El Cañizar de Villarquemado

(40.514492, -1.288021)

Obtain modern CO2 from (Bereiter et al. 2015)

```
modern_co2 <- tibble::tibble(age = 1950 - c(1961:1990),
                             co2 = purrr::map_dbl(age, codos::past_co2)) %$%
  median(co2)
```

Obtain past CO2 from (Bereiter et al. 2015)

```
palaeo_co2 <- purrr::map_dbl(mi_input$age, codos::past_co2)
```

Assemble the input data

```
villarquemado <- tibble::tibble(age_calBP = mi_input$age,
                                palaeo_co2 = palaeo_co2,
                                palaeo_MGS_temp = mi_input$past_temp,
                                modern_co2 = modern_co2,
                                modern_MGS_temp = mi_input$present_t,
                                recon_mi = mi_input$recon_mi)
```

Find the corrected `MI`

```
villarquemado$corrected_mi <- codos::corrected_mi(villarquemado$modern_MGS_temp,
                                                  villarquemado$palaeo_MGS_temp,
                                                  villarquemado$recon_mi,
                                                  villarquemado$modern_co2,
                                                  villarquemado$palaeo_co2)
```

age [cal yrs BP]	palaeo CO2	palaeo MGS temperature	modern CO2	modern MGS temperature	recon. MI	corr. MI
1655.9	280.575	12.36931	332.165	11.57957	0.3307945	0.4630186
2093.5	276.900	12.27888	332.165	11.57957	0.3625546	0.4979482
2239.4	276.700	12.81034	332.165	11.57957	0.3305932	0.4952029
2385.3	277.150	12.44437	332.165	11.57957	0.3691501	0.5132837
2725.7	277.100	15.09533	332.165	11.57957	0.3245905	0.6160747
2871.7	275.000	14.98807	332.165	11.57957	0.3128479	0.6024151
2968.9	276.300	14.26139	332.165	11.57957	0.3063976	0.5518635
3066.1	274.600	13.89844	332.165	11.57957	0.3425738	0.5727457

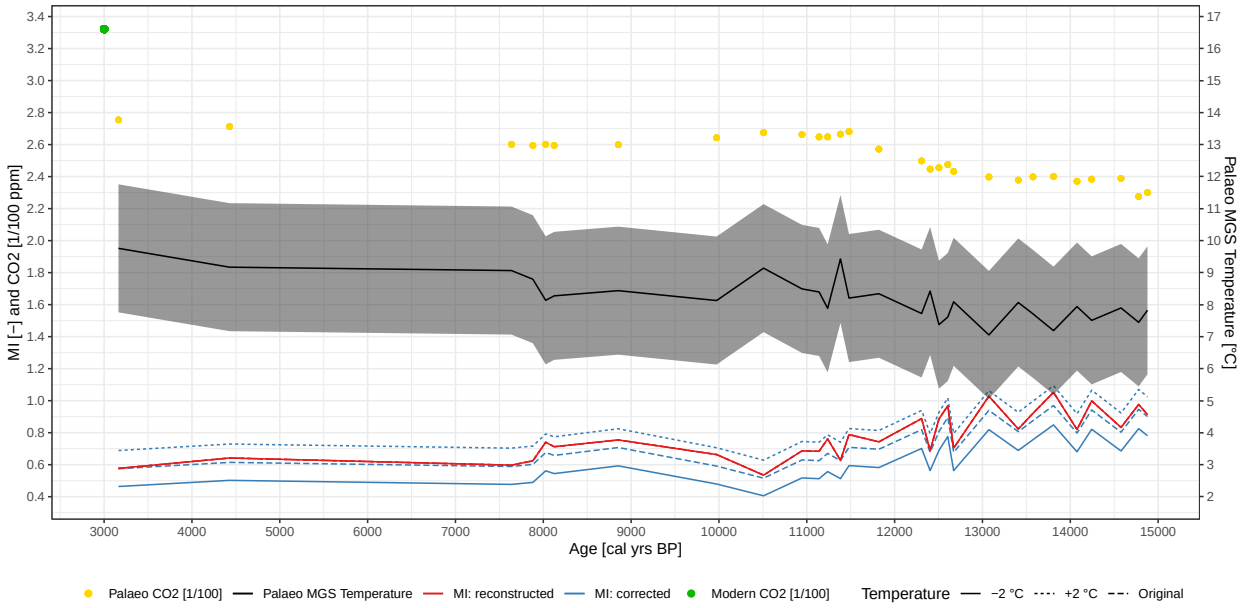
Records for which the corrected MI is lower than the reconstructed MI, sorted from smallest to largest:

age [cal yrs BP]	palaeo CO2	palaeo MGS temperature	modern CO2	modern MGS temperature	reconstructed MI	corrected MI	|ΔMI|
3163.4	275.450	9.759079	332.165	11.57957	0.5767323	0.5749396	0.0017928
11383.4	266.500	9.427713	332.165	11.57957	0.6274929	0.6251889	0.0023040
15012.4	226.875	7.759372	332.165	11.57957	0.8967411	0.8901585	0.0065826
7637.8	260.100	9.064651	332.165	11.57957	0.5970890	0.5888923	0.0081967
12404.3	244.700	8.423341	332.165	11.57957	0.6878457	0.6777428	0.0101029
14878.8	230.035	7.823516	332.165	11.57957	0.9132437	0.9010842	0.0121595
13407.8	237.830	8.067141	332.165	11.57957	0.8231219	0.8065929	0.0165289
15917.7	223.510	7.418364	332.165	11.57957	0.9088824	0.8910944	0.0177881
10507.8	267.500	9.140485	332.165	11.57957	0.5349011	0.5158543	0.0190468
14076.5	237.075	7.939903	332.165	11.57957	0.8198612	0.7978605	0.0220007
7881.1	259.450	8.794354	332.165	11.57957	0.6243717	0.6017823	0.0225895
12672.1	243.240	8.088368	332.165	11.57957	0.7039221	0.6777038	0.0262184
4427.9	271.300	9.170901	332.165	11.57957	0.6418646	0.6144617	0.0274029
14577.8	238.870	7.896280	332.165	11.57957	0.8328343	0.8031452	0.0296891
14778.5	227.590	7.447235	332.165	11.57957	0.9761591	0.9462425	0.0299166
13575.0	239.845	7.712268	332.165	11.57957	0.9210171	0.8752573	0.0457598
11820.9	257.170	8.340856	332.165	11.57957	0.7428901	0.6967168	0.0461732
116113.1	273.395	8.916917	332.165	11.57957	0.6540708	0.6076746	0.0463962
8854.2	259.950	8.437032	332.165	11.57957	0.7546913	0.7074532	0.0472381
8124.3	259.450	8.275212	332.165	11.57957	0.7124126	0.6580721	0.0543404
10945.4	266.350	8.492277	332.165	11.57957	0.6864394	0.6300022	0.0564372
14243.7	238.405	7.508673	332.165	11.57957	0.9986810	0.9420087	0.0566723
11140.0	264.800	8.396249	332.165	11.57957	0.6837062	0.6252209	0.0584853
8027.1	260.200	8.134635	332.165	11.57957	0.7404645	0.6755811	0.0648834
12307.3	249.825	7.724061	332.165	11.57957	0.8880351	0.8188867	0.0691484
9973.1	264.300	8.128312	332.165	11.57957	0.6634363	0.5913942	0.0720421
12605.1	247.555	7.612779	332.165	11.57957	0.9680625	0.8952815	0.0727810
12504.6	245.580	7.375107	332.165	11.57957	0.8860412	0.8066508	0.0793904
11480.7	268.135	8.205430	332.165	11.57957	0.7882028	0.7087083	0.0794945
13809.1	240.095	7.188131	332.165	11.57957	1.0522505	0.9697780	0.0824725
13073.4	239.735	7.053631	332.165	11.57957	1.0281220	0.9392372	0.0888848
11237.4	264.850	7.884818	332.165	11.57957	0.7609682	0.6708709	0.0900973
98027.5	241.520	5.505091	332.165	11.57957	0.9367636	0.7547940	0.1819696

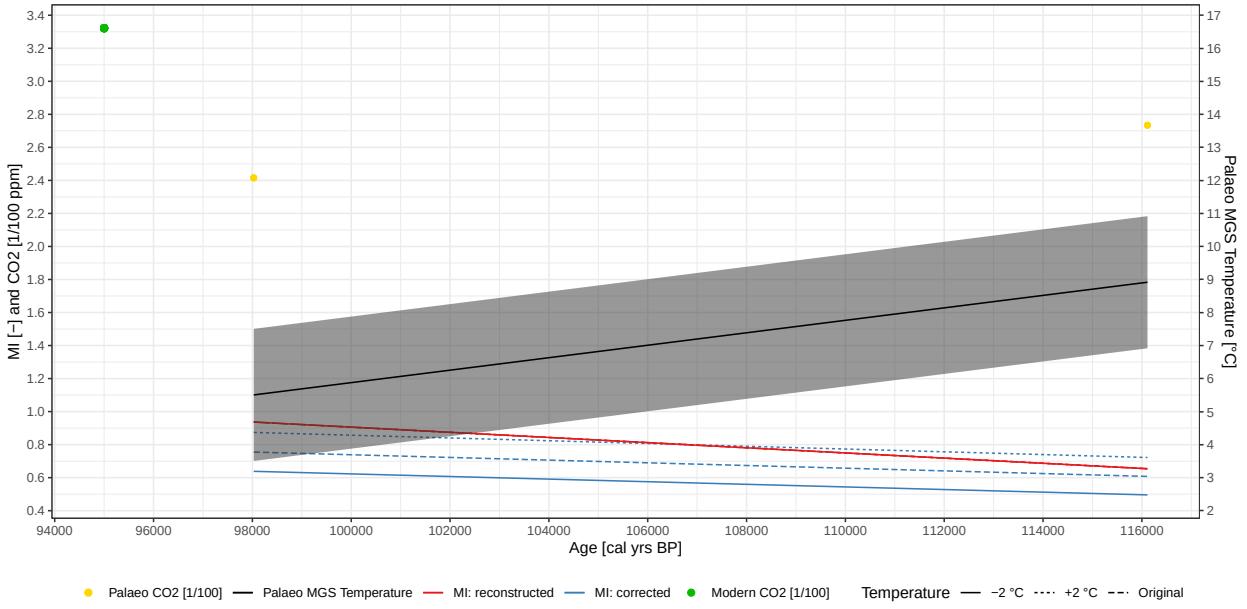
Anomalous records

These plots show the effect of increasing and decreasing the temperature by 2°C on the corrections of MI:

age < 15k



age > 95k



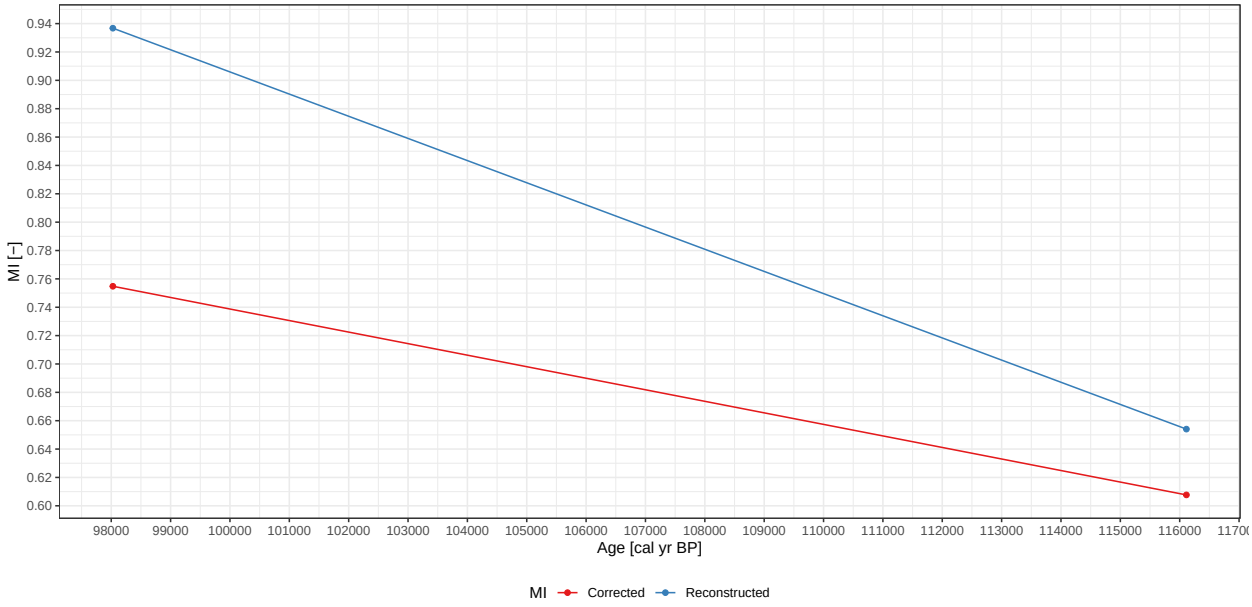
Plots

Reconstructed vs corrected `MI`

Records with **smaller** reconstructed MI **only**.

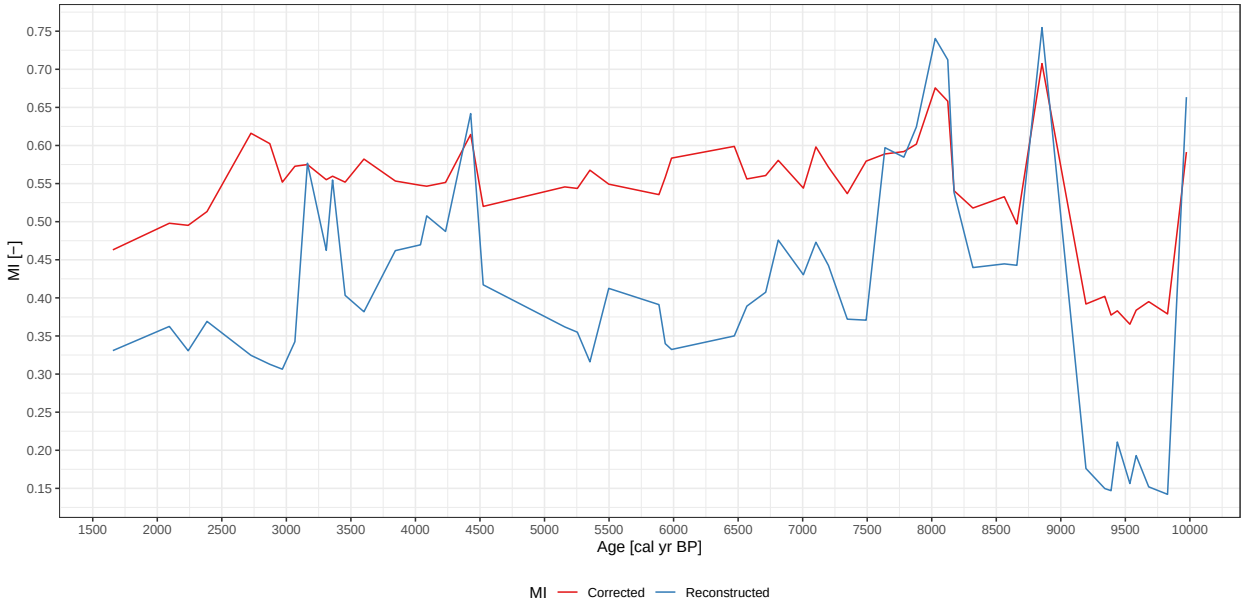
- `age_calBP < 15k`

- `age_calBP > 95k`

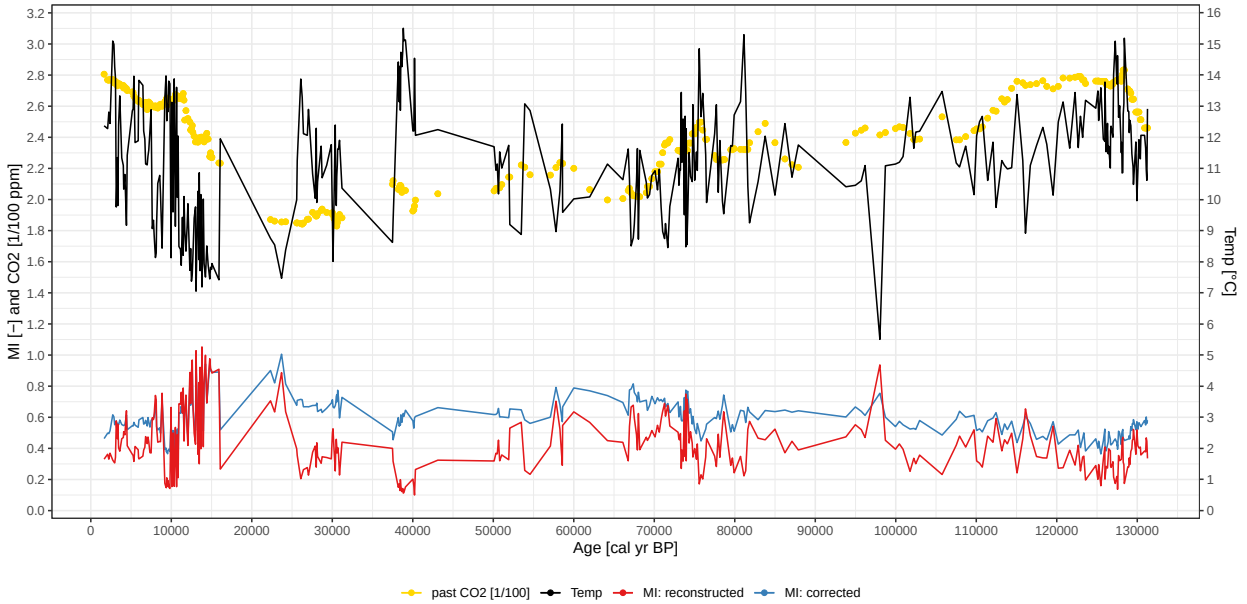


Reconstructed vs corrected `MI`

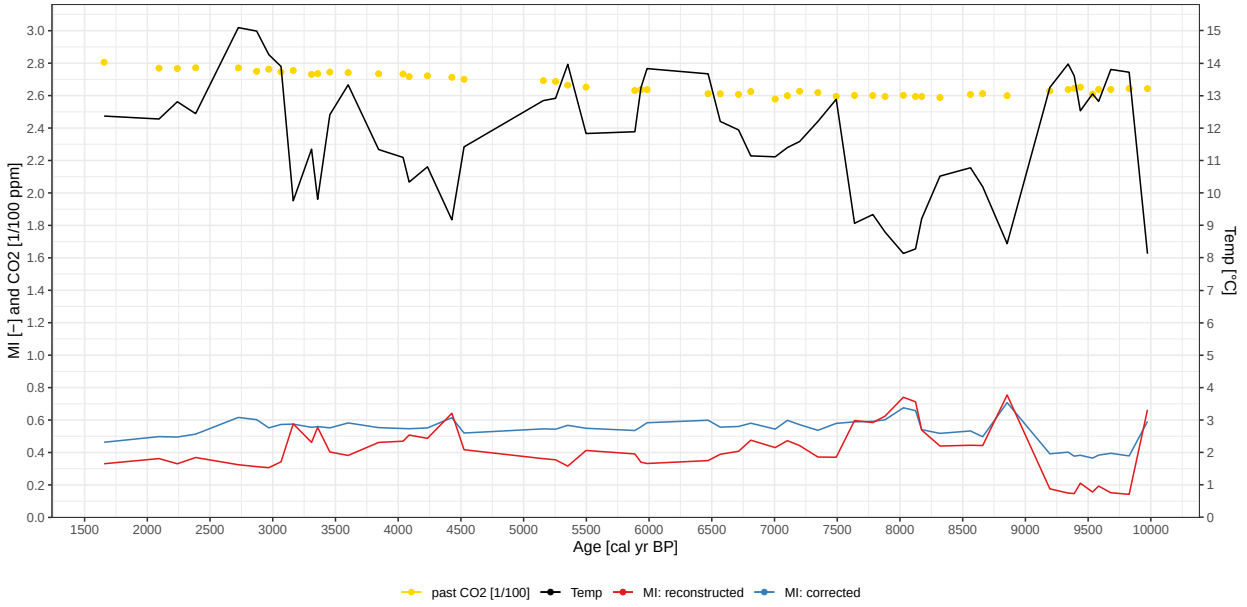
- `age_calBP` < 10k



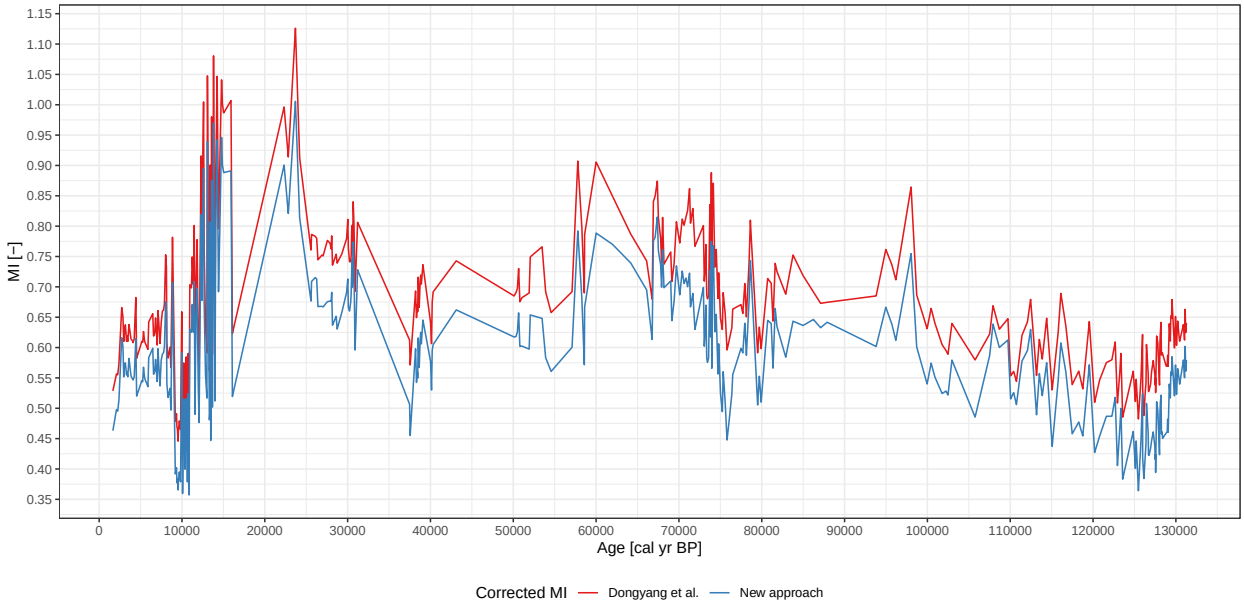
Include past CO2 and Temperature



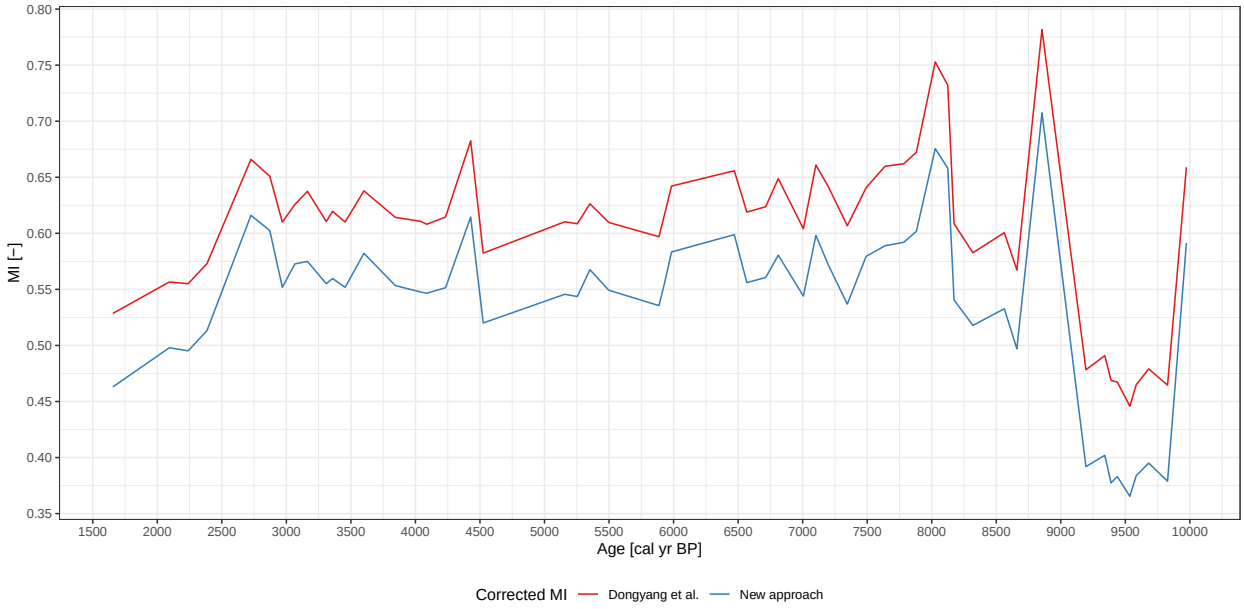
- `age_calBP < 10k`



Comparison of corrections for `MI`



- `age_calBP` < 10k



References

[1] Bereiter, B., Eggleston, S., Schmitt, J., Nehrbass-Ahles, C., Stocker, T. F., Fischer, H., Kipfstuhl, S., and Chappellaz, J. (2015), Revision of the EPICA Dome C CO2 record from 800 to 600 kyr before present, Geophys. Res. Lett., 42, 542– 549, doi:10.1002/2014GL061957.

Appendix

A1. El Cañizar de Villarquemado Data

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
1655.9	280.575	12.369315	332.165	11.57957	0.3307945	0.5285810	0.4630186
2093.5	276.900	12.278883	332.165	11.57957	0.3625546	0.5566239	0.4979482
2239.4	276.700	12.810336	332.165	11.57957	0.3305932	0.5550583	0.4952029
2385.3	277.150	12.444368	332.165	11.57957	0.3691501	0.5730361	0.5132837
2725.7	277.100	15.095334	332.165	11.57957	0.3245905	0.6659247	0.6160747
2871.7	275.000	14.988073	332.165	11.57957	0.3128479	0.6508940	0.6024151
2968.9	276.300	14.261389	332.165	11.57957	0.3063976	0.6100673	0.5518635
3066.1	274.600	13.898441	332.165	11.57957	0.3425738	0.6257067	0.5727457
3163.4	275.450	9.759079	332.165	11.57957	0.5767323	0.6374795	0.5749396
3309.3	273.100	11.348229	332.165	11.57957	0.4623578	0.6105218	0.5550606
3358.0	273.550	9.804685	332.165	11.57957	0.5547067	0.6196196	0.5596808
3455.3	274.500	12.411282	332.165	11.57957	0.4033150	0.6101118	0.5518494
3601.1	274.200	13.331929	332.165	11.57957	0.3817716	0.6378873	0.5821582
3844.3	273.450	11.337097	332.165	11.57957	0.4620254	0.6142280	0.5533557
4038.9	273.300	11.094700	332.165	11.57957	0.4696227	0.6107585	0.5477429
4087.5	271.700	10.334675	332.165	11.57957	0.5076132	0.6080732	0.5465704
4233.3	272.200	10.804928	332.165	11.57957	0.4872196	0.6145108	0.5514874
4427.9	271.300	9.170901	332.165	11.57957	0.6418646	0.6824930	0.6144617
4525.1	270.100	11.419825	332.165	11.57957	0.4171207	0.5823468	0.5200366
5157.3	269.200	12.846909	332.165	11.57957	0.3618640	0.6102990	0.5456358
5254.5	268.700	12.916914	332.165	11.57957	0.3549761	0.6085471	0.5436360
5351.9	266.450	13.963937	332.165	11.57957	0.3160562	0.6264010	0.5675646
5497.7	265.200	11.831268	332.165	11.57957	0.4124906	0.6097085	0.5492638
5886.7	263.100	11.885894	332.165	11.57957	0.3911332	0.5969861	0.5355135
5935.4	263.700	13.246767	332.165	11.57957	0.3398986	0.6193319	0.5582336
5984.1	263.700	13.832036	332.165	11.57957	0.3322531	0.6421332	0.5833971
6470.4	261.150	13.670727	332.165	11.57957	0.3500736	0.6558193	0.5988180

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
6567.6	261.100	12.204609	332.165	11.57957	0.3891459	0.6189319	0.5560534
6713.5	260.750	11.941244	332.165	11.57957	0.4073953	0.6237519	0.5605772
6810.9	262.500	11.141880	332.165	11.57957	0.4758337	0.6487663	0.5804845
7005.4	257.850	11.113891	332.165	11.57957	0.4303563	0.6041456	0.5440451
7102.6	259.950	11.398241	332.165	11.57957	0.4730562	0.6608987	0.5981283
7199.9	262.650	11.584645	332.165	11.57957	0.4424756	0.6413454	0.5715403
7345.8	261.850	12.203061	332.165	11.57957	0.3720489	0.6067179	0.5368201
7491.9	259.550	12.886010	332.165	11.57957	0.3707632	0.6407204	0.5794555
7637.8	260.100	9.064651	332.165	11.57957	0.5970890	0.6597940	0.5888923
7783.9	260.050	9.333725	332.165	11.57957	0.5846541	0.6620465	0.5920164
7881.1	259.450	8.794354	332.165	11.57957	0.6243717	0.6723225	0.6017823
8027.1	260.200	8.134635	332.165	11.57957	0.7404645	0.7528332	0.6755811
8124.3	259.450	8.275212	332.165	11.57957	0.7124126	0.7320422	0.6580721
8173.0	259.450	9.205571	332.165	11.57957	0.5383318	0.6085797	0.5405751
8319.0	258.800	10.518044	332.165	11.57957	0.4397843	0.5826585	0.5178860
8562.3	260.700	10.775916	332.165	11.57957	0.4446193	0.6005597	0.5327459
8659.5	261.250	10.190446	332.165	11.57957	0.4427591	0.5672990	0.4969841
8854.2	259.950	8.437032	332.165	11.57957	0.7546913	0.7816902	0.7074532
9194.8	262.850	13.250141	332.165	11.57957	0.1760948	0.4783105	0.3919278
9340.7	263.750	13.973423	332.165	11.57957	0.1497491	0.4909386	0.4020311
9389.3	264.500	13.607278	332.165	11.57957	0.1469599	0.4688264	0.3774594
9437.9	265.200	12.531811	332.165	11.57957	0.2107913	0.4673544	0.3830049
9535.1	260.900	13.051673	332.165	11.57957	0.1563338	0.4457724	0.3654288
9583.8	263.800	12.821860	332.165	11.57957	0.1930016	0.4648995	0.3837790
9681.0	263.800	13.805595	332.165	11.57957	0.1519674	0.4790737	0.3950580
9827.0	264.400	13.720574	332.165	11.57957	0.1421782	0.4645798	0.3789015
9973.1	264.300	8.128312	332.165	11.57957	0.6634363	0.6589109	0.5913942
10070.4	264.100	13.126319	332.165	11.57957	0.1540338	0.4416598	0.3596279
10216.0	263.400	9.600080	332.165	11.57957	0.4991893	0.5746273	0.5152183
10361.9	265.300	13.877804	332.165	11.57957	0.1559303	0.4816369	0.3995832
10507.8	267.500	9.140485	332.165	11.57957	0.5349011	0.5845574	0.5158543
10653.8	266.900	13.606814	332.165	11.57957	0.1535654	0.4661678	0.3787088
10751.0	266.450	10.069871	332.165	11.57957	0.4885950	0.5903175	0.5242111

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
10848.1	265.100	12.039321	332.165	11.57957	0.2113163	0.4350271	0.3571262
10945.4	266.350	8.492277	332.165	11.57957	0.6864394	0.7034252	0.6300022
11140.0	264.800	8.396249	332.165	11.57957	0.6837062	0.6981680	0.6252209
11237.4	264.850	7.884818	332.165	11.57957	0.7609682	0.7493386	0.6708709
11383.4	266.500	9.427713	332.165	11.57957	0.6274929	0.7037711	0.6251889
11480.7	268.135	8.205430	332.165	11.57957	0.7882028	0.8012570	0.7087083
11577.7	263.895	10.095936	332.165	11.57957	0.4470606	0.5675106	0.4900808
11675.0	251.085	9.024050	332.165	11.57957	0.6320223	0.6966037	0.6419396
11820.9	257.170	8.340856	332.165	11.57957	0.7428901	0.7777179	0.6967168
11966.7	251.455	9.145960	332.165	11.57957	0.5152480	0.6012430	0.5331417
12064.0	252.065	9.864316	332.165	11.57957	0.4188326	0.5511298	0.4765349
12307.3	249.825	7.724061	332.165	11.57957	0.8880351	0.9156570	0.8188867
12404.3	244.700	8.423341	332.165	11.57957	0.6878457	0.7566294	0.6777428
12504.6	245.580	7.375107	332.165	11.57957	0.8860412	0.9035823	0.8066508
12605.1	247.555	7.612779	332.165	11.57957	0.9680625	1.0046034	0.8952815
12672.1	243.240	8.088368	332.165	11.57957	0.7039221	0.7652720	0.6777038
12839.2	240.750	9.401961	332.165	11.57957	0.4969051	0.6357044	0.5562102
13006.4	237.050	9.762096	332.165	11.57957	0.4267234	0.5915503	0.5167734
13073.4	239.735	7.053631	332.165	11.57957	1.0281220	1.0475436	0.9392372
13307.2	236.860	10.263005	332.165	11.57957	0.3620700	0.5622552	0.4809795
13374.3	237.345	9.914492	332.165	11.57957	0.3961118	0.5757227	0.4941051
13407.8	237.830	8.067141	332.165	11.57957	0.8231219	0.9007121	0.8065929
13474.6	239.040	10.860577	332.165	11.57957	0.3008432	0.5376210	0.4470421
13575.0	239.845	7.712268	332.165	11.57957	0.9210171	0.9800841	0.8752573
13675.2	240.070	10.158509	332.165	11.57957	0.3975393	0.5884413	0.5019607
13809.1	240.095	7.188131	332.165	11.57957	1.0522505	1.0805486	0.9697780
13909.1	239.260	8.483453	332.165	11.57957	0.7325919	0.8271886	0.7389937
13976.1	238.245	10.014395	332.165	11.57957	0.4108065	0.5902323	0.5119365
14076.5	237.075	7.939903	332.165	11.57957	0.8198612	0.8860316	0.7978605
14243.7	238.405	7.508673	332.165	11.57957	0.9986810	1.0468481	0.9420087
14410.8	242.575	8.507830	332.165	11.57957	0.6918874	0.7957053	0.6919826
14577.8	238.870	7.896280	332.165	11.57957	0.8328343	0.9113064	0.8031452
14778.5	227.590	7.447235	332.165	11.57957	0.9761591	1.0409735	0.9462425

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
14878.8	230.035	7.823516	332.165	11.57957	0.9132437	1.0025076	0.9010842
15012.4	226.875	7.759372	332.165	11.57957	0.8967411	0.9875047	0.8901585
15046.0	227.185	7.941690	332.165	11.57957	0.8843613	0.9866120	0.8882574
15917.7	223.510	7.418364	332.165	11.57957	0.9088824	1.0069203	0.8910944
16085.0	223.325	11.952913	332.165	11.57957	0.2668348	0.6229974	0.5193197
22327.5	187.120	8.750205	332.165	11.57957	0.7058565	0.9963354	0.9006681
22836.3	186.130	8.543124	332.165	11.57957	0.6342902	0.9139768	0.8209165
23698.0	185.560	7.468590	332.165	11.57957	0.8869676	1.1259614	1.0055570
24206.4	185.705	8.378137	332.165	11.57957	0.6353440	0.9127373	0.8136208
25577.7	184.960	9.989920	332.165	11.57957	0.3974651	0.7606266	0.6765656
25644.2	184.960	11.253377	332.165	11.57957	0.3543274	0.7863383	0.7088588
26087.0	184.545	13.873164	332.165	11.57957	0.2049368	0.7833997	0.7152660
26264.1	184.170	13.282281	332.165	11.57957	0.2355576	0.7799040	0.7129377
26414.2	184.890	12.115212	332.165	11.57957	0.2632106	0.7445442	0.6675270
26897.0	187.255	12.064585	332.165	11.57957	0.2765760	0.7523266	0.6679499
27038.9	187.390	12.897021	332.165	11.57957	0.2278315	0.7510800	0.6669902
27558.3	191.740	10.820076	332.165	11.57957	0.3752458	0.7765418	0.6756463
27876.4	189.930	10.039848	332.165	11.57957	0.4149764	0.7717212	0.6765793
28006.3	189.290	12.289988	332.165	11.57957	0.2795443	0.7626019	0.6758684
28076.8	189.625	9.905440	332.165	11.57957	0.4359976	0.7839680	0.6909556
28171.0	190.890	10.564054	332.165	11.57957	0.3486645	0.7357841	0.6368518
28618.7	192.960	11.715219	332.165	11.57957	0.3040983	0.7537509	0.6514623
28736.5	193.845	10.698934	332.165	11.57957	0.3461706	0.7390255	0.6305027
29301.3	191.700	11.100536	332.165	11.57957	0.3412641	0.7543944	0.6579530
29877.0	191.175	11.763727	332.165	11.57957	0.3325954	0.7796613	0.6909699
30017.8	191.570	9.334366	332.165	11.57957	0.4997758	0.8111734	0.7129169
30087.9	189.910	8.011005	332.165	11.57957	0.5259534	0.7641955	0.6665467
30227.7	187.500	10.168890	332.165	11.57957	0.3811223	0.7413166	0.6600947
30367.4	185.145	12.394092	332.165	11.57957	0.2548525	0.7415972	0.6745911
30426.1	183.620	10.313403	332.165	11.57957	0.3838142	0.7515556	0.6879432
30495.4	183.620	9.807597	332.165	11.57957	0.4584769	0.7962180	0.7328180
30554.7	182.940	10.726282	332.165	11.57957	0.4130350	0.8012586	0.7456168
30566.5	185.040	10.815237	332.165	11.57957	0.3708856	0.7655265	0.6989206

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
30624.2	185.040	11.110922	332.165	11.57957	0.3727746	0.7828250	0.7187438
30671.2	187.140	11.620636	332.165	11.57957	0.4051214	0.8401593	0.7738869
30768.4	188.735	11.619156	332.165	11.57957	0.3649415	0.8019329	0.7256949
30896.8	190.330	11.904116	332.165	11.57957	0.2286723	0.6927230	0.5959320
31202.7	188.240	10.365645	332.165	11.57957	0.4397610	0.8063375	0.7281375
37481.6	209.840	8.621657	332.165	11.57957	0.4000060	0.6123044	0.5064788
37550.9	212.070	9.294491	332.165	11.57957	0.3170805	0.5713325	0.4551671
38201.9	206.520	14.421833	332.165	11.57957	0.1493365	0.6931445	0.5978743
38313.3	207.705	13.141346	332.165	11.57957	0.1723462	0.6493186	0.5426603
38432.8	209.010	14.293103	332.165	11.57957	0.1284056	0.6706640	0.5589732
38457.9	209.010	12.868215	332.165	11.57957	0.1989467	0.6592584	0.5497252
38522.7	208.655	14.733764	332.165	11.57957	0.1564022	0.7159470	0.6157624
38643.0	204.625	14.270195	332.165	11.57957	0.1221898	0.6662390	0.5675143
38755.5	206.315	14.773426	332.165	11.57957	0.1421253	0.7081742	0.6118262
38822.4	205.870	15.504293	332.165	11.57957	0.1120892	0.7194199	0.6250534
38898.8	205.820	15.105936	332.165	11.57957	0.1163882	0.7045725	0.6061226
39088.6	205.800	15.129874	332.165	11.57957	0.1517927	0.7365551	0.6452991
40010.6	192.600	12.204042	332.165	11.57957	0.2024871	0.6414582	0.5772730
40128.3	193.385	12.203207	332.165	11.57957	0.1598597	0.6065257	0.5300143
40213.5	195.795	14.539820	332.165	11.57957	0.1003031	0.6753611	0.5955806
40328.2	199.610	12.063683	332.165	11.57957	0.2643187	0.6916999	0.6049828
43112.3	203.710	12.246828	332.165	11.57957	0.3242764	0.7428785	0.6620458
50103.4	205.560	11.696752	332.165	11.57957	0.3190148	0.6850004	0.6173822
50327.5	207.075	10.941627	332.165	11.57957	0.3684263	0.6906755	0.6180528
50494.6	207.075	11.141554	332.165	11.57957	0.3648163	0.6974299	0.6260982
50644.9	207.525	10.180739	332.165	11.57957	0.4529321	0.7301979	0.6571359
50794.7	207.525	11.530990	332.165	11.57957	0.3202555	0.6754542	0.6019175
51054.1	209.605	11.008871	332.165	11.57957	0.3578349	0.6822212	0.6024334
51917.3	214.450	11.742056	332.165	11.57957	0.3271515	0.6899345	0.5974177
52051.3	214.450	9.194942	332.165	11.57957	0.5305394	0.7492907	0.6536990
53474.9	222.200	8.876912	332.165	11.57957	0.5679505	0.7660212	0.6481002
53907.5	220.755	13.076114	332.165	11.57957	0.2584301	0.6917931	0.5833490
54566.8	215.925	12.859886	332.165	11.57957	0.2331515	0.6576350	0.5606677

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
57094.6	215.700	10.331462	332.165	11.57957	0.4149566	0.6920099	0.6004117
57790.9	220.550	8.968028	332.165	11.57957	0.7033494	0.9072189	0.7921727
58278.8	223.750	10.272022	332.165	11.57957	0.5240653	0.7977619	0.6811885
58577.4	223.150	12.426316	332.165	11.57957	0.2909741	0.6900551	0.5717062
58615.8	223.150	9.588726	332.165	11.57957	0.5477740	0.7863759	0.6667181
60003.3	220.055	10.020254	332.165	11.57957	0.6348289	0.9055405	0.7885785
61978.6	206.380	10.083173	332.165	11.57957	0.5670943	0.8493898	0.7700059
64182.3	199.730	11.139135	332.165	11.57957	0.4498343	0.7869604	0.7393439
66099.6	200.590	10.637245	332.165	11.57957	0.4389652	0.7426888	0.6950063
66764.1	205.800	11.624901	332.165	11.57957	0.3199585	0.6797071	0.6132671
66916.3	207.210	10.665397	332.165	11.57957	0.5410475	0.8408453	0.7758925
67125.4	204.175	8.508066	332.165	11.57957	0.6663479	0.8493438	0.7818063
67390.9	202.450	8.770875	332.165	11.57957	0.6777624	0.8742074	0.8150649
67520.0	202.450	9.207820	332.165	11.57957	0.5947340	0.8134514	0.7590136
67794.3	201.965	10.612339	332.165	11.57957	0.4859353	0.7793115	0.7359361
67904.8	201.965	11.637044	332.165	11.57957	0.3898162	0.7397285	0.6995231
68027.8	201.965	8.725631	332.165	11.57957	0.6242590	0.8143652	0.7611080
68193.9	201.800	11.581364	332.165	11.57957	0.3914754	0.7373786	0.6985114
69007.2	204.425	10.553958	332.165	11.57957	0.4723161	0.7573879	0.7097154
69145.4	208.340	10.047083	332.165	11.57957	0.4507478	0.7088155	0.6442815
69417.4	208.340	10.163476	332.165	11.57957	0.4758250	0.7383423	0.6763003
69696.6	213.405	10.773337	332.165	11.57957	0.5149073	0.8073358	0.7346161
70097.5	217.940	10.925563	332.165	11.57957	0.4734601	0.7722607	0.6868373
70400.9	217.940	10.309700	332.165	11.57957	0.5485271	0.8116594	0.7260655
70623.0	222.750	10.975304	332.165	11.57957	0.5041285	0.8015084	0.7055338
70849.2	222.750	9.755560	332.165	11.57957	0.5846889	0.8150610	0.7144622
71044.4	230.095	8.968506	332.165	11.57957	0.6387306	0.8254286	0.7002305
71279.3	235.020	8.744081	332.165	11.57957	0.6886381	0.8618472	0.7225258
71393.0	236.290	9.227673	332.165	11.57957	0.6071532	0.8049407	0.6670086
71680.6	236.290	8.453658	332.165	11.57957	0.6754146	0.8291513	0.6891579
71931.0	238.510	9.776834	332.165	11.57957	0.5436850	0.7667503	0.6298939
72956.6	231.610	11.326985	332.165	11.57957	0.5036510	0.8009246	0.6990693
73060.4	231.610	10.458458	332.165	11.57957	0.4576930	0.7094561	0.6023429

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
73179.3	231.610	10.989212	332.165	11.57957	0.4549346	0.7337795	0.6301672
73247.8	230.890	10.941738	332.165	11.57957	0.4949586	0.7699080	0.6698538
73356.3	231.815	13.442654	332.165	11.57957	0.2707729	0.6865781	0.5827583
73444.2	231.815	11.199767	332.165	11.57957	0.3894941	0.6803208	0.5756094
73581.4	231.815	12.588539	332.165	11.57957	0.3181739	0.6846870	0.5825599
73736.8	232.740	9.509299	332.165	11.57957	0.6411193	0.8354568	0.7268508
73826.7	232.035	12.678039	332.165	11.57957	0.3478307	0.7144937	0.6175467
73915.0	232.035	8.479175	332.165	11.57957	0.7494196	0.8880072	0.7747786
73970.2	232.035	12.276665	332.165	11.57957	0.3200138	0.6675330	0.5659179
74049.2	232.035	8.547721	332.165	11.57957	0.7173744	0.8579744	0.7474081
74151.0	231.330	9.458208	332.165	11.57957	0.6813508	0.8706713	0.7677028
74327.6	236.285	11.509762	332.165	11.57957	0.4341816	0.7324139	0.6259618
74502.5	236.285	10.737438	332.165	11.57957	0.5070661	0.7615088	0.6548529
74714.2	242.255	10.575667	332.165	11.57957	0.4342481	0.6809311	0.5564217
74796.0	242.255	13.048755	332.165	11.57957	0.3442720	0.7230715	0.6060968
75018.3	242.255	10.619914	332.165	11.57957	0.3992279	0.6478821	0.5238322
75239.4	246.395	11.524815	332.165	11.57957	0.3303299	0.6297038	0.4944758
75345.2	246.395	10.935489	332.165	11.57957	0.4284520	0.6904655	0.5602555
75588.4	249.730	14.846786	332.165	11.57957	0.1713302	0.6550320	0.5082002
75805.0	249.730	12.662761	332.165	11.57957	0.2305014	0.5960474	0.4476239
76022.3	244.640	13.413114	332.165	11.57957	0.2030110	0.6092583	0.4744428
76388.6	238.675	11.436550	332.165	11.57957	0.3437086	0.6326262	0.5235262
76495.4	238.675	9.903207	332.165	11.57957	0.4619456	0.6633655	0.5554165
77497.2	228.300	12.112341	332.165	11.57957	0.3505447	0.6707611	0.5987905
77713.4	225.785	13.046182	332.165	11.57957	0.2832527	0.6562415	0.5912608
77950.7	225.785	10.231403	332.165	11.57957	0.4914191	0.7054684	0.6399947
78145.2	225.395	11.897598	332.165	11.57957	0.3428379	0.6506534	0.5873627
78468.6	225.395	9.943644	332.165	11.57957	0.5440420	0.7406200	0.6769959
78624.9	225.720	9.541531	332.165	11.57957	0.6353780	0.8097766	0.7433205
78728.2	225.720	9.839326	332.165	11.57957	0.5913819	0.7815657	0.7171208
79501.5	232.000	11.735255	332.165	11.57957	0.2908238	0.5913496	0.5054626
79708.0	232.000	11.719221	332.165	11.57957	0.3382297	0.6336491	0.5527654
79925.7	232.670	12.717413	332.165	11.57957	0.2429352	0.5982664	0.5100711

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
80714.2	232.260	13.147530	332.165	11.57957	0.3485051	0.7137509	0.6448247
81138.2	232.125	15.298229	332.165	11.57957	0.2231823	0.7060573	0.6396365
81358.7	232.230	13.444687	332.165	11.57957	0.2558755	0.6436443	0.5661824
81623.3	232.230	10.430003	332.165	11.57957	0.5230418	0.7387871	0.6644294
81835.0	236.510	9.250155	332.165	11.57957	0.5738022	0.7254523	0.6347706
82893.5	243.595	10.571488	332.165	11.57957	0.4656391	0.6879500	0.5841211
83775.9	248.945	12.035906	332.165	11.57957	0.4550853	0.7524593	0.6434717
84990.7	236.555	10.140096	332.165	11.57957	0.5238723	0.7185035	0.6363935
86230.5	226.070	12.440668	332.165	11.57957	0.3716611	0.6917238	0.6462833
87105.7	222.345	10.715734	332.165	11.57957	0.4457432	0.6728862	0.6326873
87895.4	220.715	11.753042	332.165	11.57957	0.3899515	0.6745459	0.6416770
93808.8	236.685	10.410122	332.165	11.57957	0.4740581	0.6850472	0.6017827
94979.1	242.660	10.456716	332.165	11.57957	0.5520538	0.7616477	0.6664658
95716.6	244.555	10.600032	332.165	11.57957	0.5204242	0.7360859	0.6381252
96188.0	245.980	11.092232	332.165	11.57957	0.4698490	0.7116072	0.6118918
98027.5	241.520	5.505091	332.165	11.57957	0.9367636	0.8644955	0.7547940
98709.7	243.085	11.084283	332.165	11.57957	0.4517865	0.6865923	0.6008101
99962.7	245.630	11.140097	332.165	11.57957	0.3949553	0.6311758	0.5400835
100449.4	246.750	11.198743	332.165	11.57957	0.4284302	0.6646093	0.5742534
100904.9	246.315	11.380754	332.165	11.57957	0.3944682	0.6402675	0.5514206
101773.9	242.415	13.286853	332.165	11.57957	0.2523240	0.6047347	0.5243637
102241.3	238.570	11.646840	332.165	11.57957	0.3364483	0.5952220	0.5283347
102482.3	238.570	12.169420	332.165	11.57957	0.3010117	0.5889194	0.5218032
102962.7	238.875	12.193900	332.165	11.57957	0.3568660	0.6398268	0.5793705
105756.1	253.180	13.473646	332.165	11.57957	0.2320112	0.5796778	0.4854637
107516.1	238.385	11.171422	332.165	11.57957	0.4205639	0.6223582	0.5869408
107923.1	238.385	11.046191	332.165	11.57957	0.4789961	0.6689522	0.6386789
108683.1	240.435	11.716369	332.165	11.57957	0.4083472	0.6301626	0.6001683
109721.8	244.285	10.156338	332.165	11.57957	0.5195532	0.6475770	0.6124901
110046.0	245.410	12.049625	332.165	11.57957	0.3193626	0.5533412	0.5153317
110410.7	245.410	12.501412	332.165	11.57957	0.3047066	0.5607708	0.5258091
110749.0	246.690	12.672051	332.165	11.57957	0.2793597	0.5441830	0.5060772
111417.7	252.310	10.613031	332.165	11.57957	0.4788444	0.6200578	0.5777126

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
112079.2	257.360	11.843707	332.165	11.57957	0.4390066	0.6424373	0.5951750
112458.6	256.790	9.746313	332.165	11.57957	0.5915523	0.6793973	0.6298149
113175.1	264.750	11.252501	332.165	11.57957	0.3840202	0.5540841	0.4892940
113513.0	262.665	11.094049	332.165	11.57957	0.4556566	0.6134449	0.5571484
113866.9	264.240	10.983418	332.165	11.57957	0.4291493	0.5811007	0.5207871
114396.6	271.485	11.019463	332.165	11.57957	0.4971717	0.6482760	0.5750110
115062.8	276.015	13.374749	332.165	11.57957	0.2422746	0.5302813	0.4371966
115781.1	275.060	11.247739	332.165	11.57957	0.4615568	0.6239201	0.5444776
116113.1	273.395	8.916917	332.165	11.57957	0.6540708	0.6891715	0.6076746
116716.3	273.830	11.098259	332.165	11.57957	0.4825078	0.6353271	0.5597301
117485.2	274.505	11.733925	332.165	11.57957	0.3476749	0.5390186	0.4579379
118271.7	276.350	12.318627	332.165	11.57957	0.3389485	0.5612141	0.4773328
118760.7	272.730	11.777267	332.165	11.57957	0.3380108	0.5319534	0.4543407
119547.2	271.165	10.139371	332.165	11.57957	0.5426767	0.6427181	0.5715723
120190.6	272.775	12.496893	332.165	11.57957	0.2724931	0.5098004	0.4271735
120787.0	278.150	13.136676	332.165	11.57957	0.2756974	0.5464378	0.4539151
121607.2	278.045	11.650312	332.165	11.57957	0.3882158	0.5751824	0.4868142
122274.4	278.625	13.440054	332.165	11.57957	0.2925180	0.5798979	0.4868490
122671.2	279.080	11.669329	332.165	11.57957	0.4202409	0.6092365	0.5180031
122942.9	279.080	12.675596	332.165	11.57957	0.2549743	0.5086117	0.4056599
123213.8	276.880	11.996490	332.165	11.57957	0.3442714	0.5560942	0.4639043
123363.9	276.880	12.540655	332.165	11.57957	0.3500401	0.5902741	0.4997414
123573.2	274.600	13.190911	332.165	11.57957	0.1964624	0.4853031	0.3832102
124848.8	276.165	12.935335	332.165	11.57957	0.2900541	0.5609299	0.4617976
125110.0	276.165	13.489674	332.165	11.57957	0.2012962	0.5112722	0.4009817
125205.7	276.165	12.541094	332.165	11.57957	0.2958522	0.5475827	0.4461070
125476.3	275.980	13.591386	332.165	11.57957	0.1598915	0.4822840	0.3642379
125785.6	275.980	11.940332	332.165	11.57957	0.3295856	0.5499302	0.4478585
125975.8	275.980	11.867022	332.165	11.57957	0.4087338	0.6214612	0.5238344
125989.1	275.980	13.775263	332.165	11.57957	0.2023650	0.5307852	0.4180022
126136.8	274.085	11.534696	332.165	11.57957	0.2844772	0.4882560	0.3842613
126303.9	274.085	12.446690	332.165	11.57957	0.2735865	0.5275025	0.4227256
126390.5	274.085	11.472391	332.165	11.57957	0.3450203	0.5425192	0.4418247

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
126448.8	274.085	11.714258	332.165	11.57957	0.3974307	0.6050367	0.5079599
126654.0	273.020	11.011898	332.165	11.57957	0.3848220	0.5571052	0.4587978
126690.4	273.020	12.199358	332.165	11.57957	0.2856841	0.5275982	0.4238248
126747.1	273.975	12.358087	332.165	11.57957	0.2776502	0.5288713	0.4222662
126937.0	273.975	12.067514	332.165	11.57957	0.3042270	0.5388587	0.4333878
126980.1	274.930	12.003555	332.165	11.57957	0.3141509	0.5449515	0.4379142
127060.4	275.355	14.010011	332.165	11.57957	0.2159125	0.5598747	0.4461942
127265.1	275.780	15.088981	332.165	11.57957	0.1742387	0.5785693	0.4610852
127457.6	276.330	13.818278	332.165	11.57957	0.2195273	0.5556853	0.4373152
127505.4	276.880	13.717524	332.165	11.57957	0.2053141	0.5384598	0.4159600
127541.7	276.880	14.612987	332.165	11.57957	0.1659228	0.5498035	0.4238869
127553.3	276.880	14.624963	332.165	11.57957	0.1368882	0.5259213	0.3942765
127678.4	276.455	12.644108	332.165	11.57957	0.3543054	0.6190535	0.5107191
127814.3	276.455	13.013749	332.165	11.57957	0.3211588	0.6081191	0.4973255
128021.0	276.030	11.504513	332.165	11.57957	0.3291535	0.5383304	0.4235292
128071.6	278.375	11.835843	332.165	11.57957	0.3817783	0.6054253	0.4898654
128117.9	278.375	10.853437	332.165	11.57957	0.4528403	0.6221013	0.5069600
128204.0	280.720	10.865302	332.165	11.57957	0.4715989	0.6415085	0.5215953
128253.7	283.240	12.735311	332.165	11.57957	0.3114563	0.5876193	0.4579289
128341.2	283.240	13.093253	332.165	11.57957	0.2952943	0.5917270	0.4610078
128392.1	283.240	15.185115	332.165	11.57957	0.1744310	0.5899848	0.4503099
128828.1	271.080	12.839272	332.165	11.57957	0.2819079	0.5695242	0.4592432
128949.6	269.760	12.831106	332.165	11.57957	0.2810622	0.5692117	0.4608583
129007.1	269.760	12.150213	332.165	11.57957	0.3385382	0.5870598	0.4818659
129070.4	269.760	12.546970	332.165	11.57957	0.2960820	0.5691017	0.4605585
129202.7	268.440	12.377524	332.165	11.57957	0.3801613	0.6390801	0.5397391
129328.7	264.525	11.473793	332.165	11.57957	0.3988137	0.6107618	0.5169929
129389.1	264.525	11.290671	332.165	11.57957	0.4514543	0.6518806	0.5597459
129476.1	264.525	11.061393	332.165	11.57957	0.4595776	0.6482873	0.5550235
129526.9	264.525	10.485338	332.165	11.57957	0.5219006	0.6789985	0.5849013
129828.4	256.225	11.849087	332.165	11.57957	0.3622487	0.5993580	0.5204195
129954.4	256.225	9.962512	332.165	11.57957	0.5187317	0.6511584	0.5712593
130075.3	256.225	10.911969	332.165	11.57957	0.4170323	0.6037943	0.5231976

age [cal yr BP]	palaeo CO2 [umol/mol]	palaeo MGS temp [°C]	modern CO2 [umol/mol]	modern MGS temp [°C]	recon. MI [-]	corr. MI (Dongyang et al.) [-]	corr. MI (New approach) [-]
130212.2	256.225	11.923132	332.165	11.57957	0.4023872	0.6436575	0.5652890
130382.3	251.340	11.308777	332.165	11.57957	0.4083790	0.6185251	0.5486682
130454.1	251.340	12.064393	332.165	11.57957	0.3574991	0.6104921	0.5397360
130909.1	245.985	12.063293	332.165	11.57957	0.3830676	0.6379285	0.5794512
131044.0	245.985	11.647268	332.165	11.57957	0.3776099	0.6123925	0.5502960
131118.7	245.985	10.959157	332.165	11.57957	0.4675718	0.6629732	0.6019786
131192.4	245.985	10.617069	332.165	11.57957	0.4461614	0.6247340	0.5610383
131270.6	245.985	12.914141	332.165	11.57957	0.3357231	0.6402774	0.5794940