Point-by-point response by Lydie Dupont

- Explanation about the calculation of the summer and winter LIG is provided but it would merit more information about the parameters you used using Past software. Did you use the “daily insolation” or “insolation in a given month” for the curves presented in Fig. 6? I was able to reproduce the winter LIG using the month 21December-20January on Past software but not the summer LIG curve. Could you please provide detailed technical information about the parameters you used in Past software in the method section.
I did not use PAST to calculate the summer and winter LIG values but downloaded the daily insolation values for the different latitudes on June 21 and December 21 from the Lascar website and calculated the difference (with Excel) as stated on lines 207-209.

√ L261: typo “in particular”

- Figures 5 and 7: Microcharcoal and Restionaceae curves seem to be shifted between the two figures. For example, at the transition between MIS6/5 peak of microcharcoal is contemporaneous with a decline of Restionaceae on Fig. 5; whereas on Fig. 7 this peak of microcharcoal is contemporaneous with a peak of Restionaceae. Does this difference come from the use of different age models for drawing the two figures? Or does this difference come from the fact that you use pollen concentration on Fig. 7 whereas it is pollen percentages on Fig. 5?
If the difference comes from differences between pollen concentration and pollen percentages, could you please justify why pollen concentration is used to discuss microcharcoal concentration and fire, and why pollen percentages were not used? This is important as two different scenarios can be obtained between fire and vegetation (positive or negative relationships between fire and fynbos). Please adapt the text if necessary.
Figure 7 shows pollen concentration values to compare them with the micro-charcoal concentration. To compare pollen percentages with micro-charcoal concentration would be like comparing apples with oranges as the concentration values are influenced by the sedimentation rates and the percentages are not. Pollen concentrations of some taxa correlate well with the micro-charcoal concentration while others do not indicating that the correlation is not dominated by the sedimentation rates. In the revision of Table 2 an error crept in. The first column compares micro-charcoal with pollen concentrations, not —as erroneously stated— micro-charcoal concentration with pollen percentages. I apologize for that. The start of the caption will be changed as follows; **R-values for linear correlations between concentration per ml of micro-charcoal particles with concentration values of selected pollen taxa (1. column), ...**

- Microcharcoal concentrations (and the different taxa accumulation rate) are negatively correlated to the winter LIG (Table 3). It seems therefore that peaks in fire and Podocarpaceae are in phase with peaks in summer insolation at the latitude of the core, with precession maxima and with the summer rain in the Greater Cape Floristic Region (GCFR). As stressed by one of the reviewers in the first round of review, it is a pity that your interpretation of the pollen and microcharcoal records in core U1479 (GCFR) were not compared with the microcharcal and pollen record from core MD96-2098 (Daniau et al. 2013; Urrego et al. 2015). Those studies suggested that southern Africa was characterized by increasing summer rain at precession maxima. This is also what you observe in the GCFR. You compare your interpretation with records from the southeastern region (Partridge et al. 1997; Simon et al 2015 and Caley et al 2018). Including a brief comparison/discussion with results from core MD96-2098 (western part, Orange and probably part of Namibia basins) in the “Orbital forcing” section would complete the picture for the full region of southern Africa.
You are right, I'll include the results of MD96-2098 in the precession discussion, change lines 434-436 and 466, and update the reference list.

More recently, studies of independently dated marine sediments confirmed the importance of precessional forcing, whereby increased precipitation occurred during maximum precession; a micro-charcoal and pollen record from the eastern South Atlantic indicated precession forcing on the seasonality and amount of rainfall in the summer rainfall region of southern Africa (Daniau et al., 2013; Urrego et al., 2015), while records from the western Indian Ocean revealed precession-driven discharge of southeast African rivers, such as Limpopo and Tugela Rivers (Simon et al., 2015; Caley et al., 2018).

To line 466, I'll add: “In line with the mentioned inferences from marine sediments (Daniau et al., 2013; Urrego te al., 2015; Simon et al., 2015; Caley et al., 2018), our spectral analysis results also indicate...”

Daniau, A-L., Sánchez Goni, M.F., Martinez, P., Urrego, D.H., Bout-Roumazeilles, V., Desprat, S. & Marlon, J.R.: Orbital-scale climate forcing of grassland burning in southern Africa., PNAS, 110, 5069-5073. doi:10.1073/pnas.1214292110, 2013.

Urrego, D.H., Sánchez Goñi, M.F., Lechevrel, S. & Hanquiez, V.: Increased aridity in southwestern Africa during the warmest periods of the last interglacial., Climate of the Past, 11: 1417-1437, doi:10.5194/cp-11-1417-2015, 2015.