

DYNAMICAL EQUINOX AND ANALYTICAL THEORY OF THE SUN

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ABSTRACT\*

A concept of dynamical equinox and its relation to the analytical form of the adopted theory of the Sun is discussed. Connection between the FK4 equinox and the dynamical equinox is determined by comparing two analytical theories of the Sun (the adopted Newcomb's theory and a new one (AT-1) constructed at the Instituted of Theoretical Astronomy) with solar meridian observations made at US Naval Observatory (1911-1971 yr.). Corrections  $\Delta\alpha$  to the FK4 right ascensions,  $\Delta\delta_0$  to declinations and  $\Delta\varepsilon$  to the angle between the equator and the ecliptic are:

$$\begin{aligned} \Delta\alpha = & \quad 0^{\text{S}}.024 \pm 0^{\text{S}}.003 - (0^{\text{S}}.003 \pm 0^{\text{S}}.023) * (T-19.40) & \text{Newcomb} \\ & \quad 0^{\text{S}}.032 \pm 0^{\text{S}}.003 - (0^{\text{S}}.012 \pm 0^{\text{S}}.022) * (T-19.40) & \text{AT-1} \\ \Delta\delta_0 = & \quad 0":25 \pm 0":02 + (0":67 \pm 0":07) * (T-19.40) & \text{Newcomb} \\ & \quad 0":24 \pm 0":02 + (0":68 \pm 0":10) * (T-19.40) & \text{AT-1} \\ \Delta\varepsilon = & \quad 0":26 \pm 0":01 + (0":12 \pm 0":09) * (T-19.40) & \text{Newcomb} \\ & \quad 0":30 \pm 0":01 - (0":17 \pm 0":08) * (T-19-40) & \text{AT-1} \end{aligned}$$

Secular variations in  $\Delta\alpha$  and  $\Delta\varepsilon$  may be explained by improvement of observational conditions after reconstruction of the telescope pavilion in the forties.

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