

STORING SKY SURVEYS AT NOAO

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At NOAO/Tucson the various sky surveys are not kept in or kept by the Library. Instead, the person who is responsible for their acquisition, care, handling and preservation, is someone whose area of expertise is scientific photography and instrumentation, and he has given me the information that follows.

At NOAO we have a very complete set of the sky surveys. In Tucson we have one set of the Palomar survey on print and one on glass, the ESO/SRC southern atlas, red and blue, on glass and film, the SRC infrared atlas on film, the SRC equatorial atlas on glass, the ESO quick blue survey on glass, and original KPNO telescope plates on glass. At the observatory on Kitt Peak there are two sets of the Palomar survey on print. Basically, all of these can be divided by format into three kinds: paper print, film, and glass. I will tell briefly what we do with each.

At the mountain location we have two sets of the Palomar prints: one in the administration building adjacent to the library and one at the 4-meter telescope. The storage system used for these, which is also used at CTIO, was devised by Helmut Abt. A pair of prints, the red and the blue, is inserted back-to-back into a folded transparent plastic protector (14 1/4" x 17 1/4" with the fold on the 14 1/4" side) with a sliding plastic strip (1/8") along the spine on which a label is placed giving the appropriate coordinates. The plastic protectors were custom-made in 5 guage vinyl to fit the prints. These are stored 18 pairs to a drawer in three 20-drawer filing cabinets (Steelcase files, 52" high, 18" wide, and 28" deep with drawers 2" high, 16" wide, and 26" deep inside). In this way, the prints are well protected, clearly marked, and easily accessible. Over the years we have had many requests for information on how these are stored because visiting astronomers have been so impressed. Unfortunately, the last time we ordered the plastic protectors the price had become extremely expensive and the filing cabinets are no longer being manufactured.

The print set downtown is stored in a filing cabinet with three drawers that are 20" wide, 14 1/2" high and 24" deep. The prints are stored in manila folders along with the Ohio overlay grids. The folders are held vertically by welded frames we added which have 13 vertical steel panels per drawer that serve as dividers. The whole unit is bolted to the wall since it is very heavy. The drawers are quite crowded, so these prints are much less accessible and more subject to wear than the sets on the mountain. In the same room, equipment is kept which can be used with the prints and plates. These are: a light table for general viewing, a Polaroid camera to copy prints for finding charts, a 35mm copying camera mount, and a two coordinate Grant measuring engine for high precision measuring. Further down the hall is a PDS microdensitometer which digitizes data off the plates.

Adjacent to this room is the Sky Survey Room, where the film and glass copies are kept. In actual practice, before being stored, our film copies are turned into glass copies because they are mounted between two sheets of glass (single strength, picture quality) - rather like a sandwich - and taped around the edges. This is because the film copies would be very difficult to work with in that format and because the plastic envelopes in which they arrive would not give adequate protection for the high volume of use at NOAO. Also, the original glass plates of the Palomar survey and the ESO/SRC atlases are covered with glass to seal off the emulsion and for protection while handling. Therefore, both the film and the glass copies end up being stored in the same manner. The Sky Survey Room has 4 rows of metal cabinets with either 4, 5, or 6 shelves per cabinet unit, and retractable locking doors. They have 15 dividers on each shelf that are inserted into slots and hold the plates vertically to better support the weight of the glass. The plates are inserted into envelopes which are marked on the outer edge with the coordinate numbers.

While the Sky Survey Room has had several changes made to protect the plates, the storage conditions are not yet as good as they could be due to limited funds. All the seams and ceiling openings have been sealed, fire doors with steel jambs have been installed and sealed with weather stripping, any frame walls have been covered with two layers of fire code sheet rock while the remaining walls are concrete block, and a Haylon fire system has been installed. The light fixtures have special filters over fluorescent tubes to keep the ultraviolet to a minimum. The room does use the building's air conditioning system, although special dampers have been installed that will close off the system in an emergency. Actually, the chance of a fire in the room is quite remote, but these measures should protect the area from damage if something else happens elsewhere in the building - smoke or water damage from a fire or a broken pipe. The cabinets have a baked enamel finish which prevents outgassing of the paint, and no other harmful materials are used for storage. For those who would like more information on this, new standards on the storing of photographic

images are: ANSI-PH 1.45.1981 (Practice for Storage of Processed Photographic Plates) and ANSI-PH 1.53-1986 (Processed Films, Plates and Papers - Filing Enclosures and Containers for Storage).

The prints and plates are available to our staff and visitors and to anyone from outside the Observatory who writes to the Director asking permission to use them. They can be used in the adjacent room for copying finding charts or with the overlay grids or for making measurements as needed. The original KPNO telescope plates are kept under lock, but can be borrowed with special permission from the Director if needed for scientific research. All of the 4-meter and some of the other telescopes' plates are listed in a computer file of which printouts are available in the Tucson and mountain libraries.

Obviously, there are many other ways to store and handle the sky surveys. If time permitted, further points for discussion could include: who should have responsibility for organization, use and care of the sky surveys -- librarians or astronomers; different ways of storing them; restrictions on their use; precautions to keep from damaging them; and the preservation of photographic images. Any of these would bring a number of different opinions since the needs of each observatory, number of users, and funds available differ greatly.