A WWW DATABASE OF APS POSS IMAGES

C.S. CORNUELLE, G. ALDERING, A. SOUROV,
R.M. HUMPHREYS, J.A. LARSEN AND J. CABANELA
University of Minnesota

1. The Image Database

We have used the Automated Plate Scanner (APS) at the University of Minnesota to digitize glass copies of the blue and red plates of the original Palomar Observatory Sky Survey (POSS I) with $|b| > 20°$. The APS Image Database is a database of all digitized images larger than the photographic noise threshold. It includes all of the matched images in the object catalog, as well as those unmatched images above the noise threshold. The matched image data of the catalog has the advantage of confirming the reality of the image. This is especially important for small images near the plate limit. But these are not all of the detected real images; very blue or very red faint objects may be excluded by this matching requirement. The image database allows information on them to be retrieved, and is therefore a valuable complement to the object catalog. The operation of the APS and the scanning procedures are described in detail in Pennington *et al.* (1993). We are now processing plate data into the image database. A set of query forms, a tutorial and documentation can be found at `http://isis.spa.umn.edu/IDB/homepage.idb.html`.

2. The On-Line Catalog

The APS Catalog of the POSS I contains coordinates, magnitudes, colors, and other computed image parameters for all of the matched images on the blue and red plates. The catalog provides individual information for about one hundred million stars in our galaxy and tens of millions of galaxies down to 20–21st magnitude (in the blue). The stellar and nonstellar images are separated using a neural network image classifier (Odewahn *et al.* 1992, 1993), with a success rate better than 90% to within one magnitude of the plate limit. The catalog of objects is available at

B.J. McLean et al. (eds.), New Horizons from Multi-Wavelength Sky Surveys, 467–468.

`http://isis.spa.umn.edu/aps_catalog.html`. The image database and object catalog are compared in Table 1.

TABLE 1. Comparison of APS Catalog of POSS I and Image Database

Property	Object Catalog[1]	Image Database[2]
Data Source	APS scans of POSS I O and E plates	Same
Data Filtering	Uses O-to-E plate matching to remove noise	images $> 1.7''$ in two colors
Data Returned	Image parameters in flat text table or Postscript finder chart	FITS image files with $0.33''$ pixels
Searchable Fields	Any data field	RA and Declination
Photometry	O and E magnitudes	Under Construction
Astrometry	Tied to Lick NPM	Same
Classification	'Star' or 'Galaxy'	None

[1] *http://isis.spa.umn.edu/IDB/homepage.idb.html*

[2] *http://isis.spa.umn.edu/aps_catalog.html*

3. Future Directions

Scanning in pairs of the Luyten and POSS I E-emulsion plates has begun, with the goal of generating a Proper Motion Database. When completed, this will form the third leg of an internally-consistent set of star and galaxy data produced with the APS and available on-line to the community.

Acknowledgements

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References

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