The mutual confusion arises because there is a fundamental difference in the interpretation of $r_{sc}$ in this paper and Lhomme et al (2014).

The Matt-Shuttleworth approach adopts the same interpretation as the Penman-Montieth equation, hereafter referred to as PM. Specifically, it assumes that $r_{sc}$ is (an effective daily-average value that is) solely related to status of the vegetation canopy and reflects the daily-average control on evapotranspiration exerted by the canopy-average stomatal resistance - compare the stomatal resistance of 70 s m$^{-1}$ assigned to the reference crop. When applying the Matt-Shuttleworth approach, the challenge is to define the seasonal variation in $r_{sc}$ through the crop growth season. Ideally a measurement based seasonal model of $r_{sc}$ would be derived and applied. But failing this, an attempt is made to estimate the value $r_{sc}$ each day from the crop dependent seasonal models of $K_c$ specified by Allen et al (1998). This default approach assumes the interrelationship between $r_{sc}$ and $K_c$ is optimally defined for a specific relationship between the "radiative" and "advective" influences on evapotranspiration (Penman, 1948), *i.e.*, for a specific "preferred" value of climatological resistance, $r_{clim}^{pref}$. *In the absence of any better basis* for defining $r_{clim}^{pref}$, a wind speed of 2 ms$^{-1}$, temperature of 20 °C, and the condition that reference crop evapotranspiration, $E_o$, equals the evapotranspiration, $E_{PT}$, calculated by the Priestley-Taylor (1999) equation are used. Regardless of how it is specified, the seasonal model of $r_{sc}$ is then be applied in PM with relevant ambient meteorological variables on each day used to allow for daily variations in the other controls recognized in the PM equation, i.e., aerodynamic resistance and surface energy balance. For the hypothetical 1m high crop considered in Lhomme et al (2014), assuming the crop factor $K_c$ = 1 was calibrated on a day when the value of climatological resistance had the default value 55 s m$^{-1}$, the fixed value of surface resistance on this day in the season is estimated using Equations (3) and (4) is 111 s m$^{-1}$ (but see below).

In the approach adopted in Lhomme et al (2014) the value of $r_{sc}$ is not assumed to be solely related to status of the vegetation canopy and to reflects the effective daily-average control on evapotranspiration exerted by the canopy-average stomatal resistance on a particular day in the growth season. Rather it is a variable that is modified to force agreement with the evapotranspiration calculated by the FAO method and, being calculated using Equation (10), therefore dependent on the ambient meteorological conditions and, though the aerodynamic resistance, also on the height above the ground at which these meteorological variables are measured. Figures 2 and 3 in Lhomme et al (2014) illustrate how this variable value of $r_{sc}$ changes with specified fixed values of relative humidity and extraterrestrial radiation for a range of ambient daily-average temperature and wind speed. These figures also shows curves labelled as M-S which illustrate values of $r_{sc}$ calculated with the additional assumption $E_o$ = $E_{PT}$ applied on each day for the same range of ambient daily-average temperature and wind speed.

The tone of the comments in the Short Comment posted by Lhomme suggests that the second paragraph in section 2 of my paper has caused offence. In fact the content of that paragraph is strictly accurate: the variability in their estimate of $r_{sc}$ shown in Figures 2 and 3 in Lhomme et al (2014) does indeed arise from its calculation using Equation (10) as a variable function of daily-average temperature and wind speed, and the curves labelled M-S are calculated with the additional assumption $E_o$ = $E_{PT}$ applied on each day for the same range of ambient daily-average temperature and wind speeds. However this paragraph is an aside which is not essential to the main purpose of the present paper, this being to describe the Matt-Shuttleworth approach clearly, simply, and concisely. I do not wish to give offence unnecessarily and I will therefore remove this paragraph from the final version of this paper. Similarly, the comment "but it is never the complex function of weather variables and $K_c$ given as

Equation (10) of Lhomme et al (2014)" in the second paragraph of section 1 of my paper also seems to have caused offense. Again this statement is accurate: to the best of my knowledge surface resistance calculated as a complex function of weather variables and $K_c$ is not used in advanced models of surface-atmosphere energy exchanges. However, again this comment is an aside whose removal will not compromise the present paper so I will also remove it in the final version.

Having read the Short Comment posted by Lhomme and re-read Lhomme et al (2014), I realize that it is necessary to include additional text in my paper because it is important readers understand that the use of the value $r_{clim}^{pref}$ = 55 s m$^{-1}$ derived from $E_o = E_{PT}$ is *a default assumption* whose use is recommended when the meteorological conditions prevailing when the values of $K_c$ given in Allen et al (1998) were calibrated *are not known*. This is mentioned several times in the literature describing the Matt-Shuttleworth approach i.e., Shuttleworth (2006), Shuttleworth and Wallace (2010), and Shuttleworth (2012), but because the point is easily missed it is important that it should be made again in this paper. In fact the Matt-Shuttleworth approach is easily adapted to fine tune estimates of $r_{sc}$ if additional information on or assumptions about the conditions when values of $K_c$ were calibrated are made. To do this the calculation of $r_{sc}$ is made using the value $r_{clim}^{pref}$ relevant *during the period of calibration*.

If, for example, *it is known or if it can be safely assumed that the value* $K_c$ = 1 on a particular day in the season for the 1m high hypothetical crop considered by Lhomme et al (2014) *had been calibrated in the sub-humid conditions they specify, then it is the value of climatological resistance in these specified conditions that should be used as the preferred value when calculating* $r_{sc}$ using the Matt-Shuttleworth approach. For the purpose of illustration, assume the clear sky conditions sub-humid conditions adopted by Lhomme et al (2014) prevailed when this calibration was made, that the crop had an albedo of 23% and the temperature was 20 °C and wind speed 2 ms$^{-1}$. In this case, with net longwave radiation estimated from equation (5.22) in Shuttleworth (2012), the preferred value of climatological resistance to be used when calculating $r_{sc}$ from $K_c$ would be 35.5 s m$^{-1}$ corresponding to a Priestly-Taylor $\alpha$ = 1.107, and the corresponding equation used to calculate $r_{sc}$ from $K_c$ would be:

$$r_{sc} = \frac{1.4349 R_c^{50} + 116.27}{K_c} - 1.5881 R_c^{50} \qquad \text{s m}^{-1}$$

Consequently the value of $r_{sc}$ for this crop on this day would be 89 s m$^{-1}$.

Similarly if the values of $K_c$ and $h_c$ given by Allen et al (1998) during stage 3 for cassava (in year one 0.8 and 1.0 m; and in year two 1.1 and 1.5m, respectively), banana (in year one 1.1 and 3.0 m;, and in year two 1.2 and 4.0 m, respectively), and millet (1.0 and 1.5m, respectively) were assumed to have been calibrated in these same sub-humid conditions, then the equivalent values of $r_{sc}$ would be for cassava 182 s m$^{-1}$ and 61 s m$^{-1}$ in years one and two, respectively; for banana 70 s m$^{-1}$ and 53 s m$^{-1}$ in years one and two, respectively; and for millet 92 s m$^{-1}$. These values of $r_{sc}$ when applied in equation (5) in the same sub-humid conditions of course give the same estimates of evapotranspiration as FAO estimates in these conditions, as they should. A similar approach could be used to derive $r_{sc}$ for crops that can be safely assumed to have had $K_c$ calibrated in semi-arid conditions. Thus, if there is a decision to update United Nations Food and Agriculture Organization Irrigation and Drainage Paper 56 using the Matt-Shuttleworth approach, arguably the first step should be to define specific sub-humid and semi-arid conditions by also specifying the available energy and temperature in such conditions, then to attempt to define for which crops it should be assumed the calibration of $K_c$ was made in sub-humid, semi-arid, and default conditions.

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