

We thank again Reviewer #2 for his time.

Below we address the reviewer's concerns and claims. The original comments of reviewer and our reply are highlighted in italics and bold letters, respectively.

*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 original Reviewer #2 that the import of the records has not been adequately resolved.*

Regarding the Nd and Sr isotope and calibration of terrigenous sediment:

The main sources of terrigenous input to our core site are 1) the Orange River, 2) local rivers of Namaqualand, and 3) eolian sediment. We would like to bring to the reviewer's attention that we directly sampled the local rivers of Namaqualand and the Orange River at Vioolsdrift and Alexander Bay and analyzed the Nd and Sr isotope composition of riverine samples. The sampling locations and results are shown in Figure 1 and Table 2. The Nd and Sr isotope data provide the basis for down core interpretation, as discussed in the text.

Like every paleo-proxy, the interpretation of our Nd isotope record harbors uncertainties particularly if one relies on only this single proxy. We clearly stated this as a possible caveat. The strength of our paper is, however, the combination of several and independent proxies that, taken together, indicate coherent patterns of climate variability. The inferred climate variability is consistent with available climate records from the regional. Furthermore, by combining marine proxies (d18O and d13C) with indicators of terrestrial climate changes (Ti/Al, Ki/Al, Sr and Nd isotopes, and grain size analysis) our study relates the latter with thermal-hydrographic conditions of the adjacent coastal water. This is a new contribution and helps establish to better understanding the paleoclimate of this region.

Regarding interpretation of the Benito et al. (2011):

Reviewer #2 claims that we have misinterpreted the data of Benito et al. 2011. We disagree with his claim. Below we contrast our statement in the manuscript and the main statement by Benito et al. (2011).

In page 2331 (line 26-28)– 2332 (1-4), we state that “ an increasing flood occurrence in the banks of the Buffels River (Figs. 1 and 7j) (Benito et al., 2011) and

in the Lower Orange Rive (Herbert and Compton, 2007 and references therein) as well as pulses of freshening events evident in the Lake Verlorenvlei record (Stager et al., 2012) (Figs. 1 and 7k) over the last 700–600yr lend credence to our Nd and Sr isotope-based inference of increased sediment contribution from the local rivers”

In page 481 under the summery and conclusion section, Benito et al., 2011(Quaternary Research, v. 75, 471–482) state “**Palaeoflood records from the Buffels River catchment suggest that large floods coincided in the past within two prevailing climatic scenarios: periods of regular large flood occurrence (1 large flood/ ~30 yr) under wetter and cooler prevailing climatic conditions (AD 1600–1800) and periods of high frequency of large floods coinciding with wetter conditions of decadal duration (e.g., the early 20th century episode of large floods between 1915 and 1925)”** (emphasis mine).

Given that our statement (see above) properly describes the findings of Benito et al. 2011 and Figure 7j shows the original cumulative flood occurrence data, the reviewer’s claim of misinterpretation is unsubstantiated.

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.

As clearly stated in our manuscript, we agree more work is needed to characterize the Nd and Sr isotope signatures of Orange River TRIBUTARIES. However, we emphasize that a representative isotope imprint of the Orange River basin is better approximated by analyzing sediments collected close to the mouth of the river. These sediments represent a spatially integrated imprint of the river sediment. We did this by analyzing samples of Orange River collected in Alexander Bay and Vioolsdrift (see Figure1). With regard to the interpretation, the Nd isotope data constitute only small fractions of our multi-proxy data set and Nd isotope data show a clear trend that is consistent with other independent.

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.).

Unfortunately this is another unsubstantiated claim. First, the Verlorenvlei record reveals a freshening pulses whose magnitude and occurrence increased from 600 yr

cal BP to ~100 yr Cal BP relative to the previous interval (see Figure 7K of our paper). In our manuscript, we referred to this observation and suggest that the temporal coincidence of increasing occurrence and magnitude of freshening pulses (as recorded in the Verlorenvlei sediment sequences) and increased sediment input from local rivers, as indicated by our multi-proxy record, likely reflects a common climate imprint. We did not suggest that climate our record is identical with those from Benito et al. 2011 and Stager et al. 2012. Given the different depositional settings (marine and lake), the difference in resolving individual events is expected. The Verlorenvlei record is likely to preserve discrete events, whereas bottom water currents and bioturbation in our record likely tend to smooth the climate signals. Nonetheless both Verlorenvlei and our records suggest a trend of relatively wet conditions between 600 yr cal BP to ~100 yr Cal BP.

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.

Notwithstanding some uncertainties that exist in every paleo-record, our multi-proxy approach and a comprehensive comparison with available regional records provide new insight and synthesis. Our marine and terrestrial proxies generated in single sediment sequence shows coherent patters of variability and provide insights into oceanic and terrestrial climate link. To our knowledge this new and extend available record by putting oceanic and terrestrial changes in the regional climate context.