End of quarter report for 03Q3

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This document presents workpackage progress by CASU during September 2003 and is a summary of overall progress throughout Q3 2003.

For further details of group activitivies over the past month and for the entire quarter, and for links to the reports delivered during the quarter see:-

http://www.ast.cam.ac.uk/~wfcam/diary.html

For the minutes of all group meetings see:-

http://www.ast.cam.ac.uk/~wfcam/docs/minutes/

Other documentation is available through:-

http://www.ast.cam.ac.uk/~wfcam/documentation.html

Positives

The image simulation work packages, including generation of model data using ARTDATA and Skymaker, and assorted tests on the catalogue generation software, were completed. A detailed report has been posted on the web pages. The main conclusion is that the limiting magnitudes attained are very close to those used in designing the UKIDSS survey.

Development of the difference imaging software including intercomparison tests with existing software have proceeded well. Quantitative statistics for assessing the quality of the generated difference images have been developed and a report on all this is available on the web pages.

A preliminary report on the effects of interleaving/interpolation on astrometric and photometric measures is now available on the diary web page. A significant finding is that using the current catalogue software the interleaving results are broadly similar even with unstable seeing.

A report on the expected astrometric distortions for WFCAM and VISTA and the consequences of these has been produced and is available on the CASU web pages. One of the many conclusions from the report is that there is approximately a 10 arcsec diameter limit to dithering patterns for WFCAM before non-linear resampling at the detector level is required. For VISTA, no practically useful dither is possible without non-linear resampling. The radial scale distortion also has an impact on photometric measurements. WFCAM is within photometric error budget without further correction, but for VISTA the induced systematics vary from 0% to 3.5% and without correction would overflow the entire systematic photometry error budget.

The stacking/mosaicing software has been upgraded to deal seamlessly with both ZPN and TAN WCS projections, and a prototype mosaicer that can produce arbitrarily large mosaics, limited only by disk space, has been developed.

PSB, JRL & MJI attended the VISTA NIR camera internal design review at RAL and found the meeting extremely useful in clearing up several VISTAIR issues, and progressing the interface between CASU, the RAL detector team and the VPO software group. CASU departed with several test FITS files from a Raytheon 2kx2k engineering chip + IRACE controller. Analysis of these was particularly promising – no obvious reset anomalies, no "joins" between readout sectors and approximately photon noise-limited performance in the active parts of the detector.

Successful pipeline trials on a night of CIRSI data were completed and an intercomparison of CASU products with external packages using UFTI and FIRES is now well underway. A web page showing the DQC trial monitoring of the CIRSI data is available off the diary web page. The pipeline infrastructure and progress monitoring work packages are now on hold until WFCAM goes on the telescope.

Good progress has been made on the ESO documentation for the PDR and a first draft version of the VDFS user requirements and calibration plan documents has been produced. Good progress has also been made on the Data Interface Document and a first draft of this will be produced by early-October to factor in with the camera software FDR preparation.

In conjunction with JAC a coherent plan for WFCAM on-sky characterisation has been written and is available on the web off the diary web page or at:
http://www.jach.hawaii.edu/JACpublic/UKIRT/instruments/wfcam/commissioning/

The Overland Ultrium LTO-II library unit is an impressive piece of kit and has been used almost continuously since it was installed to backup all of the main CASU data disks (several Tbytes). Successful compatiblity tests between LTO-I's and II's have been conducted on our behalf by WFAU and our supplier.

+ves and −ves:

CASU and JAC have agreed a provisional set of milestones to monitor progress on development of the WFCAM summit and Cambridge standard pipelines. However, due to difficulties with two-way communication with JAC, it was decided that JRL should visit JAC during the first week of October to work directly with key JAC staff to progress several outstanding issues that have been holding up several work packages. For more details of the visit see the minutes of the 030924 meeting.

Negatives:

The worrying news (lack of) from ATC concerning problems with the WFCAM detectors and the delays in conducting engineering tests for characterising them. This impacts final design of the summit and standard pipelines and has already required some shifting of work package schedules.

Signing off the ICD between WFAU and CASU is still outstanding and held up partly by the lack of a signed off WFCAM project FITS header specification document.

Designing a comprehensive co-located list driven photometry package that interfaces with the rest of the system is proving more work that expected.

Progress with the extra measures for the catalogue generating software has been slow.

Slow progress on interpolation tests and on PSF modelling work packages.