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WFC-CAS-WPS-00000-00026 End of Month Report Apr 05 Mike Irwin, Simon Hodgkin 1 4/5/2005



## **Summary**

This document presents work package progress by CASU during April 2005. For further details of group activities over the past month and quarter see <u>http://www.ast.cam.ac.uk/vdfs/diary.html</u>. For the minutes of all group meetings see <u>http://www.ast.cam.ac.uk/vdfs/docs/minutes</u>

New recipes and primitives to the summit pipeline continue to be added when requested and existing code is being upgraded as new features and solutions are found. In particular, the summit JITTER\_COMBINE recipe (the basic pipeline workhorse) has been modified to take out sky subtraction, and incorporate an algorithm that simultaneously reduces residual reset anomaly and the curtaining problem. This has the added advantage of being able to be run as each data frame is acquired, rather than as for the original sky subtraction strategy, having to wait until all of an MSB is complete. This helps alleviate some of the speed issues.

JRL finished repackaging the interleaving, stacking and catalogue generation aspects of the summit pipeline so that they can be run in parallel as a background task - again for throughput improvement reasons. He has also written new code to convert .sdf files to .fits format to use at the summit. This is again related to improving throughput for the summit pipeline. Tests here indicate it is a factor of ~5 faster than the original Starlink application which was taking between 2-6s for each detector on each DP PC - a significant fraction of the observing time for a frame!

In parallel with JAC, CASU spent some time investigating I/O limitations on pipeline performance both at the summit and here in Cambridge. We had been getting poor I/O performance from our data processing RAID arrays (1 Tbyte for each processing machine). To cut a long story short, after much futile tuning, changing the filesystems from EXT3 to XFS solved all the problems, improving I/O performance by a factor of ~3 and enabling the RAID arrays to run at manufacturer's quoted specs.

JRL has also recently contributed a refined WCS solution for the autoguider chip based on new observations (previous data contained too few stars). The poorly defined AG WCS has been causing observing problems.

STH spent 3 weeks at JAC to take part in observing for UKIDSS Science Verification and to begin observations of secondary standard fields. STH and SD collected data over 10 clear nights before passing on the torch to Gavin Dalton. Observing reports can be found at <u>http://wiki.astrogrid.org/bin/view/UKIDSS/SciVerObsRep</u>. STH performed a preliminary analysis of the WFCAM standards using the summit pipeline and confirmed both their suitability as standard fields and the preliminary 2MASS based zeropoints measured in the comm-I report. A final analysis will be completed and reported on following processing of the data in Cambridge. All the useful comm-I data has now been processed at CASU and made available to WFAU for transfer and ingestion. Prior to processing comm-II and SV data, various fixes and improvements were made to the pipeline and these have been tested by reprocessing all of the comm-I data. The final stages of this preprocessing are almost complete and the updated products will be made available to WFAU for ingestion later this week.

All the WFCAM phase-II data is now online here in Cambridge in MEF format, up to and including the 19th April (which is all the data we currently have). We will start processing this next week after a bit more work on calibration issues, and intend to get a reasonable first iteration of this processed data out of the door before the last week of May, to give WFAU time to ingest it for SV tests. All this data has been ingested and verified, during which JRL noted one detector (#2) had "zero" data values for half of the night of April 11th. The odd few individual detector frames were also missing from other nights. These issues are being chased up with JAC.

Data transfers to ESO are ready to start after a couple more keyword values are added to the transfer files (a late request from ESO). This first lot of data will pose no proprietorial problems, however, we need to confirm with JAC the exact nature of how private data (eg. PATT, UofH) will be flagged in the proposal ID since ESO are only receiving calibration and UKIDSS raw data.

STH and RGM attended the UKIDSS Science Verification meeting at Imperial organised by Steve Warren. Many UKIDSS survey heads were there. Topics for discussion were: (1) Information Sharing (RGM set up a wiki site hosted by Astrogrid where the minutes of this meeting can be found:

http://wiki.astrogrid.org/bin/view/UKIDSS/SciVersImperialCollegeApr), (2) Processing Schedule and Archive access, (3) Pipeline and Archive status [STH, NCH], (4) Calibration plans [STH], (5) Detailed SV plans for each UKIDSS survey, (6) Publication

PSB sent out updated (mainly at the technical detail level) ESO VDFS calibration plan and DLRD prior to our meeting at ESO next week to discuss technical issues raised at the FDR and to progress our understanding of running the VDFS pipeline within CPL at Garching.