STATE AGENCY ON SCIENCE, INNOVATION
AND INFORMATION OF UKRAINE
RESEARCH INSTITUTE “NIKOLAEV ASTRONOMICAL OBSERVATORY”

ASTRONOMICAL RESEARCH: FROM NEAR-EARTH SPACE TO THE GALAXY

International Conference

ABSTRACT BOOK

September 26-29, 2011,
Mykolaiv, Ukraine

galactic plane. Catalogues contain the coordinates of stars in the ICRS system from 7 to 14 magnitude, main part of them from 11 mag to 13 mag, with the mean epoch of observations about 1977. The sample standard deviation of position measurement is about 0."06 in RA and 0."07 in DEC. Root mean square error of (O-C) differences is about 0."09 for coordinates and 0."005/year for proper motions.
Further work in this direction is being successfully continuing.

COMPILED ASTROMETRIC CATALOGUE OF 196600 REFERENCE STARS FOR CCD-OBSERVATIONS OF 240 EXTRAGALACTIC RADIO SOURCES

V. Ryl'kov[1], N. Narizhnaja[1], G. Pinigin[2], N. Maigurova[2], M. Martynov[2]

[1]Pulkovo Observatory, Saint-Petersburg, Russia;

[2]RI "Nikolaev Astronomical Observatory", Mykolaiv, Ukraine

Compiled Catalogue of Reference Stars up 17^m (Pul-ERS) around Extragalactic Radio Sources is created to obtain the high precision coordinates of 240 Extragalactic Radiosources (ERS). Nine catalogues of stars observed by ground based telescopes and were used for compiling the Pul-ERS catalogue. Among them the photographic observations of the stellar fields were made with Pulkovo Normal astrograph, Zeiss telescope of in Observatory of Kiev University and 26" refractor of in Rumanian National Observatory in Bucharest. The Pul-ERS catalogue containing 208 fields around ERS was observed in Nikolaev observatory at telescope with CCD-camera (AMC). The Carlsberg catalogues CMC-9 and CMC-14 from CAMC in La Palma were also included. The catalogue ERL for stars near 398 ERS was used for the northern ERS. We included the coordinates of stars from the Kharkov catalogue XC1 up to 17^m which, in our opinion, it is most reliable of what obtained by scanning the Shmidts plates. For 70% stars the proper motions from UCAC3 catalogue were used to convert the positions ofstars to the common epoch. For the rest of stars the proper motions were taken from the XC1.

The size of fields is 40 arcmin. It is enough to guarantee the high precision reduction of the ERS coordinates in optics to construct astrometric system for connection our system with the space and VLBI

observations of the ERS. The number of positions for each star varies from one to more than ten. The inner precision of positions in Pul-ERS is from 4 to 150 mas. For 240 fields of ERS we obtained more than 196600 positions of stars. The 157556 stars of our compiled catalogue were identified with the stars of the UCAC3. The average differences Pul-ERS - UCAC3 for common stars is 12 mas in Right Ascension and 7 mas in Declination. The positions of stars in the Pul-ERS catalogue are given in degree and integer forms. The number of positions to compile the coordinates is given too. Besides the positions, the Pul-ERS catalogue contains magnitudes, average epochs in RA, DE and proper motions.

PROGRAM OF AUTOMATIC ASTEROID SEARCH AND DETECTION COLITEC (CLT) – THE LAST RESULTS OF APPLICATION

V. E. Savanevich[1], A. M. Kozhukhov[2], A. B. Bryukhovetskiy[2], V. P. Vlasenko[2], E. N. Dikov[3], Yu. N. Ivashchenko[4], L. V. Elenin[5], V. N. Tkachov[1]

[1]Kharkiv National University of Radioelectronics, Kharkiv, Ukraine;

[2]National Space Control and Test Centre, Evpatoria, Ukraine;

[3]Recearch and Design Institute of Micrography, Kharkiv, Ukraine;

[4]Andrushivka Astronomical Observatory, Andrushivka, Ukraine;

[5]Keldysh Institute of Applied Mathematics RAS, Moscow, Russian Federation

Modern system of asteroids detection in one night takes images of considerable sky area. The areas of such size can't be sufficiently processed using "blinking technique", especially if we are talking about wide-field "fast" astrographs detecting dozens of faint asteroids simultaneously. One of the approaches dealing with this problem is implementation of automatic asteroids detection, visually controlling obtained information.

Program of automatic asteroid search and detection CoLiTec (CLT) was created by initiative group headed by Vadim Savanevich. Now program CoLiTec (CLT) has been successfully used in two observatories: Andrushivka Astronomical Observatory (near Kiev, Ukraine, MPC code A50) and Russian remotely observatory ISON-NM (Mayhill, New Mexico, USA, MPC code H15). The present report represents results of CoLiTec (CLT) software application since May 2010.