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**ASTRONOMICAL RESEARCH:
FROM NEAR-EARTH SPACE
TO THE GALAXY**

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ABSTRACT BOOK

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SOME PROBLEMS OF THE ERS ASTROMETRIC REDUCTIONS

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The observations of 5 optical counterparts of the extragalactic radio sources from the ICRF2 list were made by using the 2m RCC telescope of Rozhen National Astronomical Observatory (Bulgarian Academy of Sciences). About 30 fields were observed by using CCD camera VersArray 1300B (1340x1300 pixels, the pixel size is 20x20 micrometers) at the end of March 2011. The optical positions of radio sources determined with respect to the reference stars of some modern astrometric catalogues. The mean optical positions were compared with ICRF2 radio positions. Significant discrepancies between values of mean optical positions with respect to different astrometric catalogues were found out.

THE NIKOLAEV MERIDIAN CIRCLES CATALOGUE OF STARS IN FIELDS

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A catalog of astrometric positions and proper motions of stars (9 -16)^m in fields of ecliptical zone and around higher proper motion stars were obtained by results of CCD-observations during 2008-2009 years. The mean square error for one catalogue position is about 30-90 mas in right ascension and 20-80 mas in declination for stars of (9 -15.5)^m with proper motions -3-12 mas/year. The UCAC2 catalogue was used as reference for performing the astrometric reductions. Cross-correlation of obtained data with modern astrometric catalogues, such as TYCHO2, 2MASS, CMC14, PPMX, XPM and USNOA2.0, were made for investigation system errors and calculation of the proper motions. The external accuracy of one catalog position is about 120 mas. The catalog also contains photometric data (B, V, R, r', J, H, K).