The wire-mesh problem
or
Who is the Culprit?

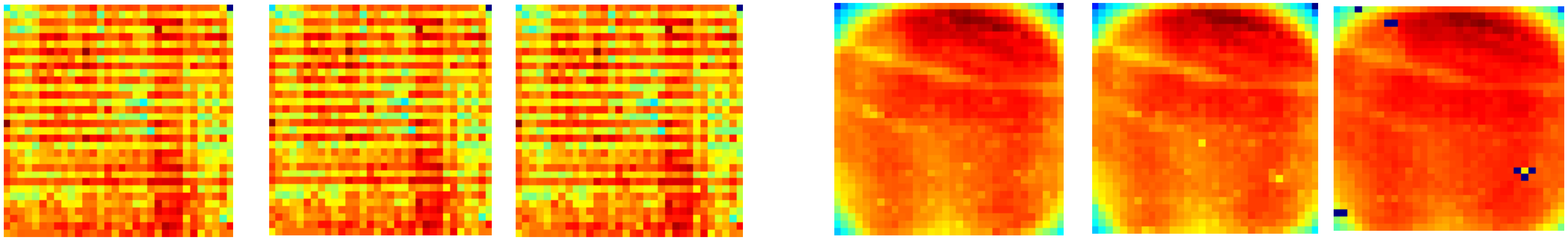
S. Ott

ISO Data Centre, Astrophysics Division, ESA, Villafranca, Spain

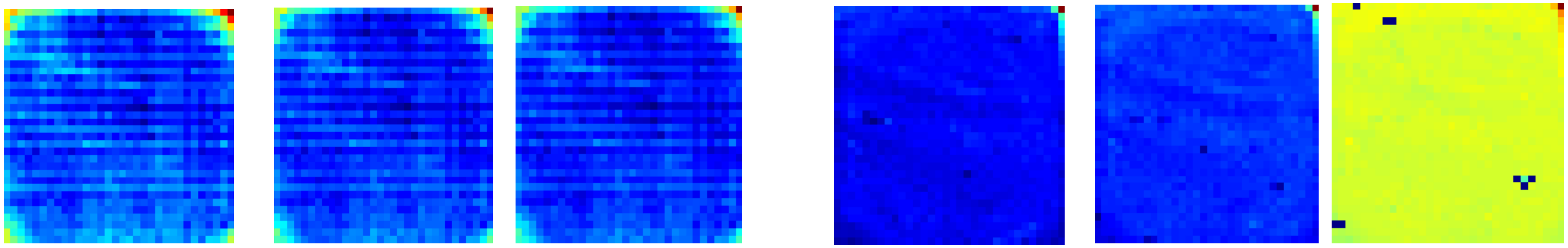
Observation (a) ADC saturation

SCD#	Mode	Filter	Tint	*Gain*	# of readouts	
5	CLEAN	LW10	2.10	1	80	Clean-mode
6	DARK	LW DARK	2.10	1	80	Dark-mode
12	OBS	LW10	5.04	4	6	ADC saturation
14	OBS	LW10	5.04	4	6	ADC saturation
16	OBS	LW10	5.04	4	4	ADC saturation
						Manual gain-change
18	OBS	LW10	5.04	1	5	
20	OBS	LW10	5.04	1	5	
22	OBS	LW10	5.04	1	2	

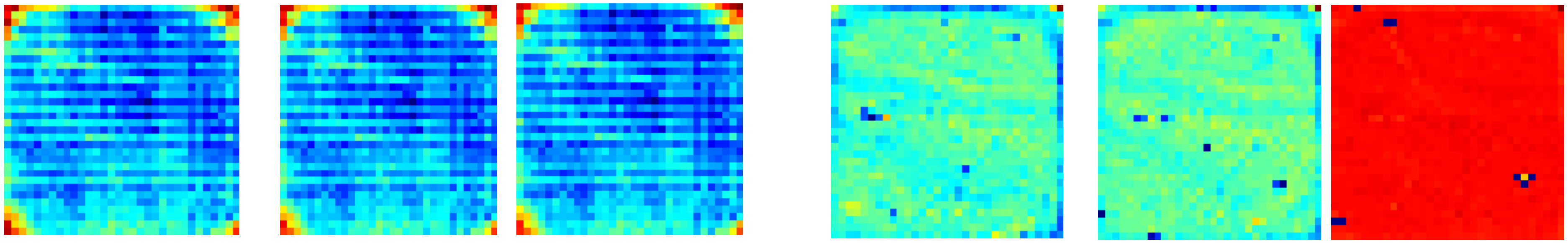
The consequences of an ADC saturation



Raw images

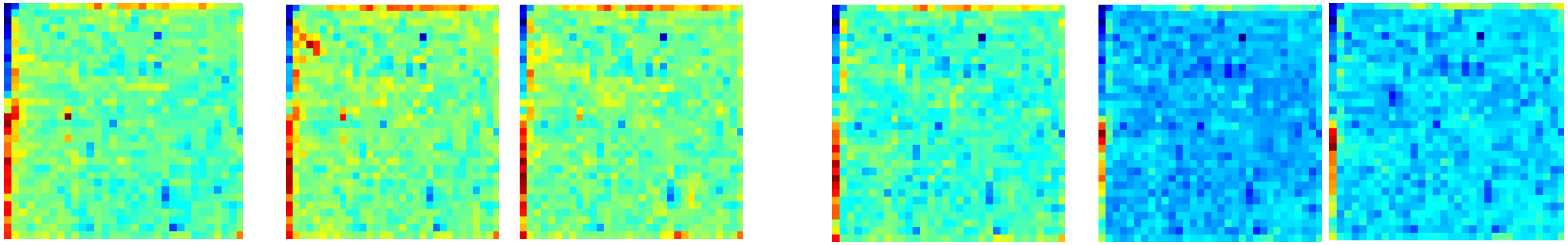


Images flatfielded by library flat-fields

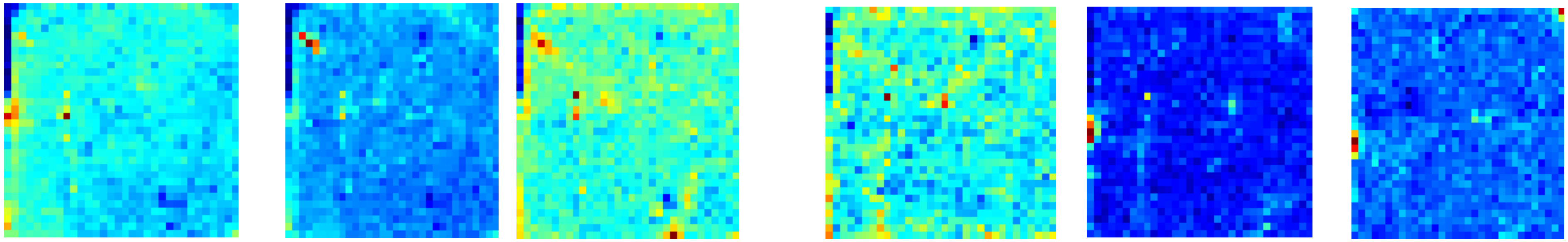


Images flatfielded by sky flat-fields

Observation (b): The "real" wire-mesh

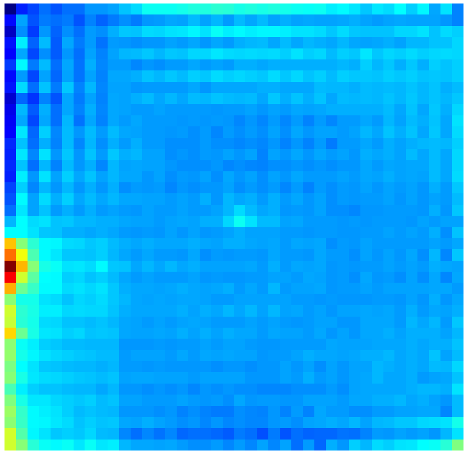


Images flatfielded by library flat-fields

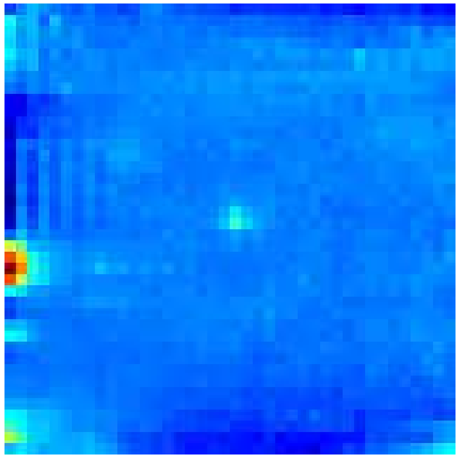


Images flatfielded by sky flat-fields

Resulting Mosaics

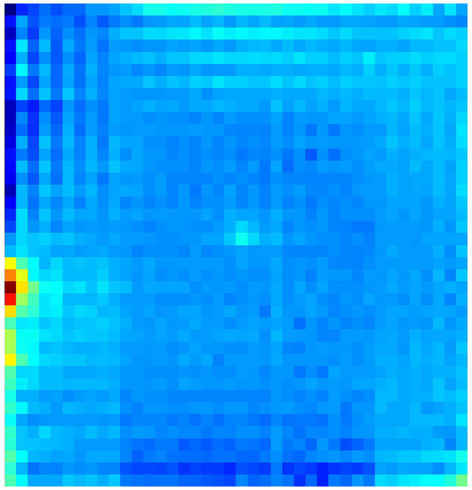


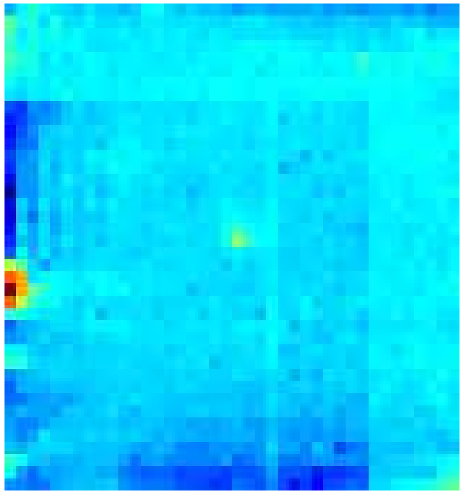
library flat-field



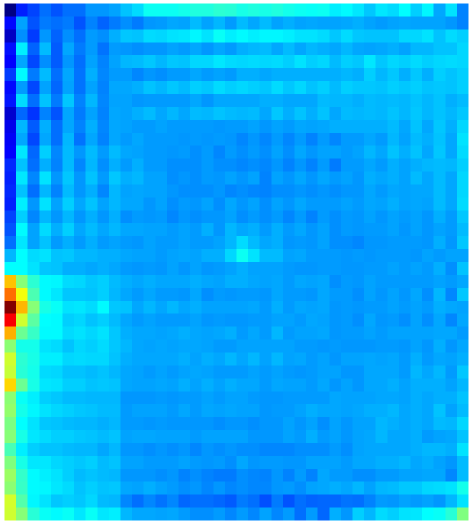
sky flat-field

Standard Treatment

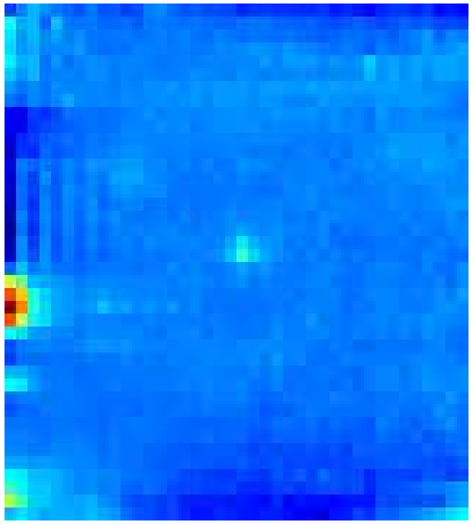




New Transient correction (simple option)

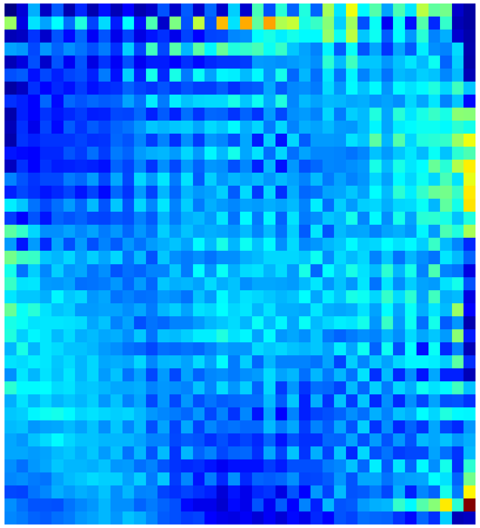


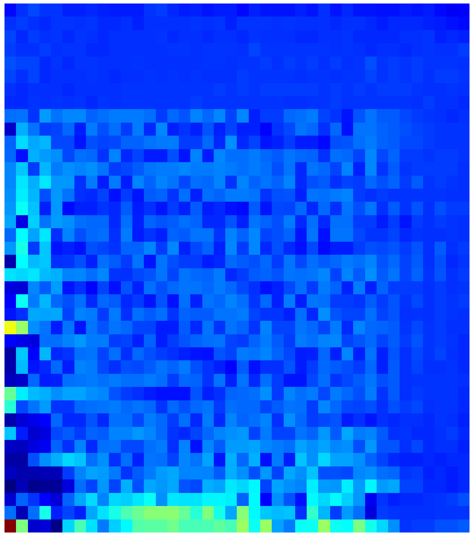
library flat-field



sky flat-field

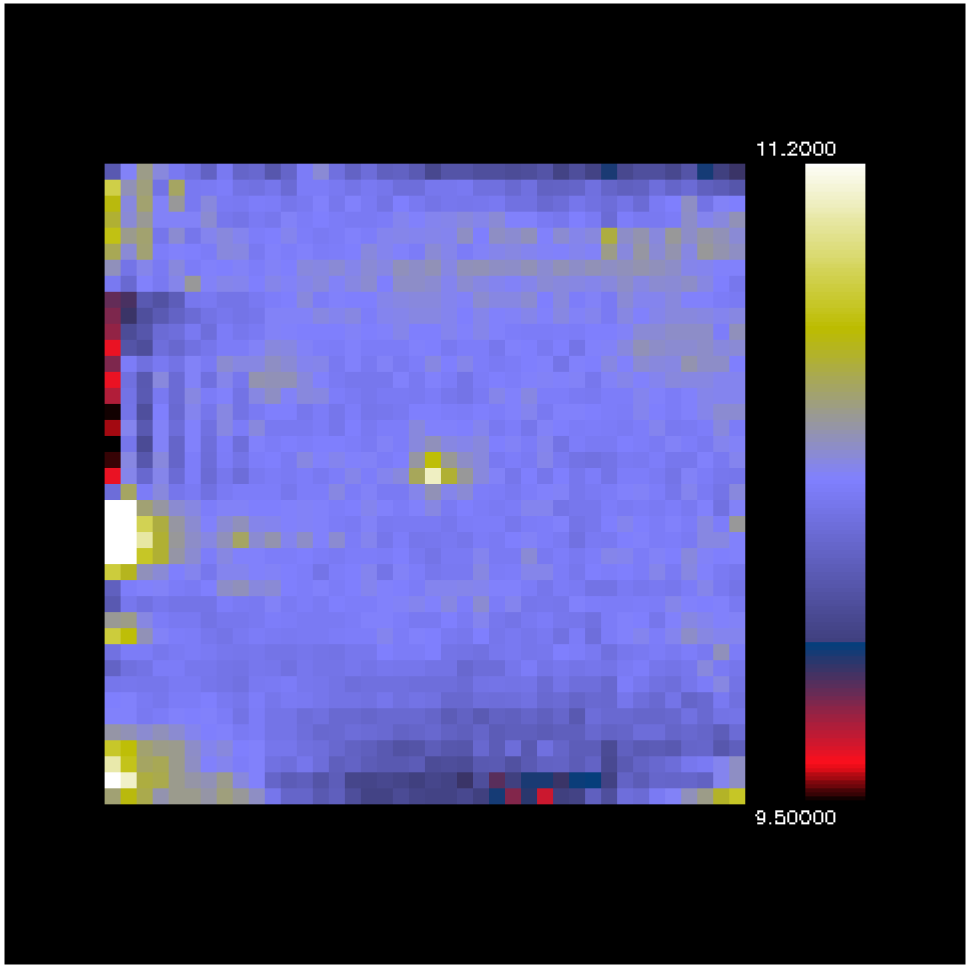
new Dark Correction





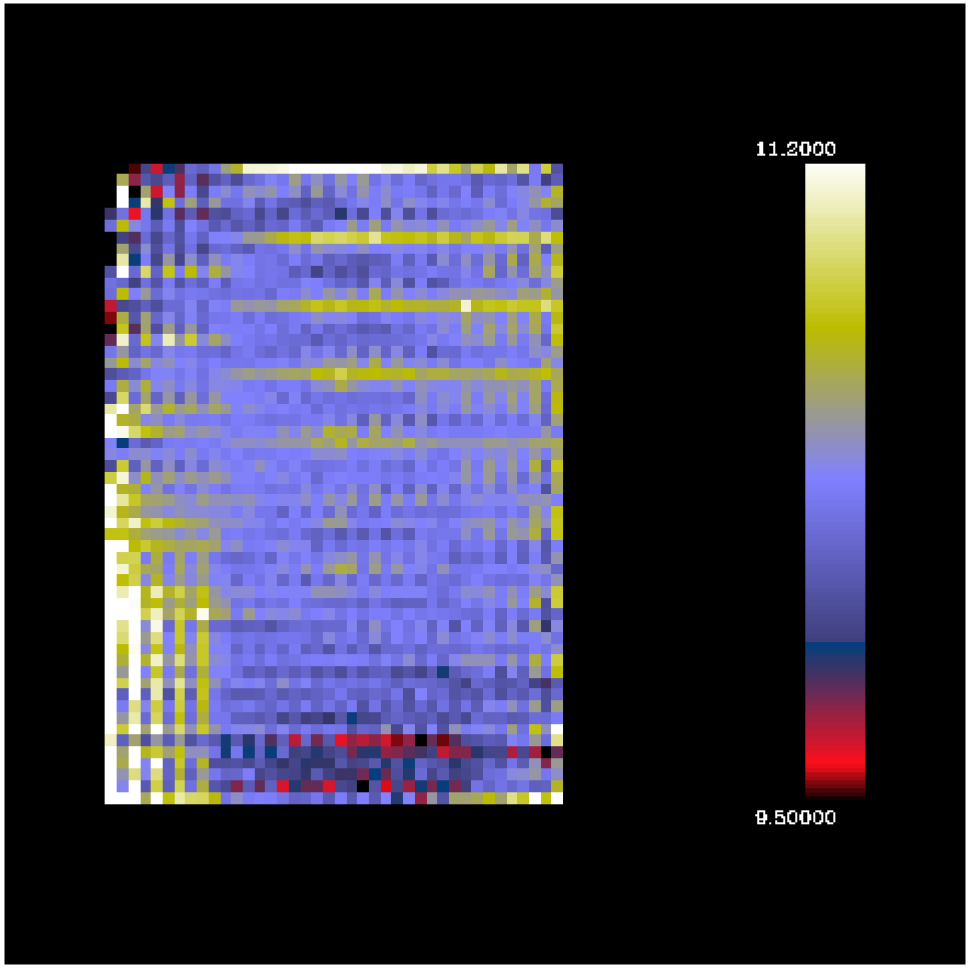
New Transient correction (default option)

As a recapitulation:

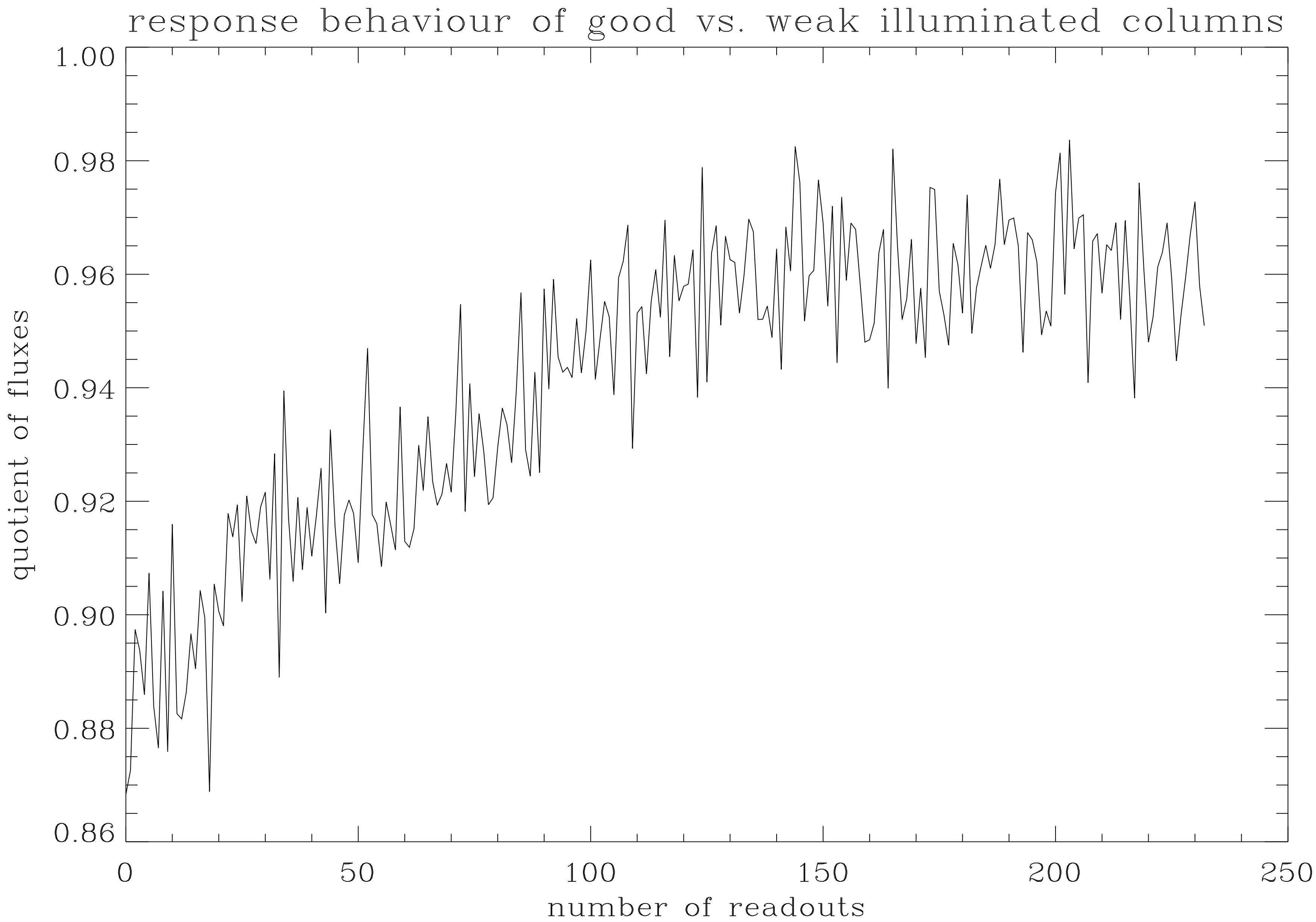


Standard Treatment, sky-flat-fielded

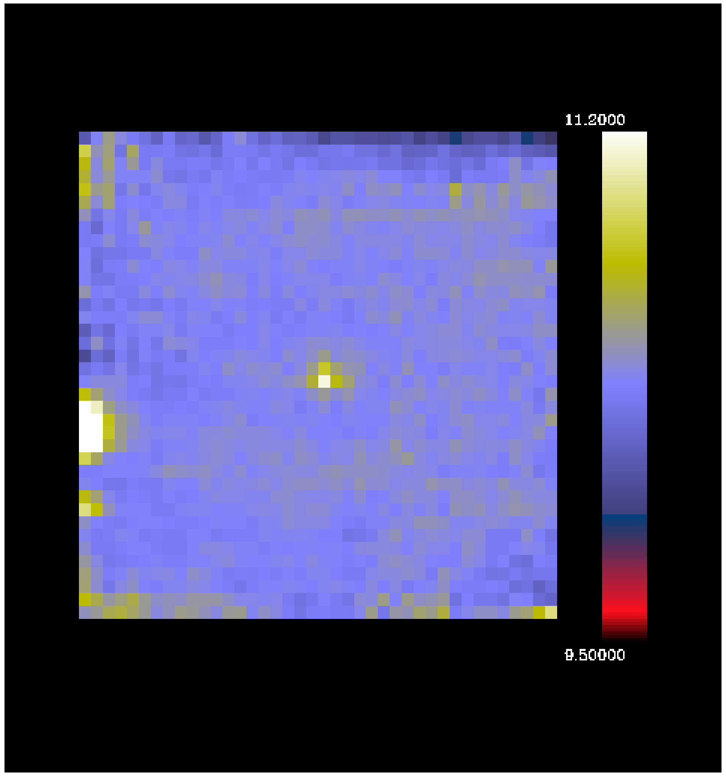
Your private wire-mesh:

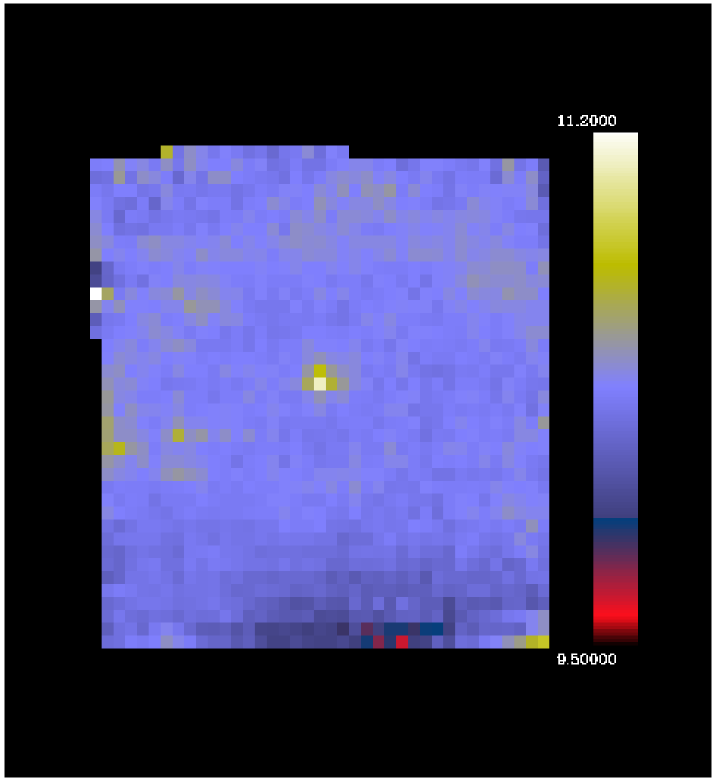


Standard Treatment, library-flat-fielded, raster-parameters changed


response behaviour of good vs. weak illuminated columns
quotient of fluxes
1.00
0.98
0.96
0.94
0.92
0.90
0.88
0.86
0
50
100
150
200
250
number of readouts

And the Winners are:





Standard Treatment, sky-flat-fielded

first 5 raster-positions masked out

low illuminated rows and columns masked out

Conclusion:

* if not saturation induced, the wire-mesh is mainly a stabilisation/flatfielding problem
* problem is independent of raster-parameters
* using only the stabilised data (or applying a transient correction for the global drift or using a variable flat-field) should cure the problem
* dark-correction is only of second importance