

THE CALCULATION OF THE COEFFICIENT OF HEAT CAPACITY AND HEAT TRANSFER OF MULTILAYER GROUND BY TAKING IN TO ACCOUNT DATA FROM THE EARTH SURFACE

Bolatbek Rysbaiuly¹, Toleutai Akishev²

¹Department of Higher Mathematics and Cybernetics,
Kazakh-British Technical University, Almaty, &
²Engineering and Technical University of Ekibastuz,
KAZAKHSTAN.

b.rysbaiuly@mail.ru, toleu_ab@mail.ru

ABSTRACT

The equation of heat distribution in the inhomogeneous medium is being investigated. Approximate method for the calculation of heat transfer coefficient of multilayer ground is being elaborated. Priori estimates for solution of direct and conjugate different problems were obtained. The limitation of approximate value of heat transfer coefficient is being verified. Changes in the temperature of ground on the Earth surface are measured. The thermo physical characteristics of multilayer ground were identified in a laboratory condition. The numerical calculations were conducted with data on the Earth surface. Moreover, the heat transfer coefficient of rock was determined in the different areas of open mine of "Ekibastuzsky". Calculated data were compared with measured data.

Keywords: equation of thermal conductivity, inverse problem, direct problem, conjugate problem, priori estimates, thermo physical characteristics of ground.