Padul Data

Calculate daily temperature (modern)

CRU TS 4.04 daily interpolations from monthly data:

```
path <- "/path/to/CRU/4.04/"
tmin <- file.path(path, "cru_ts4.04.1901.2019.tmn.dat-clim-1961-1990-int.nc")
tmax <- file.path(path, "cru_ts4.04.1901.2019.tmx.dat-clim-1961-1990-int.nc")
output_filename <- file.path(path, "cru_ts4.04-clim-1961-1990-daily.tmp.nc")
codos::daily_temp(tmin = list(filename = tmin, id = "tmn"),
                  tmax = list(filename = tmax, id = "tmx"),
                  output_filename = output_filename)
```

Output file

```
"cru_ts4.04-clim-1961-1990-daily.tmp.nc"
```

Calculate mean growing season for daily temperature (`tmp`)

```
codos::nc_gs("cru_ts4.04-clim-1961-1990-daily.tmp.nc", "tmp", thr = 0, cpus = 10)
```

Output file

```
"cru_ts4.04-clim-1961-1990-daily.tmp-gs.nc"
```

Padul location: 37.0108, -3.6039

```
Tmp <- codos:::nc_var_get(file.path(path, "cru_ts4.04-clim-1961-1990-daily.tmp-gs.nc"),
                          "tmp")
lat <- codos:::nc_var_get(file.path(path, "cru_ts4.04-clim-1961-1990-daily.tmp-gs.nc"),
                          "lat")
lon <- codos:::nc_var_get(file.path(path, "cru_ts4.04-clim-1961-1990-daily.tmp-gs.nc"),
                          "lon")
idx_y <- which.min(abs(lat$data - 37.0108))
idx_x <- which.min(abs(lon$data + 3.6039))

aux <- Tmp$data[c(idx_x, idx_x + 1), c(idx_y - 1, idx_y)]
rownames(aux) <- lat$data[c(idx_y, idx_y - 1)]
colnames(aux) <- lon$data[c(idx_x, idx_x + 1)]
aux
```

```
#>         -3.75    -3.25
#> 37.25 15.9465 14.80801
#> 36.75 15.2319 11.76962
```

```
(modern_tmp <- mean(aux))
```

```
#> [1] 14.43901
```

Reconstruct past temperature from `T_djf` and `T_jja`:

```
padul <- readr::read_csv("/path/to/padul.csv")
```

```
padul_tmp <- rowMeans(padul[, c("T_djf", "T_jja")])
```

Calculate daily mean temperature

Obtain past CO2 from (Bereiter et al. 2015)

```
past_co2 <- purrr::map_dbl(padul$`Age (cal yr BP)`, codos::past_co2)
```

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)) %>%
  .$co2 %>%
  mean()
```

Assemble the Padul data

```
padul2 <- tibble::tibble(age_calBP = padul$`Age (cal yr BP)`,
                         past_temp = padul_tmp,
                         past_co2 = past_co2,
                         modern_co2 = modern_co2, # 340,
                         present_t = padul_tmp, # modern_tmp,
                         recon_mi = padul$MI)
```

Find the corrected `MI`

```
padul2$corrected_mi <- codos::corrected_mi(padul2$present_t,
                                           padul2$past_temp,
                                           padul2$recon_mi,
                                           padul2$modern_co2,
                                           padul2$past_co2)
# Small subset
knitr::kable(head(padul2, 7))
```

age_calBP	past_temp	past_co2	modern_co2	present_t	recon_mi	corrected_mi
-62	13.15918	368.020	332.1725	13.15918	0.425809	0.3760617
-56	12.86272	368.020	332.1725	12.86272	0.471798	0.4221282
-50	11.88472	364.900	332.1725	11.88472	0.506921	0.4618115
-43	13.09339	353.835	332.1725	13.09339	0.566461	0.5349721
-38	12.20387	346.520	332.1725	12.20387	0.528049	0.5071456
-31	11.87980	337.155	332.1725	11.87980	0.522880	0.5154727
-25	11.49567	331.960	332.1725	11.49567	0.562884	0.5632035

Check out and download the entire dataset in Appendix A5.

Find the corrected Annual Precipitation, `P_ann`

Approximated as the ratios of potential evapotranspiration (`Ep`) and moisture index (`MI`), multiplied by the reconstructed annual precipitation, $P_{ann,\ 0}$:

$$P_{ann,\ 1} = \frac{MI_1}{MI_0} \times \frac{Ep_1}{Ep_0} \times P_{ann,\ 0}$$

The ratio of evapotranspiration (`Ep`) is given by

$$\frac{Ep_1}{Ep_0} = \left(\frac{vpd_1}{vpd_0}\right) \times \frac{[(1 + MI_0^{\omega})^{(1/\omega)} - MI_0]}{[(1 + MI_1^{\omega})^{(1/\omega)} - MI_1]}$$

where:

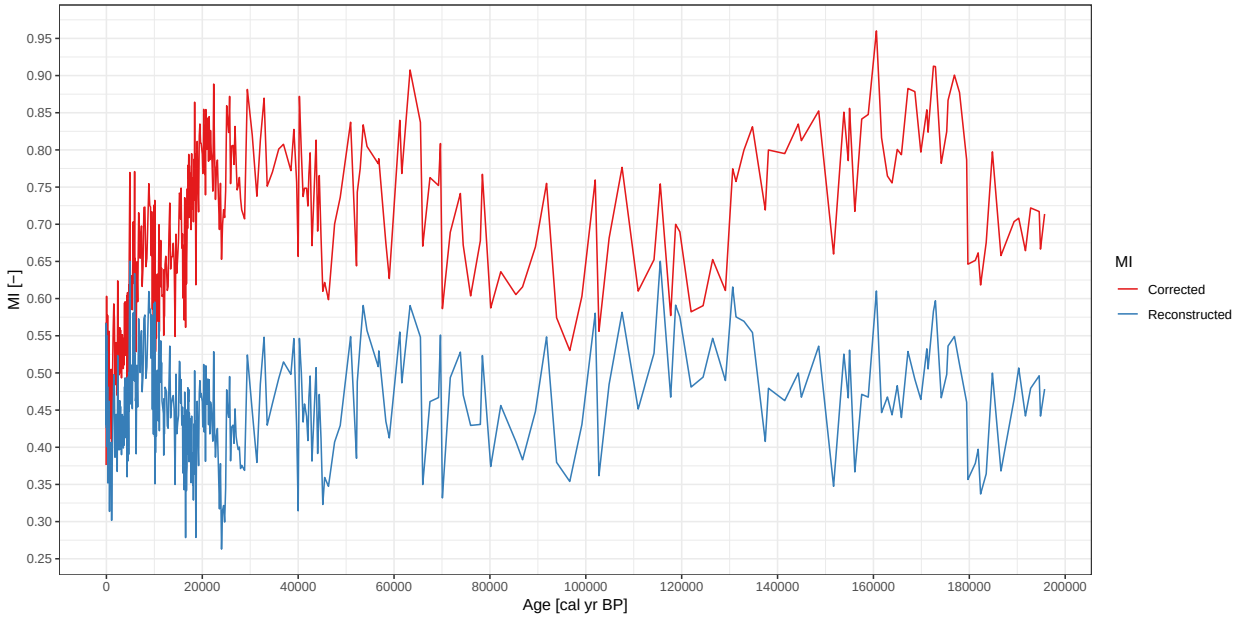
- vpd_0 and vpd_1 are the values of vapour pressure deficit (reconstructed and corrected, respectively)
- MI_0 amd MI_1 are the values of moisture index (reconstructed and corrected, respectively)
- ω is a constant equals to `3`.

age_calBP	past_temp	past_co2	modern_co2	present_t	recon_mi	corrected_mi	corrected_P_ann
-62	13.15918	368.020	332.1725	13.15918	0.425809	0.3760617	395.3763
-56	12.86272	368.020	332.1725	12.86272	0.471798	0.4221282	441.6480
-50	11.88472	364.900	332.1725	11.88472	0.506921	0.4618115	507.1735
-43	13.09339	353.835	332.1725	13.09339	0.566461	0.5349721	584.4754
-38	12.20387	346.520	332.1725	12.20387	0.528049	0.5071456	525.2701
-31	11.87980	337.155	332.1725	11.87980	0.522880	0.5154727	511.8556
-25	11.49567	331.960	332.1725	11.49567	0.562884	0.5632035	577.2336
-19	12.52563	325.080	332.1725	12.52563	0.438233	0.4491932	509.3831
-13	12.88969	318.840	332.1725	12.88969	0.468382	0.4895393	570.1926
-6	13.13016	315.340	332.1725	13.13016	0.483879	0.5110105	589.7848
-1	12.70126	312.000	332.1725	12.70126	0.493117	0.5257439	597.2288
6	12.72497	311.290	332.1725	12.72497	0.490124	0.5239778	570.1302
12	11.81530	311.730	332.1725	11.81530	0.524648	0.5573327	591.7815
18	11.88823	308.260	332.1725	11.88823	0.528909	0.5676032	592.8829
24	13.54031	304.970	332.1725	13.54031	0.429877	0.4752671	520.8769
30	12.42386	301.880	332.1725	12.42386	0.446556	0.4966866	540.9317
36	12.92161	301.000	332.1725	12.92161	0.550525	0.6030870	665.3816
43	12.65301	299.630	332.1725	12.65301	0.494339	0.5489721	614.0417
48	12.37886	295.610	332.1725	12.37886	0.486138	0.5479796	596.2992
60	12.49062	290.920	332.1725	12.49062	0.486739	0.5577028	604.7840

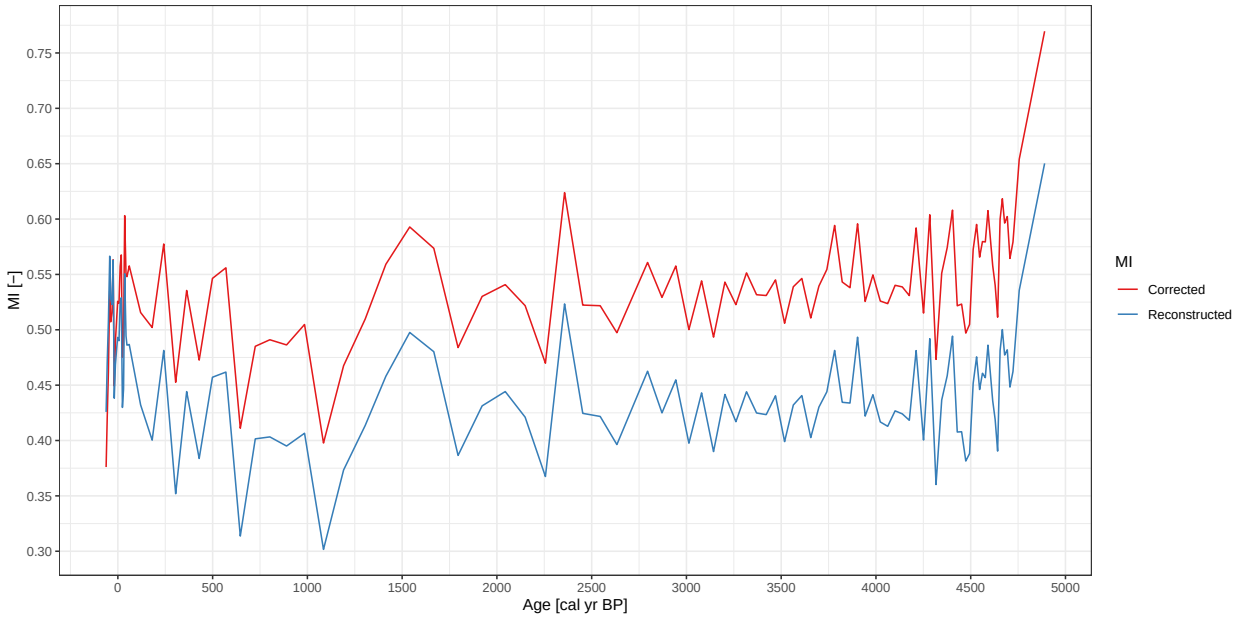
Check out and download the entire dataset in Appendix A5.

Plots

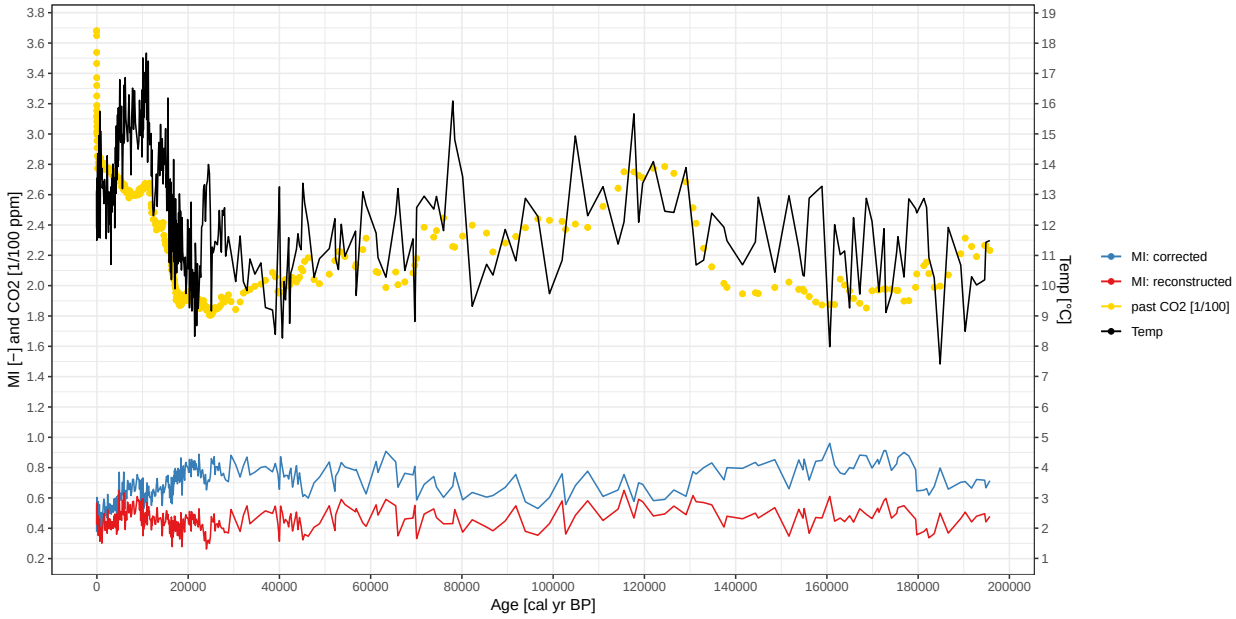
Reconstructed vs corrected `MI`: Past CO2 calculated using `mean`



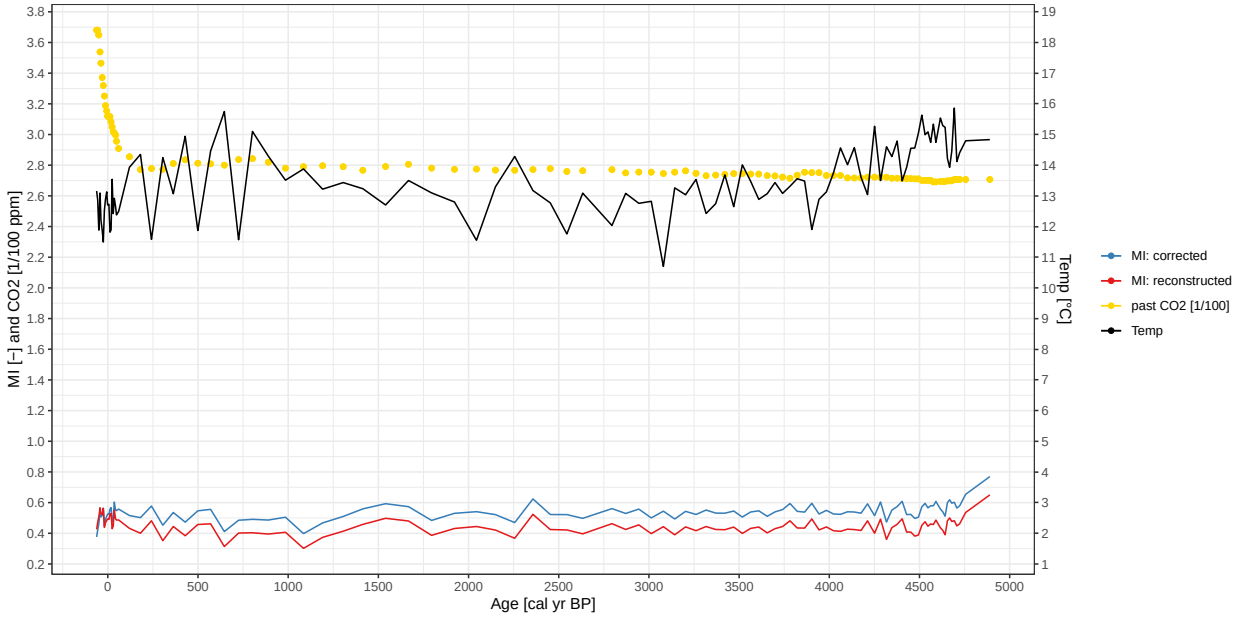
- `age < 5k`



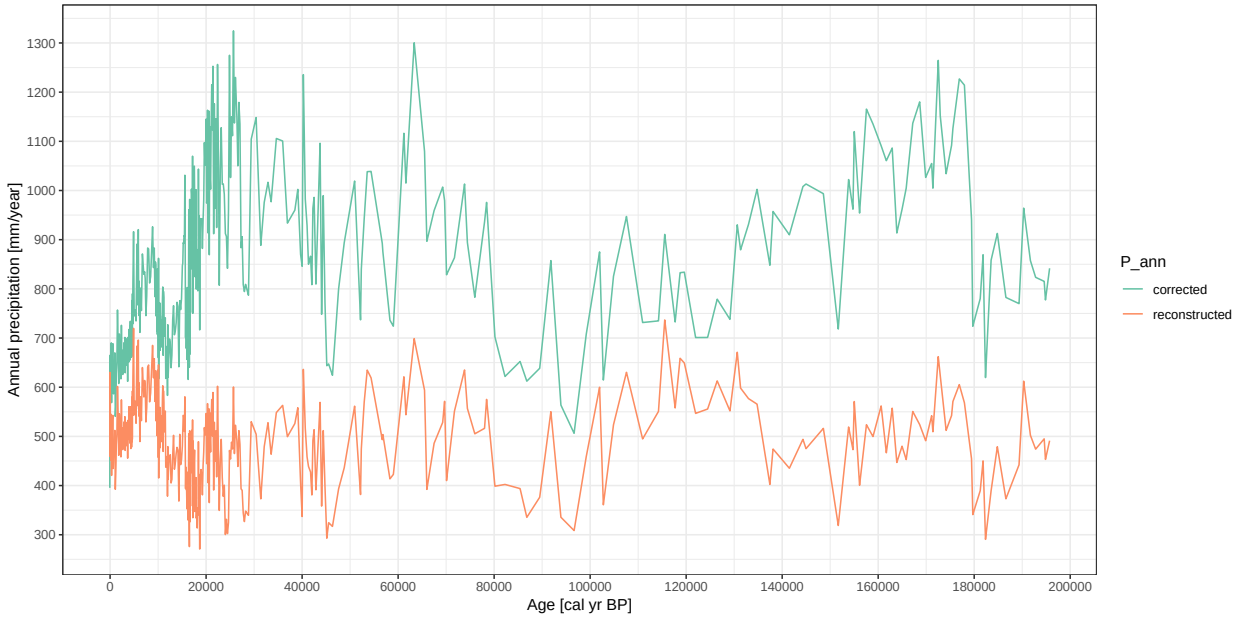
Include past CO2 and Temperature



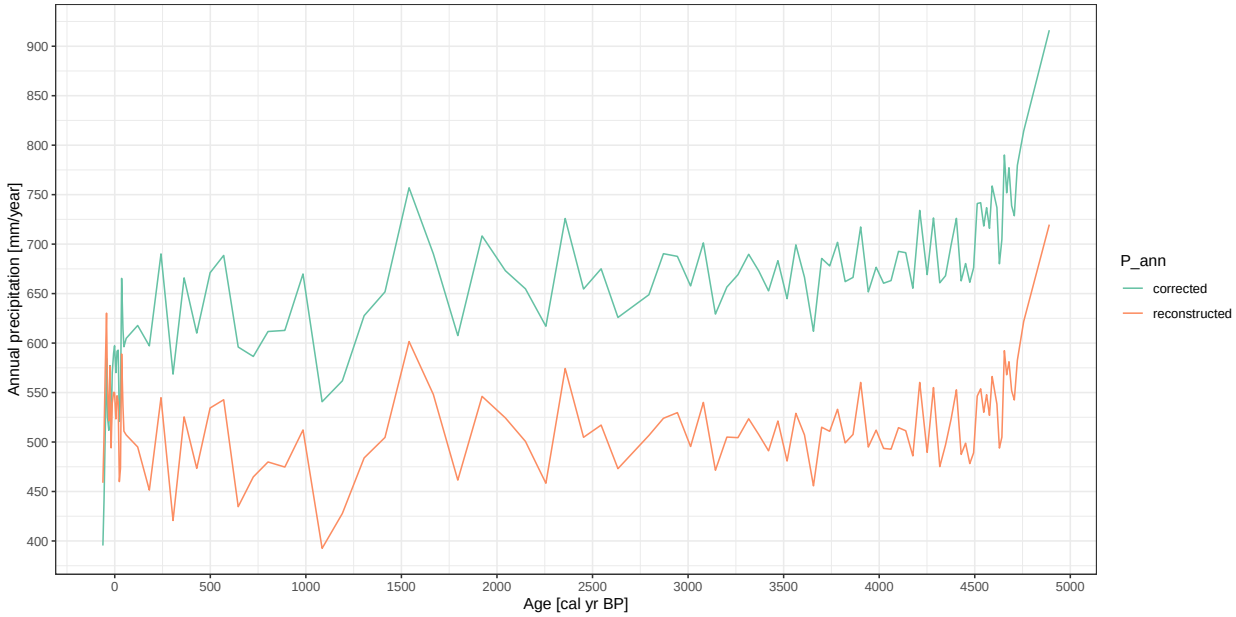
- `age < 5k`



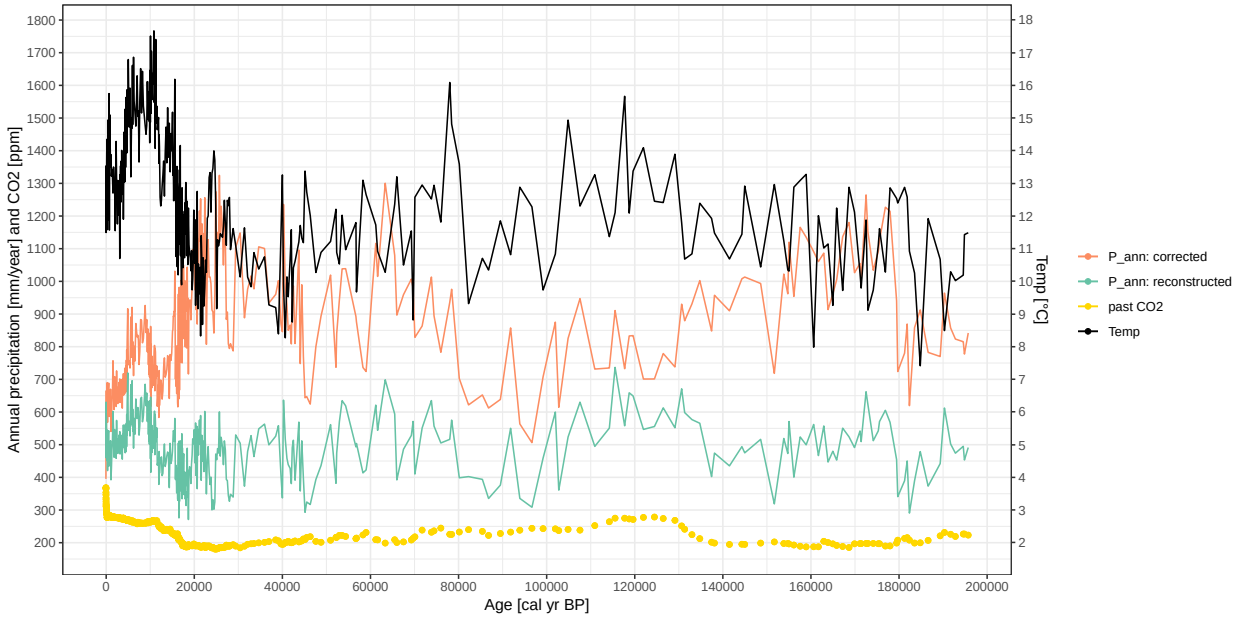
Reconstructed vs corrected `P_ann`: Past CO2 calculated using `mean`



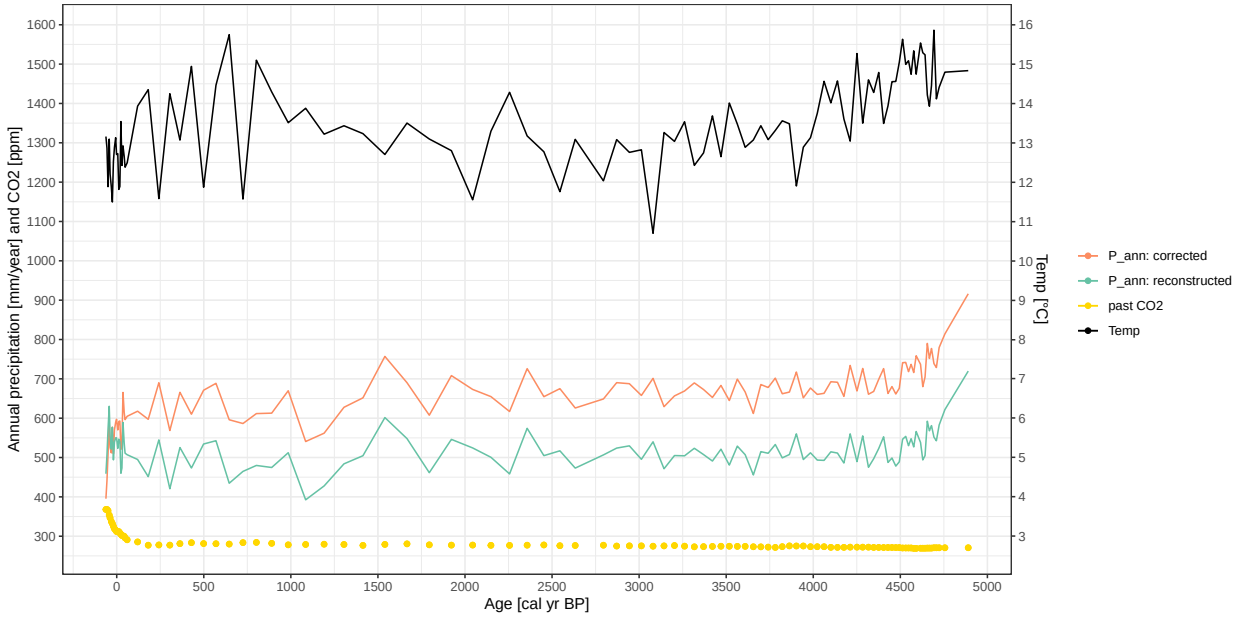
- `age < 5k`



Include past CO2 and Temperature



- `age < 5k`



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.

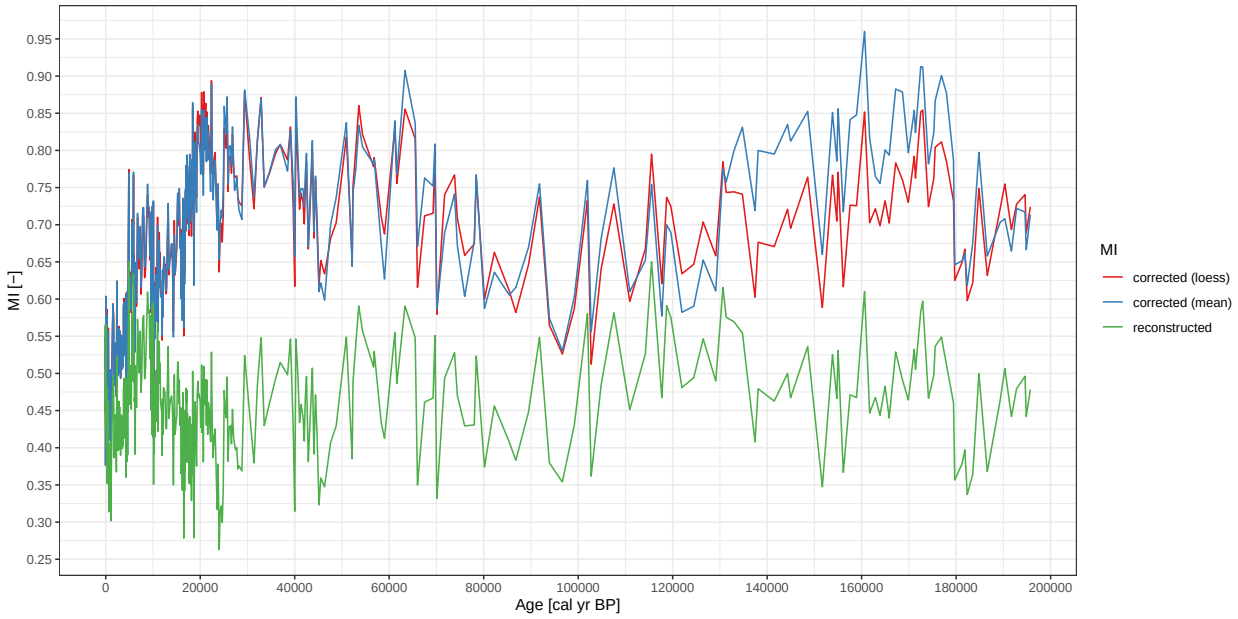
Appendix

A1. Find reconstructed MI using loess

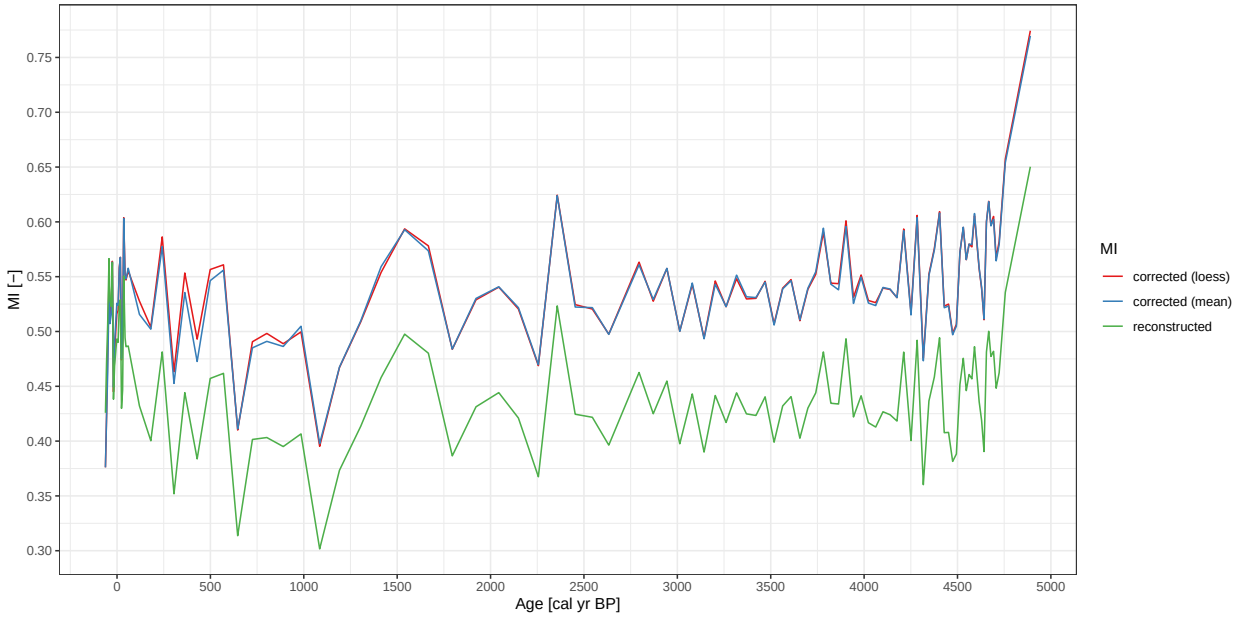
```
past_co2_loess <- function(age_calBP, ref = codos::ice_core) {
  # Extract the reference age and co2
  ref_age <- purrr::pluck(ref, 1)
  ref_co2 <- purrr::pluck(ref, 2)
  if (age_calBP < min(ref_age))
    return(ref_co2[which.min(ref_age)])

  if (age_calBP > max(ref_age))
    return(ref_co2[which.max(ref_age)])
  loessMod10 <- loess(co2 ~ age_calBP,
                      tibble::tibble(age_calBP = ref_age,
                                     co2 = ref_co2), span = 0.1)
  return(predict(loessMod10, age_calBP))
}

padul2$past_co2_loess <- purrr::map_dbl(padul2$age_calBP,
                                        past_co2_loess)
padul2$corrected_mi_loess <- codos::corrected_mi(padul2$present_t,
                                                 padul2$past_temp,
                                                 padul2$recon_mi,
                                                 padul2$modern_co2,
                                                 padul2$past_co2_loess)

head(padul2, 10) %>%
  dplyr::select(-c(past_co2, corrected_mi, corrected_P_ann)) %>%
  knitr::kable() %>%
  kableExtra::kable_styling()
```

age_calBP	past_temp	modern_co2	present_t	recon_mi	past_co2_loess	corrected_mi_loess
-62	13.15918	332.1725	13.15918	0.425809	368.0200	0.3760617
-56	12.86272	332.1725	12.86272	0.471798	368.0200	0.4221282
-50	11.88472	332.1725	11.88472	0.506921	348.5771	0.4833120
-43	13.09339	332.1725	13.09339	0.566461	343.4588	0.5495868
-38	12.20387	332.1725	12.20387	0.528049	339.9523	0.5165080
-31	11.87980	332.1725	11.87980	0.522880	335.2524	0.5182767
-25	11.49567	332.1725	11.49567	0.562884	331.4182	0.5640199
-19	12.52563	332.1725	12.52563	0.438233	327.7633	0.4449942
-13	12.88969	332.1725	12.88969	0.468382	324.2577	0.4807442
-6	13.13016	332.1725	13.13016	0.483879	320.3318	0.5026841

A2. Plot reconstructed vs corrected `MI` both approaches

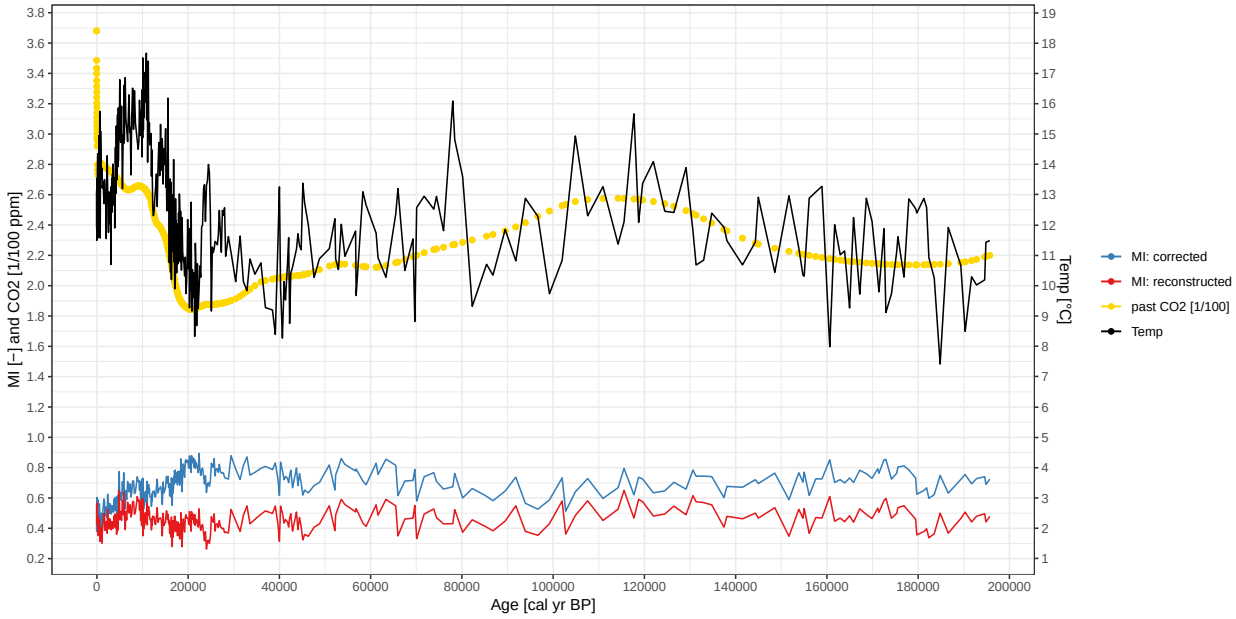


- `age < 5k`

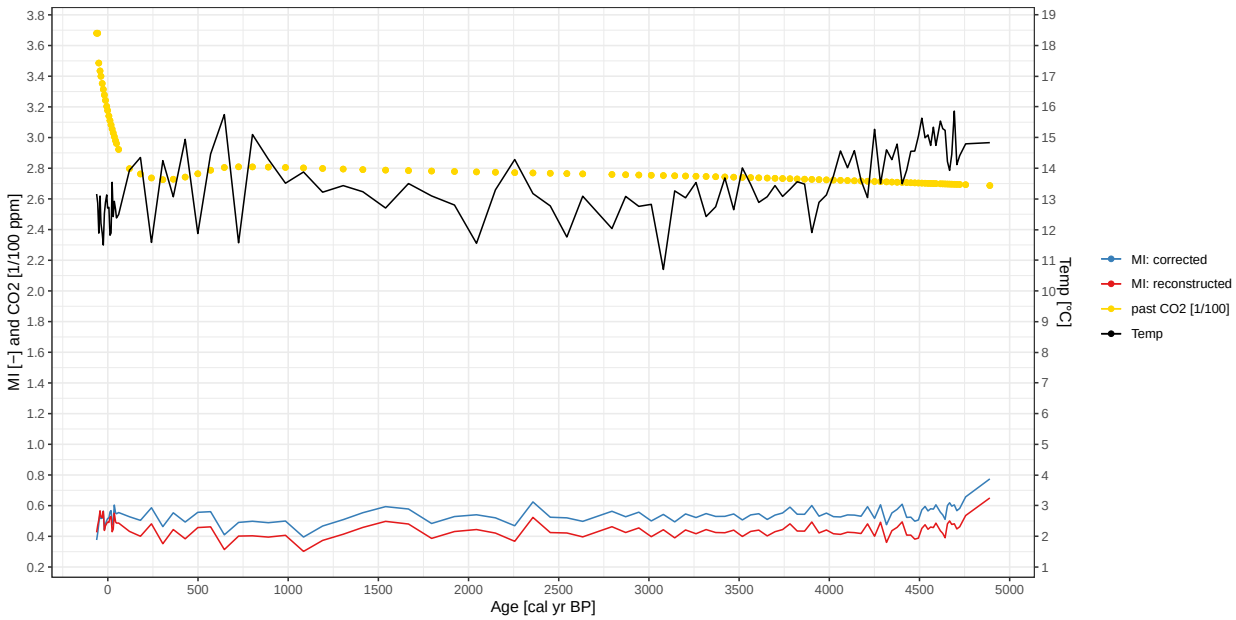


A3. Reconstructed vs corrected `MI`: Past CO2 calculated using `loess`

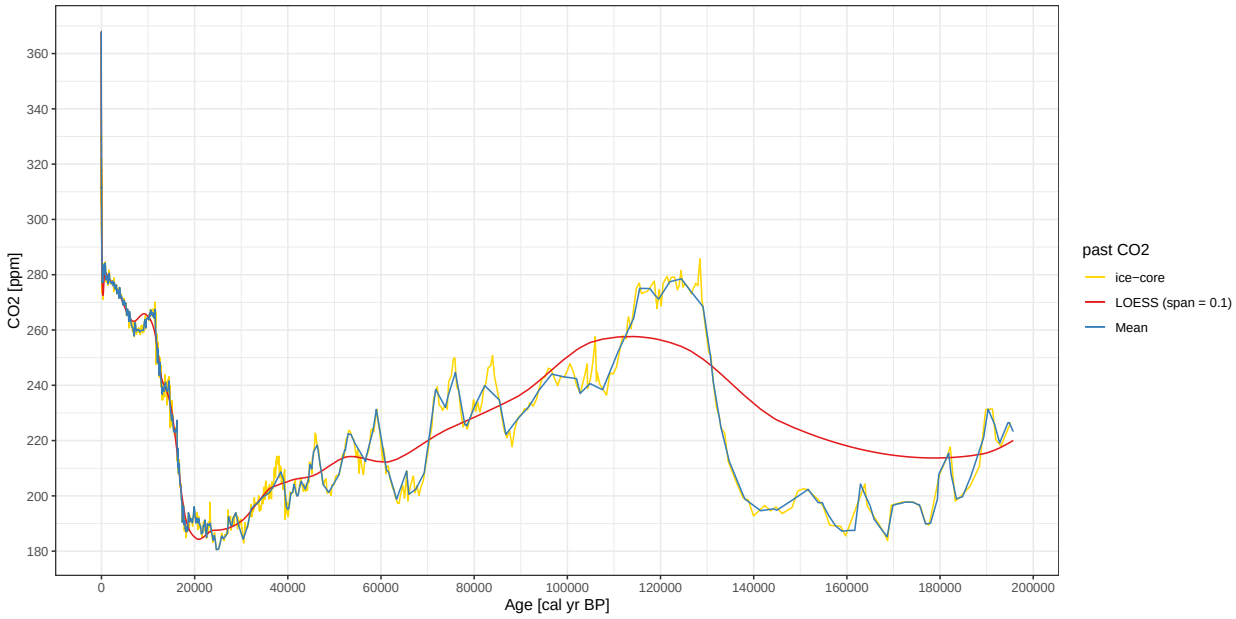
Include past CO2 and Temperature



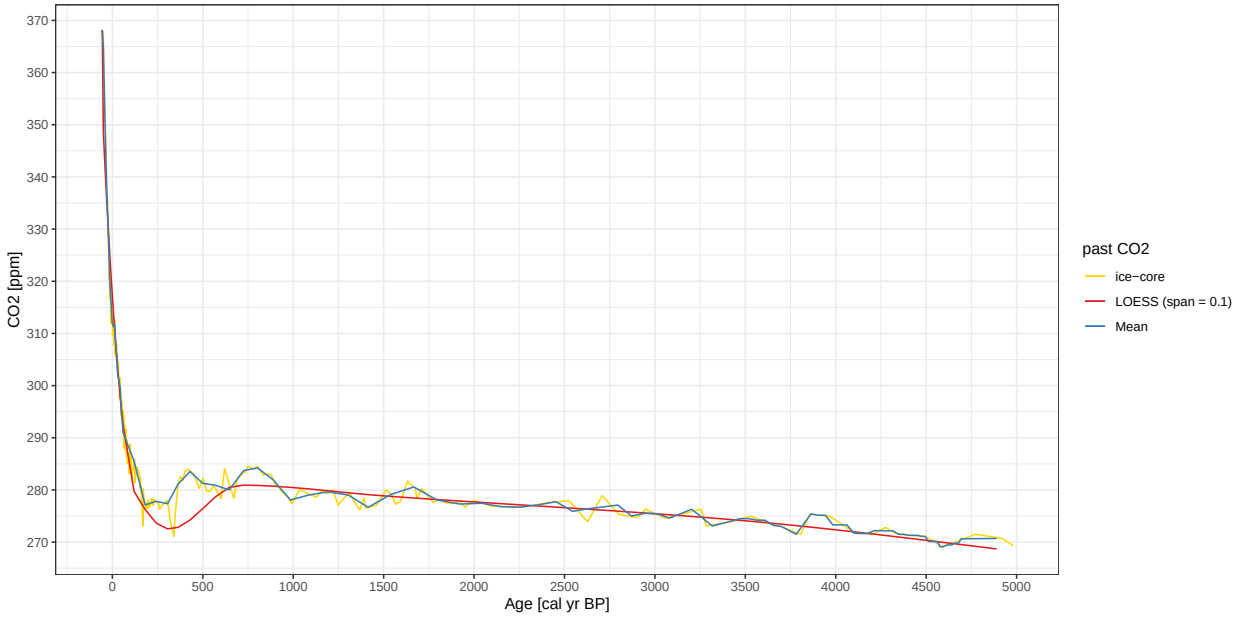
- `age < 5k`



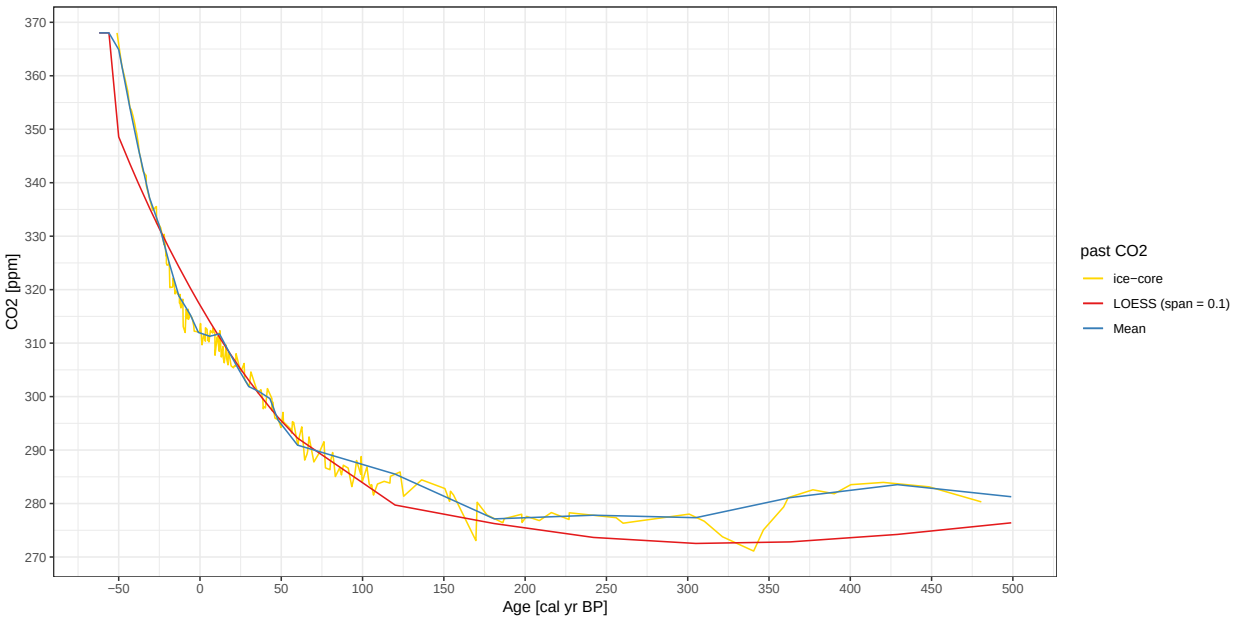
A4. Compare `codos::ice_core` vs past CO2 calculate using `mean` and `loess`



- `age < 5k`



- age < 500


CO2 [ppm]
370
360
350
340
330
320
310
300
290
280
270
−50
0
50
100
150
200
250
300
350
400
450
500
Age [cal yr BP]
past CO2
ice−core
LOESS (span = 0.1)
Mean

A5. Padul Data

Download the CSV file: padul-with-corrected-mi.csv

age_calBP	past_temp	past_co2	modern_co2	present_t	recon_mi	corrected_mi	corrected_P_ann
-62	13.159180	368.020	332.1725	13.159180	0.425809	0.3760617	395.3763
-56	12.862720	368.020	332.1725	12.862720	0.471798	0.4221282	441.6480
-50	11.884725	364.900	332.1725	11.884725	0.506921	0.4618115	507.1735
-43	13.093390	353.835	332.1725	13.093390	0.566461	0.5349721	584.4754
-38	12.203865	346.520	332.1725	12.203865	0.528049	0.5071456	525.2701
-31	11.879800	337.155	332.1725	11.879800	0.522880	0.5154727	511.8556
-25	11.495670	331.960	332.1725	11.495670	0.562884	0.5632035	577.2336
-19	12.525630	325.080	332.1725	12.525630	0.438233	0.4491932	509.3831
-13	12.889695	318.840	332.1725	12.889695	0.468382	0.4895393	570.1926
-6	13.130160	315.340	332.1725	13.130160	0.483879	0.5110105	589.7848
-1	12.701260	312.000	332.1725	12.701260	0.493117	0.5257439	597.2288
6	12.724970	311.290	332.1725	12.724970	0.490124	0.5239778	570.1302
12	11.815300	311.730	332.1725	11.815300	0.524648	0.5573327	591.7815
18	11.888230	308.260	332.1725	11.888230	0.528909	0.5676032	592.8829
24	13.540305	304.970	332.1725	13.540305	0.429877	0.4752671	520.8769
30	12.423860	301.880	332.1725	12.423860	0.446556	0.4966866	540.9317
36	12.921615	301.000	332.1725	12.921615	0.550525	0.6030870	665.3816
43	12.653010	299.630	332.1725	12.653010	0.494339	0.5489721	614.0417
48	12.378860	295.610	332.1725	12.378860	0.486138	0.5479796	596.2992
60	12.490615	290.920	332.1725	12.490615	0.486739	0.5577028	604.7840
120	13.932820	285.500	332.1725	13.932820	0.432149	0.5156030	617.7801
181	14.350570	277.130	332.1725	14.350570	0.400314	0.5020553	597.1824
242	11.581430	277.815	332.1725	11.581430	0.481347	0.5774672	690.1297
305	14.247445	277.355	332.1725	14.247445	0.351935	0.4526353	568.6426
363	13.068665	281.110	332.1725	13.068665	0.444194	0.5355181	665.8997
429	14.941955	283.535	332.1725	14.941955	0.383781	0.4726243	610.0755
499	11.871105	281.270	332.1725	11.871105	0.457146	0.5463924	671.0713
570	14.464090	280.910	332.1725	14.464090	0.461804	0.5559743	688.5984
646	15.748480	280.005	332.1725	15.748480	0.313710	0.4111123	595.9976
725	11.569615	283.690	332.1725	11.569615	0.401503	0.4850699	586.4562
802	15.099470	284.240	332.1725	15.099470	0.403256	0.4909880	611.6857
890	14.293475	281.905	332.1725	14.293475	0.395018	0.4863217	612.7901

985	13.511010	278.075	332.1725	13.511010	0.406559	0.5047889	669.8431
1085	13.877625	279.020	332.1725	13.877625	0.301657	0.3977495	540.7132
1191	13.218835	279.640	332.1725	13.218835	0.373369	0.4675414	561.8484
1305	13.432900	279.020	332.1725	13.432900	0.413576	0.5097004	627.6905
1414	13.233040	276.675	332.1725	13.233040	0.458016	0.5591528	651.7384
1540	12.702920	279.130	332.1725	12.702920	0.497576	0.5928426	756.9741
1667	13.501385	280.575	332.1725	13.501385	0.480201	0.5735939	690.2204
1795	13.096470	278.070	332.1725	13.096470	0.386541	0.4839274	607.5392
1922	12.799950	277.300	332.1725	12.799950	0.431293	0.5301397	708.2803
2044	11.551290	277.450	332.1725	11.551290	0.444219	0.5407922	673.1258
2149	13.294700	276.800	332.1725	13.294700	0.421076	0.5217786	654.8394
2256	14.283885	276.700	332.1725	14.283885	0.367480	0.4697948	616.9885
2357	13.174110	277.150	332.1725	13.174110	0.523369	0.6238541	725.9174
2453	12.771775	277.750	332.1725	12.771775	0.424511	0.5223024	654.6292
2545	11.757505	275.900	332.1725	11.757505	0.421738	0.5217412	675.0763
2633	13.088010	276.400	332.1725	13.088010	0.396330	0.4973481	625.8927
2795	12.033940	277.100	332.1725	12.033940	0.462588	0.5608061	648.8574
2871	13.081115	275.000	332.1725	13.081115	0.424956	0.5292096	690.3279
2944	12.756910	275.500	332.1725	12.756910	0.454794	0.5576078	687.6321
3013	12.822585	275.450	332.1725	12.822585	0.397566	0.5001730	657.7743
3080	10.699305	274.600	332.1725	10.699305	0.443022	0.5441952	701.2693
3143	13.261510	275.450	332.1725	13.261510	0.390003	0.4933384	629.2941
3203	13.035830	276.300	332.1725	13.035830	0.441610	0.5430881	656.6020
3261	13.535495	274.700	332.1725	13.535495	0.416972	0.5226583	669.1219
3317	12.425060	273.100	332.1725	12.425060	0.444067	0.5514193	689.7401
3370	12.743310	273.550	332.1725	12.743310	0.424860	0.5316607	672.8394
3421	13.684420	274.000	332.1725	13.684420	0.423377	0.5309413	652.7280
3470	12.647450	274.500	332.1725	12.647450	0.440416	0.5450931	683.2742
3518	14.010410	274.500	332.1725	14.010410	0.399001	0.5058914	644.8703
3564	13.475130	274.200	332.1725	13.475130	0.432065	0.5388570	699.2728
3609	12.885270	274.200	332.1725	12.885270	0.440593	0.5463555	666.5268
3656	13.071425	273.200	332.1725	13.071425	0.402640	0.5106437	611.9408
3699	13.434470	273.000	332.1725	13.434470	0.430108	0.5394652	685.5228
3741	13.080005	272.250	332.1725	13.080005	0.444006	0.5544587	677.9826

3782	13.312910	271.500	332.1725	13.312910	0.481336	0.5942262	701.8222
3822	13.559430	273.450	332.1725	13.559430	0.434527	0.5431602	662.1028
3863	13.483015	275.400	332.1725	13.483015	0.433829	0.5380112	666.3589
3903	11.902960	275.150	332.1725	11.902960	0.493315	0.5956898	717.3538
3943	12.888460	275.150	332.1725	12.888460	0.422033	0.5255911	651.7210
3984	13.129820	273.300	332.1725	13.129820	0.441372	0.5495722	676.6531
4023	13.747505	273.300	332.1725	13.747505	0.416761	0.5259512	660.4759
4062	14.563010	273.300	332.1725	14.563010	0.412826	0.5236120	663.1754
4101	14.015225	271.700	332.1725	14.015225	0.426782	0.5401863	692.6752
4139	14.572930	271.650	332.1725	14.572930	0.424069	0.5387256	691.3234
4176	13.604615	271.650	332.1725	13.604615	0.418275	0.5308898	655.4197
4212	13.041955	272.200	332.1725	13.041955	0.481193	0.5919844	734.1062
4251	15.268020	272.200	332.1725	15.268020	0.400423	0.5151057	669.2098
4284	13.499280	272.150	332.1725	13.499280	0.491962	0.6038467	726.4331
4317	14.600530	272.150	332.1725	14.600530	0.360241	0.4732822	660.8794
4347	14.278675	271.500	332.1725	14.278675	0.436612	0.5510982	668.0337
4376	14.787685	271.500	332.1725	14.787685	0.458481	0.5742302	698.8714
4404	13.491295	271.300	332.1725	13.491295	0.494253	0.6080581	726.0426
4429	13.935795	271.300	332.1725	13.935795	0.407680	0.5216691	662.8652
4452	14.553305	271.300	332.1725	14.553305	0.407926	0.5232077	680.3842
4474	14.558790	271.100	332.1725	14.558790	0.381470	0.4969983	661.4473
4494	15.045370	271.100	332.1725	15.045370	0.388216	0.5048533	675.9930
4513	15.631435	270.100	332.1725	15.631435	0.451673	0.5725241	741.0381
4531	14.992585	270.100	332.1725	14.992585	0.475532	0.5951343	741.8430
4547	15.086240	270.100	332.1725	15.086240	0.446055	0.5656111	718.2843
4562	14.741750	270.100	332.1725	14.741750	0.460775	0.5796909	736.8551
4577	15.337330	269.100	332.1725	15.337330	0.456752	0.5793353	715.9669
4591	14.744645	269.100	332.1725	14.744645	0.486113	0.6075974	758.7652
4616	15.537315	269.450	332.1725	15.537315	0.435921	0.5579548	736.8766
4629	15.289300	269.450	332.1725	15.289300	0.418996	0.5403044	680.1344
4642	15.236480	269.450	332.1725	15.236480	0.390457	0.5113915	704.7422
4655	14.217500	269.800	332.1725	14.217500	0.481282	0.5999265	790.0627
4667	13.929305	269.800	332.1725	13.929305	0.500180	0.6183690	751.8377
4679	14.456340	269.800	332.1725	14.456340	0.477212	0.5963409	777.1501

4693	15.862295	270.650	332.1725	15.862295	0.481918	0.6022659	738.7412
4707	14.117130	270.650	332.1725	14.117130	0.448255	0.5644445	728.6818
4723	14.411470	270.650	332.1725	14.411470	0.462332	0.5792672	779.6370
4756	14.795020	270.650	332.1725	14.795020	0.535625	0.6540205	814.2062
4890	14.834370	270.700	332.1725	14.834370	0.650277	0.7696249	916.2078
5015	16.790890	268.950	332.1725	16.790890	0.458337	0.5848307	744.9722
5202	14.724575	269.800	332.1725	14.724575	0.510507	0.6305178	757.2152
5403	15.916575	265.300	332.1725	15.916575	0.451895	0.5850487	734.6935
5596	13.197670	267.600	332.1725	13.197670	0.580824	0.7032449	890.9668
5763	14.989795	265.700	332.1725	14.989795	0.490060	0.6202668	767.3929
5879	14.690215	263.100	332.1725	14.690215	0.633639	0.7708493	920.4330
5953	16.610490	263.700	332.1725	16.610490	0.488720	0.6281041	774.7317
6007	14.797680	266.700	332.1725	14.797680	0.526236	0.6539074	815.7139
6056	15.365505	266.100	332.1725	15.365505	0.462299	0.5921992	745.7597
6118	15.526410	265.500	332.1725	15.526410	0.467143	0.5989535	769.5500
6206	16.861230	264.350	332.1725	16.861230	0.391183	0.5286402	711.4244
6338	15.520625	262.700	332.1725	15.520625	0.510261	0.6494063	801.5331
6523	15.196245	261.150	332.1725	15.196245	0.454215	0.5957981	755.8843
6729	14.751830	260.750	332.1725	14.751830	0.572781	0.7153985	871.0144
7025	16.292160	257.850	332.1725	16.292160	0.500633	0.6543264	829.5767
7198	15.048425	262.650	332.1725	15.048425	0.548170	0.6865729	834.7942
7311	15.212085	261.850	332.1725	15.212085	0.556734	0.6976550	821.0539
7457	13.652665	259.550	332.1725	13.652665	0.474606	0.6163303	745.4607
7630	15.563800	260.100	332.1725	15.563800	0.496452	0.6421398	785.2229
7821	16.512985	260.050	332.1725	16.512985	0.573211	0.7225934	883.1827
8024	15.154520	260.200	332.1725	15.154520	0.577937	0.7230887	881.0801
8233	16.430325	259.300	332.1725	16.430325	0.492751	0.6429757	811.8743
8442	15.368730	259.800	332.1725	15.368730	0.507928	0.6539549	824.7403
8847	14.772840	259.950	332.1725	14.772840	0.609482	0.7545543	926.2523
9040	14.501085	259.850	332.1725	14.501085	0.580817	0.7251107	843.2814
9205	14.772915	262.850	332.1725	14.772915	0.585610	0.7231760	883.0474
9340	16.114460	263.750	332.1725	16.114460	0.519646	0.6578507	784.1011
9441	15.439775	262.900	332.1725	15.439775	0.577847	0.7169552	854.6574
9522	14.951680	260.750	332.1725	14.951680	0.548766	0.6916710	848.7267

9589	15.205050	263.800	332.1725	15.205050	0.450967	0.5859685	744.7593
9654	15.017930	263.800	332.1725	15.017930	0.546659	0.6821213	817.5312
9723	15.199465	263.800	332.1725	15.199465	0.569147	0.7052960	832.3501
9806	15.815015	264.400	332.1725	15.815015	0.417580	0.5523551	713.8119
9823	14.884225	264.400	332.1725	14.884225	0.487888	0.6209703	802.9241
9843	16.120400	264.400	332.1725	16.120400	0.480904	0.6171109	707.3928
9862	14.437820	264.400	332.1725	14.437820	0.524941	0.6572792	797.6695
9882	14.242735	264.400	332.1725	14.242735	0.593003	0.7255193	840.8422
9903	15.793380	264.300	332.1725	15.793380	0.493796	0.6295117	781.8661
9925	16.457260	264.300	332.1725	16.457260	0.428127	0.5649690	712.8220
9951	15.717115	264.300	332.1725	15.717115	0.473277	0.6085907	718.6322
9975	15.131305	264.300	332.1725	15.131305	0.453730	0.5873455	712.0561
10001	15.323460	264.200	332.1725	15.323460	0.532910	0.6680340	788.7972
10028	14.871245	264.100	332.1725	14.871245	0.558392	0.6928592	809.5595
10057	17.511240	264.100	332.1725	17.511240	0.414236	0.5544045	659.8747
10089	15.605590	264.100	332.1725	15.605590	0.595404	0.7321234	862.1123
10120	16.048725	264.000	332.1725	16.048725	0.350761	0.4864816	616.9558
10153	16.008700	263.700	332.1725	16.008700	0.473838	0.6114247	712.4160
10187	15.144115	263.700	332.1725	15.144115	0.481948	0.6173439	716.1959
10222	16.486195	264.550	332.1725	16.486195	0.392532	0.5284734	668.1688
10262	17.041910	264.550	332.1725	17.041910	0.394061	0.5315454	680.0873
10299	15.637060	265.700	332.1725	15.637060	0.427851	0.5590765	721.4264
10337	15.631225	265.300	332.1725	15.631225	0.426451	0.5586256	685.8996
10376	15.559980	264.900	332.1725	15.559980	0.479709	0.6131975	771.1955
10415	16.365245	266.200	332.1725	16.365245	0.414970	0.5467155	675.0269
10458	16.276965	266.200	332.1725	16.276965	0.484494	0.6166762	745.3231
10497	16.349345	266.200	332.1725	16.349345	0.438019	0.5699443	684.4057
10536	16.278340	267.200	332.1725	16.278340	0.464915	0.5944521	737.7201
10612	16.047825	267.200	332.1725	16.047825	0.503634	0.6329492	733.7884
10690	16.485350	266.450	332.1725	16.485350	0.448163	0.5799232	681.7791
10762	16.975485	266.000	332.1725	16.975485	0.435743	0.5698094	721.9766
10835	17.668380	265.550	332.1725	17.668380	0.473725	0.6112321	740.3408
10904	15.477845	266.350	332.1725	15.477845	0.524962	0.6551246	779.0312
10972	15.780770	266.200	332.1725	15.780770	0.567718	0.6994155	803.8195

11044	17.062450	266.200	332.1725	17.062450	0.422194	0.5558639	664.9010
11113	14.071460	264.800	332.1725	14.071460	0.541849	0.6725019	794.8910
11187	16.074465	265.150	332.1725	16.074465	0.490152	0.6244606	782.3768
11258	17.405490	264.400	332.1725	17.405490	0.513015	0.6531101	703.5564
11333	15.502385	264.455	332.1725	15.502385	0.543125	0.6781802	736.9928
11414	14.840655	266.320	332.1725	14.840655	0.487248	0.6155722	709.0475
11499	15.364930	267.415	332.1725	15.364930	0.513904	0.6411031	741.0763
11594	14.643270	261.000	332.1725	14.643270	0.462316	0.6028879	617.7513
11888	15.016305	253.730	332.1725	15.016305	0.445394	0.6054149	683.2521
11954	13.614930	251.455	332.1725	13.614930	0.389403	0.5505438	583.2989
12022	14.482675	248.130	332.1725	14.482675	0.465376	0.6389500	726.9798
12091	14.124780	253.345	332.1725	14.124780	0.417931	0.5759886	620.1439
12234	12.575605	249.090	332.1725	12.575605	0.480760	0.6461400	660.0142
12382	12.307820	243.655	332.1725	12.307820	0.477946	0.6569264	698.1359
12537	12.471630	248.330	332.1725	12.471630	0.474711	0.6417035	688.7365
12698	12.908245	242.915	332.1725	12.908245	0.428726	0.6109656	639.5409
12871	13.249050	240.295	332.1725	13.249050	0.425493	0.6160951	664.6468
13043	13.682535	236.770	332.1725	13.682535	0.483385	0.6864855	738.1455
13218	12.610745	239.410	332.1725	12.610745	0.536082	0.7285553	765.7297
13397	13.914370	237.830	332.1725	13.914370	0.439547	0.6397681	706.6256
13578	14.723270	239.845	332.1725	14.723270	0.458435	0.6560795	714.3610
13762	13.627845	241.110	332.1725	13.627845	0.466207	0.6563829	730.8429
13947	15.317390	238.245	332.1725	15.317390	0.469603	0.6744294	772.7150
14133	13.802605	237.820	332.1725	13.802605	0.450253	0.6502478	764.2571
14327	14.841775	238.940	332.1725	14.841775	0.349928	0.5490838	641.5195
14512	13.351390	241.600	332.1725	13.351390	0.498382	0.6866757	775.9217
14695	14.525705	233.200	332.1725	14.525705	0.418140	0.6342042	757.8970
14877	13.996235	230.035	332.1725	13.996235	0.433336	0.6571841	780.3810
15056	15.177935	227.185	332.1725	15.177935	0.443005	0.6812767	847.2419
15144	13.245490	229.240	332.1725	13.245490	0.489104	0.7132319	851.8379
15231	13.647995	229.225	332.1725	13.647995	0.515634	0.7418986	893.8090
15317	12.467560	227.640	332.1725	12.467560	0.513872	0.7402147	892.2016
15402	13.452520	225.065	332.1725	13.452520	0.492902	0.7311028	908.1321
15486	14.472345	223.400	332.1725	14.472345	0.459350	0.7070202	906.9621

15576	16.186575	223.145	332.1725	16.186575	0.491031	0.7486912	1031.0716
15722	12.524460	223.510	332.1725	12.524460	0.429873	0.6679559	700.9384
15793	12.398135	223.610	332.1725	12.398135	0.430739	0.6679888	776.5878
15870	10.760215	222.935	332.1725	10.760215	0.453890	0.6870681	678.9097
15939	12.350730	223.770	332.1725	12.350730	0.365376	0.6007875	727.9753
16006	12.724970	223.400	332.1725	12.724970	0.375637	0.6139705	656.4478
16072	13.518925	224.360	332.1725	13.518925	0.366020	0.6045566	802.7036
16137	10.445880	223.635	332.1725	10.445880	0.441893	0.6715158	733.2205
16206	13.415415	227.320	332.1725	13.415415	0.342865	0.5712179	627.9677
16269	11.893750	216.390	332.1725	11.893750	0.422392	0.6807562	615.7956
16330	10.199119	213.515	332.1725	10.199119	0.474221	0.7357131	779.0182
16391	11.017990	210.360	332.1725	11.017990	0.442874	0.7181044	960.8321
16452	11.550620	217.190	332.1725	11.550620	0.395824	0.6495223	689.6469
16517	11.802705	208.300	332.1725	11.802705	0.278469	0.5612850	640.6804
16576	11.148750	208.555	332.1725	11.148750	0.448982	0.7312615	981.8691
16635	12.849935	210.805	332.1725	12.849935	0.375400	0.6566355	667.1956
16694	13.012700	211.700	332.1725	13.012700	0.341791	0.6199975	840.8362
16753	12.077215	207.890	332.1725	12.077215	0.363719	0.6511704	751.8325
16818	14.158905	205.360	332.1725	14.158905	0.373298	0.6817840	936.4014
16876	10.790900	204.060	332.1725	10.790900	0.451034	0.7477183	840.6533
16935	12.048430	203.625	332.1725	12.048430	0.390956	0.6944550	1002.5349
16994	10.837725	203.625	332.1725	10.837725	0.480079	0.7792263	992.8340
17053	10.031810	203.210	332.1725	10.031810	0.465448	0.7617927	888.9247
17118	9.895848	200.365	332.1725	9.895848	0.461283	0.7673091	905.9027
17177	10.426055	198.460	332.1725	10.426055	0.477632	0.7939384	1069.7894
17236	12.864705	198.290	332.1725	12.864705	0.380516	0.7090082	750.2959
17295	11.274705	195.265	332.1725	11.274705	0.446154	0.7788830	1040.3080
17354	12.146745	190.500	332.1725	12.146745	0.404584	0.7611794	1001.6100
17419	11.463015	191.325	332.1725	11.463015	0.396909	0.7455457	829.7897
17478	10.420725	192.240	332.1725	10.420725	0.424005	0.7634091	834.5886
17537	12.035565	192.495	332.1725	12.035565	0.385468	0.7325094	1049.6470
17596	11.631775	196.375	332.1725	11.631775	0.438248	0.7684353	1003.9653
17655	11.983090	193.795	332.1725	11.983090	0.352284	0.6928218	824.8285
17720	11.907815	189.965	332.1725	11.907815	0.419211	0.7769202	877.2118

17779	10.722560	189.475	332.1725	10.722560	0.441874	0.7948537	873.8069
17838	11.743250	190.365	332.1725	11.743250	0.407721	0.7623913	828.9294
17898	12.404180	190.990	332.1725	12.404180	0.365678	0.7208479	1001.6470
17957	11.455935	188.600	332.1725	11.455935	0.376603	0.7360965	799.4902
18023	12.783990	187.790	332.1725	12.783990	0.349292	0.7203474	880.5650
18084	13.026125	188.615	332.1725	13.026125	0.392178	0.7624622	826.5409
18145	12.796495	186.945	332.1725	12.796495	0.328991	0.7032965	823.6847
18207	12.380540	187.265	332.1725	12.380540	0.382299	0.7537905	844.7193
18269	10.786970	188.775	332.1725	10.786970	0.431274	0.7873002	795.9951
18339	12.451600	187.925	332.1725	12.451600	0.363905	0.7324930	843.2457
18402	11.038440	188.340	332.1725	11.038440	0.502894	0.8642041	1043.5624
18466	12.180700	187.270	332.1725	12.180700	0.381802	0.7519038	907.2680
18530	10.514090	187.670	332.1725	10.514090	0.435265	0.7943853	948.9716
18666	12.243875	193.900	332.1725	12.243875	0.278691	0.6185476	716.5347
18796	11.128360	192.970	332.1725	11.128360	0.398897	0.7388309	942.9996
18939	10.852120	190.605	332.1725	10.852120	0.461861	0.8114391	934.5735
19087	10.722190	191.900	332.1725	10.722190	0.409936	0.7521075	942.8094
19227	10.324510	191.335	332.1725	10.324510	0.375349	0.7166364	882.1602
19370	10.942980	191.550	332.1725	10.942980	0.472478	0.8189690	939.6439
19504	9.740445	190.235	332.1725	9.740445	0.489560	0.8348728	980.7051
19639	10.050925	191.420	332.1725	10.050925	0.467545	0.8092467	1097.3285
19768	10.674020	193.600	332.1725	10.674020	0.472280	0.8088598	1051.2299
19886	12.180290	196.060	332.1725	12.180290	0.465912	0.8012850	1080.1137
20003	10.977170	194.890	332.1725	10.977170	0.461431	0.7943175	1145.0907
20106	10.556615	192.095	332.1725	10.556615	0.427358	0.7682141	974.3695
20206	11.882545	192.095	332.1725	11.882545	0.431126	0.7800405	987.7482
20295	9.269087	190.230	332.1725	9.269087	0.511353	0.8545938	1163.2639
20372	11.081285	190.230	332.1725	11.081285	0.420676	0.7721377	913.9148
20448	10.071010	191.960	332.1725	10.071010	0.458223	0.7976231	1080.2567
20517	10.921845	191.960	332.1725	10.921845	0.423512	0.7669553	1067.6052
20590	9.857285	190.845	332.1725	9.857285	0.489315	0.8327995	1161.5035
20666	12.753365	190.845	332.1725	12.753365	0.381058	0.7395412	869.3213
20745	9.532400	190.210	332.1725	9.532400	0.509561	0.8543069	1129.7592
20837	9.162833	191.765	332.1725	9.162833	0.491845	0.8278515	1026.8954

20940	10.531110	191.765	332.1725	10.531110	0.457853	0.8006685	1002.7402
21048	9.612870	189.635	332.1725	9.612870	0.481180	0.8280077	1128.4709
21173	10.006380	189.225	332.1725	10.006380	0.491841	0.8428966	1215.1250
21301	10.426695	188.645	332.1725	10.426695	0.430404	0.7847688	1123.4232
21433	8.329884	186.235	332.1725	8.329884	0.490850	0.8447341	1252.6317
21574	11.400080	186.595	332.1725	11.400080	0.417916	0.7867675	912.0385
21716	10.645230	186.595	332.1725	10.645230	0.460863	0.8260547	1176.3150
21866	8.680892	189.370	332.1725	8.680892	0.455234	0.7973193	963.6414
22031	10.720585	189.080	332.1725	10.720585	0.430449	0.7847700	1146.0957
22197	9.247492	191.270	332.1725	9.247492	0.408191	0.7445526	924.6519
22379	9.802635	187.020	332.1725	9.802635	0.528548	0.8885861	1256.2880
22560	10.650660	184.945	332.1725	10.650660	0.425217	0.7966070	1076.9580
22748	10.275895	190.010	332.1725	10.275895	0.386687	0.7333789	807.3302
22952	11.933450	189.400	332.1725	11.933450	0.415948	0.7761399	1042.8024
23152	12.001330	189.340	332.1725	12.001330	0.425240	0.7863751	1127.7225
23368	13.181340	190.155	332.1725	13.181340	0.371450	0.7355348	1012.6032
23577	13.330280	187.385	332.1725	13.330280	0.317124	0.6929263	1013.3858
23788	12.119755	185.560	332.1725	12.119755	0.377940	0.7550471	992.6059
24012	13.303990	183.905	332.1725	13.303990	0.263031	0.6528187	912.4333
24226	13.457145	185.705	332.1725	13.457145	0.315264	0.6994780	906.5977
24450	13.995055	183.650	332.1725	13.995055	0.321666	0.7196200	841.7595
24662	13.712425	180.570	332.1725	13.712425	0.299384	0.7090387	960.5363
24871	12.357000	180.630	332.1725	12.357000	0.344610	0.7448985	1274.9624
25088	9.163590	180.690	332.1725	9.163590	0.477244	0.8594006	1026.3576
25291	11.272245	181.675	332.1725	11.272245	0.449034	0.8397807	1149.8151
25501	11.086455	183.020	332.1725	11.086455	0.440271	0.8234270	1111.4493
25699	11.214125	184.960	332.1725	11.214125	0.495095	0.8719989	1324.6009
25896	11.459530	185.530	332.1725	11.459530	0.381754	0.7546511	1137.2922
26104	11.427615	184.545	332.1725	11.427615	0.426935	0.8052104	1229.9370
26412	11.348065	184.890	332.1725	11.348065	0.429776	0.8060729	1149.2995
26614	11.676505	185.475	332.1725	11.676505	0.405258	0.7804897	1050.1096
26829	12.480595	185.935	332.1725	12.480595	0.451586	0.8315725	1179.1309
27049	11.751265	186.830	332.1725	11.751265	0.415035	0.7850928	1134.9189
27274	11.103970	192.495	332.1725	11.103970	0.404285	0.7461395	883.6507

27506	12.480025	191.380	332.1725	12.480025	0.396843	0.7516723	906.1338
27733	12.317240	189.300	332.1725	12.317240	0.400278	0.7629943	808.7007
27974	12.569895	189.290	332.1725	12.569895	0.371344	0.7350135	794.5002
28219	10.972120	191.705	332.1725	10.972120	0.375762	0.7193347	809.1318
28821	11.616680	193.890	332.1725	11.616680	0.368870	0.7072251	787.0732
29398	11.096930	189.520	332.1725	11.096930	0.524119	0.8813429	1104.3323
30419	10.134460	184.300	332.1725	10.134460	0.448462	0.8200313	1148.3041
31388	11.638685	189.215	332.1725	11.638685	0.379583	0.7377079	888.4572
32106	10.132605	195.165	332.1725	10.132605	0.484969	0.8126265	976.0078
32889	9.834265	196.700	332.1725	9.834265	0.548047	0.8696343	1016.7030
33545	10.880855	197.465	332.1725	10.880855	0.429742	0.7512064	977.0974
34631	10.377045	199.590	332.1725	10.377045	0.458898	0.7702255	1105.7304
35945	10.751385	201.045	332.1725	10.751385	0.492588	0.8011536	1100.6665
36937	9.278780	203.510	332.1725	9.278780	0.514820	0.8075686	933.6263
38485	9.198735	208.655	332.1725	9.198735	0.498090	0.7721291	960.0962
39103	8.392639	205.800	332.1725	8.392639	0.546192	0.8275578	1002.2592
39681	11.449825	196.185	332.1725	11.449825	0.427039	0.7566553	870.1084
40002	13.257680	195.075	332.1725	13.257680	0.314463	0.6567972	845.9339
40253	9.932895	195.795	332.1725	9.932895	0.546388	0.8719728	1235.5918
40657	8.272382	200.975	332.1725	8.272382	0.500606	0.7975231	982.7047
41029	10.137130	201.250	332.1725	10.137130	0.433944	0.7372877	928.8184
41327	9.530069	204.190	332.1725	9.530069	0.458241	0.7485176	850.0938
41758	10.671990	201.120	332.1725	10.671990	0.441728	0.7484513	866.3317
42029	11.580640	199.890	332.1725	11.580640	0.409008	0.7244935	808.5405
42240	8.755353	200.395	332.1725	8.755353	0.467121	0.7676348	963.7532
42495	10.413640	202.865	332.1725	10.413640	0.495868	0.7960205	985.9851
42877	10.613855	205.305	332.1725	10.613855	0.381419	0.6712295	809.7278
43740	11.207270	202.435	332.1725	11.207270	0.507078	0.8131439	1096.0578
44062	11.711450	204.310	332.1725	11.711450	0.391607	0.6907888	748.3310
44404	11.324645	205.525	332.1725	11.324645	0.471039	0.7655094	989.5092
44764	11.184635	211.365	332.1725	11.184635	0.411543	0.6834532	771.3824
45138	13.376115	209.720	332.1725	13.376115	0.323035	0.6098068	643.6530
45525	12.733005	216.005	332.1725	12.733005	0.359366	0.6216854	647.2825
46322	12.018120	218.350	332.1725	12.018120	0.347459	0.5985030	624.2773

47601	10.271700	204.025	332.1725	10.271700	0.407037	0.7003318	799.8976
48772	10.887380	201.280	332.1725	10.887380	0.429229	0.7361912	893.8162
50937	11.221780	207.525	332.1725	11.221780	0.548830	0.8372143	1019.2133
52168	12.206855	216.450	332.1725	12.206855	0.385159	0.6440339	737.0119
52330	10.884445	216.450	332.1725	10.884445	0.488210	0.7431924	839.8985
52933	10.531495	222.435	332.1725	10.531495	0.539465	0.7747823	942.5330
53562	12.023970	222.200	332.1725	12.023970	0.590746	0.8337287	1038.3044
54360	10.969175	219.165	332.1725	10.969175	0.556933	0.8046875	1038.8199
56695	11.799285	212.440	332.1725	11.799285	0.508502	0.7815264	892.5428
56821	9.676870	214.070	332.1725	9.676870	0.529626	0.7881438	875.5906
58294	13.096980	223.750	332.1725	13.096980	0.434754	0.6746082	736.3034
59004	12.654425	231.290	332.1725	12.654425	0.412567	0.6269247	724.0433
61201	11.728895	209.260	332.1725	11.728895	0.554980	0.8397901	1116.3044
61618	10.919690	208.640	332.1725	10.919690	0.486621	0.7682840	1015.0627
63345	10.277420	198.775	332.1725	10.277420	0.590586	0.9075171	1300.3717
65500	12.364315	208.980	332.1725	12.364315	0.548204	0.8370926	1079.4635
65984	13.201235	200.590	332.1725	13.201235	0.349848	0.6705520	896.7272
67492	10.500190	202.450	332.1725	10.500190	0.461421	0.7627740	959.1584
69280	11.543625	208.340	332.1725	11.543625	0.466809	0.7521471	1006.9904
69681	8.818884	213.405	332.1725	8.818884	0.550936	0.8085572	979.4366
70083	12.575910	217.940	332.1725	12.575910	0.331883	0.5864767	828.6176
71728	12.949905	238.510	332.1725	12.949905	0.493640	0.6892274	863.2113
73834	12.521990	232.035	332.1725	12.521990	0.527963	0.7414028	1013.1536
74427	12.942090	236.285	332.1725	12.942090	0.470405	0.6720209	894.2454
75975	11.813955	244.640	332.1725	11.813955	0.429378	0.6036005	782.9113
78001	16.088725	225.785	332.1725	16.088725	0.430684	0.6777595	936.0320
78428	14.814645	225.395	332.1725	14.814645	0.523328	0.7671655	975.7987
80167	13.590870	232.670	332.1725	13.590870	0.374170	0.5874030	702.2395
82264	9.319097	239.880	332.1725	9.319097	0.456190	0.6362034	621.8550
85406	10.705515	234.690	332.1725	10.705515	0.407783	0.6054022	652.3212
86807	10.347030	222.220	332.1725	10.347030	0.383166	0.6157559	612.2796
89490	11.854085	228.130	332.1725	11.854085	0.448199	0.6695792	638.4754
91816	10.817200	232.430	332.1725	10.817200	0.548471	0.7549779	857.4542
93907	12.882770	238.210	332.1725	12.882770	0.379700	0.5742786	563.6481

96656	12.281340	244.055	332.1725	12.281340	0.353974	0.5301814	506.2638
99188	9.735085	243.085	332.1725	9.735085	0.430647	0.6030892	707.8961
101967	10.836270	242.415	332.1725	10.836270	0.580318	0.7595482	875.1037
102747	11.904570	237.070	332.1725	11.904570	0.361761	0.5559779	614.5971
104861	14.935930	240.620	332.1725	14.935930	0.484685	0.6812477	825.4707
107565	12.305630	238.385	332.1725	12.305630	0.581557	0.7765410	947.1515
110928	13.266150	252.310	332.1725	13.266150	0.451387	0.6100443	731.5092
114230	11.368895	264.240	332.1725	11.368895	0.526497	0.6523330	734.8514
115535	12.103225	275.060	332.1725	12.103225	0.650182	0.7542732	910.7463
117705	15.665745	274.980	332.1725	15.665745	0.467457	0.5771380	732.6603
118737	12.090160	272.730	332.1725	12.090160	0.591169	0.6998808	832.8839
119619	13.376815	271.165	332.1725	13.376815	0.575280	0.6898327	833.9265
121968	14.092390	277.430	332.1725	14.092390	0.481000	0.5822064	700.9937
124468	12.453005	278.530	332.1725	12.453005	0.494356	0.5904618	701.1707
126463	12.412600	274.085	332.1725	12.412600	0.546565	0.6525409	779.0616
129122	13.892880	268.440	332.1725	13.892880	0.489728	0.6108960	737.9994
130648	11.791140	251.340	332.1725	11.791140	0.615587	0.7745759	930.1843
131332	10.680325	241.130	332.1725	10.680325	0.575380	0.7575418	879.3884
132984	10.841310	224.630	332.1725	10.841310	0.569515	0.7997270	931.1063
134767	12.392455	212.430	332.1725	12.392455	0.554306	0.8311543	1002.3840
137439	11.926565	201.460	332.1725	11.926565	0.407824	0.7191971	847.9954
138097	11.480050	198.865	332.1725	11.480050	0.479383	0.7999067	957.4034
141499	10.685910	194.630	332.1725	10.685910	0.462746	0.7950443	909.8708
144323	11.442350	195.305	332.1725	11.442350	0.499911	0.8347706	1007.9601
144967	12.916365	194.805	332.1725	12.916365	0.467325	0.8124427	1013.2400
148580	10.440630	198.795	332.1725	10.440630	0.536004	0.8524596	993.5041
151686	12.964835	202.350	332.1725	12.964835	0.347492	0.6599351	718.3331
153838	11.242885	197.540	332.1725	11.242885	0.525301	0.8507515	1022.2625
154746	10.348605	197.540	332.1725	10.348605	0.466467	0.7856273	962.0209
155018	10.313355	196.300	332.1725	10.313355	0.530626	0.8559171	1119.7790
156122	12.884660	192.840	332.1725	12.884660	0.366830	0.7173702	954.1115
157554	13.089500	189.190	332.1725	13.089500	0.471197	0.8415403	1165.5074
158915	13.276425	187.250	332.1725	13.276425	0.467446	0.8476359	1135.2082
160619	7.985918	187.500	332.1725	7.985918	0.610210	0.9600897	1090.8683

161695	12.010360	187.500	332.1725	12.010360	0.446639	0.8163566	1060.5744
162919	11.019520	204.300	332.1725	11.019520	0.467616	0.7649368	1086.4231
163882	11.145145	200.400	332.1725	11.145145	0.443579	0.7555469	913.5498
164970	9.264389	196.500	332.1725	9.264389	0.482802	0.8006757	961.6894
165836	12.244175	191.600	332.1725	12.244175	0.440028	0.7935296	1004.7601
167203	9.721515	188.400	332.1725	9.721515	0.528851	0.8826282	1136.7646
168643	12.880855	185.250	332.1725	12.880855	0.491368	0.8784168	1180.2072
169889	12.119125	196.600	332.1725	12.119125	0.464273	0.7970661	1026.5738
171139	10.251235	197.200	332.1725	10.251235	0.532404	0.8539040	1054.8785
171398	9.795615	197.200	332.1725	9.795615	0.505406	0.8238686	1004.7984
172514	11.878105	197.750	332.1725	11.878105	0.582990	0.9126295	1264.5962
172930	9.116090	197.750	332.1725	9.116090	0.597110	0.9121336	1151.6611
174149	9.733125	197.700	332.1725	9.733125	0.466567	0.7818955	1034.0994
175288	11.109840	196.850	332.1725	11.109840	0.497959	0.8247202	1091.8826
175565	11.614275	196.850	332.1725	11.614275	0.536219	0.8667833	1126.0323
176896	10.283620	189.850	332.1725	10.283620	0.549047	0.9006094	1226.9275
177960	12.862945	190.100	332.1725	12.862945	0.511227	0.8771065	1214.2658
179446	12.538305	198.900	332.1725	12.538305	0.460554	0.7865898	940.5049
179707	12.398400	207.700	332.1725	12.398400	0.356645	0.6462810	723.9157
181254	12.878315	213.200	332.1725	12.878315	0.378381	0.6514011	780.1593
181849	12.580135	215.450	332.1725	12.580135	0.397286	0.6614986	869.3413
182354	10.924135	207.900	332.1725	10.924135	0.337109	0.6182913	619.6023
183523	10.255550	198.900	332.1725	10.255550	0.364258	0.6753821	858.4202
184818	7.416540	199.700	332.1725	7.416540	0.499713	0.7973629	912.7176
186603	11.920440	207.050	332.1725	11.920440	0.368120	0.6578863	782.5509
189340	10.674150	221.000	332.1725	10.674150	0.464490	0.7035537	769.9773
190307	8.493256	231.350	332.1725	8.493256	0.506649	0.7081428	964.1307
191709	10.294565	225.850	332.1725	10.294565	0.442095	0.6644589	857.4015
192795	10.022120	219.150	332.1725	10.022120	0.479334	0.7219279	823.4440
194581	10.191110	226.500	332.1725	10.191110	0.496187	0.7171165	815.2313
194846	11.431140	226.500	332.1725	11.431140	0.441957	0.6665682	777.4902
195710	11.487825	223.250	332.1725	11.487825	0.478354	0.7138342	841.8465