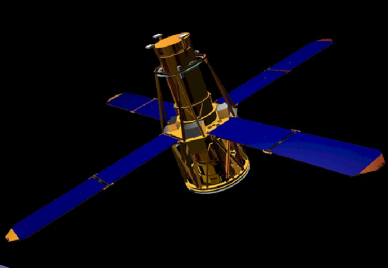
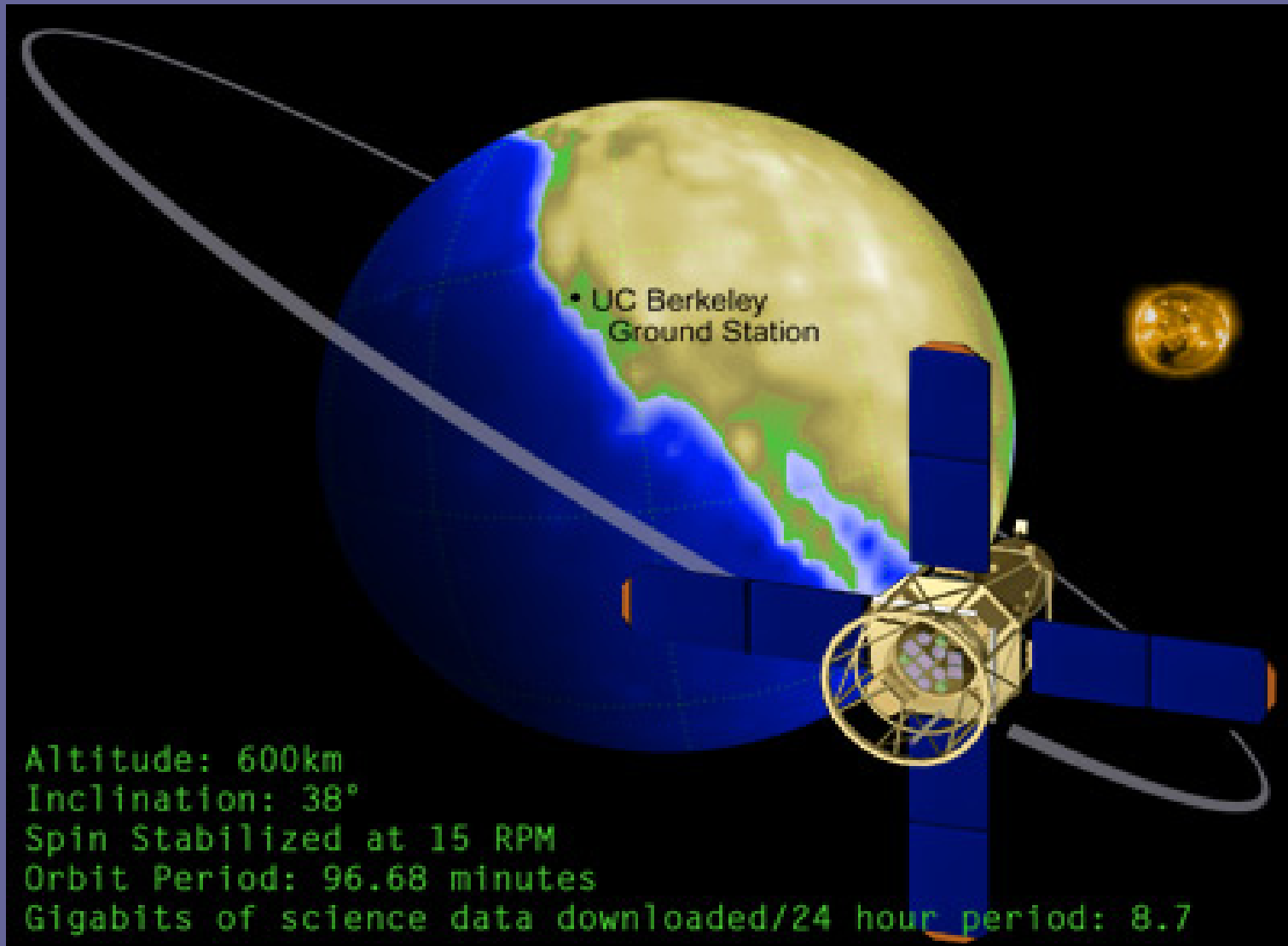
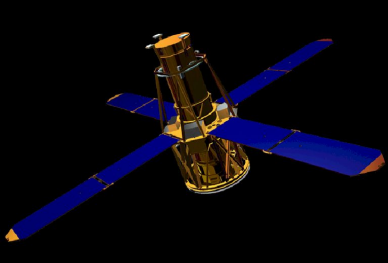


Widma rentgenowskie z *RHESSI*

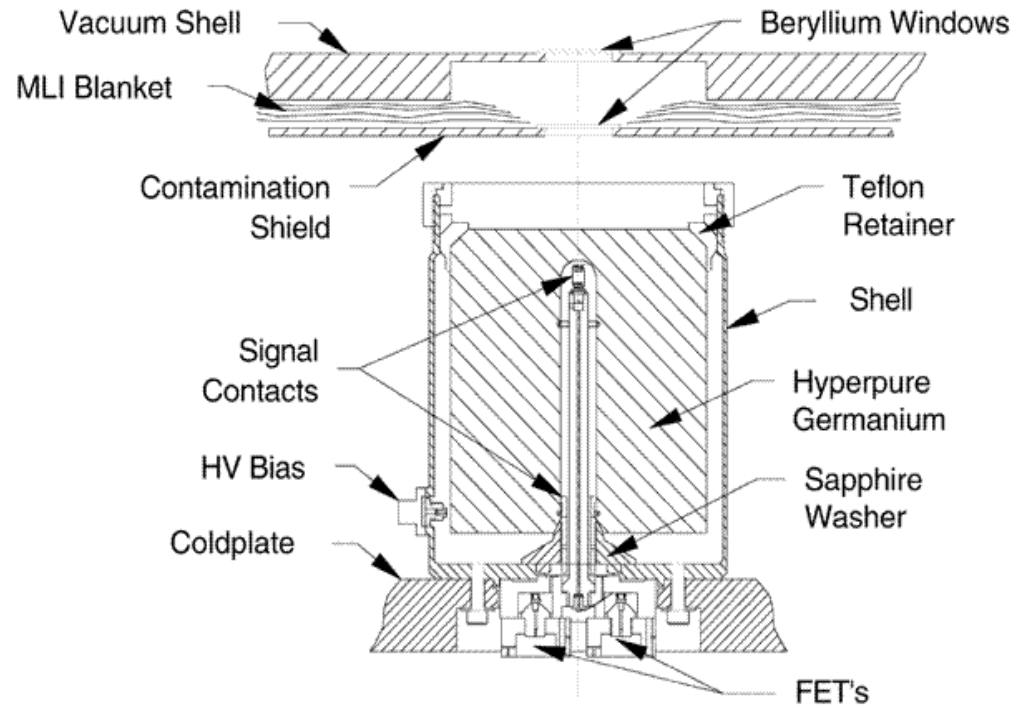
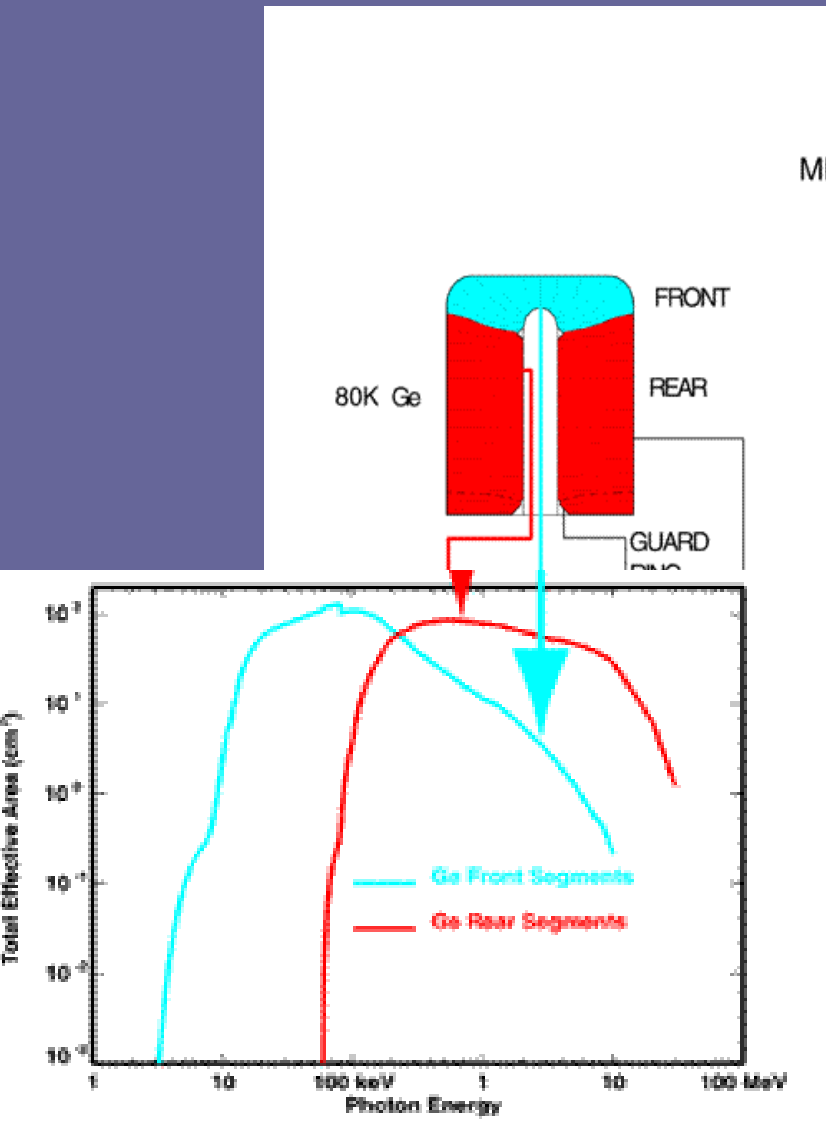


RHESSI – podstawowe informacje



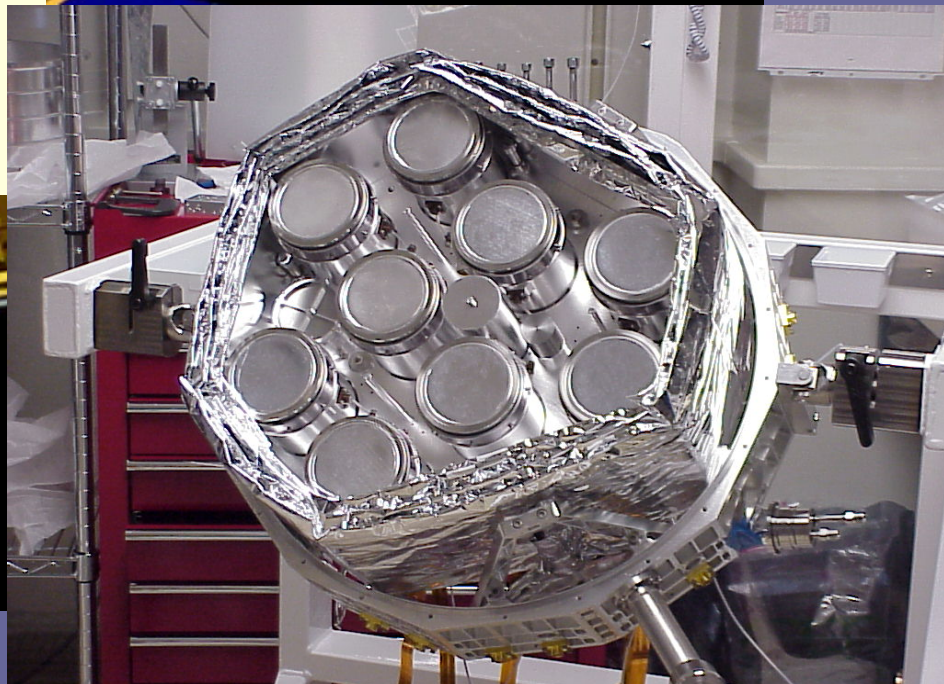
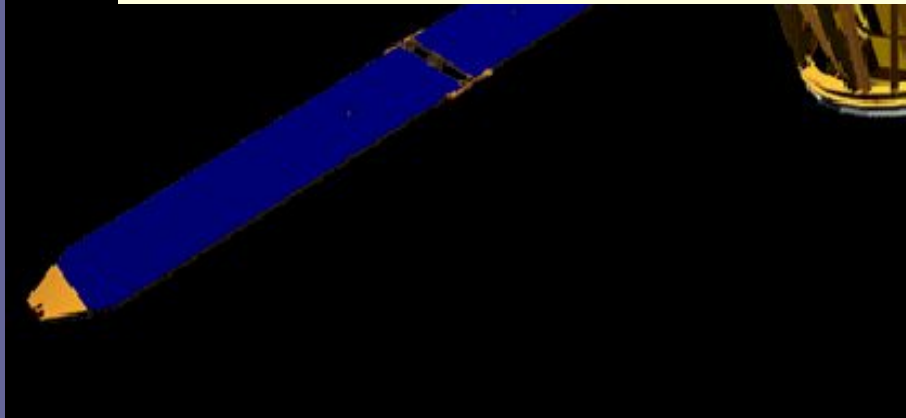
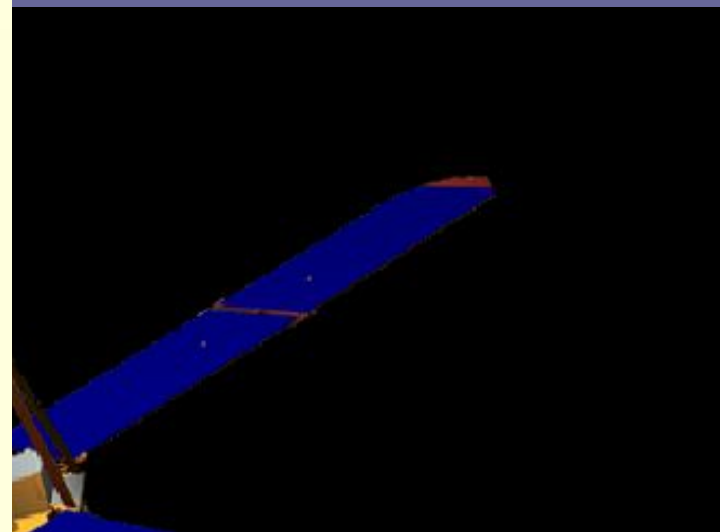
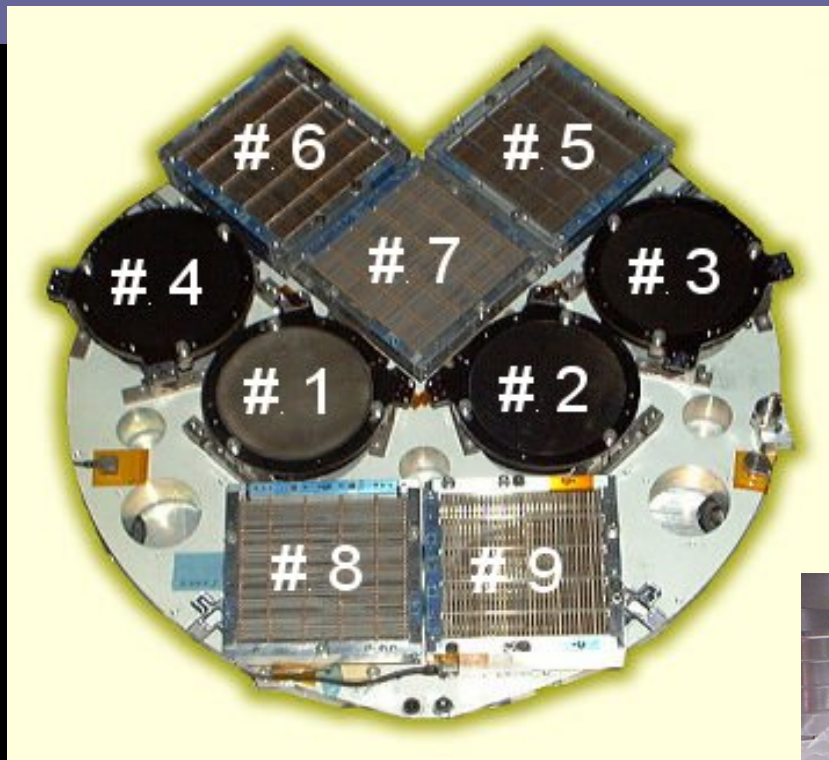
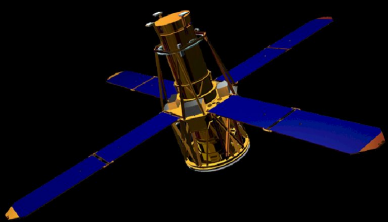


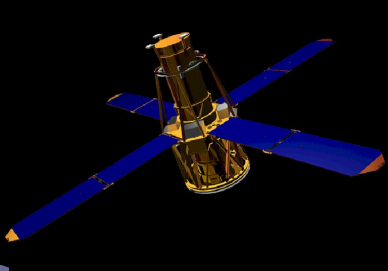
Detektory



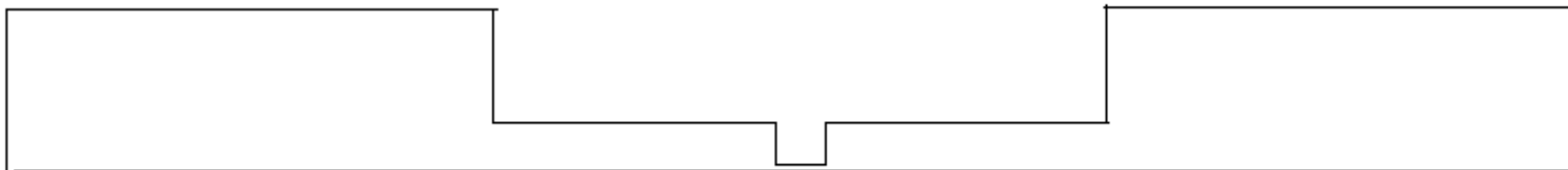
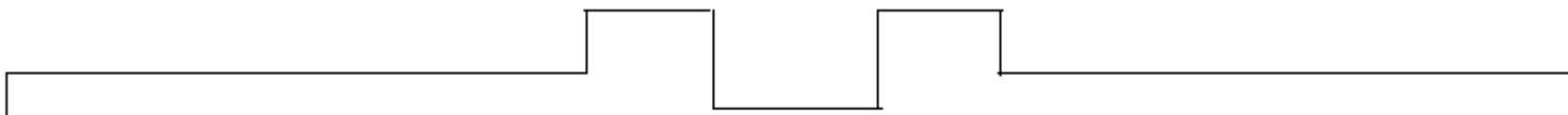
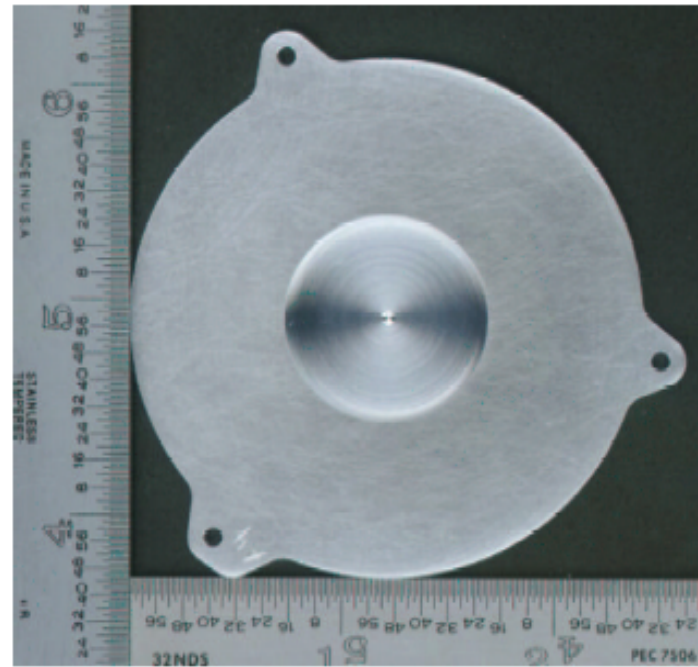
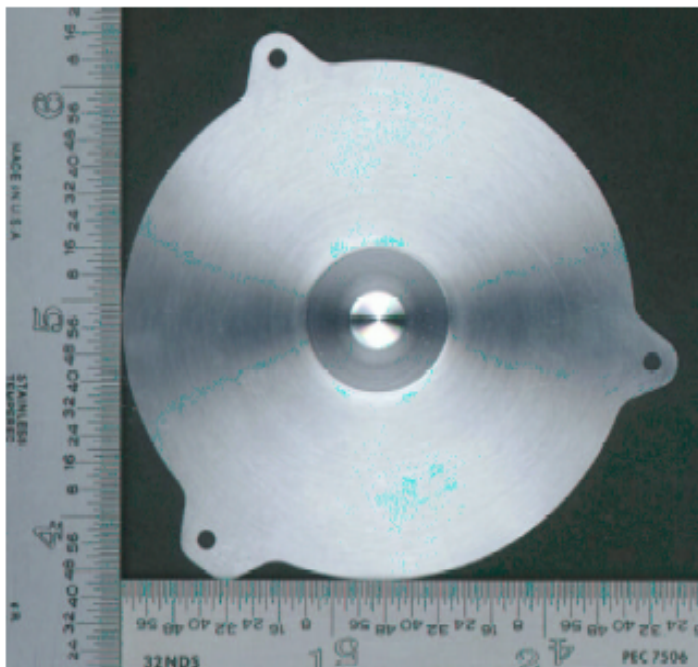
Kryształ Ge: 7.1 x 8.5 cm
Zakres: 3 keV – 20 MeV

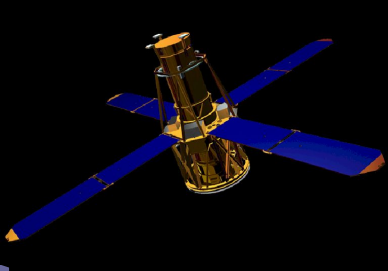
Detektory





Przesłony

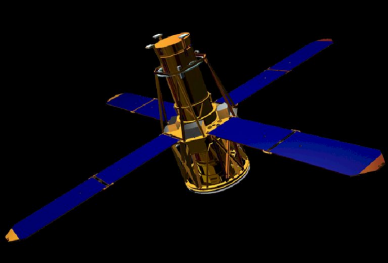




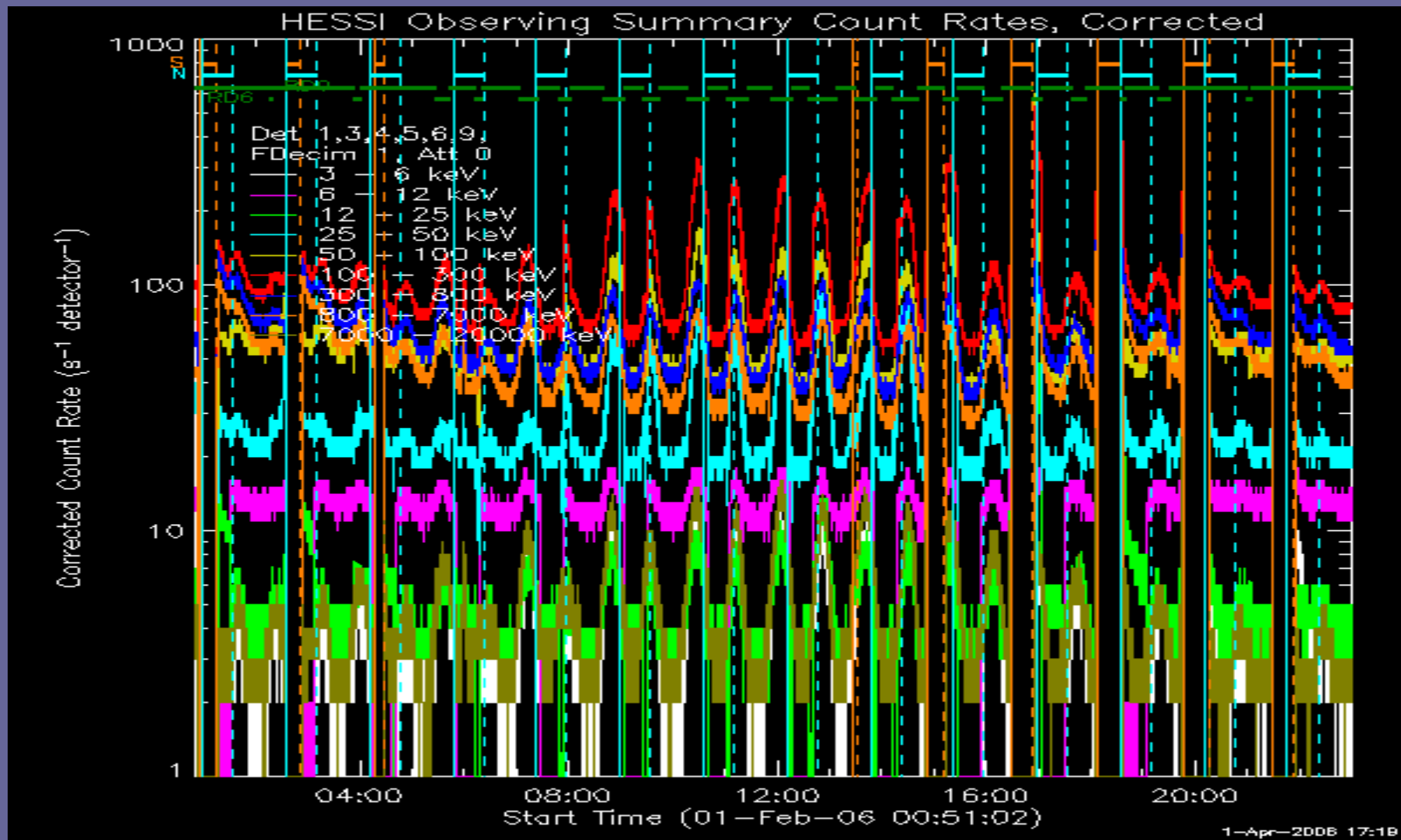
Bazy danych

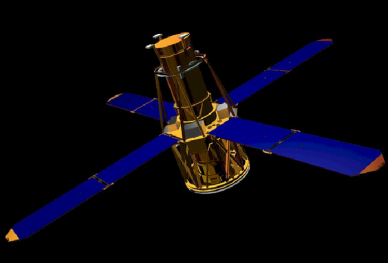
<http://hesperia.gsfc.nasa.gov/rhessi/center/>

<ftp://hercules.ethz.ch/pub/hessi/data/>

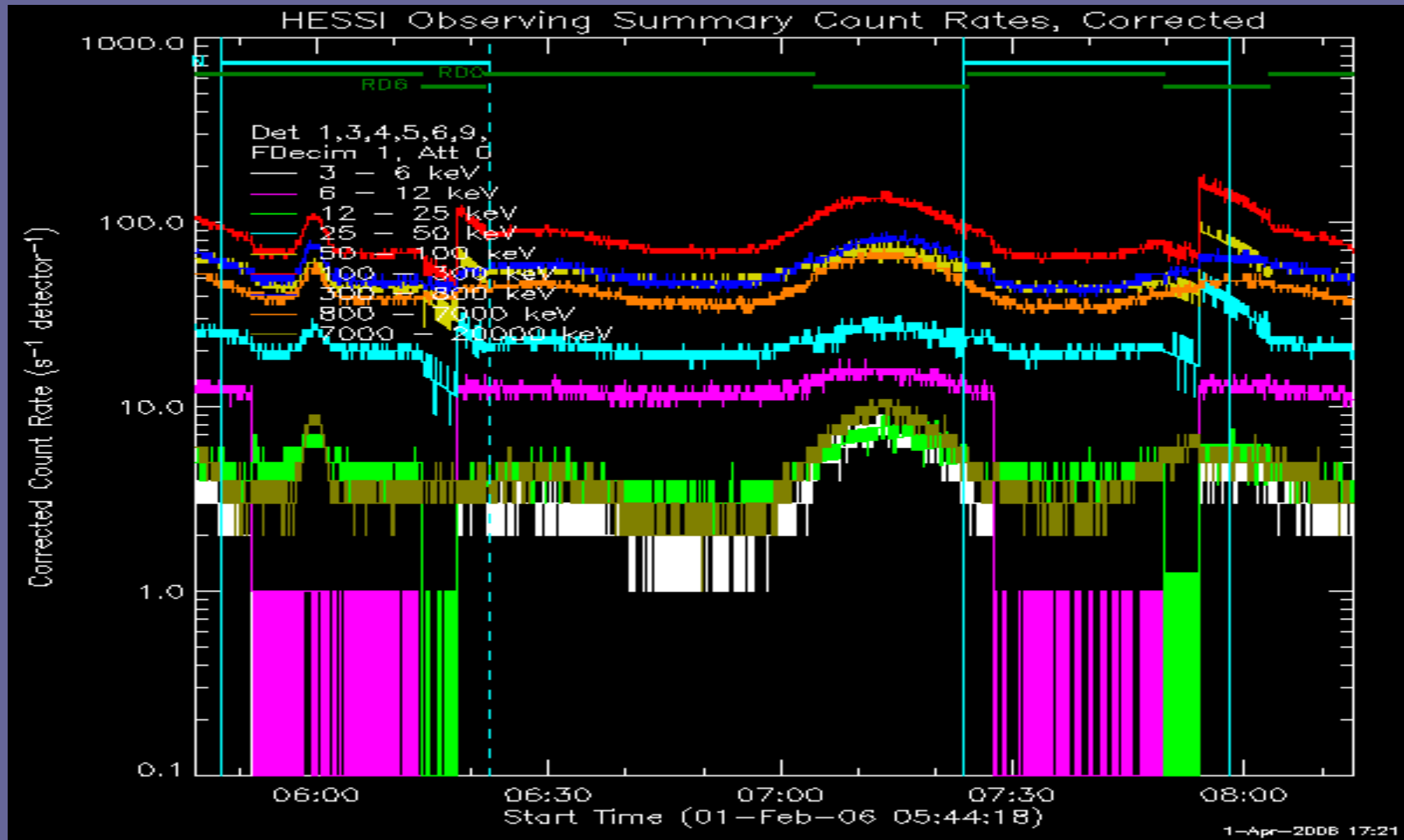


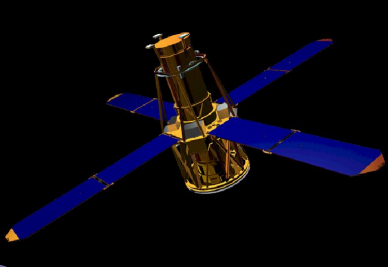
Krzywe blasku



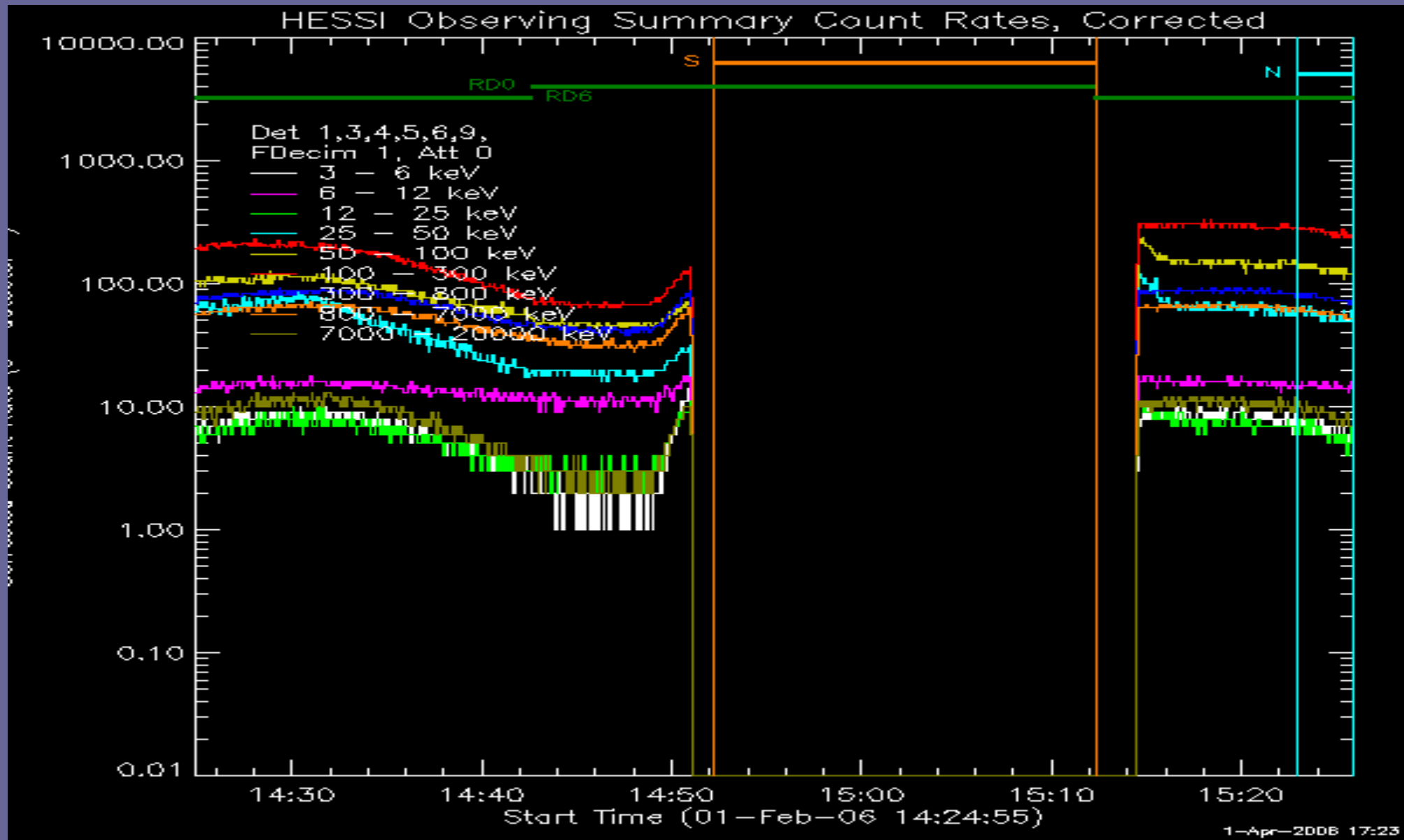


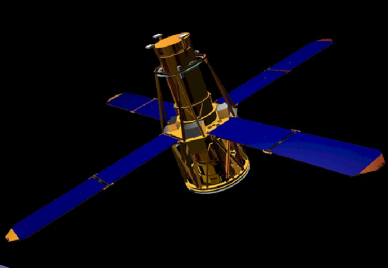
Krzywe blasku



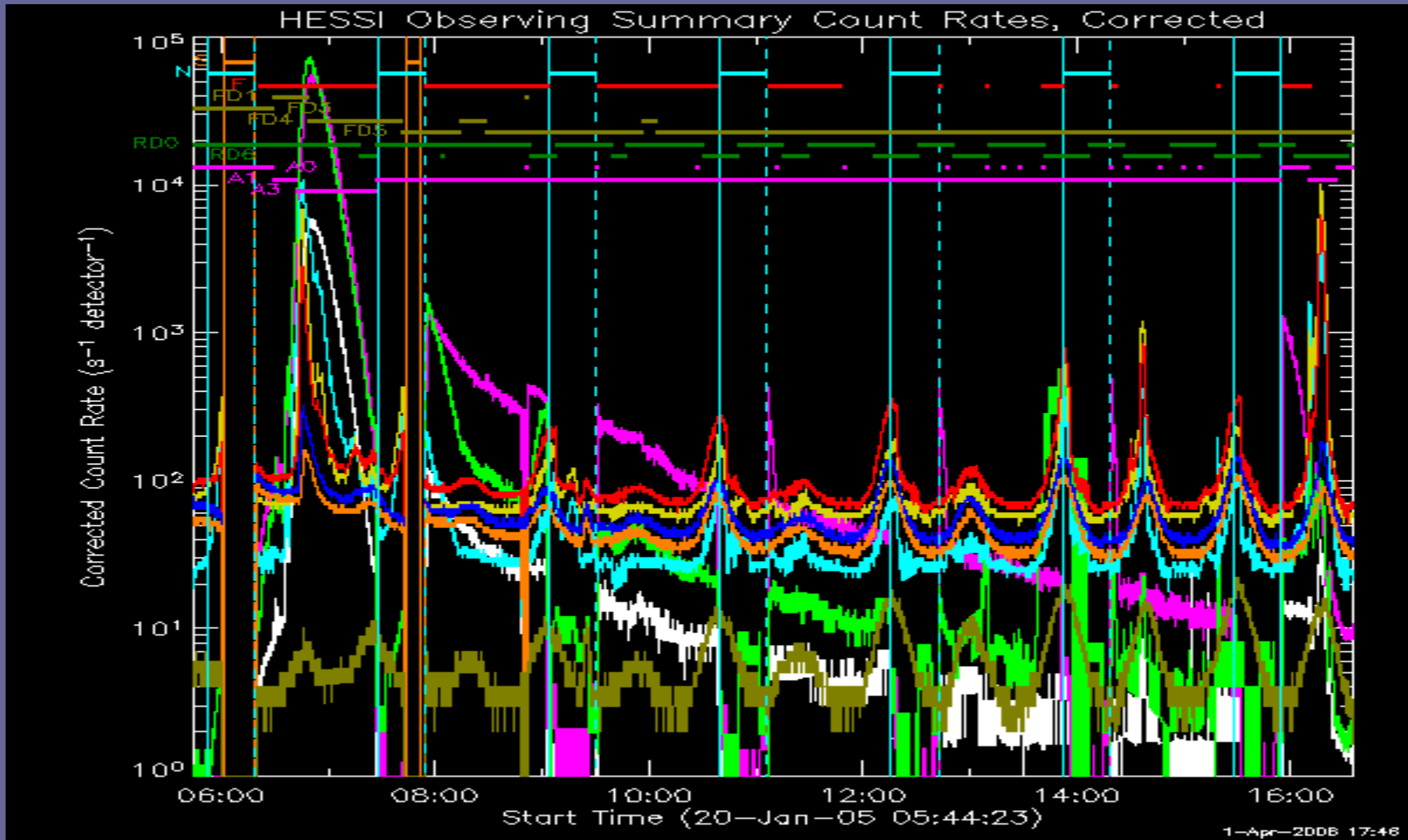


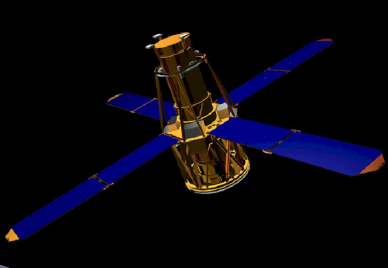
Krzywe blasku



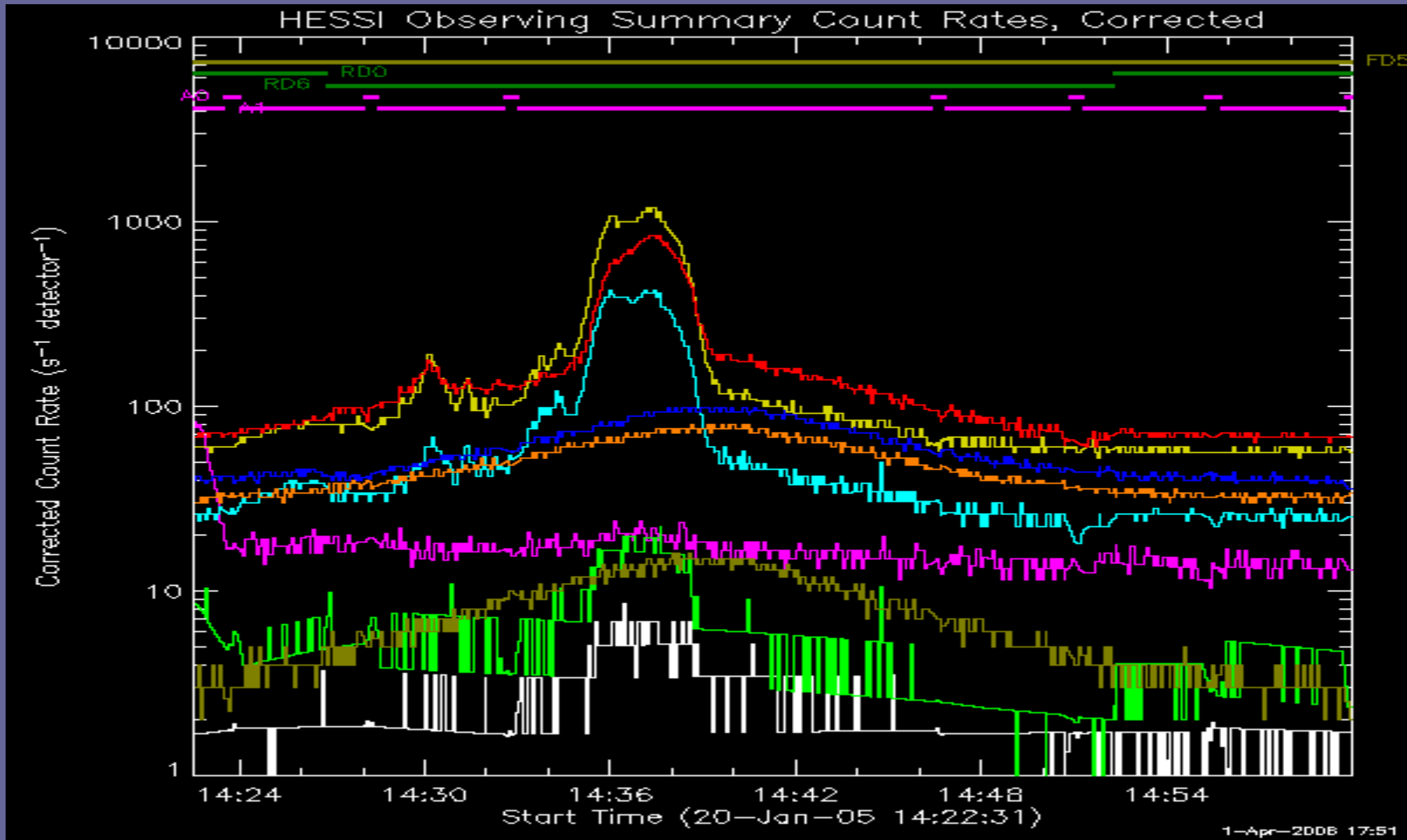


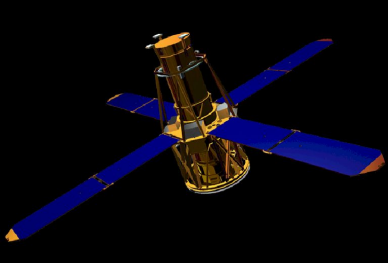
Krzywe blasku





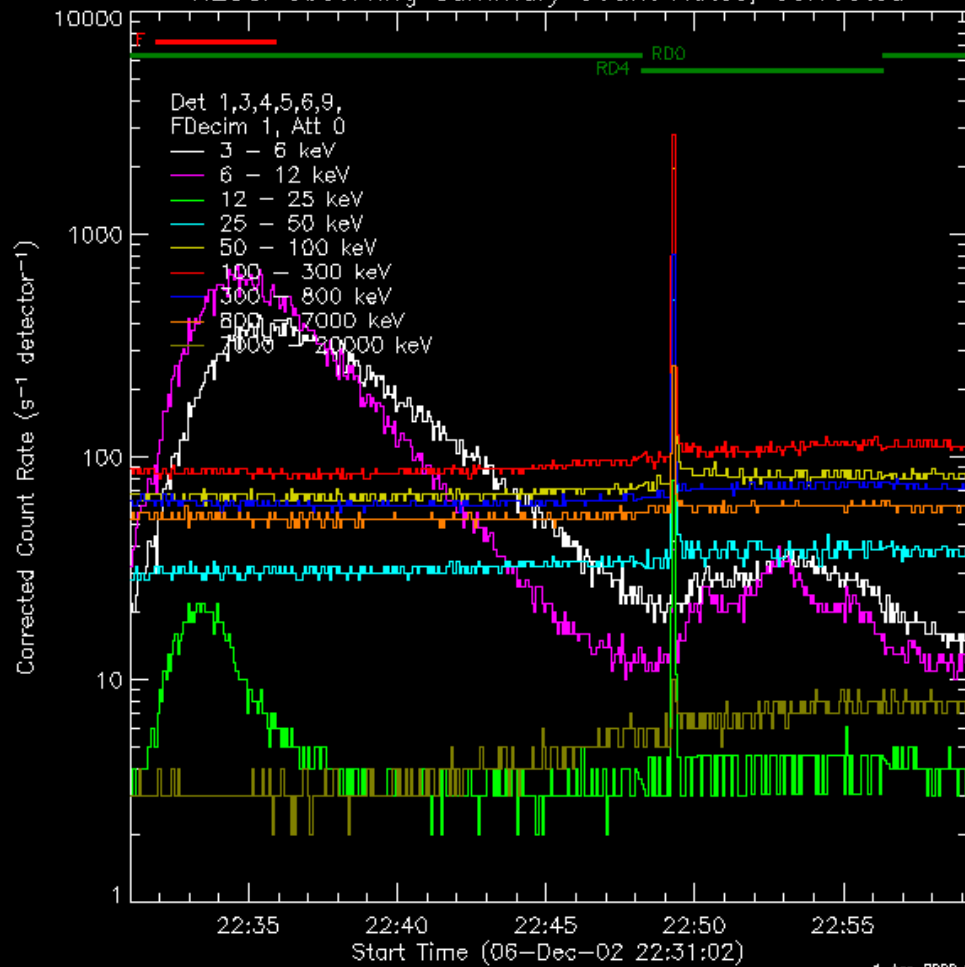
Krzywe blasku



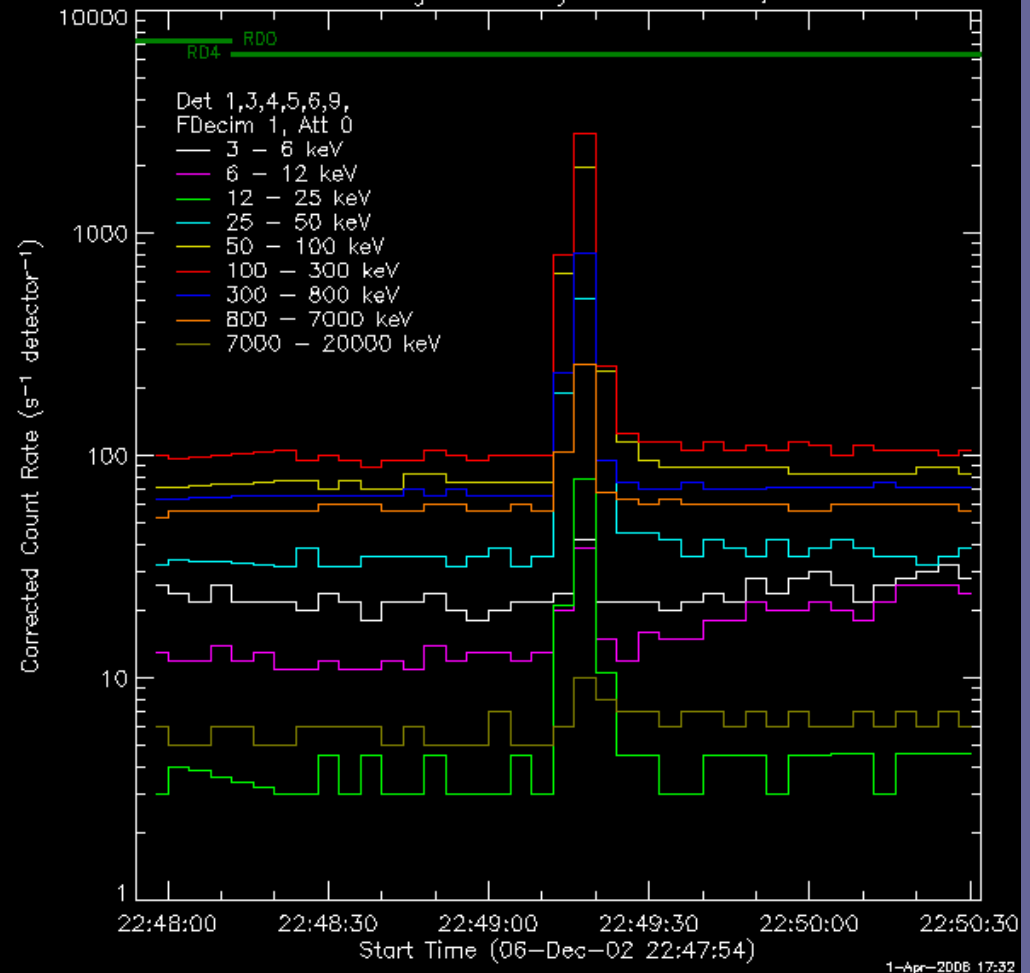


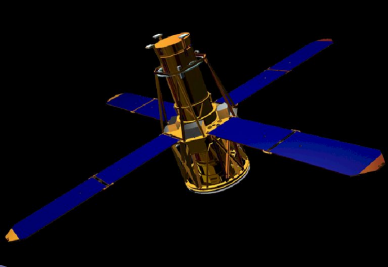
Błyski gamma

HESSI Observing Summary Count Rates, Corrected

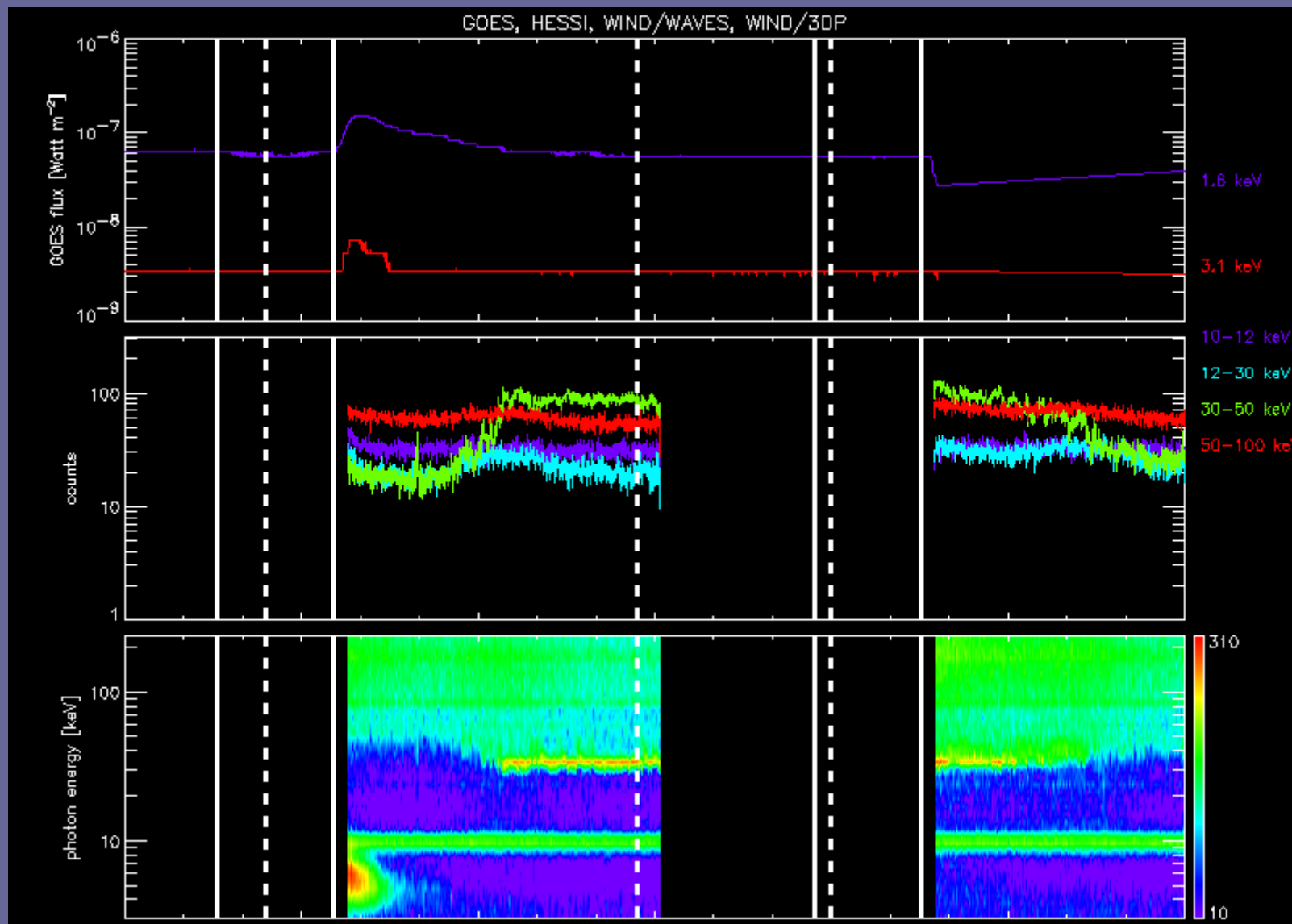


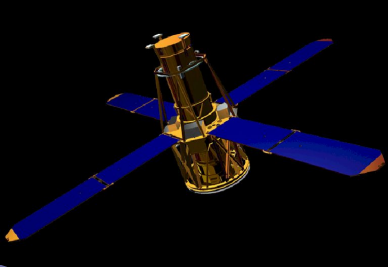
HESSI Observing Summary Count Rates, Corrected



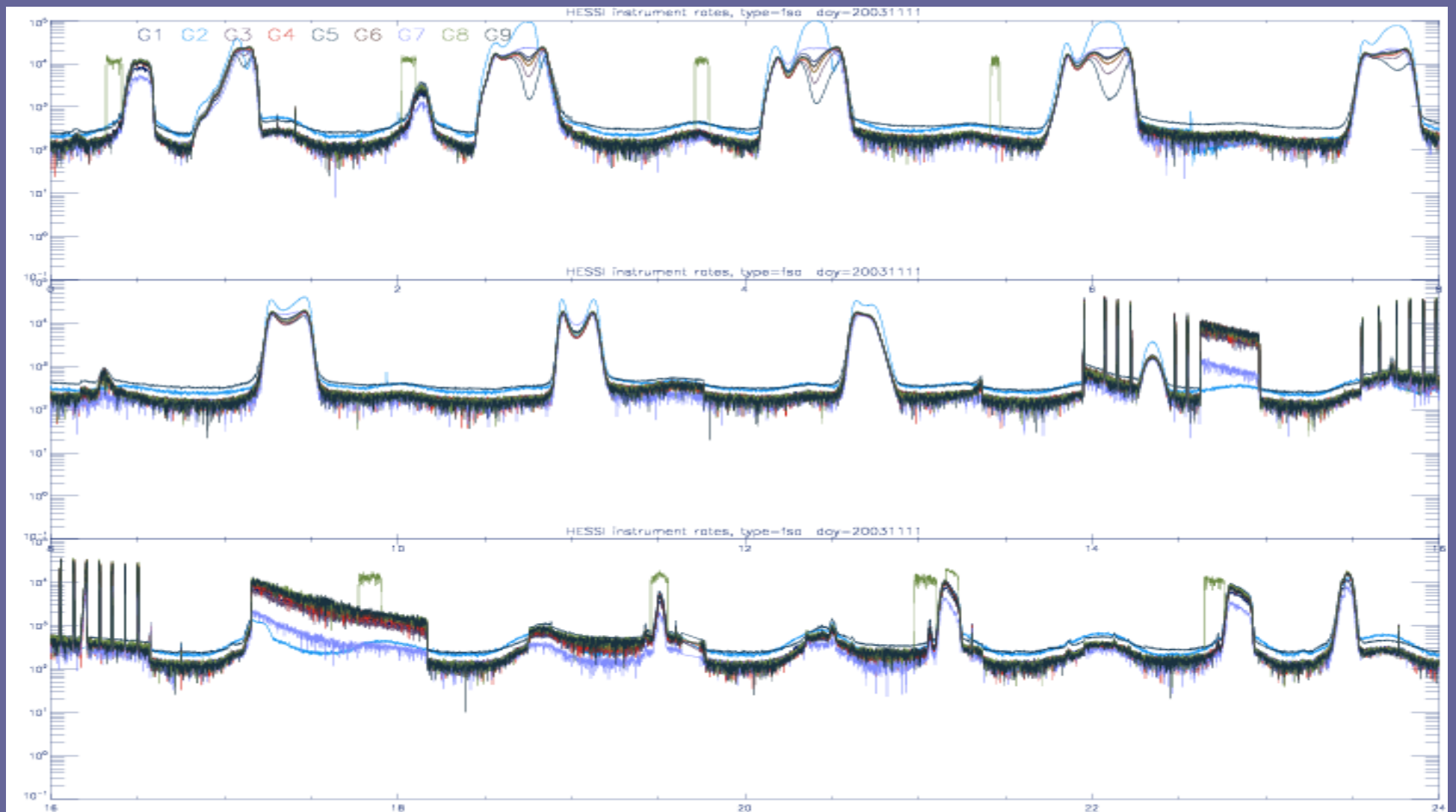


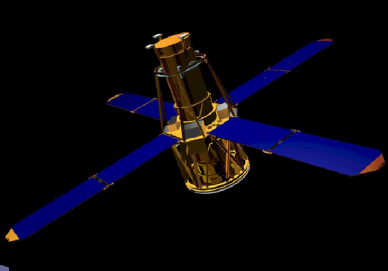
Efekty instrumentalne



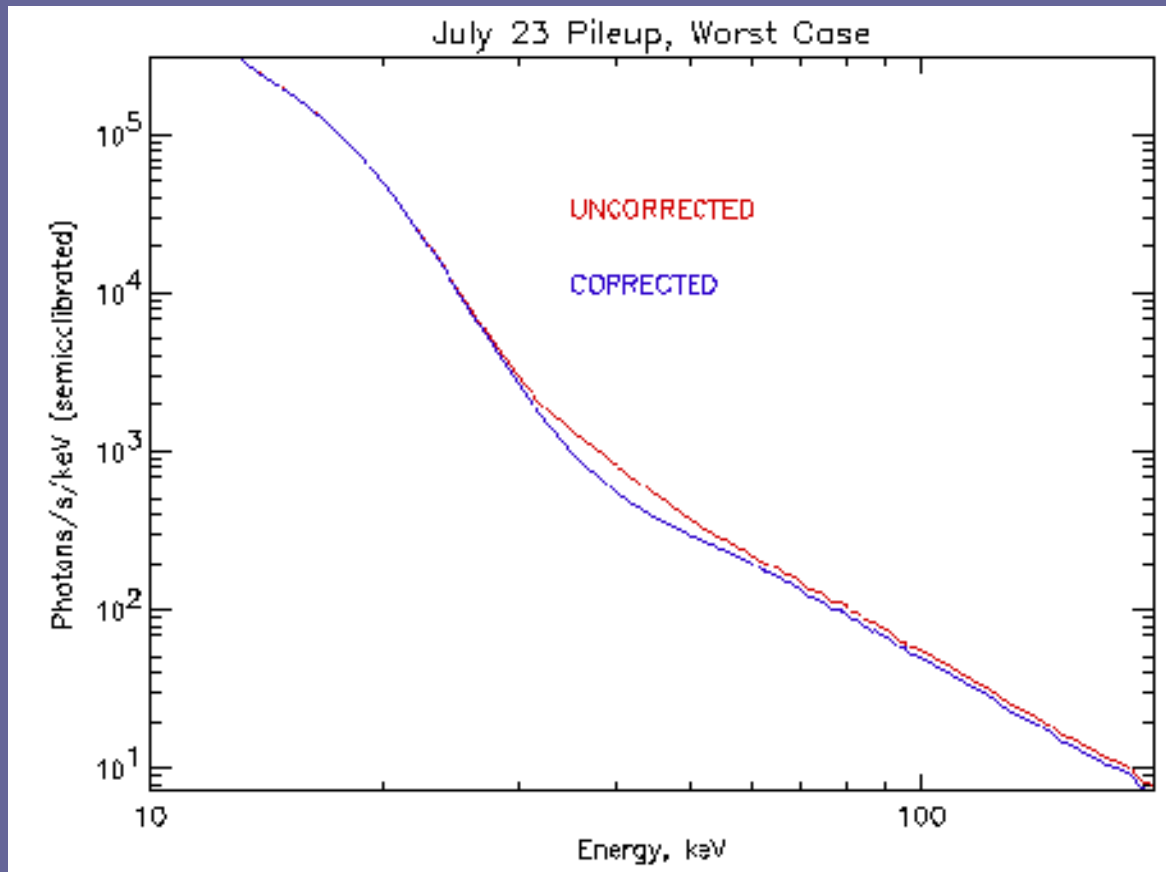


Efekty instrumentalne



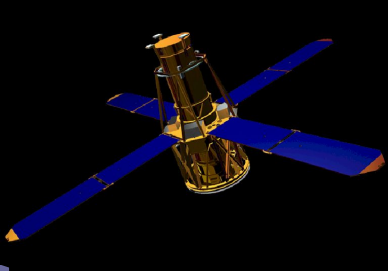


Efekty instrumentalne

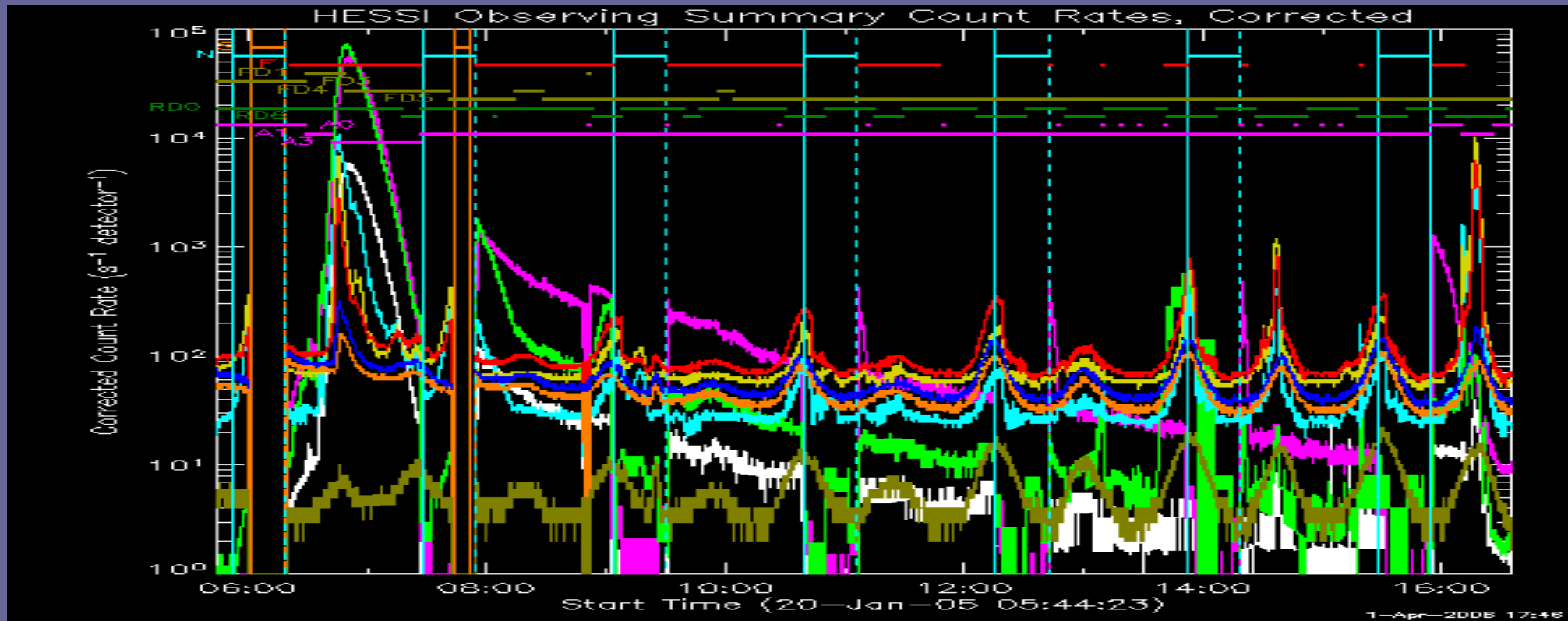


Granice strachu:
(cnts/s/seg)

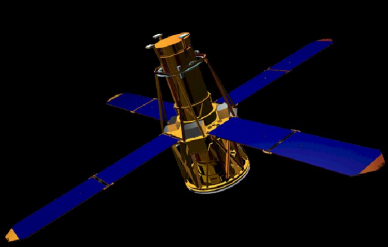
	HXR	SXR
z przesłoną	8000	4000
bez przesłony	3000	2000



Efekty instrumentalne



- Ciągle problemy z detektorem nr 2
- Gorsza rozdzielczość detektora nr 7 (~3 keV)
- Momenty wsuwania i wysuwania przesłon
- Zmiany w dziesiątkowaniu sygnału



RHESSI GUI

IDL #20111111 - TEAM TBE

File Edit Search Run Project Macros Window Help

Main Window - RHESSI Data Analysis Dev. Version, 2-Apr-2006 11:55

File Plot_Control Window_Control Show_HESSI Help

Welcome
For current information, see:
e.g. http://www.dan...
If you have PROBLE...
CHIANTI system var...
You are using the CH...
CHIANTI system var...
DEVICELIB: Added
DEVICELIB: Added

Executing: C:\ssw
Compiled module: E...
Compiled module: L...
Compiled module: I...
Compiled module: H...
Compiled module: D...
Compiled module: W...
Compiled module: T...
Compiled module: M...
Executing: C:\ssw
* Personal startup file
IDL> cd 'rheSSI_flare'
IDL> cd 'spectra'
IDL> cd '20_jan_05'
IDL> hessi
LIST_PRINTER_UN...
environ...
OBJ_RESTORE: No...
C:\data\rheSSI\meta...
C:\data\rheSSI\meta...
C:\data\rheSSI\meta...
C:\data\rheSSI\meta...
C:\data\rheSSI\meta...
C:\data\rheSSI\meta...
C:\data\rheSSI\meta...

Observation Time Interval: 20-Jan-2005 05:13:50 to 20-Jan-2005 15:24:10 Flare: 5012007
Current Window: HESSI Corrected Count Rate 20-Jan-2005 05:13:48 (11:56:54)

HESSI Observing Summary Count Rates, Corrected

Corrected Count Rate (s^{-1} detector $^{-1}$)

Start Time (20-Jan-05 05:13:50)

2-Apr-2006 11:57

Det 1,3,4,5,6,9
3 - 6 keV
6 - 12 keV
12 - 25 keV
25 - 50 keV
50 - 100 keV
100 - 300 keV
300 - 800 keV

Spectra - RHESSI Data Analysis Dev. Version, 2-Apr-2006 11:57

SPECTRA

(* - changing these parameters forces reprocessing and takes longer)

* Observation Time Interval: 20-Jan-2005 05:13:50 to 20-Jan-2005 15:24:10
Flare 5012007: 20-Jan-2005 09:30:56.000 to 10:37:52.000 Peak: 09:52:18.000, 27.0000 c/s [Change...](#)

Note: Spectrum time interval must be within Observation Time Interval (above)

* Spectrum Time Interval: 20-Jan-2005 05:13:50.000 - 20-Jan-2005 15:24:10.000 [Change...](#)

Energy Bins: 19 Binning Code: 7 [Define Bins Manually...](#)

* Energy Bins (keV): 10.0 to 20.0 [Show Binning Codes](#) [Draw Current Bins](#)

* Use Channels Bin Width: 0 [Channel Min: 0](#) [Channel Max: 0](#) Plot keV

Time Bins: 9155 Time Bin Width (s): [Define Bins Manually...](#)

* Time Bins: 20-Jan-2005 05:13:50.000 to 05:13:54.000 4.000 [Draw Current Bins](#)

Collimators and Detector Front/Rear Segments Selected:
1FR, 2FR, 3FR, 4FR, 5FR, 6FR, 7FR, 8FR, 9FR [Change...](#)

Sum Detectors: Enabled

Semi-calibrated Units: Counts Count Rate Count Flux [Show Flags: None](#) [Change...](#)

Pileup Correction: Disabled Decim Correction: Front [Change...](#)
Use Flare XY Offset: Enabled XY Offset: 904.00, 264.00

[Plot Spectrum](#) [Plot Time History](#) [Plot Spectrogram](#) [Plot Livetime >](#) [Write output file...](#)

[Refresh](#) [Reset to defaults](#) [Set params manually](#) [Write script >](#) [Help](#) [Close](#)

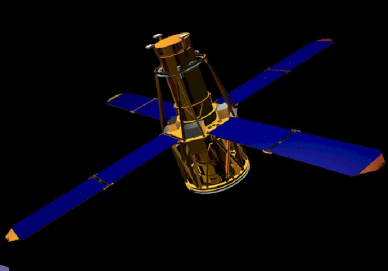
value

SSW_SITE

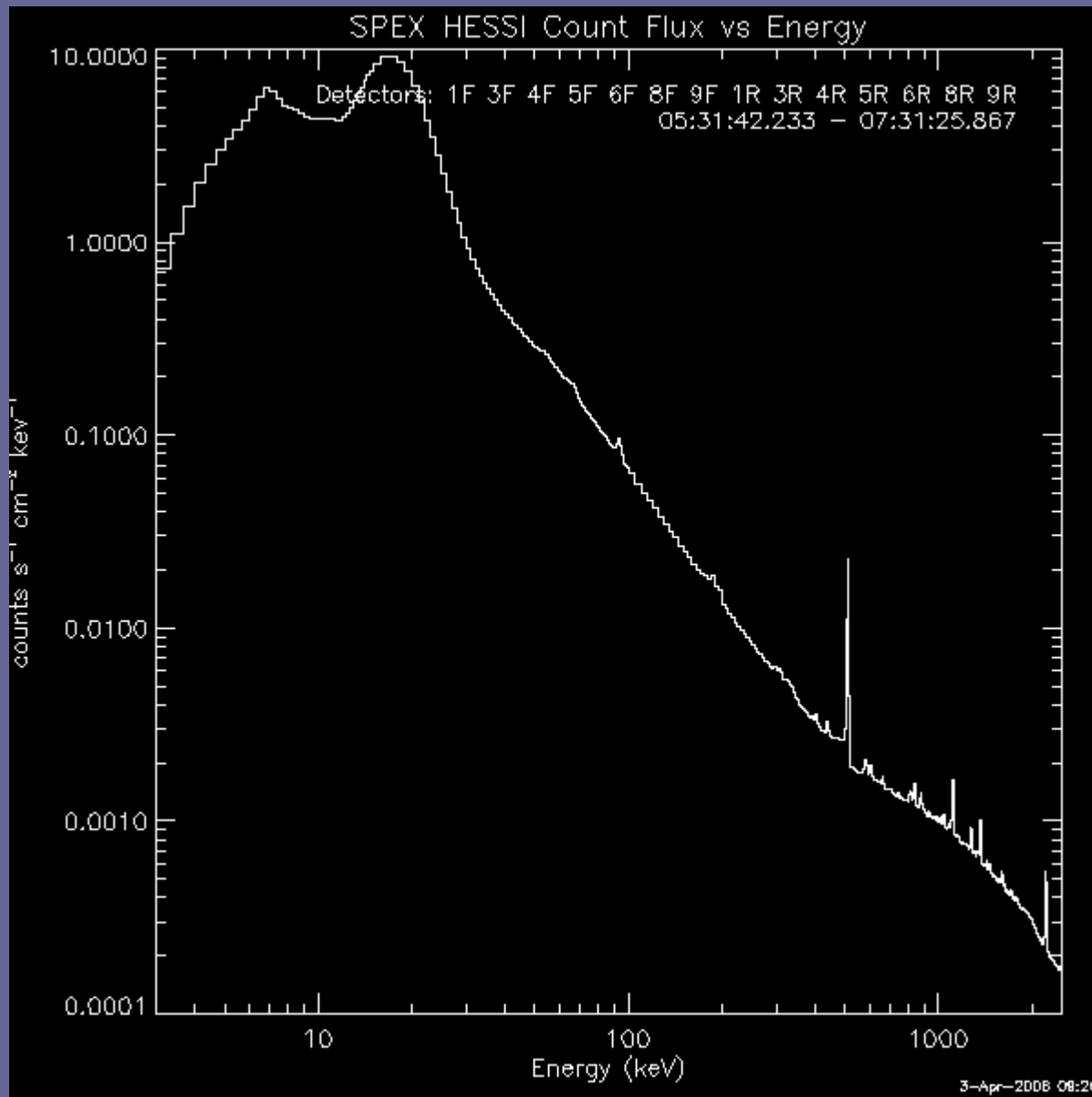
Locals

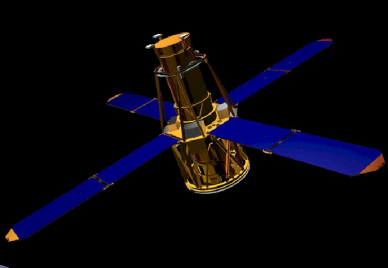
IDL>

Ready

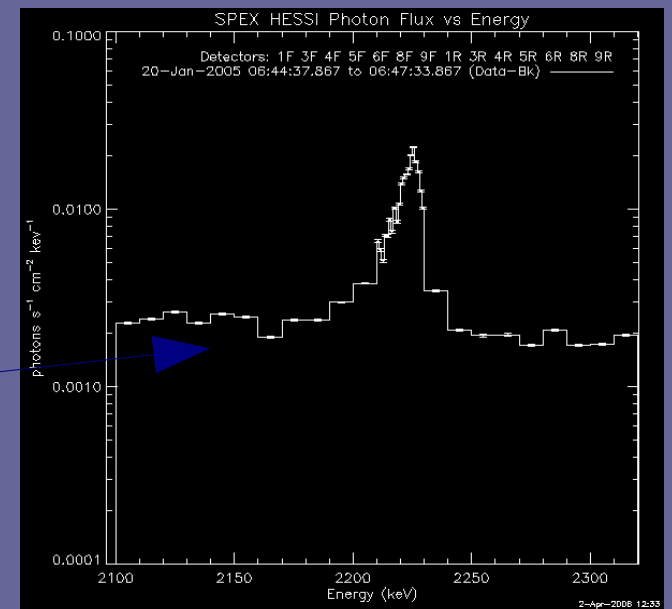
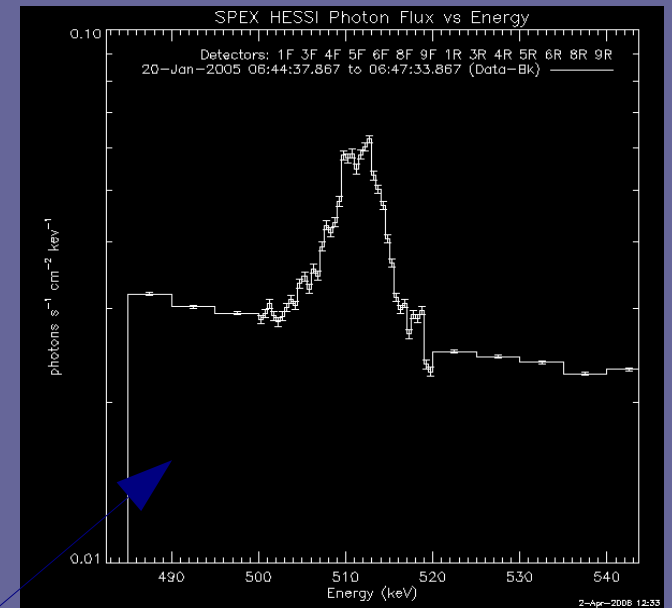
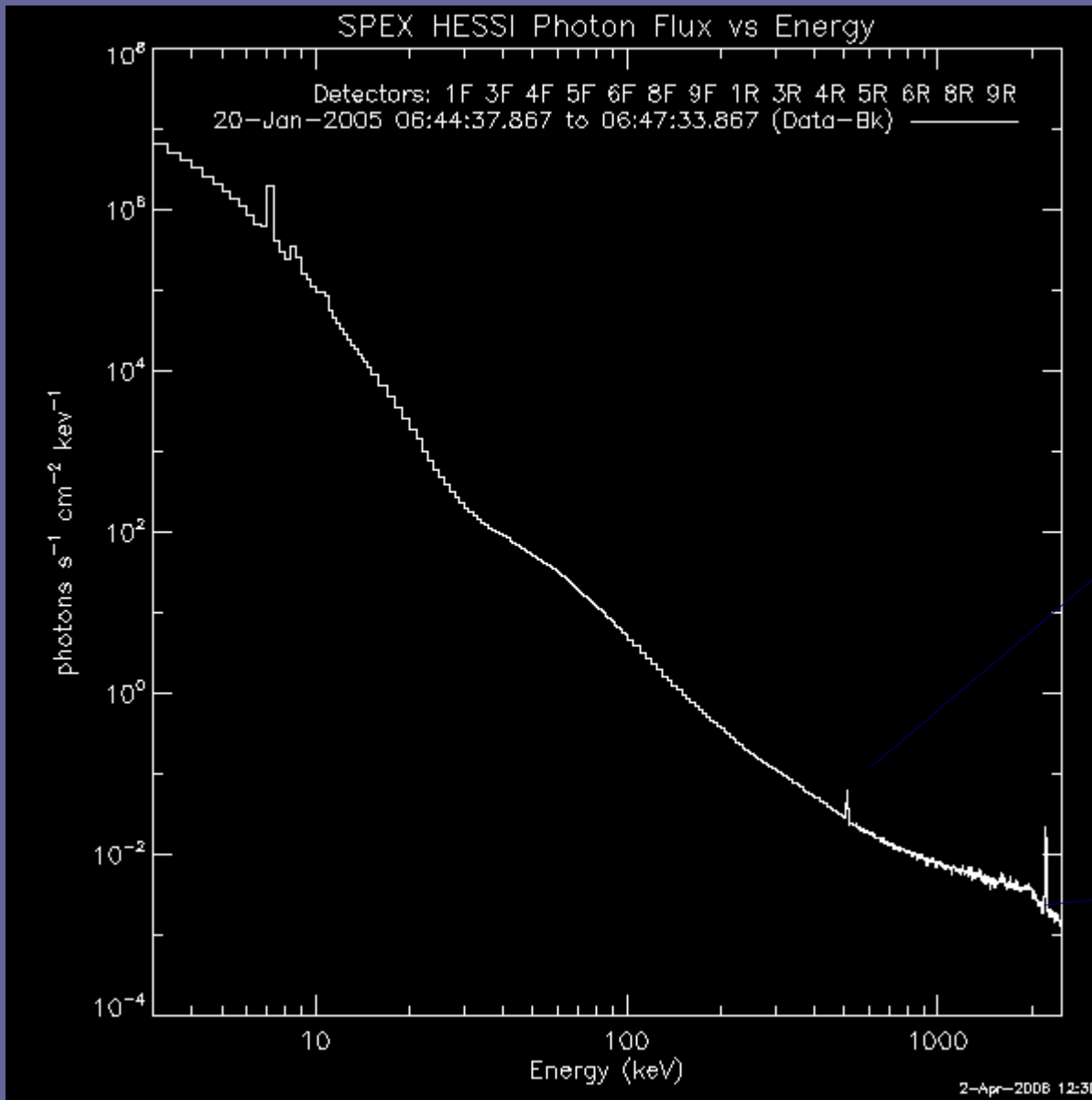


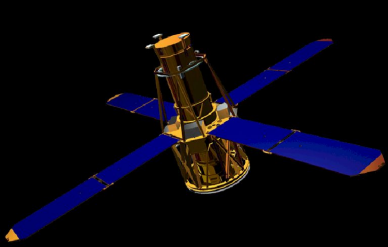
Widmo





Widmo





OSPEX

IDL #20111111 - TEAM TBE

File Edit Search Run Project Macros Window Help

SPEX Main Window

File Plot_Control Window_Control Help

OSPEX

Spectral Data Analysis Package

Use the buttons under File to:

1. Select Input Data Files
2. Define Background and Analysis Intervals, and Select Fit Function Components
3. Fit data
4. View Fit Results
5. Save Session and Results

Use Plot_Control buttons to change display of current plot.

Use Window_Control buttons to redisplay previous plots.

SPEX Input Options

Select Input

Spectrum or Image File: C:\work\hessi_flares\spectra\20_jan_05\hsi_spectrum_20050120_051350 Browse...

Select Regions ->

Calc Full SRM

Region #: 0

Summarize ->

Show Header

SRM File: C:\work\hessi_flares\spectra\20_jan_05\hsi_srm_20050120_051350_pile_ Browse...

Albedo Correction: Disabled Change...

Summarize ->

Show Header

Energy Bands for Time Plots: 3.0 to 6.0 Change

Graphical

Show Ebands

Full Options

Plot Units: Flux

Plot Spectrum

Plot Time Profile

Plot Spectrogram

Refresh

Close

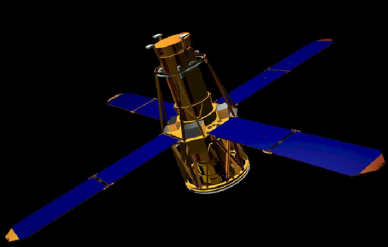
Value

52(SPEX)>

Locals Params Common System

IDL>

Ready



OSPEX

IDL #20111111 - TEAM TBE

File Edit Search Run Project Macros Window Help

SPEX Main Window

File Plot_Control Window_Control Help

LIST_PRIN
Program ce
Program ce
Cleanup of
Program ce
Program ce
Program ce
Iterating...
0.22974, 1
Iterating...
0.177197,
Iterating...
0.181425,
Iterating...
0.17758, 2
Iterating...
0.177505,

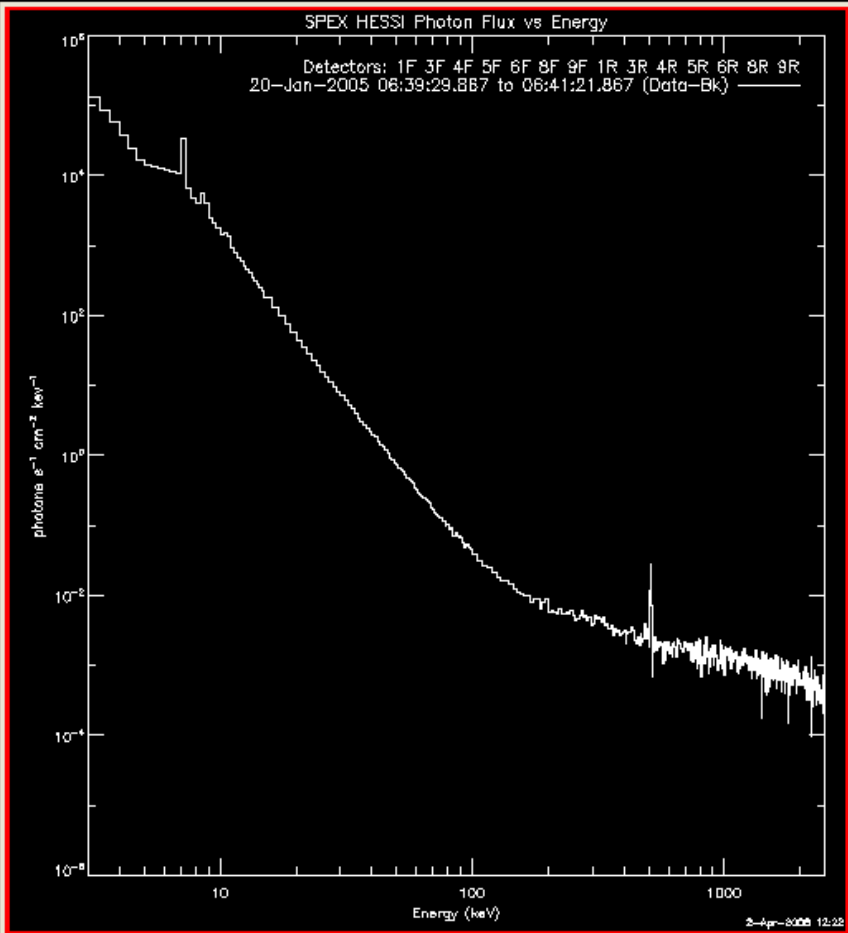
Mcurvefit r
Chisq= 0.4
0.177505,

LIST_PRIN

Program ce
Program ce
Cleanup of
Program ce
Program ce
Program ce
Program ce
LIST_PRIN

Cleanup of
Program ce

Fitting Inter



PNG file written: C:\work\rhessi_flares\spectra\20_jan_05\plotman.png

Fit Function Setup

Choose Fit Function Components and Set Parameters

Interval 0: 20-Jan-2005 06:39:29.867 to 06:41:21.867
Current fit function: vth_noline+line+line+thick+line

Available components: vth - Variable Thermal

Value: 0.1
vth_noline

Value: 2

Available components list:

- vth - Variable Thermal
- vth_noline - Variable Thermal No Lines
- bpow - Broken Power Law
- 3pow - Triple Power Law
- line - Gaussian
- multi_therm_exp - Multithermal, Exp Temp
- multi_therm_pow - Multithermal, Pow Temp
- thin - Thin Target Bremsstrahlung
- thick - Thick Target Bremsstrahlung
- ion - Non-uniform Target Ionization Spectrum

	Value	Minimum	Maximum	Free
line	9668.5	1E-020	1E+020	1
	7.15714	1	1E+006	1
	0.1	0.01	1E+006	0

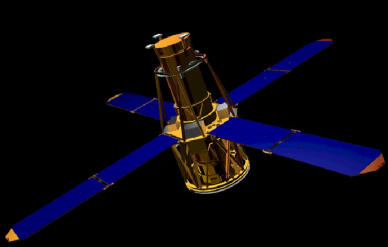
	Value	Minimum	Maximum	Free
line	1187.85	1E-020	1E+020	1
	8.632	1	1E+006	1
	0.1	0.01	1E+006	0

	Value	Minimum	Maximum	Free

1 Energy range(s) to fit: 6.0 to 200.0

Iter: 10 Uncert: 0.05 Auto Plot Plot Units: Flux Photons Residuals

Refresh Fit Plot All Components Plot Residuals Accept -> Cancel



OSPEX

thick description

Dismiss

thick - Thick-Target Bremsstrahlung x-ray/gamma-ray spectrum from an isotropic electron distribution

- a(0) - Total integrated electron flux, in units of 10^{35} electrons sec^{-1}
- a(1) - power-law index of the electron distribution below eebrk
- a(2) - break energy in the electron distribution function (in keV)
- a(3) - power-law index of the electron distribution function above eebrk
- a(4) - low energy cutoff in the electron distribution function (in keV)
- a(5) - high energy cutoff in the electron distribution function (in keV)

Iterating...
0.22974, 1
Iterating...
0.177197,
Iterating...
0.181425,
Iterating...
0.17758, 2
Iterating...
0.177505,
Mcurvefit r
Chisq= 0.4
0.177505,
LIST_PRIN
Program ca
Program ca
Cleanup of
Program ca
Program ca
Program ca
Program ca
LIST_PRIN
Cleanup of
Program ca
Fitting Inter

2-Apr-2009 12:22

Components and Set Parameters

0.1 0.01 1E+006 0

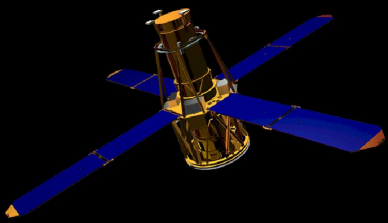
	Value	Minimum	Maximum	Free
line	1187.85	1E-020	1E+020	1
	8.632	1	1E+006	1
	0.1	0.01	1E+006	0
thick	16.4385	1E-010	1E+010	1
	5.35743	1.1	20	1
	1235.81	1	100000	1
	1.14443	1.1	20	1
	18.9044	1	1000	1
	32000	100	1E+007	0

1 Energy range(s) to fit: 6.0 to 200.0

Iter: 10 Uncert: 0.05 Auto Plot Plot Units: Flux Photons Residuals

SSW
0
PNG file written: C:\work\rhessi_flares\spectra\20_jan_05\plotman.png

OSPEX

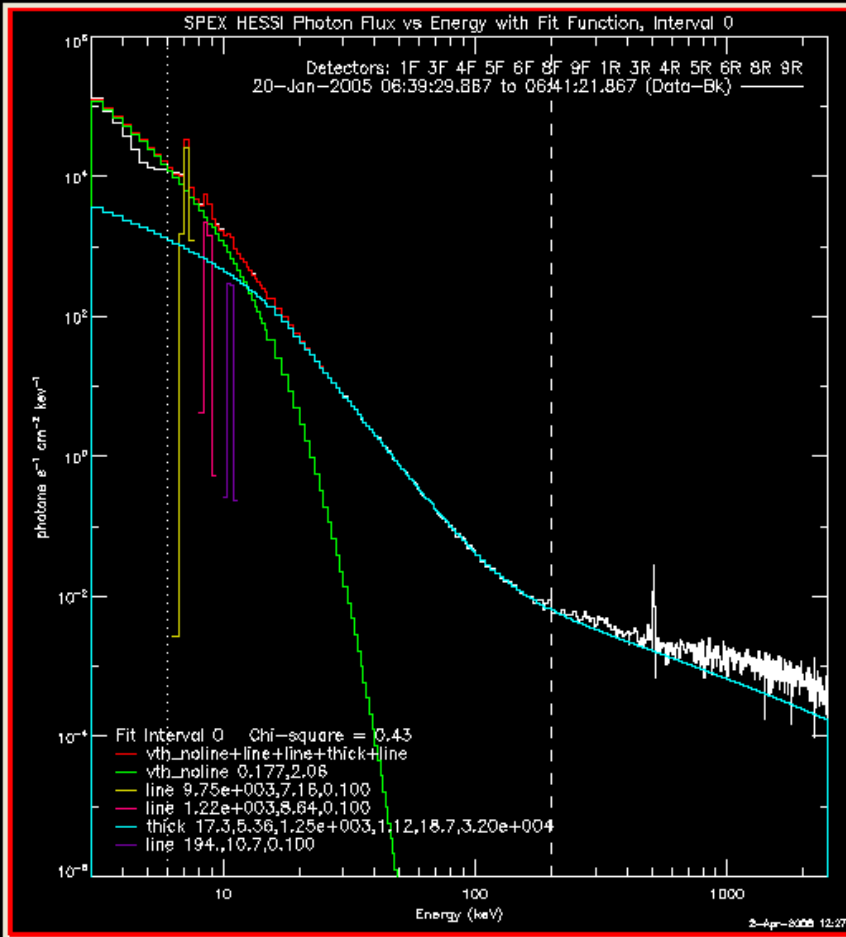


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File Edit Search Run Project Macros Window Help

SPEX Main Window

File Plot_Control Window_Control Help



PNG file written: C:\work\rhessi_flares\spectra\20_jan_05\plotman.png

Fit Function Setup

Choose Fit Function Components and Set Parameters

Interval 0: 20-Jan-2005 06:39:29.867 to 06:41:21.867

Current fit function: vth_noline+line+line+thick+line

Available components: vth - Variable Thermal Add component List

line	9754.92	1E-020	1E+020	1	Delete component
	7.16129	1	1E+006	1	
	0.1	0.01	1E+006	0	

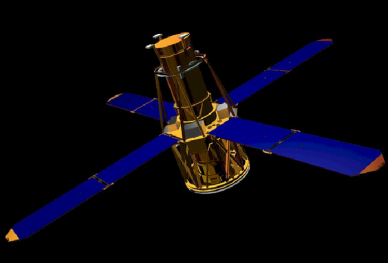
line	Value	Minimum	Maximum	Free	Reset -> Delete component Plot component
	1216.48	1E-020	1E+020	1	
	8.63853	1	1E+006	1	

thick	Value	Minimum	Maximum	Free	Reset -> Delete component Plot component
	17.2933	1E-010	1E+010	1	
	5.35839	1.1	20	1	
	1252.03	1	100000	1	
	1.12127	1.1	20	1	
	18.6896	1	1000	1	

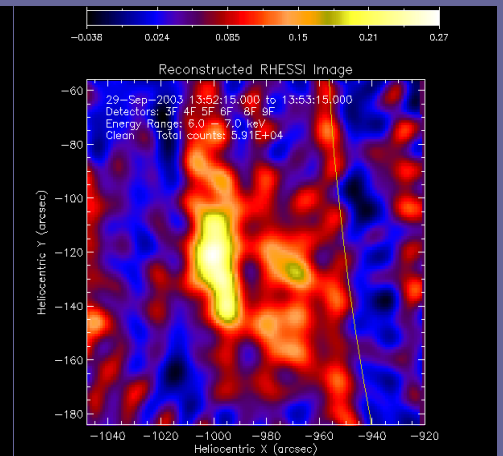
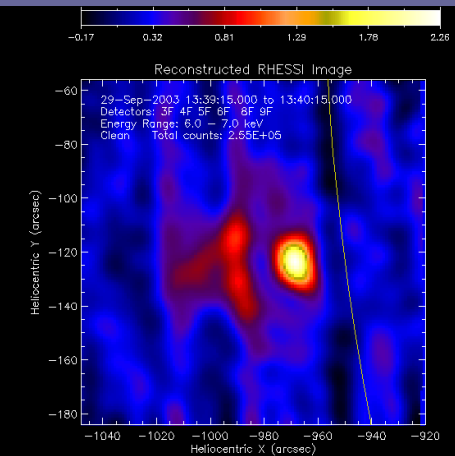
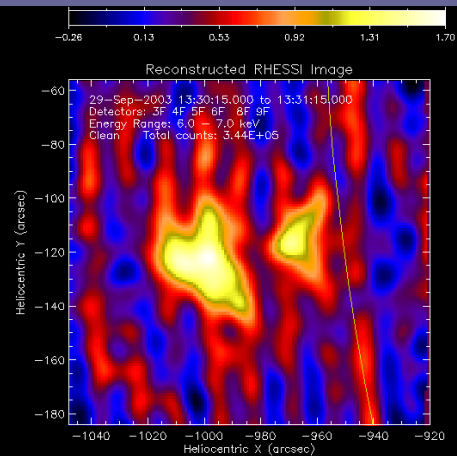
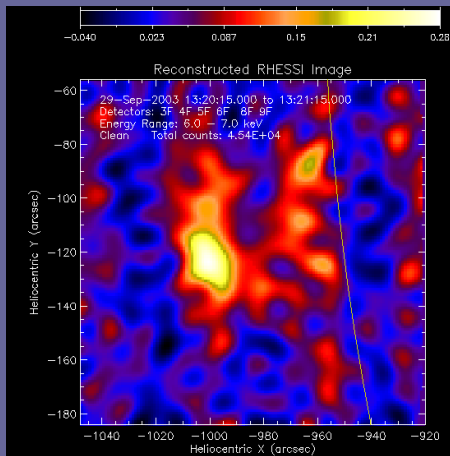
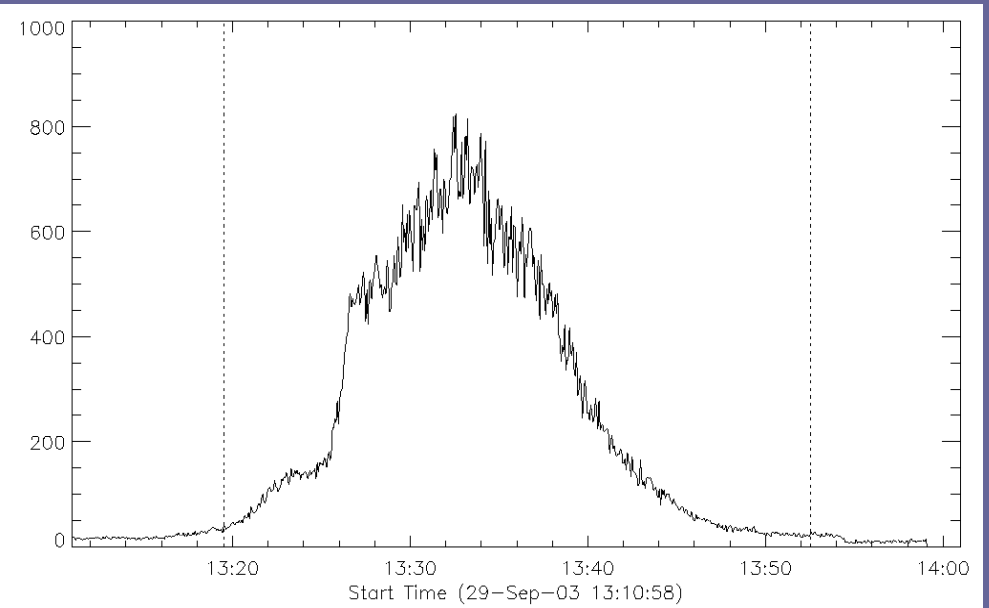
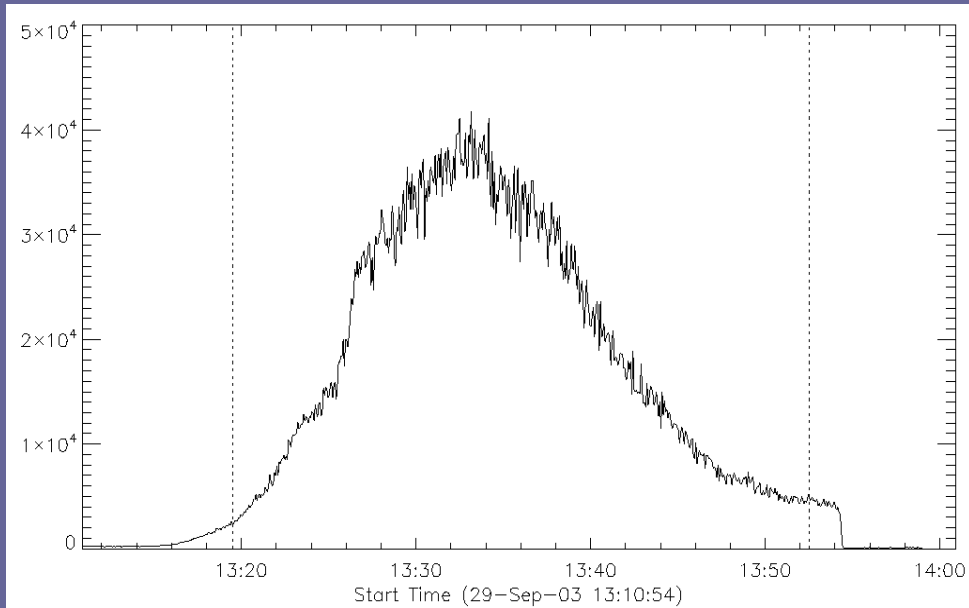
1 Energy range(s) to fit: 6.0 to 200.0 Change Show

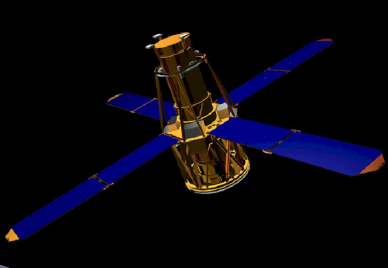
Iter: 10 ^ ^ Uncert: 0.05 ^ ^ Auto Plot Plot Units: Flux ^ ^ Photons Residuals

Refresh Fit Plot All Components Plot Residuals Accept -> Cancel

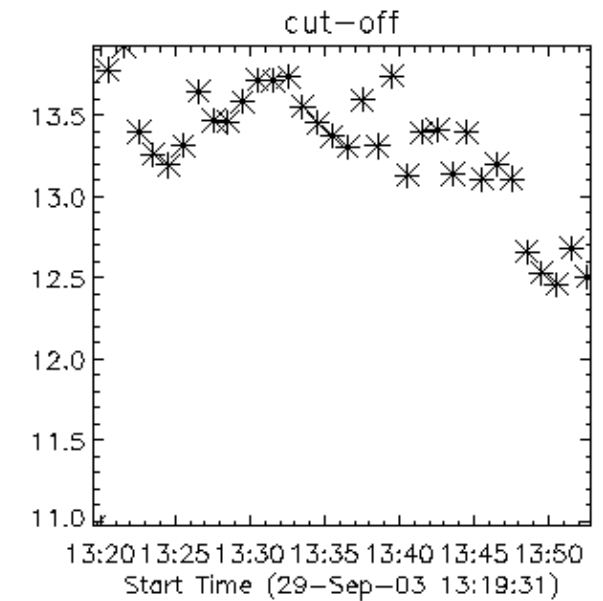
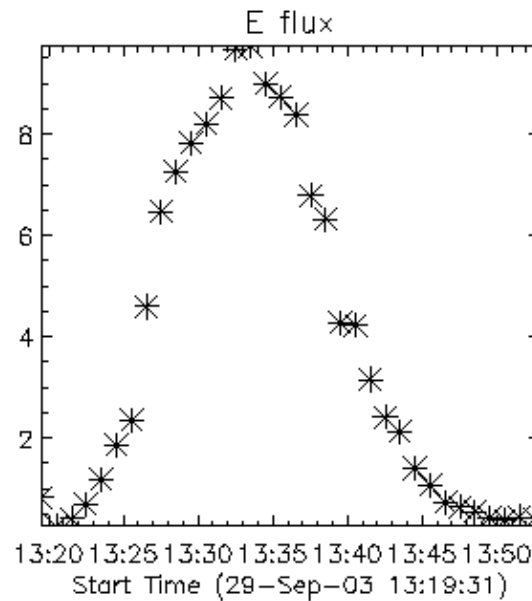
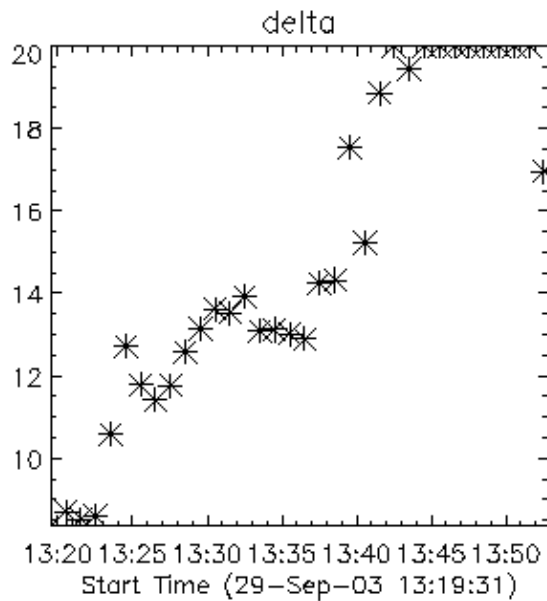
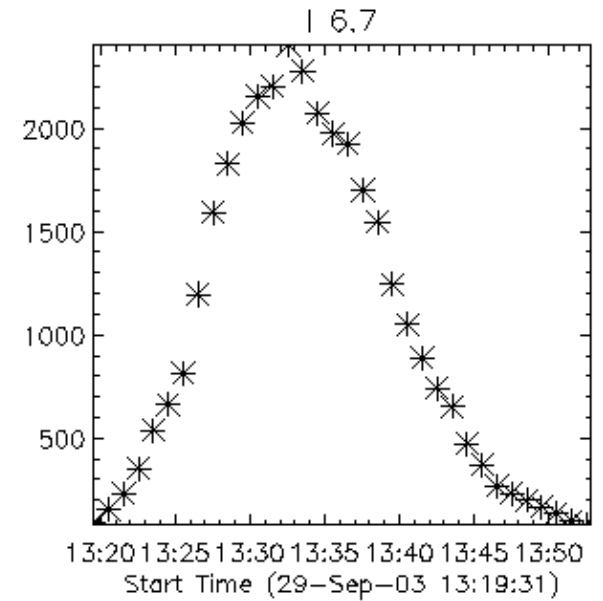
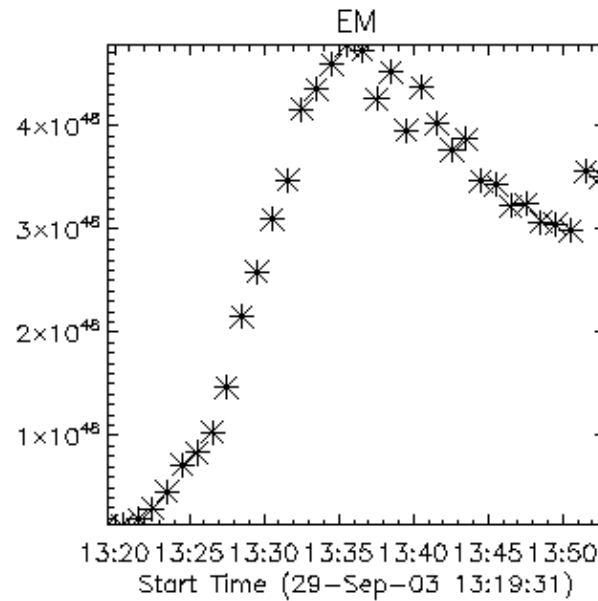
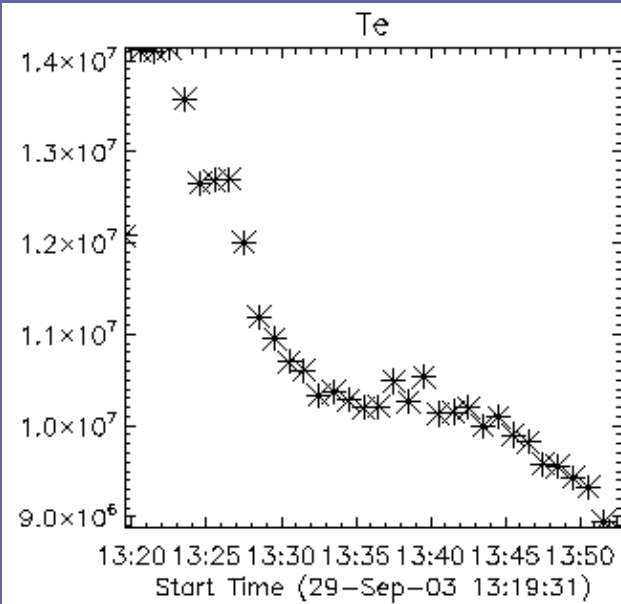


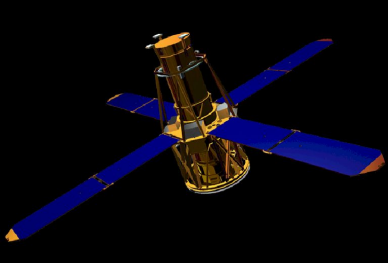
Przykład: 29 IX 2003 r.



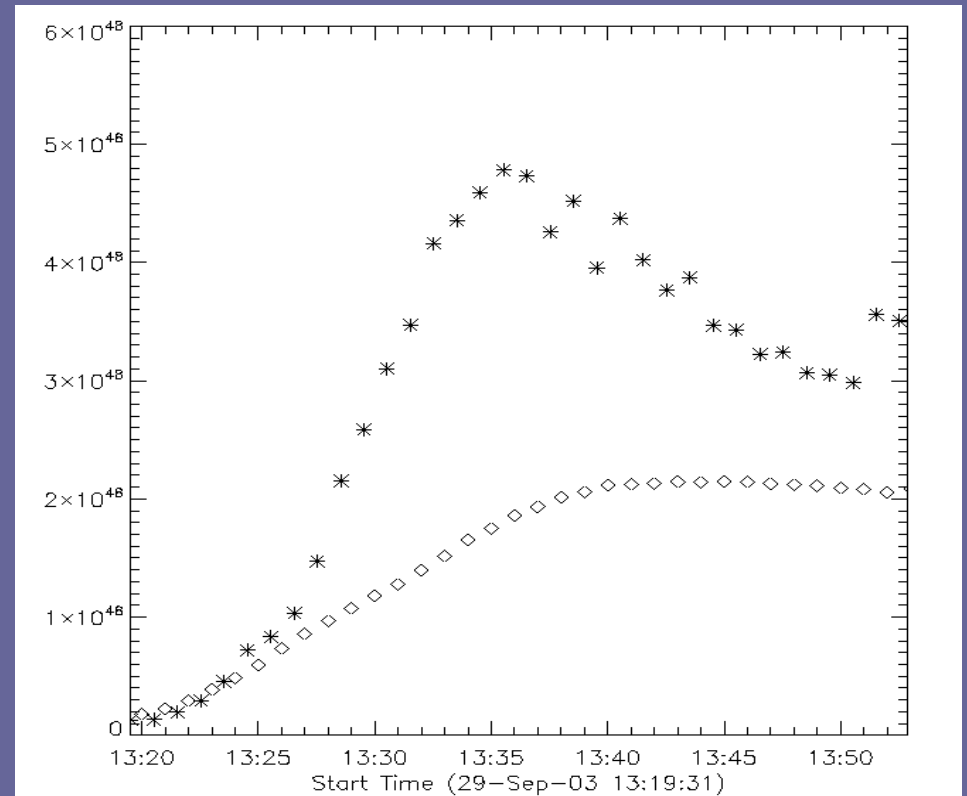
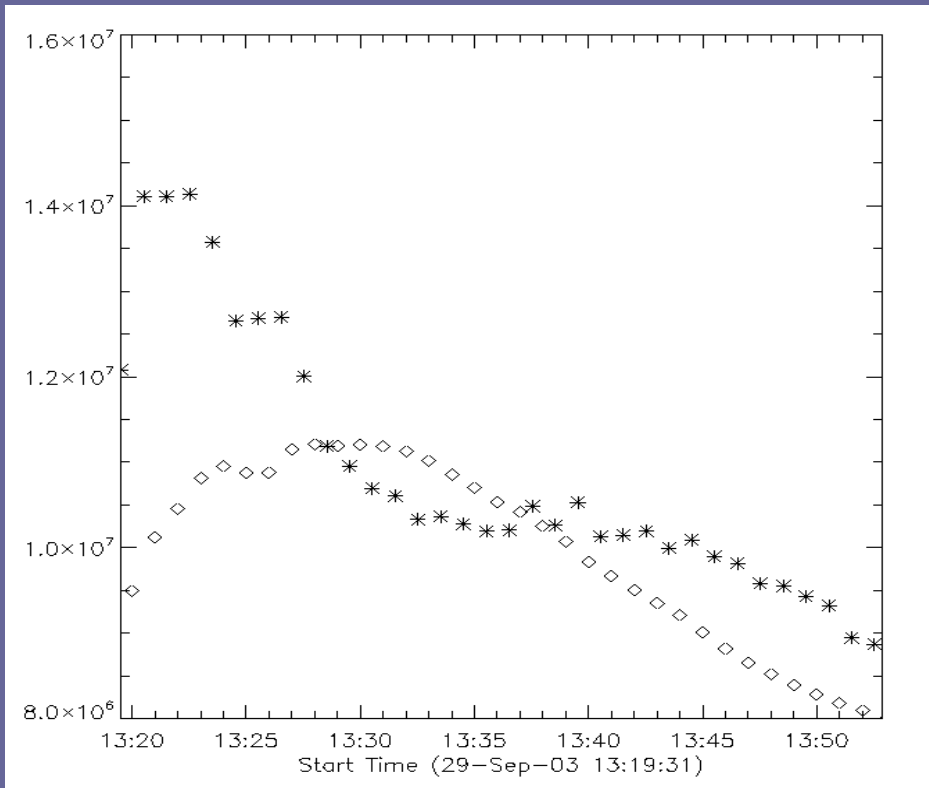


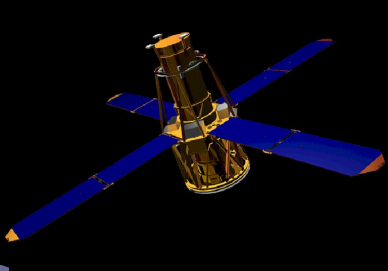
Przykład: 29 IX 2003 r.



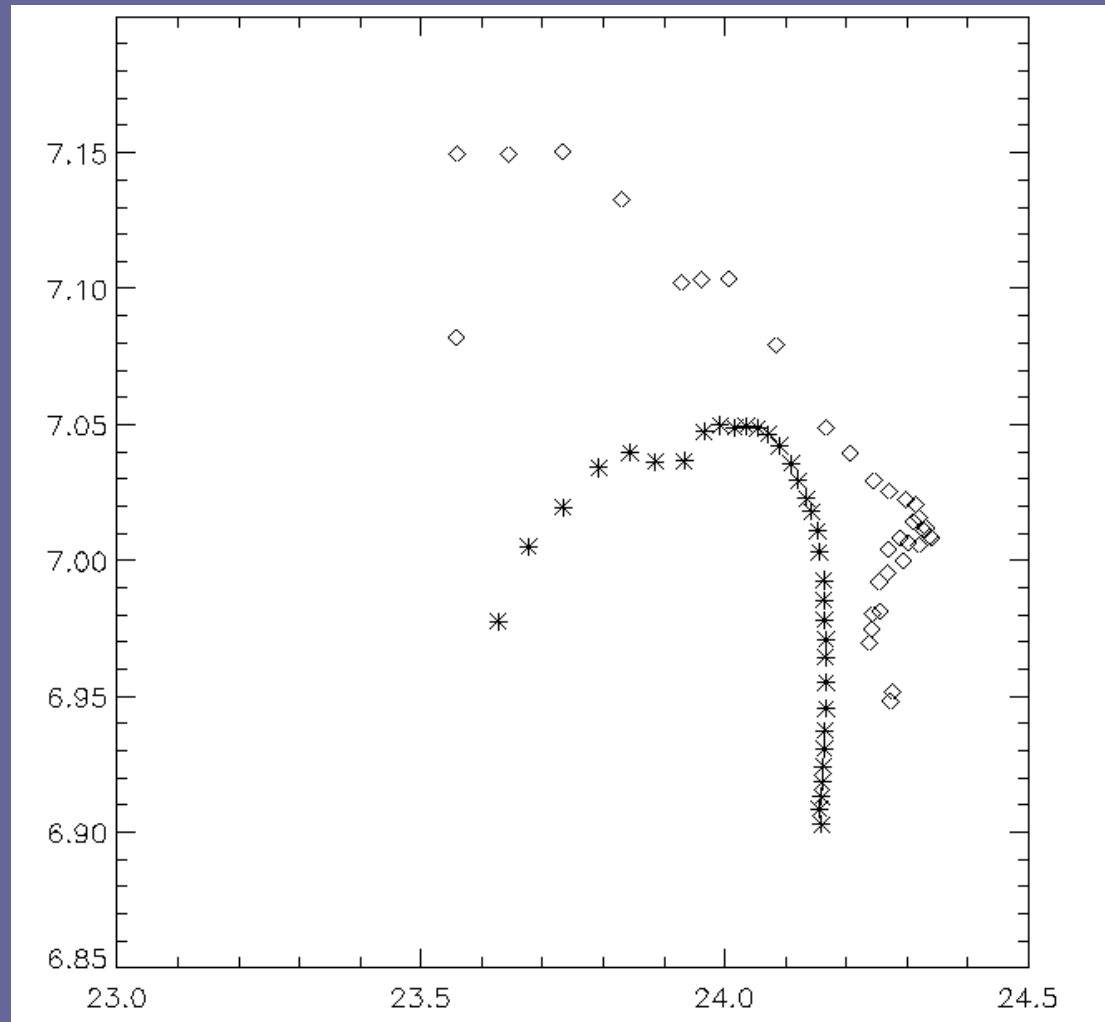


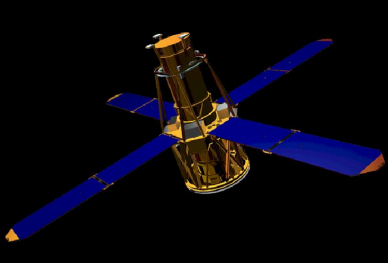
Przykład: 29 IX 2003 r.



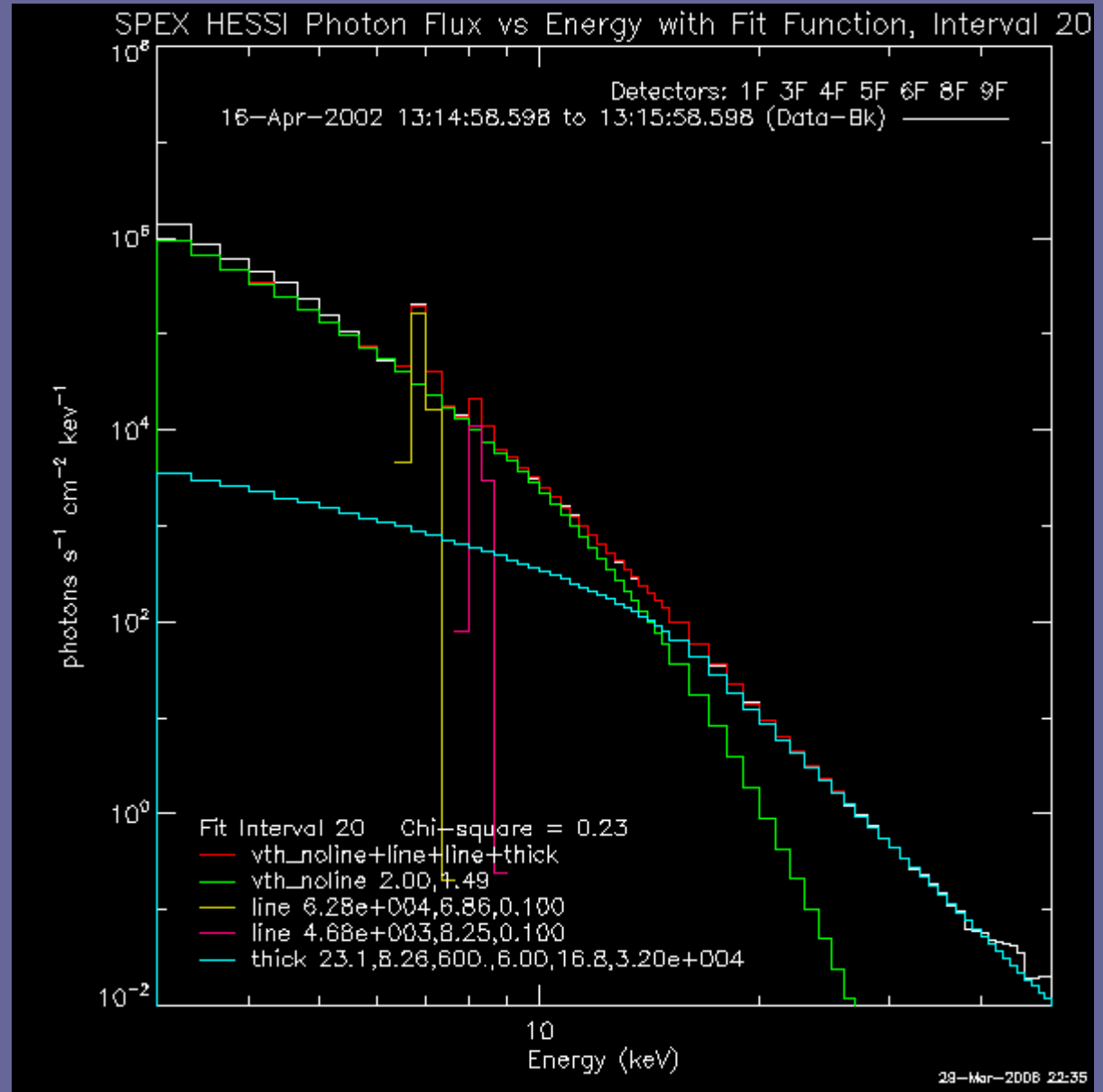
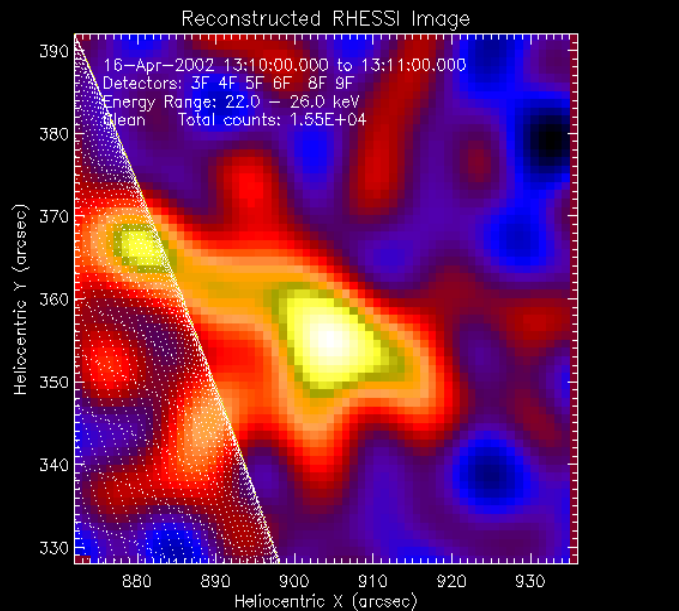
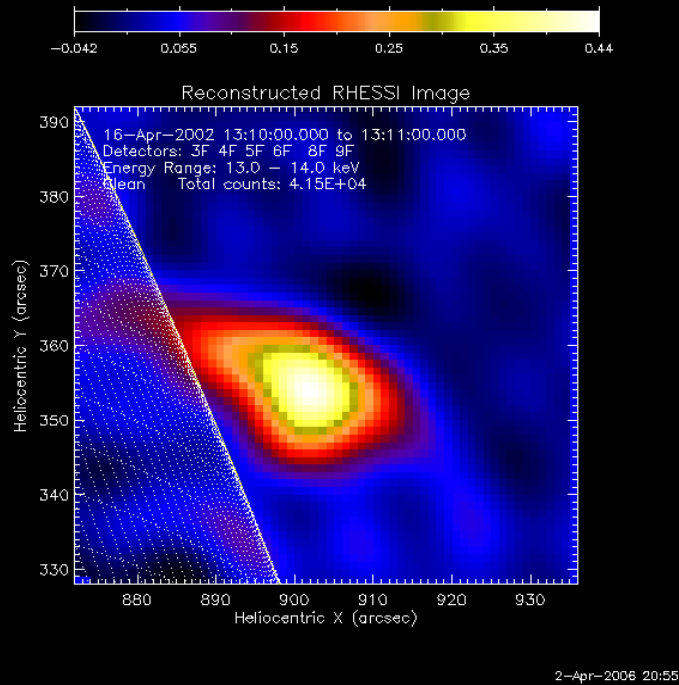


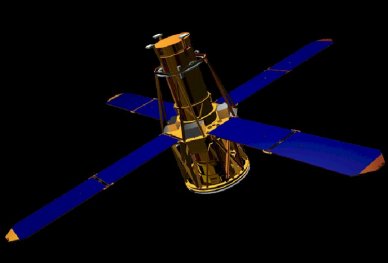
Przykład: 29 IX 2003 r.



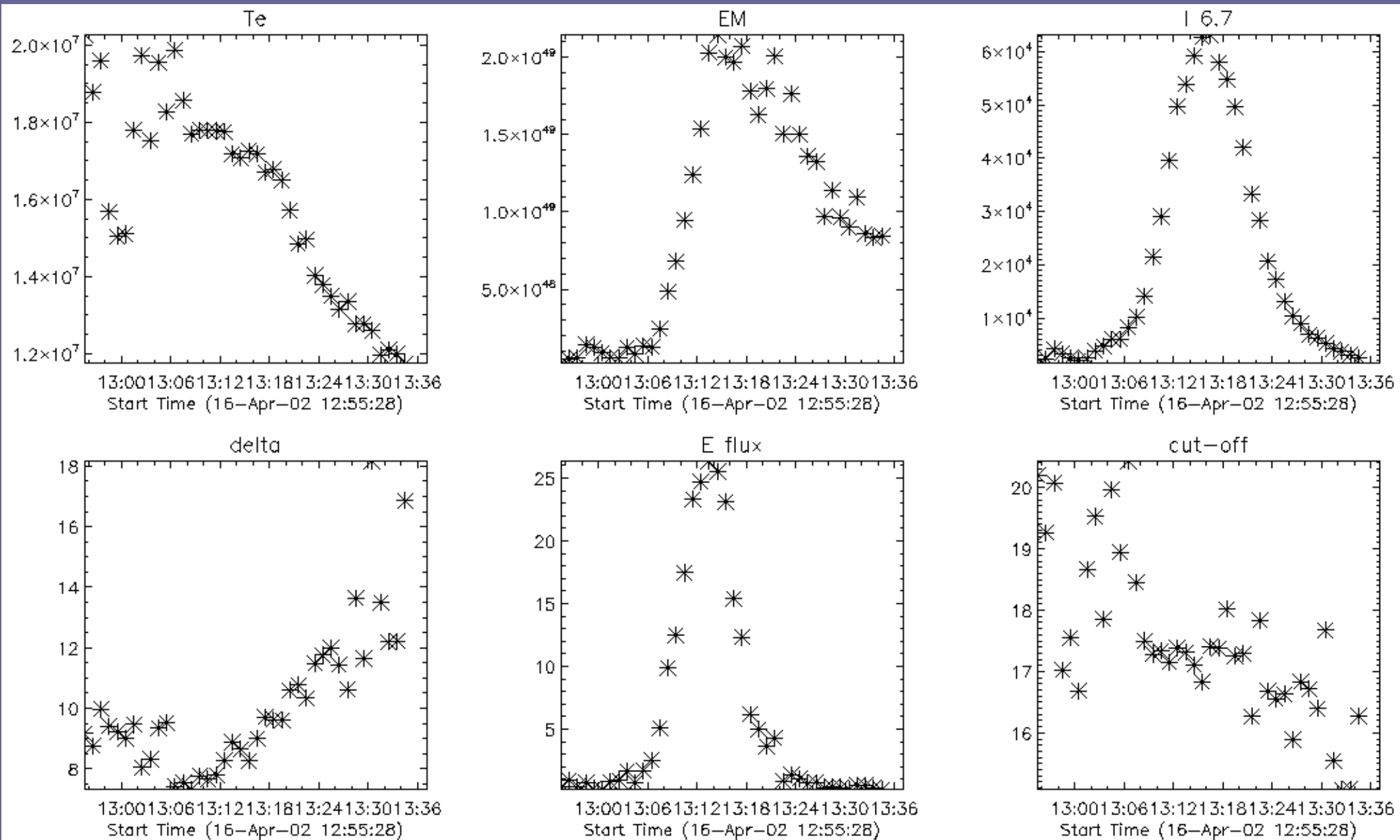


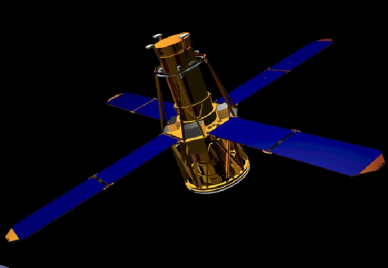
Przykład: 16 IV 2002 r.



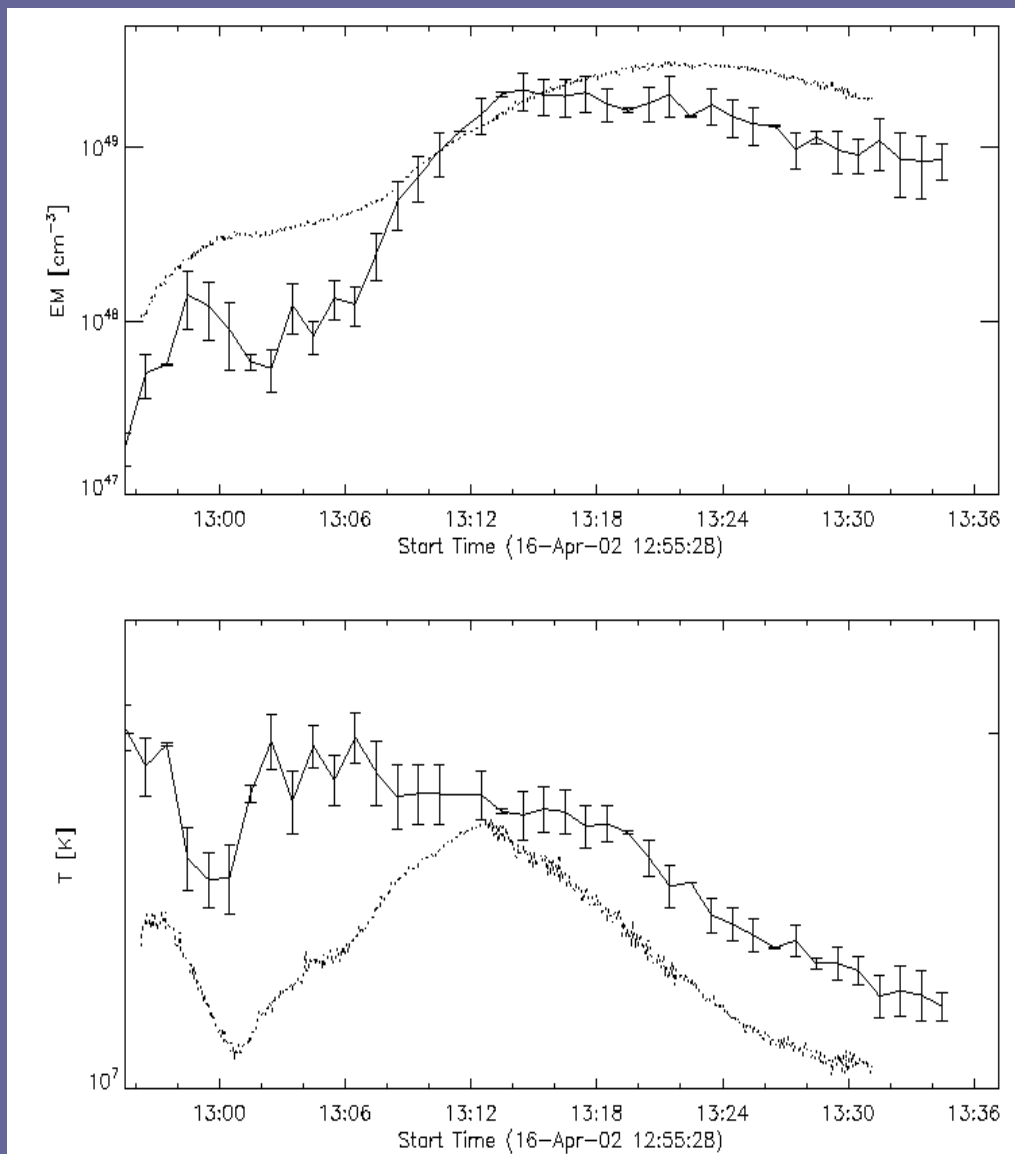
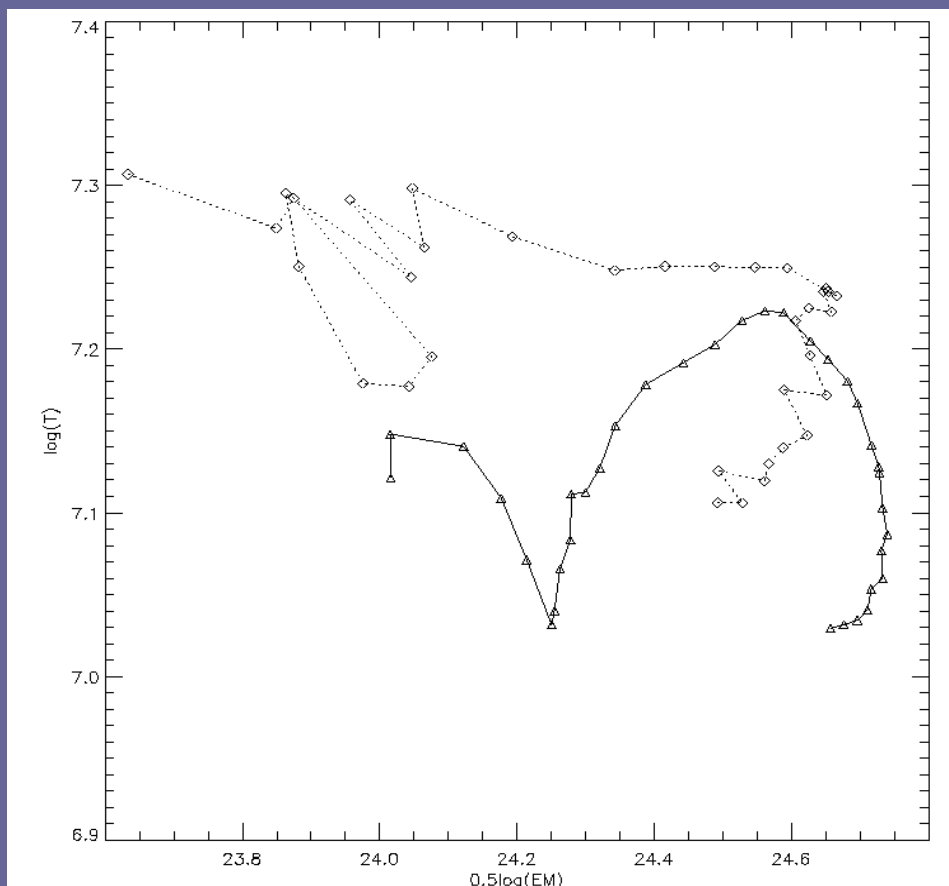


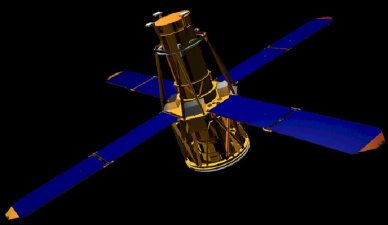
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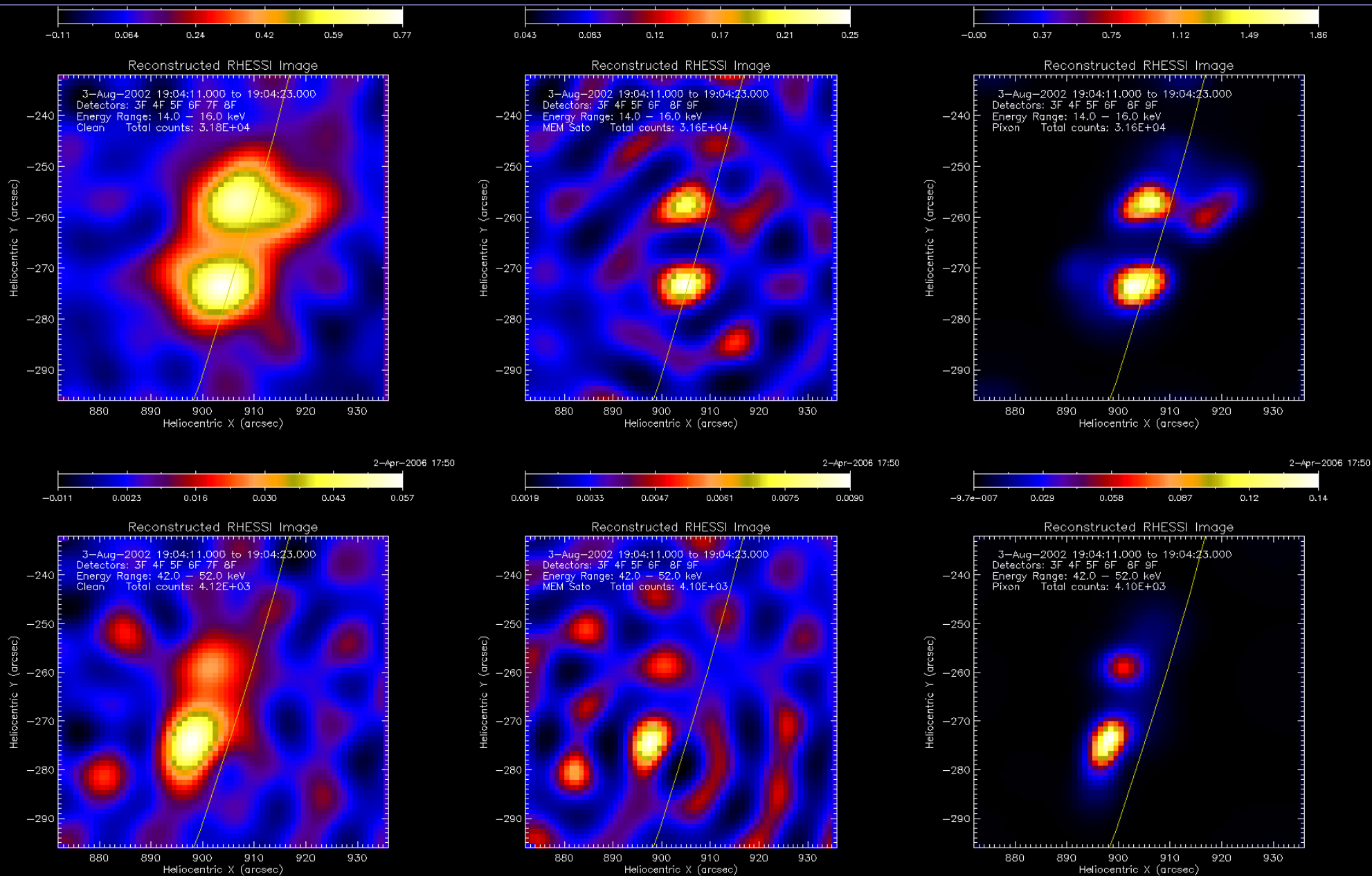


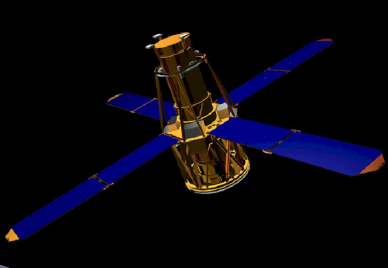
Przykład: 16 IV 2002 r.



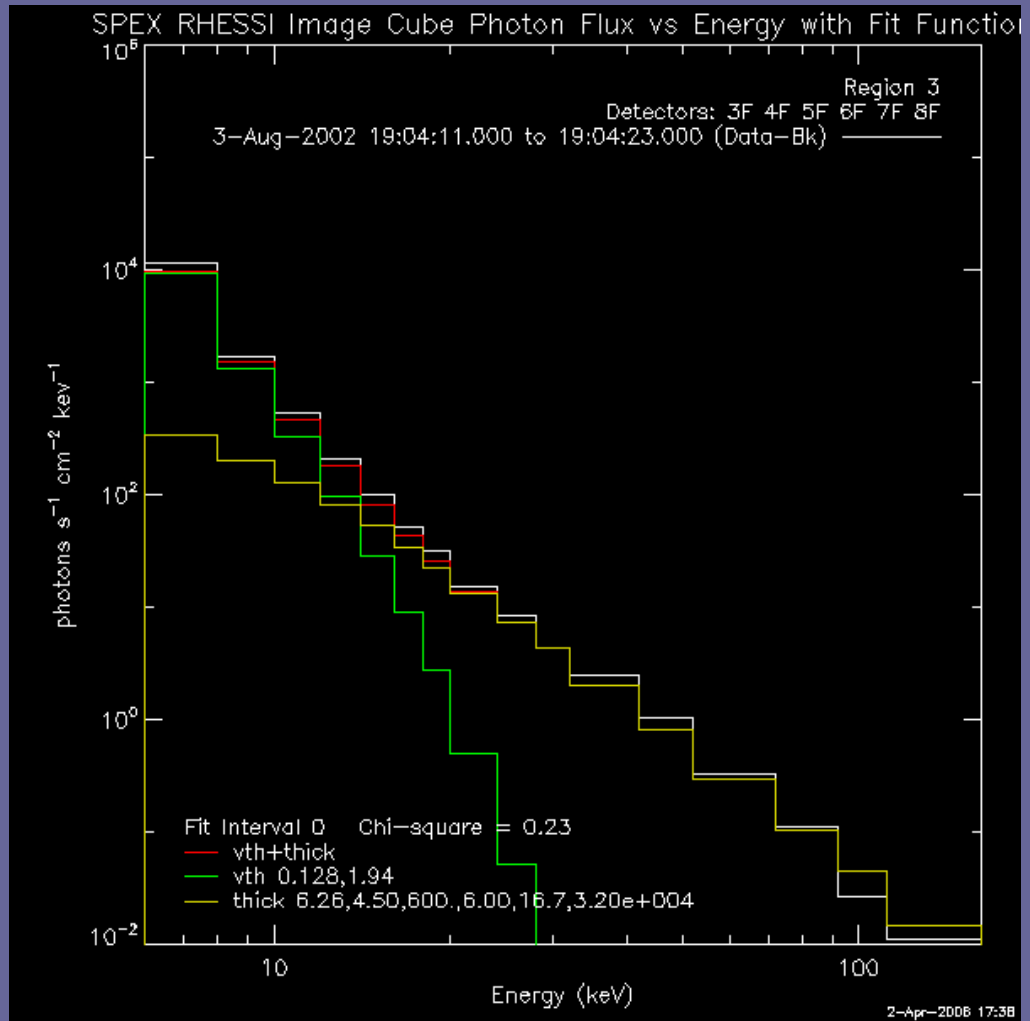
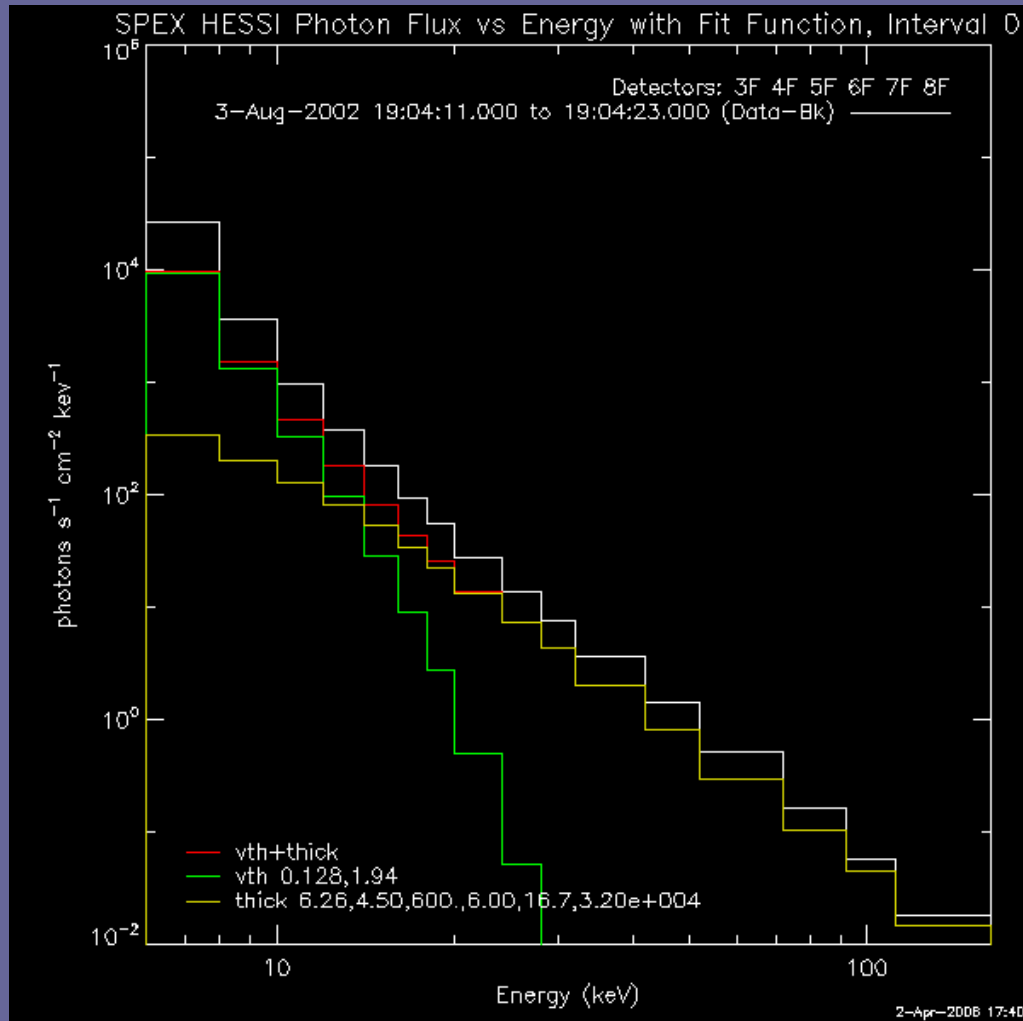


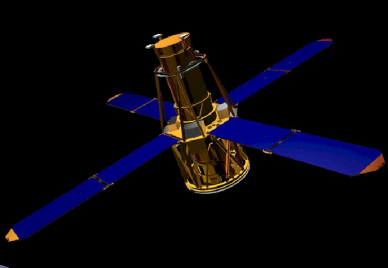
Obrazy: 3 VIII 2002 r.





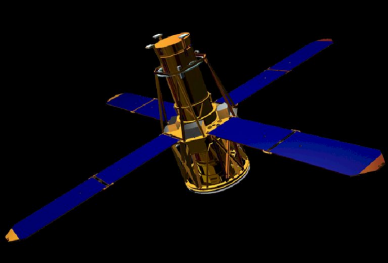
Obrazy: 3 VIII 2002 r.



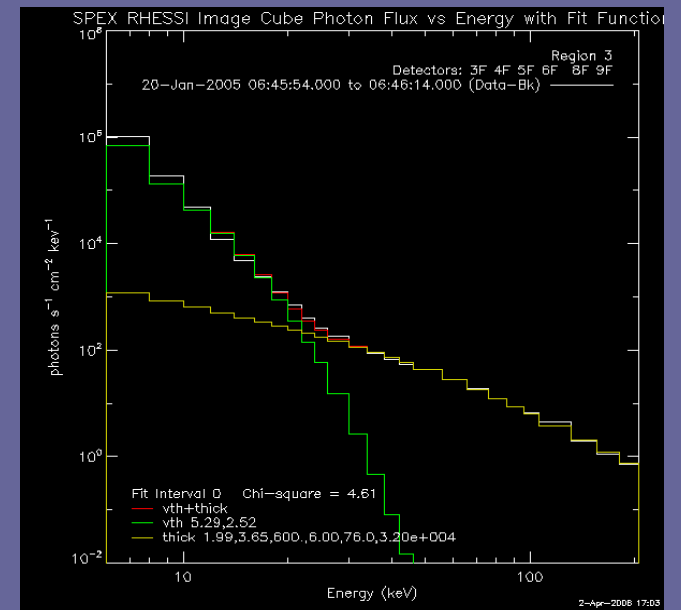
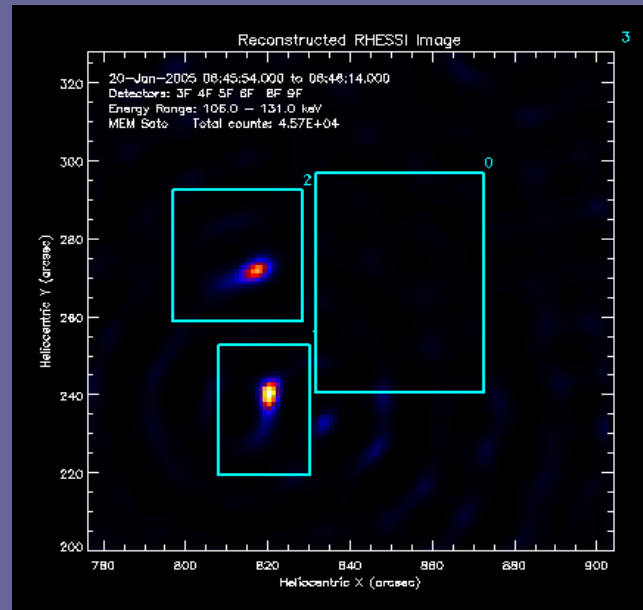
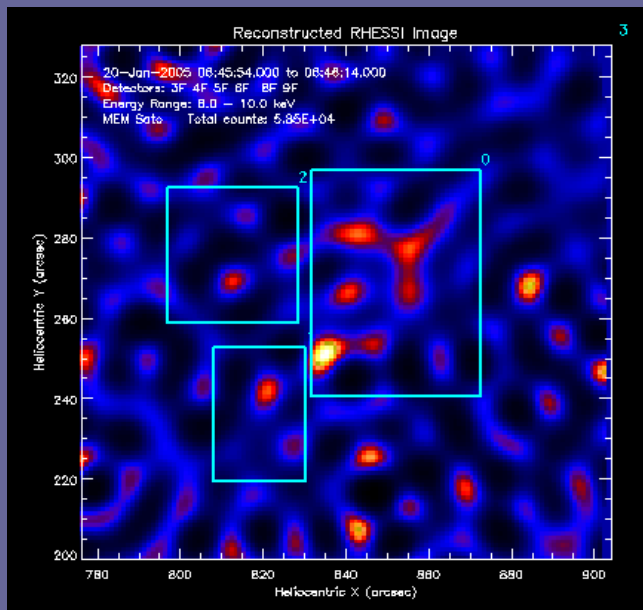
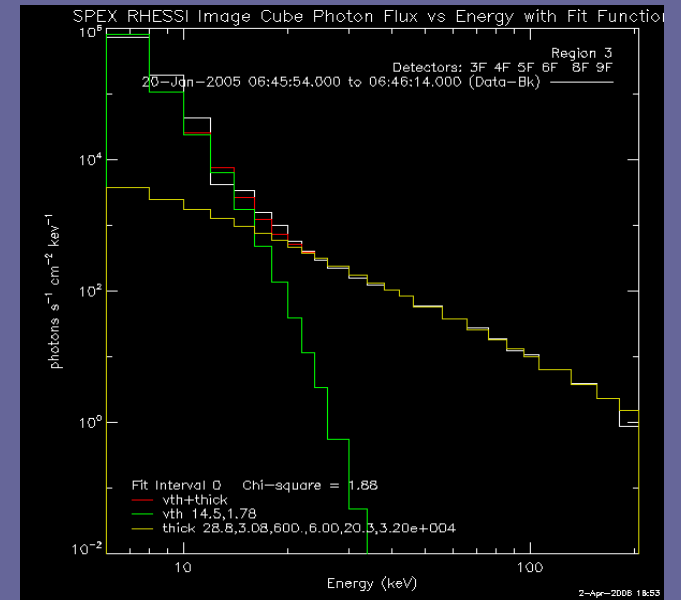
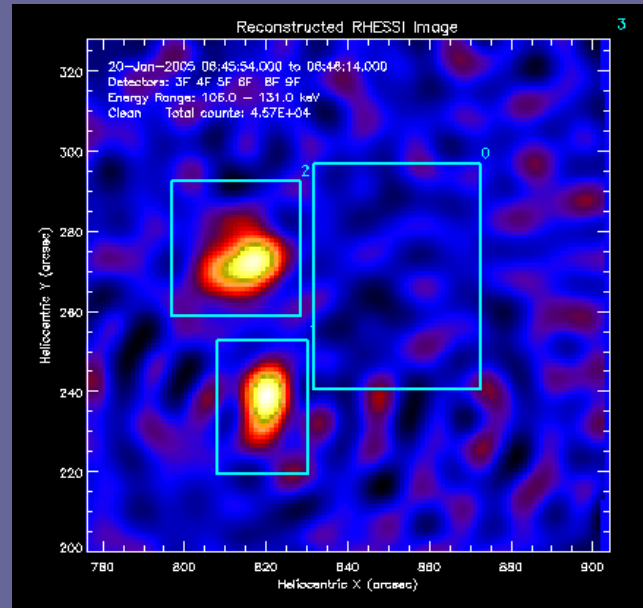
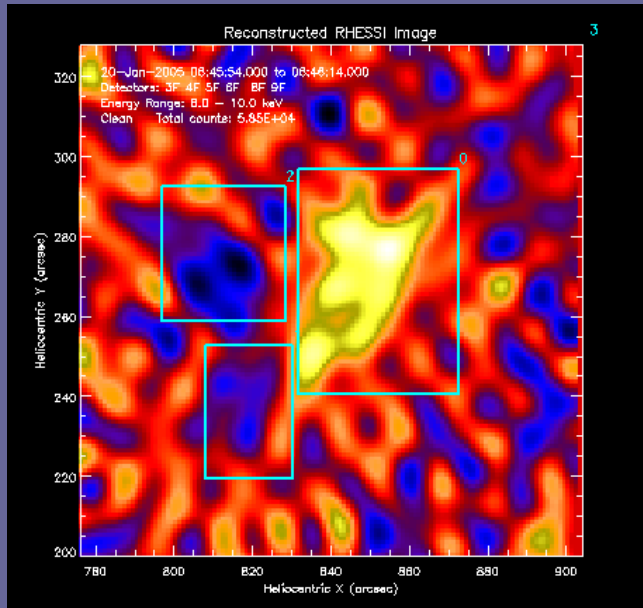


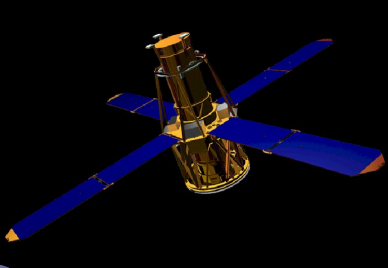
Obrazy: 3 VIII 2002 r.

	<i>Nr</i>	<i>EM 10⁴⁹</i>	<i>Te keV (MK)</i>	<i>10³⁵ elektr/s</i>	<i>delta</i>	<i>E. obciążenia</i>
CLEAN	0	0.0115	3.25 (37.7)	1.42	3.53	7.1
	1	0.075	1.86 (21.6)	3.96	4.71	17.4
	2	0.203	1.75 (20.3)	8.78	4.44	15.7
	3	0.128	1.94 (22.5)	6.26	4.50	16.7
MEM	0	0.0286	1.87 (21.7)	0.81	4.70	17.9
	1	0.048	1.76 (20.4)	1.42	4.81	17.1
	2	0.142	1.67 (19.4)	3.76	4.73	16.0
	3	0.156	1.75 (20.3)	3.20	4.52	17.2
PIXON	0	0.0095	3.37 (39.1)	0.09	2.74	4.16
	1	0.132	1.76 (20.4)	3.54	4.85	18.7
	2	0.348	1.68 (19.5)	5.52	4.25	17.1
	3	0.318	1.70 (19.7)	5.54	4.38	16.5
CAŁY		0.482	1.76 (20.4)	14.3	4.76	17.3
GOES		10^{49} cm^{-3}	10^6 K			
koronalne	5.1	1.0	15.1			
fotosferyczne	5.1	1.8	17.4			
Meyer/Meve		2.1	18.8			

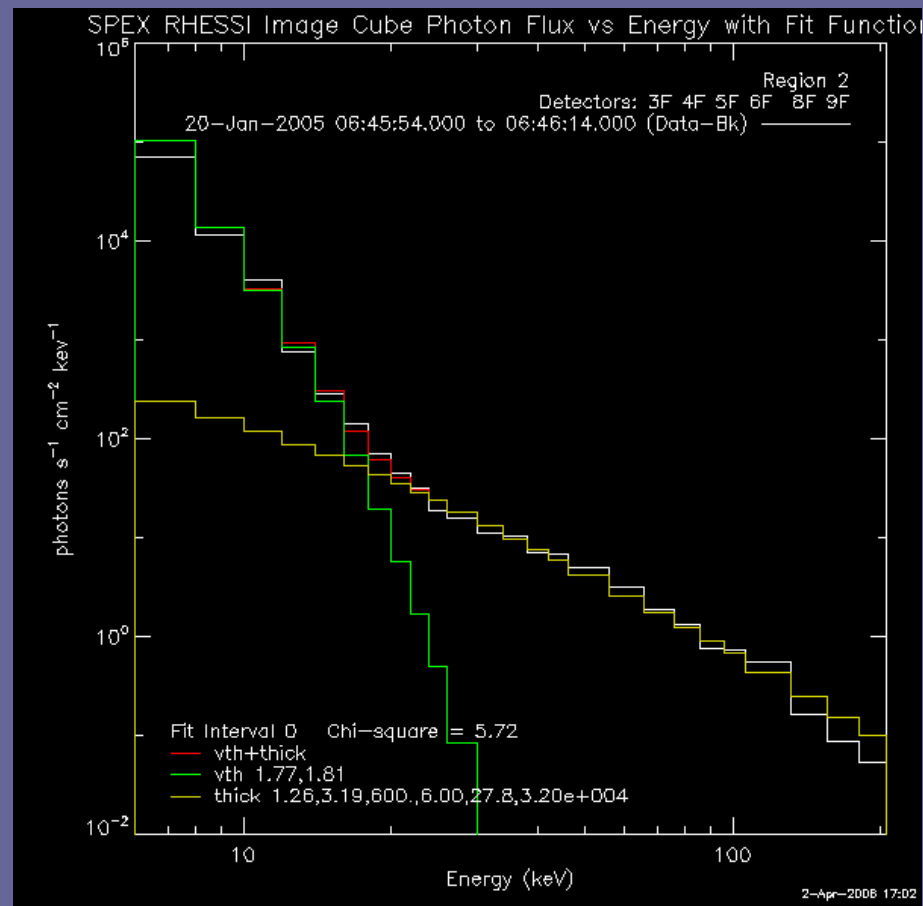
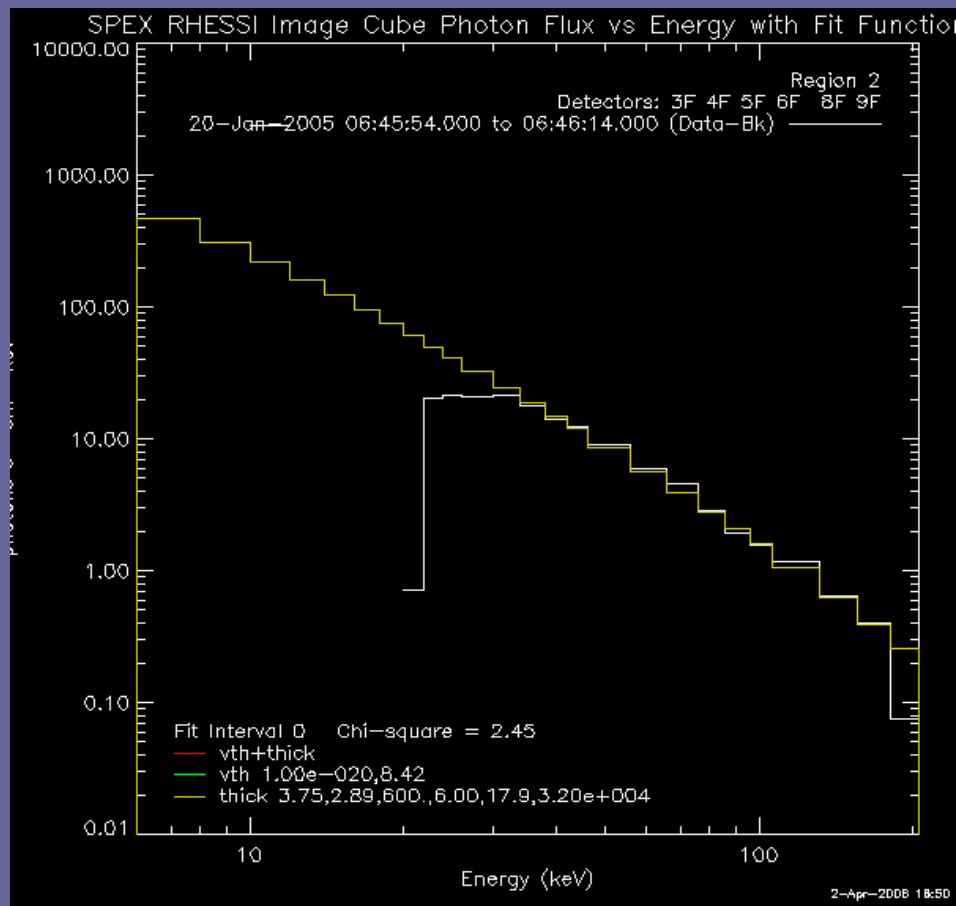


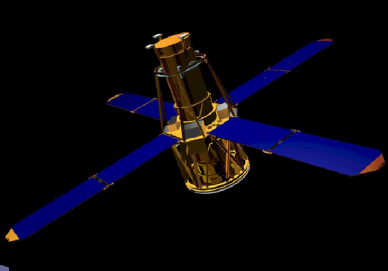
Obrazy: 20 I 2005 r.





Obrazy: 20 I 2005 r.





Obrazy: 20 I 2005 r.

	<i>Nr</i>	<i>EM 10⁴⁹</i>	<i>Te keV</i>	<i>10³⁵ elektr/s</i>	<i>delta</i>	<i>E. obciążenia</i>
CLEAN	0	14.6	1.89	3.3e3	6.91	12.8
	1	-	-	3.73	2.78	12.5
	2	-	-	3.75	2.89	17.9
	3	14.0	1.78	28.8	3.08	20.3
MEM	0	0.801	3.19	1.38	2.66	18.2
	1	0.363	2.35	1.05	3.39	22.9
	2	1.77	1.81	1.26	3.19	27.8
	3	5.29	2.52	1.99	3.65	76.0
CAŁY		3.89	3.12	4.78	3.27	53.3