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ABSTRACT BOOK

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COMPARATIVE SPECTROPHOTOMETRY OF COMETS 22P/KOPFF, 81P/WILD, C/2006 W3 (CHRISTENSEN), C/2009 K5 (MCNAUGHT) AND 103P/HARTLEY 2

V.O. Ponomarenko[1], K.I. Churyumov[1], O.R. Baransky[1], V.V. Kleshchonok[1], L.S. Chubko[2]

[1]Kyiv National Shevchenko University, Kyiv, Ukraine;

[2]Kyiv National Aviation University, Kyiv, Ukraine

Preliminary results of observations and study of middle-resolution optical spectra (R=15000 and R=1500) of comets 81P/Wild, 22P/Kopff, C/2006 W3 (Christensen), C/2009 K5 (McNaught), 103P/Hartley 2 are presented. The spectra were obtained with the echelle spectrograph and with the slit spectrograph installed on the 2-m Zeiss reflector of the High-mountain astronomical station of Institute of Astronomy of Russian Academy of Sciences and Main Astronomical Observatory of National Academy of Sciences of Ukraine at Peak Terskol in 2009-2010 years. With resolution R=15000, there were obtained: for 22P/Kopff – 5 spectra, 81P/Wild – 2, C/2006 W3 (Christensen) – 14, C/2009 K5 (McNaught) – 2, 103P/Hartley 2 – 9. With resolution R=1500, there were obtained: for 81P/Wild – 5 spectra, C/2009 K5 (McNaught) – 4, 103P/Hartley 2 – 8.

The energy distributions in the spectra for the near nucleus regions of five comets are built and detailed identification of the spectral emission lines in the spectra was made. Fluorescent cometary continuum level in spectra of comets was searched. Physical parameters of the neutral comas of comets (velocities of gas expansion, lives times of molecules C2, C3 and CN and other parameters) were calculated using the Shulman's and Haser's models. Comparative analysis of the spectra of five comets was made.

NIKOLAEV DATA ARCHIVE AS A PART OF UKRVO

Yu.I.Protsyuk

RI "Nikolaev Astronomical Observatory", Mykolaiv, Ukraine

Nikolaev data archive has been built up for 15 years, and consists of about 6000 scanned images of photoplates obtained in 1929-1996 as well as more than 60,000 CCD frames obtained in 1996-2011. Data archive contains mainly information about observations of the northern

hemisphere sky from -20° to +85°. The observations were carried out to solve different scientific tasks using 4 instruments. The archive also contains all catalogs of NAO in the form of digital images and textual files. At the middle of 2011, the volume of accumulated data in the form of CCD images was more than 500 GB, and in form of scanned plate images was more than 600 GB. Archive data is regularly included in several NAO databases with user friendly interfaces. Nikolaev Virtual Observatory (NikVO) was created as the result of work in 2007-2009 on development of these astronomical databases. We have taken an active part in development of the Ukrainian Virtual Observatory (UkrVO) since 2010. Most part of Nikolaev data archive, including all astrometric catalogs and observational data, were integrated into UkrVO website http://ukr-vo.org.

USING DIGITIZED PHOTOGRAPHIC OBSERVATIONS FOR THE CREATION OF MODERN ASTROMETRIC CATALOGUES OF COORDINATES AND PROPER MOTIONS

Yu. Protsyuk[1], S. Protsyuk[1], O. Kovylianska[1], M. Martynov[1], V. Andruk[2]

[1]RI "Nikolaev Astronomical Observatory", Mykolaiv, Ukraine;

[2]Main Astronomical Observatory NASU, Kyiv, Ukraine

We present a possibility of receiving new astrometric stellar catalogues of coordinates and proper motions with good accuracy by using digitized images of old photoplates scanned with existing consumer and prosumer scanners.

The plates for scanning and image processing were taken from an archive of the RI NAO, which contains more than 8400 plates obtained with the Zonal Astrograph (D=160 mm, F=2.04 m, FOV= 5° x 5°). Selected plates obtained from 1972 to 1993 were scanned with two scanners: Epson Perfection V200 Photo (consumer) and Epson Perfection V750 Pro (prosumer); with a resolution power of 1200 DPI. Raw data processing, including image filtration and recovery of bright stars, were made using MIDAS software package. Further reduction and analysis of results were carried out using our own software and the Tycho-2 reference catalogue.

Using both scanners with the same parameters for scanning plates in series of 5 scans, we made data reduction, and received two catalogues of star positions and proper motions in ecliptic zone and