Corrigendum to 'Imaging and characterization of facies heterogeneity in an alluvial aquifer using GPR full-waveform inversion and cone penetration tests title of article' [Journal of Hydrology (2015) 680-695]

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The authors regret that an error has occurred and the following corrections need to be recorded regarding the above cited paper. Z. Zhen, J. Schmäck and A. Klotzsche found the errors together, and, reprocessed and reanalysed the crosshole GPR data. After reanalysing the crosshole GPR data, we found an error in the automatic picking routine for estimating the time zero of the GPR data. After correction, the GPR data was shifted in time affecting the calculated permittivities ε_r and electrical conductivities σ (Original Figs. 3 and 4). Using the corrected time zero, the permittivity and conductivity results of the full-waveform inversion were updated. The comparison between the original and correct tomograms now show that the permittivity and electrical conductivity results are approximately 4 higher and 10 mS/m lower, respectively (see Fig. 1). Using this correction the full-waveform inversion results are in a better agreement with the CPT data (Fig. 2). It is Interesting to note that the constant shift of -0.08 that was applied previously to align the porosity CPT data with the FWI results is not necessary anymore. The porosity values based on the updated FWI results are now in a very good agreement with the original values of Tillman et al. (2008) indicated by a correlation coefficient r of 0.91, which was before 0.80 (Fig. 2a). Furthermore, the updated electrical conductivity FWI results are closer to the electrical conductivity results based on the CPT data (Fig. 2b). We expect only minor changes in the results using the cluster analysis to derive the facies of the aquifer indicating that the main conclusions of the paper remain valid. The authors would like to apologise for any inconvenience caused.

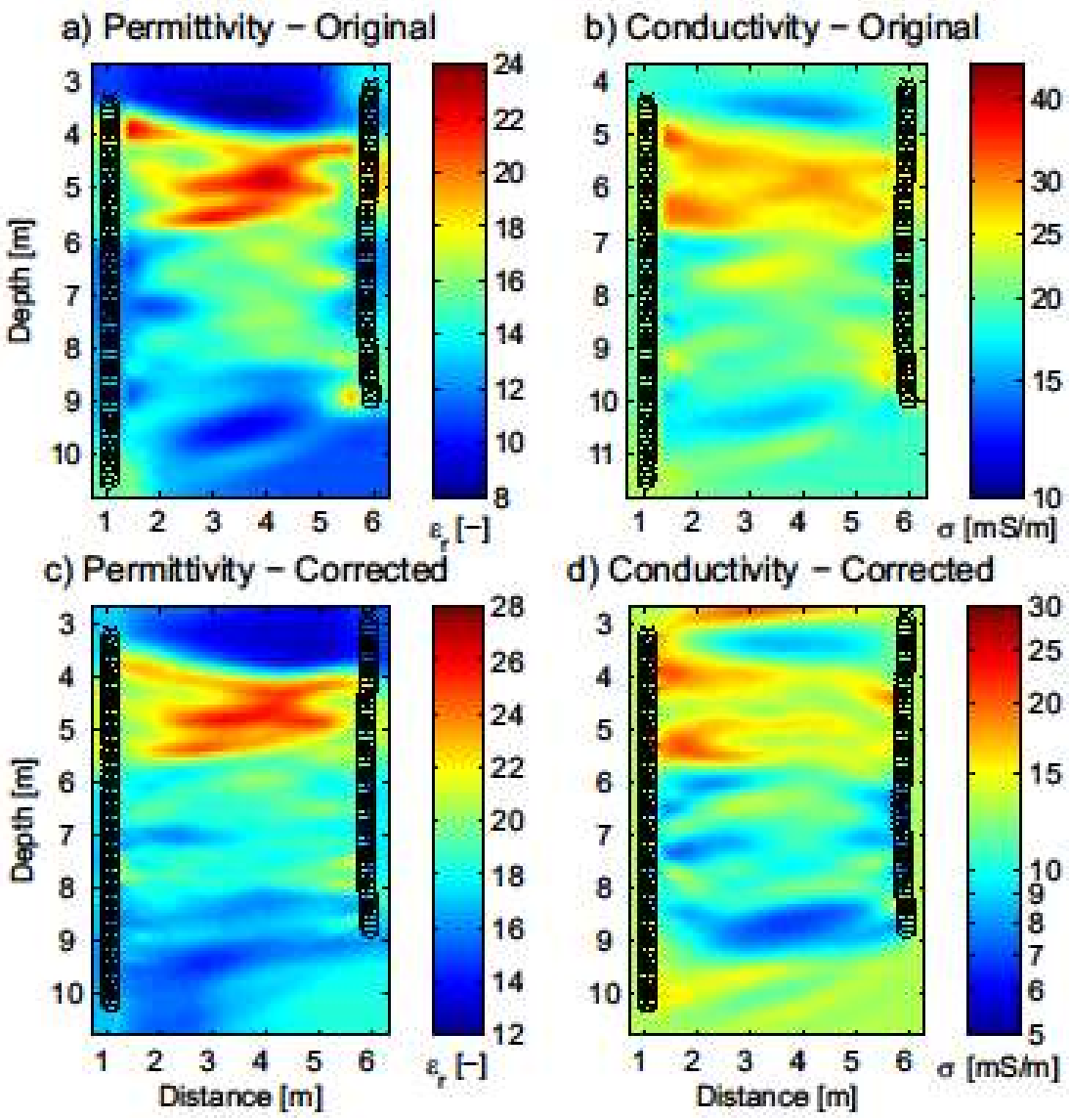

Fig. 1: Comparison for the exemplary transect B38-B31 of the original a) permittivity and b) electrical conductivity full-waveform inversion results, and, the corrected c) permittivity and d) electrical conductivity results using the corrected time zero estimation. Please note the different color scales of the tomograms.

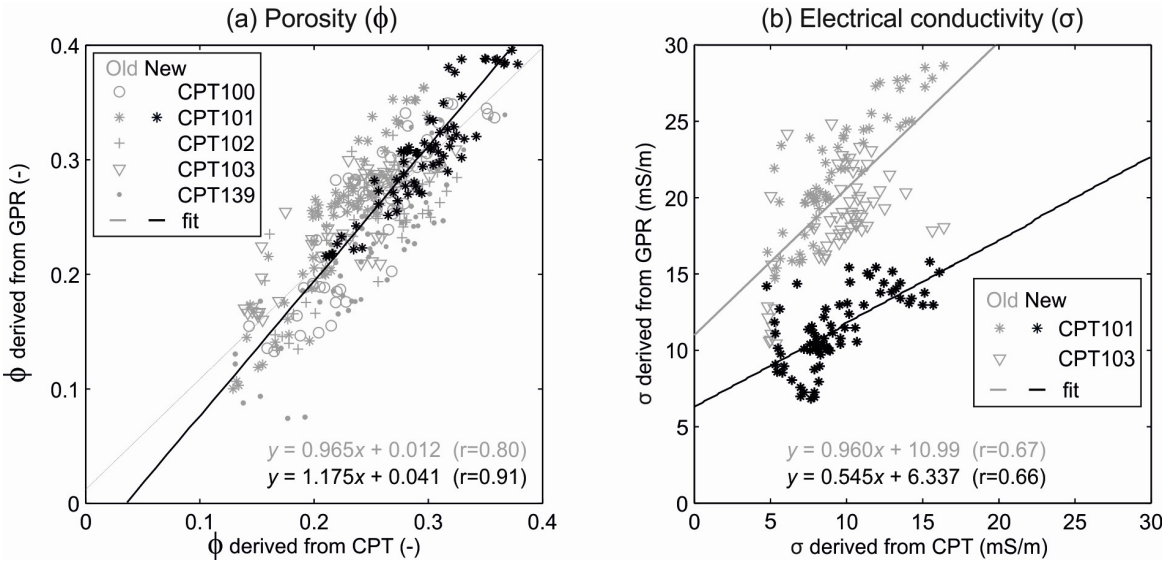

Fig. 2: Comparison of the old (grey) and corrected (black) cross-plots between the FWI results and CPT data. Cross-plots of a) porosities and b) electrical conductivities derived from CPT and GPR data. Results based on the corrected FWI are shown in black for the exemplary transect B38-B31 for which co-located porosity and electrical conductivity data of the CPT 101 exist. Data based on Gueting et al. (2015) presented in grey for the a) five and b) two profiles and corresponding co-located CPT porosity and electrical conductivity data, respectively. Regression lines through all data points are depicted in grey and black for old and corrected data, respectively. The corresponding straight-line equations are given at the bottom of the cross plot, *r* is the correlation coefficient.

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