2.1 STELLAR ASTROPHYSICS

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ANALYSIS OF STELLAR OBSERVATIONS: SYSTEMATIC EFFECTS, RADIO STARS, PROPER MOTIONS

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An observational stellar program with a prismatic astrolabe was started at "Observatório Abrahão de Moraes" - OAM - São Paulo, Brazil, in 1974

The primary goal of the observational programme is to produce a general astrolabe catalogue at OAM involving 800 stars, approximately, observed with the same instrument for 20 years. The observations are obtained at two different zenith distances (30^o and 45^o), so that it is possible to observe absolute declination and compute systematic effects, as well as obtain fundamental reference system corrections [1].

The basic problems concern the optical-radio system connection and the deterioration to which the HIPPARCOS system is subject. So, there is a requirement of exact and systematic observations with optical instruments from the ground.

In such case, the radio stars included in this observational programme are aimed at determining the local systematic effects between the optical and radio reference systems in the inertial reference context [2].

The possibility of proper motions determination is due to the fact that the observational programme has lasted a long time. So, not only the elapsed period is well suited for the analysis but the number of stars is large and guarantees the efficiency of the method [3]. The residuals of each star are related with: a) RA and Dec corrections; b) group corrections; c) azimuth and parallactic angle of the star; d) equinox, equator and zenith distance corrections and e) proper motion in RA and Dec.

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