ON THE ORGANIZATION OF ABSOLUTE COORDINATE DETERMINATION OF THE FK5 STARS

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The present-day realization of inertial coordinate system by means of traditional optical astrometry is the Fifth Fundamental Catalogue (FK5). The series of observations with new meridian instruments (CAMC, PMC-190, BAMC, HMC) show the significant correlated differences (up to 0".1) of observational catalogues from the FK5. Moreover, FK5 mean epoch appears to be old (about 50 years ago) and FK5 proper motions would have essential errors owing to the fact that not many new original catalogues (only 25 in RA and 15 in DEC) were used when compiling FK5. It should be noted also that FK5 has a dissimilar accuracy of positions and proper motions of "old" and "new" stars.

The necessity of FK5 improvement is connected also with the problem of space catalogues orientation and with linking these catalogues to the classical ones. Abovementioned reasons require the re-observation of the entire FK5 and this work is currently performed at a set of observatories.

It seems to be necessary for USSR meridian instruments to take part in this work. The possible advantage of our original instruments (horizontal meridian circle, photographic vertical circle, axial meridian circle etc.) consists in their constructive differences from the classical meridian circles. Applying unusual instruments with minimal systematic errors (less then 0".05) may allow one to improve the fundamental system.

It is important, in our opinion, to apply the new techniques of fundamental system creation. An optimal global distribution of instruments is assumed. In particular, it's of interest the experience of Pulkovo high-latitude observations on Spitsbergen. Moreover, it is necessary to get an agreement on a plan of observations at different instruments and to use a modern technique of observation reduction and catalogue compilation. Significant improvement may be achieved by choosing of observation place with a good astroclimate and by correct reduction for refraction.

The foregoing allows one to expect that the joined efforts on the FK5 re-observation will lead to improvement of fundamental system.

J. H. Lieske and V. K. Abalakin (eds.), Inertial Coordinate System on the Sky, 84.