

that STScI had previously planned. This implies that ST-ECF has effectively duplicated the hardware and manpower that STScI currently has dedicated to the operation of the plate pipeline.

If the above production rate can be sustained, it means a nominal production time of about one year. To this, a large amount of time for manual re-processing of plates failing the processing step for one reason or another and extra quality control/bug fixes has to be added.

The pipeline software currently runs on DEC Alpha Open VMS systems and is composed of C, C++, FORTRAN and IDL code. Therefore, the ST-ECF has acquired an up-to-date DEC Alpha serv-

er 1200 with 2×500 MHz processors, 1 GB of memory and about 100 GB of disk space. A large amount of cassettes for the data transfer has also been acquired.

Operating the pipeline requires manpower to do operations such as loading the plate tapes into readers, write the output on media but also – and more importantly – perform quality control of the object extraction results. The quality control flags bad/doubtful plates, which are forwarded to the science team in Torino for investigation. For this resource, two full-time employees have joined the ST-ECF archive for two years (Nathalie Fourniol, previously in Strasbourg and Rob-

erto Mignani formerly at the Max-Planck Institut für Extraterrestrische Physik).

4. Conclusion

In being involved in the GSC-II project, the ST-ECF is actively taking part in one of the major astronomy achievements of the decade. In a two-year effort, our contribution will bring a more timely delivery of the (first version) of an all-sky, 2-billion-object catalogue complete to beyond magnitude 18, available just in time for the next millennium.

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HST Archive Services Implemented in Java

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Abstract

In order to facilitate archive data selection and basic data analysis, a number of Java Applets only requiring a common web browser are now complementing the HST Archive [3].

This article discusses various applets which are already part of the archive web interface. These applets display and manipulate FITS images as well as spectra taken with HST. A generic plot utility is also used to present a set of pointing and specialised engineering data, called jitter files [4].

Spectral

This applet is a previewer for HST spectra. It is integrated into the WDB web interface (Fig. 1) and offers various options to inspect spectra with the mouse and by means of hotkeys. The screenshots in this paper show, that a standard web browser like Netscape 3 or Internet Explorer 3 is sufficient to run this applet. Micol et al. (1996) [1] discussed this issue in more detail.

Java Image Preview Application (JIPA)

While Spectral presents plots of spectra, JIPA's task is to visualise FITS images, i.e. HST preview image collection, and to allow basic image manipulation. The input data format is compressed FITS. There are several options for contrast enhancement, zooming and displaying header keywords (Fig. 2). Another feature is the conversion of mouse locations from pixel space to RA and Dec. JIPA is written in pure Java like the other applets presented in this article and therefore platform independent.

JPlot

JPlot was developed to support the WFPC2 Association Project [2]. It's orig-

inal task is quality control of HST observation log files (= jitter files). In the meantime it became an integral part of the web interface. It visualises ASCII tables and

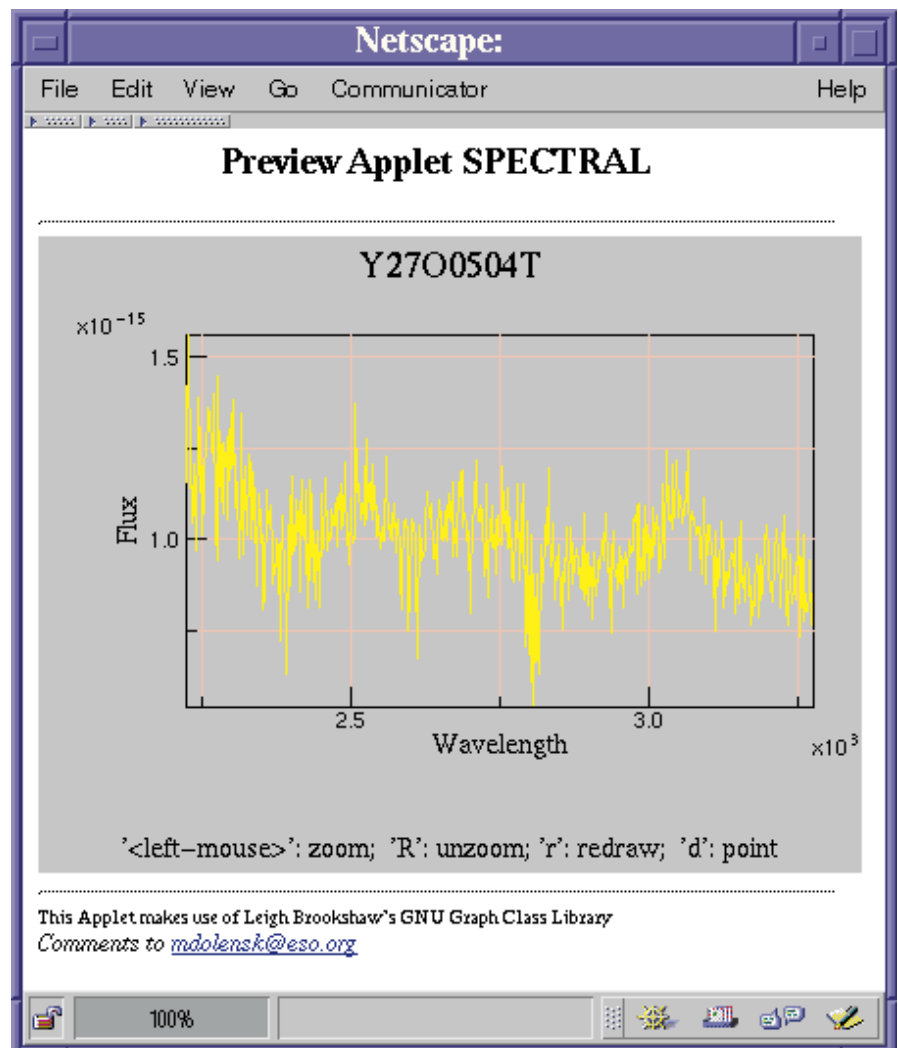


Figure 1.

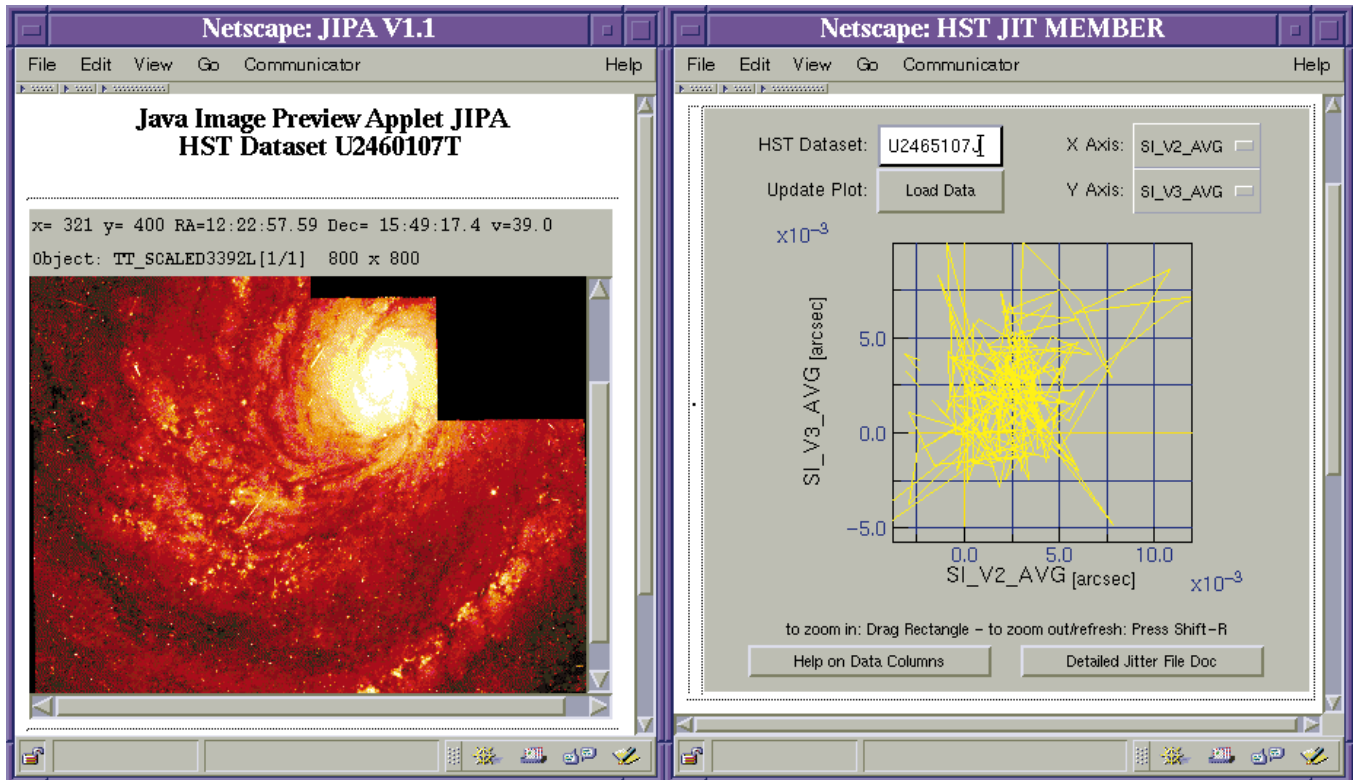


Figure 2.

displays them interactively as X/Y plots (Fig. 2).

The rather complicated back-end of this utility retrieves a FITS table from the archive, extracts the requested columns using IRAF and puts them into a cache area. The cache provides accelerated access when the same information is requested repeatedly by web users within 24 hours.

Outlook

Activities in the near future will include:

- JDBC interface to SQL server (replacing CGI scripts)
- collaboration with STScI in the field of enhanced web interface
- adding advanced features to overcome browser incompatibilities, like automatic updates

Acknowledgements

The initial implementation of JIPA was done by contractor E.C. Downey. A number of features were added later on by ECF staff.

References

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HST Archive News: On the Fly Recalibration (OTF) of NICMOS and STIS Data

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Introduction

HST science data are automatically calibrated when they are received at STScI (Space Telescope Science Institute) and these calibrated data are included in Baltimore's archive. The calibration software, which is contained in the IRAF/STSDAS `hst_calib` package, takes as input the raw data and any necessary calibration reference images or tables if they are already available [2]. The software determines which calibration steps to per-

form by checking the values of the calibration switches in the header. It selects which reference files to use in the calibration by examining the reference file keywords. The values of these switches and keywords depend upon the exact configuration of the instrument, the date of the observation and any other constraints. The values are set in the headers of the raw data in OPUS (OSS-PODPS Unify System).

Until the end of 1995, when users requested calibrated data from the HST

archive, they received the data produced by the OPUS pipeline. However, with instrumental properties changing with time, better approaches for calibration of some instruments have been introduced and there have been other general improvements to the calibration of HST data. So what is a user to do? Fortunately, the same, or improved, software that runs in the calibration pipeline at STScI is also available in the released version of IRAF/STSDAS. One can recalibrate data from the archive by starting with the