EPICA Dome C Ice Core 800KYr Carbon Dioxide Data

World Data Center for Paleoclimatology, Boulder
and
NOAA Paleoclimatology Program

NOTE: PLEASE CITE ORIGINAL REFERENCE WHEN USING THIS DATA!!!!!

NAME OF DATA SET: EPICA Dome C Ice Core 800KYr Carbon Dioxide Data
LAST UPDATE: 6/2008 (Original receipt by WDC Paleo)
CONTRIBUTORS: Dieter Luthi, et al.
IGBP PAGES/WDCA CONTRIBUTION SERIES NUMBER: 2008-055

WDC PALEO CONTRIBUTION SERIES CITATION:
Luthi, D., et al.. 2008.
EPICA Dome C Ice Core 800KYr Carbon Dioxide Data.
IGBP PAGES/World Data Center for Paleoclimatology
Data Contribution Series # 2008-055.
NOAA/NCDC Paleoclimatology Program, Boulder CO, USA.

ORIGINAL REFERENCE:
Luthi, D., M. Le Floch, B. Bereiter, T. Blunier, J.-M. Barnola,
U. Siegenthaler, D. Raynaud, J. Jouzel, H. Fischer, K. Kawamura,
and T.F. Stocker. 2008.
High-resolution carbon dioxide concentration record 650,000-800,000
years before present.
Nature, Vol. 453, pp. 379-382, 15 May 2008. doi:10.1038/nature06949

ABSTRACT:
Changes in past atmospheric carbon dioxide concentrations can
be determined by measuring the composition of air trapped in ice
cores from Antarctica. So far, the Antarctic Vostok and EPICA
Dome C ice cores have provided a composite record of atmospheric
carbon dioxide levels over the past 650,000 years. Here we present
results of the lowest 200m of the Dome C ice core, extending
the record of atmospheric carbon dioxide concentration by two
complete glacial cycles to 800,000 yr before present. From
previously published data and the present work, we find that
atmospheric carbon dioxide is strongly correlated with Antarctic
temperature throughout eight glacial cycles but with significantly
lower concentrations between 650,000 and 750,000 yr before present.
Carbon dioxide levels are below 180 parts per million by volume
(p.p.m.v.) for a period of 3,000 yr during Marine Isotope Stage 16,
possibly reflecting more pronounced oceanic carbon storage.
We report the lowest carbon dioxide concentration measured
in an ice core, which extends the pre-industrial range of
carbon dioxide concentrations during the late Quaternary by
about 10 p.p.m.v. to 172-300 p.p.m.v.

ADDITIONAL REFERENCES:
Indermuhle, A., E. Monnin, B. Stauffer, T.F. Stocker, M. Wahlen, 1999,
Atmospheric CO2 concentration from 60 to 20 kyr BP from the
Taylor Dome ice core, Antarctica. Geophysical Research Letters, 27, 735-738.

Monnin, E., A. Indermuhle, A. Dallenbach, J. Fluckiger, B. Stauffer,
T.F. Stocker, D. Raynaud, and J.-M. Barnola. 2001.
Atmospheric CO2 concentrations over the last glacial termination.

Science, Vol. 291, pp. 112-114.

Petit, J.R., J. Jouzel, D. Raynaud, N.I. Barkov, J.-M. Barnola,
I. Basile, M. Benders, J. Chappellaz, M. Davis, G. Delayque,
M. Delmotte, V.M. Kotlyakov, M. Legrand, V.Y. Lipenkov,
C. Lorius, L. Pepin, C. Ritz, E. Saltzman, and M. Stievenard. 1999.
Climate and atmospheric history of the past 420,000 years from
the Vostok ice core, Antarctica.
Nature 399: 429-436.

Siegenthaler, U., T.F. Stocker, E. Monnin, D. Luthi, J. Schwander, B. Stauffer,
D. Raynaud, J.-M. Barnola, H. Fischer, V. Masson-Delmotte, J. Jouzel. 2005.
Stable Carbon Cycle-Climate Relationship During the Late Pleistocene.
Science, v. 310 , pp. 1313-1317, 25 November 2005.

GEOGRAPHIC REGION: East Antarctica
PERIOD OF RECORD: 800 KYrBP -present

FUNDING SOURCES:
This work is a contribution to the European Project for Ice Coring
in Antarctica (EPICA), a joint European Science Foundation/European
Commission scientific program, funded by the European Commission and
by national contributions from Belgium, Denmark, France, Germany,
Italy, the Netherlands, Norway, Sweden, Switzerland and the
United Kingdom. We acknowledge financial support by the Swiss NSF,
the University of Bern, the Swiss Federal Agency of Energy and the
French ANR (Agence nationale pour la Recherche; programme PICC).

DESCRIPTION:
Carbon dioxide record from the EPICA (European Project for Ice Coring
in Antarctica) Dome C ice core covering 0 to 800 kyr BP.

EPICA Dome C ice core location: 75 06'S, 123 21'E, 3233m above sea level

These data also available from the Nature Supplementary Materials for
Luthi et al. (2008).

NOTE: These data have been revised for an analytical bias as described
by Bereiter et al. 2015. Please see the revised EDC and Antarctic
composite CO2 records at: http://www.ncdc.noaa.gov/paleo/study/17975

DATA:
1. EDC Carbon Dioxide Data (611-800 kyr BP), Luthi et al. (2008)
(Additional EDC and Antarctic Ice Core CO2 data and composite CO2 record are below)

Column 1: Depth (m)
Column 2: Age (EDC3_gas_a) years BP
Column 3: CO2 (ppmv) measured at University of Bern
Column 4: CO2 sigma error (ppmv) measured at University of Bern
Column 5: Depth (m)
Column 6: Age (EDC3_gas_a) years BP
Column 7: CO2 (ppmv) measured at LGGE in Grenoble

University of Bern				LGGE in Grenoble		
Depth	Age	CO2	sigma	Depth	Age	CO2
3026.58	611269	257.8	2.1	3061.71	667435	178.5
3030.97	616164	252.6	0.6	3063.98	670124	189.0
3036.44	623109	243.3	2.8	3085.78	688035	234.0
3040.87	630183	204.4	0.9	3086.88	688751	235.4
3043.07	635364	195.0	1.5	3087.98	689444	241.0
3055.18	658404	187.5	1.8	3089.08	690155	235.0
3056.25	659983	185.6	1.1	3091.28	691524	235.9
3057.36	661563	192.1	1.0	3093.48	692857	236.3
3058.47	663133	192.0	2.1	3120.01	715603	223.8
3059.55	664597	190.6	1.3	3122.20	718581	190.2
3060.33	665645	178.2	1.1	3124.41	721870	217.0
3060.73	666174	178.5	1.1	3128.68	727458	203.7
3061.36	666995	172.7	1.0	3133.08	732300	210.7
3061.82	667569	171.6	1.4	3135.28	734408	209.6
3062.53	668447	175.6	0.7	3141.82	739986	198.0
3062.93	668934	178.5	0.7	3146.37	744681	185.2
3063.64	669751	185.5	0.2	3150.68	749152	188.8
3064.02	670176	189.3	0.9	3152.88	751552	193.8
3064.76	670916	192.6	1.0	3155.08	754124	197.3
3065.12	671286	194.6	0.7	3156.18	755354	203.4
3065.76	671926	192.5	0.6	3157.28	756605	214.4
3066.22	672386	194.8	1.0	3158.38	757805	225.5
3066.93	673095	198.7	1.0	3159.48	759027	216.6
3067.33	673475	202.3	0.7	3160.58	760338	214.9
3068.07	674173	209.2	0.6	3161.68	761745	213.0
3068.42	674521	213.7	0.8	3162.78	763158	221.3
3069.52	675589	220.0	0.8	3163.88	764529	226.5
3070.16	676170	217.4	0.6	3164.98	765917	216.1
3070.62	676524	214.0	0.9	3167.18	768940	227.5
3071.33	677068	215.6	1.4	3168.28	770434	233.9
3071.72	677380	217.4	1.5	3169.38	771888	226.9
3072.44	677984	226.5	0.8	3170.48	773353	238.6
3072.80	678291	230.0	0.9	3171.58	774854	240.1
3073.53	678914	230.8	0.6	3172.68	776322	245.9
3073.93	679252	230.3	1.2	3173.78	777719	246.7
3074.56	679732	223.0	1.2	3174.88	779076	243.8
3075.02	680081	225.0	1.3	3177.08	781771	251.2
3075.73	680608	218.4	0.9	3178.18	783110	252.5
3076.13	680920	216.2	1.0	3179.28	784409	248.4
3076.85	681531	217.3	1.7	3180.38	785654	255.3
3077.23	681849	219.7	0.6	3181.48	786819	256.6
3077.93	682446	222.6	1.6	3182.58	787957	246.4
3078.32	682762	221.3	1.3	3183.68	789126	239.3
3078.96	683262	218.7	0.8	3185.88	791767	217.3
3079.43	683612	217.5	0.7	3186.98	793255	224.2
3080.14	684142	217.5	1.4	3188.08	794949	206.7
3080.52	684419	219.4	1.0	3190.28	798893	193.6
3081.25	684949	219.5	1.1			
3081.63	685217	219.7	1.2			
3082.34	685716	223.5	1.0			
3082.72	685980	224.4	1.3			
3083.37	686425	224.3	1.1			
3083.82	686726	227.3	1.7			
3084.56	687227	228.7	1.3			
3084.92	687470	228.8	1.5			
3085.65	687949	232.3	1.0			
3086.03	688195	233.0	0.5			
3086.73	688652	235.8	1.1			

3087.08	688881	234.9	1.2
3087.76	689304	235.8	2.0
3088.23	689603	239.9	0.6
3088.93	690057	235.6	1.3
3089.30	690294	234.8	2.1
3090.05	690771	240.0	2.1
3090.42	690999	234.0	0.8
3091.13	691432	235.6	1.0
3091.52	691672	236.6	0.7
3092.16	692057	235.5	0.9
3092.62	692338	235.9	1.4
3093.33	692765	232.9	0.6
3093.70	692990	234.8	1.5
3094.45	693433	234.1	1.5
3094.80	693639	234.1	1.3
3095.53	694068	235.4	1.0
3095.92	694300	234.4	1.1
3096.56	694672	235.8	1.3
3097.02	694941	236.9	0.8
3097.74	695383	236.7	1.9
3098.13	695618	237.6	0.7
3098.85	696062	234.6	1.0
3099.22	696287	234.8	0.6
3099.93	696717	235.4	0.8
3100.32	696963	232.9	0.6
3100.92	697331	232.4	0.7
3101.43	697660	232.2	0.5
3102.13	698120	231.0	1.0
3102.52	698386	228.0	0.5
3103.25	698880	226.4	1.0
3103.57	699102	227.7	0.7
3104.33	699633	227.6	1.6
3104.71	699909	226.0	0.3
3105.36	700389	228.7	1.3
3105.82	700744	227.6	1.1
3106.46	701242	228.2	0.5
3106.92	701606	228.8	1.4
3107.64	702158	229.3	0.5
3107.93	702381	230.3	1.7
3108.65	702988	232.4	1.3
3109.12	703384	232.8	1.6
3109.75	703934	231.2	1.8
3110.07	704211	231.2	0.9
3110.88	704973	233.9	0.8
3111.32	705410	228.5	1.5
3112.05	706141	228.6	1.0
3112.31	706409	228.1	1.0
3115.25	709680	219.7	0.6
3115.72	710237	220.2	0.3
3116.42	711104	218.9	1.5
3116.68	711421	218.7	1.4
3117.81	712833	218.5	0.5
3118.60	713843	222.3	1.6
3118.95	714288	221.7	2.0
3119.67	715180	217.7	0.6
3120.12	715750	222.1	0.6
3120.85	716704	208.1	0.7
3121.13	717065	205.0	1.7
3121.86	718064	192.9	1.2
3122.32	718779	184.3	1.1
3122.95	719794	187.8	1.6

3123.35	720337	195.2	0.8
3124.06	721318	206.3	0.8
3124.52	722039	211.3	0.9
3125.27	723133	213.4	1.2
3125.53	723464	213.2	1.3
3126.27	724445	210.3	2.0
3126.72	725059	206.3	0.7
3127.41	725937	206.6	1.8
3127.73	726322	208.1	1.2
3128.45	727192	204.5	0.4
3128.91	727732	205.5	1.3
3129.62	728568	205.1	1.1
3129.93	728921	205.4	0.8
3131.12	730299	204.0	1.6
3131.75	730949	204.1	0.8
3132.13	731329	204.9	0.8
3132.92	732141	203.8	1.0
3133.32	732548	205.9	1.7
3134.02	733261	203.9	0.7
3134.33	733543	204.4	0.3
3135.06	734223	205.3	0.4
3135.52	734604	207.4	1.9
3136.19	735167	201.7	1.2
3136.53	735459	201.3	0.8
3137.25	736079	204.1	1.0
3137.72	736460	209.7	1.8
3138.44	737034	208.1	0.7
3138.73	737266	211.3	0.8
3139.46	737889	210.6	1.4
3139.89	738272	206.5	1.7
3140.54	738844	200.3	1.6
3140.88	739137	197.8	1.5
3141.66	739842	185.0	0.9
3142.12	740277	178.9	0.3
3142.85	741021	178.6	2.4
3143.13	741307	176.6	2.4
3143.86	742075	177.9	2.1
3144.32	742558	182.3	1.3
3144.98	743233	181.7	2.7
3145.32	743589	180.4	0.7
3146.06	744354	181.2	0.9
3146.52	744843	182.0	0.9
3147.48	745836	180.2	1.2
3148.26	746643	183.1	0.4
3148.72	747110	180.8	0.3
3149.35	747759	180.8	1.3
3149.68	748101	180.4	0.8
3150.45	748913	181.4	1.3
3150.91	749401	182.9	1.8
3151.65	750194	184.8	1.6
3151.91	750476	184.0	1.4
3152.65	751301	186.2	1.9
3153.12	751830	190.1	1.3
3153.78	752605	188.0	0.3
3154.10	752978	196.5	1.8
3154.96	753984	191.5	1.7
3155.32	754394	195.8	1.5
3156.08	755241	200.5	2.0
3156.30	755495	201.9	1.4
3157.05	756357	206.0	2.2
3157.52	756871	210.7	2.3

3158.15	757561	215.0	1.5
3158.53	757962	219.2	1.4
3158.80	758259	215.3	0.7
3159.00	758475	217.6	1.8
3159.35	758883	217.9	2.3
3159.72	759306	214.9	1.2
3160.47	760202	208.8	0.8
3160.71	760500	206.9	1.1
3161.46	761453	206.1	1.9
3161.92	762064	212.0	0.2
3162.55	762871	216.0	2.1
3162.91	763319	215.0	0.9
3163.20	763686	225.7	3.0
3163.40	763934	221.4	2.7
3163.65	764249	224.1	1.4
3164.12	764833	222.6	0.9
3164.84	765735	216.8	1.6
3165.13	766110	215.7	0.5
3165.86	767096	213.5	0.4
3166.32	767737	217.7	0.9
3166.97	768655	222.4	2.1
3167.26	769050	221.4	1.8
3167.60	769514	228.1	1.6
3167.80	769787	226.0	1.6
3168.05	770133	231.5	1.9
3168.29	770447	235.6	1.1
3168.50	770724	238.2	2.2
3168.70	770994	235.6	2.1
3168.90	771260	237.7	2.4
3169.24	771708	229.5	1.5
3169.53	772076	230.9	1.0
3170.25	773043	230.0	2.3
3170.72	773680	233.3	0.9
3171.35	774548	236.9	0.4
3171.73	775051	240.5	0.6
3172.46	776037	238.8	2.0
3172.92	776636	243.9	0.7
3173.65	777556	246.3	0.5
3173.93	777900	246.1	1.1
3174.65	778798	245.8	2.4
3175.11	779364	243.9	0.9
3175.84	780268	248.5	0.6
3176.13	780612	242.8	0.7
3176.89	781535	248.7	0.7
3177.32	782059	246.2	1.1
3178.31	783263	252.1	2.5
3179.05	784147	246.9	0.7
3179.52	784692	250.7	0.2
3180.15	785413	253.3	2.6
3180.51	785789	255.4	1.4
3181.26	786587	260.3	1.3
3181.73	787076	256.9	0.7
3182.43	787805	248.1	1.5
3182.65	788033	247.9	2.7
3183.46	788887	229.5	0.8
3183.91	789381	226.3	3.0
3184.57	790153	218.2	0.8
3184.90	790538	221.3	1.8
3185.66	791491	215.4	3.7
3186.12	792081	205.1	2.5
3186.75	792943	204.0	1.6

3186.98	793260	209.0	1.9
3187.87	794608	199.4	1.7
3188.23	795202	195.2	2.0
3188.98	796467	189.3	2.1
3189.33	797099	188.4	1.4
3190.08	798512	191.0	2.2

2. Antarctic CO2 data from Vostok, Dome C, and Taylor Dome
Depth in meters, CO2 and sigma in ppmv, Gas age scale: EDC3_gas_a (tentatively synchronized for Taylor Dome)

Dome C (0-22 kyr BP) Vostok (0-440 kyr BP) Taylor Dome (19-63 kyr BP) Dome C (393-664 kyr BP) Dome C (611-800 kyr BP)
Monnin et al. (2001) Petit et al. (1999) Indermuhle et al. (2000) Siegenthaler et al. (2005) Luthi et al. (sub)
Pepin et al. (2001)
Raynaud et al. (2005)
measured at:
University of Bern LGGE in Grenoble University of Bern
University of Bern LGGE in Grenoble University of Bern
LGGE in Grenoble

Depth	EDC3_gas_a	CO2	sigma	Depth	EDC3_gas_a	CO2	Depth	Age(tentative)	CO2	sigma	Depth	EDC3_gas_a	CO2	sigma	Depth	EDC3_gas_a	CO2	Depth	EDC3_gas_a	CO2	sigma	Depth	EDC3_gas_a	CO2	Depth	EDC3_gas_a	CO2
102.83	137	280.4	1.8	149.1	2690	284.7	380.82	18906																	
190.5	1	2761.85	415717	276.4	1.6	2700.77	392544	259.5	3026.58	611269	257.8	2.1	3061.71	667435	178.5										
106.89	268	274.9	0.7	173.1	3897	272.7	382.42	23379																	
189.1	0.5	2762.89	416193	271.7	1.2	2702.97	393579	273.6	3030.97	616164	252.6	0.6	3063.98	670124	189.0										
107.20	279	277.9	0.7	177.4	4124	268.1	382.76	24011	189																
1.4	2765.08	417191	273.4	1.5	2705.17	394560	260.7	3036.44	623109	243.3	2.8	3085.78	688035	234.0											
110.25	395	279.1	1.3	228.6	6735	262.2	383.54	25337																	
187.7	1	2766.18	417698	271.8	1.7	2713.97	398086	276.3	3040.87	630183	204.4	0.9	3086.88	688751	235.4										
110.50	404	281.9	1.1	250.3	7873	254.5	385.33	27507																	
195.2	0.5	2767.33	418245	274.6	1.8	2718.37	399722	277.1	3043.07	635364	195.0	1.5	3087.98	689444	241.0										
113.27	485	277.7	0.7	266	8670	259.6	385.64	27781																	
194.1	0.4	2769.48	419260	273.7	0.8	2720.57	400504	283.2	3055.18	658404	187.5	1.8	3089.08	690155	235.0										
115.48	559	281.1	1.1	302.6	10167	261.6	386.62	28527																	
196.1	0.7	2770.58	419808	271.2	1.5	2724.97	402000	283.1	3056.25	659983	185.6	1.1	3091.28	691524	235.9										
118.62	672	282.2	0.5	321.2	10983	263.7	387.66	29238	194																
0.6	2771.68	420350	273.8	1.6	2727.17	402731	275.7	3057.36	661563	192.1	1.0	3093.48	692857	236.3											
121.50	754	280.1	0.6	331.6	11422	244.8	388.52	29772																	
191.1	0.5	2773.88	421484	268.6	1.4	2731.57	404181	276.5	3058.47	663133	192.0	2.1	3120.01	715603	223.8										
124.82	877	278.4	1.5	342.1	11881	238.3	389.7	30407																	
193.5	0.8	2774.96	422074	266.4	1.8	2733.77	404927	280.5	3059.55	664597	190.6	1.3	3122.20	718581	190.2										
127.02	950	276.6	1.4	365.5	13356	236.2	390.71	30881																	
196.8	0.5	2776.13	422649	270.6	1.1	2738.17	406368	279.6	3060.33	665645	178.2	1.1	3124.41	721870	217.0										

129.75 1060 279.1 1 375.6 14010 225.2 391.63 31308
199.6 0.6 2778.28 423764 267.7 2.9 2740.37 407093 285.6 3060.73
666174 178.5 1.1 3128.68 727458 203.7
132.50 1153 277.7 1.2 443.5 20023 182.2 392.62 31700
199.1 0.2 2779.39 424332 268.3 1.9 2744.77 408600 284.5 3061.36
666995 172.7 1.0 3133.08 732300 210.7
134.72 1233 278.7 1.2 470.8 22827 189.2 393.55 32090
200.4 0.6 2780.48 424840 270.8 1.1 2746.97 409383 275.2 3061.82
667569 171.6 1.4 3135.28 734408 209.6
138.02 1350 277.4 0.8 506.4 25994 191.6 395.32 32771
200.2 0.3 2781.32 425242 270.0 2.5 2746.97 409383 274.2 3062.53
668447 175.6 0.7 3141.82 739986 198.0
141.30 1453 279.2 0.9 544.7 29063 188.5 396.42 33161
200.1 0.7 2781.96 425569 265.4 2.0 2749.17 410206 282.6 3062.93
668934 178.5 0.7 3146.37 744681 185.2
144.05 1552 280.0 0.8 554.2 30020 191.7 396.98 33341
201.6 0.5 2782.73 425975 255.3 1.3 2751.37 411071 283.5 3063.64
669751 185.5 0.2 3150.68 749152 188.8
146.27 1638 278.9 0.8 602.3 35009 205.3 397.64 33580
200.9 0.6 2783.81 426598 252.1 0.7 2755.77 412962 274.9 3064.02
670176 189.3 0.9 3152.88 751552 193.8
149.02 1733 278.7 0.7 625.6 37471 209.1 398.61 33913
203.6 0.4 2784.88 427285 248.2 0.9 2757.97 413948 264.9 3064.76
670916 192.6 1.0 3155.08 754124 197.3
151.20 1812 278.0 1.2 700.2 43500 209.1 400.02 34364
205.3 0.6 2785.27 427566 242.5 1.5 2760.17 414963 271.6 3065.12
671286 194.6 0.7 3156.18 755354 203.4
154.50 1931 276.9 0.7 765 47336 189.3 405.53 36061
208.8 0.3 2787.08 429006 219.7 1.7 2762.37 415955 276.2 3065.76
671926 192.5 0.6 3157.28 756605 214.4
157.82 2057 276.7 0.8 788.2 48854 188.4 406.6 36378 213
0.8 2788.03 429876 227.2 2.2 2764.57 416965 268.5 3066.22 672386
194.8 1.0 3158.38 757805 225.5
160.03 2128 276.7 0.8 800 49690 210.1 407.73 36695
211.3 0.7 2789.29 431063 211.5 1.7 2766.77 417979 277.7 3066.93
673095 198.7 1.0 3159.48 759027 216.6
162.17 2212 277.6 1.3 812.2 50663 215.7 408.54 36883
212.6 1.1 2789.67 431445 207.6 1.3 2768.97 419013 273.3 3067.33
673475 202.3 0.7 3160.58 760338 214.9
165.52 2334 277.9 0.5 834.8 52382 190.4 411.31 37545
213.6 0.6 2790.78 432599 209.8 1.6 2771.17 420107 268.9 3068.07
674173 209.2 0.6 3161.68 761745 213.0
168.28 2433 273.9 1.1 902.2 57088 221.7 412.24 37740
210.8 0.4 2791.87 433674 207.5 1.3 2775.57 422374 276.6 3068.42
674521 213.7 0.8 3162.78 763158 221.3
171.00 2536 278.9 0.6 912 57657 210.4 413.11 37949
209.9 0.7 2792.97 434804 200.3 1.6 2775.57 422374 274.3 3069.52
675589 220.0 0.8 3163.88 764529 226.5
173.14 2604 275.3 1.6 986.2 62859 195.3 413.97 38149
210.6 0.5 2794.08 435989 201.7 1.6 2777.77 423491 270.9 3070.16
676170 217.4 0.6 3164.98 765917 216.1
176.52 2728 274.7 1.2 1011.3 64939 191.4 416.37 38679
210.3 0.7 2795.17 437152 201.3 1.1 2779.97 424604 273.7 3070.62
676524 214.0 0.9 3167.18 768940 227.5
178.72 2806 276.3 0.9 1023.5 65939 194.9 416.99 38826
207.8 0.6 2796.28 438356 202.0 1.5 2782.17 425678 257.7 3071.33
677068 215.6 1.4 3168.28 770434 233.9
181.45 2902 274.6 0.8 1087.2 71049 227.3 418.27 39100
205.7 0.8 2797.38 439565 199.1 1.1 2784.37 426953 254.1 3071.72
677380 217.4 1.5 3169.38 771888 226.9
185.85 3053 276.3 1.5 1112.5 73227 229.1 419.39 39345

198.6 0.5 2798.92 441220 201.1 0.9 3072.44
677984 226.5 0.8 3170.48 773353 238.6
187.52 3116 273.1 1.1 1162.1 77150 217.1 420.31 39527
196.4 0.8 2800.02 442411 203.5 0.6 3072.80
678291 230.0 0.9 3171.58 774854 240.1
189.72 3215 274.0 0.3 1175 78183 221.7 422.53 39960
197.5 0.8 2801.13 443562 208.1 1.8 3073.53
678914 230.8 0.6 3172.68 776322 245.9
193.00 3336 275.0 0.6 1209.9 80614 230.9 424.75 40427
198.2 0.3 2802.21 444650 201.7 1.7 3073.93
679252 230.3 1.2 3173.78 777719 246.7
196.30 3453 273.4 1.3 1237.2 82417 241.1 426.46 40837
201.4 0.8 2803.33 445829 201.2 2.1 3074.56
679732 223.0 1.2 3174.88 779076 243.8
198.52 3523 273.0 0.8 1251.5 83333 236.4 427.06 40990
198.9 0.7 2804.42 446984 204.9 1.4 3075.02
680081 225.0 1.3 3177.08 781771 251.2
201.28 3622 271.5 1 1261.2 84016 228.0 429.3 41620
201.4 0.7 2805.52 448103 201.9 1.8 3075.73
680608 218.4 0.9 3178.18 783110 252.5
204.00 3721 275.4 0.5 1274.2 85020 214.2 430.13 41895
201.6 0.6 2806.62 449244 198.4 1.3 3076.13
680920 216.2 1.0 3179.28 784409 248.4
206.20 3790 274.9 1.3 1289.2 86181 217.0 430.83 42131
202.2 0.9 2807.72 450455 193.3 1.6 3076.85
681531 217.3 1.7 3180.38 785654 255.3
209.52 3910 271.7 1 1309.2 87917 208.0 431.52 42342
201.9 1 2808.82 451593 192.5 1.0 3077.23
681849 219.7 0.6 3181.48 786819 256.6
212.27 4004 271.6 0.7 1338.2 90357 224.2 434.75 43252
199.9 0.7 2809.46 452283 199.1 0.6 3077.93
682446 222.6 1.6 3182.58 787957 246.4
215.00 4096 272.8 0.8 1349 91249 228.3 436.05 43612
201.7 0.8 2809.93 452795 204.3 1.0 3078.32
682762 221.3 1.3 3183.68 789126 239.3
216.65 4161 271.5 0.9 1387.2 94353 232.0 436.93 43879 205
0.6 2810.56 453514 203.3 1.0 3078.96 683262
218.7 0.8 3185.88 791767 217.3
221.05 4324 271.1 0.8 1451.5 99849 225.8 438.21 44239 210
0.6 2811.01 454023 208.3 1.4 3079.43 683612
217.5 0.7 3186.98 793255 224.2
222.72 4374 269.1 0.6 1463.2 100837 230.8 438.92 44439 214
0.8 2812.12 455279 202.4 1.3 3080.14 684142
217.5 1.4 3188.08 794949 206.7
225.48 4480 269.8 1 1476.1 101749 236.9 439.83 44700
216.2 1.4 2813.21 456591 195.5 0.8 3080.52
684419 219.4 1.0 3190.28 798893 193.6
228.20 4573 271.5 0.8 1505 103465 228.1 441.02 45010
214.6 0.2 2814.32 458049 190.7 1.9 3081.25
684949 219.5 1.1
232.05 4703 270.7 0.5 1526.3 104704 236.9 441.8 45222
215.7 0.6 2815.43 459430 194.4 0.7 3081.63
685217 219.7 1.2
233.72 4766 269.3 1 1542.1 105636 230.6 442.76 45466
210.6 0.8 2816.52 460792 199.9 2.6 3082.34
685716 223.5 1.0
236.47 4874 268.6 1.1 1575.2 107579 238.2 444.23 45839
206.6 0.6 2817.25 461687 205.2 0.9 3082.72
685980 224.4 1.3
240.27 5004 269.8 1.2 1582.8 108153 245.6 446.42 46511
203.1 0.9 2817.62 462133 210.0 0.7 3083.37

686425 224.3 1.1
242.50 5094 267.6 0.6 1598 109804 251.2 447.42 46935 200
0.5 2818.72 463456 208.1 2.2 3083.82 686726
227.3 1.7
244.72 5160 265.3 1.7 1615 111862 256.7 447.93 47175
199.1 0.7 2819.83 464866 204.4 1.9 3084.56
687227 228.7 1.3
248.02 5274 265.2 0.8 1627.9 113262 266.3 449.24 47916
202.1 0.6 2820.92 466265 203.4 1.2 3084.92
687470 228.8 1.5
250.72 5370 267.6 2 1637.6 114096 261.4 450.05 48488
206.9 0.6 2822.01 467602 205.5 0.9 3085.65
687949 232.3 1.0
253.50 5476 265.9 0.9 1644 114601 274.5 450.83 49104
206.9 0.7 2822.66 468323 206.5 0.9 3086.03
688195 233.0 0.5
256.27 5562 265.5 0.8 1651 115118 273.2 452.33 50357
212.3 0.5 2823.11 468810 215.5 2.3 3086.73
688652 235.8 1.1
259.02 5657 260.7 1.6 1669.2 116501 262.5 452.99 50928
214.3 1.1 2823.76 469470 218.7 0.9 3087.08
688881 234.9 1.2
260.65 5716 266.7 0.9 1687.2 117750 267.6 453.52 51367 218
0.7 2824.22 469941 229.2 1.4 3087.76 689304
235.8 2.0
264.50 5855 265.5 0.8 1700.9 118649 273.7 455.16 52618
216.9 0.7 2824.86 470597 232.7 0.7 3088.23
689603 239.9 0.6
268.37 5998 263.2 0.6 1716 119672 271.9 456.72 53630
211.7 0.7 2825.31 471046 243.7 1.8 3088.93
690057 235.6 1.3
269.42 6039 262.7 0.9 1726.8 120382 265.2 457.62 54250
210.8 0.7 2826.05 471763 243.9 1.1 3089.30
690294 234.8 2.1
272.20 6131 261.2 0.7 1736.8 121017 277.6 458.73 55053 208
0.9 2826.42 472095 245.6 0.9 3090.05 690771
240.0 2.1
276.07 6263 261.1 0.4 1758.2 122344 272.1 459.81 55927
211.5 0.6 2827.53 473102 241.2 1.7 3090.42
690999 234.0 0.8
278.27 6354 259.4 0.6 1770 123070 276.4 461.92 57477
218.2 0.7 2828.63 474162 233.1 0.6 3091.13
691432 235.6 1.0
280.53 6434 262.1 0.9 1789.2 124213 268.7 464.13 58891
220.4 0.9 2829.72 475218 232.8 1.1 3091.52
691672 236.6 0.7
283.72 6545 262.9 0.5 1790 124257 266.6 465.02 59474 215
0.9 2830.82 476240 236.6 1.0 3092.16 692057
235.5 0.9
285.97 6617 258.1 1.4 1799 124789 266.3 465.74 59955
214.9 0.6 2831.93 477162 239.1 0.9 3092.62
692338 235.9 1.4
288.17 6713 257.6 0.9 1804 125081 279.7 466.48 60431
212.5 0.7 2832.56 477719 236.5 1.2 3093.33
692765 232.9 0.6
292.00 6838 262.3 0.9 1807 125262 273.0 467.78 61239
204.6 0.4 2833.02 478124 231.3 1.0 3093.70
692990 234.8 1.5
294.75 6941 263.0 0.7 1810 125434 277.1 470.18 62751
197.4 0.5 2833.66 478721 220.8 0.7 3094.45
693433 234.1 1.5

297.52 7028 260.7 0.6 1825.7 126347 273.7 470.92 63205
203.6 1 2834.12 479144 218.8 2.3 3094.80
693639 234.1 1.3
299.72 7112 258.4 0.8 1830 126598 267.1
2835.22 480108 223.8 1.4 3095.53 694068
235.4 1.0
303.00 7234 260.1 0.6 1836 126886 262.5
2836.32 481035 223.4 1.7 3095.92 694300
234.4 1.1
305.75 7320 260.4 0.4 1841.6 127132 262.6
2837.43 481932 227.3 1.3 3096.56 694672
235.8 1.3
308.52 7413 259.7 0.9 1852.4 127622 275.3
2838.53 482803 231.4 1.1 3097.02 694941
236.9 0.8
311.26 7507 259.2 0.7 1859 127907 275.6
2839.62 483649 231.4 1.3 3097.74 695383
236.7 1.9
314.00 7590 260.8 1.4 1869.3 128344 274.0
2840.71 484465 231.2 1.2 3098.13 695618
237.6 0.7
316.75 7691 259.6 0.5 1870 128372 287.1
2841.81 485276 233.0 1.4 3098.85 696062
234.6 1.0
319.52 7781 259.3 0.9 1875.9 128609 286.8
2842.92 486043 232.9 1.2 3099.22 696287
234.8 0.6
322.27 7876 258.3 1.2 1882.5 128866 282.6
2844.02 486816 231.3 1.2 3099.93 696717
235.4 0.8
325.00 7990 261.3 0.9 1890 129146 264.1
2845.11 487541 237.1 1.8 3100.32 696963
232.9 0.6
326.55 8050 260.7 0.4 1895 129340 263.4
2846.22 488268 242.0 0.2 3100.92 697331
232.4 0.7
330.50 8181 261.8 1 1902 129652 257.9
2846.86 488689 240.9 0.4 3101.43 697660
232.2 0.5
333.27 8281 259.0 1.1 1903.5 129736 259.0
2847.33 488996 252.8 2.5 3102.13 698120
231.0 1.0
336.02 8387 260.9 0.7 1930 131329 245.0
2848.05 489475 249.3 2.7 3102.52 698386
228.0 0.5
338.65 8477 260.4 0.6 1932 131455 240.4
2848.42 489722 242.6 0.6 3103.25 698880
226.4 1.0
341.50 8579 259.3 1 1936 131728 228.9
2849.53 490445 243.3 1.3 3103.57 699102
227.7 0.7
343.72 8653 262.0 0.8 1947 132492 223.5
2850.63 491191 246.7 1.6 3104.33 699633
227.6 1.6
347.02 8784 263.7 1.2 1954.5 133069 223.9
2851.72 491959 243.7 1.4 3104.71 699909
226.0 0.3
349.75 8869 263.8 0.8 1955 133105 220.3
2852.82 492738 239.7 1.9 3105.36 700389
228.7 1.3
352.58 8973 265.2 0.9 1960 133427 210.6

2853.91 493507 239.1 1.2 3105.82 700744
227.6 1.1
355.82 9092 260.6 1.7 1969.8 134123 208.9
2855.03 494311 238.3 2.0 3106.46 701242
228.2 0.5
357.47 9140 260.9 0.6 1972 134287 203.7
2856.12 495085 238.5 1.4 3106.92 701606
228.8 1.4
360.20 9232 263.0 0.4 1980.2 134960 204.5
2857.22 495853 237.6 1.6 3107.64 702158
229.3 0.5
362.98 9317 263.8 1.2 1982 135114 200.4
2858.32 496608 236.4 2.1 3107.93 702381
230.3 1.7
369.55 9536 264.4 0.4 1983 135207 198.0
2859.43 497366 236.5 1.7 3108.65 702988
232.4 1.3
371.23 9597 264.2 0.9 1987.4 135603 198.0
2860.51 498104 232.8 0.8 3109.12 703384
232.8 1.6
375.05 9721 264.0 0.3 1990.6 135883 201.7
2861.62 498865 230.6 0.5 3109.75 703934
231.2 1.8
377.27 9807 263.4 0.1 1992 136011 200.7
2862.72 499610 230.8 1.0 3110.07 704211
231.2 0.9
380.00 9909 265.7 0.5 1994.6 136251 202.4
2863.83 500363 228.2 1.7 3110.88 704973
233.9 0.8
382.22 9983 264.9 0.4 1998 136567 195.8
2864.93 501130 230.8 1.4 3111.32 705410
228.5 1.5
385.13 10088 267.5 0.4 1999 136655 201.1
2866.02 501866 231.2 0.8 3112.05 706141
228.6 1.0
388.23 10209 266.9 0.6 2005.8 137293 194.3
2867.13 502625 232.0 1.6 3112.31 706409
228.1 1.0
390.45 10294 266.0 1.1 2009.5 137633 193.4
2868.23 503375 232.2 1.4 3115.25 709680
219.7 0.6
393.78 10417 265.1 1.6 2013 137982 194.2
2869.32 504083 234.1 0.8 3115.72 710237
220.2 0.3
396.50 10527 267.6 0.7 2015 138185 190.2
2870.42 504777 233.9 1.1 3116.42 711104
218.9 1.5
399.28 10621 264.8 0.6 2025.7 139275 192.3
2871.52 505516 235.5 1.8 3116.68 711421
218.7 1.4
402.00 10744 264.8 0.4 2029 139617 196.5
2872.62 506287 236.0 2.1 3117.81 712833
218.5 0.5
404.19 10805 265.0 0.8 2041 140899 195.6
2873.72 507011 238.2 0.9 3118.60 713843
222.3 1.6
404.78 10827 265.3 0.4 2041.5 140960 196.4
2874.82 507714 237.0 0.8 3118.95 714288
221.7 2.0
406.39 10895 264.4 1.5 2050.3 142058 190.4
2875.92 508476 240.3 0.7 3119.67 715180

217.7 0.6
407.50 10933 264.1 0.7 2077.5 145363 196.9
2877.02 509247 233.4 1.0 3120.12 715750
222.1 0.6
409.70 11014 264.2 1.1 2107.05 148831 203.0
2878.12 510008 236.4 1.4 3120.85 716704
208.1 0.7
411.38 11087 264.5 0.4 2116 149803 191.9
2879.22 510765 235.2 0.5 3121.13 717065
205.0 1.7
413.03 11136 264.0 0.5 2117 149921 188.9
2880.32 511515 242.0 0.8 3121.86 718064
192.9 1.2
414.75 11201 263.0 1.3 2131.1 151423 200.6
2881.42 512269 238.2 1.0 3122.32 718779
184.3 1.1
415.73 11236 265.2 0.8 2157 154480 189.0
2882.52 512997 239.2 1.2 3122.95 719794
187.8 1.6
417.07 11278 258.8 0.7 2164 155395 185.5
2883.62 513724 241.5 1.3 3123.35 720337
195.2 0.8
418.53 11338 260.8 0.5 2167.2 155813 187.5
2884.72 514429 243.0 0.5 3124.06 721318
206.3 0.8
420.49 11392 255.4 0.3 2203 159562 204.3
2885.82 515113 247.2 2.2 3124.52 722039
211.3 0.9
421.80 11436 253.9 0.6 2207.3 159943 196.5
2886.92 515771 246.2 2.6 3125.27 723133
213.4 1.2
422.90 11469 253.8 0.8 2225 161679 191.6
2888.02 516417 245.5 1.1 3125.53 723464
213.2 1.3
426.10 11580 250.7 1.1 2231.05 162228 190.1
2889.12 517069 245.3 1.3 3126.27 724445
210.3 2.0
427.33 11635 249.7 0.4 2240.15 163024 186.7
2890.22 517706 247.7 1.4 3126.72 725059
206.3 0.7
428.30 11676 251.1 0.3 2247 163698 183.8
2891.32 518334 245.5 0.8 3127.41 725937
206.6 1.8
429.50 11727 250.7 0.9 2254.05 164439 196.6
2892.42 518965 243.5 0.7 3127.73 726322
208.1 1.2
431.73 11819 245.3 1.1 2280 167183 197.8
2895.71 520892 241.9 1.4 3128.45 727192
204.5 0.4
433.79 11896 245.3 0.6 2302 169492 197.7
2896.82 521552 236.8 0.8 3128.91 727732
205.5 1.3
435.00 11958 246.6 0.5 2316.05 171351 196.0
2897.92 522216 235.8 1.2 3129.62 728568
205.1 1.1
437.23 12050 243.2 0.4 2325 172434 190.3
2899.02 522923 233.7 0.7 3129.93 728921
205.4 0.8
438.85 12122 240.3 0.3 2331.05 173135 189.4
2900.12 523666 230.3 0.8 3131.12 730299
204.0 1.6

443.80 12371 237.5 0.5 2333 173394 190.1
2901.22 524409 227.8 0.6 3131.75 730949
204.1 0.8
446.03 12496 237.6 0.6 2348 175306 207.7
2902.32 525164 224.7 1.9 3132.13 731329
204.9 0.8
448.75 12642 234.2 0.3 2363 177139 213.2
2903.42 525908 222.7 1.0 3132.92 732141
203.8 1.0
450.98 12760 238.3 1.1 2372 178179 217.7
2904.51 526661 221.2 1.2 3133.32 732548
205.9 1.7
454.25 12942 237.3 0.5 2379.2 179117 198.1
2905.62 527454 220.3 0.5 3134.02 733261
203.9 0.7
457.03 13090 237.9 0.2 2386 180068 199.7
2906.72 528262 220.7 0.9 3134.33 733543
204.4 0.3
459.90 13241 237.6 0.6 2399 182046 203.4
2907.36 528747 214.5 0.5 3135.06 734223
205.3 0.4
463.63 13440 236.4 0.9 2414 184685 210.7
2907.82 529101 211.4 2.2 3135.52 734604
207.4 1.9
465.25 13542 239.2 0.5 2425 186697 231.3
2908.48 529640 204.4 0.6 3136.19 735167
201.7 1.2
467.45 13653 238.6 0.6 2437 188436 231.4
2908.92 530016 200.0 0.8 3136.53 735459
201.3 0.8
470.20 13804 238.6 0.3 2442.05 189076 220.3
2909.65 530685 195.1 0.7 3137.25 736079
204.1 1.0
473.06 13948 239.1 0.4 2451 190352 218.0
2910.02 531035 193.8 0.8 3137.72 736460
209.7 1.8
479.71 14303 228.5 0.6 2470.3 192910 226.5
2910.66 531662 190.5 1.7 3138.44 737034
208.1 0.7
484.10 14550 228.4 0.7 2475 193481 220.0
2911.12 532119 199.8 1.2 3138.73 737266
211.3 0.8
487.25 14725 226.1 0.6 2488.05 195017 226.4
2912.22 533246 199.4 0.8 3139.46 737889
210.6 1.4
490.03 14890 225.2 0.5 2494.1 195673 241.2
2913.33 534364 205.0 0.9 3139.89 738272
206.5 1.7
492.20 15012 224.5 0.6 2499 196179 242.6
2914.42 535483 206.4 0.7 3140.54 738844
200.3 1.6
496.07 15233 222.0 0.8 2525 198972 250.9
2915.52 536622 212.9 1.3 3140.88 739137
197.8 1.5
499.35 15438 221.0 0.8 2533 199918 239.1
2916.62 537770 211.2 0.7 3141.66 739842
185.0 0.9
501.58 15570 220.9 0.5 2543 201163 247.6
2917.72 538959 205.0 0.8 3142.12 740277
178.9 0.3
504.20 15742 219.4 0.6 2552.01 202413 244.4

2918.82 540154 203.6 1.2 3142.85 741021
178.6 2.4
506.53 15886 214.0 0.8 2554.91 202874 231.9
2919.92 541345 208.1 0.8 3143.13 741307
176.6 2.4
509.25 16073 207.5 0.9 2557.71 203317 232.2
2921.00 542502 210.3 1.6 3143.86 742075
177.9 2.1
512.03 16260 207.7 0.5 2560.91 203837 228.6
2922.12 543676 209.6 1.6 3144.32 742558
182.3 1.3
514.75 16452 202.9 0.7 2564.91 204480 226.3
2923.22 544804 209.7 0.8 3144.98 743233
181.7 2.7
517.53 16659 200.8 1 2567.51 204908 229.4
2924.32 545956 204.6 1.9 3145.32 743589
180.4 0.7
520.25 16870 195.2 0.3 2570.41 205362 231.4
2925.42 547013 202.5 1.6 3146.06 744354
181.2 0.9
523.03 17111 193.9 0.5 2574.21 205952 238.1
2926.07 547573 208.8 0.7 3146.52 744843
182.0 0.9
526.30 17375 191.0 0.5 2575.51 206144 237.2
2926.52 547972 213.6 0.9 3147.48 745836
180.2 1.2
528.53 17565 188.5 0.7 2579.91 206810 230.0
2927.62 548933 215.2 0.5 3148.26 746643
183.1 0.4
531.25 17809 188.5 0.7 2581.91 207120 240.5
2928.72 549830 219.9 0.5 3148.72 747110
180.8 0.3
532.93 17943 189.2 0.4 2584.71 207544 242.2
2929.82 550637 221.7 1.4 3149.35 747759
180.8 1.3
536.75 18285 187.0 0.2 2588.81 208064 244.6
2930.48 551124 222.3 0.9 3149.68 748101
180.4 0.8
539.53 18541 188.6 0.5 2590.41 208254 243.9
2930.92 551452 226.3 0.9 3150.45 748913
181.4 1.3
542.90 18828 189.4 0.4 2595.11 208803 247.2
2931.65 551979 222.1 1.1 3150.91 749401
182.9 1.8
543.35 18868 192.3 0.6 2596.71 208995 252.0
2932.02 552250 220.3 0.3 3151.65 750194
184.8 1.6
543.93 18921 188.3 0.6 2600.41 209432 246.9
2933.12 552961 223.6 1.1 3151.91 750476
184.0 1.4
548.85 19347 188.7 0.2 2603.71 209817 239.5
2934.22 553626 224.3 2.2 3152.65 751301
186.2 1.9
550.51 19509 188.8 0.5 2606.61 210154 257.4
2935.32 554254 226.7 1.2 3153.12 751830
190.1 1.3
553.25 19748 190.0 0.8 2612.51 210813 243.4
2936.42 554831 233.9 1.5 3153.78 752605
188.0 0.3
556.03 19988 188.0 0.9 2621.71 211858 251.2
2937.52 555345 241.0 1.4 3154.10 752978

196.5 1.8
557.89 20168 188.2 0.7 2629.41 212716 241.4
2938.17 555637 243.0 0.8 3154.96 753984
191.5 1.7
558.20 20197 195.0 0.7 2634.41 213270 240.3
2938.61 555839 249.1 2.1 3155.32 754394
195.8 1.5
561.53 20502 187.8 0.4 2636.71 213536 242.6
2939.27 556143 244.0 1.5 3156.08 755241
200.5 2.0
564.26 20748 186.9 0.3 2640.41 213984 247.5
2939.71 556364 250.5 0.8 3156.30 755495
201.9 1.4
567.03 21011 186.5 0.3 2644.41 214459 251.7
2940.47 556724 245.6 1.3 3157.05 756357
206.0 2.2
569.75 21257 184.7 1.2 2646.61 214794 251.1
2940.82 556889 240.4 0.9 3157.52 756871
210.7 2.3
572.53 21507 186.1 0.4 2650.41 215382 245.3
2941.91 557385 238.1 1.2 3158.15 757561
215.0 1.5
576.33 21854 185.7 1.3 2656.21 216352 240.5
2943.01 557887 234.5 1.0 3158.53 757962
219.2 1.4
578.11 22015 184.4 0.8 2666.71 218361 214.1
2943.66 558183 229.7 0.4 3158.80 758259
215.3 0.7
2670.41 219116 216.1
2944.12 558393 230.2 0.7 3159.00 758475
217.6 1.8
2674.61 220058 207.1
2945.22 558929 230.3 1.5 3159.35 758883
217.9 2.3
2677.41 220739 208.8
2946.32 559461 228.3 0.9 3159.72 759306
214.9 1.2
2682.61 222030 205.6
2947.42 559972 231.6 1.2 3160.47 760202
208.8 0.8
2691.01 224269 203.3
2948.52 560459 231.9 1.2 3160.71 760500
206.9 1.1
2693.61 224923 215.7
2949.62 560930 234.6 1.5 3161.46 761453
206.1 1.9
2698.01 225909 235.5
2950.53 561309 234.1 0.9 3161.92 762064
212.0 0.2
2701.41 226711 234.5
2951.82 561846 240.1 2.1 3162.55 762871
216.0 2.1
2702.71 227027 233.1
2952.92 562272 242.3 0.5 3162.91 763319
215.0 0.9
2705.61 227776 224.5
2954.02 562690 245.7 1.8 3163.20 763686
225.7 3.0
2711.71 229423 232.4
2955.12 563115 245.8 0.5 3163.40 763934
221.4 2.7

2715.41 230422 233.9
2956.22 563517 247.6 1.5 3163.65 764249 224.1 1.4
2717.71 231066 241.6
2957.32 563918 251.4 1.7 3164.12 764833 222.6 0.9
2732.71 234817 245.2
2958.42 564311 252.4 1.7 3164.84 765735 216.8 1.6
2735.71 235480 252.1
2959.52 564699 252.6 1.0 3165.13 766110 215.7 0.5
2738.71 236114 241.4
2960.62 565077 251.4 0.7 3165.86 767096 213.5 0.4
2741.71 236734 247.4
2961.72 565466 253.7 0.8 3166.32 767737 217.7 0.9
2744.61 237294 243.1
2962.82 565851 254.3 1.6 3166.97 768655 222.4 2.1
2747.61 237868 239.1
2963.92 566233 253.9 0.7 3167.26 769050 221.4 1.8
2751.11 238558 245.6
2965.01 566619 254.5 1.6 3167.60 769514 228.1 1.6
2753.61 239013 245.8
2966.12 567007 253.2 0.9 3167.80 769787 226.0 1.6
2756.21 239477 247.4
2967.19 567381 253.9 1.2 3168.05 770133 231.5 1.9
2759.11 239973 252.8
2968.32 567777 252.8 1.1 3168.29 770447 235.6 1.1
2765.21 240945 259.7
2969.42 568167 253.0 0.6 3168.50 770724 238.2 2.2
2768.2 241366 263.2
2970.52 568556 250.2 0.4 3168.70 770994 235.6 2.1
2773.51 242007 279.0
2971.62 568946 251.3 1.3 3168.90 771260 237.7 2.4
2776.51 242346 280.2
2972.71 569331 250.0 1.3 3169.24 771708 229.5 1.5
2782.71 243071 263.7
2973.82 569728 251.3 1.3 3169.53 772076 230.9 1.0
2785.51 243429 252.3
2974.92 570139 251.8 1.2 3170.25 773043 230.0 2.3
2788.51 243856 249.9
2976.02 570548 251.8 1.3 3170.72 773680 233.3 0.9
2791.5 244347 236.7
2977.12 570955 249.6 0.5 3171.35 774548 236.9 0.4
2794.51 244864 230.4

2978.22 571367 251.6 1.7 3171.73 775051 240.5 0.6
2797.51 245441 219.4
2979.32 571775 250.3 1.0 3172.46 776037 238.8 2.0
2806.51 247681 214.7
2980.41 572190 246.3 1.1 3172.92 776636 243.9 0.7
2815.61 250133 200.2
2981.52 572619 247.7 0.7 3173.65 777556 246.3 0.5
2818.61 251005 213.9
2982.62 573037 249.2 1.1 3173.93 777900 246.1 1.1
2821.51 251864 195.4
2983.72 573462 248.7 0.4 3174.65 778798 245.8 2.4
2824.51 252739 196.7
2984.82 573902 251.8 1.8 3175.11 779364 243.9 0.9
2827.51 253636 195.4
2985.92 574353 251.9 0.7 3175.84 780268 248.5 0.6
2833.81 255498 199.0
2987.02 574803 252.1 1.3 3176.13 780612 242.8 0.7
2836.51 256309 201.9
2988.12 575265 248.9 1.0 3176.89 781535 248.7 0.7
2839.51 257100 204.0
2989.22 575730 252.5 0.5 3177.32 782059 246.2 1.1
2845.51 258661 203.9
2990.32 576222 252.9 1.1 3178.31 783263 252.1 2.5
2851.51 260353 209.6
2991.42 576723 251.3 1.1 3179.05 784147 246.9 0.7
2853.51 260916 205.7
2992.52 577242 251.3 1.1 3179.52 784692 250.7 0.2
2857.51 262092 208.9
2993.62 577769 251.1 0.6 3180.15 785413 253.3 2.6
2860.51 262930 214.6
2994.72 578305 249.1 0.5 3180.51 785789 255.4 1.4
2866.51 264509 228.1
2995.82 578857 252.9 1.1 3181.26 786587 260.3 1.3
2870.51 265653 199.9
2996.92 579435 251.5 1.8 3181.73 787076 256.9 0.7
2872.71 266326 211.7
2997.65 579821 244.1 1.7 3182.43 787805 248.1 1.5
2876.21 267442 188.7
2998.02 580019 243.8 0.9 3182.65 788033 247.9 2.7
2878.5 268181 187.2
2998.66 580400 236.2 0.3 3183.46 788887

229.5 0.8

2999.12 580695 230.3 0.6

226.3 3.0

2999.76 581160 225.2 1.6

218.2 0.8

3000.22 581507 219.4 0.8

221.3 1.8

3000.86 582000 215.4 1.1

215.4 3.7

3001.32 582391 209.9 1.2

205.1 2.5

3002.05 583034 206.7 0.5

204.0 1.6

3002.42 583413 210.6 0.6

209.0 1.9

3005.26 586406 224.0 0.9

199.4 1.7

3005.72 586893 226.0 1.4

195.2 2.0

3006.45 587647 234.4 0.5

189.3 2.1

3006.82 588034 238.8 1.0

188.4 1.4

3007.46 588716 246.3 1.8

191.0 2.2

3007.92 589224 250.2 0.4

3008.56 589868 248.1 0.6

3009.02 590335 243.6 0.8

3009.57 590893 237.4 0.8

3010.85 592279 225.7 1.1

3011.22 592697 229.4 1.3

3011.87 593415 233.2 0.3

3012.28 593870 238.1 0.9

3012.96 594639 238.0 1.1

3013.42 595189 232.9 0.6

3014.06 595950 221.2 1.8

3014.52 596515 216.4 0.9

2881.42 269154 194.2

2884.51 270222 198.8

2887.51 271256 184.7

2890.51 272311 190.4

2893.51 273310 193.9

2896.51 274321 194.1

2899.51 275350 198.4

2902.51 276326 193.2

2905.51 277361 202.2

2908.51 278350 204.5

2911.46 279320 211.0

2914.51 280269 215.3

2919.41 281758 223.7

2926.51 283785 231.3

2932.51 285380 228.0

2935.51 286128 226.4

2939.31 287036 231.4

2941.51 287538 230.4

2944.51 288233 231.0

2953.5 290153 234.9

2956.51 290730 220.4

2959.51 291367 217.1

2964.51 292405 207.6

2967.51 293057 206.0

3183.91 789381

3184.57 790153

3184.90 790538

3185.66 791491

3186.12 792081

3186.75 792943

3186.98 793260

3187.87 794608

3188.23 795202

3188.98 796467

3189.33 797099

3190.08 798512

3015.25	597443	216.3	1.5
3015.62	597966	219.0	1.0
3016.26	598833	226.0	1.1
3016.72	599434	229.4	1.4
3017.82	600882	232.5	1.3
3018.92	602278	237.9	0.8
3020.02	603673	239.1	1.1
3021.12	605076	244.5	0.7
3022.19	606374	248.5	1.7
3023.32	607708	254.6	1.2
3024.42	608929	259.2	1.8
3025.52	610136	257.7	0.5
3026.62	611319	259.6	1.2
3027.72	612514	258.0	1.4
3028.82	613709	256.0	0.4
3029.92	614923	252.5	1.1
3031.02	616227	252.4	0.9
3032.09	617544	252.3	1.1
3033.22	618955	247.9	1.0
3034.32	620338	245.4	0.3
3035.42	621760	243.0	0.8
3036.52	623214	238.6	0.8
3037.62	624690	237.3	1.0
3038.26	625570	234.3	0.3
3038.72	626215	227.8	0.9
3039.36	627211	214.9	0.5
3039.82	627999	205.0	0.9
3040.53	629446	198.7	0.8
3040.92	630295	199.9	0.5
3041.65	632001	199.5	1.8
2970.51	293779	206.7	
2973.81	294568	212.7	
2979.51	295930	213.1	
2986.01	297921	217.1	
2988.61	298741	224.4	
2991.51	299621	231.0	
2994.51	300472	236.1	
2997.51	301402	239.0	
3000.4	302280	236.0	
3003.51	303226	240.2	
3007.01	304232	240.7	
3009.51	304901	250.2	
3012.51	305655	248.6	
3015.51	306547	244.8	
3018.51	307495	225.8	
3022.71	308744	227.8	
3024.91	309389	226.2	
3027.51	310168	233.2	
3030.41	311013	237.8	
3033.51	311868	239.0	
3036.51	312676	241.9	
3039.51	313414	251.6	
3042.51	314144	256.7	
3045.51	314867	257.1	
3048.56	315572	246.8	
3051.51	316200	272.6	
3054.51	316897	251.6	
3057.71	317734	245.2	
3060.51	318559	233.4	
3063.51	319480	255.8	
3066.51	320358	249.2	

3042.01	632856	195.6	1.5
3042.74	634592	192.1	1.6
3043.12	635489	193.9	1.8
3043.74	636957	193.0	0.7
3044.22	638127	194.3	1.9
3044.93	639848	187.7	1.0
3045.32	640760	189.1	0.5
3046.05	642405	190.2	1.0
3046.42	643204	190.4	1.1
3047.12	644662	194.1	1.3
3047.52	645470	194.6	0.9
3048.16	646723	188.6	2.0
3048.62	647588	190.5	1.0
3049.36	648946	192.1	0.7
3049.72	649598	194.8	0.4
3050.45	650891	187.8	1.2
3050.82	651556	192.0	0.7
3051.55	652802	185.8	0.5
3051.92	653448	185.3	1.0
3052.56	654473	191.3	1.8
3053.02	655202	193.2	1.0
3053.73	656286	198.4	0.5
3054.12	656882	198.7	0.7
3054.85	657923	191.3	0.6
3055.22	658474	189.2	0.9
3055.93	659524	182.4	0.3
3056.32	660084	183.9	0.4
3056.96	660981	186.6	1.0
3057.42	661650	189.8	0.8
3058.13	662669	187.8	1.5
3058.52	663206	189.0	1.0
3072.51	322015	257.2	
3075.41	322767	260.4	
3078.51	323526	260.3	
3081.6	324280	260.5	
3084.51	324971	266.2	
3087.81	325720	264.0	
3090.51	326321	266.1	
3093.51	326972	270.1	
3096.46	327590	271.9	
3099.51	328221	275.1	
3105.51	329475	265.0	
3109.01	330208	271.7	
3111.51	330740	272.6	
3114.81	331438	273.1	
3117.51	331944	282.4	
3119.51	332285	289.1	
3120.61	332462	288.4	
3123.51	332919	298.6	
3126.51	333380	278.1	
3129.91	333890	285.8	
3132.41	334261	278.6	
3135.51	334748	270.5	
3138.51	335287	255.7	
3141.51	335918	241.9	
3145.01	336725	239.6	
3147.51	337391	234.2	
3153.51	339298	250.1	
3156.51	340456	200.7	
3159.51	341802	205.2	
3162.81	343282	204.8	

				3165.51	344446	211.9
3059.25	664192	189.1	1.2			
				3169.01	345980	220.3
3059.61	664690	185.8	0.8			
				3174.51	348298	221.1
				3177.81	349688	216.2
				3180.51	350925	209.4
				3183.41	352275	209.2
				3189.51	355302	193.0
				3192.51	356898	186.1
				3195.81	358712	185.8
				3200.01	360957	201.2
				3204.71	363385	206.3
				3210.51	366235	201.9
				3213.71	367856	199.9
				3216.45	369446	214.7
				3219.51	371090	224.6
				3222.51	372646	229.6
				3228.91	376568	227.0
				3231.51	378096	240.0
				3234.51	379696	239.1
				3237.51	381132	246.8
				3240.51	382670	245.8
				3246.41	384534	258.1
				3249.51	385398	264.6
				3252.45	386144	259.2
				3258.51	388062	255.2
				3261.51	389946	250.1
				3264.51	391896	266.3
				3267.51	393591	274.6
				3270.6	395116	277.1
				3273.81	396636	278.0
				3276.51	397911	288.9
				3283.51	401109	279.6
				3287.41	402769	281.2
				3289.45	403609	283.6
				3292.91	404968	276.2
				3299.01	407442	285.5
				3301.4	408475	286.9
				3304.41	409750	277.6
				3310.71	412453	274.6
				3316.46	415167	275.7
				3319.44	416545	279.9
				3322.39	417391	278.0
				3325.39	417923	276.3
				3328.19	418544	276.5
				3331.39	419934	266.6
				3334.39	421443	274.0
				3336.99	423207	273.2
				3340.39	428394	229.7
				3343.39	433925	199.0
				3346.51	437580	201.5
				3346.56	437601	207.8
				3349.51	438986	205.9

3. Composite CO2 record (0-800 kyr BP)

0-22   kyr Dome C (Monnin et al. 2001) measured at University of Bern
22-393 kyr Vostok (Petit et al. 1999; Pepin et al. 2001; Raynaud et al. 2005) measured at LGGE in Grenoble
393-416 kyr Dome C (Siegenthaler et al. 2005) measured at LGGE in Grenoble
416-664 kyr Dome C (Siegenthaler et al. 2005) measured at University of Bern
664-800 kyr Dome C (Luethi et al. (sub)) measured at University of Bern
Timescale EDC3_gas_a

Age(yrBP)	CO2(ppmv)
137	280.4
268	274.9
279	277.9
395	279.1
404	281.9
485	277.7
559	281.1
672	282.2
754	280.1
877	278.4
950	276.6
1060	279.1
1153	277.7
1233	278.7
1350	277.4
1453	279.2
1552	280
1638	278.9
1733	278.7
1812	278
1931	276.9
2057	276.7
2128	276.7
2212	277.6
2334	277.9
2433	273.9
2536	278.9
2604	275.3
2728	274.7
2806	276.3
2902	274.6
3053	276.3
3116	273.1
3215	274
3336	275
3453	273.4
3523	273
3622	271.5
3721	275.4
3790	274.9
3910	271.7
4004	271.6
4096	272.8
4161	271.5
4324	271.1
4374	269.1
4480	269.8
4573	271.5
4703	270.7
4766	269.3

4874	268.6
5004	269.8
5094	267.6
5160	265.3
5274	265.2
5370	267.6
5476	265.9
5562	265.5
5657	260.7
5716	266.7
5855	265.5
5998	263.2
6039	262.7
6131	261.2
6263	261.1
6354	259.4
6434	262.1
6545	262.9
6617	258.1
6713	257.6
6838	262.3
6941	263
7028	260.7
7112	258.4
7234	260.1
7320	260.4
7413	259.7
7507	259.2
7590	260.8
7691	259.6
7781	259.3
7876	258.3
7990	261.3
8050	260.7
8181	261.8
8281	259
8387	260.9
8477	260.4
8579	259.3
8653	262
8784	263.7
8869	263.8
8973	265.2
9092	260.6
9140	260.9
9232	263
9317	263.8
9536	264.4
9597	264.2
9721	264
9807	263.4
9909	265.7
9983	264.9
10088	267.5
10209	266.9
10294	266
10417	265.1
10527	267.6
10621	264.8
10744	264.8
10805	265

10827	265.3
10895	264.4
10933	264.1
11014	264.2
11087	264.5
11136	264
11201	263
11236	265.2
11278	258.8
11338	260.8
11392	255.4
11436	253.9
11469	253.8
11580	250.7
11635	249.7
11676	251.1
11727	250.7
11819	245.3
11896	245.3
11958	246.6
12050	243.2
12122	240.3
12371	237.5
12496	237.6
12642	234.2
12760	238.3
12942	237.3
13090	237.9
13241	237.6
13440	236.4
13542	239.2
13653	238.6
13804	238.6
13948	239.1
14303	228.5
14550	228.4
14725	226.1
14890	225.2
15012	224.5
15233	222
15438	221
15570	220.9
15742	219.4
15886	214
16073	207.5
16260	207.7
16452	202.9
16659	200.8
16870	195.2
17111	193.9
17375	191
17565	188.5
17809	188.5
17943	189.2
18285	187
18541	188.6
18828	189.4
18868	192.3
18921	188.3
19347	188.7
19509	188.8

19748	190
19988	188
20168	188.2
20197	195
20502	187.8
20748	186.9
21011	186.5
21257	184.7
21507	186.1
21854	185.7
22015	184.4
22827	189.2
25994	191.6
29063	188.5
30020	191.7
35009	205.3
37471	209.1
43500	209.1
47336	189.3
48854	188.4
49690	210.1
50663	215.7
52382	190.4
57088	221.7
57657	210.4
62859	195.3
64939	191.4
65939	194.9
71049	227.3
73227	229.1
77150	217.1
78183	221.7
80614	230.9
82417	241.1
83333	236.4
84016	228
85020	214.2
86181	217
87917	208
90357	224.2
91249	228.3
94353	232
99849	225.8
100837	230.8
101749	236.9
103465	228.1
104704	236.9
105636	230.6
107579	238.2
108153	245.6
109804	251.2
111862	256.7
113262	266.3
114096	261.4
114601	274.5
115118	273.2
116501	262.5
117750	267.6
118649	273.7
119672	271.9
120382	265.2

121017	277.6
122344	272.1
123070	276.4
124213	268.7
124257	266.6
124789	266.3
125081	279.7
125262	273
125434	277.1
126347	273.7
126598	267.1
126886	262.5
127132	262.6
127622	275.3
127907	275.6
128344	274
128372	287.1
128609	286.8
128866	282.6
129146	264.1
129340	263.4
129652	257.9
129736	259
131329	245
131455	240.4
131728	228.9
132492	223.5
133069	223.9
133105	220.3
133427	210.6
134123	208.9
134287	203.7
134960	204.5
135114	200.4
135207	198
135603	198
135883	201.7
136011	200.7
136251	202.4
136567	195.8
136655	201.1
137293	194.3
137633	193.4
137982	194.2
138185	190.2
139275	192.3
139617	196.5
140899	195.6
140960	196.4
142058	190.4
145363	196.9
148831	203
149803	191.9
149921	188.9
151423	200.6
154480	189
155395	185.5
155813	187.5
159562	204.3
159943	196.5
161679	191.6

162228	190.1
163024	186.7
163698	183.8
164439	196.6
167183	197.8
169492	197.7
171351	196
172434	190.3
173135	189.4
173394	190.1
175306	207.7
177139	213.2
178179	217.7
179117	198.1
180068	199.7
182046	203.4
184685	210.7
186697	231.3
188436	231.4
189076	220.3
190352	218
192910	226.5
193481	220
195017	226.4
195673	241.2
196179	242.6
198972	250.9
199918	239.1
201163	247.6
202413	244.4
202874	231.9
203317	232.2
203837	228.6
204480	226.3
204908	229.4
205362	231.4
205952	238.1
206144	237.2
206810	230
207120	240.5
207544	242.2
208064	244.6
208254	243.9
208803	247.2
208995	252
209432	246.9
209817	239.5
210154	257.4
210813	243.4
211858	251.2
212716	241.4
213270	240.3
213536	242.6
213984	247.5
214459	251.7
214794	251.1
215382	245.3
216352	240.5
218361	214.1
219116	216.1
220058	207.1

220739	208.8
222030	205.6
224269	203.3
224923	215.7
225909	235.5
226711	234.5
227027	233.1
227776	224.5
229423	232.4
230422	233.9
231066	241.6
234817	245.2
235480	252.1
236114	241.4
236734	247.4
237294	243.1
237868	239.1
238558	245.6
239013	245.8
239477	247.4
239973	252.8
240945	259.7
241366	263.2
242007	279
242346	280.2
243071	263.7
243429	252.3
243856	249.9
244347	236.7
244864	230.4
245441	219.4
247681	214.7
250133	200.2
251005	213.9
251864	195.4
252739	196.7
253636	195.4
255498	199
256309	201.9
257100	204
258661	203.9
260353	209.6
260916	205.7
262092	208.9
262930	214.6
264509	228.1
265653	199.9
266326	211.7
267442	188.7
268181	187.2
269154	194.2
270222	198.8
271256	184.7
272311	190.4
273310	193.9
274321	194.1
275350	198.4
276326	193.2
277361	202.2
278350	204.5
279320	211

280269	215.3
281758	223.7
283785	231.3
285380	228
286128	226.4
287036	231.4
287538	230.4
288233	231
290153	234.9
290730	220.4
291367	217.1
292405	207.6
293057	206
293779	206.7
294568	212.7
295930	213.1
297921	217.1
298741	224.4
299621	231
300472	236.1
301402	239
302280	236
303226	240.2
304232	240.7
304901	250.2
305655	248.6
306547	244.8
307495	225.8
308744	227.8
309389	226.2
310168	233.2
311013	237.8
311868	239
312676	241.9
313414	251.6
314144	256.7
314867	257.1
315572	246.8
316200	272.6
316897	251.6
317734	245.2
318559	233.4
319480	255.8
320358	249.2
322015	257.2
322767	260.4
323526	260.3
324280	260.5
324971	266.2
325720	264
326321	266.1
326972	270.1
327590	271.9
328221	275.1
329475	265
330208	271.7
330740	272.6
331438	273.1
331944	282.4
332285	289.1
332462	288.4

332919	298.6
333380	278.1
333890	285.8
334261	278.6
334748	270.5
335287	255.7
335918	241.9
336725	239.6
337391	234.2
339298	250.1
340456	200.7
341802	205.2
343282	204.8
344446	211.9
345980	220.3
348298	221.1
349688	216.2
350925	209.4
352275	209.2
355302	193
356898	186.1
358712	185.8
360957	201.2
363385	206.3
366235	201.9
367856	199.9
369446	214.7
371090	224.6
372646	229.6
376568	227
378096	240
379696	239.1
381132	246.8
382670	245.8
384534	258.1
385398	264.6
386144	259.2
388062	255.2
389946	250.1
391896	266.3
392544	259.5
393579	273.6
394560	260.7
398086	276.3
399722	277.1
400504	283.2
402000	283.1
402731	275.7
404181	276.5
404927	280.5
406368	279.6
407093	285.6
408600	284.5
409383	275.2
409383	274.2
410206	282.6
411071	283.5
412962	274.9
413948	264.9
414963	271.6
415717	276.4

416193	271.7
417191	273.4
417698	271.8
418245	274.6
419260	273.7
419808	271.2
420350	273.8
421484	268.6
422074	266.4
422649	270.6
423764	267.7
424332	268.3
424840	270.8
425242	270
425569	265.4
425975	255.3
426598	252.1
427285	248.2
427566	242.5
429006	219.7
429876	227.2
431063	211.5
431445	207.6
432599	209.8
433674	207.5
434804	200.3
435989	201.7
437152	201.3
438356	202
439565	199.1
441220	201.1
442411	203.5
443562	208.1
444650	201.7
445829	201.2
446984	204.9
448103	201.9
449244	198.4
450455	193.3
451593	192.5
452283	199.1
452795	204.3
453514	203.3
454023	208.3
455279	202.4
456591	195.5
458049	190.7
459430	194.4
460792	199.9
461687	205.2
462133	210
463456	208.1
464866	204.4
466265	203.4
467602	205.5
468323	206.5
468810	215.5
469470	218.7
469941	229.2
470597	232.7
471046	243.7

471763	243.9
472095	245.6
473102	241.2
474162	233.1
475218	232.8
476240	236.6
477162	239.1
477719	236.5
478124	231.3
478721	220.8
479144	218.8
480108	223.8
481035	223.4
481932	227.3
482803	231.4
483649	231.4
484465	231.2
485276	233
486043	232.9
486816	231.3
487541	237.1
488268	242
488689	240.9
488996	252.8
489475	249.3
489722	242.6
490445	243.3
491191	246.7
491959	243.7
492738	239.7
493507	239.1
494311	238.3
495085	238.5
495853	237.6
496608	236.4
497366	236.5
498104	232.8
498865	230.6
499610	230.8
500363	228.2
501130	230.8
501866	231.2
502625	232
503375	232.2
504083	234.1
504777	233.9
505516	235.5
506287	236
507011	238.2
507714	237
508476	240.3
509247	233.4
510008	236.4
510765	235.2
511515	242
512269	238.2
512997	239.2
513724	241.5
514429	243
515113	247.2
515771	246.2

516417	245.5
517069	245.3
517706	247.7
518334	245.5
518965	243.5
520892	241.9
521552	236.8
522216	235.8
522923	233.7
523666	230.3
524409	227.8
525164	224.7
525908	222.7
526661	221.2
527454	220.3
528262	220.7
528747	214.5
529101	211.4
529640	204.4
530016	200
530685	195.1
531035	193.8
531662	190.5
532119	199.8
533246	199.4
534364	205
535483	206.4
536622	212.9
537770	211.2
538959	205
540154	203.6
541345	208.1
542502	210.3
543676	209.6
544804	209.7
545956	204.6
547013	202.5
547573	208.8
547972	213.6
548933	215.2
549830	219.9
550637	221.7
551124	222.3
551452	226.3
551979	222.1
552250	220.3
552961	223.6
553626	224.3
554254	226.7
554831	233.9
555345	241
555637	243
555839	249.1
556143	244
556364	250.5
556724	245.6
556889	240.4
557385	238.1
557887	234.5
558183	229.7
558393	230.2

558929	230.3
559461	228.3
559972	231.6
560459	231.9
560930	234.6
561309	234.1
561846	240.1
562272	242.3
562690	245.7
563115	245.8
563517	247.6
563918	251.4
564311	252.4
564699	252.6
565077	251.4
565466	253.7
565851	254.3
566233	253.9
566619	254.5
567007	253.2
567381	253.9
567777	252.8
568167	253
568556	250.2
568946	251.3
569331	250
569728	251.3
570139	251.8
570548	251.8
570955	249.6
571367	251.6
571775	250.3
572190	246.3
572619	247.7
573037	249.2
573462	248.7
573902	251.8
574353	251.9
574803	252.1
575265	248.9
575730	252.5
576222	252.9
576723	251.3
577242	251.3
577769	251.1
578305	249.1
578857	252.9
579435	251.5
579821	244.1
580019	243.8
580400	236.2
580695	230.3
581160	225.2
581507	219.4
582000	215.4
582391	209.9
583034	206.7
583413	210.6
586406	224
586893	226
587647	234.4

588034	238.8
588716	246.3
589224	250.2
589868	248.1
590335	243.6
590893	237.4
592279	225.7
592697	229.4
593415	233.2
593870	238.1
594639	238
595189	232.9
595950	221.2
596515	216.4
597443	216.3
597966	219
598833	226
599434	229.4
600882	232.5
602278	237.9
603673	239.1
605076	244.5
606374	248.5
607708	254.6
608929	259.2
610136	257.7
611319	259.6
612514	258
613709	256
614923	252.5
616227	252.4
617544	252.3
618955	247.9
620338	245.4
621760	243
623214	238.6
624690	237.3
625570	234.3
626215	227.8
627211	214.9
627999	205
629446	198.7
630295	199.9
632001	199.5
632856	195.6
634592	192.1
635489	193.9
636957	193
638127	194.3
639848	187.7
640760	189.1
642405	190.2
643204	190.4
644662	194.1
645470	194.6
646723	188.6
647588	190.5
648946	192.1
649598	194.8
650891	187.8
651556	192

652802	185.8
653448	185.3
654473	191.3
655202	193.2
656286	198.4
656882	198.7
657923	191.3
658474	189.2
659524	182.4
660084	183.9
660981	186.6
661650	189.8
662669	187.8
663206	189
664192	189.1
664690	185.8
665645	178.2
666174	178.5
666995	172.7
667569	171.6
668447	175.6
668934	178.5
669751	185.5
670176	189.3
670916	192.6
671286	194.6
671926	192.5
672386	194.8
673095	198.7
673475	202.3
674173	209.2
674521	213.7
675589	220
676170	217.4
676524	214
677068	215.6
677380	217.4
677984	226.5
678291	230
678914	230.8
679252	230.3
679732	223
680081	225
680608	218.4
680920	216.2
681531	217.3
681849	219.7
682446	222.6
682762	221.3
683262	218.7
683612	217.5
684142	217.5
684419	219.4
684949	219.5
685217	219.7
685716	223.5
685980	224.4
686425	224.3
686726	227.3
687227	228.7
687470	228.8

687949	232.3
688195	233
688652	235.8
688881	234.9
689304	235.8
689603	239.9
690057	235.6
690294	234.8
690771	240
690999	234
691432	235.6
691672	236.6
692057	235.5
692338	235.9
692765	232.9
692990	234.8
693433	234.1
693639	234.1
694068	235.4
694300	234.4
694672	235.8
694941	236.9
695383	236.7
695618	237.6
696062	234.6
696287	234.8
696717	235.4
696963	232.9
697331	232.4
697660	232.2
698120	231
698386	228
698880	226.4
699102	227.7
699633	227.6
699909	226
700389	228.7
700744	227.6
701242	228.2
701606	228.8
702158	229.3
702381	230.3
702988	232.4
703384	232.8
703934	231.2
704211	231.2
704973	233.9
705410	228.5
706141	228.6
706409	228.1
709680	219.7
710237	220.2
711104	218.9
711421	218.7
712833	218.5
713843	222.3
714288	221.7
715180	217.7
715750	222.1
716704	208.1
717065	205

718064	192.9
718779	184.3
719794	187.8
720337	195.2
721318	206.3
722039	211.3
723133	213.4
723464	213.2
724445	210.3
725059	206.3
725937	206.6
726322	208.1
727192	204.5
727732	205.5
728568	205.1
728921	205.4
730299	204
730949	204.1
731329	204.9
732141	203.8
732548	205.9
733261	203.9
733543	204.4
734223	205.3
734604	207.4
735167	201.7
735459	201.3
736079	204.1
736460	209.7
737034	208.1
737266	211.3
737889	210.6
738272	206.5
738844	200.3
739137	197.8
739842	185
740277	178.9
741021	178.6
741307	176.6
742075	177.9
742558	182.3
743233	181.7
743589	180.4
744354	181.2
744843	182
745836	180.2
746643	183.1
747110	180.8
747759	180.8
748101	180.4
748913	181.4
749401	182.9
750194	184.8
750476	184
751301	186.2
751830	190.1
752605	188
752978	196.5
753984	191.5
754394	195.8
755241	200.5

755495	201.9
756357	206
756871	210.7
757561	215
757962	219.2
758259	215.3
758475	217.6
758883	217.9
759306	214.9
760202	208.8
760500	206.9
761453	206.1
762064	212
762871	216
763319	215
763686	225.7
763934	221.4
764249	224.1
764833	222.6
765735	216.8
766110	215.7
767096	213.5
767737	217.7
768655	222.4
769050	221.4
769514	228.1
769787	226
770133	231.5
770447	235.6
770724	238.2
770994	235.6
771260	237.7
771708	229.5
772076	230.9
773043	230
773680	233.3
774548	236.9
775051	240.5
776037	238.8
776636	243.9
777556	246.3
777900	246.1
778798	245.8
779364	243.9
780268	248.5
780612	242.8
781535	248.7
782059	246.2
783263	252.1
784147	246.9
784692	250.7
785413	253.3
785789	255.4
786587	260.3
787076	256.9
787805	248.1
788033	247.9
788887	229.5
789381	226.3
790153	218.2
790538	221.3

791491	215.4
792081	205.1
792943	204
793260	209
794608	199.4
795202	195.2
796467	189.3
797099	188.4
798512	191