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Hydrology and Earth System Sciences Discussions

Interactive comment on "Transpiration of montane *Pinus sylvestris* L. and *Quercus pubescens* Willd. forest stands measured with sap flow sensors in NE Spain" *by* R. Poyatos et al.

R. Poyatos et al.

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The authors sincerely appreciate the points made by the Anonymous Referee #3, with respect to the suitability of the methodology and analysis and the interest of the results. Several minor issues were raised by the referee, and we will gladly discuss them in this reply comment and consider the convenience to include the referee's suggestions in the definitive manuscript.

a) We are aware of the multiple adaptations of the Penman-Monteith model to obtain reference evapotranspiration, and the confusion it generates. We will certainly consider including the equation in the revised manuscript.

b) When we refer to 'sap velocity', we refer to sap flow density,as measured by the sap flow sensor, not the true sap velocity, as the probe is inserted along a length that

includes both, lumen and walls of tracheids or vessels. Therefore, as suggested by the referee, the term ‘sap velocity’ will be replaced by ‘sap flow density’ when appropiate.

c) Soil moisture deficit is calculated for the study period, so it is not a long-term parameter for the site. However, years 2003 and 2004 were contrastingly different in soil moisture regimes and it is very likely that both maximum and minimum soil moisture have occured during this period. Moreover, these values do not differ from maximum and minimum values obtained in a long-term monitoring study where Pinus sylvestris plots were studied in the same study area (Gallart et al., 2002).

d) We agree with the comment and will replace the terminology ‘Julian day’ by ‘Day of year’ and its acronym ‘DOY’.

e) In page 1023 we referred to the lack of published data on maximum sap flow density for Q.pubescens. This measure is not available in the publication by Cermak et al. (1998) where an estimate of maximum transpiration per tree is given.

f) Finally, regarding the reference by (David et al., 2004), we wanted to emphasize that sometimes (Nadezhdina et al., 2002) the location of the sap flow sensor is such, that it measures, by chance, the average sap flow density along the stem.

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