Correction

'Interpretation of Magnetic Anomalies of Dikes by Fourier Transforms' by S. Sengupta, Vol. 113 (1975), pp. 625–633.

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In the Case of 3(a): Inclined thick dikes of finite depth extent

$r_3^2 = (x - h + l \cot \delta)^2 + (d + l)^2$

$r_4^2 = (x + h + l \cot \delta)^2 + (d + l)^2$

$\psi = \arctan [(x + h + l \cot \delta)/(d + l)] - \arctan [(x - h + l \cot \delta)/(d + l)]$

Equations (25) through (29) should read as follows:

$$FZI(\omega) = 4\pi k \sin \delta [A - jB] \cdot (\sin \omega h/\omega) \cdot [j\{1 - \exp(-\omega l) \cdot \cos \omega a\} + \exp(-\omega l) \cdot \sin \omega a] \quad (25)$$

$$FHI(\omega) = 4\pi k \sin \delta [B + jA] \cdot (\sin \omega h/\omega) \cdot [j\{1 - \exp(-\omega l) \cdot \cos \omega a\} + \exp(-\omega l) \cdot \sin \omega a] \quad (26)$$

$$AI(\omega) = 4\pi k T \sin \delta \cdot (\sin \omega h/\omega) \cdot \exp(-\omega d) \cdot [1 + \exp(-2\omega l) - 2 \exp(-\omega l) \cdot \cos \omega a]^{1/2} \quad (27)$$

$$\phi ZI(\omega) = \arctan \left[\frac{A\{1 - \exp(-\omega l) \cdot \cos \omega a\} - B\{\exp(-\omega l) \cdot \sin \omega a\}}{A\{\exp(-\omega l) \cdot \sin \omega a\} + B\{1 - \exp(-\omega l) \cdot \cos \omega a\}} \right] \quad (28)$$

$$\phi HI(\omega) = \pi/2 - \phi ZI(\omega) \quad (29)$$

Also

$\phi ZI(\omega) = \phi(0) + \delta - \beta$ where $\beta = \arctan [\sin \omega a/\{\exp(\omega l) - \cos \omega a\}]$

and

$\phi(0) = Z_0/H_0 \sin \alpha.$

For high ω, $\phi ZI(\omega)$ reaches the saturation value of $\phi(0) + \delta$ (as β tends to 0), from which δ can be found out. The value of l cannot be found uniquely by Kaplan's method but it can be estimated from the slope of $\phi ZI(\omega)$ for low values of ω. The slope of $\phi ZI(\omega)$ for low ω is $a/2$ or $l \cot \delta/2$. The diagram in Fig. 2 is formed by joining the peaks of the curve $AI(\omega)$ when $\cos \omega a = 1$.