

## ***Interactive comment on “The Eocene–Oligocene transition at ODP Site 1263, Atlantic Ocean: decreases in nanoplankton size and abundance and correlation with benthic foraminiferal assemblages” by M. Bordiga et al.***

**G. Villa (Referee)**

giuliana.villa@unipr.it

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The paper entitled “The Eocene–Oligocene transition at ODP Site 1263, Atlantic Ocean: decreases in nanoplankton size and abundance and correlation with benthic foraminiferal assemblages” by M. Bordiga et al. addresses relevant scientific questions within the scope of CP.

The paper presents detailed quantitative analyses on calcareous nanofossils for Site 1263, together with low resolution data on Foraminifera.

C897

Overall, the paper is well written and informative, with only minor problems in the figures and few scientific problems. The abstract is concise and representative of the main results and assumptions. Methodological description are fully described and documented such to be reproducible and traceable.

The authors provide a lot of detail to support their data and this is really useful for paleoceanographic interpretation of the Eocene –Oligocene transition and to compare it in other regions.

There are a few issues that need to be addressed before publication, but they are relatively minor, thus I recommend the publication with some small corrections/suggestions and some comments listed in the text and below.

- I suggest to use the Eocene –Oligocene transition (EOT) whenever it is not strictly referred to the E/O boundary. Many of the changes reported occur across the boundary, not exactly at the boundary.

- Biostratigraphy - Line 292 ...Reisselman et al. (2007) placed Oi-1 on the basis of an increase in the benthic  $\delta^{18}\text{O}$  records from  $\sim 1.5\%$  (94.49 mcd, uppermost Eocene) to  $\sim 2.6\%$  (93.14 mcd, lowermost Oligocene).

The Oi-1 according to Reisselman (2007) is instead between 93 and 89 mcd. Also in Peck et al. 2010 is placed between 94 and 93 (fig.6). In your Fig. 2 steps 1, 2 and Oi-1 are indicated as 3 separated events. Step 2 is reported at the same depth as Peck et al., 2010 and therefore Oi-1 should coincide with step2 (eg. Ladant et al. 2014 Paleocyanography). I cannot understand if it a graph error or if you consider Oi-1 as a third event. Please verify or discuss.

- Line 412 the dissolution index shows more intense dissolution from 87 mcd

- *R. daviesii* is here considered a large species, while it is a medium sized species (5-8 microns). This should be changed.

- *R. daviesii* is here reported as decreasing at the EOT, while other researches evi-

C898

denced a neat increase at the boundary, in particular in the Southern Ocean Sites and at Site 1090, which is quite close to 1263. In Fig S1-15 a specimen classified as Dictyococcites with signs of dissolution does not look like a Dictyococcites, and could be a slightly dissolved *R. daviesii*. If this is the case, *R. daviesii* could have been overlooked. The different result should be anyway commented.

- In the dataset B the presence of *R. circus* is indicated from about 98 mcd. The specimen illustrated in Fig S 1-20 looks like a *R. circus*. The graphs of dataset A (Fig. 3) of Ret sp.1 shows a very similar pattern of *R. circus* of data set B, except that it occurs 2 meters below, but it could be the effect of more resolution sampling. It is very likely that R.sp.1 is a *R. circus* and here it could be demonstrated that it has an older first appearance. Marino and Flores (2002), at Site 1090, report of a circular *Reticulofenestra* sp. before the FO of *R. circus* that they considered related to the taxon *R. circus*.

- line 494: PC1 is better mirrored more by the red line than that of all placoliths-bearing....

- Fig caption 3 add if these data are from dataset A only.

- Fig .5 there is not the graph of the total abundance (mentioned in Fig caption). The legend of black and white circles are inverted. TDP must be changed in TDP 17/12

Please also note the supplement to this comment:

<http://www.clim-past-discuss.net/11/C897/2015/cpd-11-C897-2015-supplement.pdf>

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