Responses to reviewers

Given the modifications made on the MS, the conclusion has been rewritten to take into account the new insights.

Reviewer 1

1. **They chose to illustrate the numerical effects on surface resistance using Kc = 1, which is effectively a 'one step' approach - how would the analysis have looked if they had chosen a different value of Kc.**

The initial case (K_c =1, z_h = 1) has been replaced by two contrasting cases: one representing the initial stage of an annual crop, with K_c =0.5 and a crop height z_h = 0.5 m, and the other case, with K_c = 1.1 and z_h = 1.5 m, representing the mid-season stage. The new Fig. 2 shows these two cases under two different environmental conditions (semi-arid and sub-humid climates). The corresponding text has been modified (third paragraph of section 5, P9L16).

2. **Can the authors explain why the M-S approach seems to work better in semi-arid conditions rather than the sub-humid conditions that are supposed to be inherent in the FAO56 method?**

An explanation using the complementary relationship has been added (last paragraph of section 5, P10L14).

3. **It would also be useful if the authors included a further figure/table showing the net result of their different surface resistance values on actual evaporation - after all this is what is important in the end.**

A new figure (3b) has been added showing the impact of the M-S assumption on evapotranspiration. This new figure is commented in section 5 (4th paragraph, P10L7).

Reviewer 2

1. **I agree that using the Priestley–Taylor (P-T) approach with a fixed coefficient of 1.26 to replace the reference crop evapotranspiration (ET0) is questionable. However, I suggest the authors give a more detailed explanation, especially from the viewpoint of complementary relationship. Such as, under humid conditions, the difference between the P-T evaporation and ET0 is small. However, as the surface dries without changing the available energy, ET0 would depart from P-T evaporation. Then, the replace of ET0 with P-T evaporation without adjustment of the coefficient would be questionable.**

An explanation based on the complementary relationship has been added (last paragraph of section 5, P10L14).

2. **Only the situation that Kc=1 and zh=1m was discussed. It would be more convincing if some other situations are discussed.**

Same comment as comment 1 of reviewer 1 and same response.