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PARTICLE PHYSICS AND ASTRONOMY RESEARCH COUNCIL

Progress report from UKIDSS

Memorandum by the UKIDSS Consortium Survey Scientist, Dr S J Warren

The last UKIDSS UKIRT Board paper was somewhat longer than usual. The current one is somewhat shorter because the individual surveys provided detailed reports in their renewal documents.

1. Renewal of the surveys

The main event since the last Board meeting has been the renewal of the surveys, announced by the Board in March. We are grateful for the confidence in UKIDSS shown by the Board in the allocations awarded, and especially pleased that uncertainty has been removed up to the end of 2009. Detailed planning for the period mid 2007 to end 2009 will commence with a meeting of the Survey Heads in Oxford on May 9. An update on matters arising from this meeting will be provided at the Board meeting at Durham.

2. Second Data Release, 1 March 2007

The Second Data Release, referred to as DR2, took place in two stages. The first release, including all but the GPS data, occurred on 1 March 2006, and was announced on the ESO front page. Candidate cool brown dwarfs selected from DR2 were being followed up at the WHT the following night, illustrating the power of the WSA. The release of the GPS data took place in April.

The new data in DR2 were taken in the relatively short 06B block, covering May through July 2006. A few points worth noting follow.

- During the quality control stage there were no adverse comments made about the quality of the sky subtraction. The current algorithm (revised for this release) appears to meet the requirements of the shallow surveys. Nevertheless we can anticipate some further discussion of this issue. For the DXS and UDS, coaddition fails to reach the depths expected relative to the shallow surveys, for the given integration times. It appears that the shortfall is too great to be explained by background fluctuations caused by undetected sources. Therefore there may be residual instrumental systematics that require further treatment. This issue is ongoing, with a goal of completion of a detailed study in time for DR3 (anticipated for Autumn 2007).

- The revised detection algorithm used by the pipeline has resulted in visible improvements e.g. objects not detected in some bands now detected. (Recall that for oversampled data the original detection algorithm was not optimal.)

- The GPS database is already so large that some revisions will be required to the WSA schema to prevent data releases grinding to a halt. For DR2 the decision was made to release the GPS separately, in order not to delay the other surveys unnecessarily.

- The release was accompanied by a paper (Warren et al., 2007, astro-ph/0703037) describing the contents for each survey, and changes since DR1 to the observing procedures, the pipeline, and the archive. MN have made it rather clear that they do not welcome a paper from UKIDSS describing each data release, so the paper has not been submitted to a journal.

- Quality control (QC) has previously been shared as follows. A representative for each survey inspects all the jpeg images. Then Nige Hambly and Steve Warren run a QC script implementing a series of cuts on attributes such as seeing and sky brightness. For DR2 Mike Read implemented the QC script, consulting Survey Heads as necessary as issues cropped up. This appears to have gone well.

- DR2 incorporated errbit flags for e.g. suspected cross-talk. Users have greatly appreciated this enhancement.

3. Progress of observations towards DR3

DR3 will include data taken in 06B and 07A, from the large WFCAM block extending from the beginning of Nov 2006 to mid-May 2007. The block is almost completed. The season got off to a bad start with very poor observing conditions in November. Mostly as a consequence of this the UDS achieved only 56 hrs of observations compared to an allocation of 272 hrs. The UDS has been awarded 80 clear nights up to the end of 2009. How to achieve this will be one of the issues discussed at the meeting of Survey Heads on May 9.

The other four surveys have received most of their allocated time over the DR3 block. The implication is that these four surveys will get close to the goal of completion of 2/3 of the 2-year plan by DR3. From the UKIDSS perspective the implementation appears to have gone smoothly, and the close monitoring of the individual projects by the JAC is appreciated.

The delay in some of the Nov and Dec data reaching CASU is currently a concern for the DR3 timetable.

Calibration

The calibration working group held a meeting in Cambridge in Jan 2007. There was agreement that it is now feasible to finalise calibration procedures, with one exception, and a list of actions was drawn up in order to close out the calibration procedures in time for DR3. The one area where it seems unlikely that calibration to 2% can be achieved is in the Z and Y bands in regions of high extinction. This currently only affects the GCS.

A further meeting of the calibration working group is planned for May 10, and an update will be provided at the Board meeting.

5. Collaborations

The possible collaboration with the University of Hawaii is currently stalled, following rejection of the UKIDSS Hemisphere Survey.

The Board's choice to accelerate the LAS has been noted by SDSS who are in the planning stage of a major new redshift survey 'SDSS3', which will measure the baryonic acoustic oscillations in the galaxy correlation function at redhsifts $z \sim 0.6$. The UKIDSS data can greatly assist this programme, firstly by eliminating the high contamination by M stars (ellipticals at $z \sim 0.6$ are compact, with similar r,i,z colours), and by tightening up the photo-z estimates. SDSS3 would commence in 2009, but some form of collabortion would be required to provide access to the UKIDSS data.

These potential collaborations, and the question of the ESO proprietary time for DR4 and beyond with be discussed at the Survey Heads meeting.

6. Registration

So far 72 institutions have registered for access to UKIDSS data, of which 42 are from outside the UK. Four Spanish institutions registered immediately after Spain joined ESO on 1Feb 2007.

7. Publicity etc.

The final PPARC edition of Frontiers carried an article on UKIDSS.

UKIDSS have been invited to contribute a talk to the AAS session on Wide Field Surveys in the 21st century, at the end of May. We plan a press release on the UKIDSS T8.5 brown dwarf, the coolest star known, at the same meeting.