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## UkrVO Joint Digital Archive: current status and perspectives

UkrVO workshop, June 1, 2013, Kiev

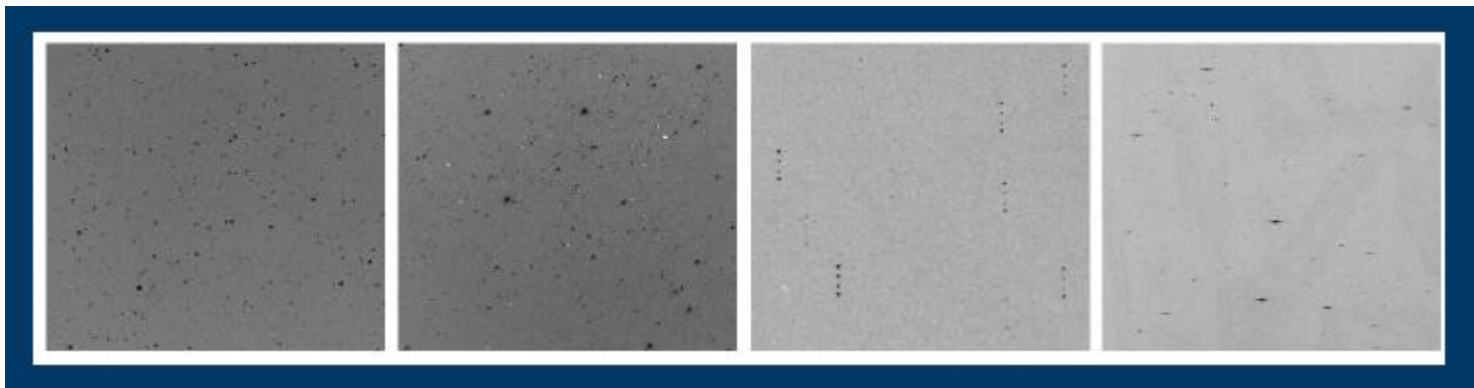
UkrVO Joint Digital Archive currently includes:

- metadata database of 26 th. direct plates and digital images of more than 6000 plates of MAO NASU glass archive (GPA);
- metadata database of 4 th. direct plates and digital images of near 1 th. plates (out of near 4 th. digitized ones) of Lviv AO archive ;
- metadata database of 8.5 th. plates of Nikolaev AO collection (without images, which are accessible on the search pages of NAO website );
- 23 partly filled archives of metadata database of Kiev AO collection and digitized images of individual plates, obtained in aims of current scientific activity;
- metadata database and digital images of 300 plates of Odessa AO collection

The electronic archive of MAO NAS of Ukraine (GPA)

- comprises data of about 26 thousands of direct photographic plates,
- obtained with 14 instruments
- in 9 observational sites
- having plate scales varying from 20 to 412 arcsec per mm
- and exposition duration from ten second up to one and a half an hour
- with number of exposition from 1 to 10
- and the different structure of stars images depending on observational method.

Variations of images structure on the plates of GPA depending of number of expositions and method of observation:



GPA operates under the control of server software and is accessible via web browsers on the search pages of UkrVO JDA.

Since 2008 the process of MAO NASU archive plates digitization and inclusion of plate preview images into GPA database has been under way, using Microtek ScanMaker 9800XL TMA flatbed scanner. Currently the digitization procedure is carried out in two ways:

-higher resolution images of good quality plates for the currently running investigations:

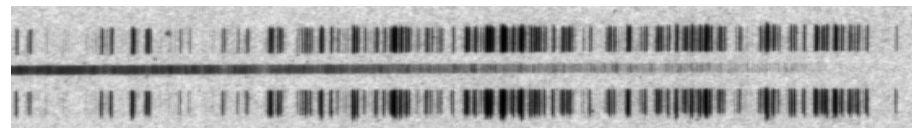
16-bit gray levels, resolution of 1200 dpi, TIFF format. Linear dimensions of the image are of 13 thousands pixels (30x30 cm) for both sides. A volume of the scanned file is near 380 Mb.

Until now about 6 thousand plates were scanned twice, second image is made with turning the plate clockwise by 90 degrees on the bed of the scanner to eliminate wobble effects of scanner mechanics.

Since December 2010 the digitization of GPA archive having been carried out with another flat-bed scanner Epson Expression 10000XL with the little better results.

Interfases of web browsers search pages

First attempts to digitize plates with spectra: spectrogramms with variable stars of R Corona Borealis type in order to provide their archiving and availability of data exchange as well as to achieve a simplicity of their analysis.



## The collection of Lviv university observatory

A great amount of significant information about astronomical observations is stored in the photographic plate archive of Astronomical observatory of Ivan Franko National University of Lviv (AO LNU). Digital archive of AOLNU consists of direct images taken in time period 1939-1976 (a few plates are attributed since 1936). This Archive contains about 8 thousands photographic plates, among them there are more than 6 thousands of direct northern sky area plates (mostly of wide-field). Observational programs concerned the search and study of variable stars by means of multicolor photometry, photographic photometry of circumpolar stars, novae stars, selected areas, occultations of stars by the Moon, Solar System bodies, lunar eclipses. This almost 40 year coverage is a unique resource for studying of given objects. Instruments used: the camera with Zeiss lens triplet ( $D/F = 100/500$  mm), Mertz refractor, astrocamera ( $D/F = 140/700$  mm) and the Zeiss refractor ( $D/F = 130/2400$  mm). Part of the collection had never been processed at all or processed only partially. Plates with emulsions of 15 sorts were used.

Metadata of 4100 plates of AOLNU collection have been included into JDA; At the moment 3120 plates are digitized: among them there are 497 plates of historic interest as they were obtained in the first half of 20<sup>th</sup> century. Historic plates are presented not only on the general search web pages of the JDA, but also gathered into the separate exposure on the UkrVO site.

No	UID	GUA ID	RA	DEC	Date	Exp	Emulsion	color	object	avail	images
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2	34665	LAO010 001068	18 28 0	+ 7 30 0	401020	30	Nikfi	Pg	Field 83A	-	
3	34666	LAO010 001069	18 40 0	+ 7 30 0	401020	30	Nikfi	Pg	Field 83A	-	
4	34667	LAO010 001095	6 24 0	+ 7 30 0	401202	30	Nikfi	Pg	Field 71A	-	
5	34668	LAO010 001096	6 40 0	+ 7 30 0	401202	30	Nikfi	Pg	Field 71B	-	
6	34669	LAO010 001097	6 24 0	+ 7 30 0	401202	30	Nikfi	Pg	Field 71A	-	
7	34670	LAO010 001098	6 40 0	+ 7 30 0	401202	30	Nikfi	Pg	Field 71B	-	
8	34671	LAO010 001099	6 24 0	+ 7 30 0	410127	30	Nikfi	Pg	Field 71A	-	
9	34672	LAO010 001100	6 40 0	+ 7 30 0	410127	30	Nikfi	Pg	Field 71B	-	
10	34673	LAO010 001101	6 28 0	+ 7 30 0	410128	30	Nikfi	Pg	Field 71A	-	
11	34674	LAO010 001102	6 40 0	+ 7 30 0	410128	30	Nikfi	Pg	Field 71B	-	
12	34675	LAO010 001113	6 28 0	+ 7 30 0	410217	30	Nikfi	Pg	Field 71A	-	
13	34676	LAO010 001114	6 28 0	+ 7 30 0	410220	30	Nikfi	Pg	Field 71A	-	
14	34677	LAO010 001115	6 40 0	+ 7 30 0	410220	30	Nikfi	Pg	Field 71A	-	
15	34678	LAO010 001118	6 28 0	+ 7 30 0	410223	30	Nikfi	Pg	Field 71A	-	
16	34679	LAO010 001119	6 40 0	+ 7 30 0	410220	30	Nikfi	Pg	Field 71A	-	
17	34680	LAO010 001122	6 28 0	+ 7 30 0	410302	30	Nikfi	Pg	Field 71A	-	
18	34681	LAO010 001127	6 40 0	+ 7 30 0	410303	30	Nikfi	Pg	Field 71A	-	
19	34682	LAO010 001128	15 68 0	+ 31 0 0	410304	1.5	Nikfi	Pg	Field 71A	-	

← AOLNU archive general interface

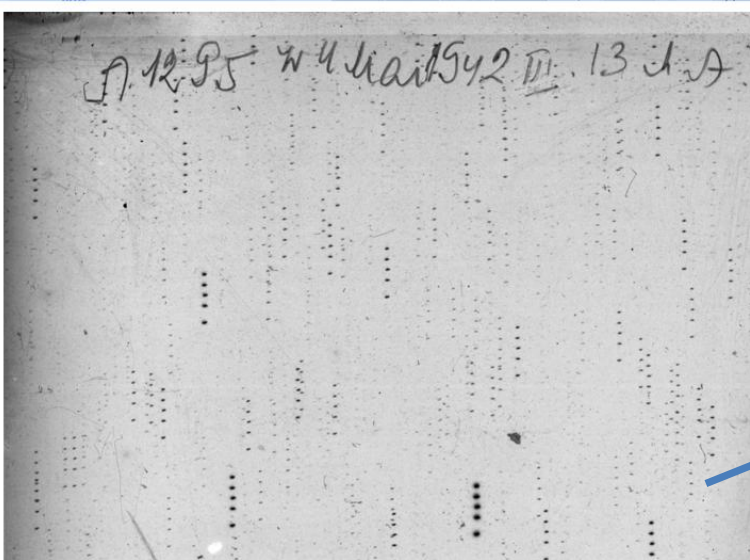
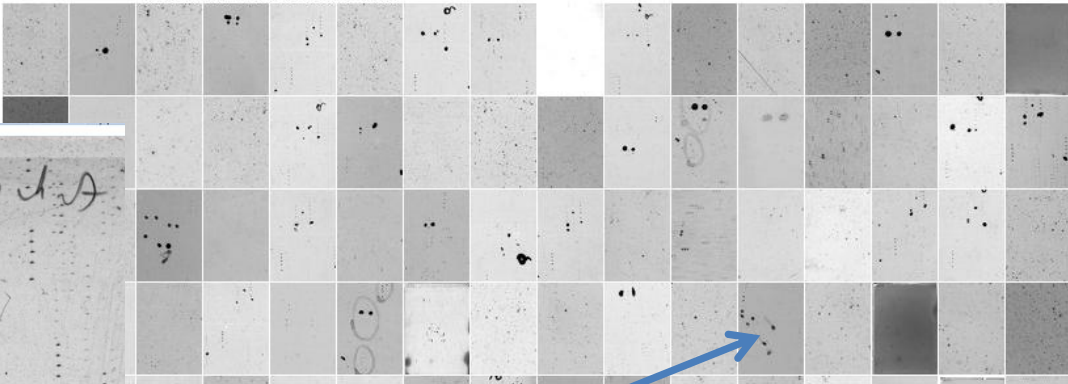
# UKRAINIAN VIRTUAL OBSERVATORY

HOME CONCEPTION CONSORTIUM RESOURCES VO LINKS

AO LNU HISTORICAL ARCHIVE

VIEW AS: [table with metadata](#) [thumbs and scan info](#) [gallery](#)

## AO LNU ARCHIVE PLATES GALLERY



→ AOLNU archive historic images gallery

## The glass collection of Odessa national university (AOONU)

The archive contains about 100 thousand records:

- since 1909 -20 thousand of old plates (“old collection”), including the collection of Simeiz (Crimea) observatory ,
- since 1957-more than 80 thous. plates obtained in Odessa on the Mayaki observation station.

Greater part of the collection consists of direct photos in photographic light.

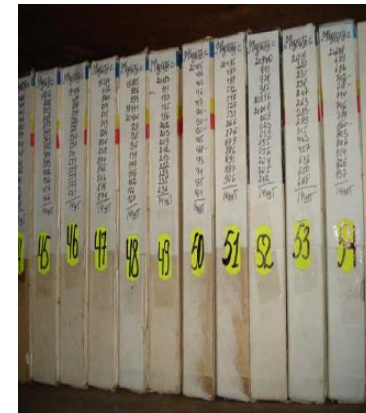
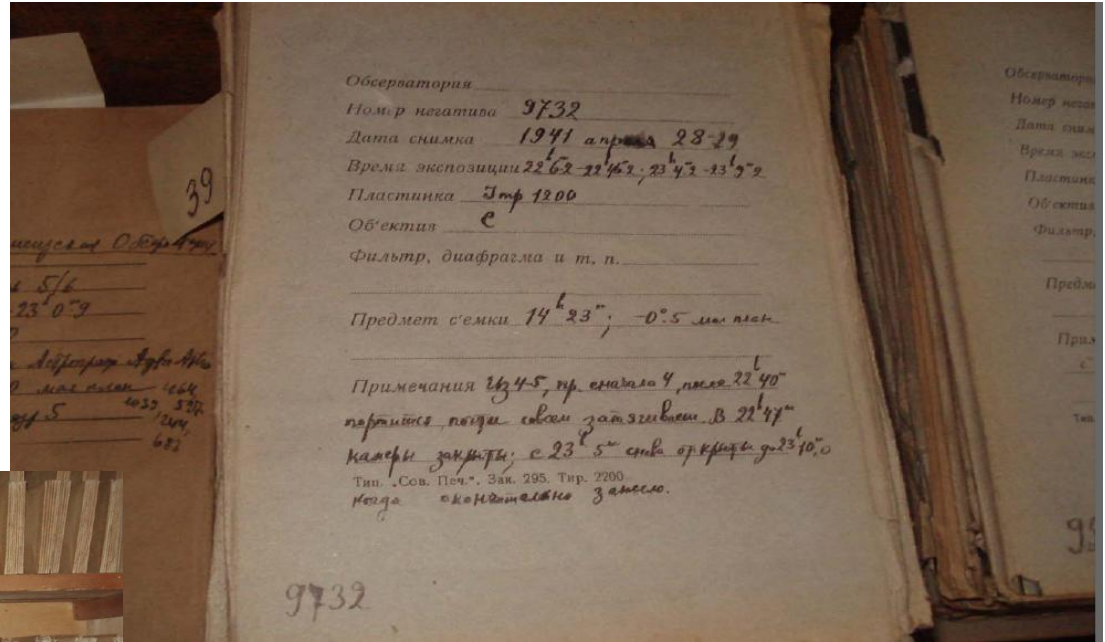
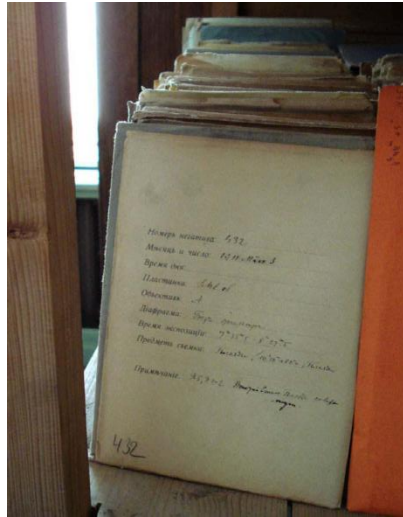
The instruments of the “old collection” were the long focus photographic camera – “large astrograph” – on the Cooke refractor with the aperture 165 mm; it was replaced with “small astrograph” equipped with 2 cameras and than three short-focus camera astrograph .

Observations were conducted using plates with "Ilford", "Agfa Astro", "Izoorto“ emulsions sizes 13 × 18, 18 × 18 and 18 × 24 cm with yellow, red filters or without filter. The registered stellar magnitude was 13.5. The exposure time was 0.5 to 3 hours.

The instrument of Mayaki collection is 7-camera astrograph for patrol observations of sky in order to register stars variability



Simeiz collection of minor planets observations consists of 10 thous. plates having been exposed in 1909-1953.




The catalogue of collection available at : [www.astro.od.ua](http://www.astro.od.ua)





































300 plates of AONU were digitized with MAO NASU Epson Expression 10000XL and added to the JDA on the MAO computer resources with the access to images through the general search interface on the pages of UkrVO JDA.

**DATABASE of JOINT PLATE ARCHIVE (DBGPA V2.0)**

PREFERENCES SEARCH PLATES: FIELD OVERLAP OBJECTS BY IDs OR NUMBERS GUIDES SPECIALS V1.0 

Pages: [1](#) | [2](#) | [3](#) |

Locate plate Log No

No	UID	GUA ID	RA	DEC	Date	Exp	Emulsion	color	object	avail	images
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2	39069	CRI012A010757	7 40 0	+ 14 0 0	520217	45	KodakU103aE	Pg		-	 
3	39071	CRI012A010759	9 25 0	+ 17 0 0	520221	45	KodakU103aE	Pg		-	 
4	39073	CRI012A010761	11 40 0	+ 7 0 0	520222	45	KodakU103aE	Pg		-	 
5	39075	CRI012A010763	10 10 0	+ 22 0 0	520227	45	KodakU103aE	Pg		-	 
6	39077	CRI012A010765	11 30 0	+ 10 0 0	520227	45	KodakU103aE	Pg		-	 
7	39079	CRI012A010767	10 40 0	+ 15 0 0	520229	45	KodakU103aE	Pg		-	 
8	39081	CRI012A010769	10 8 0	+ 9 0 0	520324	45	KodakU103aE	Pg		-	 
9	39083	CRI012A010771	10 26 0	+ 17 0 0	520324	45	KodakU103aE	Pg		-	 
10	39085	CRI012A010773	14 5 0	0 0 0	520324	45	KodakU103aE	Pg		-	 
11	39087	CRI012A010775	11 50 0	+ 17 0 0	520415	45	KodakU103aE	Pg		-	 
12	39089	CRI012A010777	12 40 0	+ 8 0 0	520415	45	KodakU103aE	Pg		-	 
13	39091	CRI012A010779	12 32 0	- 17 0 0	520416	45	KodakU103aE	Pg		-	 
14	39093	CRI012A010781	13 45 0	- 10 0 0	520416	45	KodakU103aE	Pg		-	 
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17	39099	CRI012A010787	14 58 0	- 19 0 0	520417	45	KodakU103aE	Pg		-	 

## COMMON PROBLEMS OF ARCHIVAL WORKS:

- from one side: lack of scanning and computer facilities in most of small observatories as well as staff enough to manage the great collections...
- improper storage places that creates the risk of fatal collection damage before it being totally digitized...
- necessity of essential financial input without explicit response....
  
- from the other side: low rate of digitizing with flat bed scanners: the process for years....
- absence of distinctive scientific tasks with immediate scientific output....
- as a result – decreasing of interest (that means – funds) in such projects....