	2.52	-9.23	167	3.54	-9.78
16	0.73	-8.94	66	1.63	-9.11	116	2.54	-9.84	168	3.56	-9.73
17	0.75	-8.95	67	1.65	-9.02	117	2.55	-9.19	169	3.58	-9.78
18	0.77	-8.96	68	1.67	-8.81	118	2.57	-9.57	170	3.60	-9.88
19	0.78	-8.92	69	1.69	-8.86	119	2.59	-9.52	171	3.61	-9.80
20	0.80	-9.09	70	1.70	-8.91	120	2.61	-9.56	172	3.63	-9.82
21	0.82	-9.17	71	1.72	-9.02	121	2.63	-9.07	173	3.65	-9.90
22	0.84	-9.03	72	1.74	-9.10	122	2.64	-9.25	174	3.67	-9.85
23	0.86	-9.01	73	1.76	-8.97	123	2.66	-9.69	175	3.69	-9.82
24	0.87	-8.86	74	1.78	-8.97	124	2.68	-9.40	176	3.71	-9.79
25	0.89	-8.98	75	1.80	-9.17	125	2.70	-9.72	177	3.73	-9.89
26	0.91	-9.15	76	1.81	-9.07	126	2.72	-9.01	178	3.75	-9.79
27	0.93	-9.14	77	1.83	-9.21	127	2.74	-9.62	179	3.76	-9.83
28	0.95	-9.13	78	1.85	-9.31	129	2.78	-9.90	180	3.78	-9.74
29	0.96	-8.94	79	1.87	-9.32	130	2.80	-9.84	181	3.80	-9.50
30	0.98	-9.26	80	1.89	-9.36	131	2.82	-9.89	182	3.82	-9.66
31	1.00	-9.05	81	1.90	-8.86	132	2.84	-9.73	183	3.84	-9.83
32	1.02	-9.14	82	1.92	-9.14	133	2.86	-10.15	184	3.86	-9.98
33	1.04	-9.07	83	1.94	-9.15	135	2.90	-9.80	185	3.88	-9.86
34	1.05	-9.07	84	1.96	-9.35	136	2.92	-9.83	186	3.90	-9.80
35	1.07	-8.92	85	1.98	-9.44	137	2.94	-9.98	187	3.91	-9.86
36	1.09	-9.03	86	1.99	-9.19	138	2.96	-9.93	188	3.93	-9.61
37	1.11	-8.95	87	2.01	-9.27	139	2.98	-9.65	189	3.95	-9.76
38	1.13	-8.96	88	2.03	-9.46	140	3.01	-9.72	190	3.97	-9.90
39	1.14	-9.08	89	2.05	-9.06	141	3.03	-9.93	191	3.99	-9.82
40	1.16	-9.04	90	2.07	-9.27	142	3.05	-10.28	192	4.01	-9.71
41	1.18	-8.99	91	2.08	-8.85	143	3.07	-9.62	193	4.03	-9.88
42	1.20	-9.33	92	2.10	-9.05	144	3.09	-9.45	194	4.05	-9.85
43	1.22	-9.31	93	2.12	-8.86	145	3.11	-9.35	195	4.06	-9.75
44	1.24	-9.07	94	2.14	-8.99	146	3.13	-9.49	196	4.08	-9.80
45	1.25	-8.93	95	2.16	-9.02	147	3.15	-9.50	197	4.10	-9.65
46	1.27	-8.76	96	2.17	-8.95	148	3.17	-9.45	198	4.12	-9.91
47	1.29	-9.12	97	2.19	-8.86	149	3.19	-9.49	199	4.14	-9.97
48	1.31	-9.13	98	2.21	-9.13	150	3.21	-9.33	200	4.16	-9.61
49	1.33	-9.06	99	2.23	-9.24	151	3.23	-9.52	201	4.18	-9.71
50	1.34	-9.07	100	2.25	-9.39	152	3.25	-9.54	202	4.20	-9.56

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB26(Cont.)											
203	4.21	-9.51	218	4.50	-10.03	233	4.78	-10.02	248	5.06	-10.02
204	4.23	-9.59	219	4.51	-9.95	234	4.80	-10.01	249	5.08	-10.05
205	4.25	-9.76	220	4.53	-9.94	235	4.81	-10.03	250	5.10	-10.16
206	4.27	-9.91	221	4.55	-9.98	236	4.83	-9.92	251	5.11	-9.83
207	4.29	-9.94	222	4.57	-10.03	237	4.85	-10.00	252	5.13	-10.08
208	4.31	-9.83	223	4.59	-10.07	238	4.87	-10.05	253	5.15	-10.05
209	4.33	-9.91	224	4.61	-9.86	239	4.89	-10.01	254	5.17	-10.18
210	4.35	-9.67	225	4.63	-9.78	240	4.91	-9.97	255	5.19	-10.30
211	4.36	-9.89	226	4.65	-10.08	241	4.93	-10.09	256	5.21	-10.40
212	4.38	-9.95	227	4.66	-10.12	242	4.95	-10.00	257	5.23	-10.31
213	4.40	-9.96	228	4.68	-10.00	243	4.96	-9.92	258	5.25	-10.16
214	4.42	-9.95	229	4.70	-9.90	244	4.98	-10.00	259	5.26	-10.29
215	4.44	-9.99	230	4.72	-9.97	245	5.00	-9.99	260	5.28	-10.30
216	4.46	-9.99	231	4.74	-9.91	246	5.02	-10.01	261	5.30	-10.17
217	4.48	-9.88	232	4.76	-10.03	247	5.04	-9.90	262	5.32	-10.16
SB25-2											
1	127.1	-10.42	41	127.4	-10.35	81	127.6	-10.21	121	127.9	-10.61
2	127.1	-10.52	42	127.4	-10.25	82	127.6	-10.32	122	127.9	-10.45
3	127.1	-10.56	43	127.4	-10.37	83	127.6	-10.32	123	127.9	-10.30
4	127.1	-10.45	44	127.4	-10.52	84	127.6	-10.26	124	127.9	-10.32
5	127.1	-10.49	45	127.4	-10.34	85	127.7	-10.23	125	127.9	-10.22
6	127.1	-10.57	46	127.4	-10.35	86	127.7	-10.28	126	127.9	-10.29
7	127.1	-10.43	47	127.4	-10.49	87	127.7	-10.29	127	127.9	-10.24
8	127.1	-10.43	48	127.4	-10.41	88	127.7	-10.21	128	127.9	-10.26
9	127.1	-10.53	49	127.4	-10.28	89	127.7	-10.33	129	128.0	-10.20
10	127.1	-10.59	50	127.4	-10.23	90	127.7	-10.29	130	128.0	-10.39
11	127.1	-10.60	51	127.4	-10.32	91	127.7	-10.23	131	128.0	-10.47
12	127.2	-10.67	52	127.4	-10.38	92	127.7	-10.35	132	128.0	-10.42
13	127.2	-10.58	53	127.4	-10.33	93	127.7	-10.39	133	128.0	-10.49
14	127.2	-10.60	54	127.4	-10.34	94	127.7	-10.38	134	128.0	-10.49
15	127.2	-10.51	55	127.4	-10.22	95	127.7	-10.26	135	128.0	-10.25
16	127.2	-10.50	56	127.5	-10.25	96	127.7	-10.40	136	128.0	-10.28
17	127.2	-10.39	57	127.5	-10.24	97	127.7	-10.44	137	128.0	-10.34
18	127.2	-10.56	59	127.5	-10.41	98	127.7	-10.38	138	128.0	-10.25
19	127.2	-10.53	60	127.5	-10.32	99	127.7	-10.52	139	128.0	-10.32
21	127.2	-10.31	61	127.5	-10.29	100	127.8	-10.27	140	128.0	-10.28
22	127.2	-10.21	62	127.5	-10.31	101	127.8	-10.32	141	128.0	-10.28
23	127.2	-10.26	63	127.5	-10.32	102	127.8	-10.45	142	128.0	-10.22
24	127.2	-10.34	64	127.5	-10.42	103	127.8	-10.30	143	128.1	-10.30
25	127.2	-10.36	65	127.5	-10.35	104	127.8	-10.46	144	128.1	-10.22
26	127.3	-10.28	66	127.5	-10.31	105	127.8	-10.48	145	128.1	-10.27
27	127.3	-10.28	67	127.5	-10.29	106	127.8	-10.37	146	128.1	-10.30
28	127.3	-10.36	68	127.5	-10.26	107	127.8	-10.39	147	128.1	-10.15
29	127.3	-10.35	69	127.5	-10.28	108	127.8	-10.24	148	128.1	-10.17
30	127.3	-10.32	70	127.6	-10.21	110	127.8	-10.52	149	128.1	-10.20
31	127.3	-10.41	71	127.6	-10.27	111	127.8	-10.64	150	128.1	-10.03
32	127.3	-10.20	72	127.6	-10.38	112	127.8	-10.43	151	128.1	-10.14
33	127.3	-10.16	73	127.6	-10.28	113	127.8	-10.36	152	128.1	-10.05
34	127.3	-10.45	74	127.6	-10.18	114	127.9	-10.35	153	128.1	-10.18
35	127.3	-10.33	75	127.6	-10.15	115	127.9	-10.34	154	128.1	-10.14
36	127.3	-10.32	76	127.6	-10.29	116	127.9	-10.33	155	128.1	-10.10
37	127.3	-10.15	77	127.6	-10.20	117	127.9	-10.60	156	128.1	-10.10
38	127.3	-10.18	78	127.6	-10.31	118	127.9	-10.34	157	128.1	-10.13
39	127.3	-10.25	79	127.6	-10.22	119	127.9	-10.29	158	128.2	-10.25
40	127.3	-10.22	80	127.6	-10.25	120	127.9	-10.42	159	128.2	-10.11

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB25-2(Cont.)											
160	128.2	-10.05	215	128.5	-9.99	271	128.9	-9.97	330	129.4	-8.71
161	128.2	-10.14	216	128.5	-9.81	272	128.9	-10.26	332	129.4	-8.59
162	128.2	-10.14	217	128.6	-9.83	273	128.9	-10.01	333	129.4	-8.76
163	128.2	-10.06	218	128.6	-9.73	274	128.9	-10.07	334	129.4	-8.72
164	128.2	-10.09	219	128.6	-9.95	276	129.0	-9.87	335	129.4	-8.59
165	128.2	-9.92	220	128.6	-9.75	277	129.0	-10.04	336	129.4	-8.66
166	128.2	-10.16	221	128.6	-9.87	278	129.0	-10.00	337	129.4	-8.61
167	128.2	-10.01	222	128.6	-10.12	279	129.0	-10.29	338	129.5	-8.74
168	128.2	-10.04	223	128.6	-10.03	280	129.0	-10.04	339	129.5	-8.64
169	128.2	-9.97	224	128.6	-9.83	281	129.0	-10.15	340	129.5	-8.53
170	128.2	-10.16	226	128.6	-9.94	282	129.0	-10.03	341	129.5	-8.52
171	128.2	-10.19	227	128.6	-9.71	283	129.0	-9.97	342	129.5	-8.46
172	128.2	-10.08	228	128.6	-9.68	284	129.0	-9.99	343	129.5	-8.65
173	128.3	-10.08	229	128.6	-9.77	285	129.0	-9.70	345	129.5	-8.35
174	128.3	-9.91	230	128.6	-10.07	286	129.0	-9.95	346	129.5	-8.35
175	128.3	-9.86	231	128.7	-10.19	287	129.0	-9.76	347	129.5	-8.38
176	128.3	-9.93	232	128.7	-9.98	288	129.0	-9.80	348	129.5	-8.48
177	128.3	-9.93	233	128.7	-9.94	289	129.0	-9.88	349	129.5	-8.46
178	128.3	-9.99	234	128.7	-9.88	290	129.1	-9.67	350	129.5	-8.32
179	128.3	-9.96	235	128.7	-9.94	291	129.1	-9.57	351	129.5	-8.33
180	128.3	-9.97	236	128.7	-9.91	292	129.1	-9.69	352	129.5	-8.29
181	128.3	-9.92	237	128.7	-9.74	294	129.1	-9.54	353	129.5	-8.16
182	128.3	-10.15	238	128.7	-9.86	295	129.1	-9.73	354	129.5	-8.07
183	128.3	-9.87	239	128.7	-10.09	296	129.1	-9.56	355	129.5	-8.09
184	128.3	-10.00	240	128.7	-10.11	297	129.1	-9.60	356	129.5	-7.99
185	128.3	-9.99	241	128.7	-9.97	298	129.1	-9.57	357	129.6	-7.98
186	128.3	-9.93	242	128.7	-10.11	299	129.1	-9.69	358	129.6	-7.88
187	128.4	-10.13	243	128.7	-9.98	300	129.1	-9.57	359	129.6	-7.82
188	128.4	-10.04	244	128.7	-10.15	301	129.1	-9.56	360	129.6	-7.71
189	128.4	-9.84	245	128.7	-10.03	302	129.1	-9.52	361	129.6	-7.80
190	128.4	-9.93	246	128.8	-10.23	303	129.2	-9.47	362	129.6	-7.90
191	128.4	-9.87	247	128.8	-10.18	304	129.2	-9.45	363	129.6	-7.71
192	128.4	-9.94	248	128.8	-9.90	305	129.2	-9.38	364	129.6	-7.59
193	128.4	-10.05	249	128.8	-10.06	306	129.2	-9.40	365	129.6	-7.60
194	128.4	-10.02	250	128.8	-9.92	307	129.2	-9.40	368	129.6	-7.43
195	128.4	-10.01	251	128.8	-9.72	308	129.2	-9.43	369	129.6	-7.37
196	128.4	-10.12	252	128.8	-9.97	309	129.2	-9.31	373	129.6	-7.26
197	128.4	-9.98	253	128.8	-10.12	310	129.2	-9.28	374	129.6	-7.35
198	128.4	-10.11	254	128.8	-10.21	311	129.2	-9.42	376	129.6	-7.28
199	128.4	-10.04	255	128.8	-10.23	312	129.2	-9.28	377	129.6	-7.18
200	128.4	-10.03	256	128.8	-9.85	313	129.2	-9.18	378	129.6	-7.20
201	128.4	-9.98	257	128.8	-9.91	314	129.2	-9.35	379	129.6	-7.00
202	128.5	-9.97	258	128.8	-9.94	315	129.3	-9.18	380	129.6	-7.11
203	128.5	-9.89	259	128.8	-10.03	316	129.3	-9.22	381	129.6	-7.06
204	128.5	-9.93	260	128.8	-9.93	317	129.3	-9.11	382	129.6	-6.95
205	128.5	-9.91	261	128.9	-9.98	318	129.3	-9.17	383	129.6	-7.05
206	128.5	-9.81	262	128.9	-10.23	319	129.3	-8.96	384	129.6	-7.14
207	128.5	-9.76	263	128.9	-9.83	320	129.3	-8.98	385	129.6	-6.99
208	128.5	-9.78	264	128.9	-10.09	321	129.3	-9.10	386	129.6	-7.01
209	128.5	-9.83	265	128.9	-9.81	322	129.3	-8.97	387	129.6	-7.09
210	128.5	-9.78	266	128.9	-10.09	325	129.3	-8.91	388	129.6	-7.11
211	128.5	-9.97	267	128.9	-10.12	326	129.4	-8.95	389	129.6	-6.90
212	128.5	-9.96	268	128.9	-10.06	327	129.4	-8.83	390	129.6	-7.07
213	128.5	-9.87	269	128.9	-10.38	328	129.4	-8.84	391	129.7	-6.89
214	128.5	-9.90	270	128.9	-10.30	329	129.4	-8.81	392	129.7	-6.87

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB25-2(Cont.)											
393	129.7	-6.90	413	130.2	-6.23	433	131.0	-6.05	453	131.9	-5.96
394	129.7	-6.91	414	130.2	-6.17	434	131.0	-5.95	454	131.9	-5.94
395	129.8	-7.04	415	130.3	-6.18	435	131.1	-5.96	455	132.0	-5.89
396	129.8	-6.86	416	130.3	-6.14	436	131.1	-6.04	456	132.0	-5.95
397	129.8	-7.04	417	130.3	-6.10	437	131.2	-5.98	457	132.1	-6.03
398	129.8	-6.89	418	130.3	-5.99	438	131.2	-6.13	458	132.1	-5.96
399	129.9	-6.99	419	130.4	-6.12	439	131.2	-6.26	459	132.1	-6.13
400	129.9	-6.98	420	130.4	-6.17	440	131.3	-5.98	460	132.2	-5.85
401	129.9	-6.81	421	130.4	-6.20	441	131.3	-5.94	461	132.2	-5.98
402	129.9	-6.56	422	130.5	-6.31	442	131.4	-6.18	462	132.3	-5.94
403	130.0	-6.20	423	130.5	-6.40	443	131.4	-5.93	463	132.3	-6.00
404	130.0	-6.48	424	130.6	-6.13	444	131.5	-5.78	464	132.4	-6.11
405	130.0	-6.32	425	130.6	-6.32	445	131.5	-5.86	465	132.4	-5.93
406	130.0	-6.48	426	130.7	-6.07	446	131.6	-5.95	466	132.5	-6.05
407	130.1	-6.14	427	130.7	-6.13	447	131.6	-5.89	467	132.5	-5.95
408	130.1	-6.10	428	130.7	-6.14	448	131.7	-5.93	468	132.6	-6.06
409	130.1	-6.11	429	130.8	-6.17	449	131.7	-6.17	469	132.6	-5.90
410	130.1	-6.15	430	130.8	-6.22	450	131.7	-6.03			
411	130.2	-6.23	431	130.9	-6.07	451	131.8	-5.76			
412	130.2	-6.19	432	130.9	-6.14	452	131.8	-6.10			
SB24											
73	155.5	-9.85	109	161.4	-6.78	143	170.6	-10.61	179	186.2	-7.24
74	155.7	-9.42	110	161.6	-6.49	144	170.8	-10.14	180	186.3	-7.14
75	155.9	-9.38	111	161.7	-6.69	145	171.0	-10.16	181	186.4	-7.18
76	156.0	-9.19	112	161.9	-7.17	146	171.3	-10.32	182	186.4	-6.91
77	156.2	-8.84	113	162.1	-6.64	147	171.5	-10.82	183	186.5	-7.15
78	156.4	-8.76	114	162.2	-6.55	148	171.7	-10.77	184	186.6	-7.25
79	156.5	-8.55	115	162.6	-6.65	149	172.0	-10.62	185	186.6	-7.77
80	156.7	-8.82	116	163.0	-6.75	150	172.2	-11.24	186	186.7	-8.01
81	156.9	-8.79	117	163.3	-6.91	151	172.5	-10.45	187	186.8	-7.85
82	157.1	-8.68	118	163.7	-6.40	152	172.7	-10.69	188	186.9	-7.71
83	157.2	-8.52	119	164.0	-6.76	155	182.4	-7.22	189	186.9	-7.33
84	157.4	-8.43	120	164.4	-6.97	156	182.9	-7.28	190	187.0	-7.37
85	157.6	-8.18	121	164.7	-6.93	157	183.4	-7.37	191	187.1	-7.26
86	157.7	-8.17	122	165.1	-7.06	158	183.9	-7.60	192	187.1	-7.25
87	157.9	-8.27	123	165.5	-9.03	159	184.3	-7.27	193	187.2	-7.22
88	158.1	-8.45	124	165.8	-9.48	160	184.8	-7.58	194	187.3	-7.25
89	158.2	-8.65	125	166.2	-9.65	161	184.9	-7.24	195	187.4	-7.10
90	158.4	-8.39	125	166.5	-10.17	162	185.0	-7.20	196	187.4	-7.24
91	158.6	-9.04	127	166.8	-9.52	163	185.1	-7.14	197	187.5	-7.52
92	158.7	-9.12	128	167.0	-9.65	164	185.1	-7.13	198	187.6	-7.46
93	158.9	-9.28	129	167.2	-9.62	165	185.2	-7.68	199	187.7	-7.21
94	159.1	-9.43	130	167.5	-11.03	166	185.3	-7.50	200	187.7	-7.13
95	159.2	-9.29	131	167.7	-11.16	167	185.3	-7.46	201	187.8	-7.19
96	159.4	-9.22	132	168.0	-10.77	168	185.4	-7.43	202	187.9	-7.90
97	159.6	-9.67	133	168.2	-11.12	169	185.5	-7.41	203	187.9	-7.69
99	159.7	-9.30	134	168.4	-10.32	170	185.6	-7.35	204	188.0	-7.61
101	160.1	-9.32	135	168.7	-9.94	171	185.6	-7.22	207	188.1	-7.79
102	160.2	-9.19	136	168.9	-9.97	172	185.7	-7.20	208	188.2	-7.74
103	160.4	-8.61	137	169.1	-9.90	173	185.8	-7.20	209	188.2	-6.86
104	160.6	-8.55	138	169.4	-9.66	174	185.8	-7.09	210	188.3	-7.00
105	160.7	-8.21	139	169.6	-10.01	175	185.9	-7.13	211	188.4	-8.00
106	160.9	-7.79	140	169.9	-10.31	176	186.0	-6.96	212	188.5	-7.71
107	161.1	-7.75	141	170.1	-10.42	177	186.1	-7.23	213	188.5	-7.92
108	161.2	-8.03	142	170.3	-10.47	178	186.1	-7.17	214	188.6	-8.00

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB24(Cont.)						
215	188.7	-7.91	245	190.8	-7.18	279	204.8	-7.25	309	207.1	-7.31
216	188.7	-7.98	246	190.8	-7.14	280	204.9	-7.12	310	207.2	-7.63
217	188.8	-8.21	247	190.9	-6.98	281	205.0	-7.00	311	207.2	-7.38
218	188.9	-7.73	248	191.0	-7.21	282	205.0	-7.41	312	207.3	-7.40
219	189.0	-8.08	249	191.1	-7.30	283	205.1	-7.17	313	207.4	-7.25
220	189.0	-8.35	250	191.1	-7.34	284	205.2	-7.01	314	207.5	-7.01
221	189.1	-8.59	251	191.2	-7.34	285	205.3	-6.99	315	207.6	-7.14
222	189.2	-8.84	252	191.3	-8.24	286	205.4	-7.11	316	207.6	-7.29
223	189.2	-8.37	253	191.3	-8.21	287	205.4	-7.03	317	207.7	-7.52
224	189.3	-8.43	254	191.4	-8.18	288	205.5	-6.88	318	207.8	-7.57
225	189.4	-8.34	255	191.5	-8.50	289	205.6	-6.91	319	207.9	-7.62
226	189.5	-8.16	256	191.6	-8.68	290	205.7	-6.91	320	208.0	-7.65
227	189.5	-8.02	257	191.6	-9.75	291	205.8	-7.12	321	208.0	-7.36
228	189.6	-8.11	258	191.7	-10.81	292	205.9	-7.03	322	208.1	-7.50
229	189.7	-8.58	259	191.8	-10.13	293	205.9	-6.88	323	208.2	-7.18
231	189.8	-7.25	264	203.7	-7.57	296	206.0	-6.80	324	208.3	-7.46
232	189.8	-6.92	266	203.7	-6.99	297	206.1	-7.22	325	208.4	-7.21
233	189.9	-7.04	267	203.8	-7.97	298	206.2	-7.24	326	208.5	-7.68
234	190.0	-7.12	268	203.9	-7.32	299	206.3	-7.28	327	208.5	-7.71
235	190.0	-7.27	269	204.0	-7.03	300	206.3	-7.42	328	208.6	-7.51
236	190.1	-7.32	270	204.1	-6.97	301	206.4	-7.53	329	208.7	-7.52
237	190.2	-7.23	271	204.1	-7.37	302	206.5	-7.31	330	208.8	-7.50
238	190.3	-7.44	272	204.2	-7.46	303	206.6	-7.45	331	208.9	-7.24
239	190.3	-7.60	273	204.3	-7.31	304	206.7	-7.42	332	208.9	-7.25
240	190.4	-7.31	275	204.5	-7.61	305	206.7	-7.30	333	209.0	-7.55
241	190.5	-7.38	276	204.6	-7.23	306	206.8	-7.35	334	209.1	-7.45
243	190.6	-7.15	277	204.6	-7.20	307	206.9	-7.22	335	209.2	-7.47
244	190.7	-7.05	278	204.7	-6.85	308	207.0	-7.30	336	209.3	-7.94
					SB23						
79	99.0	-9.40	105	102.5	-11.16	131	106.1	-11.00	158	109.1	-11.21
80	99.1	-9.35	106	102.7	-11.39	132	106.2	-11.14	159	109.2	-10.75
81	99.2	-9.47	107	102.8	-11.40	133	106.3	-11.10	160	109.3	-10.71
82	99.4	-9.56	108	103.0	-11.11	134	106.4	-11.36	161	109.4	-10.44
83	99.5	-9.22	109	103.1	-11.18	135	106.5	-11.33	162	109.5	-10.71
84	99.6	-9.53	110	103.2	-11.16	136	106.6	-11.59	163	109.6	-10.26
85	99.8	-10.24	111	103.4	-11.06	137	106.8	-11.41	164	109.7	-10.11
86	99.9	-10.57	112	103.5	-11.32	138	106.9	-11.55	165	109.7	-9.78
87	100.0	-11.02	113	103.7	-11.03	139	107.0	-11.63	166	109.8	-9.58
88	100.2	-10.87	114	103.8	-11.00	140	107.1	-11.68	167	109.9	-9.25
89	100.3	-10.67	115	103.9	-10.98	141	107.2	-11.68	168	110.0	-8.97
90	100.4	-11.01	116	104.1	-10.62	142	107.3	-11.67	169	110.1	-8.37
91	100.6	-10.89	117	104.2	-10.82	143	107.5	-11.86	170	110.2	-8.70
92	100.7	-11.27	118	104.4	-10.75	144	107.6	-11.69	171	110.3	-8.34
93	100.9	-11.16	119	104.5	-10.58	145	107.7	-11.78	172	110.4	-8.52
94	101.0	-11.11	120	104.6	-10.06	146	107.8	-11.59	173	110.4	-8.56
95	101.1	-11.06	121	104.8	-10.25	147	107.9	-11.53	174	110.5	-8.68
96	101.3	-11.14	122	104.9	-9.97	148	108.0	-11.49	175	110.6	-8.34
97	101.4	-11.25	123	105.1	-10.01	149	108.1	-11.66	176	110.7	-8.63
98	101.6	-11.16	124	105.2	-9.97	150	108.3	-11.28	177	110.8	-8.38
99	101.7	-11.22	125	105.3	-10.13	151	108.4	-11.50	178	110.9	-8.64
100	101.8	-11.43	126	105.5	-10.15	152	108.5	-10.89	179	111.0	-8.46
101	102.0	-11.20	127	105.6	-10.19	153	108.6	-10.59	180	111.1	-8.82
102	102.1	-11.34	128	105.7	-10.37	154	108.7	-11.34	181	111.2	-8.69
103	102.3	-11.13	129	105.8	-10.77	156	109.0	-11.41	182	111.3	-8.70
104	102.4	-11.33	130	106.0	-10.92	157	109.0	-11.05	183	111.4	-8.60

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB23(Cont.)						
184	111.5	-8.95	239	118.7	-8.26	295	122.0	-10.35	353	124.2	-10.67
185	111.6	-9.12	240	118.8	-8.19	296	122.0	-10.40	354	124.2	-10.46
186	111.7	-9.27	241	119.0	-8.23	297	122.0	-10.36	355	124.3	-10.19
187	111.8	-9.42	242	119.1	-8.16	298	122.1	-10.27	356	124.3	-10.36
188	111.9	-8.85	243	119.3	-8.32	302	122.1	-10.41	357	124.4	-10.73
189	112.0	-8.95	244	119.5	-8.64	303	122.1	-10.50	358	124.4	-10.34
190	112.1	-8.87	245	119.6	-8.19	304	122.1	-10.44	359	124.5	-10.40
191	112.2	-8.80	246	119.7	-8.68	305	122.1	-10.54	360	124.6	-10.49
192	112.3	-9.06	247	119.9	-8.47	306	122.1	-10.49	361	124.7	-10.29
193	112.4	-8.98	248	120.0	-8.47	307	122.2	-10.54	362	124.7	-10.42
194	112.6	-8.87	250	120.2	-8.39	308	122.2	-10.39	363	124.8	-10.51
195	112.7	-8.81	251	120.4	-8.69	309	122.2	-10.48	364	124.9	-10.31
196	112.8	-8.84	252	120.5	-8.82	310	122.2	-10.45	365	125.0	-10.45
197	112.9	-8.98	253	120.6	-8.76	311	122.2	-10.39	366	125.1	-10.61
198	113.0	-8.76	254	120.8	-8.99	312	122.2	-10.19	367	125.2	-10.29
199	113.1	-8.54	255	120.9	-8.93	313	122.2	-10.34	368	125.2	-10.53
200	113.2	-8.54	256	121.0	-9.06	314	122.2	-10.47	369	125.3	-10.60
201	113.3	-8.51	257	121.1	-8.98	315	122.3	-10.36	370	125.4	-10.80
202	113.4	-8.53	258	121.3	-9.22	316	122.3	-10.46	371	125.5	-10.65
203	113.5	-8.18	259	121.4	-9.31	317	122.4	-10.48	372	125.6	-10.79
204	113.6	-8.41	260	121.5	-9.24	318	122.4	-10.43	373	125.7	-10.79
205	113.8	-8.20	261	121.7	-9.31	319	122.5	-10.42	374	125.7	-10.78
206	113.9	-7.76	262	121.7	-9.30	320	122.5	-10.44	375	125.8	-10.39
207	114.0	-7.76	263	121.7	-9.31	321	122.6	-10.22	376	125.9	-10.58
208	114.2	-7.72	264	121.7	-9.45	322	122.6	-10.45	377	126.0	-10.66
209	114.3	-7.61	265	121.7	-9.52	323	122.7	-10.50	378	126.1	-10.45
210	114.4	-7.68	266	121.7	-9.43	324	122.7	-10.42	381	126.3	-10.62
211	114.6	-7.66	267	121.7	-9.51	325	122.8	-10.66	382	126.3	-10.57
212	114.7	-7.58	268	121.7	-9.91	326	122.8	-10.62	383	126.4	-10.84
213	114.8	-7.62	269	121.7	-9.88	327	122.9	-10.50	384	126.4	-10.97
214	115.0	-7.38	270	121.8	-10.07	328	122.9	-10.40	385	126.5	-10.49
215	115.1	-7.82	271	121.8	-9.74	329	123.0	-10.38	386	126.5	-10.53
216	115.2	-7.18	272	121.8	-9.76	330	123.0	-10.39	387	126.6	-10.68
217	115.4	-7.47	273	121.8	-9.97	331	123.1	-10.54	388	126.6	-10.49
218	115.5	-7.25	274	121.8	-10.12	332	123.1	-10.59	390	126.7	-10.60
219	115.6	-7.36	275	121.8	-9.93	333	123.2	-10.55	391	126.8	-10.43
220	115.8	-7.15	276	121.8	-10.32	334	123.2	-10.57	393	126.9	-10.42
221	115.9	-7.47	277	121.8	-10.16	335	123.3	-10.43	394	126.9	-10.48
222	116.1	-7.09	278	121.8	-10.11	336	123.3	-10.27	395	127.0	-10.20
223	116.2	-7.12	279	121.9	-10.14	337	123.4	-10.50	396	127.0	-10.11
224	116.3	-7.34	280	121.9	-10.18	338	123.4	-10.51	397	127.1	-10.33
225	116.5	-7.42	281	121.9	-10.12	339	123.5	-10.63	398	127.1	-10.16
226	116.6	-7.22	282	121.9	-10.09	340	123.5	-10.87	399	127.2	-10.16
227	116.7	-7.41	283	121.9	-10.29	341	123.6	-10.79	400	127.2	-10.44
228	116.9	-7.51	284	121.9	-10.31	342	123.6	-10.33	401	127.3	-10.45
229	117.0	-7.02	285	121.9	-10.31	343	123.7	-10.70	402	127.4	-9.89
230	117.2	-7.32	286	121.9	-10.49	344	123.7	-10.52	403	127.5	-9.99
231	117.4	-7.37	287	121.9	-10.46	345	123.8	-10.57	404	127.6	-9.97
232	117.5	-7.45	288	122.0	-10.49	346	123.8	-10.57	405	127.7	-9.94
233	117.7	-7.51	289	122.0	-10.41	347	123.9	-10.35	406	127.8	-9.93
234	117.8	-7.61	290	122.0	-10.37	348	123.9	-10.51	407	127.9	-10.02
235	118.0	-7.68	291	122.0	-10.35	349	124.0	-10.41	408	128.0	-9.98
236	118.2	-7.60	292	122.0	-10.35	350	124.0	-10.35	409	128.1	-9.67
237	118.3	-7.71	293	122.0	-10.44	351	124.1	-10.26	410	128.2	-10.07
238	118.5	-8.14	294	122.0	-10.23	352	124.1	-10.30	411	128.3	-9.60

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB23(Cont.)						
412	128.4	-9.68	420	129.2	-9.35	428	129.6	-8.14	437	129.8	-6.69
413	128.5	-9.69	421	129.3	-9.15	430	129.7	-7.76	438	129.9	-6.42
414	128.6	-9.61	422	129.4	-9.06	431	129.7	-7.33	439	129.9	-6.47
415	128.7	-9.55	423	129.5	-8.98	432	129.7	-7.17	440	129.9	-6.62
416	128.8	-9.40	424	129.6	-8.70	433	129.7	-7.47	441	129.9	-6.60
417	128.9	-9.31	425	129.6	-8.65	434	129.8	-7.07	442	129.9	-6.47
418	129.0	-9.41	426	129.6	-8.44	435	129.8	-6.85	445	130.0	-6.07
419	129.1	-9.29	427	129.6	-8.17	436	129.8	-6.92			
					SB11						
1.0	128.7	-10.13	47.0	130.5	-6.02	78.0	134.5	-5.96	101.5	138.5	-7.42
2.0	128.7	-10.33	48.0	130.5	-6.00	78.5	134.6	-6.12	102.0	138.6	-7.17
3.0	128.7	-10.14	49.0	130.6	-5.83	79.0	134.7	-6.21	102.5	138.7	-7.14
4.0	128.8	-10.23	50.0	130.6	-6.09	79.5	134.8	-6.07	103.0	138.7	-7.48
5.0	128.8	-9.10	51.0	130.6	-6.03	80.0	134.9	-6.06	103.5	138.8	-7.45
6.0	128.9	-8.41	52.0	130.7	-6.03	80.5	135.0	-6.18	104.0	138.9	-7.36
7.0	128.9	-9.61	53.0	130.7	-6.15	81.0	135.1	-6.41	104.5	138.9	-7.00
8.0	128.9	-9.26	54.0	130.7	-5.90	81.5	135.3	-6.22	105.0	138.9	-6.94
9.0	129.0	-9.20	55.0	130.8	-5.99	82.0	135.4	-6.31	105.5	138.9	-6.60
10.0	129.0	-9.39	56.0	130.8	-5.93	82.5	135.5	-6.29	106.0	138.9	-6.67
11.0	129.1	-9.23	57.0	130.9	-5.92	83.0	135.6	-6.22	106.5	138.9	-7.04
12.0	129.1	-9.21	58.0	130.9	-5.94	83.5	135.7	-6.28	107.0	138.9	-6.94
13.0	129.1	-9.22	59.0	130.9	-5.79	84.0	135.8	-6.60	107.5	138.9	-7.24
14.0	129.2	-9.04	60.0	131.0	-5.67	84.5	135.9	-6.72	108.0	138.9	-7.26
15.0	129.2	-8.79	61.0	131.0	-5.70	85.0	136.0	-6.99	108.5	138.9	-7.63
16.0	129.3	-8.91	62.0	131.0	-5.69	86.0	136.1	-7.22	109.0	139.0	-7.75
17.0	129.3	-8.75	63.0	131.1	-5.68	86.5	136.2	-7.23	109.5	139.0	-8.13
18.0	129.3	-8.71	63.5	131.3	-5.91	87.0	136.3	-7.18	110.0	139.0	-8.00
19.0	129.4	-8.61	64.0	131.4	-5.77	87.5	136.4	-8.04	110.5	139.0	-7.92
20.0	129.4	-8.38	64.5	131.5	-5.86	88.0	136.5	-7.71	111.0	139.0	-8.05
21.0	129.5	-8.39	65.0	131.6	-5.68	88.5	136.6	-7.87	111.5	139.0	-8.14
22.0	129.5	-8.33	65.5	131.7	-5.81	89.0	136.6	-7.87	112.0	139.0	-8.00
23.0	129.5	-8.33	66.0	131.8	-5.90	89.5	136.7	-7.94	112.5	139.0	-8.14
24.0	129.6	-8.05	66.5	132.0	-5.87	90.0	136.8	-7.85	113.0	139.0	-8.21
25.0	129.6	-7.84	67.0	132.1	-5.82	90.5	136.9	-7.67	113.5	139.0	-8.14
26.0	129.7	-7.79	67.5	132.2	-5.91	91.0	136.9	-7.92	114.0	139.0	-8.10
27.0	129.7	-7.69	68.0	132.3	-6.19	91.5	137.0	-7.81	114.5	139.0	-8.18
28.0	129.7	-7.43	68.5	132.4	-6.13	92.0	137.1	-7.63	115.0	139.0	-7.86
29.0	129.8	-7.16	69.0	132.5	-6.17	92.5	137.2	-7.61	115.5	139.0	-8.05
30.0	129.8	-6.96	69.5	132.6	-6.19	93.0	137.2	-7.71	116.0	139.0	-8.28
31.0	129.9	-7.07	70.0	132.7	-6.07	93.5	137.3	-7.78	116.5	139.0	-8.30
32.0	129.9	-7.00	70.5	132.8	-6.28	94.0	137.4	-7.61	117.0	139.0	-8.07
33.0	129.9	-6.86	71.0	132.9	-6.29	94.5	137.5	-7.71	117.5	139.1	-8.04
34.0	130.0	-6.90	71.5	133.1	-6.30	95.0	137.5	-7.56	118.0	139.1	-7.90
35.0	130.0	-6.76	72.0	133.2	-6.47	95.5	137.6	-7.74	118.5	139.1	-7.94
36.0	130.1	-6.60	72.5	133.3	-6.14	96.0	137.7	-7.57	119.0	139.2	-8.44
37.0	130.1	-6.73	73.0	133.4	-6.48	96.5	137.8	-7.76	119.5	139.3	-8.20
38.0	130.1	-6.51	73.5	133.5	-6.25	97.0	137.8	-7.55	120.0	139.4	-8.28
39.0	130.2	-6.52	74.0	133.6	-6.54	97.5	137.9	-7.62	120.5	139.4	-8.33
40.0	130.2	-6.14	74.5	133.7	-6.69	98.0	138.0	-7.29	121.0	139.5	-8.15
41.0	130.3	-6.31	75.0	133.8	-6.68	98.5	138.1	-7.33	121.5	139.6	-8.51
42.0	130.3	-6.18	75.5	133.9	-6.72	99.0	138.1	-7.66	122.0	139.7	-8.14
43.0	130.3	-6.00	76.0	134.0	-6.68	99.5	138.2	-7.52	122.5	139.8	-8.31
44.0	130.4	-6.05	76.5	134.2	-6.19	100.0	138.3	-7.40	123.0	139.8	-8.36
45.0	130.4	-6.06	77.0	134.3	-6.09	100.5	138.4	-7.37	123.5	139.9	-8.50
46.0	130.4	-5.94	77.5	134.4	-5.86	101.0	138.4	-7.43	124.0	140.0	-8.25

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB11(Cont.)											
124.5	140.1	-8.41	152.0	144.3	-9.47	179.5	148.5	-9.29	207.0	152.9	-8.85
125.0	140.1	-8.39	152.5	144.4	-9.36	180.0	148.6	-10.21	207.5	153.0	-8.87
125.5	140.2	-8.37	153.0	144.5	-9.49	180.5	148.7	-9.65	208.0	153.1	-9.05
126.0	140.3	-8.41	153.5	144.5	-9.61	181.0	148.8	-10.15	208.5	153.2	-8.67
126.5	140.4	-8.56	154.0	144.6	-9.53	181.5	148.8	-9.95	209.0	153.3	-9.00
127.0	140.4	-8.51	154.5	144.7	-9.69	182.0	148.9	-9.65	209.5	153.4	-8.82
127.5	140.5	-8.55	155.0	144.8	-9.82	182.5	149.0	-9.88	210.0	153.5	-8.93
128.0	140.6	-8.80	155.5	144.8	-9.75	183.0	149.1	-9.34	210.5	153.7	-8.73
128.5	140.7	-8.77	156.0	144.9	-9.93	183.5	149.2	-8.92	211.0	153.8	-8.87
129.0	140.8	-8.62	156.5	145.0	-9.73	184.0	149.2	-9.06	211.5	153.9	-8.74
129.5	140.8	-8.76	157.0	145.1	-9.73	184.5	149.3	-8.62	212.0	154.0	-8.94
130.0	140.9	-8.75	157.5	145.1	-9.59	185.0	149.4	-9.03	212.5	154.1	-8.74
130.5	141.0	-8.82	158.0	145.2	-9.57	185.5	149.5	-8.75	213.0	154.2	-8.93
131.0	141.1	-8.45	158.5	145.3	-9.36	186.0	149.5	-9.23	213.5	154.3	-8.61
131.5	141.1	-8.25	159.0	145.4	-9.45	186.5	149.6	-8.69	214.0	154.4	-8.68
132.0	141.2	-8.64	159.5	145.5	-9.26	187.0	149.7	-9.20	214.5	154.5	-8.78
132.5	141.3	-8.66	160.0	145.5	-9.59	187.5	149.8	-8.73	215.0	154.6	-8.70
133.0	141.4	-8.97	160.5	145.6	-9.36	188.0	149.9	-9.54	215.5	154.7	-8.96
133.5	141.5	-9.13	161.0	145.7	-9.38	188.5	149.9	-9.20	216.0	154.8	-8.87
134.0	141.5	-9.29	161.5	145.8	-9.50	189.0	150.0	-9.33	216.5	154.9	-9.08
134.5	141.6	-9.26	162.0	145.8	-9.50	189.5	150.1	-9.18	217.0	155.1	-9.11
135.0	141.7	-9.21	162.5	145.9	-9.51	190.0	150.2	-9.48	217.5	155.2	-8.94
135.5	141.8	-9.18	163.0	146.0	-9.67	190.5	150.2	-8.94	218.0	155.3	-8.96
136.0	141.8	-8.99	163.5	146.1	-9.59	191.0	150.3	-9.14	218.5	155.4	-8.72
136.5	141.9	-8.76	164.0	146.2	-9.54	191.5	150.4	-9.02	219.0	155.5	-8.74
137.0	142.0	-8.91	164.5	146.2	-9.57	192.0	150.5	-9.13	219.5	155.6	-8.88
137.5	142.1	-9.09	165.0	146.3	-9.63	192.5	150.5	-8.87	220.0	155.7	-8.82
138.0	142.1	-9.13	165.5	146.4	-9.61	193.0	150.6	-9.13	220.5	155.8	-8.71
138.5	142.2	-9.22	166.0	146.5	-9.68	193.5	150.7	-8.74	221.0	155.9	-8.89
139.0	142.3	-9.12	166.5	146.5	-9.56	194.0	150.8	-9.20	221.5	156.0	-9.04
139.5	142.4	-9.15	167.0	146.6	-9.81	194.5	150.9	-8.92	222.0	156.1	-8.94
140.0	142.5	-9.28	167.5	146.7	-9.74	195.0	150.9	-9.00	222.5	156.2	-9.15
140.5	142.5	-9.15	168.0	146.8	-9.82	195.5	151.0	-9.13	223.0	156.3	-9.07
141.0	142.6	-9.50	168.5	146.8	-9.78	196.0	151.1	-9.32	223.5	156.5	-9.17
141.5	142.7	-9.09	169.0	146.9	-10.10	196.5	151.2	-9.24	224.0	156.6	-9.23
142.0	142.8	-9.31	169.5	147.0	-9.85	197.0	151.2	-9.37	224.5	156.7	-9.32
142.5	142.8	-9.14	170.0	147.1	-10.13	197.5	151.3	-9.88	225.0	156.8	-9.33
143.0	142.9	-9.16	170.5	147.2	-10.12	198.0	151.4	-9.76	225.5	156.9	-9.18
143.5	143.0	-9.06	171.0	147.2	-10.27	198.5	151.5	-9.17	226.0	157.0	-9.19
144.0	143.1	-9.07	171.5	147.3	-10.43	199.0	151.5	-9.65	226.5	157.1	-8.61
144.5	143.1	-9.12	172.0	147.4	-10.78	199.5	151.6	-8.70	227.0	157.2	-8.81
145.0	143.2	-9.40	172.5	147.5	-10.55	200.0	151.7	-9.40	227.5	157.3	-8.86
145.5	143.3	-9.41	173.0	147.5	-10.08	200.5	151.8	-8.42	228.0	157.4	-8.51
146.0	143.4	-9.53	173.5	147.6	-9.93	201.0	151.9	-9.40	228.5	157.5	-8.77
146.5	143.5	-9.34	174.0	147.7	-9.64	201.5	151.9	-8.76	229.0	157.6	-8.35
147.0	143.5	-9.38	174.5	147.8	-9.55	202.0	152.0	-9.04	229.5	157.7	-8.81
147.5	143.6	-8.60	175.0	147.8	-9.79	202.5	152.1	-8.82	230.0	157.9	-8.92
148.0	143.7	-8.61	175.5	147.9	-9.62	203.0	152.2	-9.20	230.5	158.0	-8.35
148.5	143.8	-8.99	176.0	148.0	-9.67	203.5	152.2	-8.98	231.0	158.1	-8.33
149.0	143.8	-9.15	176.5	148.1	-9.54	204.0	152.3	-8.90	231.5	158.2	-8.05
149.5	143.9	-9.54	177.0	148.2	-9.56	204.5	152.4	-8.81	232.0	158.3	-7.94
150.0	144.0	-9.35	177.5	148.2	-9.46	205.0	152.5	-9.12	232.5	158.4	-8.19
150.5	144.1	-9.22	178.0	148.3	-9.75	205.5	152.6	-8.68	233.0	158.5	-7.97
151.0	144.1	-9.42	178.5	148.4	-9.80	206.0	152.7	-8.79	233.5	158.6	-8.69
151.5	144.2	-9.41	179.0	148.5	-9.95	206.5	152.8	-8.81	234.0	158.7	-7.92

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB11(Cont.)											
234.5	158.8	-8.70	262.0	166.7	-10.03	289.5	171.5	-10.89	317.0	175.8	-11.01
235.0	158.9	-8.62	262.5	166.9	-10.51	290.0	171.5	-11.30	317.5	175.9	-10.61
235.5	159.0	-8.96	263.0	167.0	-10.98	290.5	171.6	-11.03	318.0	176.0	-11.01
236.0	159.2	-9.01	263.5	167.1	-11.02	291.0	171.7	-11.56	318.5	176.1	-10.96
236.5	159.3	-8.85	264.0	167.2	-10.89	291.5	171.8	-11.21	319.0	176.1	-10.91
237.0	159.4	-9.02	264.5	167.4	-10.84	292.0	171.9	-11.58	319.5	176.2	-11.01
237.5	159.5	-9.03	265.0	167.5	-11.11	292.5	172.0	-11.31	320.0	176.3	-10.53
238.0	159.6	-9.13	265.5	167.6	-11.02	293.0	172.0	-11.52	320.5	176.4	-10.71
238.5	159.7	-8.86	266.0	167.7	-11.16	293.5	172.1	-11.26	321.0	176.4	-10.59
239.0	159.8	-9.00	266.5	167.7	-11.11	294.0	172.2	-11.55	321.5	176.5	-10.75
239.5	159.9	-8.95	267.0	167.8	-11.11	294.5	172.3	-11.47	322.0	176.6	-10.42
240.0	160.0	-9.08	267.5	167.9	-11.07	295.0	172.4	-11.57	322.5	176.7	-10.71
240.5	160.1	-9.01	268.0	168.0	-11.24	295.5	172.4	-11.32	323.0	176.7	-10.00
241.0	160.2	-8.94	268.5	168.1	-10.98	296.0	172.5	-11.46	323.5	176.8	-10.40
241.5	160.3	-8.82	269.0	168.1	-10.99	296.5	172.6	-11.45	324.0	176.9	-9.91
242.0	160.4	-8.71	269.5	168.2	-10.67	297.0	172.7	-11.16	324.5	177.0	-10.53
242.5	160.6	-7.55	270.0	168.3	-11.03	297.5	172.8	-11.39	325.0	177.1	-10.27
243.0	160.7	-7.60	270.5	168.4	-10.72	298.0	172.8	-10.85	325.5	177.1	-10.23
243.5	160.8	-6.18	271.0	168.5	-10.67	298.5	172.9	-11.57	326.0	177.1	-10.29
244.0	160.9	-6.09	271.5	168.5	-10.51	299.0	173.0	-10.60	326.5	177.2	-10.45
244.5	161.0	-6.32	272.0	168.6	-10.59	299.5	173.1	-11.27	327.0	177.2	-10.41
245.0	161.1	-6.51	272.5	168.7	-10.62	300.0	173.2	-10.80	327.5	177.2	-10.31
245.5	161.3	-6.51	273.0	168.8	-10.50	300.5	173.3	-10.83	328.0	177.2	-10.62
246.0	161.5	-6.68	273.5	168.9	-10.32	301.0	173.3	-10.40	328.5	177.3	-10.50
246.5	161.7	-6.46	274.0	168.9	-10.59	301.5	173.4	-10.74	329.0	177.3	-10.76
247.0	161.9	-6.76	274.5	169.0	-10.51	302.0	173.5	-10.29	329.5	177.3	-10.86
247.5	162.1	-8.09	275.0	169.1	-10.40	302.5	173.6	-10.48	330.0	177.4	-10.64
248.0	162.3	-8.68	275.5	169.2	-10.26	303.0	173.7	-10.18	330.5	177.4	-11.07
248.5	162.5	-8.54	276.0	169.3	-10.35	303.5	173.7	-10.44	331.0	177.4	-10.51
249.0	162.7	-8.50	276.5	169.4	-10.18	304.0	173.8	-10.14	331.5	177.5	-11.04
249.5	162.9	-8.52	277.0	169.4	-10.09	304.5	173.9	-10.15	332.0	177.5	-10.59
250.0	163.1	-8.35	277.5	169.5	-10.34	305.0	174.0	-10.34	332.5	177.5	-10.57
250.5	163.3	-8.46	278.0	169.6	-9.64	305.5	174.1	-10.13	333.0	177.6	-10.36
251.0	163.5	-8.08	278.5	169.7	-9.94	306.0	174.1	-10.37	333.5	177.6	-10.67
251.5	163.7	-8.27	279.0	169.8	-9.58	306.5	174.2	-10.26	334.0	177.6	-10.43
252.0	163.9	-7.61	279.5	169.8	-9.52	307.0	174.3	-10.88	334.5	177.7	-10.27
252.5	164.1	-7.91	280.0	169.9	-9.62	307.5	174.4	-10.19	335.0	177.7	-10.41
253.0	164.3	-7.04	280.5	170.0	-9.56	308.0	174.4	-10.58	335.5	177.7	-10.36
253.5	164.5	-6.79	281.0	170.1	-9.71	308.5	174.5	-10.41	336.0	177.8	-10.25
254.0	164.7	-6.47	281.5	170.2	-9.67	309.0	174.6	-10.67	336.5	177.8	-10.34
254.5	164.9	-6.89	282.0	170.2	-10.35	309.5	174.7	-10.52	337.0	177.8	-10.16
255.0	165.0	-8.07	282.5	170.3	-10.15	310.0	174.8	-10.89	337.5	177.9	-10.23
255.5	165.1	-8.27	283.0	170.4	-10.46	310.5	174.8	-10.59	338.0	177.9	-9.87
256.0	165.2	-9.11	283.5	170.5	-10.49	311.0	174.9	-10.93	338.5	177.9	-10.36
256.5	165.4	-9.22	284.0	170.6	-10.12	311.5	175.0	-10.82	339.0	178.0	-9.77
257.0	165.5	-9.62	284.5	170.7	-10.51	312.0	175.1	-11.12	339.5	178.0	-9.92
257.5	165.6	-10.06	285.0	170.7	-10.24	312.5	175.1	-10.78	340.0	178.0	-9.58
258.0	165.7	-9.91	285.5	170.8	-10.28	313.0	175.2	-11.04	340.5	178.1	-9.68
258.5	165.9	-10.20	286.0	170.9	-10.48	313.5	175.3	-11.07	341.0	178.1	-9.47
259.0	166.0	-10.18	286.5	171.0	-10.01	314.0	175.4	-11.14	341.5	178.1	-9.25
259.5	166.1	-10.21	287.0	171.1	-10.98	314.5	175.4	-11.20	342.0	178.2	-9.14
260.0	166.2	-10.29	287.5	171.1	-10.40	315.0	175.5	-11.35	342.5	178.2	-9.10
260.5	166.4	-10.33	288.0	171.2	-11.40	315.5	175.6	-11.27	343.0	178.2	-8.84
261.0	166.5	-9.55	288.5	171.3	-10.63	316.0	175.7	-10.91	343.5	178.3	-8.98
261.5	166.6	-10.34	289.0	171.4	-11.48	316.5	175.7	-11.31	344.0	178.3	-8.52

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB11(Cont.)											
344.5	178.3	-8.49	372.0	182.4	-7.62	399.5	186.7	-6.85	427.0	190.6	-7.95
345.0	178.3	-8.48	372.5	182.5	-8.07	400.0	186.8	-6.88	427.5	190.7	-7.63
345.5	178.4	-8.43	373.0	182.5	-7.30	400.5	186.9	-7.06	428.0	190.7	-7.74
346.0	178.4	-8.62	373.5	182.6	-7.37	401.0	187.0	-7.28	428.5	190.8	-7.31
346.5	178.4	-8.63	374.0	182.7	-7.38	401.5	187.0	-6.66	429.0	190.9	-7.32
347.0	178.5	-8.56	374.5	182.8	-7.34	402.0	187.1	-7.37	429.5	190.9	-7.13
347.5	178.5	-8.71	375.0	182.9	-7.34	402.5	187.2	-7.25	430.0	191.0	-6.81
348.0	178.5	-8.68	375.5	183.0	-7.32	403.0	187.2	-7.47	430.5	191.1	-6.83
348.5	178.6	-8.93	376.0	183.1	-7.34	403.5	187.3	-7.20	431.0	191.1	-6.85
349.0	178.6	-9.01	376.5	183.2	-7.13	404.0	187.4	-7.33	431.5	191.2	-7.08
349.5	178.6	-8.81	377.0	183.3	-7.21	404.5	187.4	-7.49	432.0	191.3	-6.79
350.0	178.7	-8.80	377.5	183.4	-7.35	405.0	187.5	-7.42	432.5	191.4	-6.95
350.5	178.7	-8.70	378.0	183.5	-7.11	405.5	187.6	-7.37	433.0	191.4	-7.04
351.0	178.7	-8.73	378.5	183.6	-7.06	406.0	187.7	-7.48	433.5	191.5	-7.25
351.5	178.8	-8.27	379.0	183.7	-7.13	406.5	187.7	-7.18	434.0	191.6	-7.26
352.0	178.8	-8.54	379.5	183.8	-7.31	407.0	187.8	-7.59	434.5	191.6	-8.54
352.5	178.8	-8.06	380.0	183.9	-7.11	407.5	187.9	-7.55	435.0	191.7	-7.82
353.0	178.9	-8.22	380.5	184.0	-7.02	408.0	187.9	-7.75	435.5	191.8	-8.12
353.5	178.9	-7.84	381.0	184.1	-7.05	408.5	188.0	-7.46	436.0	191.8	-9.71
354.0	178.9	-7.48	381.5	184.2	-6.86	409.0	188.1	-7.65	436.5	191.9	-10.86
354.5	179.0	-6.78	382.0	184.3	-7.27	409.5	188.1	-7.64	437.0	192.0	-10.64
355.0	179.1	-6.98	382.5	184.4	-7.82	410.0	188.2	-7.67	437.5	192.1	-10.76
355.5	179.2	-7.30	383.0	184.4	-7.23	410.5	188.3	-7.52	438.0	192.1	-10.93
356.0	179.3	-7.10	383.5	184.5	-7.24	411.0	188.4	-7.56	438.5	192.2	-10.82
356.5	179.4	-7.50	384.0	184.6	-7.15	411.5	188.4	-7.52	439.0	192.3	-10.76
357.0	179.5	-7.44	384.5	184.7	-7.01	412.0	188.5	-7.76	439.5	192.3	-10.66
357.5	179.6	-7.70	385.0	184.7	-7.10	412.5	188.6	-7.56	440.0	192.4	-10.76
358.0	179.7	-7.83	385.5	184.8	-7.11	413.0	188.6	-8.03	440.5	192.5	-10.59
358.5	179.8	-7.90	386.0	184.9	-6.93	413.5	188.7	-7.69	441.0	192.5	-10.58
359.0	179.9	-7.83	386.5	184.9	-7.06	414.0	188.8	-8.30	441.5	192.6	-10.35
359.5	180.0	-7.87	387.0	185.0	-6.89	414.5	188.8	-7.83	442.0	192.7	-10.42
360.0	180.1	-7.98	387.5	185.1	-6.90	415.0	188.9	-8.30	442.5	192.8	-10.21
360.5	180.2	-7.97	388.0	185.1	-7.31	415.5	189.0	-8.11	443.0	192.8	-10.43
361.0	180.3	-7.90	388.5	185.2	-6.96	416.0	189.1	-8.30	443.5	192.9	-9.65
361.5	180.4	-7.93	389.0	185.3	-7.17	416.5	189.1	-8.13	444.0	193.0	-10.00
362.0	180.5	-7.87	389.5	185.4	-7.23	417.0	189.2	-8.30	444.5	193.0	-9.17
362.5	180.5	-7.92	390.0	185.4	-7.40	417.5	189.3	-8.06	445.0	193.1	-9.14
363.0	180.6	-7.96	390.5	185.5	-6.73	418.0	189.3	-8.11	445.5	193.2	-9.90
363.5	180.7	-7.77	391.0	185.6	-7.56	418.5	189.4	-8.07	446.0	193.2	-9.37
364.0	180.8	-7.99	391.5	185.6	-6.92	419.0	189.5	-8.31	446.5	193.3	-10.70
364.5	180.9	-8.18	392.0	185.7	-7.04	419.5	189.5	-7.89	447.0	193.4	-10.72
365.0	181.0	-7.73	392.5	185.8	-7.11	420.0	189.6	-8.19	447.5	193.5	-10.90
365.5	181.1	-8.18	393.0	185.8	-7.30	420.5	189.7	-8.29	448.0	193.5	-10.81
366.0	181.2	-7.77	393.5	185.9	-6.97	421.0	189.8	-8.10	448.5	193.6	-10.80
366.5	181.3	-7.85	394.0	186.0	-6.91	421.5	189.8	-7.93	449.0	193.7	-10.85
367.0	181.4	-7.69	394.5	186.1	-7.09	422.0	189.9	-8.07	449.5	193.7	-10.73
367.5	181.5	-7.82	395.0	186.1	-7.26	422.5	190.0	-8.17	450.0	193.8	-10.77
368.0	181.6	-7.68	395.5	186.2	-7.13	423.0	190.0	-8.21	450.5	193.9	-10.89
368.5	181.7	-7.80	396.0	186.3	-7.19	423.5	190.1	-7.88	451.0	193.9	-10.81
369.0	181.8	-7.49	396.5	186.3	-7.16	424.0	190.2	-8.08	451.5	194.0	-10.74
369.5	181.9	-7.66	397.0	186.4	-7.07	424.5	190.2	-7.88	452.0	194.1	-10.77
370.0	182.0	-7.65	397.5	186.5	-7.04	425.0	190.3	-7.98	452.5	194.1	-10.84
370.5	182.1	-7.47	398.0	186.5	-7.13	425.5	190.4	-8.02	453.0	194.2	-10.76
371.0	182.2	-7.60	398.5	186.6	-6.77	426.0	190.4	-8.02	453.5	194.3	-10.70
371.5	182.3	-7.65	399.0	186.7	-7.05	426.5	190.5	-7.71	454.0	194.4	-10.61

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB11(Cont.)						
454.5	194.4	-10.87	500.0	197.1	-10.49	555.0	199.0	-9.40	585.5	201.9	-7.76
455.0	194.5	-10.70	501.0	197.1	-10.56	556.0	199.0	-9.23	586.0	202.0	-8.51
455.5	194.6	-10.74	502.0	197.2	-10.34	557.0	199.0	-9.15	586.5	202.1	-8.22
456.0	194.6	-10.73	503.0	197.2	-10.33	558.0	199.1	-8.83	587.0	202.1	-7.83
456.5	194.7	-10.77	504.0	197.2	-10.46	559.0	199.1	-8.77	587.5	202.2	-7.47
457.0	194.8	-10.76	505.0	197.3	-10.50	560.0	199.1	-7.92	588.0	202.3	-7.82
457.5	194.8	-10.73	506.0	197.3	-10.55	561.0	199.2	-8.01	588.5	202.3	-7.92
458.0	194.9	-10.80	507.0	197.3	-10.47	561.5	199.2	-8.38	589.0	202.4	-7.84
458.5	195.0	-10.87	508.0	197.4	-10.55	562.0	199.2	-7.60	589.5	202.5	-7.72
459.0	195.1	-10.72	509.0	197.4	-10.50	562.5	199.2	-7.98	590.0	202.5	-7.83
459.5	195.1	-10.65	510.0	197.4	-10.51	563.0	199.2	-7.96	590.5	202.6	-7.43
460.0	195.2	-10.67	511.0	197.5	-10.70	563.5	199.3	-8.04	591.0	202.7	-7.74
460.5	195.3	-10.69	512.0	197.5	-10.50	564.0	199.3	-7.72	591.5	202.7	-7.85
461.0	195.3	-10.66	513.0	197.5	-10.43	564.5	199.3	-8.14	592.0	202.8	-7.56
461.5	195.4	-10.84	514.0	197.6	-10.43	565.0	199.3	-7.64	592.5	202.9	-7.45
462.0	195.5	-10.79	515.0	197.6	-10.33	565.5	199.3	-7.78	593.0	202.9	-7.66
462.5	195.5	-10.88	516.0	197.6	-10.19	566.0	199.4	-7.15	593.5	203.0	-7.65
463.0	195.6	-10.62	517.0	197.7	-10.26	566.5	199.4	-7.72	594.0	203.1	-7.50
463.5	195.7	-10.84	518.0	197.7	-10.44	567.0	199.4	-7.38	594.5	203.1	-7.50
464.0	195.8	-10.77	519.0	197.7	-10.51	567.5	199.5	-7.15	595.0	203.2	-7.62
465.0	195.9	-10.50	520.0	197.8	-10.71	568.0	199.5	-7.92	595.5	203.3	-7.65
466.0	195.9	-10.56	521.0	197.8	-10.47	568.5	199.6	-7.09	596.0	203.4	-7.54
467.0	196.0	-10.57	522.0	197.8	-10.50	569.0	199.7	-7.55	596.5	203.4	-7.64
468.0	196.0	-10.50	523.0	197.9	-10.36	569.5	199.7	-7.26	597.0	203.5	-7.50
469.0	196.0	-10.62	524.0	197.9	-10.48	570.0	199.8	-7.68	597.5	203.6	-7.60
470.0	196.1	-10.44	525.0	197.9	-10.47	570.5	199.9	-7.20	598.0	203.6	-7.61
471.0	196.1	-10.49	526.0	198.0	-10.40	571.0	199.9	-7.69	598.5	203.7	-7.67
472.0	196.1	-10.47	527.0	198.0	-10.41	571.5	200.0	-7.46	599.0	203.8	-7.52
473.0	196.2	-10.53	528.0	198.1	-10.42	572.0	200.1	-7.72	599.5	203.8	-7.74
474.0	196.2	-10.31	529.0	198.1	-10.27	572.5	200.1	-7.38	600.0	203.9	-7.51
475.0	196.2	-10.59	530.0	198.1	-10.47	573.0	200.2	-7.54	600.5	204.0	-7.61
476.0	196.3	-10.48	531.0	198.2	-10.45	573.5	200.3	-7.02	601.0	204.0	-7.42
477.0	196.3	-10.50	532.0	198.2	-10.56	574.0	200.3	-7.70	601.5	204.1	-7.60
478.0	196.3	-10.64	533.0	198.2	-10.60	574.5	200.4	-7.21	602.0	204.2	-7.34
479.0	196.4	-10.42	534.0	198.3	-10.40	575.0	200.5	-6.86	602.5	204.2	-7.65
480.0	196.4	-10.53	535.0	198.3	-10.41	575.5	200.5	-6.81	603.0	204.3	-7.11
481.0	196.4	-10.38	536.0	198.3	-10.17	576.0	200.6	-6.88	603.5	204.4	-7.20
482.0	196.5	-10.55	537.0	198.4	-10.31	576.5	200.7	-6.99	604.0	204.4	-7.33
483.0	196.5	-10.53	538.0	198.4	-10.17	577.0	200.8	-6.69	604.5	204.5	-7.32
484.0	196.5	-10.62	539.0	198.4	-10.22	577.5	200.8	-7.12	605.0	204.6	-7.33
485.0	196.6	-10.55	540.0	198.5	-10.19	578.0	200.9	-7.08	605.5	204.6	-7.79
486.0	196.6	-10.63	541.0	198.5	-10.09	578.5	201.0	-7.18	606.0	204.7	-7.14
487.0	196.6	-10.52	542.0	198.5	-10.03	579.0	201.0	-7.29	606.5	204.8	-7.56
488.0	196.7	-10.50	543.0	198.6	-9.99	579.5	201.1	-7.38	607.0	204.9	-7.11
489.0	196.7	-10.52	544.0	198.6	-9.92	580.0	201.2	-7.67	607.5	205.2	-7.61
490.0	196.7	-10.57	545.0	198.6	-9.94	580.5	201.2	-7.61	608.0	205.5	-7.13
491.0	196.8	-10.58	546.0	198.7	-9.89	581.0	201.3	-7.73	608.5	205.8	-7.25
492.0	196.8	-10.59	547.0	198.7	-9.91	581.5	201.4	-7.90	609.0	206.1	-7.12
493.0	196.9	-10.51	548.0	198.7	-9.83	582.0	201.4	-8.32	609.5	206.5	-7.17
494.0	196.9	-10.44	549.0	198.8	-9.76	582.5	201.5	-8.25	610.0	206.8	-7.07
495.0	196.9	-10.50	550.0	198.8	-9.73	583.0	201.6	-8.10	610.5	207.1	-7.07
496.0	197.0	-10.38	551.0	198.8	-9.63	583.5	201.6	-7.88	611.0	207.4	-6.85
497.0	197.0	-10.43	552.0	198.9	-9.45	584.0	201.7	-7.93	611.5	207.8	-7.15
498.0	197.0	-10.49	553.0	198.9	-9.43	584.5	201.8	-7.65	612.0	208.1	-6.89
499.0	197.1	-10.57	554.0	198.9	-9.51	585.0	201.8	-7.87	612.5	208.4	-6.82

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB11(Cont.)						
613.0	208.7	-6.80	640.5	216.8	-10.53	668.0	217.1	-9.47	695.5	220.2	-10.02
613.5	209.0	-7.41	641.0	216.8	-10.65	668.5	217.1	-9.32	696.0	220.2	-10.03
614.0	209.4	-8.57	641.5	216.8	-10.59	669.0	217.2	-9.46	696.5	220.3	-10.11
614.5	209.7	-8.09	642.0	216.8	-10.63	669.5	217.2	-9.67	697.0	220.4	-10.00
615.0	210.0	-9.06	642.5	216.8	-10.46	670.0	217.2	-9.40	697.5	220.5	-10.10
615.5	210.8	-9.41	643.0	216.8	-10.60	670.5	217.2	-9.39	698.0	220.5	-10.18
616.0	211.6	-9.26	643.5	216.8	-10.61	671.0	217.2	-9.49	698.5	220.6	-10.33
616.5	212.4	-9.41	644.0	216.8	-10.40	671.5	217.2	-9.21	699.0	220.7	-10.25
617.0	213.2	-10.22	644.5	216.9	-10.35	672.0	217.2	-9.49	699.5	220.7	-10.29
617.5	214.0	-10.27	645.0	216.9	-10.50	672.5	217.2	-9.25	700.0	220.8	-10.81
618.0	214.8	-10.34	645.5	216.9	-10.48	673.0	217.2	-9.52	700.5	220.9	-10.57
618.5	214.9	-10.37	646.0	216.9	-10.40	673.5	217.2	-9.40	701.0	221.0	-10.61
619.0	215.0	-10.14	646.5	216.9	-10.23	674.0	217.2	-9.40	701.5	221.0	-10.42
619.5	215.1	-10.30	647.0	216.9	-10.40	674.5	217.2	-9.39	702.0	221.1	-10.36
620.0	215.2	-10.26	647.5	216.9	-10.40	675.0	217.2	-9.78	702.5	221.2	-10.38
620.5	215.3	-10.27	648.0	216.9	-10.43	675.5	217.3	-9.62	703.0	221.2	-10.31
621.0	215.4	-10.75	648.5	216.9	-10.34	676.0	217.4	-9.83	703.5	221.3	-9.92
621.5	215.5	-10.39	649.0	216.9	-10.23	676.5	217.4	-9.85	704.0	221.4	-10.16
622.0	215.5	-10.45	649.5	216.9	-10.20	677.0	217.5	-9.84	704.5	221.5	-10.37
622.5	215.6	-10.46	650.0	216.9	-10.44	677.5	217.6	-9.76	705.0	221.5	-10.04
623.0	215.7	-10.38	650.5	216.9	-10.22	678.0	217.7	-9.81	705.5	221.6	-10.41
623.5	215.8	-10.38	651.0	216.9	-10.42	678.5	217.7	-9.66	706.0	221.7	-10.16
624.0	215.9	-10.28	651.5	216.9	-10.38	679.0	217.8	-10.03	706.5	221.7	-10.49
624.5	216.0	-10.52	652.0	216.9	-10.27	679.5	217.9	-9.87	707.0	221.8	-10.28
625.0	216.1	-10.34	652.5	217.0	-10.31	680.0	217.9	-9.80	707.5	221.9	-10.32
625.5	216.2	-10.64	653.0	217.0	-10.21	680.5	218.0	-9.63	708.0	222.0	-10.18
626.0	216.3	-10.48	653.5	217.0	-9.91	681.0	218.1	-9.82	708.5	222.0	-10.34
626.5	216.4	-10.34	654.0	217.0	-10.31	681.5	218.2	-9.78	709.0	222.1	-10.07
627.0	216.5	-10.53	654.5	217.0	-10.06	682.0	218.2	-9.79	709.5	222.2	-10.28
627.5	216.6	-10.40	655.0	217.0	-10.28	682.5	218.3	-9.78	710.0	222.2	-10.00
628.0	216.7	-10.36	655.5	217.0	-10.29	683.0	218.4	-9.95	710.5	222.3	-10.40
628.5	216.7	-10.21	656.0	217.0	-10.26	683.5	218.4	-9.77	711.0	222.4	-9.94
629.0	216.7	-10.50	656.5	217.0	-10.13	684.0	218.5	-10.09	711.5	222.5	-10.13
629.5	216.7	-10.39	657.0	217.0	-10.19	684.5	218.6	-9.96	712.0	222.5	-9.92
630.0	216.7	-10.33	657.5	217.0	-9.96	685.0	218.7	-10.17	712.5	222.6	-9.84
630.5	216.7	-10.39	658.0	217.0	-9.96	685.5	218.7	-10.08	713.0	222.7	-9.74
631.0	216.7	-10.18	658.5	217.0	-9.94	686.0	218.8	-10.45	713.5	222.7	-10.06
631.5	216.7	-10.43	659.0	217.0	-10.12	686.5	218.9	-10.61	714.0	222.8	-9.60
632.0	216.7	-10.01	659.5	217.0	-9.87	687.0	218.9	-10.44	714.5	222.9	-9.65
632.5	216.7	-10.22	660.0	217.0	-9.94	687.5	219.0	-10.41	715.0	223.0	-9.98
633.0	216.7	-10.27	660.5	217.1	-9.82	688.0	219.1	-10.53	715.5	223.0	-9.57
633.5	216.7	-10.39	661.0	217.1	-9.70	688.5	219.2	-10.76	716.0	223.1	-9.94
634.0	216.7	-10.21	661.5	217.1	-9.52	689.0	219.2	-10.16	716.5	223.2	-9.78
634.5	216.7	-10.33	662.0	217.1	-9.59	689.5	219.3	-10.61	717.0	223.3	-9.89
635.0	216.7	-10.33	662.5	217.1	-9.37	690.0	219.4	-10.39	717.5	223.3	-9.96
635.5	216.7	-10.33	663.0	217.1	-9.45	690.5	219.5	-10.46	718.0	223.4	-9.76
636.0	216.7	-9.91	663.5	217.1	-9.08	691.0	219.5	-10.35	718.5	223.5	-10.11
636.5	216.8	-10.36	664.0	217.1	-9.43	691.5	219.6	-10.20	719.0	223.5	-10.13
637.0	216.8	-10.31	664.5	217.1	-9.17	692.0	219.7	-10.30	719.5	223.6	-10.24
637.5	216.8	-10.29	665.0	217.1	-9.20	692.5	219.7	-10.31	720.0	223.7	-10.06
638.0	216.8	-10.80	665.5	217.1	-9.11	693.0	219.8	-10.28	720.5	223.8	-9.95
638.5	216.8	-10.38	666.0	217.1	-9.23	693.5	219.9	-10.28	721.0	223.8	-9.81
639.0	216.8	-10.28	666.5	217.1	-9.00	694.0	220.0	-10.23	721.5	223.9	-10.05
639.5	216.8	-10.44	667.0	217.1	-9.46	694.5	220.0	-10.15	722.0	224.0	-9.13
640.0	216.8	-10.62	667.5	217.1	-9.34	695.0	220.1	-10.08	722.5	224.0	-9.93

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
SB11(Cont.)											
723.0	224.1	-9.22	724.0	224.3	-8.97	724.5	224.3	-9.07	725.0	224.4	-9.45
723.5	224.2	-9.53									
SB34											
30	103.1	-10.66	140	104.2	-10.45	240	106.3	-11.24	340	107.7	-10.96
40	103.2	-11.00	150	104.8	-10.08	250	106.4	-11.34	350	107.9	-11.20
50	103.2	-11.06	160	105.4	-11.10	260	106.5	-11.05	360	108.2	-10.92
60	103.3	-10.88	170	105.5	-11.14	270	106.6	-10.94	370	108.4	-10.85
70	103.3	-11.02	180	105.6	-11.09	280	106.7	-11.15	380	108.7	-10.74
80	103.4	-10.81	190	105.7	-11.24	290	106.8	-11.14	390	108.9	-9.86
90	103.5	-10.91	200	105.8	-11.27	300	106.9	-10.85	400	109.2	-9.44
100	103.5	-10.53	210	105.9	-11.29	310	107.0	-10.66	410	109.4	-8.69
120	103.6	-9.86	220	106.1	-11.24	320	107.2	-10.68	420	109.6	-8.07
130	103.6	-9.84	230	106.2	-11.22	330	107.5	-10.87	430	109.9	-7.74
SB42											
5	134.7	-6.33	190	154.3	-8.50	375	173.8	-10.02	560	187.4	-8.20
10	134.7	-5.75	195	155.5	-10.58	380	174.1	-9.98	565	187.7	-8.09
15	134.7	-5.79	200	156.8	-8.51	385	174.4	-10.24	570	188.0	-8.38
20	134.7	-5.86	205	158.1	-7.94	390	174.8	-10.19			
25	134.8	-6.49	210	158.7	-8.97	395	175.1	-10.37			
30	134.8	-7.77	215	159.4	-8.09	400	175.5	-10.22			
35	135.1	-7.57	220	160.0	-6.27	405	175.8	-10.59			
40	135.4	-7.33	225	160.7	-6.66	410	176.2	-9.77			
45	135.8	-7.30	230	161.3	-6.64	415	176.8	-8.38			
50	136.1	-7.37	235	162.0	-7.52	420	177.5	-8.32			
55	136.5	-7.24	240	162.6	-8.32	425	178.2	-8.52			
60	136.8	-7.10	245	163.3	-7.33	430	178.9	-7.54			
65	137.1	-7.36	250	163.9	-6.41	435	179.5	-7.03			
70	137.5	-6.24	255	164.4	-9.10	440	180.2	-6.91			
75	137.8	-6.88	260	164.9	-9.30	445	180.5	-7.53			
80	138.2	-7.80	265	165.4	-9.42	450	180.8	-7.35			
85	138.5	-8.13	270	165.9	-9.63	455	181.1	-7.25			
90	138.8	-8.05	275	166.4	-10.05	460	181.4	-7.22			
95	139.2	-7.87	280	166.9	-10.26	465	181.7	-7.15			
100	139.5	-7.72	285	167.4	-10.48	470	182.0	-7.06			
105	140.0	-8.18	290	167.9	-11.10	475	182.32	-7.14			
110	140.4	-8.18	295	168.2	-10.72	480	182.62	-7.12			
115	140.9	-8.41	300	168.6	-10.56	485	182.92	-7.08			
120	141.3	-8.69	305	168.9	-10.15	490	183.22	-7.01			
125	141.8	-8.19	310	169.3	-9.60	495	183.52	-7.04			
130	142.2	-8.66	315	169.6	-9.95	500	183.82	-7.17			
135	142.7	-8.53	320	170.0	-10.06	505	184.12	-7.03			
140	143.1	-9.04	325	170.3	-10.55	510	184.42	-7.16			
145	143.59	-9.21	330	170.7	-10.96	515	184.73	-6.69			
150	144.1	-8.77	335	171.0	-10.46	520	185.0	-7.03			
155	145.3	-9.09	340	171.3	-10.67	525	185.3	-7.71			
160	146.6	-9.46	345	171.7	-11.17	530	185.6	-7.40			
165	147.9	-9.76	350	172.0	-11.22	535	185.9	-8.20			
170	149.2	-9.42	355	172.4	-11.13	540	186.2	-8.51			
175	150.5	-9.09	360	172.7	-10.79	545	186.5	-8.31			
180	151.7	-9.38	365	173.1	-10.73	550	186.8	-8.32			
185	153.0	-8.90	370	173.4	-9.55	555	187.1	-8.22			

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB41						
110	108.1	-10.27	325	119.4	-7.96	540	125.7	-9.99	750	130.1	-6.71
115	108.3	-10.13	330	119.8	-8.00	545	125.8	-9.96	755	130.1	-6.49
120	108.6	-9.59	335	120.2	-7.92	550	125.9	-10.00	760	130.2	-6.01
125	108.8	-8.76	340	120.6	-8.22	555	126.1	-9.86	765	130.3	-6.08
130	109.1	-8.28	345	120.9	-9.69	560	126.2	-10.02	770	130.3	-6.13
135	109.3	-8.12	350	121.1	-9.99	565	126.3	-9.90	775	130.4	-6.08
140	109.6	-8.36	355	121.2	-9.98	570	126.4	-10.11	780	130.4	-6.08
145	109.8	-8.53	360	121.3	-10.03	575	126.5	-9.92	785	130.5	-5.78
155	110.1	-8.12	365	121.4	-10.32	580	126.7	-9.89	790	130.5	-5.68
160	110.3	-7.58	370	121.5	-10.21	585	126.8	-9.77	795	130.6	-5.59
165	110.6	-7.75	375	121.7	-10.17	590	126.9	-9.87	800	130.7	-5.82
170	110.8	-7.62	380	121.8	-9.93	595	127.0	-9.80	805	130.7	-5.88
175	111.1	-7.40	385	121.9	-10.06	600	127.2	-9.91	810	131.0	-5.90
180	111.3	-7.27	390	122.0	-10.12	605	127.3	-9.75	815	131.4	-5.59
185	111.6	-7.34	395	122.2	-10.39	610	127.4	-9.90	820	131.7	-5.99
190	111.8	-7.33	400	122.3	-10.36	615	127.5	-9.87	825	132.0	-6.19
195	112.1	-7.39	405	122.4	-10.29	620	127.6	-9.88	830	132.3	-6.27
200	112.3	-7.05	410	122.5	-10.36	625	127.8	-9.39	835	132.7	-6.06
205	112.6	-7.35	415	122.6	-10.50	630	127.9	-9.44	840	133.0	-6.12
210	112.8	-7.24	420	122.8	-10.34	635	128.0	-9.51	845	133.3	-6.46
215	113.1	-7.03	425	122.9	-10.13	640	128.1	-9.51	850	133.6	-6.73
220	113.3	-6.95	430	123.0	-10.52	645	128.2	-9.48	855	134.0	-5.93
225	113.6	-7.27	435	123.1	-10.59	650	128.4	-9.33	860	134.3	-6.08
230	113.8	-7.14	440	123.3	-10.40	655	128.5	-9.36	865	134.6	-6.01
235	114.1	-7.09	445	123.4	-10.49	660	128.6	-9.25	870	134.9	-6.27
240	114.3	-7.10	450	123.5	-10.42	665	128.7	-9.11	875	135.2	-6.50
245	114.6	-7.00	455	123.6	-10.39	670	128.9	-9.01	880	135.5	-6.95
250	114.8	-7.18	460	123.7	-10.45	675	129.0	-9.01	885	135.8	-7.56
255	115.1	-7.09	465	123.9	-10.51	680	129.1	-8.65	890	136.1	-7.80
260	115.3	-6.89	470	124.0	-10.40	685	129.2	-8.60	895	136.4	-8.00
265	115.6	-7.01	475	124.1	-10.36	690	129.3	-8.41	900	136.7	-7.53
270	115.8	-6.98	480	124.2	-10.27	695	129.5	-8.06	905	137.0	-7.81
275	116.1	-7.04	485	124.4	-10.44	700	129.5	-8.19	910	137.3	-7.32
280	116.3	-7.11	490	124.5	-10.40	705	129.6	-7.85	915	137.6	-7.42
285	116.6	-6.92	495	124.6	-10.40	710	129.6	-7.48	920	137.9	-7.59
290	116.8	-6.74	505	124.8	-10.34	715	129.7	-7.18	925	138.2	-7.45
295	117.2	-7.38	510	125.0	-10.43	720	129.7	-7.18	930	138.5	-7.22
300	117.6	-7.42	515	125.1	-10.44	725	129.8	-6.74	935	138.8	-7.27
305	117.9	-7.22	520	125.2	-10.47	730	129.9	-6.71	940	139.1	-7.29
310	118.3	-7.45	525	125.3	-10.43	735	129.9	-6.74	945	139.4	-6.40
315	118.7	-7.69	530	125.4	-10.04	740	130.0	-6.73			
320	119.1	-7.57	535	125.6	-9.74	745	130.0	-6.91			
					TF						
15	123.0	-8.90	60	124.3	-8.86	105	125.2	-8.92	150	126.1	-8.17
20	123.2	-8.21	65	124.4	-8.68	110	125.3	-8.50	155	126.3	-8.55
25	123.4	-8.35	70	124.5	-8.66	115	125.4	-8.74	160	126.5	-8.57
30	123.6	-8.93	75	124.6	-8.61	120	125.5	-8.05	165	126.7	-8.35
35	123.8	-8.81	80	124.7	-8.44	125	125.6	-8.71	170	126.9	-8.61
42	124.0	-8.40	85	124.8	-9.00	130	125.7	-8.80	175	126.9	-8.46
45	124.0	-8.85	90	124.9	-7.97	135	125.8	-8.87			
50	124.1	-8.59	95	125.0	-8.95	140	125.8	-8.12			
55	124.2	-9.15	100	125.1	-8.63	145	125.9	-8.37			

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB22						
3	56.1	-9.65	59	58.8	-9.89	114	70.23	-9.14	169	72.5	-7.07
4	56.1	-9.34	60	58.9	-9.90	115	70.27	-9.11	170	72.6	-6.93
5	56.1	-9.36	61	58.9	-9.69	116	70.30	-9.34	171	72.6	-7.07
6	56.2	-9.61	62	59.0	-9.49	117	70.34	-9.19	172	72.7	-7.37
7	56.2	-9.08	63	59.0	-9.37	118	70.38	-9.16	173	72.7	-7.27
8	56.3	-9.93	64	59.1	-9.29	119	70.42	-9.12	174	72.7	-7.37
9	56.3	-9.92	65	59.2	-9.30	120	70.45	-9.22	175	72.8	-7.62
10	56.3	-9.84	66	59.2	-9.37	121	70.49	-9.14	176	72.8	-7.75
11	56.4	-9.75	67	59.3	-9.40	122	70.53	-9.05	177	72.9	-7.87
12	56.4	-9.70	68	59.3	-8.81	123	70.56	-9.02	178	72.9	-7.86
13	56.5	-9.65	69	59.4	-8.51	124	70.60	-9.15	179	73.0	-8.00
14	56.5	-10.47	70	59.5	-8.42	126	70.67	-9.34	180	73.0	-8.81
15	56.6	-10.31	71	59.5	-8.50	127	70.71	-9.35	181	73.1	-8.81
16	56.6	-10.65	72	59.6	-8.52	128	70.75	-9.30	182	73.1	-9.06
17	56.7	-10.67	73	59.6	-8.48	129	70.78	-9.16	183	73.1	-9.10
18	56.8	-10.64	74	59.7	-8.31	130	70.82	-9.13	184	73.2	-9.23
19	56.9	-10.84	75	59.8	-8.22	131	70.86	-9.06	185	73.2	-9.55
20	57.0	-10.88	76	59.8	-8.17	132	70.90	-9.04	186	73.3	-9.61
21	57.0	-10.88	77	59.9	-8.22	133	70.93	-8.90	187	73.3	-9.66
22	57.0	-10.84	78	60.2	-8.19	134	70.97	-8.93	188	73.4	-9.69
24	57.1	-10.72	79	60.6	-8.22	135	71.01	-8.83	189	73.4	-9.65
25	57.1	-10.63	80	60.9	-8.50	136	71.04	-9.02	190	73.5	-9.83
26	57.1	-10.60	81	61.2	-8.76	137	71.08	-8.78	191	73.5	-9.78
27	57.1	-10.59	82	61.6	-8.55	138	71.12	-8.89	192	73.5	-9.60
28	57.2	-10.70	83	61.9	-8.42	139	71.2	-8.93	193	73.6	-9.62
29	57.2	-10.50	84	62.2	-8.26	140	71.2	-8.95	194	73.6	-9.72
30	57.2	-10.55	85	62.6	-8.27	141	71.2	-9.03	195	73.7	-9.75
31	57.2	-10.69	86	62.9	-8.35	142	71.3	-8.94	196	73.7	-9.73
32	57.3	-10.74	87	63.3	-8.57	143	71.3	-8.87	197	73.8	-9.81
33	57.3	-10.66	88	63.6	-8.62	144	71.3	-8.81	198	73.8	-9.96
34	57.3	-10.55	89	63.9	-8.41	145	71.4	-8.88	199	73.9	-9.81
35	57.4	-10.56	90	64.3	-8.47	146	71.4	-8.69	200	73.9	-9.75
36	57.4	-10.57	91	64.6	-8.39	147	71.5	-8.42	201	73.9	-9.84
37	57.5	-10.55	92	64.9	-8.58	148	71.5	-8.31	202	74.0	-9.74
38	57.5	-10.45	94	65.6	-8.28	149	71.6	-8.24	203	74.0	-9.84
39	57.6	-10.57	95	65.9	-8.52	150	71.6	-8.11	204	74.1	-9.78
40	57.7	-10.73	96	66.3	-8.29	151	71.7	-7.91	205	74.1	-9.79
41	57.7	-10.66	97	66.6	-8.60	152	71.7	-7.86	206	74.2	-9.74
42	57.8	-10.50	98	66.9	-8.50	153	71.7	-6.95	207	74.2	-9.96
44	57.9	-10.33	99	67.3	-8.52	154	71.8	-7.03	208	74.3	-9.85
45	58.0	-9.96	100	67.6	-8.54	155	71.8	-7.00	209	74.3	-9.57
46	58.0	-9.82	101	68.0	-8.53	156	71.9	-7.15	210	74.4	-9.85
47	58.1	-10.11	102	68.3	-8.49	157	71.9	-7.11	211	74.4	-9.60
48	58.1	-10.42	103	68.6	-8.49	158	72.0	-7.08	212	74.4	-9.62
49	58.2	-9.90	104	69.0	-8.56	159	72.0	-6.80	213	74.5	-9.64
50	58.3	-10.00	105	69.30	-8.52	160	72.1	-6.60	214	74.5	-9.73
51	58.3	-10.11	106	69.64	-8.55	161	72.1	-7.19	215	74.6	-9.71
52	58.4	-9.84	107	69.97	-8.20	162	72.2	-6.56	216	74.6	-9.71
53	58.4	-10.09	108	70.01	-8.11	163	72.2	-6.65	217	74.7	-9.77
54	58.5	-10.05	109	70.05	-8.20	164	72.3	-6.84	218	74.8	-9.67
55	58.6	-10.13	110	70.08	-8.44	165	72.3	-6.82	219	74.9	-9.40
56	58.6	-9.88	111	70.12	-8.89	166	72.4	-6.71	220	75.0	-9.65
57	58.7	-10.05	112	70.16	-8.66	167	72.4	-6.82	221	75.14	-9.54
58	58.7	-10.01	113	70.2	-9.06	168	72.5	-6.94	222	75.26	-9.63

Continue to next page

Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB22(Cont.)						
223	75.4	-9.57	276	84.83	-8.86	330	89.95	-9.84	384	98.59	-9.41
224	75.5	-9.71	277	84.86	-8.74	331	90.07	-9.76			
225	75.6	-9.62	278	84.89	-8.75	332	90.19	-9.70			
226	75.7	-9.51	279	84.92	-8.92	333	90.31	-9.43			
227	75.9	-9.41	280	84.95	-8.95	334	90.44	-9.20			
228	76.0	-9.48	281	84.98	-8.85	335	90.56	-9.01			
229	76.1	-9.10	282	85.01	-8.82	336	90.68	-8.89			
230	76.2	-9.15	283	85.04	-8.83	337	90.80	-8.59			
231	76.3	-9.05	284	85.07	-8.83	338	90.92	-8.53			
232	76.5	-9.15	285	85.10	-8.89	339	91.04	-8.44			
233	76.6	-8.40	286	85.13	-8.86	340	91.16	-8.52			
234	76.7	-8.75	287	85.16	-8.79	341	91.28	-8.53			
235	76.8	-8.62	288	85.19	-8.76	342	91.35	-8.56			
236	76.9	-8.90	289	85.22	-8.70	343	91.41	-8.57			
237	77.1	-9.52	290	85.25	-8.65	344	91.47	-8.48			
238	77.1	-10.04	291	85.28	-8.70	345	91.53	-8.39			
239	77.2	-10.16	292	85.31	-8.76	346	91.59	-8.40			
240	77.3	-10.51	293	85.34	-8.60	347	91.66	-8.41			
241	77.4	-10.47	294	85.37	-8.60	348	91.72	-8.47			
242	77.5	-10.55	295	85.40	-8.61	350	91.84	-8.47			
243	77.6	-10.41	296	85.43	-8.57	351	91.90	-8.33			
244	77.65	-10.34	297	85.46	-8.56	352	91.97	-8.43			
245	77.7	-10.47	298	85.49	-8.46	353	92.0	-8.52			
246	77.8	-10.42	299	85.52	-8.42	354	92.1	-8.51			
247	77.9	-10.63	300	85.55	-8.55	355	92.2	-8.55			
248	78.0	-10.69	301	85.58	-8.62	356	92.2	-8.34			
249	78.1	-10.82	302	85.61	-8.54	357	92.4	-8.42			
250	78.2	-10.77	304	85.67	-8.37	358	92.6	-8.56			
251	78.3	-10.68	305	85.70	-8.42	359	92.7	-8.47			
252	78.3	-10.68	306	85.73	-8.42	360	92.9	-8.59			
253	78.4	-10.80	307	86.01	-8.38	361	93.1	-8.60			
254	78.5	-10.82	308	86.30	-8.27	362	93.3	-8.39			
255	78.6	-10.84	309	86.58	-8.25	363	93.5	-8.52			
256	78.7	-10.57	310	86.87	-8.23	364	93.6	-8.55			
257	78.8	-10.69	311	87.15	-9.10	365	93.8	-8.09			
258	80.6	-10.85	312	87.44	-9.97	366	94.0	-8.32			
259	82.5	-10.75	313	87.72	-10.18	367	94.1	-8.40			
260	84.3	-9.15	314	88.01	-9.92	368	94.1	-8.24			
261	84.4	-9.03	315	88.13	-9.84	369	94.2	-8.32			
262	84.4	-9.00	316	88.25	-9.84	370	94.2	-8.13			
263	84.4	-9.07	317	88.37	-10.02	371	94.3	-8.16			
264	84.5	-9.03	318	88.49	-9.92	372	94.4	-8.21			
265	84.5	-8.95	319	88.62	-9.98	373	94.4	-8.24			
266	84.5	-8.87	320	88.74	-10.14	374	94.5	-8.35			
267	84.6	-8.85	321	88.86	-10.12	375	94.5	-8.34			
268	84.6	-8.85	322	88.98	-10.00	376	94.6	-8.38			
269	84.6	-8.76	323	89.10	-9.89	377	94.66	-8.52			
270	84.6	-8.87	324	89.22	-9.71	378	94.72	-8.44			
271	84.7	-8.84	325	89.34	-9.75	379	94.78	-8.39			
272	84.7	-8.83	326	89.47	-9.56	380	94.84	-8.42			
273	84.7	-8.74	327	89.59	-9.56	381	94.90	-8.36			
274	84.8	-8.72	328	89.71	-9.70	382	96.1	-8.59			
275	84.8	-8.75	329	89.83	-9.60	383	97.4	-8.91			

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Table S2 (Cont.)

Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)	Distance (mm)	Age (ky,BP)	$\delta^{18}O$ (VPDB)
					SB25-1						
17	78.0	-9.52	60	80.1	-10.97	102	83.5	-10.05	151	86.69	-8.77
18	78.1	-10.55	61	80.2	-11.05	103	83.6	-9.90	152	86.75	-8.55
19	78.1	-10.64	62	80.3	-10.92	104	83.6	-9.91	153	86.82	-8.32
20	78.1	-10.77	63	80.4	-11.05	105	83.7	-9.81	155	86.95	-8.35
21	78.2	-10.66	64	80.5	-11.12	106	83.8	-9.79	156	87.22	-8.37
22	78.2	-10.90	65	80.6	-10.94	108	83.9	-9.41	157	87.49	-8.84
23	78.2	-10.72	67	80.7	-10.83	110	84.0	-9.33	158	87.76	-9.18
24	78.3	-10.75	68	80.8	-11.02	111	84.1	-9.33	159	88.02	-8.37
25	78.3	-10.80	69	80.9	-11.12	112	84.2	-9.13	160	88.29	-8.72
26	78.4	-10.87	70	81.0	-11.11	113	84.2	-9.11	161	88.56	-9.56
27	78.4	-11.09	71	81.1	-10.98	114	84.3	-9.10	162	88.83	-9.91
28	78.4	-10.84	72	81.2	-11.10	115	84.3	-9.20	163	89.10	-10.22
29	78.5	-10.64	73	81.2	-11.06	116	84.4	-9.12	164	89.37	-10.17
30	78.5	-10.79	74	81.3	-11.15	117	84.5	-9.17	165	89.64	-9.70
31	78.5	-10.96	75	81.4	-11.08	118	84.5	-9.33	166	89.91	-9.55
32	78.6	-11.09	76	81.5	-11.15	119	84.6	-9.33	167	90.18	-9.38
33	78.6	-10.96	77	81.6	-11.10	120	84.7	-9.36	168	90.45	-9.42
34	78.6	-11.09	78	81.7	-10.45	121	84.7	-9.17	169	90.71	-9.52
35	78.7	-10.94	79	81.7	-10.70	122	84.8	-9.00	170	90.98	-9.35
36	78.7	-10.96	80	81.8	-10.68	123	84.9	-8.97	171	91.25	-9.01
37	78.7	-10.94	81	81.9	-10.89	124	84.9	-9.00	172	91.52	-8.57
38	78.8	-10.99	82	82.0	-10.63	126	85.1	-8.83	173	91.79	-8.45
39	78.8	-10.91	83	82.1	-10.62	127	85.1	-8.89	174	92.06	-8.45
40	78.8	-10.97	84	82.2	-10.63	128	85.2	-8.84	175	92.33	-8.51
41	78.9	-10.99	85	82.3	-10.51	129	85.3	-9.00	176	92.60	-8.30
42	78.9	-10.80	86	82.3	-10.59	130	85.3	-8.82	177	92.87	-8.26
43	78.9	-10.82	87	82.4	-10.61	131	85.4	-9.03	178	93.14	-8.30
44	79.0	-10.96	88	82.5	-10.55	132	85.5	-8.82	179	93.40	-8.35
46	79.0	-10.96	89	82.6	-10.45	133	85.5	-8.80	180	93.67	-8.36
48	79.1	-10.97	90	82.7	-10.35	134	85.6	-8.74	181	93.94	-8.25
49	79.2	-10.93	91	82.8	-10.43	135	85.6	-8.81	182	94.21	-8.45
50	79.3	-10.93	92	82.9	-10.45	137	85.8	-8.88	183	94.48	-8.55
51	79.4	-10.92	93	82.9	-10.27	140	86.0	-8.68	184	94.75	-8.28
52	79.5	-11.03	94	83.0	-10.25	141	86.0	-8.62	185	95.02	-8.44
53	79.5	-10.91	95	83.0	-10.30	142	86.1	-8.69	186	95.29	-8.29
54	79.6	-10.95	96	83.1	-10.45	143	86.2	-8.58	187	95.56	-8.45
55	79.7	-10.94	97	83.2	-10.38	144	86.2	-8.58	188	95.83	-8.35
56	79.8	-10.94	98	83.2	-10.19	147	86.4	-8.76	189	96.09	-10.26
57	79.9	-10.97	99	83.3	-10.11	148	86.5	-8.75	190	96.36	-10.24
58	80.0	-11.02	100	83.4	-10.03	149	86.6	-8.93			
59	80.1	-11.05	101	83.4	-10.02	150	86.6	-8.76			

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