Reply to referee 1

Overview: We would like to thank the reviewer for his/her dedication in reviewing the manuscript. We are also thankful for their considerate and constructive suggestions and comments.

Note: The lines are according to simple markup

General Comments: Overall this paper reports a new approach to the use of an existing hydrological model to better represent African cropping patterns. With water resources (the use and availability of) an important current and future issue for tropical regions, highlighting and documenting a method for improving model outcomes is of use. The paper is well presented, and the methods documented satisfactorily.

Specific Comments: Whilst the paper reports the differences between the static and dynamic method in terms of the RMSE and NSE, I would like to have included whether the difference between the two methods results in a statistically significant difference in ET. This would help in showing the magnitude of the difference between the methods. For example, this could be included in the paragraph starting at line 286 where the static, dynamic, and remote sensing methods are compared. Also, line in 371 the authors state "Our study shows a **significant** impact of the representation of seasonal land-use in the SWAT+ model by reducing the errors in water consumption estimations." whereas this has, in fact, not been proven statistically.

Authors Response: We have included the statistics results showing that there is significant difference between the ET from static model and that of the dynamic model. Line 310- 312 was added.

Comment: Were any of the default setting for the land use codes (e.g. PAST) changed in SWAT to better represent African growth? - or are the defaults representative? It would be good to have a sentence relating to this.

Authors Response: We did not change the default parameters of the land use codes except the maximum potential leaf area index (BLAI) for maize. This was adjusted based on the field

measured data. A sentence relating to this has been added in the revised manuscript under section 2.6. Line 211-213

Technical Comments:

Comments: Line 19 (Abstract) The abbreviation for ET has already been defined earlier in the abstract, do not need to do this twice.

Authors Response: The abstract was edited hence the ET has not been defined twice.

Comments: Line 26 LULC abbreviation is not defined.

Authors Response: Both abstract and introduction have been changed. We careful considered the comment in line 78.

Comments: Line 37 Nitrogen does not need a capital 'N'.

Authors Response: Line 66, The capital N has been replaced with ‘n’ in the revised manuscript.

Comments: Line 38 LAI abbreviation is not defined (unless I missed it).

Authors Response: The LAI abbreviation has been defined in the revised manuscript (line 67).