

BAMBERG SOUTHERN PHOTOGRAPHIC PATROL SURVEY: INCORPORATION IN THE WFPDB

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Abstract. The description, cataloging and incorporation in the Wide-Field Plate Database (WFPDB, <http://www.skyarchive.org>) of the Dr. Remeis-Observatory Bamberg Southern Photographic Patrol Survey (22 000 plates) is presented. The survey was taken with 20 cameras (each with $d = 10$ cm), Zeiss camera ($d = 7$ cm), and the Harvard telescopes – 10" Metcalf and 3" Ross B. The plates stored at present in the observatory stacks were obtained in the period 1963 – 1976 in Boyden Observatory (South Africa), Mount John University Observatory – Lake Tekapo (New Zealand) and San Miguel Observatory (Argentina). The observational programme supported by the Deutsche Forschungsgemeinschaft (DFG) was under the supervision of Prof. Dr. W. Strohmeier – Director of the Bamberg Observatory at that time. For the first time digital CCD preview images of the plates by observational zones are included in the WFPDB and an access to them for the worldwide astronomical community is provided. A special attention is paid to the sub-survey in the LMC region. An opportunity for on site plate digitization with Epson Expression 1640XL flatbed scanner is offered in the observatory since May 2003.

1. INTRODUCTION

In the early 60s German astronomers from Potsdam, Hamburg, Heidelberg, Göttingen, etc. activated their plans to create a southern astronomical observatory (Wolfschmidt, 2002). As a result the ESO (at present the world largest astronomical organization) was founded in 1963 in the framework of the European cooperation. Just in that time the Bamberg astronomers (Strohmeier, 1965) launched a project of monitor- ing the southern sky with 10 cm Kodak multiple astrograph placed at the

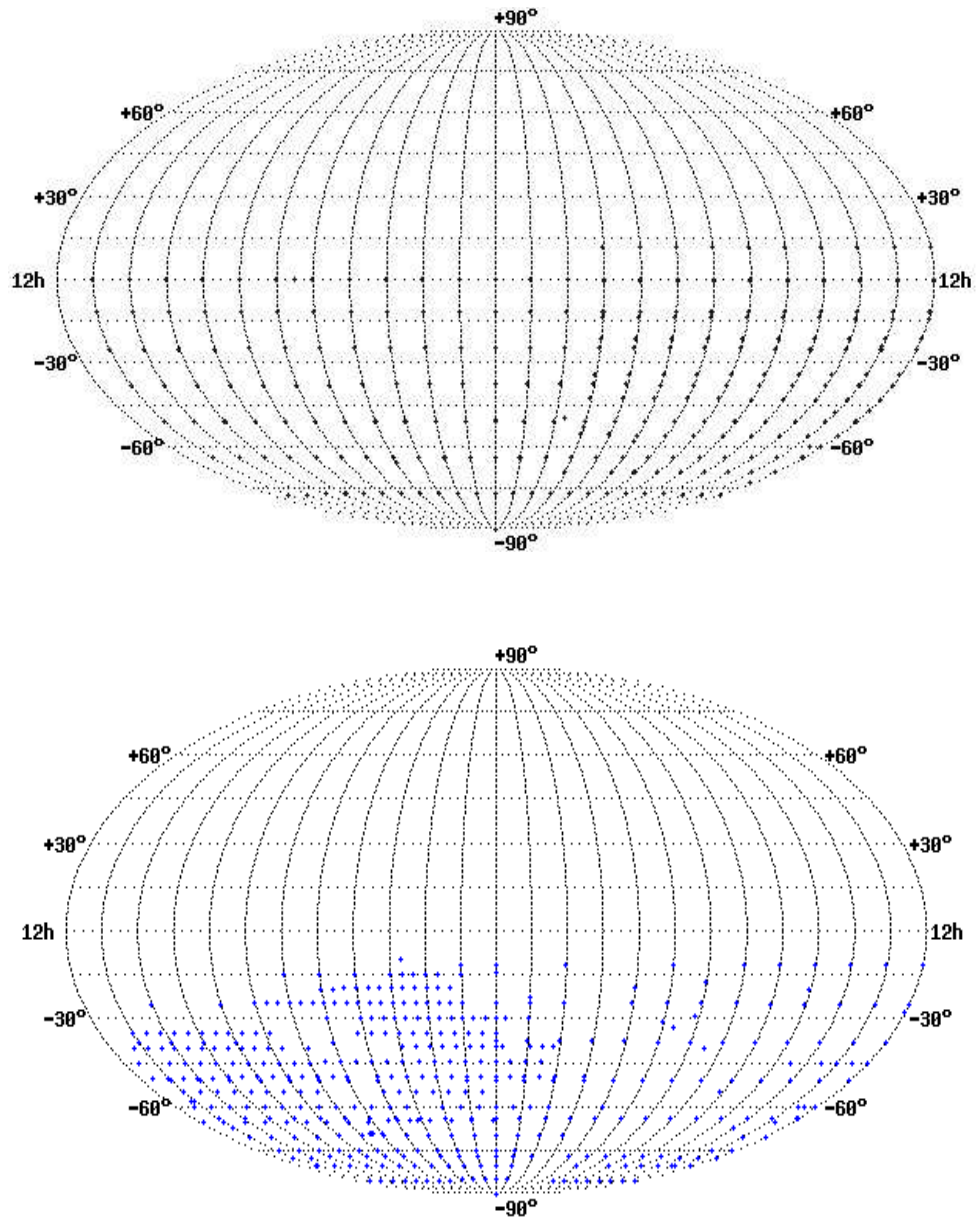


Figure 1: All-sky distribution of the Bamberg Southern Photographic Patrol Survey observations in Molweide projection for BAM010 multiple cameras (upper panel), and HAR025 and HAR008C telescopes (lower panel).

Boyden Station (South Africa). The project chaired by Prof. W. Strohmeier – Director of the Bamberg Observatory at that time, was supported by the Deutsche Forschungsgemeinschaft (DFG) and successfully executed in the period 1963 – 1976. As a result more than 22 000 monitoring plates covering the whole southern sky were received, now well stored in the Bamberg Observatory.

The Bamberg Southern Photographic Patrol Survey (BSPPS) is a unique Southern sky survey as the Harvard sky patrols in South Africa were stopped at that time and other observatories were not still active. That is why for some astronomical tasks the value of this archive now continues to be rather high. Here we present our work on the cataloguing and incorporation into the Wide-Field Plate Database (WFPDB, Tsvetkov 1992, Tsvetkov et al. 1997, <http://www.skyarchive.org>) of the Dr. Remeis-Observatory BSPPS.

2. THE PLATE ARCHIVE

The plates of the Dr. Remeis-Observatory BSPPS were taken in the period 1963 – 1976 with 20 Kodak cameras ($d = 10$ cm, WFPDB identifiers BAM010A, B, C,..., T), the Bamberg 7 cm Zeiss camera (BAM007), and the Harvard telescopes – 10" Metcalf (HAR025), and 3" Ross B (HAR008C). The emulsions used for the survey were Perutz (for the period 1963 – 1964) and AGFA Astro (for the rest of the monitoring period). In 1973 – 1976 some Kodak emulsions were successfully used mainly for the observations in New Zealand. The plate size is usually 16×16 cm, covering respectively field of 13 sq. deg. The plates in Boyden Observatory (South Africa) were received with the cameras BAM010A, B, C,..., J, in Mount John University Observatory –Lake Tekapo (New Zealand) with the cameras BAM010K, L, M, N, and in San Miguel Observatory (Argentina) with the cameras BAM010O, P, Q, R, S, T. The observational programme was executed mainly by R. Knigge and his Bamberg collaborators – E. Shöffel, F.-M. Sosna, U. Köhler, and H. Ott, as well as by S. Shaw and J. Sievers from Florida University and the astronomers technicians Fischer and Meier from Boyden Station. In Mount John University Observatory the programme was executed by I. Paterson and M. Clark. In San Miguel Observatory the observations were done by F.-M. Sosna and A. Alarcon.

All plates at present are stored in the observatory plate stacks in very good conditions.

3. INCORPORATION IN THE WFPDB

The computer-readable version of the BSPPS plate catalogue and the database access to it were prepared by the WFPDB team at the Sofia Sky Archive data Center of the Bulgarian Academy of Sciences in the period 1996 – 2002. For this purpose the log books made mainly by R. Knigge were used. For the rest Southern plate collection the information was taken from the plate envelopes.

The all-sky distribution of the BSPPS plates in Molweide projection is presented in Fig. 1a for the Bamberg astrograph with multiple cameras (BAM010) working in Bloemfontain Boyden Station (South Africa), Mount John University Observatory

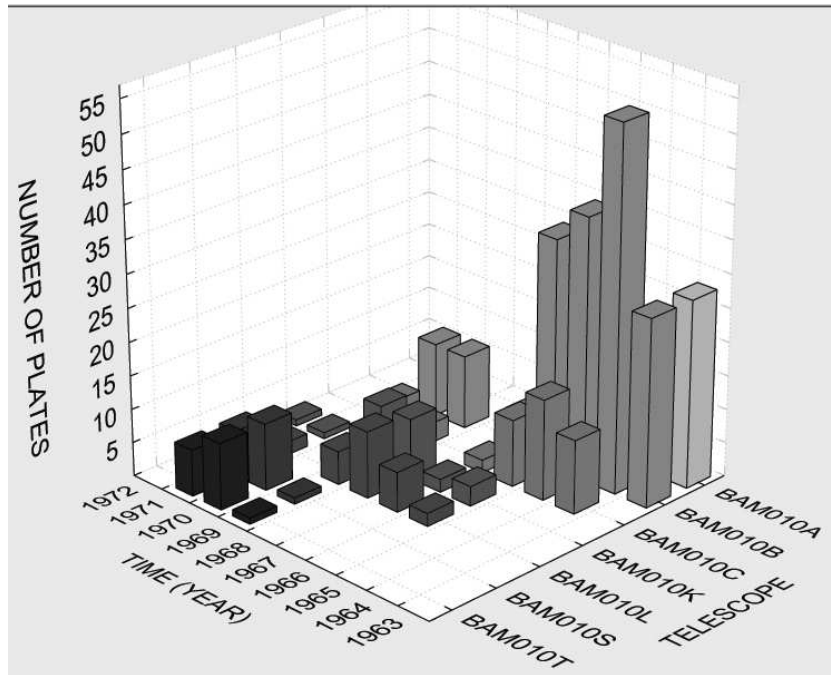


Figure 2: Distribution of the number of LMC plates versus time and instrument.

(New Zealand) and San Miguel Observatory (Argentina), and in Fig. 1b for the Harvard telescopes 10" Metcalf (HAR025) and 8" Ross B (HAR008C) in Boyden Station.

The WFPDB Search page now provides not only information for the BSPPS plates needed but also the previews of the plate images taken with a 2 Megapixel SiPiX CCD camera. This is the beginning of the creation of an archive of digitized preview images of the plates in the WFPDB as an unseparated part of the database itself. Besides this an on-line archive of selected digitized plate images is on the way to be prepared.

4. BAMBERG LMC SURVEY

In the frame of the BSPPS a special attention on the monitoring of the Large Magellanic Cloud (LMC) was paid. The Bamberg LMC sub-survey contains about 300 plates received with the astrograph (BAM010) and the Harvard 10" Metcalf (HAR025) and 8" Ross B (HAR008C) telescopes. The distribution of the BAM010 LMC plates versus time and instrument is presented in Fig. 2. A preview image of the LMC BSPPS plate (NZ194) scanned with the Bamberg Epson Expression 1640XL flatbed scanner is shown in Fig. 3.

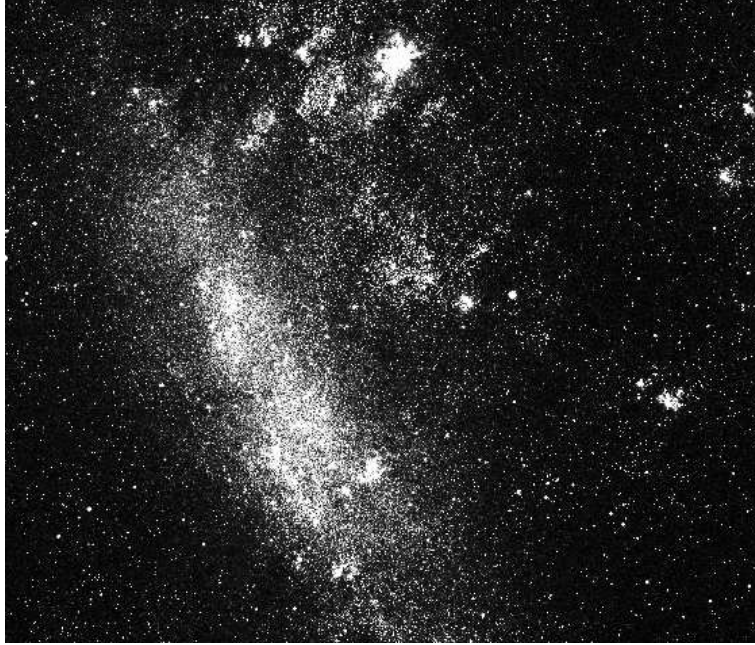


Figure 3: Preview image of the LMC BSPPS plate NZ194.

5. PLATE AVAILABILITY AND DIGITIZATION

The original plates are at disposal in Dr. Remeis-Observatory Bamberg for different astronomical tasks upon request.

The new scanning facility in the Bamberg Observatory Plate Stack provided recently by DFG is a flatbed scanner Epson Expression 1640XL and a powerful PC with DVD writer. It allows to digitize the plates with an optimal resolution of $16\ \mu\text{m}$ with A3 plate size in FITS format. The resolution is good enough for different tasks up to the plate limit, which varies from 11^{m} to 14^{m} (pg).

Acknowledgements

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