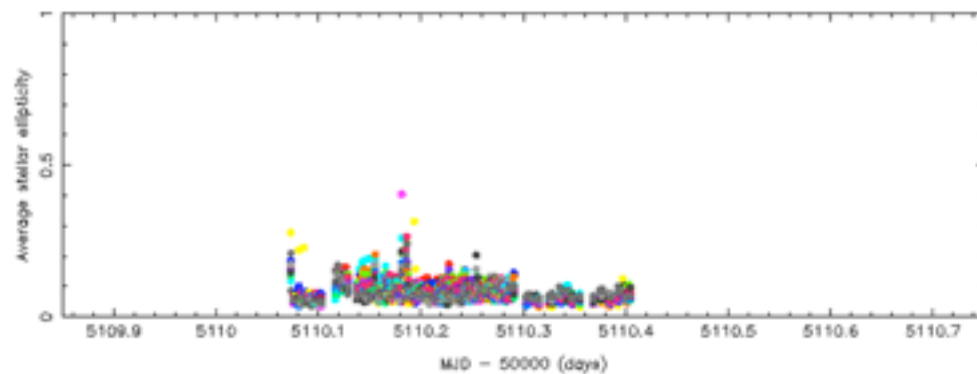
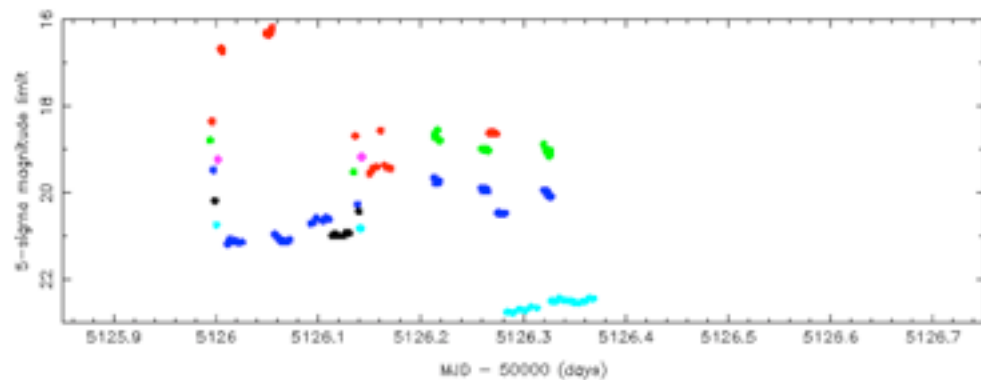
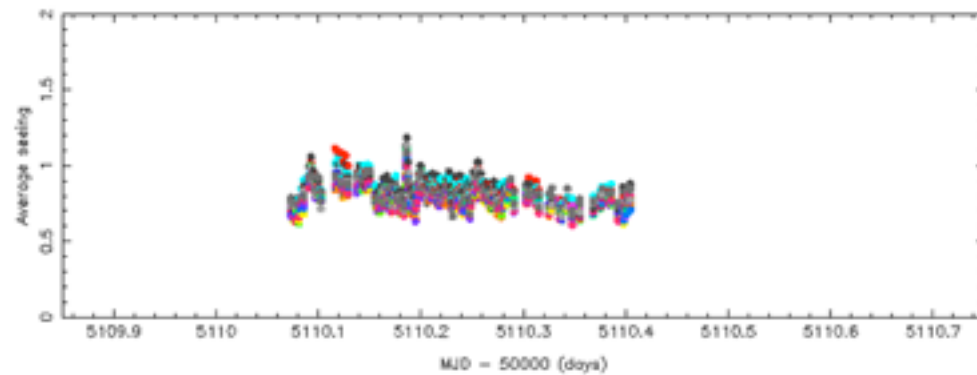
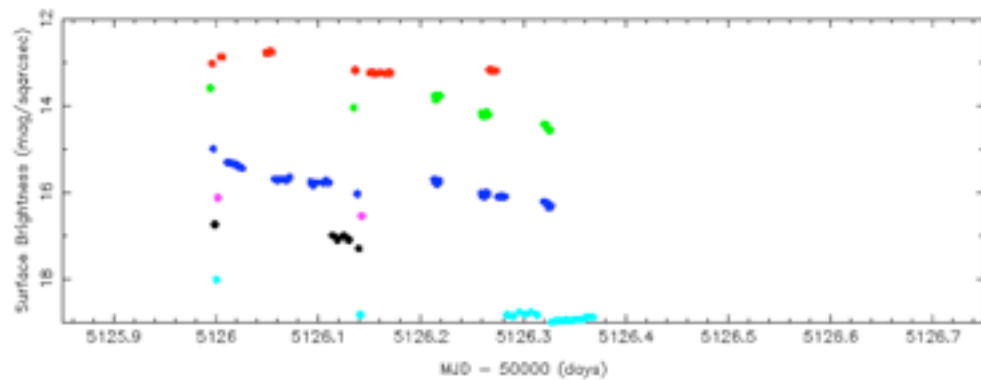
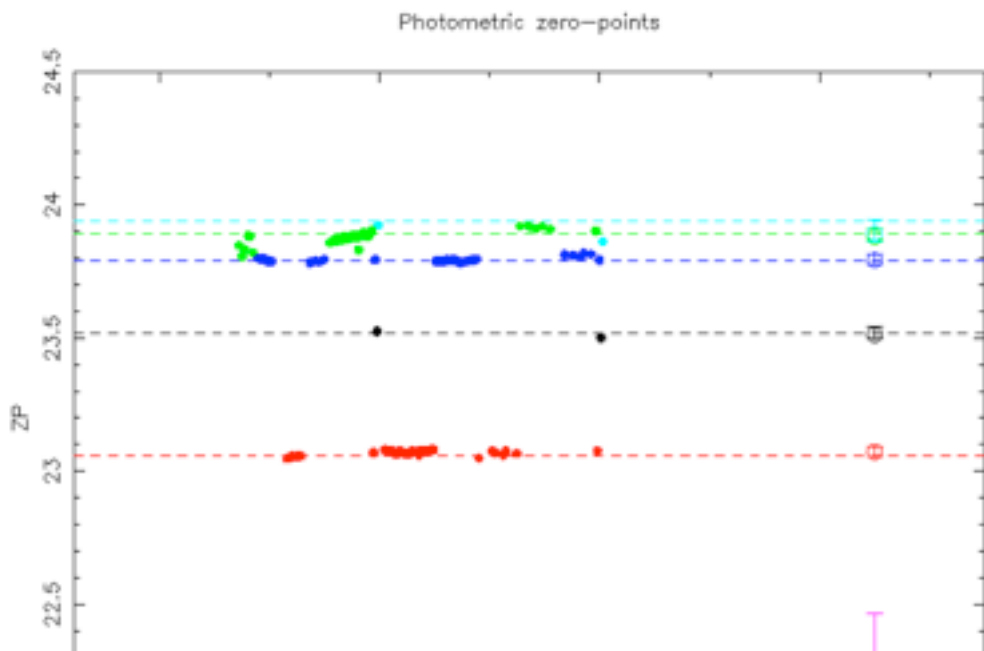


Post-pipeline processing/checks - I

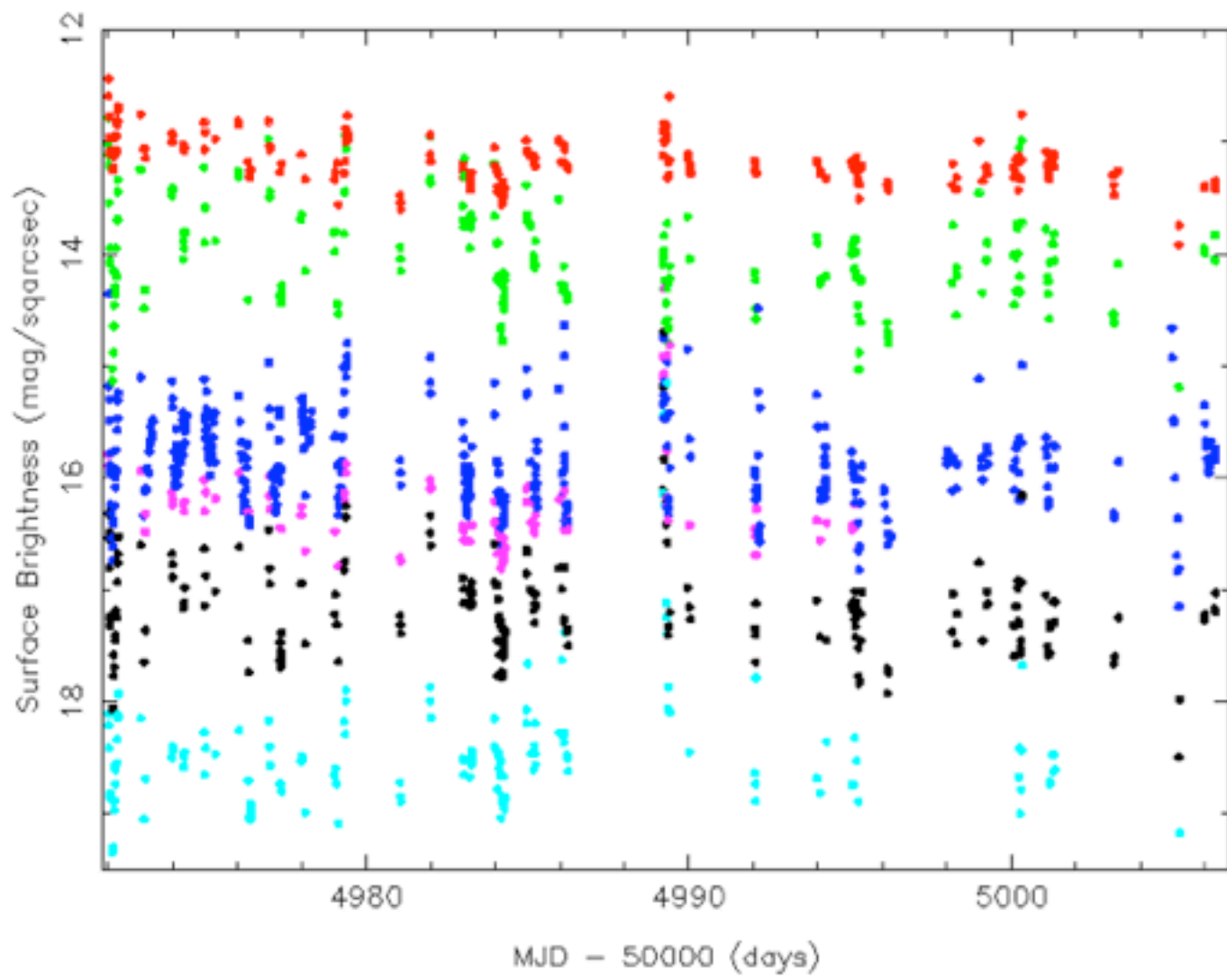
- **filenaming conventions**
 - v20091102_00123.fit (raw & processed)
 - v20091102_00123_st.fit _st_cat.fits _st_conf.fit
 - v20091102_00123_st_tl.fit
 - dark_20091102_5_1.fit
 - J_flat_20091016.fit
 - sky_20091102_00123_J.fit
- **detector level validations checks**
 - have all processing steps been applied
 - astrometric residuals < 0.25 & Nstds > 10
 - photometric calibration
 - QC plots & sample visual inspection images
 - update image headers
 - Rice compress processed images and conf maps

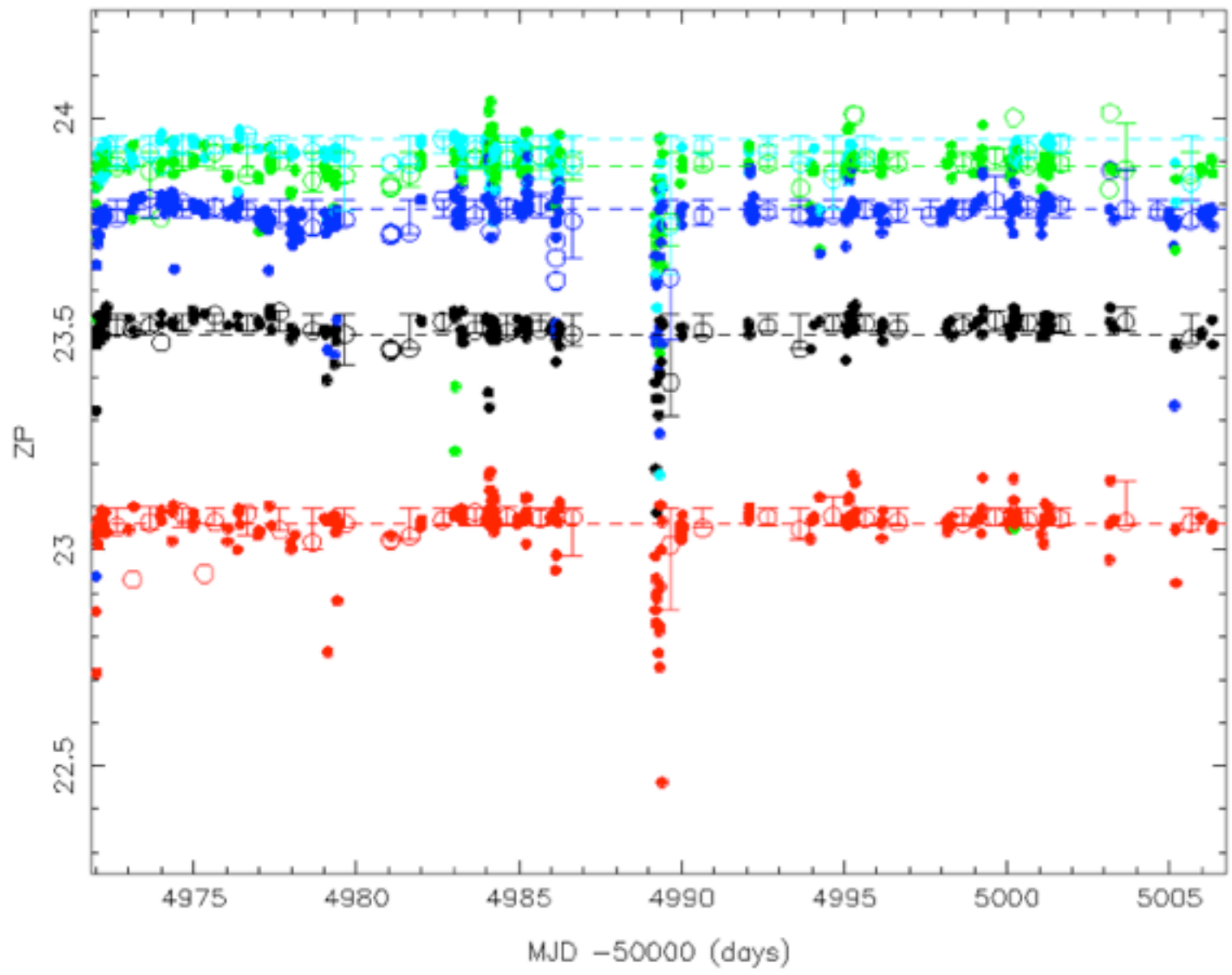
Checks using QC summary plots



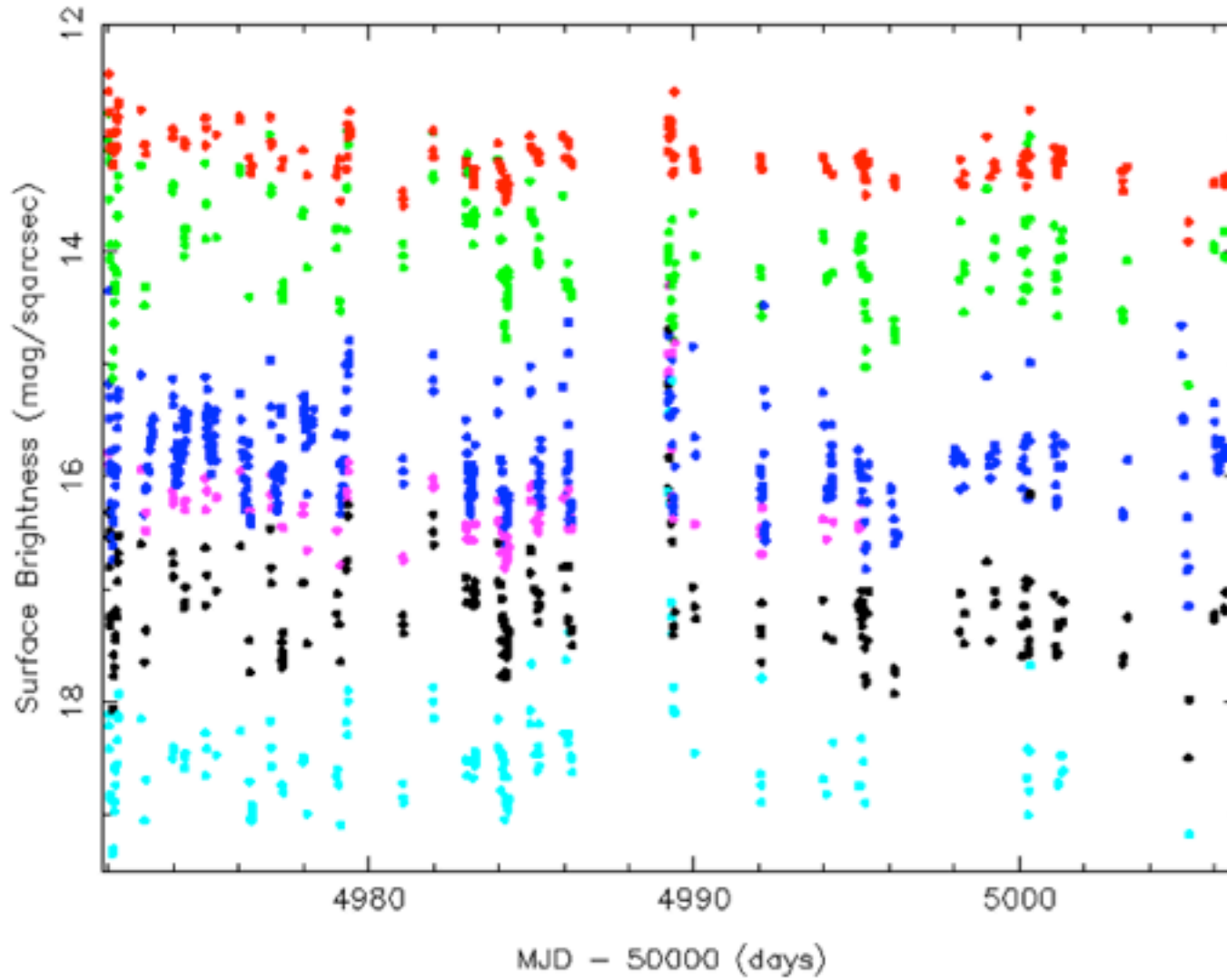
Post-pipeline processing/checks - II

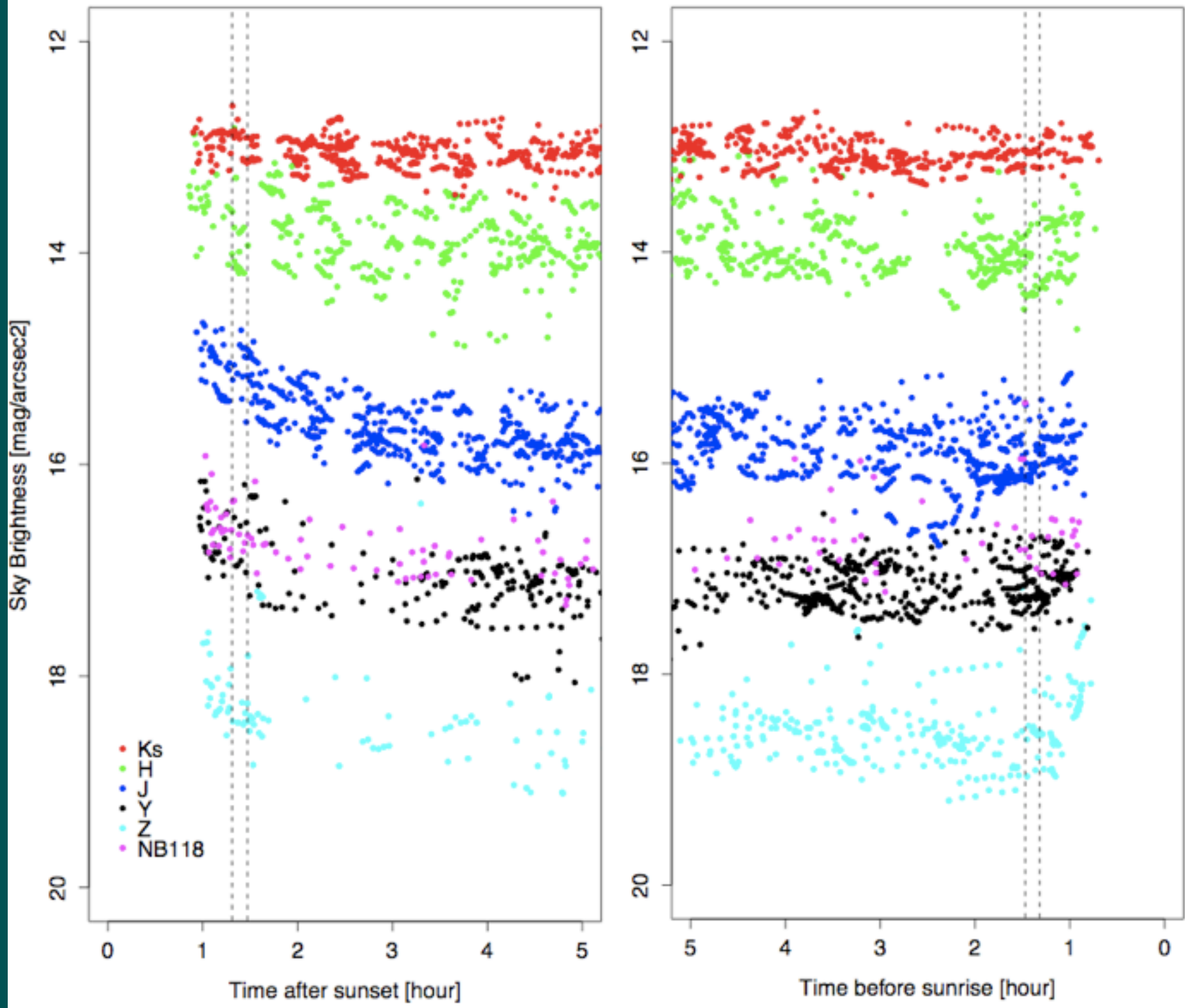
- generate science product tiles/mosaics
 - tile stacked pawprints PR/large area analysis
 - 'nebulosity' filter stacked pawprints
 - mosaic filtered-stacked pawprints
 - generate catalogues, calibrate etc... as above
- form deeper stacks/tiles regenerate catalogues
- merge catalogues across bands for pawprint/tiles
- form large area matched catalogues
- generate time series for lightcurve analysis





Sky surface brightness - May, June 2009





Astrometric Calibration 2MASS - VISTA

WCS - ZPN projection

$$r' = r + k_3 r^3 + k_5 r^5 \dots$$

Linear solution
per detector

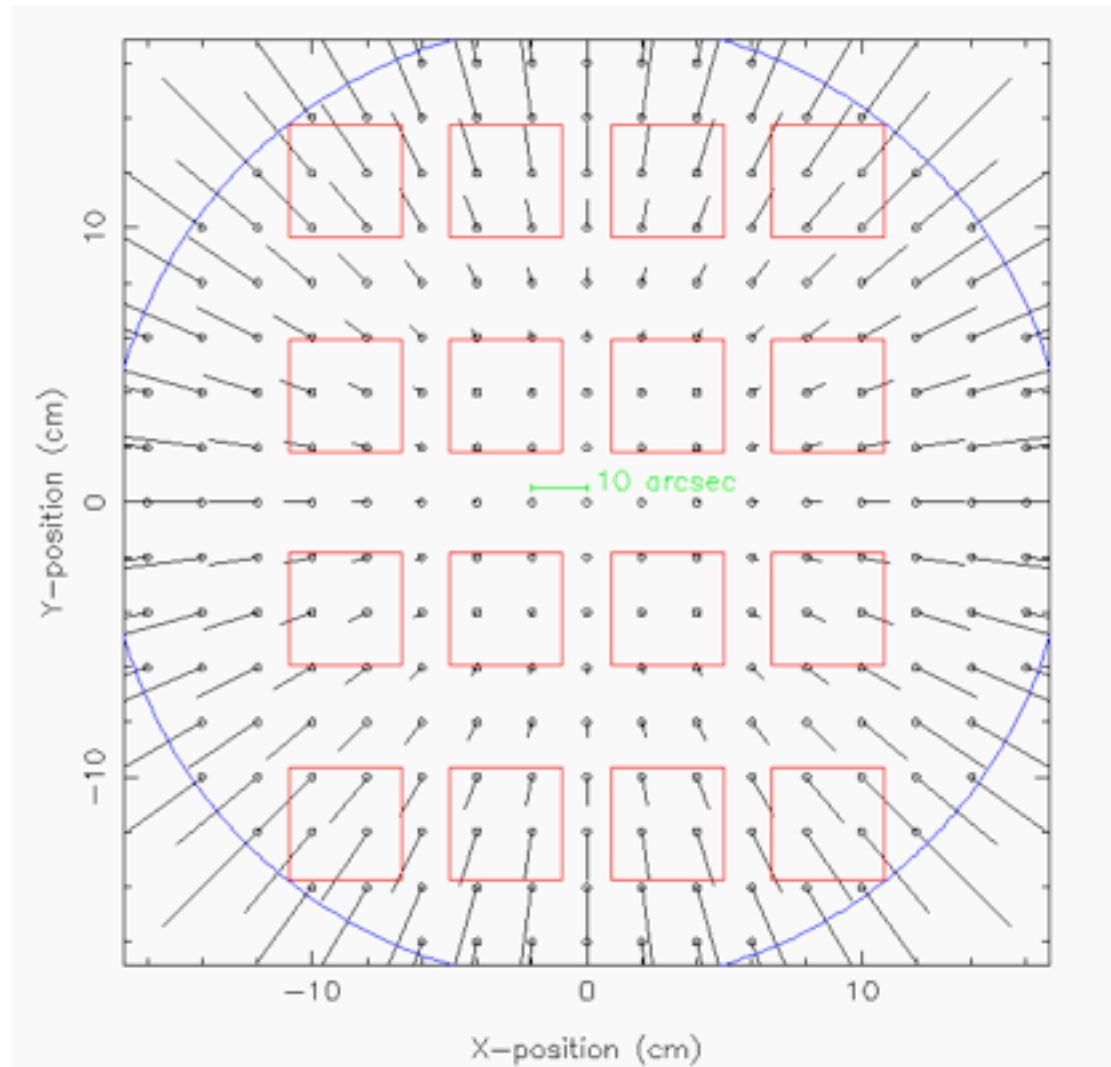
$$\xi' = ax' + by' + c$$

$$\eta' = dx' + ey' + f$$

→ rms < 100 mas

Tabulated
systematics
from stacked
residuals

→ sys < 25 mas



Astrometric Calibration 2MASS - VISTA

WCS - ZPN projection

$$r' = r + k_3 r^3 + k_5 r^5 \dots$$

Linear solution
per detector

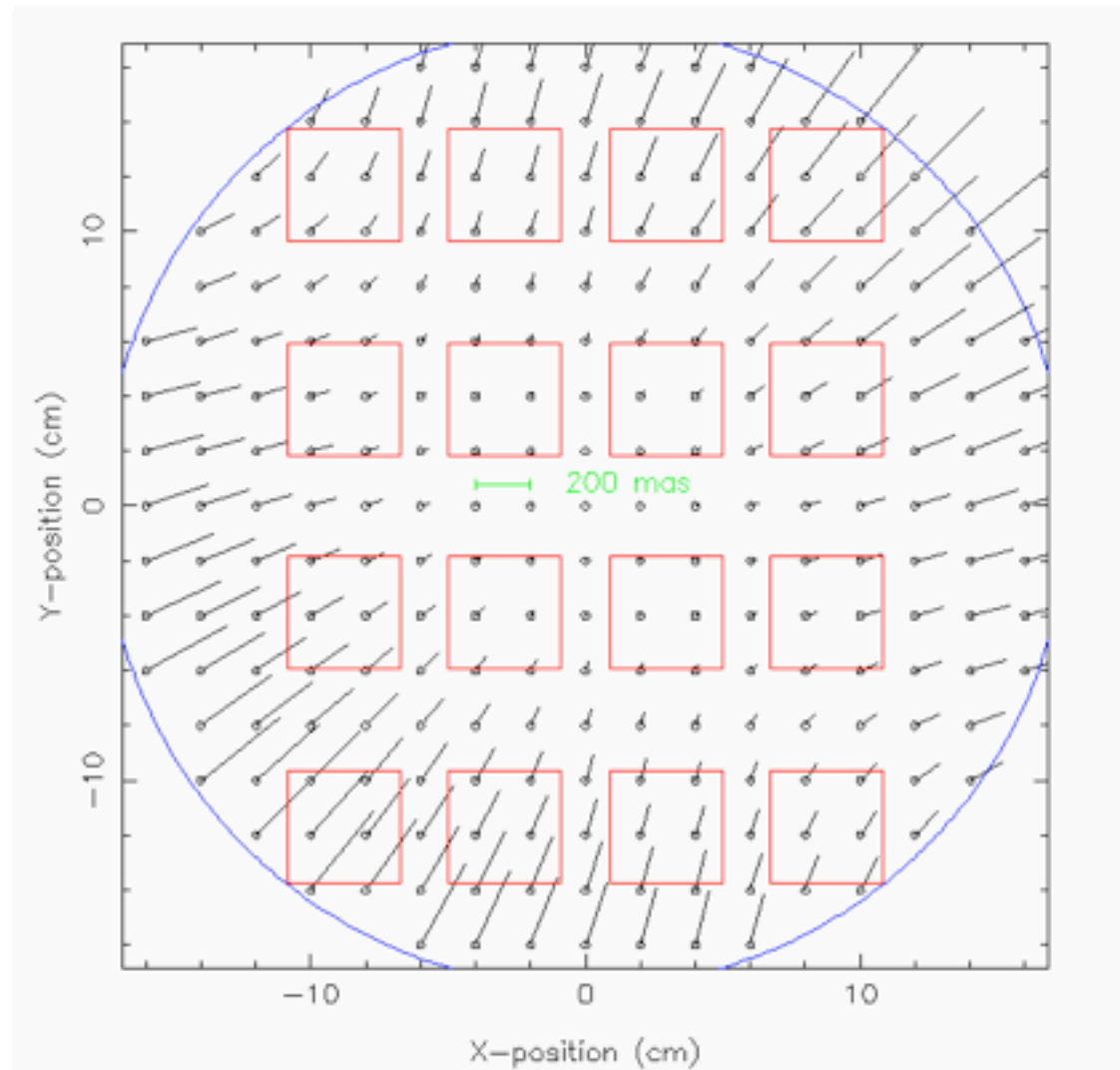
$$\xi' = ax' + by' + c$$

$$\eta' = dx' + ey' + f$$

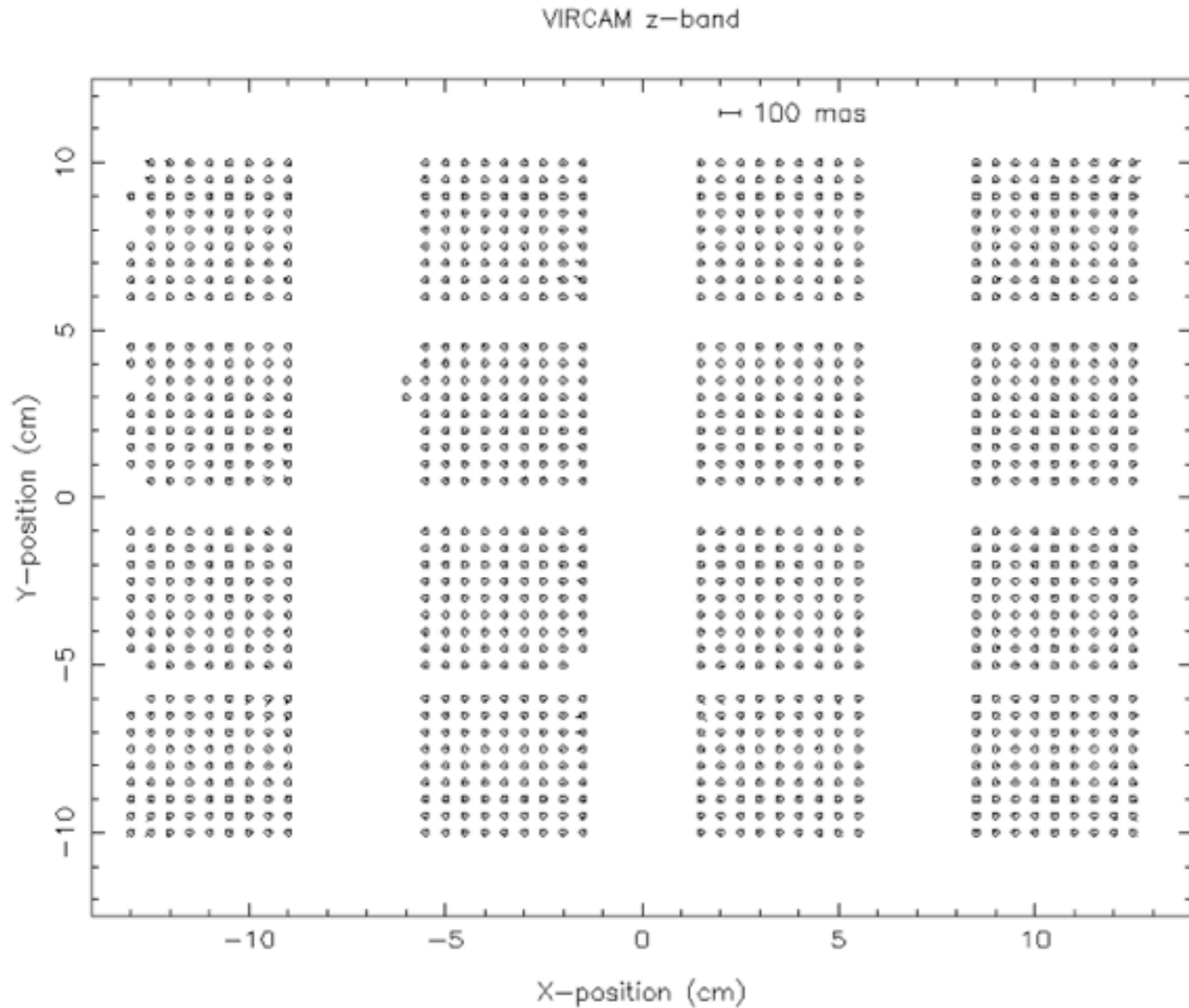
→ rms < 100 mas

Tabulated
systematics
from stacked
residuals

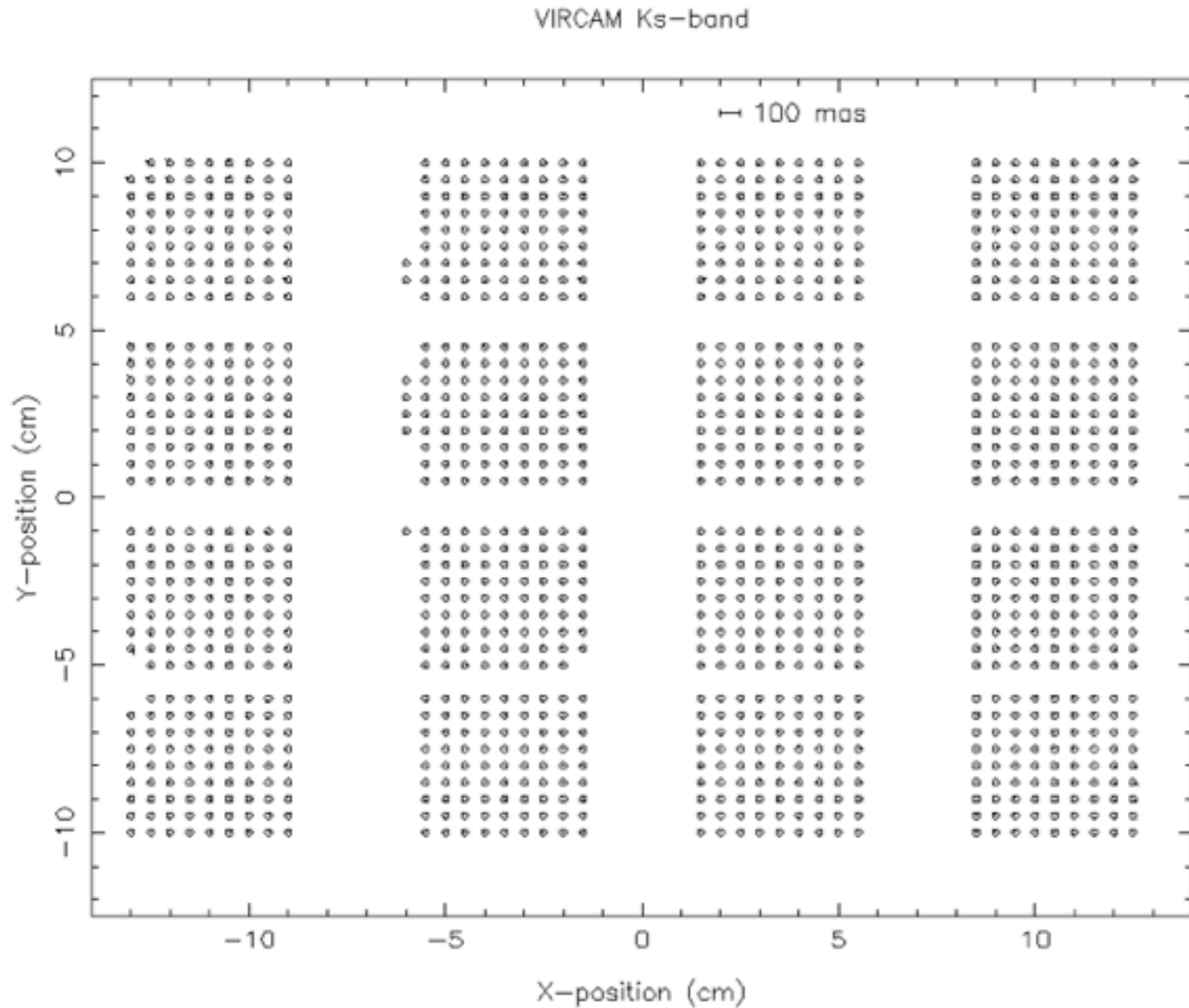
→ sys < 25 mas



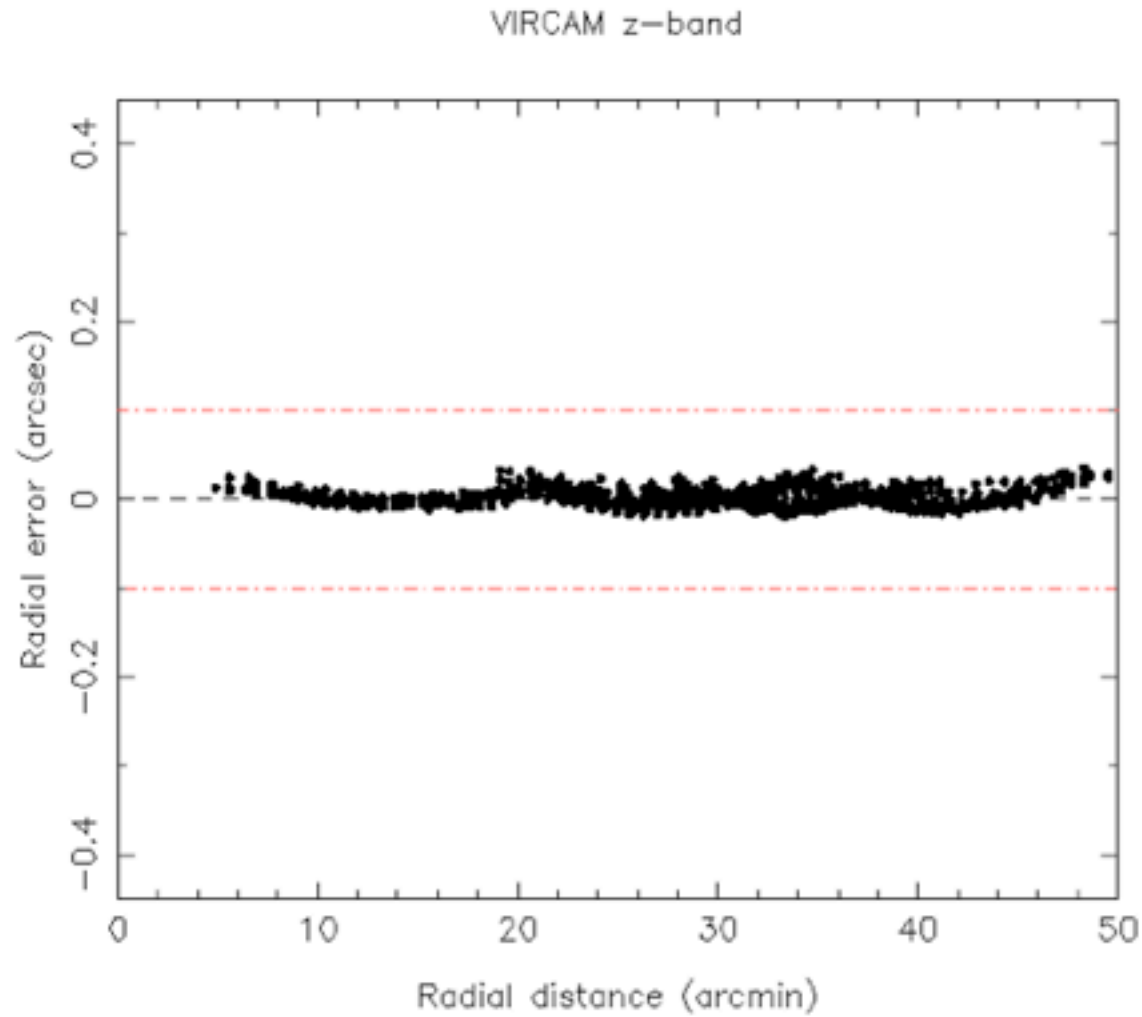
Astrometric Calibration - residual distortion map



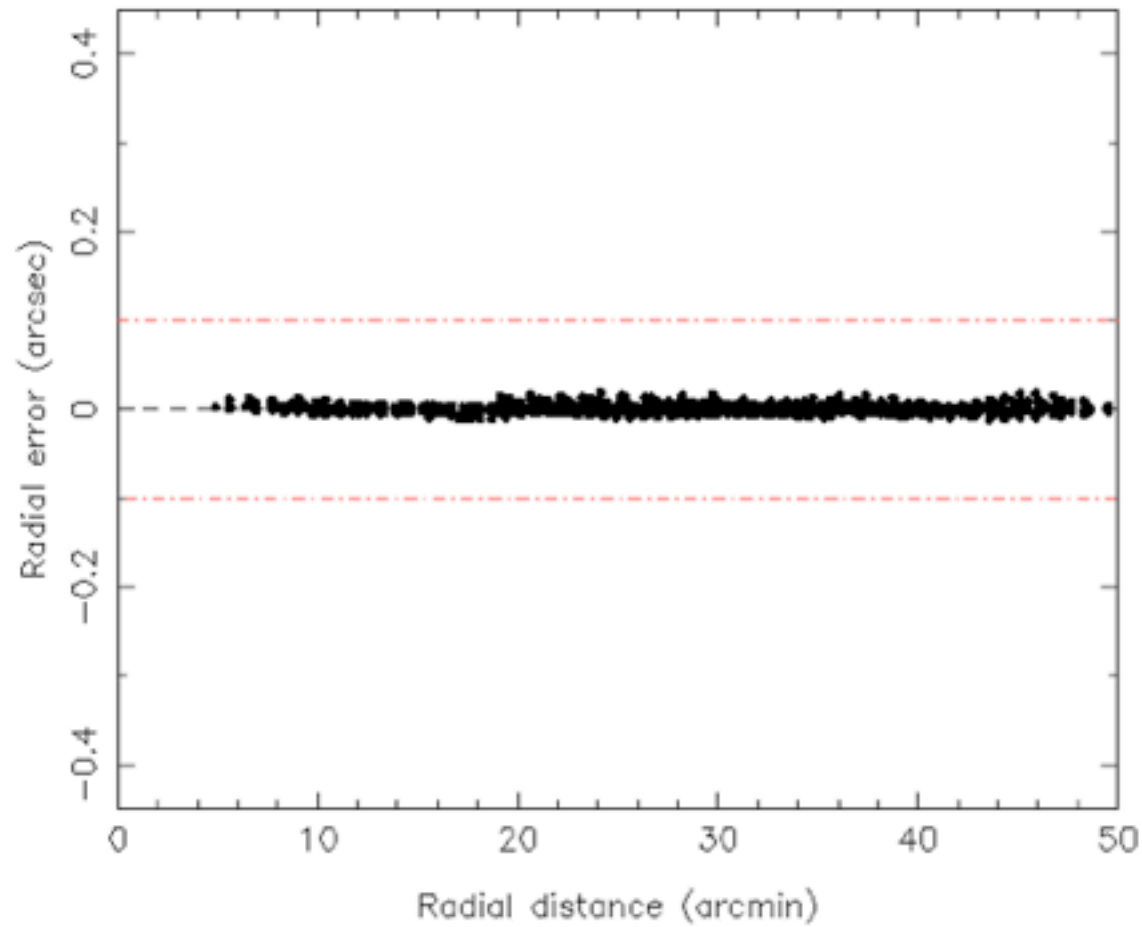
Astrometric Calibration - residual distortion map



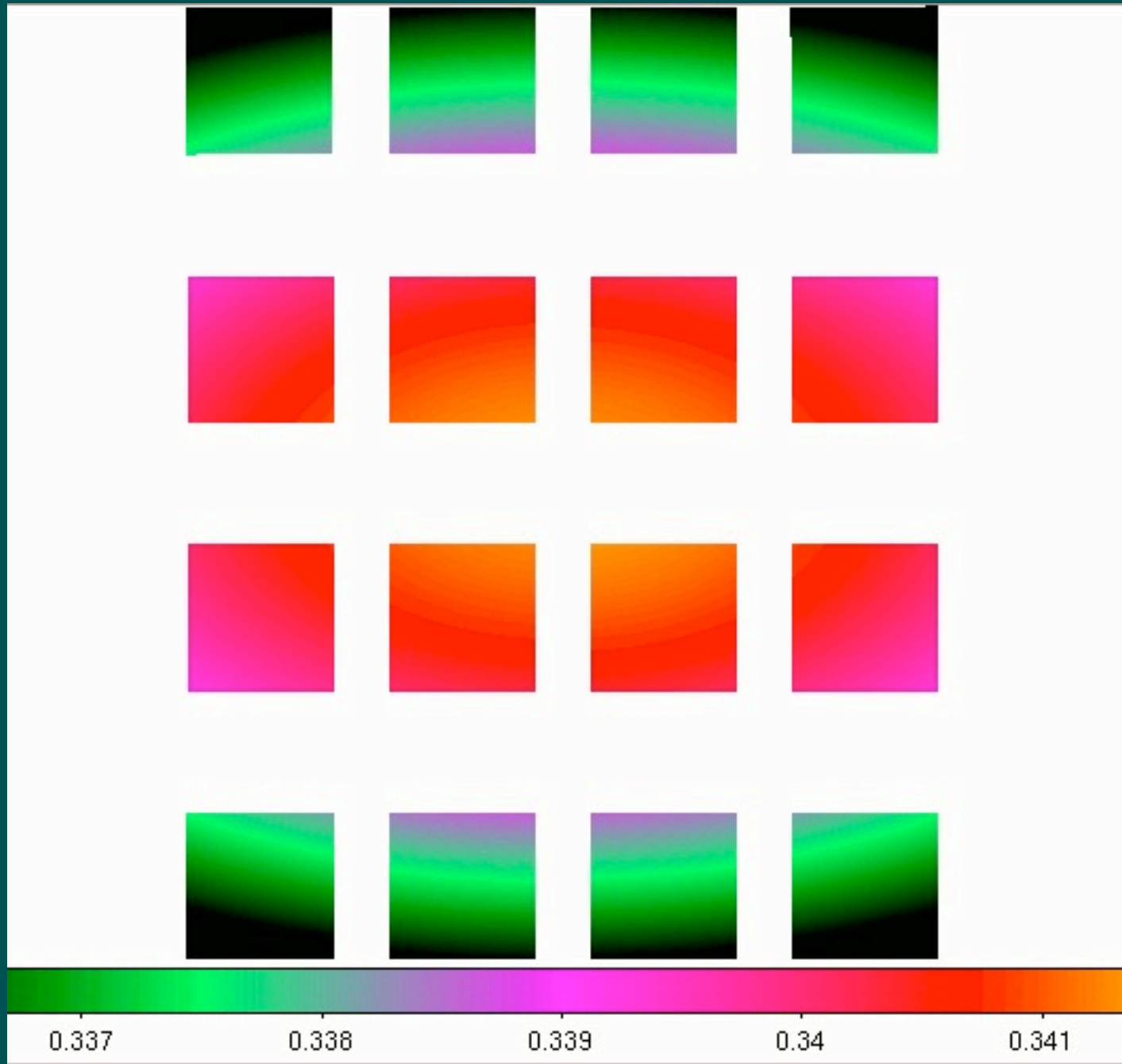
Astrometric Calibration - residual distortion map



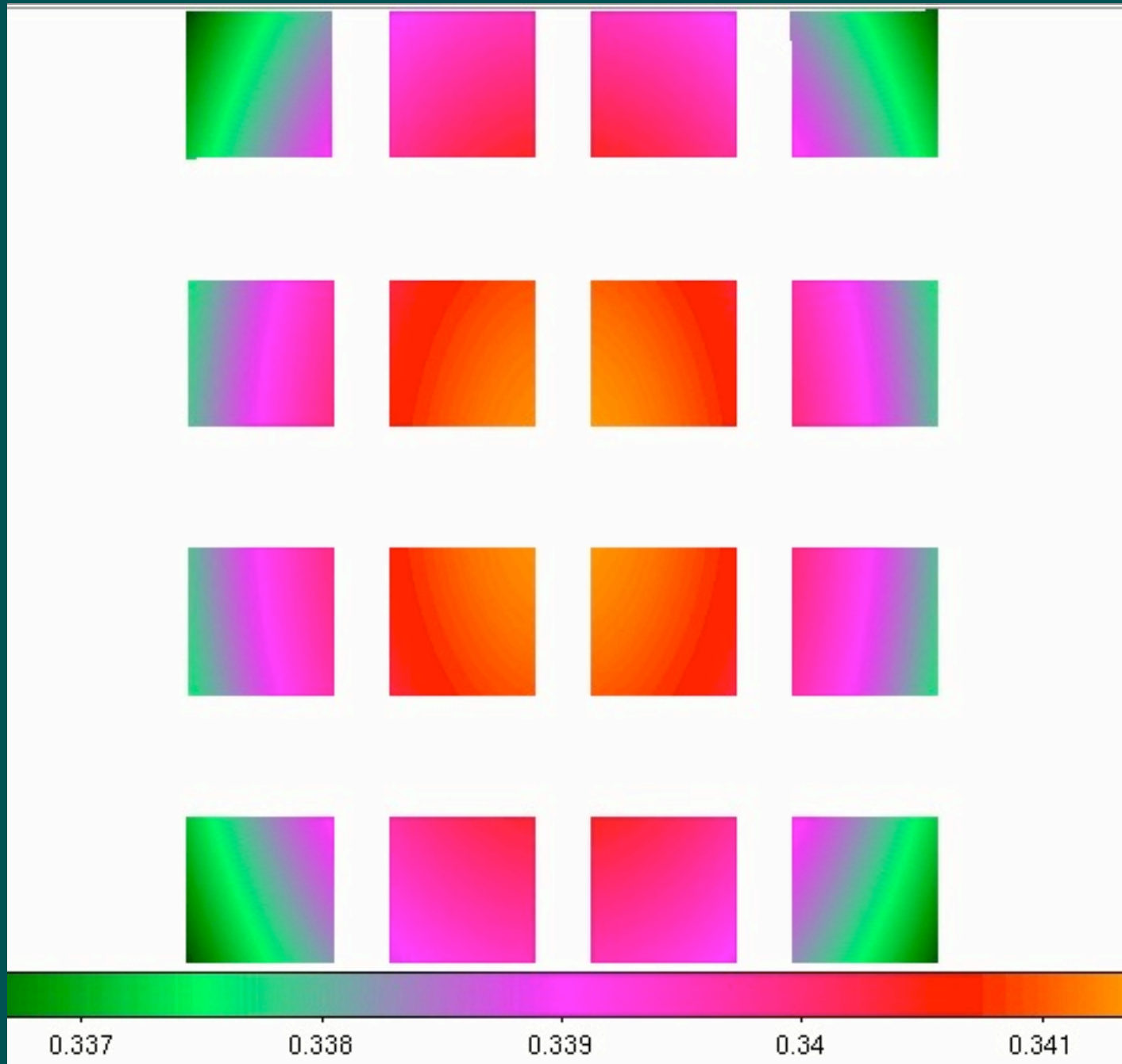
Astrometric Calibration - residual distortion map



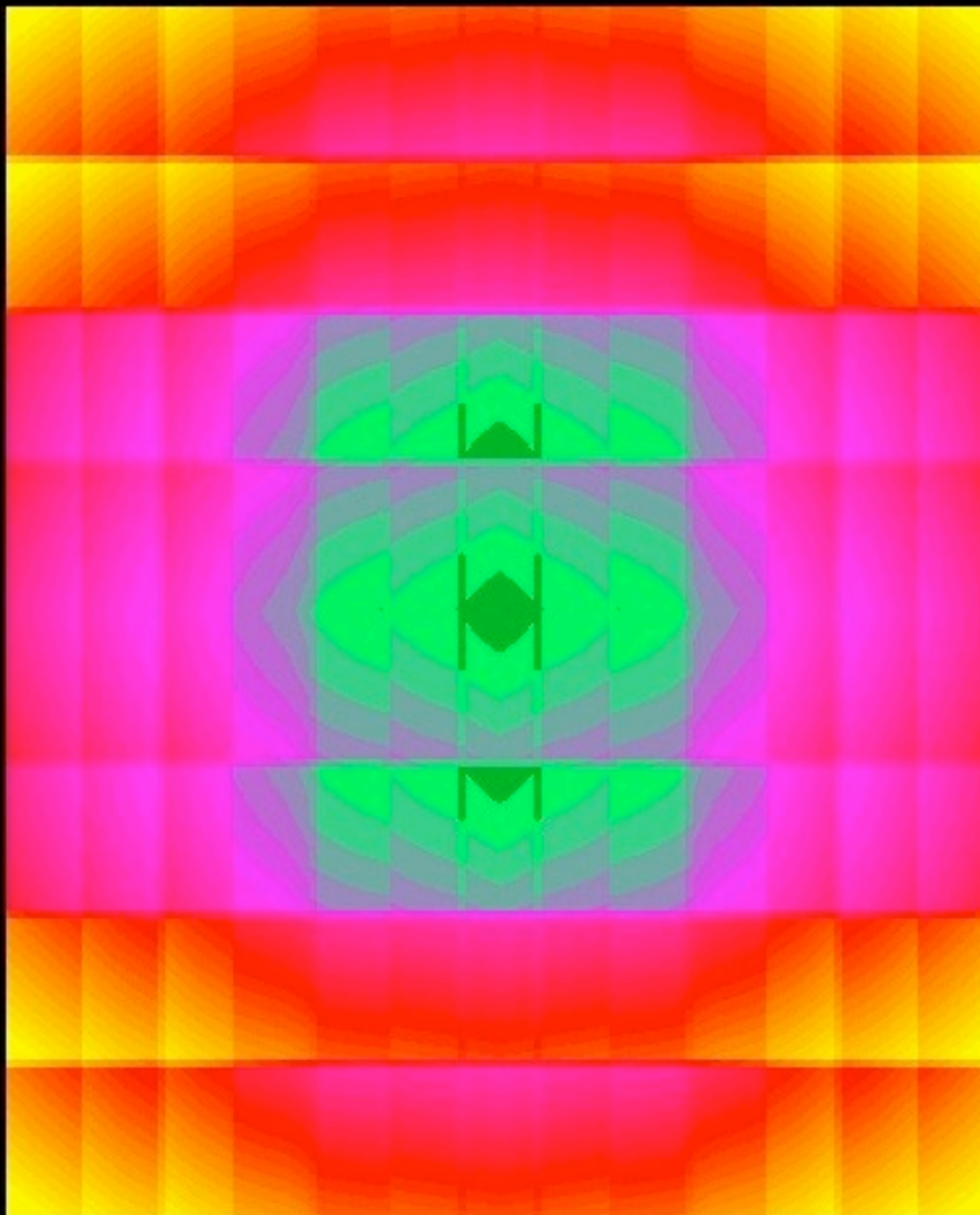
Variation of x,y pixel scales



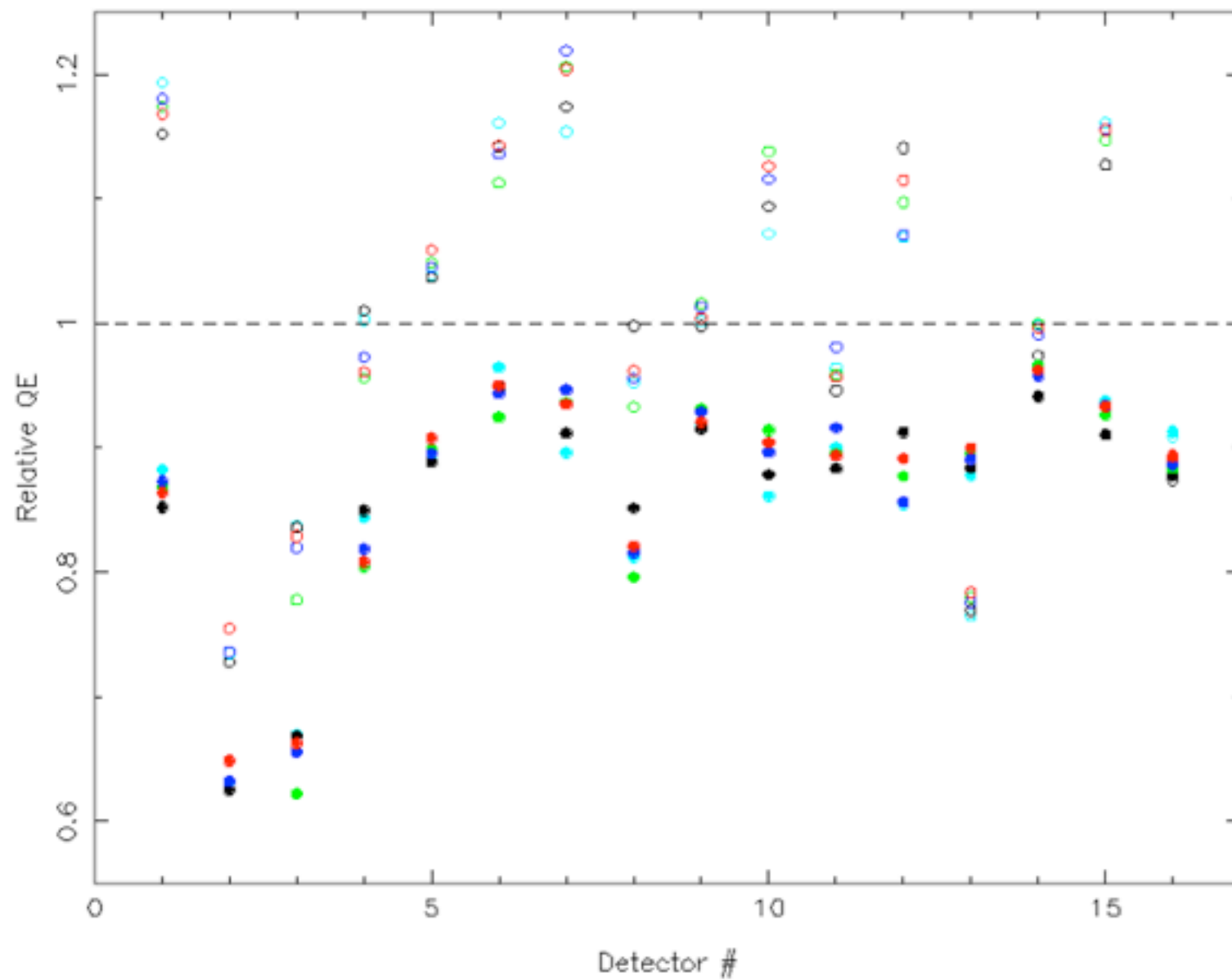
Variation of x,y pixel scales

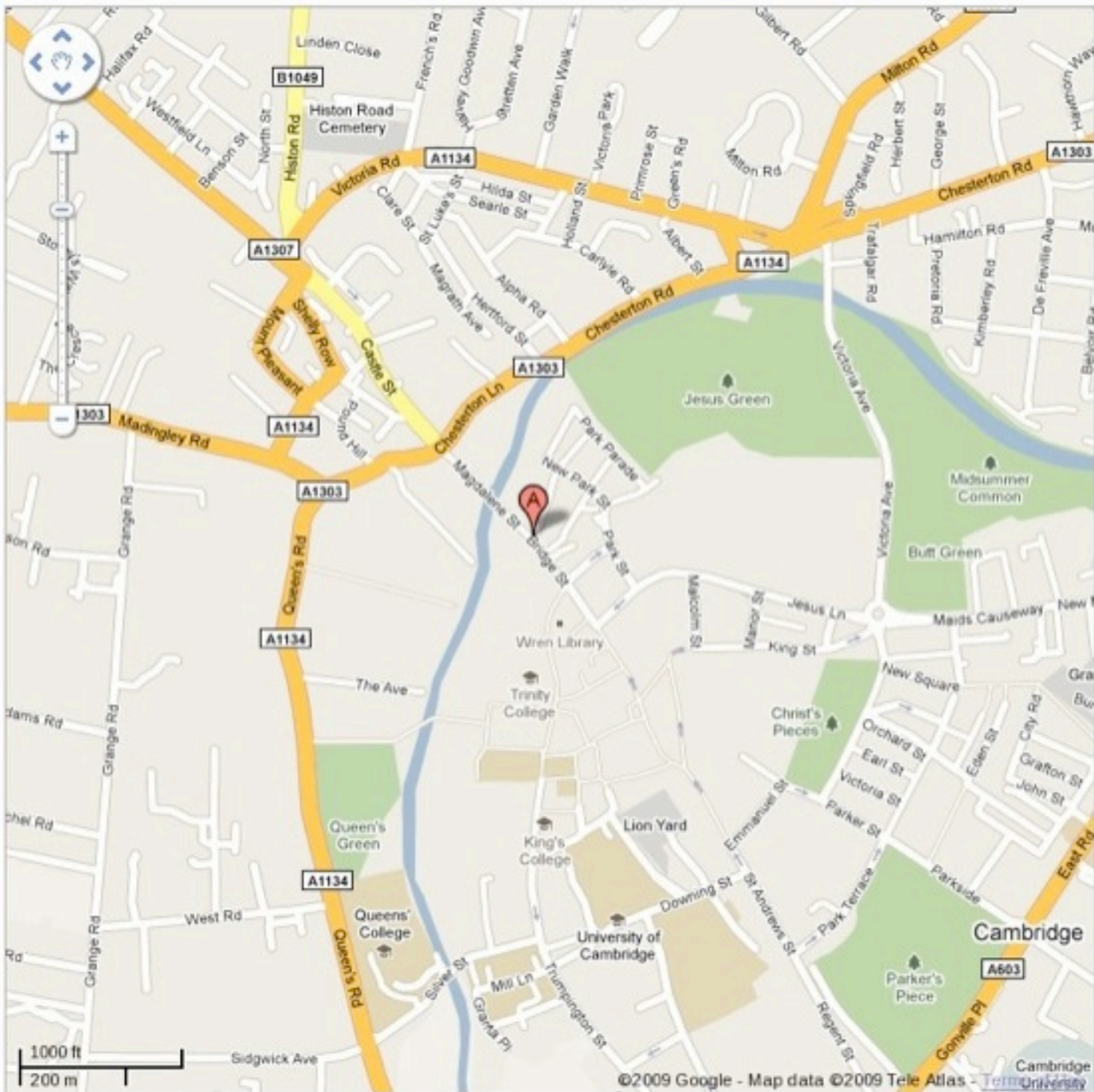


VISTA tile photometric distortion

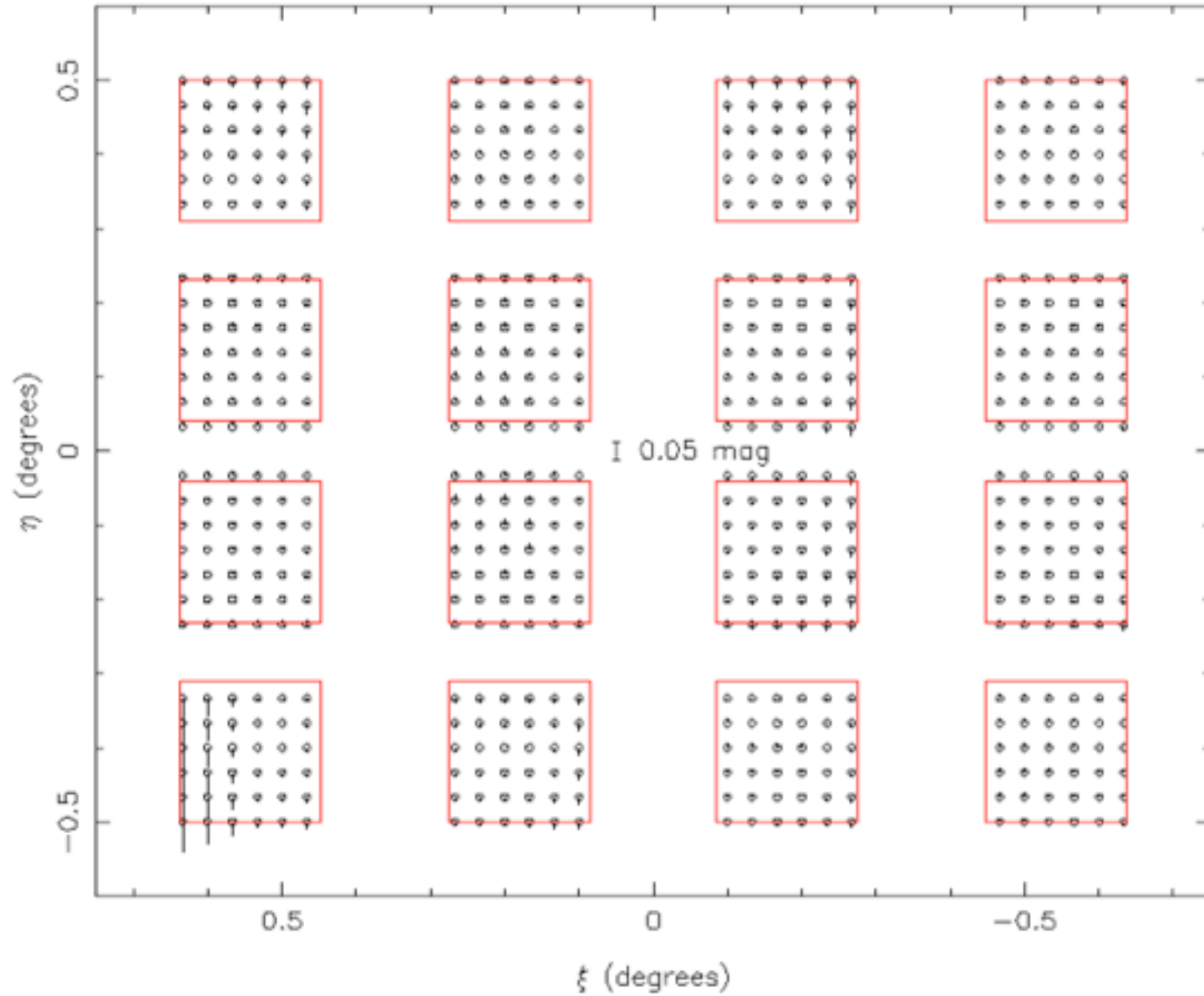


Relative QE for VISTA detectors

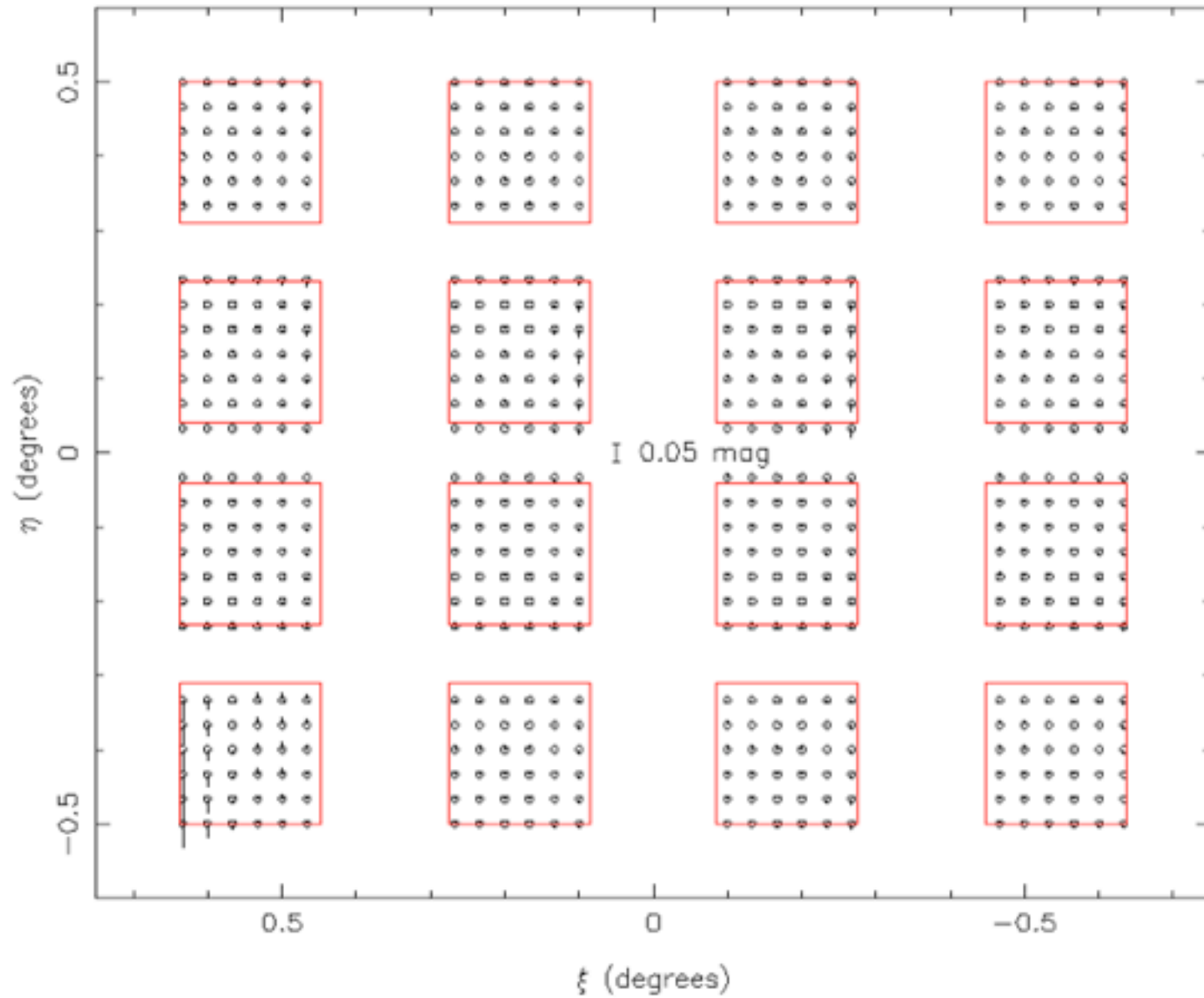




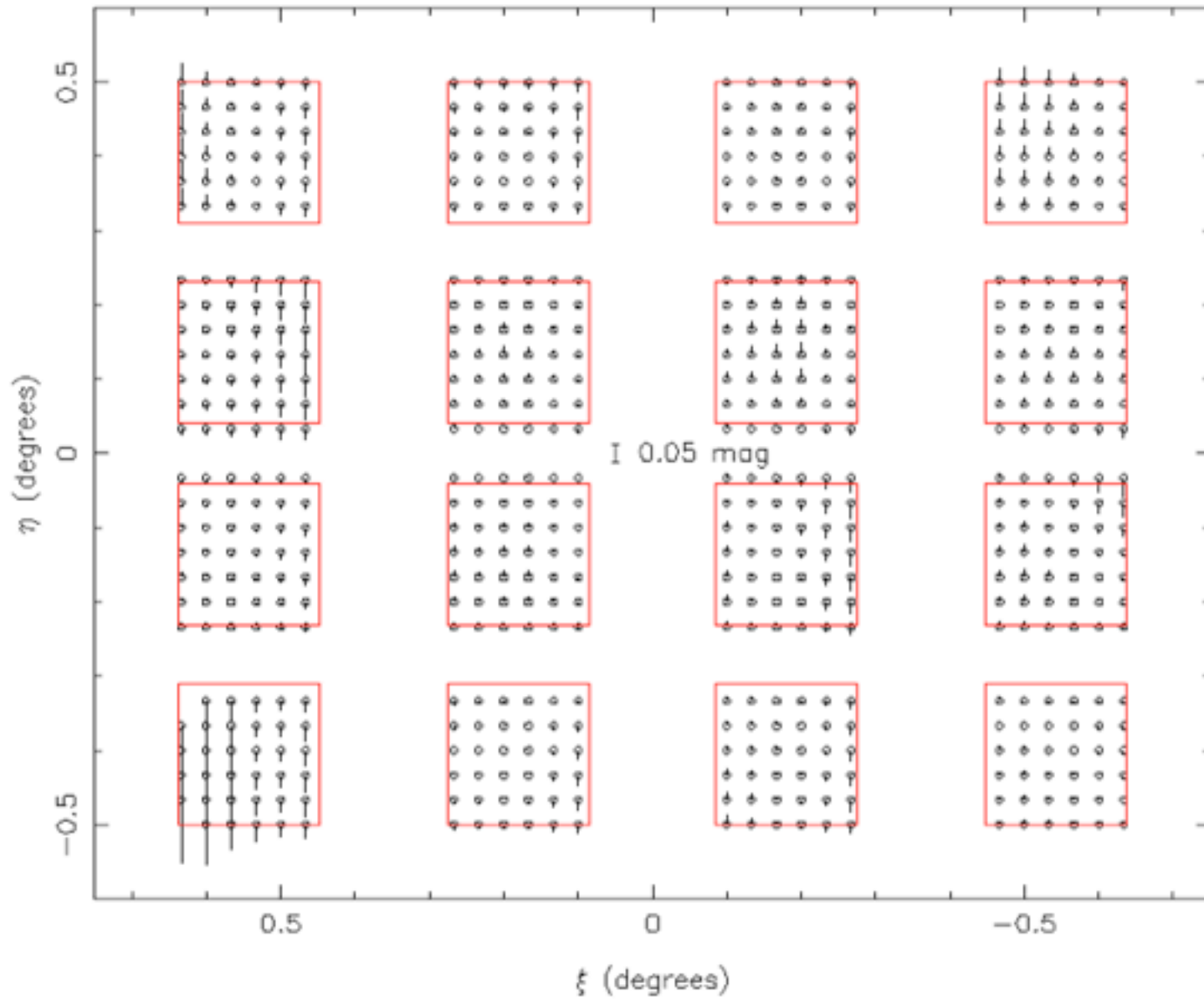
Illumination correction J-band



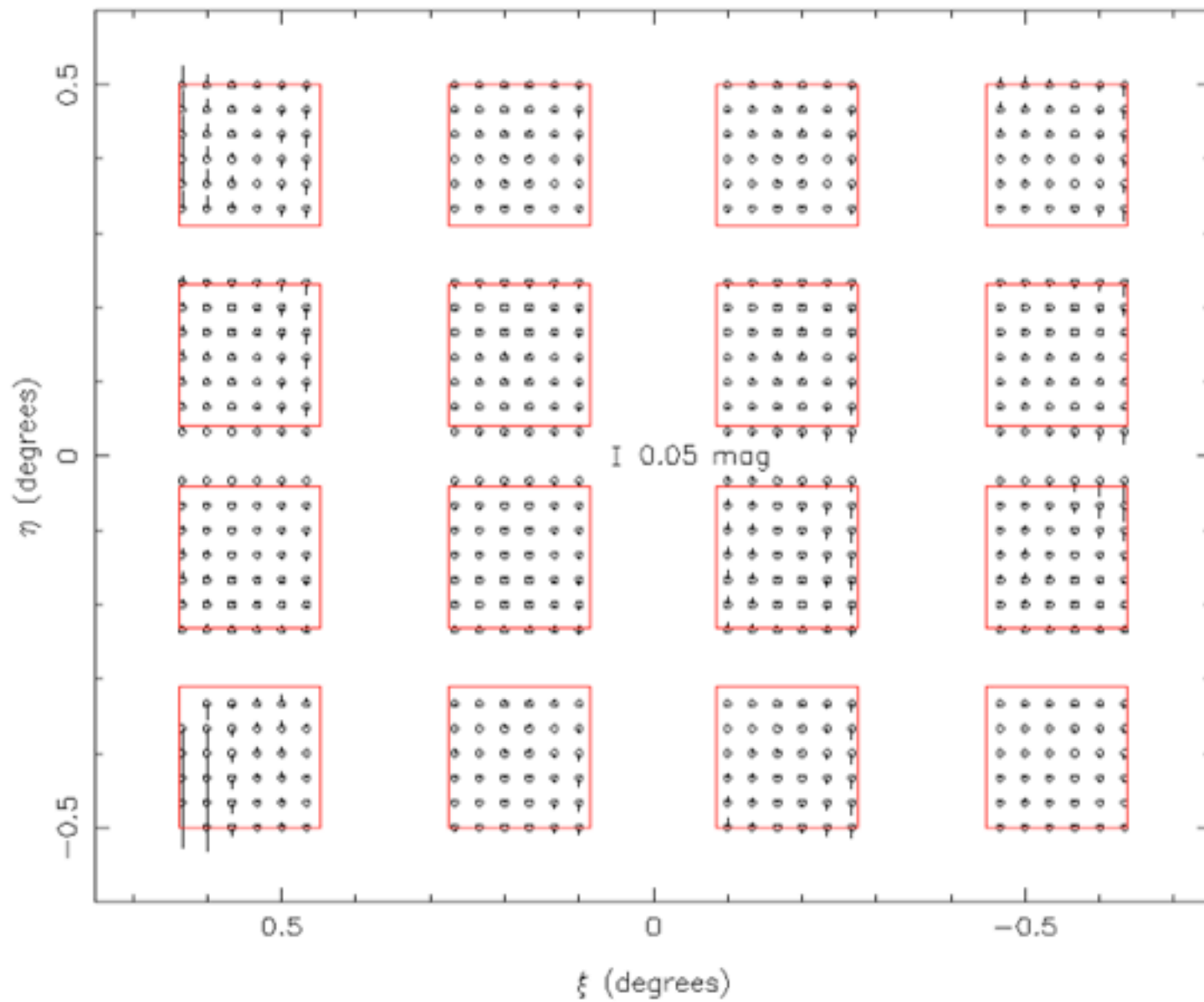
Illumination correction J-band



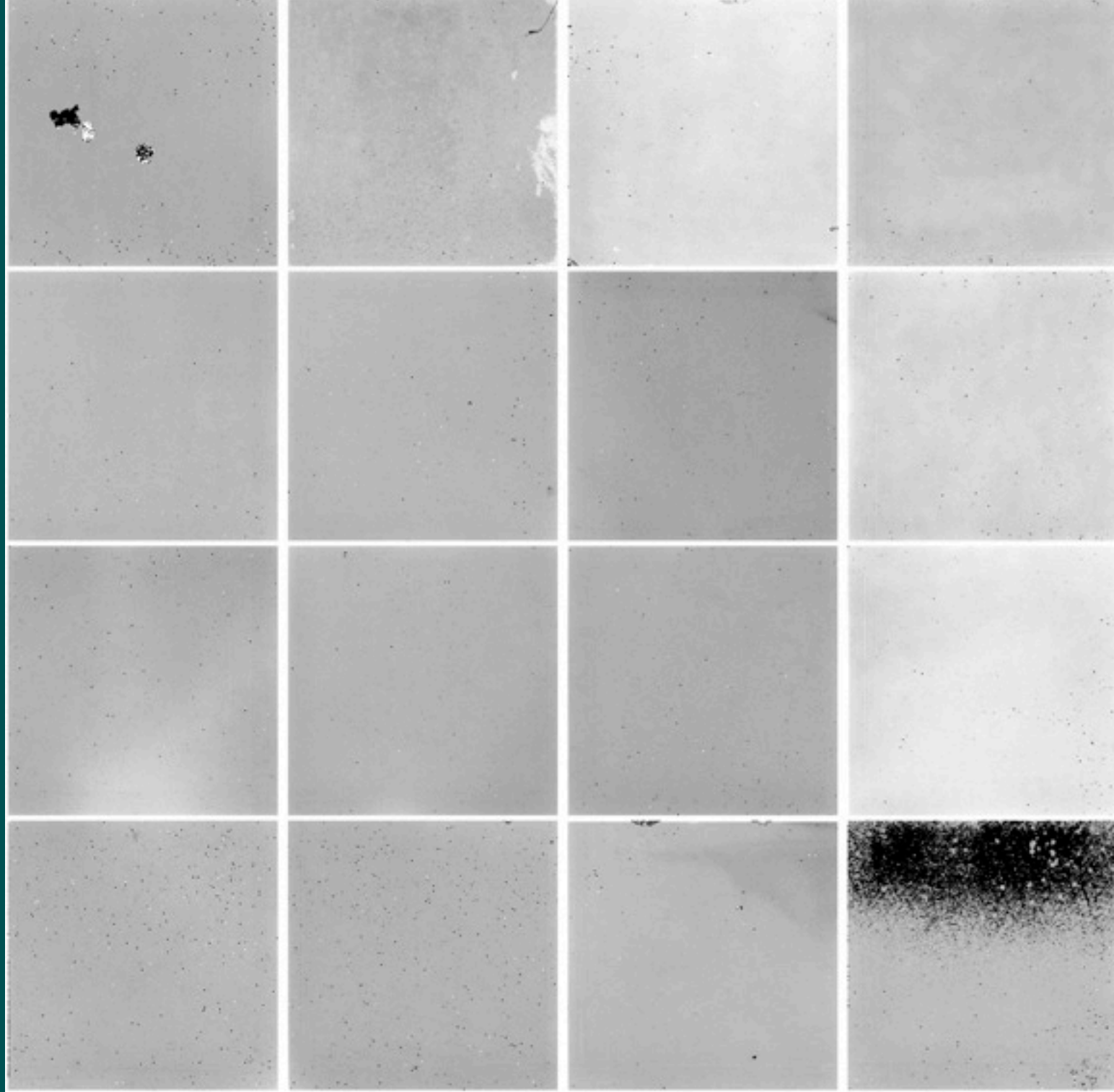
Illumination correction NB118



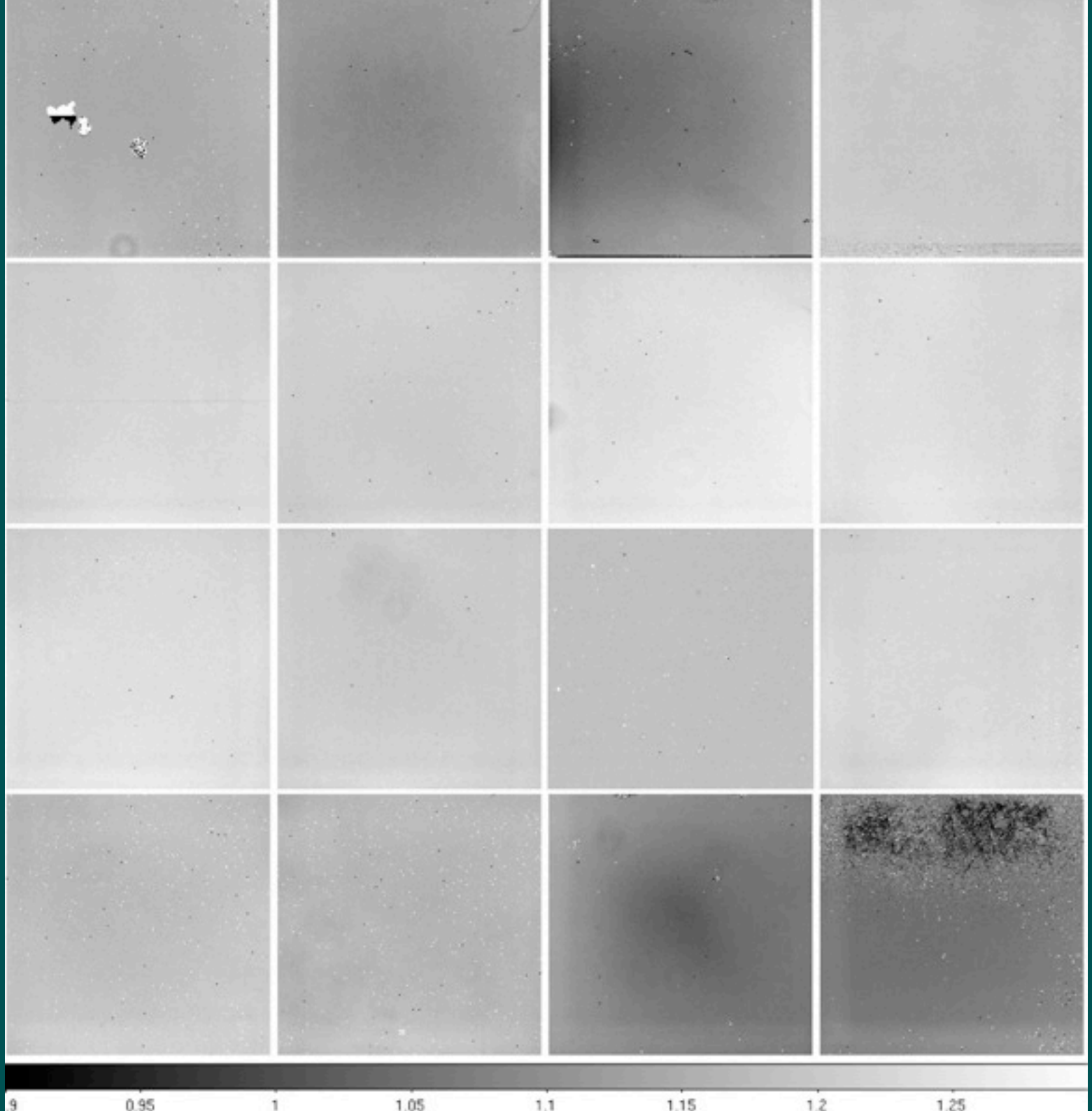
Illumination correction NB118

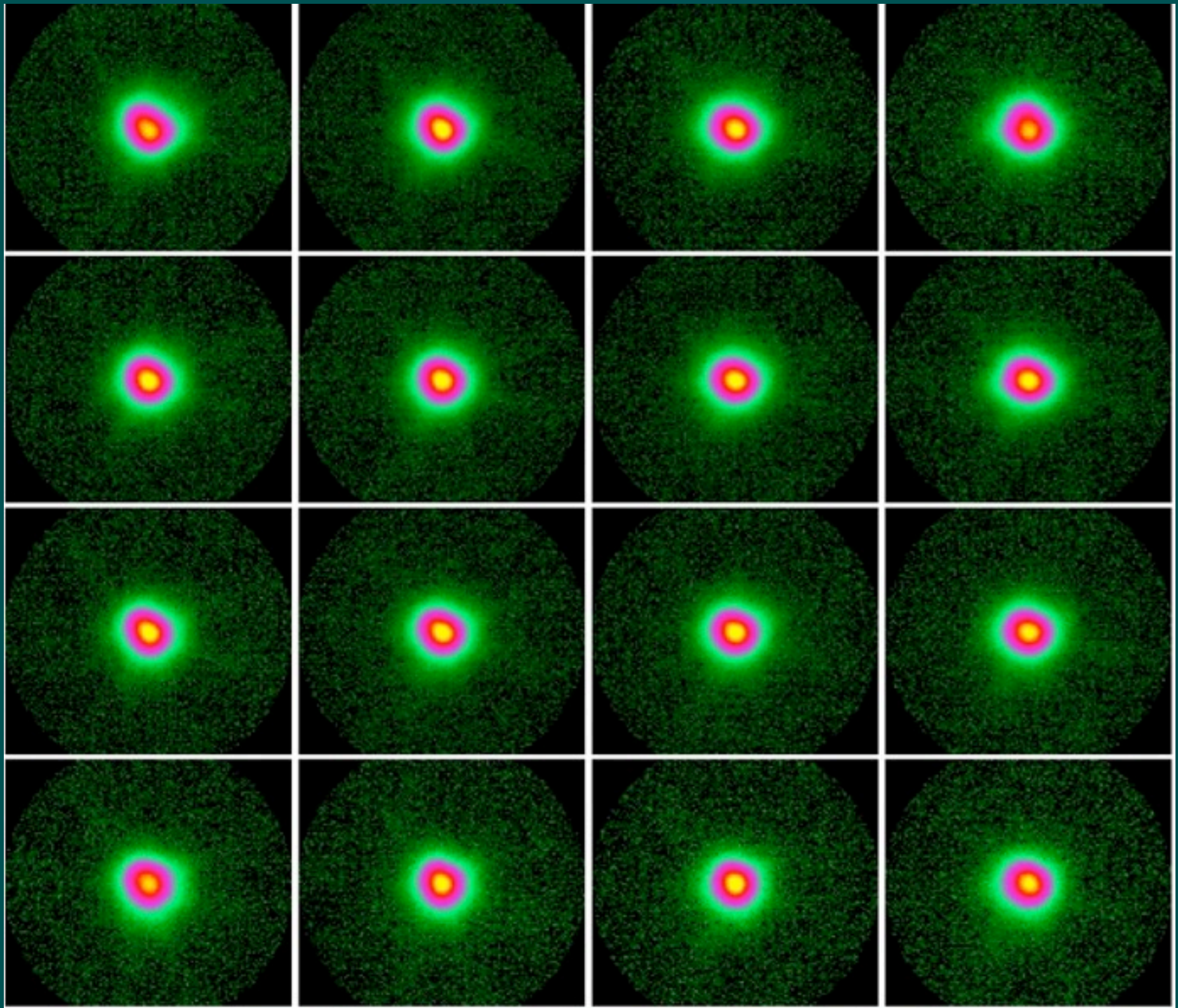


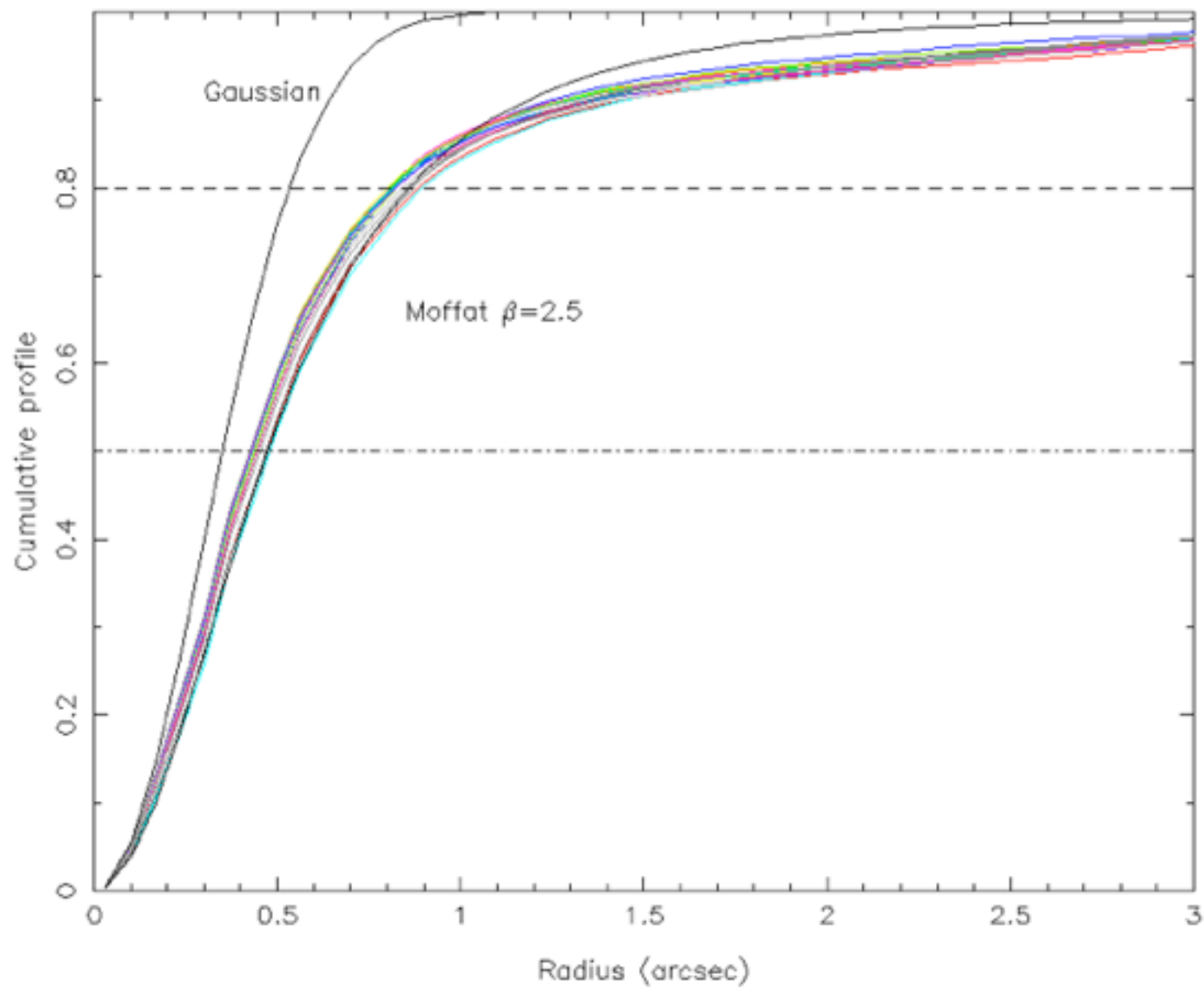
Y-band
flatfielded
by J-band



NB118-band
flatfielded
by J-band







N253

tile

NB118



N253

tile

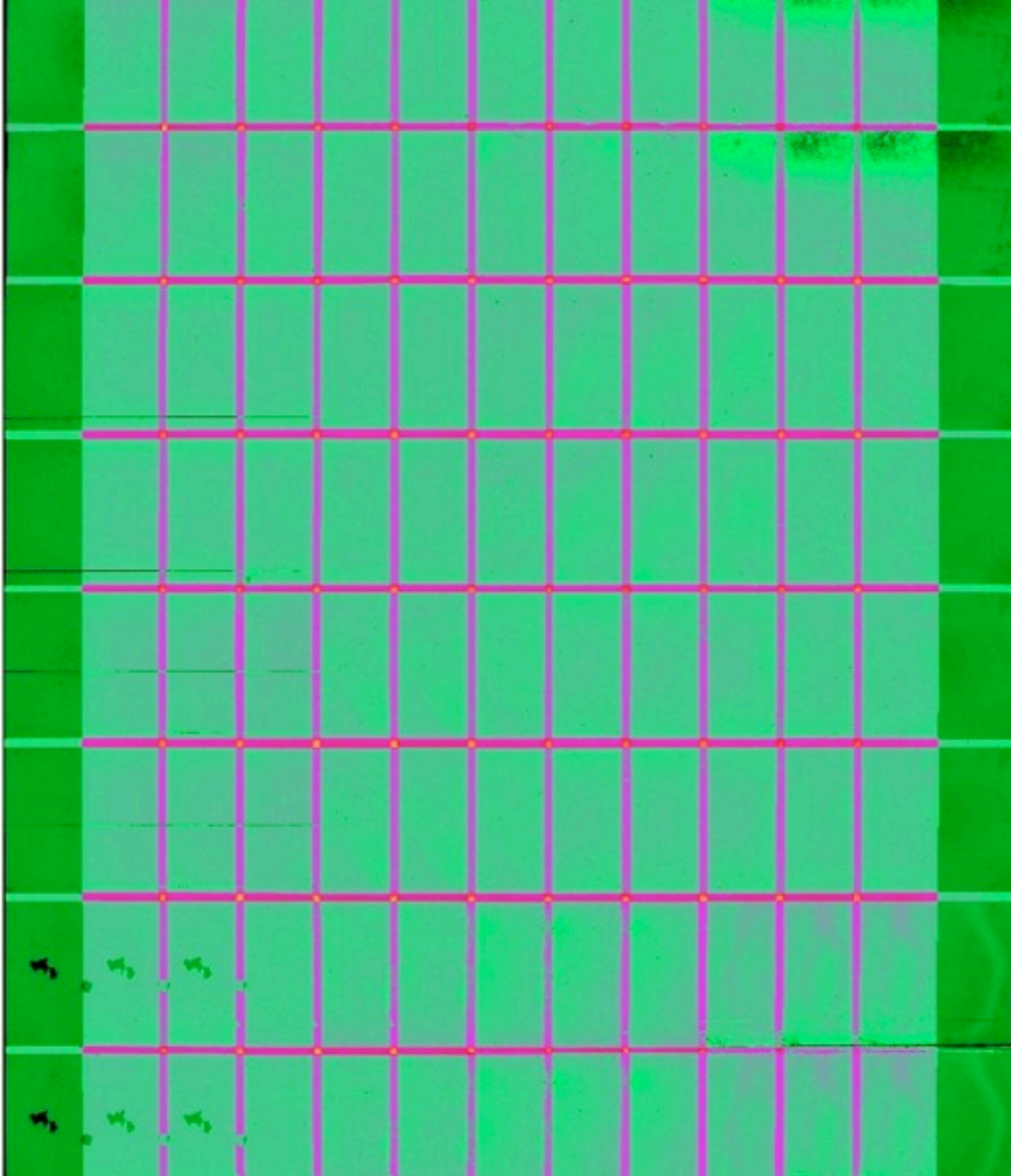
NB118



N253

tile

NB118



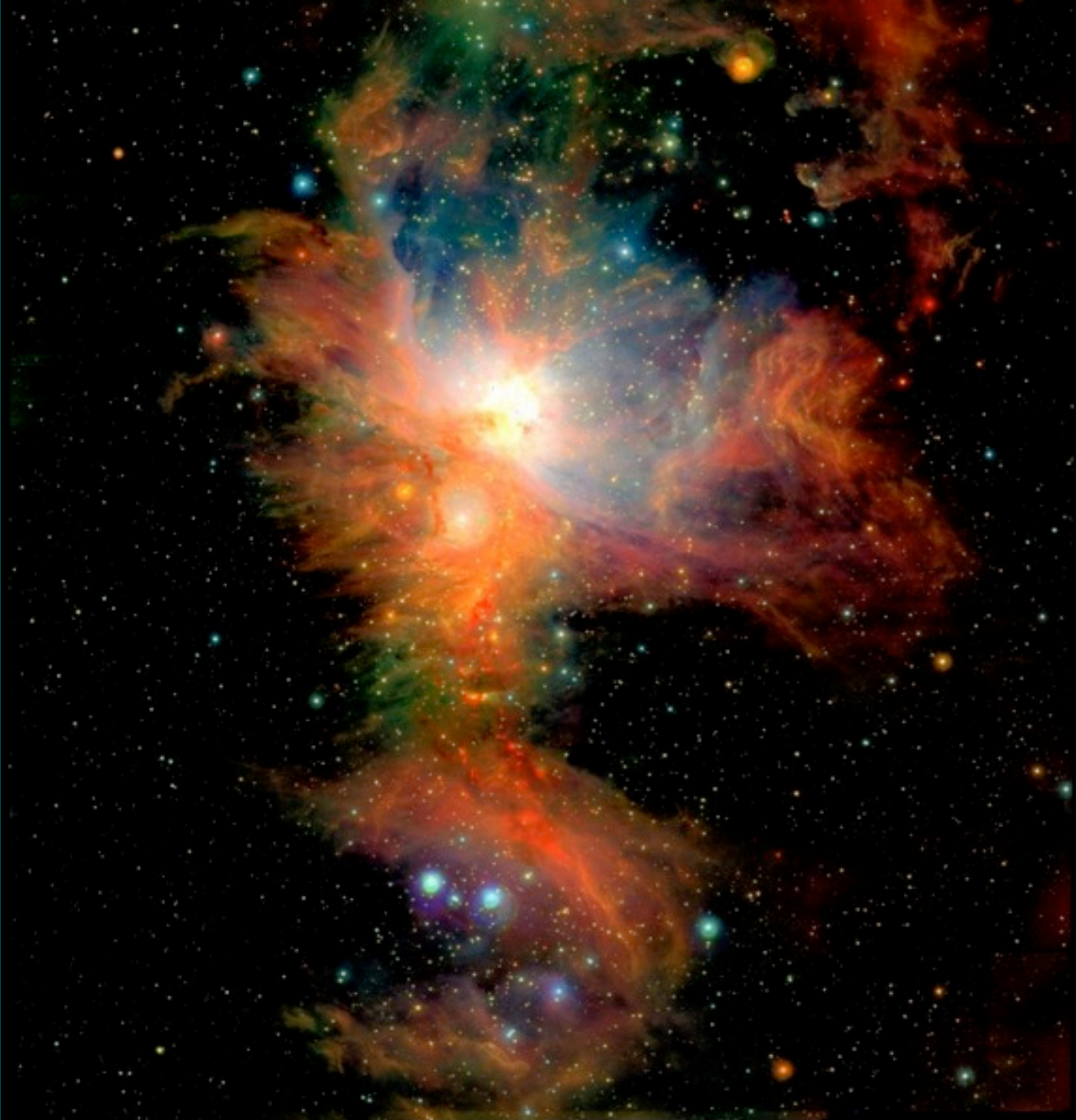
Orion

M42
region

colour
composite
J,H,Ks

16kx13k
pixels/
waveband

mosaic of
96 2kx2k
images/
waveband



HST
optical



HST
optical

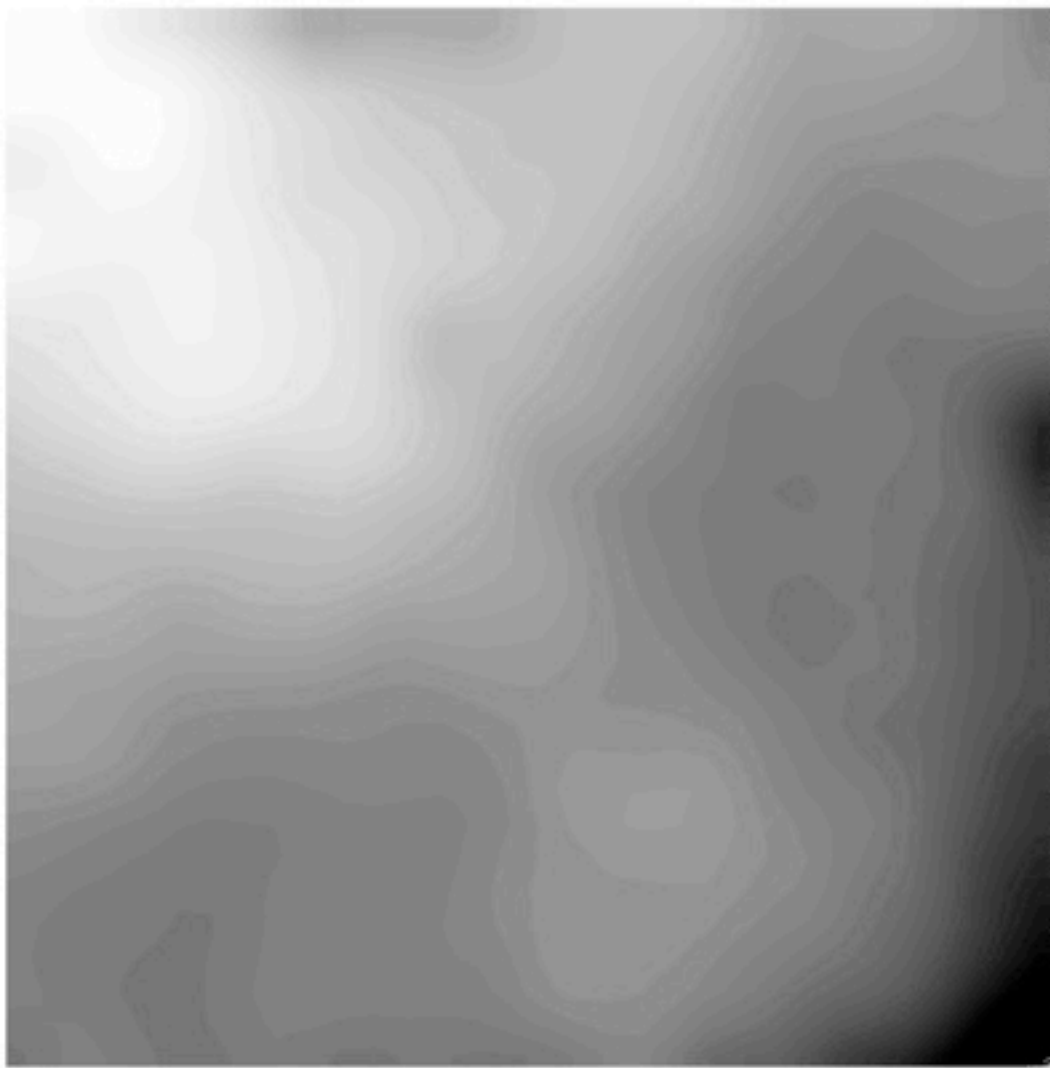


VISTA
NIR



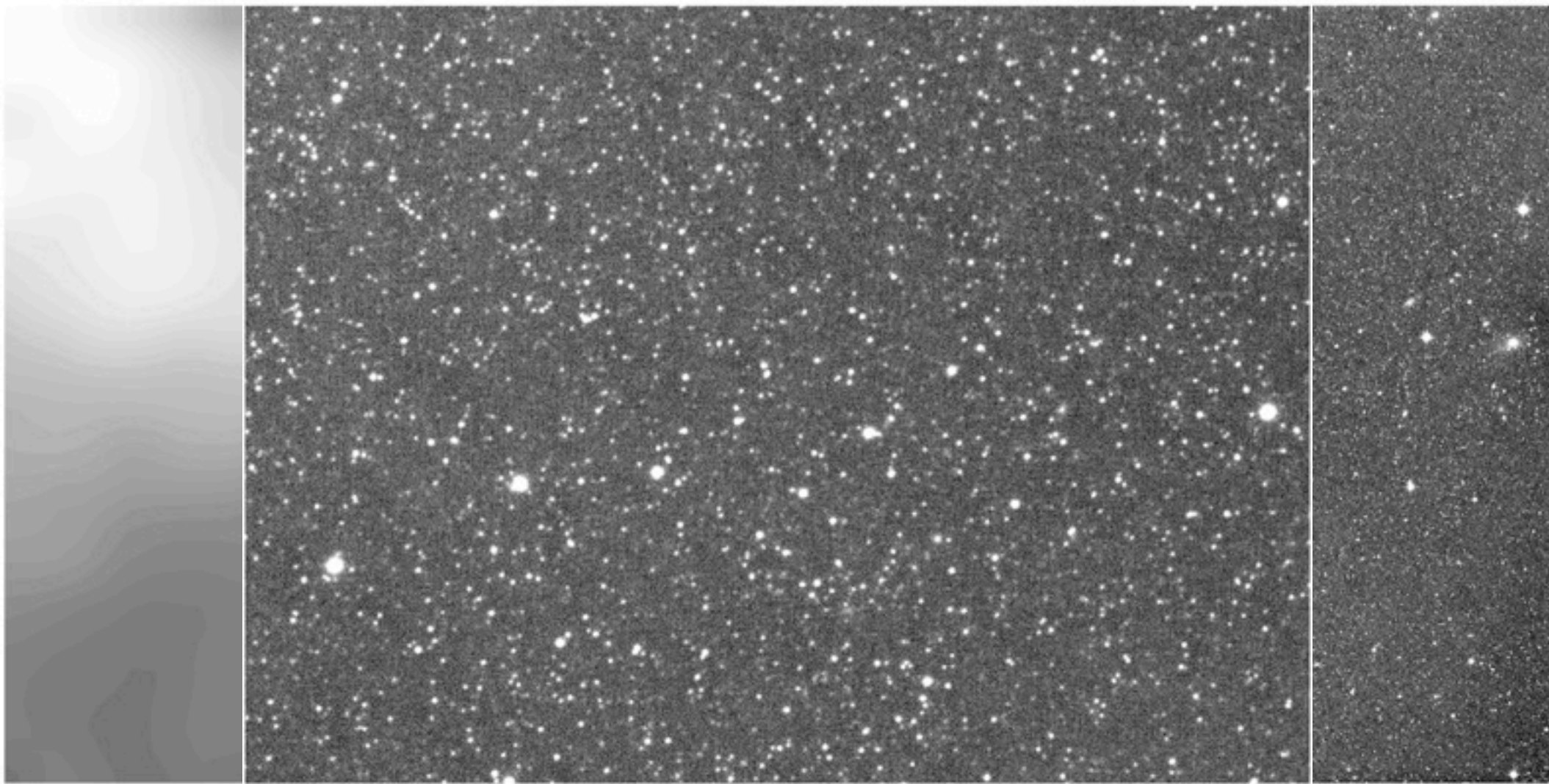
Grid-based background map

Outer disk field M31 H-band 10'x10'



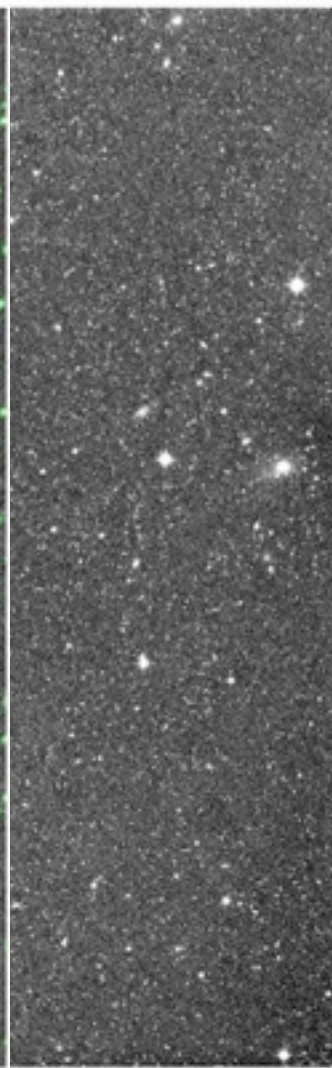
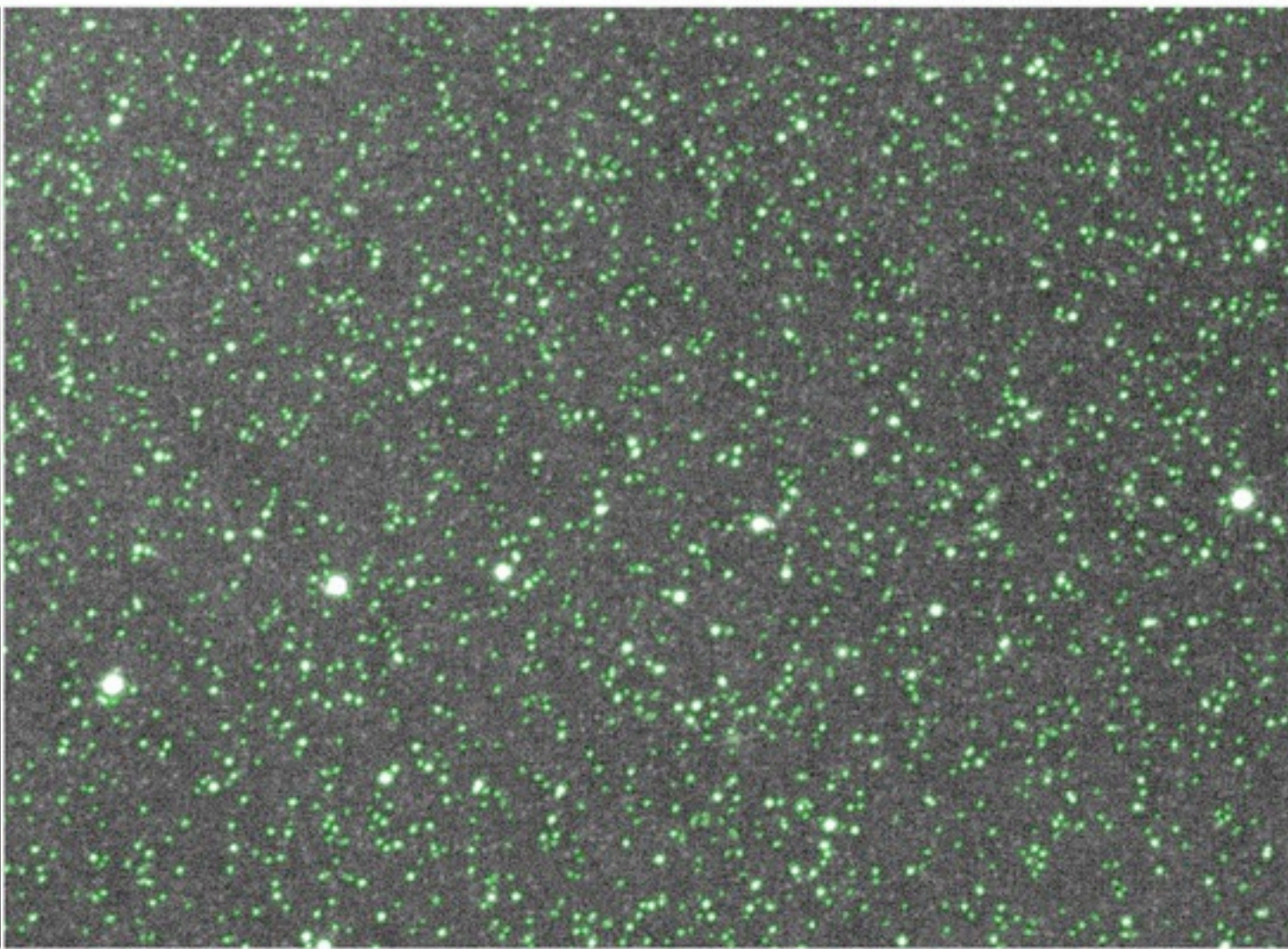
Grid-based background map

Outer disk field M31 H-band 10'x10'



Grid-based background map

Outer disk field M31 H-band 10'x10'



Outer M31 disk field g'-band MegaCam 6'x 6' section

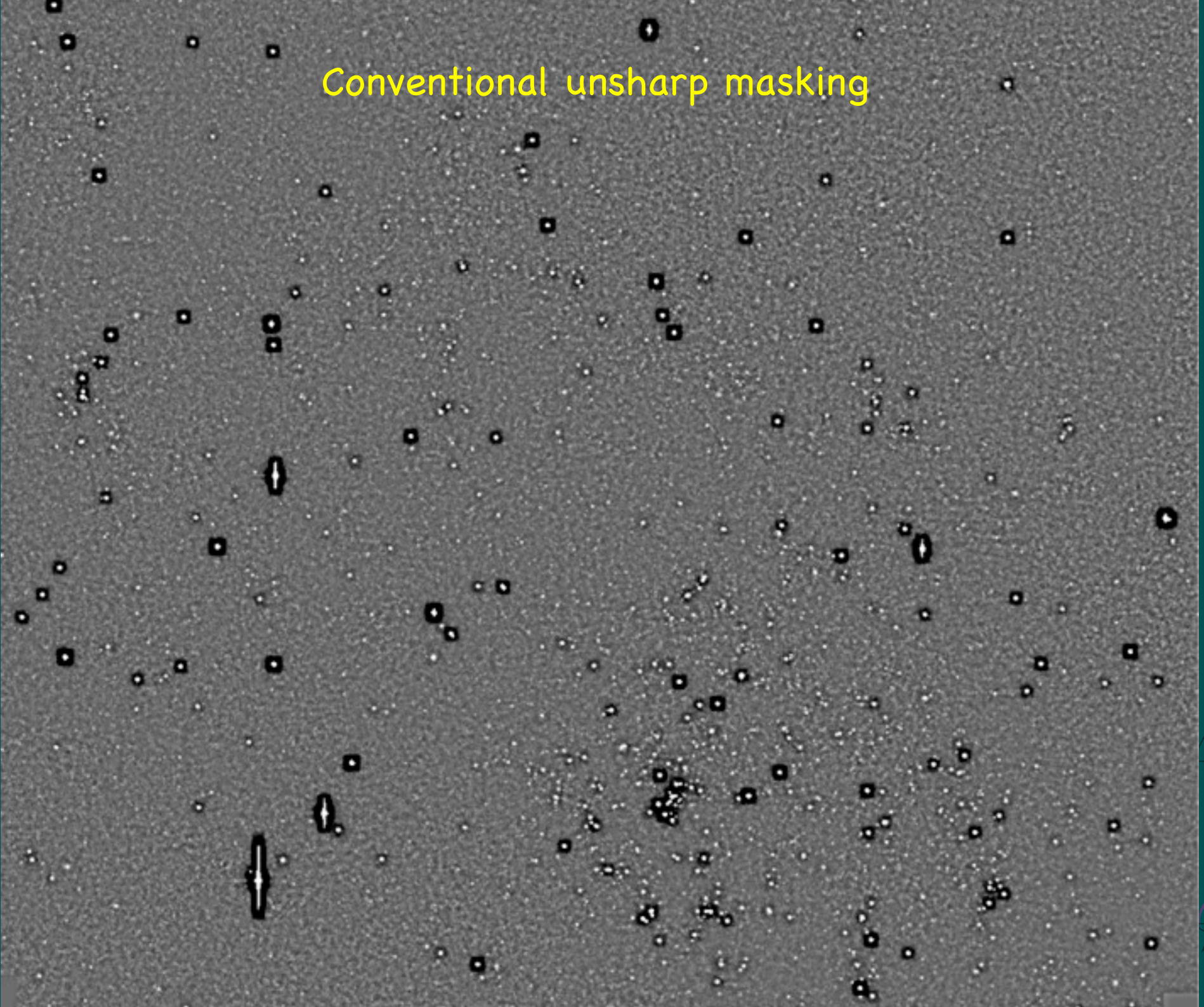
local x

grid x

surface x

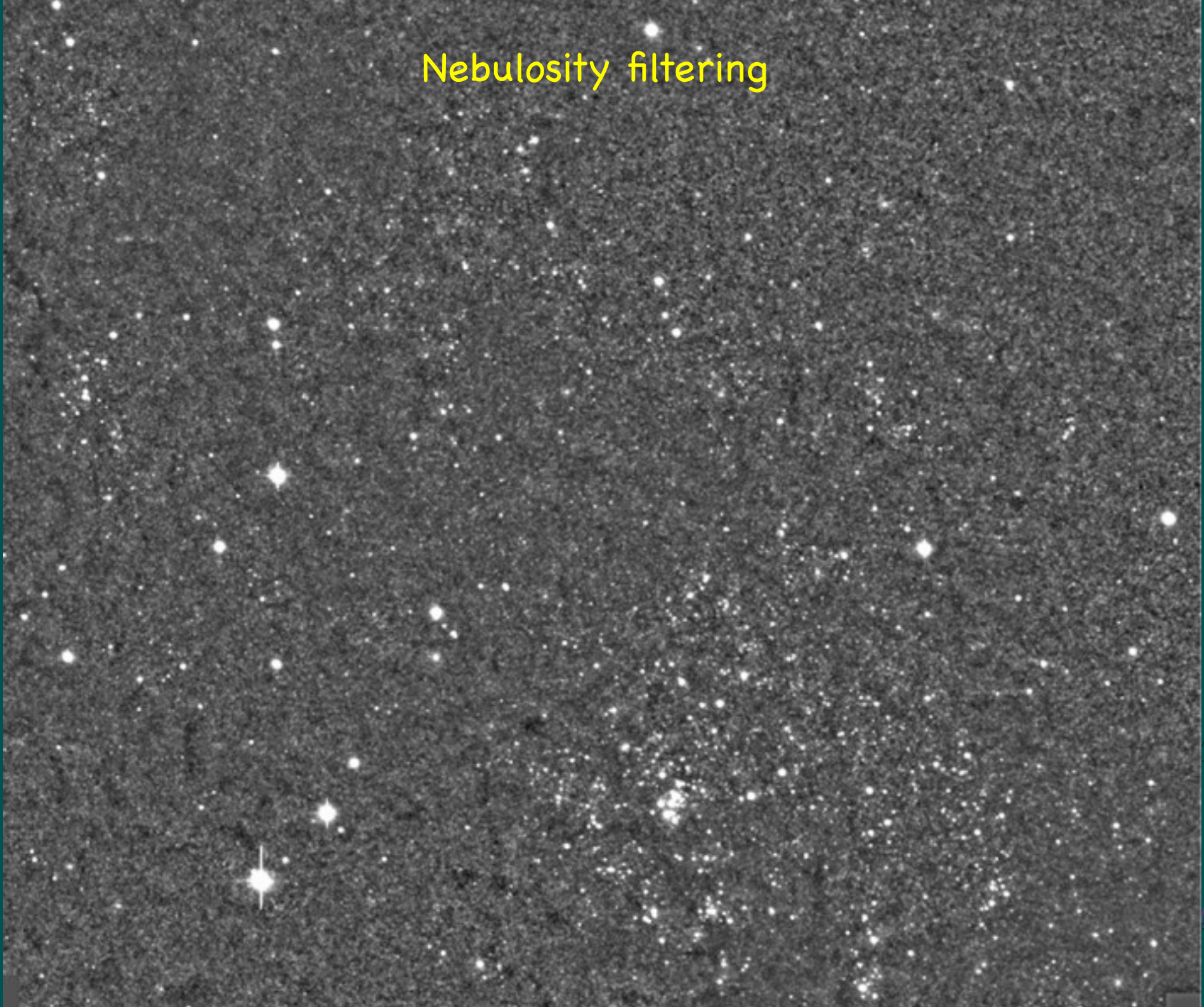
????? ?

Conventional unsharp masking

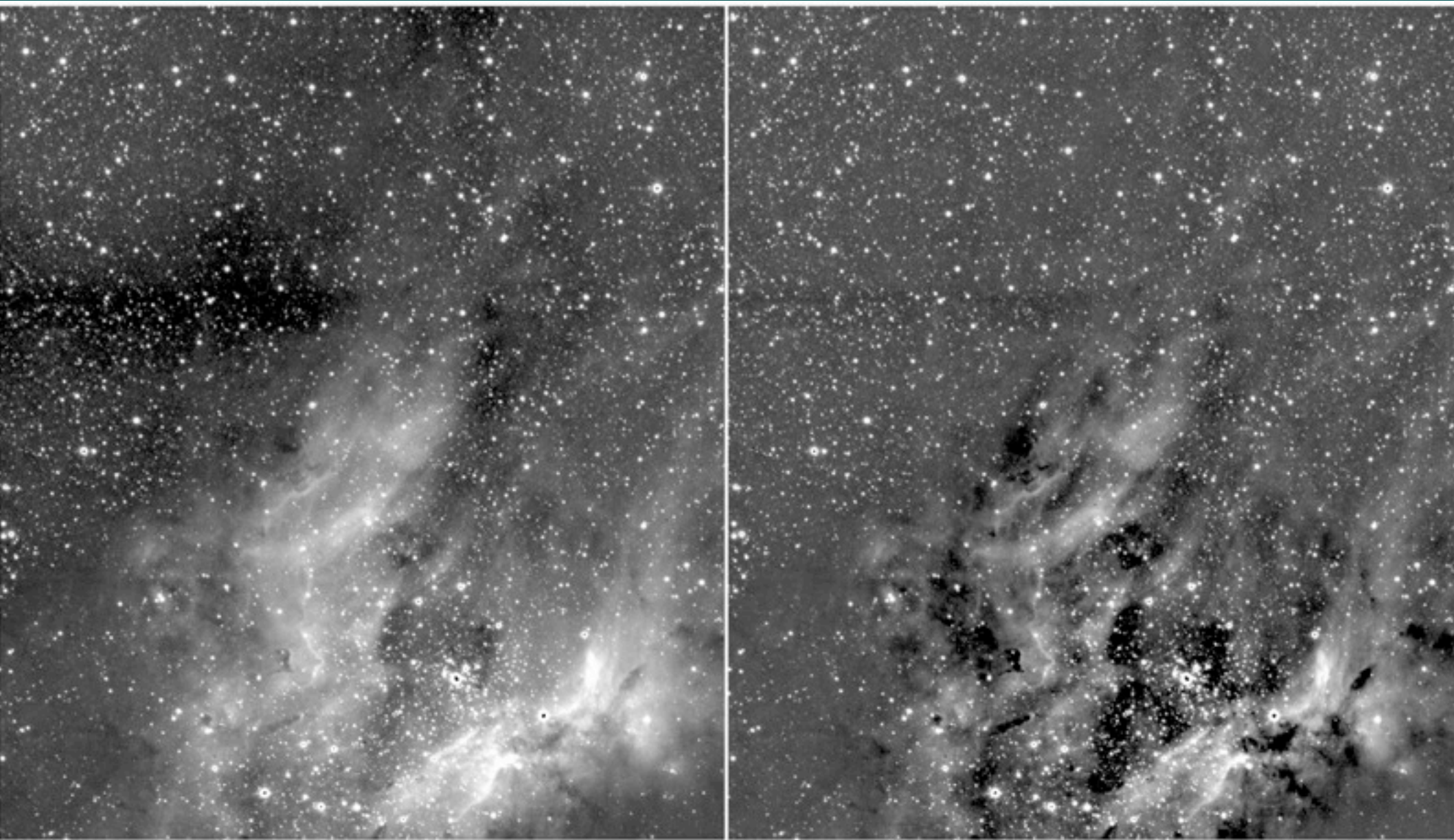




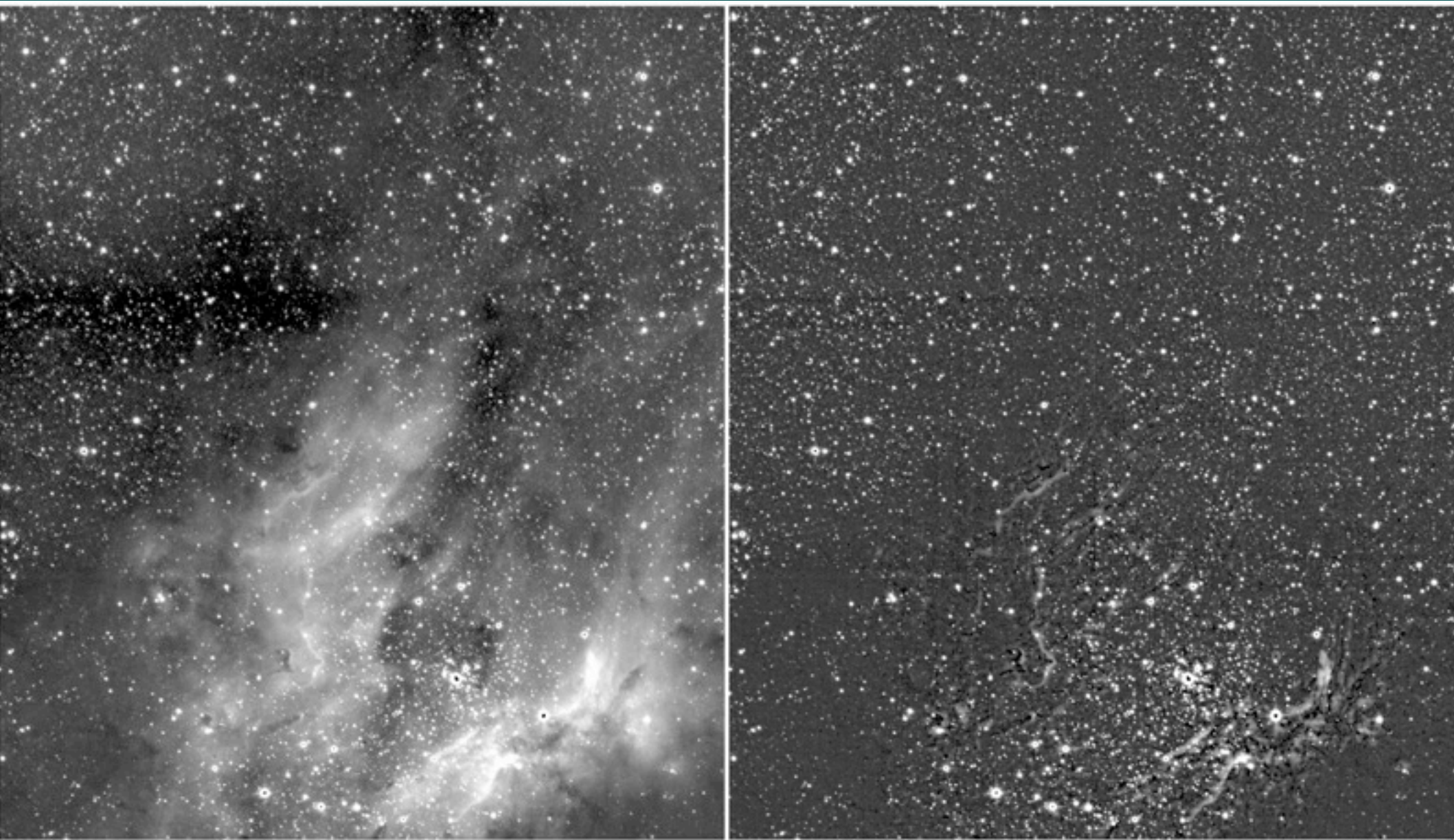
Nebulosity filtering

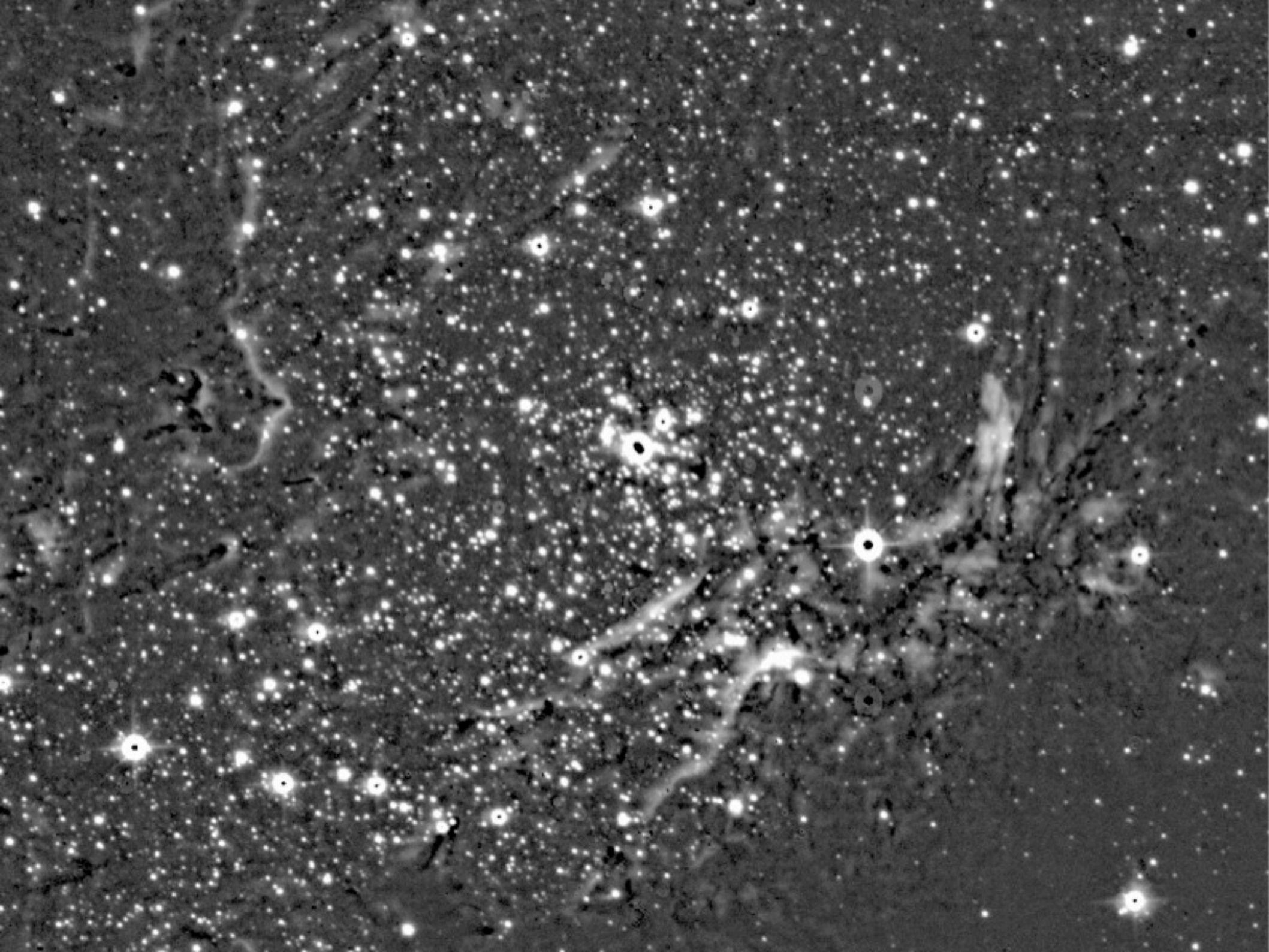


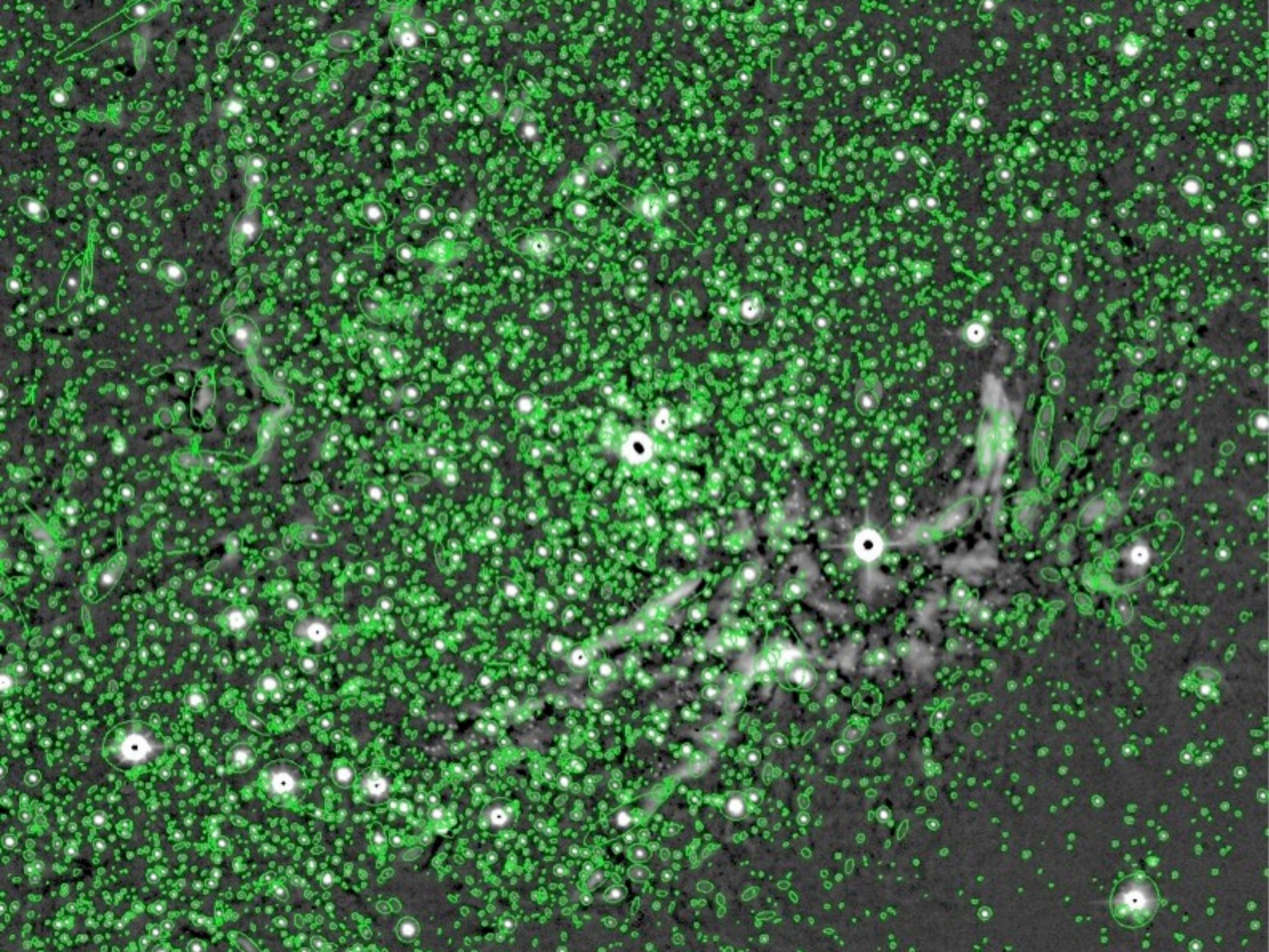
Photometry in regions of high nebulosity - M17 K-band WFCAM



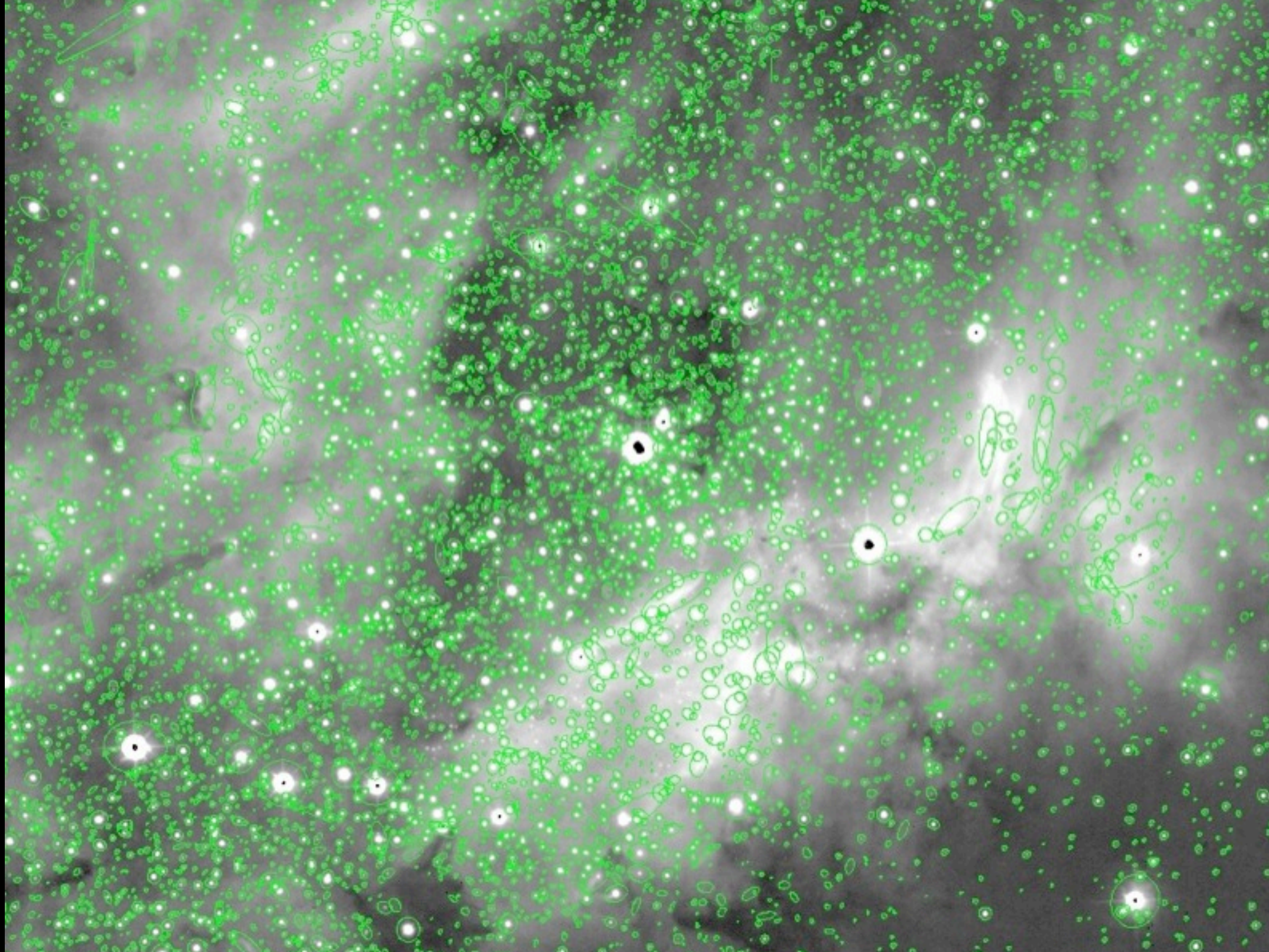
Photometry in regions of high nebulosity - M17 K-band WFCAM











Issues with tiles

- imperfect sky subtraction pawprint matching
 - low level discontinuous artefacts
- variable PSF across single pawprints
 - each detector has different PSF
- variable seeing conditions
 - each pawprint has different PSFs
- variable extinction during tile observation
 - variation of Z_{pt} over tile
- astrometric distortion
 - photometric distortion (sky -v- objects)
- interpolation options (NN, drizzle, cubics)
 - varying correlated noise patterns

NGC253



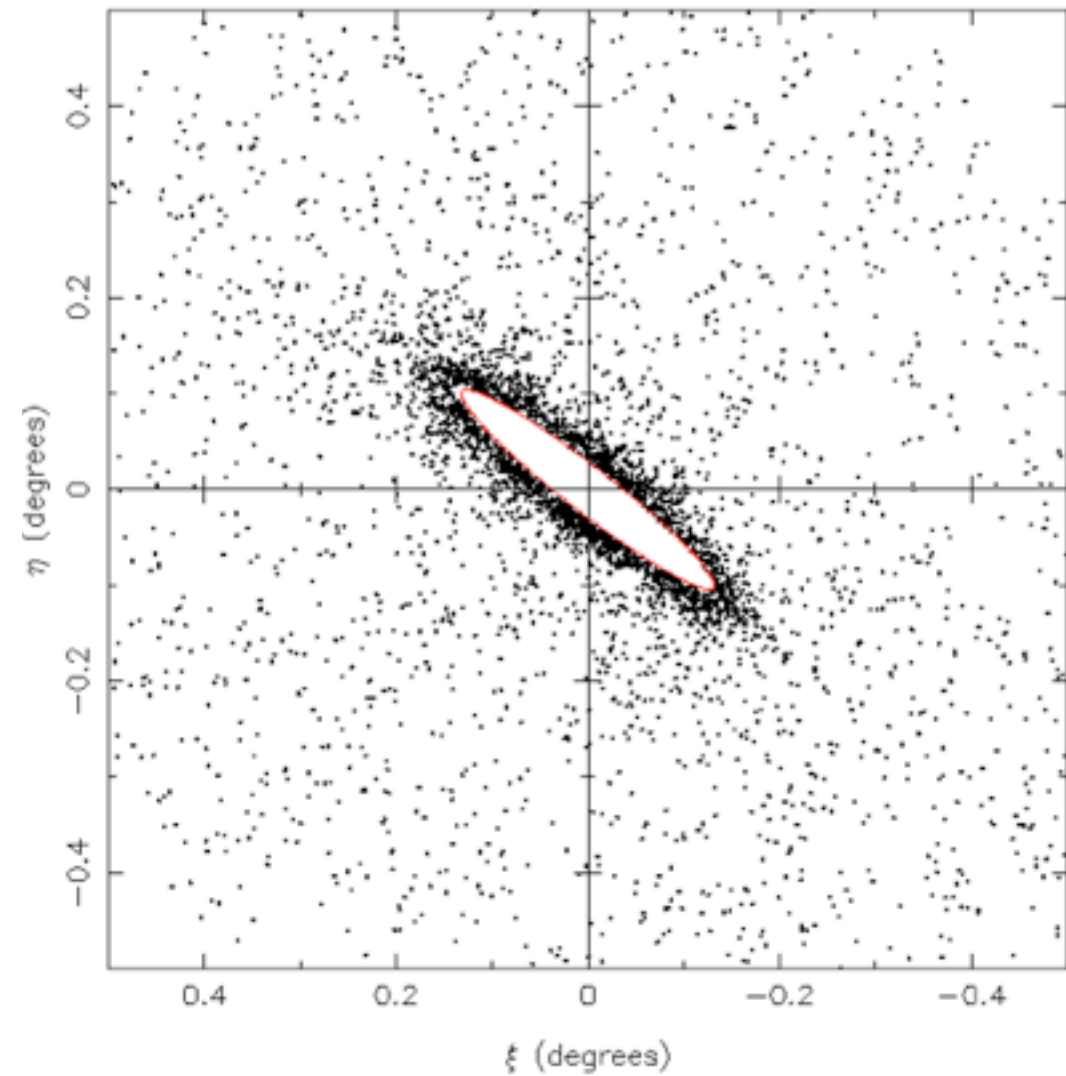
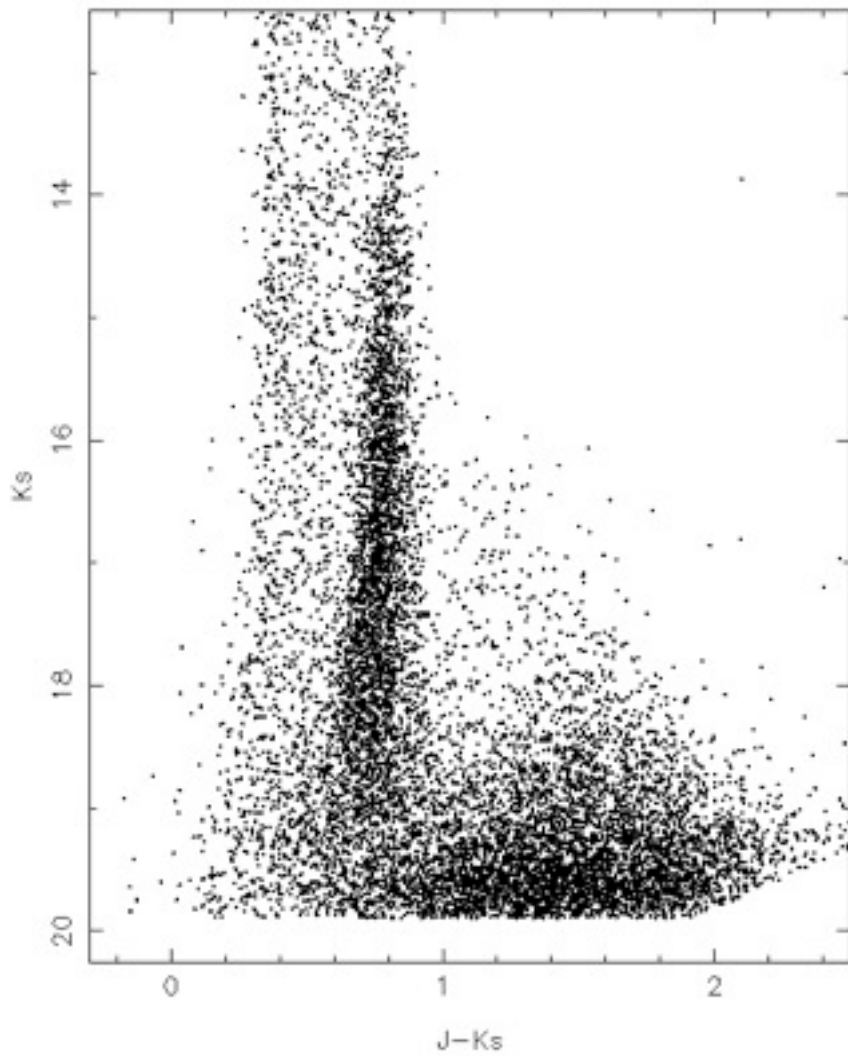
NGC253



NGC253 PR data

J,Ks CMD

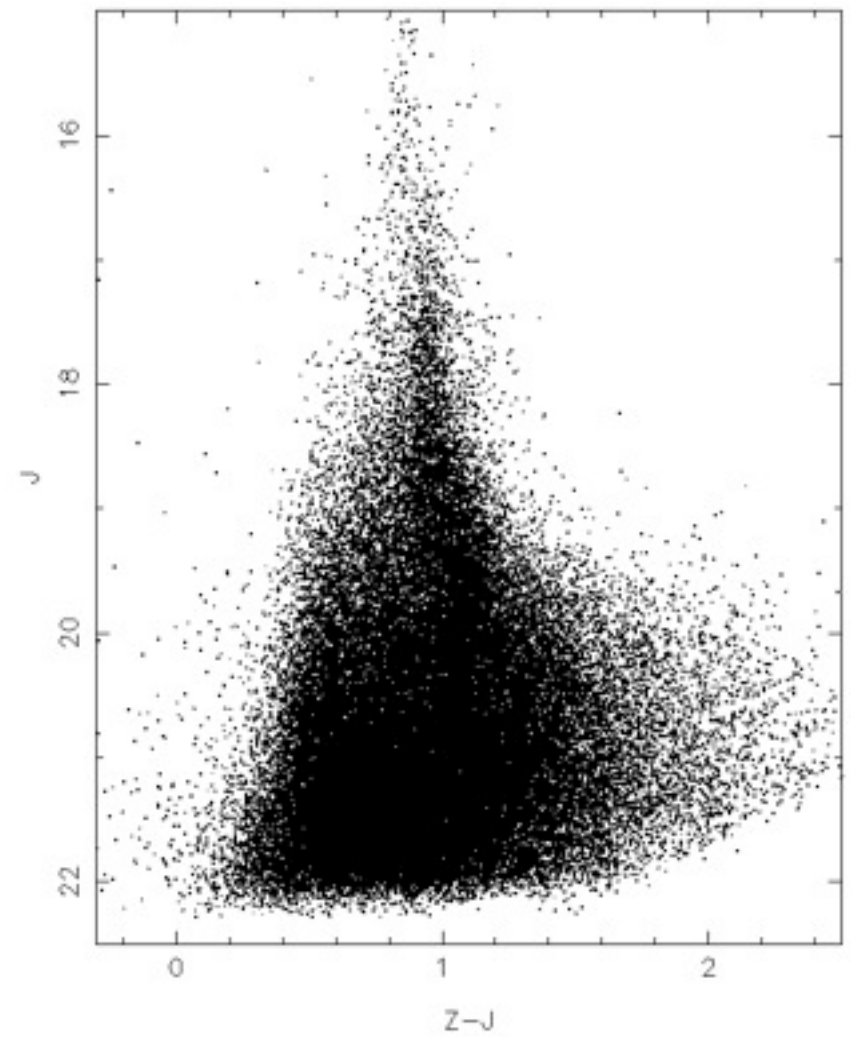
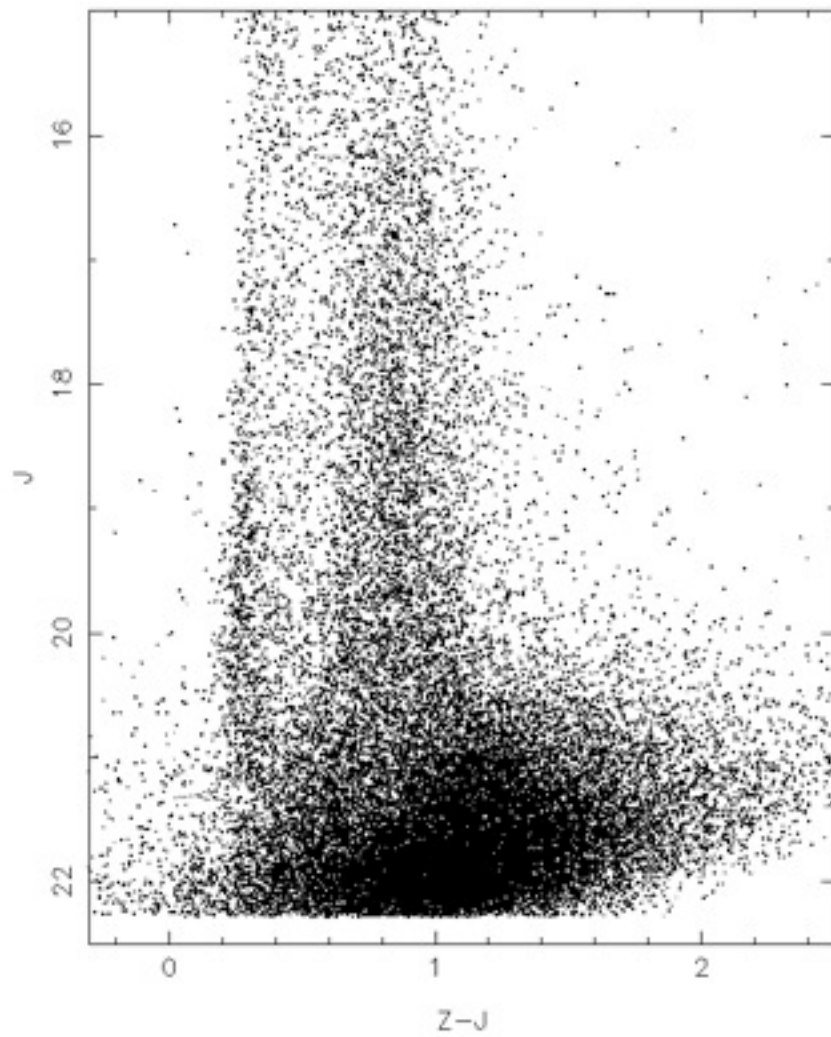
AGB distribution



NGC253 SV data

Z,J CMD stellar

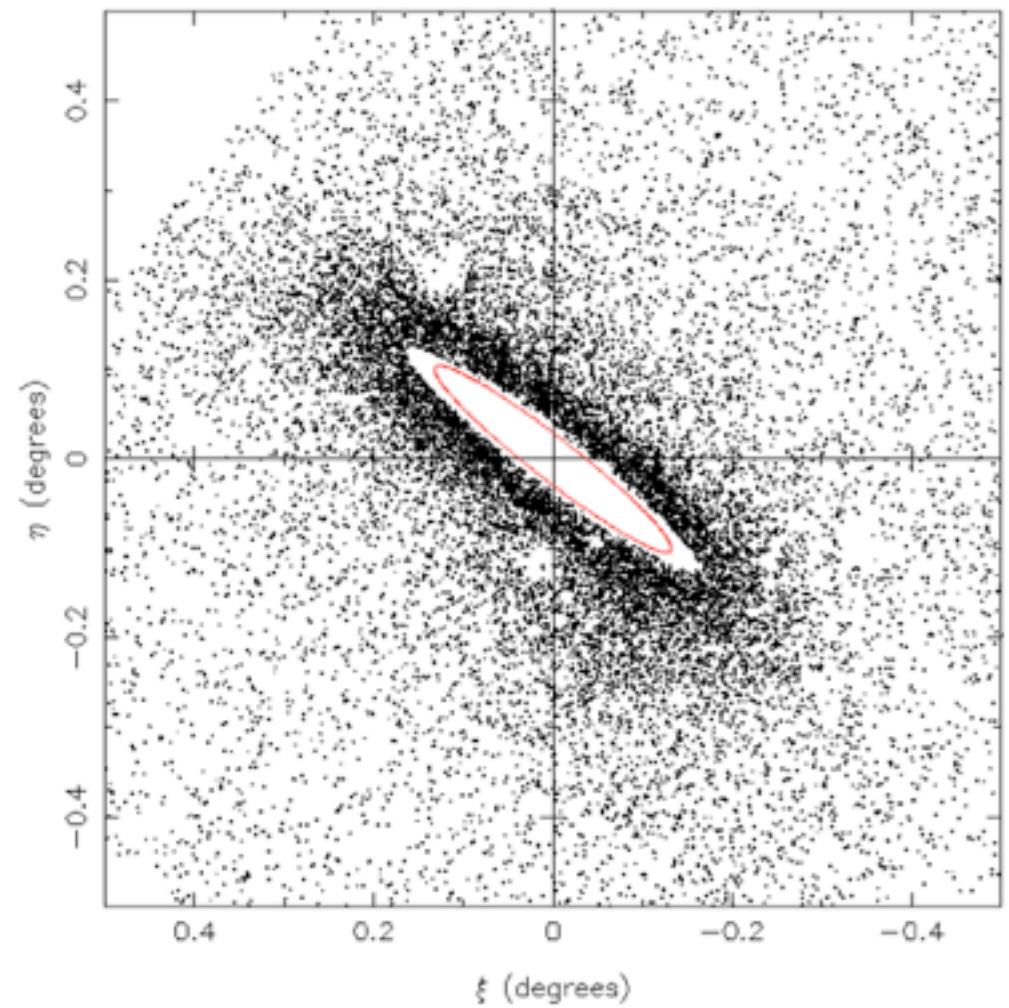
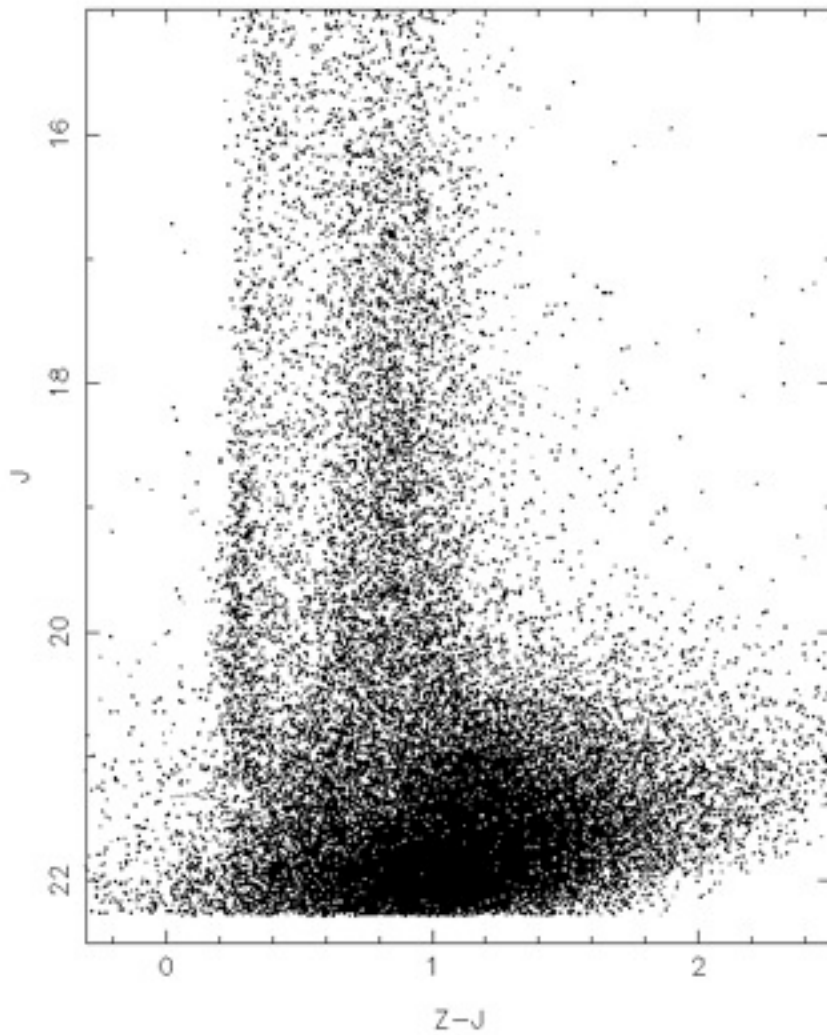
non-stellar



NGC253 SV data

Z,J CMD

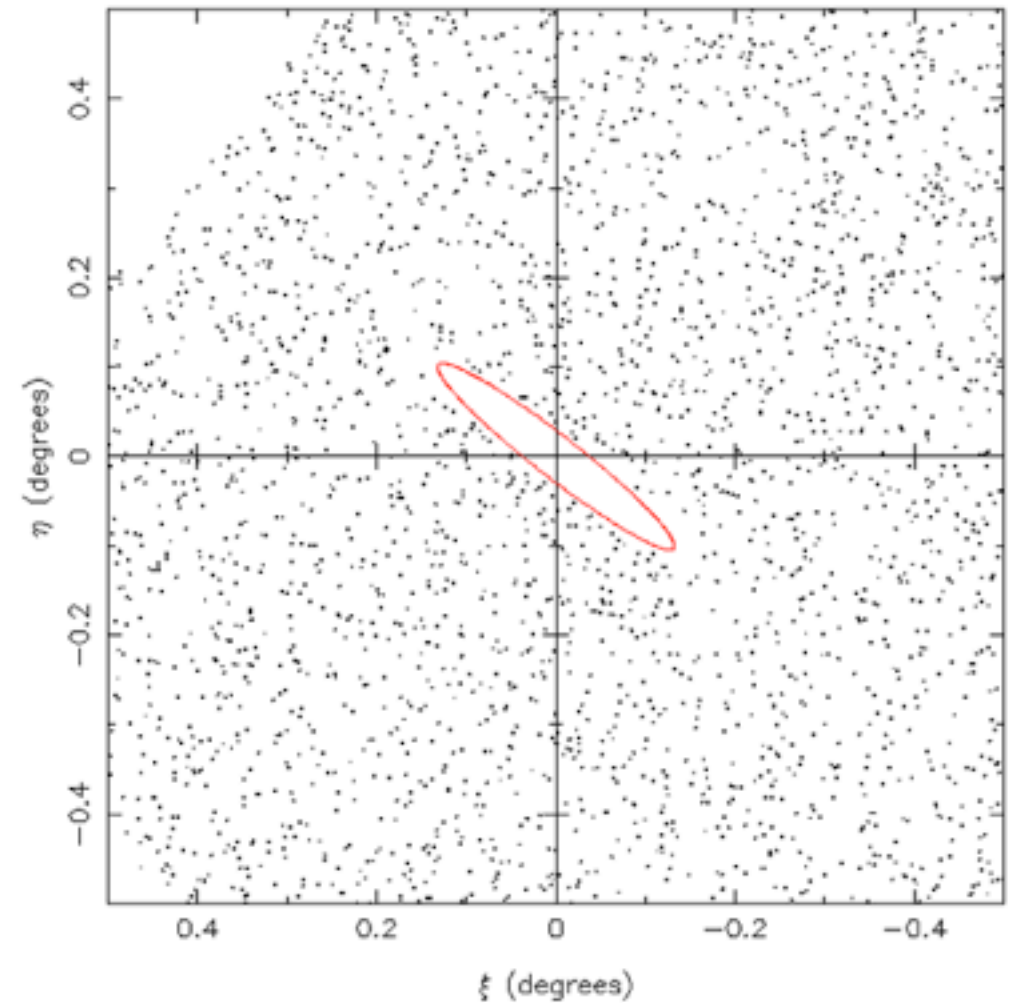
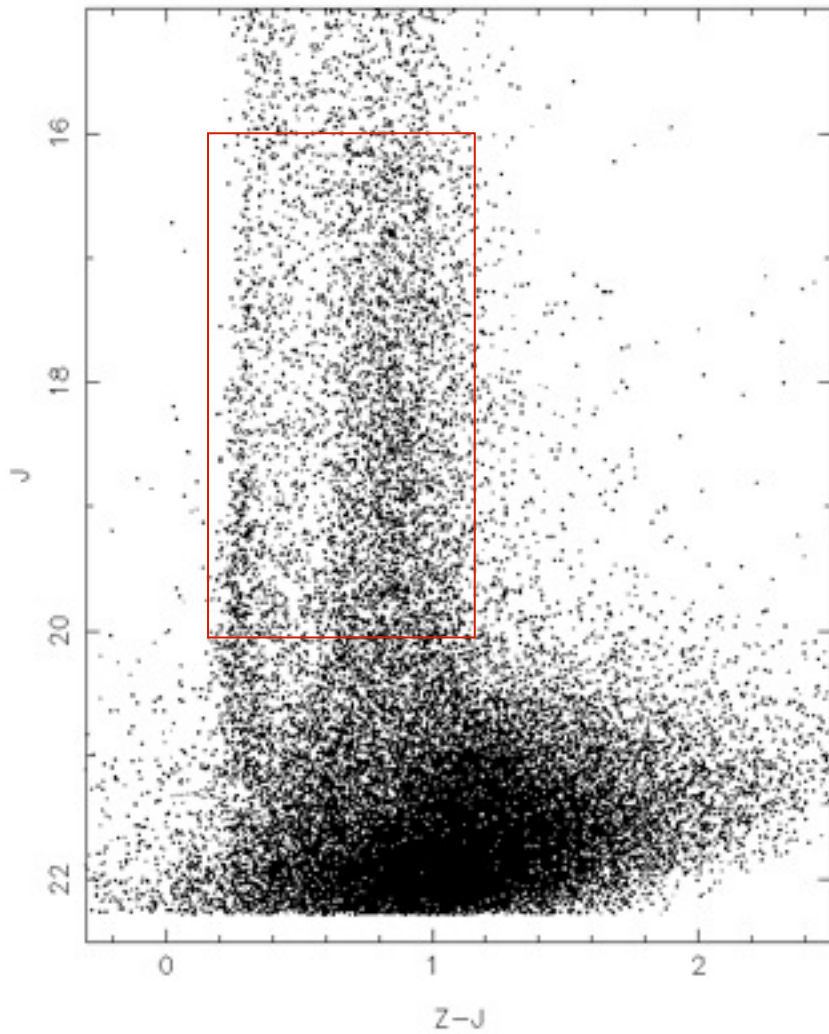
AGB/RGB distribution



NGC253 SV data

Z,J CMD

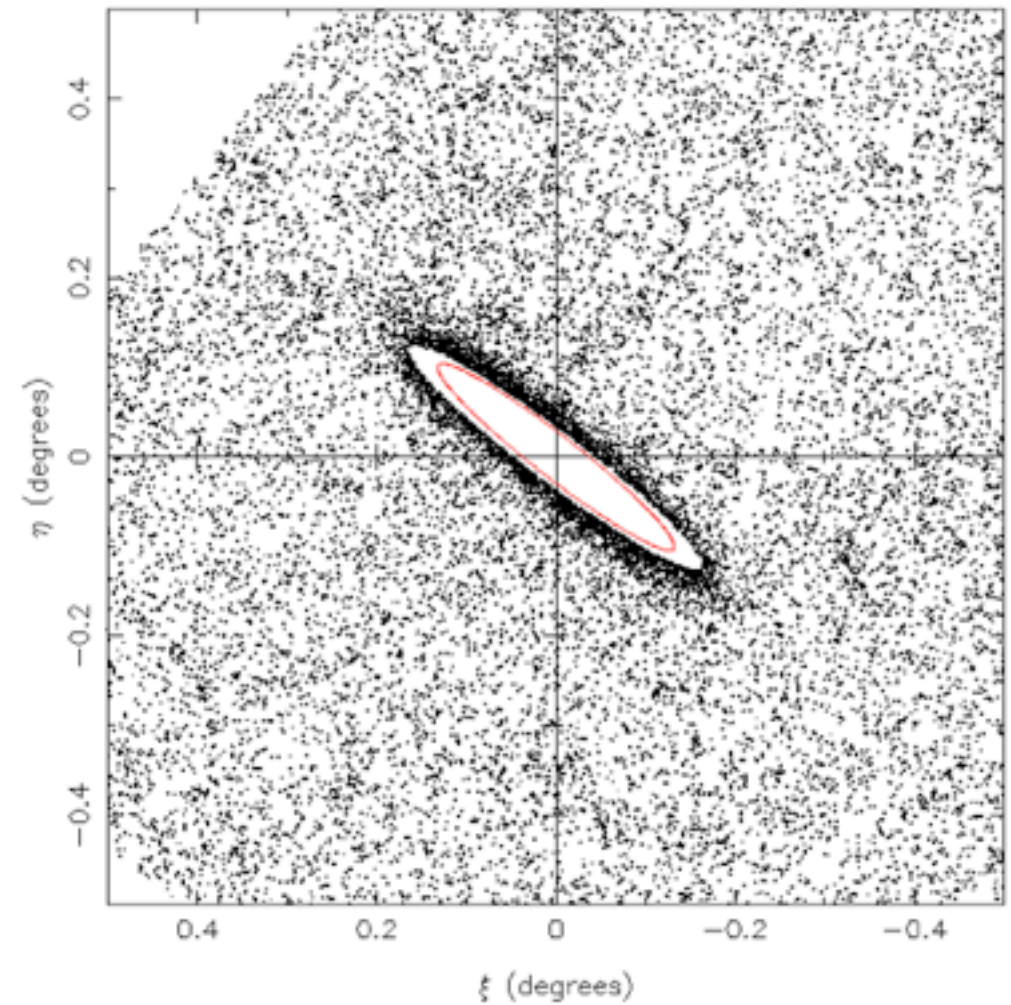
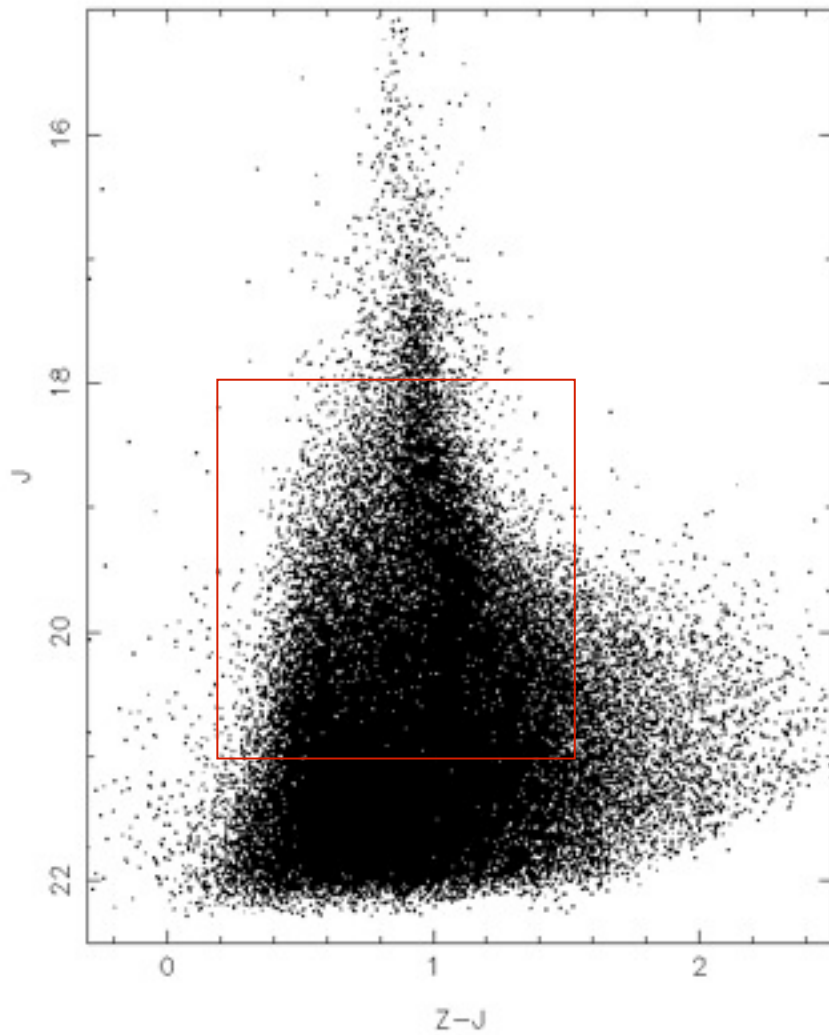
MW foreground distribution



NGC253 SV data

Z,J CMD

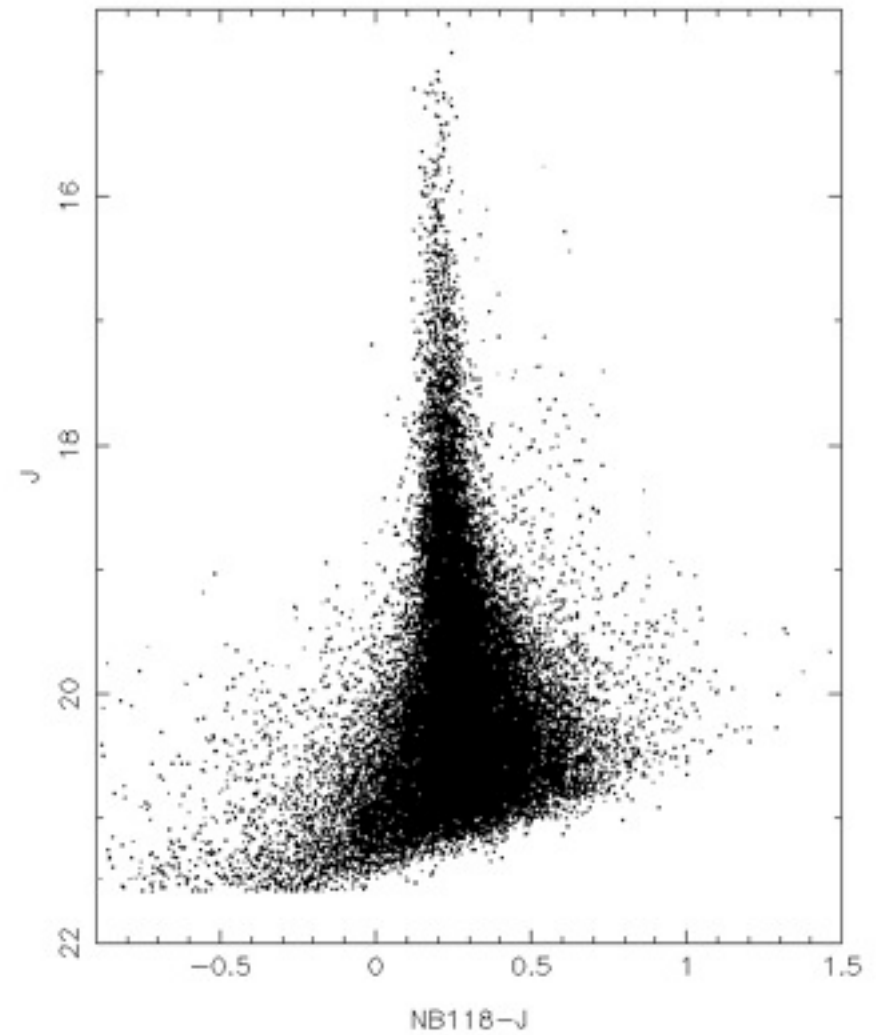
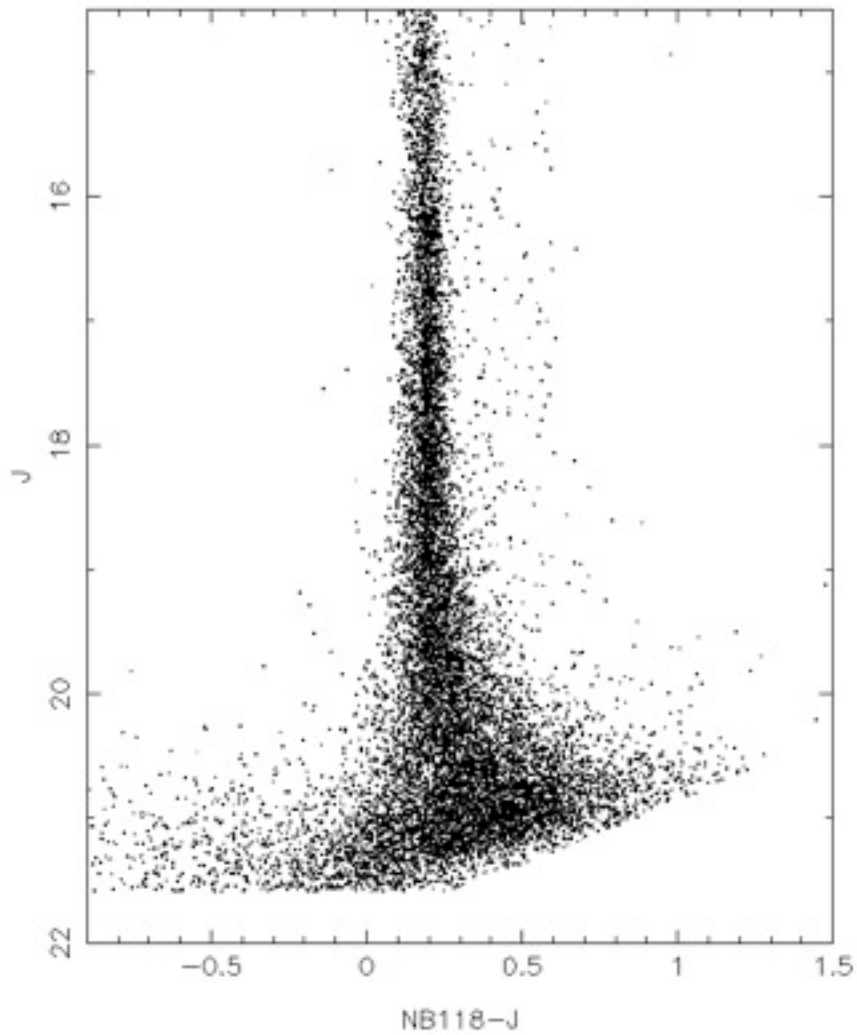
Galaxy distribution



NGC253 SV data

NB118,J CMD stellar

non-stellar



fin

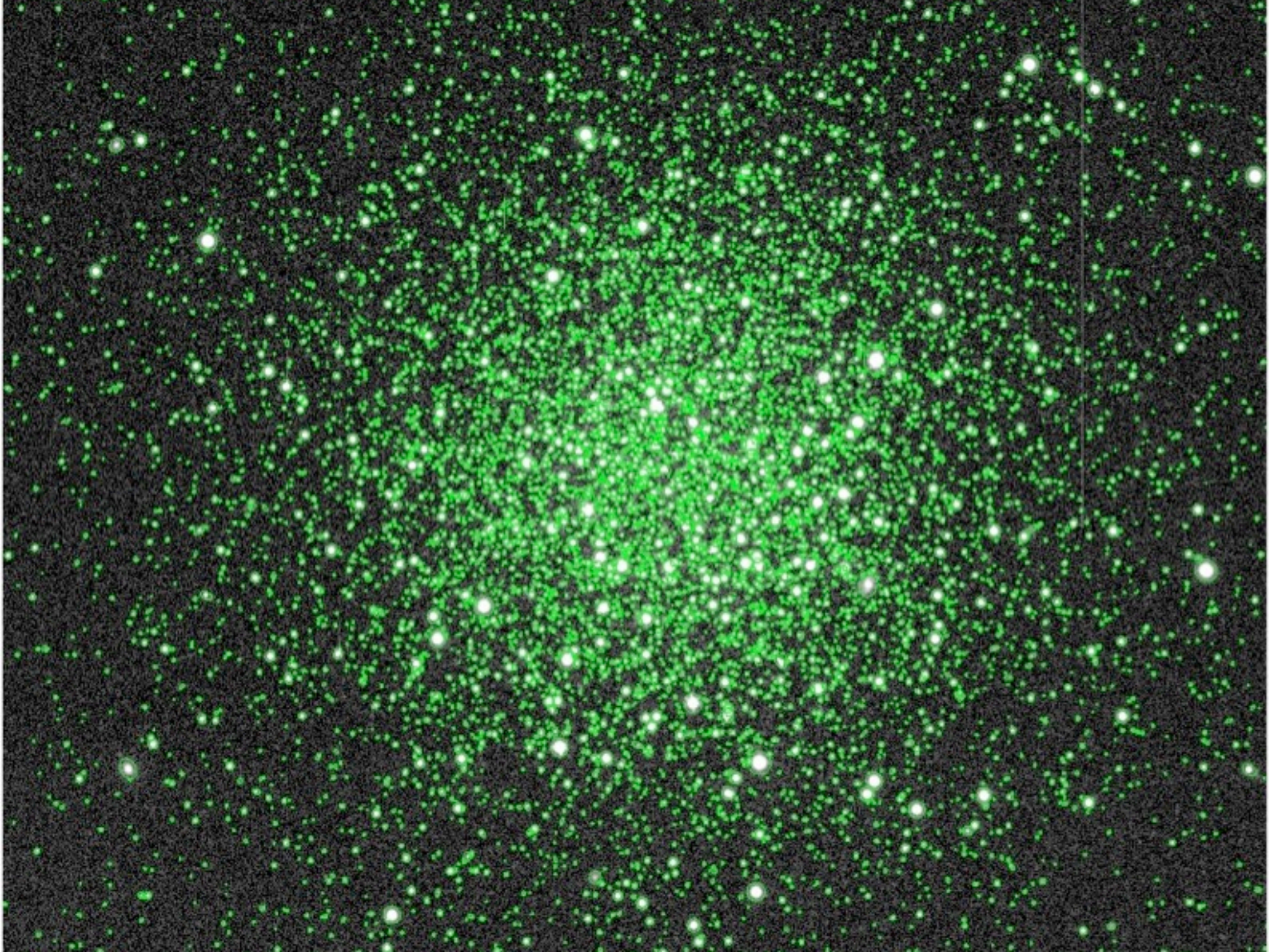


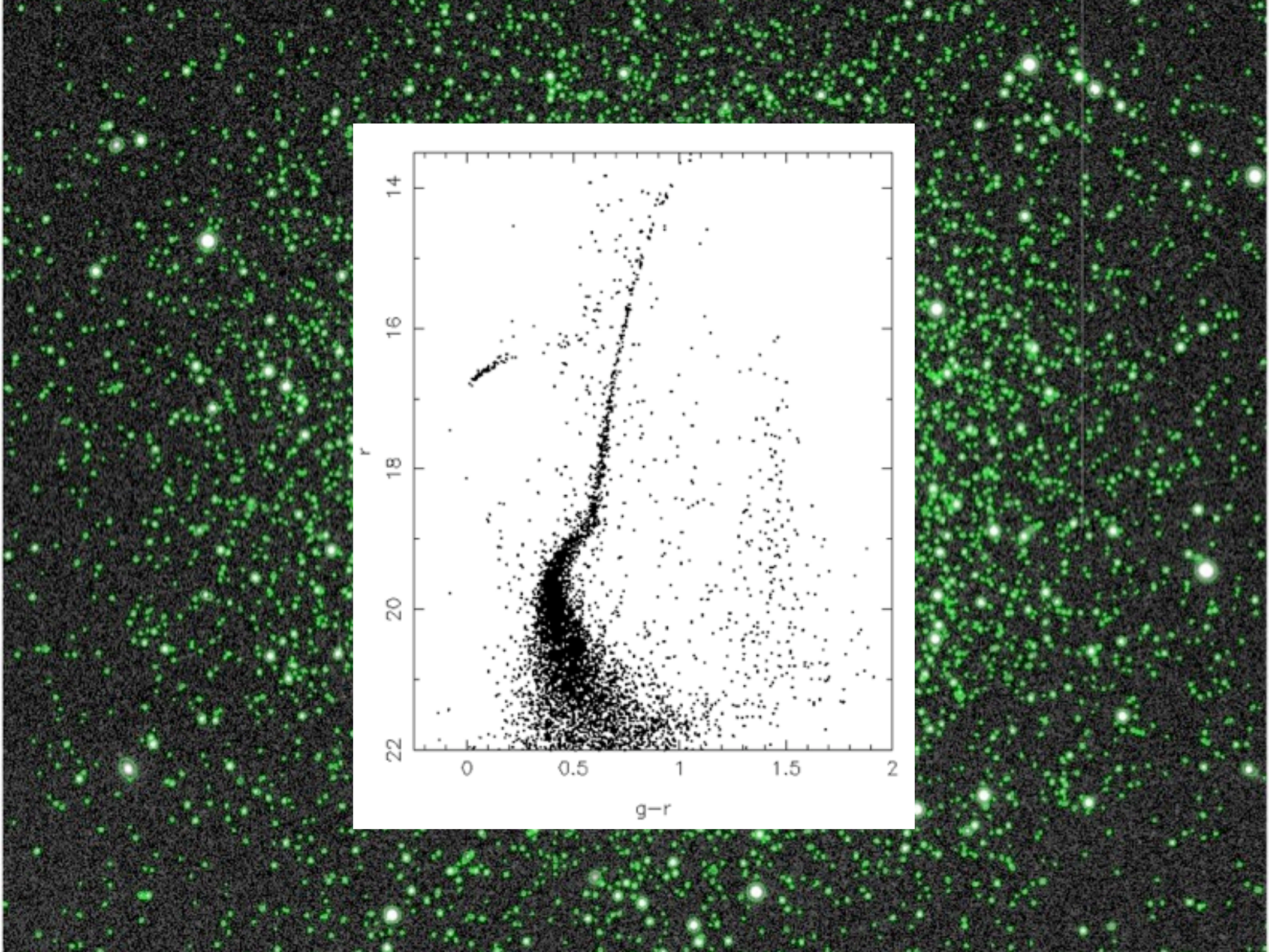
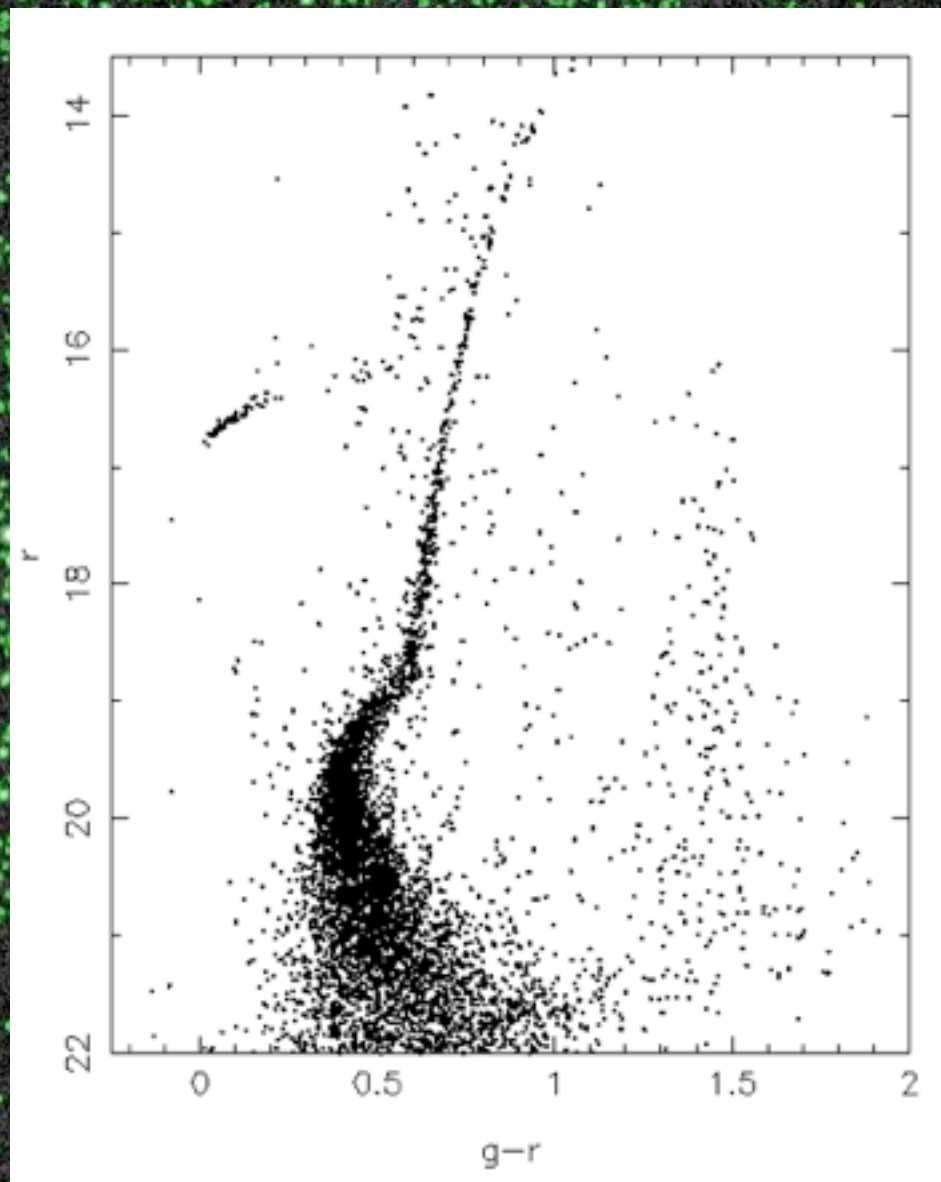
DARQ



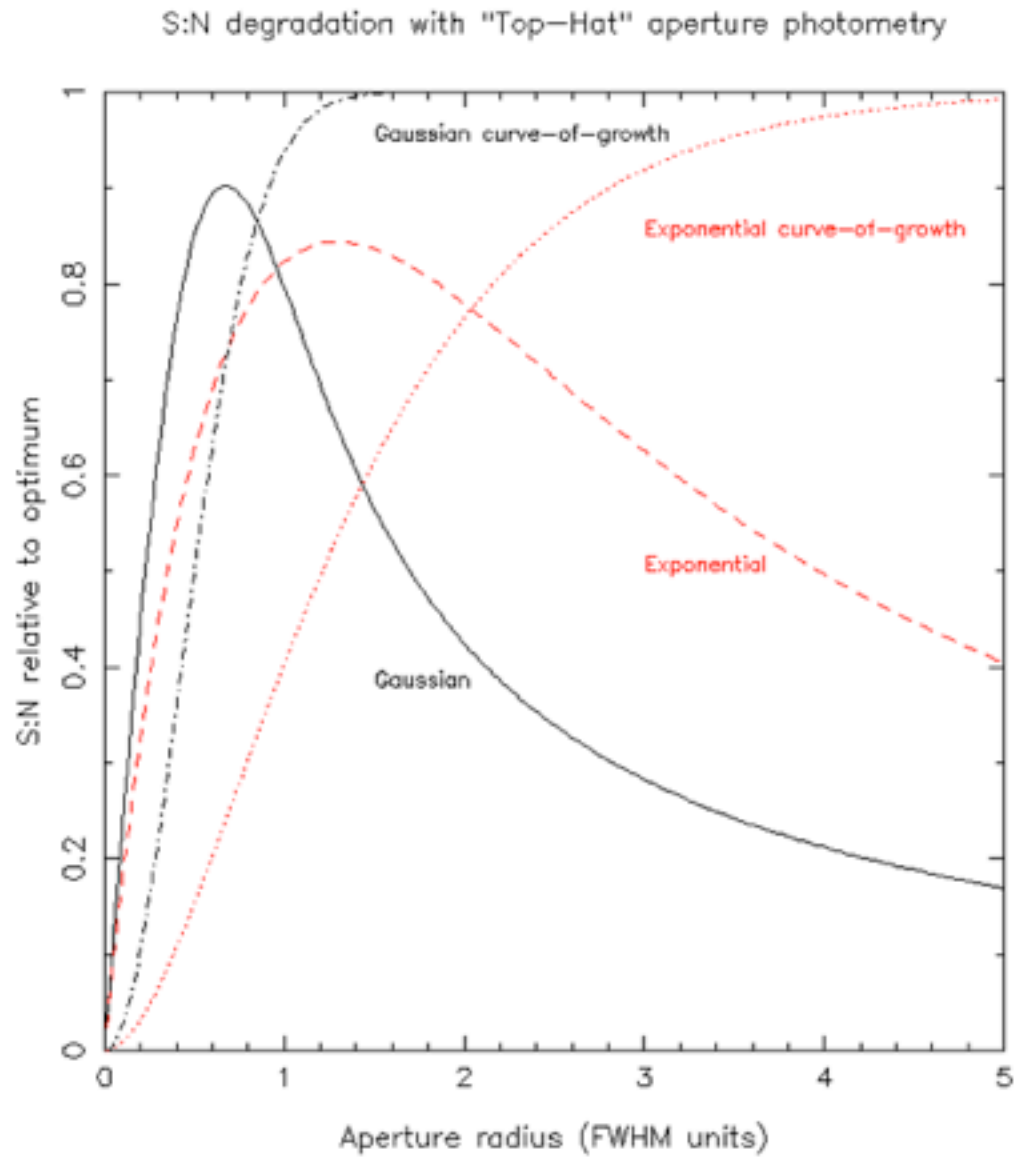
N5466 r'-band







fluxes - aperture cf. PSF fitting





Cambridge Astronomical Survey Unit

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VISTA DATA REDUCTION PROGRESS: COMMISSIONING

This page displays the reduction progress of VISTA data. Information is automatically updated hourly.

Night	Status	N _{raw}	Version	Summary Plots	Photometry Plots	Summary Info	Observation Log	Paranal ambient conditions	Size raw [Gb]	Size red [Gb]
2009/10/15	REDUCED	363		GIF1 GIF2	GIF	summary	obs_log	nightmon	23.86	43.78
2009/10/16	REDUCED	341		GIF1 GIF2	GIF	summary	obs_log	nightmon	25.53	137.65
2009/10/17	REDUCED	470		GIF1 GIF2	GIF	summary	obs_log	nightmon	33.61	183.47
2009/10/18	REDUCED	398		GIF1 GIF2	GIF	summary	obs_log	nightmon	29.51	154.95
2009/10/19	REDUCED	505		GIF1 GIF2	GIF	summary	obs_log	nightmon	35.24	184.86
2009/10/20	REDUCED	401		GIF1 GIF2	GIF	summary	obs_log	nightmon	29.76	192.84
2009/10/21	Reduction status	448		GIF1 GIF2	GIF	summary	obs_log	nightmon	32.11	179.83
2009/10/22	REDUCED	476		GIF1 GIF2	GIF	summary	obs_log	nightmon	36.66	204.01
2009/10/23	REDUCED	589		GIF1 GIF2	GIF	summary	obs_log	nightmon	42.97	266.31
2009/10/24	REDUCED	434		GIF1 GIF2	GIF	summary	obs_log	nightmon	30.17	131.61
2009/10/25	REDUCED	454		GIF1 GIF2	GIF	summary	obs_log	nightmon	34.09	191.42
2009/10/26	REDUCED	454		GIF1 GIF2	GIF	summary	obs_log	nightmon	33.89	192.52
2009/10/27	REDUCED	492		GIF1 GIF2	GIF	summary	obs_log	nightmon	35.20	198.65
2009/10/28	UNPROCESSED	15					obs_log	nightmon	0.92	
2009/10/29	REDUCED	435		GIF1 GIF2	GIF	summary	obs_log	nightmon	33.04	191.13
2009/10/30	UNPROCESSED	46					obs_log	nightmon	2.64	
2009/10/31	UNPROCESSED	100					obs_log	nightmon	4.91	
2009/11/01	UNPROCESSED	15					obs_log	nightmon	0.85	
2009/11/02	REDUCED	340		GIF1 GIF2	GIF	summary	obs_log	nightmon	25.31	102.82
2009/11/03	REDUCED	599		GIF1 GIF2	GIF	summary	obs_log	nightmon	47.72	249.12
2009/11/04	REDUCED	656		GIF1 GIF2	GIF	summary	obs_log	nightmon	53.90	205.86

Table description :

- **N_{raw}**: total number of raw images for the given night (this includes darks, flats, focus runs etc.).
- **Version**: process version number. It's a link sending to the corresponding version notes.
- **DQC Plots**: i.e. columns Summary Plots and Photometry Plots, refer to the corresponding [description document](#).
- **Summary Info**: ASCII file with all the DQC information for each image chip-by-chip. The same image name appears four times, on per chip, and always in this order: 1,2,3 and 4.
- **Observation Log**: provides an handy summary of what was observed.
- **Size raw/red [Gb]**: these two columns display the total size (compressed) of raw/reduced data directory for the night in Gb.