

Oscillations during a Hydraulic Jump

A **hydraulic jump** is simulated in EXTRAN by switching between the normal flow equation and the dynamic flow equation. This is automatically done by the program. The criteria the program uses is discussed in the section on Normal Flow.

Numerical difficulties in modelling a moving hydraulic jump include [Sjosberg, 1981]:

1. The moving on the jump from one calculation reach to another within one time step, Δt
2. Large oscillations from the storage and release of water occur from moving hydraulic jumps.

During supercritical flow the junction does not allow a hydraulic jump and the inflow to the junction is similar to a free outfall. The reason it is a free outfall is that during supercritical flow a wave cannot travel upstream (i.e., no information from downstream junctions and conduits can be used for the upstream solution).