
Seminar

Viscous Undular Hydraulic Jumps of Moderate Reynolds number Flows

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I will present some results on undular hydraulic jumps occurring in a two-phase flow. Unlike undular bores (in rivers), where the interface remains horizontal, the moderate Reynolds hydraulic jump shows a linear increase in height due to viscosity. Consequently, the presence or absence of the undulations depends both on the inlet Froude and Reynolds number, unlike bores where a Froude number criterion is traditionally considered sufficient. In our simulations, the undulations display a separated vortex underneath every crest. We do not understand these viscous undulations completely. However, we show that the (inviscid) theory of Benjamin & Lighthill remains relevant in understanding the presence of these undulations.

Friday, June 27th 2014

9:30 AM (Tea/Coffee at 9:15 AM)

Seminar Hall, TCIS