

APPROACH DETERMINATION OF THE TEMPORAL ERRORS DURING THE CALCULATION OF THE TRANSITORY REGIME IN THE WATER NETWORKS UNDER PRESSURE

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Abstract:

In the field of the transitory mode, the bibliography shows that the obtaining of the hydraulic couple pressure-speed, by numerical resolution, considers usually the grid of discretization to constant steps. The various implicit schemes and explicit examined show that this numerical resolution admits errors, when the characteristics lead between two nodes of calculation. It was noted that these errors are temporal and space. In order to estimate these last, the use of the development of Taylor, and the method of the linear interpolation between two nodes, were used. Through this reasoning, two exact and approximate numerical functions were developed and presented graphically where the temporal numerical error was deduced. The numerical analysis of these has functions allowed the deduction of a relation giving the artificial numerical damping which depends on the number of steps of increase and the degree of interpolation in time.

Keywords: transitory regime; pressure; amortization.