Geophysical Research Abstracts Vol. 17, EGU2015-1457, 2015 EGU General Assembly 2015 © Author(s) 2014. CC Attribution 3.0 License.



The open boundary equation

Dirk Diederen (1), Hubert Savenije (2), and Marco Toffolon (3)

(1) Department of Water Management, Delft University of Technology, The Netherlands (d.diederen@student.tudelft.nl)., (2) Department of Water Management, Delft University of Technology, The Netherlands (h.h.g.savenije@tudelft.nl)., (3) Department of Civil, Environmental and Mechanical Engineering, University of Trento, Italy (marco.toffolon@unitn.it).

We present a new and simple relationship between partial derivatives of the water depth (h) and the velocity (u), which can be shown to be exact for a progressive wave in a frictionless, prismatic channel, but which also appears to be accurate in exponentially converging estuaries with quadratic friction. This remarkable finding has positive implications for predicting tidal wave dynamics.