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Full Wave Theory Applied to a Discontinuous Velocity Increase: The Inner Core Boundary

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On page 13 the Equation (14) has corrections to the denominator of the fraction in the large brackets; i.e.:

$$D_{S_I''} = D^2_{S_I'} \left\{ 1 - \frac{\left\{ A \frac{i'^{(1)}}{i^{(1)}} - B \frac{k'^{(1)}}{k^{(1)}} \left[C \frac{i'^{(1)}}{i^{(1)}} + D \right] \right\} \frac{i^{(1)}}{i^{(2)}}}{-A \frac{i'^{(2)}}{i^{(2)}} + B \frac{k'^{(1)}}{k^{(1)}} \left[C \frac{i'^{(2)}}{i^{(2)}} + D \right]} \right\} i^{(2)} k^{(1)}, \tag{14}$$

On page 14 the common denominator of S_I' and S_I'' is simply $D_{S_I''}$ given by the corrected Equation (14). A Factor $D_{S_I'}$ in the common denominator cancels $D_{S_I'}$ in the numerator of the sum fraction for S_I. For the resulting Equation? (15a) and (15b) to represent the denominator of S_I they must be multiplied by a factor $k^{(1)}$.

$$\begin{aligned} D_{S_I} = \{ & -A\, i'^{(2)} k^{(1)} + B\, k'^{(1)} [C\, i'^{(2)} + D\, i^{(2)}] \\ & - A\, i'^{(1)} k^{(1)} + B\, k'^{(1)} [C\, i'^{(1)} + D\, i^{(1)}] \} k^{(1)} \end{aligned} \tag{15a}$$

Combining terms here results in

$$D_{S_I} = \{ -A j' k^{(1)} + B k'^{(1)} [C j' + D j] \} k^{(1)}. \tag{15b}$$

On page 27 subscripts appearing in Equation (A1) should read as follows:

$$\begin{aligned} T^{\downarrow}_{KI} &= [\rho_2 (\alpha_1/\alpha_2)\, v_1 (C^{(1)}_{i2} + C^{(2)}_{i2})]/D_{S_I'} \\ T^{\uparrow}_{IK} &= [\rho_1\, v_1 (C^{(1)}_{i1} + C^{(2)}_{i1})]/D_{S_I'} \\ R^{\downarrow}_i &= [-\rho_2\, C^{(2)}_{i1} + (\rho_1/\alpha_2)\, C^{(2)}_{i2} (\alpha_1\, v_1^2 + 4\beta_1^3\, p^2/r_i^2\, C^{(2)}_{i1}\, C^{(2)}_{j1})]/D_{S_I'} \\ R^{\uparrow}_I &= [\rho_2\, C^{(1)}_{i1} + (\rho_1/\alpha_2)\, C^{(1)}_{i2} (-\alpha_1\, v_1^2 + 4\beta_1^3\, p^2/r_i^2\, C^{(1)}_{i1}\, C^{(2)}_{j1})]/D_{S_I'} \end{aligned} \tag{A1}$$

$$S_I = [-\rho_2\, C^{(1)+(2)}_{i1} + (\rho_1/\alpha_2)\, C^{(2)}_{i2} (\alpha_1\, v_1^2 + 4\beta_1^3\, p^2/r_i^2\, C^{(1)+(2)}_{i1}\, C^{(2)}_{j1})]/D_{S_I}.$$