

A New CCD Command Software

For those observers who have used the CCD data acquisition system here at CFHT in the past, you are in for a treat. Starting during the summer of 1988, gone will be the Dialog user interface that served us faithfully since 1982. In its place is a modern, streamlined, windowed "observing environment", data acquisition system.

The Goals

When we started out to redesign the CCD data acquisition software for the new computer systems, the most important goal was to present to the users a very efficient observing environment. The user interface would need to shelter the infrequent observer from a very sophisticated acquisition system and yet permit the power user access to all of its features. It would have to allow any observer to take an exposure with the minimum amount of interaction. If the system didn't satisfy the "10 minute" rule, i.e., the ability of the user to manipulate the basic system in 10 minutes, then we would have failed this most important goal.

We also strove to provide a multi-purpose interface that would allow for a "fill-in-the-forms" mode of command input, keyboard input, or batch mode scripts. The batch mode would allow the data preprocessing computer to acquire and reduce bias, dark, and flat exposures during the day, as well as allow some users to write custom observing sequences, e.g. mosaics.

The data acquisition software would also have to provide easy integration of new adapters/auxiliary equipment, e.g. PUMA, into the architecture. The old system needed to be heavily customized when new equipment showed up.

And finally, the new CCD package would be the prototype after which all the other data acquisition packages would be patterned in order to provide a consistent user interface at CFHT.

The Hardware

The current acquisition hardware consists of a HP-9000 Model 825 minicomputer (a more powerful Model 835 will soon arrive) connected to a Photometrics CC200 controller unit via IEEE-488 interface. The HP-9000 is also connected to a Sun Microsystems 3/180, via ethernet, for data preprocessing. Both systems are discussed with more detail in other articles in this issue.

Some Differences from CCD II

The first big difference you will notice is that an integrated workstation, consisting of a display, mouse, and keyboard, is being used instead of the old HP2648 terminal and the IVAS.

Displayed on the monitor is a X-window based "observing environment". Across the top of the display are grouped the few selections that the user needs to control the session, e.g., the main CCD exposure control, secondary exposure related items, focusing, tape manipulation, and a few other items that can change depending on the auxiliary equipment needed for the run. Any of the items may be picked by

simply putting the mouse cursor on the item and pressing the left mouse button. When activated, a form will appear for the user to act upon. No longer do you have to remember a host of commands and type them in at a keyboard!

Replacing the IVAS is a neat tool called Ximage. Obtained from SAO, this "X" program displays image data in false color. It has the ability to change the color map, zoom and pan around the image, and manipulate cursors. It responds to mouse commands and uses a button-based user interface. Currently, it takes 26 to 30 seconds to display a 680x1024 RCA2 image. We expect that to be even faster by the end of the second semester.

Raster definition will also be greatly simplified. In order to define a raster, the user has only to mouse the area on the displayed image to expose and if desired, select the binning factors.

There is also a very flexible tool for evaluating exposures. Implemented originally for focus exposures, it can do full-width-half-maximum calculations along rows and/or columns, the "Pritchett" mon value, and different background subtractions. The tool also provides the more mundane minimum, maximum, mean, and standard deviation values. Any of these options can be mixed and matched to the observers' content.

Conclusion

Even though, at the time of this writing, we have accomplished the goals we set out to do, the CCD environment will continue to evolve over the summer and into the latter part of the second semester of 1988. We expect to see a faster version of Ximage, a better focusing (maybe automated) scheme, and superior overall system performance. We believe that what we have produced is a simplified user interface to a very sophisticated system that will satisfy the needs of the majority of CCD observers.

J. Kerr

Phase Out of the HP 1000's

Overview

As you probably know by now the HP-1000's are being retired. This retirement is not particularly imminent, nor will it happen all at once, but it does require a lot of planning and foreknowledge on everyone's part. We currently run four HP-1000's: data acquisition, instrument preparation, telescope control, Waimea development. Our basic plan is to make a graceful transition to our new computers with minimal telescope shutdown.

The first part of the project will attack machines that our observers actually use. These are the data acquisition and instrument preparation computers known as DAIC and PICA. Once these machines are taken care of, the telescope control computer known as the TCS will be worked on. And finally the Waimea development machine can be shut down.

DAIC/PICA

For these machines it is our intention to run old machines and new machines in parallel. Not for the same run, of course, but they can back each other up. By keeping both