

Reply to referee #2

1. GENERAL/OVERALL: The paper is well written (outside of some minor edits) and both original and worthy of adding to the knowledge-base in our field. This is a topic (remotely sensed derivatives for drought monitoring/new applications) that needs more exposure in the literature and is a welcome addition to the body of work in my opinion. The abstract is consistent with the findings of the paper. As for the flow of content in the paper, it seemed more intuitive to me that the Precipitation Monitoring section would come before the Drought Monitoring section in laying the foundation for this paper. More on this below. In short though, this is a needed approach at getting at the issue of supplementing in situ observations in near real-time with remotely sensed precipitation/drought indice derivatives.

We thank the reviewer for the constructive comments and suggestions. A detailed reply follows below.

2. TITLE: Tough to tell w/out reviewing the context of “Part 2:, or Part X:”. Seems like the “monitoring” reference should come earlier in the title and would better clarify what the paper is about, but again, this may be just fine depending on the other paper titles in this series of papers: : ..assuming that the other paper is in this same special collection HESS journal issue.

Part 2 of the paper will appear in the same HESS special issue with the title: “Global meteorological drought – Part 2: Seasonal forecasts”. During the publication in HESSD, the editor in charge waited for the two parts to be ready before publication. Part 2 has been already accepted, and we will ask for part 1 and 2 to be also published at the same time.

3. ABSTRACT: Concise and representative.

4. INTRODUCTION: Good

5. Sections 2-4: No real major issues except for perhaps a better understanding from the authors as to why they delve into Drought Monitoring (Sec. 3.2) before the Precipitation Monitoring (Sec. 3.3). Perhaps it is the labeling choice of “Precipitation Monitoring” that is throwing me off as there is some explanation as to “why” and not as much of a general intro/background into new applications of satellite based augmentation of in situ networks. That said, this still could have been covered under a new 2.2 following the Precipitation Dataset section. If the other reviewers, or the Editor, aren’t concerned with this progression, then I will yield. Perhaps some explanation from the authors as to the rationale will do the trick.

The appearance of the precipitation monitoring after the drought monitoring is mainly due to the initial design of the paper. We started by the drought monitoring, and when the manuscript was ready for submission we had some concerns regarding the precipitation data itself. This lead to a new section (3.3) comparing the “raw” precipitation products “The previous results compared the different datasets after the SPI transformation, which includes temporal aggregation and normalization. Therefore, the results are not directly related to the performance of the original precipitation datasets”. We faced the same question as the reviewer: weather the precipitation monitoring should come before or after the drought monitoring. It was decided to keep the precipitation monitoring in the end of the manuscript, to be interpreted as a further clarification to the drought monitoring results, together with the two case studies.

6. REFERENCES: Good

7. FIGURES AND TABLES: Need to be larger in general, which should make them more legible and easier to understand on their own. Perhaps this will happen anyway in the printed layout in the journal? They are too small as they are currently depicted though, particularly Figures 6 and 7 and even 8.

The figures are vector based, and we will check their appearance at the proofs stage to insure they are legible.

8. Supplemental Info: Given the focus on “meteorological” drought here, I’m not sure why there is all of the analyses into SPI-12? That seems to get more into agricultural or, more likely, hydrological drought. Although it was still good to have the additional longer-term context, this could lead to some confusion or mixed messages.

We agree with the reviewer, and that explains why we included the SPI-12 results only in the supplementary material. Although the SPI-12 is more related to agricultural / hydrological droughts, it is widely used together with the short-term SPI time-scales, and our purpose is to provide a full evaluation of the products.