

Interactive comment on “The integrated water balance and soil data set of the Rollesbroich hydrological observatory” by Wei Qu et al.

Anonymous Referee #2

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General comments: This paper provides a detailed discussion of a densely instrumented observatory that is focused on soil water content measurements. The paper is well-written and thoroughly explains how the data was obtained, processed and analyzed. I have some included some specific comments and technical revisions to be addressed.

Specific comments:

L56 and L64: “state-of-the-art” is a bit repetitive.

L58: Who has TERENO enabled?

L134: “soil water content was” measured?

L193-194: I suggest making this point earlier. Otherwise, it was not clear to me why

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you were trying to correct the data.

L204: The 0.59 cm³ cm⁻³ was a bit hard for me to pick out – perhaps include a dashed horizontal line that makes it clear.

L213: What do you mean that the mid-infrared spectroscopy complements the elemental analysis results?

L276: Was there low quality data that was excluded? If so, comment on this.

L288: Not clear how a soil moisture content of 0.85 cm³ cm⁻³ is plausible, given the soil porosity values reported.

L316: It is not clear to me how change in storage can contribute 7% of the long-term water balance, when the time-series data seems to indicate that the soil repeatedly reaches the same near-saturated water content. In other words, there does not appear to be a long term reduction of soil water storage when looking at the time series data. Many studies assume that the change in storage is zero when water balances are done on an annual basis, so this point should be clarified. On the other hand, the time series data does appear to indicate some short-term periods when soil water storage decreases (e.g., fall of 2013).

Figure 4: I suggest showing ΔV as well, as otherwise it is difficult to pick out the correlation with temperature.

Figure 9: Show line of best fit and r^2 value on chart.

Figure 11: This figure does not translate to black and white at all – perhaps use different symbols?

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