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Catalogue of Wide-Field Plate Archives: Version 5.0

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Abstract

The updated version 5.0 (March 1st, 2005) of the Catalogue of Wide-Field Plate Archives (*http://www.skyarchive.org*) is presented. This version includes additionally the original name of the telescopes used for observations, which enables the plate search in the observatories. The Catalogue includes information for 414 archives made in the astronomical observatories worldwide in the period 1879–2002. The distributions of 2 192 425 wide-field plates by different parameters as used telescopes (type, aperture, focal length, scale), period of observations, number of direct or spectral observations, archive type (table or computer-readable form), as well as inclusion in the WFPDB and location of the archives, are given.

1 Introduction

The first list of 36 observatories which announced that they possess astronomical plate archives was created by Hauck [1, 2]. No difference was made between wide-field direct plates and spectroscopic ones. Among these archives only 6 were in computer-readable form. In 1989 as a result of the work of Jaschek [3, 4], 68 observatories declared that they have plate archives and 20 of these archives are in complete or not fully complete computer-readable form. Again no difference between wide-field and narrow-field plates was made. In 1991 work on creation of the Wide-Field Plate Database (WFPDB) began in Sofia [5] and in 1992 the first list of wide-field plate archives was published [6]. The list contained information about 174 wide-field plate archives, 15 of them in computer-readable form and 101 in process of preparation in computer-readable form.

Nowadays the WFPDB (*http://www.skyarchive.org*) collects information about wide-field plate archives (Catalogue of Wide-Field Plate Archives – CWFPAs) and the descriptive data for the plates themselves (Catalogue of Wide-Field

Plates – CWFPs). There is an online access to these data through the WFPDB updated version in Sofia Sky Archive Data Center (SSADC). The distribution of all included plates according to everyday updating of the database can be found at *http://www.skyarchive.org/images/wfpdb_new.png*.

Here we present the 5.0 version (March 1st, 2005) of the Catalogue of Wide-Field Plate Archives.

2 The Catalogue of Wide-Field Plate Archives – version 5.0

The CWFPAs version 5.0 contains WFPDB instrument (respectively archive) identifier; Information for inclusion of the archive into the WFPDB; Original name of the telescope; Location of the plate archive; Name of the observatory; Marsden's number of observatory; Time zone; Observatory longitude, latitude, altitude; Clear aperture of the telescope; Diameter of mirror; Focal length; Plate

Table 1. Distribution of archives and plates in the CWFPAs version 5.0 vs. telescope type

Telescope type	Number of archives	Number of Plates	
		Direct	Spectral
Camera	110	447448	13854
Refractor	104	827576	
Schmidt	74	390549	42621
Astrograph	93	346884	3973
Reflector	15	51495	1500
Meniscus	7	43046	2147
Ritchey-Chretien	7	14853	
Fish Eye	2	6064	
Unknown	2	4	15
Total:	414	2128330	64095

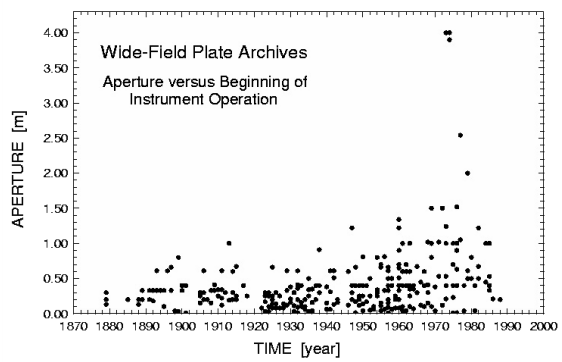

Figure 1. Distributions of aperture of the telescopes versus beginning of instrument operation.

scale; Instrument type; Field; Years of telescope operation; Symbol “F” for “film”, blank for “plate”; Number of direct plates; Form of the archive data (T, C, CT); Number of objective prism plates; Form of the archive data for the objective prism plates; Quality of the plate archive: A — very good, B — good, D — distributed; Astronomer in charge.

2.1 Observatories

The version 5.0 of the CWFPAs comprises the information about the wide-field plate archives produced in 125 observatories worldwide, located at different altitudes from 10 m (Cape of Good Hope Observatory) up to 3610 m (Llano del Hato Observatory). The archives are stored in 97 observatories (or institutes).

2.2 Telescopes

The telescopes in the CWFPAs version 5.0, working in the period 1879–2002, are divided according to the type — astrographs (Ast), cameras (Cam), Fish Eye cameras (FEC), Meniscus (Men), Ritchey-Chretien (RCr), reflectors (Rfl), re-

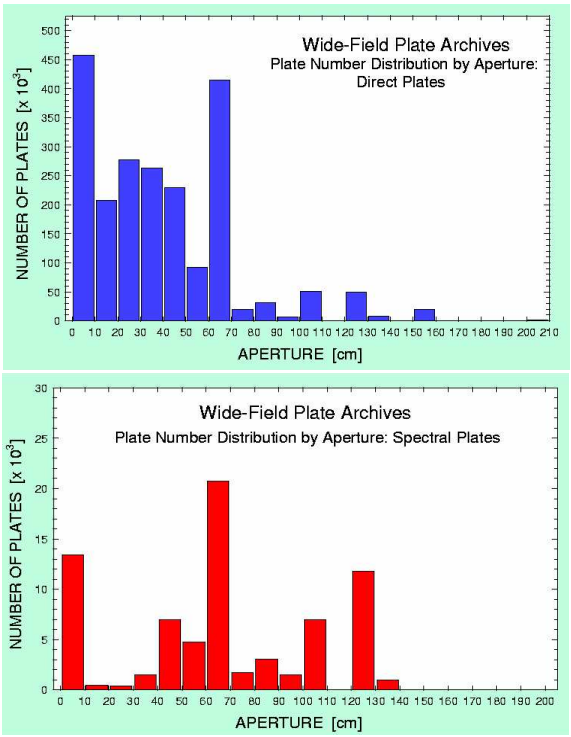

Figure 2. Plate number distributions by aperture of the telescope, given separately for direct and spectral plates.

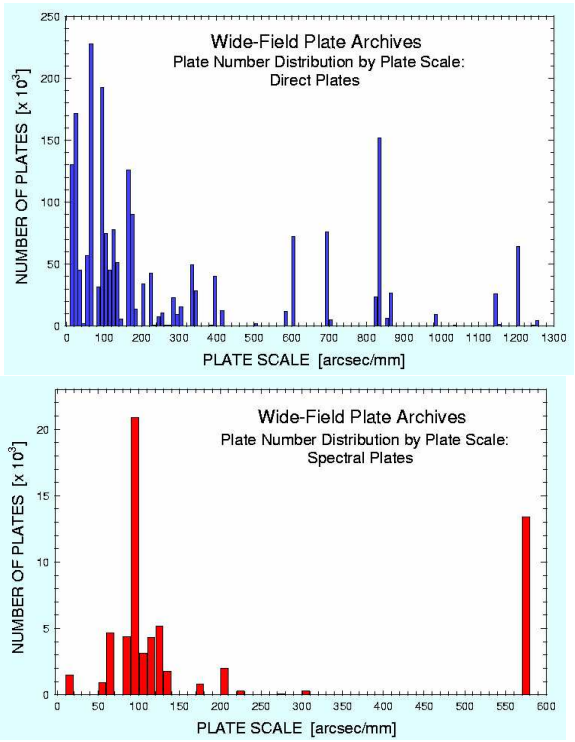

Figure 3. Plate number distributions by plate scale for direct and spectral plates.

fractors (Rfr) and Schmidt (Sch). The distribution of the number of archives and plates (direct and spectral ones) versus the telescope type is present in Table 1. The beginning of operation of the wide-field telescopes is 1879 (for the 0.30 m refractor of the Potsdam Observatory) up to 1973 (for the 0.21 m astrograph of the Hamburg Observatory). The end of observations with plates is 2002 for the 1.22 m Palomar Schmidt telescope.

The telescopes are with aperture size from 0.01 m (e.g. the Meteor Patrol cameras in Harvard Observatory, Fish Eye cameras in Ondrejov Observatory) up to 4.00 m (the Ritchey-Chretien telescopes of the Kitt Peak National Observatory and of the Inter American Observatory).

Figure 1 presents the historical development of the wide-field telescopes working with plates. The distributions of direct and separately of spectral plates by aperture of the telescope are given in Figure 2.

The focal lengths range from 0.03 m (the 0.01 m Fish Eye camera in Ondrejov Observatory) up to 19.5 m (the 2.54 m Ritchey-Chretien telescope of Las Campanas Observatory). More about astrometric telescopes in the WFPDB can be found in [7].

The field size is from 1 degree (restricted least limit) up 180 degrees (the

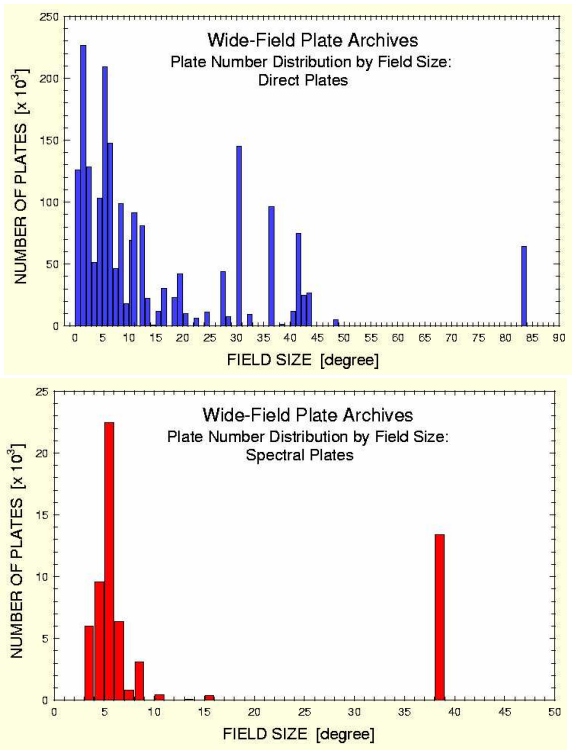

Figure 4. Distributions of direct and spectral plate number by field size.

0.01 m Fish Eye camera of the Ondrejov Observatory). The distributions of number of the direct and spectral plates by field size are given in Figures 3 and 4, respectively. There are three exceptions with field size less than the accepted 1 degree:

- 0.65 m refractor of the Pulkovo Observatory with field size 0.70 deg. produced 18600 plates;
- 0.61 m refractor of the Sproul Observatory with field size 0.80 deg. and 100,000 plates;
- 0.66 m refractor of the Leander McCormick Observatory with field size 0.90 deg. and 7000 plates.

The reason for making these exceptions was that too many plates were received with these telescopes.

The version 5.0 of the CWFPAs includes additionally the original name of the telescopes used for observations, which enables the plate search in the observatories.

The distributions of the number of direct and spectral plates by aperture of the used telescope is present in Figure 4. Not included in the plate number

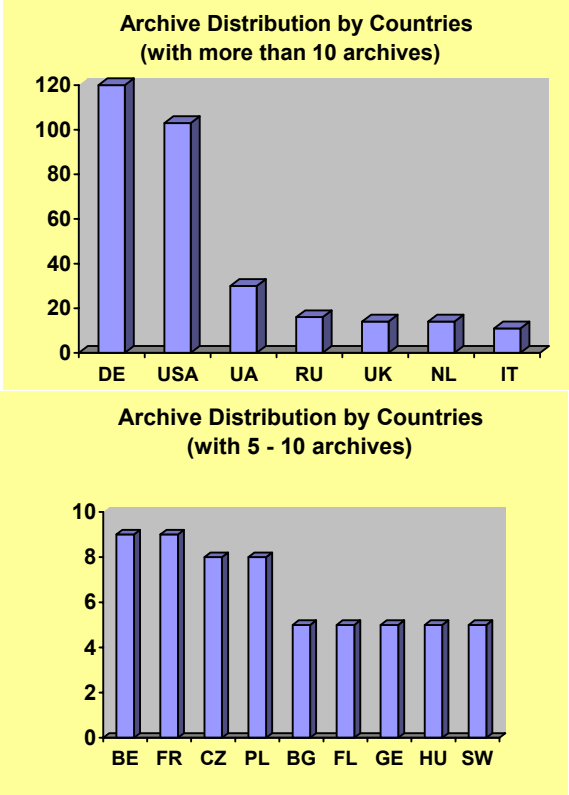

Figure 5. Archive distribution by countries.

distribution by aperture here are 2.54 m Ritchey-Chretien telescope of the Las Campanas Observatory; 3.90 m reflector of the Anglo-Australian Observatory with 2424 plates; 4.00 m Ritchey-Chretien telescope of the Kitt Peak National Observatory with 4144 plates and 4.00 m Ritchey-Chretien telescope of the Inter American Observatory with 4270 plates.

2.3 Archives

The number of archives in this version of the Catalogue of the Wide-Field Plate Archives is 414 containing information about 2,192,425 wide-field plates stored in 97 observatories.

In Germany there are 120 wide-field plate archives stored in 10 observatories mainly in Sonneberg Observatory (50 archives), Bamberg (35), Potsdam (11), Hamburg (10), Bonn (8). In the USA the number of archives is 100, stored in 15 observatories. Only in Harvard Observatory the number of archives stored there is 67. In Ukraine and Russia the number of archives is 30 and 16 respectively.

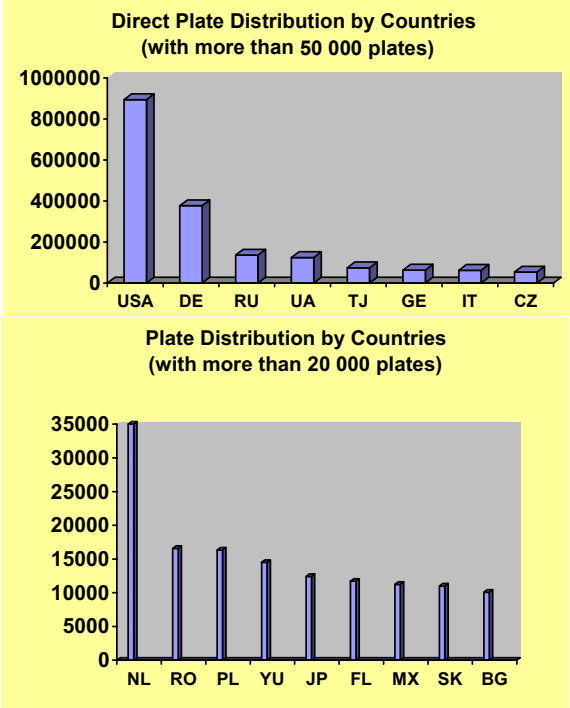

Figure 6. Direct plate number distribution by countries.

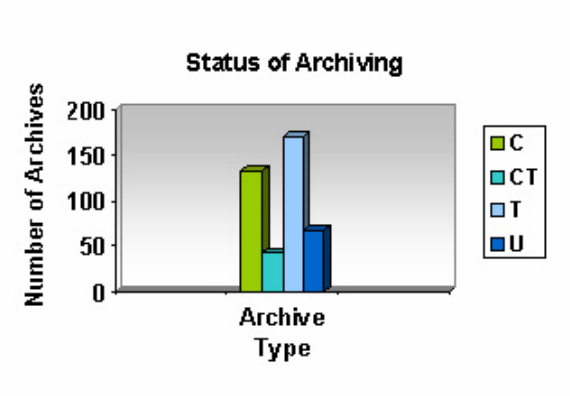

Figure 7. The archive status in 2005.

In Figure 5 the archive distributions by countries with more than 10 archives and respectively with 5 up to 10 archives is present. The distributions of the number of direct plates by countries possessing more than 50,000 plates and countries with more than 20,000 plates is given in Figure 6. In Europe 1,139,253

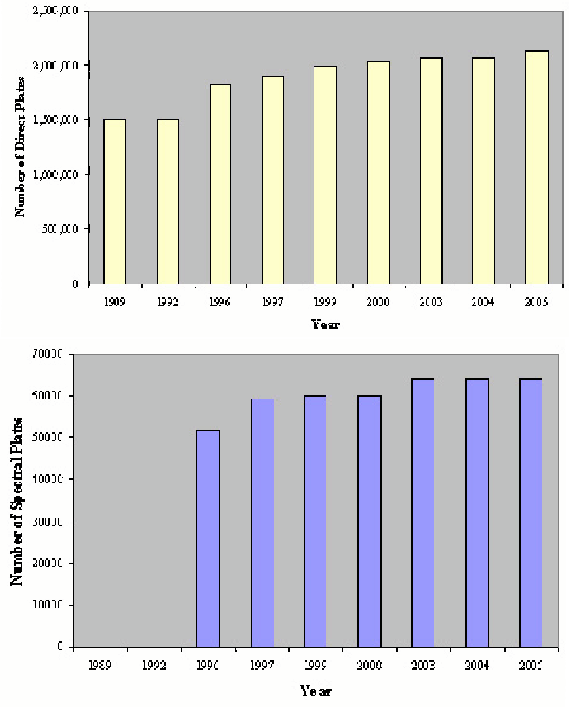

Figure 8. Distribution of the number of plates already included in the WFPDB with years separately for the direct and spectral plates.

(1,093,765 direct and 45,488 spectral) plates are stored. In the USA 851,728 (837,328 direct and 14,400 spectral) plates were received.

Figure 7 presents the status of the archiving in 2005 — the inclusion of 414 archives, from which 134 archives in computer-readable form; 42 — partly in computer-readable and table form; 171 — in table form and for 67 in unknown for us form. The distribution of the number of plates already included in the WFPDB with years (Figure 8) is given separately for the direct and spectral plates, because the great difference in their number.

3 Conclusions

The last version (5.0) since March 1, 2005 of the Catalogue of the Wide-Field Plate Archives is present. The catalogue contains 414 archives with 2 192 425 wide-field plates (2 128 330 direct and 64 095 spectral ones). From these 414 archives 134 archives are in computer-readable form, 42 - partly in computer-readable and table form, 171 - in table form, and for 67 archives there is no available information for the form. In Germany there are 120 wide-field plate archives stored in 10 observatories, mainly in Sonneberg Observatory (50

archives), Bamberg (35), Potsdam (11), Hamburg (10), Bonn (8). In the USA the number of archives is 100, stored in 15 observatories. Only in Harvard Observatory the number of archives stored there is 67. In Ukraine and Russia the number of archives is 30 and 16 respectively.

From 2,192,425 known wide-field plates 1,139,253 (1,093,765 direct and 45,488 spectral) plates are stored in Europe. In the USA there are 851,728 (837,328 direct and 14,400 spectral) plates.

Acknowledgements

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