

# ***Interactive comment on “Climate change will cause non-analogue vegetation states in Africa and commit vegetation to long-term change” by Mirjam Pfeiffer et al.***

## **Anonymous Referee #2**

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The authors present a theoretical study on possible vegetation changes in Africa for two scenarios of global warming and climate change. They use the sophisticated and well documented aDGVM, a dynamic (but not global) vegetation model that has been developed specifically for grass-tree interaction in tropical ecosystems. The authors convincingly demonstrate that in a global warming scenario, the vegetation composition in Africa will likely change and increasingly deviate from its equilibrium composition, i.e., its composition that is attained, if vegetation would instantaneously follow the changing climate. In this sense, the transient future vegetation state in Africa is supposed to move into ‘non-analogue states’.

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In conclusion, this is a well written, interesting study. The method is clearly outlined. The results are thoroughly and convincingly discussed. The topic is highly relevant. I am happy to recommend its publication in Biogeosciences in its present form subject to a few small, editorial changes.

Minor items:

Line 234: Fire 'consistently' enlarges. . . ok, but what about statistical significance? I assume the scatter is just too large to talk about statistical significance. This is more a comment, which the authors might consider, not a critical remark.

Lines 249 to 252: I had to read these sentences at least twice to fully understand their content. Which variables refer to which percentage? Perhaps a slight re-arrangement of the sentence starting with 28% will cure the problem. It slightly enhances understanding, if the authors more specifically refer to Fig. S3a, instead of Fig. S3 (and if the 'Fig. S3a' were put in closed brackets).

Line 363: What are these unpublished studies by the co-authors (Kumar and Martens)? Grey literature, PhD theses, to be submitted, or just personal communication?

Figures: The figure captions should be self-explaining as much as possible. Therefore, please, explain the acronyms (SDP in Fig.2, 3, 4 and CDP in Fig. 5, 6, 7 and the figures in the Supplement)

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