

## ***Interactive comment on* “The El Niño event of 2015–16: Climate anomalies and their impact on groundwater resources in East and Southern Africa” by Seshagiri Rao Kolusu et al.**

### **Anonymous Referee #1**

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This paper compares a leading agroclimatic indicator (the SPEI) with other estimates of water availability, over two regions of Africa and specifically focusing on the 2015-16 Southern Africa drought. Overall I found this paper to be very well-written and focused, and using some interesting analysis and data products to characterize the 2015-16 season. I especially liked the use of the IAF curves. I recommend this article for publication. I have two minor points that I think would help the paper, but I will leave it to the discretion of the authors how to respond to these issues.

First, there are many potential data inputs which could be used for the calculation of SPEI. While these are mentioned in the S2 supplemental material, I think that the

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manuscript would benefit from moving the first paragraph of the S2 section to the manuscript proper. Stating upfront which precipitation and PET estimates are used will help the manuscript by letting people better understand the historical record being used and the flavor(s) of PET calculation.

Secondly, I think the identification of the discrepancies between the GRACE data and the SPEI and GLDAS is quite interesting. While this paper is not meant to be a criticism of those other products, I think it should be noted that they are dramatically different in some locations, and that (typically) the GRACE does not match up with the SPEI. I think if this paper is proposing to use the SPEI to characterize drought events that this might be a useful opportunity to clarify these discrepancies, and where to put the confidence. This is touched on in the closing of section 3.2.2, by comparing to the piezometry, but I think that this is an important and relevant finding of this paper, and definitely calls into question the use of GRACE for monitoring groundwater.

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