

## TYCHO ASTROMETRY AND PHOTOMETRY

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**ABSTRACT:** In the Tycho project astrometric and photometric data of about 1 000 000 stars to a limit of  $B = 12$  mag will be derived. The brightest 500 000 stars will obtain magnitudes in two colours  $B_T$  and  $V_T$ , the fainter 500 000 usually only one broad-band magnitude  $T$ . There is confidence that an accuracy will be achieved about 0.03 arcsec for positions and 0.03 mag for magnitudes, at  $B = 10.5$  mag. The results are obtained by appropriate treatment of the continuous data records generated by the Hipparcos satellite's star mapper (which provide simultaneous measurements in two spectral channels), based on predicted star transits using its own 'Tycho Input Catalogue'. The data treatment is carried out by the Tycho Data Analysis Consortium (TDAC), using calibration and satellite attitude information from the two Hipparcos data reduction consortia. An overview of the data reductions is given. Raw observation data and their numerical treatment are described. This assessment is based on a small data set, i.e. 12 weeks spread over the first 8 months of the Tycho 'revised mission' where the satellite is in the elliptical transfer orbit, instead of the intended geostationary orbit.

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