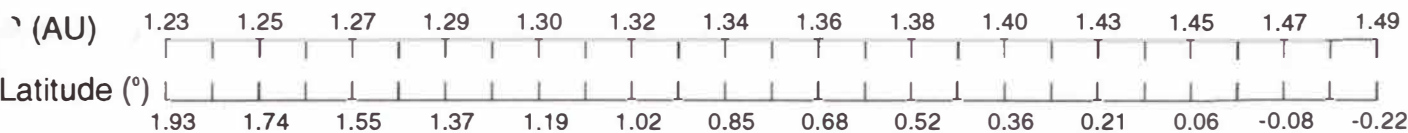
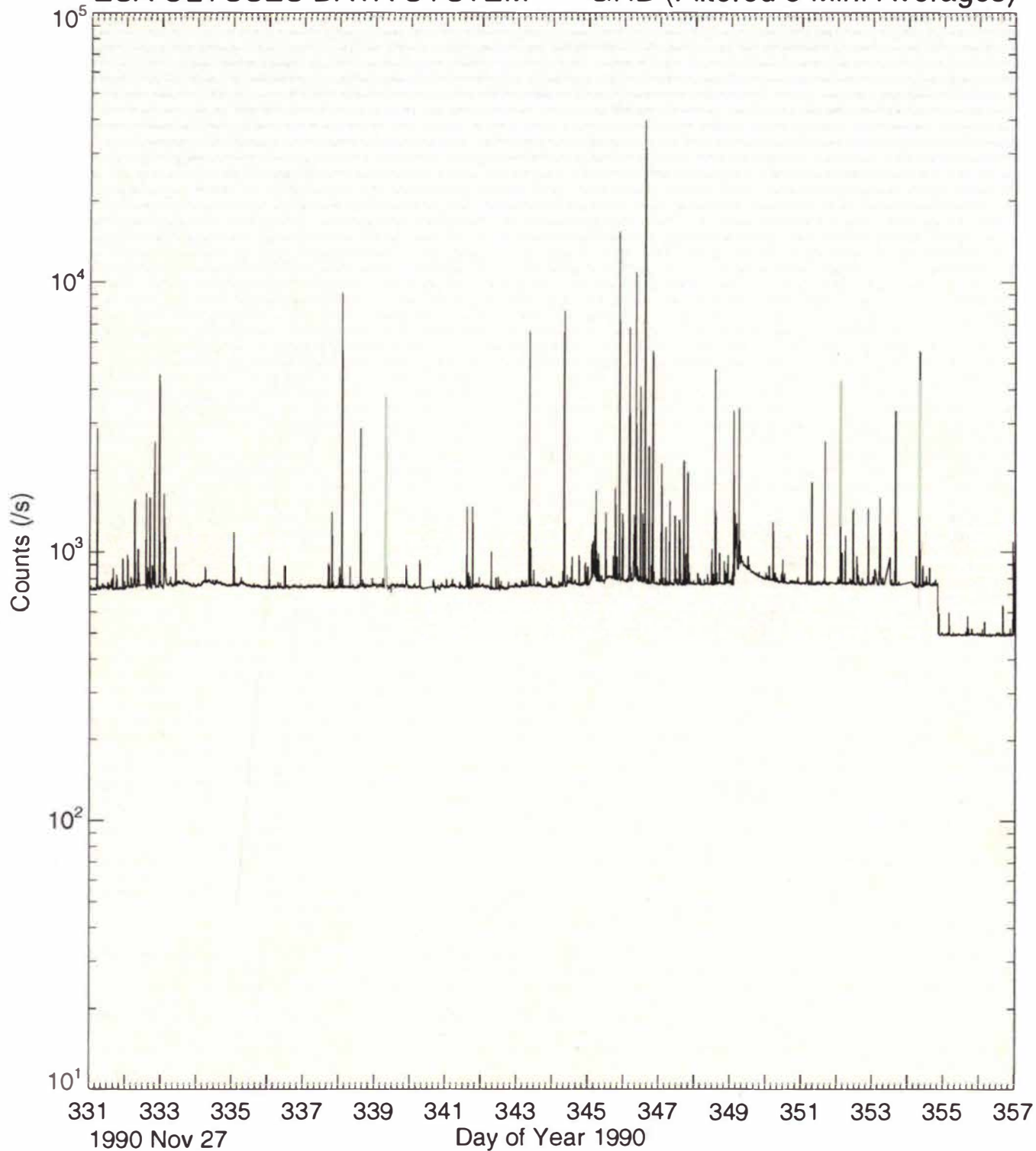


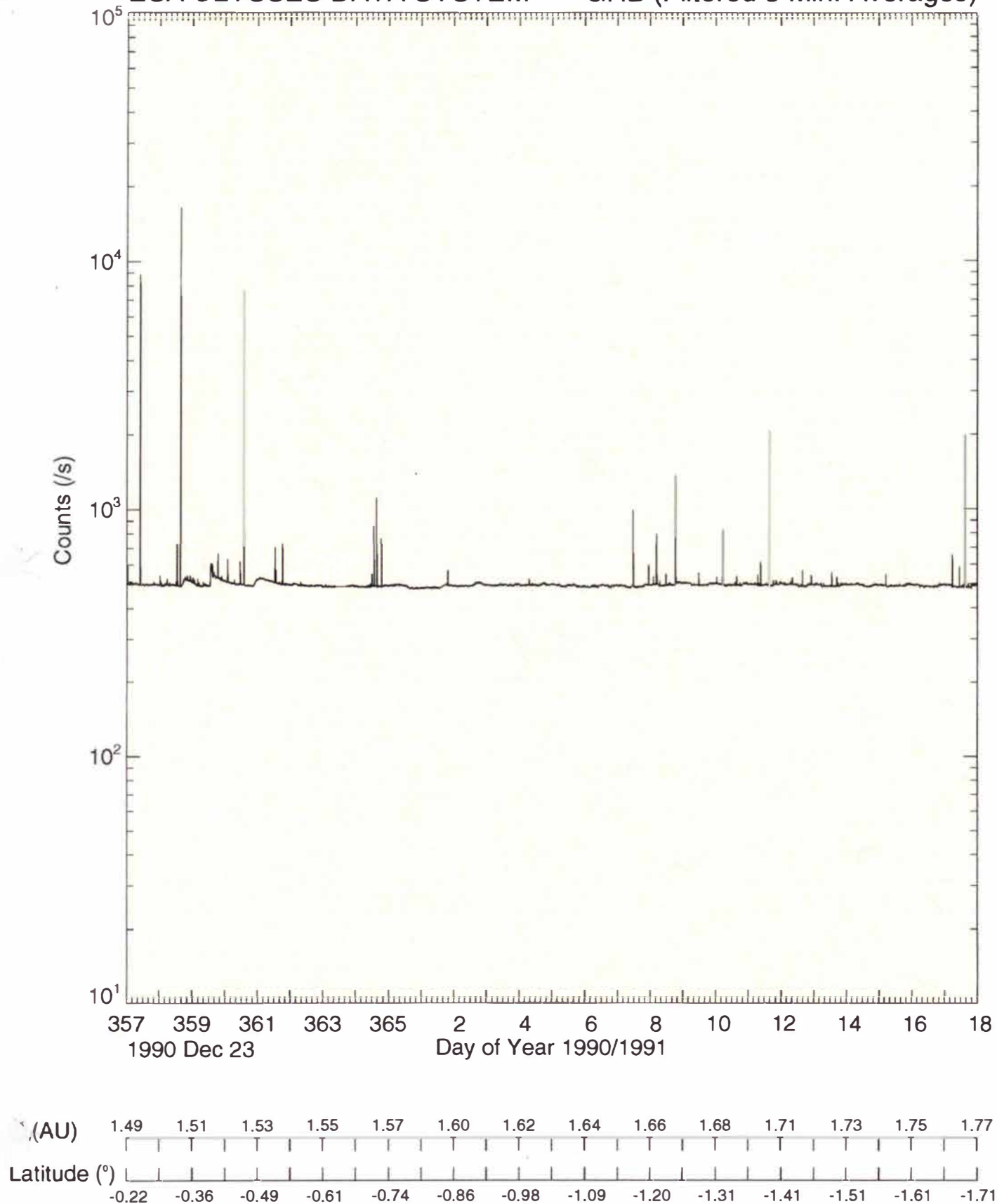
ESA ULYSSES DATA SYSTEM

GRB (Filtered 5 Min. Averages)

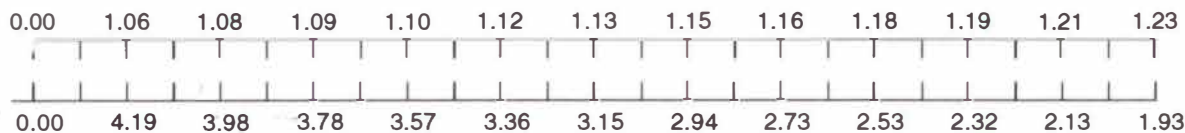
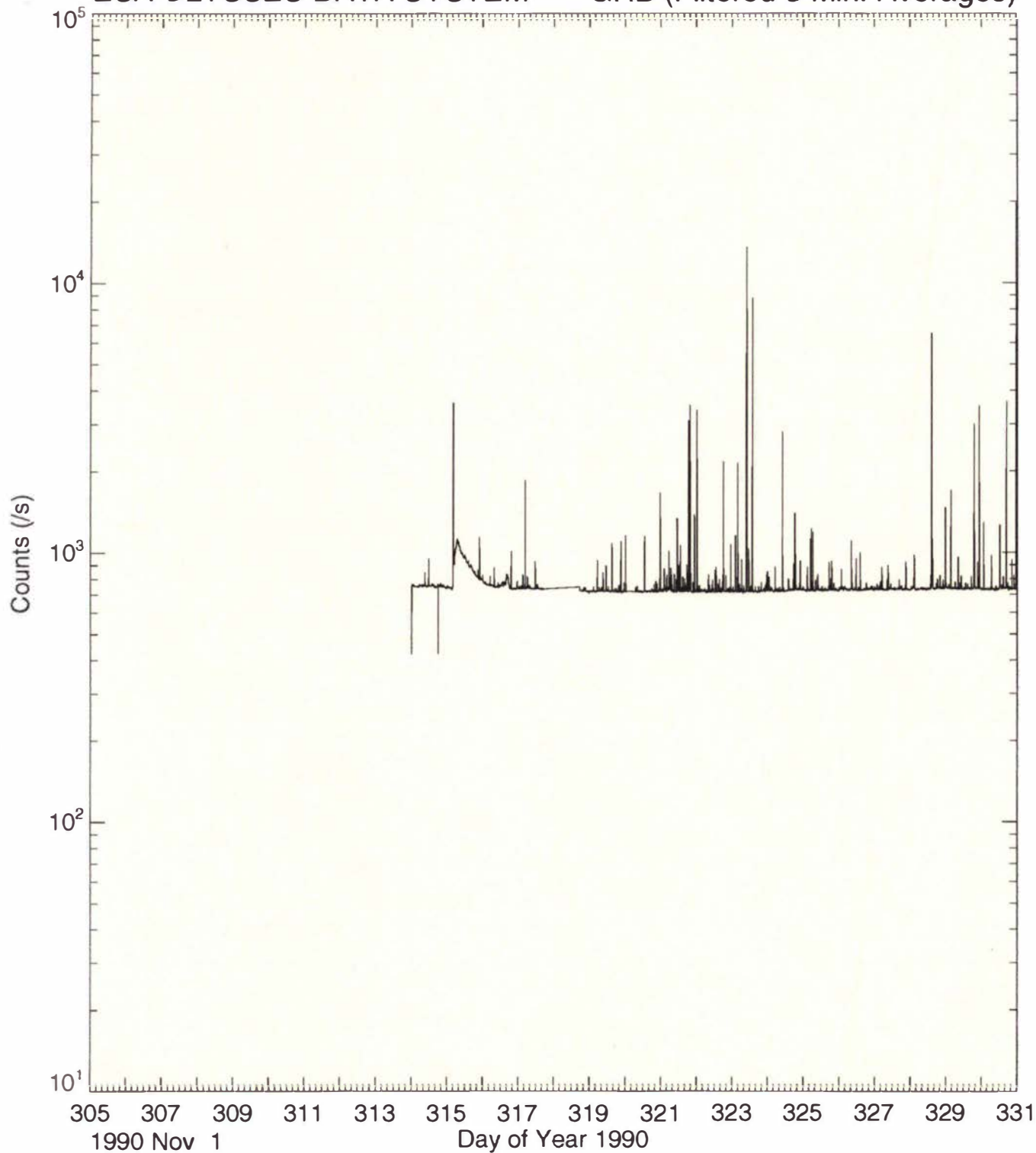


ESA ULYSSES DATA SYSTEM

GRB (Filtered 5 Min. Averages)



ESA ULYSSES DATA SYSTEM GRB (Filtered 5 Min. Averages)



30233 CDR - JOLAN WING 1747

30 230 OCT 17 00:00:00.000 - 1747

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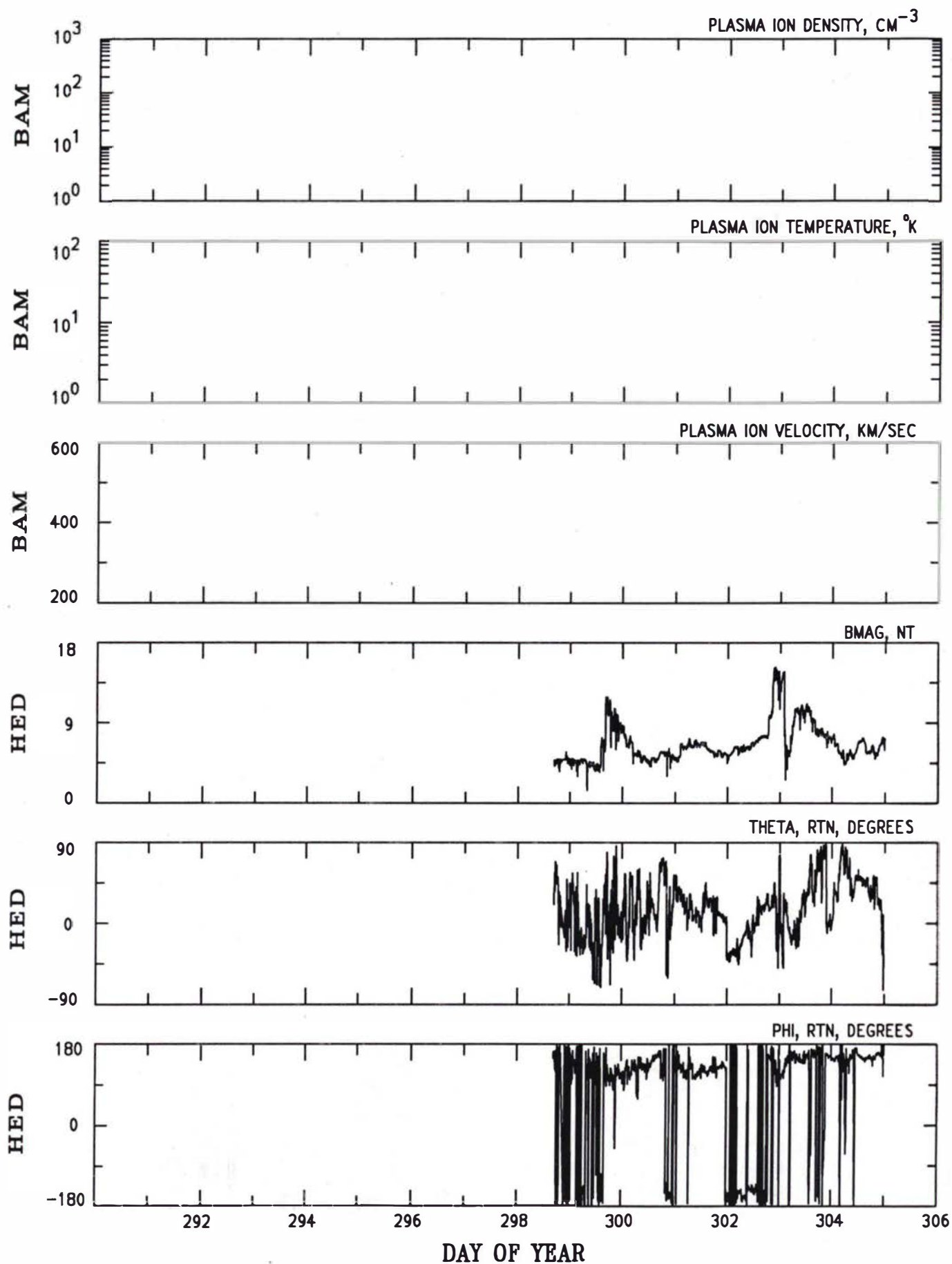
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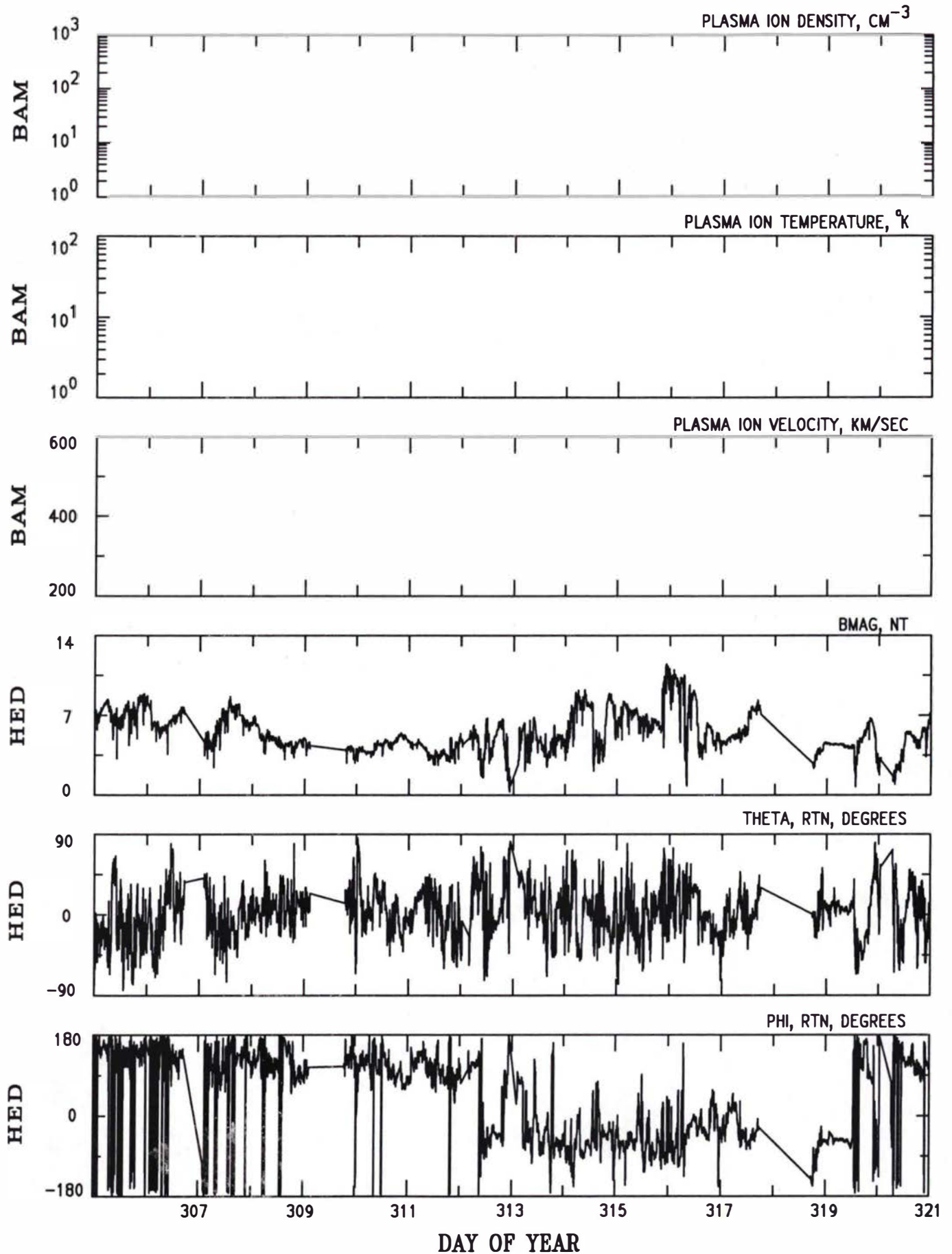
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

90 290 OCT 17 00:00:00.000 - 90 306 NOV 2 00:00:00.000



ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

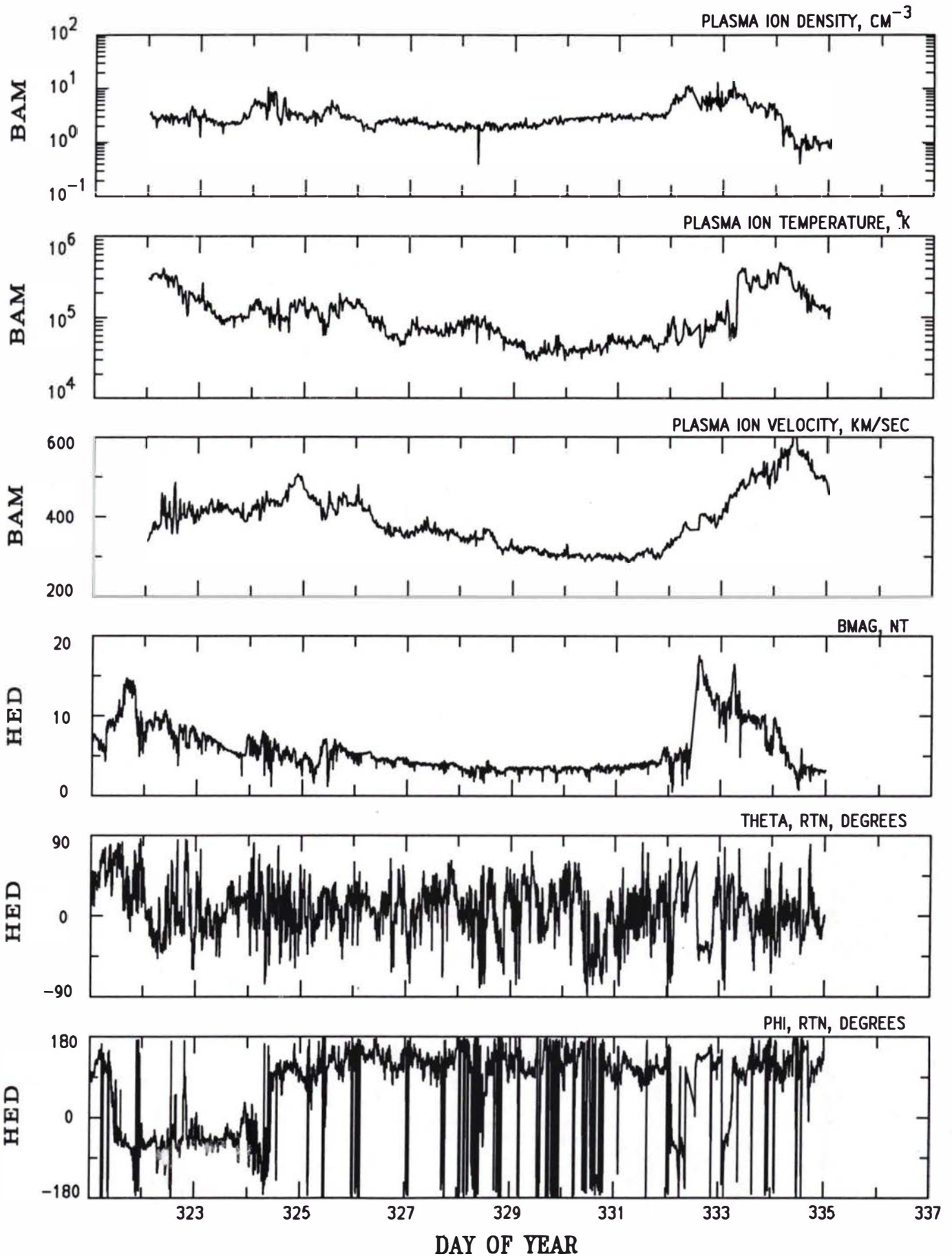
90 305 NOV 1 00:00:00.000 - 90 321 NOV 17 00:00:00.000





ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

90 321 NOV 17 00:00:00.000 - 90 337 DEC 3 00:00:00.000

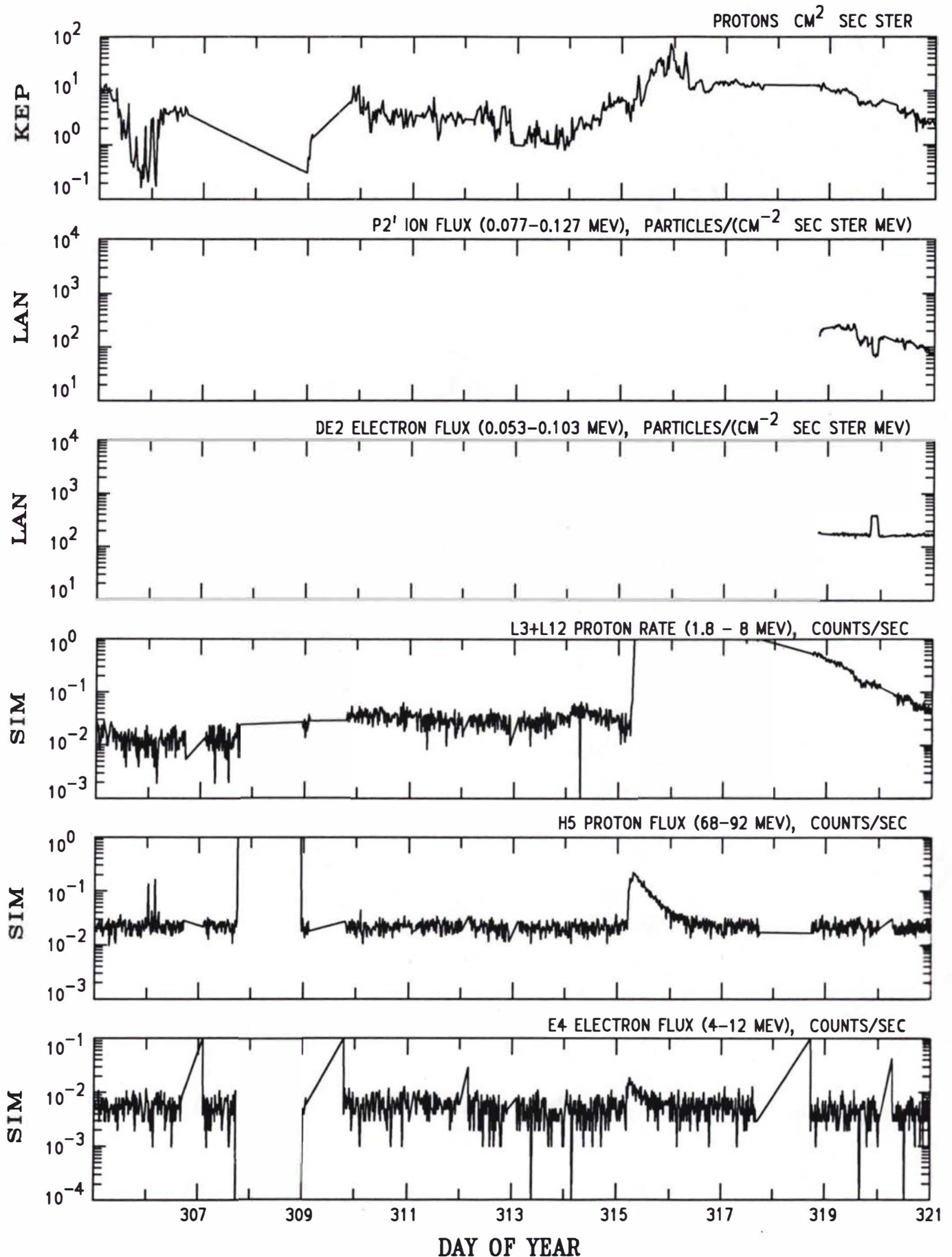


30 302 MC

16

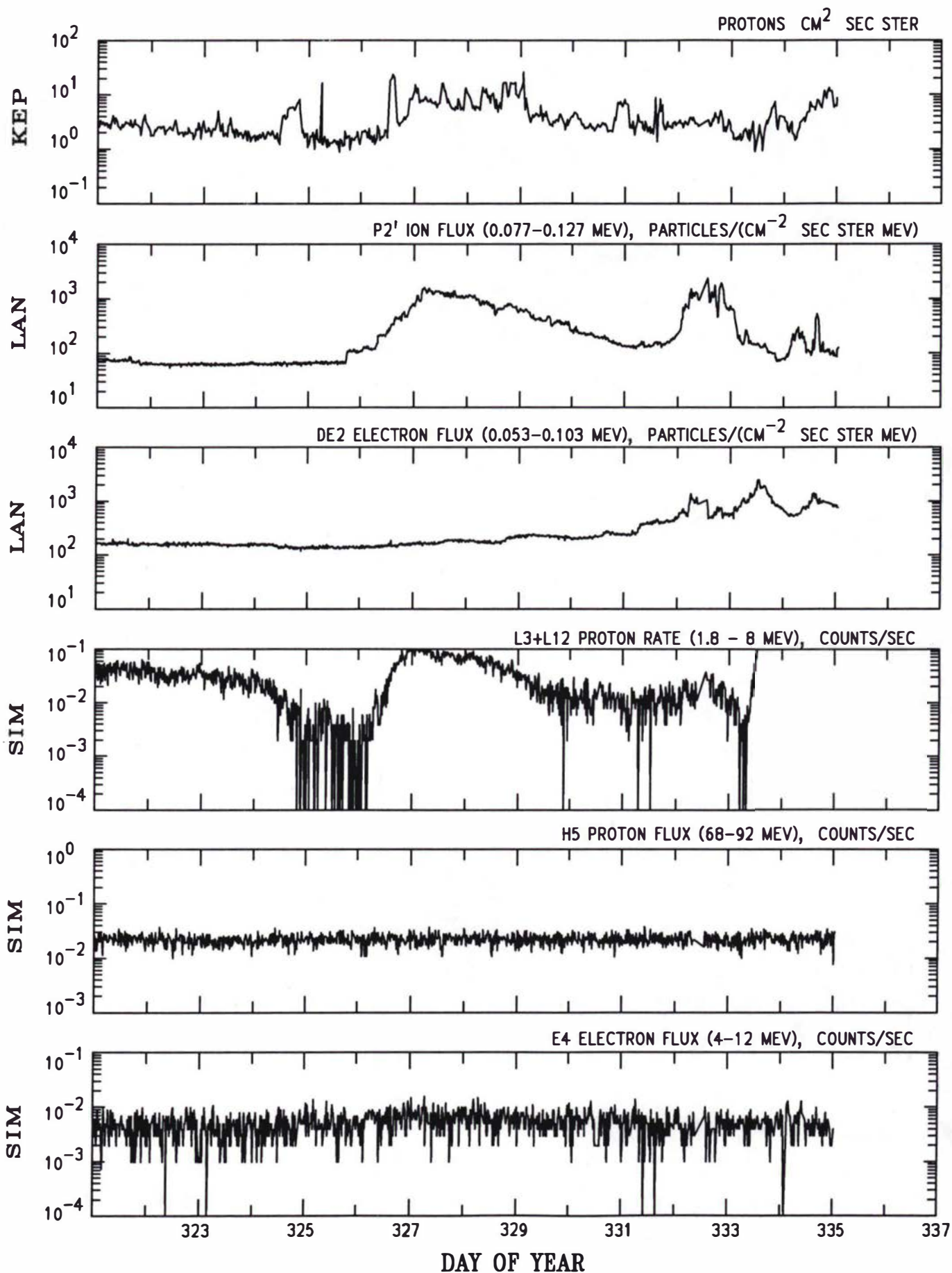
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

90 305 NOV 1 00:00:00.000 - 90 321 NOV 17 00:00:00.000



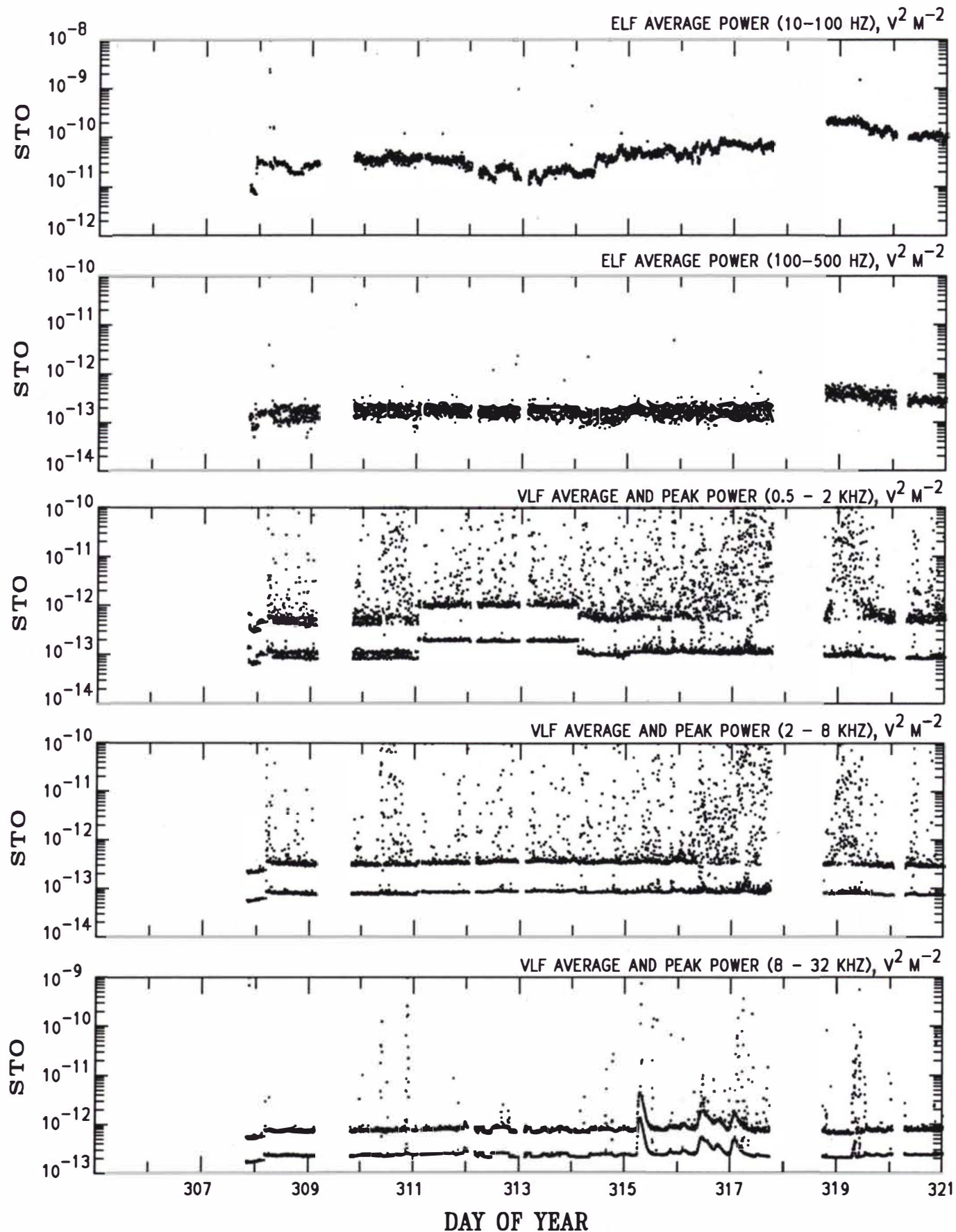
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

90 321 NOV 17 00:00:00.000 - 90 337 DEC 3 00:00:00.000



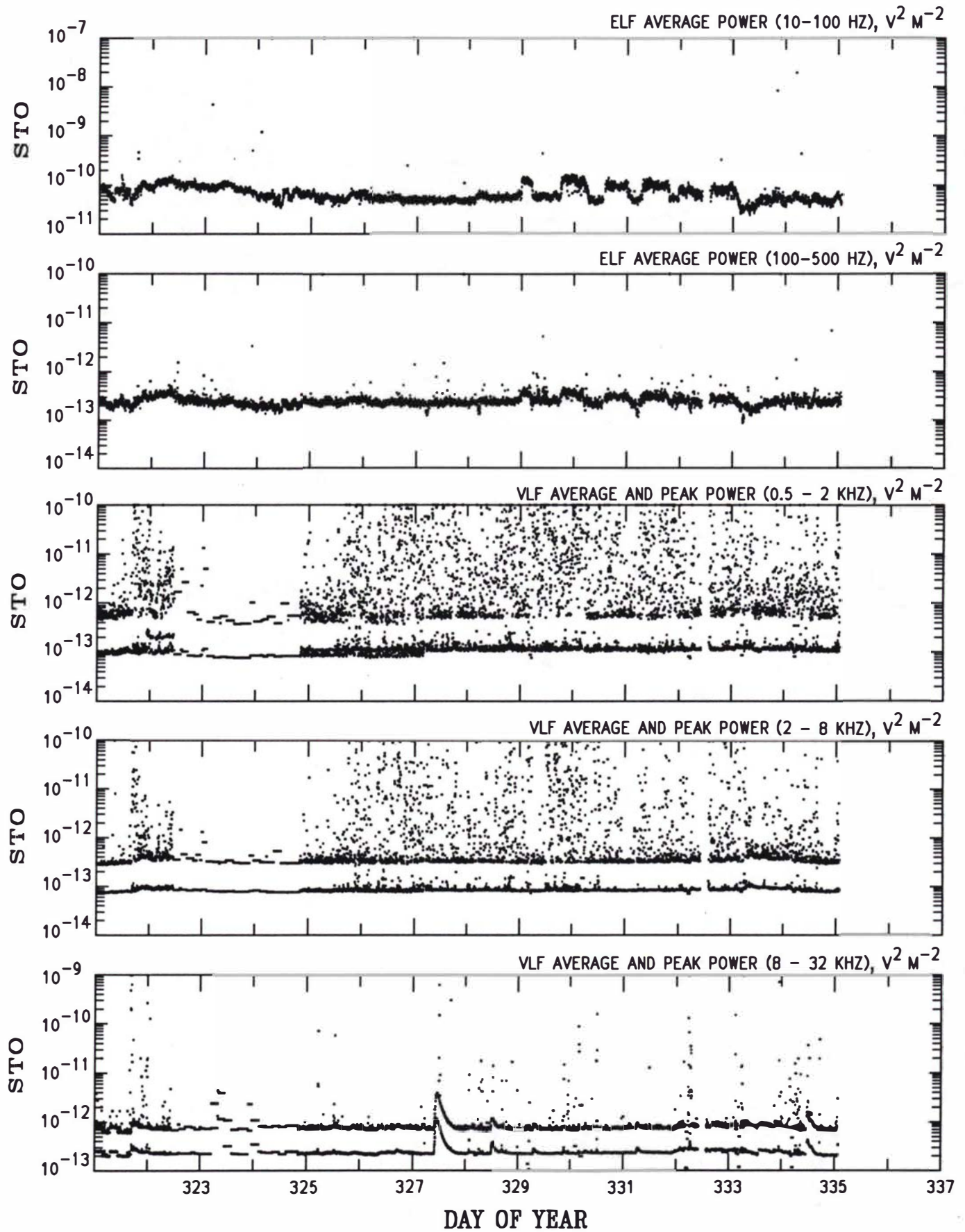
ULYSSES CDR - PLASMA WAVE

90 305 NOV 1 00:00:00.000 - 90 321 NOV 17 00:00:00.000



ULYSSES CDR - PLASMA WAVE

90 321 NOV 17 00:00:00.000 - 90 337 DEC 3 00:00:00.000



.90.305.18.06.41.970 HUS monthly long term thermal data

818 HOLD RET

E002 2ARADTMP S/C

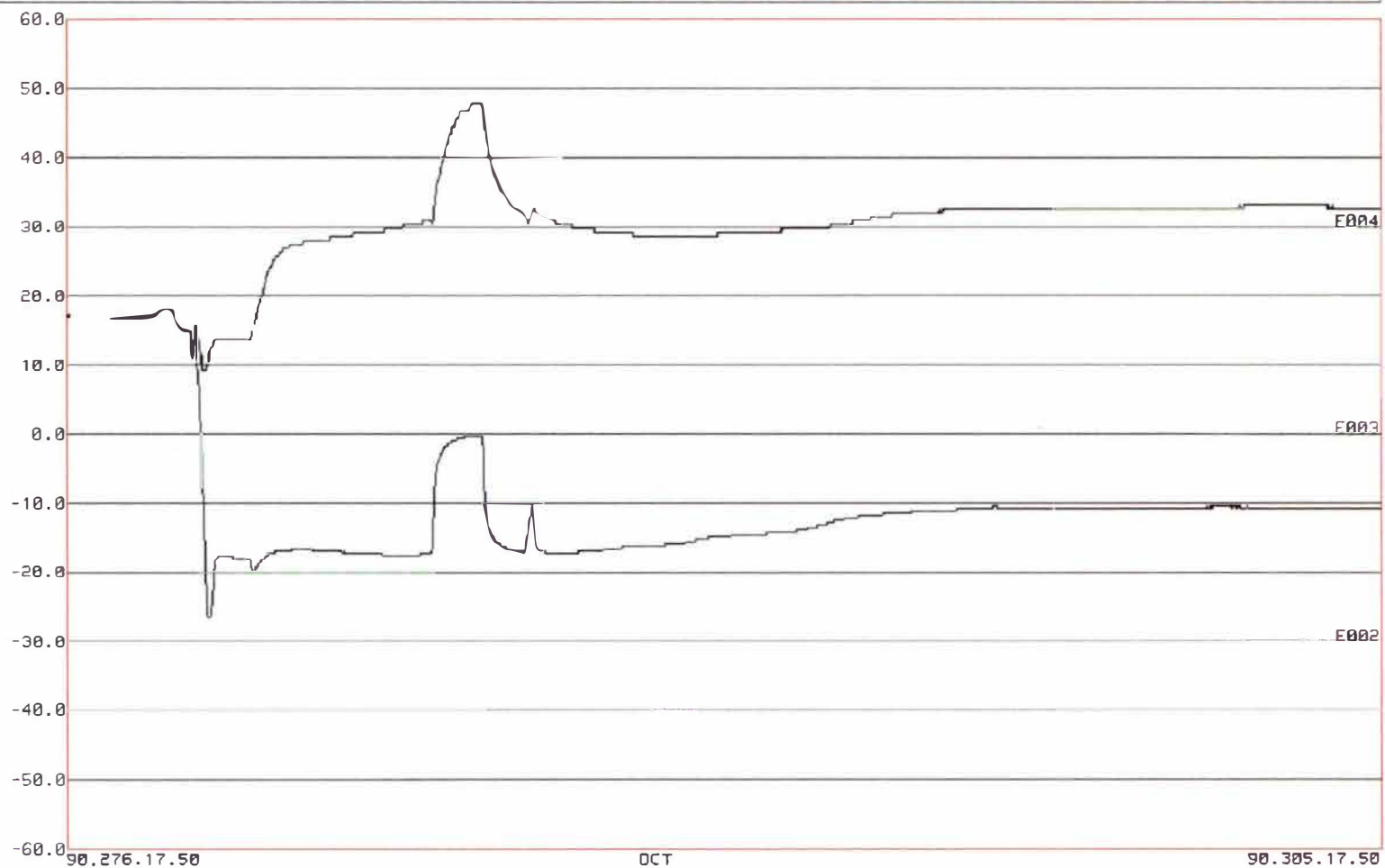
32.6

E003 2BSENTMP S/C

-10.8

E004 2ASENSTMP EX

-99.99



GRB spectrum $kE^{-\alpha}$ phot/ $\text{cm}^2 \text{s keV}$ gives

$$\int_{E_1}^{E_2} kE^{-\alpha} dE A \Delta t_1 \text{ phot} = \frac{k}{-\alpha+1} E^{-\alpha+1} \Big|_{E_1}^{E_2} A \Delta t_1$$

$$= \frac{k}{-\alpha+1} (E_2^{-\alpha+1} - E_1^{-\alpha+1}) A \Delta t_1 \text{ phot}$$

$$\text{In } \text{erg}/\text{cm}^2, \int_{E_1}^{E_2} kE^{-\alpha+1} dE = 1.6 \times 10^{-9} = \frac{k}{-\alpha+2} E^{-\alpha+2} \Big|_{E_1}^{E_2}$$

$$= \frac{k}{-\alpha+2} (E_2^{-\alpha+2} - E_1^{-\alpha+2})$$

Say we require N phot to trigger:

$$\frac{k}{-\alpha+1} (E_2^{-\alpha+1} - E_1^{-\alpha+1}) A \Delta t_1 = N, \text{ or}$$

$$k = \frac{N(-\alpha+1)}{A \Delta t_1 (E_2^{-\alpha+1} - E_1^{-\alpha+1})}$$

$$\text{So in } \text{erg}/\text{cm}^2, \frac{N}{A \Delta t_1} \left(\frac{E_2^{-\alpha+2} - E_1^{-\alpha+2}}{E_2^{-\alpha+1} - E_1^{-\alpha+1}} \right) 1.6 \times 10^{-9}$$

Take $\alpha = 2.2$, $A = 20 \text{ cm}^2$, $E_2 = 150$, $E_1 = 15$, $\Delta t_1 = 0.25$

$$4 \frac{N}{20} \frac{1.2}{0.2} \left(\frac{150^{-0.2} - 15^{-0.2}}{150^{-1.2} - 15^{-1.2}} \right) 1.6 \times 10^{-9}$$

$$4 \frac{N}{20} 6 \left(\frac{0.37 - 0.58}{2.4 \times 10^{-3} - 3.8 \times 10^{-2}} \right) 1.6 \times 10^{-9}$$

$$4 \frac{N}{20} 6 (5.7) 1.6 \times 10^{-9} = 2.2 \times 10^{-8} N$$

If fluence in interval Δt_2 is required, this is $\frac{\Delta t_2}{\Delta t_1} 2.8 \times 10^{-9} N$

Express N in terms of $\# \sigma$ over bkgd B , say $6\sqrt{B}$. B is $\#$ bkgd counts in the trigger interval Δt . Then

$$\text{Flux trigger} = 6 \times 10^{-8} \sqrt{B} \text{ erg/cm}^2 \text{ s}$$

$$\text{Fluence} =$$

Cosmic diffuse background is $167 E^{-1.38} \text{ keV/cm}^2 \text{ s keV sr} \gtrsim 20 \text{ keV}$

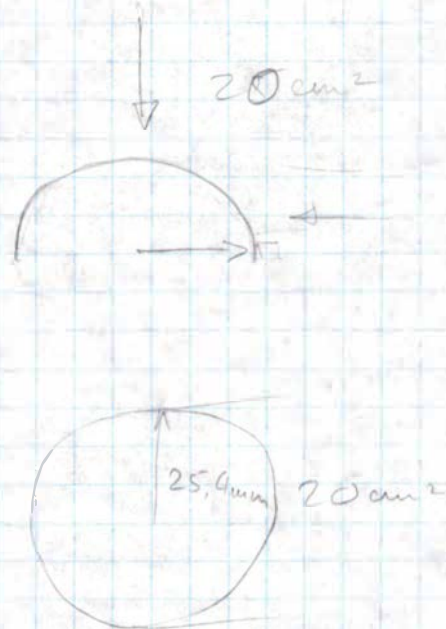
Over 2π , with $\sim 50\%$ projected area, this is

$$\begin{aligned} & 167 \pi E^{-2.38} \text{ phot/cm}^2 \text{ s keV} \\ &= 5.2 \times 10^2 E^{-2.38} \text{ phot/cm}^2 \text{ s keV} \\ &= 2.2 \text{ photons/cm}^2 \text{ s keV at } 10 \text{ keV} \\ & \quad 9.0 \times 10^{-3} \quad \quad \quad \text{at } 100 \end{aligned}$$

Ulysses detectors $25.4 \text{ mm radius} \times 3 \text{ mm CsI(Tl)}$

Projected area of both detectors: 20.25 cm^2

Volume of both detectors: 24.3 cm^3



Photos Lilas 2 Spectrum 17 July 88

1.326 s $\frac{20}{15 \text{ cm}^2} \times 2.5 \text{ cm NaI} = 37.5 \text{ cm}^3$

ΔE	Counts	Total	counts/cm ² s keV	counts/cm ³ s keV
3-4	0			
4-5	3	13	.16	6.4×10^{-2}
5-6	5			
6-7	5			
7-8	14			
8-9	6	59	.6	2.4×10^{-1}
9-10	12			
10-12	27			
12-14	19			
14-16	31			
16-18	22	94	.6	2.4×10^{-1}
18-20	22			
20-22	20			
22-24	34			
24-26	23	110	.7	2.8×10^{-1}
26-28	23			
28-30	12			
30-32	19	56	.35	1.4×10^{-1}
32-34	12			
34-36	13			
36-40	22			
40-44	24			
44-48	14	68	.21	8.4×10^{-2}
48-52	8			
52-56	8			
56-60	16			
60-64	15	44	.14	5.6×10^{-2}
64-68	5			
68-72	7			
72-76	5			
76-80	1	16	.05	2×10^{-2}
80-84	3			
84-88	3			
88-92	9			
92-96	6	23	.07	2.8×10^{-2}
96-100	5			
100-104	4			
104-108	1			
108-112	3	8	.02	8×10^{-3}
112-116	0			
116-120	0			

PVO Background Nov 2 81

E	100-200	200-500	500-1 MeV	1-2 MeV
Counts	345	146	76	26
Δt	5s			

Detectors: 2 3.8 cm dia x 3.2 cm long CsI
 2 11.3 cm² x 3.2 cm (or a total of 22.6 cm²)
 2 36.3 cm³ (total 72.5 cm³)

Spectrum in c/cm ² s keV:	100-200	200-500	500-1 MeV	1-2
	3.0×10^{-2}	4.3×10^{-3}	1.3×10^{-3}	2.3×10^{-4}
in c/cm ³ s keV:	100-200	200-500	500-1 MeV	1-2
	9.5×10^{-3}	1.3×10^{-3}	4.2×10^{-4}	7.2×10^{-5}

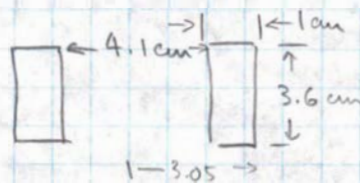
ICE Background Nov 2 81

E	13-22	22-40	40-58	58-75	75-111	111-151	151-187	187-253	253-400
Counts/ Δt	72	86	95	34	39	42	35	14	11

E	400-535	535-812	812-1404
Counts/ Δt	6	10	6

Detector: hollow NaI cylinder.

22 cm² projected side area



$$\text{Volume } \pi (3.05^2 - 2.05^2) 3.6 = 57.6 \text{ cm}^3$$

E	counts/cm ² s keV	counts/cm ³ s keV
13-22	7.3×10^{-2}	2.8×10^{-2}
22-40	4.3×10^{-2}	1.7×10^{-2}
40-58	4.8×10^{-2}	1.8×10^{-2}
58-75	1.8×10^{-2}	6.9×10^{-3}
75-111	9.8×10^{-3}	3.8×10^{-3}
111-151	9.5×10^{-3}	3.6×10^{-3}
151-187	8.8×10^{-3}	3.4×10^{-3}
187-253	1.9×10^{-3}	7.4×10^{-4}
253-400	6.8×10^{-4}	2.6×10^{-4}
400-535	4×10^{-4}	1.5×10^{-4}
535-812	3.3×10^{-4}	1.2×10^{-4}
812-1404	9.2×10^{-5}	3.5×10^{-5}

V13 M1 1 Nov 81

E 50. 75. 123. 316. 521. 732.

↑ k 6239 9023 11519 3355 1259 /120s
ΔE 25 48 193 205 211

4.5 cm rad x 3.7 cm thick
63.6 cm² 235 cm³

V14 13 FEB 82

E 50 72 122 297 503 692

Counts 5247 9151 12415 4095 1783 /120s
ΔE 22 50 175 206 189

V13 counts/cm² s keV

3.3×10^{-2} 2.5×10^{-2} 7.8×10^{-3} 2.1×10^{-3} 7.8×10^{-4}

V14 counts/cm² s keV

3.1×10^{-2} 2.4×10^{-2} 9.3×10^{-3} 2.6×10^{-3} 1.2×10^{-3}

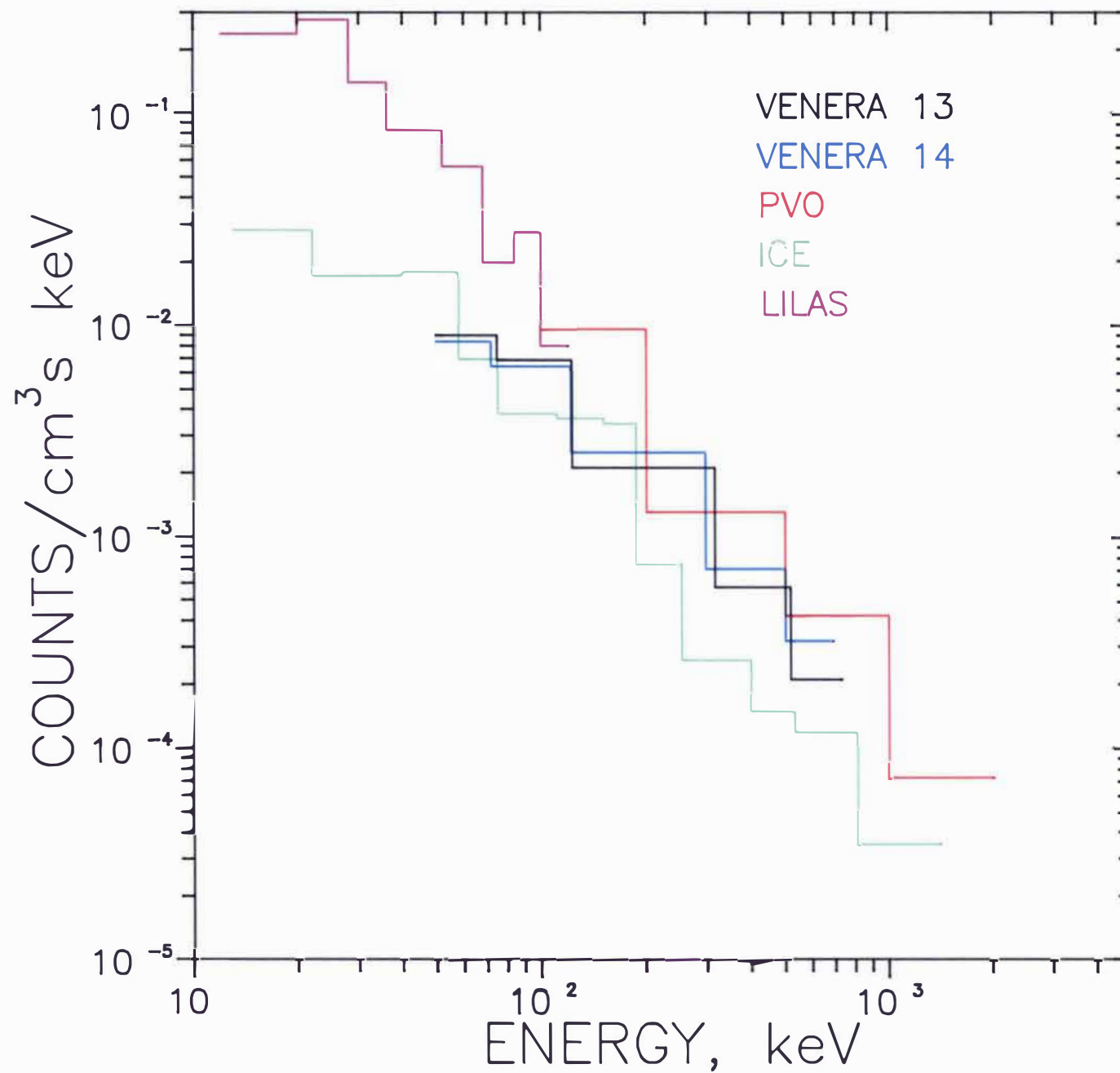
V13 counts/cm³ s keV

8.9×10^{-3} 6.8×10^{-3} 2.1×10^{-3} 5.7×10^{-4} 2.1×10^{-4}

V14 counts/cm³ s keV

8.4×10^{-3} 6.4×10^{-3} 2.5×10^{-3} 7.0×10^{-4} 3.2×10^{-4}

GRB DETECTOR BACKGROUND RATES

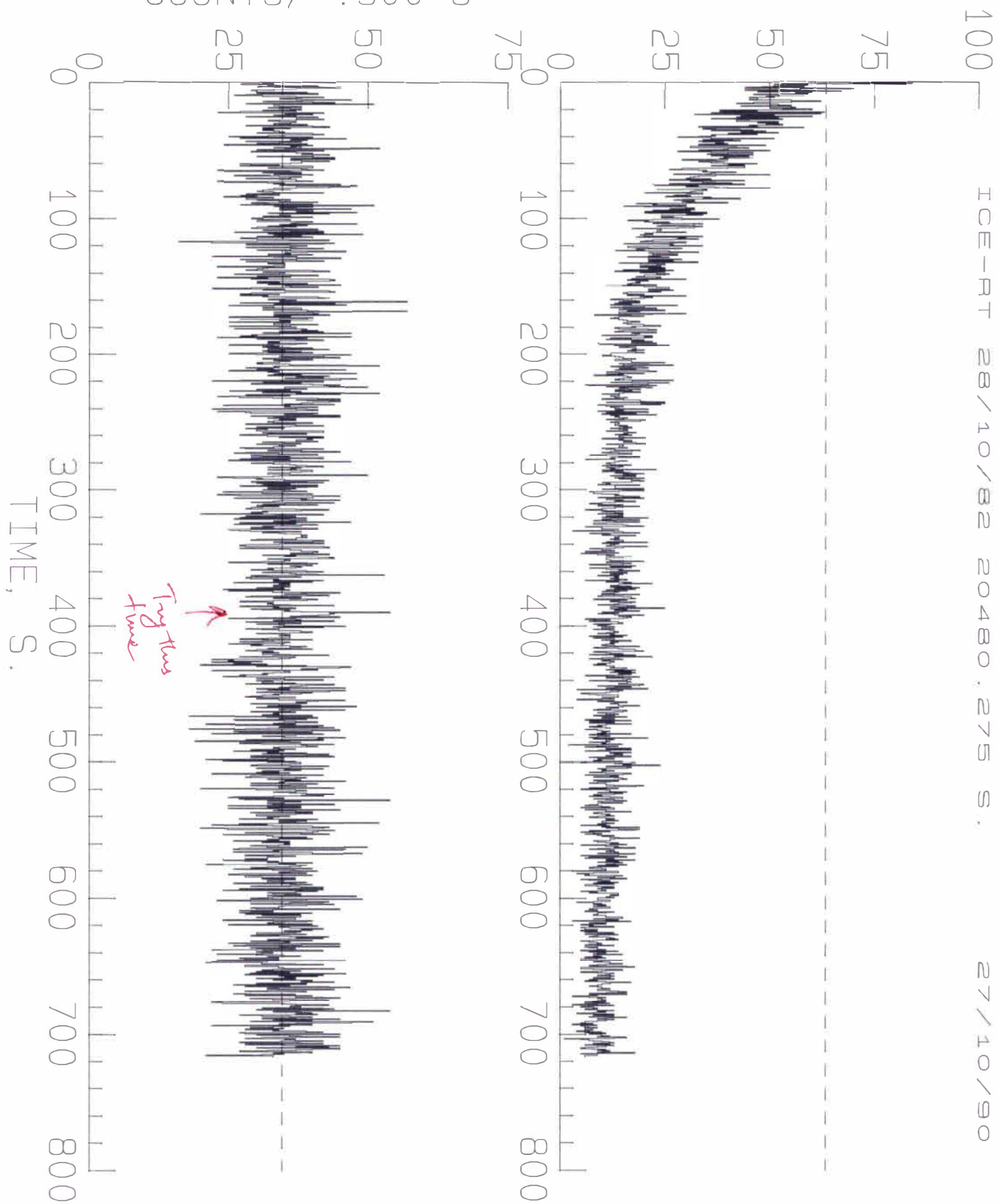


SC1-7 48-672 keV

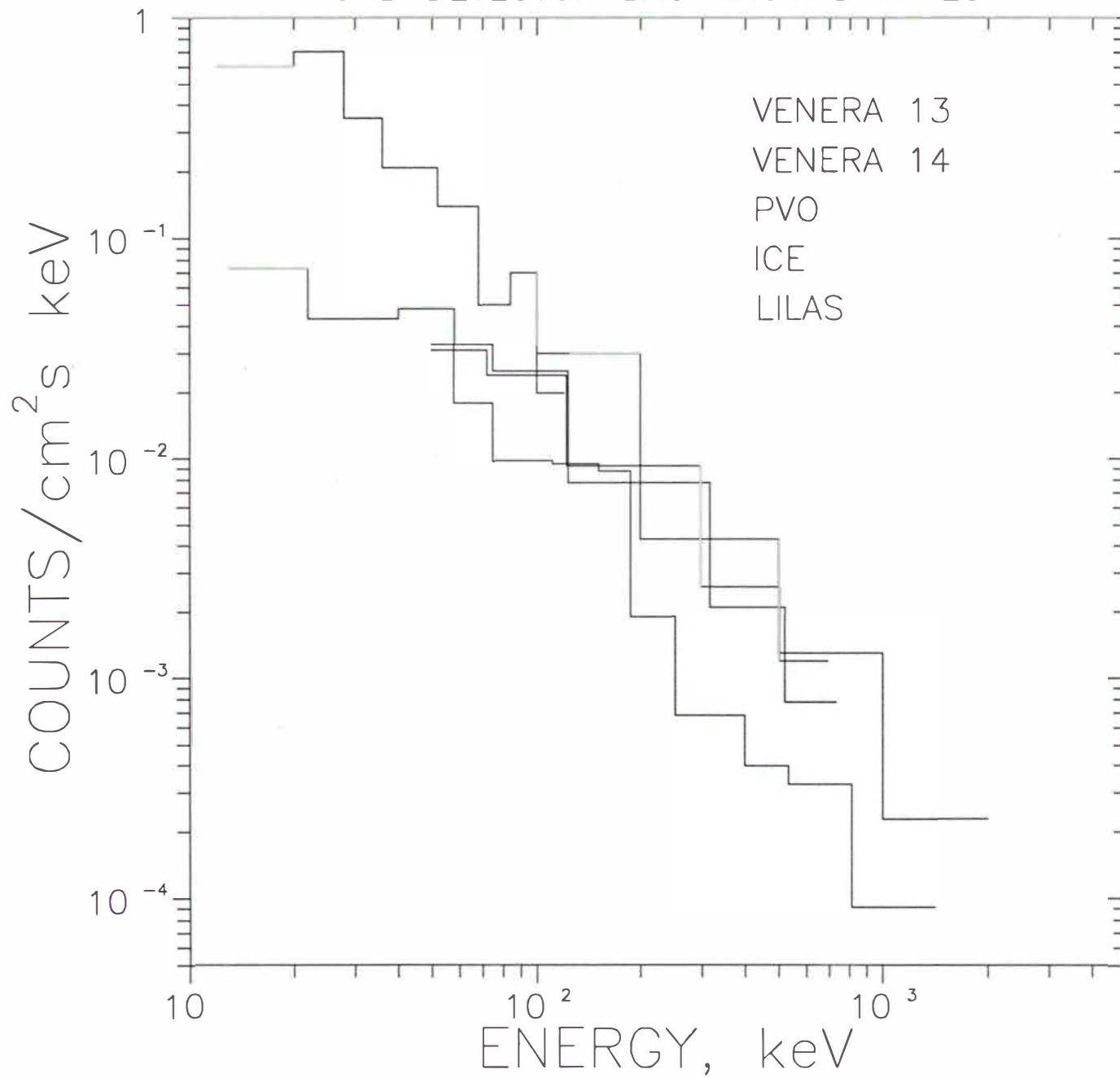
PC1-4 5-10 keV

COUNTS/ .500 S

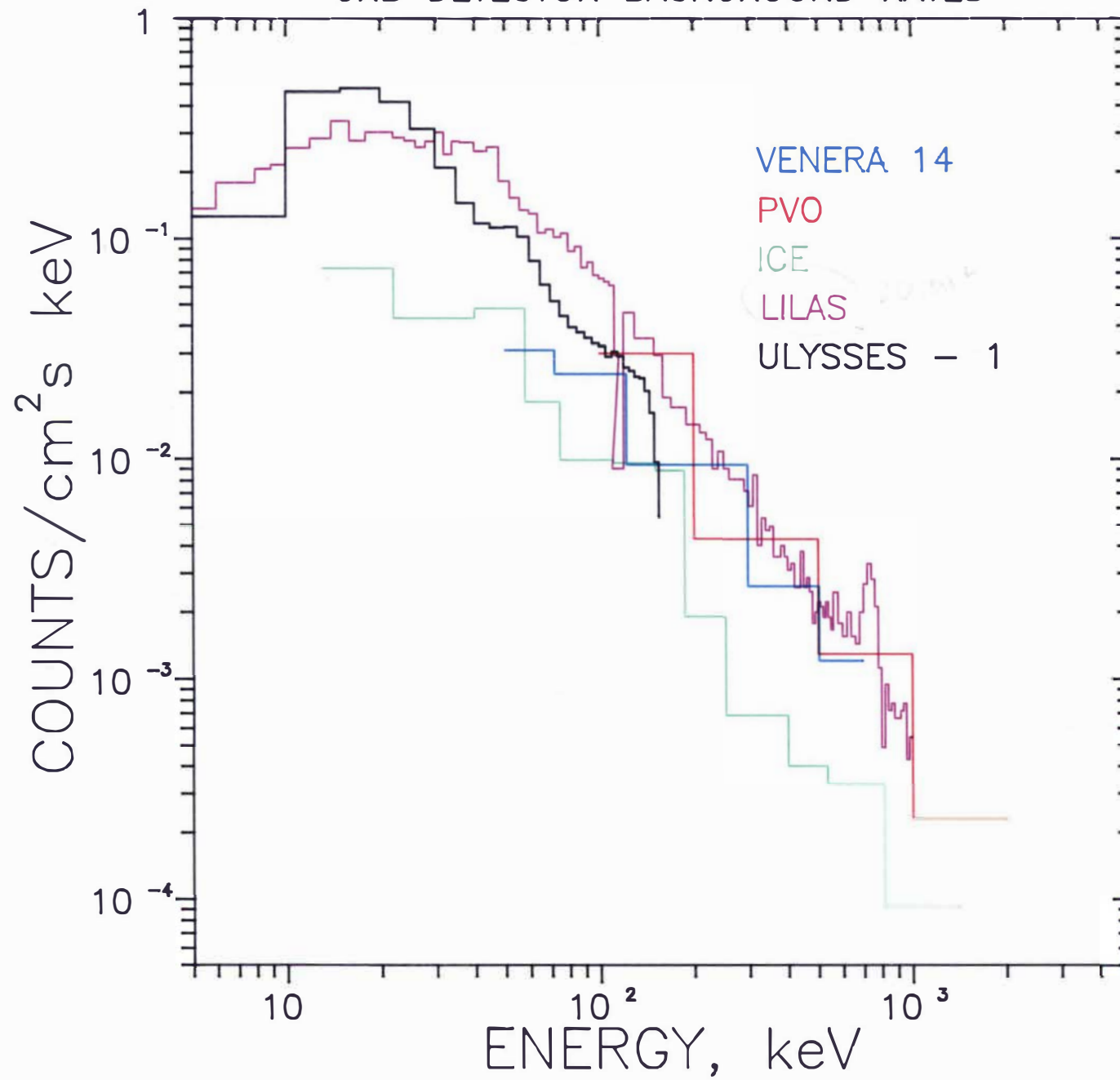
COUNTS/ .500 S

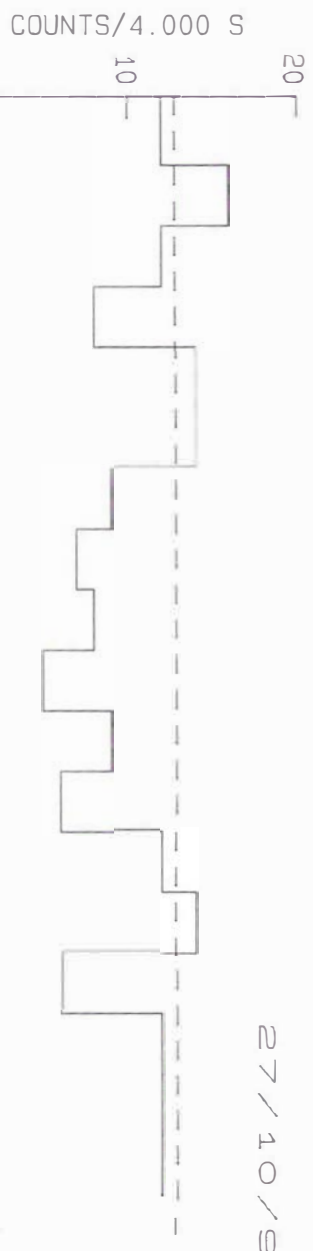
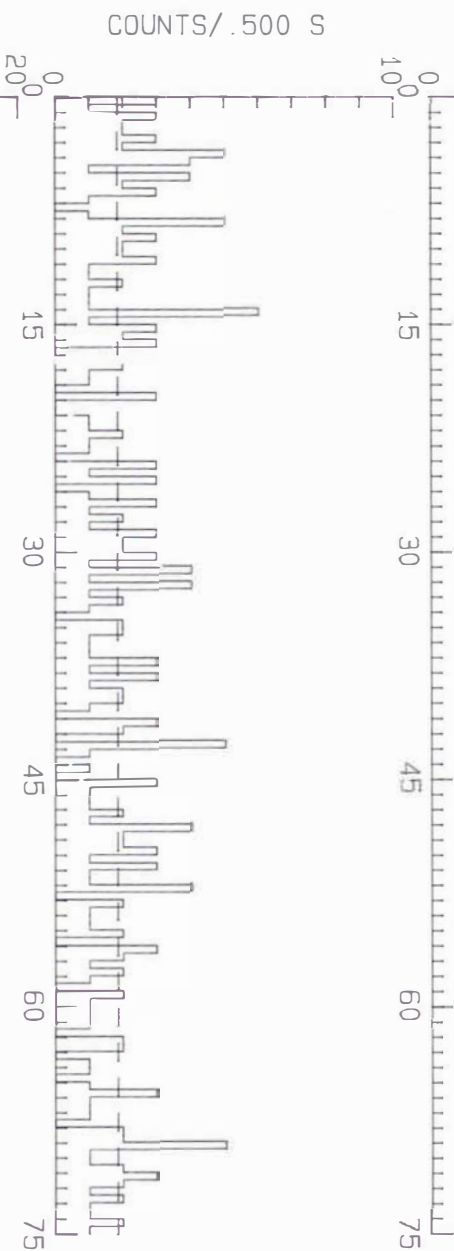
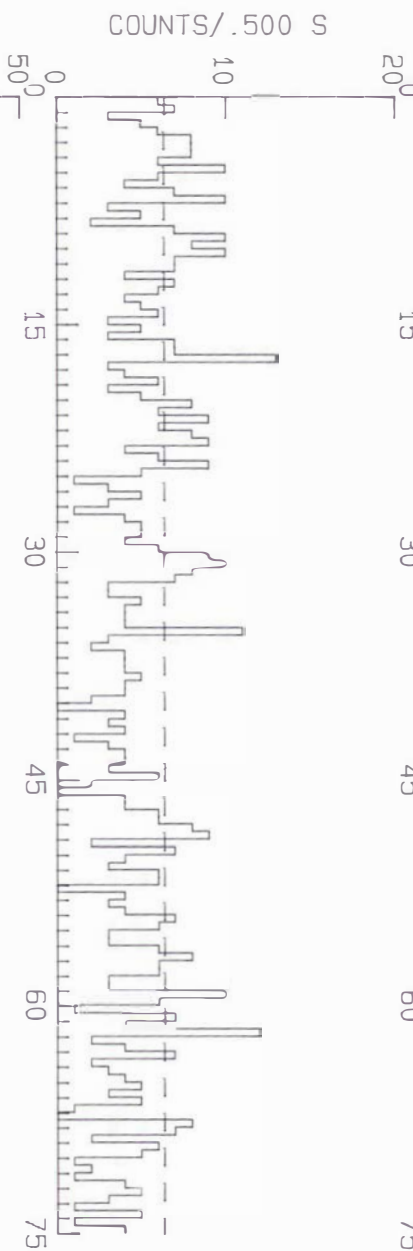
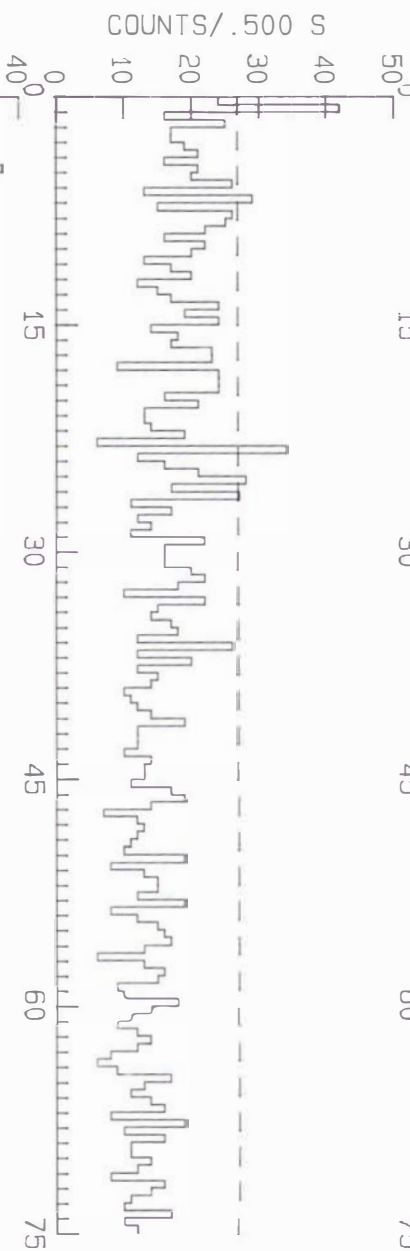
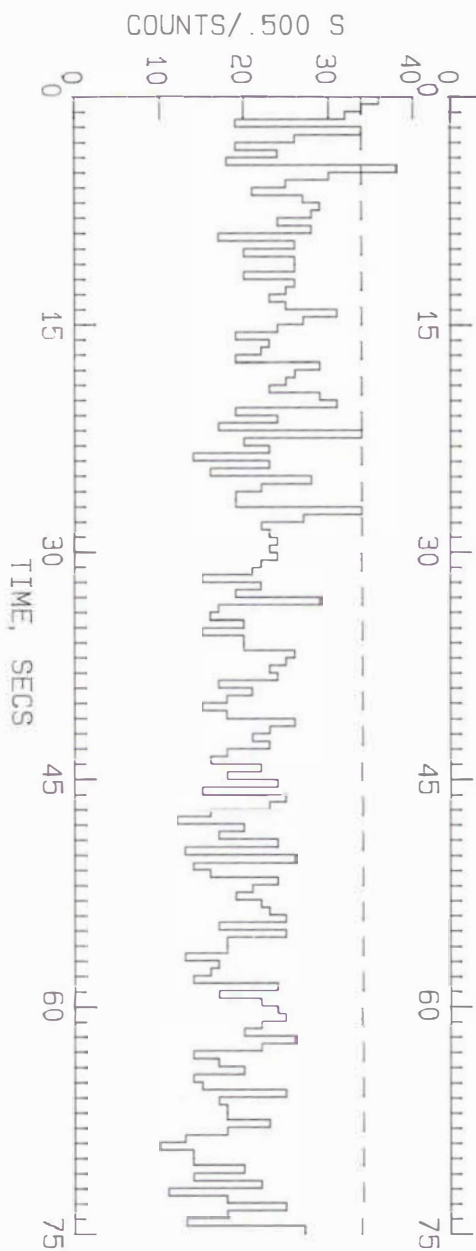


GRB DETECTOR BACKGROUND RATES

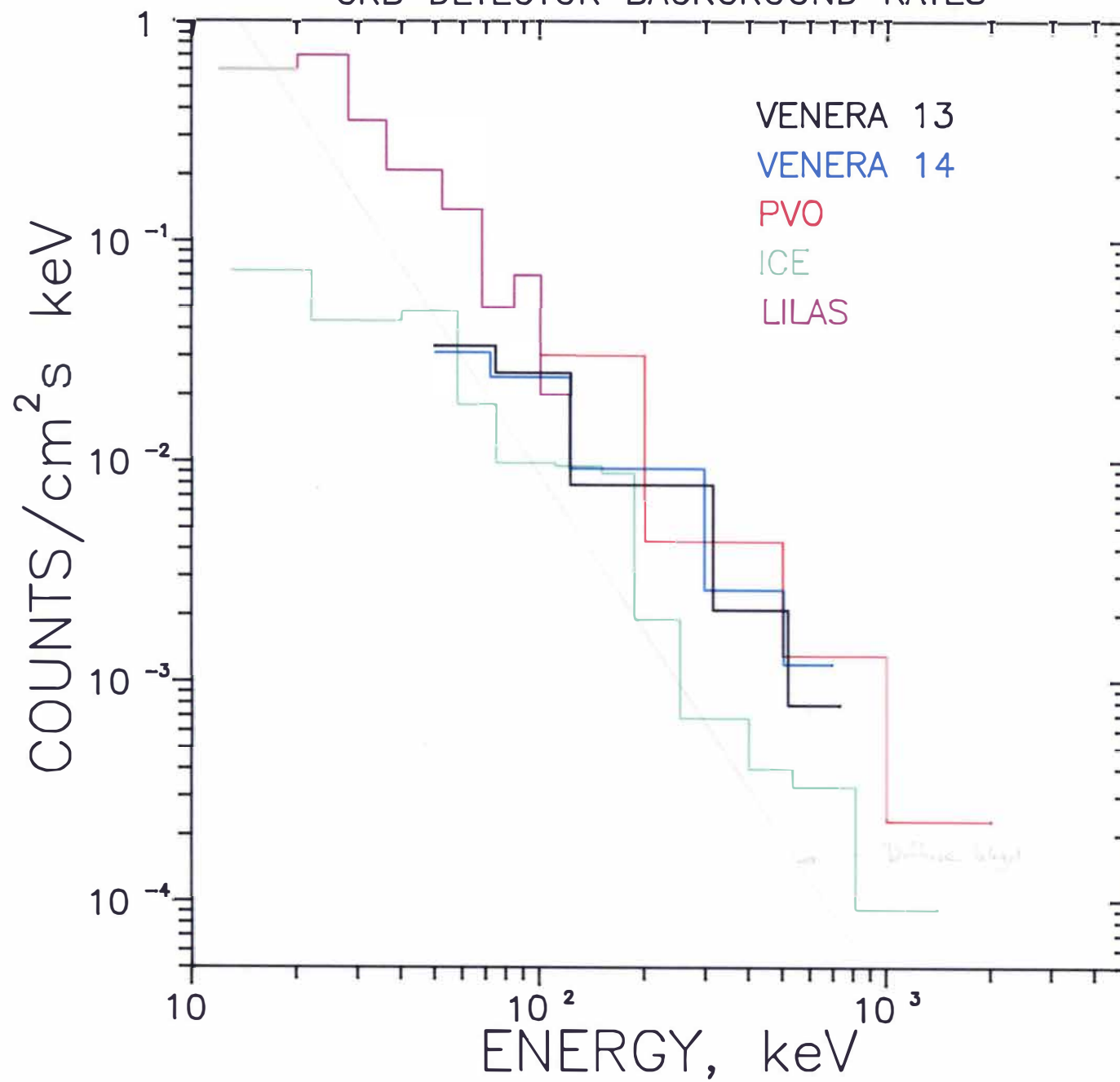


GRB DETECTOR BACKGROUND RATES

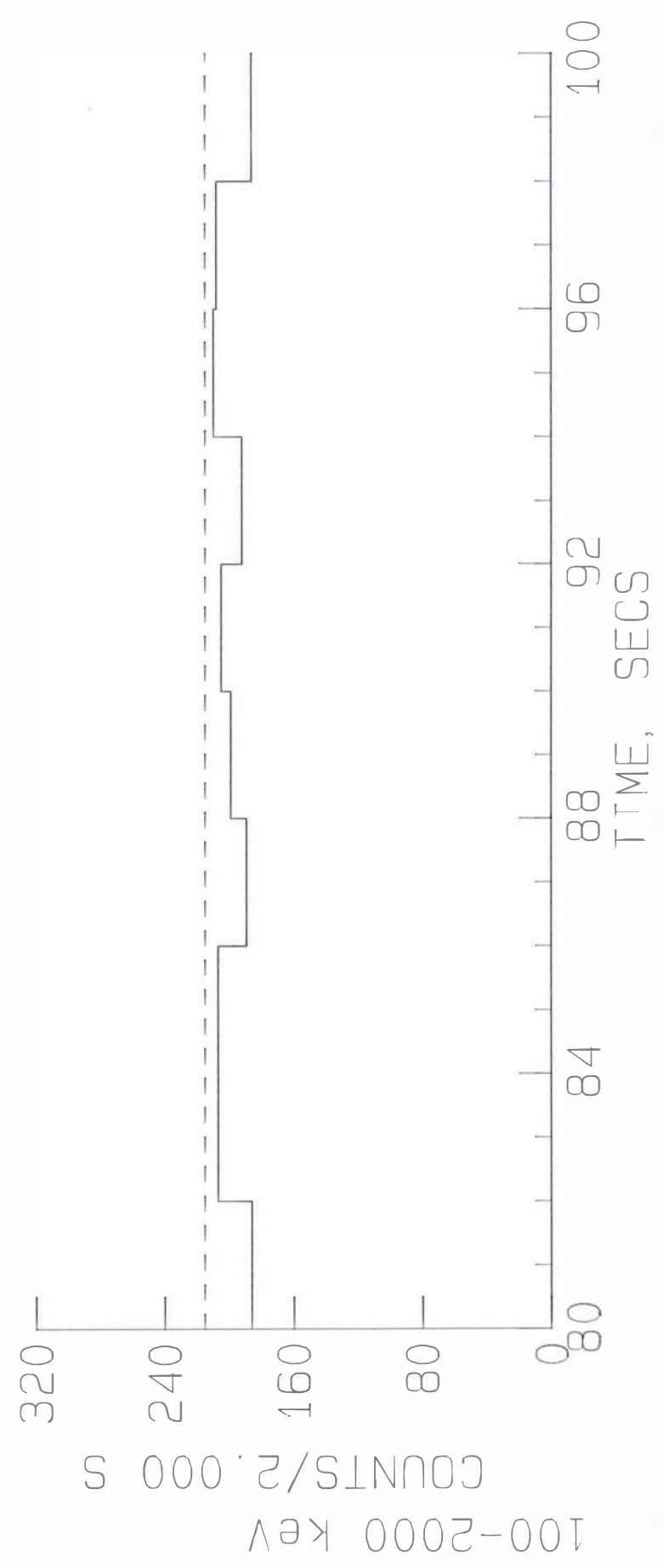


ICE PC5-6 28/10/82
10-14 keVICE PC4 28/10/82
8-10 keVICE PC3 28/10/82
7-8 keVICE PC2 28/10/82
6-7 keVICE PC1 28/10/82
5-6 keV

GRB DETECTOR BACKGROUND RATES



PV0 RT 1/ 4/82 23389.150 S.



From @UCBSP.SSL.BERKELEY.EDU:KHURLEY@JPLGP.SPAN Wed Feb 27 00:57:26 1991
Received: from UCBSP.SSL.BERKELEY.EDU by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA13151; Wed, 27 Feb 91 00:57:20 PST
Message-Id: <9102270857.AA13151@sunspot.ssl.berkeley.edu>
Date: Wed 27 Feb 91 00:56:02-PST
From: \$C <KHURLEY@JPLGP.SPAN>
To: ANDERSON@sunspot.ssl.berkeley.edu
Subject: [Resent-MM Mail] [Resent-MM Mail]
Status: R

Date: Wed 27 Feb 91 00:51:27-PST
From: \$C <KHURLEY@JPLGP.SPAN>
To: MARSHA@UCBSP.SSL.BERKELEY.EDU
Subject: [Resent-MM Mail]

Received: from JPLGP by UCBSP.SSL.BERKELEY.EDU via MAIL-11 with DECnet;
Wed, 27 Feb 91 00:49:35-PST
Date: Wed 27 Feb 91 00:49:35-PST
From: KHURLEY@JPLGP.SPAN
Subject:
To: "UCBSP::KHURLEY"@JPLGP.SPAN

16th Oct. : TCM 1 radial part completed nominally. Spin rate 5.015 rpm.

17th Oct. : UMCS System back-up and maintenance.

18th Oct. : TCM 1 axial part. First part of manoeuvre terminated on-board because Solar Aspect Angle deadbands exceeded. Manoeuvre restarted with a different AOCs configuration. TCM 1 completed nominally.

19th Oct. : Covers released (except LAN).
KEP switched on.
GLG 2W heater not switched on - not required.
BAM-I aperture set to maximum.
KEP platform calibration 1 time-tag commands prepared and transmitted.

20th Oct. : GRU switch-on delayed 1 week because of high sensor temp.
GLG switched on for thermal monitoring. GLG switched off.
KEP platform calibration 2 time-tagged commands prepared and transmitted.

21st Oct. : Weekend monitoring.

22nd Oct. : Weekend monitoring.

23rd Oct. : KEP platform calibration 2 monitored.
SIM switched on. Initial tests performed. KET HVs switched on. HET calibration performed.

X-band calibration manoeuvre performed.
SIM AT and LET calibration time-tagged commands prepared and transmitted.

24th Oct. : SIM checkout and calibrations performed.
KEP -HV test, scan 64, 8*8 time-tag commands prepared and transmitted.

25th Oct. : HED FGM & VHM switch-on successful.
KEP -HV test, scan 64, 8*8. -HV switch-on successful.
KEP +HV test, scan 64, 8*8 time-tag commands prepared and transmitted.

26th Oct. : HED checkout. Analogue despun channels not processed properly

onboard. Processing of digital data on ground must be performed and distributed to scientific community instead. No scientific data lost.

KEP LiF evaporation, -HV test, scan 80, 10*8 time-tagged commands prepared and transmitted.

27th Oct. : KEP LiF evaporation completed. Scan started.
GRU switch-on successful. Channeltron not switched on.

28th Oct. : Weekend monitoring.

29th Oct. : Weekend monitoring.

30th Oct. : GRU checkout continued.

31st Oct. : GRU, HED, KEP & SIM monitored and controlled.

From @UCBSP.SSL.BERKELEY.EDU:KHURLEY@JPLGP.SPAN Wed Feb 27 00:23:26 1991
Received: from UCBSP.SSL.BERKELEY.EDU by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA13122; Wed, 27 Feb 91 00:23:21 PST
Message-Id: <9102270823.AA13122@sunspot.ssl.berkeley.edu>
Date: Wed 27 Feb 91 00:22:02-PST
From: \$C <KHURLEY@JPLGP.SPAN>
To: ANDERSON@sunspot.ssl.berkeley.edu
Subject: [Resent-MM Mail] [Resent-MM Mail]
Status: R

Date: Wed 27 Feb 91 00:19:54-PST
From: \$C <KHURLEY@JPLGP.SPAN>
To: MARSHA@UCBSP.SSL.BERKELEY.EDU
Subject: [Resent-MM Mail]

Received: from JPLGP by UCBSP.SSL.BERKELEY.EDU via MAIL-11 with DECnet;
Wed, 27 Feb 91 00:15:04-PST
Date: Wed 27 Feb 91 00:15:03-PST
From: KHURLEY@JPLGP.SPAN
Subject:
To: "UCBSP::KHURLEY"@JPLGP.SPAN

1st Nov. : GRU, HED, KEP & SIM monitored and controlled.

2nd Nov. : KEP switched off.
TCM 2 performed nominally.

3rd Nov. : SIM switched off.
LAN cover release performed. LAN temperature changes indicate
successful releases.
STO switched on and initial checkout completed successfully.
X-band switched on to monitor boom deployment.
Wire Booms deployed successfully.
X-band switched off.

4th Nov. : Axial Boom Deployed.
KEP & SIM switched on.
HED switched off and back on for STO to monitor noise levels.
Unexpected nutation build up over several hours after boom
deployment. Maximum of about 0.5 deg cone angle. Spacecraft
switched to 1024 bps Eng. at 0230 GMT (doy 309) to monitor
overnight.

5th Nov. : Spacecraft switched back to 1024 bps Sci. at 1845 GMT.

6th Nov. : GLG switch on successfully.
GRU channeltron switched on.
STO checkout continued.
Switched to 1024 bps Eng. at 0145 GMT (doy 311).
Further analysis of the nutation.
Switched to 1024 bps Sci. at 0310 GMT.

7th Nov. : GLG DPPS switched to mode 1. MCP switched on.
STO Sounder test performed.
Switched to 1024 bps Eng. at 0040 GMT (doy 312).
1 pulse manoeuvre performed successfully.
Switched to 1024 bps Sci. at 0340 GMT.

8th Nov. : GLG MCP switched to level 2, PAPS switched on to 8 kV.
STO checkout continued.
Switched to 1024 bps Eng. at 2230 GMT.
Two 1 pulse spacecraft dynamics assessment manoeuvres
performed. Nutation damped briefly, but spacecraft seems

stable at about 0.35 degrees maximum half-cone angle.
Switched to 1024 bps Sci. at 0215 GMT (doy 313).

9th Nov. : HUS switched on successfully after some problems with wrong spacecraft data handling configuration. Redundant experiment interface had been configured so no data was being read into telemetry. HUS HV on.
GLG PAPS switched to 11.5 kV.

10th Nov. : HUS checkout continued. Burst mode tested.
STO FES checkout continued.
KEP GAS sequences continued.
GLG MCP switched to level 3, PAPS to 14.0 kV.

11th Nov. : Weekend monitoring.
12th Nov. Weekend monitoring.

13th Nov. : LAN switch-on delayed.
Switched to 1024 bps Eng. at 1740 GMT.
X-band on. S-band telemetry.
Nutation angle found to be about 2 deg. half cone angle from ground AGC levels and further study of the sun sensor data.
2 Slew manoeuvres performed successfully.
Spin rate changed to 4.9 rpm but nutation increased significantly. Spin correction to 4.99 rpm decreased nutation again. Spacecraft monitored overnight in Eng.

14th Nov. : Switched to 1024 bps Sci. at 1720 GMT.
LAN switched on successfully.
GLG PAPS switched to 15.4 kV.
X-band switched off for thermal reasons.

15th Nov. : LAN checkout.
Switched to 1024 bps Eng. at 0100 GMT (doy 320).
Performed spin up to 5.1 rpm in 2 steps. Nutation decreased from 4.38 to 3.1 deg full cone in 4 hours.
Switched to 1024 bps Sci. at 0630 GMT (doy 320).

16th Nov. : BAM-E switched on.
BAM-I switched on.
GLG PAPS to 17.9 kV.

17th Nov. : Performed spin up to 5.1 rpm.
BAM-E & BAM-I checkout.

18th Nov. : Weekend monitoring.
19th Nov. Weekend monitoring.

20th Nov. : Monitor and control of experiments.
Earth pointing manoeuvre.
Nutation levels of 2.4 to 3.5 degrees since spin-up. Cyclic variation with a period of about 22 hours. Very slight overall downward trend.

21st Nov. : Monitor and control of experiments.
Thermal reconfiguration.

22nd Nov. : Monitor and control of experiments.

23rd Nov. : Monitor and control of experiments.

24th Nov. : Weekend monitoring.
25th Nov. Weekend monitoring.

26th Nov. : Monitor and control of experiments.
Earth pointing manoeuvre.

Spin-up manoeuvre not performed because of concerns that the axial boom may go into resonance. Discussion is ongoing as to the best course of action.

NOTE : SPIN RATE IS STILL 5.2 RPM.

The theory is that energy is supplied to the spacecraft from the solar radiation pressure acting on the non-symmetric axial boom. If this is true, then the energy input will reduce as the solar aspect angle decreases, particularly when the boom is shadowed by the body of the spacecraft (SAA less than 7 degrees).

It is also suggested that the nutation level as calculated from the sun sensor data should include a further factor which increases as the solar aspect angle decreases. This factor, currently calculated to be 2.5, implies that the half-cone nutation angle is at present between 2.75 and 3.0 degrees and reducing only very slowly.

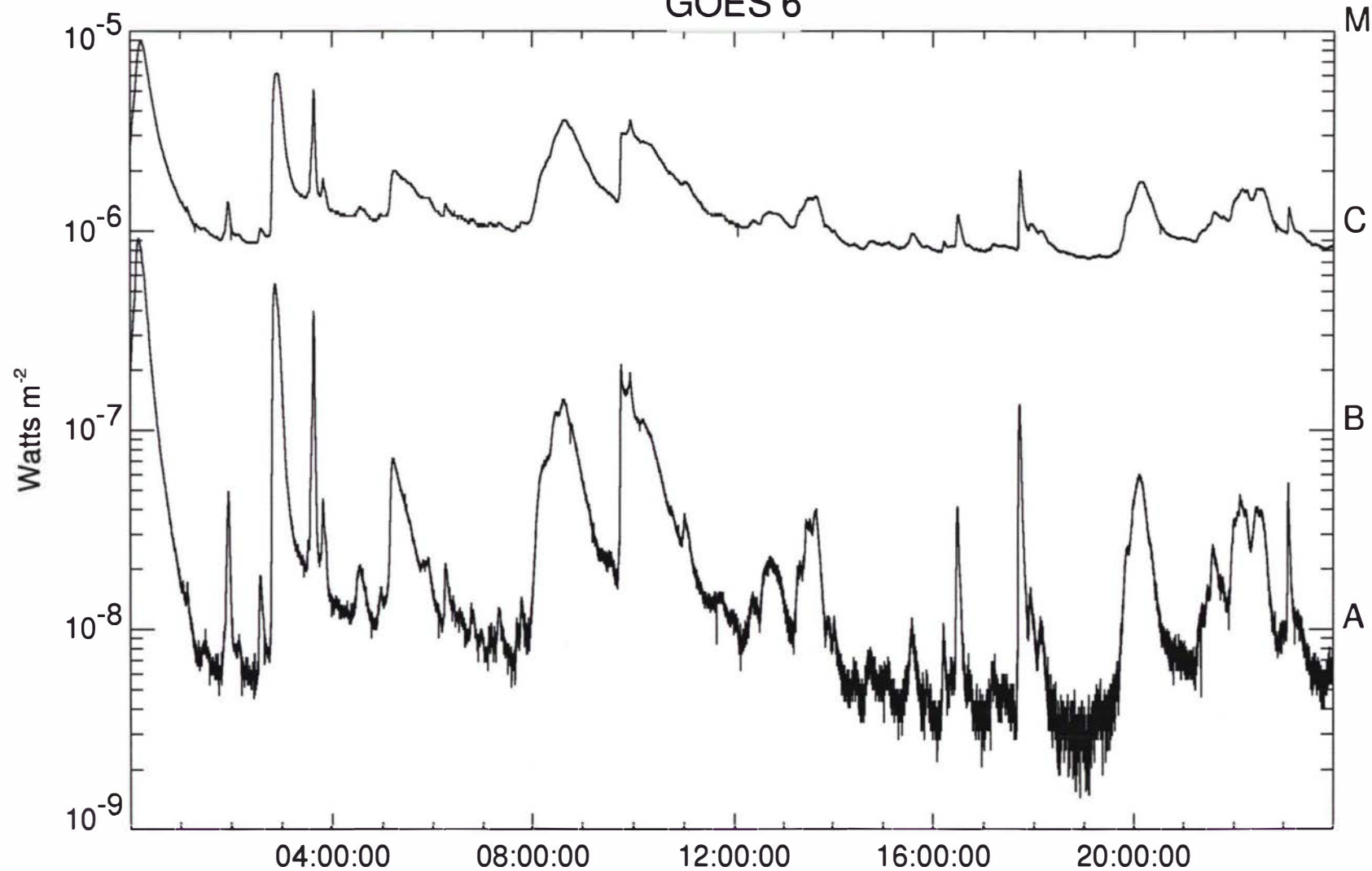
- 27th Nov. : Monitor and control of experiments.
- 28th Nov. : Monitor and control of experiments.
Data gap from approx. 09:45 - 13:25 GMT. Part of DSS 12 pass given to Galileo so that they can perform vital operations before Earth flyby.
- 29th Nov. : Monitor and control of experiments.
Tape recorder operations :

333:07:12:11 512 bps Sci.
333:07:20:43 Record
333:13:08:59 2048 bps interleaved 1:1 (1024 bps real-time tm)
333:13:21:47 Playback
333:16:30:03 1024 bps Sci.
- Please check your data for this period since this is the first processed playback data.
- Axial boom motor powered for 30 minutes starting 333:22:30. Nutation level decreased from 4.3 to 3.4 deg full-cone over the next few hours, then increased again to around 3.9 deg. After 24 hours, it seems that the level is not returning to 4.3 deg.
- 30th Nov. : Monitor and control of experiments.
GLG PAPS to 20..3 kV
Earth pointing manoeuvre.

RESULT OF SEARCH FOR COMMANDS WITH HUS

Command	Description	One-way light time	S t a t i o n	D e c o d e r	Transmission time (or onboard execution time, if time-tagged)
Z127	HUS ON	00:01.45	42	1	313.17.41.32
Z128	HUS OFF	00:01.45	42	1	313.18.32.49
Z127	HUS ON	00:01.45	42	1	313.18.53.10
Z019 4080	HUS 2	00:01.45	42	1	313.18.58.09
Z019 1080	HUS 2	00:01.45	42	1	313.19.04.05
Z018 0044	HUS 1	00:01.45	42	1	313.19.17.40
Z128	HUS OFF	00:01.45	42	1	313.19.30.30
Z326	HUS REDUND	00:01.45	42	1	313.20.24.41
Z127	HUS ON	00:01.46	61	1	313.23.44.25
Z018 FFF7	HUS 1	00:01.46	61	1	314.00.07.12
Z018 FFF6	HUS 1	00:01.46	61	1	314.00.07.27
Z018 0044	HUS 1	00:01.46	61	1	314.00.07.43
Z019 04F0	HUS 2	00:01.46	61	1	314.00.33.22
Z019 0103	HUS 2	00:01.46	61	1	314.00.33.37
Z019 4032	HUS 2	00:01.46	61	1	314.00.33.53
Z019 1032	HUS 2	00:01.46	61	1	314.00.34.08
Z018 0205	HUS 1	00:01.46	61	1	314.00.49.46
Z018 0005	HUS 1	00:01.46	61	1	314.01.34.56
Z019 01F2	HUS 2	00:01.48	42	1	314.18.14.23
Z019 0106	HUS 2	00:01.48	42	1	314.18.24.37
Z018 0105	HUS 1	00:01.48	42	1	314.18.34.50
Z018 0005	HUS 1	00:01.48	42	1	314.18.44.23
Z019 0108	HUS 2	00:01.48	42	1	314.19.25.55
Z019 0103	HUS 2	00:01.48	42	1	314.20.01.43
Z018 06C6	HUS 1	00:01.48	42	1	314.20.01.58
Z018 1087	HUS 1	00:01.48	42	1	314.20.02.14
Z018 1207	HUS 1	00:01.49	61	1	314.22.23.33
Z018 0706	HUS 1	00:01.49	61	1	314.22.23.49
Z018 13C7	HUS 1	00:01.49	61	1	314.23.55.51
Z018 0746	HUS 1	00:01.49	61	1	314.23.56.06
Z019 0107	HUS 2	00:01.49	61	1	315.00.14.56
Z019 0103	HUS 2	00:01.49	61	1	315.00.36.30
Z018 FFC7	HUS 1	00:01.49	61	1	315.00.48.30
Z018 0786	HUS 1	00:01.49	61	1	315.00.48.46
Z018 0746	HUS 1	00:02.03	42	1	319.20.55.51
Z018 8005	HUS 1	00:02.08	42	1	321.19.27.45
Z018 4005	HUS 1	00:02.08	42	1	321.19.28.00
Z018 0005	HUS 1	00:02.08	42	1	321.19.28.16

GOES 6



Data Start: 90/11/09, 0000:01

Plot created: 96/05/23, 1818

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

DAY 313

OPERATION MODE CHANGES

loadData_DHM: opmode chg, new_val=1 at 1289330563, 2281 (hourUT=19.378611)
19:22:43

loadData_DHM: opmode chg, new_val=0 at 1289331331, 3534 (hourUT=19.591944)
19:35:31

```

selectData_2BR: reqBg, cur, reqEd = 1289268737 1072693248 1289346947
selectData_2BR: reqBg, cur, reqEd = 32662 15729 29229
loadData_AHV: new volts = 0.560000 at 1289268769,32662 (hourUT= 2.213611)
HUS-AHV status: echan= 25 new_val= 1 at: 1289268897, 32662
HUS-AHV status: echan= 27 new_val= 1 at: 1289268897, 32662
loadData_AHV: new volts = 6.000000 at 1289324834,58625 (hourUT=17.787222)
loadData_AHV: new volts = 0.560000 at 1289327906,63639 (hourUT=18.640556)
loadData_AHV: new volts = 4.800000 at 1289328930,65310 (hourUT=18.925000)
loadData_AHV: new volts = 6.000000 at 1289329187, 192 (hourUT=18.996389)
HUS-AHV status: echan= 21 new_val= 1 at: 1289330563, 2281
loadData_AHV: new volts = 0.600000 at 1289331235, 3534 (hourUT=19.565278)
HUS-AHV status: echan= 21 new_val= 0 at: 1289331331, 3534
loadData_AHV: new volts = 6.000000 at 1289346595,28393 (hourUT=23.831944)
selectData_2BR: reqBg, cur, reqEd = 1289268737 1289346979 1289346947
selectData_2BR: reqBg, cur, reqEd = 32662 29229 29229
selectData_2BR: reqBg, cur, reqEd = 1289268737 1289347107 1289346947
selectData_2BR: reqBg, cur, reqEd = 32662 29229 29229
selectData_2BR: reqBg, cur, reqEd = 1289268737 1289347139 1289346947
selectData_2BR: reqBg, cur, reqEd = 32662 29229 29229
selectData_2BR: reqBg, cur, reqEd = 1289268737 1289347203 1289346947
selectData_2BR: reqBg, cur, reqEd = 32662 29229 29229

```

? Expt wasn't
turned on
yet

TREND LOG

SUPPRESS PAR VAL CHK: Y SUPPRESS TLM QUAL CHK: Y SAMPLE FREQUENCY: 1

START TIME: 90.314.00.00 END TIME: 90.315.00.00

TIME	S/C CLOCK Q	E039 CNT	E040 CNT	E041 CNT	E042
314.00.00.03	1477440 G	0	0	0	13166
314.18.37.24	1510960 G	0	0	0	1782
314.18.39.00	1511008 G	1	0	0	1782
314.18.39.32	1511024 G	1	228	0	1782
314.18.41.40	1511088 G	1	228	96	1782
314.20.08.04	1513680 G	1	228	96	14704
314.20.08.36	1513696 G	1	228	96	14704
314.20.09.08	1513712 G	2	90	96	14704
314.20.11.17	1513776 G	2	90	119	14704
314.20.49.41	1514928 G	2	90	119	29679
314.20.51.17	1514976 G	3	90	119	29679
314.20.51.49	1514992 G	3	214	119	29679
314.20.53.57	1515056 G	3	214	110	29679
314.21.33.25	1516240 G	3	214	110	6392
314.21.34.29	1516272 G	3	50	110	6392
314.21.36.37	1516336 G	3	50	3	6392
314.21.38.13	1516384 G	4	50	3	6392
314.22.17.09	1517552 G	4	50	3	2235
314.22.19.17	1517616 G	4	50	49	2235
314.22.20.53	1517664 G	5	50	49	2235
314.22.21.25	1517680 G	5	30	49	2235
314.23.15.49	1519312 G	5	30	49	19736
314.23.19.01	1519408 G	5	30	9	19736
314.23.20.37	1519456 G	6	30	9	19736
314.23.21.09	1519472 G	6	222	9	19736

--- PRINTOUT COMPLETED ---

TREND LOG

SUPPRESS F/R VAL CHG: 1 E-R: 0.00 12.4 0.00 1.00: 1.00 1.00 1.00 1.00
START TIME: 90.314.00.00 END TIME: 90.315.09.00

TIME	S/C (LON G)	E016 BEST	E017 READ
314.00.00.03	1427440 G	OFF	OFF
314.18.37.56	1510972 G	ON	OFF
→ 314.18.46.28	1511392 G	ON	ON
314.19.20.36	1512.58 G	OFF	OFF
314.20.07.32	1513664 G	ON	OFF
→ 314.20.16.05	1513920 G	ON	ON
314.20.50.13	1514944 G	ON	OFF
→ 314.20.58.45	1515200 G	ON	ON
314.21.32.53	1516224 G	OFF	OFF
314.21.37.09	1516352 G	ON	OFF
→ 314.21.45.41	1516608 G	ON	ON
314.22.15.33	1517504 G	OFF	OFF
314.22.19.47	1517832 G	ON	OFF
→ 314.22.28.21	1517888 G	ON	ON
314.23.02.29	1518912 G	OFF	OFF
314.23.19.30	1519434 G	ON	OFF
→ 314.23.28.05	1519680 G	ON	ON
314.23.57.57	1520576 G	OFF	OFF

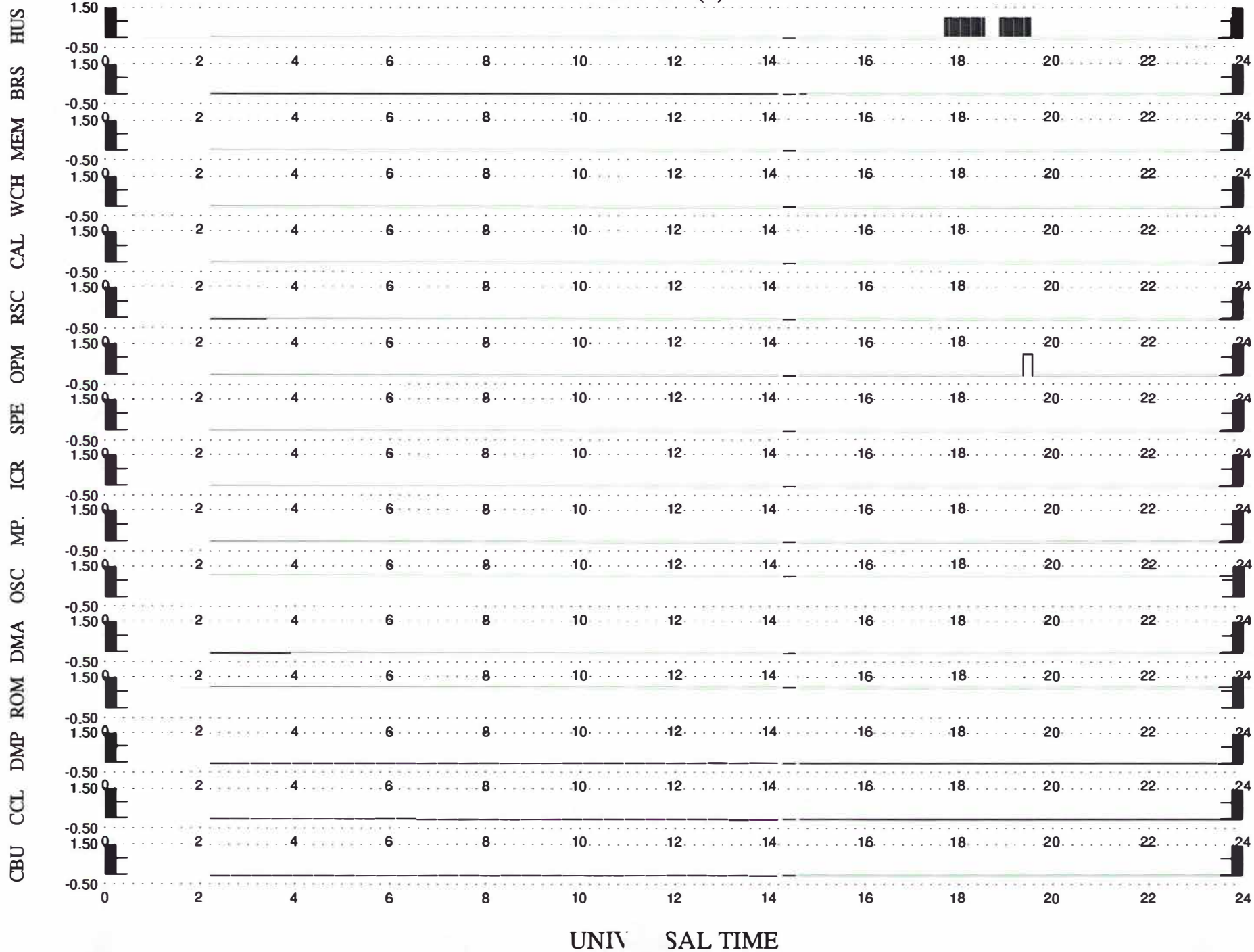
--- PRINTOUT COMPLETED ---

Fax Nigel Request for trend plot

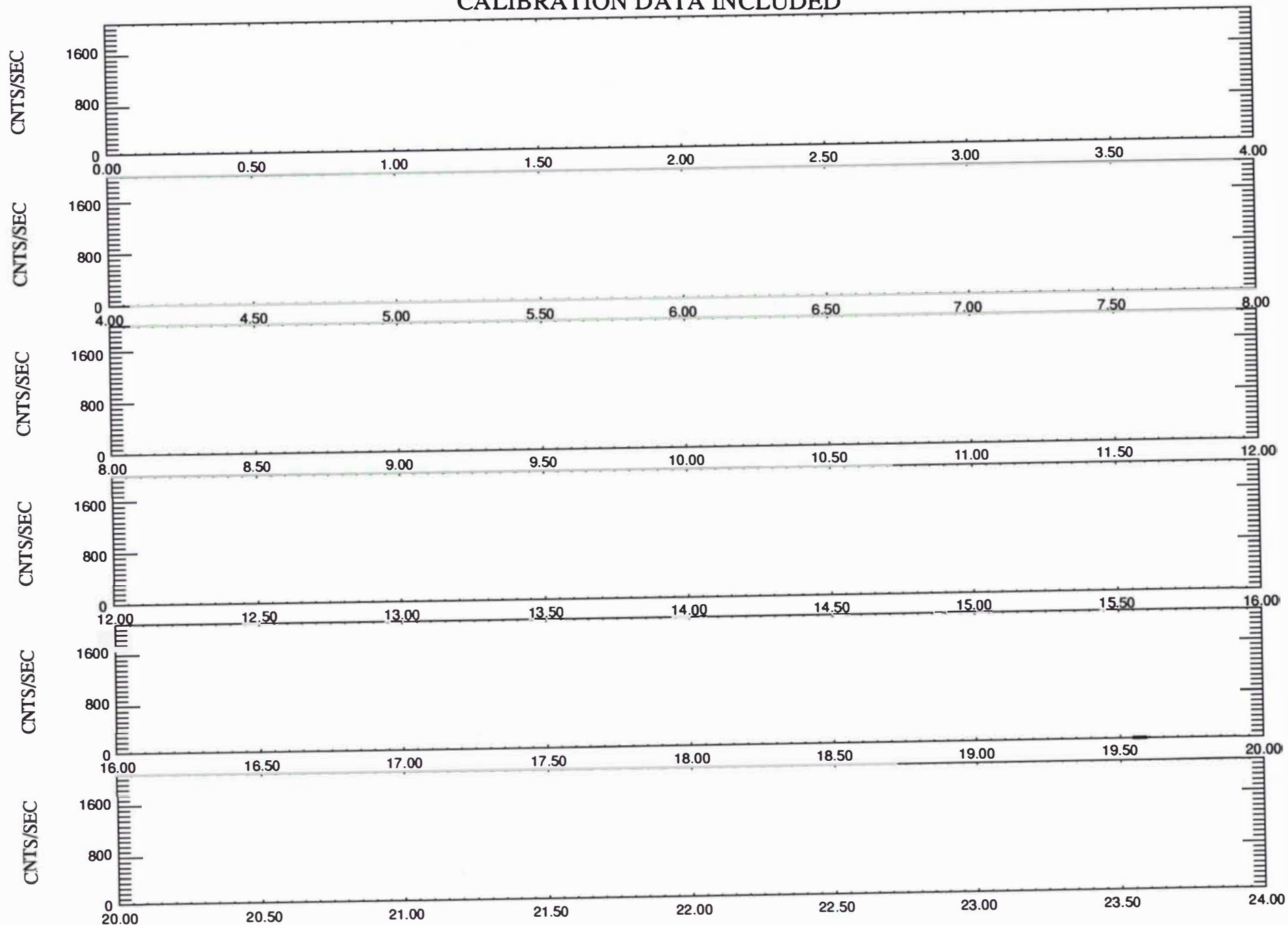
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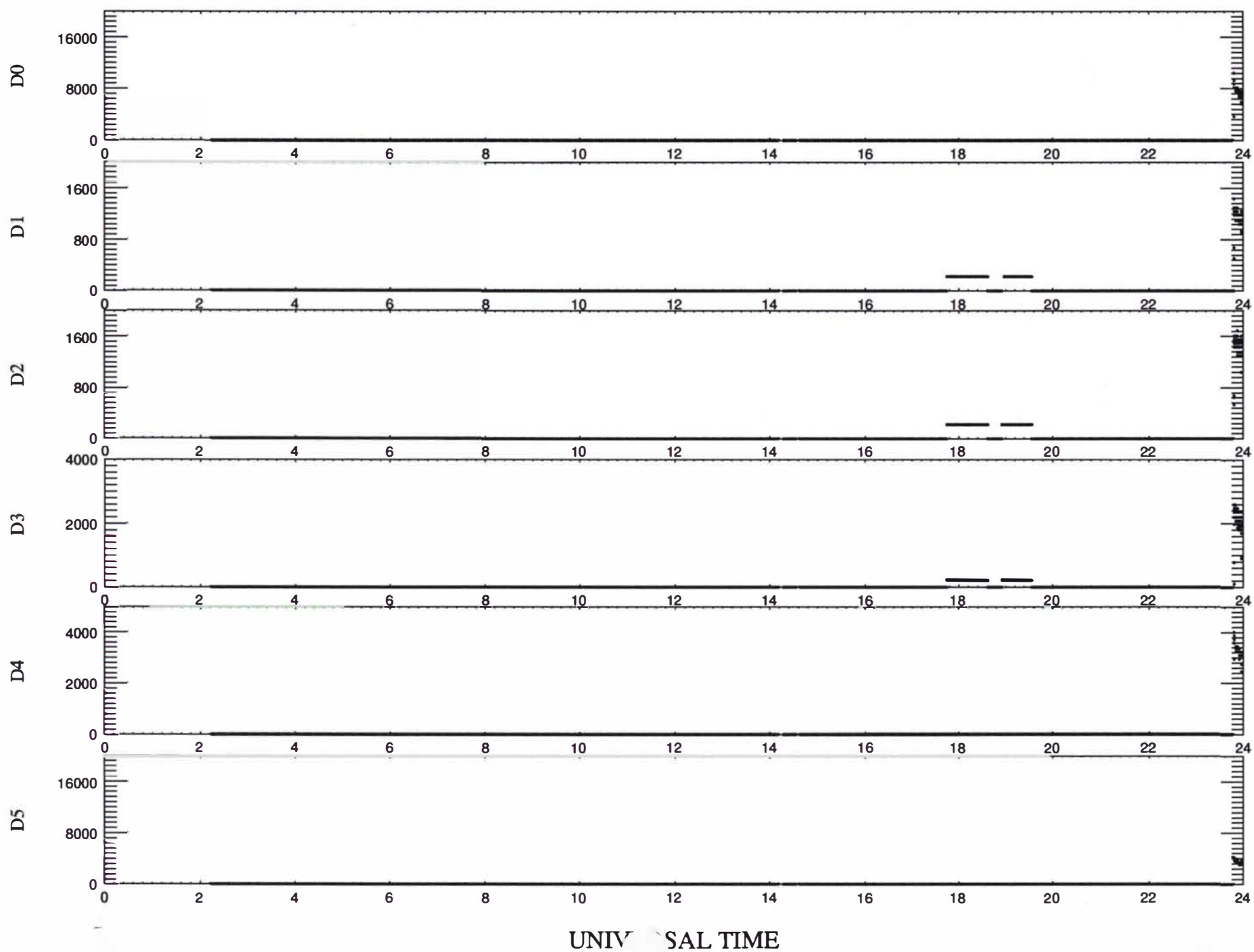
NO BURST (0)

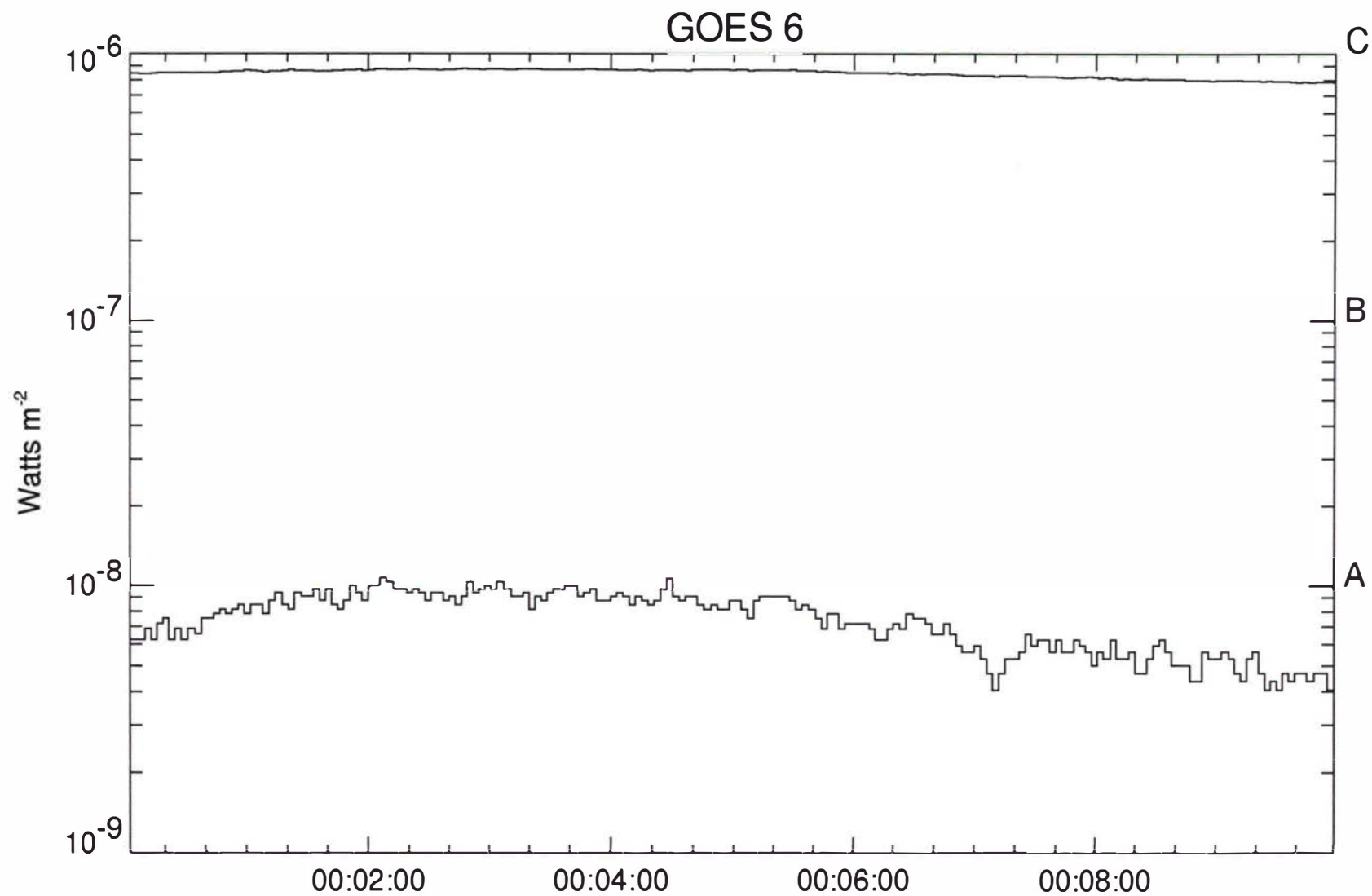


CALIBRATION DATA INCLUDED



UNIV SAL TIME





Data Start: 90/11/10, 0000:02

Plot created: 96/05/23, 1821

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

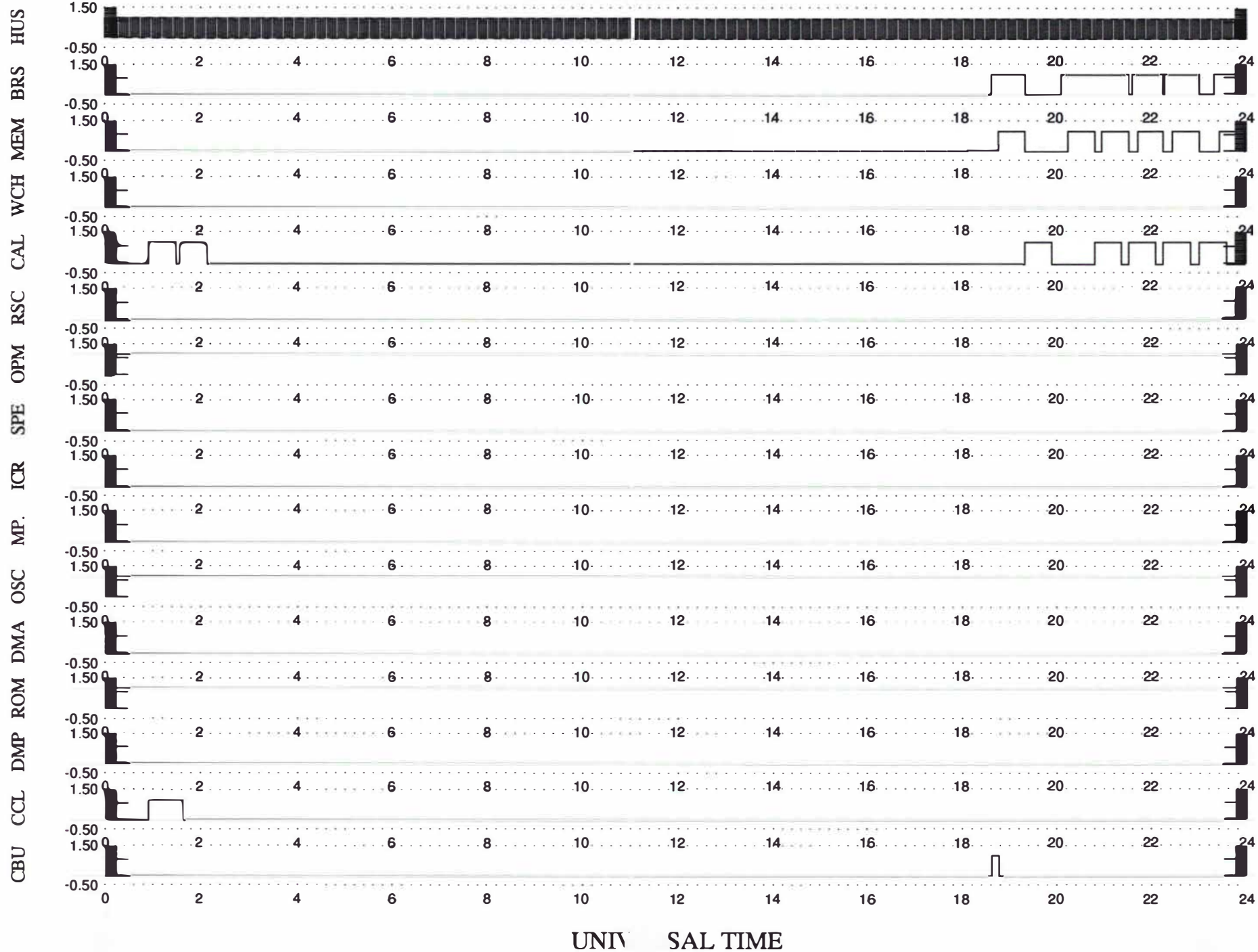
2 (0.5 - 4.0 Angstroms) Background not subtracted

TREND LOG
 SUPPRESSED PAR VAL CHK: Y SUPPRESSED TLM QUAL CHK: Y SAMPLE FREQUENCY: 1
 START TIME: 90.314.00.00 END TIME: 90.317.23.00

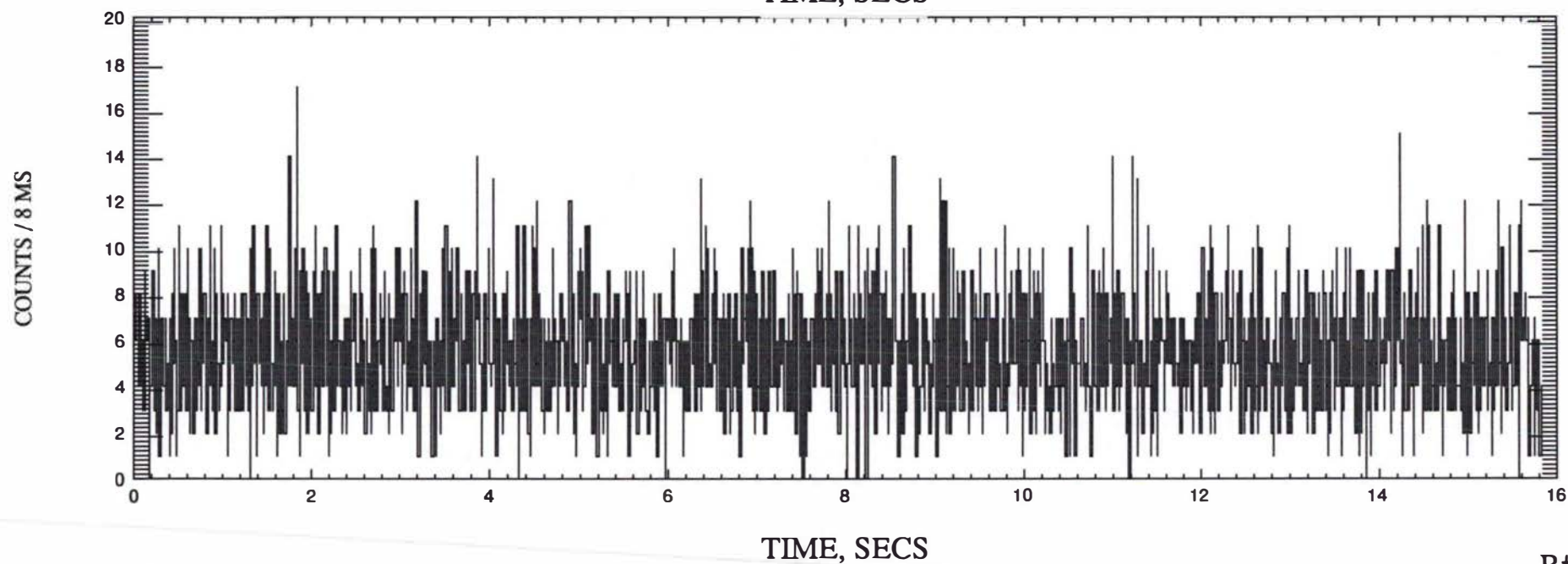
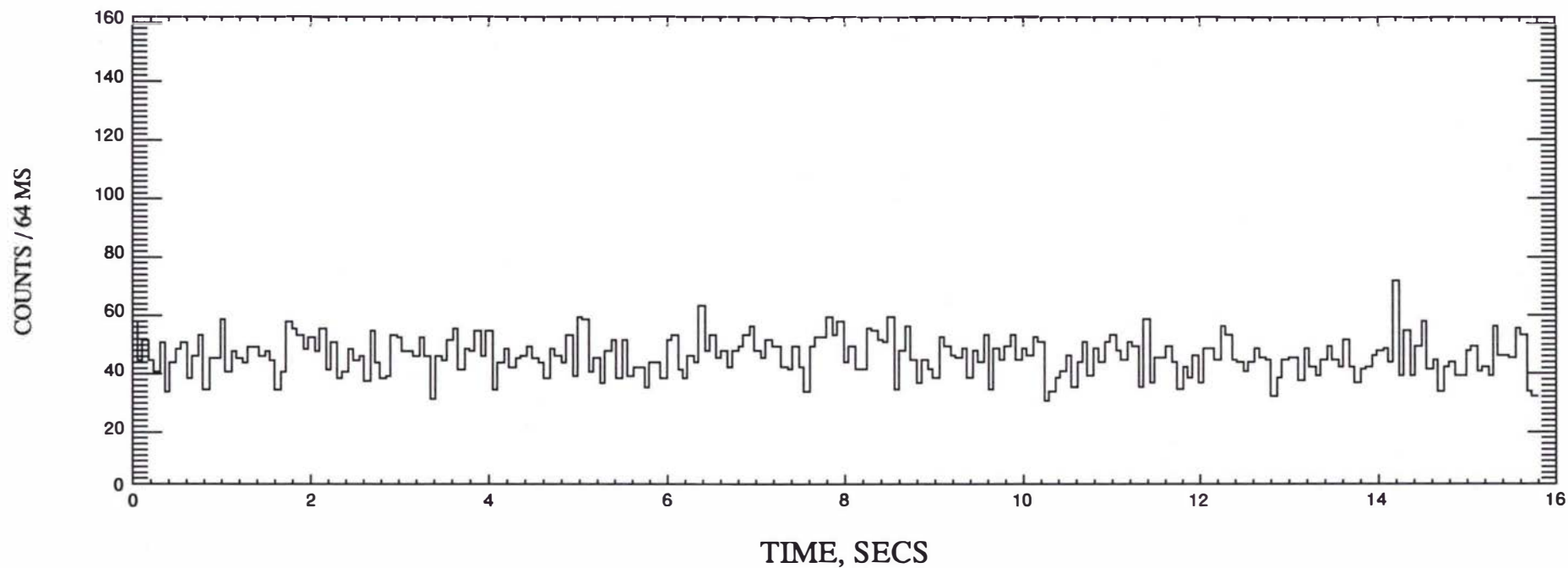
TIME	S/C CLOCK #	E016	E017	E039
314.00.00.03	1477440 G	OFF	OFF	0
314.18.37.56	1510978 G	ON	OFF	0
314.18.39.00	1511008 G	ON	OFF	1
314.18.46.28	1511222 G	ON	ON	1
314.19.20.36	1512256 G	OFF	OFF	1
314.20.07.32	1513664 G	ON	OFF	1
314.20.08.36	1513696 G	ON	OFF	2
314.20.16.05	1513920 G	ON	ON	2
314.20.50.13	1514944 G	ON	OFF	2
314.20.51.17	1514976 G	ON	OFF	3
314.20.58.45	1515200 G	ON	ON	3
314.21.32.53	1516224 G	OFF	OFF	3
314.21.37.09	1516352 G	ON	OFF	3
314.21.38.13	1516384 G	ON	OFF	4
314.21.45.41	1516608 G	ON	ON	4
314.22.15.33	1517504 G	OFF	OFF	4
314.22.19.49	1517632 G	ON	OFF	4
314.22.20.53	1517664 G	ON	OFF	5
314.22.28.21	1517888 G	ON	ON	5
314.23.02.29	1518912 G	OFF	OFF	5
314.23.19.33	1519424 G	ON	OFF	5
314.23.20.37	1519456 G	ON	OFF	6
314.23.28.05	1519680 G	ON	ON	6
314.23.57.57	1520576 G	OFF	OFF	6
315.00.06.29	1520832 G	ON	OFF	6
315.00.07.33	1520864 G	ON	OFF	7
315.00.19.17	1521216 G	ON	ON	7
315.00.49.09	1522112 G	OFF	OFF	7
315.04.26.45	1528640 G	ON	OFF	7
315.04.27.49	1528672 G	ON	OFF	8
315.04.35.17	1528896 G	ON	ON	8
315.05.09.25	1529920 G	OFF	OFF	8
315.22.04.55	1560384 G	ON	OFF	8
315.22.05.59	1560416 G	ON	OFF	9
315.22.17.43	1560768 G	ON	ON	9
315.22.47.35	1561664 G	OFF	OFF	9
316.19.24.57	1598784 G	ON	OFF	9
316.19.26.01	1598816 G	ON	OFF	10
316.19.33.29	1599040 G	ON	ON	10
316.20.07.37	1600064 G	OFF	OFF	10
317.04.48.09	1615680 G	ON	OFF	10
317.04.49.13	1615712 G	ON	OFF	11
317.04.56.41	1615936 G	ON	ON	11
317.05.30.49	1616960 G	OFF	OFF	11

--- PRINTOUT COMPLETED ---

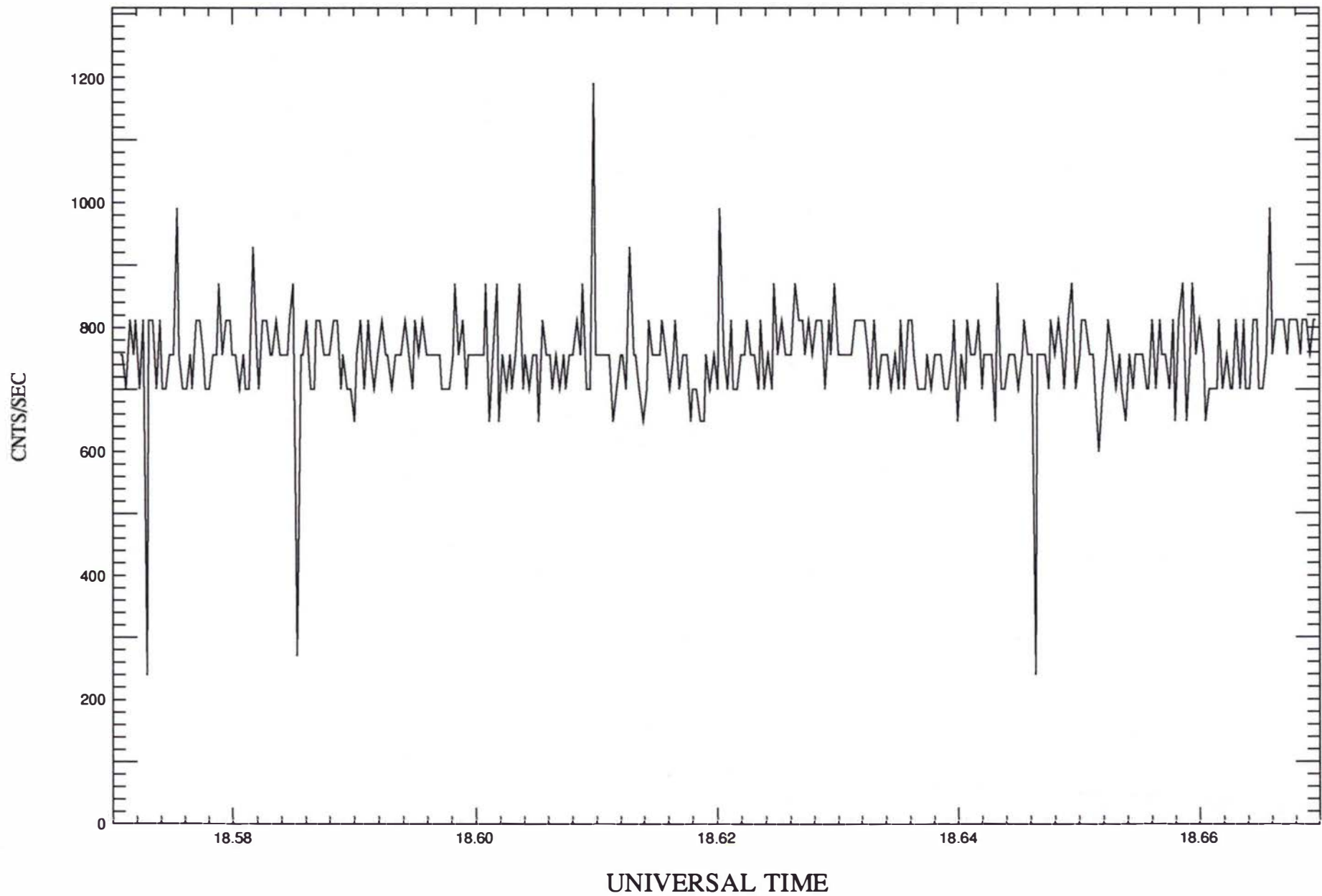
BURST NUMBER 1 - 6



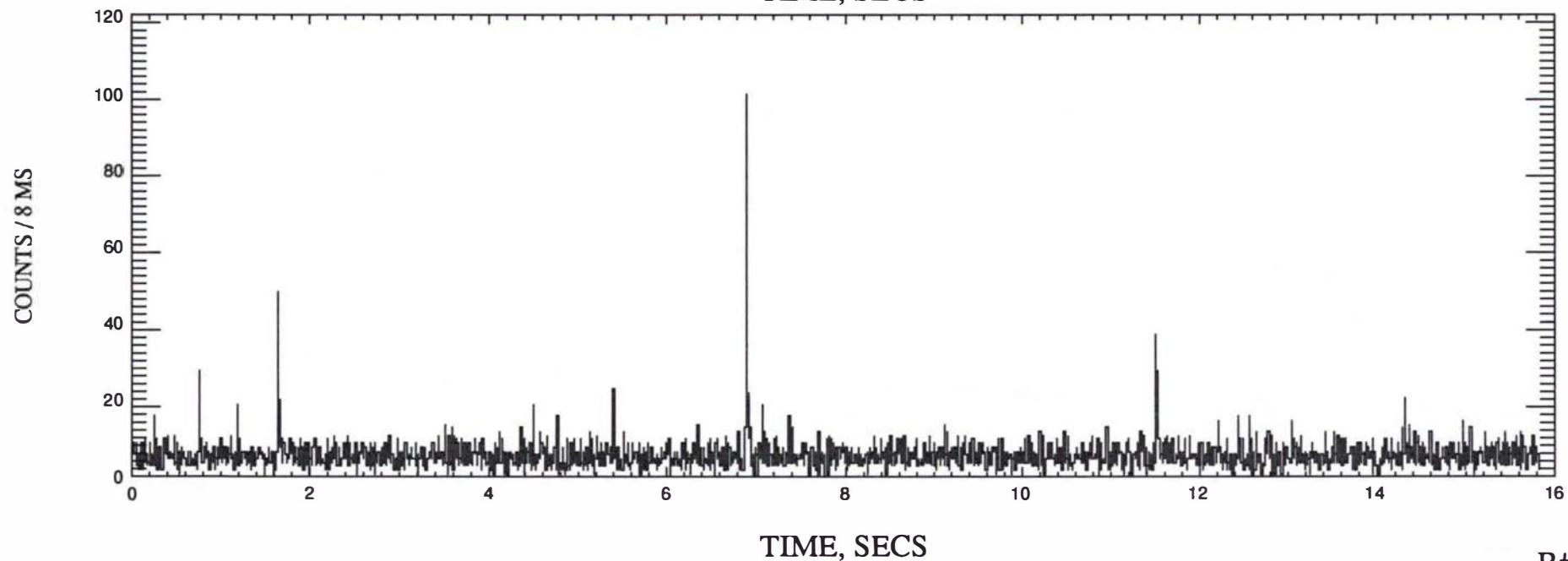
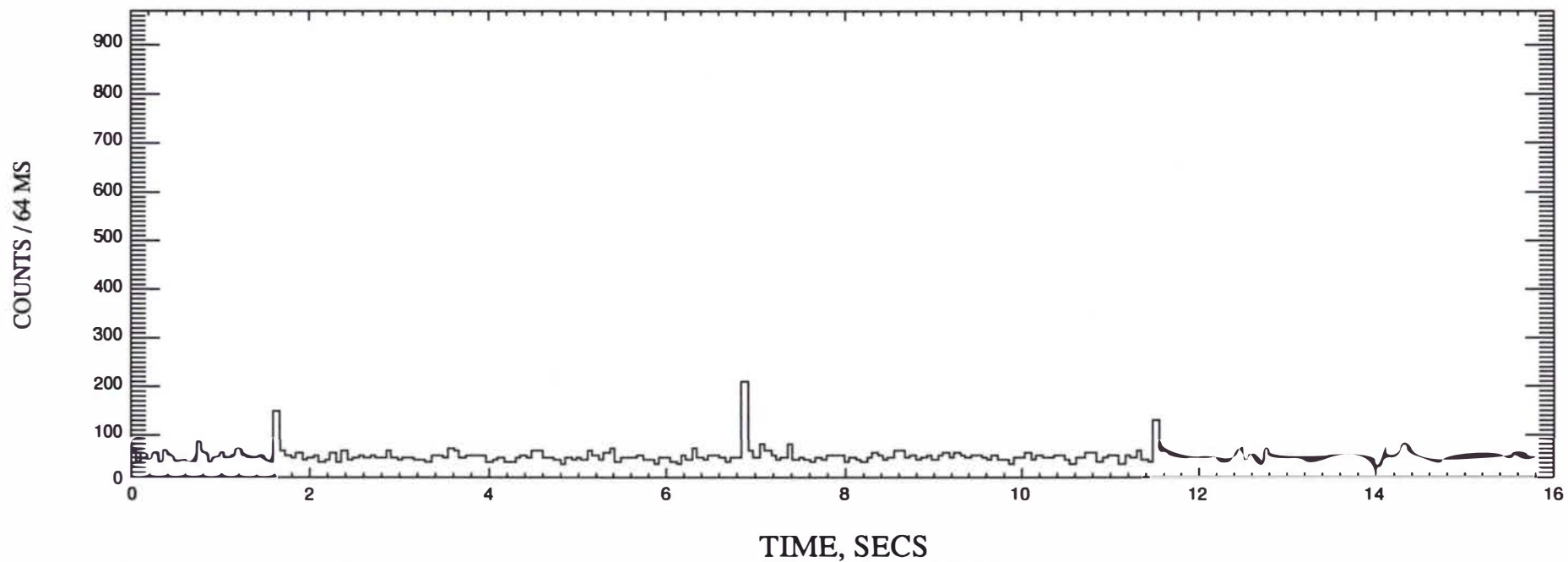
Burst Counter 1 at UT=18.615171915690 h=67014.619 s 18:36:54.619



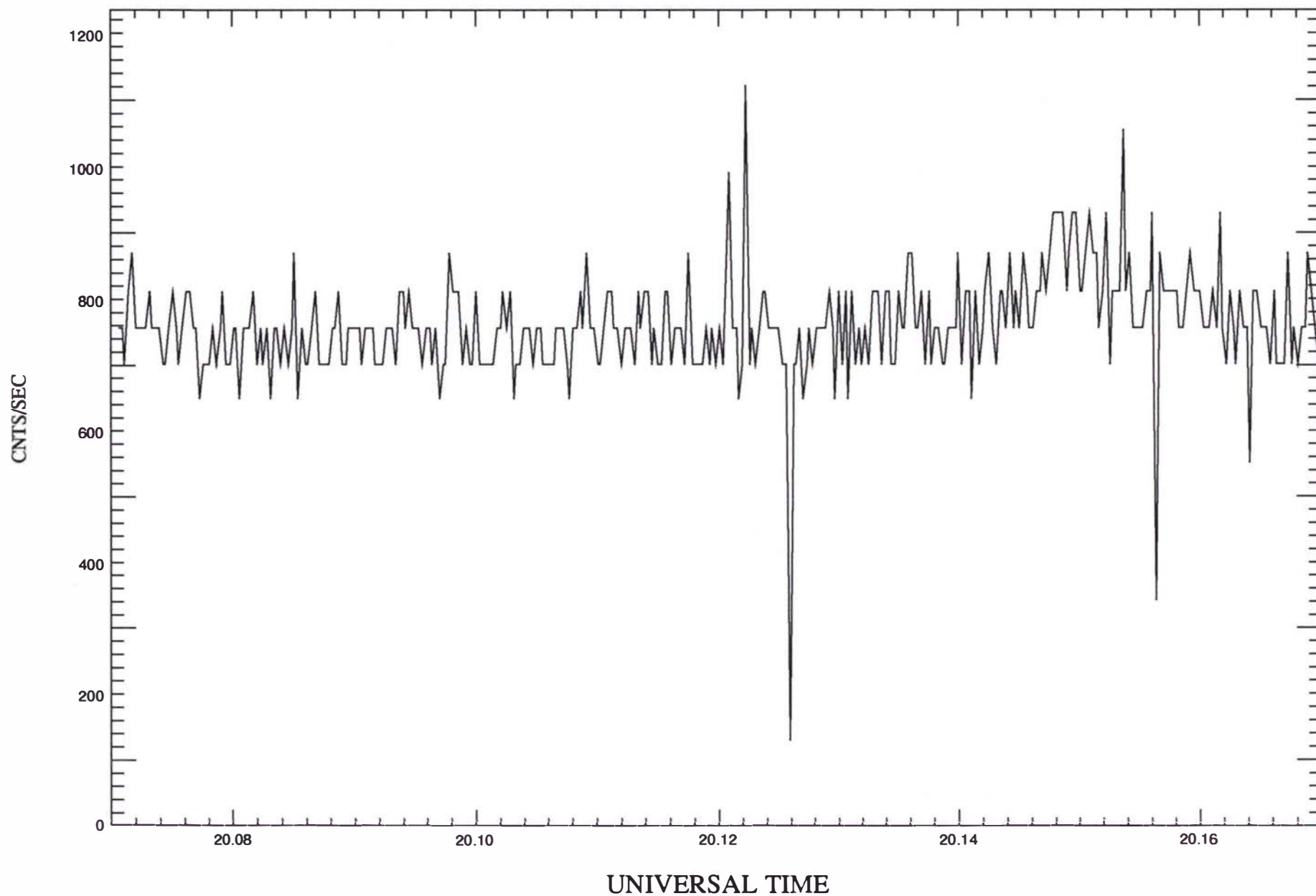
CALIBRATION DATA INCLUDED



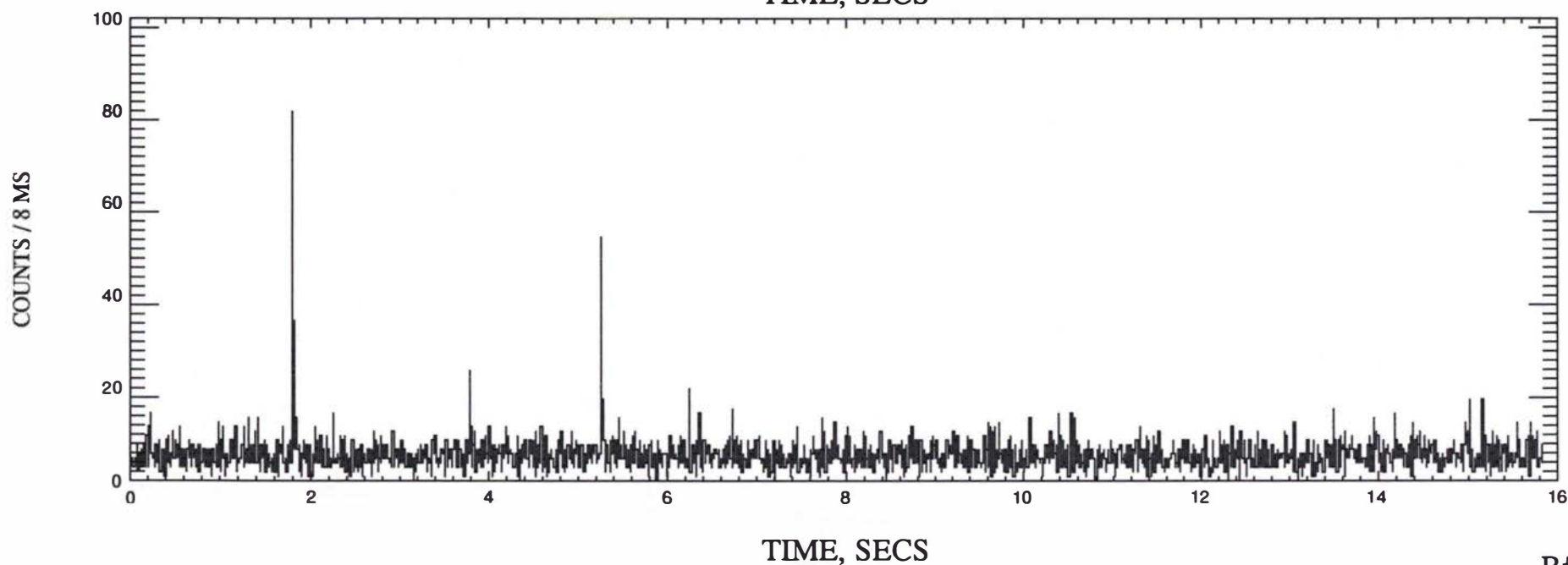
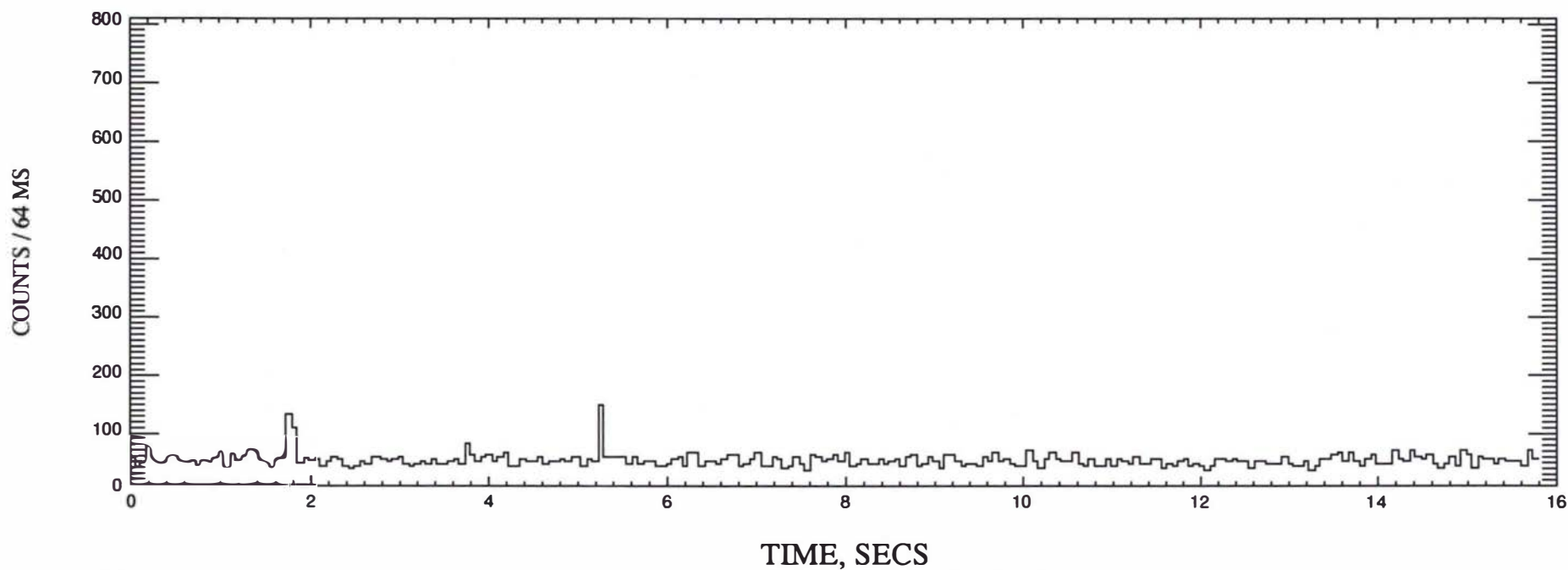
Burst Counter 2 at UT=20.121019384596 h=72435.670 s 20:07:15.670



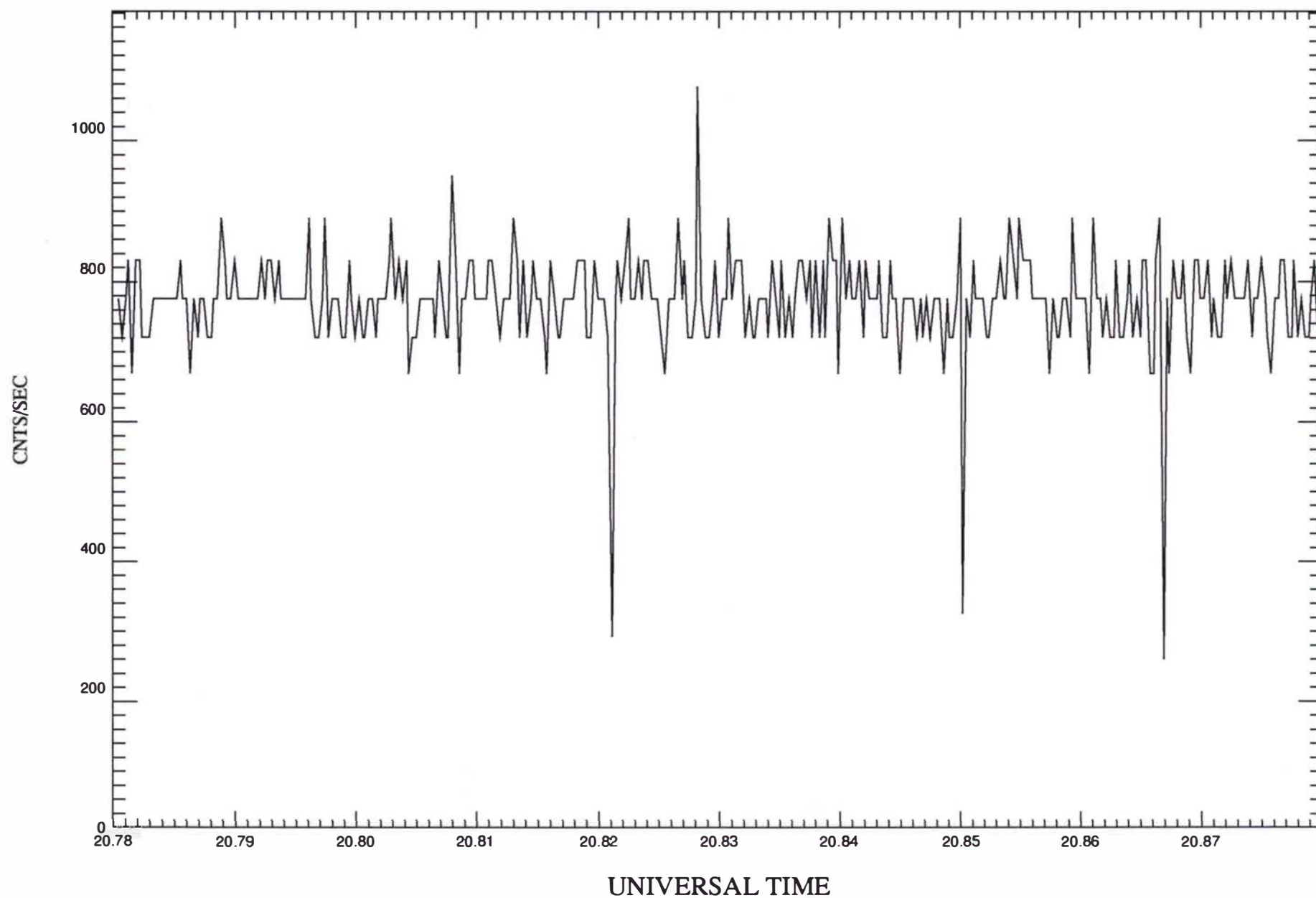
CALIBRATION DATA INCLUDED



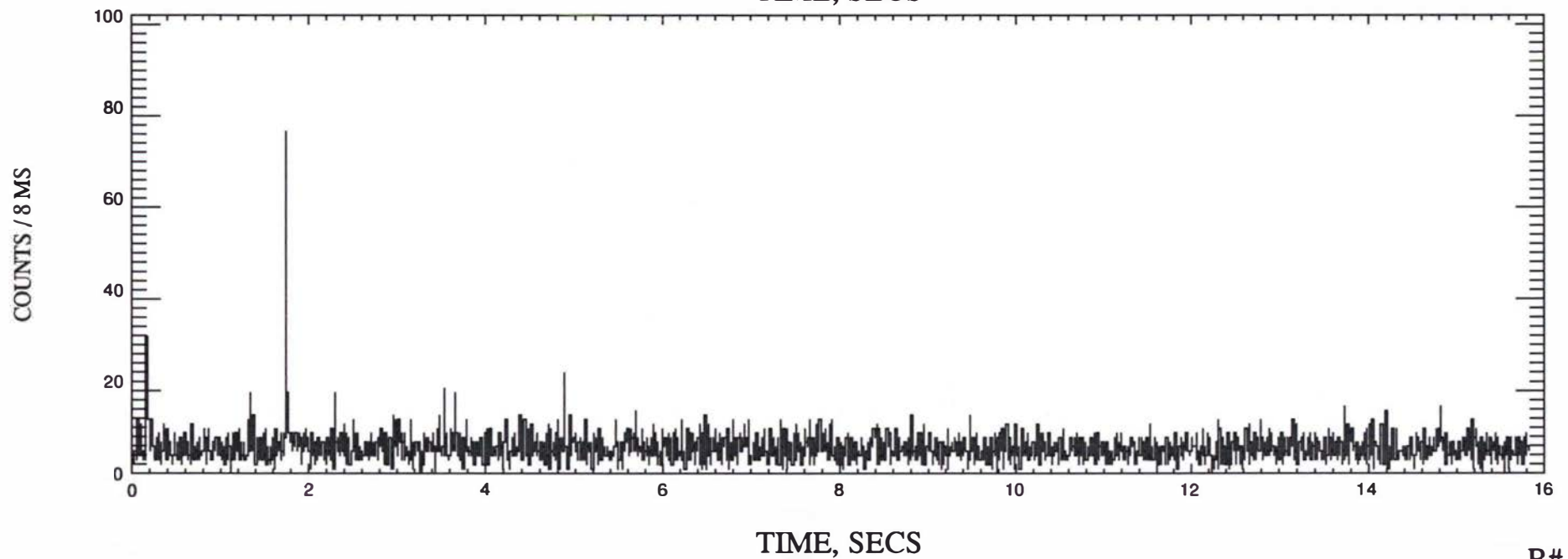
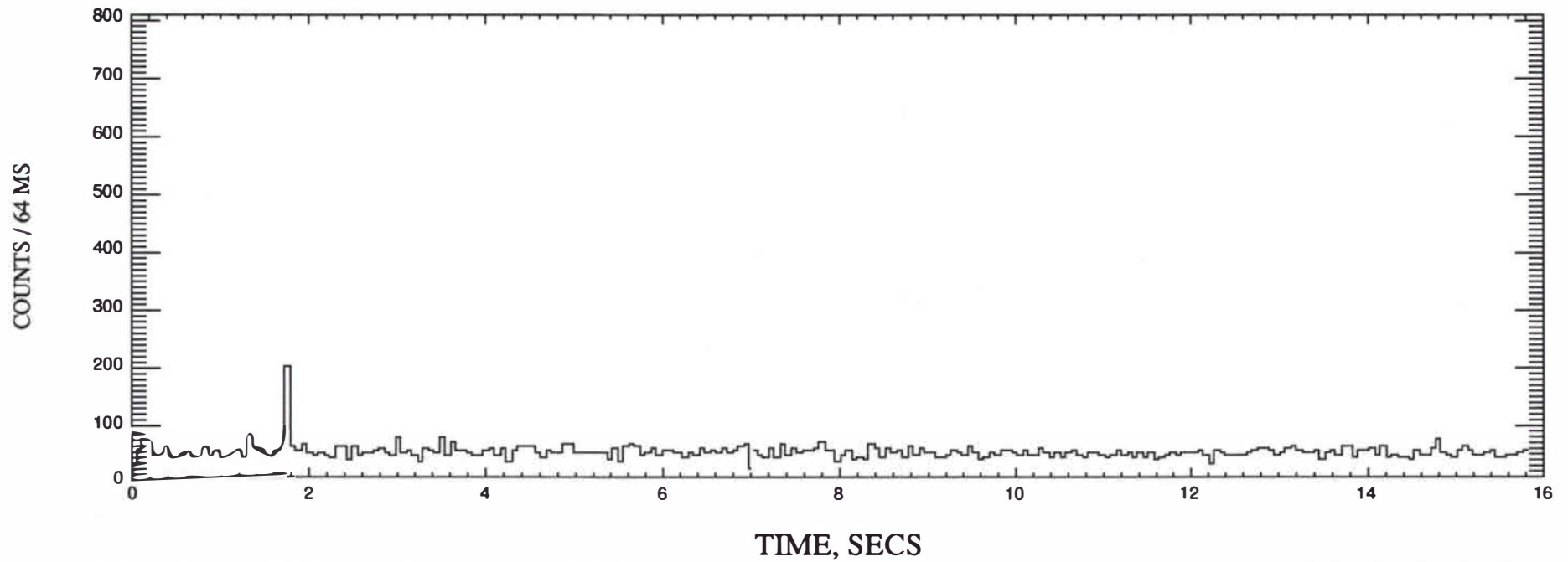
Burst Counter 3 at UT=20.827416657342 h=74978.700 s 20:49:38.700



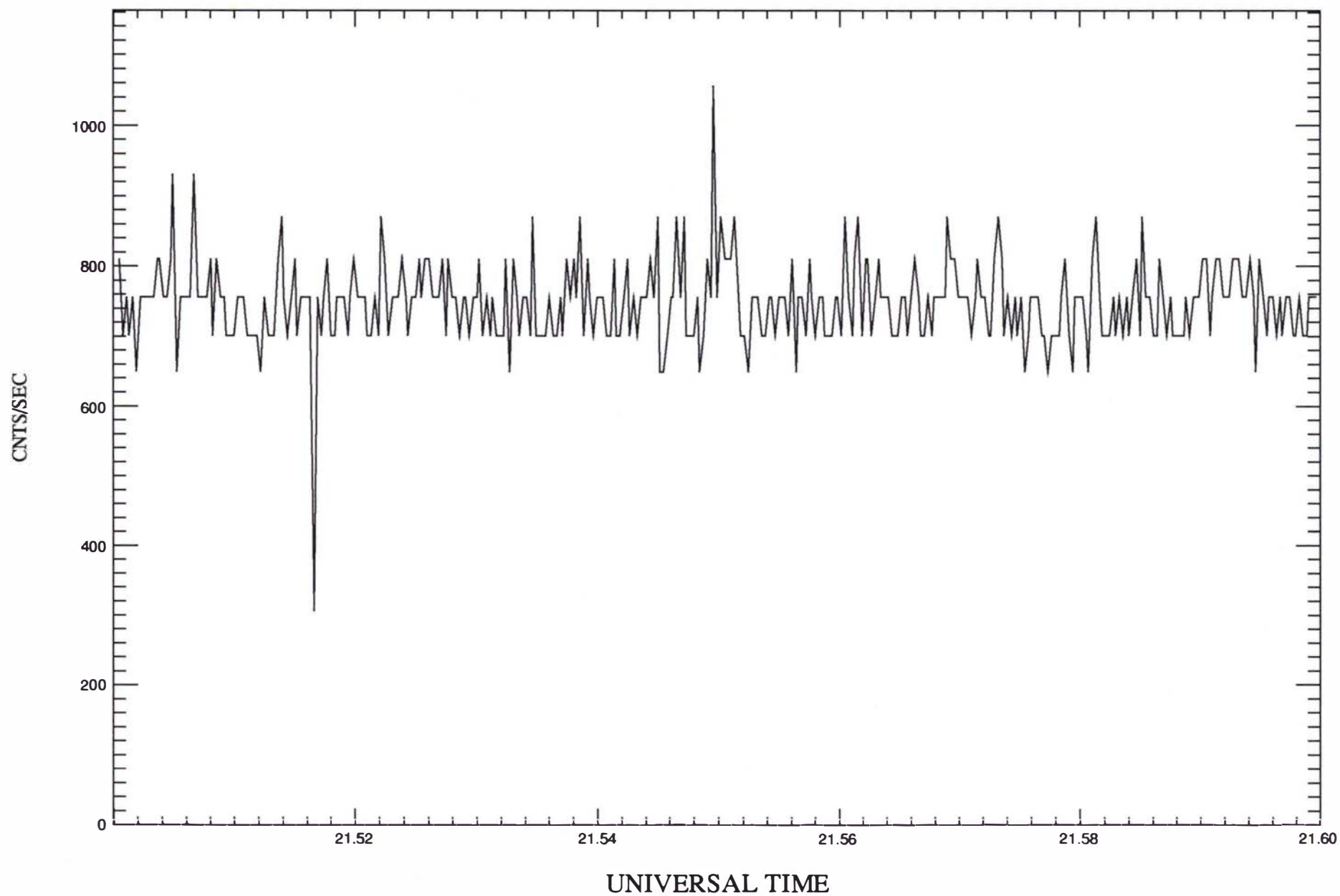
CALIBRATION DATA INCLUDED



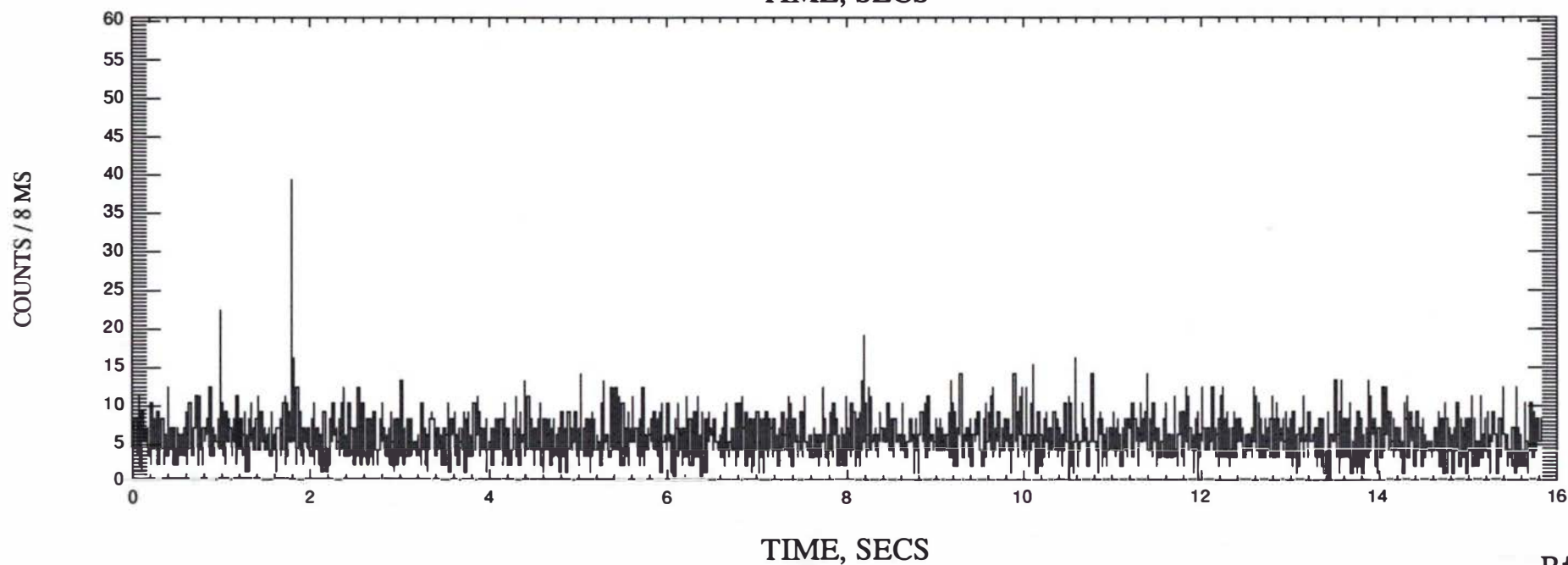
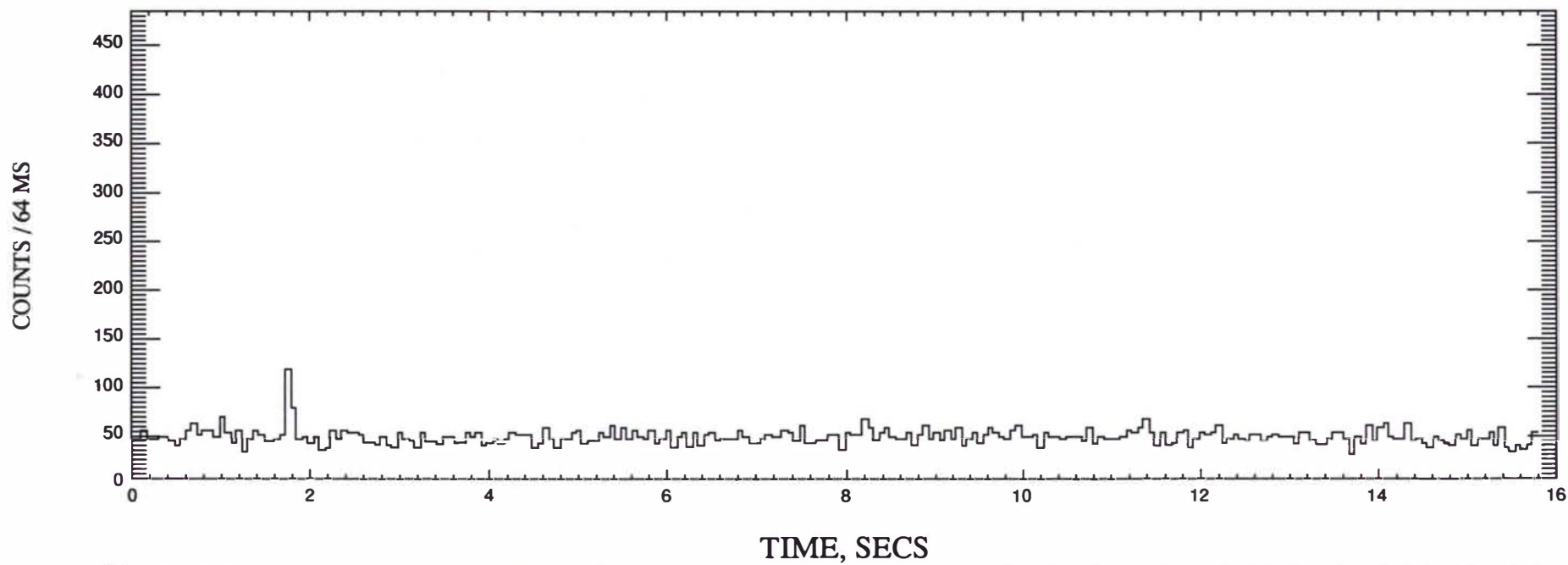
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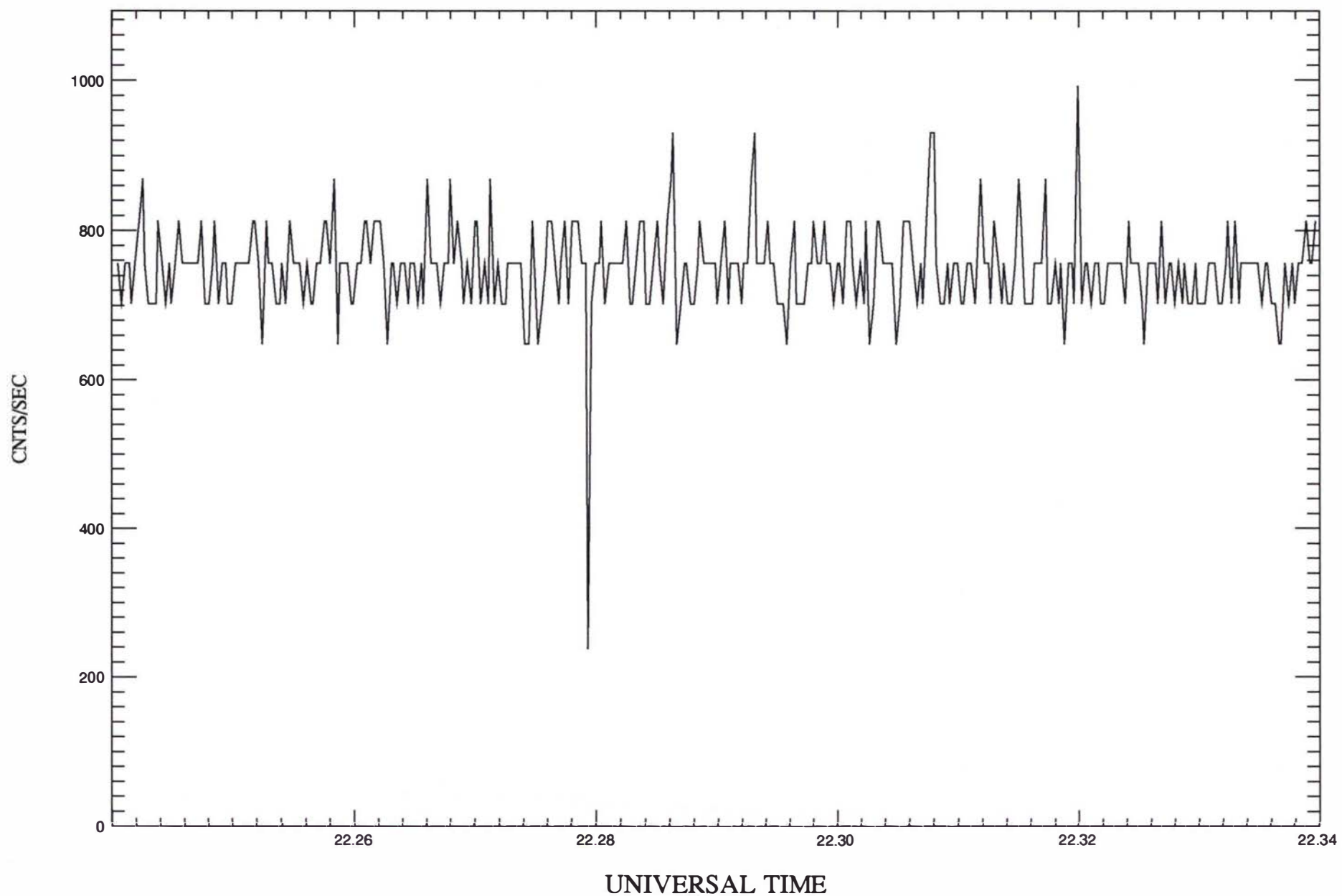
CALIBRATION DATA INCLUDED



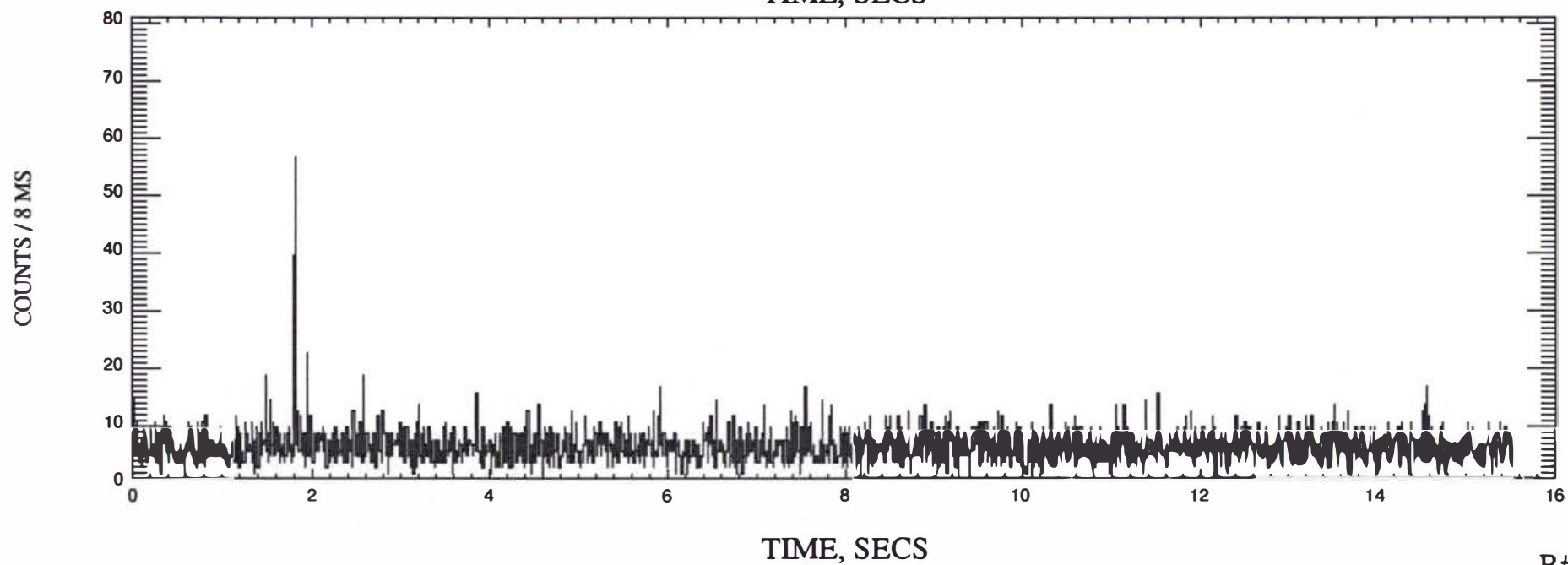
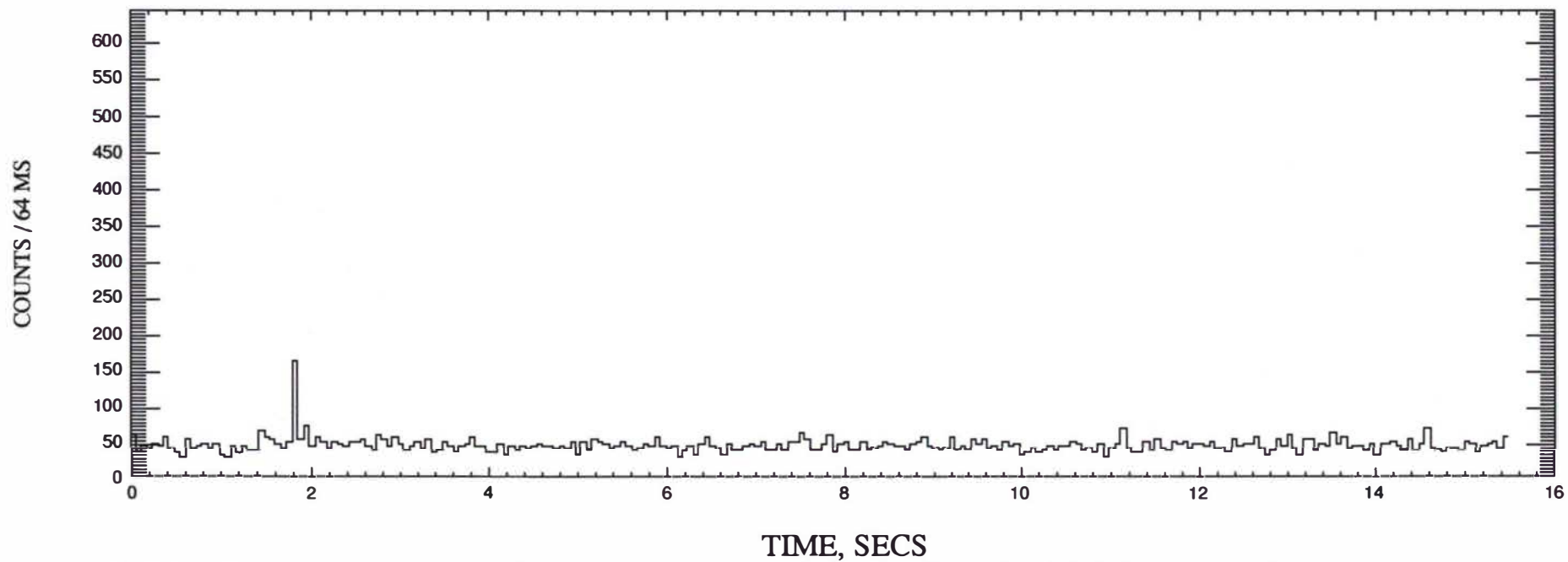
Burst Counter 5 at UT=22.286497628954 h=80231.391 s 22:17:11.391



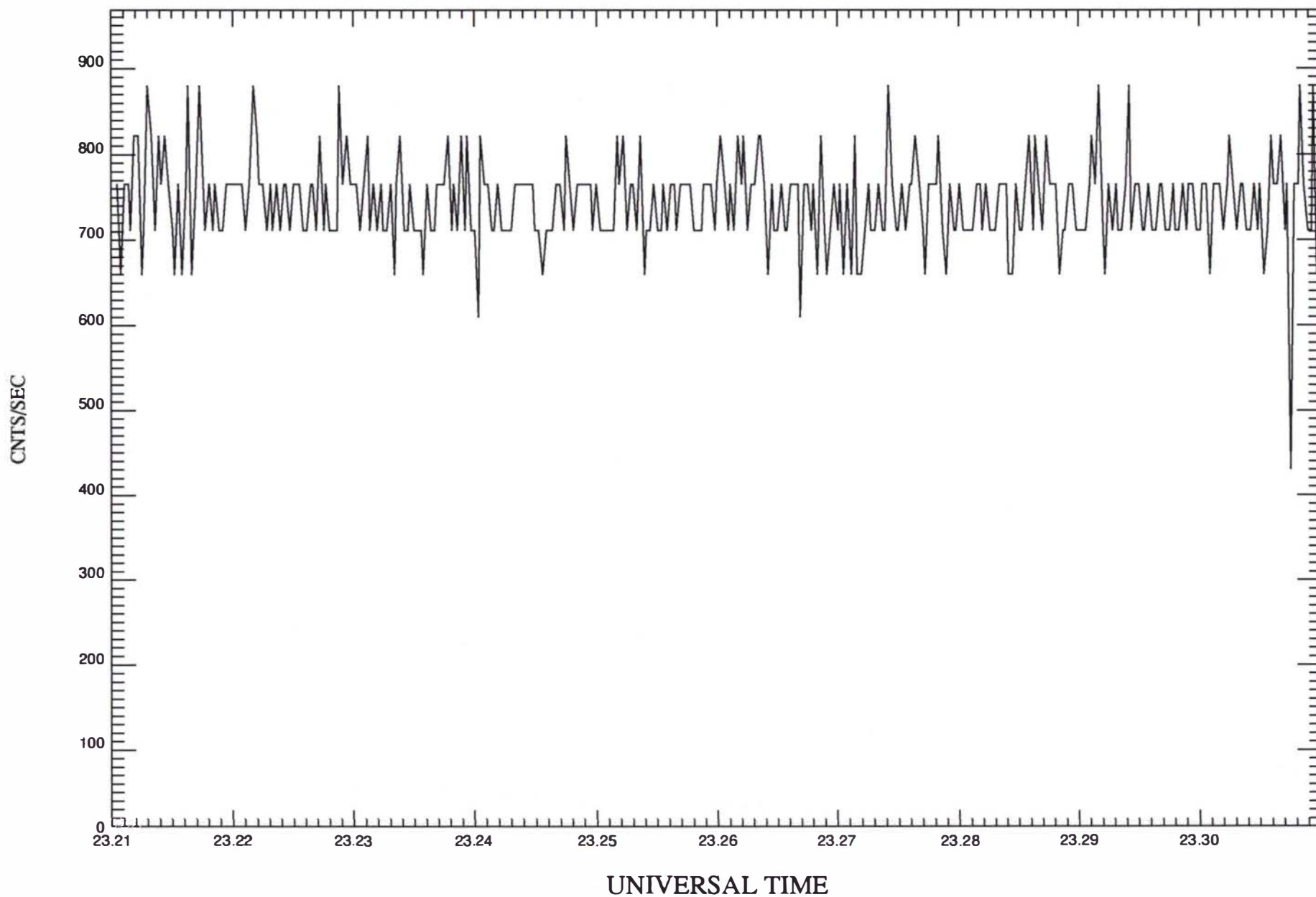
CALIBRATION DATA INCLUDED



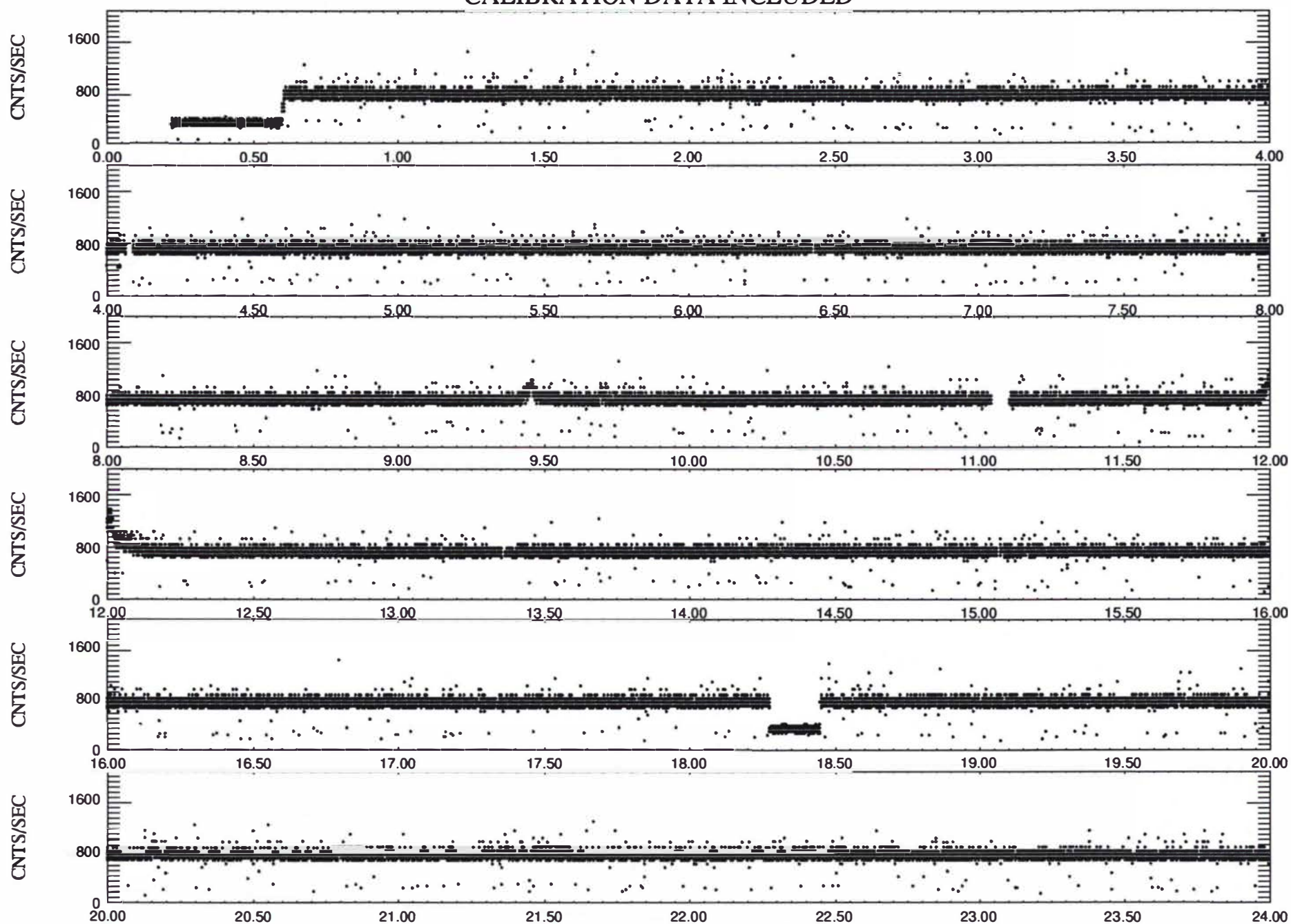
Burst Counter 6 at UT=23.260271521674 h=83736.977 s 23:15:36.977



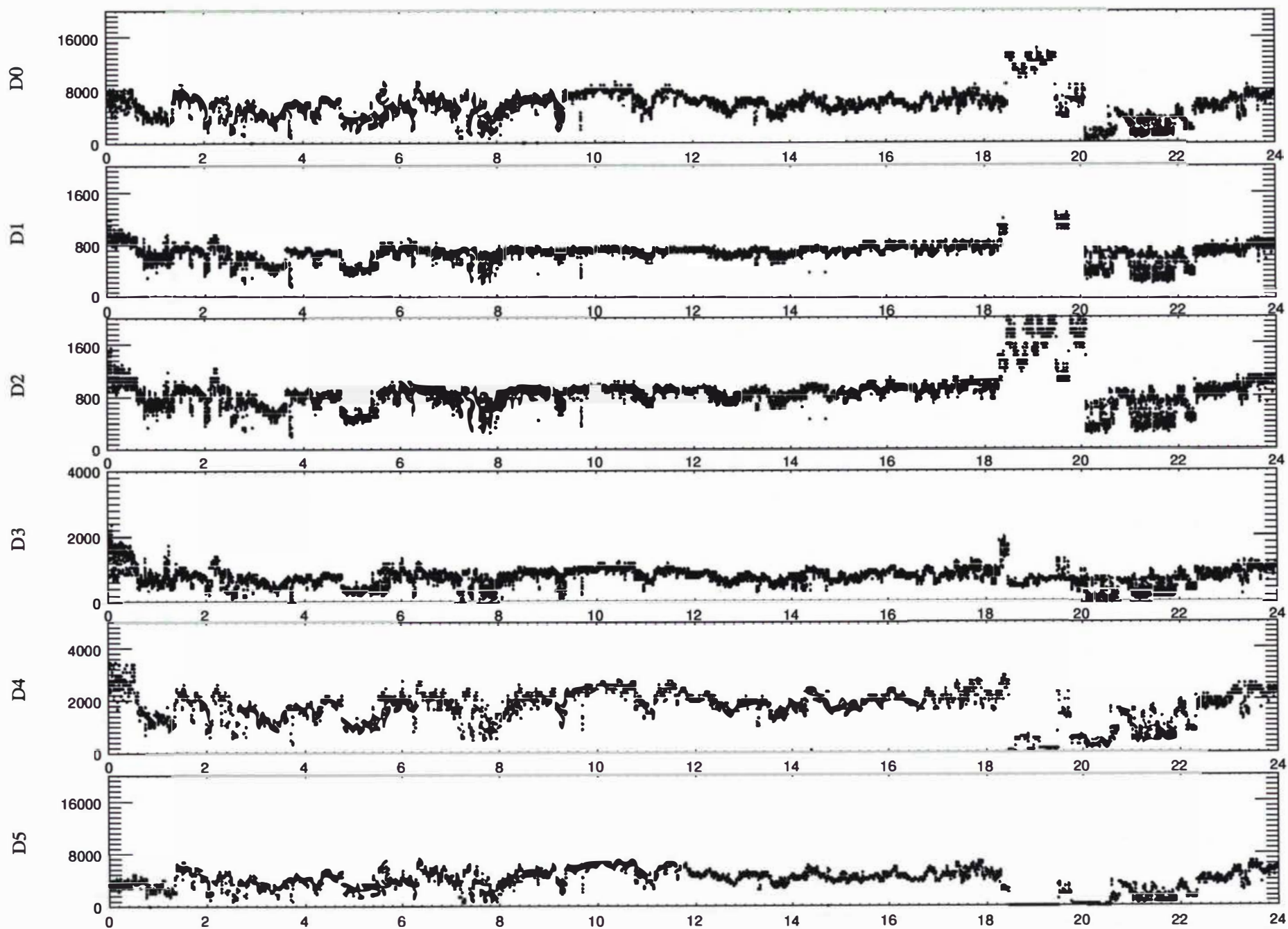
CALIBRATION DATA INCLUDED



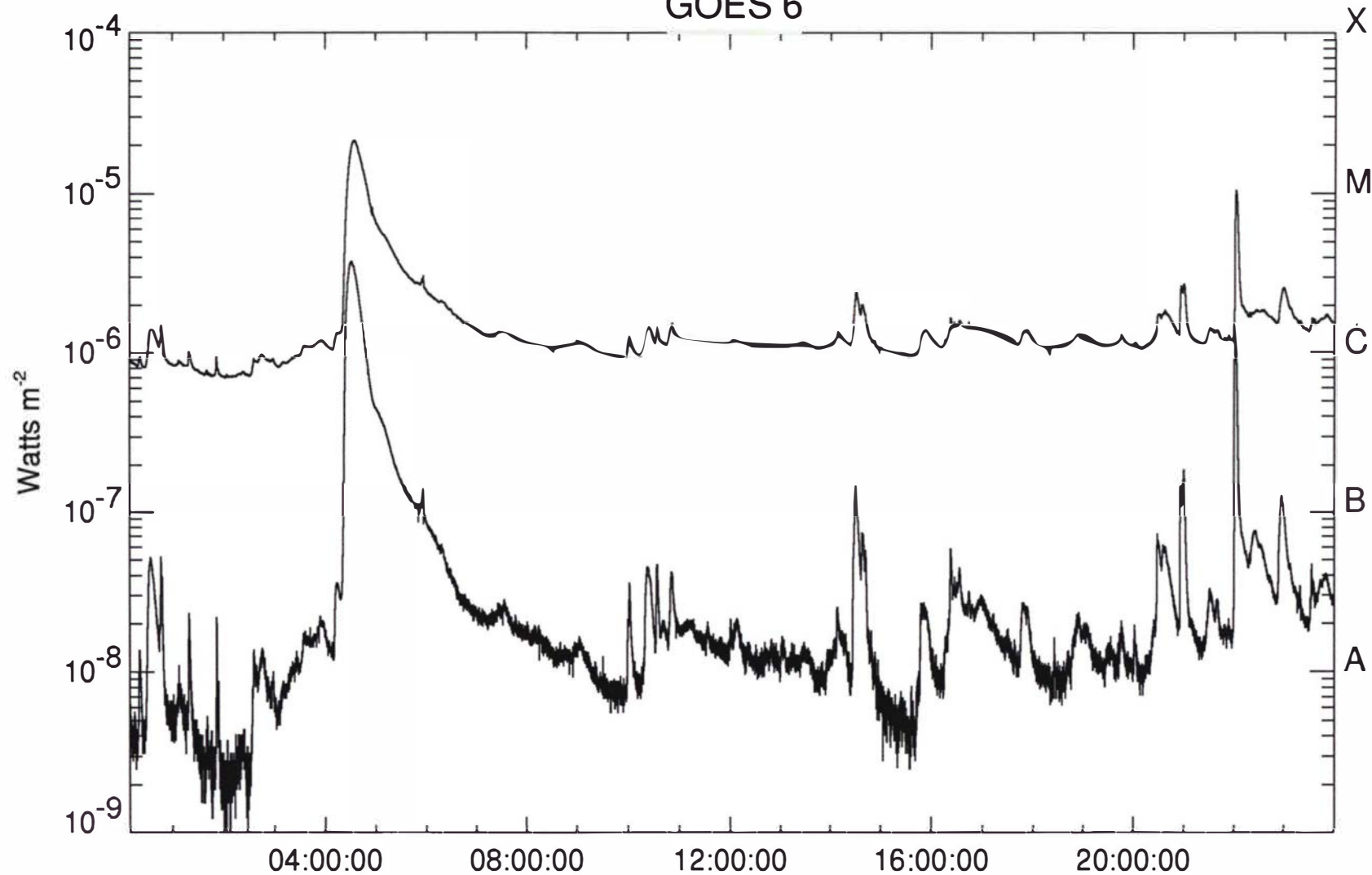
CALIBRATION DATA INCLUDED



UNIV SAL TIME



GOES 6



Data Start: 90/11/11, 0010:03

Plot created: 96/05/23, 1824

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Table 1

Burst	Number	Activation time	Duration T_{90} , s	$C_{\max}/C_{\min}$	Remarks
1	2	3	4	5	6
PB891218	7.2	19 ^h 57 ^m 38 ^s .838	29.18 ± 0.28	2.67 ± 0.30	K
PB900114	19.3	6 09 12.306	0.41 ± 0.10	1.04 ± 0.27	K
PB900201	28.1	19 50 13.993	1.03 ± 0.19	5.19 ± 0.36	K
PB900222	44.1	11 56 34.346	4.89 ± 0.29	1.26 ± 0.22	
PB900308	52.1	9 39 05.635	2.31 ± 0.11	1.10 ± 0.27	KW
PB900316	58.1	19 43 17.945	1.67 ± 0.70	5.65 ± 0.64	
PB900320	59.2	6 53 01.525	0.05 ± 0.01	6.99 ± 0.49	
PB900325	63.1	3 29 07.686	17.59 ± 0.68	1.16 ± 0.23	
PB900404	66.3	17 54 35.241	2.72 ± 0.50	10.31 ± 0.96	SW
PB900413a	70.1	3 12 36.562	18.42 ± 0.17	11.63 ± 0.68	SK
PB900413b	70.2	10 11 21.744	14.76 ± 0.60	5.21 ± 0.38	W
PB900422	77.1	11 35 50.575	0.89 ± 0.04	1.62 ± 0.31	
PB900520a	87.1	12 10 17.439	0.42 ± 0.01	11.24 ± 1.01	S
PB900520b	87.2	13 02 17.513	71.71 ± 1.27	1.20 ± 0.23	
PB900524	91.2	3 48 12.550	8.02 ± 0.37	1.07 ± 0.22	
PB900604	96.1	17 31 33.303	0.27 ± 0.01	7.69 ± 0.71	SW
PB900605	97.1	19 23 01.481	7.30 ± 0.33	1.82 ± 0.26	GS
PB900611	101.1	4 15 20.289	15.18 ± 0.28	1.49 ± 0.30	
PB900616	105.1	2 18 14.576	1.38 ± 0.08	1.31 ± 0.24	
PB900618a	107.1	21 35 49.344	5.85 ± 0.39	1.94 ± 0.27	
PB900618b	107.2	23 12 21.662	17.24 ± 0.26	4.27 ± 0.37	
PB900625	112.1	22 04 17.234	16.88 ± 1.30	1.07 ± 0.23	
PB900711	121.1	17 38 17.976	1.12 ± 0.08	1.40 ± 0.23	
PB900720	127.1	21 44 59.956	30.42 ± 0.63	2.22 ± 0.27	S
PB900722	128.1	2 18 31.588	4.45 ± 0.32	3.32 ± 0.31	
PB900725	129.1	1 32 34.958	7.64 ± 0.21	1.12 ± 0.22	
PB900813	135.1	13 26 53.915	0.02 ± 0.01	2.95 ± 0.41	
PB900816	137.1	11 20 01.886	21.80 ± 0.13	1.55 ± 0.26	
PB900925a	165.1	5 19 21.744	1.89 ± 1.81	1.09 ± 0.26	
PB900925b	166.1	20 25 22.028	48.32 ± 0.52	2.17 ± 0.26	
PB900928	167.1	5 23 41.813	5.27 ± 0.50	5.10 ± 0.60	G
PB900929	168.1	1 49 25.166	20.58 ± 0.20	4.07 ± 0.55	
PB901011	176.1	22 31 01.494	1.17 ± 0.02	1.86 ± 0.36	
PB901014	177.1	1 13 21.079	10.26 ± 0.31	4.07 ± 0.35	S
PB901015	178.1	8 44 48.512	2.84 ± 0.34	1.36 ± 0.24	
PB901018	179.1	18 51 48.646	2.67 ± 0.17	1.02 ± 0.28	
PB901020	180.1	1 04 28.909	1.77 ± 0.11	1.24 ± 0.28	
PB901021	181.2	0 09 07.848	29.18 ± 0.94	5.94 ± 0.46	
PB901027	185.1	4 21 05.624	8.04 ± 0.20	2.95 ± 0.32	S
PB901111	188.1	21 49 01.859	1.28 ± 0.02	2.82 ± 0.41	
PB901112	189.1	14 57 37.649	10.69 ± 0.55	2.39 ± 0.29	U
PB901116	190.1	1 42 10.013	9.07 ± 0.15	2.18 ± 0.28	
PB901121a	194.2	0 04 47.785	4.68 ± 0.13	1.66 ± 0.25	U

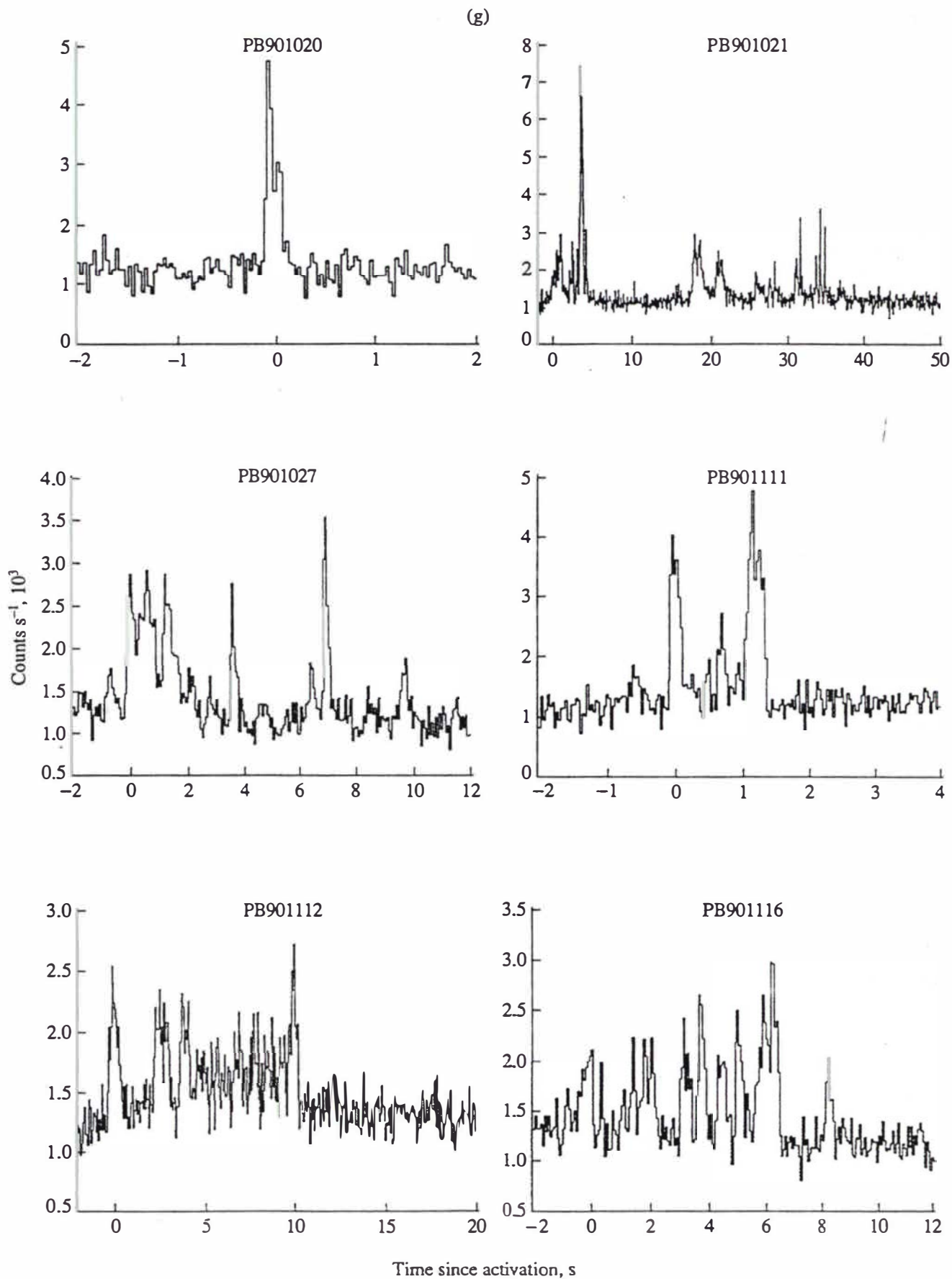


Fig. 1. (Contd.).

From root Wed Dec 8 07:58 1993
 Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
 id AA08899; Wed, 8 Dec 93 07:57:44
 Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
 id AA22497; Wed, 8 Dec 93 07:00:41 PST
 Received: Wed, 8 Dec 93 07:03:53 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
 Message-Id: <9312081503.AA10272@mx.nsi.nasa.gov>
 Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
 (utk-maillld vl.7); Wed, 8 Dec 93 07:03:57 PST
 Date: Wed, 8 Dec 93 07:03:57 PST
 From: 068486@essdp2.span.nasa.gov
 X-To: AMES::"khurley@space6.ssl.berkeley.edu"
 Subject: RE:
 To: khurley@space6.ssl.berkeley.edu
 Status: R

KEVIN,
 HERE ARE THE RESULTS OF OUR SURVEY OF THE PVO REAL-TIME DATA FOR EVIDENCE OF
 RESPONSE TO EVENTS LISTED IN YOUR CATALOG.

DATE	TIME	PVO RESPONSE
90/11/11	21:49	N/O
90/11/12	14:57	N/O
90/11/16	01:42	N/O
90/11/19	18:08	N/O
90/11/21	00:04	N/O
90/11/21	18:09	N/O
90/12/02	13:45	N/O
90/12/21	00:30	N/O
90/12/25	05:50	N/O
91/01/17	00:57	N/O
91/01/24	11:50	N/O
91/02/04	08:58	N/O
91/02/04	14:19	N/O
91/02/04	14:58	N/O
91/02/17	02:59	N/O
91/03/14	22:56	N/O
91/03/15	22:55	N/O
91/04/04	17:17	(NO)
91/05/18	17:10	N/O
91/05/23	19:03	N/O
91/05/27	23:44	N/O
91/05/28	21:26	N/O
91/06/02	22:55	N/O
91/06/09	00:48	N/O
91/06/29	19:55	N/O
91/07/09	20:22	N/O
91/07/17	13:07	N/O
91/08/03	08:24	N/O
91/08/15	12:34	N/O
91/08/15	14:24	N/O
91/08/16	01:57	(NO)
91/09/05	23:48	N/O
91/09/16	21:58	N/O
91/09/25	03:35	N/O
91/09/26	18:25	N/O
91/09/30	11:55	N/O
91/10/03	00:39	N/O
91/10/04	01:27	N/O
91/10/06	09:01	(NO)
91/10/22	04:13	N/O
91/10/25	21:25	N/O
91/11/06	03:42	N/O
91/11/14	01:40	N/O
91/11/17	01:58	N/O
91/12/05	23:04	N/O

91/12/21	06:17	N/O
91/12/21	22:03	N/O
91/12/27	15:56	N/O
92/01/05	17:41	N/O
92/01/13	20:52	N/O
92/01/25	08:57	N/O
92/01/30	00:29	N/O
92/01/30	22:50	N/O
92/02/18	18:42	N/O
92/02/21	06:14	N/O
92/02/26	18:15	YES TRIGGER AT 29336 S UT
92/02/27	06:00	N/O
92/02/27	08:45	N/O
92/03/02	06:16	N/O
92/03/04	14:34	N/O
92/03/07	00:18	N/O
92/03/21	12:50	(NO)
92/03/26	02:01	N/O
92/03/27	09:38	N/O
92/03/29	16:38	(NO)
92/04/04	22:37	N/O
92/04/08	12:05	N/O
92/04/20	02:12	N/O
92/04/29	18:59	N/O
92/05/02	19:05	N/O
92/06/01	THRU 92/06/29	TURNED OFF--N/O
92/07/01	19:39	N/O
92/07/07	06:33	N/O
92/07/17	01:15	N/O
92/07/23	00:59	N/O
92/07/23	01:00	N/O
92/07/23	21:48	N/O
92/07/25	19:30	N/O
92/07/25	22:49	N/O
92/07/26	00:34	N/O
92/07/31	17:07	N/O
92/08/10	21:35	N/O
92/08/14	06:10	N/O
92/08/16	12:36	N/O
92/08/22	22:39	N/O
92/08/30	01:45	N/O
92/09/04	04:41	N/O

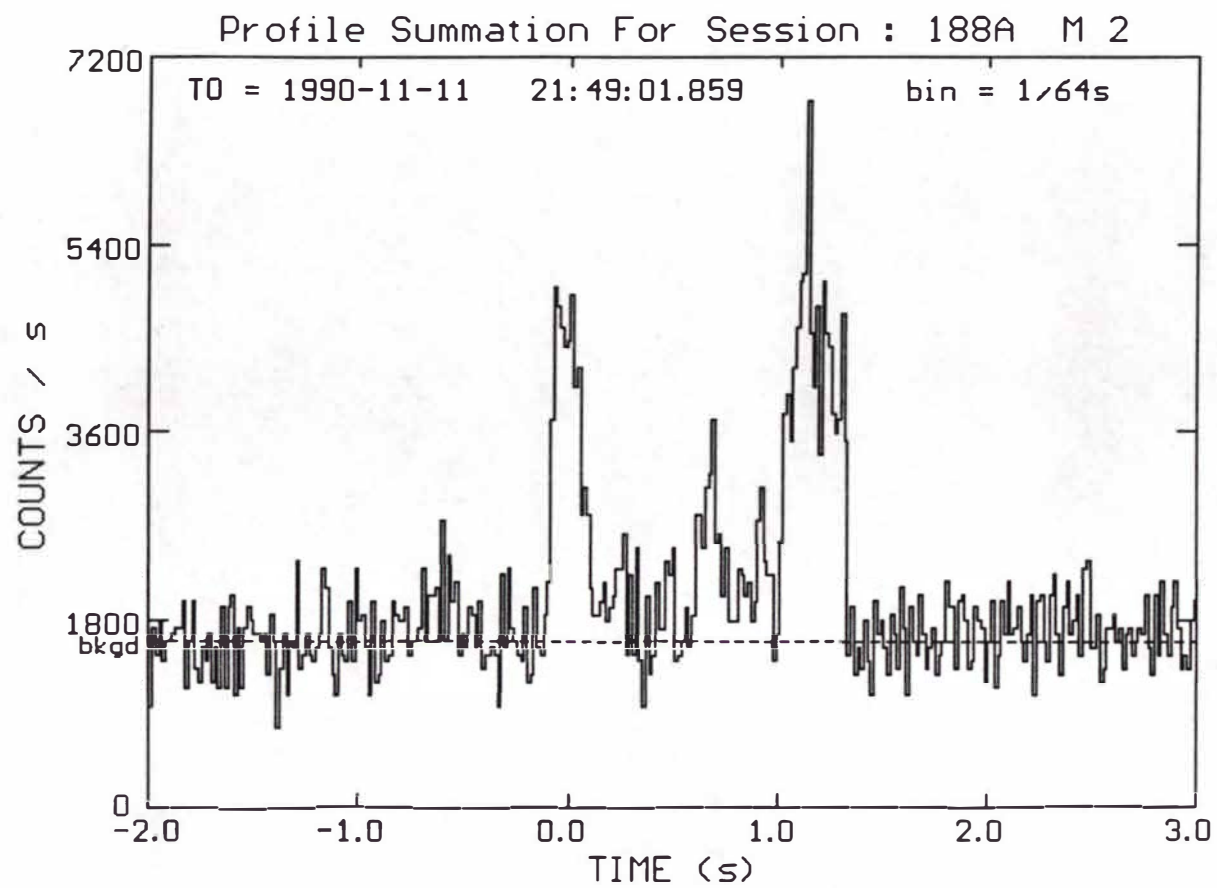
THIS LIST IS NOT COMPLETE. IT INCLUDES EVENTS FOR WHICH NO REAL-TIME DATA ARE AVAILABLE BECAUSE OF INAPPROPRIATE MODE, NO TRACKING, OR THE EXPERIMENT WAS TURNED OFF. WHERE DATA HAVE BEEN CHECKED, SENSITIVITY DEPENDS UPON THE TIME RESOLUTION AVAILABLE IN THE DATA. I'LL BE SENDING ADDITIONAL RESULTS AS THEY BECOME AVAILABLE.

REGARDS,

RAY

DATE	U.T.	Nr UGB	Event Nature
1990-09-28	05:23:41.813	167-a	GRB
1990-09-29	01:49:25.166	168-a	GRB
1990-10-11	22:31:01.494	176-a	GRB
1990-10-12	23:19:14.781	176-b	Unknown
1990-10-14	01:13:21.079	177-a	GRB
1990-10-15	08:44:48.512	178-a	GRB
1990-10-18	18:51:48.644	179-a	GRB
1990-10-20	01:04:28.909	180-a	GRB
1990-10-20	18:01:23.759	181-a	Solar Flare
1990-10-21	00:09:07.848	181-b	GRB
1990-10-27	04:21:05.625	185-a	GRB
1990-11-11	21:49:01.859	188-a	GRB
1990-11-12	14:57:37.647	189-a	GRB
1990-11-13	04:44:02.029	189-b	Solar Flare
1990-11-16	01:42:10.012	190-a	GRB
1990-11-17	13:37:35.859	192-a	Unknown
1990-11-17	14:41:40.621	192-b	Unknown
1990-11-18	20:23:47.770	192-c	Unknown
1990-11-21	00:04:47.791	194-a	GRB
1990-11-21	18:09:10.652	194-b	GRB
1990-12-04	02:00:28.445	201-a	Solar Flare
1990-12-04	03:19:19.152	201-b	Unknown
1990-12-04	09:42:52.699	202-a	Unknown
1990-12-04	17:20:43.930	202-b	Unknown
1990-12-04	18:21:47.722	202-c	Unknown
1990-12-06	20:33:48.100	204-a	Unknown
1990-12-12	03:26:59.750	205-a	Solar Flare
1990-12-12	03:26:59.750	208-a	Solar Flare
1990-12-13	05:37:04.829	209-a	Unknown
1990-12-13	06:12:32.708	209-b	Unknown
1990-12-13	07:06:23.125	209-c	GRB
1990-12-14	13:32:11.352	210-a	Solar Flare
1990-12-16	15:47:15.796	211-a	GRB
1990-12-19	21:52:48.635	213-a	GRB
1990-12-21	00:30:05.753	214-a	GRB

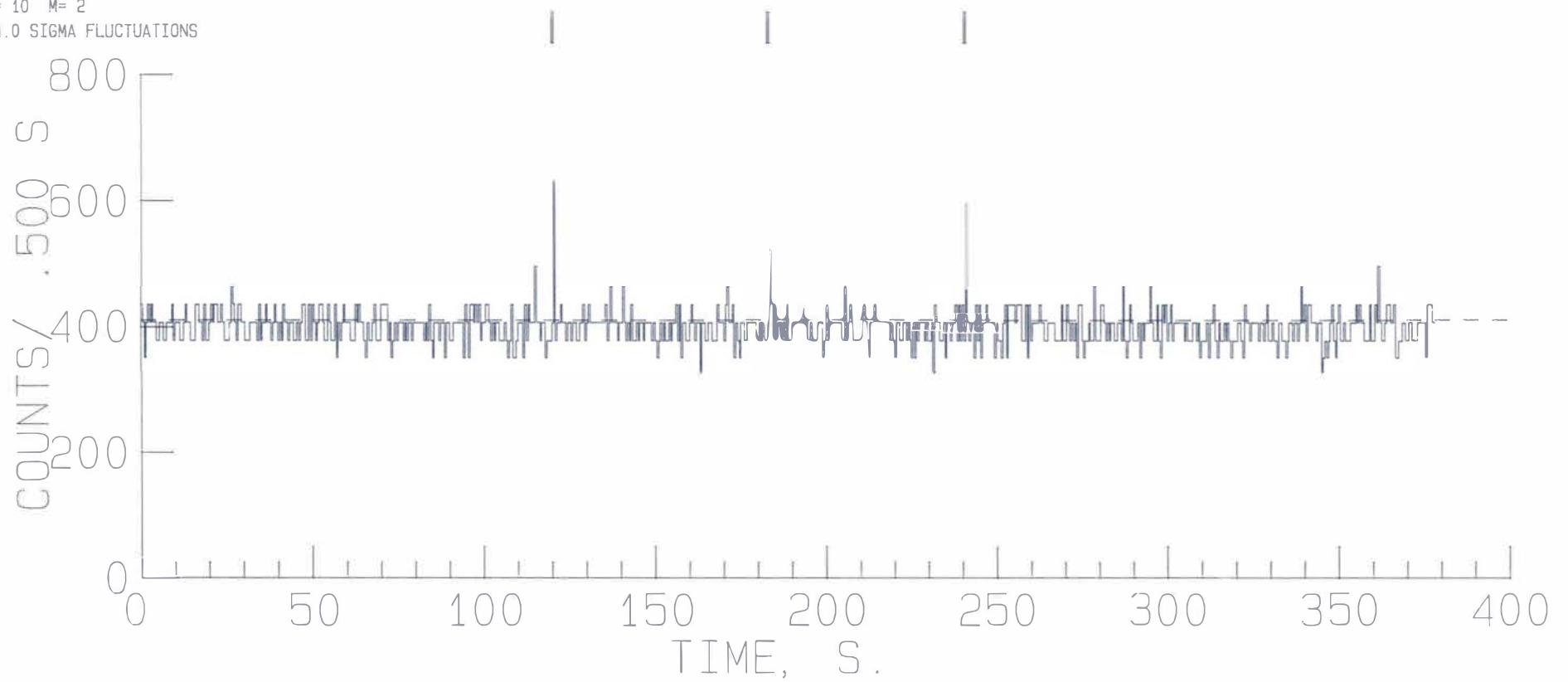
Phobos



22 / 2 / 92

ULYSSES RT
11/11/90 78370.797 s
0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

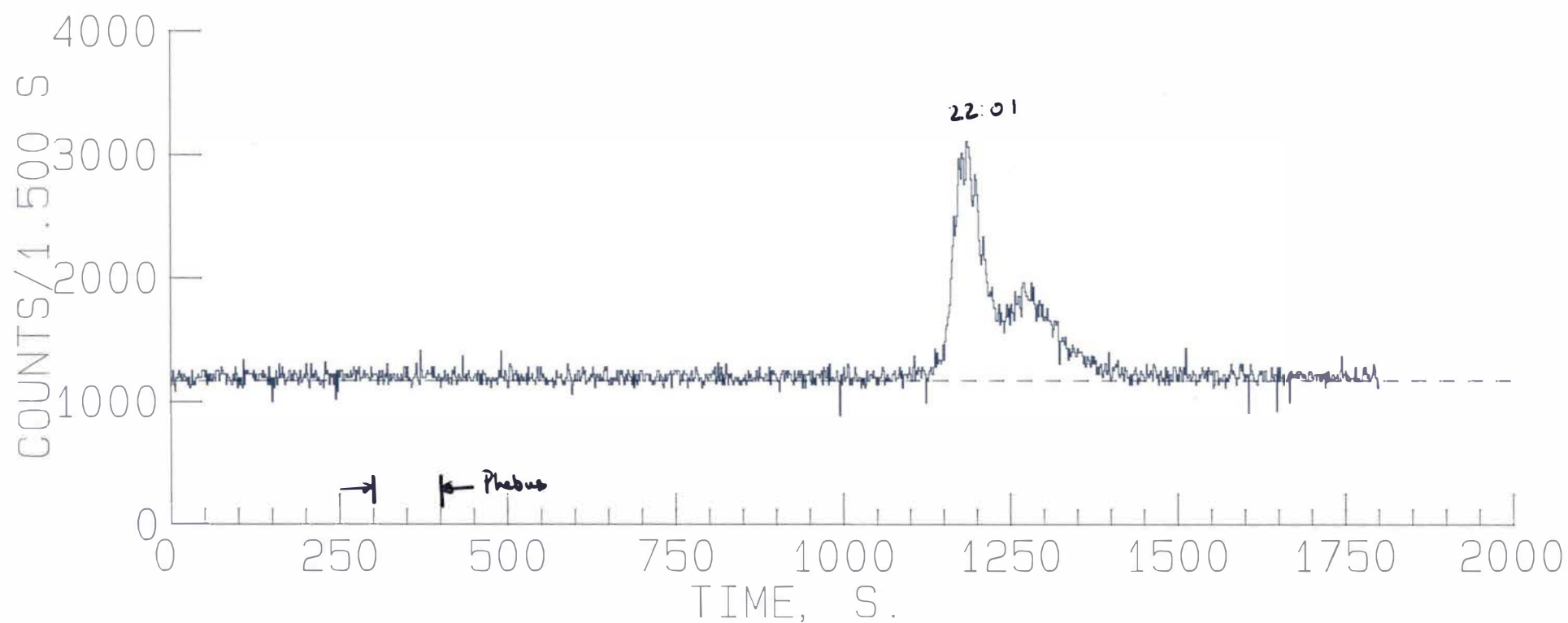


ULYSSES RT

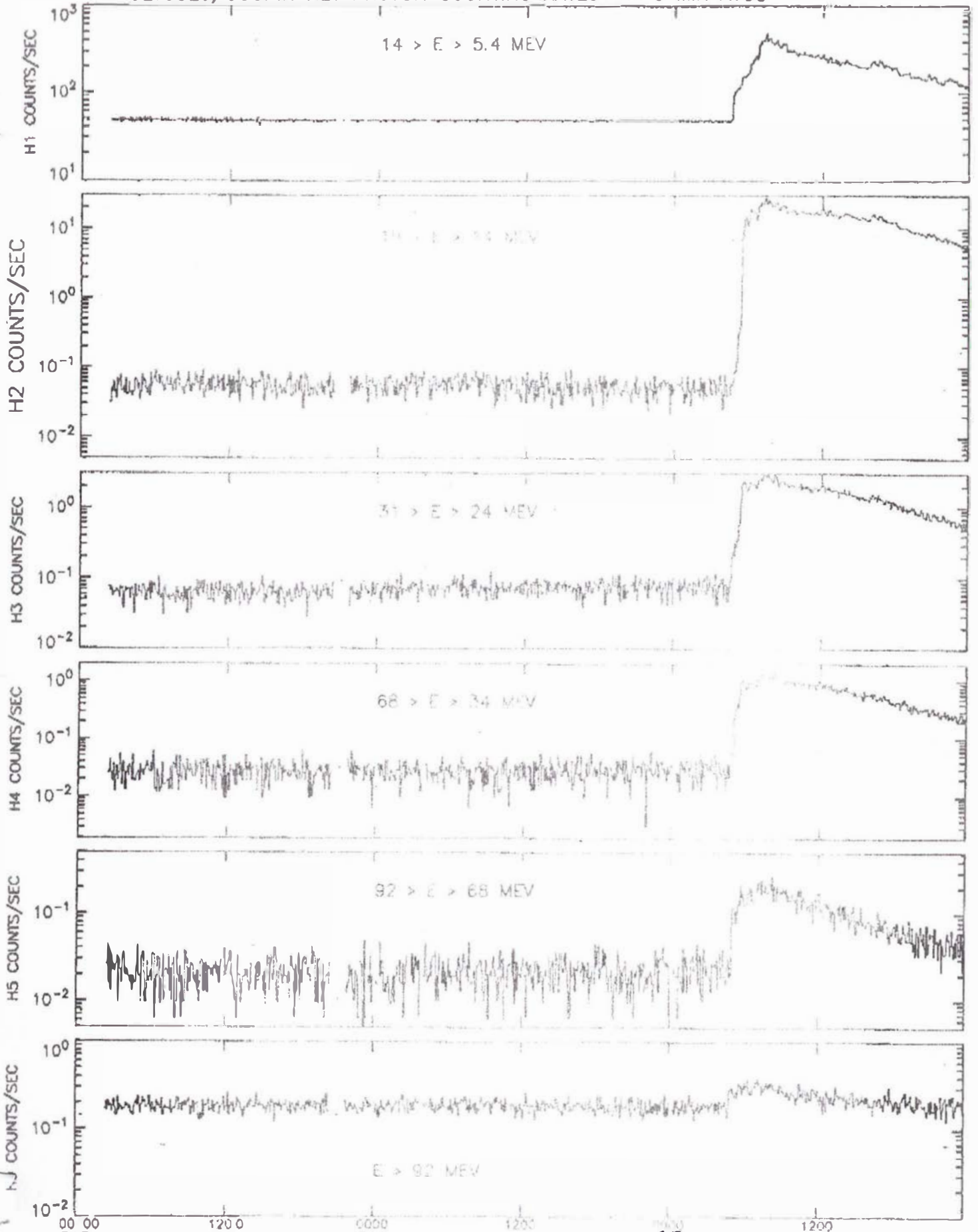
11/11/90 78120.289 s

.500 S INTERVALS REGROUPED BY 3

0- 0 keV



ULYSSES/COSPIN HET PROTON COUNTING RATES -- 5 MIN AVGS



PHEBUS

11/11/90 78539.855 s

100- 1600 keV

s

COUNTS/0.03125

60

50

40

30

20

10

0

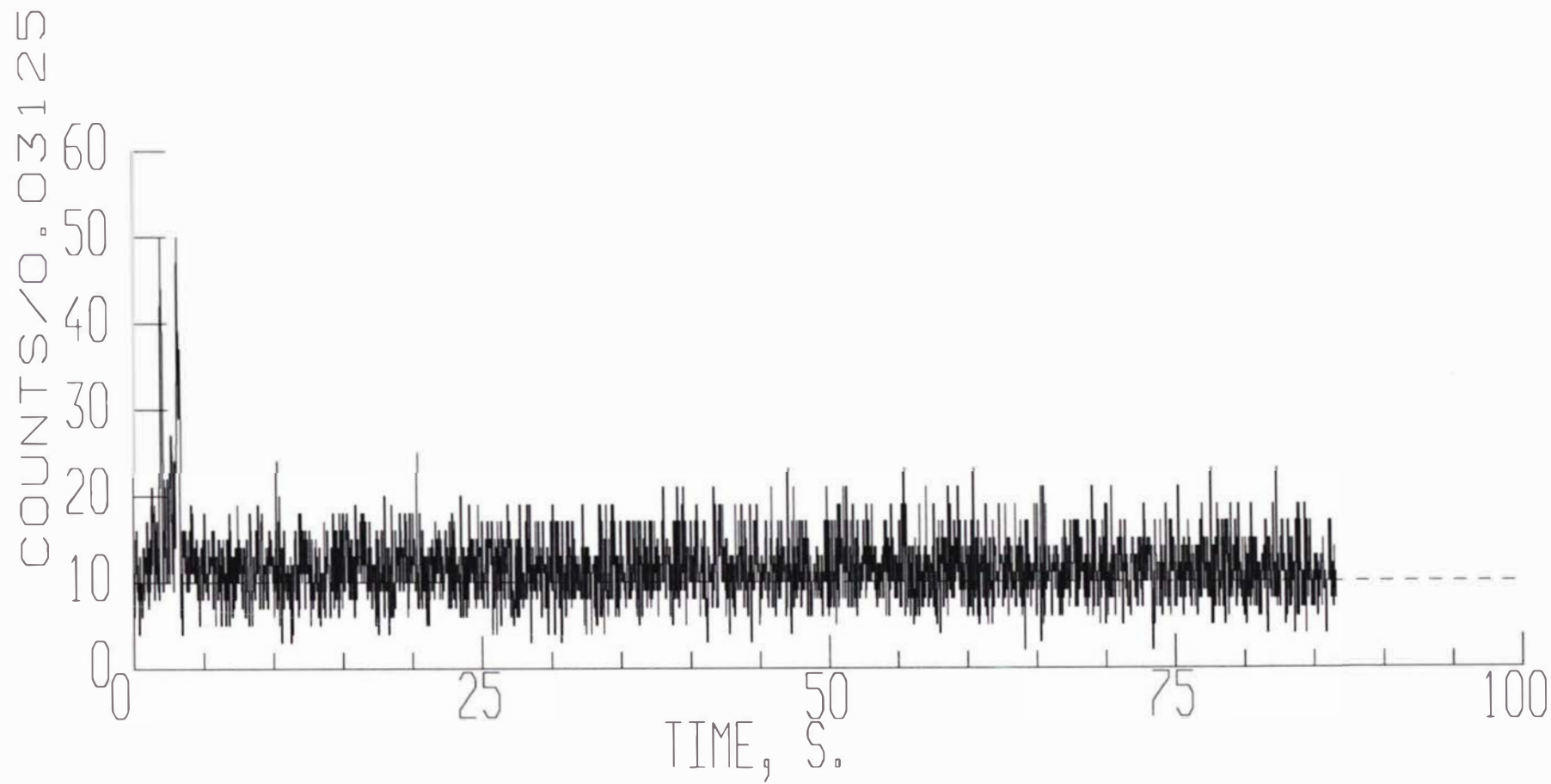
25

50

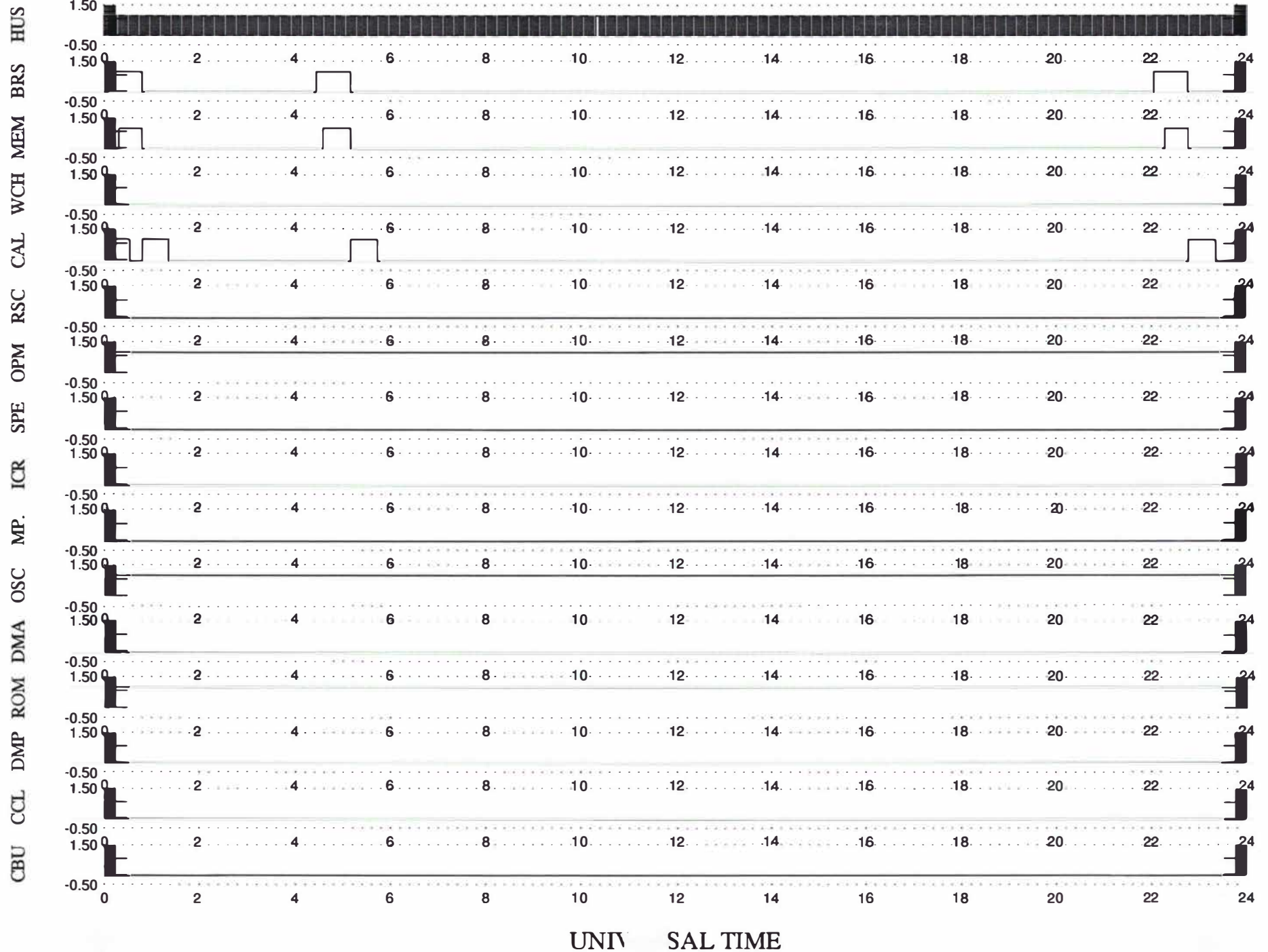
75

100

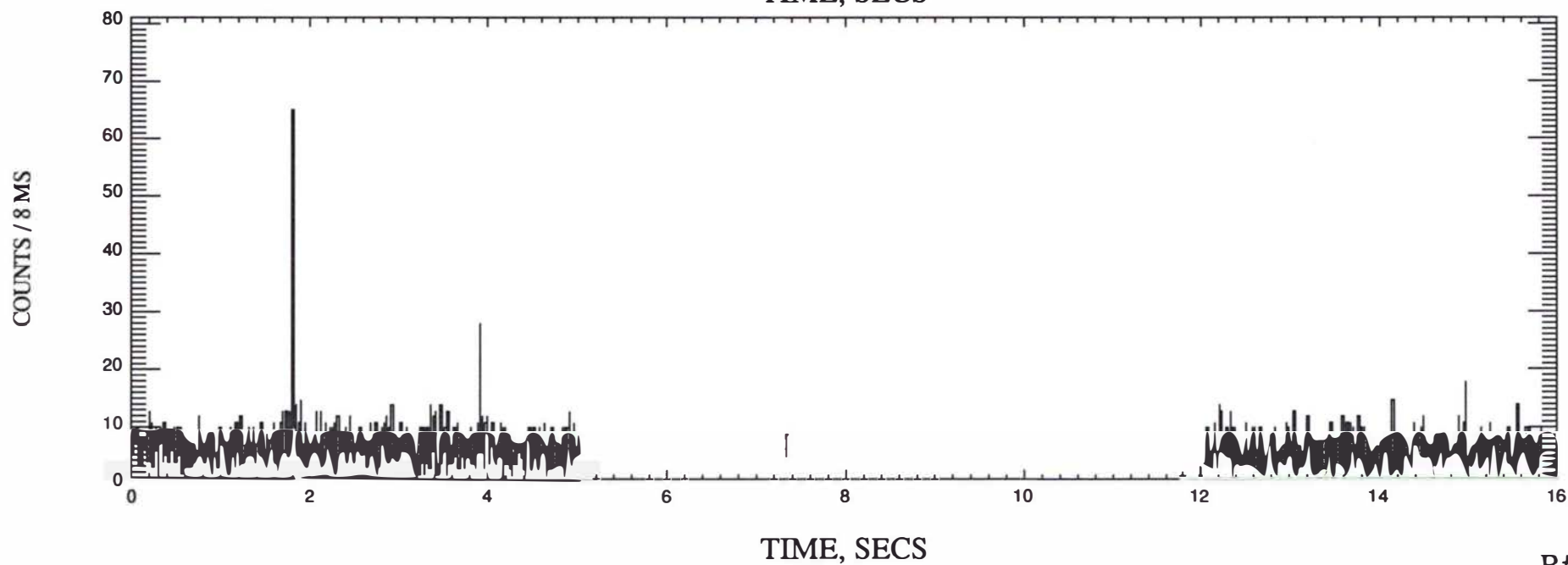
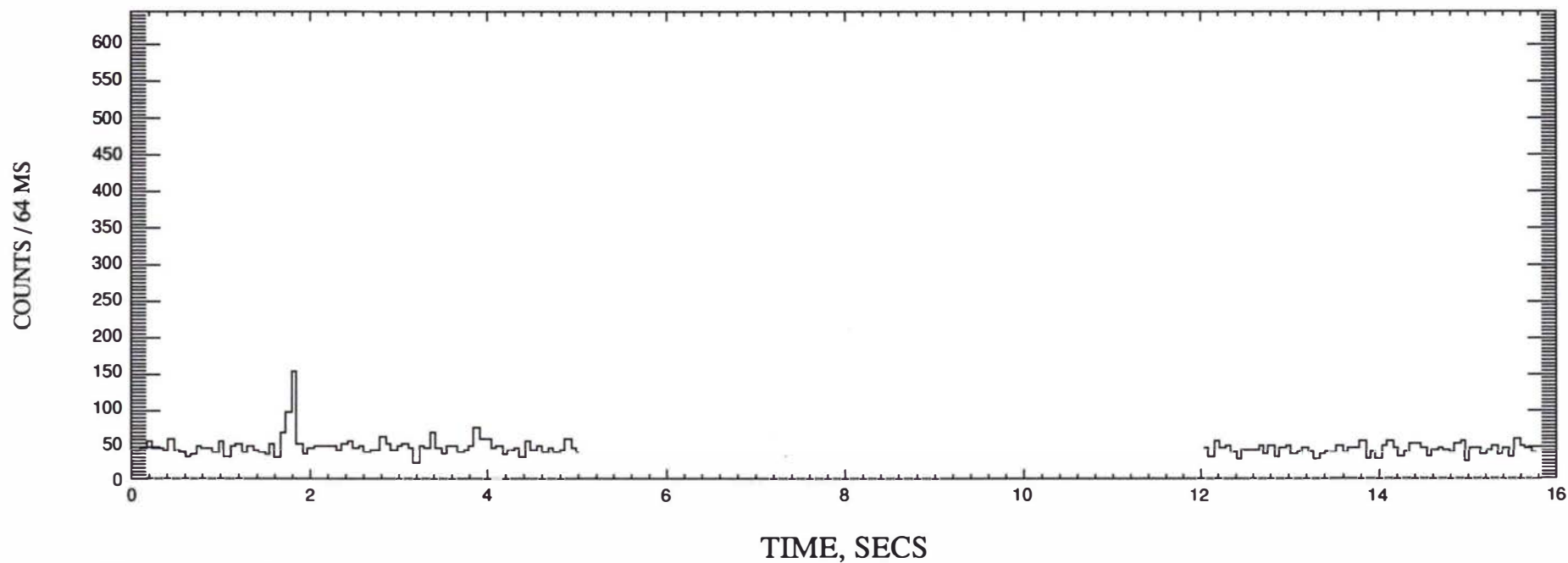
TIME, S.



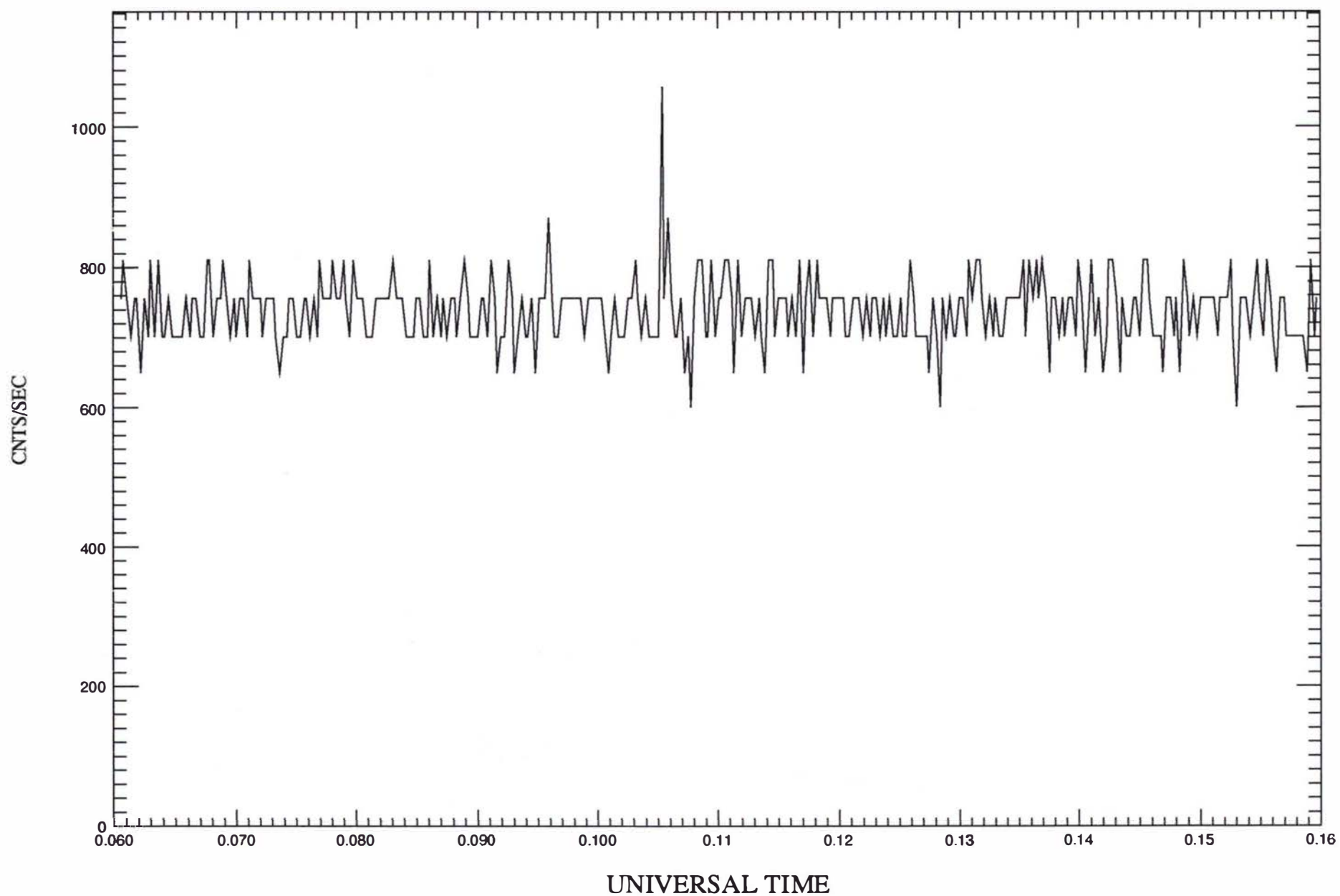
BURST NUMBER 7 - 9



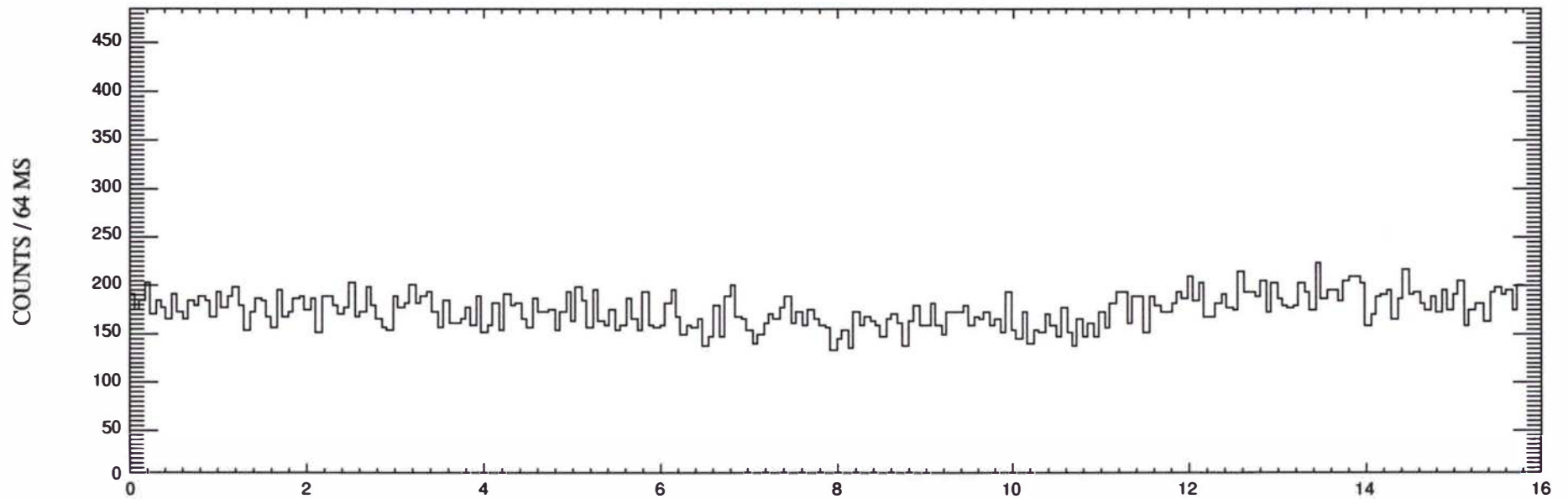
Burst Counter 7 at UT= 0.105424842834 h= 379.529 s 00:06:19.529



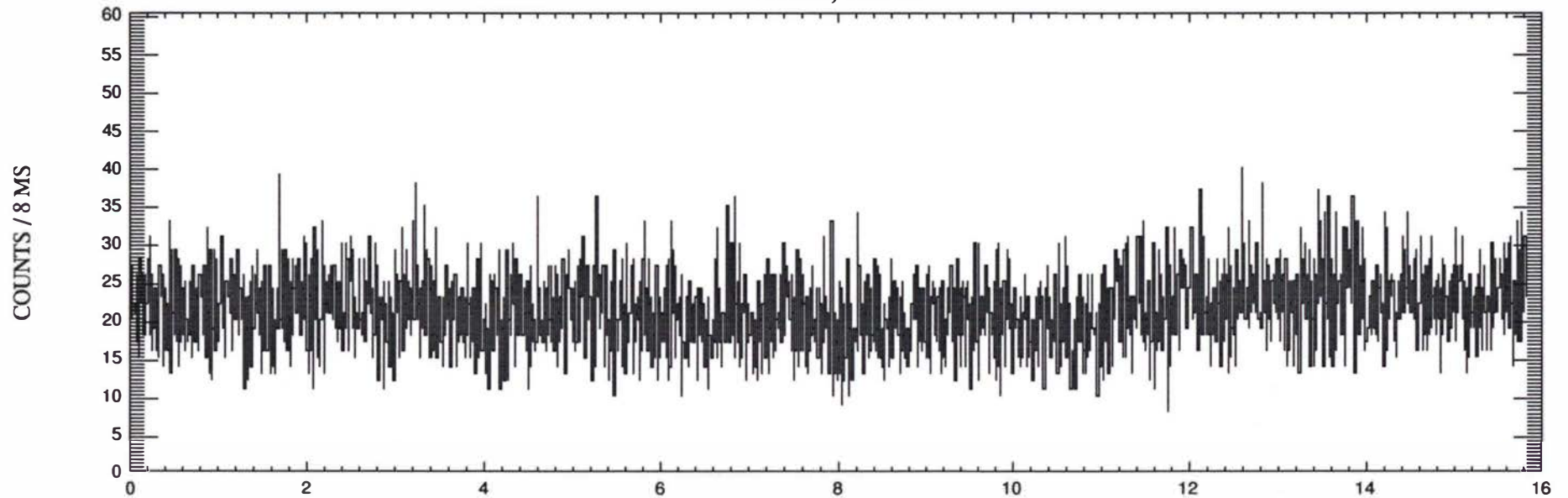
CALIBRATION DATA INCLUDED



Burst Counter 8 at UT= 4.394614452786 h=15820.612 s 04:23:40.612

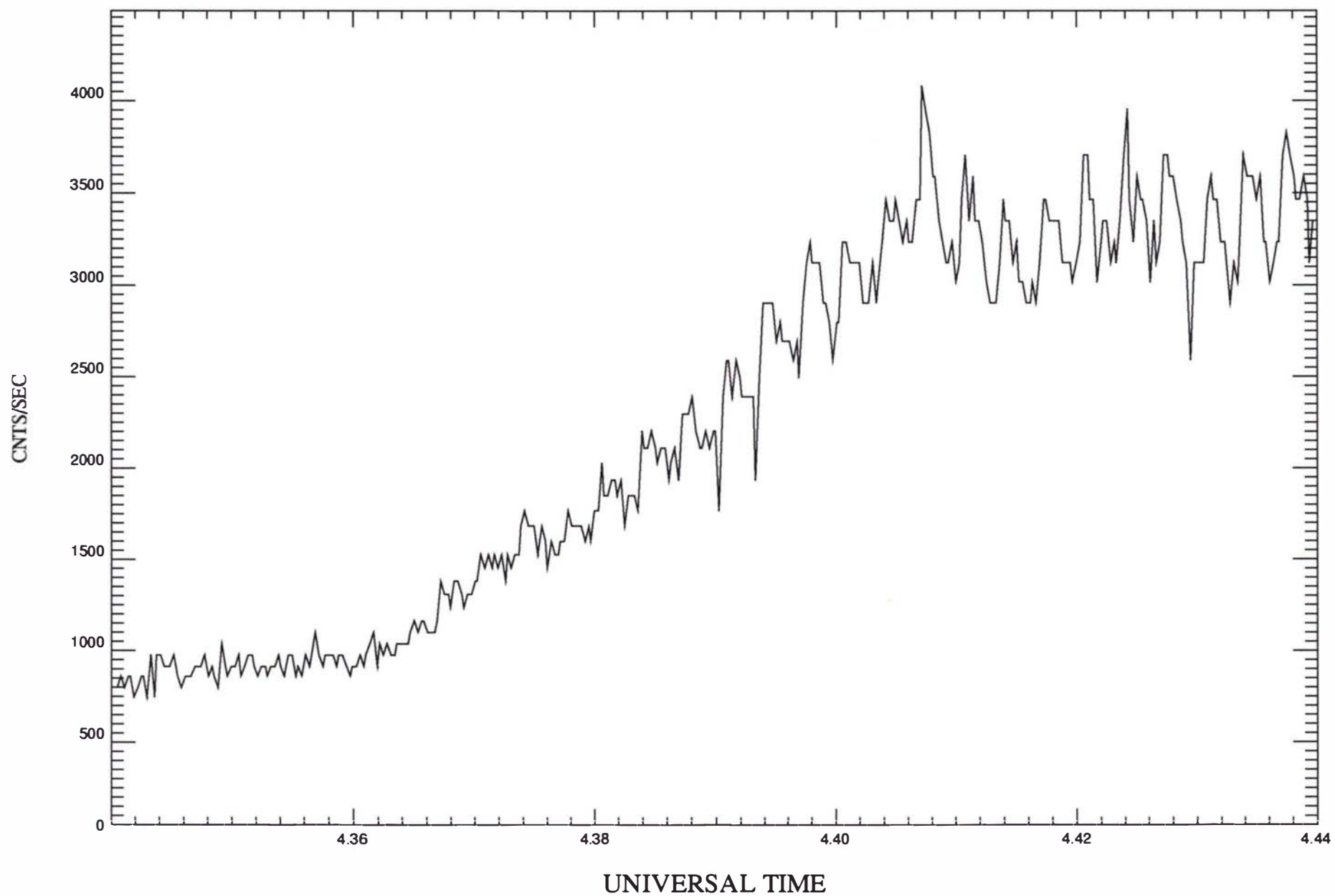


TIME, SECS

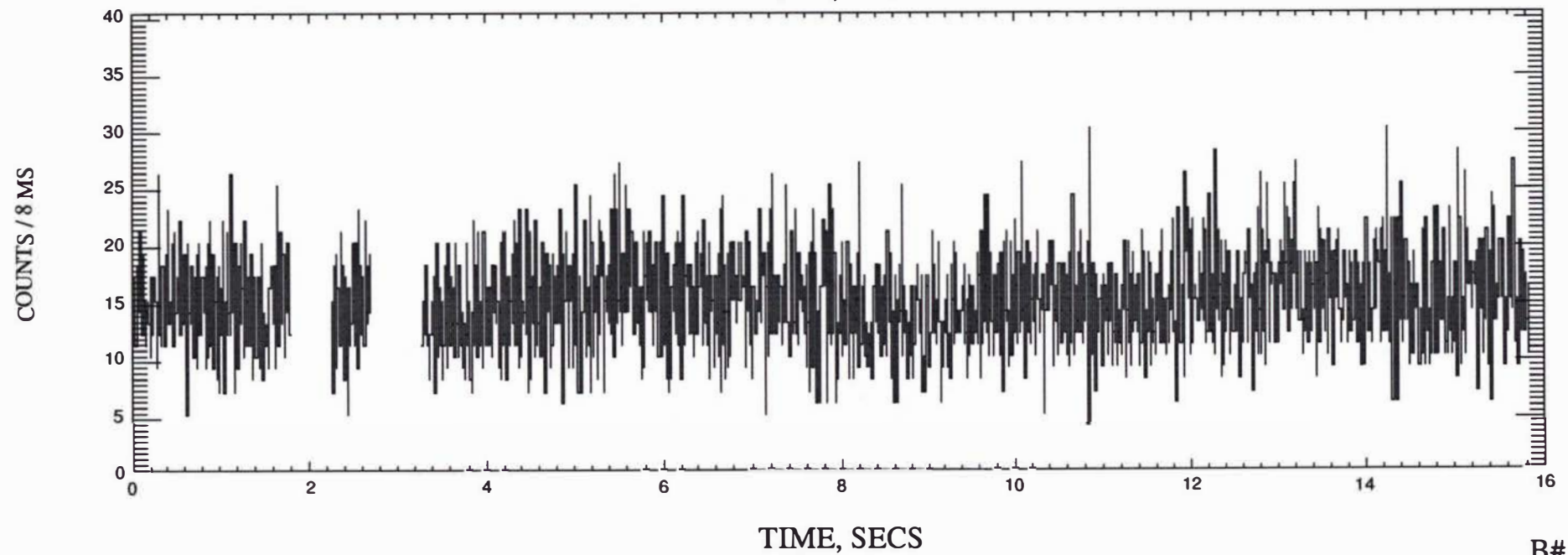
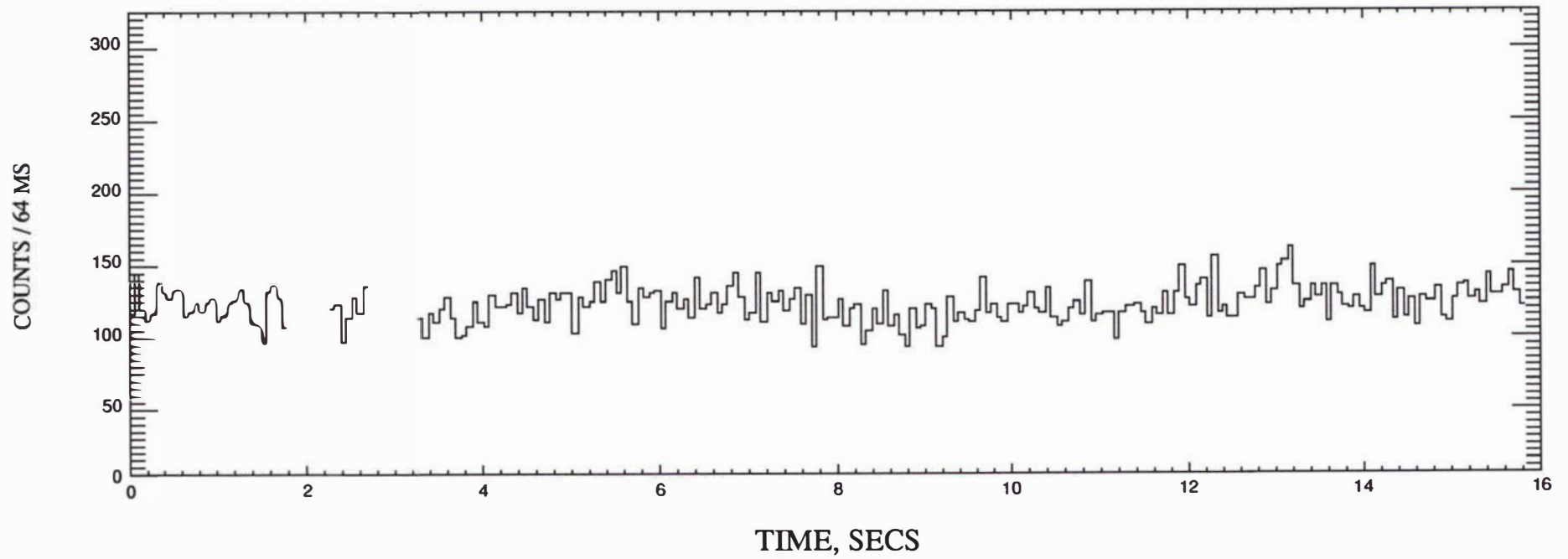


TIME, SECS

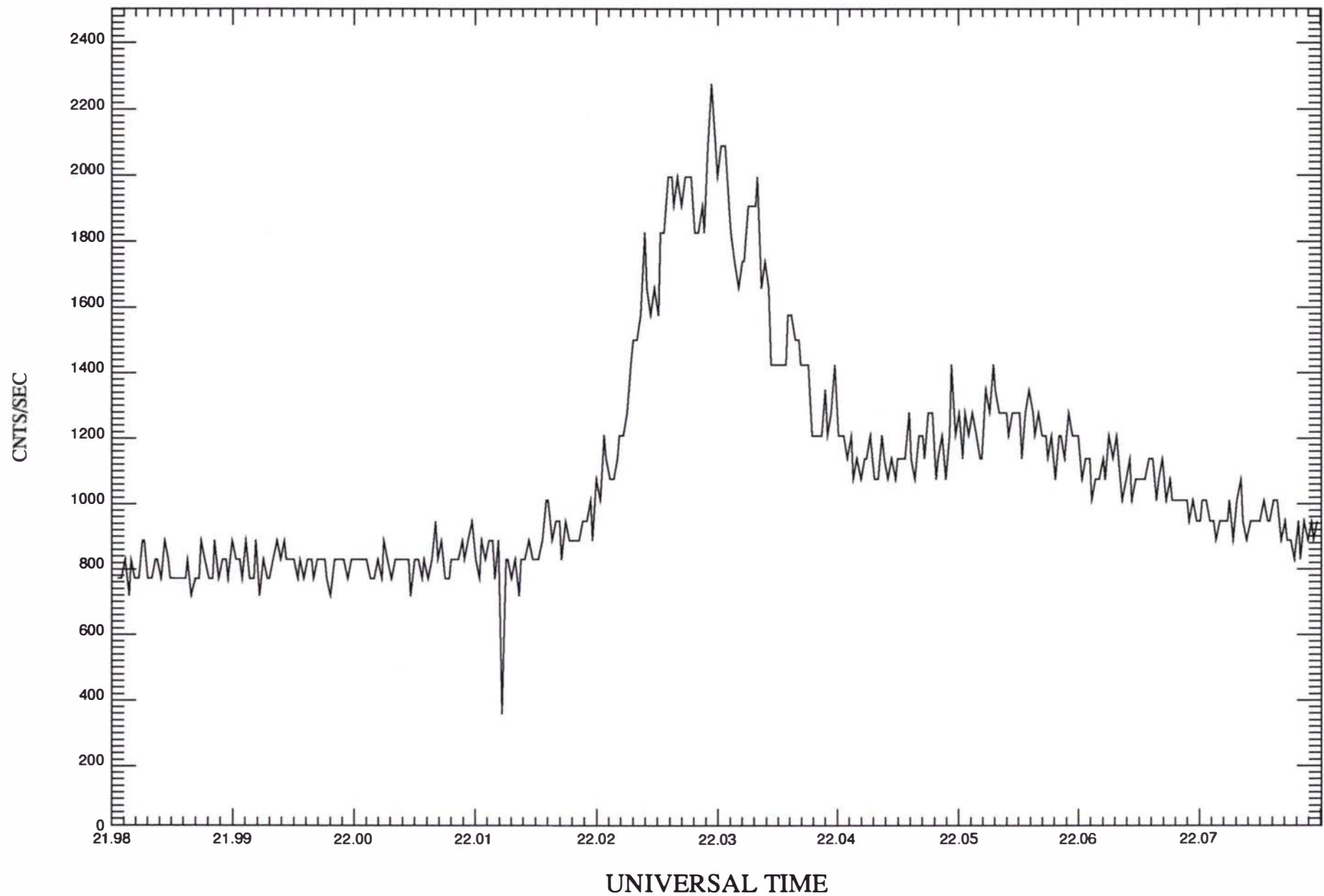
CALIBRATION DATA INCLUDED



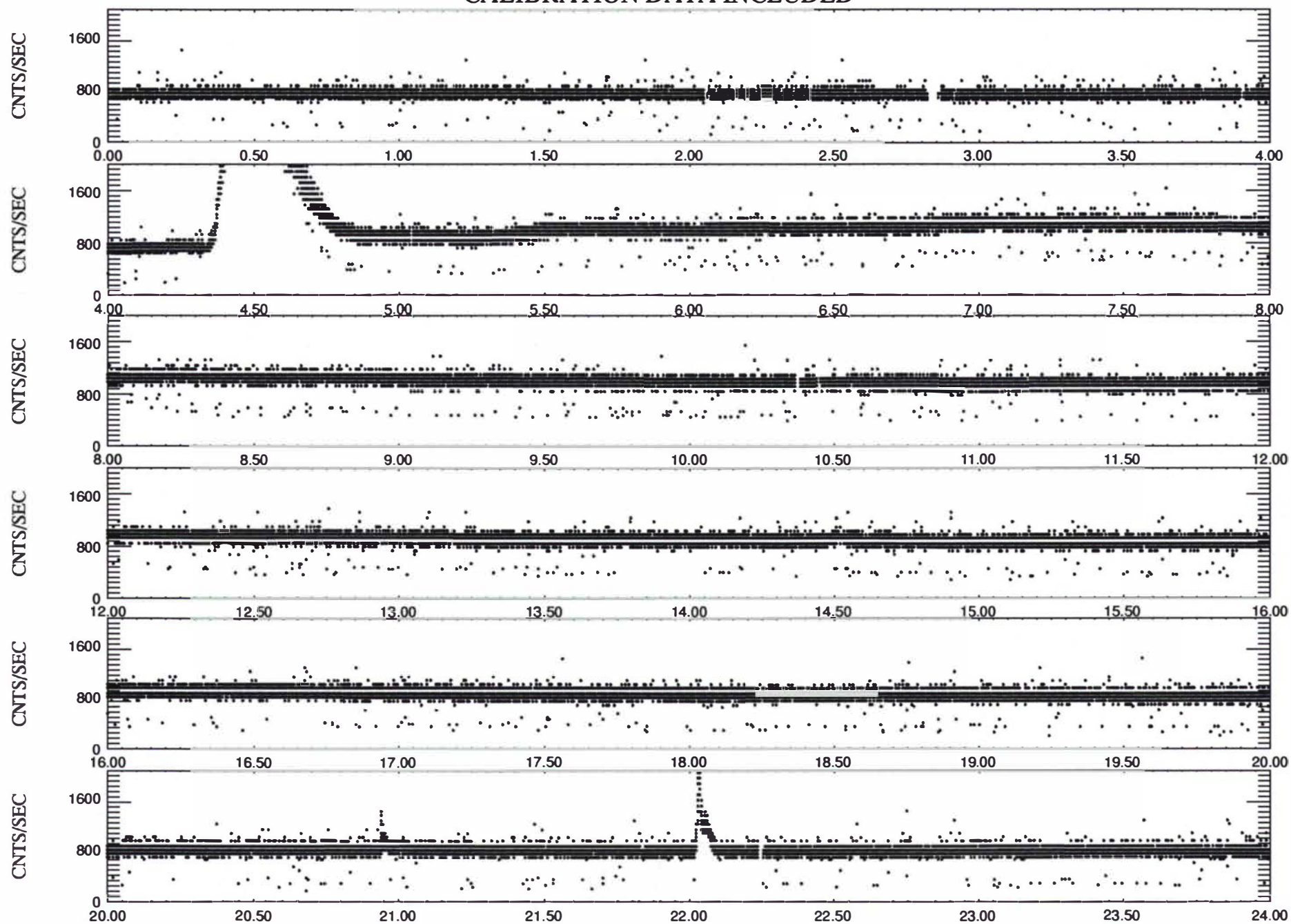
Burst Counter 9 at UT=22.026439759996 h=79295.183 s 22:01:35.183



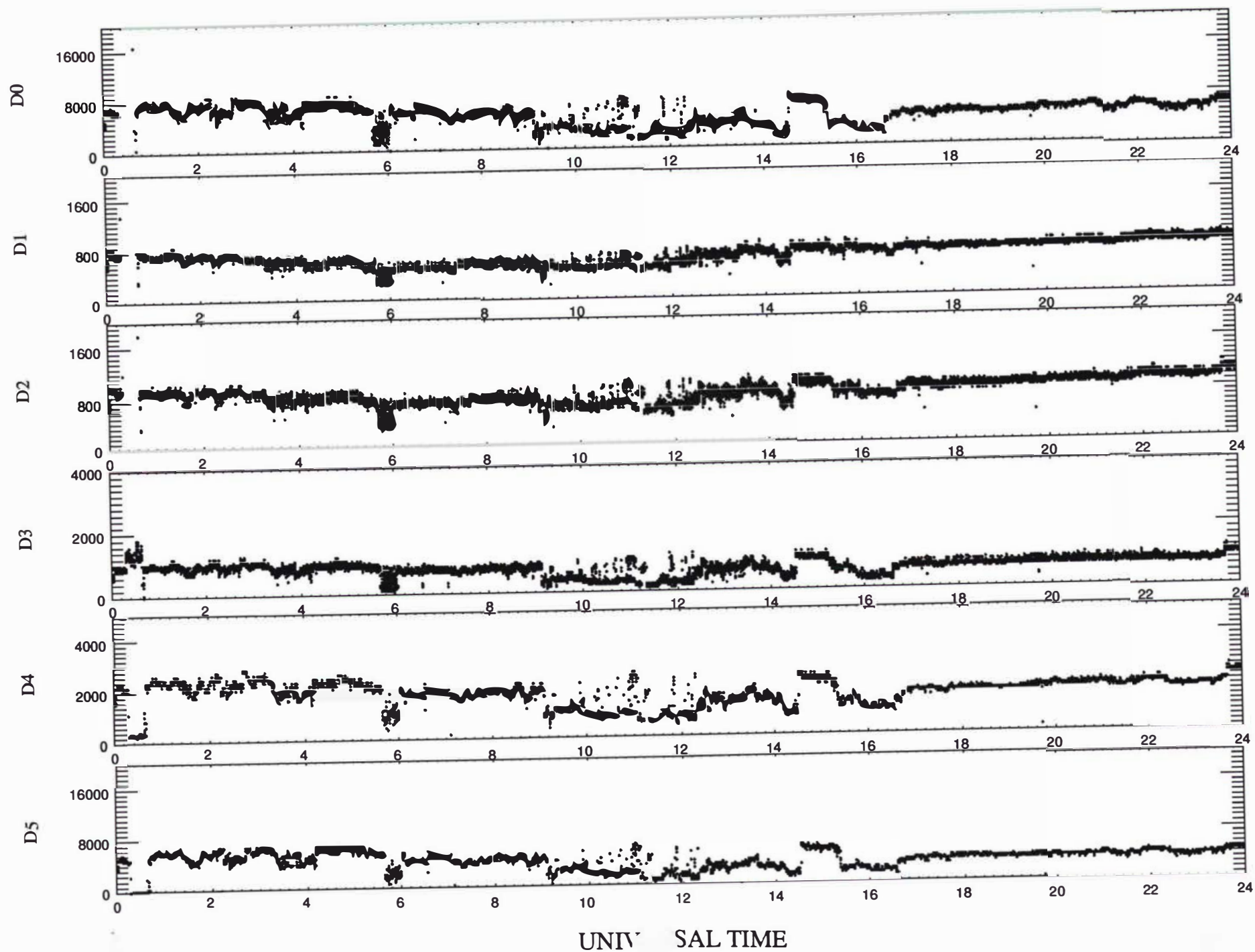
CALIBRATION DATA INCLUDED



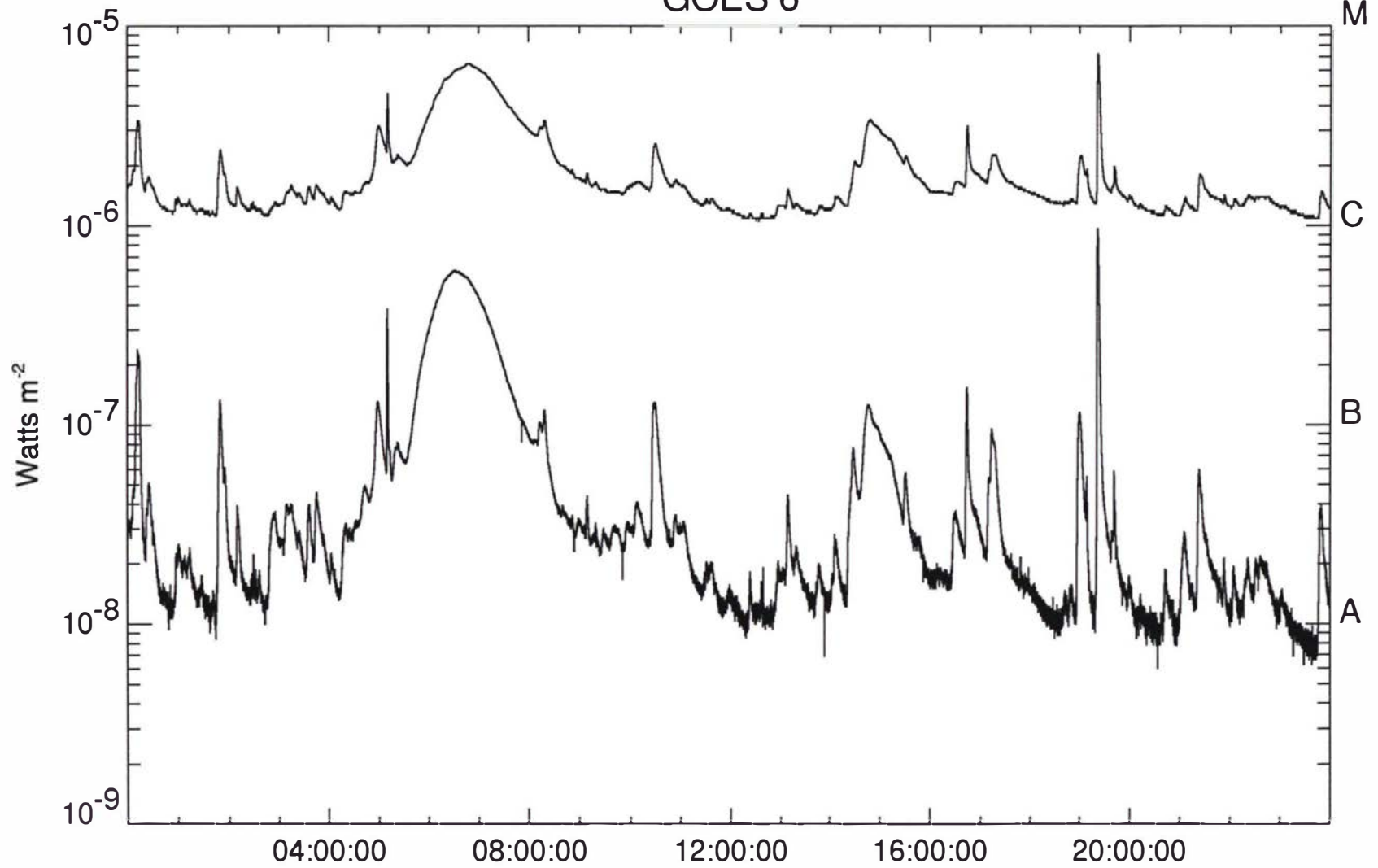
CALIBRATION DATA INCLUDED



UNIV SAL TIME



GOES 6



Data Start: 90/11/12, 0000:01

Plot created: 96/05/23, 1827

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Table 1

Burst	Number	Activation time	Duration T_{90} , s	$C_{\max}/C_{\min}$	Remarks
1	2	3	4	5	6
PB891218	7.2	19 ^h 57 ^m 38 ^s .838	29.18 ± 0.28	2.67 ± 0.30	K
PB900114	19.3	6 09 12.306	0.41 ± 0.10	1.04 ± 0.27	K
PB900201	28.1	19 50 13.993	1.03 ± 0.19	5.19 ± 0.36	K
PB900222	44.1	11 56 34.346	4.89 ± 0.29	1.26 ± 0.22	
PB900308	52.1	9 39 05.635	2.31 ± 0.11	1.10 ± 0.27	KW
PB900316	58.1	19 43 17.945	1.67 ± 0.70	5.65 ± 0.64	
PB900320	59.2	6 53 01.525	0.05 ± 0.01	6.99 ± 0.49	
PB900325	63.1	3 29 07.686	17.59 ± 0.68	1.16 ± 0.23	
PB900404	66.3	17 54 35.241	2.72 ± 0.50	10.31 ± 0.96	SW
PB900413a	70.1	3 12 36.562	18.42 ± 0.17	11.63 ± 0.68	SK
PB900413b	70.2	10 11 21.744	14.76 ± 0.60	5.21 ± 0.38	W
PB900422	77.1	11 35 50.575	0.89 ± 0.04	1.62 ± 0.31	
PB900520a	87.1	12 10 17.439	0.42 ± 0.01	11.24 ± 1.01	S
PB900520b	87.2	13 02 17.513	71.71 ± 1.27	1.20 ± 0.23	
PB900524	91.2	3 48 12.550	8.02 ± 0.37	1.07 ± 0.22	
PB900604	96.1	17 31 33.303	0.27 ± 0.01	7.69 ± 0.71	SW
PB900605	97.1	19 23 01.481	7.30 ± 0.33	1.82 ± 0.26	GS
PB900611	101.1	4 15 20.289	15.18 ± 0.28	1.49 ± 0.30	
PB900616	105.1	2 18 14.576	1.38 ± 0.08	1.31 ± 0.24	
PB900618a	107.1	21 35 49.344	5.85 ± 0.39	1.94 ± 0.27	
PB900618b	107.2	23 12 21.662	17.24 ± 0.26	4.27 ± 0.37	
PB900625	112.1	22 04 17.234	16.88 ± 1.30	1.07 ± 0.23	
PB900711	121.1	17 38 17.976	1.12 ± 0.08	1.40 ± 0.23	
PB900720	127.1	21 44 59.956	30.42 ± 0.63	2.22 ± 0.27	S
PB900722	128.1	2 18 31.588	4.45 ± 0.32	3.32 ± 0.31	
PB900725	129.1	1 32 34.958	7.64 ± 0.21	1.12 ± 0.22	
PB900813	135.1	13 26 53.915	0.02 ± 0.01	2.95 ± 0.41	
PB900816	137.1	11 20 01.886	21.80 ± 0.13	1.55 ± 0.26	
PB900925a	165.1	5 19 21.744	1.89 ± 1.81	1.09 ± 0.26	
PB900925b	166.1	20 25 22.028	48.32 ± 0.52	2.17 ± 0.26	
PB900928	167.1	5 23 41.813	5.27 ± 0.50	5.10 ± 0.60	G
PB900929	168.1	1 49 25.166	20.58 ± 0.20	4.07 ± 0.55	
PB901011	176.1	22 31 01.494	1.17 ± 0.02	1.86 ± 0.36	
PB901014	177.1	1 13 21.079	10.26 ± 0.31	4.07 ± 0.35	S
PB901015	178.1	8 44 48.512	2.84 ± 0.34	1.36 ± 0.24	
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PB901021	181.2	0 09 07.848	29.18 ± 0.94	5.94 ± 0.46	
PB901027	185.1	4 21 05.624	8.04 ± 0.20	2.95 ± 0.32	S
PB901111	188.1	21 49 01.859	1.28 ± 0.02	2.82 ± 0.41	
PB901112	189.1	14 57 37.649	10.69 ± 0.55	2.39 ± 0.29	U
PB901116	190.1	1 42 10.013	9.07 ± 0.15	2.18 ± 0.28	
PB901121a	194.2	0 04 47.785	4.68 ± 0.13	1.66 ± 0.25	U

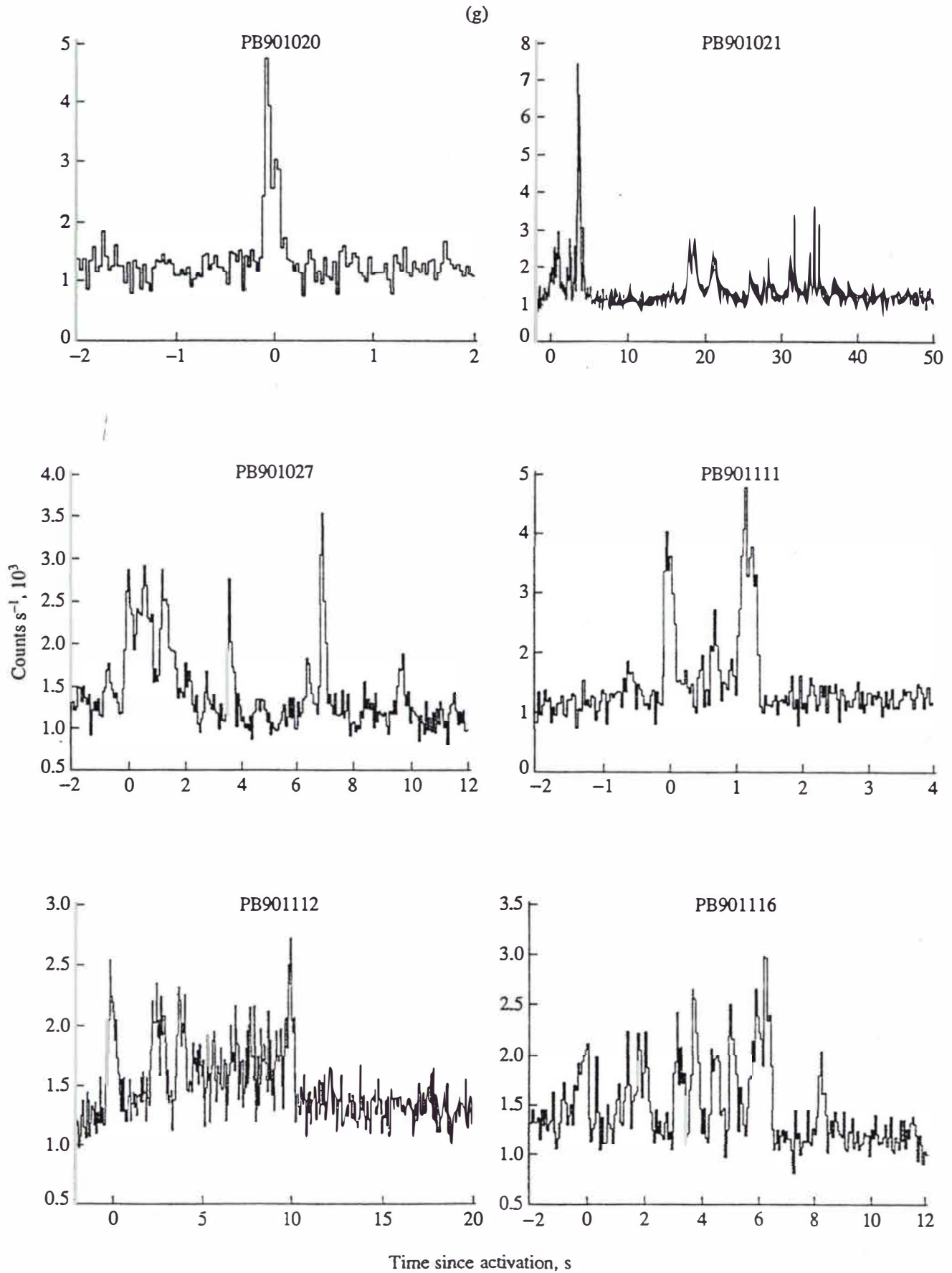


Fig. 1. (Contd.).

From root Wed Dec 8 07:58 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA08899; Wed, 8 Dec 93 07:57:44
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA22497; Wed, 8 Dec 93 07:00:41 PST
Received: Wed, 8 Dec 93 07:03:53 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9312081503.AA10272@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-maillld v1.7); Wed, 8 Dec 93 07:03:57 PST
Date: Wed, 8 Dec 93 07:03:57 PST
From: 068486@essdp2.span.nasa.gov
X-To: AMES:."khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

KEVIN,
HERE ARE THE RESULTS OF OUR SURVEY OF THE PVO REAL-TIME DATA FOR EVIDENCE OF
RESPONSE TO EVENTS LISTED IN YOUR CATALOG.

DATE	TIME	PVO RESPONSE
90/11/11	21:49	N/O
90/11/12	14:57	N/O
90/11/16	01:42	N/O
90/11/19	18:08	N/O
90/11/21	00:04	N/O
90/11/21	18:09	N/O
90/12/02	13:45	N/O
90/12/21	00:30	N/O
90/12/25	05:50	N/O
91/01/17	00:57	N/O
91/01/24	11:50	N/O
91/02/04	08:58	N/O
91/02/04	14:19	N/O
91/02/04	14:58	N/O
91/02/17	02:59	N/O
91/03/14	22:56	N/O
91/03/15	22:55	N/O
91/04/04	17:17	(NO)
91/05/18	17:10	N/O
91/05/23	19:03	N/O
91/05/27	23:44	N/O
91/05/28	21:26	N/O
91/06/02	22:55	N/O
91/06/09	00:48	N/O
91/06/29	19:55	N/O
91/07/09	20:22	N/O
91/07/17	13:07	N/O
91/08/03	08:24	N/O
91/08/15	12:34	N/O
91/08/15	14:24	N/O
91/08/16	01:57	(NO)
91/09/05	23:48	N/O
91/09/16	21:58	N/O
91/09/25	03:35	N/O
91/09/26	18:25	N/O
91/09/30	11:55	N/O
91/10/03	00:39	N/O
91/10/04	01:27	N/O
91/10/06	09:01	(NO)
91/10/22	04:13	N/O
91/10/25	21:25	N/O
91/11/06	03:42	N/O
91/11/14	01:40	N/O
91/11/17	01:58	N/O
91/12/05	23:04	N/O

91/12/21	06:17	N/O
91/12/21	22:03	N/O
91/12/27	15:56	N/O
92/01/05	17:41	N/O
92/01/13	20:52	N/O
92/01/25	08:57	N/O
92/01/30	00:29	N/O
92/01/30	22:50	N/O
92/02/18	18:42	N/O
92/02/21	06:14	N/O
92/02/26	18:15	YES TRIGGER AT 29336 S UT
92/02/27	06:00	N/O
92/02/27	08:45	N/O
92/03/02	06:16	N/O
92/03/04	14:34	N/O
92/03/07	00:18	N/O
92/03/21	12:50	(NO)
92/03/26	02:01	N/O
92/03/27	09:38	N/O
92/03/29	16:38	(NO)
92/04/04	22:37	N/O
92/04/08	12:05	N/O
92/04/20	02:12	N/O
92/04/29	18:59	N/O
92/05/02	19:05	N/O
92/06/01	THRU 92/06/29	TURNED OFF---N/O
92/07/01	19:39	N/O
92/07/07	06:33	N/O
92/07/17	01:15	N/O
92/07/23	00:59	N/O
92/07/23	01:00	N/O
92/07/23	21:48	N/O
92/07/25	19:30	N/O
92/07/25	22:49	N/O
92/07/26	00:34	N/O
92/07/31	17:07	N/O
92/08/10	21:35	N/O
92/08/14	06:10	N/O
92/08/16	12:36	N/O
92/08/22	22:39	N/O
92/08/30	01:45	N/O
92/09/04	04:41	N/O

THIS LIST IS NOT COMPLETE. IT INCLUDES EVENTS FOR WHICH NO REAL-TIME DATA ARE AVAILABLE BECAUSE OF INAPPROPRIATE MODE, NO TRACKING, OR THE EXPERIMENT WAS TURNED OFF. WHERE DATA HAVE BEEN CHECKED, SENSITIVITY DEPENDS UPON THE TIME RESOLUTION AVAILABLE IN THE DATA. I'LL BE SENDING ADDITIONAL RESULTS AS THEY BECOME AVAILABLE.

REGARDS,

RAY

FAXCOVER

DANISH SPACE RESEARCH INSTITUTE

GL LUNDTØFTEVEJ 7
DK-2800 LYNGBY
DENMARK

PHONE: +45 42 88 22 77 TELEFAX: +45 45 93 02 83 TELEX: 37198 dsmr dk

DATE: Nov 23, 1993

Page 1 of 2

From: Alberto J. CASTRO-TIRADO

TO : Kevin HURLEY

FAX no

Name : 510 643 8640

Dear Kevin.

Thank you for your answer. Enclosed I send you the list of CONFIRMED 69 GRBS plus 14 CANDIDATES. Now you may fill the WATCH response in the Master GRB list for WATCH-GRAWAT in the period 1/1/90 - 25/9/92.

GRB 920321 (at 13:00:44) is a ≤ 1.5 burst in WATCH data, so I think it could be the same event seen by Ulysses. We do not have better time resolution.

The other repeater is 900126/920311. The two error boxes are reported by 1° , at $\sim \alpha = 08^h 46^m$ $\delta = -38^\circ$ (1450.0)

Kind regards,

Alberto

First GRANAT/WATCH
Gamma-Ray Burst
Catalogue

1 st obs (yy:mm:dd)	U.T. (hh:mm:ss)
900118	17:40:48
900120	20:37:33
900123a	01:42:13
900123b	18:44:17
900126	18:04:27
900222	11:56:35
900308	09:32:02
900327	10:24:28
900404	17:54:36
900413	10:11:21
900708a	11:30:21
900708b	18:44:53
900901	01:35:47
900925	20:25:22
900929	01:49:18
901009	00:15:46
901015b	08:44:48
901027	04:21:07
901112	14:57:37
901116	01:42:10
901119	18:08:32
901219	21:52:43
910117	00:57:51
910122	15:13:40
910202	20:57:35
910219	11:45:25
910310	13:02:06
910312	12:43:09
910425	00:37:52
910517	05:02:20
910627	04:29:24
910717a	04:11:07
910717b	13:07:25

910721	19:30:12
910723	14:06:20
910814	19:14:31
910815	14:24:32
910817	17:09:26
910818	13:44:46
910821	10:33:36
910901	05:24:14
910925	03:35:36
910927	23:26:53
911016	11:03:31
911018	05:32:00
911022	04:13:58
911202	20:28:51
911205	23:04:41
911209	18:36:00
920105	17:41:17
920116	18:30:35
920130	00:29:17
920302	06:16:54
920307	00:18:06
920311	02:20:20
920325	17:17:37
920615	14:24:56
920714	13:04:53
920718a	14:41:16
920718b	21:32:47
920720	05:53:04
920723a	01:00:34
920723b	20:03:11
920814	06:10:25
920902	00:29:04
920903a	01:36:15
920903b	23:28:52
920925a	19:30:43
920925b	20:45:14
920925c	22:14:14

CANDIDATES

900415	06:20:58
900603	06:20:50
900616	03:56:50
900618	23:12:22
900625	22:04:16
900628	11:17:53
900815	11:35:12
900914	04:46:40
901015a	02:42:16
910408	22:34:18
910414	07:28:27
910816	01:57:40
920314	05:48:32
920721	13:00:49
920721	06:17:25

Dezaley -> KH 7/93

DATE	U.T.	Nr UGB	Event Nature
1990-09-28	05:23:41.813	167-a	GRB
1990-09-29	01:49:25.166	168-a	GRB
1990-10-11	22:31:01.494	176-a	GRB
1990-10-12	23:19:14.781	176-b	Unknown
1990-10-14	01:13:21.079	177-a	GRB
1990-10-15	08:44:48.512	178-a	GRB
1990-10-18	18:51:48.644	179-a	GRB
1990-10-20	01:04:28.909	180-a	GRB
1990-10-20	18:01:23.759	181-a	Solar Flare
1990-10-21	00:09:07.848	181-b	GRB
1990-10-27	04:21:05.625	185-a	GRB
1990-11-11	21:49:01.859	188-a	GRB
1990-11-12	14:57:37.647	189-a	GRB
1990-11-13	04:44:02.029	189-b	Solar Flare
1990-11-16	01:42:10.012	190-a	GRB
1990-11-17	13:37:35.859	192-a	Unknown
1990-11-17	14:41:40.621	192-b	Unknown
1990-11-18	20:23:47.770	192-c	Unknown
1990-11-21	00:04:47.791	194-a	GRB
1990-11-21	18:09:10.652	194-b	GRB
1990-12-04	02:00:28.445	201-a	Solar Flare
1990-12-04	03:19:19.152	201-b	Unknown
1990-12-04	09:42:52.699	202-a	Unknown
1990-12-04	17:20:43.930	202-b	Unknown
1990-12-04	18:21:47.722	202-c	Unknown
1990-12-06	20:33:48.100	204-a	Unknown
1990-12-12	03:26:59.750	205-a	Solar Flare
1990-12-12	03:26:59.750	208-a	Solar Flare
1990-12-13	05:37:04.829	209-a	Unknown
1990-12-13	06:12:32.708	209-b	Unknown
1990-12-13	07:06:23.125	209-c	GRB
1990-12-14	13:32:11.352	210-a	Solar Flare
1990-12-16	15:47:15.796	211-a	GRB
1990-12-19	21:52:48.635	213-a	GRB
1990-12-21	00:30:05.753	214-a	GRB

Date: Jul 6 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☐ Jim Schmidling's stat file correction applied?
- ☐ Final ephemeris used?
- ☐ Final, CDROM data used?
- ☐ Were data checked by Joe Springer for 0.5 s errors?
- ☐ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

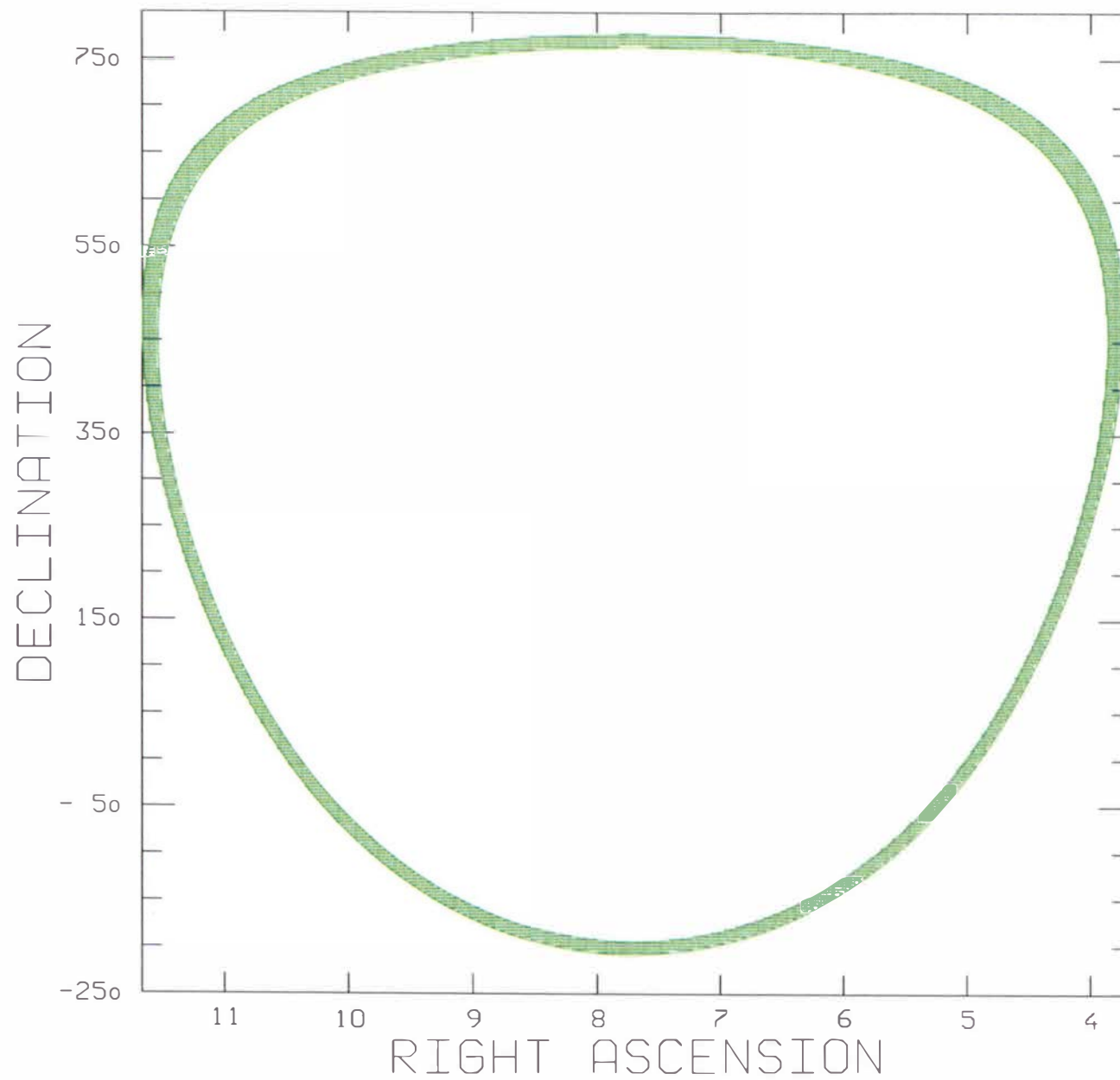
2. BATSE Data

- ☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)?
- ☐ BATSE ephemeris for T_0 ?
- ☐ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

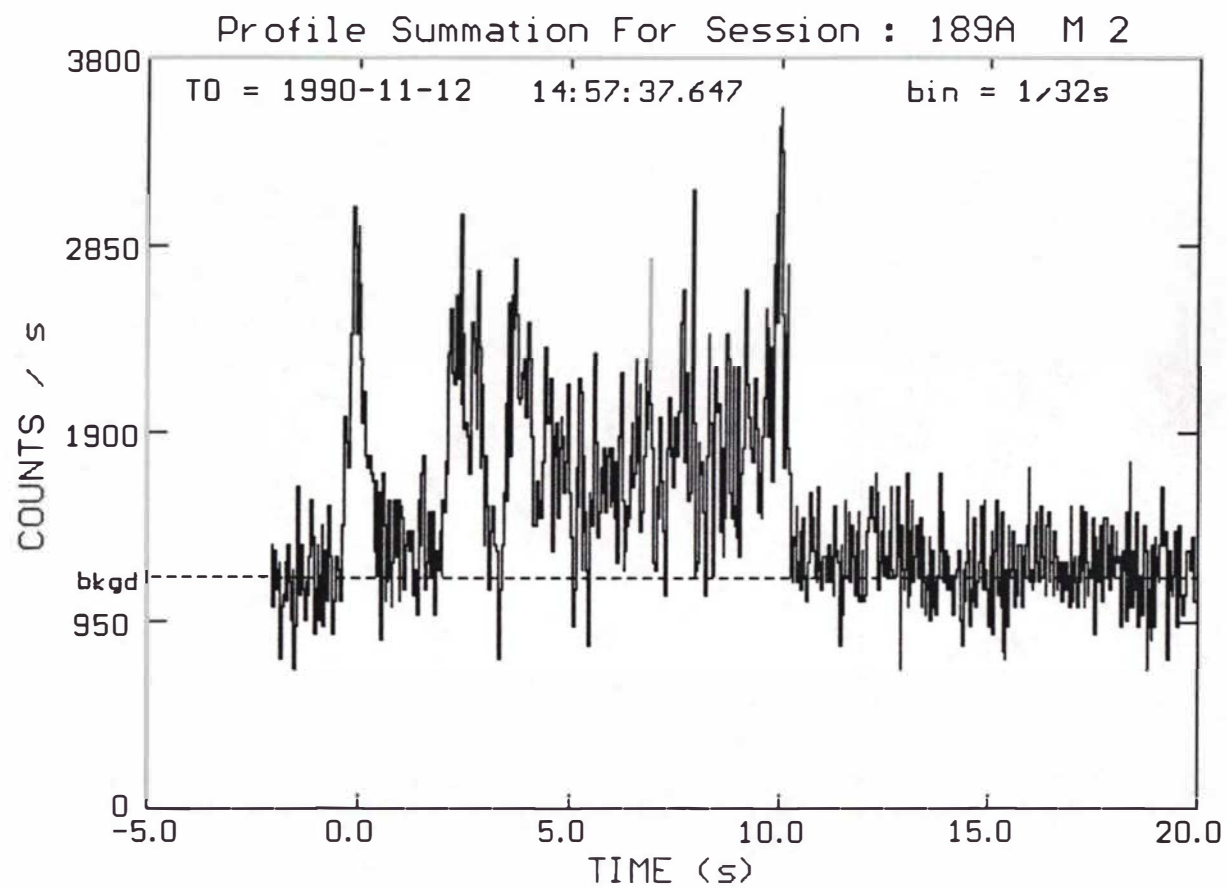
3. PVO Data

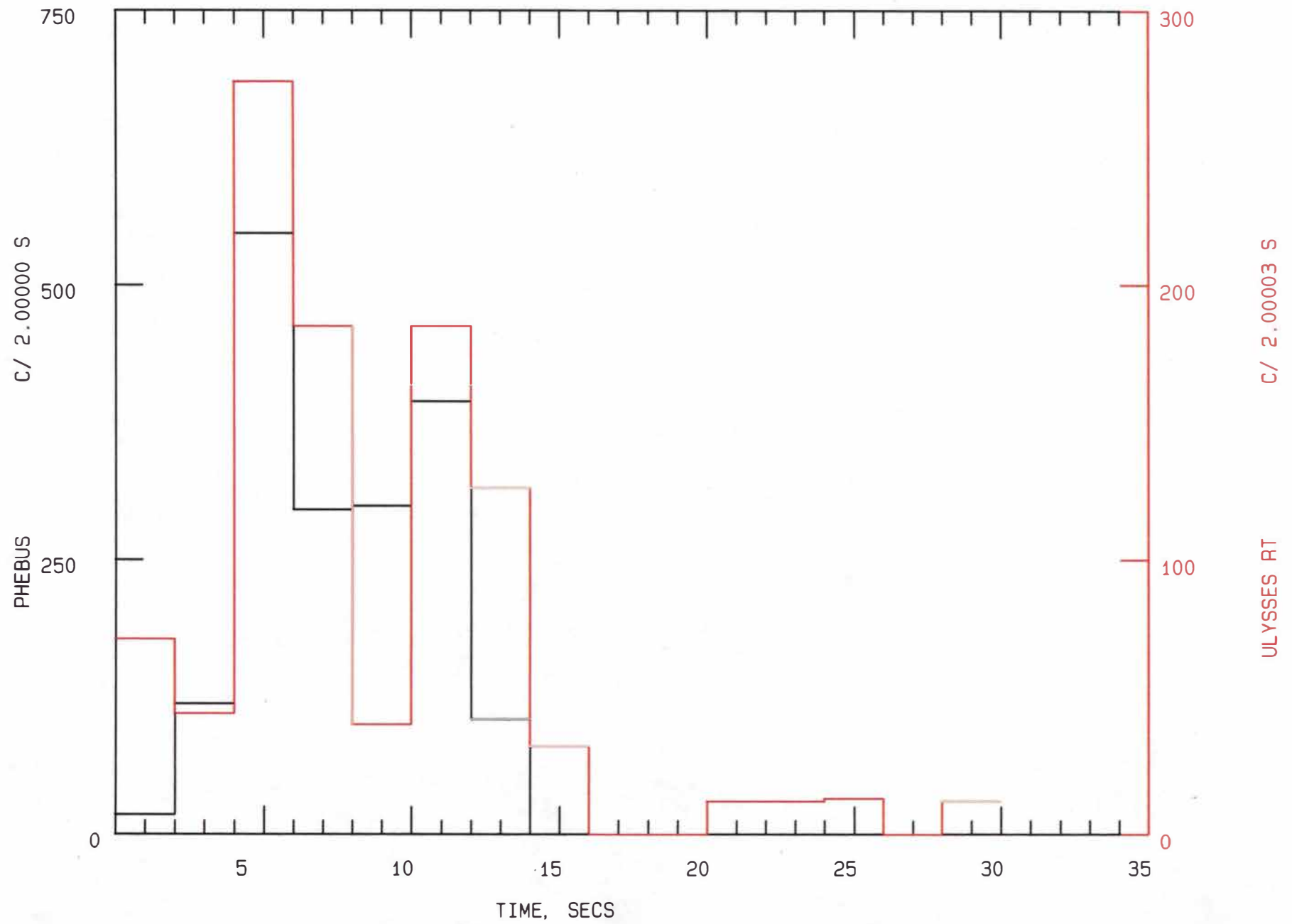
- ☐ Ephemeris of PVO used (not Venus)?
- ☐ 2000 coordinates used?
- ☐ Geocentric time used?

☒ ACCESS and MBL databases updated with identical times?



Phobos



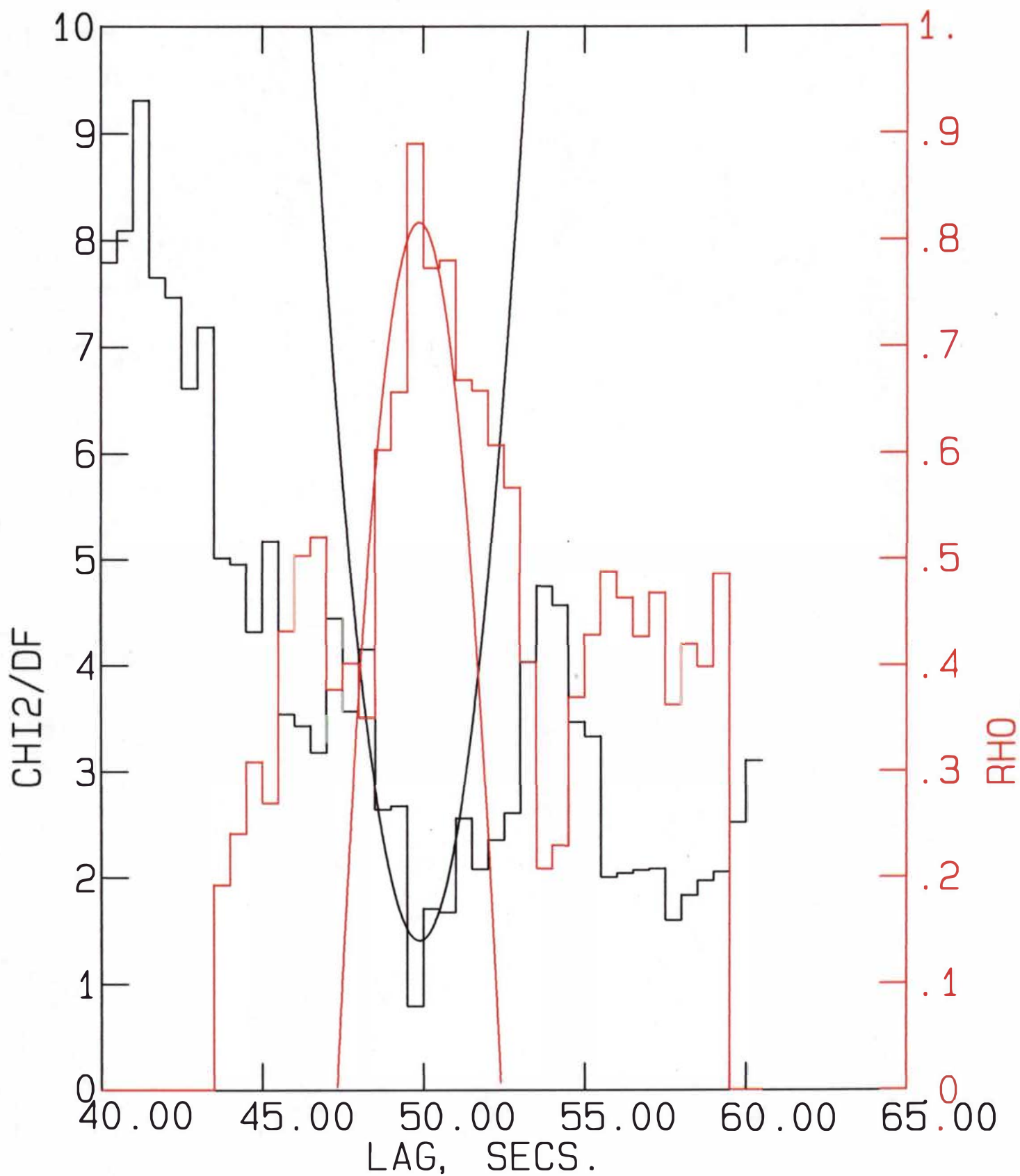


7/12/99

PHEBUS-ULYSSES RT CORRELATION

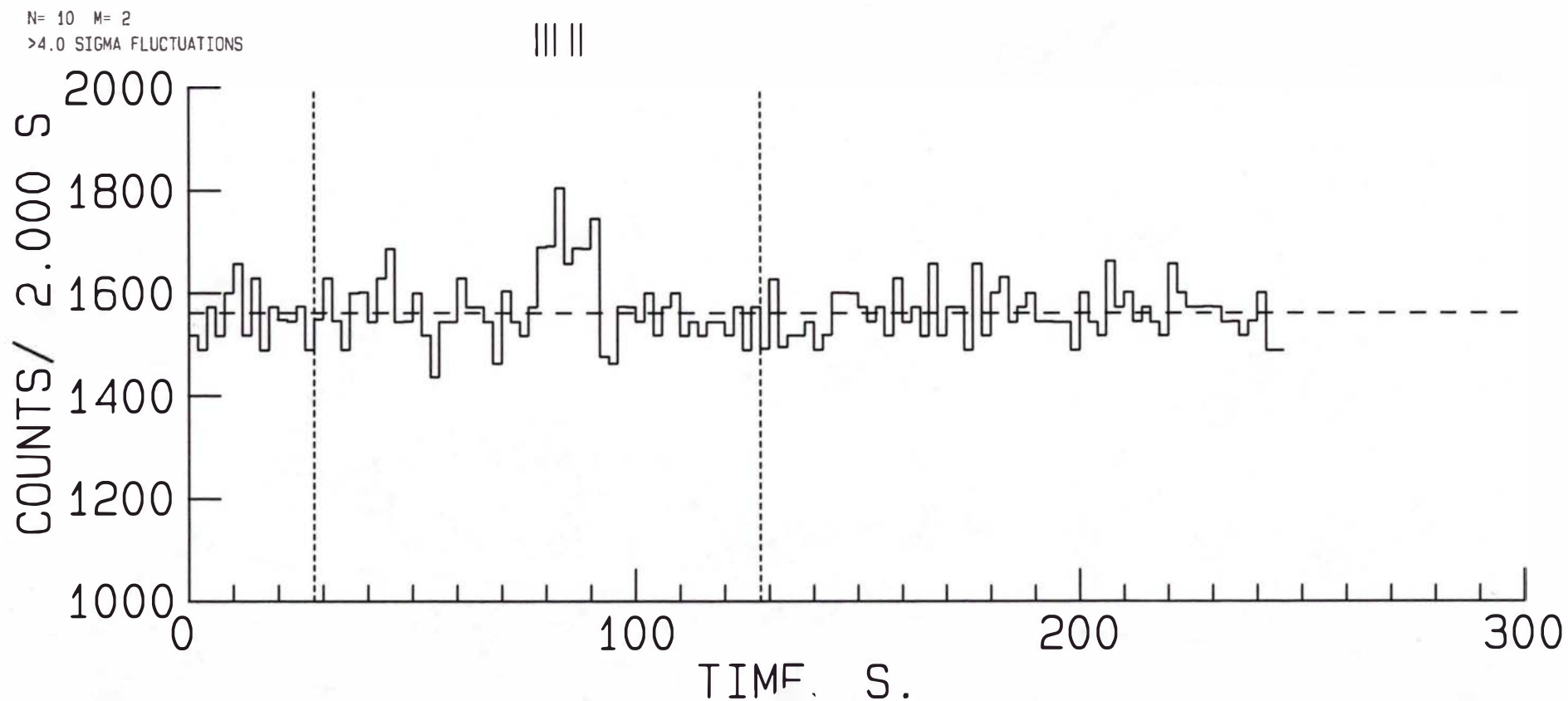
12/11/90

53855.643



ULYSSES RT
12/11/90 53703.651 s
0.500 S INTERVALS REGROUPED BY 4
13- 167 keV

7/12/99



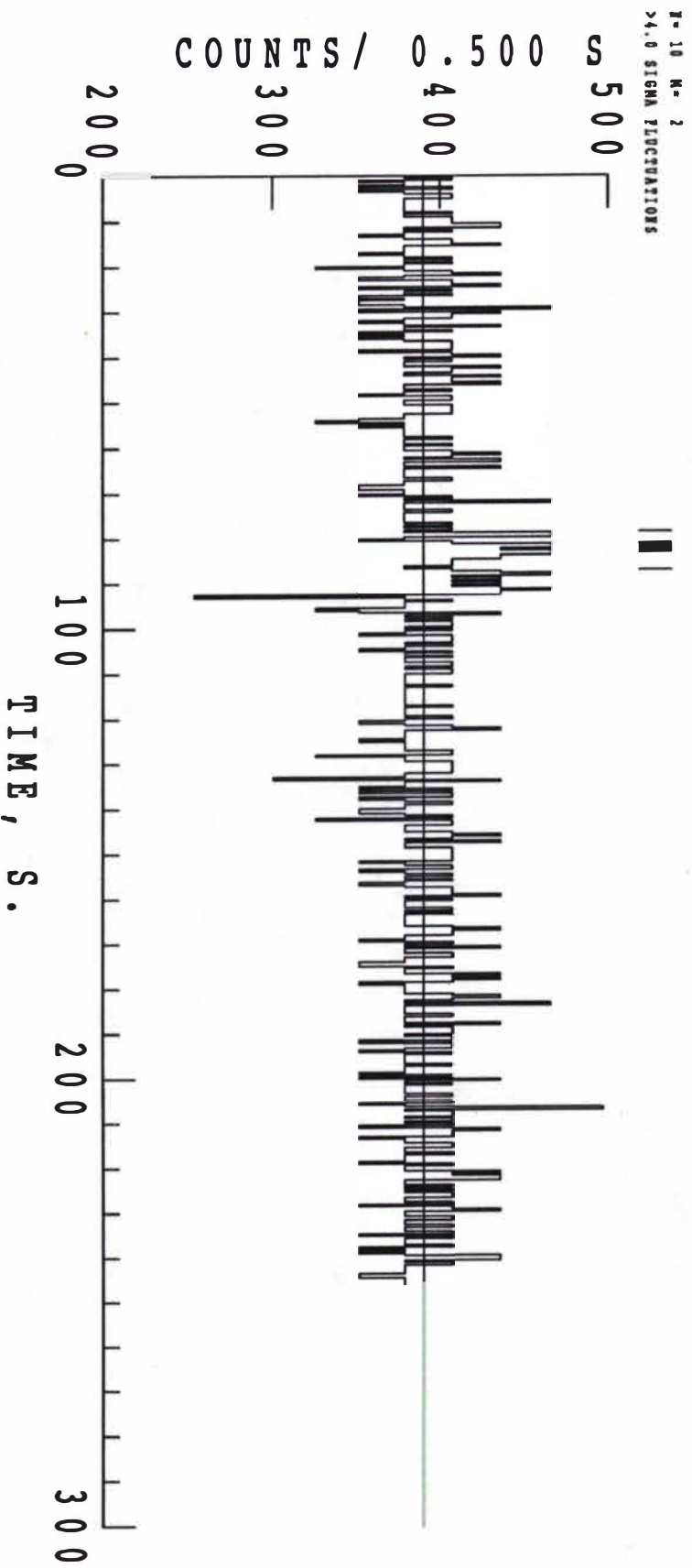
PHEBUS

7 / 12 / 99

ULYSSES RT

12/11/90 53703.652 s

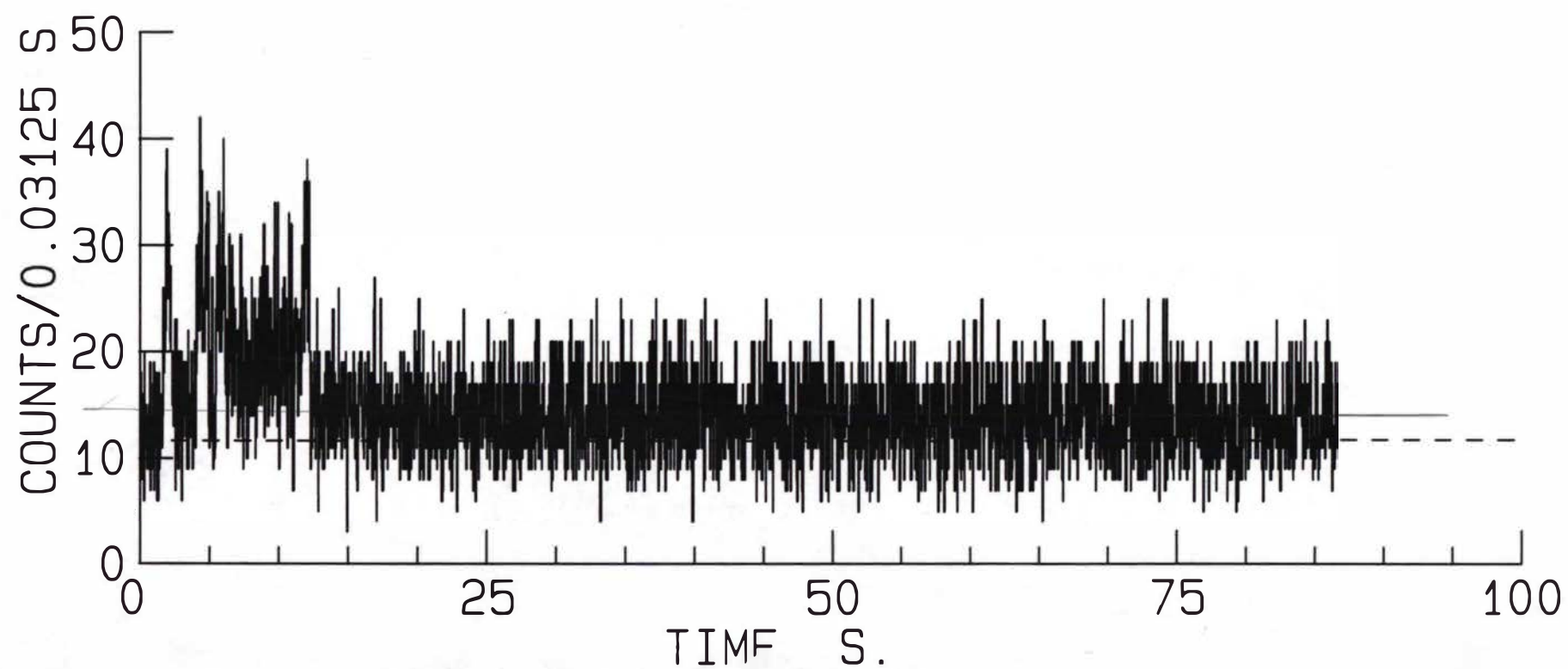
0 - 0 keV



PHEBUS

12/11/90 53855.643 s

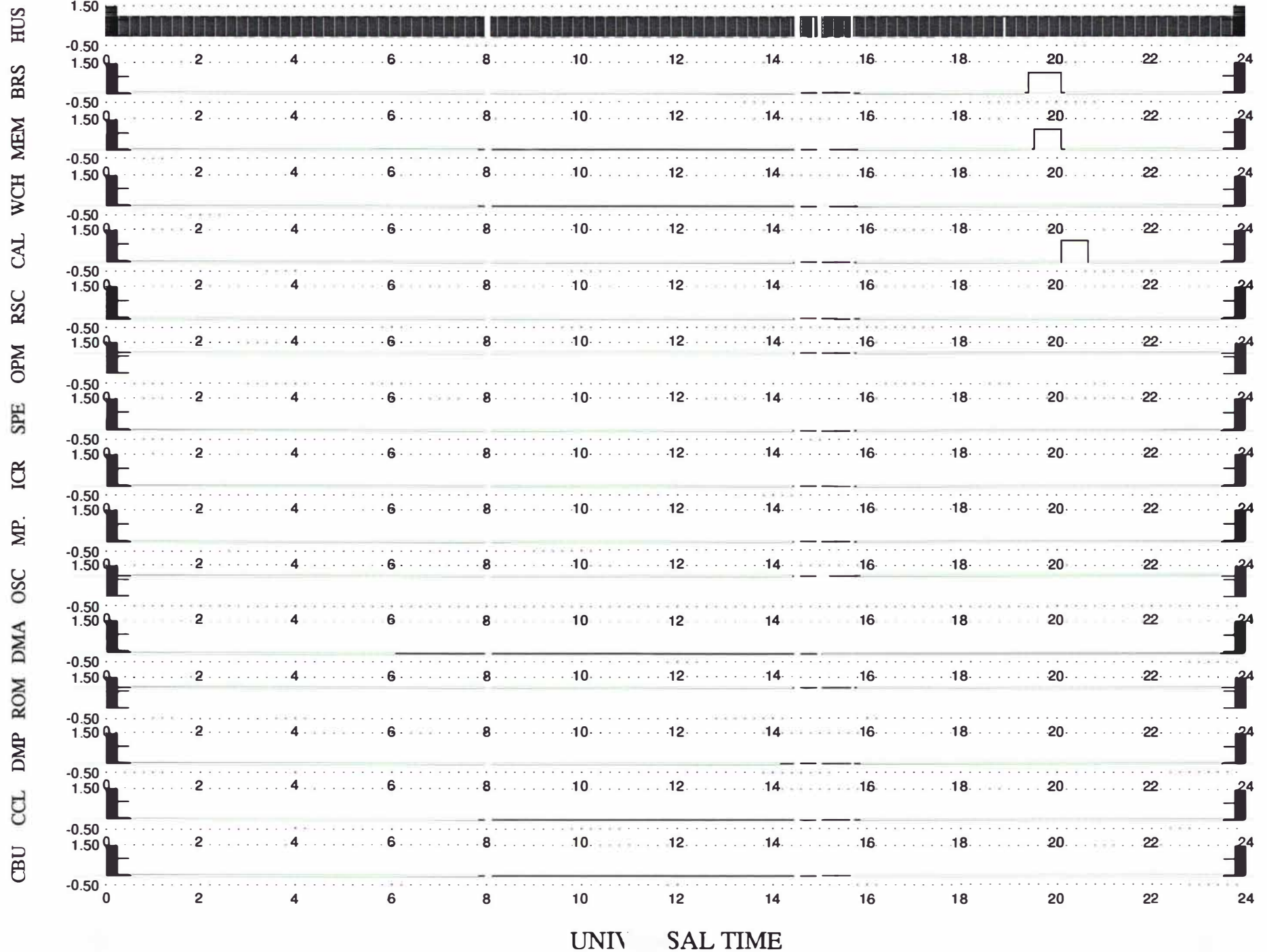
100- 1600 keV



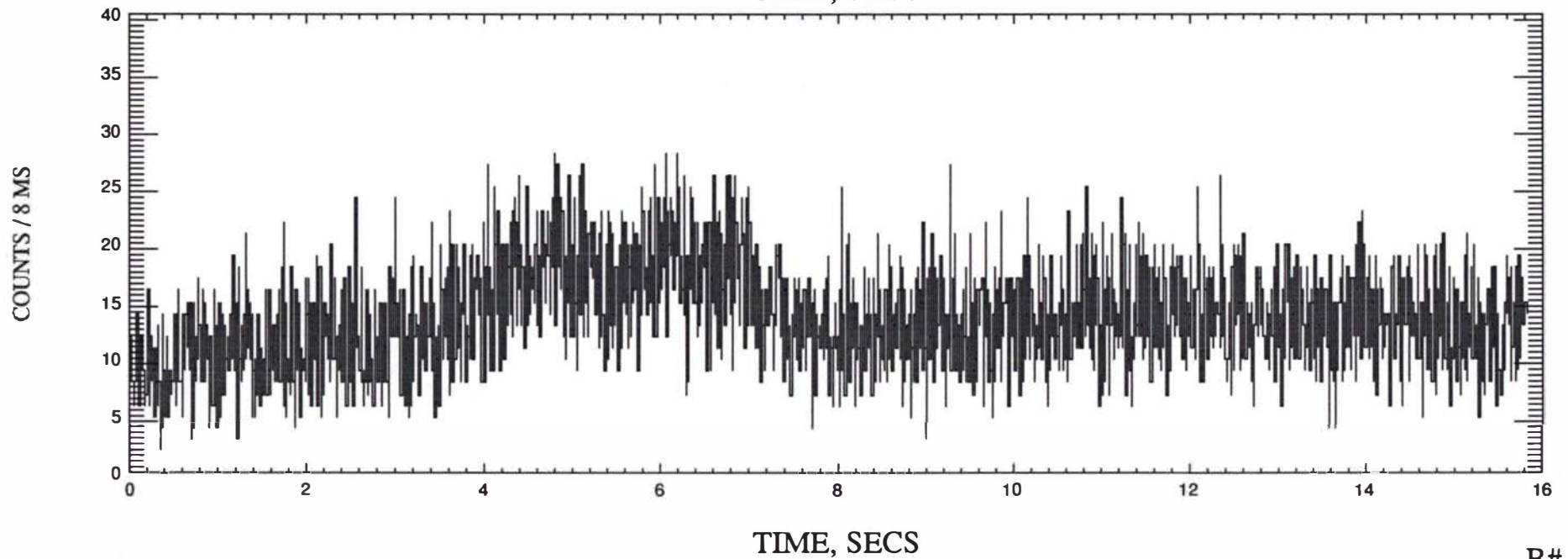
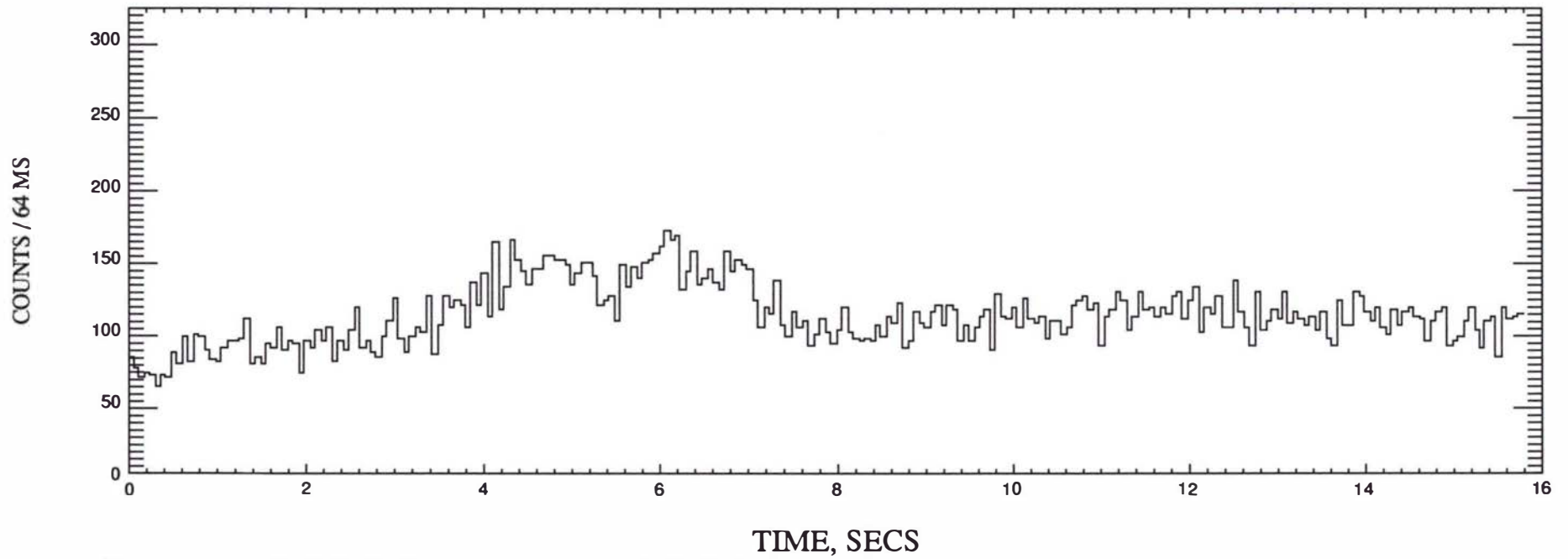
From murakami@astro.isas.ac.jp Sun Apr 5 21:52:41 1992
Received: from xray ([133.74.7.1]) by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA09607; Sun, 5 Apr 92 21:52:37 PDT
Received: by xray (5.65+1.6W/TISN-1.3M/R2)
id AA17142; Mon, 6 Apr 92 13:51:59 GMT
Date: Mon, 6 Apr 92 13:51:59 GMT
From: Toshio MURAKAMI <murakami@astro.isas.ac.jp>
Message-Id: <9204060451.AA17142@xray>
To: khurley@sunspot.ssl.berkeley.edu
Subject: reply
Status: R

Thank you for your messages (four GRBs) and data. I am very sorry for not replying to you. As you mentioned in your E-mail GB901112 should be solar flare. I have not enough time before the Toulouse meeting to check solar flare list of GOES. Thus there will be several solar flares in my list. Thank you for your comments. I hope I have a list of Ulysses if possible. I am sorry Ed-san is claiming time accuracy of Ginga so I cannot supply our digital data but I will soon try to send you our digital data by E-mail.
T.Murakami ISAS

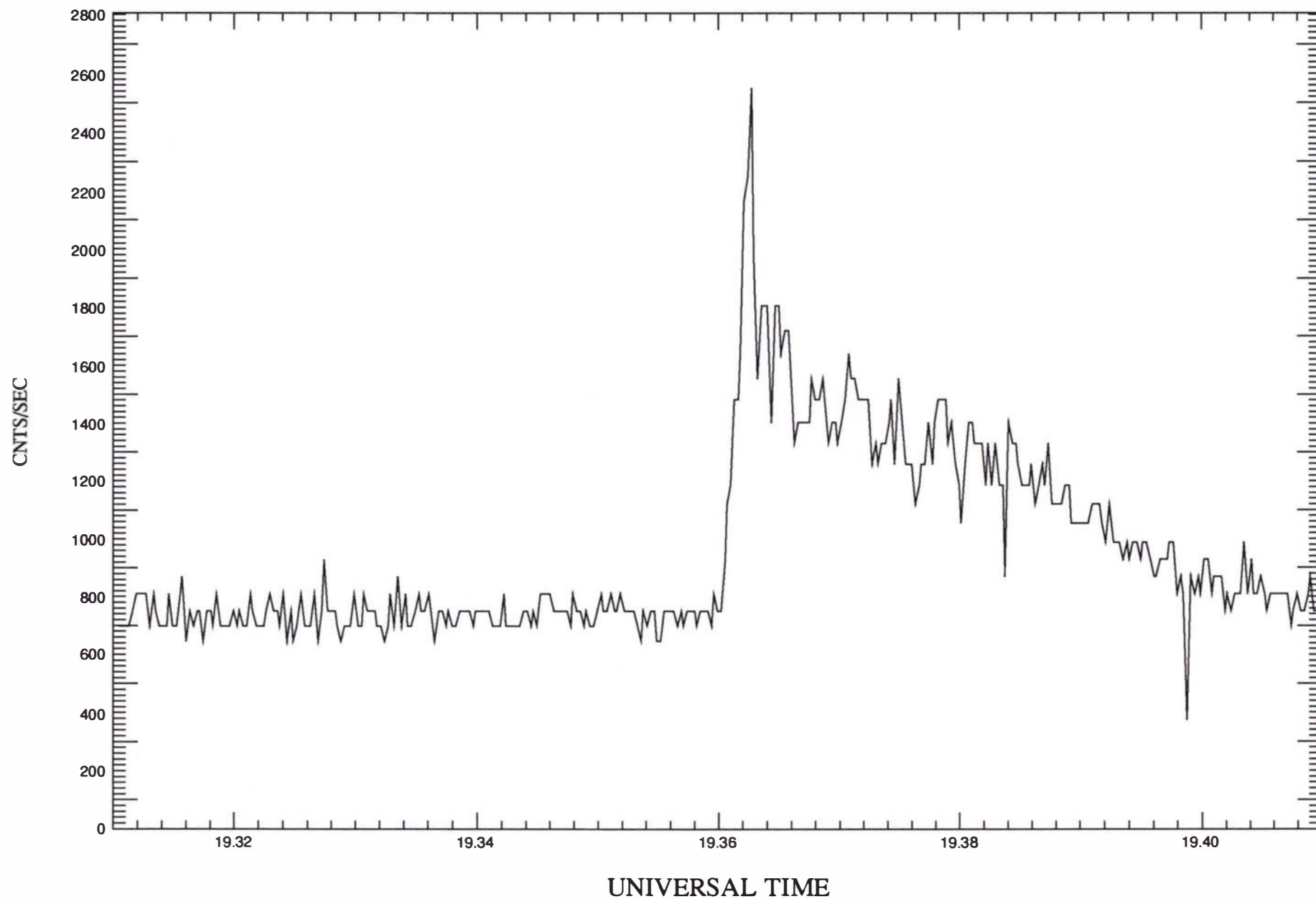
BURST NUMBER 10



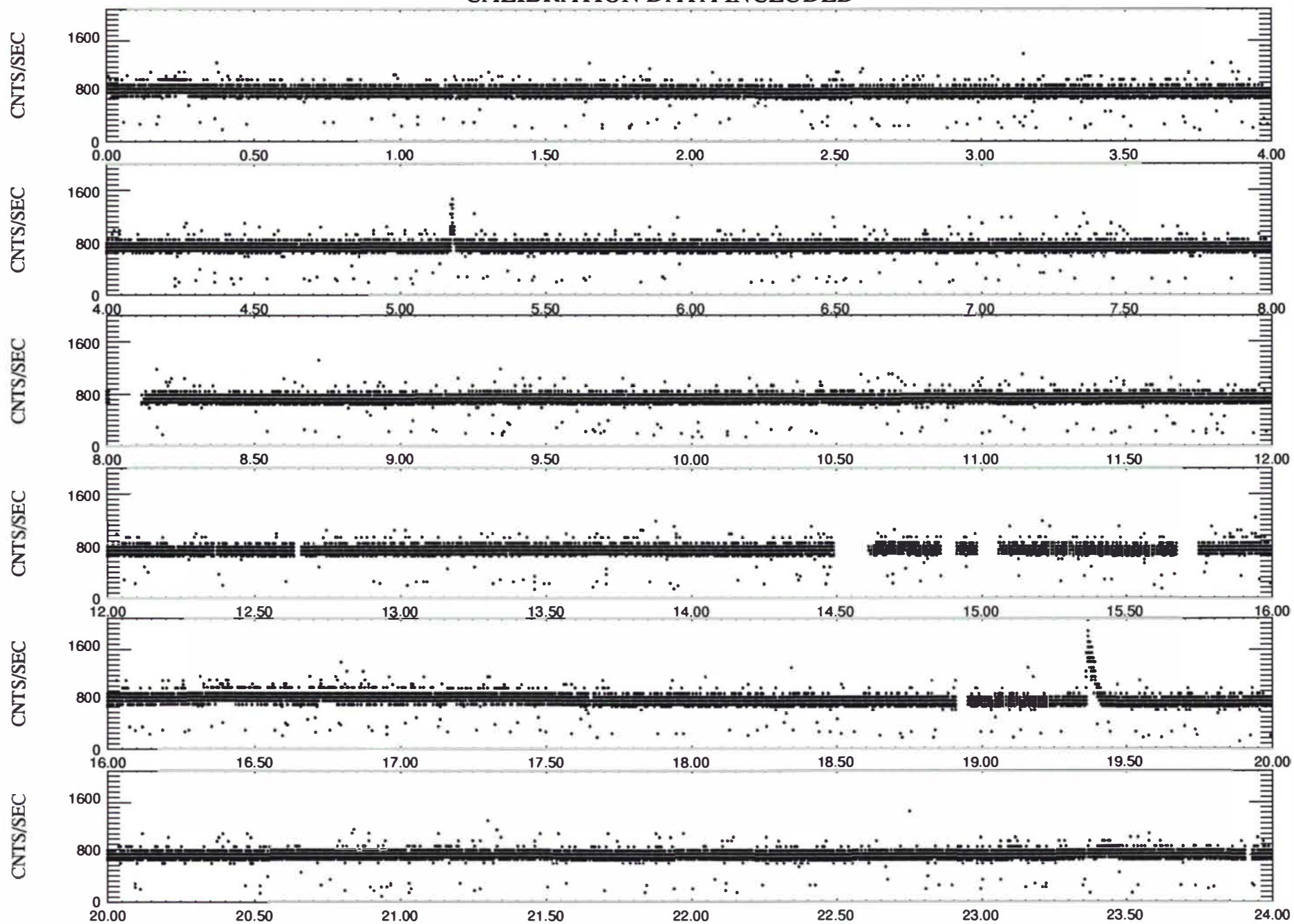
Burst Counter 10 at UT=19.361654696994 h=69701.957 s 19:21:41.957



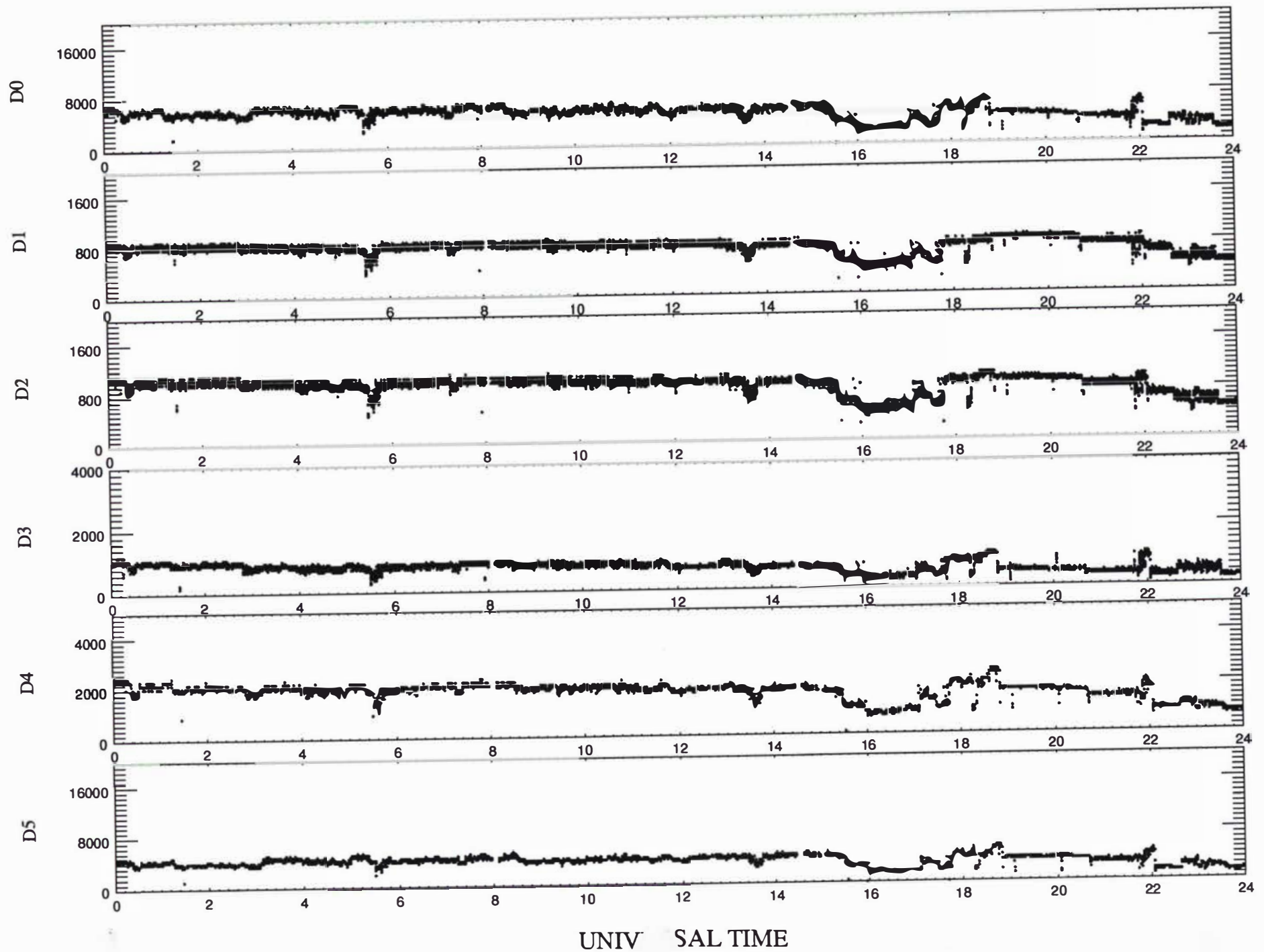
CALIBRATION DATA INCLUDED



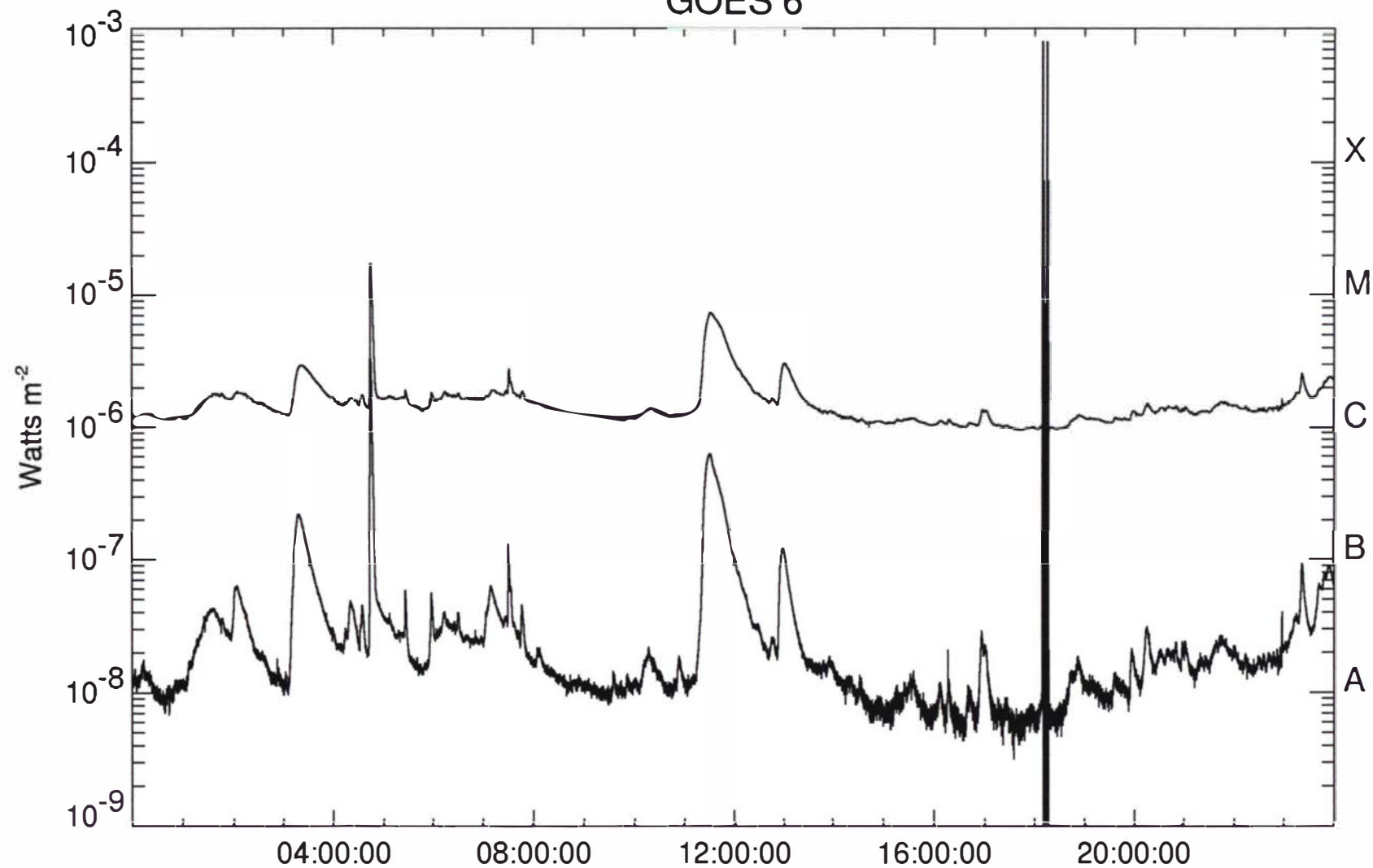
CALIBRATION DATA INCLUDED



UNIV SAL TIME



GOES 6



Data Start: 90/11/13, 0000:02

Plot created: 96/05/23, 1831

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

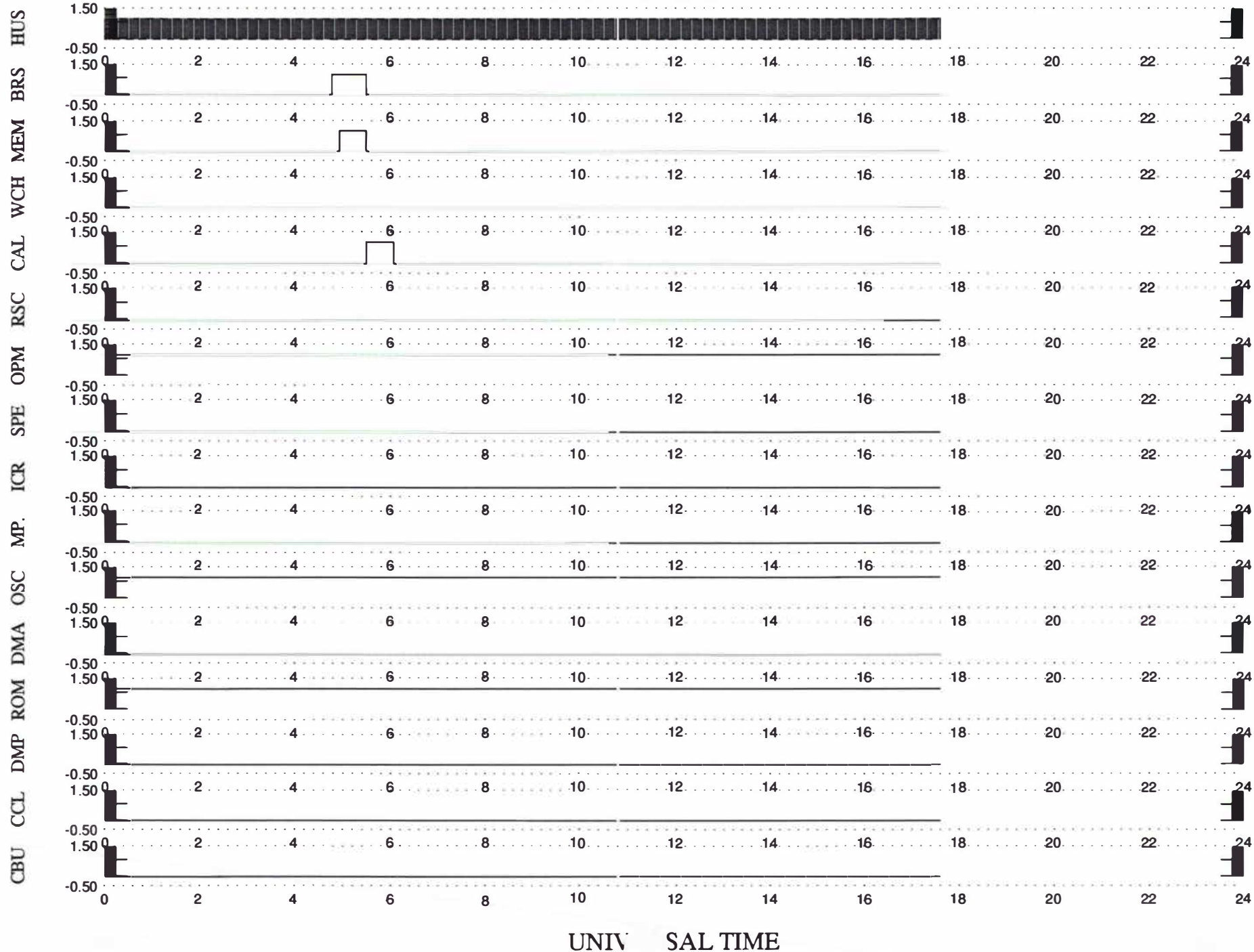
2 (0.5 - 4.0 Angstroms)

Background not subtracted

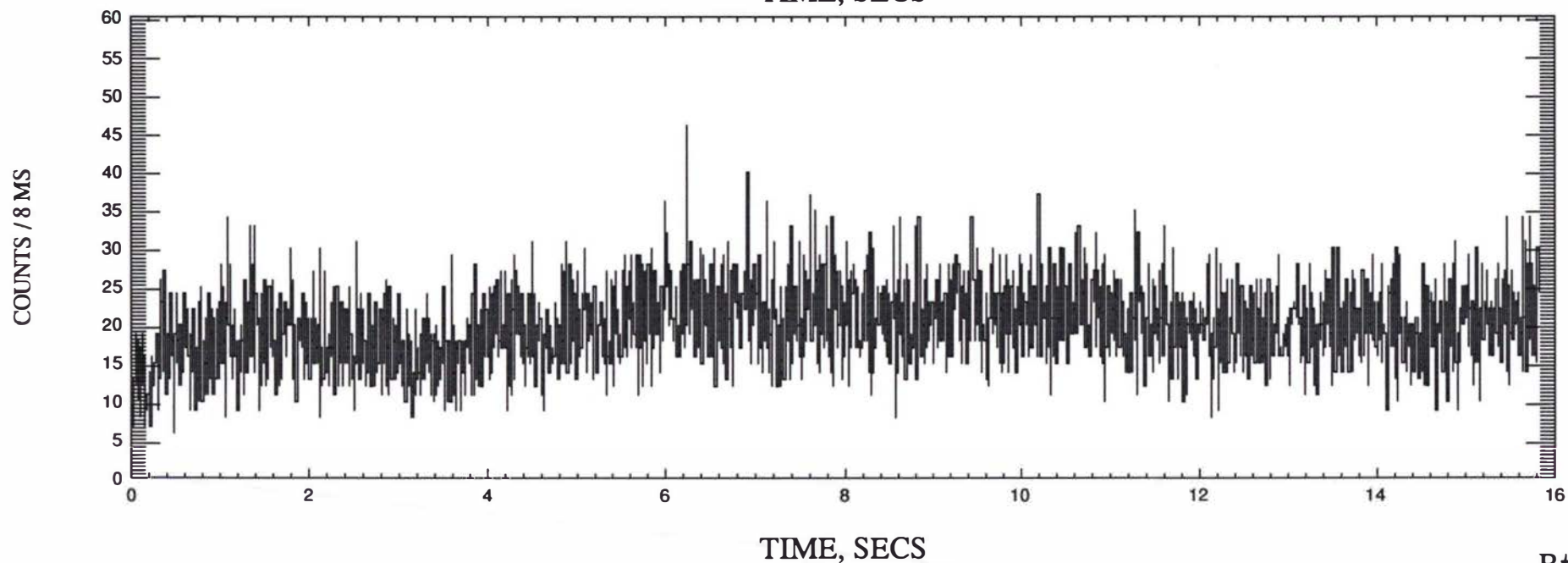
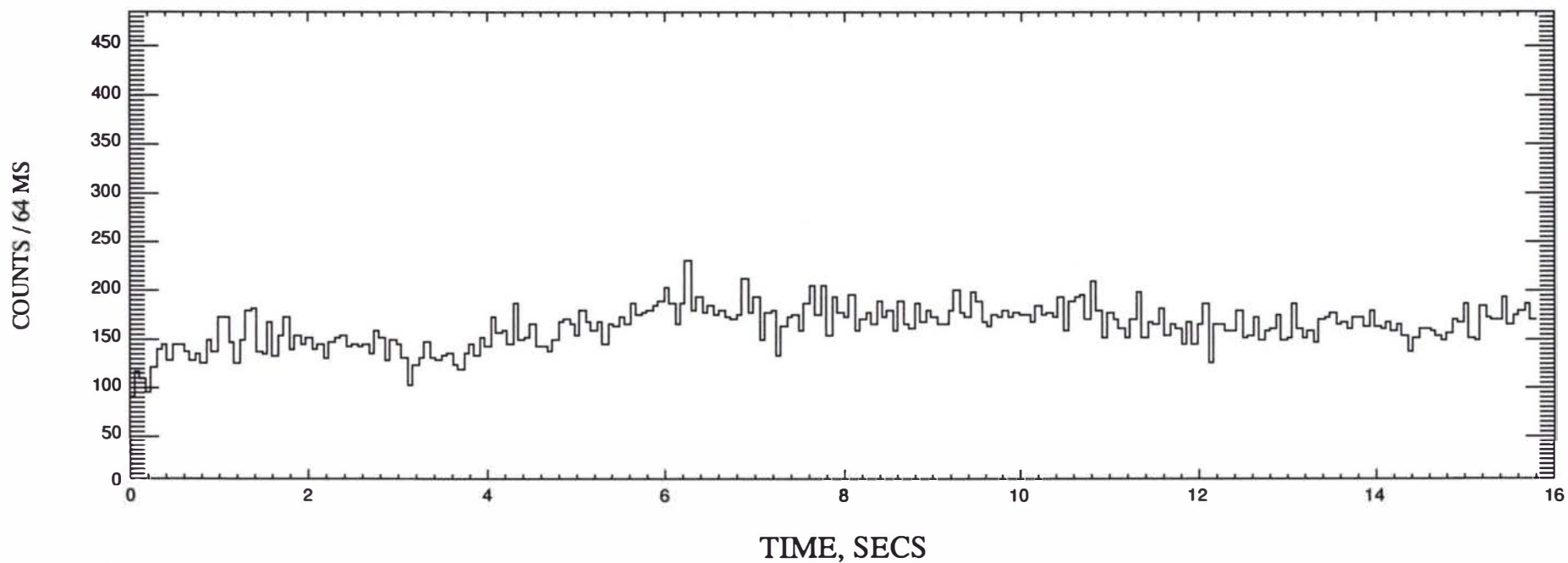
Dezaley -> K4 7/93

DATE	U.T.	Nr UGB	Event Nature
1990-09-28	05:23:41.813	167-a	GRB
1990-09-29	01:49:25.166	168-a	GRB
1990-10-11	22:31:01.494	176-a	GRB
1990-10-12	23:19:14.781	176-b	Unknown
1990-10-14	01:13:21.079	177-a	GRB
1990-10-15	08:44:48.512	178-a	GRB
1990-10-18	18:51:48.644	179-a	GRB
1990-10-20	01:04:28.909	180-a	GRB
1990-10-20	18:01:23.759	181-a	Solar Flare
1990-10-21	00:09:07.848	181-b	GRB
1990-10-27	04:21:05.625	185-a	GRB
1990-11-11	21:49:01.859	188-a	GRB
1990-11-12	14:57:37.647	189-a	GRB
1990-11-13	04:44:02.029	189-b	Solar Flare
1990-11-16	01:42:10.012	190-a	GRB
1990-11-17	13:37:35.859	192-a	Unknown
1990-11-17	14:41:40.621	192-b	Unknown
1990-11-18	20:23:47.770	192-c	Unknown
1990-11-21	00:04:47.791	194-a	GRB
1990-11-21	18:09:10.652	194-b	GRB
1990-12-04	02:00:28.445	201-a	Solar Flare
1990-12-04	03:19:19.152	201-b	Unknown
1990-12-04	09:42:52.699	202-a	Unknown
1990-12-04	17:20:43.930	202-b	Unknown
1990-12-04	18:21:47.722	202-c	Unknown
1990-12-06	20:33:48.100	204-a	Unknown
1990-12-12	03:26:59.750	205-a	Solar Flare
1990-12-12	03:26:59.750	208-a	Solar Flare
1990-12-13	05:37:04.829	209-a	Unknown
1990-12-13	06:12:32.708	209-b	Unknown
1990-12-13	07:06:23.125	209-c	GRB
1990-12-14	13:32:11.352	210-a	Solar Flare
1990-12-16	15:47:15.796	211-a	GRB
1990-12-19	21:52:48.635	213-a	GRB
1990-12-21	00:30:05.753	214-a	GRB

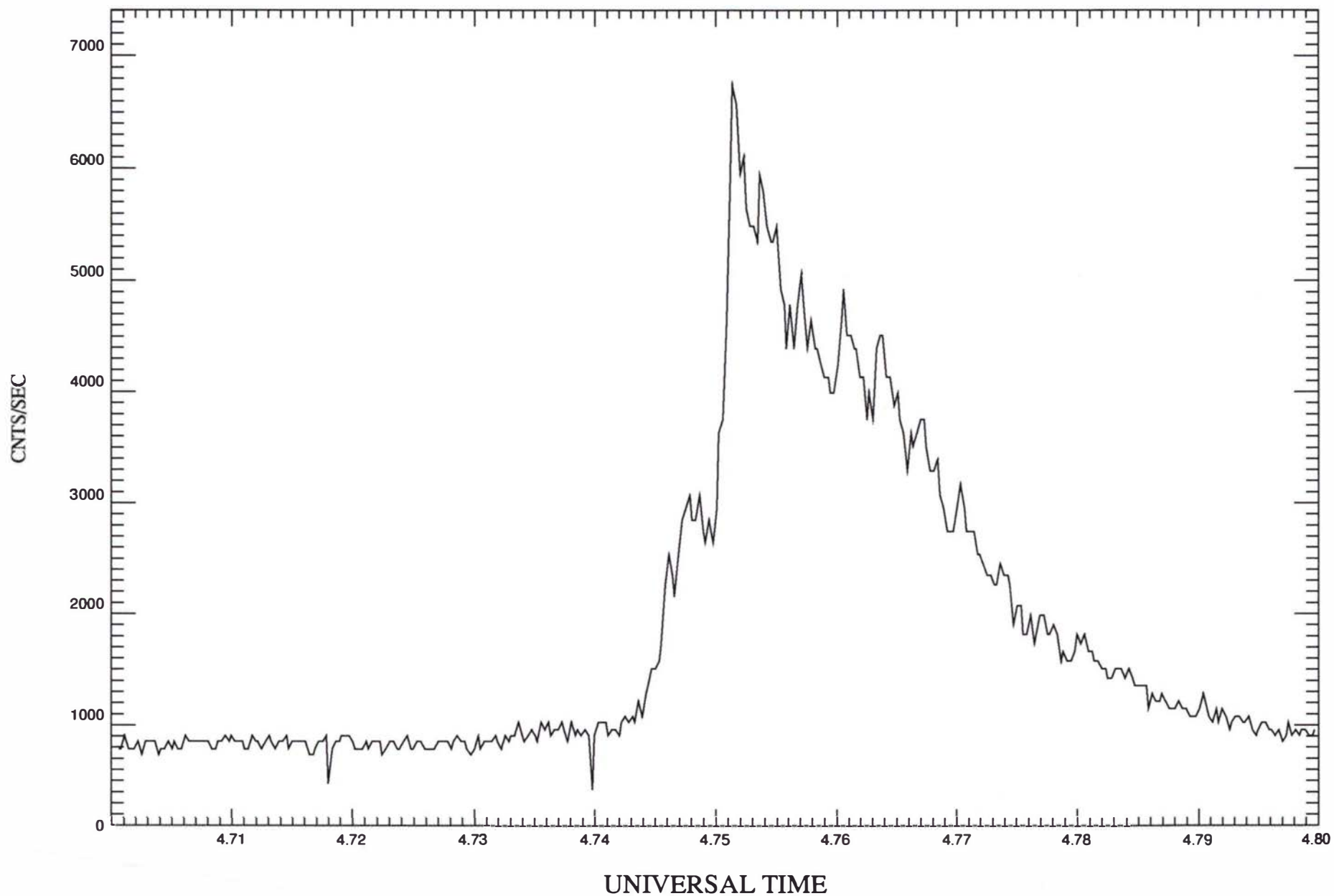
BURST NUMBER 11



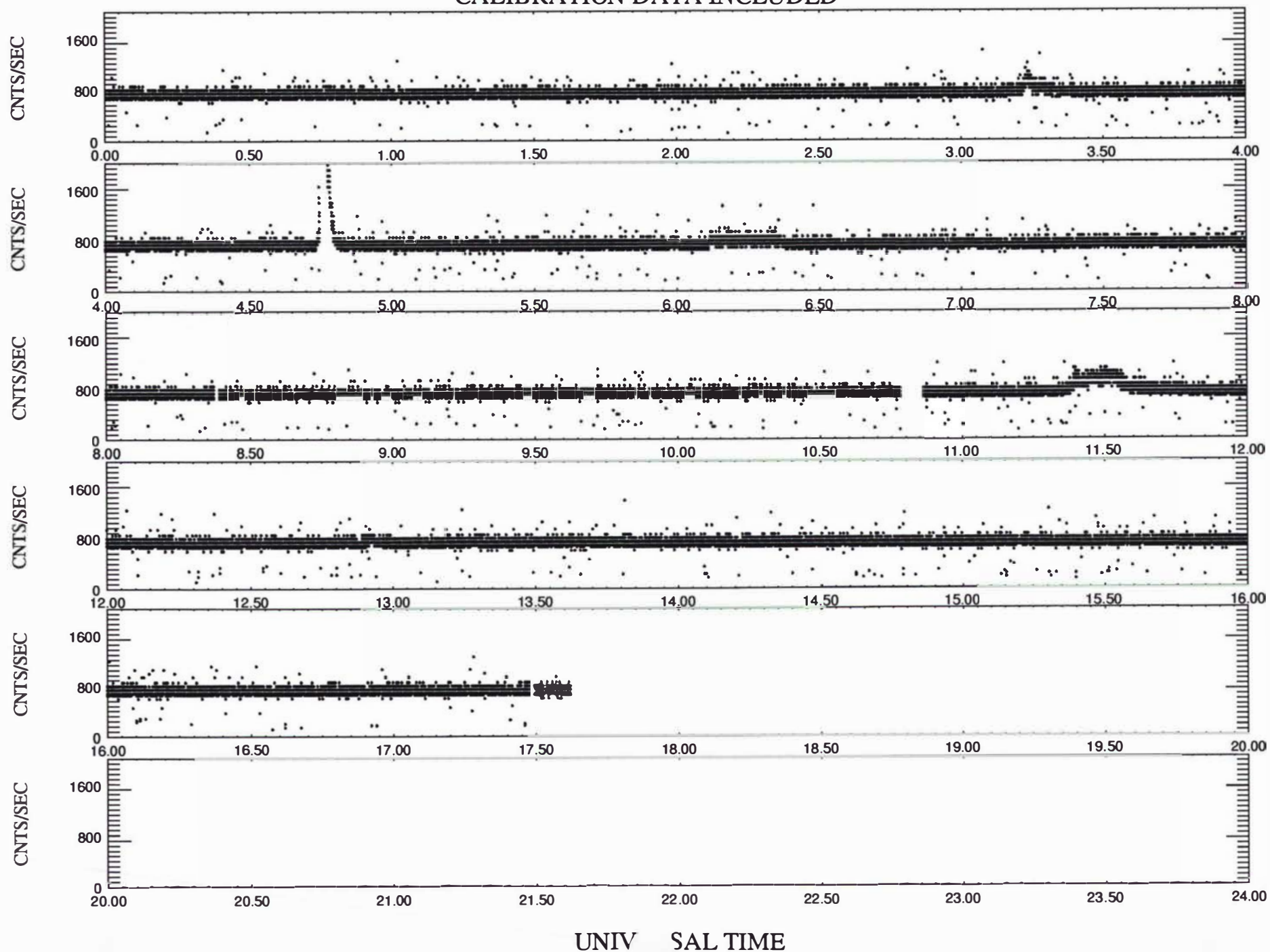
Burst Counter 11 at UT= 4.746303592258 h=17086.693 s 04:44:46.693

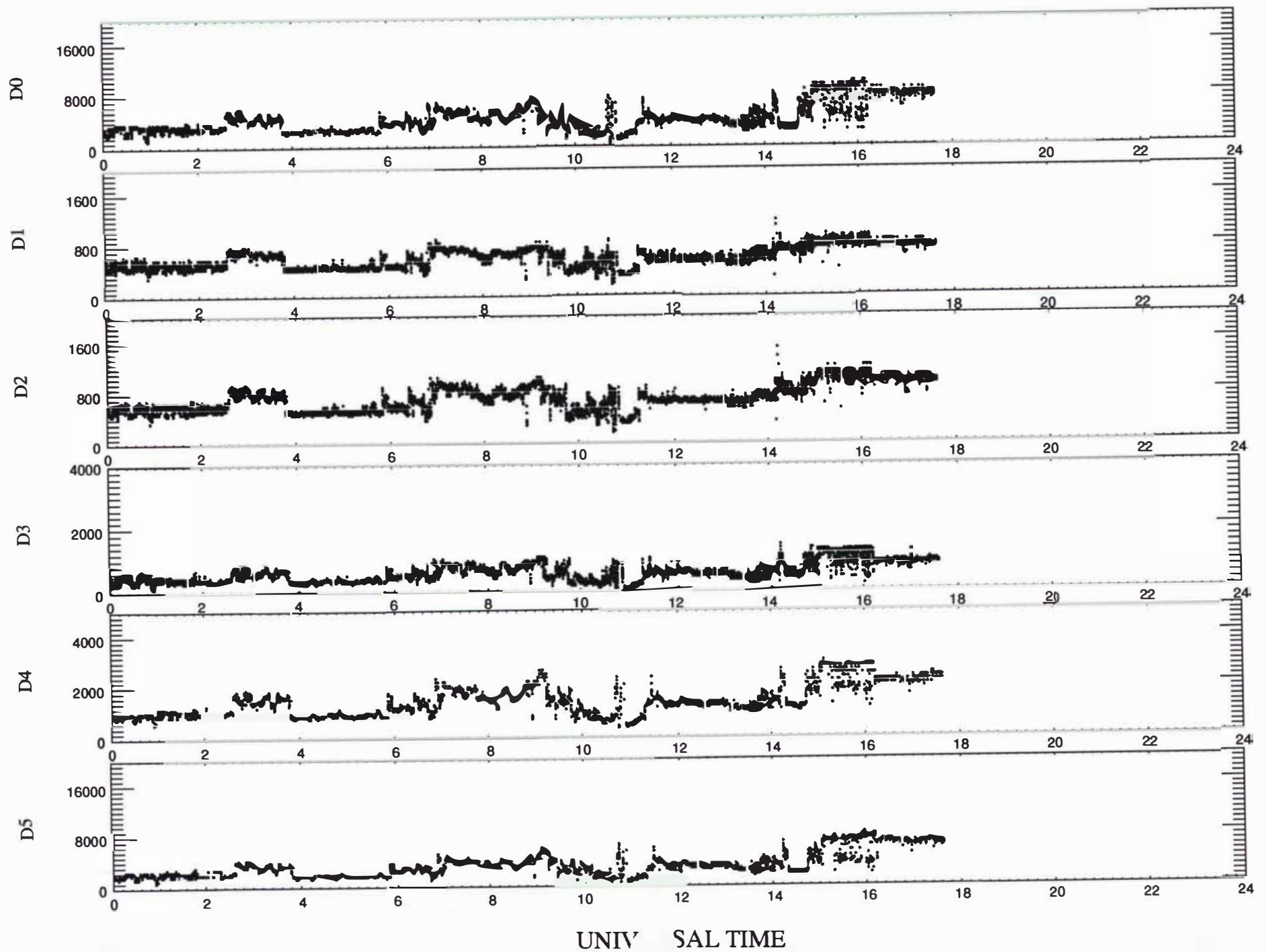


CALIBRATION DATA INCLUDED

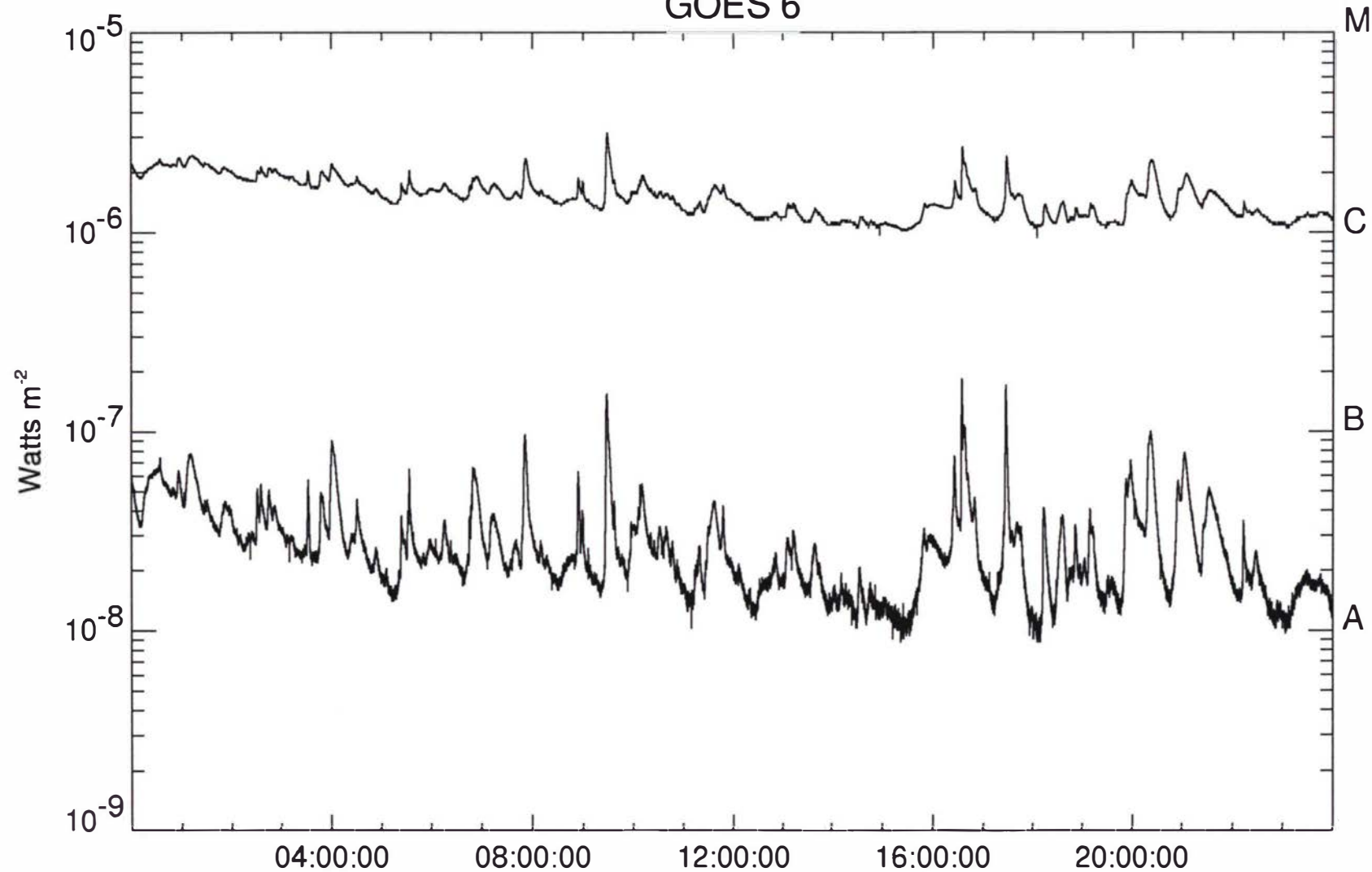


CALIBRATION DATA INCLUDED





GOES 6



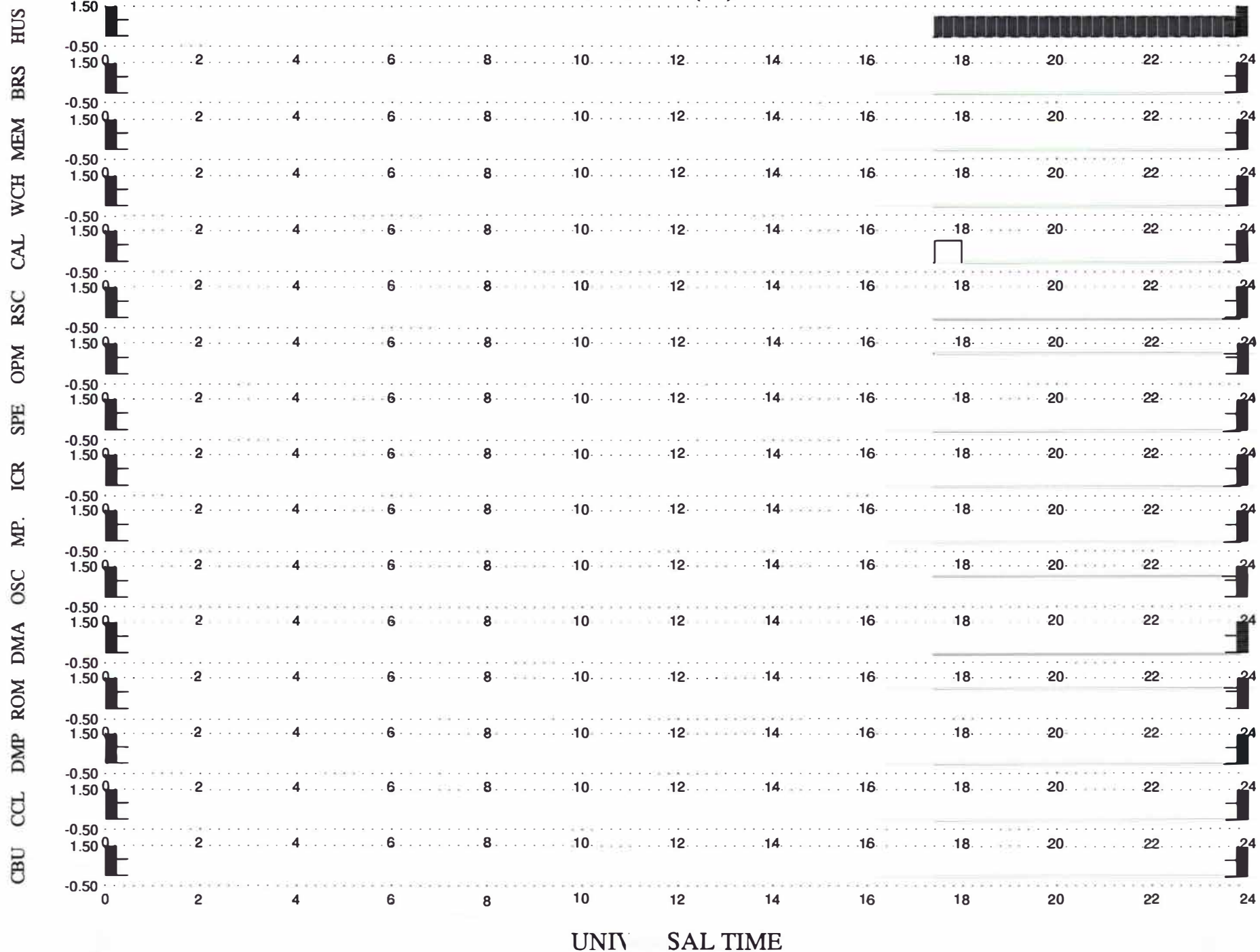
Data Start: 90/11/14, 0000:00

Plot created: 96/05/23, 1833

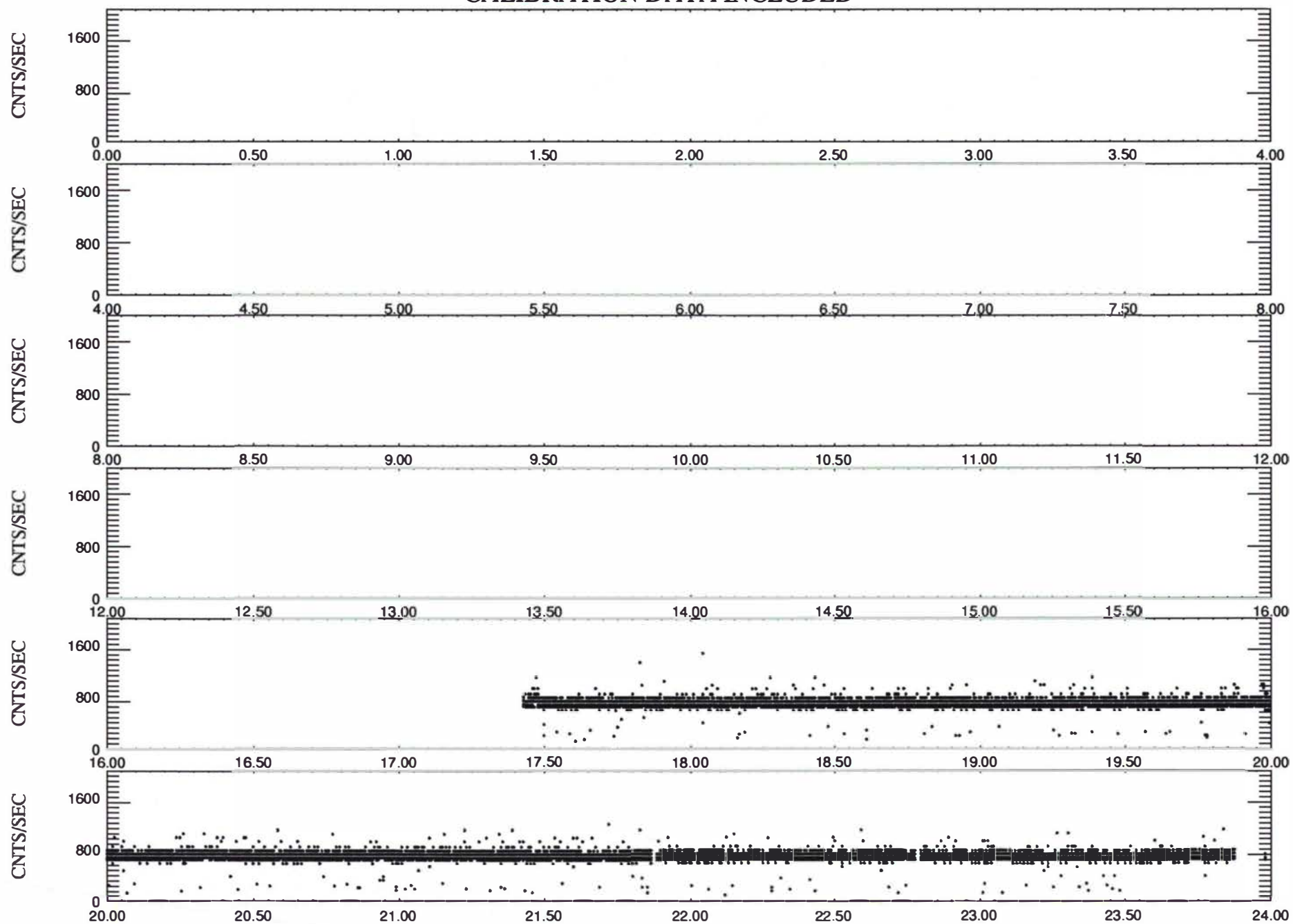
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

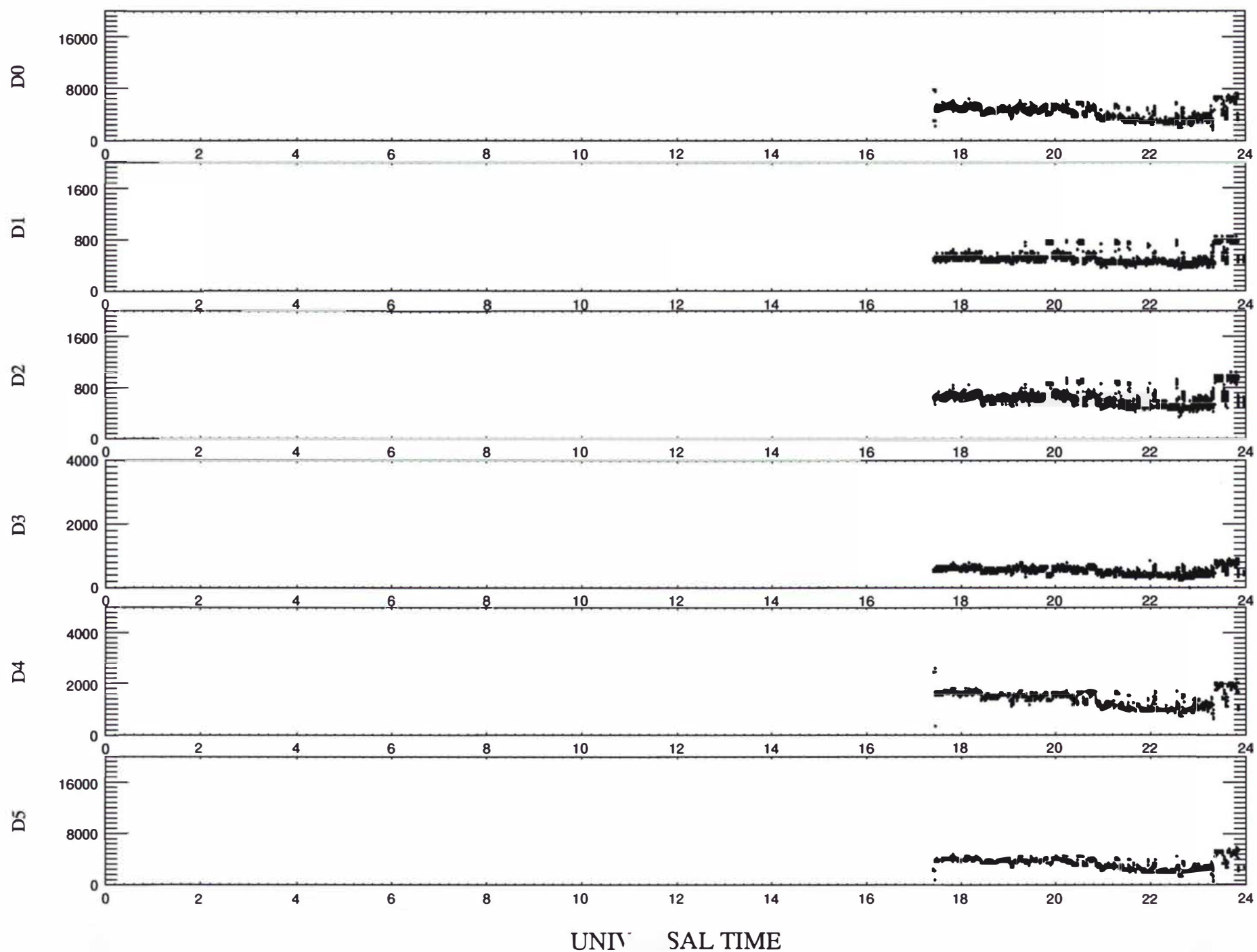
NO BURST (11)

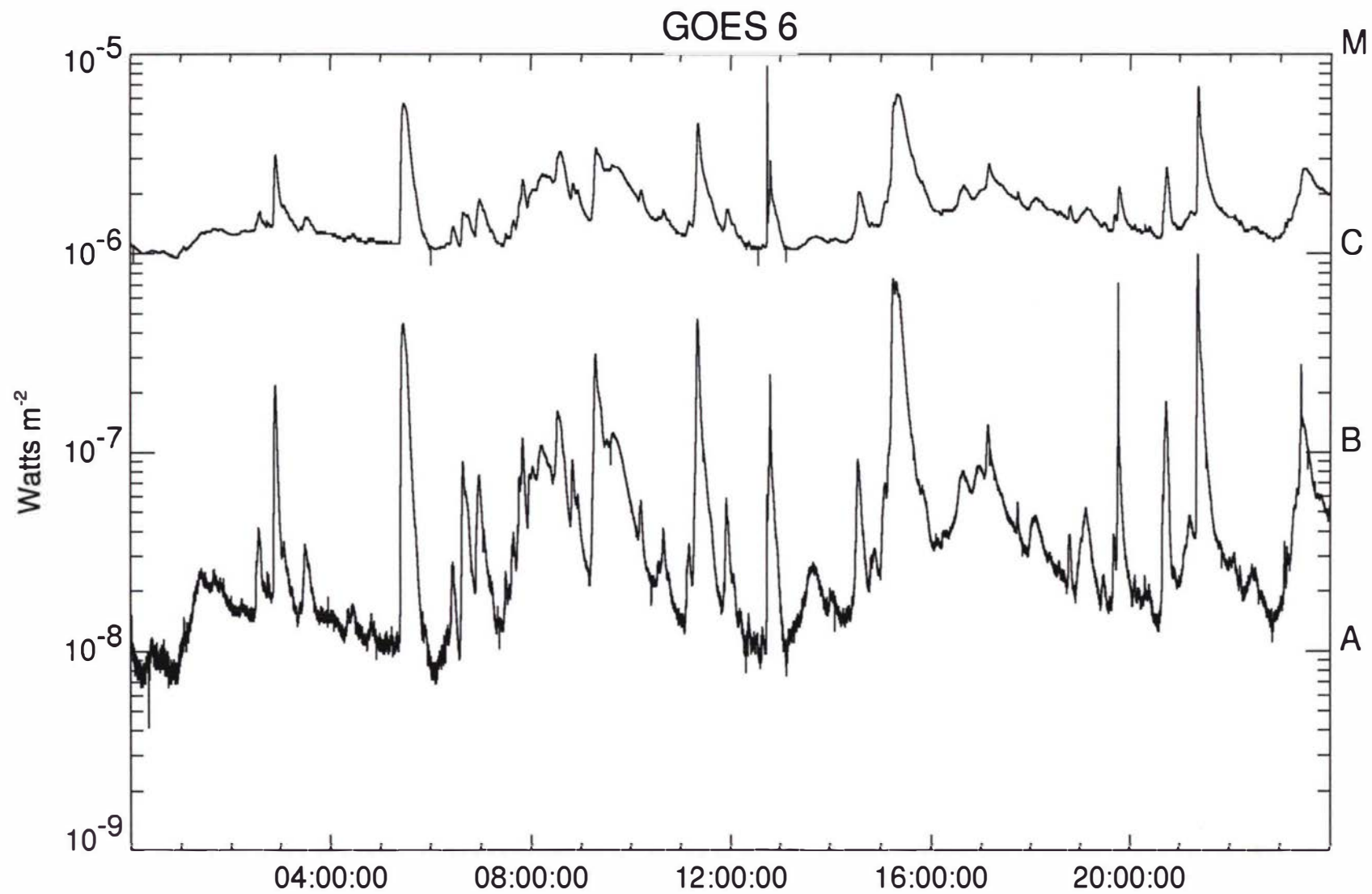


CALIBRATION DATA INCLUDED



UNIV SAL TIME





Data Start: 90/11/15, 0000:01

Plot created: 96/05/23, 1836

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

TO : Nigel Angold , SOM
Copy : Kevin Hurley FH : 415-643-7625
Francis Cotin FH : 37-61-556701

ULS HUS - Experiment

New TCR Burst reference level (80):

Please send the following command

Z018 : 0746 HEX

Verify HK - DATA

E034 = 0 CT

E035 = 29 CT

JPL , NOV. 15 , 1990

M. Summer

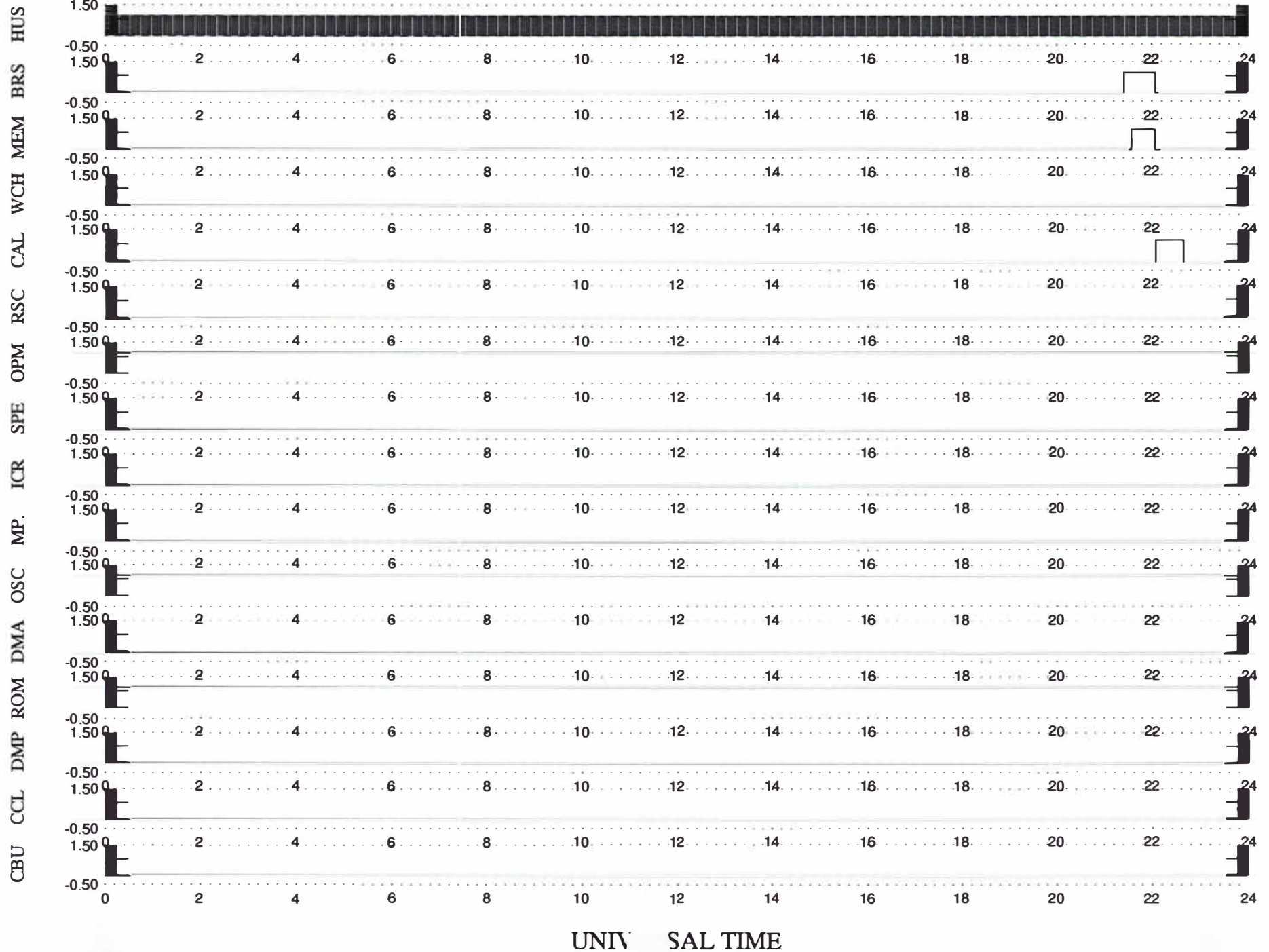
To: Mr. J. H. ...
From: ...
Subject: ...

Enclosed for you are ...
Please find the following ...

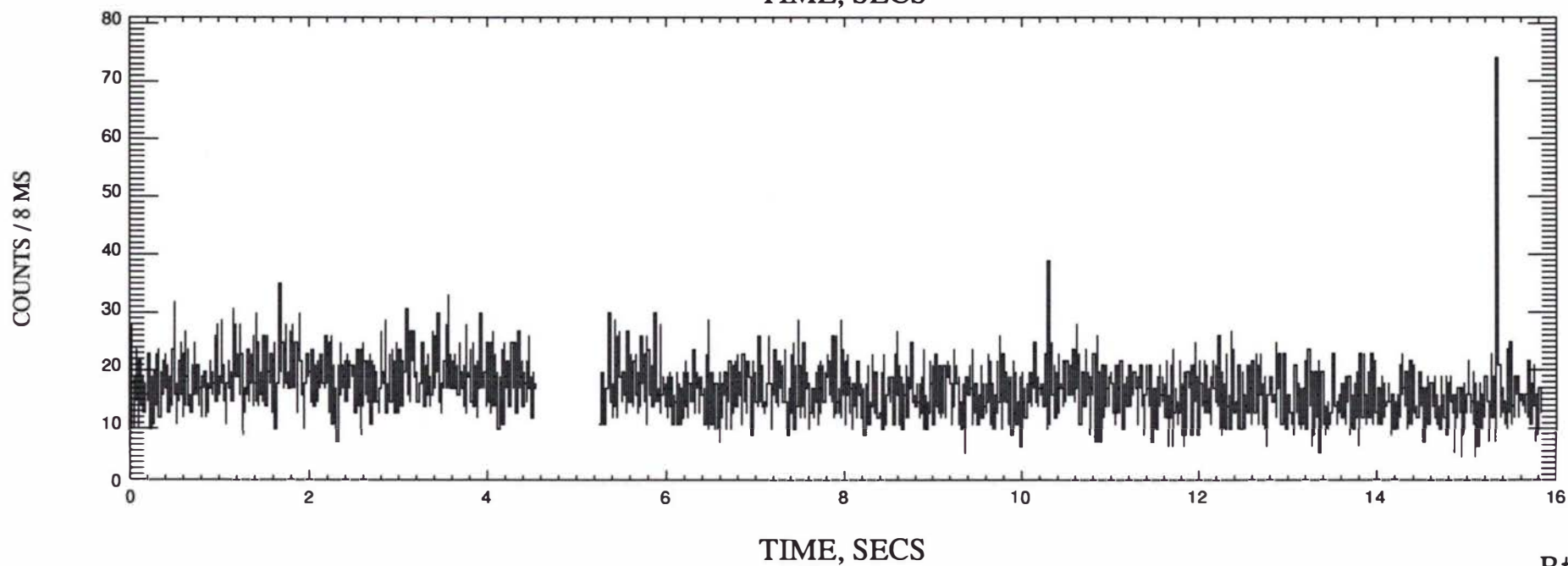
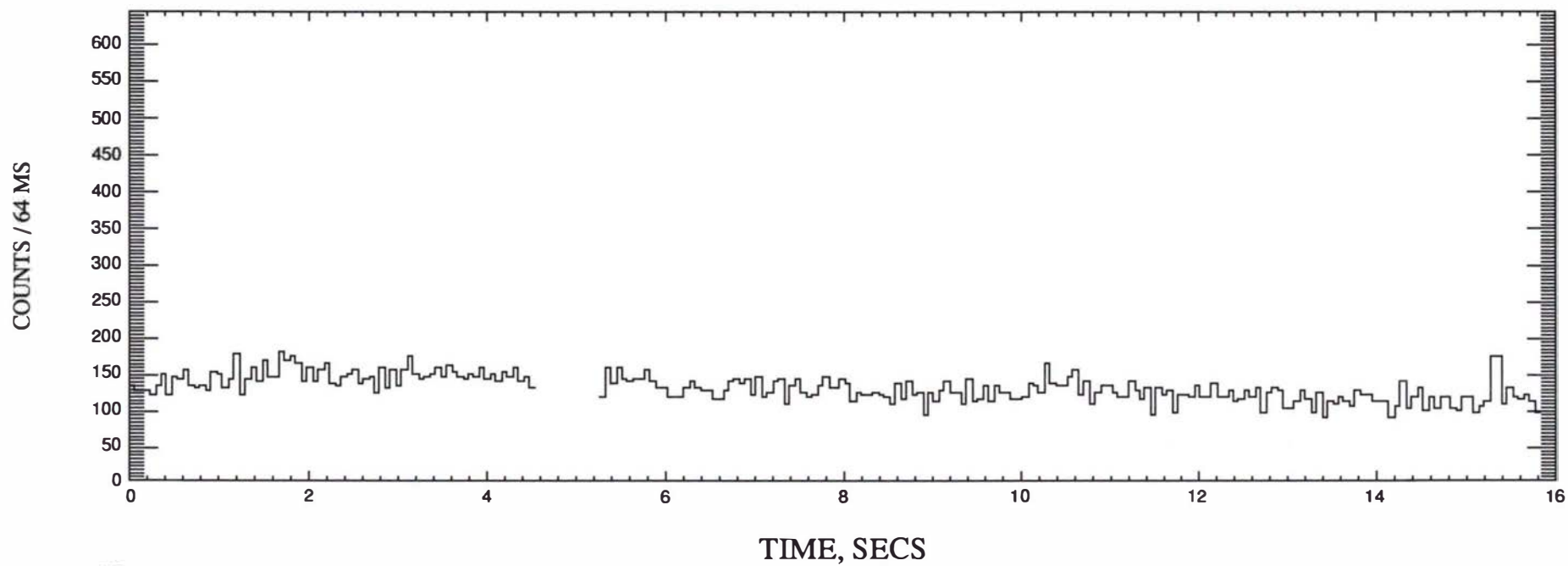
Very truly yours,
...

The ...
...

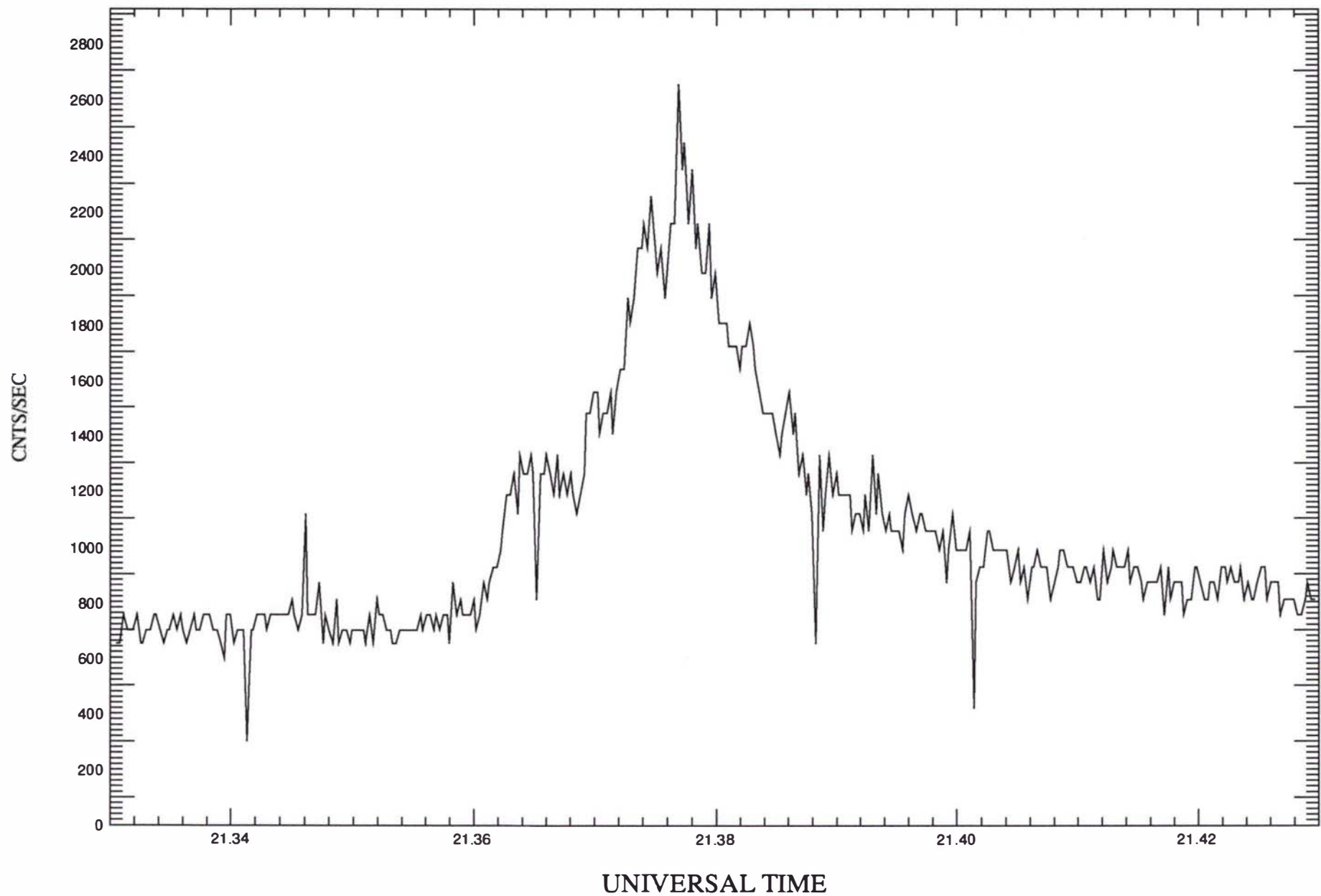
BURST NUMBER 12



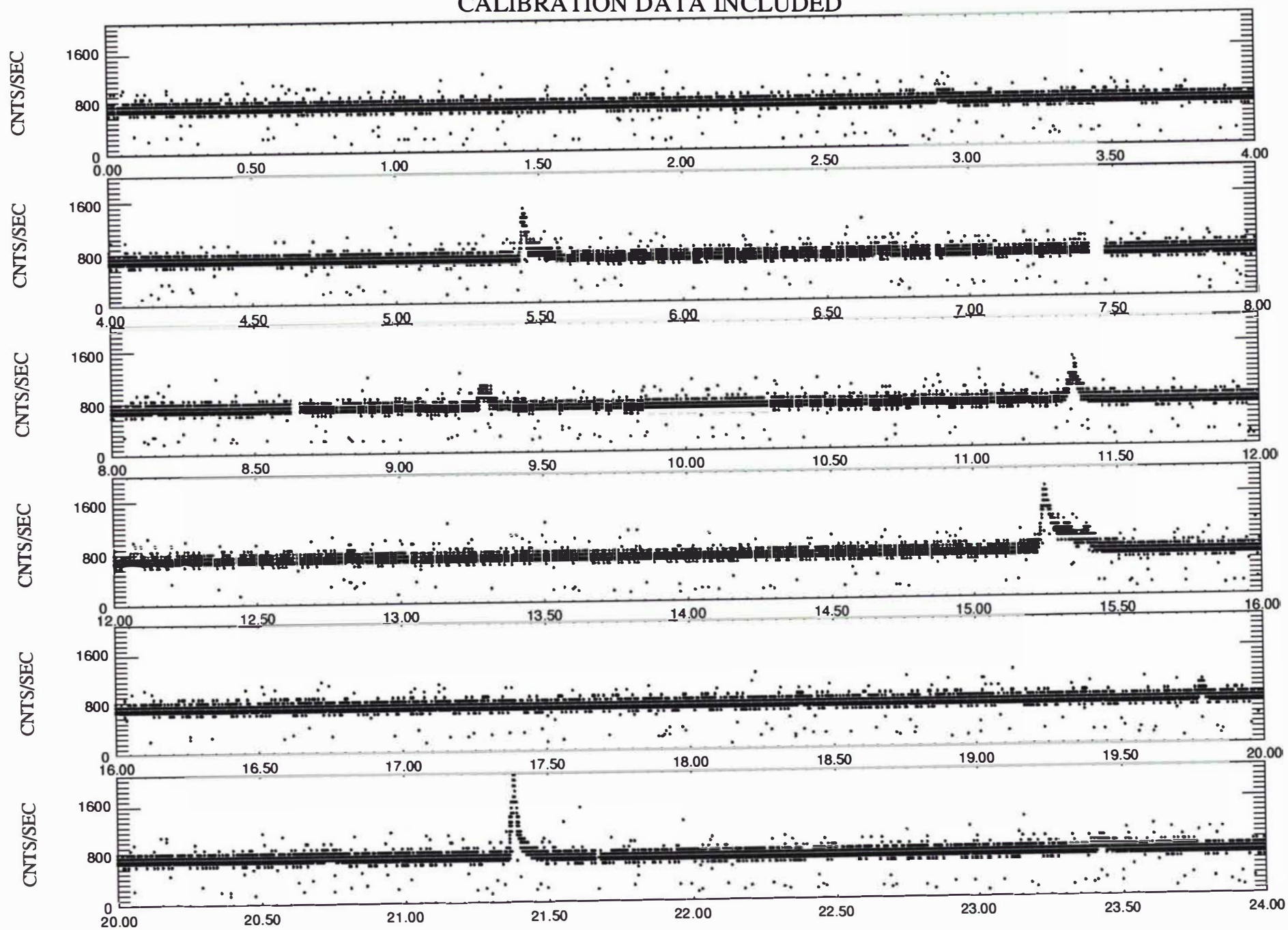
Burst Counter 12 at UT=21.377102860345 h=76957.570 s 21:22:37.570



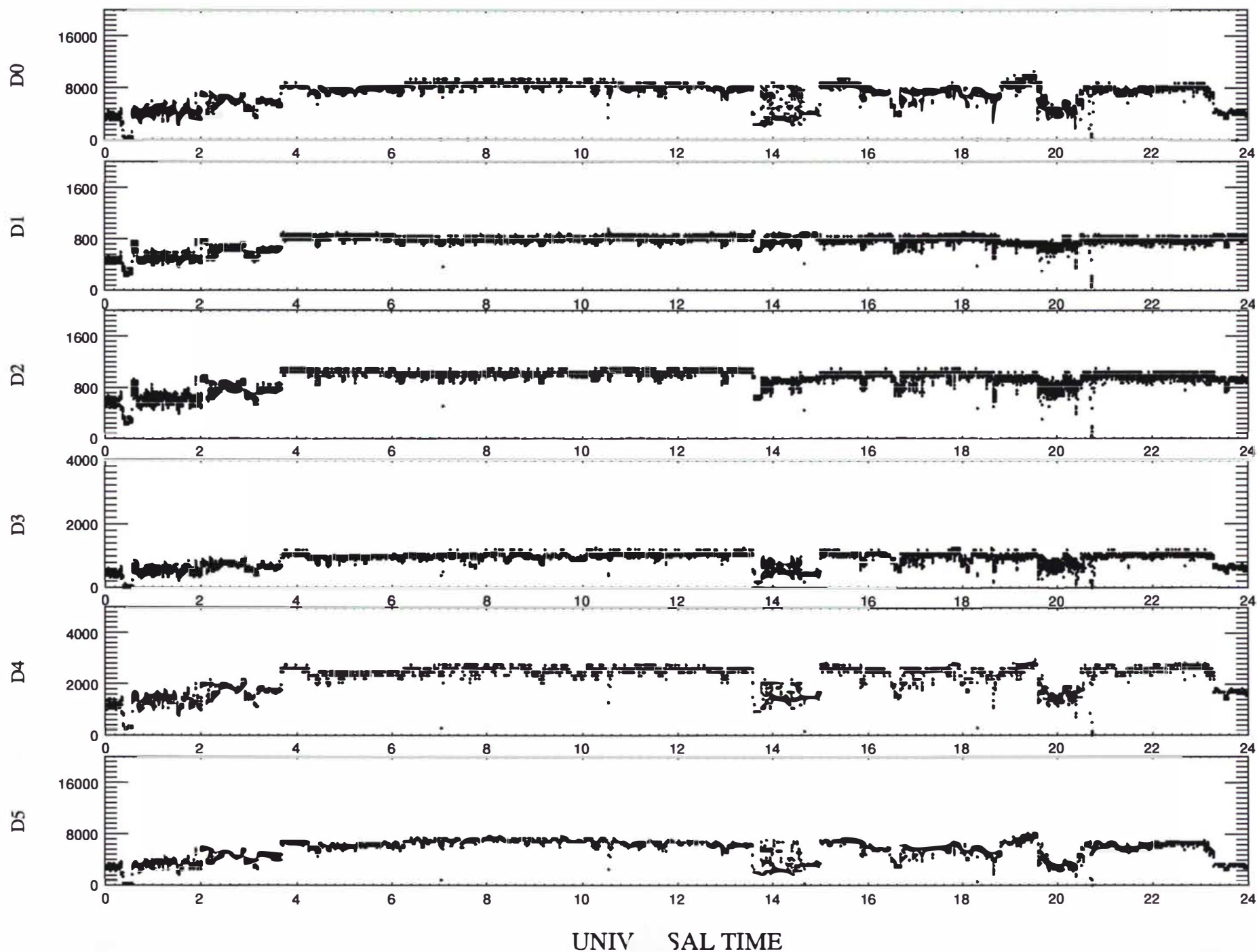
CALIBRATION DATA INCLUDED

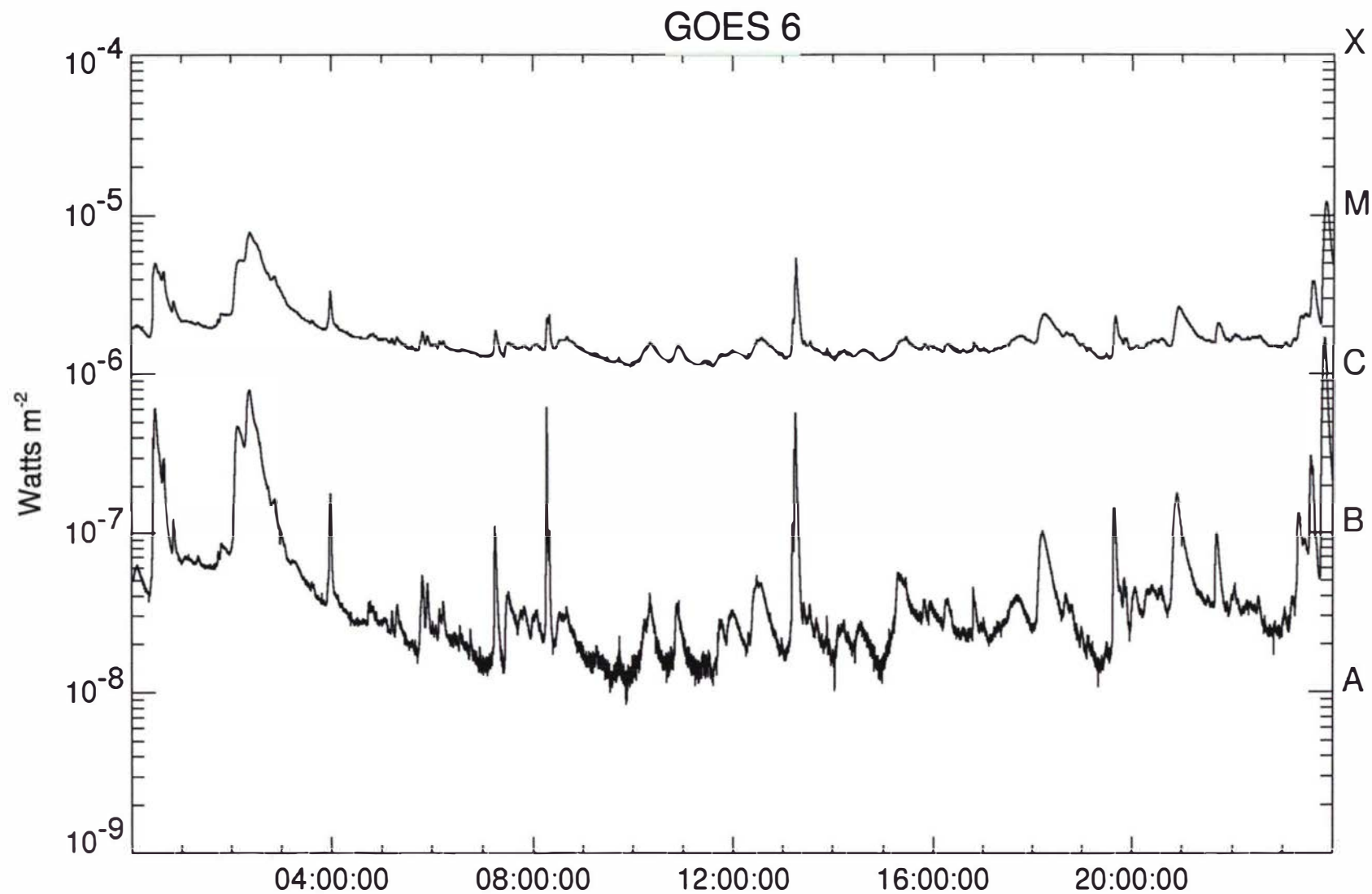


CALIBRATION DATA INCLUDED



UNIV SAL TIME





Data Start: 90/11/16, 0000:02

Plot created: 96/05/23, 1839

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

Table 1

Burst	Number	Activation time	Duration T_{90} , s	$C_{\max}/C_{\min}$	Remarks
1	2	3	4	5	6
PB891218	7.2	19 ^h 57 ^m 38.838	29.18 ± 0.28	2.67 ± 0.30	K
PB900114	19.3	6 09 12.306	0.41 ± 0.10	1.04 ± 0.27	K
PB900201	28.1	19 50 13.993	1.03 ± 0.19	5.19 ± 0.36	K
PB900222	44.1	11 56 34.346	4.89 ± 0.29	1.26 ± 0.22	
PB900308	52.1	9 39 05.635	2.31 ± 0.11	1.10 ± 0.27	KW
PB900316	58.1	19 43 17.945	1.67 ± 0.70	5.65 ± 0.64	
PB900320	59.2	6 53 01.525	0.05 ± 0.01	6.99 ± 0.49	
PB900325	63.1	3 29 07.686	17.59 ± 0.68	1.16 ± 0.23	
PB900404	66.3	17 54 35.241	2.72 ± 0.50	10.31 ± 0.96	SW
PB900413a	70.1	3 12 36.562	18.42 ± 0.17	11.63 ± 0.68	SK
PB900413b	70.2	10 11 21.744	14.76 ± 0.66	5.21 ± 0.38	W
PB900422	77.1	11 35 50.575	0.89 ± 0.04	1.62 ± 0.31	
PB900520a	87.1	12 10 17.439	0.42 ± 0.01	11.24 ± 1.01	S
PB900520b	87.2	13 02 17.513	71.71 ± 1.27	1.20 ± 0.23	
PB900524	91.2	3 48 12.550	8.02 ± 0.37	1.07 ± 0.22	
PB900604	96.1	17 31 33.303	0.27 ± 0.01	7.69 ± 0.71	SW
PB900605	97.1	19 23 01.481	7.30 ± 0.33	1.82 ± 0.26	GS
PB900611	101.1	4 15 20.289	15.18 ± 0.28	1.49 ± 0.30	
PB900616	105.1	2 18 14.576	1.38 ± 0.08	1.31 ± 0.24	
PB900618a	107.1	21 35 49.344	5.85 ± 0.39	1.94 ± 0.27	
PB900618b	107.2	23 12 21.662	17.24 ± 0.26	4.27 ± 0.37	
PB900625	112.1	22 04 17.234	16.88 ± 1.30	1.07 ± 0.23	
PB900711	121.1	17 38 17.976	1.12 ± 0.08	1.40 ± 0.23	
PB900720	127.1	21 44 59.956	30.42 ± 0.63	2.22 ± 0.27	S
PB900722	128.1	2 18 31.588	4.45 ± 0.32	3.32 ± 0.31	
PB900725	129.1	1 32 34.958	7.64 ± 0.21	1.12 ± 0.22	
PB900813	135.1	13 26 53.915	0.02 ± 0.01	2.95 ± 0.41	
PB900816	137.1	11 20 01.886	21.80 ± 0.13	1.55 ± 0.26	
PB900925a	165.1	5 19 21.744	1.89 ± 1.81	1.09 ± 0.26	
PB900925b	166.1	20 25 22.028	48.32 ± 0.52	2.17 ± 0.26	
PB900928	167.1	5 23 41.813	5.27 ± 0.50	5.10 ± 0.60	G
PB900929	168.1	1 49 25.166	20.58 ± 0.20	4.07 ± 0.55	
PB901011	176.1	22 31 01.494	1.17 ± 0.02	1.86 ± 0.36	
PB901014	177.1	1 13 21.079	10.26 ± 0.31	4.07 ± 0.35	S
PB901015	178.1	8 44 48.512	2.84 ± 0.34	1.36 ± 0.24	
PB901018	179.1	18 51 48.646	2.67 ± 0.17	1.02 ± 0.28	
PB901020	180.1	1 04 28.909	1.77 ± 0.11	1.24 ± 0.28	
PB901021	181.2	0 09 07.848	29.18 ± 0.94	5.94 ± 0.46	
PB901027	185.1	4 21 05.624	8.04 ± 0.20	2.95 ± 0.32	S
PB901111	188.1	21 49 01.859	1.28 ± 0.02	2.82 ± 0.41	
PB901112	189.1	14 57 37.649	10.69 ± 0.55	2.39 ± 0.29	U
PB901116	190.1	1 42 10.013	9.07 ± 0.15	2.18 ± 0.28	
PB901121a	194.2	0 04 47.785	4.68 ± 0.13	1.66 ± 0.25	U

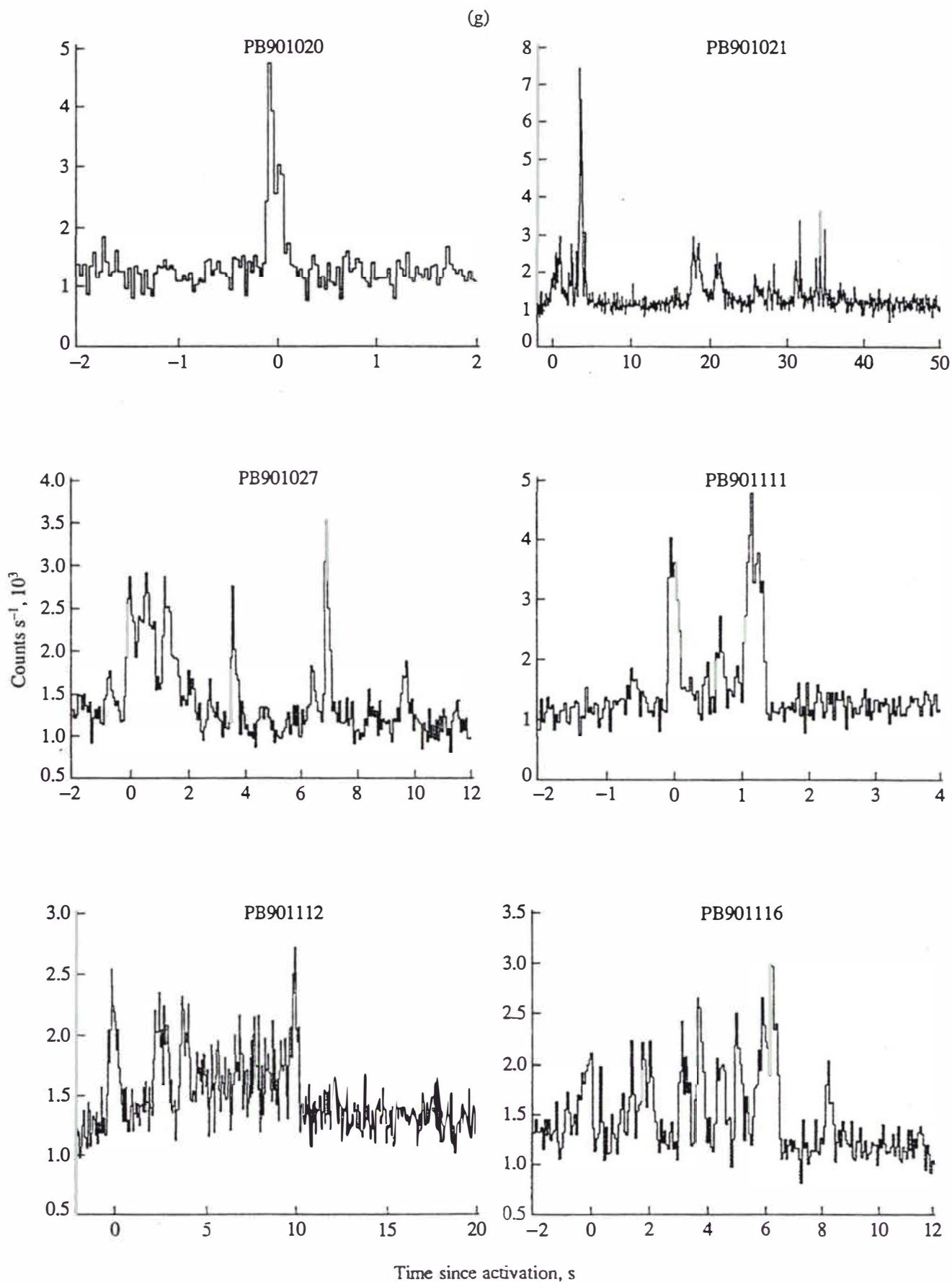


Fig. 1. (Contd.).

From root Wed Dec 8 07:58 1993
 Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
 id AA08899; Wed, 8 Dec 93 07:57:44
 Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
 id AA22497; Wed, 8 Dec 93 07:00:41 PST
 Received: Wed, 8 Dec 93 07:03:53 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
 Message-Id: <9312081503.AA10272@mx.nsi.nasa.gov>
 Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
 (utk-maill1ld v1.7); Wed, 8 Dec 93 07:03:57 PST
 Date: Wed, 8 Dec 93 07:03:57 PST
 From: 068486@essdp2.span.nasa.gov
 X-To: AMES::"khurley@space6.ssl.berkeley.edu"
 Subject: RE:
 To: khurley@space6.ssl.berkeley.edu
 Status: R

KEVIN,
 HERE ARE THE RESULTS OF OUR SURVEY OF THE PVO REAL-TIME DATA FOR EVIDENCE OF
 RESPONSE TO EVENTS LISTED IN YOUR CATALOG.

DATE	TIME	PVO RESPONSE
90/11/11	21:49	N/O
90/11/12	14:57	N/O
90/11/16	01:42	N/O
90/11/19	18:08	N/O
90/11/21	00:04	N/O
90/11/21	18:09	N/O
90/12/02	13:45	N/O
90/12/21	00:30	N/O
90/12/25	05:50	N/O
91/01/17	00:57	N/O
91/01/24	11:50	N/O
91/02/04	08:58	N/O
91/02/04	14:19	N/O
91/02/04	14:58	N/O
91/02/17	02:59	N/O
91/03/14	22:56	N/O
91/03/15	22:55	N/O
91/04/04	17:17	(NO)
91/05/18	17:10	N/O
91/05/23	19:03	N/O
91/05/27	23:44	N/O
91/05/28	21:26	N/O
91/06/02	22:55	N/O
91/06/09	00:48	N/O
91/06/29	19:55	N/O
91/07/09	20:22	N/O
91/07/17	13:07	N/O
91/08/03	08:24	N/O
91/08/15	12:34	N/O
91/08/15	14:24	N/O
91/08/16	01:57	(NO)
91/09/05	23:48	N/O
91/09/16	21:58	N/O
91/09/25	03:35	N/O
91/09/26	18:25	N/O
91/09/30	11:55	N/O
91/10/03	00:39	N/O
91/10/04	01:27	N/O
91/10/06	09:01	(NO)
91/10/22	04:13	N/O
91/10/25	21:25	N/O
91/11/06	03:42	N/O
91/11/14	01:40	N/O
91/11/17	01:58	N/O
91/12/05	23:04	N/O

91/12/21	06:17	N/O
91/12/21	22:03	N/O
91/12/27	15:56	N/O
92/01/05	17:41	N/O
92/01/13	20:52	N/O
92/01/25	08:57	N/O
92/01/30	00:29	N/O
92/01/30	22:50	N/O
92/02/18	18:42	N/O
92/02/21	06:14	N/O
92/02/26	18:15	YES TRIGGER AT 29336 S UT
92/02/27	06:00	N/O
92/02/27	08:45	N/O
92/03/02	06:16	N/O
92/03/04	14:34	N/O
92/03/07	00:18	N/O
92/03/21	12:50	(NO)
92/03/26	02:01	N/O
92/03/27	09:38	N/O
92/03/29	16:38	(NO)
92/04/04	22:37	N/O
92/04/08	12:05	N/O
92/04/20	02:12	N/O
92/04/29	18:59	N/O
92/05/02	19:05	N/O
92/06/01	THRU 92/06/29	TURNED OFF--N/O
92/07/01	19:39	N/O
92/07/07	06:33	N/O
92/07/17	01:15	N/O
92/07/23	00:59	N/O
92/07/23	01:00	N/O
92/07/23	21:48	N/O
92/07/25	19:30	N/O
92/07/25	22:49	N/O
92/07/26	00:34	N/O
92/07/31	17:07	N/O
92/08/10	21:35	N/O
92/08/14	06:10	N/O
92/08/16	12:36	N/O
92/08/22	22:39	N/O
92/08/30	01:45	N/O
92/09/04	04:41	N/O

THIS LIST IS NOT COMPLETE. IT INCLUDES EVENTS FOR WHICH NO REAL-TIME DATA ARE AVAILABLE BECAUSE OF INAPPROPRIATE MODE, NO TRACKING, OR THE EXPERIMENT WAS TURNED OFF. WHERE DATA HAVE BEEN CHECKED, SENSITIVITY DEPENDS UPON THE TIME RESOLUTION AVAILABLE IN THE DATA. I'LL BE SENDING ADDITIONAL RESULTS AS THEY BECOME AVAILABLE.

REGARDS,

RAY

Version 3.0 sep. 12 1993.

The data given below is pre-publication data. The data should not be quoted without prior consultations with the WATCH-GRANAT collaboration. The list is prepared in support of searches for counterparts or multi-spacecraft identifications. The positions given for the localized sources are in most cases based on the fitted mean attitude of GRANAT.

The positional uncertainty is 1 degree error circle radius.

#	date	UT-time	sd	l(s)	m(s)	m/l	position(1950)	Q	t	comments	#Wm	sdp	theta	phi
1	900118	17:40:47	33	280	225	1.1	11h36.3m -44.7	F3	8	4 peaks	0423	28	22.42	26.50
2	900126	18:04:27	146	25	11	0.5	08h44.6m -38.0	F3	r	2 peaks, soft tail	0481	70	21.35	138.49
3	900222	11:56:34	38	33	15	1.5	22h29.9m 35.1	F3	1	1 peak, soft tail	0650	25	20.16	144.39
4	900708	11:30:20	36	160	95	2.0	12h22.3m 31.4	F3	1	3 peaks	1490	29	58.49	90.41
5	900901	01:35:46	36	230	110	4.0	18h19.4m -44.8	F3	4	4 peaks	1811	28	39.58	167.23
6	900925	20:25:22	18	45	42	1.2	8h56.0m -35.3	F3	1	Structured event	1976	13	50.37	264.93
7	900929	01:49:48	40	180	180	1.3	11h12.9m -06.6	F3	r	2 groups of spikes	1990	32	44.31	344.08
8	901009	00:15:50	30	11	9	3.5	23h12.1m +29.6	F3	1	1 peak	2041	17	52.34	319.13
9	901116	01:42:08	19	15	15	2.2	02h36.7m +25.1	F3	8	1 peak	2241	11	53.92	15.72
10	901219	21:52:52	24	50	35	2.2	23h06.9m -53.9	F3	8	1 peak	2490	18	57.94	83.18
11	910122	15:13:35	28	127	-	0.0			1	Soft, structured	2670	25	42.26	142.13
12	910219	11:45:24	43	67	54	0.7	14h12.5m 59.0	F3	r	2 peaks	2813	29	25.97	230.72
13	910310	13:02:05	81	41	40	2.5	12h11.9m 06.4	F3	1	3 peaks	2931	40	51.36	351.15
14	910627	04:29:24	20	11	-	0.4	(13h14m -03.2)	I2	1	1 peak. X-burst?	3643	18	20.70	262.04
15	910821	10:33:56	21	66	66	0.5	23h31.8m -72.6	F3	4	Struct. + sharp pk.	3991	14	51.52	116.19
16	911016	11:03:30	22	160	-	0.1	19h47.8m -04.8	F3	8	very soft, 2 peaks	4381	17	32.03	227.19
17	911202	20:28:59	41	20	11	0.7	11h27.1m -23.2	F3	1	Single struct. peak	4623	16	35.87	30.52
18	911209	18:36:11	42	30	12	1.8	17h26.4m -44.4	F3	r	4 peaks	4680	28	34.53	320.77
19	920311	02:20:37	42	40	40	1.3	08h45.4m -36.4	F3	8	1 peak	5201	37	51.39	83.56
20	920714	13:04:51	36	40	36	2.1	14h41.6m -30.0	F3	8	1 peak	5921	28	43.75	202.33
21	920718	14:41:15	30	90	30	0.4	01h22.6m -3.5	F3	8	1 odd peak	5953	20	17.97	302.95
22	920718	21:32:46	40	7	5	1.8	19h43.0m -56.5	F3	1	1 dull peak	5951	29	24.43	93.23
23	920723	20:03:10	186	13	8	3.9	19h04.5m 27.4	F3	1	1 dull peak	5991	79	33.49	208.18
24	920902	00:29:04	49	13	9	4.6	18h36.0m -22.8	F3	1	1 dull peak	6163	30	49.14	320.14
25	920903	01:36:15	23	154	103	2.0	19h43.0m 35.2	F3	4	Main peak + spikes	6173	14	38.94	230.29
26	920903	23:29:05	92	24	15	2.5	20h06.3m 21.7	F3	r	1 peak (low E. str)	6183	49	43.53	249.60
27	920925	20:30:42	25	120	120	2.5	13h27.0m 43.1	F3	1	3 peaks	6313	13	51.98	115.24
28	920925	22:49:14	43	347	340	1.3	22h02.0m 24.0	F3	4	struct, soft tails	6311	32	43.03	65.02

39.175, 25.1°
061285

date UT-time sd l(s) m(s) m/l position(1950) Q t comments #Wm

comments:

UT-time: Time for peak count rate in Med CsI band. Note time resolution!

Times marked with an asterisk are not yet well calibrated to UT.

sd: Standard deviations above background (in count rates).

l(s): Duration in 6-15 keV band (Low NaI channel)

m(s): Duration in 15-180 keV band (Med CsI channel)

m/l: Hardness: (sd(Med NaI)+sd(Med CsI)) / sd(Low NaI)

posit.: All events in the above list (except 910627) have been localized consistently at least twice based on independent data sets. We are therefore convinced of their true cosmic nature, even without confirming evidence from other spacecraft. GRB 910627 has been included in the list because it is confirmed to be cosmic by many other instruments, and the WATCH position is quite secure due to the good signal to noise ratio.

Q: Type of attitude data: I2: initial pointing at obs. start. 2 axes (poor, syst. error: ± 0.8 deg)
A2: actual pointing at burst time. 2 axes (better, syst. error: ± 0.5 deg)
F3: Fitted mean pointing for TM session. 3 axes (TBD (± 0.5 deg?))

t: Best time resolution available: 1, 4, 8, 16 motor rotations (approx. 0.9 s)

m: 1 motor rotation in 4 ms steps

r: raw memory (4 ms steps)

#Wm Telemetry session and WATCH unit identifier

sdp: Standard deviations above background in final modulation pattern
used for source localization. As a rough guide, the statistical
uncertainty in the source position is $240/\text{sdp}$ arcminutes. In most
cases the systematic errors dominates the error budget.

theta and phi: Source position in WATCH instrument coordinates.

Dezaley -> KH 7/93

15

DATE	U.T.	Nr UGB	Event Nature
1990-09-28	05:23:41.813	167-a	GRB
1990-09-29	01:49:25.166	168-a	GRB
1990-10-11	22:31:01.494	176-a	GRB
1990-10-12	23:19:14.781	176-b	Unknown
1990-10-14	01:13:21.079	177-a	GRB
1990-10-15	08:44:48.512	178-a	GRB
1990-10-18	18:51:48.644	179-a	GRB
1990-10-20	01:04:28.909	180-a	GRB
1990-10-20	18:01:23.759	181-a	Solar Flare
1990-10-21	00:09:07.848	181-b	GRB
1990-10-27	04:21:05.625	185-a	GRB
1990-11-11	21:49:01.859	188-a	GRB
1990-11-12	14:57:37.647	189-a	GRB
1990-11-13	04:44:02.029	189-b	Solar Flare
1990-11-16	01:42:10.012	190-a	GRB
1990-11-17	13:37:35.859	192-a	Unknown
1990-11-17	14:41:40.621	192-b	Unknown
1990-11-18	20:23:47.770	192-c	Unknown
1990-11-21	00:04:47.791	194-a	GRB
1990-11-21	18:09:10.652	194-b	GRB
1990-12-04	02:00:28.445	201-a	Solar Flare
1990-12-04	03:19:19.152	201-b	Unknown
1990-12-04	09:42:52.699	202-a	Unknown
1990-12-04	17:20:43.930	202-b	Unknown
1990-12-04	18:21:47.722	202-c	Unknown
1990-12-06	20:33:48.100	204-a	Unknown
1990-12-12	03:26:59.750	205-a	Solar Flare
1990-12-12	03:26:59.750	208-a	Solar Flare
1990-12-13	05:37:04.829	209-a	Unknown
1990-12-13	06:12:32.708	209-b	Unknown
1990-12-13	07:06:23.125	209-c	GRB
1990-12-14	13:32:11.352	210-a	Solar Flare
1990-12-16	15:47:15.796	211-a	GRB
1990-12-19	21:52:48.635	213-a	GRB
1990-12-21	00:30:05.753	214-a	GRB

JPLJet Propulsion Laboratory
California Institute of Technology4800 Oak Grove Drive
Pasadena, California 91109**U L Y S E S****TELECOMMUNICATIONS MESSAGE**☒ FAX

ATTN: KEVIN HURLEY		PHONE OF ADDRESSEE 415 849 9220	
ORGANIZATION SPACE SCIENCES LAB UNIVERSITY OF CALIFORNIA		DATE 16/NOV/90	NO. OF PAGES 2
STREET			
CITY BERKELEY	STATE & COUNTRY CA	ZIP CODE 94720	
TRANSMIT NUMBER (TWX, TELEX, FAX) 415 043 7629		DATE & TIME REQ. AT DEST.	
FROM JR GREENWOOD	PHONE EXT. 818-39 3-0906	MAIL STOP	
CC:			

ATTACHED TRND FOR E079, E080 AND E091, E018
 TCM FORMAT CHANGE FROM IKENG TO IKSCI AT 320:06:30
 GMT. FIRST STARTED TO GET E018 OUT OF LIMITS AT
 06:32.

IF CAUSE OF THIS UNKNOWN COULD IT HAVE ANYTHING
 TO DO WITH THE FORMAT CHANGE?

Agard

Greenwood

N. ANGOLD

INSTRUCTIONS:

1. CLASSIFIED MATERIAL CANNOT BE TRANSMITTED VIA THE TELECOMMUNICATIONS NETWORKS.
2. MATERIAL SHOULD BE TYPED OR IN BLACK INK ON THIS FORM. ADDITIONAL MATERIAL MAY BE SUBMITTED ON 8 1/2" x 11" WHITE BOND PAPER. IF MORE THAN ADDRESSEE, ATTACH LIST.

U L Y S E S

TELECOMMUNICATIONS MESSAGE

JPL

Attn: [illegible]
[illegible]
[illegible]
[illegible]

ATTN		FROM OR ADDRESS	
[illegible]		[illegible]	
ORGANIZATION		DATE	
[illegible]		[illegible]	
STREET		NO. OF PAGES	
[illegible]		[illegible]	
CITY		STATE	
[illegible]		[illegible]	
TRANSMIT NUMBER (NOT FOR POST)		POSTAL SYMBOL (NOT POST)	
[illegible]		[illegible]	
FROM		TO	
[illegible]		[illegible]	
[illegible]		[illegible]	

[Faint, mostly illegible text body of the message]

- INSTRUCTIONS:
1. CLASSIFIED MATERIAL SHOULD BE CLASSIFIED BY THE FIELD OFFICE AND NOT BY THE BUREAU.
 2. MATERIAL SHOULD BE CLASSIFIED BY THE FIELD OFFICE AND NOT BY THE BUREAU.
 3. MATERIAL SHOULD BE CLASSIFIED BY THE FIELD OFFICE AND NOT BY THE BUREAU.

TREND LOG

SUPPRESS PAR VAL CHK: Y SUPPRESS TLM QUAL CHK: Y SAMPLE FREQUENCY:
 START TIME: 90.320.06.30 END TIME: 90.320.17.30

TIME	S/C CLOCK @	E039	E040 CNT	E041 CNT	E042
320.06.30.40	1748352 G	13	249	249	0 0 0
320.06.32.16	1748400 G	13	249	249	0 0 0
320.06.32.48	1748416 G	13	249	249	0 0 0
320.06.33.52	1748448 G	14	249	249	0 0 0
320.06.34.24	1748464 G	14	250	250	0 0 0
320.06.36.32	1748528 G	14	250	250	0 0 0
320.06.58.24	1749184 G	14	250	250	0 0 0
320.08.06.40	1751232 G	14	250	250	0 0 0
320.09.14.56	1753280 G	14	250	250	0 0 0
320.10.20.12	1755328 G	14	250	250	0 0 0
320.11.31.28	1757376 G	14	250	250	0 0 0
320.12.39.44	1759424 G	14	250	250	0 0 0
320.13.48.01	1761472 G	14	250	250	0 0 0
320.14.56.17	1763520 G	14	250	250	0 0 0
320.16.04.33	1765568 G	14	250	250	0 0 0
320.17.12.49	1767616 G	14	250	250	0 0 0

--- PRINTOUT COMPLETED ---

Eng Mode: 01:00
 06:30

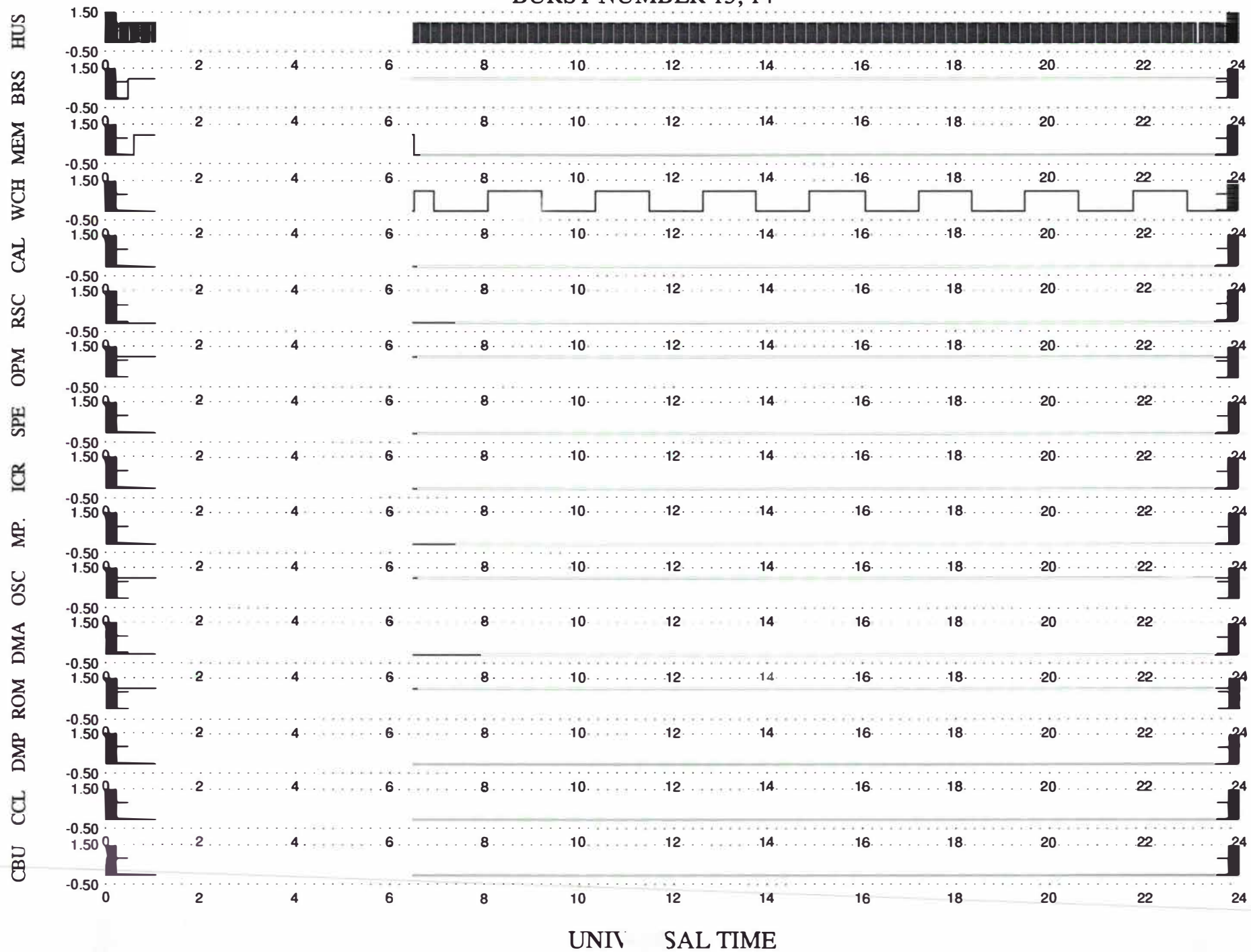


~~Z018~~
 Z018 8005 m off
 Z018 4005 reset
 Z018 0005 restart

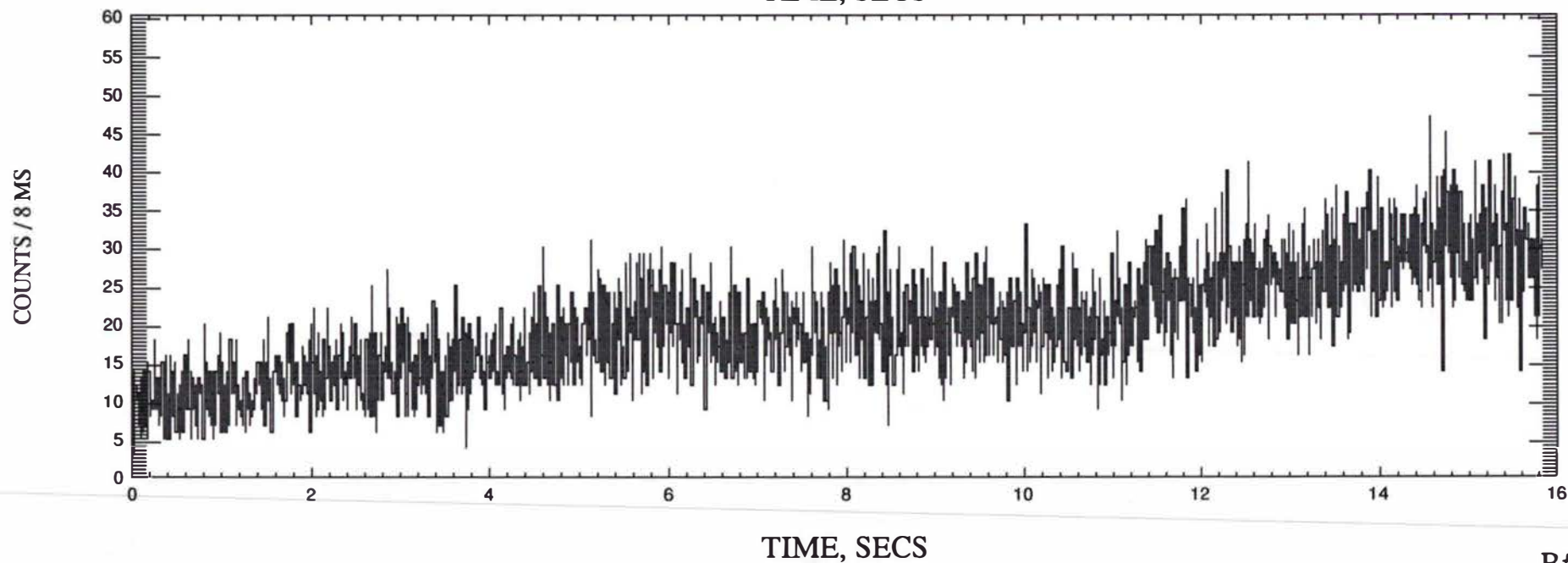
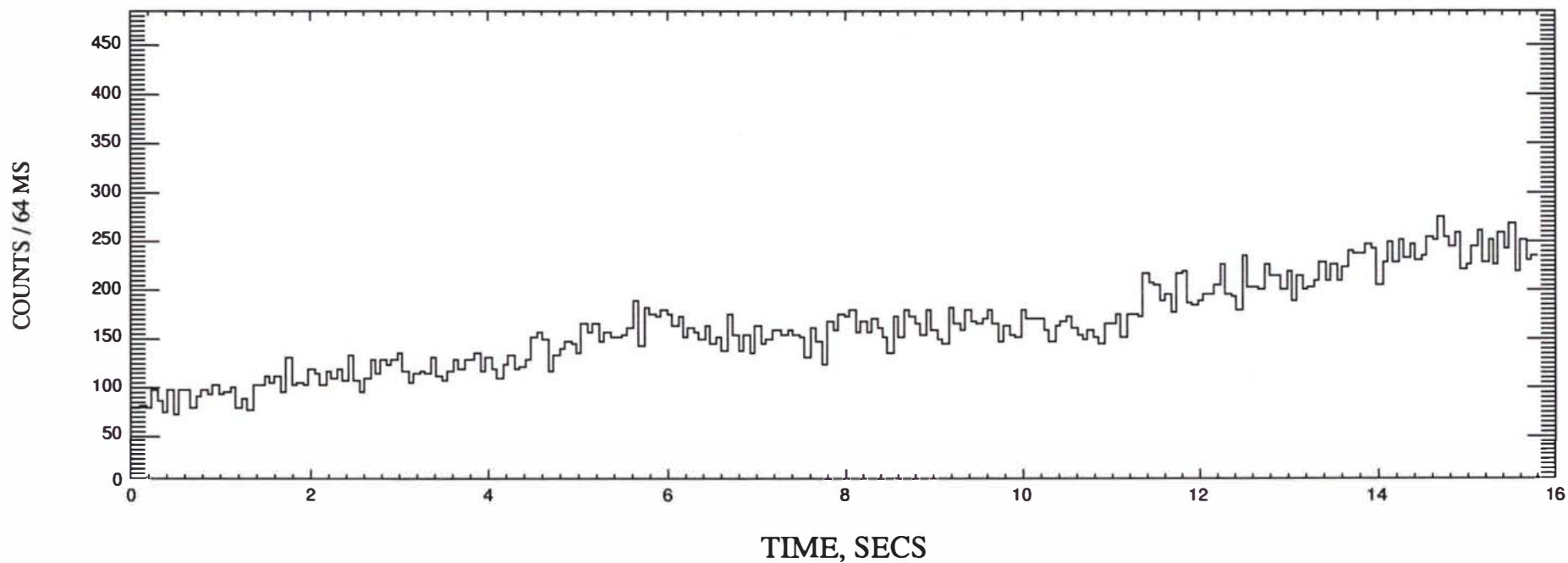
2-3 formats print out ✓
 check ops mode print-out

393 4501

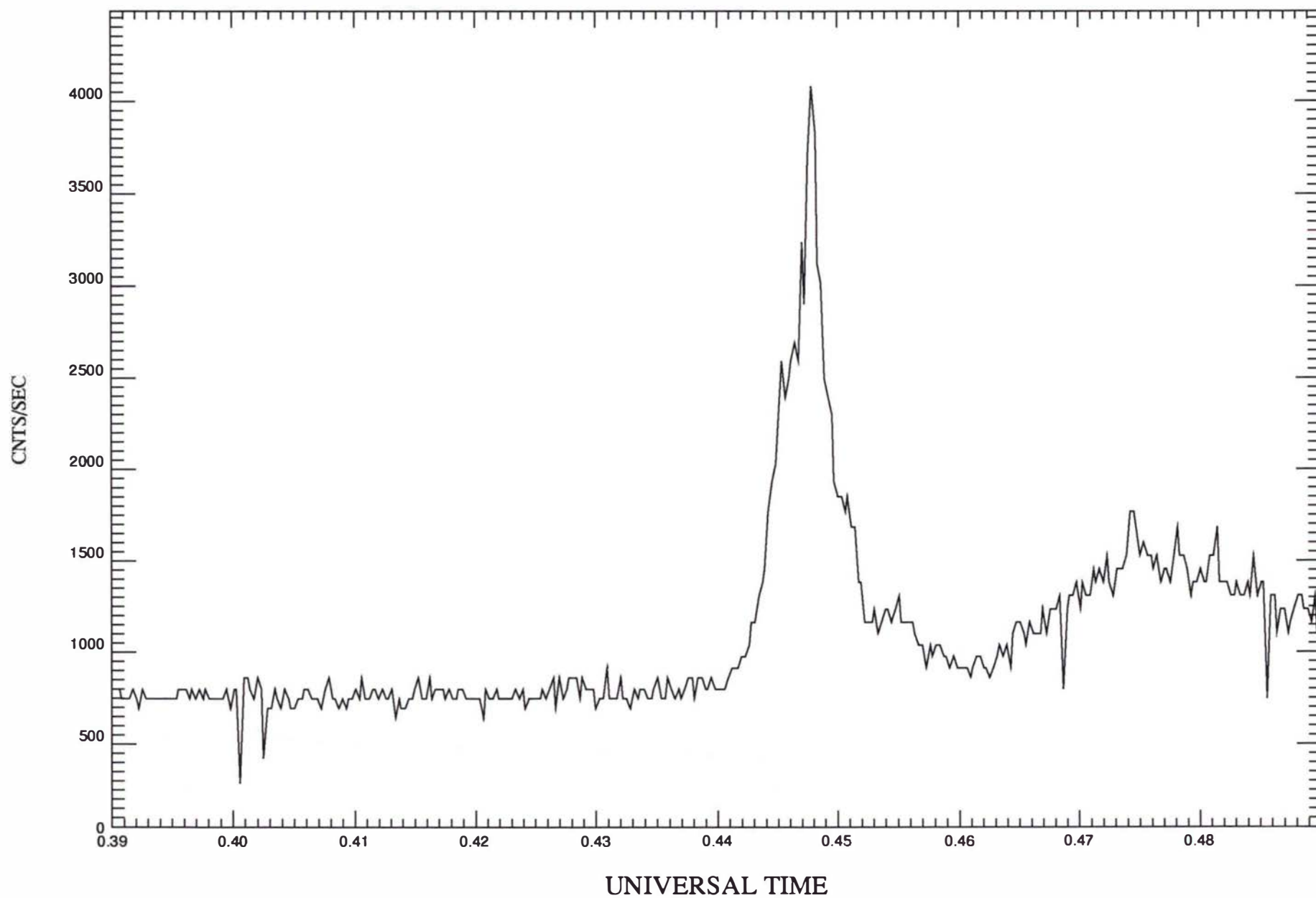
BURST NUMBER 13, 14



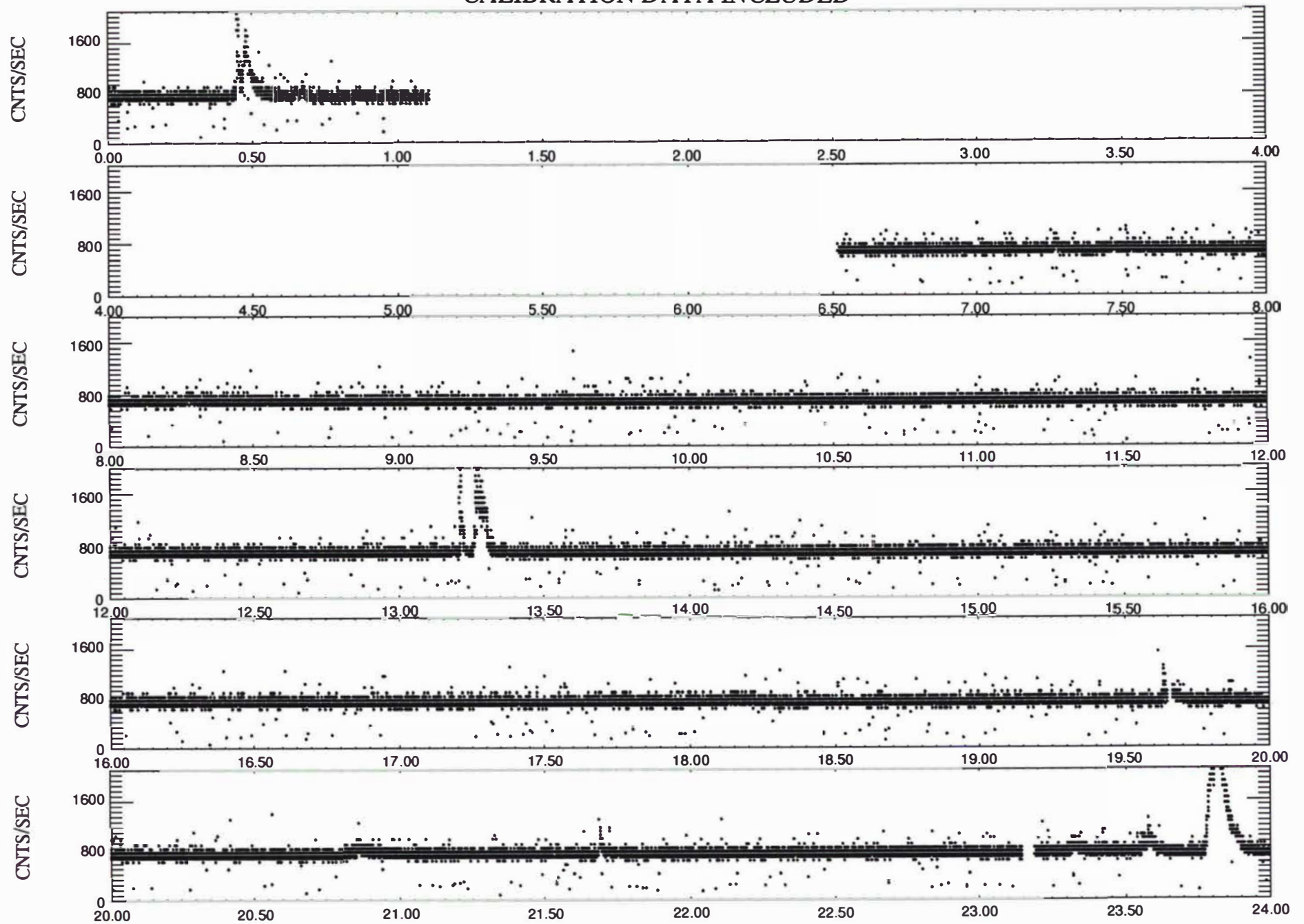
Burst Counter 13 at UT= 0.444404029846 h= 1599.855 s 00:26:39.855



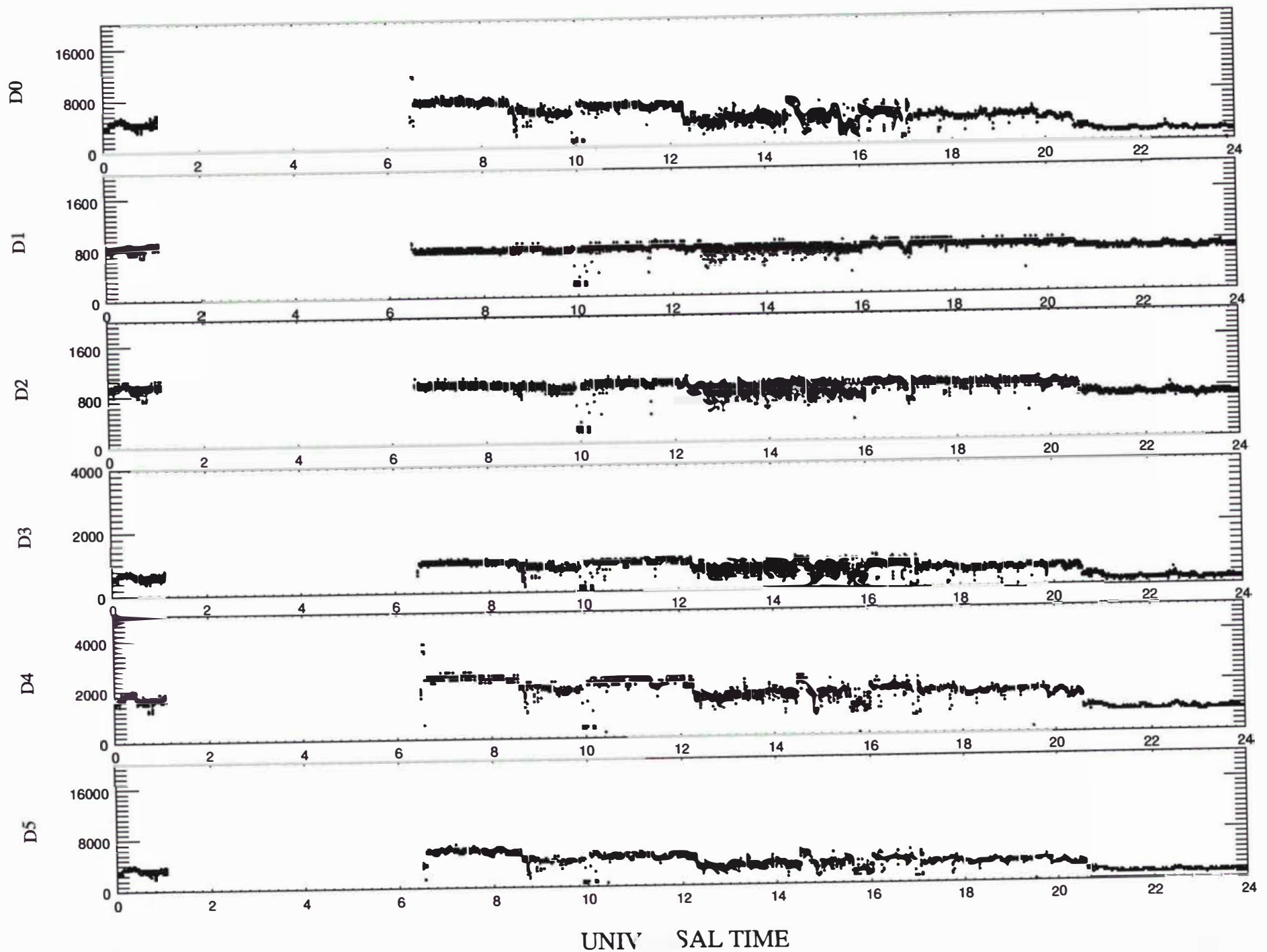
CALIBRATION DATA INCLUDED



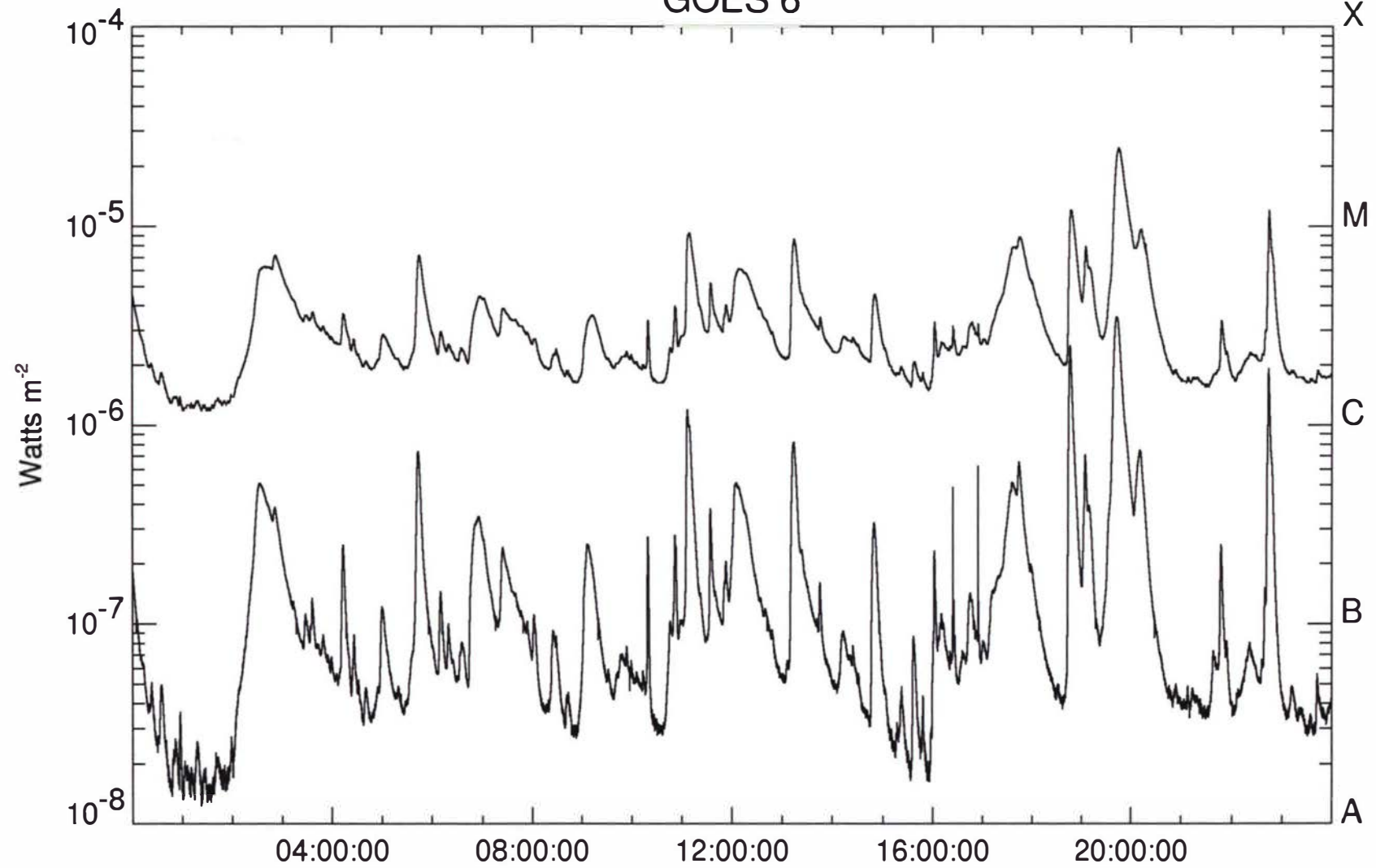
CALIBRATION DATA INCLUDED



UNIV SAL TIME



GOES 6



Data Start: 90/11/17, 0000:00

Plot created: 96/05/23, 1843

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Dezaley -> KH 7/93

15

DATE	U.T.	Nr UGB	Event Nature
1990-09-28	05:23:41.813	167-a	GRB
1990-09-29	01:49:25.166	168-a	GRB
1990-10-11	22:31:01.494	176-a	GRB
1990-10-12	23:19:14.781	176-b	Unknown
1990-10-14	01:13:21.079	177-a	GRB
1990-10-15	08:44:48.512	178-a	GRB
1990-10-18	18:51:48.644	179-a	GRB
1990-10-20	01:04:28.909	180-a	GRB
1990-10-20	18:01:23.759	181-a	Solar Flare
1990-10-21	00:09:07.848	181-b	GRB
1990-10-27	04:21:05.625	185-a	GRB
1990-11-11	21:49:01.859	188-a	GRB
1990-11-12	14:57:37.647	189-a	GRB
1990-11-13	04:44:02.029	189-b	Solar Flare
1990-11-16	01:42:10.012	190-a	GRB
1990-11-17	13:37:35.859	192-a	Unknown
1990-11-17	14:41:40.621	192-b	Unknown
1990-11-18	20:23:47.770	192-c	Unknown
1990-11-21	00:04:47.791	194-a	GRB
1990-11-21	18:09:10.652	194-b	GRB
1990-12-04	02:00:28.445	201-a	Solar Flare
1990-12-04	03:19:19.152	201-b	Unknown
1990-12-04	09:42:52.699	202-a	Unknown
1990-12-04	17:20:43.930	202-b	Unknown
1990-12-04	18:21:47.722	202-c	Unknown
1990-12-06	20:33:48.100	204-a	Unknown
1990-12-12	03:26:59.750	205-a	Solar Flare
1990-12-12	03:26:59.750	208-a	Solar Flare
1990-12-13	05:37:04.829	209-a	Unknown
1990-12-13	06:12:32.708	209-b	Unknown
1990-12-13	07:06:23.125	209-c	GRB
1990-12-14	13:32:11.352	210-a	Solar Flare
1990-12-16	15:47:15.796	211-a	GRB
1990-12-19	21:52:48.635	213-a	GRB
1990-12-21	00:30:05.753	214-a	GRB



Space Sciences Laboratory

Berkeley, California

Fax: (415) 643-7629

TELEFAX TO # 818 393 4501

Date: Nov 17, 1990

TO: NIGEL ANGOLD

FROM: KEVIN HURLEY

TO FIX THE WATCHDOG PROBLEM, PLEASE SEND THE
FOLLOWING COMMANDS AS SOON AS POSSIBLE:

- 1) Z018 8005 (PAUSE μ PROCESSOR)
- 2) Z018 4005 (RESET ")
- 3) Z018 0005 (RESTART ")

AFTER SEVERAL FORMATS, THE WATCHDOG (E018) SHOULD
GO OFF AND STAY OFF. TO VERIFY THAT THE μ PROCESSOR
IS RUNNING, PLEASE LOG PRINT 2-3 FORMATS OF
SCIENCE DATA. AND FAX THEM TO ME. THANK YOU

Kevin Hurley

19:27 ends sent

20:15 print out ~~set~~ taken

Watchdog off, hasn't come ^{back} on
^

ULYSSES HUS EXPERIMENT

OPERATION MODE 3

17-NOV-90 18:14

TIME:.90.321.17.10.11

FORMAT: 7

FRAME	D0	D1	D2	D3	D4	D5	ICR=1	ICR=2	PHA	DET1	DET2
0		2433					312	338	0	100	
1			2561				312	364	0	200	
2				1921			392	364	0	300	
3	25601						364	392	0	400	
4		2433					392	364	0		100
5			2561				364	364	0		200
6				1857			338	364	0		300
7					19457		338	364	0		400
8		2303					364	338	0	100	
9			2561				338	392	0	200	
10				1857			338	312	0	300	
11	23553						338	338	0	400	
12		2561					392	364	0		100
13			2817				392	364	0		200
14				2049			392	392	0		300
15						36865	312	364	0		400
16		2433					364	364	0	100	
17			2689				312	338	0	200	
18				2049			364	364	0	300	
19	26625						338	338	0	400	
20		2689					338	338	0		100
21			2817				338	364	0		200
22				2303			338	364	0		300
23					19457		338	338	0		400
24		2433					338	312	0	100	
25			2689				364	312	0	200	
26				2049			364	338	0	300	
27	27649						338	364	0	400	
28		2561					338	364	0		100
29			2817				338	420	0		200
30				2177			364	392	0		300
31						36865	338	338	0		400

DIGITAL HOUSEKEEPING DATA FROM THE LAST 8 FORMATS STARTING AT S/C EVENT TIME .90.321

BURST ON	READ OFF	WATCHDOG OFF	CALIB. OFF	RESCUE OFF	OPS TWO	SAMPLE TIME 1 S	ICR TIME 1/128 S
MICRO-P MODE RUN		OSC ONE	DMA 0 OFF	ROM ONE	ADDR 0 ROM	TC CAL OFF	TC BURST OFF
RED 4 OFF	RED 3 OFF	RED 2 OFF	RED 1 OFF	BURST NR 14			
B-TIME 253	LLD.BRV 1023	LLD.BST 0.25 S	MLD.BRV 29	MLD.BST 1.0 S			

ULYSSES HUS EXPERIMENT

OPERATION MODE 2

17-NOV-90 12:14

TIME: .90.321.17.09.39

FORMAT: 6

FRAME	D0	D1	D2	D3	D4	D5	ICR#1	ICR#2	PHA	DET1	DET2
0		2433					338	338	0	100	
1			2817				364	392	0	200	
2				2049			364	392	0	300	
3	26625						392	338	0	400	
4		2561					338	338	0		100
5			2817				338	364	0		200
6				2049			364	338	0		300
7					19457		364	312	0		400
8		2433					364	338	0	100	
9			2817				312	364	0	200	
10				1985			364	338	0	300	
11	26625						312	364	0	400	
12		2433					364	338	0		100
13			2561				338	364	0		200
14				1985			364	338	0		300
15						36865	312	338	0		400
16		2433					364	338	0	100	
17			2689				364	364	0	200	
18				1925			338	338	0	300	
19	25601						364	338	0	400	
20		2433					364	364	0		100
21			2689				364	338	0		200
22				2049			364	338	0		300
23					19457		338	364	0		400
24		2433					312	312	0	100	
25			2689				338	364	0	200	
26				1921			364	364	0	300	
27	26625						338	338	0	400	
28		2433					338	364	0		100
29			2689				392	392	0		200
30				2049			338	312	0		300
31						36865	364	338	0		400

ULYSSES HUS EXPERIMENT

OPERATION MODE 2

17-NOV-90 18:14

TIME: .90.321.17.09.07

FORMAT: 5

FRAME	D0	D1	D2	D3	D4	D5	ICR-1	ICR-2	FHA	DET1	DET2
0		2305					338	392	0	100	
1			2561				338	338	0	200	
2				1793			312	364	0	300	
3	23553						364	392	0	400	
4		2305					338	364	0		100
5			2561				338	338	0		200
6				1793			312	364	0		300
7					18433		312	72	0		400
8		2305					338	338	0	100	
9			2561				364	364	0	200	
10				1793			312	312	0	300	
11	23553						364	364	0	400	
12		2433					338	392	0		100
13			2817				338	338	0		200
14				2049			392	338	0		300
15					34817		364	338	0		400
16		2561					338	338	0	100	
17			2945				364	338	0	200	
18				2049			338	338	0	300	
19	26625						364	364	0	400	
20		2561					392	392	0		100
21			2817				364	364	0		200
22				2049			338	312	0		300
23					19457		338	338	0		400
24		2433					364	338	0	100	
25			2561				338	364	0	200	
26				1921			338	364	0	300	
27	25601						364	338	0	400	
28		2561					312	338	0		100
29			2817				312	364	0		200
30				1921			364	364	0		300
31					34817		242	338	0		400

ULYSSES HUS EXPERIMENT

OPERATION MODE 2

17-NOV-90 18:14

TIME: .90.321.17.08.35

FORMAT: 4

FRAME	D0	D1	D2	D3	D4	D5	ICP=1	ICP=2	PHA	DET1	DET2
0		2433					312	338	0	100	
1			2689				338	338	0	200	
2				2049			312	338	0	300	
3	26625						338	338	0	400	
4		2561					364	364	0		100
5			2817				338	312	0		200
6				2177			338	338	0		300
7					20481		338	364	0		400
8		2561					364	338	0	100	
9			2817				392	338	0	200	
10				2177			338	364	0	300	
11	27649						338	338	0	400	
12		2433					338	312	0		100
13			2817				338	420	0		200
14				2177			364	312	0		300
15						36865	364	338	0		400
16		2561					364	392	0	100	
17			2689				364	364	0	200	
18				1985			364	392	0	300	
19	26625						312	364	0	400	
20		2433					338	364	0		100
21			2689				338	338	0		200
22				1985			364	338	0		300
23					20481		312	338	0		400
24		2305					364	338	0	100	
25			2689				338	338	0	200	
26				1857			364	364	0	300	
27	24577						338	312	0	400	
28		2305					338	338	0		100
29			2561				364	392	0		200
30				1857			364	312	0		300
31						38913	364	312	0		400

ULYSSES HUS EXPERIMENT

OPERATION MODE 2

17-NOV-90 18:11

TIME: .90.321.17.08.03

FORMAT: 3

FRAME	D0	D1	D2	D3	D4	D5	ICR=1	ICR=2	FHA	DET1	DET2
0		2305					338	338	0	100	
1			2561				364	338	0	200	
2				2049			364	364	0	300	
3	25601						338	338	0	400	
4		2433					338	364	0		100
5			2689				392	364	0		200
6				2049			364	364	0		300
7					19457		364	364	0		400
8		2561					364	312	0	100	
9			2817				338	312	0	200	
10				2049			338	364	0	300	
11	26625						312	338	0	400	
12		2433					338	364	0		100
13			2689				364	338	0		200
14				1857			364	364	0		300
15					36865		338	338	0		400
16		2305					312	312	0	100	
17			2433				364	338	0	200	
18				1793			338	364	0	300	
19	23553						338	420	0	400	
20		2433					364	288	0		100
21			2689				338	338	0		200
22				1921			338	312	0		300
23					19457		338	364	0		400
24		2561					364	364	0	100	
25			2817				338	312	0	200	
26				2049			338	364	0	300	
27	25601						338	338	0	400	
28		2561					364	338	0		100
29			2817				338	312	0		200
30				2049			288	312	0		300
31					34817		312	338	0		400

ULYSSES HUS EXPERIMENT

OPERATION MODE 1

17-NOV-90 18:11

TIME: 90.321.17.04.39

FORMAT: 1

FRAME	D0	D1	D2	D3	D4	D5	TCR-1	TCR-2	PHA	DET1	DET2
0		2561					338	312	0	100	
1			2689				312	364	0	200	
2				2177			312	338	0	300	
3	26625						338	338	0	400	
4		2561					364	312	0		100
5			2817				312	312	0		300
6				1905			364	364	0		300
7					20481		338	364	0		400
8		2561					338	364	0	100	
9			2817				338	392	0	200	
10				2177			312	338	0	300	
11	29697						338	364	0	400	
12		2433					312	312	0		100
13			2689				338	338	0		200
14				1985			338	420	0		300
15					38913		364	364	0		400
16		2433					338	338	0	100	
17			2689				338	364	0	200	
18				1985			364	338	0	300	
19	25601						364	312	0	400	
20		2561					338	338	0		100
21			2817				312	364	0		200
22				2049			364	338	0		300
23					20481		338	450	0		400
24		2433					392	338	0	100	
25			2689				338	338	0	200	
26				1921			338	338	0	300	
27	26625						312	338	0	400	
28		2433					338	364	0		100
29			2689				312	338	0		200
30				1985			420	364	0		300
31					38913		338	338	0		400

ULYSSES HUB EXPERIMENT

OPERATION MODE 3

17-NOV-90 19:14

TIME: 90.321.17.07.31

FORMAT: 3

FRAME	D0	D1	D2	D3	D4	D5	ICR1	ICR2	PHA	DET1	DET2
0		2561					338	338	0	100	
1			2817				312	338	0	200	
2				2305			364	338	0	300	
3	26625						338	288	0	400	
4		2561					338	312	0		100
5			2817				338	338	0		200
6				2049			338	312	0		300
7					20481		338	364	0		400
8		2433					312	364	0	100	
9			2817				338	364	0	200	
10				2049			420	338	0	300	
11	27649						338	312	0	400	
12		2433					338	364	0		100
13			2689				338	364	0		200
14				1921			338	364	0		300
15						38913	338	392	0		400
16		2433					364	338	0	100	
17			2689				338	364	0	200	
18				1985			338	364	0	300	
19	26625						392	312	0	400	
20		2433					364	338	0		100
21			2817				338	312	0		200
22				2049			338	364	0		300
23					20481		392	364	0		400
24		2433					312	364	0	100	
25			2817				312	392	0	200	
26				2049			312	364	0	300	
27	26625						338	364	0	400	
28		2433					312	338	0		100
29			2689				364	364	0		200
30				2049			338	338	0		300
31						38913	338	338	0		400

OLYMPUS HUS EXPERIMENT

OPER-TRD. ADDL

17-NOV-90 18:14

TIME: .90.021.17.00.27

FORMAT: C

FRAME	D0	D1	D2	D3	D4	D5	ICR-1	ICR-2	PHA	DET1	DET2
0		2561					364	338	0	100	
1			2659				338	338	0	200	
2				2049			338	364	0	300	
3	25601						312	312	0	400	
4		2561					338	338	0		100
5			2817				364	312	0		200
6				2049			364	312	0		300
7					19457		338	312	0		400
8		2561					364	338	0	100	
9			2817				364	364	0	200	
10				2049			338	112	0	300	
11	27649						338	364	0	400	
12		2561					338	364	0		100
13			2945				338	364	0		200
14				2177			364	364	0		300
15					36265		338	338	0		400
16		2561					364	364	0	100	
17			2945				338	312	0	200	
18				2177			312	364	0	300	
19	28673						312	338	0	400	
20		2561					338	338	0		100
21			2817				364	338	0		200
22				2177			312	338	0		300
23					20481		312	338	0		400
24		2433					312	338	0	100	
25			2817				338	364	0	200	
26				2049			338	364	0	300	
27	27649						364	338	0	400	
28		2433					338	338	0		100
29			2659				392	338	0		200
30				2049			338	338	0		300
31						38913	364	338	0		400

OLYSSSES HUE EXPERIMENT

PRINTOUT INFO

17-NOV-90 16

BATCH PARAMETERS:

JOB IDENTITY

759

START TIME 14930 57600000 (4.90.321.18.00.00.000)

STOP TIME 14930 64800000 (4.90.321.18.00.00.000)

PARAMETERS: 7000 0 0 0 (HEXADECIMAL)

SCIENCE DATA FILE:

START INDEX 4578

STOP INDEX 4577

START TIME 14927 36677782 (4.90.318.10.11.17.782)

STOP TIME 14930 65445782 (4.90.321.18.10.45.782)

PRINTOUTS SELECTED:

CALIBRATION PRINTOUT

TOTAL DATA PRINTOUT

BURST PRINTOUT

JPLJet Propulsion Laboratory
California Institute of Technology4800 Oak Grove Drive
Pasadena, California 91109**U L Y S S E S****TELECOMMUNICATIONS MESSAGE**☒ **FAX****ATTN:**

KEVIN HURLEY

PHONE OF ADDRESSEE

()

ORGANIZATION**DATE**

321.20.40

NO. OF PAGES

4

STREET**CITY**

BERKELEY

STATE & COUNTRY**ZIP CODE****TRANSMIT NUMBER (TWX, TELEX, FAX)****DATE & TIME REQ. AT DEST.****FROM**

J R GREENWOOD

PHONE EXT.

8183930894

MAIL STOP**CC:**

SENT COMMANDS 2012 8055 AT 321.19:27
2012 4005
2012 0005

ATTACHED ARE EXTRACTS OF HUS LOG-REC AT 19:39 + 20:00

EO16 NOW = OFF

NEXT TIME WATCHDOG DUE TO GO ON WAS AT 20:34 FROM TIME
PATTERN OVER LAST 24 HOURS.

FAX SENT AT 20:40 WATCHDOG IS STILL OFF.

LOOKS LIKE RESET WORKED

Respectfully,
J.R. Greenwood

INSTRUCTIONS:

1. CLASSIFIED MATERIAL CANNOT BE TRANSMITTED VIA THE TELECOMMUNICATIONS NETWORKS.
2. MATERIAL SHOULD BE TYPED OR IN BLACK INK ON THIS FORM. ADDITIONAL MATERIAL MAY BE SUBMITTED ON 8 1/2" x 11" WHITE BOND PAPER. IF MORE THAN ADDRESSEE, ATTACH LIST.



For more information, contact:
 JPL Mail Stop 109-10
 Pasadena, California 91109
 (818) 354-2000

U S A S E

TELECOMMUNICATIONS MESSAGE

☐ FAX

NAME

Key: 1010101

PHONE OR ADDRESS

ORGANIZATION

DATE

NO. OF PAGES

STREET

CITY

STATE & COUNTRY ZIP CODE

TRANSMIT NUMBER (TWX, TELETYPE, FAX)

DATE & TIME REC. AT DEST.

FROM

PHONE EXT. MAIL STOP

CC

INSTRUCTIONS:
 1. CLASSIFIED MATERIAL CANNOT BE TRANSMITTED VIA THE TELECOMMUNICATIONS NETWORK.
 2. MATERIAL SHOULD BE TYPED OR IN BLACK INK ON THIS FORM. ADDITIONAL MATERIAL MAY BE
 SUBMITTED ON 8 1/2" x 11" WHITE BOND PAPER. IF MORE THAN ADDRESSEE, ATTACH LIST.

HVE EXPERIMENT

2000 2000 2000000

17-NOV-90 20:23

1.90.321.19.39.31

AT	FRAME	D0	D1	D2	D3	D4	D5	ICR=1	ICR=2	W35	W36	FRAME
----	-------	----	----	----	----	----	----	-------	-------	-----	-----	-------

DIGITAL HOUSEKEEPING DATA FROM THE LAST 5 FORMATS STARTING AT S/C EVENT TIME .90.321.19.35.4

BURST ON	READ OFF	WATCHDOG OFF	CALIB. OFF	RESQUE OFF	OPS TWO	SAMPLE TIME 1 S	ICR TIME 1/128 S
MICRO-F MODE RUN		350 ONE	DMA 2 OFF	ROM ONE	ADDR 2 ROM	TC CAL OFF	TC BURST OFF
RED 4 OFF	RED 3 OFF	RED 2 OFF	RED 1 OFF	BURST NR 14			
S-TIME 253	MLD.BRV 1025	MLD.BST 6.25 S	MLD.BRV 29	MLD.BST 1.0 S			

0		2689				1740	1624	10	5	33
1			3073			1624	1624	11	6	34
2				2945		1624	1624	10	4	35
3	38913					1568	1300	2	8	36
4		2817				1512	1512	4	1	37
5			3201			1512	1458	8	8	38
6				2817		1512	1568	10	2	39
7					29697	1624	1624	12	6	40
8		2689				1682	1682	5	5	41
9			3073			1682	1624	5	5	42
10				2689		1568	1568	9	10	43
11	38913					1568	1568	7	9	44
12		2945				1568	1512	4	3	45
13			3329			1568	1568	8	9	46
14				2945		1512	1458	9	4	47
15					45537	1458	1404	7	8	48
16		2689				1512	1458	5	8	49
17			3073			1624	1568	5	7	50
18				2817		1624	1682	8	7	51
19	40961					1740	1800	7	5	52
20		2817				1740	1800	6	11	53
21			3201			1740	1800	10	8	54
22				2945		1800	1922	6	4	55
23					27649	1404	1800	7	8	56
24		2945				1740	1800	10	6	57
25			3201			1682	1740	3	9	58
26				3073		1800	1682	6	6	59
27	40961					1740	1740	10	7	60
28		2945				1800	1922	9	11	61
29			3457			1860	1860	6	6	62
30				2073		1984	1984	11	11	63
31					59293	2048	2178	3	5	64
0		2817				2048	1922	8	11	65
1			3201			1922	1984	9	12	66
2				2945		2048	1860	6	6	67
3	40961					1922	1984	8	10	68

VLY83E5 HVS EXPERIMENT

OPERATION MODE 1

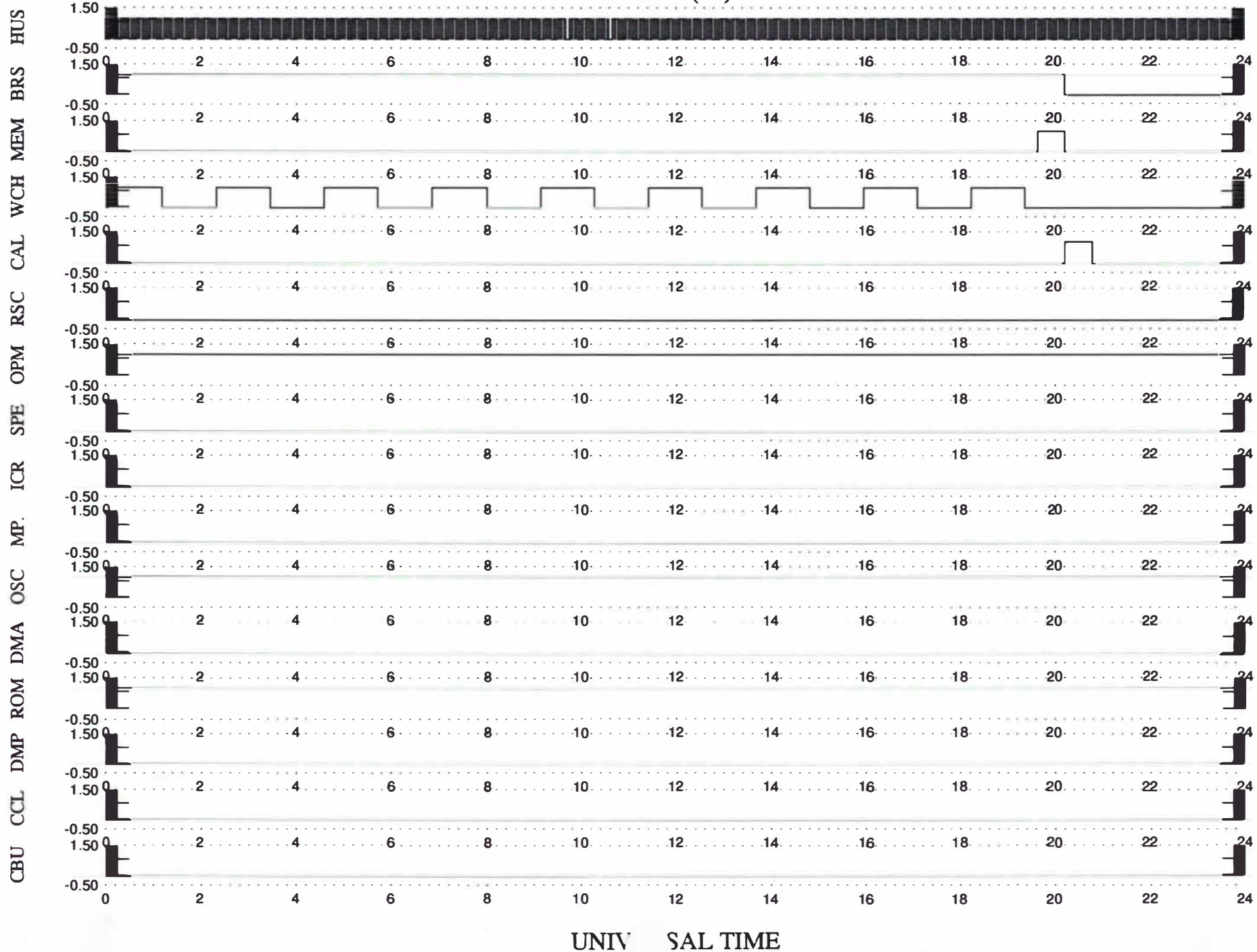
17-NOV-90 20:11

TIME: 90.321.19.38.27

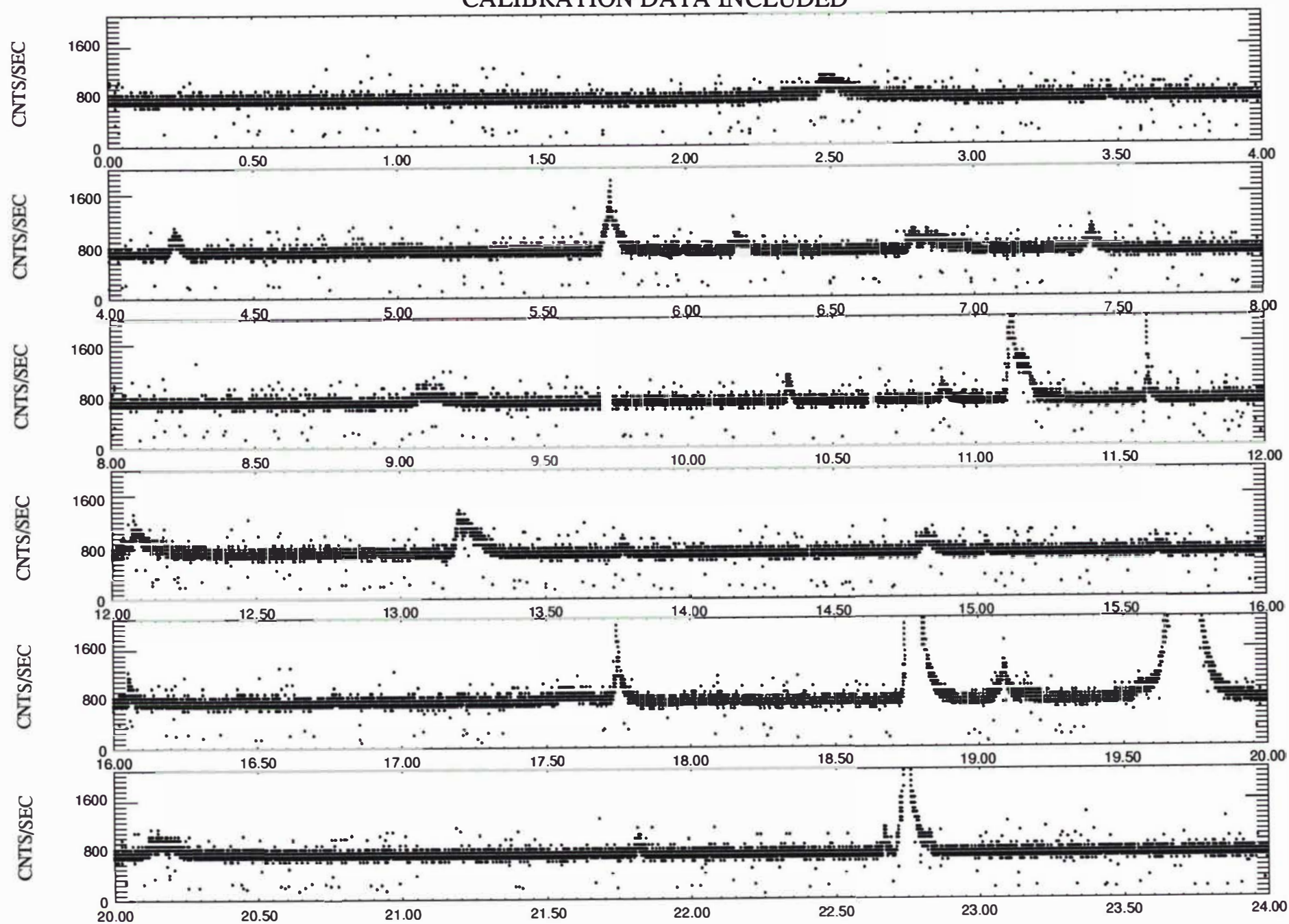
FORMAT: 5

FRAME	D0	D1	D2	D3	D4	D5	TCR#1	TCR#2	PHA	DET1	DET2
0		2817					840	840	0	100	
1			3457				840	840	0	200	
2				3073			824	840	0	300	
3	43009						840	840	0	400	
4		2817					924	840	0		100
5			3329				882	840	0		200
6				3073			800	840	0		300
7					30721		840	200	0		400
8		2689					882	800	0	100	
9			3201				840	882	0	200	
10				2945			882	924	0	300	
11	40981						882	1012	0	400	
12		2817					968	868	0		100
13			3329				924	924	0		200
14				3073			924	968	0		300
15					65537		924	924	0		400
16		2817					924	924	0	100	
17			3073				924	968	0	200	
18				2945			968	882	0	300	
19	43009						924	924	0	400	
20		2689					882	924	0		100
21			3201				924	968	0		200
22				2817			968	1012	0		300
23					29697		1012	1104	0		400
24		2817					924	1012	0	100	
25			3329				968	968	0	200	
26				3073			1012	1012	0	300	
27	40981						924	924	0	400	
28		2817					924	968	0		100
29			3329				924	968	0		200
30				2945			882	882	0		300
31					62489		968	822	0		400

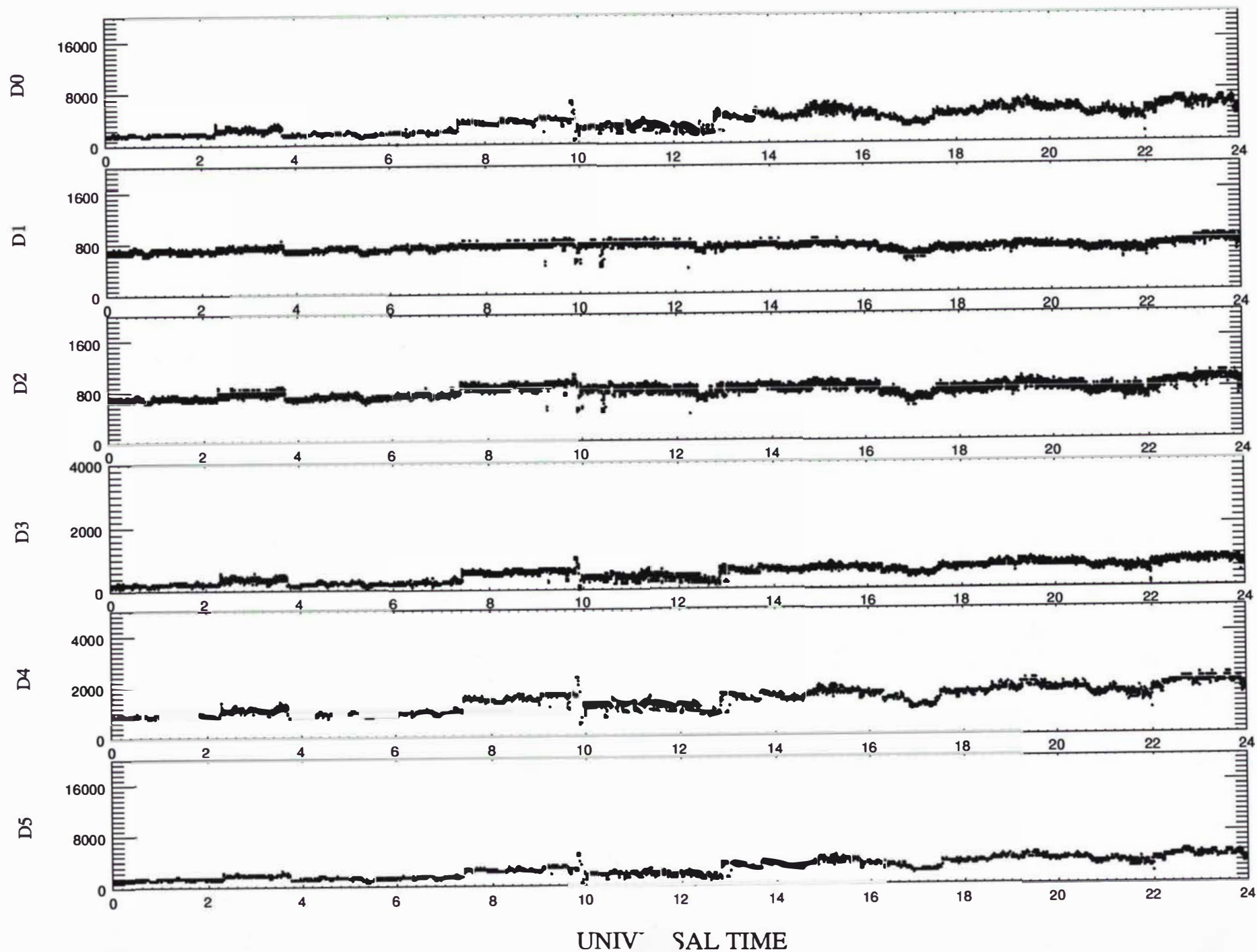
NO BURST (14)

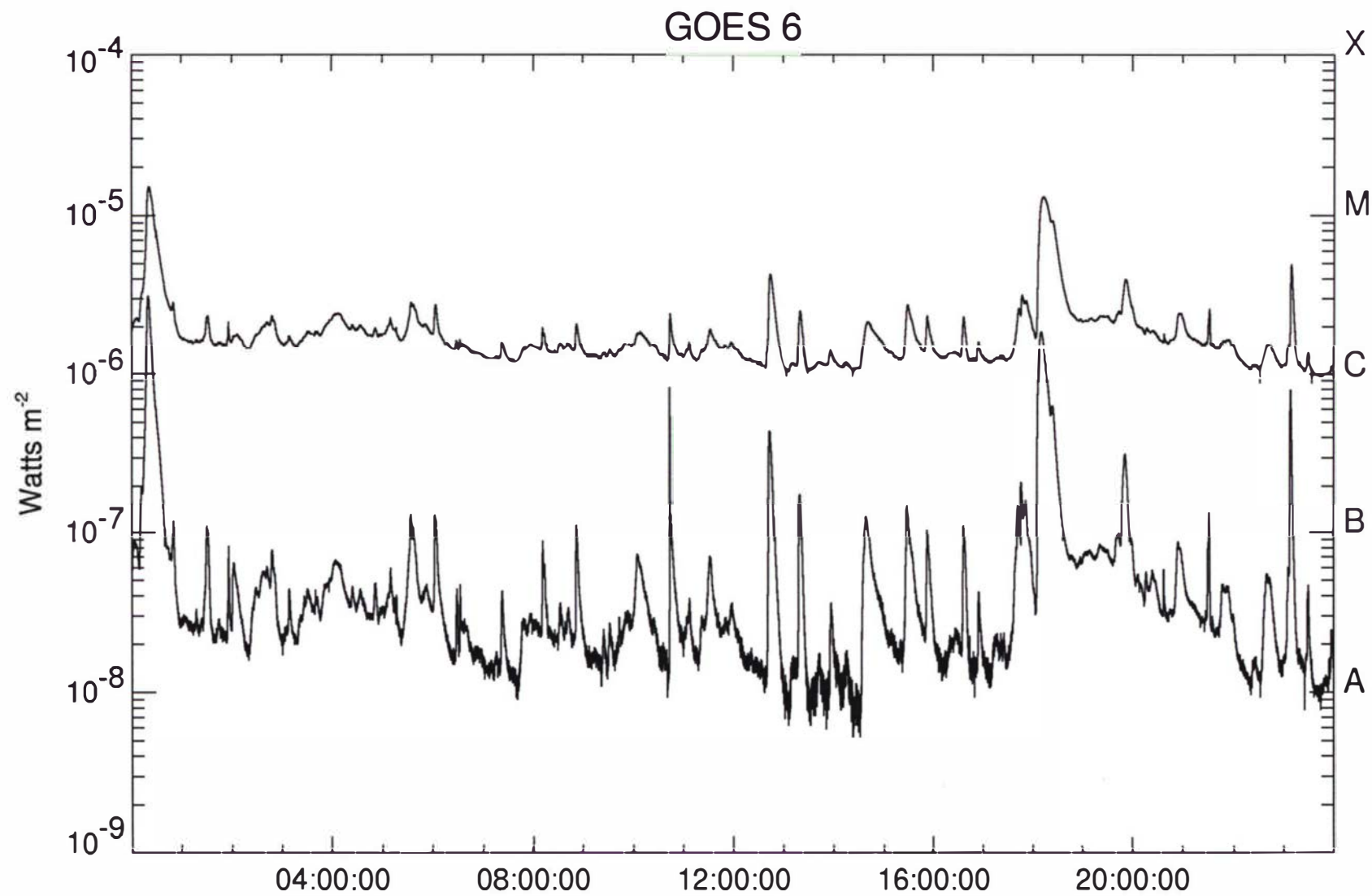


CALIBRATION DATA INCLUDED



UNIV SAL TIME





Data Start: 90/11/18, 0000:01

Plot created: 96/05/23, 1846

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

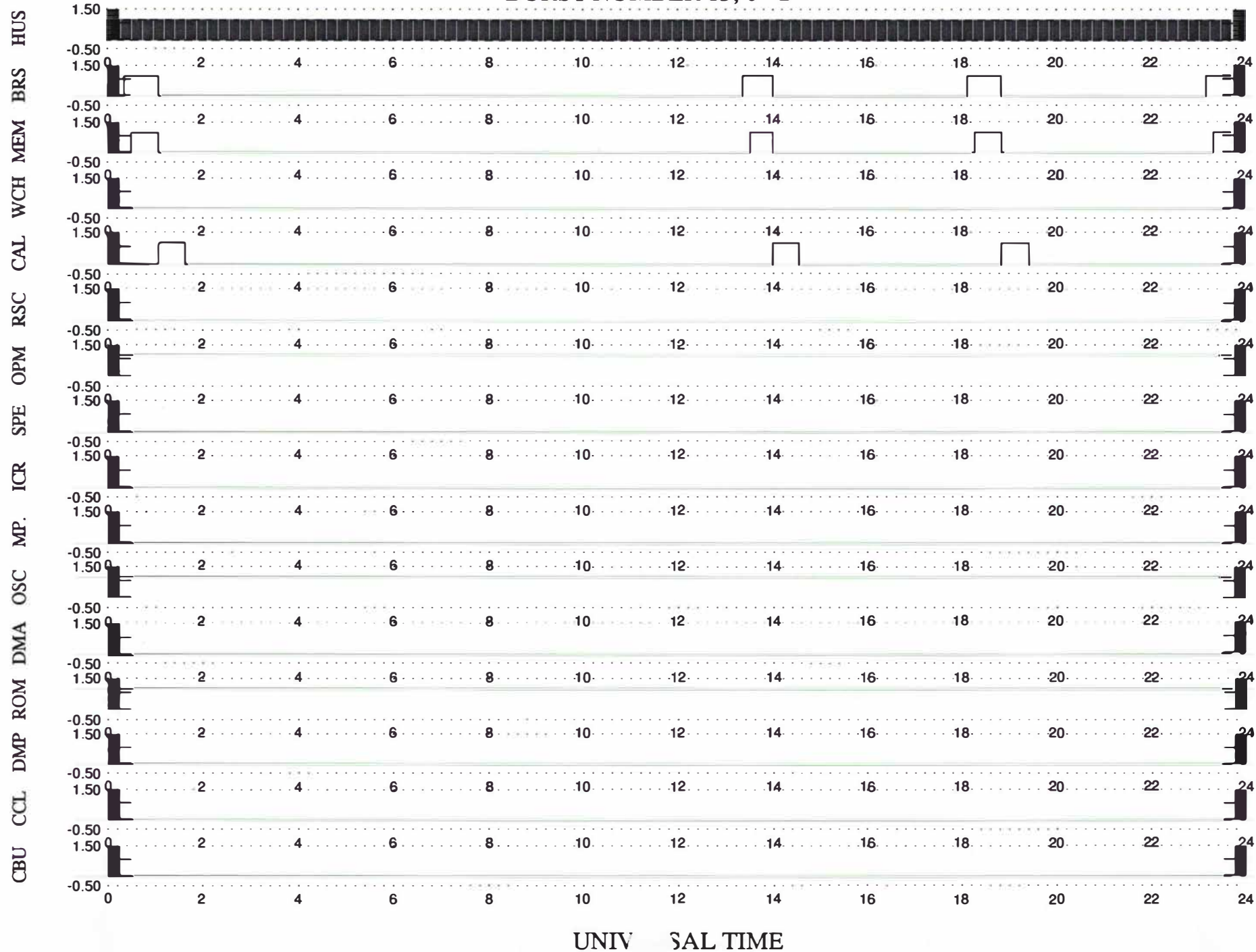
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Dezalay -> KH 7/93

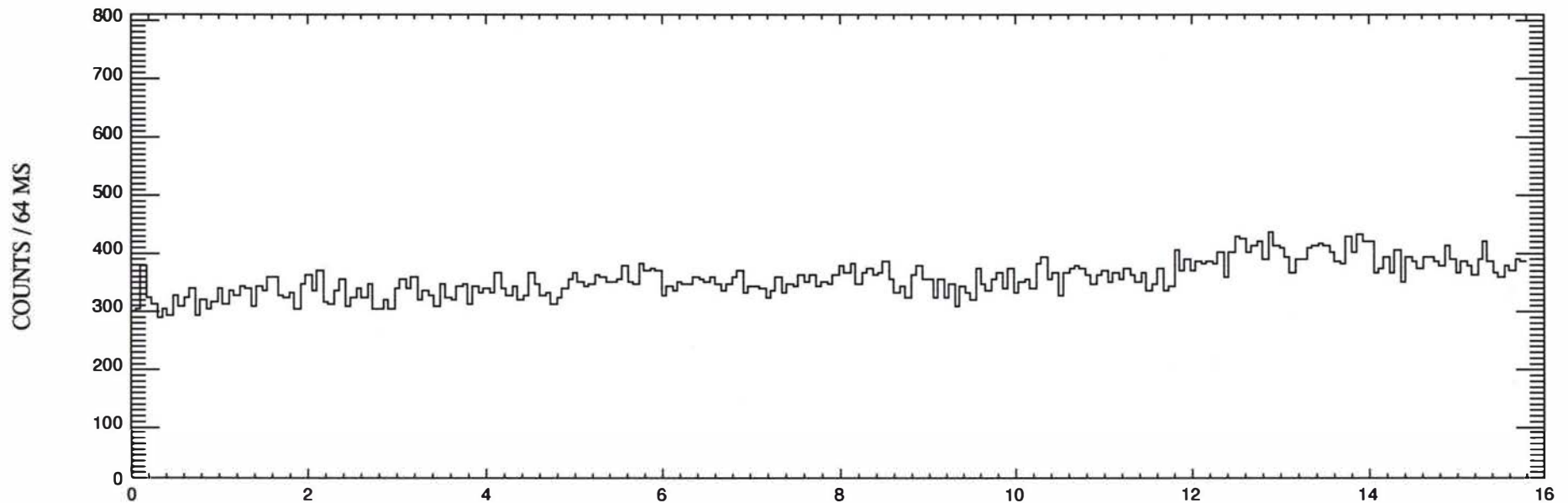
15

DATE	U.T.	Nr UGB	Event Nature
1990-09-28	05:23:41.813	167-a	GRB
1990-09-29	01:49:25.166	168-a	GRB
1990-10-11	22:31:01.494	176-a	GRB
1990-10-12	23:19:14.781	176-b	Unknown
1990-10-14	01:13:21.079	177-a	GRB
1990-10-15	08:44:48.512	178-a	GRB
1990-10-18	18:51:48.644	179-a	GRB
1990-10-20	01:04:28.909	180-a	GRB
1990-10-20	18:01:23.759	181-a	Solar Flare
1990-10-21	00:09:07.848	181-b	GRB
1990-10-27	04:21:05.625	185-a	GRB
1990-11-11	21:49:01.859	188-a	GRB
1990-11-12	14:57:37.647	189-a	GRB
1990-11-13	04:44:02.029	189-b	Solar Flare
1990-11-16	01:42:10.012	190-a	GRB
1990-11-17	13:37:35.859	192-a	Unknown
1990-11-17	14:41:40.621	192-b	Unknown
1990-11-18	20:23:47.770	192-c	Unknown
1990-11-21	00:04:47.791	194-a	GRB
1990-11-21	18:09:10.652	194-b	GRB
1990-12-04	02:00:28.445	201-a	Solar Flare
1990-12-04	03:19:19.152	201-b	Unknown
1990-12-04	09:42:52.699	202-a	Unknown
1990-12-04	17:20:43.930	202-b	Unknown
1990-12-04	18:21:47.722	202-c	Unknown
1990-12-06	20:33:48.100	204-a	Unknown
1990-12-12	03:26:59.750	205-a	Solar Flare
1990-12-12	03:26:59.750	208-a	Solar Flare
1990-12-13	05:37:04.829	209-a	Unknown
1990-12-13	06:12:32.708	209-b	Unknown
1990-12-13	07:06:23.125	209-c	GRB
1990-12-14	13:32:11.352	210-a	Solar Flare
1990-12-16	15:47:15.796	211-a	GRB
1990-12-19	21:52:48.635	213-a	GRB
1990-12-21	00:30:05.753	214-a	GRB

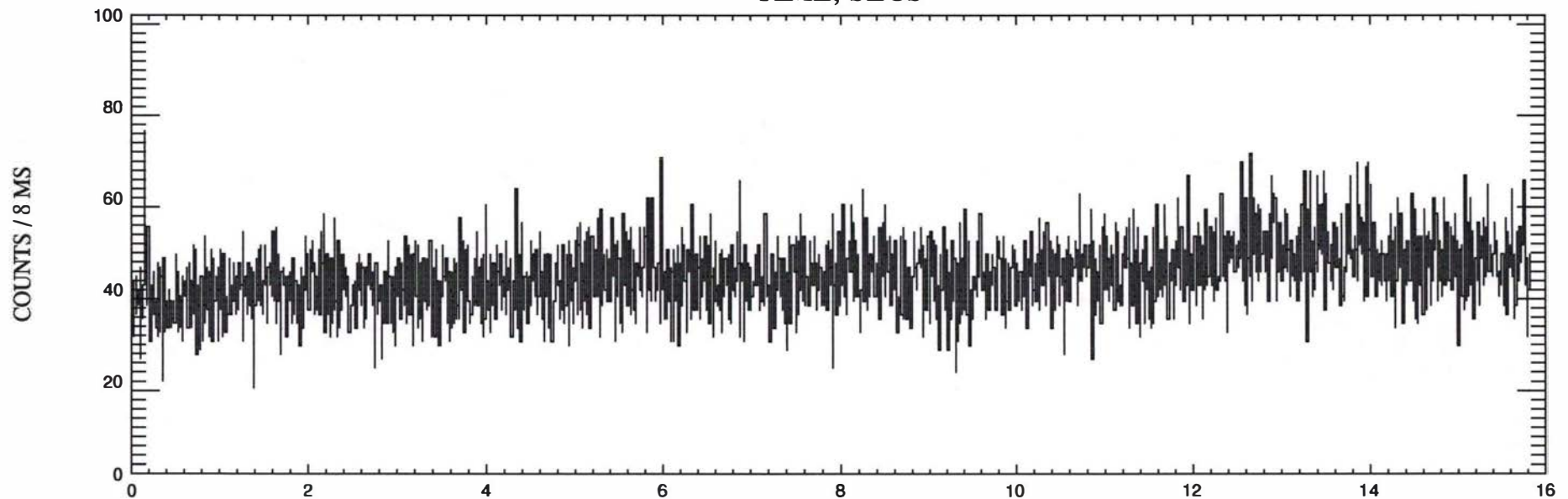
BURST NUMBER 15, 0 - 2



Burst Counter 15 at UT= 0.327248145209 h= 1178.093 s 00:19:38.093

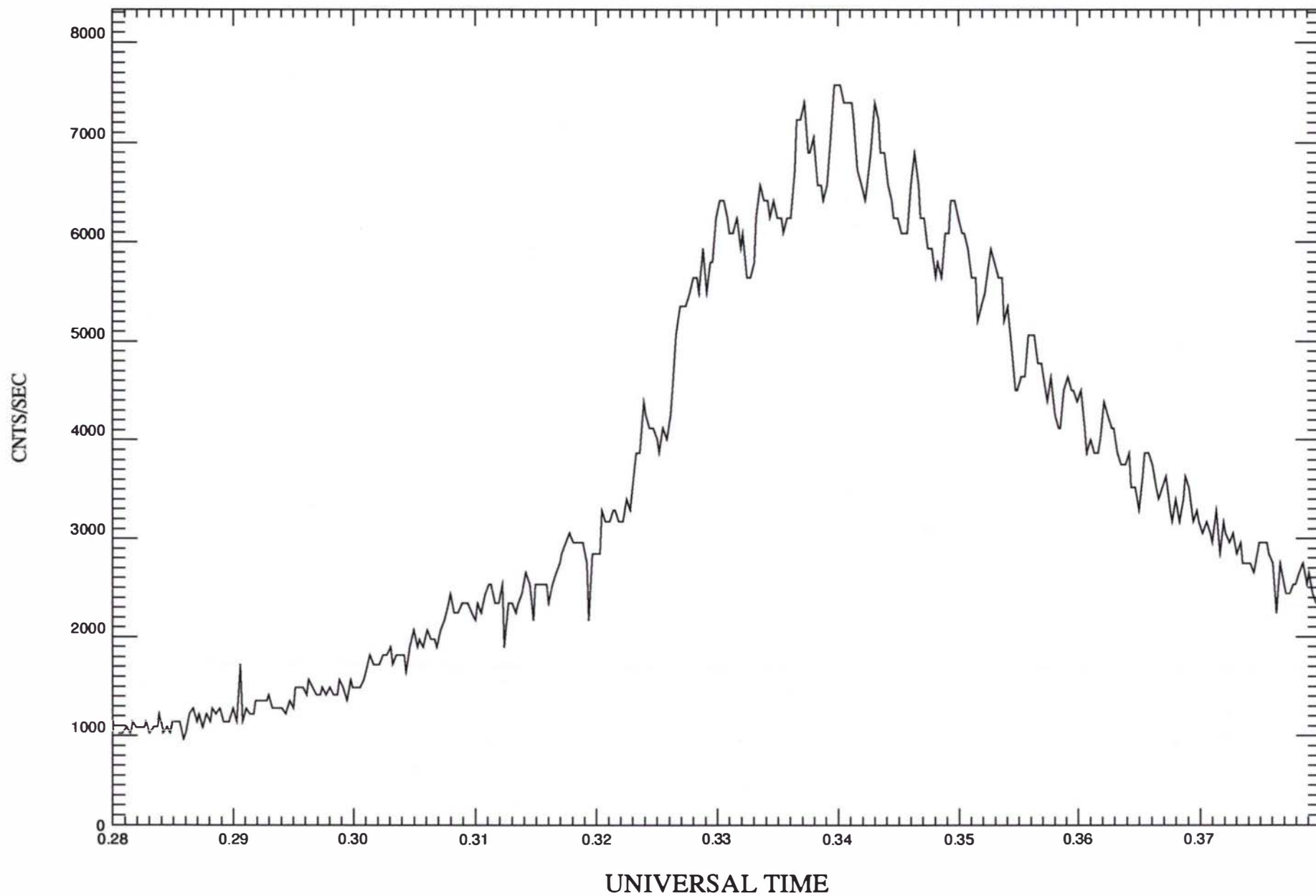


TIME, SECS

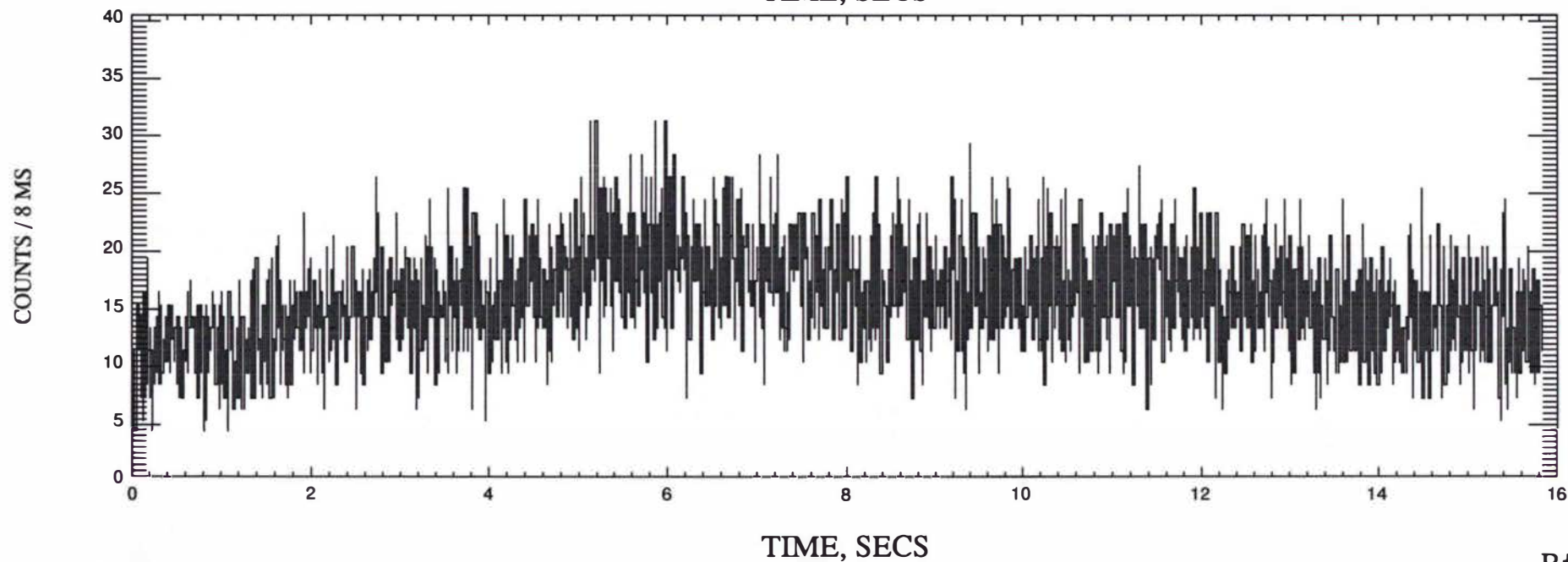
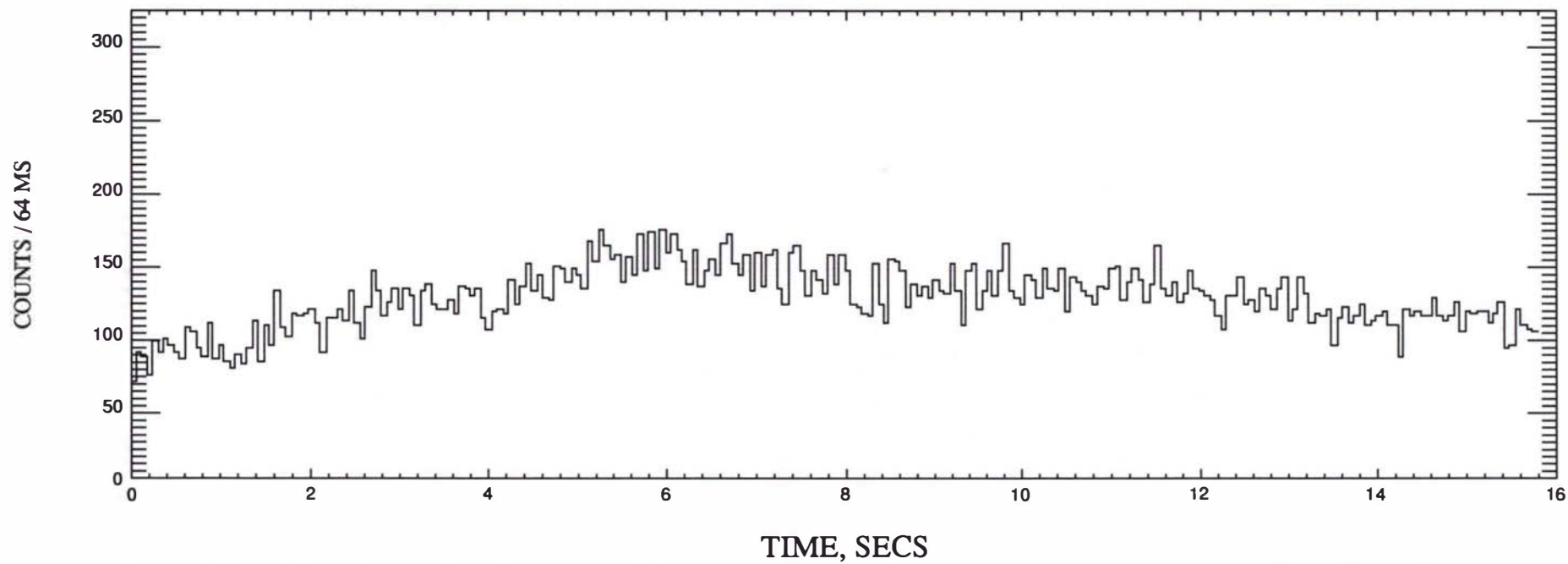


TIME, SECS

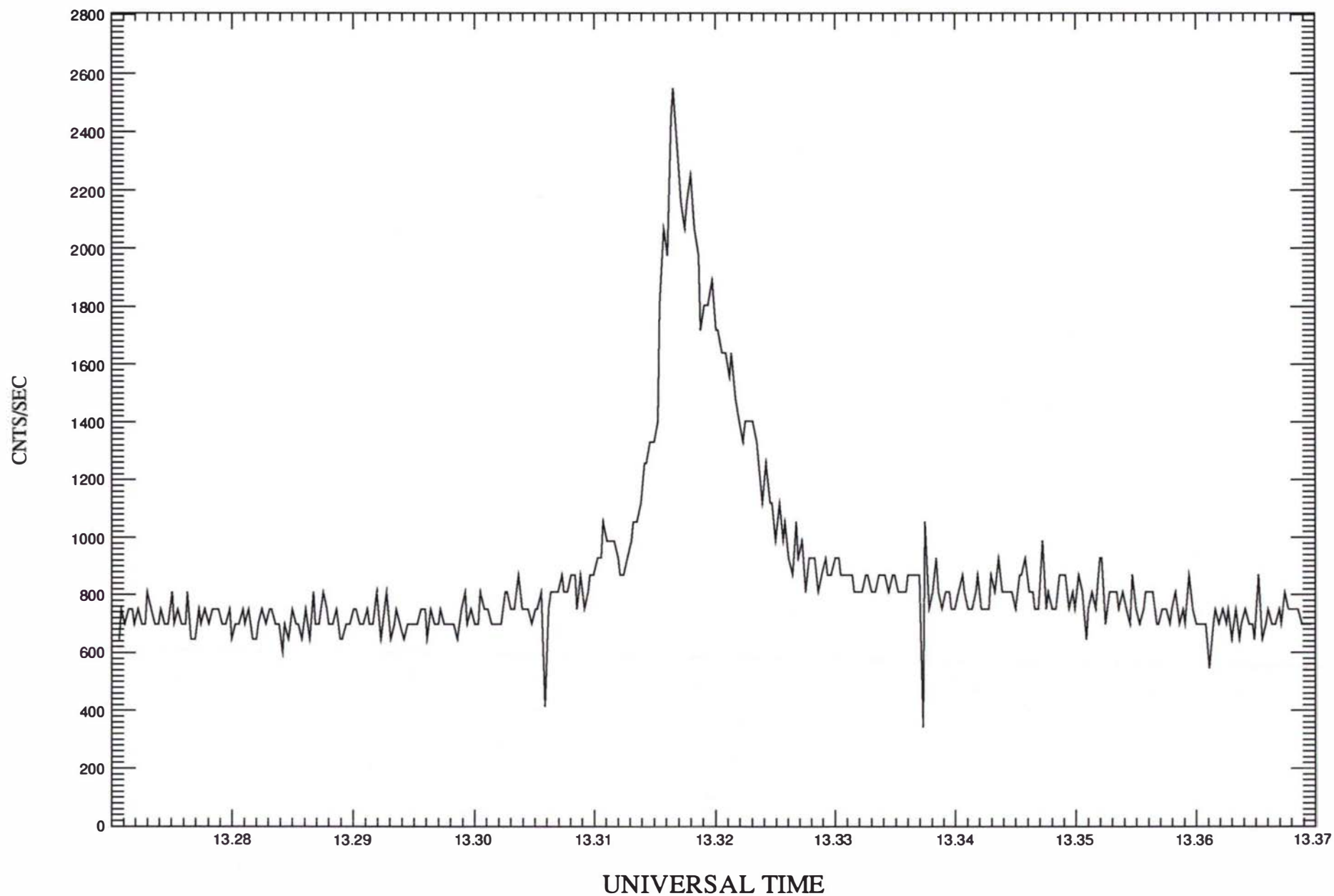
CALIBRATION DATA INCLUDED



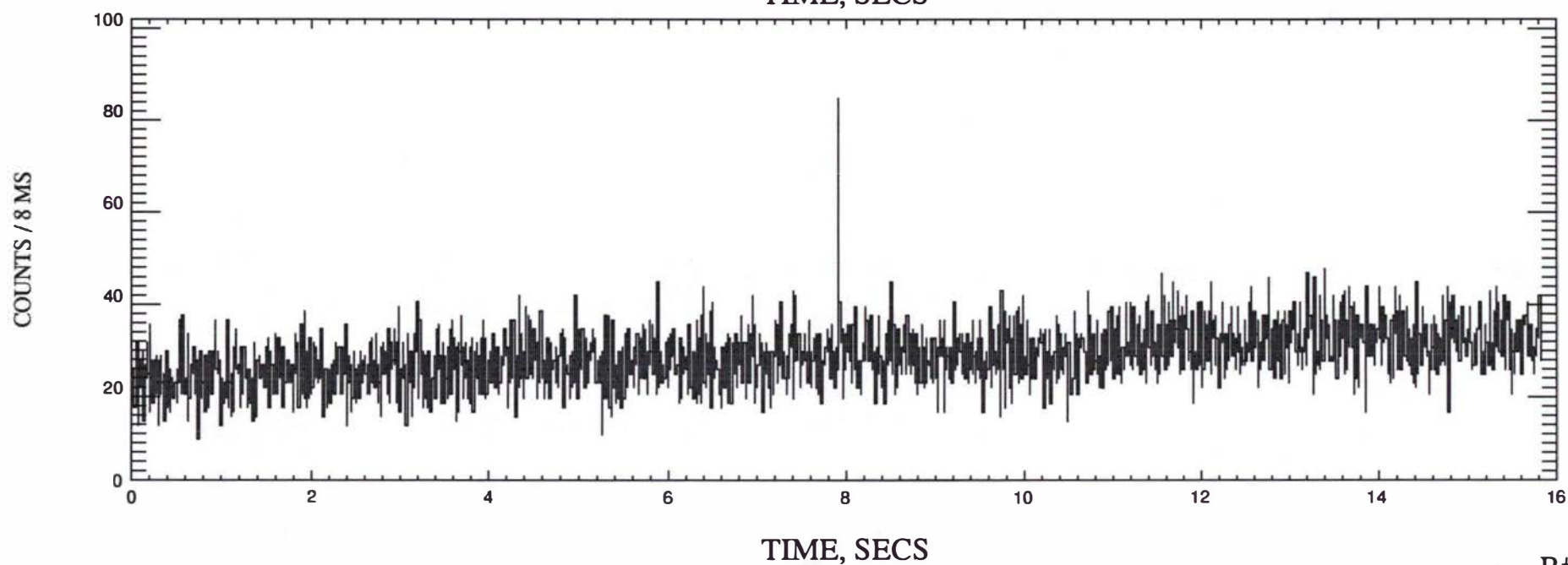
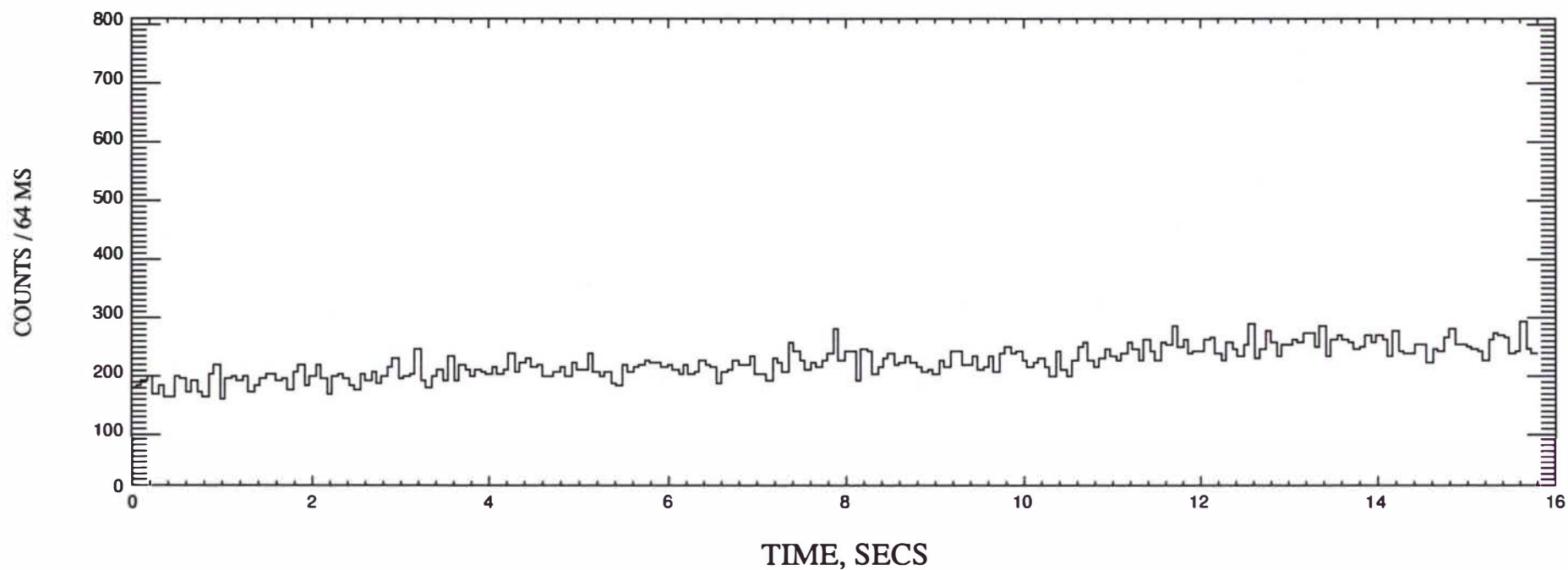
Burst Counter 0 at UT=13.315622316996 h=47936.240 s 13:18:56.240



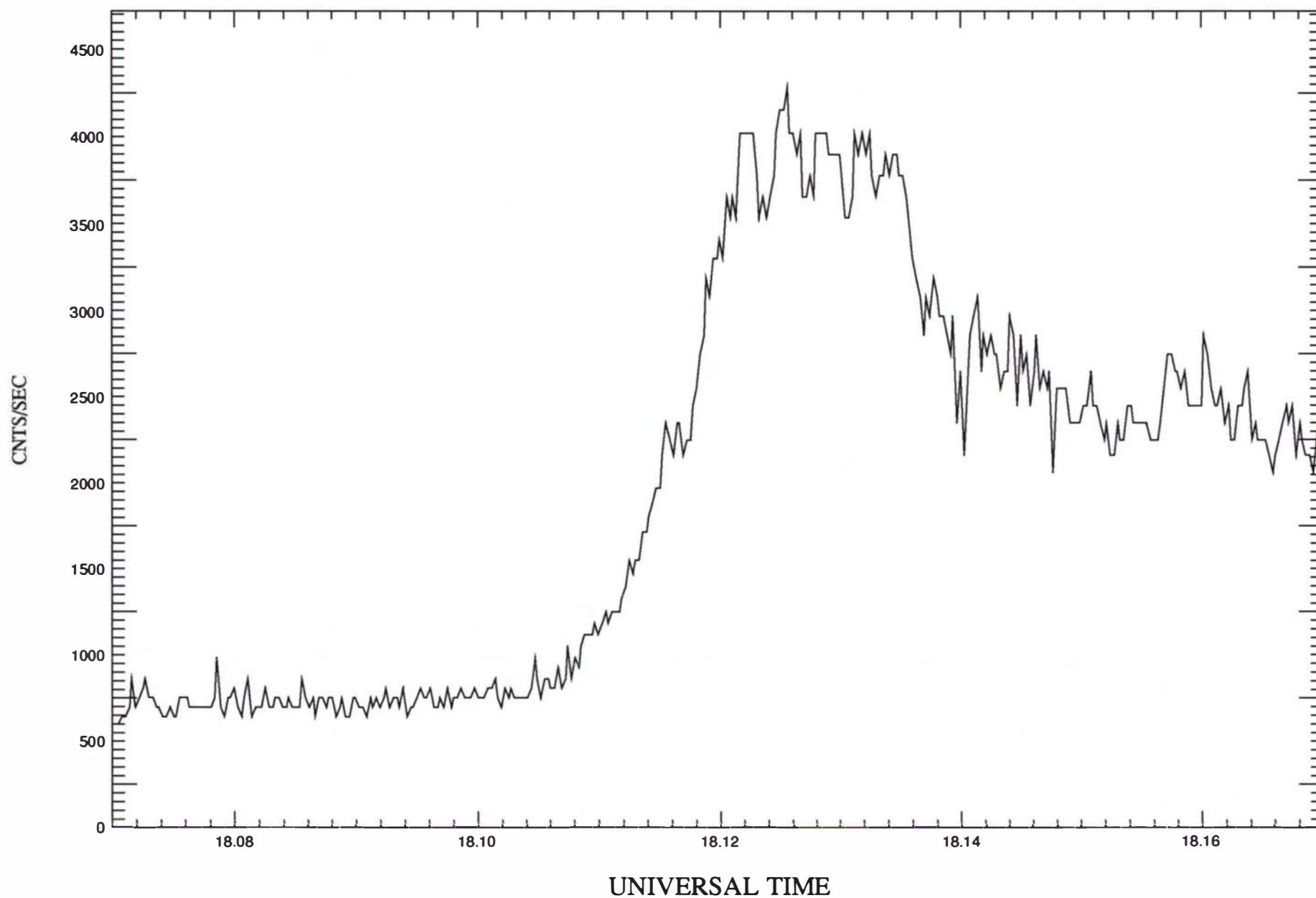
CALIBRATION DATA INCLUDED



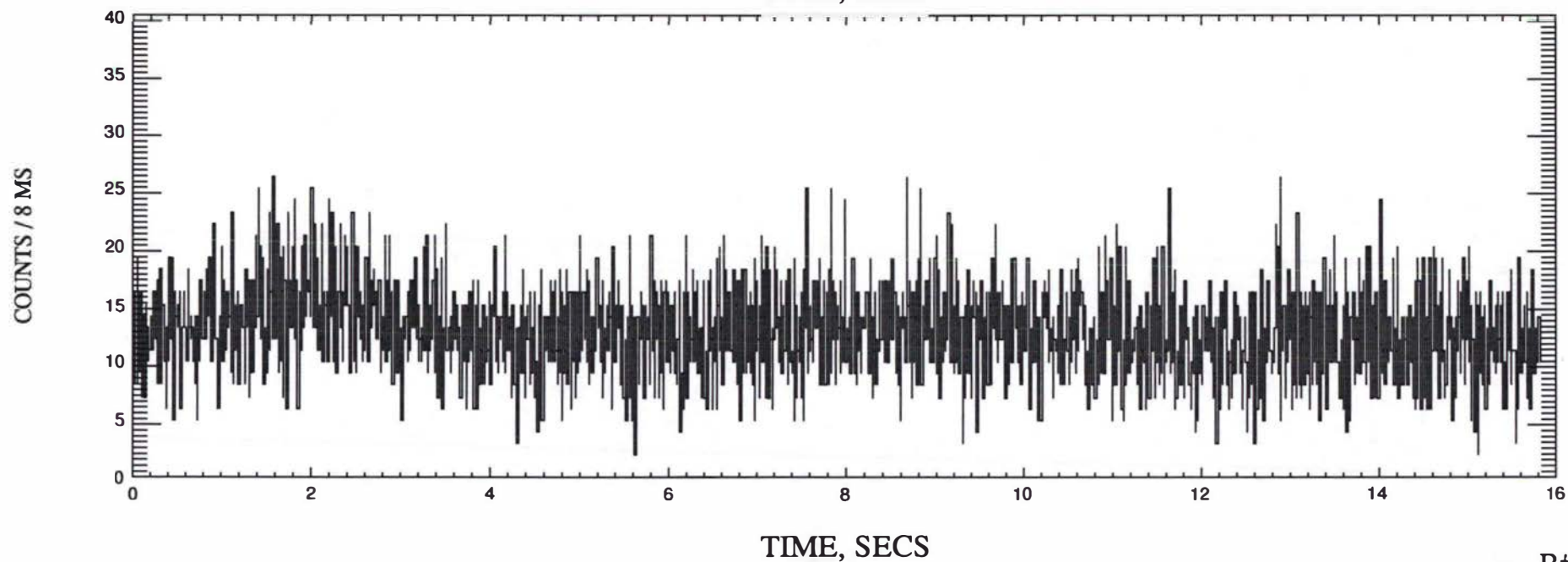
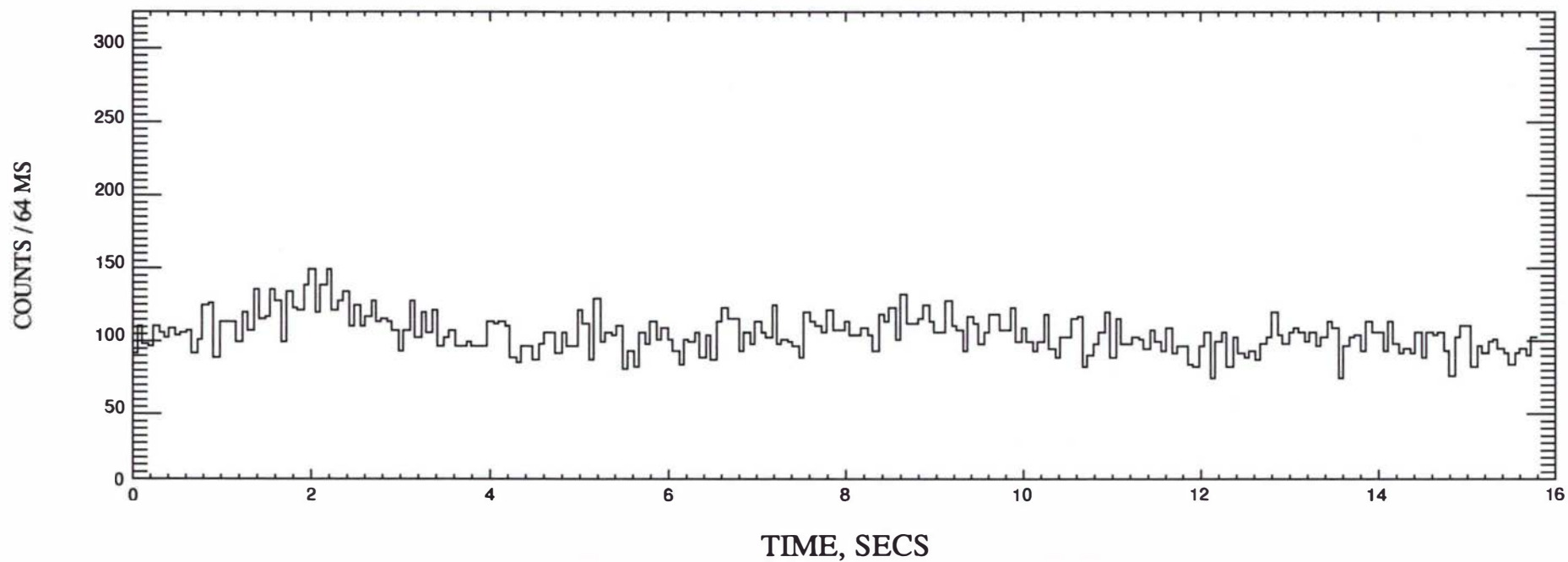
Burst Counter 1 at UT=18.119058702257 h=65228.611 s 18:07:08.611



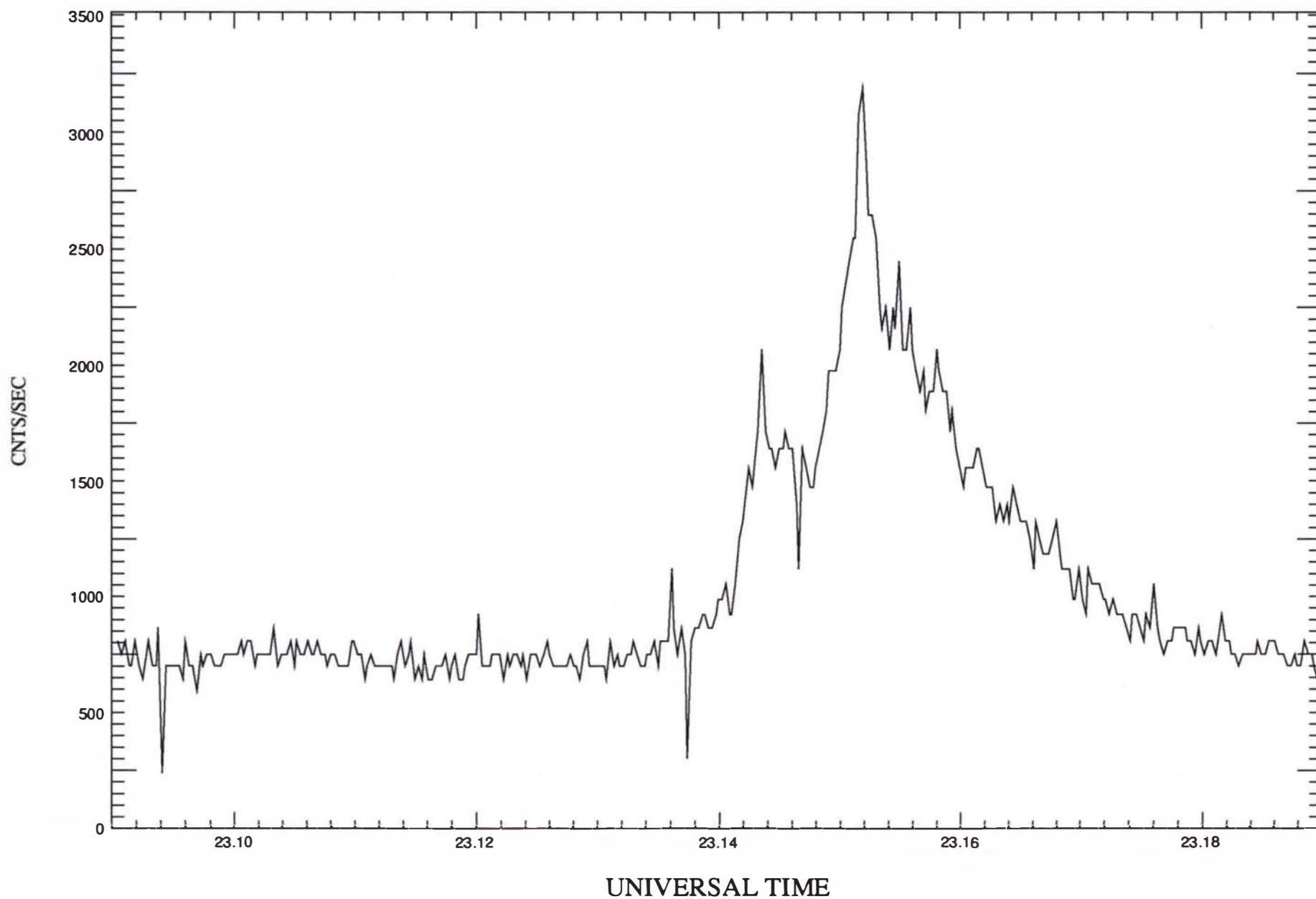
CALIBRATION DATA INCLUDED



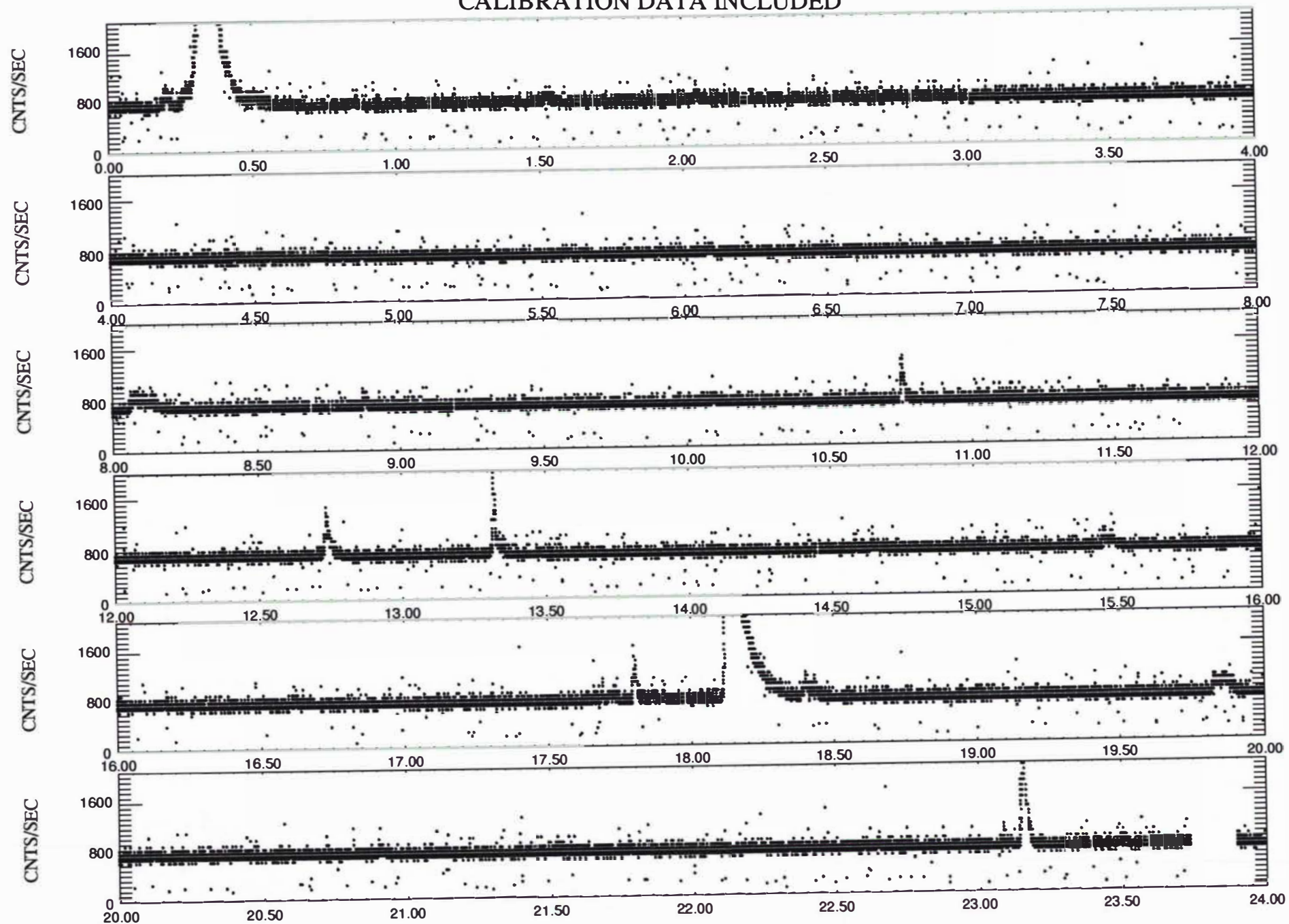
Burst Counter 2 at UT=23.143650148180 h=83317.141 s 23:08:37.141



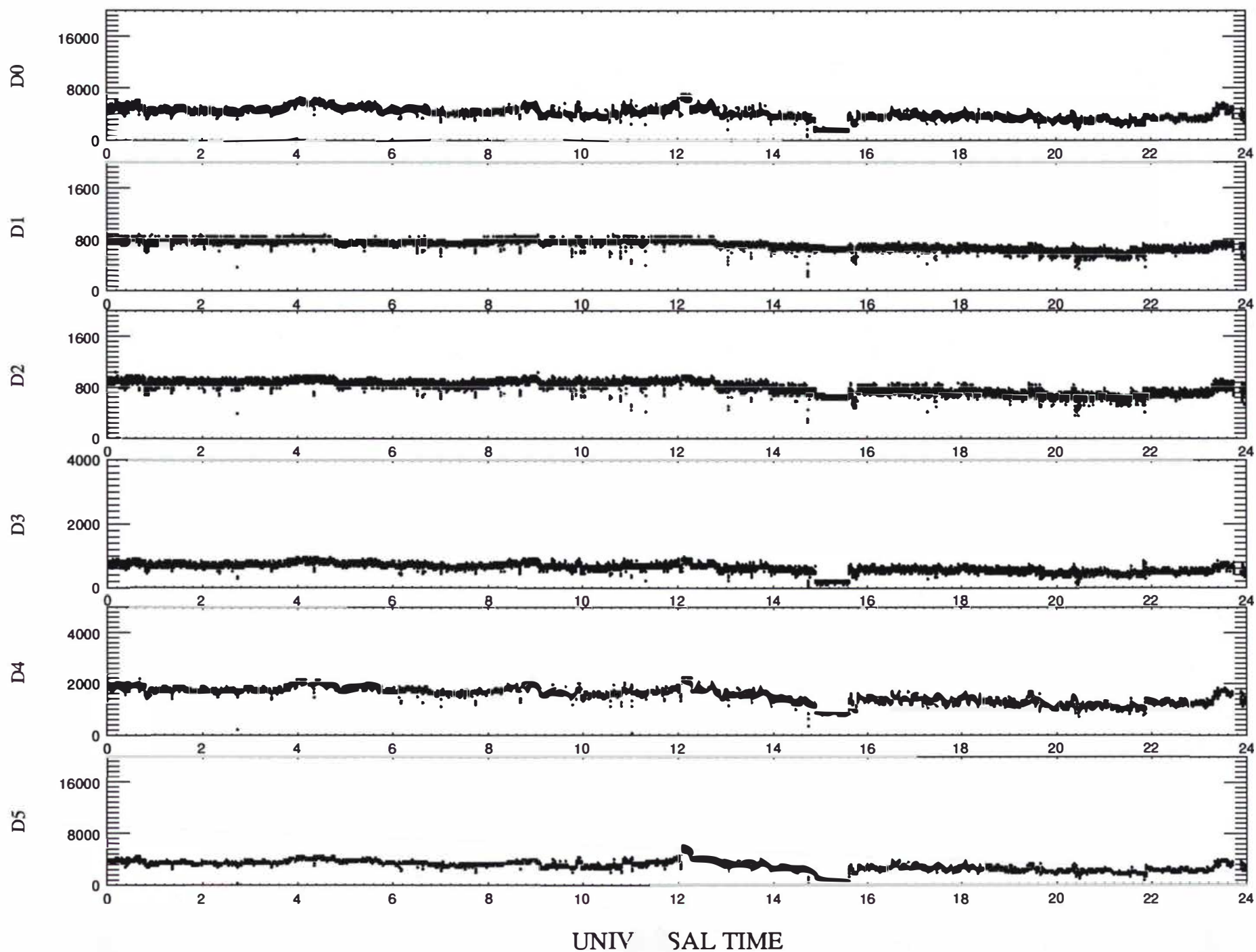
CALIBRATION DATA INCLUDED

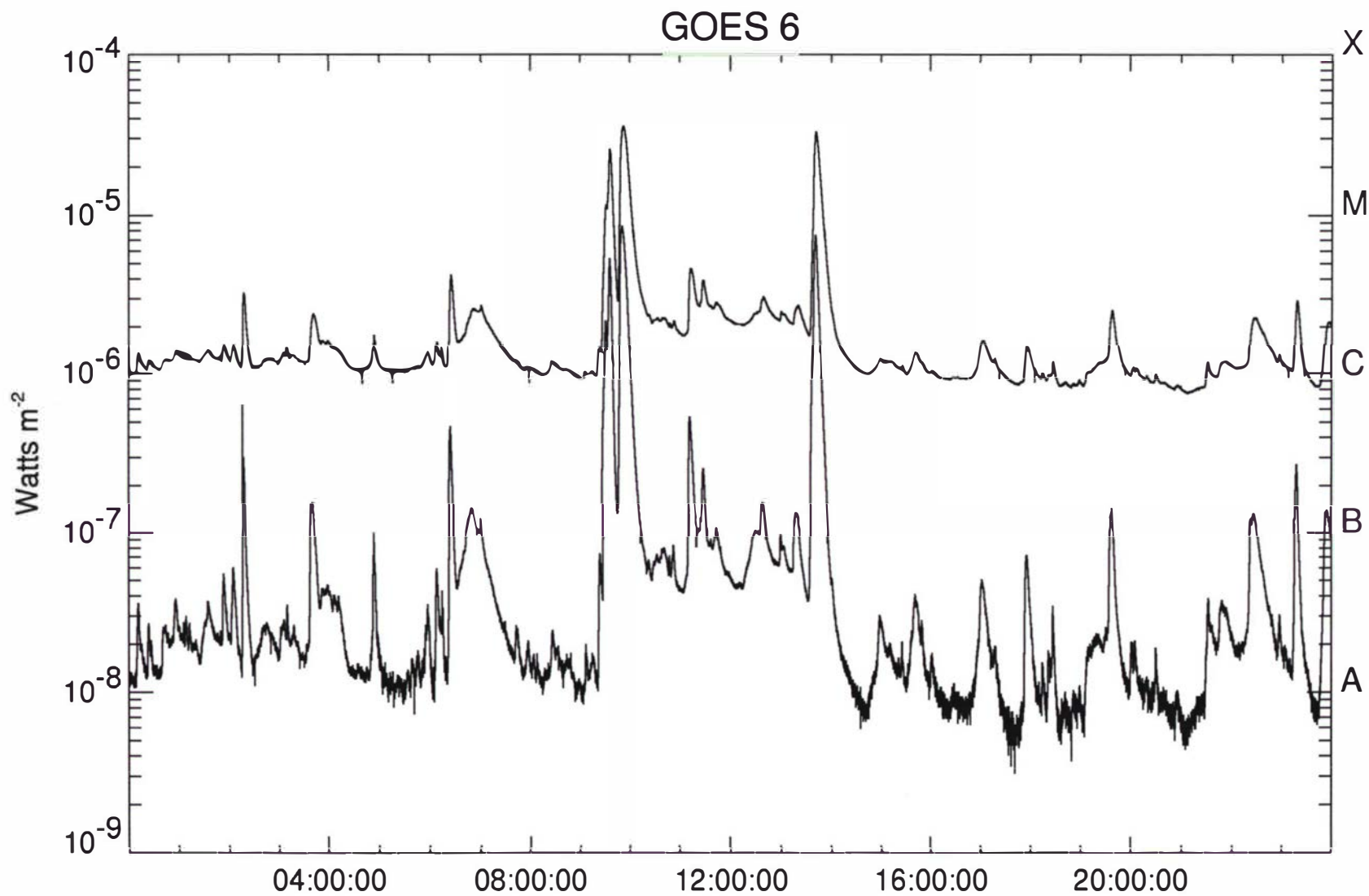


CALIBRATION DATA INCLUDED



UNIV SAL TIME





Data Start: 90/11/19, 0000:02

Plot created: 96/05/23, 1849

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

2 2 / 2 / 9 5

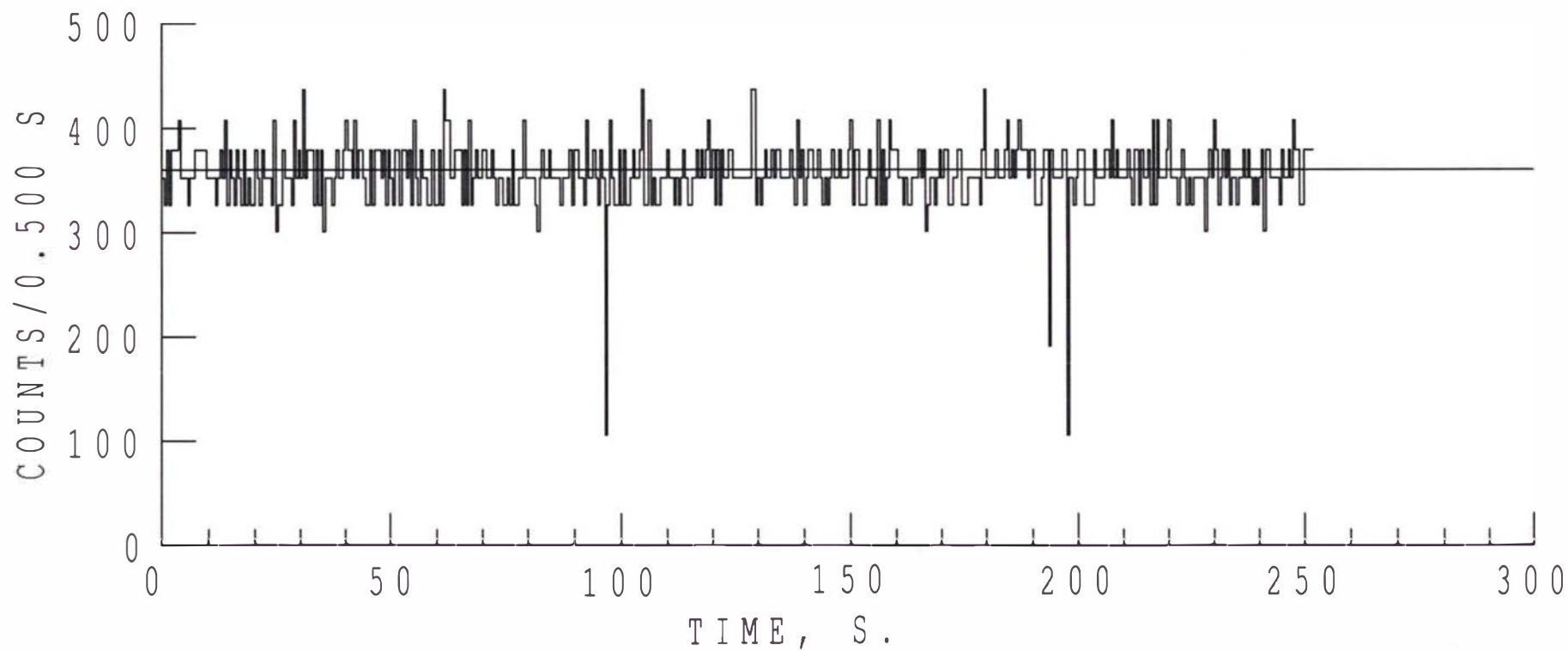
U L Y S S E S R T

1 9 / 1 1 / 9 0 6 5 1 9 6 . 4 6 5 s

0 - 0 k e V

N = 10 M = 2

> 4.0 SIGMA FLUCTUATIONS



From root Wed Dec 8 07:58 1993
 Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
 id AA08899; Wed, 8 Dec 93 07:57:44
 Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
 id AA22497; Wed, 8 Dec 93 07:00:41 PST
 Received: Wed, 8 Dec 93 07:03:53 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
 Message-Id: <9312081503.AA10272@mx.nsi.nasa.gov>
 Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
 (utk-mail11d vl.7); Wed, 8 Dec 93 07:03:57 PST
 Date: Wed, 8 Dec 93 07:03:57 PST
 From: 068486@essdp2.span.nasa.gov
 X-To: AMES::"khurley@space6.ssl.berkeley.edu"
 Subject: RE:
 To: khurley@space6.ssl.berkeley.edu
 Status: R

KEVIN,
 HERE ARE THE RESULTS OF OUR SURVEY OF THE PVO REAL-TIME DATA FOR EVIDENCE OF
 RESPONSE TO EVENTS LISTED IN YOUR CATALOG.

DATE	TIME	PVO RESPONSE
90/11/11	21:49	N/O
90/11/12	14:57	N/O
90/11/16	01:42	N/O
90/11/19	18:08	N/O
90/11/21	00:04	N/O
90/11/21	18:09	N/O
90/12/02	13:45	N/O
90/12/21	00:30	N/O
90/12/25	05:50	N/O
91/01/17	00:57	N/O
91/01/24	11:50	N/O
91/02/04	08:58	N/O
91/02/04	14:19	N/O
91/02/04	14:58	N/O
91/02/17	02:59	N/O
91/03/14	22:56	N/O
91/03/15	22:55	N/O
91/04/04	17:17	(NO)
91/05/18	17:10	N/O
91/05/23	19:03	N/O
91/05/27	23:44	N/O
91/05/28	21:26	N/O
91/06/02	22:55	N/O
91/06/09	00:48	N/O
91/06/29	19:55	N/O
91/07/09	20:22	N/O
91/07/17	13:07	N/O
91/08/03	08:24	N/O
91/08/15	12:34	N/O
91/08/15	14:24	N/O
91/08/16	01:57	(NO)
91/09/05	23:48	N/O
91/09/16	21:58	N/O
91/09/25	03:35	N/O
91/09/26	18:25	N/O
91/09/30	11:55	N/O
91/10/03	00:39	N/O
91/10/04	01:27	N/O
91/10/06	09:01	(NO)
91/10/22	04:13	N/O
91/10/25	21:25	N/O
91/11/06	03:42	N/O
91/11/14	01:40	N/O
91/11/17	01:58	N/O
91/12/05	23:04	N/O

91/12/21	06:17	N/O
91/12/21	22:03	N/O
91/12/27	15:56	N/O
92/01/05	17:41	N/O
92/01/13	20:52	N/O
92/01/25	08:57	N/O
92/01/30	00:29	N/O
92/01/30	22:50	N/O
92/02/18	18:42	N/O
92/02/21	06:14	N/O
92/02/26	18:15	YES TRIGGER AT 29336 S UT
92/02/27	06:00	N/O
92/02/27	08:45	N/O
92/03/02	06:16	N/O
92/03/04	14:34	N/O
92/03/07	00:18	N/O
92/03/21	12:50	(NO)
92/03/26	02:01	N/O
92/03/27	09:38	N/O
92/03/29	16:38	(NO)
92/04/04	22:37	N/O
92/04/08	12:05	N/O
92/04/20	02:12	N/O
92/04/29	18:59	N/O
92/05/02	19:05	N/O
92/06/01	THRU 92/06/29	TURNED OFF--N/O
92/07/01	19:39	N/O
92/07/07	06:33	N/O
92/07/17	01:15	N/O
92/07/23	00:59	N/O
92/07/23	01:00	N/O
92/07/23	21:48	N/O
92/07/25	19:30	N/O
92/07/25	22:49	N/O
92/07/26	00:34	N/O
92/07/31	17:07	N/O
92/08/10	21:35	N/O
92/08/14	06:10	N/O
92/08/16	12:36	N/O
92/08/22	22:39	N/O
92/08/30	01:45	N/O
92/09/04	04:41	N/O

THIS LIST IS NOT COMPLETE. IT INCLUDES EVENTS FOR WHICH NO REAL-TIME DATA ARE AVAILABLE BECAUSE OF INAPPROPRIATE MODE, NO TRACKING, OR THE EXPERIMENT WAS TURNED OFF. WHERE DATA HAVE BEEN CHECKED, SENSITIVITY DEPENDS UPON THE TIME RESOLUTION AVAILABLE IN THE DATA. I'LL BE SENDING ADDITIONAL RESULTS AS THEY BECOME AVAILABLE.

REGARDS,

RAY

FAXCOVER

DANISH SPACE RESEARCH INSTITUTE

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DATE: Nov 23, 1993

Page 1 of 2

From: Alberto J. CASTRO-TIRADO

TO : Kevin HURLEY

FAX no

Name : 510 643 8640

Dear Kevin.

Thank you for your answer. Enclosed I send you the list of CONFIRMED 69 GRBS plus 14 CANDIDATES. Now you may fill the WATCH response in the Master GRB list for WATCH-GRAWAT in the period 1/1/90 - 25/9/92.

Added a "0"
for these events
(not for BATSE - only
events after Nov 5)

GRB 920321 (at 13:00:44) is a ≤ 1.5 burst in WATCH data, so I think it could be the same event seen by Ulysses. We do not have better time resolution.

The other repeater is 900126/920311. The two error boxes are reported by 1° , at $\sim \alpha = 08^h 46^m$ $\delta = -38^\circ$ (1450.0)

Kind regards,

Alberto

First GRANAT/WATCH
Gamma-Ray Burst
Catalogue

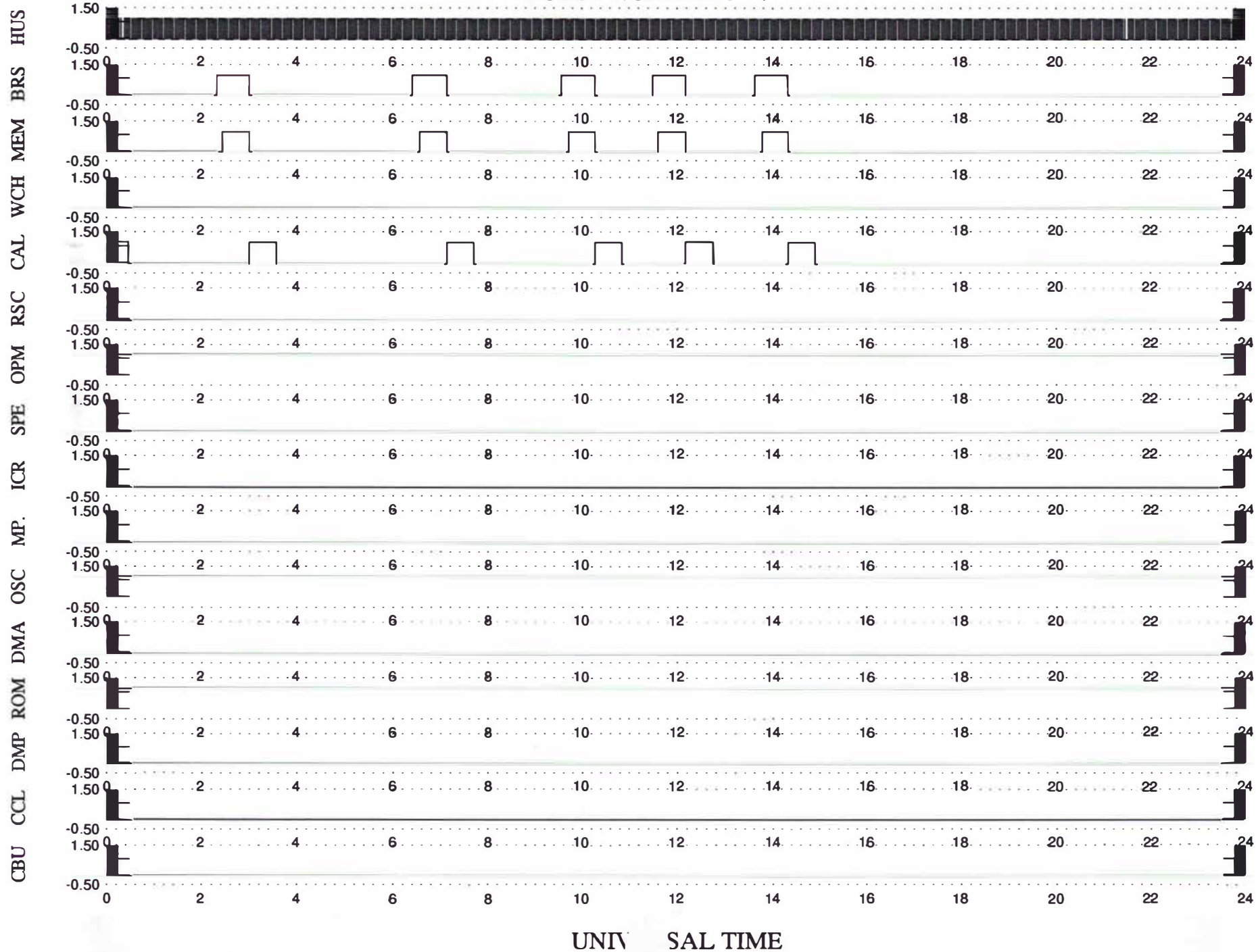
1w GRB (yy:mm:dd)	U.T. (hh:mm:ss)
900118	17:40:40
900120	20:37:33
900123a	01:42:13
900123b	18:44:17
900126	18:04:27
900222	11:56:35
900308	09:32:02
900327	10:24:28
900404	17:54:36
900413	10:11:21
900708a	11:30:21
900708b	18:44:53
900901	01:35:47
900925	20:25:22
900929	01:49:10
901009	00:15:46
901015b	08:44:48
901027	04:21:07
901112	14:57:37
901116	01:42:10
901119	18:08:32
901219	21:52:43
910117	00:57:51
910122	15:13:40
910202	20:57:35
910219	11:45:25
910310	13:02:06
910312	12:43:09
910425	00:37:52
910517	05:02:20
910627	04:29:24
910717a	04:44:07
910717b	13:07:25

910721	19:30:12
910723	14:06:20
910814	19:14:31
910815	14:24:32
910817	17:09:26
910818	13:44:46
910821	10:33:36
910901	05:24:14
910925	03:35:36
910927	23:26:53
911016	11:03:31
911018	05:32:00
911022	04:14:58
911202	20:20:51
911205	23:04:41
911209	18:36:00
920105	17:41:17
920116	18:30:35
920130	00:29:47
920302	06:16:54
920307	00:18:06
920311	02:20:20
920325	17:17:37
920615	14:24:56
920714	13:04:53
920718a	14:41:16
920718b	21:32:47
920720	05:53:04
920723a	01:00:34
920723b	20:03:11
920814	06:10:25
920902	00:29:04
920903a	01:36:15
920903b	23:28:52
920925a	19:40:43
920925b	20:45:14
920925c	23:46:14

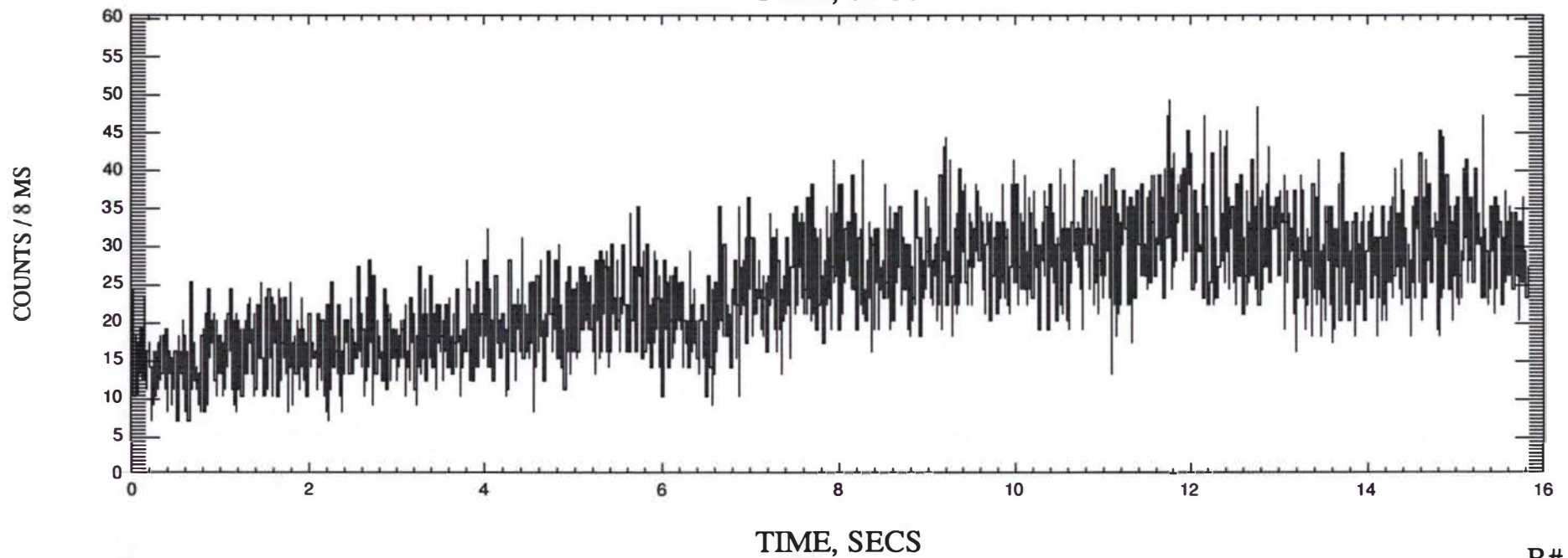
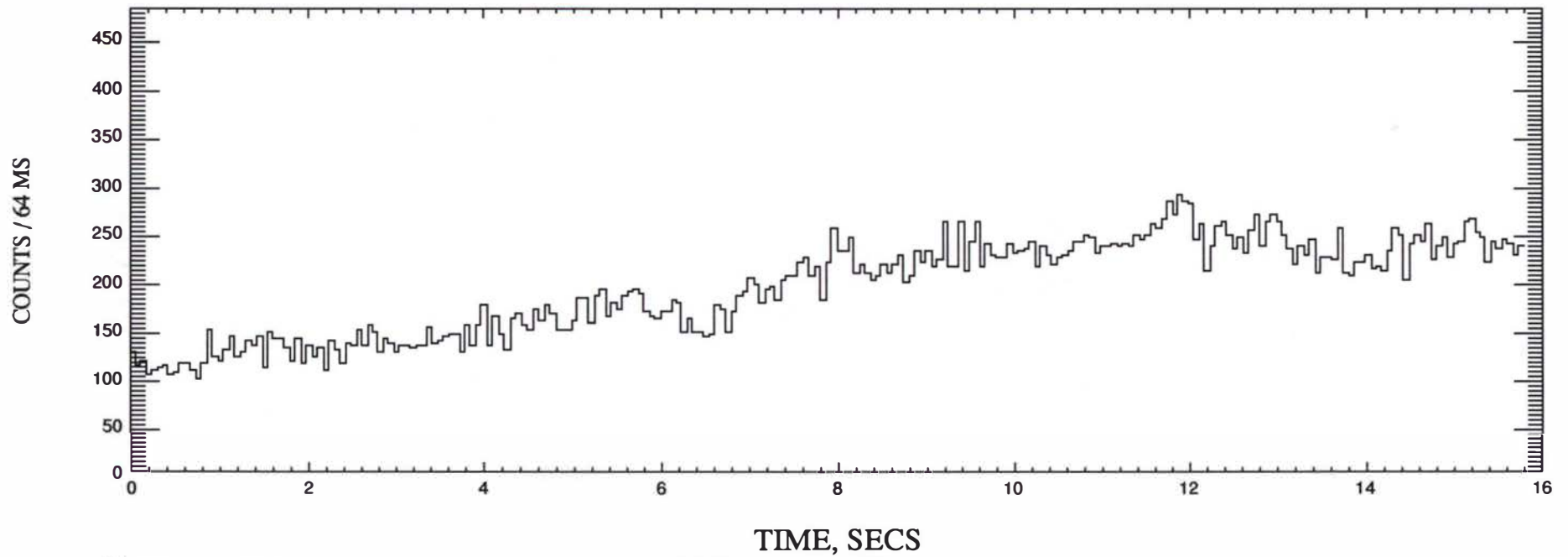
CANDIDATES

900415	06:20:58
900603	06:20:50
900616	03:56:50
900618	23:12:22
900625	22:04:16
900628	11:17:53
900815	11:35:12
900914	04:46:40
901015a	02:42:16
910408	22:24:18
910414	07:28:27
910816	01:57:40
920314	05:48:12
920721	13:00:49
920721	06:17:25

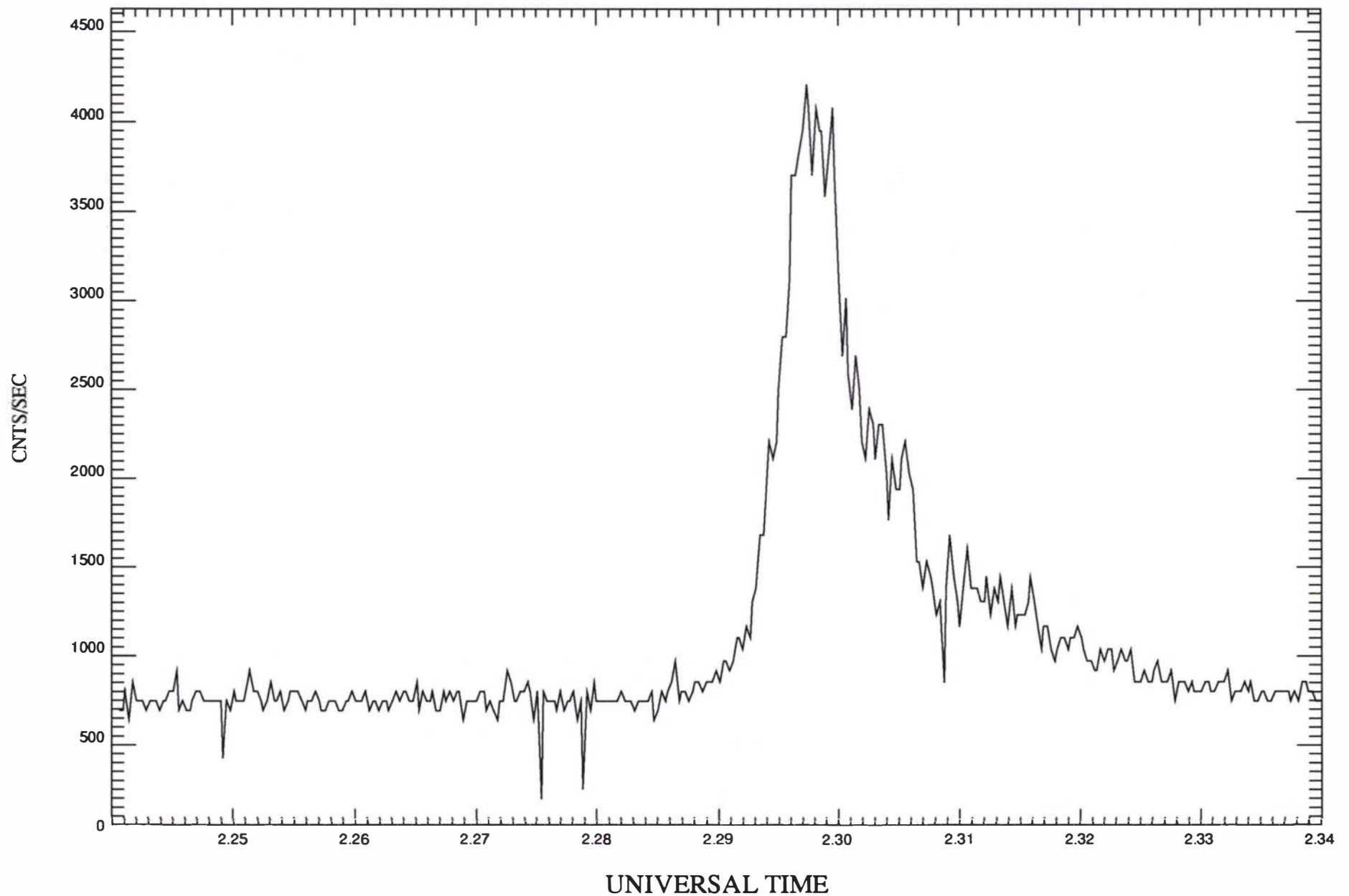
BURST NUMBER 3 - 7



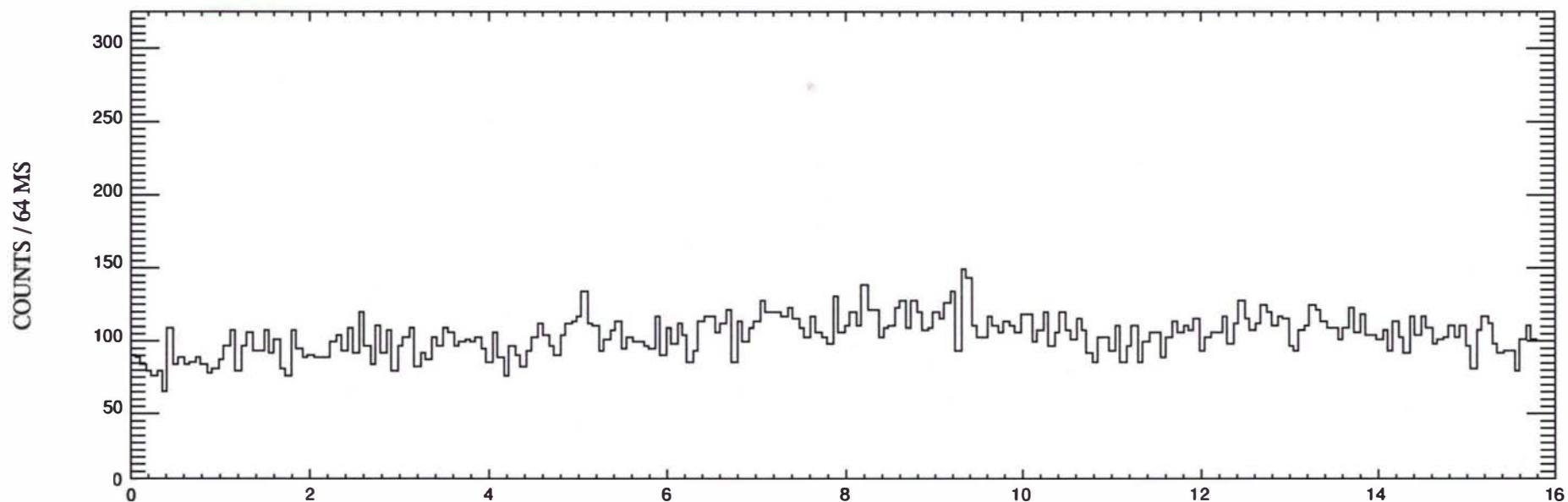
Burst Counter 3 at UT= 2.294564628601 h= 8260.433 s 02:17:40.433



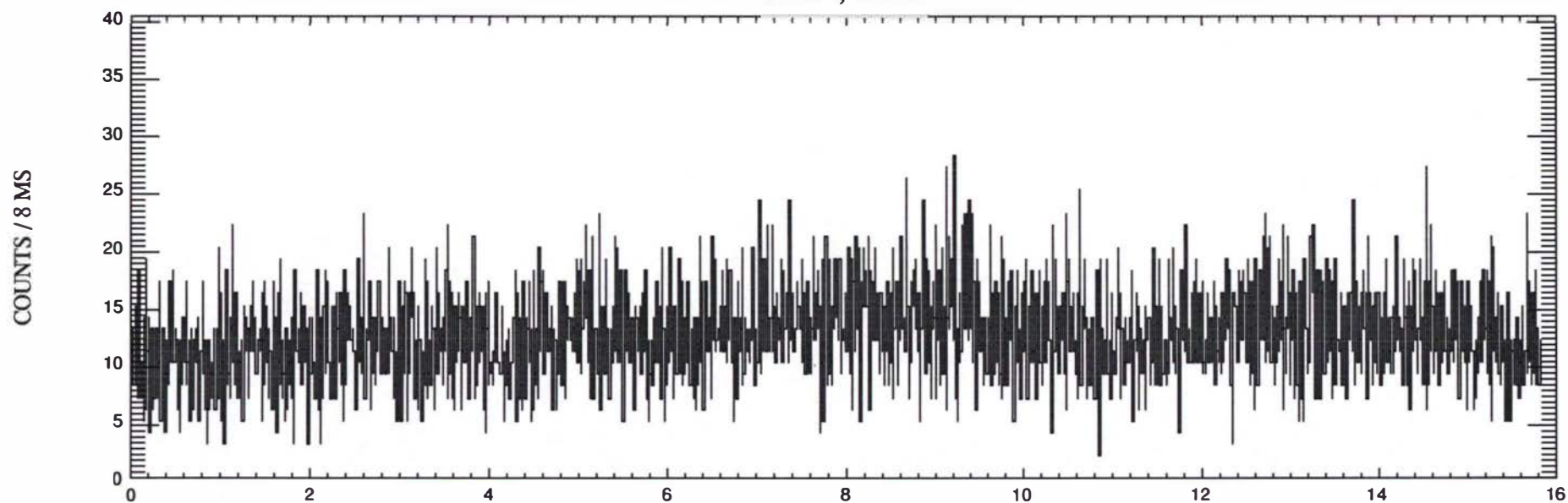
CALIBRATION DATA INCLUDED



Burst Counter 4 at UT= 6.396055874295 h=23025.801 s 06:23:45.801

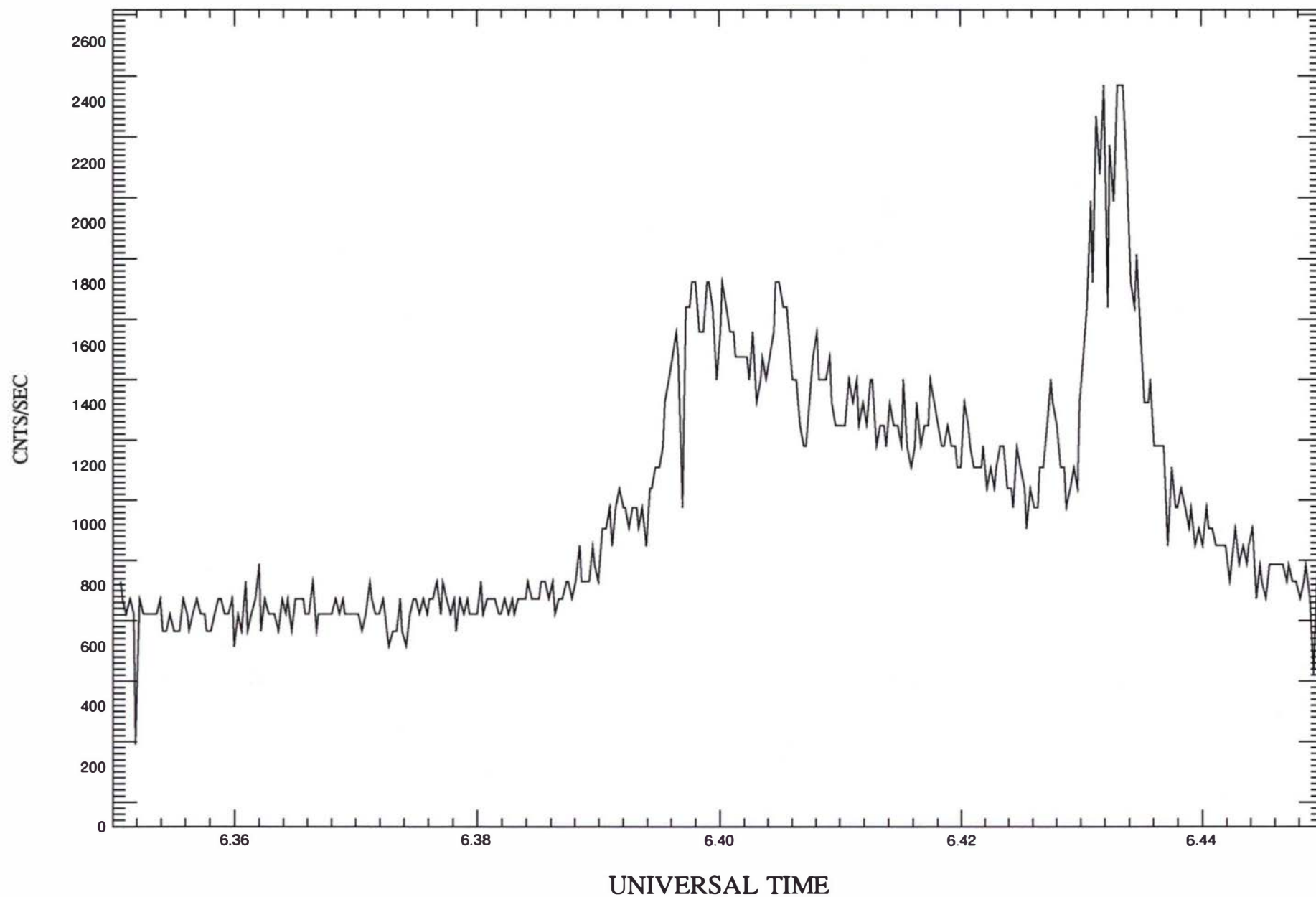


TIME, SECS

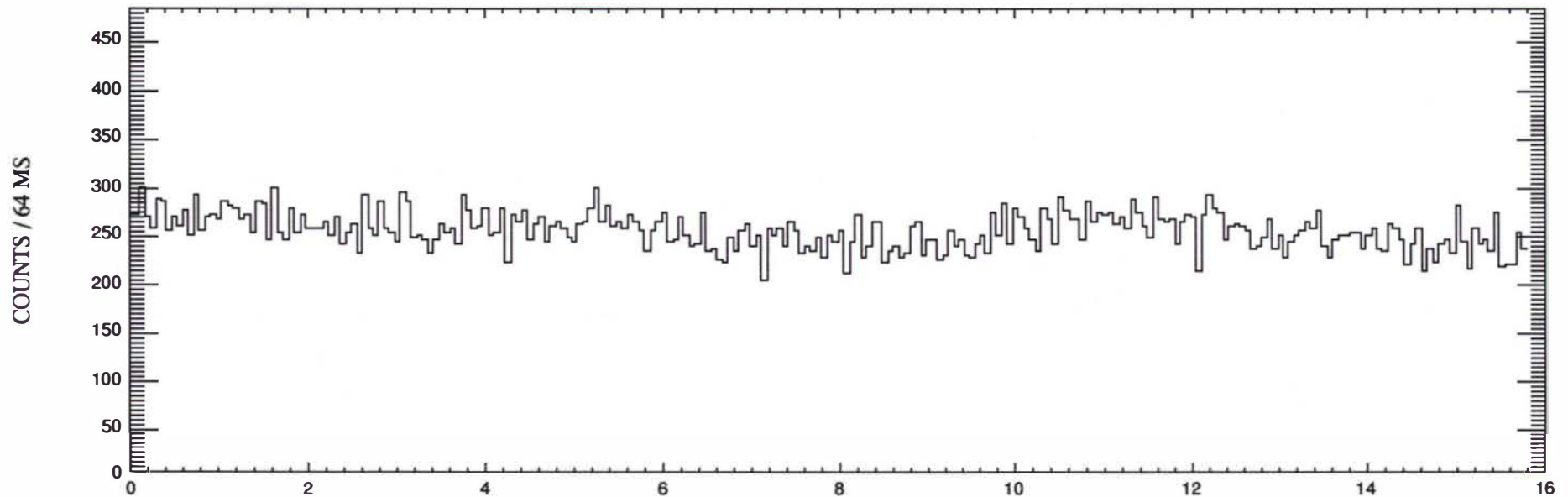


TIME, SECS

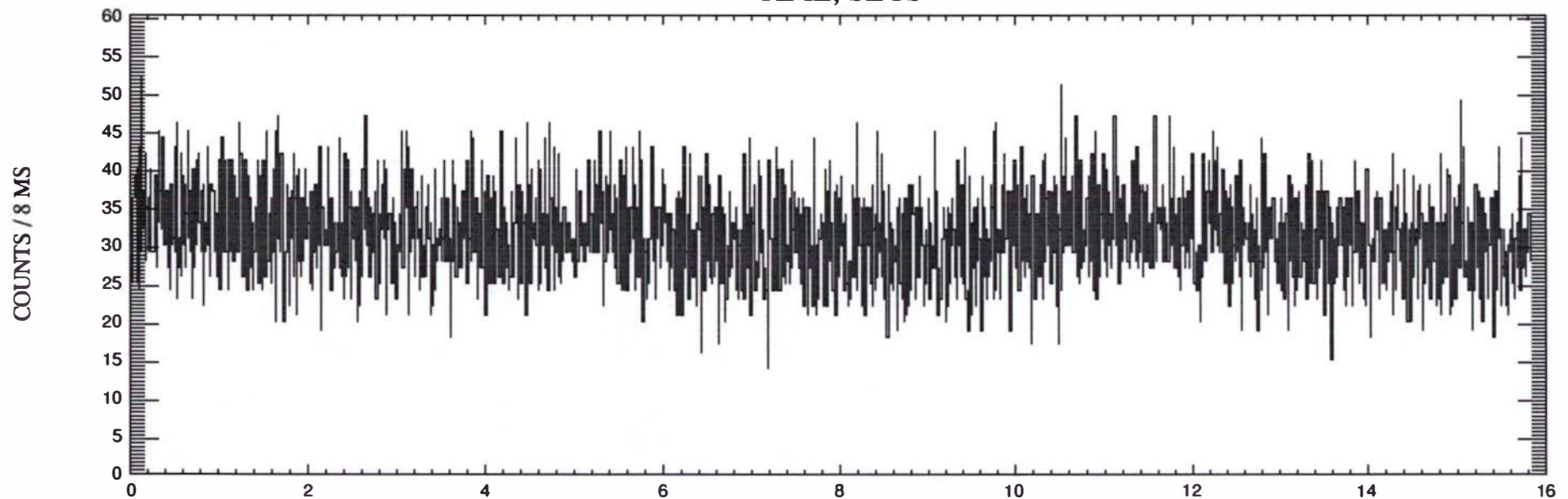
CALIBRATION DATA INCLUDED



Burst Counter 5 at UT= 9.527524583605 h=34299.089 s 09:31:39.089

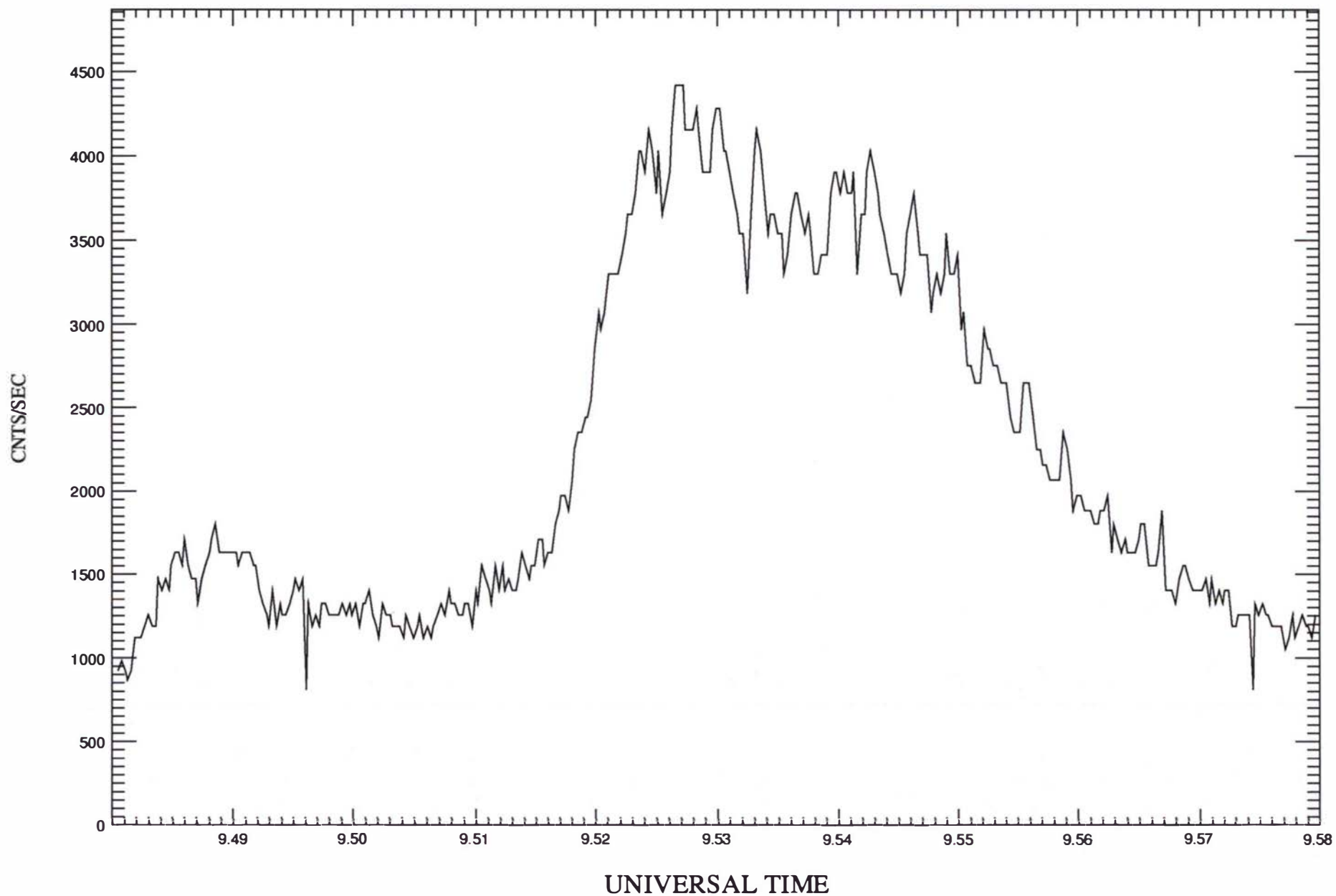


TIME, SECS

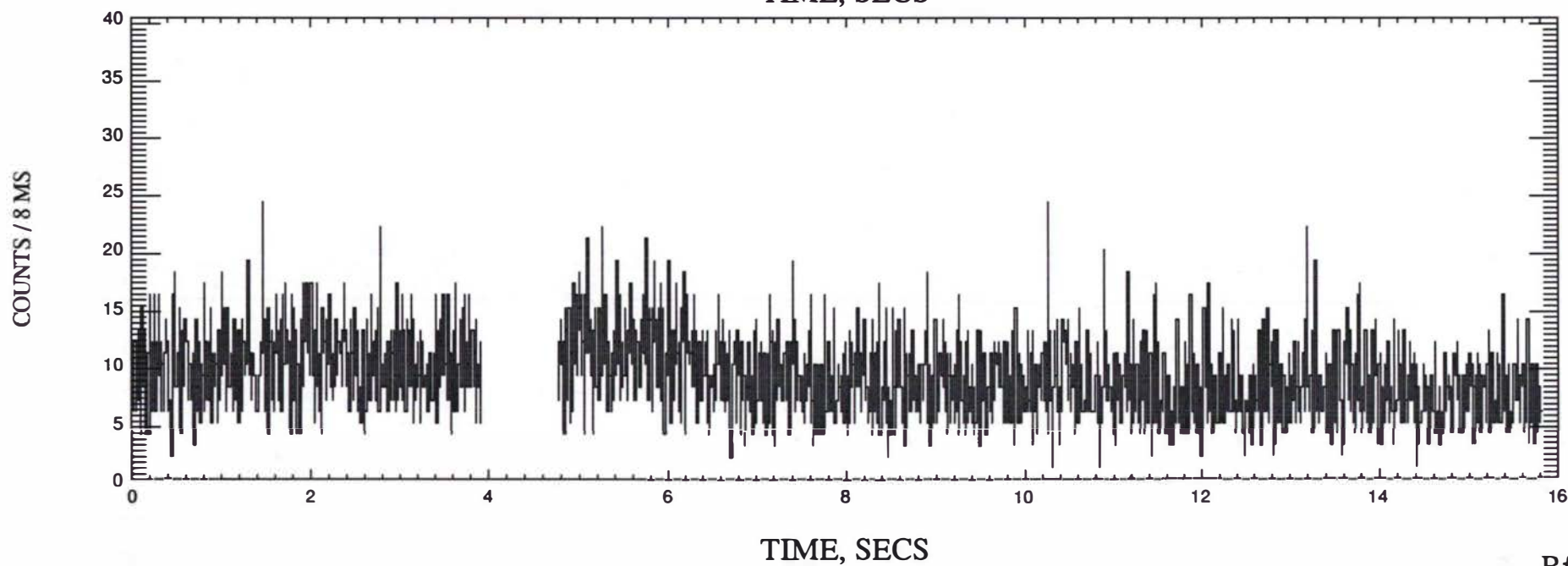
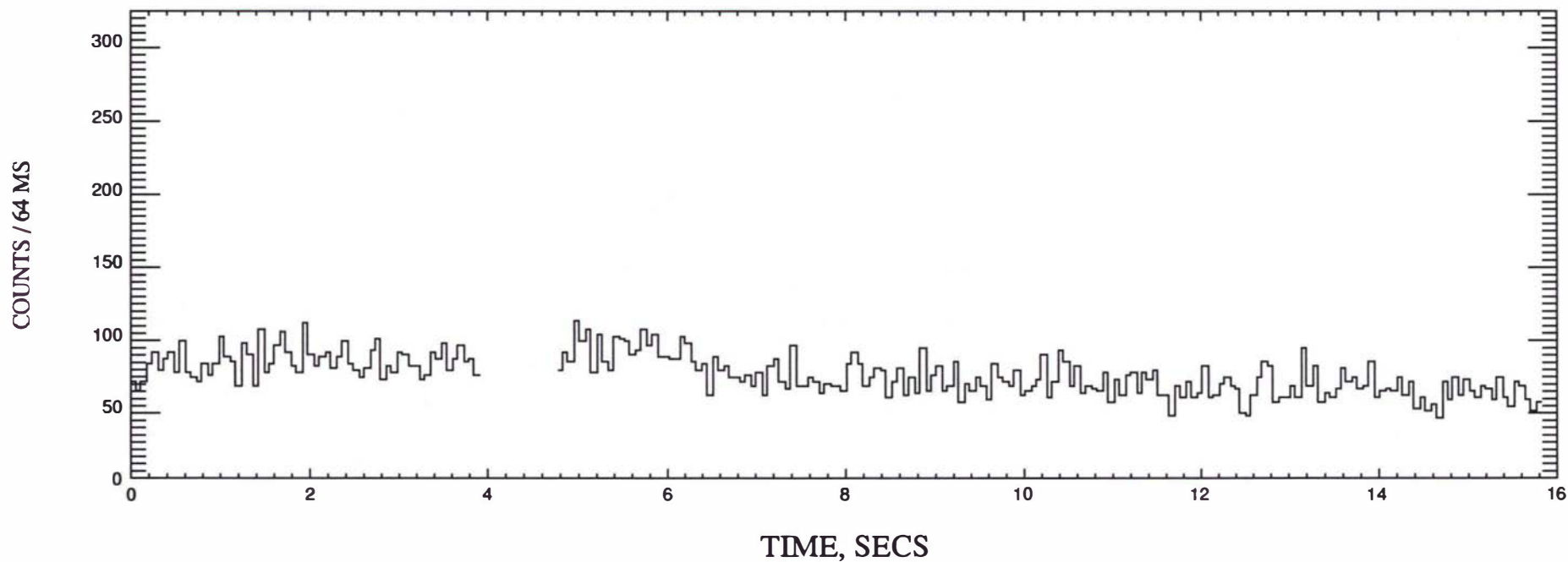


TIME, SECS

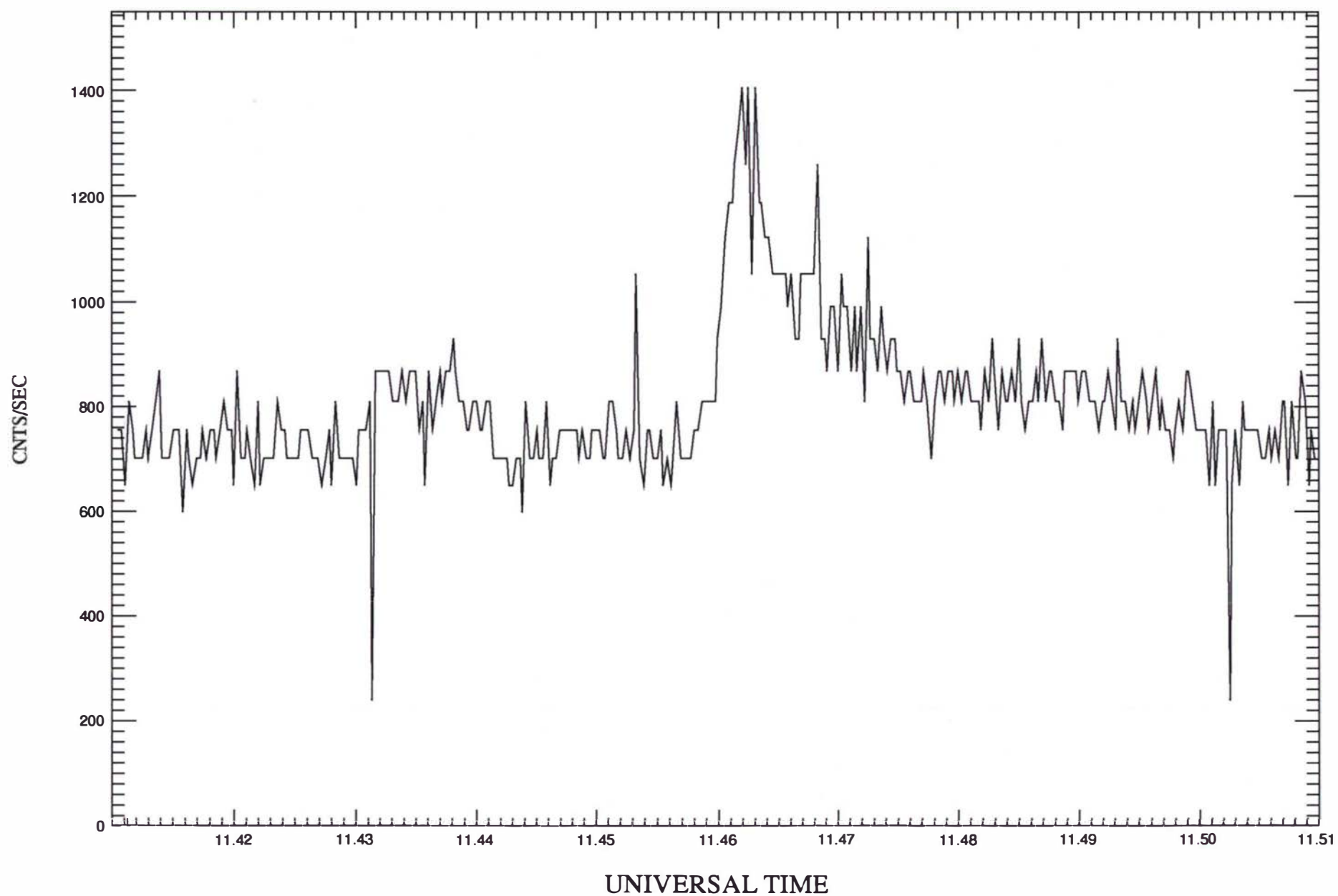
CALIBRATION DATA INCLUDED



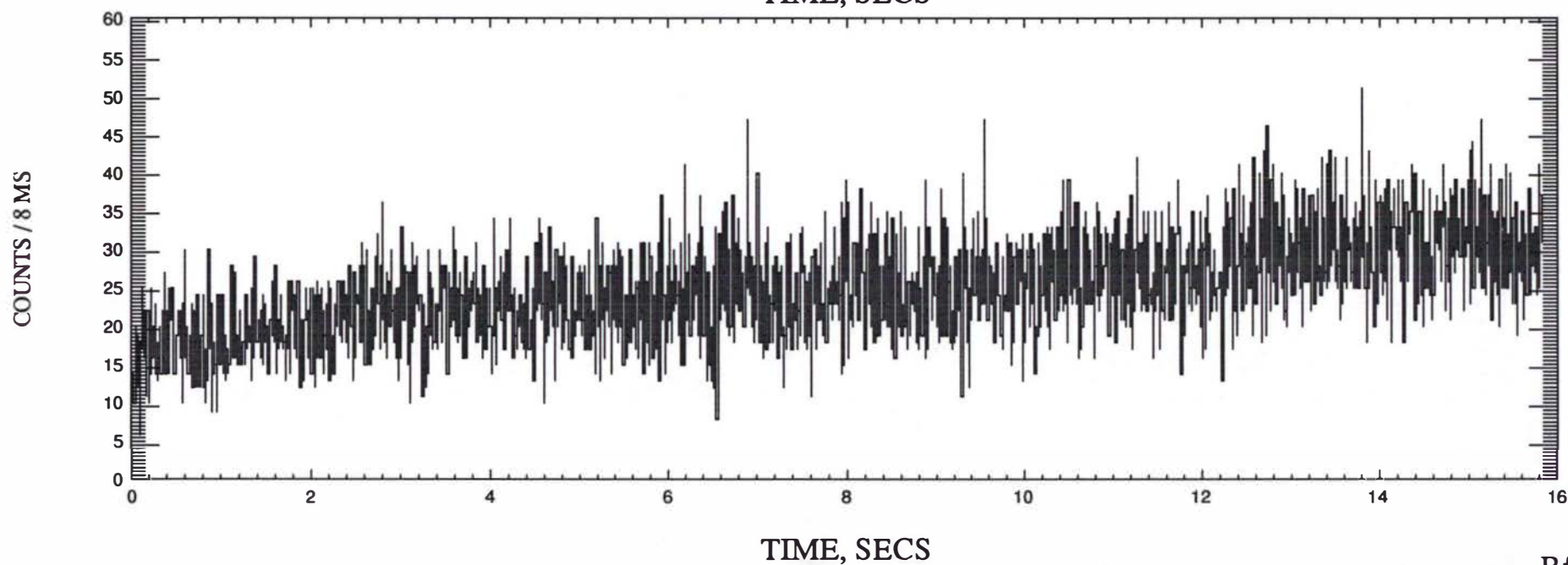
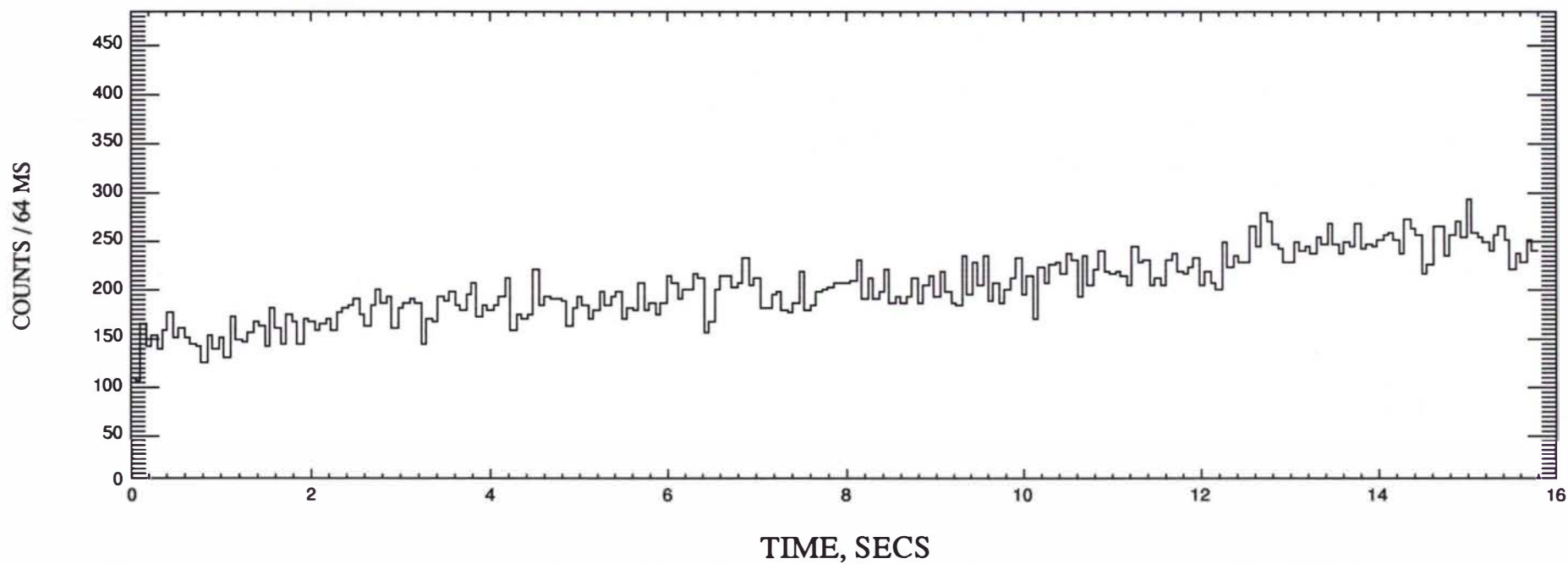
Burst Counter 6 at UT=11.461990636190 h=41263.166 s 11:27:43.166



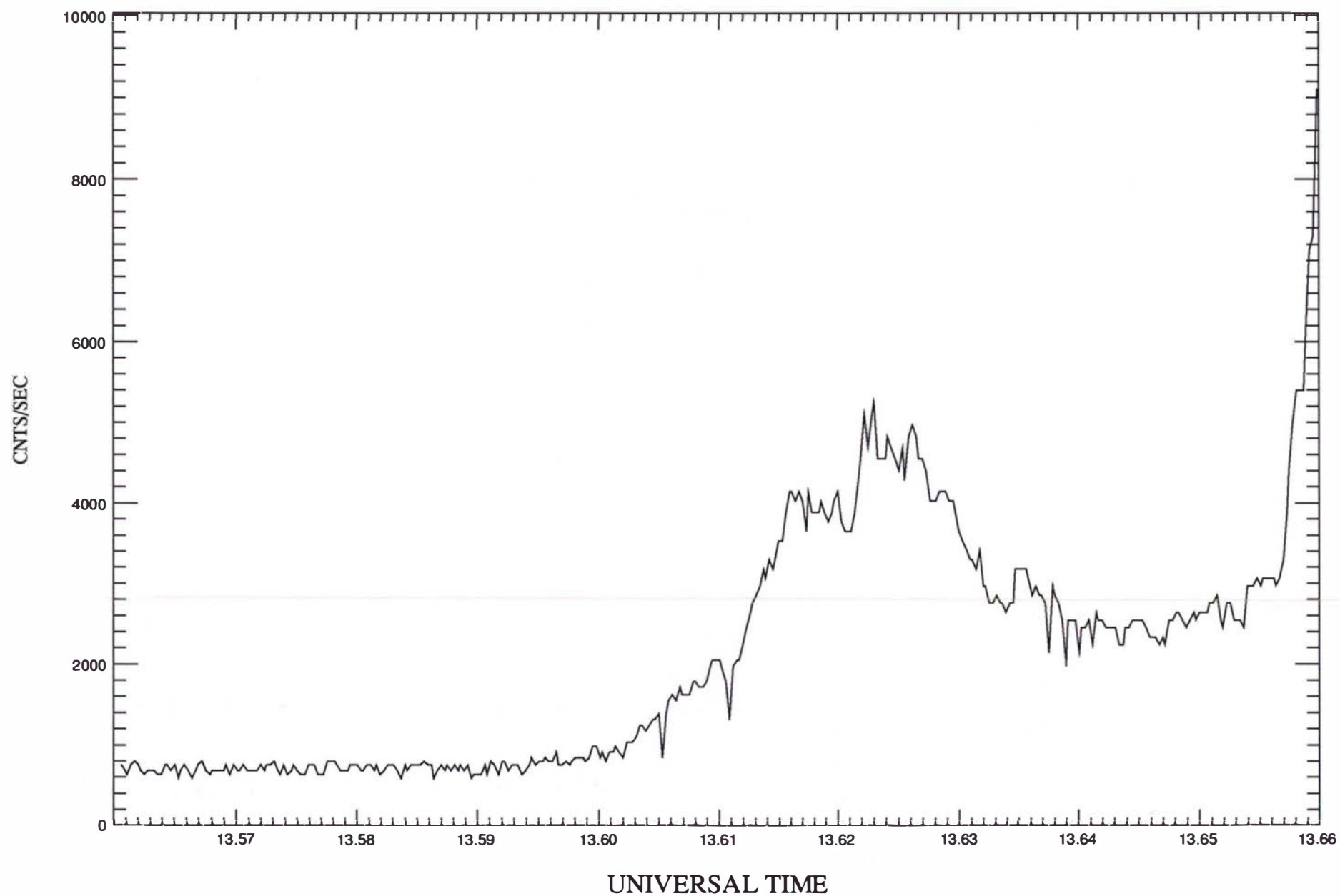
CALIBRATION DATA INCLUDED



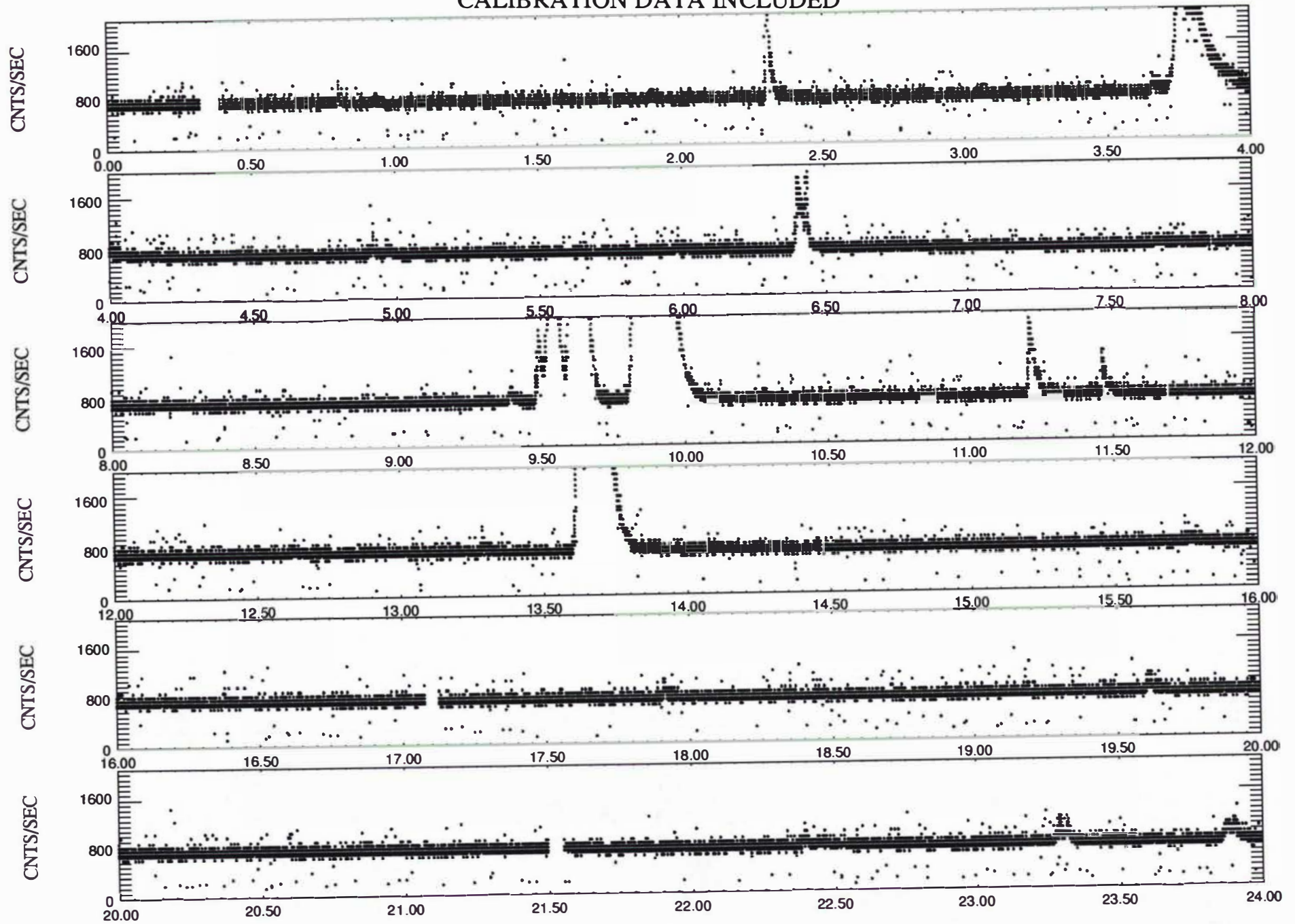
Burst Counter 7 at UT=13.612594795227 h=49005.341 s 13:36:45.341



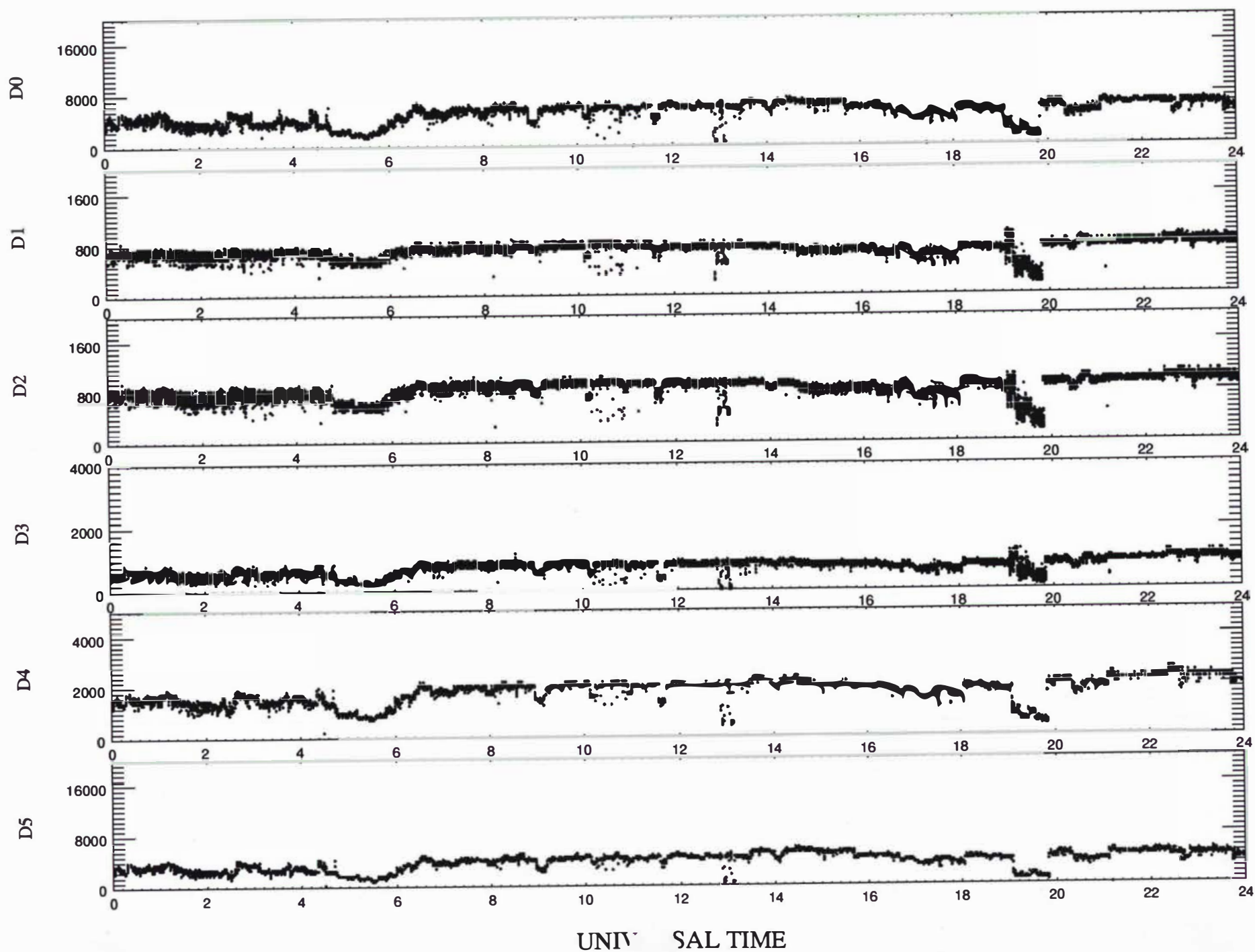
CALIBRATION DATA INCLUDED



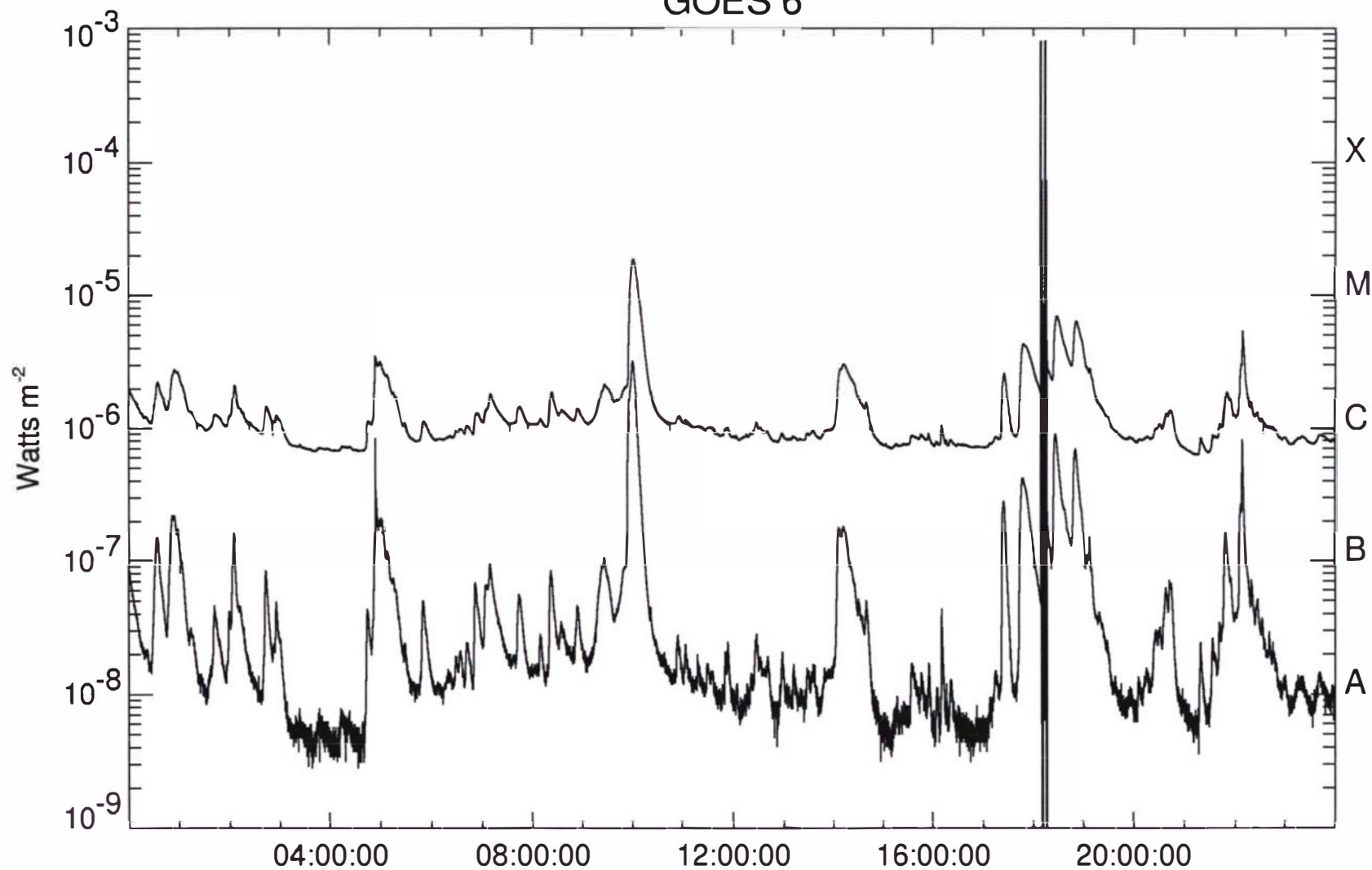
CALIBRATION DATA INCLUDED



UNIV SAL TIME

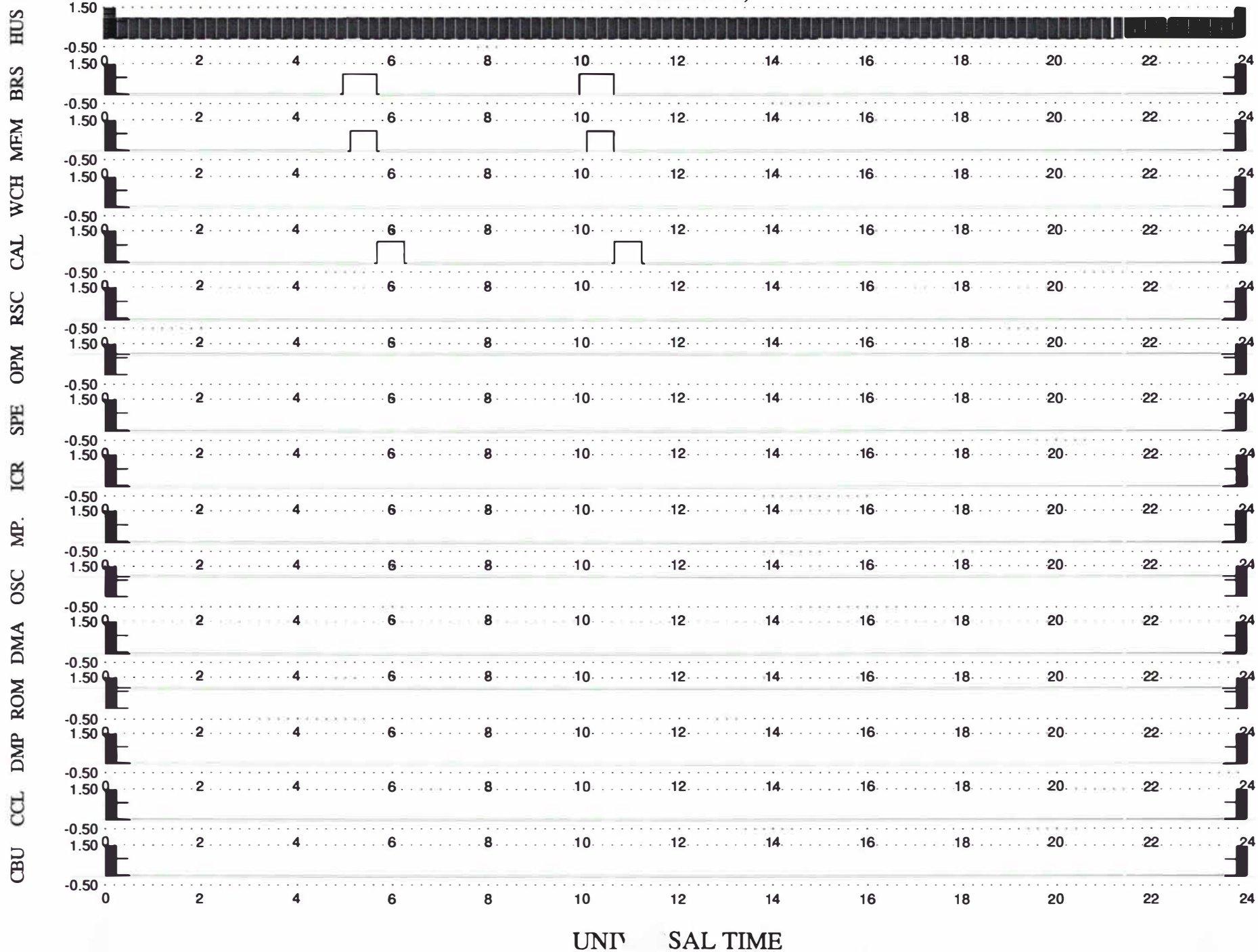


GOES 6

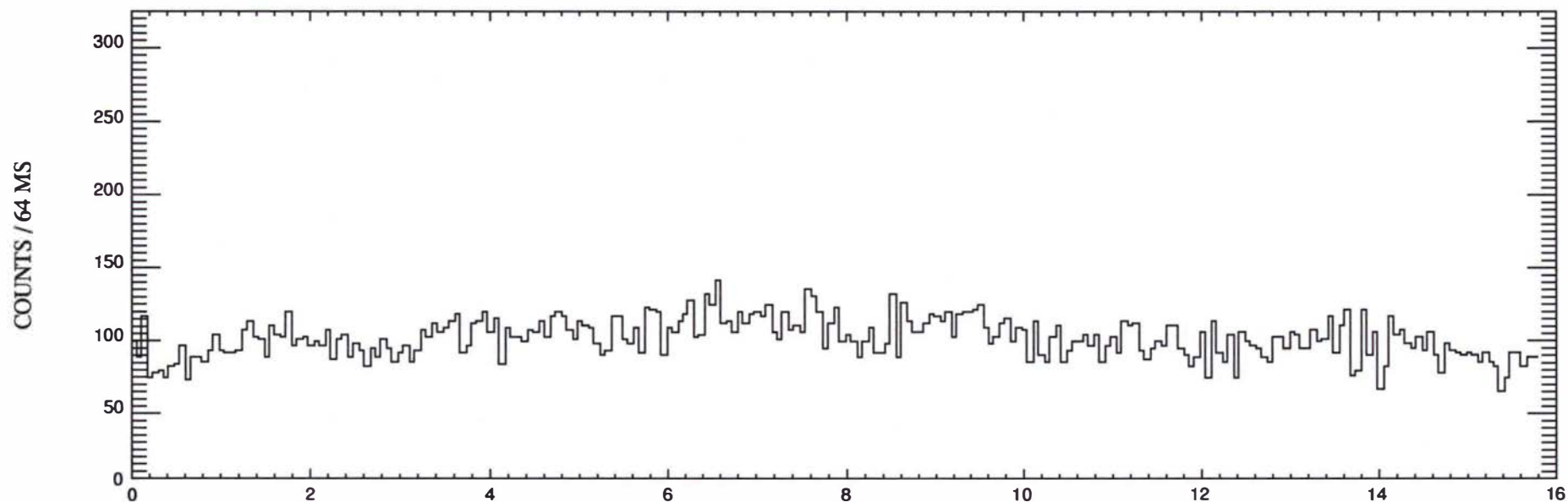


Data Start: 90/11/20, 0000:00 Plot created: 96/05/23, 1852
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

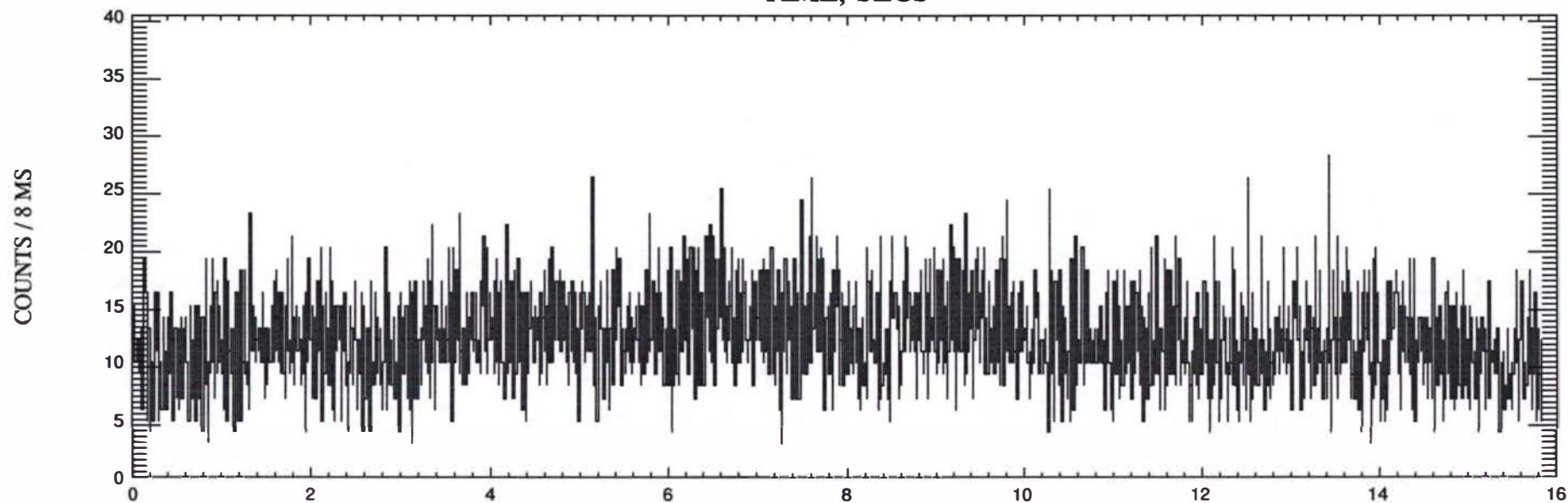
BURST NUMBER 8, 9



Burst Counter 8 at UT= 4.931330146790 h=17752.789 s 04:55:52.789

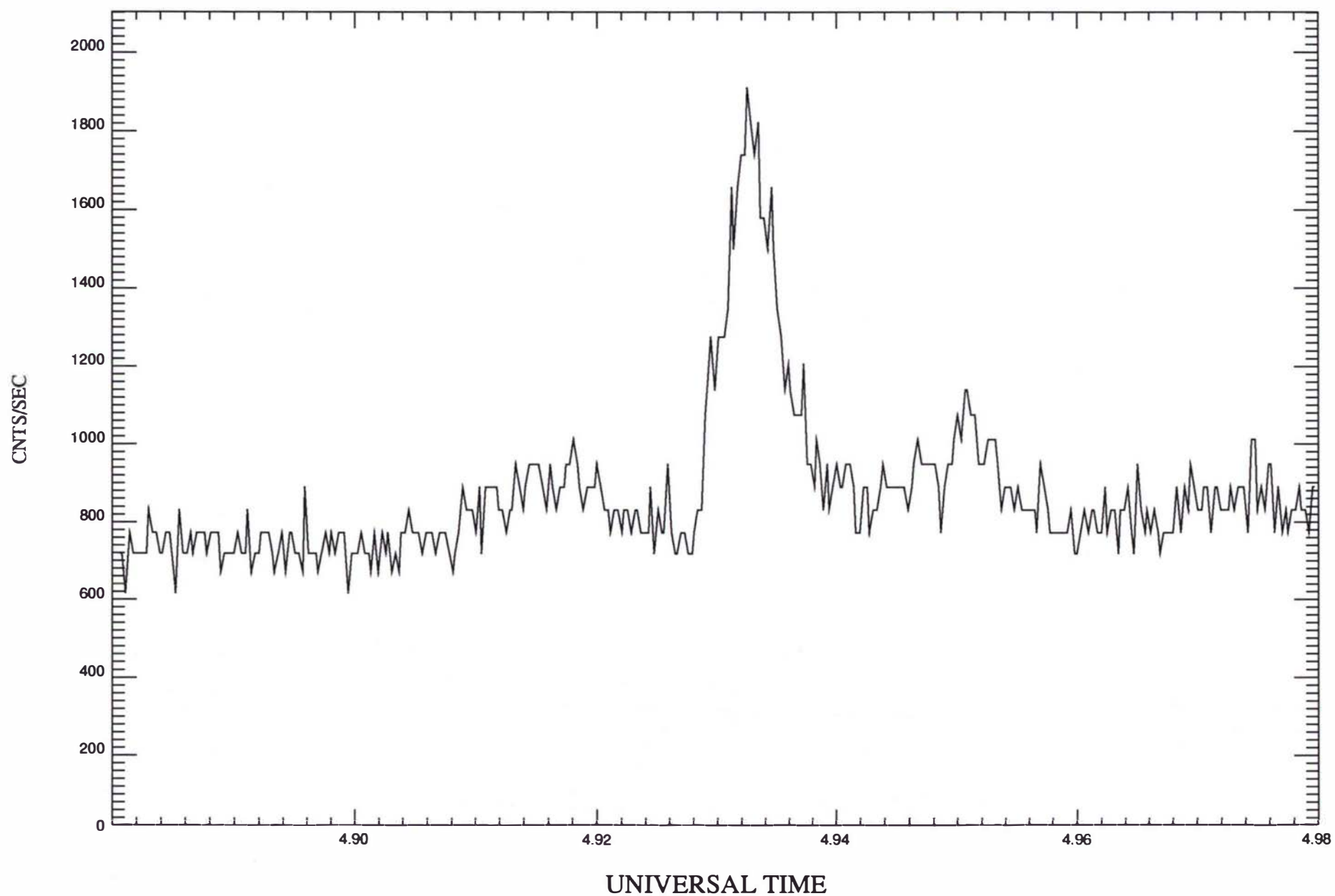


TIME, SECS

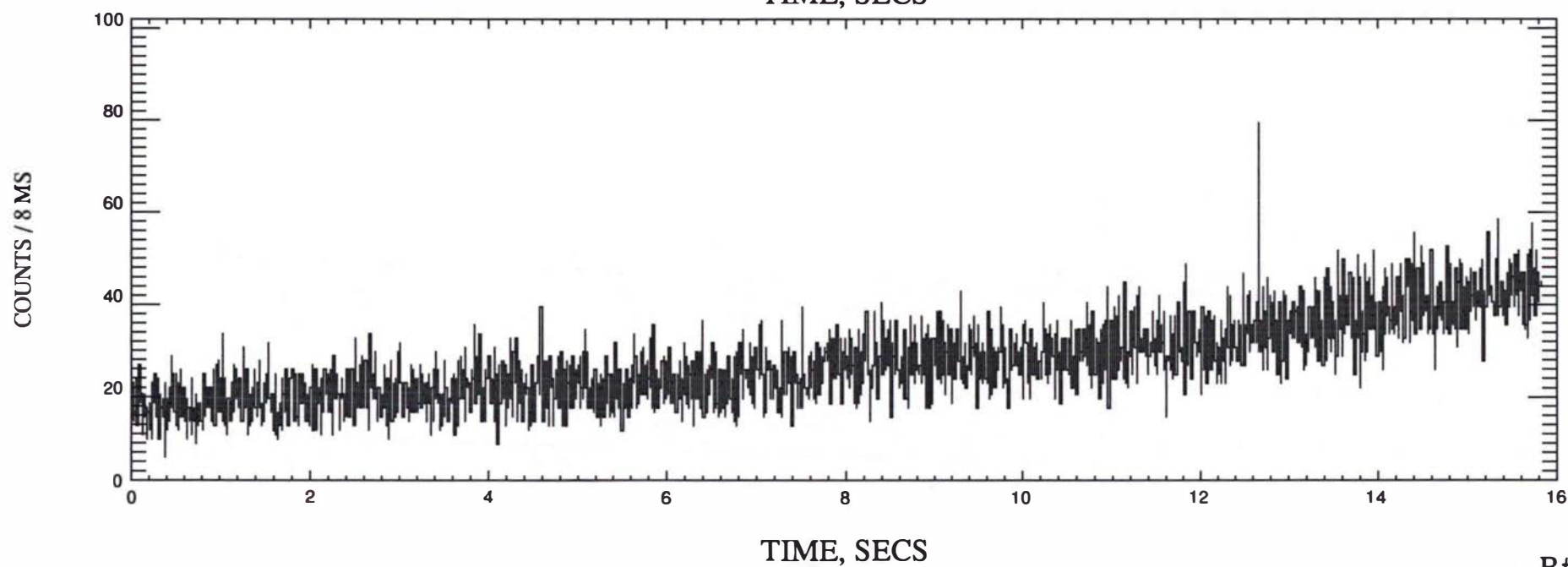
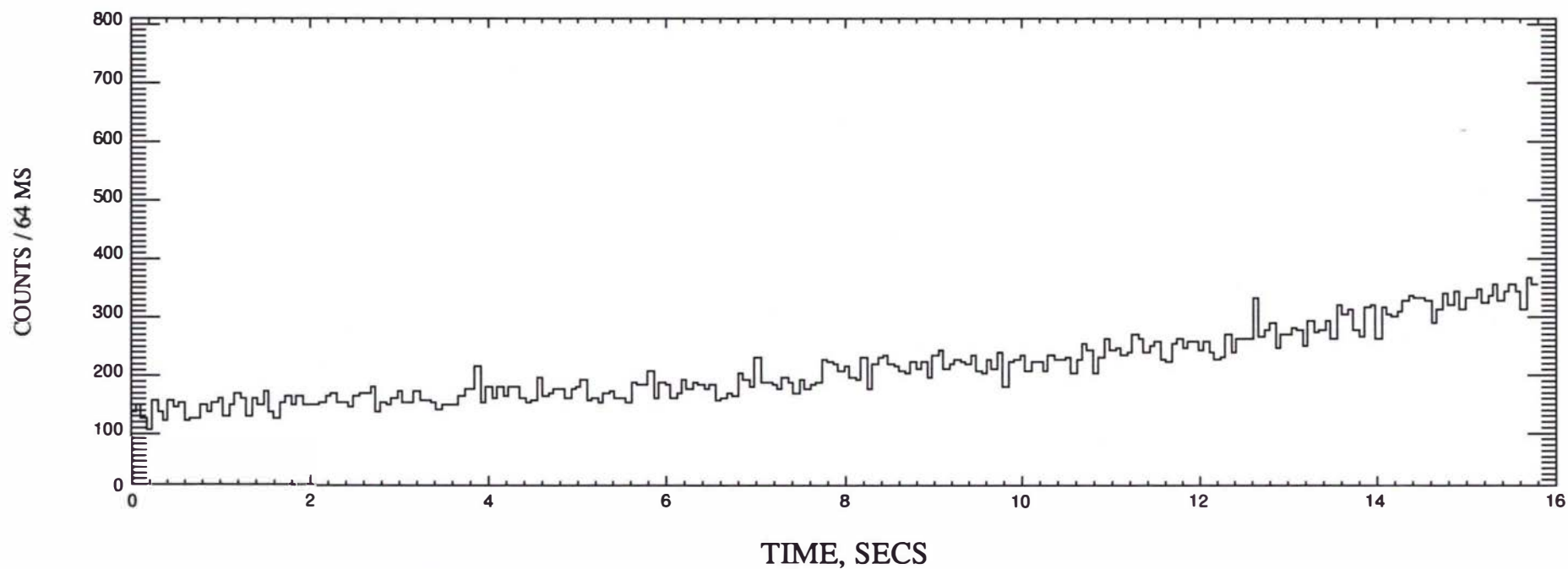


TIME, SECS

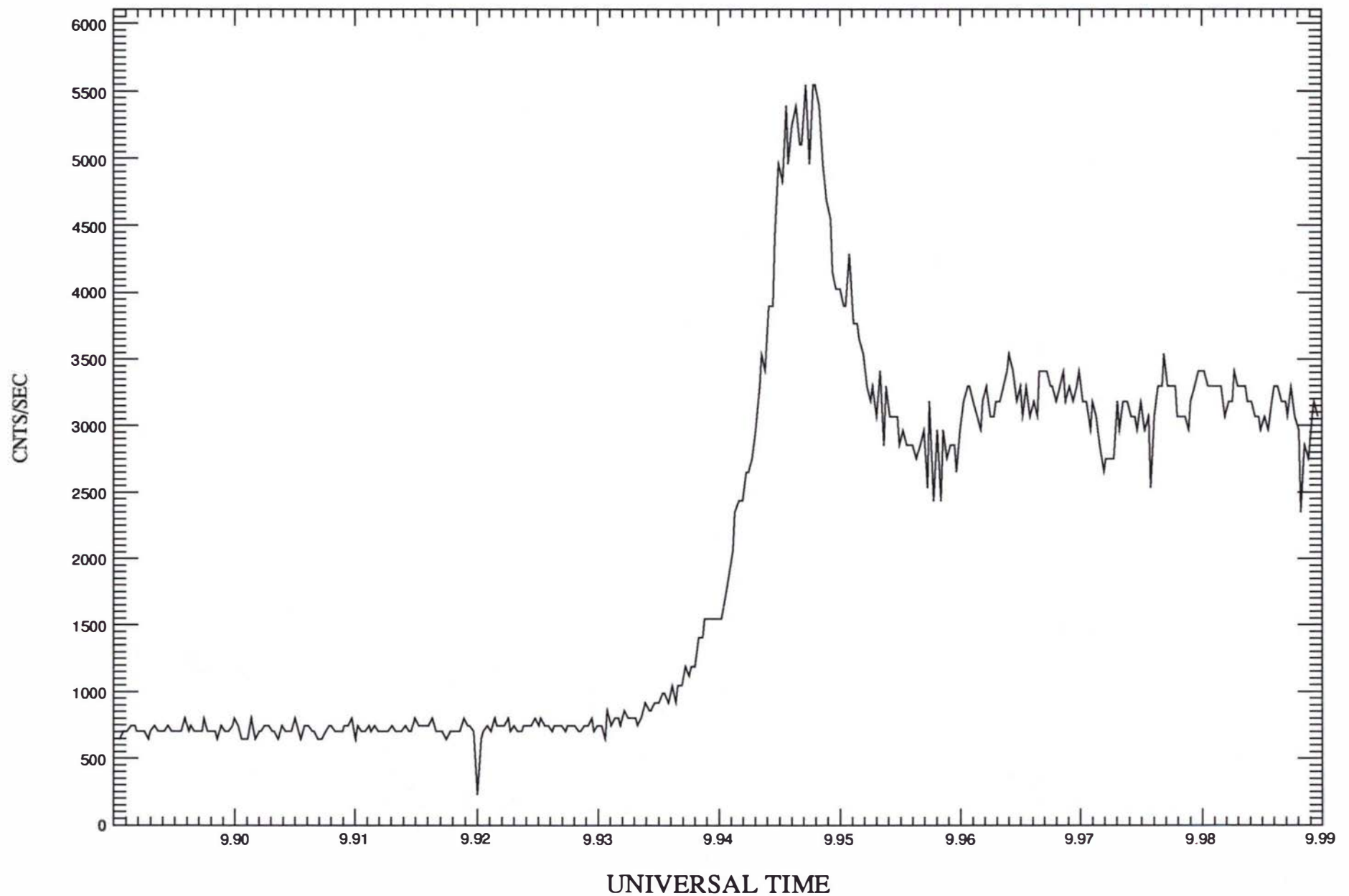
CALIBRATION DATA INCLUDED



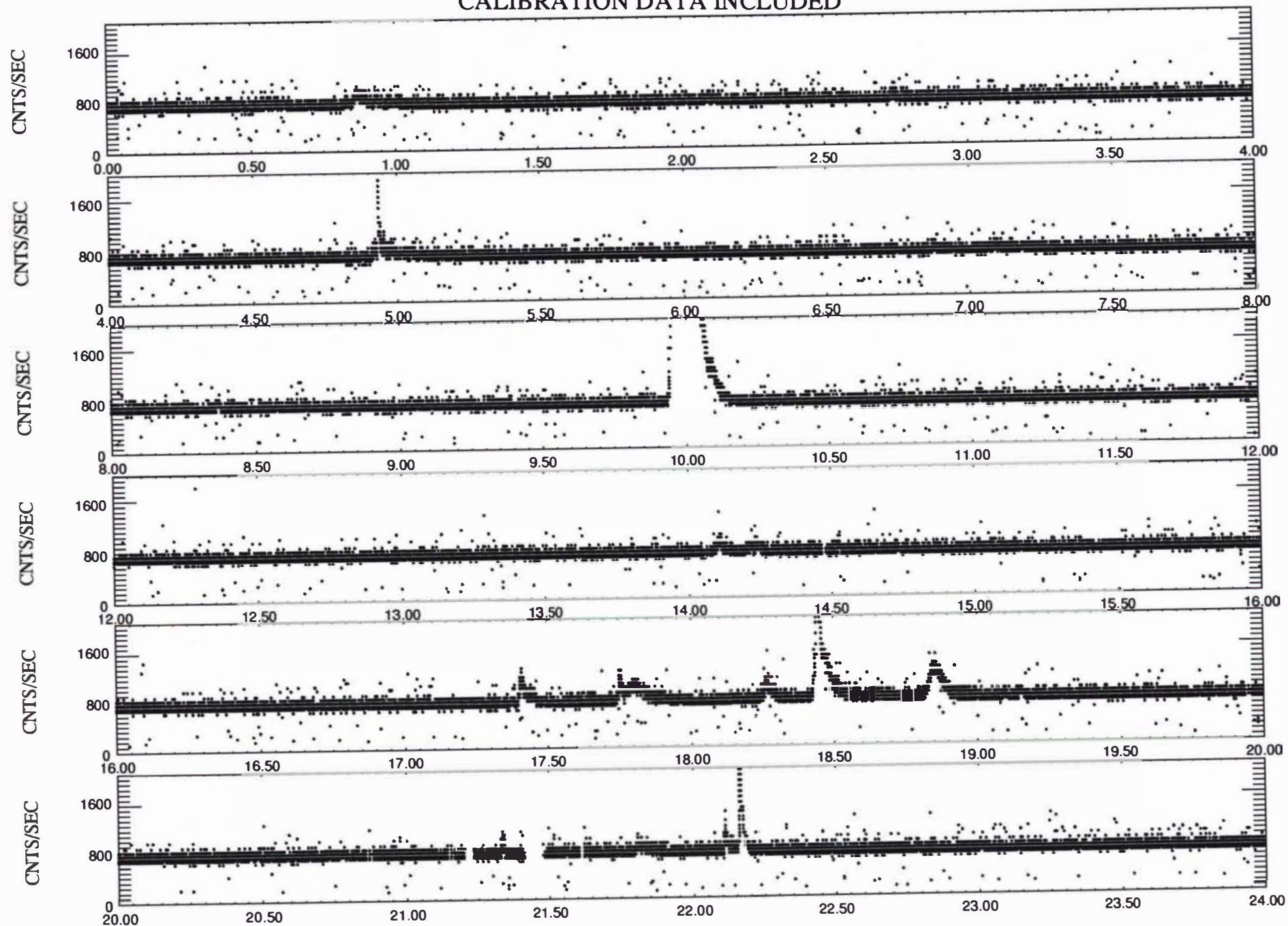
Burst Counter 9 at UT= 9.941714096069 h=35790.171 s 09:56:30.171



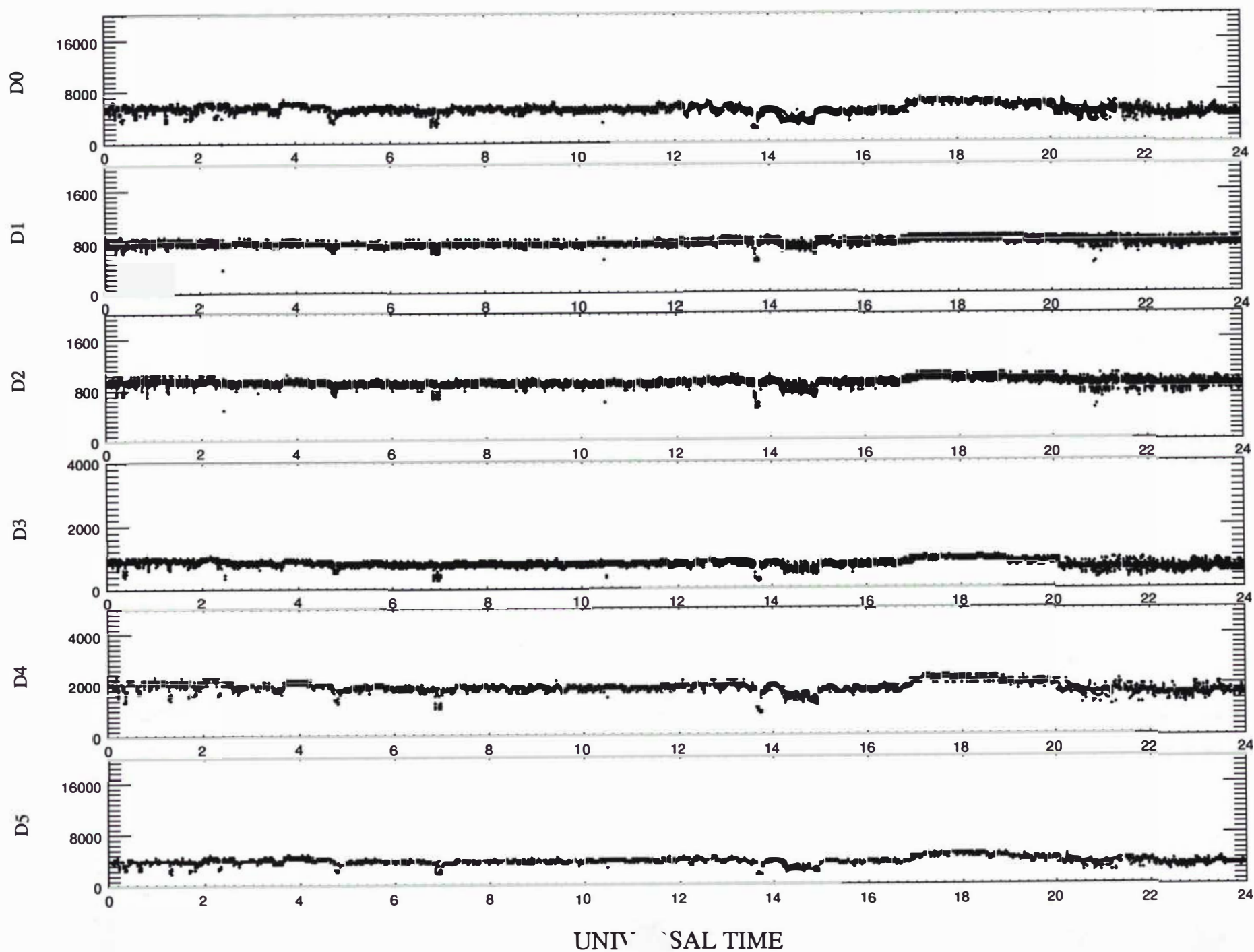
CALIBRATION DATA INCLUDED



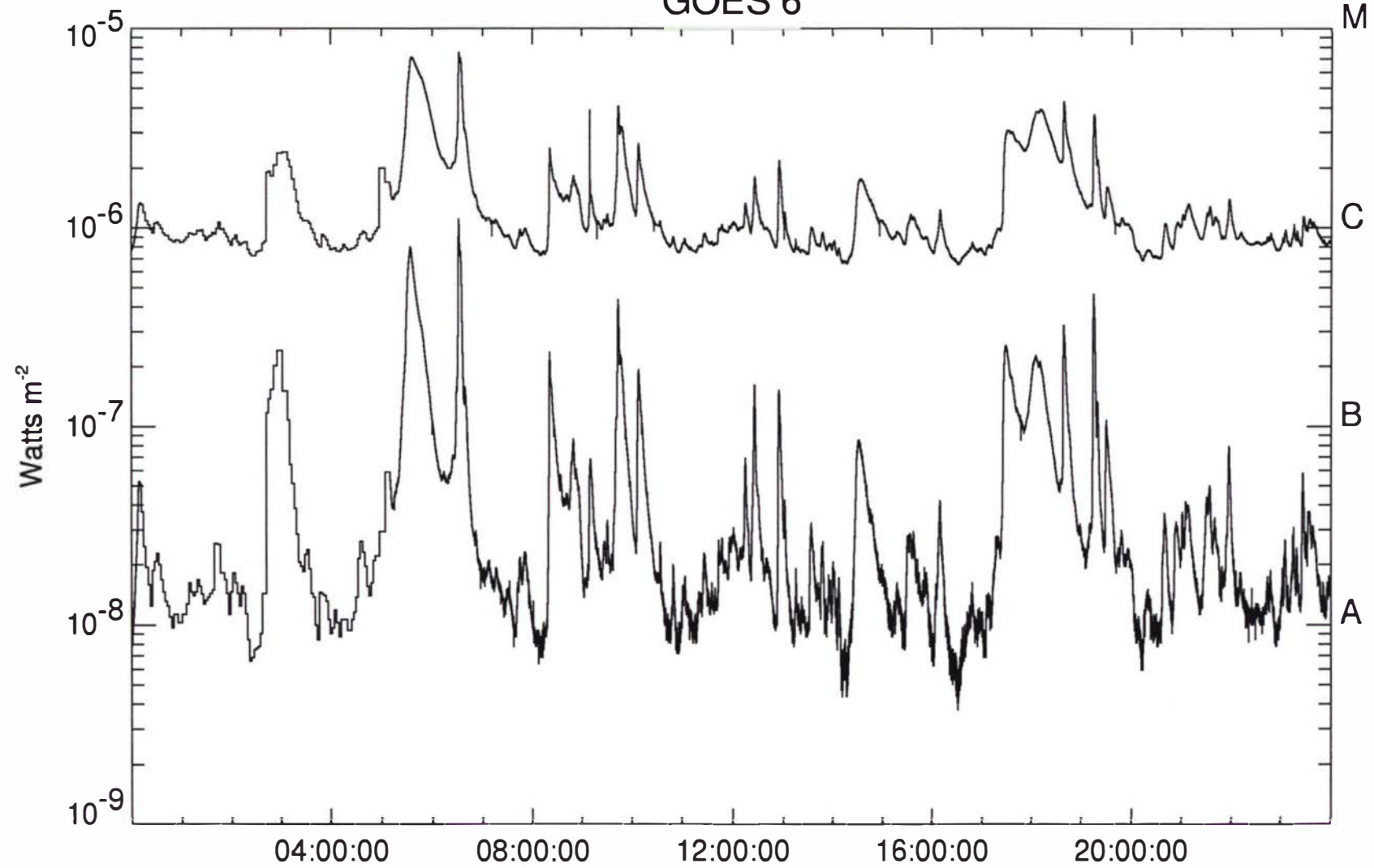
CALIBRATION DATA INCLUDED



UNIV SAL TIME



GOES 6



Data Start: 90/11/21, 0000:01

Plot created: 96/05/23, 1855

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

Date: Jul 6 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

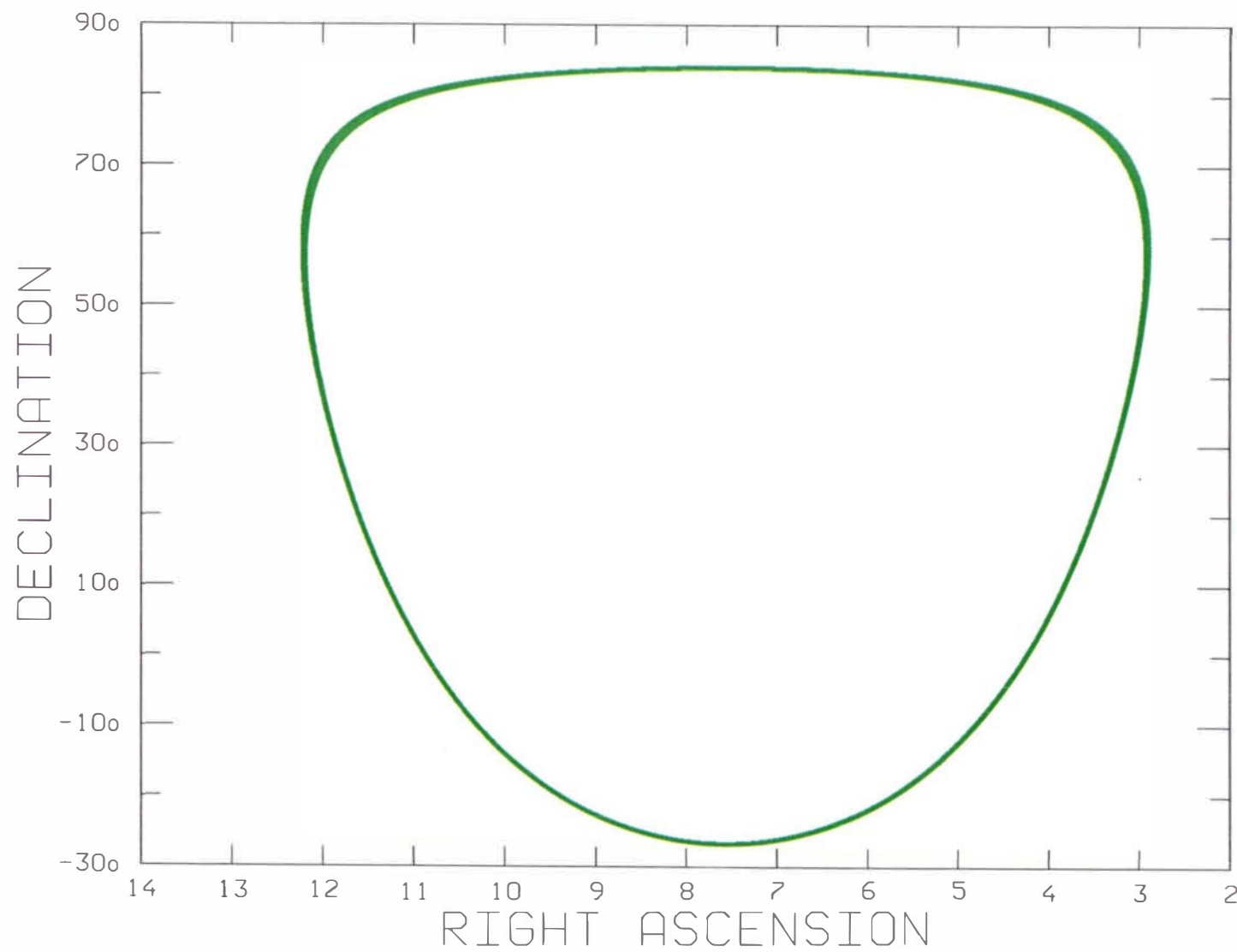
- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☐ Were data checked by Joe Springer for 0.5 s errors?
- ☐ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☒ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. BATSE Data

- ☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)?
- ☐ BATSE ephemeris for T_0 ?
- ☐ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. PVO Data

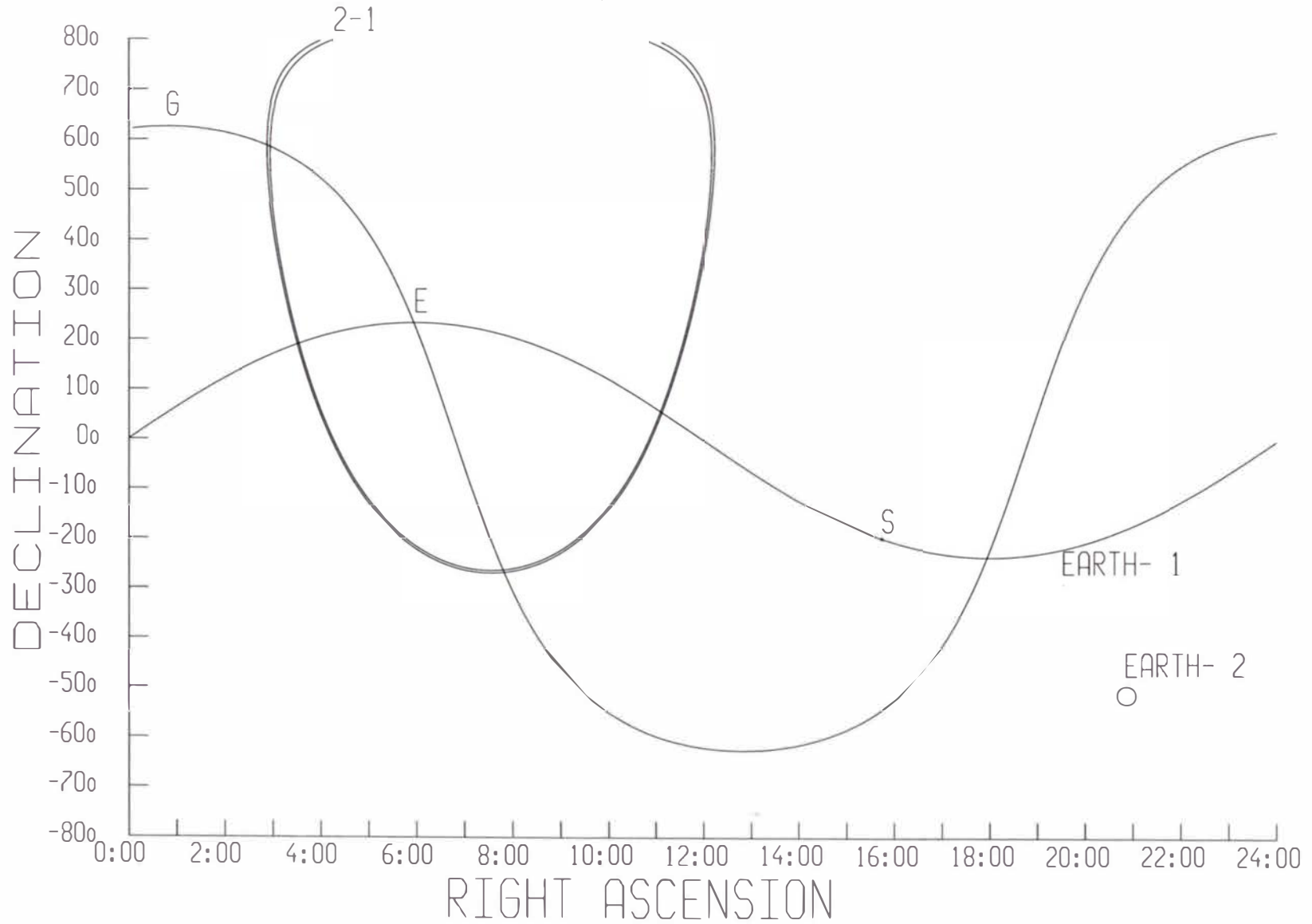
- ☐ Ephemeris of PVO used (not Venus)?
 - ☐ 2000 coordinates used?
 - ☐ Geocentric time used?
-
- ☒ ACCESS and MBL databases updated with identical times?



EVENT OF NOV 21, 1990 0:02

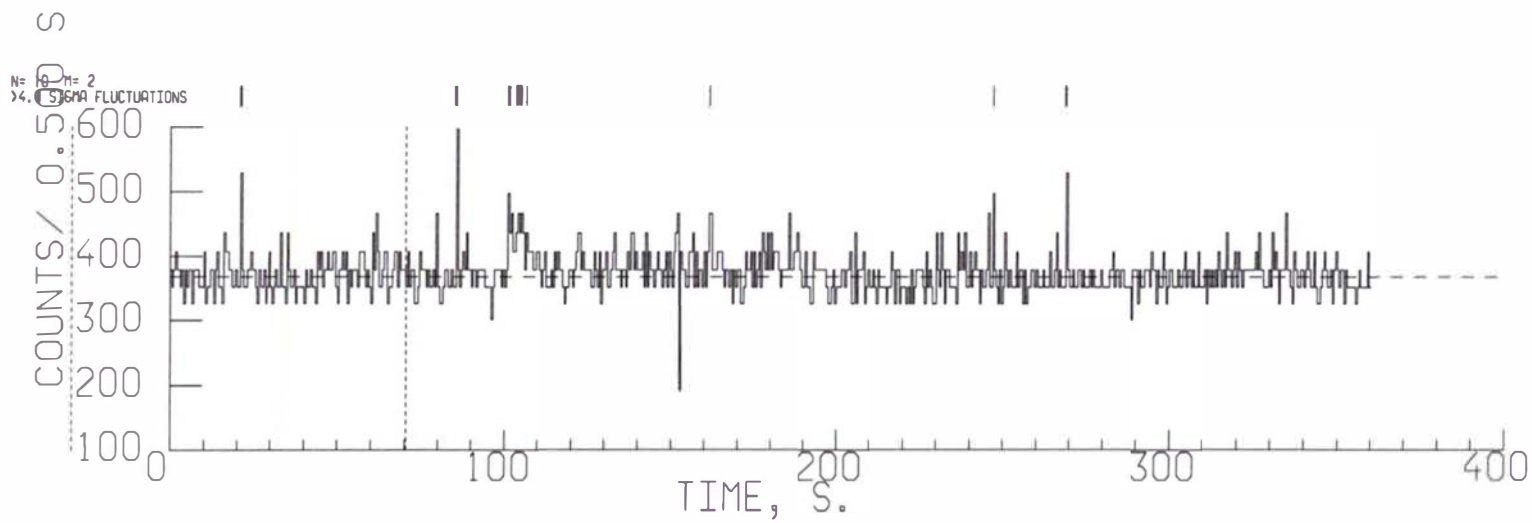
06/07/2011

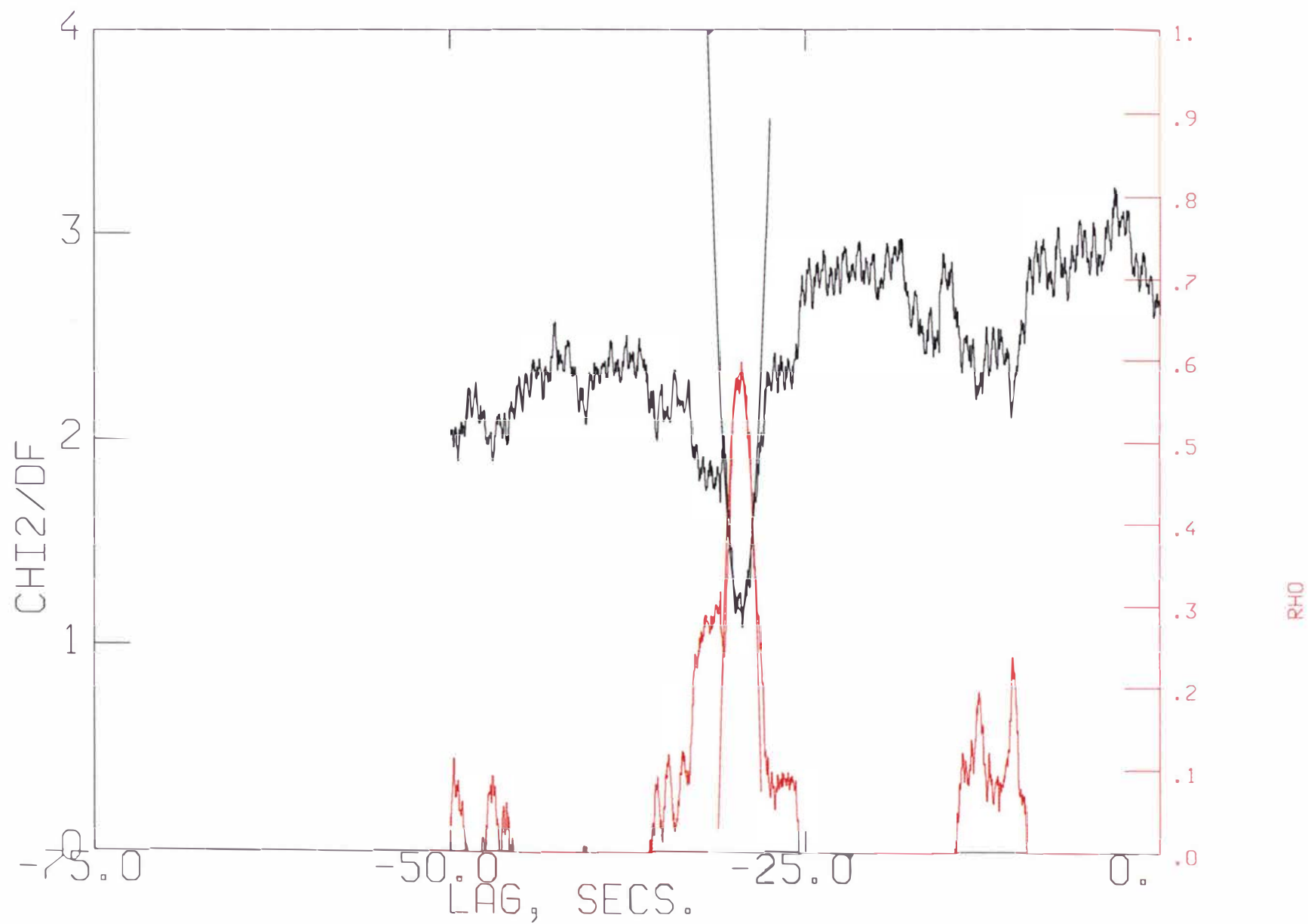
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 PHEBUS

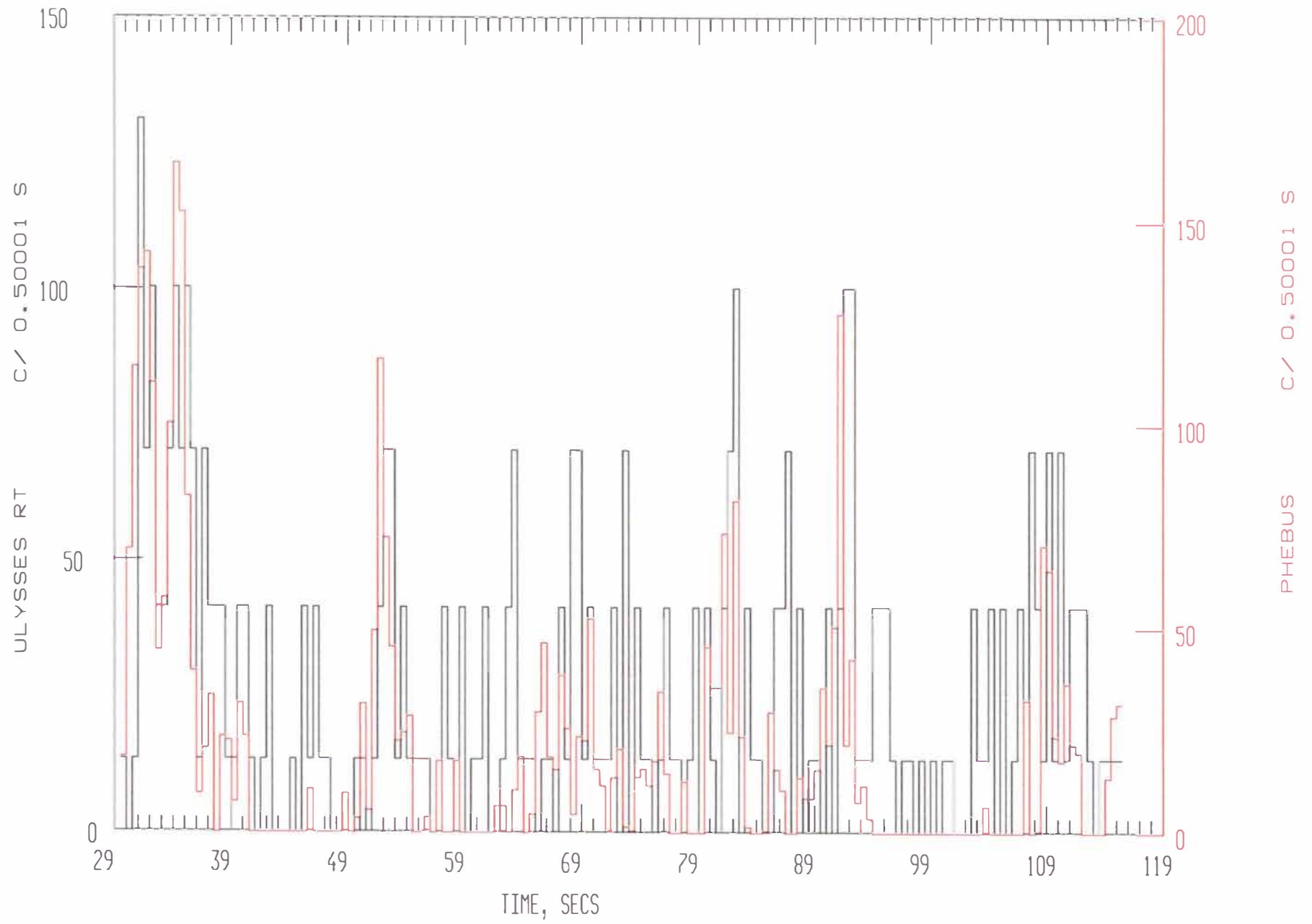


ULYSSES RT
21/11/90 108.007 s
13- 161 keV

6 / 7 / 11







PHEBUS

21/11/90

285.787 s

100- 1600 keV

s

COUNTS/0.03125

50

40

30

20

10

0

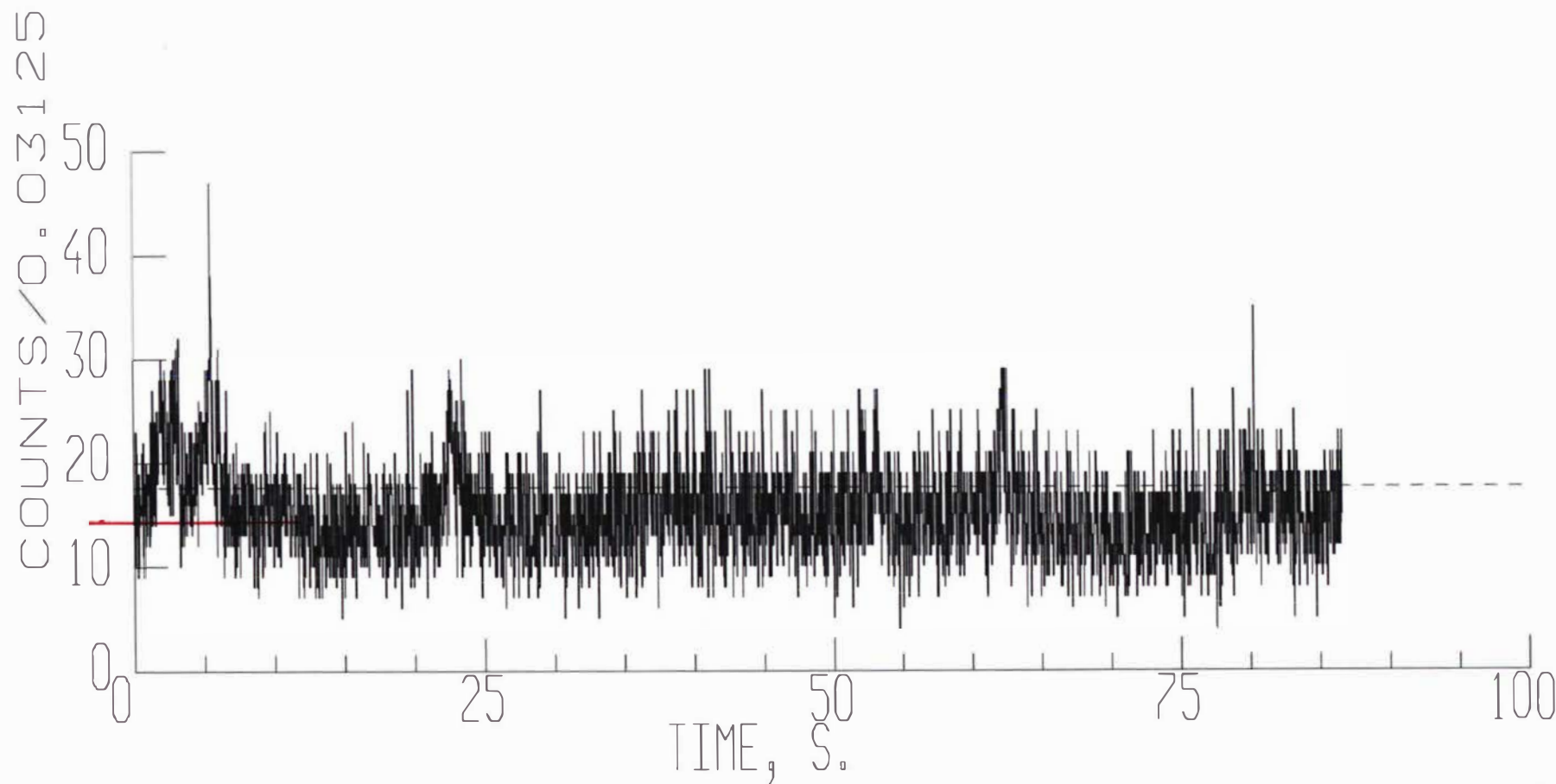
25

50

75

100

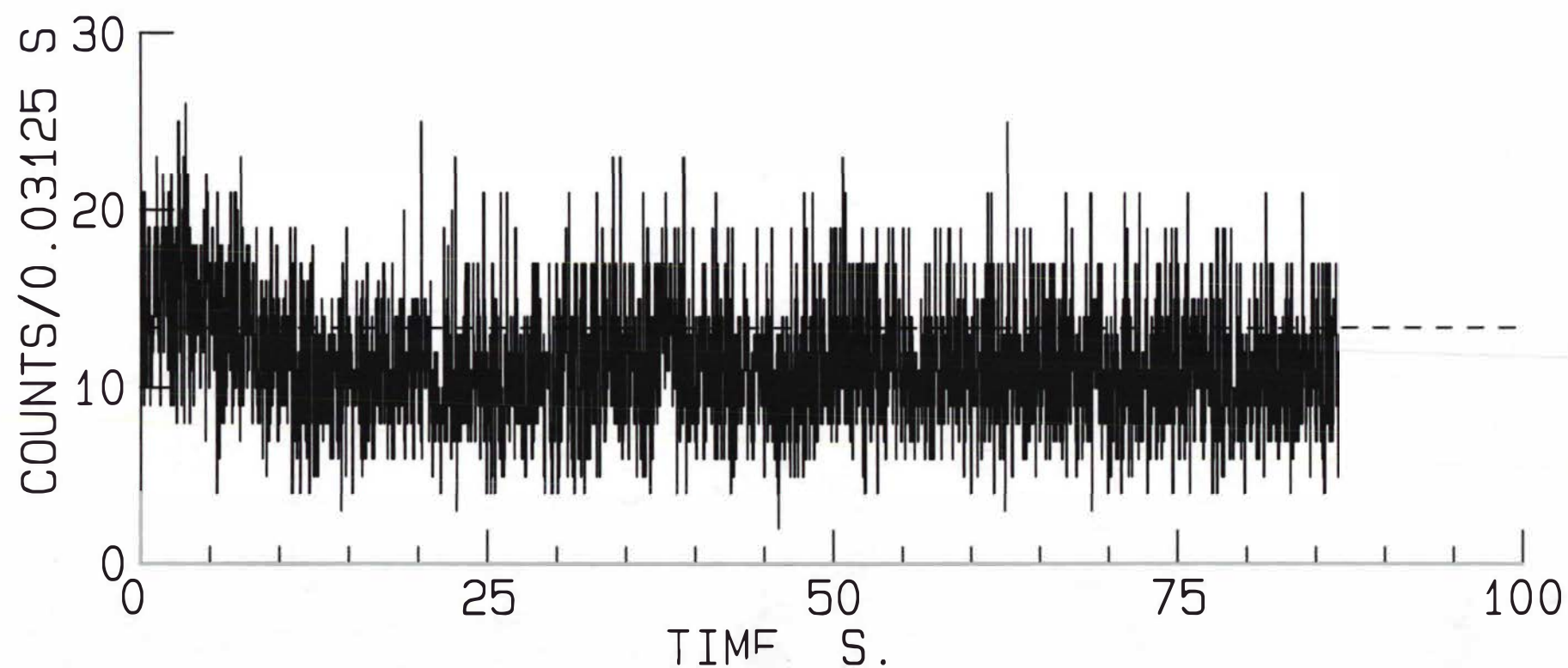
TIME, S.



PHEBUS

21/11/90 65348.648 s

100- 1600 keV



WATCH

ULYSSES RT

3 / 12 / 99

21/11/90 64728.090 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

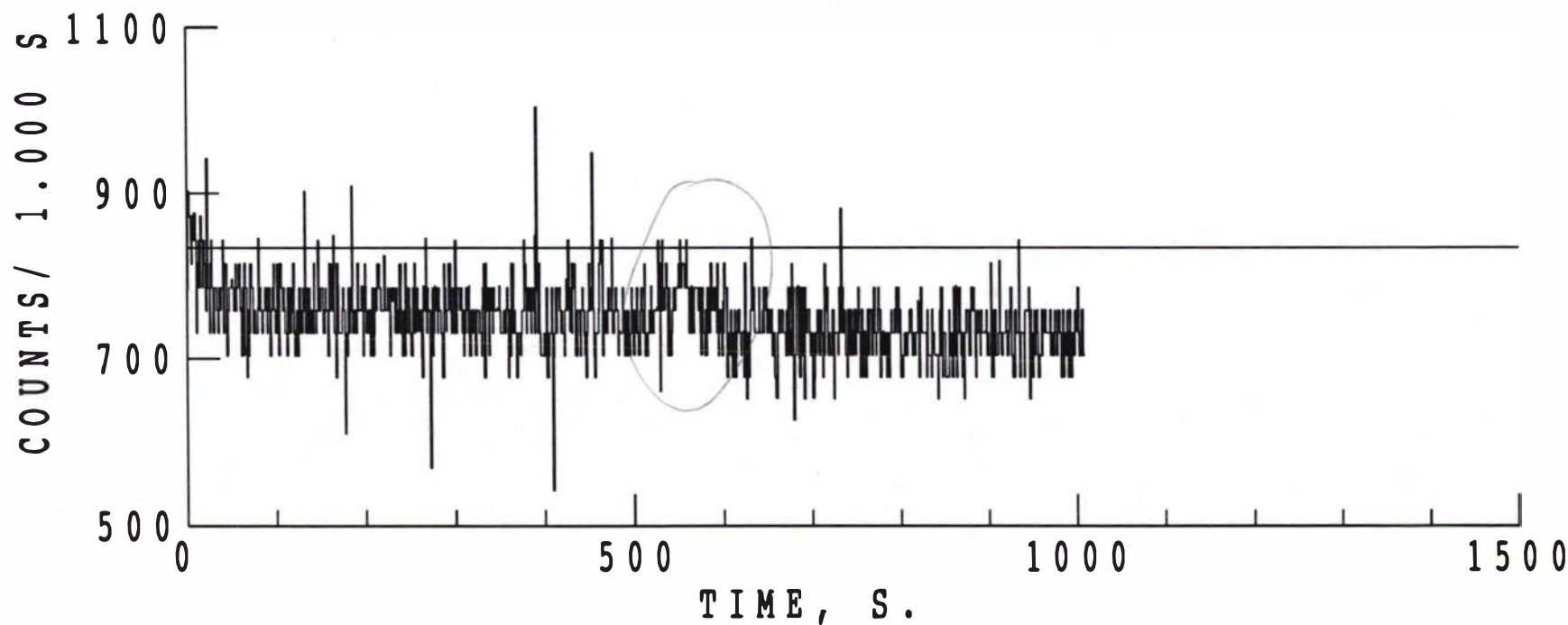


Table 1

Burst	Number	Activation time	Duration T_{90} , s	$C_{\max}/C_{\min}$	Remarks
1	2	3	4	5	6
PB891218	7.2	19 ^b 57 ^m 38 ^s .838	29.18 ± 0.28	2.67 ± 0.30	K
PB900114	19.3	6 09 12.306	0.41 ± 0.10	1.04 ± 0.27	K
PB900201	28.1	19 50 13.993	1.03 ± 0.19	5.19 ± 0.36	K
PB900222	44.1	11 56 34.346	4.89 ± 0.29	1.26 ± 0.22	
PB900308	52.1	9 39 05.635	2.31 ± 0.11	1.10 ± 0.27	KW
PB900316	58.1	19 43 17.945	1.67 ± 0.70	5.65 ± 0.64	
PB900320	59.2	6 53 01.525	0.05 ± 0.01	6.99 ± 0.49	
PB900325	63.1	3 29 07.686	17.59 ± 0.68	1.16 ± 0.23	
PB900404	66.3	17 54 35.241	2.72 ± 0.50	10.31 ± 0.96	SW
PB900413a	70.1	3 12 36.562	18.42 ± 0.17	11.63 ± 0.68	SK
PB900413b	70.2	10 11 21.744	14.76 ± 0.60	5.21 ± 0.38	W
PB900422	77.1	11 35 50.575	0.89 ± 0.04	1.62 ± 0.31	
PB900520a	87.1	12 10 17.439	0.42 ± 0.01	11.24 ± 1.01	S
PB900520b	87.2	13 02 17.513	71.71 ± 1.27	1.20 ± 0.23	
PB900524	91.2	3 48 12.550	8.02 ± 0.37	1.07 ± 0.22	
PB900604	96.1	17 31 33.303	0.27 ± 0.01	7.69 ± 0.71	SW
PB900605	97.1	19 23 01.481	7.30 ± 0.33	1.82 ± 0.26	GS
PB900611	101.1	4 15 20.289	15.18 ± 0.28	1.49 ± 0.30	
PB900616	105.1	2 18 14.576	1.38 ± 0.08	1.31 ± 0.24	
PB900618a	107.1	21 35 49.344	5.85 ± 0.39	1.94 ± 0.27	
PB900618b	107.2	23 12 21.662	17.24 ± 0.26	4.27 ± 0.37	
PB900625	112.1	22 04 17.234	16.88 ± 1.30	1.07 ± 0.23	
PB900711	121.1	17 38 17.976	1.12 ± 0.08	1.40 ± 0.23	
PB900720	127.1	21 44 59.956	30.42 ± 0.63	2.22 ± 0.27	S
PB900722	128.1	2 18 31.588	4.45 ± 0.32	3.32 ± 0.31	
PB900725	129.1	1 32 34.958	7.64 ± 0.21	1.12 ± 0.22	
PB900813	135.1	13 26 53.915	0.02 ± 0.01	2.95 ± 0.41	
PB900816	137.1	11 20 01.886	21.80 ± 0.13	1.55 ± 0.26	
PB900925a	165.1	5 19 21.744	1.89 ± 1.81	1.09 ± 0.26	
PB900925b	166.1	20 25 22.028	48.32 ± 0.52	2.17 ± 0.26	
PB900928	167.1	5 23 41.813	5.27 ± 0.50	5.10 ± 0.60	G
PB900929	168.1	1 49 25.166	20.58 ± 0.20	4.07 ± 0.55	
PB901011	176.1	22 31 01.494	1.17 ± 0.02	1.86 ± 0.36	
PB901014	177.1	1 13 21.079	10.26 ± 0.31	4.07 ± 0.35	S
PB901015	178.1	8 44 48.512	2.84 ± 0.34	1.36 ± 0.24	
PB901018	179.1	18 51 48.646	2.67 ± 0.17	1.02 ± 0.28	
PB901020	180.1	1 04 28.909	1.77 ± 0.11	1.24 ± 0.28	
PB901021	181.2	0 09 07.848	29.18 ± 0.94	5.94 ± 0.46	
PB901027	185.1	4 21 05.624	8.04 ± 0.20	2.95 ± 0.32	S
PB901111	188.1	21 49 01.859	1.28 ± 0.02	2.82 ± 0.41	
PB901112	189.1	14 57 37.649	10.69 ± 0.55	2.39 ± 0.29	U
PB901116	190.1	1 42 10.013	9.07 ± 0.15	2.18 ± 0.28	
PB901121a	194.2	0 04 47.785	4.68 ± 0.13	1.66 ± 0.25	U

(h)

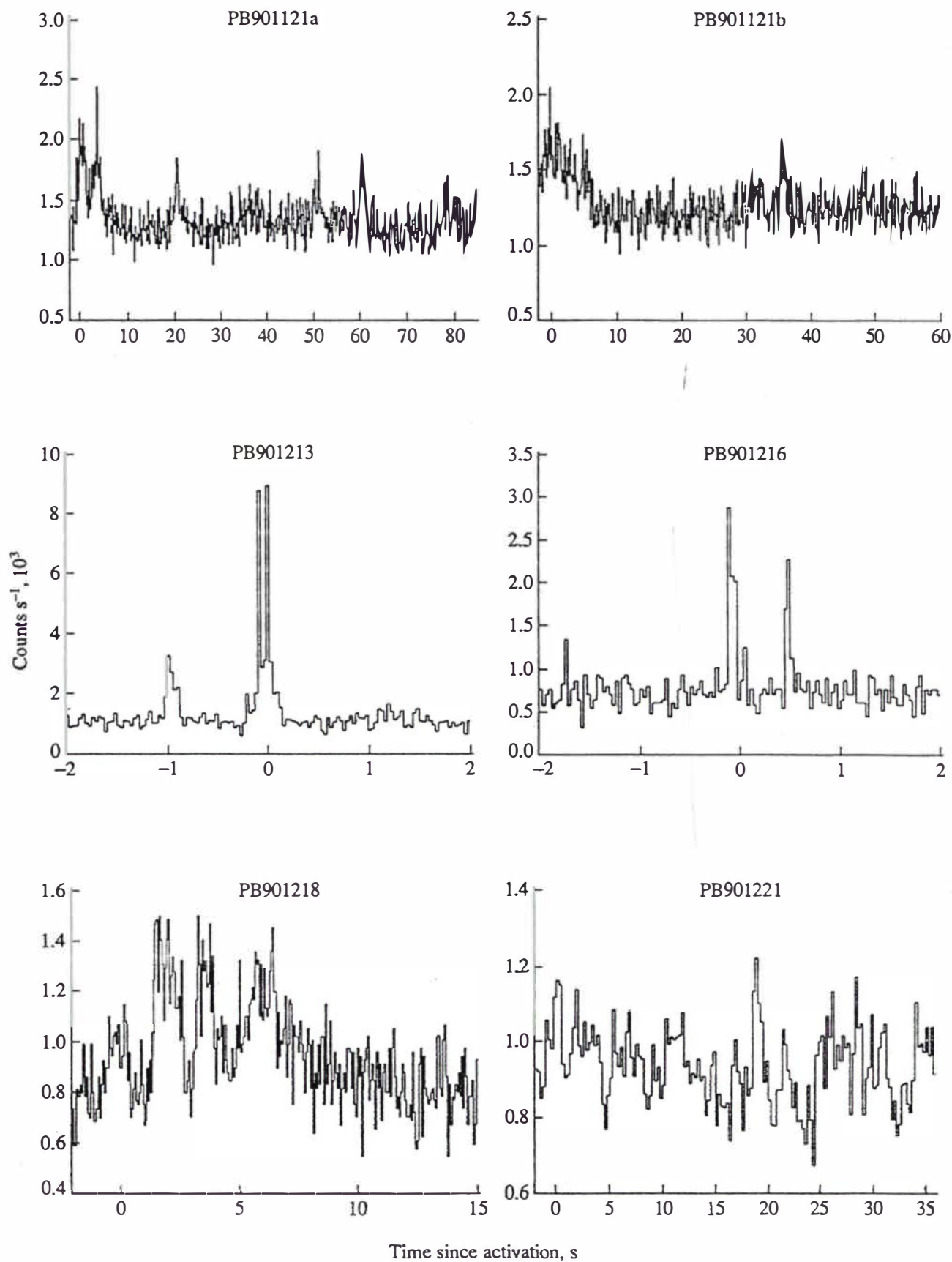


Fig. 1. (Contd.).

Table 1. (Contd.)

Burst	Number	Activation time	Duration T_{90} , s	$C_{\max}/C_{\min}$	Remarks
1	2	3	4	5	6
PB901121b	194.3	18 ^h 09 ^m 10 ^s .643	7.59 ± 0.51	1.33 ± 0.24	
PB901213	209.3	7 06 23.125	2.48 ± 0.19	1.93 ± 0.36	
PB901216	211.1	15 47 15.796	2.23 ± 0.54	2.05 ± 0.35	
PB901218	213.1	16 10 55.518	10.35 ± 0.68	2.87 ± 0.30	
PB901221	214.1	0 30 04.998	7.38 ± 0.29	1.05 ± 0.22	
PB910106	218.1	16 39 57.526	1.59 ± 0.19	1.81 ± 0.26	U
PB910117	223.1	0 57 12.234	11.53 ± 0.64	2.04 ± 0.27	
PB910122	228.1	15 13 50.333	13.89 ± 0.12	4.10 ± 0.37	SU
PB910202	234.2	20 57 39.164	4.77 ± 0.31	1.16 ± 0.23	
PB910203	234.3	9 19 06.273	4.55 ± 0.33	1.52 ± 0.29	
PB910204a	235.1	8 58 45.809	4.65 ± 0.15	1.33 ± 0.24	
PB910204b	235.2	10 48 08.317	24.52 ± 0.47	1.50 ± 0.24	
PB910204c	235.3	14 50 33.466	8.72 ± 0.38	1.98 ± 0.26	
PB910206	236.3	8 45 28.848	0.70 ± 0.09	3.17 ± 0.42	U
PB910210	237.1	17 35 33.690	2.64 ± 0.30	2.12 ± 0.33	
PB910211	237.2	3 25 22.422	4.77 ± 0.30	2.82 ± 0.28	U
PB910314	255.3	22 56 15.307	7.08 ± 0.38	9.62 ± 0.55	U
PB910402	262.1	14 27 44.130	35.88 ± 0.05	64.86 ± 1.85	U
PB910404a	263.1	14 19 50.241	13.78 ± 0.21	2.59 ± 0.25	
PB910404b	263.2	17 17 18.561	4.14 ± 0.18	1.55 ± 0.21	
PB910417	273.1	20 07 31.882	19.39 ± 0.21	5.71 ± 0.39	SU
PB910517	282.1	5 02 42.956	2.80 ± 0.11	3.56 ± 0.32	SU
PB910527	287.1	23 44 33.511	0.12 ± 0.01	2.13 ± 0.34	

Note: The burst was observed independently with other instruments: K - KONUS, W - WATCH, S - SIGMA, G - GINGA, U - ULYSSES.

signal, produced automatically when there is an excess rate of registered pulses in the range from 0.1 to 1.6 MeV by eight standard deviations over 0.25 or 1 s integration time, activates the instrument to study burst information in more detail.

THE CRITERION OF BURST DETECTION

Each of the six *PHEBUS* instrument detectors is equipped with a trigger cell to register bursts. A cell is activated if the count rate exceeds the background level, in at least two detectors simultaneously, by at least $C_{\min}$ for any of the two time intervals, 0.25 and 1 s. The $C_{\min}$ value is automatically determined for all detectors by a microprocessor, and it is equal to eight standard deviations for each of the above-mentioned time intervals. If the "burst" signal is produced, synchronized information on the light-curve of the burst is registered for each detector. Spectral information from all detectors is also registered.

A cosmic gamma-ray burst, a solar flare, or in some cases, high-energy charged particles of the magnetosphere may cause an event. Solar flares were identified

by comparing the list of events registered from the Sun in the H α line and solar radio observations data with the list of events registered by the *PHEBUS* instrument. Magnetospheric events were sorted out of the remaining list on the basis of their long histories, smooth light curves, and soft energy spectra. The rest of the events were considered cosmic gamma-ray bursts. Some of them were also registered by other burst instruments of the *GRANAT* observatory (KONUS, WATCH, SIGMA) [1 - 3] or by instruments of other satellites (GINGA, ULYSSES) [4, 5]. The column "Remarks" in Table 1 indicates which space instruments, besides *PHEBUS*, registered the given event.

During the first year and a half of the instrument's operation, it registered 147 detections, 66 of them being cosmic gamma-ray bursts.

This catalog contains only cosmic gamma-ray bursts. The first column of Table 1 gives the designation of the burst. The two first letters, PB (*PHEBUS* burst) mean that the *PHEBUS* instrument has registered the burst. Figures designate the year, month, and day of the registration of the burst. The second column contains the number of the *GRANAT* observatory observing run

(h)

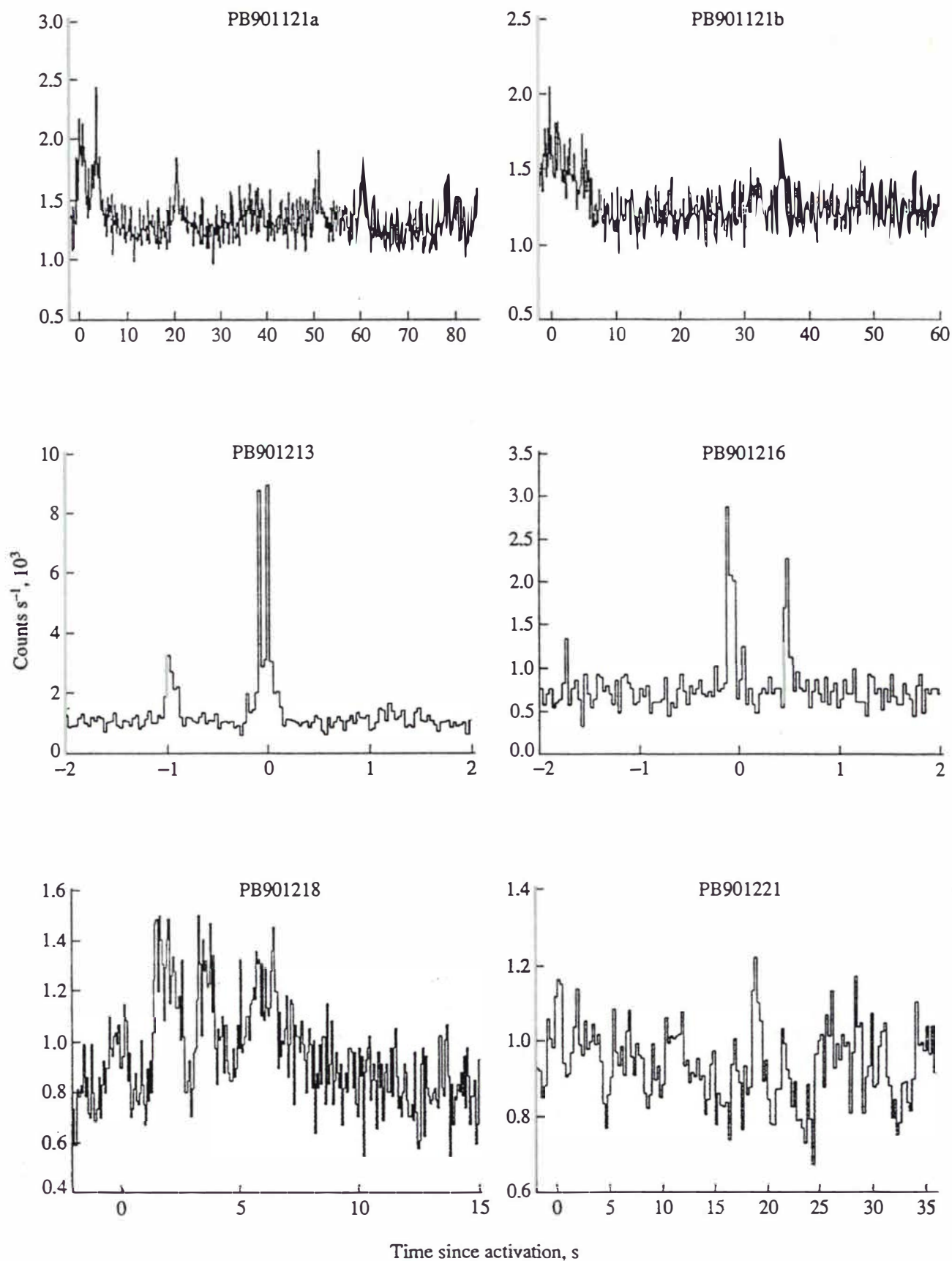


Fig. 1. (Contd.).

From root Wed Dec 8 07:58 1993
 Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
 id AA08899; Wed, 8 Dec 93 07:57:44
 Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
 id AA22497; Wed, 8 Dec 93 07:00:41 PST
 Received: Wed, 8 Dec 93 07:03:53 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
 Message-Id: <9312081503.AA10272@mx.nsi.nasa.gov>
 Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
 (utk-mail11d v1.7); Wed, 8 Dec 93 07:03:57 PST
 Date: Wed, 8 Dec 93 07:03:57 PST
 From: 068486@essdp2.span.nasa.gov
 X-To: AMES::"khurley@space6.ssl.berkeley.edu"
 Subject: RE:
 To: khurley@space6.ssl.berkeley.edu
 Status: R

KEVIN,
 HERE ARE THE RESULTS OF OUR SURVEY OF THE PVO REAL-TIME DATA FOR EVIDENCE OF
 RESPONSE TO EVENTS LISTED IN YOUR CATALOG.

DATE	TIME	PVO RESPONSE
90/11/11	21:49	N/O
90/11/12	14:57	N/O
90/11/16	01:42	N/O
90/11/19	18:08	N/O
90/11/21	00:04	N/O
90/11/21	18:09	N/O
90/12/02	13:45	N/O
90/12/21	00:30	N/O
90/12/25	05:50	N/O
91/01/17	00:57	N/O
91/01/24	11:50	N/O
91/02/04	08:58	N/O
91/02/04	14:19	N/O
91/02/04	14:58	N/O
91/02/17	02:59	N/O
91/03/14	22:56	N/O
91/03/15	22:55	N/O
91/04/04	17:17	(NO)
91/05/18	17:10	N/O
91/05/23	19:03	N/O
91/05/27	23:44	N/O
91/05/28	21:26	N/O
91/06/02	22:55	N/O
91/06/09	00:48	N/O
91/06/29	19:55	N/O
91/07/09	20:22	N/O
91/07/17	13:07	N/O
91/08/03	08:24	N/O
91/08/15	12:34	N/O
91/08/15	14:24	N/O
91/08/16	01:57	(NO)
91/09/05	23:48	N/O
91/09/16	21:58	N/O
91/09/25	03:35	N/O
91/09/26	18:25	N/O
91/09/30	11:55	N/O
91/10/03	00:39	N/O
91/10/04	01:27	N/O
91/10/06	09:01	(NO)
91/10/22	04:13	N/O
91/10/25	21:25	N/O
91/11/06	03:42	N/O
91/11/14	01:40	N/O
91/11/17	01:58	N/O
91/12/05	23:04	N/O

91/12/21	06:17	N/O
91/12/21	22:03	N/O
91/12/27	15:56	N/O
92/01/05	17:41	N/O
92/01/13	20:52	N/O
92/01/25	08:57	N/O
92/01/30	00:29	N/O
92/01/30	22:50	N/O
92/02/18	18:42	N/O
92/02/21	06:14	N/O
92/02/26	18:15	YES TRIGGER AT 29336 S UT
92/02/27	06:00	N/O
92/02/27	08:45	N/O
92/03/02	06:16	N/O
92/03/04	14:34	N/O
92/03/07	00:18	N/O
92/03/21	12:50	(NO)
92/03/26	02:01	N/O
92/03/27	09:38	N/O
92/03/29	16:38	(NO)
92/04/04	22:37	N/O
92/04/08	12:05	N/O
92/04/20	02:12	N/O
92/04/29	18:59	N/O
92/05/02	19:05	N/O
92/06/01	THRU 92/06/29	TURNED OFF--N/O
92/07/01	19:39	N/O
92/07/07	06:33	N/O
92/07/17	01:15	N/O
92/07/23	00:59	N/O
92/07/23	01:00	N/O
92/07/23	21:48	N/O
92/07/25	19:30	N/O
92/07/25	22:49	N/O
92/07/26	00:34	N/O
92/07/31	17:07	N/O
92/08/10	21:35	N/O
92/08/14	06:10	N/O
92/08/16	12:36	N/O
92/08/22	22:39	N/O
92/08/30	01:45	N/O
92/09/04	04:41	N/O

THIS LIST IS NOT COMPLETE. IT INCLUDES EVENTS FOR WHICH NO REAL-TIME DATA ARE AVAILABLE BECAUSE OF INAPPROPRIATE MODE, NO TRACKING, OR THE EXPERIMENT WAS TURNED OFF. WHERE DATA HAVE BEEN CHECKED, SENSITIVITY DEPENDS UPON THE TIME RESOLUTION AVAILABLE IN THE DATA. I'LL BE SENDING ADDITIONAL RESULTS AS THEY BECOME AVAILABLE.

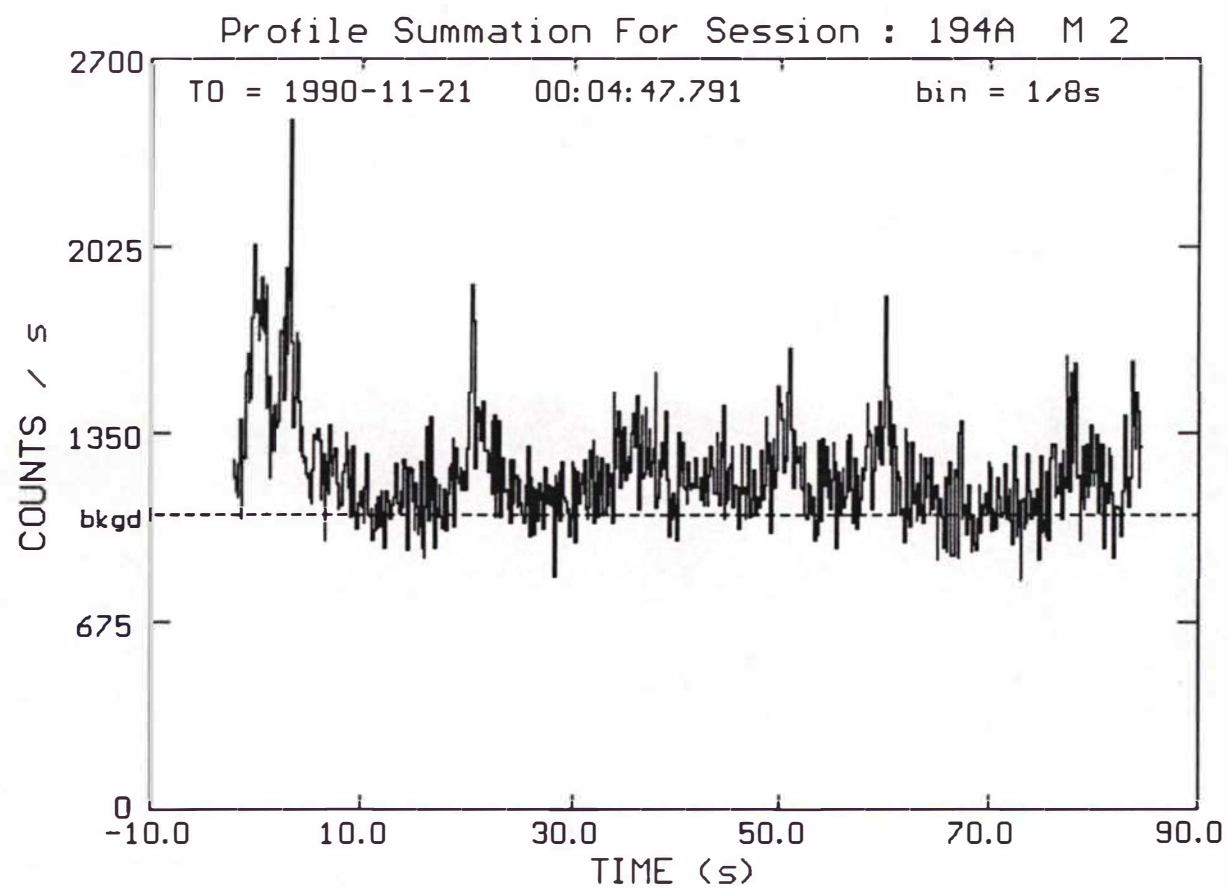
REGARDS,

RAY

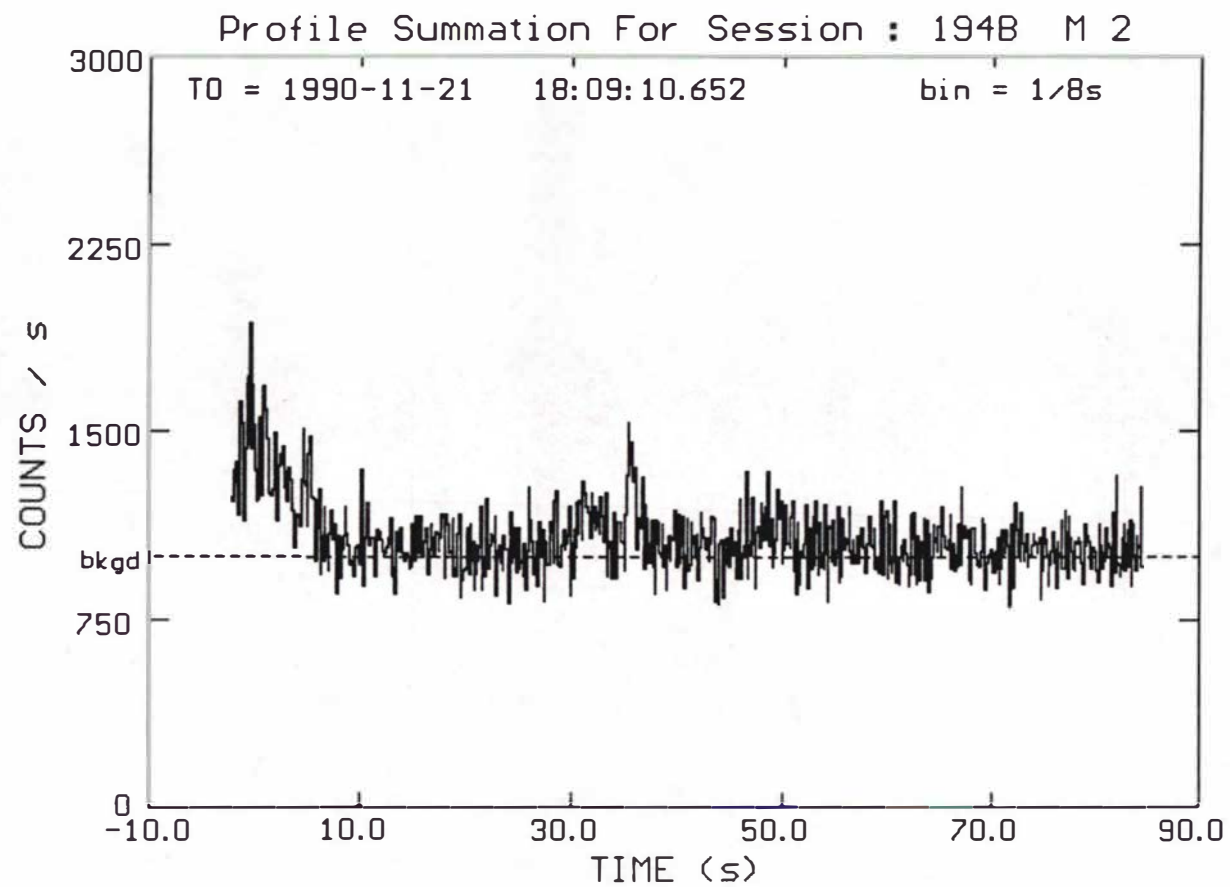
Dezalay -> KH 7/93

DATE	U.T.	Nr UGB	Event Nature
1990-09-28	05:23:41.813	167-a	GRB
1990-09-29	01:49:25.166	168-a	GRB
1990-10-11	22:31:01.494	176-a	GRB
1990-10-12	23:19:14.781	176-b	Unknown
1990-10-14	01:13:21.079	177-a	GRB
1990-10-15	08:44:48.512	178-a	GRB
1990-10-18	18:51:48.644	179-a	GRB
1990-10-20	01:04:28.909	180-a	GRB
1990-10-20	18:01:23.759	181-a	Solar Flare
1990-10-21	00:09:07.848	181-b	GRB
1990-10-27	04:21:05.625	185-a	GRB
1990-11-11	21:49:01.859	188-a	GRB
1990-11-12	14:57:37.647	189-a	GRB
1990-11-13	04:44:02.029	189-b	Solar Flare
1990-11-16	01:42:10.012	190-a	GRB
1990-11-17	13:37:35.859	192-a	Unknown
1990-11-17	14:41:40.621	192-b	Unknown
1990-11-18	20:23:47.770	192-c	Unknown
1990-11-21	00:04:47.791	194-a	GRB
1990-11-21	18:09:10.652	194-b	GRB
1990-12-04	02:00:28.445	201-a	Solar Flare
1990-12-04	03:19:19.152	201-b	Unknown
1990-12-04	09:42:52.699	202-a	Unknown
1990-12-04	17:20:43.930	202-b	Unknown
1990-12-04	18:21:47.722	202-c	Unknown
1990-12-06	20:33:48.100	204-a	Unknown
1990-12-12	03:26:59.750	205-a	Solar Flare
1990-12-12	03:26:59.750	208-a	Solar Flare
1990-12-13	05:37:04.829	209-a	Unknown
1990-12-13	06:12:32.708	209-b	Unknown
1990-12-13	07:06:23.125	209-c	GRB
1990-12-14	13:32:11.352	210-a	Solar Flare
1990-12-16	15:47:15.796	211-a	GRB
1990-12-19	21:52:48.635	213-a	GRB
1990-12-21	00:30:05.753	214-a	GRB

Phebus



Phobos

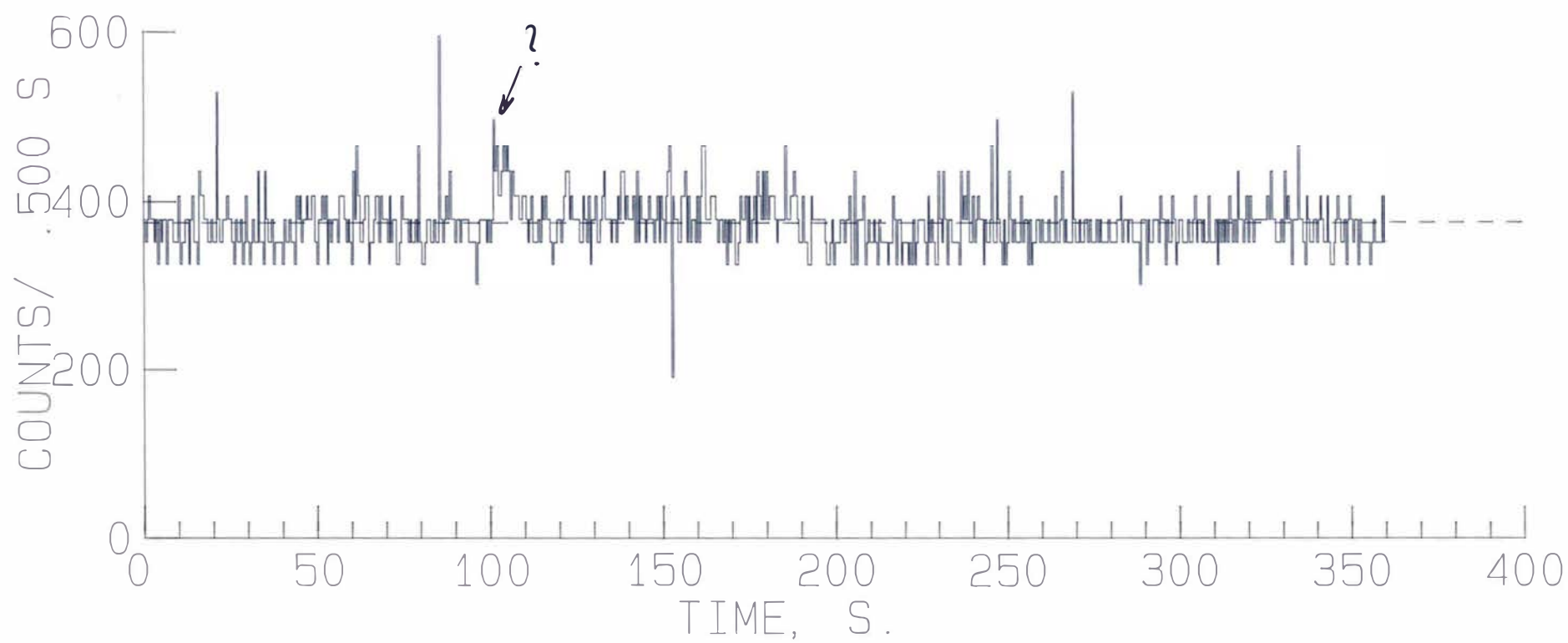


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ULYSSES RT

21/11/90 108.127 s

0- 0 keV



Date: _____

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☐ Jim Schmidling's stat file correction applied?
- ☐ Final ephemeris used?
- ☐ Final, CDROM data used?
- ☐ Were data checked by Joe Springer for 0.5 s errors?
- ☐ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. BATSE Data

- ☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)?
- ☐ BATSE ephemeris for T_0 ?
- ☐ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. PVO Data

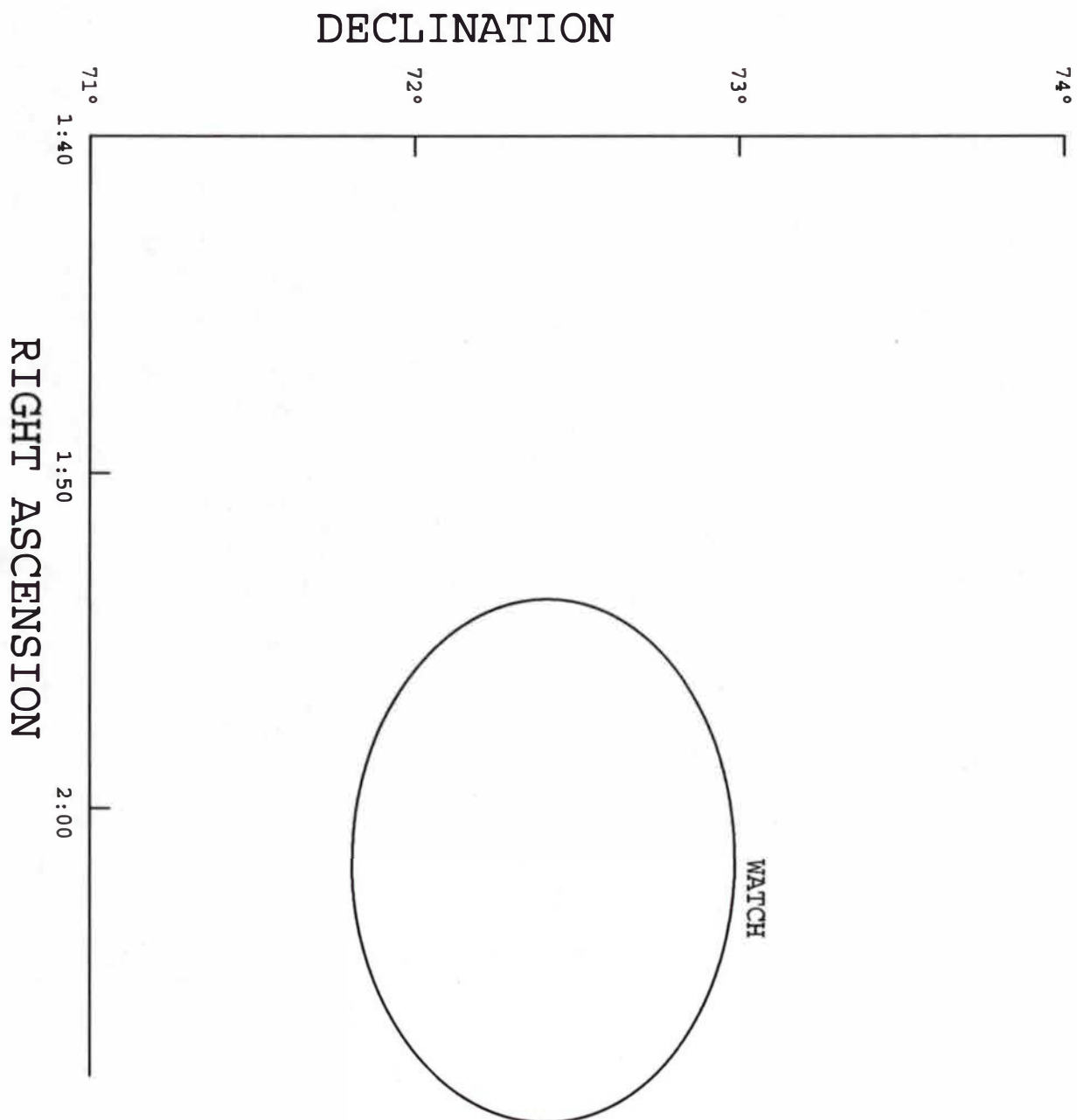
- ☐ Ephemeris of PVO used (not Venus)?
- ☐ 2000 coordinates used?
- ☐ Geocentric time used?

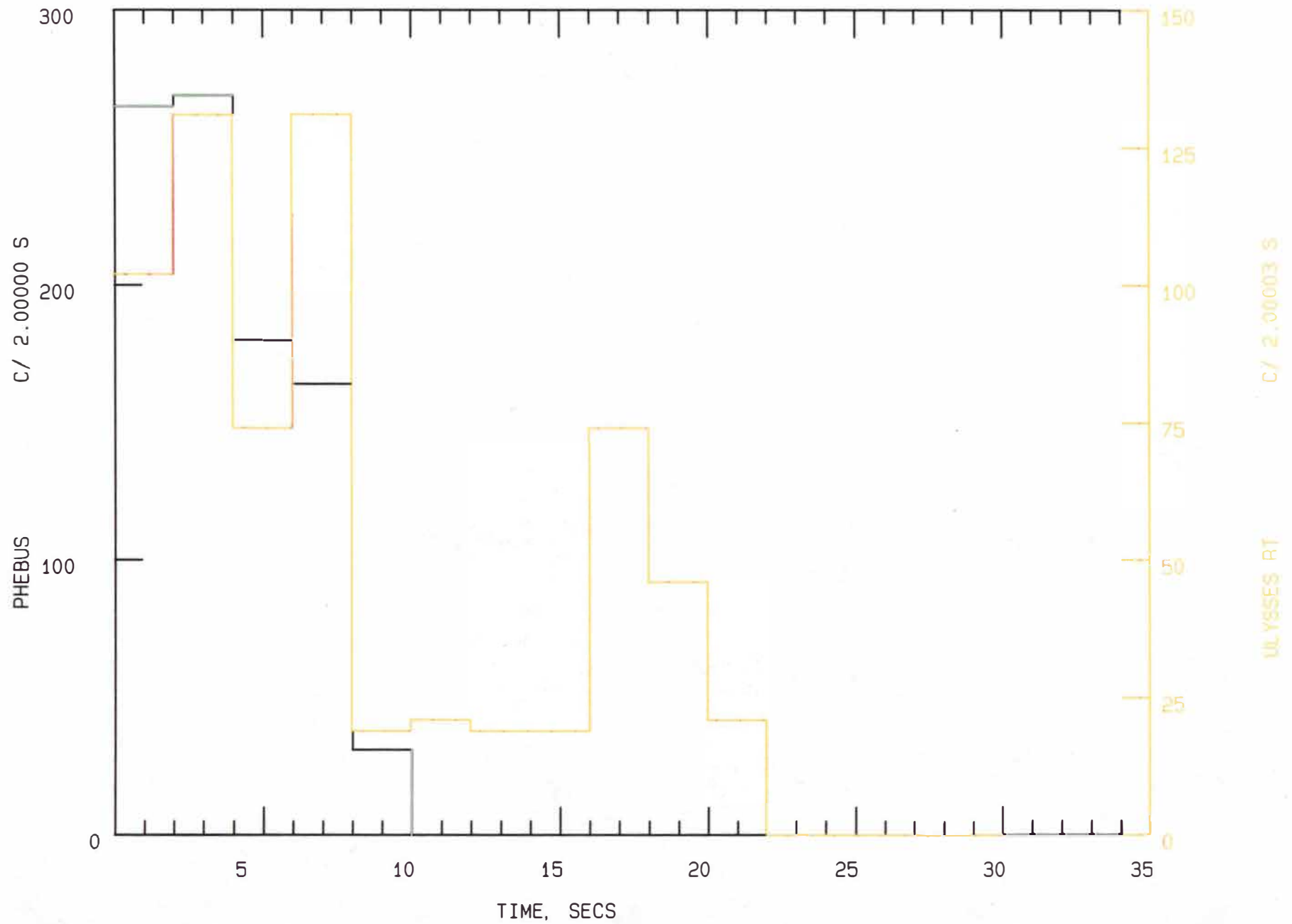
☒ ACCESS and MBL databases updated with identical times?

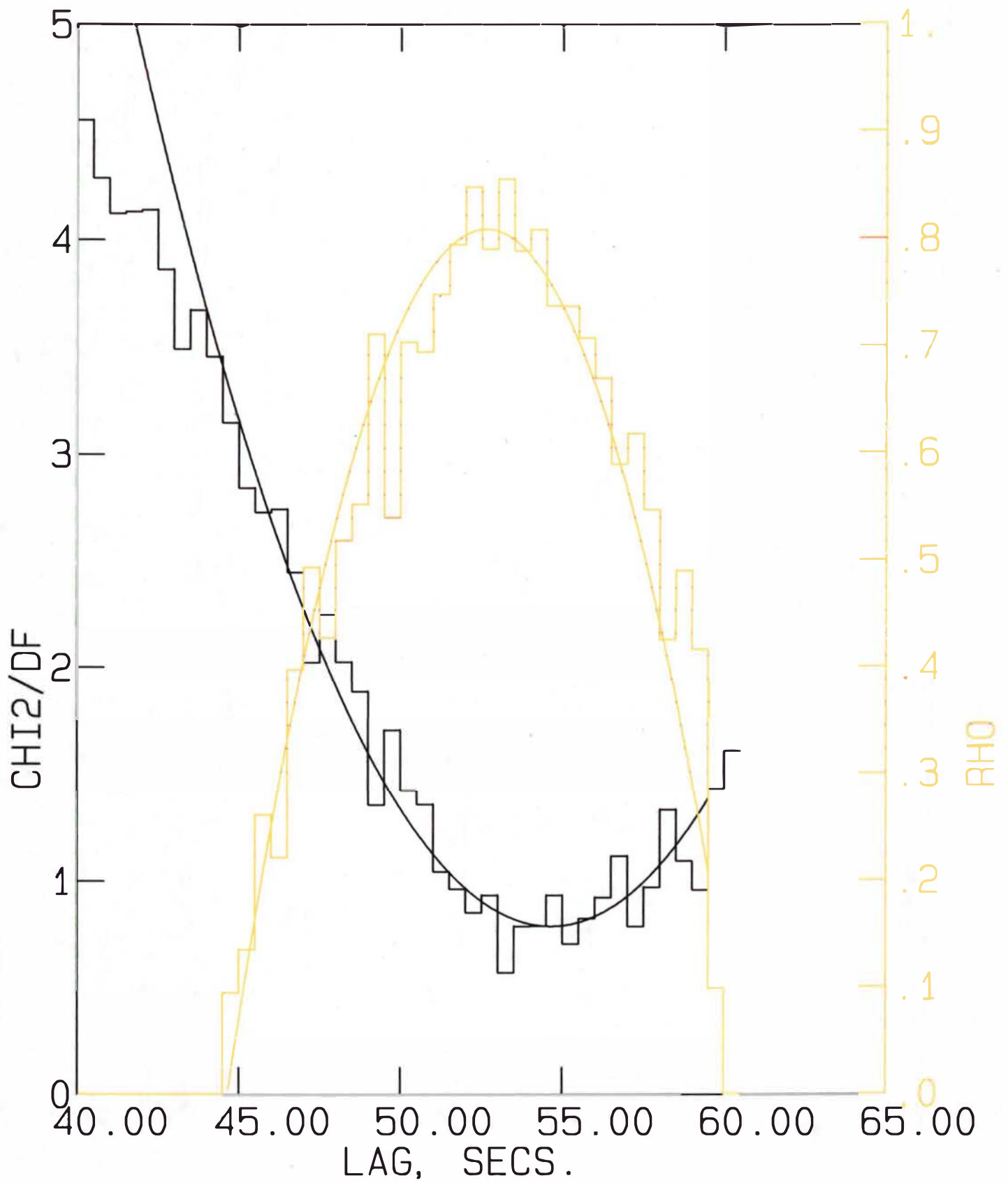
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 PHEBUS

EVENT OF NOV 21, 1990 18:07

7/12/99



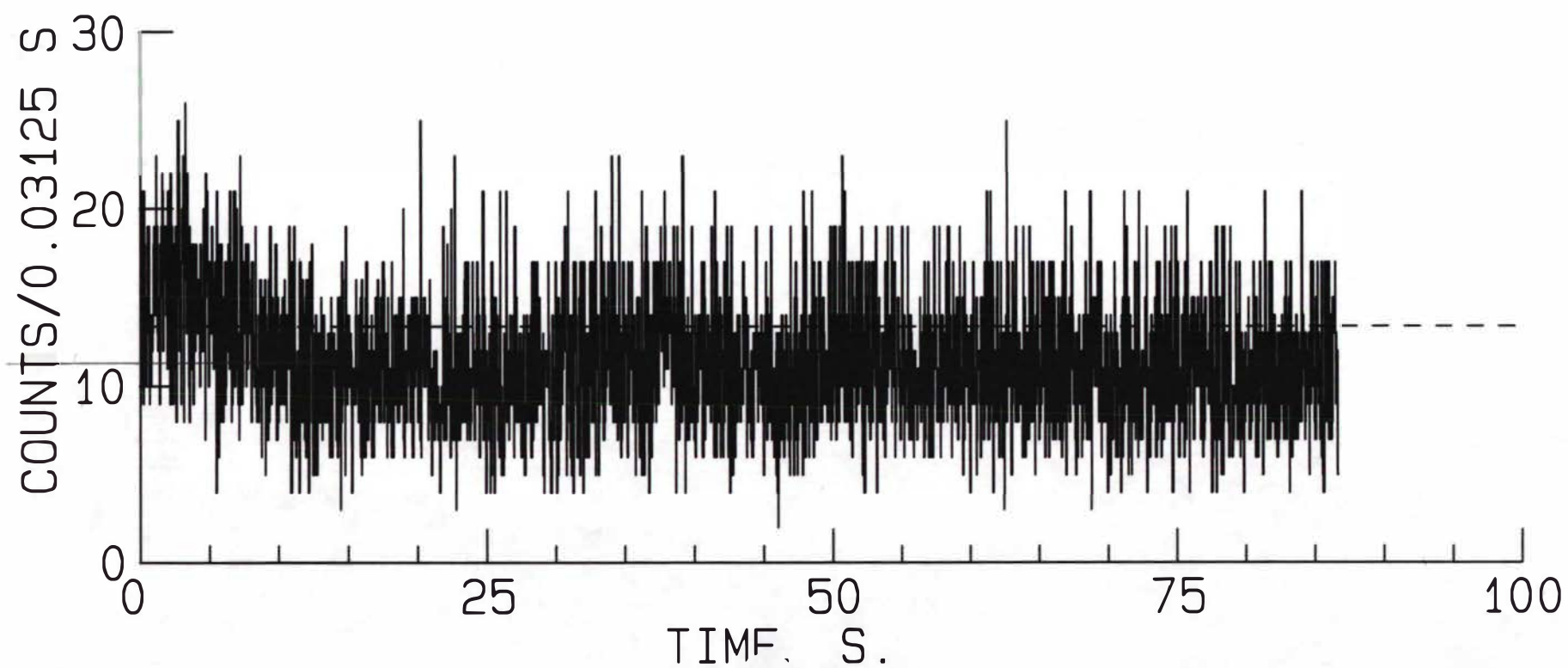




PHEBUS

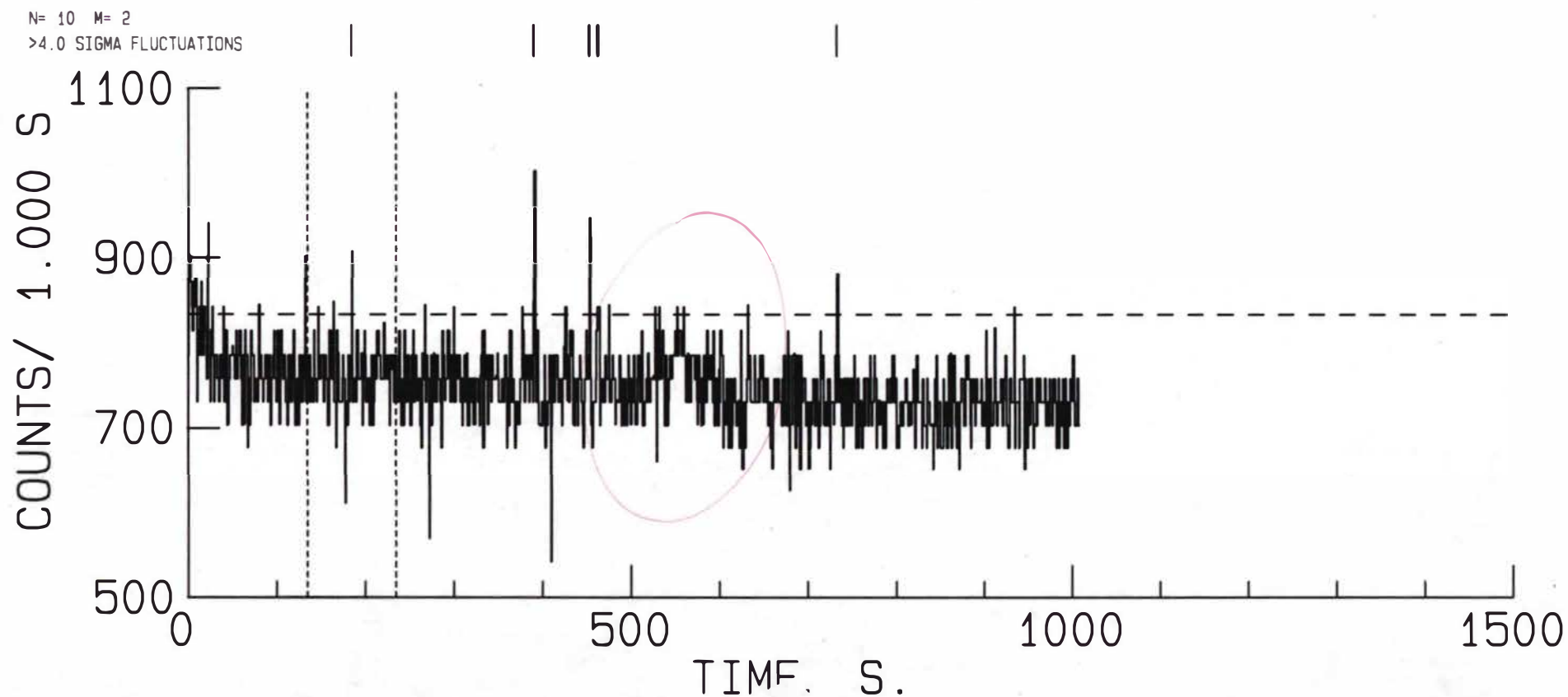
21/11/90 65348.648 s

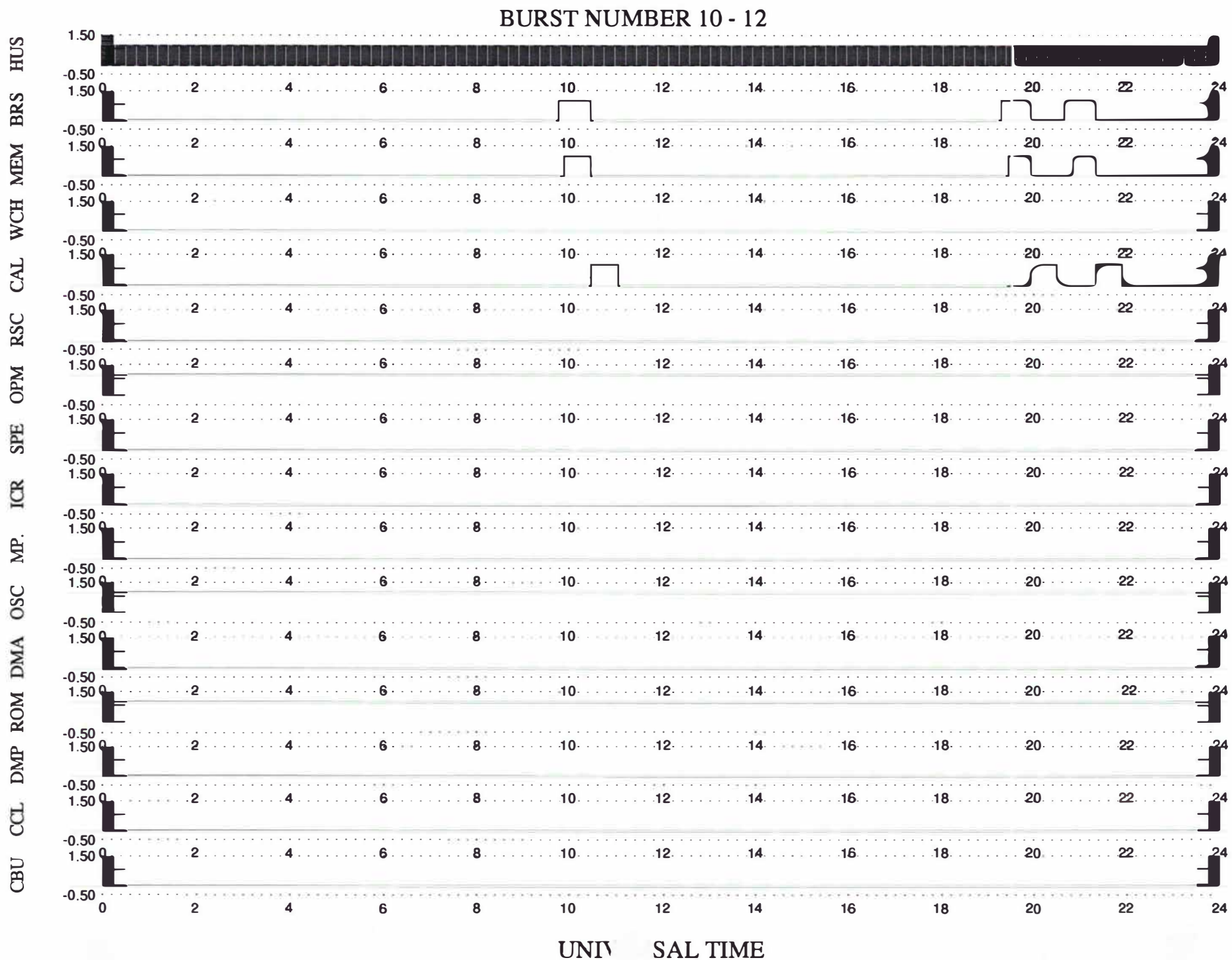
100- 1600 keV



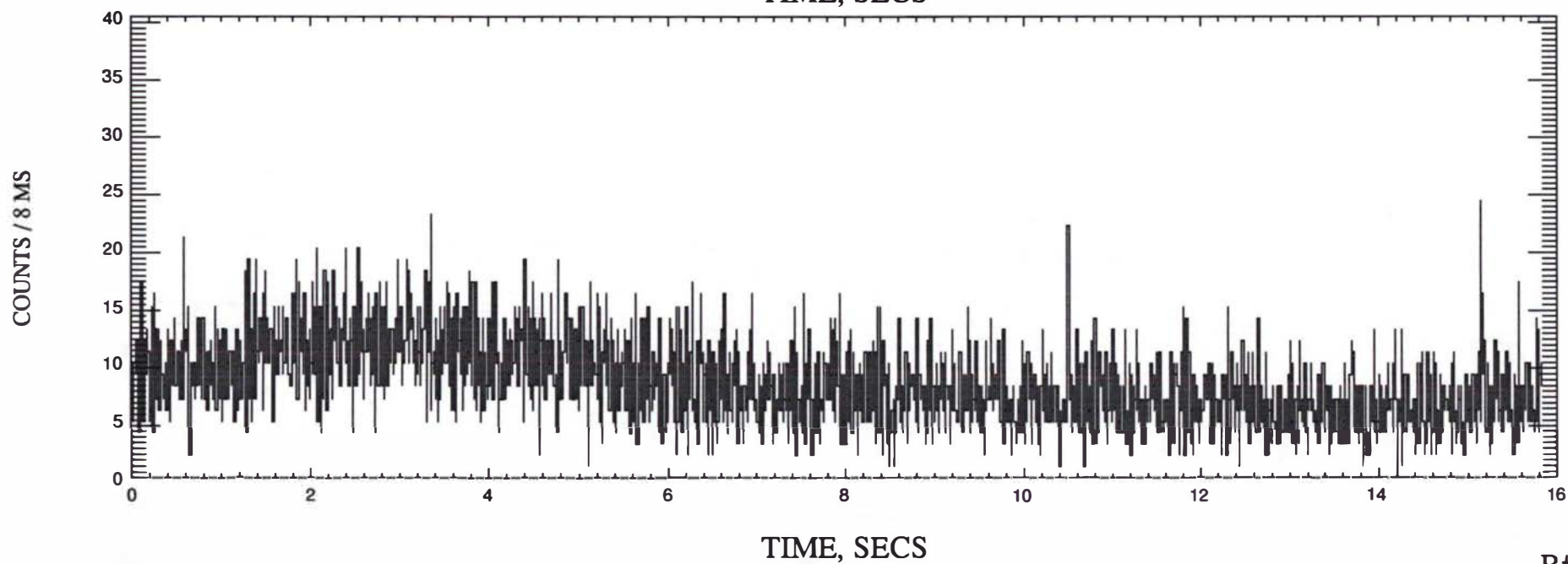
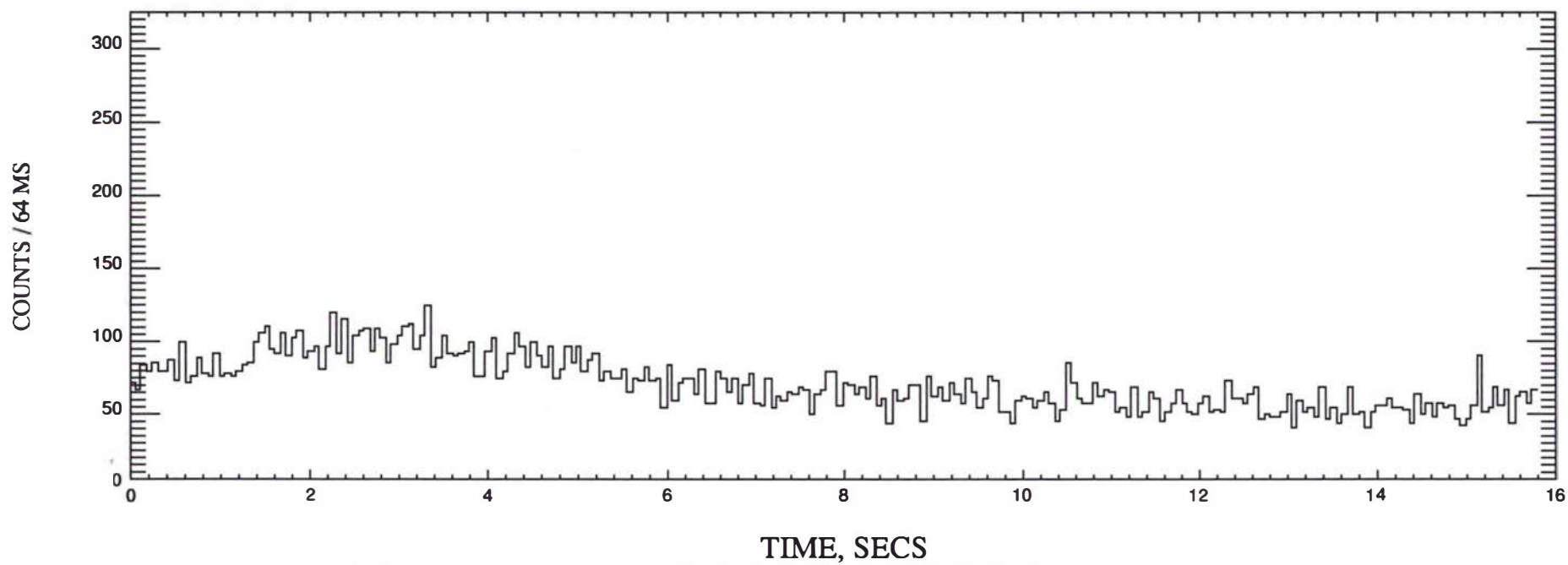
ULYSSES RT
21/11/90 64728.089 s
0.500 S INTERVALS REGROUPED BY 2
13- 161 keV

7/12/99

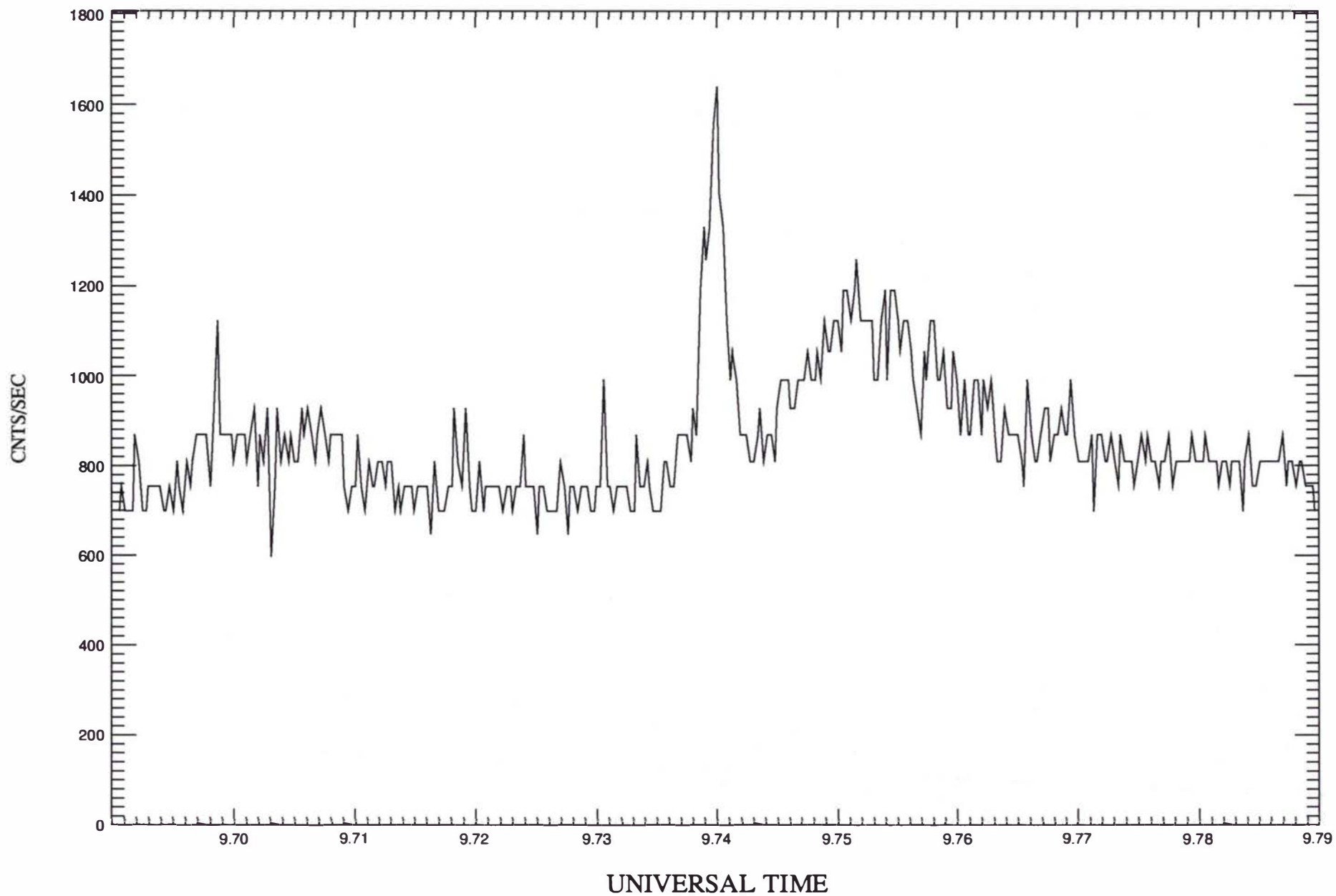




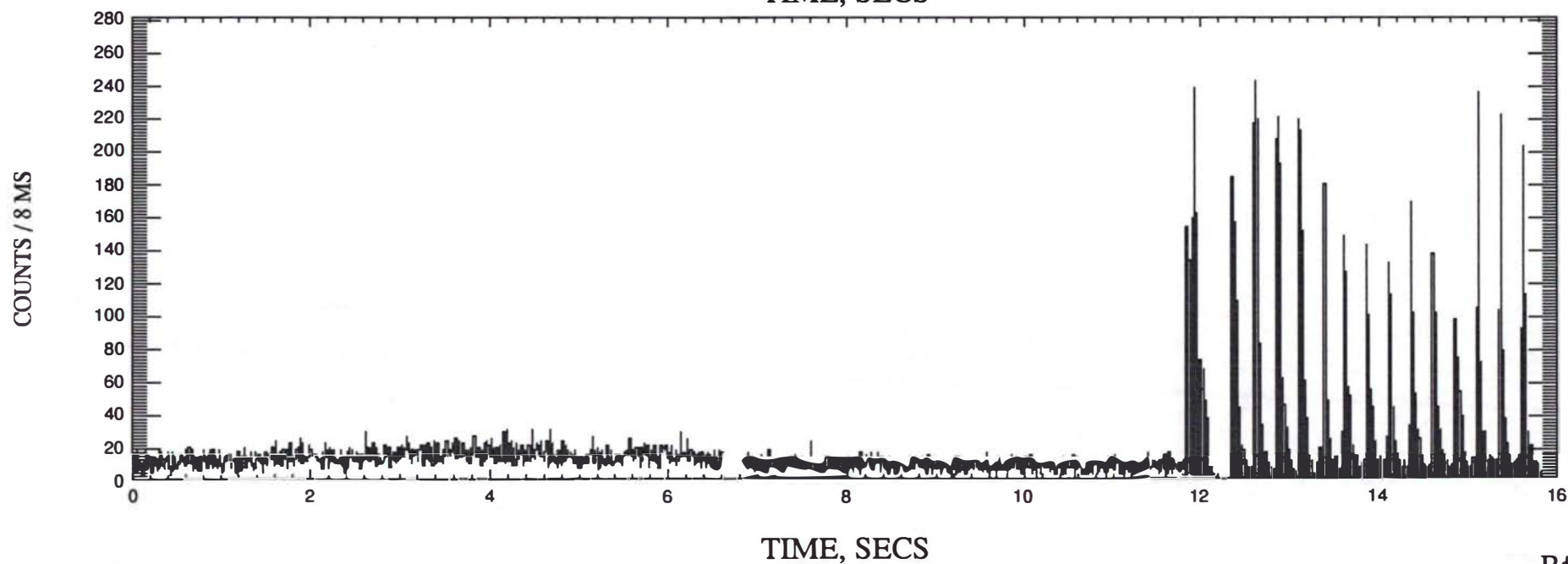
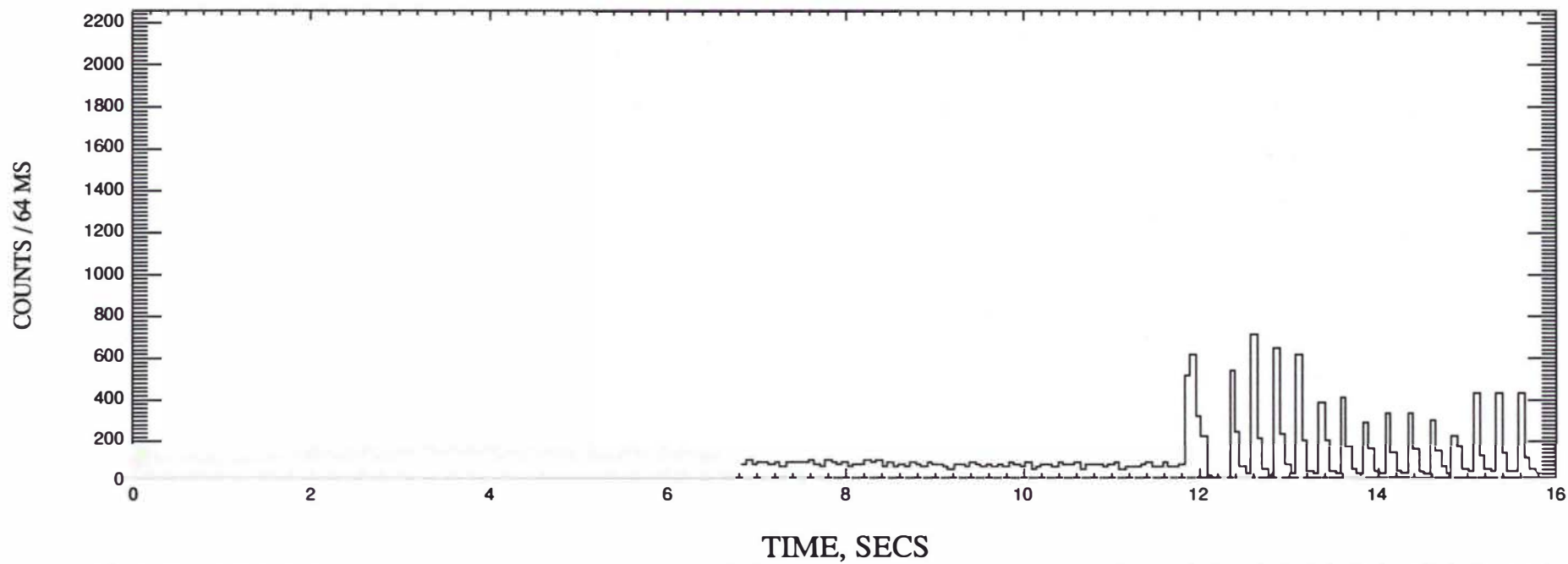
Burst Counter 10 at UT= 9.739801639981 h=35063.286 s 09:44:23.286



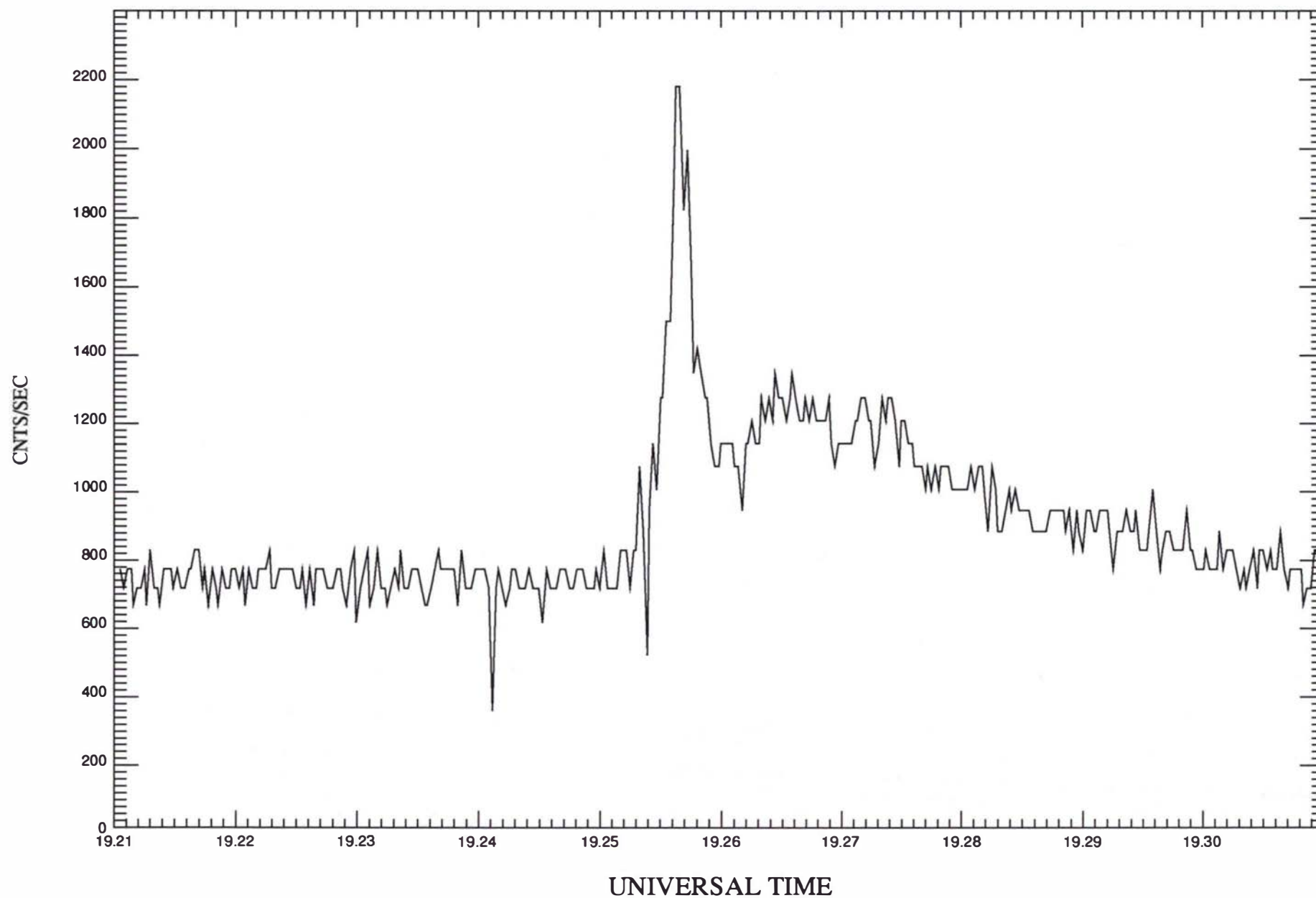
CALIBRATION DATA INCLUDED



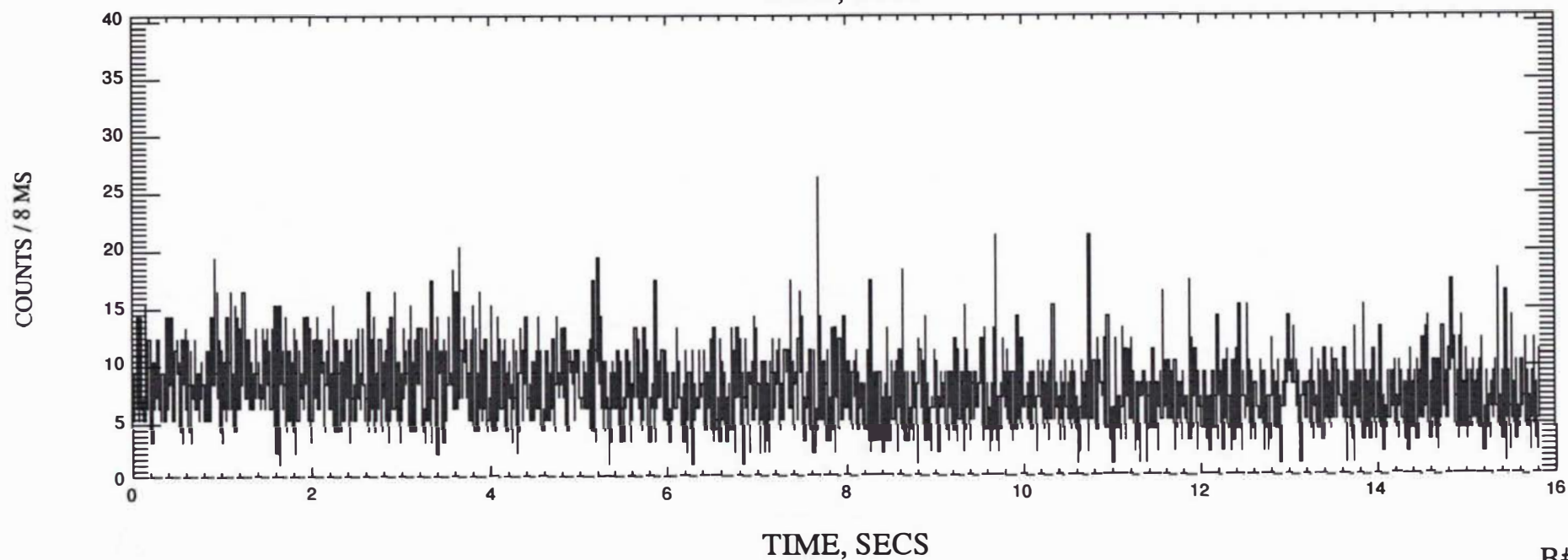
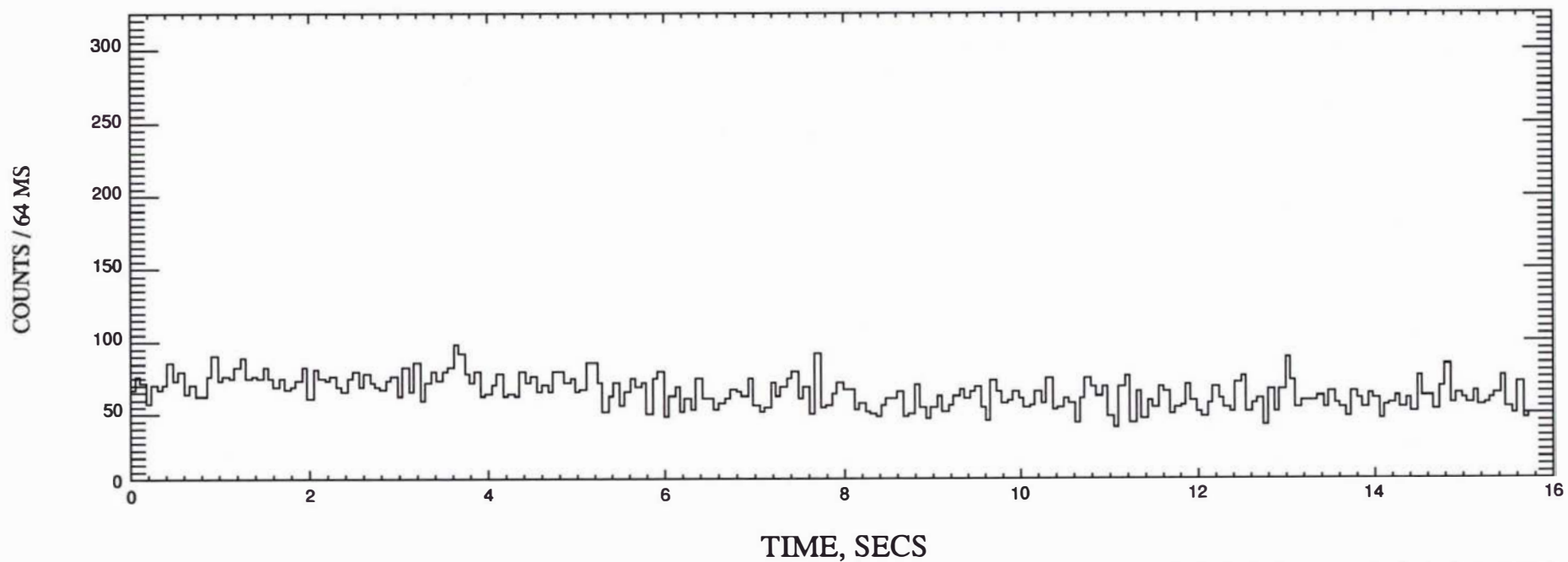
Burst Counter 11 at UT=19.256158413357 h=69322.170 s 19:15:22.170



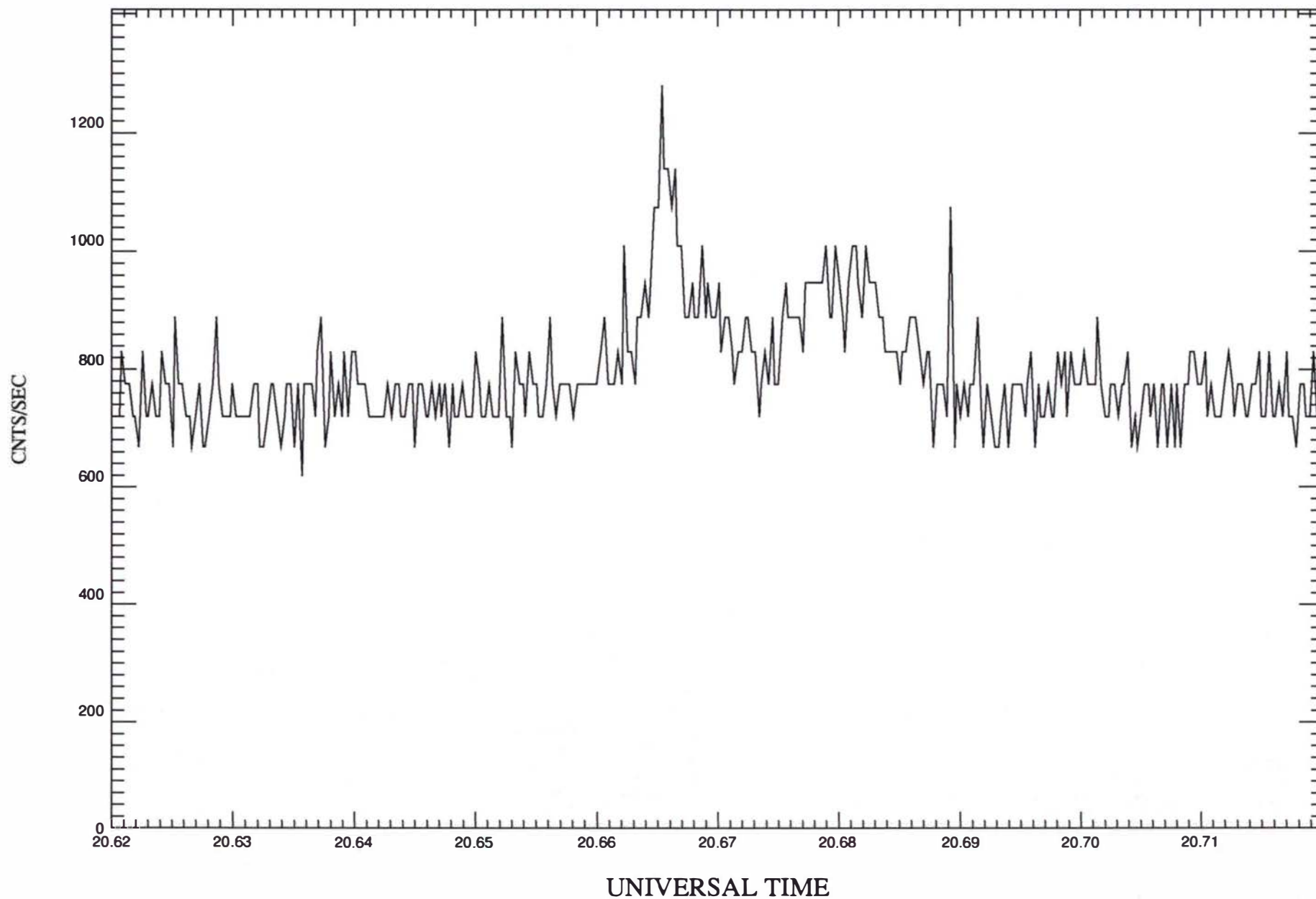
CALIBRATION DATA INCLUDED



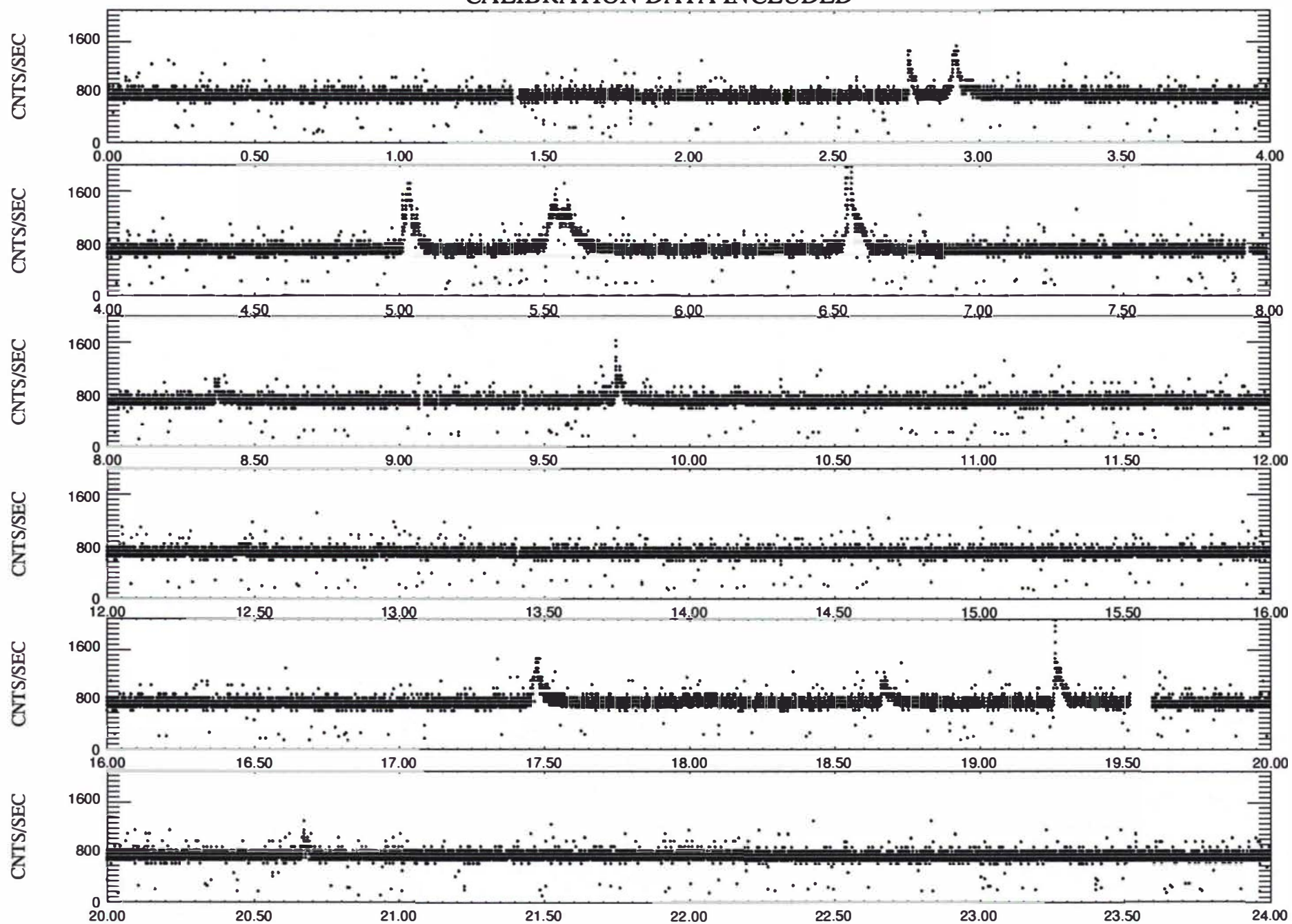
Burst Counter 12 at UT=20.665618485345 h=74396.227 s 20:39:56.227



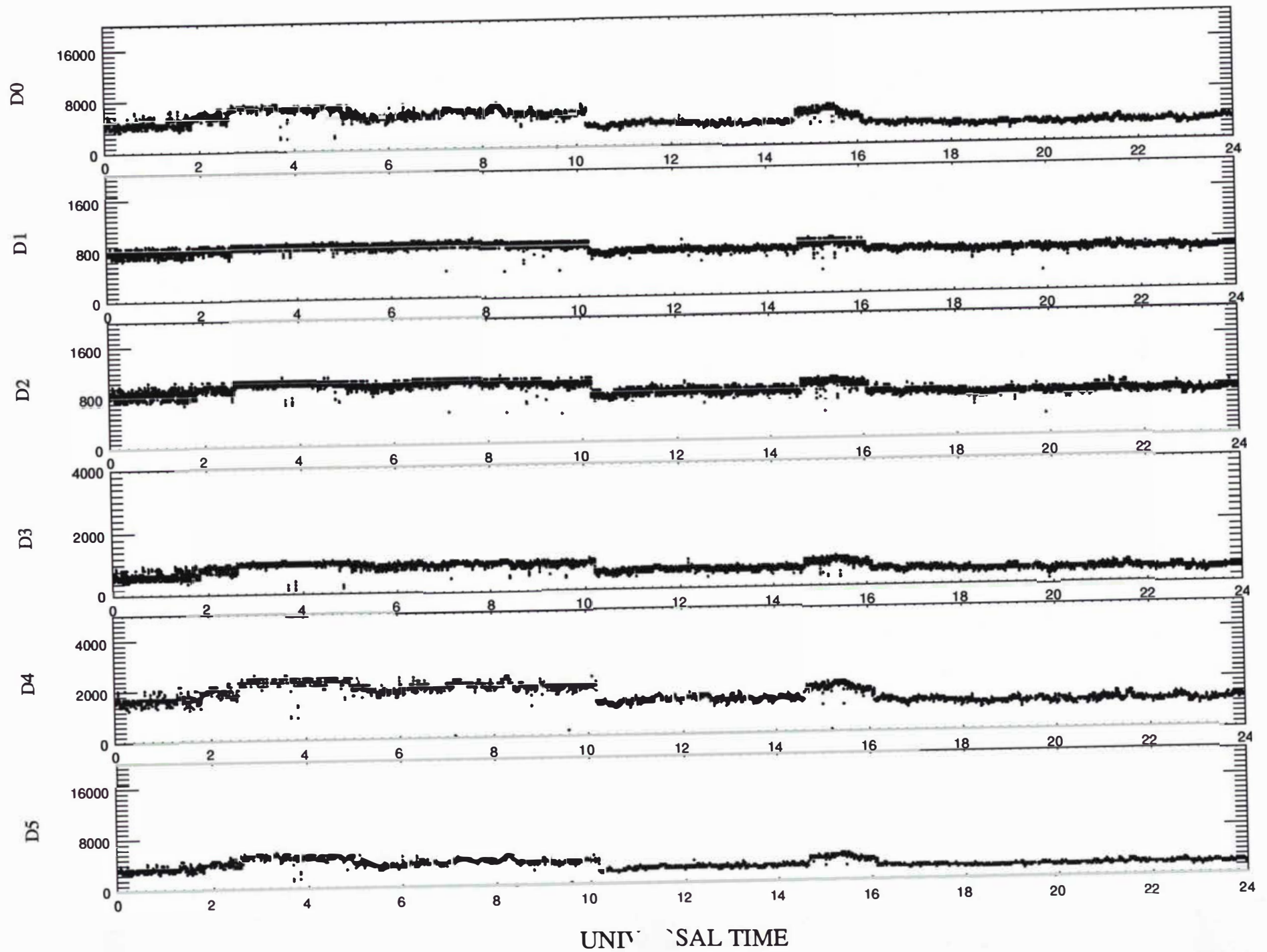
CALIBRATION DATA INCLUDED

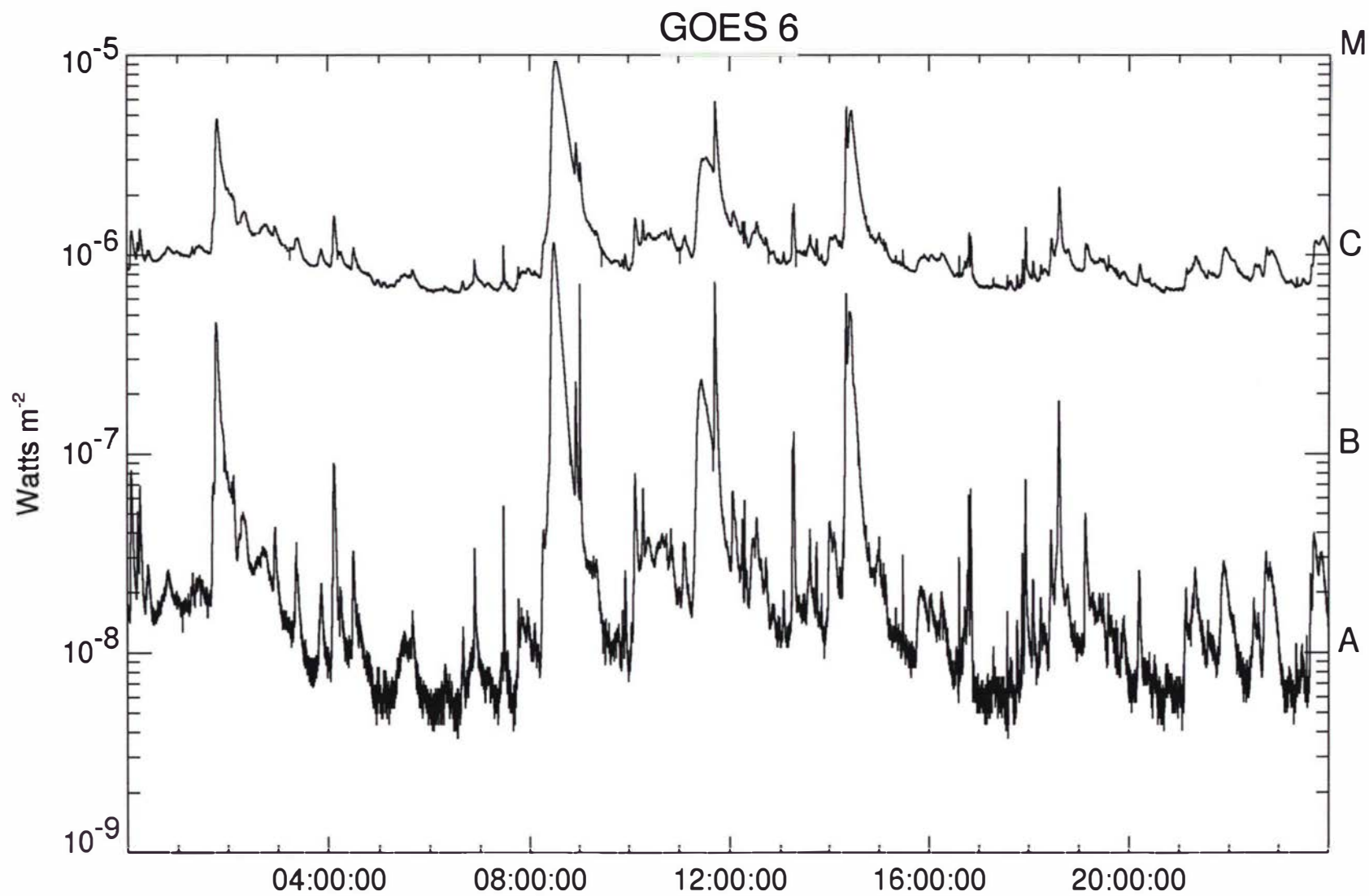


CALIBRATION DATA INCLUDED



UNIV `SAL TIME





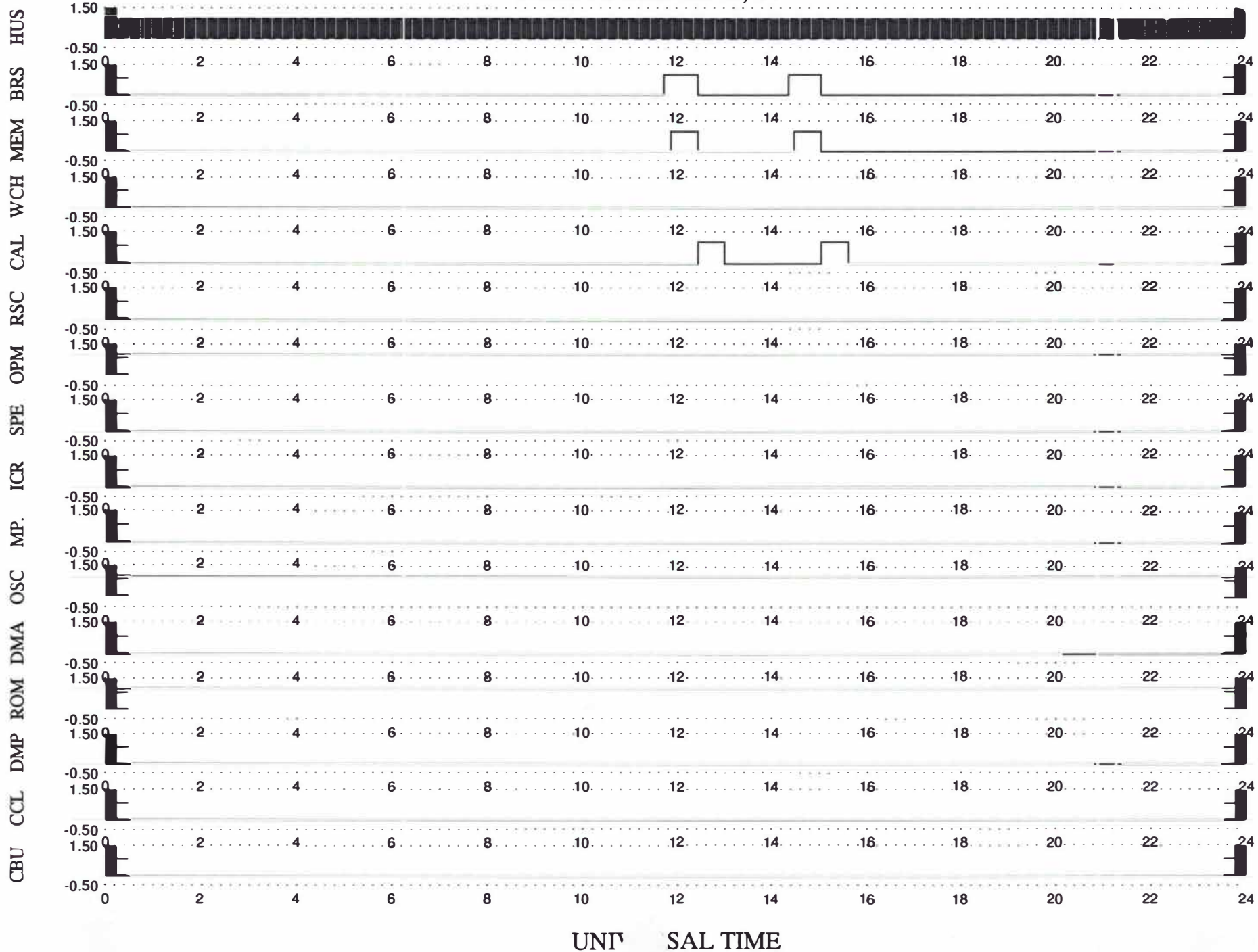
Data Start: 90/11/22, 0000:02

Plot created: 96/05/23, 1858

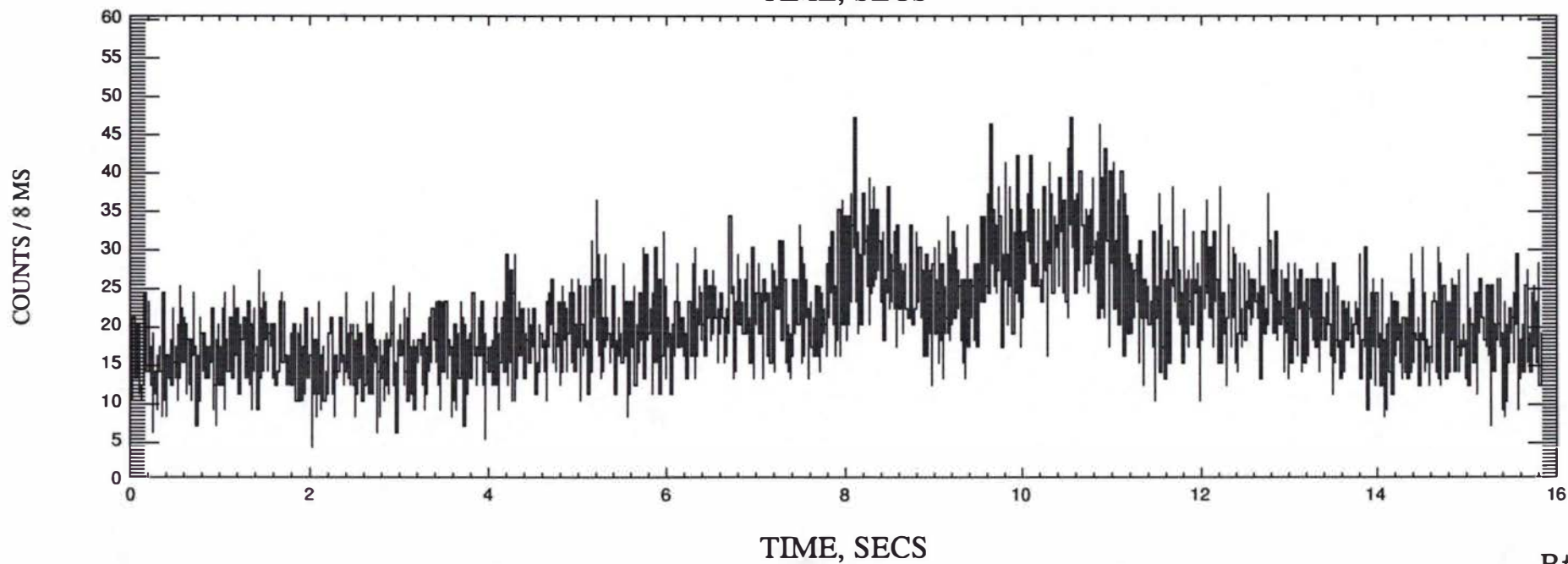
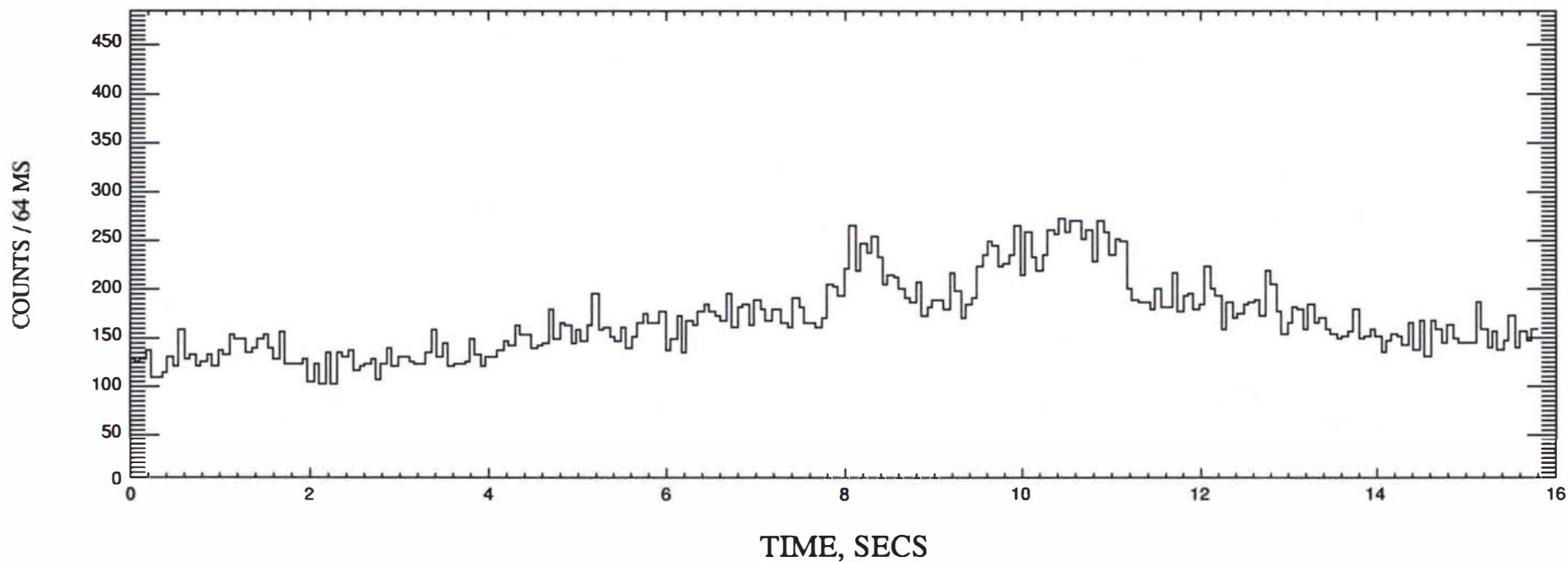
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

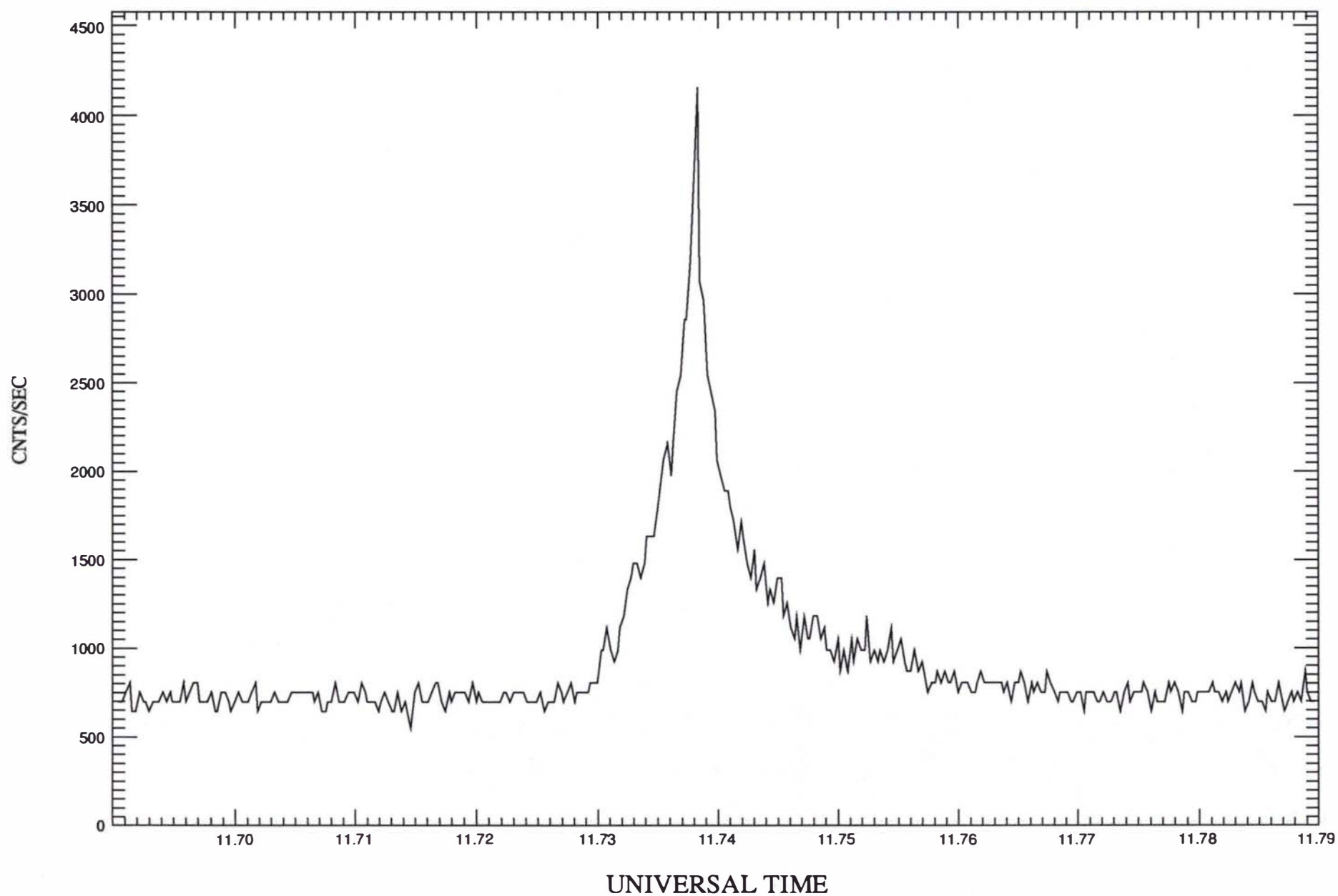
BURST NUMBER 13, 14



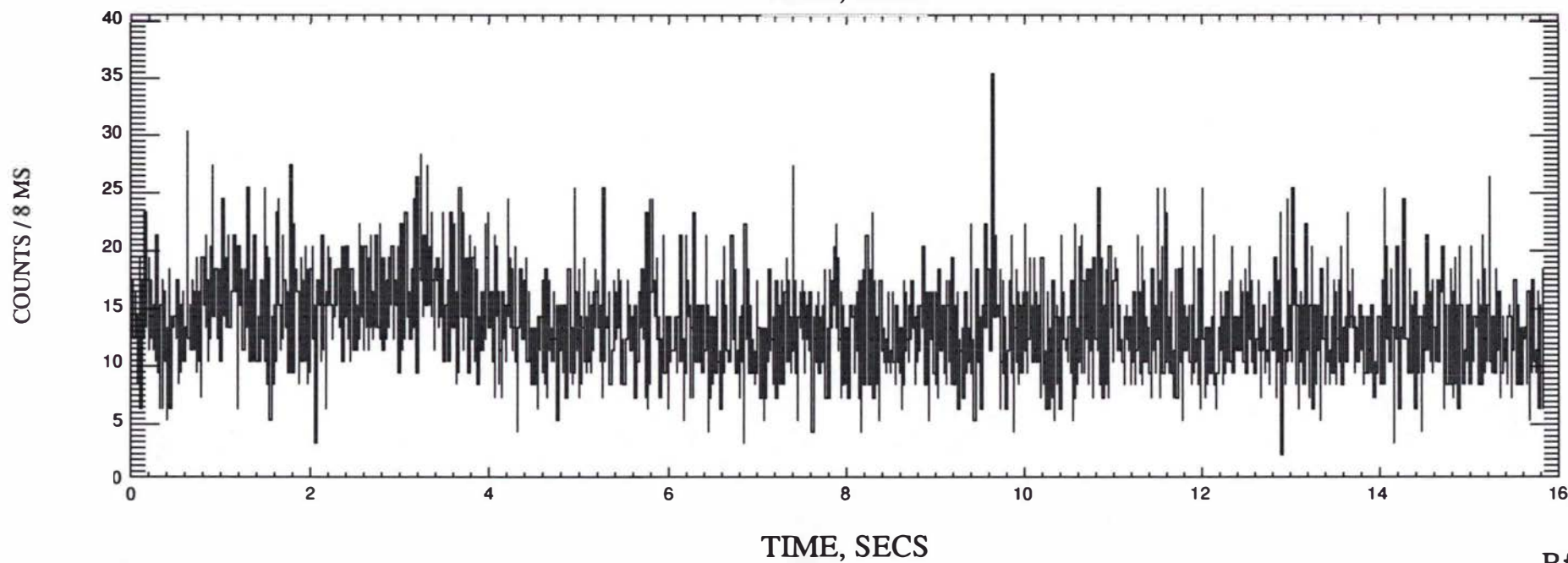
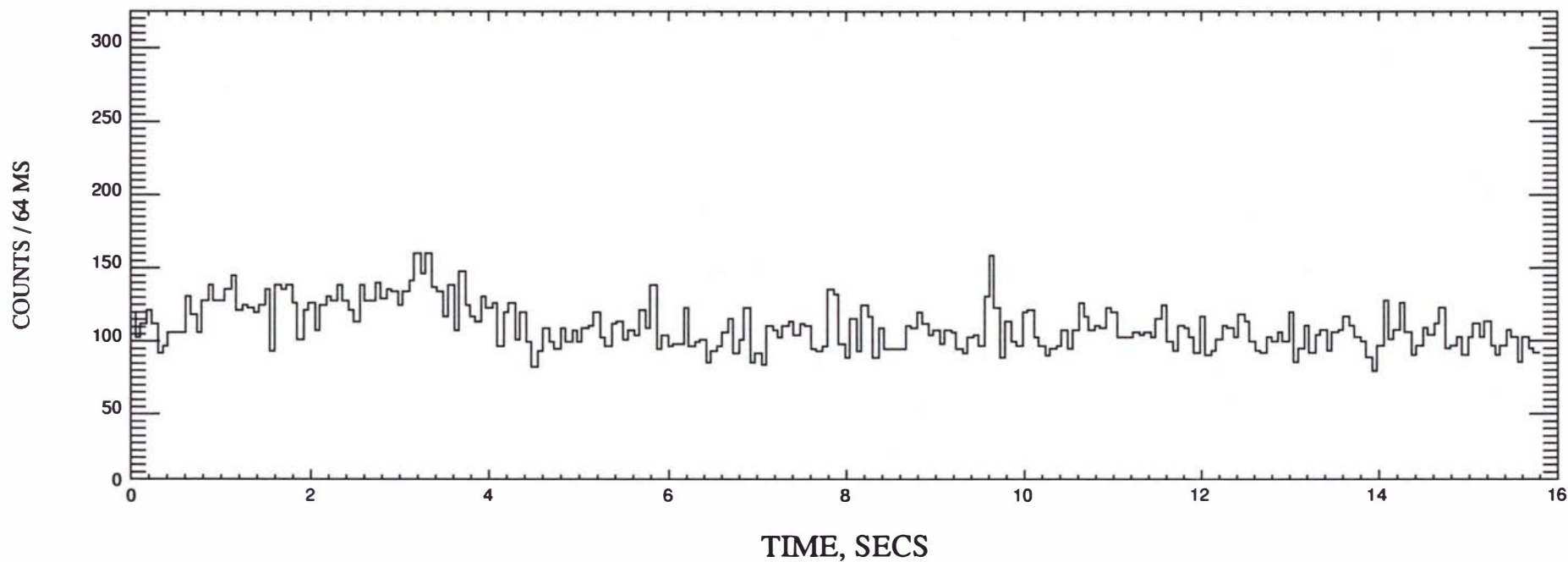
Burst Counter 13 at UT=11.735996530321 h=42249.588 s 11:44:09.588



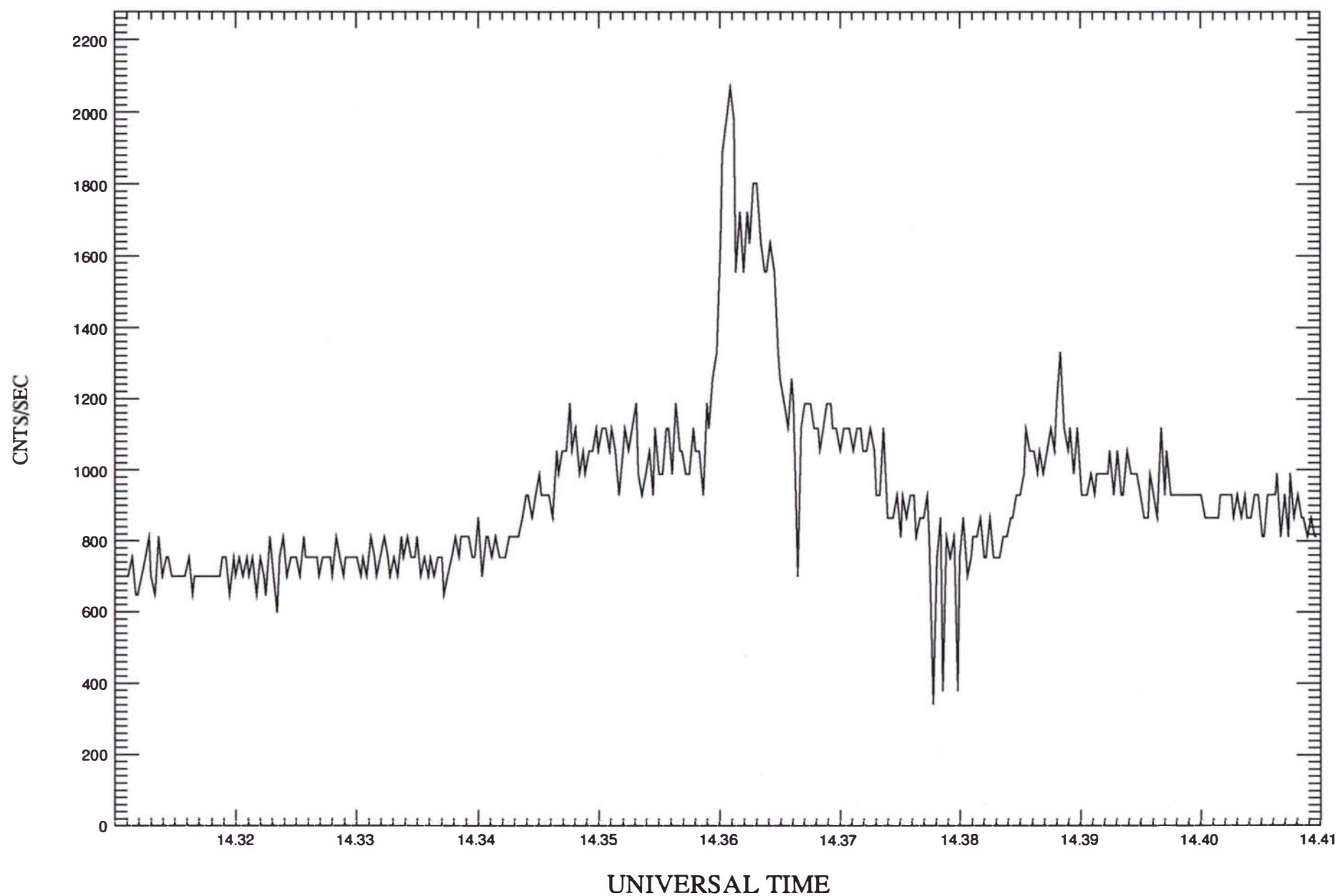
CALIBRATION DATA INCLUDED



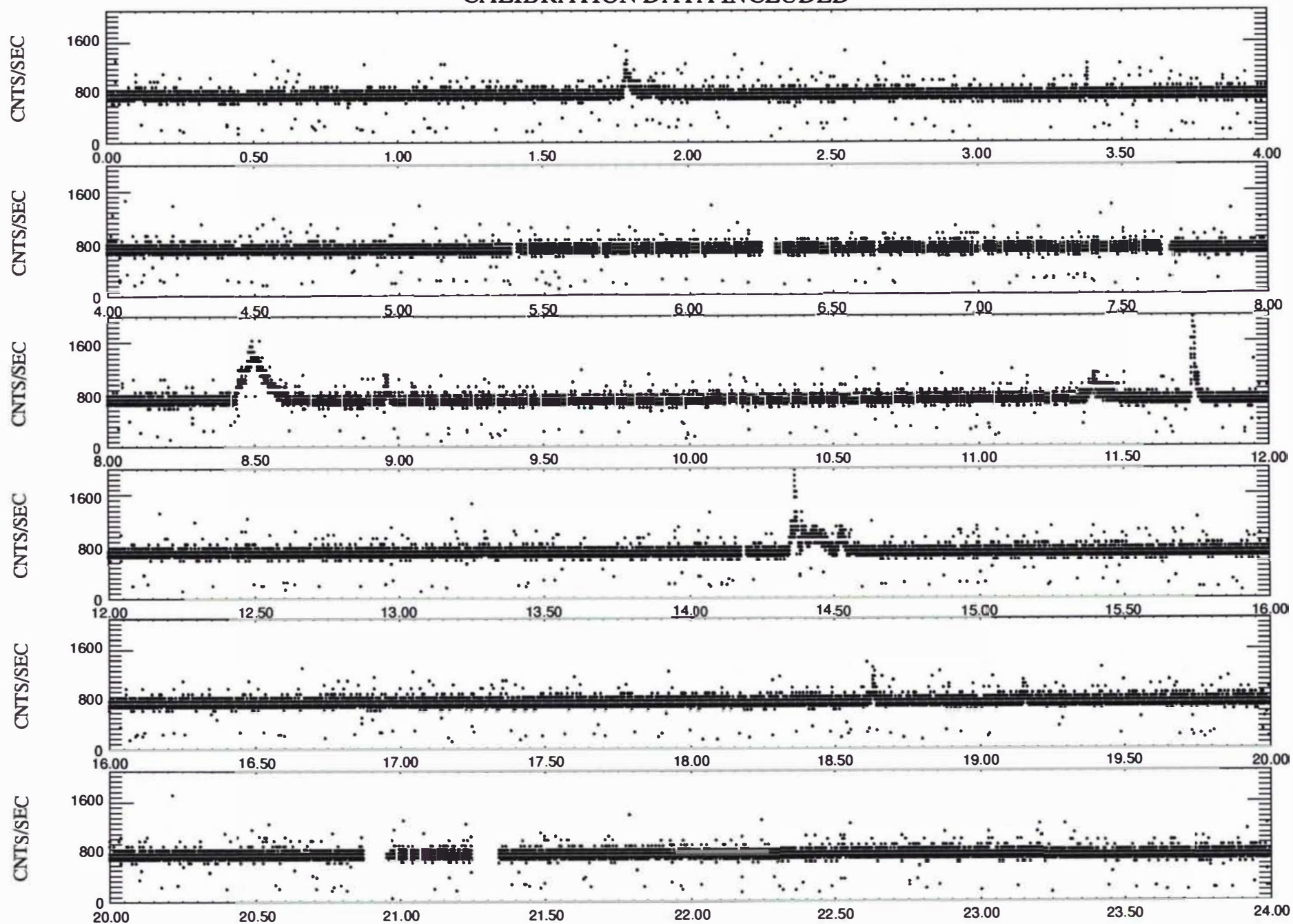
Burst Counter 14 at UT=14.360754776001 h=51698.717 s 14:21:38.717



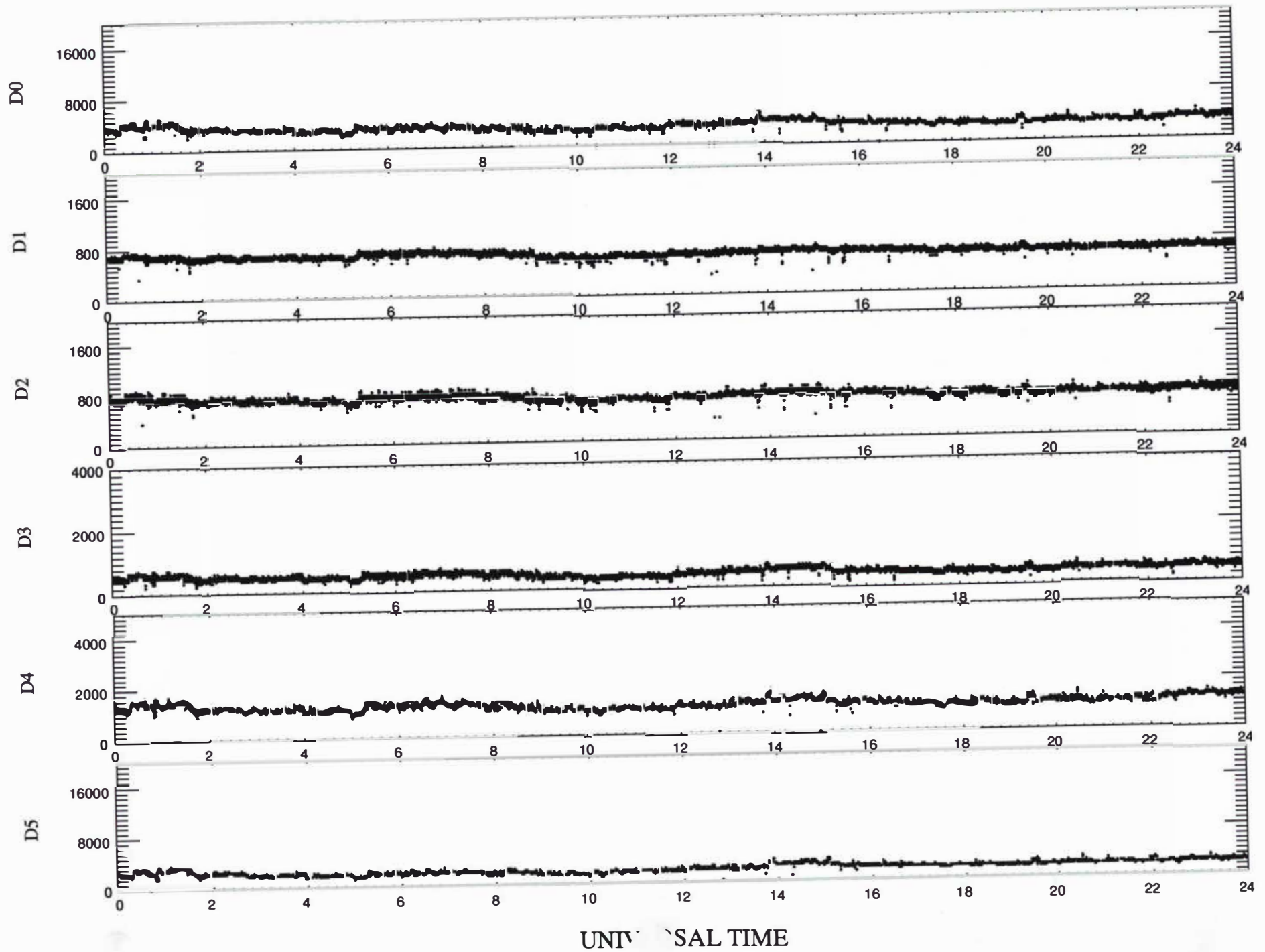
CALIBRATION DATA INCLUDED



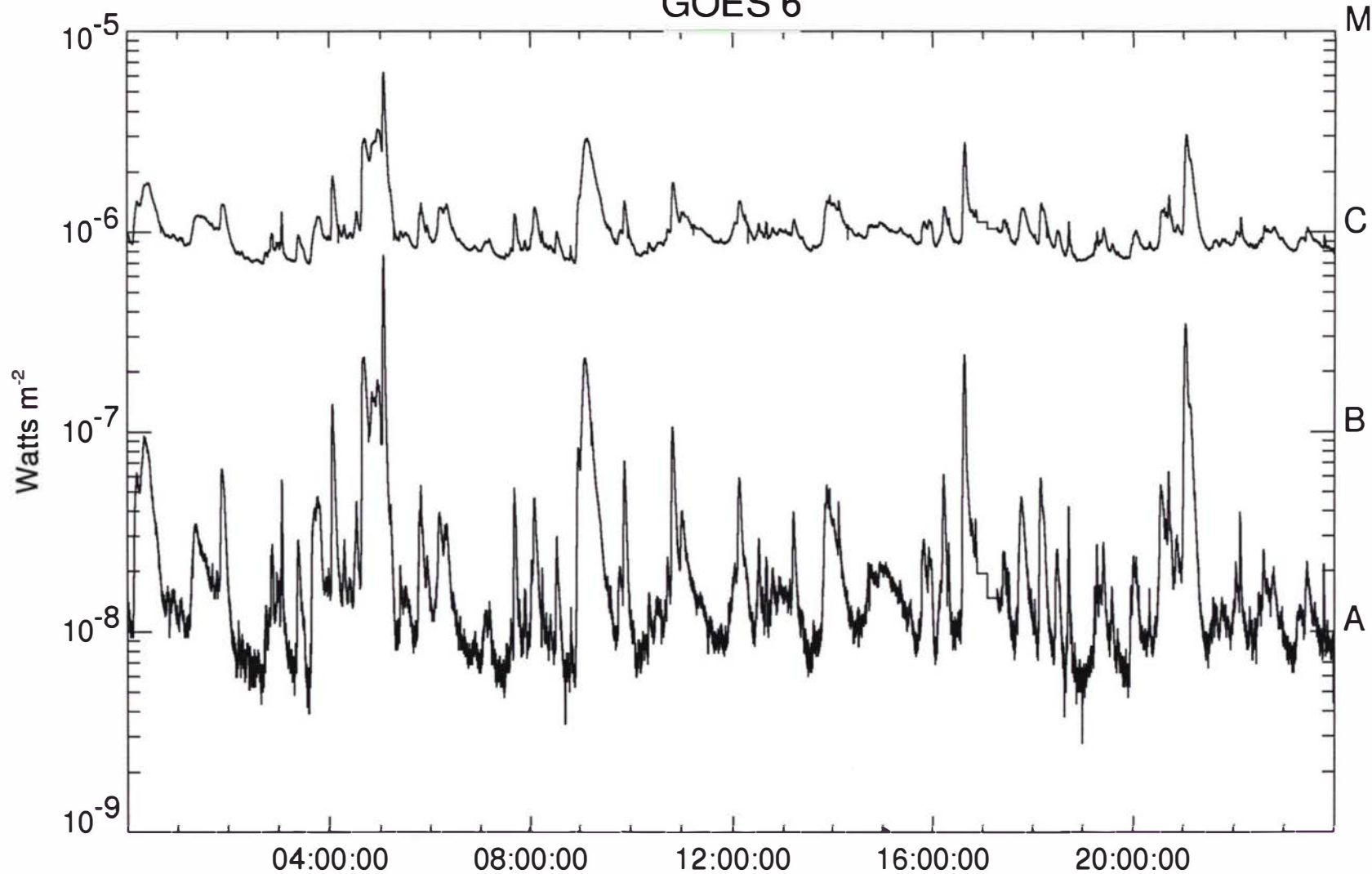
CALIBRATION DATA INCLUDED



UNIFORM SAL TIME



GOES 6



Data Start: 90/11/23, 0000:00

Plot created: 96/05/23, 1902

Channel

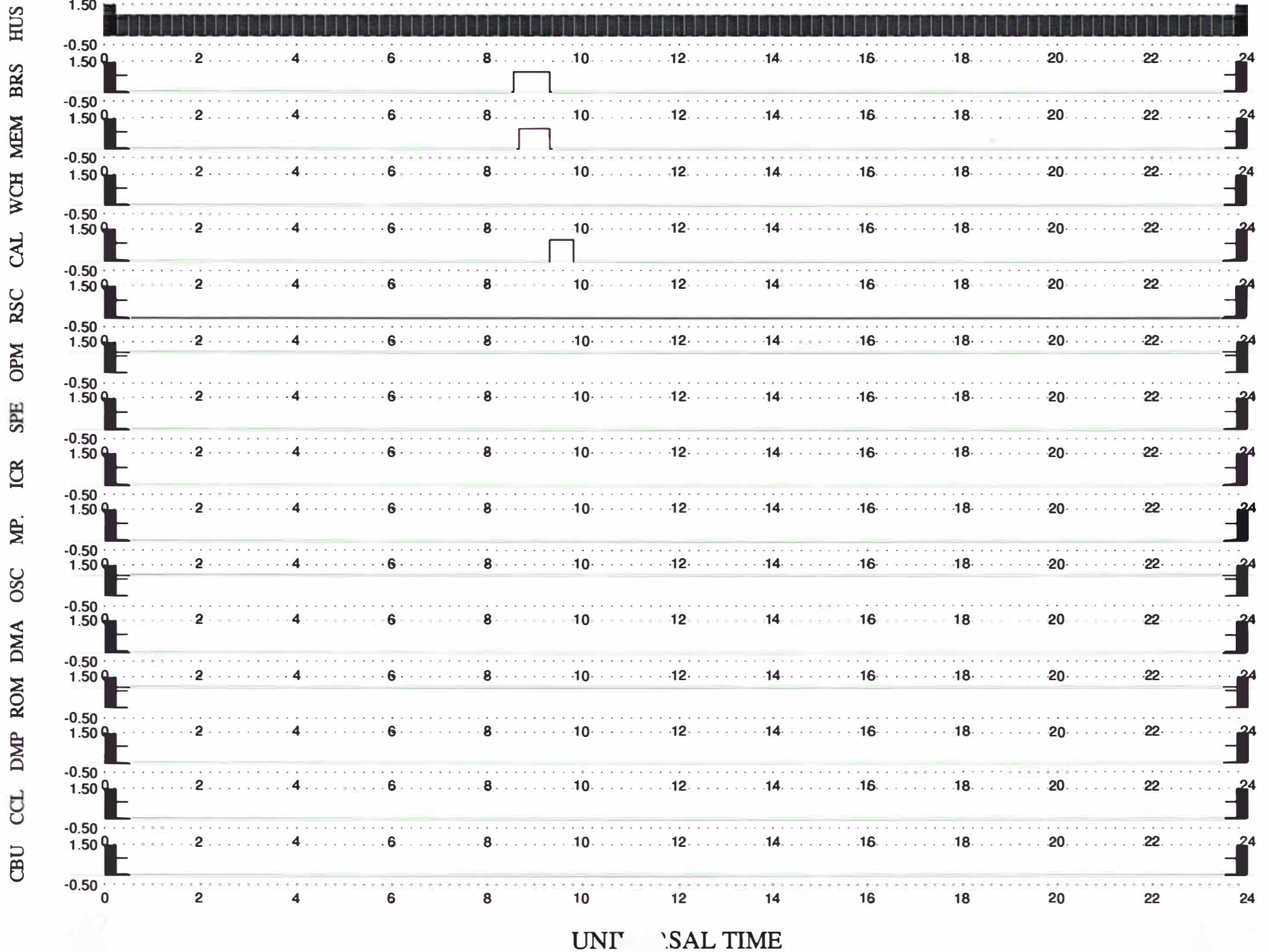
1 (1.0 - 8.0 Angstroms)

Background not subtracted

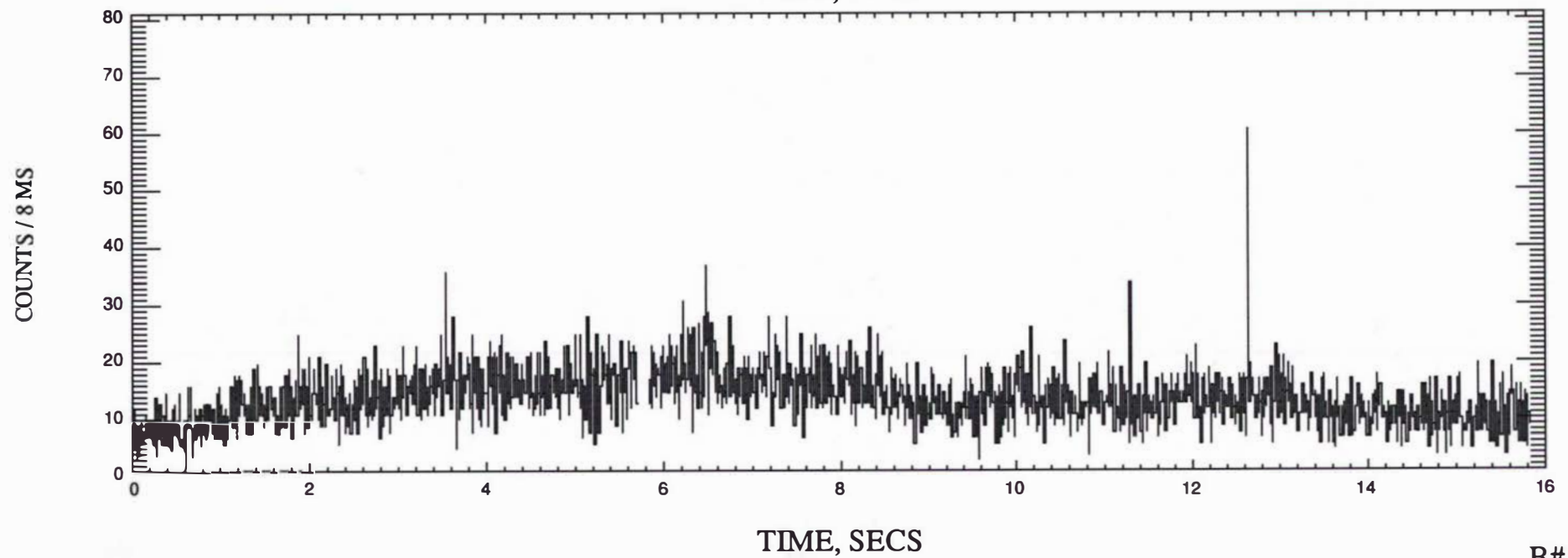
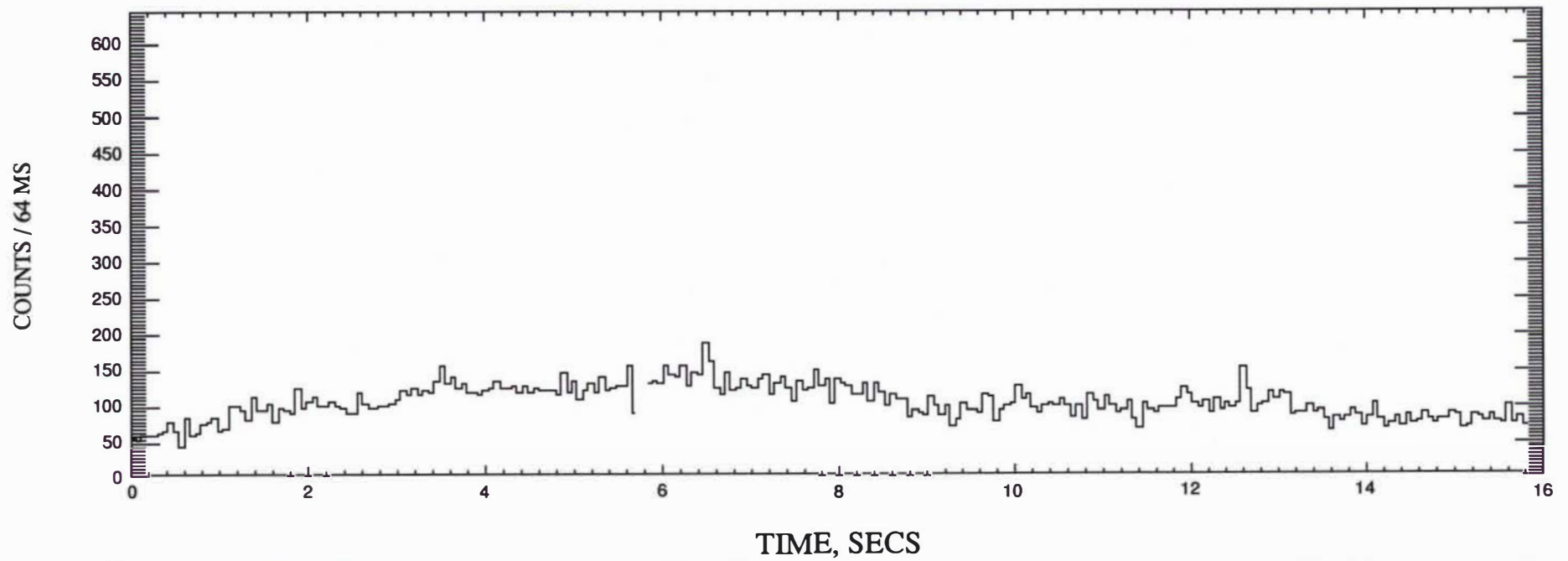
2 (0.5 - 4.0 Angstroms)

Background not subtracted

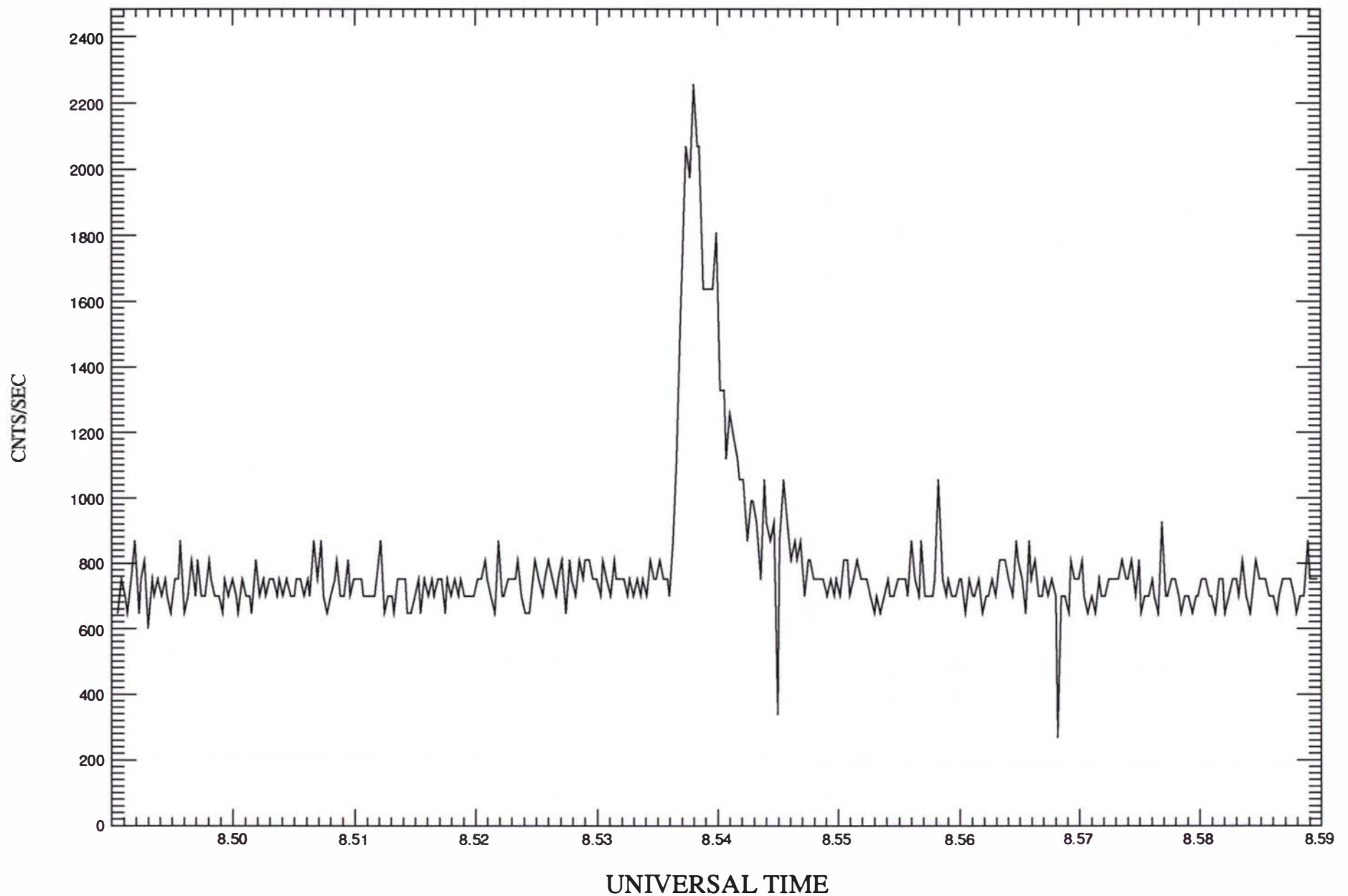
BURST NUMBER 15



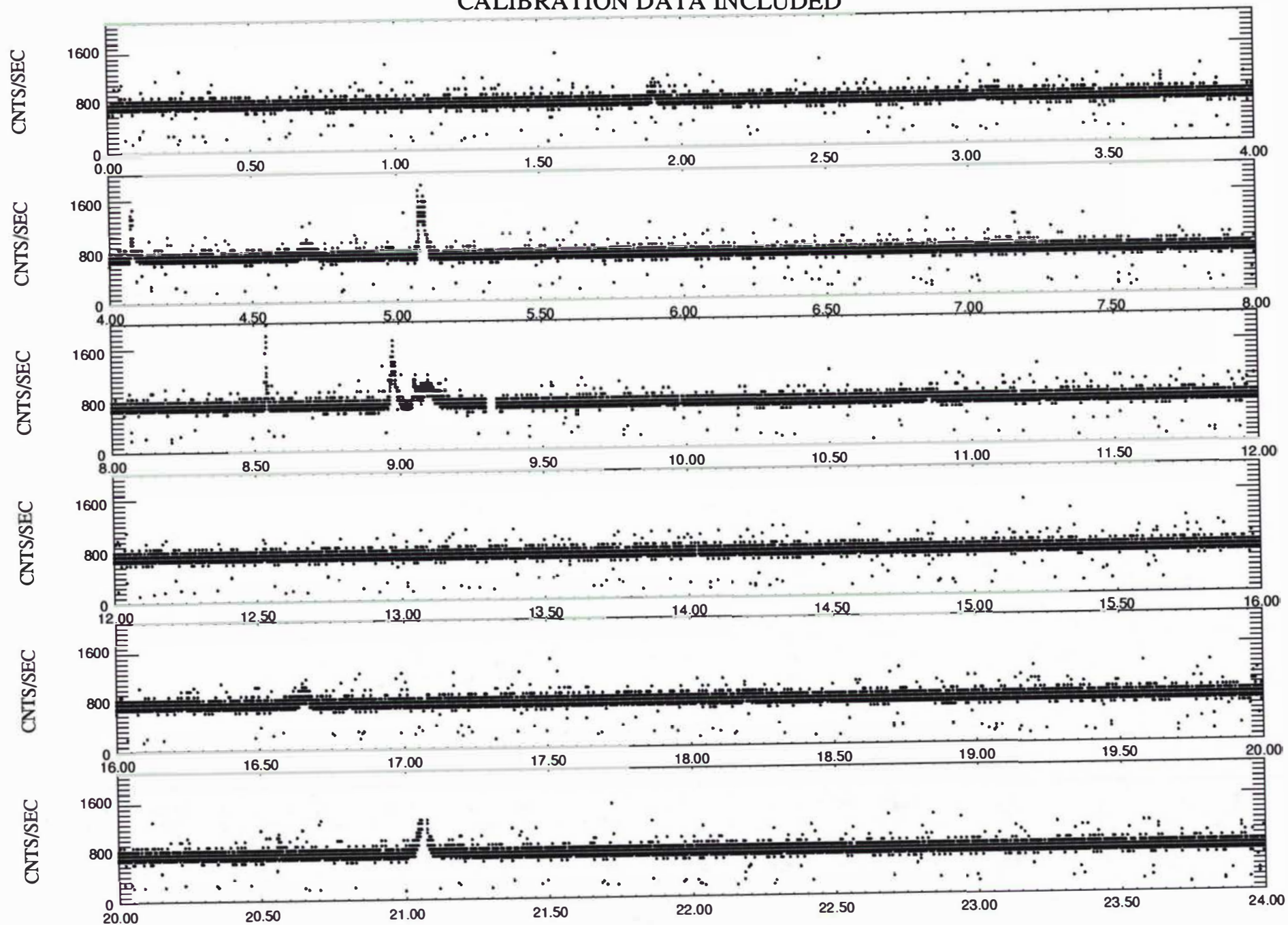
Burst Counter 15 at UT= 8.537017148336 h=30733.262 s 08:32:13.262



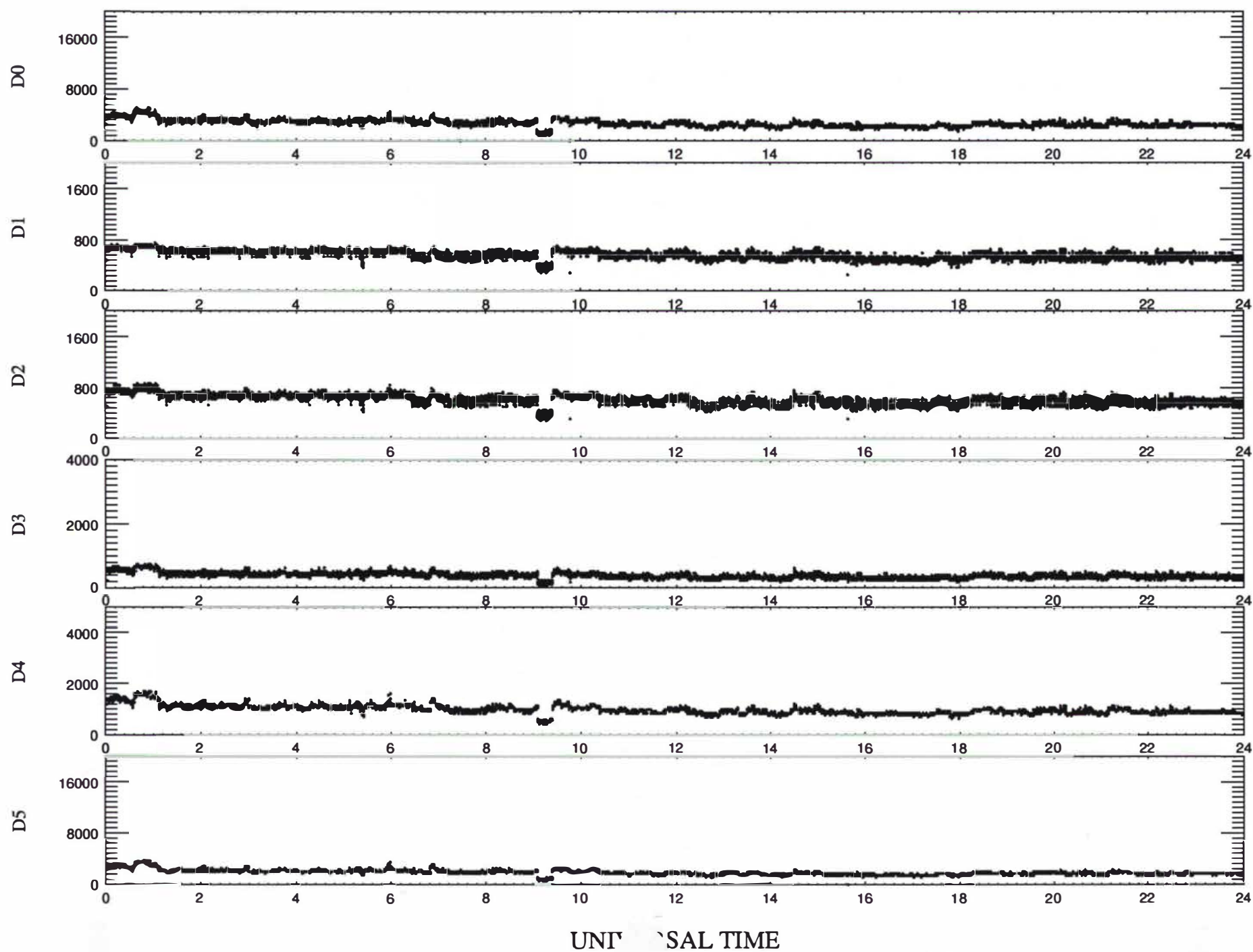
CALIBRATION DATA INCLUDED



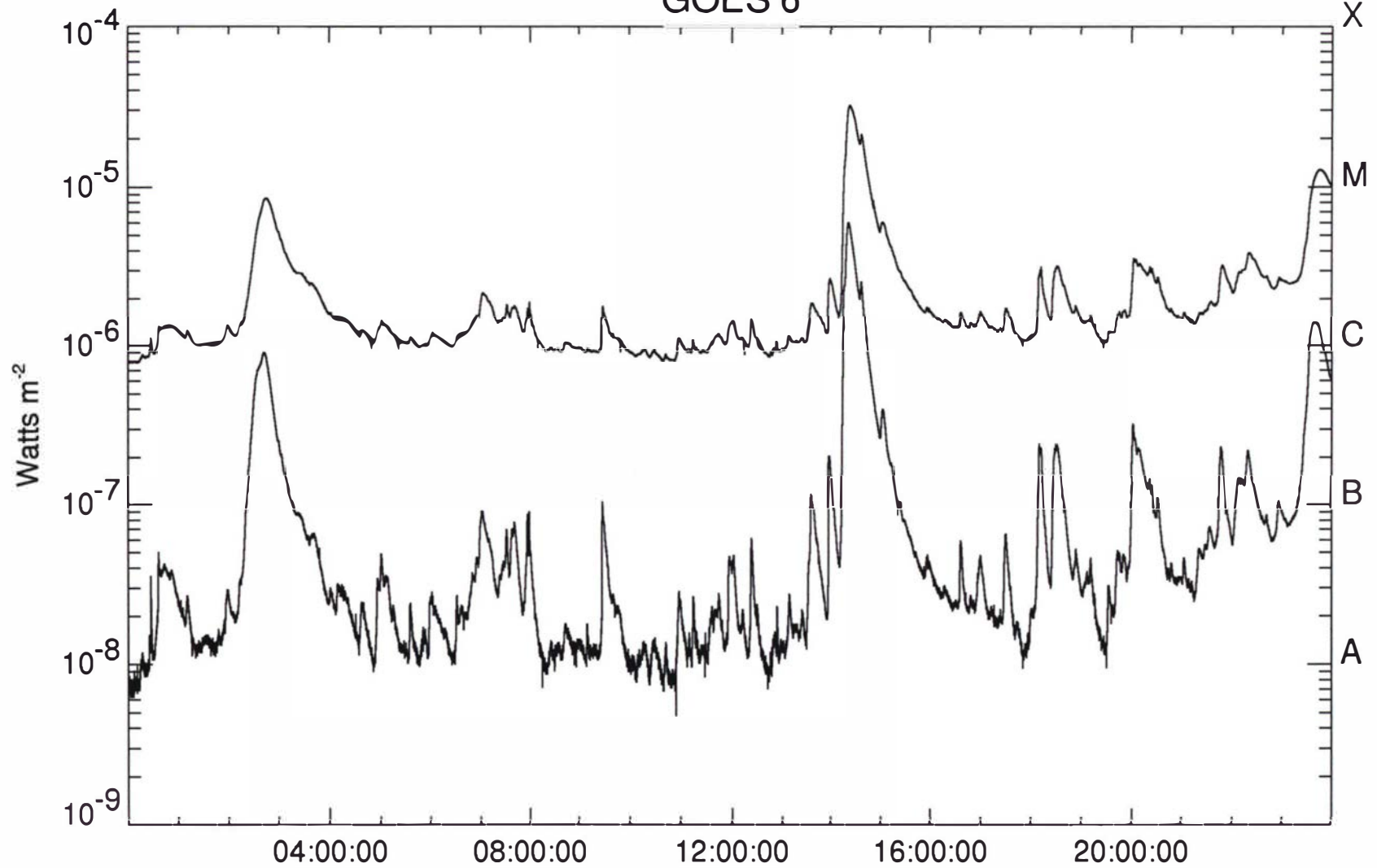
CALIBRATION DATA INCLUDED



UNIFORM SAL TIME



GOES 6



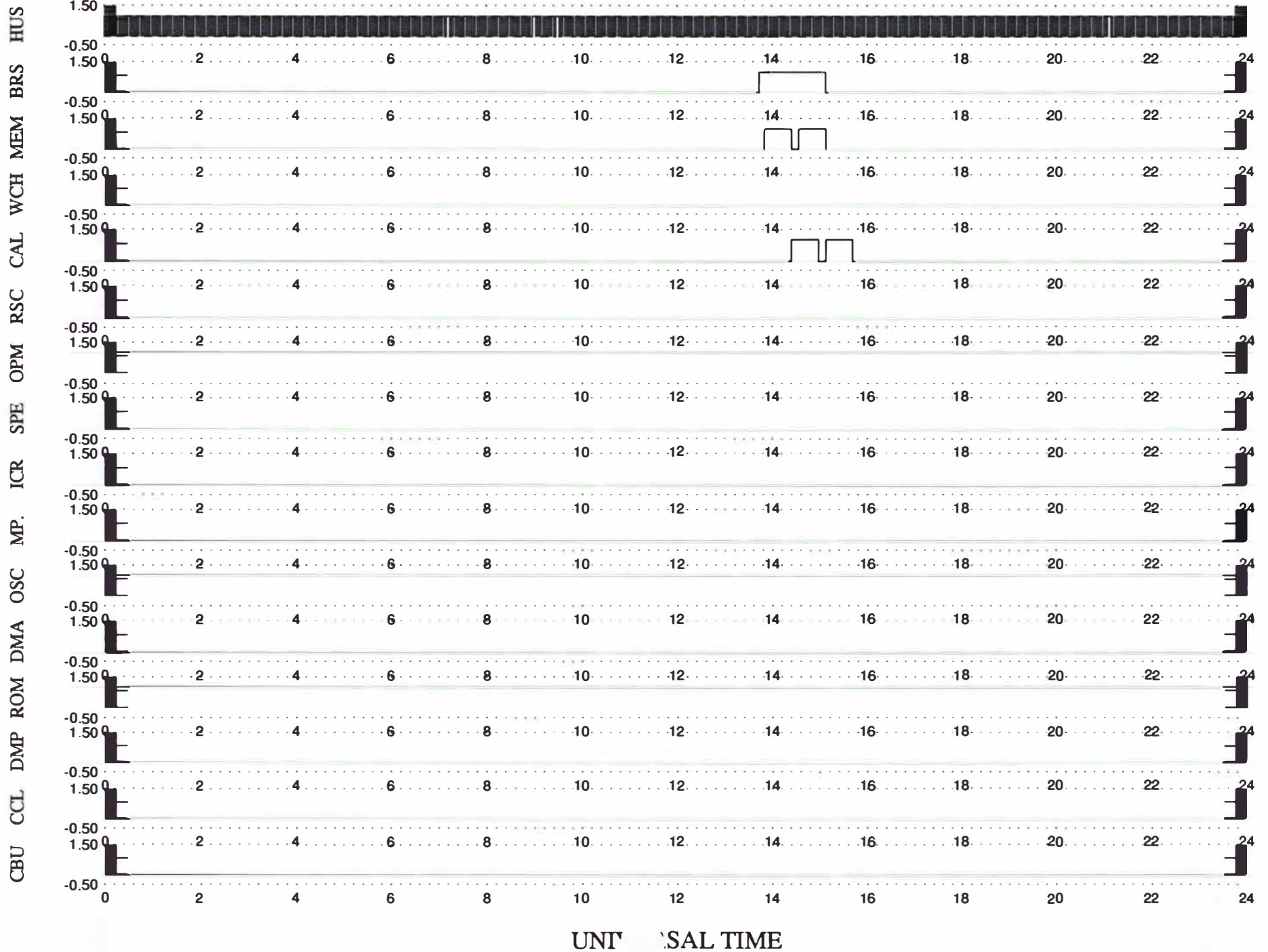
Data Start: 90/11/24, 0000:01

Plot created: 96/05/23, 1905

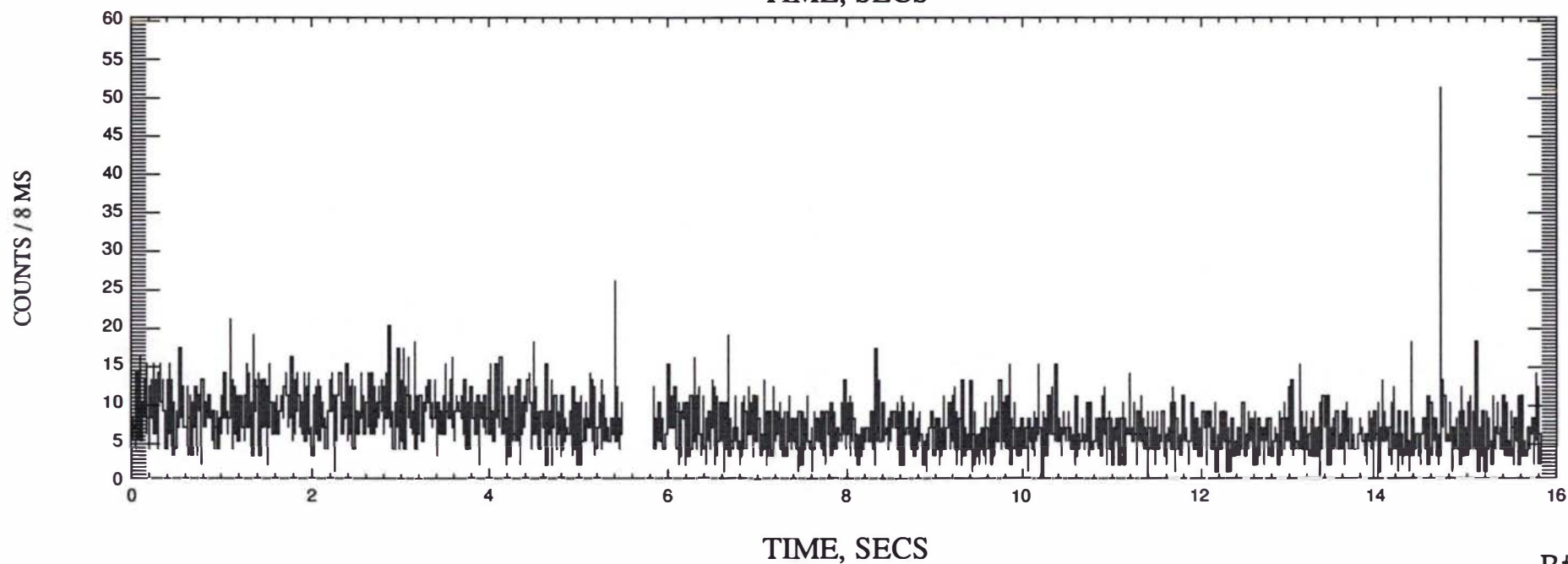
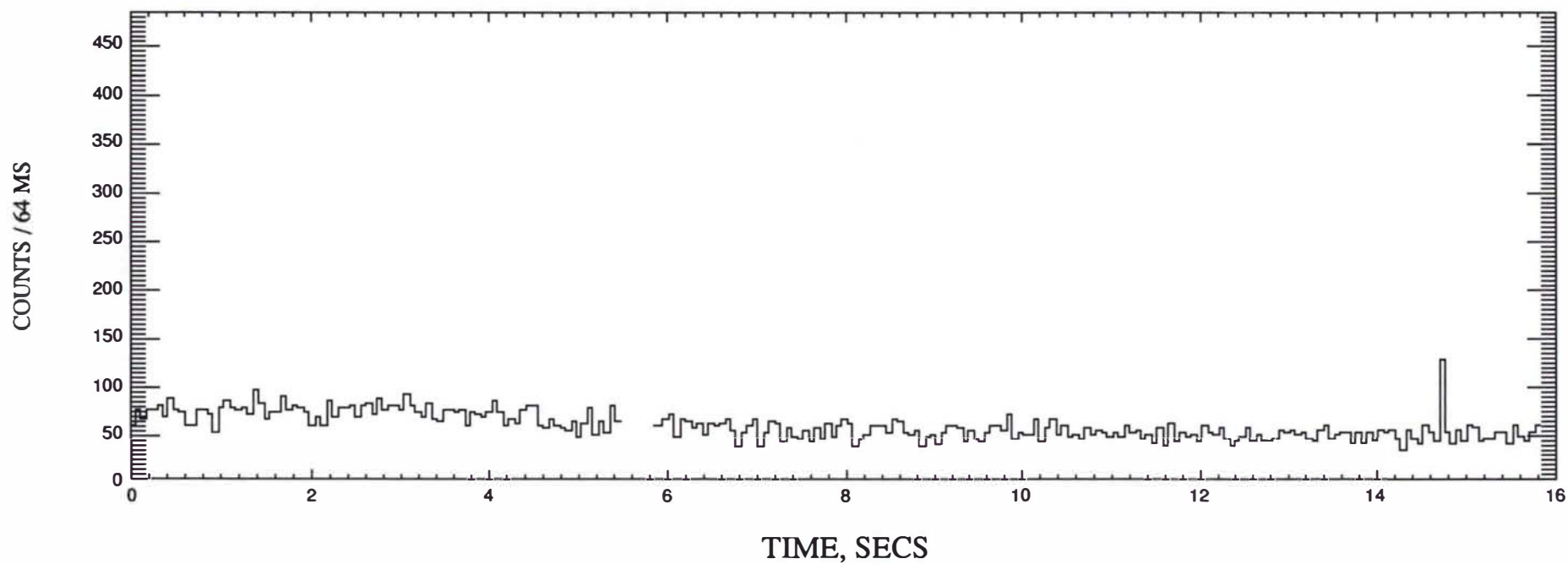
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

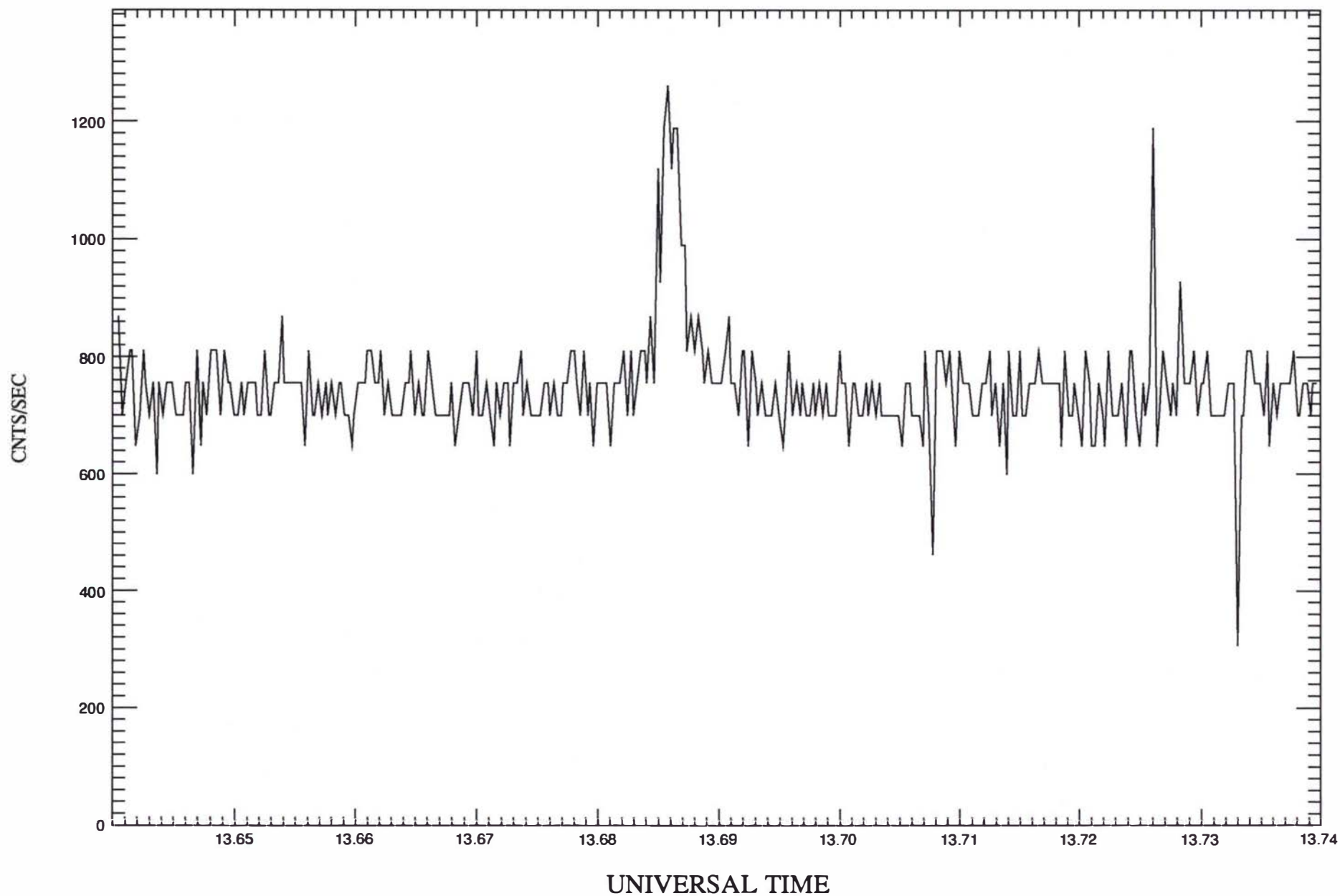
BURST NUMBER 0, 1



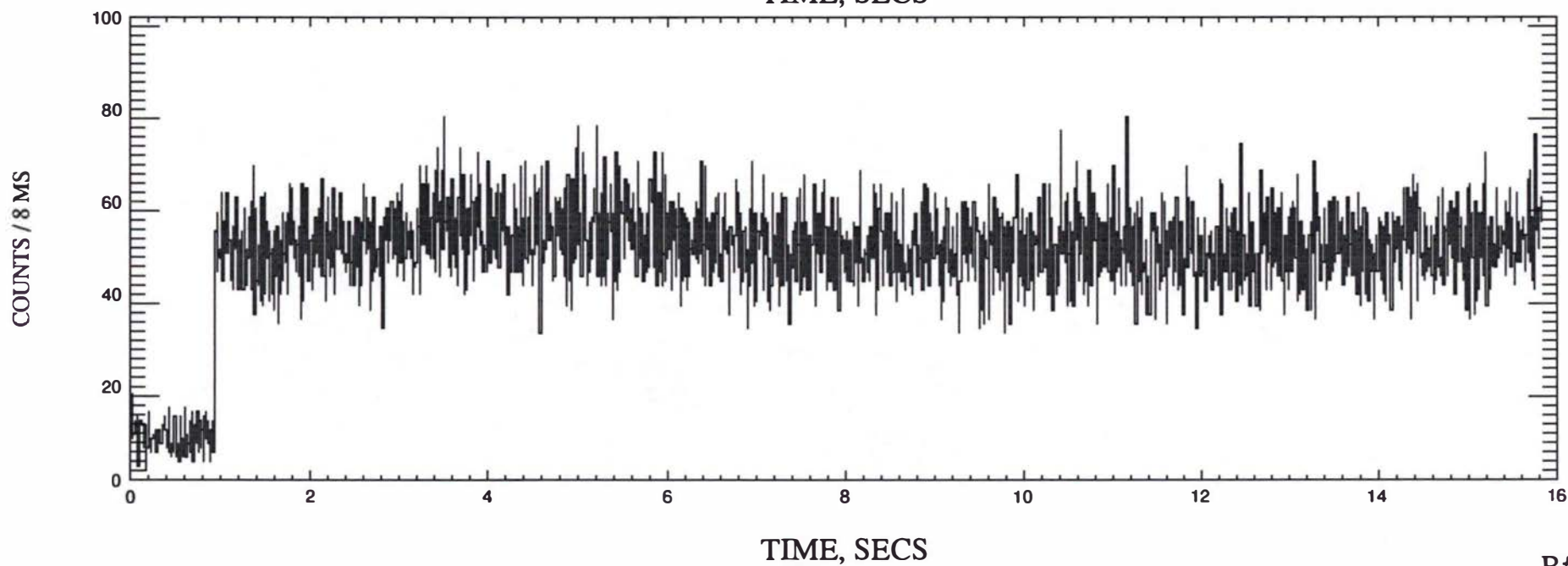
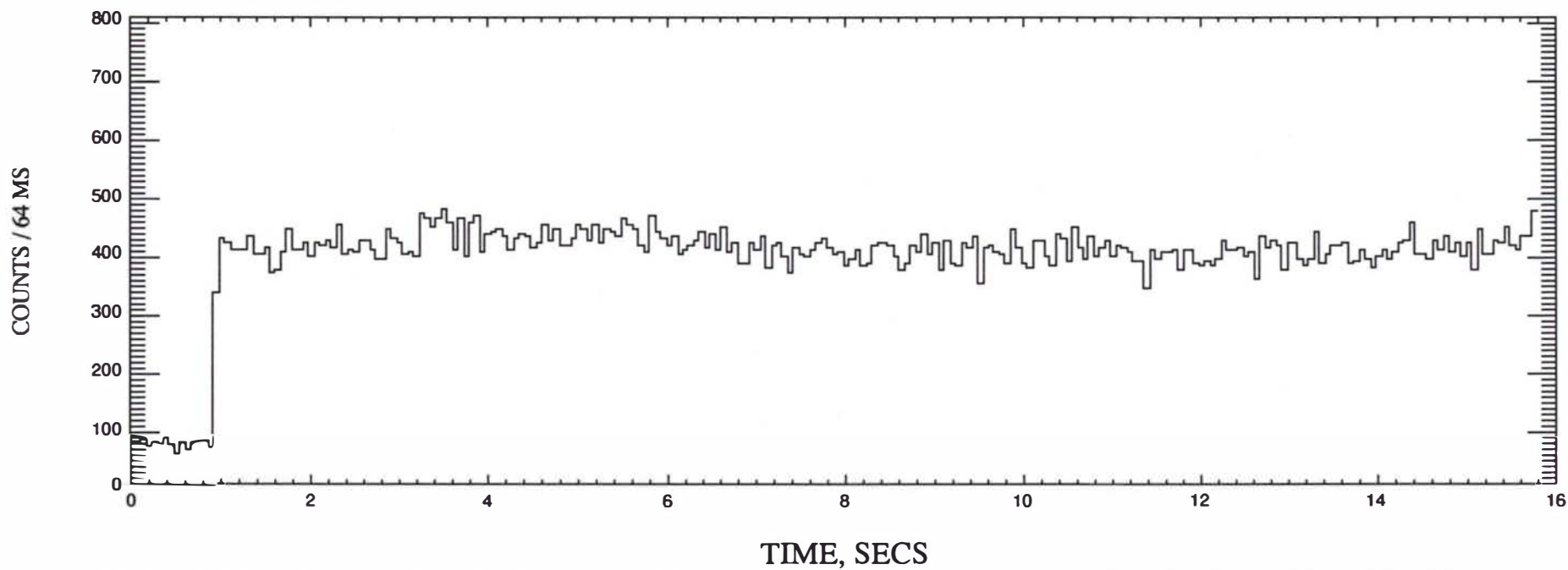
Burst Counter 0 at UT=13.686119486491 h=49270.030 s 13:41:10.030



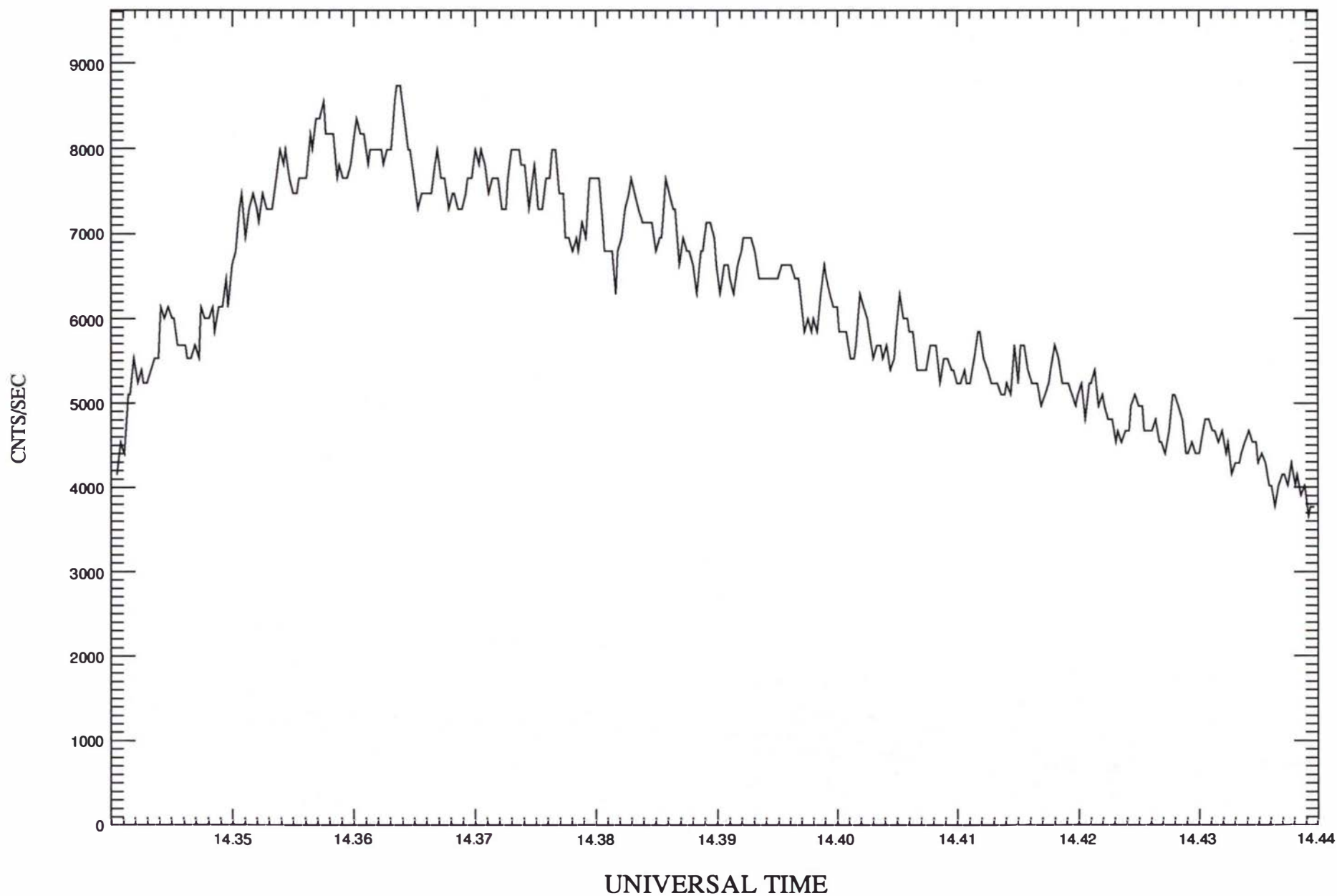
CALIBRATION DATA INCLUDED



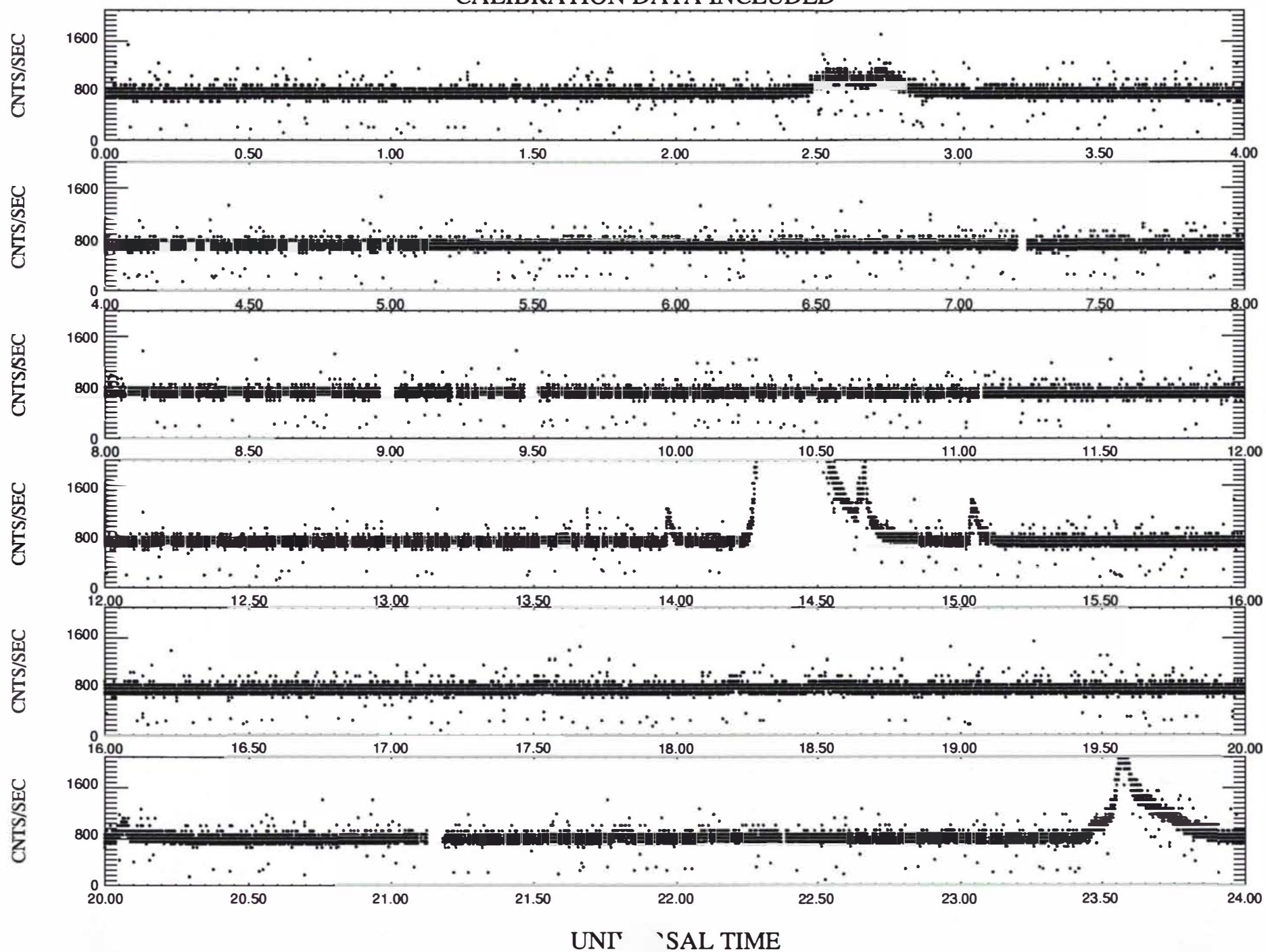
Burst Counter 1 at UT=14.391979412503 h=51811.126 s 14:23:31.126

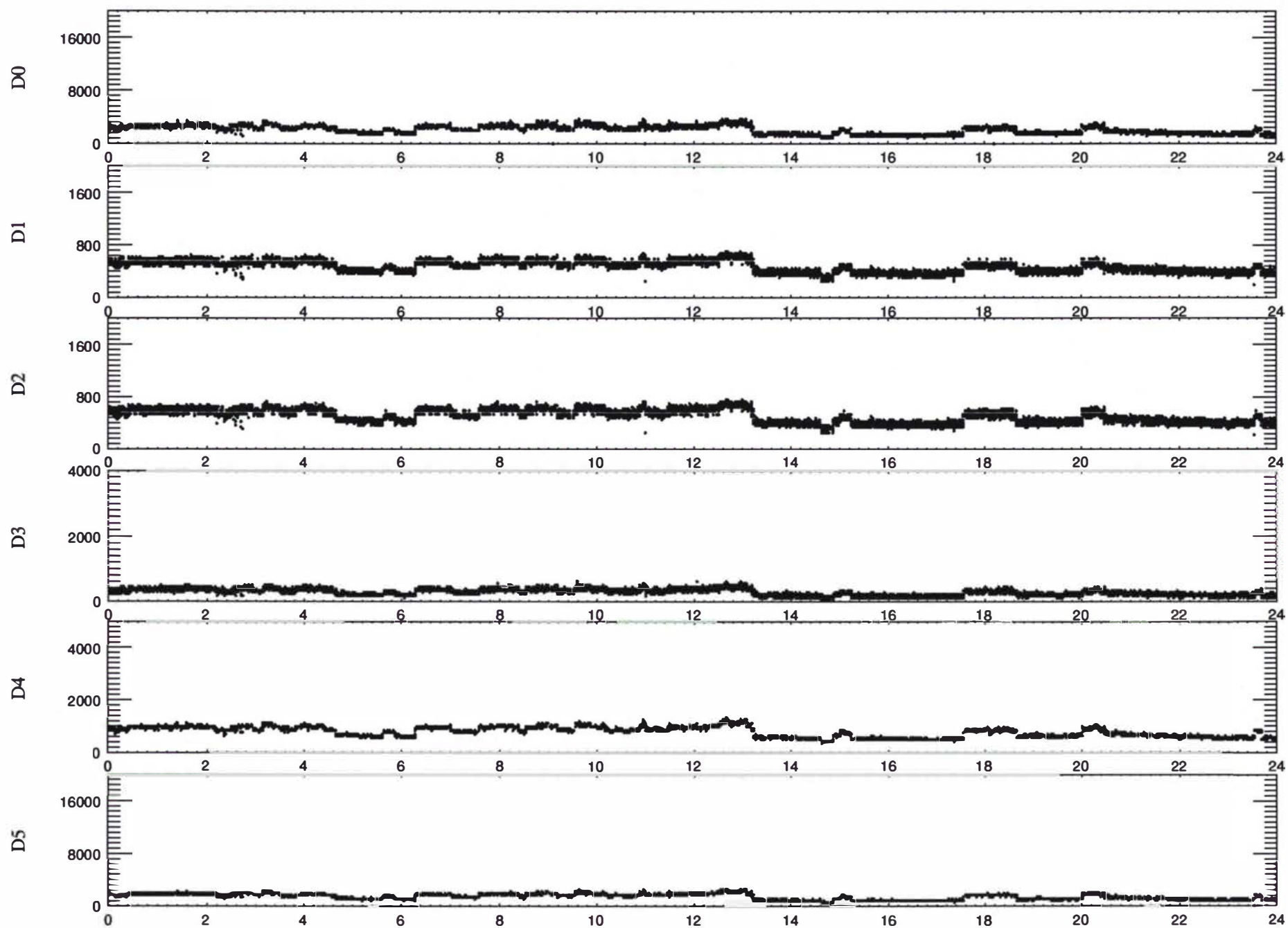


CALIBRATION DATA INCLUDED



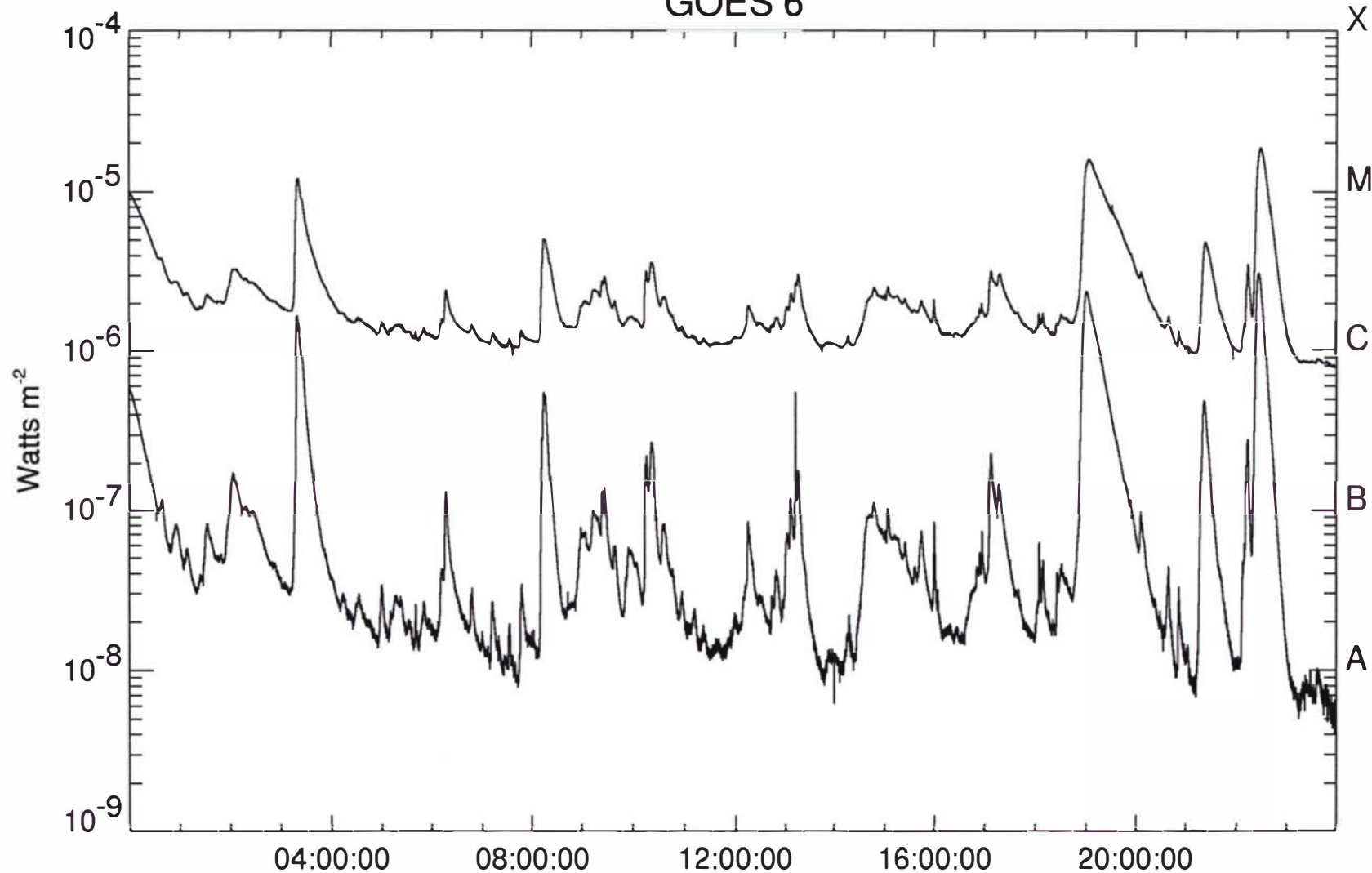
CALIBRATION DATA INCLUDED





UNIT : SAL TIME

GOES 6



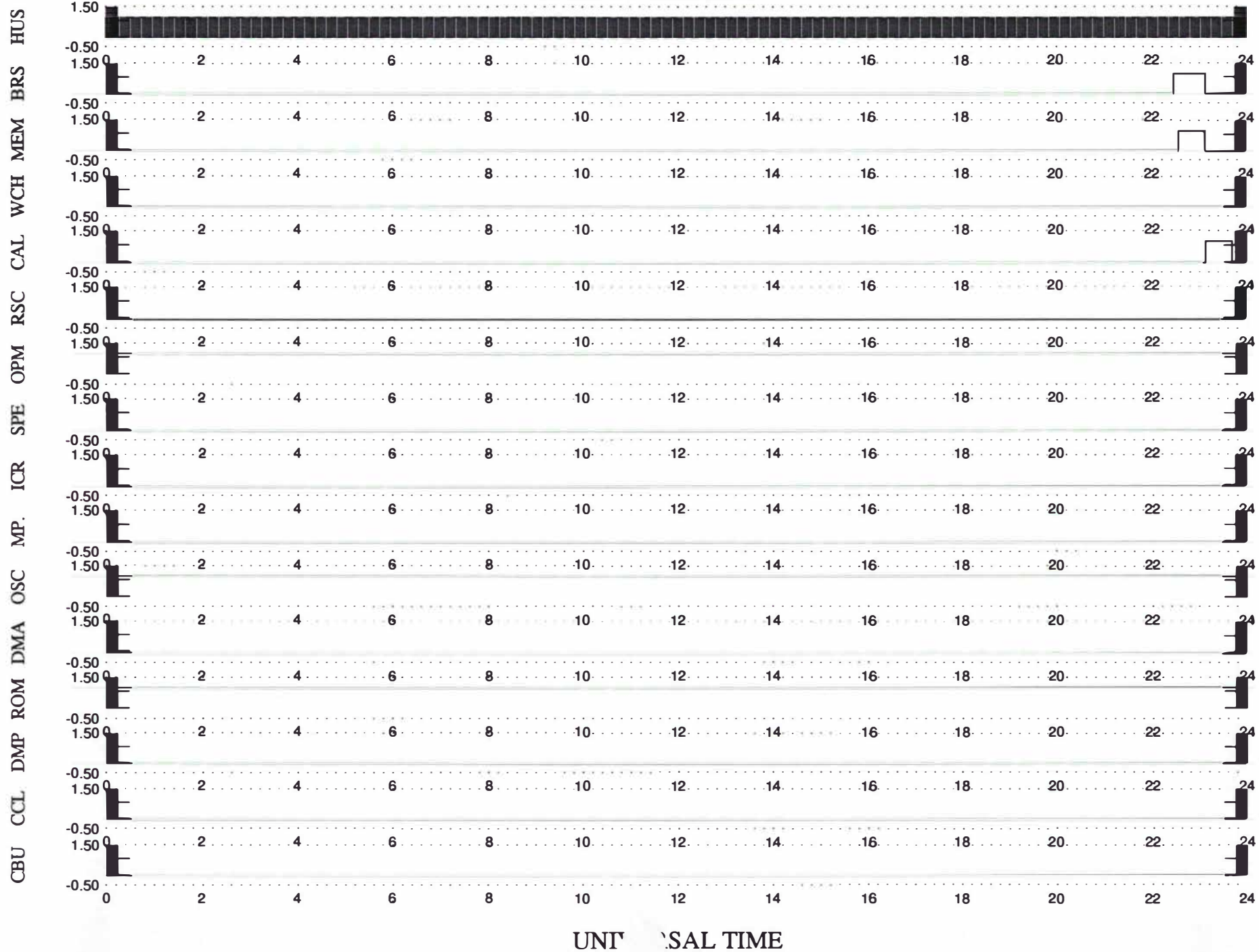
Data Start: 90/11/25, 0000:02

Plot created: 96/05/23, 1909

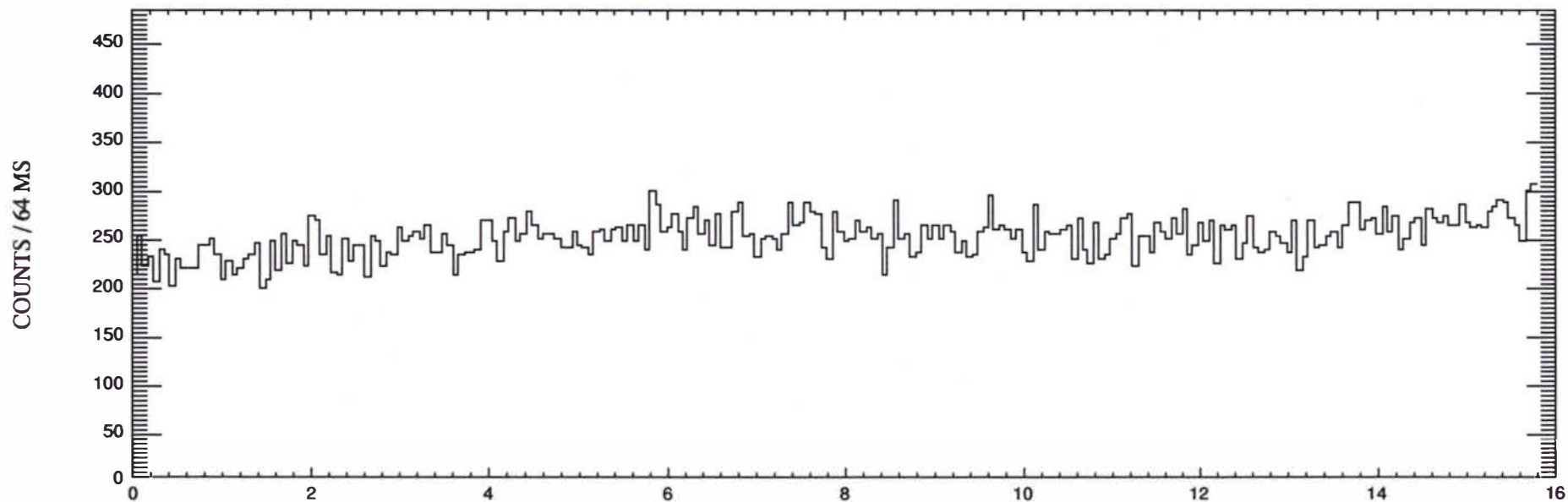
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

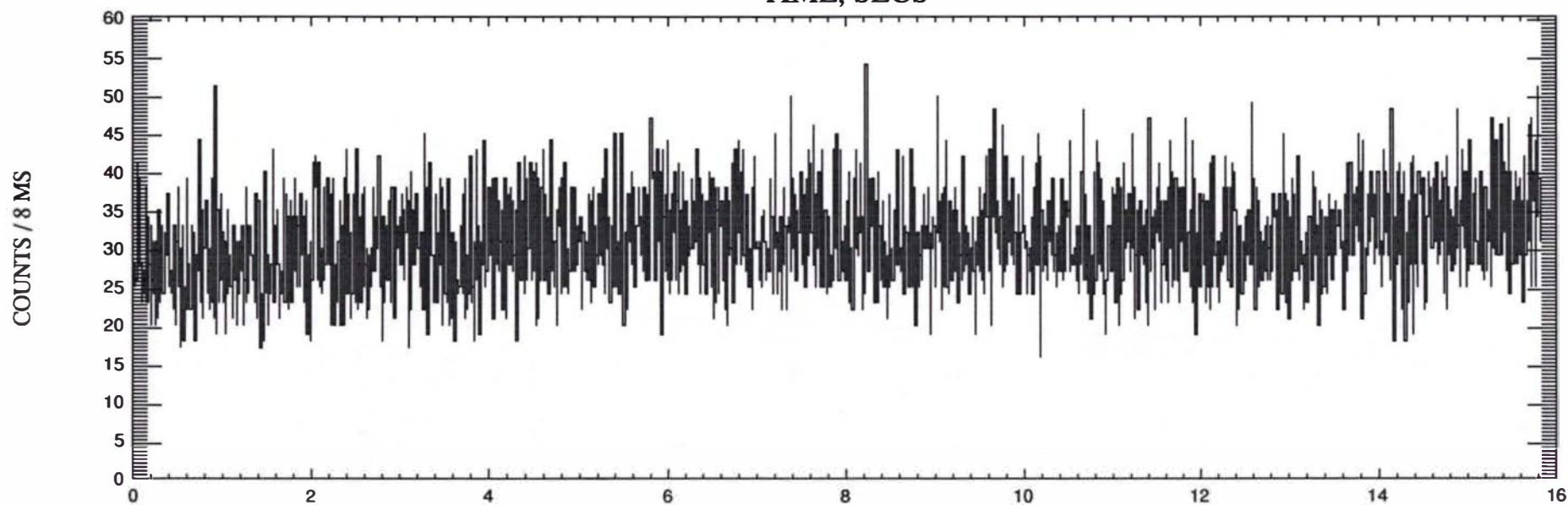
BURST NUMBER 2



Burst Counter 2 at UT=22.411429443359 h=80681.146 s 22:24:41.146

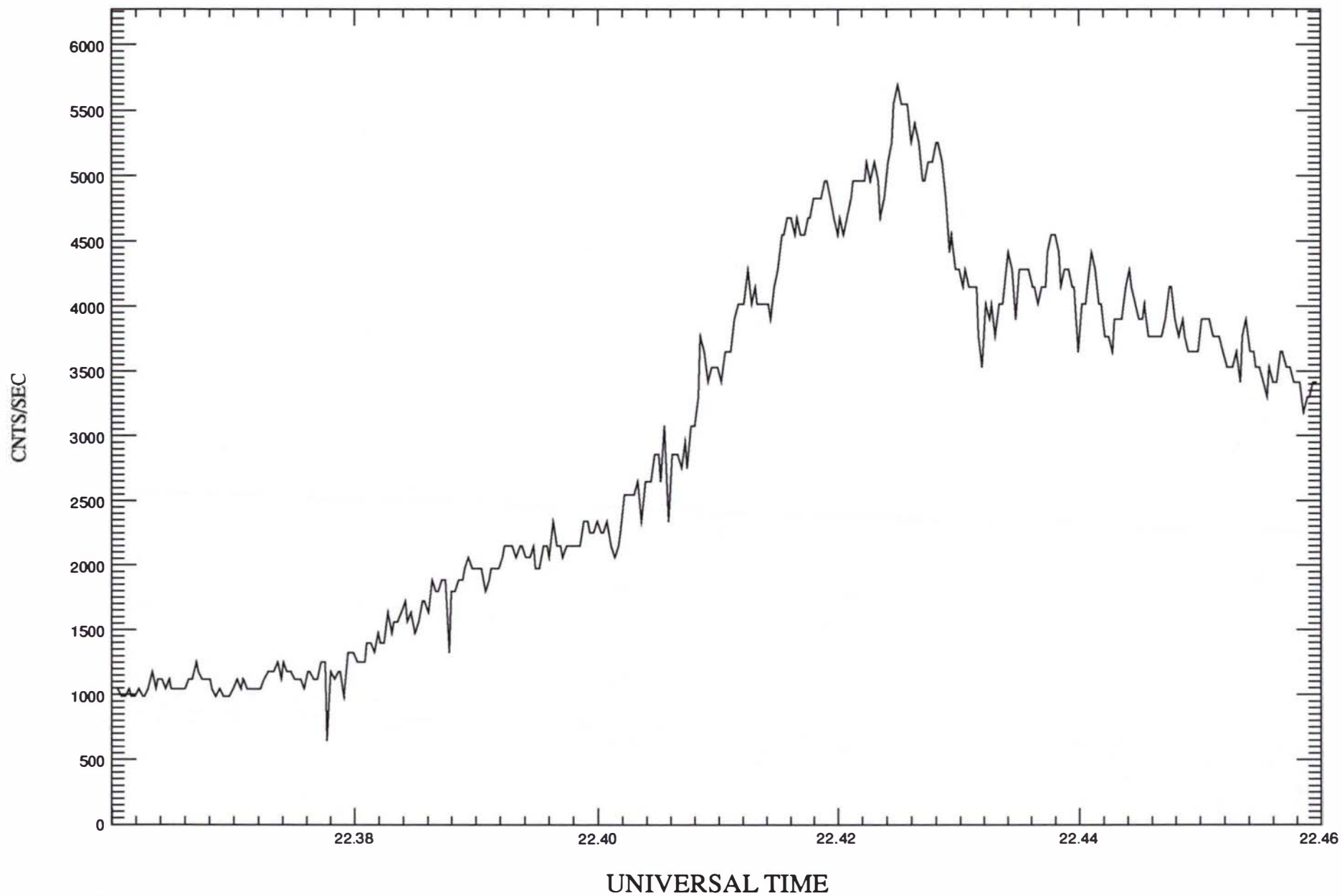


TIME, SECS

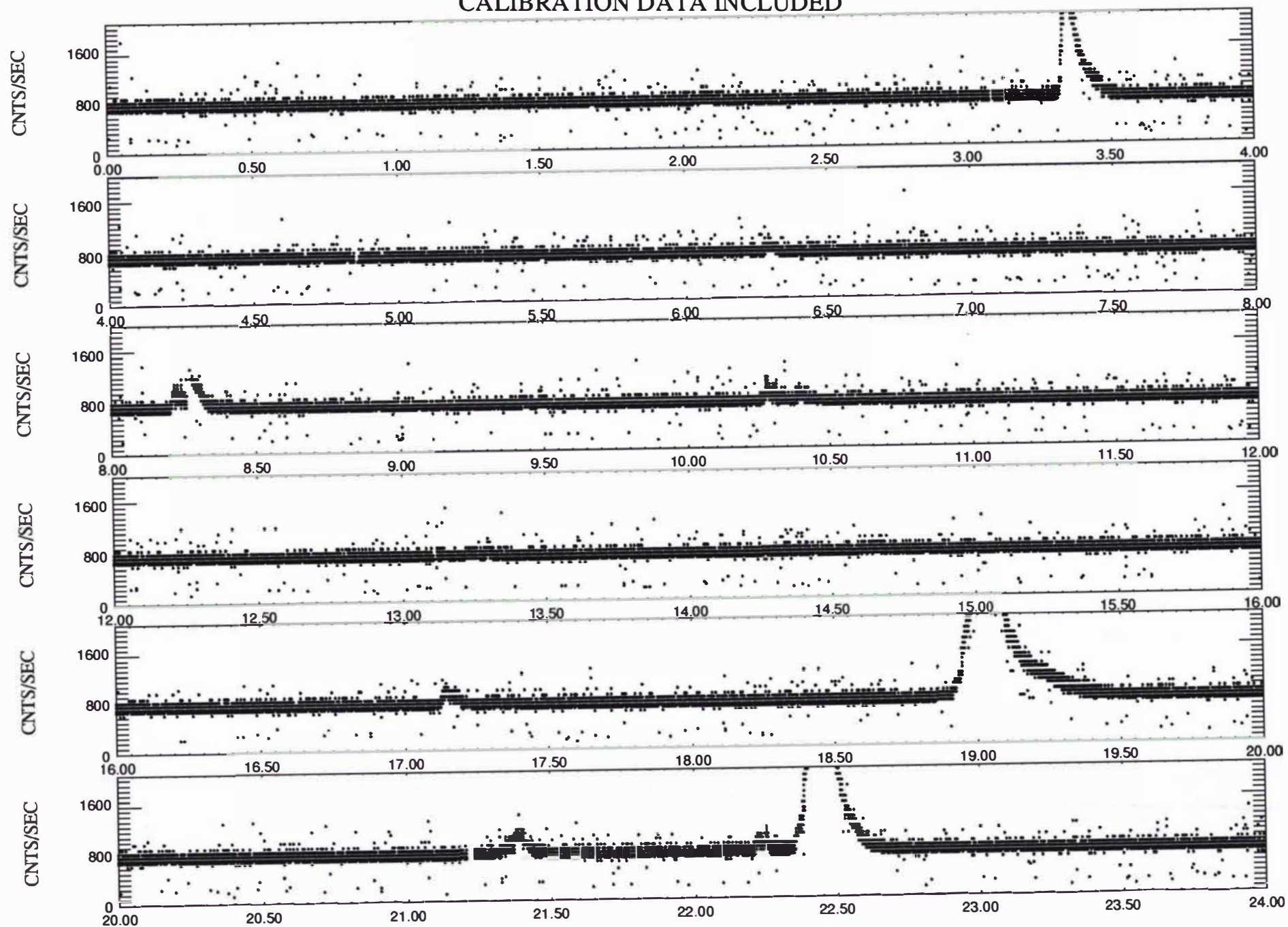


TIME, SECS

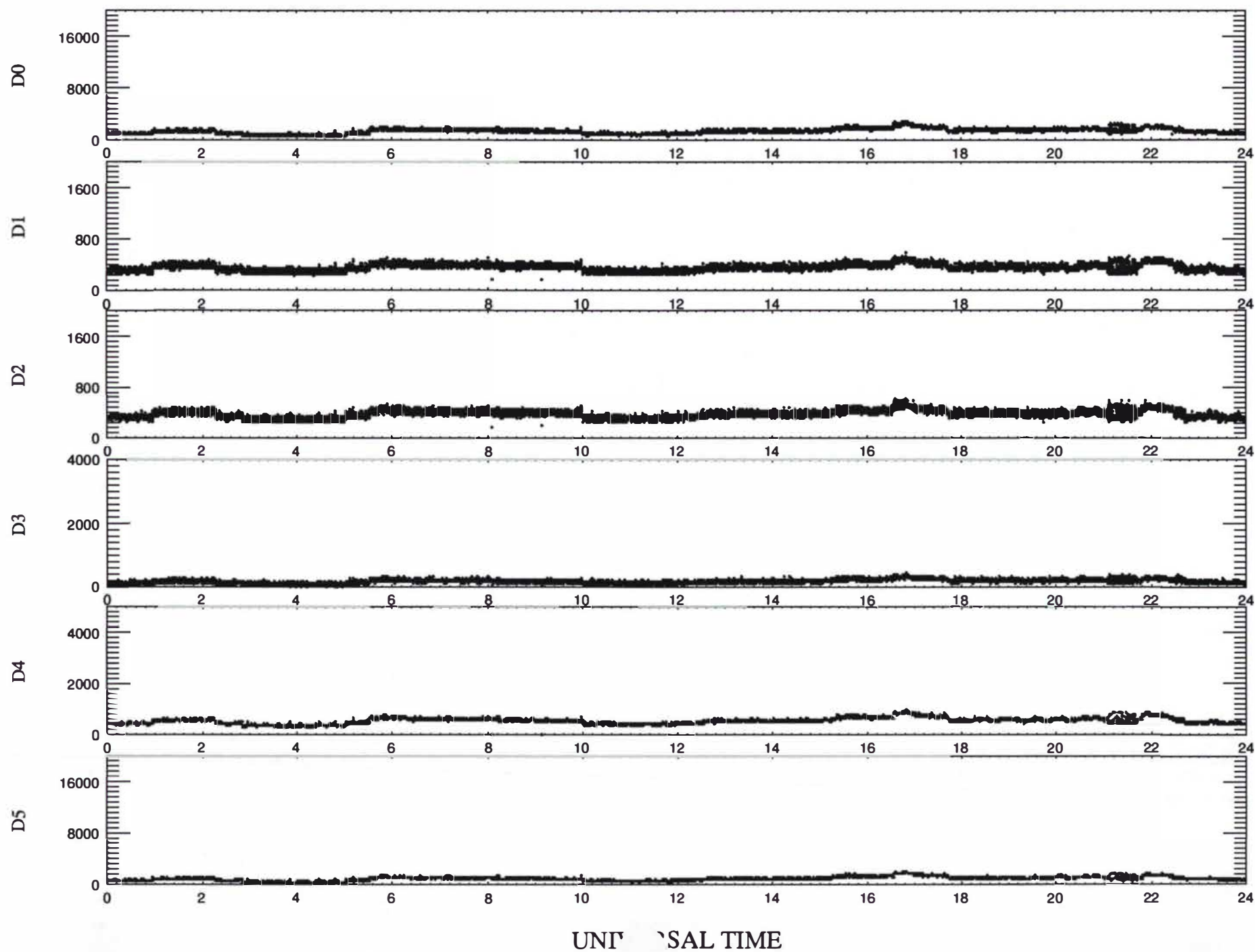
CALIBRATION DATA INCLUDED



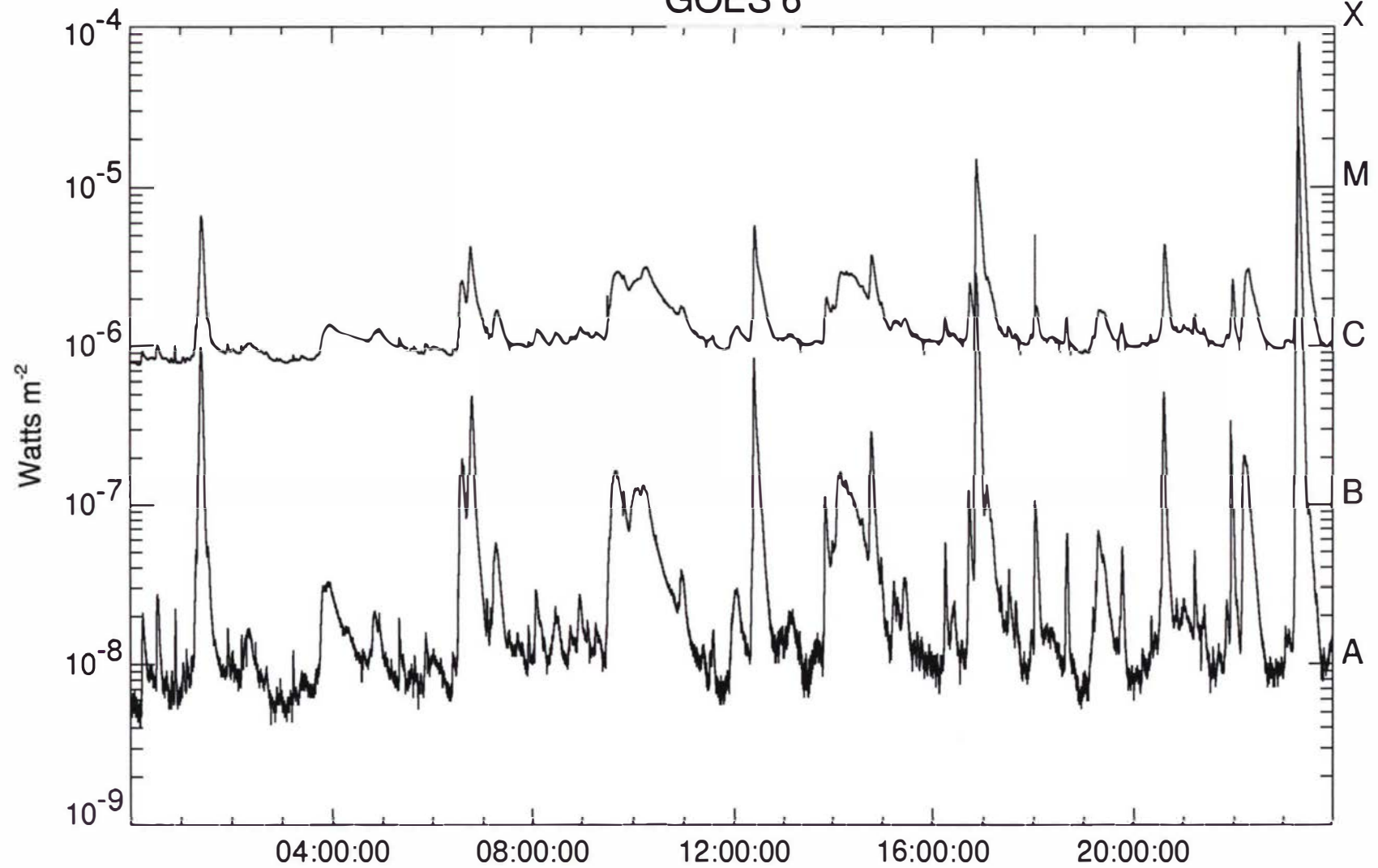
CALIBRATION DATA INCLUDED



UNL `SAL TIME



GOES 6



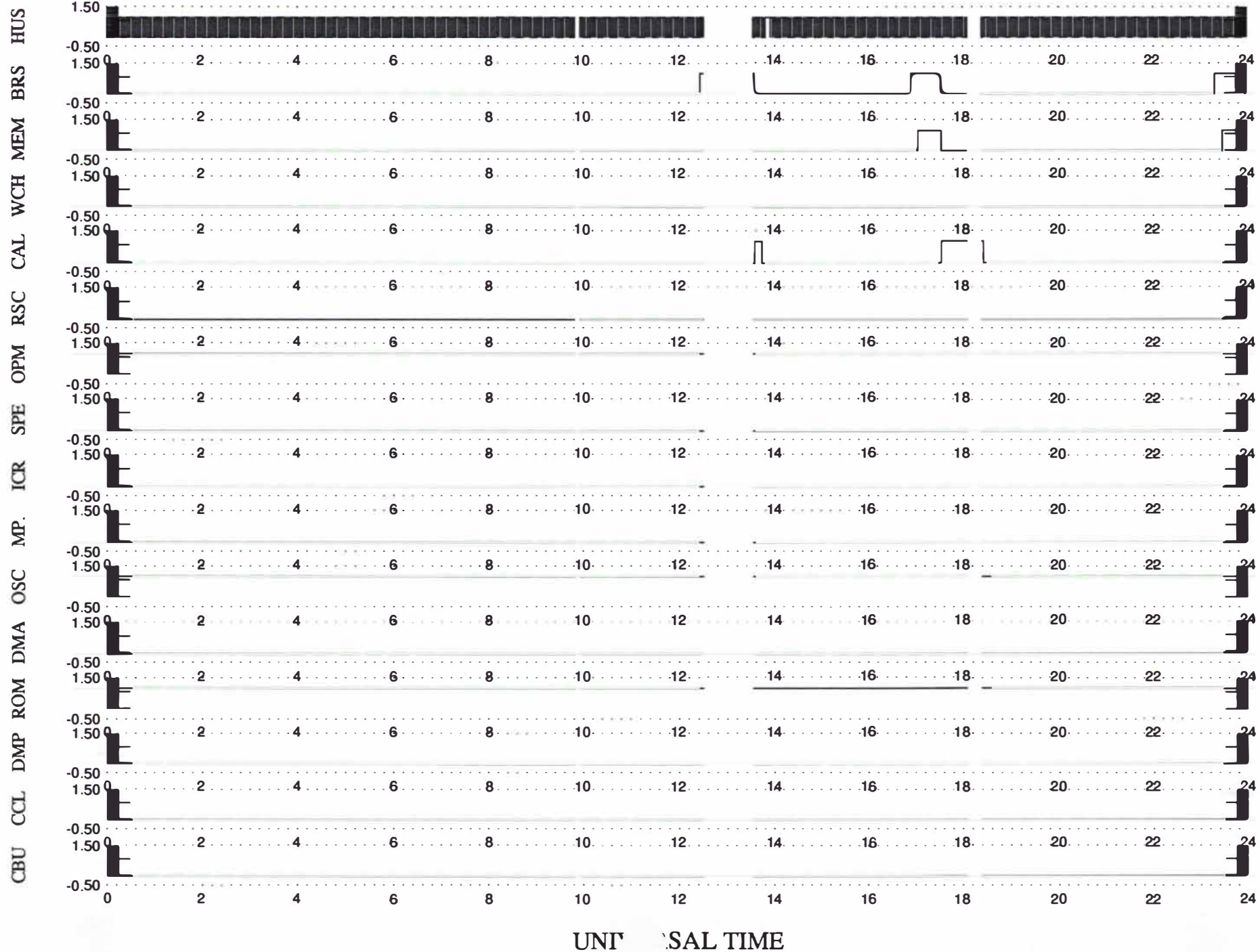
Data Start: 90/11/26, 0000:00

Plot created: 96/05/23, 1912

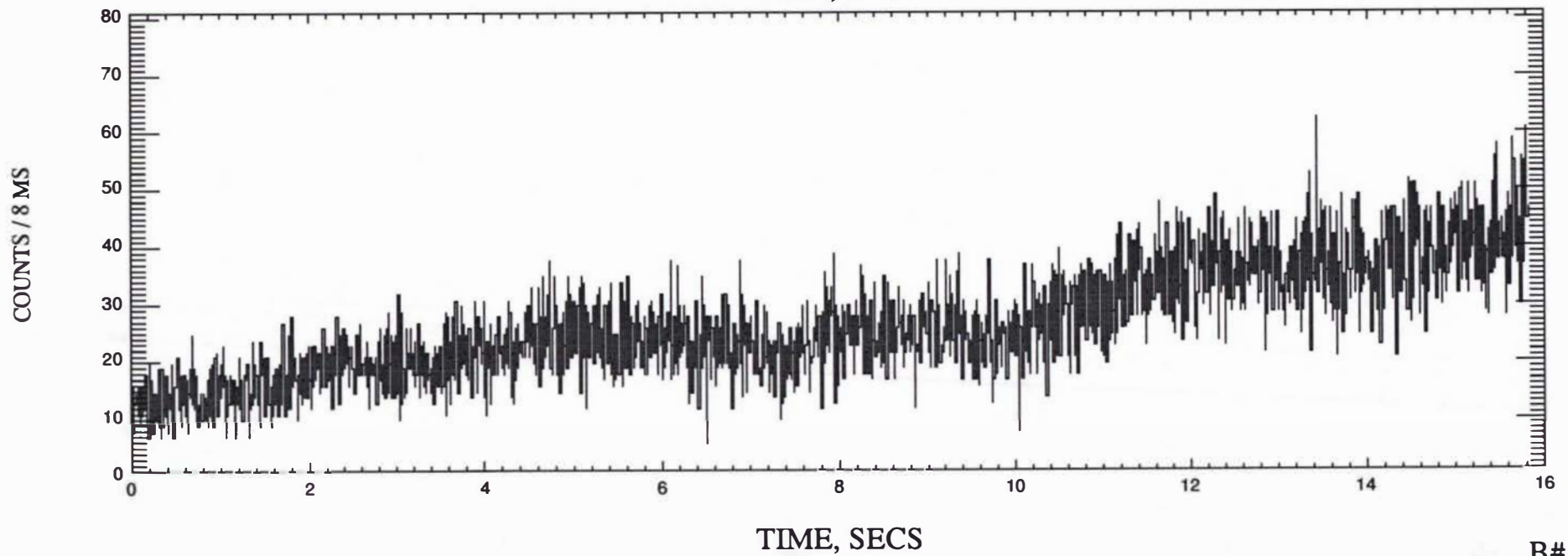
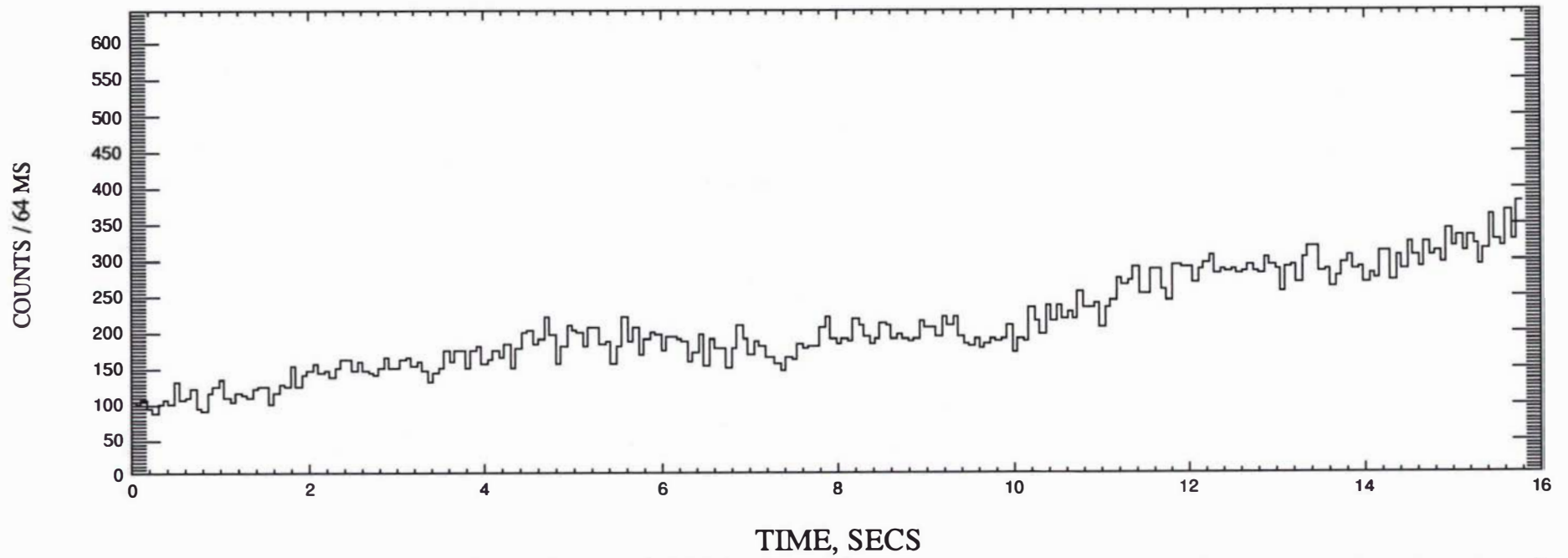
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

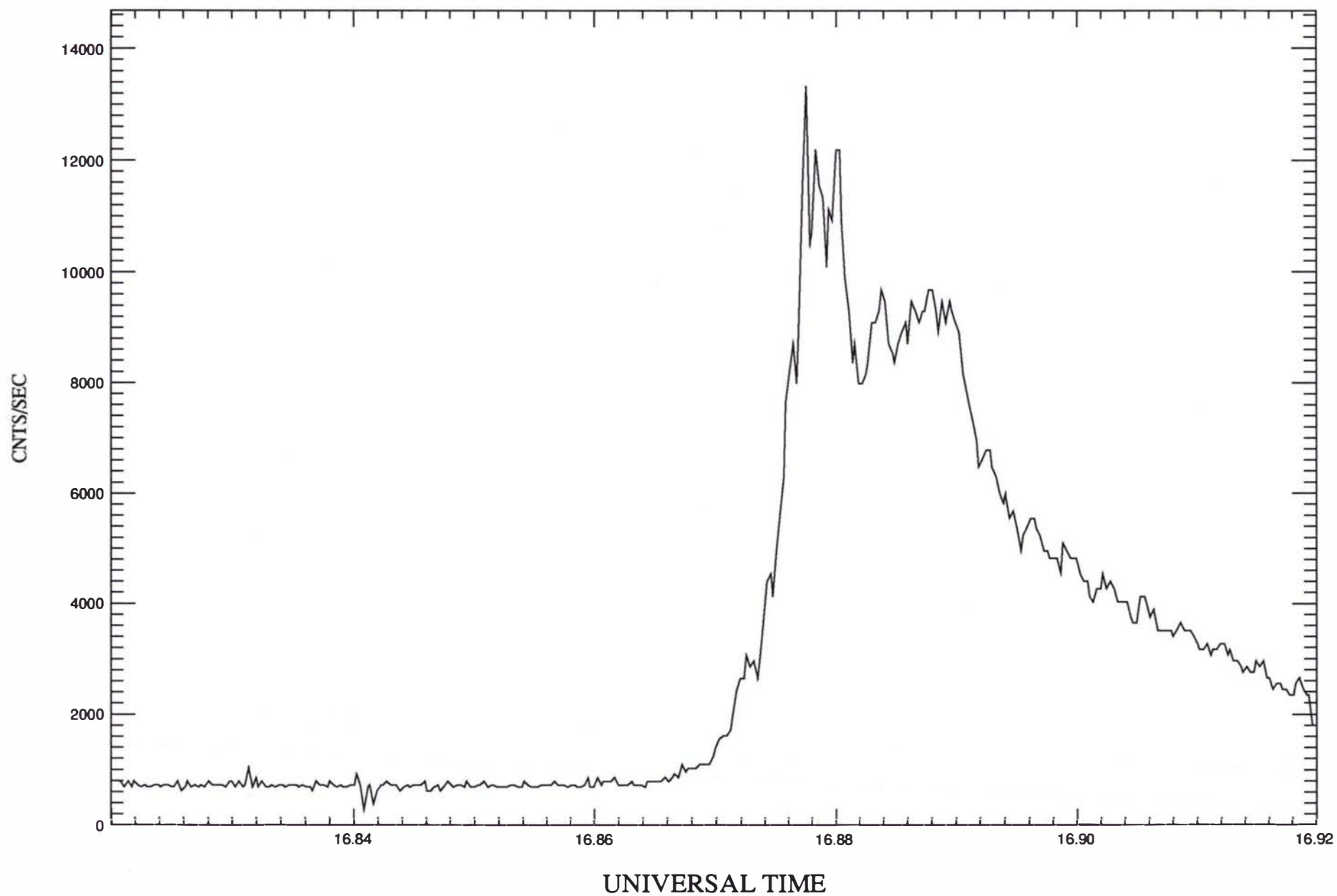
BURST NUMBER 3 - 5



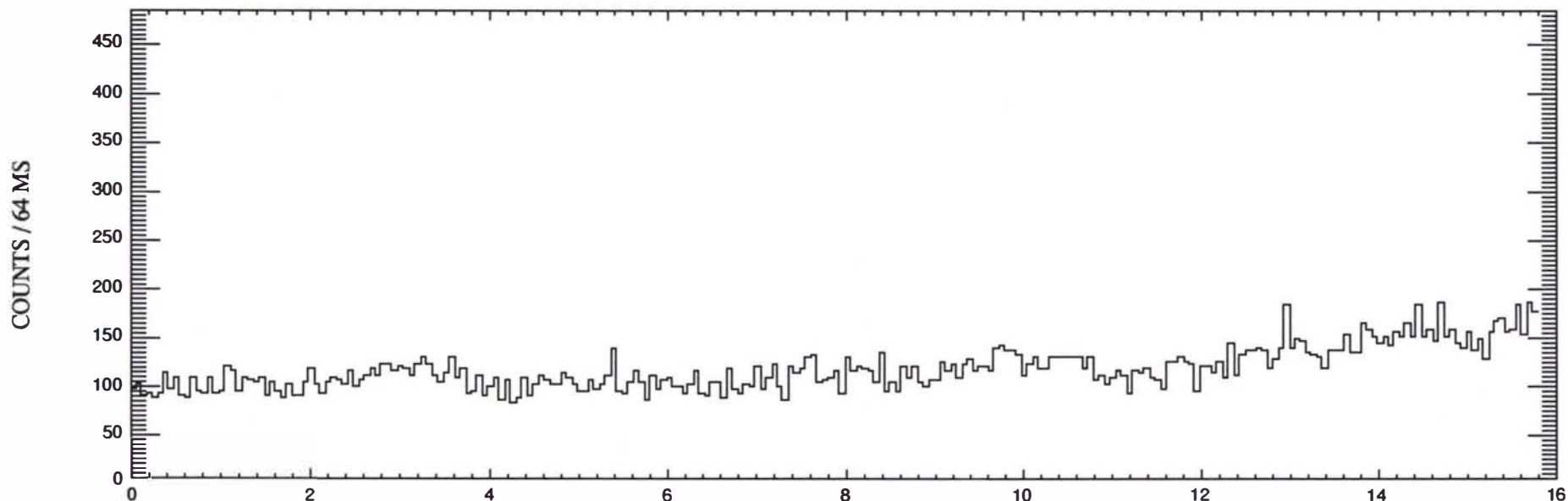
Burst Counter 4 at UT=16.871578004625 h=60737.681 s 16:52:17.681



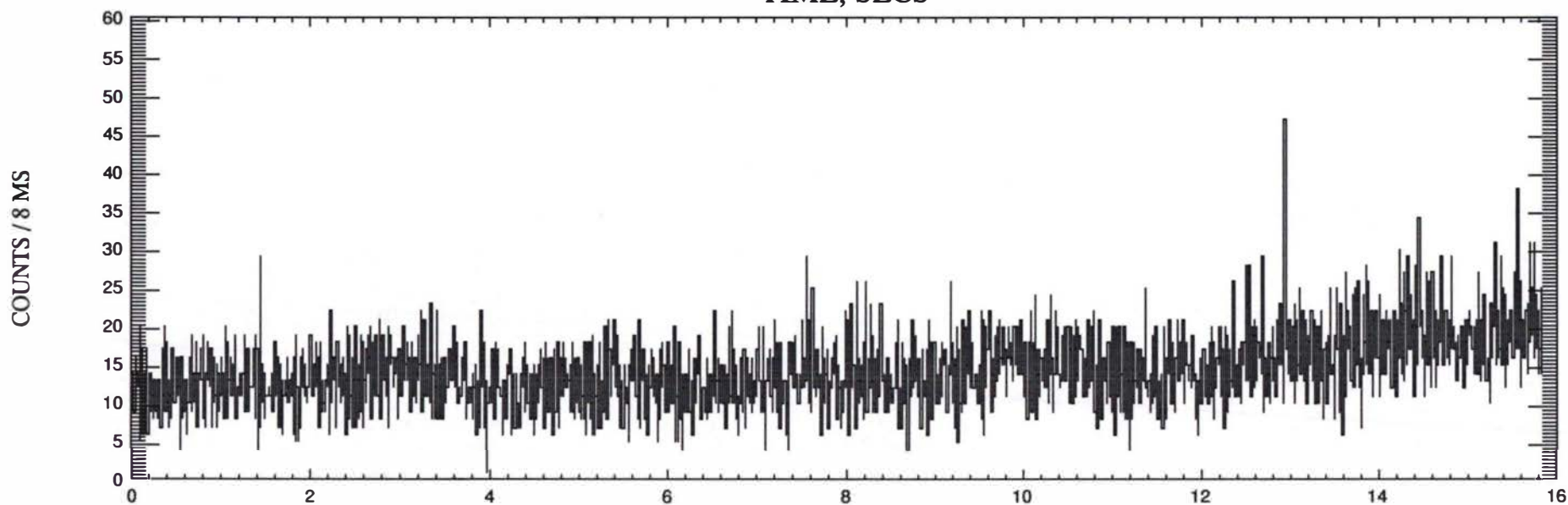
CALIBRATION DATA INCLUDED



Burst Counter 5 at UT=23.266756947835 h=83760.325 s 23:16:00.325

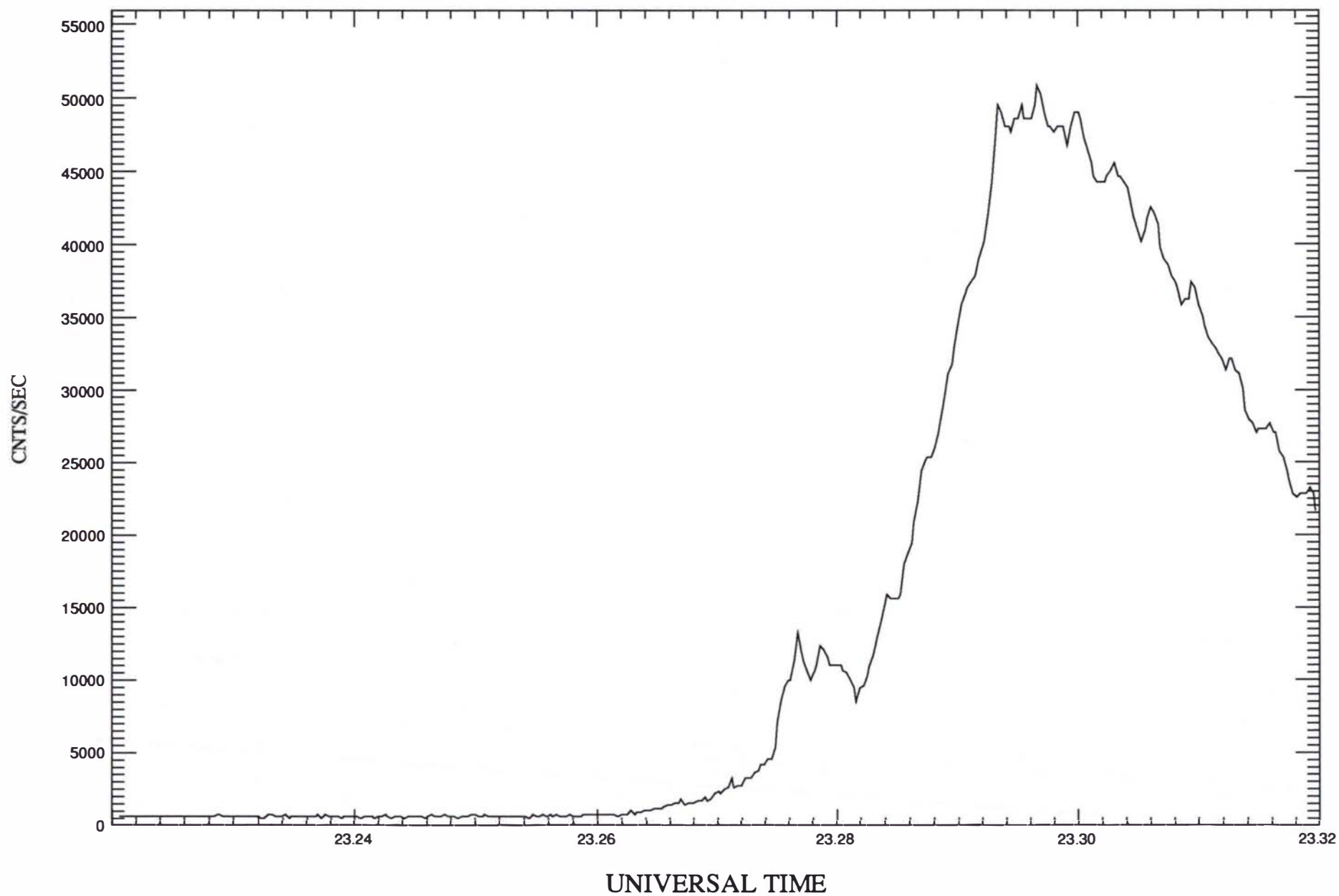


TIME, SECS

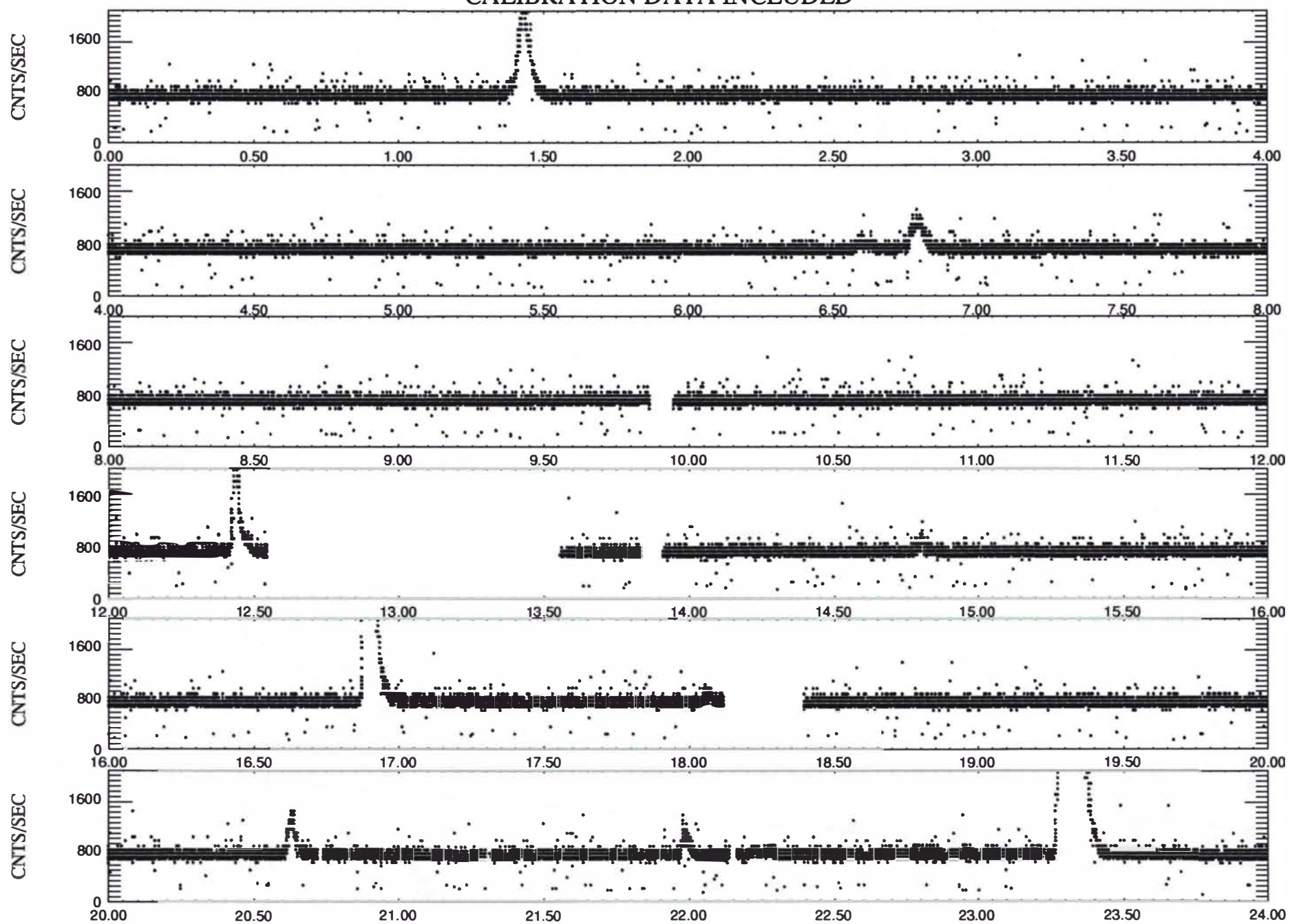


TIME, SECS

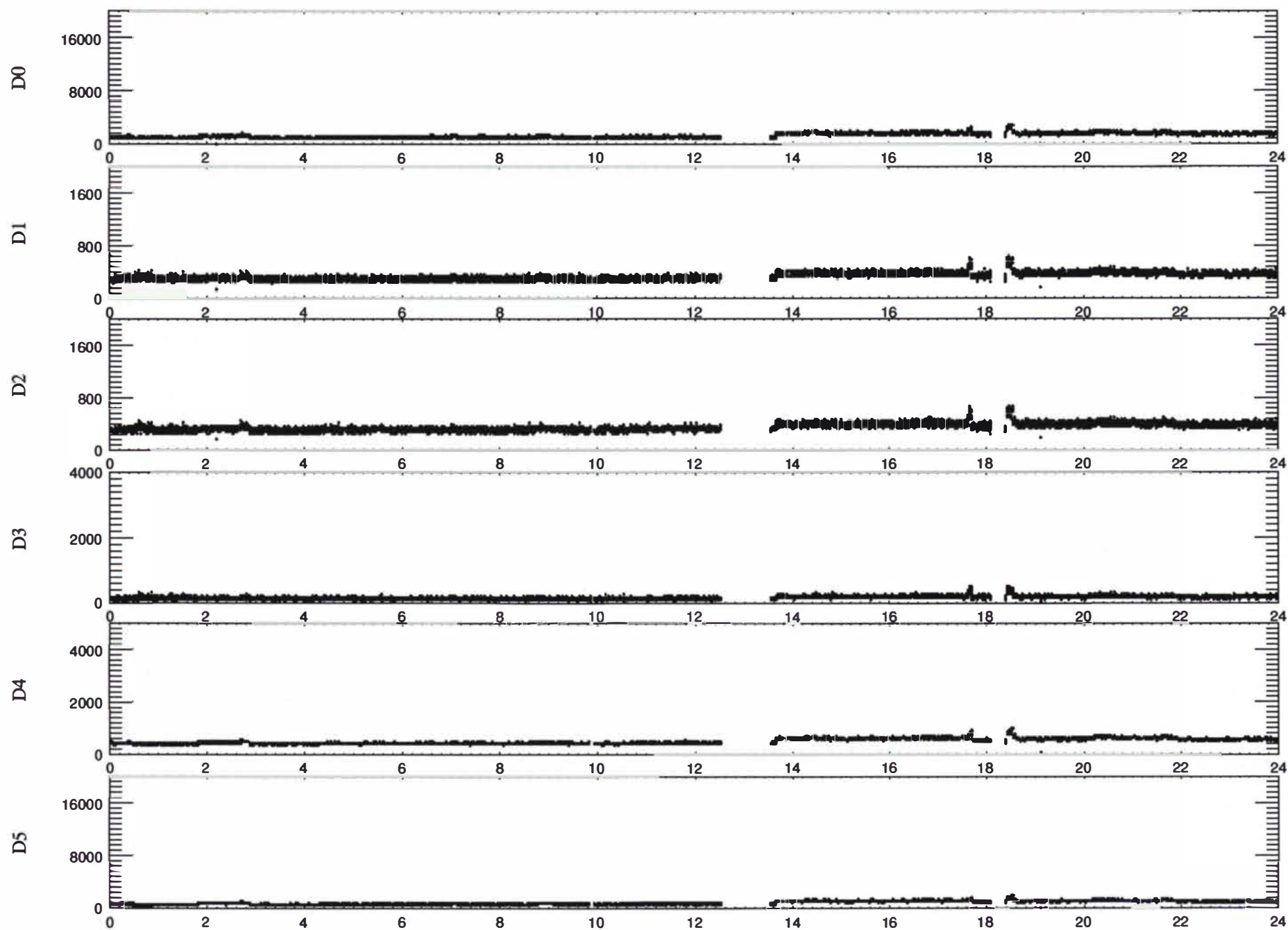
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED

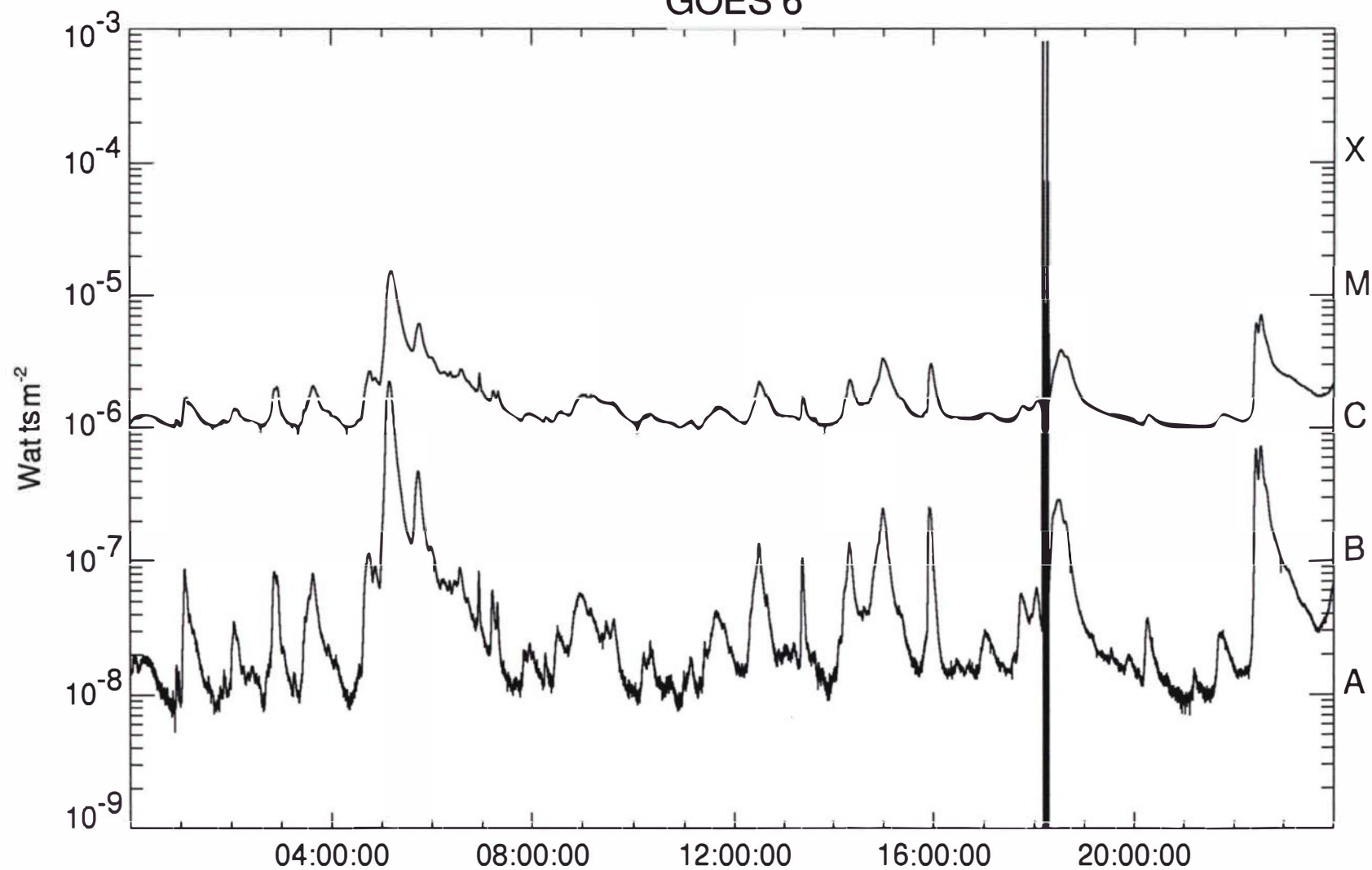


UNITS \ SAL TIME



UNITS SAL TIME

GOES 6



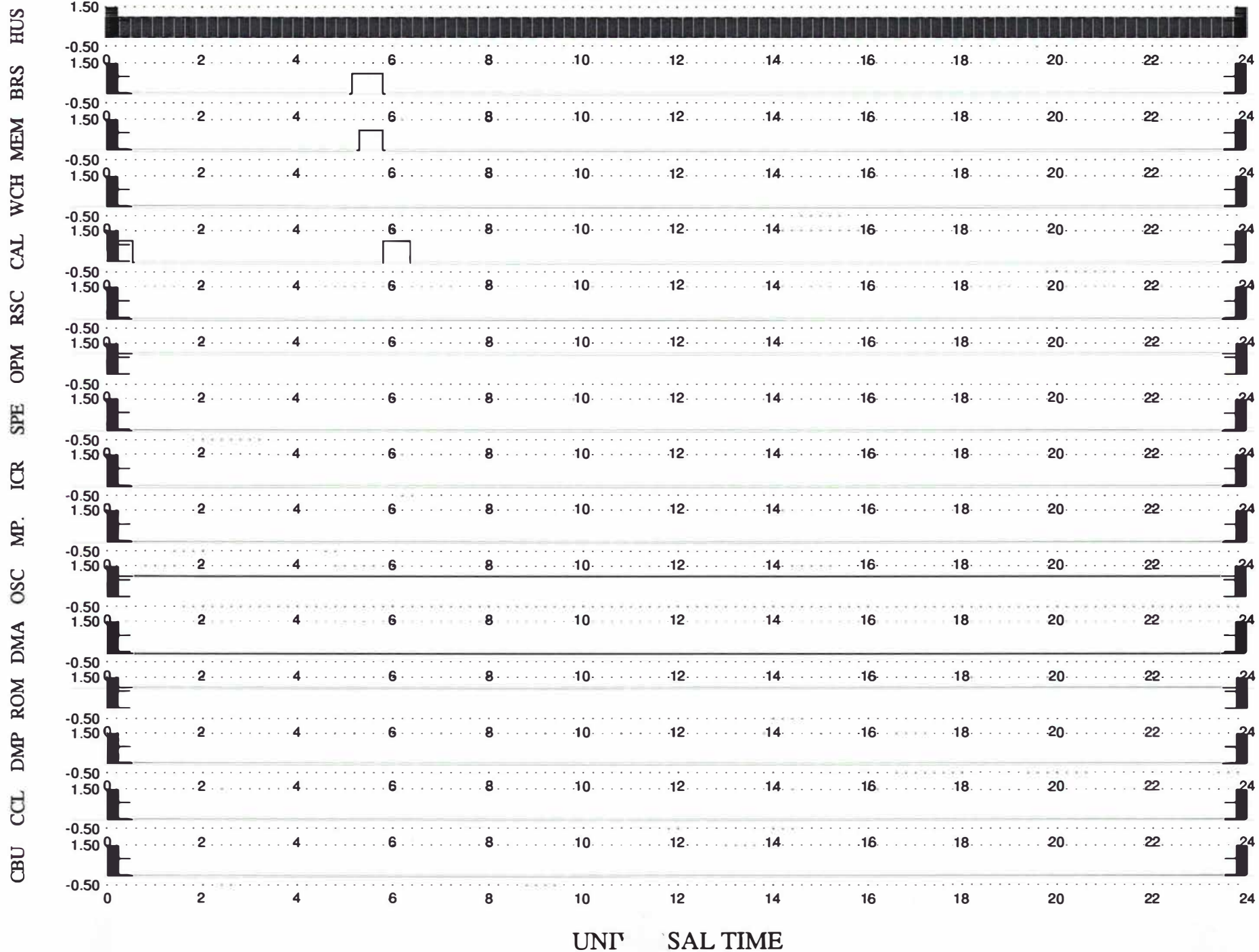
Data Start: 90/11/27, 0000:01

Plot created: 96/05/23, 1915

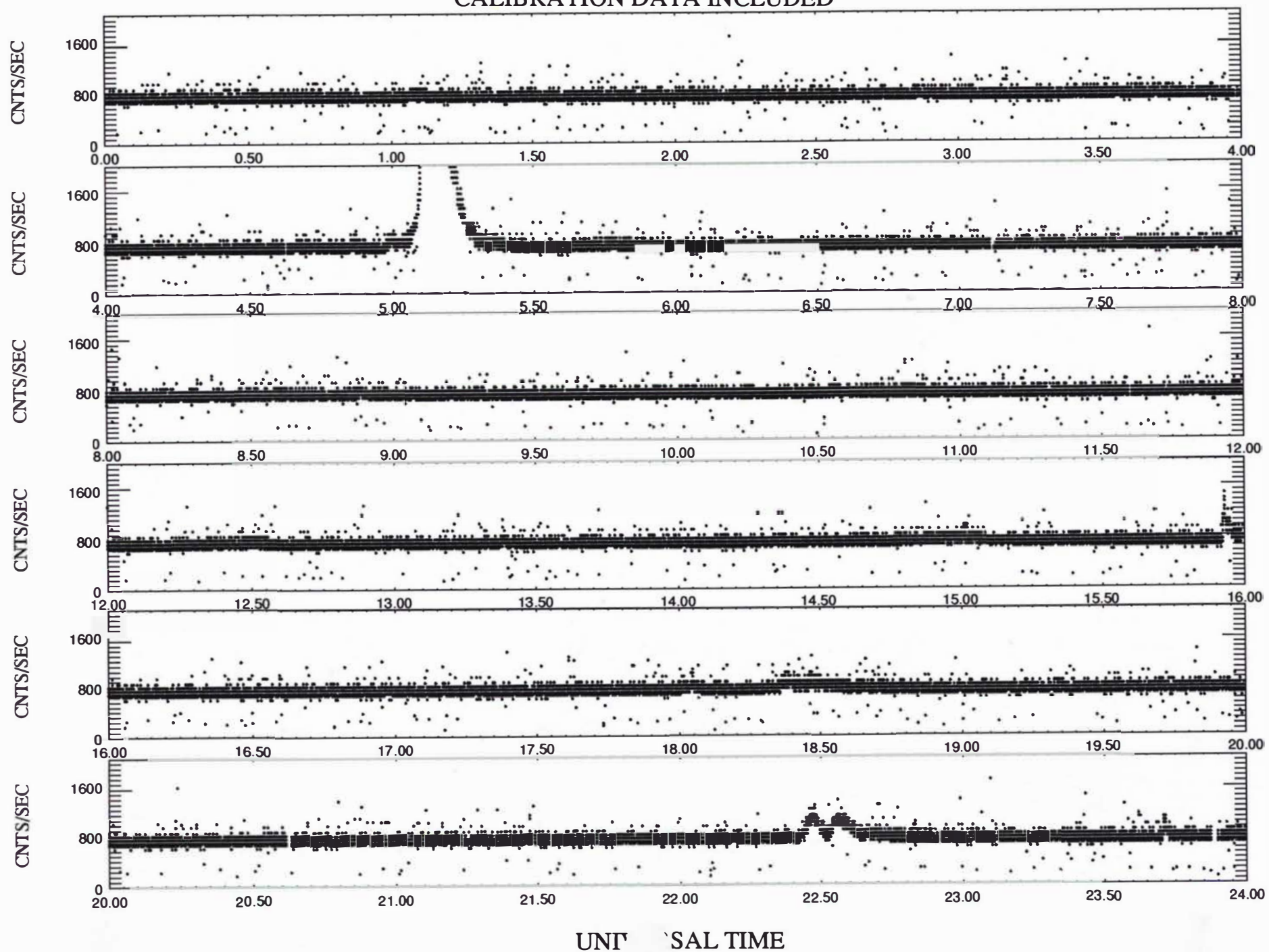
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

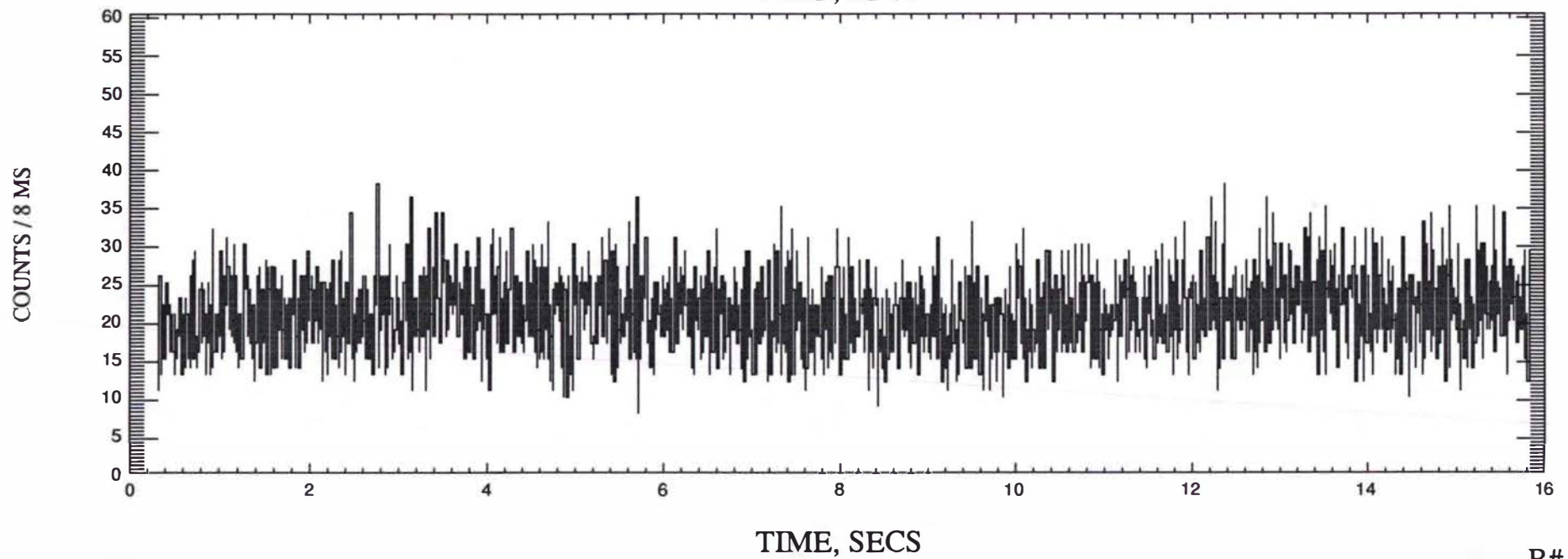
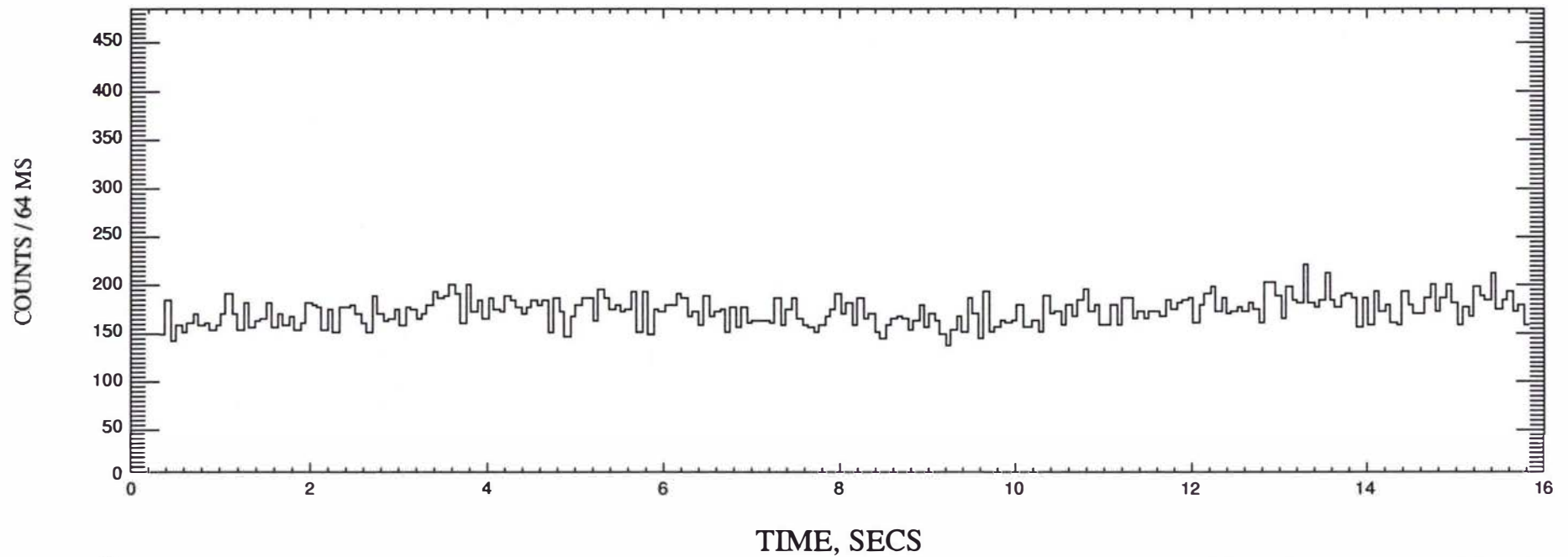
BURST NUMBER 6



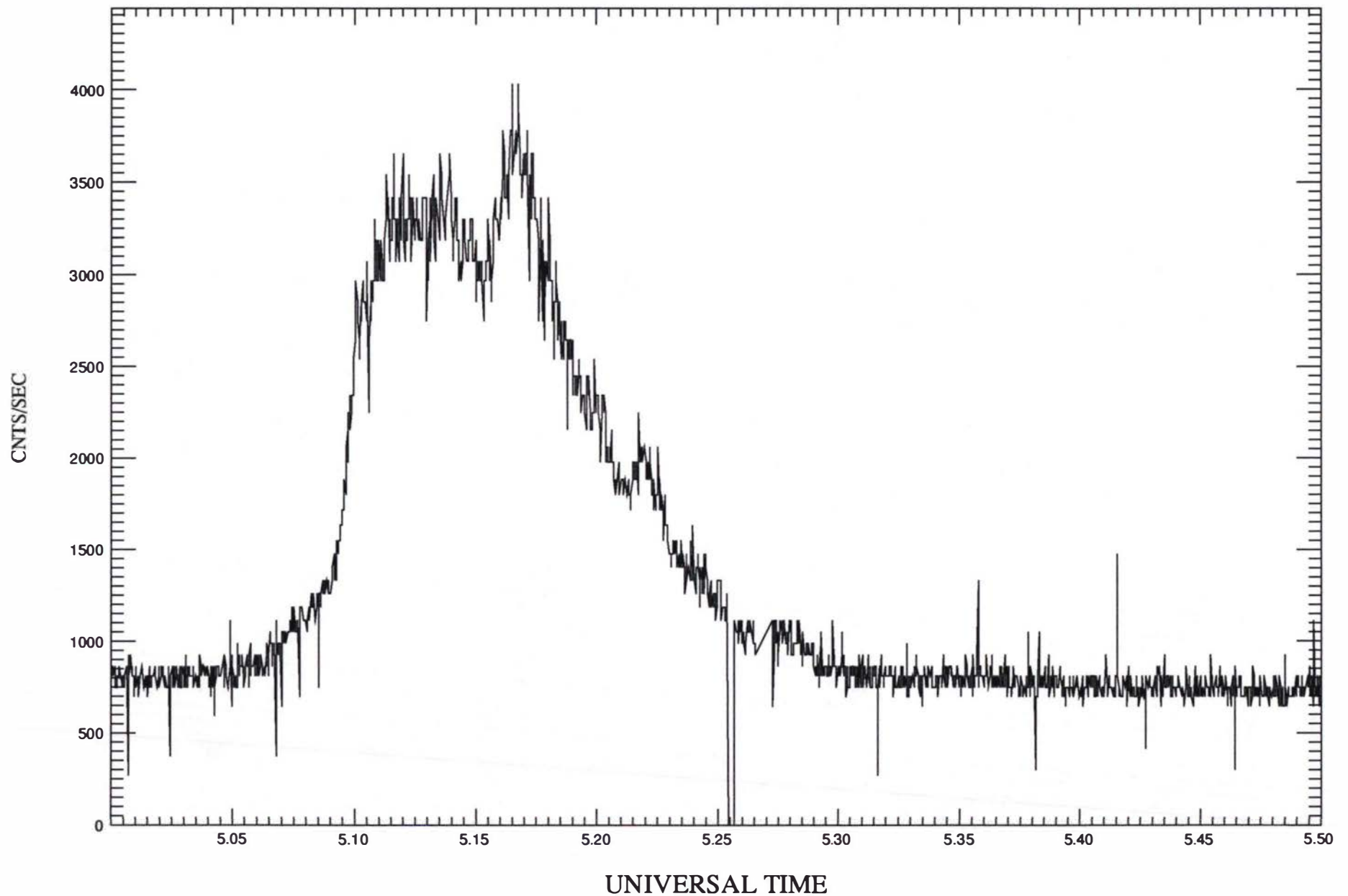
CALIBRATION DATA INCLUDED

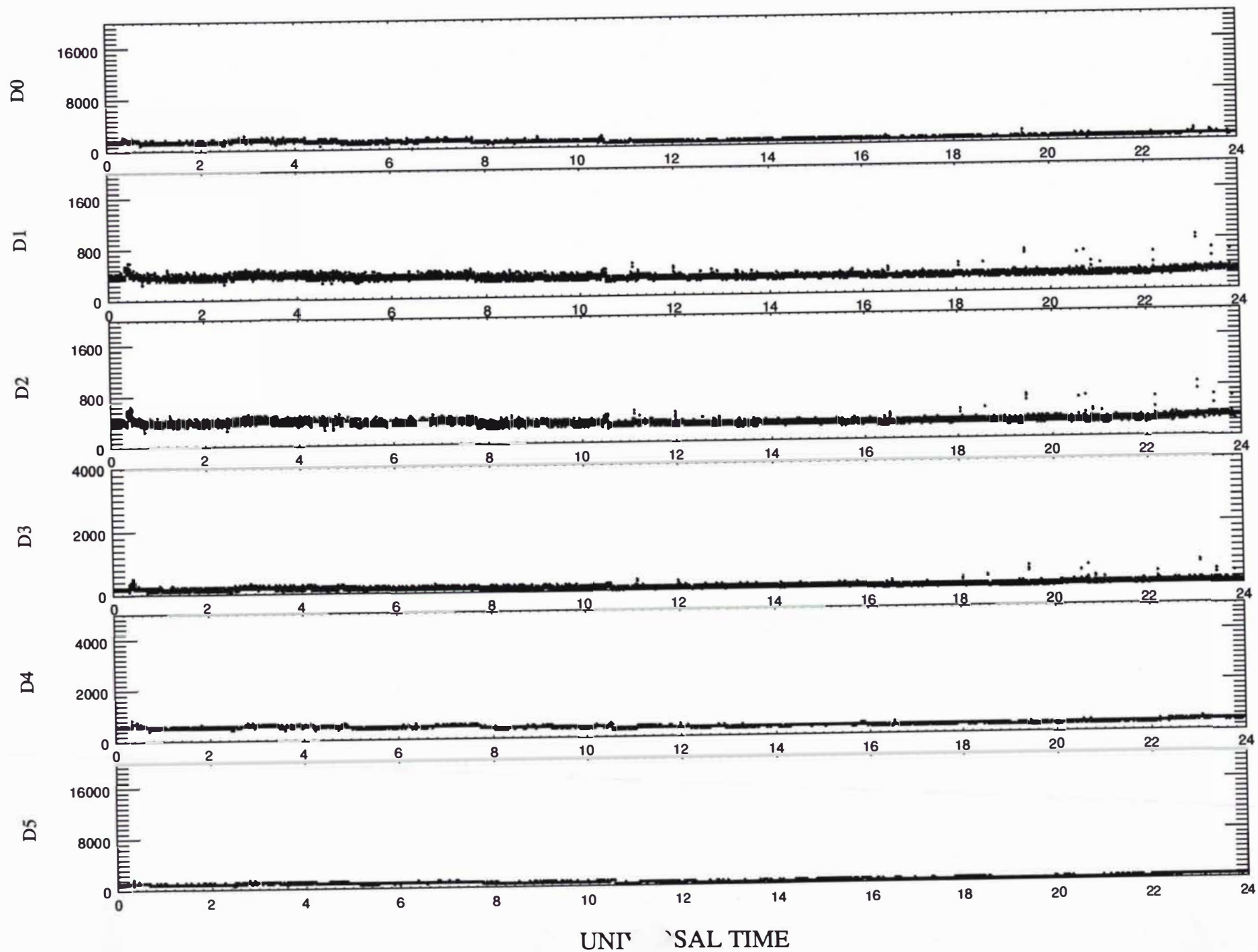


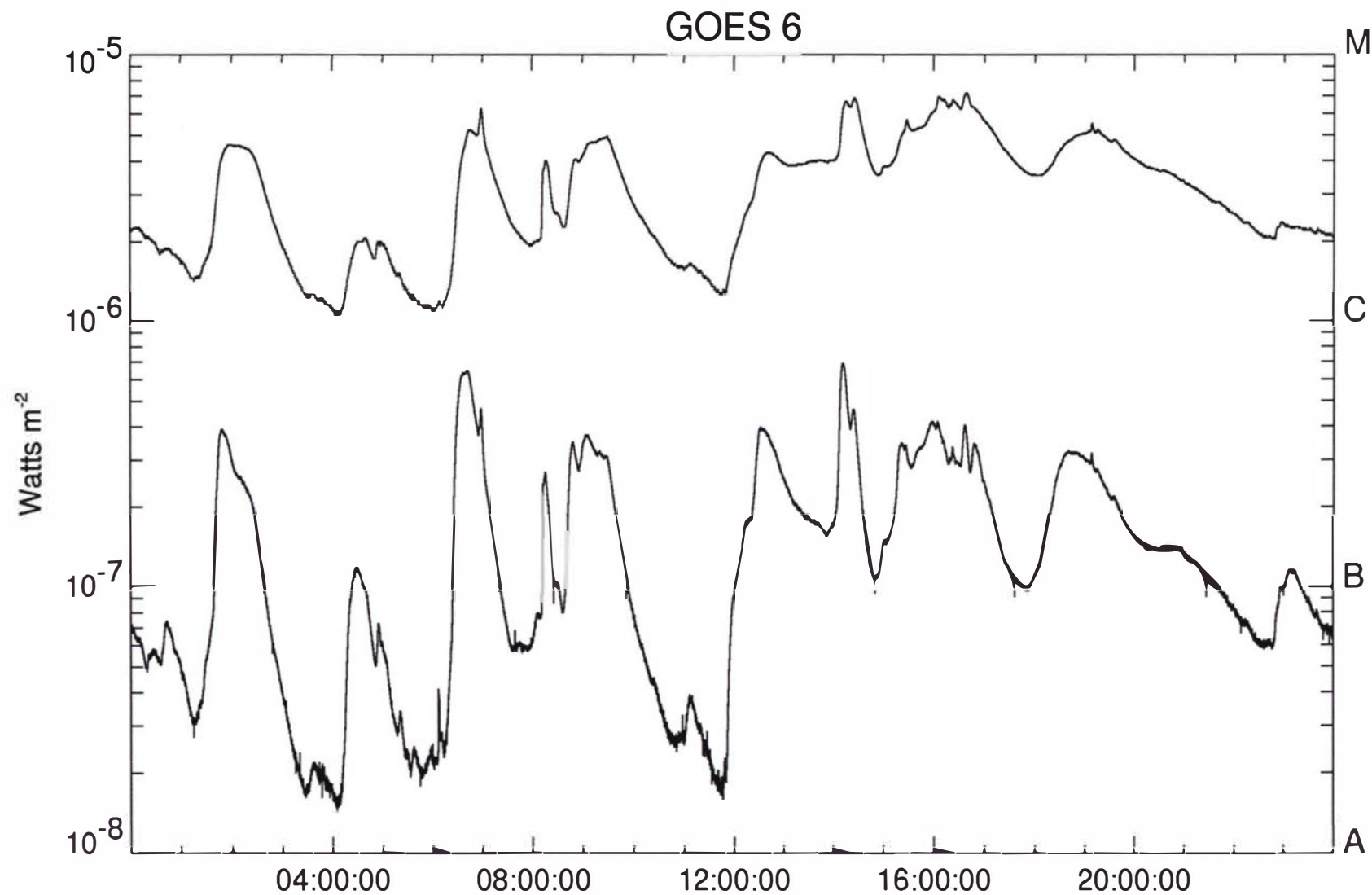
Burst Counter 6 at UT= 5.100506985982 h=18361.825 s 05:06:01.825



CALIBRATION DATA INCLUDED







Data Start: 90/11/28, 0000:02

Plot created: 96/05/23, 1918

Channel

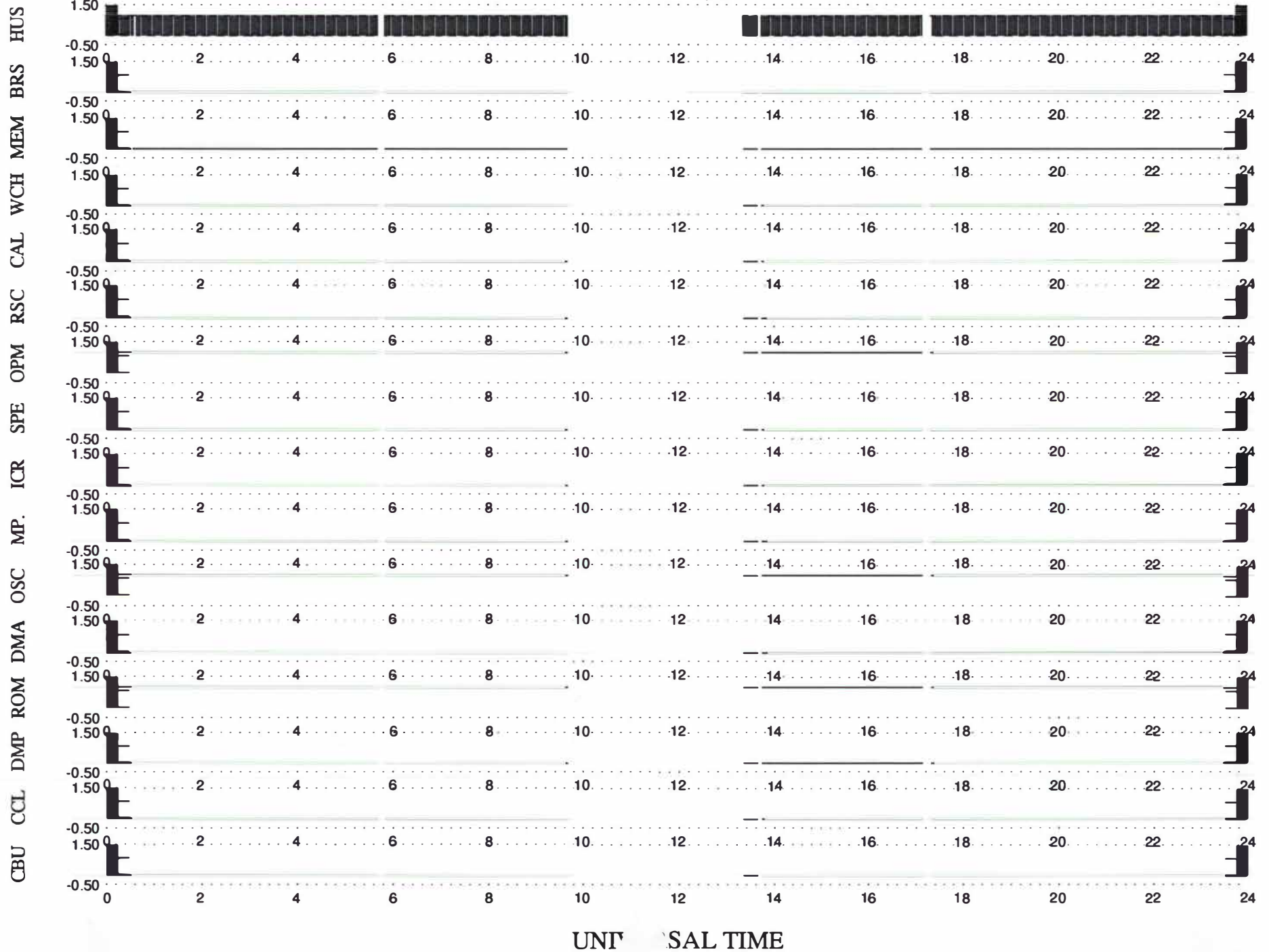
1 (1.0 - 8.0 Angstroms)

Background not subtracted

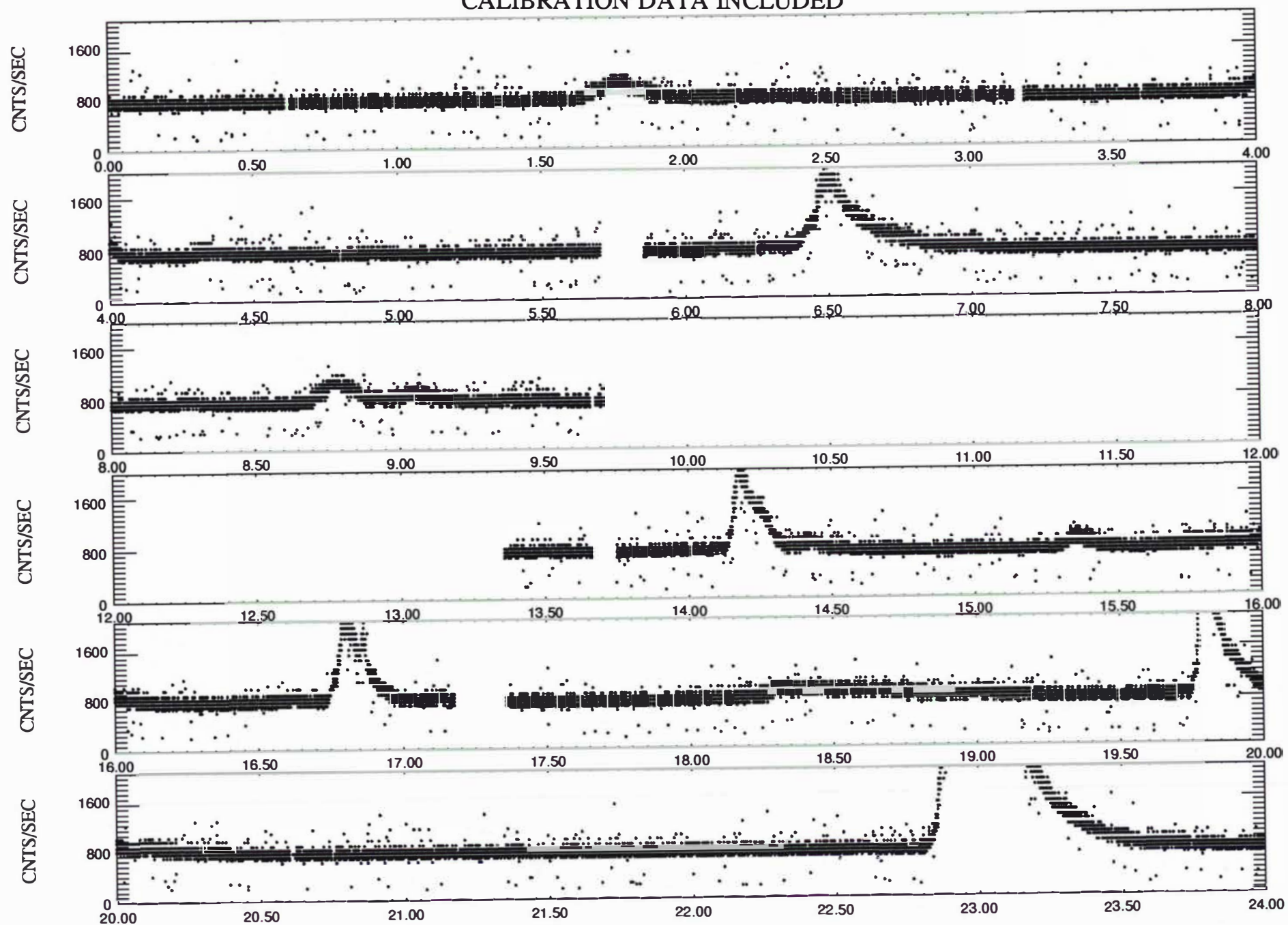
2 (0.5 - 4.0 Angstroms)

Background not subtracted

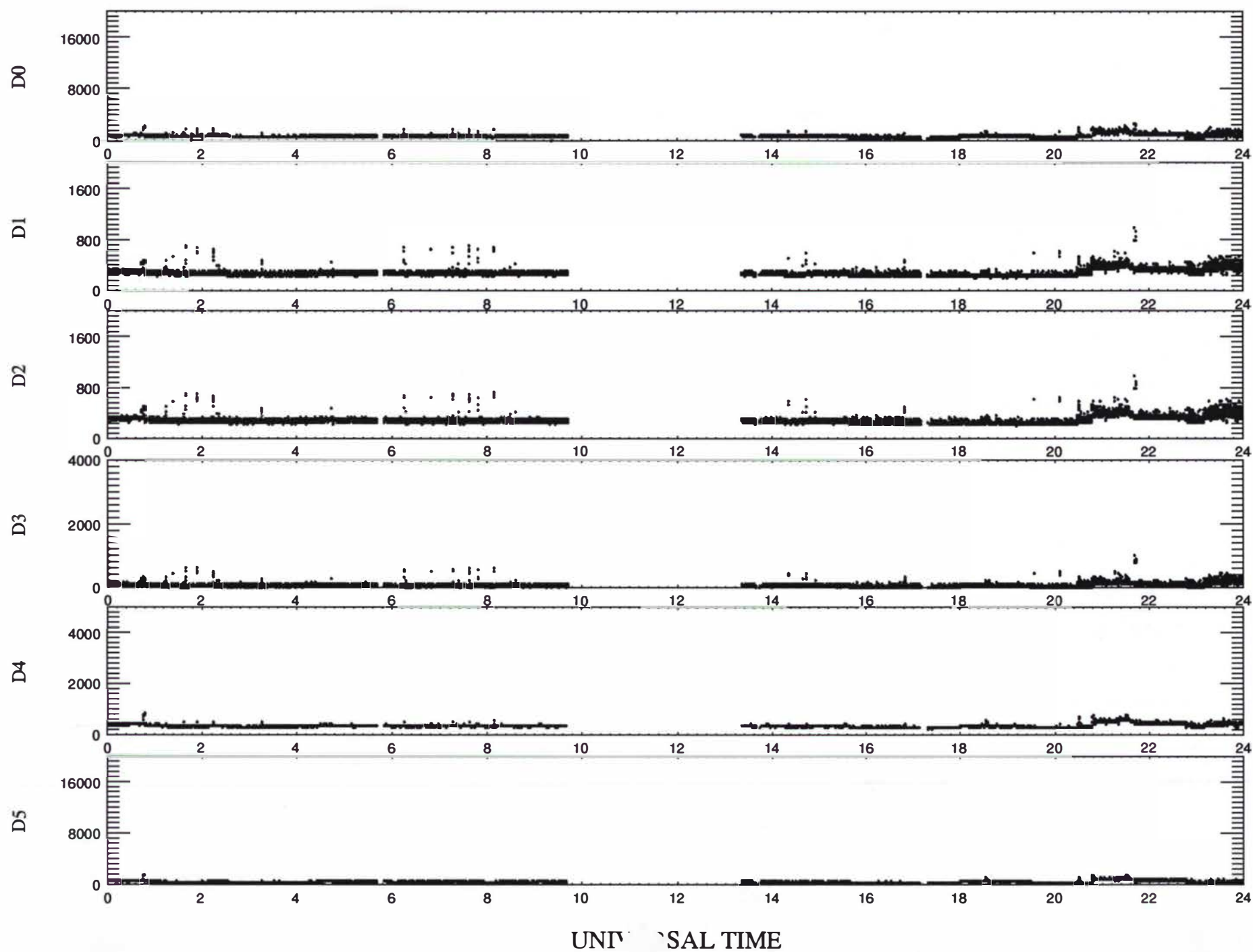
NO BURST (6)

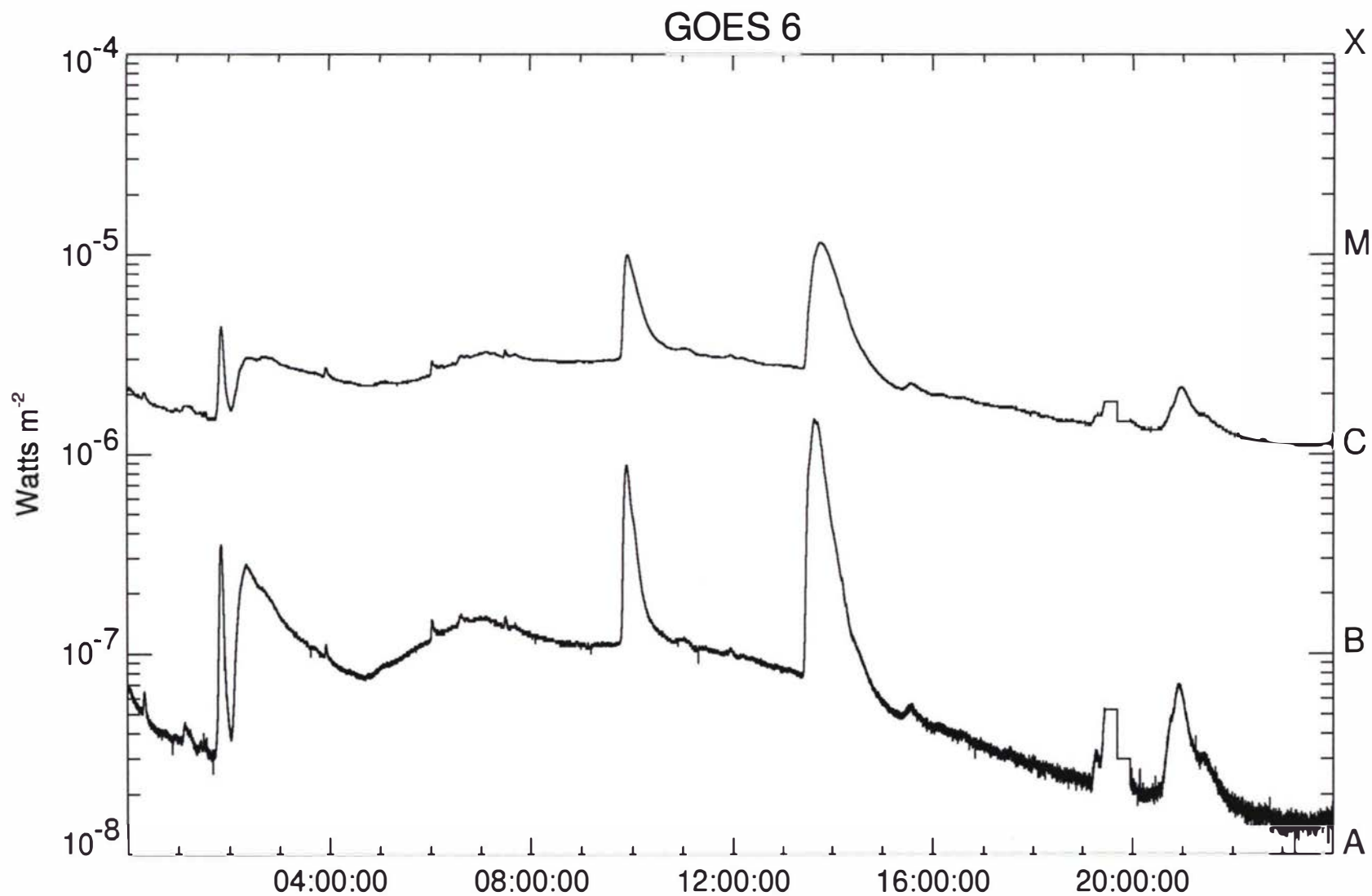


CALIBRATION DATA INCLUDED



UNITS SAL TIME





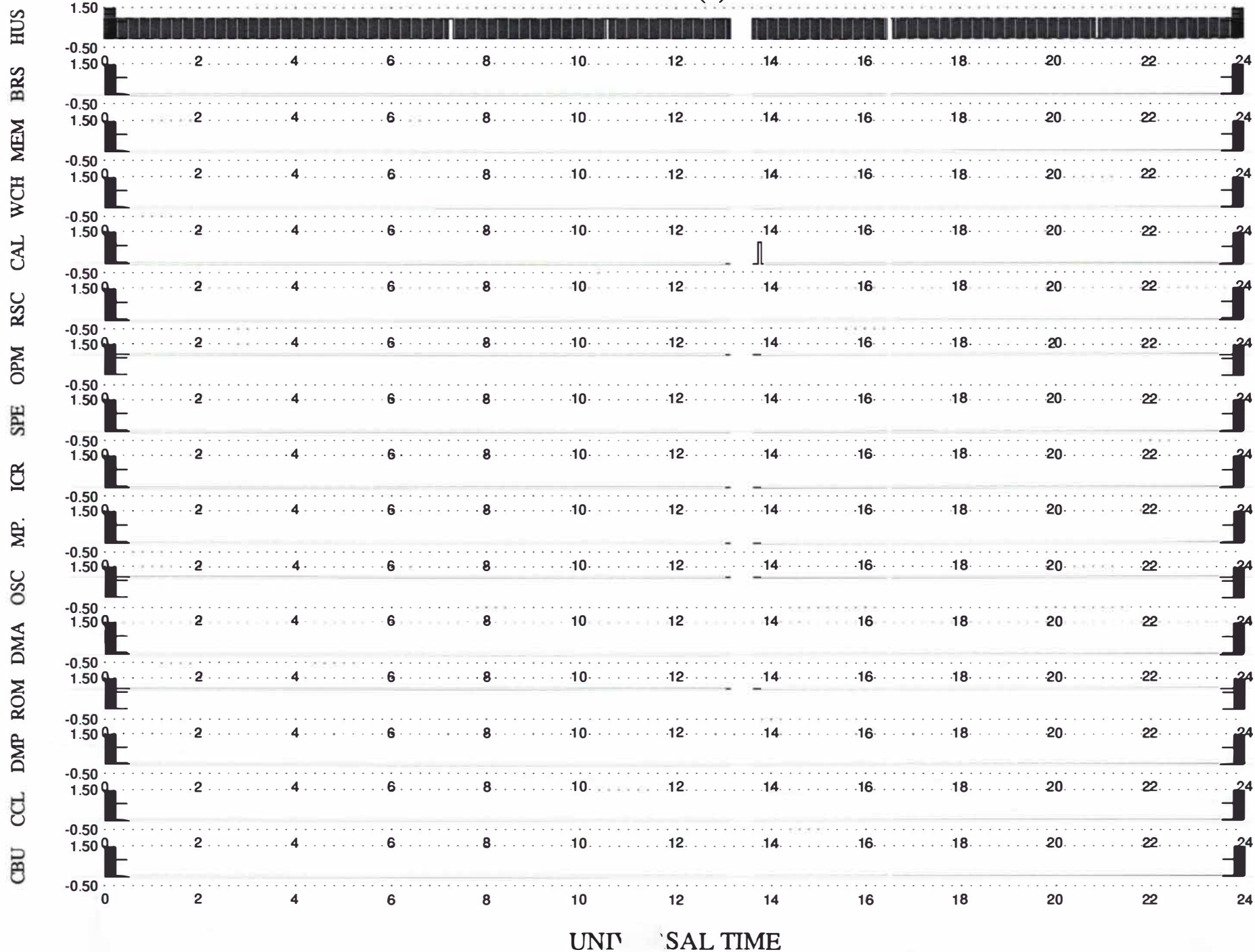
Data Start: 90/11/29, 0000:00

Plot created: 96/05/23, 1921

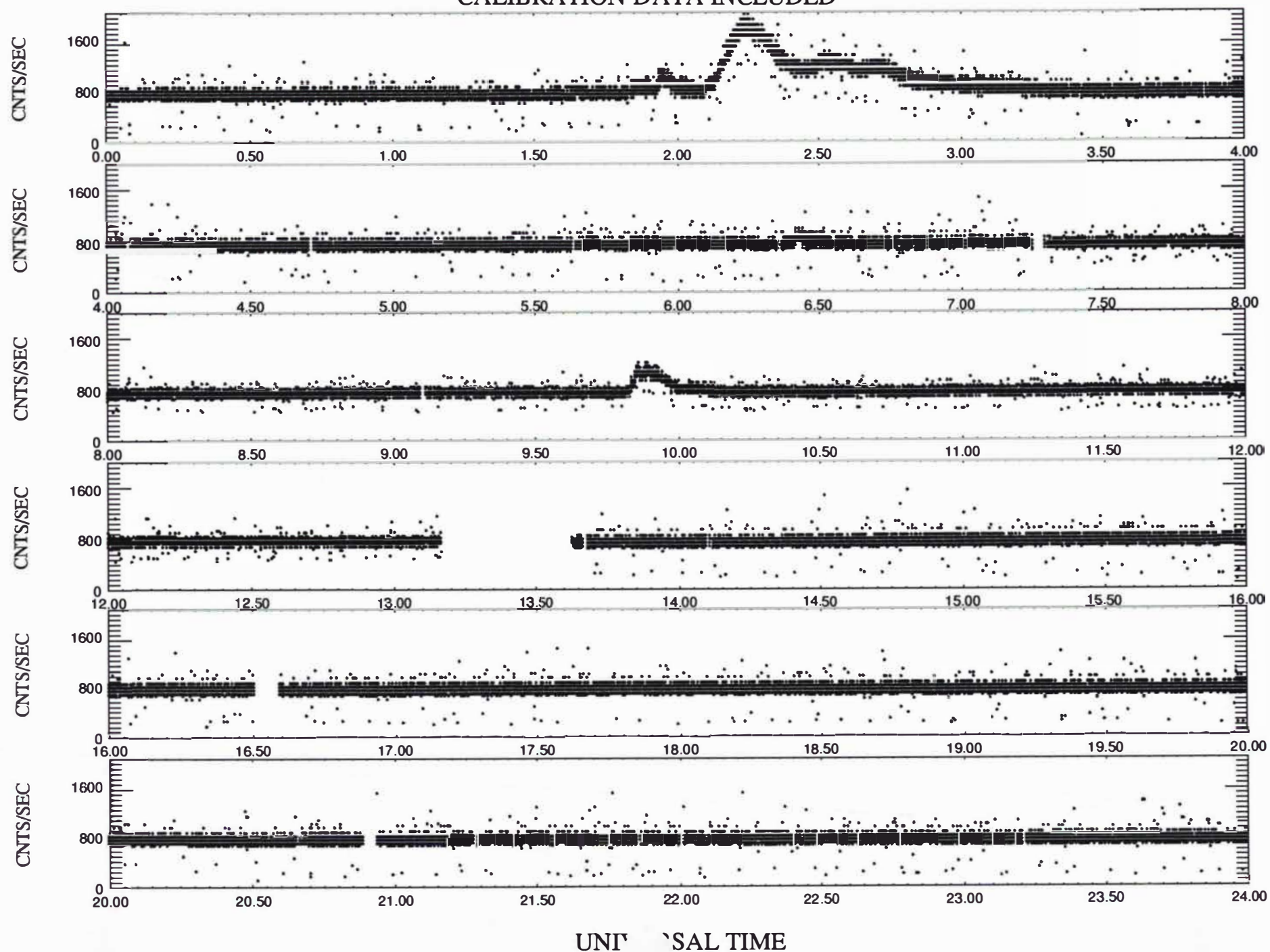
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

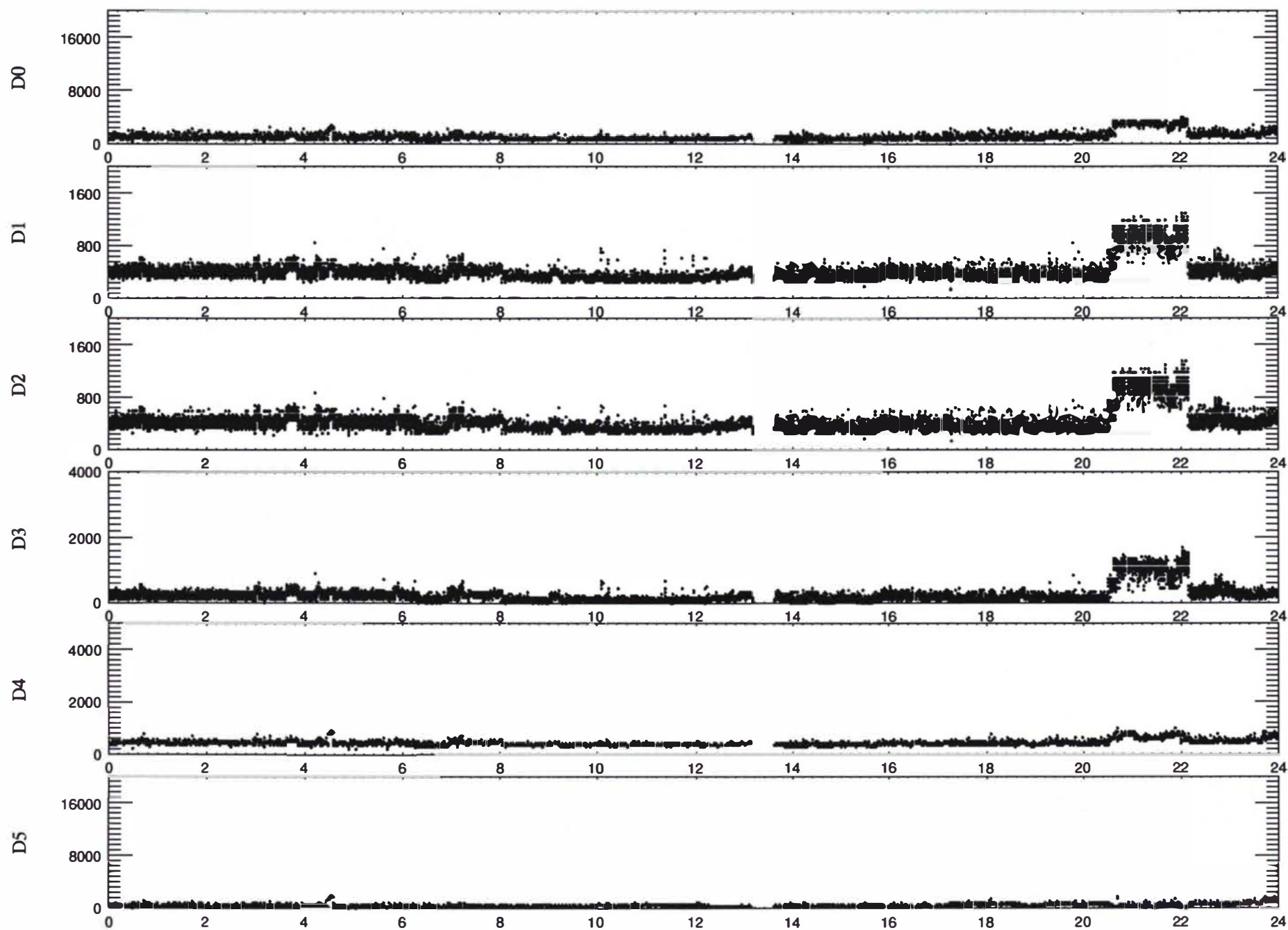
2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (6)

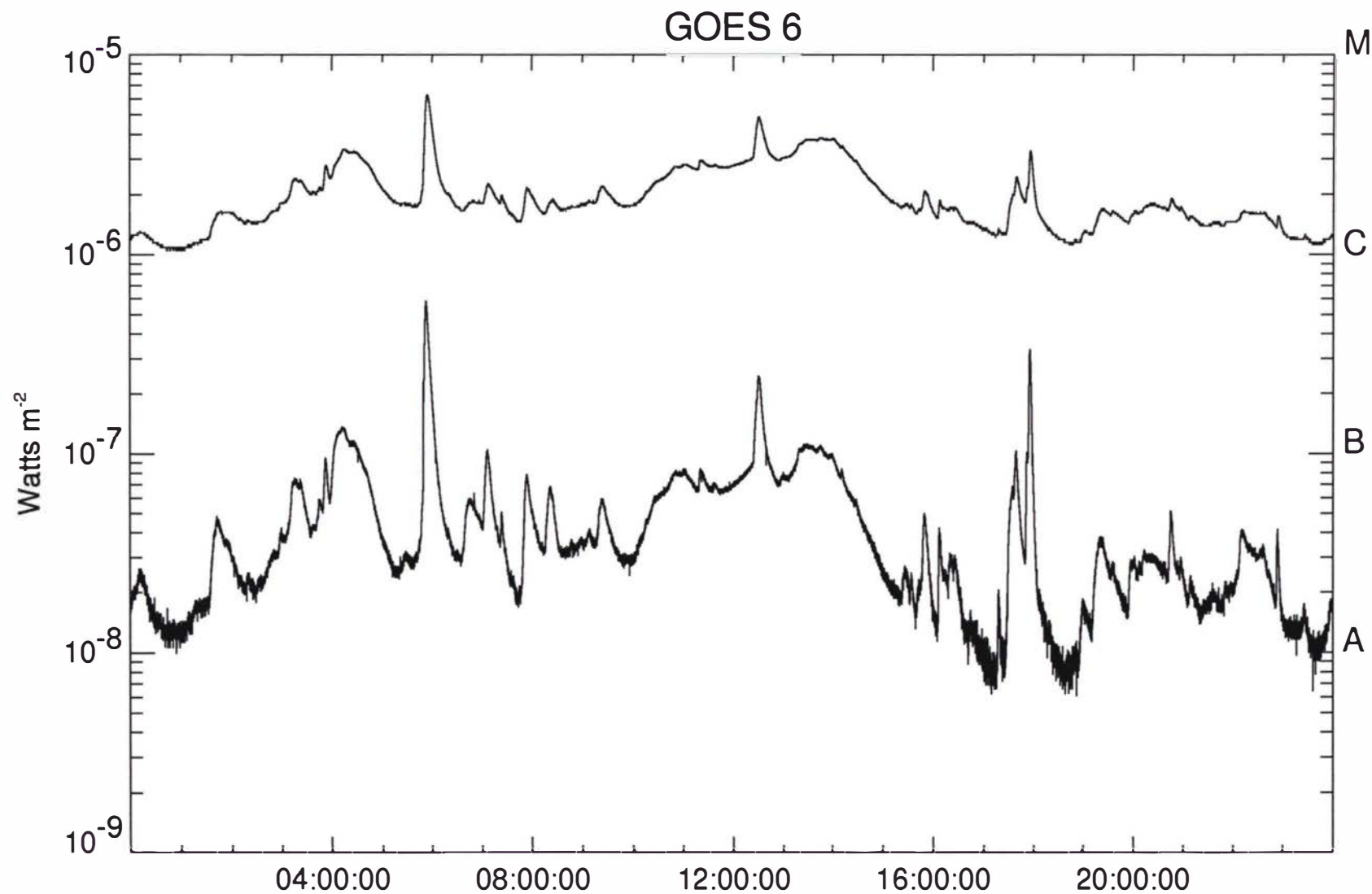


CALIBRATION DATA INCLUDED





UNIT : SAL TIME



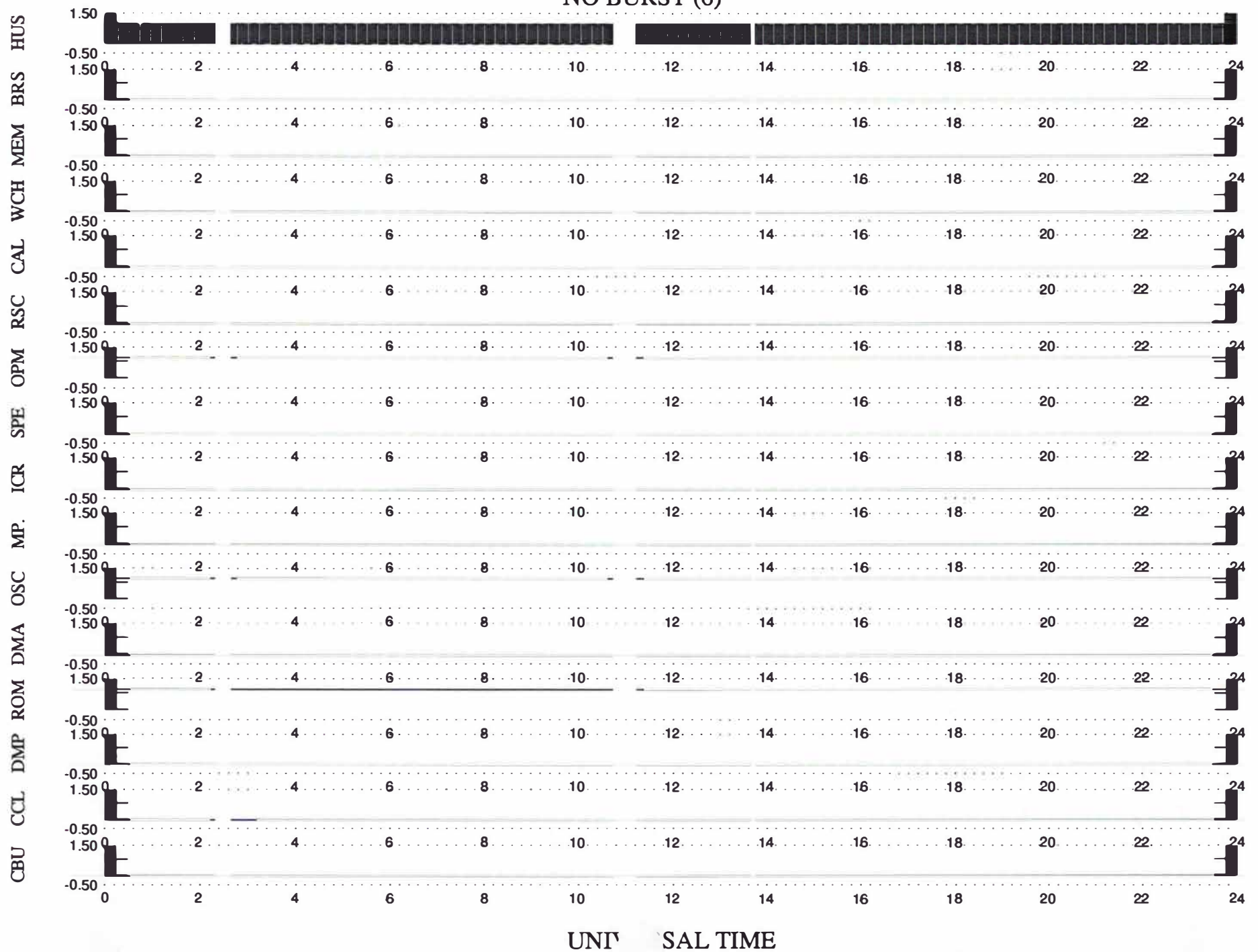
Data Start: 90/11/30, 0000:01

Plot created: 96/05/23, 1924

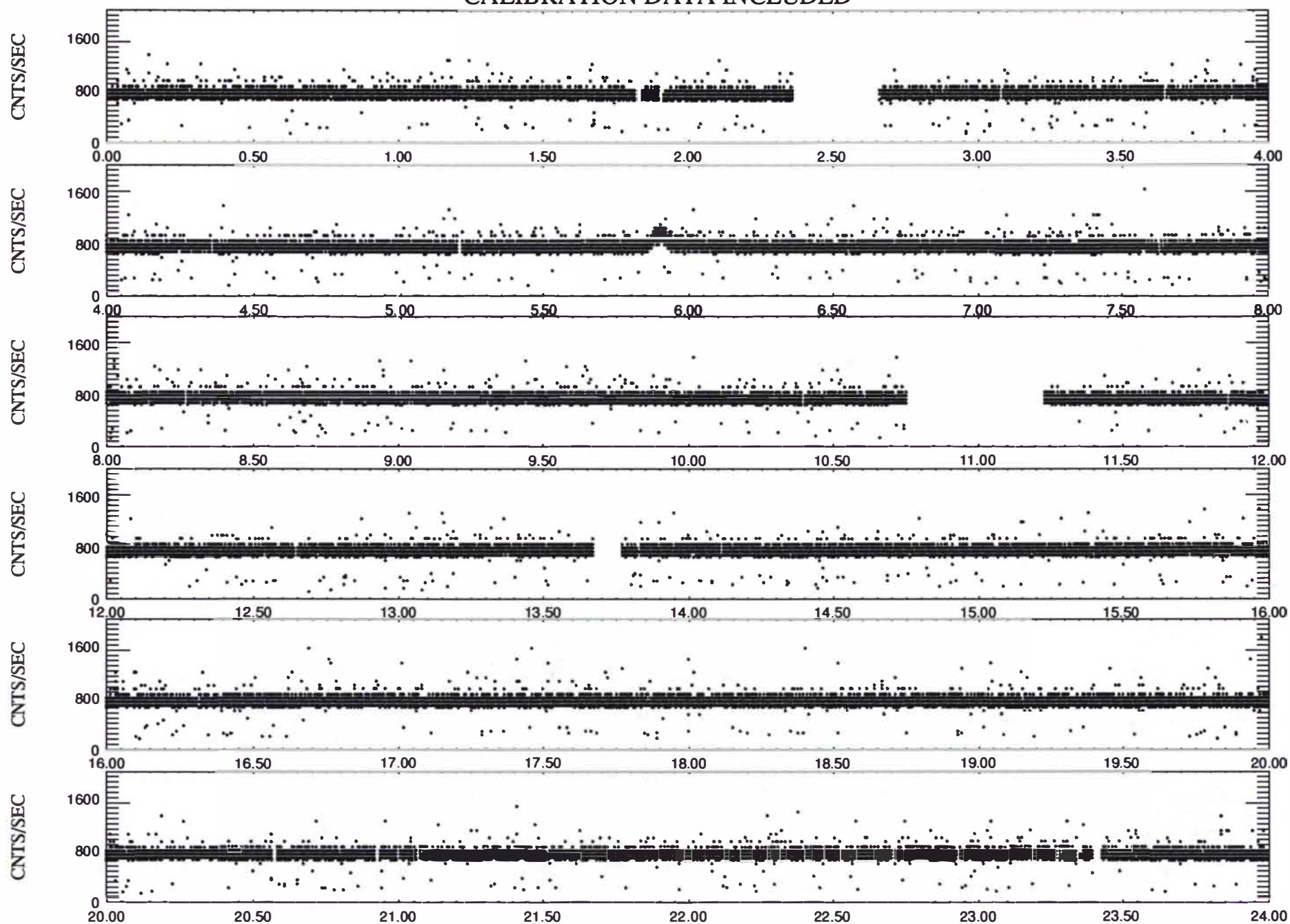
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (6)



CALIBRATION DATA INCLUDED



UNIFORM SAL TIME

