Correction to “Improvement of ionospheric electron density estimation with GPSMET occultations using Abel inversion and VTEC information”

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INDEX TERMS: 2494 Ionosphere: Instruments and techniques; 2443 Ionosphere: Midlatitude ionosphere; 2415 Ionosphere: Equatorial ionosphere; 6982 Radio Science: Tomography and imaging; 6979 Radio Science: Space and satellite communication; 9900 Corrections


[1] In the paper “Improvement of ionospheric electron density estimation with GPSMET occultations using Abel inversion and VTEC information” by M. Garcia-Fernandez, M. Hernandez-Pajares, J. M. Juan, and J. Sanz (Journal of Geophysical Research, 108(A9), 1338, doi:10.1029/2003JA009952, 2003), one of the equations contained an error. The changes to the current version are marked with bold. The current version of equation (3) is as follows:

\[
L_I(p_j) = b_I + c \cdot \frac{\beta}{L} \cdot F_P \cdot T_v(\lambda_p, \phi_p)
+ c \cdot \alpha \cdot \sum_{k=0}^{f} \Delta l_k \cdot T_v(\lambda_k, \phi_k) \cdot F(p_k)
\]

This expression has a mistake in the third term of the right term; the correct version of the expression includes an extra summand as follows:

\[
L_I(p_j) = b_I + c \cdot \frac{\beta}{L} \cdot F_P \cdot T_v(\lambda_p, \phi_p)
+ c \cdot \alpha \cdot \sum_{k=0}^{f} \Delta l_k \cdot [T_v(\lambda_k, \phi_k) + T_v(\lambda_k, \phi_k)] \cdot F(p_k)
\]

In order to account for this extra term, the text that follows the expression should be slightly changed as well. The current version (text of paragraph 6 after equation (3)) is as follows:

“where \( \Delta l \) are the longitudes of the ray path in the corresponding layers and \( T_v \) are the known values of VTEC obtained from geographical and time interpolation of the Global Ionospheric Maps[...]

The corrected version should be

“where \( \Delta l \) are the longitudes of the ray path in the corresponding layers and \( T_v(\lambda_k, \phi_k) \) and \( T_v(\lambda_0, \phi_0) \) are the known values of VTEC at the two intersections of the ray with the same layer. These VTEC values are obtained from geographical and time interpolation of the Global Ionospheric Maps[...]”