Hydrology and Earth System Sciences Discussions

Interactive comment on "Climate resources analysis for use of planning in crop production and rainfall water management in the central highlands of Ethiopia, the case of Bishoftu district, Oromia region" *by* F. Yemenu and D. Chemeda

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General comments:
The paper describes a very relevant topic for sub-Saharan countries. The authors carried out a statistical analysis on 33 years of rainfall data in order to help farmers with finding the right moment for planting and harvesting.

The paper is well written and understandable. However, the Methodology section should be re-written in a more logical order (especially the order of equations). Furthermore, throughout the manuscript there are quite some typos in the English language, citations and references to tables and figures. And more important many citations are not mentioned in the Reference Section (e.g., Engida (2005), Hulme (1987), Ati (1996), Awadulla (1981),...). Also some figures can be improved and the captions of the tables and figures should be more informative (see specific comments).

Specific comments:

P3734
L5: quantity => quantify
L6: Ethiop => Ethiopia
L6: has => have
L15: (Kiremt,) => (Kiremt) [remove comma]

P3736
L16: Sileshi is written differently in the reference section

P3737
L19: annalysis => analysis
L22: either add 'a minimum rainfall of 335mm/year' or write 'a minimum annual rainfall of 335 mm'.
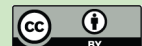
P3738
L4: Add year to reference 'Yemenu'
L23: I think this table is not correct. I expect something showing details on SMD and

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not on SPI

L25: Penman-Month => Penman Monteith

P3739

L3: remove 'or the start'

P3740

Eq1-6: Explain the used symbols earlier in the text.

L19: decade => decades

P3741

L10-14: What is the difference between P1 and Pww? And P0 and Pwd? Also in equation 7-10.

L16: What is SPI? This is not explained before. And why are you interested in SPI? What does it say?

L18: Why do you choose a gamma function?

Eq11-15: Explain symbols better. What is 'y', 'l'. Be consistent with 'a' and 'alpha'; 'b' and 'beta'.

P3742

L1: change alpha and beta for the Greek symbols and remove the brackets.

Eq13-14: what is the 'lambda' doing above the 'alpha'?

L6: what is the unit of the precipitation?

L7: change 'alpha' and 'beta' for the Greek symbols

L7-9: rephrase: 'were then entered into excel program of gamma distribution function to obtain the cumulative probabilities of each rainfall event for monthly rainfall total' Not correct English.

Eq17-18: Why Z=SPI?
Eq21: remove last bracket

P3744
L1: Remove reference to table here and place the 'comma' right.
L18-21: Why do the author use now 0.5ETo as a threshold instead of the 30 mm as mentioned before (p3739-L19-20)?
L22: change 'this particular' to 'the Belg'

P3745
L21: add after decade 'for Belg'.

P3746
L3: belg => Belg
L13: wrong reference. Fig.2 => Fig 4.
L15: March 1998? Is this correct? Should this not be 1994?
L24: Further more => Furthermore

References:
Please use one style (EGU) style for references. (journal abbreviations or full journal names).
Add missing references

Tables:
Table 1: Is the correct table??
Table 2: How is decided that the stability of the onset is 'very high'. What kind of classification is used?

Table 4: Add unit to SD, CV. And add 'stability' as in table 2

Table 5: Why is the percentage of occurrence of 9 decades 18.18 instead of 18.8Table 6: Improve caption. Not informative; Be consistent with notation and the capitals (PW and PWW).

Table 7: Be consistent with notation and the capitals (PW and PWW).; Dekade => decade

Table 8: Bega => Belg; dek=> decade

Table 9: How are these drought categories determined? Please explain.

Figures:

Fig2: Plot the ET0 on a second axis. Now it is not possible to see any changes in ETo; What is the unit of the precipitation and ET0 (L/T)? Per decade, per month?

Fig3: Same as figure 2; Lower line in legend box is missing.

Concerning figure 2 +3 I was wondering if it is not better to calculate the ratio of ET0/P per year and then average. Because now the graphs show that in the Kiremt season no moisture stress occurs, while it is possible that in a certain year ET>P, but that it is just canceled out by averaging? Especially, because ET and P are related I think this is a better way.

Fig 4: labels not readable.; How is DI calculated?; Add (DI) after intensity.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 7, 3733, 2010.

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