ONLINE ISSN : 1881-4824
PRINT ISSN : 0912-7984

BUTSURI-TANSA(Geophysical Exploration)
Vol. 58 (2005) , No. 2 pp.169-179

[Image PDF (883K)] [References]

Analytical reconsideration of the relations between densities estimated by Nettleton's method and by the G-H relationship

Toshio Hiroshima[1)] and Masahiko Makino[1)]

1) Geological Survey of Japan, National Institute of Advanced Industrial Science and Technology (AIST)

(Manuscript received January 6, 2003)
(Accepted November 1, 2004)

ABSTRACT Nettleton's method is a method to select the most appropriate Bouguer reduction density minimizing the correlation between Bouguer gravity anomalies and topographic elevations. In this method, a line profile of gravity values is taken over a topographic feature not associated with density variations or subsurface structure. The authors reconsidered mathematically this method with an expansion from a line profile to 2-D values. The obtained results show that the density ρ_a by Nettleton's method, with non-correlation between gravity values and elevations, corresponds to the most appropriate density ρ_r by Rikitake et al.'s method.

Bouguer anomalies in the eastern part of Yamaguchi prefecture with the density ρ_a reflect the distribution of strata composed of the Cretaceous metamorphic rocks and Jurassic sedimentary rocks.

Key words: Gravity, density, correlation

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To cite this article:
Toshio Hiroshima and Masahiko Makino (2005): Analytical reconsideration of the relations

between densities estimated by Nettleton's method and by the G-H relationship , BUTSURI-TANSA(Geophysical Exploration), **58**, 169-179 .

doi:10.3124/segj.58.169

JOI JST.JSTAGE/segj/58.169