

1 Grimshaw

Undular bores for the one dimensional Serre equations were analysed by El-etal-2006 and an expression for the long time asymptotic amplitude of an advancing front a^+ of a bore initially h_1 m deep traveling into still water $1m$ deep was given

$$\frac{\Delta}{(a^+ + 1)^{1/4}} - \left(\frac{3}{4 - \sqrt{a^+ + 1}}\right)^{21/10} \left(\frac{2}{1 + \sqrt{a^+ + 1}}\right)^{2/5} = 0 \quad (1)$$

with $\Delta = h_1$. We note that for the dambreak problem one does not use the depth of the water on the left as Δ but rather calculates the bore height generated by the dam break as in El-etal-2006 so that $\Delta = (\sqrt{h_1} + 1)^2/4$. This asymptotic result was found by El-etal-2006 to be applicable up to $\Delta \approx 1.43$.