

The thesis deals with the numerical solution of partial differential equations describing the flow of the so-called shallow water neglecting the flow in the vertical direction. These equations are of hyperbolic type of the first order with a reactive term representing the bottom topology. We discretize the resulting system of equations by the implicit space-time discontinuous Galerkin method (STDGM). In the literature, the explicit techniques are used most of the time. The implicit approach is suitable especially for adaptive methods, because it allows the usage of different meshes for different time niveaus. In the thesis we derive the corresponding method and an adaptive algorithm. Finally, we present usage of the method in several examples.