

## ***Interactive comment on “Holocene climate variability in the Winter Rainfall Zone of South Africa” by S. Weldeab et al.***

### **Anonymous Referee #2**

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This is the second time this paper has come under review in *Climates of the Past*. While the initial manuscript was in places hard to follow (cf. comments of Curt Stager <http://www.clim-past-discuss.net/8/C715/2012/cpd-8-C715-2012.pdf>), this has been improved in this version, particularly with the addition of Table 3. This improvement, however does not address the critical shortcomings of the work highlighted by Reviewer #2 (<http://www.clim-past-discuss.net/8/C1282/2012/cpd-8-C1282-2012.pdf>), particularly the cursory effort at calibration (an essential point considering the location of core site) and what appears to be a misinterpretation of the Benito et al. cumulative plot of flood events.

I agree with Stager and Reviewer #1 of this version that the records presented could be a valuable and significant contribution to the local literature, but I also agree with the

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original Reviewer #2 that the import of the records has not been adequately resolved. As mentioned in the original review, the modern sediment sampling strategy does not come close to reflecting the nature and complexity of the Orange River drainage.

Until a more comprehensive study is undertaken the provenance of the sediments cannot be adequately constrained, and the interpretations - particularly considering range of the Sr and Nd values - will remain inconclusive.

It is also important to recognise that the attribution of the the observed trends to variations in winter rainfall, as the title states, is based (apart from the ambiguous SR and Nd data) on what the authors perceive to be "increasingly wetter conditions during the last 600 yr BP". In fact, the GeoB8332-4 records and the record from Verlorenvlei are very dissimilar, despite comparable sampling resolutions, and the cumulative plot of the Benito et al. flood events does not show increasing humidity, as might be inferred at a casual glance, but three peaks in flood events around 600, 150-200 and 50-100 cal yr BP. Any link between the three is tenuous indeed, although the three peaks in flood events (Benito et al.) do correspond to three of the five peaks in freshwater increases in Verlorenvlei (Stager et al.).

The story the authors tell is very good, there is no doubt, but the data upon which it is based is insufficient. A more complete study of the modern environment and its dynamics is required before reliable, valuable conclusions can be made.

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