high demand on the CPU and the network. For some images the variation between exposures is only interesting in a small area. In this case, a *rapid frame* can assist the selection of a specific area, for example around a star. This typically small frame can be updated faster than the rest of the image while the user still sees the complete picture. By using *rapid frames*, an image update frequency of more than 10 Hz is expected to be possible. Detailed performance measurements will be done based on the first release of RTD.

Implementation

The RTD widget is implemented as a Tcl/Tk (Tk 4.0) widget using C++. The RTI library is also implemented in C++ but as an independent library. In order to support fast application development with the RTD widget, a large set of [incr Tcl] widget classes is provided for managing, among other things, a zoom window, a panning window and a line graphics tool-box.

Although Tcl/Tk code is interpreted, the performance of the RTD widget when updating images in real-time is not degraded. This is due to the fact that all image related operations are implemented entirely in C/C++. Only the user interface parts of the software, such as buttons and menus are actually interpreted at run-time.

The image event mechanism uses standard UNIX IPC and image data is passed using shared memory as recommended by the real time extension standard POSIX.4.

The display on X-terminals is supported, although for very fast image display frequencies, workstations are recommended. In addition, on workstations the X11R5 extension for X Shared Memory is supported, giving the final boost for passing the scaled pixmap to the X-Server.

The software has been ported and tested on the following workstation platforms: HP (HP-UX) and Sun (SunOs & Solaris 2.3).

For RTD application development, the VLT Panel Editor can be used to develop control panels using the RTD widget. The VLT Panel Editor supports the interactive placement of GUI components and generates panels that comply with the ESO VLT common conventions for GUI development.

Availability

The RTD software is part of the VLT control software and the first release is available on the July '95 release of the VLT SW. For people interested and not receiving the VLT control software, the RTD user manual is accessible on anonymous ftp via the following WWW reference: ftp://te1.hq.eso.org/vlt/pub/doc/rtd_sum1.0.ps.gz.

For more information on the RTD software please contact: Thomas Herlin – ESO VLT SW group preferably via e-mail: therlin@eso.org.

NTT BITS & PIXELS

(With this periodically compiled collection of short notes, the NTT Team intends to keep the community informed about changes in performance, configuration, and operation of the NTT and its subsystems.)

Big Bang Rescheduled

Because of a possible uncertainty in the manpower available in 1996 for the implementation of the new VLT-like control system, the date when the implementation will start has been shifted from April 1 to July 1, 1996. This means that the operation of the NTT will continue unchanged through June 30. Final adjustments will take place after field tests in December 1995 (Telescope Control System) and February 1996 (EMMI control software) of two critical components. Observers who might get time after June 30 will be informed about the allocation of observing time, if any, after the evaluation of the test results. This change in schedule does not seriously compromise the NTT's ability to provide useful feedback to the VLT project.

Further announcements will be made in *The Messenger* and on the World Wide Web (see below).

The NTT on the World Wide Web

As part of ESO's efforts to make more extensive use of the World Wide Web to inform the scientific community (which was strongly encouraged by the Users Committee), NTT pages are under development. By the time of publication of this issue of *The Messenger*, they should be accessible from the ESO home page (http://http.hq.eso.org/eso-homepage.html). In addition to general information about the NTT and the NTT Upgrade Project, any up-to-date announcements will from now on be made on the Web. The previously maintained electronic bulletin board will be discontinued. The Information Desk of the general ESO pages can also be used for inquiries with the NTT Team (e-mail can as before be sent also directly to ntt@eso.org).

Update of EMMI/SUSI Manual

A major revision is currently under way of the EMMI/SUSI manual. In order to let prospective applicants for observing time with the NTT in Period 57 take advantage of the progress made, intermediate versions will be made available electronically. Details will be provided on WWW (see above).

Automatic Guide Star Selection

The Data Handling and Observation Support Group has installed the HST guide star catalog and a new server on one of the workstations in the NTT building. The performance is for a number of reasons vastly superior to the previous temporary solution which depended on STARCAT in Garching. Guide stars are now on a routine basis automatically supplied for every new preset. First attempts to acquire also the guide star in a fully automatic way with the guide probe have been very successful. Since the light of the guide stars is via a beam splitter also used for parallel image analysis, efforts to adjust the exposure times with the image analyser according to the magnitude of the star are under way.

Graphical Log of Image Analysis Data

With the implementation of the cyclic image analysis in parallel mode, the self-diagnosing capabilities of the NTT can now be much better exploited. In order to enable also Visiting Astronomers to keep track of the performance of the telescope, tools have been developed to plot individual aberrations as measured before and after the setting of the forces versus time. In addition, the level to which aberrations should ideally be corrected is indicated.

This should help to make the results of the image analyses easier to interpret, a wish expressed by several observers. The night assistants start the system at the beginning of every night.

Field Test of Major Component of New Control System

In May, another major field test of the new VLT-like control system was performed. With the many motorised functions of the adapter, it was a major test also of the first release of the VLT motor library. Again, no fundamental problem was found. However, further tests have to be performed on side A (IRSPEC/SUSI) to fulfil all objectives.

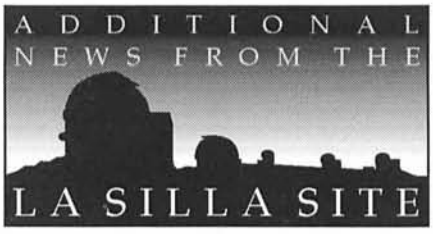
An important logistical result has been that, with the necessary careful preparation, it is feasible that such tests can be performed by on-site staff who have not been directly involved in the writing of the code. A necessary requirement was, of course, the availability of the high-speed link between Garching and La Silla. Due to the time difference between Chile and Germany, the test engineers at La Silla could every morning resume their work with a new version of the software which had been further debugged in Garching on the basis of the previous day's test results.

This is an important and encouraging conclusion for the commissioning and operation of the VLT.

Digital Sky Survey On Line

Thanks to the help of the Observation Support and Data Handling Group, the Digital Sky Survey prepared by the Space Telescope Science Institute is now available on line to remote observers in Garching. The same service will soon be offered to NTT observers at La Silla, too. It should prove to be very useful for the preparation of observations (astrometry, finding charts) as well as for the comparison with observations of a field at an earlier epoch.

The NTT Team
e-mail address: ntt@eso.org



CASPEC Thorium-Argon Atlas in the 3050–3650 Å Region

L. PASQUINI and L. ACHMAD

The CASPEC spectrograph has been in use for more than 10 years at the 3.6-m telescope at La Silla. With the implementation of the Blue Cross-disperser (Pasquini and Gilliotte, 1992) and the advent of new detectors, CASPEC has reached very good capabilities in the blue-UV range, and the demand for its use at these spectral regions has rapidly grown.

Because the existing CASPEC Thorium-Argon Atlas (D'Odorico et al., 1987) extends only to 3600 Å with the 31.6 lines/mm echelle and to 3400 Å with the 52 lines/mm echelle, an extension was required to provide the users with a suitable reference for working in the UV. A new atlas has thus been prepared to fill this gap. The 31.6 lines/mm echelle was used in combination with the Long Camera and the new 1K Tektronix CCD (ESO #37). A new line list is now available, which extends to 3060 Å, and is implemented in the MIDAS package. The present Atlas is intended to serve CASPEC users, and we are confident that it may also be helpful for observers using different instrumentation. Paper copies are available at the La Silla Observatory (Astronomy Secretary) and at the Headquarters in Garching (Section Visiting Astronomers). The Atlas is also available in the WWW ESO/La Silla home page (Documentation/Others section).

References

D'Odorico, S., Ghigo, M., Ponz, D., 1987: 'An Atlas of the Thorium Argon Spectrum for the ESO Echelle Spectrograph in the λλ 3400–9000 Å Region', ESO.

Pasquini, L., Gilliotte, A., 1992: 'CASPEC Improvements' *The Messenger* **71**, 54.

Rotating Half Wave Plate for EFOSC1 Refurbished

H. SCHWARZ and S. GUISARD

The polarimetric mode of EFOSC1 at the 3.6-m telescope has been made more sophisticated by the addition of a rotatable super-achromatic half wave plate (HWP). In addition to imaging polarimetry, it is now possible to do spectropolarimetry of *extended* objects by using a MOS mask with a series of 19″ long slitlets, spaced 21″ apart along a direction perpendicular to the dispersion. For objects larger than 20″, two images have to be taken with a telescope shift of 20″ in between, for smaller objects, one image suffices since the source falls entirely within one slitlet. Two images per telescope position have to be taken with a 22.5° rotation of the HWP for the second image. These images yield two orthogonally polarised signals each, thus providing four signals from which the polarimetric and intensity information can be derived. Since only three are needed, there is even some redundancy. Twice the mean of the sum of all four images gives the intensity of the source. No instrument rotation is necessary now.

The acquisition of objects for both imaging and spectropolarimetry has become faster, because there is no longer the need to re-acquire the objects after rotating the instrument. By using two special masks, mounting the Wollaston polarising prism in the filter wheel, and the necessary filters and grisms in the grism wheel, both imaging and spectropolarimetry can be done with one setup of EFOSC1. Masks have been prepared with coronographic spots, allowing coronographic polarimetry to be done. By letting the HWP rotate continuously, flatfielding is made easier too.

Recently, this super-achromatic half wave plate for EFOSC1 was refurbished by Halle, to remove a 40″ wedge on the faces of the plate, and to improve the optical quality of the surfaces. This wedge produced image motion of about 100 μm on the CCD when rotating the HWP, making data reduction more difficult. The wedge is now less than 2″ and the optical quality about λ/6 over the surface.