Response to the author's response

Thanks for the response and clarifications. However, in my view, not all the responses are sufficient. Therefore, I have commented those responses which I feel were not appropriate.

The footprint area cited by the reviewer from the article by Graf et al. (2014) is based on a tower height of 38m, which is much higher than the tower at this study location.

> *What is important is the height of the EC sensors above canopy, which is only about 12 m in the case of Graf et al. (2014).*

While a limited number of observatories are providing fine resolution soil moisture data, they involve significant outlay of finance, physical effort and time, as compared to, for example, utilizing scaling schemes, or installation of intermediate scale sensors. Although such observatories are invaluable in providing data to understand the underlying processes, it remains impractical to implement a large number of sensors across any and every field of interest.

> *An increasing number of existing large scale sensor networks are make their data freely available to the science community (e.g. SCAN, ICOS). In addition, a number a measurement techniques are emerging that make use of existing networks that formally were installed for other reasons (e.g. Bogena et al., 2015) and thus will provide a much better coverage of soil moisture observation in the near future beyond the observatories.*

Given their extensive appearance in the literature, we feel that it is not necessary to repeat the description of these models in intricate detail in this paper.

> *I am still very much more in favor for adding this information. Why should the reader gather all this papers himself to get a basic overview of the models and their differences? Presenting this information makes the paper much more comprehensible and also better explains why the three models were used instead of only one.*

The ancillary TDR measurements were used to confirm the validity of the CRNP soil moisture time series.

> *Actually, the CRNP validity was not tested in this paper in a strict sense. This could not be done with a single TDR profile anyway, since a network of point measurements within the CRNP footprint would be needed to do this (see e.g. Bogena et al., 2013).*

That being said, nowhere in the manuscript do we imply or insinuate that the observations are less accurate than model results. Without particular reference, we are not sure where the reviewer gets this impression in the text.

It is true that it was not implied that the observations were less accurate than the model results. The impression arises, because the focus was led on the comparison of soil moisture with model results.

Since the line plots of the soil moisture and evaporation do not match, but the distributions do, it is a logical inference that the two quantities are behaving similarly at the distribution level. Hence, the deduction that the soil moisture (root zone since the CRNP is measuring over depth) is still driving the evaporation process.

First, I have to repeat again that the term "evaporation" is confusing. I guess you are referring to evapotranspiration because it is related to root zone (i.e. evaporation from bare soil and intercepted water is not related to root water uptake in the root zone). So again, please improve the terminology in the paper.

What I was trying to point out is that the existence of similar distributions alone is not adequate for this deduction, because processes at the soil-vegetation-atmosphere interface tend to be very complex. For instance, the process of evaporation from canopy is completely independent from soil moisture, but it might be an important part of total evapotranspiration at this location. Therefore, the distributions of both quantities might be similar because the CRNP measurements are also influenced by water intercepted on the canopy (see e.g. Bogena et al., 2013).

In addition, the CRNP typically does not cover the whole root zone, because for intermediate soil moisture ranges the penetration depth is restricted to 20-30 cm. In addition, the CNRS is much more sensible to soil moisture of the first centimeters. In this sense the TDR measurements might even better represent root zone soil moisture at this site. Thus, the Q-Q analysis should also be done with the TDR data to test the assumption soil moisture is driven by the evapotranspiration process.

This seems a case of a misunderstanding by the reviewer regarding the evaporation models, rather than an absurdity on the part of the authors. In the range of models examined, and in the vast majority of satellite based evaporation models, soil moisture does not feature as an input variable.

I am sorry for my ignorance concerning the models used in this study. Clearly, a better description of the models will help the readers to be better following the reasoning presented in the paper. If soil moisture is not a model variable this should be explicitly mentioned in the paper. Otherwise the modelled soil moisture should be compared with the measured soil moisture to demonstrate the validity of the model.