PRELIMINARY FAST RESULTS ON ASTROMETRIC POSITIONS

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For a test under real conditions the Hipparcos-measured star abscissae on 60 reference great circles have been processed covering partly the period from December 1989 to February 1991. After adapting the abscissae to a provisional instrumental system the determination of positions of some 4000 programme stars has been attempted in the course of the operational qualification of the data reduction procedures of the Consortium FAST. - Following the FAST Consortium's decision to work exclusively in the ecliptic frame of reference the results are given in ecliptic longitude (λ) and latitude (β).

Various statistical quantities have been calculated from these positions. Among them are the arithmetic mean $\bar{\sigma}$ of the internal standard deviations of the sample members, the RMS dispersion with respect to the FAST Input Catalogues, and the mean of the semi-minor axes of the error ellipses. Owing to the smallness of the intersection angles of Reference Great Circles (RGC) the error ellipses of the positions are elongated. Their semi-minor axis may, therefore, be taken as a precision measure for the more realistic case of even distribution of abscissae. - Results for the sample comprising 4130 stars:

$\overline{\sigma_\lambda}$ = 12.1 mas, RMS_λ = 419 mas, $\overline{\sigma_\beta}$ = 7.8 mas, RMS_β = 370 mas,
$\bar{\sigma}$ (semi-minor axis) = 3.7 $\pm$ 1.3 mas.

In conclusion: While the RMS values reflect the accuracy of the Input Catalogue it is obvious that the precisions in λ and β are not comparable to those expected from the whole mission since only 60 RGC's are used instead of 3000. Very recent results on 300 RGC's show internal standard deviations of the order of 2.5 mas pointing to an improvement of astrometric positions. Although the numbers obtained here are much larger, they are encouraging from the standpoint of operational qualification of the implemented computer software which seems to perform in accordance with the realities of the celestial sphere. Needless to say that at this early stage several effects impaired the astrometric work: (1), the data are a random sample being far from uniform coverage of the observation interval, (2), as a consequence, potential grid step ambiguities are not removable and, (3), many of the abscissae may be associated with double or multiple systems which, however, had to be treated as point-like sources.

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