Introduction

Science with UKIDSS

ESO workshop

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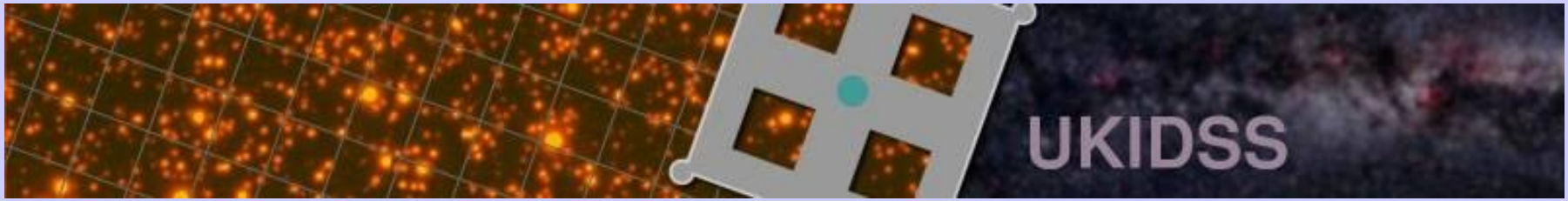
Dec 2007

- Goals
- Status
- Highlights
- Prospects



Goals

Goals of Meeting

- Maximise science from UKIDSS
- Capitalise on European lead

- Learn about UKIDSS data and data access
- Get feedback on UKIDSS implementation
- Share ideas, formulate plans

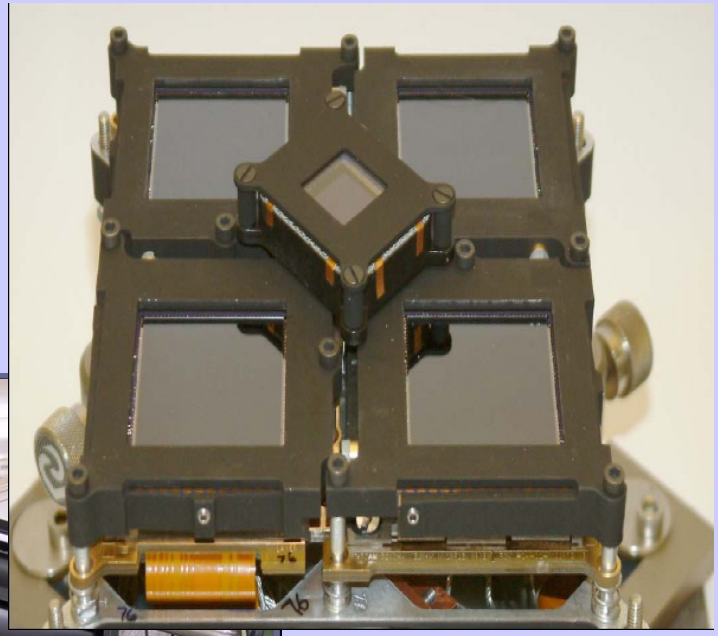
Nature of UKIDSS

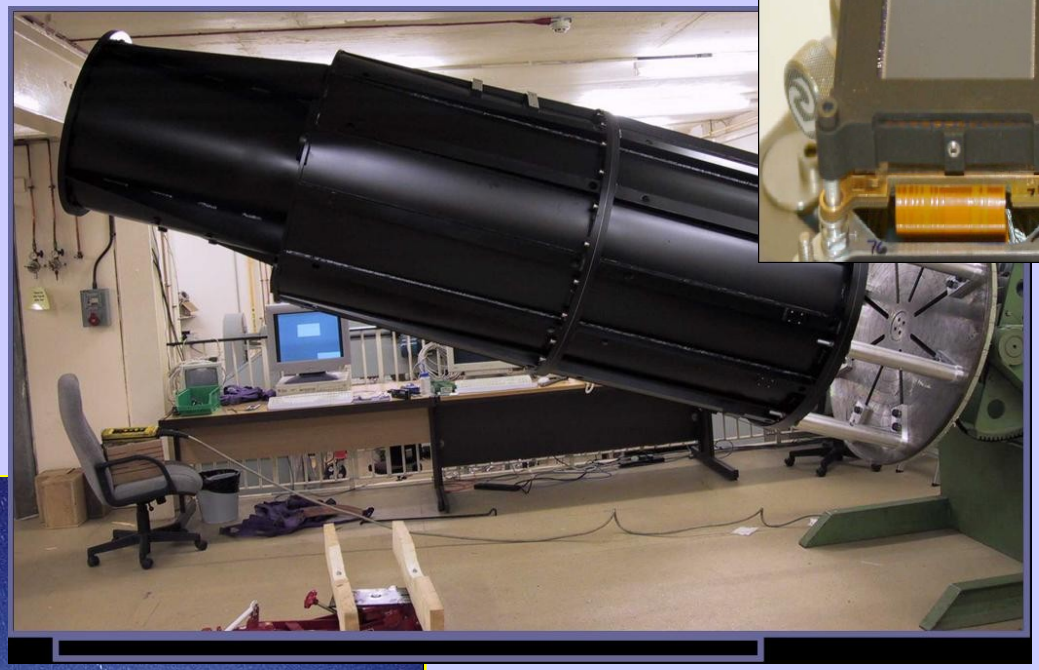
- Not a private project
- Not a standard public project
- Its a *community* project

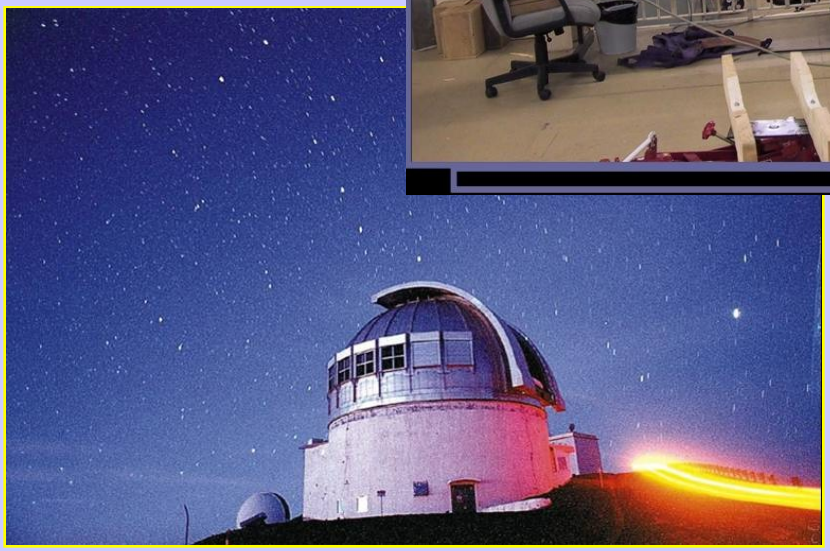
- Public infrastructure
  - UKIRT / WFCAM / VDFS / ESO
- Consortium implementation
  - science design; observing; QC; documentation
- Public exploitation
  - Europe first then World

Status

WFCAM pix

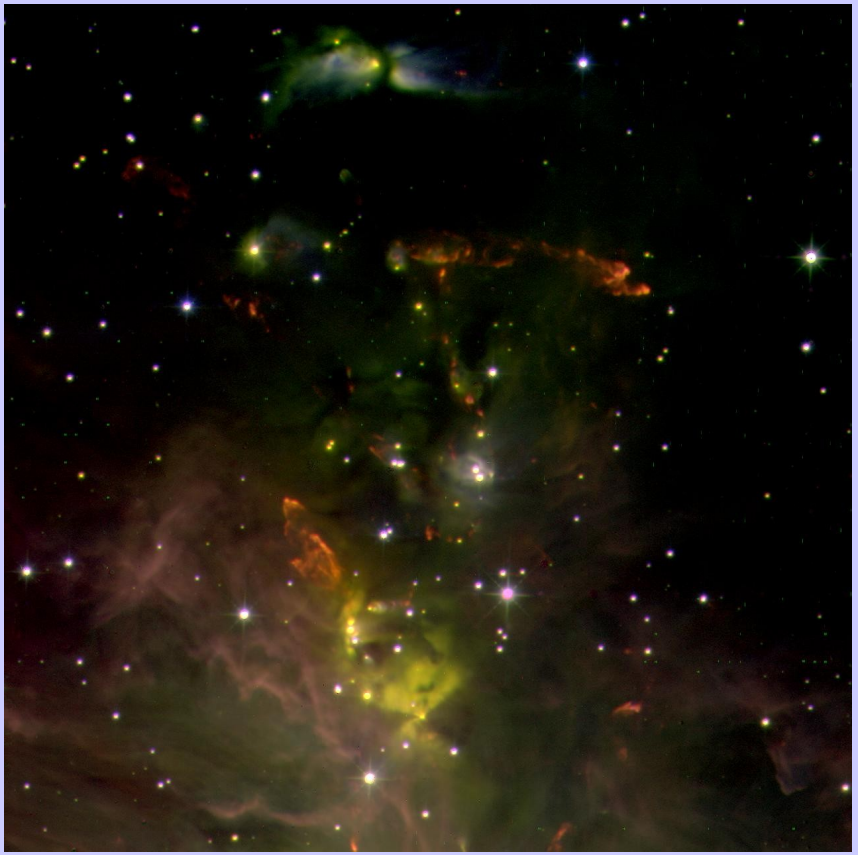




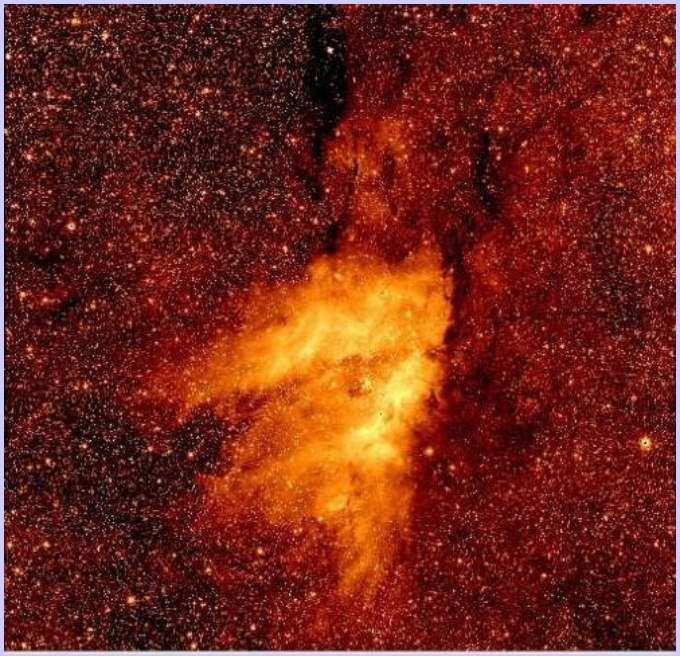


WFCAM pix

NGC 891



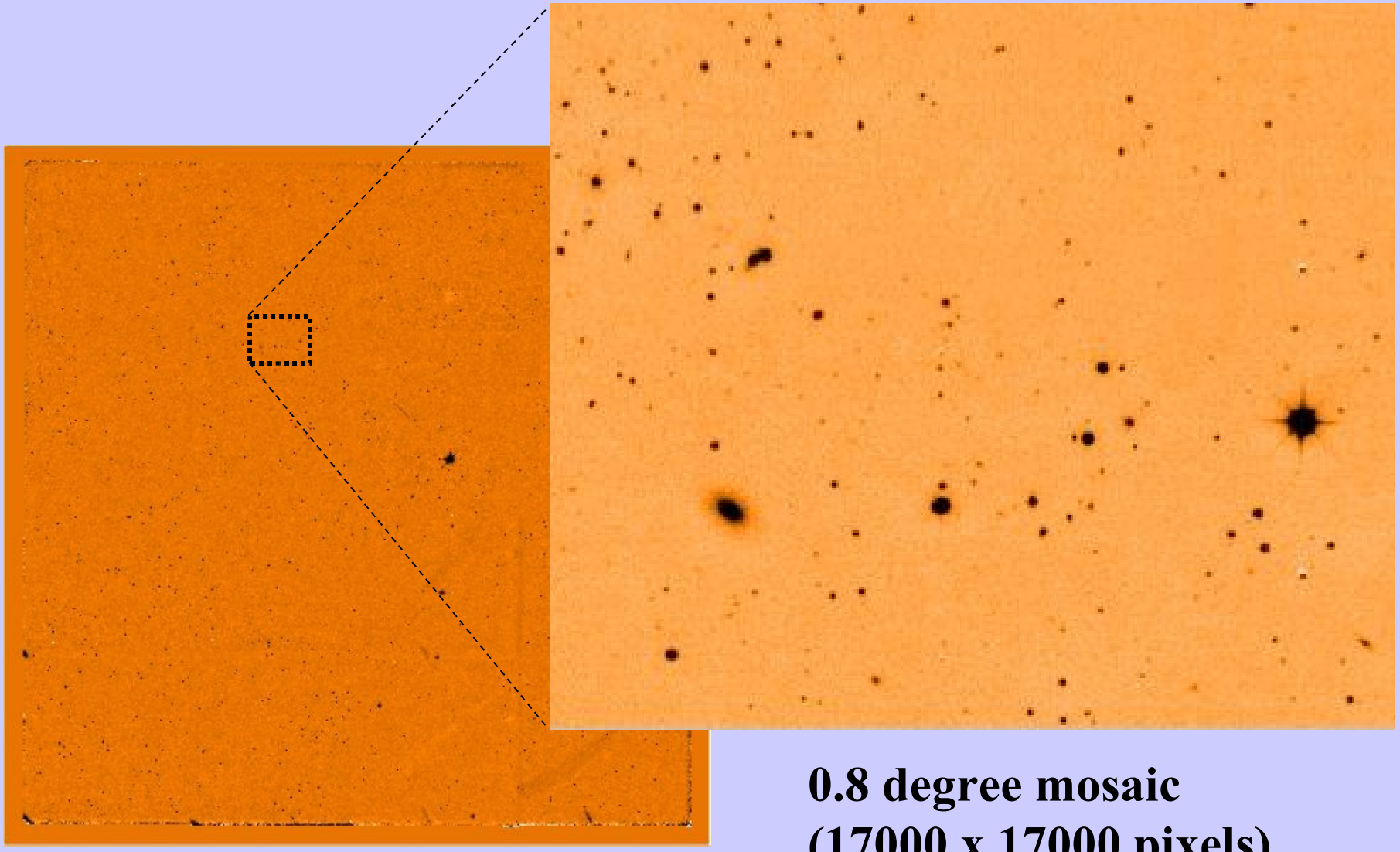
ORION



M17

M104

scary amounts of data

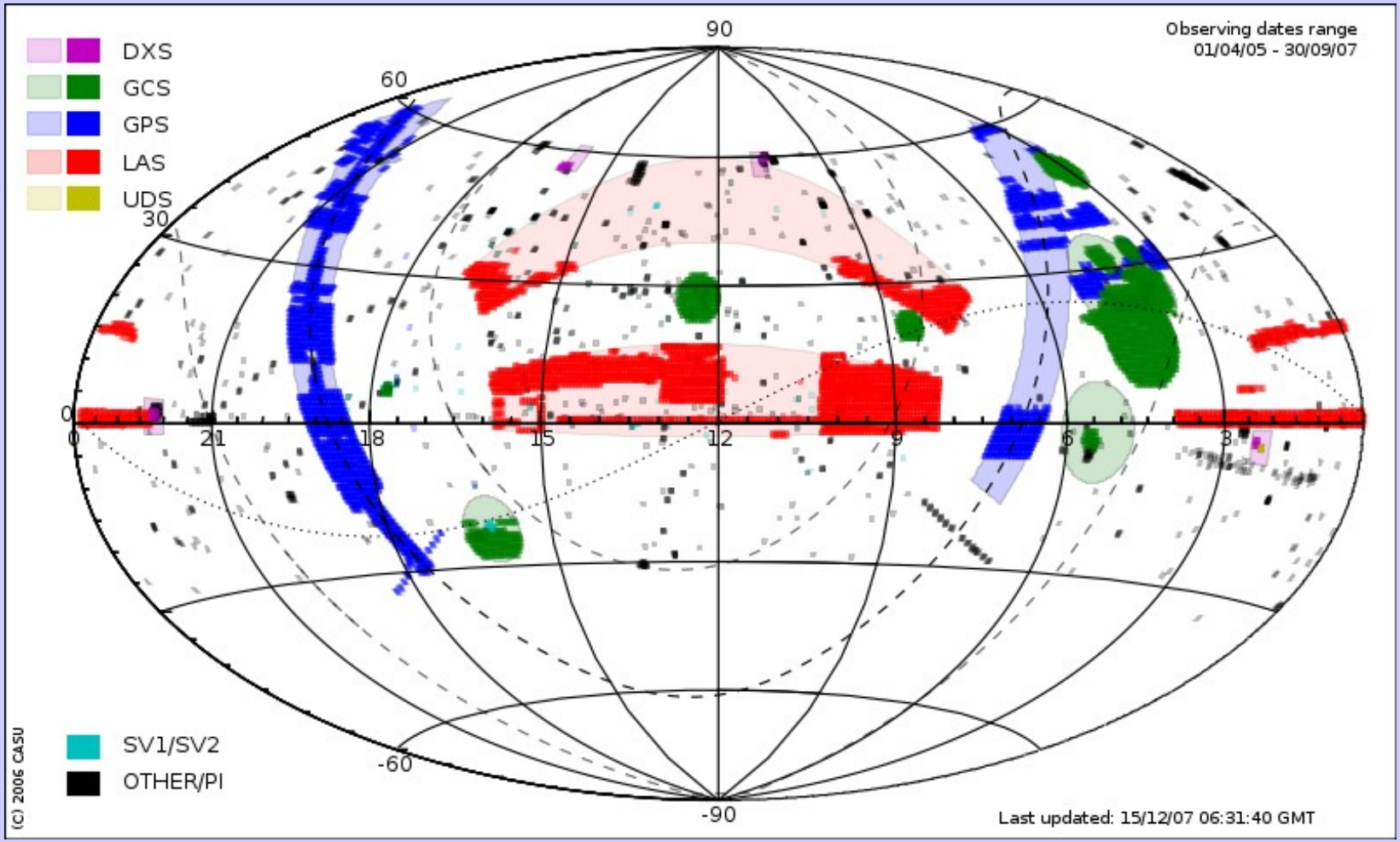


0.8 degree mosaic
(17000 x 17000 pixels)

UKIDSS Coverage

about a third done

	Sq.deg./frn	visited
DXS	18	52%
LAS	1957	48%
GPS	1274	68%
GCS	837	78%
UDS	1	100%



2007B observing block just finished

next Feb 2008

UKIDSS History

- Sep 1998 : initial proposal
- Dec 2001 : approval
  - two year plan firm approval
  - seven year plan subject to re-proposal
- May 2005 : survey start
- Jul 2006 : DR1
- Apr 2007 : Re-approval
- Dec 2007: DR3
- Jan 2008 : DR1-World
- 2012 : completion ?

UKIDSS Publications

- Five core reference publications
  - Phot System (Hewett et al 2006)
  - Survey Definition (Lawrence et al 2007)
  - WFCAM Description (Casali et al 2007)
  - Pipeline (Irwin et al 2008)
  - Archive (Hambly et al 2008)
- Sequence of Data Release Papers
  - EDR (Dye et al 2006)
  - DR1 (Warren et al 2007)
  - DR2 (Warren et al astro-ph only)
- Refereed Publications to date : 24
  - Lawrence *et al* has 49 citations
  - all science pubs so far use EDR and DR1

please refer to standard set

UKIDSS quality

- Processing works in close to real time
  - calibration, artefact correction improving iteratively
- Archive access works in close to real time
  - examples and training later today
- Survey rate 80% of original target
  - 90% survey speed; 10% QC rejection
- Data quality close to target
  - Phot 0.02 mag
  - Astrom 50-100 mas
  - Average seeing 0.8 arcsec
  - Shallow survey depths : roughly as predicted
  - Stacked survey depths : possibly 0.3 mag short (under investigation)

Nov 2006 completion proposal

	total requirement	compln request	compln allocn	allocn 07B-09B
LAS	229	158	158	158
GPS	163	126	94	38
GCS	73	45	35	17
DXS	103	82	87	44
UDS	259	204	100	80
TOTAL	827	615	474	337
UHS	n/a	527	0	0

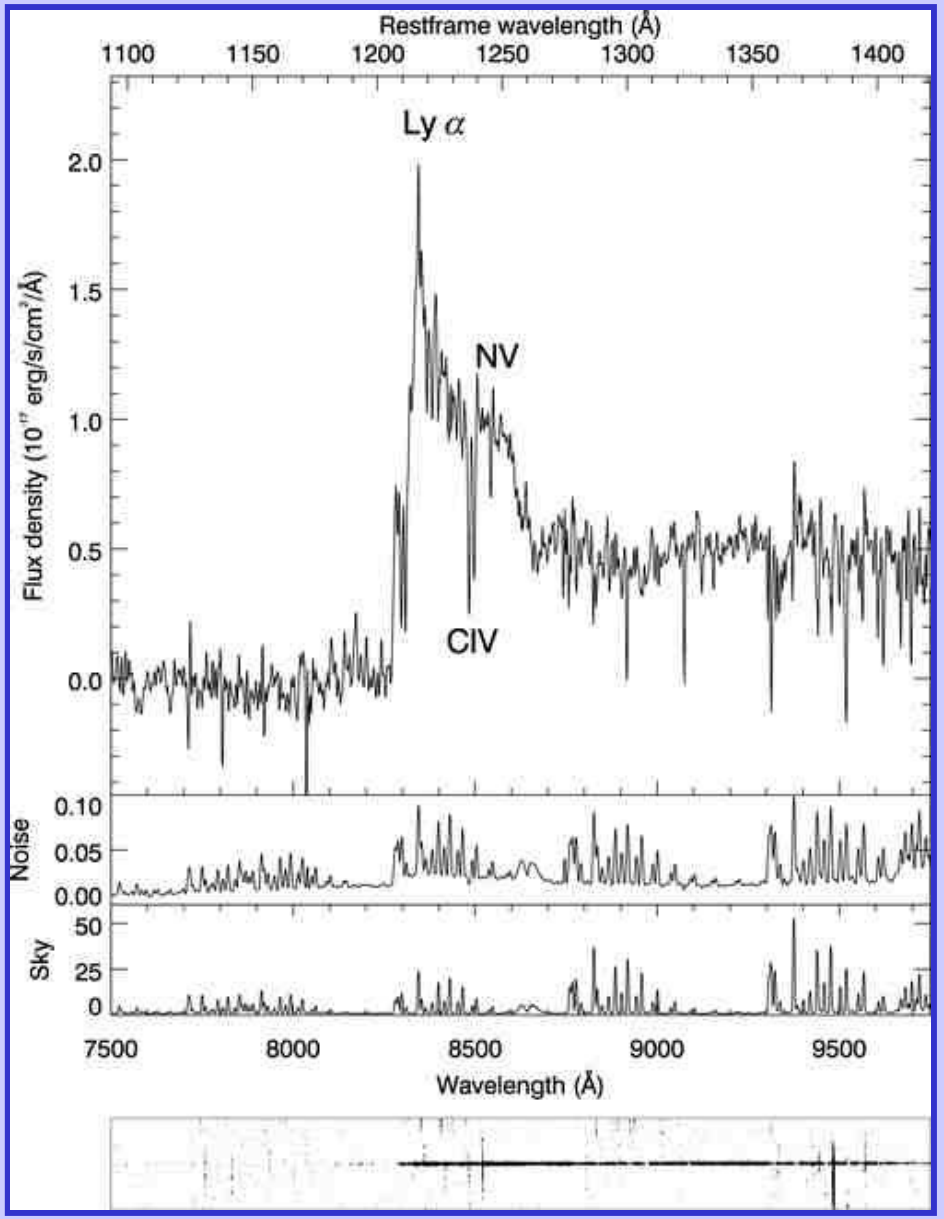
total requirement = nights needed for original design
completion request = nights needed after May 2007

Nominal completion approved ~ 79%
Likely completion by 09B ~ 58%

Highlights

z=6 quasar

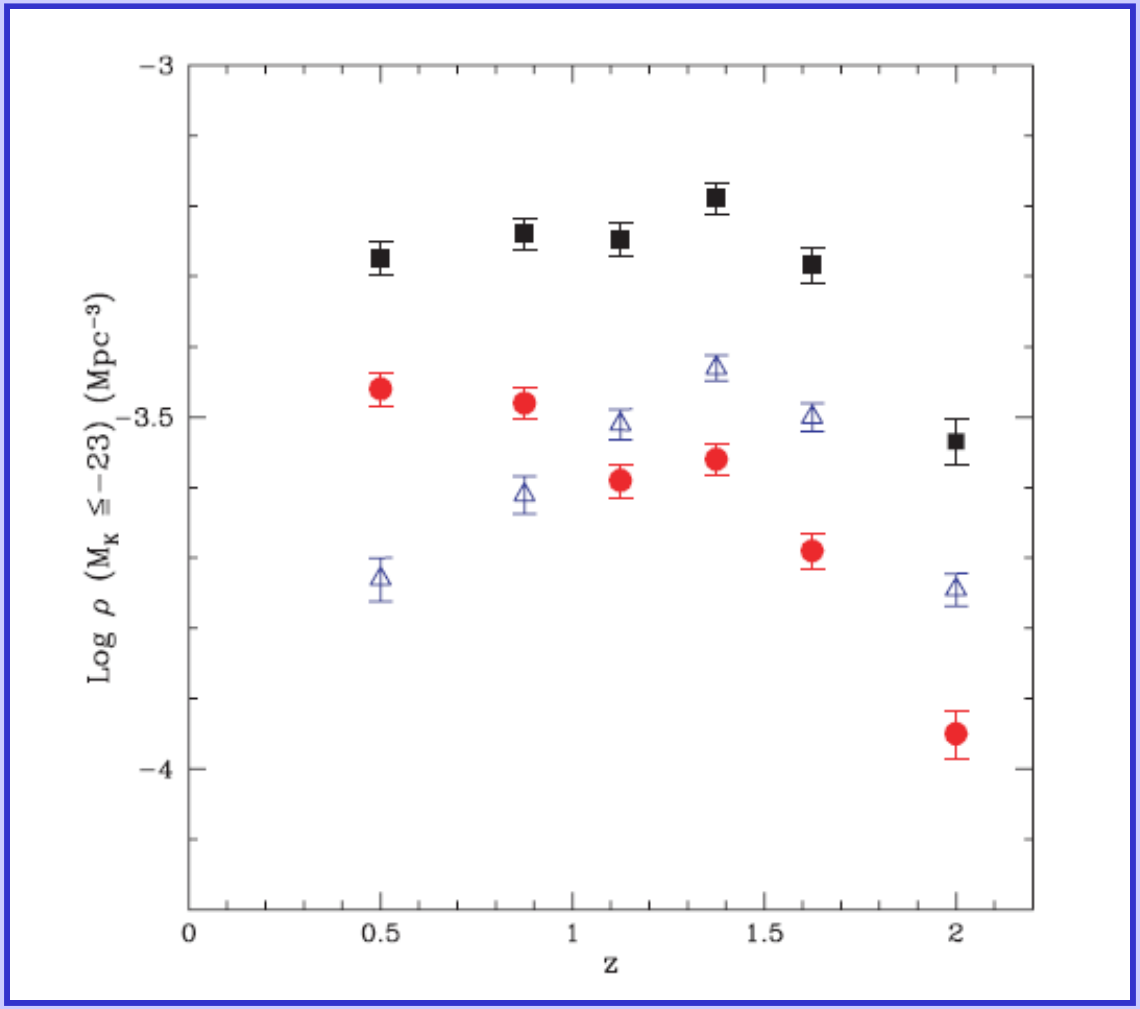
- ULAS J0203+0012
- z=5.86
- From DR1
  - only 106 sq.deg.



Venemans et al 2007

z=2 evolution

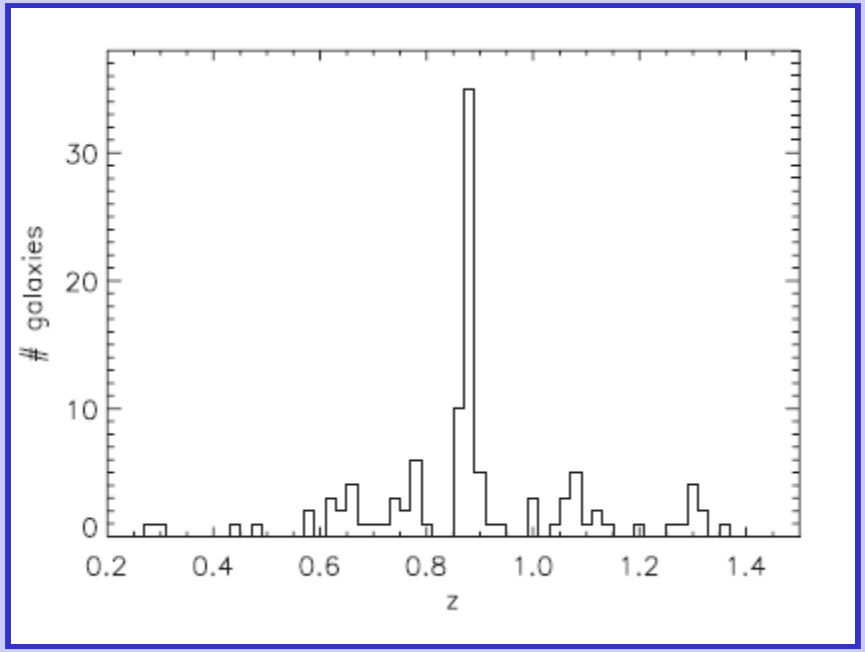
- Blue *vs* red luminous gals evolve differently
- UDS EDR data



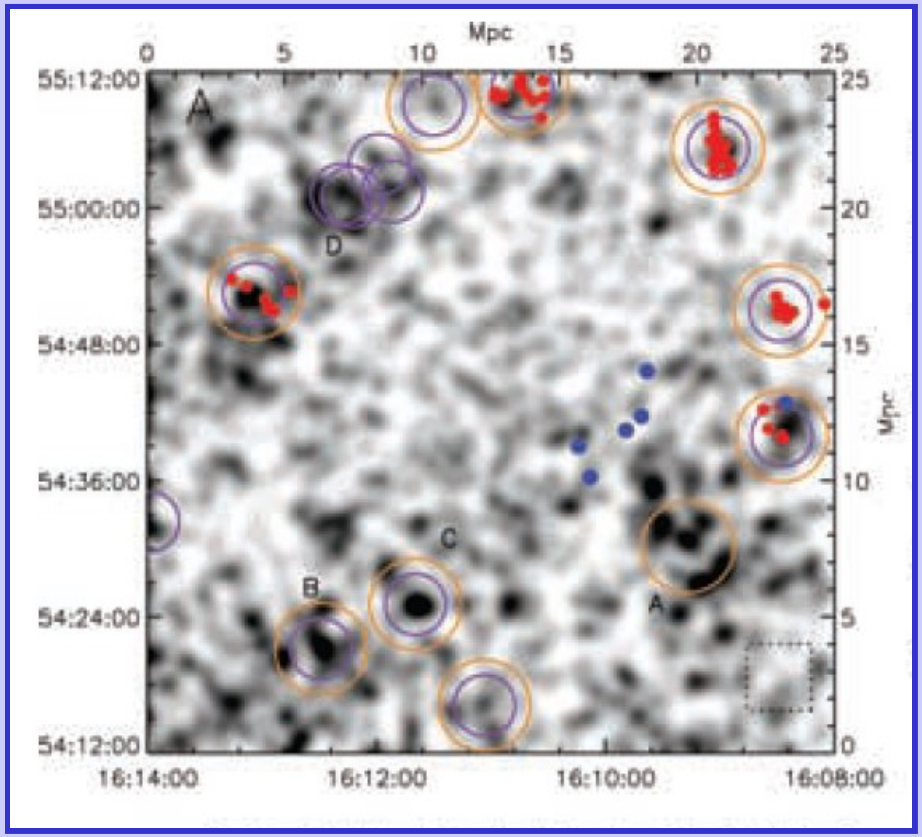
Cirasuolo et al 2007

z=1 supercluster

Swinbank et al 2007



redshift distbn of candidate clusters

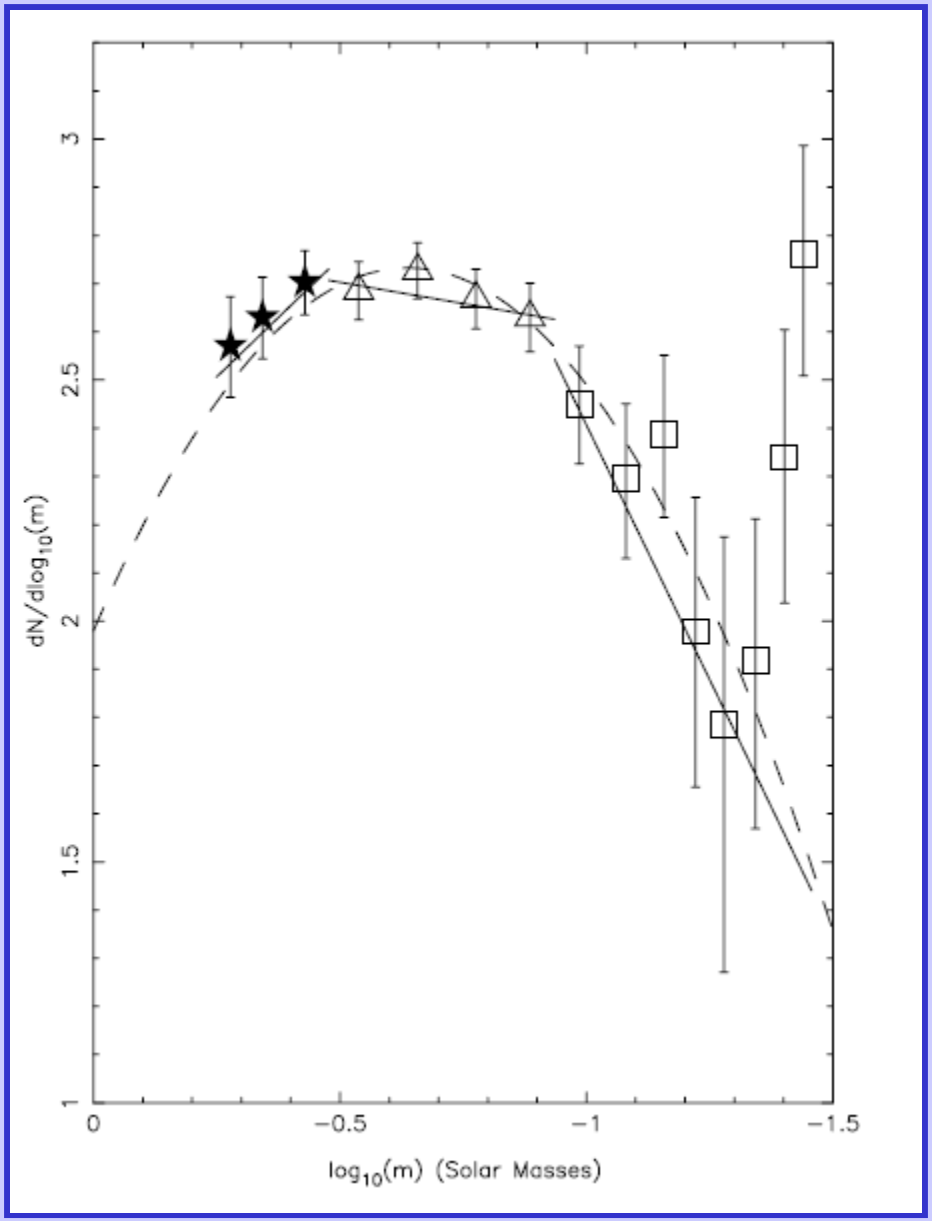


structure 30 Mpc across

colour selected surface density map

134pc substellar MF

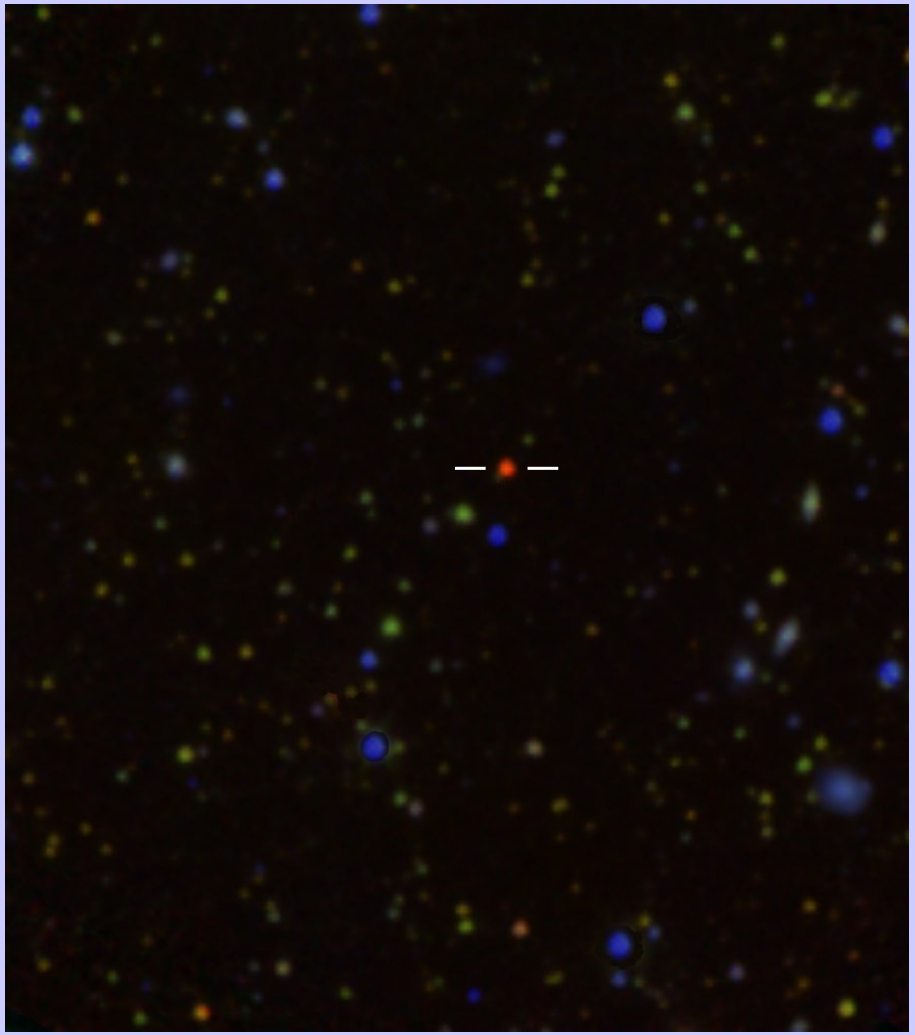
- Pleiades GCS-DR1
- 5 band selection
- 73 new BDs
- MF Gaussian



Lodieu et al 2007

20 pc Brown Dwarf

- ULAS J0034-00
- Coolest known dwarf (T8.5)
- T~600K
- M~15-36 M-Jup



blue = Z
green = Spitzer 3.6um
red = Spitzer 4.5 um

Warren et al 2007

Prospects

opportunity

- UKIDSS DR3 biggest ever IR survey
  - riches await !
- Americans start on DR1 now
- Full UKIDSS depends on UKIRT future
- **2008-9 is the key opportunity**
- VISTA catches up by 2009-10
- 2010-2015 :
  VISTA+WFCAM could do a whole sky survey