

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

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Answer to reviewer Jessica Carilli

Specific comments

Abstract Indeed, our data window is too short to use coherence, cross-correlation statistics as the reviewer rightly points out.

Methods We will include the location of towns, forest cover and deforested land in an updated map for the revised version.

Sect 2.3 We bleached the cores before sampling. We have tested the influence of bleaching with Sodium-Hypochloride on trace element geochemistry and stable iso-

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topes in another study that has been accepted for publication in Chemical Geology. We provide evidence that bleaching improves the Ba/Ca results.

Nagtegaal et al. Spectral luminescence and geochemistry of coral aragonite: effects of whole-core treatments” accepted for publication in Chemical Geology (CHEMGE6130).

Sec 2.4 We will re-write this section to make it clearer.

We calculated the annual anomalies by taking the averages between January to December, which gave the best fit between cores. We used the R software for linear correlations between proxy data. We will document this in the revised version.

Results

Sec 3.1 We will report the results in the standard fashion throughout the entire manuscript in the revised version.

Regarding the seasonal correlations; we believe that it is of interest to show these correlations next to annual means in order to provide a complete picture of the relationship between proxies. We can, however, delete this part if the Editor and reviewer insists.

Discussion

We don't agree with the reviewer that we should compare our Ba/Ca results with that of other studies. A recently published study by Lewis et al. (2011) showed clear evidence that Ba/Ca ratios in corals vary considerably across various distances from the river source. The absolute Ba/Ca values between different sites across the globe cannot be directly compared since its signature is unique to the specific watersheds and the sampling distance of the coral cores from that river.

Page 3121: We agree with reviewer that the ANDRA G/B signal can also be related to the fact that this small river is running through a densely forested watershed. We will include this link into the revised version.

Page 3122: This question relates in part to the section above. We will provide links

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between our results with watershed characteristics in the revised version
Technical comments will all be addressed in a revised version of the manuscript

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