

## ***Interactive comment on “Increased aridity in southwestern Africa during the last-interglacial warmest periods” by D. H. Urrego et al.***

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Received and published: 9 September 2013

### GENERAL STATEMENT

The paper of Urrego and co-workers concerns a new and valuable glacial interglacial record of climate and vegetation change in west southern Africa. Additional surface samples complement the grid of surface samples in southern Africa, which is important for the interpretation of the fossil pollen record. The paper is well written and fits in Climate of the Past. At two points I think the discussion is not completely convincing.

Firstly, the arguments for substantial fluvial pollen transport from the Orange River to the specific marine site are not very strong. To claim that Daniau et al. (2013) analysed the clay record of MD96-2098 is an exaggeration; they only show six illite/smectite

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ratios all measured on samples from MIS 5 and they do not discuss which vector is the more important one. Moreover, a survey of elemental ratios from the Atlantic showed that Ti/Al ratios can be used to distinguish between fluvial and aeolian terrestrial input into the deep-sea. According to this ratio the area under discussion is dominated by aeolian transport. See Govin et al. (2012), section 4.2.1 (Geochemistry, Geophysics, Geosystems, 13, Q01013. doi:10.1029/2011GC003785).

The second point concerns the interpretation of the grass pollen record. The problem with this interpretation is that the Poaceae pollen percentages of GeoB1711 (2° of latitude further north) are persistently higher than those of MD96-2098. If a Poaceae pollen percentage maximum would indicate the expansion of the Nama Karoo and the fine-leaved savanna northwards (during for instance MIS 5e), then Poaceae pollen percentages further northward should be lower and not higher.

### SPECIFIC COMMENTS

Page 4328, line 21: the word “continuum” does not fit well here.

Page 4329, line 7: “understory” instead of “under growing”

Page 4329, line 11: “At” instead of “In the”

Page 4329, line 16: “Protea shrubs and trees” instead of “Proteas” (Proteas are no herbs)

Page 4329, line 20: “along” instead of “in”

Page 4329, line 24: “along” instead of “in”

Page 4330, line 1: consider “Supplementary Table 1” instead of “Table 1 in the Supplement”; *ibid.* for Supplementary Figures.

Page 4330, line 17: “were counted to a total of more” instead of “sums were greater”

Page 4330, line 29-30: “Stoebe may include pollen from Tarchonanthus sp. due to sim-

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ilarities in their pollen morphology” This is odd: Stoebe-type is similar to Ambrosia-type but not to Tarchonanthus pollen. Tarchonanthus pollen might have longer collumellae in the intercolpium (but here I am not quite sure), which would make it somewhat similar to Artemisia pollen.

Page 4333, line 7-8: please cite Correa-Metrio in the reference list.

Page 4338, line 1: cereals cannot be distinguished from the larger pollen types of wild growing African grasses.

Page 4339, line 4: delete “of” in “transport of pollen”

Page 4344, lines 30: The values of the Podocarpus percentages are quite low and it is unlikely that these changes are significant. The mentioned other records in Dupont (2011) and Dupont et al. (2011) show much larger changes in the representation of Podocarpus.

Figures 3 and 4: The lettering on these figures is too small.

Figure 5: What is the middle black curve in the lower panel?

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Interactive comment on *Clim. Past Discuss.*, 9, 4323, 2013.