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

Science Verification and interaction with UKIDSS

The CASU analysis of SV data continues and is discussed in the web documents at http://www.ast.cam.ac.uk/~wfcam/docs/reports/sv/ and http://apm15.ast.cam.ac.uk/casudoc/wfcam/science-verification. These documents have been made semi-public via the UKIDSS TWiki. The reports summarise the 2d processing strategy as well as the cataloguing and calibration of sources plus some initial science verification results. The report also includes a discussion of the detector properties. A couple of preliminary findings are: (1) The relative (frame-to-frame) astrometry has an accuracy of 0.03" and the photometry 3% (for 13-17 mag). (2) The DXS stack goes down to 20.6 mag in K (5 sigma limit in 2 hours).

These documents together with an ongoing photometric calibration document provide a framework for discussion at the Science Verification meeting to be held at ROE on August 18th. Attendees from CASU will be Mike, Eduardo, Marco and Simon who are offering talks on: overview of processing, internal science verification tests, operational aspects of the pipeline and status www pages, WFCAM raw data and DQC archives, master flat and sky properties and photometric calibration.

The UKIDSS survey heads meeting was held in Durham on July 27th. MJI attended and gave a presentation on WFCAM properties and calibration. Discussion centred on observing efficiency and strategy for semester 05B (specifically coadding and microstepping). Minutes are available at http://wiki.astrogrid.org/bin/view/UKIDSS/HeadMeetingjul05. Additionally, Simon Dye visited CASU for one afternoon at the beginning of August to discuss and compare manual versus pipeline processing of WFCAM data.

CASU note with interest the large amount of WFCAM SV activity reported at http://wiki.astrogrid.org/bin/view/UKIDSS/WebHome.

WFCAM processing status

First reduction of 05A data is complete. All data have been made available for transfer to Edinburgh. Reprocessing of this data is already underway to take into account two issues. Firstly we discovered a bug in the pipeline version of the stacking algorithm which was effectively clipping bright pixels leading to a 20% 'non-linearity

effect' for the brightest sources and concomitant knock-on effect for the derived magnitudes of faint sources. Secondly we are going to apply a new photometric calibration based on newly derived 2MASS to WFCAM colour terms. This will solve one of the anomalies noticed in the comparison with the UKIRT FS sequences.

MR has investigated the properties of all flats taken during 05A and found them to be globally stable to better than 1% for all filters. The noise properties were also very stable. He has also been investigating the sky frame properties as a function of sky position angle and moon phase.

We are now considering what lessons we have learnt from these reductions and factoring in various improvements before the next batch of data arrives. This will eventually include PSF V1, 2 information.

WFCAM summit pipeline

JRL has run his summit pipeline timing tests on a number of nights, in particular those containing DXS and GPS observations where the pipeline has to work hardest. On average, the pipeline only gets a 5 minutes backlog when processing this type of data.

We have updated the summit pipeline with the latest calibration frames produced in Cambridge (master flats and confidence maps). We have written new tools for automatically generating master calibration frames at the summit.

JAC Telecons

The last JAC telecon discussed how far the pipeline requirements have been met; what requirements are no longer valid; and what changes to some of the requirements are needed in light of reality. Problems with 3x3 interleaving and also the chip 2 dropouts were also raised.

At the previous JAC telecon (15 July) the main topic was observing efficiency and the design of the MSBs for the UKIDSS surveys. DWE produced a detailed analysis of observing efficiency for the various surveys and found they were essentially all the same at ~55%. This has lead to a lot of discussion on how to improve survey observing.

Status of VDFS

All ESO docs have been accepted bar the ETC, which is completed (including the C code) but has not been seen by ESO since FDR, and the Calibration Plan which needs a minor tweak. PSB has initiated detailed discussion with SMB and WJS of various issues related to the detailed design of the camera templates and the input parameters.