Supplementary Information for

Physical processes of cooling and megadrought in 4.2 ka BP event: results from TraCE-21ka simulations

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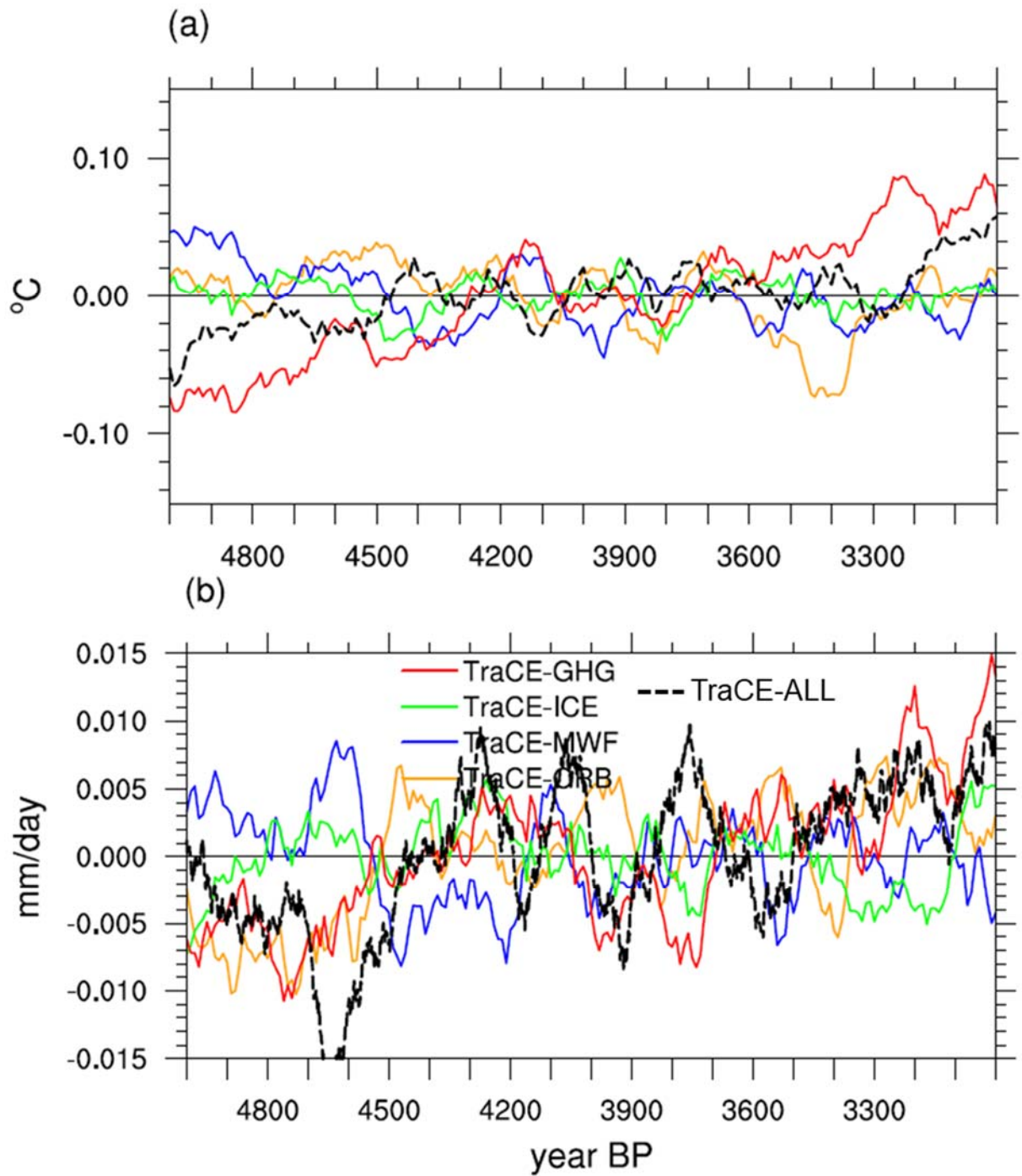
Figure S1 Time series of annual mean Southern Hemisphere (SH) (a) surface temperature anomalies and (b) precipitation anomalies derived from TraCE-ALL run (dashed black lines) and each single forcing runs (solid color lines) from 5 ka BP to 3 ka BP. A 101-year running mean has been applied to the time series.
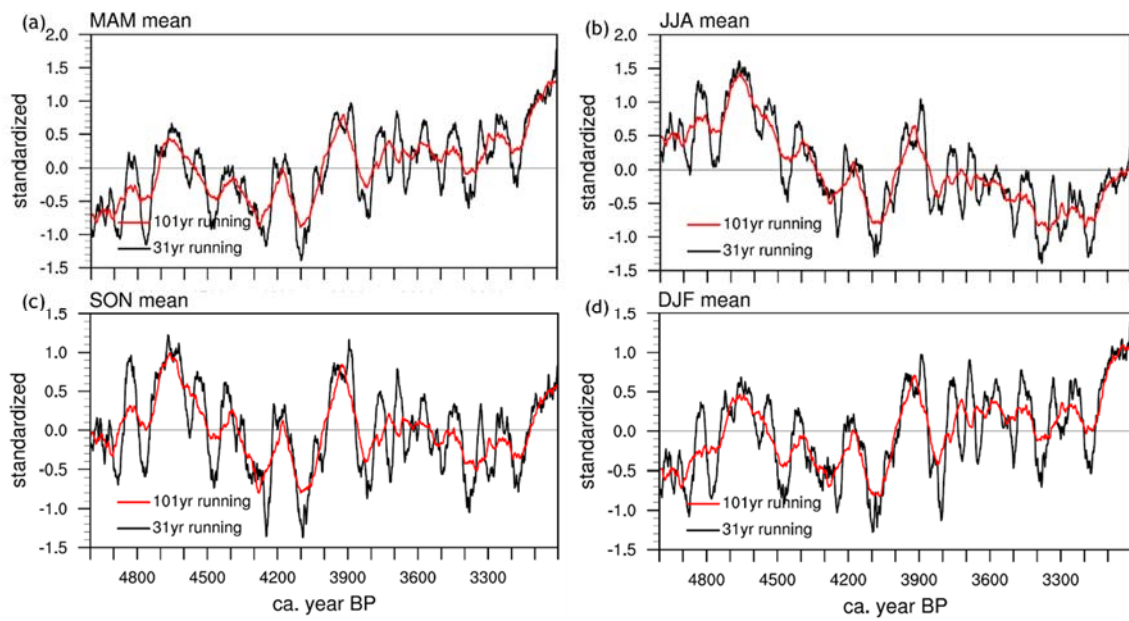
Figure S2 Standardized time series of (a) MAM mean, (b) JJA mean, (c) SON mean and (d) DJF mean NH surface temperature anomalies from 5ka BP to 3ka BP derived from the TraCE-ALL run. A 101-year running mean (red line) and a 31-year running mean (black line) have been applied to the time series.
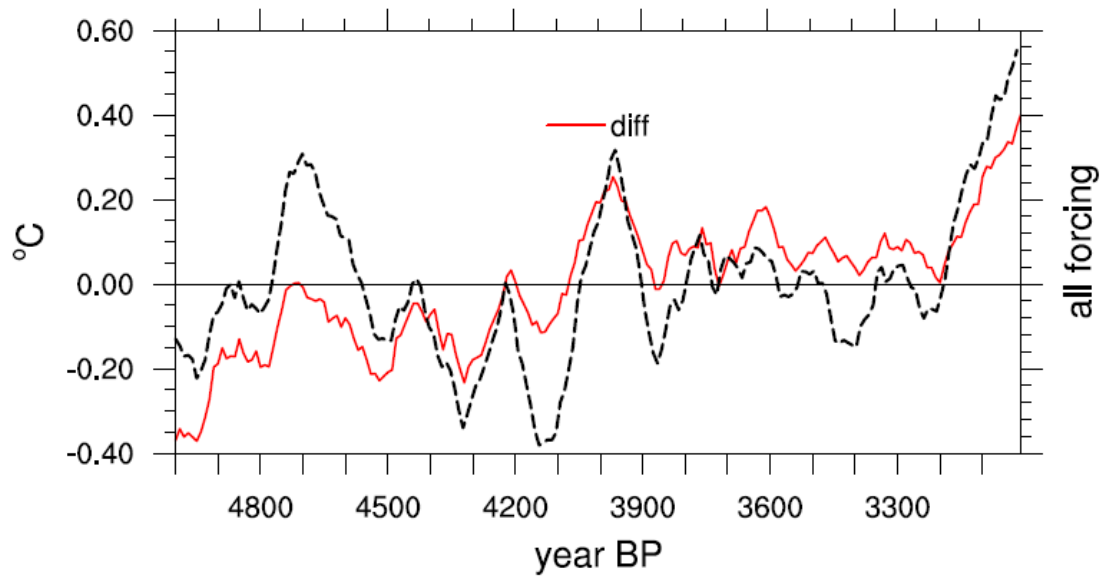
Figure S3 Time series of annual mean NHT anomaly from 5000 BP to 3000 BP. Dashed black line is the result derived from the all forcing run. Red line indicates the difference between the result derived from all forcing run and that derived from the linear sum of the 4 single forcing runs.
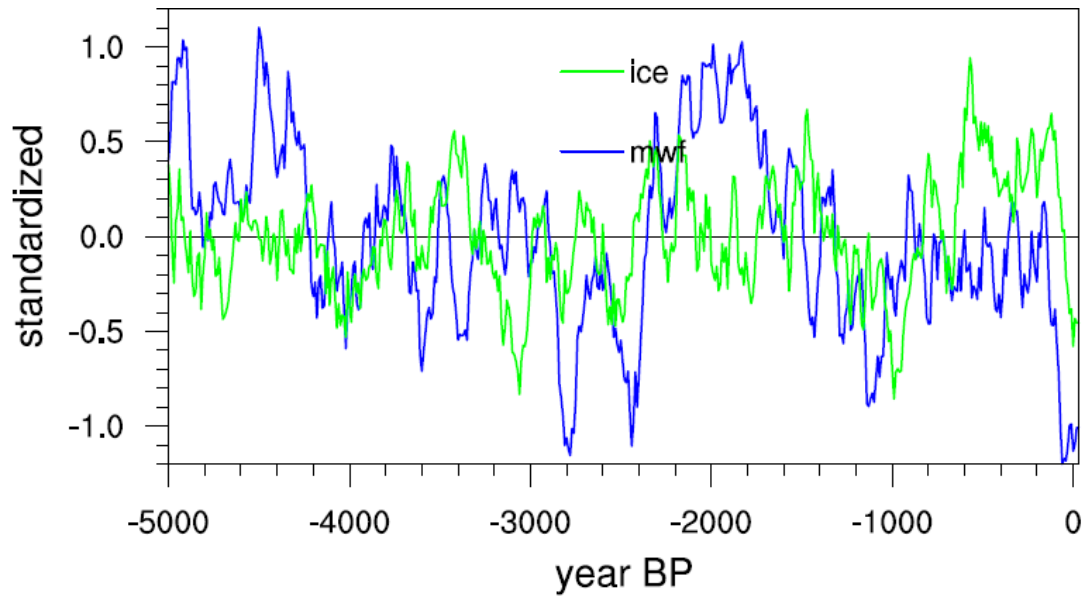
Figure S4 Standardized time series of the annual mean NHT derived from the TraCE-MWF run (blue line) and TraCE-ICE run (green line) from 5000 BP to 1990 CE. A 101-year running mean has been applied to the time series.
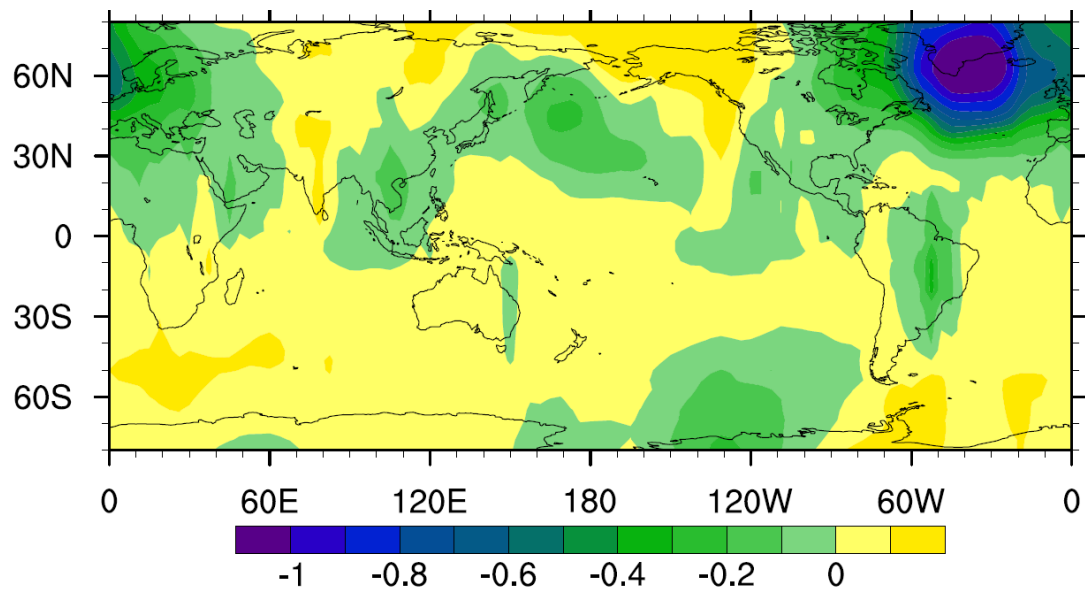
Figure S5 Annual mean TS regressed against the NAO index leading 40-year during 4.4 ka BP - 4.0 ka BP.