

The background of the entire page is a dark, star-filled space. In the lower right quadrant, there is a prominent nebula with vibrant blue and purple hues. Several bright red laser-like lines streak across the scene from the bottom left towards the top right, creating a sense of dynamic movement and depth.

JENAM 2011

European Week
of Astronomy
and Space Science

Book of abstracts

4-8 JULY 2011
Saint Petersburg, Russia

UkrVO Joint Archive and Scientific Projects

*I. B. Vavilova, L. K. Pakuliak, Yu. I. Protsyuk, V. E. Savanevich,
V. V. Golovnya*

E-mail: *vavilova@nas.gov.ua*

The UkrVO data base consists of about 200,000 astronegatives and about 50,000 CCD-frames containing the unique astroinformation obtained from 1898 year at 8 observatories and allowing to formulate important scientific tasks.

This paper deals with 4 main UkrVO scientific projects, which are currently under development. They are: creation of the Joint Digitized Archive (JDA); compilation of new stellar catalogues; search for the new Solar System small bodies; search for the new variable stars and optical GRB's counterparts.

The UkrVO core is developing on the basis of JDA astronegative's collection in order to open access to these data with scientific aims (currently it includes about 7,000 digitized images). Two new stellar catalogues compilations with the use of JDA are currently in process. They are the enhancement of the FONAC stellar catalogue up to the fainter stars (MAO NASU), and the Catalogue of positions and proper motions of 17,000 stars in the ecliptical zone (Nikolaev AO). The unique software for the search of small celestial bodies with the identification on vast stellar catalogues has been developed in Kharkiv (KhNURE). Its pilot version allowed already to discover about 20 minor-planets and Comet/Elenin. JDA is also applying for the study of stellar fields around GRBs (MAO NASU and Crimean AO). Plates of different collections together with CCD-frames give an opportunity to form the observational time series for variable stars studies (for example, since 2009 the Ukrainian astronomers discovered more than 30 variable stars). Some of these results will be presented.

Multifrequency Study of Radio Sources of the RCR Catalogue with the Virtual Observatory Tools

Olga Zhelenkova, E. K. Majorova, N. S. Soboleva, A. V. Temirova

SAO RAS

E-mail: *zhe@sao.ru*

Mass identification of a list of radio sources with the sky surveys of different ranges of the electromagnetic spectrum has undoubted interest to astronomers. Identification of the radio sources is not a straightforward procedure because of the different angular resolution, sensitivity limit, coordinate precision of the radio catalogues, as well as due to the morphological structure of radio sources themselves. We have developed an approach to bulk identification of the RC catalogue obtained with the largest Russian radiotelescope RATAN-600, using web services that provide access, visualization and analysis of data from optical, infrared and radio surveys, which are the resources of a virtual observatory. About 25% of the RC catalogue radio sources were not confirmed in the radio survey NVSS, so to refine the coordinates and flux densities were re-processed of "Cold" surveys for 1980-1999 and got a catalogue of radio sources RC Refined (RCR). By means of an interactive sky atlas Aladin (Perl API for the command interface and macrocontroller) and pysao (Python-interface to SAOImage DS9) implemented workflow on a radio source list for data preparation and result visualization. The RCR radio sources were identified with five sky radio survey VLSS, TXS, NVSS, FIRST, GB6 (74, 365, 1440 and 4850 MHz), two optical surveys DSS2 and SDSS (bands u, g, r, i, z) and infrared survey LAS UKIDSS (band J, H, K). Since it is assumed further analysis of multi-frequency data, special attention is paid to the compilation of diverse information into one resource namely a search information system ObjectRadioSky. We developed a database schema that takes into account the addition of new catalogues, the integration of their parameters with UCDs and relations between objects of the catalogues. We implemented a web-based interface to display all available information about the selected radio source. This work was supported by RFBR grants N09-07-00320 and N10-07-00412.

Galactic science with the Virtual Observatory

Ivan Zolotukhin

Observatoire de Paris / Sternberg Astronomical Institute

E-mail: *iz@sai.msu.ru*

In this talk I outline several original research use-cases of the Virtual Observatory (VO) that have recently resulted in scientific publications in major peer-reviewed astronomical journals. These independent studie