## A Triangular Discontinuous Galerkin Shallow Water Model

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## Abstract

The precise simulation of geophysical phenomena like e.g. wave motion is essential for the development of hazard warning systems. However this requires the usage of advanced numerical techniques as a large number of physical aspects has to be taken into account.

The overall goal of this study is the development of a new adaptive storm surge model based on the Discontinuous Galerkin (DG) method on triangular meshes. For generating the underlying mesh we use the well-established library amatos (see Behrens et al. 2005) and for space discretization we utilize high-order nodal basis functions (polynomials) following an approach that was first introduced by Giraldo et al. 2002. to receive a desired accuracy.

This presentation will give a brief discussion of the DG method when being applied to the shallow water equations. First results of simulations of propagating waves obtained with the current version of the high-order model will be shown.

## Work under supervision of Prof. Dr. Jörn Behrens

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