

EQUATOR AND ECLIPTIC FK5 POSITIONS ON THE BASIS OF SUN AND PLANETS OBSERVATIONS BY THE ERTEL-STRUVE VERTICAL CIRCLE AT THE KISLOVODSK MOUNT STATION

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The classical Ertel-Struve vertical circle of the Pulkovo Observatory was established at the Kislovodsk Mount Station. From 1984 to 1989 we have obtained 566 declinations of the Sun, 230 of Mercury, 413 of Venus, and 207 of Mars. Observations were visual, and the reductions were differential in the FK5 system. Only day-time observations of reference stars were used.

To eliminate the errors due to the phase of the planets, the new method was adopted which permits taking the distributions and the illumination over the image, the apparatus function and the means of the measuring into account.

The DE200 theory was used for the comparison. Assuming these data the corrections of FK5 zero-point $\Delta\delta$, inclination of the ecliptic $\Delta\epsilon$ and Sun, and planets mean anomalies ΔM were obtained as the following values:

$$\Delta\delta = +0''.06 \pm 0''.01$$

$$\Delta\epsilon = -0''.01 \pm 0''.01$$

$$\Delta M (\text{Sun}) = -0''.02 \pm 0''.04$$

$$\Delta M (\text{Mercury}) = +0''.10 \pm 0''.04$$

$$\Delta M (\text{Venus}) = -0''.08 \pm 0''.08$$

$$\Delta M (\text{Mars}) = -0''.03 \pm 0''.04$$

We are grateful to all observers of the vertical circle at the Kislovodsk Mount Station for obtaining the observations.