

**Riešenie geodetickej okrajovej úlohy so šikmou deriváciou  
metódou okrajových prvkov**

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This work is focused on a solution of the oblique derivative boundary value problem in the potential theory and on a contribution of tangential components of the oblique derivative on this solution. In order to obtain a numerical solution of this problem we used the boundary element method. Large-scale numerical experiments have been performed on parallel computers using MPI (Message Passing Interface). Our numerical results have been compared with the solution that omitted tangential components of the oblique derivative as well as with the EGM2008 geopotential model. We have found a need to consider the tangential components especially in extremely mountainous regions (Andes, Himalayas). Their contribution is up to 0.3 GPU (approximately 30 cm) that is significant for cm-level accurate global geoid modelling.