

# Detector array & cosmetics

(and currently applied pre-processing)

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ANU

# Raw Data

2048 x 4096  
x 32 CCDs  
0.5"/pix

=2.4° x 2.4°

SAC controllers 5-8

101 pix = 0.8'

383 pix = 3.2'

64 pix = 0.5'

SAC controllers 1-4

1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800

# Pre-processed into 32 Images

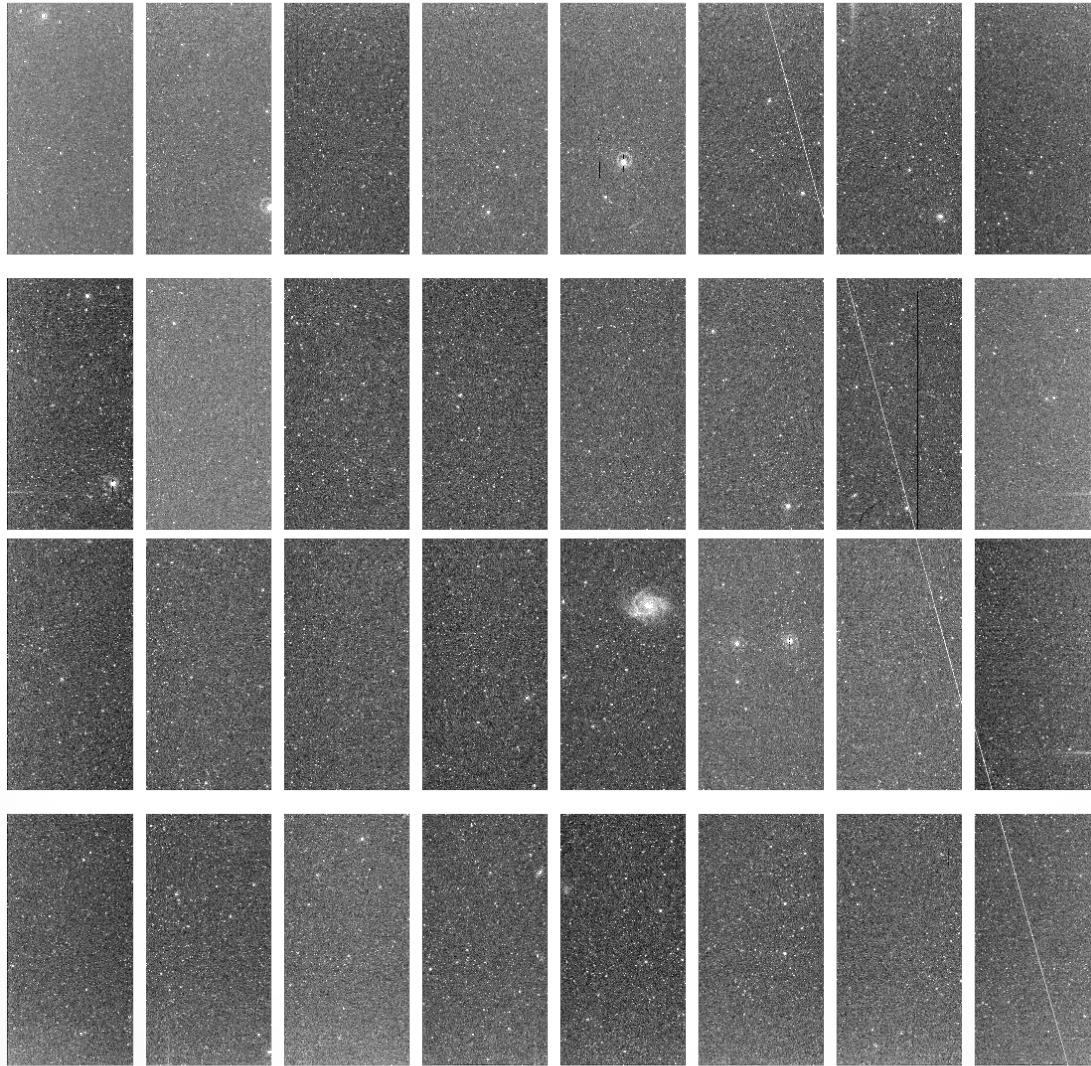
Overscan subtracted

Stitched

Cross-talk corrected

WCS added

No flat field applied



600

650

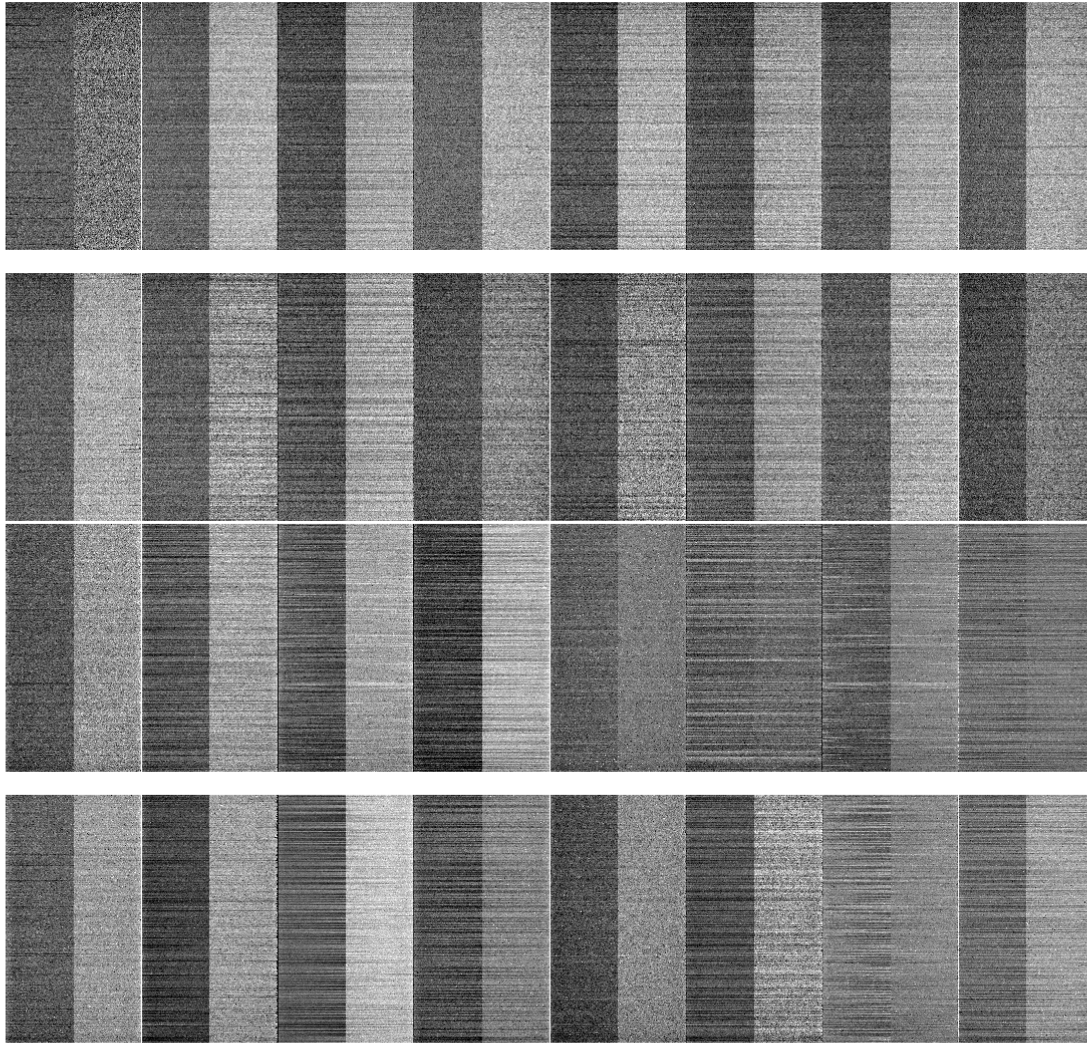
700

750

800

850

# Bias Frame



# Bias Frame

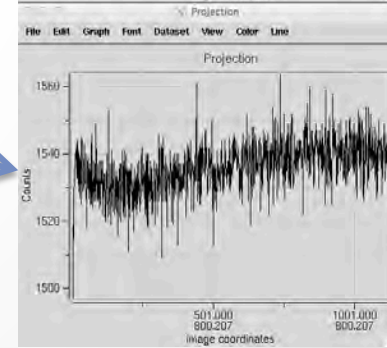
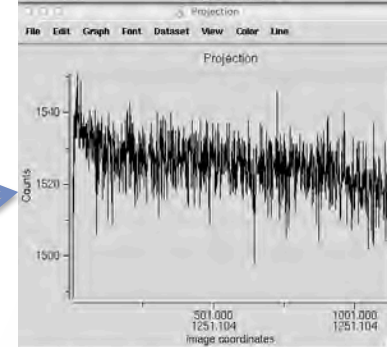
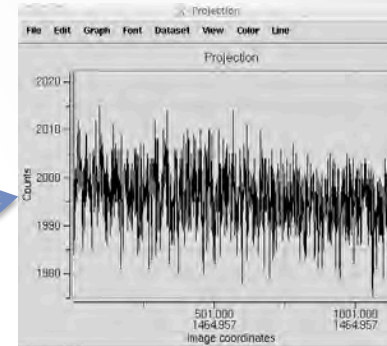
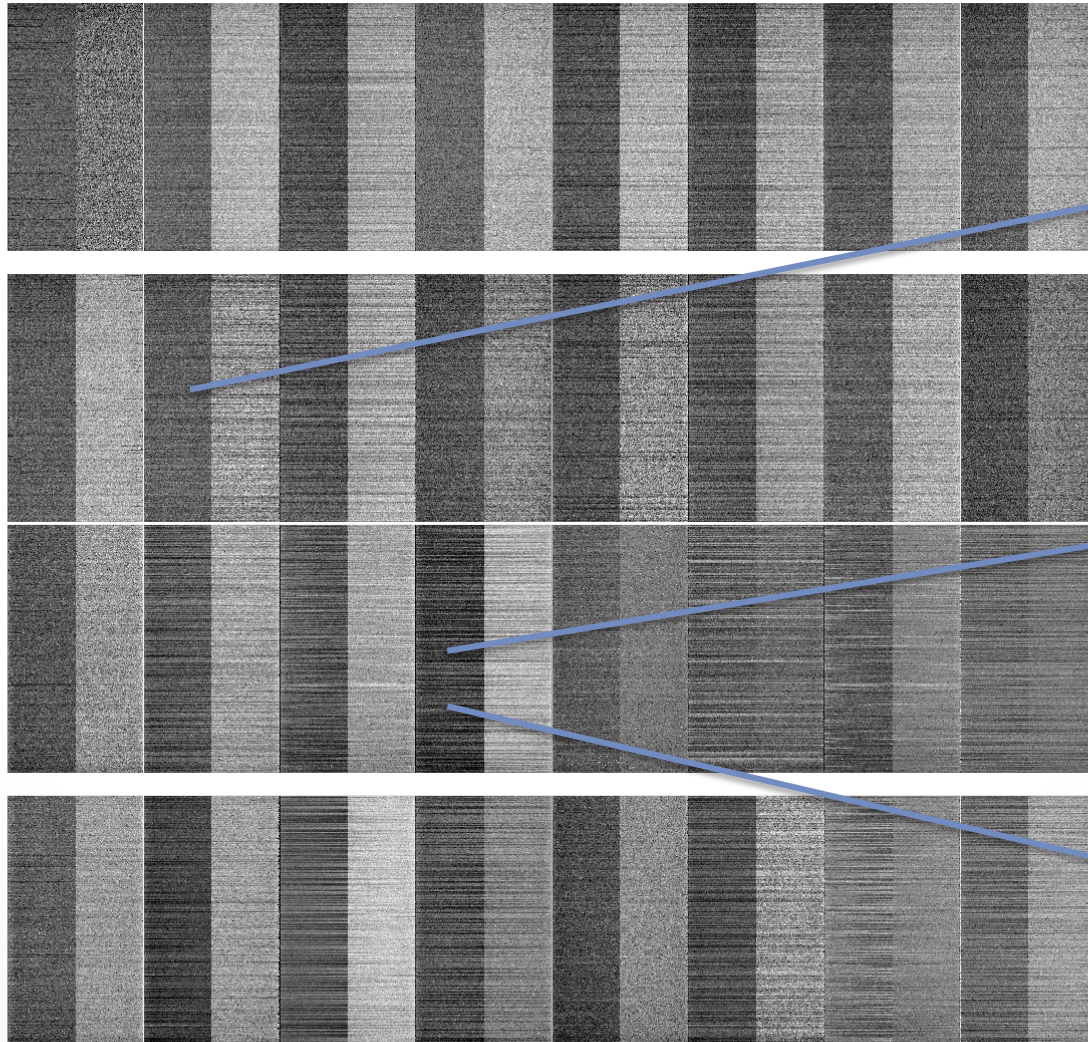
Currently:

No bias subtraction

Use overscan region

Fit slope line by line

Noise  $\llsim 10$



1390

1400

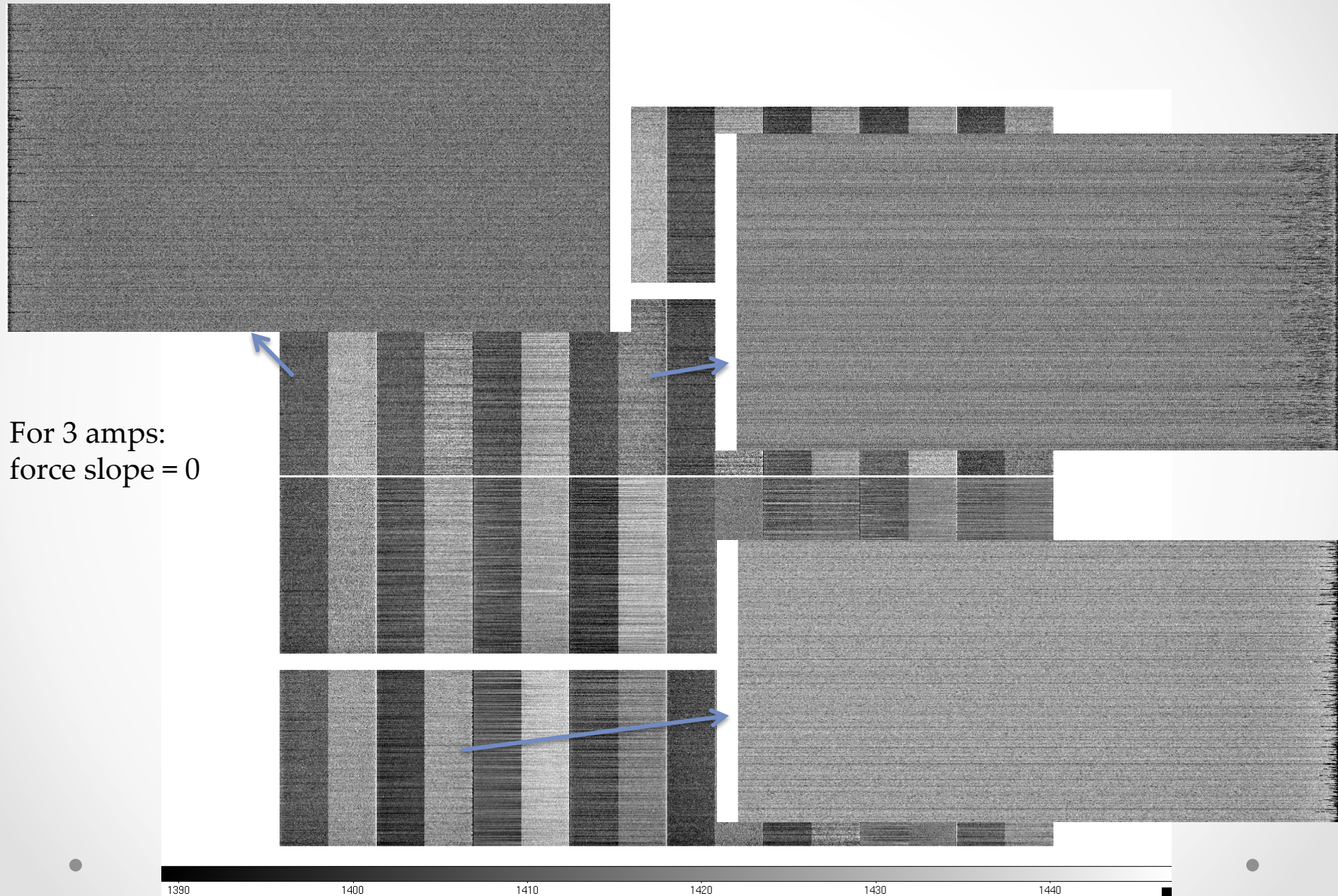
1410

1420

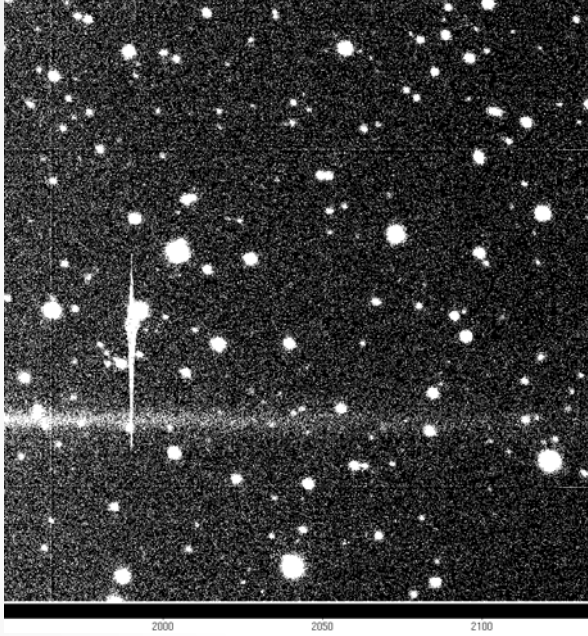
1430

1440

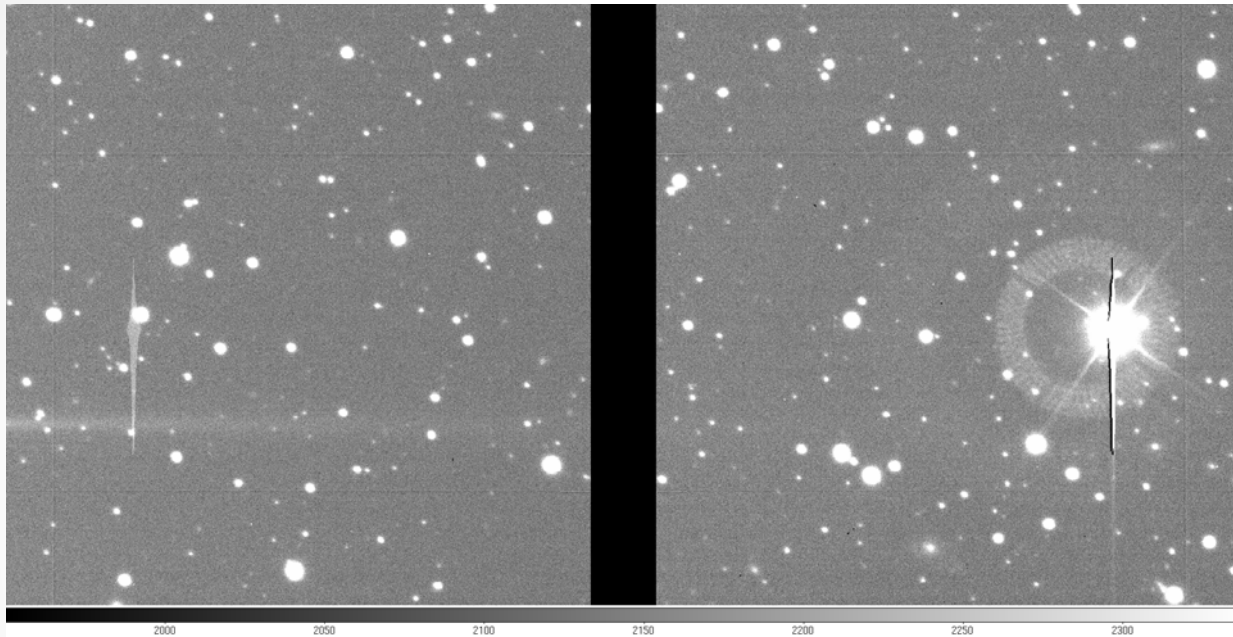
# Bias Frame - Fingers



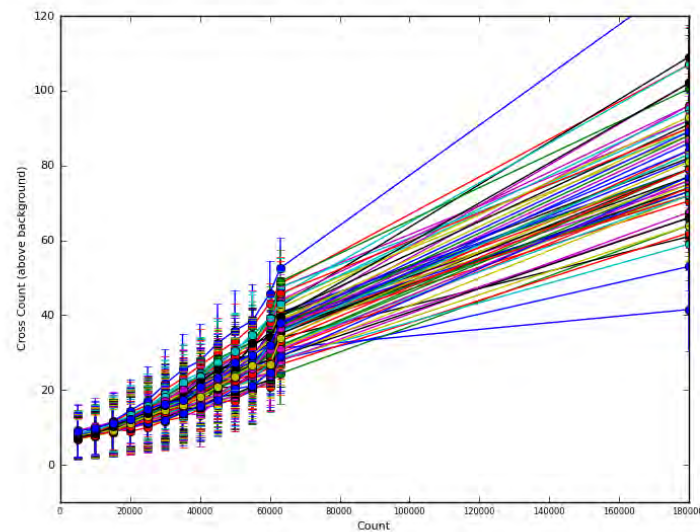
# Cross-talk - ghost



# Cross-talk - ghost

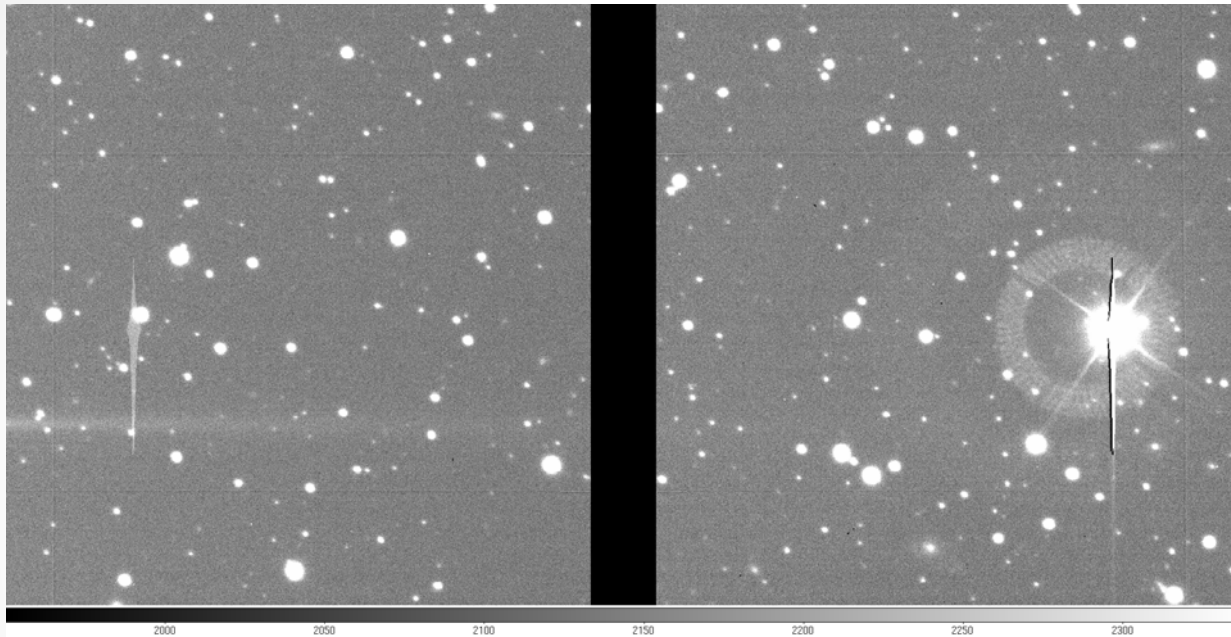


All pixels affected, but mostly at a low level (below noise)





# Cross-talk - correction



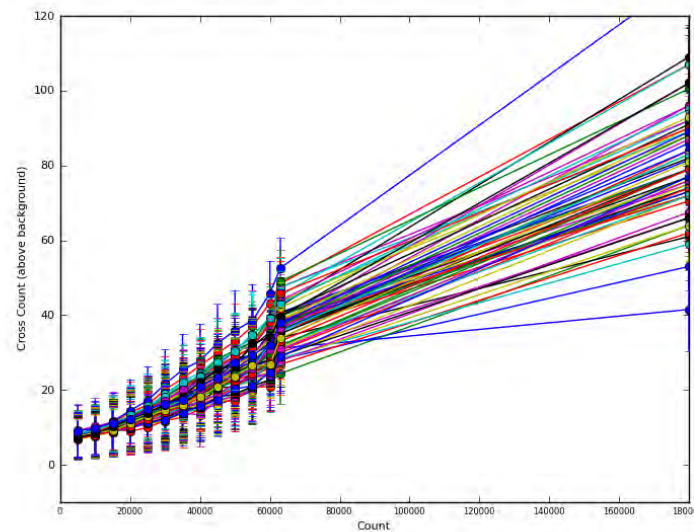
Solution:

Subtract a scaled mirrored image

Additional correction applied when count truncated at 65535.

Mask pixels at high intensity and mirror pixels

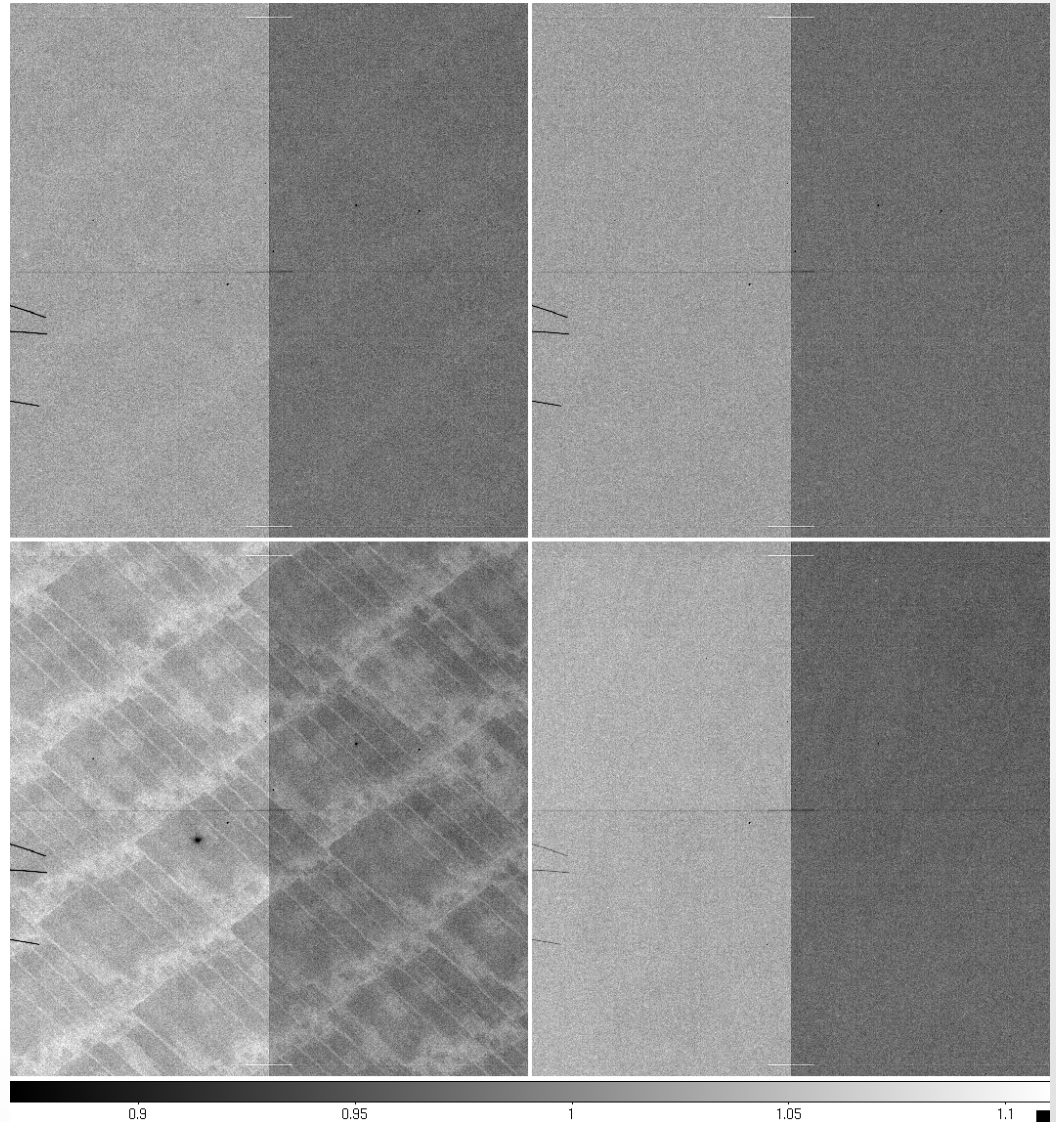
All pixels affected, but mostly at a low level (below noise)



# Flat Field

Reasonably flat response

Some small/median scale structures



# Moving (Mysterious) Artifact

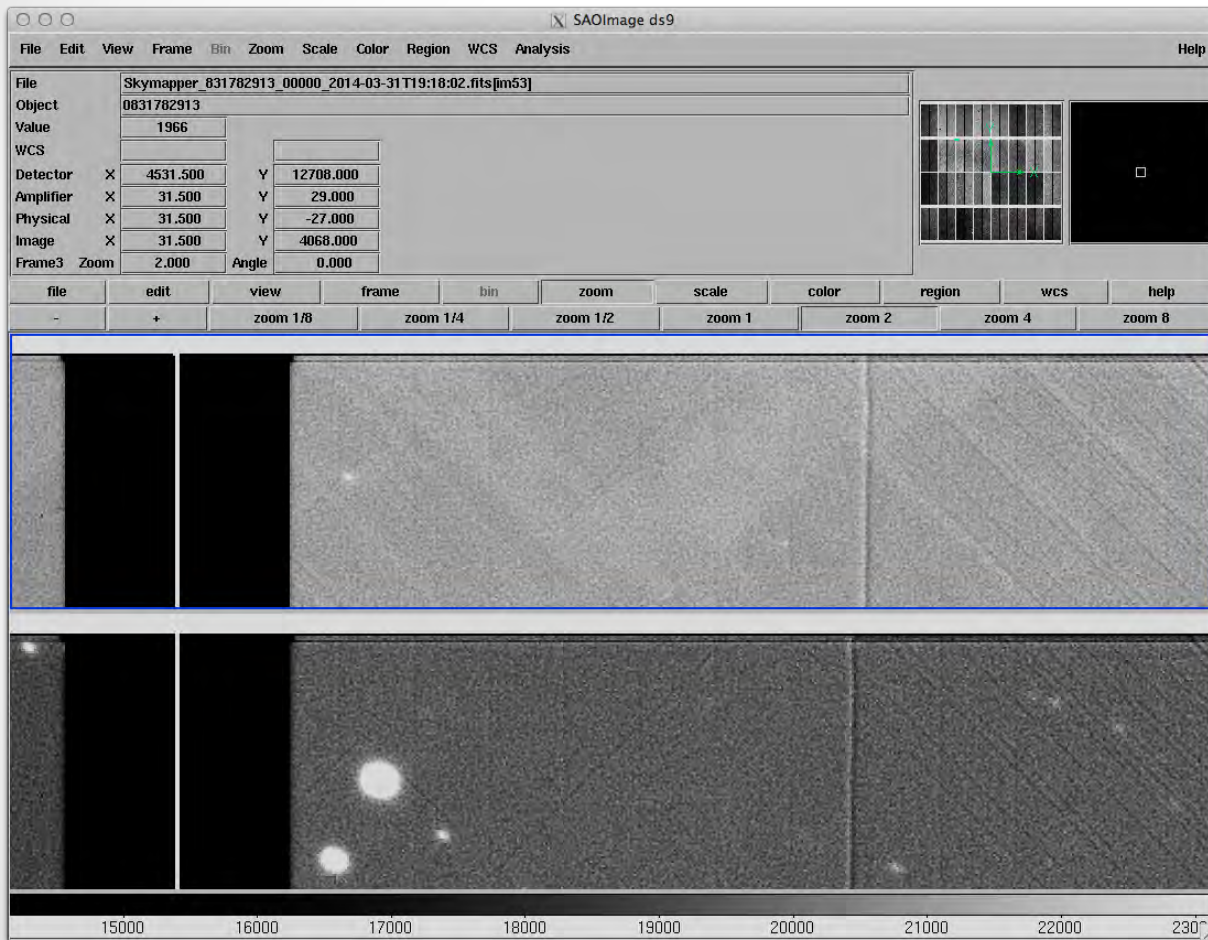
The screenshot displays the SAOImage ds9 interface. The main window shows a grayscale astronomical image with a prominent vertical artifact on the left side. The artifact is a dark, vertical band that appears to be moving or changing over time. The image is zoomed in, showing a region from approximately 15000 to 23000 on the x-axis. The artifact is most visible in the lower portion of the image, where it appears as a bright, circular spot.

The software interface includes a menu bar (File, Edit, View, Frame, Bin, Zoom, Scale, Color, Region, WCS, Analysis, Help) and a toolbar with buttons for file, edit, view, frame, bin, zoom, scale, color, region, wcs, and help. The zoom level is set to 2.000. The WCS parameters are displayed as follows:

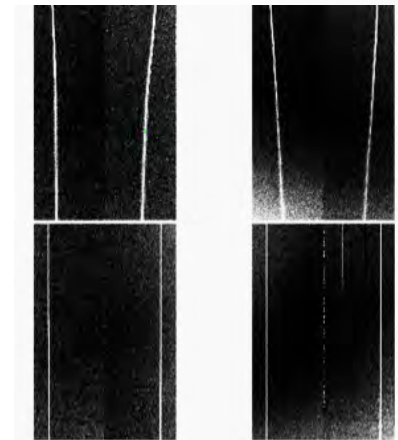
Parameter	X	Y
Detector	4531.500	12708.000
Amplifier	31.500	29.000
Physical	31.500	-27.000
Image	31.500	4068.000
Frame3 Zoom	2.000	Angle 0.000

The image shows a dark, vertical band on the left side, which is the artifact. The rest of the image shows a noisy, grayscale background with some faint, bright spots.

# Moving (Mysterious) Artifact



~5% peak to peak  
Move by ~ 10 pixels  
In minutes  
In all amps



Of unknown cause  
“dark current edge”?

Detailed report by Chris  
Onken