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CORRECTION
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Corrigendum: Error Estimation for Soil Moisture Measurements With Cosmic Ray Neutron Sensing and Implications for Rover Surveys

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A Corrigendum on

Error Estimation for Soil Moisture Measurements With Cosmic Ray Neutron Sensing and Implications for Rover Surveys

by Jakobi, J., Huisman, J. A., Schrön, M., Fiedler, J., Brogi, C., Vereecken, H., et al. (2020). Front. Water 2:10. doi: 10.3389/frwa.2020.00010

In the original article, there was an error in the simplification of Equations (8) and (9) to Equation (10). A correction has been made to Equation (10):

$$\sigma_{\theta_g}(N) = \sigma_N \frac{a_0 N_0}{(N_{cor} - a_1 N_0)^4} \sqrt{(N_{cor} - a_1 N_0)^4 + 8{\sigma_N}^2 (N_{cor} - a_1 N_0)^2 + 15{\sigma_N}^4} \qquad (10)$$

In the original article, there were mistakes in **Figures 5** and **8** as published. The analytical uncertainty estimates were derived wrongly. The corrected **Figures 5** and **8** appear below.

The corrected **Figure 5** requires update of the description in the text. A correction has been made to the Results and Discussion section, Experiment A (Fendt site), paragraph 2:

"[…] With the exception of sections 5, 9 and 10, all sections showed good agreement between the expected and measured uncertainty of soil moisture. […]"

The corrected **Figure 8** requires update of the description in the text. A correction has been made to the Results and Discussion section, Experiment B (Selhausen site), paragraph 5:

"[…] However, the expected soil moisture estimation uncertainty using Selhausen site conditions (**Figure 8**) were similar to the overall uncertainty as expressed by the RMSE when only 3 measurements were used (0.032 m^3/m^3). This is undesirable and suggests the need for more aggregation. When nine measurements were aggregated, the average uncertainty due to uncertain neutron measurements decreased to 0.017 m^3/m^3 irrespective of aggregation strategy. […]"

The authors apologize for these errors and state that this does not change the scientific conclusions of the article in any way. The original article has been updated.

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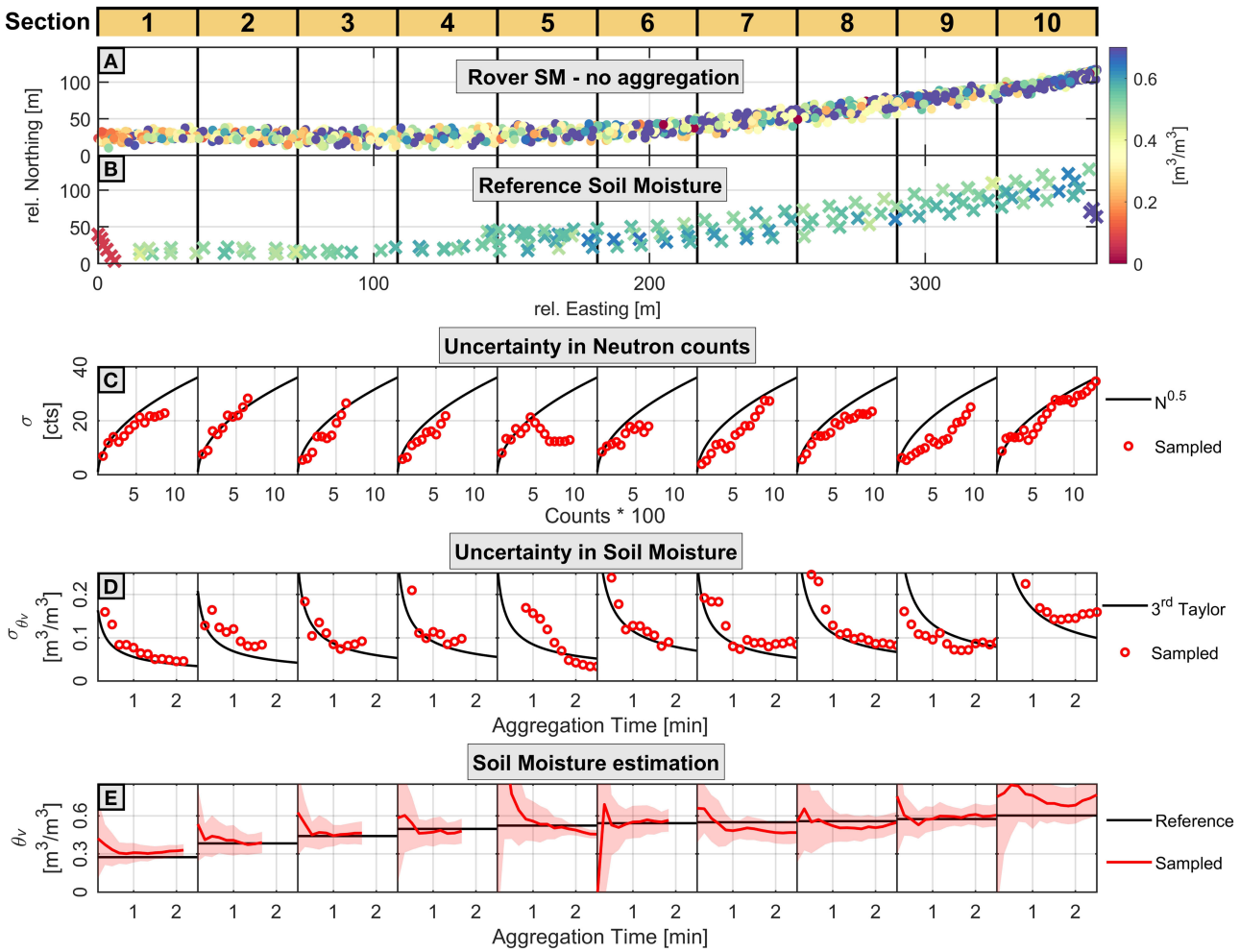

FIGURE 5 | Overview of the results from the Fendt experiment for each of the ten analyzed sections. **(A)** CRN rover soil moisture without aggregation. **(B)** *In-situ* reference soil moisture. The relative coordinates in panels a and b were calculated from UTM coordinates. **(C)** Expected standard deviation of raw neutron counts (σ). **(D)** 3rd order approximation of standard deviation of soil moisture from raw neutron counts (σ_{θ_v}) in comparison to measured standard deviation with the CRN rover. **(E)** Soil moisture (θ_v) estimated with the CRN rover in comparison with mean reference soil moisture content for each section. Red area indicates ± one measured standard deviation of the mean.

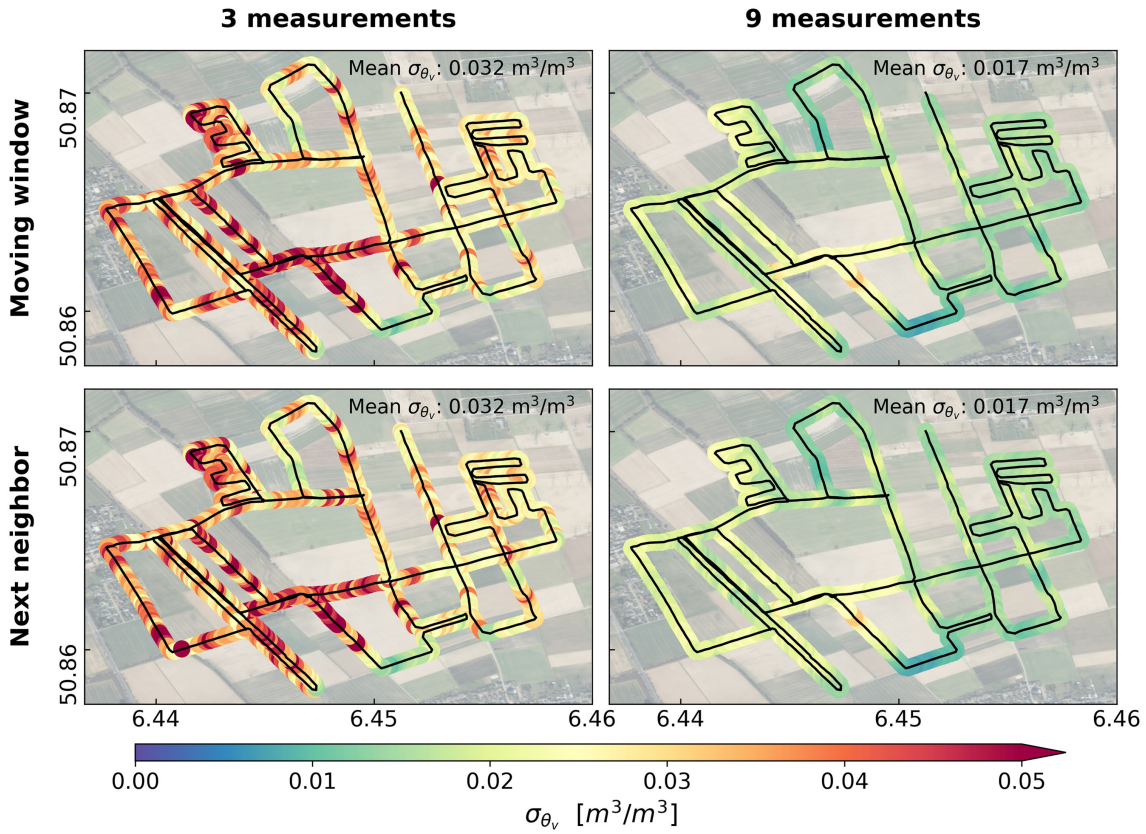

FIGURE 8 | Comparison of soil moisture uncertainty from neutron counts (σ_{θ_v}) estimation with four aggregation strategies with the Jülich CRN rover at the Selhausen site with data measured on 11 July 2018. Top panels: moving window aggregation for three and nine following measurements, respectively. Bottom panels: nearest neighbor aggregation with the nearest two and eight neighbors, respectively. Base maps: ESRI World Imagery and Contributors.