

Interactive comment on “A climatology of dust emission events from northern Africa using long-term surface observations” by S. M. Cowie et al.

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This is a nice paper with a good approach that should be published. I had just two comments on reading through it: “The normalized difference vegetation index (NDVI; Tucker et al., 2005) is a popular proxy for vegetation, especially in semiarid areas such as the Sahel (Huber and Fensholt, 2011; Olsson et al., 2005) to which it is particularly well suited.” None of these papers argues that the NDVI is particularly well suited to low LAIs: in fact if you look closely at Zhu et al., 2013, it is clear that there is a lot of spread in the LAIs estimated from NDVI and from the data, and that there is a lot of bias in low LAIS (e.g. about 0.1 LAI over-

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prediction, I think). I think it would be more fair to say that we use it because there is nothing else, but it does not do a good job in arid places. NDVI can only get greenness, so brown vegetation, which holds down soils isn't well captured.

Thank you very much for taking the time to read the paper, and replying with useful comments.

We took the reference from this particular sentence of section 2. of Olsson et al. 2005 “These data are particularly well suited to the study of semi-arid regions because: (1) NDVI becomes saturated at LAI levels higher than 3–5 (Prince, 1991a, b; Field et al., 1995), and (2) atmospheric contamination (particularly clouds) of the data is less of a problem in semi-arid regions than in more humid ones (Chappell et al., 2001)”

We didn't consider that LAI's were low in the Sahel as we did not calculate or use them and were not aware of the Zhu paper at the time of writing but this is good information to consider.

We have included the following sentence in Section 2.1.2 “A limitation of this dataset is that NDVI only detects green vegetation and may overestimate areas with low Leaf Area Indexes (Zhu et al., 2013), such as semi-arid regions. After the main growing season brown vegetation, which still affects dust emission (Zender and Kwon, 2005), is likely to be left over, but not detected by NDVI.”

Typo: Koch, J. and Renno, N. O.: should be Kok, J.

We shall keep it as Koch as this is the paper we wish to reference the paper: Koch, Jacquelin, and Nilton O. Renno. "The role of convective plumes and vortices on the global aerosol budget." Geophysical Research Letters 32.18 (2005).

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