O17-6	DOWNWARD CONTINUATION OF GEOTHERMAL FIELDS. A MAP OF THE LITHOSPHERIC THICKNESS OF TURKEY

S. KOSTYANEV and E. ATANASOVA
University of Mining & Geology “St. Iv. Rilski”, Sofia, Bulgaria
Sofia University “Kl. Ohridski”, Sofia, Bulgaria

The first part of this paper offers a regularization method for downward continuation of constrained geothermal fields in three-dimensional gradient media. The problem can be briefly formulated as follow: the differantial equation of the conduction is to be solved in 3-D gradient media, in which the coefficient of thermal conductivity and sources are given. The boundary conditions are: no lateral heat flow; the temperature and the heat flow at the upper boundary are given; conditions of the lower boundary of the region are absent. The above problem is thusd ill-posed and requires, first, the solution of the invrese problem. In our öethod for solution of this problem we use a sequence of Green’s functions applying the finite elements method. The system of equations obtained is usually unstable. Therefore we offer a method for requlatization.

In the second part of this paper we applied above method for downward continuation of the geothermal field on the territory of Turkey. We used as initial data heat flow density distribution in Turkey prepared by A.K. Tezcan and M.I. Turgay. On the base of these results a map of the lithospheric thickness of Turkey is composed.