Anonymous Referee #2

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We thank the Referee n°2 for his comments. Here below, responses to comments are given in blue.

The paper presents a thorough description of a detailed field experiment to compare TDR and ERT measurements of soil water content in a maize field in Belgium. The main conclusions are that both techniques give comparable results and, when used in combination, provide insight in both the spatial and temporal variation of soil water content. The experiment shows that temporal and spatial distribution of SWC is dominated by the position of plants and only to a minor extent by precipitation events and soil horizons.

I agree with the majority of comments of anonymous reviewer #1 and am also of the opinion that this paper is a highly relevant contribution to Hydrology and Earth System Sciences.

I limit my comments to the following minor comments:

- Although generally well written, the paper would benefit from a grammatical review by a native speaker. I would suggest to avoid the first person in the text (we studied, our interpolation method,...) in favour of the passive (The interpolation method used..., The SWC was averaged...,) Replace 'precipitations' throughout the text with 'precipitation'
This will be corrected in the revised manuscript.

- p8541 l7-8: A low RMSE does not prove that the equation is correct, it is an indication that the equation can be used in the study. I therefore suggest to rephrase: 'A root mean squared error (rmse) of 0.0204cm3/cm3 between observed and simulated SWC indicates that equation 1 is suited for this study area.'
OK

- all figures: add legend to plot rather than description in caption
We will add the legend on the plot for all the figures.

- Figure 4: suggest to split into three subplot as the current plot is very cluttered and hard to read
It is a good suggestion. We will divide the figure in three subplots.

- Figure 5: add the drainage and discuss its contribution to the total water balance in the manuscript
The drainage is already present in the figure. But it is very low and then not well visible. We modified the figure to use a color scale instead of a grey scale to render it more visible. We will add a sentence on the low impact of drainage in discussion of the water mass balance.

- Figure 7&8: Figure 7 and 8 present the same data, where Figure 8 is more insightful as it presents a more complete picture of the temporal and spatial variation in the data

that allows a more objective comparison of both techniques. I would suggest deleting Figure 7 from the manuscript.
Although Figs 7 and 8 both show a comparison between TDR and ERT results, the data in both plots are different. In Fig. 7 is plotted the average SWC considering the maize rows and inter-rows together. It gives indications on the SWC (field-) variability present in the soil at each depth (including the row/inter-row impact). It also shows that there is no systematic bias in the relation between the water content obtained by TDR and ERT. Figure 8 is split in two subplots regarding the SWC respectively under the maize rows and the inter-rows. We can observe the temporal evolution of the SWC measured by the two methods under these two areas separately.
We will add titles to both subplots in Figure 8 for sake of clarity.

- Figure 9: Although it is an impressive graphic, it does not add much to the interpretation of the data or the visualisation of the spatial variability. I recommend to replace with or add a number of 2d vertical and horizontal cross sections. This would make the interpretation of figure 10 easier as well.
Yes, the visualization of this figure is difficult. Yet, we are convinced that showing a 3D figure of the SWC is important as this is a particular feature of our study to have 3D ERT inversion and results. We will however improve the figure following your suggestions:

- the color scale and envelope threshold values will be optimized to improve the vizualisation
- 2D vertical and horizontal cross sections will also be added to improve the understanding of this figure and make a link with figure 10.

- Figure 11: Label the subplots with DOY
Regarding comments of Referee 1, we modified the DOY in dates in the texts and figures. We also added the dates as label of subplots in figure 11.