

## ***Interactive comment on “Spatial linkages between coral proxies of terrestrial runoff across a large embayment in Madagascar” by C. A. Grove et al.***

**C. A. Grove et al.**

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Reply to Short Comment C.Rollion-Bard

1. Showing all data in Table format would add too many pages to the Supplementary information. We will instead publish the data on the WDC NOAA coral database after publication. We will add a graph for all Sr/Ca and d18O records, from which d18Osw was calculated, in the Appendix.
2. We now include a more detailed description of the vital effects influencing the stable isotopes, as well as a new paragraph discussing Sr/Ca as a SST proxy and its limitations (also linked to vital effects).
3. We have restructured the methodology section and added more information and

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references to clarify the step by step procedures. To treat all corals equally we used the slopes for the  $d^{18}O/T\delta^{17}O$  and  $Sr/Ca$  vs  $T\delta^{17}O$  relationships reported in the literature to make a comparison between different corals possible.

4. The difference in  $Ba/Ca$  between the different techniques is larger than the difference in accuracy of two techniques. We therefore deleted the 2nd part of the sentence relating to differences in standards used. The most likely explanation is the higher resolution of the Laser analysis. A comparison of  $Ba/Ca$  with other studies adds little value due to differences in the distance of corals to their corresponding river mouth and different characteristics of the hinterland erosion.

P3102; L24: deleted 'These'

P3103: Swapped the paragraphs describing luminescence and  $Ba/Ca$

P3104: Deleted 'proposed'

P3105: Figure 1 now includes all of the correct information

P3106: The SST minimum, maximum and range are now included.

P3108, L4-8: Deleted sentence

P3108; L14-15: See response to point 3

P3108; L25: Outliers are not numerous; yet it is standard procedure in Laser data processing to eliminate those outliers (see Fallon et al., 1999).

P3109: Added the NBS19 values and corrected the error.

P3111: The error is now described in the text

P3113: We now include 2 new graphs showing the  $Sr/Ca$  and  $d^{18}O$  values. We list all correlations as  $R$  to be consistent.

P3113; L18: We have removed 'strong'

P3115; P3116: We agree that the results for  $\delta^{13}\text{C}$  are rather difficult to interpret. Nevertheless, we think that we have discussed the limitations of our data, and now include a short sentence on the vital effects. We want to show the  $\delta^{13}\text{C}$  data since they complete the picture. The seasonal patterns we find link to some extent with river discharge proxies G/B and Ba/Ca.

Figure 2: Caption is now corrected.

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**BGD**

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