Analysis of the Sun's observations with prismatic astrolabe

N.V. Leister P.C.R. Poppe
Instituto Astronomico e Geofisico
Universidade de Sao Paulo
Caixa Postal 9638, 01065-970
Sao Paulo, Brazil

We show the results of a regular programme of observations of the transits of the solar limbs through an equal altitude circle, with a Danjon modified astrolabe. A program of the observations of the Sun has been under way since 1974 at the Abrahao de Moraes Observatory $(-23°00, 1', 3h07m52sW)$ of the Uni -versity of Sao Paulo. The main purpose of this programme is to deter -mine corrections E and A to the FK5 equinox and equator, as well as to the Earth's orbital constants. However, the successive observations of the transits of both limbs through the same altitude circle yield the solar diameter as well. The first point we discuss here is the determination of the equator and equinox corrections based on observations of the Sun at mean epoch from 1988 to 1994. The values of E and A indicate the corrections $0.10" \pm 0.04"$ and $0.07" \pm 0.07"$, respectively. Secondly, we present the possible variations of the solar radius, wich are of interest, both because of their astrophysical significance, and because of their potential relation to the terrestrial climate.

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