Reply to the PAGES Data Review Team comment:

We thank the PAGES Data Review Team for the report. Hereafter we address the comments mentioned by the reviewers. Reviewer comments are given in italic letters whereas our replies are given in normal letters. Changes in the revised manuscript are given in bold letters.

(1) Add a separate "Data Availability" section as required by the publisher. Specify where all of the essential input and output data are archived, including formal Data Citations for each of the datasets (see below). This includes the ice accumulation and oxygen isotope data.
(2) For essential datasets used in the study but not already in a public repository, submit the data and related metadata to an established public data repository and cite the persistent identifier in "Data Availability".
(3) Prior to publication of this study, submit the primary original data or results of numerical modeling to a public repository and cite the corresponding persistent identifier in "Data Availability". This includes the final time series of d15N and surface temperatures and any other data that might be useful for future users to replicate the study outcomes and to readily compare the results with future studies. We also strongly encourage the authors to deposit their significant code into a suitable repository and to cite it using a Data Citation.

We added a separate "Data Availability" section at the end of the manuscript. This section contains all required information as suggested according to the reviewer advice:

"Data availability

The synthetic $\delta^{15}N$ and temperature targets, the reconstructed $\delta^{15}N$ and temperature data (using the synthetic $\delta^{15}N$ as fitting-targets), and the used accumulation rates can be found in the data supplement of this paper available at Döring, M.; Leuenberger, M. C. (2018), PANGAEA, https://doi.pangaea.de/10.1594/PANGAEA.888997. The GISP2 $\delta^{18}O_{ice}$ data used in this study for calculating the temperature spin-up can be found in Grootes and Stuiver (1999). The source code for the inversion algorithm and additional auxiliary data are available upon request."

Additionally, we added the data reference for the $\delta^{18}O_{ice}$ data directly in the section "2.3 Measurement, input data and time scale" in subsection "$\delta^{18}O_{ice}$ data" (p. 10, l. 5-10):

"Oxygen-isotope data from the GISP2 ice-core-water samples measured at the University of Washington's Quaternary Isotope Laboratory are used to construct the surface-temperature input of the model spin-up (12 yr to 35 kyr b2k, Grootes et al., 1993; Grootes and Stuiver, 1997; Meese et al., 1994; Steig et al., 1994; Stuiver et al., 1995; **data availability: Grootes and Stuiver, 1999**). The raw $\delta^{18}O_{ice}$ data are filtered and interpolated in the same way as the accumulation-rate data for the spin-up part."

Furthermore, we included the following references to the "References" section of the manuscript:

Döring, M., Leuenberger, M. C.: Synthetic and fitted d15N and temperature data and GISP2 accumulation rates (13.5-52497.5 yr b2k) on GICC05 time scale. PANGAEA, https://doi.pangaea.de/10.1594/PANGAEA.888997, 2018.

Grootes, P. M. and Stuiver, M.: GISP2 Oxygen Isotope Data, PANGAEA, https://doi.org/10.1594/PANGAEA.56094, 1999.