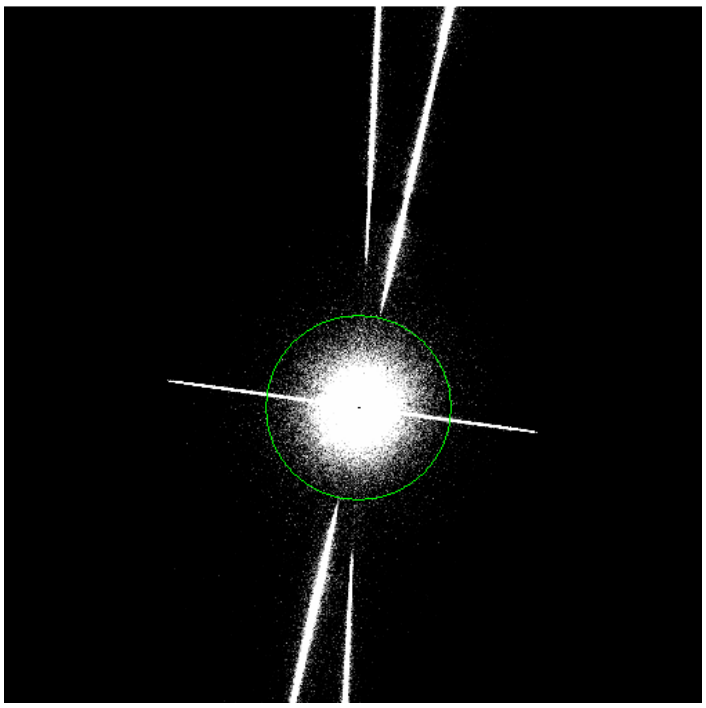
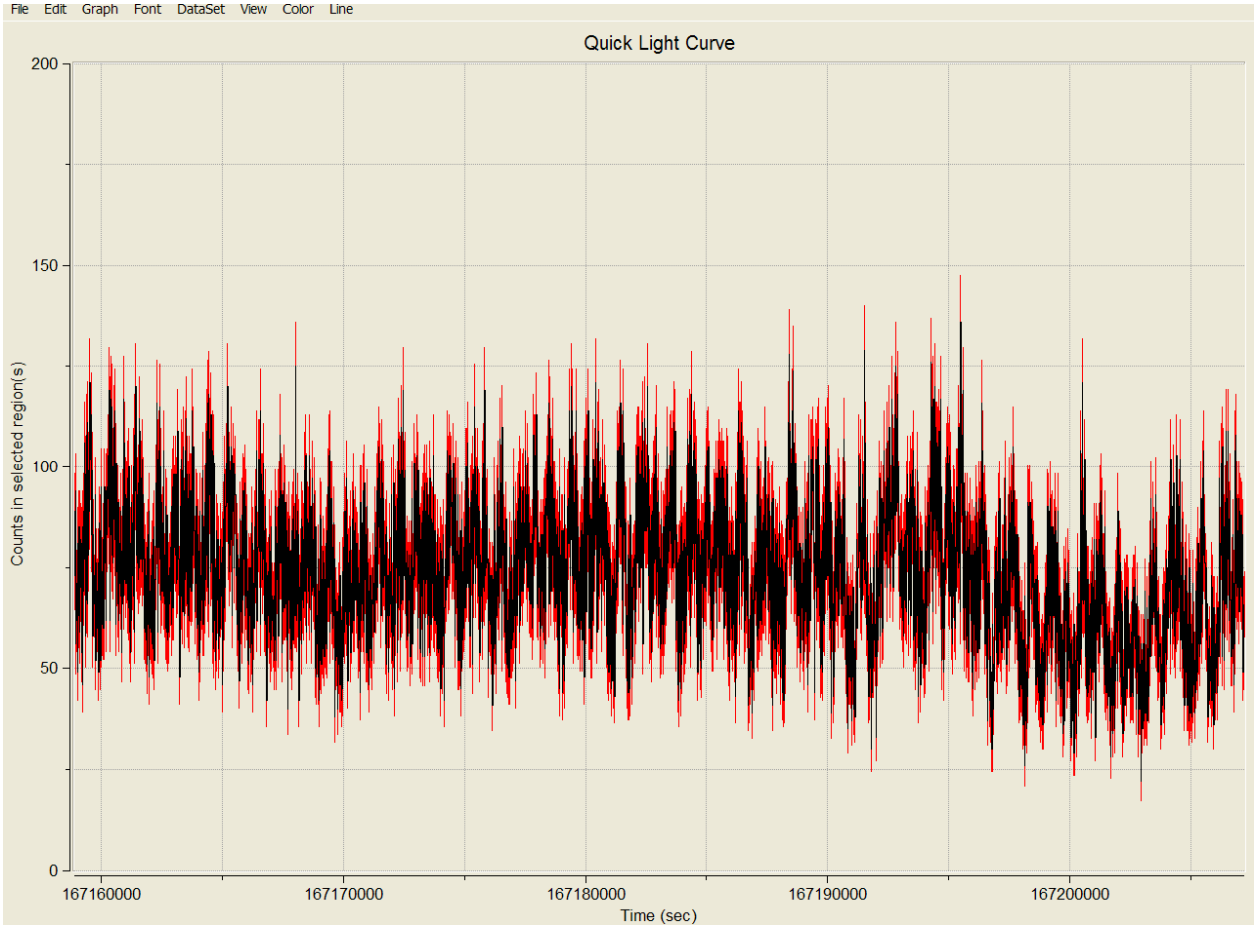
Chandra Astrophysics Institute
Summer 2008

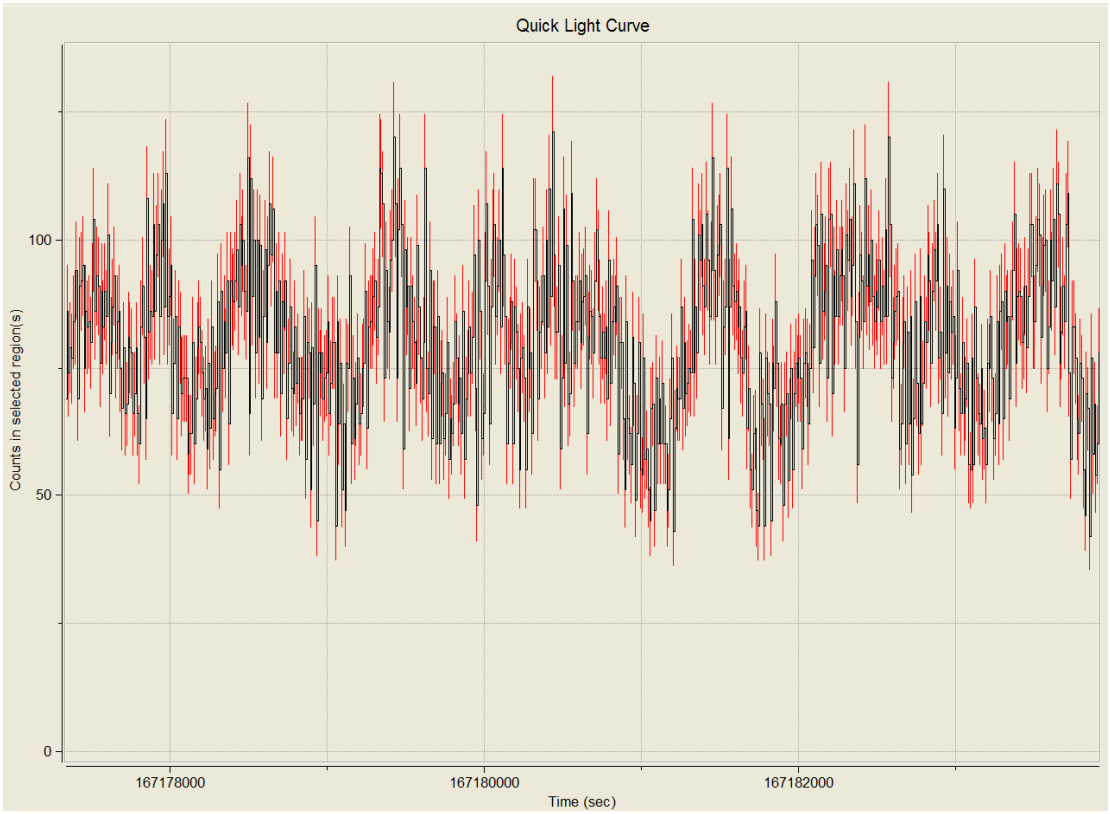
Cyg X-1



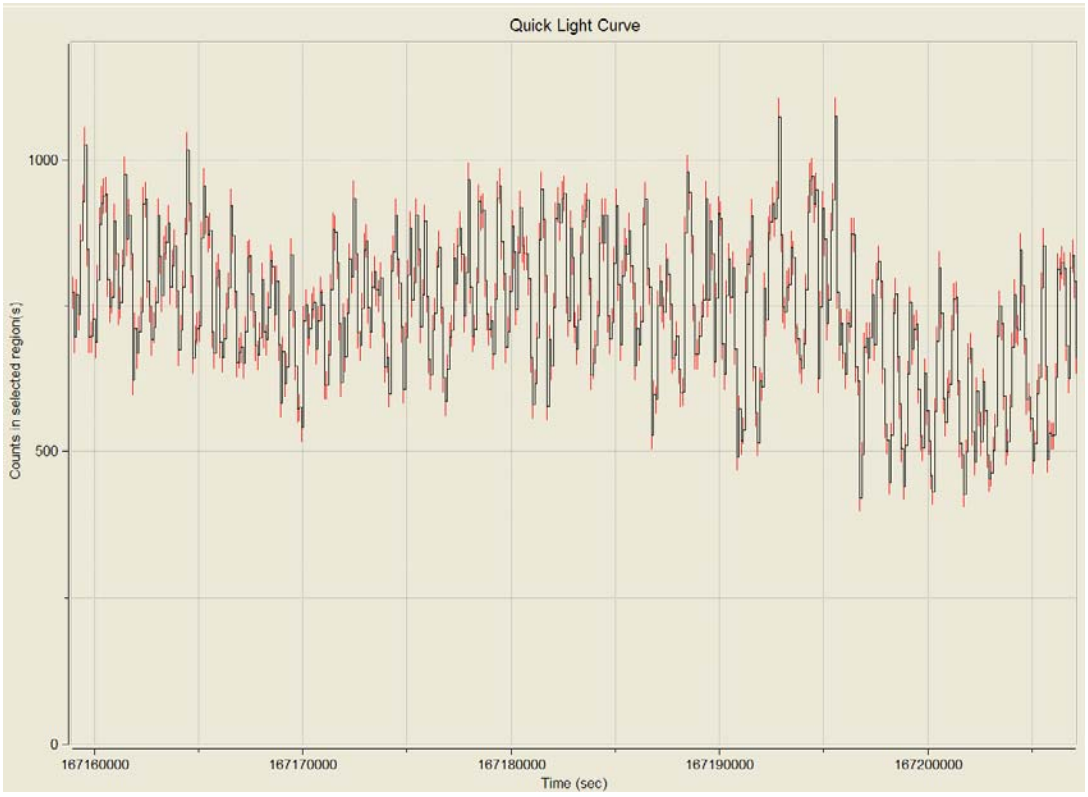
10s bins:



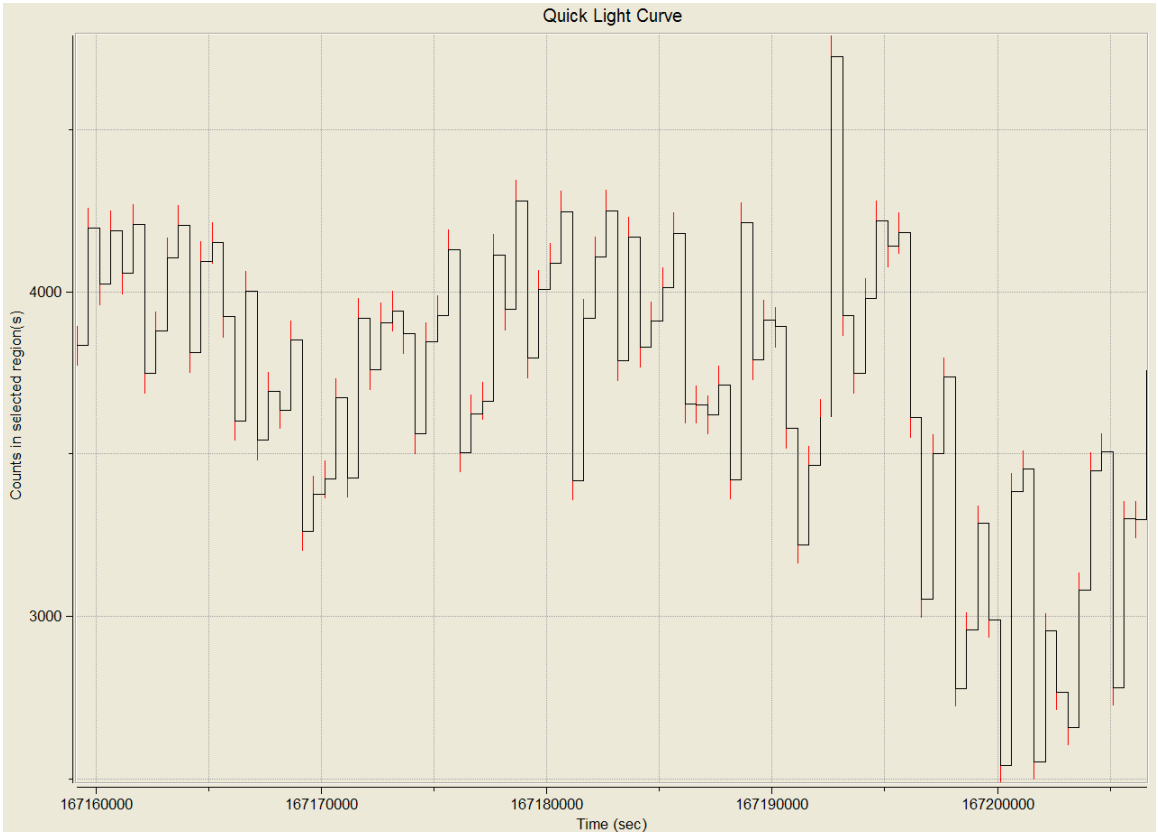
Zoomed:

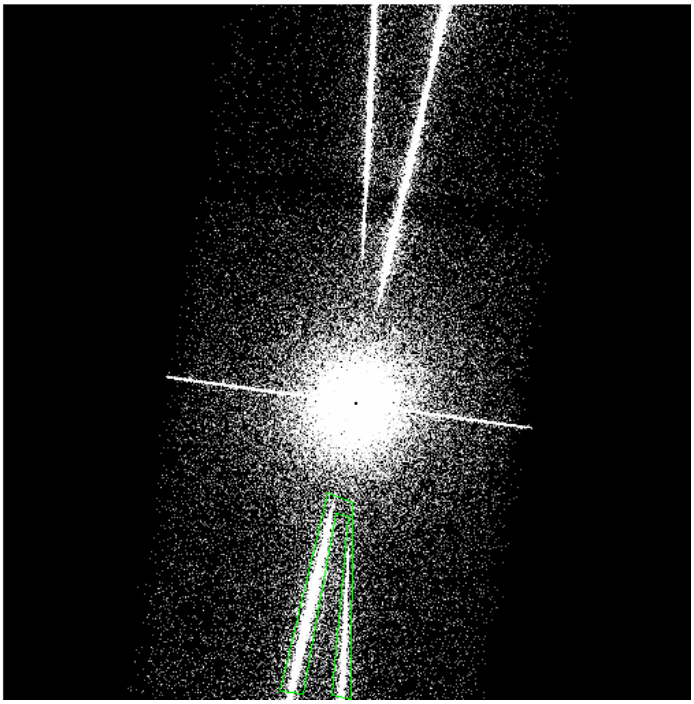


100s bins:

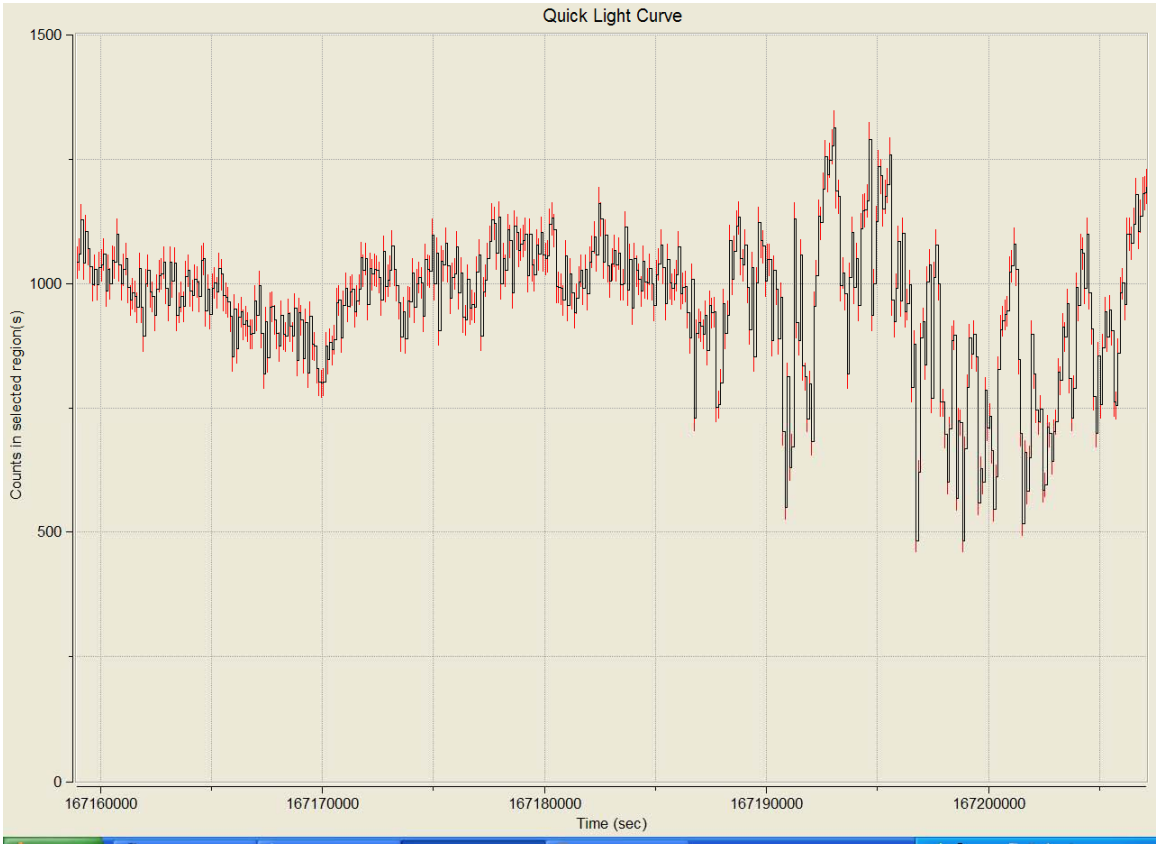


500s bins:


Quick Light Curve
Counts in selected region(s)
4000
3000
167160000
167170000
167180000
167190000
167200000
Time (sec)

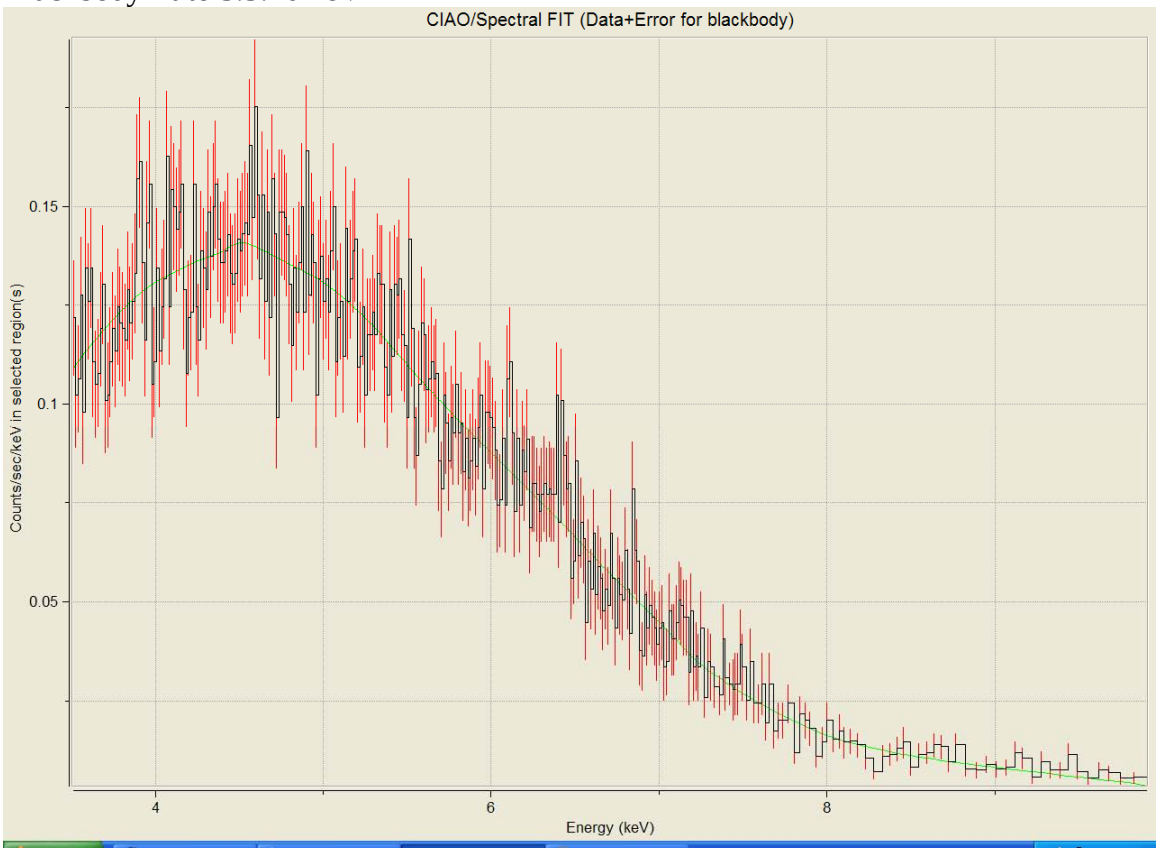


100s bins:



Time=167196000:167205000 (low state)
Central Annulus

Blackbody fit to 3.5:10 keV



********** SHERPA FIT RESULTS **********

Input File: ./3814.fits_1024@4096_1024@4096_1
Model: blackbody
Energy: :3.5,10:
Region:
annulus(4099.5,4024,3,77.815487)

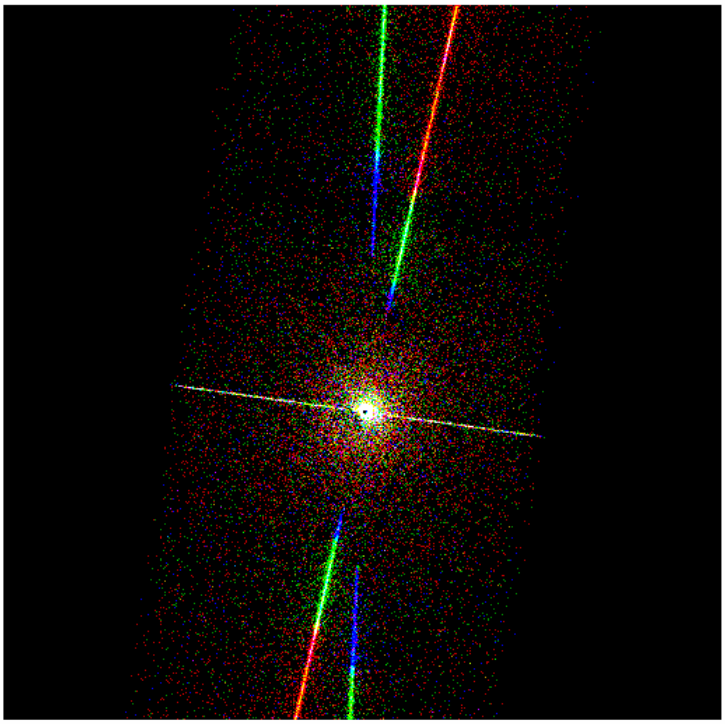
Temperature = 3.99479 keV

Fit performed using absorbtion model multiplied by selected model.
The first two lines below indicate the predicted flux we receive at Chandra
(i.e. what came through the absorbing dust).
The second two lines below indicate the predicted flux from selected model
if there was no absorbing dust in the way.
If the model choice is valid, this flux can be used to predict the intrinsic
luminosity of the object.

Flux for source dataset 1: 3.9041e-11 ergs/cm2/s**
Flux for source dataset 1: 0.00349512 photons/cm**2/s
Flux for source dataset 1: 4.41939e-11 ergs/cm**2/s
Flux for source dataset 1: 0.0044474 photons/cm**2/s

Statistic value = 270.847
Probability [Q-value] = 0.982438
Reduced statistic = 0.841141

3-color image:



To get energy cut images for counts in region/3-color image:

Use energy cut on original image

Rebin individual energy images to bin 1 and correct time

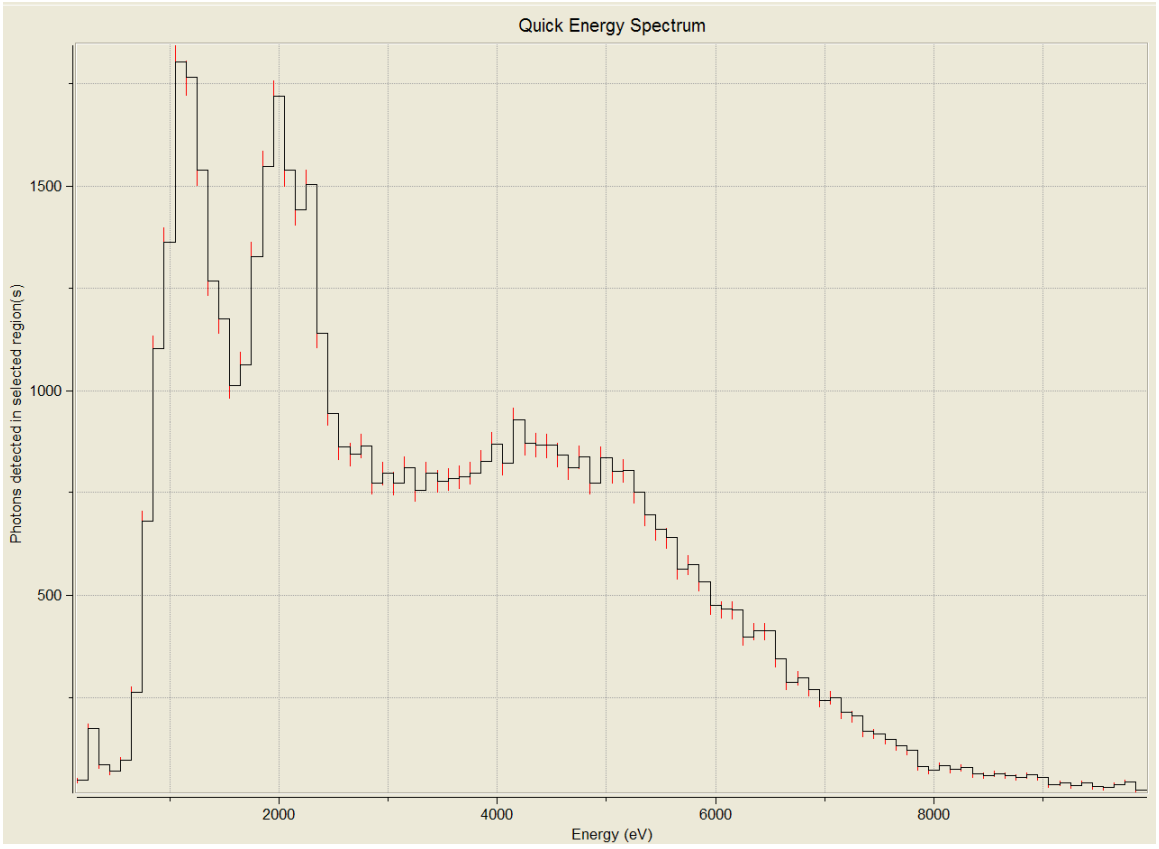
Won't work:

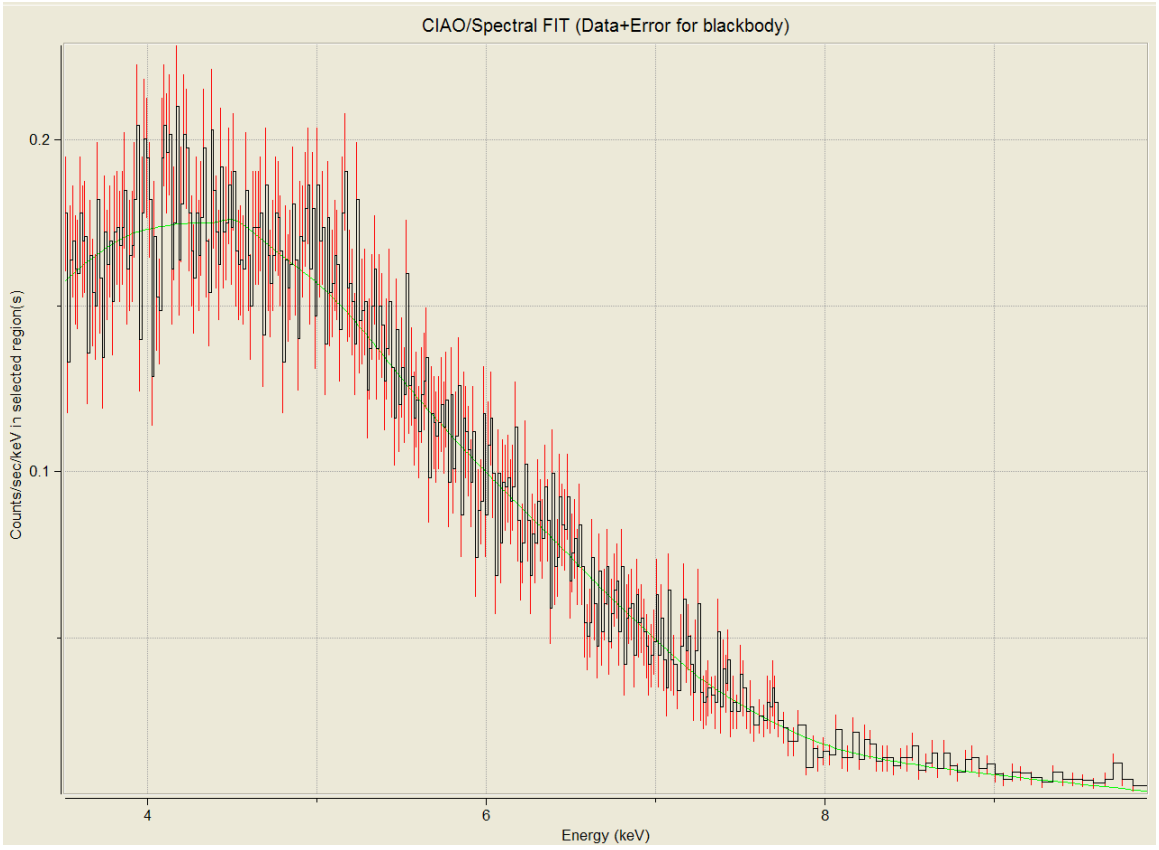
Rebin original image to energy and time all at once (get same number for all counts in region)

Rebin original image to bin 1 and time range, then use energy cut to get color images (only selects small square at the center of image)

Results in table below.

High state
Time=167178000:167186000


Quick Energy Spectrum
Photons detected in selected region(s)
1500
1000
500
2000
4000
6000
8000
Energy (eV)


CIAO/Spectral FIT (Data+Error for blackbody)
Counts/sec/keV in selected region(s)
0.2
0.1
4
6
8
Energy (keV)

********** SHERPA FIT RESULTS **********

Input File: ./3814.fits_1024@4096_1024@4096_1
Model: blackbody
Energy: :3.5,10:
Region:
annulus(4100,4025.25,4.7647796,123.7298)

Temperature = 3.71958 keV

Fit performed using absorbtion model multiplied by selected model.
The first two lines below indicate the predicted flux we receive at Chandra
(i.e. what came through the absorbing dust).
The second two lines below indicate the predicted flux from selected model
if there was no absorbing dust in the way.
If the model choice is valid, this flux can be used to predict the intrinsic
luminosity of the object.

Flux for source dataset 1: 4.40712e-11 ergs/cm2/s**
Flux for source dataset 1: 0.00418624 photons/cm**2/s
Flux for source dataset 1: 4.65334e-11 ergs/cm**2/s
Flux for source dataset 1: 0.00476221 photons/cm**2/s

Statistic value = 296.837
Probability [Q-value] = 0.898131
Reduced statistic = 0.902241

Cyg X-1		6.17E+21			R = .3 to 3.5		
167196000	167205000				G = 3.5 to 6		
					B = 6 to 10		
	R	G	B	Total			
low	20630	17655	6563	45827	5.091888889		L
	0.4501713	0.385253	0.143213		Flux:	4.07E-11	1.95E+34
167178000	167186000						
	R	G	B	Total			
high	34336	20152	6710	62698	7.83725		
	0.5476411	0.321414	0.107021		Flux:	6.27E-11	3.00E+34