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This document presents work package progress by CASU during November and December 2007. 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

WFCAM processing

The last night of 07B WFCAM data was the 3rd December. It goes back on for 08A on 4th February. All raw UKIDSS and calibration data available at CASU has been transferred to ESO. We are still missing the last week of raw WFCAM data the transfer of which will be used as a test of Internet transfer procedures. The current plan is to transfer all WFCAM 08A data via the Internet.

Processing and reprocessing (to reduce the parquet floor effect) of WFCAM 07B data up to and including 24th November is complete including checking and ZP recalibration.

UKIDSS workshop

The meeting in Garching was attended by MJI, JRL, STH, PSB and EGS. User feedback included the following wish list:

1. Poor background subtraction (or residual artefacts) in a few (nebulous) regions. After investigating a few representative examples it transpires that most of the problem (apart from the known ancient cross-talk bug issue) was caused by the decurtaining stage introducing a "Maltese Cross" pattern in the background. This is a known feature of the decurtaining algorithm that occurs in rare cases where the strongly varying background interferes with the curtain-fixing estimator. An optional workaround has been tested and implemented.

2. The current sky estimation strategy generally works well but there are a few specific cases where problems occur. After discussions with AJA both prior to and during the meeting a simple method of alerting the pipeline to such cases was agreed on and will be implemented for future observation MSBs when required. This will hopefully get around the majority of the cases where the pipeline is trying to second-guess the best strategy without full prior knowledge.

3. The desirability of elliptical apertures for galaxy photometry was raised. The obvious compromise would be to stick with the current fixed circular apertures and solely use elliptical apertures for Petrosian, Kron and Hall measures. We await the outcome of the prioritised UKIDSS wish list (and upcoming grant review).

4. The GPS folk want better photometry in nebulous regions, both from a "point source" detection and flux estimation point-of-view. At the meeting we noted that using a smaller scale background tracker was the simplest thing to try out, and will be

tested. Tests after the meeting showed that although an improvement this was not the answer and an alternative background tracking method, a cunning variant of unsharp masking, has been trialled and the results sent to Phil Lucas for further analysis.

5. Assorted deblending issues were raised ranging from too little (very occasionally obvious pairs of bright sources are not deblended - this minor blip has been traced to the doughnut appearance of bright sources and subsequently fixed) to too much (large galaxies getting split and subsequent Petrosian photometry not being reliable - not much we can do about this one). One can only conclude that on average deblending must be about right.

6. Desirability of full iterative PSF model fitting and Sersic profile fitting (presumably in both cases only for objects/fields worth bothering with since this will be seriously CPU intensive). This has always been in the long term development plans but has not been completed yet.

VISTA

The recent DRL release (CPL 4.0/fitsio-compatible) passed basic testing at Garching. It is planned to reprocess the July data through the pipeline system to test the recent bug fixes and QC improvements. We have since received an alpha release of CPL 4.1, which allows use of compressed FITS files; however PSB is having problems building it.

PSB, MJI and JRL took the opportunity to discuss VISTA with JPE and ESO staff during the UKIDSS meeting. It seems the Paranal pipeline computer is delivered but not installed and will be set to not analyse science data. There are some worrying unsettled issues regarding the timely delivery of VIRCAM data to the UK. On the ongoing request for N118 filter data, JPE reported that he doesn't have machine-readable version.

Analysis of the linearity data from the VIRCAM July engineering run is underway, a report has been completed and circulated to a select few for comment.

Other

JRL and MJI drafted a response letter of support to Omar Almaini and Phil Lucas regarding the future of UKIRT/UKIDSS since not completing the UKIDSS surveys would be a rather strange decision.