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ENLARGEMENT OF COLLABORATION IN GROUND-BASED ASTRONOMICAL RESEARCH IN SEE COUNTRIES. STUDIES OF THE NEAR-EARTH AND SMALL BODIES OF THE SOLAR SYSTEM

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ABSTRACT BOOK

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astronomical catalogues or databases, and interactively access related data and information from many databases and archives for all known sources in the field of search [1].

The third scheme provides a possibility for a client side application to get access to Virtual Observatory (VO) services. The web services are published by using the Web Services Description Language (WSDL) in the GLUE registry of VO. For example, the AstroGrid Workbench (http://software.astrogrid.org/userdocs/workbench.html) comprises a set of user tools such as a Datasource explorer (AstroScope), a Workflow builder, a VOStore explorer, a Query and Process manager (VO Lookout), a Registry querying tool. It is also possible to launch independent applications such as Aladin and TopCat using AstroGrid module menu.

Database of observations of the RI NAO is given as an example of realization for the first layout scheme on the observatory web site. Database of catalogues of the RI NAO is shown as an example of realization for the first layout scheme on the local server.

1. *Bonnarel F., Fernique P. et al.:* April (I) 2000, Astron. Astrophys., Suppl. Ser., 143, 33–40.

ASTRONOMICAL DATABASES OF NIKOLAEV OBSERVATORY

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Several astronomical databases were created during last years. They are available on NAO web-site http://www.mao.nikolaev.ua. The databases allow users to search information about observations by using five different graphical interfaces. Now these databases contain the information about CCD observations obtained in 2000-2005 and photographic observations obtained in 1929-1931 and 1961-1999. The glass library of NAO contains more than 8000 of photographic plates. Data about CCD observations obtained in 1996-1998 will be added to the database at the end of 2006. The databases are built by using MySQL search engine and PHP scripts.

Data about ionosphere sounding have been recorded since 2002. The graphical data is updated every 5 minutes and available for online search.

A catalogue of artificial satellites is also available on our website. Observations of artificial satellites have been carried out since 2004. Database of astrometrical catalogues obtained in NAO is available for users of local area network and will be presented on our web site at the end of 2006. The database of catalogues can be connected to interactive client side application such as Aladin allowing the user to visualize data in the field of search. The catalogues can also be visualised in the VOTable or ASCII formats by using such application as TopCat, which allows the user to carry out wide range of data processing. We hope that in the near future our databases will be integrated to the registries of the International Virtual Observatory.

METHOD OF MAGNITUDE EQUATION CORRECTION BASED ON MEASUREMENTS OF ASYMMETRY OF STAR IMAGE PROFILES

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As it is well known [1,2,3], the non-linear response of the detector in combination with the asymmetric point spread function (PSF), can introduce a magnitude-dependent shift in star positions recorded on two-dimensional detectors (magnitude equation).

Asymmetric PSF profiles can arise from several causes, the most usual being imperfect guiding and/or optical misalignments of telescope optics. The non-linearity of photographic response makes the recorded PSF profile to be different for objects of different brightness. When this PSF is sliced at different density thresholds, the photocenters of the different cut profiles, in general, do not coincide [4]. Using this fact, we try to estimate the asymmetry of PSF by measuring the asymmetry of star profiles of different magnitudes, and provide the direct without using of reference catalogue means of correcting each individual plate for the magnitude equation effects.

We tested this method for the magnitude equation correction on scanned images of POSS-1 and POSS-2 sky surveys.