Interactive comment on "Long-term water stress and drought monitoring of Mediterranean oak savanna vegetation using thermal remote sensing" *by* María P. González-Dugo et al.

We really appreciate the time dedicated by both reviewers to read this manuscript and all the suggestions and comments that have been provided. We have considered and answered below all the comments. The suggested changes and clarifications have been introduced in the revised manuscript. Reviewer comments are typed in black colour, whereas the responses are typed in blue colour.

Referee#1. Report 2

General Comments
The manuscript presents a long-term analysis to characterize the impact of water stress on the dehesa region of Spain. Overall, study was well designed, the paper is well written, and the results and conclusions are fully supported. Additionally, the authors provided thoughtful responses to the comments regarding the earlier iteration of the manuscript. Thus, it is recommended that the paper should be accepted once the authors have addressed the handful of additional and relatively minor comments listed below.

Specific Comments
1. Line 43: The sentence beginning "However, the slow ..." could be better expressed as "However, the slow onset of drought, the large extension of savanna areas, and their complex canopy structure introduce additional difficulties to the challenge of monitoring drought and assessing its adverse effects."

The sentence has been changed

2. Line 55: The sentence beginning "In particular, the ..." could be expressed more clearly as "In particular, the SEBS (Surface Energy Balance System) model (Su, 2002) presents a good compromise between the detailed parameterization the turbulent heat fluxes for different states of the land surface and minimizing the input requirements of the model without the need for local calibration. "

The sentence has been changed

3. Line 69: The sentence beginning "Mediterranean oaks have …" could read more simply as "Mediterranean oaks can minimize the effects of water scarcity through a combination of physiological mechanisms that occur over a range of time scales Rambal (1993)."

4. Line 150: How were the input changed for monthly flux estimates?

The oaks fc is computed annually, and a single hc value was used for every month of a year. This is clarified now in the text.

5. Line 187: The hyphens in “root mean square error” are unnecessary and should be omitted. Similarly, the should be deleted in the “mean bias error’ below.

Corrected

6. Line 197: Replace "than" with "as".

Replaced

7. Line 232: The RMSE for this study are modest and likely falls within the expected uncertainty of the measurements themselves. Also, since the model forces closure of the, most of the error in the turbulent fluxes can be attributed to the propagation of errors in the model estimates of Rn and G. This could be worth noting.

A sentence highlighting this observation has been added to the revised text.

8. Line 264: What were these hypotheses?

It is referred to the complementary hypothesis, as it is now clear in the text

Referee#3. Report 2

The authors have made the appropriate changes considering the comments made from the first round. The manuscript is clearer regarding the methods, model set-up and retrieval of inputs for the model application and analysis.

However, I recommend to revise one last time the writing style and semantics of the manuscript. In certain sections, the semantics can be improved by using clearer and direct language. Also, the manuscript should be revised generally to avoid the use of long-winded sentences (i.e. sentences that are > 4-5 lines). I therefore recommend to accept the manuscript for publication after revising some of the writing style. I leave below some specific recommendations:

We have revised the writing style of the whole text and rewrite the longest sentences.

L42 – Consider revising the sentence in L42-43. E.g. ‘More recently, insurance services provide farmers with a means of recovery for pasture production negatively affected by disasters due to water stress.’

The sentence has been modified

L80 – change ‘cm’ to ‘centimeters’

Changed

L292-93 – Consider revising the sentence in L292-293. E.g. ‘The recovery of the vegetation water status, in most areas, was generally achieved the year following dry ones’
The sentence has been modified

L299-301 – Consider revising sentence to make it shorter (or break it into 2 sentences) and a comma (,) is needed after ‘[…] arrive’ in L300

The sentence has been divided