

HAWAII ENGINEERING ARRAY TEST RESULTS

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Results were taken using a combination of the old IRLabs fanout board and associated preamp board and the newer RGO fanout board with its associated fanout board. All tests were carried out in the test cryostat using the internal LED or elevated dark currents as the test signals.

The setup voltages were as follows:-

VRESET – 0.55 to 0.95V

ITCL – 3.5V

All other voltages as per ROCKWELL data sheet

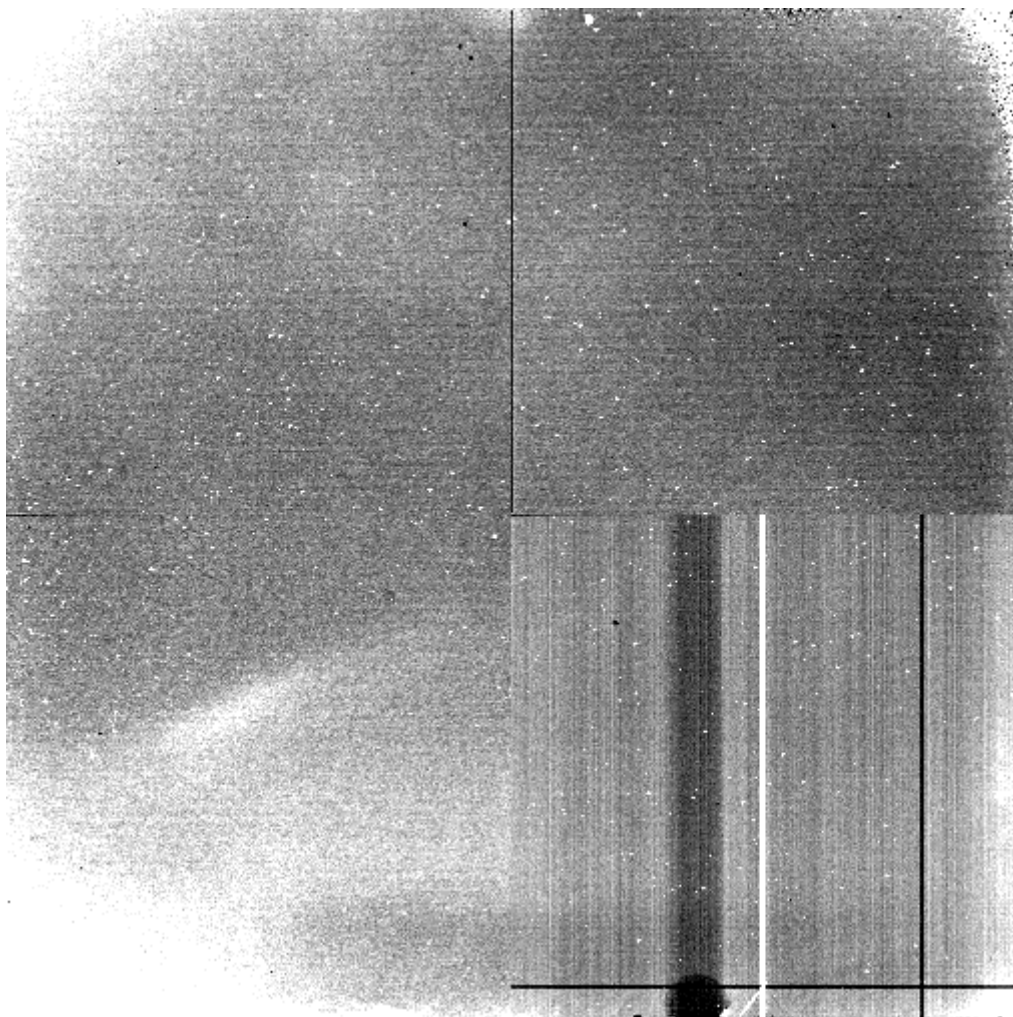
Gain calculated using photon transfer method

Gain approx $4e/ADU$ – checked on all four outputs. These values are only accurate to approx 20%. There was 50Hz pickup when doing the characterisation and there were large radiation leaks as well. Also need to calibrate my software against other methods to confirm that it calculates the gain correctly (with IR arrays there are too many root 2 terms to take into consideration so my calculations could easily be out by root 2 !!!!)

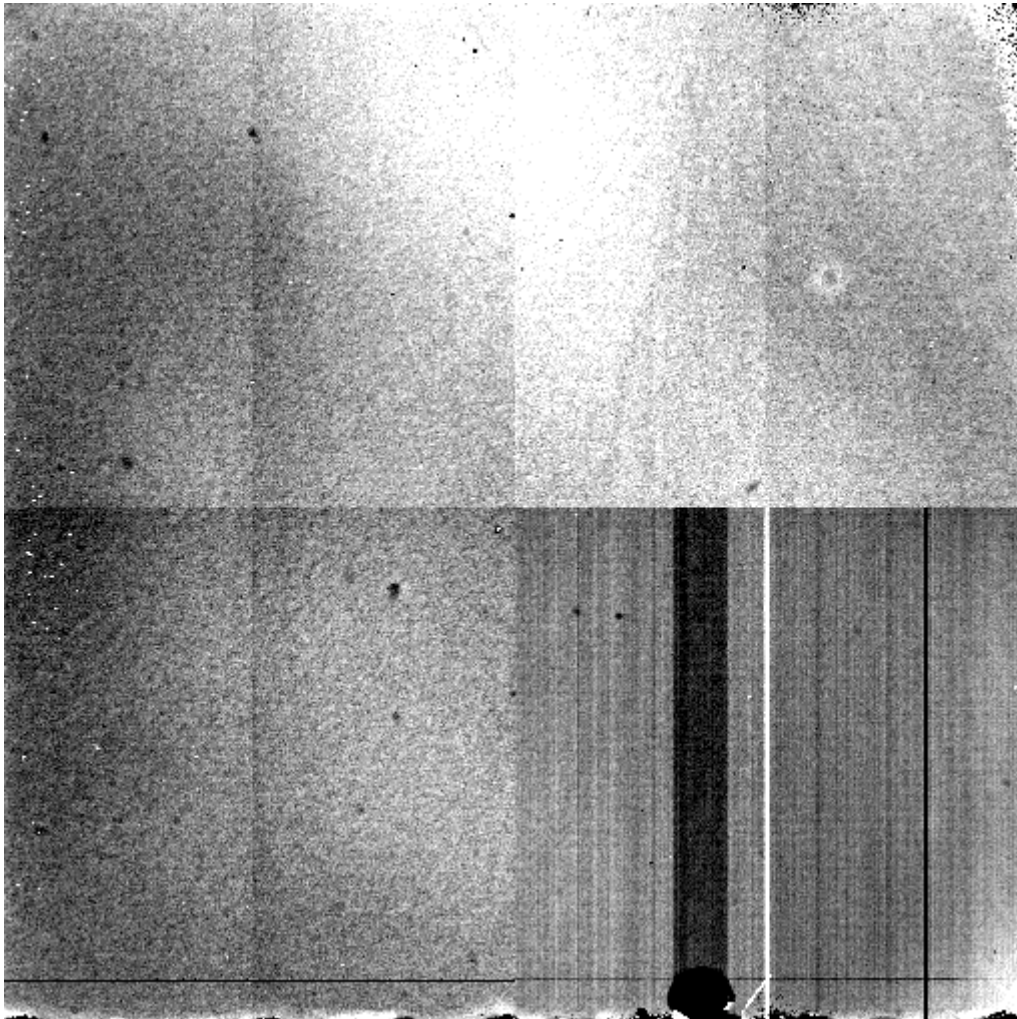
Dark current has been measured on particular occasions at $<10e/s$ at LN2 temperatures.

Noise measured at 5ADU \Rightarrow 20e but pickup seen in these images so would hope it to be much better than this.

HAWAII ENGINEERING array
BIAS IMAGE – (lots of radiation leakage into cryostat)
New preamp, RGO fanout and test cryostat

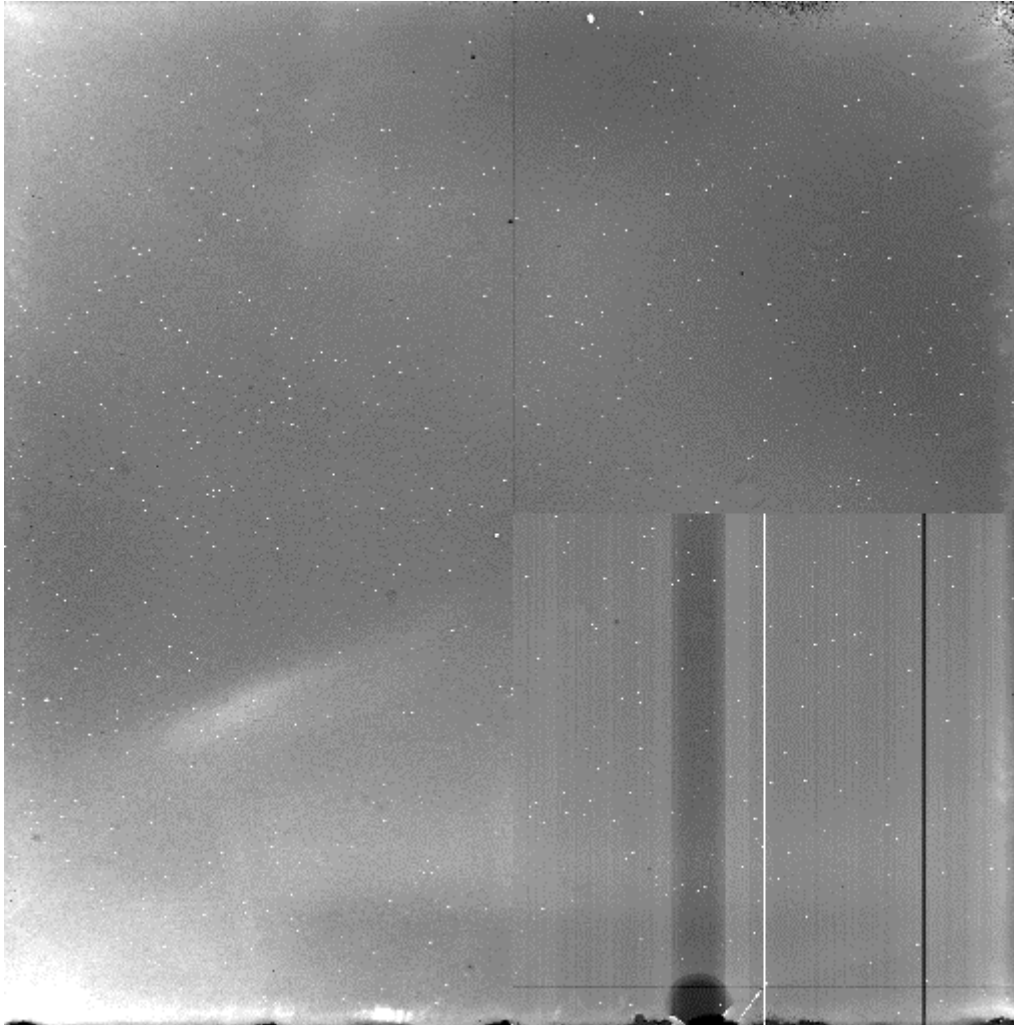


**HAWAII Engineering array Mean Bias image – mean of several images
Taken using old IRLabs Preamp and fanout board
Different radiation leakage to image seen above !!!
Note cross talk ghost images of “hot” column**

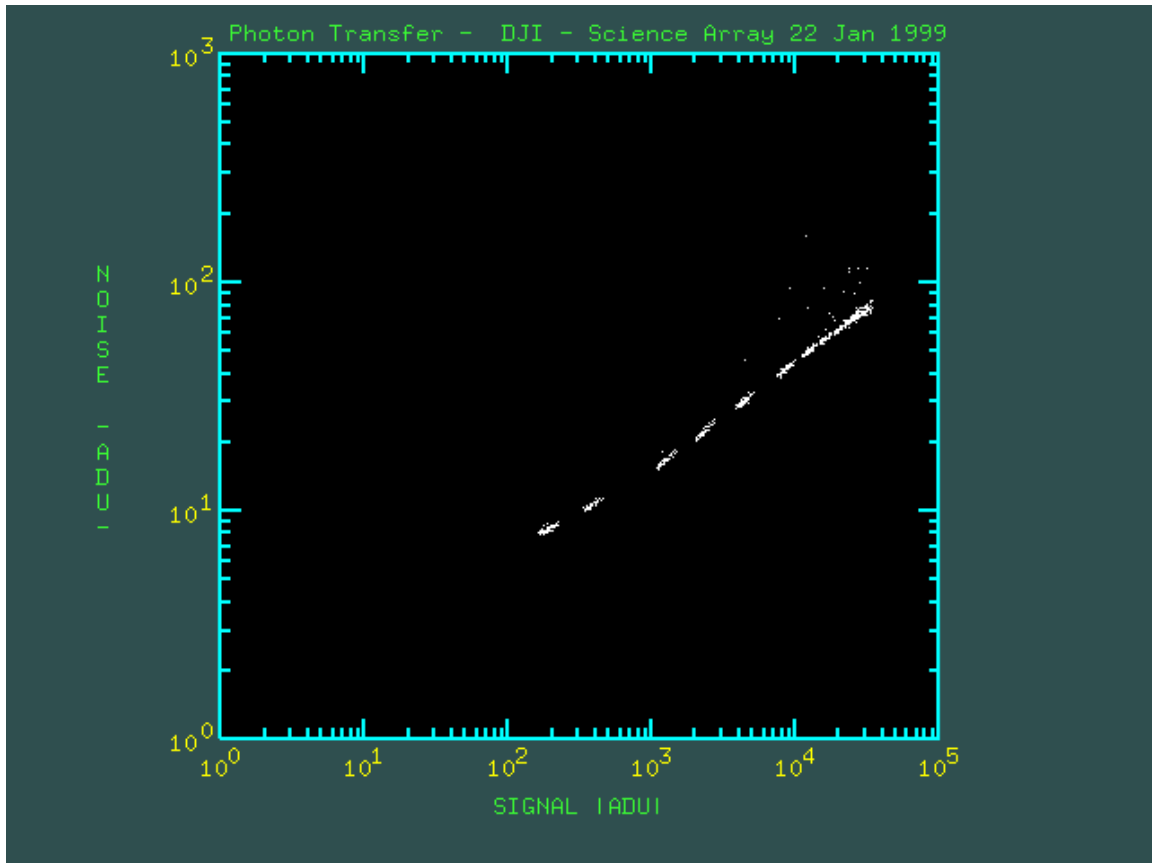


HAWAII ENGINEERING Array

300s dark exposure – lots of radiation leakage, therefore very high signal levels, from approx 80k e in bottom left corner to approx 30k e in top right corner. New preamp, RGO fanout and test cryostat used for testing.



ENGINEERING HAWAII device – photon transfer curve
Results from 27/5/98 – using Irlabs preamp and fanout board and test cryostat



IRLABs preamp and fanout board used for Linearity checks.

