Errata

Erratum: “On the Precession Driven Geodynamo” [*Izvestiya, Physics of the Solid Earth*, 2006, Vol. 42, No. 6, pp. 460–466]

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An incorrect choice of an arbitrary function in [Shalimov, 2006] led to the construction of an incorrect solution to the equation $[\omega + \beta y, \psi + uy] = 0$ (Eq. (3) in the paper cited). Choosing now this function in the form $f = -k^2(\psi + uy)$ [Hasegawa, 1985], we obtain the following equation from (3):

$$\Delta(\psi + uy) + \beta y = -k^2(\psi + uy);$$

its solution

$$\psi + uy = \frac{\beta y}{k^2} + \psi_1, \quad \Delta\psi_1 = -k^2\psi_1,$$

describes vortices on the scale $\lambda = 2\pi/k$ superimposed on a zonal flow defining the scale of the problem. The

Figure.

solution of the equation for ψ_1 can be written as the superposition of plane harmonics, but, in the simplest case, it is the sum of two harmonics: $\psi_1 = C \cos k_x \xi \cos k_y y$, where C has the meaning of an amplitude and $k_x^2 + k_y^2 = k^2$. The figure shows the structure of the flow described by this solution with a sufficiently high amplitude under the assumption that the scale along a meridian is of the order of a wavelength (a few hundred kilometers according to laboratory data [Vanyo et al., 1995]). In a system of coordinates moving at the velocity u , the solution has the form of a succession of vortices with alternating cyclonic and anticyclonic vorticities. In accordance with the assumption made in [Shalimov, 2006], such a succession of vortices arising in a precessing and rotating container can lead to the development of flow structures resembling Busse rolls, with the subsequent generation of a dipole geomagnetic field.

REFERENCES

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