

## ***Interactive comment on* “Evaluation of drought regimes and impacts in the Limpopo basin” by B. F. Alemaw and J.-M. Kileshye-Onema**

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The authors appreciate the anonymous review made (C297 review by Anonymous Referee #1, 04 Mar 2014) highlighting their/his/her comment and concerns on the quality of the paper ‘hess-2013-432’ submitted on 21 Sep 2013, hereafter named as ‘THIS MANUSCRIPT’ or ‘This Manuscript’ entitled “Evaluation of drought regimes and impacts in the Limpopo basin” coauthored by B.F. Alemaw and J.M. Kileshye-Onema.

It is true that the same authors and the lead author have published works which are cited in ‘This manuscript’ as Alemaw et al. 2013 and Alemaw 2013. All the papers are different and the aims are different with some common aspects properly illustrated and cross-referenced and cited as necessary. However, This Manuscript and manuscript

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Alemaw et al 2013 focus on drought issues, the latter focusing primarily on 'drought characteristics in the Limpopo basin', where as This Manuscript builds on drought characteristics of Alemaw et al 2013, and considers the implications of drought and evaluation of drought impacts in terms rainfed cropping sustainability (Section 3.2 and Section 4.2), and also impact on agricultural production and yield by focusing on specific zone/ target areas in Zone 3 of the Limpopo basin.

First highlight how these are different is provided by replying to the specific questions.

REVIEWER COMMENT-Figure 1 is the same as in Alemaw et al. 2013  
AUTHORS REPLY: Yes, the study area is the same and citation of the source is given below figure 1.

REVIEWER COMMENT: Figure 2 in this manuscript is for the SPI-3, while in Alemaw et al 2013 is for the SPI-3(see Figure 3)  
AUTHORS REPLY: No. In Alemaw et al 2013, SPI-6 is used where as in This Manuscript, SPI-3 is used for Region 3. This was basically to look into how the 3 month aggregated SPI will have some association with crops which were analyzed in terms of impact of rainfall shortfalls on sustainability of rain fed agricultural systems as reported in This Manuscript and well acknowledged for its exhaustive discussion in Alemaw 2012

REVIEWER COMMENT: Figure 3 in this manuscript is a copy of Figure 4 of Alemaw et al 2013.  
AUTHORS REPLY: These two figures are different in essence. The focus and intention illustrated in This Manuscript is to distinctively classify what are the magnitude of the DSI (Drought Severity Indices) in each region clearly identified in Fig. 3 of This Manuscript. Whereas Figure 4 of Alemaw et al 2013 tries to show the relative distribution different regions over the Limpopo basin without specifically showing which is which for the particular regions. As it was important to clearly define in This Manuscript, Figure 4 of Alemaw et al 2013 was adopted and modified in Fig 3 of This Manuscript with proper citation of the source.

REVIEWER COMMENT: Pag 209: Line 21 to Pag 210 L2 "As illustrated,.... Limpopo

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River basin” These two sentences are a direct copy of the text in Alemaw et al. 2013. AUTHORS REPLY: As clearly illustrated Alemaw et al 2013 covers drought characterization in the Limpopo while This manuscripts builds on the droughts characterized to evaluate and assess the implication of the regional droughts on rainfed crop systems as well as agricultural yield. The texts are quoted during the transition of upscaling the use of the study in Alemaw et al 2013 for more operational applications of drought assessment and management in this rural type basin where agriculture is the lifeline of millions of the inhabitants living on the catchments of Limpopo basin.

REVIEWER COMMENT: The results in Figure 4 left panel are the same as in Alemaw 2012 (see Figure 4 left pannel) AUTHORS REPLY: Alemaw 2012 clearly illustrated how different crops grown in the basin and more specifically in Region 3(considering commonly grown cultivars namely, maize, sorghum and sunflower) are vulnerable to short term soil moisture declines in the soil moisture regime movement. Exhaustive material of Alemaw 2012 has then been appropriately quoted in This Manuscript. Figure 4 of This manuscript refer to soil moisture level of 10% as indicated on the caption (only the little title on the right Figure 4 b) for Maize in Bobonong is erroneously 20% but the figure’s content is for 10% as captioned)- Corrected Figure title is now changed from 20% to 10% as attached below Fig.4.

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Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 11, 199, 2014.

**HESSD**

11, C319–C323, 2014

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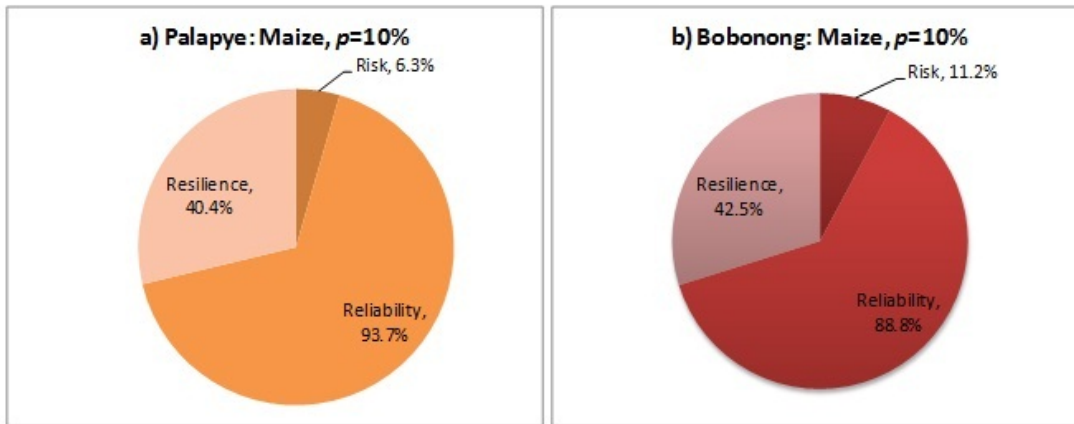
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**Fig. 1.** Risk, reliability and resilience of maize with available soil moisture factor,  $p=10\%$  in two districts of Region 3 (Alemaw 2012) (Fig. 4. of original manuscript)

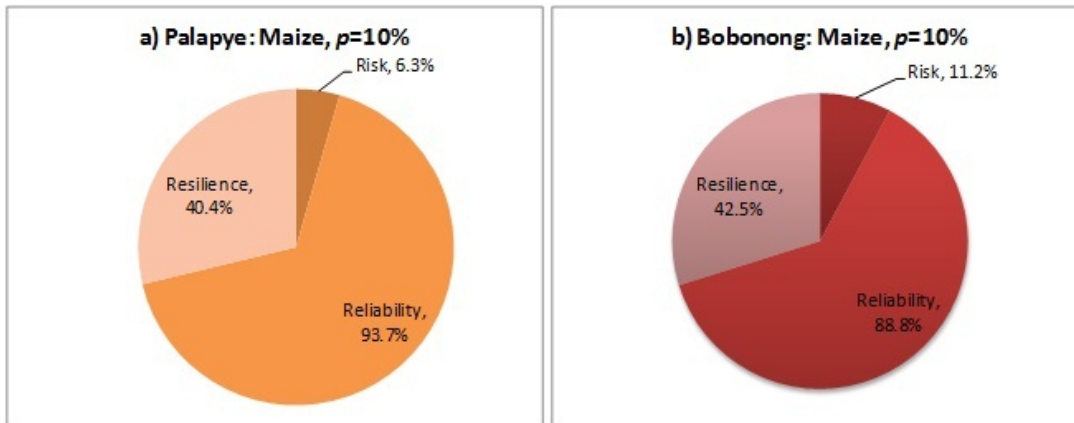
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**Fig. 2.**

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