https://doi.org/10.48368/bgs-2023.1.N13

Application of the ERT method for three-dimensional mapping of geological objects

Stefan Dimovski[1], Nikolay Stoyanov[2], Atanas Kisyov[3], Sava Kolev[4]

[1] University of Mining and Geology "St. Ivan Rilski", Department of Applied Geophysics, e-mail: dimovski@mgu.bg
[2] University of Mining and Geology "St. Ivan Rilski", Department of Hydrogeology and Engineering Geology, e-mail: nts@mgu.bg
[3] University of Mining and Geology "St. Ivan Rilski", Department of Applied Geophysics, at.kisyov@gmail.com
[4] Geological Institute, Bulgarian Academy of Sciences, 1113, Sofia, e-mail: sava.koleff@abv.bg

Keywords: applied geophysics, ERT method, river terrace, uranium mining complex Eleshnitsa

Abstract: The possibilities of the application of the ERT (Electrical Resistivity Tomography) method for three-dimensional mapping of geological objects are presented. The spatial models are developed on the base of a standard two-dimensional electrical resistivity survey performed along a series of profiles appropriately located in the study area. The accordingly obtained coordinates of the boundaries between the different geological formations in the sections along the relevant profiles and the topography of the terrain are interpolated with appropriate geological software, for example Surfer, RockWorks, etc. In order to illustrate the proposed approach, is presented the developed three-dimensional model of the alluvial terrace of Mesta and Valche Dere rivers, in a section below the tailings storage facility of the closed uranium mining complex Eleshnitsa, Southwestern Bulgaria.

Приложение на метод ERT за тримерно картиране на геоложки обекти

Стефан Димовски[1], Николай Стоянов[2], Атанас Кисьов[3], Сава Колев[4]

[1] Минно-геоложки университет "Св. Иван Рилски", Катедра „Приложна геофизика", e-mail: dimovski@mgu.bg
[2] Минно-геоложки университет "Св. Иван Рилски", Катедра „Хидрогеология и инженерна геология", e-mail: nts@mgu.bg
[3] Минно-геоложки университет "Св. Иван Рилски", Катедра „Приложна геофизика", e-mail: at.kisyov@gmail.com
[4] Геологически институт, БАН, 1113, София, e-mail: sava.koleff@abv.bg

Ключови думи: приложна геофизика, ERT метод, речна тераса, уранодобивен комплекс Елешница