

Development of a non-hydrostatic vertical slice model based on the spectral element method and mass-based vertical coordinate.

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Abstract

We have developed a non-hydrostatic vertical slice model in which the continuous Galerkin spectral element method is used for horizontal spatial discretisation and the finite difference method is used in the vertical direction with mass-based coordinate. We have tested two types of governing equation set: the Weather Research and Forecast (WRF)-type and the previous non-hydrostatic model equation set at the Meteo-France (Aladin-NH) at the starting point. The performance of the slice model has been examined using some benchmark tests. In this talk we will present main features of the model and results from numerical experiments.