

# The finite volume method for solving the oblique derivative geodetic boundary value problems

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## Abstract

In our contribution, we introduce and formulate the oblique derivative boundary value problem with the application in gravity field modelling, and we present two approaches to its solution by the finite volume method. In the first approach, the oblique derivative in the boundary condition is decomposed into normal and two tangential components which are then approximated by means of numerical solution values using the central scheme. In the second approach, the oblique derivative in the boundary condition is treated by the first order upwind scheme. Each of proposed approaches is tested by various artificial experiments as well as by experiments with gravity data.