

## ***Interactive comment on “Revisiting the Ceara Rise, equatorial Atlantic Ocean: isotope stratigraphy of ODP Leg 154” by Roy Wilkens et al.***

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Dear Authors,

Christian Zeeden already did a very careful review of your manuscript, so please find only some additional remarks from my side. In general, I fully agree with Christian that your revision of the Plio-/Pleistocene benthic oxygen isotope stratigraphy of Lisiecki and Raymo (2005) using a revised stack of records in the small region of Ceara Rise is a substantial and highly appreciated benefit for paleoceanographic research. It was a pleasure to read the manuscript, and to my opinion it is clearly worth being published in *Climate of the Past*. I have only a few comments which might help to improve the contribution.

Lines 125ff: Tremendous work that has been done to digitalize the older core pho-

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tographs, and to correct them for uneven brightness. However, due to wall friction during core penetration, many sections show parabolic bent layers. Is that a problem, when splicing the images of different holes, which might be affected differently by friction? Furthermore, these images are compared to data sets, which have been measured just in the center of the splitted cores (e.g., magnetic susceptibility using a point sensor, reflectance photospectrometry). Is the offset to a core-wide integration of image data of any importance?

Lines 140ff: For readers not that familiar with the splicing procedure, I would suggest to explain in more detail the criteria, how the "master record" is chosen out of the aligned holes. This is in particular important, to understand, why in a second step the sections outside the splice may be stretched and squeezed, instead of being implemented in the master record with their original length.

Lines 215ff: Since the discrepancy between of the interval 1,80 to 1,90 Ma is the largest in the Pleistocene part of the LR04, you should maybe illustrate what might have been the problem for Lisiecki and Raymo (2005) in that interval by exhibiting the original records used (see also suggestions for Fig 10).

Lines 223ff: I fully agree that the tuning of the distinct cyclicity in lithology to orbital precession is robust and of good help as a control for oxygen isotope stratigraphy in the interval between 4.0 to 4.5 Ma. However, again I would prefer to see in separate figure, what might have been the problems of LR04 tuning in that interval, to better follow the arguments presented in the discussion (lines 236ff).

Fig 7 Abbreviations on 2. y-axes should be explained in the caption. Laskar 2005 => 2004?

Fig 8 Since this figure contains the main results of the study, I would suggest to stretch the two graphs and present them on one page each in a portrait format. Furthermore, the offset of the individual  $\delta^{18}\text{O}$  records should be raised to better get access their correlation. Larger data gaps (in particular in sites 927 and 929) should be left open.

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Fig 10 I would re-organize this figure in a way that below the results of the Ceara Rise stack, you should probably present at the original data sets of the LR04 stack, to get behind the problem of the former stratigraphy within the interval 1.8 to 1.9 Ma. The lower graph should be moved into a separate figure, and maybe stretched to better present the details of the interval 4.0 to 5.0 Ma.

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