First the authors want to thank the anonymous Referee #3 for his/her review of the manuscript and for the constructive helpful comments. Find our comments and new text below each point intended with suggested additional or changed text in italics.

The information given for the measurements is sometimes insufficient, especially for the deepest layers of the sub-surface.
How was measured the porosity, how many samples? Which depths and which method?

> The porosity (ϕ) was calculated with the Eq.:
>
> $$\phi=1-\left(\frac{\rho_{bulk}}{\rho_{particle}}\right)$$
>
> The bulk density (ρ_{bulk}) was determined with undisturbed soil cores by drying and weighting. The particle density ($\rho_{particle}$) was measured with a capillary-stoppered pycnometer.
> An explanation about porosity measurements, depth and number of samples (*n >15 per layer*) will be added to the text.

What is the maximal sampled depth? How was estimated the porosity is the deepest layers?

> The maximum sample depth for undisturbed soil cores was 2 m. Below 2 m the porosity and bulk density had to be transferred according to grain size distribution, clast and compaction from percussion drilling.

Concerning the pore soil water, what is the temporal variability of the measurements?

> The temporal variability of the pore water resistivity is small during the year. The range (min-max) of pore water resistivity is 46.7, 16.6, 15.0, 15.5, 14.7 and 29.7 Ωm for 0.3, 0.6, 0.85, 1.05, 1.65 and 2.3 m, respectively.
> We would have liked to use the exact pore water resistivity for each point in time. However, due to very dry conditions it was not possible to extract enough pore water for measuring conductivity between July and October. Because of the missing measurement during the summer and because of the small variability within the existing measurements, we decided to use the median values.

In general, the mean values in the Tab.2 and Tab.3 should be associated at least to standard deviation or appropriated measures of dispersion in order to show the spatial or temporal variability.

We will add some measures of dispersion in Tab. 2.

Depth [m]	0.3	0.6	0.85	1.05	1.65	2.3
$\bar{\rho}$ [Ωm]	135.7	92.3	88.9	86.8	75.1	63.7
σ [Ωm]	16.9	5.0	4.5	4.8	5.4	7.3

We will add the mean squared error for ρ_{eff}/ρ_w in Tab. 3: $MSE_{<0.9m}$=2.8 and $MSE_{>0.9m}$=1.4.

As drilling has been performed down to 4m deep, it would have been very interesting to put one or several piezometers in order to get more accurate information of the deep water dynamics or constrain the inversion model.

We absolutely agree that additional measurement as piezometers would be very helpful and that the constraint of the inversion model could improve the ERT results. If we had the information about the deep water before the ERT measurements, we would have liked to do this. In further studies this must necessarily be taken into account.

The vertical resolution in the top layers of the soil (0.20m) seems to be incoherent with the spacing between the electrodes (1m). Could you justify?

Due to the higher vertical resolution (Roy and Apparao, 1971; Dahlin and Zhou, 1994) and the combination of arrays we believe our resolution is sufficient to image the very shallow and localized resistivity changes (see also Descloitres et al., 2003). However we include a critical discussion on resolution limits.

The calibration of the Archie's relation in laboratory proves to be satisfactory for the n_θ parameter, and the relation between n_θ and the grain size distribution is a nice result. How could you interpret the fact that F remain constant? The values n_θ and F_θ should be compared to the expected values from the literature or from values coming from other similar studies.

We interpret this due to the fact that we use water content instead of saturation. In case we use the equation with regard to saturation, the formation factors would differ because of the different porosities (ϕ)

$$\rho_{eff} = F_\theta \, \rho_w \theta^{-n_\theta} = F_\theta \, \rho_w (S^*\phi)^{-n_\theta} = \frac{F_\theta}{(\phi)^{n_\theta}} \, \rho_w (S)^{-n_\theta}$$

In this case the formation factors would be $F = \frac{F_\theta}{(\phi)^{n_\theta}}$ (c.f. Eq. 3). With the porosities of Tab. 1, F would be 1.72, 2.70 and 2.59 for LH, LM and LB, respectively.

In literature the Archie equation is often referred to saturation. To compare F_θ with expected values from the literature we would need to use F. Because of the uncertainty in integrating one mean value of porosity to the entire layer, we decided to mainly use water content instead of saturation.

The derivation of the water content from the electrical resistivities supposes that you consider F_θ and n_θ constant, from the depth 0.9m down to much deeper. But there is no evidence that it would be the case, because the maximal depth of the core soil samples used for the calibration of Archie's relation does not exceed 1.4m.

Because of very similar characteristics in the entire LB (grain size distribution, clast and compaction) we consider the electrical relationship from the laboratory measurement as constant for LB.

Why do you show the ERT below 3m deep (Fig.7 and Fig.8), whereas the layering for inversion is said not to exceed 3m (5868, 17). I suggest that depths should not be considered deeper than the bottom of the basal layer.

The inversion does exceed 3 m. The subdivision of the ERT model in 7 different layers (as mentioned in 5868, 17) was done to compare the results with results from the hydrometric measurements. The cut-off at 3 m was chosen because there were no deeper hydrometric data to compare with. The ERT data is not limited to this depth but shows no temporal variability below. Because of the missing comparison values, no temporal variations and due to the fact that deeper parts are completely saturated anyway, we decide not to include ERT results deeper than 3 m for the interpretation of the monitoring.

ERT uncertainties should be presented more in details: by comparing the values of the electrical resistivities at the nodes of the electrode lines.

An example at the intersection of profile A and B:

- in a depth < 1 m – average deviation 8% (σ = 5.4%)
- in the depth range 1 – 7 m – average deviation 20% (σ = 10%)
- in depth > 7 m – average deviation 43% (σ = 6.6%)

We added the example to the results of the mapping.

The estimated ERT water contents are only compared to the measured Theta Probe water contents and the measured tensions at the H3a profile. This comparison should be extended to all the measured tensions. The calibration of the relation between pressure and water content would allow optimizing the comparison between both electrical resistivities and water content.

The station H3a was chosen because at this station all of the different measurements (Tensiometer, ThetaProbes, and ERT) are in close proximity to each other.

Nevertheless, all other measured tensions were considered, because we use median soil water tension (Figs. 2 and 11) from all tensiometers in the corresponding depth.

We tried a calibration of the relation between soil water tension and water content and noticed a high variability due to strong hysteresis effects. To come to reliable conclusions with this relationship, further instigations are needed. Indeed it would be very helpful for direct comparison between resistivity and water content, and would also allow establishing or verifying the Archie equation from field data.

5879, 24-27: I'm not convinced that ERT could deal with the small-scale heterogeneity like preferential flows, due to the size of macro-pores or corresponding channels. I suggest that the phrase should be removed.

We agree that on this spatial scale ERT is not suitable to deal with preferential flow. Maybe on a much smaller scale with a very high resolute ERT.

The phrase had been removed.

5864, 7 : characteristics of the rain gauges ?

The rain gauges have a catchment area of 200 cm^2 with 0.1 mm resolution per tip and max. 7 mm*min^{-1}.

We added the characteristics to the text*: Rainfall was recorded by 4 precipitation gauges with tipping bucket (Fa. R.M. Young Co. resolution: 0.1 mm with max. 7 mm*min^{-1})*

5865, 12 : change σ_{w25} in ρ_{w25}

We added the value for ρ_{w25} ($\rho_{w25} = 66\ \Omega m$) to the text.

5866, 6 : change \ A102.5°, \ B90° in \ A102.5°, \ C90°

Done

5866, 19 : what does 0.195*L* refer ?

L refers to the length of the maximum electrode separation. The maximum electrode separation with 50 electrodes, 1 m spacing and wenner-β array is L = 3x16 m = 48 m, with a maximum pseudo depth of 9.36 m.

5870, 1 : remind the number of samples → Figure 4 shows the aggregation of the single 15 samples into two regions with different

We added the number of samples to the text.

5871, 27 : "inner" and "outer" areas should be defined before 5871, 3 because it appears in Fig.5. The definition remains unclear.

An explanation had been added to the caption

5891, Tab.5 : change θ_{H3a} in θ_{pH3a}, to be coherent with the notation in the line titled "Depth"

Done

5892, Fig.1 : displays 37 tensiometers, when the text mentions 76 (5864-2)

Fig. 1 is only a schematic profile section of one of the lines along the slope (D1a, D2a, D3a, H1a, H2a, H3a, and H4a). For redundant measurement a second line exists (D1b, D2b, D3b, H1b, H2b, H3b, and H4b), which also contains 38 tensiometers.

We changed the description in the figure from D1, D2, D3, H1, H2, H3, and H4 to D1a, D2a, D3a, H1a, H2a, H3a, and H4a to avoid misunderstandings.

5894, Fig.3 : the figure shows 14 points for each grain size, whereas there are 15 mentioned samples in the text.

This is a typing error. All figures and tables are right, there are 14 samples. We changed 15 to 14.