Technical Comments

"Orbit Determination from the Satellite": A Correction

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THE equations contained in the Appendix, the solar time on an arbitrarily oriented satellite, have been found to be incorrect. Equation (A6) should read

$$\varphi = \tan^{-1}[c(\alpha)\,\tan(\varphi' + \varphi_h)] \qquad (A6)$$

with φ_h = argument of perihelion on plane E. This carries over to Eq. (A7) in a straightforward manner.

Similarly, Eq. (A8) should read

$$\varphi_s = \tan^{-1}[c(\beta)\,\tan(\Omega t + \varphi_{s0})] + \frac{2\epsilon\, s(\Omega t)\, c(\beta)}{1 - s^2(\beta)\, s^2(\Omega t)} \qquad (A8)$$

These corrections carry over to Eq. (A9), from which (A14) becomes

$$\varphi_{s0} = \tan^{-1}[c(\alpha)\,\tan\varphi_h / c(\beta)] \qquad (A14)$$

The final formulas (A15) and following can be written in this manner:

$$\Delta = \varphi_s - \varphi \qquad (A15)$$

$$\Delta_E = 2\pi\xi n + \varphi_{s0} - \tan^{-1}[c(\eta)\,\tan(2\pi\xi n + \varphi_h)] - 2\epsilon_E\, s(2\pi\xi n)\, c(\eta)/[1 - s^2(\eta)\, s^2(2\pi\xi n)] \qquad (A16)$$

$$\Delta_\psi = 2\pi\xi n + \varphi_{s0} - \tan^{-1}[c(\eta - \psi)\,\tan(2\pi\xi n + \varphi_h)] - 2\epsilon_E\, s(2\pi\xi n)\, c(\eta - \psi)/[1 - s^2(\eta - \psi)\, s^2(2\pi\xi n)] \qquad (A17)$$

$$\Delta_\chi = 2\pi\xi n + \varphi_{s0} - \tan^{-1}[c(\eta)\, c(\chi)\,\tan(2\pi\xi n + \varphi_h)] - \frac{2\epsilon_E\, s(2\pi\xi n)\, c(\chi)\, c(\eta)}{c^2(2\pi\xi n) + c^2(\eta)\, c^2(\chi)\, s^2(2\pi\xi n)} \qquad (A18)$$

The correct Fig. 5 is shown below.

Equations (A19) and (A20) hold and so do the conclusions drawn from them.

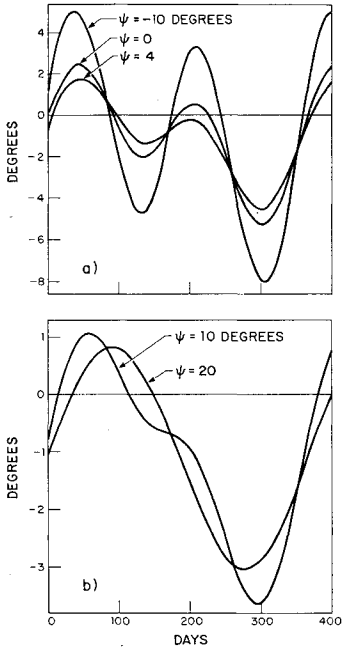

Fig. 5 True solar time for a synchronous equatorial satellite with its spin axis tilted around the earth's line of nodes by various angles.

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