

# THE ACCURACY PROBLEM ON THE ANALYSIS RESULTS OBTAINED FROM THE GEOMAGNETIC TOTAL INTENSITY ANOMALIES

NOBUHIRO ISEZAKI<sup>1</sup>, Keizo Sayanagi<sup>2</sup>, Jun Matsuo<sup>3</sup>

1. Visiting Professor at Tokai University, Shizuoka, Japan, e-mail:

[nisezaki@earth.s.chiba-u.ac.jp](mailto:nisezaki@earth.s.chiba-u.ac.jp)

2. Associate professor at Tokai University, Shizuoka, Japan, e-mail:

[sayanagi@scc.u-tokai.ac.jp](mailto:sayanagi@scc.u-tokai.ac.jp)

3. OYO International cooperation, Tokyo, Japan, e-mail: [matsuo@oyointer.com](mailto:matsuo@oyointer.com)

The geomagnetic total intensity anomaly is not a vector but a scalar, then it does not hold the basic physical formulae, those are, Maxwell's equation, Laplace's equation etc. The difference between results obtained from scalar data and from vector data is very significant.

The method of analysis such as Vaquier 1962, Bhatthacharyya 1964, and Talwani 1965, uses not the total magnetic intensity anomaly (TIA) but the projected total magnetic intensity anomaly (PTA) on the main field (MF). These methods assume TIA is the same as PTA, when total magnetic anomaly (TA) is much smaller than the main field (MF). However, the magnetic anomaly analysis has been carried out without examination about the error reduced from this assumption.

Thus in this paper, the authors pointed out the errors caused from the inversion using TIA. And these analyses show the PTA analysis has higher resolution than the conventional TIA analysis. The authors carried out the survey of vector magnetic field at Aogashima Volcanic Island (AVI). The result shows us the volume with low magnetization intensity at 1km far in the west-south of AVI. Taking the locations of ground surface temperature anomalies and the locations of low magnetization intensity into consideration, this low magnetization intensity area may be strongly influenced by magma activity. These results were led only from vector magnetic anomaly analysis.

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Nobuhiro Isezaki , Tokai University, Institute of Oceanic Research and Development,

Shizuoka, 3-20-1, Orido, Shimizu-ku 424-8610, Japan, e-mail: [nisezaki@earth.s.chiba-u.ac.jp](mailto:nisezaki@earth.s.chiba-u.ac.jp)