

Availability of the Digitized Sky Survey on CD-ROMs

The Space Telescope Science Institute (STScI) has carried out a digitization of Schmidt survey plates covering the entire sky. This was done primarily to obtain the image data needed for construction of the *Guide Star Catalog* (GSC) and to pursue a number of related research programs. Copies of the GSC were made available to the scientific community through the Astronomical Society of the Pacific (ASP).

The digitized versions of the plates are also of great utility in astronomical research, but it has previously been impossible to distribute the scans because of the massive volume of data involved (a total of about 600 Gbytes). However, use of the *H*-transform wavelet compression technique now makes such a distribution feasible. With funding from NASA Headquarters, compression of 1477 digitized plate images began in June 1992. The STScI and the ASP are now pleased to announce the availability of this digitized sky survey on CD-ROMs.

Two versions of the sky-survey data will be produced — one at a compression factor of 10, which is virtually indistinguishable from the original data, and one at a compression factor of about 100 which, while not suitable for some professional research activities, will provide an invaluable tool for the educational and amateur communities. Software to decompress the data, as well as an astrometric calibration data base that supports the generation of accurate coordinates for objects in the images, will be provided with the CD-ROM set. A photometric calibration data base, which will allow photographic densities to be converted to standard magnitudes, will eventually be provided as well (circa 1995).

The southern-hemisphere plates, obtained with the UK Schmidt Telescope while it was operated by the Royal Observatory Edinburgh with funding from the UK Science and Engineering Research Council, are primarily from the ESO/SERC Southern Sky Atlas and from an advance copy of the SERC Equatorial EJ Sky Atlas (see Table III in Lasker et al. 1990, hereafter Paper I). These are deep IIIa-J exposures obtained through a GG 395 filter, except for the few short V-band exposures used at low galactic latitudes (Paper I). The northern-hemisphere data are digitizations of the E plates from the first National Geographic Society-Palomar Observatory Sky Survey (NGS-POSS), conducted with the Oschin Telescope on Palomar Mountain during the 1950s. The NGS-POSS was funded by a grant from the National Geographic Society to the California Institute of Technology.

The digitizations were made using the STScI scanning microdensitometers, which are described in Paper I. A pixel size of 25 microns (1.7 arc seconds) with a 50 micron apodized aperture was used throughout. The scan configuration for the northern plates is essentially identical to that used for the southern plates, except that somewhat slower scan speeds were used. Both the SERC J and NGS-POSS E images have undergone extensive quality assurance checks, including the correction of scanning-related artifacts such as chopping and shearing.

A series of tests conducted at STScI (White, Postman & Lattanzi 1992) indicate that identical photometric measurements made on uncompressed digitized sky survey images and images which have been compressed by a factor of 10 agree to within 0.03 mag down to $J = 19.5$ mag and to within 0.10 mag to $J = 21.5$. An analysis of astrometric residuals between objects on uncompressed and 10x compressed images shows that relative positions agree to within 0.02 arc seconds for bright objects ($J < 16$) and to within 0.46 arc seconds for fainter objects ($J < 19$). These photometric and astrometric residuals are less than the intrinsic errors of the original data.

The cost of the entire 101 CD (10x compressed) set will be \$2,900 if ordered prior to February 15, 1994. After February 15th the price will be \$3,500. (There will be a small additional charge for airmail shipments to non-US addresses.) Manufacture of the first 61 CDs from the southern SERC J survey will occur as soon as sufficient presale payments have been received, with distribution

following immediately. The remaining 40 CDs from the NGS-POSS E survey will be produced and distributed by early 1995. Separate purchase of the north and south sets is not possible. All CDs are formatted according to the ISO 9660 standard. The 100x compressed data will be made available in 1995, when the NGS-POSS E-band data are ready.

ASTRONOMICAL SOCIETY OF THE PACIFIC
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SAN FRANCISCO, CA 94112-1787, U.S.A.

Visa or Mastercard orders will also be accepted by telephone at (415) 337-2624 between 9 am and 3 pm PST, Monday to Friday only. Alternatively, credit card orders may be FAXed to (415) 337-5205; be sure to include expiration data and authorizing signature.

References

- Lasker, B.M. et al., 1990. *Astron. J.*, **99**, 2019. (Paper I).
White, R.L., Postman, M. and Lattanzi, M.G., 1992. In 'Digitised Optical Sky Surveys', eds. H.T. MacGillivray and E.B. Thomson, Kluwer, Dordrecht, p. 167.

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