Verification and intercomparison of reactive transport codes to describe root-uptake

T. Roose • S. E. Oswald • A. Schnepf • K. Szegedi • B. Nowack

Published online: 30 October 2007
© Springer Science + Business Media B.V. 2007

Erratum to: Plant Soil (Vol 285:305-321) DOI 10.1007/s11104-006-9017-3

The authors of this erratum regret that in the above article five corrections are necessary, three in equations and two in the text. Most corrections are related to consistently distinguish between the diffusion coefficient in free water and the one in a porous medium.

The correction affecting the numbered equations are a typo in the first term on the left hand side of equation 1, a typo in the numerator of the second part of equation 5 and an incomplete replacement of D by D_f in equation 5 and in 6 originating from non-dimensionalisation of time, both on page 310. The

The online version of the original article can be found at <http://dx.doi.org/10.1007/s11104-006-9017-3>.

T. Roose
Mathematical Institute, University of Oxford,
Oxford OX1 3LB, UK

S. E. Oswald (✉) • K. Szegedi
Helmholtz Centre for Environmental Research-UFZ,
04318 Leipzig, Germany
e-mail: sascha.oswald@ufz.de

A. Schnepf
University of Natural Resources
and Applied Life Sciences, BOKU,
1180 Vienna, Austria

B. Nowack
formerly ITÖ, ETH Zurich; now at Empa,
9014 St. Gallen, Switzerland
e-mail: nowack@env.ethz.ch

results presented in the above article are not affected because they have been based on the correct equations. The three equations are reproduced in their correct form below.

$$(\phi + b) \frac{\partial c}{\partial t} - \frac{aV}{r} \frac{\partial c}{\partial r} = \frac{\phi D_f}{r} \frac{\partial}{\partial r} \left(r \frac{\partial c}{\partial r} \right) \quad (1)$$

$$F(t) = \frac{2F_m c_\infty}{1 + c_\infty + L(t) + \sqrt{4c_\infty + [1 - c_\infty + L(t)]^2}},$$

$$c(r, t) = c_0 - \frac{c_0 \lambda}{1 + c_\infty + L(t) + \sqrt{4c_\infty + [1 - c_\infty + L(t)]^2}} \times E_1 \left(\frac{(\phi + b)}{\phi D_f} \frac{r^2}{4t} \right) \quad (5)$$

$$c_\infty = c_0 / K_m,$$

$$\lambda = F_m a / (\phi D_f K_m),$$

$$E_1(x) = \int_x^\infty \frac{e^{-y}}{y} dy, \quad (6)$$

$$L(t) = \frac{\lambda}{2} \ln \left(4e^{-\gamma} \frac{\phi D_f}{(\phi + b)a^2} t + 1 \right)$$

In the text, on page 309, last paragraph, in the corrected expression $t > (\phi + b)a^2 / (\phi D_f)$, D has been replaced by D_f ; and on page 313, last paragraph of the left column, the correct term for the apparent diffusion coefficient is D_a (not D_e).