

Equation of the Equinoxes

The equation of the equinoxes (E_e) is the difference between Greenwich apparent and mean sidereal time.

$$E_e(T) = \text{GAST} - \text{GMST}$$

which can be expressed, less precisely, in series form as

$$= \Delta\psi \cos \epsilon_A - \sum_k (C'_k \sin A_k + S'_k \cos A_k) - 0''.000\,000\,87 T \sin \Omega$$

where GAST and GMST are the Greenwich apparent (see page B9) and mean sidereal time (see page B8). $\Delta\psi$ is the total nutation in longitude, ϵ_A is the mean obliquity of the ecliptic, and Ω is the mean longitude of the ascending node of the Moon (see B47, D2). A table containing the coefficients (C'_k , A_k) for all the terms exceeding $0.5\mu\text{as}$ during 1975-2025 (there are no S'_k coefficients in this category) is given with the coefficients for s , the CIO locator, on page B47. This series expression is accurate over this period to $\pm 0''.3 \times 10^{-5}$.