WFCAM Science Archive (WSA) and the UHS

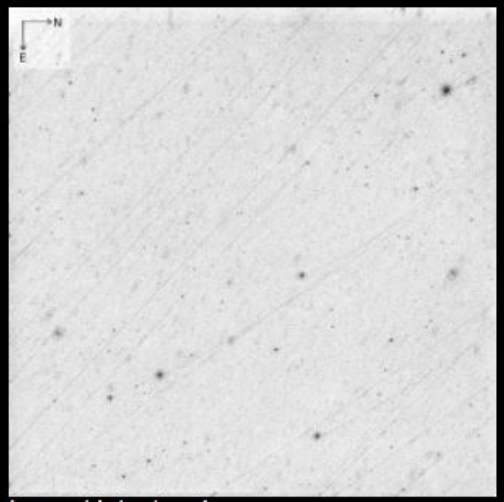
Data releases

- carry out QC - eyeball, metadata and quantitative cuts
- UHS-J all science frames eyeballed
- around 3% rejected, plus 15% repeats

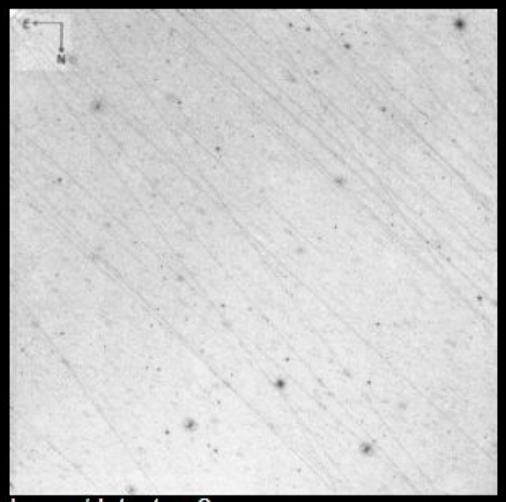
Displaying multiframe: 9983712 w20170826_01009_st

Download compressed Image FITS file (16.42 Mb)
Download uncompressed Image FITS file (Note: please download compressed file as uncompr
Download Catalogue FITS file (2.89 Mb)

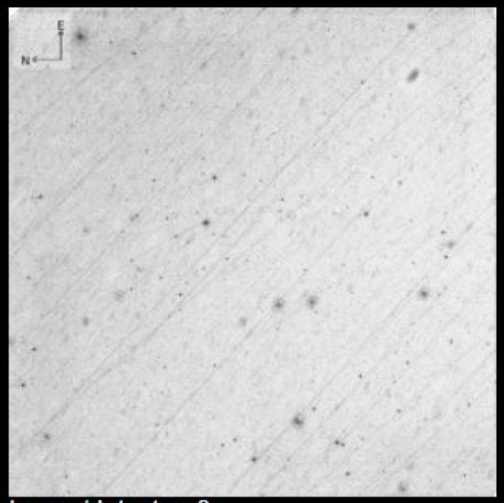
Compressed files can be uncompressed using **imcopy**. Library jpegs images of multiframes are b
down version click on the required image.



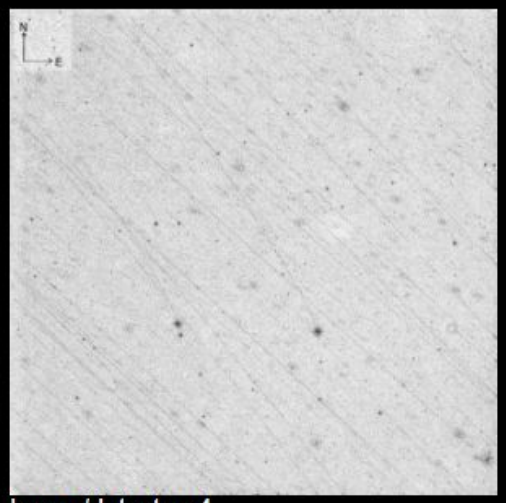
Image/detector: 1



Image/detector: 2



Image/detector: 3



Image/detector: 4

Code for a current (=0) or deprecated (!=0) multiframe	tinyint	1		0	meta.code

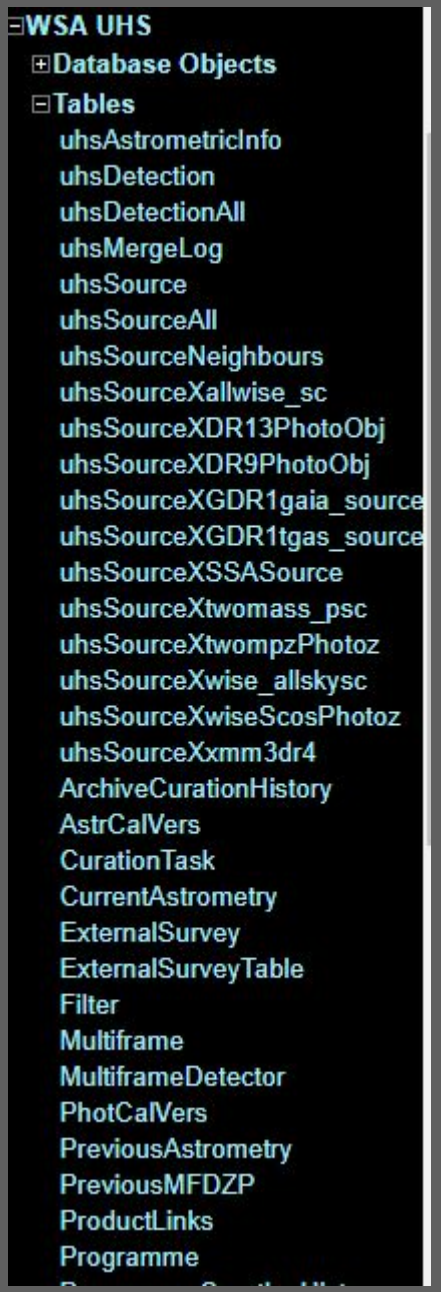
The deprecation attribute in all tables indicates if the record in question (be it an image or catalogue detection record) has been deprecated by some curation process in the archive. All data having deprecated=0 are nominally good data; the following flags indicate a quality issue and any data having those flags should not be used for scientific purposes (in many instances, deprecated data will be deleted from public survey released database products):

Flag	Meaning
1	Stack frames that have no catalogue or other frameTypes deprecated at ingest (e.g. because a reprocessed frame supercedes it)
2	Dead detector frames
3	Undefined and or non-sensible critical image metadata attributes
4	Sky subtraction not OK (via pipeline sky sub scale factor) NB. not used from October 2005 onwards
5	Incorrect combination of expTime,numExp,numInts for survey specific projects
6	Incorrect frame complements within groups/nights (for incomplete MSBs)
7	Undefined values of critical catalogue attributes for stacks
8	Seeing=0.0 for a stack
9	High value of sky that compromises the depth, or otherwise invalid sky level (e.g. sky < 0)
10	Seeing outside specified maximum
11	Photometric zeropoint too bright
12	Average stellar ellipticity too high (> 0.25)
13	Depth (as calculated from sky noise and 5sigma detection in fixed aperture) is too shallow compared to overall histogram distribution (i.e. shallower than ~0.5mag wrt the modal value) OR sky noise is too high given the sky level
14	AperCor3 outlying in aperCor3 versus seeing distribution
15	Pipeline MAGZPT inconsistent between image PHDU, extension HDUs and/or catalogue extension HDUs (from attributes photZP, photZPExt and photZPCat)
16	Difference in detector sky level wrt to mean of all 4 detectors is outlying in the distribution of the same.
18	Provenance indicates that a constituent frame of a combined frame product includes a deprecated frame.
19	Inconsistent provenance for a stack or leav product indicating something wrong with the image product (usually screwed up FITS keywords confusing the pipeline)
20	Detector number counts indicate some problem (loads of crud images)
21	5-sigma depth of detector frame more than 0.4mag brighter than modal value for a given filter/project/exposure time
22	Basic astrometry check (pixel size and/or aspect ratio) indicates something is wrong with the image
26	Deprecated because frame is flagged as ignored in pipeline processing
27	Deprecated because frame is flagged as part of a summit-rejected MSB
40	Science (*stack) frame is not part of a survey (e.g. high latitude sky frames in the GPS)
60	Eyeball check deprecation - trailed
61	Eyeball check deprecation - multiple bad channels
62	Eyeball check deprecation - Moon ghost
63	Eyeball check deprecation - Sky subtraction problem
64	Eyeball check deprecation - Disaster (catchall category for the indescribable)
65	Eyeball check deprecation - Empty detector frame
66	Eyeball check deprecation - Flat field problem
67	Eyeball check deprecation - Malfunction in crosstalk correction
70	Eyeball check deprecation, but this is the best that can be done so should not be reobserved (e.g. very bright star in FOV)
80	Deprecated because observation (MSB,object,filter) has been repeated later (shallow surveys only). The latest duplicate in each case is kept
81	Deprecated because observation (MSB,object,filter) has been repeated in a later Semester (shallow surveys only). The deepest duplicate in each case is kept
99	Manually deprecated because of some DFS issue (e.g. pipeline screw-up)
100	Multiframe deprecated because all detectors have been previously deprecated (and the MF not already deprecated)
101	MultiframeDetectors deprecated because parent Multiframe is deprecated (and the MFD not already deprecated)
102	*Detection deprecated because parent MFD deprecated
103	MultiframeDetector of a stack deprecated because all constituent frames of the same detector are deprecated
110	Intermediate stack frame photometry found to be poor wrt run of all stacks in a deep field
111	Stack replaced by a filtered version
127	Unwanted frame ingested.
≥128	Frame deprecated because reprocessing supercedes it

- ppErrBits flag individual detections

Bytes	Quality Category	Bits	Detection Quality Issue	Bit Mask	Decimal Threshold
Byte 0 (LSB)	Information	Bit 0		0x00 00 00 01	1
		Bit 1		0x00 00 00 02	2
		Bit 2	Close to a bright source (not yet implemented)	0x00 00 00 04	4
		Bit 3		0x00 00 00 08	8
		Bit 4	**Deblended**	0x00 00 00 10	16
		Bit 5		0x00 00 00 20	32
		Bit 6	**Bad pixel(s) in default aperture**	0x00 00 00 40	64
		Bit 7		0x00 00 00 80	128
Byte 1	Warning	Bit 8		0x00 00 01 00	256
		Bit 9		0x00 00 02 00	512
		Bit 10		0x00 00 04 00	1 024
		Bit 11		0x00 00 08 00	2 048
		Bit 12		0x00 00 10 00	4 096
		Bit 13		0x00 00 20 00	8 192
		Bit 14		0x00 00 40 00	16 384
		Bit 15	**Source in poor flat field region**	0x00 00 80 00	32 768
Byte 2	Important Warning	Bit 16	**Close to saturated**	0x00 01 00 00	65 536
		Bit 17	**Photometric calibration probably subject to systematic error**	0x00 02 00 00	131 072
		Bit 18		0x00 04 00 00	262 144
		Bit 19	**Possible cross-talk artefact/contamination**	0x00 08 00 00	524 288
		Bit 20	Possible diffraction spike artefact/contamination (not yet implemented)	0x00 10 00 00	1 048 576
		Bit 21		0x00 20 00 00	2 097 152
		Bit 22	**Lies within a dither offset of the stacked frame boundary**	0x00 40 00 00	4 194 304
		Bit 23		0x00 80 00 00	8 388 608
Byte 3 (MSB)	Severe Warning	Bit 24		0x01 00 00 00	16 777 216
		Bit 25		0x02 00 00 00	33 554 432
		Bit 26		0x04 00 00 00	67 108 864
		Bit 27		0x08 00 00 00	134 217 728
		Bit 28		0x10 00 00 00	268 435 456
		Bit 29		0x20 00 00 00	536 870 912
		Bit 30	used in UHS to indicate failed quantitative QC	0x40 00 00 00	1 073 741 824
		Bit 31	used in UHS to indicate failed eyeball QC	0x80 00 00 00	2 147 483 648

- source / band merging
- re-seaming (priOrSec flag)
- neighbour tables
- publish static database



User access

- SQL queries
- crossID
- cut-outs
- flat file downloads of pipeline products
- VO access (SQL & SIAP)
- MOC maps
- HiPS
- helpdesk

Database release to use: UKIDSSDR8PLUS

Upload SQL query from file into this form: Choose file No file chosen Upload

or enter SQL statement:

```
3.6e6*cos(radians(g.dec))* (g.ra-T2.ra)/((mj.mjdobs -
T2.jdate+2400000.5)/365.25) as pmRA, 3.6e6*(g.dec-T2.dec)/ ((mj.mjdobs
- T2.jdate+2400000.5)/365.25) as pmDEC From gcsmergelog as I,
multiframe as mj, (Select t.ra as ra, t.dec as dec, x.slaveobjid as
slaveobjid, x.masterobjid as masterobjid, t.j_m, t.h_m, t.k_m, t.jdate
From gcssourcextwomass_psc as x, twomass..twomass_psc as t Where
x.slaveobjid=t.pts_key And distancemins In (Select Min(distancemins)
From gcssourcextwomass_psc Where masterobjid=x.masterobjid)) As T2
Right Outer Join gcssource As g On (g.sourceid=T2.masterobjid) Where
(g.ra Between 235.0 And 245.0) And (g.dec Between -30.0 And -27.0) And
zapermag3 > 14.0 And yapermag3 > 11.5 And japermag3 > 12.0 And
hapermag3 > 10.0 And k_1apermag3 > 9.5 And zxi Between -1.0 And +1.0
And yxi Between -1.0 And +1.0 And jxi Between -1.0 And +1.0 And hxi
Between -1.0 And +1.0 And k_1xi Between -1.0 And +1.0 And zeta Between
-1.0 And +1.0 And yeta Between -1.0 And +1.0 And jeta Between -1.0 And
+1.0 And heta Between -1.0 And +1.0 And k_1eta Between -1.0 And +1.0
And zclass Between -2 And -1 And yclass Between -2 And -1 And jclass
Between -2 And -1 And hclass Between -2 And -1 And k_1class Between -2
And -1 And (priorsec = 0 Or priorsec = g.framesetid) And
g.framesetid=I.framesetid And I.jmfid=mj.multiframeid
```

Submit ensure one of the file formats is selected below if you want to save your results.

Email Address: the results of long running queries will be sent by email.

Data Format:

- HTML table summary (results are NOT saved to file)
- ASCII FILE (downloadable with HTML table summary on-screen)
- FITS FILE (downloadable with HTML table summary on-screen)
- VOTable FILE (downloadable with HTML table summary on-screen)

WFAU

Institute for Astronomy

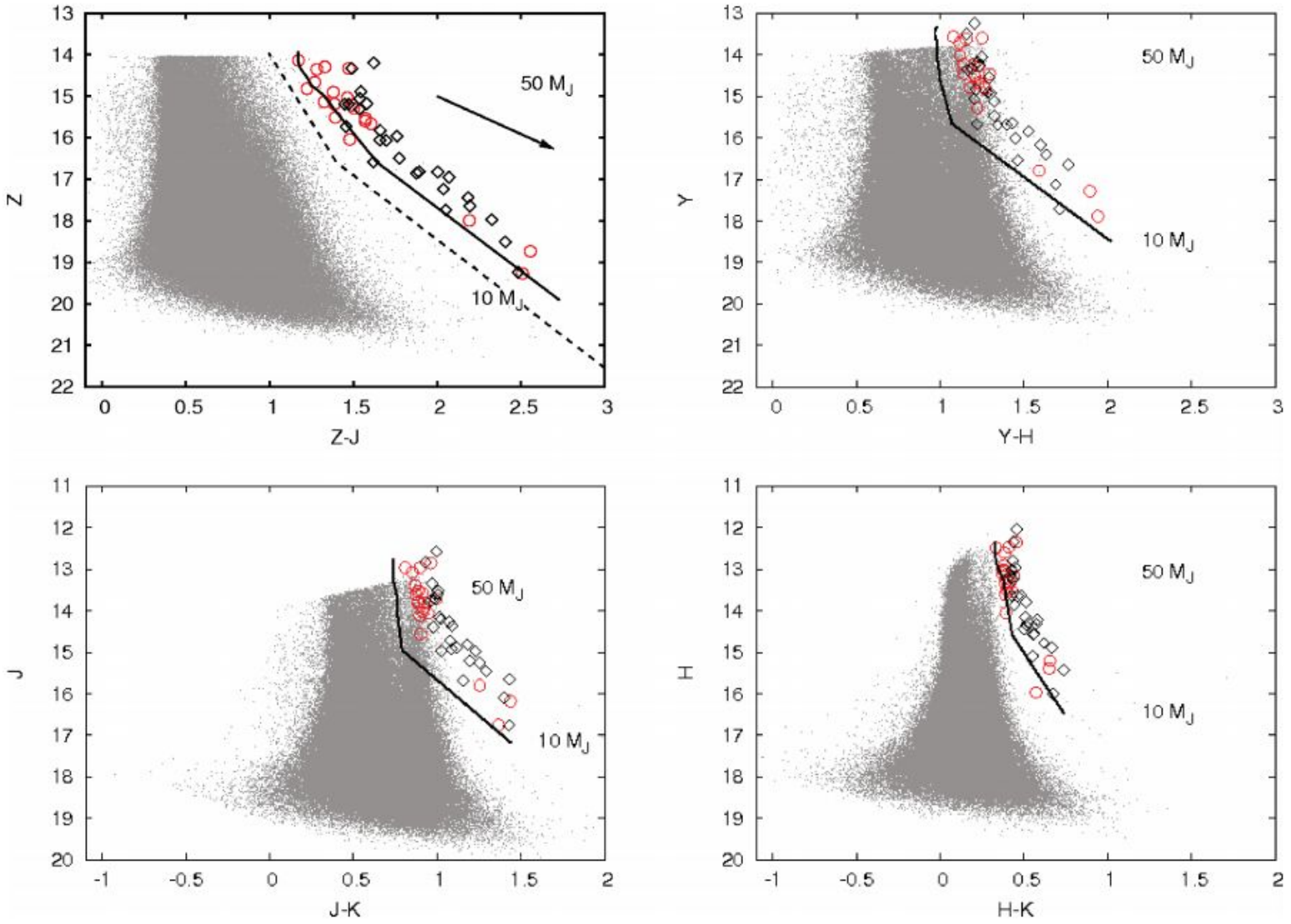
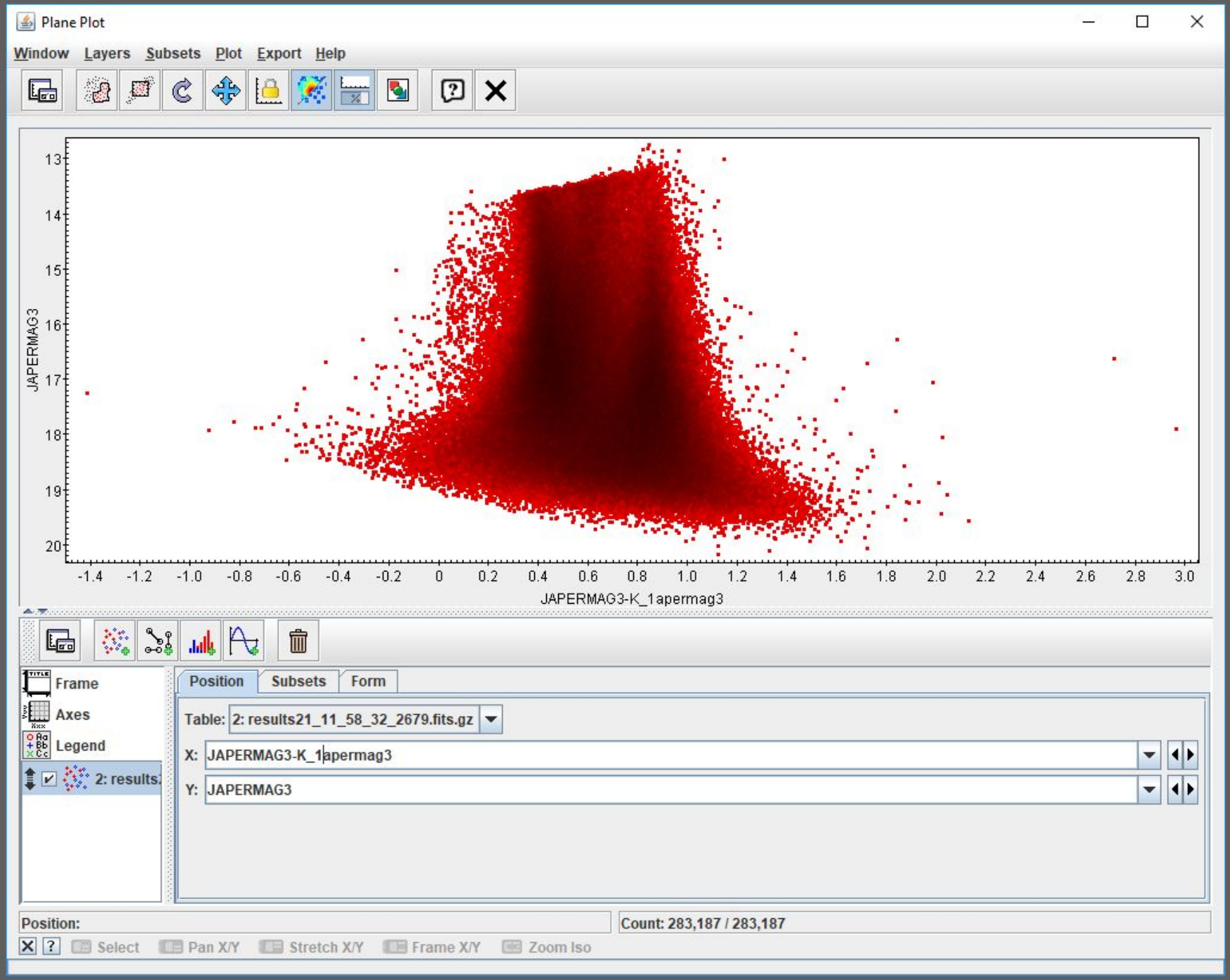


Figure 2. Four colour magnitude diagrams showing the 19 brown dwarf candidates and the one object too faint to have its proper motion measured (see text) as red open circles. Spectroscopically confirmed brown dwarfs from other studies of UpSco (Martin et al. 2004; Slesnick et al. 2006; Lodieu et al. 2008, 2011) are shown as open diamonds and all other objects as small dots. The 5 Myr DUSTY model (Chabrier et al. 2000) isochrone is also shown with mass decreasing going down the isochrone as indicated. As can be seen, some diagrams show a clearer demarcation between brown dwarfs and main sequence objects than


Plane Plot
Window Layers Subsets Plot Export Help
JAPERMAG3
JAPERMAG3-K_1apermag3
Frame
Axes
Legend
2: results.
Position Subsets Form
Table: 2: results21_11_58_32_2679.fits.gz
X: JAPERMAG3-K_1apermag3
Y: JAPERMAG3
Position:
Count: 283,187 / 283,187
Select Pan X/Y Stretch X/Y Frame X/Y Zoom Iso

Select g.ra, g.dec, zmypnt, ymjpnt, jmhpnt, hmk_1pnt, zapermag3, yapermag3, japermag3, hapermag3, k_1apermag3, 3.6e6*cos(radians(g.dec))* (g.ra-T2.ra)/((mj.mjdobs - T2.jdate+2400000.5)/365.25) as pmRA, 3.6e6*(g.dec-T2.dec)/((mj.mjdobs - T2.jdate+2400000.5)/365.25) as pmDEC From gcsmergelog as l, multiframe as mj, (Select t.ra as ra, t.dec as dec, x.slaveobjid as slaveobjid, x.masterobjid as masterobjid, t.j_m, t.h_m, t.k_m, t.jdate From gcssourcextwomass_psc as x, twomass..twomass_psc as t Where x.slaveobjid=t.pts_key And distancemins In (Select Min(distancemins) From gcssourcextwomass_psc Where masterobjid=x.masterobjid)) As T2 Right Outer Join gcssource As g On (g.sourceid=T2.masterobjid) Where (g.ra Between 235.0 And 245.0) And (g.dec Between -30.0 And -27.0) And zapermag3 > 14.0 And yapermag3 > 11.5 And japermag3 > 12.0 And hapermag3 > 10.0 And k_1apermag3 > 9.5 And zxi Between -1.0 And +1.0 And yxi Between -1.0 And +1.0 And jxi Between -1.0 And +1.0 And hxi Between -1.0 And +1.0 And k_1xi Between -1.0 And +1.0 And zeta Between -1.0 And +1.0 And yeta Between -1.0 And +1.0 And jeta Between -1.0 And +1.0 And heta Between -1.0 And +1.0 And k_1eta Between -1.0 And +1.0 And zclass Between -2 And -1 And yclass Between -2 And -1 And jclass Between -2 And -1 And hclass Between -2 And -1 And k_1class Between -2 And -1 And (priorsec = 0 Or priorsec = g.framesetid) And g.framesetid=l.framesetid And l.jmfid=mj.multiframeid

```
select skyLevel, photZPCat-2.5*log10(5.0*skyNoise*sqrt(3.141593*1.2)/(CA.xPixSize*M.expTime))-AperCor3 as depth,
MFD.multiframeID,mfd.extNum,photZPCat,seeing*xPixSize as
seeing,skyLevel,skyNoise,avStellarEll,(amStart+amEnd)/2.0 as airMass, M.expTime, M.njitter, M.nustep, aperCor3,
M.project, M.utDate, T.*,project from MultiframeDetector as MFD, CurrentAstrometry as CA, Multiframe AS M, (select
D.multiframeID,avg(seeing*xPixSize) as avgSee,avg(photZPCat) as avgZP,avg(aperCor3) as avgAperCor3,
avg(skyLevel) as avgSkyLevel, avg(skyNoise) as avgSkyNoise, avg(avStellarEll) as avgEll, avg(C.l) as avl, avg(c.b) as
avb, avg(c.centralDec) as avgDec, avg(c.centralRA) as avgRA,
avg(photZPCat-2.5*log10(5.0*skyNoise*sqrt(3.141593*1.2)/(C.xPixSize*M.expTime))-AperCor3) as avgDepth FROM
MultiframeDetector AS D, Multiframe AS M, CurrentAstrometry AS C WHERE project like '%uhs%' AND seeing>0.0
AND C.MultiframeID=M.MultiframeID AND C.extNum=D.extNum AND xPixSize>0.0 AND
M.MultiframeID=D.MultiframeID AND M.utDate between '2017-01-31' and '2018-01-31' and M.deprecated=0 and
D.deprecated=0 group by D.multiframeID) as T where MFD.MultiframeID=CA.MultiframeID and
MFD.extNum=CA.extNum and M.multiframeID=MFD.multiframeID and M.filterID=5 and skyNoise>-0.9e9 and
seeing>0.0 and MFD.deprecated=0 and M.deprecated=0 and M.multiframeID=T.multiframeID
```