

Interactive comment on “A steady-state saturation model to determine the subsurface travel time (STT) in complex hillslopes” by T. Sabzevari et al.

Anonymous Referee #2

Received and published: 12 January 2010

1. Their English is very poor. Gramatical errors, spelling, technical words, ...
2. You did not mention, but $S(x) = 0$ at $x = 0$ is the boundary condition?
3. Their math and physics are very poor. There are many errors in the computations.
4. The unit of N in Eq. (5) is $\text{length}^3/\text{time}$. But the unit of N in Eq. (25) is $\text{length}/\text{time}$. very strange?
5. You used the steady solution of Eq. (5). This is not related with Eq. (2). Why do you call hsB equation? Eq. (2) requires the upstream and downstream boundary conditions. But Eq. (5) requires the only upstream boundary condition. The seepage flow is generally influenced by the downstream boundary condition.
C3082
6. I cannot understand Eq. (7). At $t = 0$ $S(x, 0) = g(x)$ and 0? This indicates $g(x) = 0$?
7. But Eq. (7) does not contain $g(x)$. Where is $g(x)$? If Eq. (7) is the analytical solution of Eq. (5), the solution should contain time.
8. You did not mention, but $h = 0$ at $x = 0$ seems to be used. I think that this assumption is not reasonable for the seepage flow.
9. If $h = 0$ at $x = 0$, $S(x)$ in Eq. (8) is not zero at $x = 0$. It is very strange!
10. The unit of the right side of Eq. (8) is $\text{time}/\text{length}$. The unit of left side of Eq. (8) is length^2 . very strange!
11. hsB is the hill-storage Boussinesq equation or Boussinesq hydrological equation?
12. I cannot follow their manuscript. Please do over from the beginning very carefully.
13. Where is your original points in your manuscript?

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 7179, 2009.