**Climate
of the Past**

Supplement of

Modelling tree ring cellulose δ^{18}O variations in two temperature-sensitive tree species from North and South America

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Supplement

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4 **Figure S1** Daily local mean temperature variations (black; La Almohadilla site at 41°11'S-5 71°47'W, data measured and provided by IANIGLA) against maximum (red) and minimum 6 (blue) temperature from NOAA reanalysis corrected to respect the monthly mean values detected 7 at Bariloche over the period 2002-2012.The correlation coefficient between local data and 8 corrected temperature reanalysis is at 99% confidence level (**).

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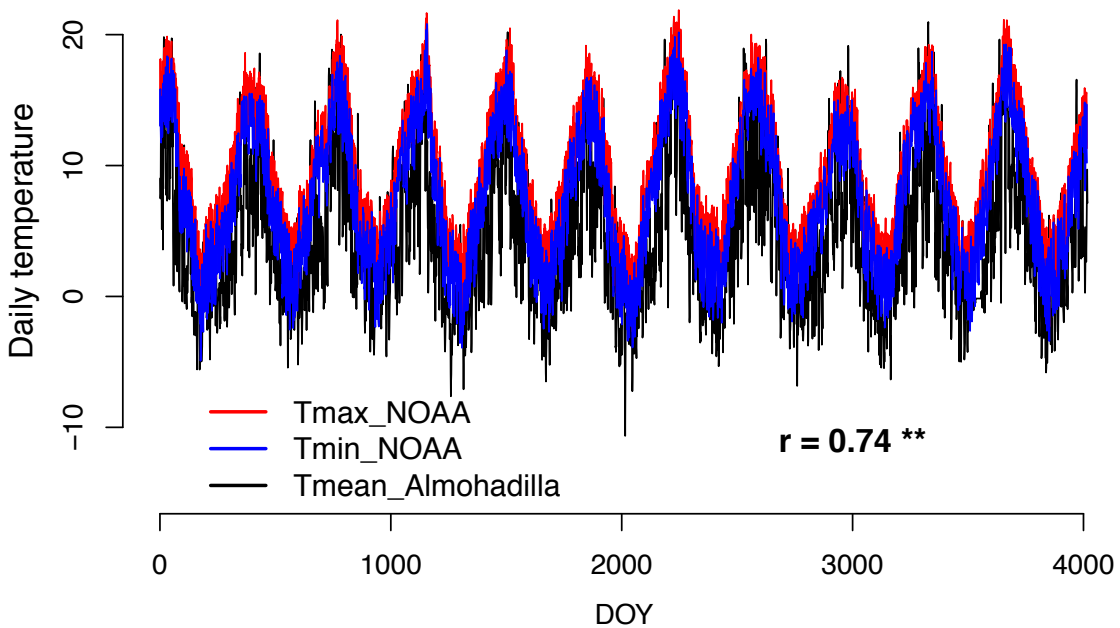
Figure S2 Averaged monthly distribution of $\delta^{18}O_p$ from GNIP data, GCM simulations

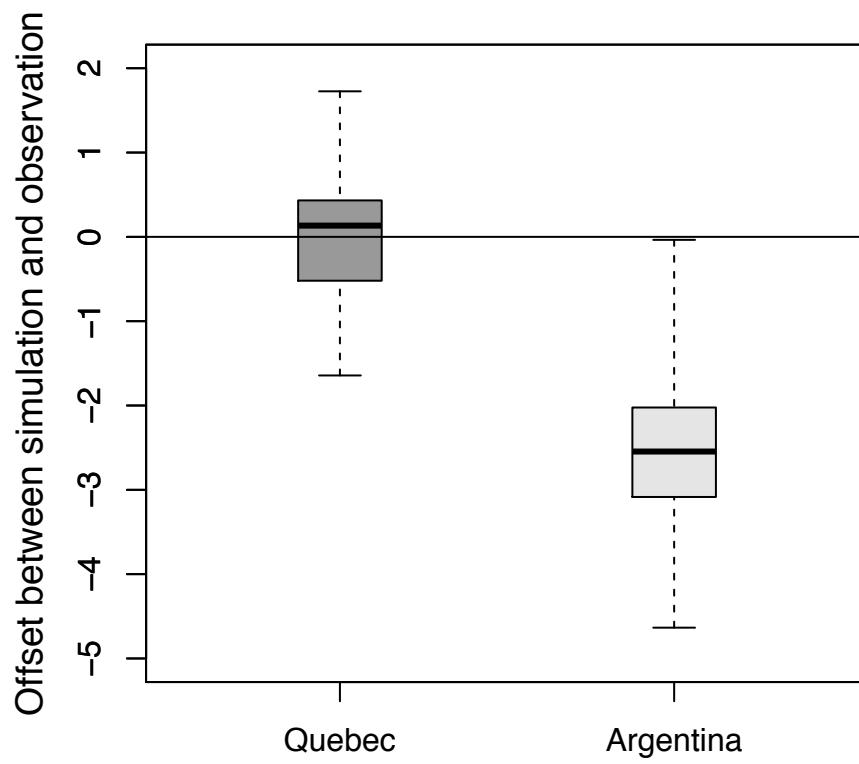(MUGCM and LMDZ-NCEP20) and estimated values from Eq. 2 in Quebec (A) and Argentina

(B).
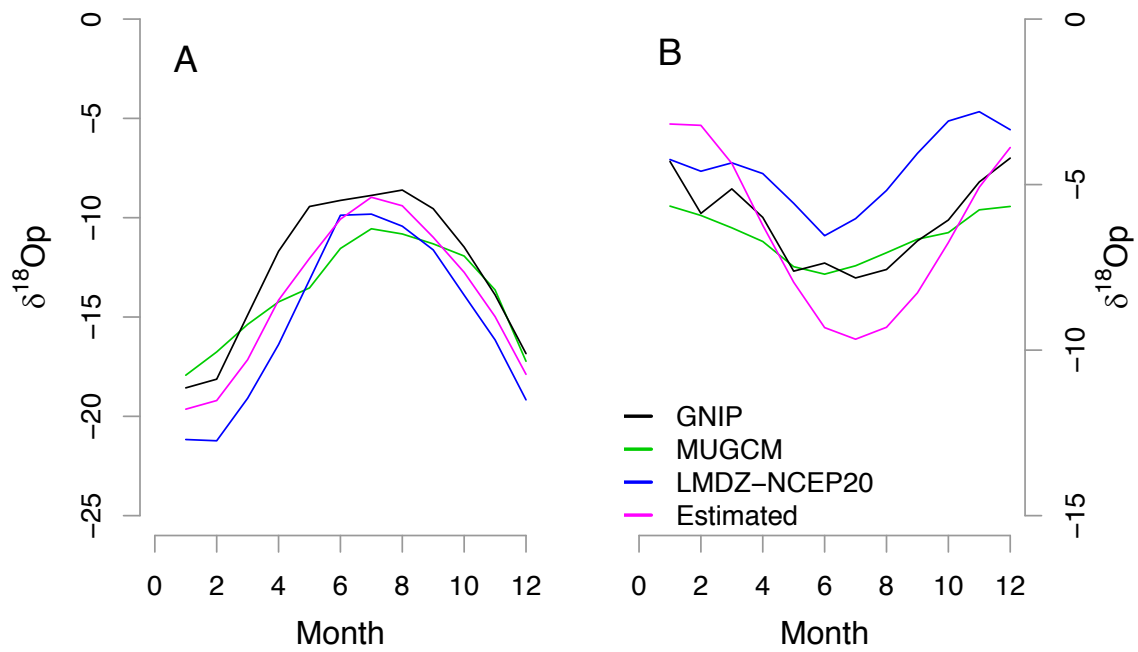
20   **Figure S3** Posterior densities of the calibrated parameters (f_o, ε_0, a, b and ε_k) for Quebec

21   (black) and Argentina (red) computed over the whole period. The dashed lines are the posterior

22   densities of the calibrated parameters over two equal intervals (1950-1977 and 1978-2005 for *P.*

23   *mariana*; 1952-1981 and 1982-2011 for *N. pumilio*). Vertical lines are the values of a plausible

24   block of parameters retained in the MCMC optimization (see Table 1).

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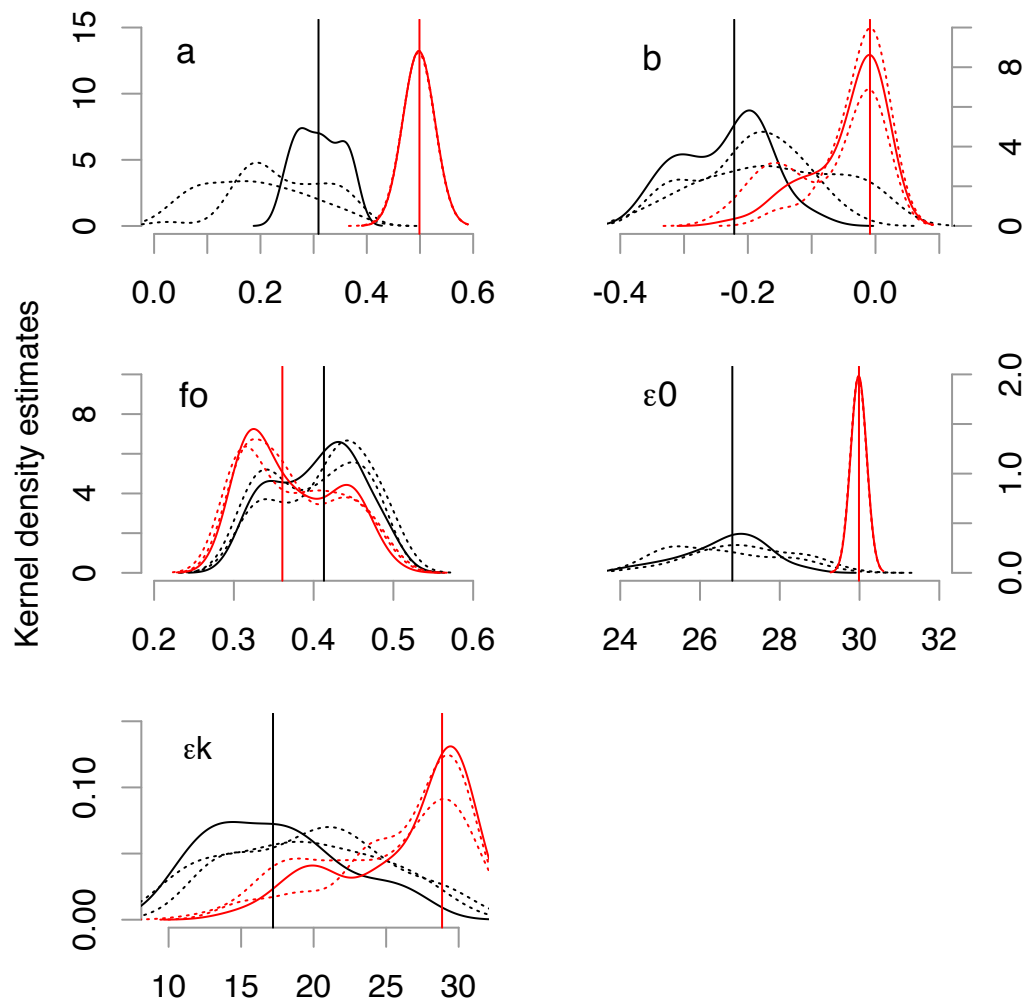
27   **Figure S4** Distribution of offset between simulated and observed values of $\delta^{18}O_{TR}$.
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