

## Analysis problem of total intensity anomaly compared with observed 3 component anomalies

Nobuhiro Isezaki<sup>1\*</sup>, Keizo Sayanagi<sup>1</sup>, Makoto Harada<sup>1</sup>, Jun Matsuo<sup>2</sup>

<sup>1</sup>IOR, Tokai- Univ., <sup>2</sup>Oyo International Co.

1. The scalar magnetic field TIA (Total Intensity Anomaly) has no physical formula describing the relation between M (Magnetization) and TIA.

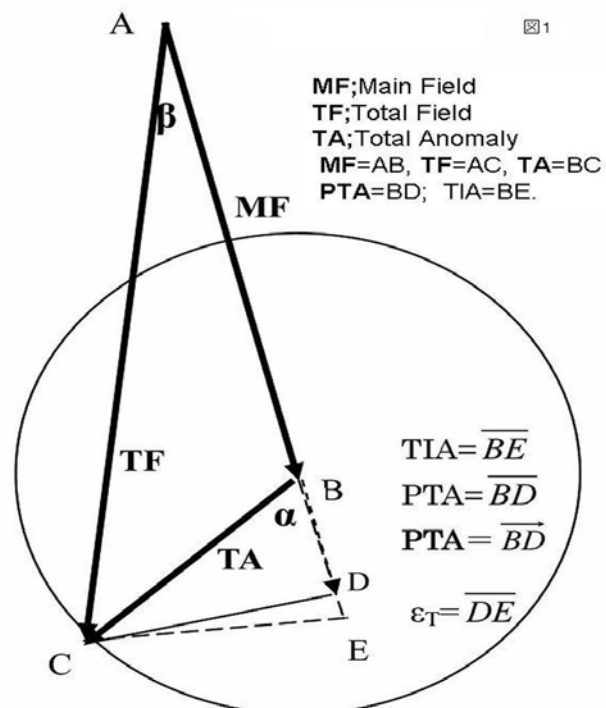
2. Then it is impossible to estimate M from TIA.

3. Analyses of M from TIA have been done so far under assumption  $TIA = PTA$  (Projected Total Anomaly on MF (Main Geomagnetic Field)), however, which caused the analysis error due to  $eT = TIA - PTA$ .

4. TA (Total Anomaly) varies its direction from place to place even where MF is rather uniform in a small local area, the magnetic potential for TIA could not be defined in any place.

5. It is impossible to evaluate the error due to  $eT$  for the already published results so far because there were no TA or PTA observations, but only TIA at present, then  $eT$  cannot be defined.

6. TA satisfies the Laplace's equation, and TA can be adjusted to the physically realizable data by solving this equation for TA. For the area where there is no observation TA, we can interpolate them by solving the Dirichlet's problem as the boundary value problem.



Keywords: geomagnetic three component anomalies, geomagnetic total intensity anomaly, projected total intensity anomaly, error of total intensity anomaly, analysis error for total intensity anomaly