# Temperature field due to a non-uniformly heated sphere buried in a halfspace

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A b s t r a c t : The paper presents exact formulae for calculation of the temperature field due to a non-uniformly heated sphere buried in the halfspace. The analysis is based on the solution of the Laplace equation in the bispherical co-ordinate system. The perturbation of the surface heat flow density is calculated for various depths of the sphere, representing a model magmatic body; the maps of isotherms and vertical heat flow density are calculated inside the halfspace. It is shown, that the sphere acts as a volume-distributed source of heat.

**Key words:** geothermal anomalies, magmatic intrusions, potential problems in geophysics, Laplace equation in bispherical co-ordinates

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