

In the present work we study the numerical solution of shallow water equations. We introduce a vectorial notation of equations laws of conservation from which we derive the shallow water equations (SWE). There is the simplify its derivation, notation and the most important features. The original contribution is to derive equations for shallow water without the using of Leibniz's formula. There we report the finite volume method with the numerical flow of Vijayasundaram type for SWE. We present a description of the linear reconstruction, quadratic reconstruction and ENO reconstruction and their using for increasing of order accuracy. We demonstrate using of linear reconstruction in finite volume method of second order accuracy. This method is programmed in Octave language and used for solving of two problems. We apply the method of the ADER type for the shallow water equations. This method was originally designed for the Euler's equation.