

Dear Lukas,

Thank you for all your comments which have improved this manuscript and thank you for accepting it. Below are comments or notes on how we have changed the manuscript. We would prefer the key figure to be the deglacial animation in the supplemental files.

-Carlye and Lorraine

**Editor Decision: Publish subject to technical corrections** (16 Jul 2018) by Lukas Jonkers

Comments to the Author:

Dear Carlye,

I have read the revised version of your manuscript on deglacial carbon cycle changes. You have responded well to the reviewers and I am happy to accept the manuscript after a few minor changes.

I appreciate your effort to compile the source information for all the records and thank you again for submitting your paper to our special issue.

kind regards, Lukas Jonkers

Suggested minor changes:

P1, L2: change 'and well-suited' to improve flow of sentence.

Ok

P5, L18: insert 'the' between 'to' and 'deglacoal', italicise p in pCO<sub>2</sub>

Ok

P5, L19: shouldn't it be François et al 1997, instead of Franois?

Yes

P6, L23: I assume that the other time series from the South Atlantic did not meet the criteria. Is that correct? Can you add a short sentence why only these were added and no other records published since 2014?

You are correct. For example, one South Atlantic site was excluded because it was shallower than 500 m. Also, there are two sites missing one d13C data point after interpolation: Site KNR159-5-22GGC in the DSA at 6 ka, and Site KNR159-5-90GGC in the ISA at 20 ka.

**Added** to Sec. 4.1: “The bulk of data compilation work for this study occurred in 2010-2015, and more recently published data are not included.”

**Added** to Sec. 4.2: “The  $\delta^{13}\text{C}$  time series for sites KNR159-5-90GGC and KNR159-5-22GGC do not include 20 ka and 6 ka, respectively [citep{lund2015southwest}](#); at these times, the relevant sites were excluded from the regional average (Figure 2 and supplemental animation).”

P6, L32: add 'dating' after 'radiocarbon'.

Ok

P8, L24: please add a brief description of the rationale behind using this metric.

**Previous text:** Additionally, we construct an alternate d13C gradient based on the difference between half the intermediate North Atlantic stack and the deep Pacific stack ( $\text{Dd}13\text{C}(\text{INA}/2) - \text{DP}$ ), analogous to the gradient compared to CO<sub>2</sub> in Lisiecki (2010).

**Changed to:** Additionally, we evaluate an alternate gradient,  $\Delta\delta^{13}\text{C}_{\text{((INA}/2) - \text{DP})}$ , defined as the difference between half the intermediate North Atlantic stack and the deep Pacific stack; [citep{lisiecki2010d13c}](#) found that this gradient optimized correlation with CO<sub>2</sub> from 0-800 ka.

Table 1: add description of what AP stands for

Table 1: I don't seem to be able to find a subscript m in the table

We **changed** subscript 'm' to subscript 'AP' for more consistent nomenclature throughout, and now have updated the footnote description to clarify that all numbers in that 'AP' row do not include Indian Ocean regions.