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ABSTRACT BOOK

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NIKOLAEV OBSERVATORY AS A HISTORICAL, ASTRONOMICAL AND ARCHITECTURAL MONUMENT OF THE ASTRONOMY AND WORLD HERITAGE

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Nikolaev Astronomical Observatory (NAO) is a monument of historical, astronomical, and architectural heritage of the Northern Black Seashore. NAO is the oldest naval observatory in the Easten Europe. NAO is the oldest one among functional observatories of the CIS, which has preserved its initial make-up and basic profile of astronomical research. NAO was founded as the naval observatory by admiral A. Greigin in 1821. The main object of world heritage is the main building of the observatory, which was built in 1821-29 taking into account astronomical requirements. The unique ancient astronomical instruments, such as, the meridian circle and portable vertical circle, made by Repsold firm, were preserved in NAO. The observatory has a collection of astronomical clocks made in the 18th-19th centuries and collection of astronomical books published in the 17th-19th centuries.

DEVELOPMENT OF THE DIGITAL DATABASE OF NIKOLAEV ASTRONOMICAL OBSERVATORY

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Development of the digital database of Nikolaev Astronomical observatory (NAO) began in 1995, when the Axial Meridian Circle (AMC) began to make CCD observations. Astrometric catalogues existed at that moment and data of the CCD observations obtained with the AMC were included into the digital database.

The NAO network has considerably grown up and today it includes more than 40 personal computers in four separate buildings. The network is managed by two dedicated servers. Control computers of three telescopes are also connected to the network.

All the obtained data and results of data processing are added to the common databank of NAO [1,2]. The mean daily volume of new astronomical information obtained from the CCD instruments makes from 300MB up to 3GB, depending on the purposes and conditions of observations. The total volume of information was about 140GB in the middle of 2006. The total volume of information obtained from other sources, such as astronomical catalogues makes about 40GB.

The data of CCD observations obtained from the telescopes of NAO and other observatories was processed in automatic and semi-automatic mode for determination of coordinates of observed stars, minor planets and other objects since 1996 [1,2].

All the received data is stored in servers in two copies, namely, working and backup. We made two copies of observational data as archives on DVD. One copy is available for users. The second is stored in a central storage of NAO. All the obtained observations are stored in FITS format since 1998. Also, the databank of NAO includes results of processing of observations as well as the extended information for all star-shaped objects captured on the CCD frames.

We receive the CCD observations from other observatories on CD or DVD. The network is connected to the Internet via the high speed dedicated line since the end of 2004. So, it is possible to allow us fast transmission of observations through Internet.

Test digitizing of photographic plates is continuing in 2006, after some break in 2005. The digitizing was carried out by using scanner EPSON Perfection 3200. The instrumental accuracy is 0".15 in the direction of CCD sensor and 0".30 in the direction of scanning carriage. The results were obtained with 1200DPI resolution in 2004.

Accuracy of single determination of $(O\text{-}C)_{\alpha,\delta}$ was $0''.21\times(m\text{-}7)^{0.23}$ for observed stars.

Digitizing and Optical Character Recognition (OCR) of NAO's catalogues and scientific publications were began. 15 of 31 selected catalogues were digitized and transferred to digital text mode for further including in the database of catalogues.

We continue work in the field of development and further refinement of our program and procedures of CCD observation and digitization.

1. *Yu. Protsyuk, G. Pinigin, A. Shulga.* 2005, Kinematics and Physics of Celestial Bodies. Suppl. Ser., №5, Kyiv, p. 580–584
2. *G. Pinigin, Yu. Protsyuk, A. Shulga.* 2005, Romanian Astronomical Journal, vol. 15, Suppl., 2005, p. 51–56.

ON THE EARLY HISTORY OF THE OLD TARTU OBSERVATORY

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An early history of an old astronomical observatory in Tartu (Dorpat, Derpt) has been the subject of many articles and books by historians of astronomy, notably in the monographs of Levtiski (1899), Zhelnin (1969), Batten (1988), also in the articles of Eelsalu (1999). It is well known that prior to appearance of Wilhelm Struve activities in Tartu Observatory were associated with the names of the Ernst Knorre (1759–1810), Johann Pfaff (1774–1835). The erection of the first building was accomplished under the supervision of the first rector of Tartu University George Friedrich Parrot. In our contribution we attempt to throw the light upon these early days in the general context of the current trends of the epoch in European astronomy on the boundary of 18th and 19th centuries. It was the time when it was fashionable to collect astronomical instruments and the fortunes of astronomers heavily depended on the mercy of nobilities.

We discuss the role of Napoleon wars in disseminating astronomical knowledge in Europe and beyond. The design of the first building and the acquisition of the first astronomical instruments in Tartu are described in some detail.

1. *Желнин Г.А.* 1969, Публикации Тартуской астрофизической обсерватории им. В.Я.Струве, том 37.
2. *Левицкий Г.В.* 1899, Астрономы Юрьевского университета с 1802 по 1894, г. Юрьев.
3. *Batten A. H.* 1988., Resolute and Undertaking Characters: The Lives of Wolhelm and Otto Struve. Reidel Publishing Company. Astrophysics and Space Science Library, vol.139.
4. *Eelsalu H.* 1999, The rise and fall of small astronomical observatories: a case study Dorpat/Tartu Observatory, Journal of Astronomical History and Heritage, 2(2), 111–123.