REPRESENTATION OF SYSTEMATIC DIFFERENCES ASTROLABE-CATALOG

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ABSTRACT. Usual methods of obtaining systematic differences from astrolabe data, apart from the $\Delta\alpha_\delta$ component, depend on the formation of an astrolabe catalog for comparison with the FK4. Stars which have been observed only at one of their transits are not used for that purpose, since the corrections for both coordinates cannot be resolved. In this paper, the comparison is made in terms of zenith distance corrections. The western and eastern transits are treated as independent pieces of information, so that single transit stars contribute in the same footing as the others and maximum use is made of the available information.

Brosche's analytical method is employed. A set of nearly orthogonal functions of α, δ the magnitude and colour index is selected to resolve the mean residuals in terms of corrections to right-ascension, and declination, and instrumental errors.

To avoid the influence that the ordering of the representation functions may have in the results, Brosche's method is modified. The singular value decomposition of the coefficient matrix is performed and the F test is applied to discriminate the significant terms.

The method is applied to the data from the Sao Paulo Astrolabe. The most conspicuous terms are of instrumental-personal origin and depend on the star magnitude and colour. Corrections to right ascension and declination dependent on both coordinates are small but significant.

Key words: POSITIONS — CATALOGUES

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