



Finite volume method for geodetic boundary value problem

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We present new finite volume numerical scheme for solving the Geodetic boundary value problem on non-uniform logically rectangular grids together with new second-order upwind treatment of the oblique derivative. First the logically rectangular grid is built above the Earth topography by evolving surface approach. Then the Laplace equation is solved on such grid by using the finite volume method in which the normal derivative on finite volume boundary face is split into derivative in tangential direction and a derivative in direction of the vector connecting representative points of neighbouring finite volumes. The oblique derivative boundary condition is understood as a stationary advection equation and second-order upwind method is developed for its discretization. The numerical experiments will be presented.