



Corrigendum to “TransPyREnd: a code for modelling the transport of radionuclides on geological timescales” published in Adv. Geosci., 58, 109–119, 2023

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Published: 7 October 2026

The authors identified an error in the presentation of the discretized diffusion term of the reactive transport equation after the publication of the article. The program code of TransPyREnd and the results presented in the paper are unaffected by the error, as the implementation was correct.

The error affects Eq. (5) in the original work and the subsequent equations involving the term. The corrected Eq. (5) reads:

$$\frac{\partial}{\partial x} D_{e,i} \frac{\partial c}{\partial x} \approx \frac{2}{h_{k+1} + h_k} \left(\frac{1}{h_k} D_{e,i,k-\frac{1}{2}} c_{i,k-1} - \left(\frac{D_{e,i,k-\frac{1}{2}}}{h_k} + \frac{D_{e,i,k+\frac{1}{2}}}{h_{k+1}} \right) c_{i,k} + \frac{1}{h_{k+1}} D_{e,i,k+\frac{1}{2}} c_{i,k+1} \right) \quad (5)$$

Note the changes in the second term inside the brackets.

Consequently, the relevant parts of Eq. (9) should read (shortened for brevity):

$$R_{i,k} \phi_{i,k} \frac{c_{i,k}^{m+1} - c_{i,k}^m}{\Delta t} = \Theta H_k \left(H_k^- D_{e,i,k-\frac{1}{2}} c_{i,k-1}^{m+1} - H_k^- H_k^+ \left(D_{e,i,k-\frac{1}{2}} h_{k+1} + D_{e,i,k+\frac{1}{2}} h_k \right) c_{i,k}^{m+1} + H_k^+ D_{e,i,k+\frac{1}{2}} c_{i,k+1}^{m+1} \right) [\dots] + (1 - \Theta) H_k \left(H_k^- D_{e,i,k-\frac{1}{2}} c_{i,k-1}^m - H_k^- H_k^+ \left(D_{e,i,k-\frac{1}{2}} h_{k+1} + D_{e,i,k+\frac{1}{2}} h_k \right) c_{i,k}^m + H_k^+ D_{e,i,k+\frac{1}{2}} c_{i,k+1}^m \right) [\dots] \quad (9)$$

Note the changes in the second term in the brackets of the first and second line.

Finally, Eq. (17) changes accordingly:

$$v_k = H_k H_k^- H_k^+ \left(D_{e,i,k-\frac{1}{2}} h_{k+1} + D_{e,i,k+\frac{1}{2}} h_k \right) s \quad (17)$$

Additionally, a typo was identified in Eq. (1) of the original work. The index of the porosity in the decay term should read j instead of i :

$$[\dots] + \sum_j (R_j \phi_j c_j \lambda_{i,j}) + [\dots] \quad (1)$$

Results, figures, and discussions presented in the paper remain unchanged.