Geoscientific
Model Development
Discussions

# Interactive comment on "An improved coupling model for water flow, sediment transport and bed evolution (CASFE v.1)" *by* S. He et al.

**D. Lunt (Editor)**

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Dear authors,

As you can see, you have received two rather diverging reviews. As such, I made some informal enquiries, and would like to pass on the following:

"While the first reviewer makes a correct point (that the velocity must be zero at $Z_b$, also known as the no-slip boundary condition), this is not in contradiction with equation (7). This can be easily proven by setting $u_1(Z_b)$ and $v_1(Z_b)$ to zero and considering a "fixed bed" situation (in which case $dZ_b/dt=0$ and $E=D$). This will obviously lead to $W_1(Z_b)=0$. The kinematic condition presented in the paper can be found in different text books where the SWE are derived. See for example (Shock-capturing methods for

C1335

free surface flows, by E. Toro, pages 20-23)."

As well as discussing this issue of zero velocity at or close to the bed, and addressing the other reviewer comments, please ensure that you carry out and discuss a more extensive model evaluation.

Yours, Dan Lunt

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Interactive comment on Geosci. Model Dev. Discuss., 7, 2429, 2014.