MINISTRY FOR EDUCATION & SCIENCE OF UKRAINE
UKRAINIAN ASTRONOMICAL ASSOCIATION
RESEARCH INSTITUTE “NIKOLAEV ASTRONOMICAL OBSERVATORY”

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

International conference

ABSTRACT BOOK

September 25–28, 2006,
Nikolaev, Ukraine

up to 10 arcsec accuracy and guiding with up to 0.1 arcsec accuracy. The system provides horizon-to-zenith flip-over time of the telescope within 5 sec. High-quality optics, steady mounting with precision drives, effective light-sensitive CMOS matrix along with software image processing will enable astronomical observations of high level while access to the telescope via the Internet will allow performing observations for world wide scientific community and round-the-clock starry sky monitoring. The telescope is much similar to that described in [1].

1. *M.W. Richmond, R.R. Treffers, A.V. Fillipenko.* 1993, Publications of the Astronomical Society of the Pacific. 105, p. 1164–1174.

VISUALIZATION TOOLS FOR ASTRONOMICAL DATABASES

A. Mazhaev

RI Nikolaev Astronomical Observatory, Ukraine (mazhaev@mao.nikolaev.ua)

Astronomical databases should be considered as the foundation for a virtual observatory. There are three main layout schemes, which show in details the process of interactive communication between users and databases.

The first scheme provides a possibility for search of information via a common graphic interface (CGI) on a web page. Firstly, a user sends a CGI request to a server. Secondly, a server side script translates the CGI request into the structured query language (SQL) and transfers corresponding request to a database engine. Finally, the user obtains the search results as a document in the HTML format. In most cases, the user obtains a text message or a data table. There are plenty of examples of such scheme that could be found on the Internet.

The second scheme provides a possibility not only for search of information but also for data processing by using a client side application. The users are able to make requests to many servers, using the same interface. It is possible to obtain any data by using the Simple Object Access Protocol (SOAP) in combination with the eXtensible Markup Language (XML) and to carry out data processing by using both client and server computers. For example, Aladin is the interactive client side application allowing the user to visualize digitized astronomical images, superimpose entries from

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

A. Mazhaev, Yu. Protsyuk, G. Pinigin

Nikolaev Astronomical Observatory, Ukraine (mazhaev@mao.nikolaev.ua, yuri@mao.nikolaev.ua, pinigin@mao.nikolaev.ua)

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.