

## عنوان مقاله:

Window-Based Robust Solutions For Fully Dynamic Wave Saint-Venant Equations

## محل انتشار:

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## نویسندگان:

M. H. Saddagh - *Department of Civil Engineering, Shiraz University Faculty of Engineering, Zand Street, Shiraz, Iran*

M. J. Abedini - *Department of Civil Engineering, Shiraz University Faculty of Engineering, Zand Street, Shiraz, Iran*

## خلاصه مقاله:

The beginning of the modern study of unsteady flow in open channels can be traced to the latter half of the nineteenth century when the French engineer Saint Venant introduced the partial differential equations of continuity and momentum governing free surface flow in open channels. The principles of mass, momentum, and energy conservation are used to describe the physics of fluid motion. Analytical solutions to these nonlinear equations have not been found except for cases of greatly simplified or idealized flow, or by resorting to graphical methods. Therefore, it is of great interest and need to identify equation forms amenable to numerical solution which preserve the basic mathematical and physical attributes of the underlying hydraulic principles. The computer revolution in twentieth century made a new era where numeric methods can be utilized effectively to solve nonlinear partial differential equations. A majority of developed public domain and/or commercial softwares written for this purpose are not user-friendly and the user has no grasp of dynamic processes evolving over time (i.e., FLDWAV). This paper presents two different numerical methods, namely; Preismann and Specified- Time-Interval (STI) schemes for numerical solution of Saint-Venant equations in an interactive window-based environment. It compares the solution of steady and unsteady open channel flow and offers graphic dynamic representation of results demonstrating where the two methods differ from one another

## کلمات کلیدی:

Saint Venant equations, Preismann scheme, Specified-Time-Interval scheme

## لینک ثابت مقاله در پایگاه سیویلیکا:

<https://civilica.com/doc/3550>

