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Definitions

Geosci. Model Dev., 5, 345-353, 2012
www.geosci-model-dev.net/5/345/2012/
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ASAMgpu V1.0 – a moist fully compressible atmospheric model using graphics processing units (GPUs)

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Abstract. In this work the three dimensional compressible moist atmospheric model ASAMgpu is presented. The calculations are done using graphics processing units (GPUs). To ensure platform independence OpenGL and GLSL are used, with that the model runs on any hardware supporting fragment shaders. The MPICH2 library enables interprocess communication allowing the usage of more than one GPU through domain decomposition. Time integration is done with an explicit three step Runge-Kutta scheme with a time-splitting algorithm for the acoustic waves. The results for four test cases are shown in this paper. A rising dry heat bubble, a cold bubble induced density flow, a rising moist heat bubble in a saturated environment, and a DYCOMS-II case.

Citation: Horn, S.: ASAMgpu V1.0 – a moist fully compressible atmospheric model using graphics processing units (GPUs), Geosci. Model Dev., 5, 345-353, doi:10.5194/gmd-5-345-2012, 2012.

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