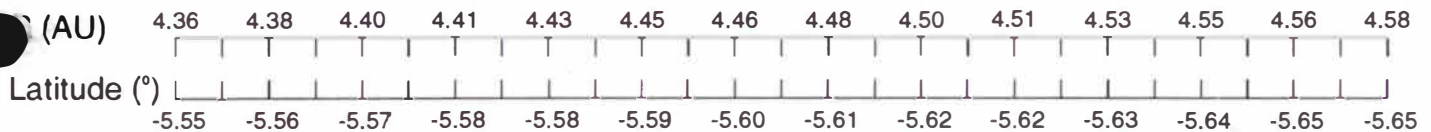
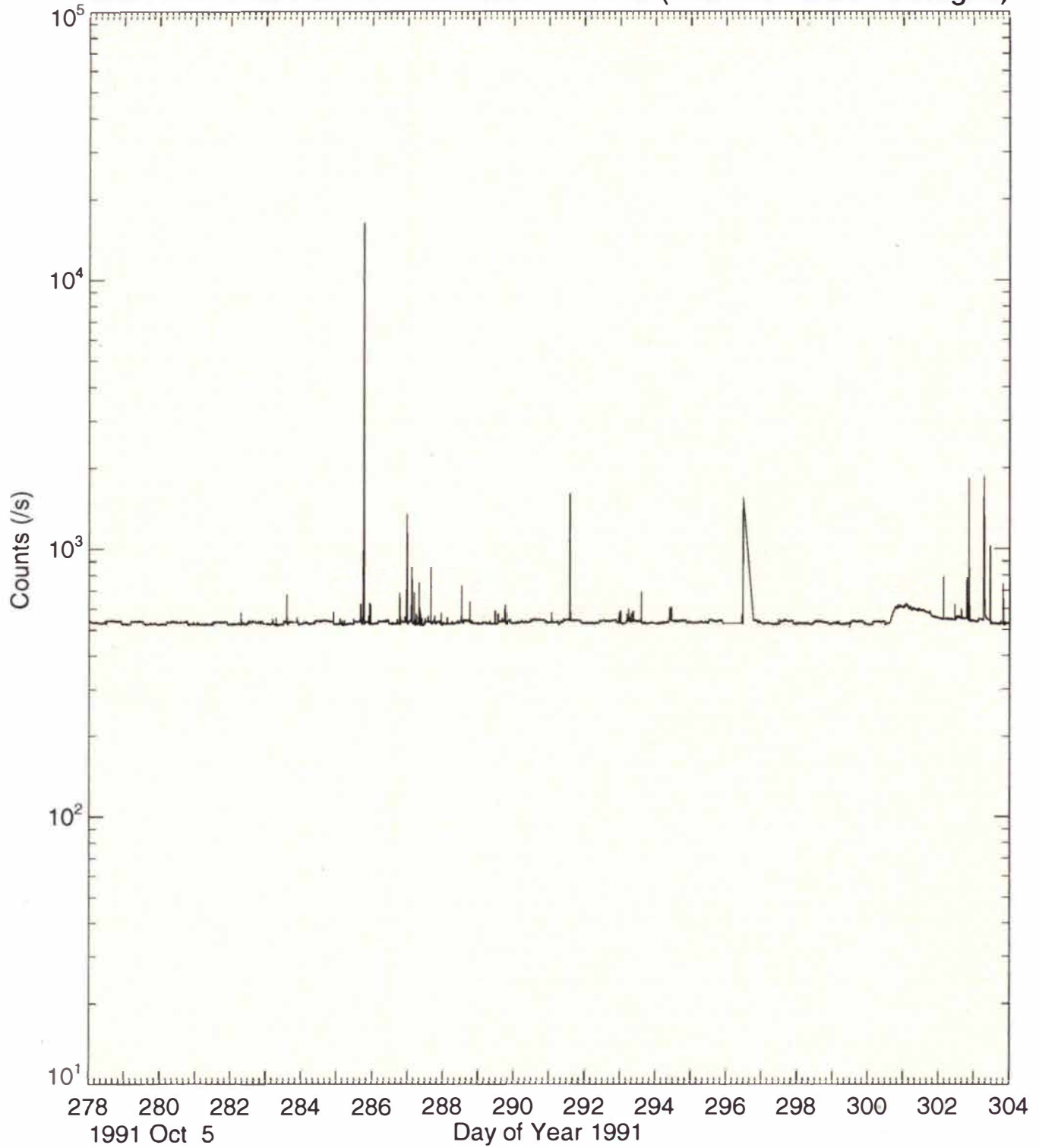


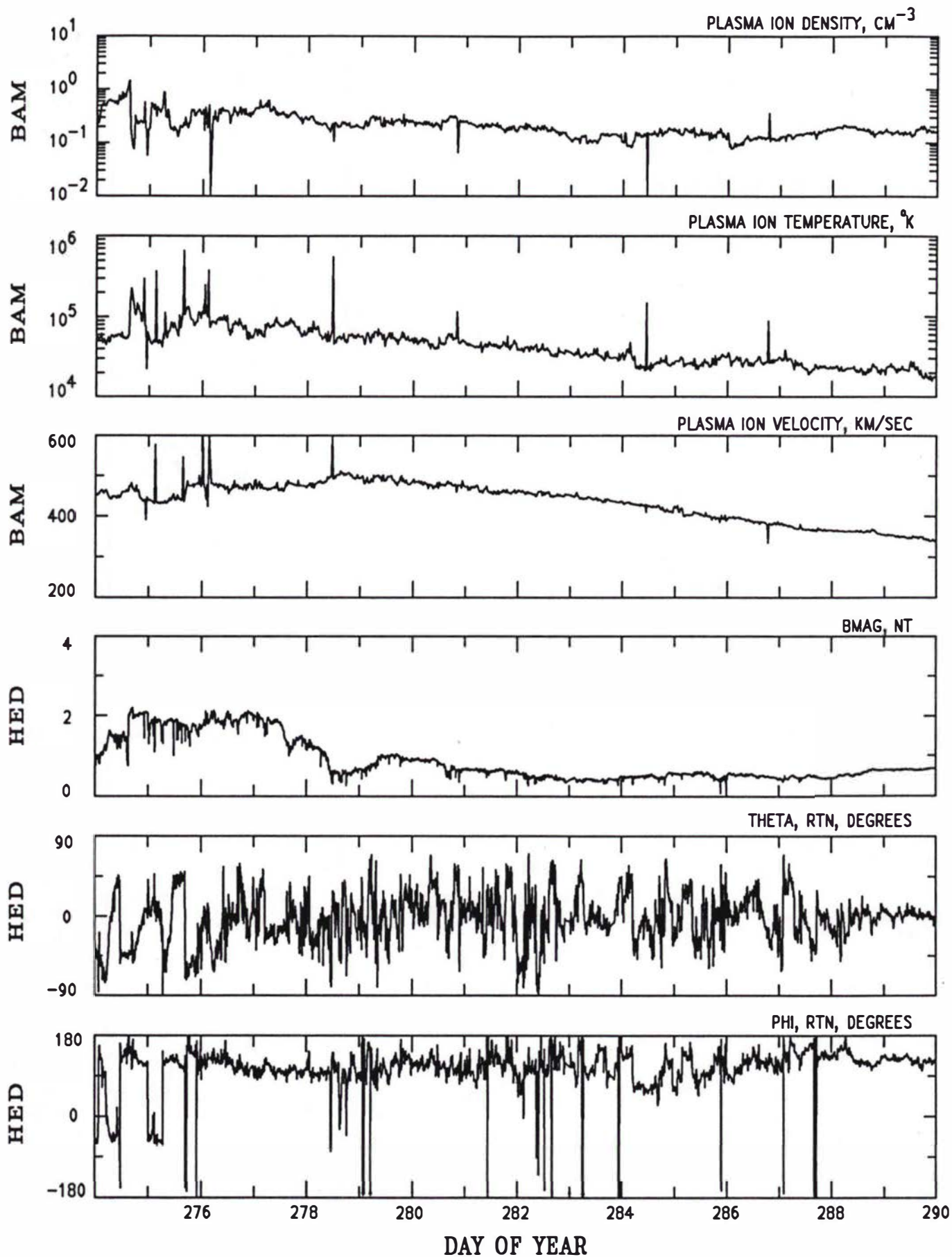
ESA ULYSSES DATA SYSTEM

GRB (Filtered 5 Min. Averages)



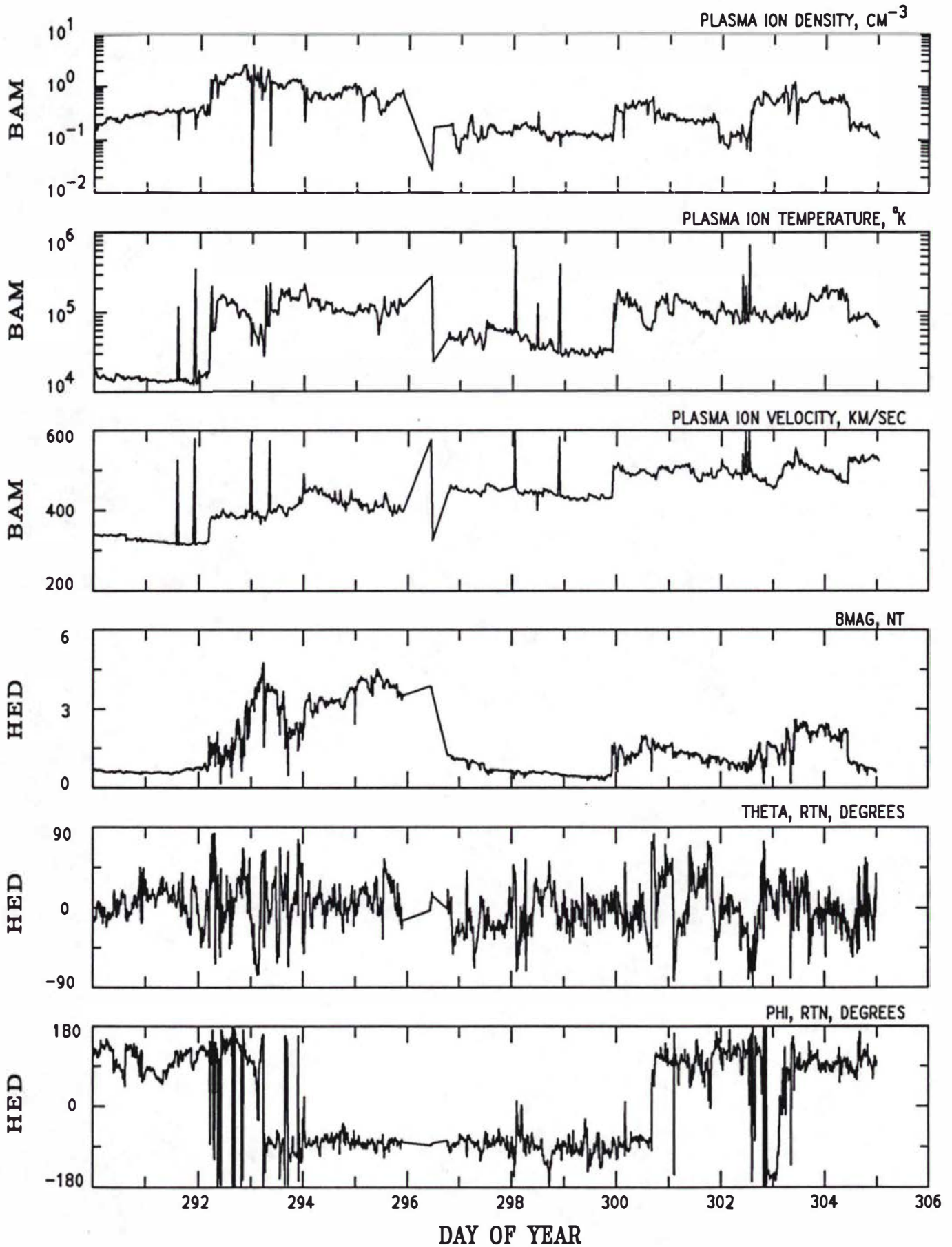
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

91 274 OCT 1 00:00:00.000 - 91 290 OCT 17 00:00:00.000



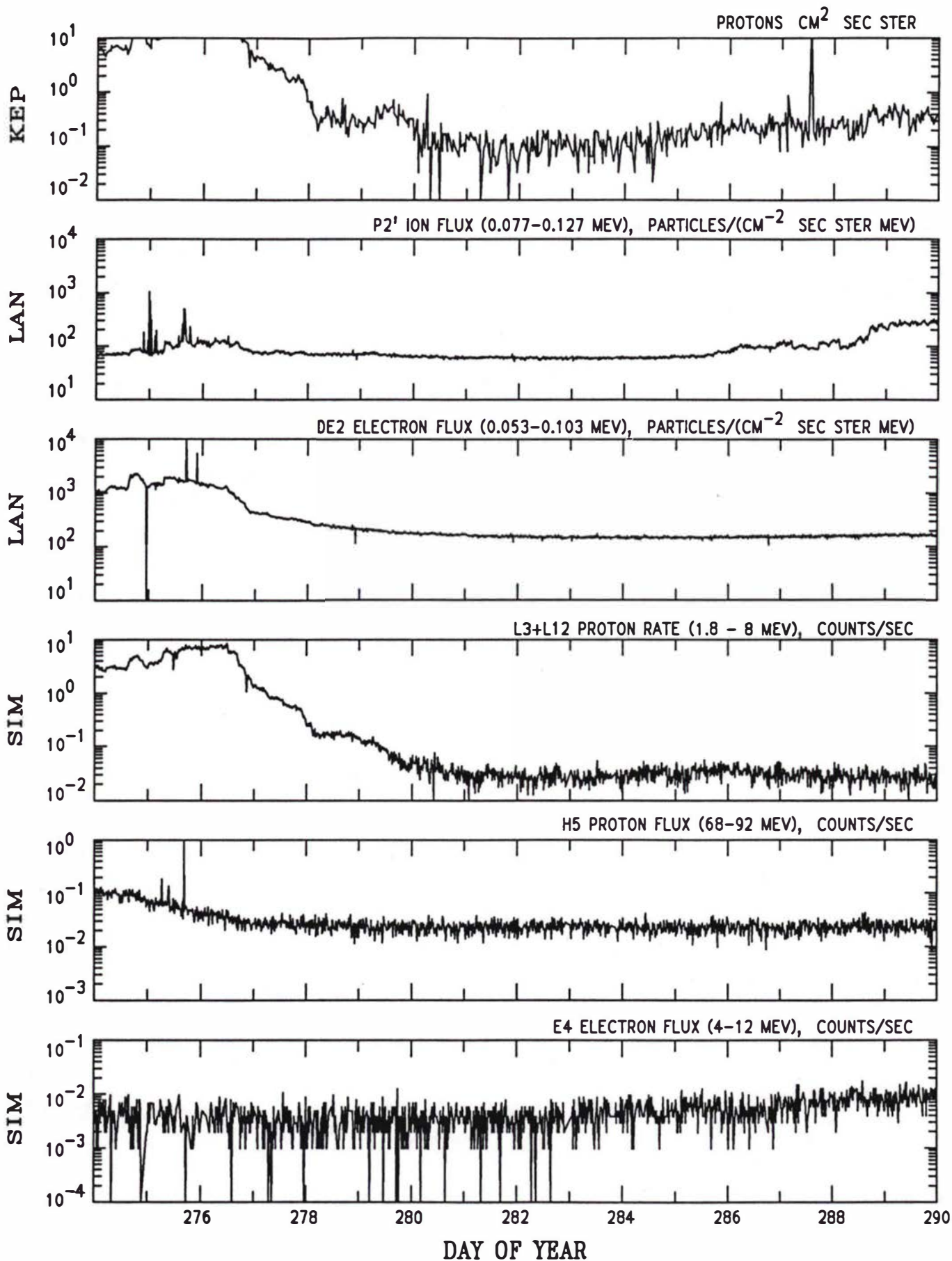
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

91 290 OCT 17 00:00:00.000 - 91 306 NOV 2 00:00:00.000



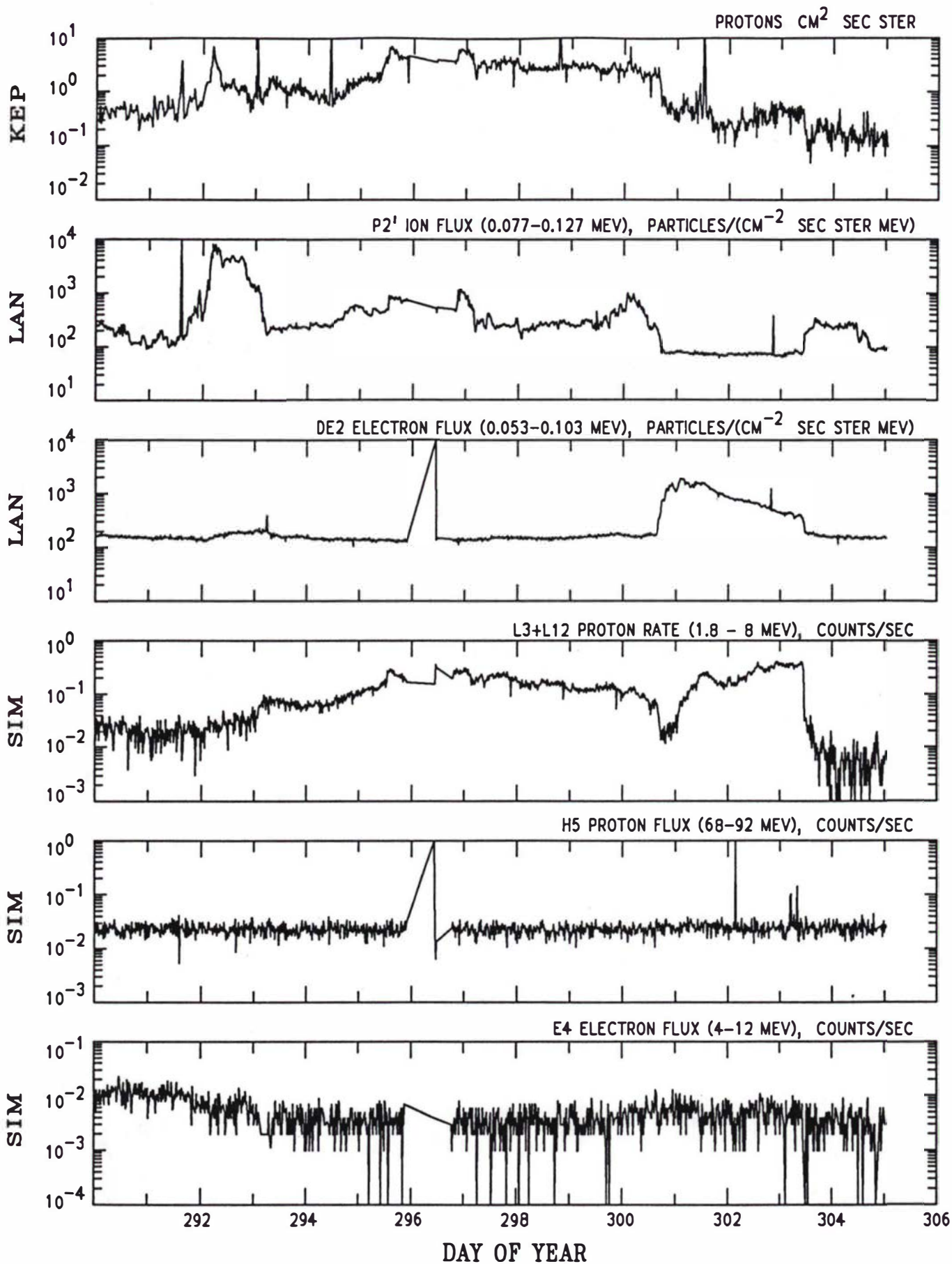
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

91 274 OCT 1 00:00:00.000 - 91 290 OCT 17 00:00:00.000



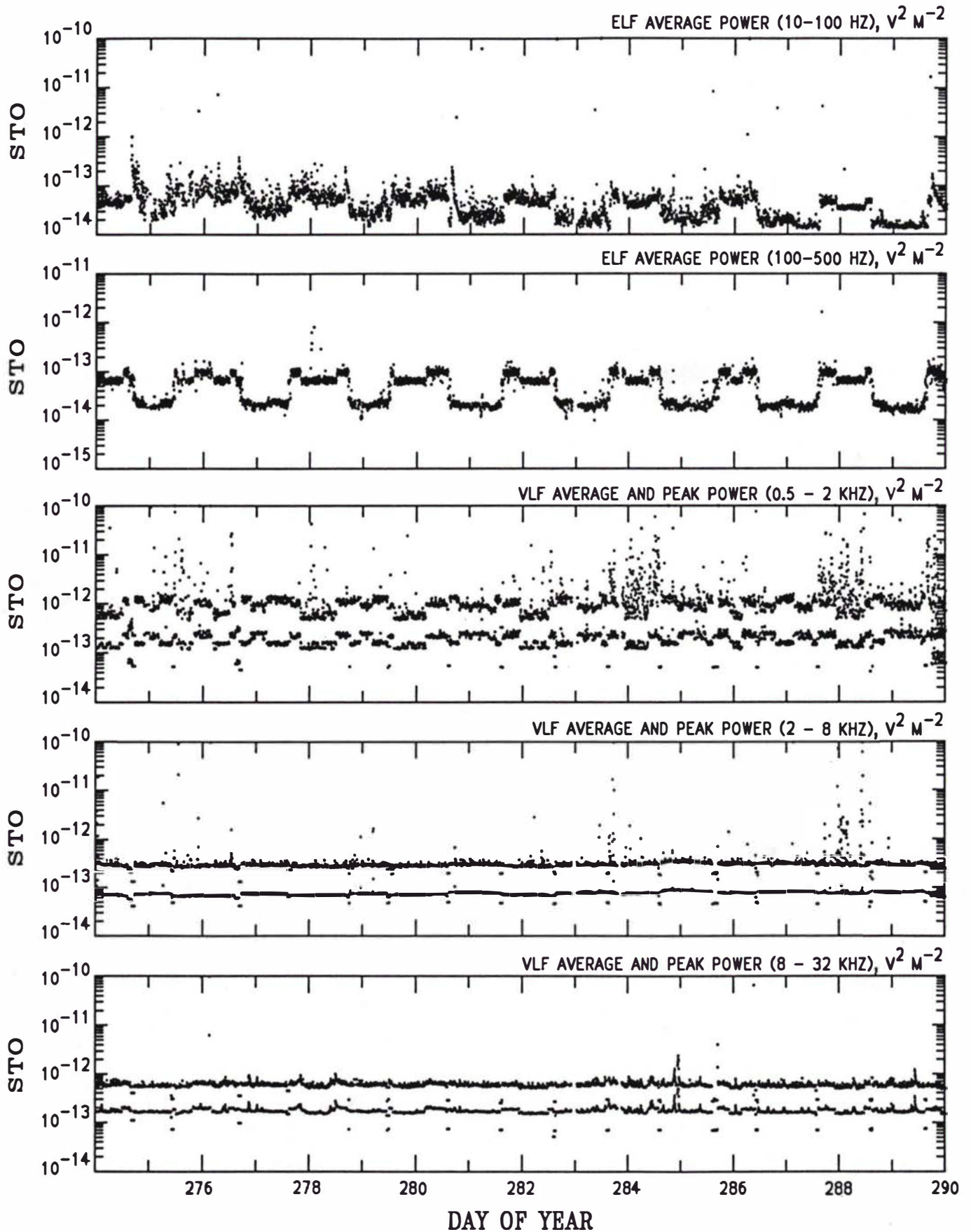
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

91 290 OCT 17 00:00:00.000 - 91 306 NOV 2 00:00:00.000



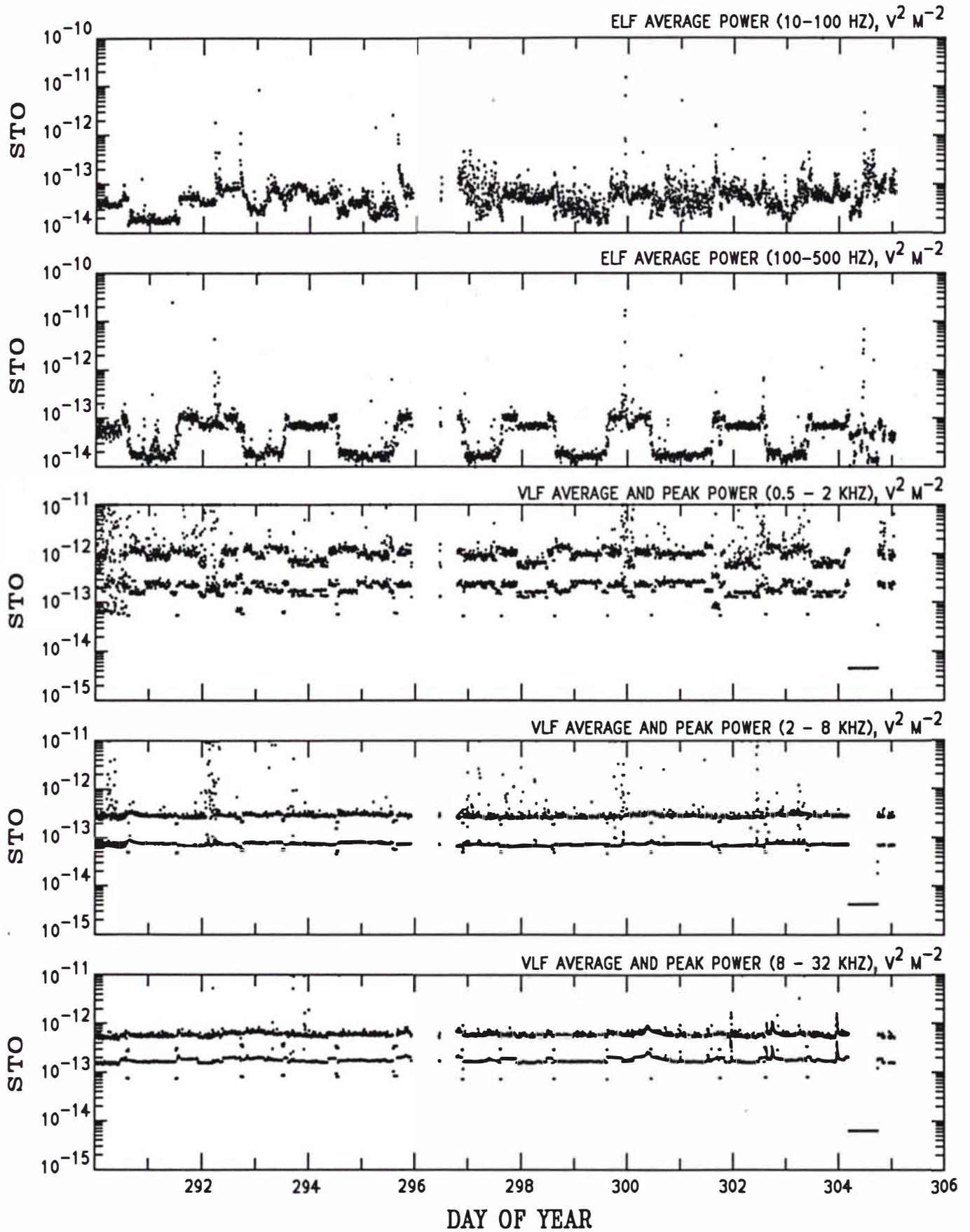
ULYSSES CDR - PLASMA WAVE

91 274 OCT 1 00:00:00.000 - 91 290 OCT 17 00:00:00.000



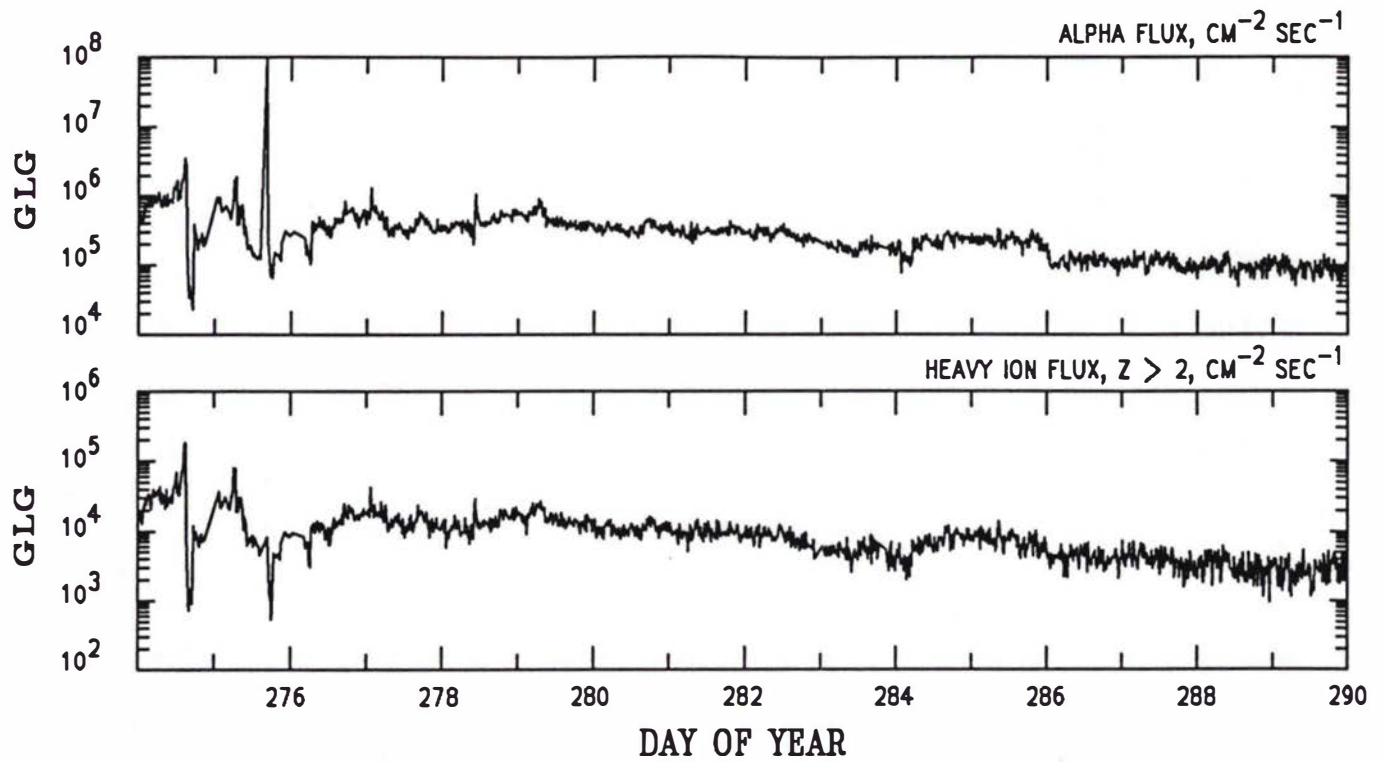
ULYSSES CDR - PLASMA WAVE

91 290 OCT 17 00:00:00.000 - 91 306 NOV 2 00:00:00.000



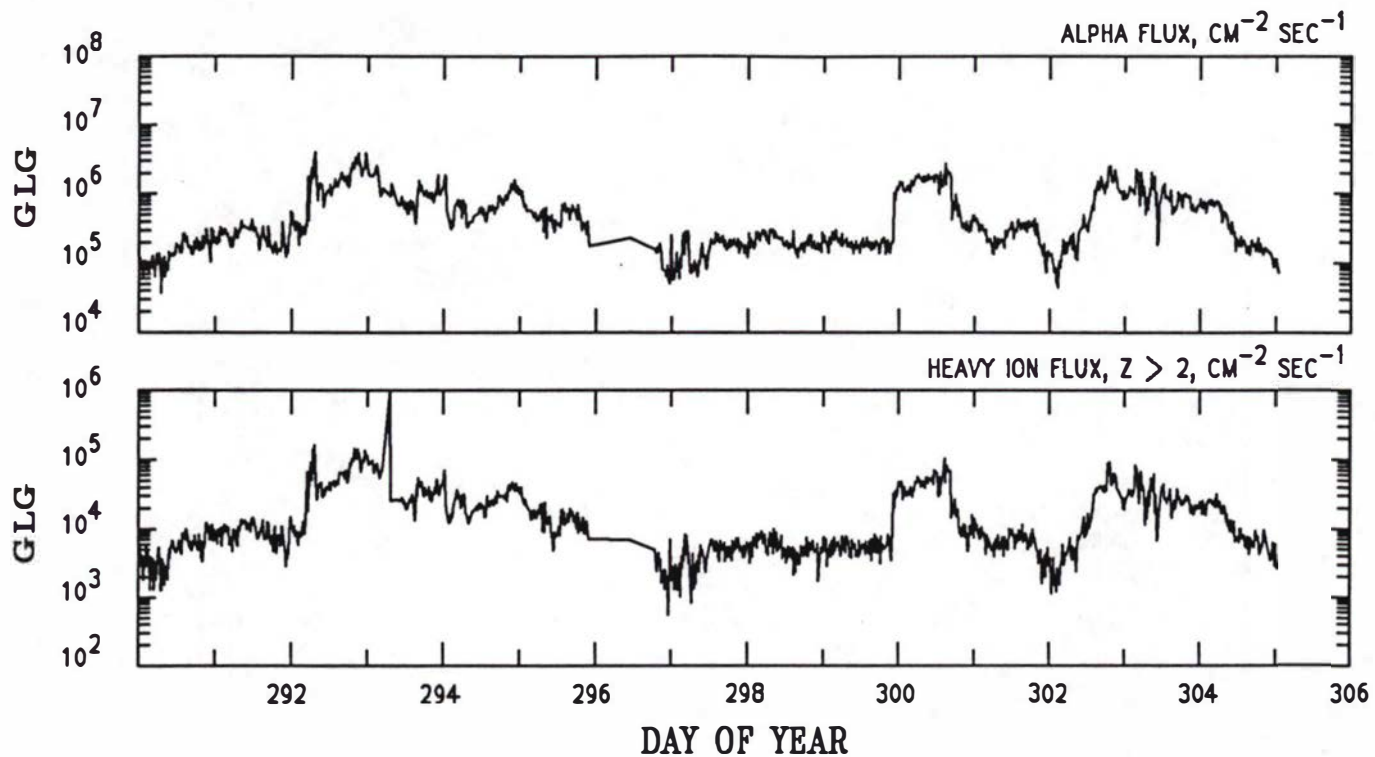
ULYSSES CDR - SOLAR WIND ION COMPOSITION

91 274 OCT 1 00:00:00.000 - 91 290 OCT 17 00:00:00.000



ULYSSES CDR - SOLAR WIND ION COMPOSITION

91 290 OCT 17 00:00:00.000 - 91 306 NOV 2 00:00:00.000



.91.274.00.06.49.004

HUS monthly long term thermal data

818

RET

E002 2ARADTMP S/C

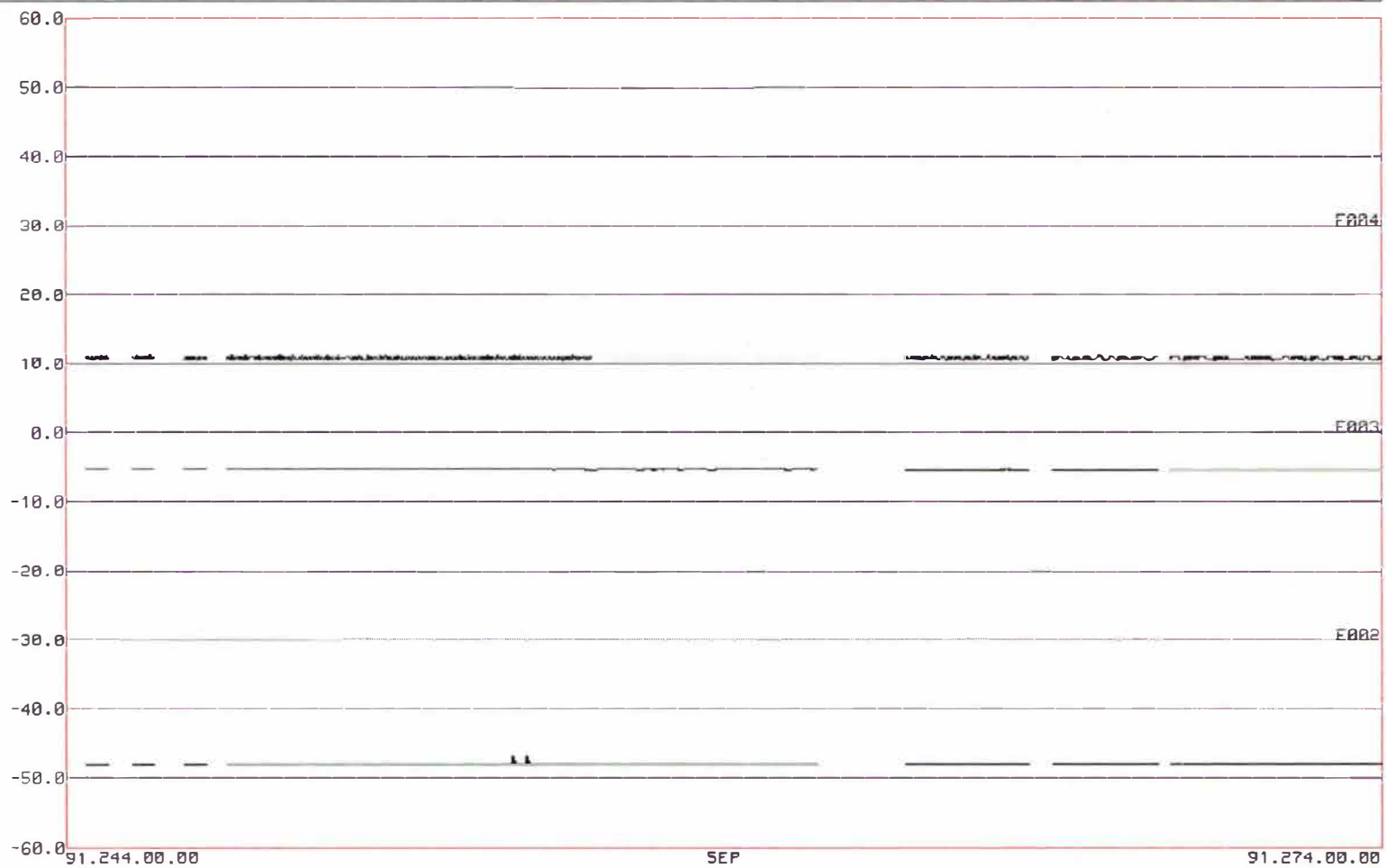
-5.4

E003 2BSENTMP S/C

-48.0

E004 2ASENSTMP EX

11.00



From khurley%jplgp.span@JPLDIG.jpl.nasa.gov Sat Nov 2 00:09:28 1991
Received: from JPLDIG.jpl.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA00843; Sat, 2 Nov 91 00:09:25 PST
Received: from JPLGP.DECnet MAIL11D_V3 by JPLDIG.jpl.nasa.gov (5.57/Ultrix2.4-C+SPAN-1.1)
id AA22342; Sat, 2 Nov 91 00:09:40 -0800
Date: Sat, 2 Nov 91 00:09:39 -0800
Message-Id: <9111020809.AA22342@JPLDIG.jpl.nasa.gov>
From: khurley%jplgp.span@JPLDIG.jpl.nasa.gov
To: "khurley@sunspot.ssl.berkeley.edu"%jpldig.span@JPLDIG.jpl.nasa.gov
Status: R

LAST UPDATED: THURSDAY 31-OCT-91

21st Oct	KEP EPAC IFC. BAM-E period 48ms
22nd Oct	Earth pointing manoeuvre.
23rd Oct	Routine operations. High winds at Goldstone resulted in DSS 12 antenna being stowed for most of the pass. 8 hours real-time data and 12 hours 50 mins playback data lost.
24th Oct	GRU noise test.
25th Oct	Earth pointing manoeuvre. KEP EPAC I-mode RAM load.
26th Oct	Routine operations.
27th Oct	Routine operations. Time change : PDT -> PST. Clocks back 1 hour.
28th Oct	Earth pointing manoeuvre. STO antenna/thruster test. KEP EPAC IFC.
29th Oct	Routine operations.
30th Oct	SIM HET calibration. STO sounder test.
31st Oct	STO Jupiter encounter commanding simulation.
1st Nov	Earth pointing manoeuvre. STO antenna/thruster test.
2nd Nov	Routine operations.
3rd Nov	Routine operations.
4th Nov	Earth pointing manoeuvre. KEP EPAC IFC.
5th Nov	Routine operations.
6th Nov	Routine operations.
7th Nov	Routine operations.
8th Nov	Earth pointing manoeuvre.
9th Nov	Routine operations.
10th Nov	Routine operations.

11th Nov	KEP EPAC IFC.
12th Nov	Routine operations.
13th Nov	Routine operations.
14th Nov	Routine operations.
15th Nov	Routine operations.
16th Nov	Jupiter simulation.
17th Nov	Routine operations.
18th Nov	KEP EPAC IFC.
19th Nov	Routine operations.
20th Nov	Routine operations.
21st Nov	Routine operations.
22nd Nov	Routine operations.
23rd Nov	Routine operations.
24th Nov	Routine operations.
25th Nov	KEP EPAC IFC.
26th Nov	Routine operations.
27th Nov	Routine operations.
28th Nov	Routine operations.
29th Nov	Routine operations.
30th Nov	Routine operations.

From khurley%jplgp.span@JPLDIG.jpl.nasa.gov Sun Nov 3 00:03:44 1991
Received: from JPLDIG.jpl.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA03461; Sun, 3 Nov 91 00:03:42 PST
Received: from JPLGP.DECnet MAIL11D_V3 by JPLDIG.jpl.nasa.gov (5.57/Ultrix2.4-C+SPAN-1.1)
id AA24593; Sun, 3 Nov 91 00:03:51 -0800
Date: Sun, 3 Nov 91 00:03:50 -0800
Message-Id: <9111030803.AA24593@JPLDIG.jpl.nasa.gov>
From: khurley%jplgp.span@JPLDIG.jpl.nasa.gov
To: "khurley@sunspot.ssl.berkeley.edu"%jpldig.span@JPLDIG.jpl.nasa.gov
Status: R

1st Oct	Earth pointing manoeuvre. KEP GAS Full Sky Scan. STO Antenna vs. Thruster Investigation.
2nd Oct	Routine operations. Sounder Differential Mode. SIM HET Calibration. KEP GAS Close-up Scan.
3rd Oct	Earth pointing manoeuvre. STO Antenna vs. Thruster Investigation.
4th Oct	Routine operations.
5th Oct	Earth pointing manoeuvre. STO Sounder Spectrum A to first. STO Sounder interval to 76 fmts.=40.5min @1k=81min @512bps. KEP GAS Jovian Close-up.
6th Oct	Routine operations.
7th Oct	Earth pointing manoeuvre. KEP EPAC IFC. BAM I-Matrix 1. KEP GAS UV Stars Scan.
8th Oct	Routine operations.
9th Oct	Routine operations. STO Sounder input mode to 3. KEP GAS LiF Evaporation.
10th Oct	Earth pointing manoeuvre. Link problems caused data outage. Data recovery from tape at station DSS 12 not successful. Subsequent attempt failed as tape was overwritten. About 1 hour 50 minutes real-time and 2 hours 10 minutes playback data lost.
11th Oct	KEP GAS HV Test.
12th Oct	Routine operations.
13th Oct	Earth pointing manoeuvre.
14th Oct	Thermal reconfiguration. KEP EPAC IFC. KEP GAS Neutral Gas & UV Stars.
15th Oct	Routine operations.
16th Oct	Earth pointing manoeuvre. KEP GAS Jovian neutrals, -HV
17th Oct	KEP GAS Jovian neutrals, +HV

18th Oct	Routine operations.
19th Oct	Earth pointing manoeuvre. STO antenna/thruster test. KEP GAS data off.
20th Oct	Routine operations.
21st Oct	KEP EPAC IFC. BAM-E period 48ms
22nd Oct	Earth pointing manoeuvre.
23rd Oct	Routine operations.
	High winds at Goldstone resulted in DSS 12 antenna being stowed for most of the pass. 8 hours real-time data and 12 hours 50 mins playback data lost.
24th Oct	GRU noise test.
25th Oct	Earth pointing manoeuvre. KEP EPAC I-mode RAM load.
26th Oct	Routine operations.
27th Oct	Routine operations. Time change : PDT -> PST. Clocks back 1 hour.
28th Oct	Earth pointing manoeuvre. STO antenna/thruster test. KEP EPAC IFC.
29th Oct	Routine operations.
30th Oct	SIM HET calibration. STO sounder test.
31st Oct	STO Jupiter encounter commanding simulation.

From khurley%jplgp.span@JPLDIG.jpl.nasa.gov Fri Nov 1 00:12:31 1991
 Received: from JPLDIG.jpl.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
 id AA26738; Fri, 1 Nov 91 00:12:28 PST
 Received: from JPLGP.DECnet MAIL11D_V3 by JPLDIG.jpl.nasa.gov (5.57/Ultrix2.4-C+SPAN-1.1)
 id AA19316; Fri, 1 Nov 91 00:12:43 -0800
 Date: Fri, 1 Nov 91 00:12:42 -0800
 Message-Id: <9111010812.AA19316@JPLDIG.jpl.nasa.gov>
 From: khurley%jplgp.span@JPLDIG.jpl.nasa.gov
 To: "khurley@sunspot.ssl.berkeley.edu"%jpldig.span@JPLDIG.jpl.nasa.gov
 Status: R

LAST UPDATED: WEDNESDAY 23-OCT-91

23rd Sep	KEP EPAC IFC.
24th Sep	Routine operations. EPAC Discriminator to Low.
25th Sep	Earth pointing manoeuvre. STO Sounder to Peak Mode.
26th Sep	Routine operations.
27th Sep	Earth pointing manoeuvre. HUS Burst Ref. Value Change.
28th Sep	Routine operations.
29th Sep	Earth pointing manoeuvre.
30th Sep	Routine operations. KEP EPAC IFC
1st Oct	Earth pointing manoeuvre. KEP GAS Full Sky Scan. STO Antenna vs. Thruster Investigation.
2nd Oct	Routine operations. Sounder Differential Mode. SIM HET Calibration. KEP GAS Close-up Scan.
3rd Oct	Earth pointing manoeuvre. STO Antenna vs. Thruster Investigation.
4th Oct	Routine operations.
5th Oct	Earth pointing manoeuvre. STO Sounder Spectrum A to first. STO Sounder interval to 76 fmts.=40.5min @1k=81min @512bps. KEP GAS Jovian Close-up.
6th Oct	Routine operations.
7th Oct	Earth pointing manoeuvre. KEP EPAC IFC. BAM I-Matrix 1. KEP GAS UV Stars Scan.
8th Oct	Routine operations.
9th Oct	Routine operations. STO Sounder input mode to 3. KEP GAS LiF Evaporation.
10th Oct	Earth pointing manoeuvre.

Link problems caused data outage. Data recovery from tape at station DSS 12 not successful. Subsequent attempt failed as tape was overwritten. About 1 hour 50 minutes real-time and 2 hours 10 minutes playback data lost.

11th Oct	KEP GAS HV Test.
12th Oct	Routine operations.
13th Oct	Earth pointing manoeuvre.
14th Oct	Thermal reconfiguration. KEP EPAC IFC. KEP GAS Neutral Gas & UV Stars.
15th Oct	Routine operations.
16th Oct	Earth pointing manoeuvre. KEP GAS Jovian neutrals, -HV
17th Oct	KEP GAS Jovian neutrals, +HV
18th Oct	Routine operations.
19th Oct	Earth pointing manoeuvre. KEP GAS data off.
20th Oct	Routine operations.
21st Oct	KEP EPAC IFC. BAM-E period ??ms
22nd Oct	Earth pointing manoeuvre.
23rd Oct	Routine operations.
24th Oct	GRU noise test.
25th Oct	Earth pointing manoeuvre. KEP EPAC I-mode RAM load.
26th Oct	Routine operations.
27th Oct	Routine operations.
28th Oct	Earth pointing manoeuvre. KEP EPAC IFC.
29th Oct	Routine operations.
30th Oct	SIM HET calibration.
31st Oct	SIM Jupiter encounter commanding simulation.
1st Nov	Earth pointing manoeuvre.
2nd Nov	Routine operations.
3rd Nov	Routine operations.

From khurley%jplgp.span@JPLDIG.jpl.nasa.gov Fri Oct 18 00:45:32 1991
Received: from JPLDIG.jpl.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA13354; Fri, 18 Oct 91 00:45:29 PDT
Received: from JPLGP.DECnet MAIL11D_V3 by JPLDIG.jpl.nasa.gov (5.57/Ultrix2.4-C+SPAN-1.1)
id AA11470; Fri, 18 Oct 91 00:45:37 -0700
Date: Fri, 18 Oct 91 00:45:36 -0700
Message-Id: <9110180745.AA11470@JPLDIG.jpl.nasa.gov>
From: khurley%jplgp.span@JPLDIG.jpl.nasa.gov
To: "khurley@sunspot.ssl.berkeley.edu"%jpldig.span@JPLDIG.jpl.nasa.gov
Status: RO

LAST UPDATED: WEDNESDAY 16-OCT-91

23rd Sep	KEP EPAC IFC.
24th Sep	Routine operations. EPAC Discriminator to Low.
25th Sep	Earth pointing manoeuvre. STO Sounder to Peak Mode.
26th Sep	Routine operations.
27th Sep	Earth pointing manoeuvre. HUS Burst Ref. Value Change.
28th Sep	Routine operations.
29th Sep	Earth pointing manoeuvre.
30th Sep	Routine operations. KEP EPAC IFC
1st Oct	Earth pointing manoeuvre. KEP GAS Full Sky Scan. STO Antenna vs. Thruster Investigation.
2nd Oct	Routine operations. Sounder Differential Mode. SIM HET Calibration. KEP GAS Close-up Scan.
3rd Oct	Earth pointing manoeuvre. STO Antenna vs. Thruster Investigation.
4th Oct	Routine operations.
5th Oct	Earth pointing manoeuvre. STO Sounder Spectrum A to first. STO Sounder interval to 76 fmts.=40.5min @1k=81min @512bps. KEP GAS Jovian Close-up.
6th Oct	Routine operations.
7th Oct	Earth pointing manoeuvre. KEP EPAC IFC. BAM I-Matrix 1. KEP GAS UV Stars Scan.
8th Oct	Routine operations.
9th Oct	Routine operations. STO Sounder input mode to 3. KEP GAS LiF Evaporation.
10th Oct	Earth pointing manoeuvre.

Link problems caused data outage. Data recovery from tape at station DSS 12 not successful. Subsequent attempt failed as tape was overwritten. About 1 hour 50 minutes real-time and 2 hours 10 minutes playback data lost.

11th Oct	KEP GAS HV Test.
12th Oct	Routine operations.
13th Oct	Earth pointing manoeuvre.
14th Oct	Thermal reconfiguration. KEP EPAC IFC. KEP GAS Neutral Gas & UV Stars.
15th Oct	Routine operations.
16th Oct	Earth pointing manoeuvre. KEP GAS Jovian neutrals, -HV
17th Oct	KEP GAS Jovian neutrals, +HV
18th Oct	Routine operations.
19th Oct	Earth pointing manoeuvre. KEP GAS data off.
20th Oct	Routine operations.
21st Oct	KEP EPAC IFC.
22nd Oct	Earth pointing manoeuvre.
23rd Oct	Routine operations.
24th Oct	Routine operations.
25th Oct	Earth pointing manoeuvre.
26th Oct	Routine operations.
27th Oct	Routine operations.
28th Oct	Earth pointing manoeuvre. KEP EPAC IFC.
29th Oct	Routine operations.
30th Oct	Routine operations.
31st Oct	SIM Jupiter encounter commanding simulation.
1st Nov	Earth pointing manoeuvre.

From khurley%jplgp.span@JPLDIG.jpl.nasa.gov Sun Oct 13 00:11:59 1991
Received: from JPLDIG.jpl.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA06850; Sun, 13 Oct 91 00:11:53 PDT
Received: from JPLGP.DECnet MAIL11D_V3 by JPLDIG.jpl.nasa.gov (5.57/Ultrix2.4-C+SPAN-1.1)
id AA03306; Sun, 13 Oct 91 00:11:55 -0700
Date: Sun, 13 Oct 91 00:11:54 -0700
Message-Id: <9110130711.AA03306@JPLDIG.jpl.nasa.gov>
From: khurley%jplgp.span@JPLDIG.jpl.nasa.gov
To: "khurley@sunspot.ssl.berkeley.edu"%jpldig.span@JPLDIG.jpl.nasa.gov
Status: R

LAST UPDATED: WEDNESDAY 9-OCT-91

23rd Sep	KEP EPAC IFC.
24th Sep	Routine operations. EPAC Discriminator to Low.
25th Sep	Earth pointing manoeuvre. STO Sounder to Peak Mode.
26th Sep	Routine operations.
27th Sep	Earth pointing manoeuvre. HUS Burst Ref. Value Change.
28th Sep	Routine operations.
29th Sep	Earth pointing manoeuvre.
30th Sep	Routine operations. KEP EPAC IFC
1st Oct	Routine operations. Earth pointing manoeuvre. GAS Full Sky Scan. STO Antenna vs. Thruster Investigation.
2nd Oct	Routine operations. Sounder Differential Mode. SIM HET Calibration. GAS Close-up Scan.
3rd Oct	Routine operations. Earth pointing manoeuvre. STO Antenna vs. Thruster Investigation.
4th Oct	Routine operations.
5th Oct	Routine operations. Earth pointing manoeuvre. STO Sounder Spectrum A to first. STO Sounder interval to 76 fmts.=40.5min @1k=81min @512bps. GAS Jovian Close-up.
6th Oct	Routine operations.
7th Oct	Routine operations. Earth pointing manoeuvre. KEP EPAC IFC. BAM I-Matrix 1. GAS UV Stars Scan.
8th Oct	Routine operations.
9th Oct	Routine operations.

STO Sounder input mode to 3.
GAS LiF Evaporation.

10th Oct	Routine operations. Earth pointing manoeuvre.
11th Oct	Routine operations. GAS HV Test.
12th Oct	Routine operations.
13th Oct	Routine operations. Earth pointing manoeuvre.
14th Oct	Routine operations. KEP EPAC IFC.
15th Oct	Routine operations.
16th Oct	Routine operations. Earth pointing manoeuvre.
17th Oct	Routine operations.
18th Oct	Routine operations.
19th Oct	Routine operations Earth pointing manoeuvre.
20th Oct	Routine operations. KEP EPAC IFC.
21st Oct	Routine operations.
22nd Oct	Routine operations. Earth pointing manoeuvre.
23rd Oct	Routine operations.
24th Oct	Routine operations.

From khurley%jplgp.span@JPLDIG.jpl.nasa.gov Sat Oct 5 00:13:40 1991
Received: from JPLDIG.jpl.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA19216; Sat, 5 Oct 91 00:13:37 PDT
Received: from JPLGP.DECnet MAIL11D_V3 by JPLDIG.jpl.nasa.gov (5.57/Ultrix2.4-C+SPAN-1.1)
id AA01212; Sat, 5 Oct 91 00:13:33 -0700
Date: Sat, 5 Oct 91 00:13:32 -0700
Message-Id: <9110050713.AA01212@JPLDIG.jpl.nasa.gov>
From: khurley%jplgp.span@JPLDIG.jpl.nasa.gov
To: "khurley%sunspot.ssl.berkeley.edu"%jpldig.span@JPLDIG.jpl.nasa.gov
Status: R

LAST UPDATED: THURSDAY 3-OCT-91

26th Aug	Conjunction program descheduled early. Manoeuvre to correct spacecraft offpointing. HUS burst mode test, switch off and switch on. GLG return from NOFP.
27th Aug	X wing heaters off.
28th Aug	Monitoring only.
29th Aug	Earth pointing manoeuvre.
30th Aug	Resume routine command activity.
31st Aug	Earth pointing manoeuvre.
1st Sep	Routine operations.
2nd Sep	KEP EPAC IFC.
3rd Sep	Earth pointing manoeuvre. HED test sequence.
4th Sep	SIM HET calibration.
5th Sep	S-band off. DSU on. X wing heaters on. STO Sounder on. STO PFR/FES daily commanding restarted.
6th Sep	Routine operations.
7th Sep	Routine operations.
8th Sep	Routine operations.
9th Sep	Earth pointing manoeuvre. KEP EPAC IFC.
10th Sep	KEP EPAC RAM load.
11th Sep	KEP GAS health check. STO sounder mode change failed, DPU autonomous failure detected.
12th Sep	S/C Thermal Reconfiguration to EPD 10wats. STO "Critical" request DPU Reset implemented successfully. STO FES/PFR Routine was canceled (for that day only).
13th Sep	HUS Burst Ref. Value Change.
14th Sep	Routine operations.

15th Sep	Earth pointing manoeuvre.
16th Sep	KEP EPAC IFC.
17th Sep	HUS HV Change. STO FES/PFR Routine seq.# 2 ground-abort/resent.
18th Sep	Routine operations.
19th Sep	Routine operations.
20th Sep	Routine operations.
21st Sep	Earth pointing manoeuvre.
22nd Sep	Routine operations.
23rd Sep	KEP EPAC IFC.
24th Sep	Routine operations. EPAC Discriminator to Low.
25th Sep	Earth pointing manoeuvre. STO Sounder to Peak Mode.
26th Sep	Routine operations.
27th Sep	Earth pointing manoeuvre. HUS Burst Ref. Value Change.
28th Sep	Routine operations.
29th Sep	Earth pointing manoeuvre.
30th Sep	Routine operations. KEP EPAC IFC
1st Oct	Routine operations. Earth pointing manoeuvre. GAS Full Sky Scan. STO Antenna vs. Thruster Investigation.
2nd Oct	Routine operations. Sounder Differential Mode. SIM HET Calibration. GAS Close-up Scan.
3rd Oct	Routine operations. Earth pointing manoeuvre. STO Antenna vs. Thruster Investigation.
4th Oct	Routine operations.
5th Oct	Routine operations. Earth pointing manoeuvre. STO Sounder Spectrum A to first. STO Sounder interval to 76 fmts.=40.5min @1k=81min @512bps. GAS Jovian Close-up.
6th Oct	Routine operations.
7th Oct	Routine operations. Earth pointing manoeuvre. KEP EPAC IFC. BAM I-Matrix 1. GAS UV Stars Scan.

8th Oct	Routine operations.
9th Oct	Routine operations. STO Sounder input mode to 3. GAS LiF Evaporation.
10th Oct	Routine operations. Earth pointing manoeuvre.
11th Oct	Routine operations. GAS HV Test.
12th Oct	Routine operations.
13th Oct	Routine operations. Earth pointing manoeuvre.
14th Oct	Routine operations. KEP EPAC IFC.
15th Oct	Routine operations.
16th Oct	Routine operations. Earth pointing manoeuvre.
17th Oct	Routine operations.
18th Oct	Routine operations.
19th Oct	Routine operations Earth pointing manoeuvre.
20th Oct	Routine operations. KEP EPAC IFC.
21st Oct	Routine operations.
22nd Oct	Routine operations. Earth pointing manoeuvre.
23rd Oct	Routine operations.
24th Oct	Routine operations.

DATE	U.T.	Nr UGB	Event Nature
1991-08-27	15:33:19.885	325-c	Solar Particles
1991-09-01	05:24:27.051	327-a	GRB
1991-09-07	01:05:10.287	330-a	GRB
1991-09-07	19:23:04.162	331-a	Solar Flare
1991-10-01	18:14:23.671	345-a	Unknown
1991-10-01	19:01:20.457	345-b	Unknown
1991-10-04	01:27:10.195	347-a	Unknown
1991-10-13	18:09:49.270	353-a	Solar Flare
1991-10-13	21:02:34.557	353-b	Solar Flare
1991-10-14	17:34:33.822	354-a	Unknown
1991-10-16	11:01:35.345	355-a	GRB
1991-10-18	05:32:15.504	356-a	GRB
1991-10-25	21:25:15.926	362-a	GRB
1991-10-26	15:06:06.127	363-a	Unknown
1991-10-26	15:28:41.044	363-b	Unknown
1991-10-26	20:35:18.850	363-c	Solar Flare
1991-11-19	17:12:34.357	367-a	GRB
1991-11-19	17:28:41.794	367-b	Solar Flare
1991-11-21	07:23:32.063	368-a	Unknown
1991-11-21	07:43:41.945	368-b	Unknown
1991-11-21	07:58:33.952	368-c	Unknown
1991-12-05	19:48:38.788	375-a	Solar Flare
1991-12-14	20:55:02.702	378-a	Unknown
1991-12-15	06:23:41.586	378-b	Unknown
1991-12-15	11:41:18.304	378-c	Unknown
1991-12-20	14:02:29.154	380-a	Solar Flare
1991-12-20	14:53:07.976	380-b	Solar Flare
1991-12-20	16:04:57.705	380-c	Solar Flare
1991-12-22	15:00:10.116	381-a	GRB
1992-01-10	00:12:08.191	386-a	Unknown
1992-01-10	02:45:56.628	386-b	Unknown
1992-01-10	09:18:06.120	386-c	Unknown & GRB
1992-01-18	09:42:49.763	392-a	Unknown
1992-01-18	12:38:59.105	392-b	Unknown
1992-01-18	~12:52	392-c	Unknown

CATSEARCH PROGRAM

BATSE BURST # 845
EVENT OF 1991 OCT 1 DAY OF YEAR=274
EVENT CROSSING TIME AT BATSE : 32176. S. OR 08:56:15.7
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 270.000 66.700
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 1/10/ 91 IS:
RA= 158.891 DEC= 10.095 DIST= 5.164 AU
BATSE-ULYSSES DISTANCE = 772565816. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 91.19 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -53.44 SECS.
CROSSING TIME AT ULYSSES IS 32122. S. OR 08:55:22 +/- 496.50 SECONDS

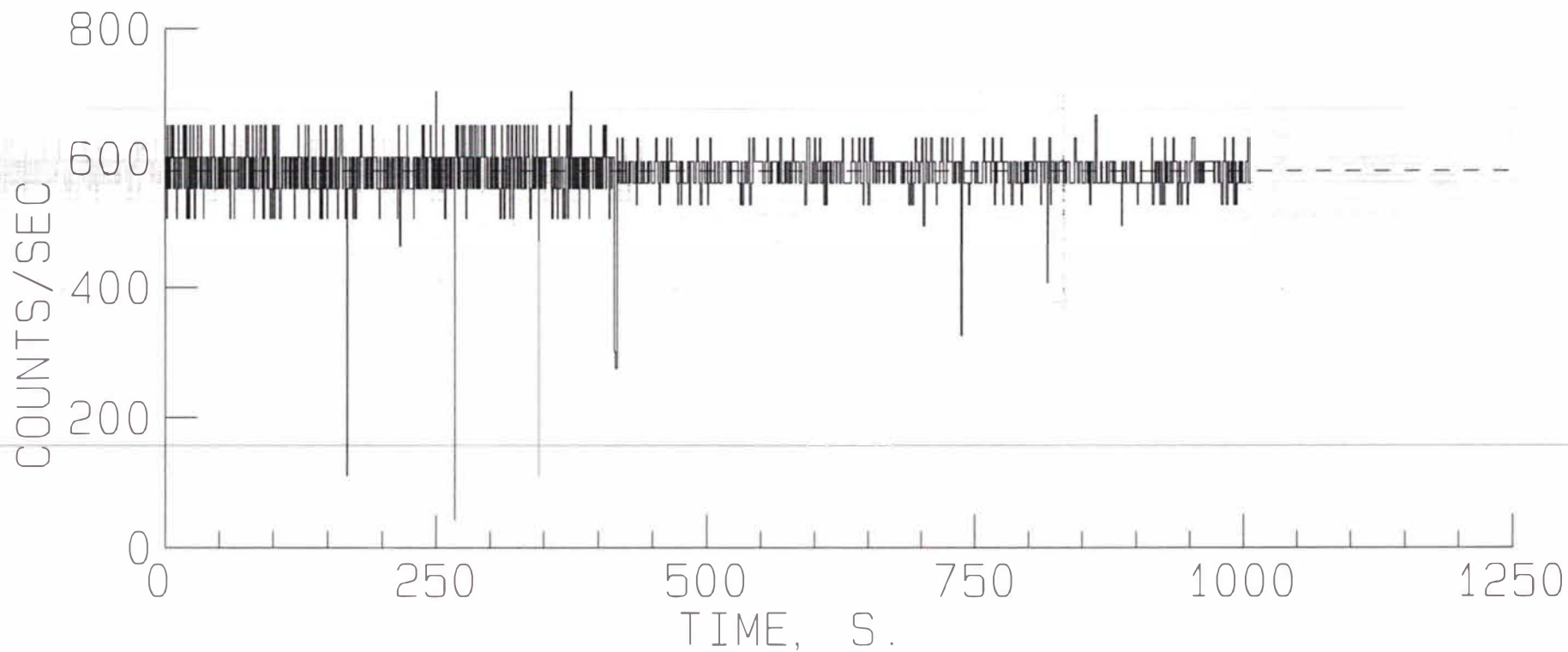
NO

14 / 4 / 93

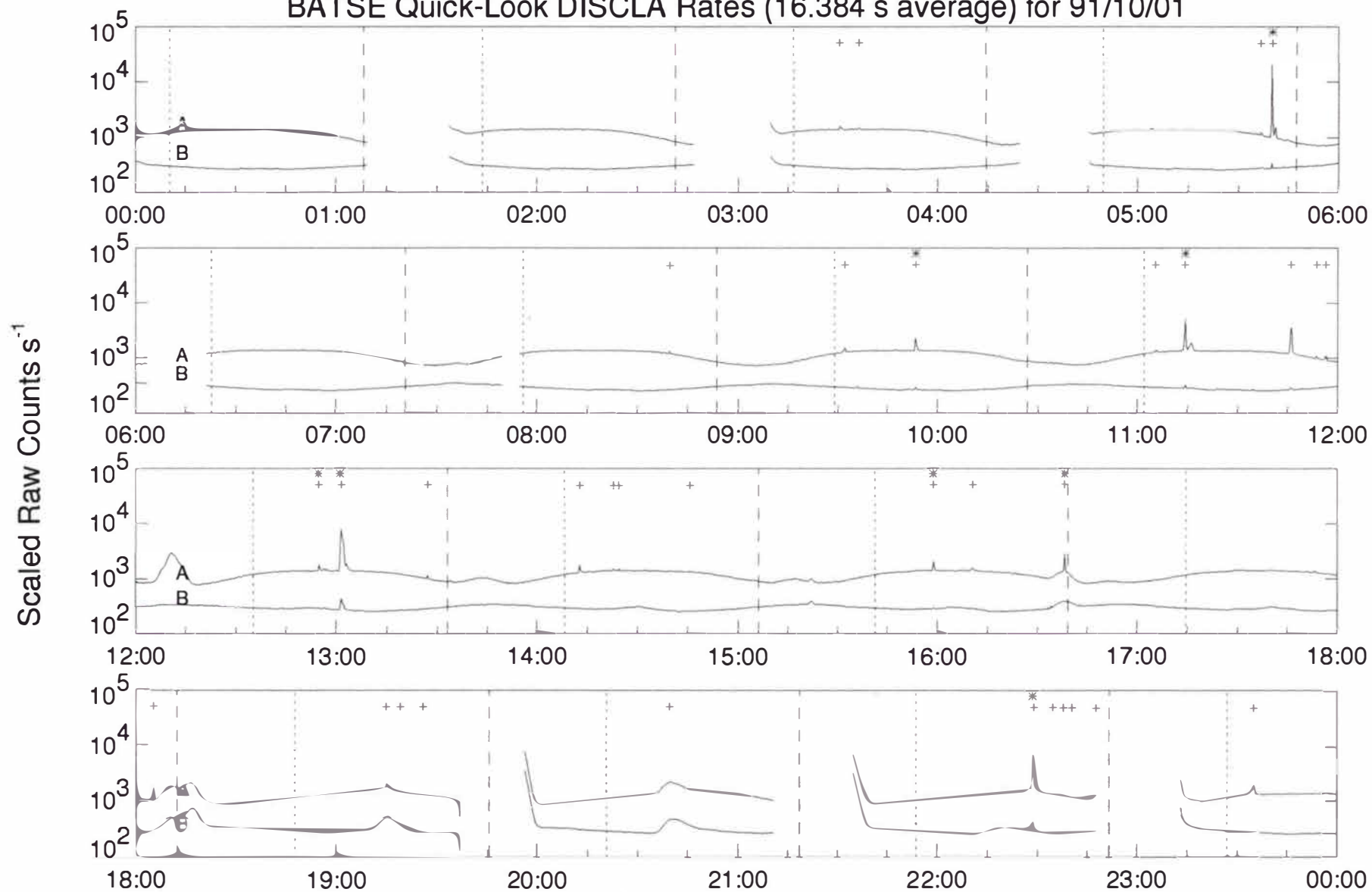
ULYSSES RT
1/10/91 31608.137 s
0- 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/01

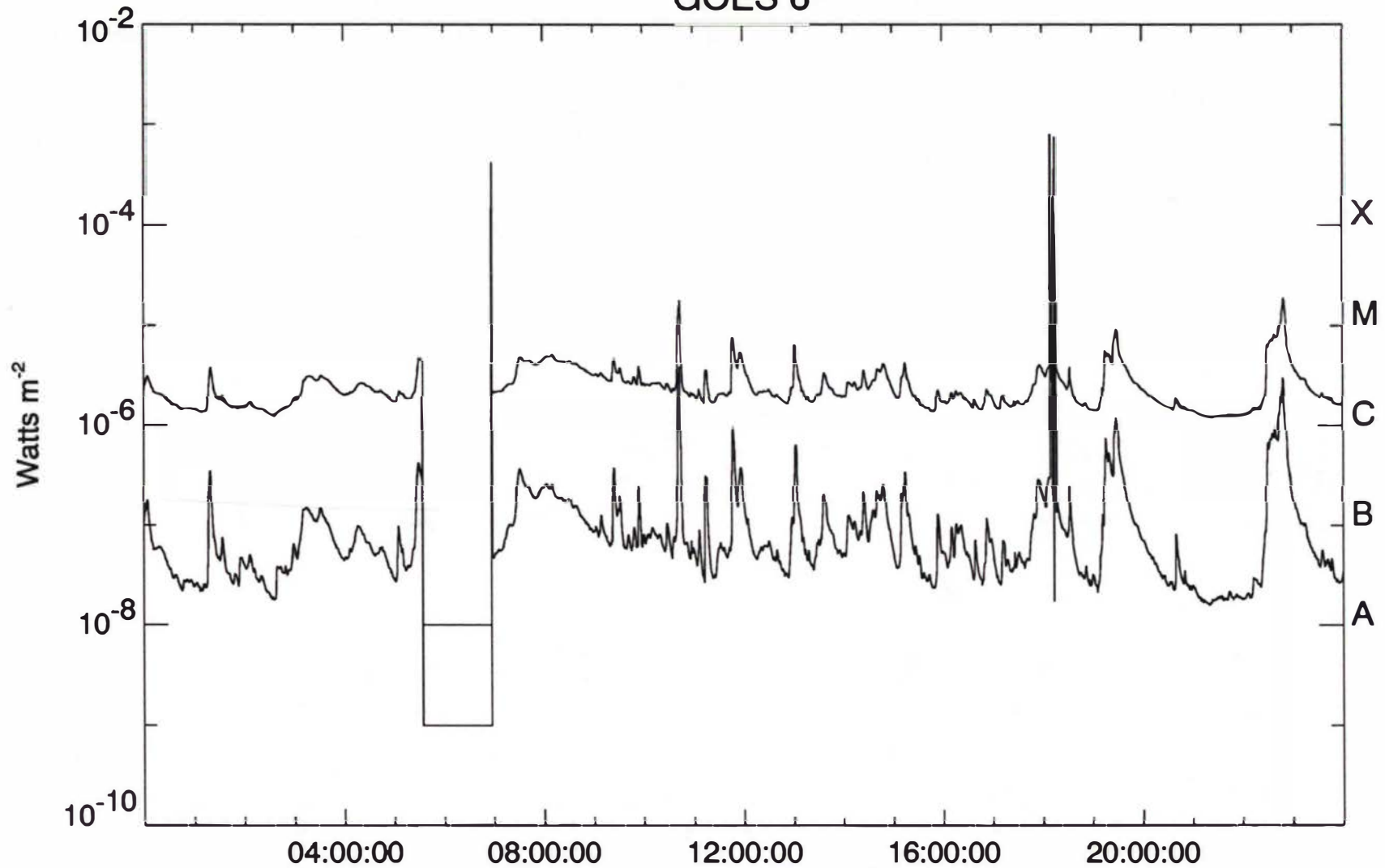


Current Time: 92/10/25, 2132 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/01, 0000:00

Plot created: 97/10/14, 2246

Channel 1 (1.0 - 8.0 Angstroms)

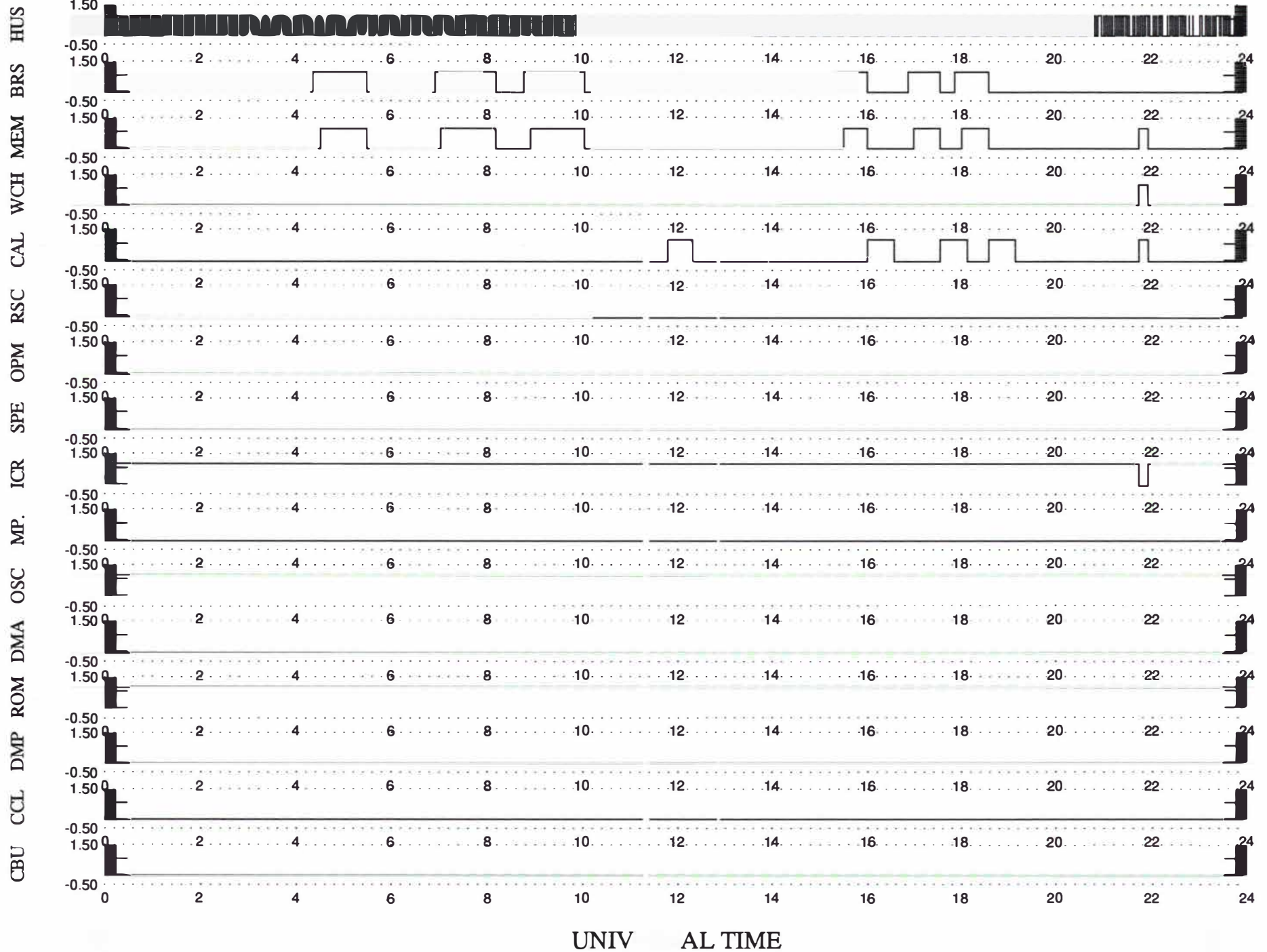
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

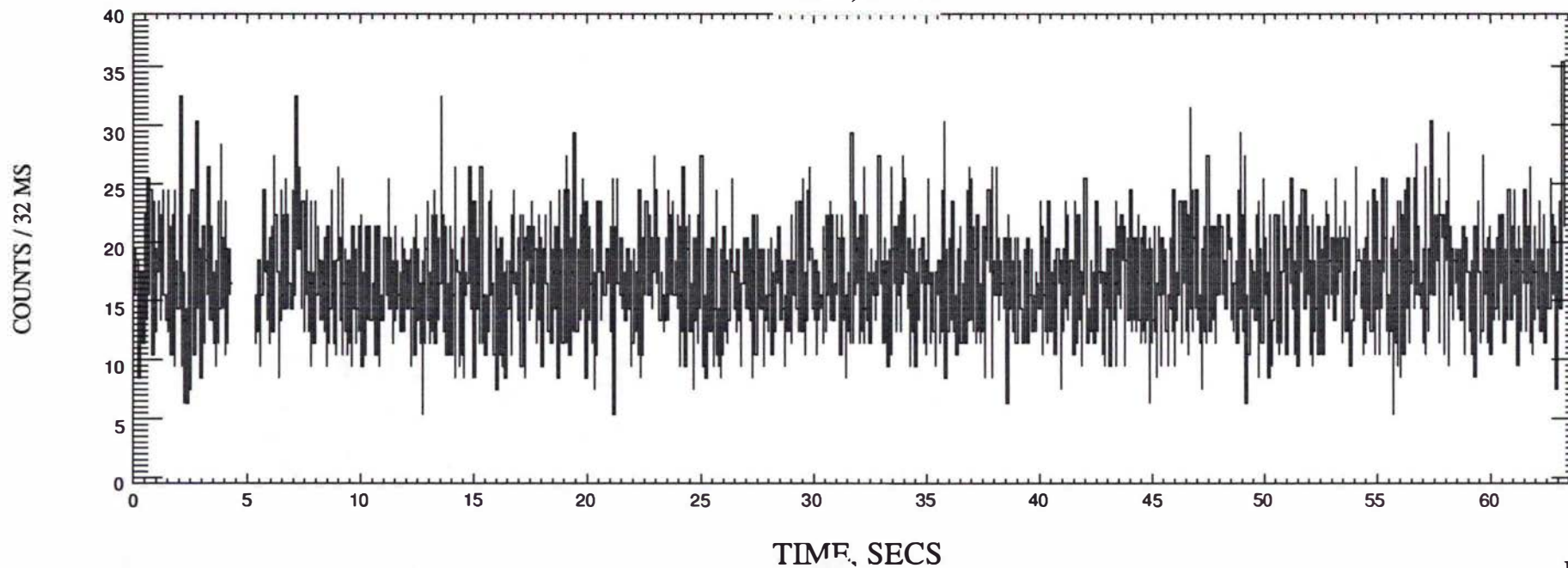
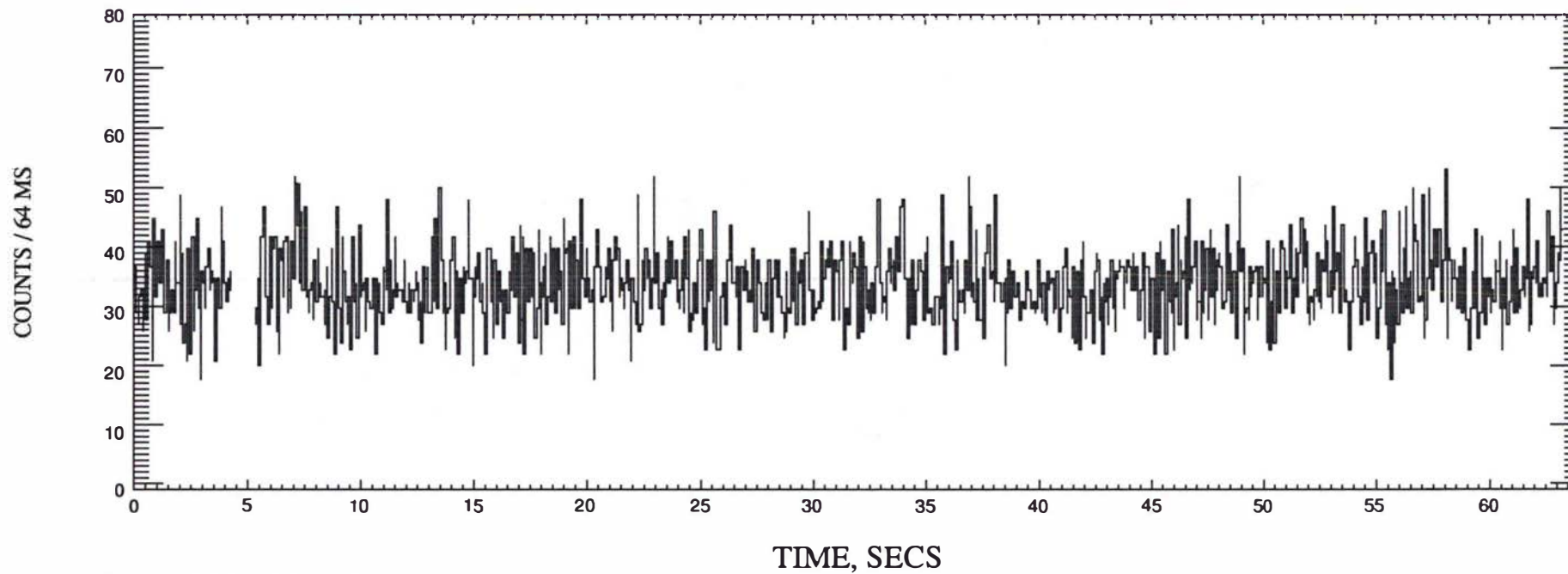
Background not subtracted

Sample average = 10

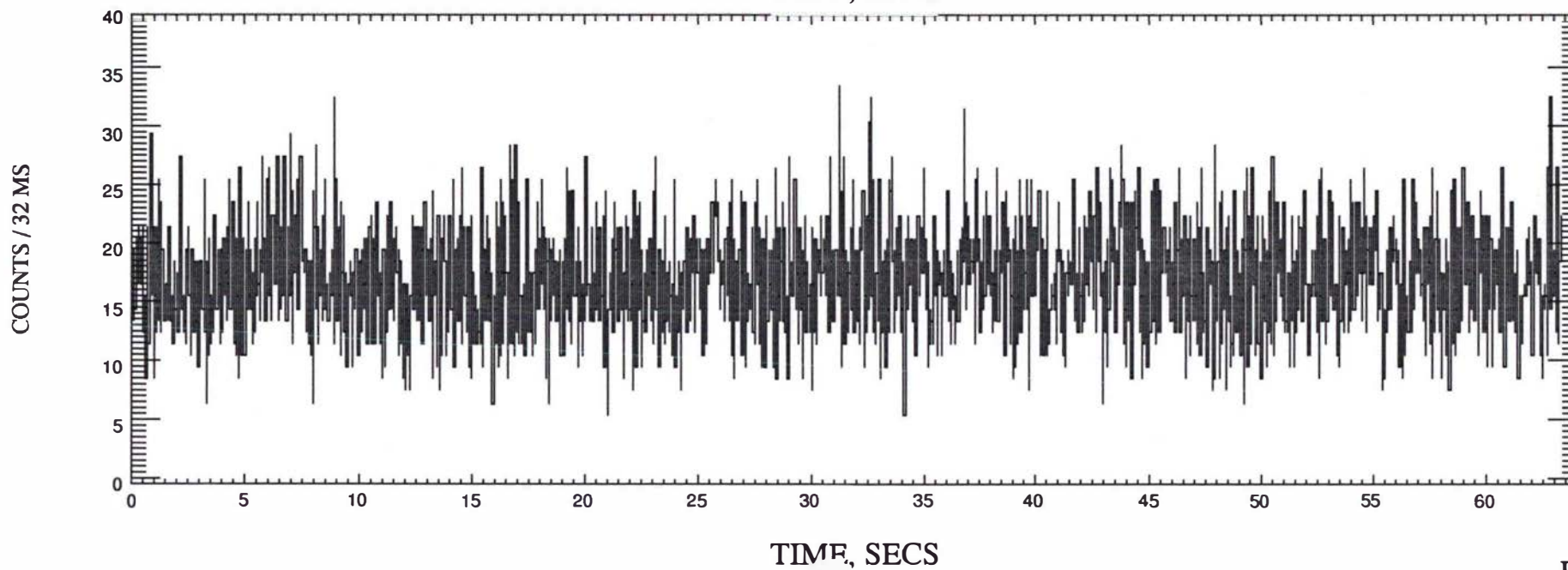
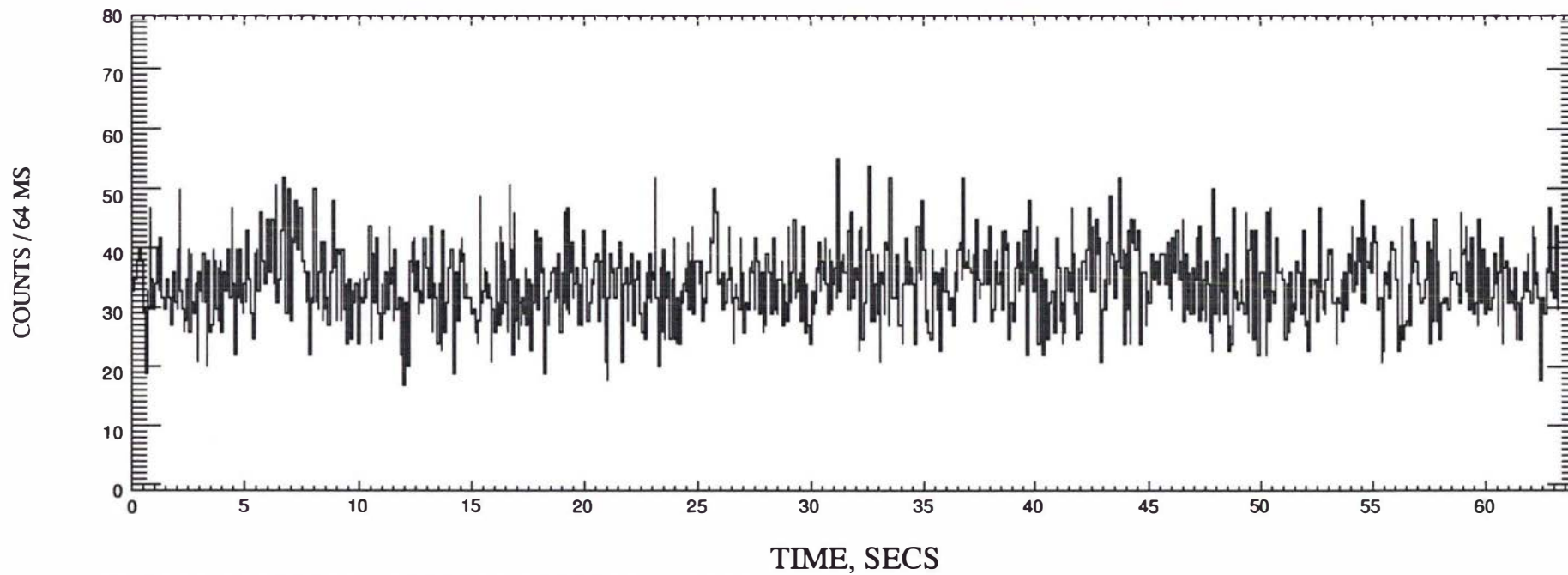
BURST NUMBER 9 - 14, 1 - 1, 14 - 14, 1 - 1, 14



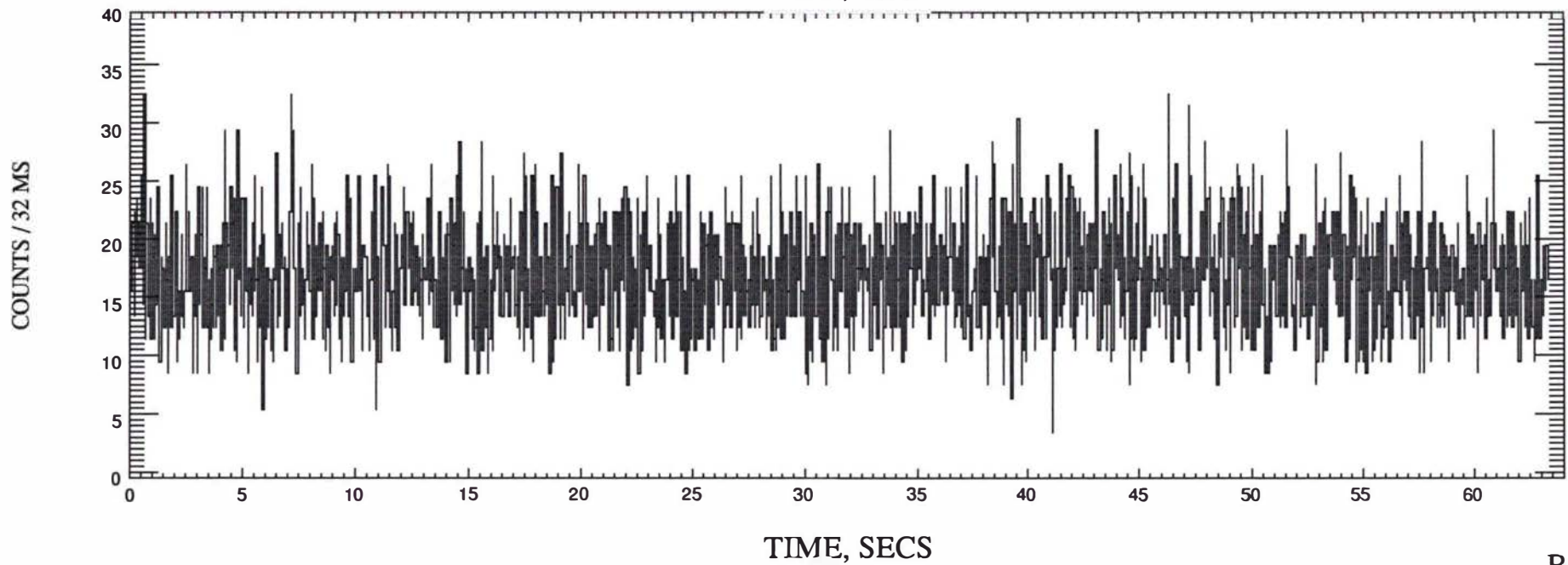
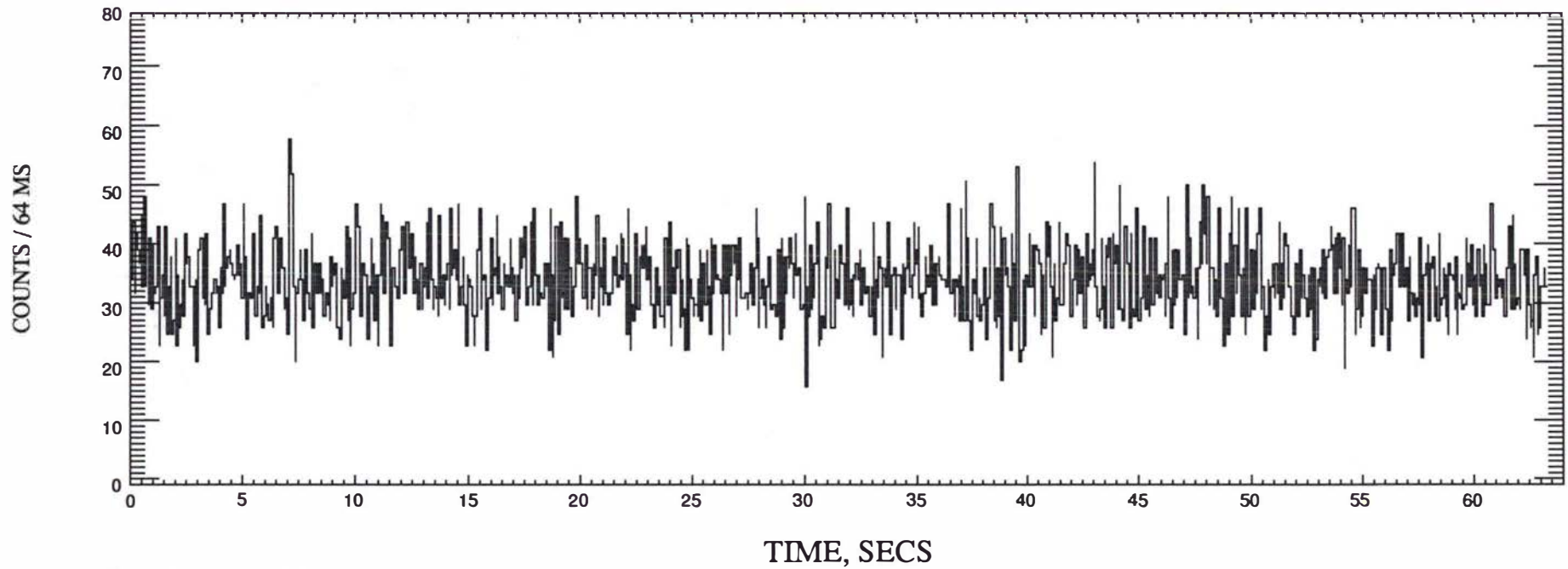
Burst Counter 9 at UT= 4.245377159119 h=15283.358 s 04:14:43.358



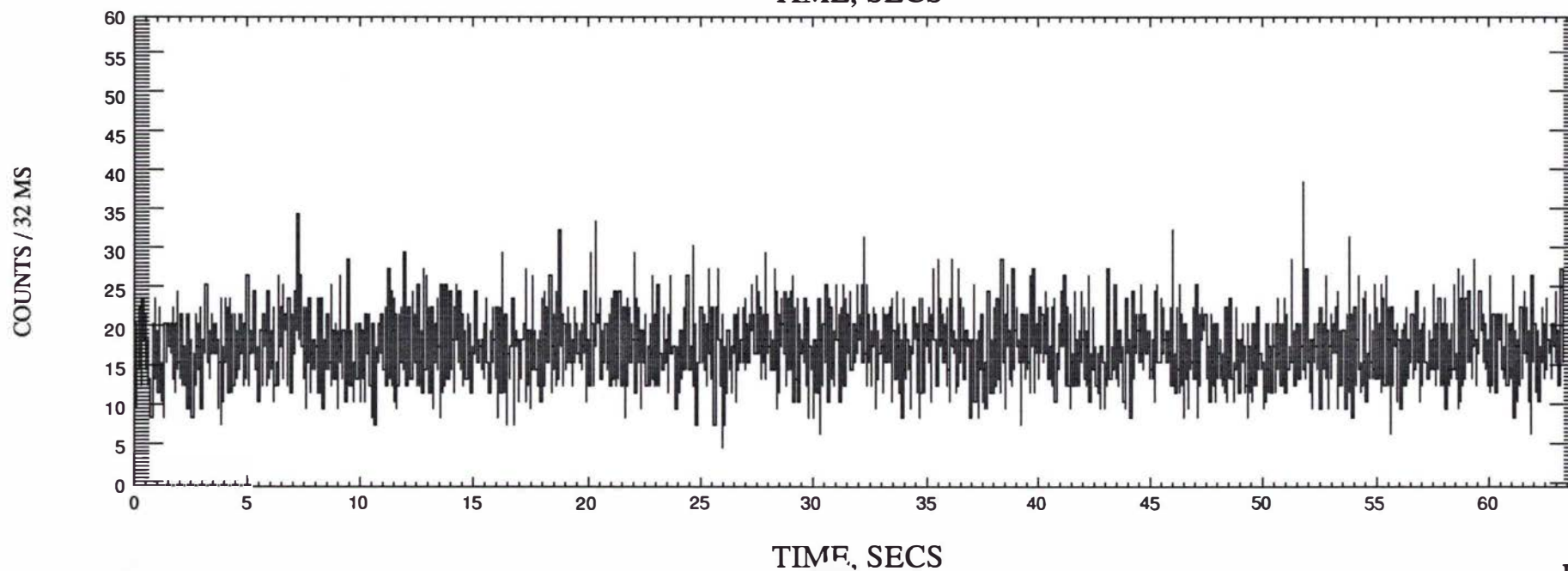
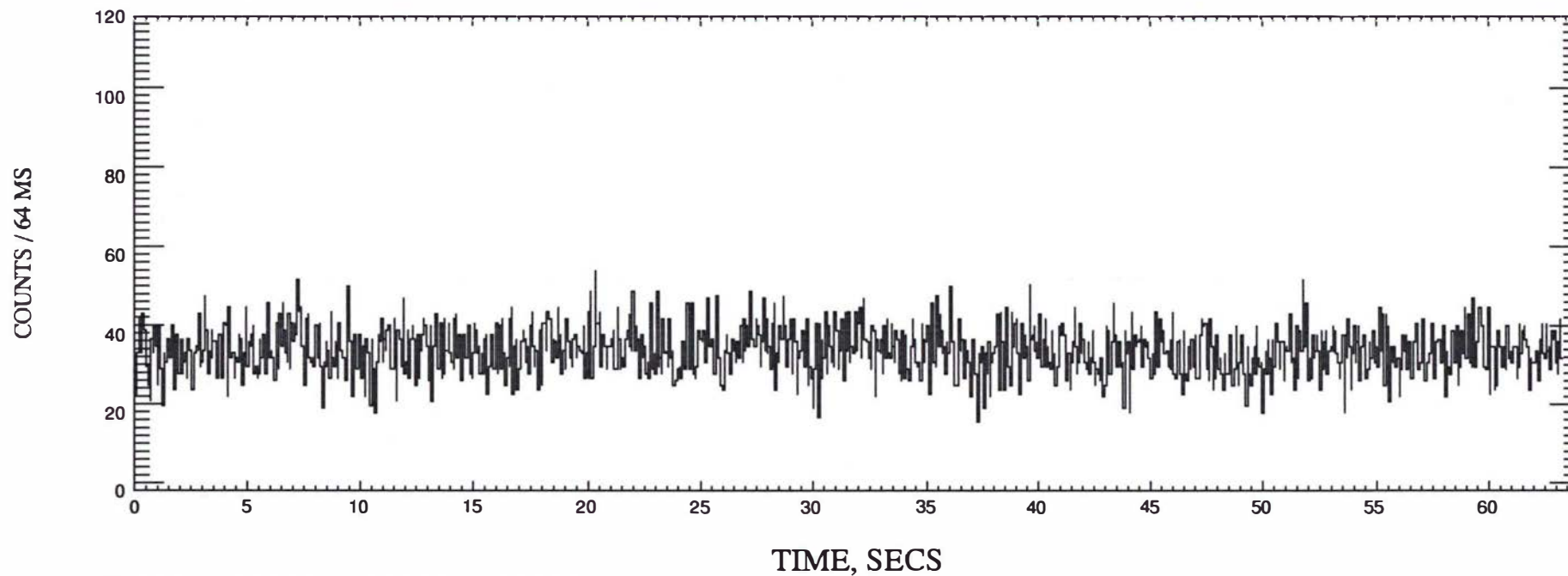
Burst Counter 10 at UT= 6.895143627591 h=24822.517 s 06:53:42.517



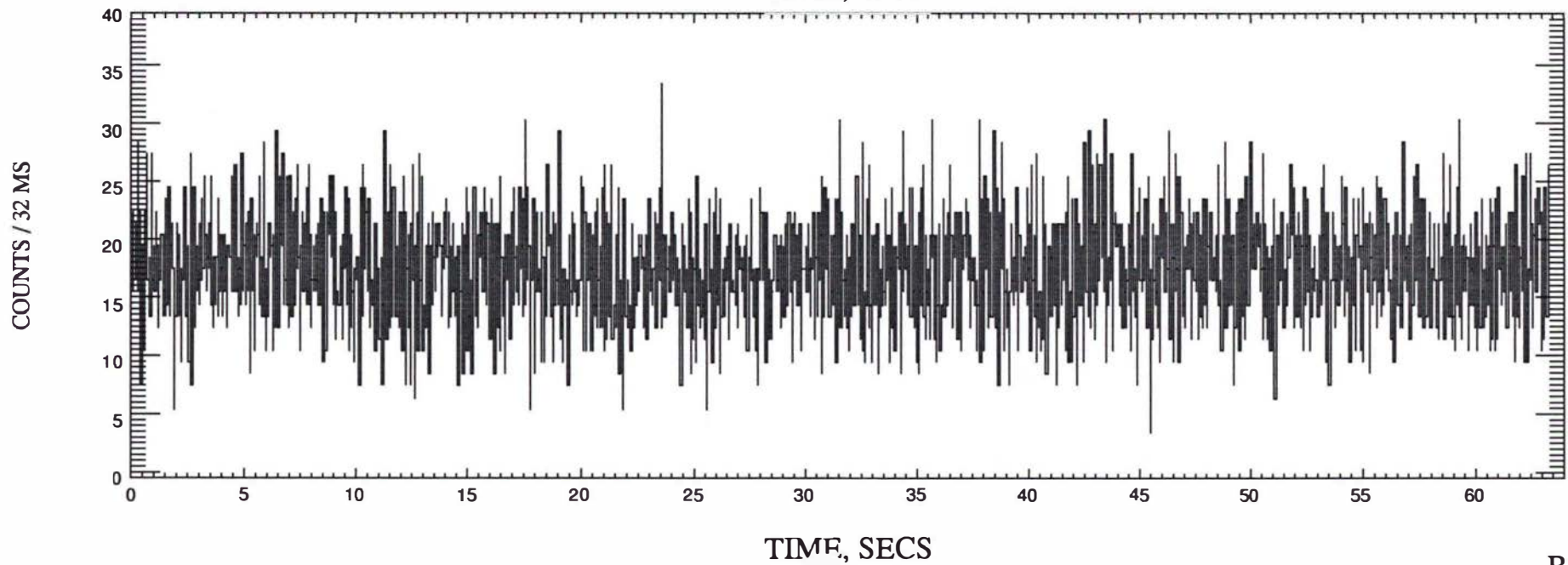
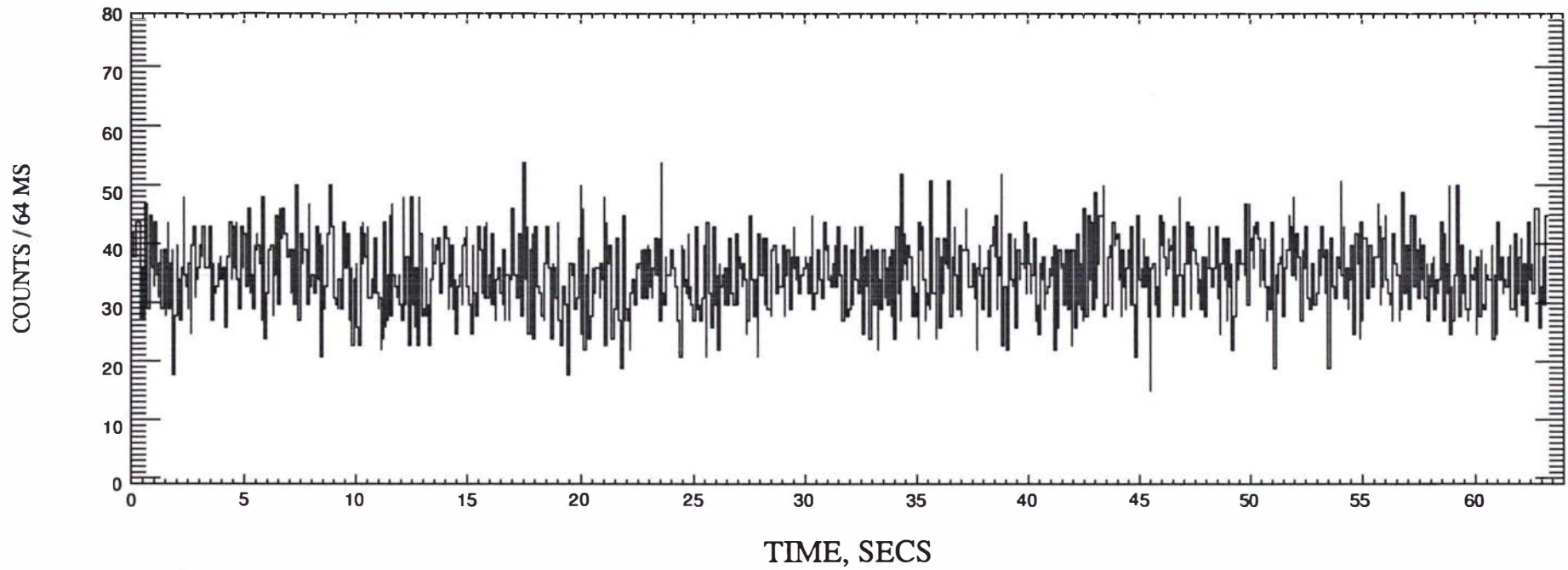
Burst Counter 11 at UT= 8.737044673496 h=31453.361 s 08:44:13.361



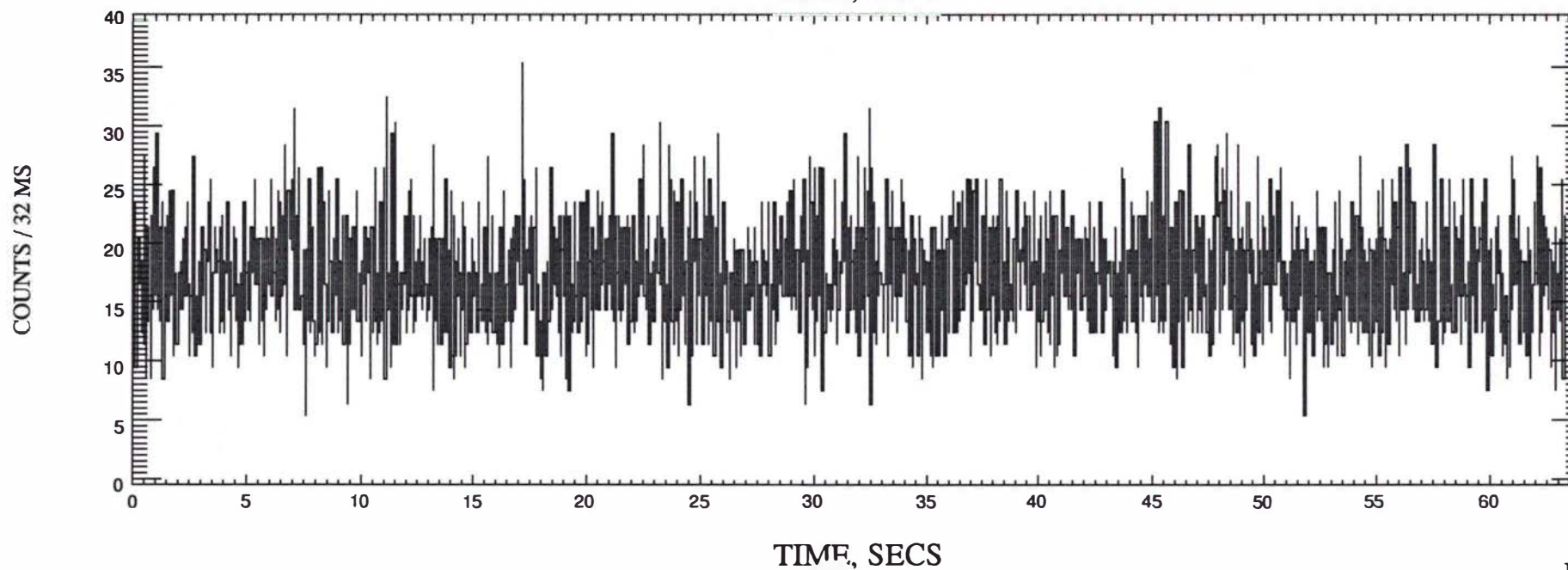
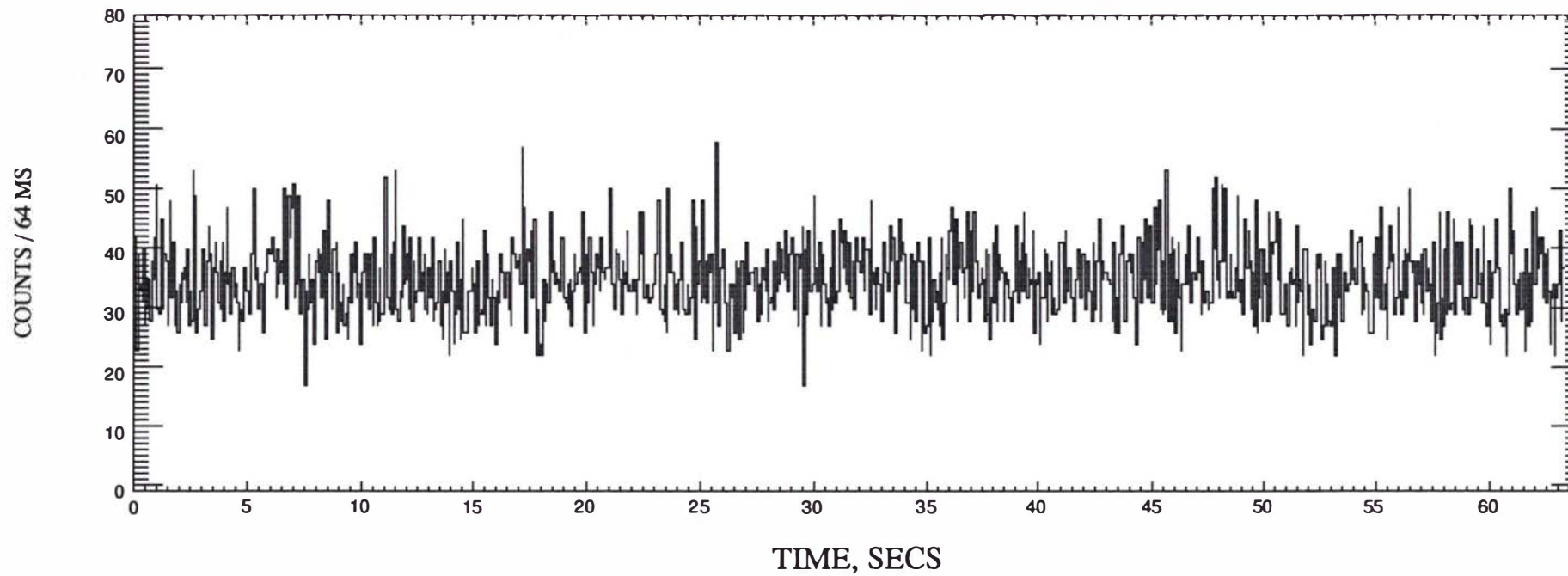
Burst Counter 12 at UT=15.316116494073 h=55138.019 s 15:18:58.019



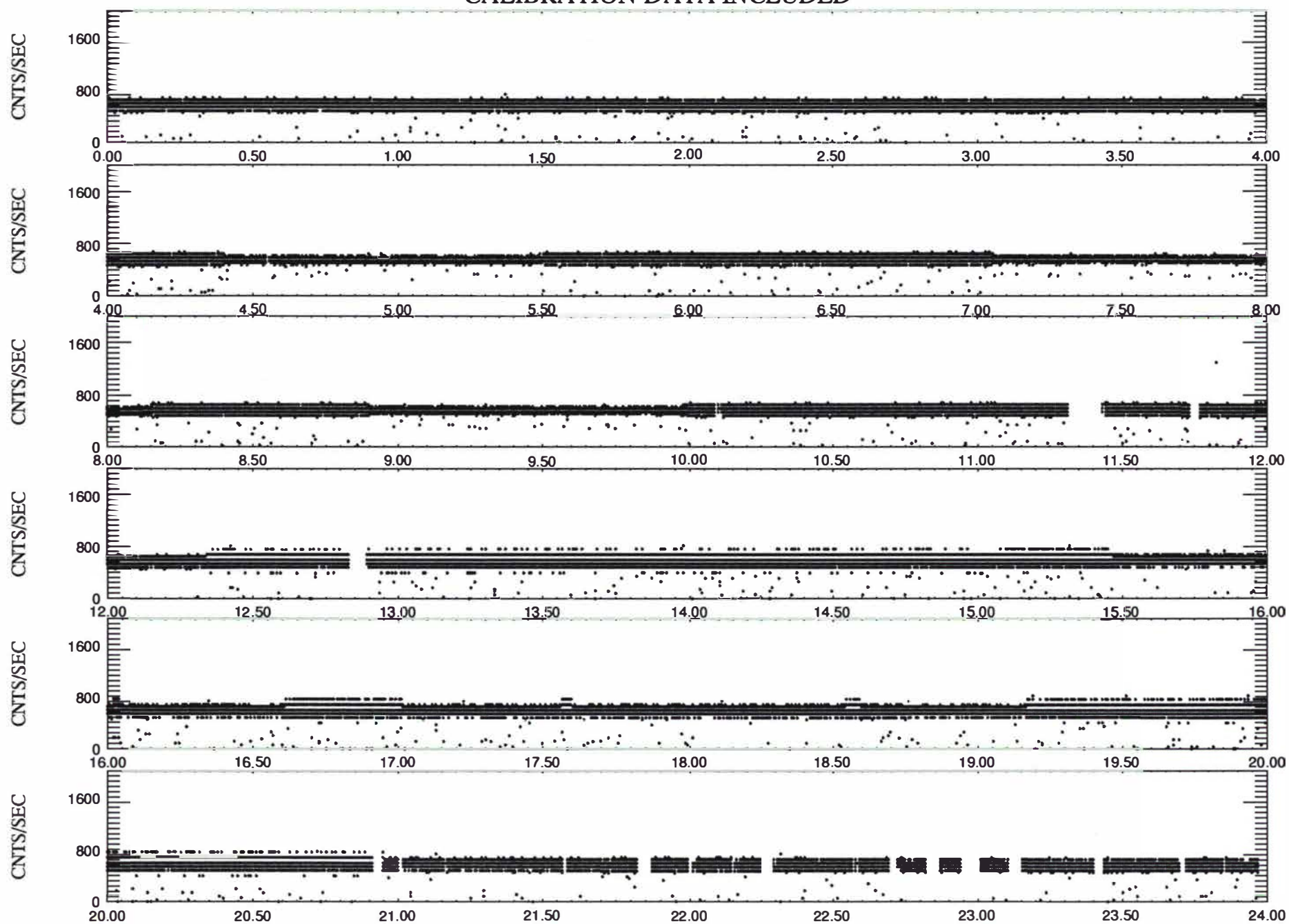
Burst Counter 13 at UT=16.862527758280 h=60705.100 s 16:51:45.100



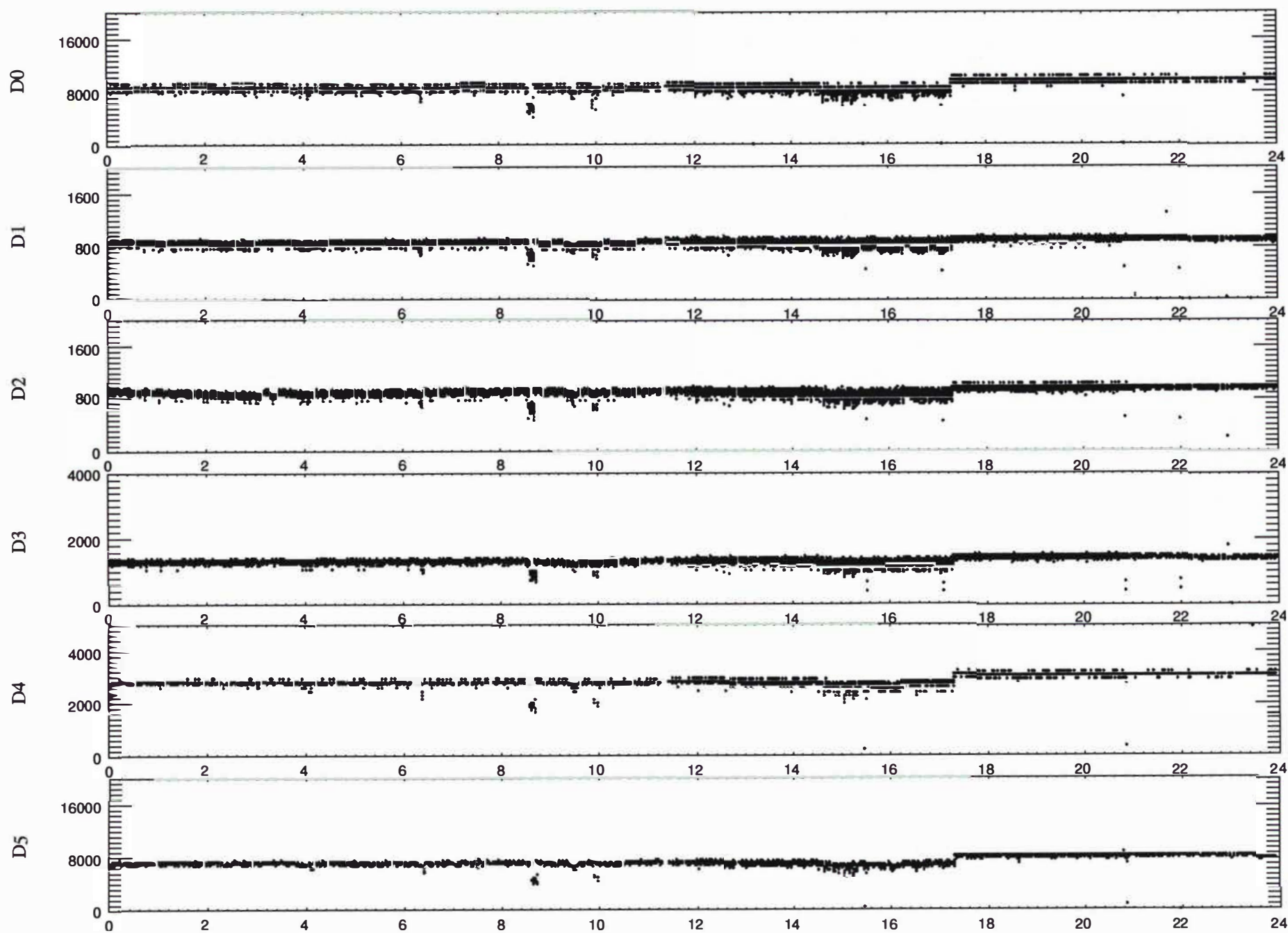
Burst Counter 14 at UT=17.835317556593 h=64207.143 s 17:50:07.143



CALIBRATION DATA INCLUDED



UNIV AL TIME



UNIV AL TIME

CATSEARCH PROGRAM

NO

BATSE BURST # 856
EVENT OF 1991 OCT 2 DAY OF YEAR=275
EVENT CROSSING TIME AT BATSE : 31972. S. OR 08:52:51.7
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 115.670 -73.690
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 2/10/ 91 IS:
RA= 159.091 DEC= 10.017 DIST= 5.164 AU
BATSE-ULYSSES DISTANCE = 772607704. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 91.94 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -87.43 SECS.
CROSSING TIME AT ULYSSES IS 31884. S. OR 08:51:24.3 +/- 495.85 SECONDS

9 / 11 / 95

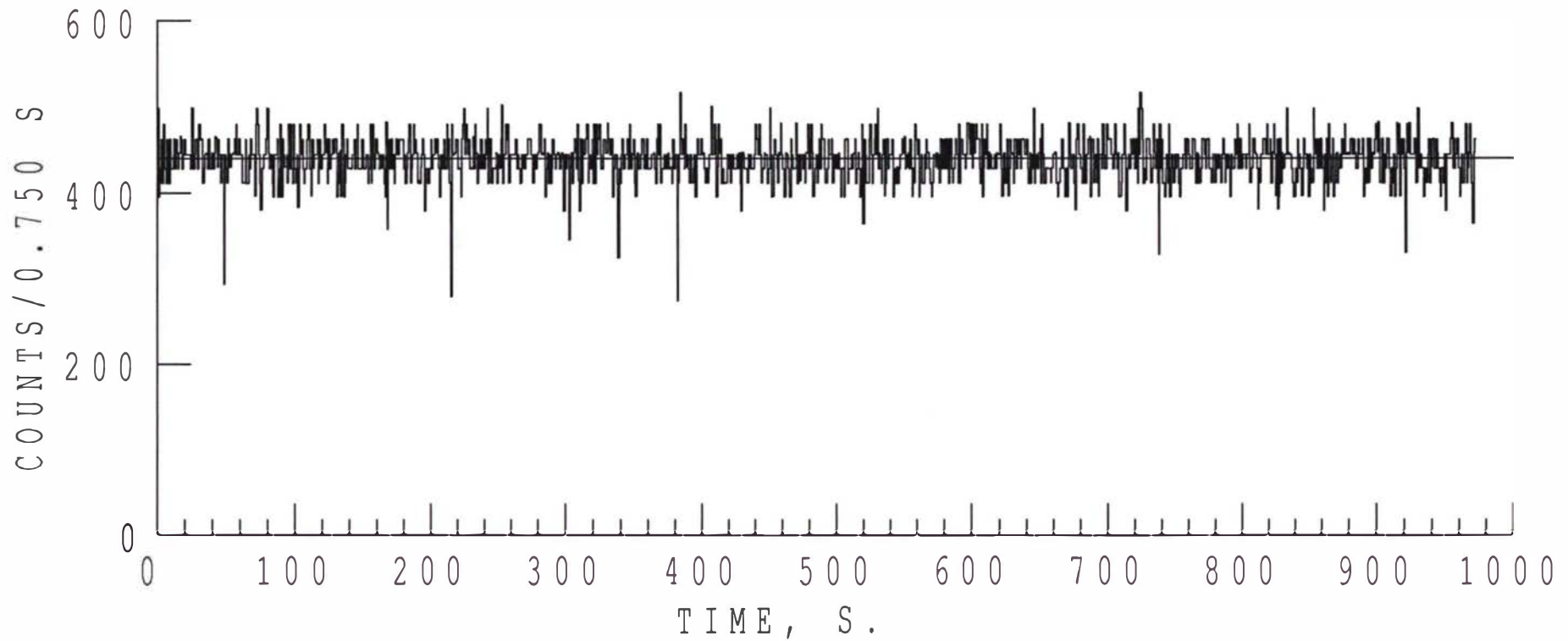
ULYSSES RT

2 / 10 / 91 31392.164 s

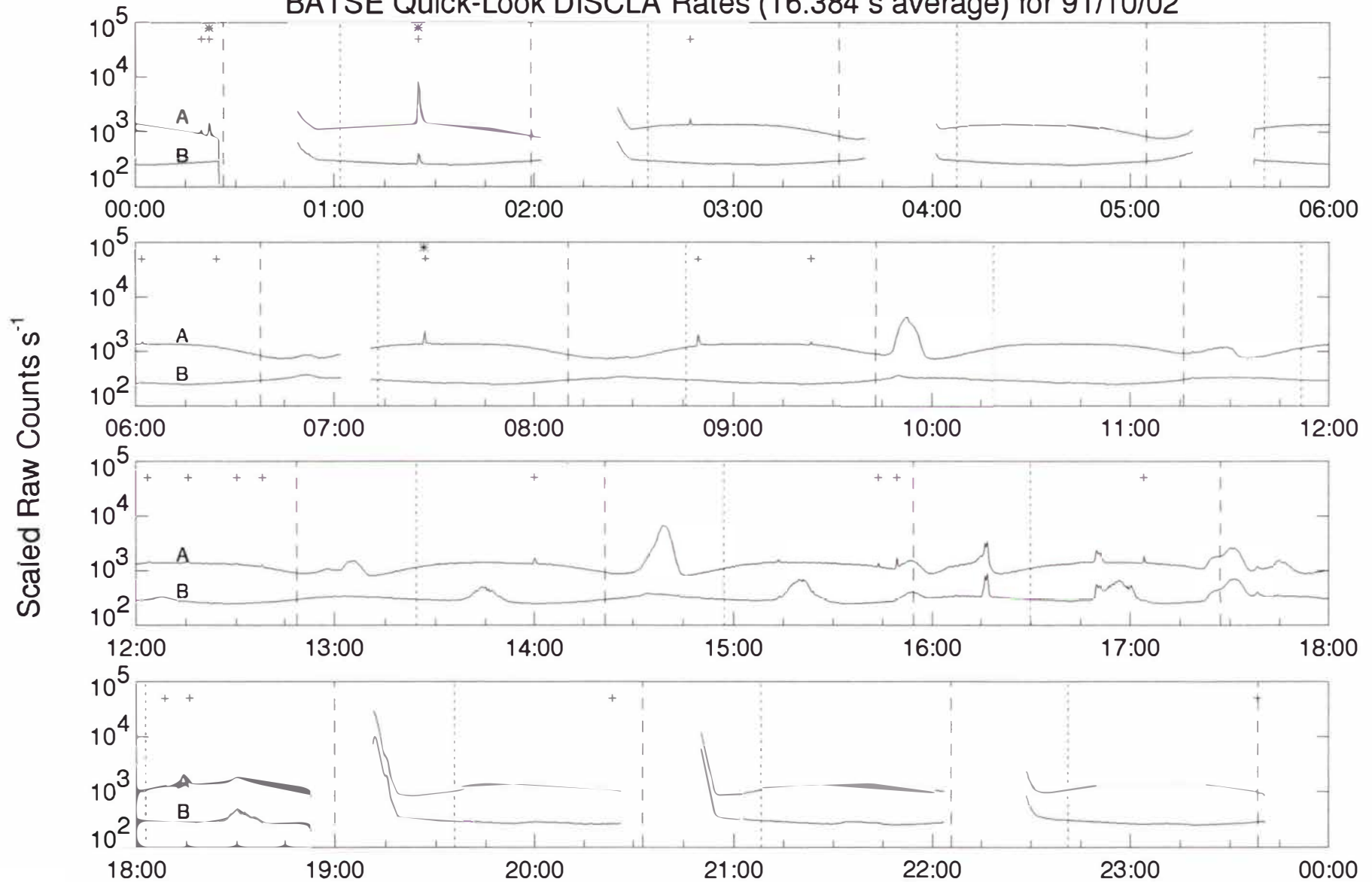
0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/02

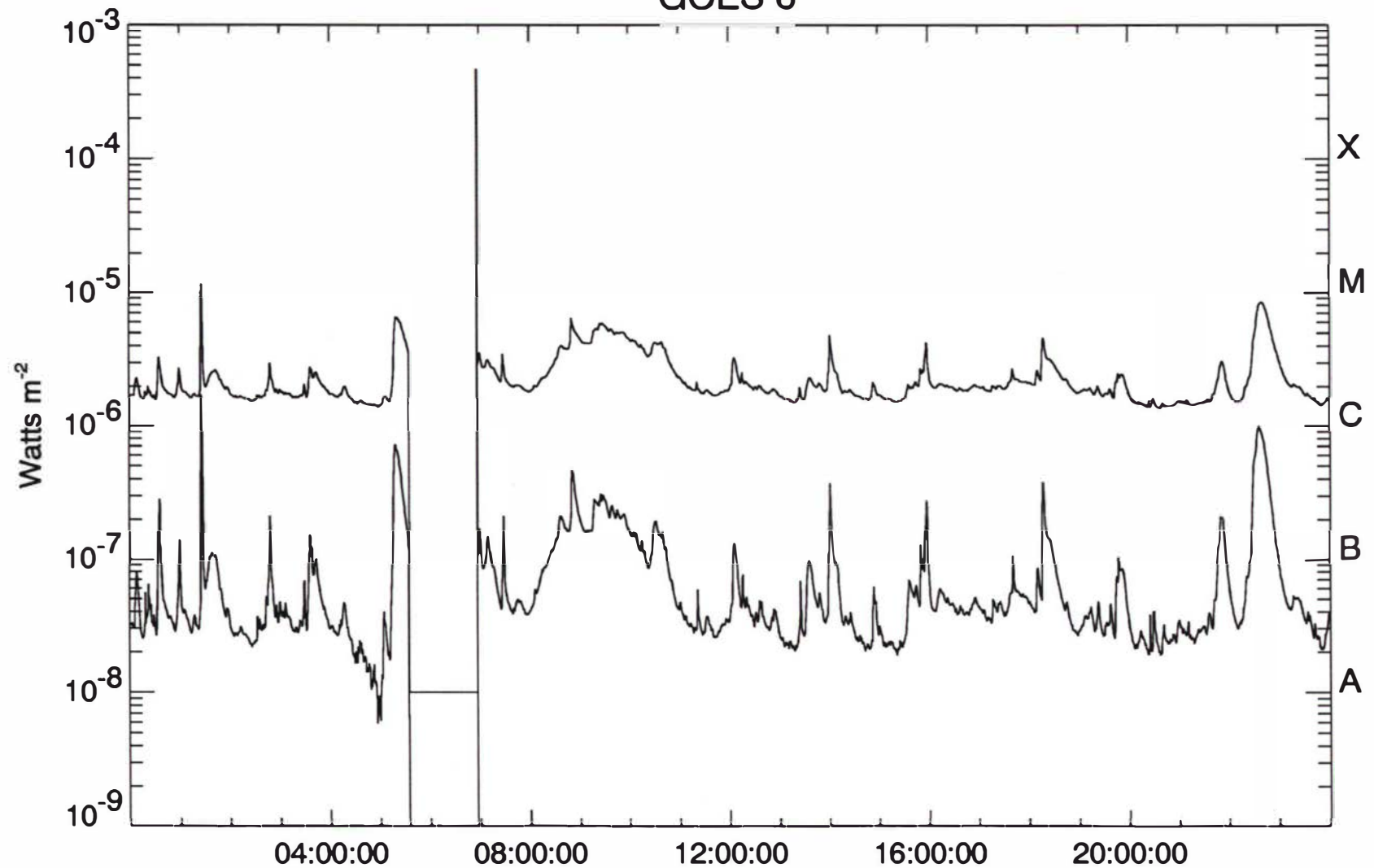


Current Time: 92/10/25, 2134 EDT
A: Channel 1 Most Sunward LAD
B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 6



Data Start: 91/10/02, 0000:01

Plot created: 97/10/14, 2250

Channel

1 (1.0 - 8.0 Angstroms)

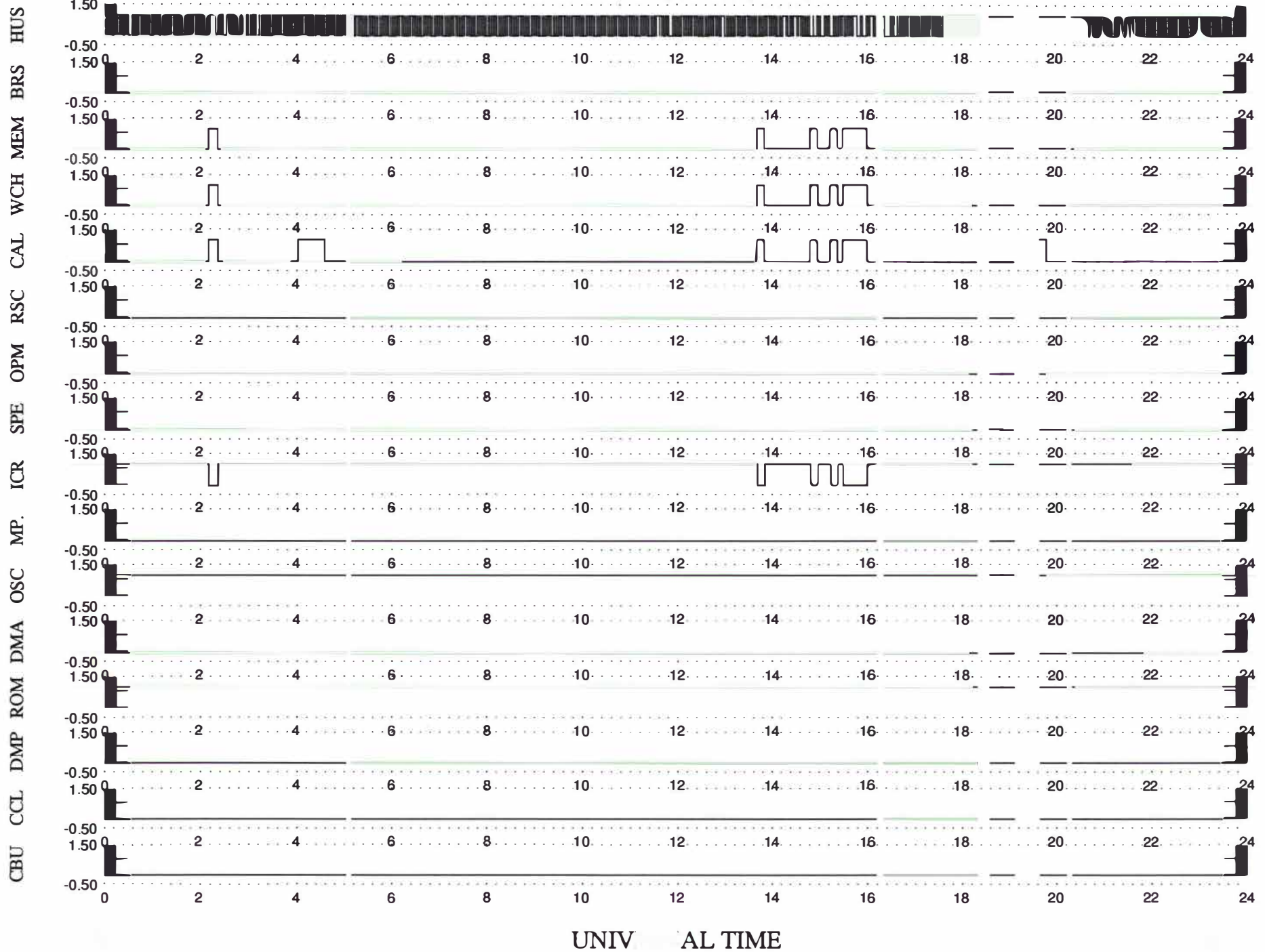
Background not subtracted

2 (0.5 - 4.0 Angstroms)

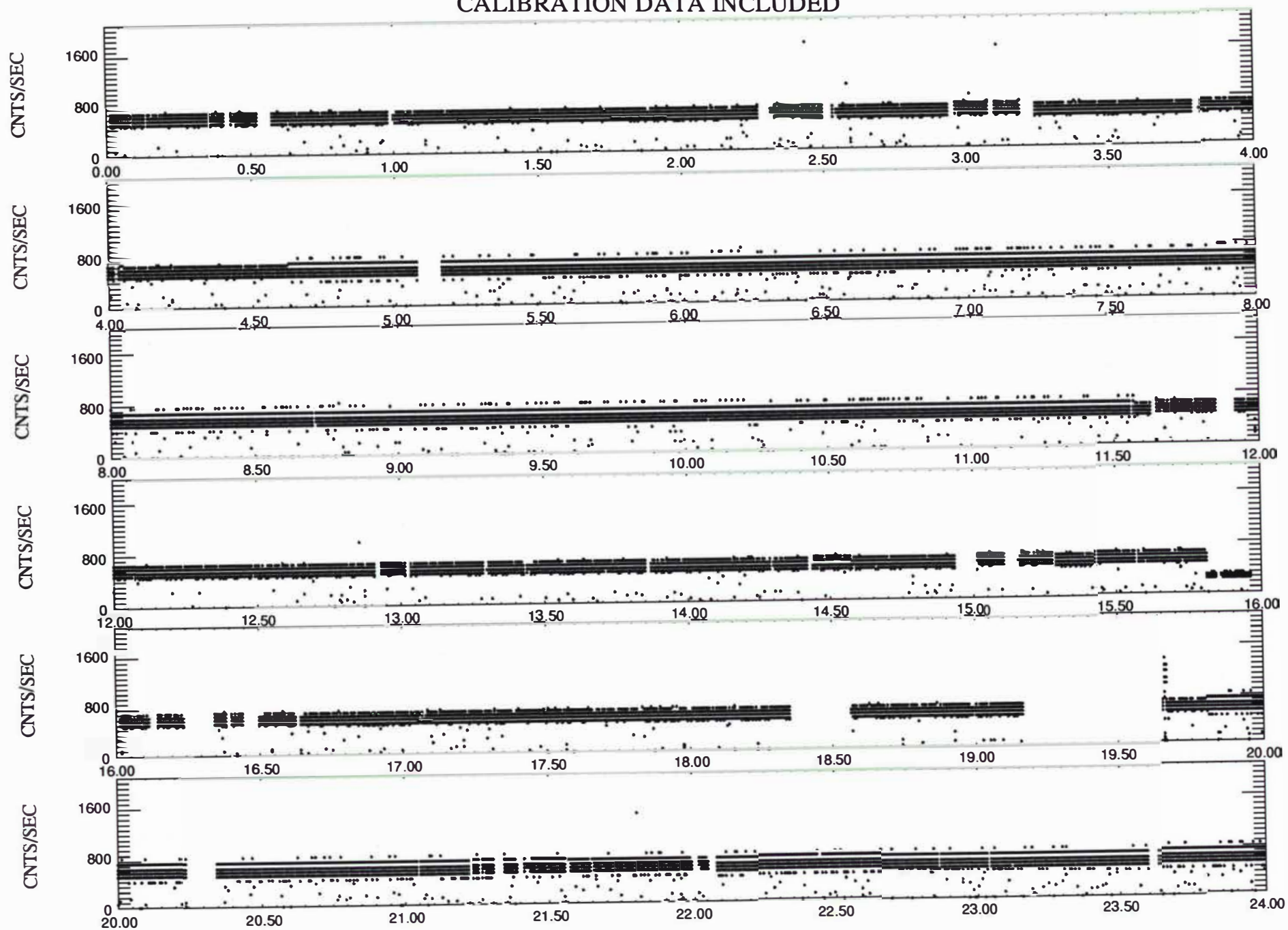
Background not subtracted

Sample average = 10

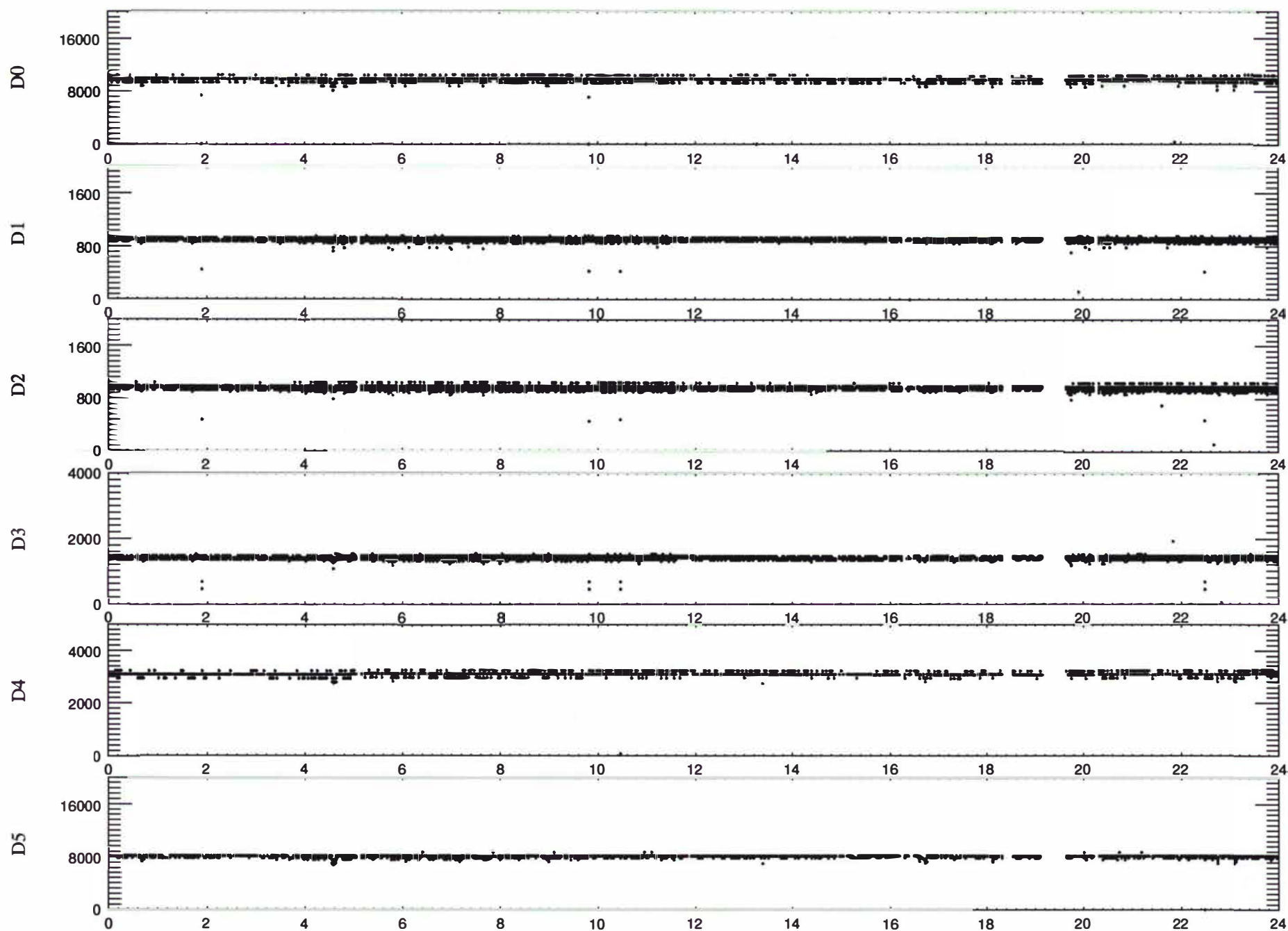
BURST NUMBER 1, 14 - 14, 1 - 1, 14



CALIBRATION DATA INCLUDED



UNIV AL TIME



UNIV AL TIME

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

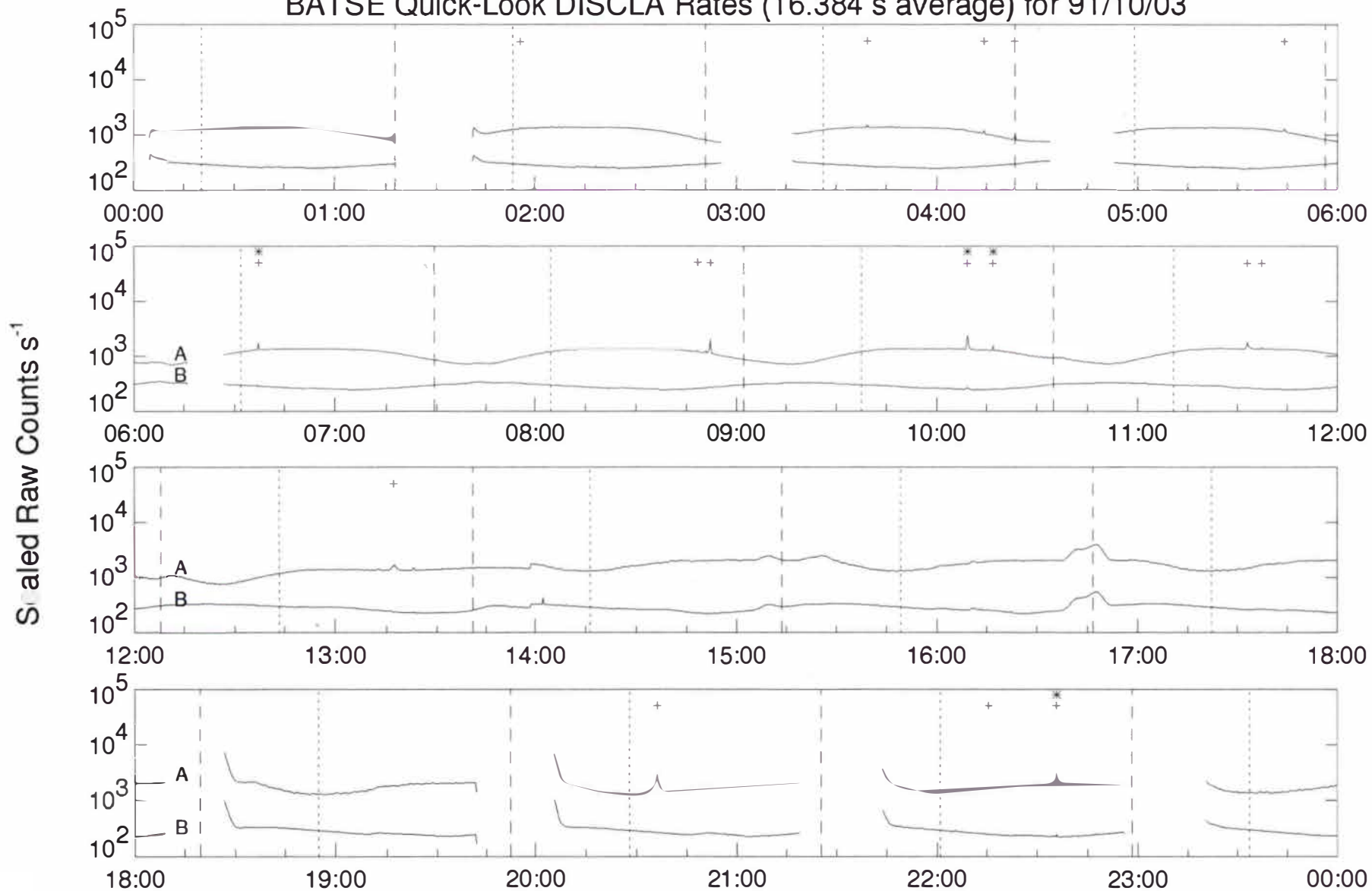
91/12/21	06:17	N/O
91/12/21	22:03	N/O
91/12/27	15:56	N/O
92/01/05	17:41	N/O
92/01/13	20:52	N/O
92/01/25	08:57	N/O
92/01/30	00:29	N/O
92/01/30	22:50	N/O
92/02/18	18:42	N/O
92/02/21	06:14	N/O
92/02/26	18:15	YES TRIGGER AT 29336 S UT
92/02/27	06:00	N/O
92/02/27	08:45	N/O
92/03/02	06:16	N/O
92/03/04	14:34	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 AVAILIABLE 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

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/03

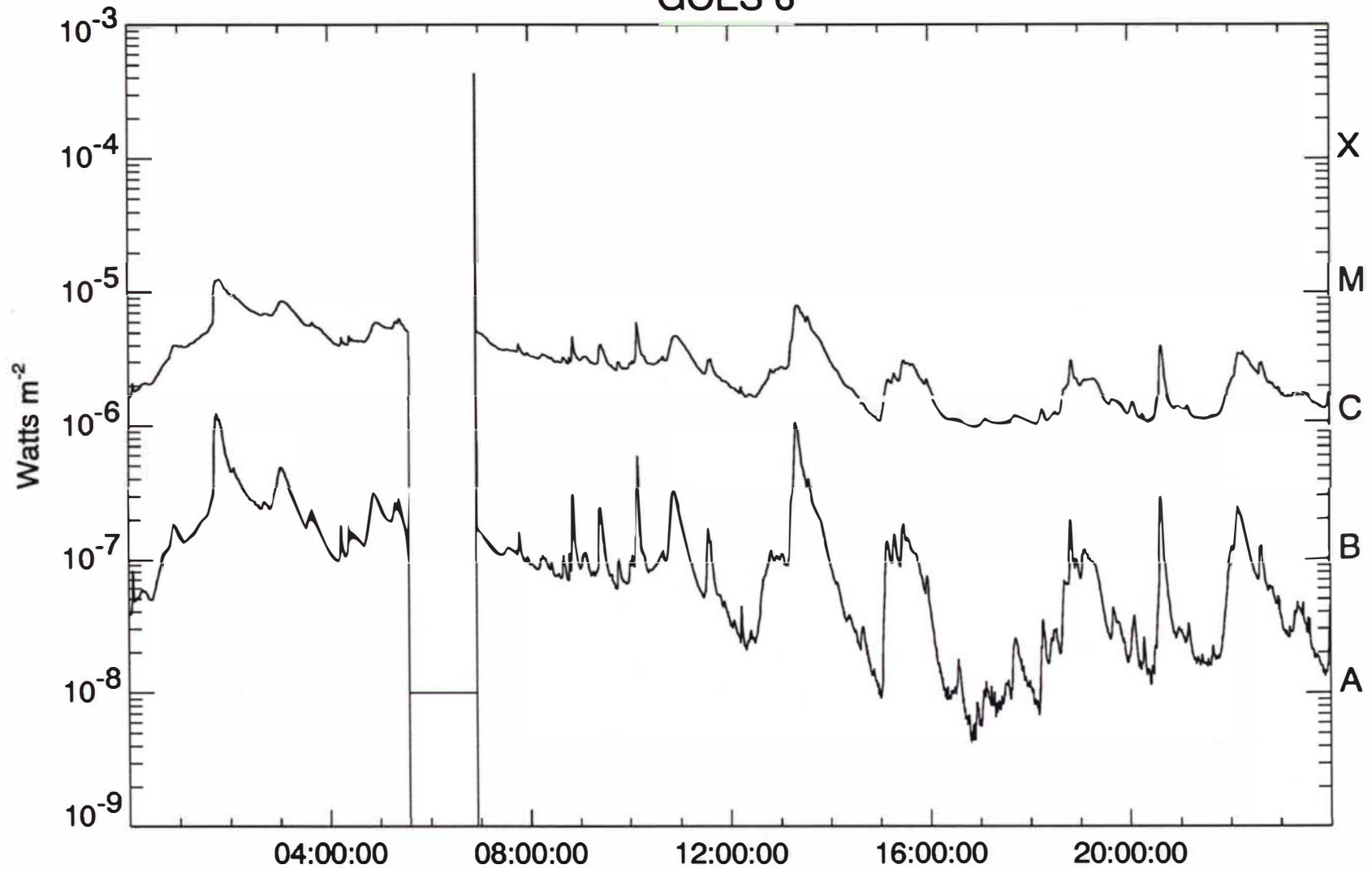


Current Time: 92/10/31, 1936 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/03, 0000:02

Plot created: 97/10/14, 2253

Channel 1 (1.0 - 8.0 Angstroms)

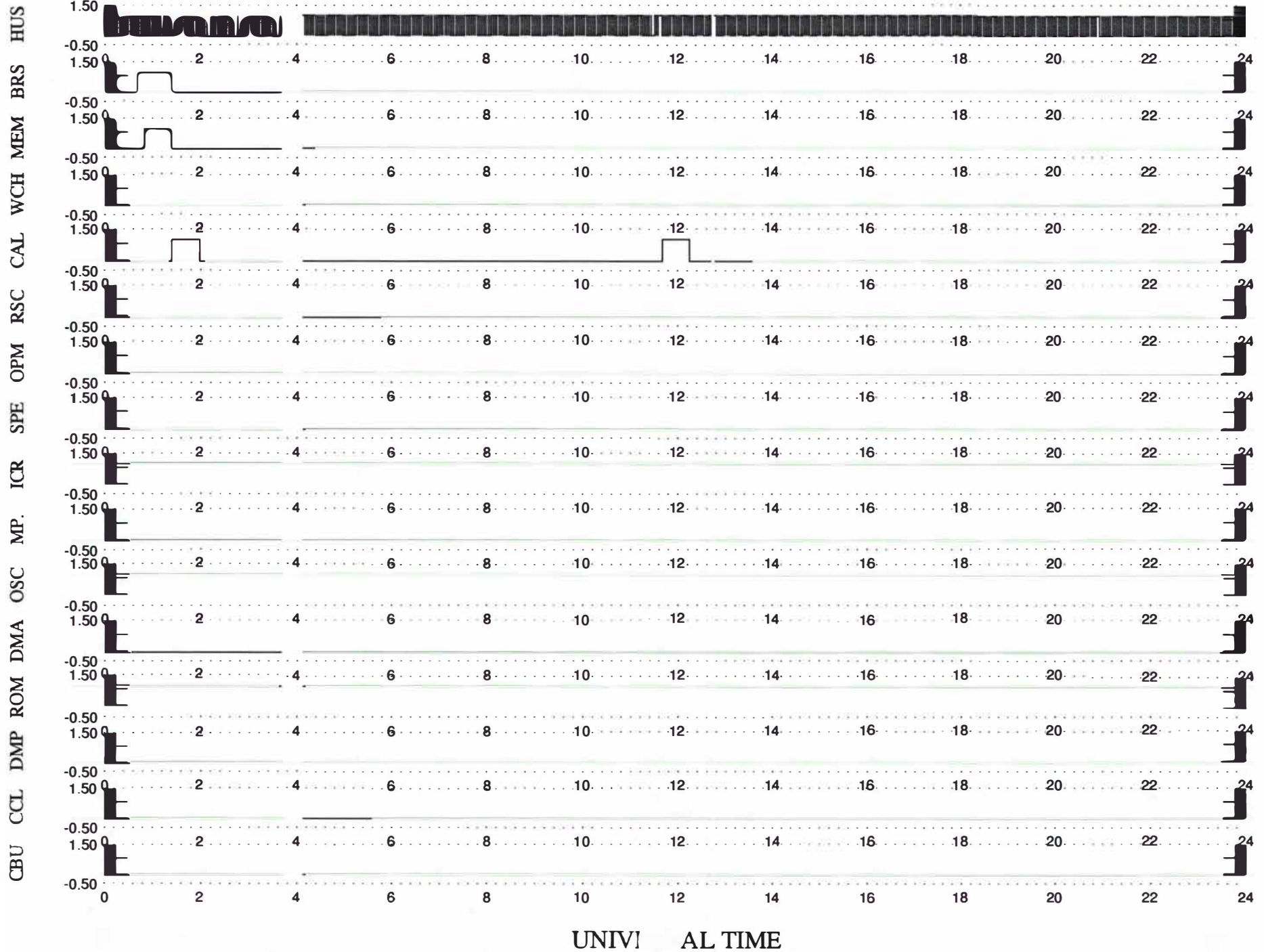
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

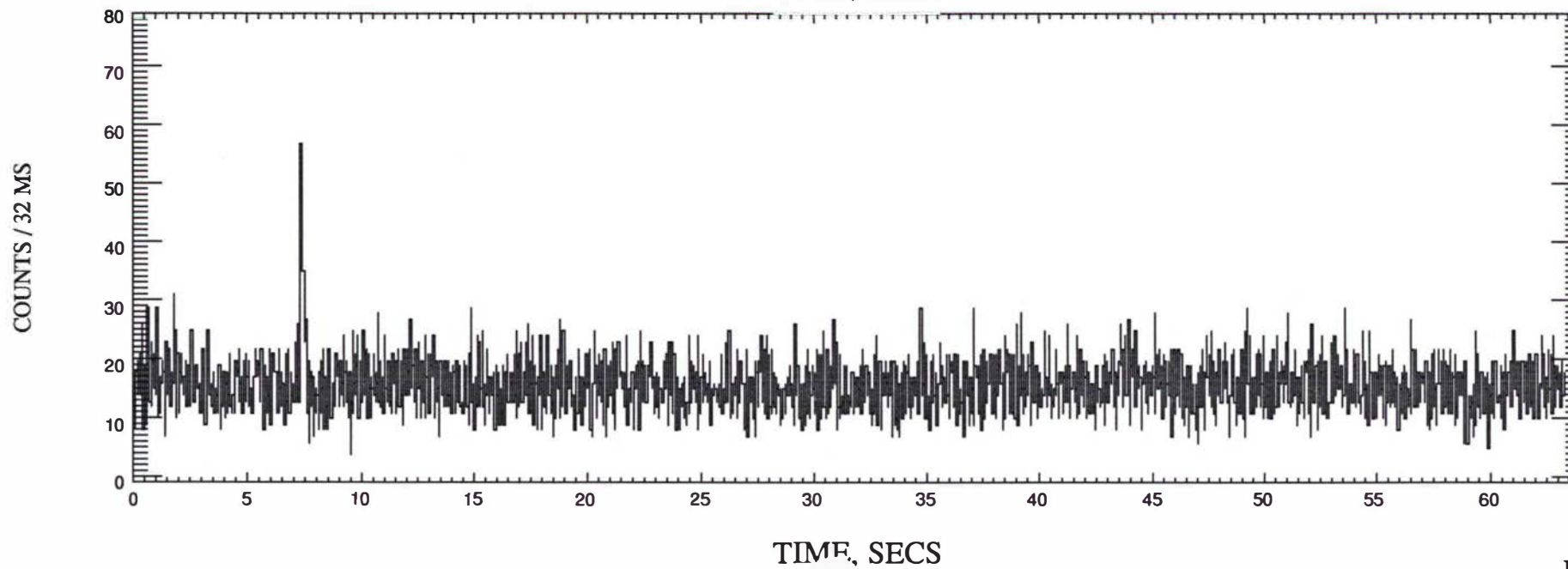
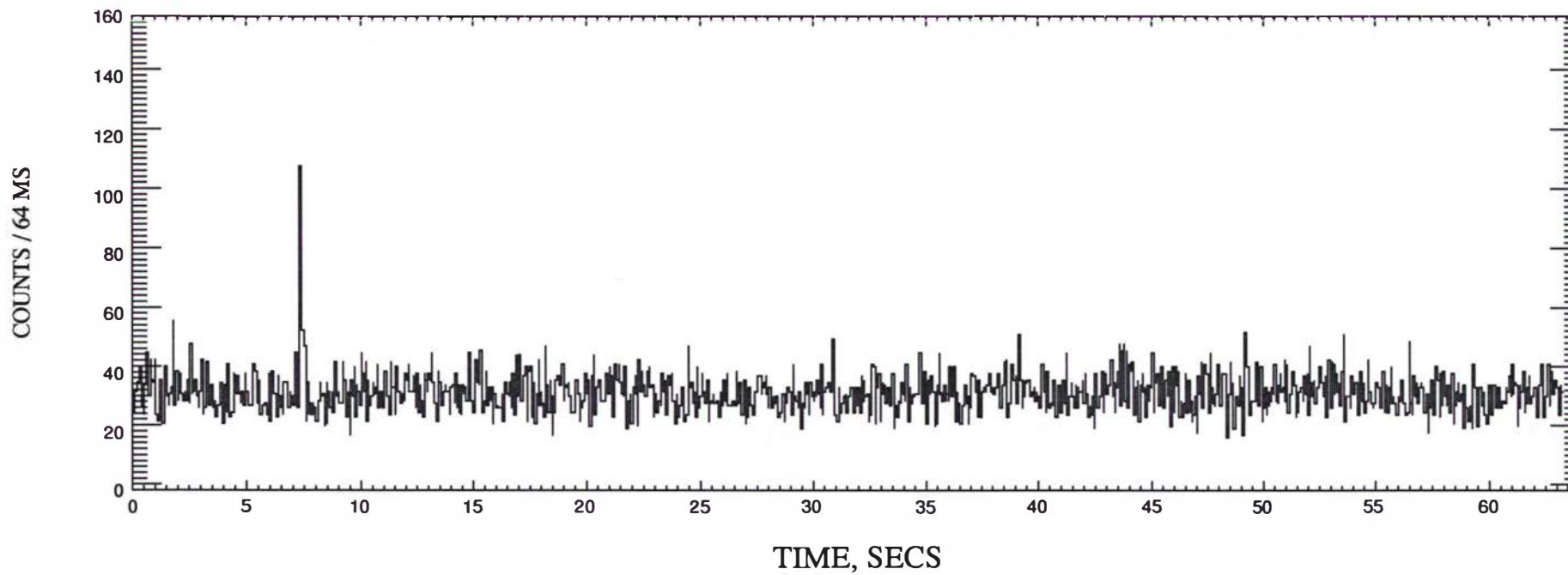
Background not subtracted

Sample average = 10

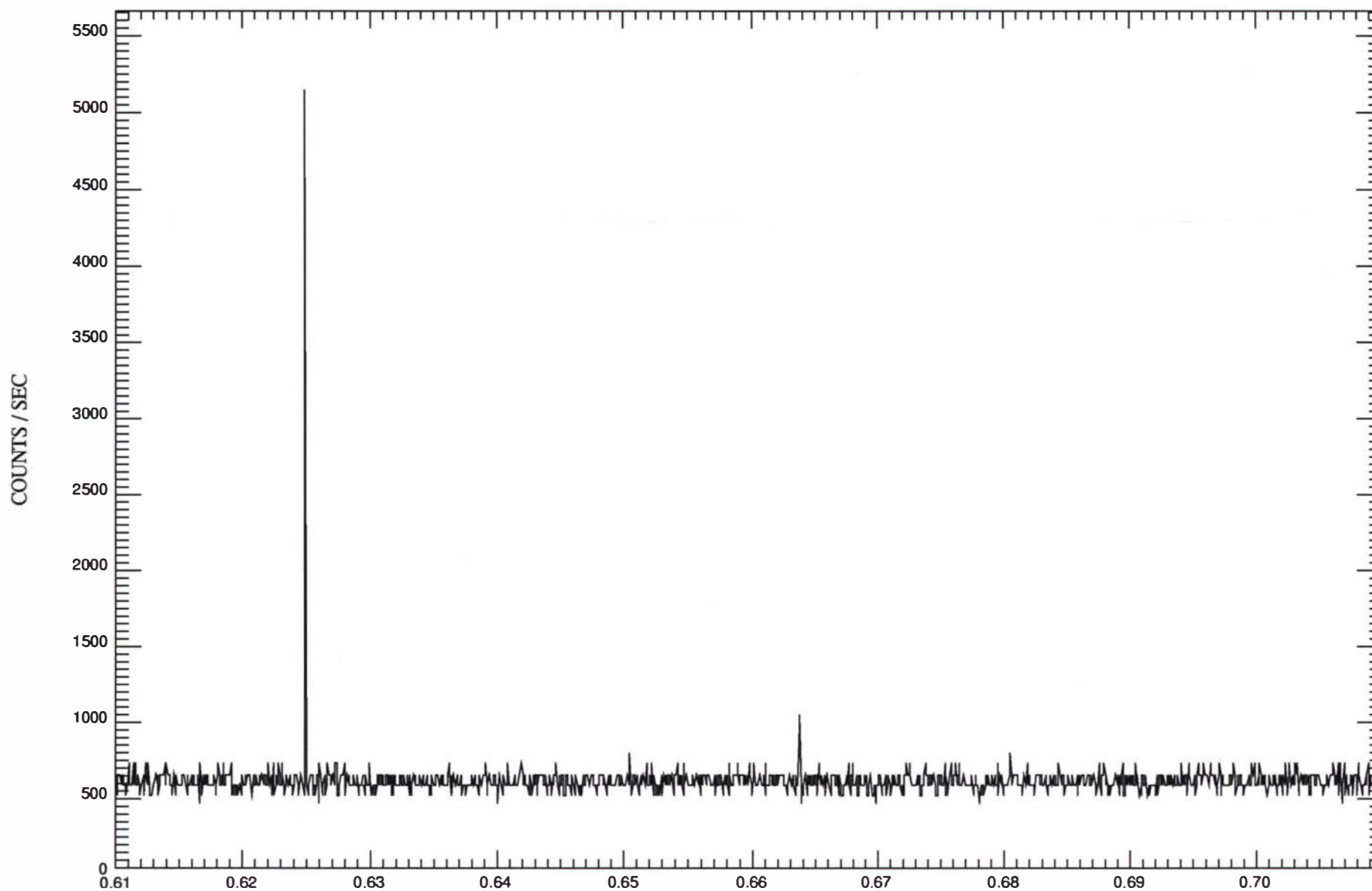
BURST NUMBER 15



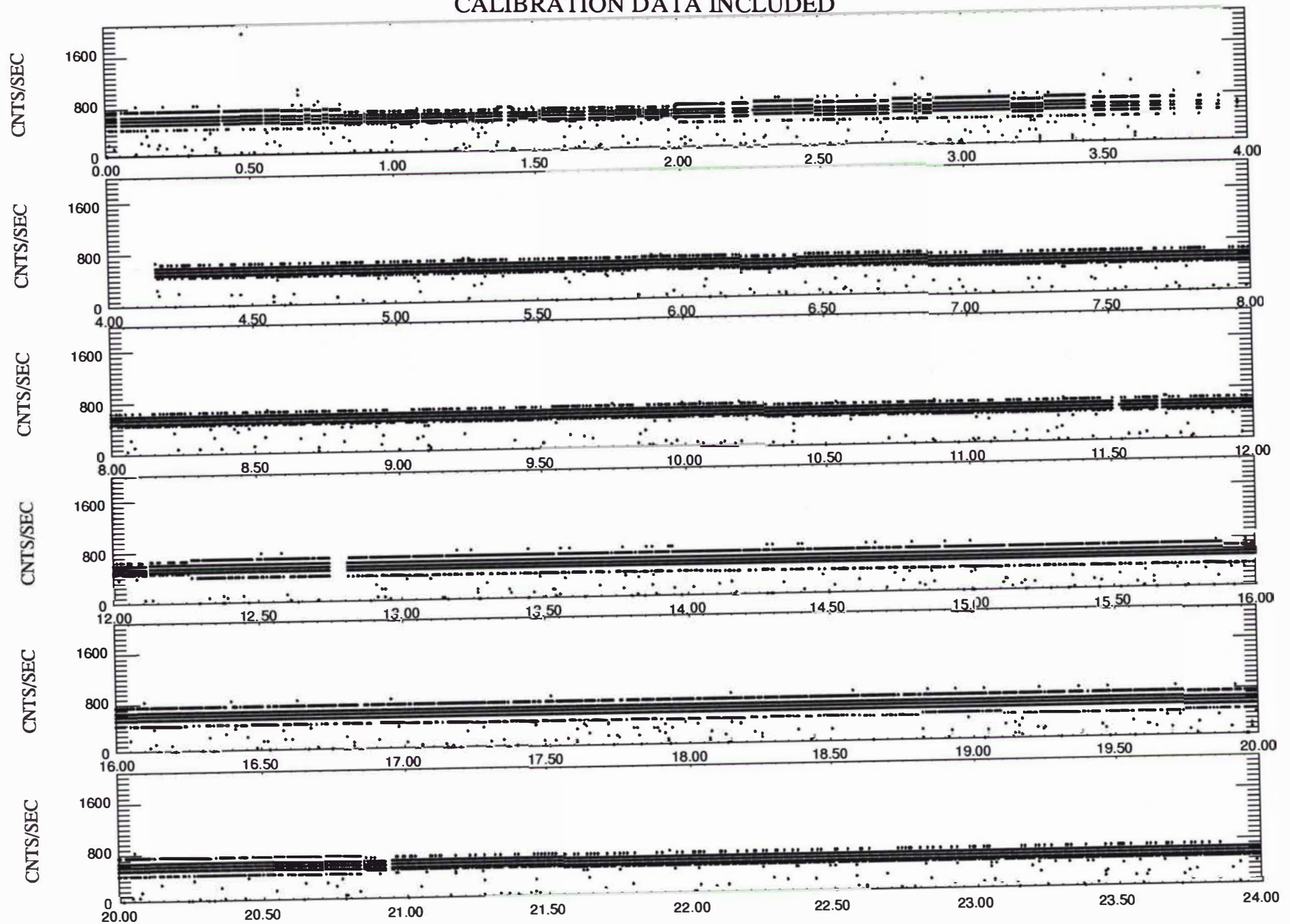
Burst Counter 15 at UT= 0.663812476264 h= 2389.725 s 00:39:49.725



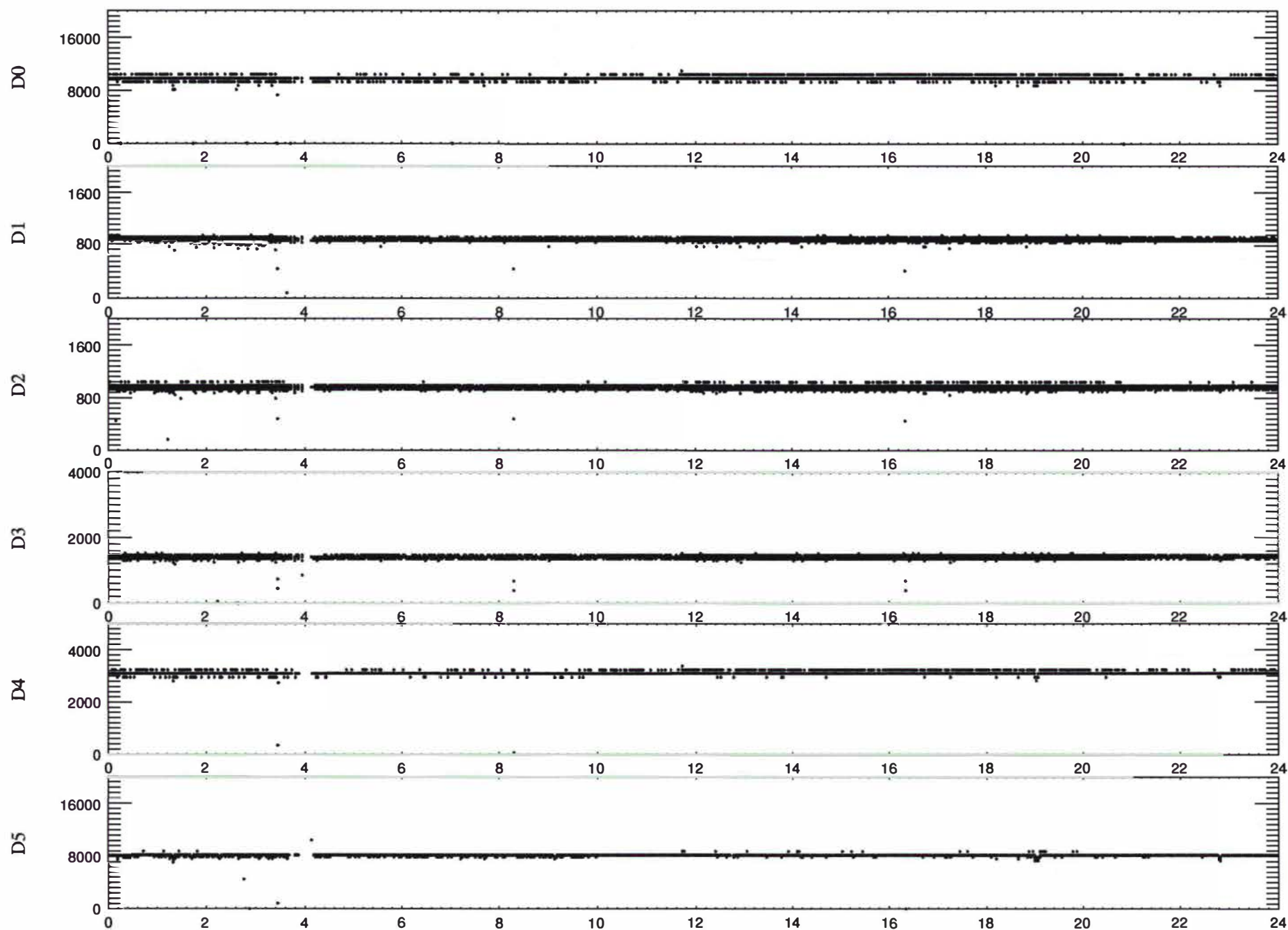
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UNIV 'AL TIME



UNIV AL TIME

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

DATE	U.T.	Nr UGB	Event Nature
1991-08-27	15:33:19.885	325-c	Solar Particles
1991-09-01	05:24:27.051	327-a	GRB
1991-09-07	01:05:10.287	330-a	GRB
1991-09-07	19:23:04.162	331-a	Solar Flare
1991-10-01	18:14:23.671	345-a	Unknown
1991-10-01	19:01:20.457	345-b	Unknown
1991-10-04	01:27:10.195	347-a	Unknown
1991-10-13	18:09:49.270	353-a	Solar Flare
1991-10-13	21:02:34.557	353-b	Solar Flare
1991-10-14	17:34:33.822	354-a	Unknown
1991-10-16	11:01:35.345	355-a	GRB
1991-10-18	05:32:15.504	356-a	GRB
1991-10-25	21:25:15.926	362-a	GRB
1991-10-26	15:06:06.127	363-a	Unknown
1991-10-26	15:28:41.044	363-b	Unknown
1991-10-26	20:35:18.850	363-c	Solar Flare
1991-11-19	17:12:34.357	367-a	GRB
1991-11-19	17:28:41.794	367-b	Solar Flare
1991-11-21	07:23:32.063	368-a	Unknown
1991-11-21	07:43:41.945	368-b	Unknown
1991-11-21	07:58:33.952	368-c	Unknown
1991-12-05	19:48:38.788	375-a	Solar Flare
1991-12-14	20:55:02.702	378-a	Unknown
1991-12-15	06:23:41.586	378-b	Unknown
1991-12-15	11:41:18.304	378-c	Unknown
1991-12-20	14:02:29.154	380-a	Solar Flare
1991-12-20	14:53:07.976	380-b	Solar Flare
1991-12-20	16:04:57.705	380-c	Solar Flare
1991-12-22	15:00:10.116	381-a	GRB
1992-01-10	00:12:08.191	386-a	Unknown
1992-01-10	02:45:56.628	386-b	Unknown
1992-01-10	09:18:06.120	386-c	Unknown & GRB
1992-01-18	09:42:49.763	392-a	Unknown
1992-01-18	12:38:59.105	392-b	Unknown
1992-01-18	~12:52	392-c	Unknown

CATSEARCH PROGRAM

BATSE BURST # 867
EVENT OF 1991 OCT 4 DAY OF YEAR=277
EVENT CROSSING TIME AT BATSE : 5230. S. OR 01:27:09.7
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 352.200 59.300
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 4/10/ 91 IS:
RA= 159.486 DEC= 9.862 DIST= 5.164 AU
BATSE-ULYSSES DISTANCE = 772600224. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 69.92 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 884.97 SECS.
CROSSING TIME AT ULYSSES IS 6115. S. OR 01:41:54 +/- 483.66 SECONDS

NO

14 / 4 / 93

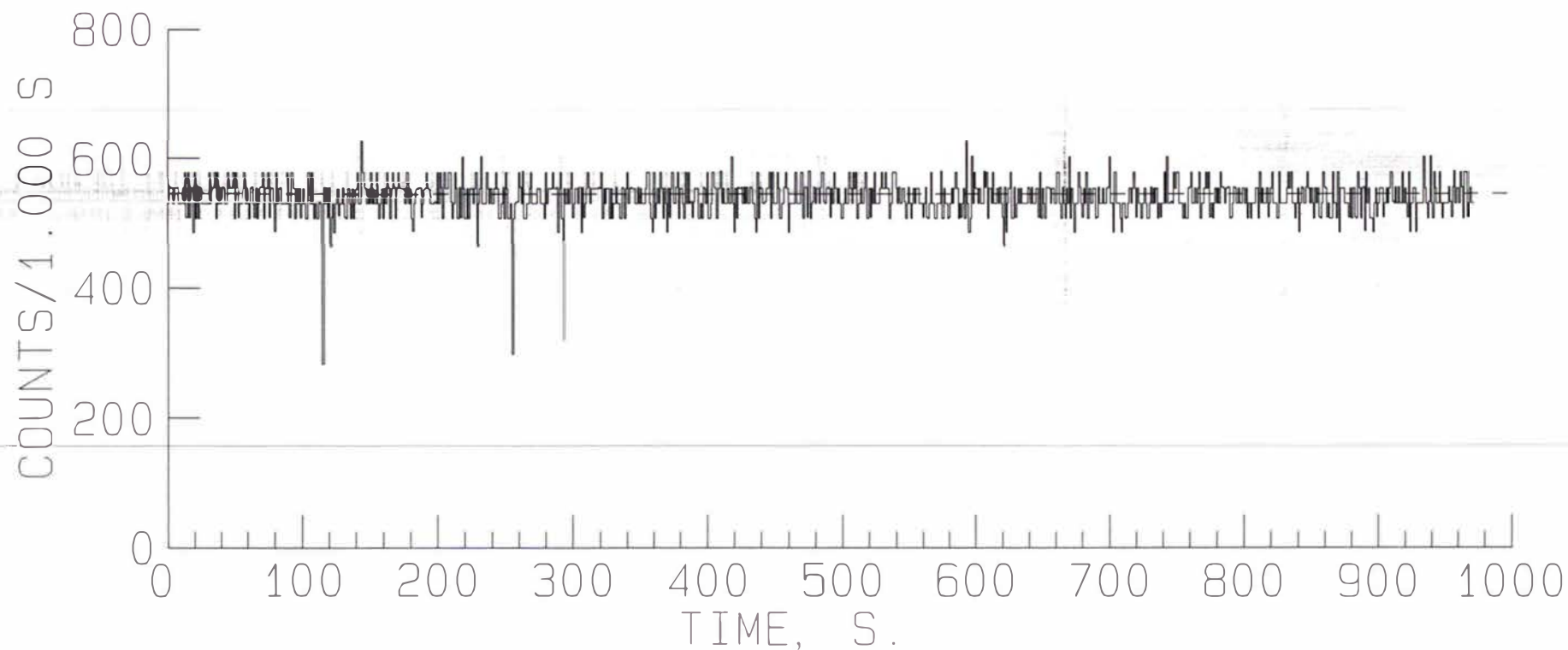
ULYSSES RT

4/10/91 5616.467 s

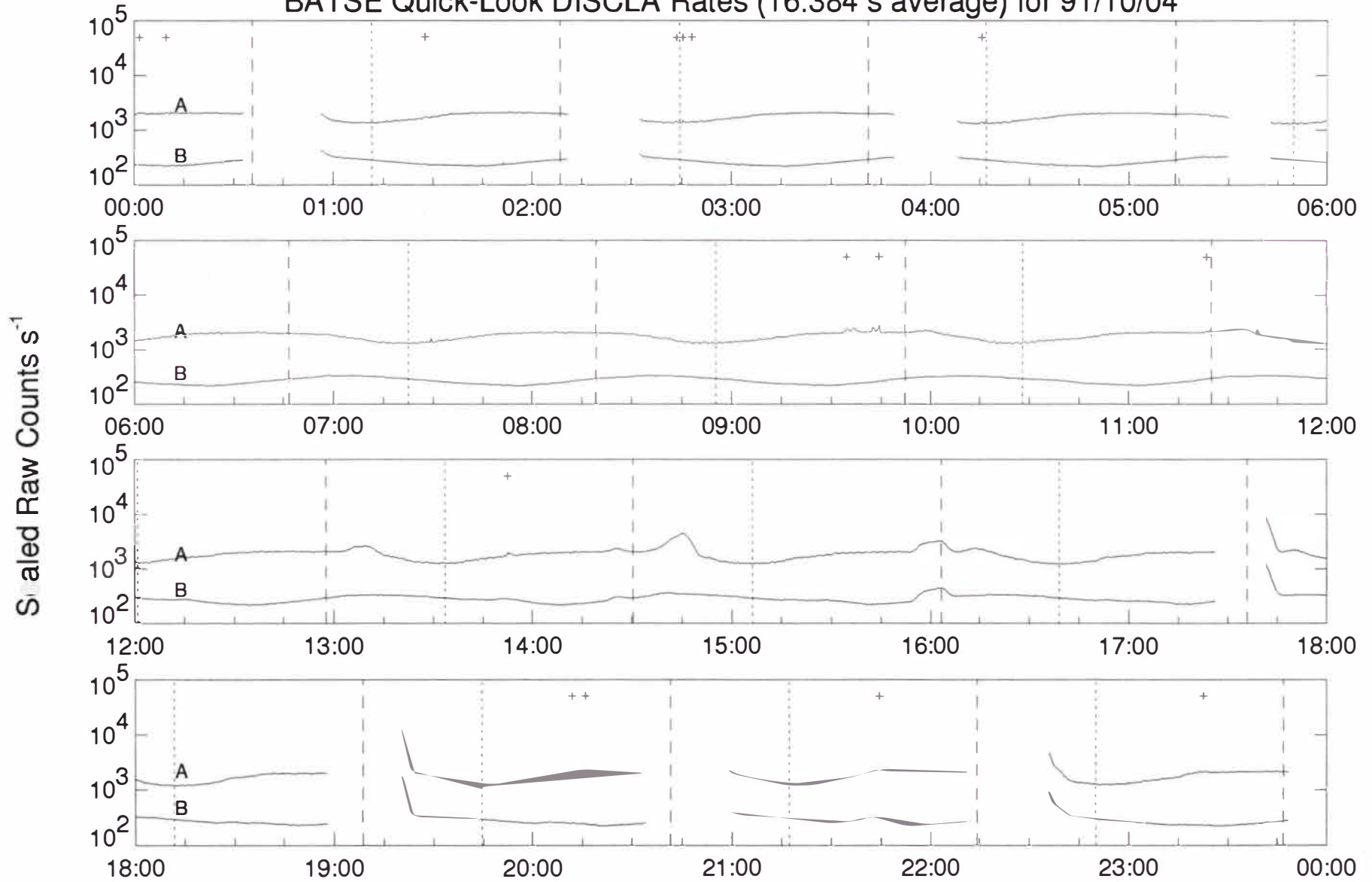
0.500 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/04

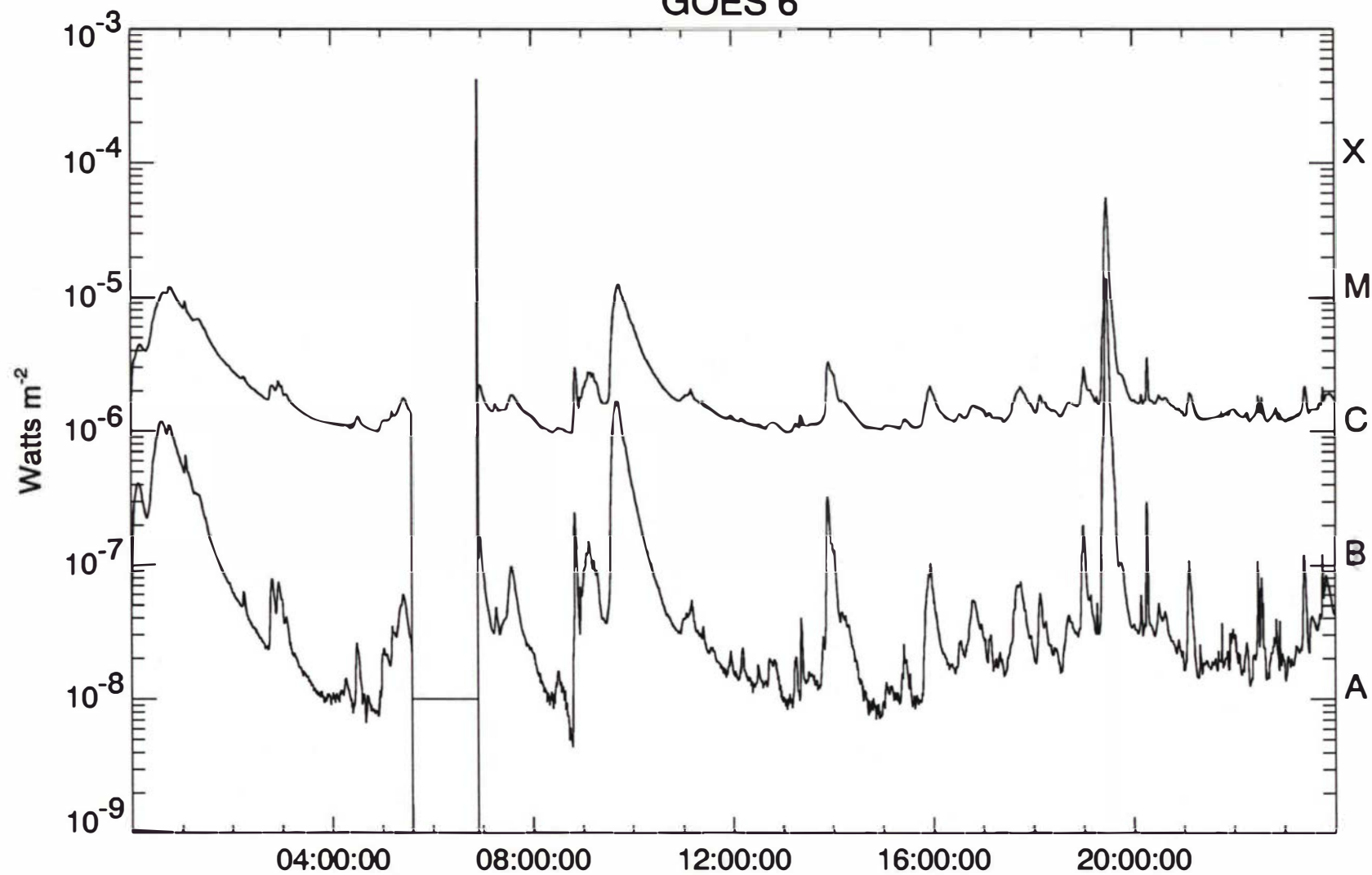


Current Time: 92/10/31, 1938 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/04, 0000:02

Plot created: 97/10/14, 2256

Channel

1 (1.0 - 8.0 Angstroms)

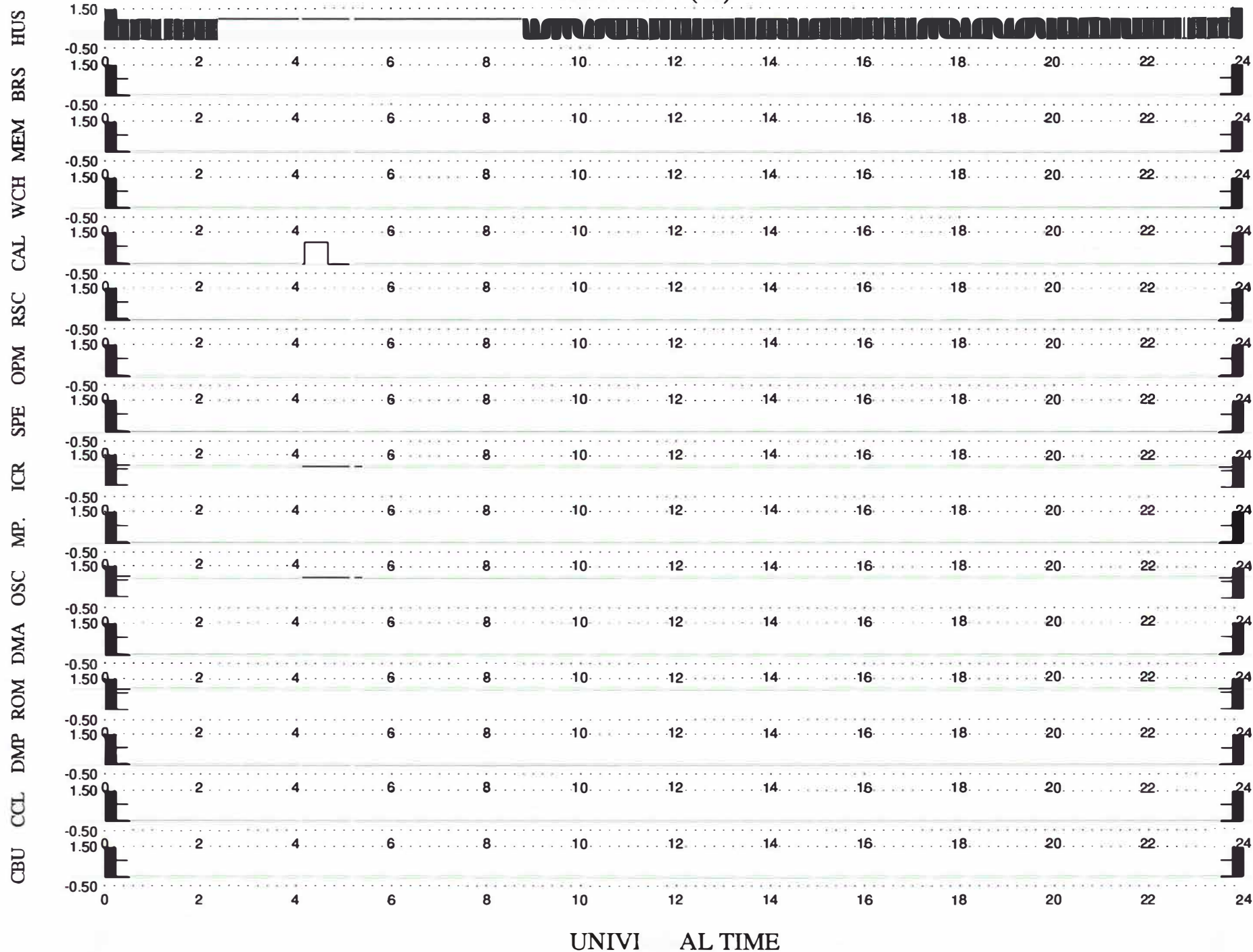
Background not subtracted

2 (0.5 - 4.0 Angstroms)

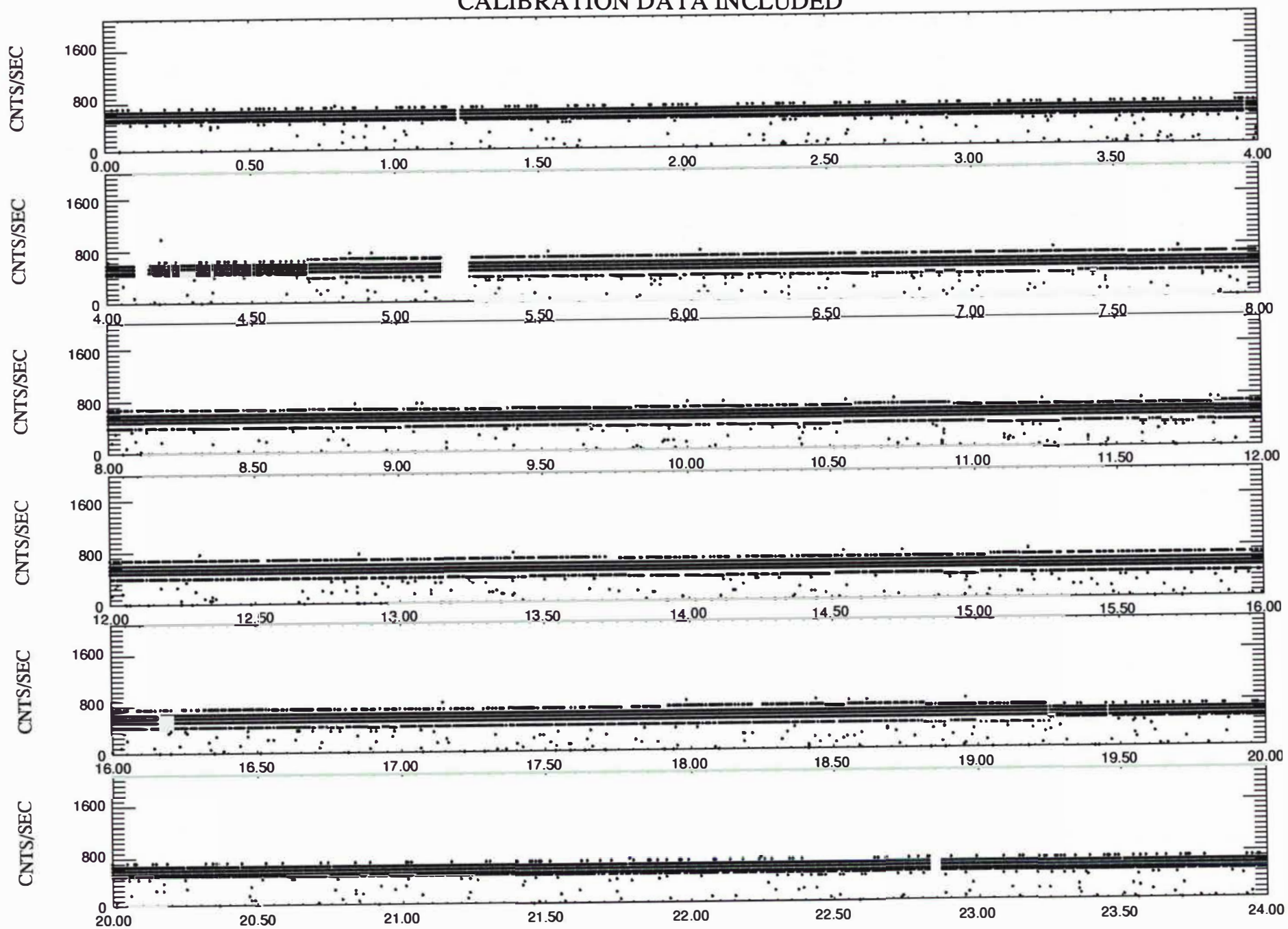
Background not subtracted

Sample average = 10

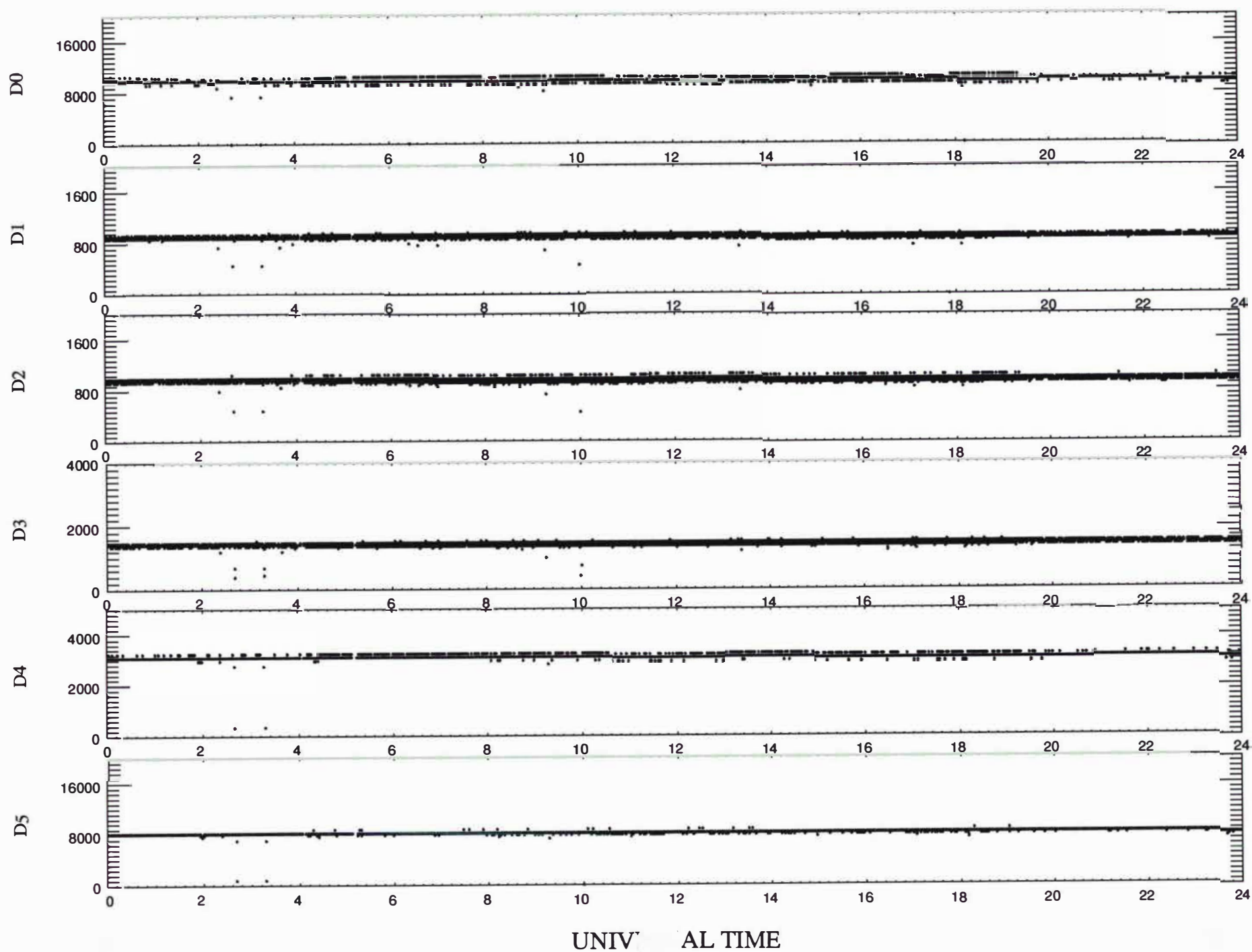
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV. TIME



From: springer@pop.jpl.nasa.gov Mon Dec 9 06:37 PST 1996
From: Joe Springer <springer@pop.jpl.nasa.gov>
To: "'Kevin Hurley'" <khurley@sunspot.ssl.berkeley.edu>
Subject: RE: More times to check
Date: Mon, 9 Dec 1996 06:37:26 -0800
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit

Kevin,

I checked a range ten minutes before to ten minutes after each of these points and found no timing errors.

How big is the 'big list'? You have previously provided one with 575 events. I shudder.

Joe

From: Kevin Hurley
Sent: Friday, December 06, 1996 5:53 PM
To: Joe.B.Springer@jpl.nasa.gov; khurley@sunspot.ssl.berkeley.edu
Cc: khurley@sunspot.ssl.berkeley.edu
Subject: More times to check

Dear Joe,

Before I hit you with the big list of events to check, I wanted to ask if you could check the following times. We are again writing paper on these, and need to get this straightened out quickly (i.e. within a couple of weeks).

Thanks

Kevin

Date UT (secs)

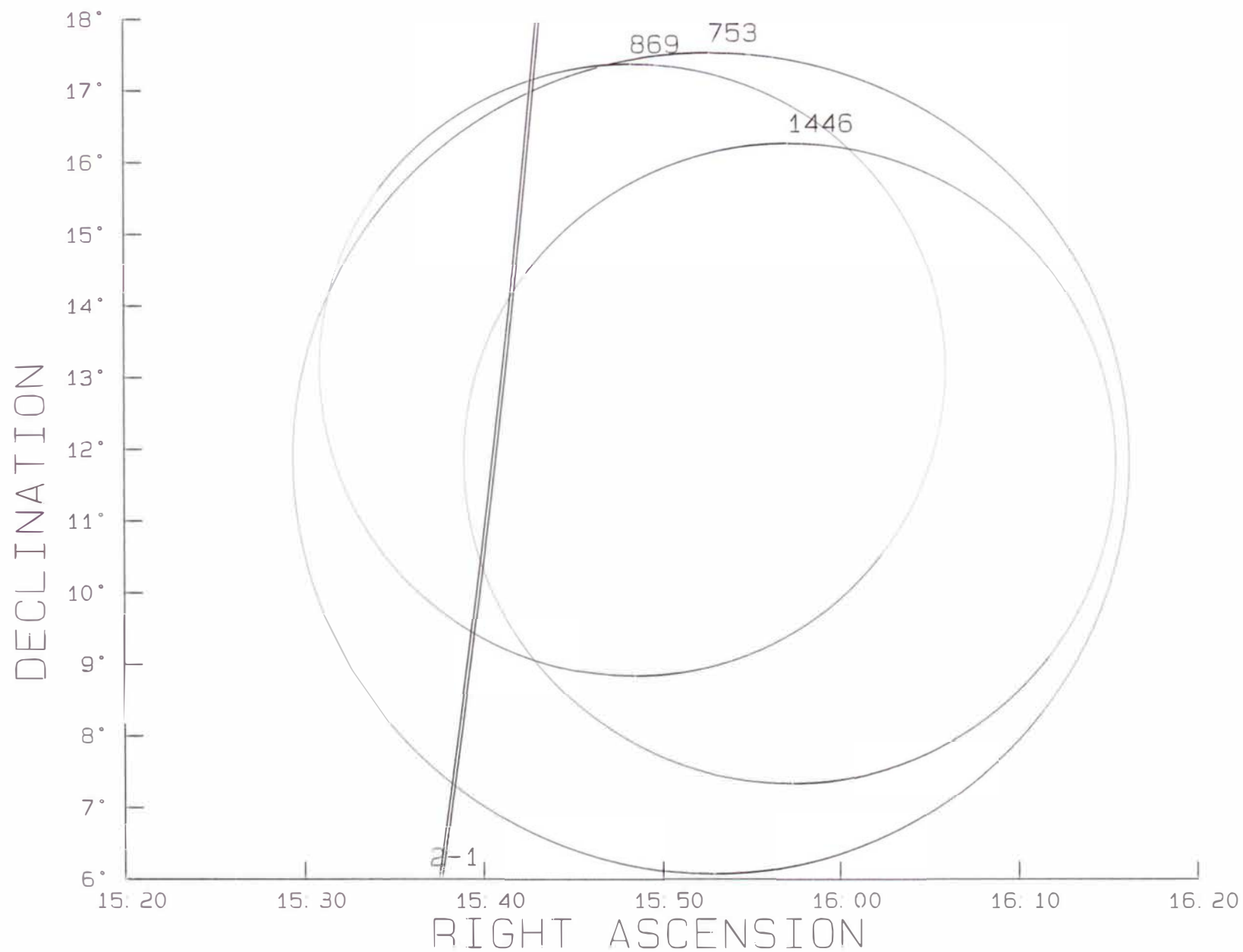
January 22 1991 55142
February 19 1991 42204
April 21 1991 34040
April 30 1991 60428
May 07 1991 53768
May 11 1991 08090
May 22 1991 43556
June 19 1991 55254
June 27 1991 15335
July 17 1991 17265
July 18 1991 09076
August 14 1991 70996
October 05 1991 26852
October 16 1991 41542
October 31 1991 35550
November 04 1991 52695
November 09 1991 11321
November 18 1991 66112
November 26 1991 43717
December 02 1991 71640
February 18 1992 68388
February 20 1992 49020

February 26 1992 30348
March 08 1992 17470
March 11 1992 07038
March 20 1992 45256
March 25 1992 64261
March 31 1992 66408
April 04 1992 49443
April 06 1992 11150
April 14 1992 84300
May 01 1992 75040
May 17 1992 10549
May 17 1992 50706
May 19 1991 60996
May 25 1992 14411
July 11 1992 58470
July 14 1992 46275
July 20 1992 09807
July 20 1992 18344
July 23 1992 73955

EVENT OF OCT 5, 1991 7: 25

17/ 8/93

EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE



Don

Some interesting ID's to look for:

	ID	Ulysses	DATE	(s)	b	l	
(7)	1406	NO BS	920216	46.6	243.6		centered (?)
	1289	NO FV	920100	39851	46.8	242.8	(48.6, 236.6)
(15)	869	RI BS	911005	46.4	23.2		(45.25, 21.3)
	753	NO FS	910903	44.9	22.2		
	1446	NO FS	920227	63746	43.9	22.9	
(11)	612	NO BS	910803	-15.4	64.1		(-15.7, 62.2)
	594	NO FS	910730	-16.9	64.7		
(17)	110	NO FS	910425	B 40253	-34.3	93.5	(-34.6, 93.6)
	824	RI FS	910926	B 46356	-34.9	97.0	$\alpha, \delta = 190.65, 30.7$
	1196	NO FS	911213	B 52534	-37.4	91.9	
	1459	NO FS	920502		-38.4	89.1	
Lingefelter → (5)	247 568	NO EV	910722		24.9	225.2	(27.8, 226.6)
	247 133	NO FS	910501		26.4	228.6	
	247 130	RI BS	910430		28.4	229.3	
		⁺ NO					
(25)	1009	NO FS	911106	B 46374	-12.4	294.3	(-15.6, 293.5)
	1303	NO FS	920116		-15.7	294.2	
	1125	NO FS	911127	B 83314	-18.5	296.9	

From khurley@space6.ssl.berkeley.edu Sat Aug 14 10:09:14 1993
Date: Sat, 14 Aug 93 10:09:25
From: khurley@space6.ssl.berkeley.edu
Content-Length: 593

Dear Don,

Here's the result of checking for Ulysses detections of your repeaters.

1406 NO

1289 NO

869 RATE INCREASE

753 NOT OBSERVABLE

1446 NO

612 NO

594 NO

110 NO

824 RATE INCREASE

1196 NO

1459 NO

568 NO

133 NO

130 RATE INCREASE AND PVO DETECTION

1009 NO

1303 NO

1125 NO

I'll start to get the data together and send it to you next week. It may be helpful to have an annulus just to see if some of the BATSE events which we didn't detect have locations which are consistent with it.

Thanks again for your help in Huntsville. I feel that we put together an excellent meeting.

Kevin

CATSEARCH PROGRAM

BATSE BURST # 869
EVENT OF 1991 OCT 5 DAY OF YEAR=278
EVENT CROSSING TIME AT BATSE : 27465. S. OR 07:37:44.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 237.100 13.100
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 5/10/ 91 IS:
RA= 159.681 DEC= 9.786 DIST= 5.164 AU
BATSE-ULYSSES DISTANCE = 772550856. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=104.33 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -638.02 SECS.
CROSSING TIME AT ULYSSES IS 26827. S. OR 07:27:06 +/- 473.78 SECONDS

RI

Helio corr removed

Date: *April 2 '97*

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? *No - not necessary*

2. BATSE Data

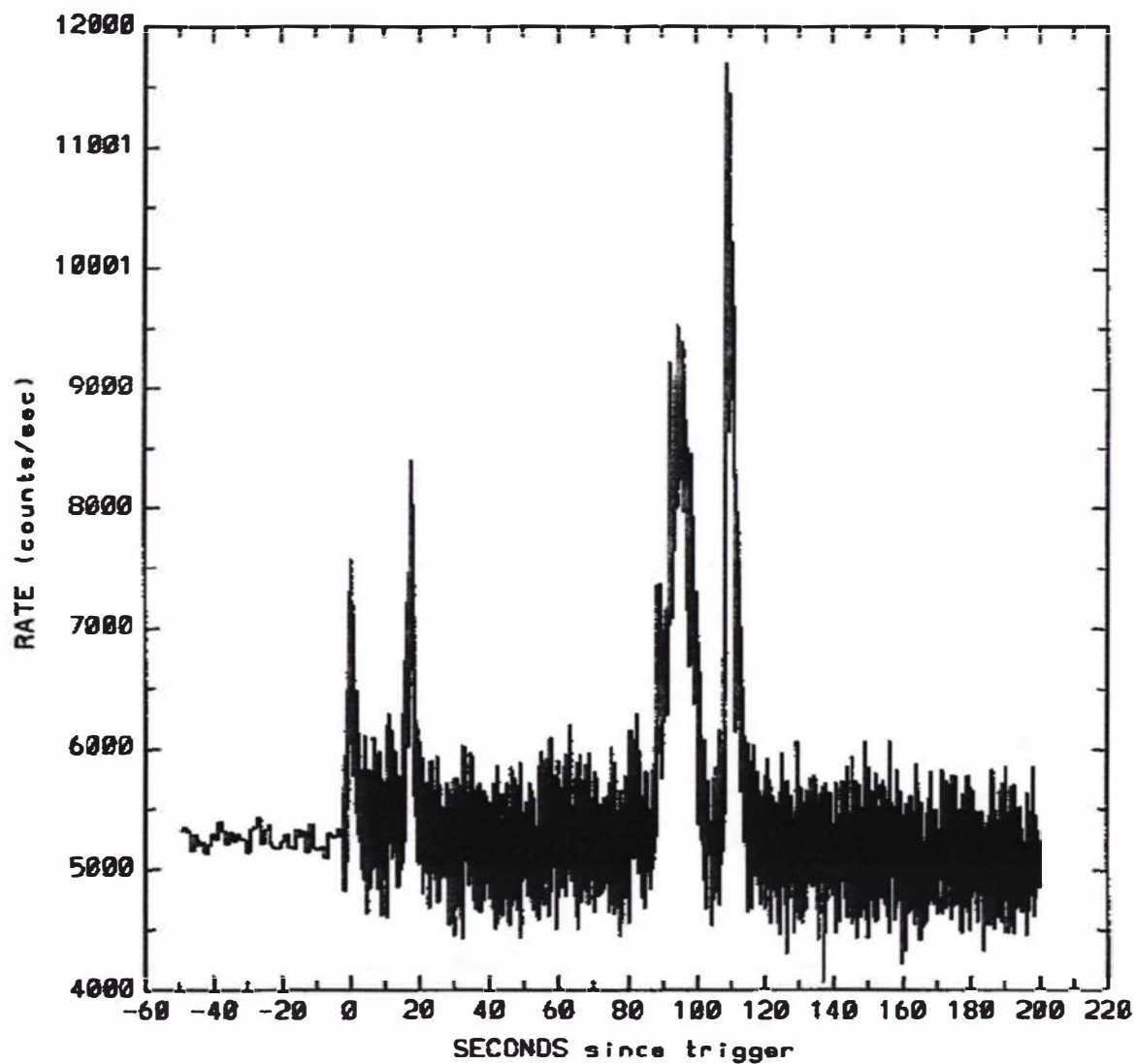
- ☒ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)?
- ☒ Does T_0 in data file agree with T_0 in plot?
- ☒ BATSE ephemeris for T_0 ?
- ☒ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic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

3. PVO Data

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

Access database updated

DATA FOR K. HURLEY



29-JUL-1993 15:58.32

Created by MOPS BD
(Burst Display)
Version 2.19

Trigger # : 869

Trigger Time:
8534 / 27464.811 - 2.0422

Burst Data Type:
DISCSC

~~27462.769~~

No - 27464.811
is already
corrected

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.004 second(s)

Detectors (7.0):
00010001

Discriminators:
(1, 2)

Quality Mask:
BDISP1

BATSE

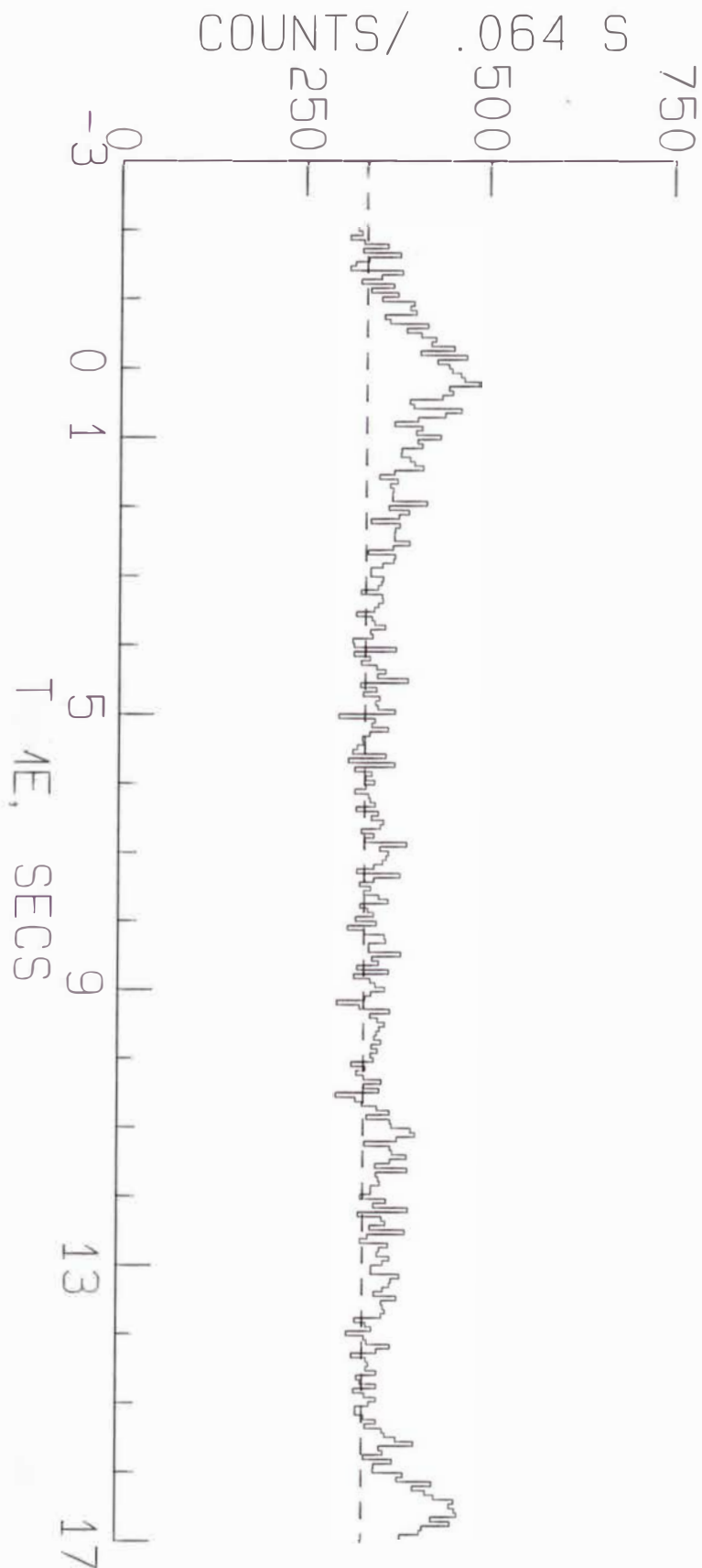
05/10/91

27464.811 - ~~2042~~

25- 100 keV

= ~~27462.769~~

No - 27464.811 is
correct

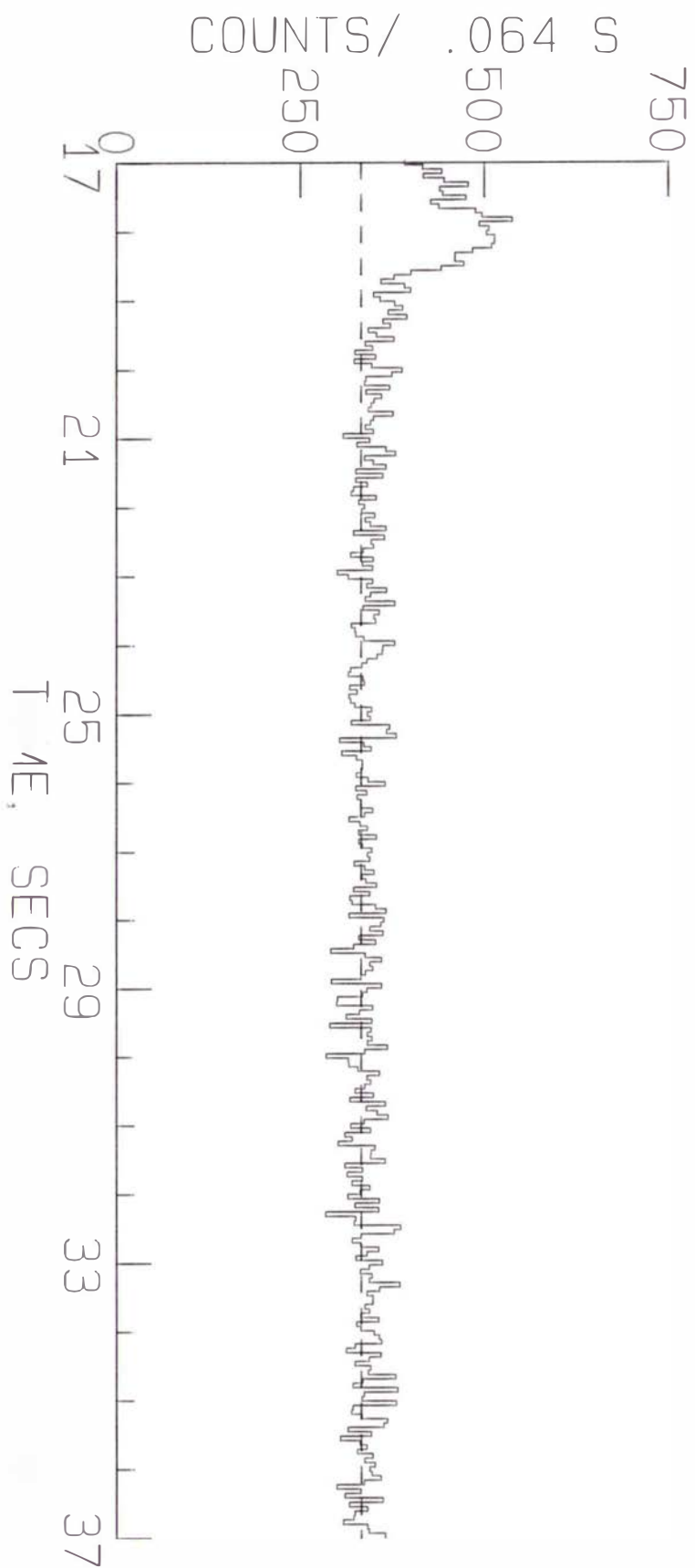


BATSE

05/10/91

27464.811

25- 100 keV



BATSE

05/10/91

27464.811

25- 100 keV

COUNTS/ .064 S

750
500
250
0

37

41

45

49

53

57

T AE, SECS

BATSE

05/10/91

27464.811

25- 100 keV

COUNTS/ .064 S

750
500
250

57

61

65

69

73

77

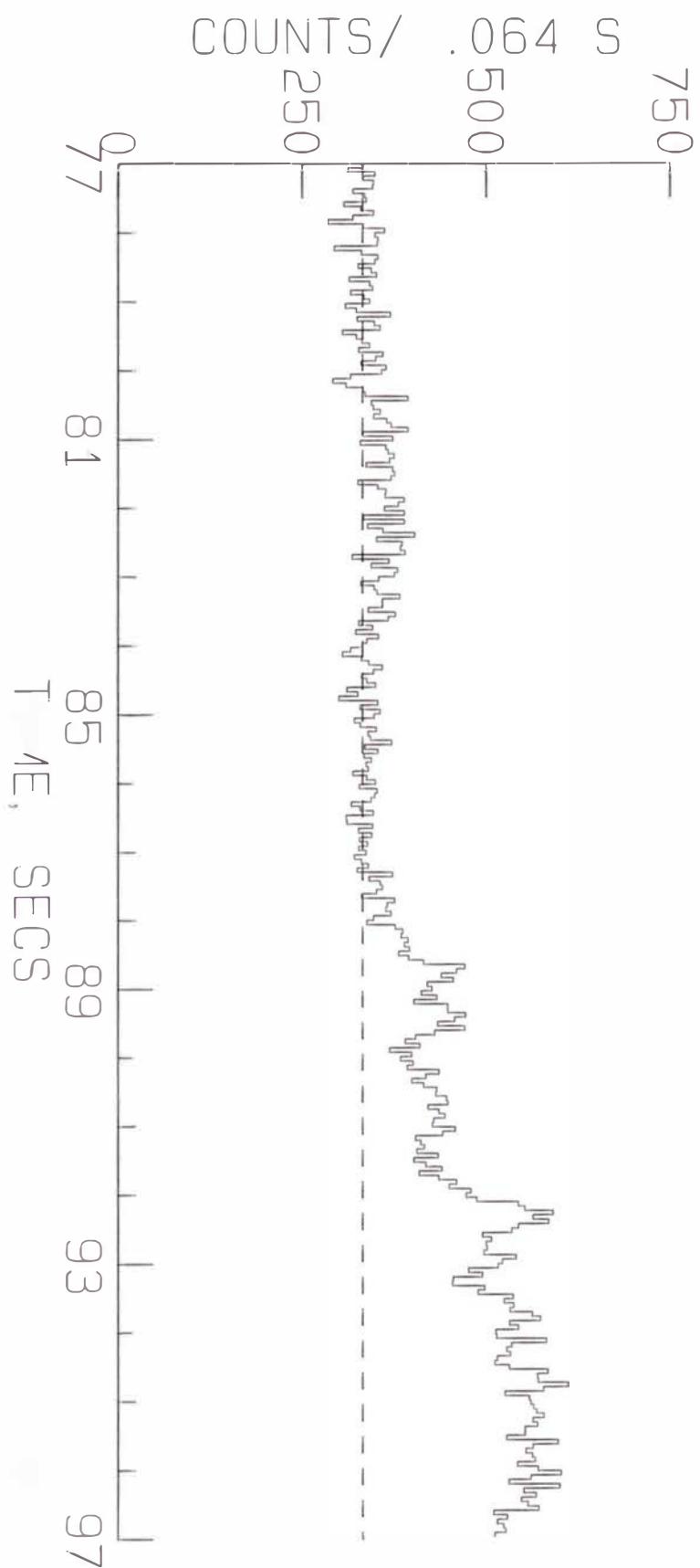
T AE, SECS

BATSE

05/10/91

27464.811

25- 100 keV

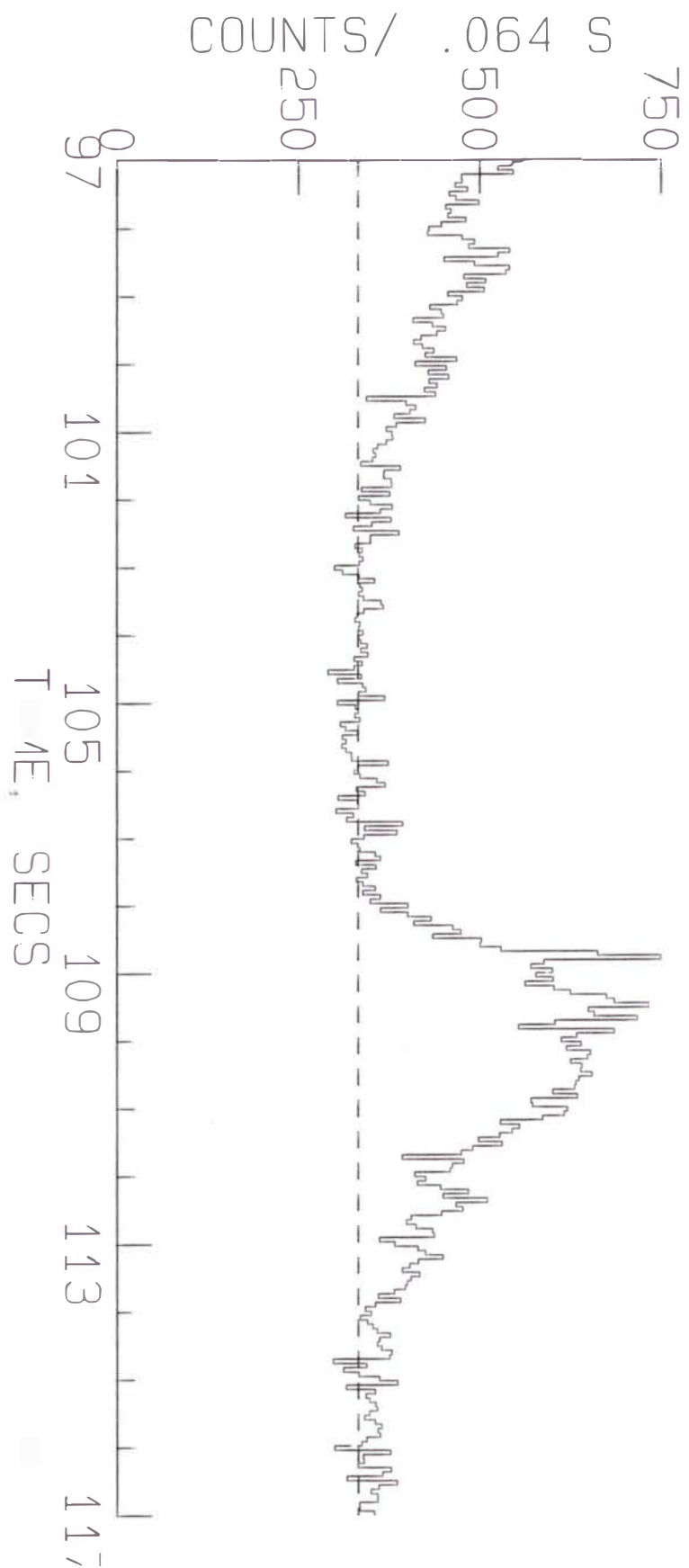


BATSE

05/10/91

27464.811

25- 100 keV



BATSE

05/10/91

27464.811

25- 100 keV

COUNTS/ .064 S

750
500
250
0

117

121

125

129

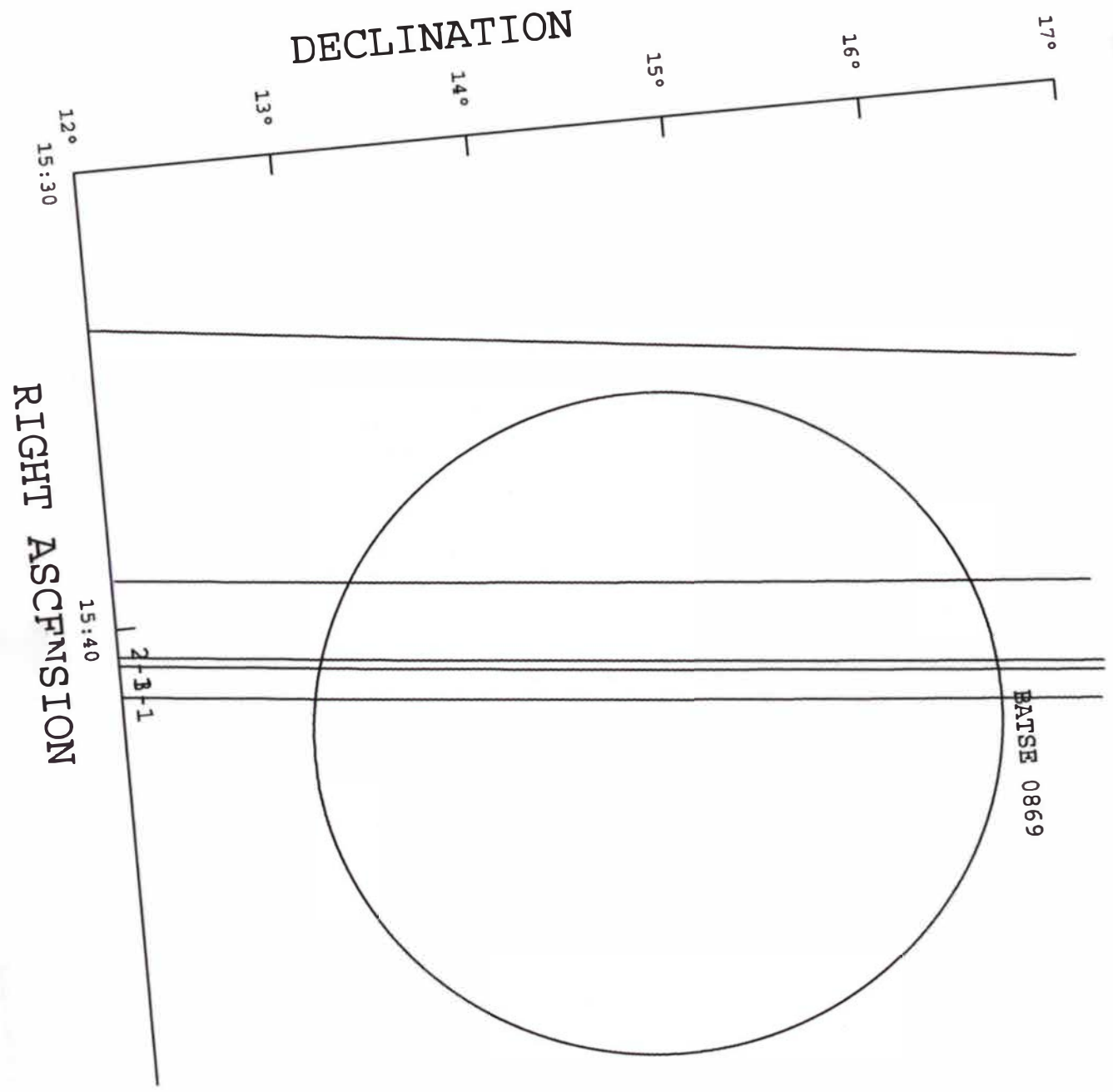
133

137

T 4E, SECS

EVENT OF OCT 5, 1991 7:25

N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN
1 ULYSSES 2 BATSE 3 PVO
E=ECLIPTIC G=GALACTIC EQUATOR

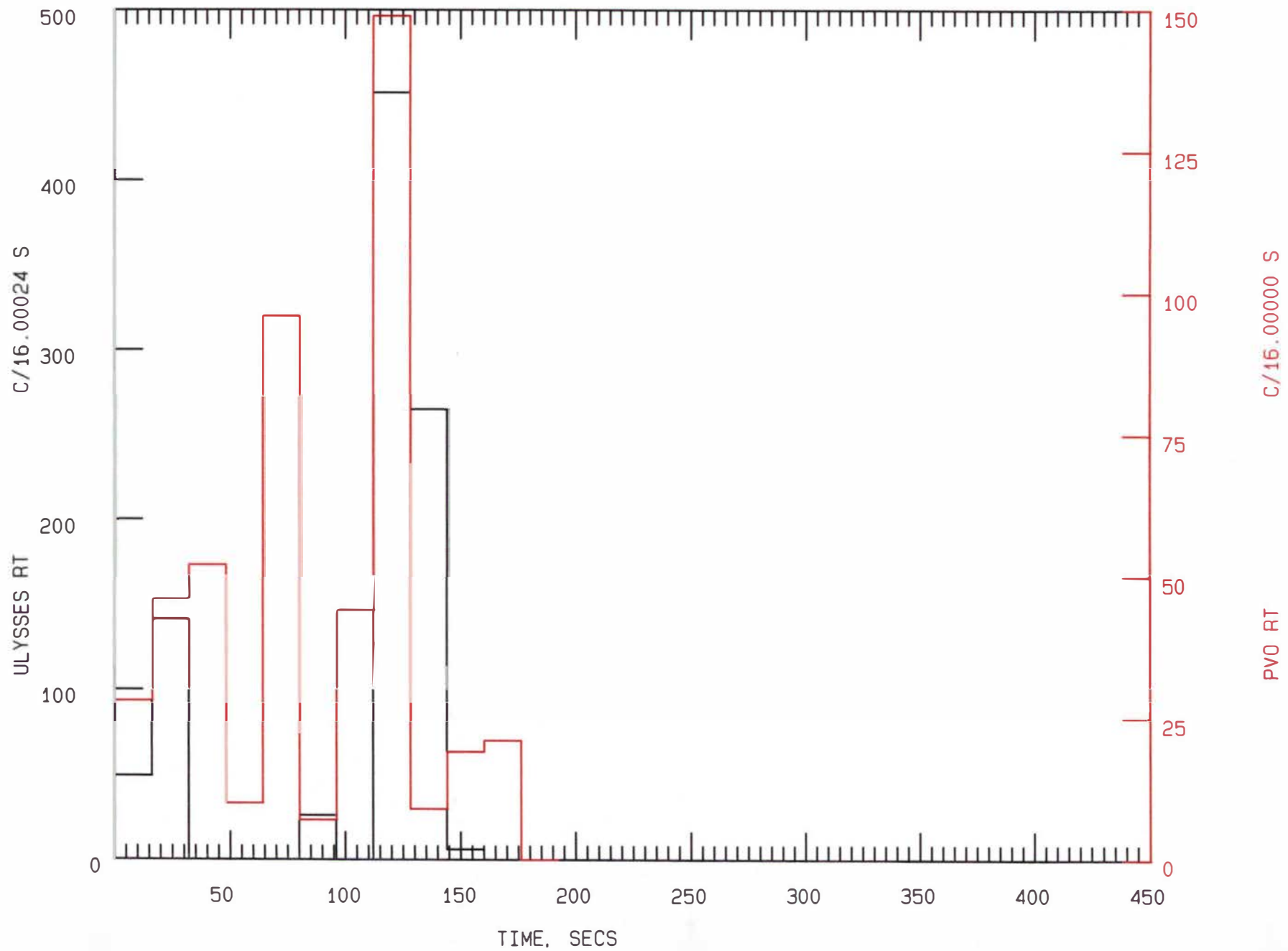


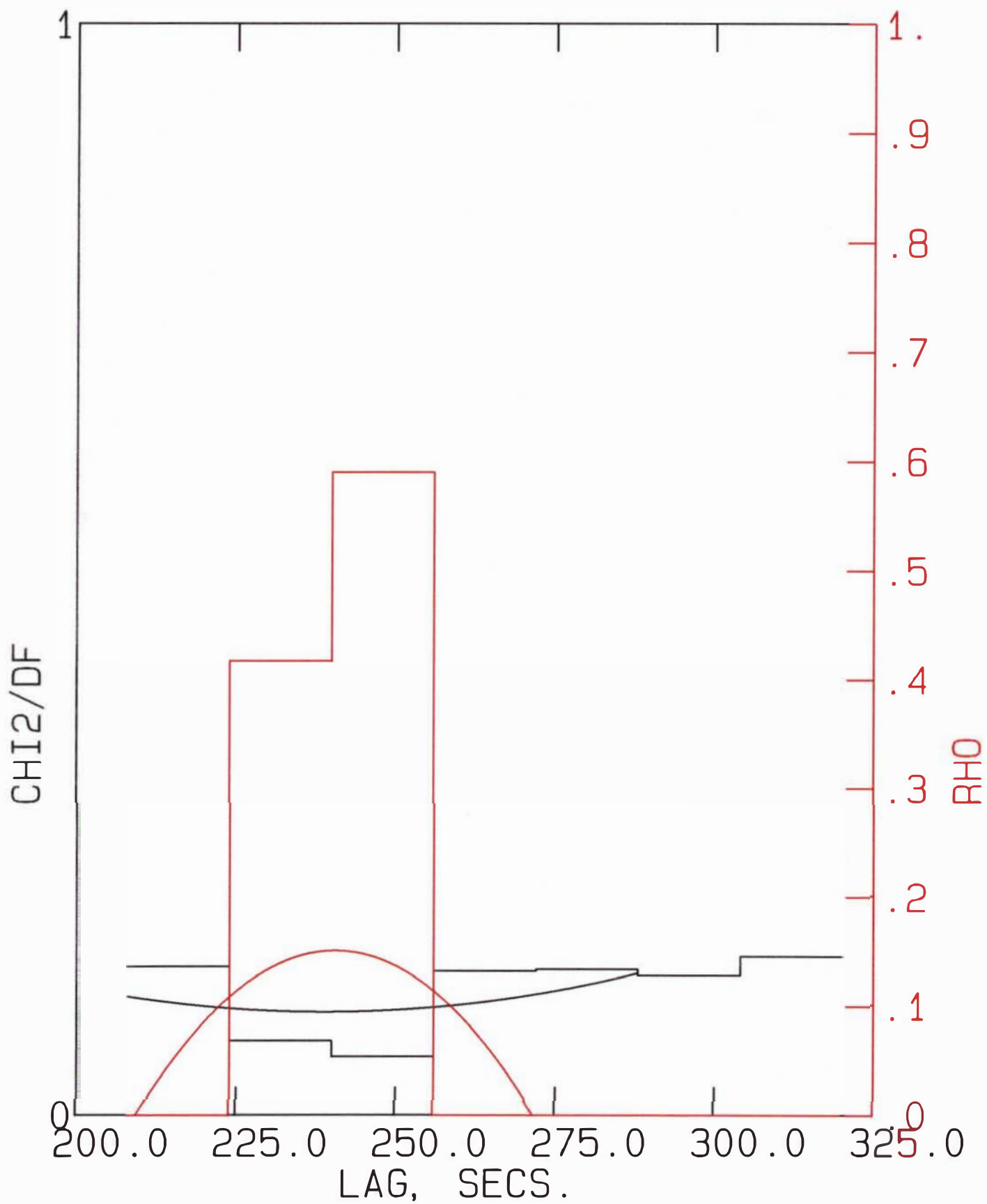
ULYSSES RT-PVO RT

CORRELATION

5/10/91 26702.235

2/ 4/97





BATSE

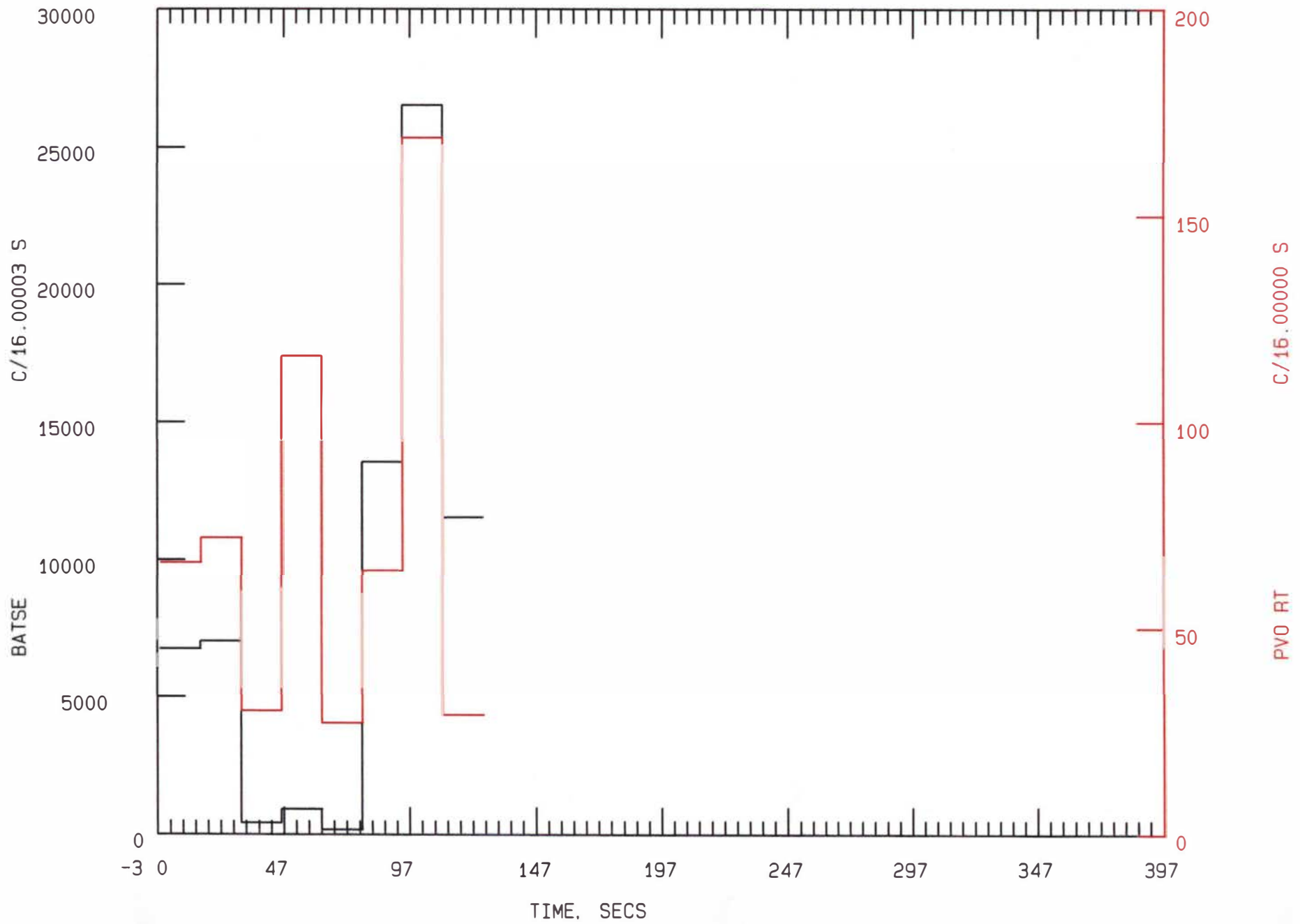
-PVO RT

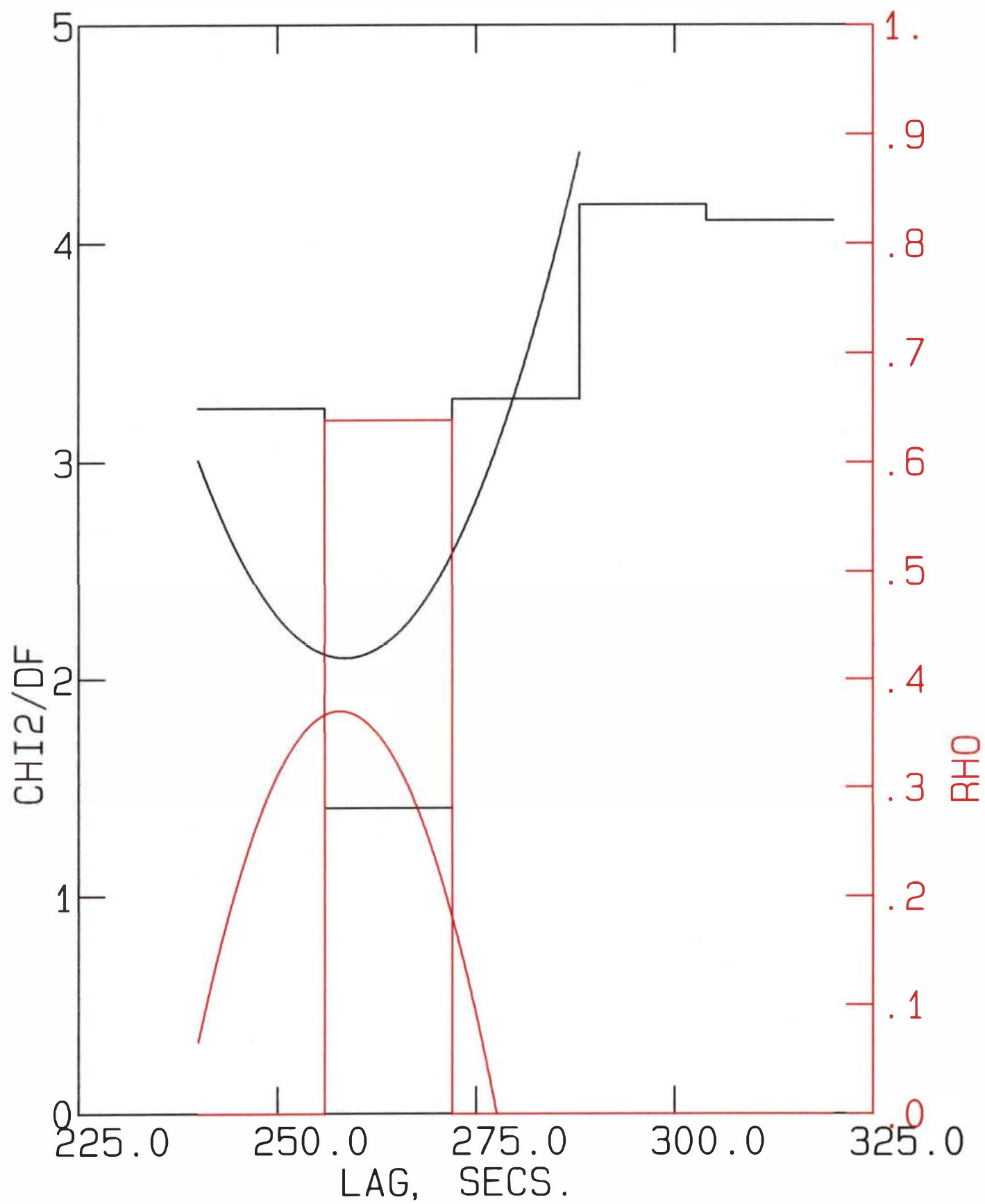
CORRELATION

5/10/91

27464.811

2/ 4/97





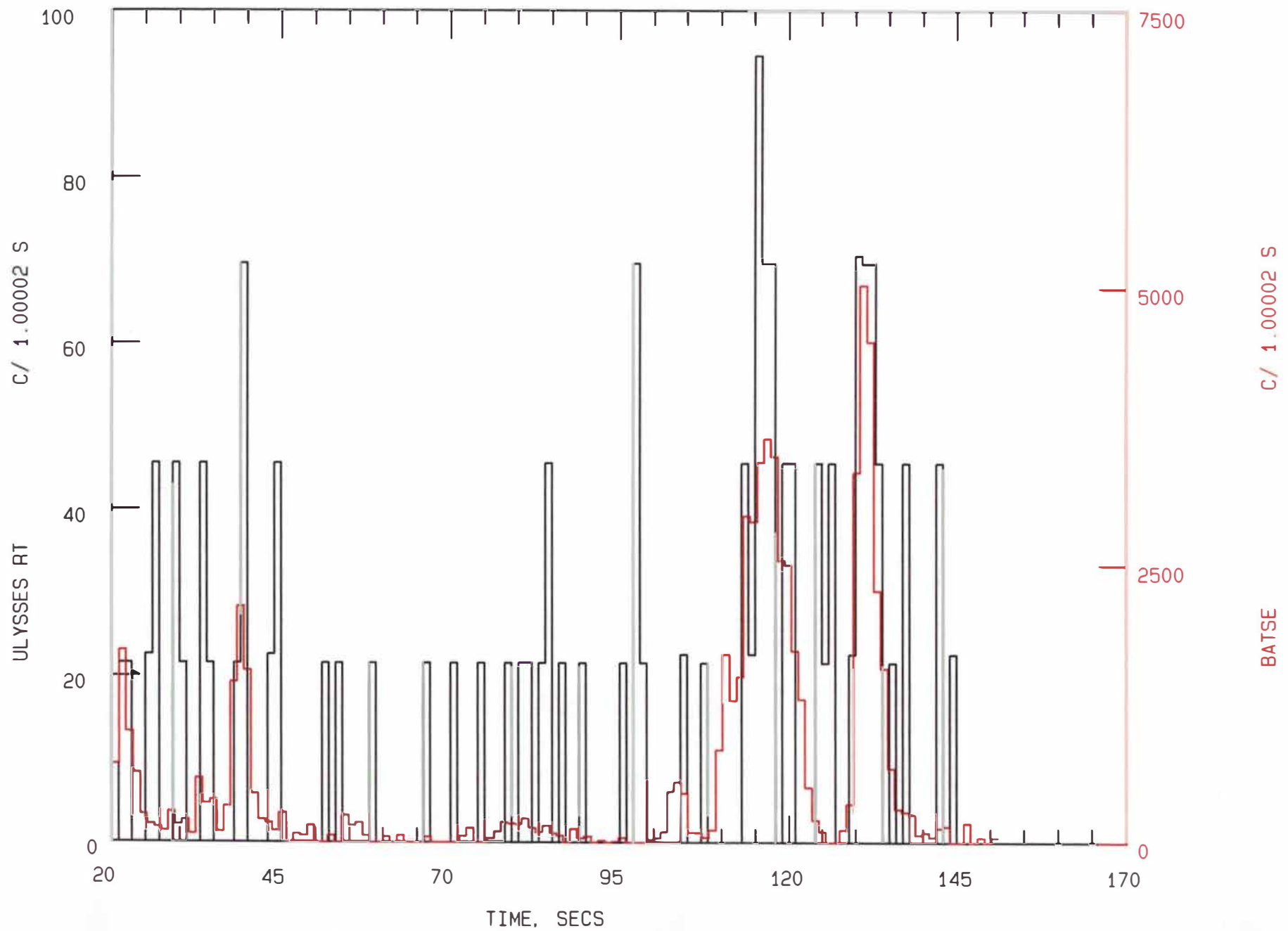
ULYSSES RT-BATSE

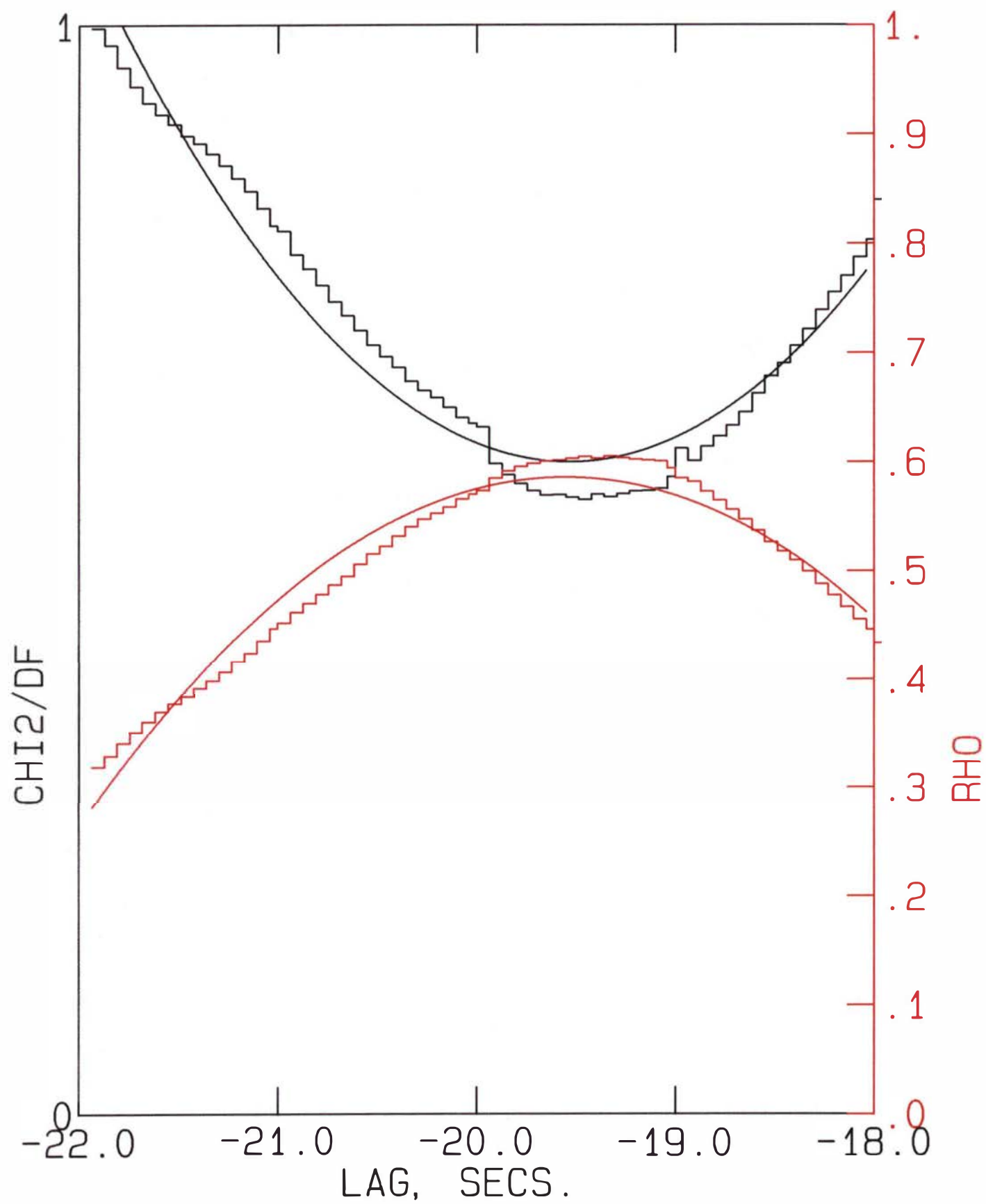
CORRELATION

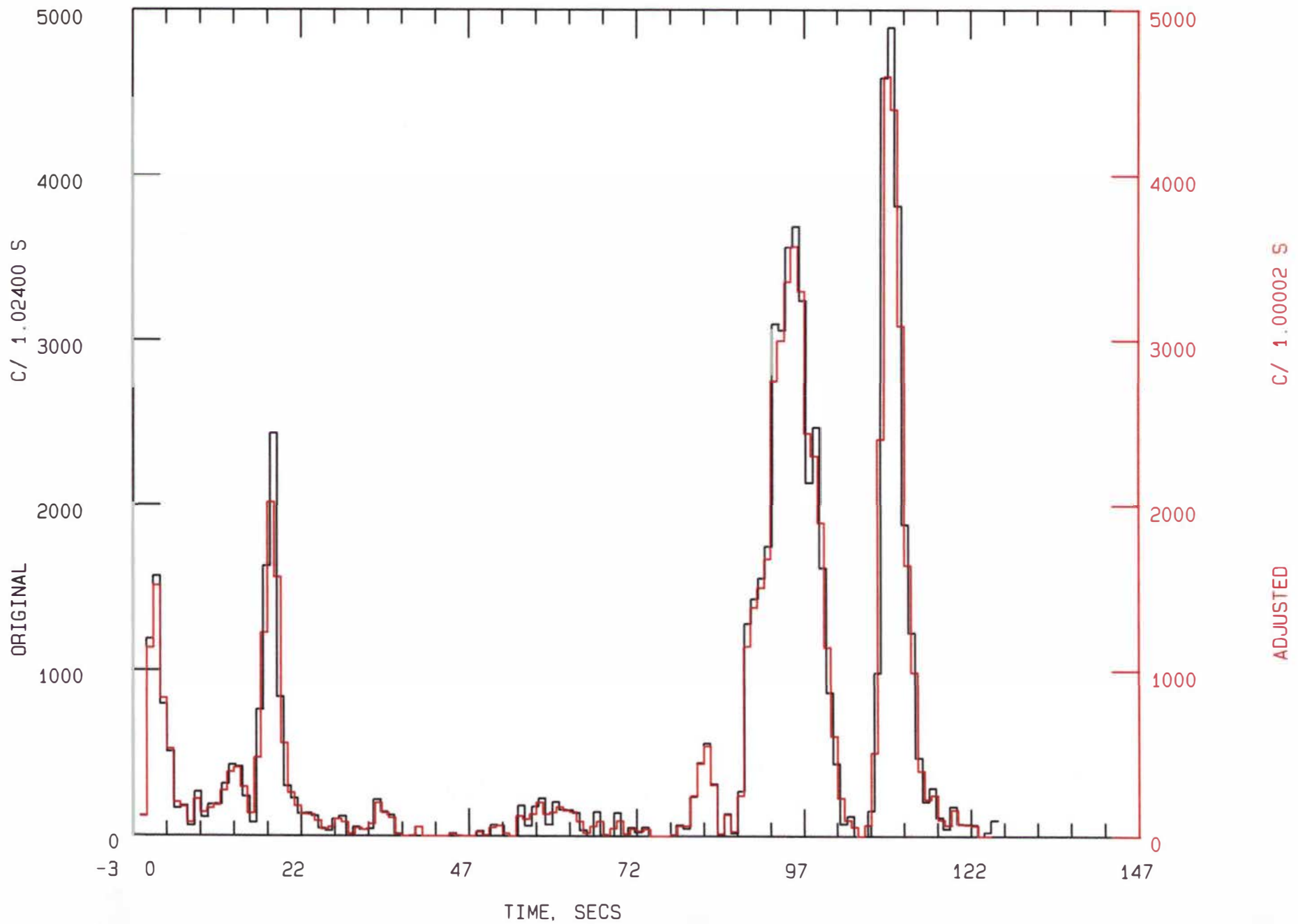
5/10/91

26702.235

2/ 4/97







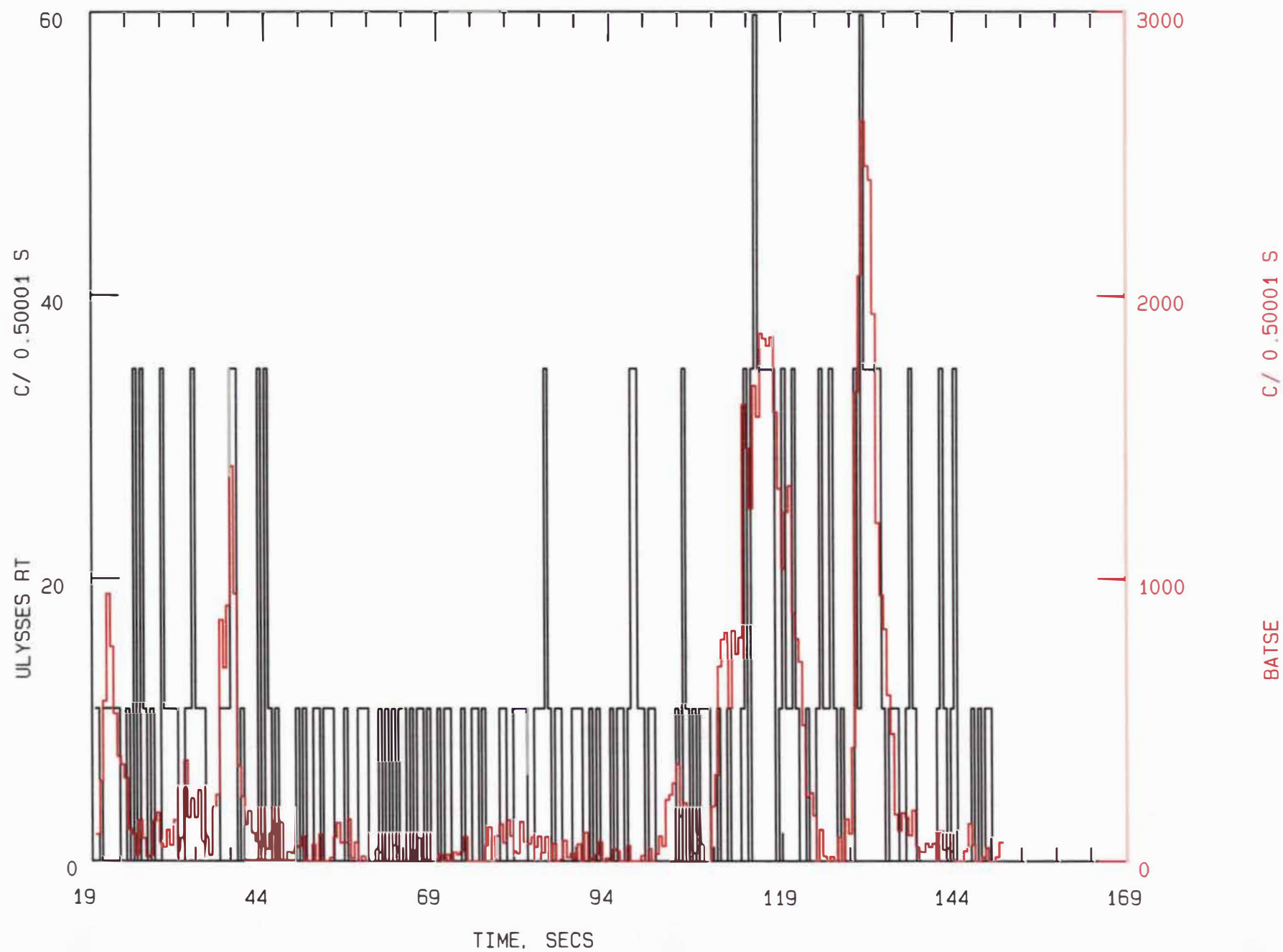
ULYSSES RT-BATSE

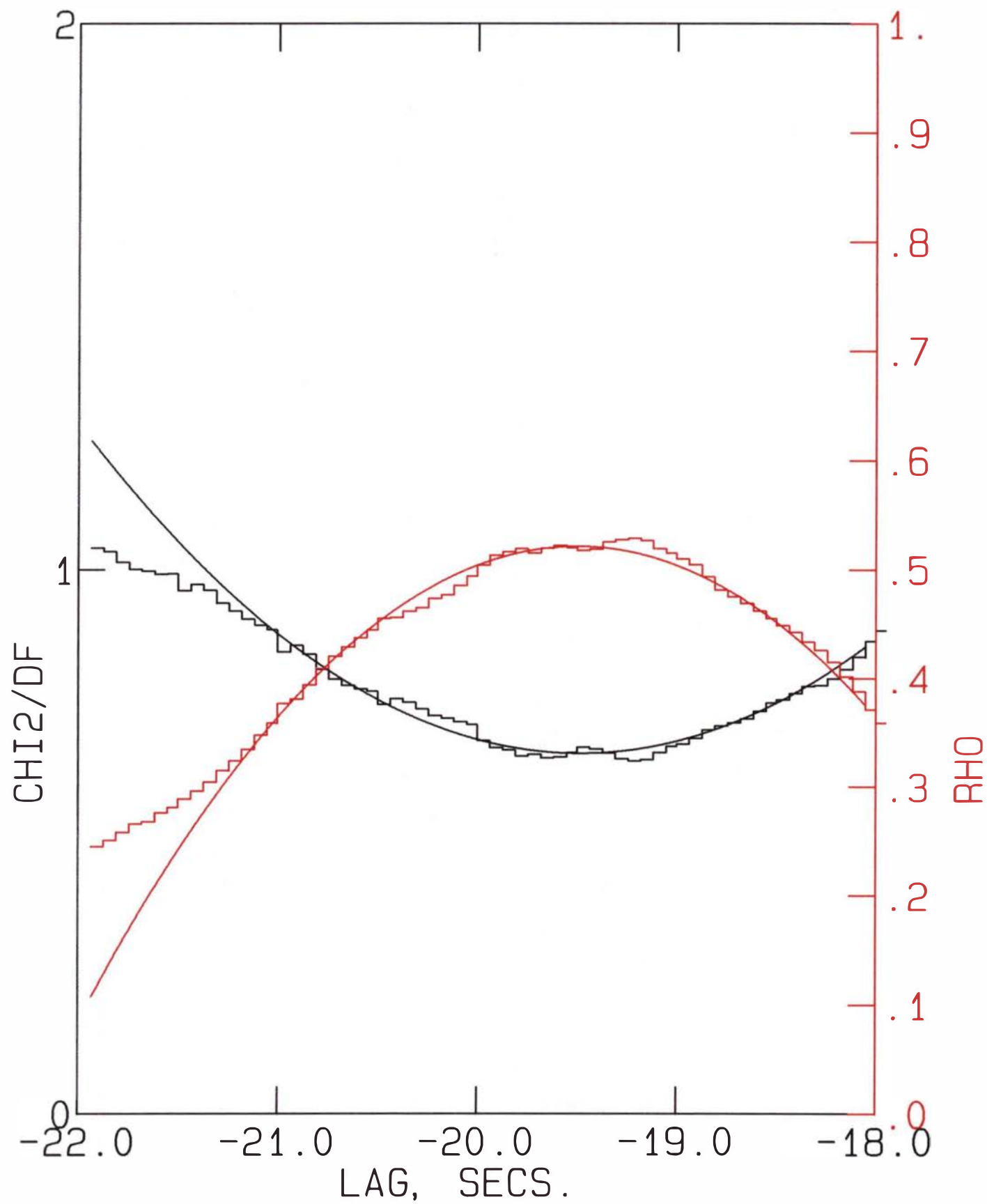
CORRELATION

5/10/91

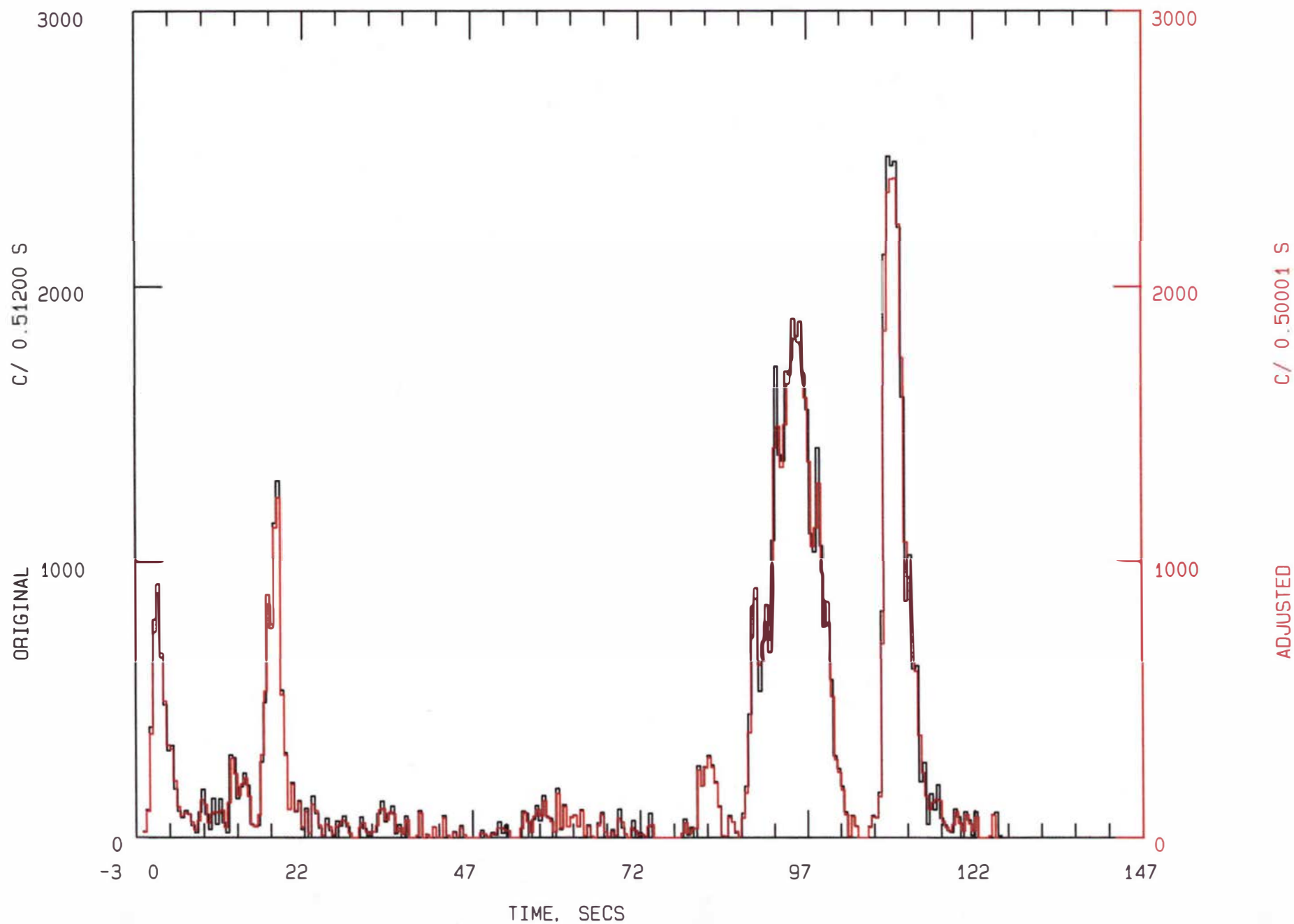
26702.235

2/ 4/97





2/ 4/97



ULYSSES RT

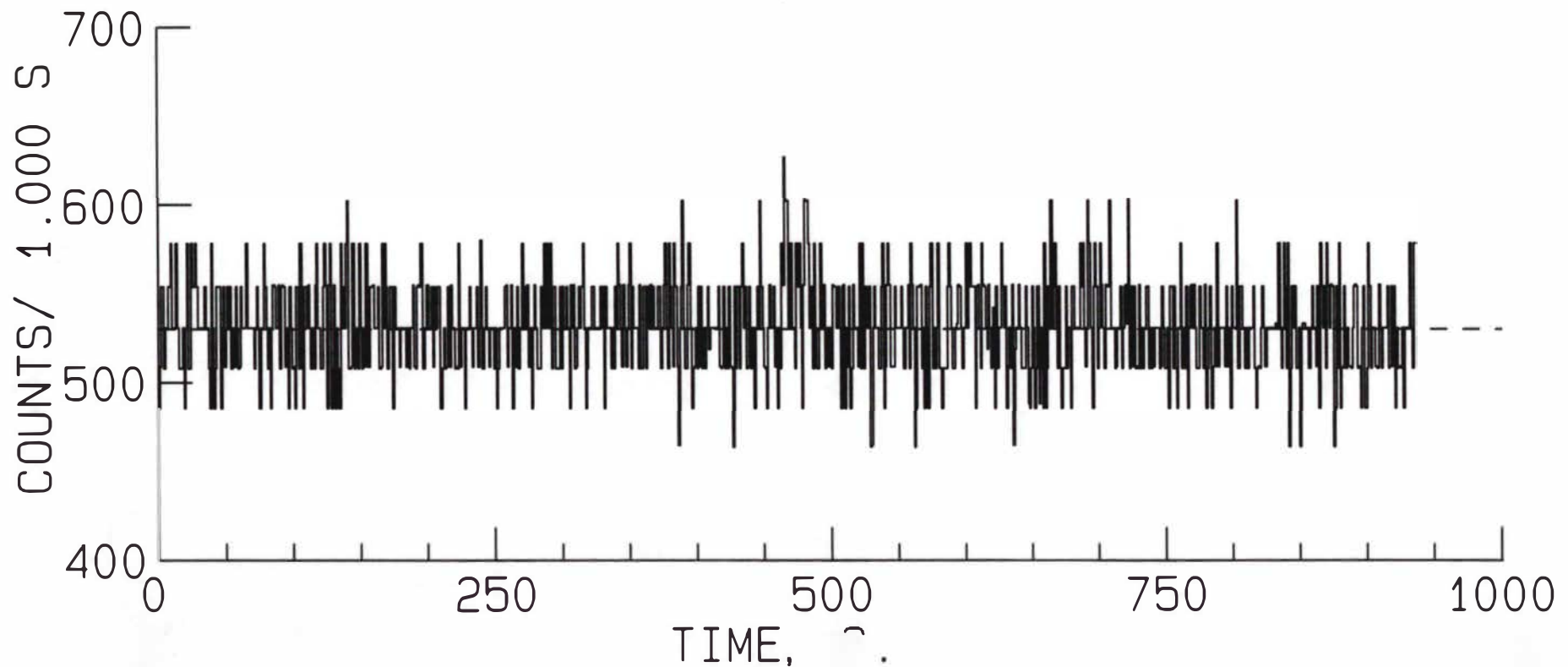
1 / 4 / 97

5/10/91 26352.230 s

0.500 S INTERVALS REGROUPED BY 2

20- 167 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



PVO-RT

5/10/91

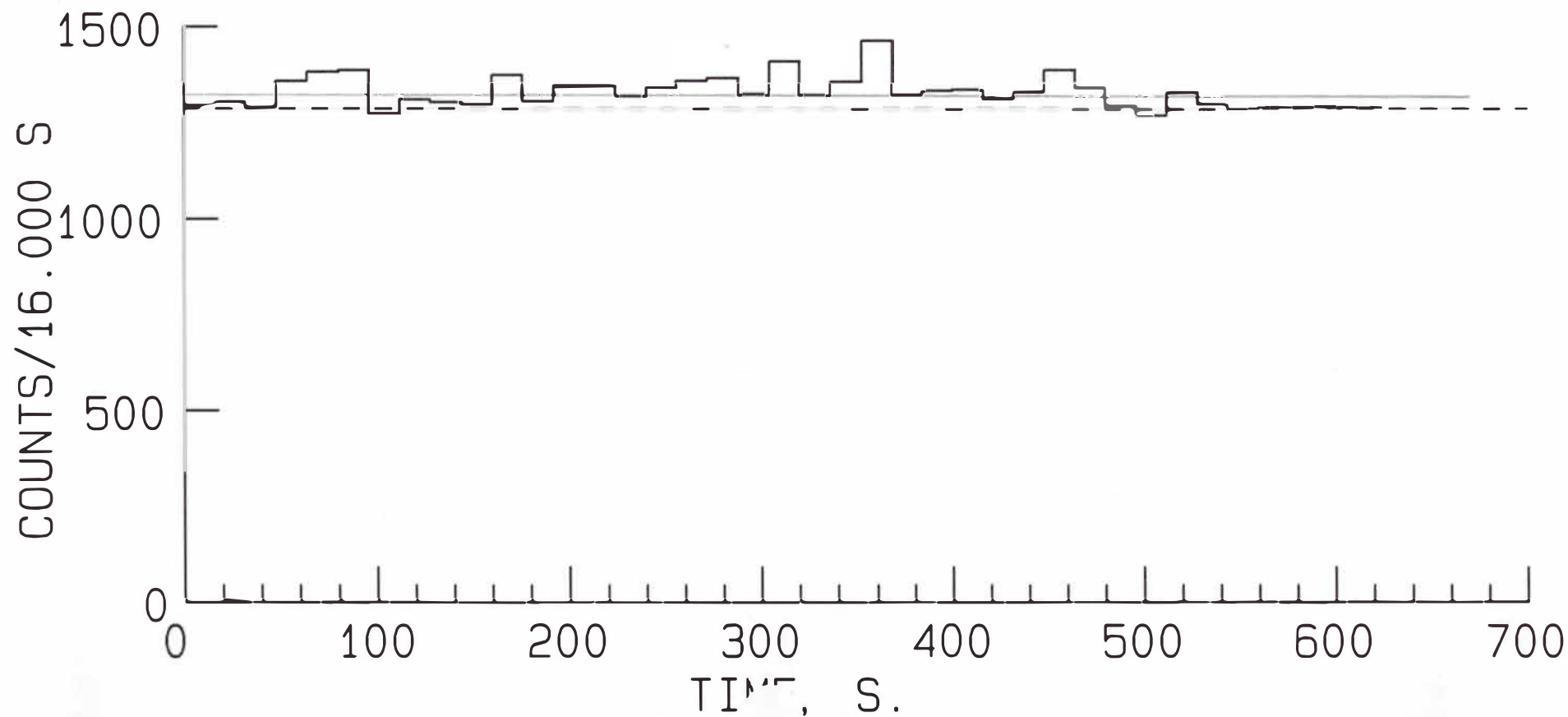
27184.129 s.

16.000 S. INTERVALS REGROUPED BY 1

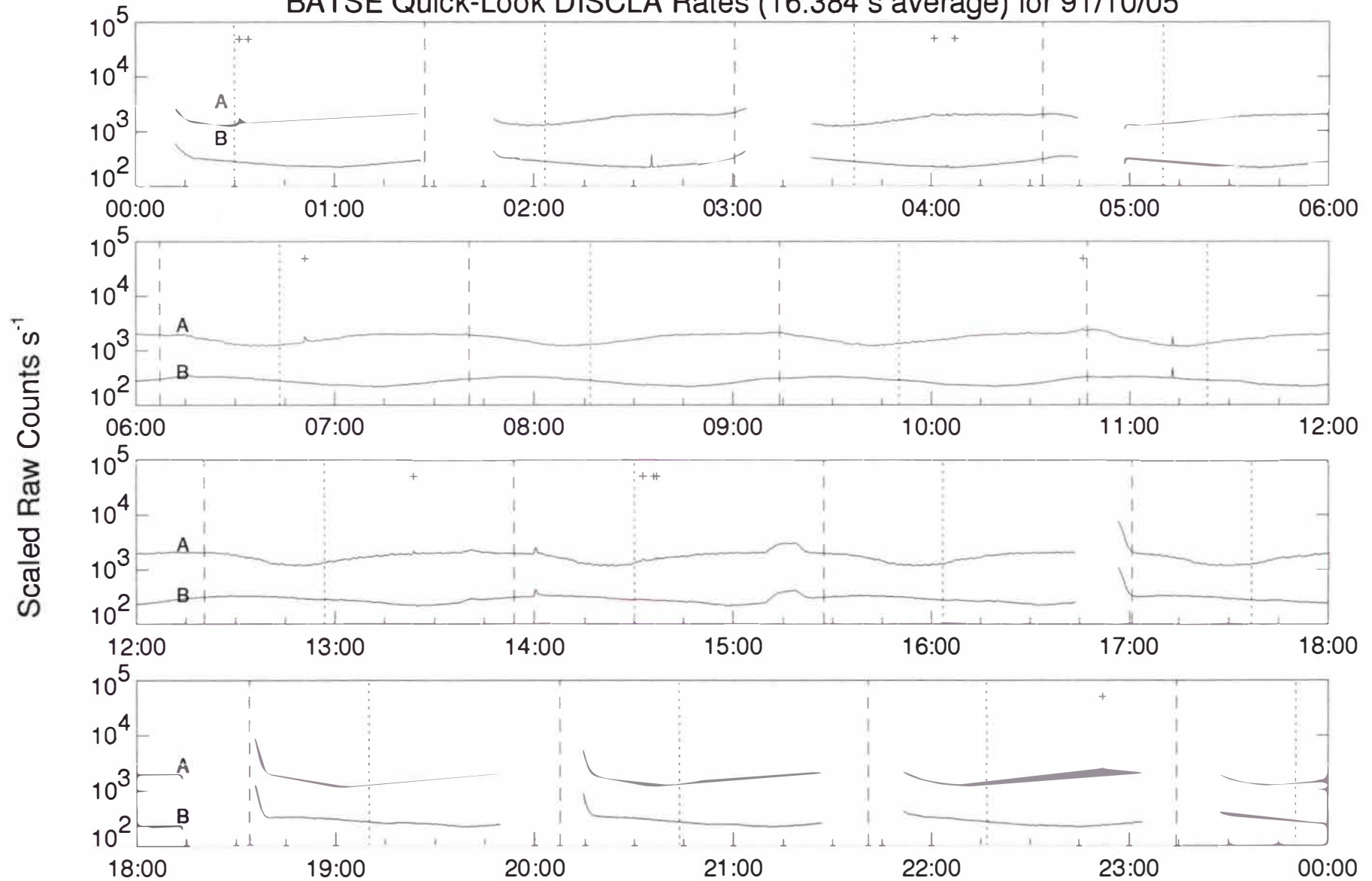
100-2000 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/05

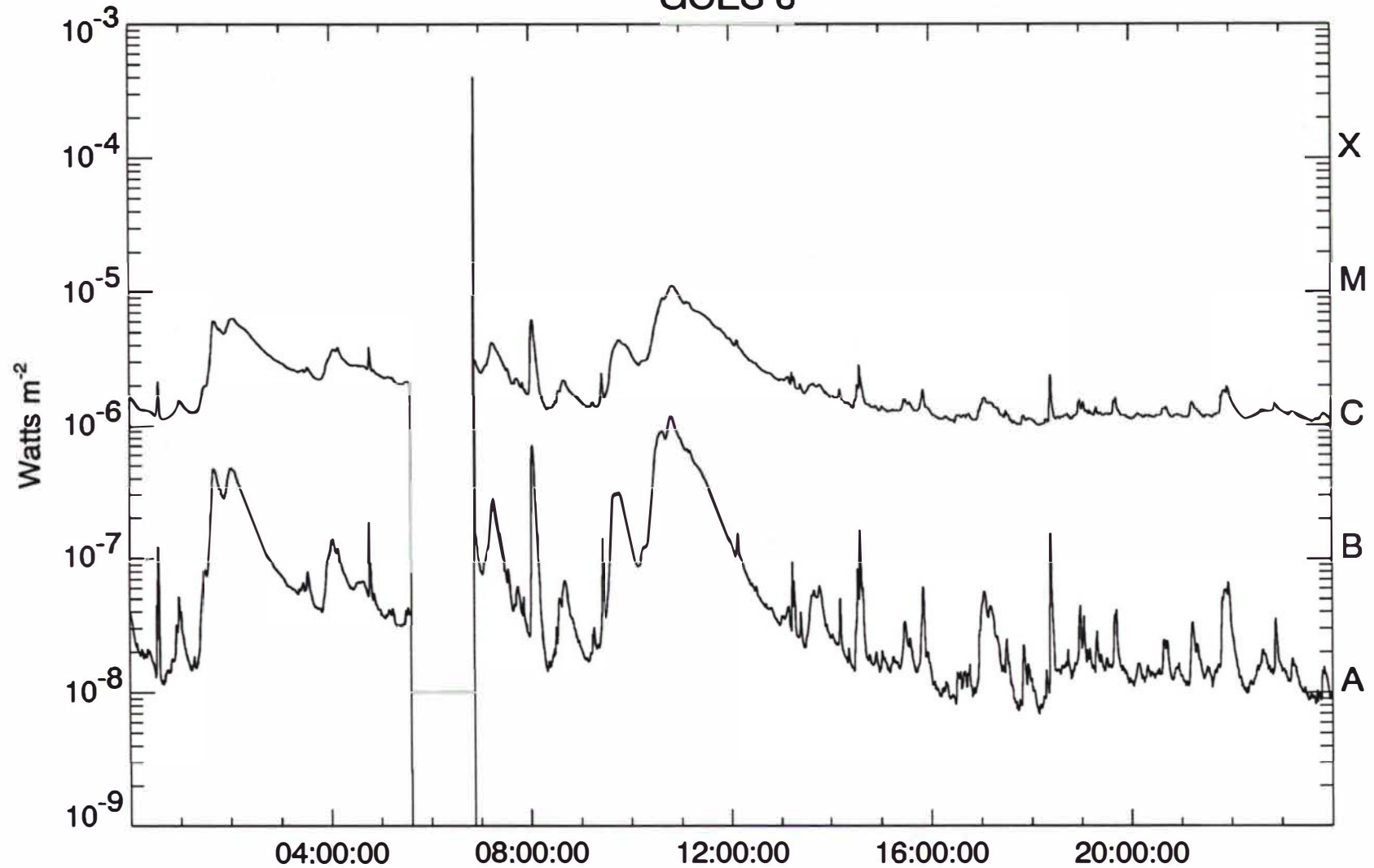


Current Time: 92/10/31, 1940 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/05, 0000:00

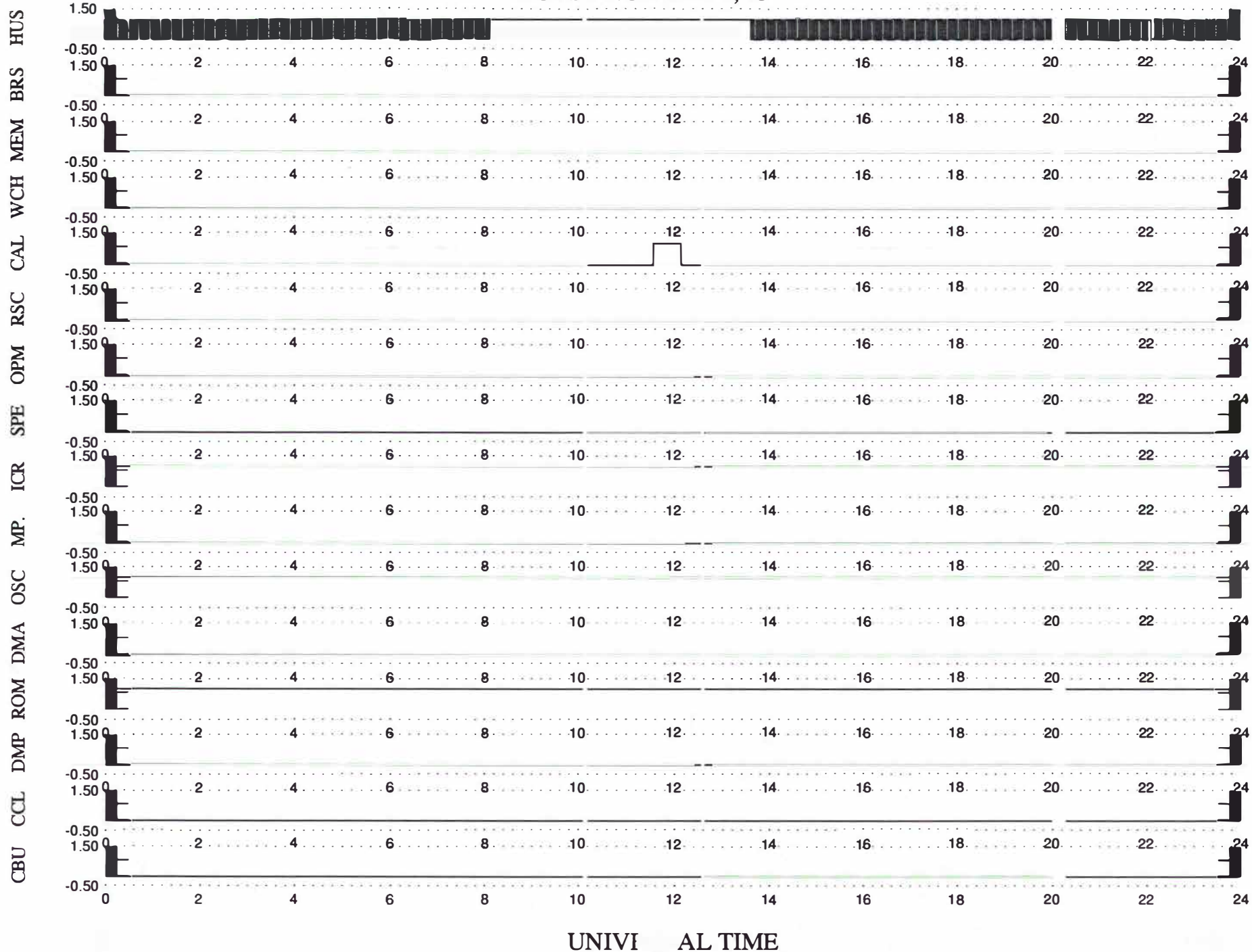
Plot created: 97/10/14, 2259

Channel

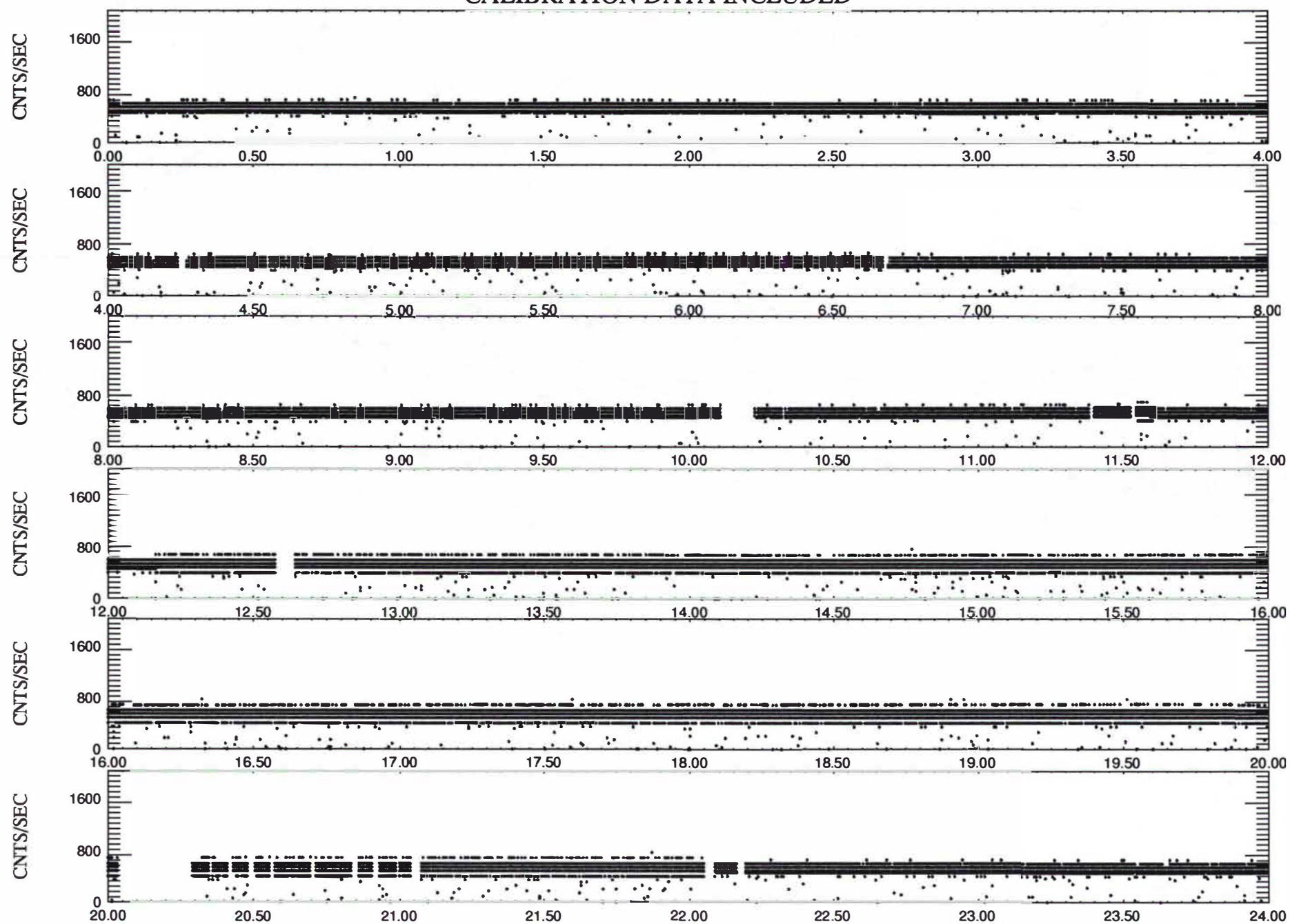
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

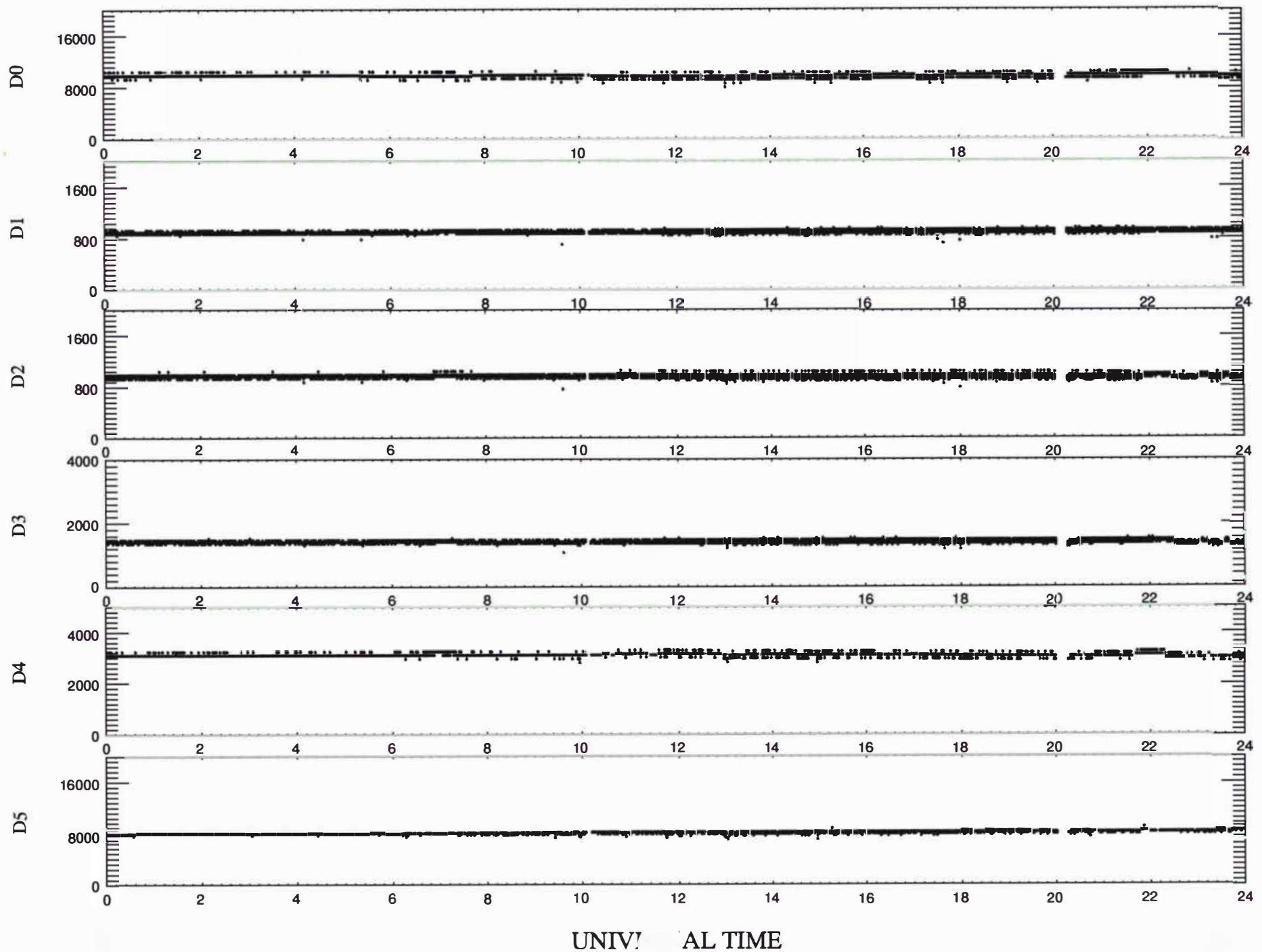
BURST NUMBER 1, 15



CALIBRATION DATA INCLUDED



UNIV 'AL TIME



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

CATSEARCH PROGRAM

BATSE BURST # 871
EVENT OF 1991 OCT 6 DAY OF YEAR=279
EVENT CROSSING TIME AT BATSE : 32514. S. OR 09:01:53.9
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 29.600 -31.900
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 6/10/ 91 IS:
RA= 159.874 DEC= 9.710 DIST= 5.164 AU
BATSE-ULYSSES DISTANCE = 772473064. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 50.94 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1623.52 SECS.
CROSSING TIME AT ULYSSES IS 34137. S. OR 09:28:57 +/- 422.04 SECONDS

RT

Helw. corr. removed

Date: Nov 3 '97

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? *No - bad stats*

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? *N/A*

3. PVO Data

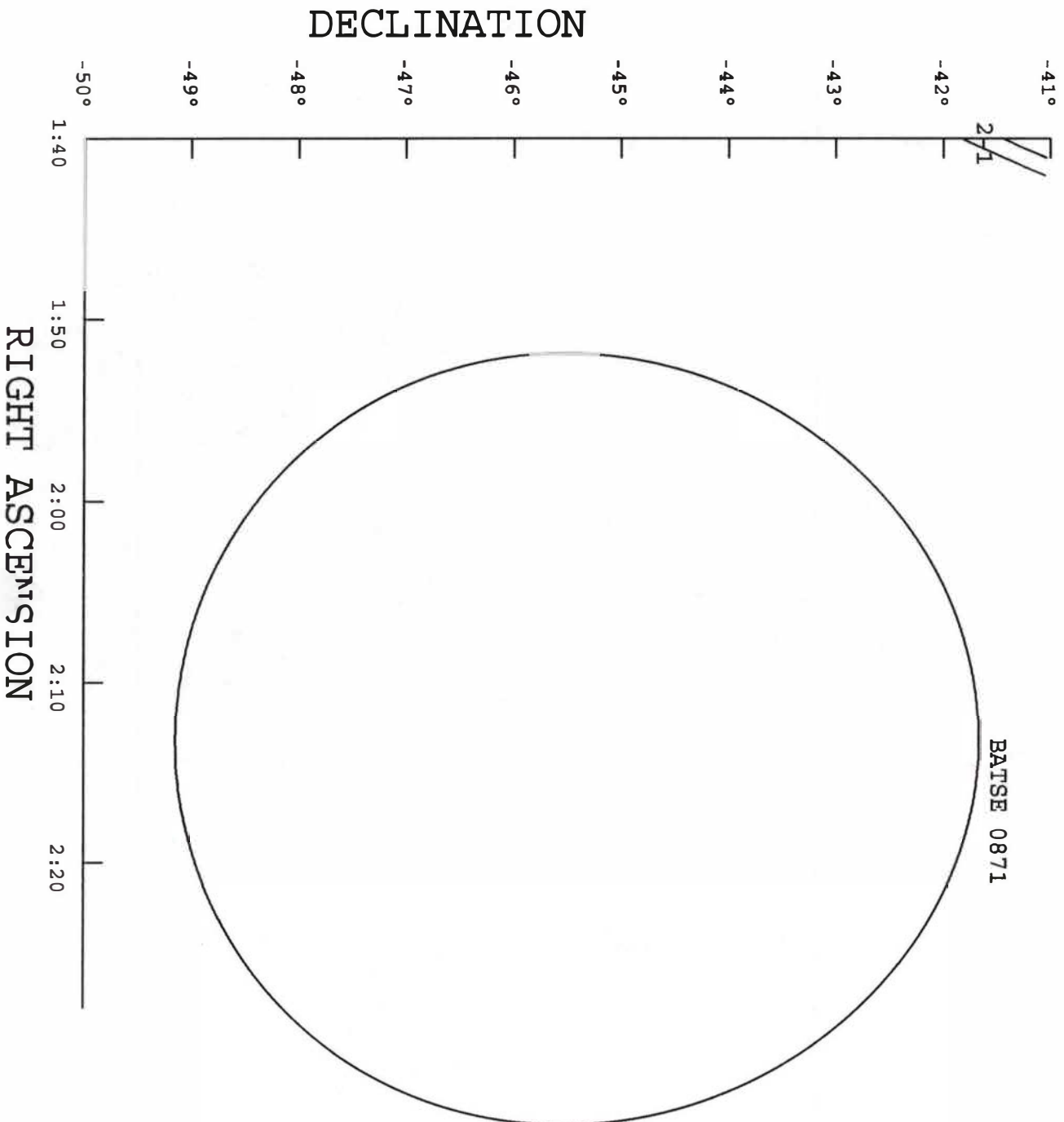
- ☐ Ephemeris of PVO used (not Venus)?
- ☐ 2000 coordinates used?
- ☐ Geocentric time used?
- ☒ ACCESS database updated?

Large shift (~ 10 s) between old + new cross-correlations apparently due to bad stat. + regrouping

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 BATSE

EVENT OF OCT 6, 1991 9:28

3/11/97



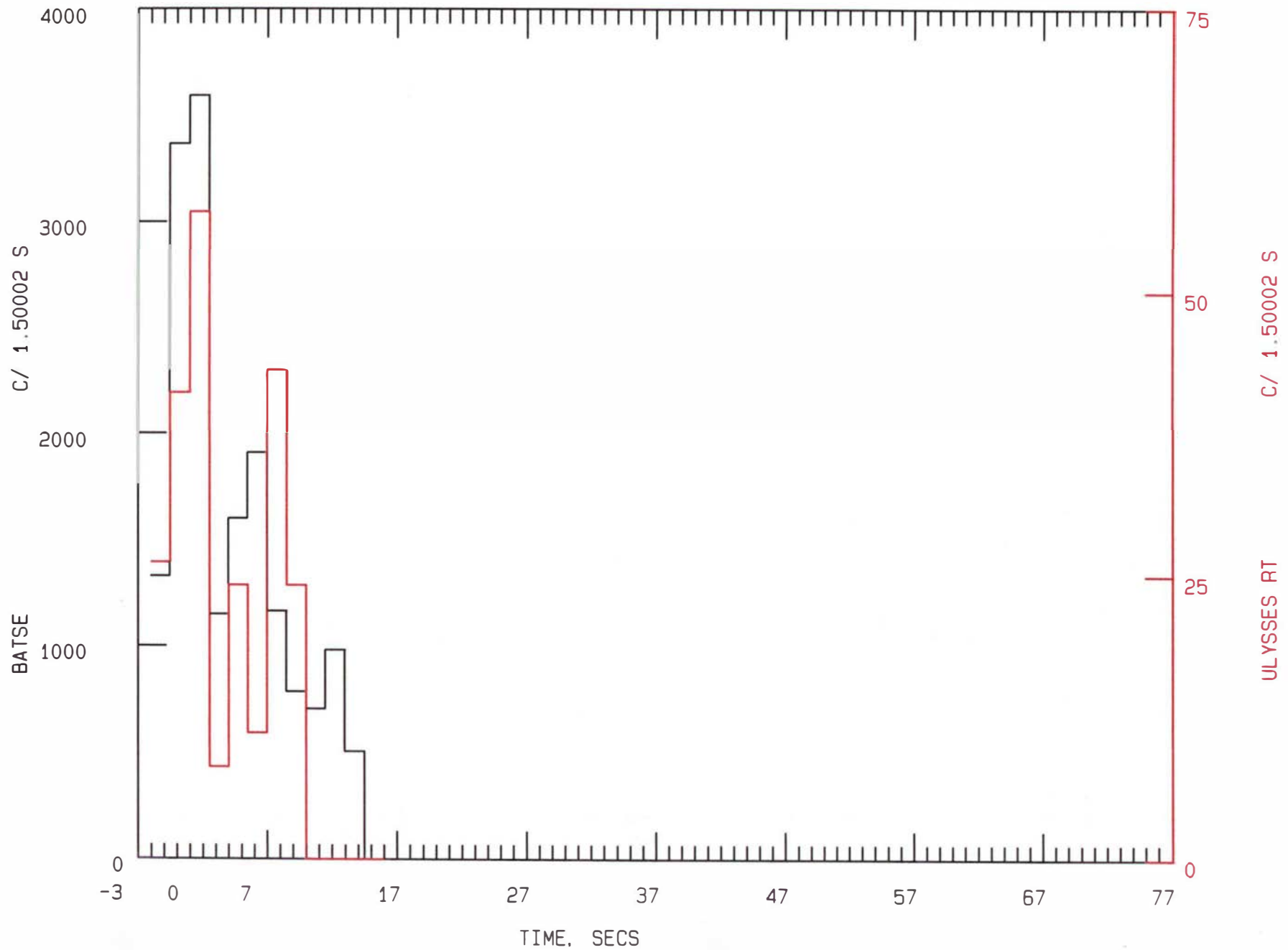
BATSE

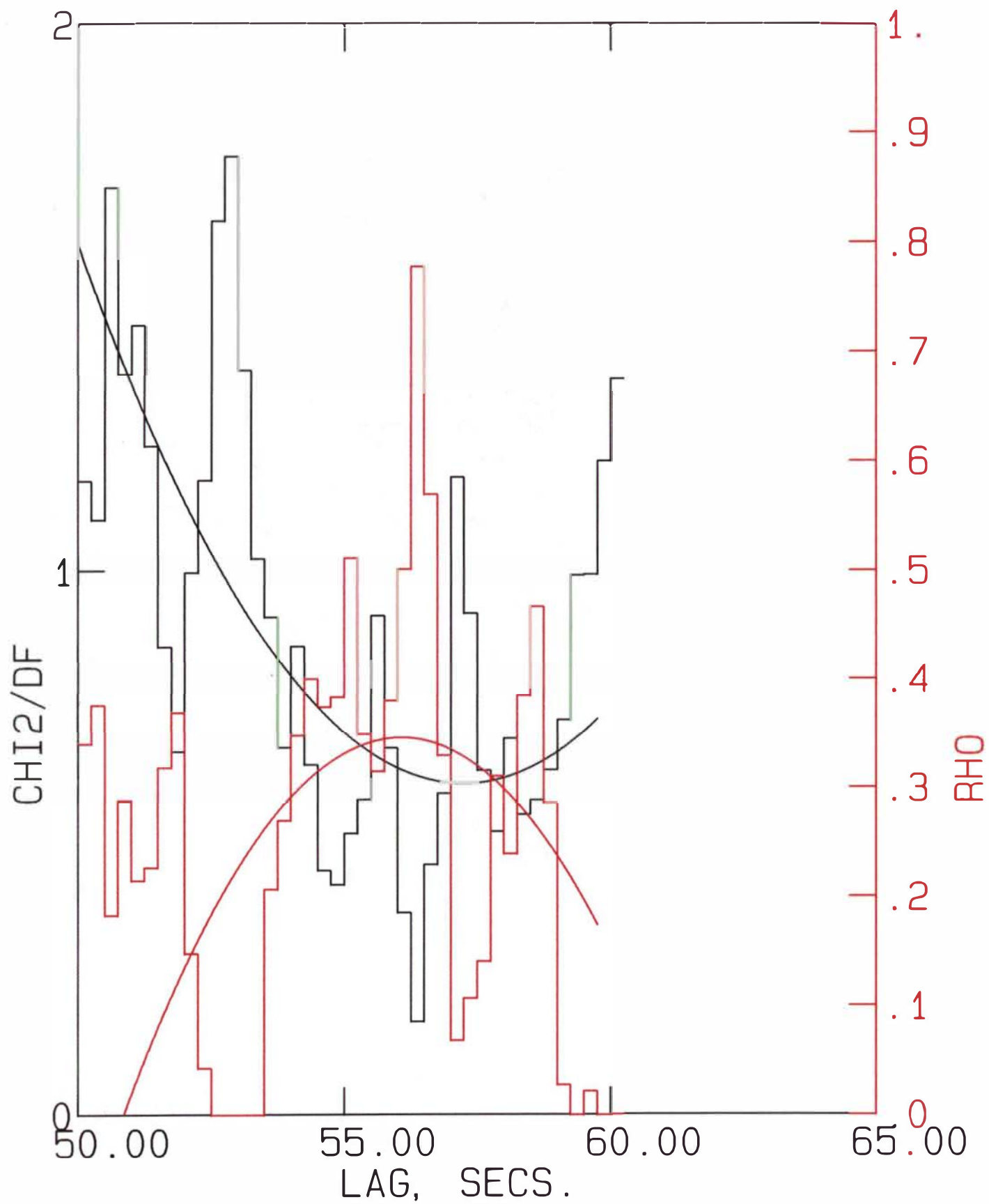
-ULYSSES RT CORRELATION

6/10/91

32513.899

3/11/97





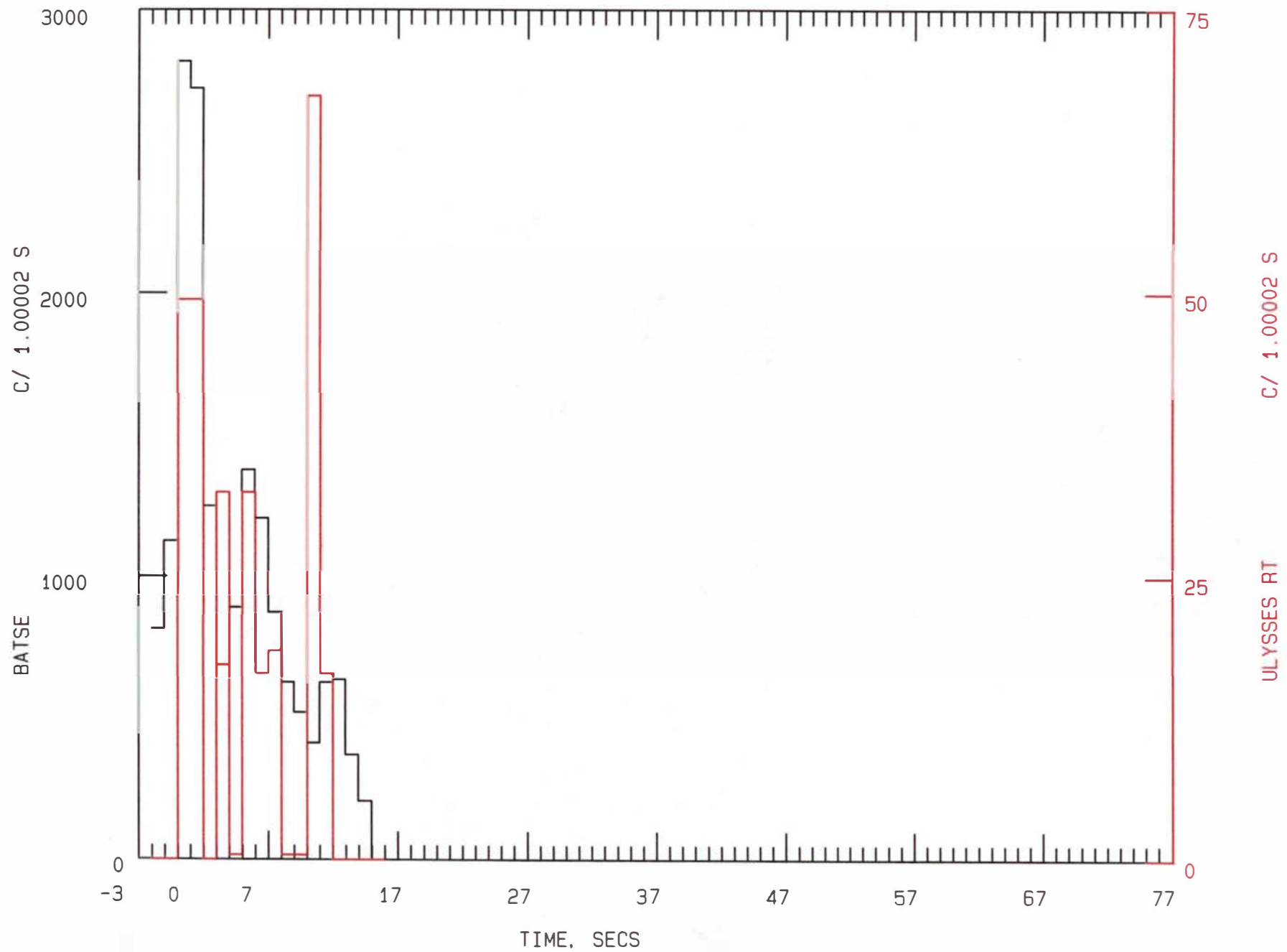
BATSE

-ULYSSES RT CORRELATION

6/10/91

32513.899

3/11/97



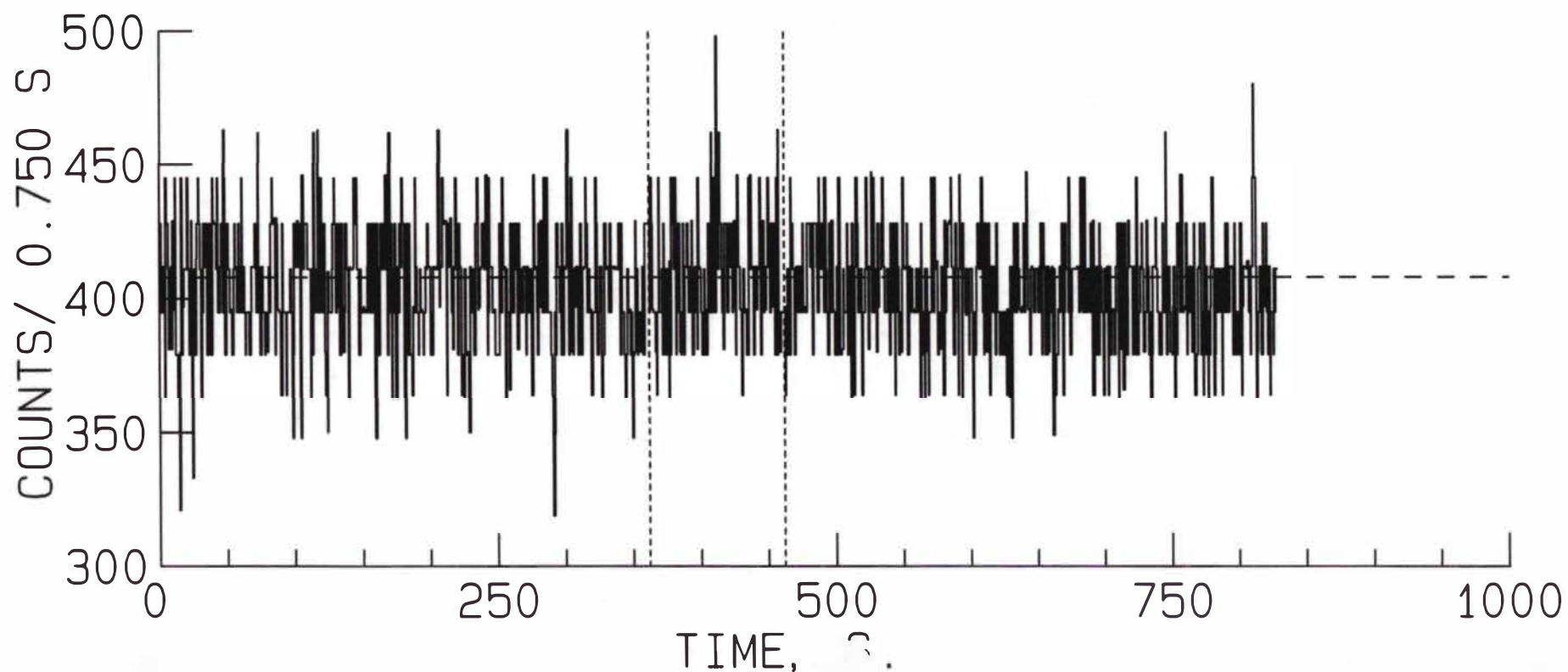
ULYSSES RT

3/11/97

6/10/91 33732.022 s

0.250 S INTERVALS REGROUPED BY 3

20- 165 keV



BATSE

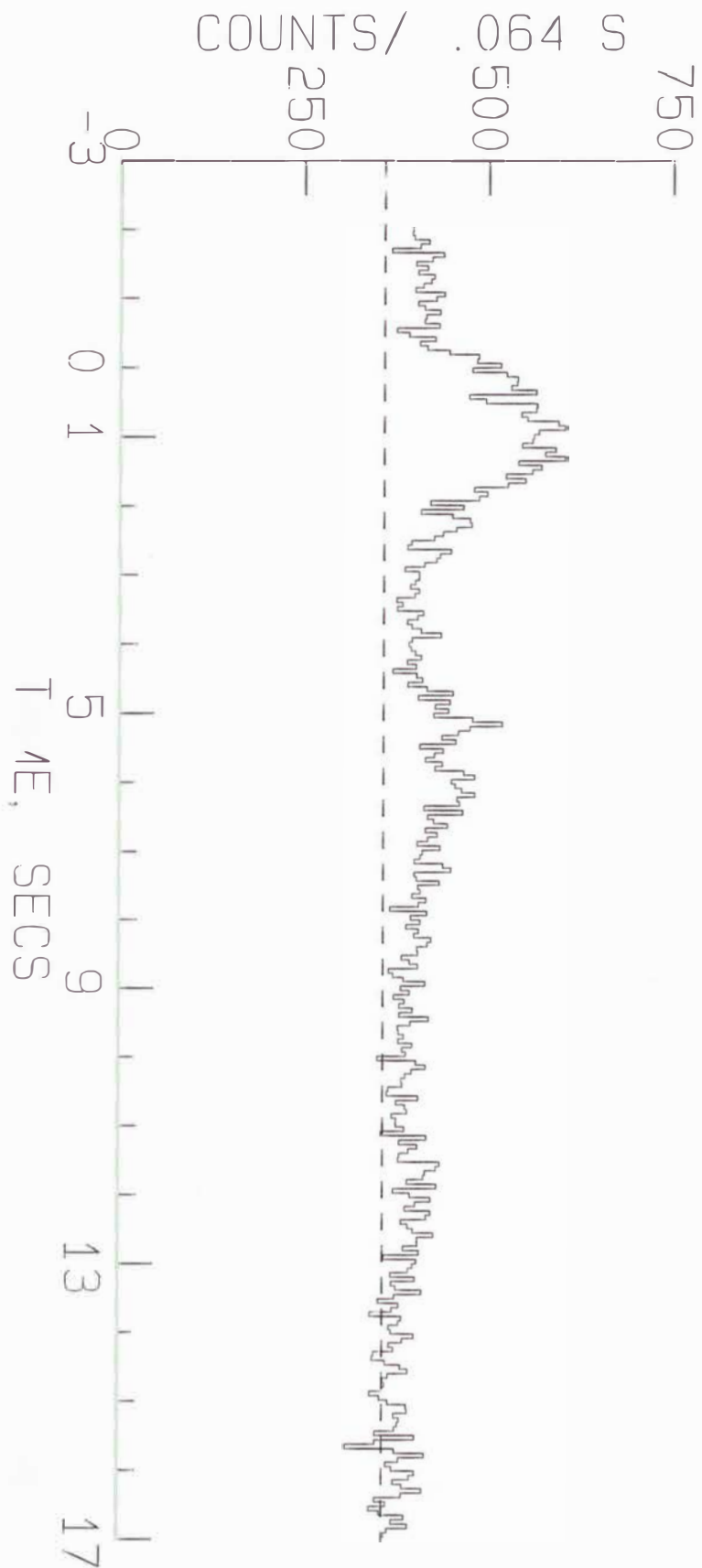
⁰⁶07/10/91

25- 100 keV

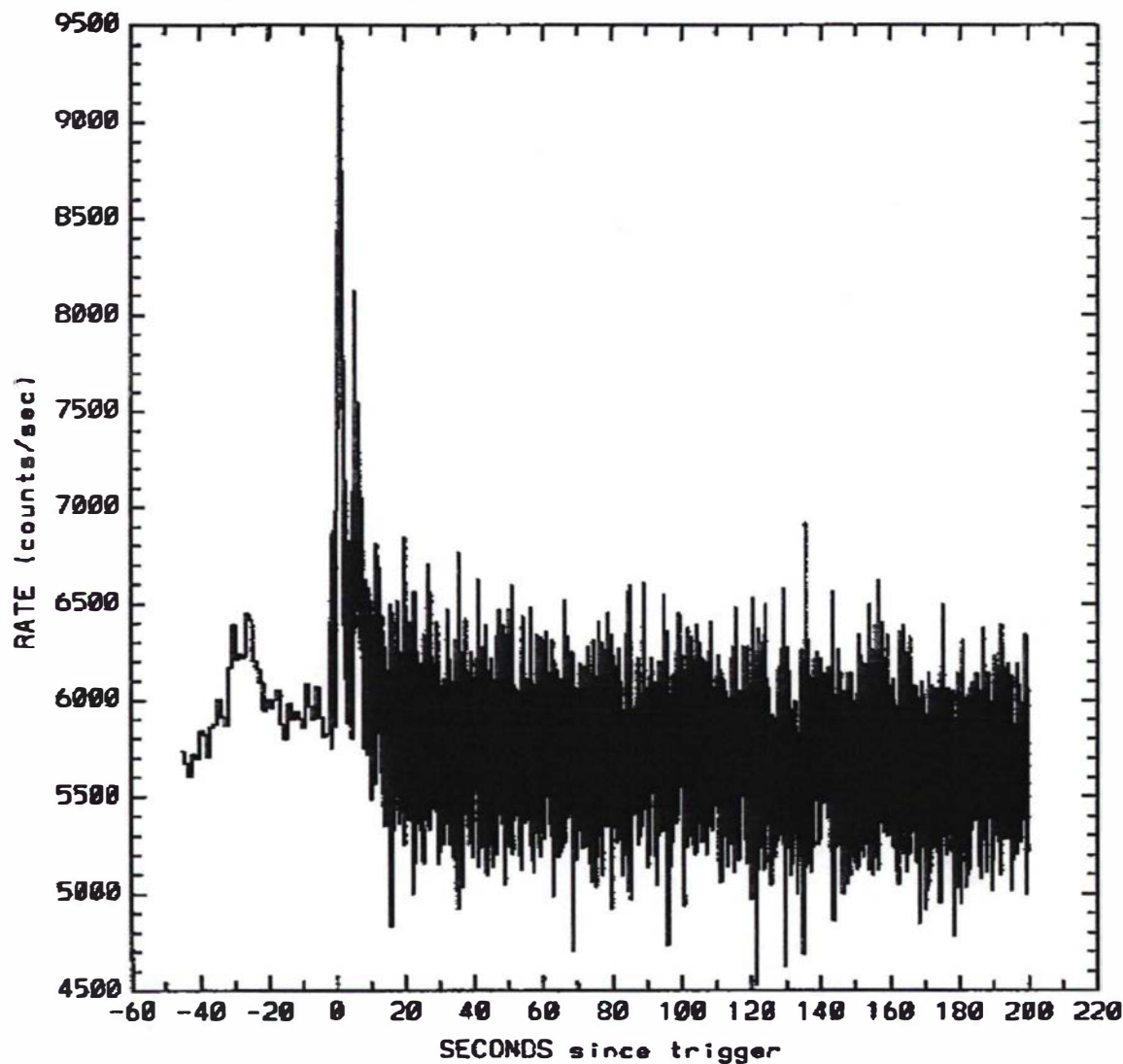
32513.899 - ~~4.042~~

~~32511.857~~

No - OK AS IS



DATA FOR K. HURLEY



29-JUL-1993 15:59:24

Created by MDPS 80
(Burst Display)
Version 2.19

To OK

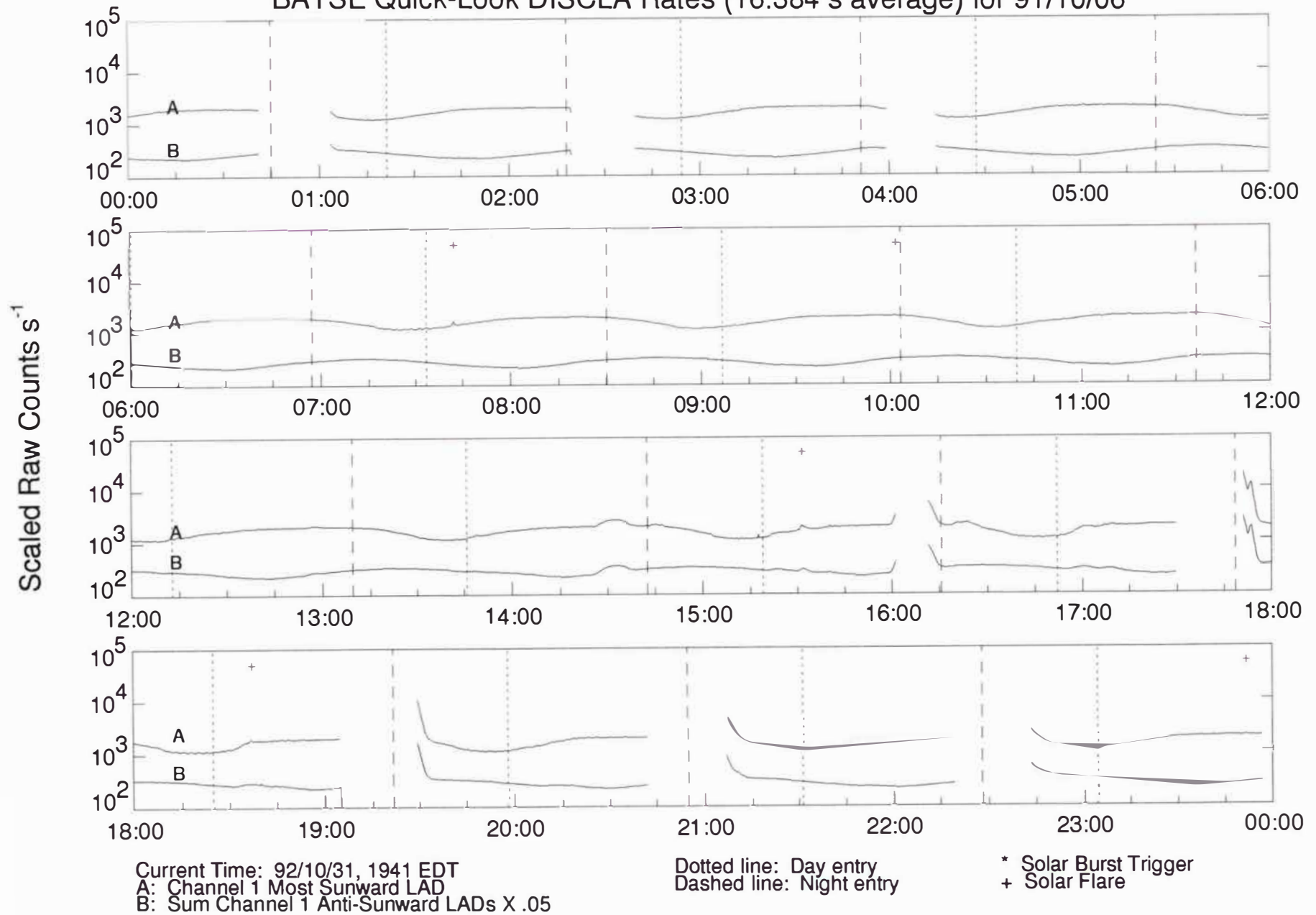
Trigger # : 871

Trigger Time:
8535 / 32513.899~~2.0428~~Burst Data Type:
DISCSC~~22611857~~

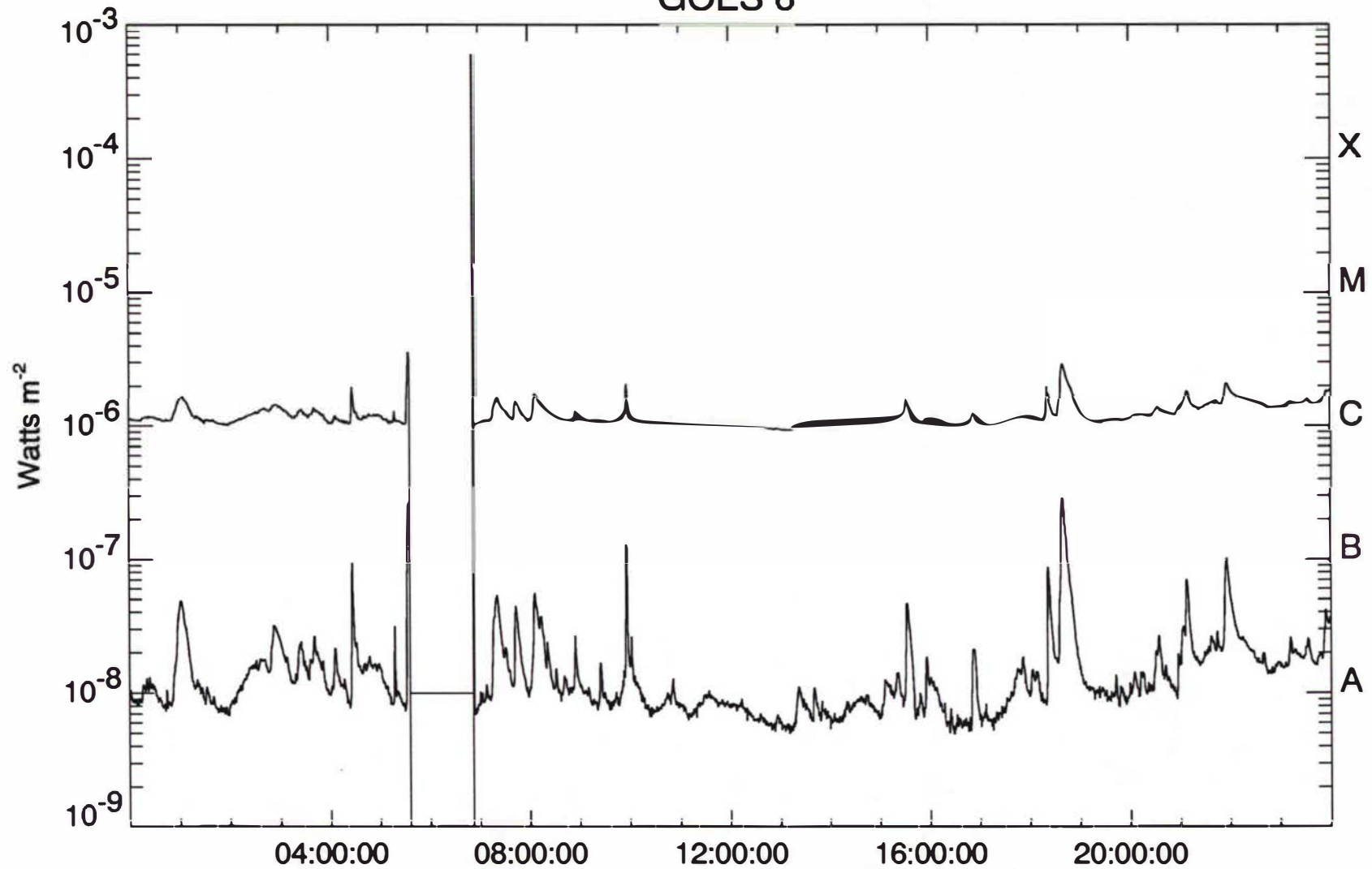
NO - OK AS IS

Deadline
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8].
1000?000Discriminators:
[1, 2]Quality Mask:
BDTSP

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/06



GOES 6



Data Start: 91/10/06, 0000:01

Plot created: 97/10/14, 2303

Channel 1 (1.0 - 8.0 Angstroms)

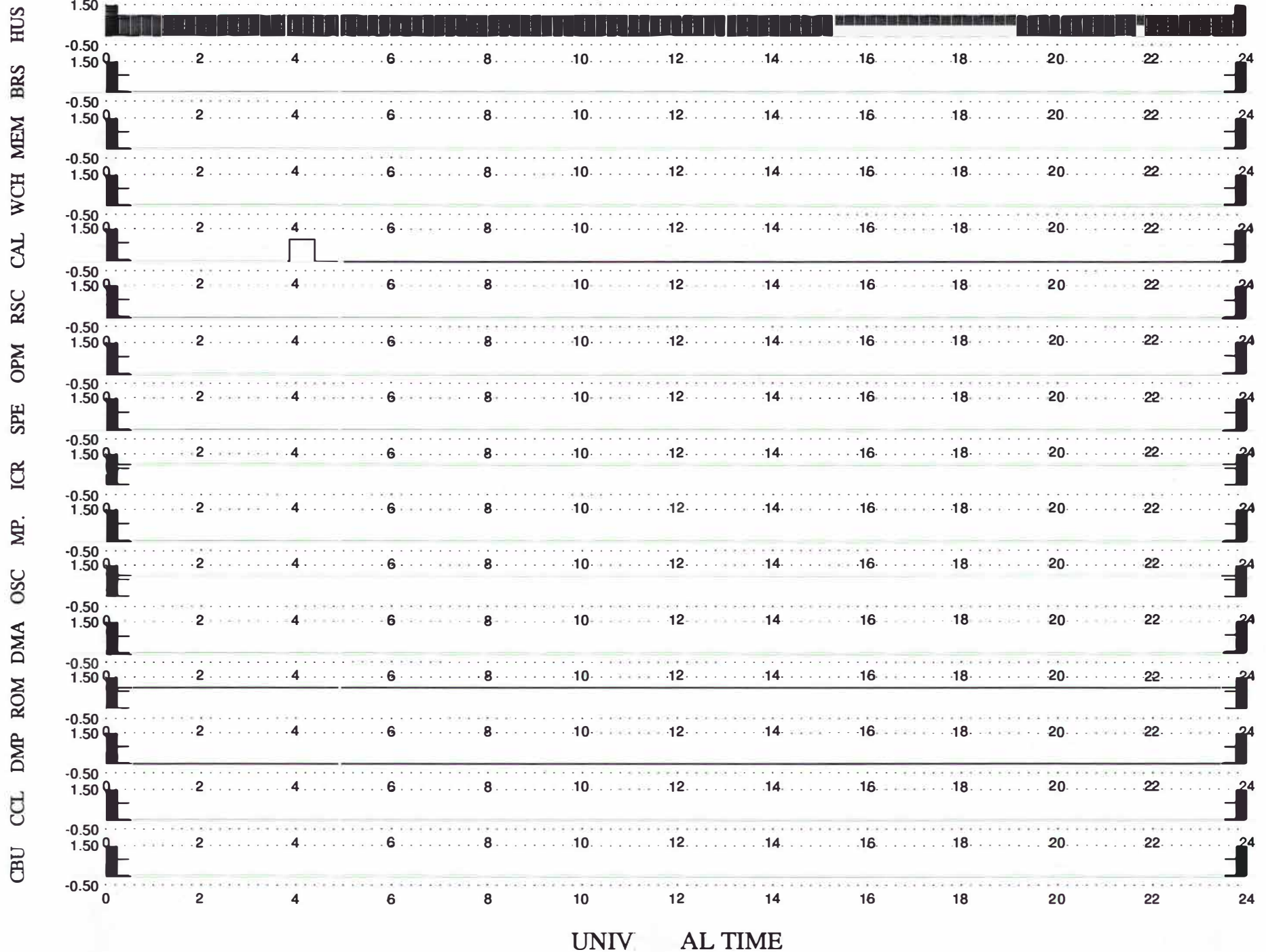
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

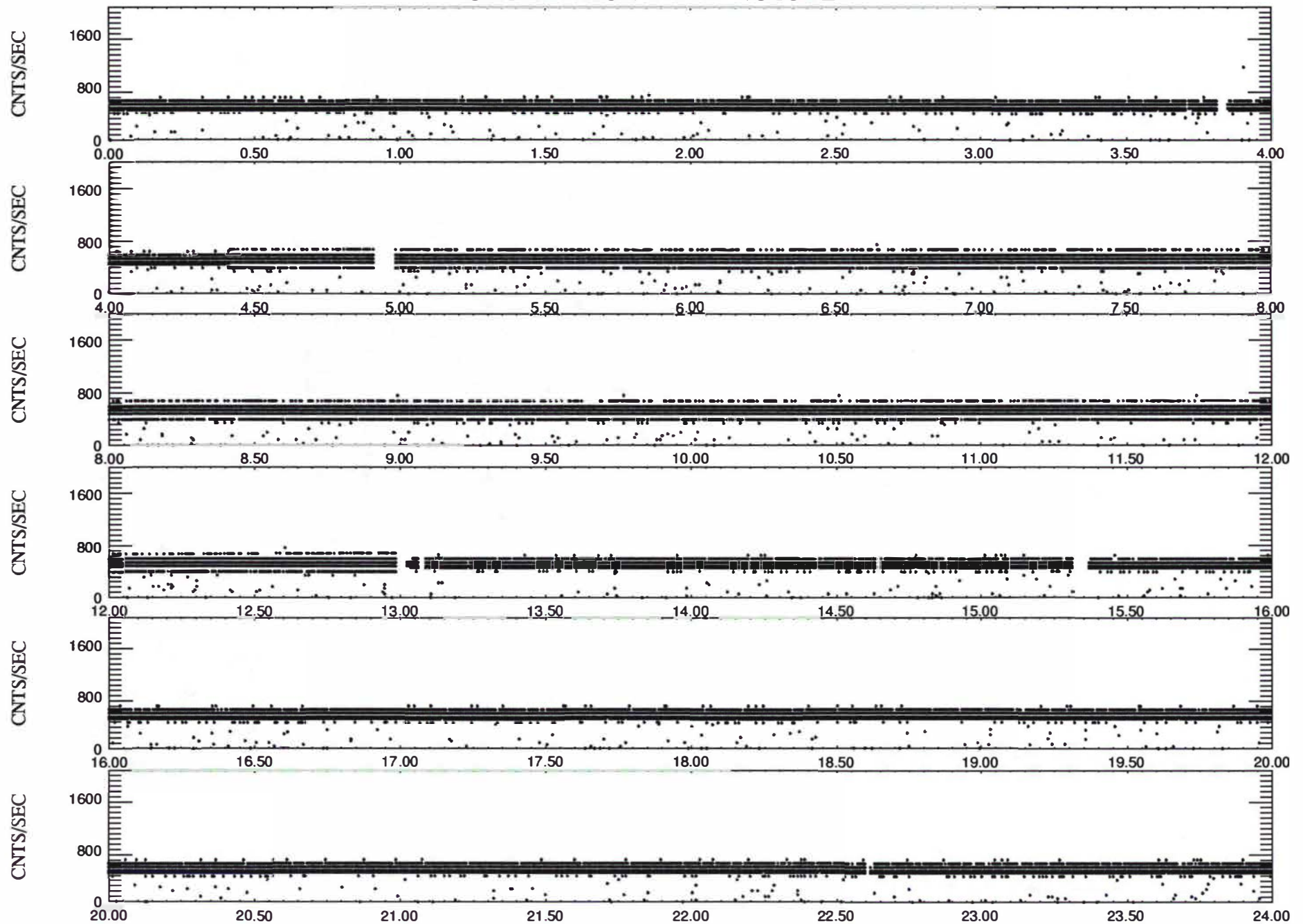
Background not subtracted

Sample average = 10

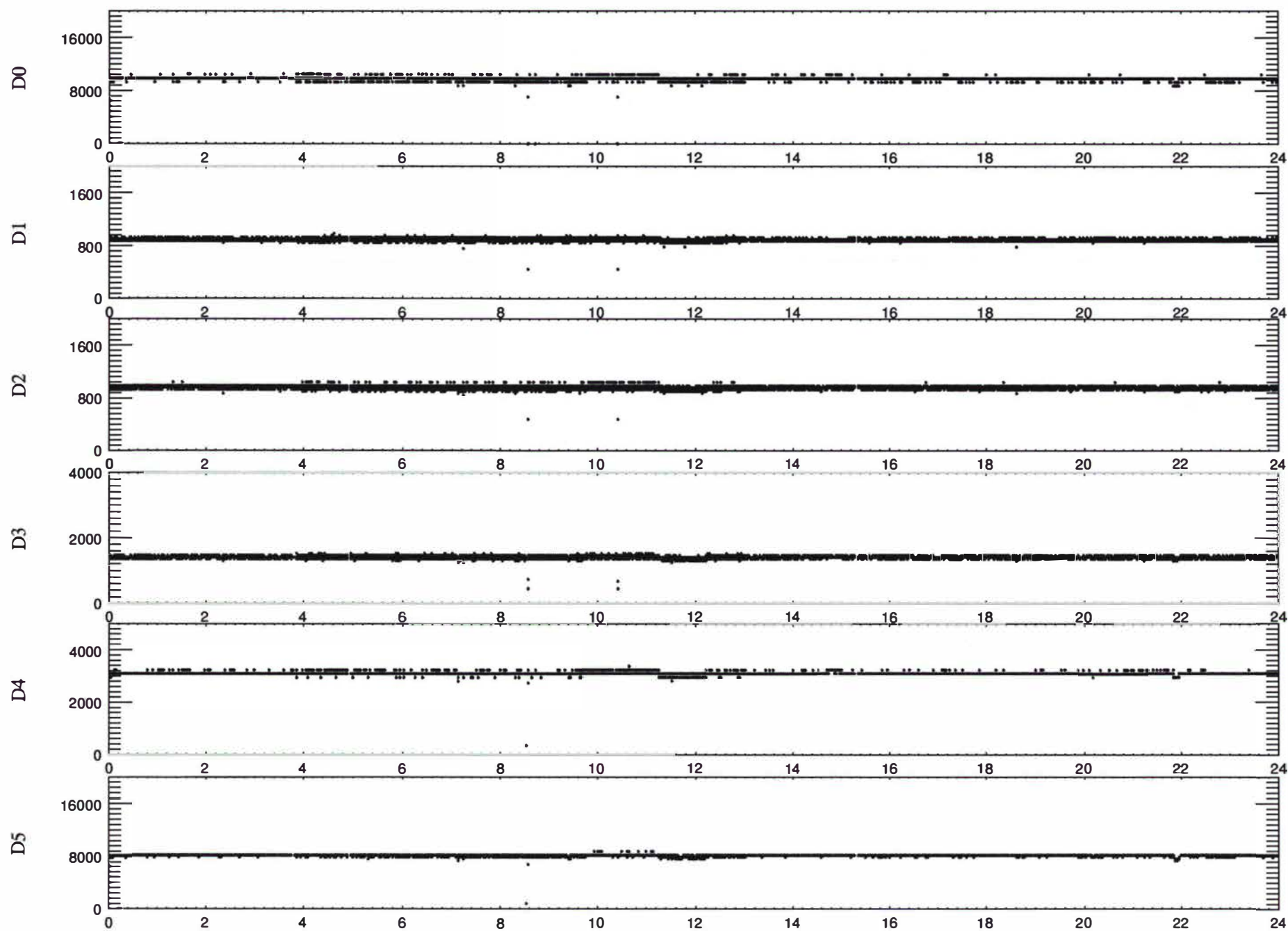
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV 'AL TIME



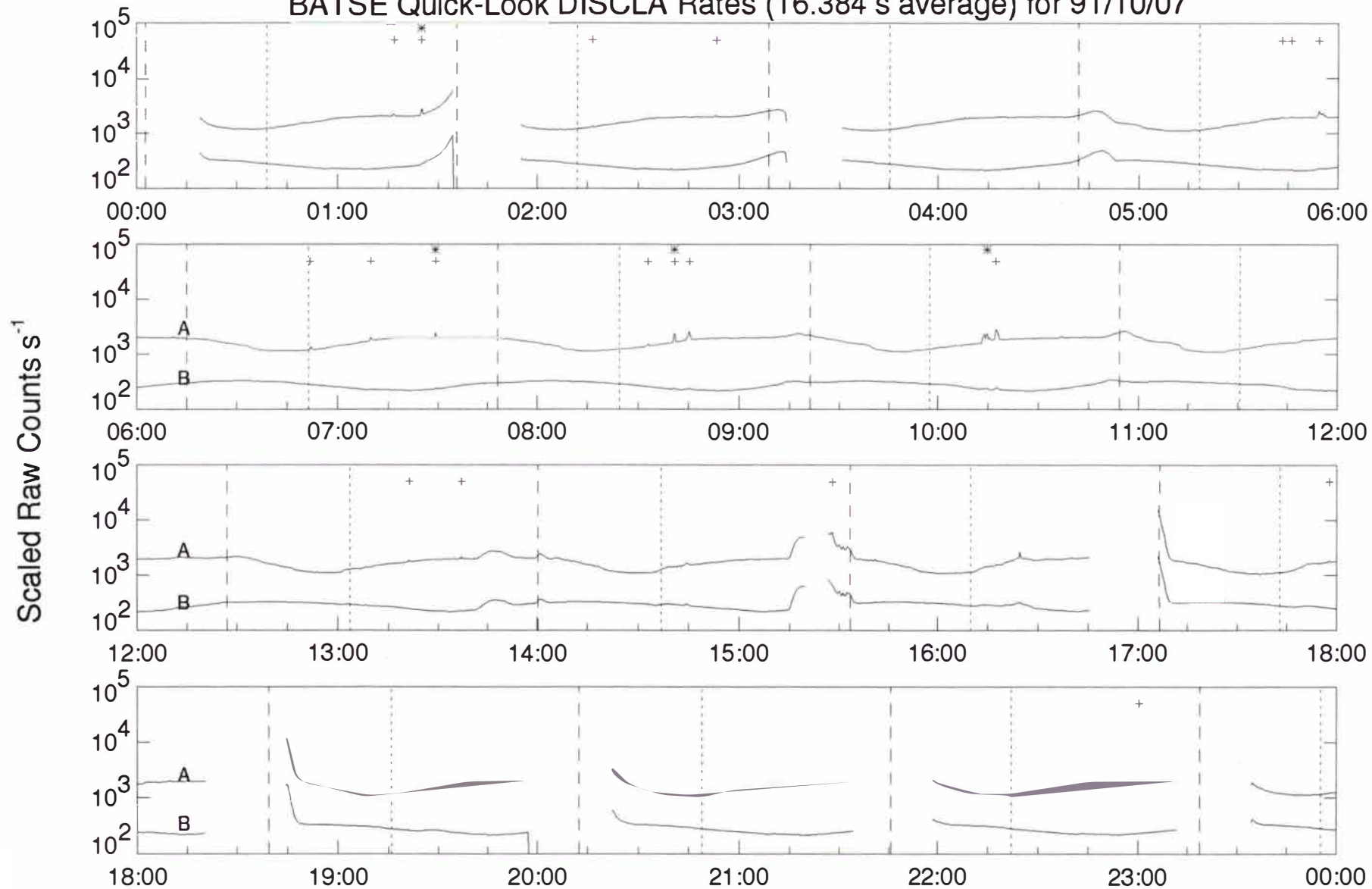
UNIV AL TIME

CATSEARCH PROGRAM

BATSE BURST # 878
EVENT OF 1991 OCT 7 DAY OF YEAR=280
EVENT CROSSING TIME AT BATSE : 55929. S. OR 15:32:09.2
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 312.500 44.000
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 7/10/ 91 IS:
RA= 160.065 DEC= 9.635 DIST= 5.163 AU
BATSE-ULYSSES DISTANCE = 772365352. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 59.17 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1320.18 SECS.
CROSSING TIME AT ULYSSES IS 57249. S. OR 15:54:09 +/- 454.15 SECONDS

NO DATA

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/07

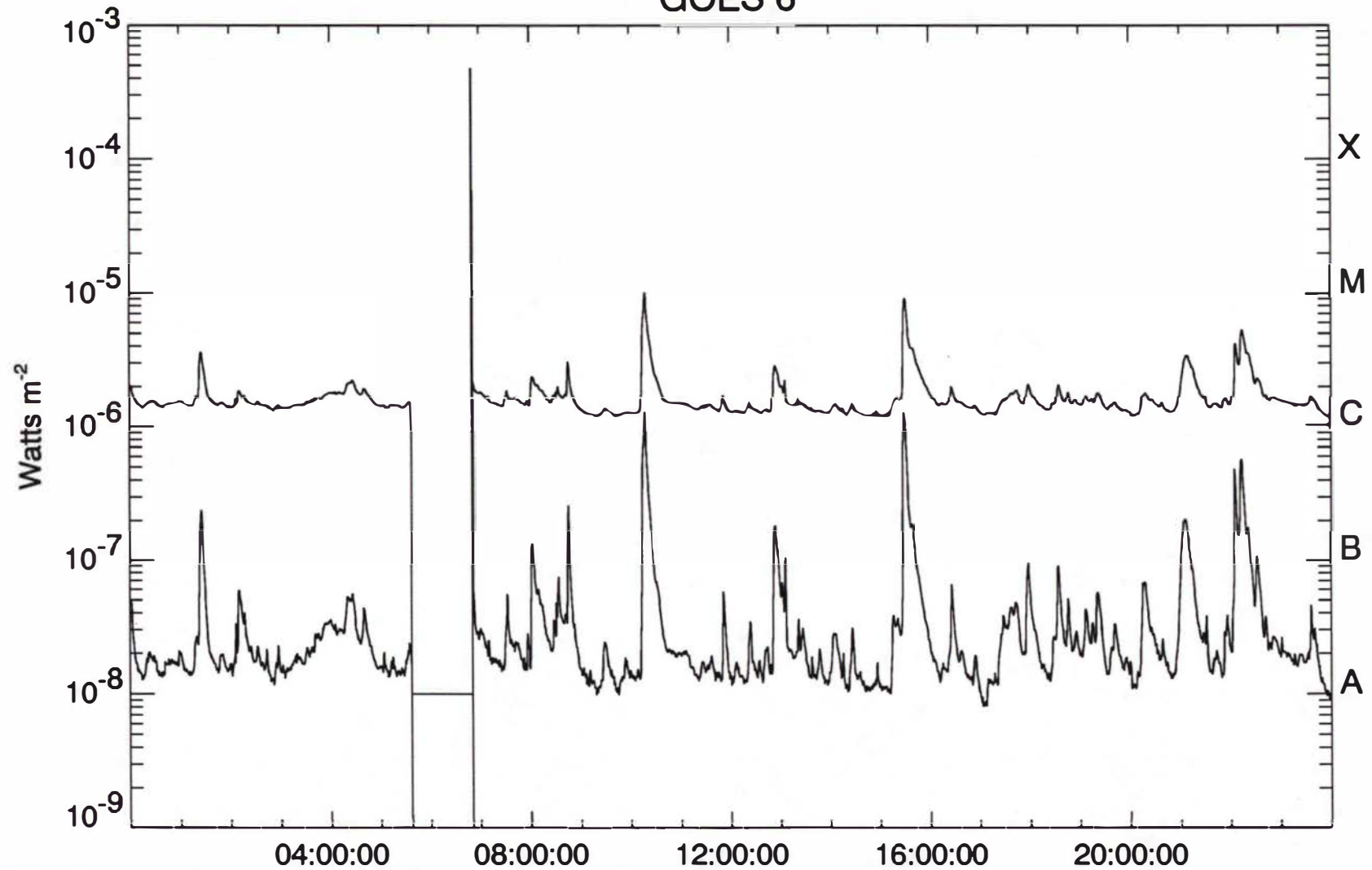


Current Time: 92/10/31, 1942 EDT
A: Channel 1 Most Sunward LAD
B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 6



Data Start: 91/10/07, 0000:02

Plot created: 97/10/14, 2306

Channel

1 (1.0 - 8.0 Angstroms)

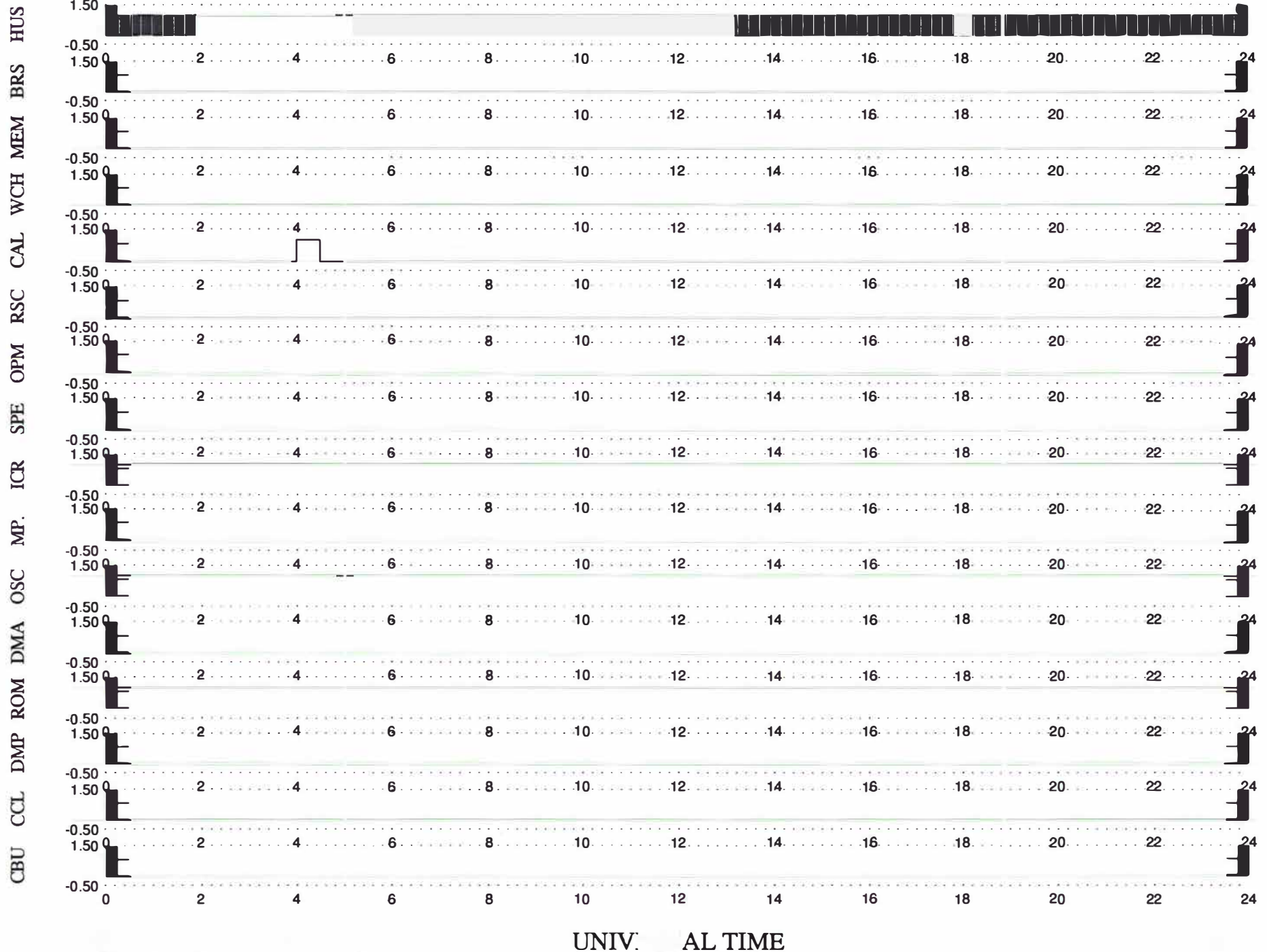
Background not subtracted

2 (0.5 - 4.0 Angstroms)

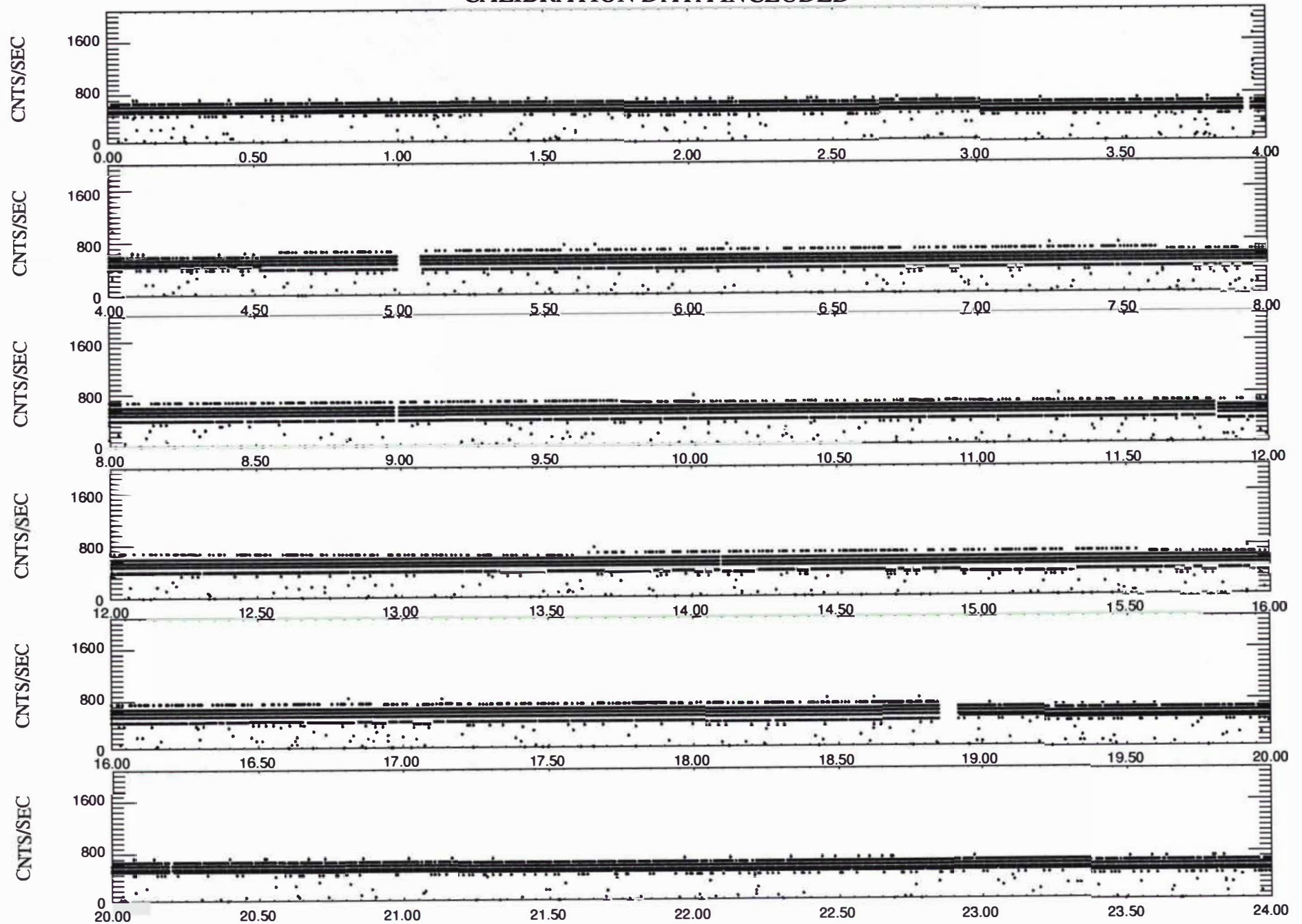
Background not subtracted

Sample average = 10

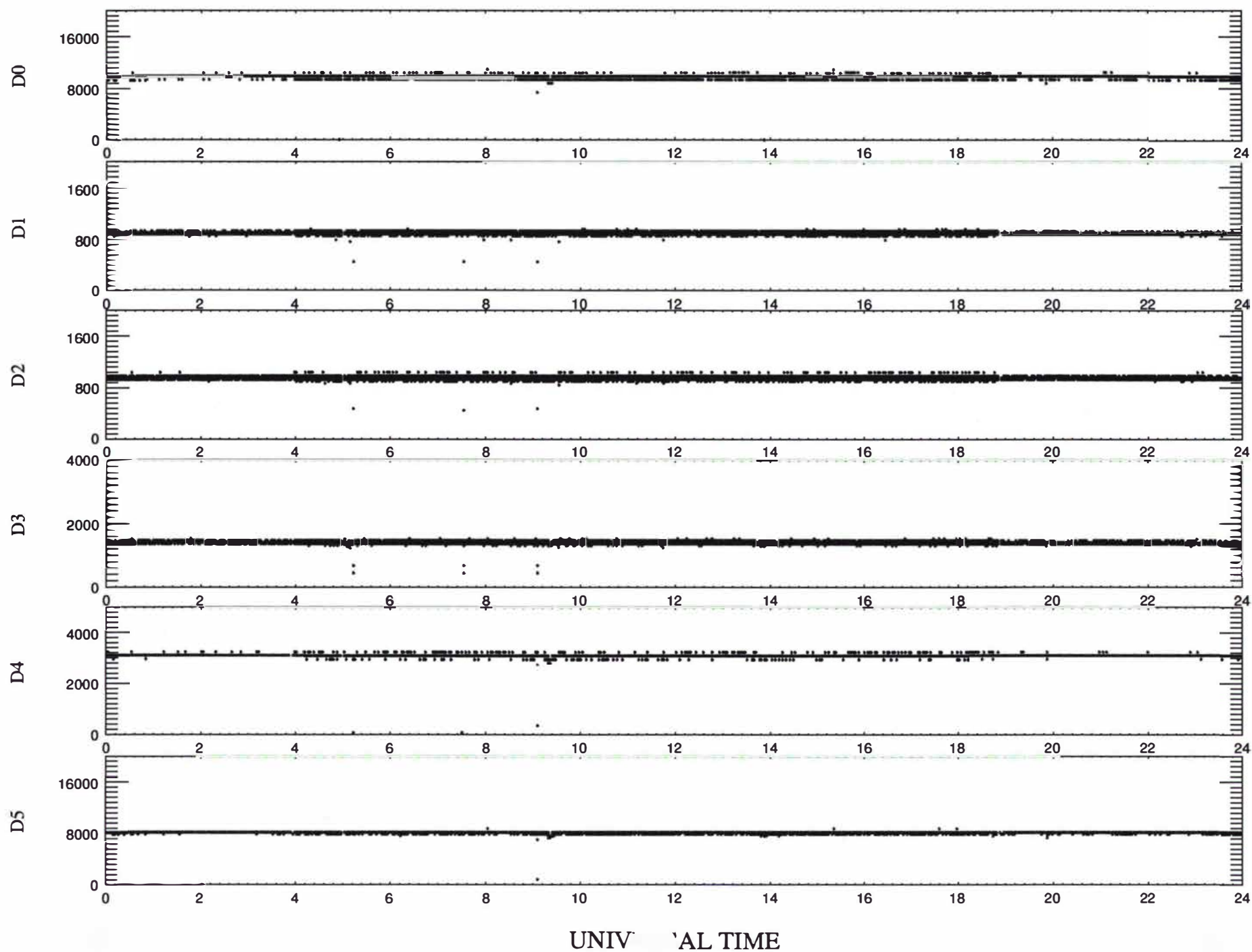
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV AL TIME



From root Thu Dec 9 12:43 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA09627; Thu, 9 Dec 93 12:43:06
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA01739; Thu, 9 Dec 93 11:45:54 PST
Received: Thu, 9 Dec 93 11:49:12 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9312091949.AA08202@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-mail11d v1.7); Thu, 9 Dec 93 11:49:13 PST
Date: Thu, 9 Dec 93 11:49:13 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,

THESE ARE THE EVENTS FOR WHICH WE HAVE DATA RECORDED AT 64 S RESOLUTION
CAN YOU TELL ME WHICH ARE THE MOST LIKELY CANDIDATES FOR DETECTION?

DATE	TIME
91/01/23	12:40
91/06/19	14:14
91/06/26	07:15
91/07/09	11:33
91/07/23	14:06
91/07/25	13:12
91/08/09	06:15
91/08/18	13:44
91/09/01	05:24
91/10/08	17:56
91/10/26	13:07
91/10/31	09:36
92/03/27	12:15
92/04/05	07:41
92/05/02	06:03

REGARDS,

RAY

POSITION OF ULYSSES ON 8/10/1991 IS:

RA= 160.255 DEC= 9.561 DIST= 5.162 AU

THE DISTANCE BETWEEN TWO OBJECTS AT

.000 .000 .00 KM. AND

160.255 9.561 772227700.00 KM. IS

772227700.00 KM., OR 5.162 A.U., OR 2575.87 LIGHT-SECONDS

THE ANGLE BETWEEN THEM IS 158.145 DEGREES

Table 1 GRBs List

Event ID	Time(U.T.) (hr:mn)	Peak Counts Cp (cnts/4sec)	Bit	
901009	00:15:52		Hi	
901021	00:09:07		Hi	
901103	05:52:56		Hi	
901112	19:20:38		Lo	Uly
901219	21:52:50		Hi	Uly
901022	15:14:08		Hi	Uly
901030	11:56:08		Hi	
9010204	08:58:47		Hi	Uly
9010206	08:45:29		Med	Uly
910312	12:43:34		Hi	Uly
910314	22:56:12		Lo	Uly
910315	22:55:48		Lo	Uly
910322	12:41:48		Med	
910402	14:28:13		Med	Uly
910429	03:11:50		Med	GRO
910522	12:14:08		Hi	Uly
910527	23:45:36		Hi	
910709	20:22:38		Med	
910717	04:33:05		Hi	GRO
910723	14:06:16		Lo	
910725	13:12:06		Med	GRO
910803	08:33:28		Med	GRO
910814	19:14:34		Lo	GRO
910815	12:34:32		Med	
910821	10:33:39		Hi	
910827	13:11:18		Hi	
910905	23:48:55		Med	GRO
910907	01:04:56		Lo	GRO?
910926	18:25:56		Lo	GRO
911008	17:56:04		Lo	
911016	11:01:30		Lo	GRO
911029	04:50:52		Lo	
			Hi	<+-0.1s
		accuracy	Med	+ -0.5s
			Lo	+ -2.0s

Munakami's

Preliminary list

SOLAR

Requested Uly data Requested RT data N/D

Got Ganga data

Requested U. RT data

Got Ganga data

SOLAR

Requested RT

Requested RT data

Uly RT

RT requested

RT requested

Uly

RT requested

RT requested

RT requested

RT

RT requested

No data

Requested RT

Requested RT

Requested RT

Requested RT

Requested RT

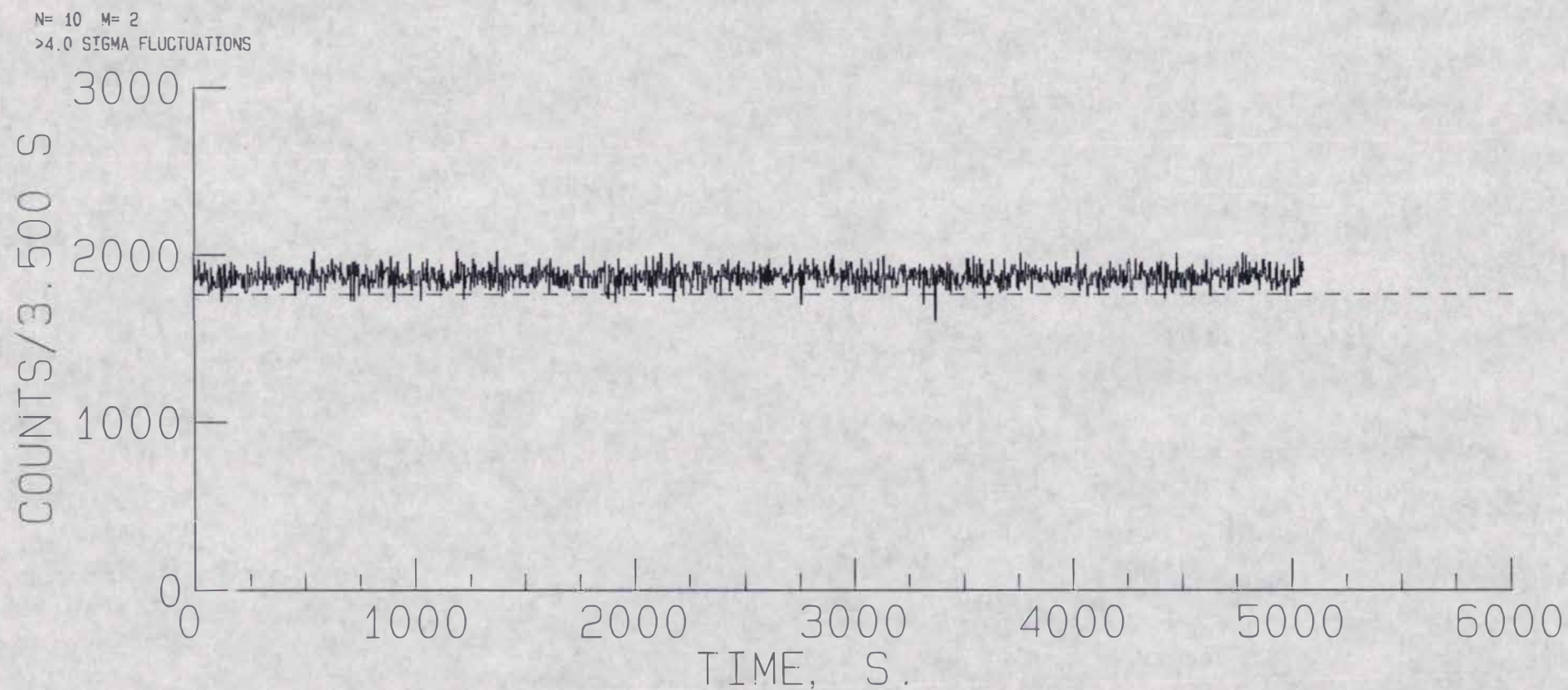
Requested RT

Requested RT

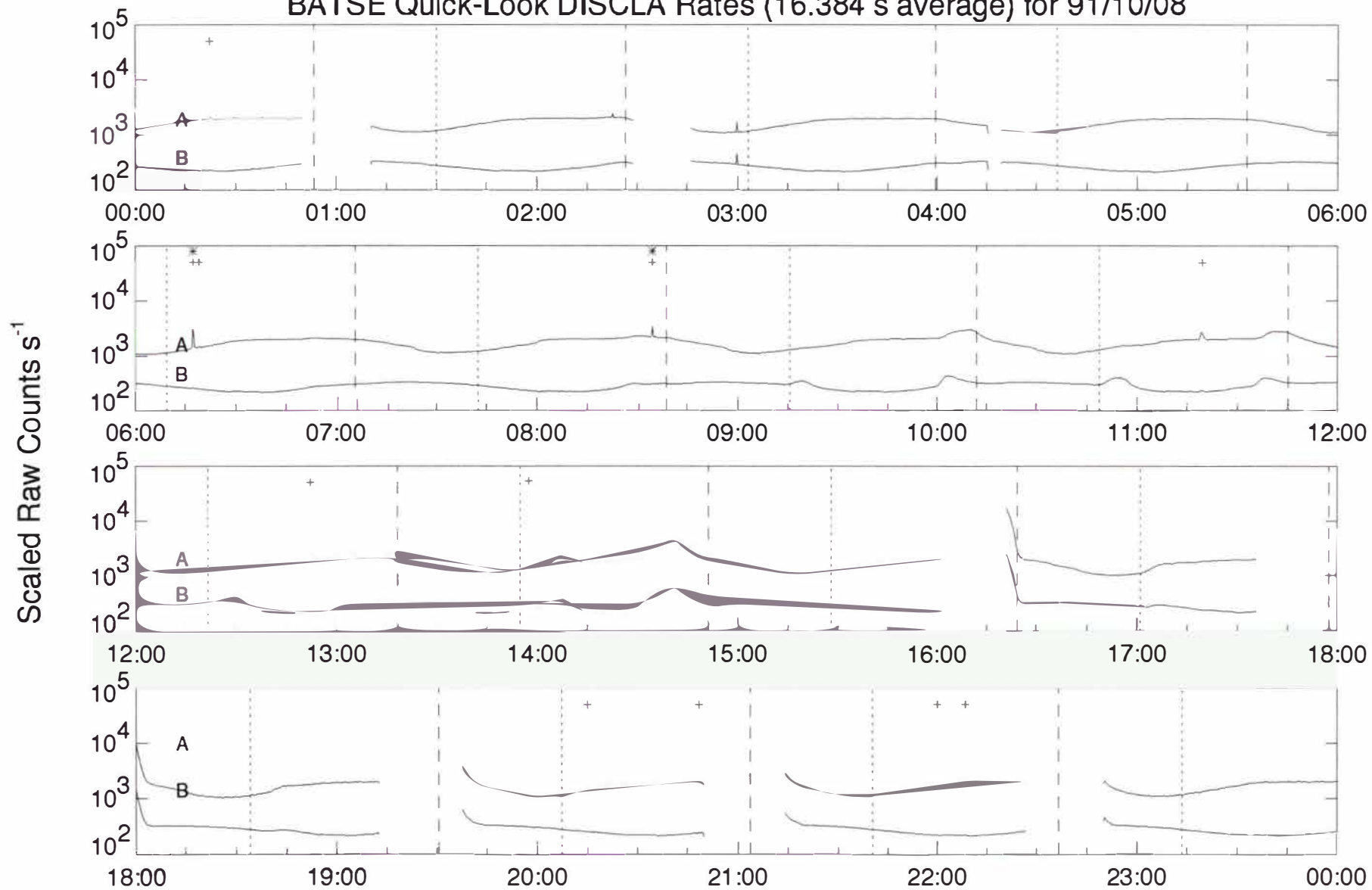
Requested RT

16 / 5 / 92

ULYSSES RT
8/10/91 61992.074 s
.250 S INTERVALS REGROUPED BY 14
20- 167 keV



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/08

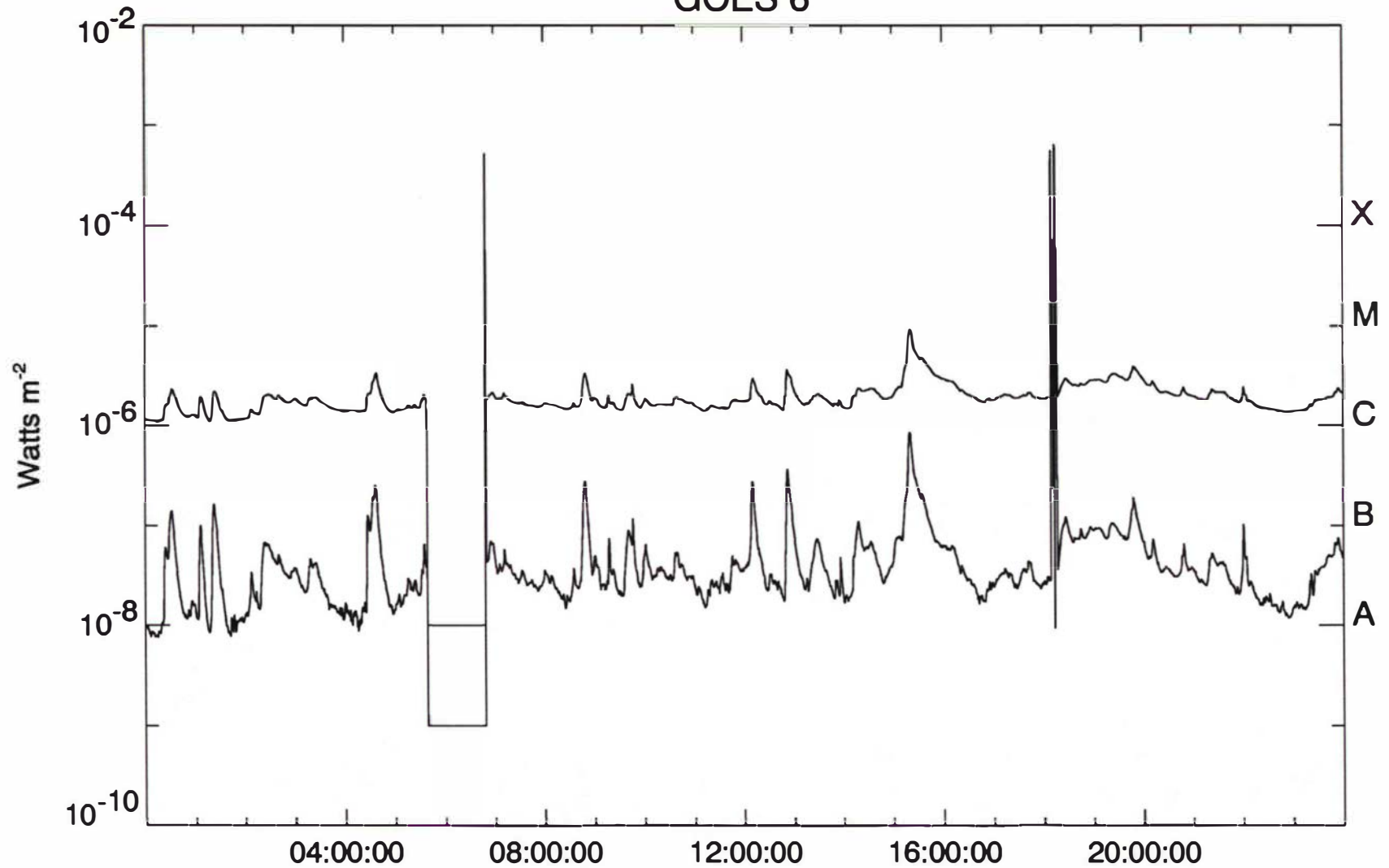


Current Time: 92/10/31, 1944 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/08, 0000:02

Plot created: 97/10/14, 2309

Channel

1 (1.0 - 8.0 Angstroms)

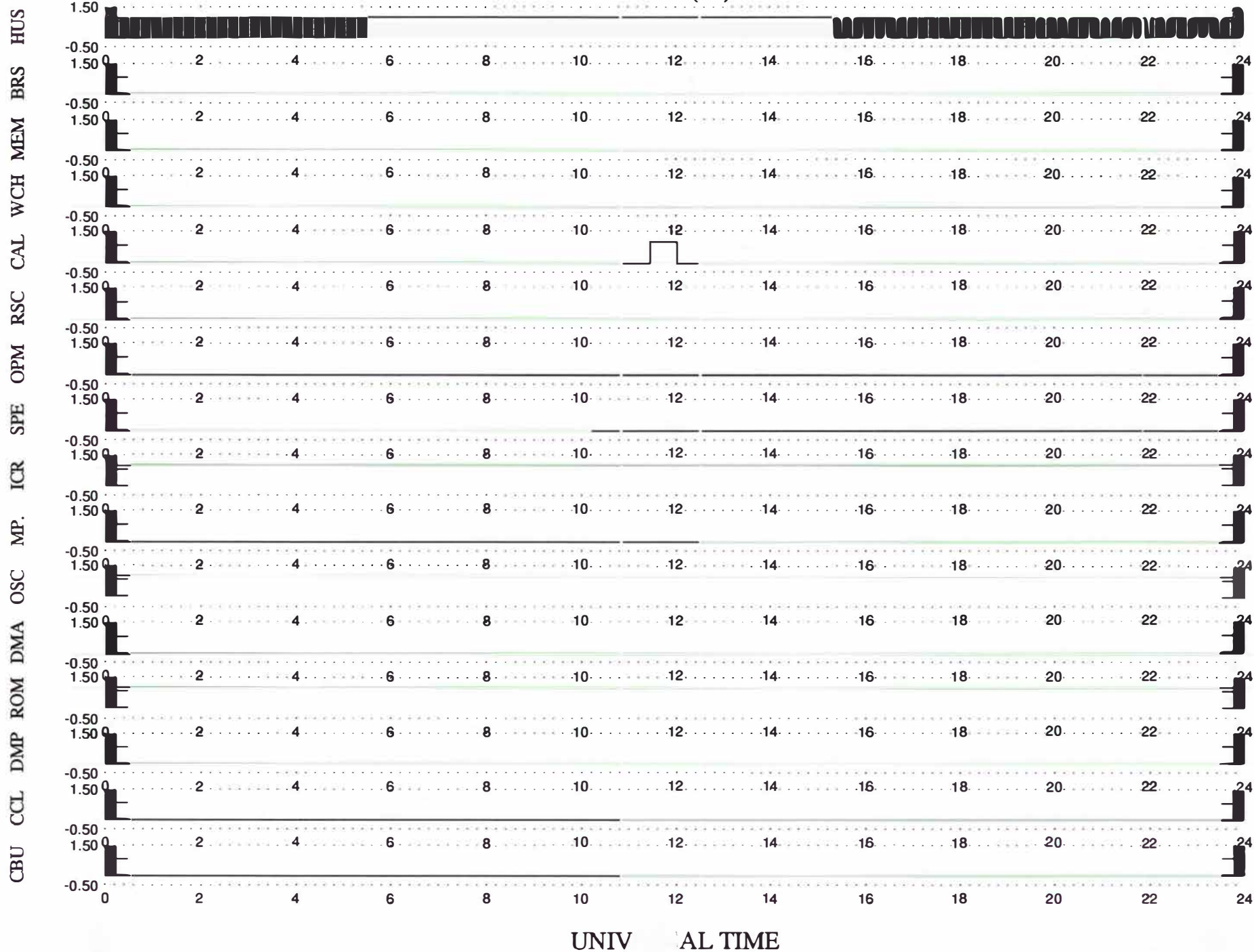
Background not subtracted

2 (0.5 - 4.0 Angstroms)

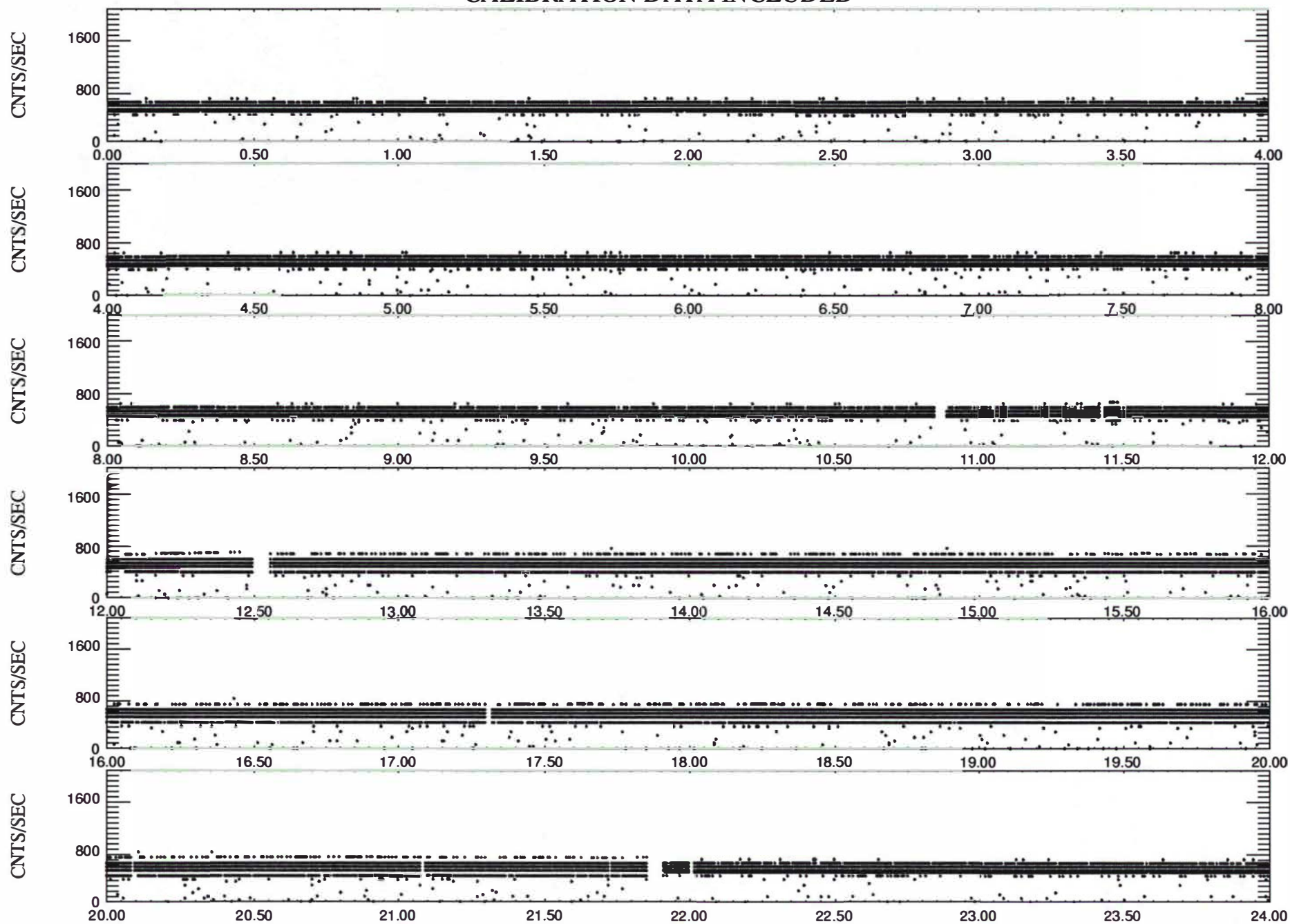
Background not subtracted

Sample average = 10

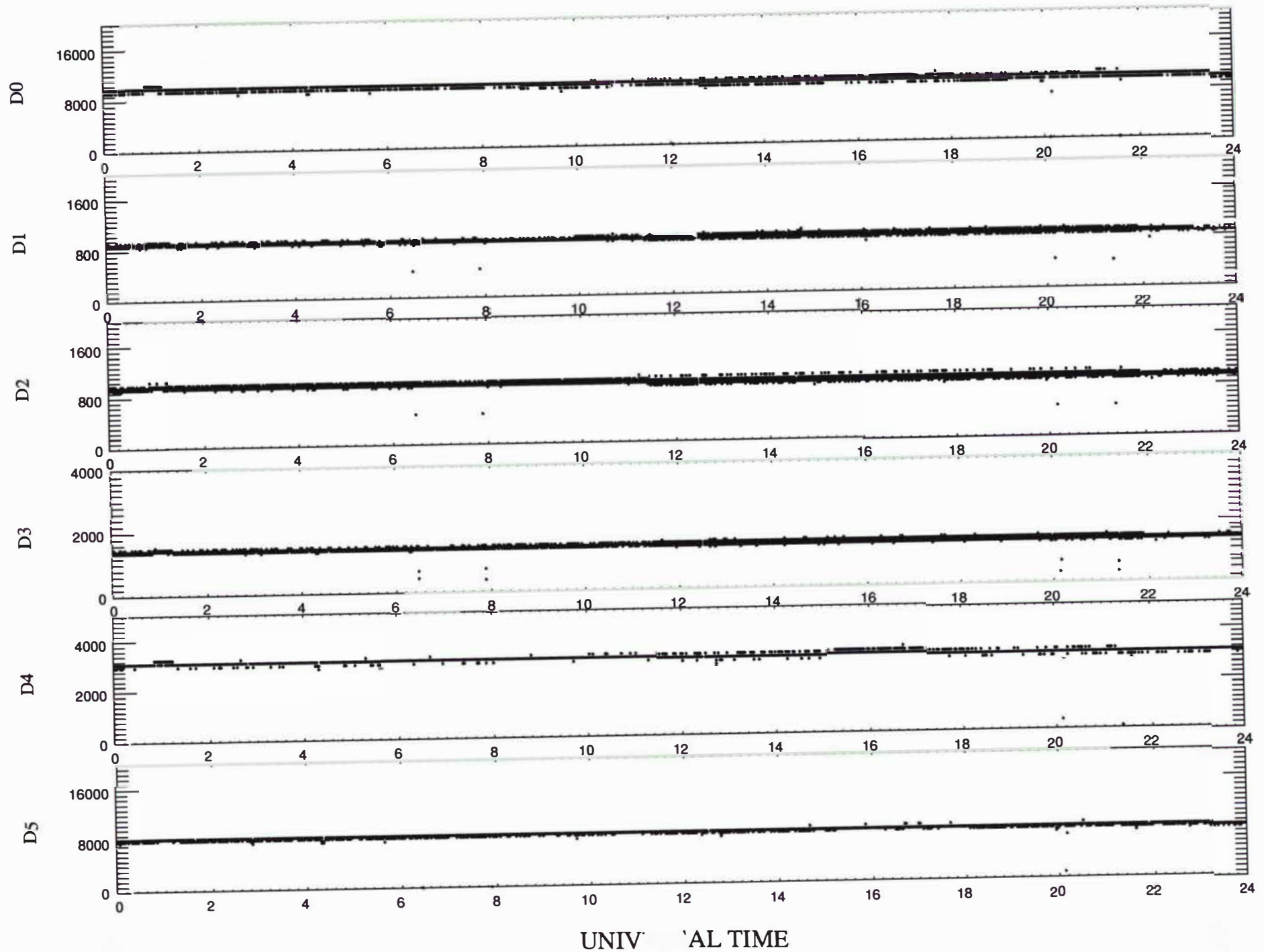
NO BURST (15)



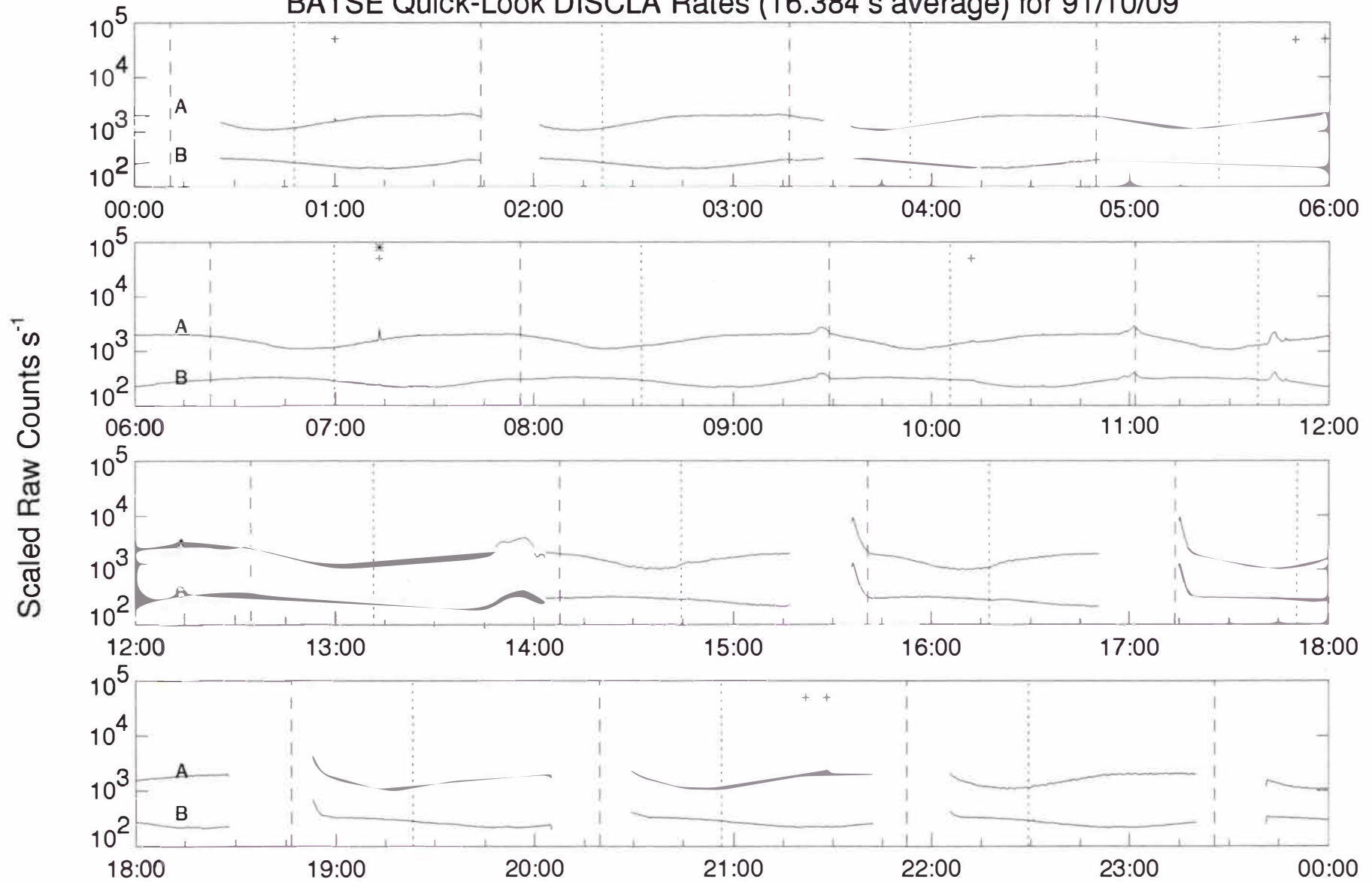
CALIBRATION DATA INCLUDED



UNIV AL TIME



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/09

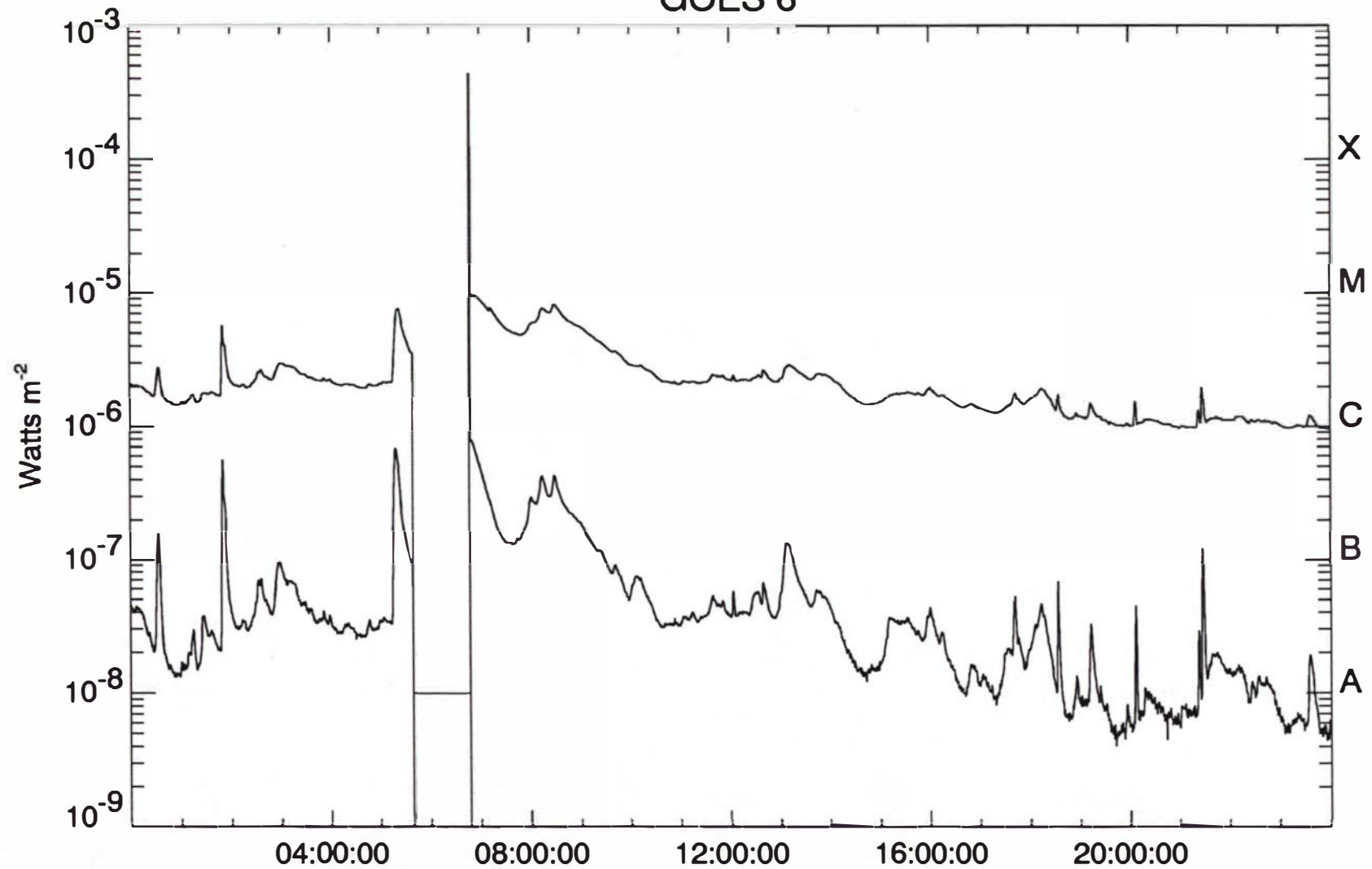


Current Time: 92/10/31, 1945 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/09, 0000:00

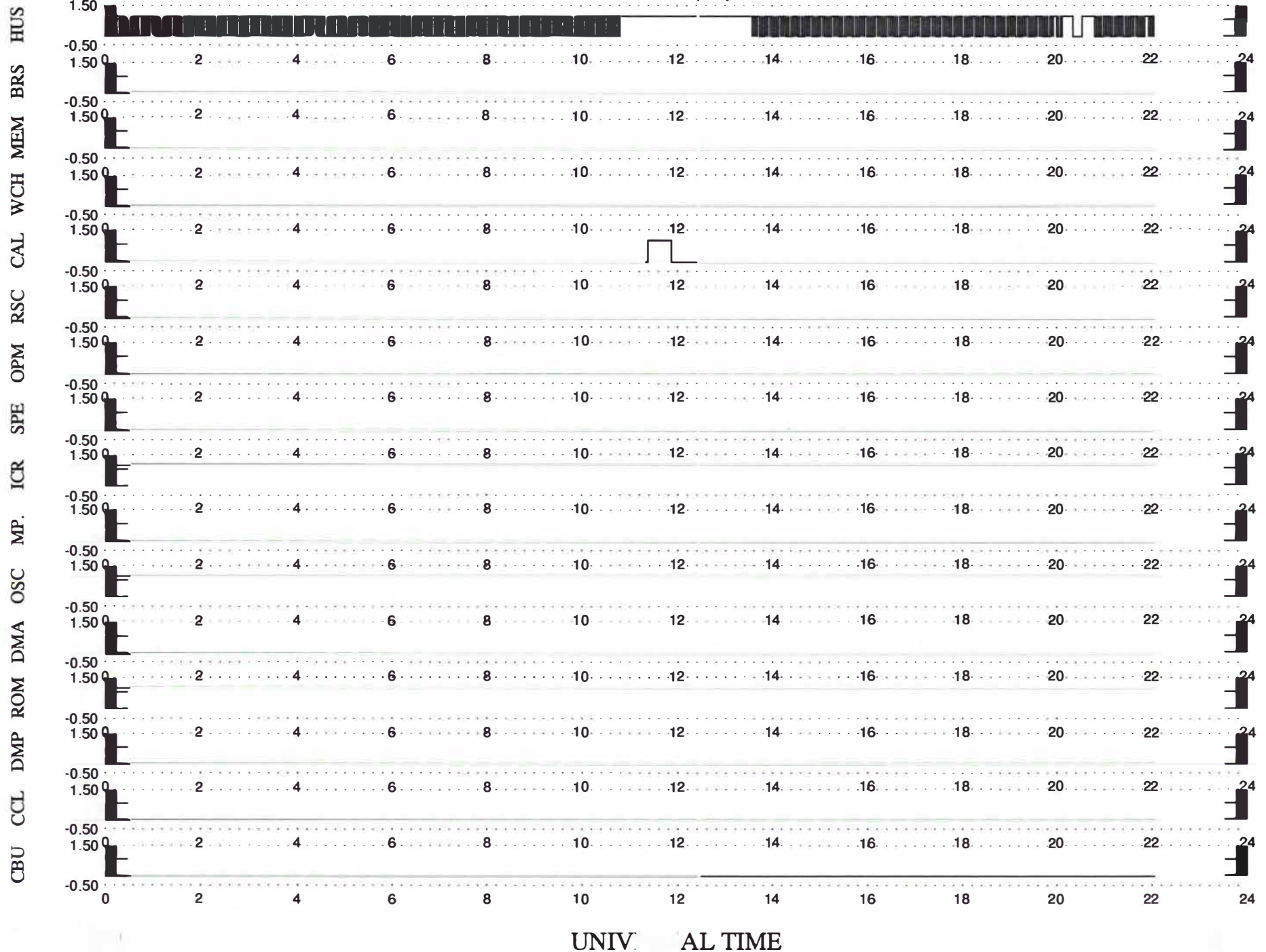
Plot created: 97/10/14, 2311

Channel

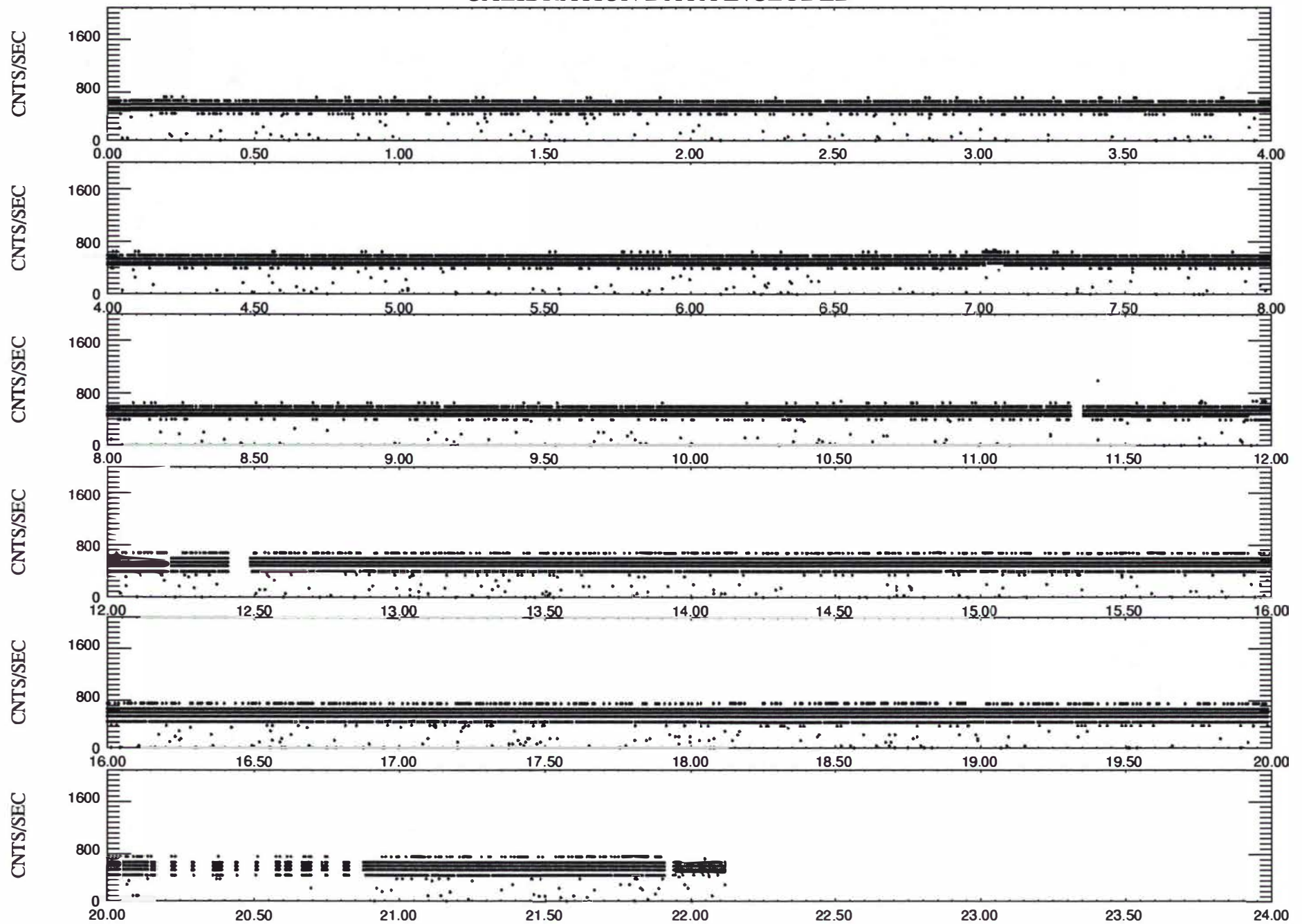
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

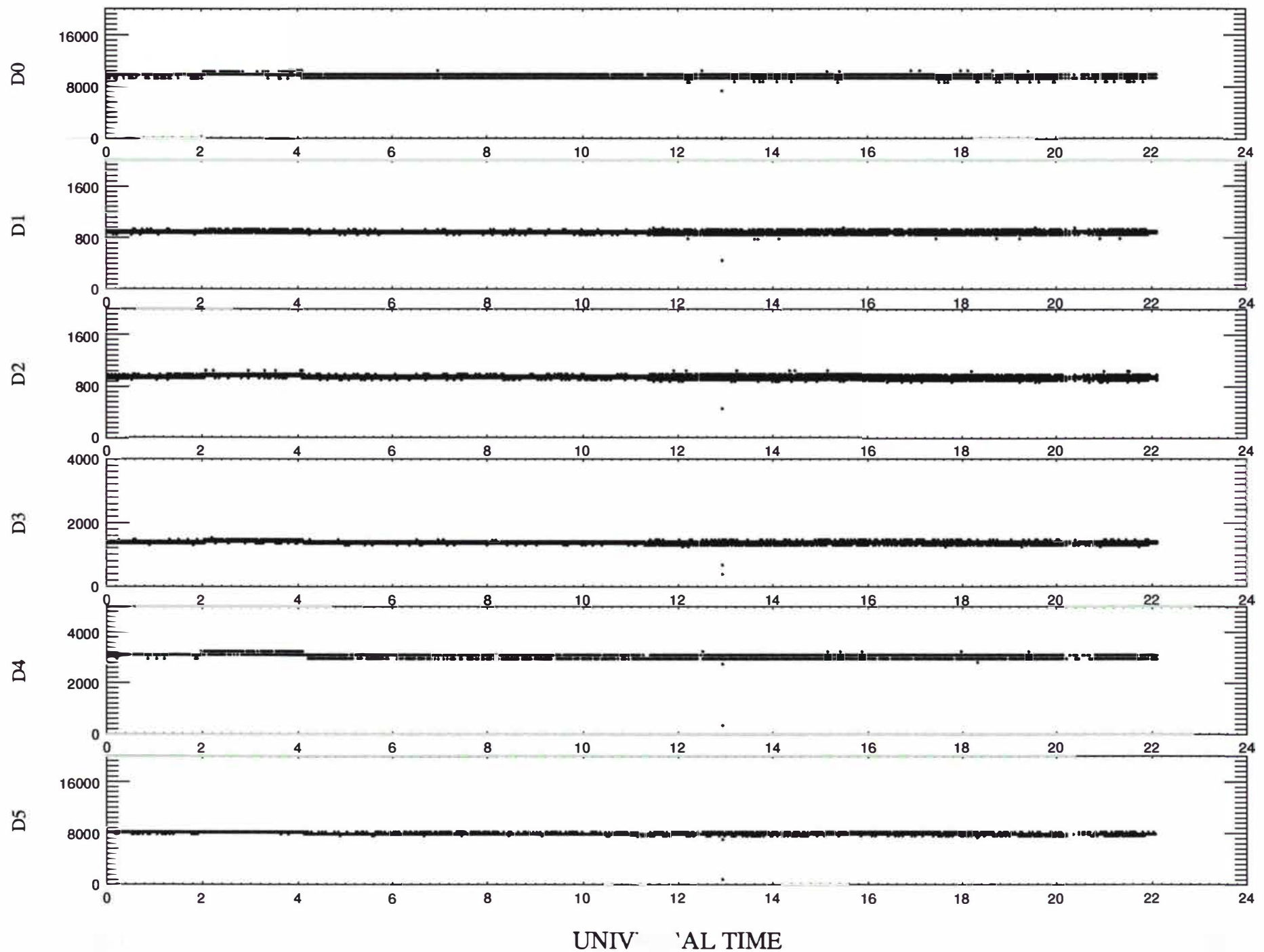
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV AL TIME



2 6 / 9 / 9 5

ULYSSES RT

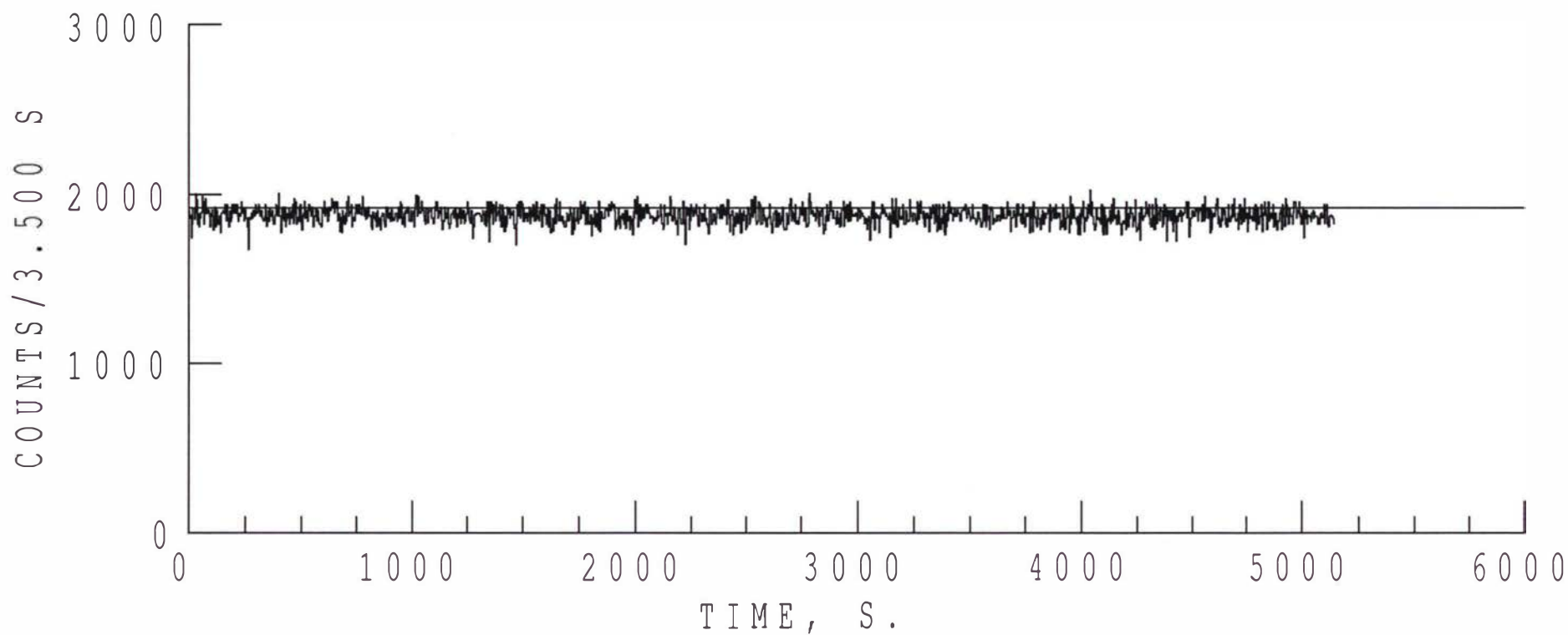
10/10/91 55980.016 s

0.250 S INTERVALS REGROUPED BY 14

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



JL Jan 8 '91

PVO

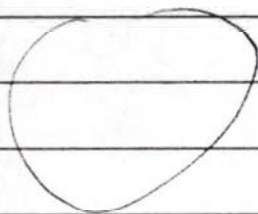
Nov 4: T_{00} 54041.983 - T_0 exactly 3s later

18: T_{00} 67909.630 - T_0 " " "

Take position of Venus.

Sep 1 - Oct 12 processed - no events except for 1 (solar? cosmic? soft event)

Oct 10 13000



From TERRELL@nisdpo.lanl.gov Wed Nov 27 14:03 PST 1996

From: TERRELL@nisdpo.lanl.gov

Date: Wed, 27 Nov 1996 15:03:22 -0700

To: khurley@sunspot.ssl.berkeley.edu

Subject: dmSP data (901204)

From: jterrell@lanl.gov (James Terrell, NIS-2) 961127
To: jlaros@lpl.arizona.edu (John Laros)
CC: khurley@sunspot.ssl.berkeley.edu (Kevin Hurley) (data truncated)
Subj: DMSP data (901204)

John:

Here are 2 more data sets, for 901204 (my last letter to you contained data for GRB920519). Before that are some lines extracted from my files, regarding bursts you have asked about. In cases where there was no DMSP detection, I do not plan to send any data. PUB91 means published in proceedings of a 1991 meeting.

Happy Thanksgiving! --Jim

DMSP GAMMA PEAKS, 2-SEC COUNTS. 99DEG ORBITS FOR 8--13: TERRELL DMSP.GAM 961127
6108,6077,6035,6114,6120,6119 SEC. ALT=800KM, VIEW TO 117 DEG. GRB PEAKTIMES
(8,9,10--12,13) CORRECTED FOR AVG DELAYS: 1.82,1.98,5.50,-0.13 SEC. CHANNELS:
(8)--50,100,200,420 (9)--50,100 (10--12)--50,100,200,430,550(-1000 KEV)
(13)--60,150,375--6000,>6000 KEV (8,9:SSBX; 10--12:SSBX2; 13:SSBX). BATSE: 3B

DATE FL DAY TIME NOTES--- (ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)-----
(NO=DATA CHECKED--SHOWS NO DETECTION) (SR=S. RADIATION BELT)
(NR=NORTH RADIATION BELT) (SAA=SOUTH ATLANTIC ANOMALY)

91204 338P34691 PVO TRIGGER 34690.57
8 338 34973 PEAKS 34973.0 (400/S,<10S), 34991.0 (80/S,<2S) 11/96 L
9 338 34973 PEAKS 34973.0 (200/S,<10S), 34991.0 (WEAK,50?/S,<2S) 11/96 L
901225 359P03516 PVO GRB (3515.8) @830LS (8NO,9ND,10ND) 11/96
910123 023U45631 UL TRIGGER @700LS (8NO,9NO,10NO) 11/96
910208 039U32238 ULYSSES TRIG @593LS (PVO COSMIC TRIG 32379.9)
8 039 32414 SHARP PEAK (32414.5,1200/S,<2S) (10SAA) PUB91 L
9 039 32416 HARD,SHARP PEAK(1500/S,<4S), 32415.5+TAIL TO 32431 PUB91 L
910219 050 42205 WATCH GRB,PVO 42658.3,ULYS @688S (1406+59.8)
8 050 42324 GRB PEAKS 42323.6(250/S,<4S),42373.6(100/S,<4S,WEAK)
9 050 42326 GRB PEAKS,<6S AT 42325.6(600C/S,<6S),42375.6(300/S,<8S)
910310 069~46930 IAU 5207 GRS1217+06.6(1950)(184.8+6.4)PVO,WATCH DIRPLOT
068U46767 ULYSSES RISE @888LIGHT-SEC
8 069 46923 GRB PEAKS AT 46923.2(500/S),941.2(800),959.2(350) (@108.6) PUB9193
9 069 46925 GRB PKS 46924.9(1050),930.9(550),940.9(400),958.9(400) @87D PUB9193
10 069 46926 GRB PEAKS AT 46925.7(650/S),941.7(300),959.9(250) @80DEG PUB9193
910402 092 52095 GRB,GINGA,PHEBUS,SIGMA,PVO(51575,5PKS),1989-046(52105)
8 092 52065 PKS 52064.6(200S,<14S),094.6(3800),104.6(5000),112.6(7100),
8 092 52065 (CONTINUED) 52122.6(5700),130.6(5700) (9SAA,10NO)
910417 107 72452 GRB, WATCH,SIGMA,ULYSSES (PVO TRIG 72130.1)
9 107 72453 PKS 72453.1(130/S),457.1(170),467.1(90) (ALL<2S) (8NO,10SR)
910428 9 118 20551 BROAD PKS 20550.9(900),554.9(900),604.9(1500,<16S) (8SAA) 7/95
10 118 20552 BROAD PKS 20551.8(950/S),555.8(800),605.8(900,<8S) 10/96
118P20866 PVO TRIG 20865.8 (ULYSSES 21802,DIST=1455SEC)
910529 8 149 46062 PKS 46062.0(120/S),68.0(120),80.0(1070),<28S (9SAA,10NO:L) 10/96 L
149P45873 PVO TRIGGER 45872.6@420 LIGHT-SEC
911010 283P23049 PVO TRIG 23049.3@260LS (8NO,9NO,10NO) 11/96
20426 117P03957 PVO TRIG 3956.7 (8NO,10NO,11NO) 11/96
920519 140 59514 BATSE GRB#1613 (319.94,44.17J) (NOT EVIDENT--PEAK MISSED)
140P59212 (59211.9)PVO TRIG +PHEB,GRAN,ULYS (DMSP8SR,11NO@156DEG)
10 140 59406 PKS 59406.3(330/S,<16S)@100DEG,422.3(350,<6),516.3(70,<8) L

920723	205 72188	GRANAT GRB(285.7,26.8(1950))IAU5579(8ND,10NA@148D)	
	205P72694	PVO TRIGGER, 72694.1 (11NR)	
920731	213 61620	YOHKO GRB, ULYSSES 62196 (BATSE NO) (PVO 61857.4)	
	10 213 61660	PKS 61662.2(200),682.2(200),700.2(100) (8SAA,11NO)	ANNULUS
921004	8 278 50421	GRB,NARROW PKS 50421.0(1100),429.0(500) (10NO,11SR)	ANNULUS
	278U49107	GRB, ULYSSES@3038LSEC(BATSE NO)+YOH+EUR(PVO 49963.7)	

From khurley@sunspot Thu Dec 19 16:06 PST 1996
Date: Thu, 19 Dec 1996 16:11:15 -0800
From: khurley@sunspot (Kevin Hurley)
To: jlaros@LPL.Arizona.EDU
Subject: Re: PVO Catalog
Cc: khurley@sunspot

> From jlaros@LPL.Arizona.EDU Thu Dec 19 10:26 PST 1996
> Date: Thu, 19 Dec 1996 11:29:17 -0700
> From: jlaros@LPL.Arizona.EDU (John Laros)
> To: edfi@LPL.Arizona.EDU
> Subject: PVO Catalog
> Cc: khurley@sunspot.ssl.berkeley.edu
>
> Ed,
>
> I believe one of your (our) cataloged events, GB911010, is solar. The event
> was long and soft (H~1), BATSE has a weak solar event at the right time, none
> of the other near-earth spacecraft saw anything even though the event was big,
> and the Ulysses time is about 1800 s after PVO. The only loose end is that
> Kevin has not yet told me if the PVO/Ulysses delay is compatible with solar.
>
> Happy holidays,
>
> John
>
Dear John,

I'm afraid we can't put this one to bed yet. I ran my SOLAR program to
check the compatibility with a solar origin. This program takes the
Ulysses time, propagates it back to the sun, and then propagates it out
to PVO and Earth (BATSE) and compares the times. To first order (i.e.
just taking the peak times, and the ephemeris of Venus, because I don't
have the PVO ephemeris) I get that the Venus crossing time is about
12 s off, and the Earth crossing time is about 20 s off. Can you get
me the PVO ephemeris?

Kevin

Ginga data => solar!

From Interactive Ephemeris:

Venus is at $10^h 14^m 04^s$ $8^\circ 23' 22''$ 0.518478 AU
 153.52° 8.39° $77\,700\,000$ km (real time)
 $\rightarrow$ 153.63 8.35 (2000)

From jlaros@LPL.Arizona.EDU Wed Sep 18 15:13 PDT 1996
Return-Path: <jlaros@LPL.Arizona.EDU>
Received: from LPL.Arizona.EDU by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id PAA17985; Wed, 18 Sep 1996 15:13:39 -0700
Received: from gamma1.lpl.arizona.edu by LPL.Arizona.EDU (4.1/SMI-4.1)
id AA11249; Wed, 18 Sep 96 15:13:20 MST
Received: from peewee.lpl.arizona.edu by gamma1.lpl.arizona.edu (SMI-8.6/SMI-SVR4)
id PAA04956; Wed, 18 Sep 1996 15:13:33 -0700
Received: by peewee.lpl.arizona.edu (SMI-8.6/SMI-SVR4)
id PAA02035; Wed, 18 Sep 1996 15:16:03 -0700
Date: Wed, 18 Sep 1996 15:16:03 -0700
From: jlaros@LPL.Arizona.EDU (John Laros)
Message-Id: <199609182216.PAA02035@peewee.lpl.arizona.edu>
To: khurley@sunspot.ssl.berkeley.edu
Subject: GB911010
X-Sun-Charset: US-ASCII
Content-Type: text
Content-Length: 248
Status: RO
X-Lines: 9

Kevin,

BATSE has a solar flare at about the expected time re PVO. It looks similar, except that it is softer and broader. I mean, there isn't ANYTHING above 100 keV. What does Ulysses say: Solar or cosmic?

John

Maybe this is one for Sharad)

From jlaros@LPL.Arizona.EDU Mon Sep 23 14:18 PDT 1996
Return-Path: <jlaros@LPL.Arizona.EDU>
Received: from LPL.Arizona.EDU by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA03003; Mon, 23 Sep 1996 14:18:04 -0700
Received: from gamma1.lpl.arizona.edu by LPL.Arizona.EDU (4.1/SMI-4.1)
id AA24508; Mon, 23 Sep 96 14:17:42 MST
Received: from peewee.lpl.arizona.edu by gamma1.lpl.arizona.edu (SMI-8.6/SMI-SVR4)
id OAA03979; Mon, 23 Sep 1996 14:17:52 -0700
Received: by peewee.lpl.arizona.edu (SMI-8.6/SMI-SVR4)
id OAA01416; Mon, 23 Sep 1996 14:20:23 -0700
Date: Mon, 23 Sep 1996 14:20:23 -0700
From: jlaros@LPL.Arizona.EDU (John Laros)
Message-Id: <199609232120.OAA01416@peewee.lpl.arizona.edu>
To: khurley@sunspot.ssl.berkeley.edu
Subject: Re: GB911010
X-Sun-Charset: US-ASCII
Content-Type: text
Content-Length: 929
X-Lines: 26
Status: RO

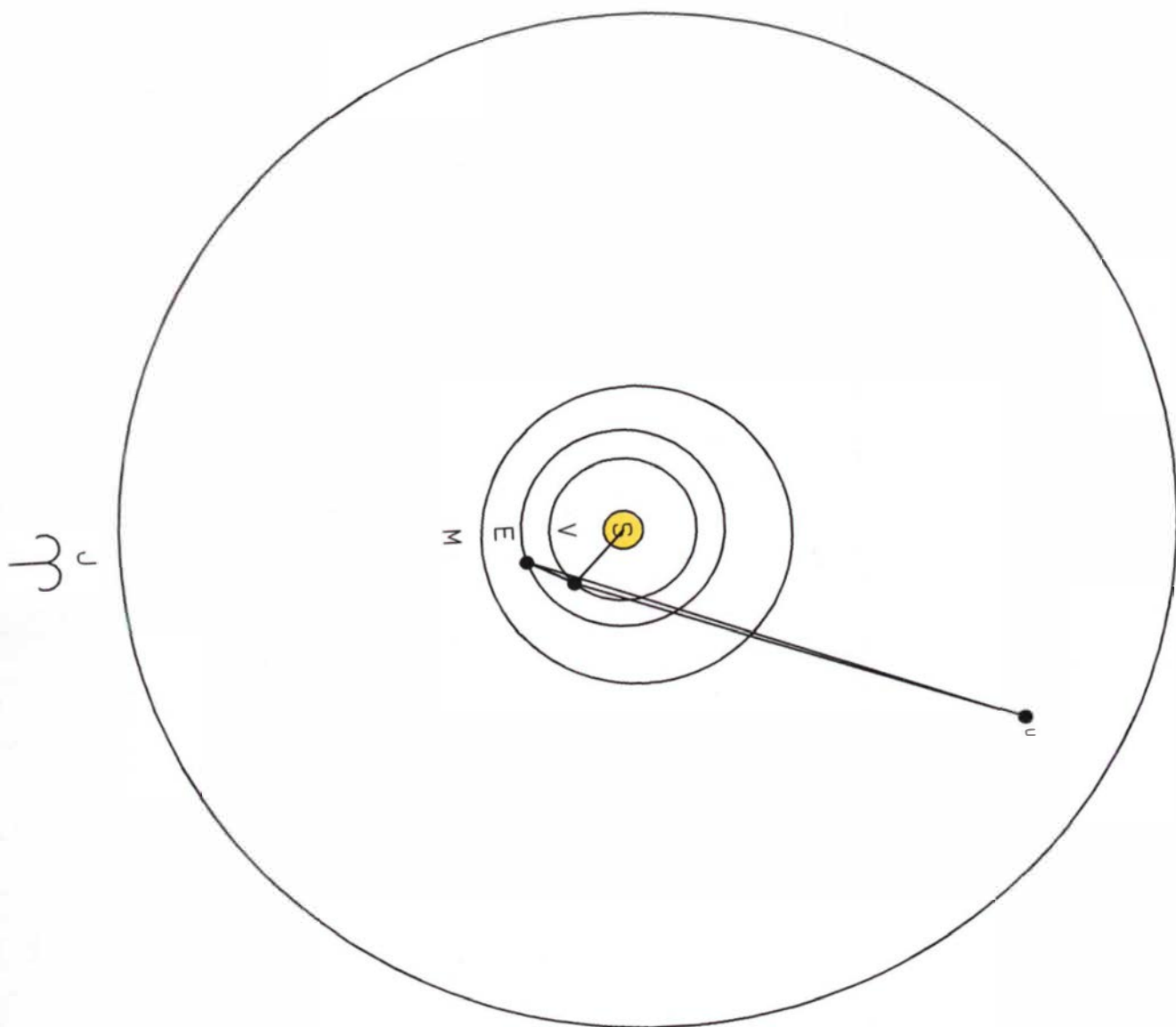
Kevin,

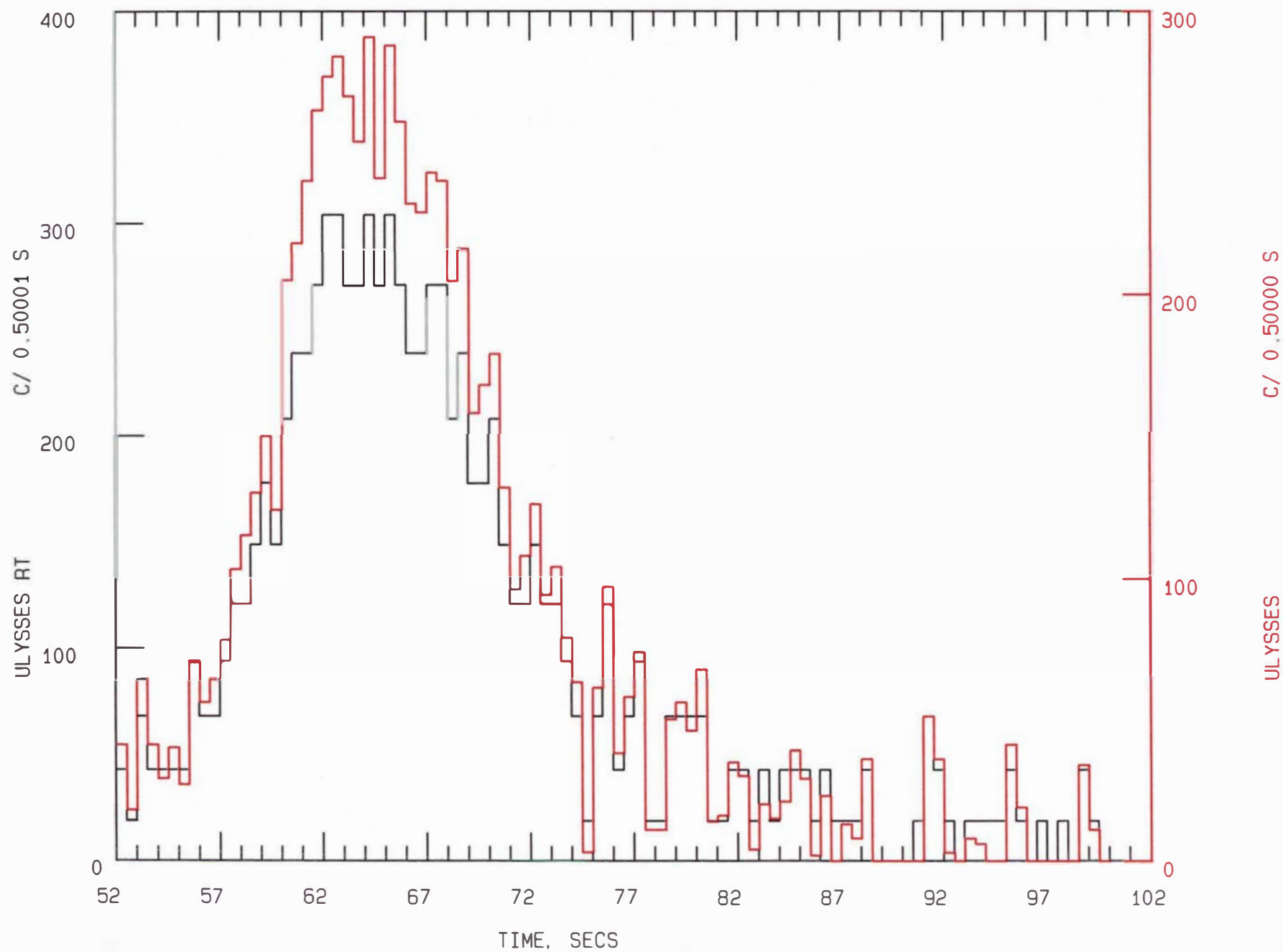
The BATSE peak is at 23205, and the only response is seen in their lowest channel. The PVO peak is at 23055, which would give a BATSE peak at 23193. The BATSE onset is well before that. BATSE might be seeing the high energy tail of the thermal part, but not the impulsive part (if this is a flare). I would be interested in where on the solar disk the GOES flare was.

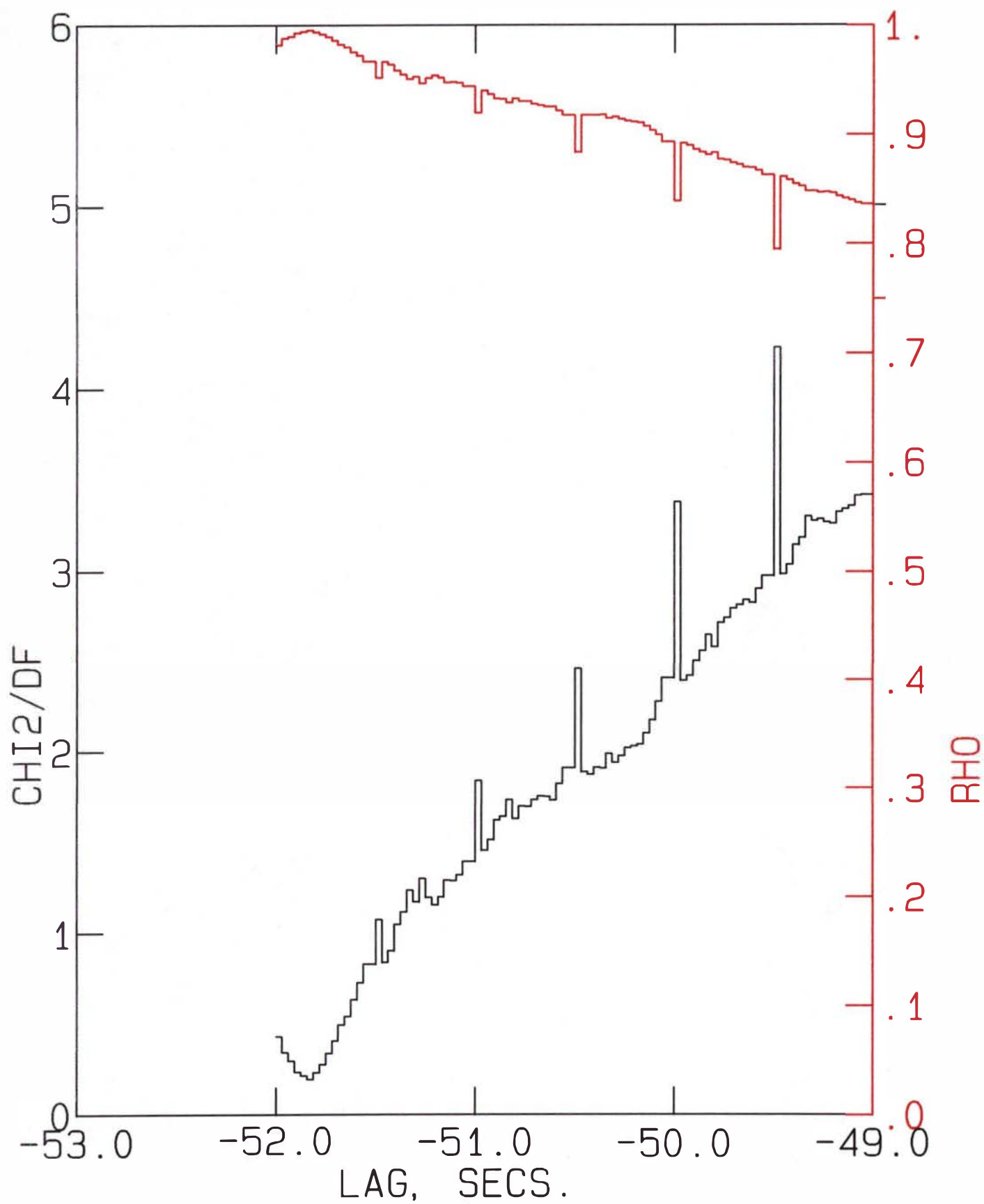


John

> From khurley@sunspot.ssl.berkeley.edu Mon Sep 23 10:57:50 1996
> Date: Mon, 23 Sep 1996 11:01:11 -0700
> From: khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
> To: jlaros@lpl.arizona.edu
> Subject: Re: GB911010
>
> Dear John,
>
> The Ulysses time history for this one looks solar, but could still be
> cosmic. We observe it up to about 125 keV. Do you have the time of
> the peak for BATSE? Ulysses observes it right after a GOES event,
> so it's suspicious all right, but I'd like to check the BATSE/Ulysses
> timing.
>
> Kevin
>



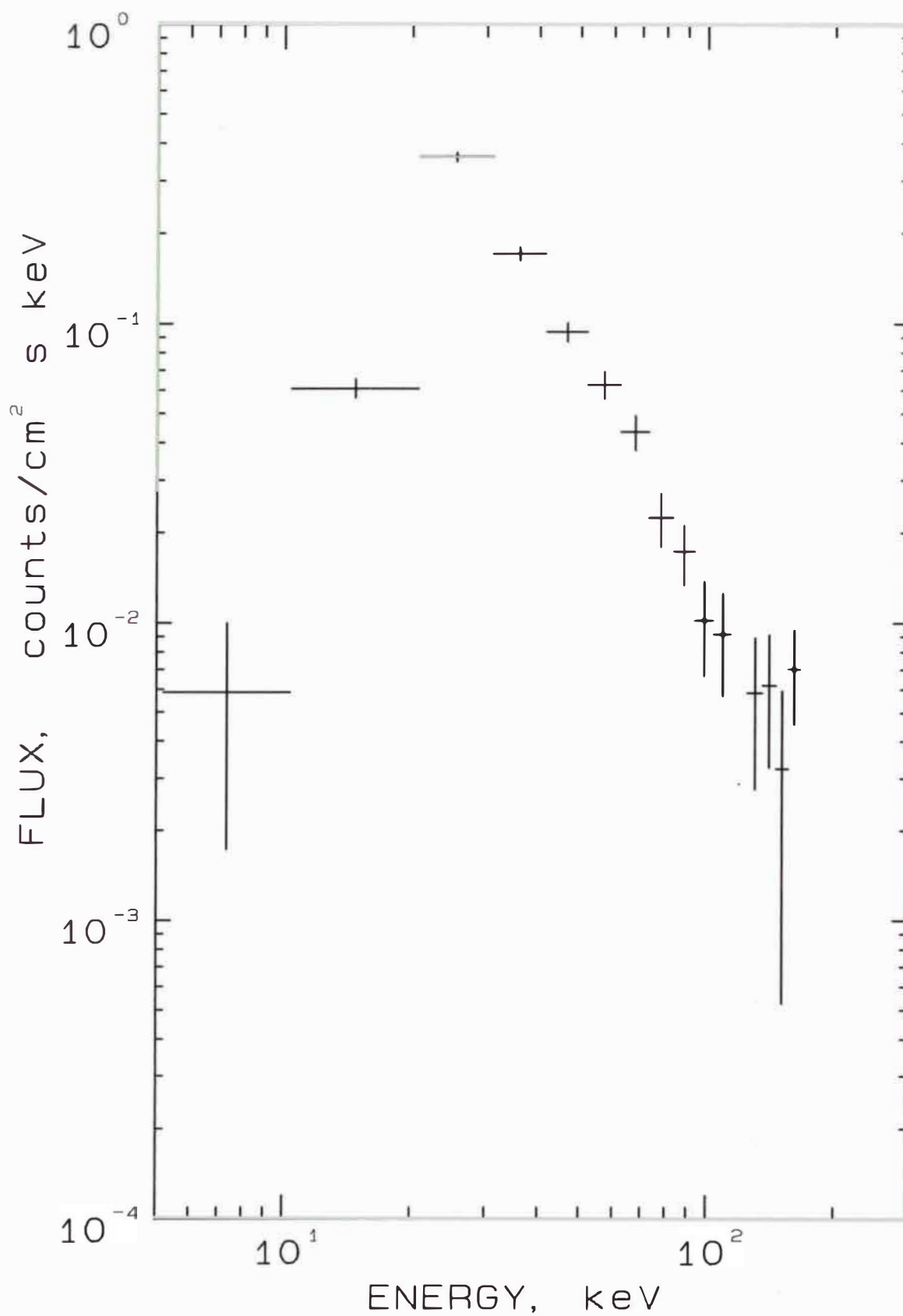




ULYSSES 10/10/91 24886.498

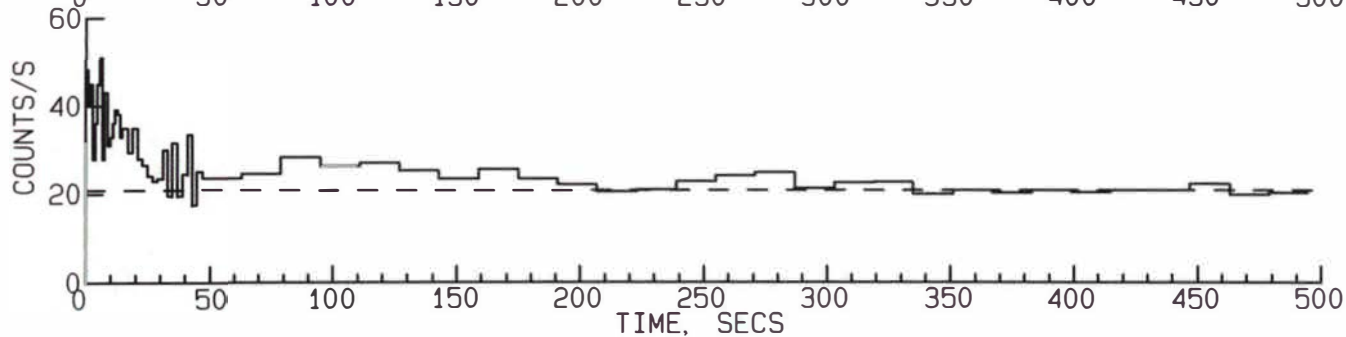
24/ 9/96

SPECTRUM INTEGRATED OVER 62.8 SECONDS, INTERVALS 2 TO 34

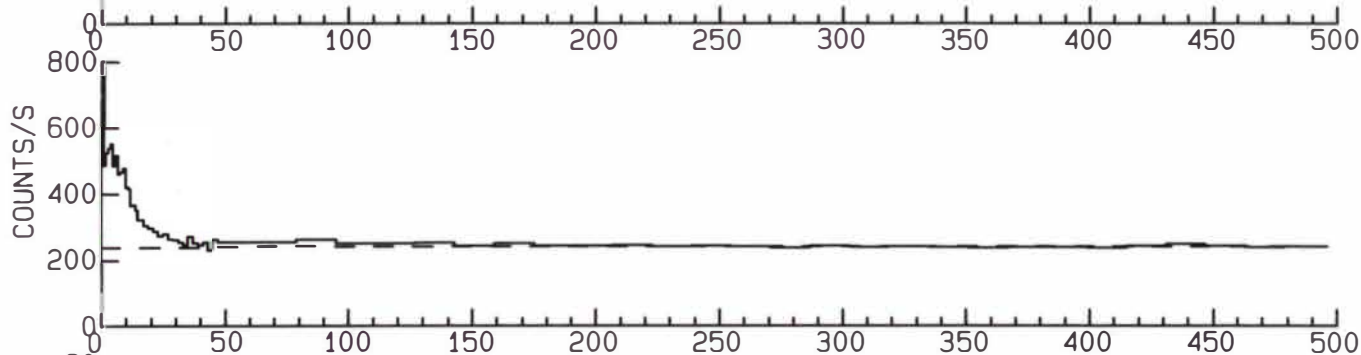


ULYSSES 10/10/91 24886.498 BURST SPECTRAL COUNT RATES

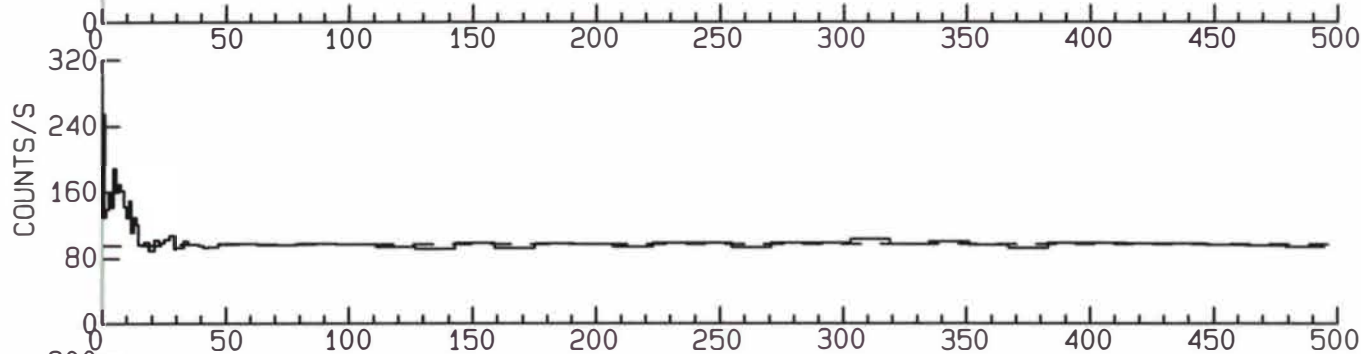
5- 20 keV



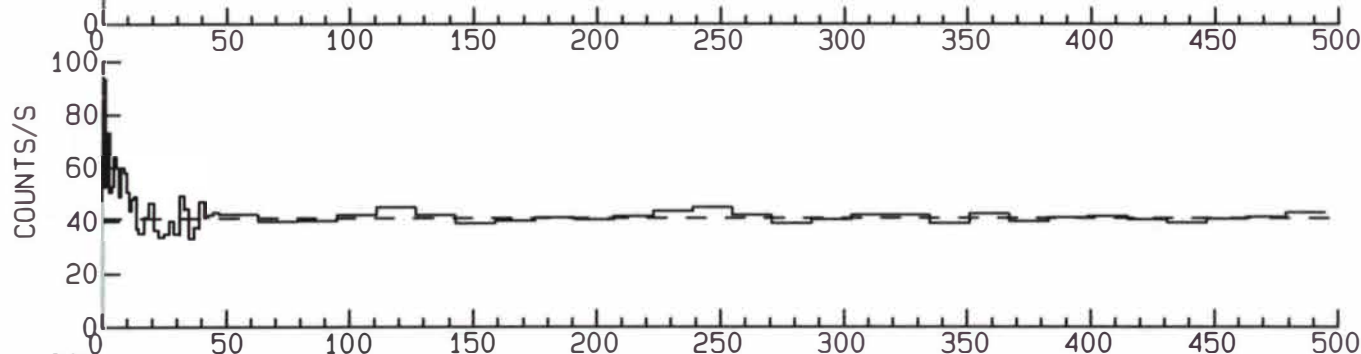
20- 52 keV



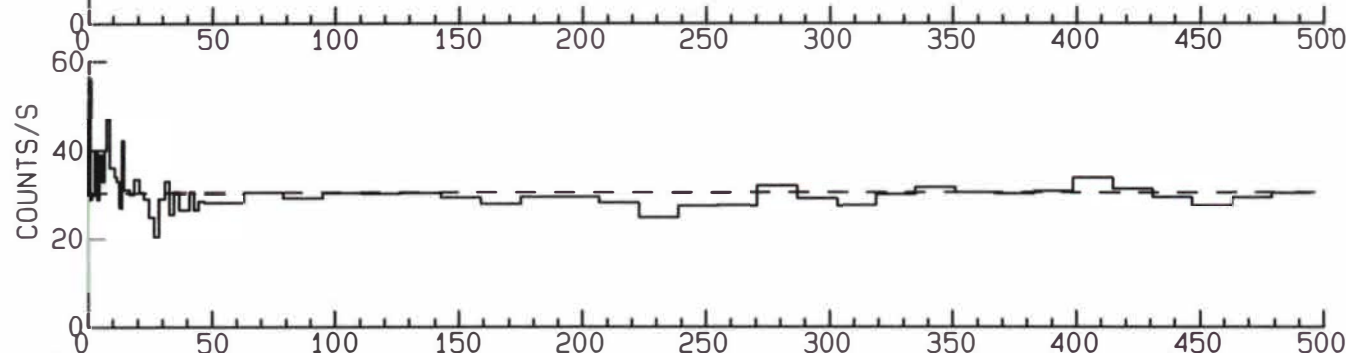
52- 83 keV



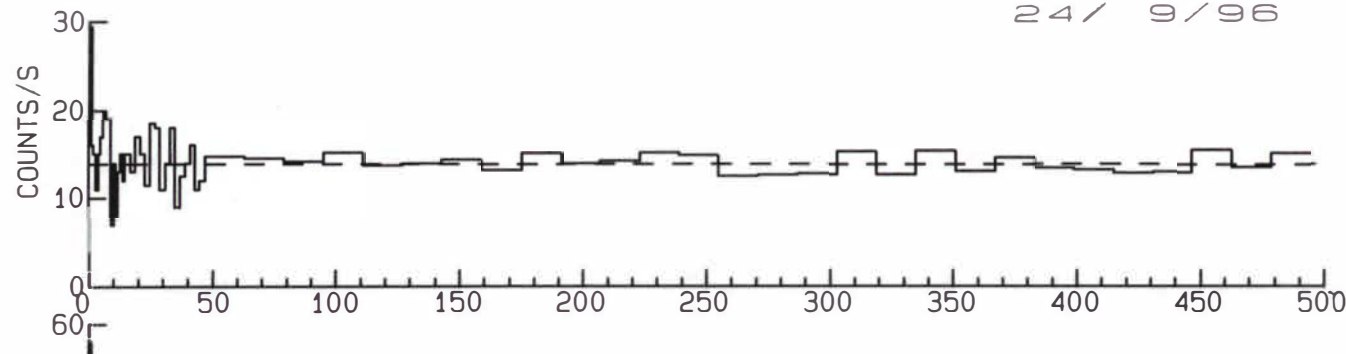
83-114 keV



114-145 keV



145-166 keV



24 / 9 / 96

ULYSSES

10/10/91

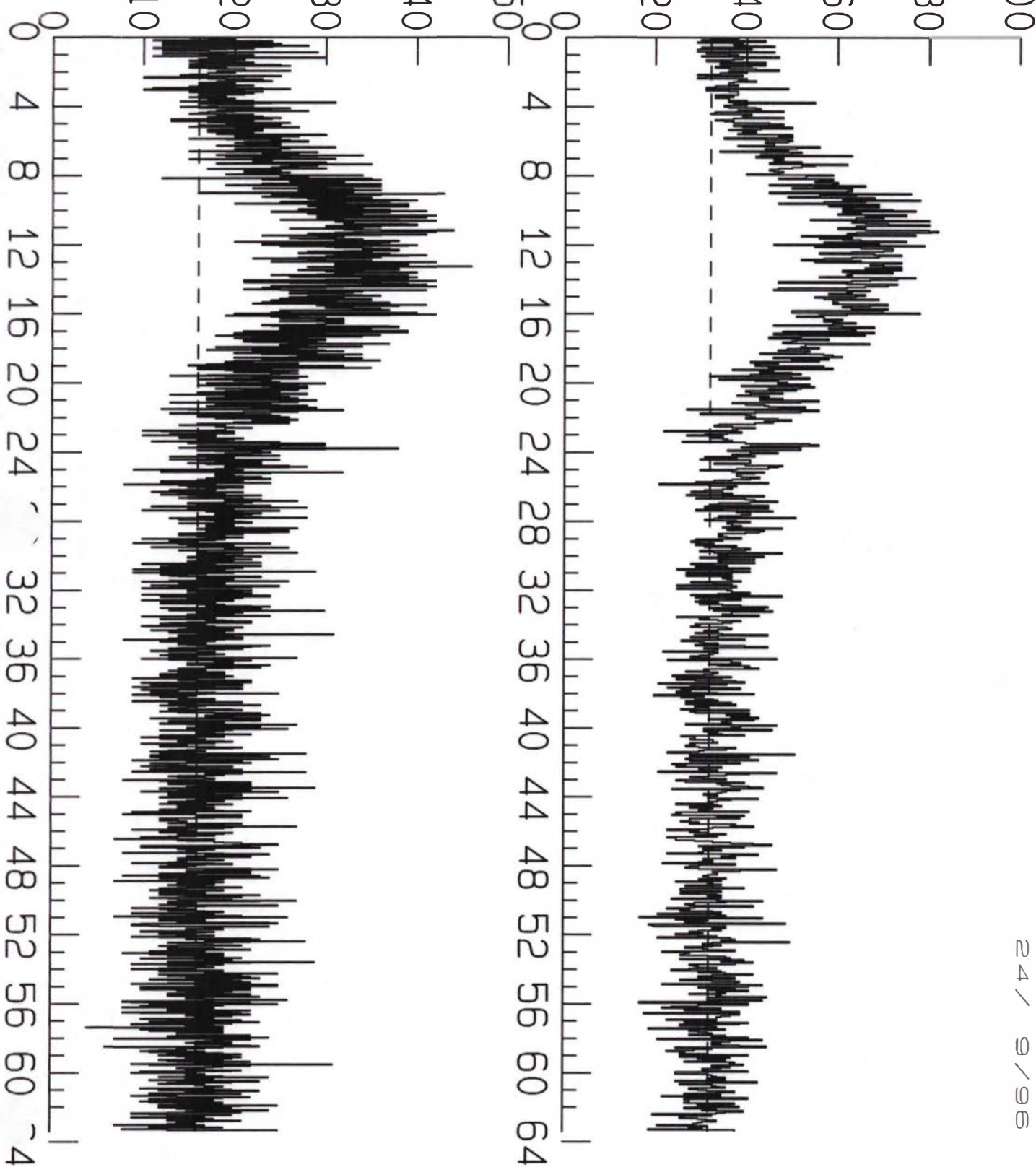
Ttrig=24886.505

20- 166 keV

24 / 9 / 96

COUNTS/0.031 S

COUNTS/0.062 S



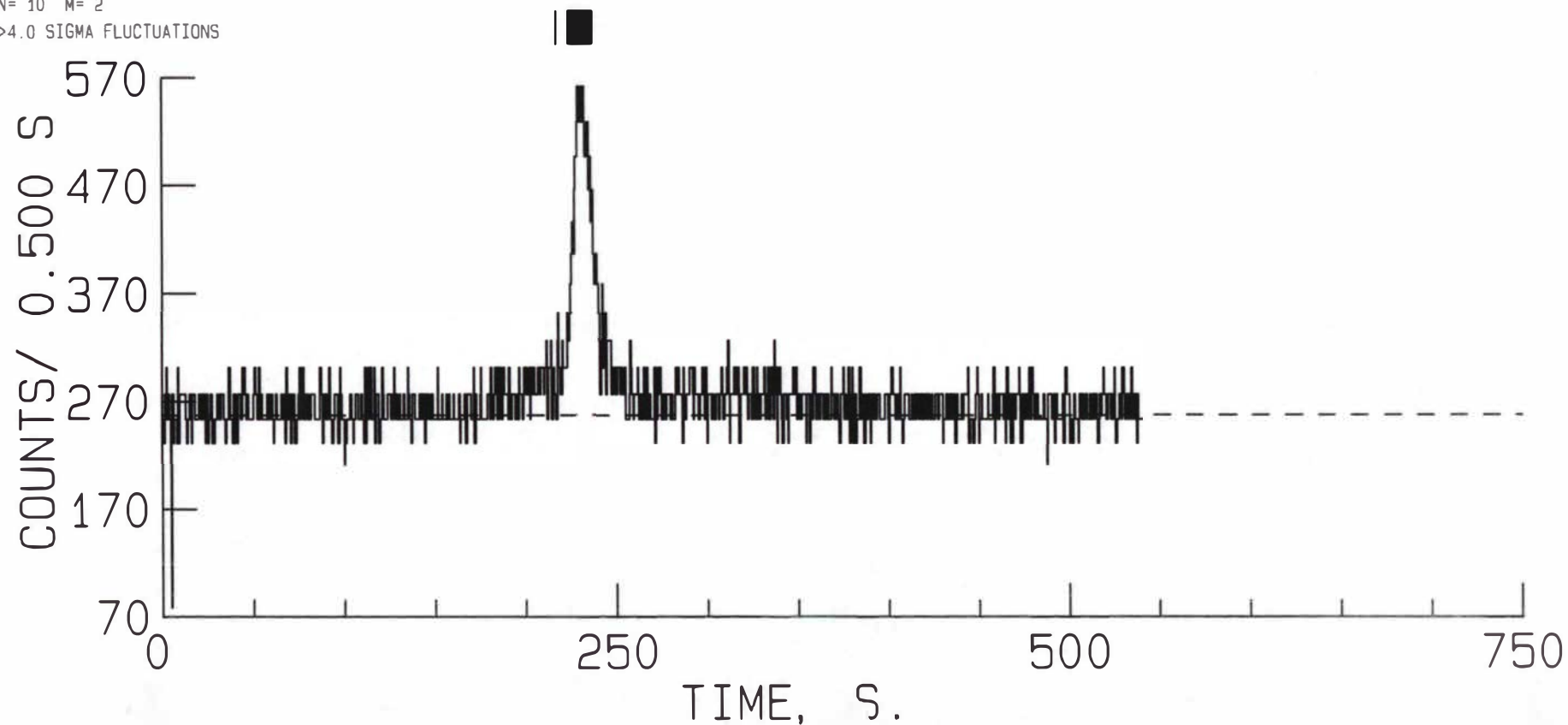
ULYSSES RT

24 / 9 / 96

10/10/91 24660.255 s

20- 166 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

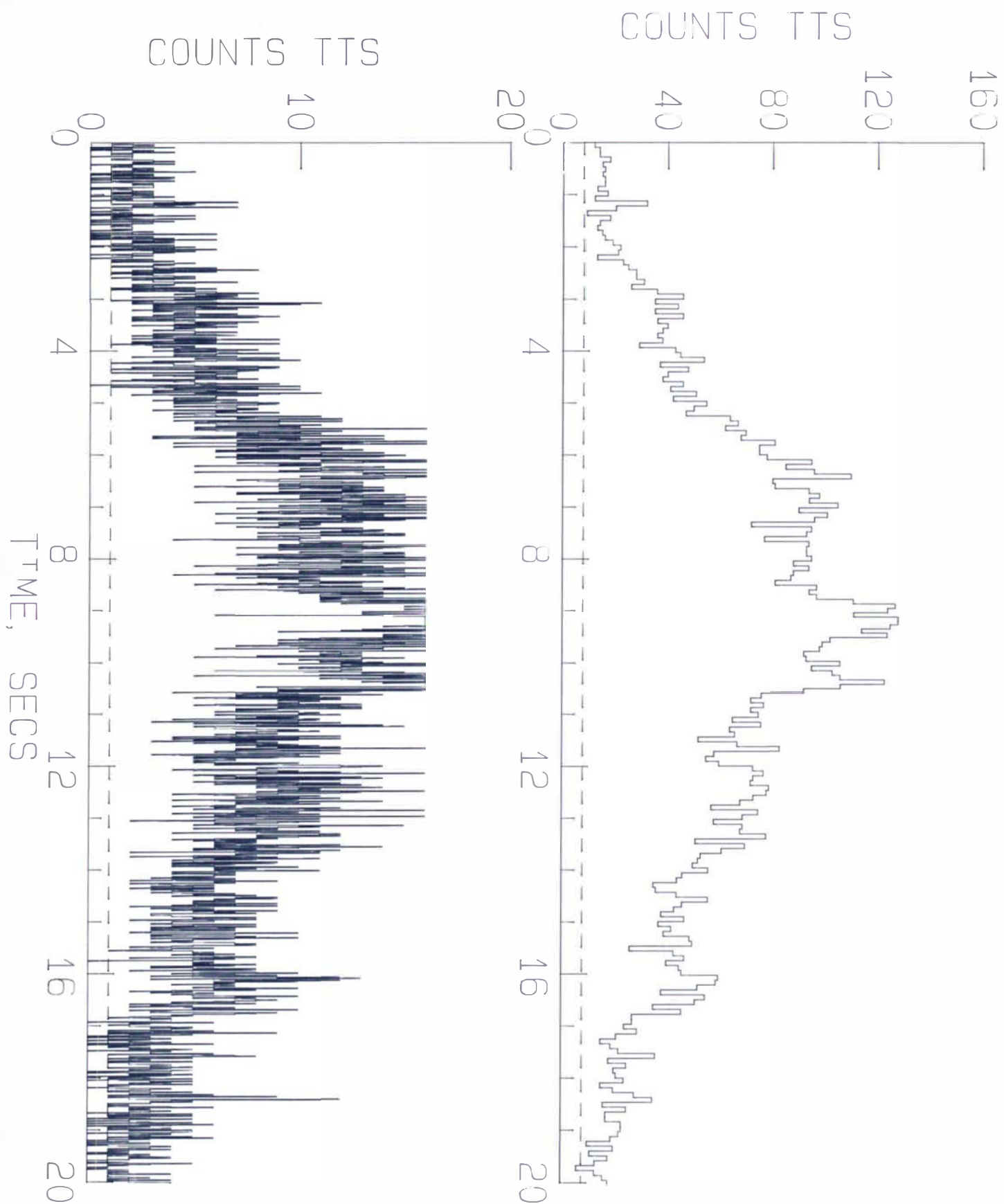


PVO

10/10/91

23049.285

100-2000 keV

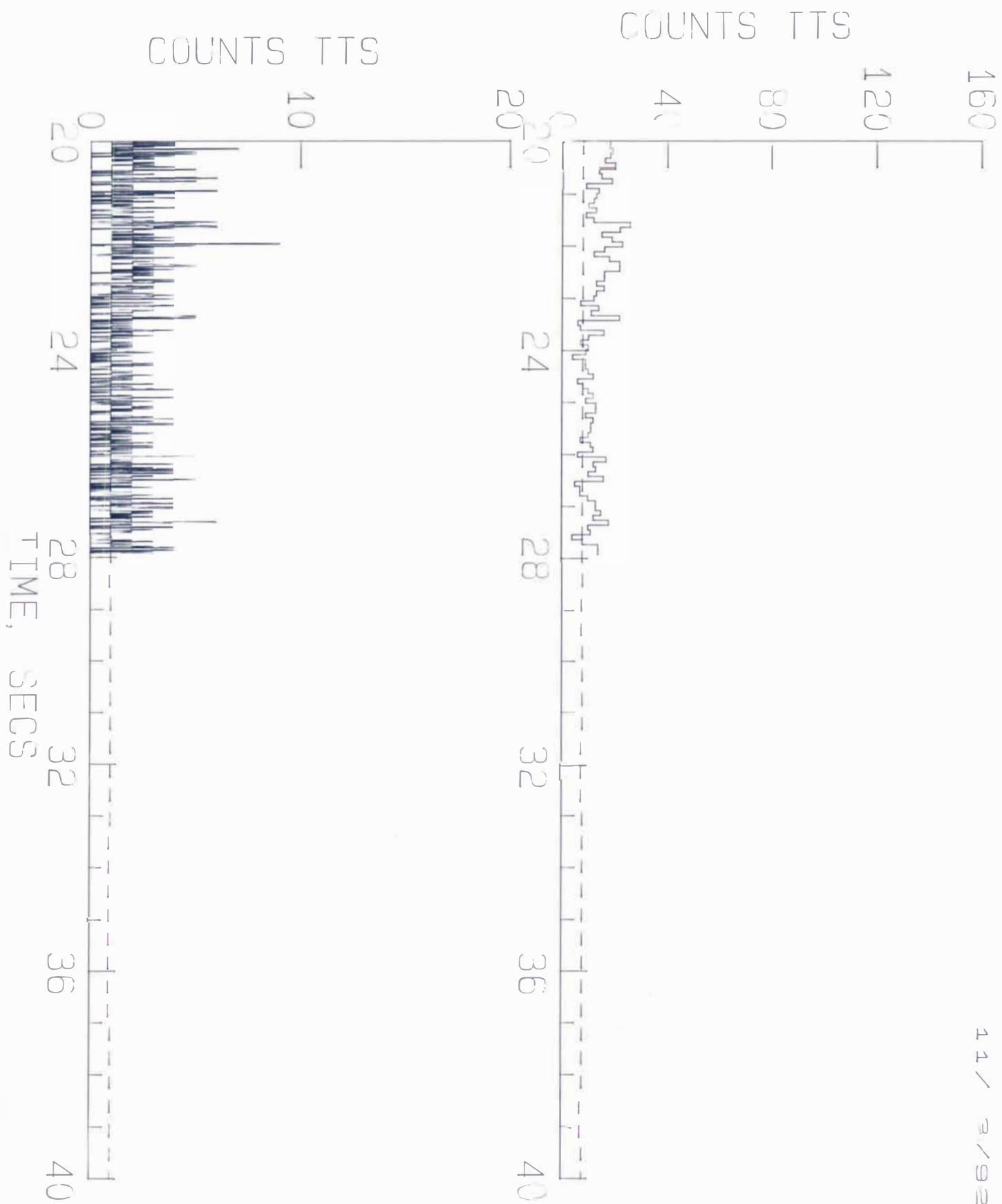


PVC

10/10/91

23049.285

100-2000 keV

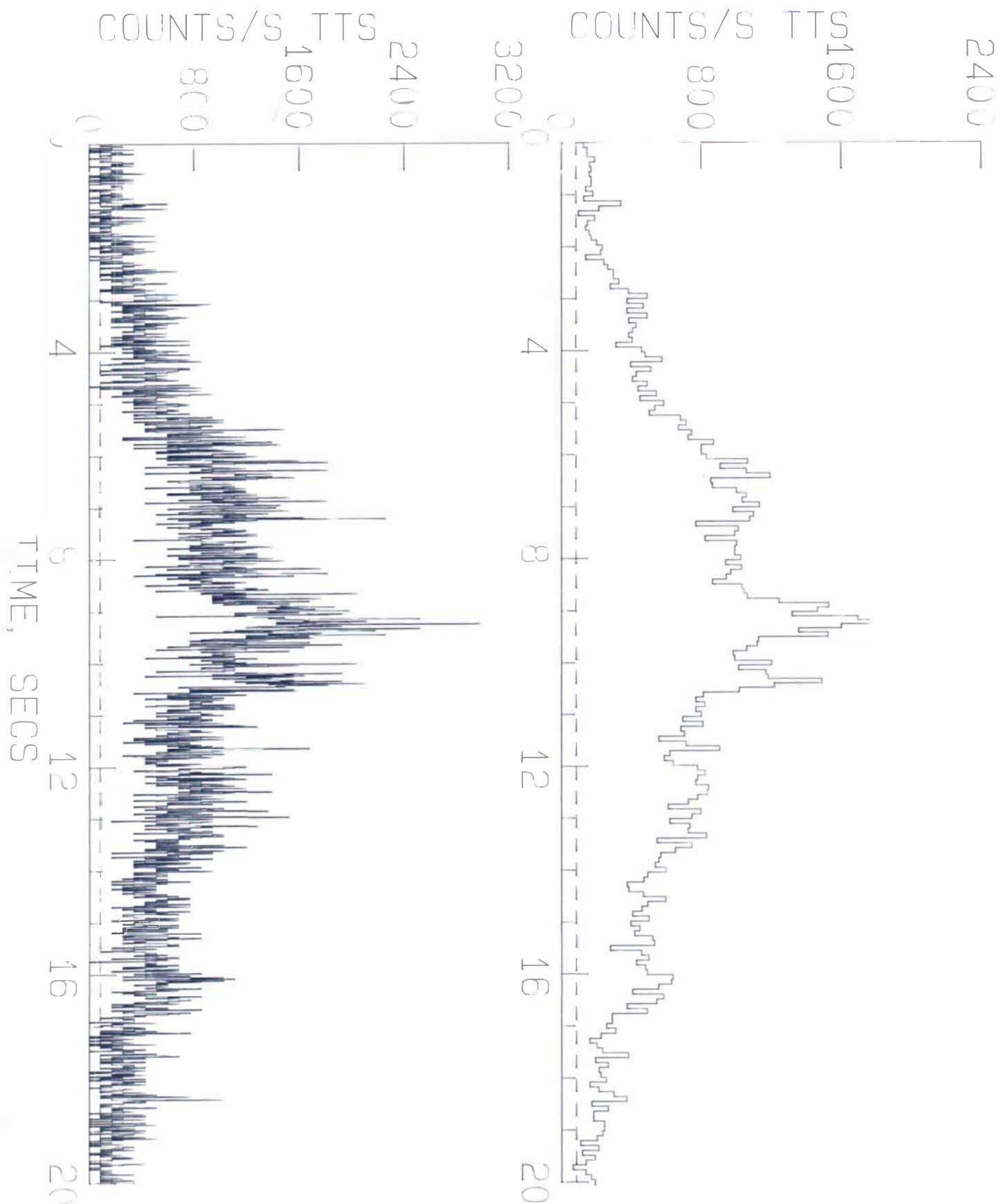


PV0

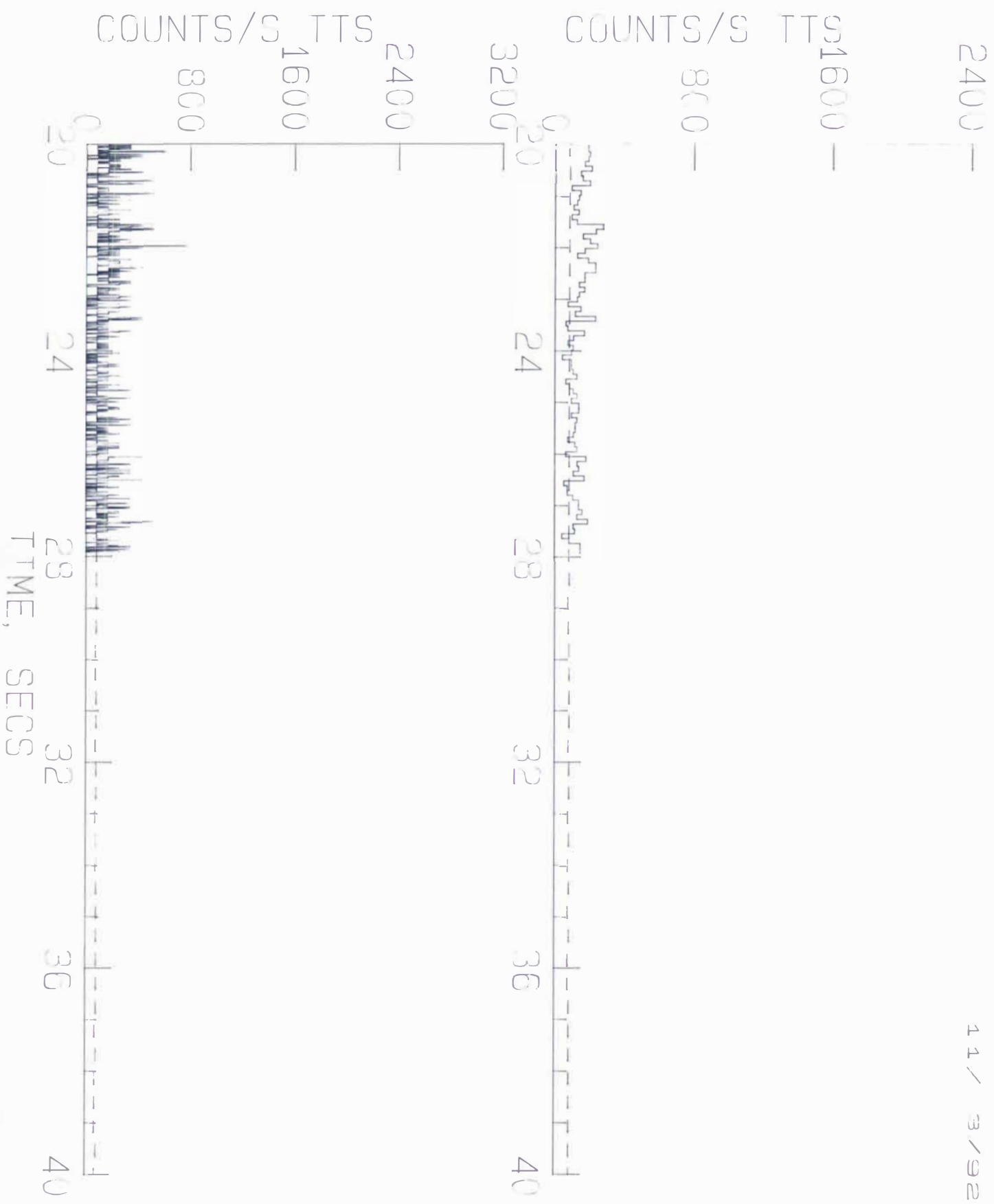
10/10/91

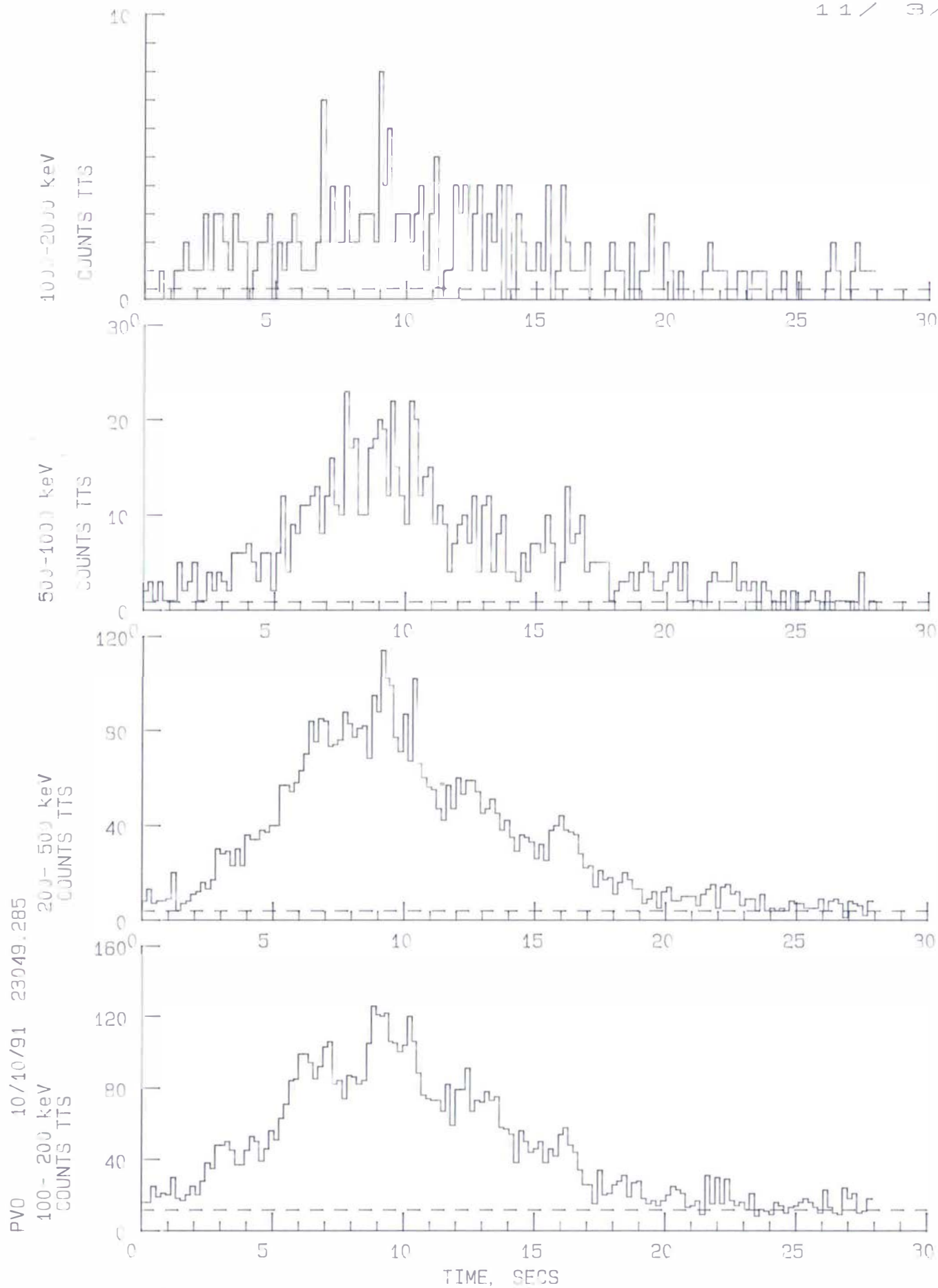
23049.285

100-2000 keV



PVC 10/10/91 23049.285
100-2000 keV



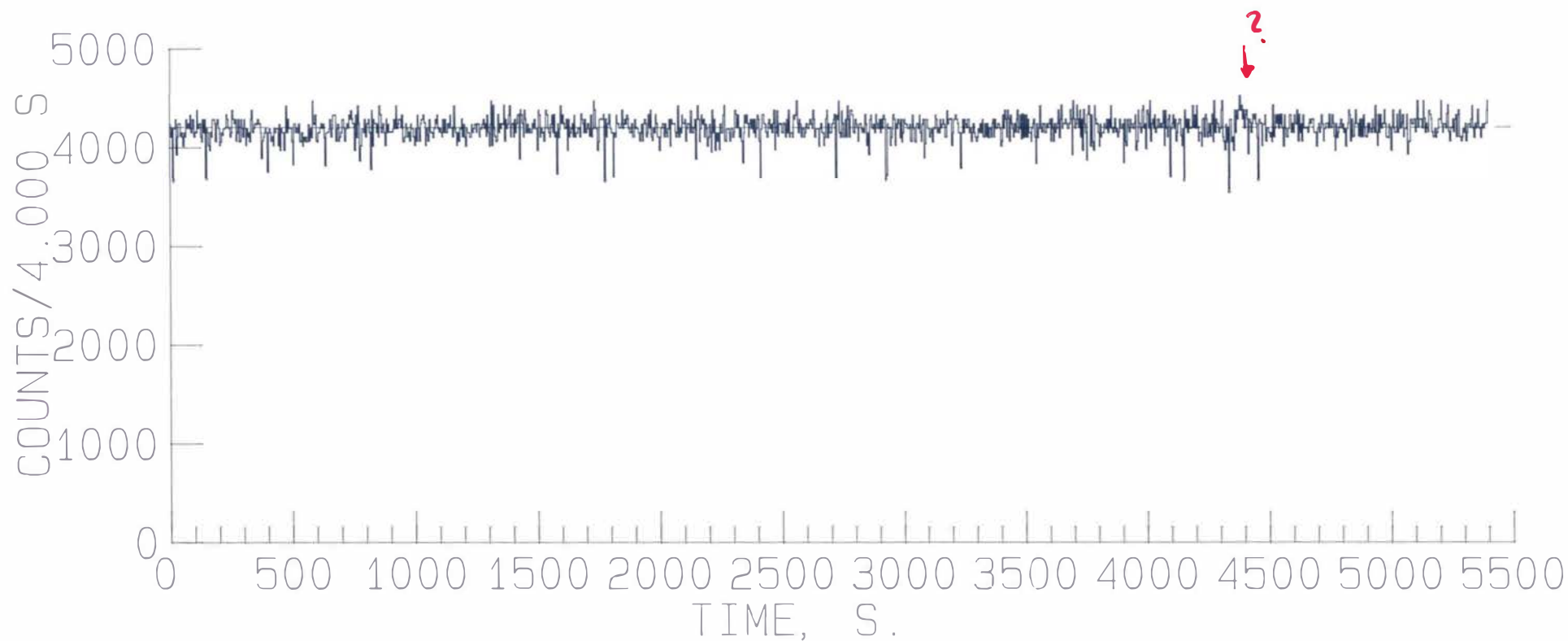


ULYSSES RT

10/10/91 10800.484 s

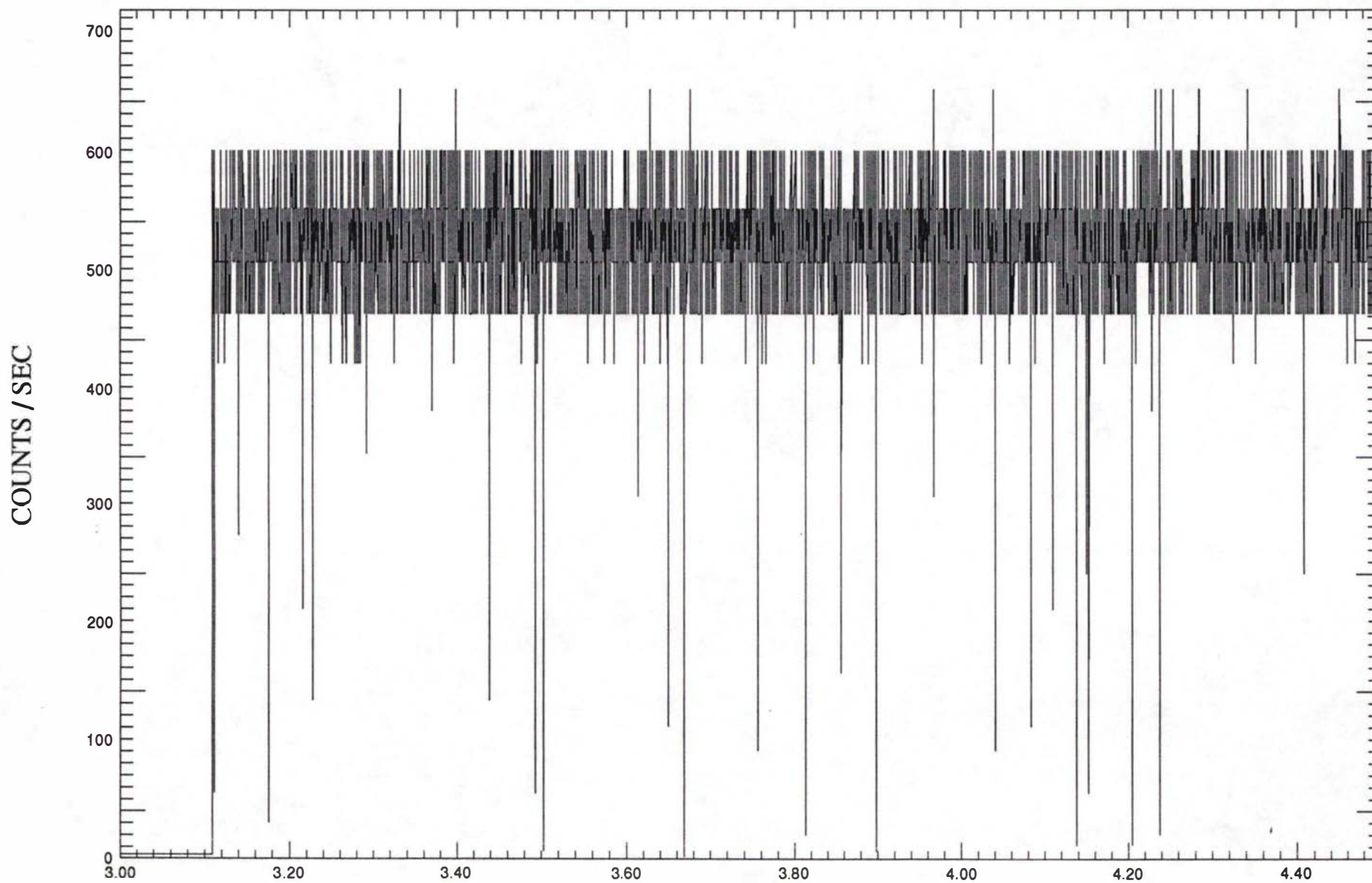
~~0.5~~ ~~4.000~~ S INTERVALS REGROUPED BY 8

0- 0 keV

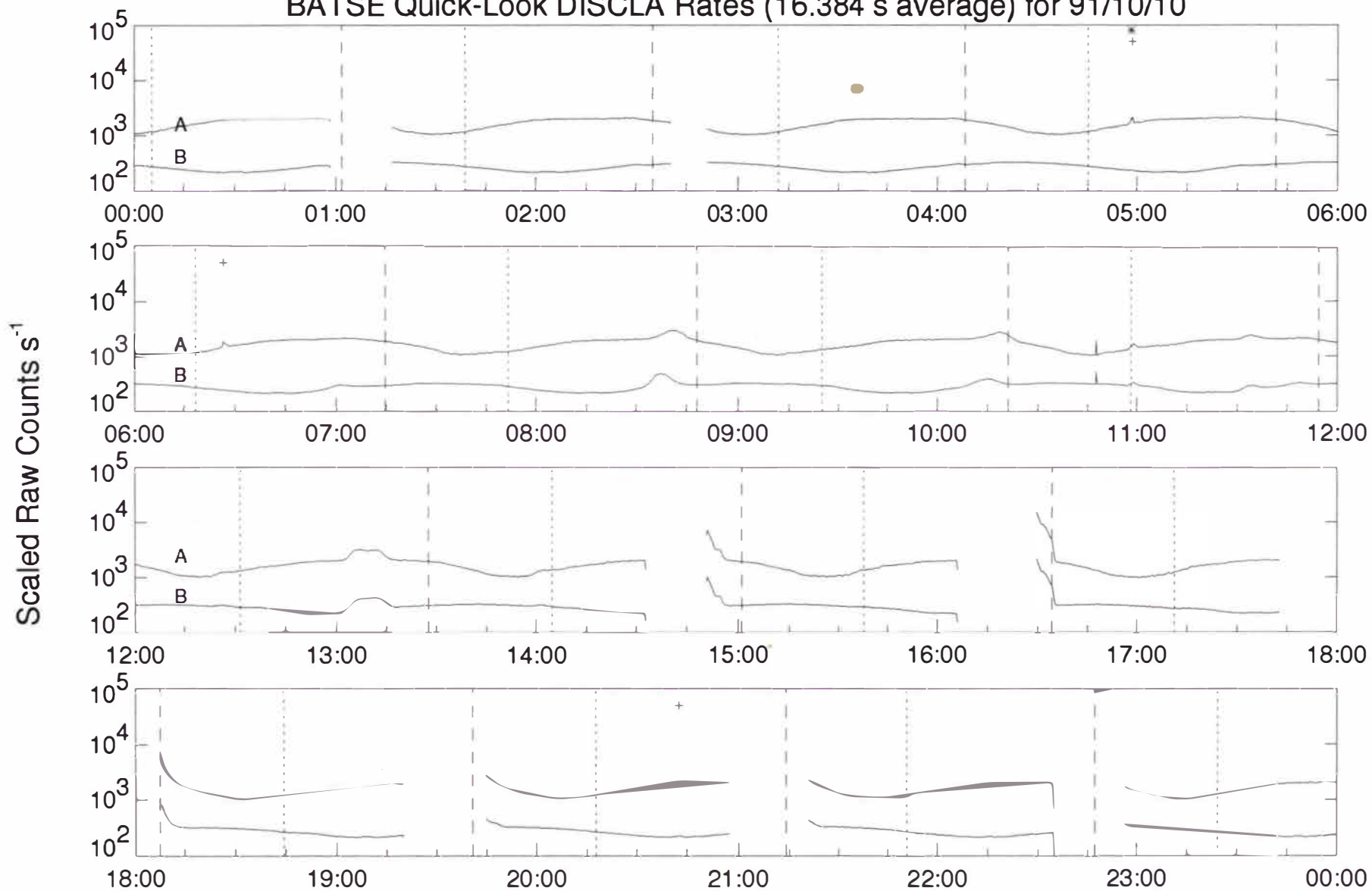


CALIBRATION DATA INCLUDED

Oct 10



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/10

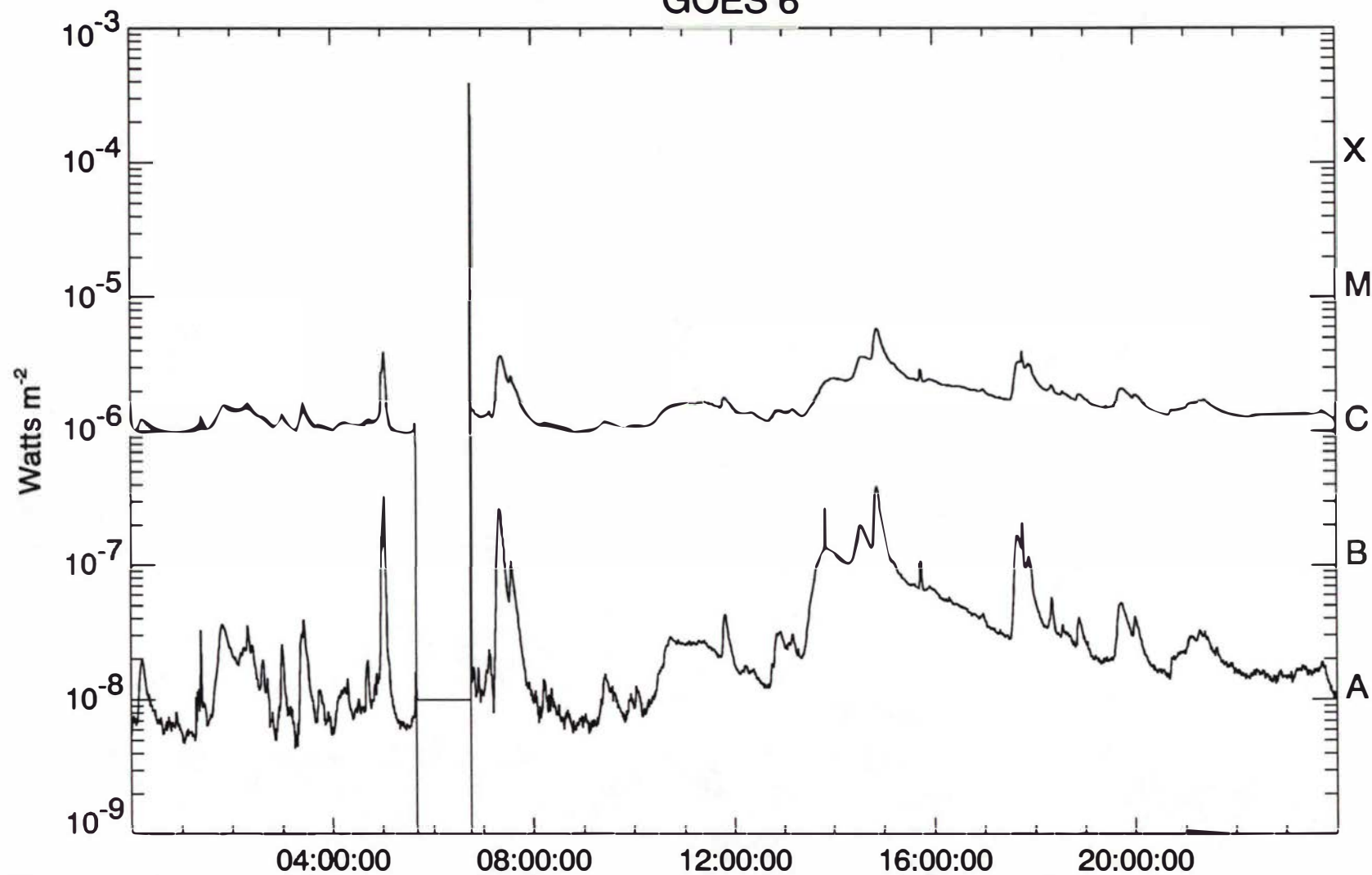


Current Time: 92/10/31, 1946 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/10, 0000:01

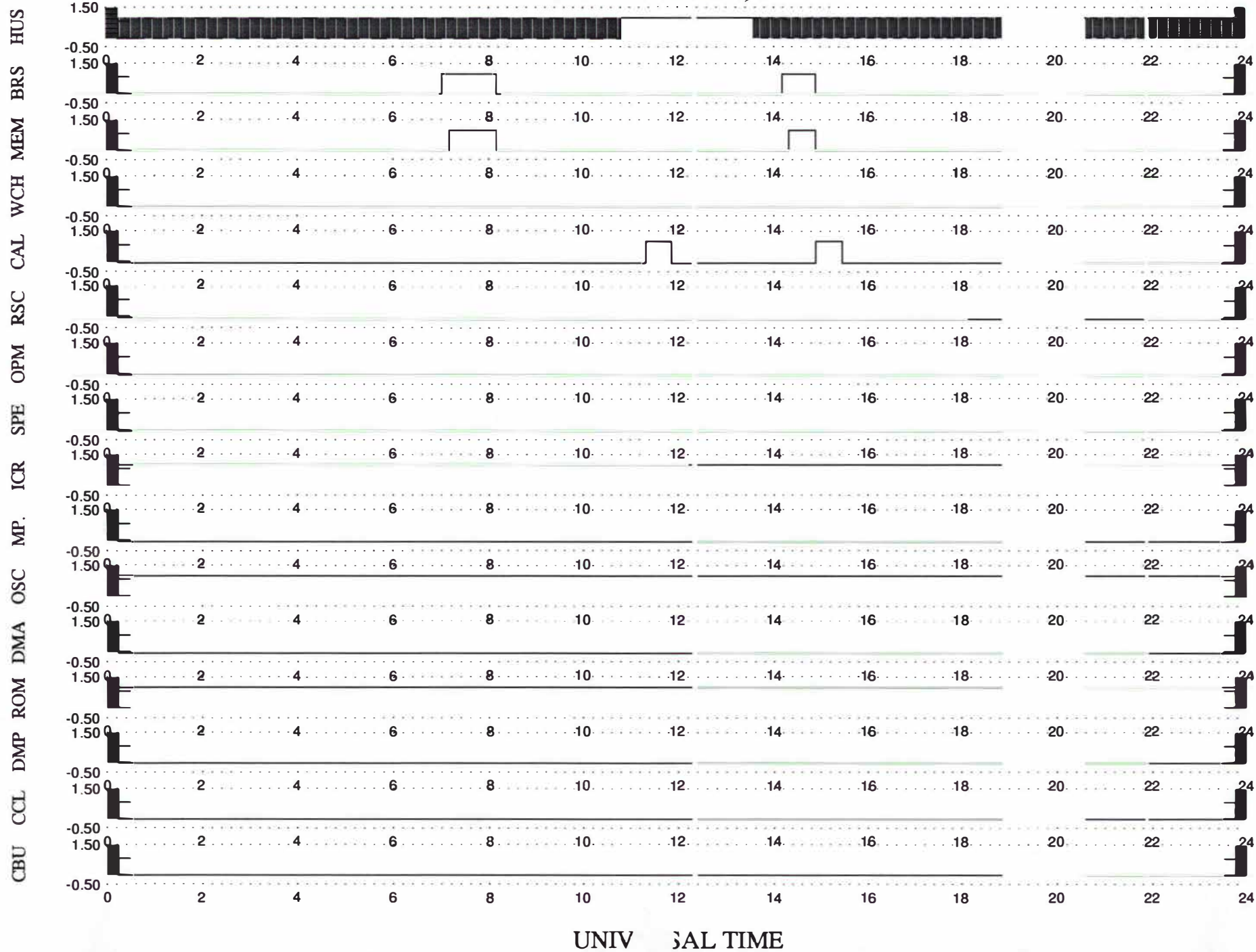
Plot created: 97/10/14, 2314

Channel

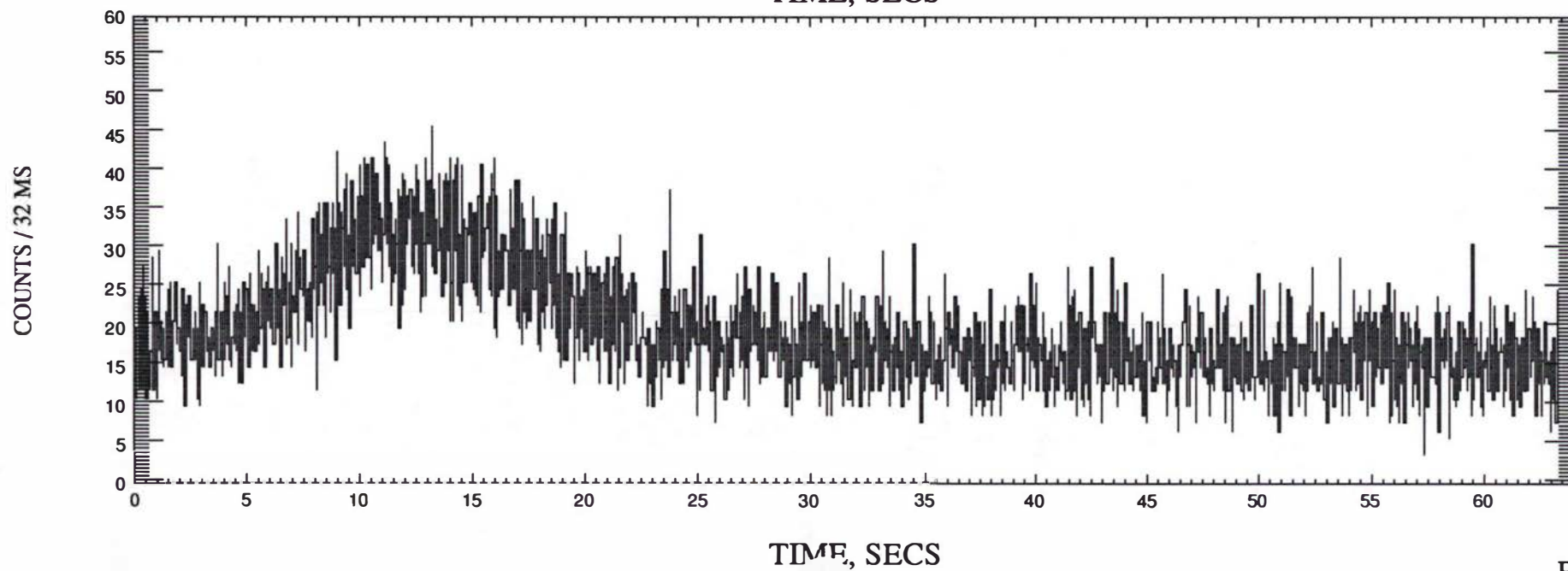
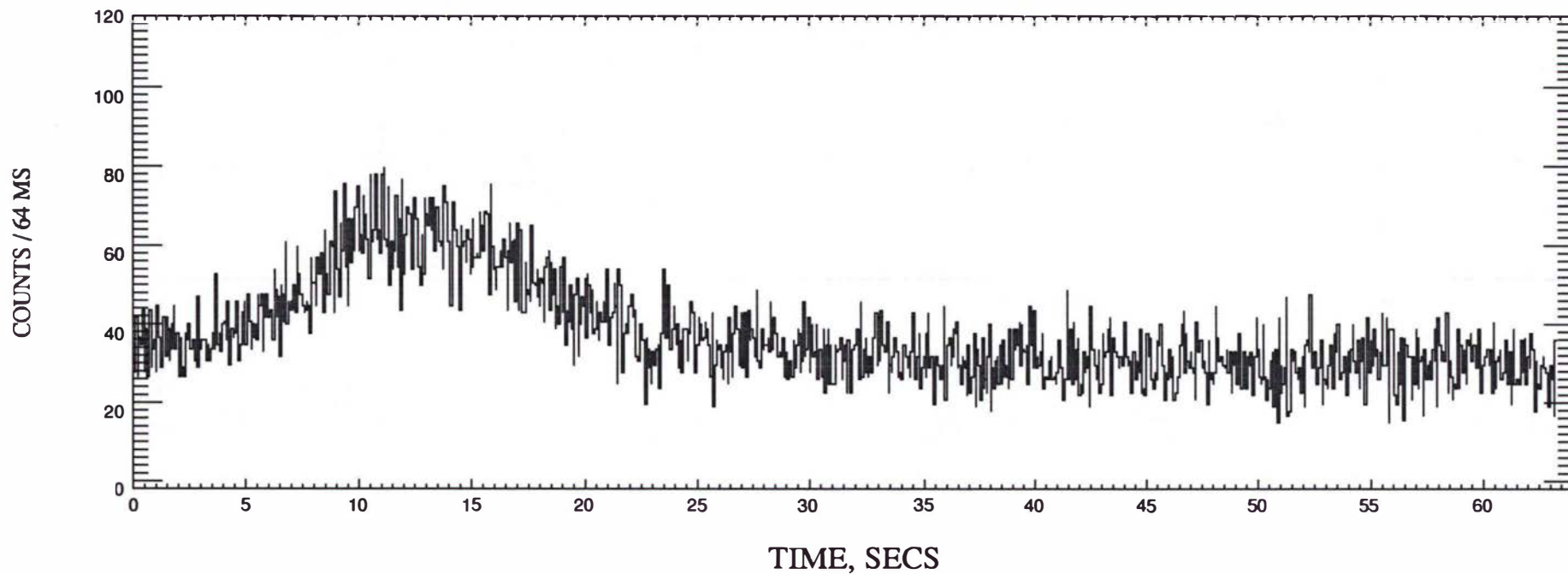
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

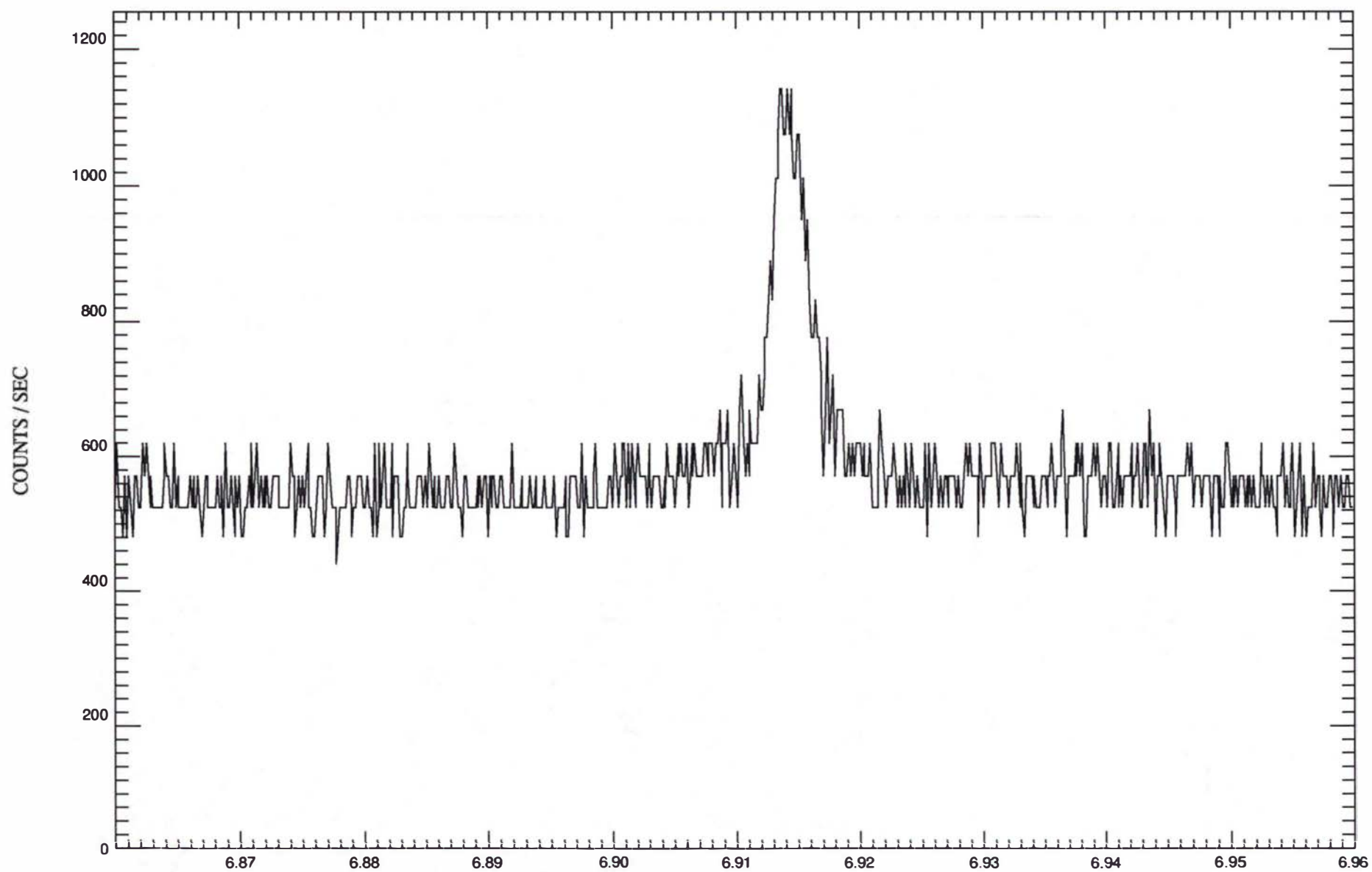
BURST NUMBER 0, 1



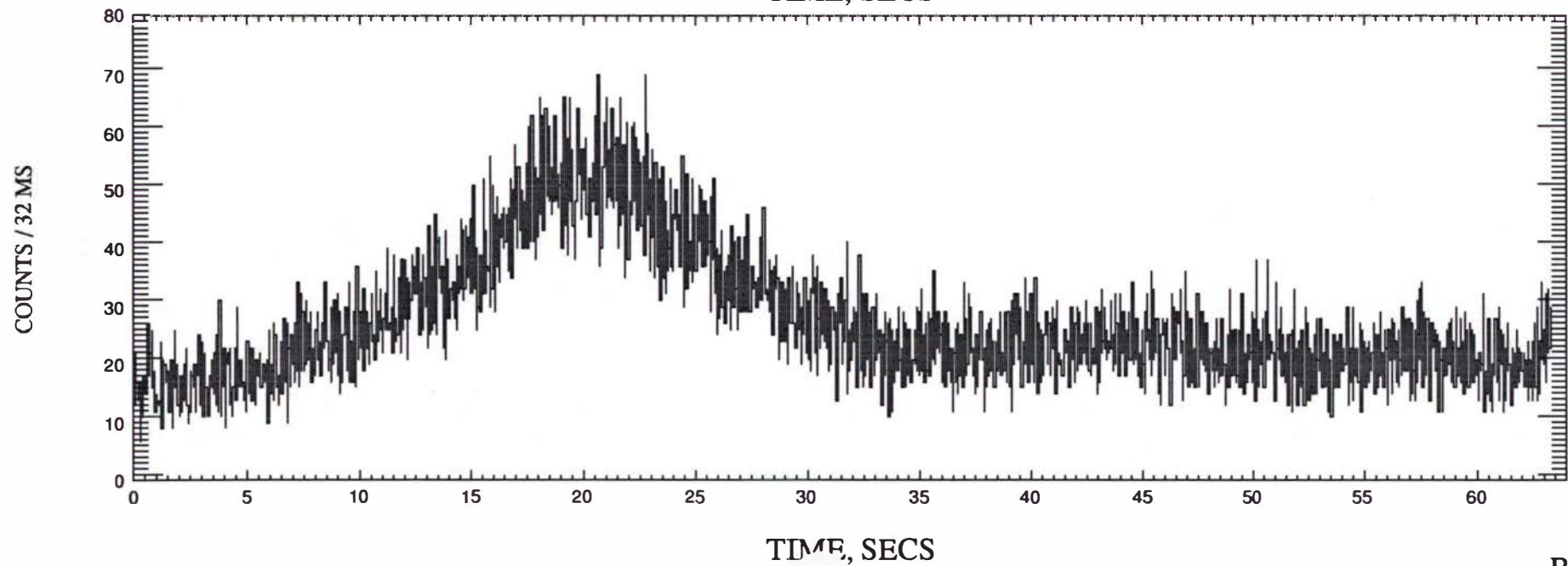
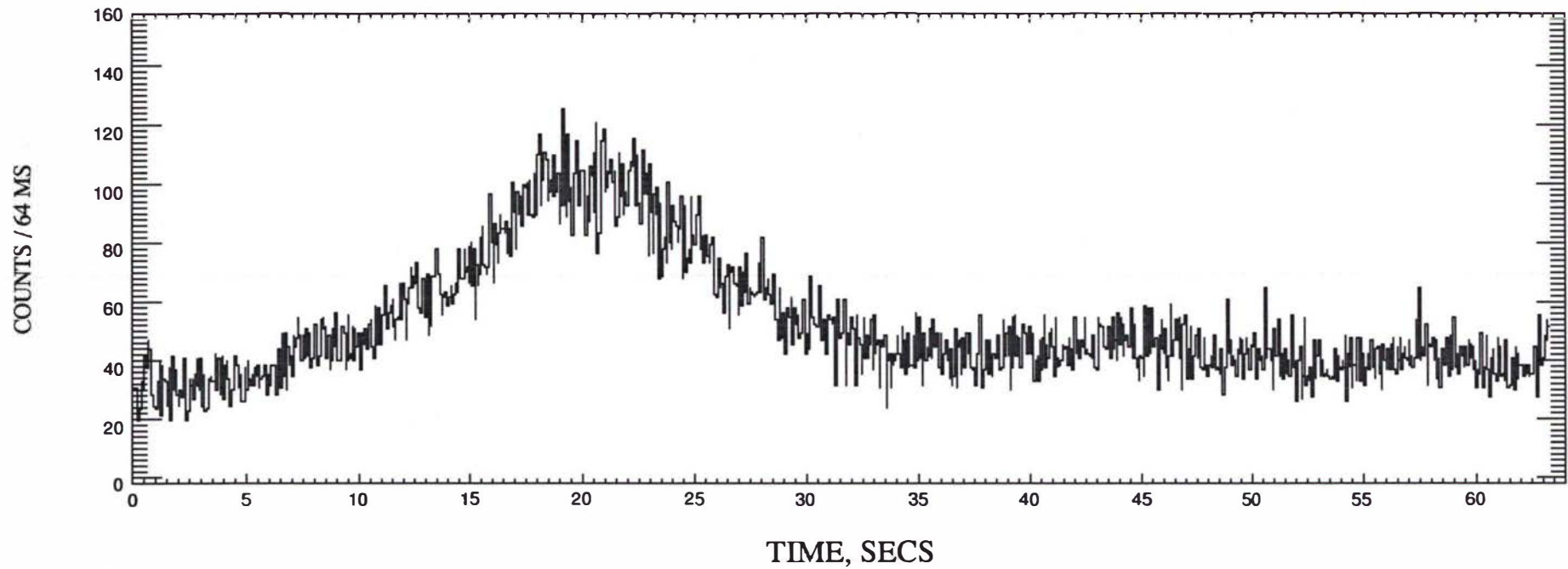
Burst Counter 0 at UT= 6.912915899489 h=24886.497 s 06:54:46.497



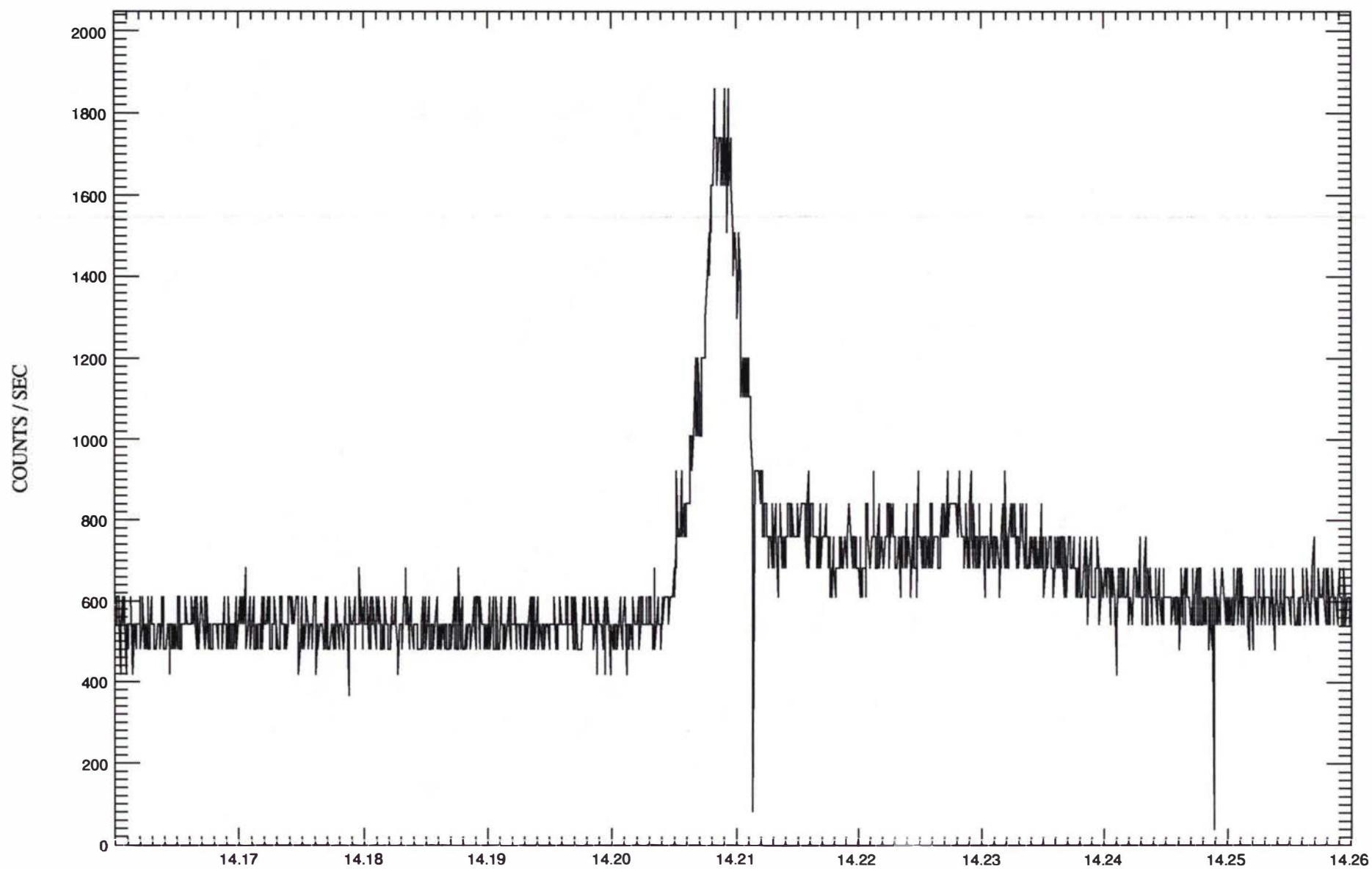
CALIBRATION DATA INCLUDED



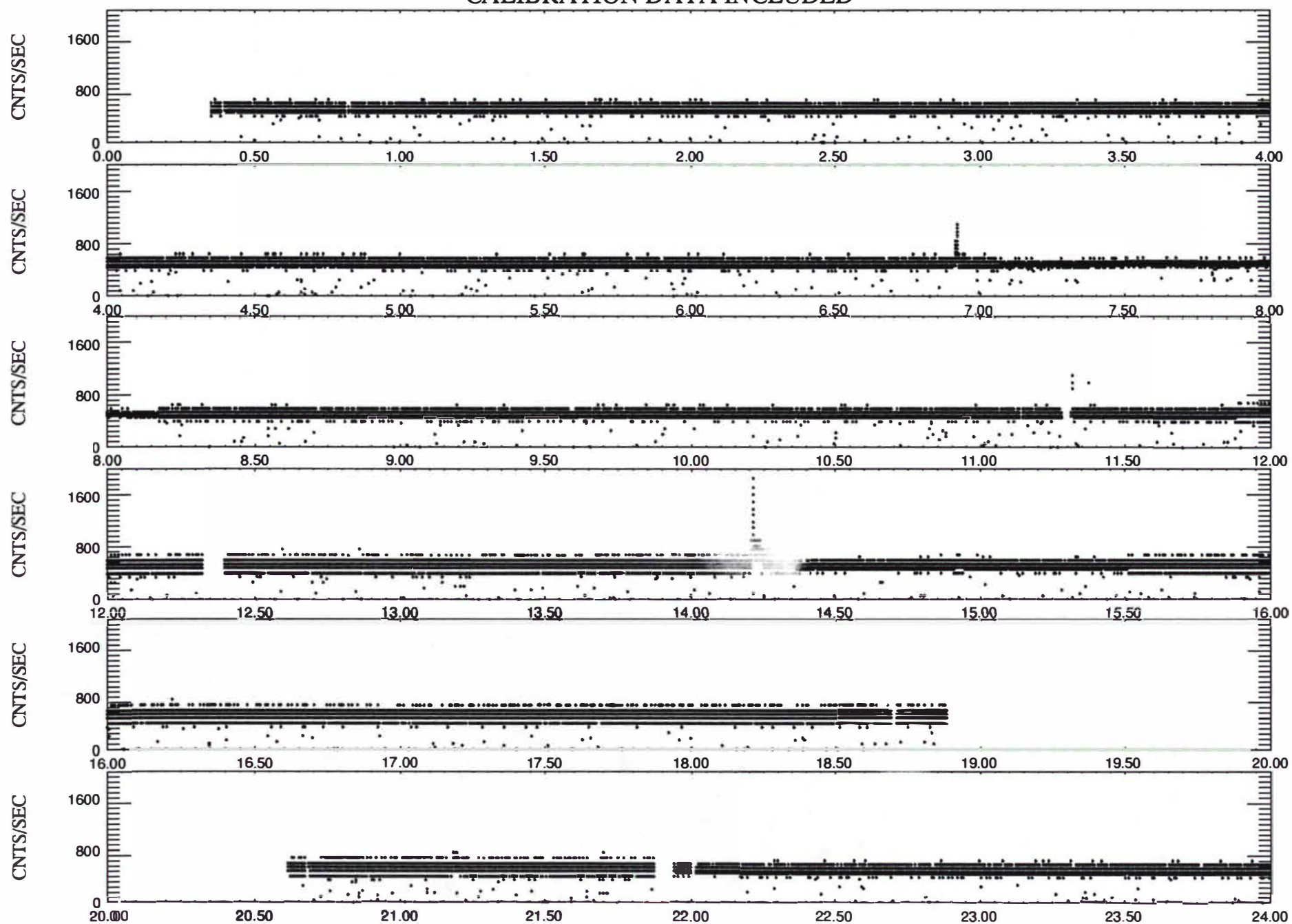
Burst Counter 1 at UT=14.205393591987 h=51139.417 s 14:12:19.417



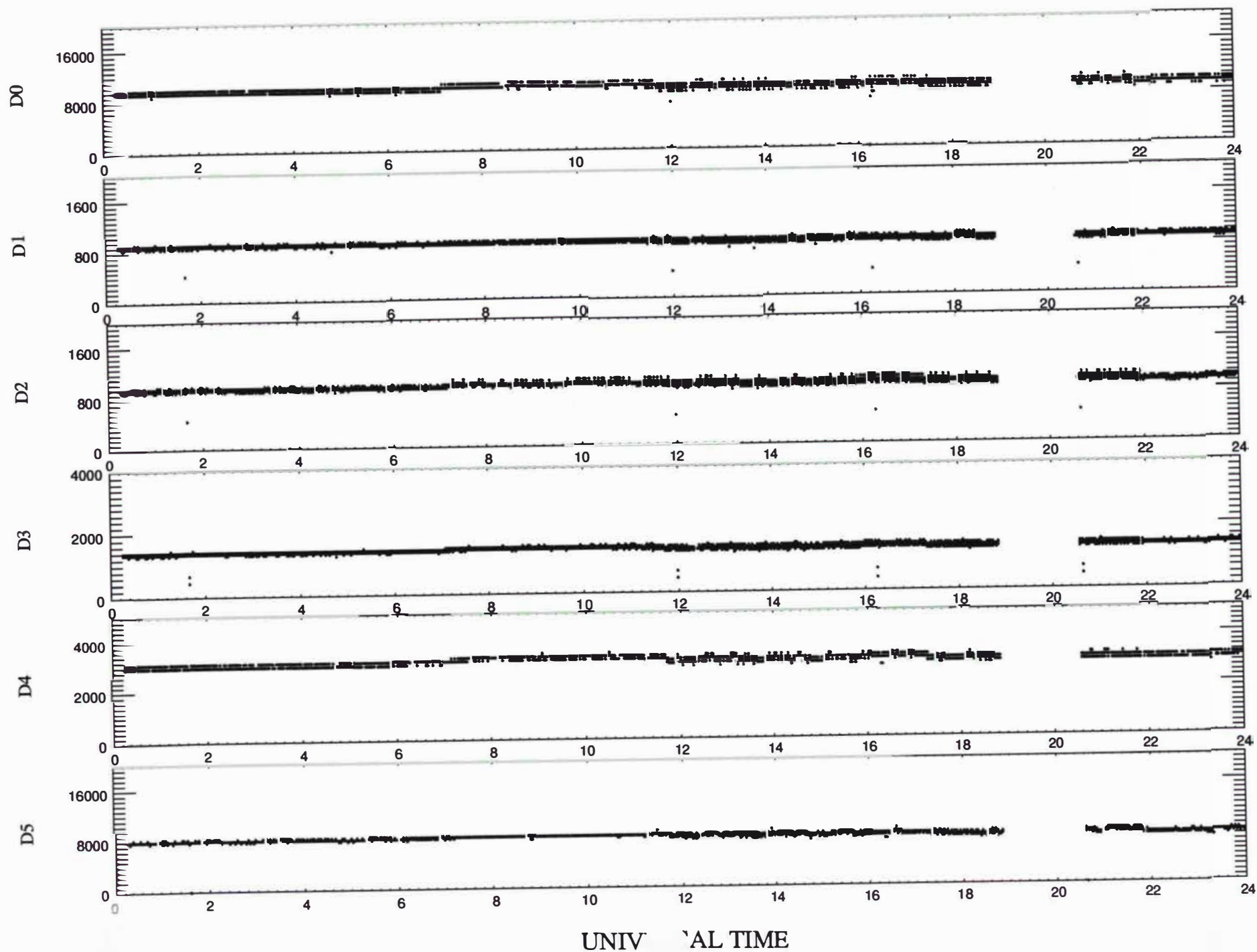
CALIBRATION DATA INCLUDED



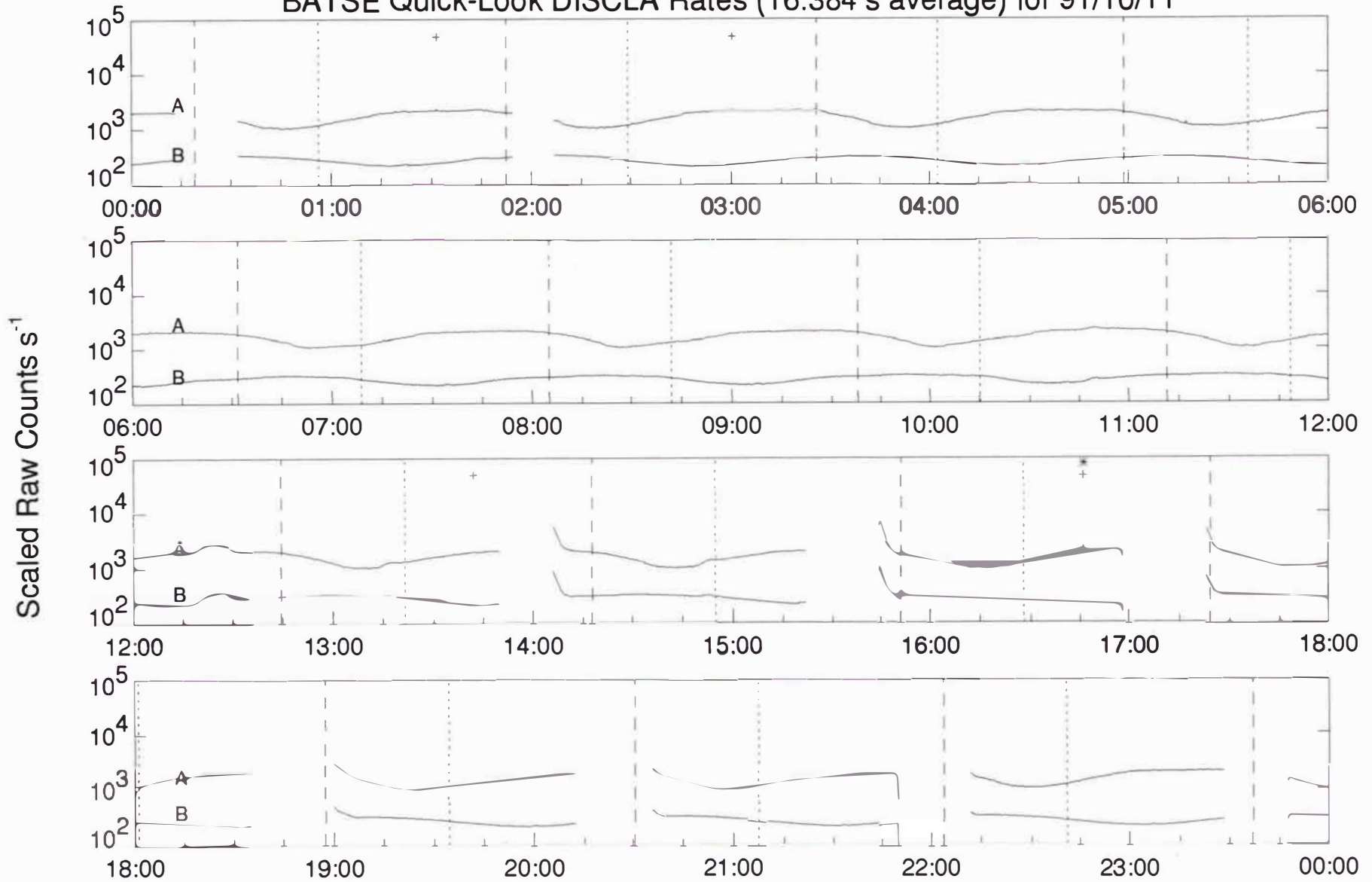
CALIBRATION DATA INCLUDED



UNIV AL TIME



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/11

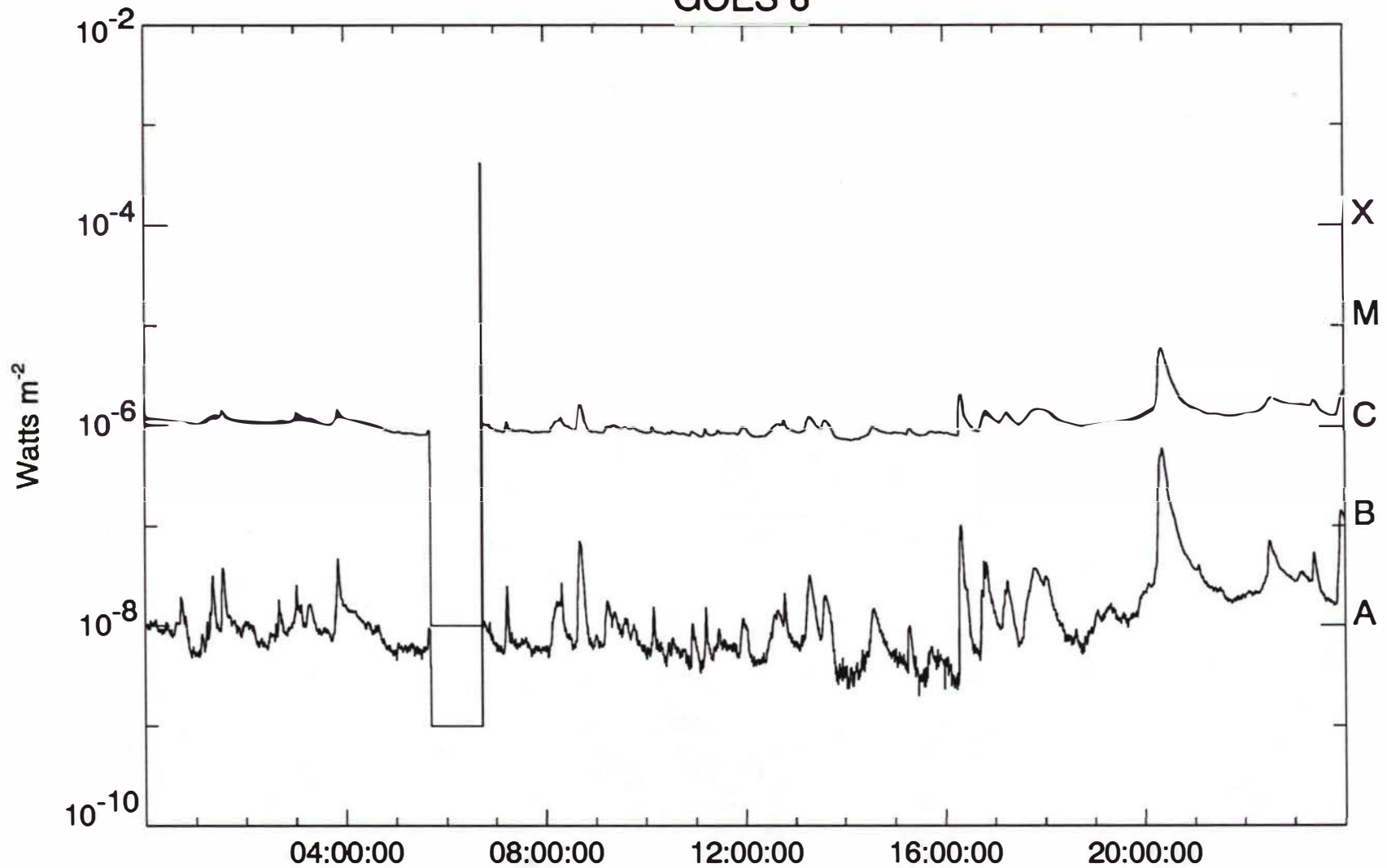


Current Time: 92/10/31, 1947 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/11, 0000:02

Plot created: 97/10/14, 2317

Channel

1 (1.0 - 8.0 Angstroms)

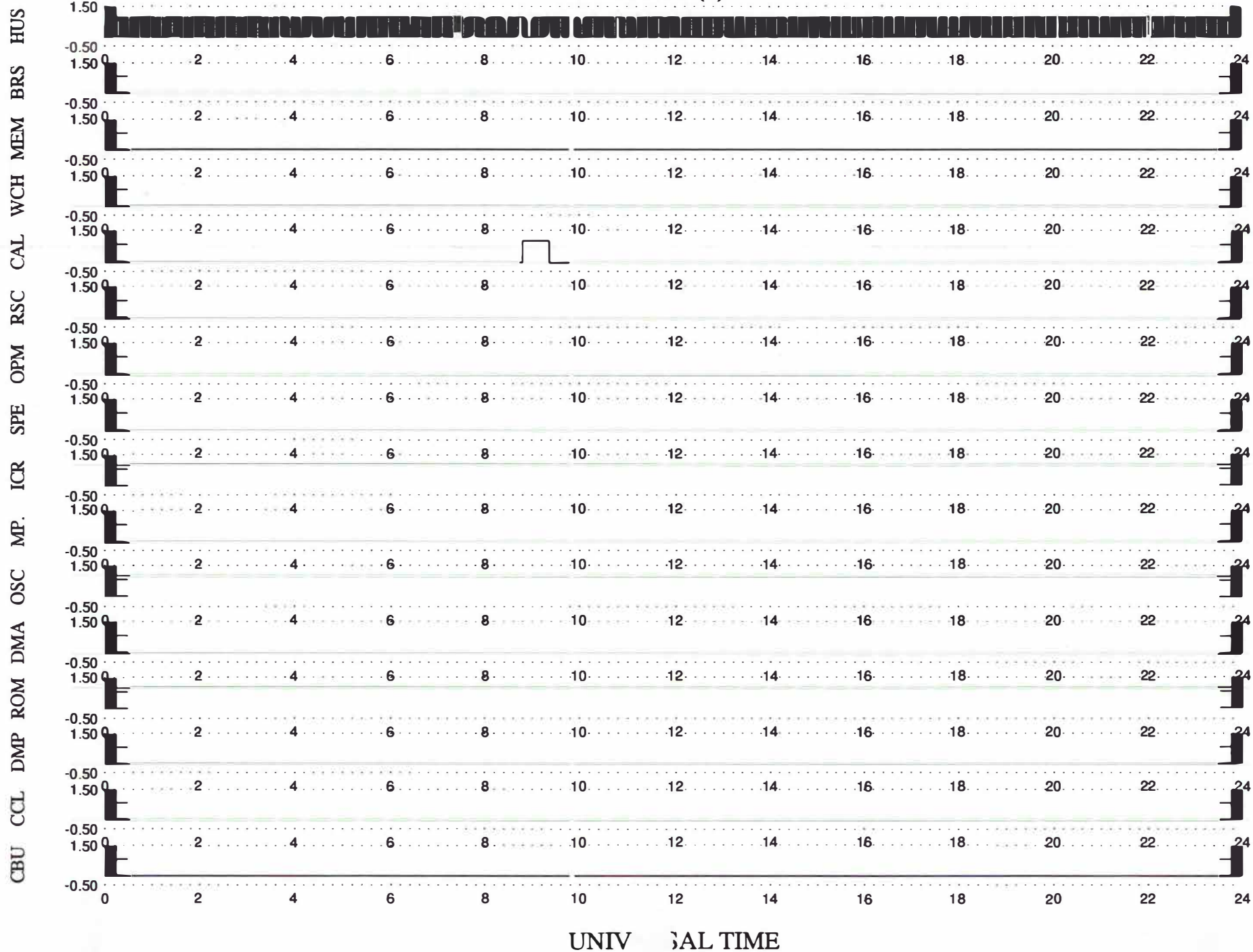
Background not subtracted

2 (0.5 - 4.0 Angstroms)

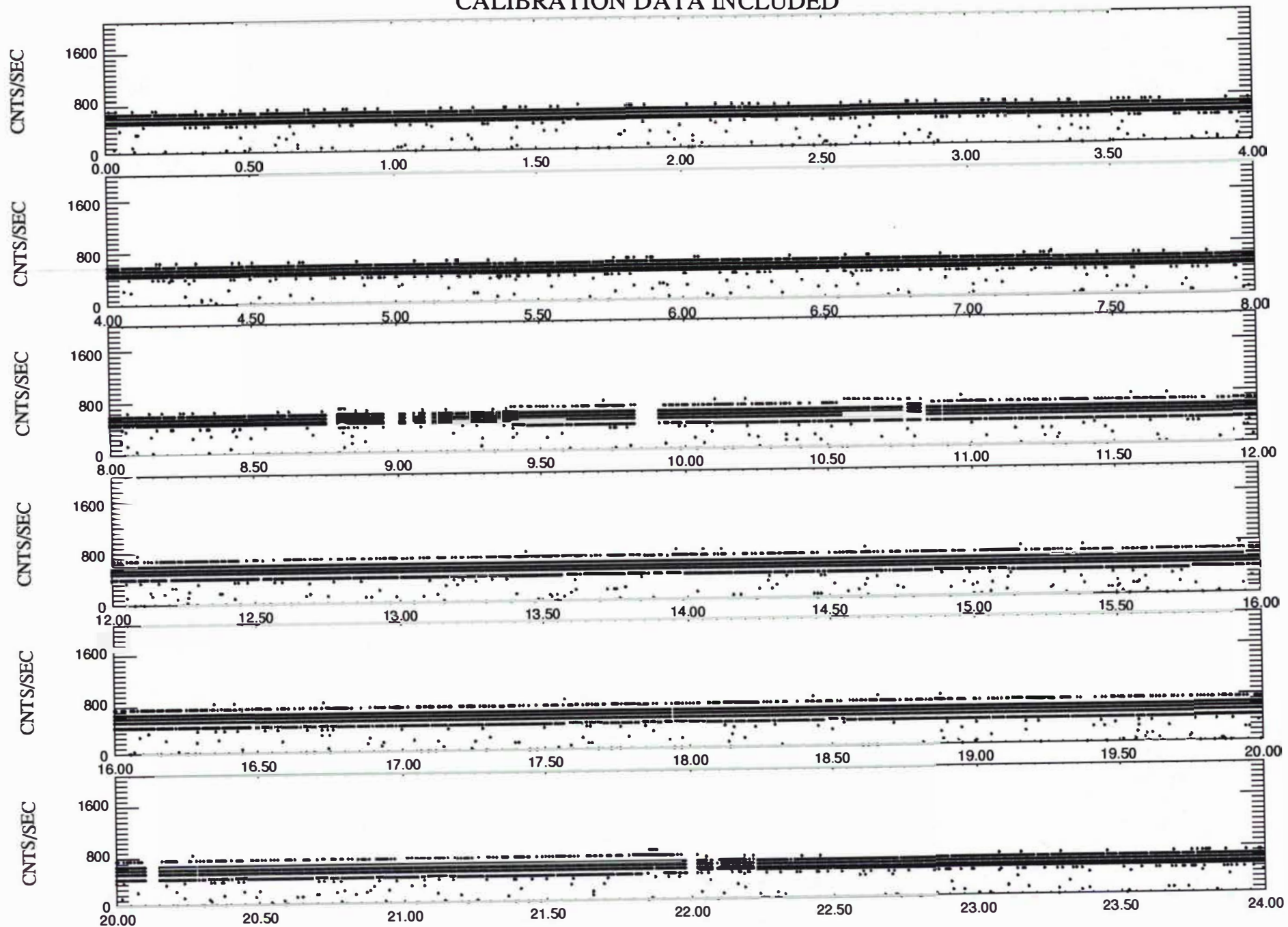
Background not subtracted

Sample average = 10

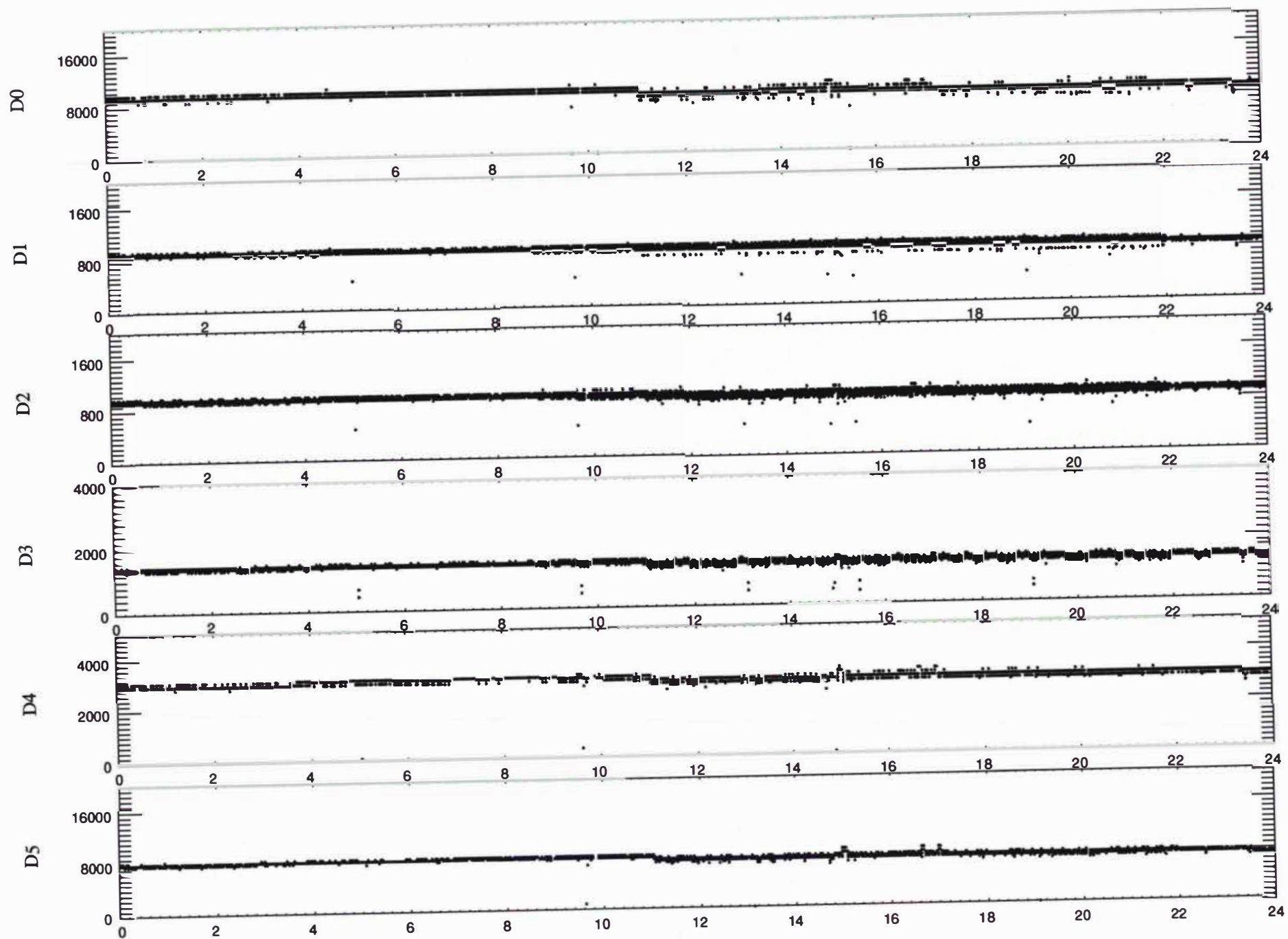
NO BURST (1)



CALIBRATION DATA INCLUDED

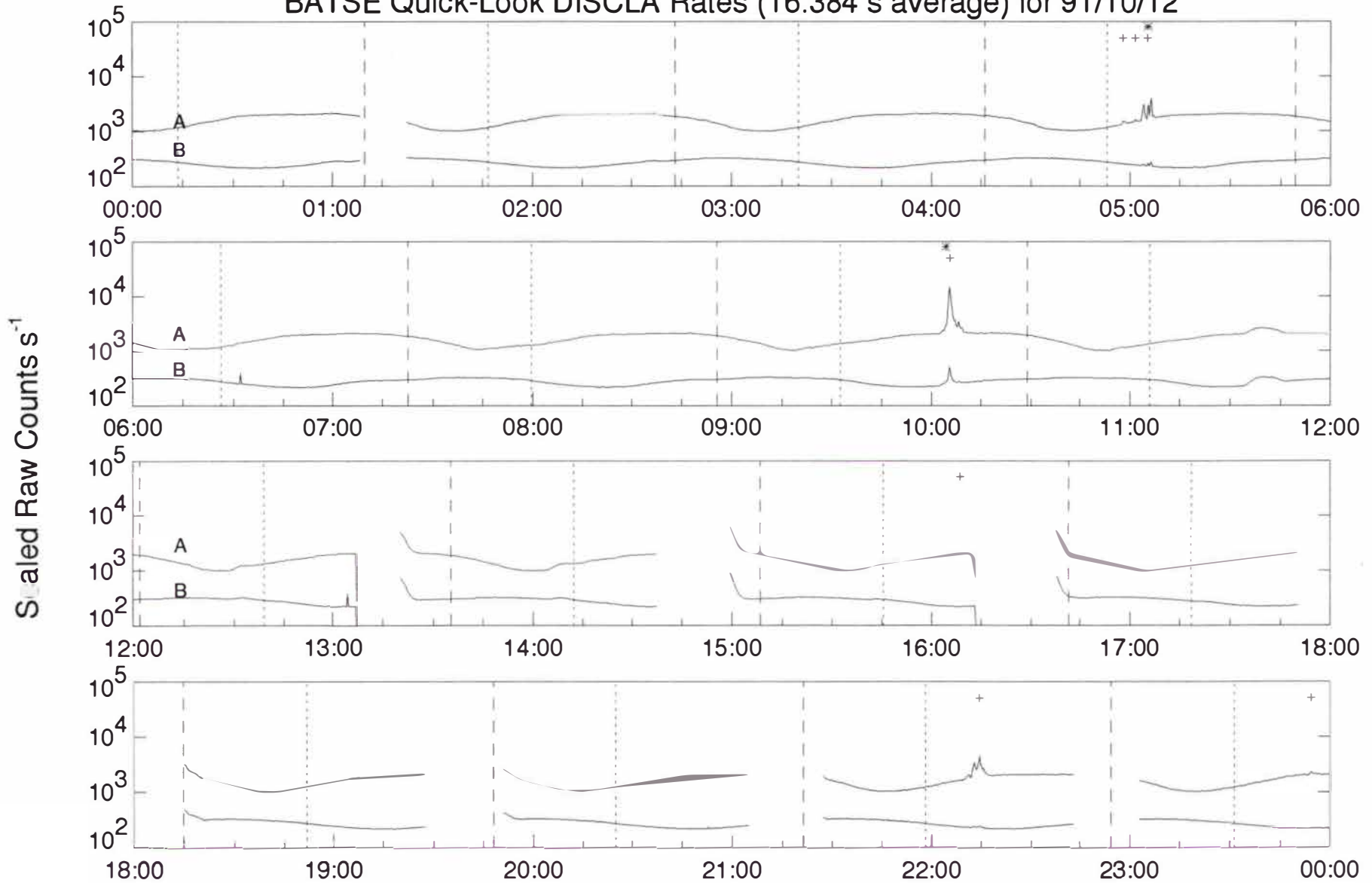


UNIV CAL TIME



UNIV 3AL TIME

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/12

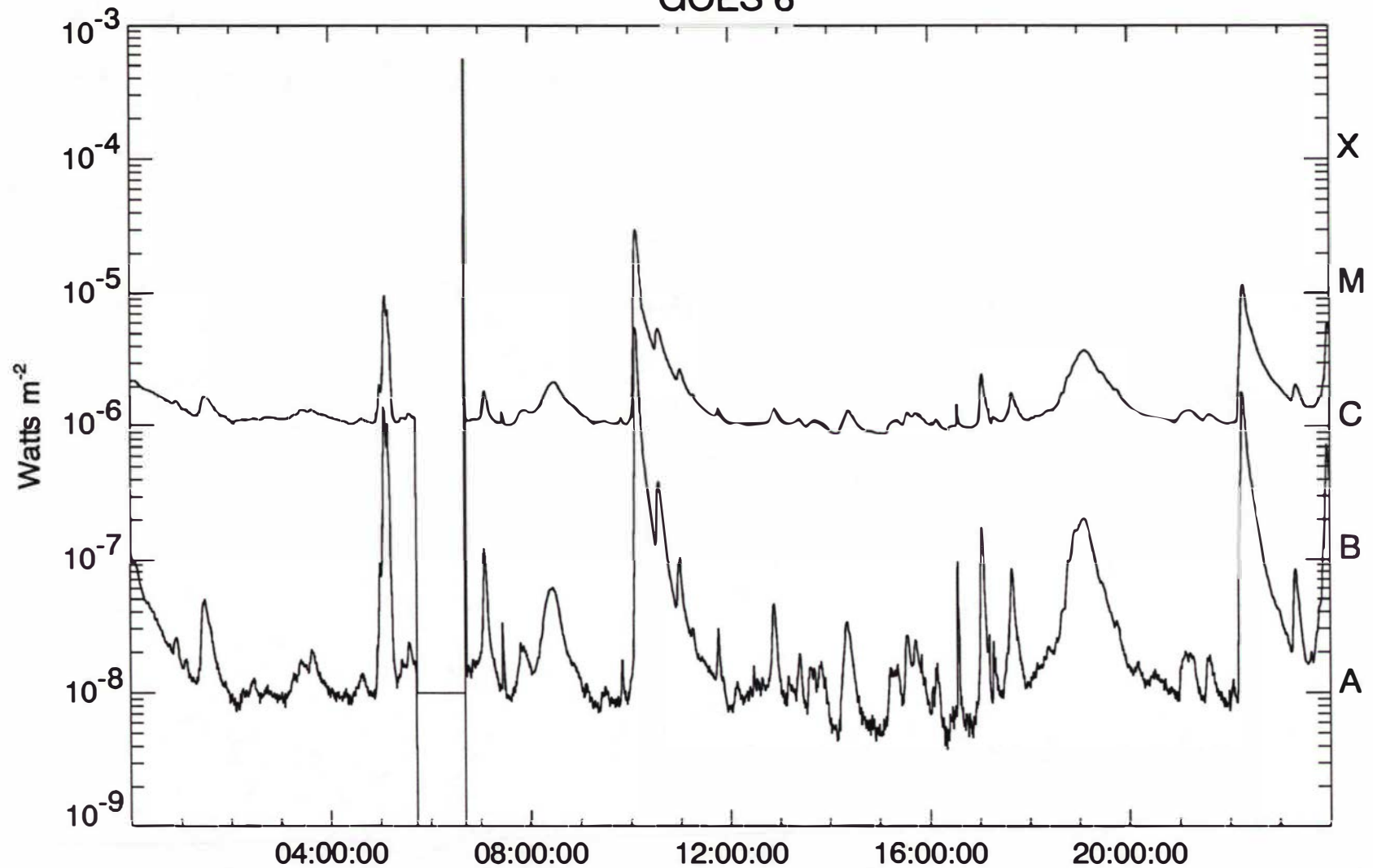


Current Time: 92/10/31, 1948 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/12, 0000:02

Plot created: 97/10/14, 2320

Channel 1 (1.0 - 8.0 Angstroms)

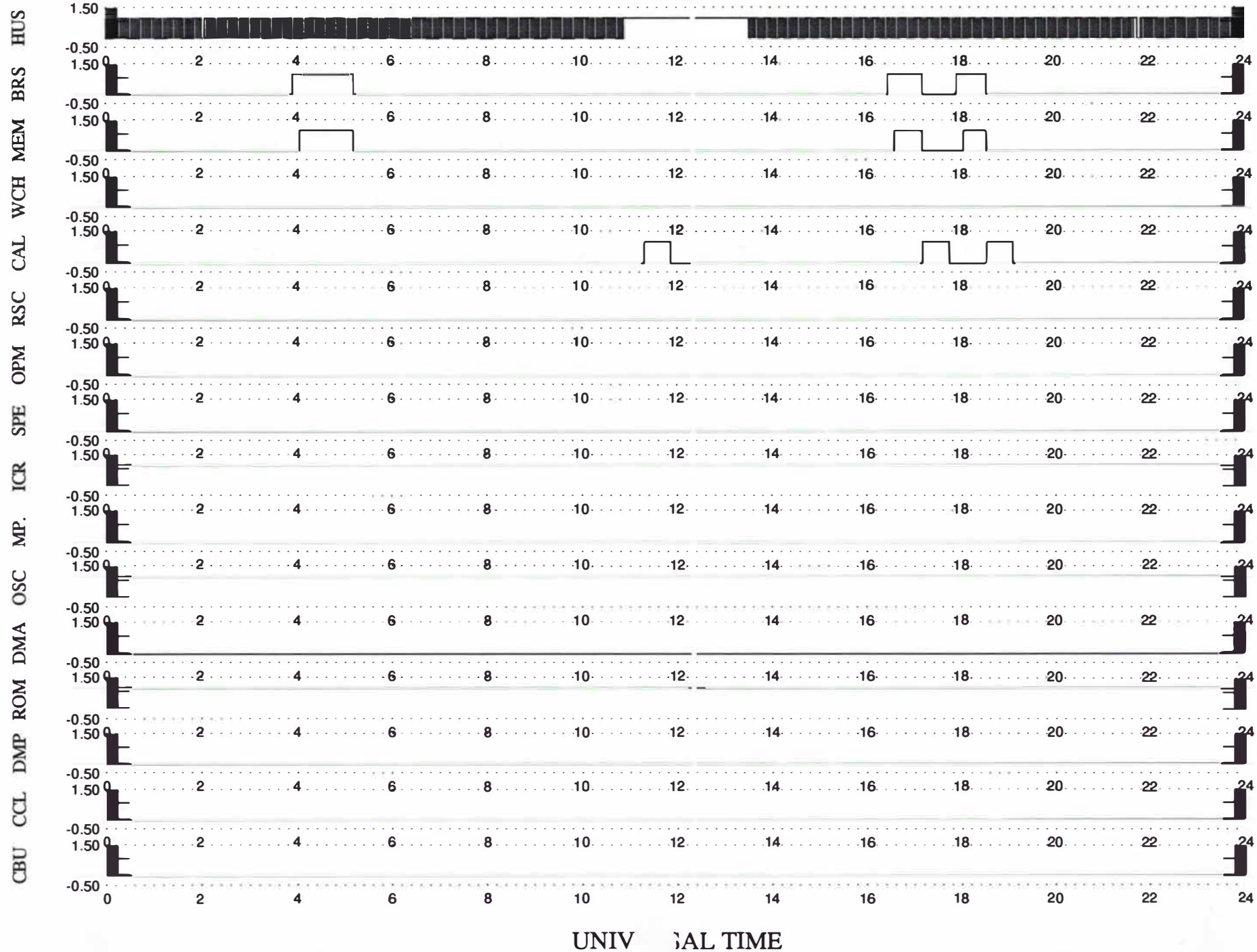
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

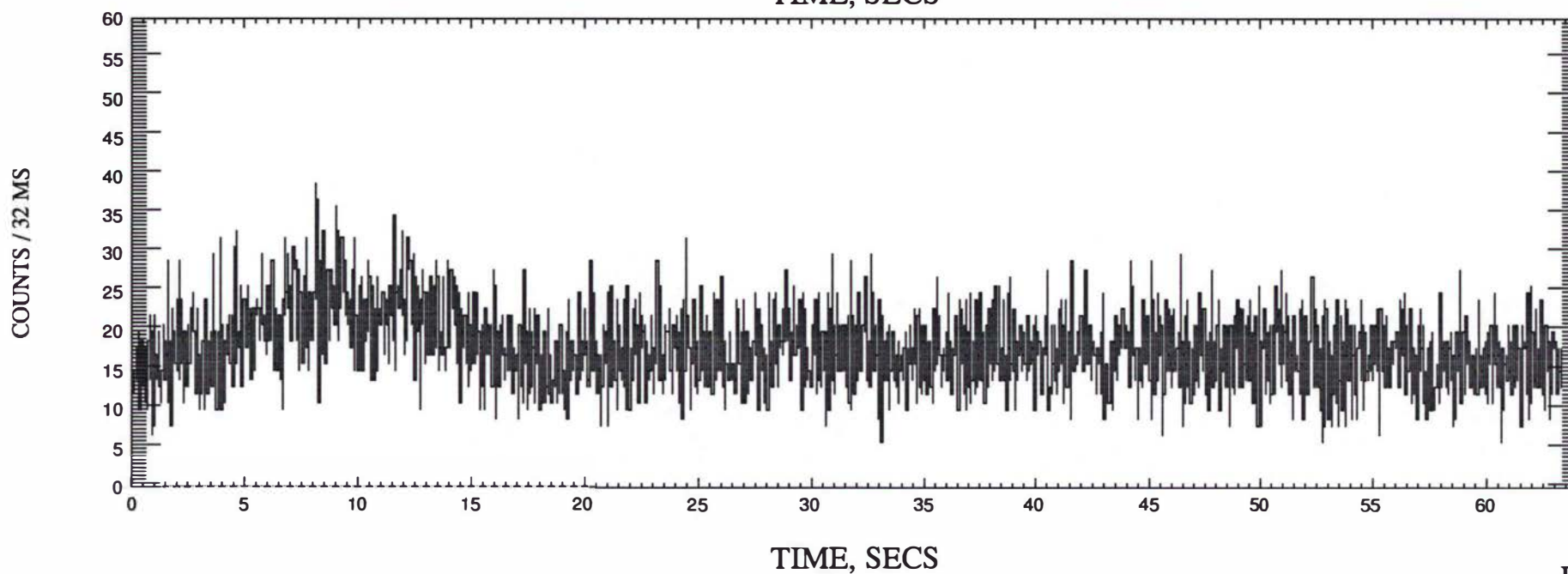
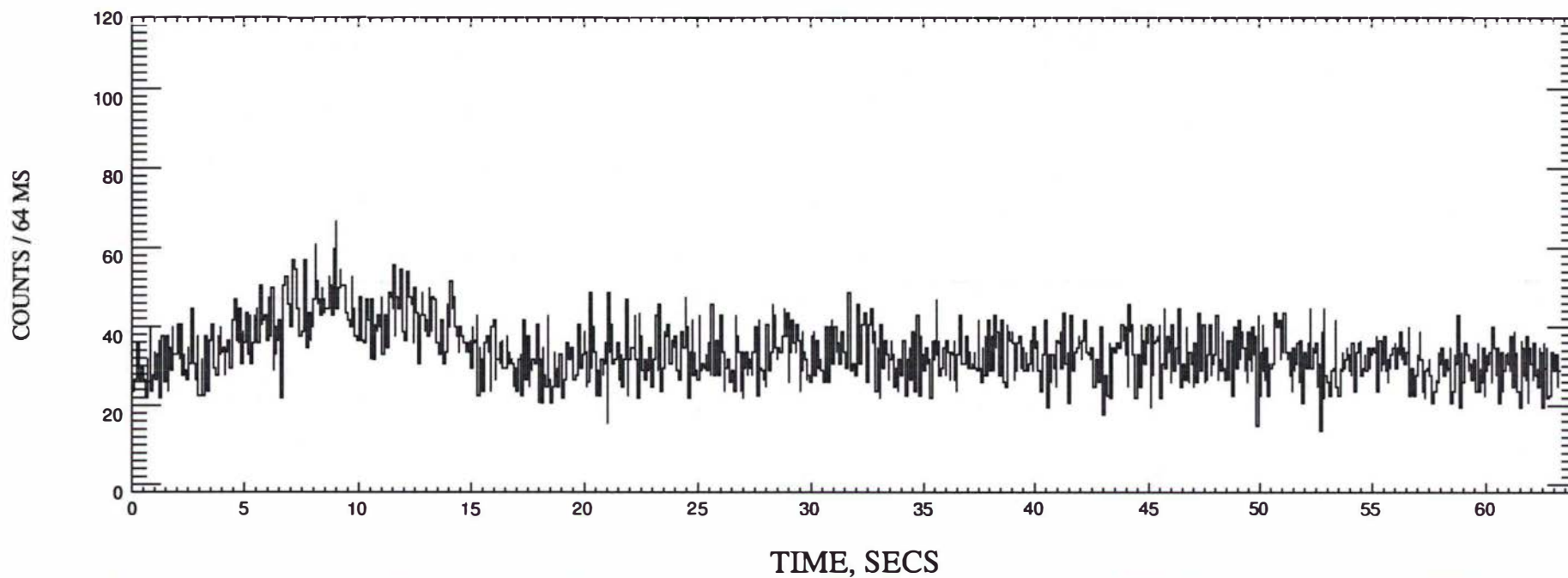
Background not subtracted

Sample average = 10

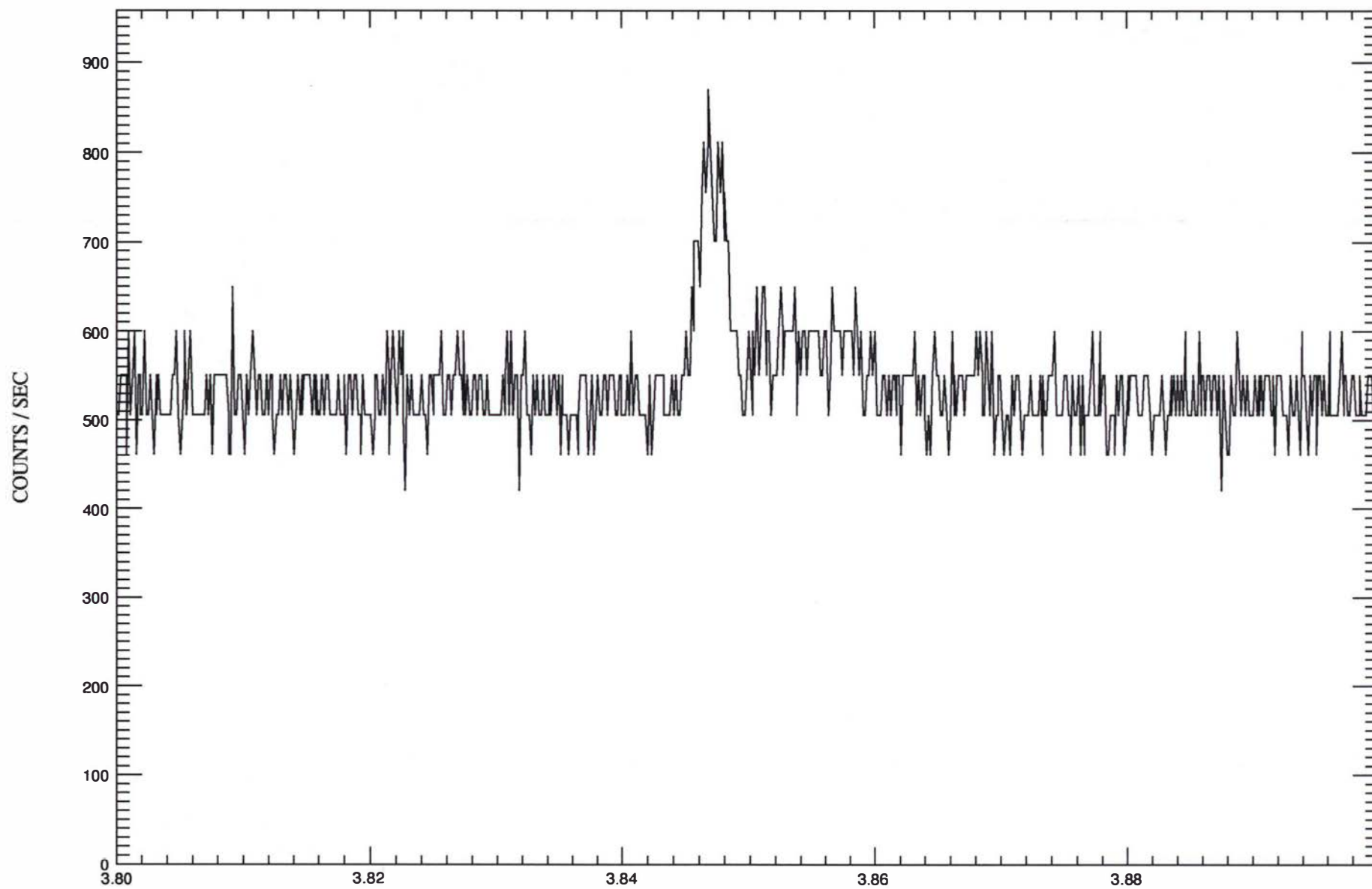
BURST NUMBER 2 - 4



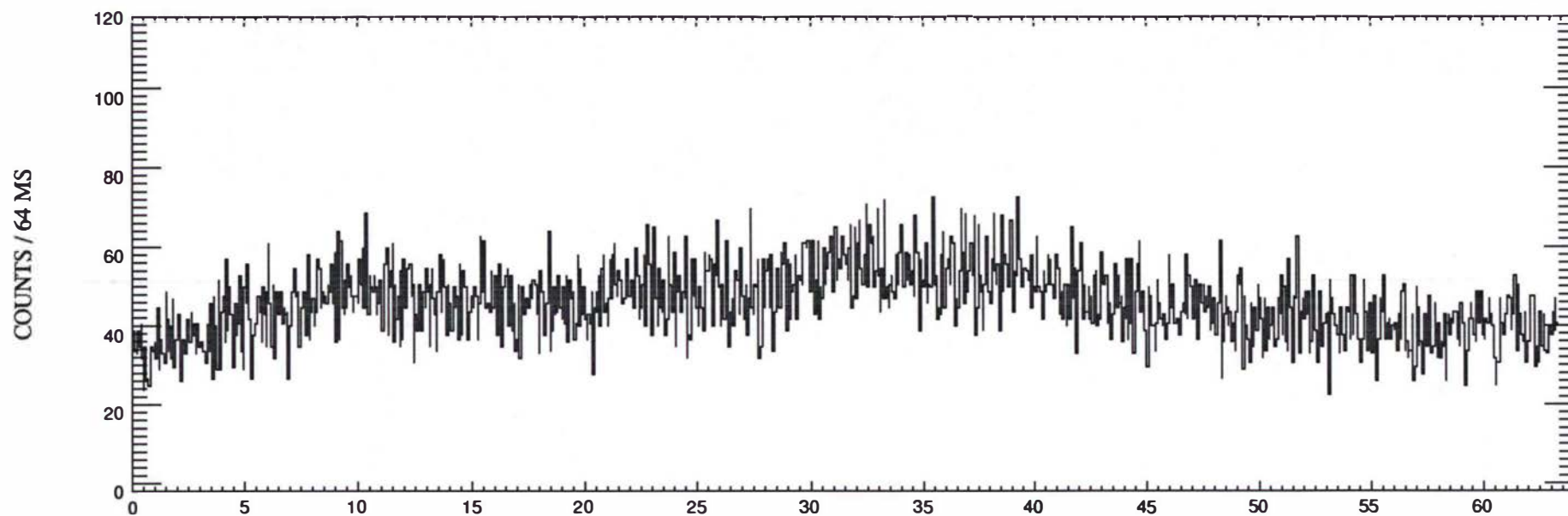
Burst Counter 2 at UT= 3.846558833652 h=13847.612 s 03:50:47.612



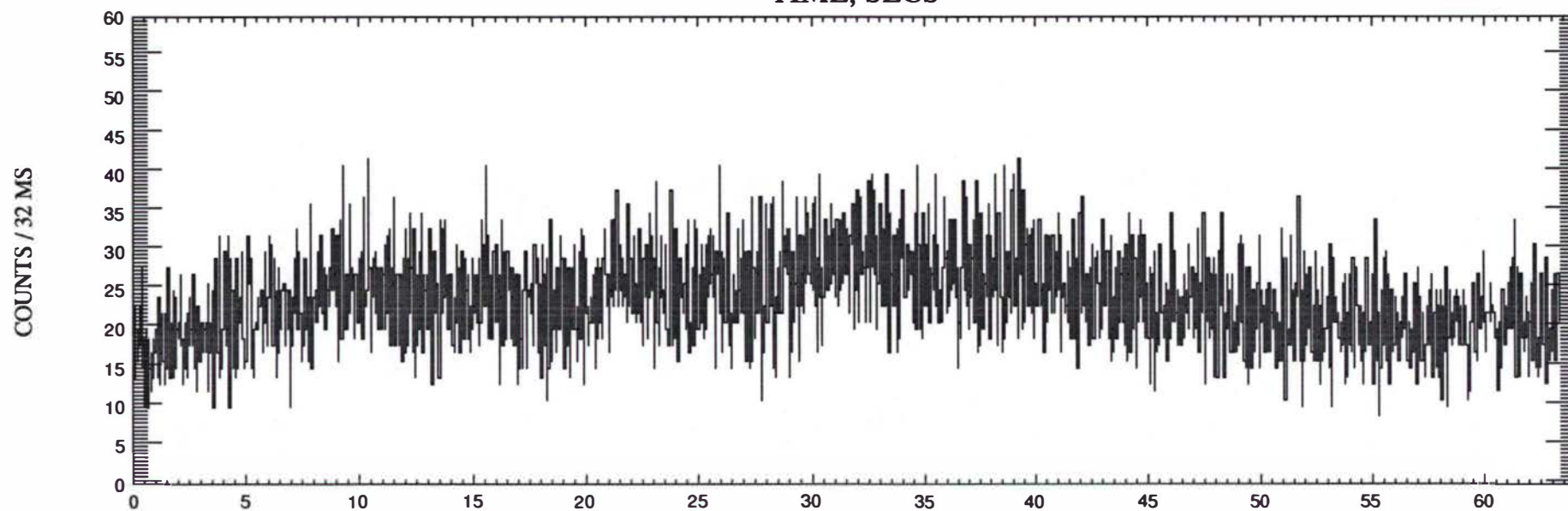
CALIBRATION DATA INCLUDED



Burst Counter 3 at UT=16.442460509406 h=59192.858 s 16:26:32.858

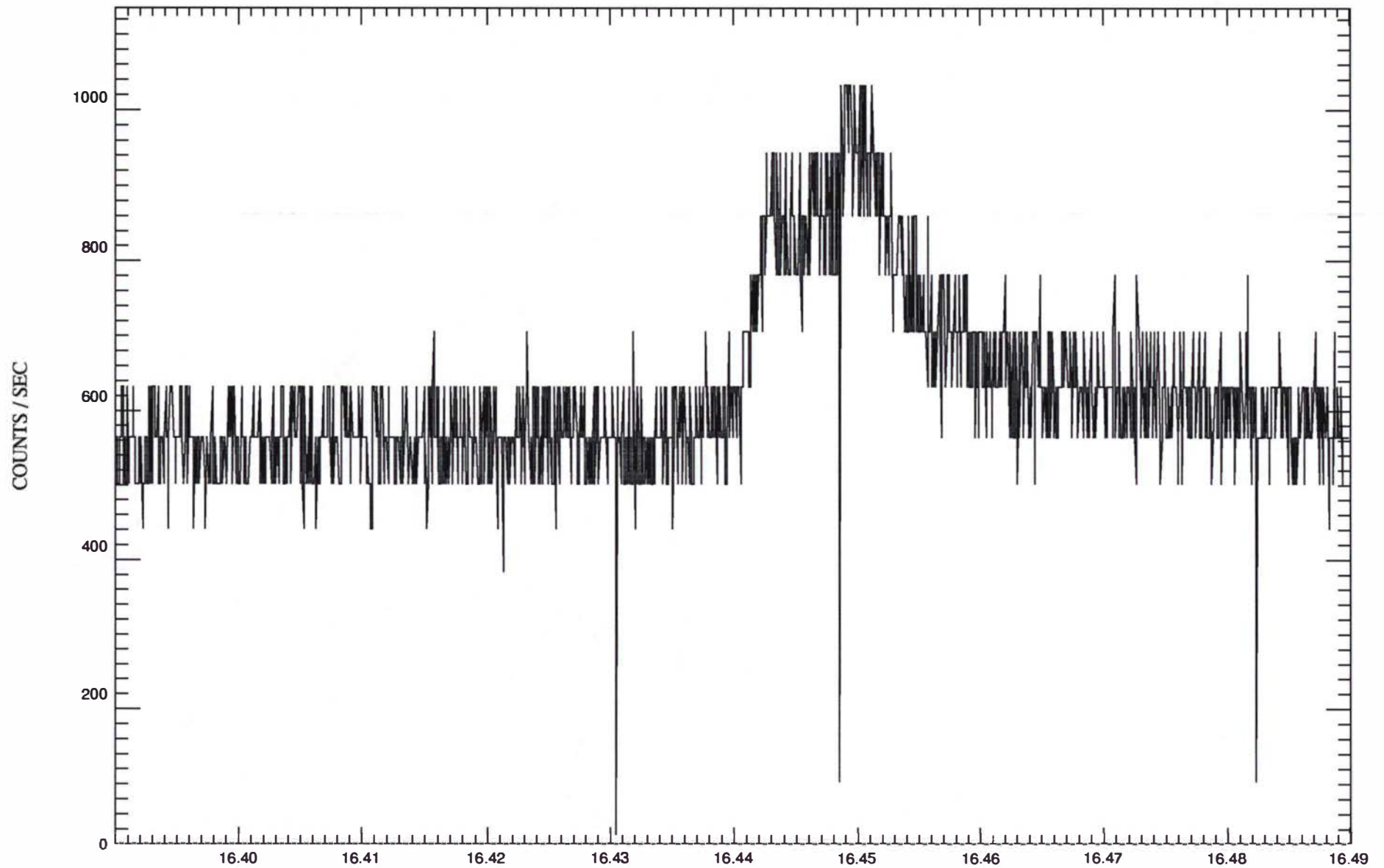


TIME, SECS

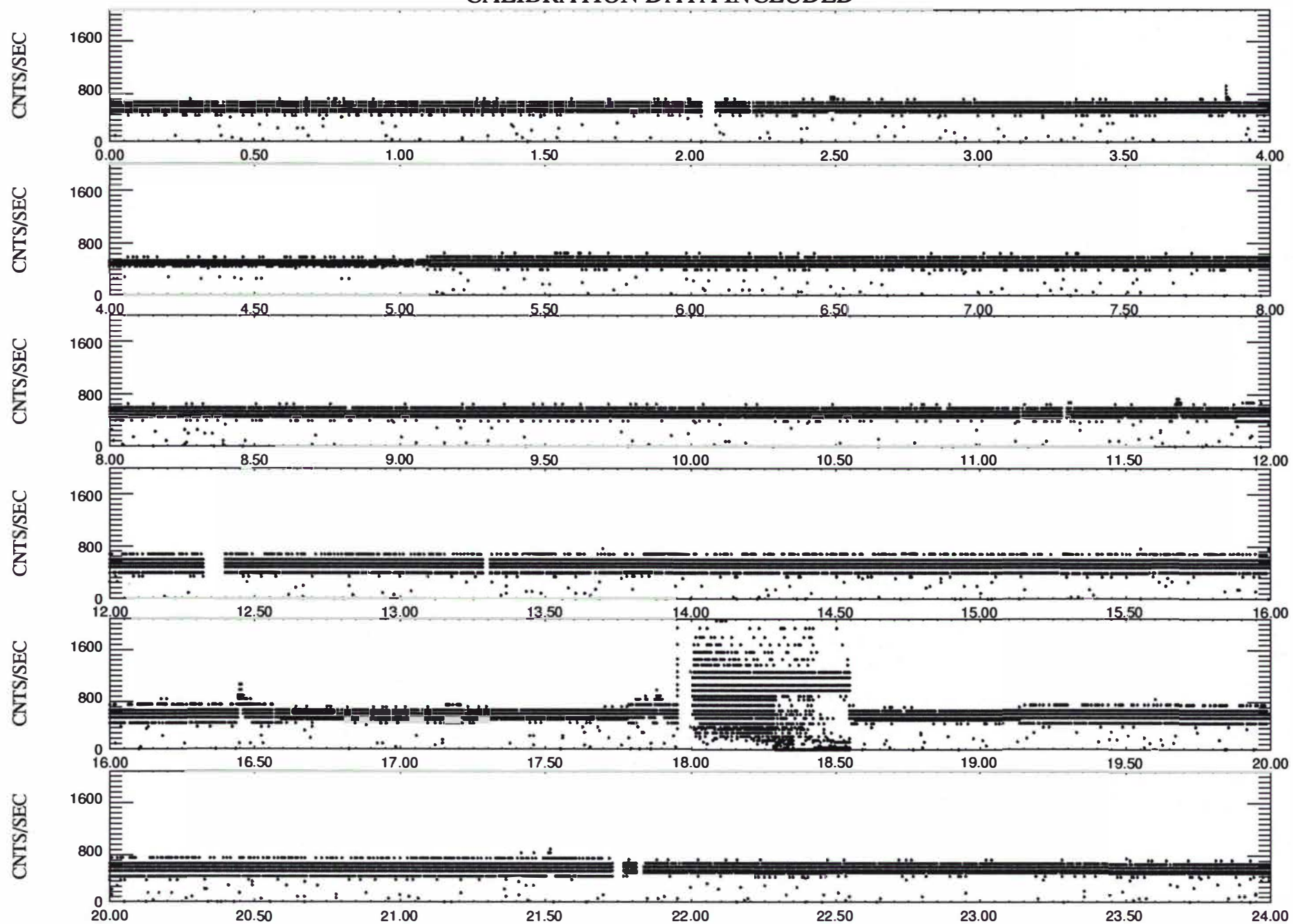


TIME, SECS

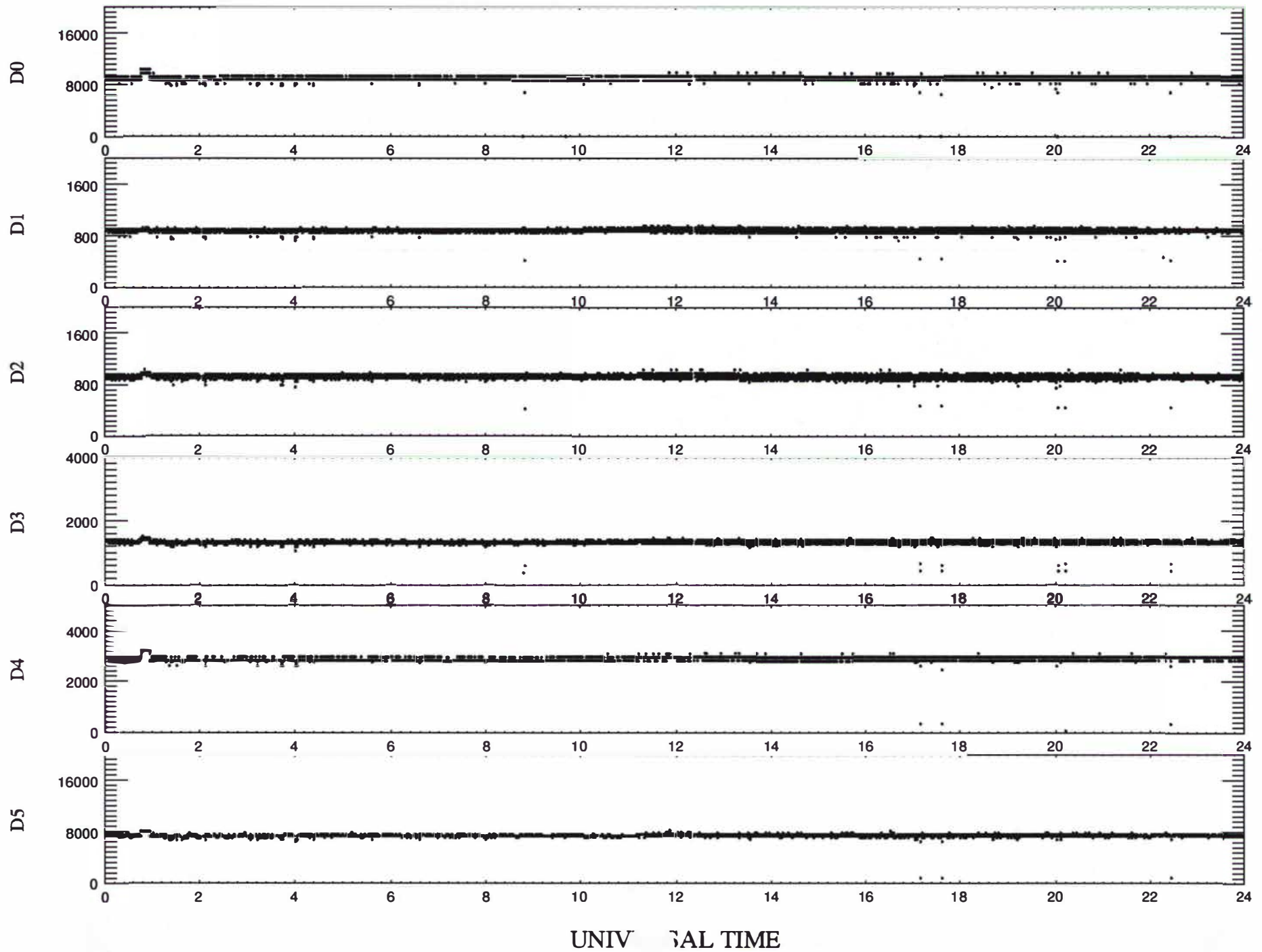
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



BATSEARCH PROGRAM

BATSE BURST #
EVENT OF 1991 OCT 13 DAY OF YEAR=286
EVENT CROSSING TIME AT BATSE : 73952. S. OR 20:32:32.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 81.000 6.000
BATSE PEAK COUNTING RATE: 0 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 13/10/ 91 IS:
RA= 161.176 DEC= 9.198 DIST= 5.154 AU
BATSE-ULYSSES DISTANCE = 771111704. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=100.62 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -473.82 SECS.
CROSSING TIME AT ULYSSES IS 73478. S. OR 20:24:38 +/- 481.73 SECONDS
8.37 SECONDS

18 / 8 / 93

ULYSSES RT

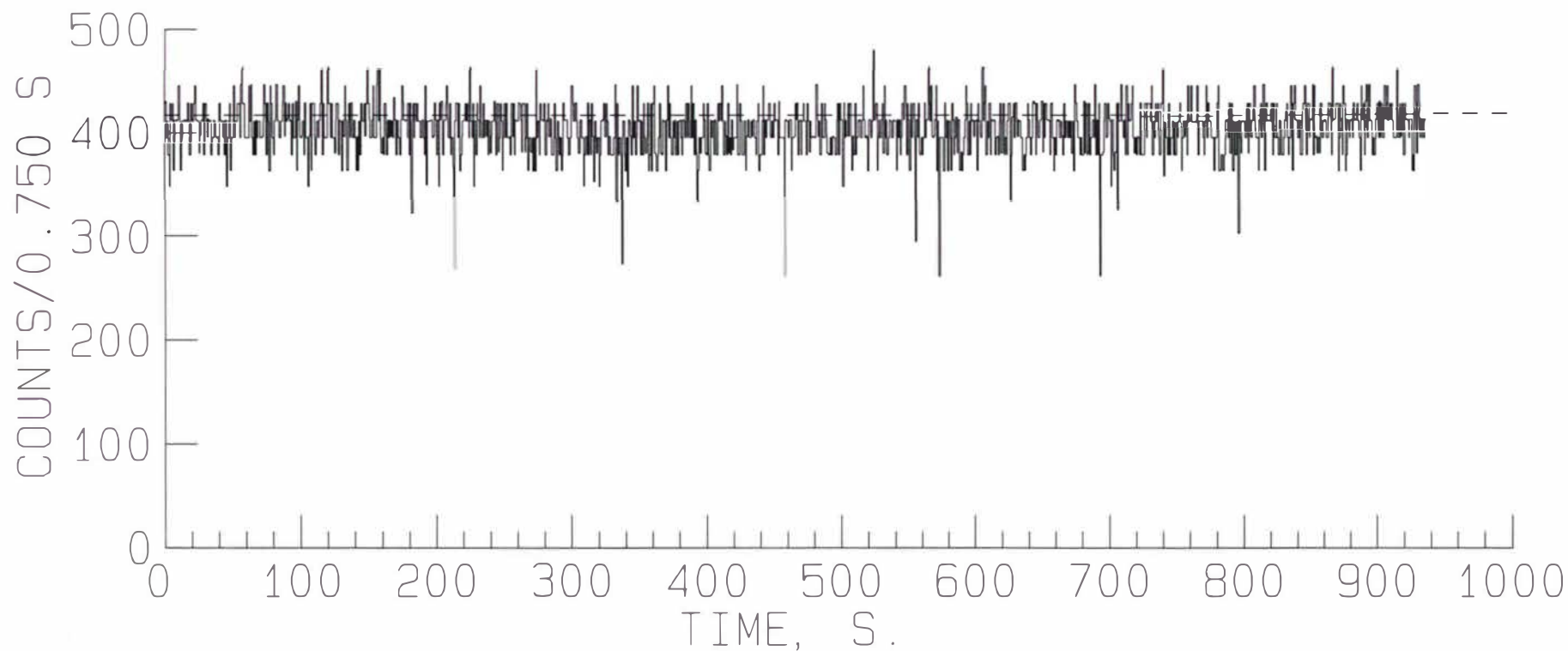
13/10/91 73008.016 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 2

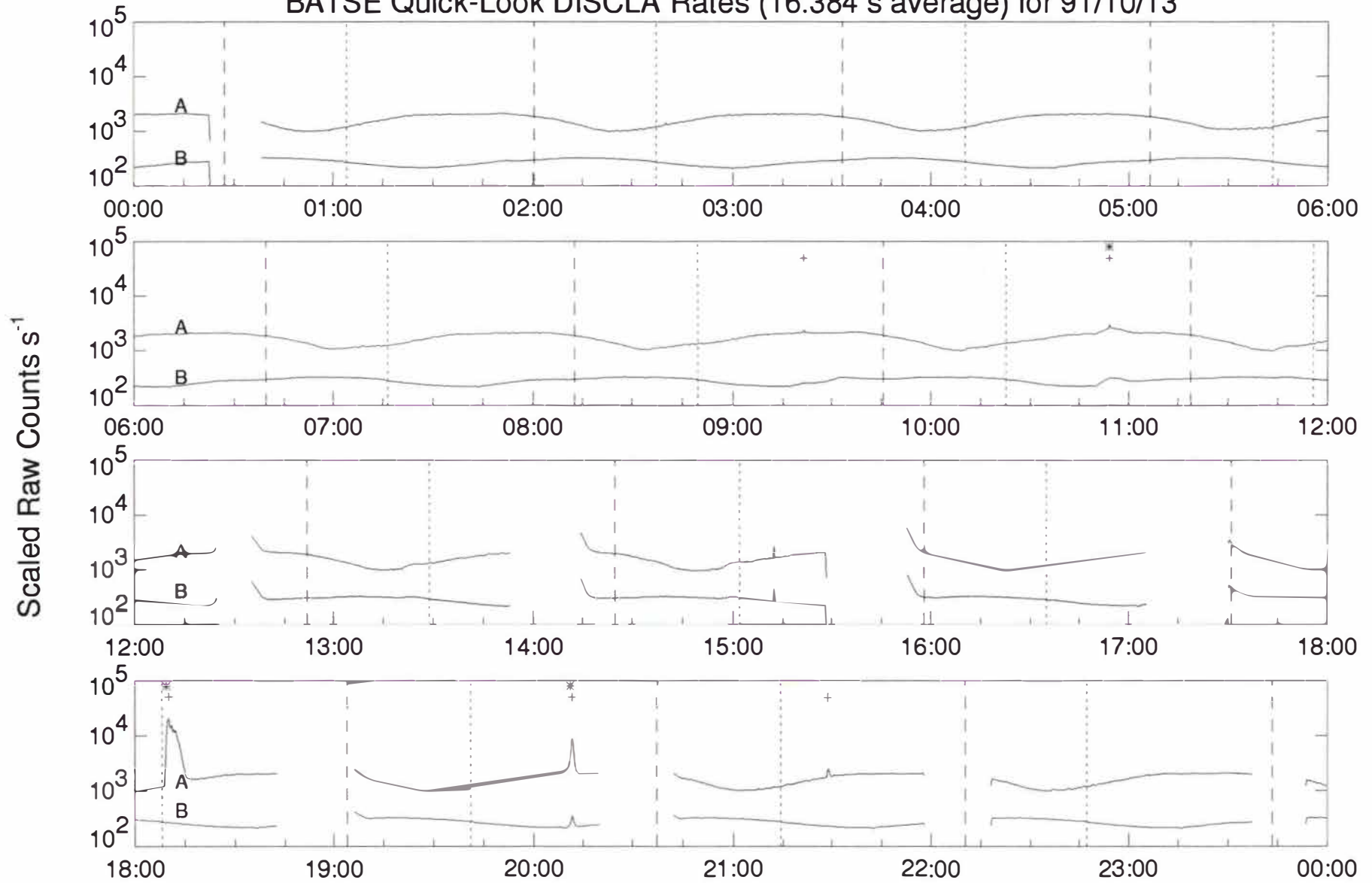
>4.0 SIGMA FLUCTUATIONS



Dezelay -> KH 7/93

DATE	U.T.	Nr UGB	Event Nature
1991-08-27	15:33:19.885	325-c	Solar Particles
1991-09-01	05:24:27.051	327-a	GRB
1991-09-07	01:05:10.287	330-a	GRB
1991-09-07	19:23:04.162	331-a	Solar Flare
1991-10-01	18:14:23.671	345-a	Unknown
1991-10-01	19:01:20.457	345-b	Unknown
1991-10-04	01:27:10.195	347-a	Unknown
1991-10-13	18:09:49.270	353-a	Solar Flare
1991-10-13	21:02:34.557	353-b	Solar Flare
1991-10-14	17:34:33.822	354-a	Unknown
1991-10-16	11:01:35.345	355-a	GRB
1991-10-18	05:32:15.504	356-a	GRB
1991-10-25	21:25:15.926	362-a	GRB
1991-10-26	15:06:06.127	363-a	Unknown
1991-10-26	15:28:41.044	363-b	Unknown
1991-10-26	20:35:18.850	363-c	Solar Flare
1991-11-19	17:12:34.357	367-a	GRB
1991-11-19	17:28:41.794	367-b	Solar Flare
1991-11-21	07:23:32.063	368-a	Unknown
1991-11-21	07:43:41.945	368-b	Unknown
1991-11-21	07:58:33.952	368-c	Unknown
1991-12-05	19:48:38.788	375-a	Solar Flare
1991-12-14	20:55:02.702	378-a	Unknown
1991-12-15	06:23:41.586	378-b	Unknown
1991-12-15	11:41:18.304	378-c	Unknown
1991-12-20	14:02:29.154	380-a	Solar Flare
1991-12-20	14:53:07.976	380-b	Solar Flare
1991-12-20	16:04:57.705	380-c	Solar Flare
1991-12-22	15:00:10.116	381-a	GRB
1992-01-10	00:12:08.191	386-a	Unknown
1992-01-10	02:45:56.628	386-b	Unknown
1992-01-10	09:18:06.120	386-c	Unknown & GRB
1992-01-18	09:42:49.763	392-a	Unknown
1992-01-18	12:38:59.105	392-b	Unknown
1992-01-18	~12:52	392-c	Unknown

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/13

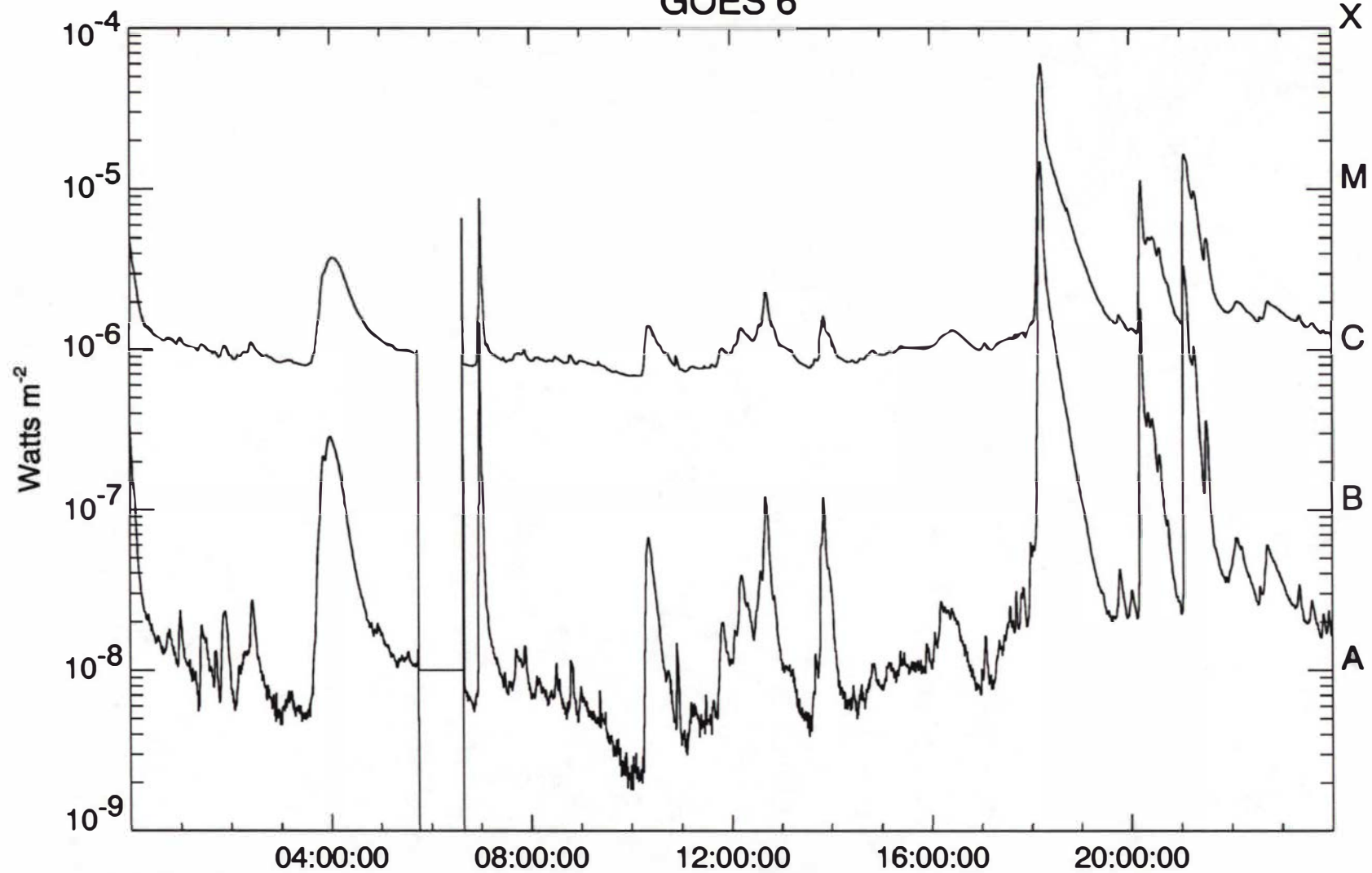


Current Time: 92/10/31, 1950 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/13, 0000:00

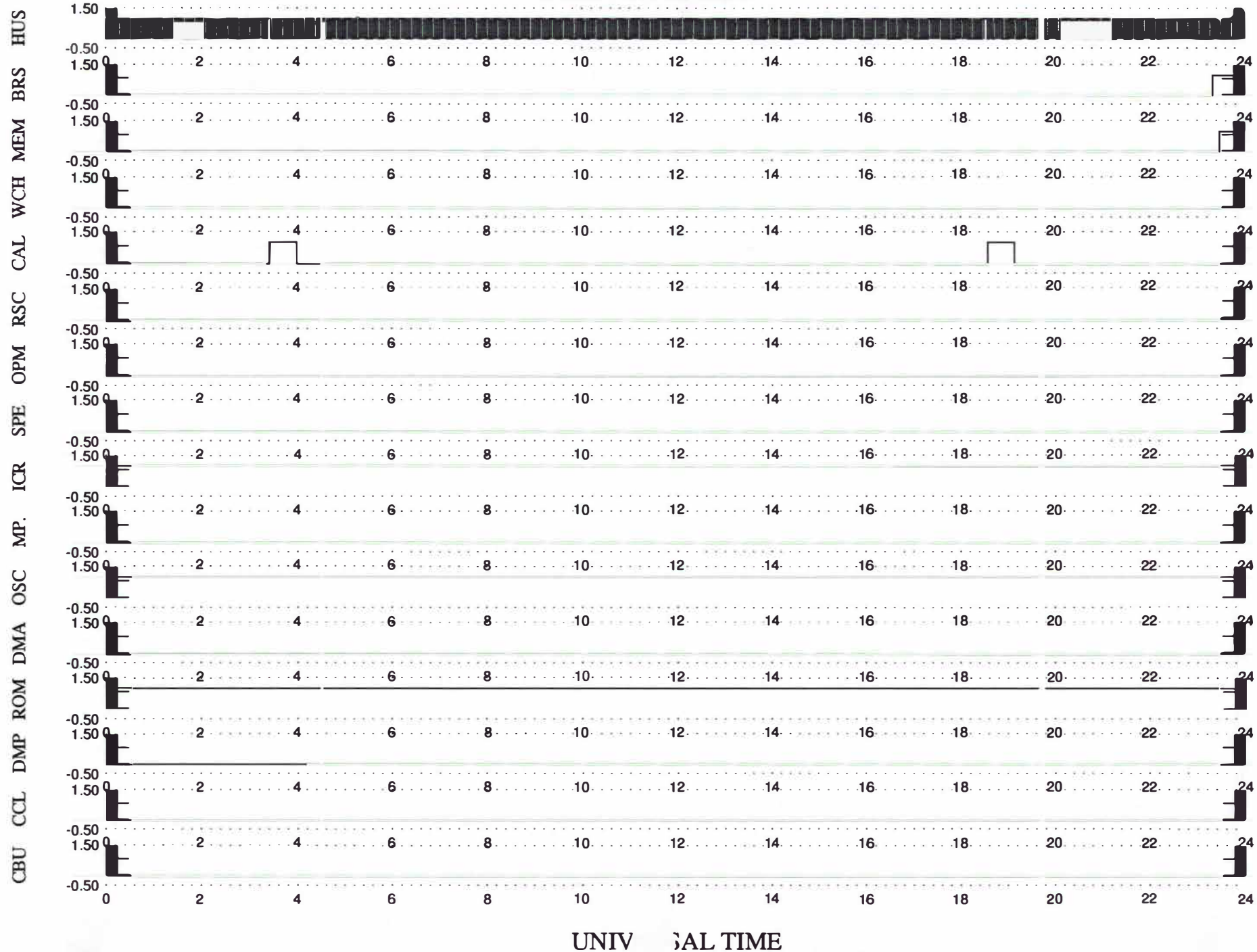
Plot created: 97/10/14, 2323

Channel

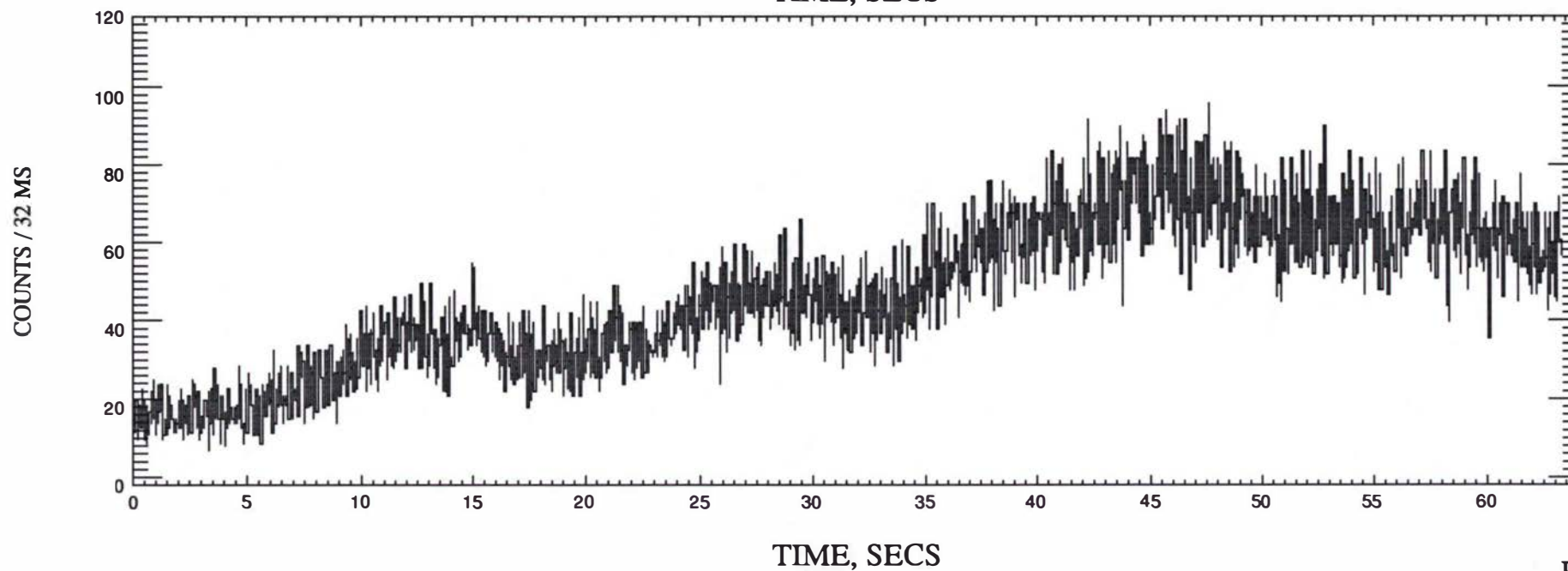
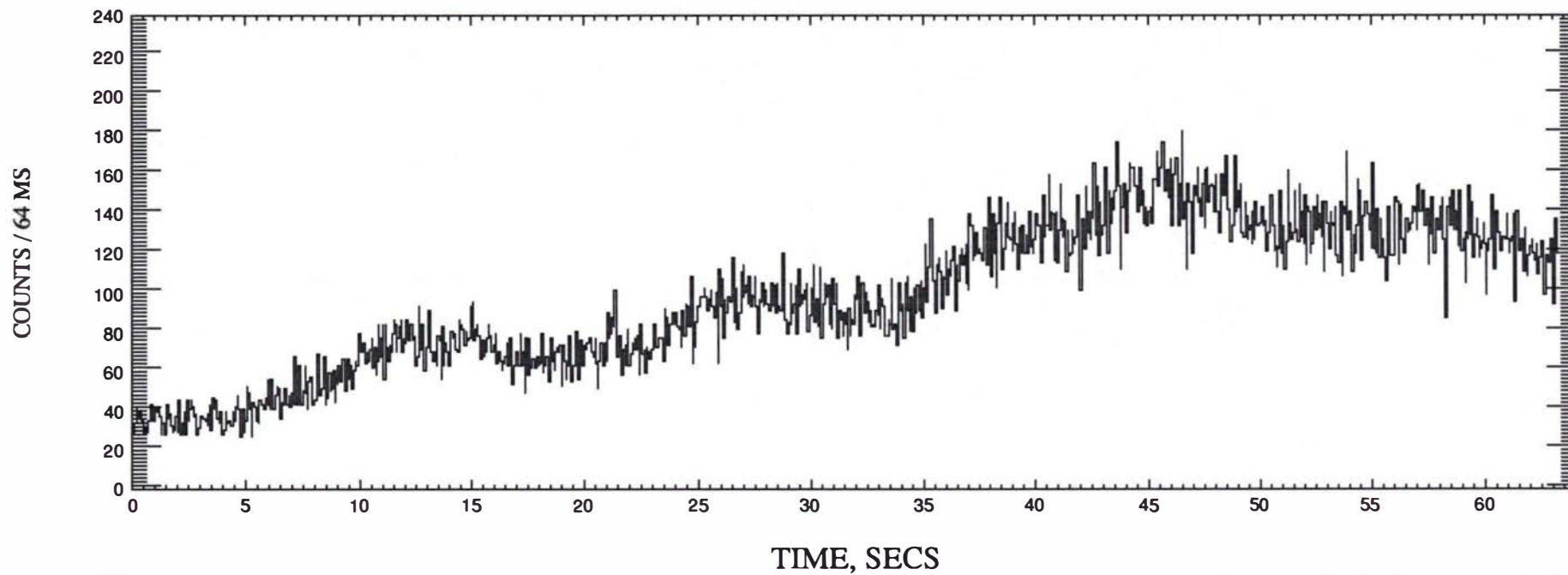
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

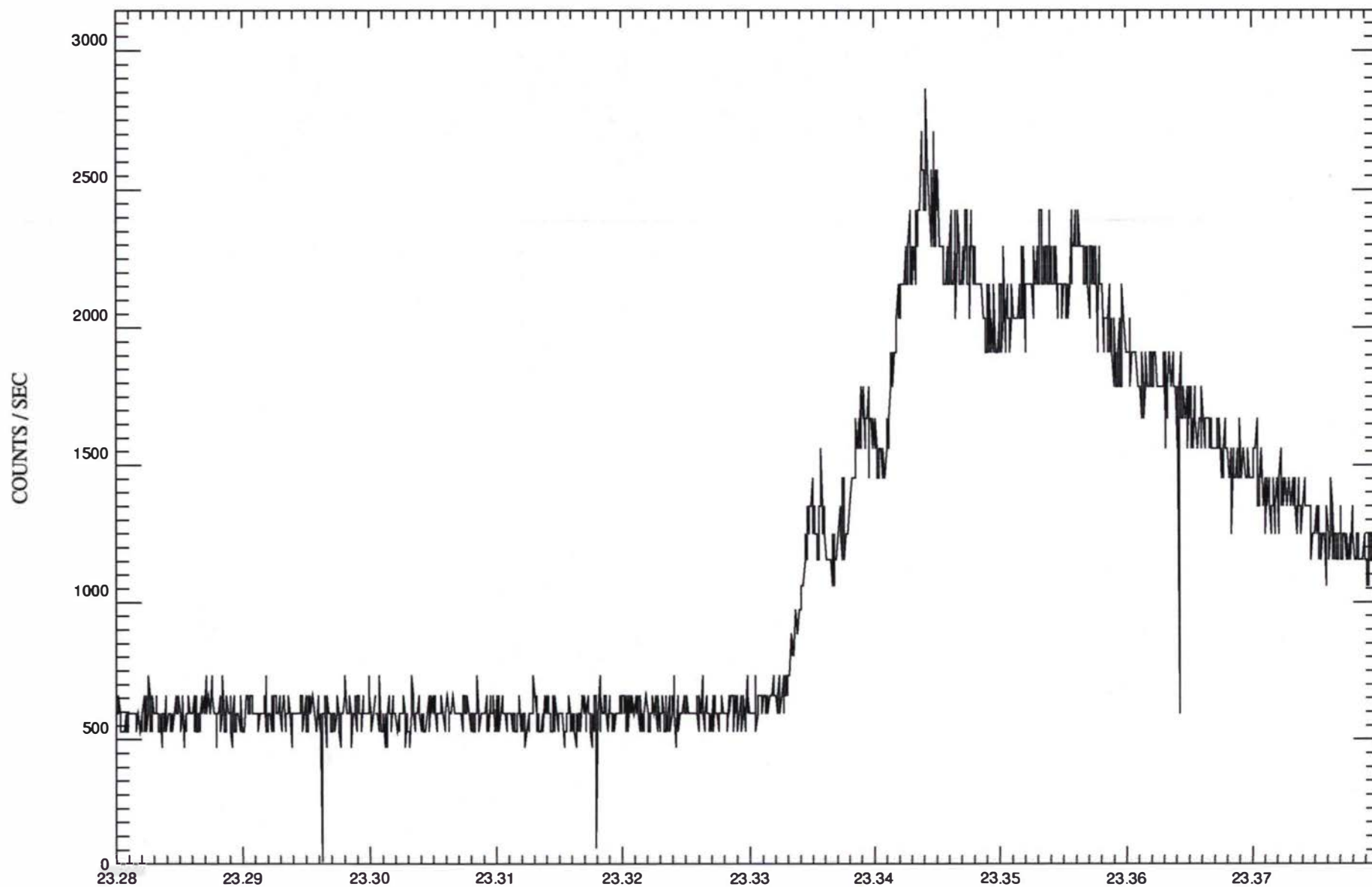
BURST NUMBER 5



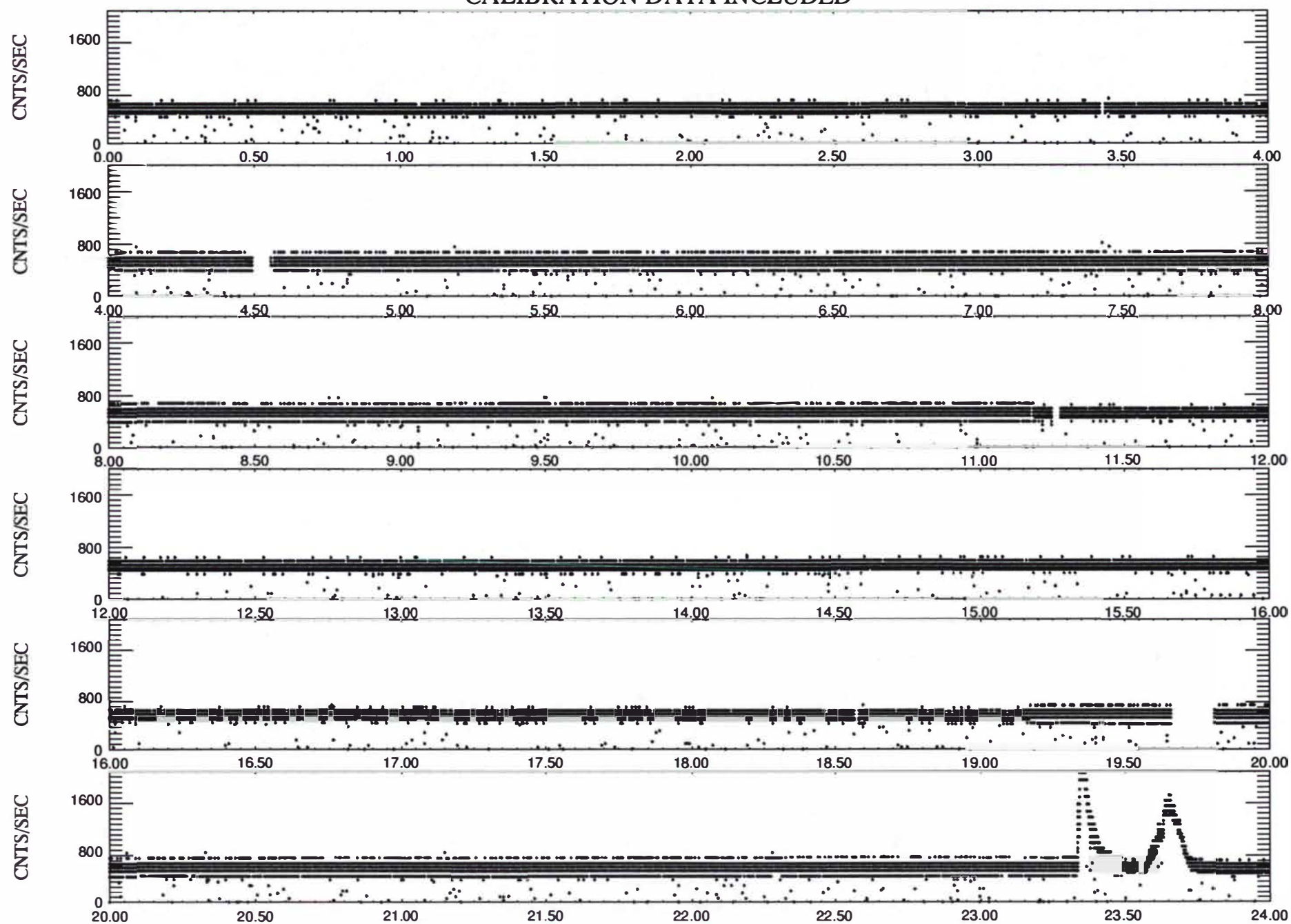
Burst Counter 5 at UT=23.333657760620 h=84001.168 s 23:20:01.168



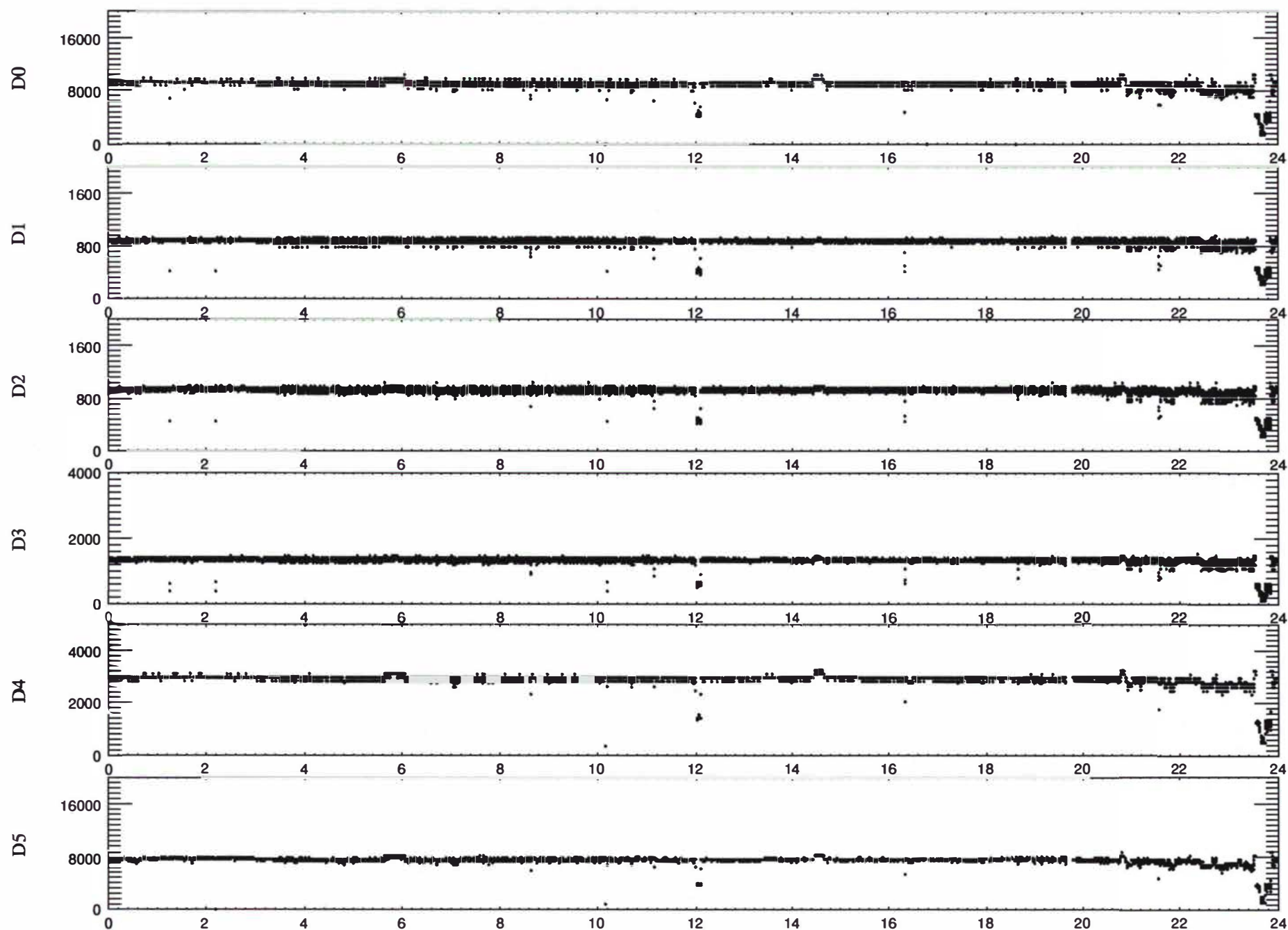
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UNIV 3AL TIME



UNIV 3AL TIME

DATE	U.T.	Nr UGB	Event Nature
1991-08-27	15:33:19.885	325-c	Solar Particles
1991-09-01	05:24:27.051	327-a	GRB
1991-09-07	01:05:10.287	330-a	GRB
1991-09-07	19:23:04.162	331-a	Solar Flare
1991-10-01	18:14:23.671	345-a	Unknown
1991-10-01	19:01:20.457	345-b	Unknown
1991-10-04	01:27:10.195	347-a	Unknown
1991-10-13	18:09:49.270	353-a	Solar Flare
1991-10-13	21:02:34.557	353-b	Solar Flare
1991-10-14	17:34:33.822	354-a	Unknown
1991-10-16	11:01:35.345	355-a	GRB
1991-10-18	05:32:15.504	356-a	GRB
1991-10-25	21:25:15.926	362-a	GRB
1991-10-26	15:06:06.127	363-a	Unknown
1991-10-26	15:28:41.044	363-b	Unknown
1991-10-26	20:35:18.850	363-c	Solar Flare
1991-11-19	17:12:34.357	367-a	GRB
1991-11-19	17:28:41.794	367-b	Solar Flare
1991-11-21	07:23:32.063	368-a	Unknown
1991-11-21	07:43:41.945	368-b	Unknown
1991-11-21	07:58:33.952	368-c	Unknown
1991-12-05	19:48:38.788	375-a	Solar Flare
1991-12-14	20:55:02.702	378-a	Unknown
1991-12-15	06:23:41.586	378-b	Unknown
1991-12-15	11:41:18.304	378-c	Unknown
1991-12-20	14:02:29.154	380-a	Solar Flare
1991-12-20	14:53:07.976	380-b	Solar Flare
1991-12-20	16:04:57.705	380-c	Solar Flare
1991-12-22	15:00:10.116	381-a	GRB
1992-01-10	00:12:08.191	386-a	Unknown
1992-01-10	02:45:56.628	386-b	Unknown
1992-01-10	09:18:06.120	386-c	Unknown & GRB
1992-01-18	09:42:49.763	392-a	Unknown
1992-01-18	12:38:59.105	392-b	Unknown
1992-01-18	~12:52	392-c	Unknown

FAX MESSAGE

DATE: December 18, 1991

TO: J.-L. Atteia, CESR

FROM: Kevin Hurley
University of California
Space Sciences Laboratory
Berkeley, CA 94720
Phone: (510) 643-9173
Fax: (510) 643-7629
E-mail: khurley@sunspot.ssl.berkeley.edu

FAXED

TOTAL NUMBER OF PAGES: 2

PLEASE NOTE AREA CODE CHANGE

Voici le profil d'un sursaut Ulysses observe le 14 Octobre environ 42 minutes apres le sursaut SIGMA. Ulysses etait 5,1 UA de la terre, donc le retard est bien compatible avec une origine solaire. Il y en avait d'autres sursauts solaires ce jour la. Pour le 26 il n'y avait pas de declenchements, et on est en train de regarder les donnees temps reel.

Amitiés
Kevin

From atteia@cesrzd.span.cnes.fr Tue Dec 17 07:32:23 1991
Received: from kwai.inria.fr by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA17564; Tue, 17 Dec 91 07:32:19 PST
X400-Received: by /PRMD=inria/ADMD=atlas/C=FR/;
Relayed; 17 Dec 91 16:38:35+0100
X400-Received: by /PRMD=cnes/ADMD=atlas/C=fr/;
Relayed; 17 Dec 91 16:34:26+0100
Date: 17 Dec 91 16:34:26+0100
From: "CESRVD::ATTEIA" <atteia@cesrzd.span.cnes.fr>
Message-Id: <9112171534.AA03753@eliot.cnes.fr>
Subject: Divers sursauts....
To: khurley <khurley@sunspot.ssl.berkeley.edu>
Status: R

Bonjour Kevin,

Merci pour les infos pour le proposal !

Nous avons detecte 2 candidats sursauts avec la camera de SIGMA et nous
aimerions avoir une idee de leur origine (si ils sont solaires ou non)
Pourrais-tu nous dire si ils ont ete vus par HUS et, eventuellement,
a quelle heure ?

Les 2 evenements sont :

Le 14 Oct 1991 a 17h34m44s UT

Le 26 Oct 1991 a 15h28m49s UT

} ~ 5.1 AU from Earth, or 2550 s or 42 min

Merci d'avance...

Par ailleurs les dates de notre sejour se precisent, ce sera
tres certainement du lundi 20 Janvier (arrivee a San Francisco le soir)
au Vendredi 17 Avril (depart le matin), pour ma part je reviendrais
environ une semaine a Toulouse pour le Colloque SIGMA (Je suis en train
de negocier avec Mandrou pour savoir si il peut me payer le voyage).

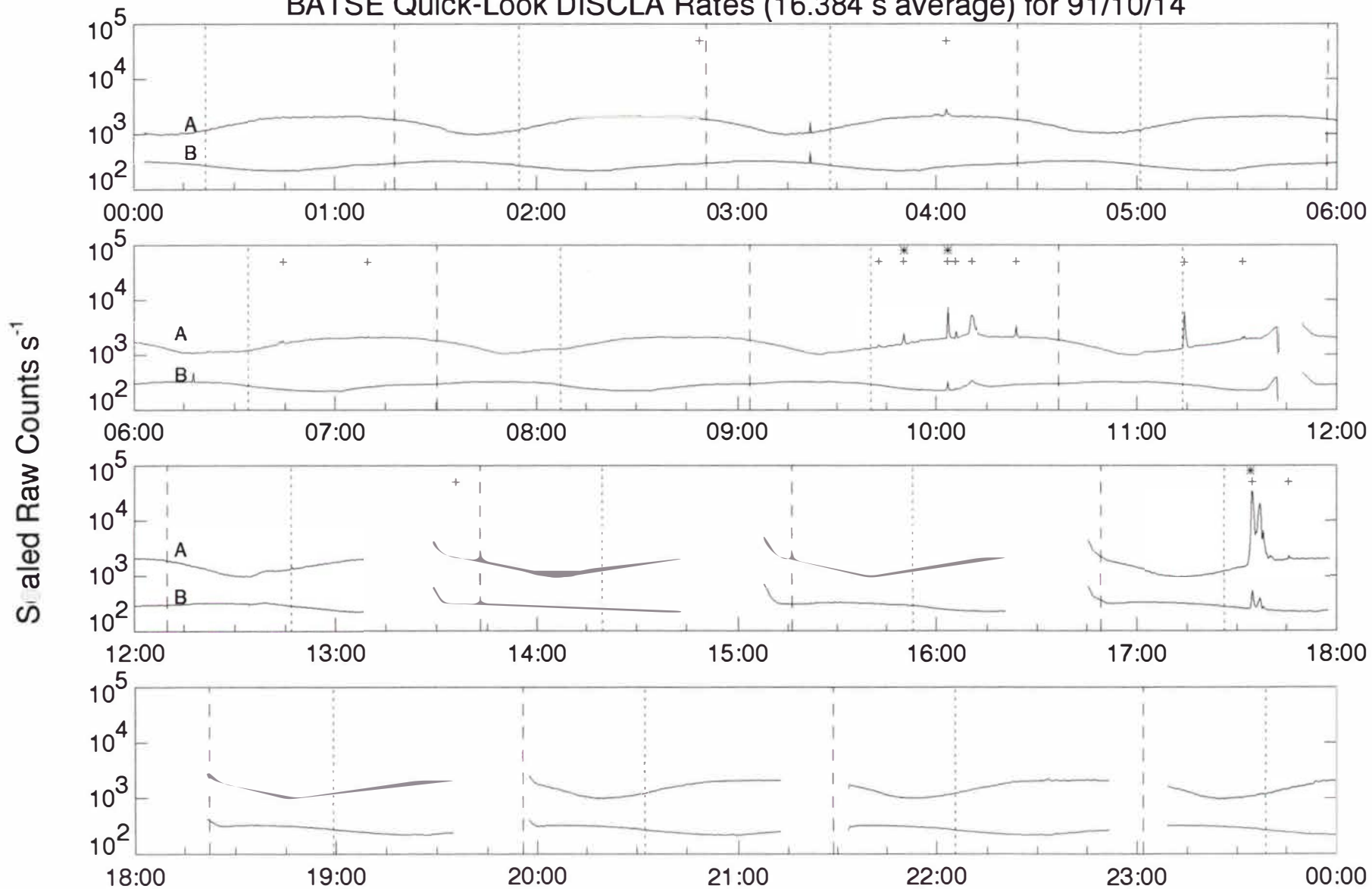
Didier Barret va certainement t'appeler aujourd'hui car il n'a toujours
pas reçu le Papier.

Le proposal part demain matin par DHL (ou equivalent), je crois qu'on
pourra faire du bon travail ...

Amities

Jean-Luc

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/14

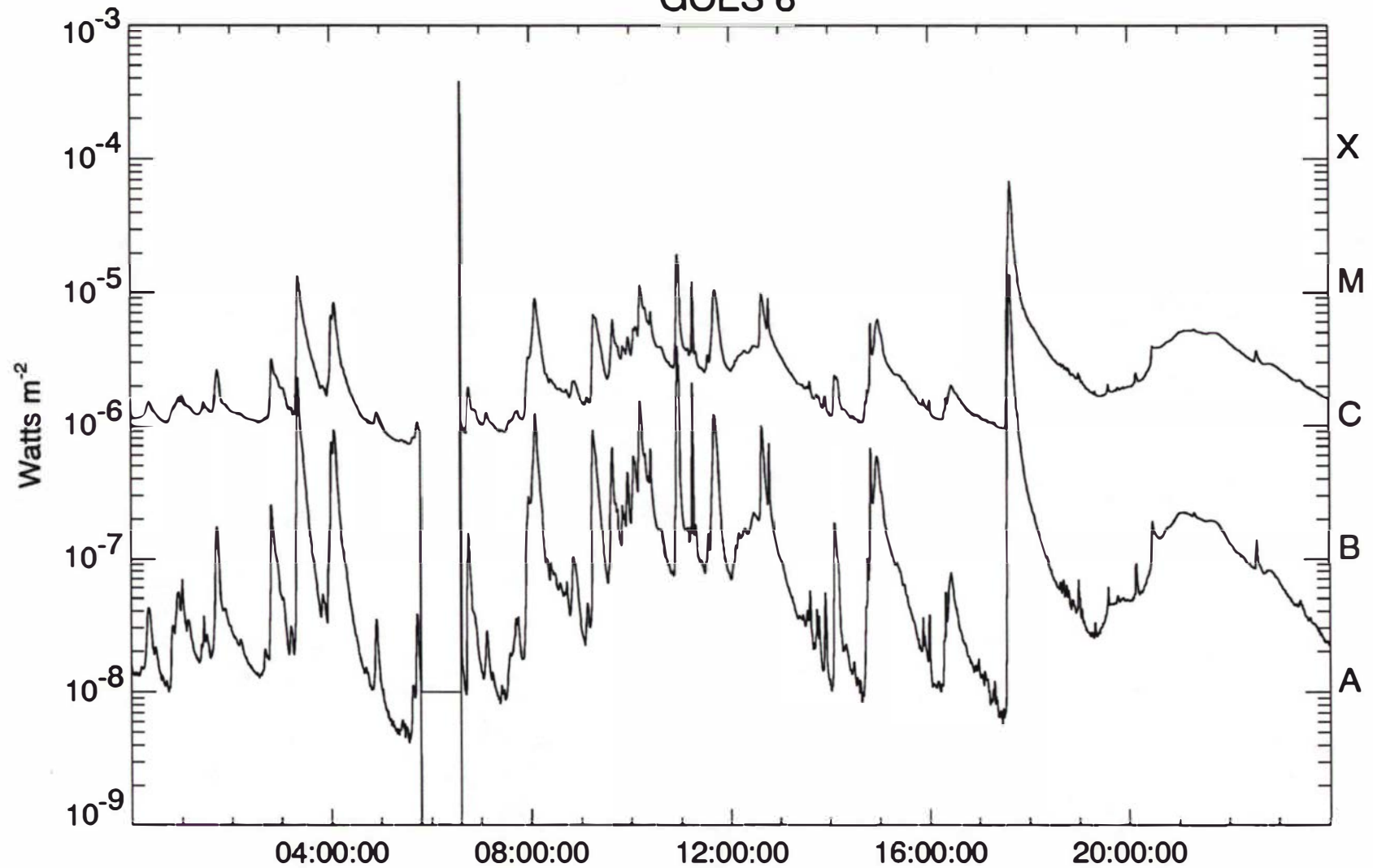


Current Time: 92/10/31, 1951 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/14, 0000:01

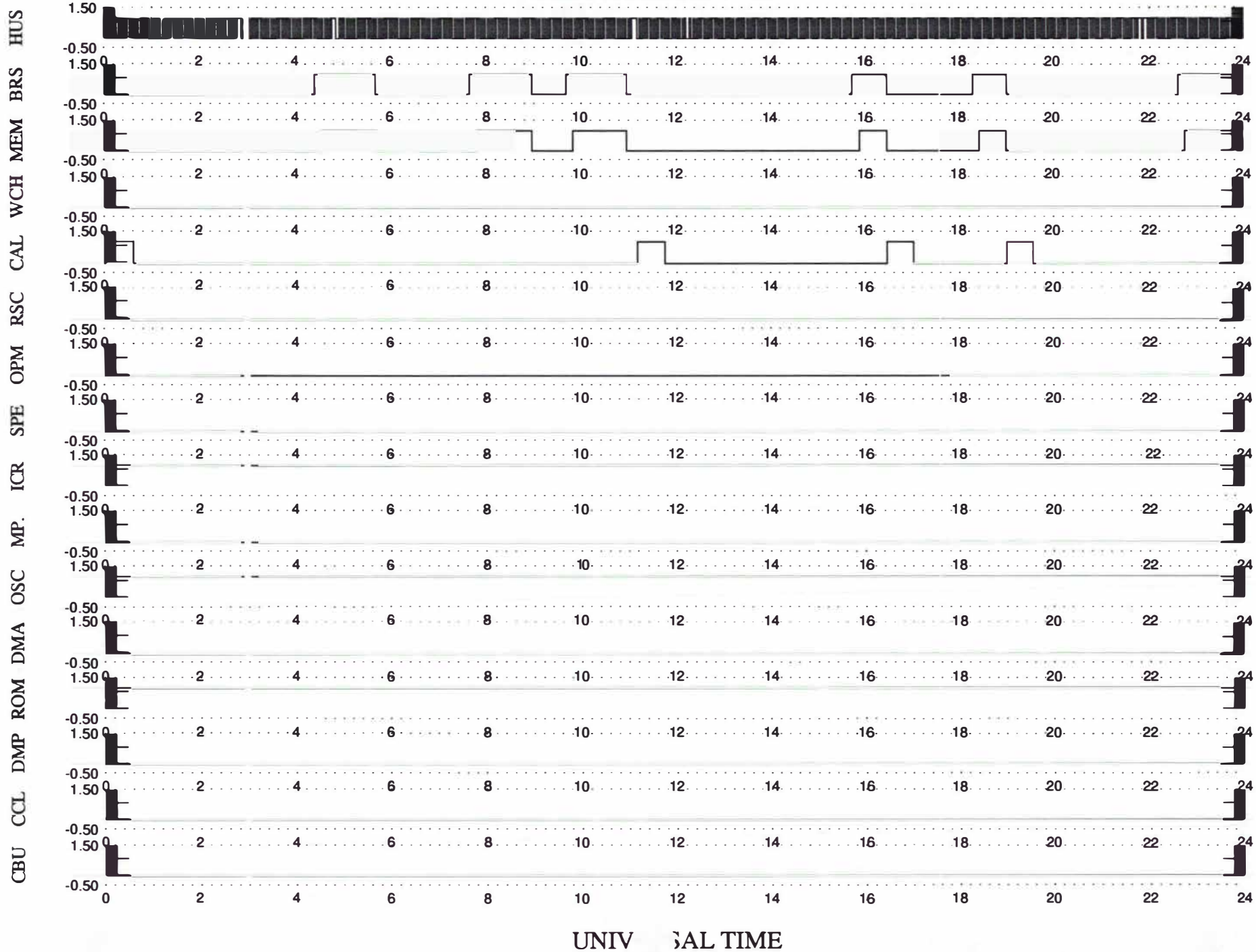
Plot created: 97/10/14, 2326

Channel

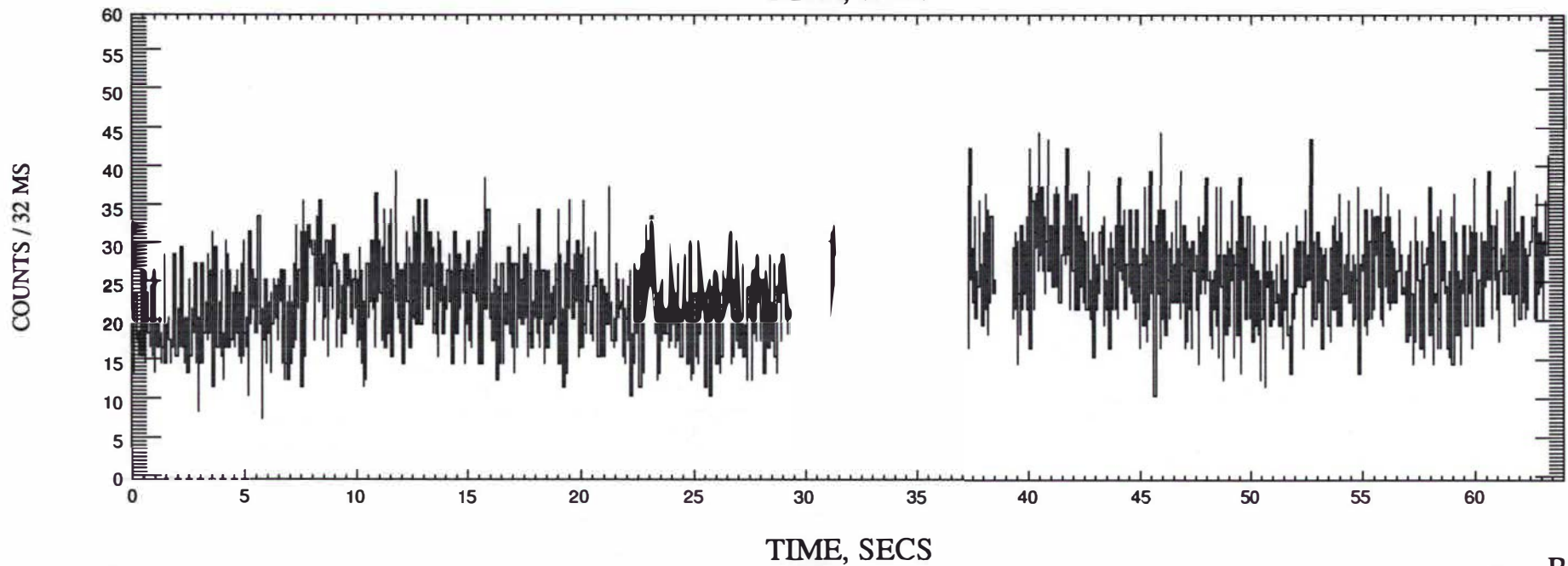
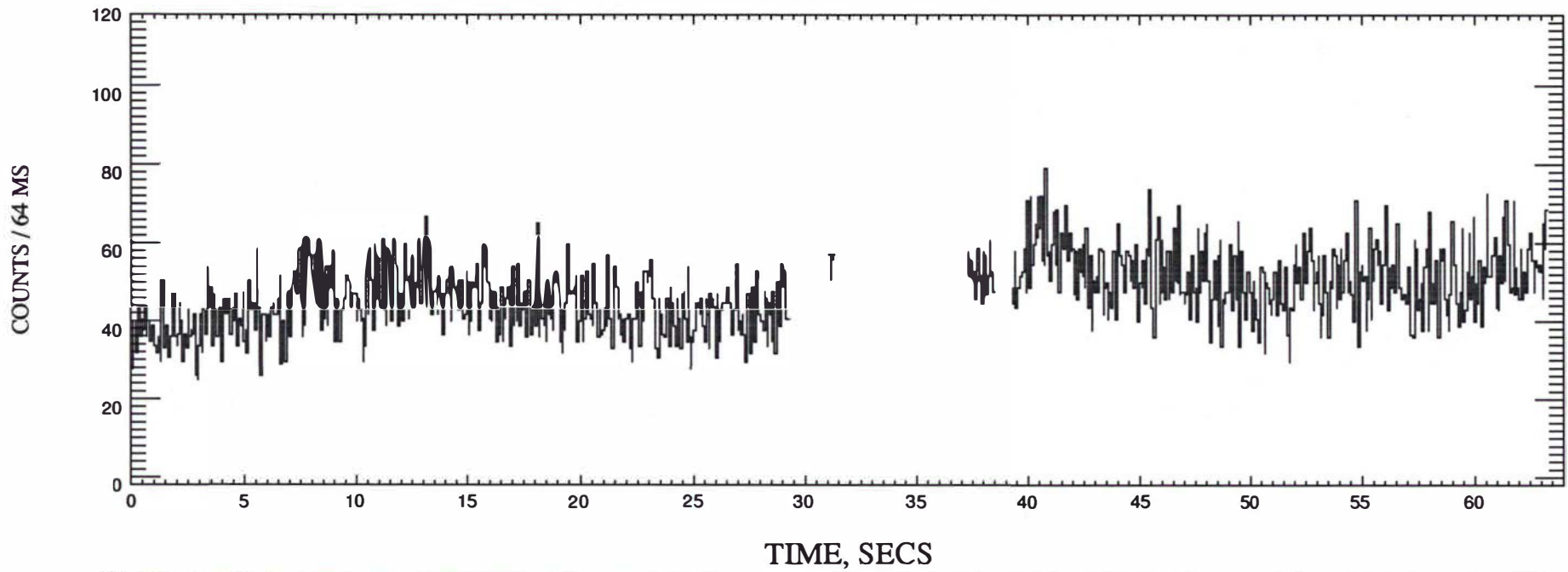
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

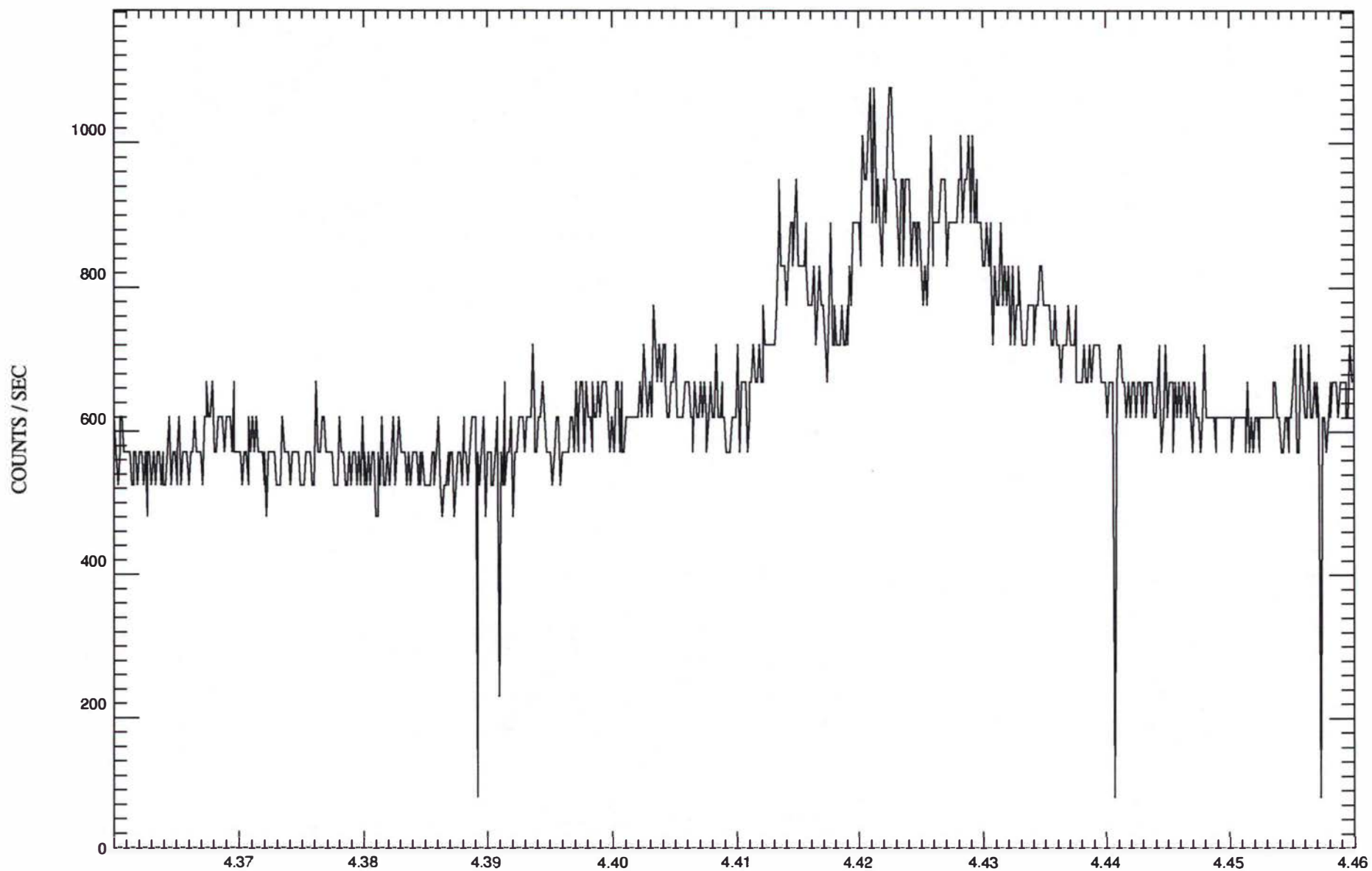
BURST NUMBER 6 - 11



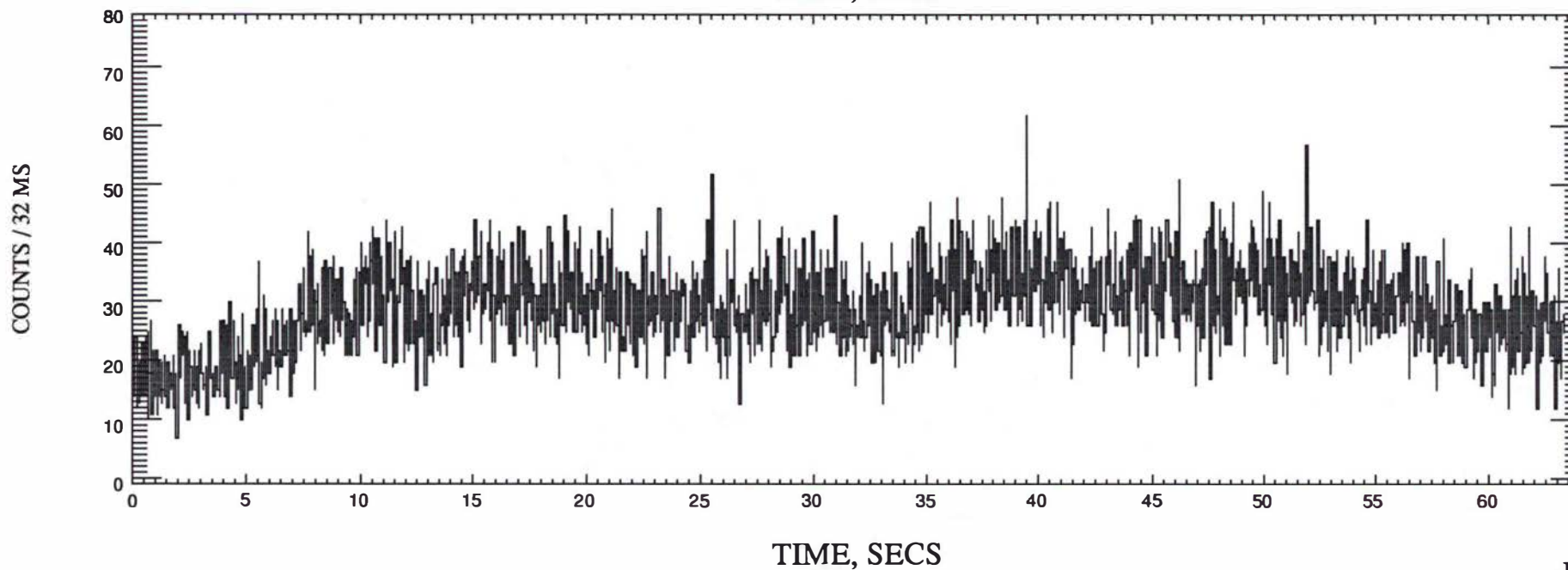
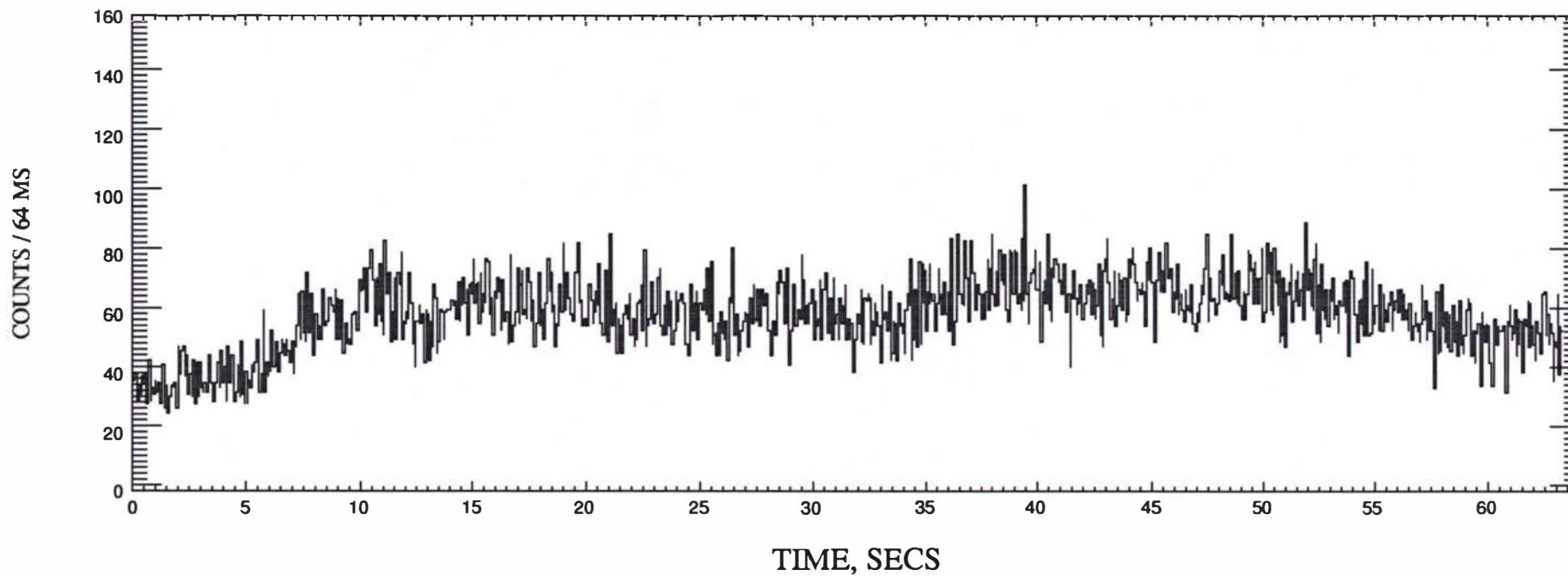
Burst Counter 6 at UT= 4.413396555583 h=15888.228 s 04:24:48.228



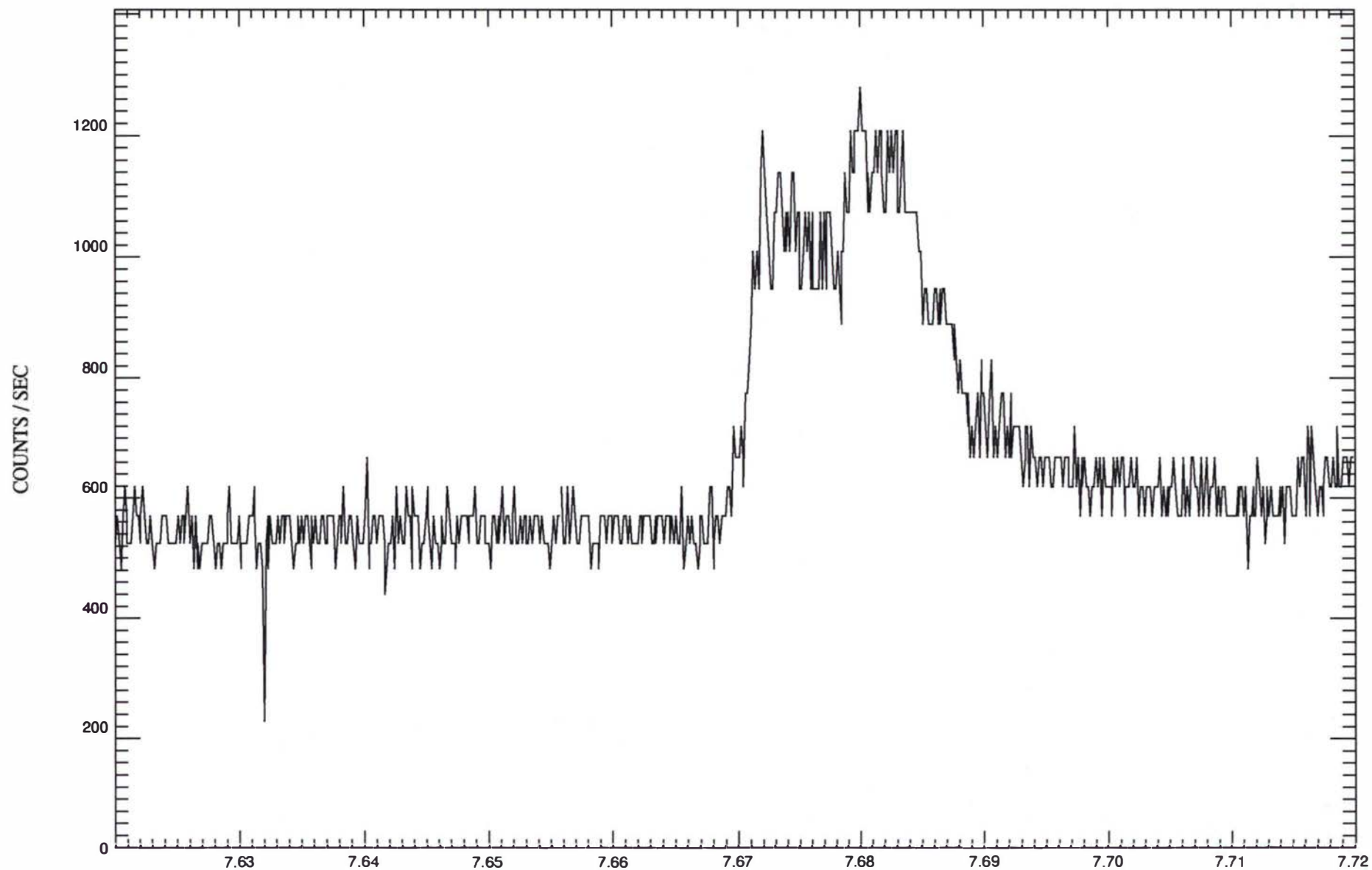
CALIBRATION DATA INCLUDED



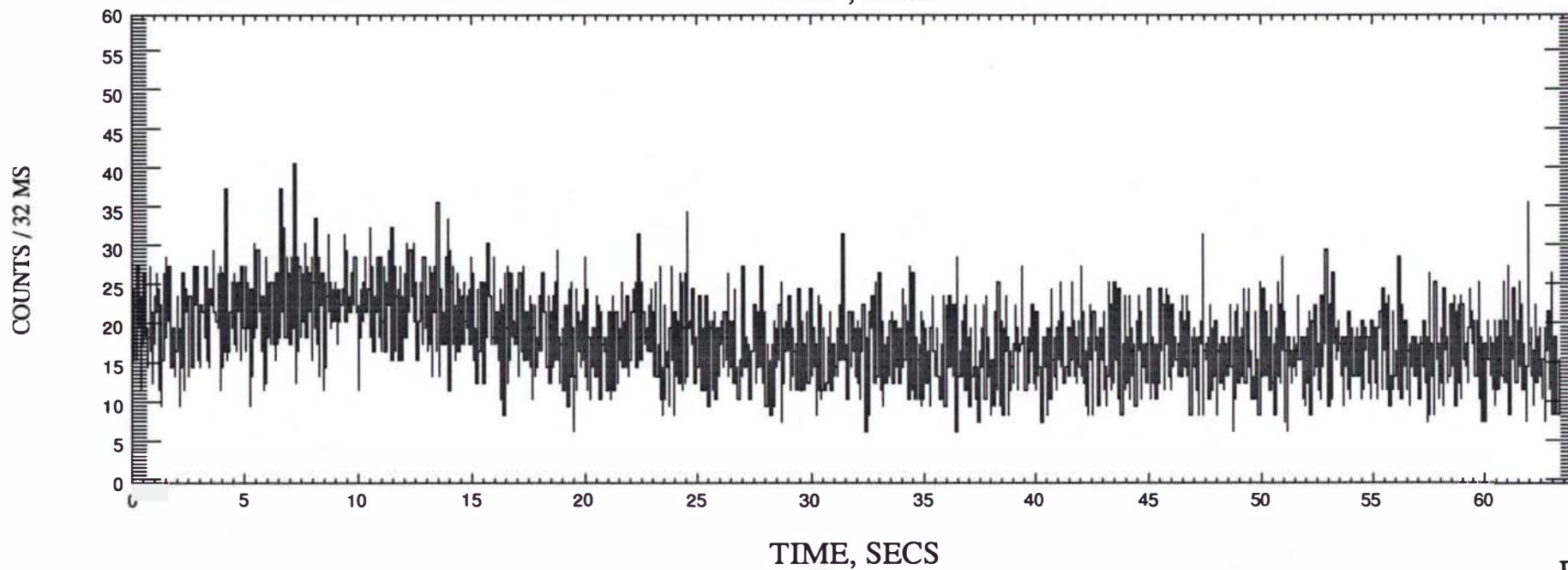
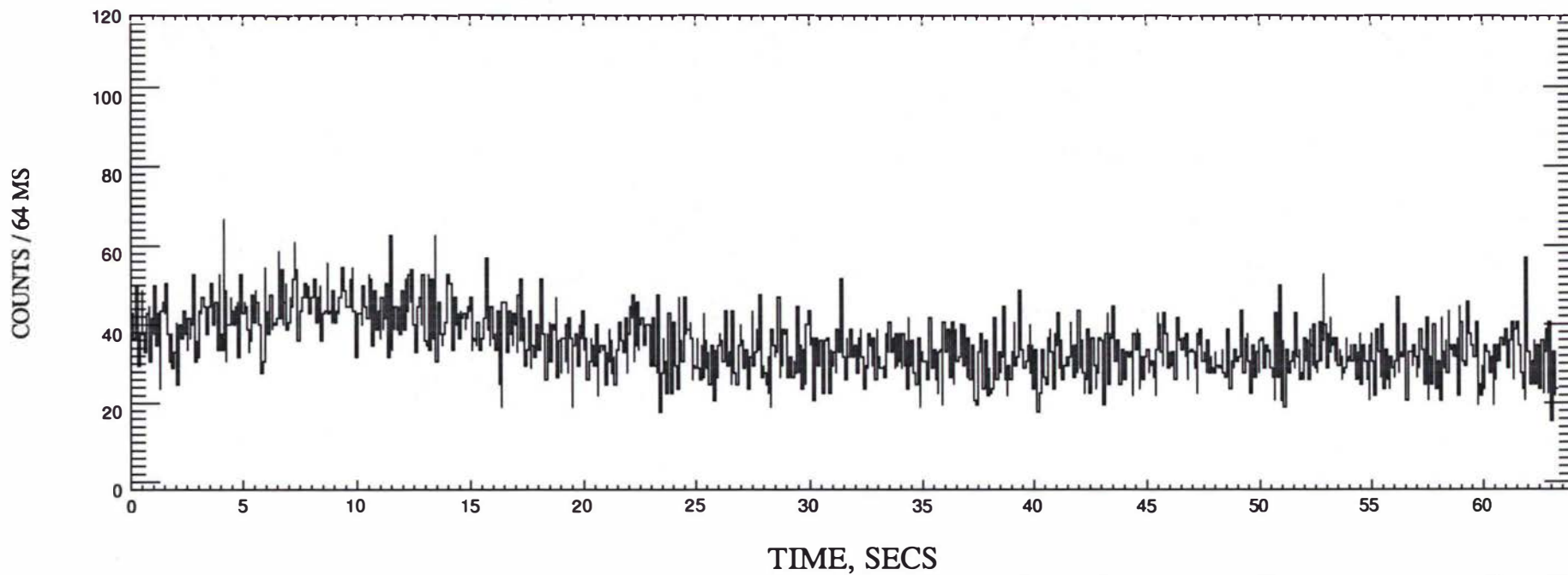
Burst Counter 7 at UT= 7.671218948364 h=27616.388 s 07:40:16.388



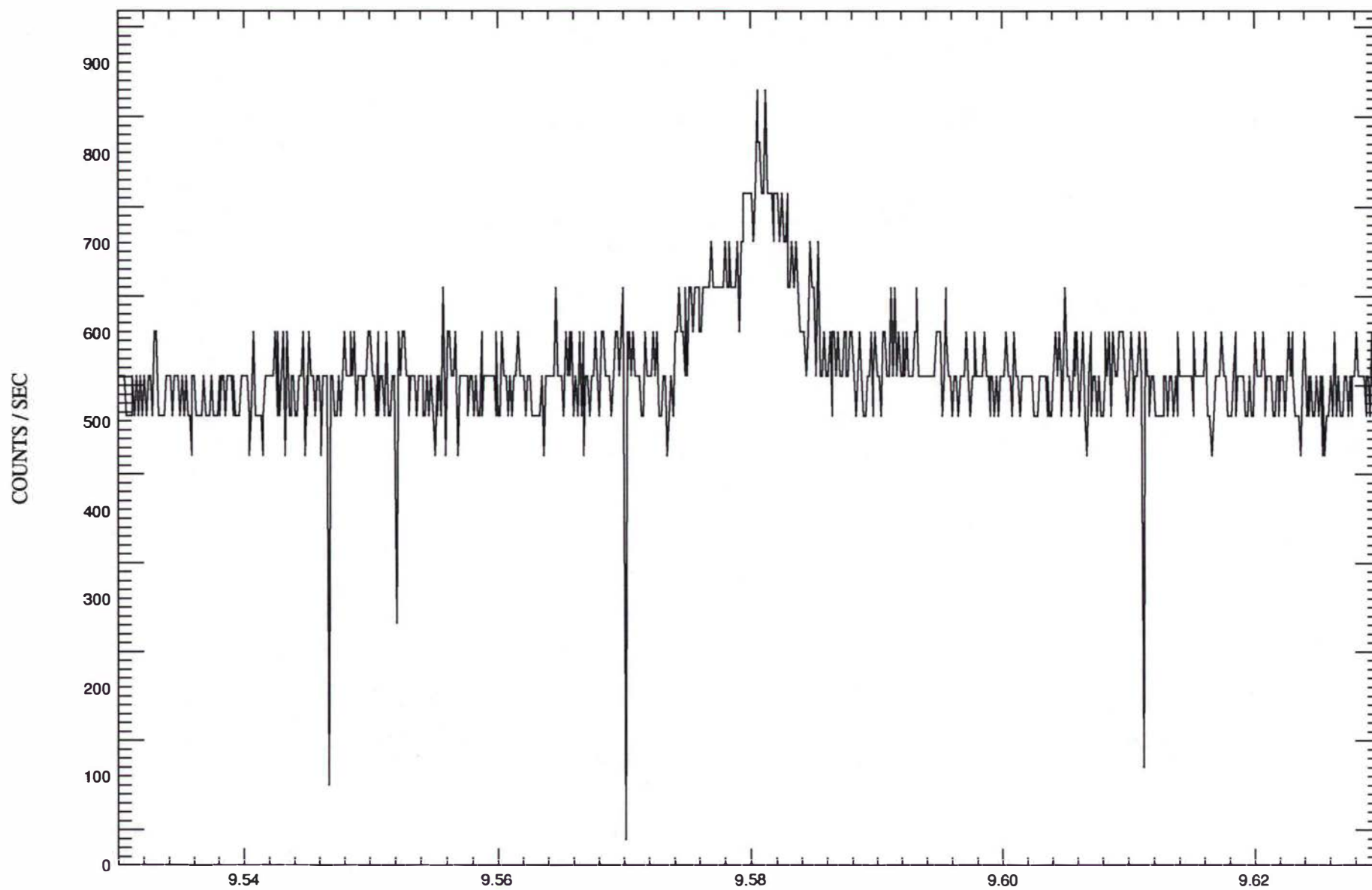
CALIBRATION DATA INCLUDED



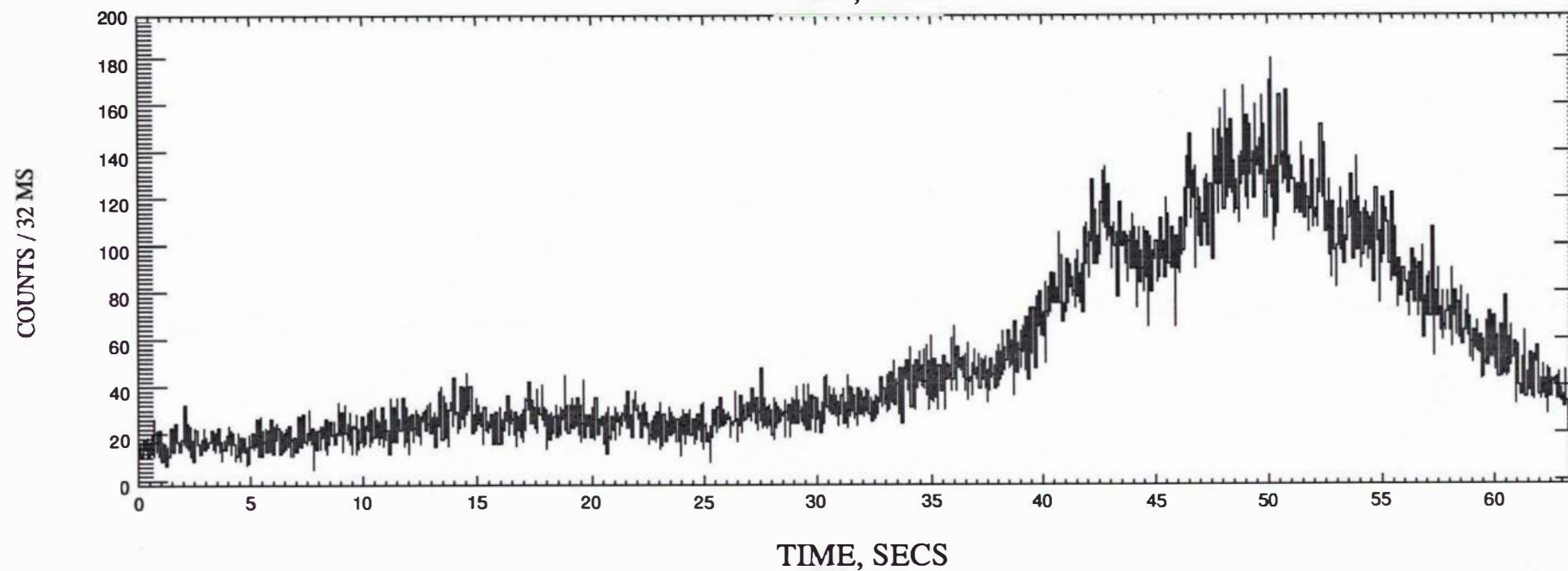
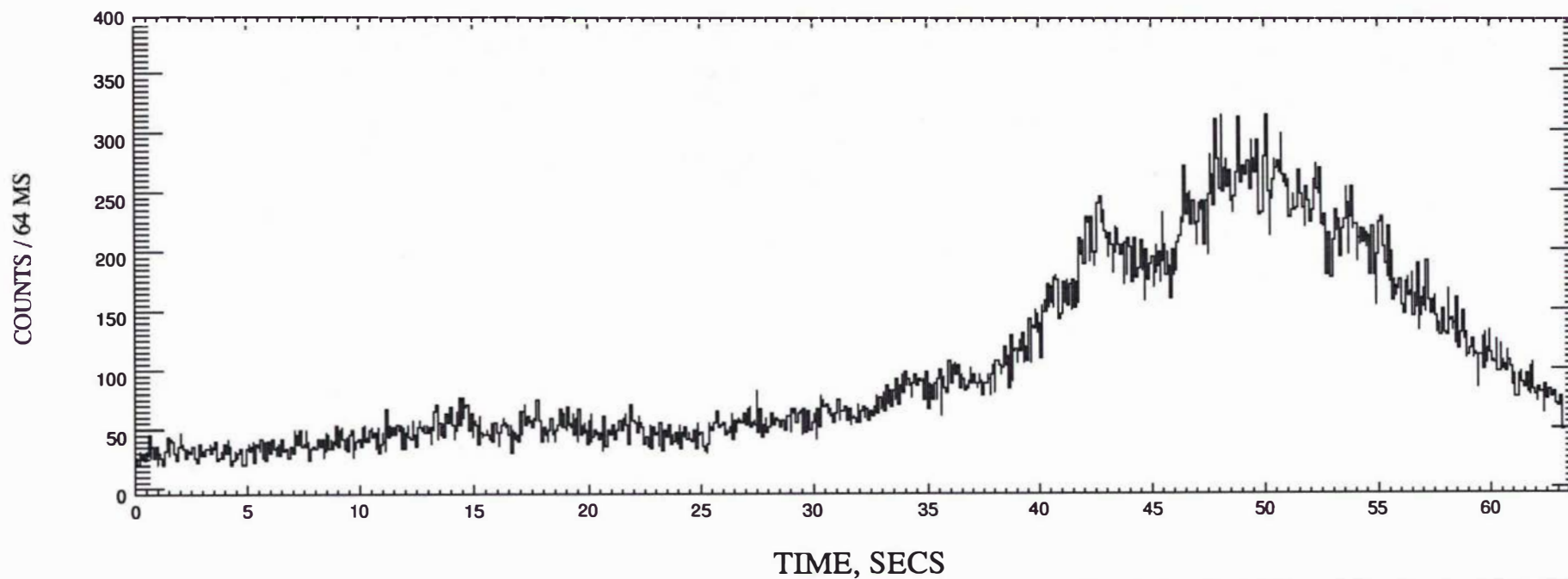
Burst Counter 8 at UT= 9.580702340868 h=34490.528 s 09:34:50.528



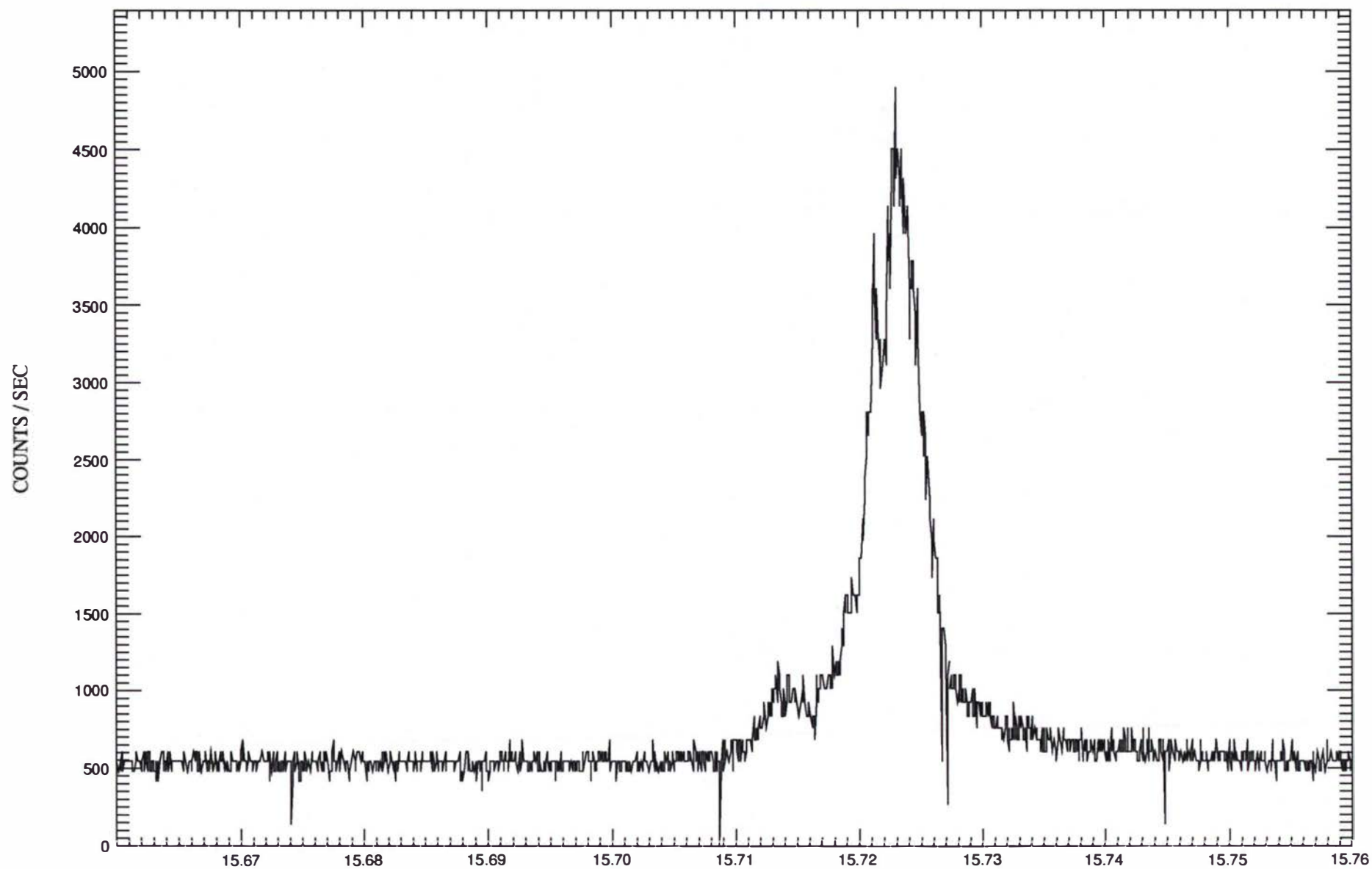
CALIBRATION DATA INCLUDED



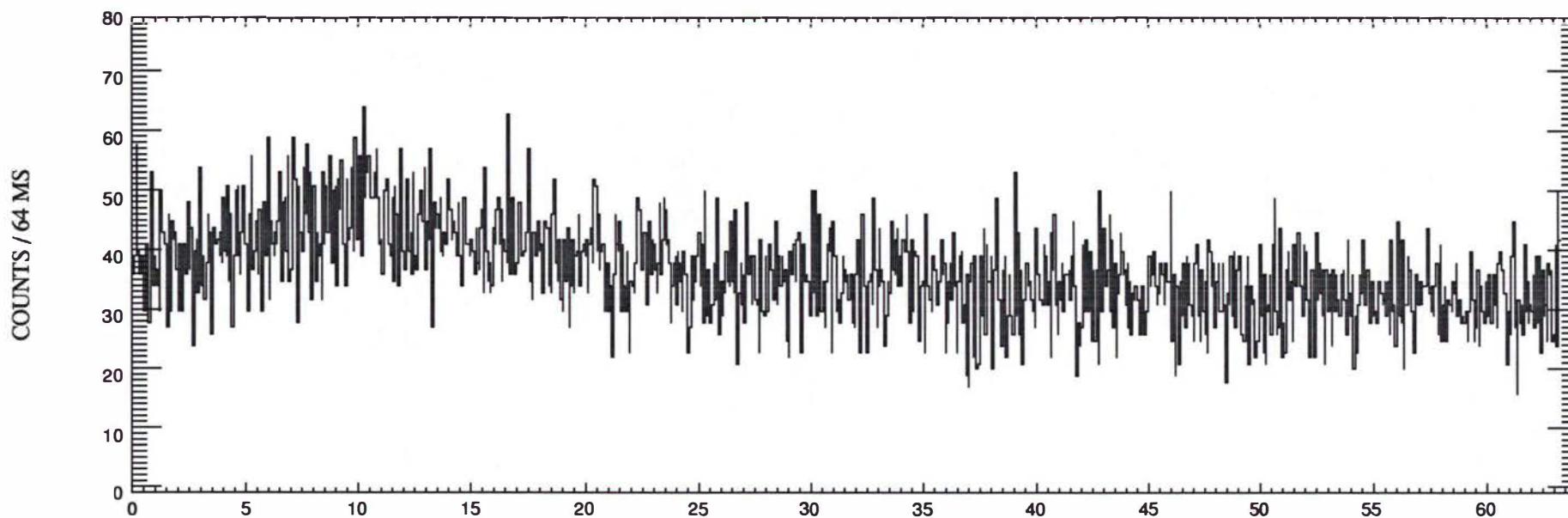
Burst Counter 9 at UT=15.711566441854 h=56561.639 s 15:42:41.639



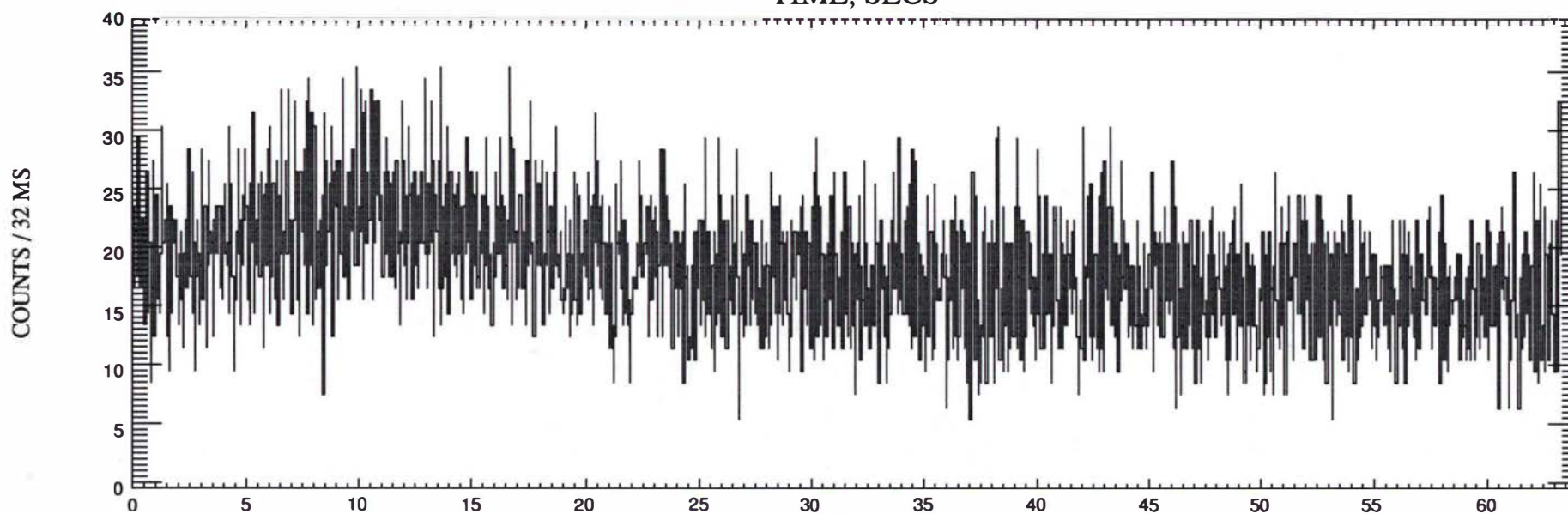
CALIBRATION DATA INCLUDED



Burst Counter 10 at UT=18.276957834032 h=65797.048 s 18:16:37.048

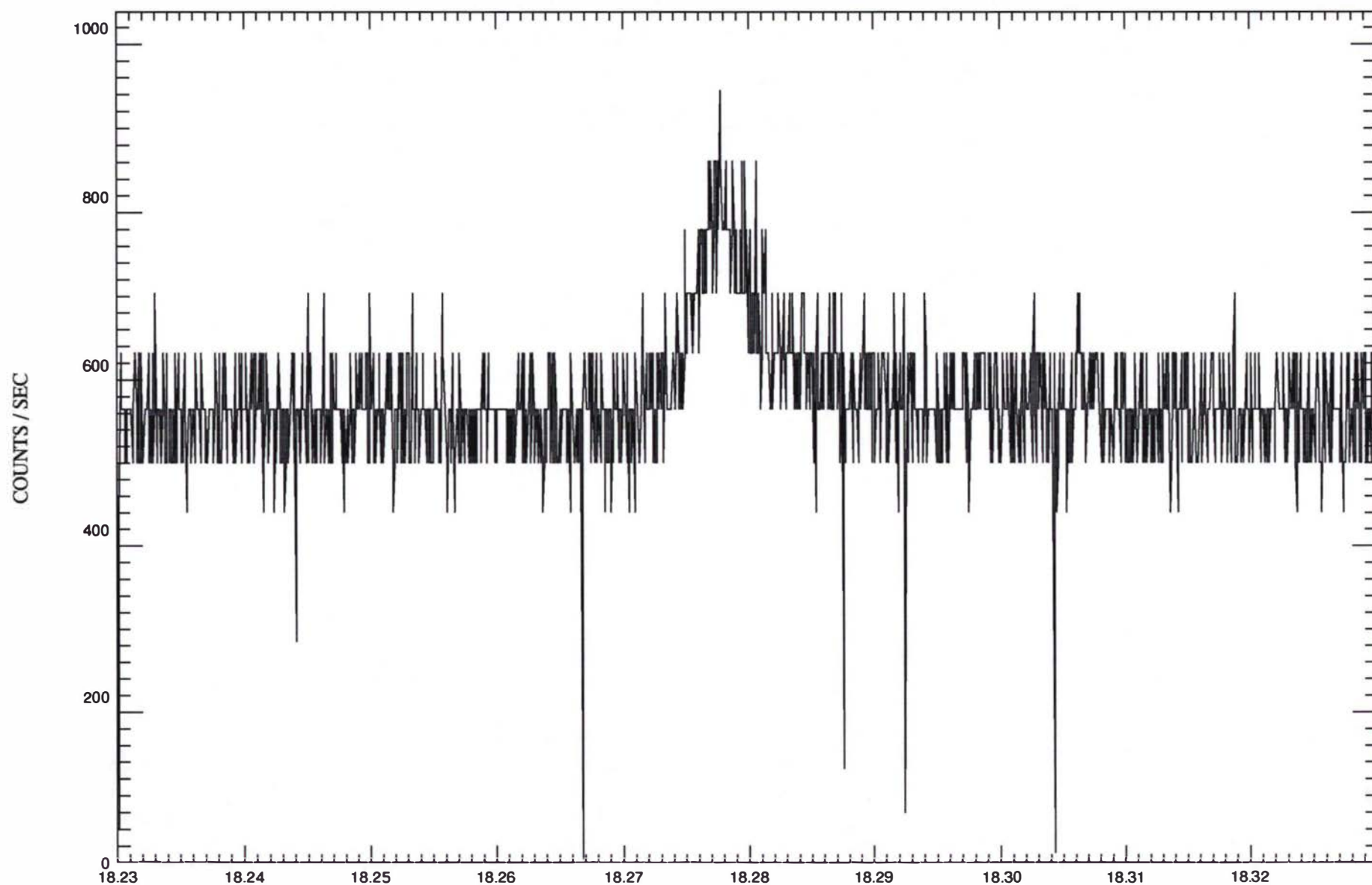


TIME, SECS

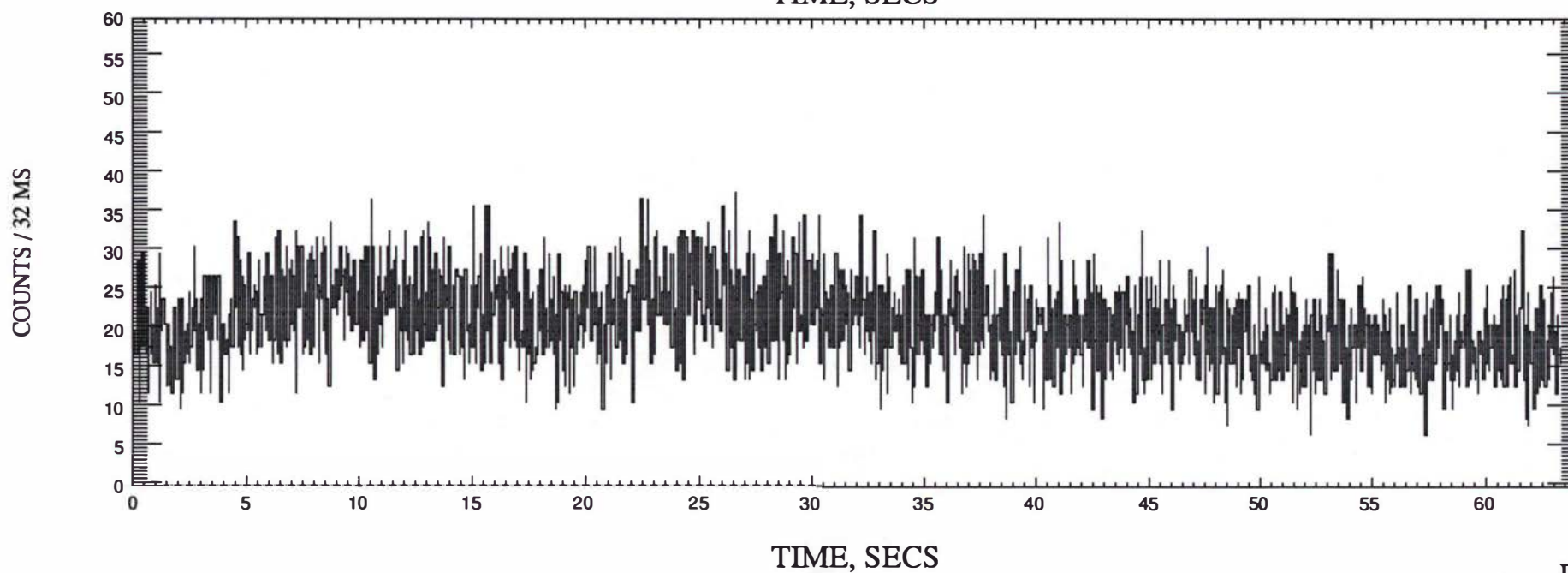
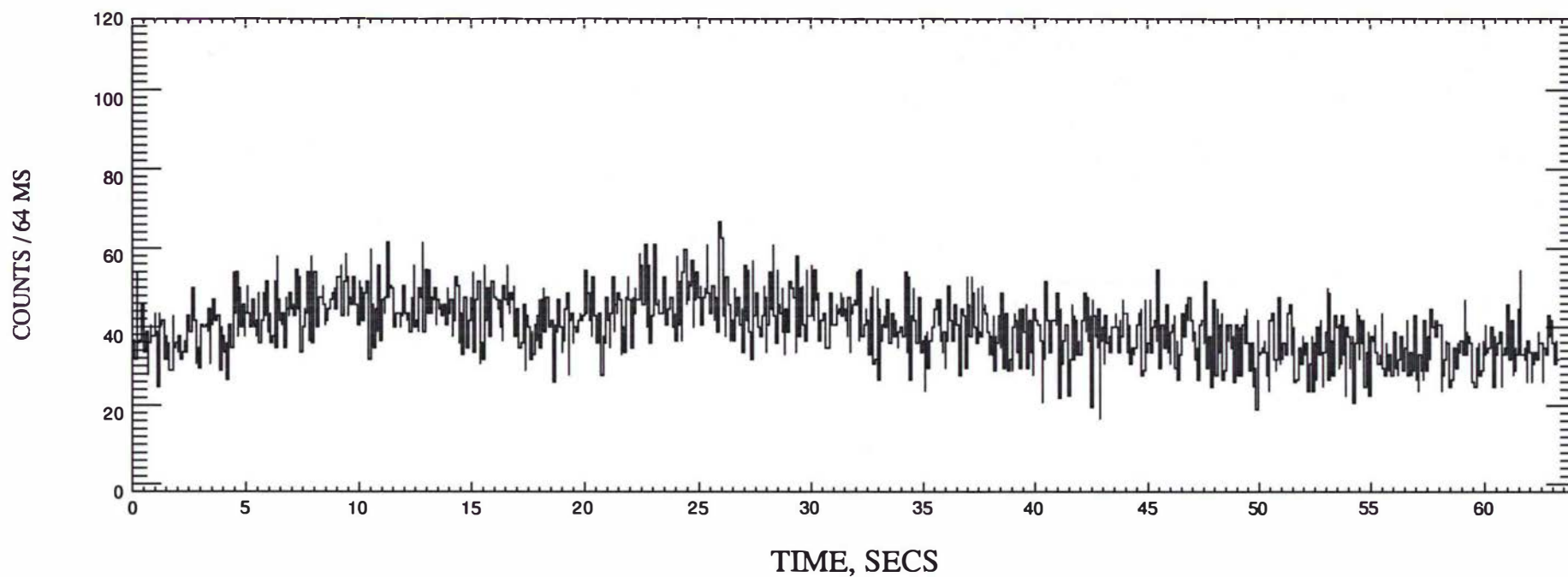


TIME, SECS

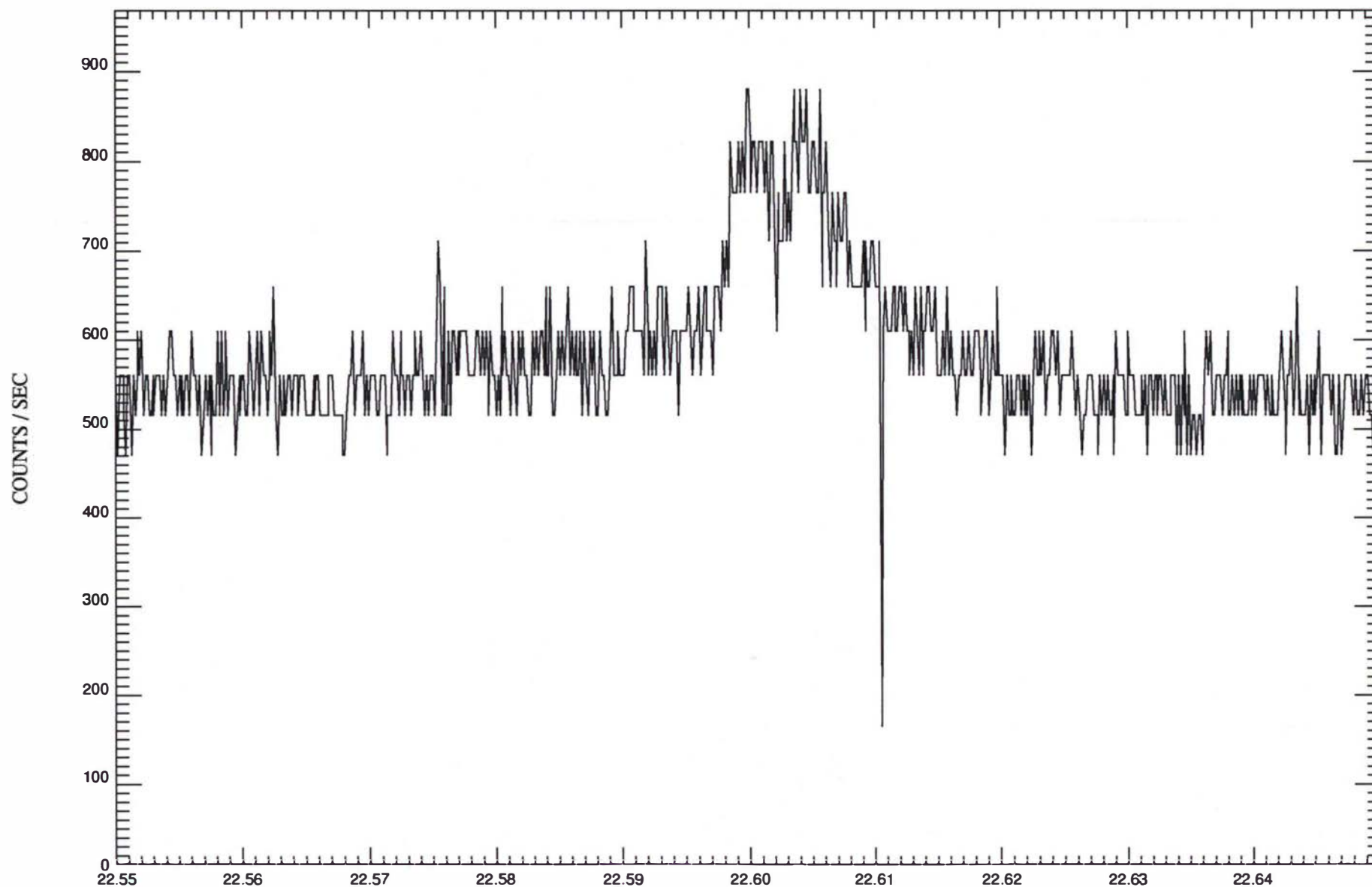
CALIBRATION DATA INCLUDED



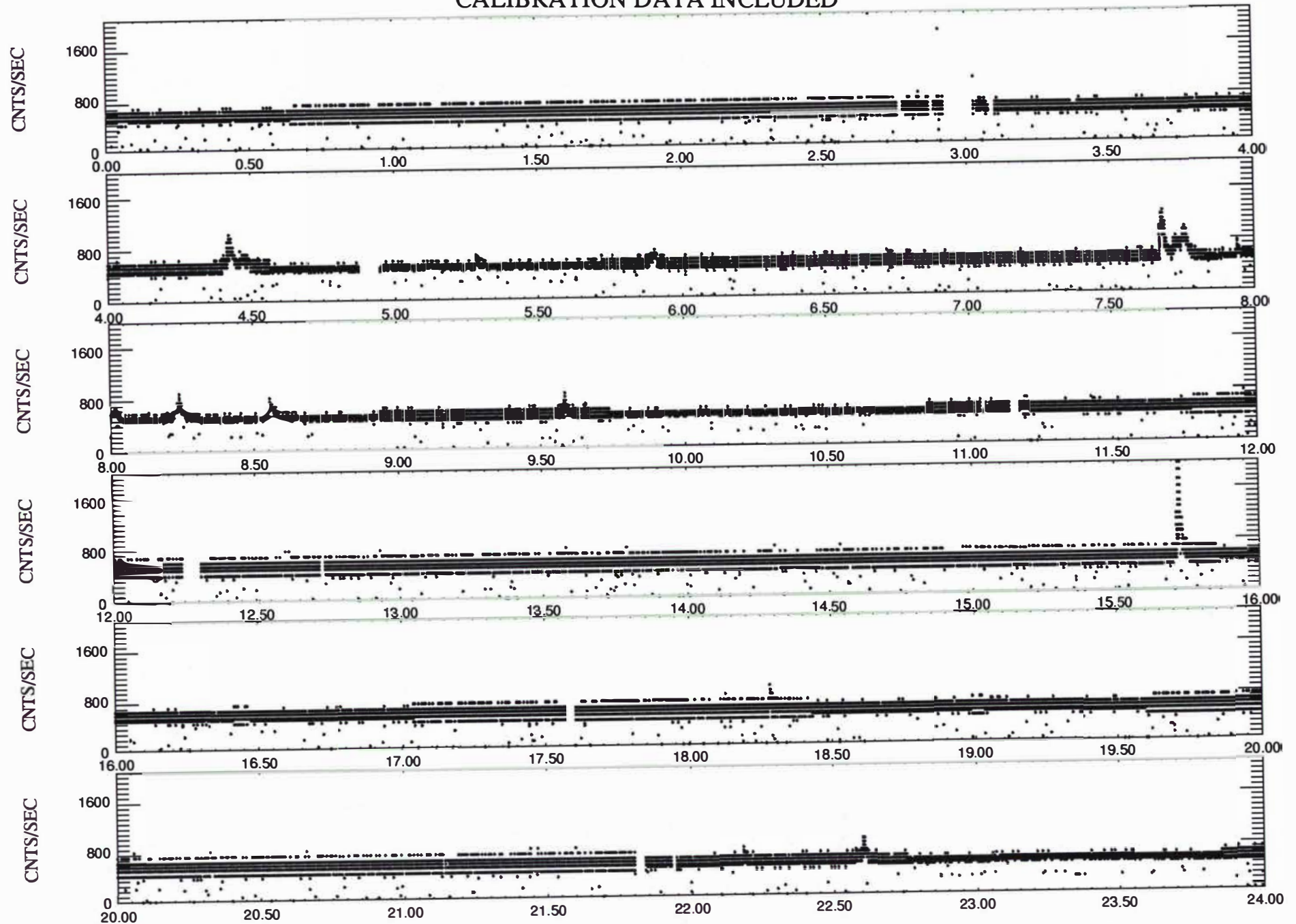
Burst Counter 11 at UT=22.599386431376 h=81357.791 s 22:35:57.791



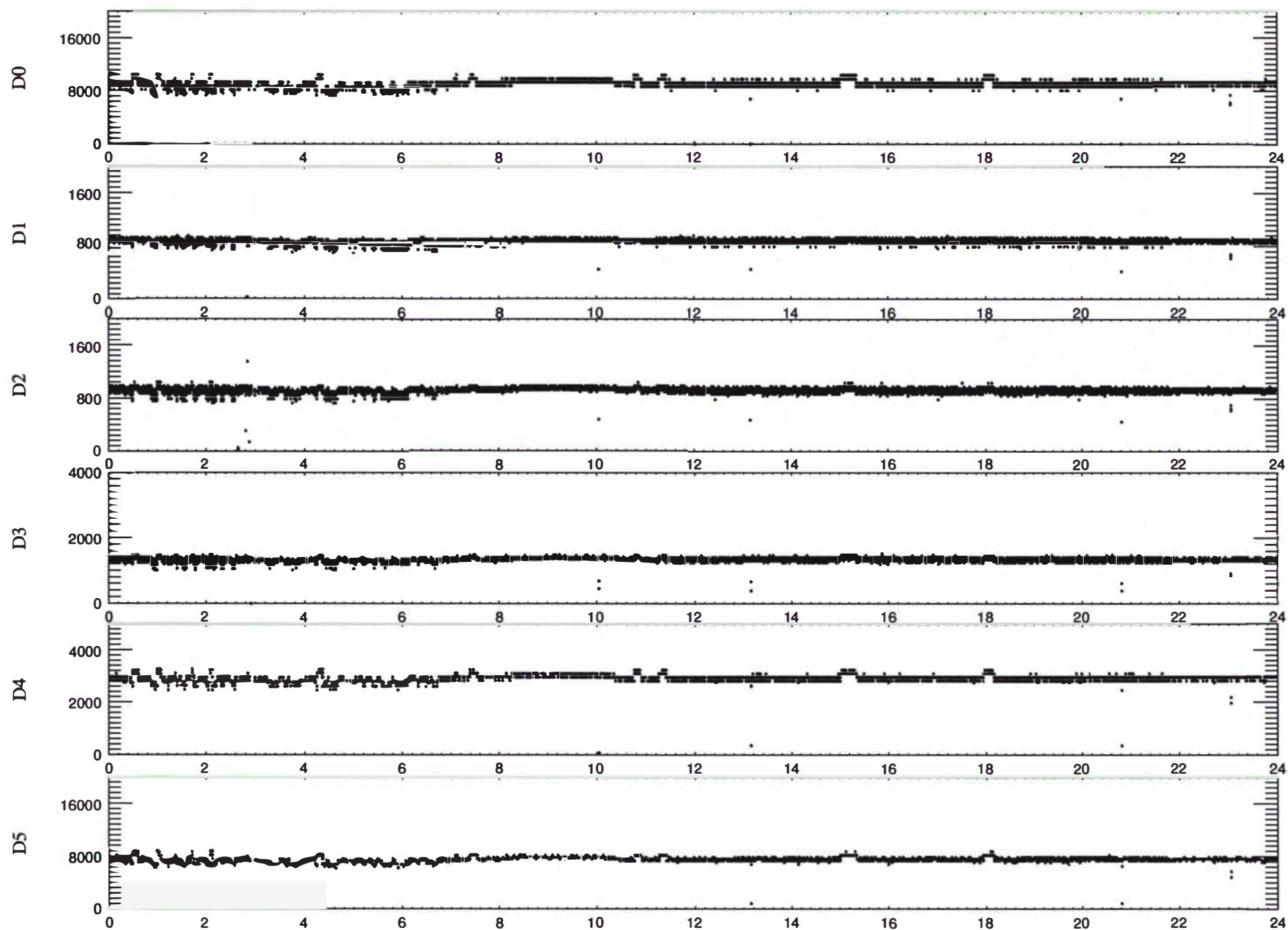
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED

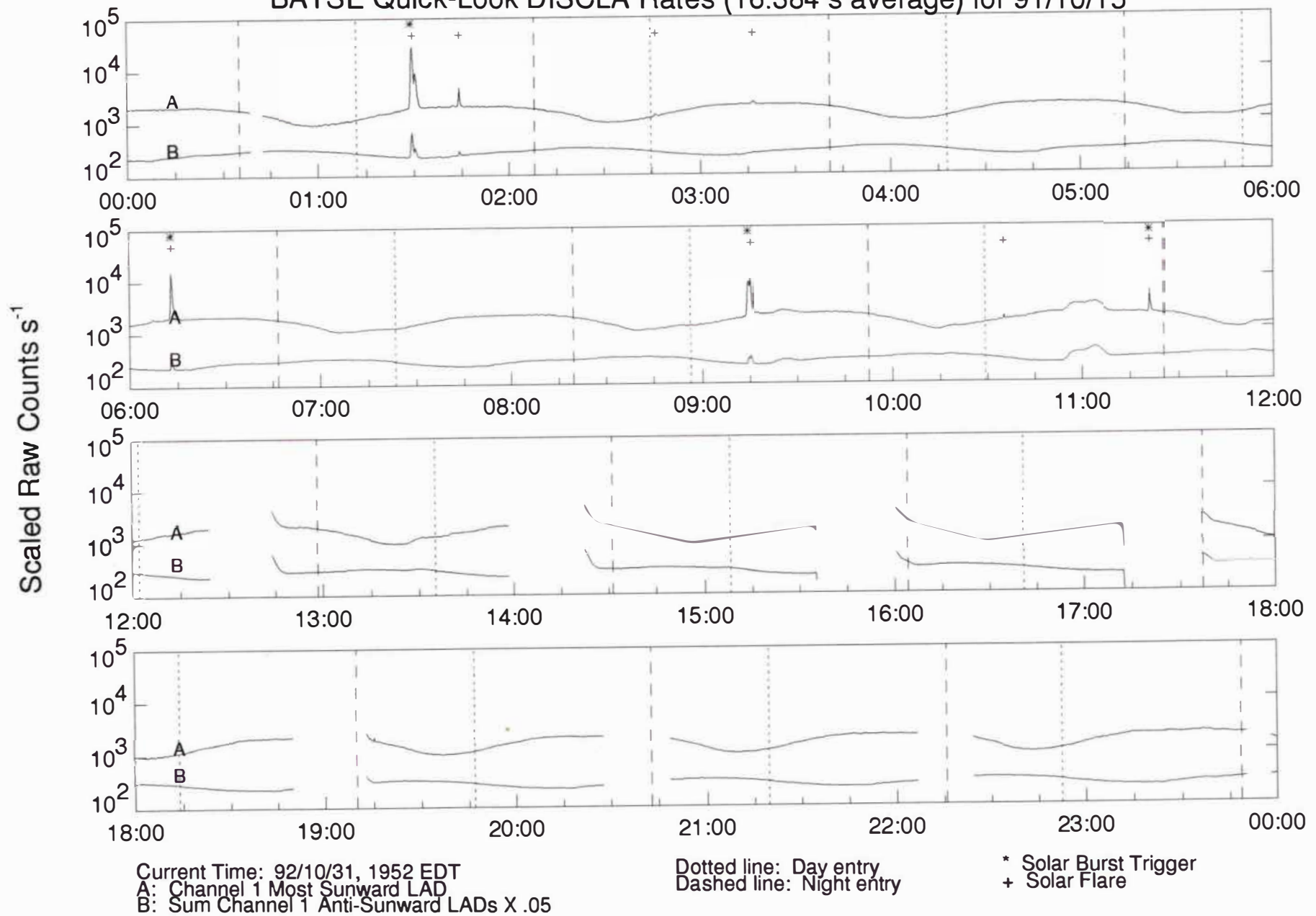


UNIV CAL TIME

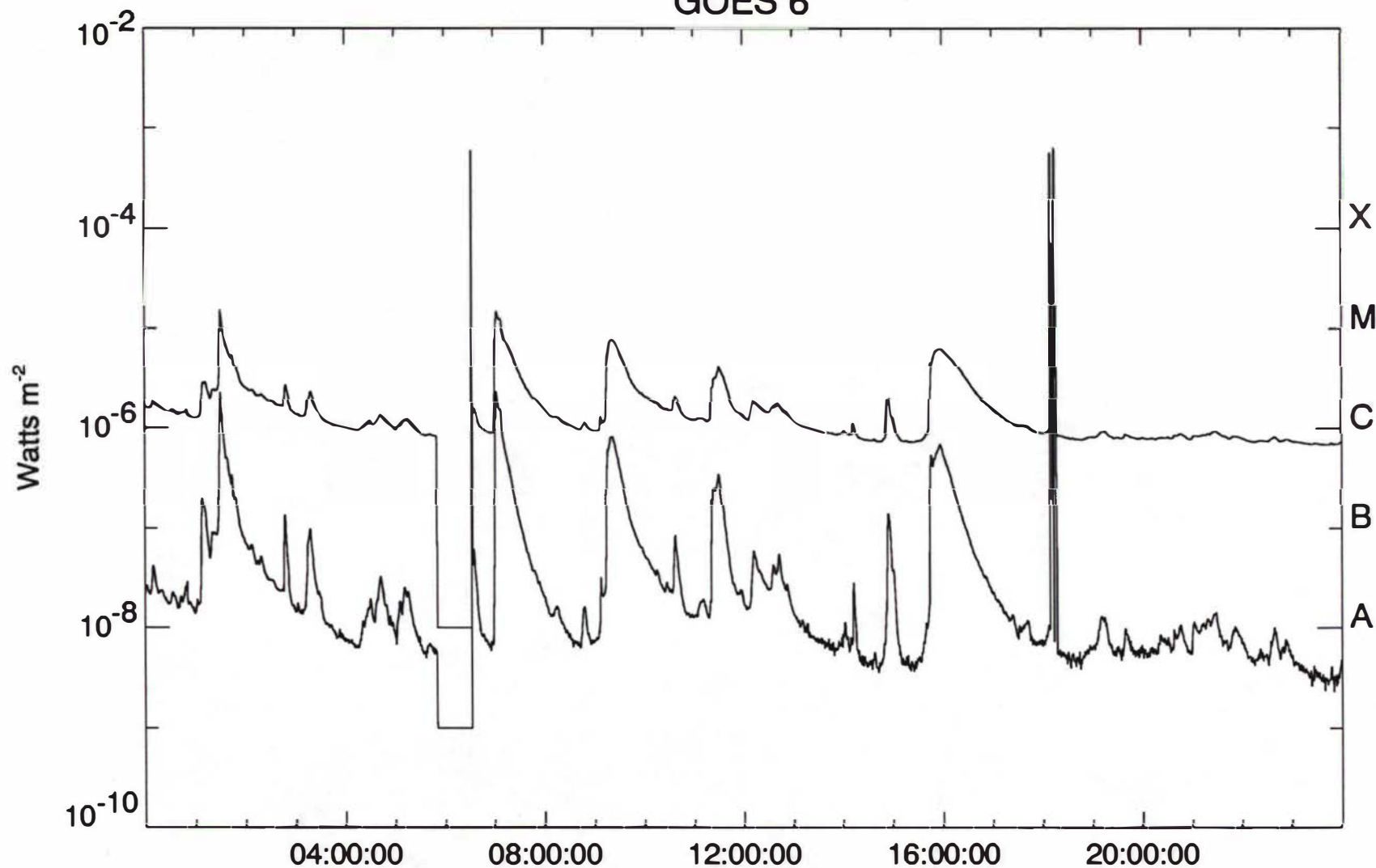


UNIV 3AL TIME

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/15



GOES 6



Data Start: 91/10/15, 0000:02

Plot created: 97/10/14, 2329

Channel

1 (1.0 - 8.0 Angstroms)

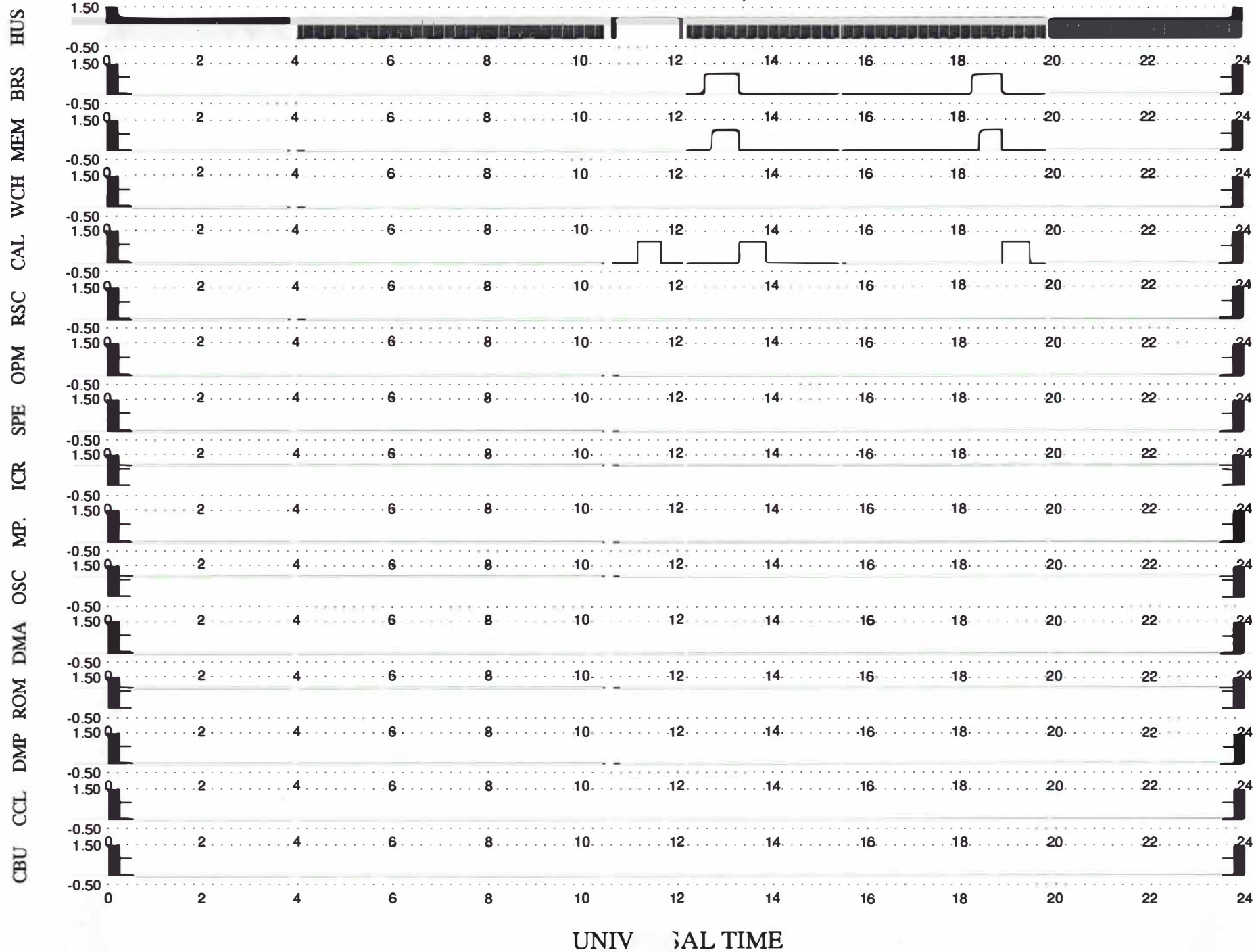
Background not subtracted

2 (0.5 - 4.0 Angstroms)

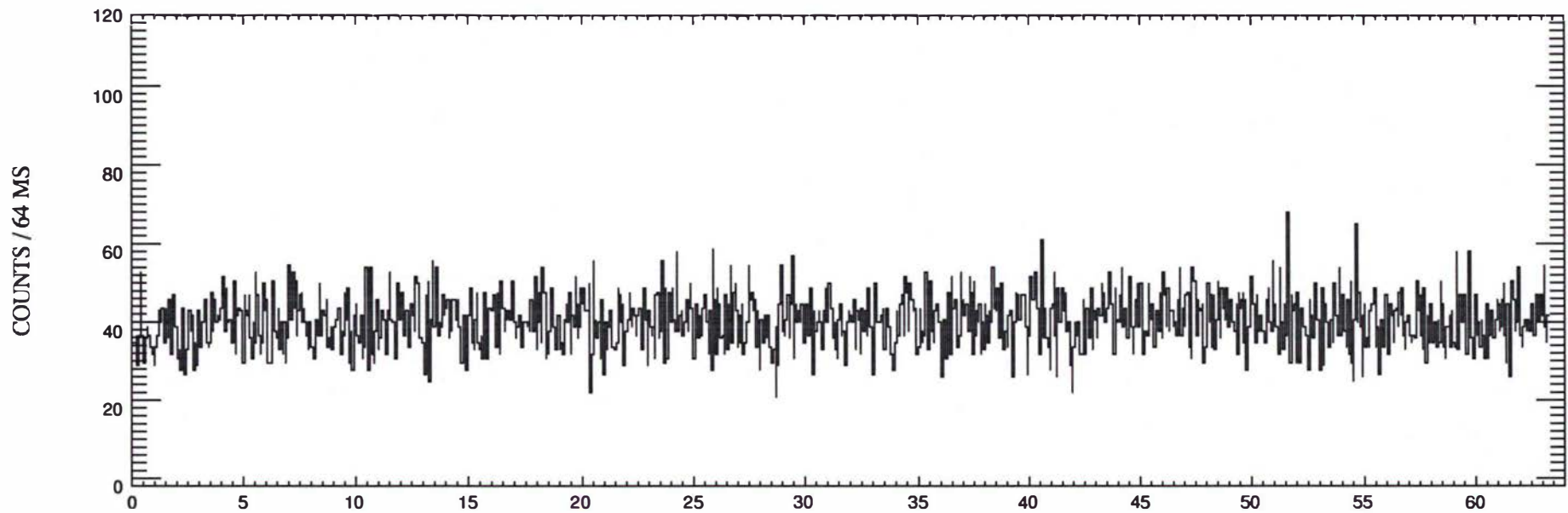
Background not subtracted

Sample average = 10

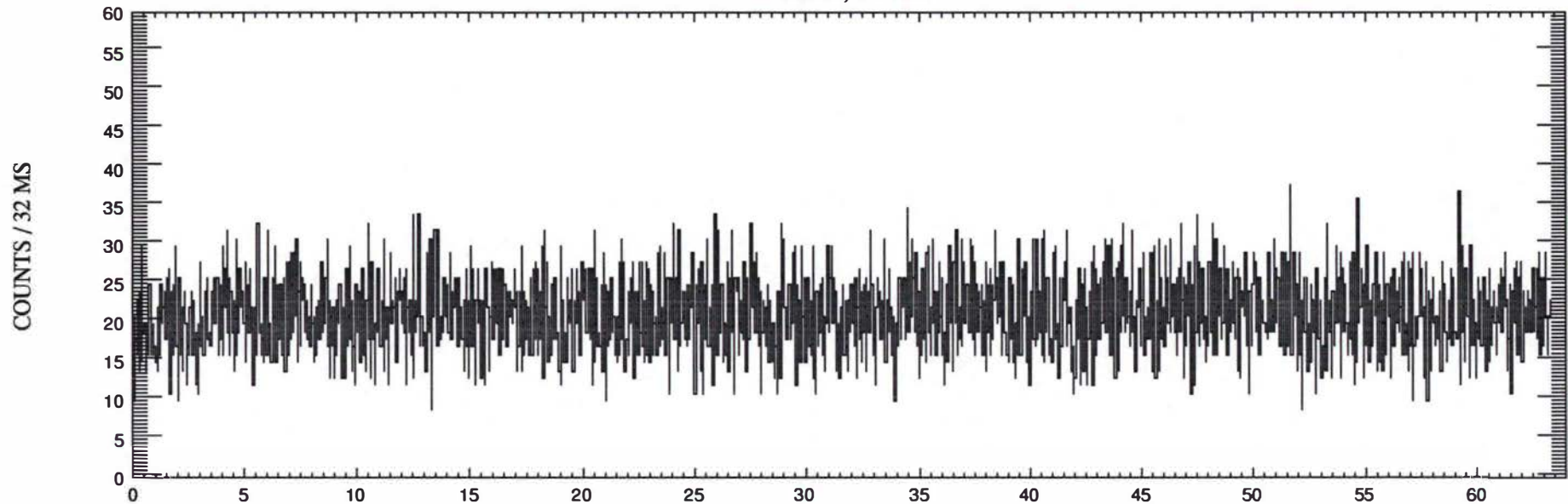
BURST NUMBER 12, 13



Burst Counter 12 at UT=12.579132749769 h=45284.878 s 12:34:44.878

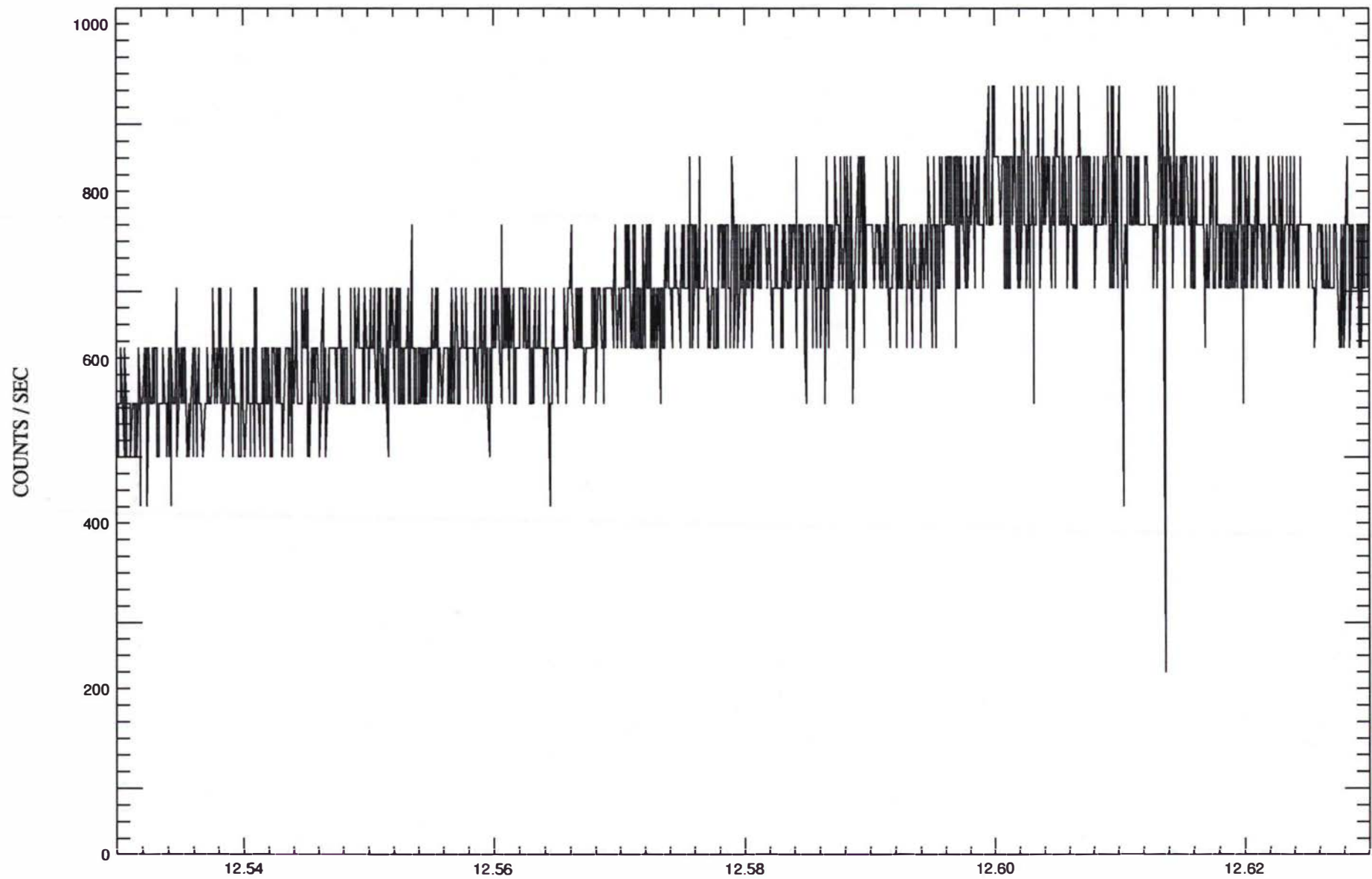


TIME, SECS

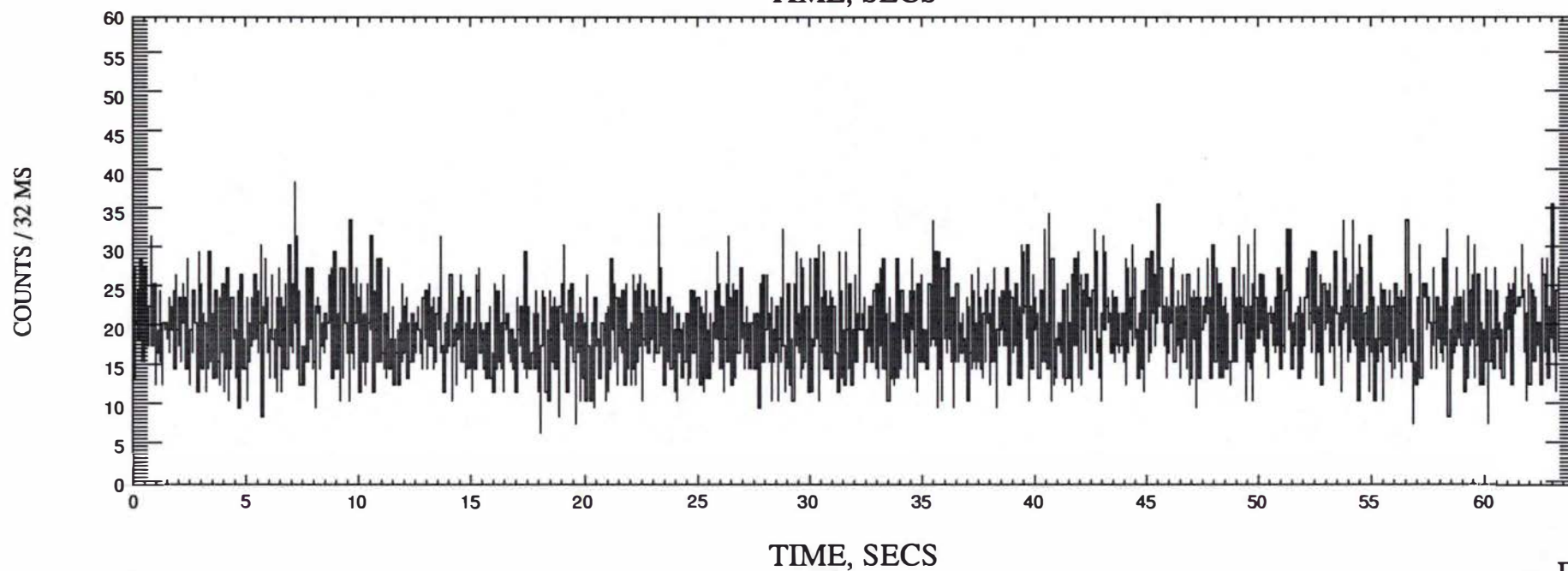
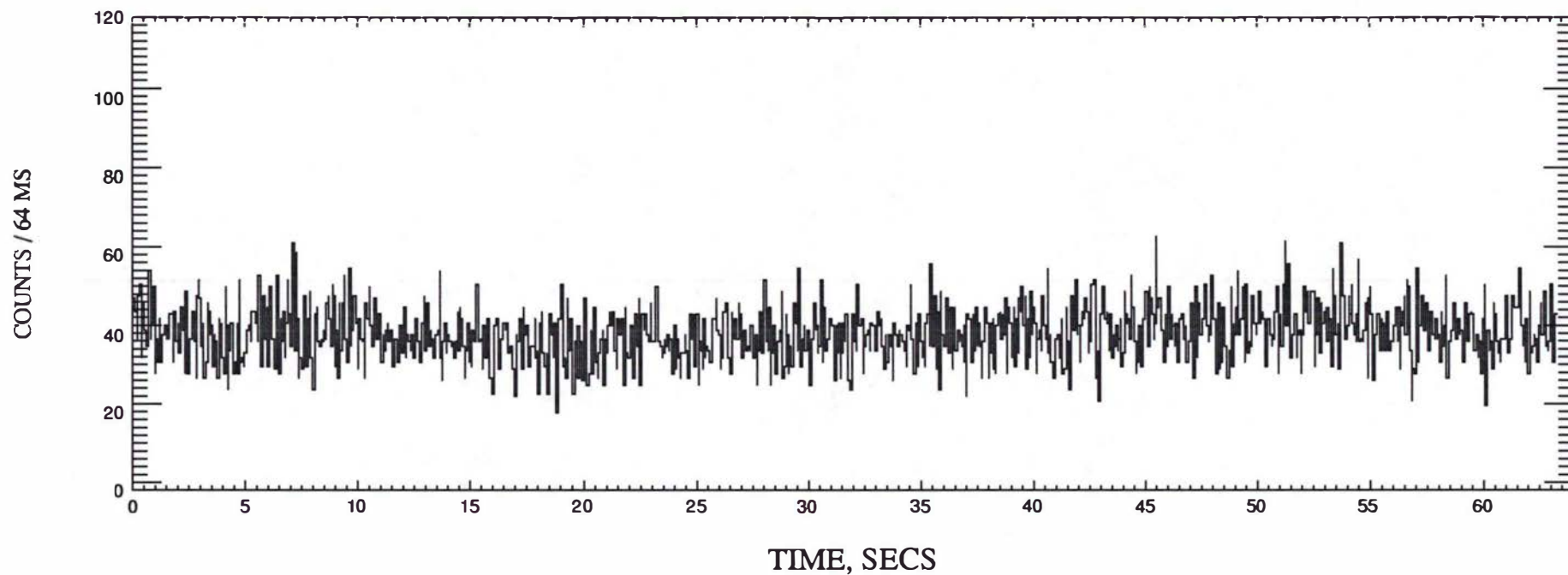


TIME, SECS

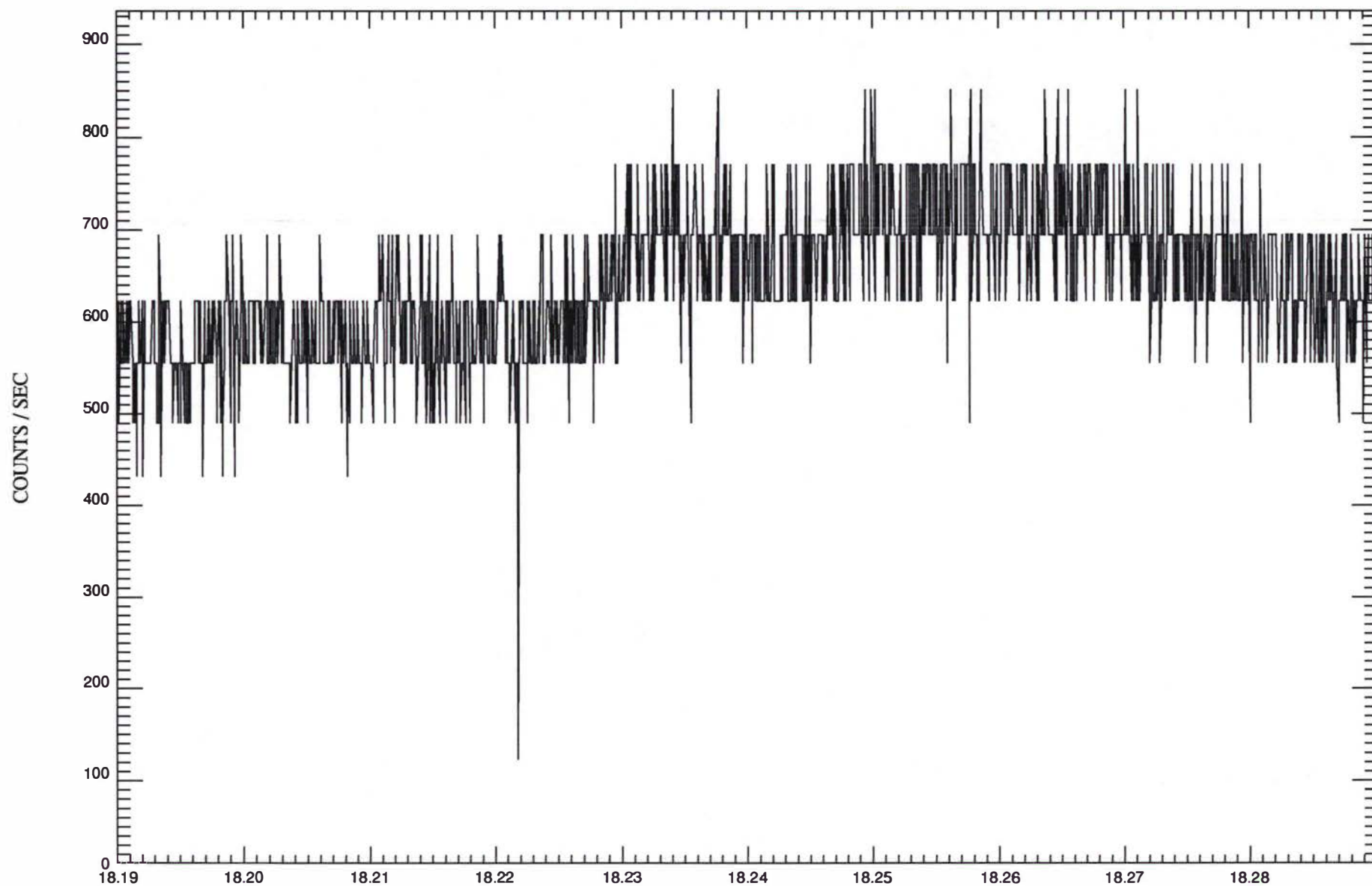
CALIBRATION DATA INCLUDED



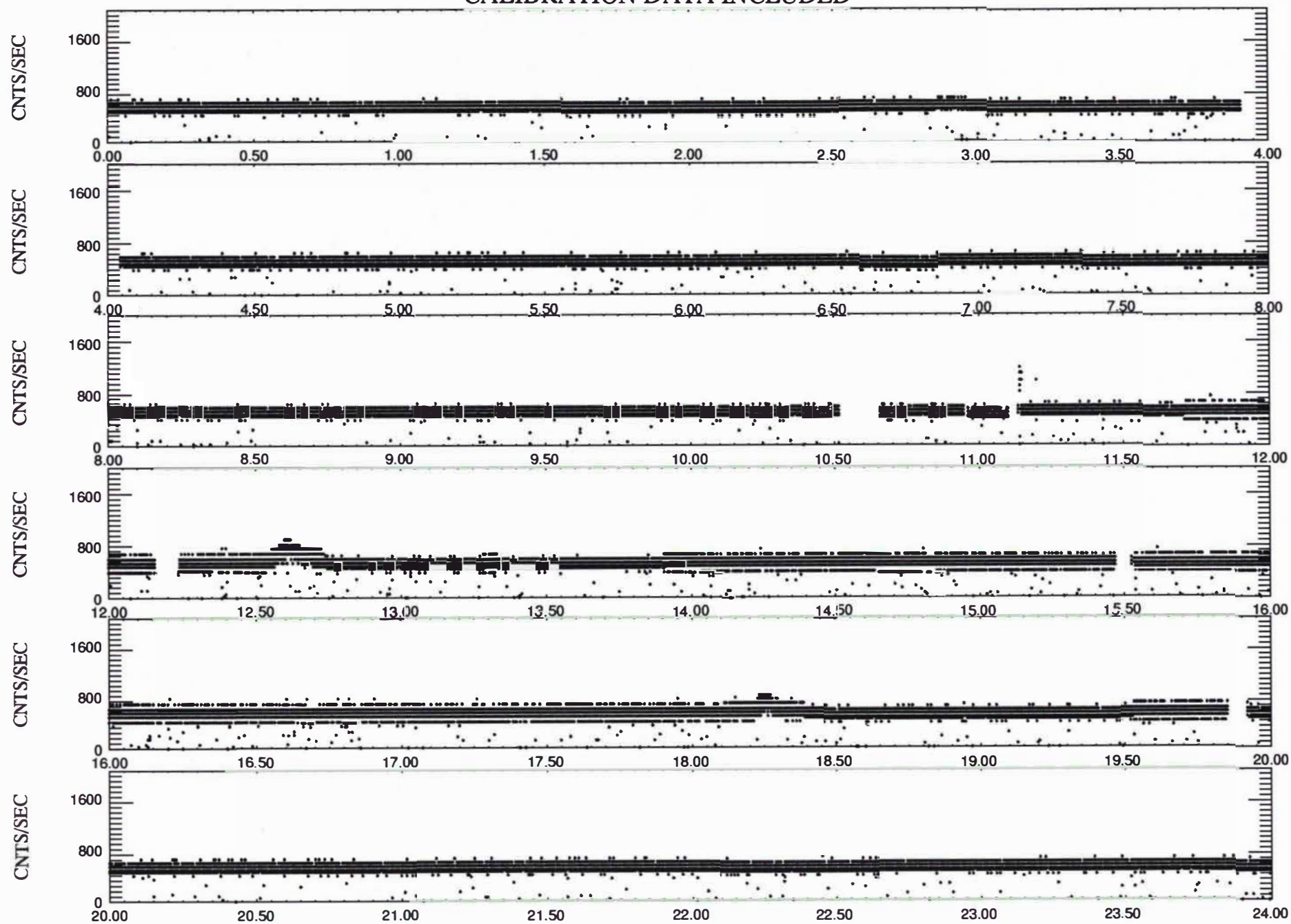
Burst Counter 13 at UT=18.237832781474 h=65656.198 s 18:14:16.198



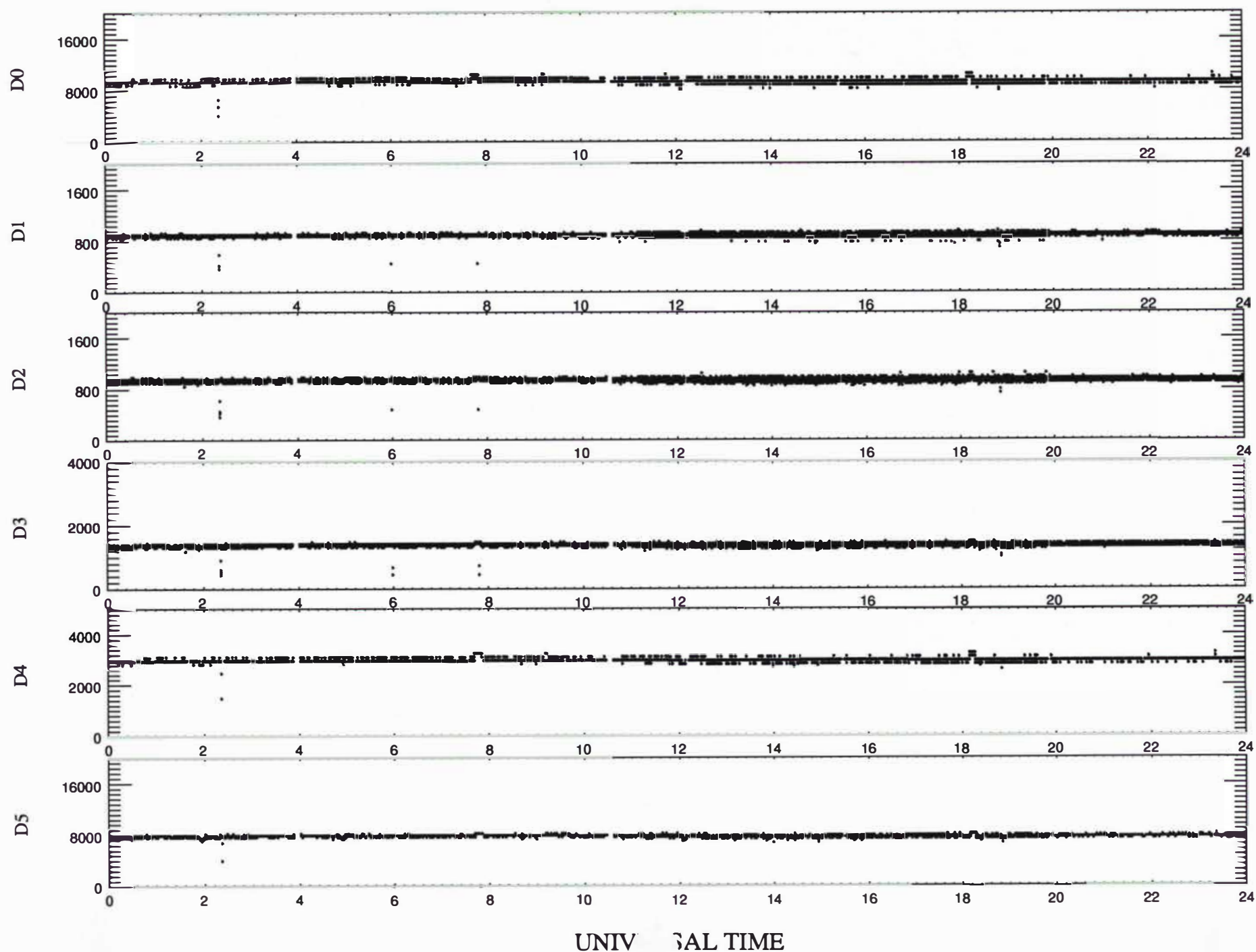
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UNIV 3AL TIME



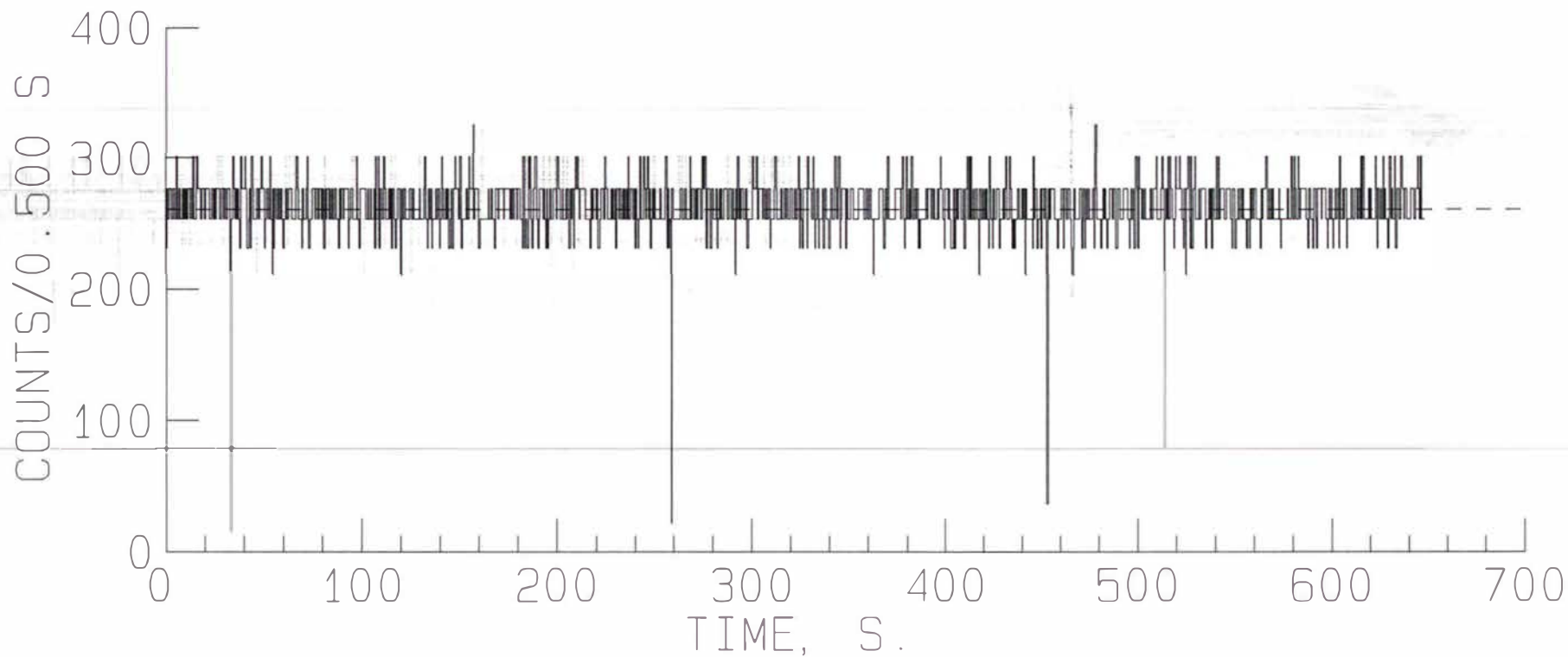
CATSEARCH PROGRAM

BATSE BURST # 906
EVENT OF 1991 OCT 16 DAY OF YEAR=289
EVENT CROSSING TIME AT BATSE : 21170. S. OR 05:52:49.7
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 316.100 11.400
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 16/10/ 91 IS:
RA= 161.706 DEC= 8.988 DIST= 5.148 AU
BATSE-ULYSSES DISTANCE = 770104896. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 32.62 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2163.60 SECS.
CROSSING TIME AT ULYSSES IS 23333. S. OR 06:28:53 +/- 323.27 SECONDS

14 / 4 / 93

ULYSSES RT
16/10/91 23004.268 s
0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 907
EVENT OF 1991 OCT 16 DAY OF YEAR=289
EVENT CROSSING TIME AT BATSE : 39694. S. OR 11:01:34.2
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 303.000 .600
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 16/10/ 91 IS:
RA= 161.706 DEC= 8.988 DIST= 5.148 AU
BATSE-ULYSSES DISTANCE = 770104896. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 39.73 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1975.67 SECS.
CROSSING TIME AT ULYSSES IS 41670. S. OR 11:34:29 +/- 365.04 SECONDS

Date:

Helio corr removed
Feb 12 '97

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? *N/A*
- ☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution? *Not always*

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)?
- ☒ Does T_0 in data file agree with T_0 in plot?
- ☒ 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? *N/A*

3. PVO Data

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

Access database updated

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

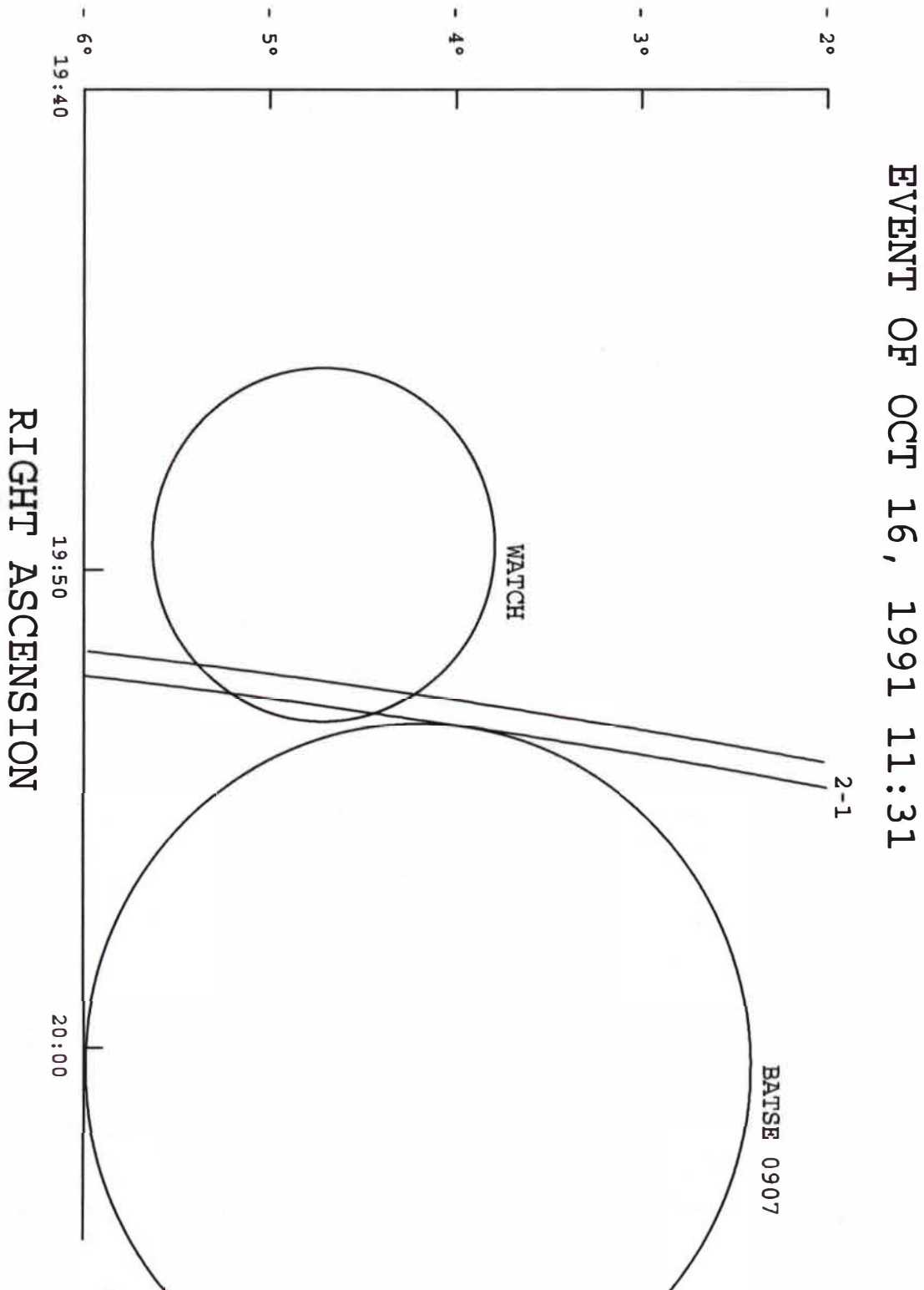
E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

DECLINATION



3/12/98

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

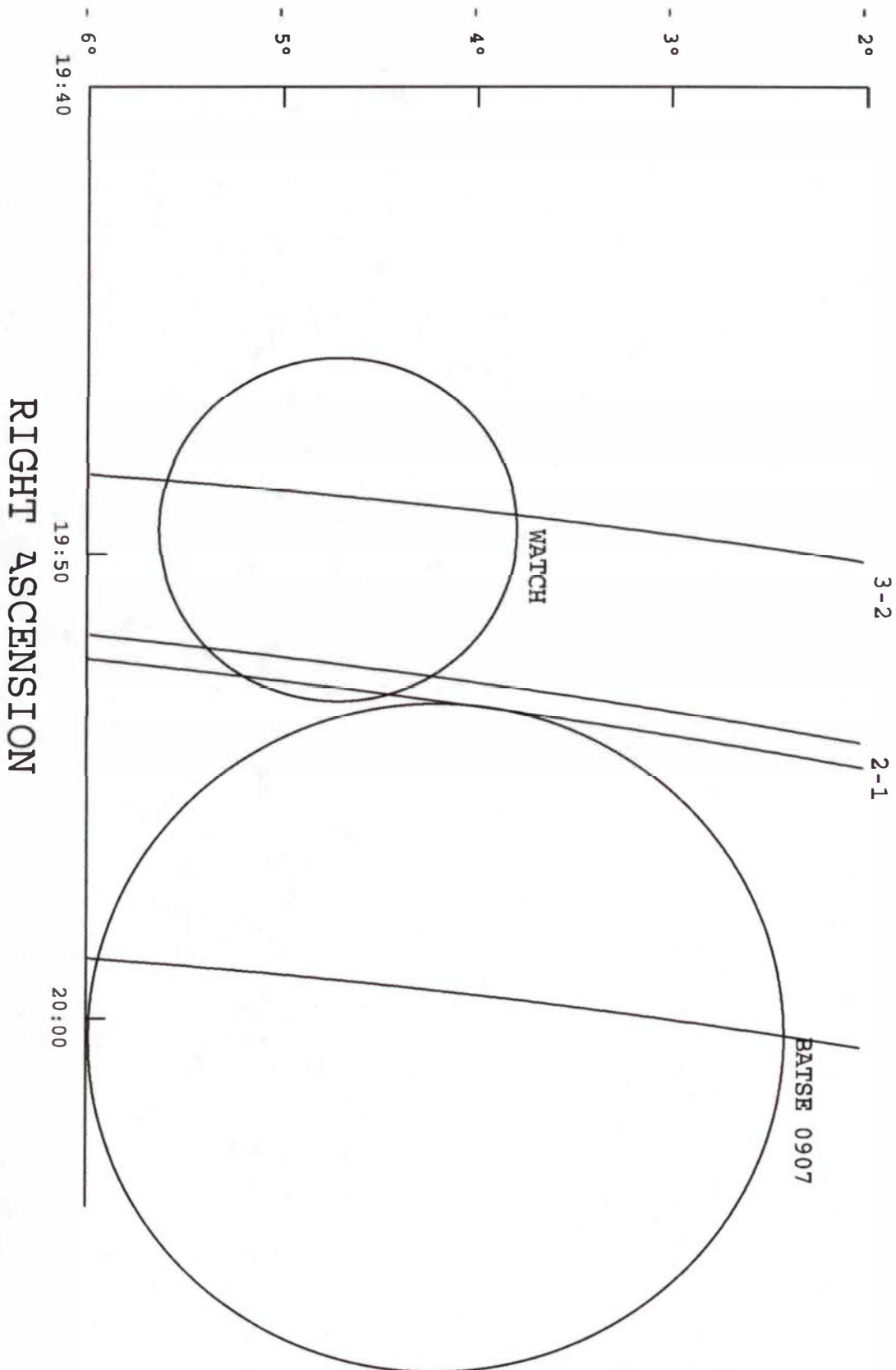
1 ULYSSES

2 BATSE

3 PVO

DECLINATION

EVENT OF OCT 16, 1991 11:31



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

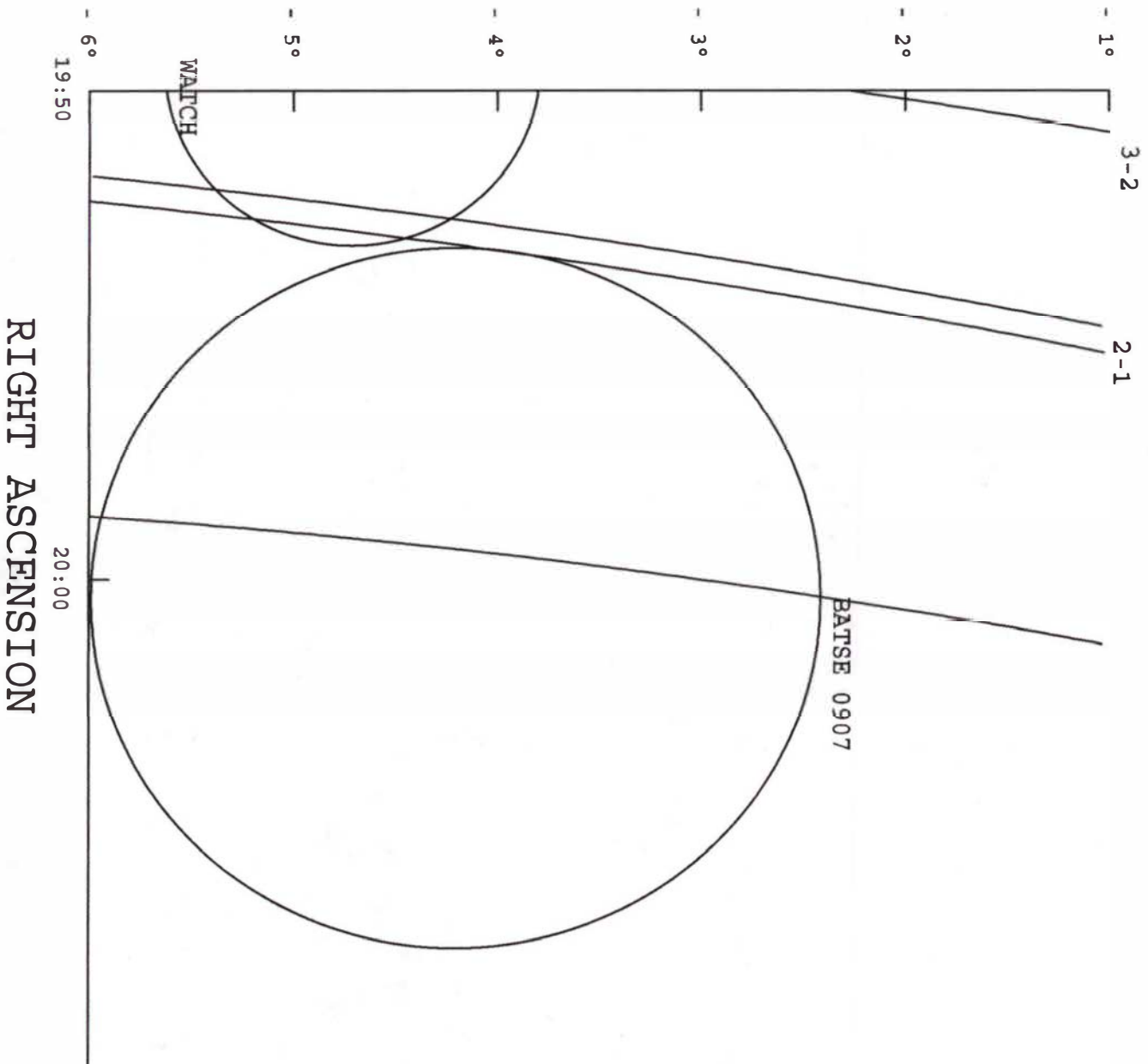
2 BATSE

3 PVO

EVENT OF OCT 16, 1991 11:31

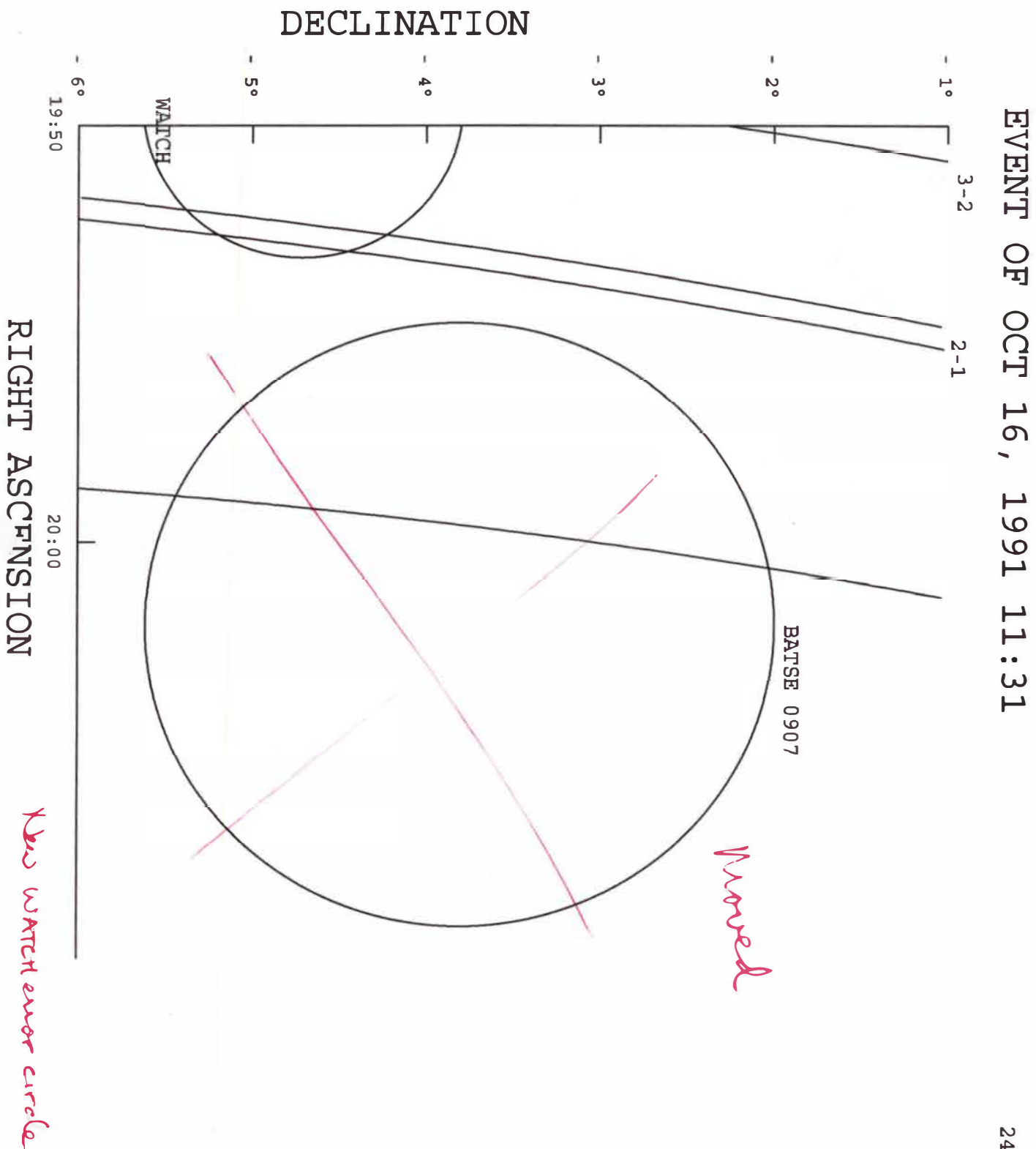
5/ 3/98

DECLINATION



G=GALACTIC EQUATOR

3 PVO



24/11/97

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

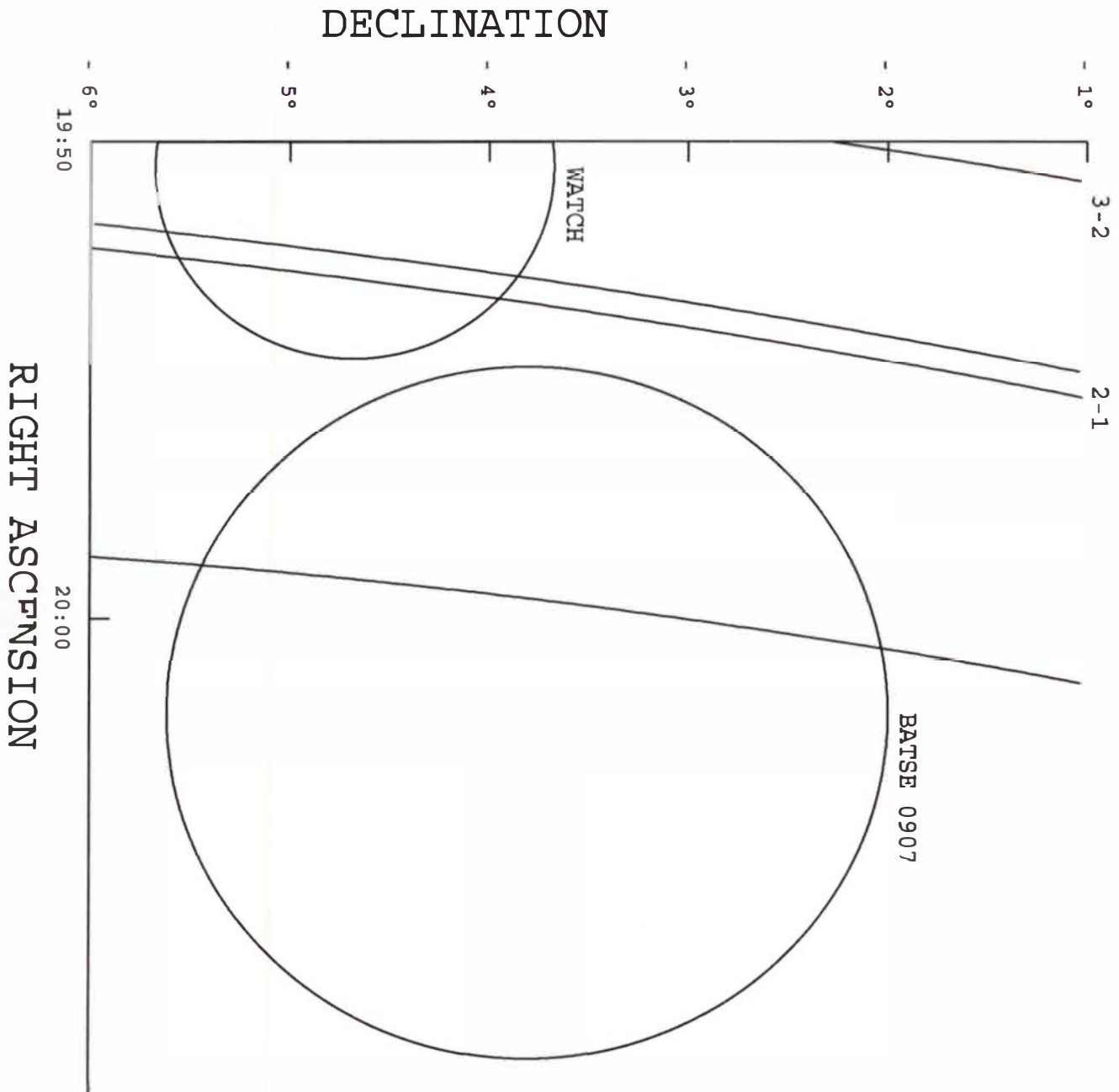
1 ULYSSES

2 BATSE

3 PVO

EVENT OF OCT 16, 1991 11:31

12/ 2/97



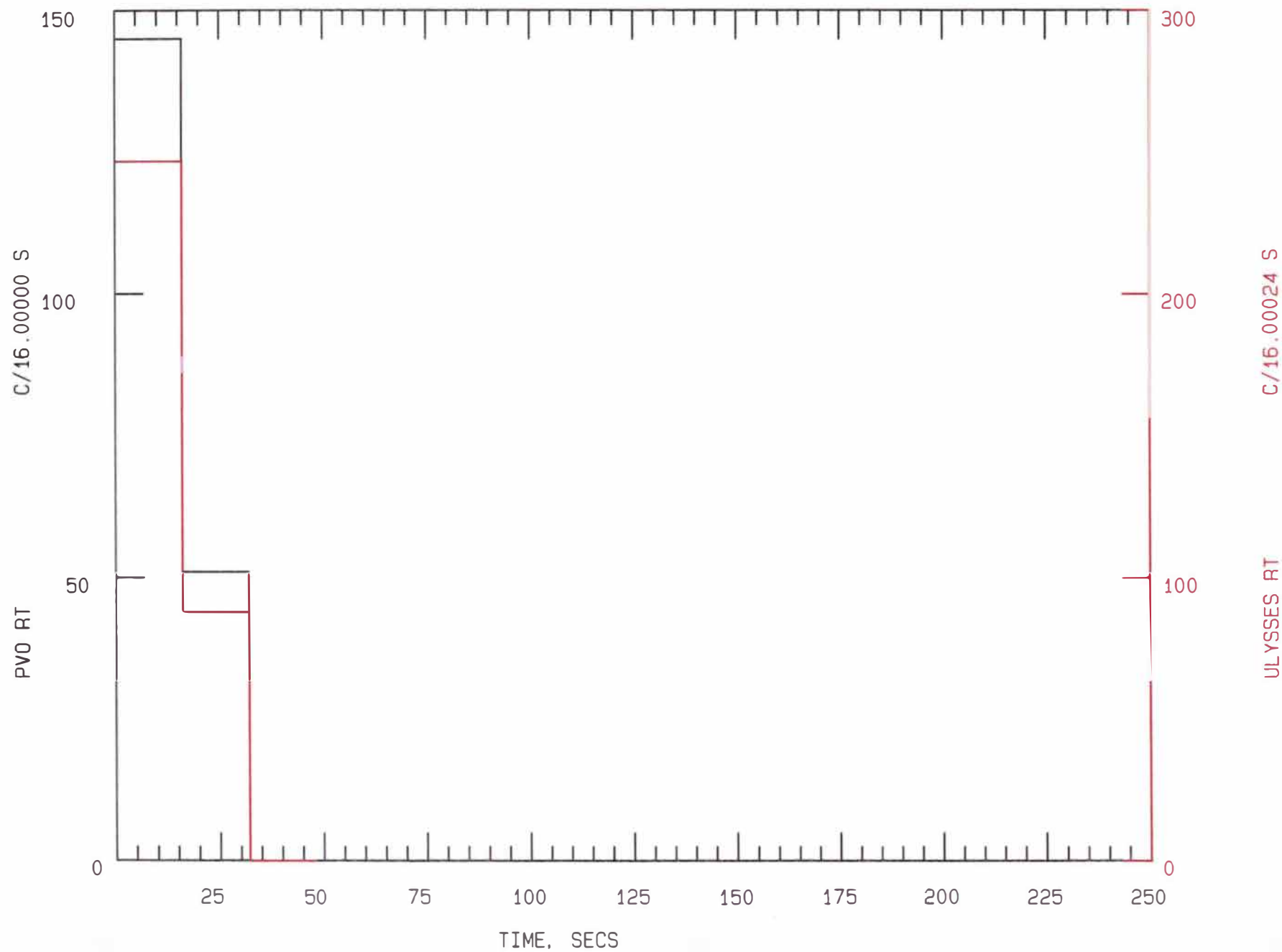
PV0 RT

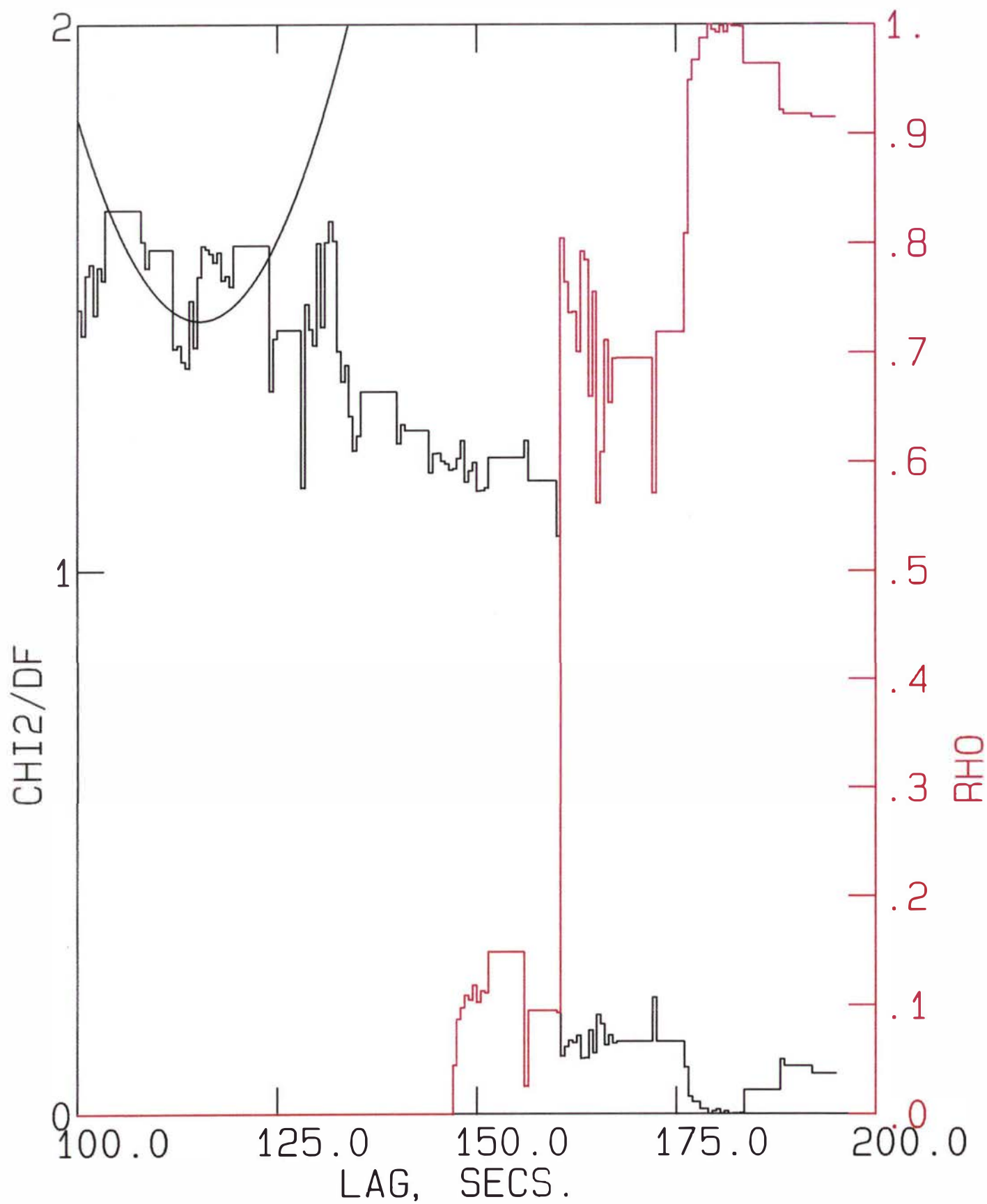
-ULYSSES RT CORRELATION

16/10/91

39835.848

12/ 2/97





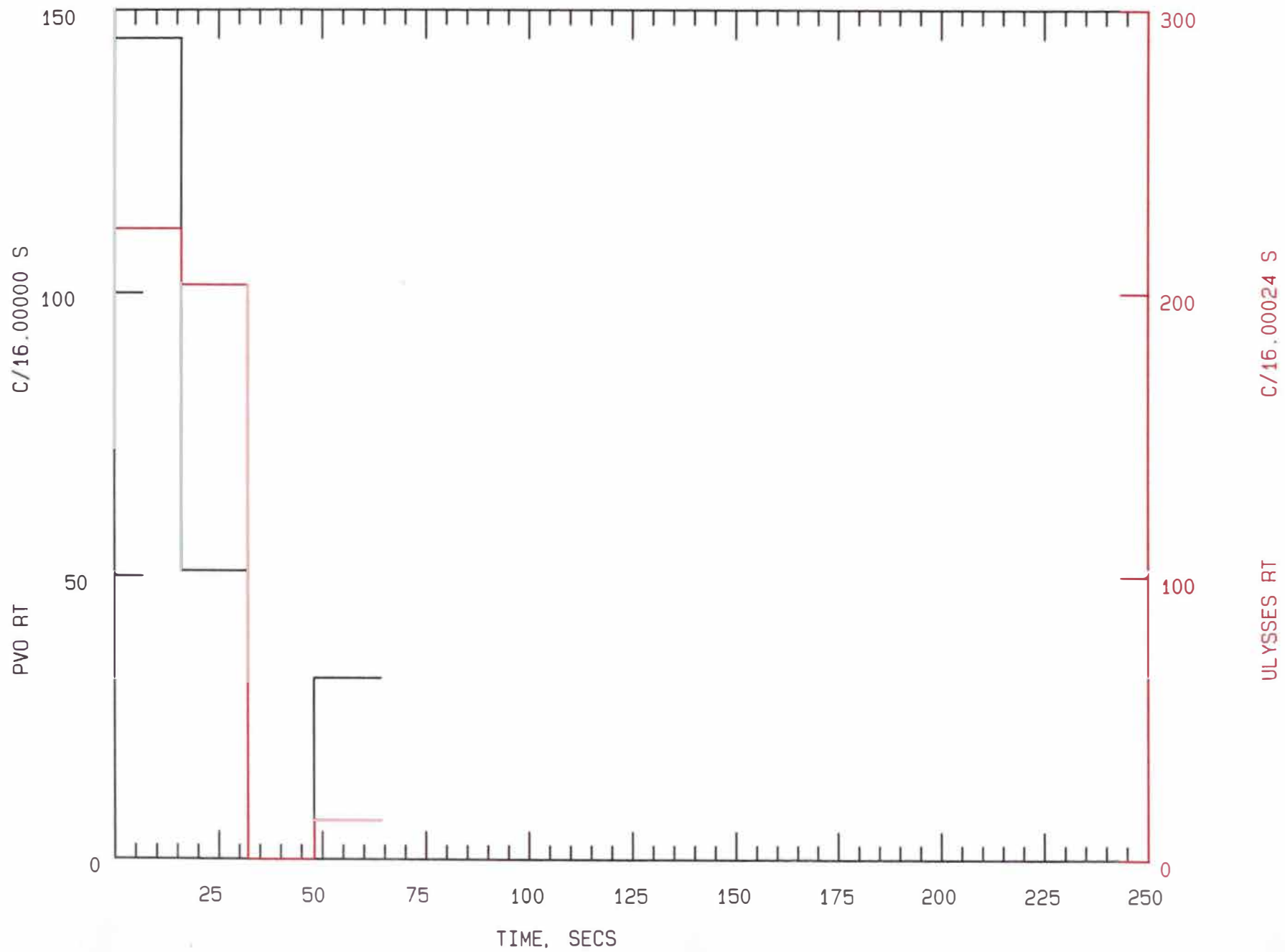
PV0 RT

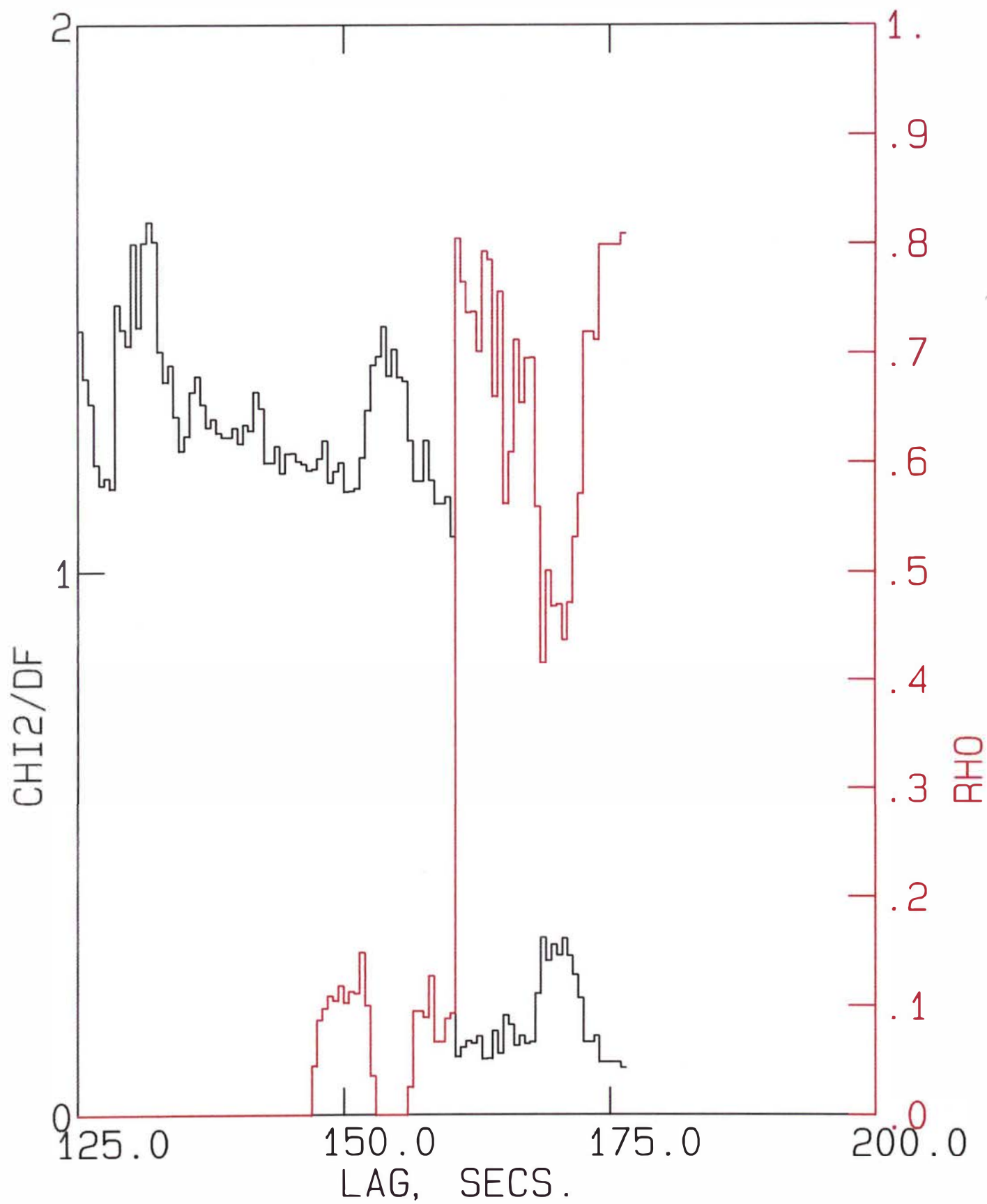
-ULYSSES RT CORRELATION

16/10/91

39835.848

12/ 2/97





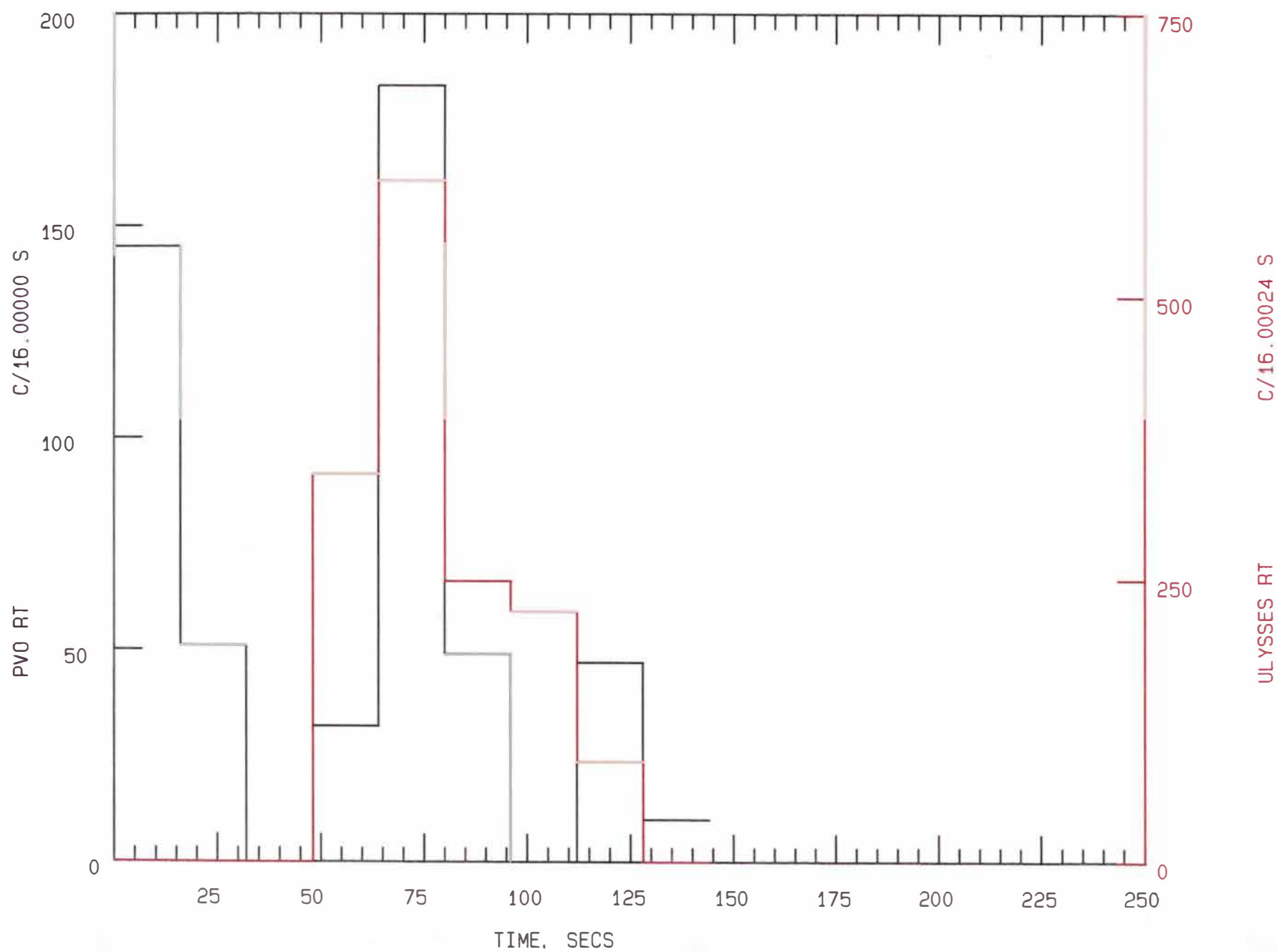
PVO RT

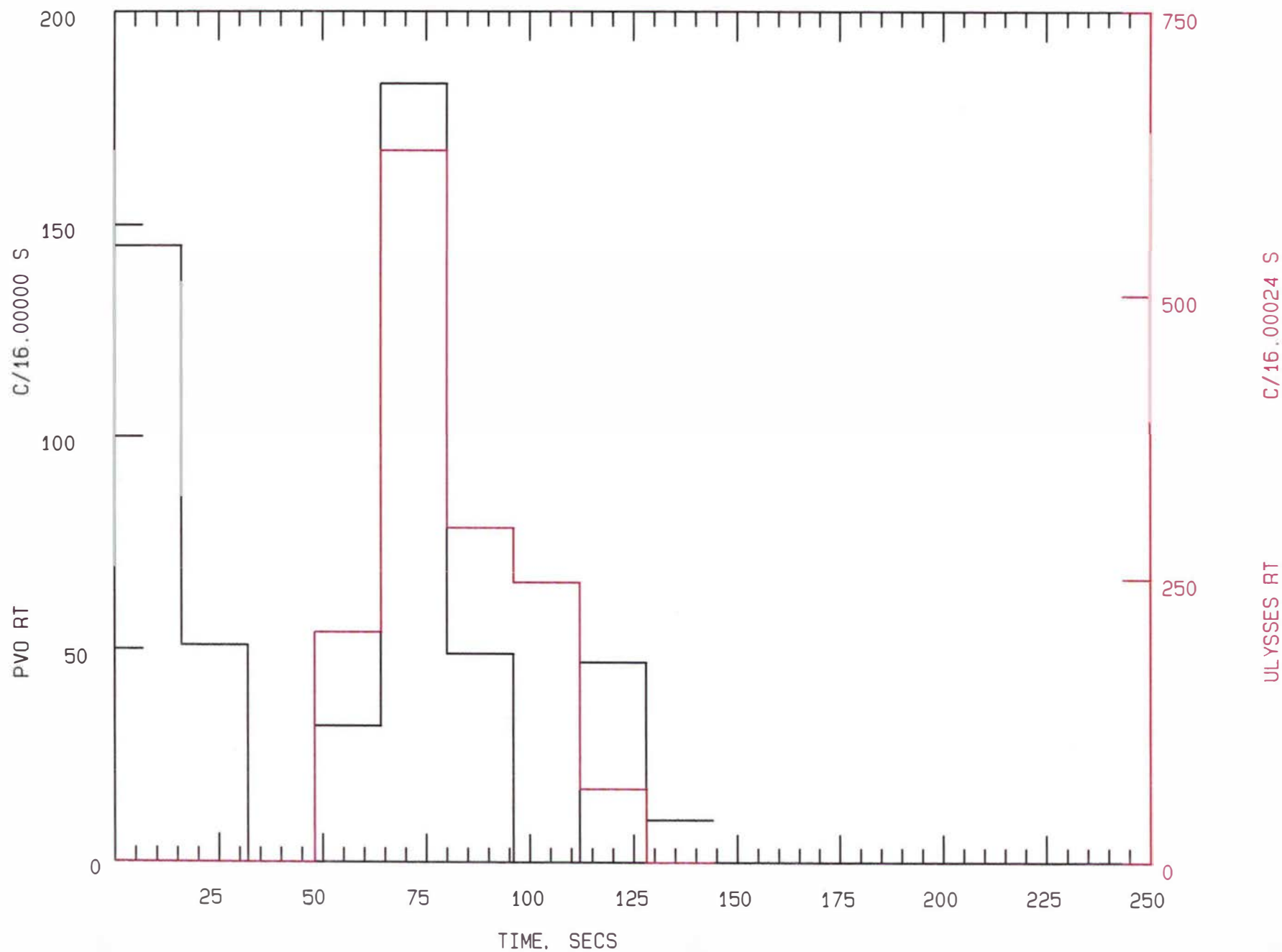
-ULYSSES RT CORRELATION

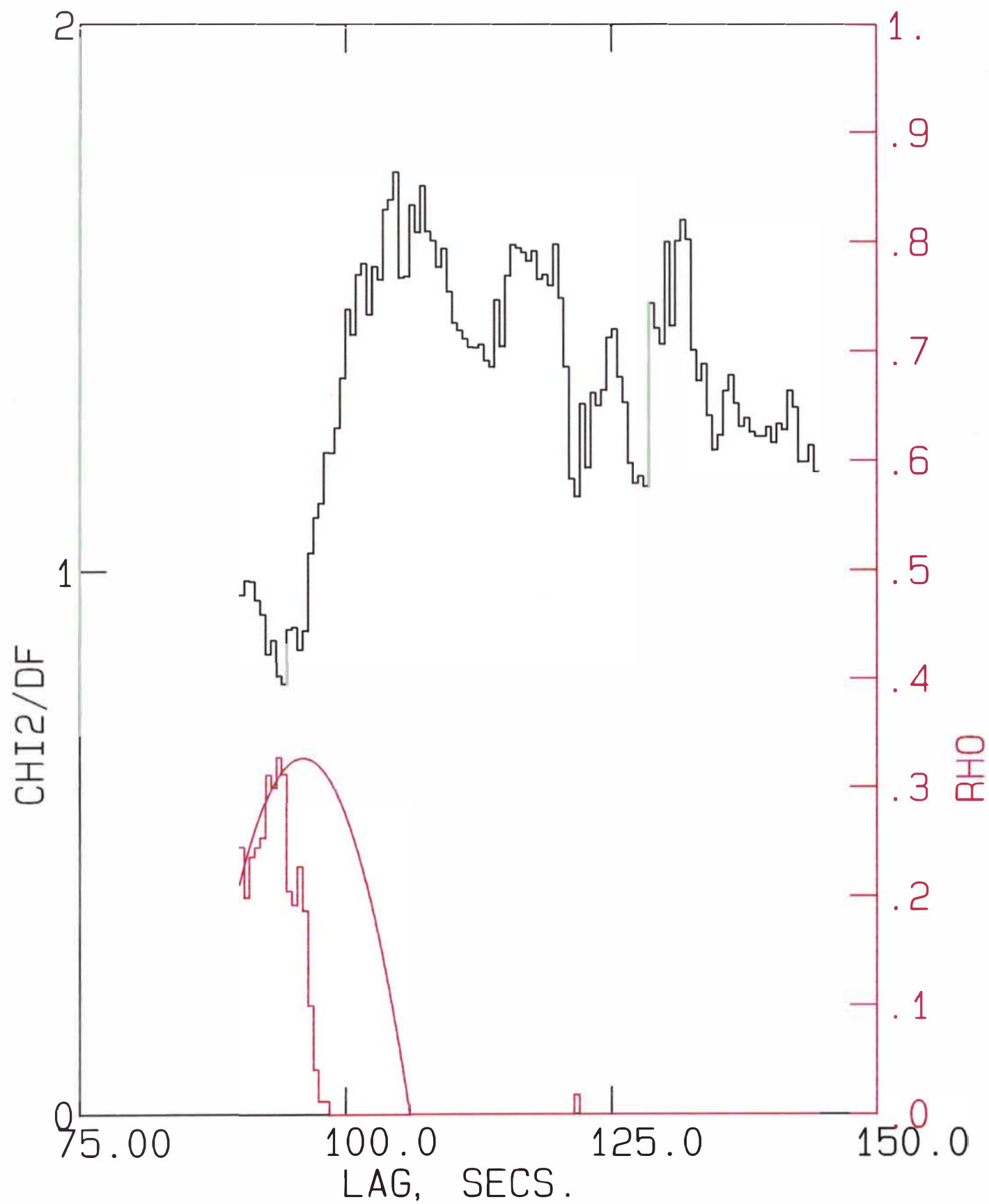
16/10/91

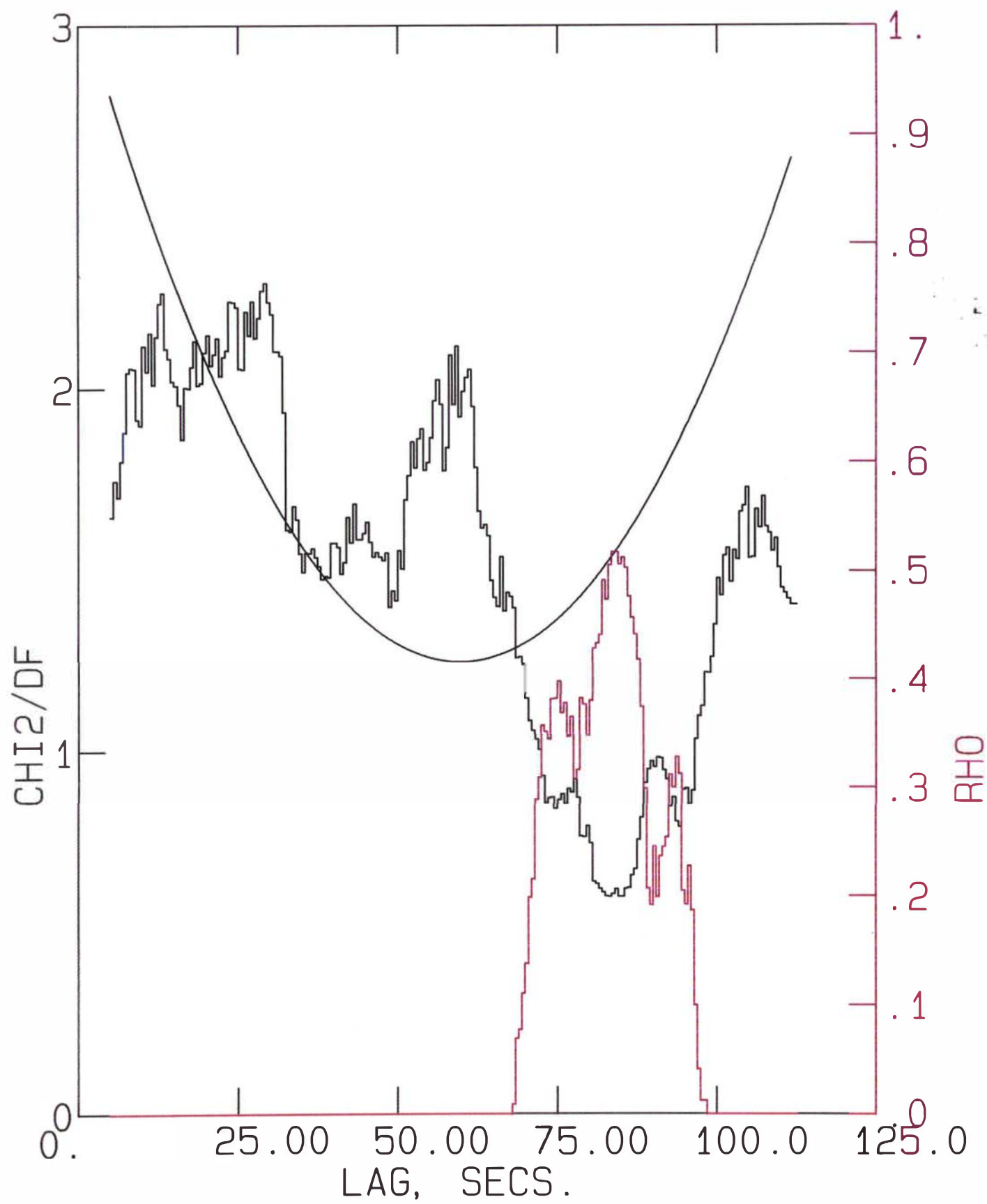
39835.848

12/ 2/97









BATSE

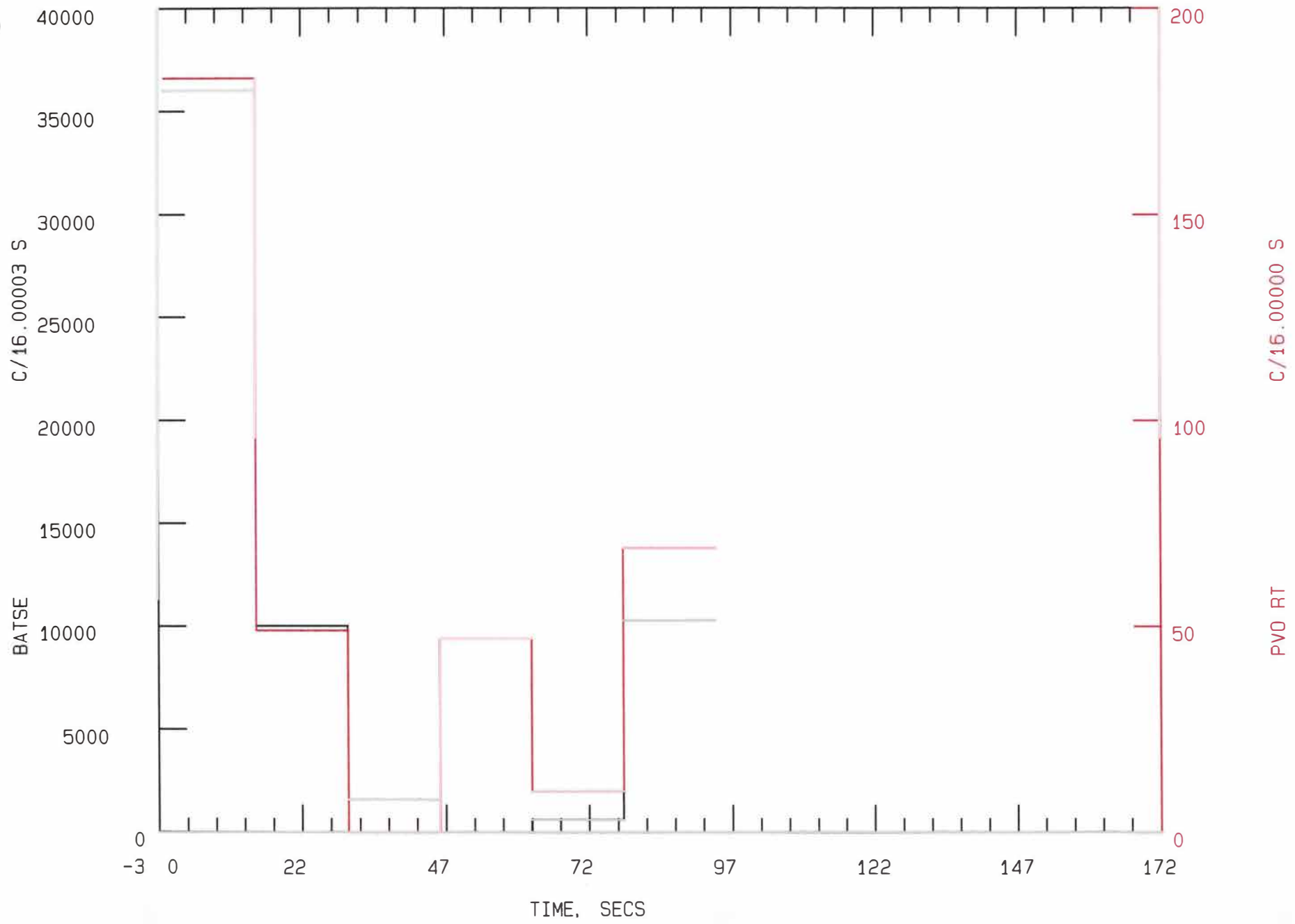
-PVO RT

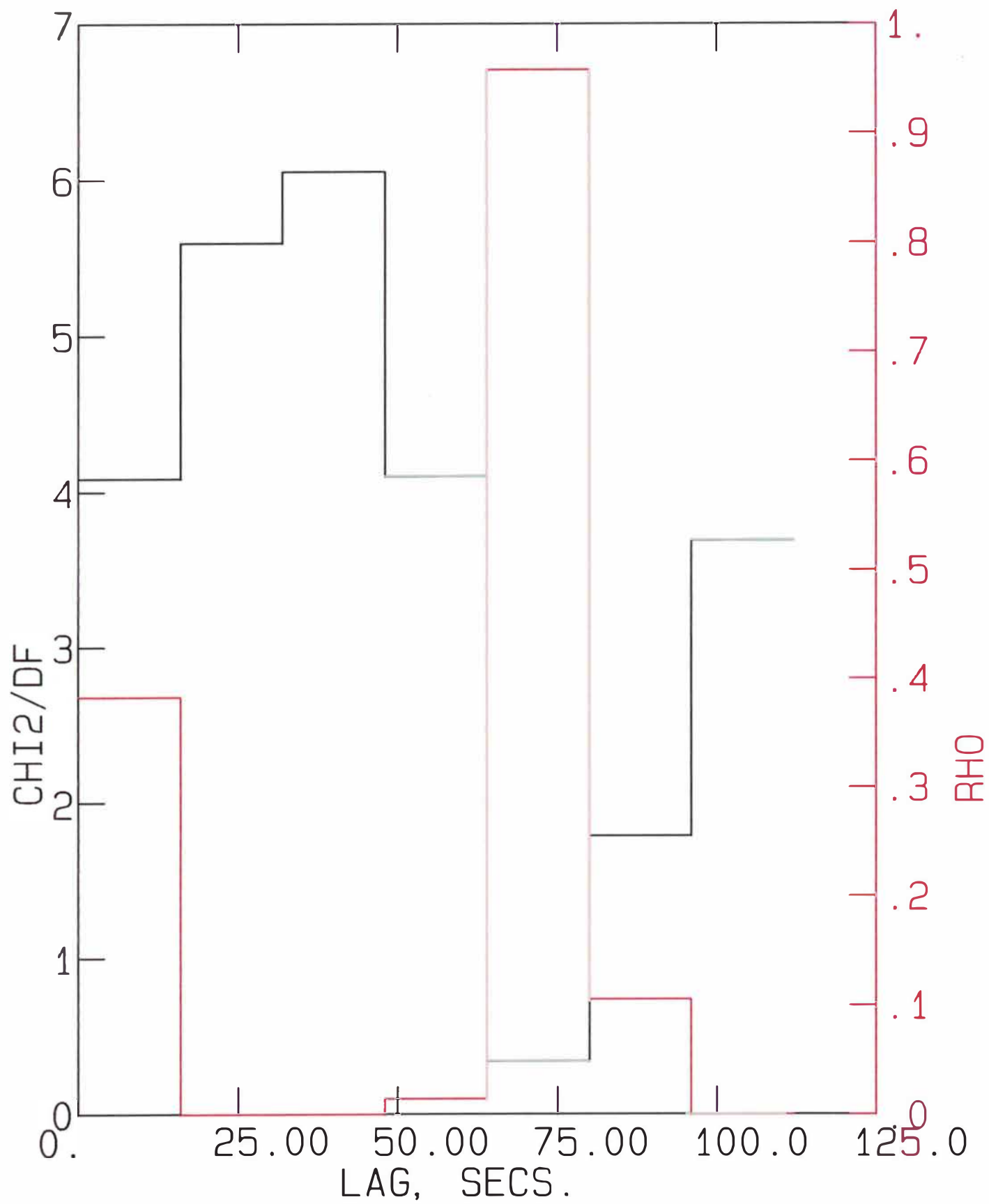
CORRELATION

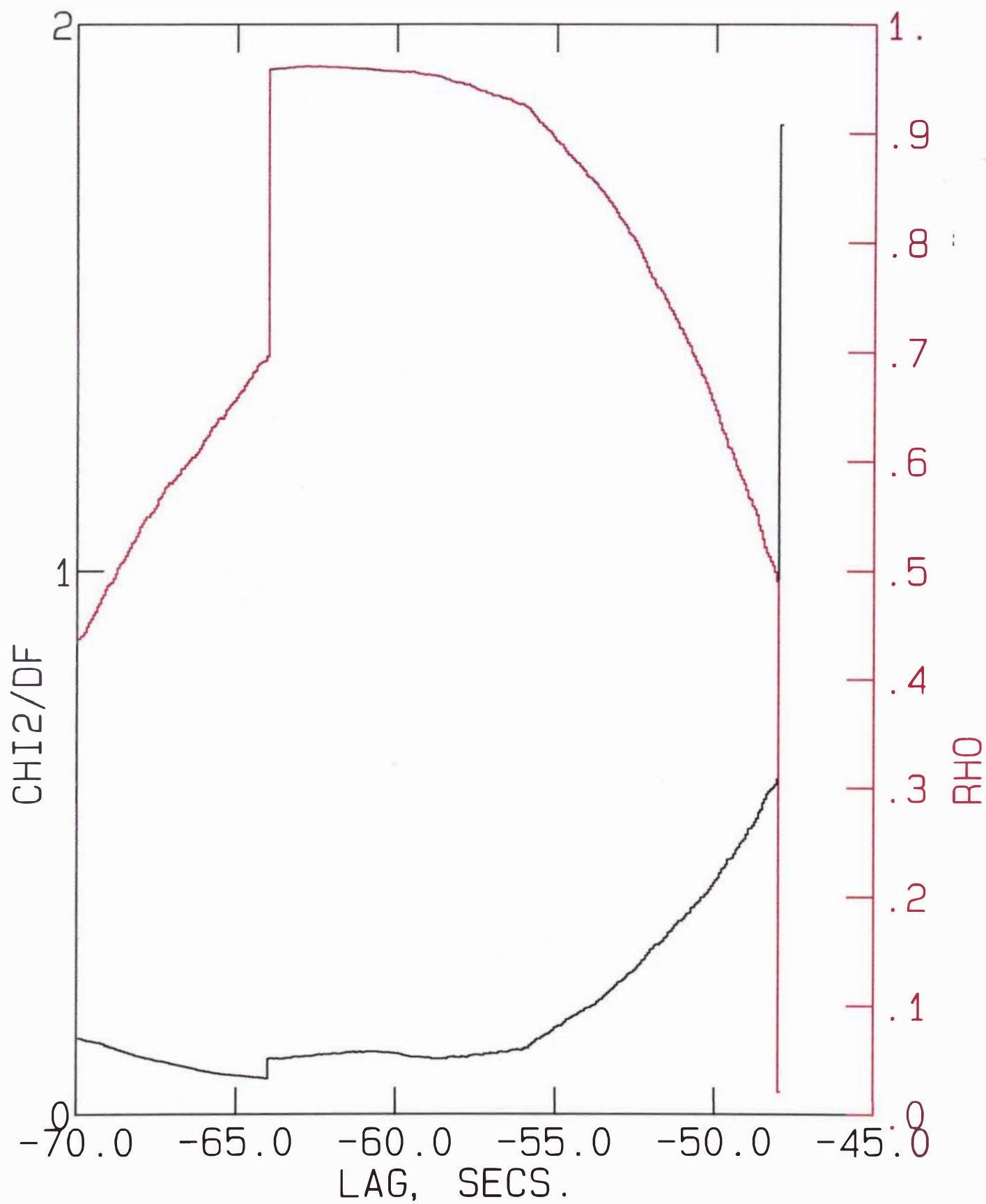
16/10/91

39694.187

11/ 2/97







PV0 RT

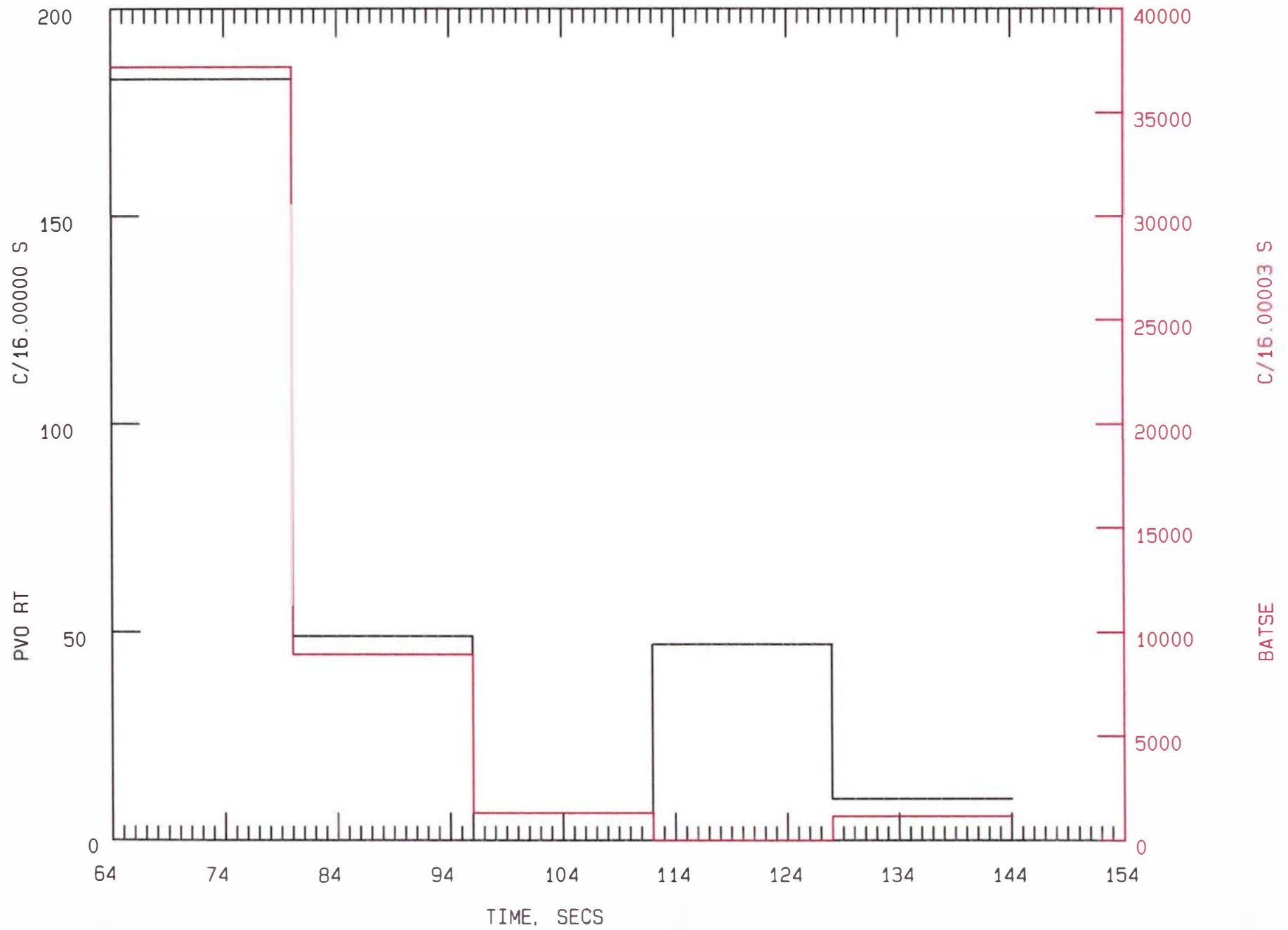
-BATSE

CORRELATION

16/10/91

39835.848

11/ 2/97



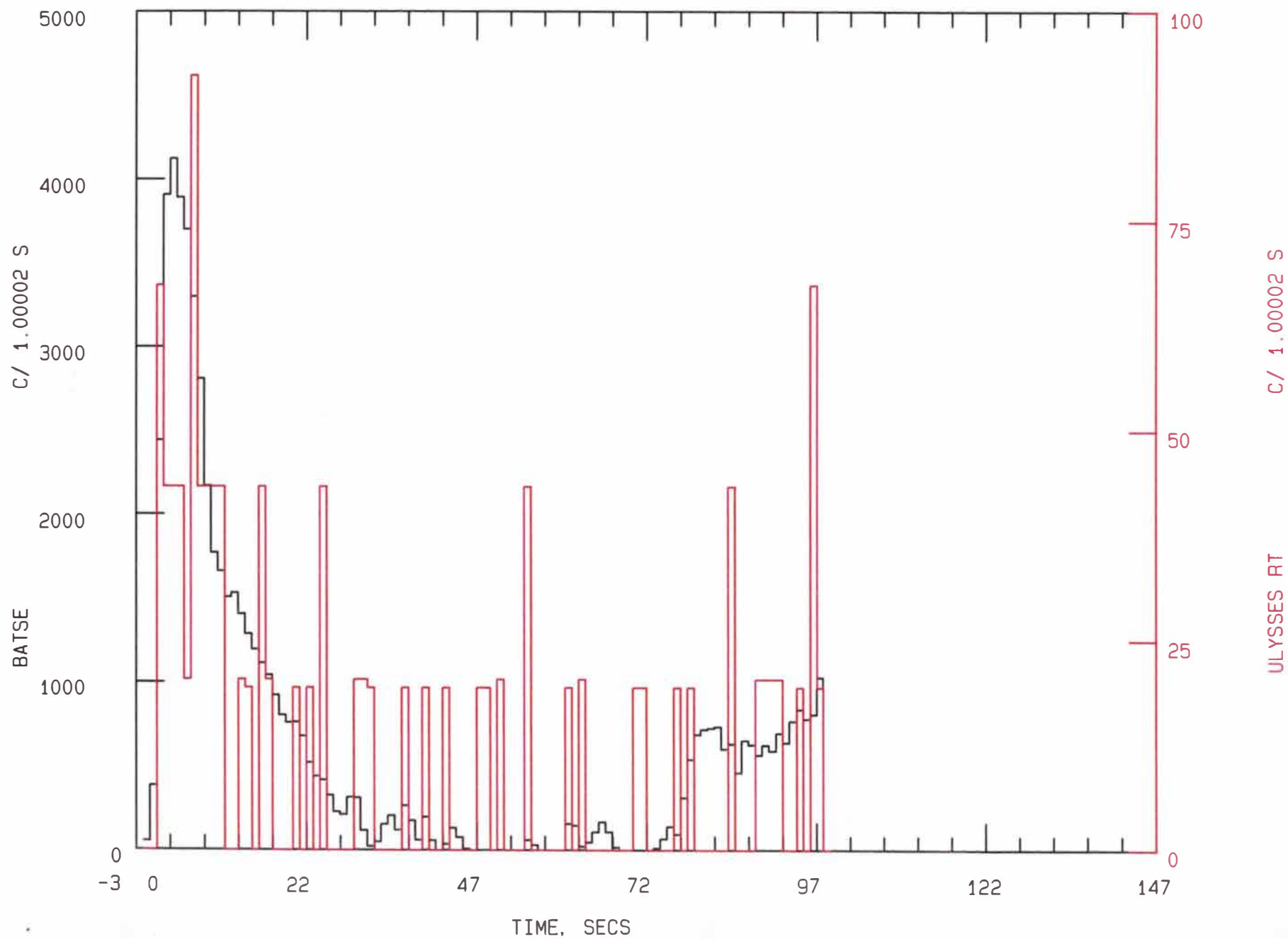
BATSE

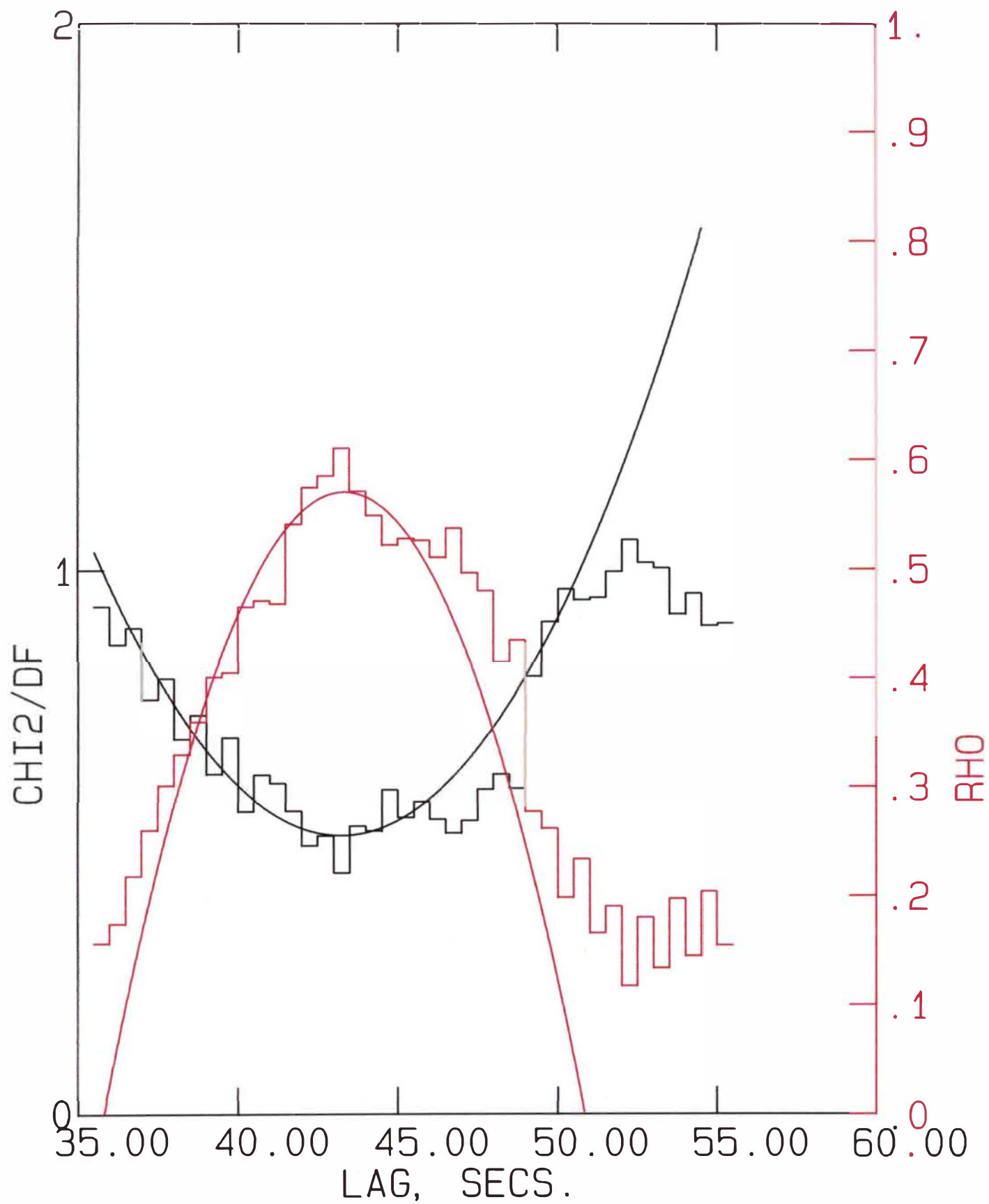
-ULYSSES RT CORRELATION

16/10/91

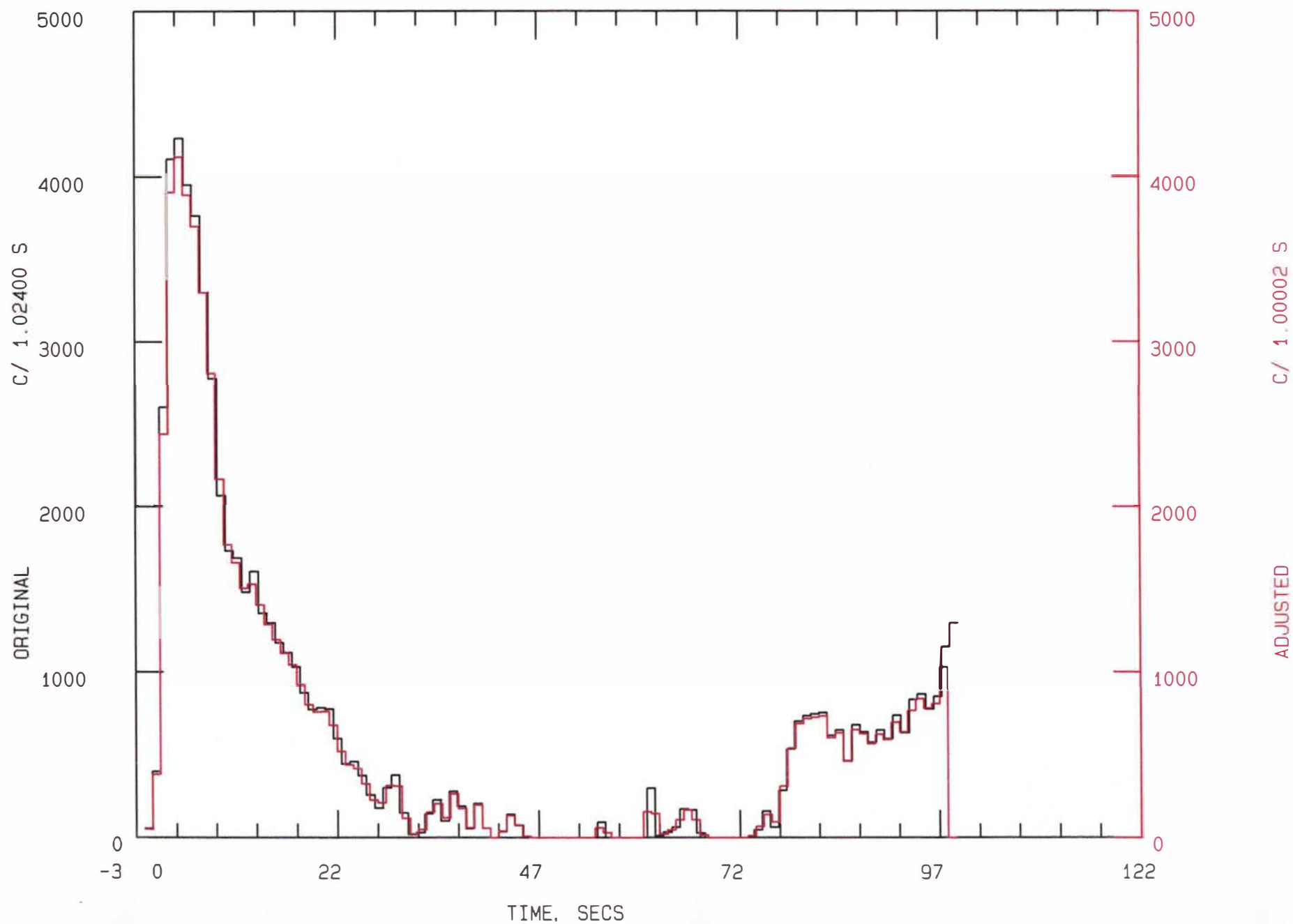
39694.187

11/ 2/97





11/ 2/97



ULYSSES RT

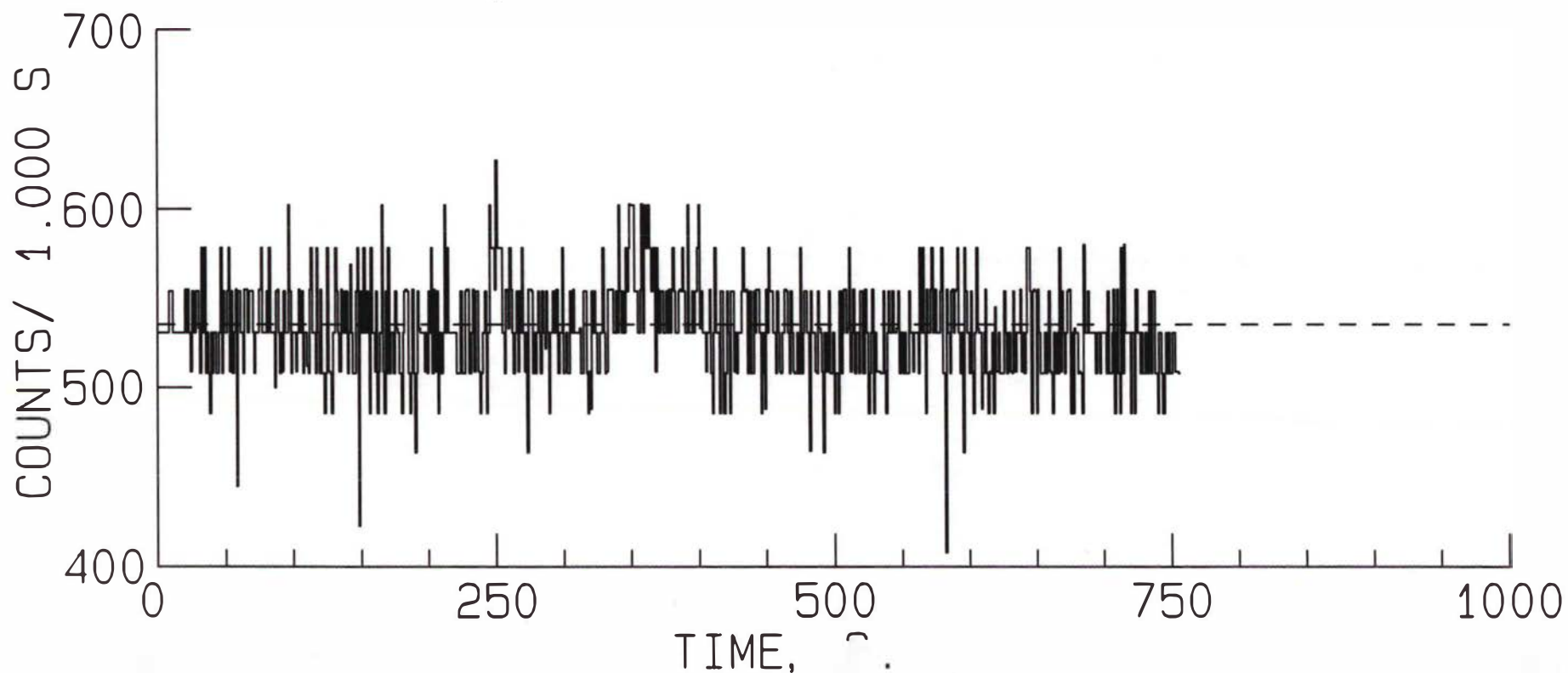
11 / 2 / 97

16/10/91 41292.083 s

0.500 S INTERVALS REGROUPED BY 2

20- 166 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From root Fri Jul 16 15:29 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA07838; Fri, 16 Jul 93 15:29:21
Received: from UCBSP.SSL.BERKELEY.EDU by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA21891; Fri, 16 Jul 93 15:30:05 PDT
Message-Id: <9307162230.AA21891@sunspot.ssl.berkeley.edu>
Date: Fri 16 Jul 93 15:31:54-PST
From: \$C <046369@essdp2.span.nasa.gov>
To: KHURLEY@sunspot.ssl.berkeley.edu
Subject: [Resent-MM Mail] DMSP GAMMA-RAY BURST DATA
Status: R

Received: from ESSDP2 by UCBSP.SSL.BERKELEY.EDU via MAIL-11 with
DECnet; Fri, 16 Jul 93 15:31:29-PST
Date: Fri 16 Jul 93 15:31:29-PST
From: 046369@ESSDP2.SPAN.NASA.GOV
Subject: DMSP GAMMA-RAY BURST DATA
To: "UCBSP::HURLEY"@ESSDP2.SPAN.NASA.GOV

FROM: ESSDP2::TERRELL (JAMES TERRELL, LOS ALAMOS NATL LAB)
TO: UCBSP::HURLEY (KEVIN HURLEY)
CC:
SUBJ: DMSP GAMMA-RAY BURST DATA, AS OF 16 JULY 1993

HERE ARE SOME NOTES CORRECTING DMSP PEAKTIMES FOR YOUR MASTER BURST LIST.
I HAVE MORE GRAPHS AND INFO TO SEND, BUT HAVE RUN OUT OF TIME.
I WILL SEND MORE INFO AFTER RETURNING 28 JULY--JIM.

27SEP91 84415 YES (8SAA, 9YES, 10SAA)
16OCT91 36696 YES (8SAA, 9YES, 10NR)
4NOV91 54286 YES (8SR, 9YES, 10YES)
27NOV91 15739 YES (8NO, 9NO, 10YES)
2DEC91 73733 YES (8YES, 9NO@144DEG, 10NR)
9DEC91 66959 N/O (8SR, 9SR, 10NR, 11ND)
21DEC91 22686 YES (8ND, 9NO, 10NO, 11YES)
10JAN92 33478 NA (BLANK) (8ND, 9NA, 10SAA, 11NA)
10FEB92 35633 YES (8NO, 9WEAK, 10SAA, 11SAA)
6APR92 9855 N/O (OBSCURED) (8NO@141, 10SR, 11NO@137DEG)
1MAY92 76696 N/O (OBSCURED) (8NO@127, 10NO@157, 11NO@147DEG)
22JUN92 25506 N/O (8SAA, 10NR, 11SA)
28JUN92 76452 YES (8ND, 10YES, 11NO)
29JUN92 75897 YES (ALL YES, SOFT)
14JUL92 47069 NA (BLANK) (8NA, 10SAA, 11SR)
16JUL92 60933 YES (9NO, 10YES, 11YES)
20JUL92 11524 N/O (OBSCURED) (8NA@130, 10NA@145, 11SR)
23JUL92 72188 N/O (OBSCURED) (8ND, 10NA@148, 11NR)
10AUG92 79599 YES? (8YES?, 10NA, 11NA) (LONG SOFT PEAK)
4OCT92 50421 YES (8YES, 10YES, 11SR)
23NOV92 22727 YES (8YES, 10YES, 1SR) (NOT AT 22712)
23NOV92 46542 YES (8NR, 10SR, 11YES) (NOT AT 46584, BATSE GRB)
7DEC92 57649 YES (8YES, 10YES, 11YES)
6JAN93 55260 YES (8SAA, 10YES, 11SR)
12JAN93 55082 YES (8YES, 10NO@138, 11VERYWEAK) (8:BIG PEAK AT 55202)
20JAN93 84779 YES (8YES, 10, YES, 11YES) (NO, AT 84700!)

From: springer@pop.jpl.nasa.gov Mon Dec 9 06:37 PST 1996
From: Joe Springer <springer@pop.jpl.nasa.gov>
To: "'Kevin Hurley'" <khurley@sunspot.ssl.berkeley.edu>
Subject: RE: More times to check
Date: Mon, 9 Dec 1996 06:37:26 -0800
X-Mailer-Version: 1.0
Content-Transfer-Encoding: 7bit

Kevin,

I checked a range ten minutes before to ten minutes after each of these points and found no timing errors.

How big is the 'big list'? You have previously provided one with 575 events. I shudder.

Joe

From: Kevin Hurley
Sent: Friday, December 06, 1996 5:53 PM
To: Joe.B.Springer@jpl.nasa.gov; khurley@sunspot.ssl.berkeley.edu
Cc: khurley@sunspot.ssl.berkeley.edu
Subject: More times to check

Dear Joe,

Before I hit you with the big list of events to check, I wanted to ask if you could check the following times. We are again writing a paper on these, and need to get this straightened out quickly (i.e. within a couple of weeks).

Thanks

Kevin

Date UT (secs)

January 22 1991 55142
February 19 1991 42204
April 21 1991 34040
April 30 1991 60428
May 07 1991 53768
May 11 1991 08090
May 22 1991 43556
June 19 1991 55254
June 27 1991 15335
July 17 1991 17265
July 18 1991 09076
August 14 1991 70996
October 05 1991 26852
October 16 1991 41542
October 31 1991 35550
November 04 1991 52695
November 09 1991 11321
November 18 1991 66112
November 26 1991 43717
December 02 1991 71640
February 18 1992 68388
February 20 1992 49020

February 26 1992 30348
March 08 1992 17470
March 11 1992 07038
March 20 1992 45256
March 25 1992 64261
March 31 1992 66408
April 04 1992 49443
April 06 1992 11150
April 14 1992 84300
May 01 1992 75040
May 17 1992 10549
May 17 1992 50706
May 19 1991 60996
May 25 1992 14411
July 11 1992 58470
July 14 1992 46275
July 20 1992 09807
July 20 1992 18344
July 23 1992 73955

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	1970	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

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)

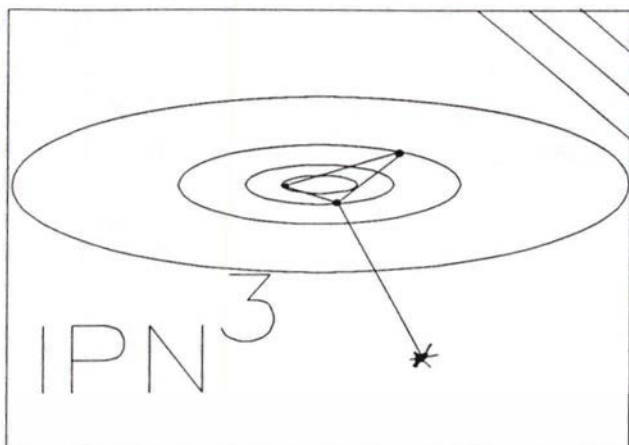
posit.: All events in the above list (except 910627) have been localized consistently at least twice based on independent data sets. We are therefore convinced of their true cosmic nature, even without confirming evidence from other spacecraft. GRB 910627 has been included in the list because it is confirmed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

1950
296.975, -4.8 →
2000
297.636, -4.674

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/sdp arcminutes. In most
cases the systematic errors dominates the error budget.

theta and phi: Source position in WATCH instrument coordinates.



FAX FROM K. HURLEY
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SPACE SCIENCES LABORATORY
BERKELEY, CA. 94720
PHONE: (510) 643-9173
FAX: (510) 643-8640 (OFFICE), -8302 (SECTY)
E-MAIL: khurley@sunspot.ssl.berkeley.edu

TO: Niels Lund, DSRI

FAX #:

DATE: July 23, 1993

TOTAL NUMBER OF PAGES: 6

As we discussed, I am sending you my notes on those Watch/Ulysses events which seem to have some potential for making small error boxes. Note that there are some Watch events for which we have no data, and cannot proceed. I would like to get the data as soon as possible. I think that this will make a nice Huntsville paper, provided we can remove the inconsistencies.

WATCH/ULYSSES EVENTS

1. 19 Feb 91. Done. Watch/Ulysses/PVO triangulation agrees with Watch error box. Optical transient inside Watch error box, but not inside IPN location.
2. 10 March 91. Watch/Ulysses/PVO event. I need the Watch digital data to triangulate this.
3. 17 Jul 91. Watch/BATSE/Ulysses/PVO event. BATSE and triangulation positions are around RA=241, dec=-63; Watch position given as 234, +29. Inconsistent.
4. 16 Oct 91. Watch/BATSE/Ulysses/PVO event. Earth/Venus/Ulysses were aligned, making the triangulation uncertain, but the Watch error box is consistent with Ulysses/BATSE annulus, and marginally consistent with BATSE error box. Needs more work.
5. 9 Dec 91. Watch/Ulysses/BATSE event. Watch error box is several degrees from Ulysses/BATSE annulus, but inside BATSE error box. This one needs more work.
6. 14 Jul 92. Watch/Sigma/BATSE/PVO event. The Sigma camera localized this event. Everyone is in agreement!
7. 18 Jul 92, 14:41. Watch/Ulysses event. I need the Watch digital data to do the triangulation.
8. 18 Jul 92, 21:32. Watch/Ulysses/BATSE event. I haven't triangulated it yet, but have all the data I need to do it.
9. 23 Jul 92. Watch/Ulysses/Sigma/PVO event. Localized by Sigma gamma camera. Previous Watch position (with 0.5° radius error box) was inconsistent with triangulated position, but in Sigma error box. New Watch position (with 1° radius error box) is consistent with everybody, although the IPN location is at the edge of the Watch box. PVO ephemeris needs to be updated - still using Venus.
10. 3 Sep 92 1:36. Ulysses/Watch/BATSE event. I need the BATSE data to triangulate this one.
11. 3 Sep 92 23:11. Ulysses/Watch event. I need the Watch data to triangulate it.
12. 25 Sep 92 19:30. This one is new (at least, to me). I'm looking for it in the Ulysses real-time data (I know we didn't trigger on it). However, there is also a Phebus event on this day, with time given as 20:30. I wonder if there is a mistake here somewhere?
13. 25 Sep 92 22:49. Ulysses/Watch event. I need the Watch data to triangulate it.

Possible
watch RA 26
Dec 1992
6 = 10 confusion

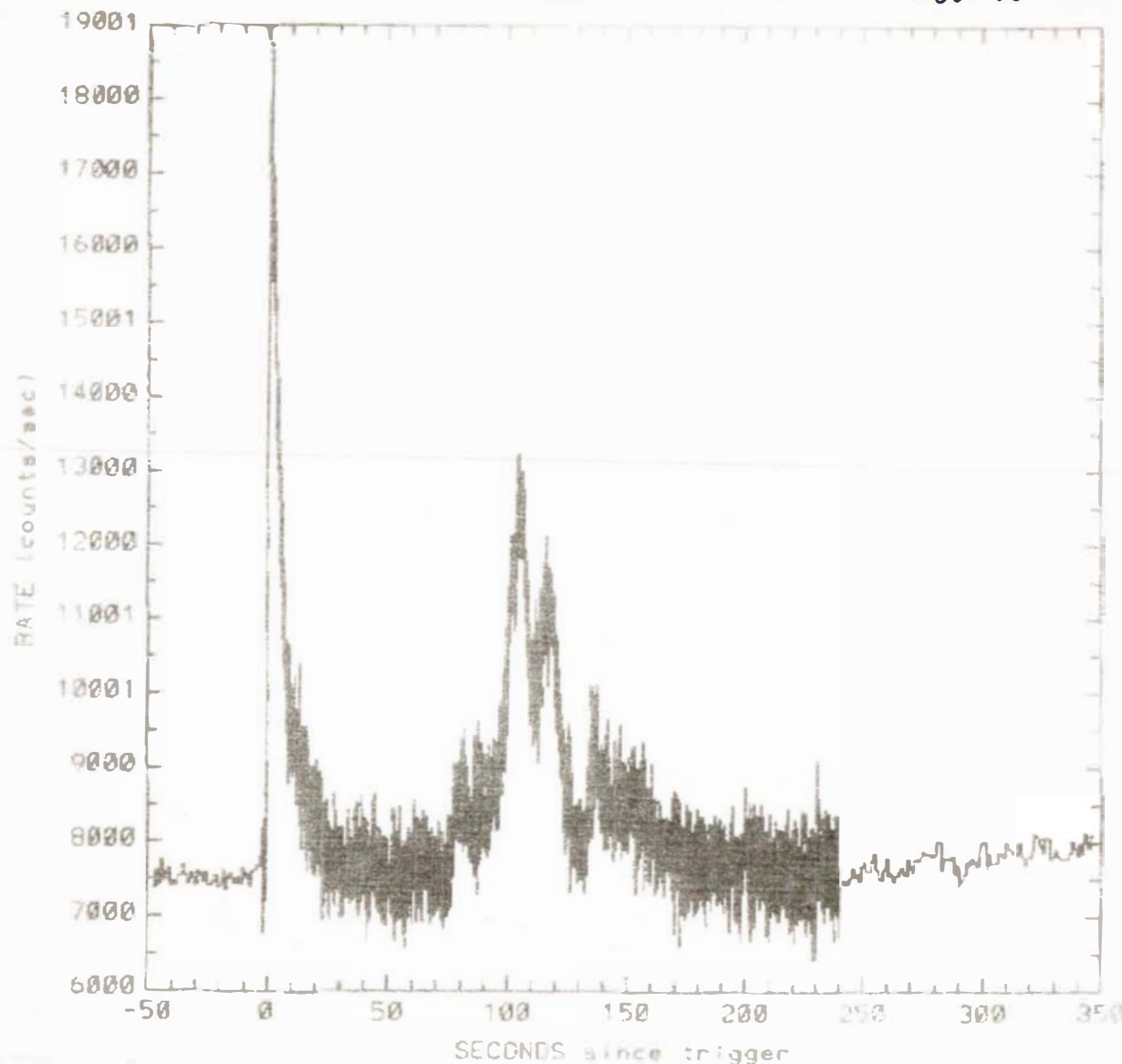
Dezelay -> KH

7/93

DATE	U.T.	Nr UGB	Event Nature
1991-08-27	15:33:19.885	325-c	Solar Particles
1991-09-01	05:24:27.051	327-a	GRB
1991-09-07	01:05:10.287	330-a	GRB
1991-09-07	19:23:04.162	331-a	Solar Flare
1991-10-01	18:14:23.671	345-a	Unknown
1991-10-01	19:01:20.457	345-b	Unknown
1991-10-04	01:27:10.195	347-a	Unknown
1991-10-13	18:09:49.270	353-a	Solar Flare
1991-10-13	21:02:34.557	353-b	Solar Flare
1991-10-14	17:34:33.822	354-a	Unknown
1991-10-16	11:01:35.345	355-a	GRB
1991-10-18	05:32:15.504	356-a	GRB
1991-10-25	21:25:15.926	362-a	GRB
1991-10-26	15:06:06.127	363-a	Unknown
1991-10-26	15:28:41.044	363-b	Unknown
1991-10-26	20:35:18.850	363-c	Solar Flare
1991-11-19	17:12:34.357	367-a	GRB
1991-11-19	17:28:41.794	367-b	Solar Flare
1991-11-21	07:23:32.063	368-a	Unknown
1991-11-21	07:43:41.945	368-b	Unknown
1991-11-21	07:58:33.952	368-c	Unknown
1991-12-05	19:48:38.788	375-a	Solar Flare
1991-12-14	20:55:02.702	378-a	Unknown
1991-12-15	06:23:41.586	378-b	Unknown
1991-12-15	11:41:18.304	378-c	Unknown
1991-12-20	14:02:29.154	380-a	Solar Flare
1991-12-20	14:53:07.976	380-b	Solar Flare
1991-12-20	16:04:57.705	380-c	Solar Flare
1991-12-22	15:00:10.116	381-a	GRB
1992-01-10	00:12:08.191	386-a	Unknown
1992-01-10	02:45:56.628	386-b	Unknown
1992-01-10	09:18:06.120	386-c	Unknown & GRB
1992-01-18	09:42:49.763	392-a	Unknown
1992-01-18	12:38:59.105	392-b	Unknown
1992-01-18	~12:52	392-c	Unknown

DISCSC Data, Trigger No. 907

Oct 16 '91



17-OCT-1991 12:05:54

Created by MOPS 80
(Burst Display)
Version: 2.06

Trigger # : 907

UT

Trigger Time:
8545.139696229 = 11:01:36.229

Burst Data Type:
DISCSC

-2.042 =

11:01:34.187

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 seconds

Detectors [7..0]:
0000011

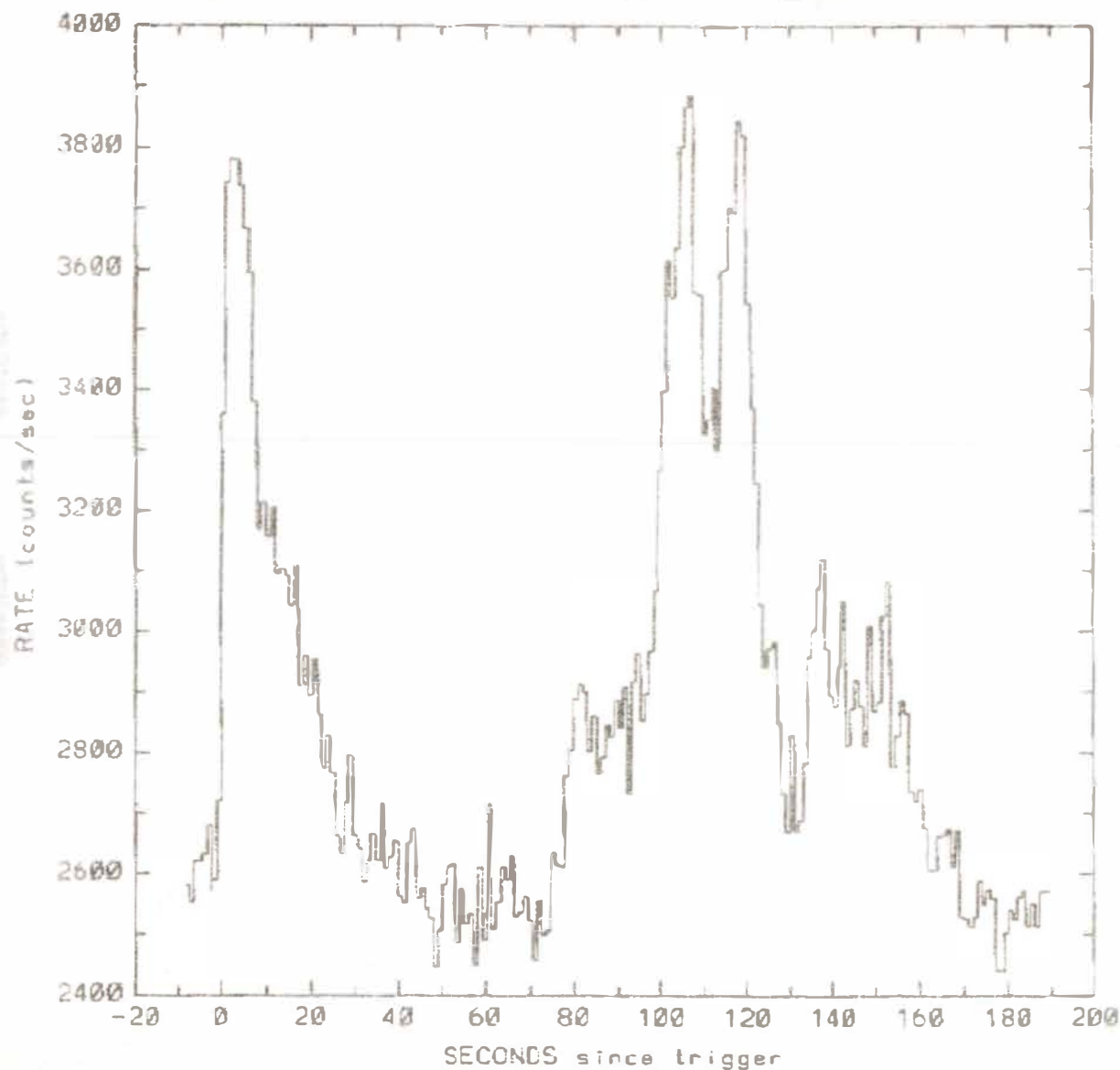
Discriminators:
1. 41

Quality Mask:
BDISPO

summed data for 4 brightest detectors in 25 - >300 keV range
Time resolution = 64 msec

GRB 911016 / BATSE #907

Oct 16 '91



6-NOV-1991 18:28.13

Created by MOPS 80
(Burst Display)
Version 2.06

Trigger # : 987

Trigger Time:
8545 / 35696.229

Burst Date Type:
DISCSC

Deadline
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
1.024 seconds

Detectors [7, 2],
00000011

Discriminators:
(1, 1)

Quality Mask:
BDISP0

BATSE

16/10/91

39696.229

25- 100 keV

COUNTS/ .064 S

750
500
250
0

-3

0 1

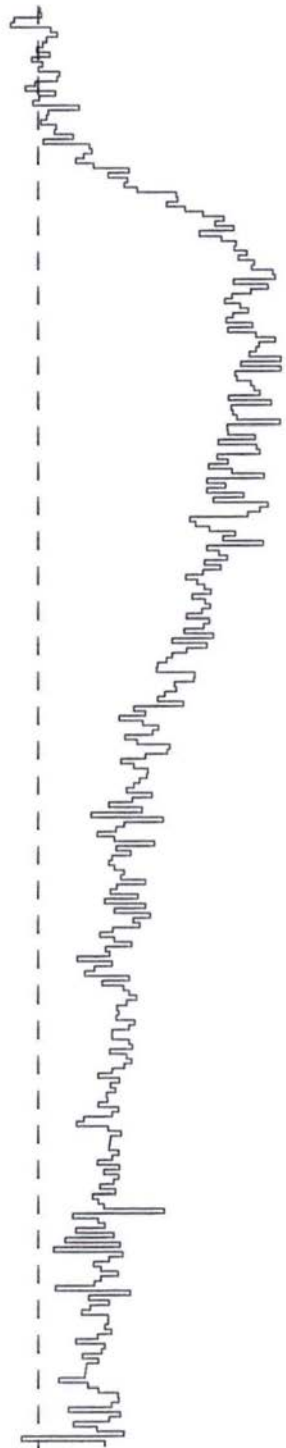
5

1E, SECS

9

13

17



BATSE

16/10/91

39696.229

25- 100 keV

COUNTS/ .064 S

750
500
250

17

21

25

29

33

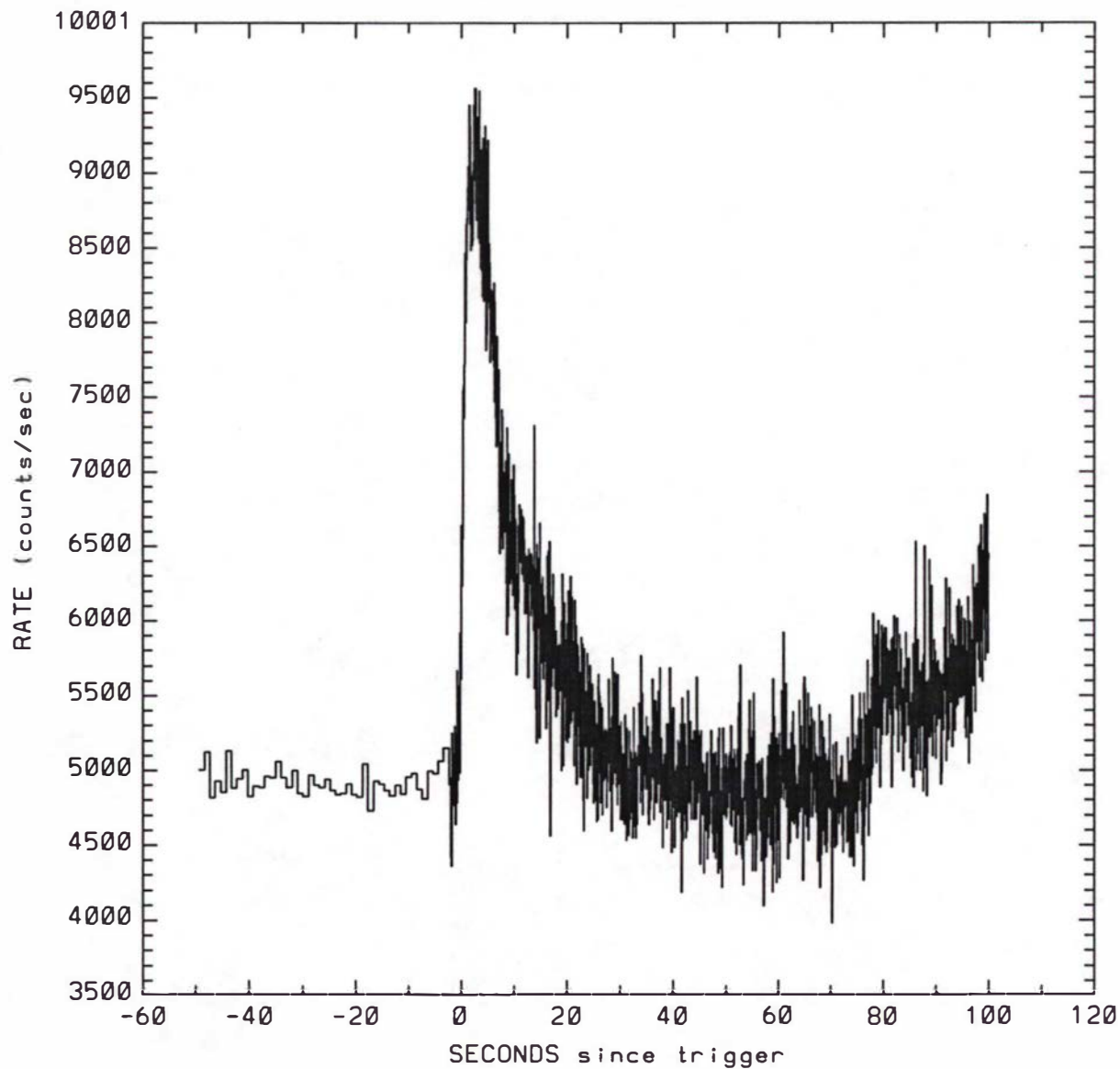
37

T IE, SECS

20 / 8 / 92

Oct 16 '91

Data for K. Hurley



8-JUL-1992 15.46.03

Created by MOPS BD
(Burst Display)
Version 2.14

Trigger # : 907

Trigger Time:
8545 / 39696.229

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 second(s)

Detectors [7..0]:
00000011

Discriminators:
(1, 2)

Quality Mask:
BDISP0

Table 1 GRBs List

Event ID	Time(U.T.)	Peak Counts Cp (cnts/4sec)	Bit
901009	00:15:52		Hi
901021	00:09:07		Hi
901103	05:52:56		Hi
901112	19:20:38		Lo Uly
901219	21:52:50		Hi Uly
901222	15:14:08		Hi Uly
90130	11:56:08		Hi
90204	08:58:47		Hi Uly
90206	08:45:29		Med Uly
910312	12:43:34		Hi Uly
910314	22:56:12		Lo Uly
910315	22:55:48		Lo Uly
910322	12:41:48		Med
910402	14:28:13		Med Uly
910429	03:11:50		Med GRO
910522	12:14:08		Hi Uly
910527	23:45:36		Hi
910709	20:22:38		Med
910717	04:33:05		Hi GRO
910723	14:06:16		Lo
910725	13:12:06		Med GRO
910803	08:33:28		Med GRO
910814	19:14:34		Lo GRO
910815	12:34:32		Med
910821	10:33:39		Hi
910827	13:11:18		Hi
910905	23:48:55		Med GRO
910907	01:04:56		Lo GRO?
910926	18:25:56		Lo GRO
911008	17:56:04		Lo
911016	11:01:30		Lo GRO
911029	04:50:52		Lo

accuracy

Hi	<+-0.1s
Med	+0.5s
Lo	+2.0s

Murakami's
Preliminary list

SOLAR
Requested Uly data Requested RT data Request N/O
Got Ganga data
Requested U. RT data
Got Ganga data
SOLAR
Requested RT
Requested RT data
Uly RT
RT requested
RT requested
Uly
RT requested
RT requested
RT requested
RT
RT requested
No data.
Requested RT
Requested RT
Requested RT
Requested RT
Requested RT
Requested RT

PVO-RT

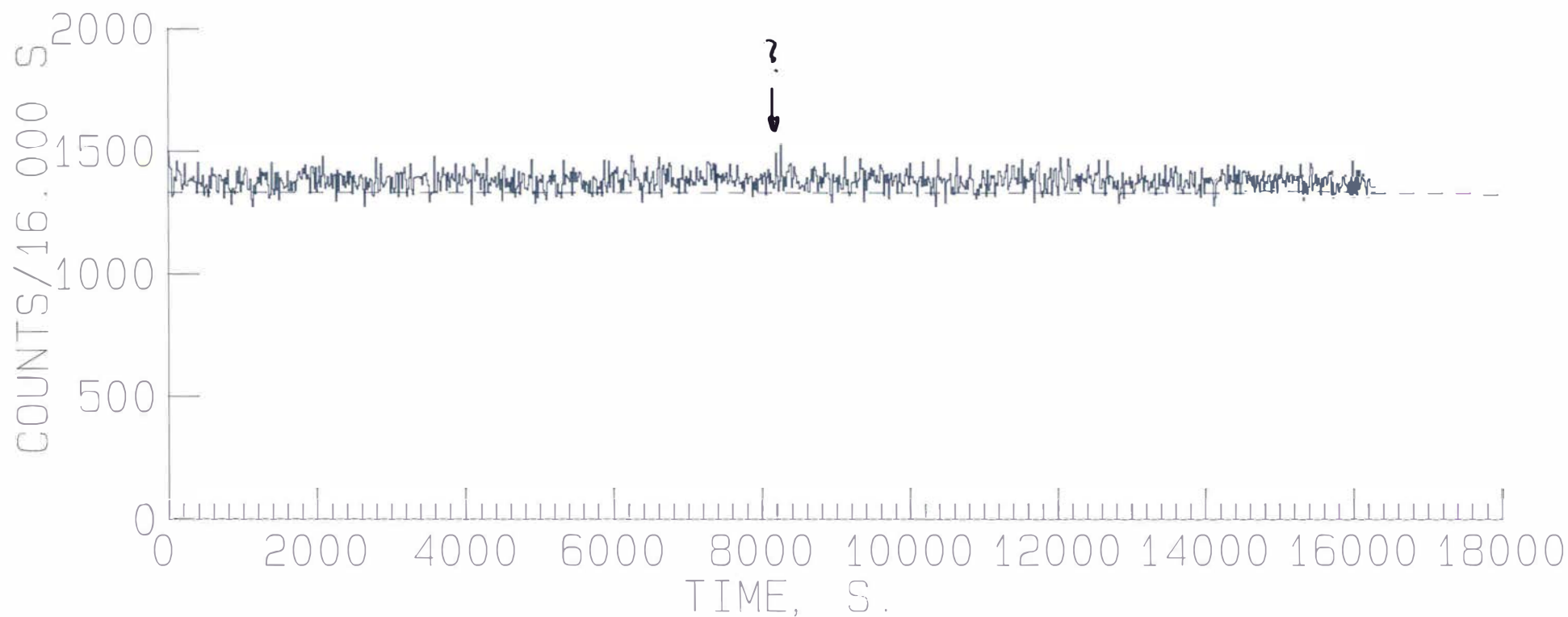
10/12/91

16/10/91

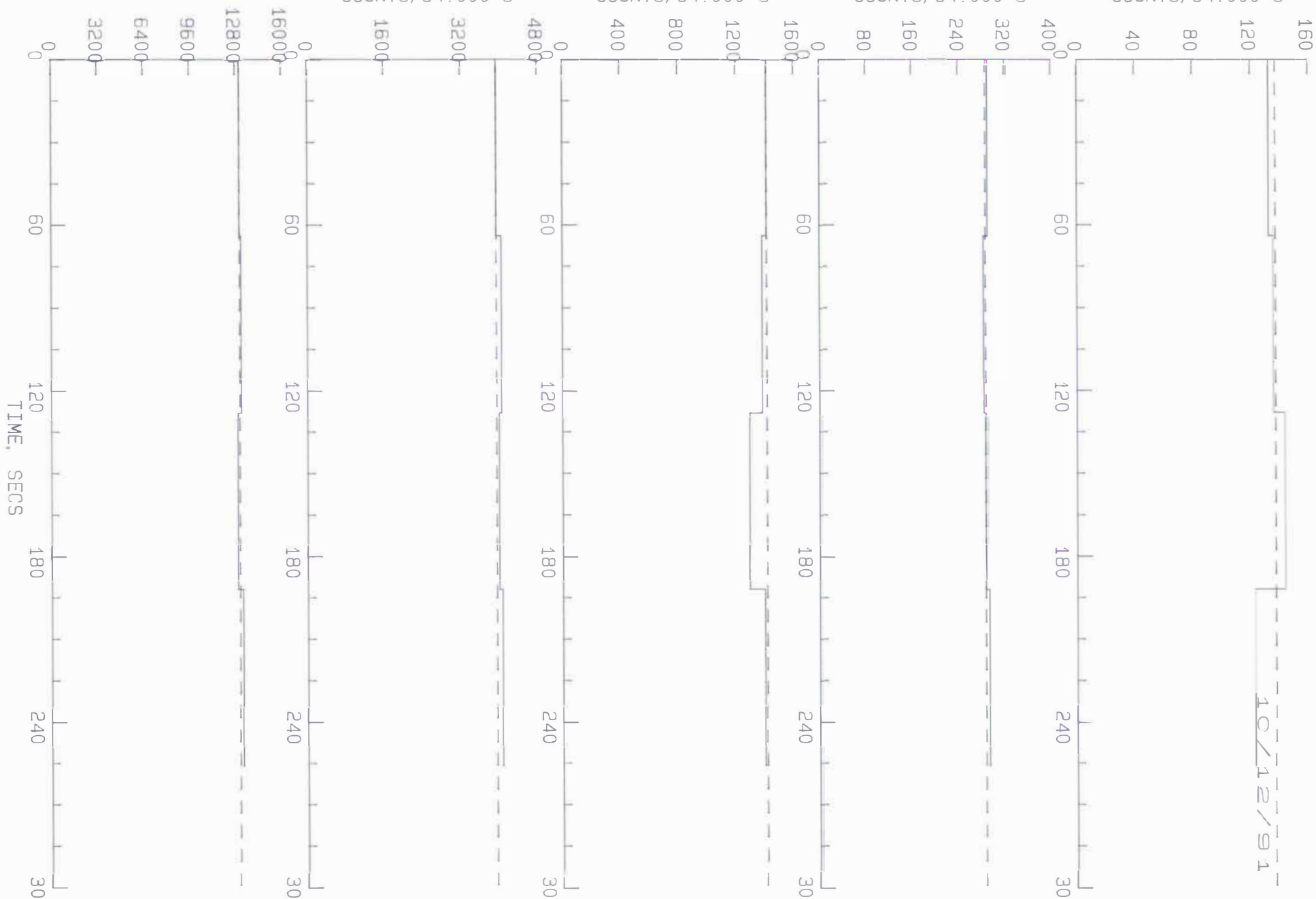
31643.797 s.

16.000 S. INTERVALS REGROUPED BY 1

100-2000 keV



PVO NOVETO 16/10/91 PVO RT 16/10/91 PVO RT 16/10/91 PVO RT 16/10/91 PVO RT 16/10/91
>100 keV 100-200 keV 200-500 keV 500-1000 keV 1000-2000 keV
COUNTS/64.000 S COUNTS/64.000 S COUNTS/64.000 S COUNTS/64.000 S COUNTS/64.000 S

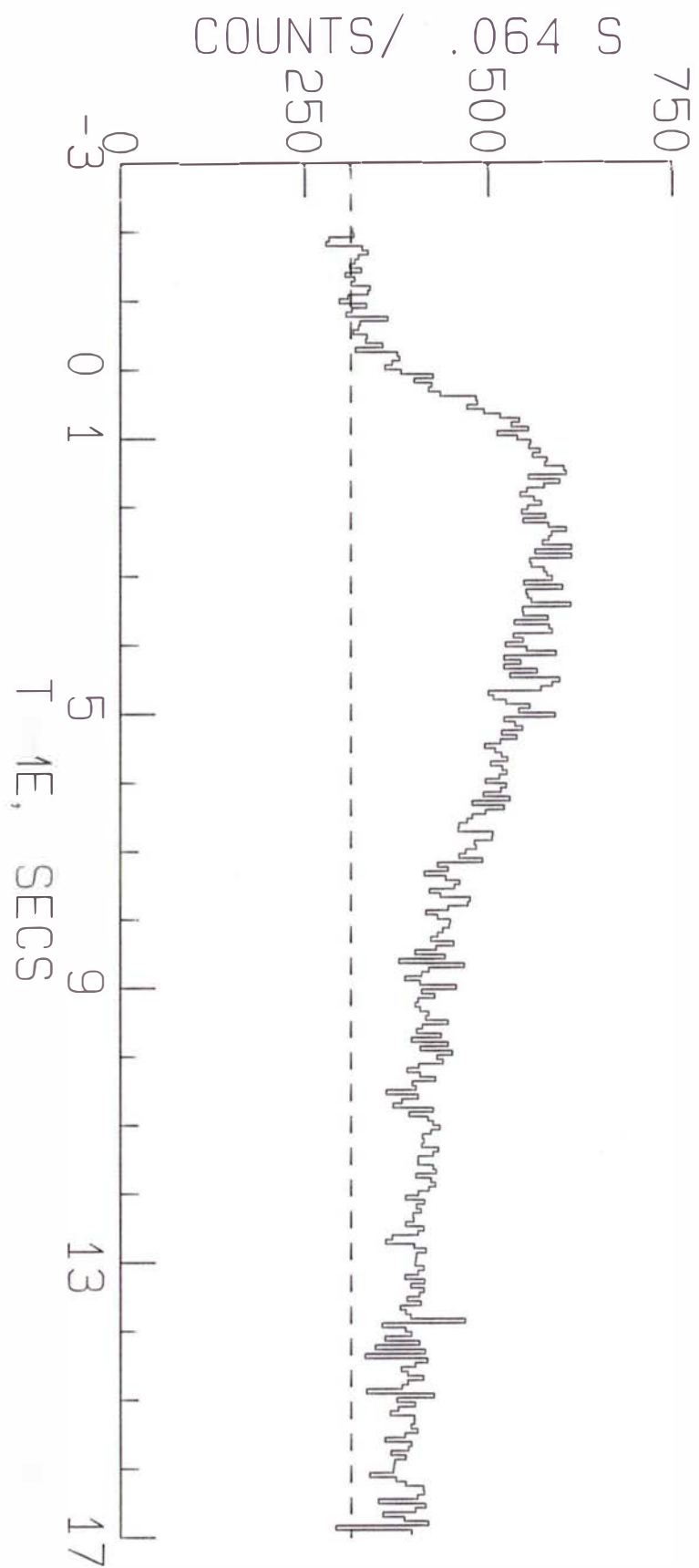


BATSE

16/10/91

39696.229

25- 100 keV

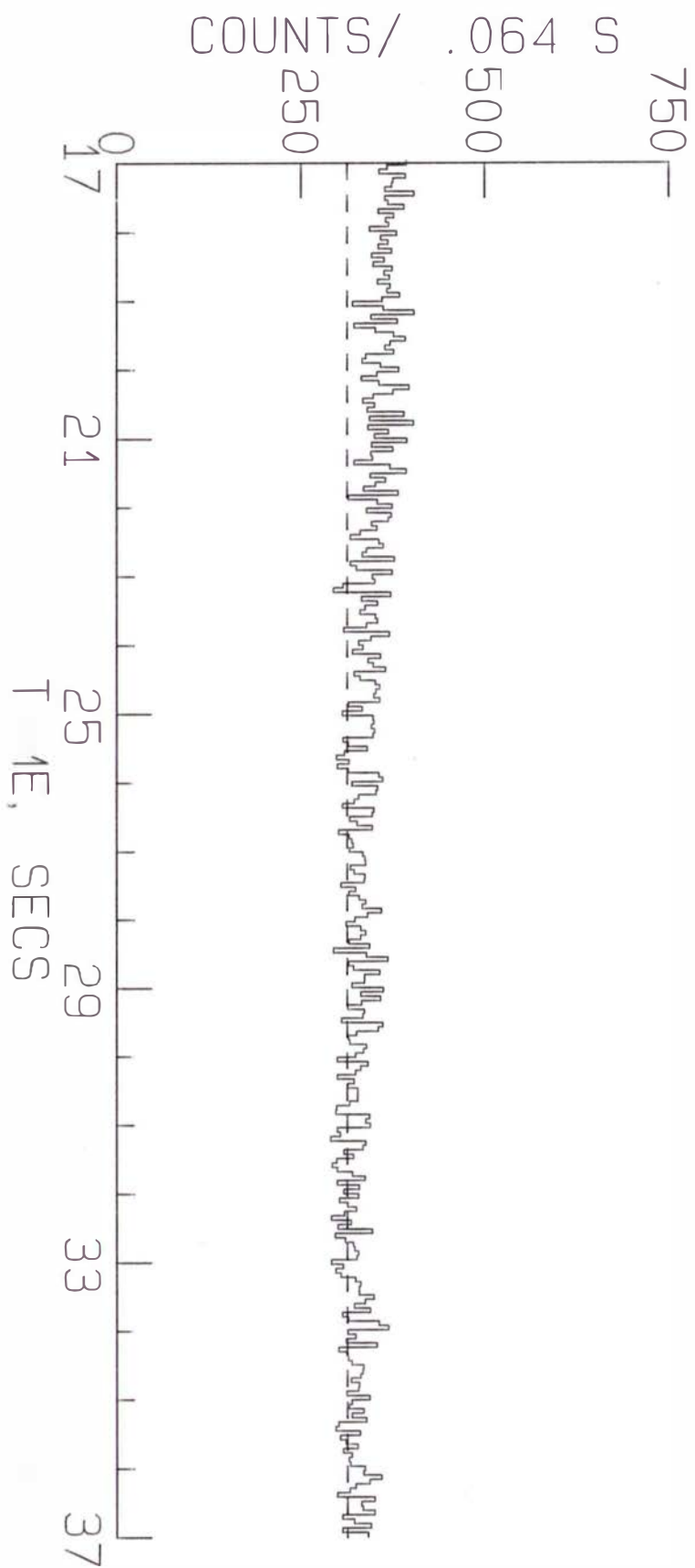


BATSE

16/10/91

39696.229

25- 100 keV



BATSE

16/10/91

39696.229

25- 100 keV

COUNTS/ .064 S

750
500
250

37

41

45

49

53

57

T
1E, SECS



BATSE

16/10/91

39696.229

25- 100 keV

COUNTS/ .064 S

750
500
250

57

61

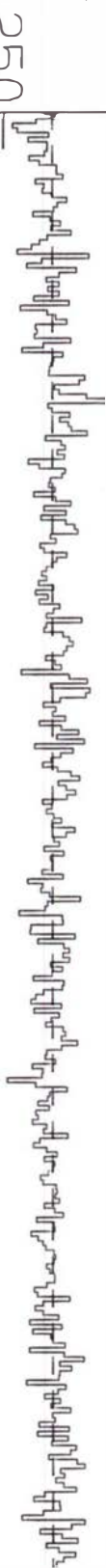
65

69

73

77

T 1E, SECS



BATSE

16/10/91

39696.229

25- 100 keV

COUNTS/ .064 S

750
500
250

97

81

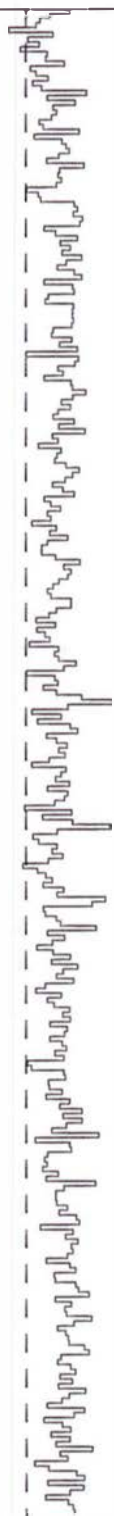
85

89

93

97

T 1E, SECS



BATSE

16/10/91

39696.229

25- 100 keV

COUNTS/ .064 S

750
500
250

97

101

105

109

113

117

T
1E, SECS

18 / 5 / 93

PV0-RT

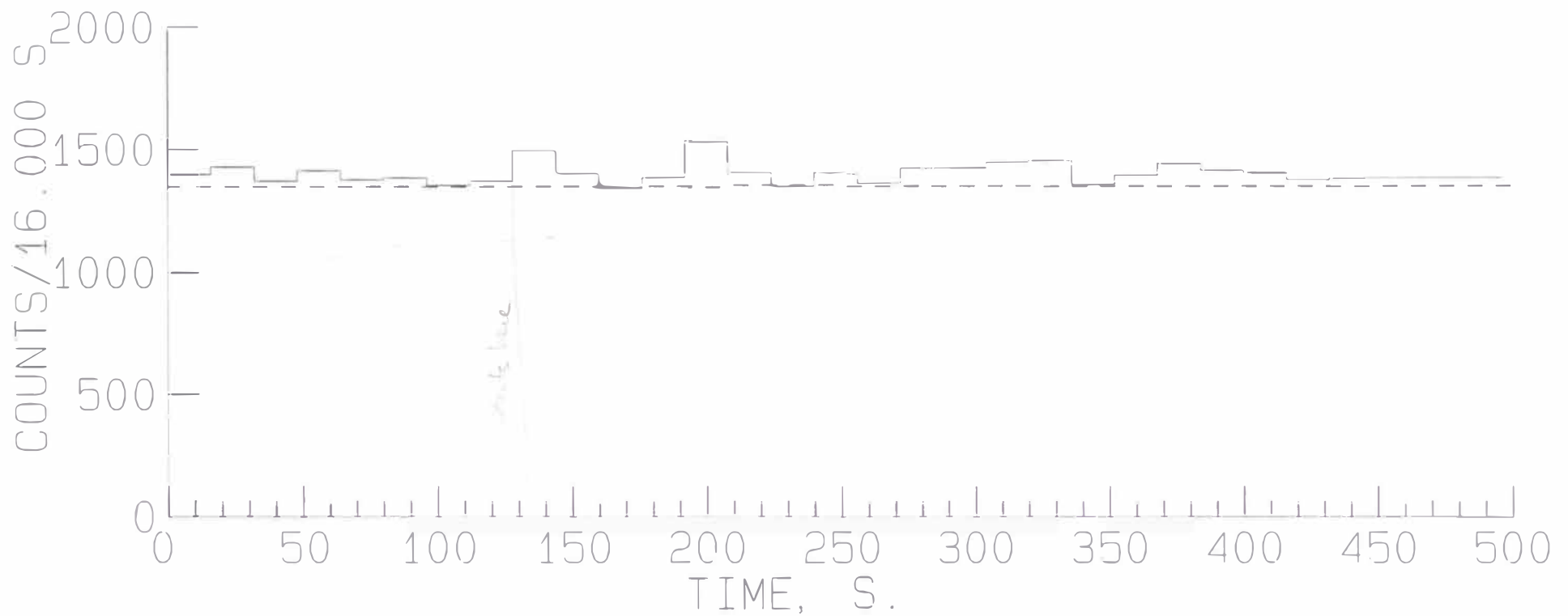
19 / 8 / 92

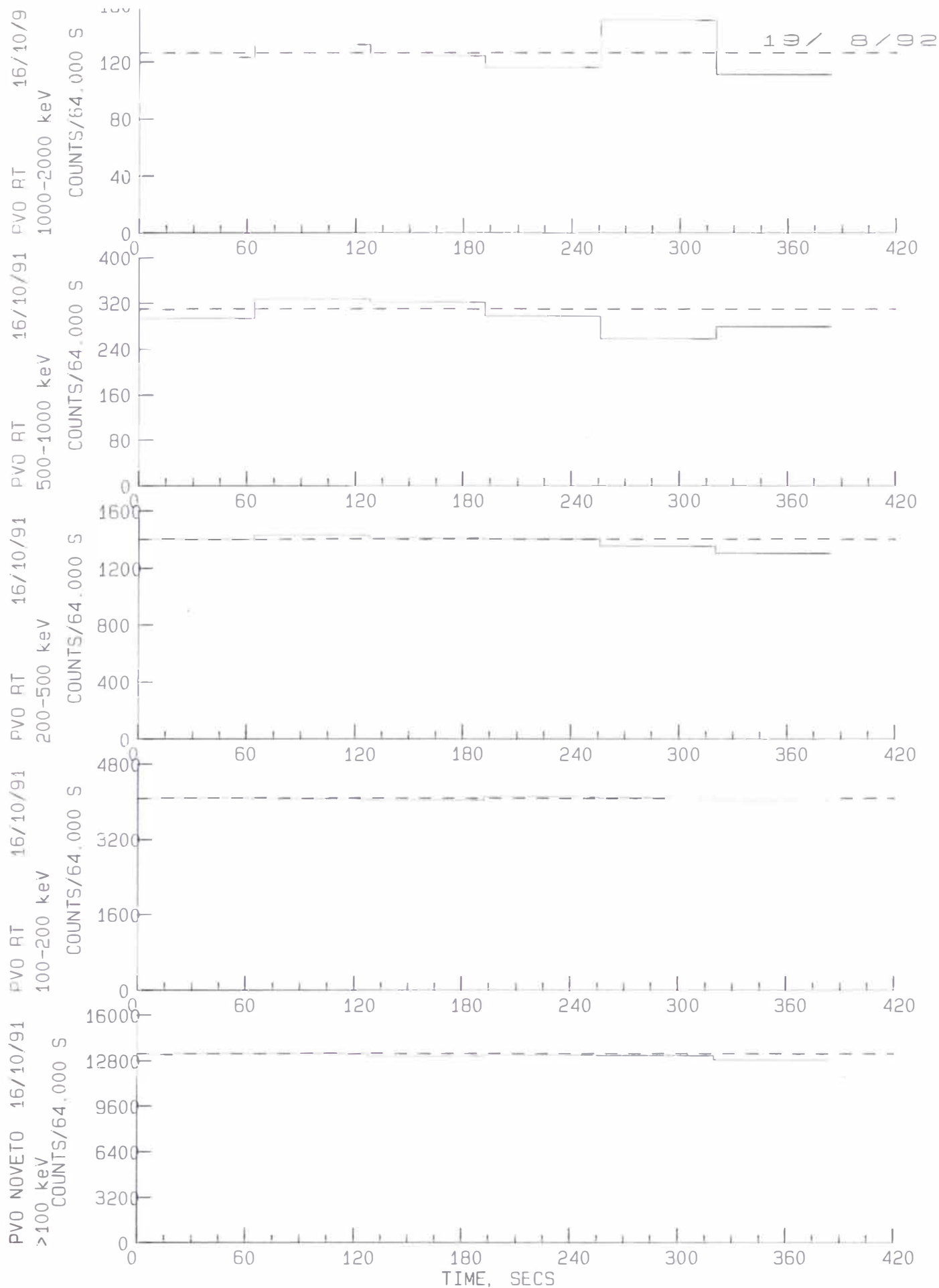
16/10/91

39707.820 s.

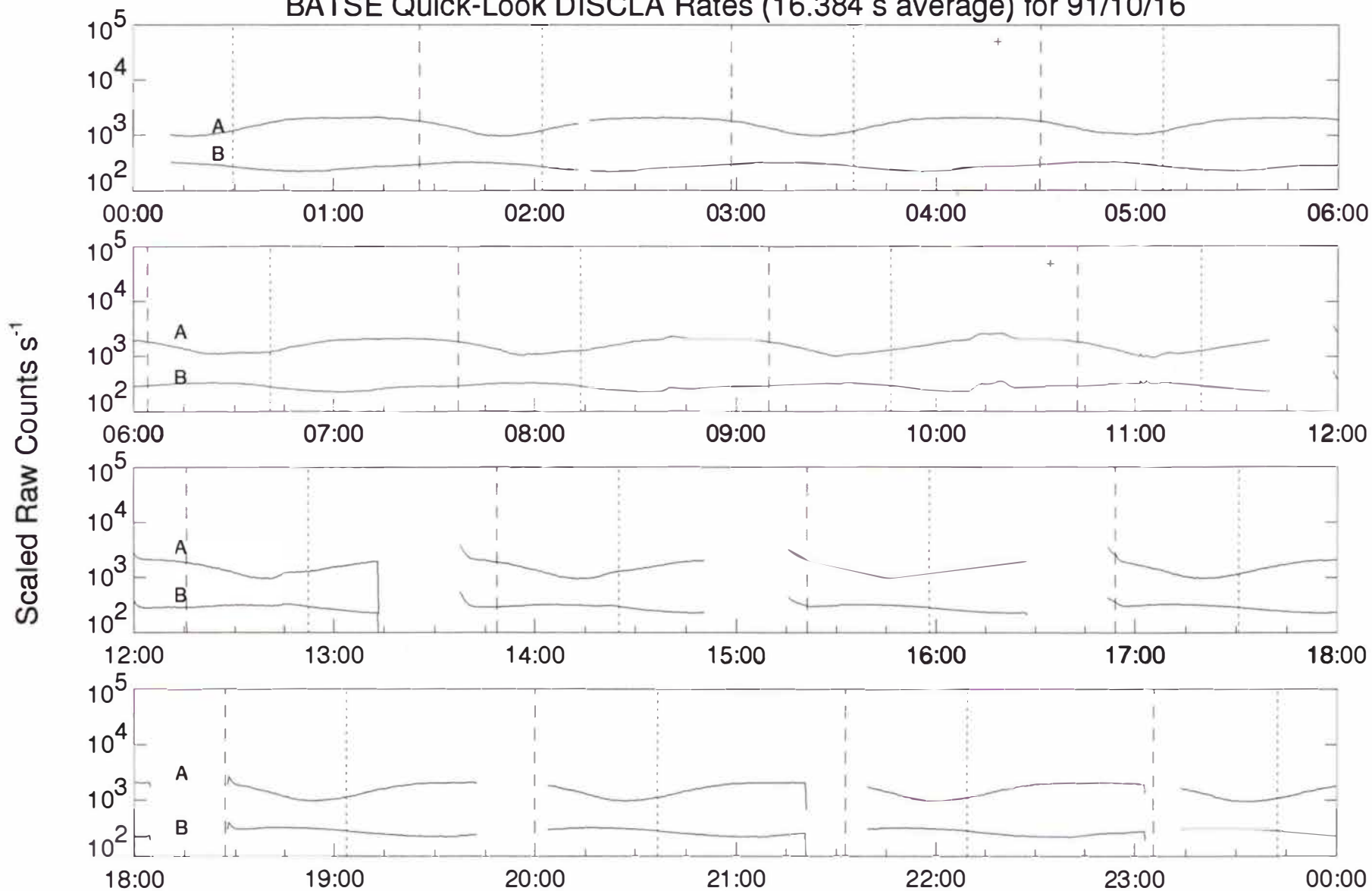
16.000 S. INTERVALS REGROUPED BY 1

100-2000 keV





BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/16

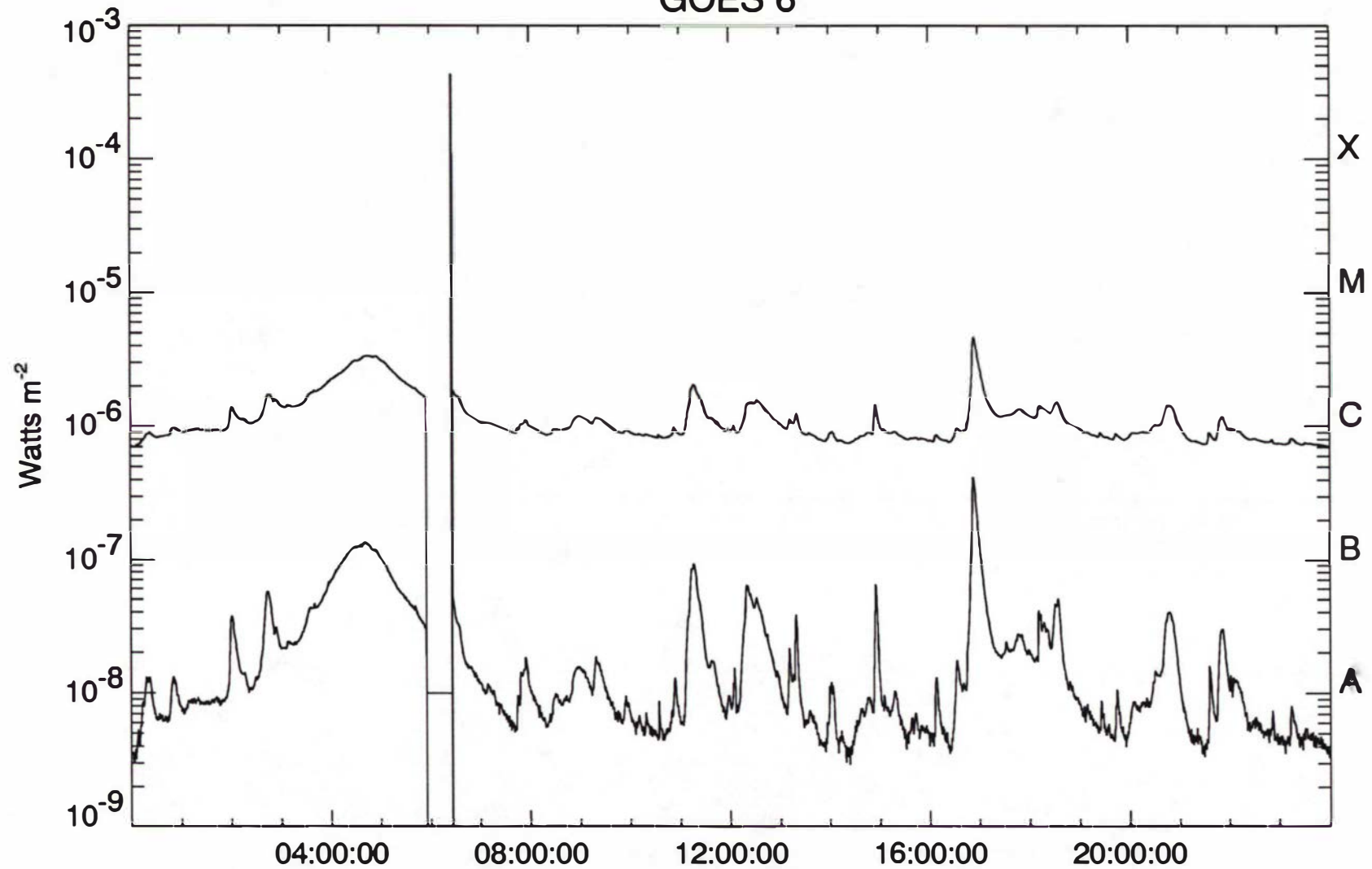


Current Time: 92/10/31, 1953 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/16, 0000:00

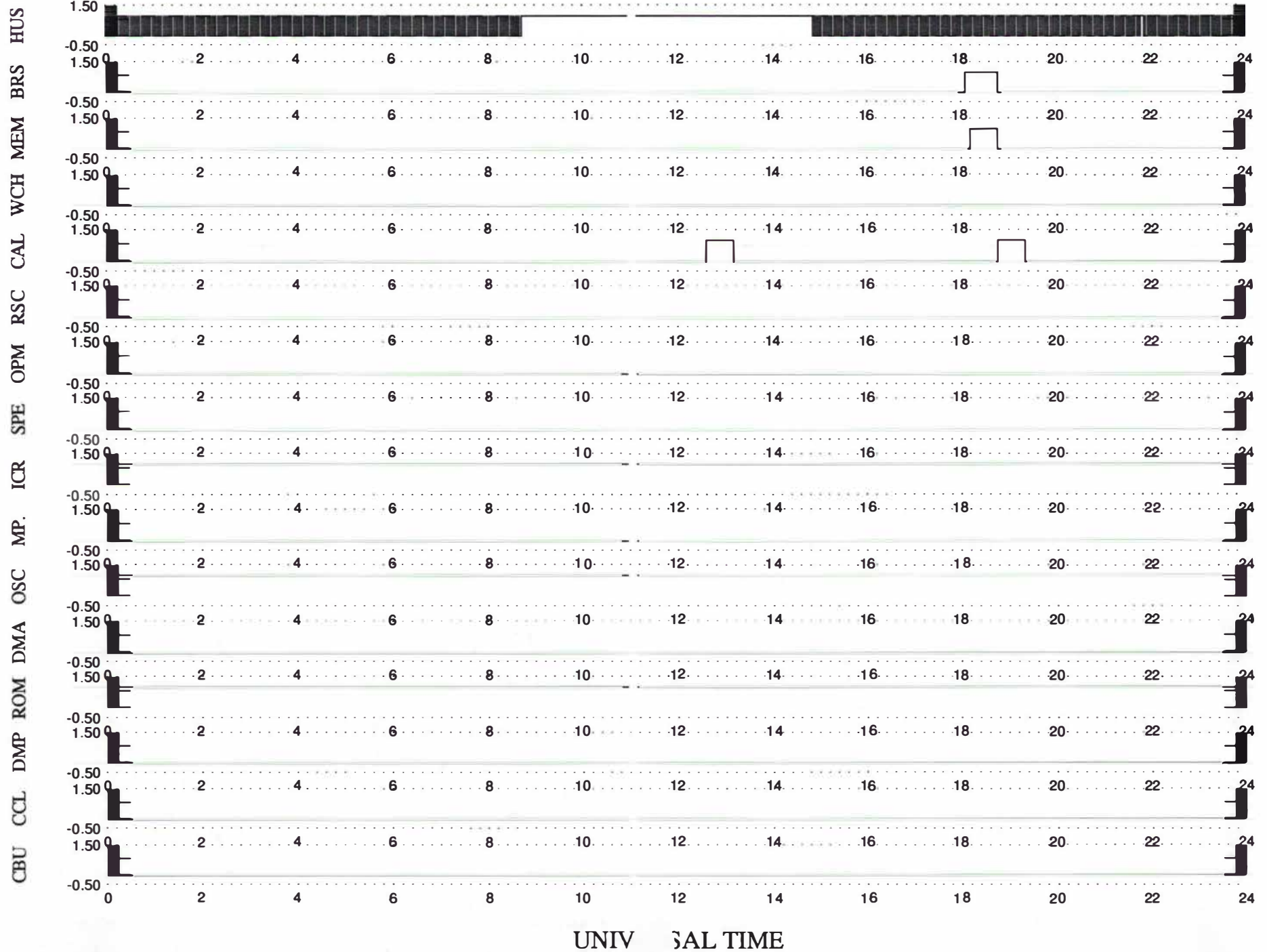
Plot created: 97/10/14, 2332

Channel

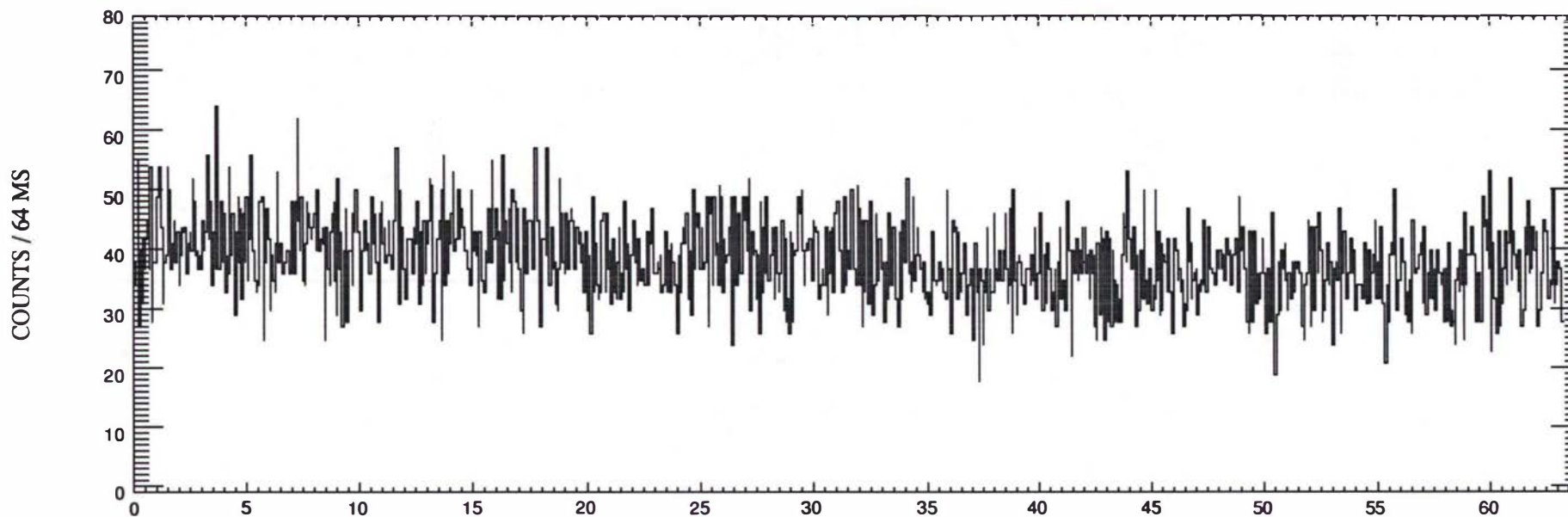
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

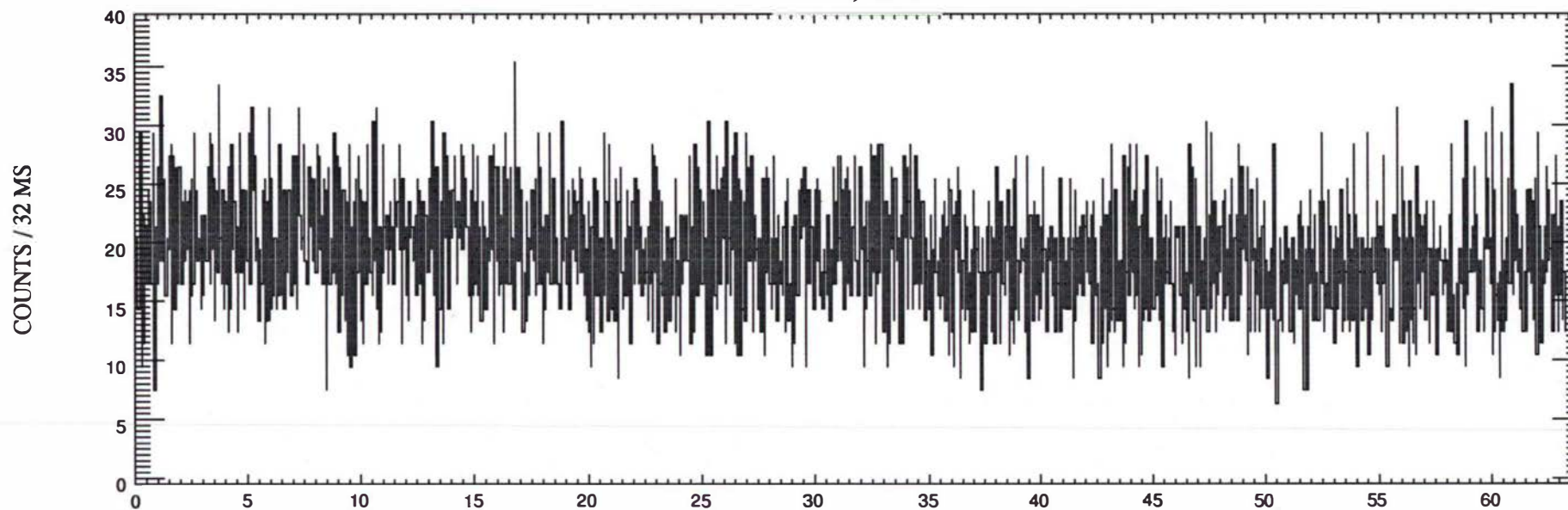
BURST NUMBER 14



Burst Counter 14 at UT=18.044231071472 h=64959.232 s 18:02:39.232

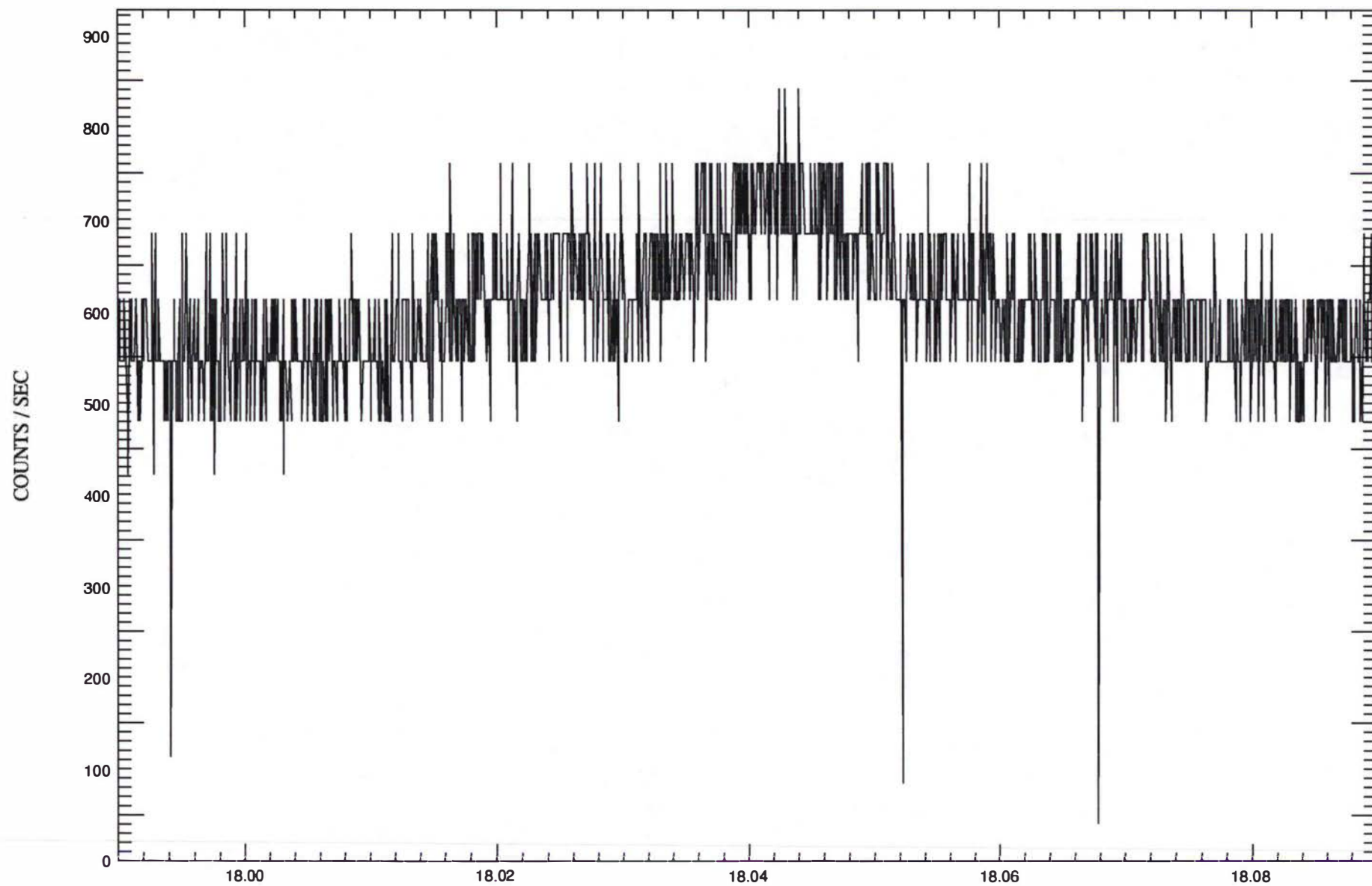


TIME, SECS

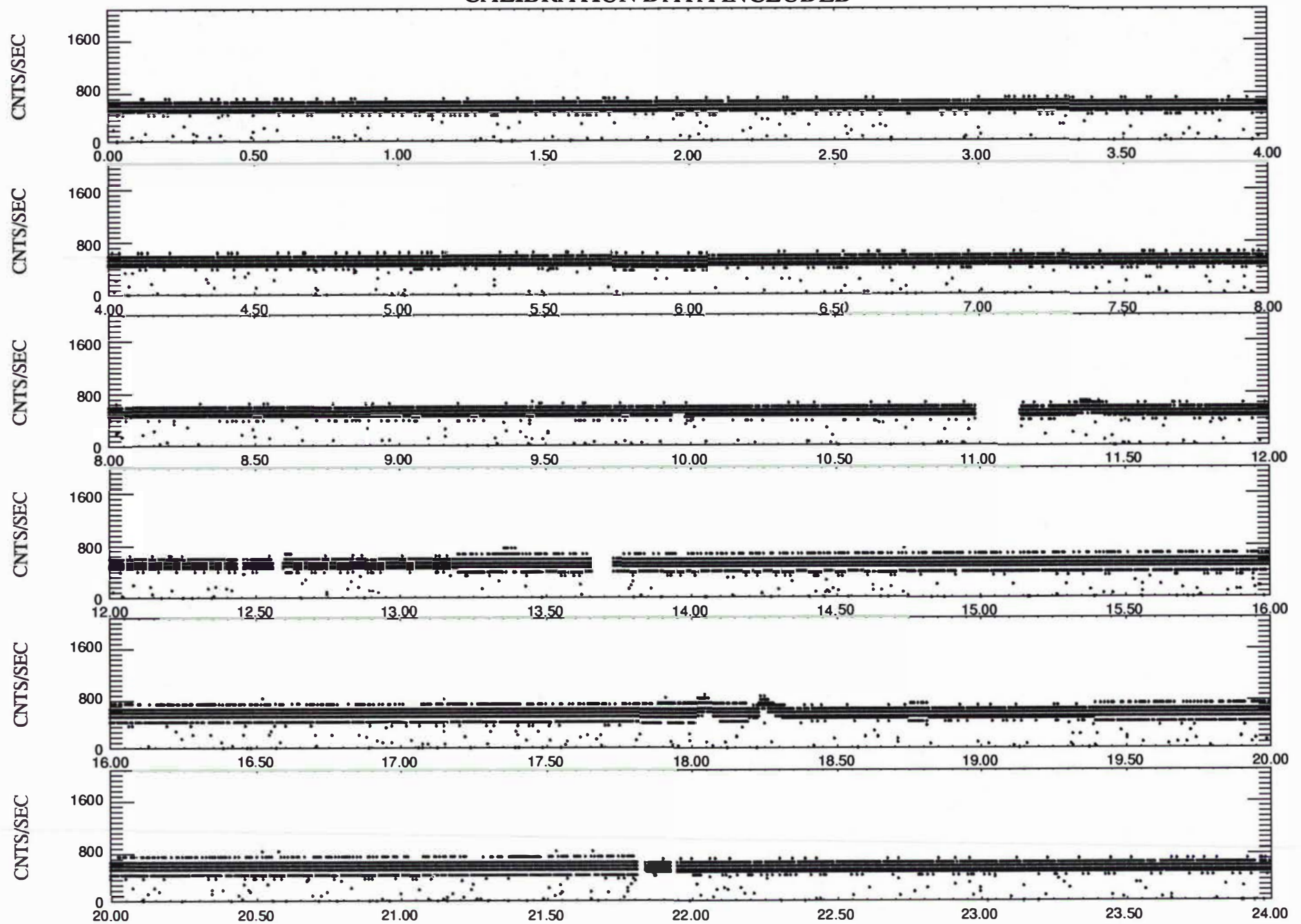


TIME, SECS

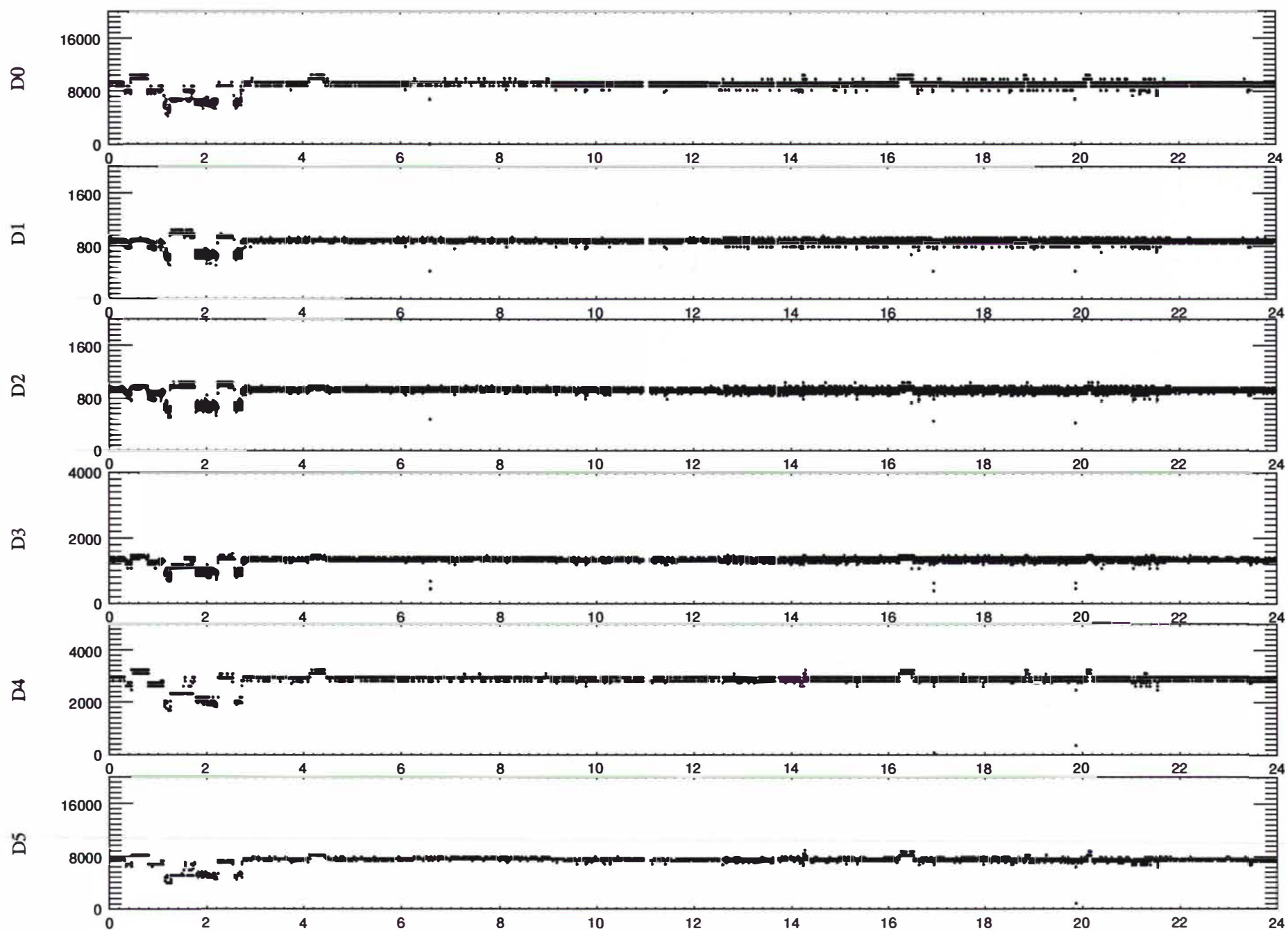
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED

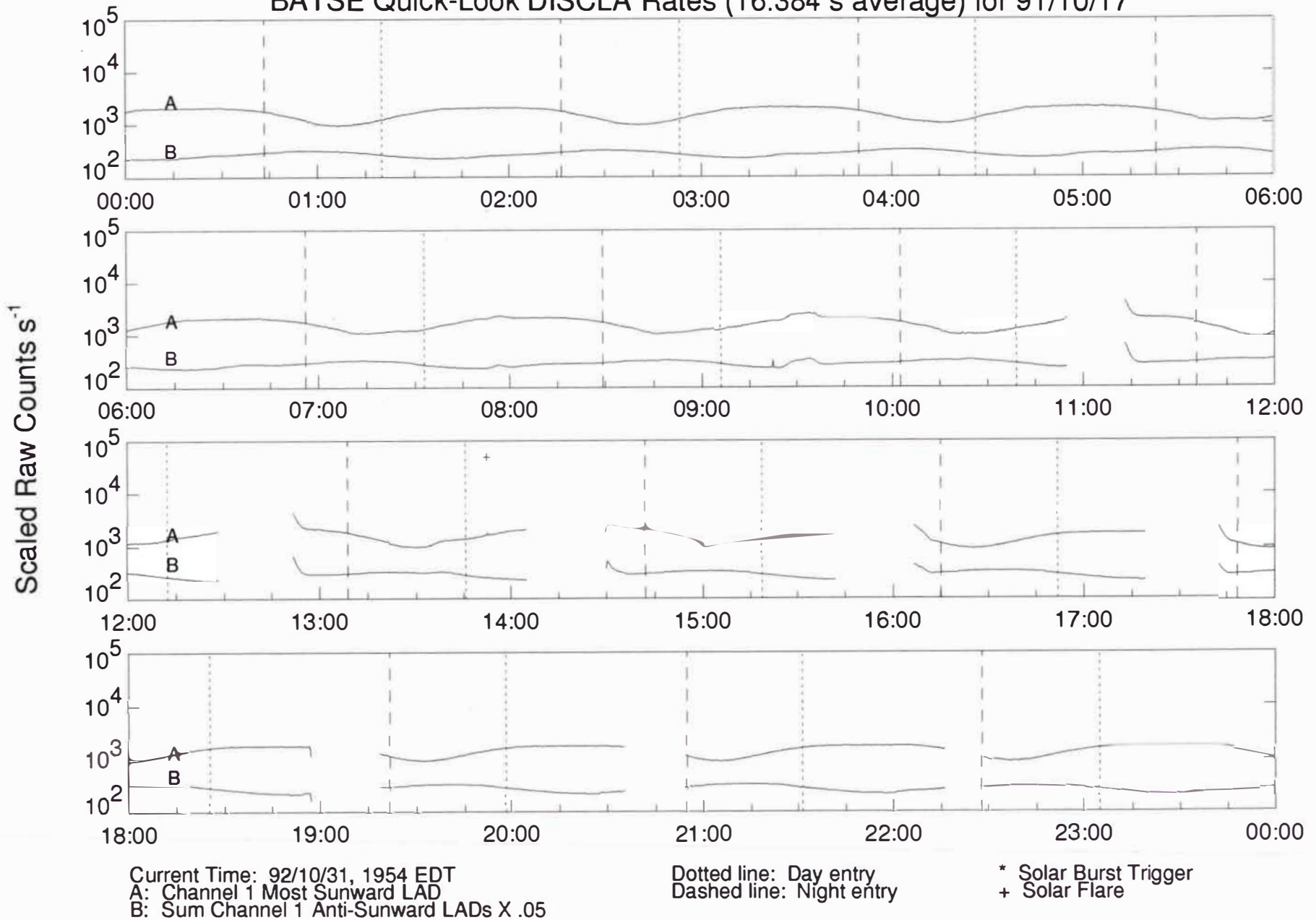


UNIV 3AL TIME

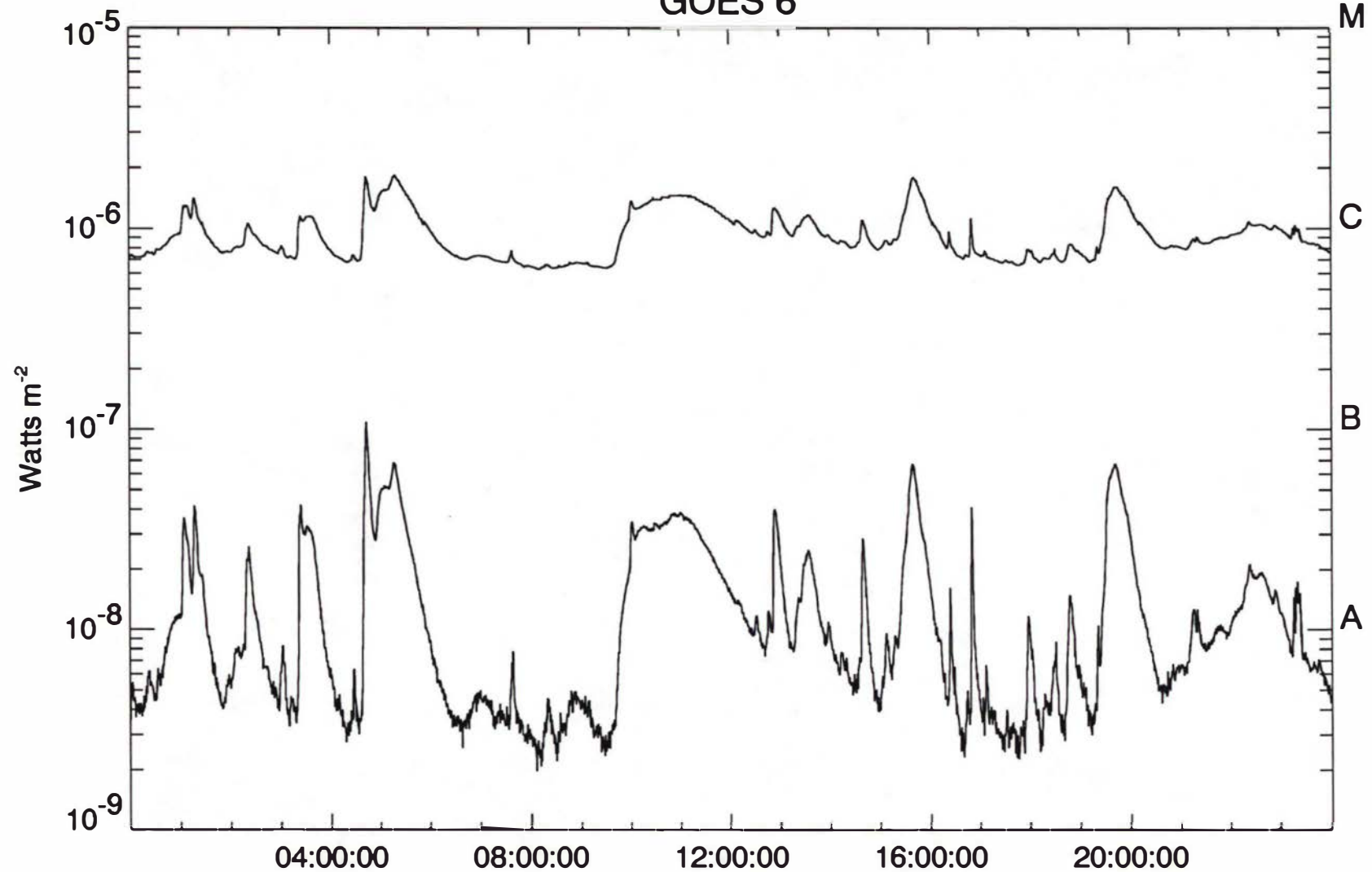


UNIV 3AL TIME

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/17



GOES 6



Data Start: 91/10/17, 0000:01

Plot created: 97/10/14, 2335

Channel

1 (1.0 - 8.0 Angstroms)

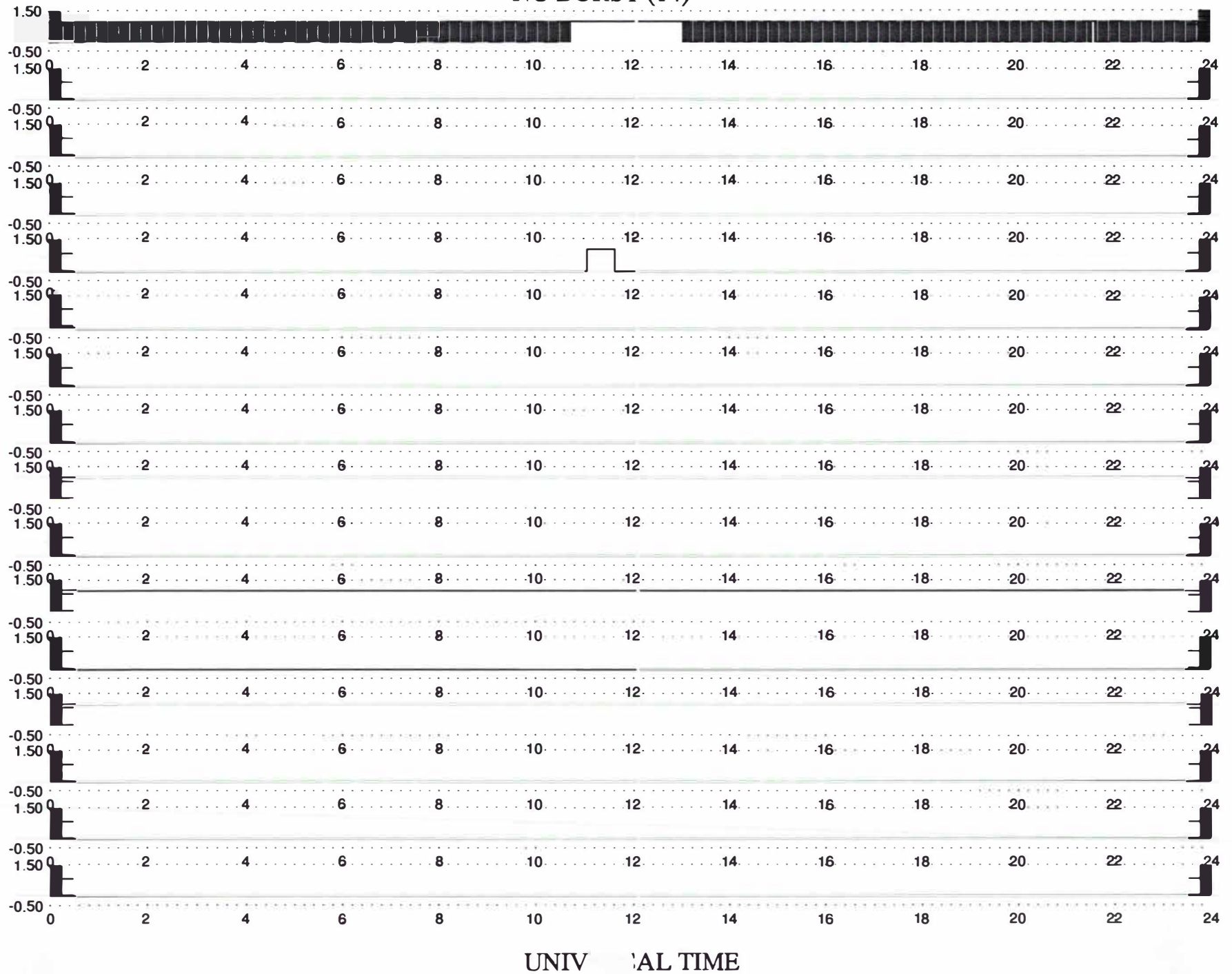
Background not subtracted

2 (0.5 - 4.0 Angstroms)

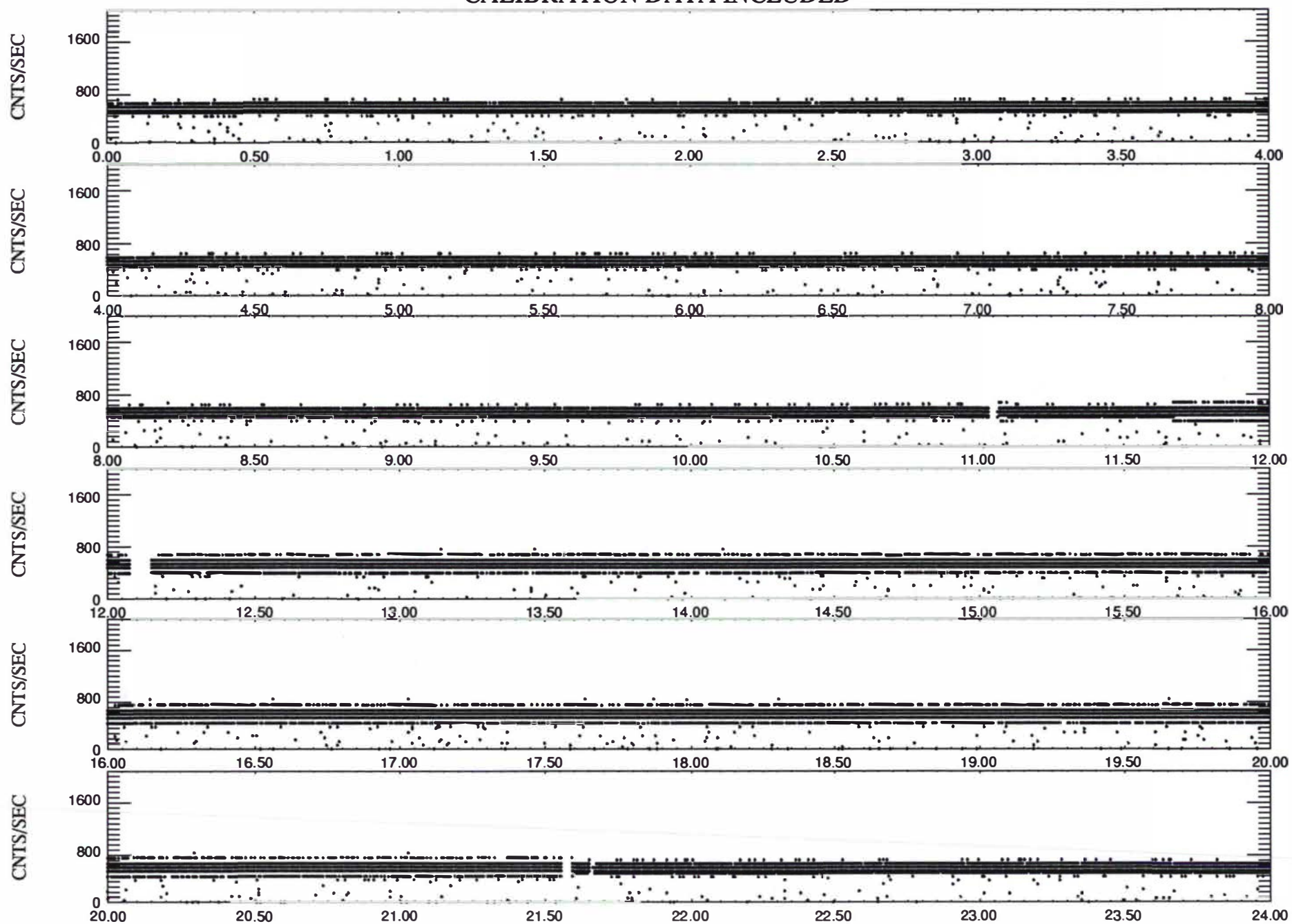
Background not subtracted

Sample average = 10

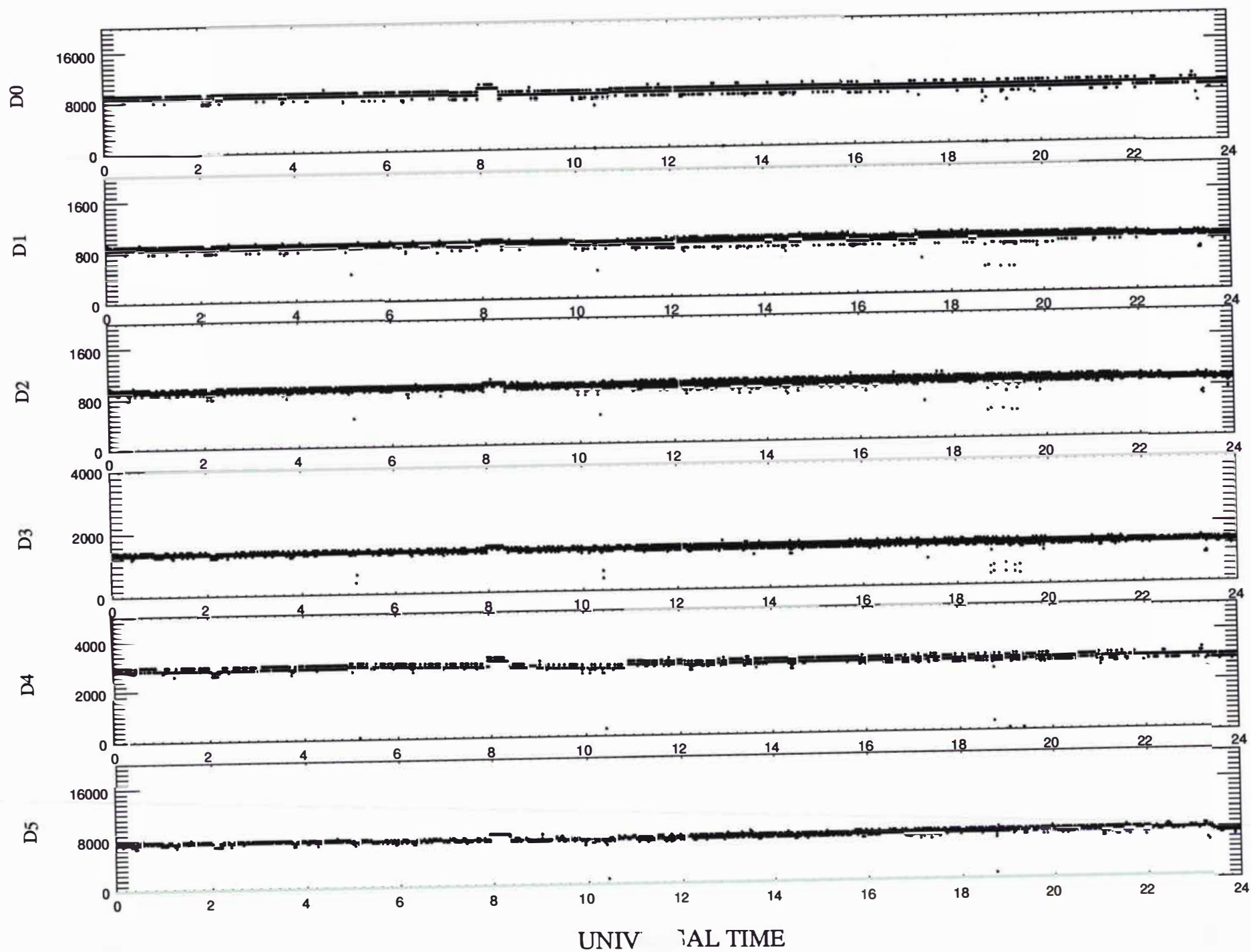
CPU CCL DMP ROM DMA OSC MP. ICR SPE OPM RSC CAL WCH MEM BRS HUS



CALIBRATION DATA INCLUDED



UNIV AL TIME



Helio corr removed

Date: Dec 3 '98

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?

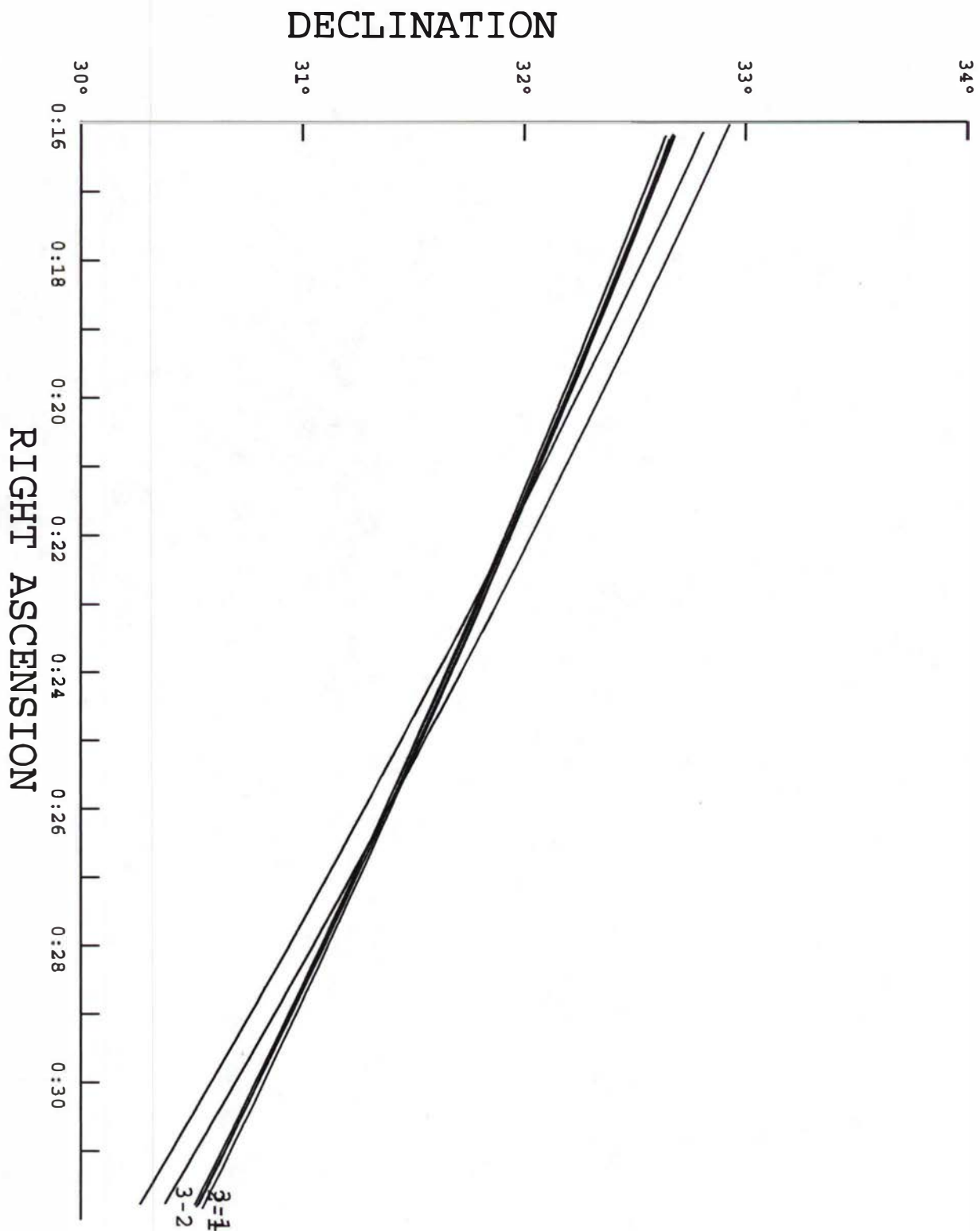
3. PVO Data

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

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 3 PVO

EVENT OF OCT 18, 1991 6:01

3/12/98



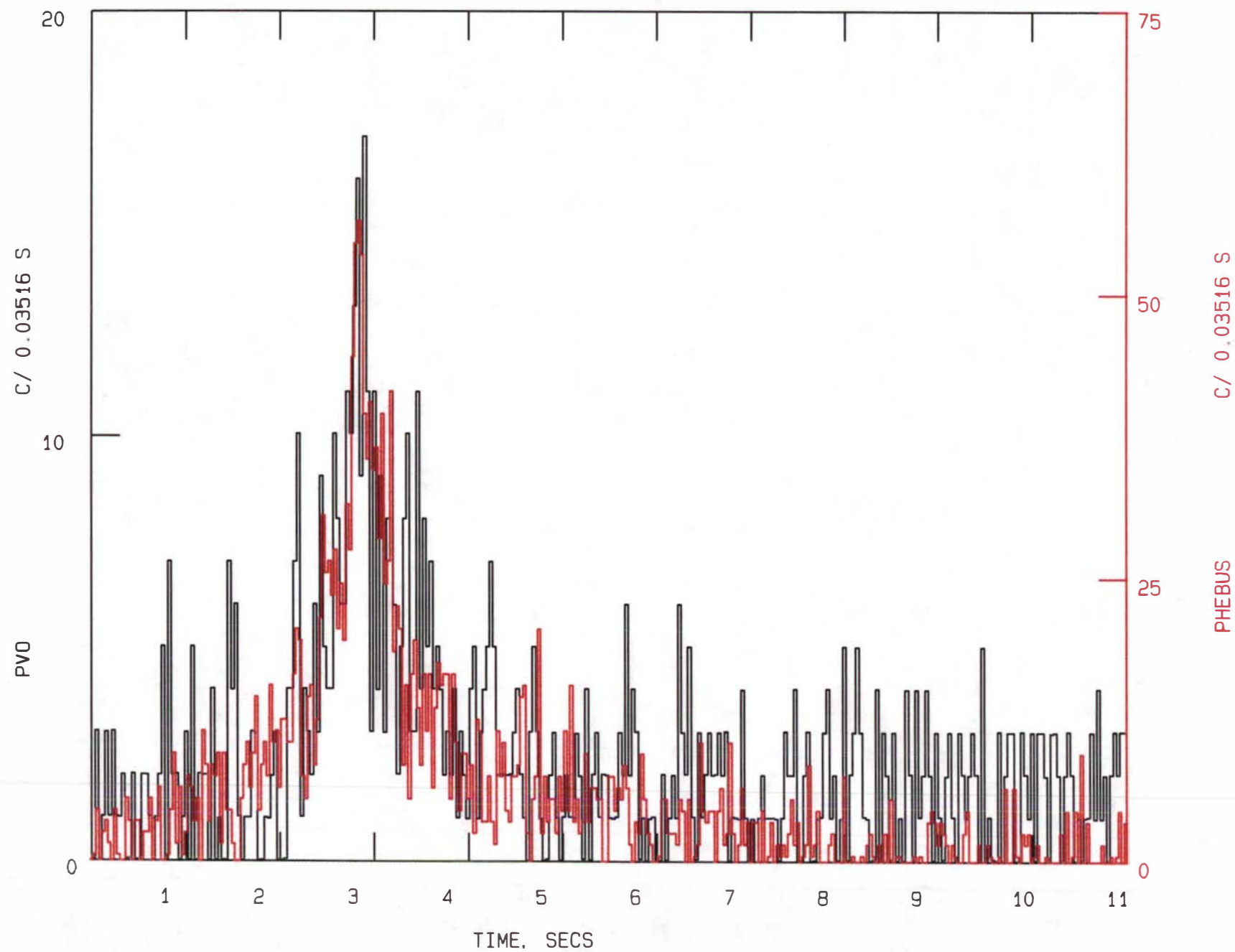
PV0

PHEBUS CORRELATION

18/10/91

20136.770

14/ 5/98



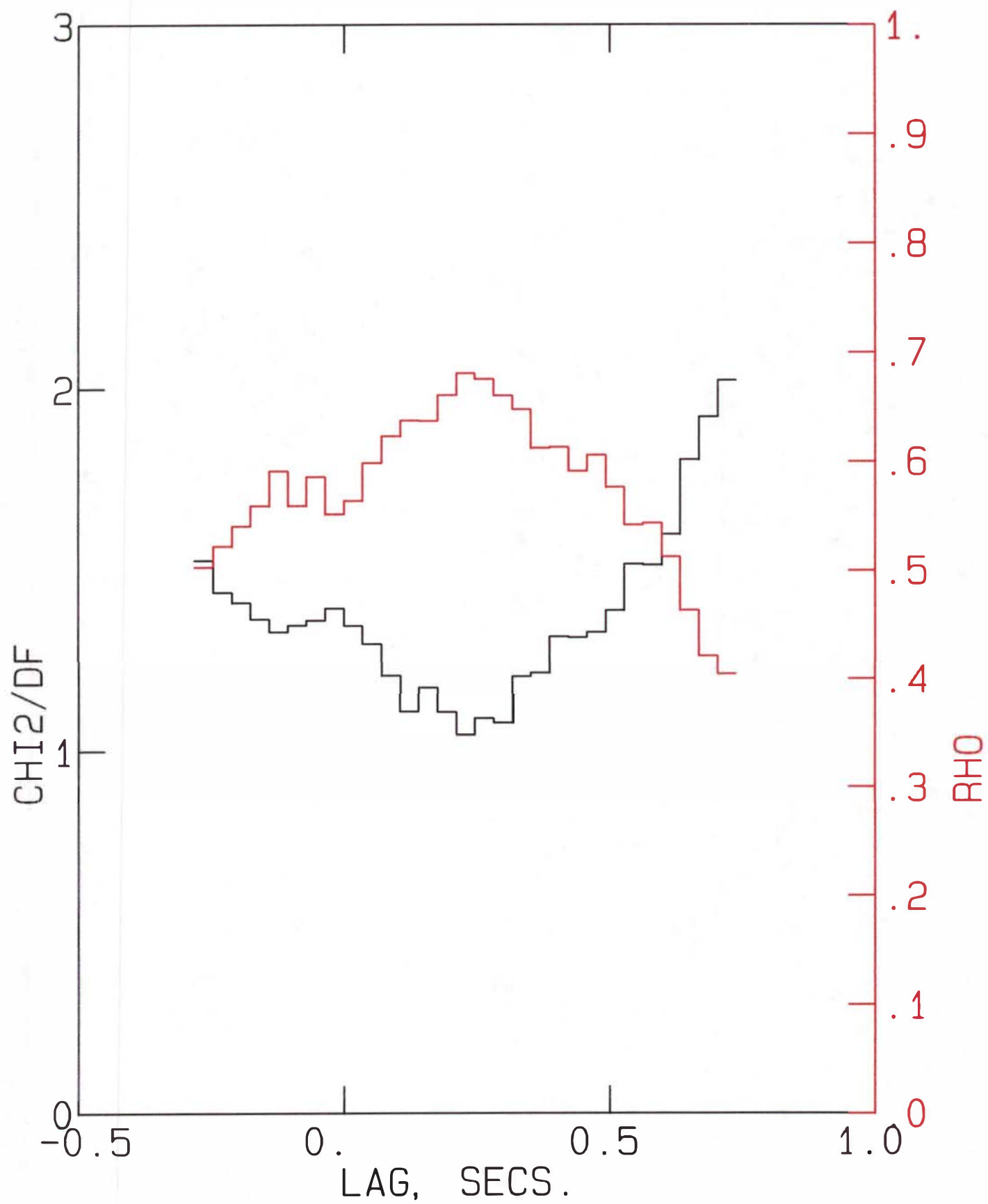
PVO

-

PHEBUS CORRELATION

18/10/91

20136.770



ULYSSES

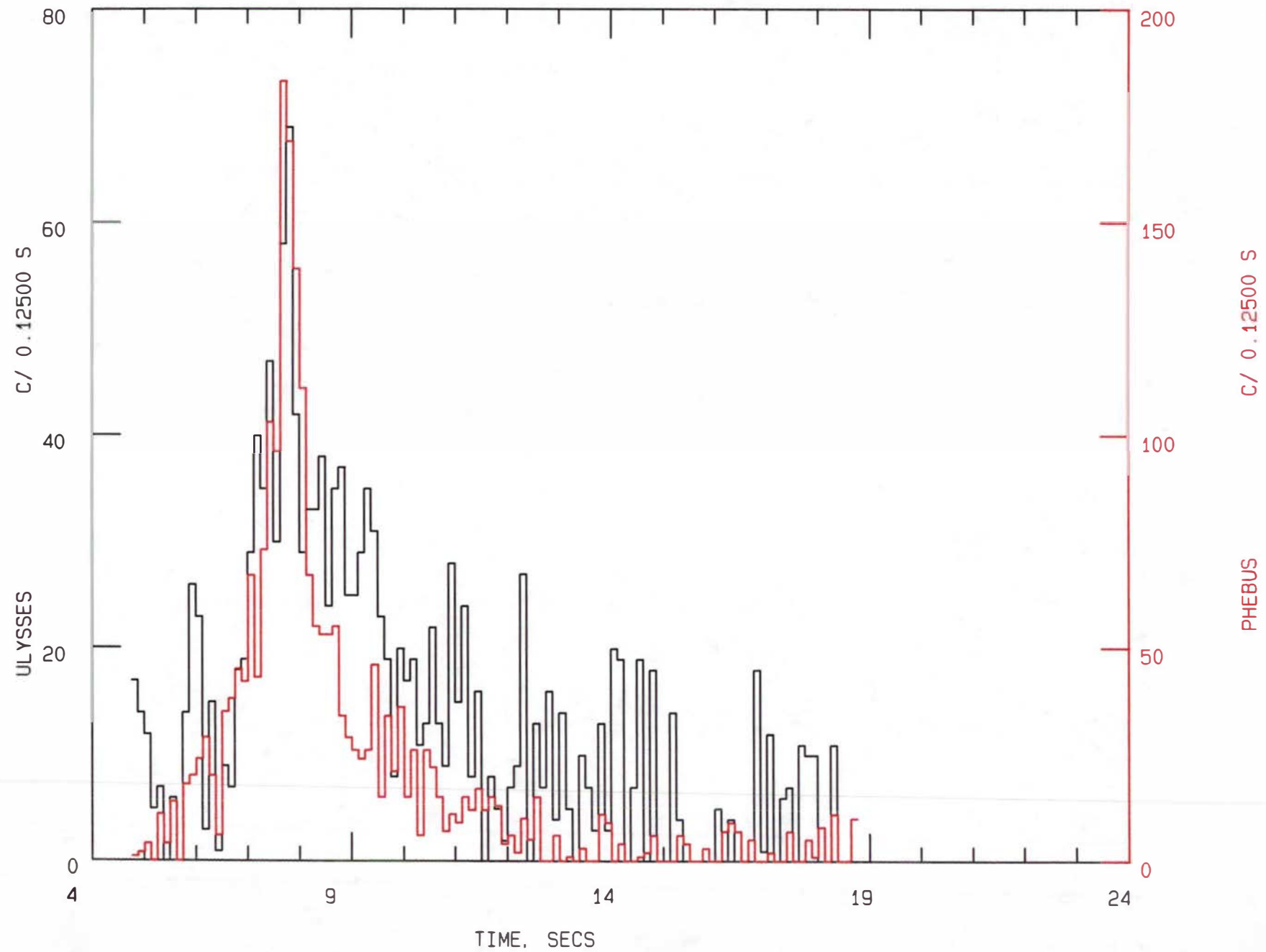
-

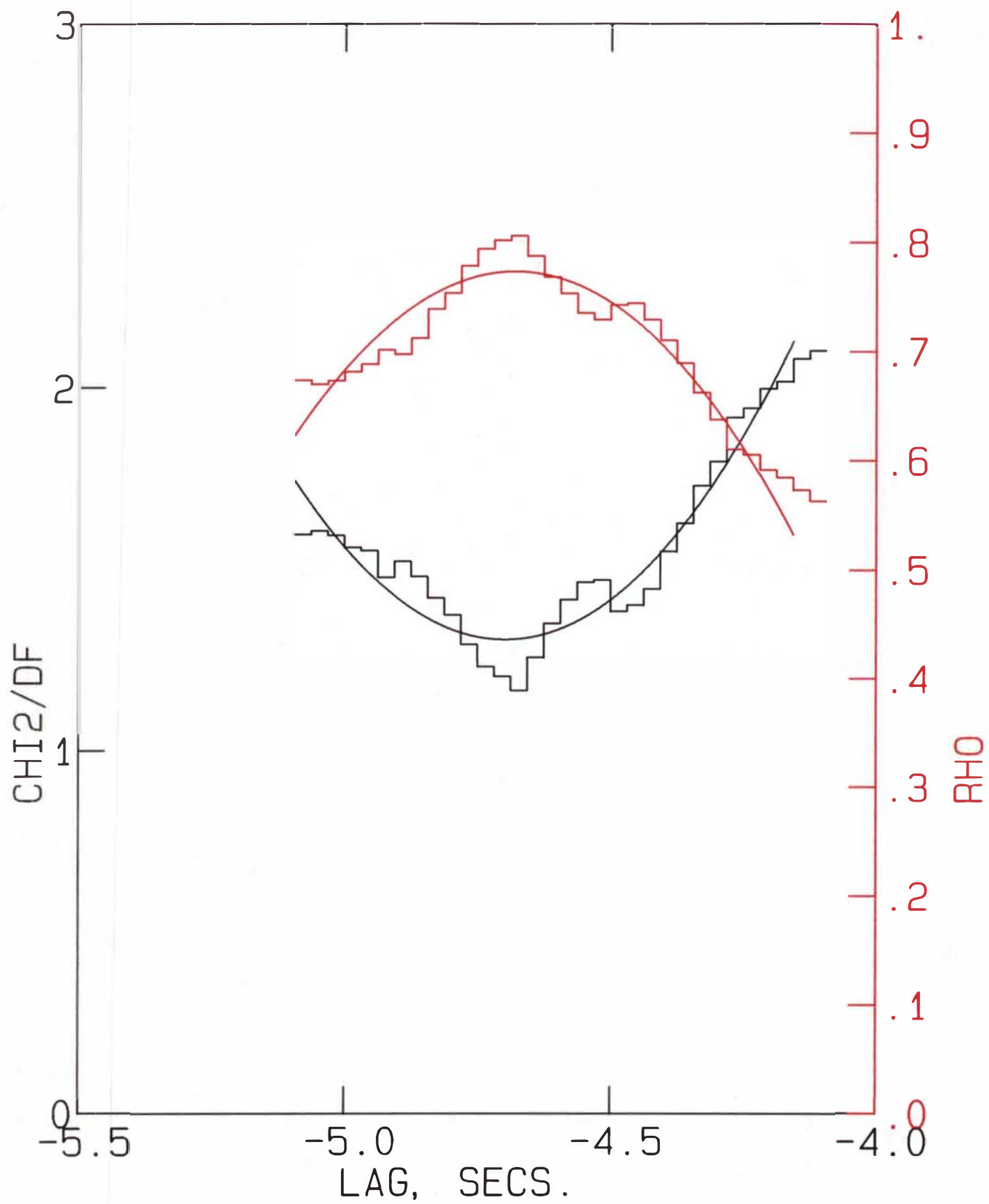
PHEBUS CORRELATION

18/10/91

21719.845

14/ 5/98



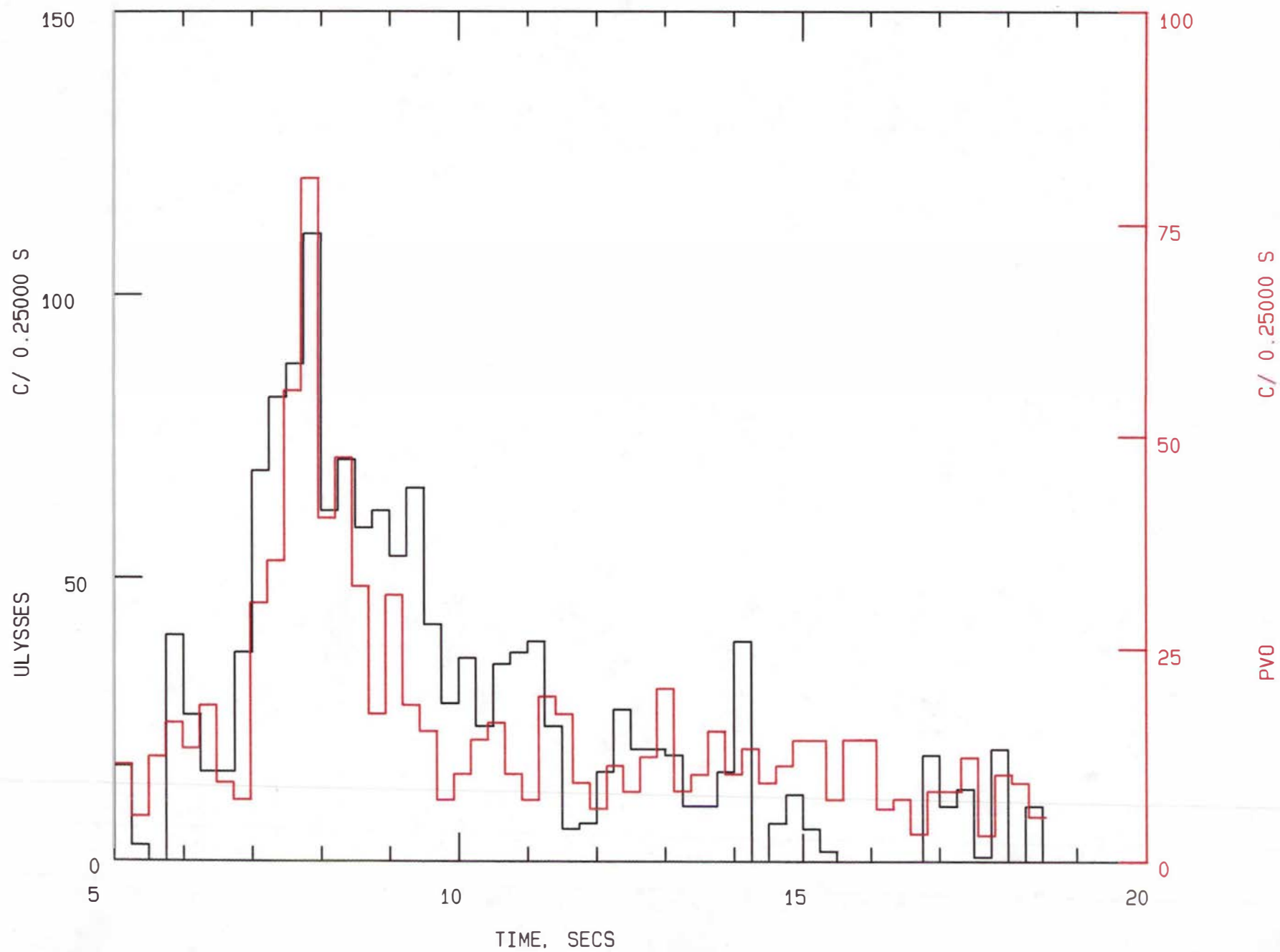


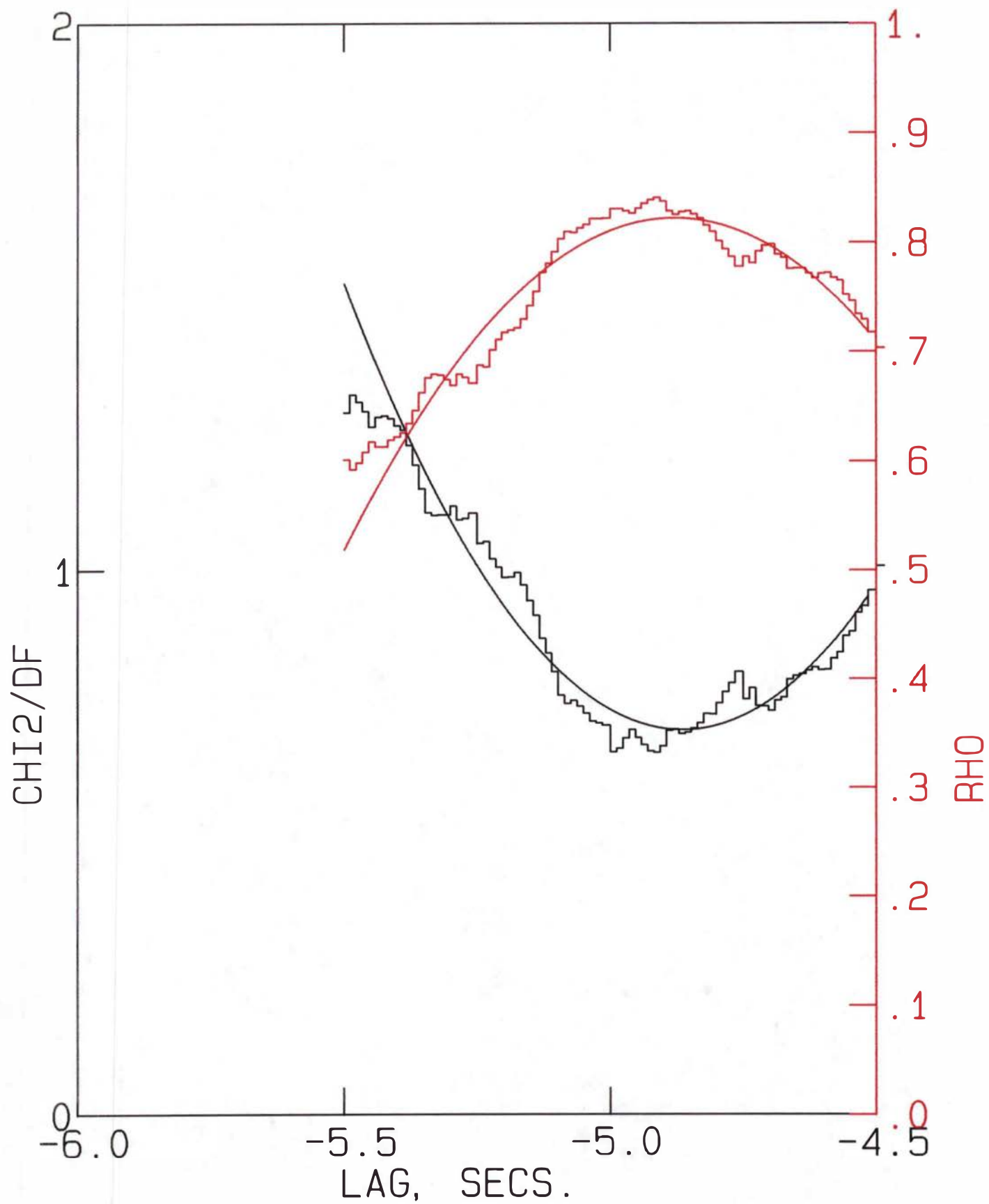
ULYSSES -PVO

CORRELATION

18/10/91 21719.845

14/ 5/98





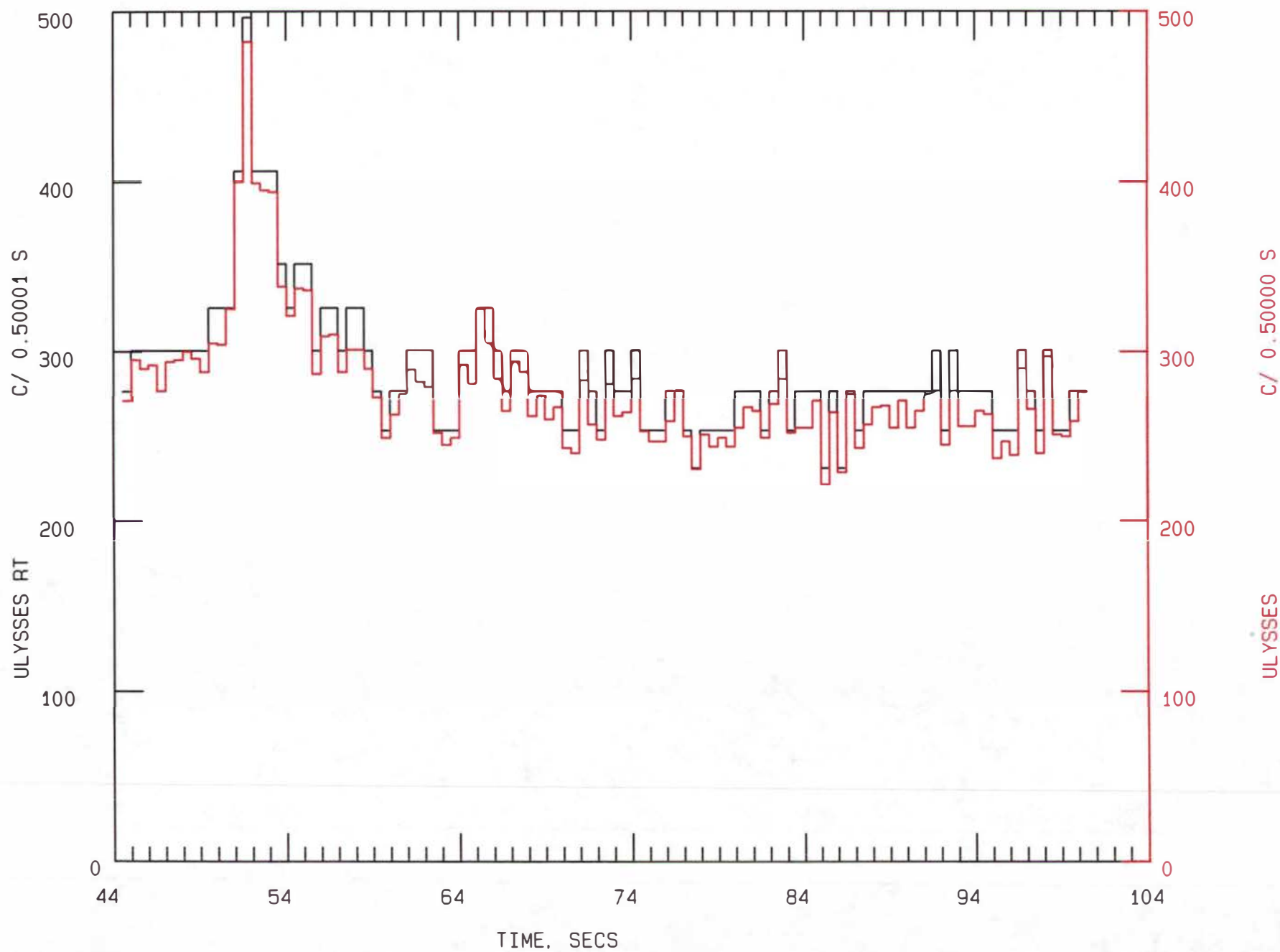
ULYSSES RT-ULYSSES

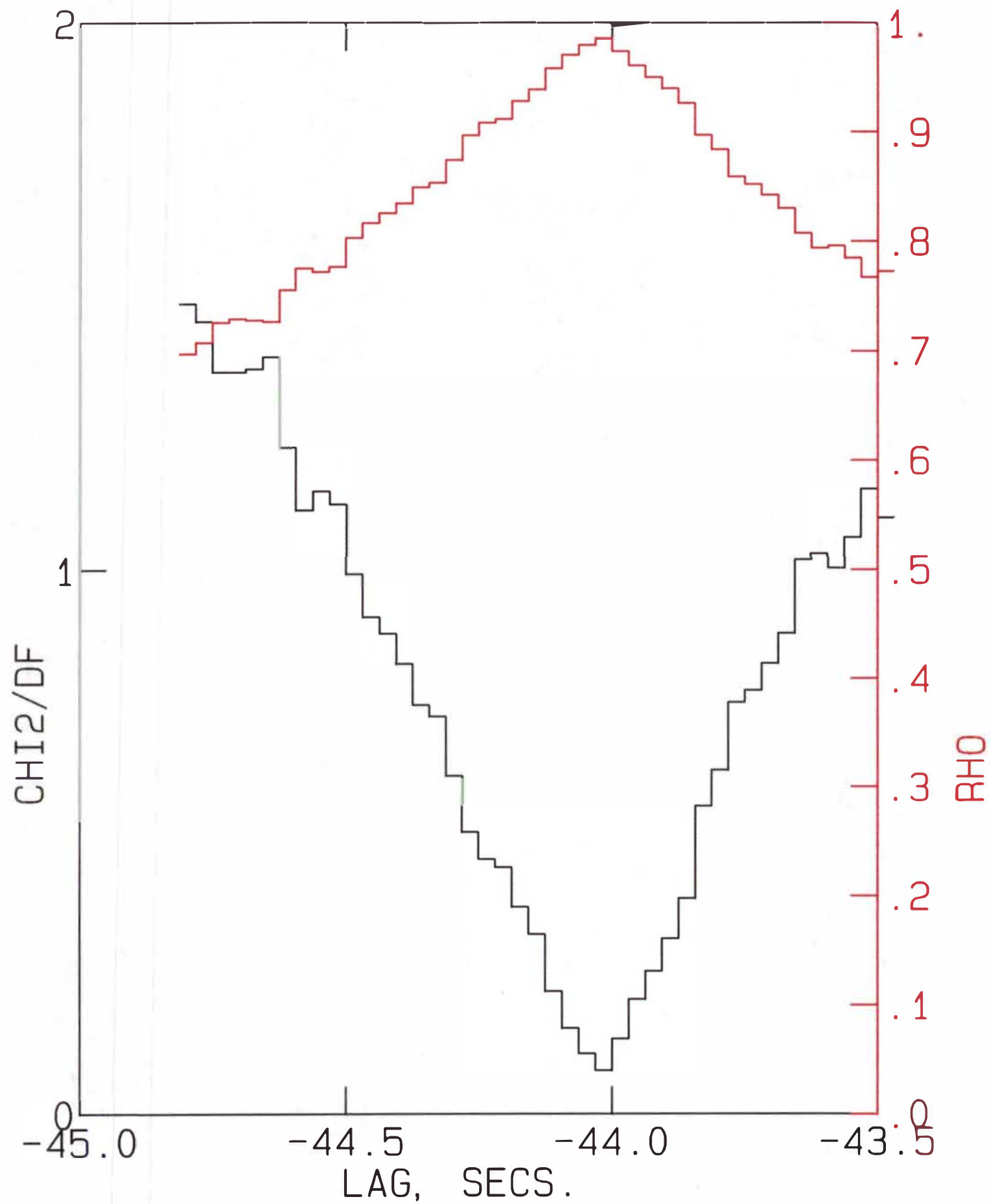
CORRELATION

18/10/91

21668.422

14/ 5/98

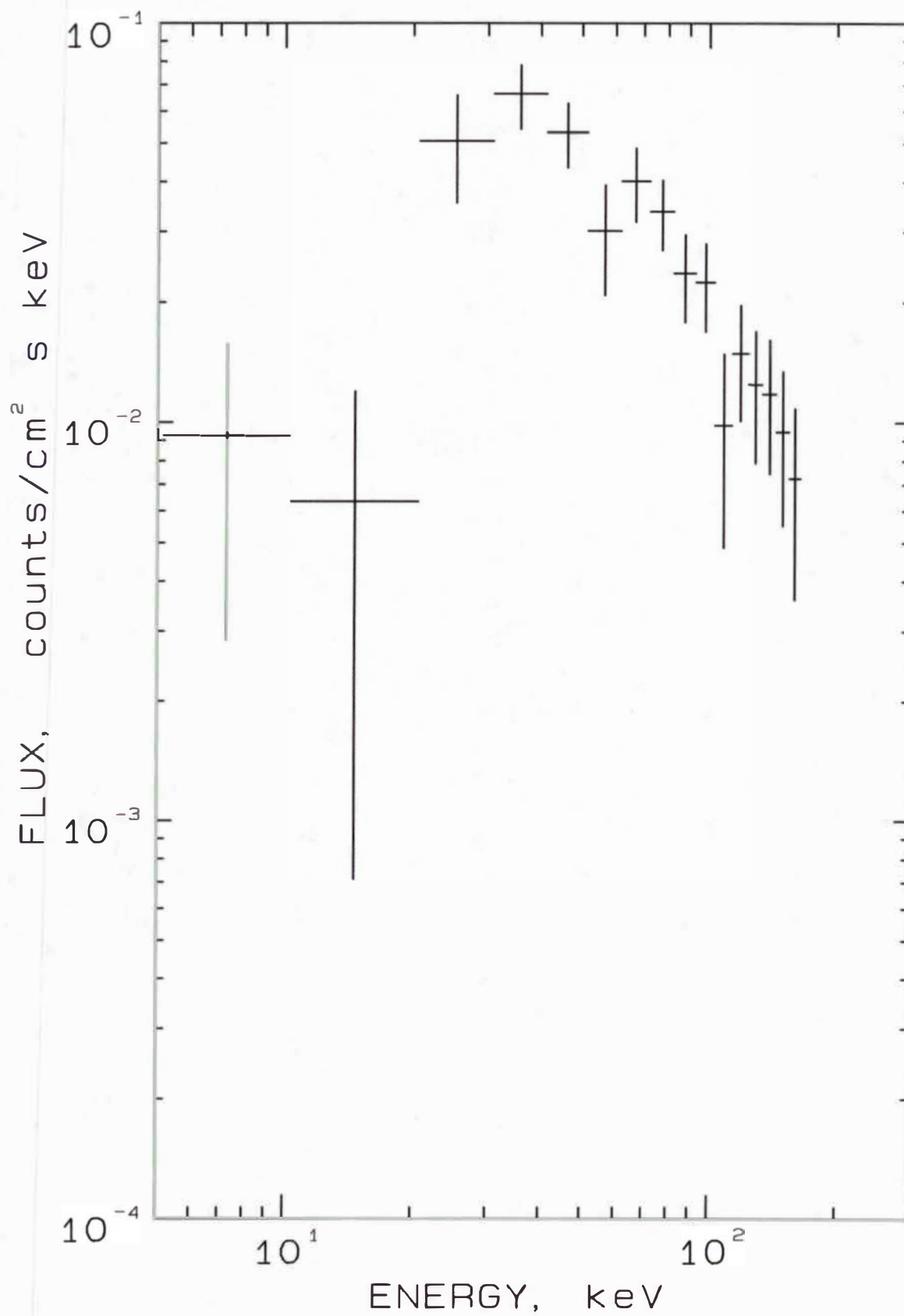




ULYSSES 18/10/91 21719.653

14/ 5/98

SPECTRUM INTEGRATED OVER 21.1 SECONDS, INTERVALS 2 TO 20



ULYSSES 18/10/91 21719.653 BURST SPECTRAL COUNT RATES

5- 20 keV

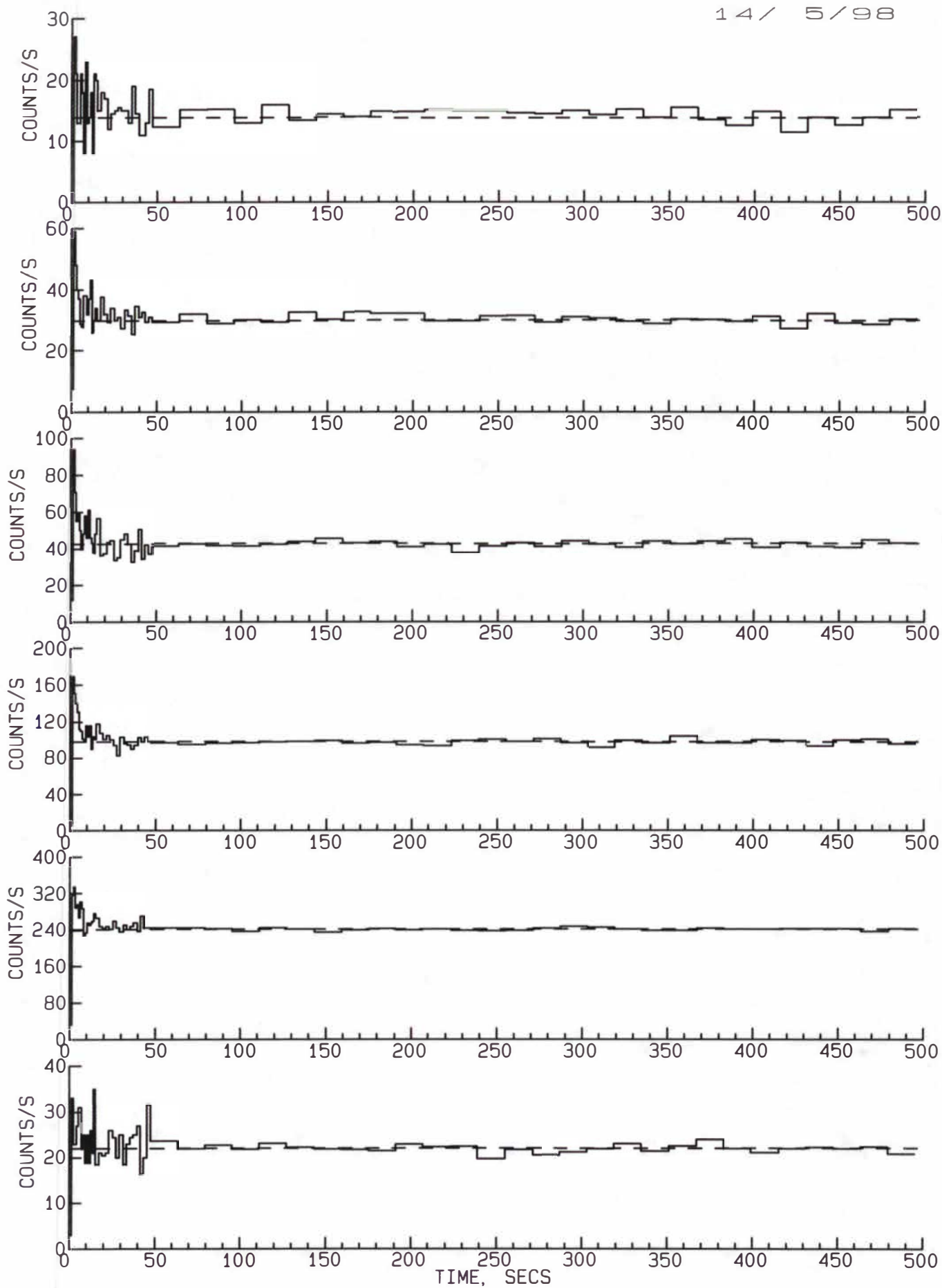
20- 51 keV

51- 82 keV

82-113 keV

113-144 keV

144-165 keV



14 / 5 / 98

ULYSSES

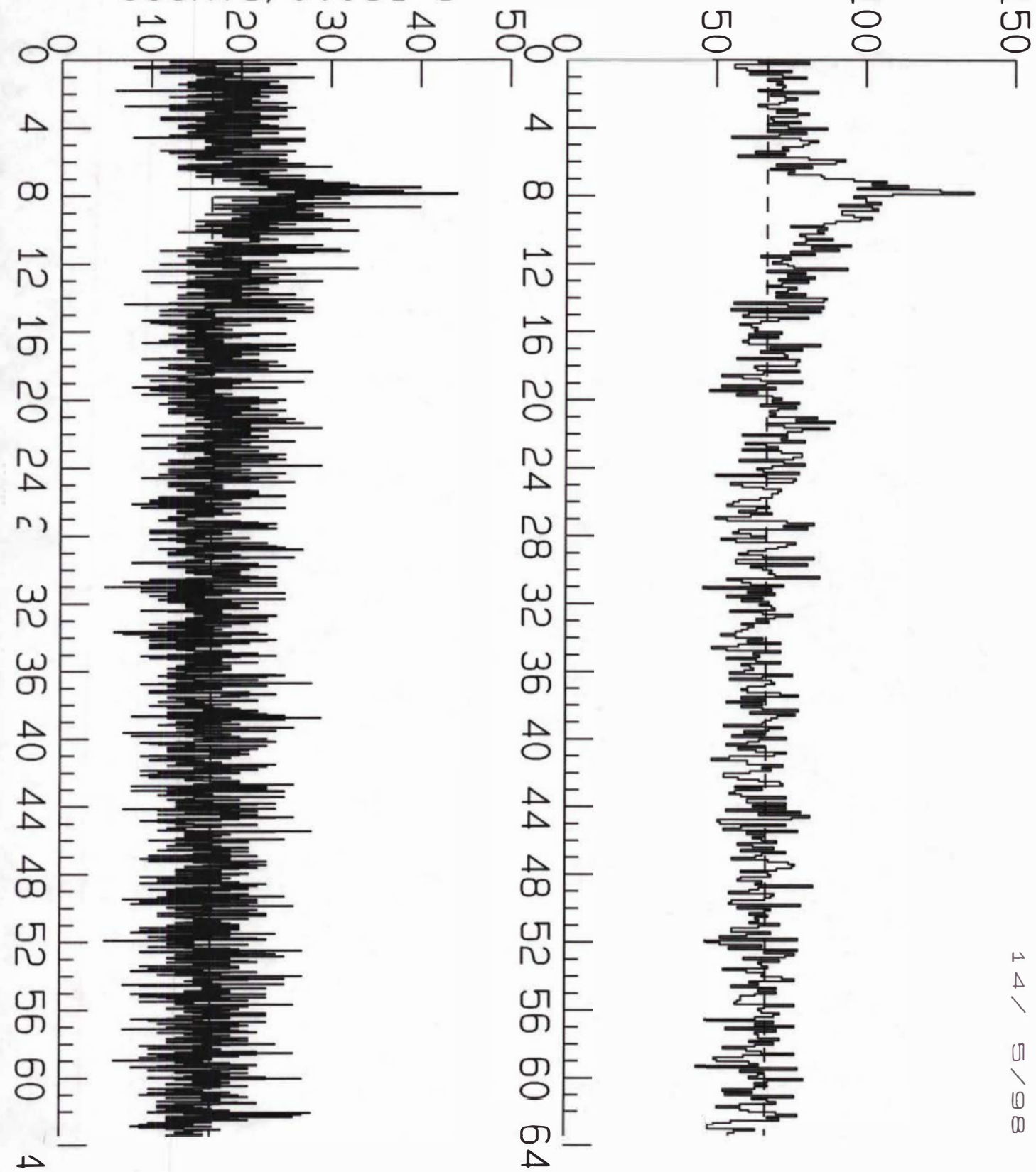
18/10/91

Ttrig=21719.845

20- 165 keV

COUNTS/0.031 S

COUNTS/0.125 S



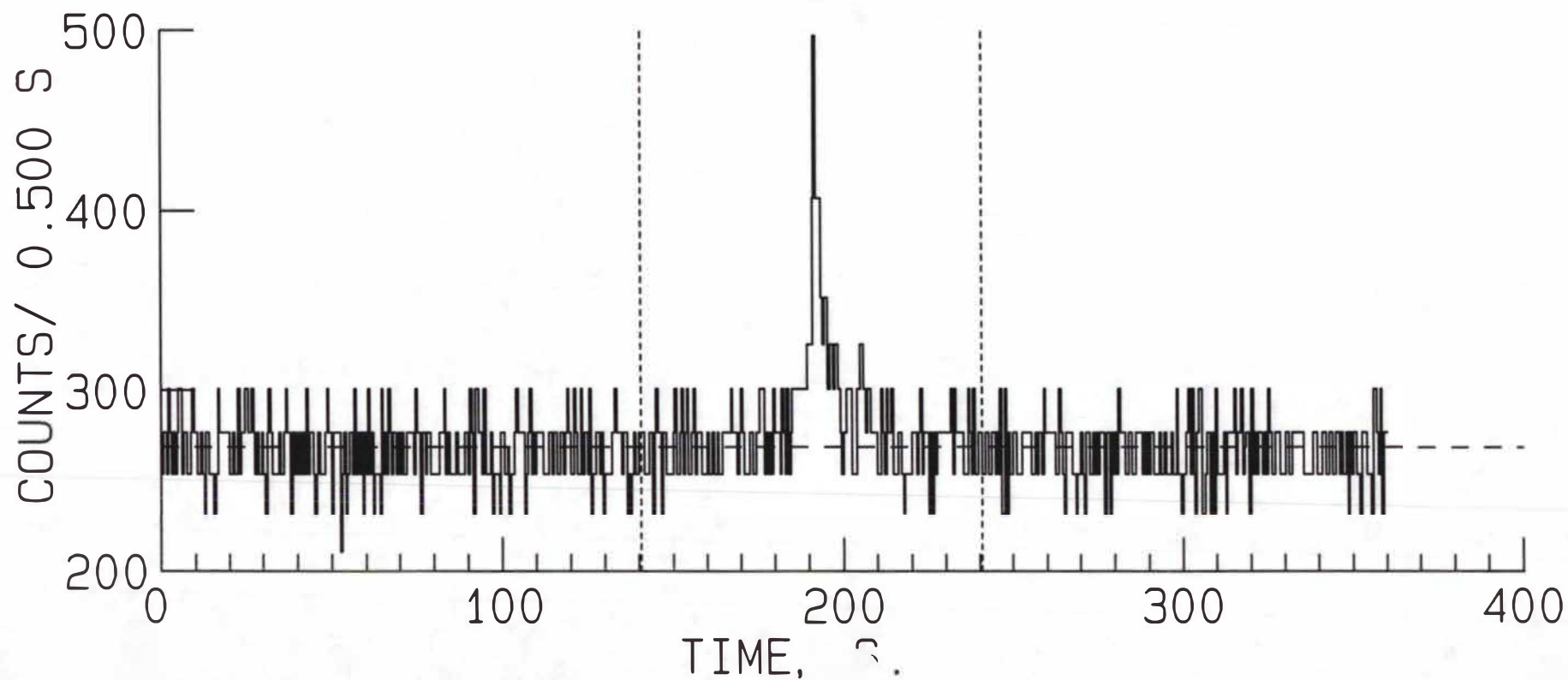
ULYSSES RT

14 / 5 / 98

18/10/91 21528.238 s

20- 165 keV

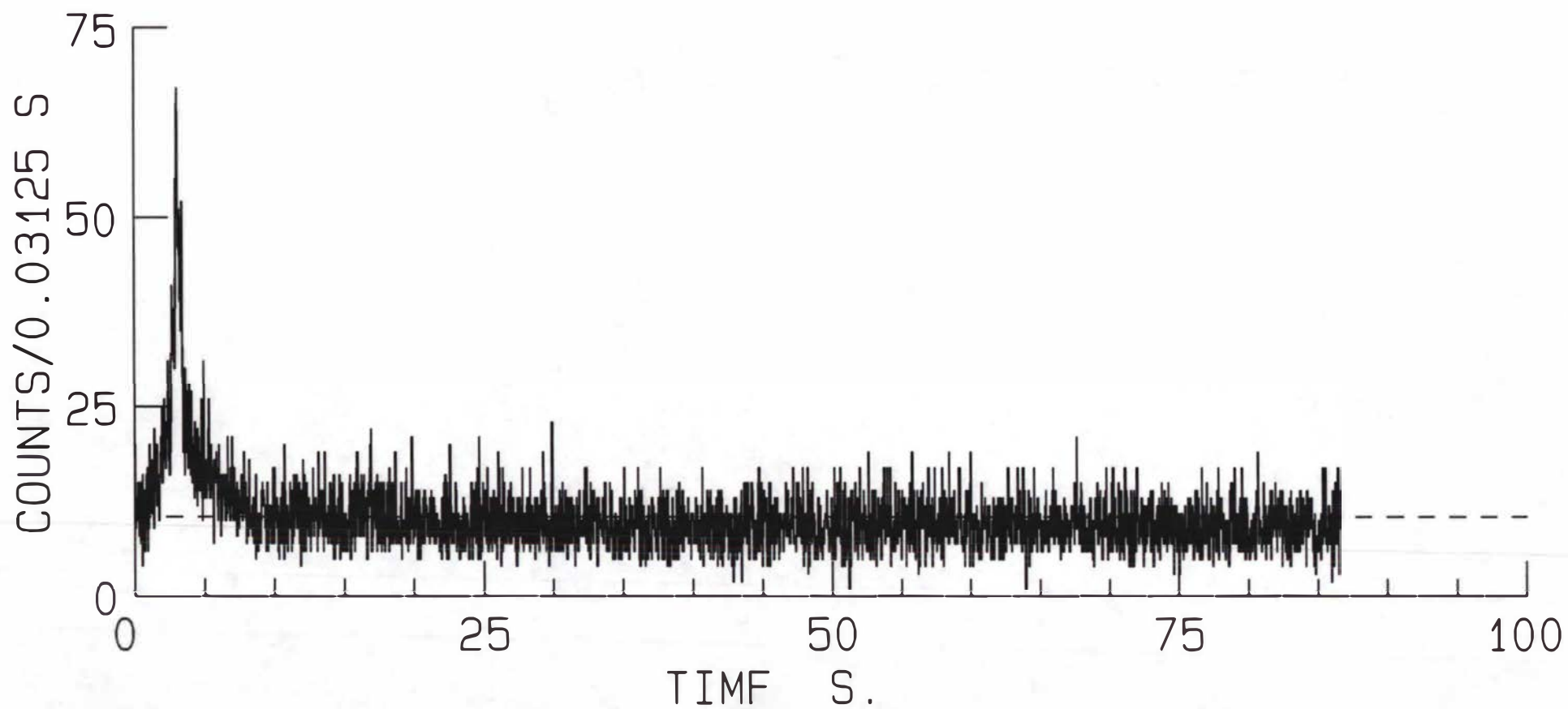
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



PHEBUS

18/10/91 19933.500 s

100- 1600 keV



$$\sum 3 \Delta t_s: \overset{U/P_{\text{MO}}}{-1583.618} + \overset{U/P_{\text{PH}}}{1783.657} - 200.059 = -0.020$$

From nl@dsri.dk Tue Mar 24 14:25 PST 1998
From: Niels Lund <nl@dsri.dk>
Subject: GRB publication
To: khurley@sunspot.ssl.berkeley.edu (kevin hurley)
e: Tue, 24 Mar 98 23:24:54 MET
Cc: nl@dsri.dk (Niels Lund)

Hello Kevin:

Thank you for your mail. I think it is a good idea to publish the bursts which have been triangulated with PVO, ULYSSES and one or more of the GRANAT or EURECA instruments.

I have a few comments to your event list:

The bursts 910414 and 911018 were not detected by WATCH.
The burst 910517 was detected by WATCH but could not be localized from the available modulation patterns.

This leaves only three WATCH-GRANAT bursts and one WATCH-EURECA burst to be included in the paper.

But I am all for the publication anyway. Do you have the WATCH data for 910517 and 921004?

niels

From ajct@dsri.dk Mon Nov 1 05:47:35 1993
Date: Mon, 1 Nov 93 14:45:25 +0100
From: Alberto Castro-Tirado <ajct@dsri.dk>
To: khurley@sunspot.ssl.berkeley.edu
Subject: GRB911018
Content-Length: 283

Dear Kevin

I forgot to ask you about the duration of GRB911018 (in the GRB master list). We have a trigger at that time, and we do see a spike lasting 1/128 s. But maybe it is a particle and the real burst is in unit 2 (the one out of order). The trigger time is 05:32:00.
Alberto

PVO

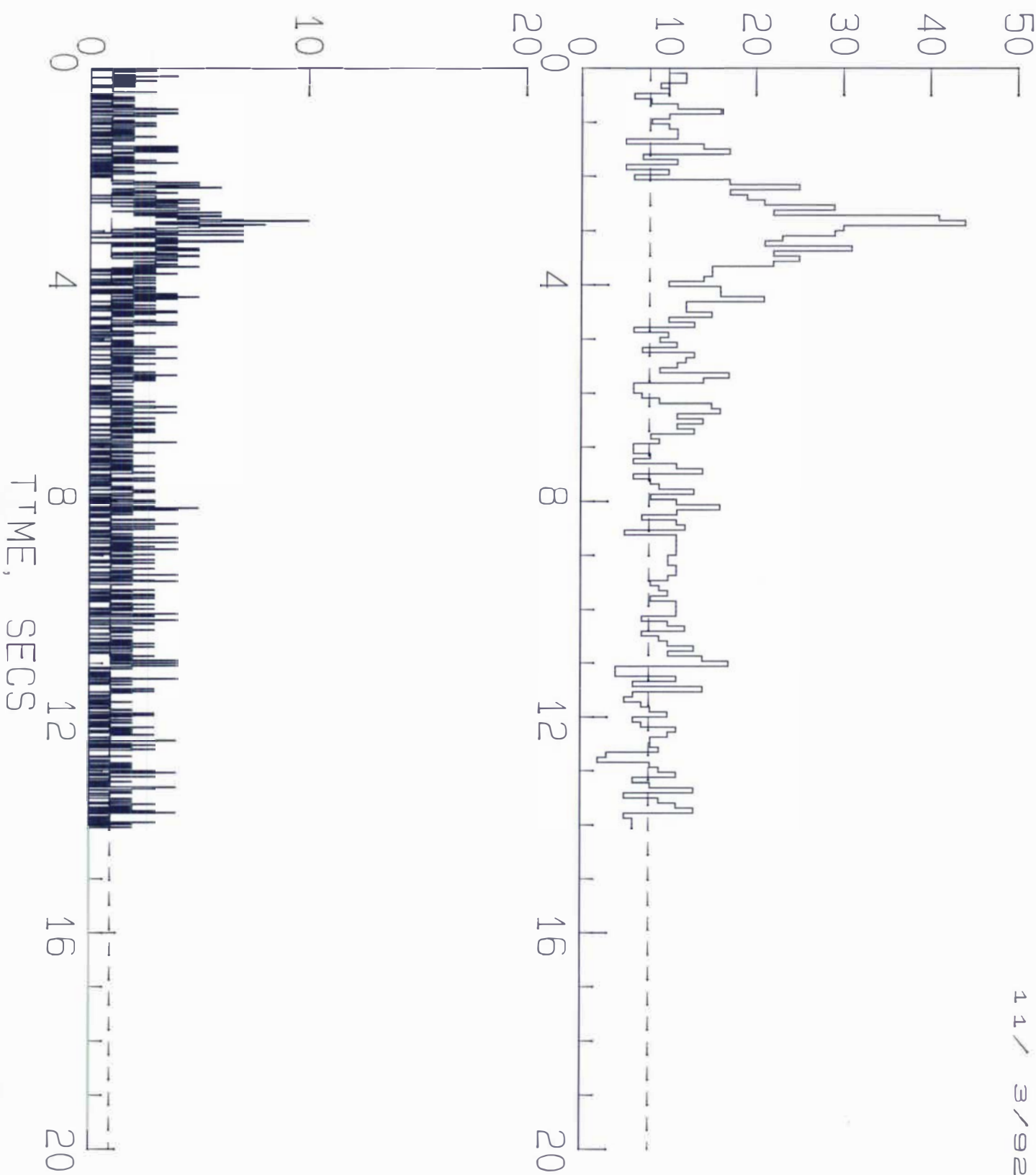
18/10/91

20136.770

100-2000 keV

COUNTS/ .012 S

COUNTS/ .094 S



PVO 18/10/91 20136.770

100- 200 keV

200- 500 keV

500-1000 keV

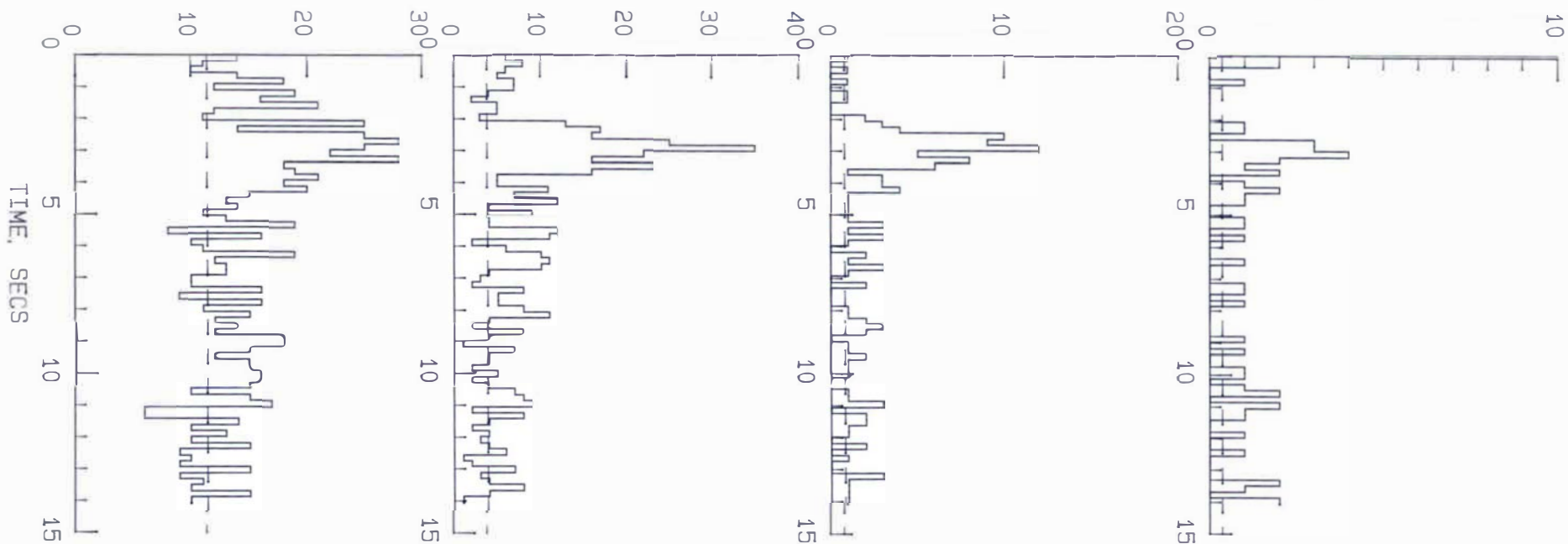
1000-2000 keV

COUNTS/ .1875 S

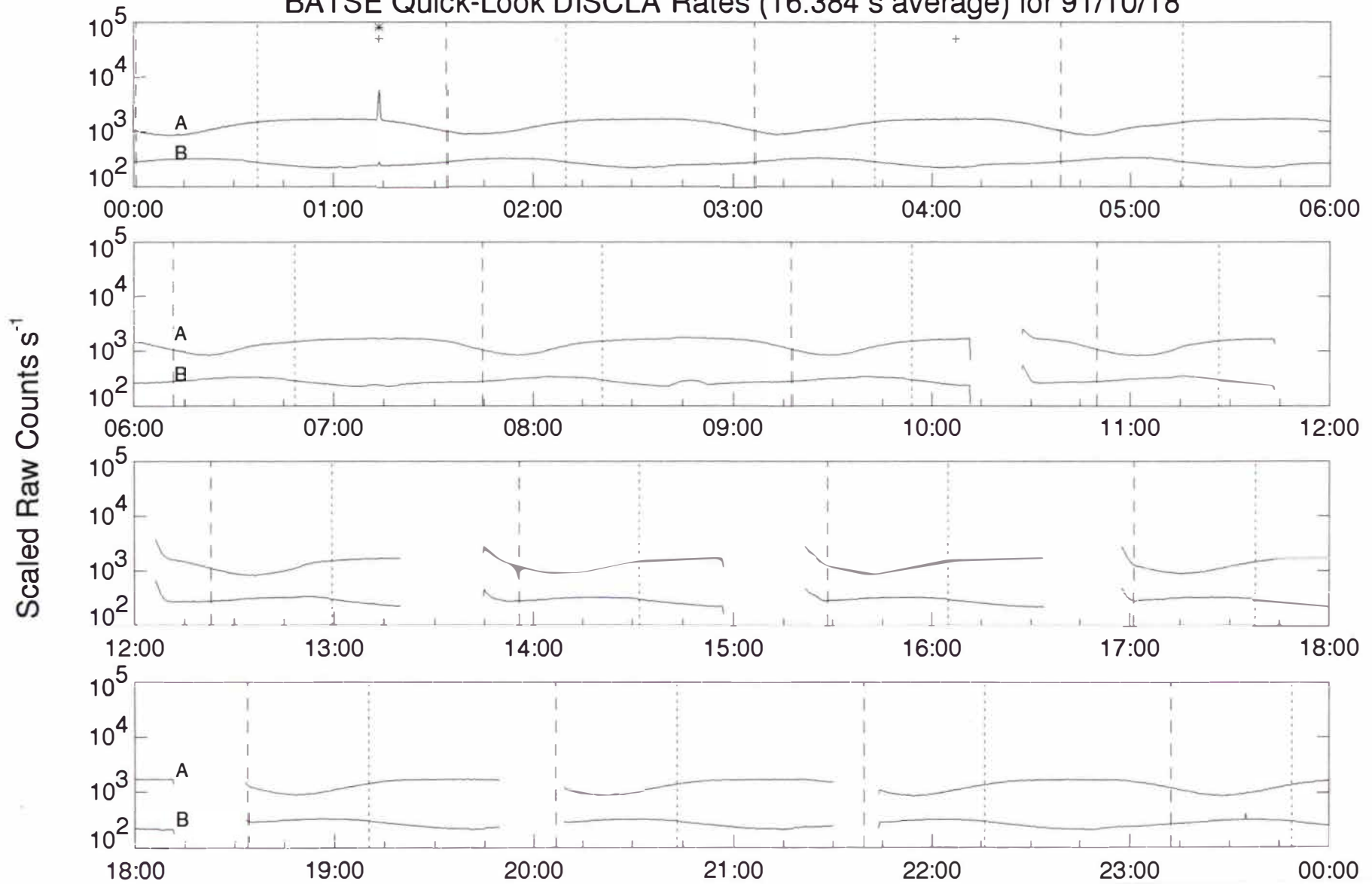
COUNTS/ .1875 S

COUNTS/ .1875 S

COUNTS/ .1875 S



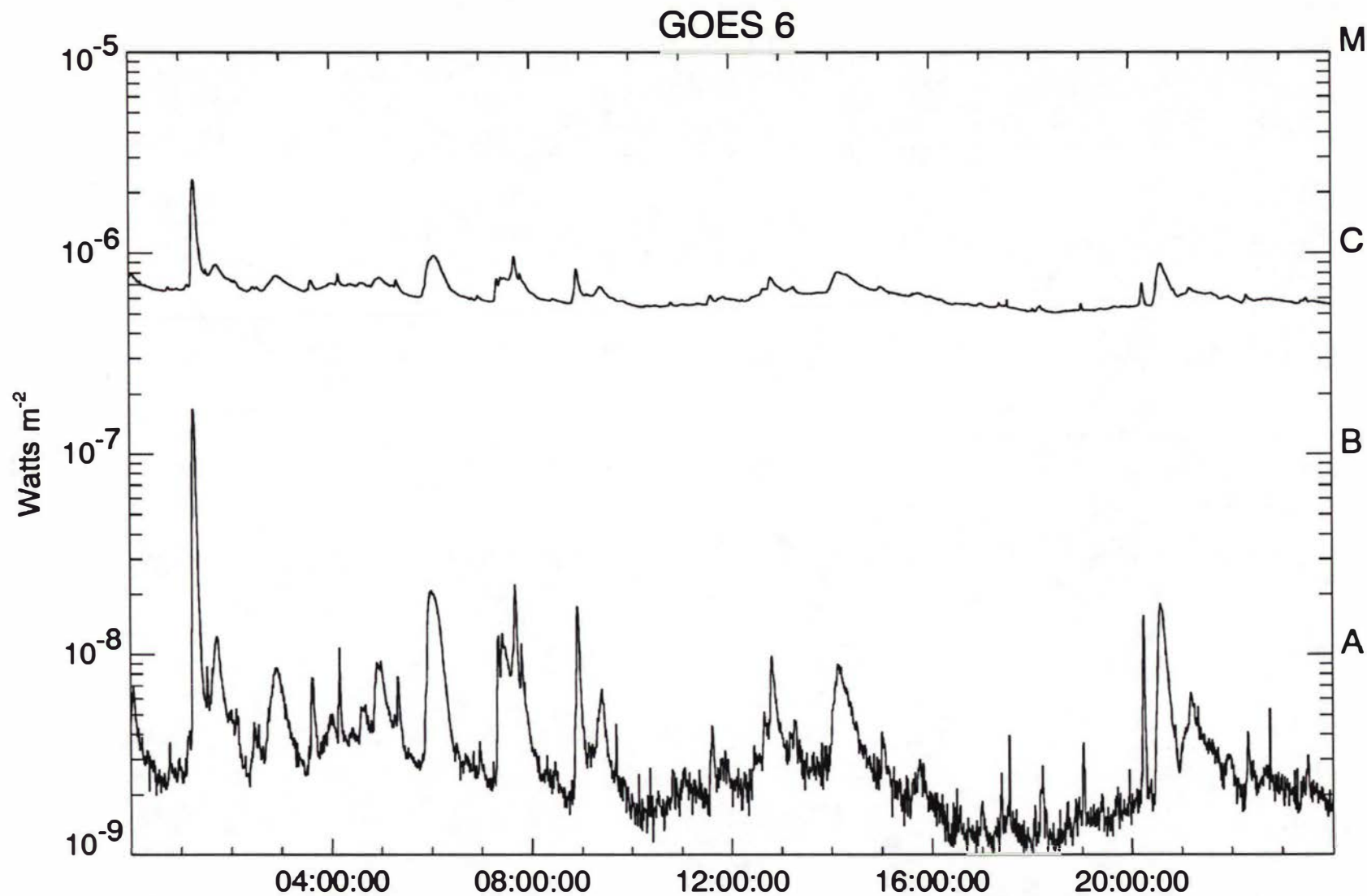
BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/18



Current Time: 92/10/31, 1955 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 91/10/18, 0000:02

Plot created: 97/10/14, 2338

Channel

1 (1.0 - 8.0 Angstroms)

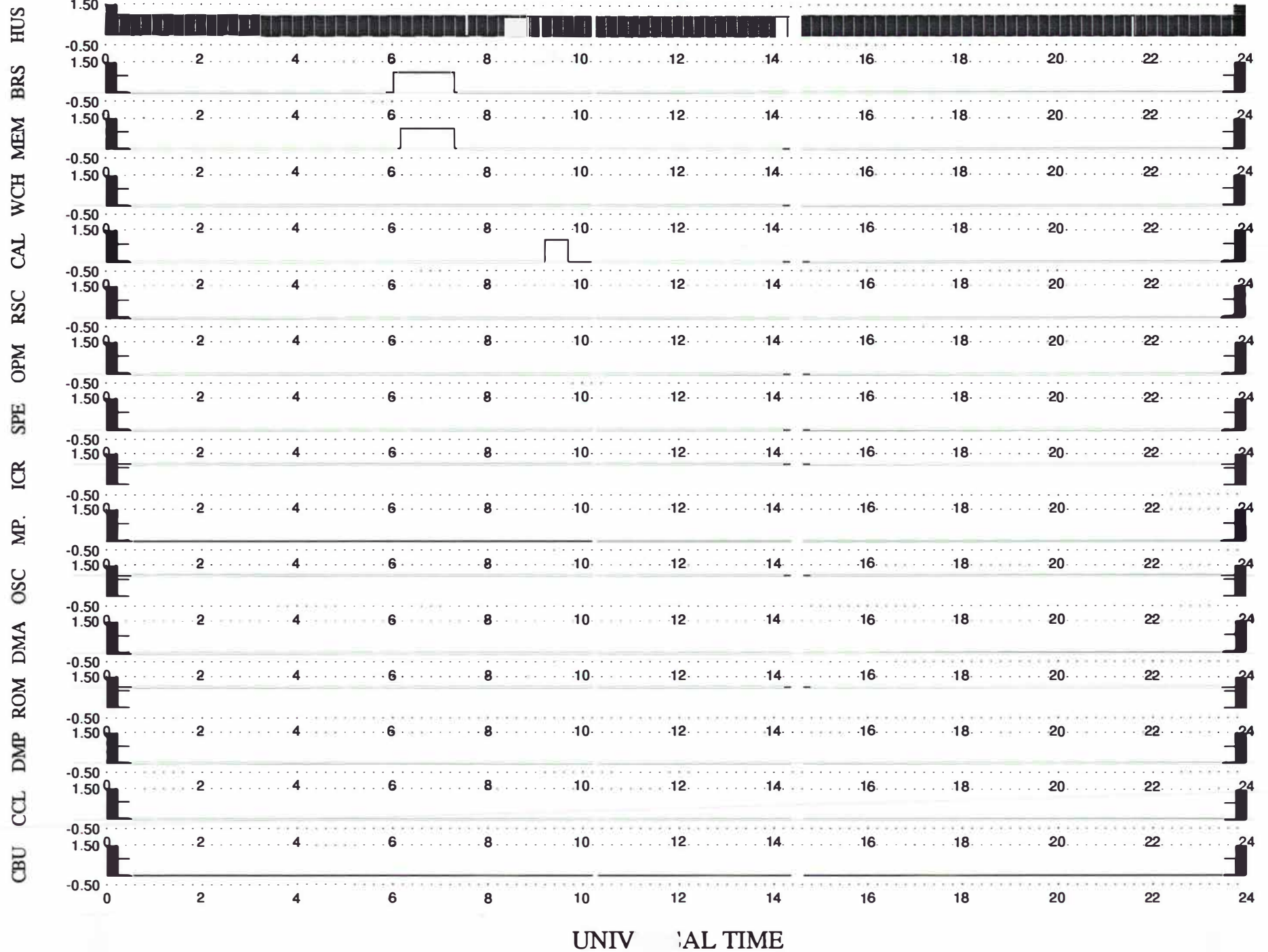
Background not subtracted

2 (0.5 - 4.0 Angstroms)

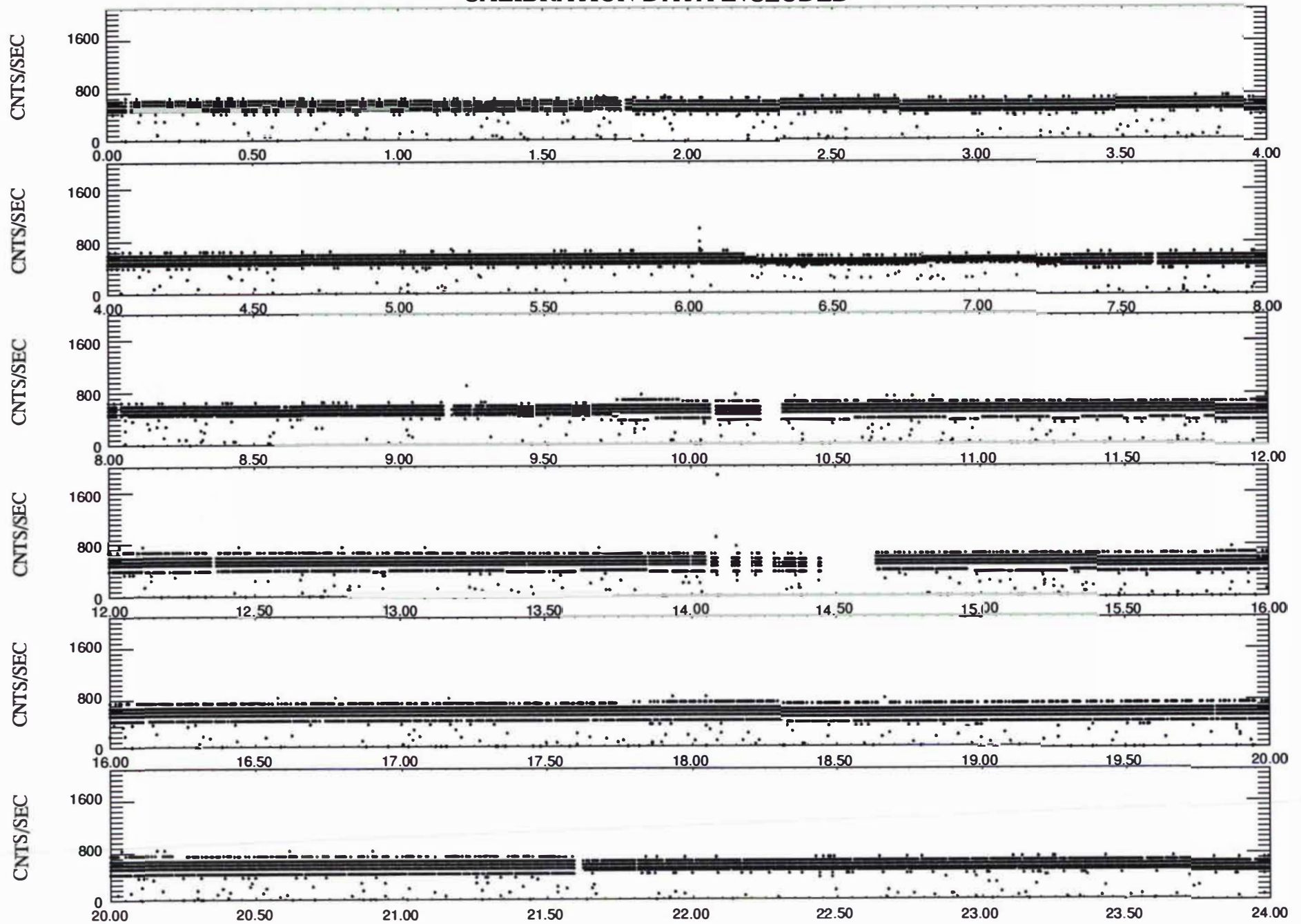
Background not subtracted

Sample average = 10

BURST NUMBER 15

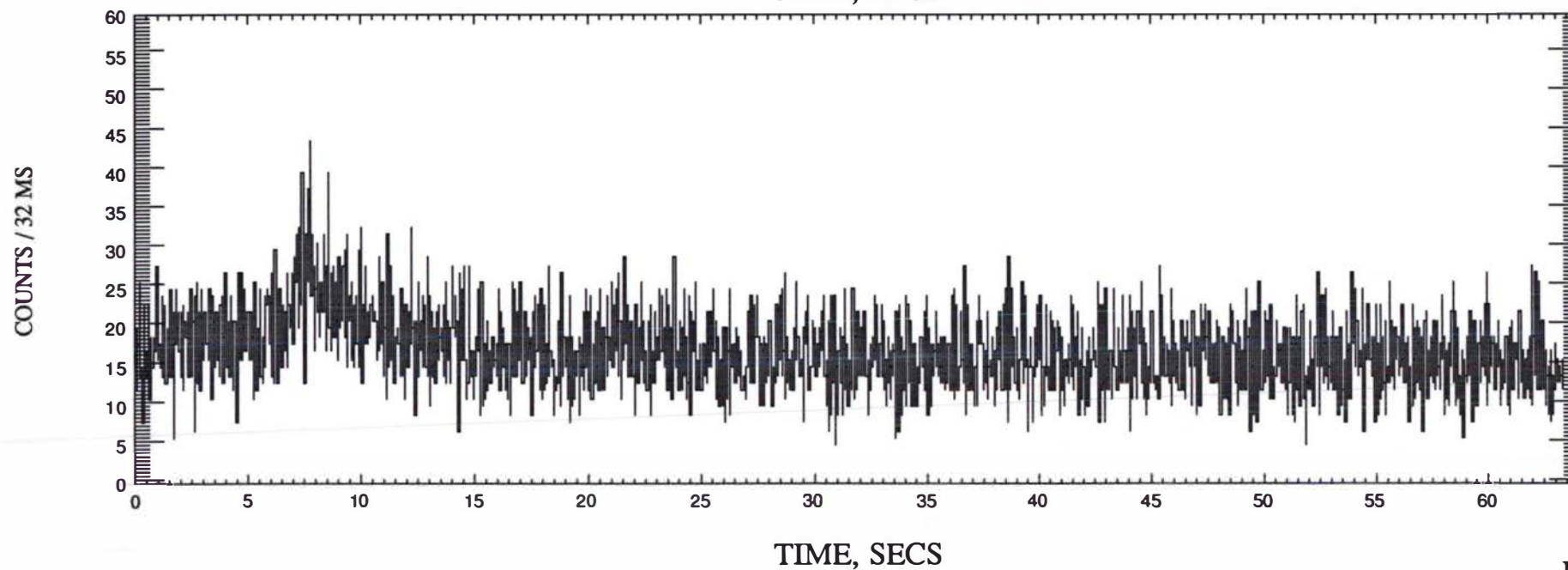
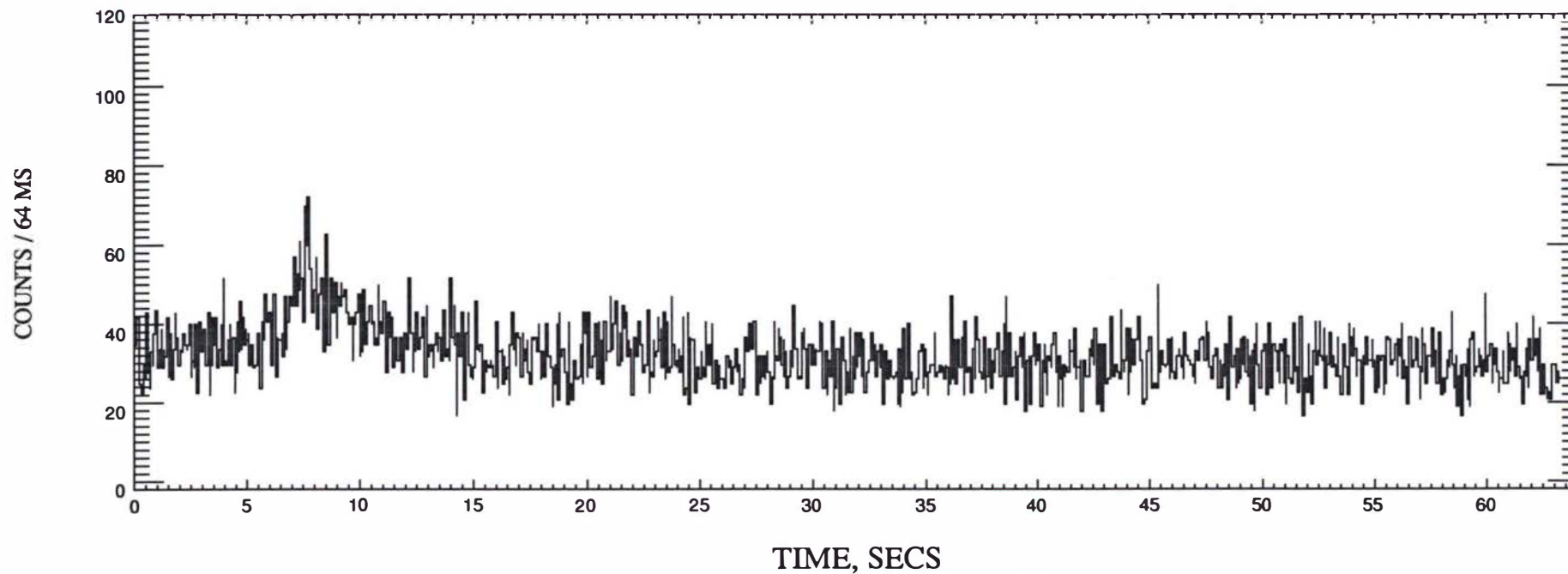


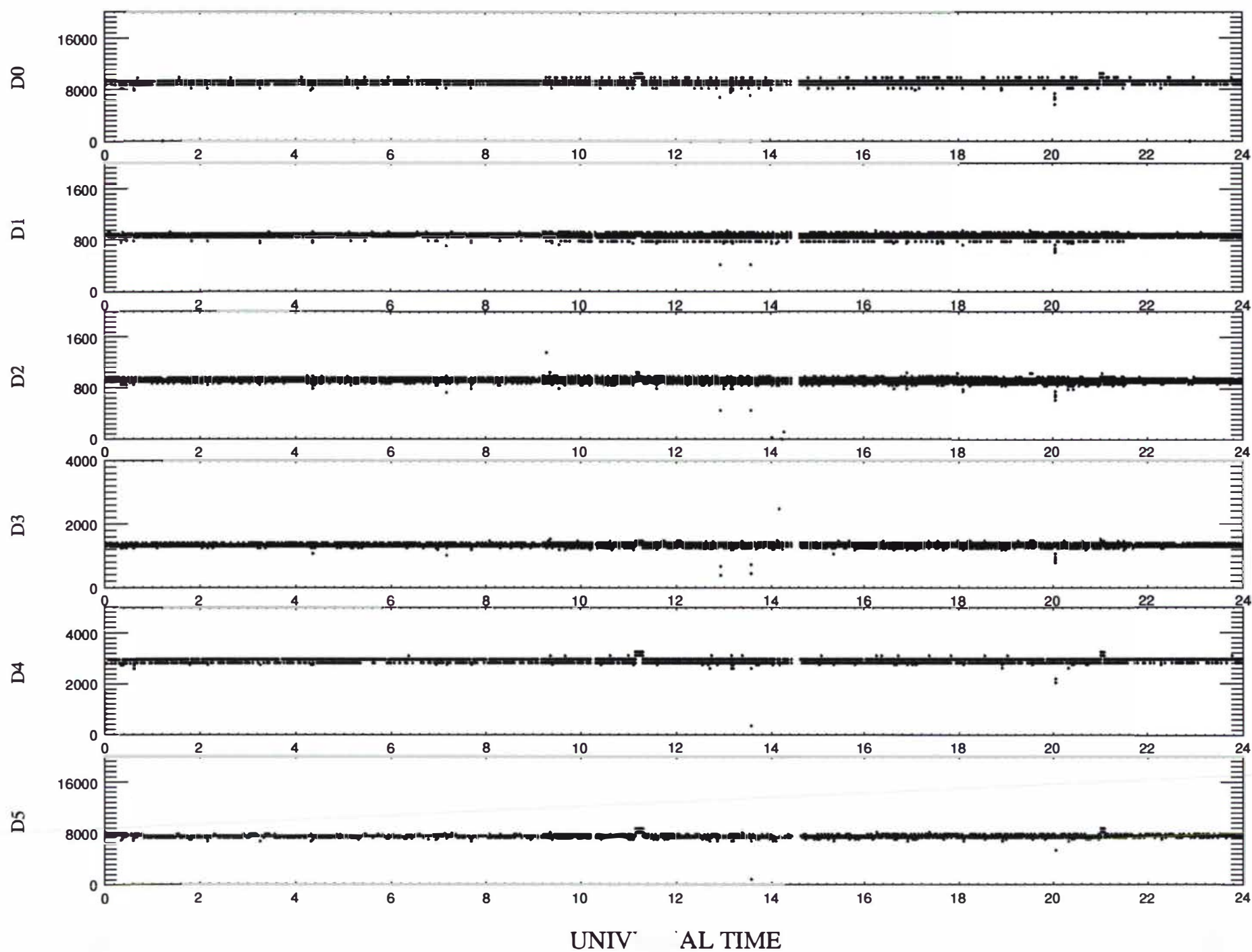
CALIBRATION DATA INCLUDED



UNIV AL TIME

Burst Counter 15 at UT= 6.033236868117 h=21719.653 s 06:01:59.653





CATSEARCH PROGRAM

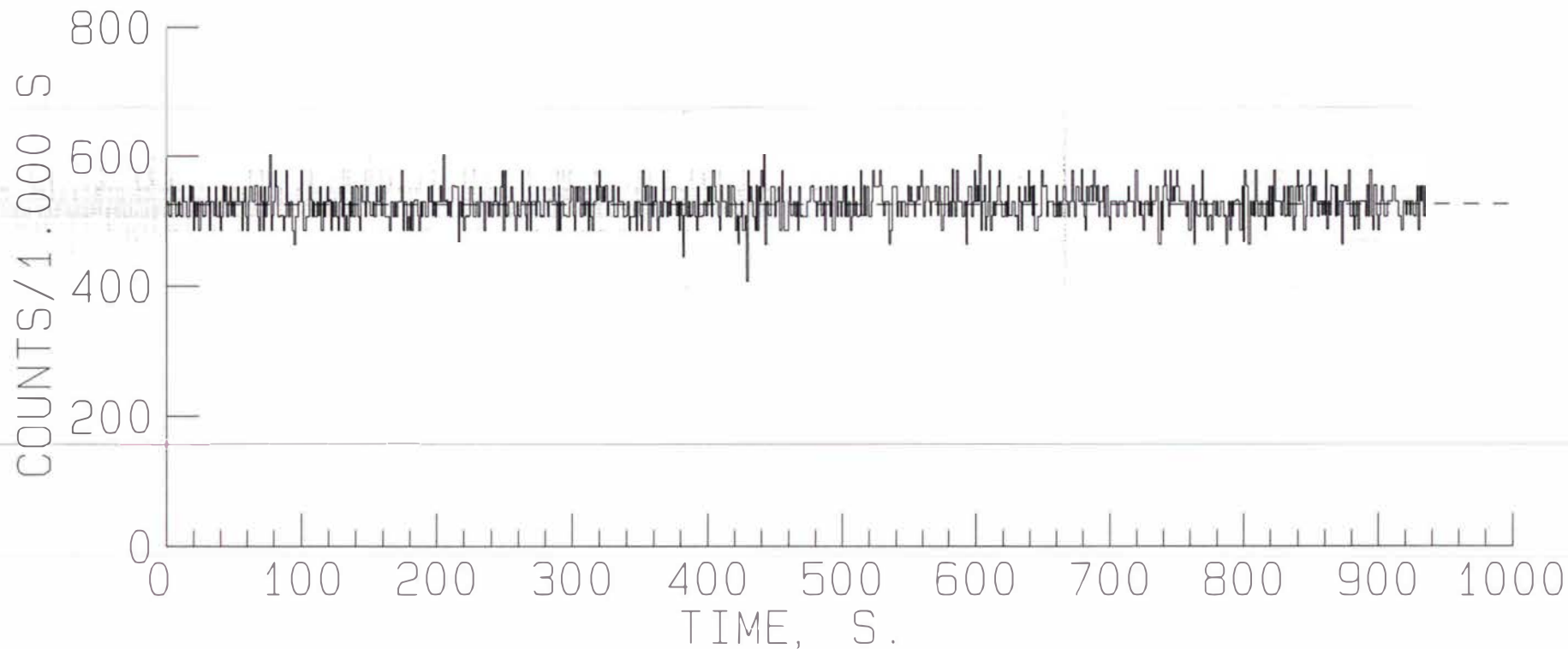
BATSE BURST # 909
EVENT OF 1991 OCT 19 DAY OF YEAR=292
EVENT CROSSING TIME AT BATSE : 25152. S. OR 06:59:11.6
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 237.600 34.400
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 19/10/ 91 IS:
RA= 162.219 DEC= 8.785 DIST= 5.139 AU
BATSE-ULYSSES DISTANCE = 768854240. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=106.98 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -749.10 SECS.
CROSSING TIME AT ULYSSES IS 24403. S. OR 06:46:42 +/- 464.47 SECONDS

NO

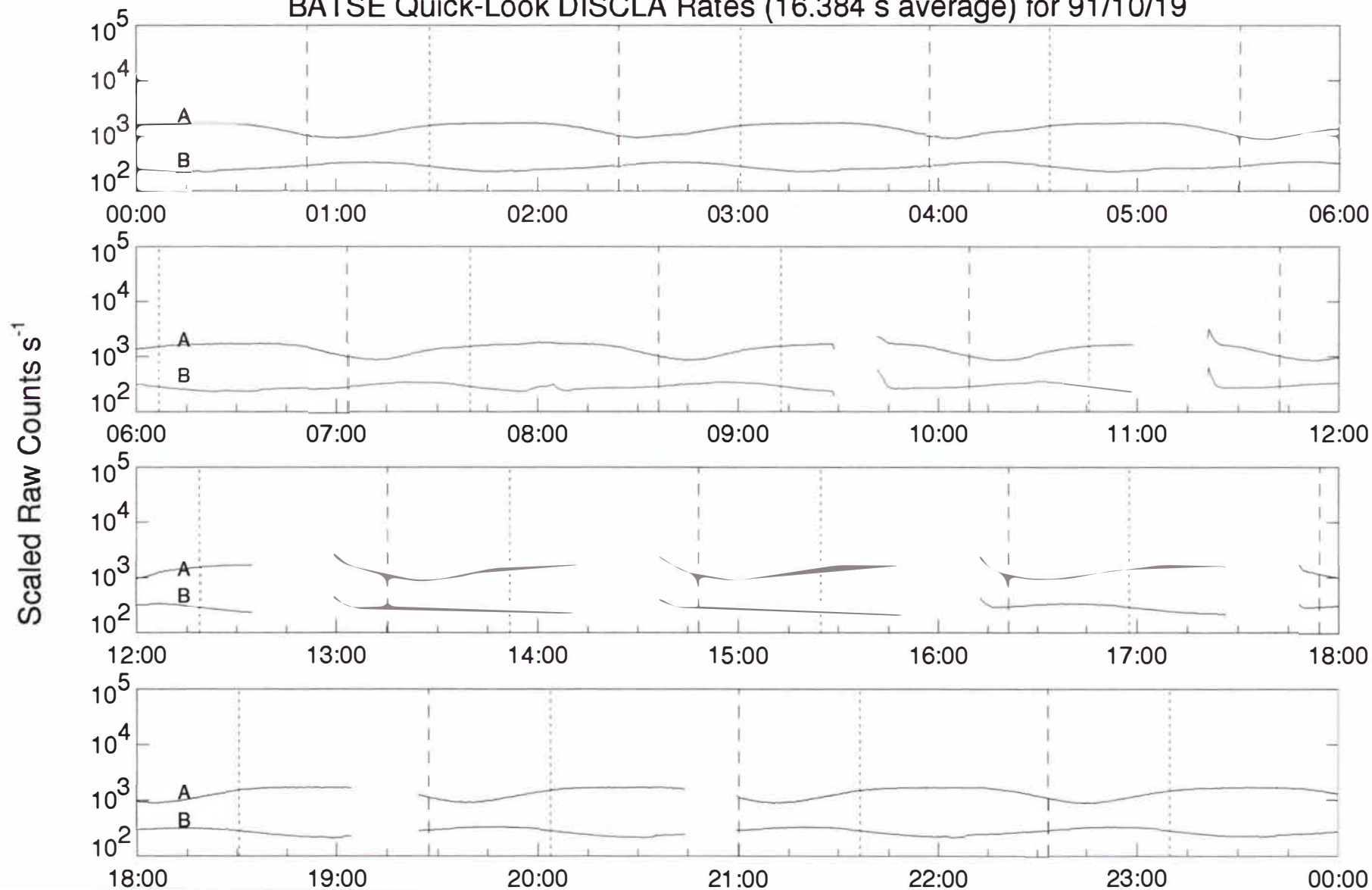
14 / 4 / 93

ULYSSES RT
19/10/91 23940.279 s
0.500 S INTERVALS REGROUPED BY 2
0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/19

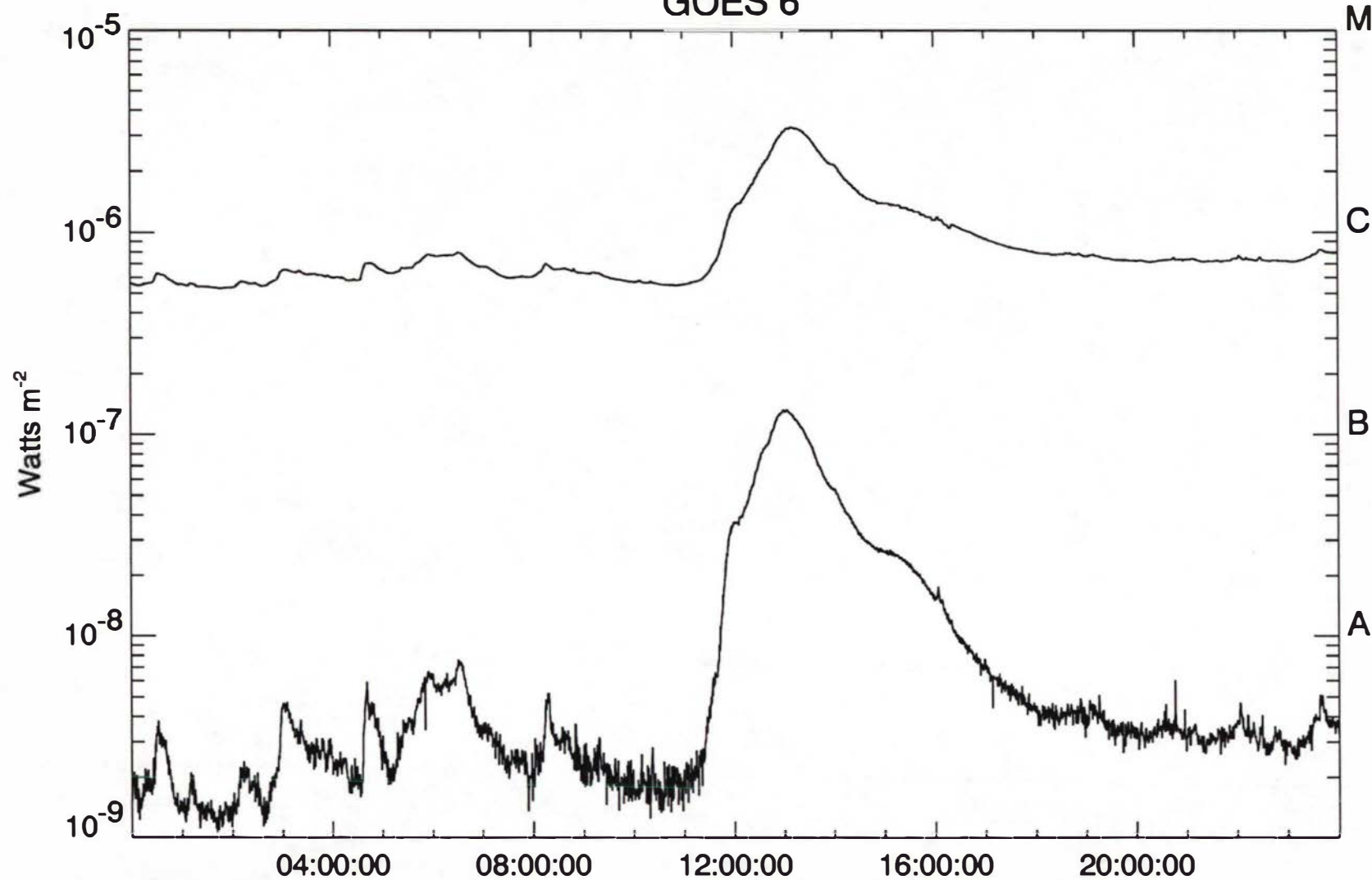


Current Time: 92/10/31, 1957 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/19, 0000:00

Plot created: 97/10/14, 2341

Channel 1 (1.0 - 8.0 Angstroms)

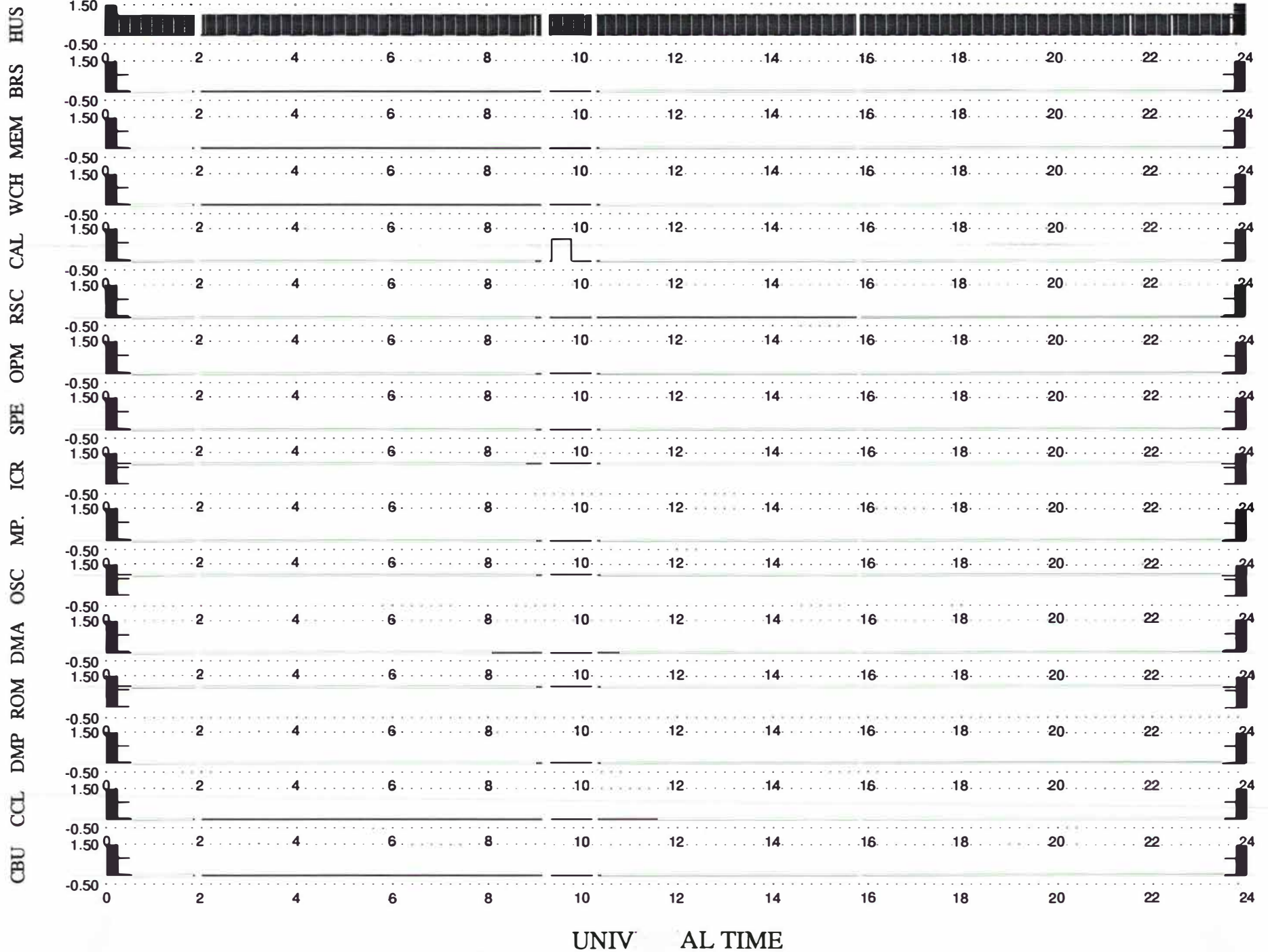
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

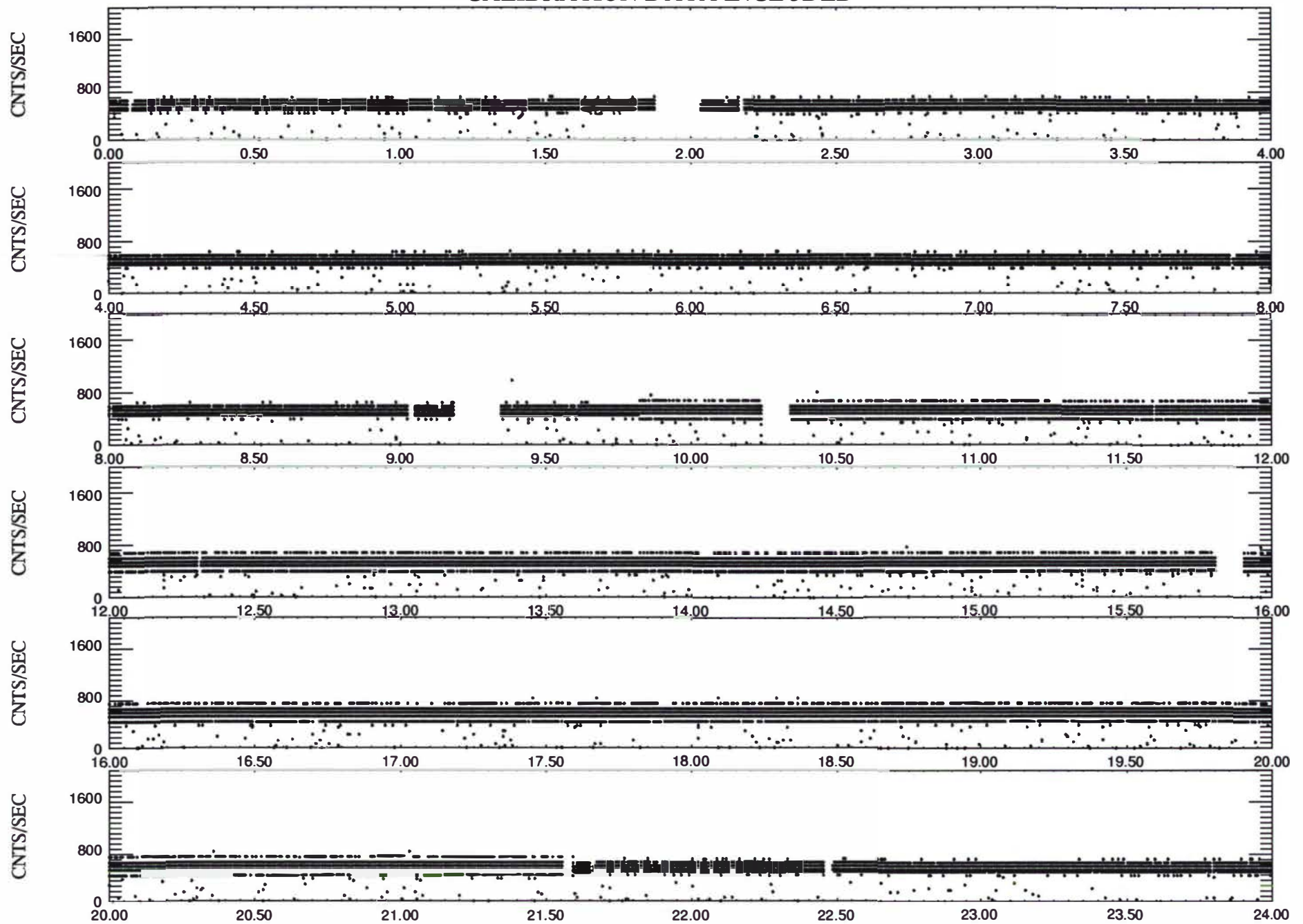
Background not subtracted

Sample average = 10

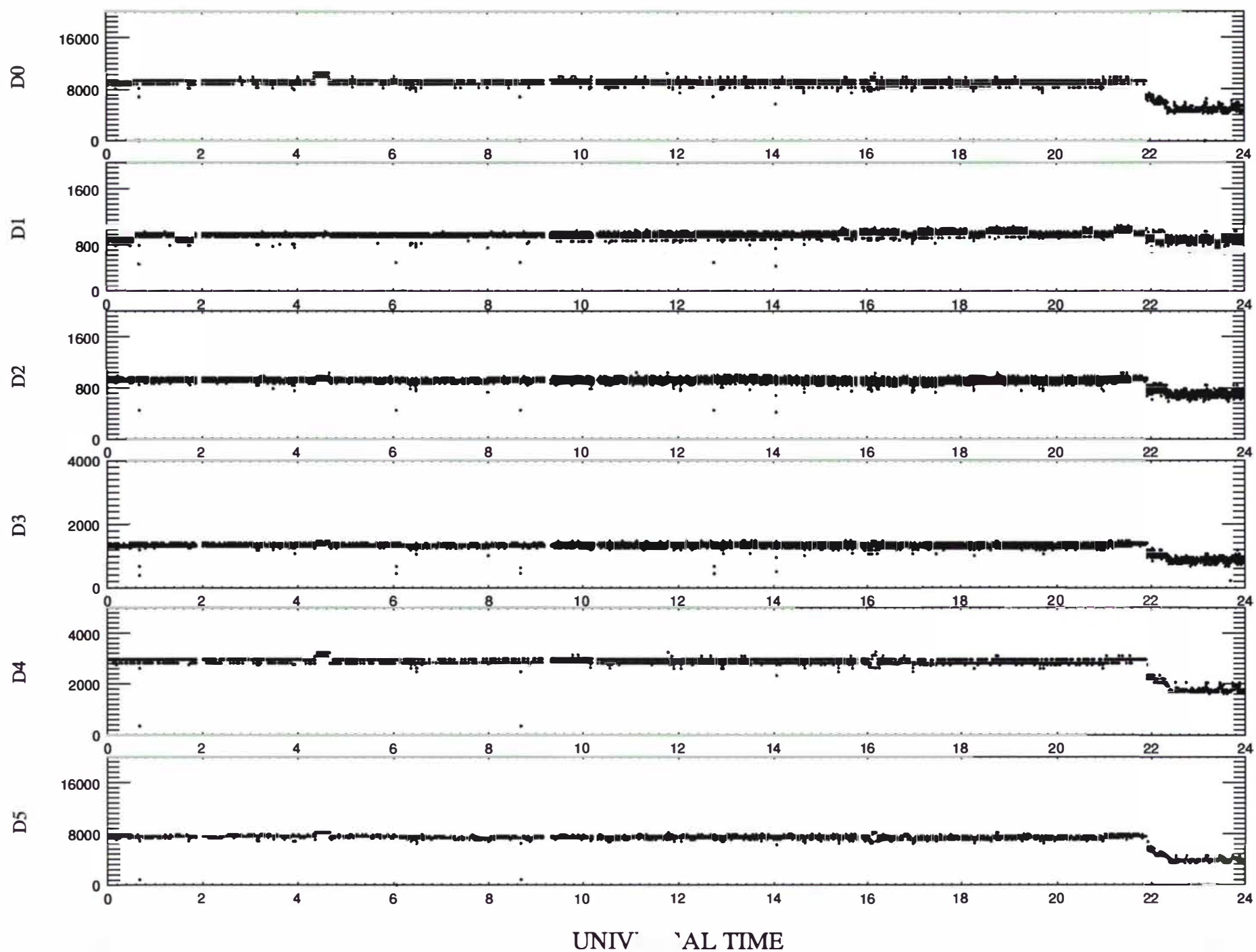
NO BURST (15)



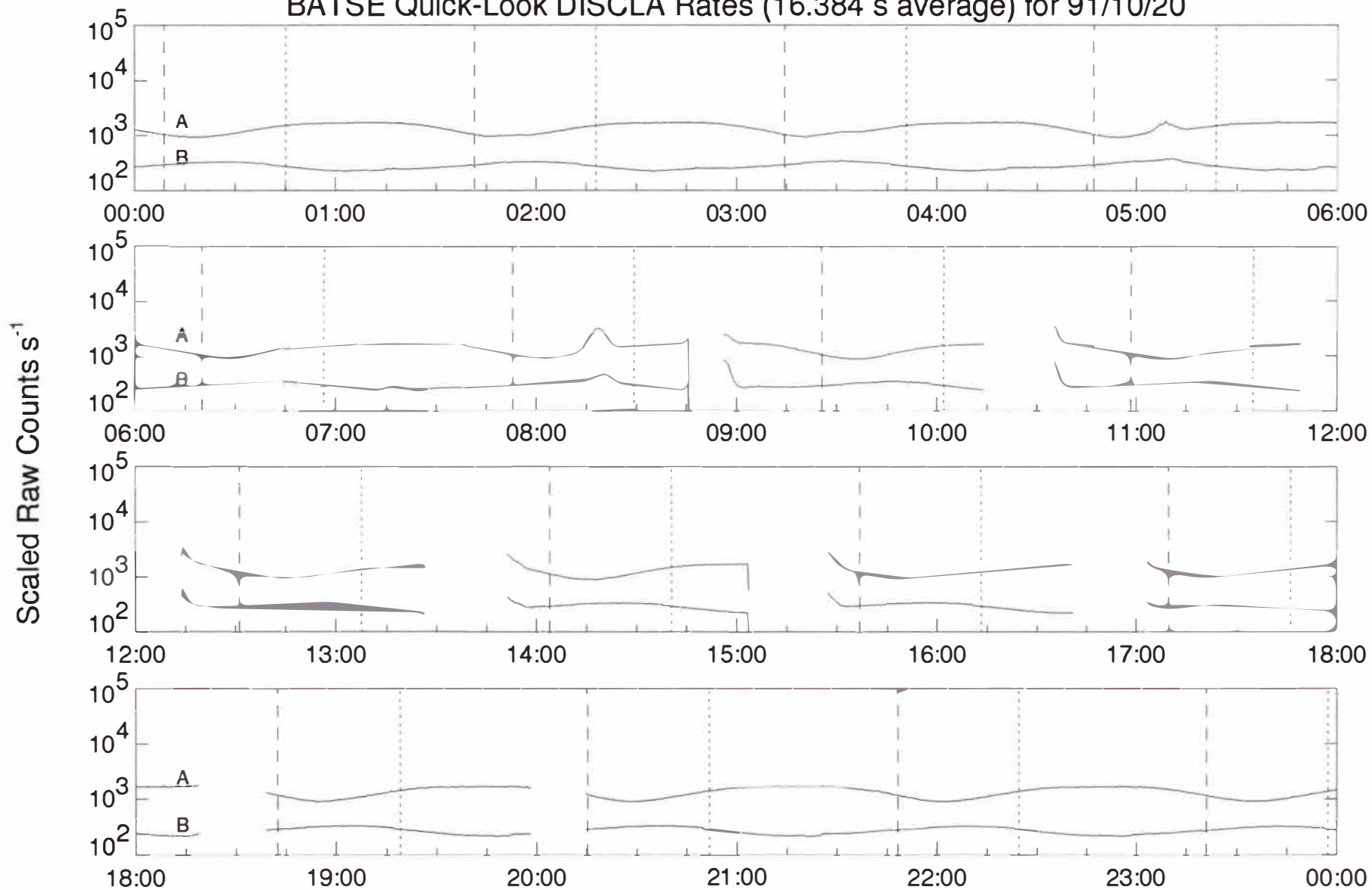
CALIBRATION DATA INCLUDED



UNIV AL TIME



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/20

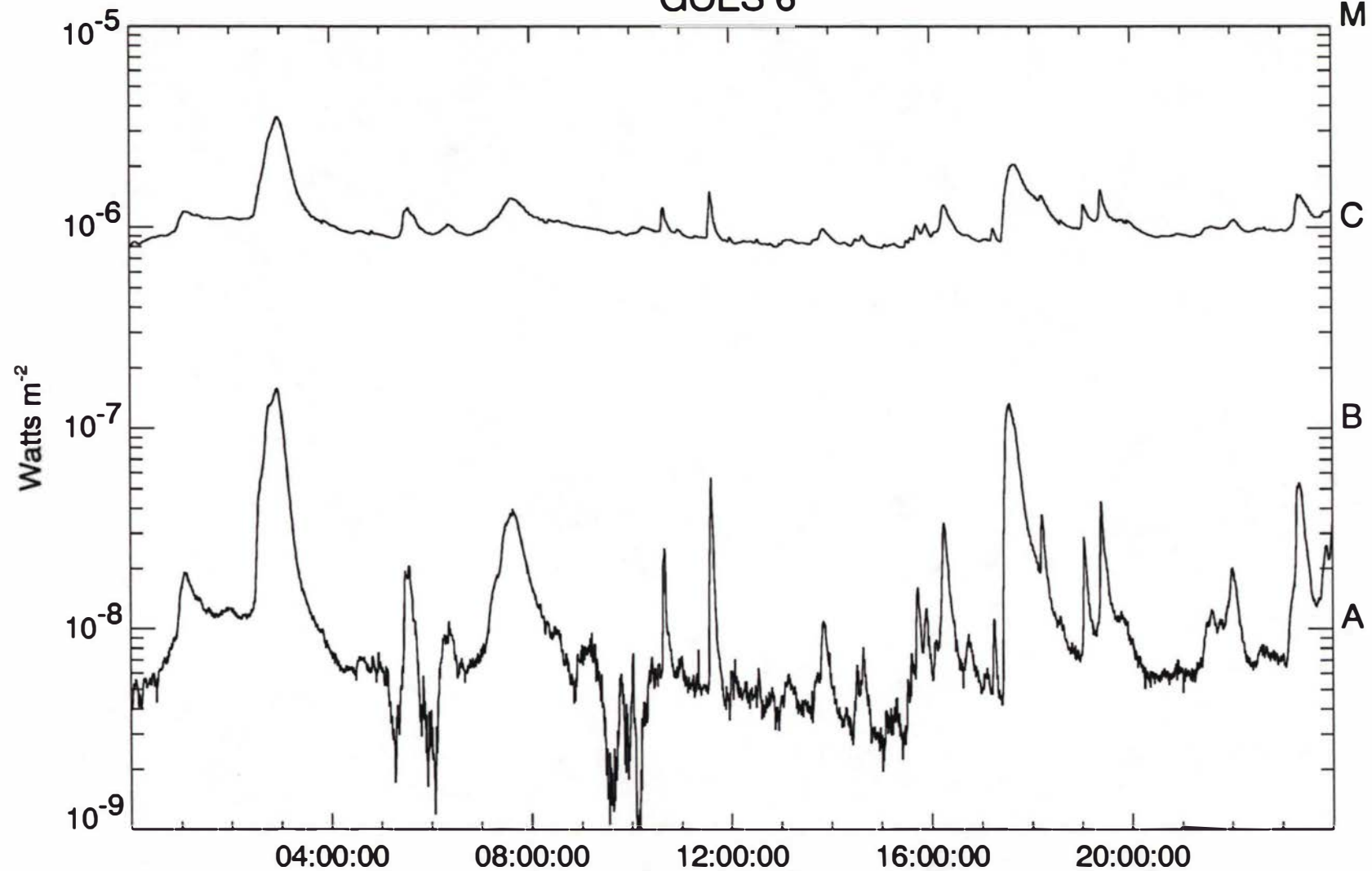


Current Time: 92/10/31, 1958 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/20, 0000:01

Plot created: 97/10/14, 2347

Channel

1 (1.0 - 8.0 Angstroms)

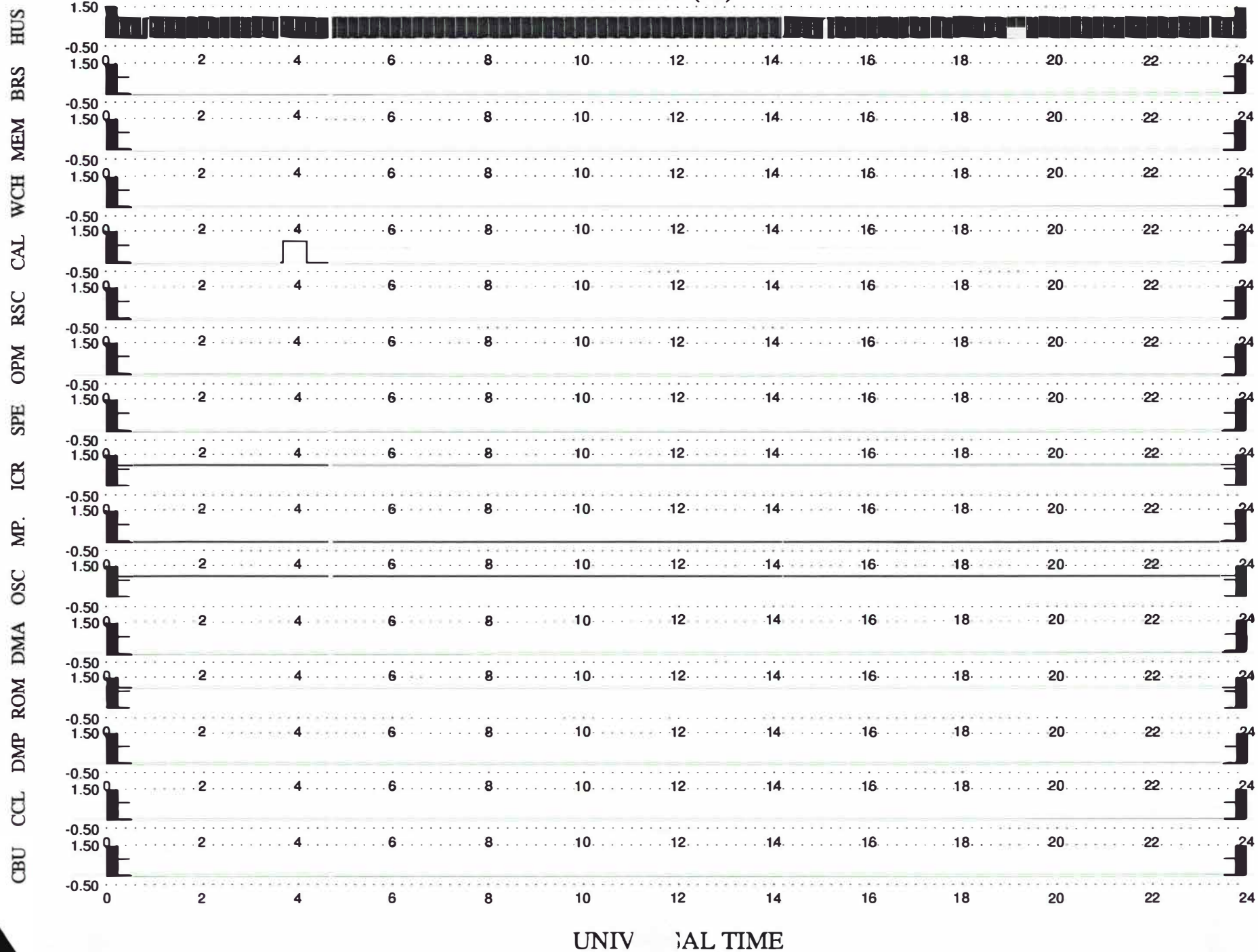
Background not subtracted

2 (0.5 - 4.0 Angstroms)

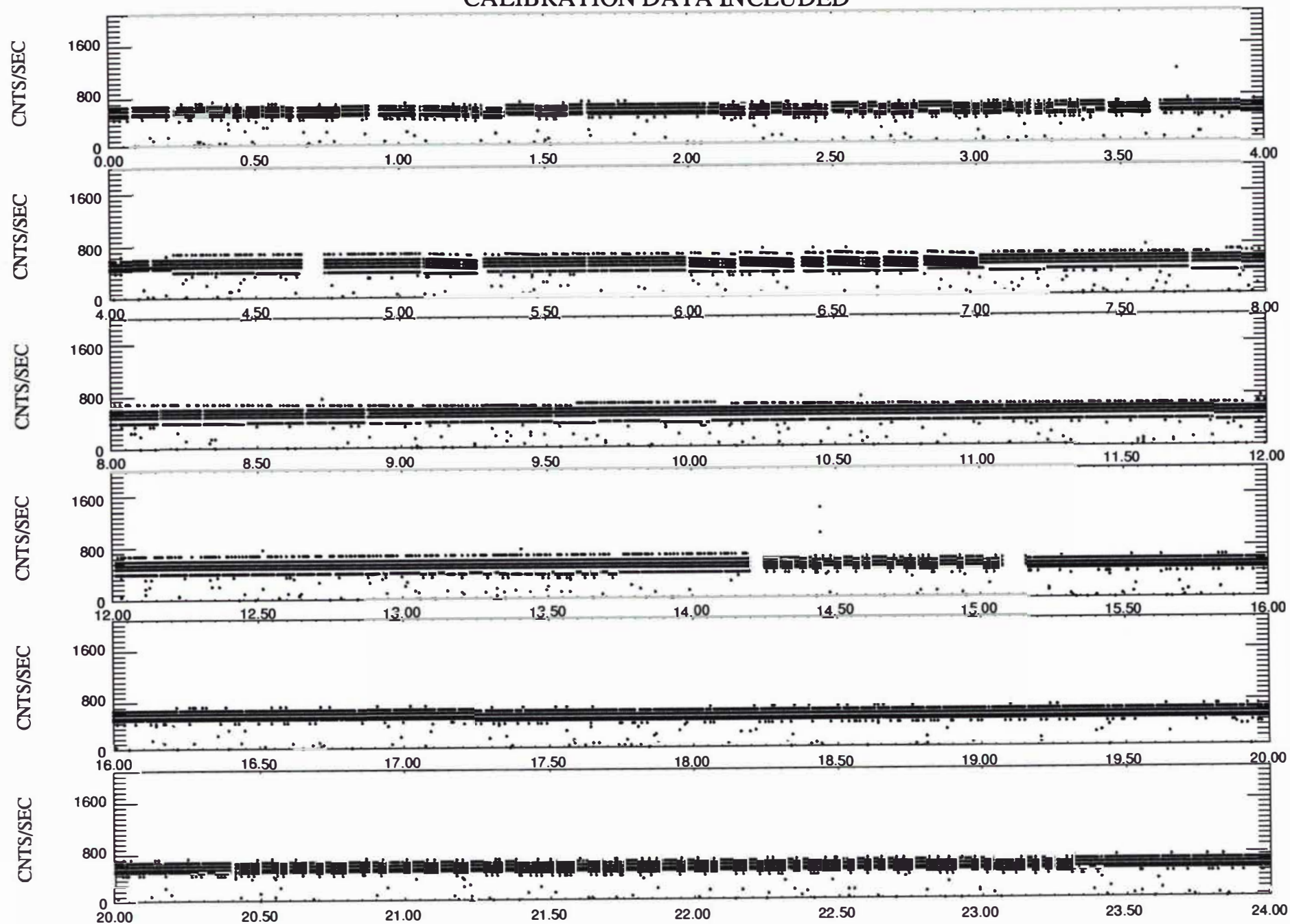
Background not subtracted

Sample average = 10

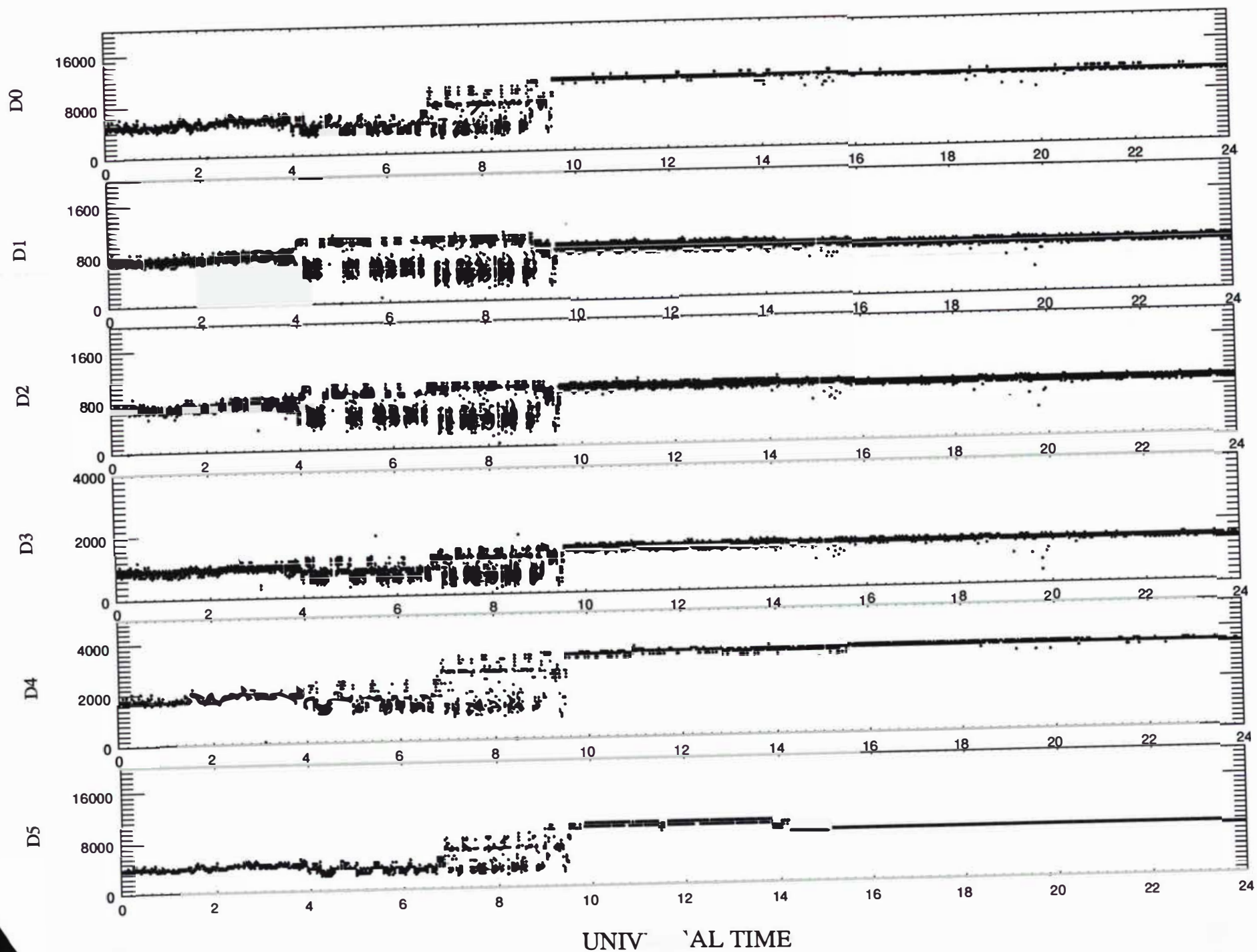
NO BURST (15)



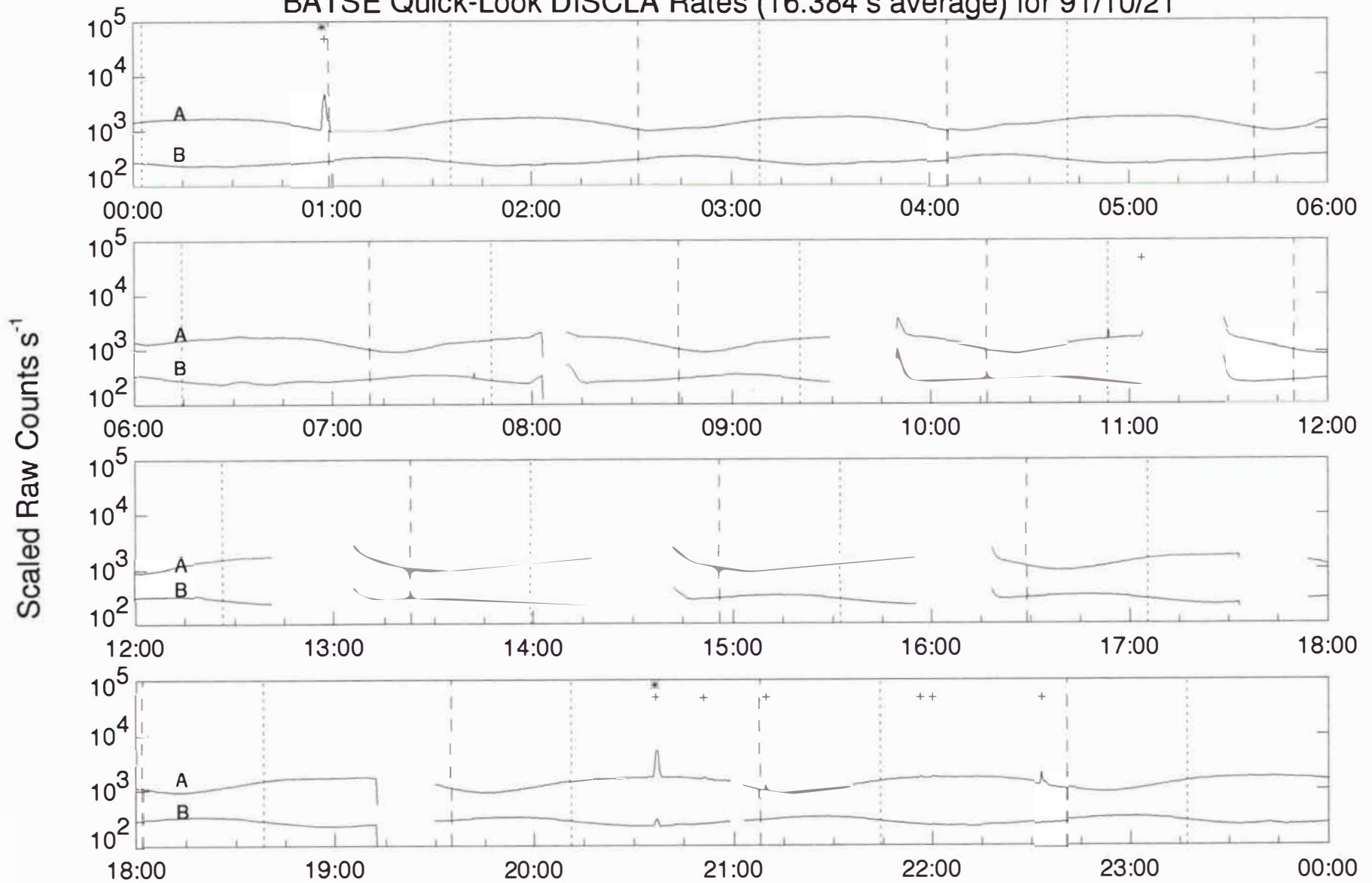
CALIBRATION DATA INCLUDED



UNIV AL TIME



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/21



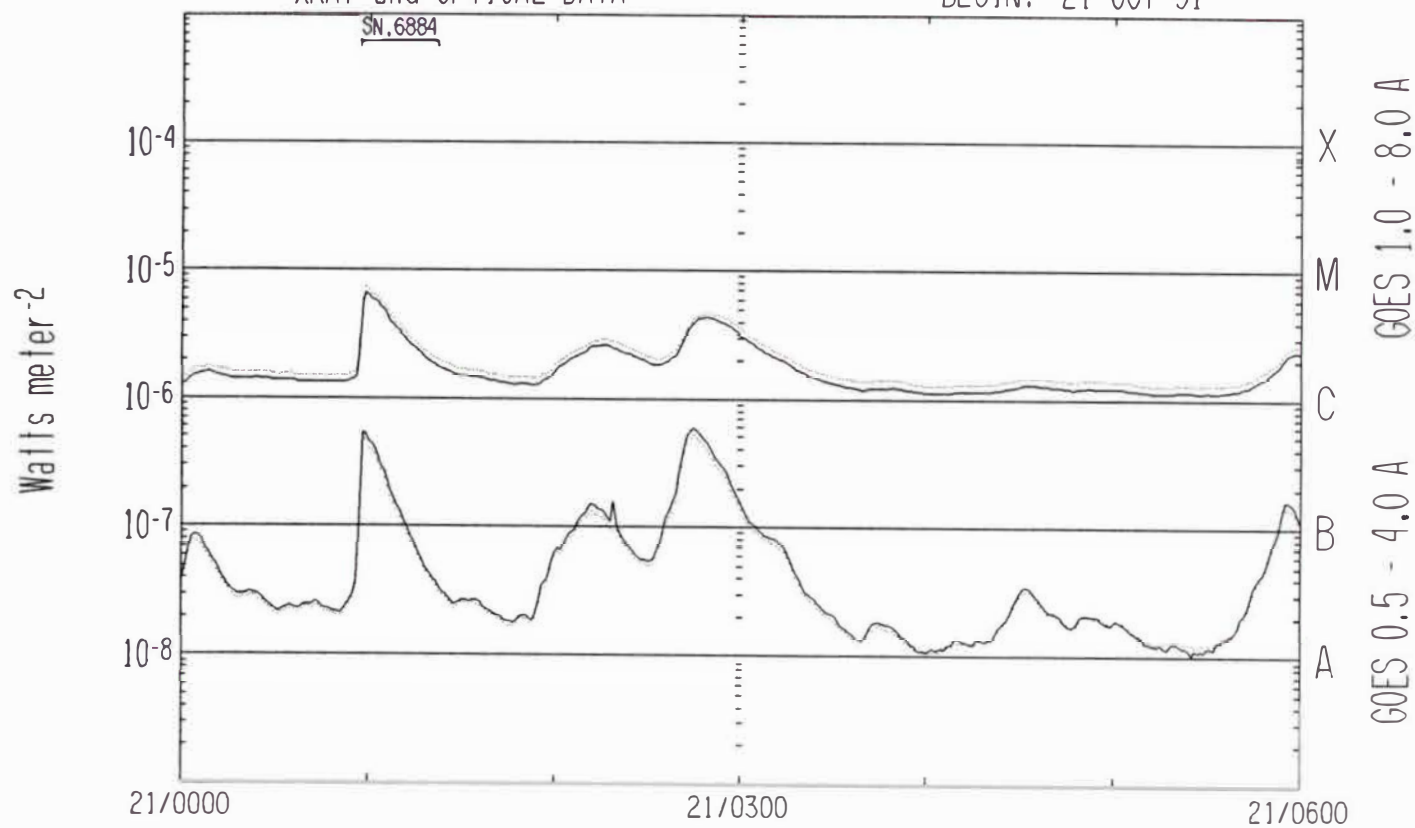
Current Time: 92/10/31, 1959 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

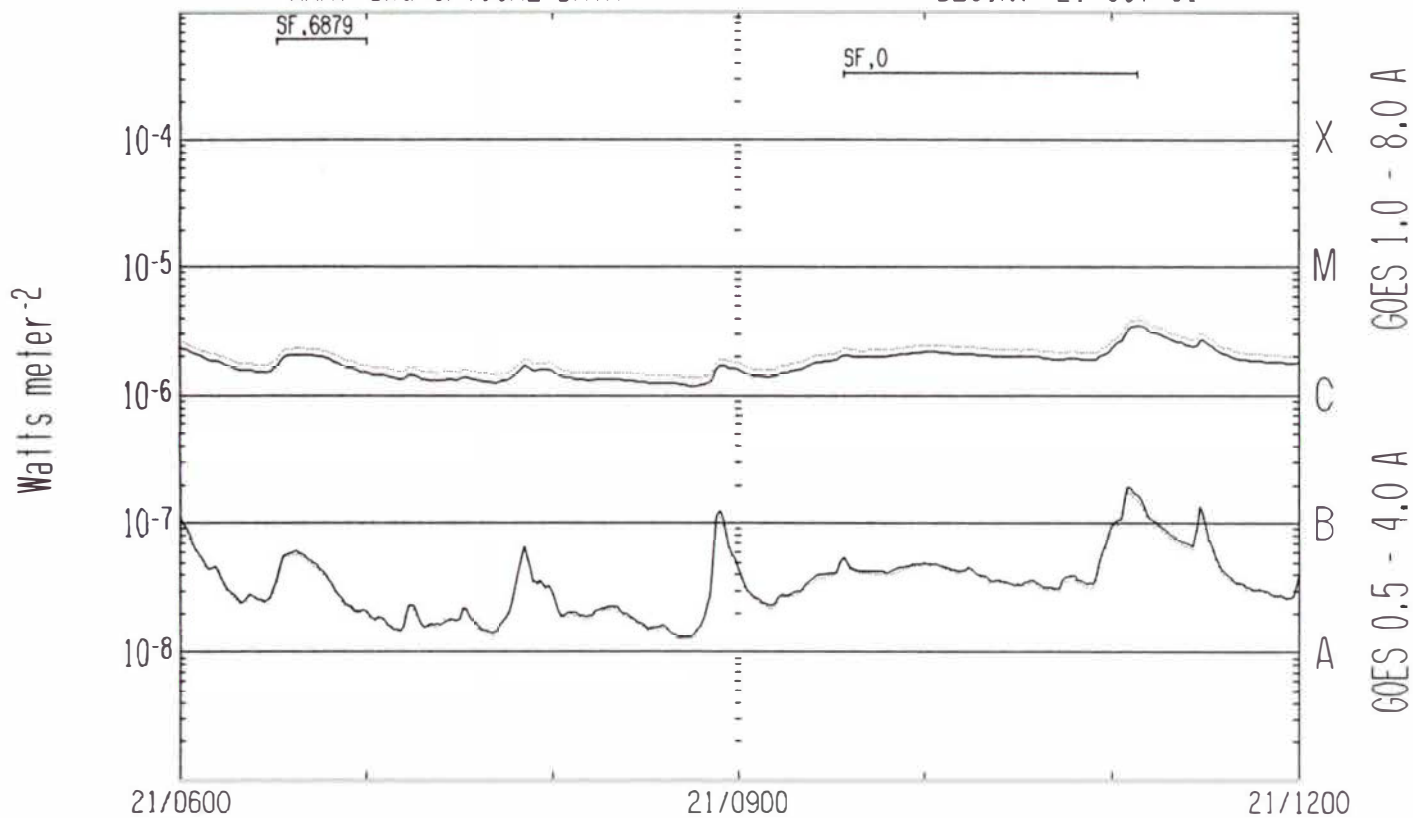
XRAY and OPTICAL DATA

BEGIN: 21 OCT 91



XRAY and OPTICAL DATA

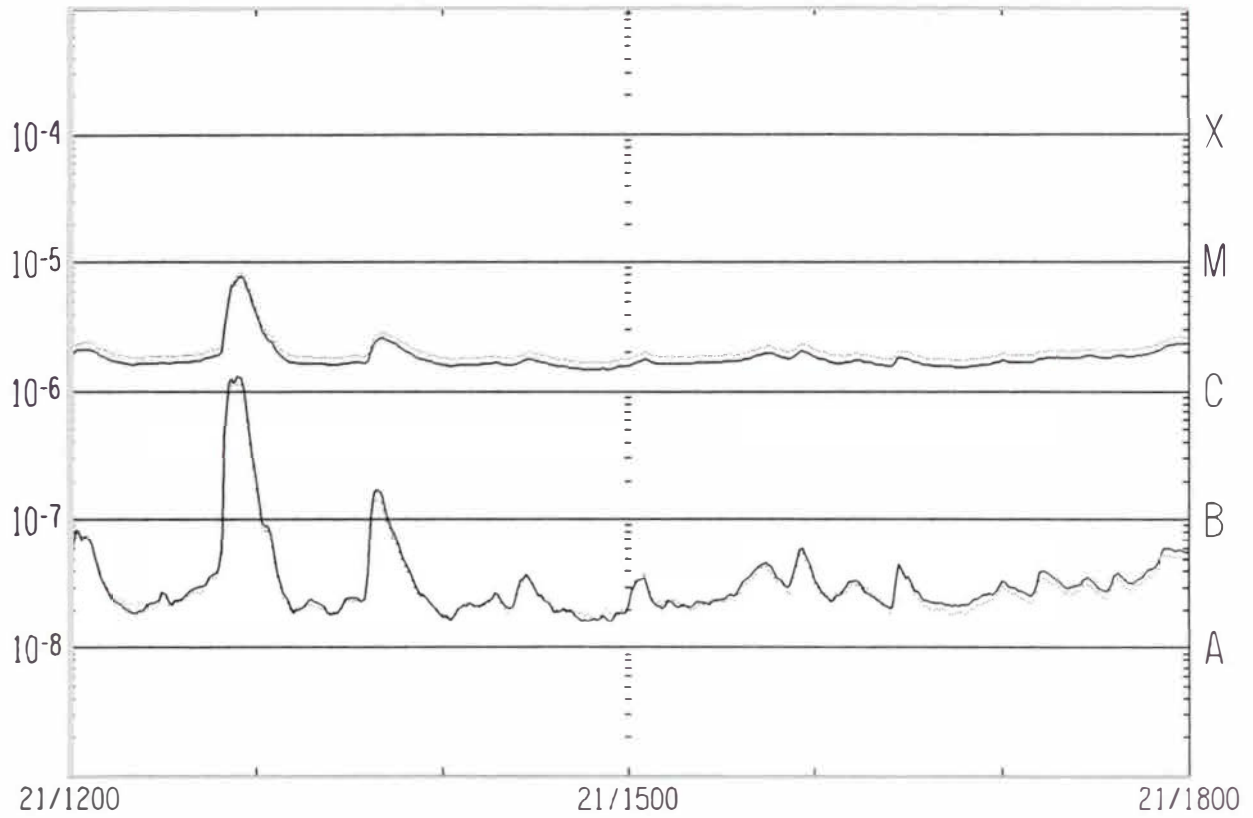
BEGIN: 21 OCT 91



XRAY and OPTICAL DATA

BEGIN: 21 OCT 91

Watts meter-2

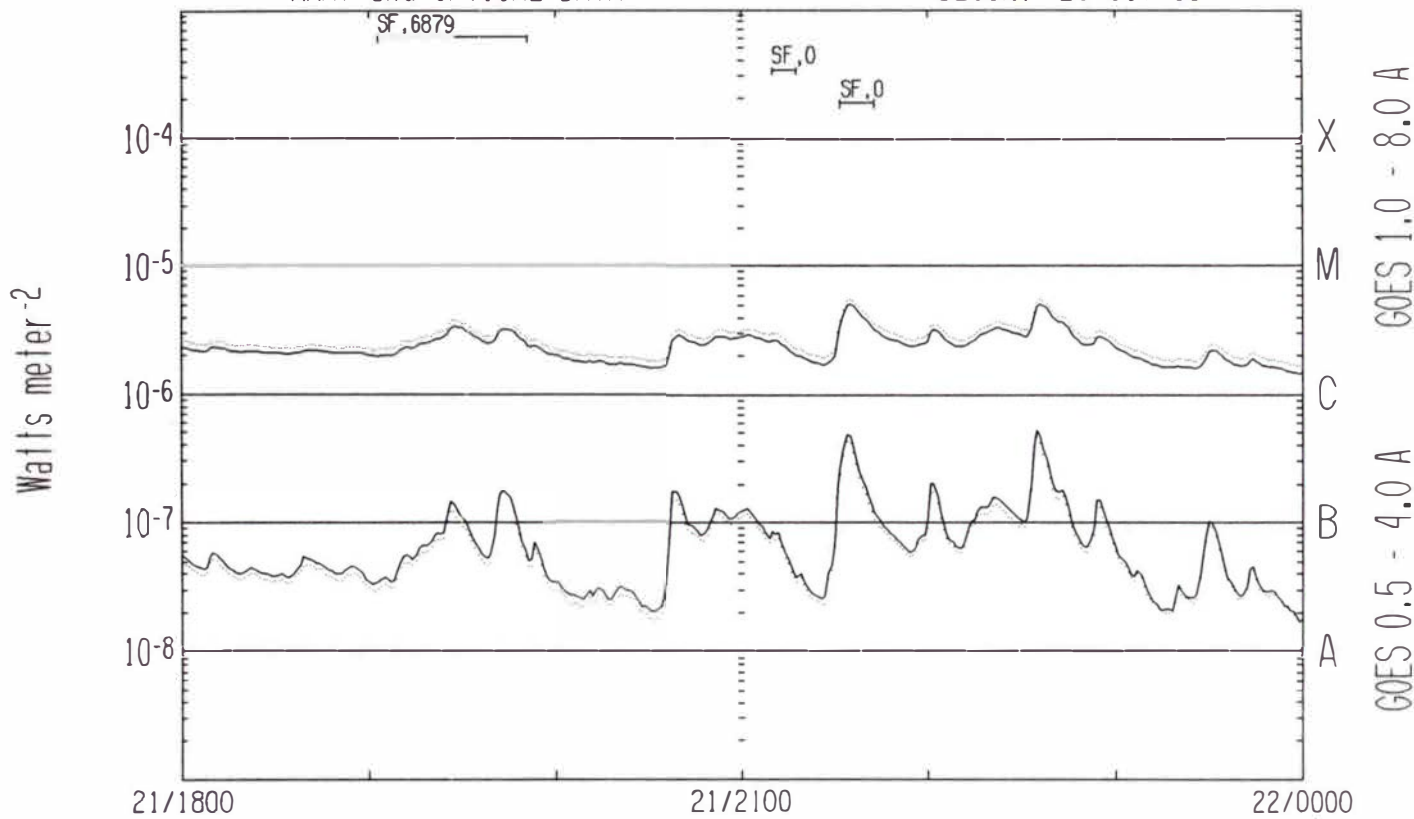


GOES 1.0 - 8.0 A

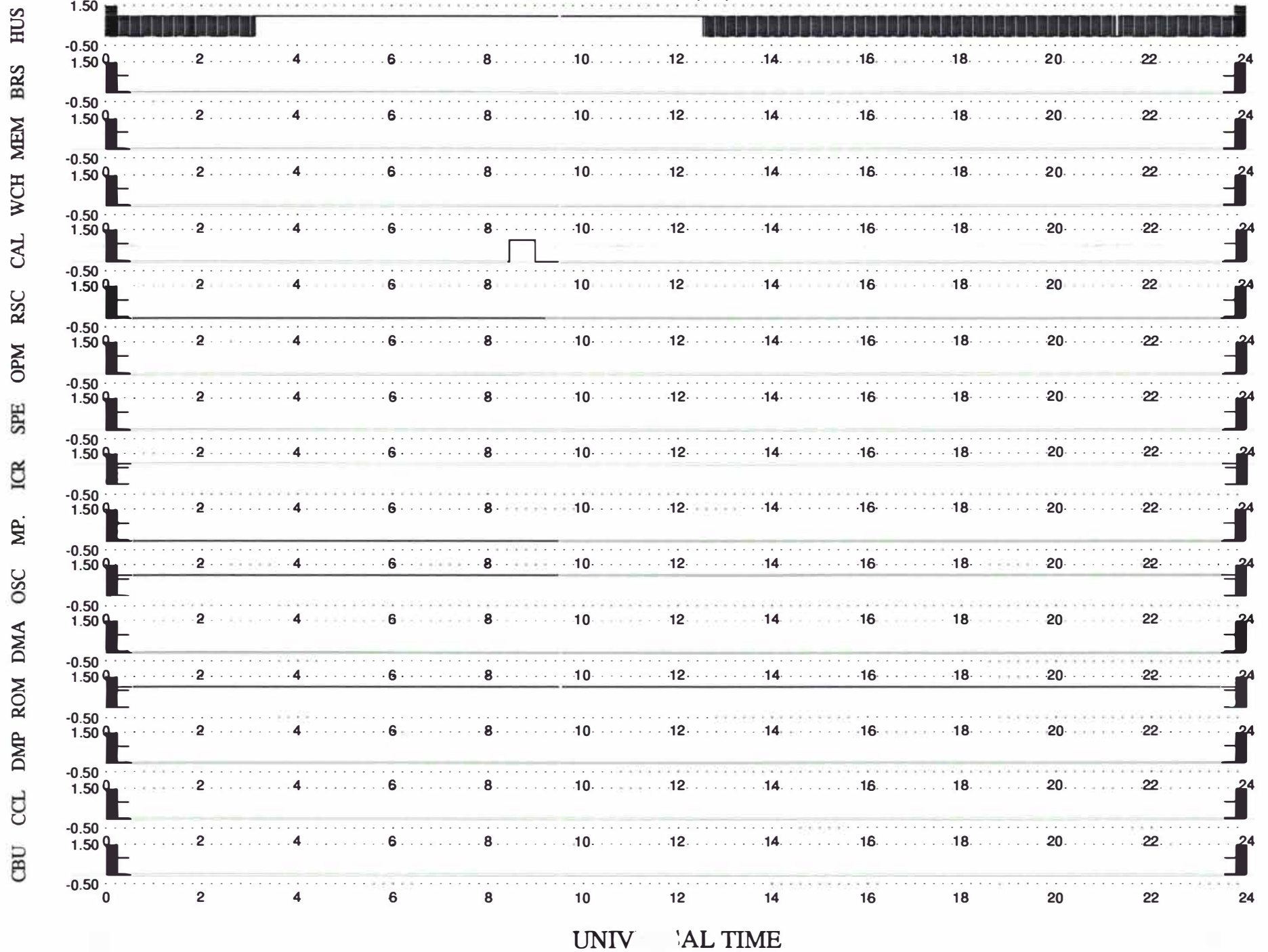
GOES 0.5 - 4.0 A

XRAY and OPTICAL DATA

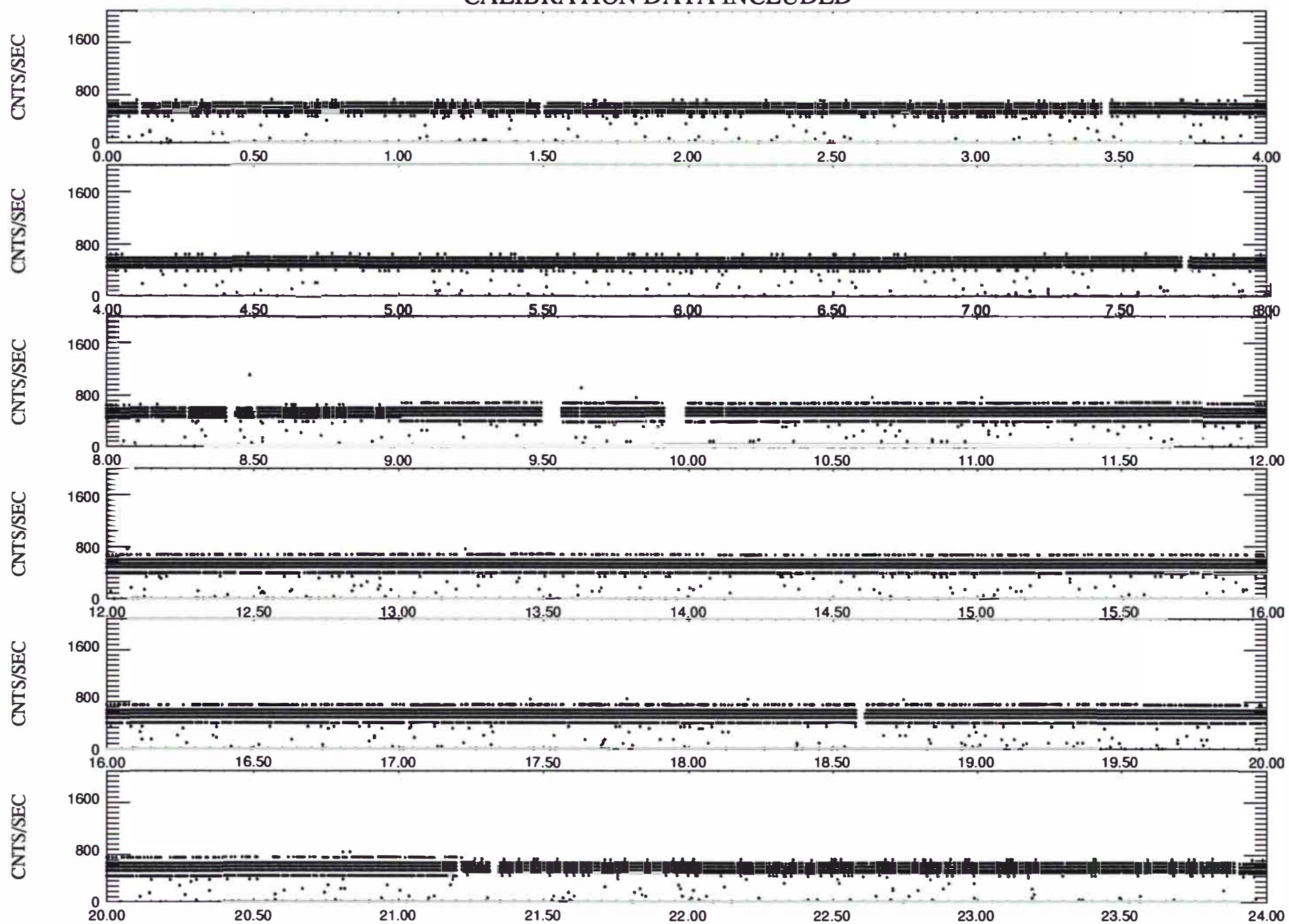
BEGIN: 21 OCT 91



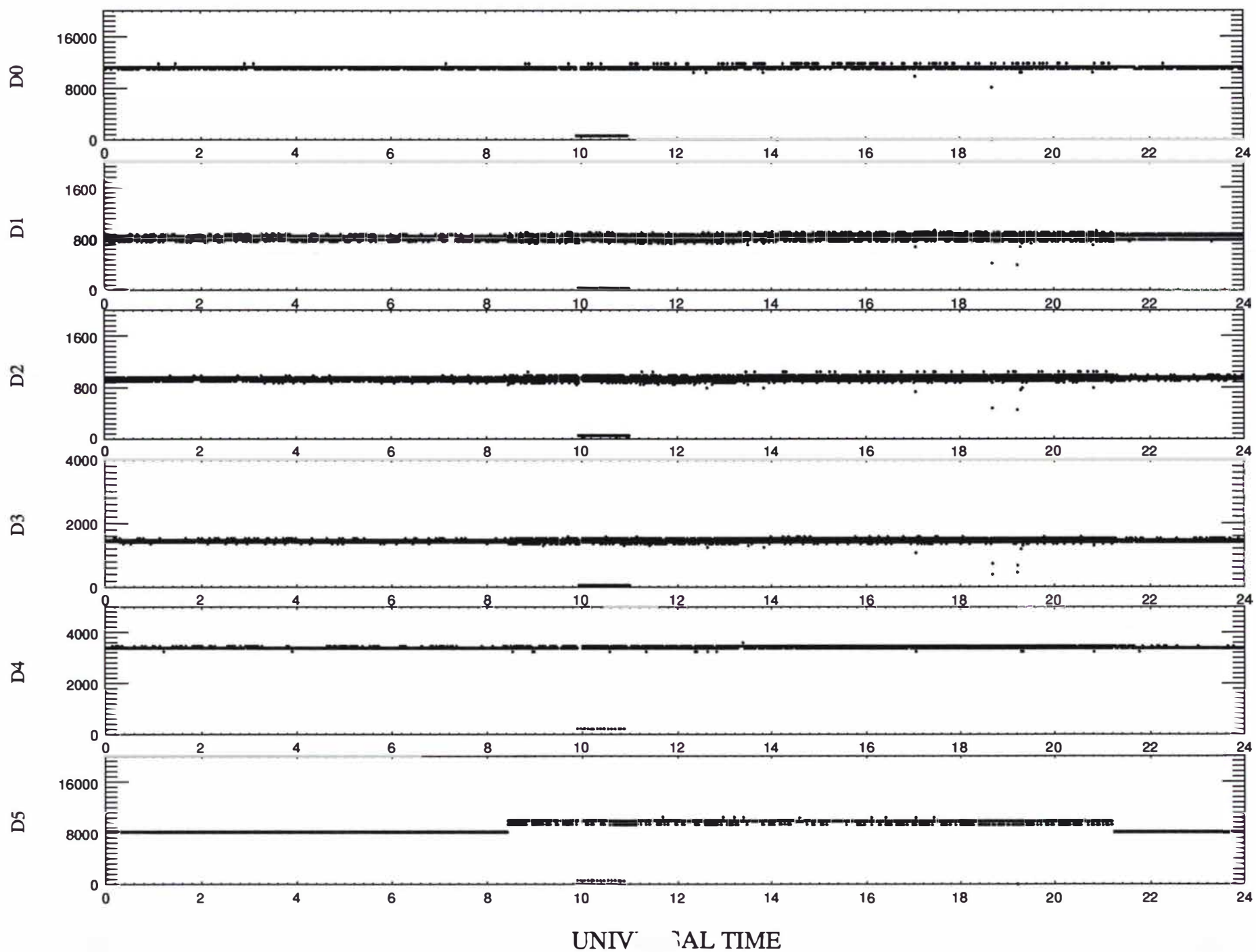
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV AL TIME



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

FAXCOVER

DANISH SPACE RESEARCH INSTITUTE

GL. LINDTOFFVEJ 7
DK-2800 LYNGBY
DENMARK

PHONE: +45 42 22 22 77 TELEFAX: +45 45 93 02 83 TELEX: 37198 dansk 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-GRANAT 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 separated by 1° , at $\alpha = 08^h 46^m$ $\delta = -38^\circ$ (1450.0)

Kind regards,

Alberto

First GRANAT/WATCH
Gamma-Ray Burst
Catalogue

1w 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	04:14:58
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	06:10:54
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	30:03:11
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	20:46:14

CANDIDATES

900415	06:20:58
900603	06:20:50
900616	03:56:50
900618	23:12:32
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	07:38:27
910816	01:57:40
920314	05:48:32
920721	13:00:49
920721	06:17:25

CATSEARCH PROGRAM

BATSE BURST # 914
EVENT OF 1991 OCT 22 DAY OF YEAR=295
EVENT CROSSING TIME AT BATSE : 15238. S. OR 04:13:58.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 115.500 68.200
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 22/10/ 91 IS:
RA= 162.714 DEC= 8.589 DIST= 5.129 AU
BATSE-ULYSSES DISTANCE = 767364224. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=112.84 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -993.38 SECS.
CROSSING TIME AT ULYSSES IS 14245. S. OR 03:57:24 +/- 444.48 SECONDS

RI

Helio corr removed

Date: Nov 24 '97

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? N/A

3. PVO Data

- ☐ Ephemeris of PVO used (not Venus)?
- ☐ 2000 coordinates used?
- ☐ Geocentric time used?
- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

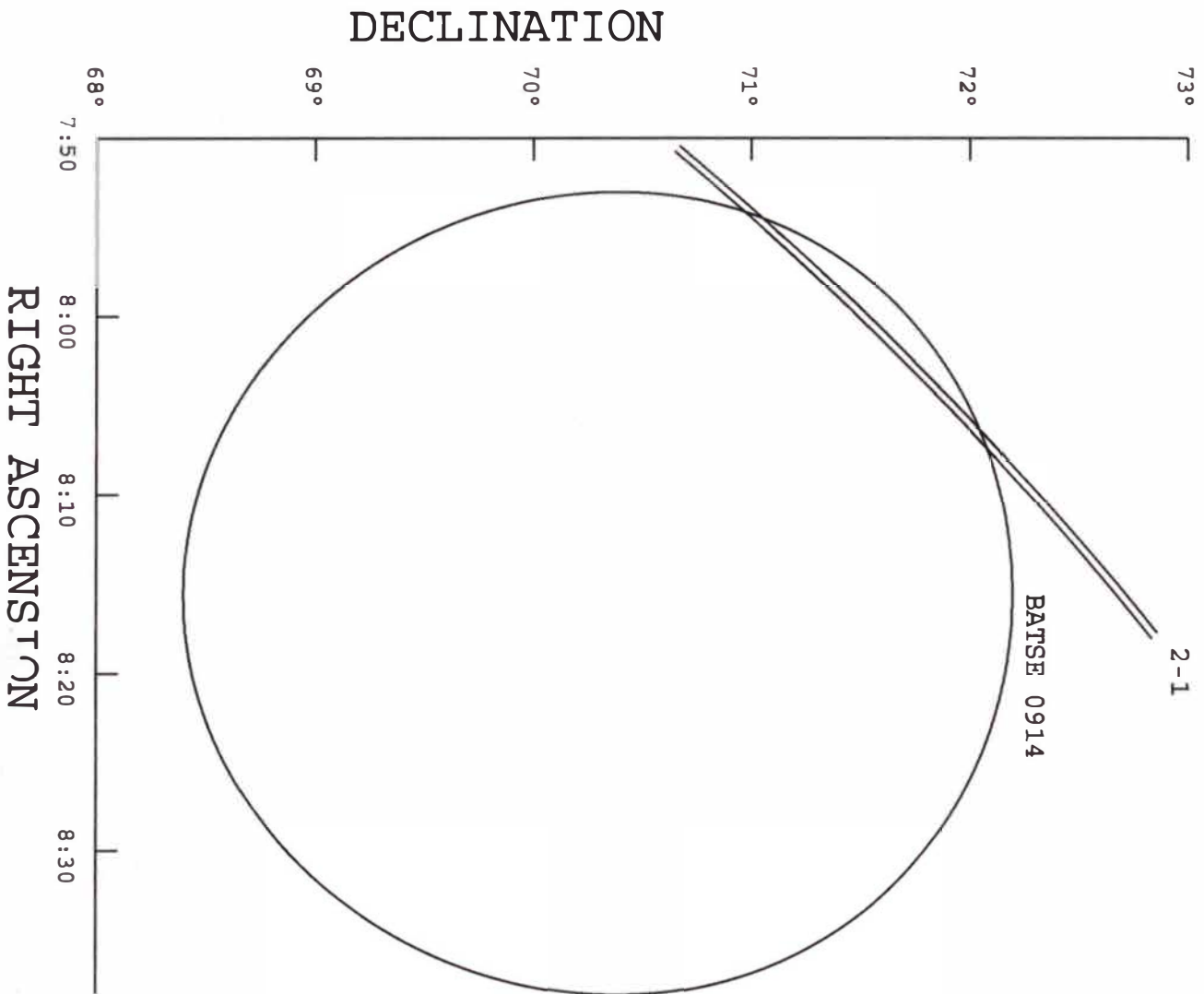
G=GALACTIC EQUATOR

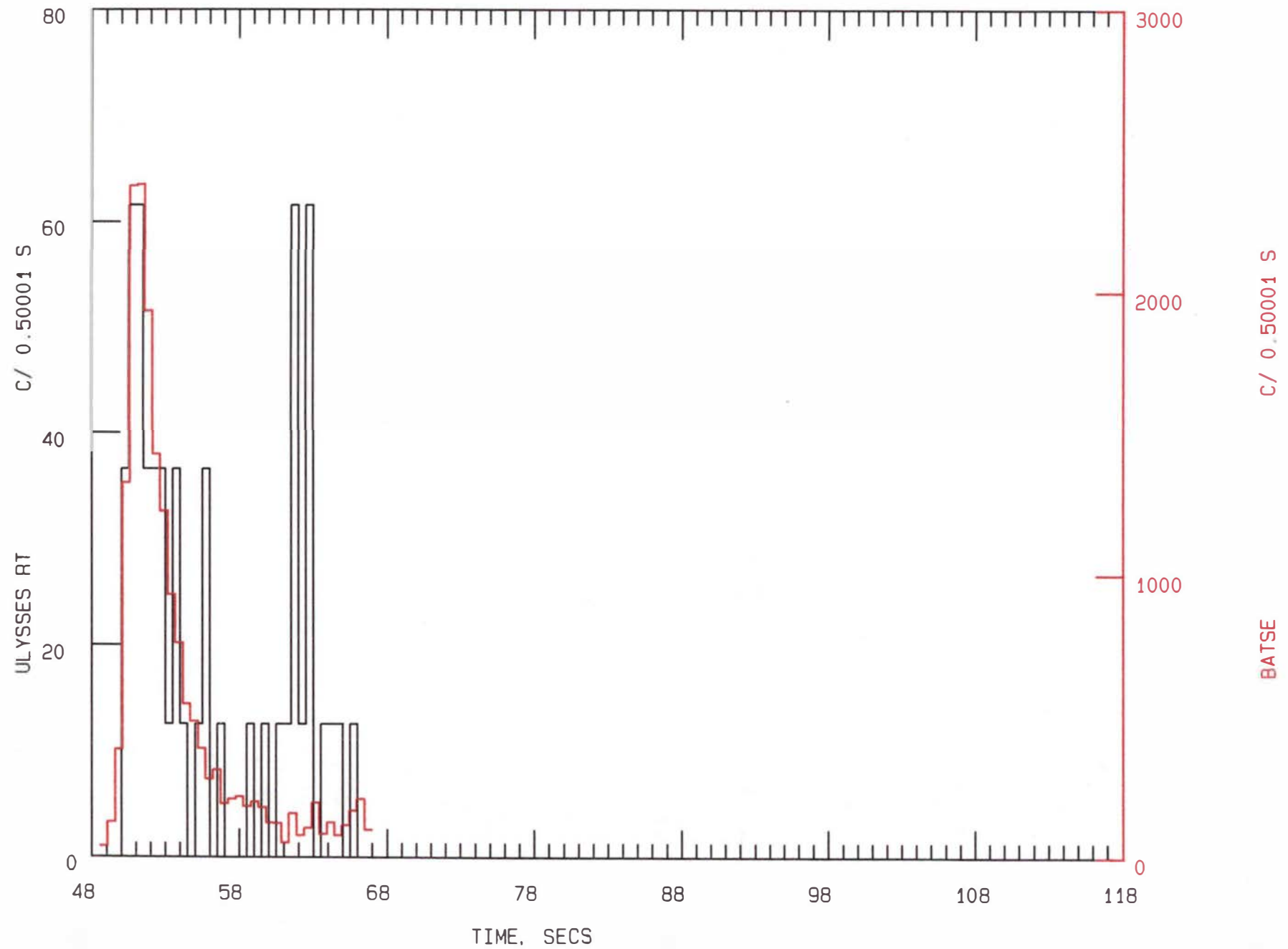
1 ULYSSES

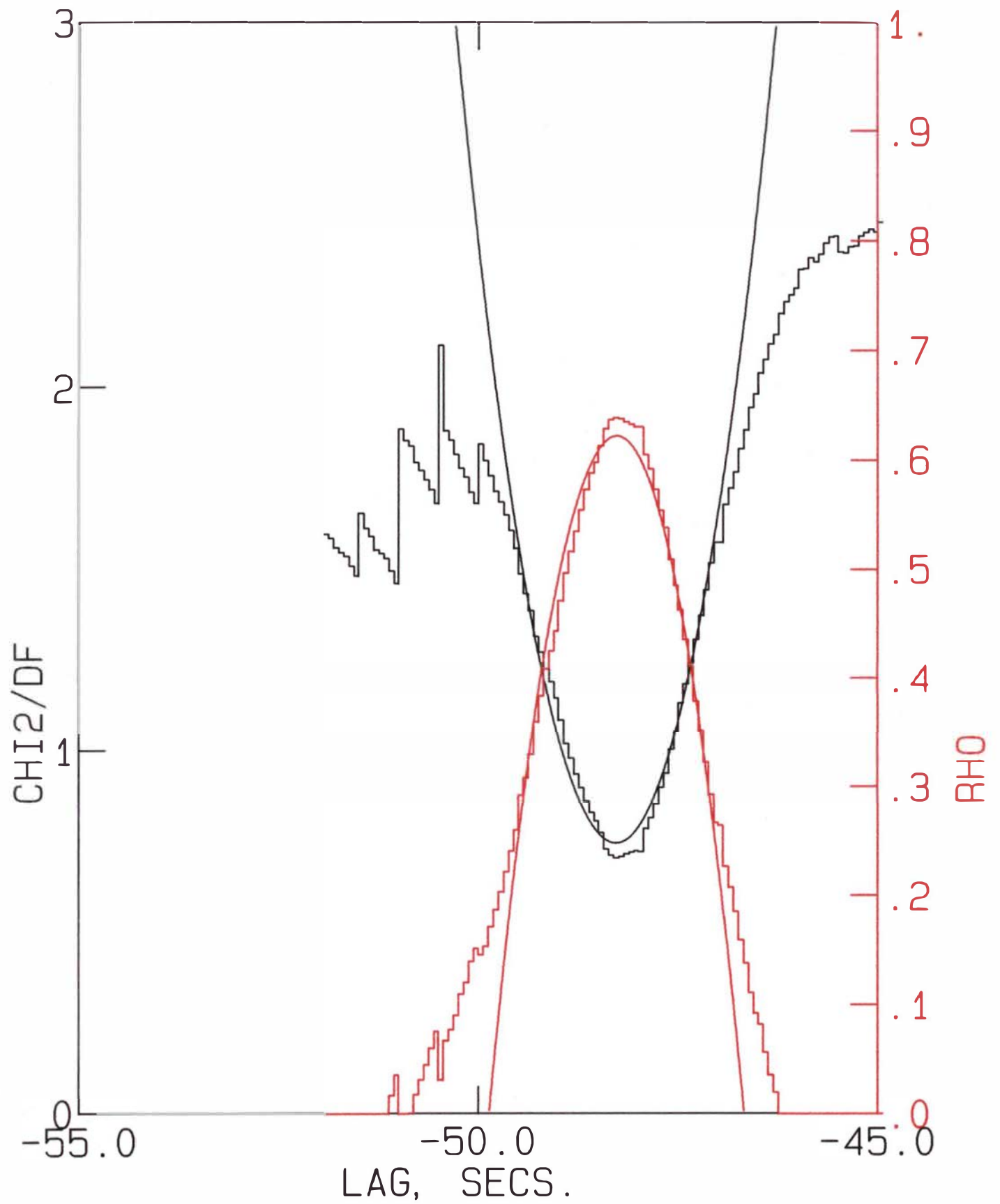
2 BATSE

EVENT OF OCT 22, 1991 3:57

24/11/97







ULYSSES RT

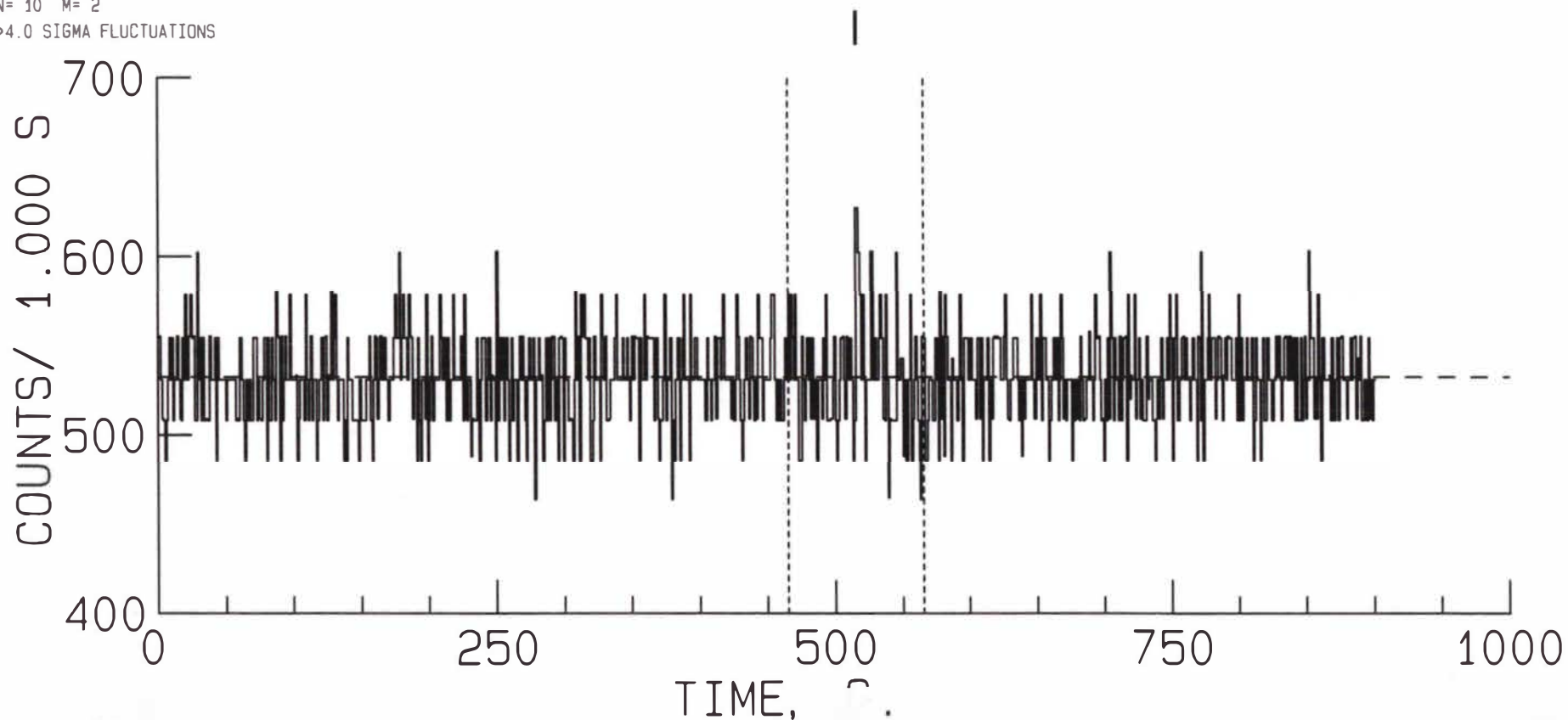
24 / 11 / 97

22/10/91 13788.103 s

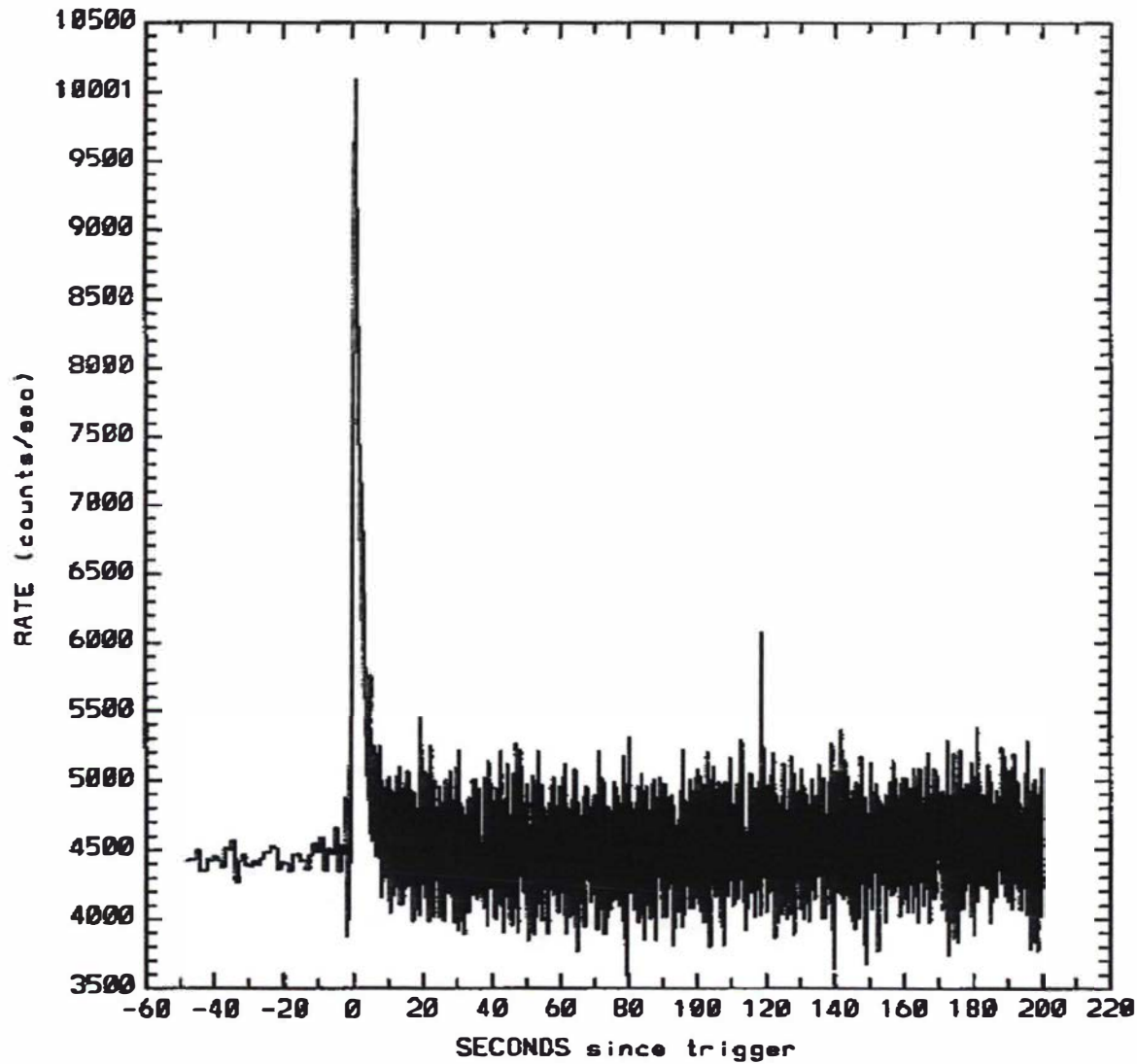
0.500 S INTERVALS REGROUPED BY 2

20- 164 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



DATA FOR K. HURLEY



29-JUL-1993 16:27:33

Created by MOPS BD
(Burst Display)
Version 2.10

To OK

Trigger # : 914

Trigger Time:
8551 / 15237.995

-27.047-

Burst Data Type:
DISCSC

45265.853

No

Deadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors (7..8):
00001010Discriminators:
1 1: 21Quality Mask:
BD(SPI)

BATSE

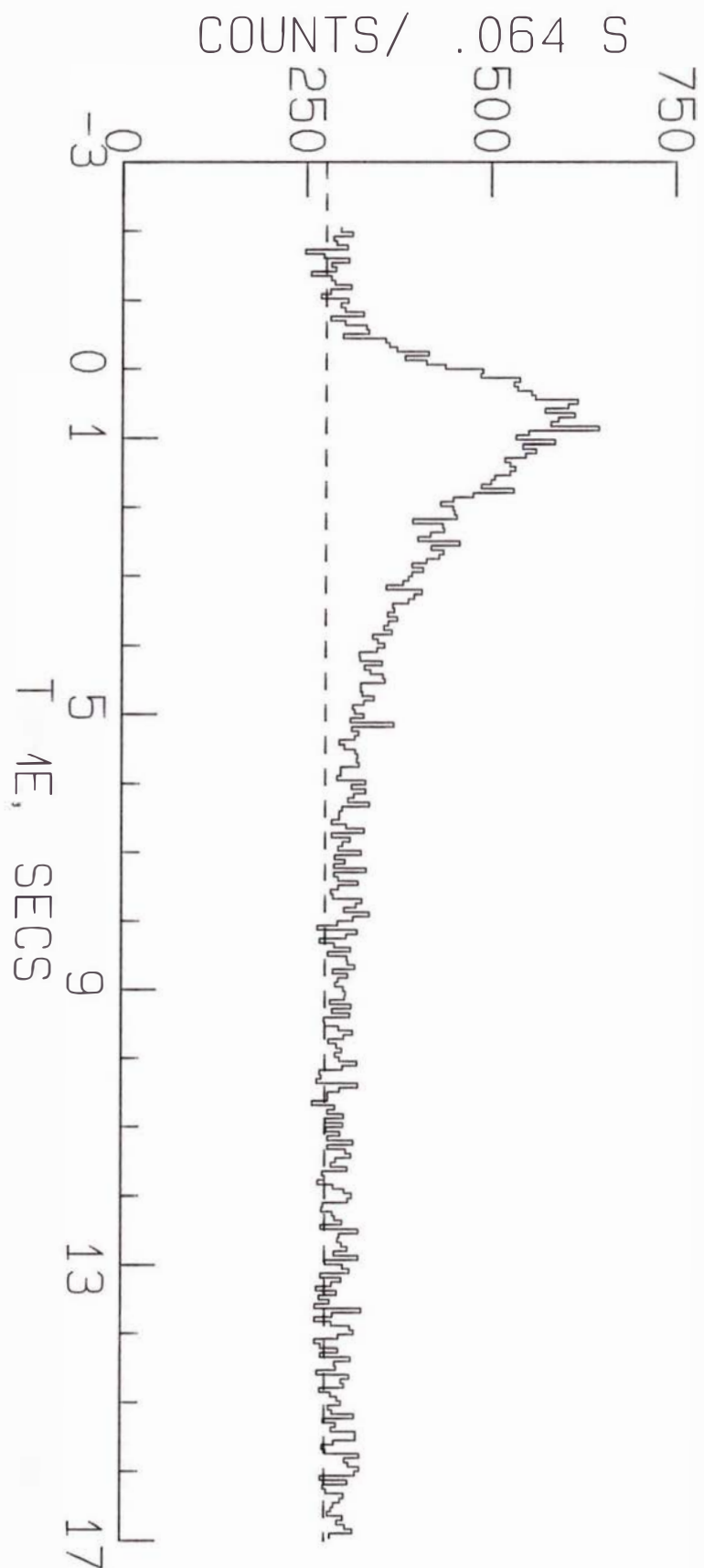
22/10/91

15237.995

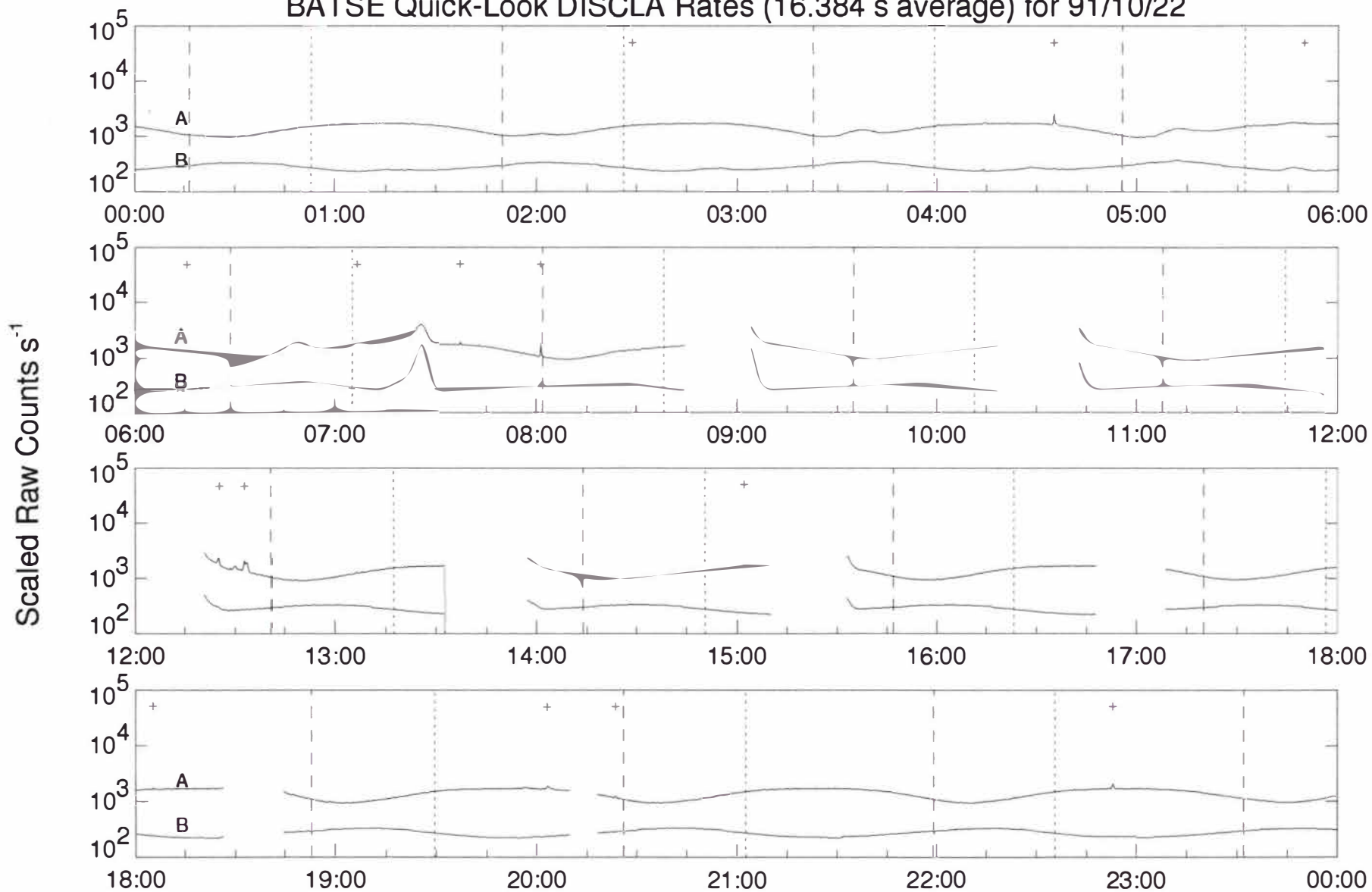
25- 100 keV

~~15237.995~~

NO - OK as is



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/22



Current Time: 92/10/31, 2000 EDT

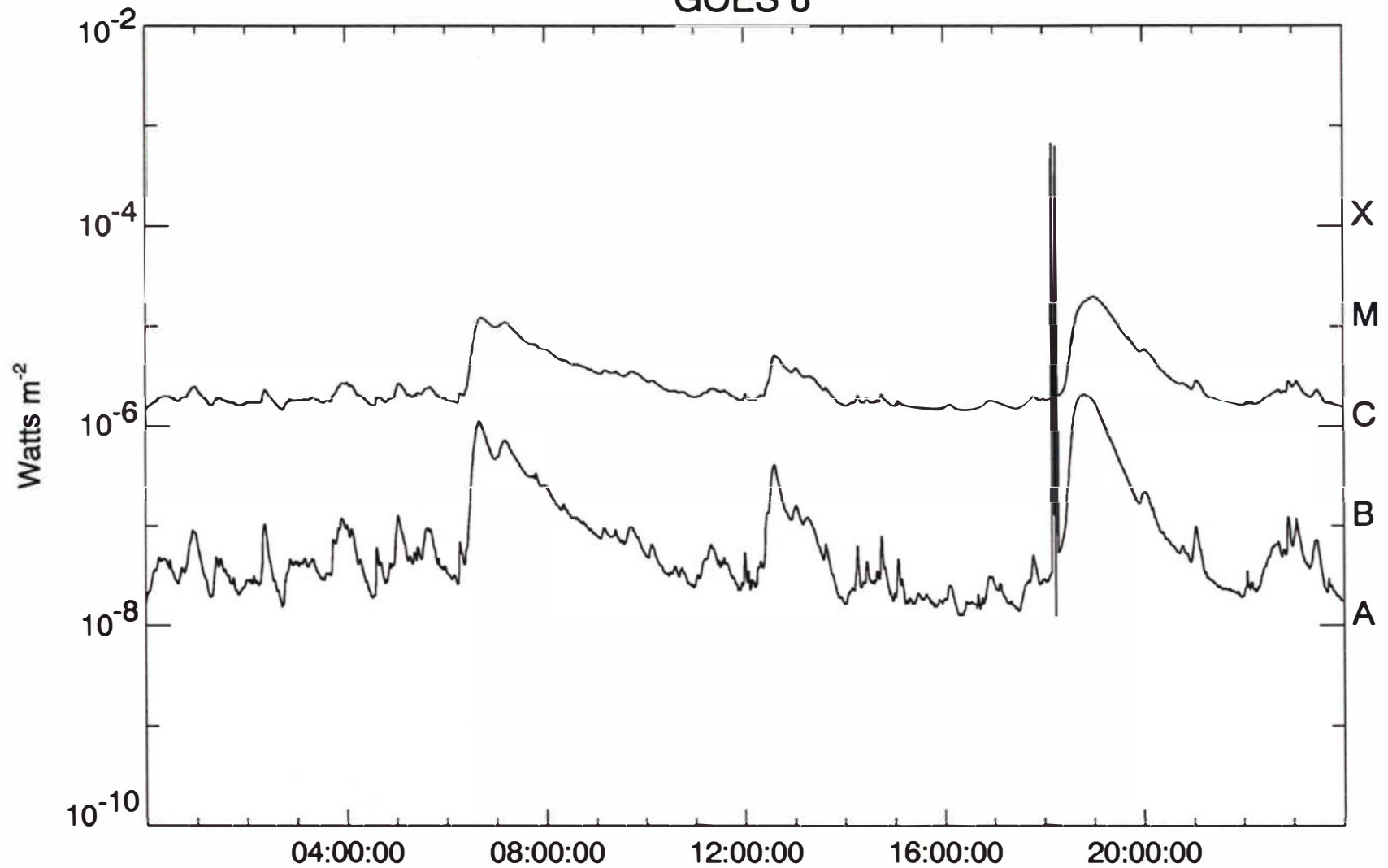
A: Channel 1 Most Sunward LAD

B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 6



Data Start: 91/10/22, 0000:00

Plot created: 97/10/14, 2357

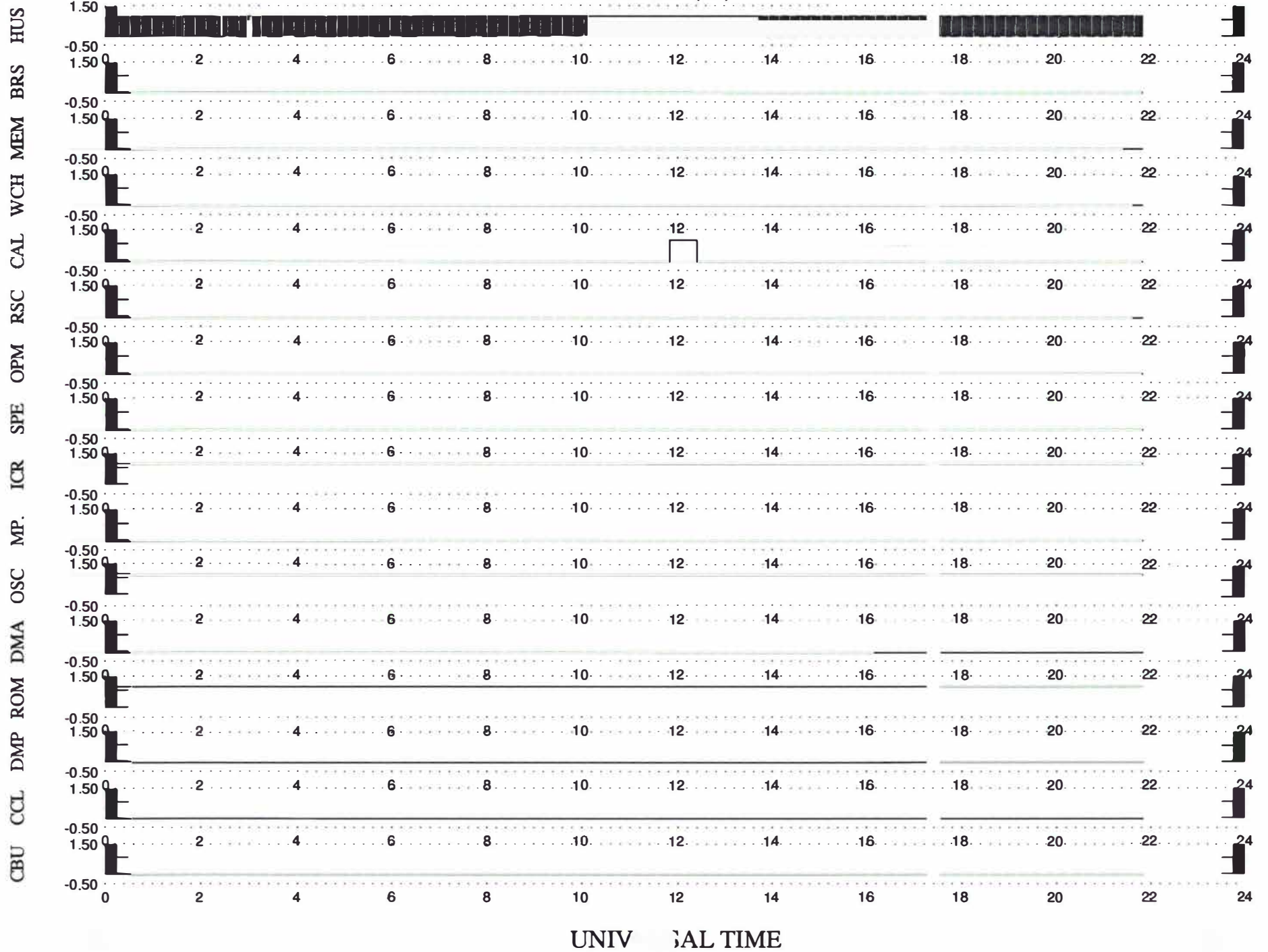
Channel

1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

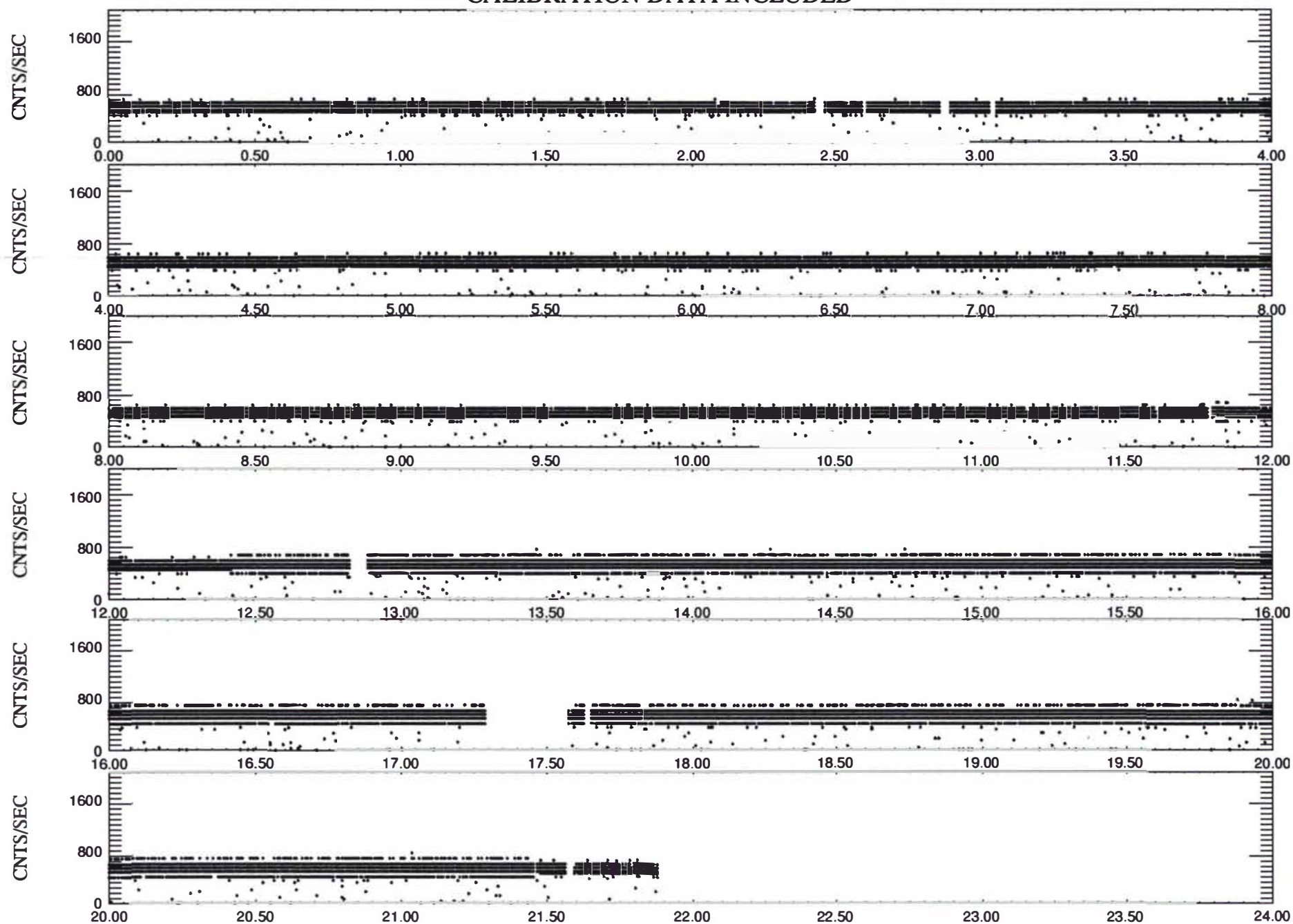
Background not subtracted
Background not subtracted

Sample average = 10

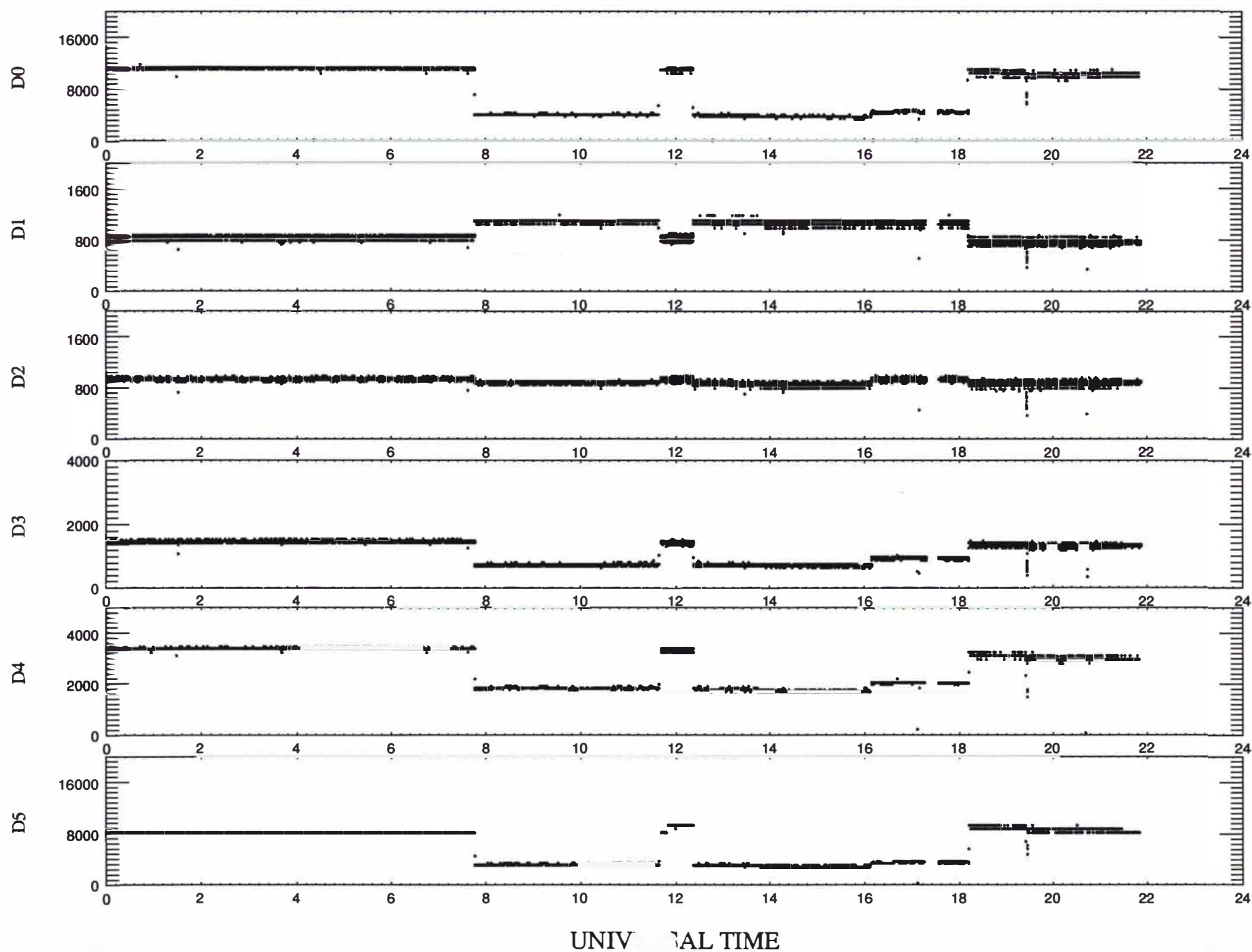
NO BURST (15)



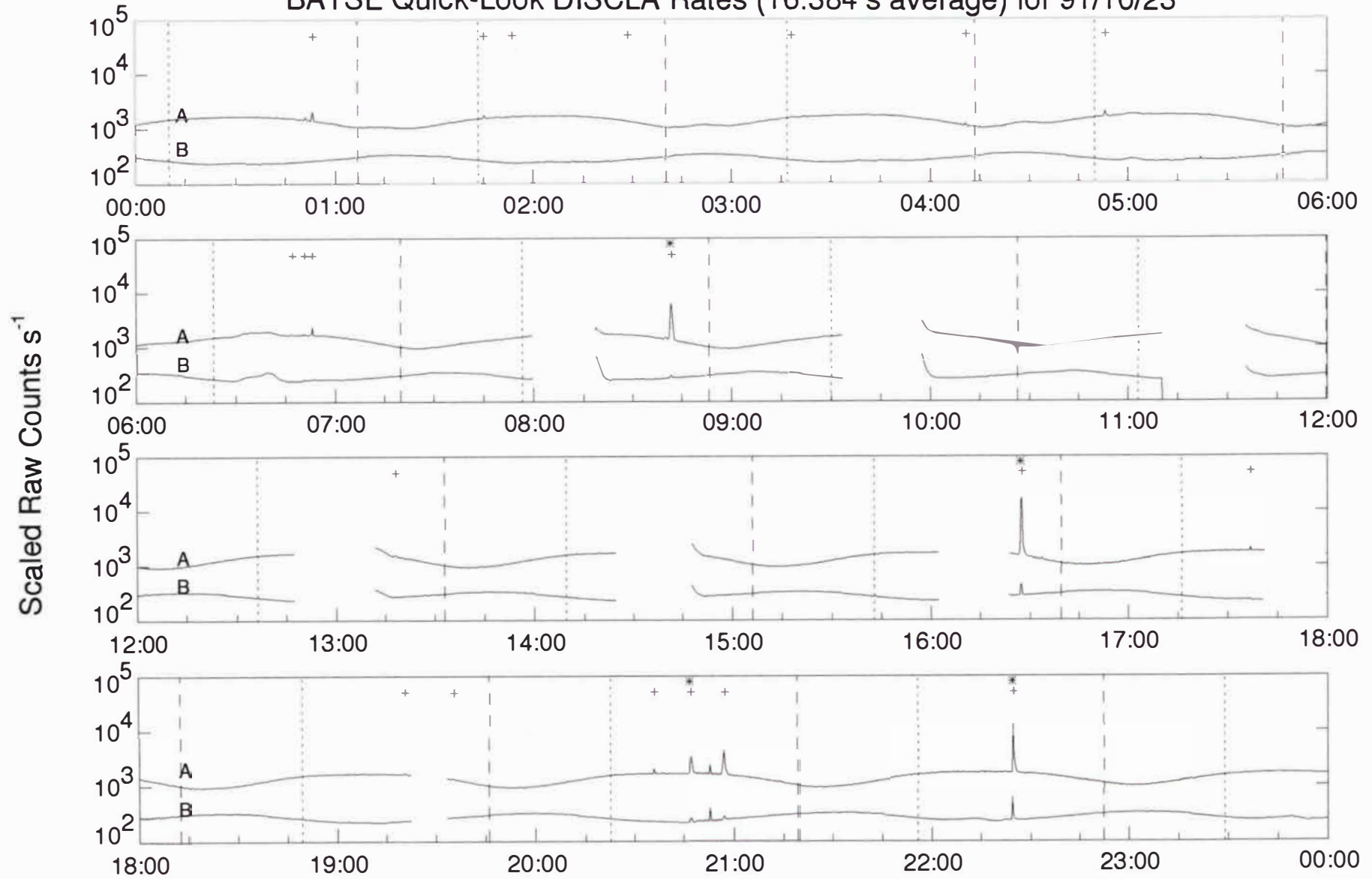
CALIBRATION DATA INCLUDED



UNIV TIME



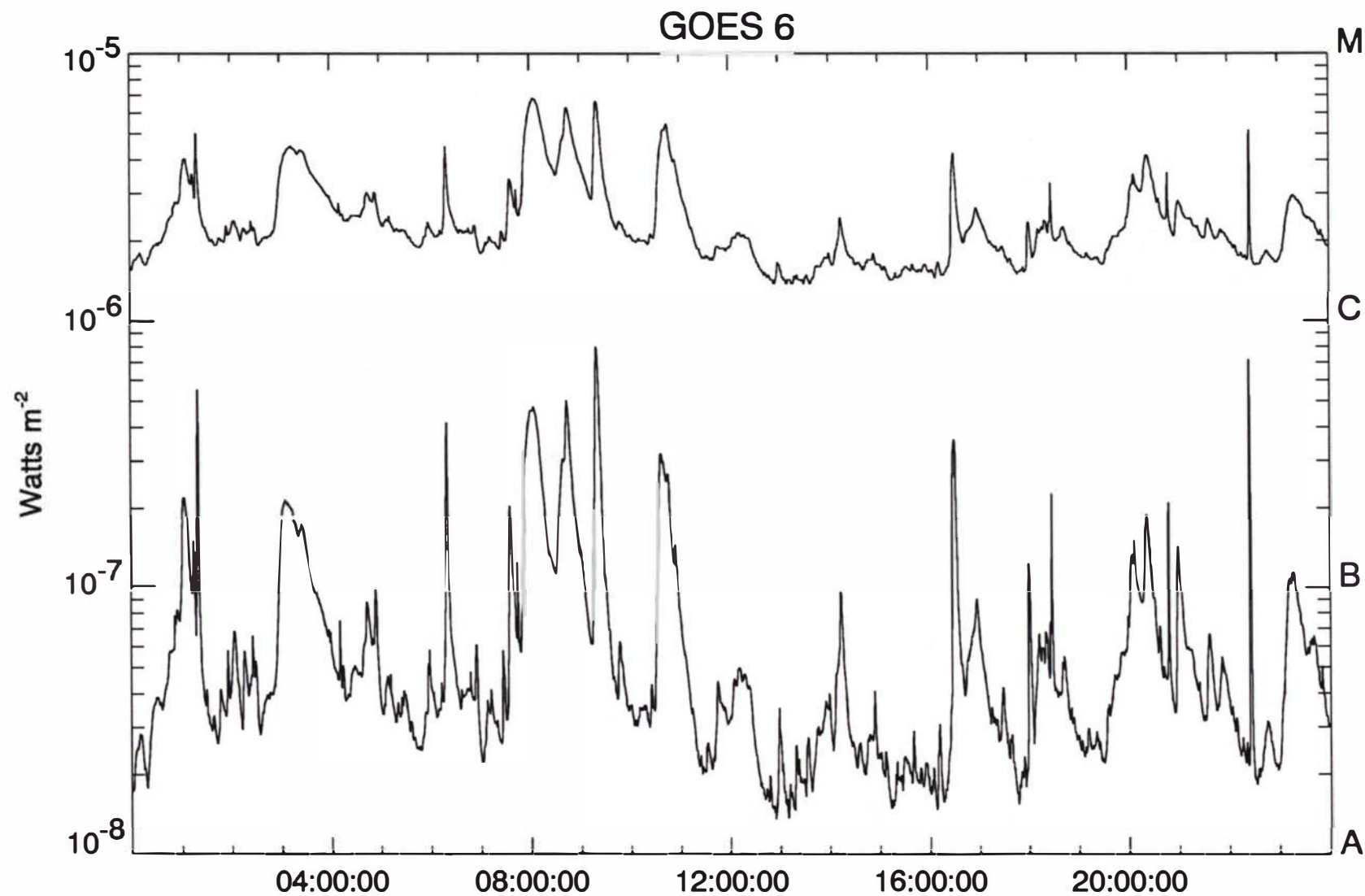
BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/23



Current Time: 92/10/31, 2001 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 91/10/23, 0000:01

Plot created: 97/10/15, 0001

Channel

1

(1.0 - 8.0 Angstroms)

Background not subtracted

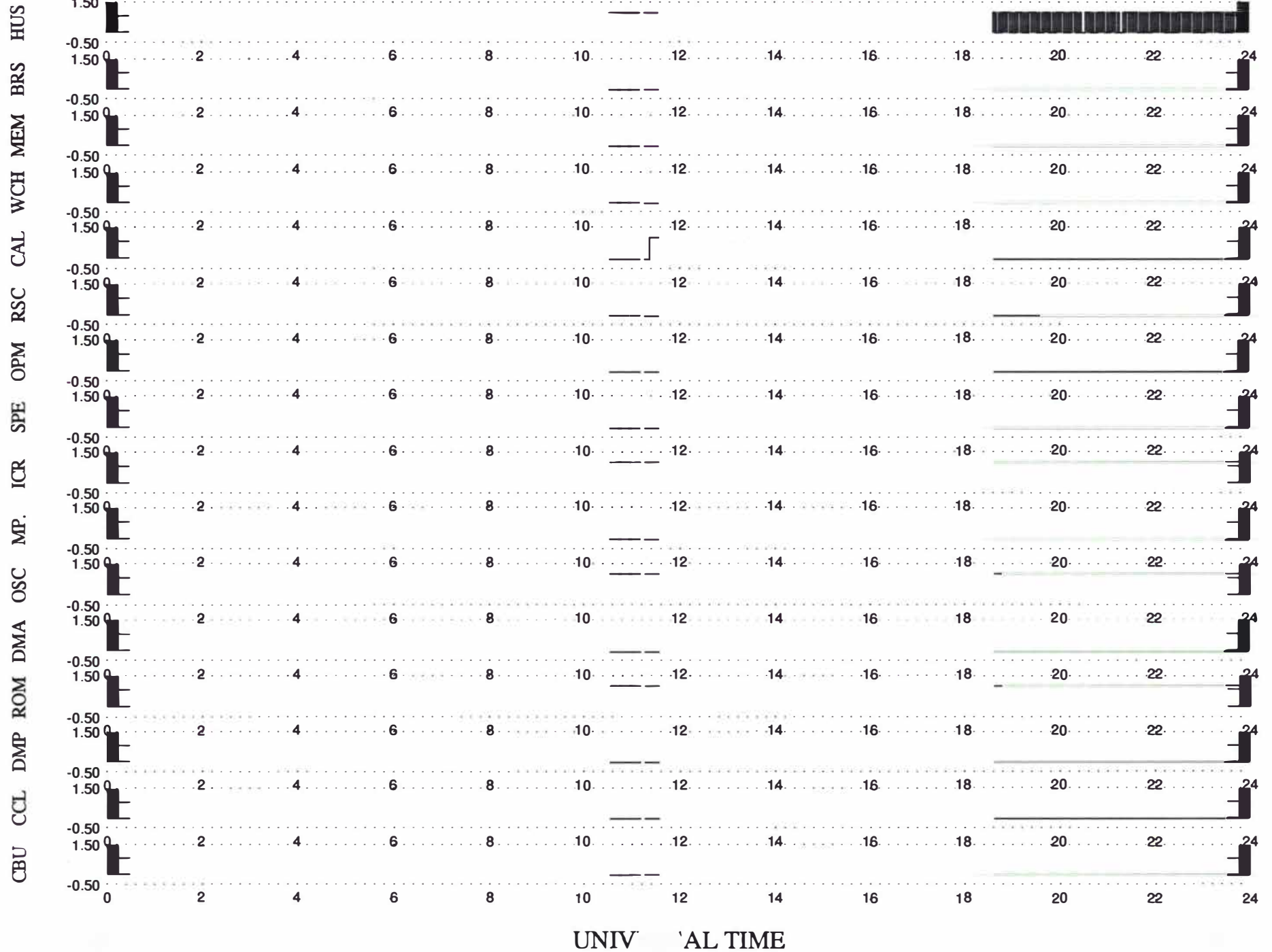
2

(0.5 - 4.0 Angstroms)

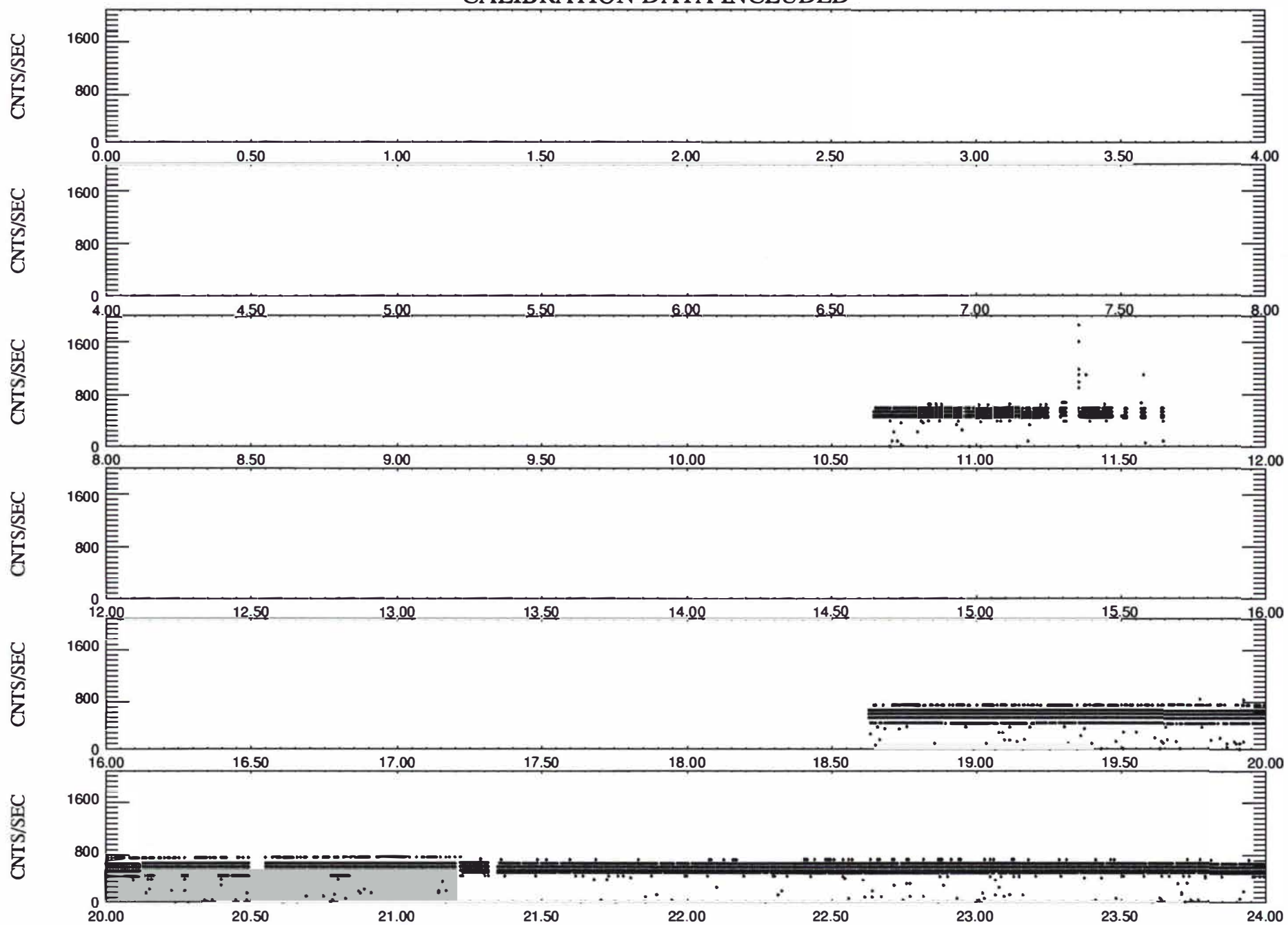
Background not subtracted

Sample average = 10

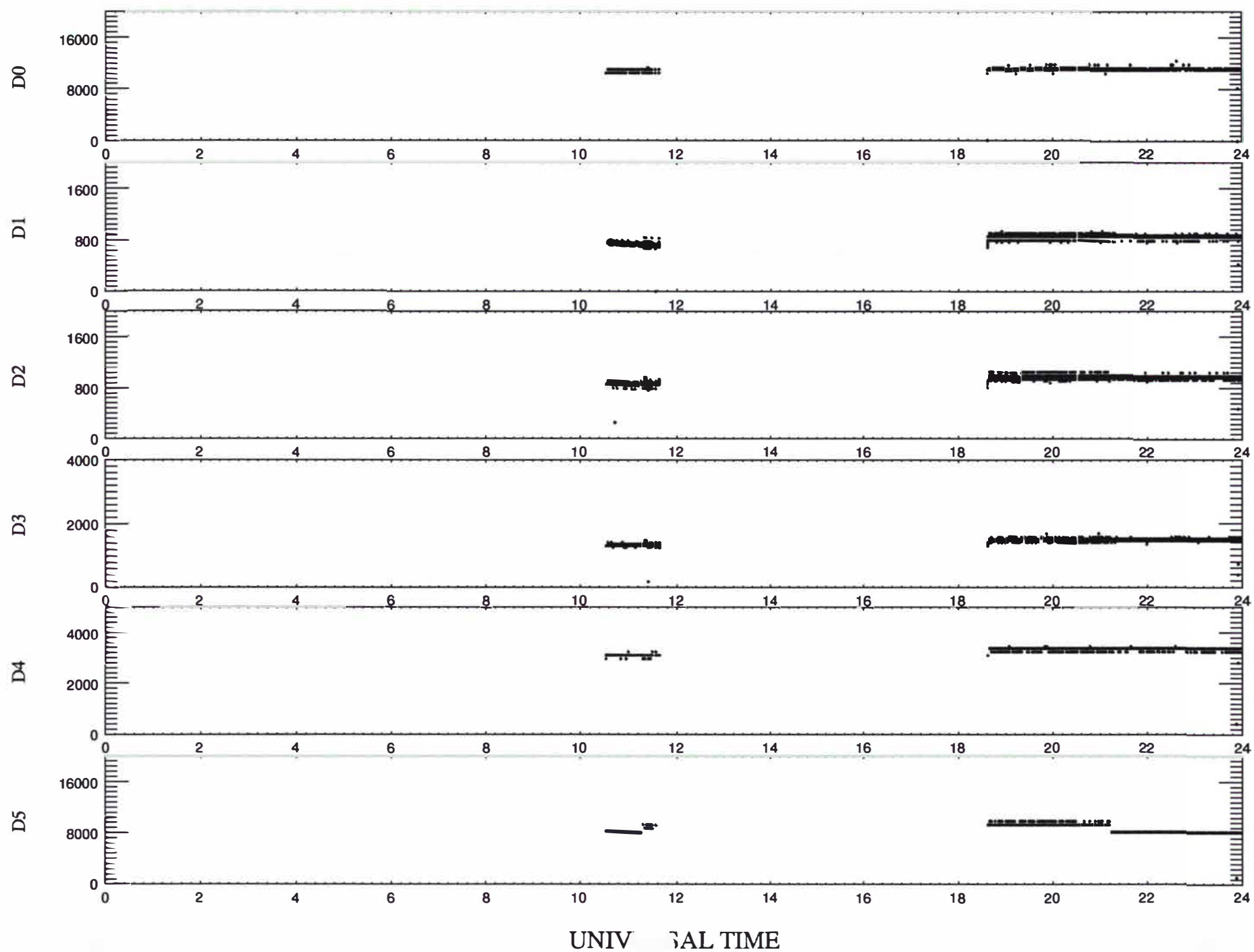
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



2 6 / 9 / 9 5

ULYSSES RT

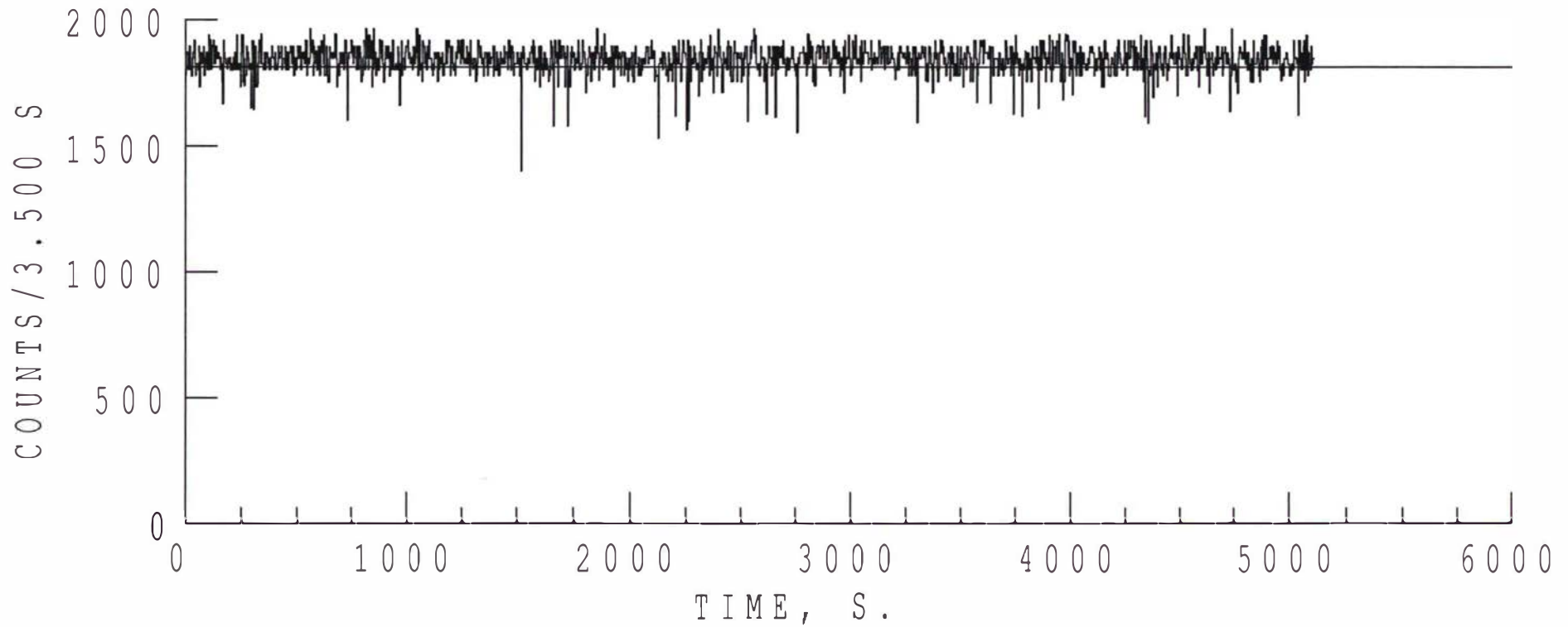
2 4 / 1 0 / 9 1 6 9 4 8 . 4 8 9 s

0 . 5 0 0 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From khurley@space6.ssl.berkeley.edu Tue Nov 23 08:45:15 1993
Date: Tue, 23 Nov 93 09:41:35
From: khurley@space6.ssl.berkeley.edu
Content-Length: 4895

Jim,

I've finally managed to get back to the DMSP localizations. I'm e-mailing you files for the following events: July 31 1992 and October 4 1992

I have not sent data for the following events:

May 19, 1992: I think that you have everything already. Let me know if that is not the case.

June 28, 1992: No Ulysses data due to the earthquake, which knocked out the tracking station.

June 29, 1992: There is no trace of this event in the Ulysses data. I would have said that it is solar, but the GOES data show no activity at this time. Also, there is a BATSE data gap around this time. This one is a mystery to me.

July 16, 1992: I'm pretty sure this one is solar; there was a strong GOES event at just this time. There is a BATSE data gap at the time, and Ulysses did not observe it.

Aug 5, 1992: Ulysses did not observe this event. Both BATSE and GOES report a strong solar flare at this time, so I think that is the explanation for this event.

Jan 6 1993: This is a nice-looking candidate in the DMSP data, but I haven't found anything corresponding to it in the Ulysses data. We had coverage at 0.5 s resolution, and I searched a window +/- 2100 seconds long around the DMSP time. No other spacecraft reported an event at this time, either.

And, on another subject, you mentioned a possible burst on Oct 24, 1991. Ulysses did not observe it, but the WATCH experiment aboard GRANAT observed solar particles at the time of this event.

SATELLITE POSITIONAL INFORMATION AND BURST ARRIVAL TIME

NO	NAME	DIST. FROM EARTH, KM.	ALPHA, DEG.	DELTA, DEG.
1	ULYSSES	926718236.0000+/-	23.8000000 154.29600+/-	.00003 3.69480+/-
2	DMSP	6800.0000+/-	50.0000000 .00000+/-	180.00000 .00000+/-

JULIAN DAY NUMBER IS 33815.22 DAYS SINCE 1900 JAN 0.5

20.00 BY 15.00 CM MAP FOR RA= .00 TO 360.00, DEC= -70.00 TO 70.00

INTERSATELLITE CORRELATIONS

SEPARATION BETWEEN SATELLITES 1 AND 2 IS 3091.21926 LIGHT SECONDS. TIME DELAY IS
CORRELATION BETWEEN SATELLITE 1 (ULYSSES)) AND SATELLITE 2 (DMSP)

From ajct@dsri.dk Wed Nov 17 05:36:33 1993
Date: Wed, 17 Nov 93 14:37:25 +0100
From: Alberto Castro-Tirado <ajct@dsri.dk>
To: khurley@sunspot.ssl.berkeley.edu
Content-Length: 1222

Added to MBL

Dear Kevin

I have checked (until 25 Sep 1992) all the events in the GRB Master List (ML) you compiled. According to WATCH, the origin of the next events as real GRB is doubtful.

Date	U.T.	in WATCH	comment
17 Apr 91	20:07:32	particle event	confirmed(?) in the ML
24 Oct 91	02:38:20	" "	unconfirmed in ML
26 Oct 91	15:28:49	" "	"
11 Feb 92	04:22:53	solar flare	"
21 Mar 92	12:50:53	event at 13:00:49	"
11 Jul 92	16:09:00	particle event	confirmed(?) in the ML

The two confirmed events are seen as particle events in WATCH. It could be a coincidence, but the probability is low. They were seen by Ulysses, so maybe we can compare the light curves.

We also will send you a list of the 70 events of the 1W Catalogue (Lund et al. 1994). 32 of them are localized and the rest (38) were detected by other experiments (not only WATCH).

By the way, did you get my two E-mails concerning GRB 911018 and GRB 920714 (a possible second peak 30 minutes after the first event)?

Kind regards,

Alberto Castro-Tirado
17 Nov 1993

CATSEARCH PROGRAM

BATSE BURST # 927
EVENT OF 1991 OCT 24 DAY OF YEAR=297
EVENT CROSSING TIME AT BATSE : 72606. S. OR 20:10:06.3
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 199.900 33.400
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 24/10/ 91 IS:
RA= 163.034 DEC= 8.462 DIST= 5.122 AU
BATSE-ULYSSES DISTANCE = 766243720. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=137.87 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1895.58 SECS.
CROSSING TIME AT ULYSSES IS 70711. S. OR 19:38:30 +/- 318.87 SECONDS

NO

14 / 4 / 93

ULYSSES RT

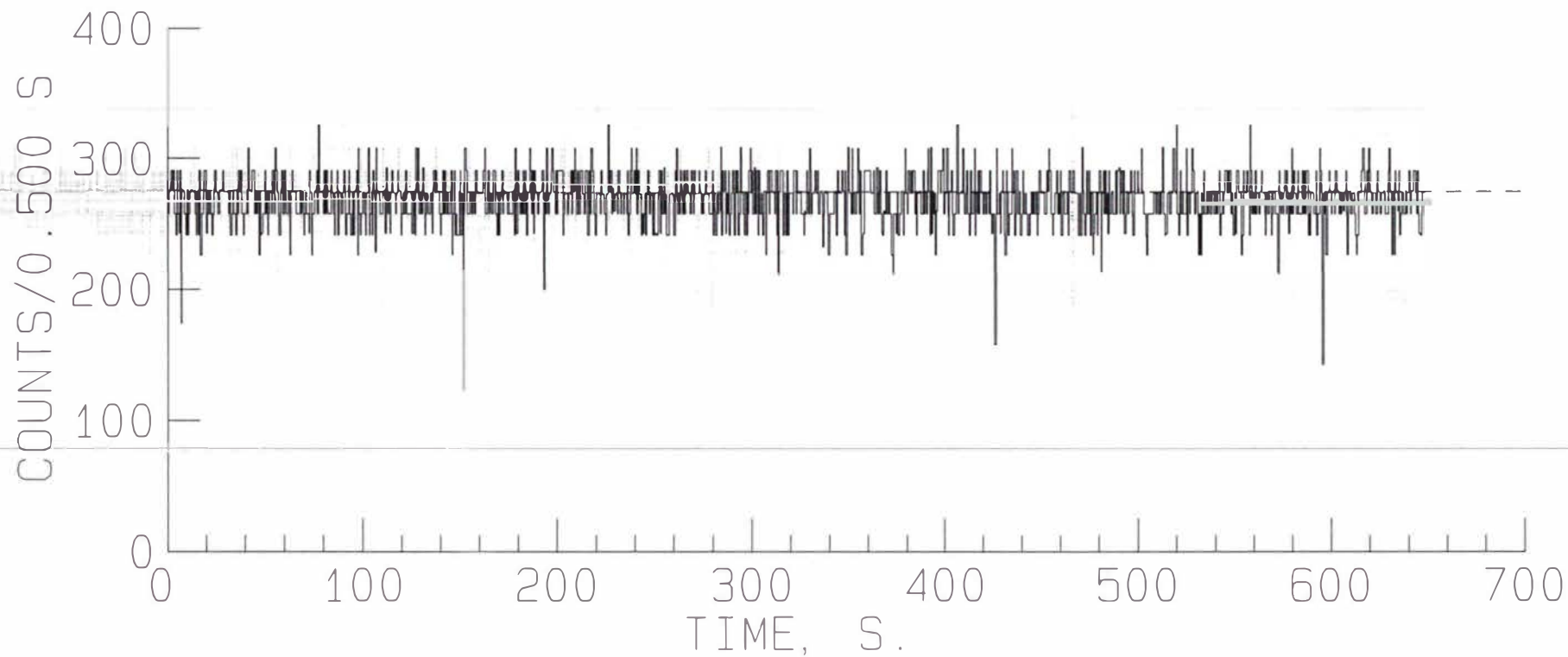
24/10/91 70380.086 s

0.250 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From root Thu Feb 3 13:55 1994
 Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
 id AA00852; Thu, 3 Feb 94 13:55:12
 Received: from SSTDP2.LANL.GOV by sunspot.ssl.berkeley.edu (5.0/SMI-SVR4)
 id AA13978; Thu, 3 Feb 1994 12:59:12 +0800
 Date: Thu, 3 Feb 1994 14:00:37 -0700 (MST)
 From: 046369@SSTDP2.LANL.GOV
 To: KHURLEY@space6.ssl.berkeley.edu
 Message-Id: <940203140037.23c05074@SSTDP2.LANL.GOV>
 Subject: DMSP OBSERVATIONS OF GRO GRB
 Content-Length: 2739
 Status: R

FROM: SMTP%"TERRELL@ESSDP2.LANL.GOV" (ESSDP2::TERRELL) (JAMES TERRELL 94/02/03)
 TO: SSL::KOUVELIOTOU AND GIBSON::COLE (CHRYSSA KOUVELIOTOU AND STAYCE COLE)
 CC: SMTP%"KHURLEY@SPACE6.SSL.BERKELEY.EDU" (KEVIN HURLEY)
 SUBJ: DMSP OBSERVATIONS OF GRO GRB

Chryssa and Stayce:

Thanks very much for the listing of strong Batse bursts sent to me 11/1/93.
 I have now managed to check all of them against DMSP data, and find that
 many of them were also detected by DMSP8,9,10, or 11. Probably the higher percent
 of detections in recent data is due to more extraction of full data. In many
 cases such added effort would not be necessary if source direction
 (and consequent obscuration of some DMSP satellites) were known to me.
 I would appreciate data on more strong events. Here is the present list:

NOTES:

NA: Not apparent in 20-second averaged data (extracting the 2-sec data is
 a more time-consuming task, not undertaken in every case).
 NA?: Some slight indication of a peak in 20-second averaged data.
 SA: South Atlantic Anomaly, obscuring data with high background rates.
 SR: South Radiation Belt background.
 NR: North Radiation Belt background.
 ND: No data for this time.
 YES: Burst definitely detected by one or more DMSP satellites (8,9,10,11).
 NO: No evidence of a peak in 2-sec data. (NO/OBSC: Obscured by Earth)

DATE	UT	DMSP
910421	33245	8NO 9SR 10NR
910627	16159	8NA 9NR 10ND
910629	71750	8NA 9SR 10NA
910703	18225	8NA 9NA? 10SR
910717	16386	8NA 9SA 10SR
910718	76051	8NA 9SA 10SA
910802	2718	ND
910814	69275	ND
911024	76208	ND
911104	54283	YES--54286 PEAK
911109	12459	8NO 9NR 10NO
911118	68260	ND
911119	23343	YES--23342
911126	46129	8SR 9SR 10NO
911127	15730	YES--15739
911202	73731	YES--73733
911209	66959	8SR 9SR 10NR 11ND
920226	29730	8SA 9NA? 10SA 11SA
920229	69769	8SR 9ND 10NA 11NA
920311	8246	YES--8431
920315	15569	8NA 9NR 10NA 11NA
920325	62258	YES--62256
920404	47506	8NA 10NA? 11NR
920406	9855	8NO/OBSC 10SR 11SR/OBSC
920414	84163	NA
920517	11877	YES--11883
920525	12423	YES--12427

920622	25504	8SA 10NR 11SA
920627	46956	NA
920711	53140	YES--58157
920718	77563	8NA 10SA 11NA
920720	11524	8NA/OBSC 10NA/OBSC 11SR
920824	39183	YES--39186
920902	1736	YES--1743
921009	24070	YES--24073
921022	55259	8ND 10NA 11NA
921123	22711	YES--22727
921123	46583	YES--46542
921207	57647	YES--57649
921209	41738	8NR 10NA 11NR
930106	56259	YES--56260
930110	6698	8NA 10NR 11NA
930120	84700	YES--84779
930131	68231	YES--68231
930201	60115	YES--60129
930309	11269	NA
930329	11365	8NA 10SR 11NA
930405	32089	YES--32105
930406	26185	8NA 10NR 11NA
930428	04032	8NA 10NA 11SR
930506	53571	YES--53578
930506	65631	NA

DMSP Data From CK (v. + Terrell)

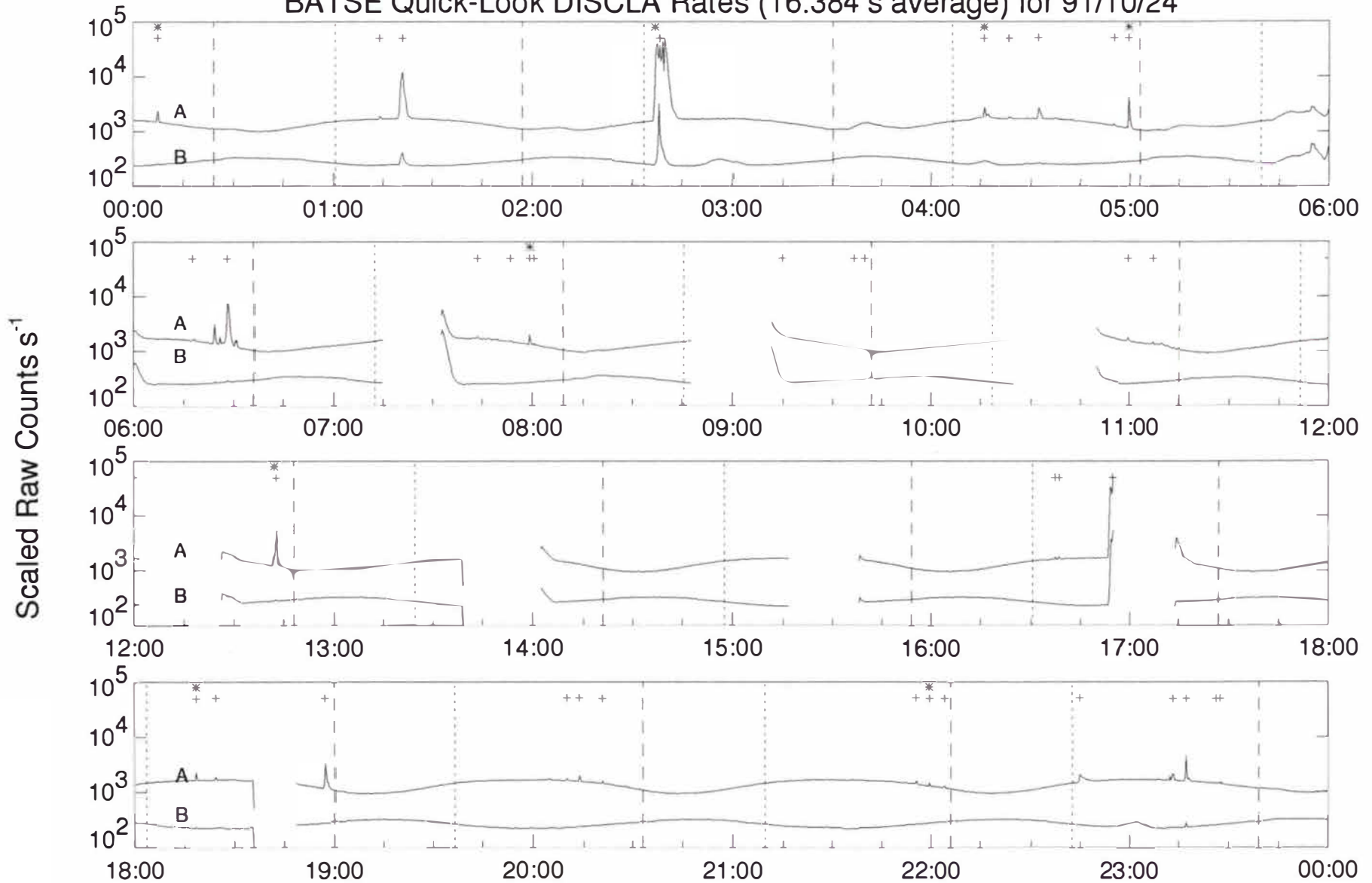
Jan 28 '91

Oct 24 9500s (spike)

Nov 17 7100s

Nov 9 75100

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/24

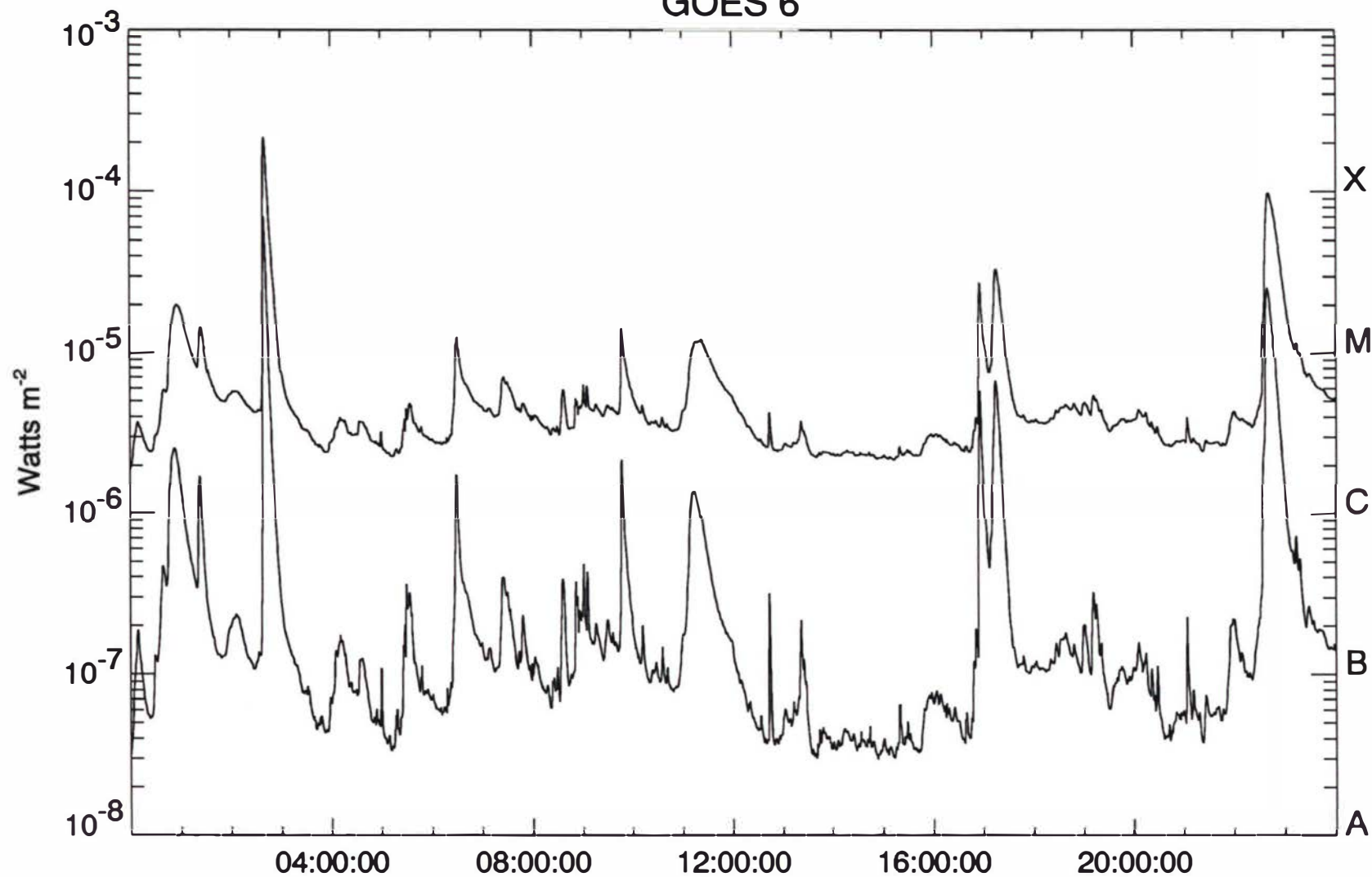


Current Time: 92/10/31, 2002 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/24, 0000:02

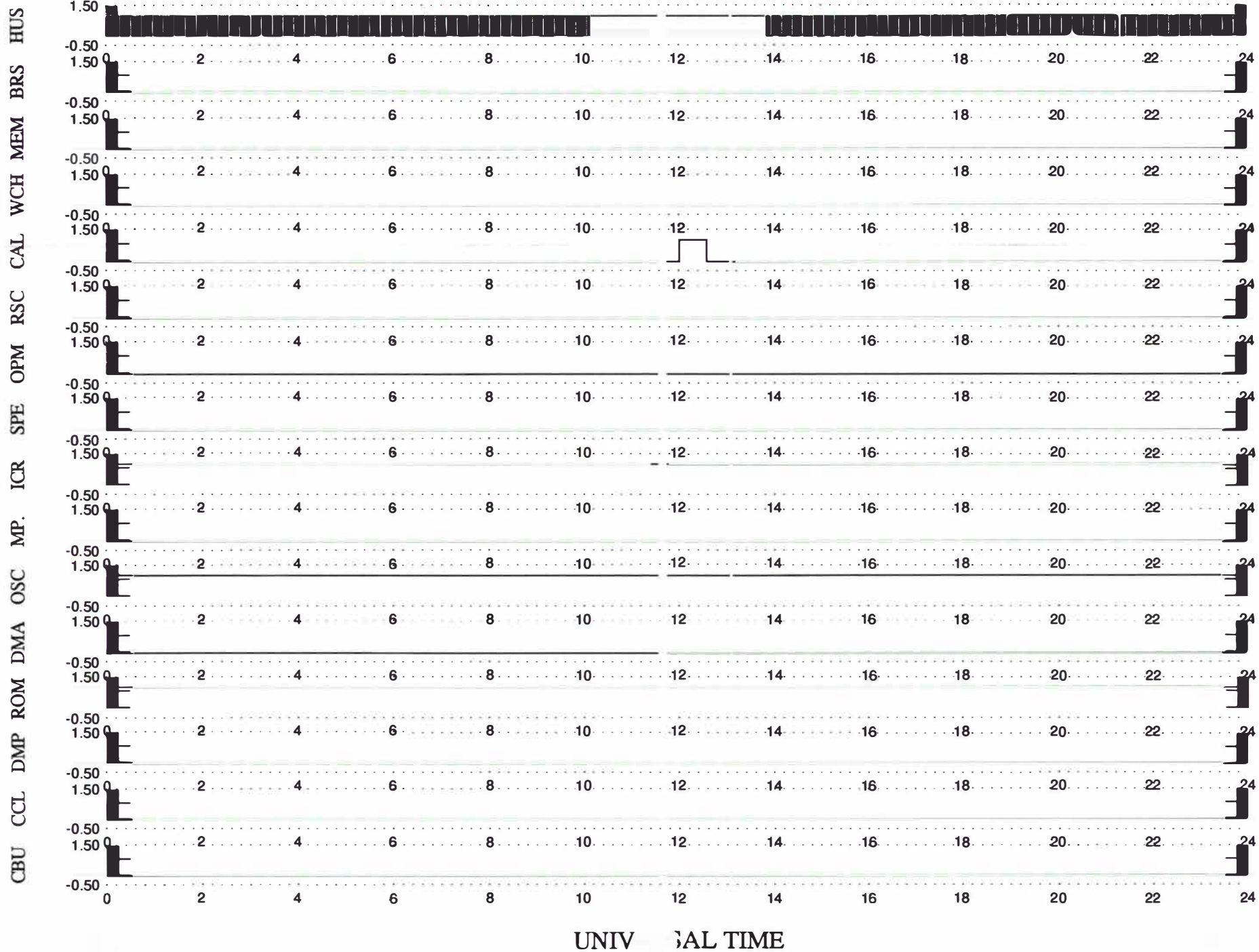
Plot created: 97/10/15, 0005

Channel

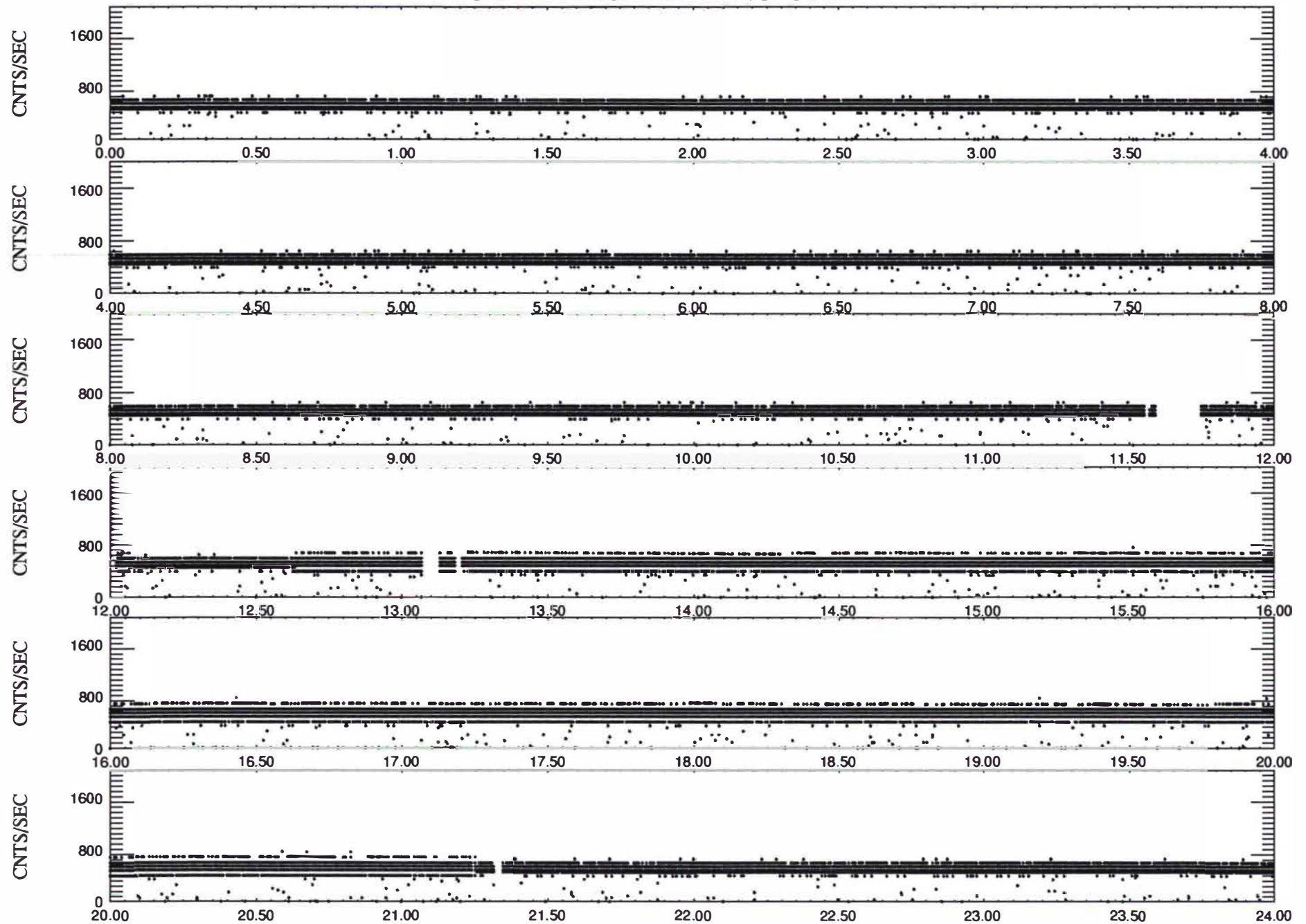
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

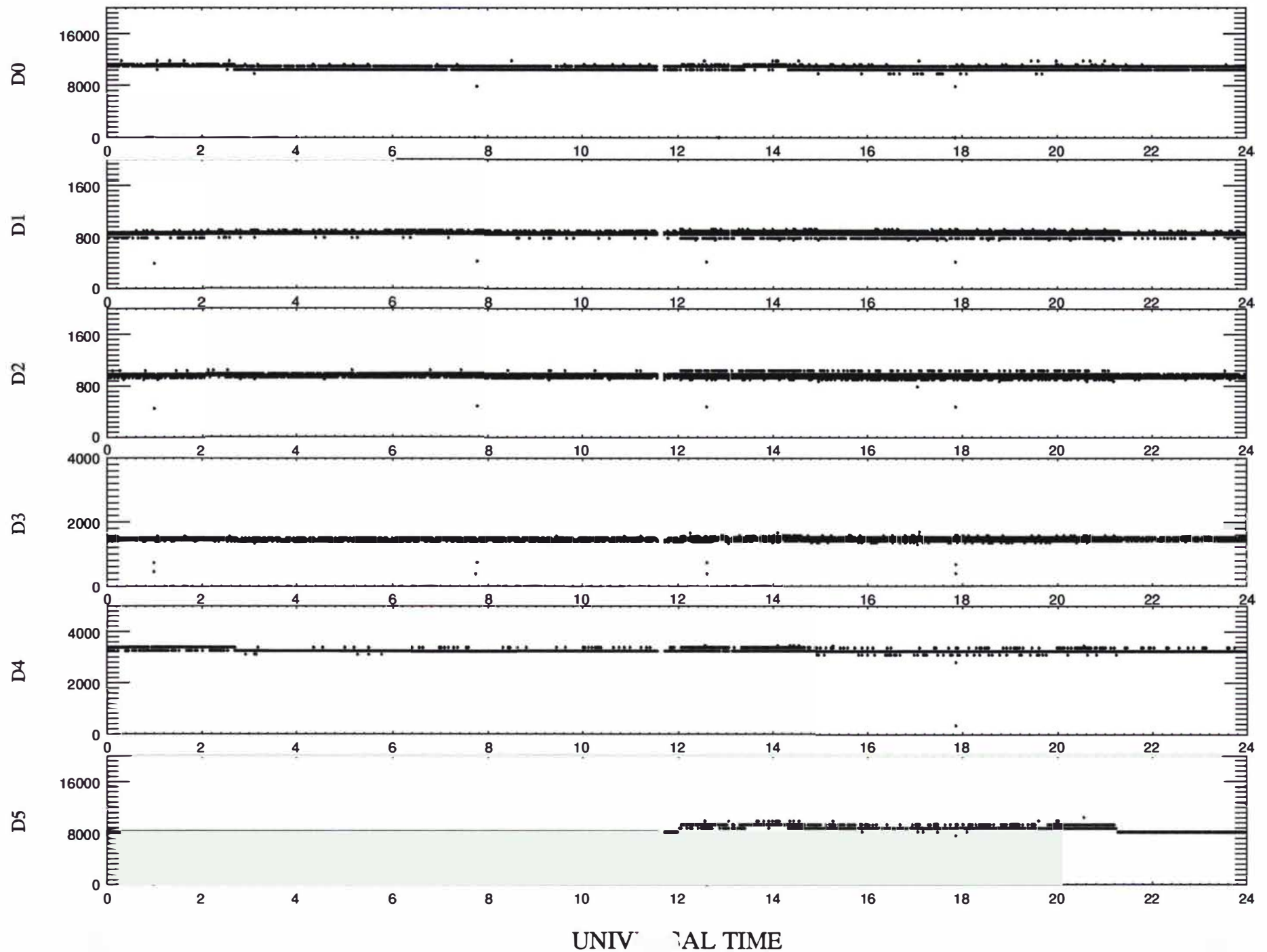
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV TIME



CATSEARCH PROGRAM

BATSE BURST # 929
EVENT OF 1991 OCT 25 DAY OF YEAR=298
EVENT CROSSING TIME AT BATSE : 6843. S. OR 01:54:03.2
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 210.000 15.520
BATSE PEAK COUNTING RATE: 0000 C/S

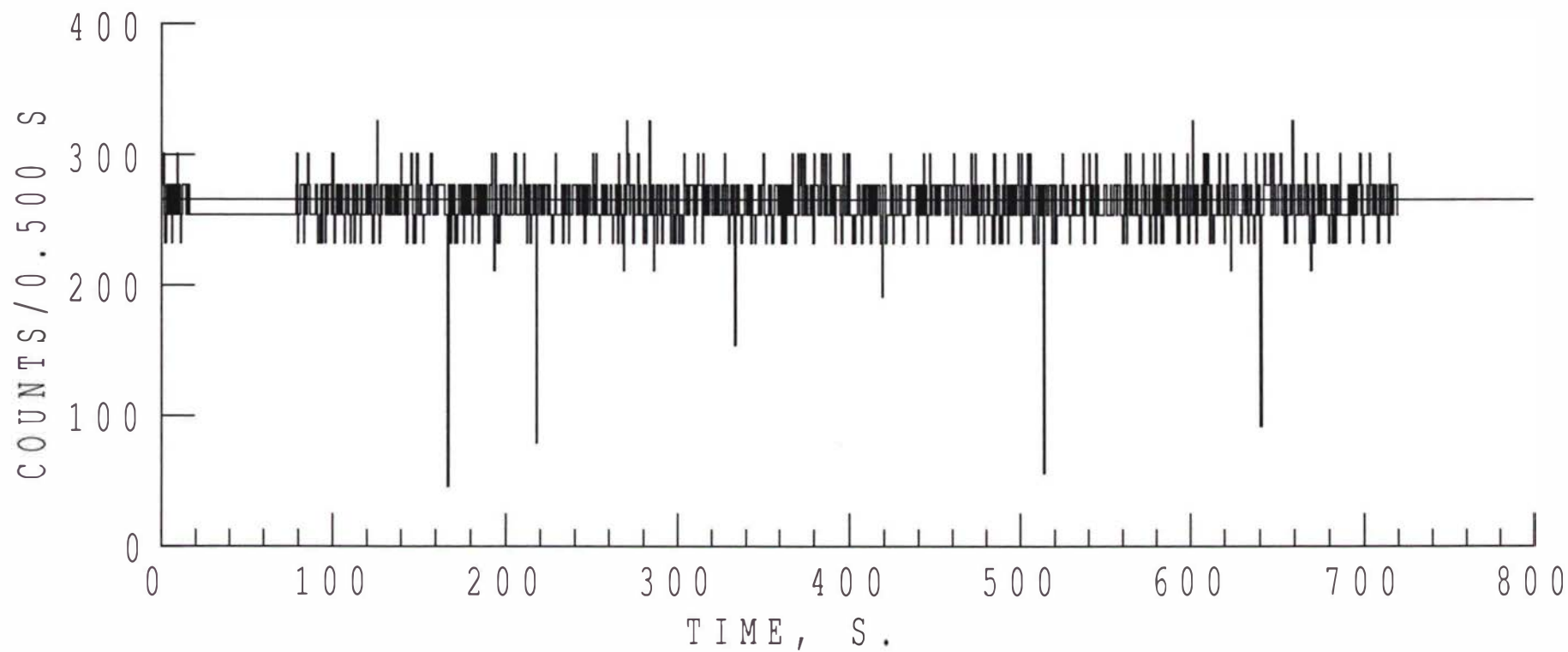
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 25/10/ 91 IS:
RA= 163.190 DEC= 8.400 DIST= 5.118 AU
BATSE-ULYSSES DISTANCE = 765646816. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=133.75 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1765.98 SECS.
CROSSING TIME AT ULYSSES IS 5077. S. OR 01:24:37.2 +/- 343.49 SECONDS

7 / 6 / 94

ULYSSES RT
25/10/91 4716.444 s
0 - 0 keV

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-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

Dezelay -> KH 7/93

DATE	U.T.	Nr UGB	Event Nature
1991-08-27	15:33:19.885	325-c	Solar Particles
1991-09-01	05:24:27.051	327-a	GRB
1991-09-07	01:05:10.287	330-a	GRB
1991-09-07	19:23:04.162	331-a	Solar Flare
1991-10-01	18:14:23.671	345-a	Unknown
1991-10-01	19:01:20.457	345-b	Unknown
1991-10-04	01:27:10.195	347-a	Unknown
1991-10-13	18:09:49.270	353-a	Solar Flare
1991-10-13	21:02:34.557	353-b	Solar Flare
1991-10-14	17:34:33.822	354-a	Unknown
1991-10-16	11:01:35.345	355-a	GRB
1991-10-18	05:32:15.504	356-a	GRB
1991-10-25	21:25:15.926	362-a	GRB
1991-10-26	15:06:06.127	363-a	Unknown
1991-10-26	15:28:41.044	363-b	Unknown
1991-10-26	20:35:18.850	363-c	Solar Flare
1991-11-19	17:12:34.357	367-a	GRB
1991-11-19	17:28:41.794	367-b	Solar Flare
1991-11-21	07:23:32.063	368-a	Unknown
1991-11-21	07:43:41.945	368-b	Unknown
1991-11-21	07:58:33.952	368-c	Unknown
1991-12-05	19:48:38.788	375-a	Solar Flare
1991-12-14	20:55:02.702	378-a	Unknown
1991-12-15	06:23:41.586	378-b	Unknown
1991-12-15	11:41:18.304	378-c	Unknown
1991-12-20	14:02:29.154	380-a	Solar Flare
1991-12-20	14:53:07.976	380-b	Solar Flare
1991-12-20	16:04:57.705	380-c	Solar Flare
1991-12-22	15:00:10.116	381-a	GRB
1992-01-10	00:12:08.191	386-a	Unknown
1992-01-10	02:45:56.628	386-b	Unknown
1992-01-10	09:18:06.120	386-c	Unknown & GRB
1992-01-18	09:42:49.763	392-a	Unknown
1992-01-18	12:38:59.105	392-b	Unknown
1992-01-18	~12:52	392-c	Unknown

CATSEARCH PROGRAM

108

BATSE BURST # 936
EVENT OF 1991 OCT 25 DAY OF YEAR=298
EVENT CROSSING TIME AT BATSE : 77115. S. OR 21:25:14.7
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 316.350 36.660
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 25/10/ 91 IS:
RA= 163.190 DEC= 8.400 DIST= 5.118 AU
BATSE-ULYSSES DISTANCE = 765646816. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 51.62 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1585.67 SECS.
CROSSING TIME AT ULYSSES IS 78700. S. OR 21:51:40.4 +/- 421.67 SECONDS

9 / 11 / 95

ULYSSES RT

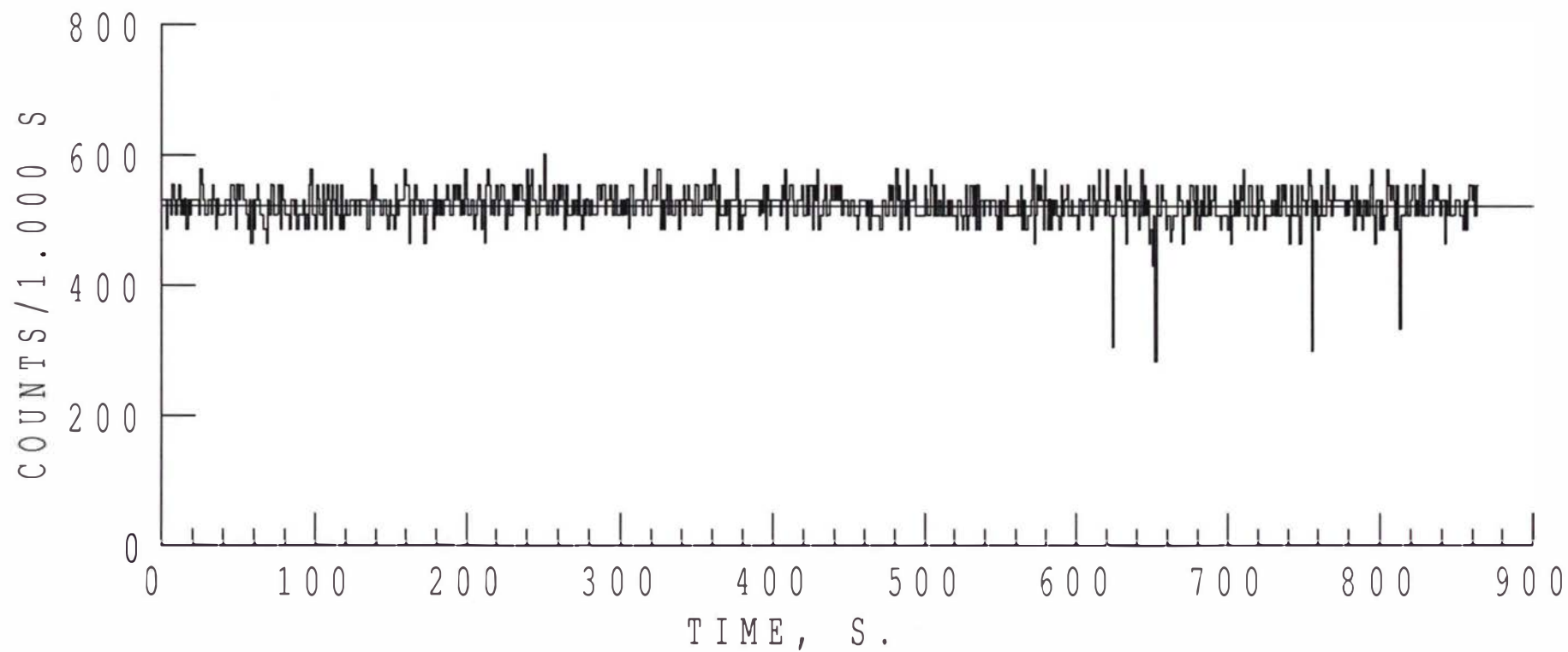
25/10/91 78264.227 s

0.500 S INTERVALS REGROUPED BY 2

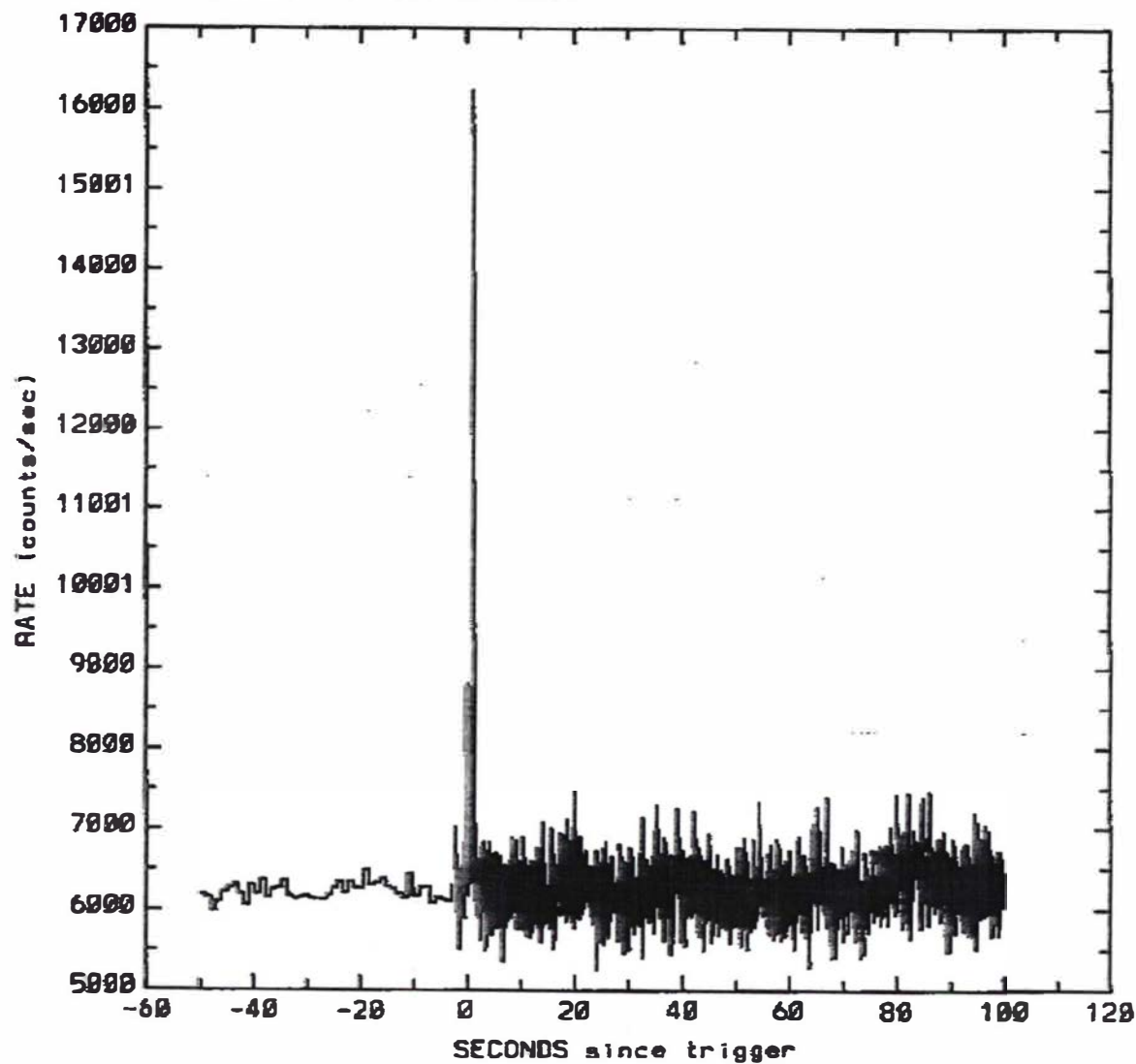
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



DATA FOR K. HURLEY



28-MAY-1994 13:03.28

Created by MIPS BD
(Burst Display)
Version 2.28

Trigger # : 936

Trigger Time:
8554 / 77114.795Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
9.864 second(s)Detectors (7..8):
10001000Discriminators:
(1..2)Quality Mask:
80ISP1

JLA 10/10/92

Date	Heure Phebus		Sigma	Heure Ulysse	Seance	Cmax Phebus	Cmax Ulysse	Loc. α, δ	Comment.
✓ 1991-09-01	19467				327	145			faible
✓ 1991-09-07	3910	I		2066	330	177	90		
✓ 1991-10-16	39695				355	213			HUS : lim sup
✓ 1991-10-18	19936	I		21720	356	553	375		
✓ 1991-10-25	77116				362	107			faible
✓ 1991-11-19	61954		gca		367	131			faible
✓ 1991-12-22	54010	I		53610	381	277	179		
✓ 1992-01-10	33540	I	ac	34298	386		151		bdf Phebus faux
✓ 1992-01-25	32247		ac/gca		397				HUS : lim sup
✓ 1992-02-10	35633		ac		404				HUS : no data
✓ 1992-02-18	67459				411				HUS : manque données
✓ 1992-02-29	69678				415				HUS : lim sup
✓ 1992-03-11	8427	I	ac/gca	7045	422		505	131.6 -36.1	loc Network
✓ 1992-03-25	62257	I	ac/gca	64262	430		154		
✓ 1992-04-04	81448	I		79239	434		212		
✓ 1992-04-05	27698	I	ac	28498	434		91		
✓ 1992-04-14	84162	I	gca	84257	441		171		
✓ 1992-04-20	7947	I		7573	444		112		
✓ 1992-05-19	59421	I		61011	449		268		
✓ 1992-06-22	25505	I	ac/gca	23347	468		408		
✓ 1992-06-28	76453				473				HUS : no data
✓ 1992-07-14	47072	I	ac/gca	46282	482		221	219.9 +5.4	loc Sigma gca
✓ 1992-07-20	11529	I	ac/gca	9808	486		227		
✓ 1992-07-23	72189	I	ac/gca	73964	489		1084	285.8 +26.7	loc Sigma gca

From @space6.ssl.berkeley.edu,@cmsa.berkeley.edu:ASTMPH@CSEARN.BITNET Sun Aug 30 15:12:21 1992
Date: Mon, 31 Aug 92 00:12:33 MDT
From: Petr Pravec <ASTMPH@CSEARN.BITNET@cmsa.berkeley.edu>
Subject: msg from Rene Hudec
To: khurley@space6.ssl.berkeley.edu
Content-Length: 1712

to: Kevin Hurley <khurley@space6.ssl.berkeley.edu>

Dear Kevin:

we have found the following positional coincidences between BATSE
GRB and OT records:

GRB 920224 OT 910407 *In 4 mag, but count rates not too bad. Get BATSE data + check*
GRB 911228 OT 910719 *Get BATSE data*
GRB 920505 OT 910811 " " "
GRB 920121 OT 910917 " " "

i.e. these GRB and OT coincides positionally within the given
optical and gamma ray error boxes. However, the error boxes we
have for these GRBs are large and so the coincidences may be
accidental only. Please let me know whether or not are the
positions of these GRBs known more accurately by triangulation
method. I have already asked Chryssa but she recommended to ask
you directly as owner of this information.

The same information would be also important for those GRBs we
have simultaneous plates :

911025, 911027, 911127, 911202, 911209, 911210, 920110, 910511, 910809
910505, 910829, 910902, 911129, 911228, 920121, 920209, 920224, 920227, 920305
and 920505 *Same as above*

For these GRB, we have between 1 and 9 Plates taken simultaneously
and covering the position. However, the BATSE errors are large (
14 deg dia) and hence the search for optical counterparts is very
laborious and difficult. If you would have a more precise position
determined by triangulation, then we could investigate this box
more carefully.

Naturally, I guarantee you that this information will not be given
to any other person and will be used for the proposed search only.
In the case of any discovery, publication etc. you will be
considered as co-author and asked for permission prior release.
Regarding the release of HCO plates, I have send an email message
to Martha Hazen . She will contact you when necessary . Thank you.

Kind regards Rene Hudec

911025 No
911027 No
911127 Yes ✓
911202 Yes ✓
911209 Yes ✓
911210 Maybe
920110 Yes ✓
910511 No ✓
910505 Yes No
910809 ~~Yes for event but there were 3~~
910829 Get BATSE data + look
910902 " "
911129 " "
911228 " "

920121 Get BATSE data + look
920209 No - in 4 mag
920224 See above comment
920227 Get BATSE data + look
920305 " "

16 OCT 91	39720	s	Requested U.
18 OCT 91	19920	s	Ulysses/PVO tugs
25 OCT 91	77100	s	Requested U. NO
19 NOV 91	61980	s	Requested U.
2 DEC 91	54000	s	Requested U.

A bientot,

Jean-Luc

.From @sophia.inria.fr:atteia@cesrvd.span.cnes.fr Tue Apr 28 08:35:03 1992
 X400-Received: by /PRMD=inria/ADMD=atlas/C=FR/;
 Relayed; 28 Apr 92 17:39:20+0200
 X400-Received: by /PRMD=cnes/ADMD=atlas/C=fr/;
 Relayed; 28 Apr 92 17:35:37+0200
 Date: 28 Apr 92 17:35:37+0200
 From: "CESRVD::ATTEIA" <atteia@cesrvd.span.cnes.fr>
 Subject: sursauts
 To: khurley <khurley@sunspot.ssl.berkeley.edu>
 Content-Length: 2319

Bonjour Kevin,

Le voyage a ete plutot eprouvant mais tout s'est bien passe.
 Ici pas de grands changements. Nous avons appris que la terre a encore
 tremble... mais heureusement sans trop de degats semble-t-il.

En arrivant, j'ai eu la bonne surprise de trouver ici le colis qui
 devait arriver par bateau (!). Malheureusement, je suis toujours
 sans nouvelle de celui qui devait prendre l'avion, pourrais-tu te
 renseigner pour savoir si il est parti et comment ? merci

Pourrais-tu m'envoyer les photocopies des ICR REAL TIME de
 ULYSSES pour les evenements suivants vus par PHEBUS ?

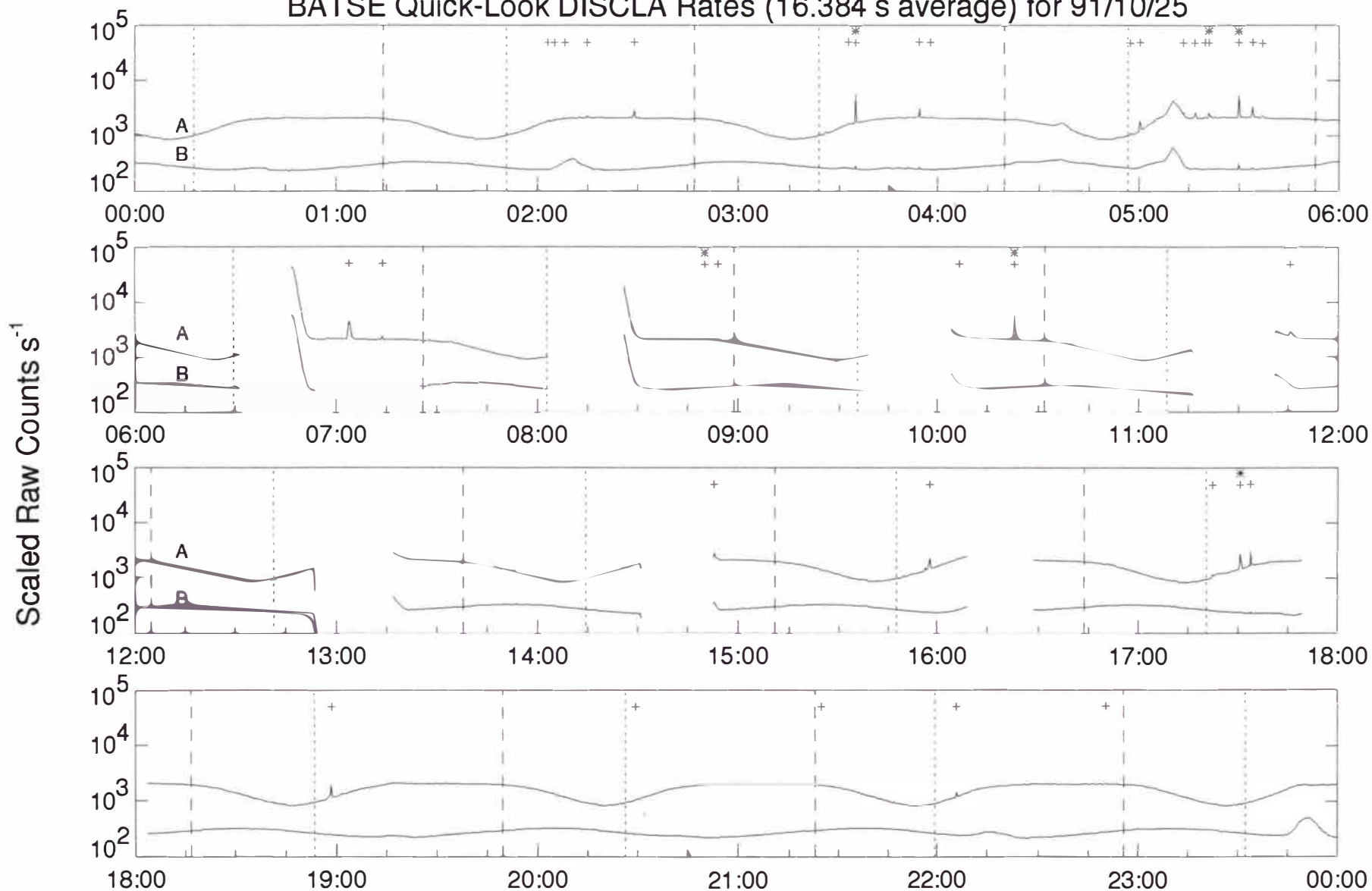
6 JAN 91	60000 s
22 JAN 91	54840 s
4 FEB 91	32340 s
6 FEB 91	31400 s
11 FEB 91	12300 s
14 MAR 91	82560 s
2 APR 91	52080 s
17 APR 91	72480 s
17 MAY 91	18180 s
27 MAY 91	85500 s
1 JUN 91	69600 s

Ce sont les 11 evenements que j'avais commence a regarder a Berkeley.
 Ici j'aimerais continuer le travail en l'approfondissant. En particulier
 je voudrais verifier qu'il s'agit bien des memes sursauts a chaque fois
 puisque j'ai les profils PHEBUS ici. Il semble deja que le 27 Mai ne soit
 pas le meme mais je ne me souviens de sa tete dans les donnees ULYSSES.

Par ailleurs, si tu as le temps pourrais-tu verifier les evenements
 suivants qui ont ete vus par PHEBUS. La liste qui suit contient les
 dates des evenements et une duree approximative... Cette liste que je
 t'envoie maintenant est plus recente, et donc plus precise, que celle
 que tu as recue precedement
 (ttoutefois je n'ai pas repris ici les sursauts pour lesquels
 tu avais ecrit NO ou N/O pour ULYSSES).

11 NOV 90	78540 s	2 s	tu avais ecrit MAY BE dans la liste PHEBUS
12 NOV 90	53880 s	11 s	la aussi, MAY BE
21 NOV 90	300 s	91 s	MAY BE
21 NOV 90	65340 s	51 s	MAY BE
16 DEC 90	56820 s	0.7 s	MAY BE
21 DEC 90	1800 s	83 s	Pas de commentaire sur la liste
17 JAN 91	3420 s	25 s	Classe SOL dans la precedente liste PHEBUS
27 JUN 91	16140 s	8 s	Classe SOL dans la precedente liste PHEBUS
17 JUL 91	16380 s		Trigger - Ulysses/BATSE/DVO
14 AUG 91	40200 s		No data
14 AUG 91	69300 s		BATSE/DVO/Ulysses RT
17 AUG 91	61740 s		requested Ulysses BATSE trigger
21 AUG 91	38040 s		No data
1 SEP 91	19440 s		Requested U.
7 SEP 91	3900 s		Requested U.

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/25



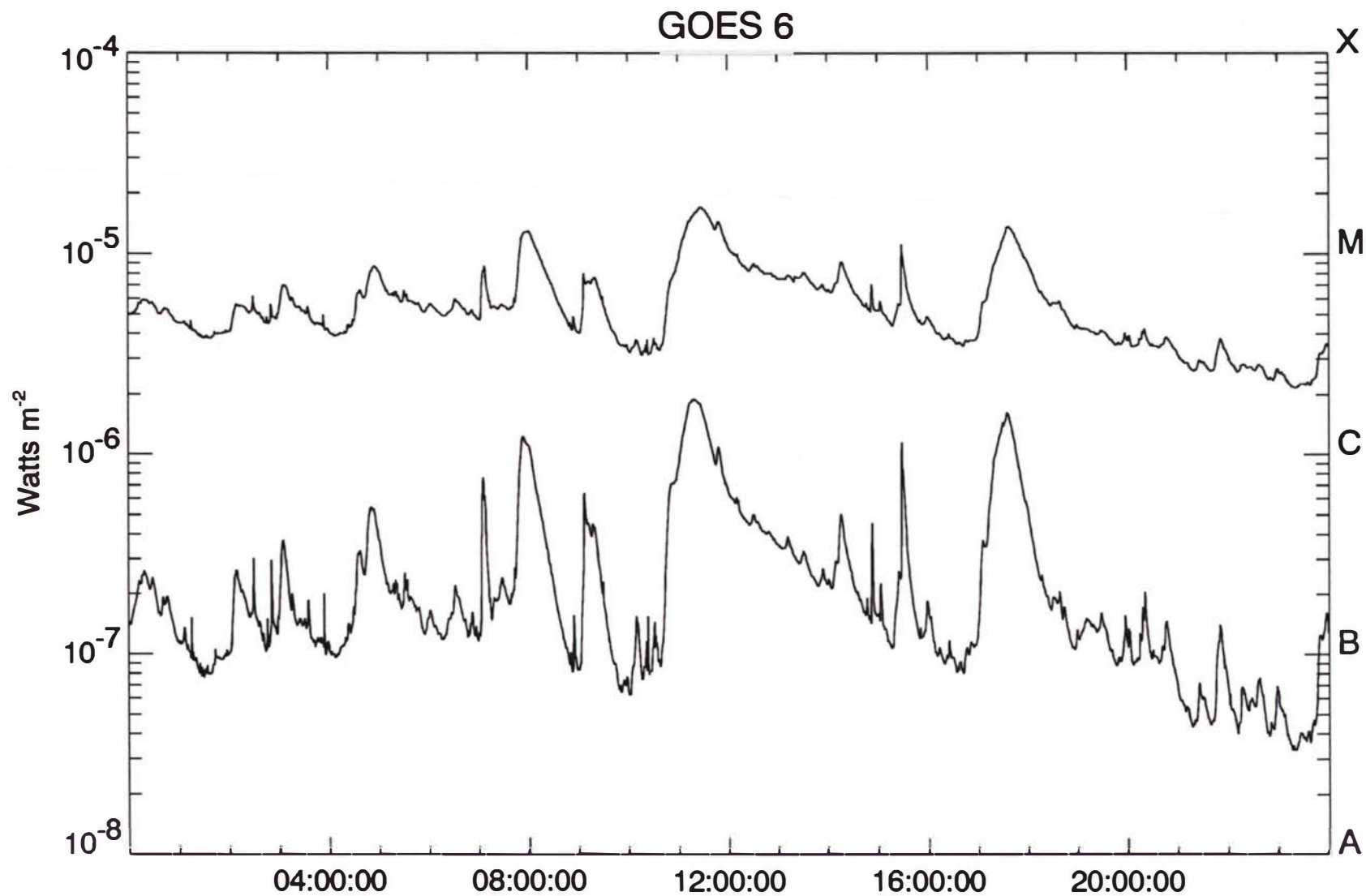
Current Time: 92/10/31, 2004 EDT

A: Channel 1 Most Sunward LAD

B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 91/10/25, 0000:00

Channel 1 (1.0 - 8.0 Angstroms)

2 (0.5 - 4.0 Angstroms)

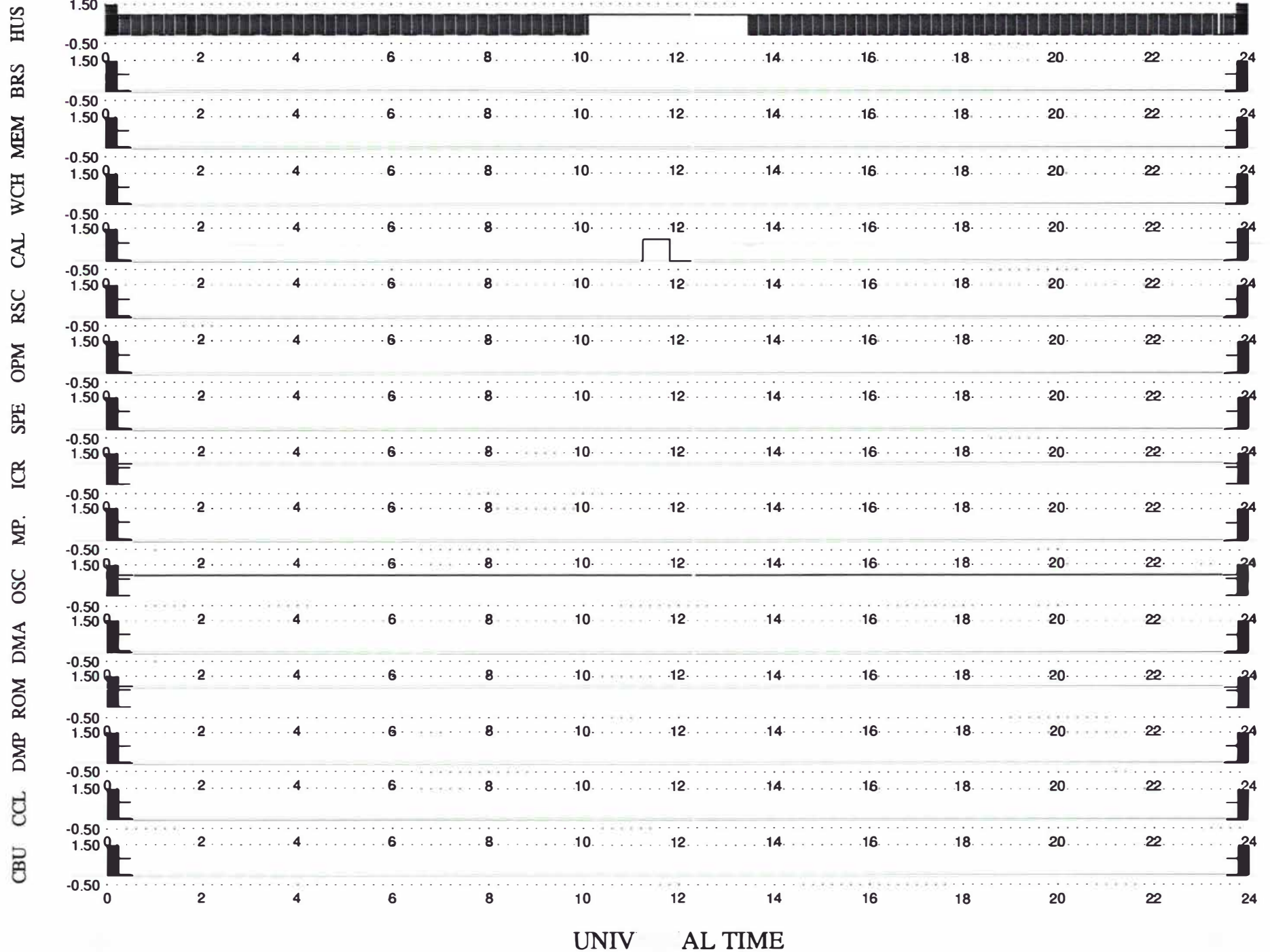
Plot created: 97/10/15, 0010

Background not subtracted

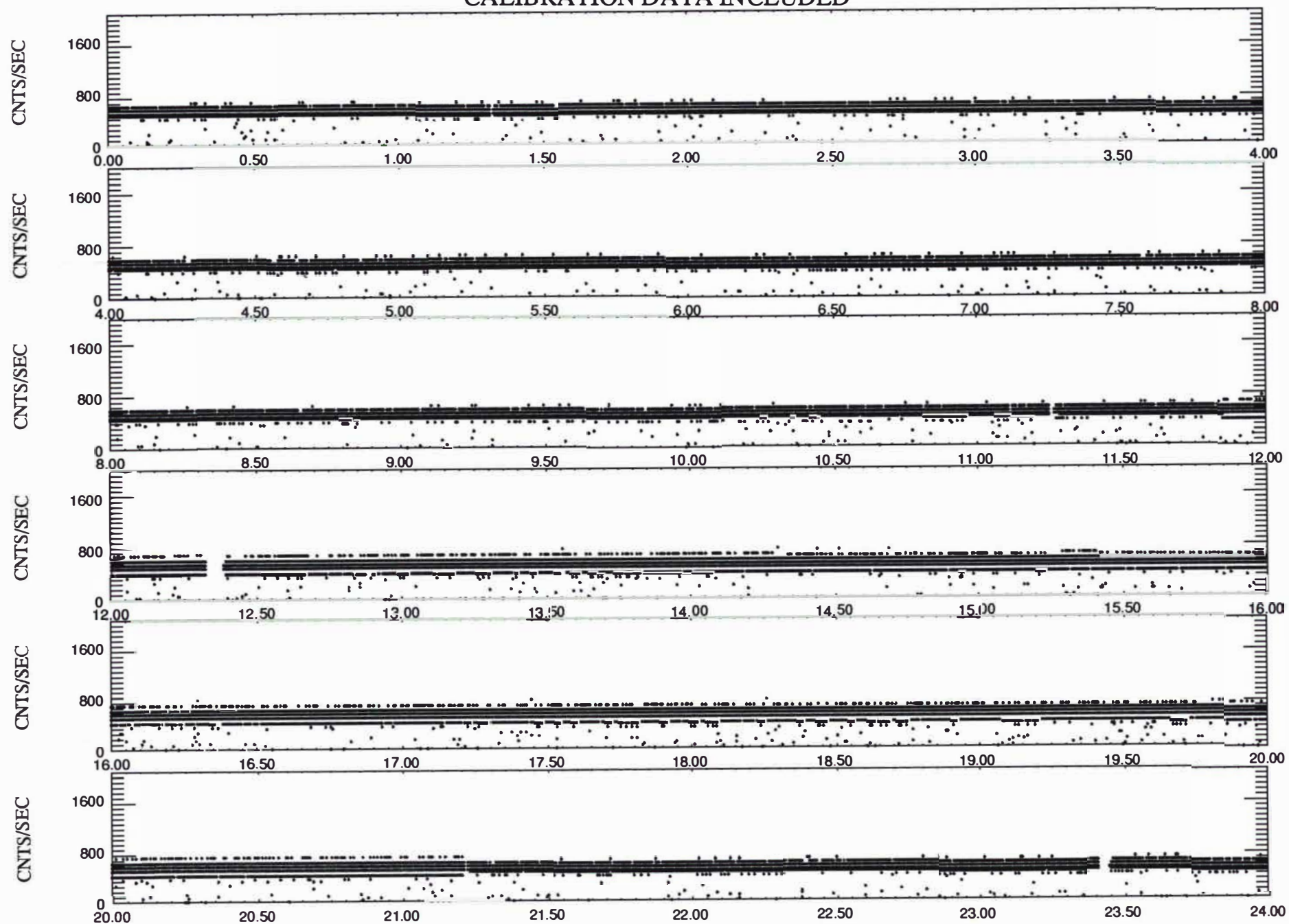
Background not subtracted

Sample average = 10

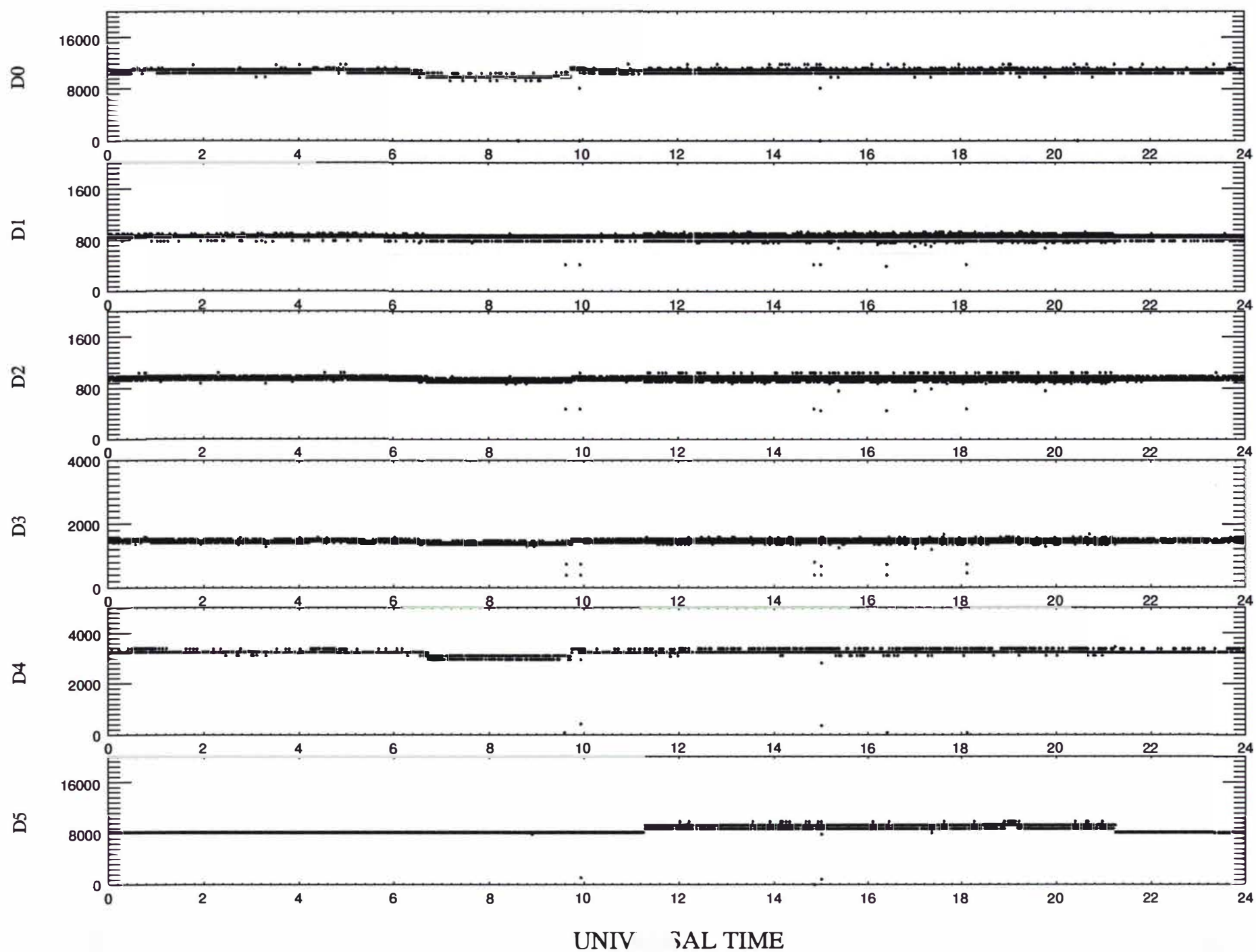
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV. TIME



Added to MBL Feb 10

From root Sat Feb 5 15:27 1994
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA01731; Sat, 5 Feb 94 15:26:40
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (5.0/SMI-SVR4)
id AA05250; Sat, 5 Feb 1994 14:30:29 +0800
Received: Sat, 5 Feb 94 14:33:38 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9402052233.AA15162@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-mail11d v1.7); Sat, 5 Feb 94 14:33:56 PST
Date: Sat, 5 Feb 94 14:33:56 PST
From: 068486@essdp2.span.nasa.gov
X-To: AMES::"KHURLEY@SPACE6.SSL.BERKELEY.EDU"
Subject: 64 S DATA SEARCH
To: KHURLEY@space6.ssl.berkeley.edu
Content-Length: 1442
Status: RO

KEVIN,

THESE ARE THE EVENTS FOR WHICH WE HAVE SCANNED THE DATA RECORDED AT 64 S
RESOLUTION. RESULTS ARE GIVEN BELOW.

DATE	TIME	
91/01/23	12:40	QUESTIONABLE RESPONSE-3.7 SIGMA IN THIRD C1 SAMPLE FROM THE FRAME AT 45047 S UT. C2@ 2.8 & C3@ 1.8 SIGMA.
91/06/19	14:14	YES-13.7 SIGMA IN 3RD AND 4TH C1 SAMPLES OF FRAME AT 51416 S UT, C2@ 6.5, C3@ 10.4, C4 & C5@ 3 SIGMA.
91/07/25	13:12	NO RESPONSE AT 3 SIGMA LEVEL. 2.9 SIGMA AT 20937 S UT
91/08/09	06:15	NO RESPONSE AT 3 SIGMA LEVEL. 2.8 SIGMA AT 22381 S UT
91/10/26	13:07	NO RESPONSE AT 3 SIGMA LEVEL. 2.0 SIGMA AT 47009 S UT
91/10/31	09:36	YES-6 SIGMA RESPONSE IN SUMMED C1 SAMPLES AT 34628 S UT. C2 PROBABLY SPILLED TWICE. C3@ 3.6 SIGMA, C4@ 3.3 SIGMA, C5@ 2.3 SIGMA. C3+4+5@ 5.1 SIGMA.
92/05/02	06:03	NO RESPONSE AT 3 SIGMA LEVEL. 2.7 SIGMA AT 20937 S UT

IN ALL CASES I SCANNED DATA IN THE RANGE OF POSSIBLE TIMES BASED UPON THE
DISTANCE BETWEEN THE EARTH AND VENUS, BUT I ALSO LOOKED AT DATA OUTSIDE THIS
WINDOW AS A REFERENCE. I WILL TRANSMIT TO YOU THE DATA FILES FOR THE MORE
LIKELY CANDIDATES. IT MAY BE THAT THE MORE QUESTIONABLE RESPONSE WOULD ALSO
BE USEFUL IF THE SOLUTION FOR A LOCATION IS CONSISTENT WITH ANOTHER SOLUTION.
I WOULD NOT ATTEMPT A DETERMINATION OF LOCATION, WITH THESE DATA, UNLESS THERE
IS ALREADY A BATSE LOCATION OR A CIRCLE OF POSITION.

REGARDS,

RAY

From ajct@dsri.dk Wed Nov 17 05:36:33 1993
Date: Wed, 17 Nov 93 14:37:25 +0100
From: Alberto Castro-Tirado <ajct@dsri.dk>
To: khurley@sunspot.ssl.berkeley.edu
Content-Length: 1222

Added to MBL

Dear Kevin

I have checked (until 25 Sep 1992) all the events in the GRB Master List (ML) you compiled. According to WATCH, the origin of the next events as real GRB is doubtful.

Date	U.T.	in WATCH	comment
17 Apr 91	20:07:32	particle event	confirmed(?) in the ML
24 Oct 91	02:38:20	" "	unconfirmed in ML
26 Oct 91	15:28:49	" "	" Σ DHSF
11 Feb 92	04:22:53	solar flare	"
21 Mar 92	12:50:53	event at 13:00:49	"
11 Jul 92	16:09:00	particle event	confirmed(?) in the ML

The two confirmed events are seen as particle events in WATCH. It could be a coincidence, but the probability is low. They were seen by Ulysses, so maybe we can compare the light curves.

We also will send you a list of the 70 events of the 1W Catalogue (Lund et al. 1994). 32 of them are localized and the rest (38) were detected by other experiments (not only WATCH).

By the way, did you get my two E-mails concerning GRB 911018 and GRB 920714 (a possible second peak 30 minutes after the first event)?

Kind regards,

Alberto Castro-Tirado
17 Nov 1993

Dezelay -> KH 7/93

DATE	U.T.	Nr UGB	Event Nature
1991-08-27	15:33:19.885	325-c	Solar Particles
1991-09-01	05:24:27.051	327-a	GRB
1991-09-07	01:05:10.287	330-a	GRB
1991-09-07	19:23:04.162	331-a	Solar Flare
1991-10-01	18:14:23.671	345-a	Unknown
1991-10-01	19:01:20.457	345-b	Unknown
1991-10-04	01:27:10.195	347-a	Unknown
1991-10-13	18:09:49.270	353-a	Solar Flare
1991-10-13	21:02:34.557	353-b	Solar Flare
1991-10-14	17:34:33.822	354-a	Unknown
1991-10-16	11:01:35.345	355-a	GRB
1991-10-18	05:32:15.504	356-a	GRB
1991-10-25	21:25:15.926	362-a	GRB
1991-10-26	15:06:06.127	363-a	Unknown
1991-10-26	15:28:41.044	363-b	Unknown
1991-10-26	20:35:18.850	363-c	Solar Flare
1991-11-19	17:12:34.357	367-a	GRB
1991-11-19	17:28:41.794	367-b	Solar Flare
1991-11-21	07:23:32.063	368-a	Unknown
1991-11-21	07:43:41.945	368-b	Unknown
1991-11-21	07:58:33.952	368-c	Unknown
1991-12-05	19:48:38.788	375-a	Solar Flare
1991-12-14	20:55:02.702	378-a	Unknown
1991-12-15	06:23:41.586	378-b	Unknown
1991-12-15	11:41:18.304	378-c	Unknown
1991-12-20	14:02:29.154	380-a	Solar Flare
1991-12-20	14:53:07.976	380-b	Solar Flare
1991-12-20	16:04:57.705	380-c	Solar Flare
1991-12-22	15:00:10.116	381-a	GRB
1992-01-10	00:12:08.191	386-a	Unknown
1992-01-10	02:45:56.628	386-b	Unknown
1992-01-10	09:18:06.120	386-c	Unknown & GRB
1992-01-18	09:42:49.763	392-a	Unknown
1992-01-18	12:38:59.105	392-b	Unknown
1992-01-18	~12:52	392-c	Unknown

CATSEARCH PROGRAM

BATSE BURST # 938
EVENT OF 1991 OCT 26 DAY OF YEAR=299
EVENT CROSSING TIME AT BATSE : 47221. S. OR 13:07:00.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 70.000 -20.100
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 26/10/ 91 IS:
RA= 163.345 DEC= 8.339 DIST= 5.114 AU
BATSE-ULYSSES DISTANCE = 765022984. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 84.03 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 265.54 SECS.
CROSSING TIME AT ULYSSES IS 47486. S. OR 13:11:26 +/- 494.67 SECONDS

RI

Helio. corr. removed

Date: Nov 24 '97

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? *No - bad stats*

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? *N/A*

3. PVO Data

- ☐ Ephemeris of PVO used (not Venus)?
- ☐ 2000 coordinates used?
- ☐ Geocentric time used?
- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

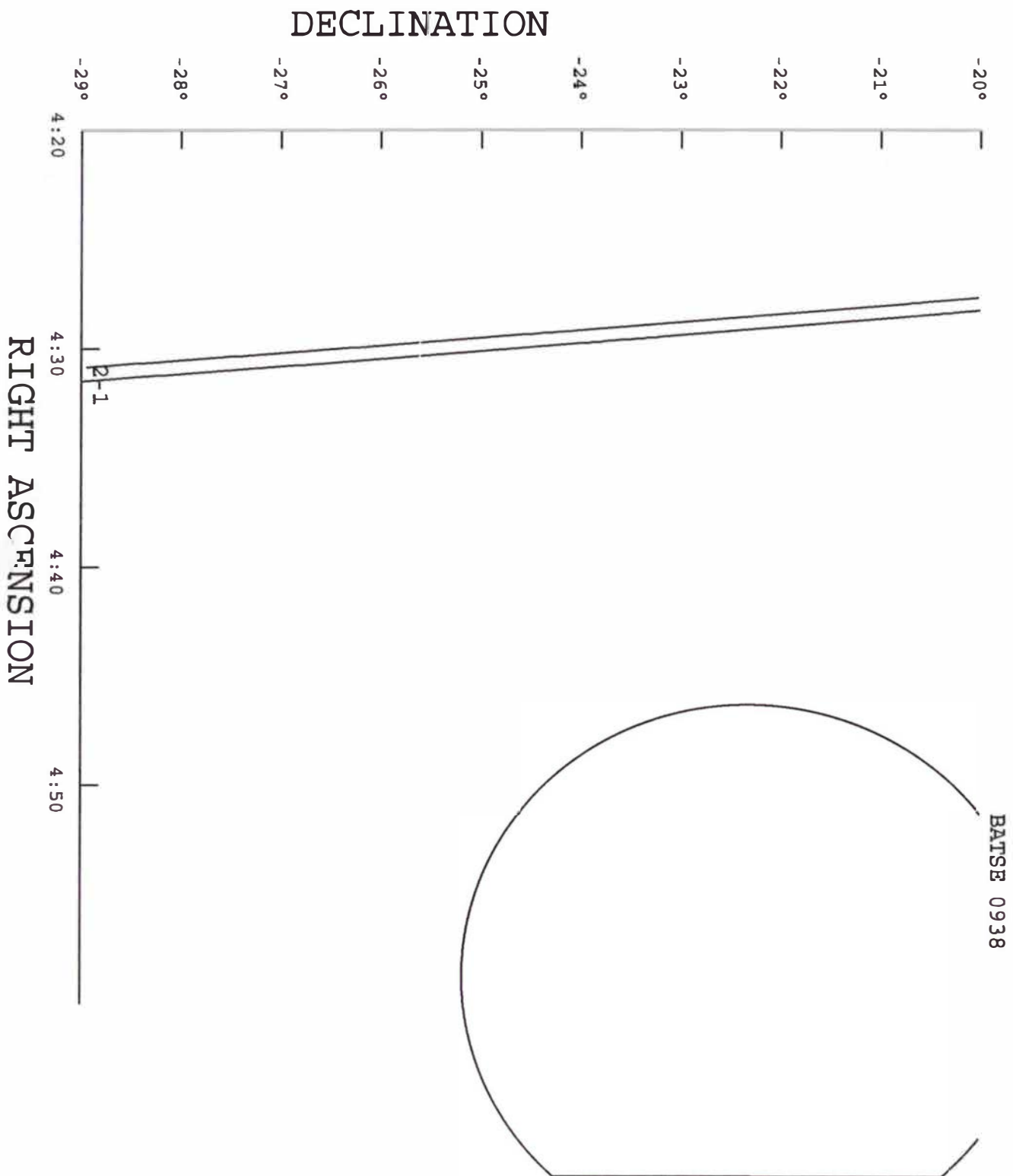
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF OCT 26, 1991 13:13

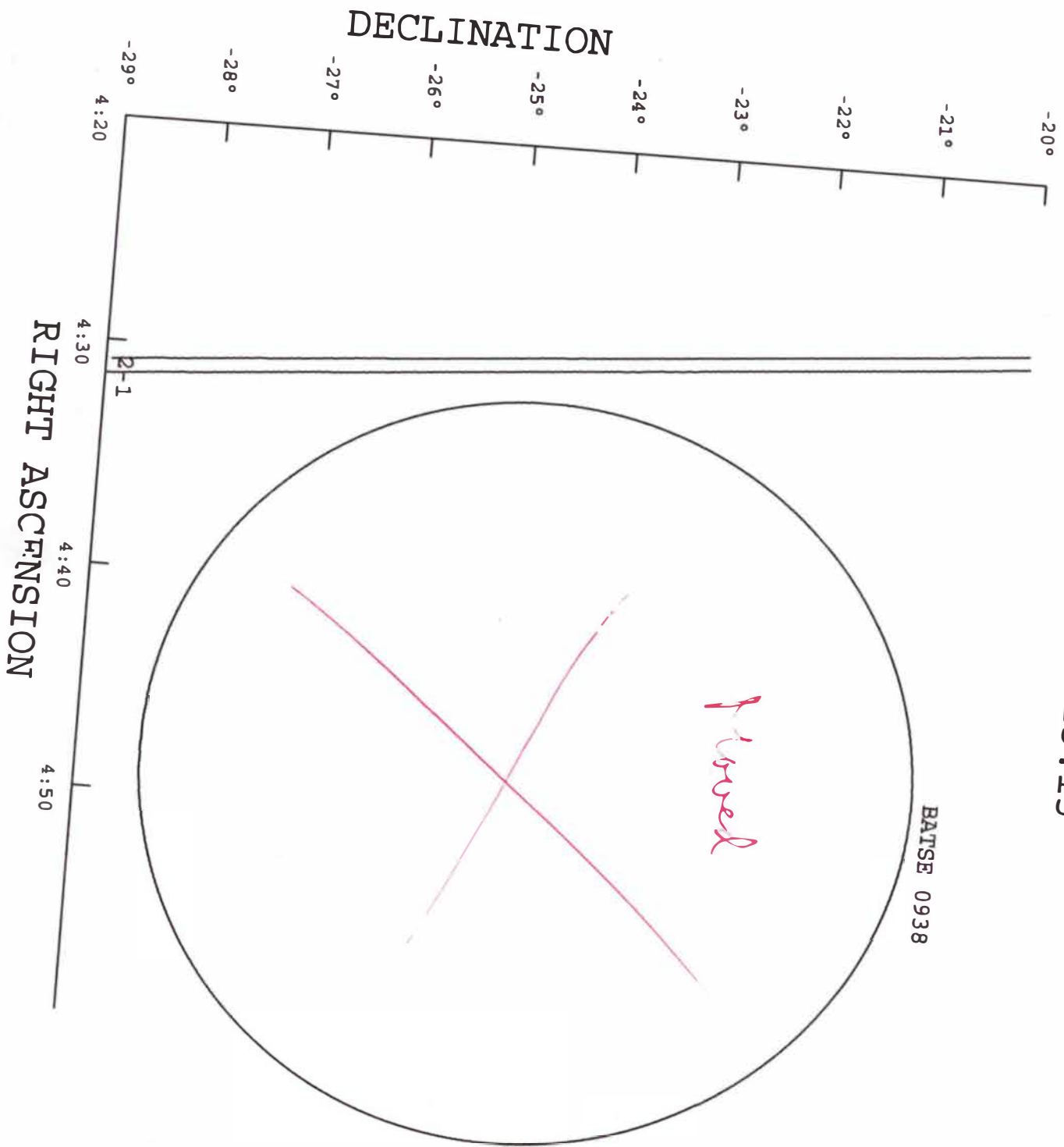
5 / 3/98



EVENT OF OCT 26, 1991 13:13

24/11/97

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 BATSE



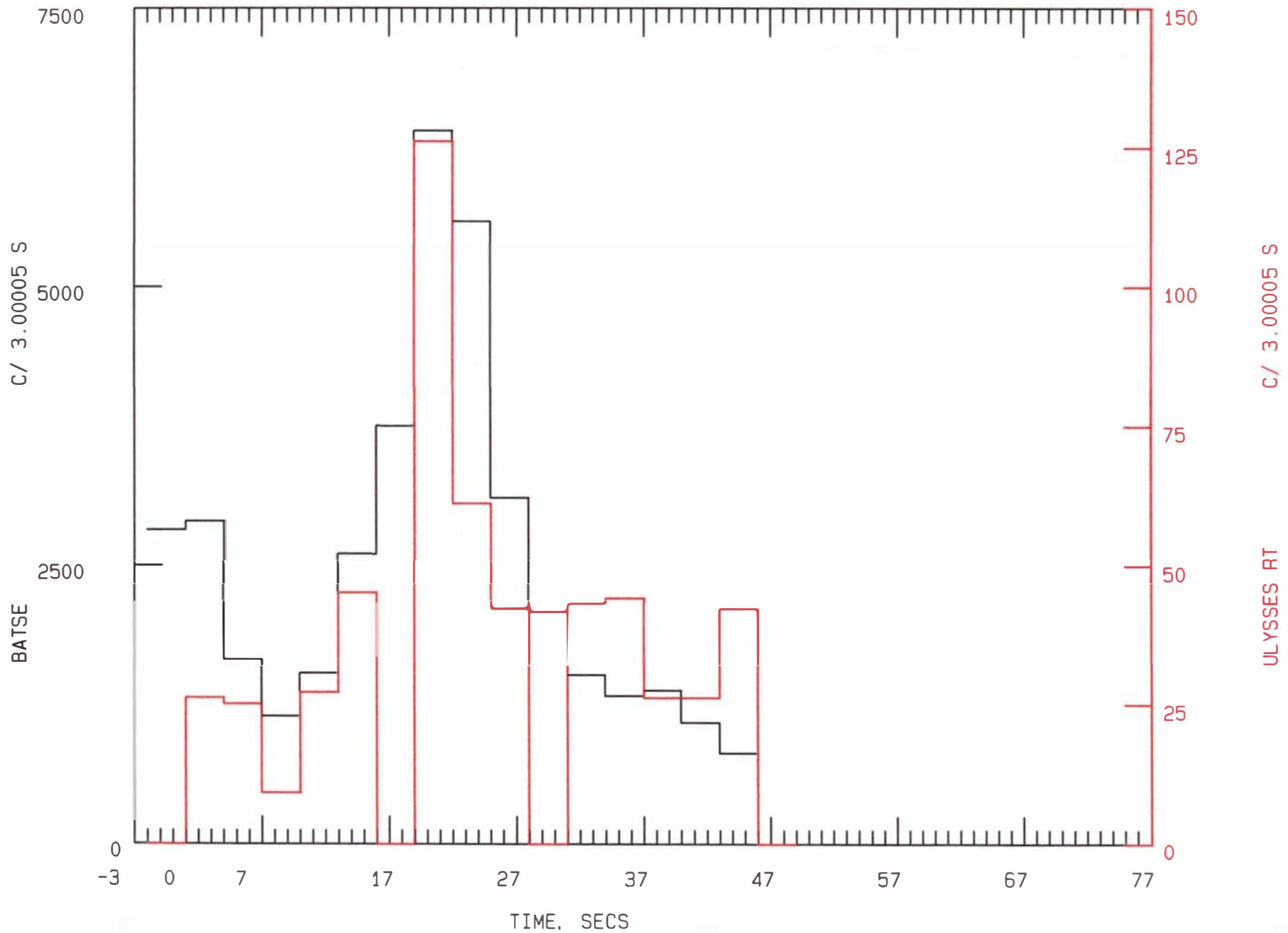
BATSE

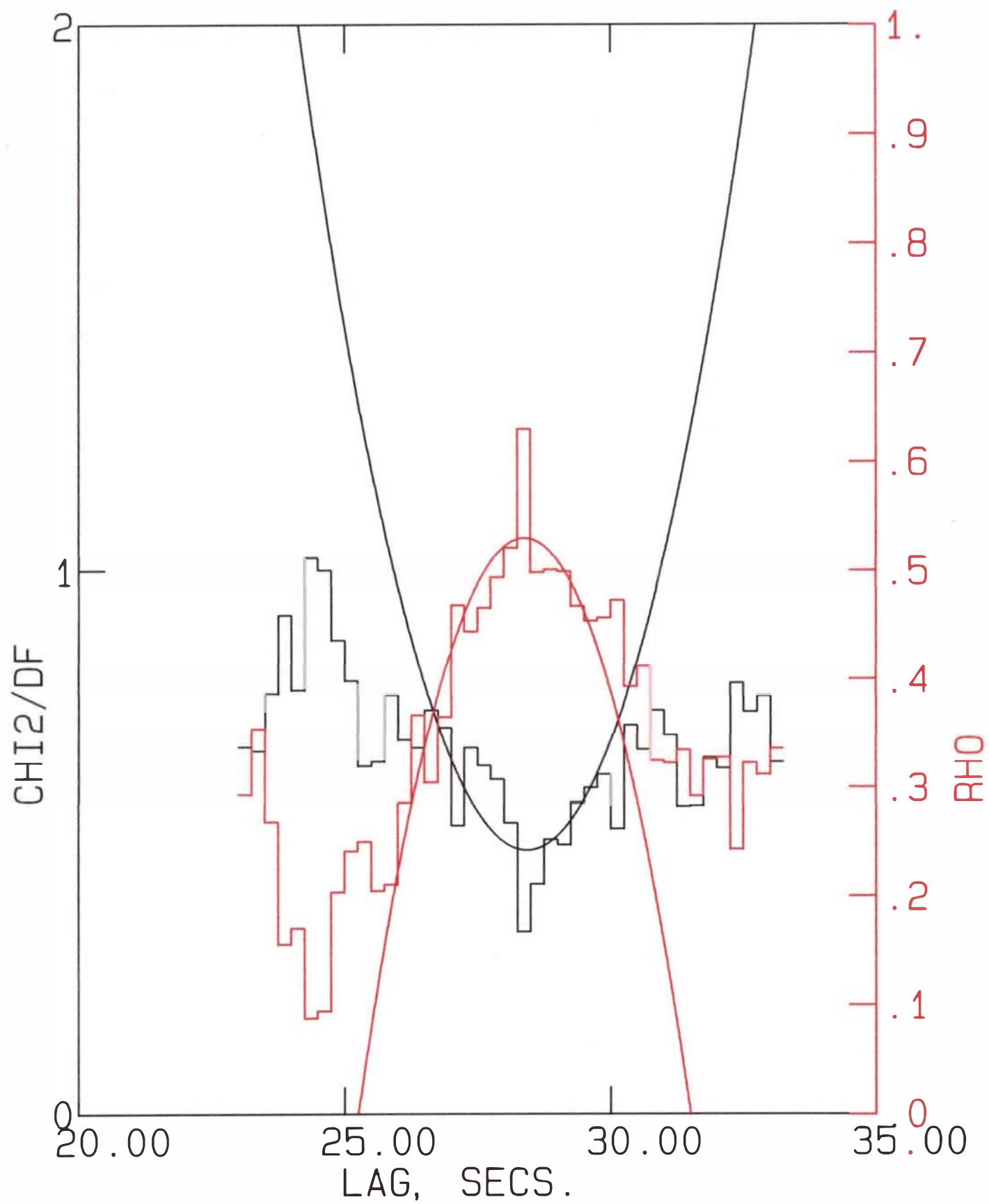
-ULYSSES RT CORRELATION

26/10/91

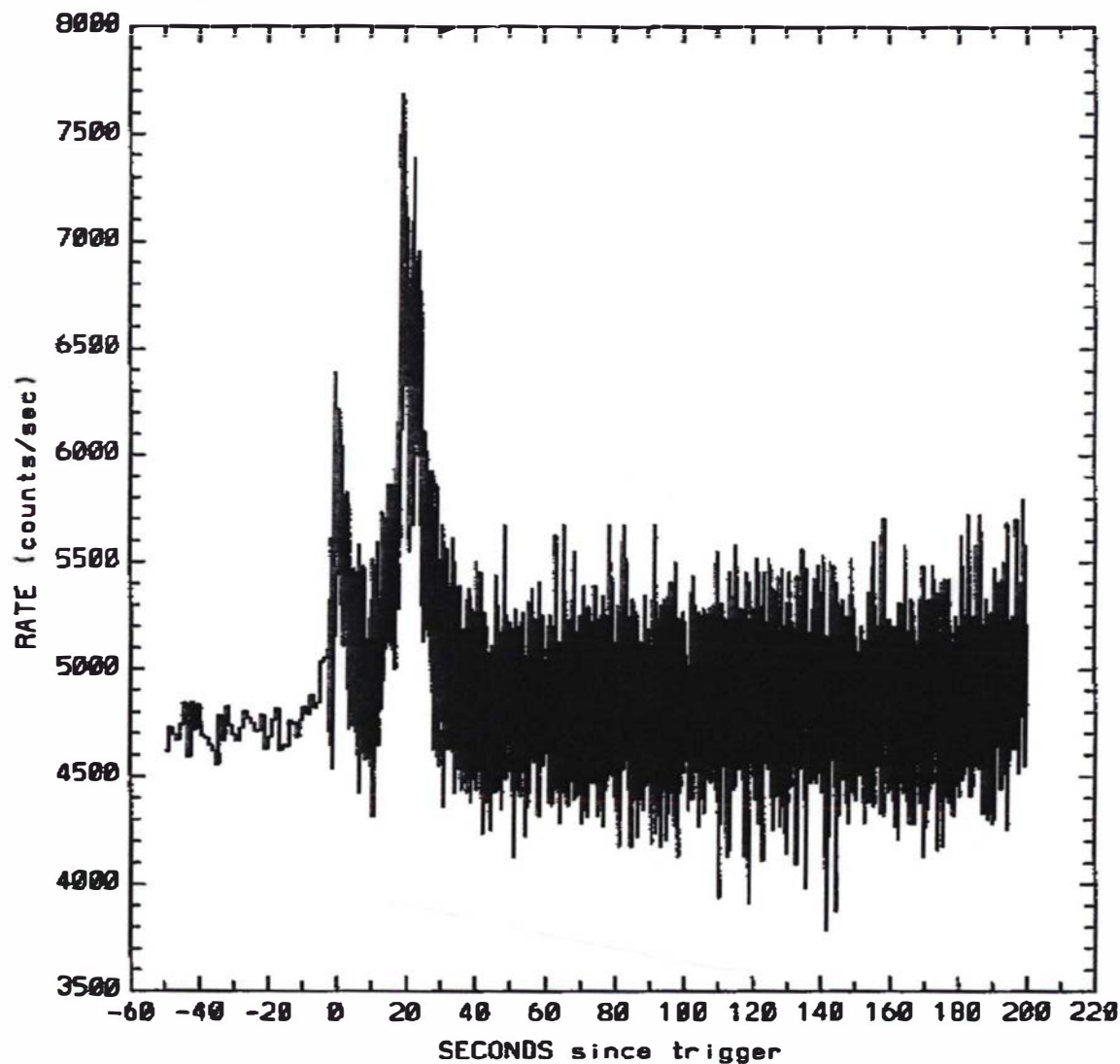
47220.843

24/11/97





DATA FOR K. HURLEY



38-JUL-1993 09:25:41

Created by MOPS BD
[Burst Display]
Version 2.19

Trigger # : 938

Trigger Time:
8555 / 47220.843 - 2.002 =Burst Data Type: ~~47220.801~~
DISCSC*No - 47220.843
is correct
already*Deadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum [integ. Time:
0.064 seconds]Detectors [7..8]:
001:0000Discriminators:
[1, 2]Quality Mask:
BD[SP1

BATSE

26/10/91

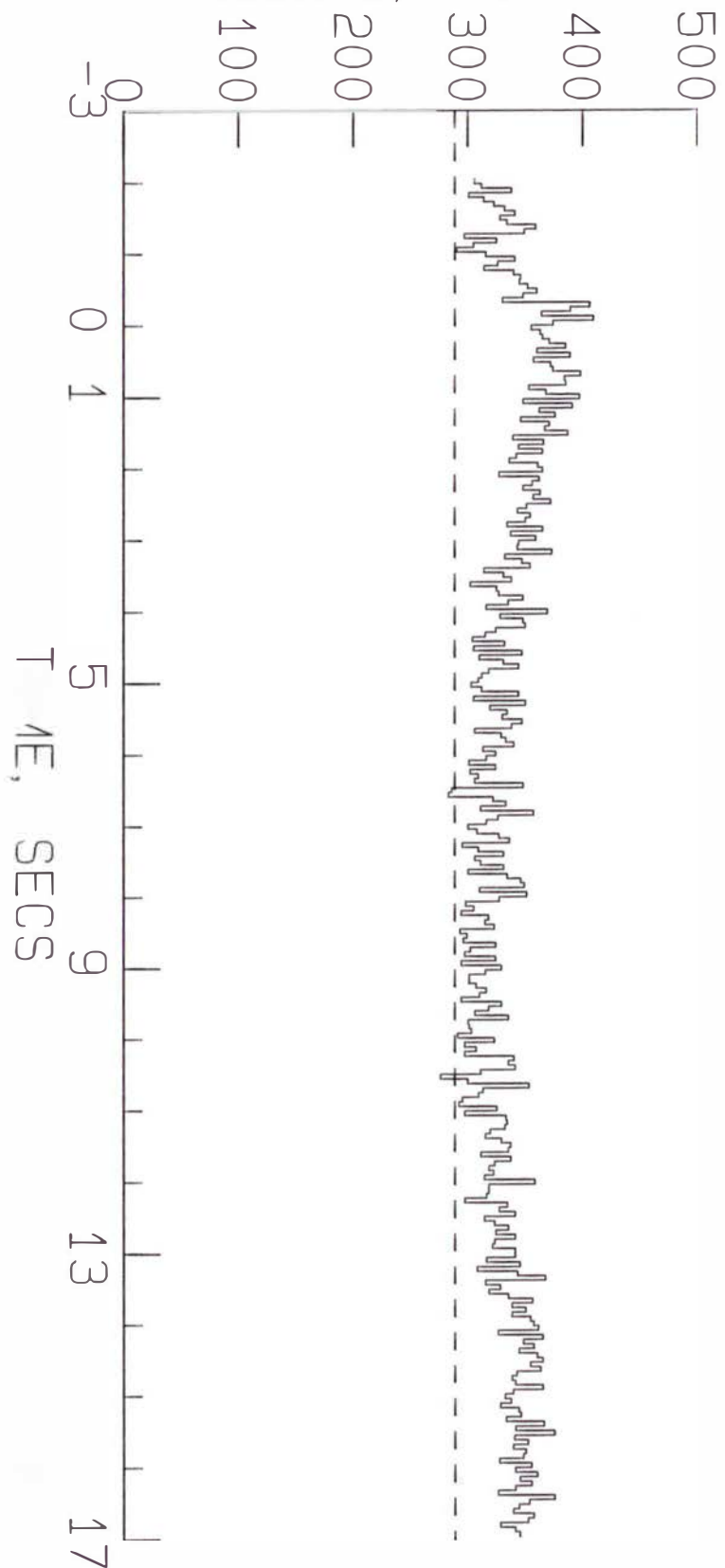
47220.843 ~~26.042~~

25- 100 keV

~~47248.661~~

No - OR as is

COUNTS/ .064 S

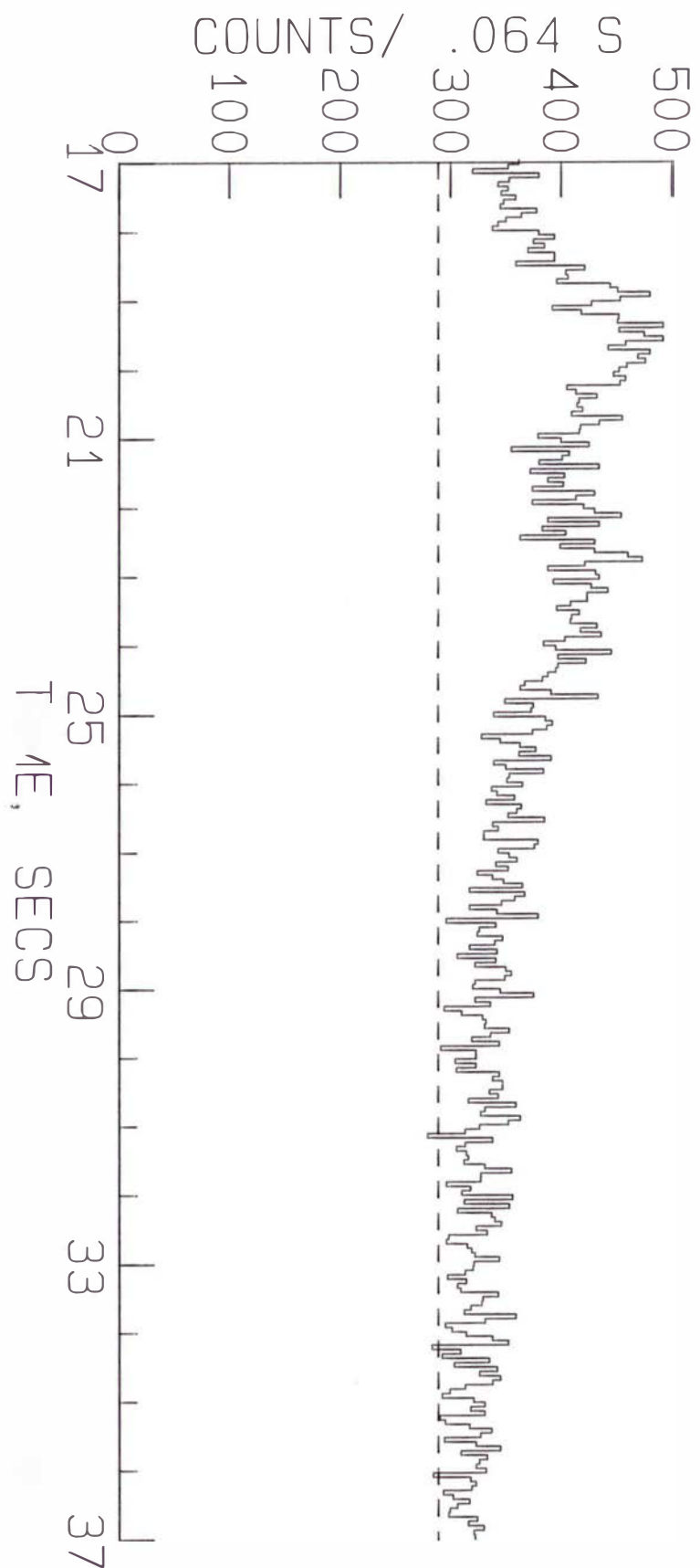


BATSE

26/10/91

47220.843

25- 100 keV



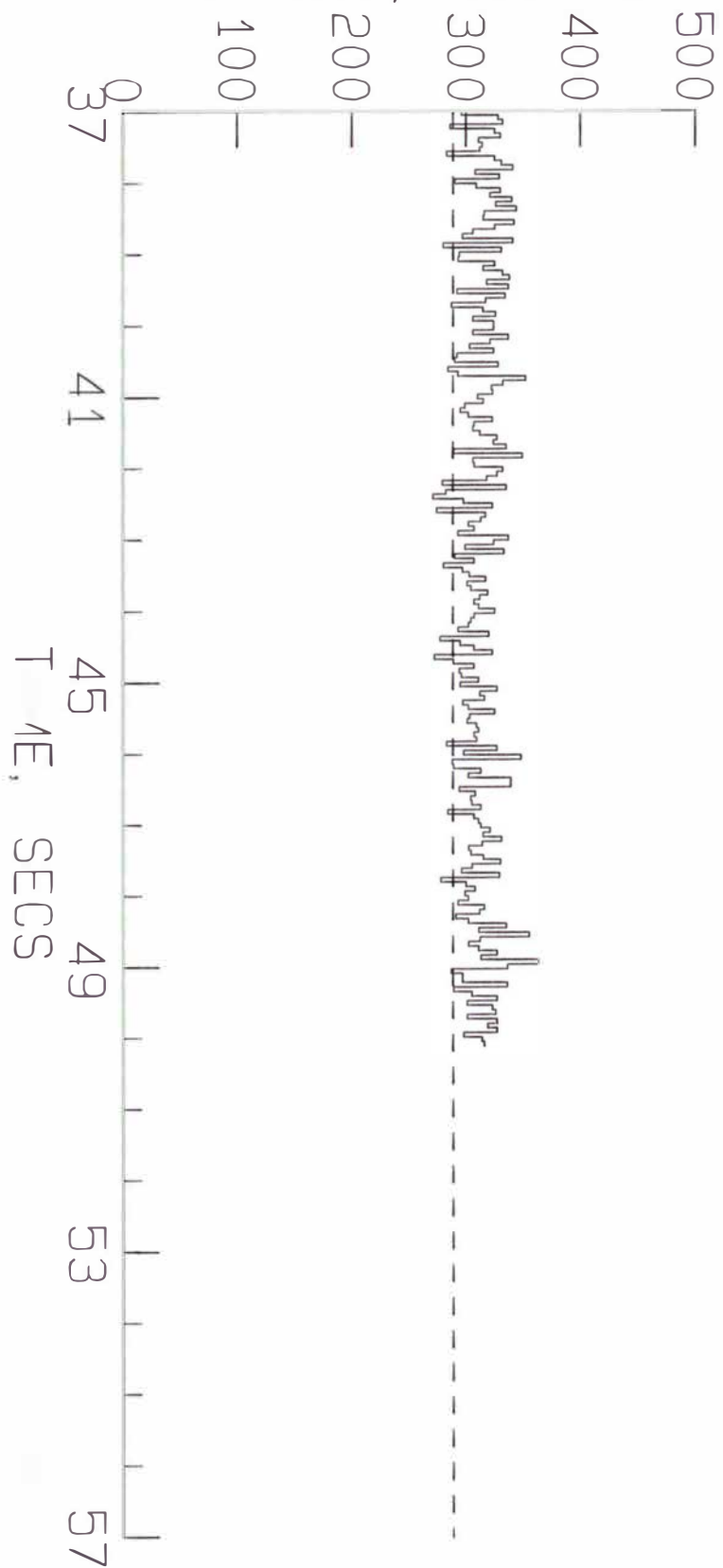
BATSE

26/10/91

47220.843

25- 100 keV

COUNTS/ .064 S



List of GRB's candidates detected by SIGMA

YEAR : 1991

<i>Time of trigger (UT)</i>	<i>Detector</i>	<i>UGB N°</i>	
1991/01/22 15:13:48.564	GCA	228/b	Yes - Trigger
1991/04/02 14:28:15.137	A.C.	262/b	Yes - RI
1991/04/17 20:07:32.490	GCA	273/a	Yes - Trigger
1991/05/17 05:02:44.490	GCA	282/a	Yes - RI
1991/05/17 13:19:10.749 47951	GCA	282/b	NO
1991/06/30 07:37:05.264	A.C.	304/b	Yes - RI
1991/08/14 19:14:34.774	A.C./GCA	315/b	Yes - RI
1991/08/21 10:33:57.648	A.C./GCA	320/a	NO DATA
1991/10/26 15:28:49.212	GCA	363/a	NO
1991/11/19 17:12:34.449 619545	GCA	367/a	NO
1991/11/19 17:28:59.116 62939	GCA	367/b	NO

From atteia@cesrvd.span.cnes.fr Tue Dec 17 07:32:23 1991
Received: from kwai.inria.fr by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA17564; Tue, 17 Dec 91 07:32:19 PST
X400-Received: by /PRMD=inria/ADMD=atlas/C=FR/;
Relayed; 17 Dec 91 16:38:35+0100
X400-Received: by /PRMD=cnes/ADMD=atlas/C=fr/;
Relayed; 17 Dec 91 16:34:26+0100
Date: 17 Dec 91 16:34:26+0100
From: "CESRVD::ATTEIA" <atteia@cesrvd.span.cnes.fr>
Message-Id: <9112171534.AA03753@eliot.cnes.fr>
Subject: Divers sursauts....
To: khurley <khurley@sunspot.ssl.berkeley.edu>
Status: R

Bonjour Kevin,

Merci pour les infos pour le proposal !

Nous avons detecte 2 candidats sursauts avec la camera de SIGMA et nous aimerions avoir une idee de leur origine (si ils sont solaires ou non) Pourrais-tu nous dire si ils ont ete vus par HUS et, eventuellement, a quelle heure ?

Les 2 evenements sont :

Le 14 Oct 1991 a 17h34m44s UT

Le 26 Oct 1991 a 15h28m49s UT

Merci d'avance...

Par ailleurs les dates de notre sejour se precisent, ce sera tres certainement du lundi 20 Janvier (arrivee a San Francisco le soir) au Vendredi 17 Avril (depart le matin), pour ma part je reviendrais environ une semaine a Toulouse pour le Colloque SIGMA (Je suis en train de negocier avec Mandrou pour savoir si il peut me payer le voyage).

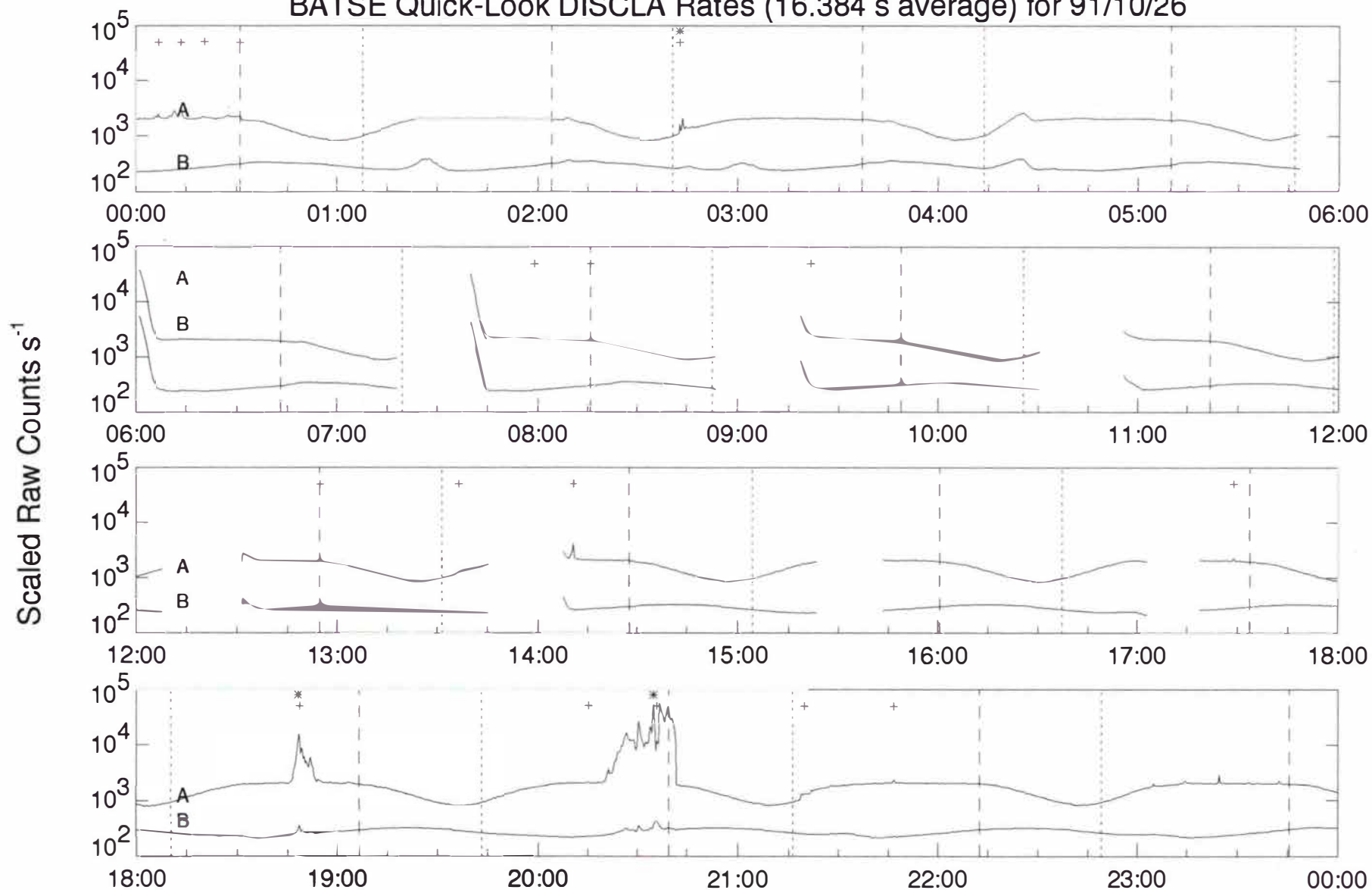
Didier Barret va certainement t'appeler aujourd'hui car il n'a toujours pas recu le Papier.

Le proposal part demain matin par DHL (ou equivalent), je crois qu'on pourra faire du bon travail ...

Amities

Jean-Luc

BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/26



Current Time: 92/10/31, 2005 EDT

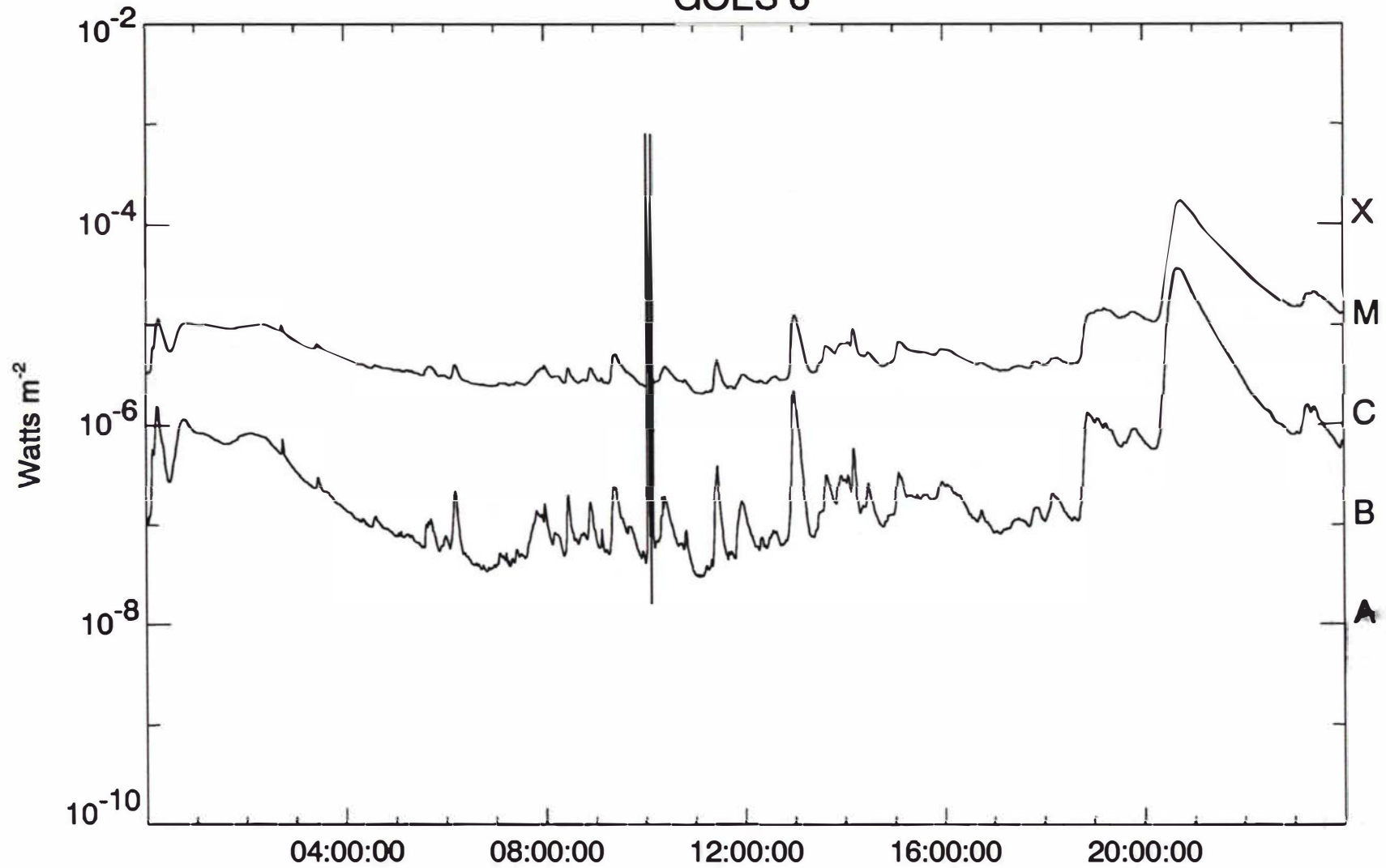
A: Channel 1 Most Sunward LAD

B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 6



Data Start: 91/10/26, 0000:00

Plot created: 97/10/15, 0014

Channel 1 (1.0 - 8.0 Angstroms)

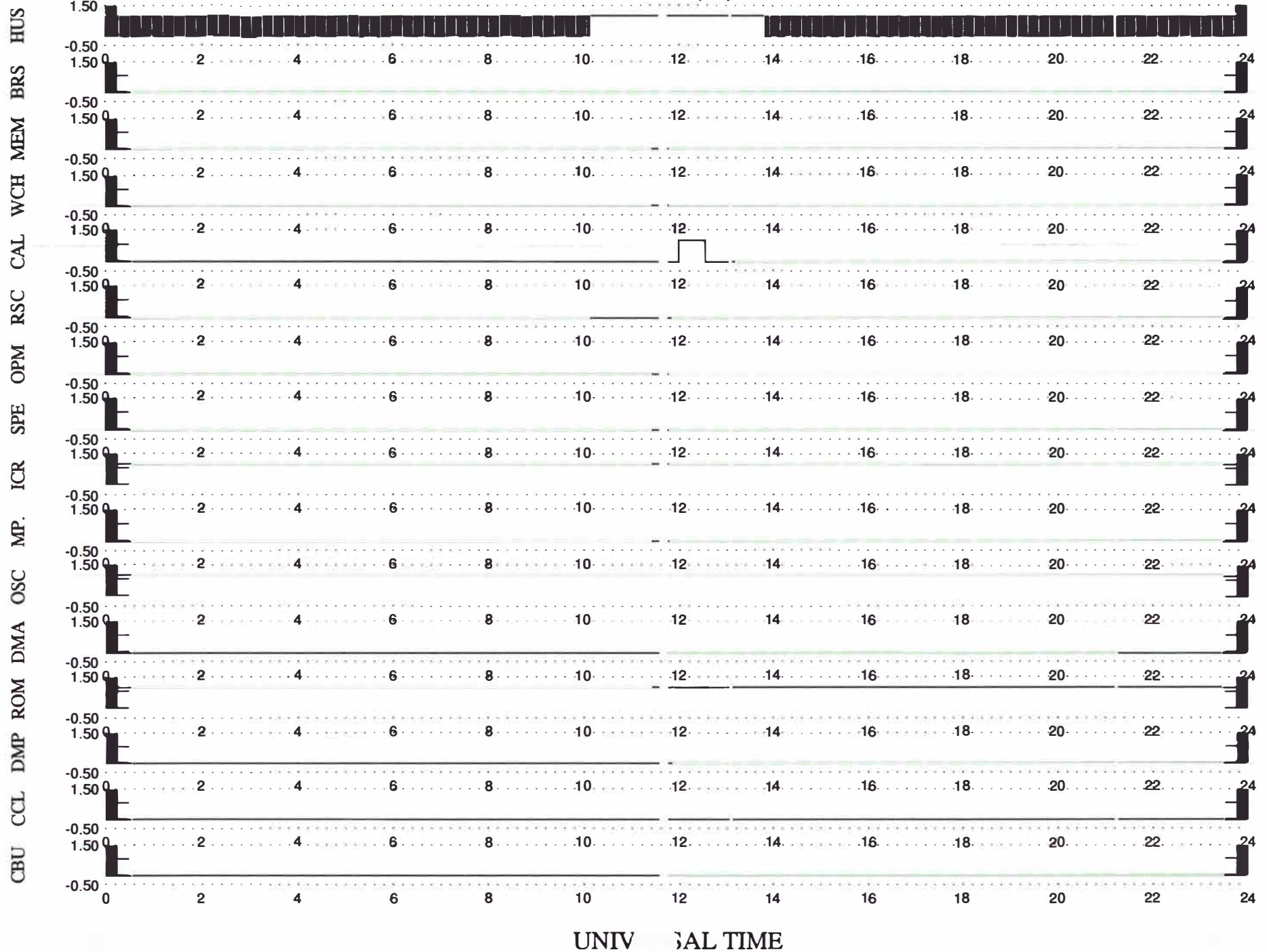
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

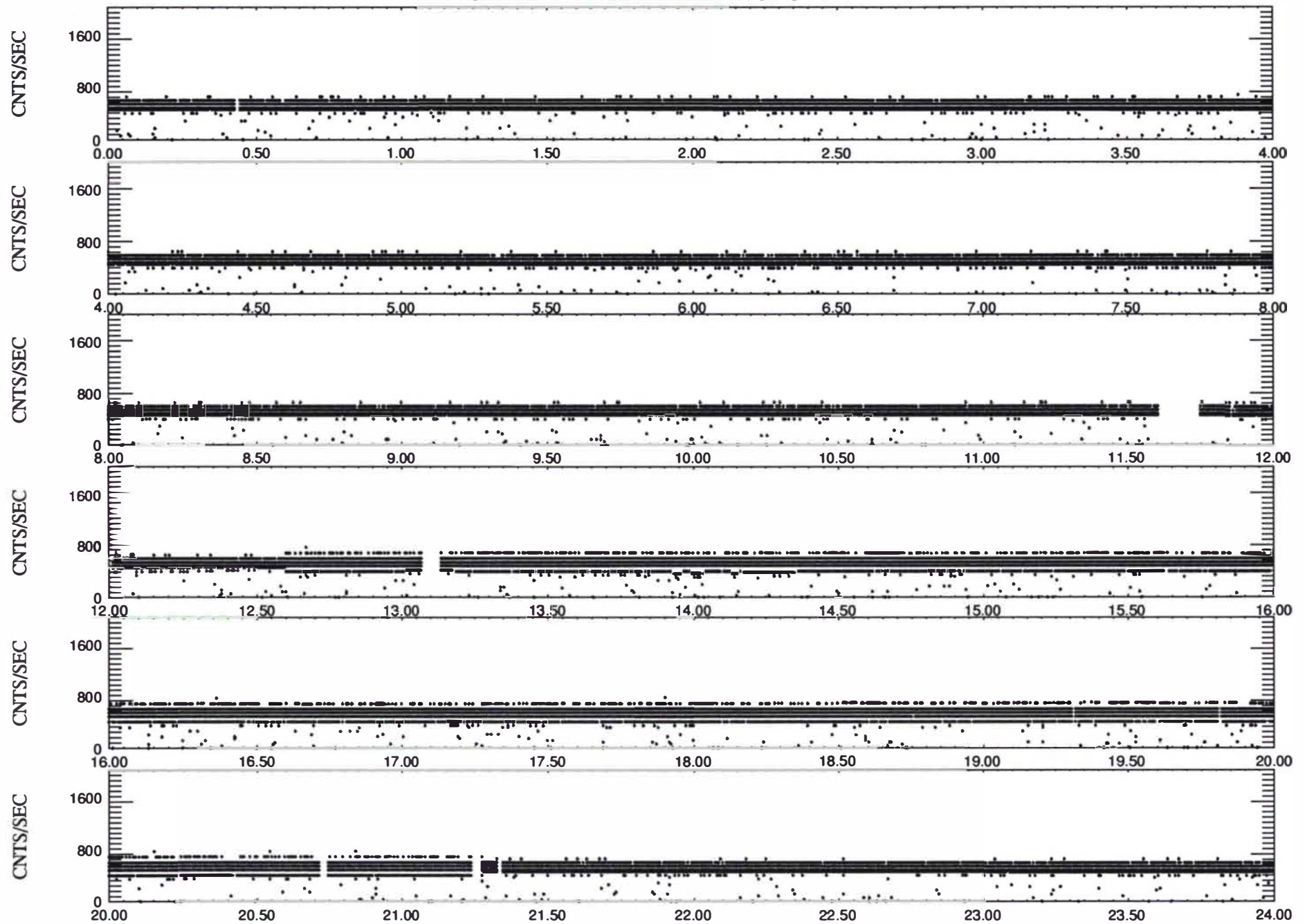
Background not subtracted

Sample average = 10

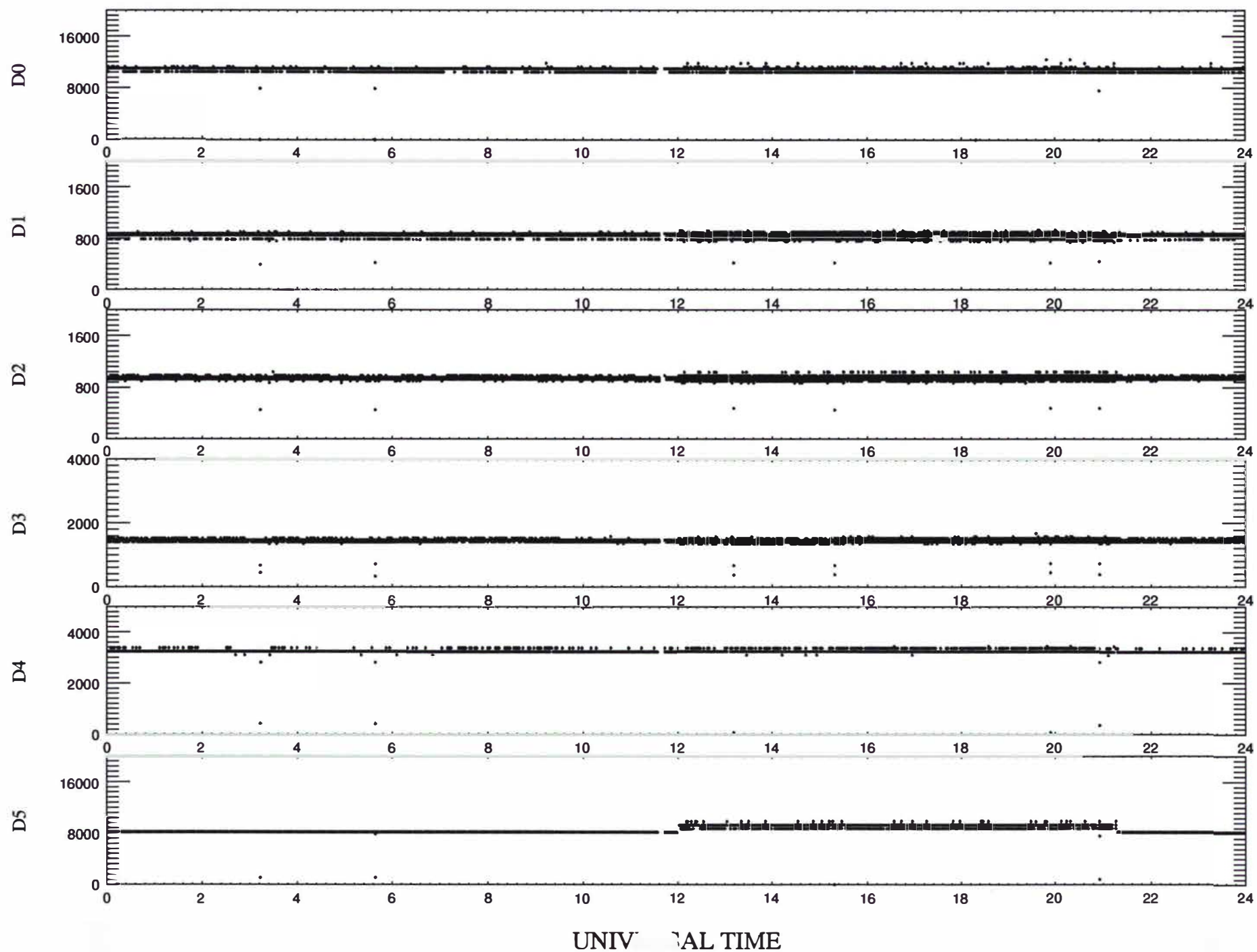
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



CATSEARCH PROGRAM

ND

.TSE BURST # 942
EVENT OF 1991 OCT 27 DAY OF YEAR=300
EVENT CROSSING TIME AT BATSE : 6312. S. OR 01:45:11.5
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 358.180 69.620
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 27/10/ 91 IS:
RA= 163.497 DEC= 8.278 DIST= 5.109 AU
BATSE-ULYSSES DISTANCE = 764376712. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 78.56 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 505.86 SECS.
CROSSING TIME AT ULYSSES IS 6817. S. OR 01:53:37.3 +/- 491.55 SECONDS

9 / 11 / 95

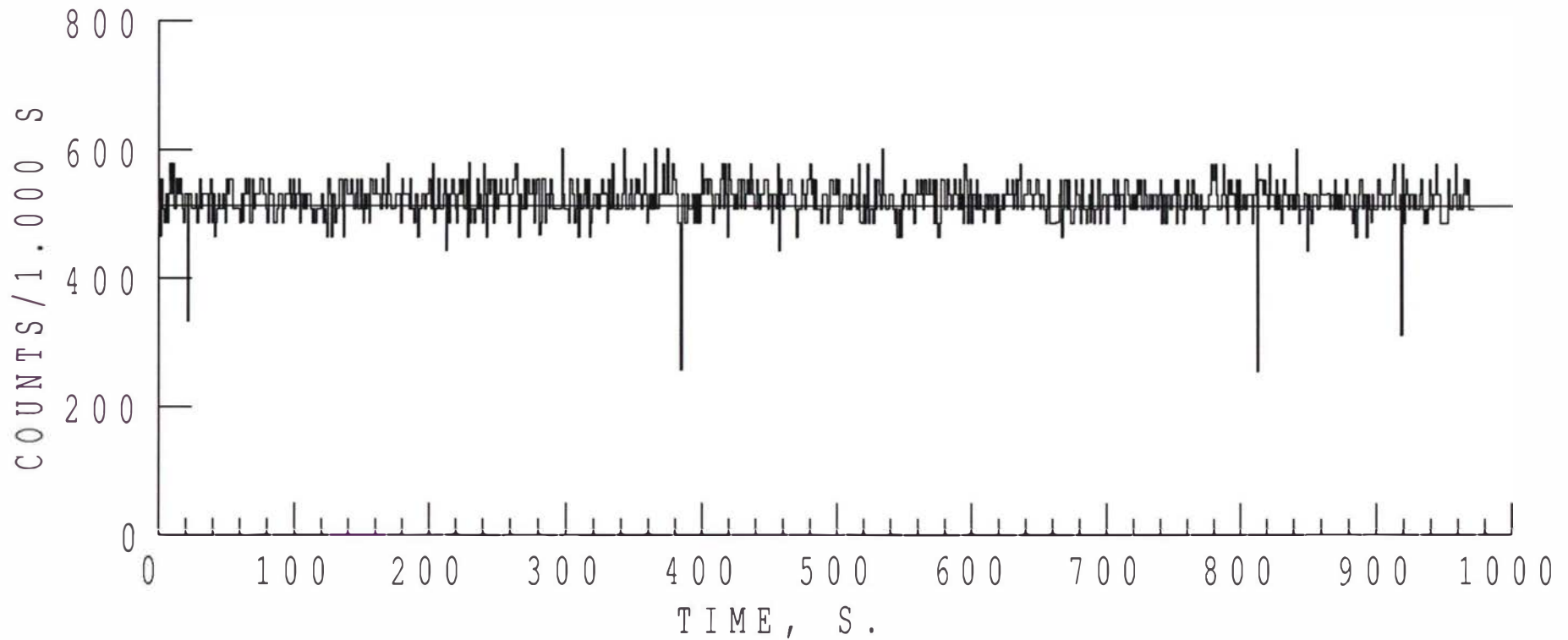
ULYSSES RT

27/10/91 6336.480 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From 082632@essdpl.lanl.gov Wed Aug 26 11:28:26 1992
 Date: Wed, 26 Aug 92 12:27:01 -0600
 From: 082632@essdpl.lanl.gov (Reply to NSSDCA::ESSDPl::FENIMORE or fenimore@essdpl.lanl.gov)
 To: kevin@beta.lanl.gov
 Subject: PVO/BATSE 1991 JOINT EVENTS
 Content-Length: 3132

Dear Chip:

As we discussed in my last visit, we want to identify joint PVO/BATSE events, show that we can calculate for both system a similar $\text{erg/cm}^2/\text{sec}$ and then get the $\text{erg/cm}^2/\text{sec}$ for all PVO events and all BATSE events.

There has been progress on two fronts. First, we have nearly completed the re-analysis of the entire PVO database so we can determine the exposure time. Second, I have used [BNEWS.CAT1]CAT1_12FEB.13 to search for joint PVO/BATSE events in 1991. I searched for PVO events at the time of the BATSE events with $C_{\text{max}}/C_{\text{min}}$ greater than 7.0. There were 39 such BATSE events. During 21 of them, PVO was apparently turned off so we did not have Real Time. Showing that Murphy is no slough, in many cases PVO turned off just before the BATSE event or turned on just after. Due to a typo, one BATSE event was not looked for. The following table showed what happen to the events.

DT is the PVO real time sample rate. Unfortunately, we don't spend as much time in a high sample rate as we did in the early years. There were also 5 events for which we had MROs but no real time.

	BATSE Event	DT	Result:
	910421_33245	64	No candidate
	910430_61721	32	No candidate - RI at 61465
C	910511_7909	0.5	Some weak short spikes (on sample size) NO ULYSSES DATA TO CHECK
	910522_43931	64	MRO ! but weak ✓
	910626_26115	128	Nothing ULYSSES TRIGGER
C	910627_16159	0.5	one 5 sigma event in one 0.5 s sample ✓
	910702_25195	64	No candidates, register rollovers ULYSSES IN SOLAR PARTICLE EVENT - BUT TAKE A LOOK
B	910717_16386	64	MRO !! ✓
C	910718_8699	8	one 4 sigma candidate ? GO BACK & LOOK
C	910807_26434	64	one candidate NO ULYSSES DATA
	910814_40182	64	MRO !! NO ULYSSES DATA
B	910814_69275	n/a	MRO !!
	910814_50340	64	No candidate CHECK ULYSSES RI
B	910814_69275	n/a	MRO !! ULYSSES RI
	911005_27466	64	No candidate CHECK ULYSSES RI
	911016_39696	64/16	No candidate ULYSSES RI + PVO RI
B	911027_6313	n/a	MRO? Getting it to location - then go check RT data
	911104_54203	n/a	MRO ✓
	911109_12459	0.5	MRO + good real time ✓
C	911126_46129	32	Clear strong candidate - NO - it's an MRO
B	911118_68260	n/a	MRO ✓
	911202_73731	32	MRO ✓

I assume people doing interplanetary network positions know about the MRO events. I'll send this mail message to those folks as well.

I will probably repeat this analysis

searching for somewhat weaker BATSE events because we (maybe) saw one with a $C_{\text{max}}/C_{\text{min}}$ of 8.9 and soon do it for 1992.

the next steps:

1) Please estimate the $\text{ergs/cm}^2/\text{sec}$ in the bandpass 100 to 500 keV for the above candidates marked with a B (for best)

2) Please provide the Expected light travel time to Venus based on the BATSE position for the events marked with C to determine if they

From @space6.ssl.berkeley.edu,@cmsa.berkeley.edu:ASTMPH@CSEARN.BITNET Sun Aug 30 15:12:21 1992
Date: Mon, 31 Aug 92 00:12:33 MDT
From: Petr Pravec <ASTMPH@CSEARN.BITNET@cmsa.berkeley.edu>
Subject: msg from Rene Hudec
To: khurley@space6.ssl.berkeley.edu
Content-Length: 1712

to: Kevin Hurley <khurley@space6.ssl.berkeley.edu>

Dear Kevin:

we have found the following positional coincidences between BATSE
GRB and OT records:

GRB 920224 OT 910407 *In 4 mag, but count rates not too bad. Get BATSE data + check*
GRB 911228 OT 910719 *Get BATSE data*
GRB 920505 OT 910811 " " "
GRB 920121 OT 910917 " " "

i.e. these GRB and OT coincides positionally within the given
optical and gamma ray error boxes. However, the error boxes we
have for these GRB are large and so the coincidences may be
accidental only. Please let me know whether or not are the
positions of these GRBS known more accurately by triangulation
method. I have already asked Chryssa but she recommended to ask
you directly as owner of this information.

The same information would be also important for those GRBS we
have simultaneous plates:

911025, 911027, 911127, 911202, 911209, 911210, 920110, 910511, 910809
910505, 910829, 910902, 911129, 911228, 920121, 920209, 920224, 920227, 920305
and 920505 *Same as above*

For these GRB, we have between 1 and 9 Plates taken simultaneously
and covering the position. However, the BATSE errors are large (
14 deg dia) and hence the search for optical counterparts is very
laborious and difficult. If you would have a more precise position
determined by triangulation, then we could investigate this box
more carefully.

Naturally, I guarantee you that this information will not be given
to any other person and will be used for the proposed search only.
In the case of any discovery, publication etc. you will be
considered as co-author and asked for permission prior release.

Regarding the release of HCO plates, I have send an email message
to Martha Hazen. She will contact you when necessary. Thank you.

Kind regards Rene Hudec

911025 No
911027 No
911127 Yes ✓
911202 Yes ✓
911209 Yes ✓
911210 Maybe
920110 Yes ✓
910511 No ✓
910505 Yes No
910809 ~~Yes but event but no more~~
910829 Get BATSE data + look
910902 " "
911129 " "
911228 " "

920121 Get BATSE data + look
920209 No - in 4 mag
920224 See above comment
920227 Get BATSE data + look
920305 "

From @space6.ssl.berkeley.edu,@cmsa.berkeley.edu:ASTMPH@CSEARN.BITNET Thu Sep 3 22:10:38 199
Date: Fri, 04 Sep 92 07:10:41 MDT
From: "R.Hudec" <ASTMPH@CSEARN.BITNET@cmsa.berkeley.edu>
To: khurley@space6.ssl.berkeley.edu
Content-Length: 1333

to: Kevin Hurley <space6.ssl.berkeley.edu>

Dear Kevin,
thanks for your message from Aug 31.
Today, I got an e-mail message from Martha Hazen <martha@cfa3>.
She is ready to prepare the HCO plates for the trip. So now Roland
should contact Martha and give a concrete date when the plates
should be released. The problem is that, although I have send him
many messages and even letters in the last months, I never got
answer from him. Could you please try to help here ? Martha is
informed and kindly agrees to release and prepare the plates.

Regarding the GRB detected by BATSE, here is a list of events for
which we have some hints for coincidences and/or simultaneous
optical data:

GRB date	UT, s	
910511	79390	NO
910809 # 658	03507	Request BATSE α 8
911025	77116	NO
911027 # 942	06313	Request BATSE α 5
911127	15730	YES
911209	03410	NO
910505	72918	OT candidate NO
910823 # 717	75686	Get BATSE α 8
910829 # 741	81584	Get BATSE α 8
910902 # 752	82537	Get BATSE α 8
911129 # 1129	64793	Get BATSE α 8
911228 # 1244	62528	CC Get BATSE α 8
920121	79011	C Get BATSE α 8
920209	78046	Get BATSE α 8
920224	77882	C Get BATSE α 8
920227	75002	Get BATSE α 8
920305	3644	Get BATSE α 8
920505	78891	C Get BATSE α 8

C denotes that positional coincidence with previously mentioned OT
has been found. CC denotes that 2 such coincidences were found.

Kinde regards, Rene Hudec

Request Sep 9

From khurley@space6.ssl.berkeley.edu Fri Aug 28 09:18:58 1992
Date: Fri, 28 Aug 92 08:12:20
From: khurley@space6.ssl.berkeley.edu
Content-Length: 153

Could you send me the position of #942 (Oct 27 1991) please? PVO apparently saw it as a trigger, and I want to check our real time data.

Thanks

Kevin

From kouveliotou%8868.span@Sdsc.Edu Fri Aug 28 09:56:32 1992
Date: Fri, 28 Aug 92 16:57:05 GMT
From: kouveliotou%8868.span@Sdsc.Edu (Chryssa Kouveliotou NASA/MSFC (205) 544-7711)
Subject: grb #942
To: khurley@sunspot.ssl.berkeley.edu
X-St-Vmsmail-To: HURLEY
Content-Length: 277

Kevin,
the coordinates are:

R.A. = 360
dec = 71

the UT is 6311.56

I am kind of disheartened about the soft event. Bhat is now
calculating the detector viewing of the Earth. Let's see whether this
means that we are looking at the aurora or not !

Take it easy in COSPAR.

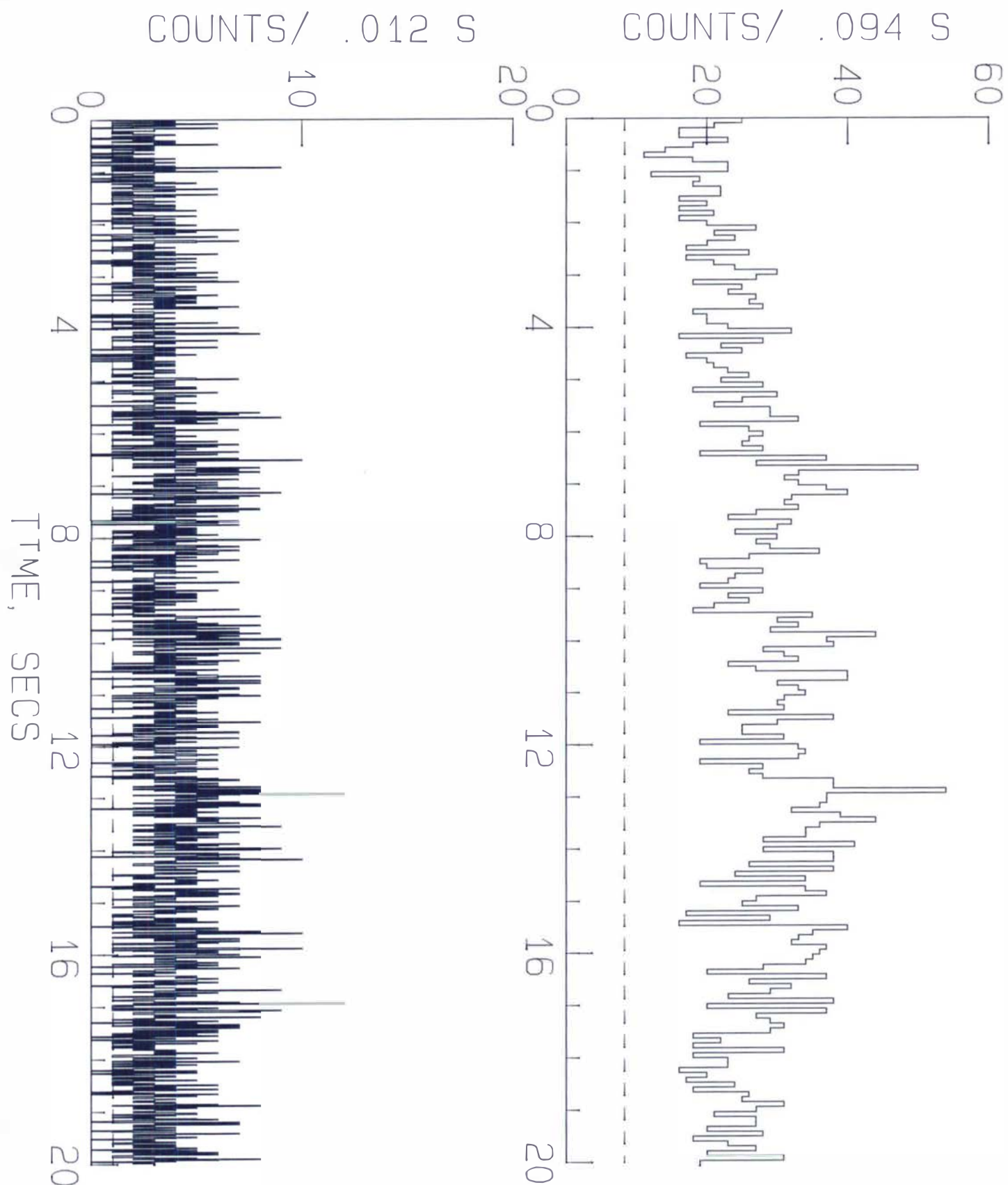
CK

PVO (No Ulysses
observation)

27/10/91

7526.384

100-2000 keV



PV0

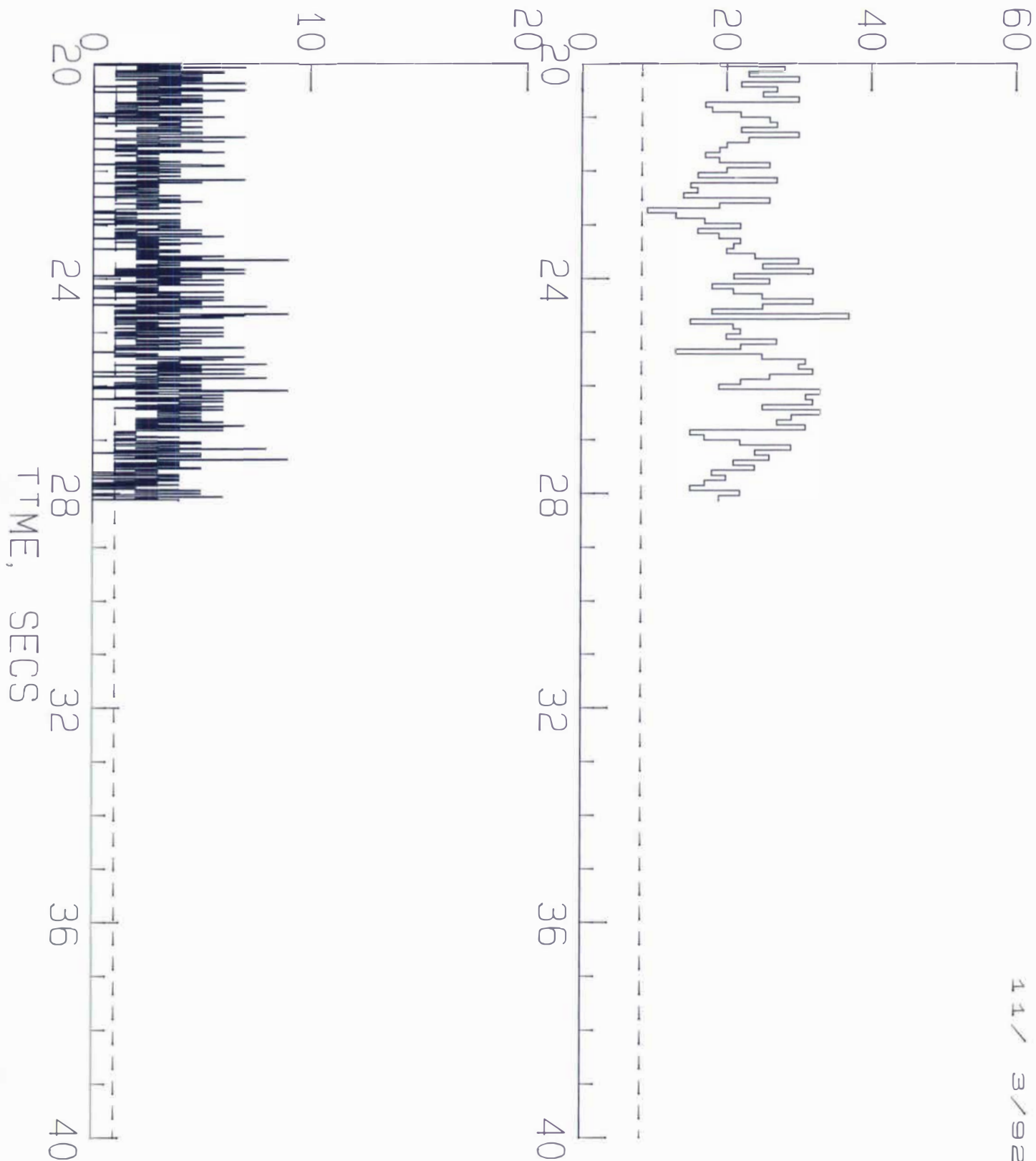
27/10/91

7526.384

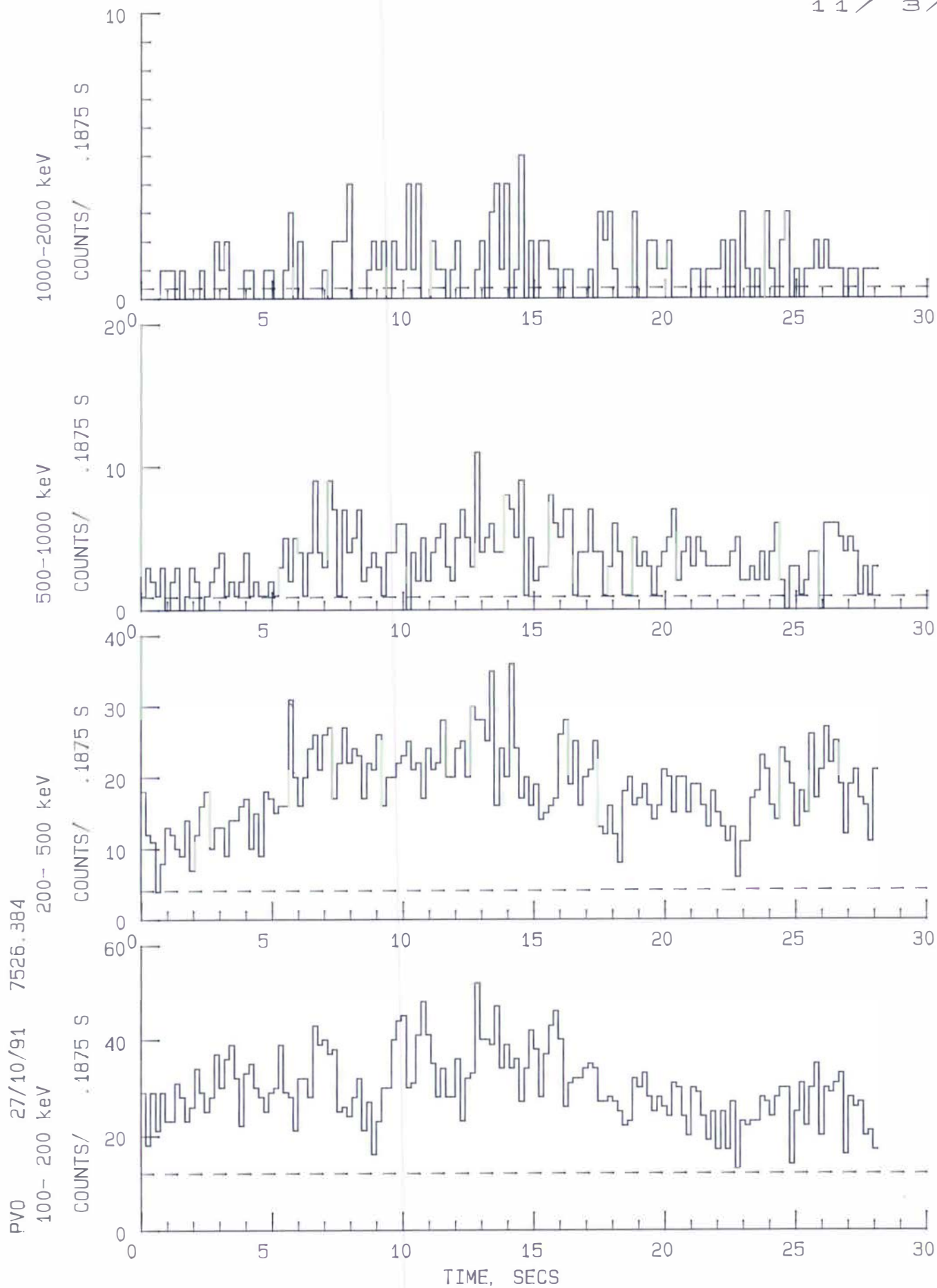
100-2000 keV

COUNTS/ .012 S

COUNTS/ .094 S



11 / 3 / 92



2 / 4 / 92

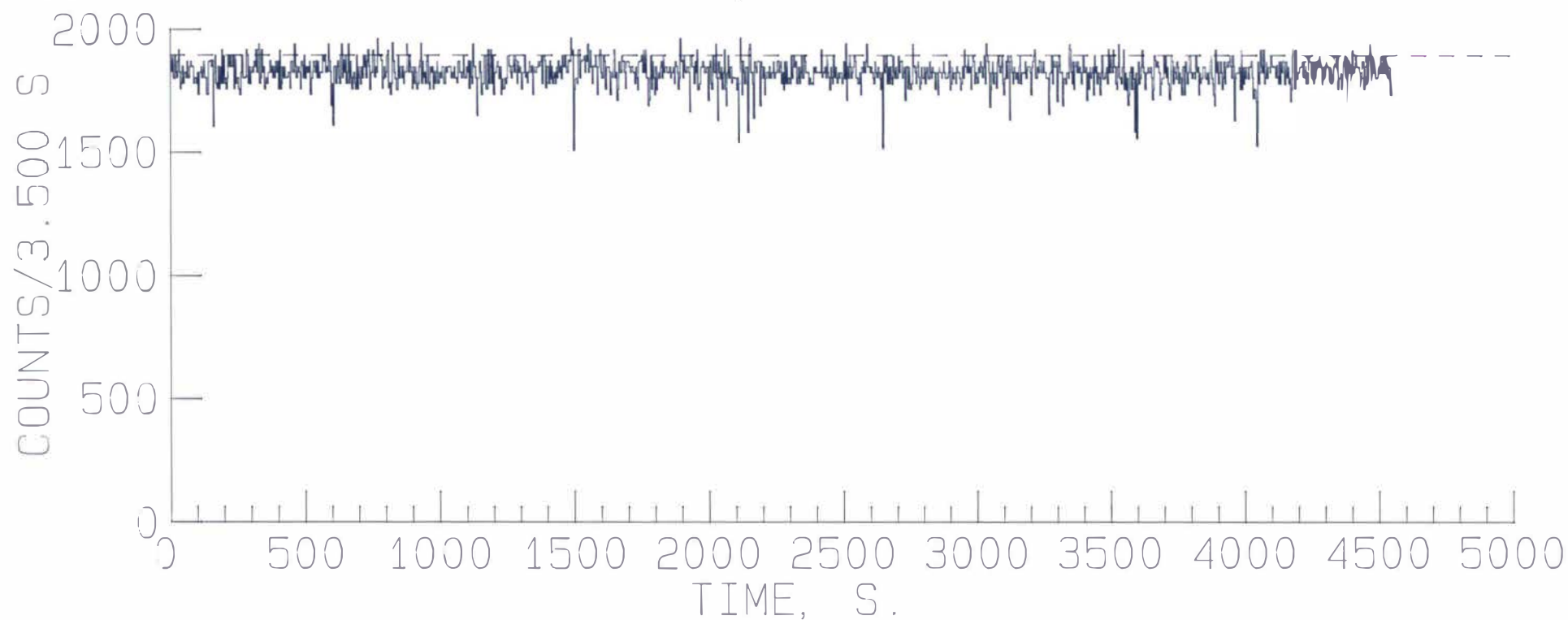
ULYSSES RT

27/10/91 5220.454 s

.500 S INTERVALS REGROUPED BY 7

0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



2 6 / 9 / 9 5

ULYSSES RT

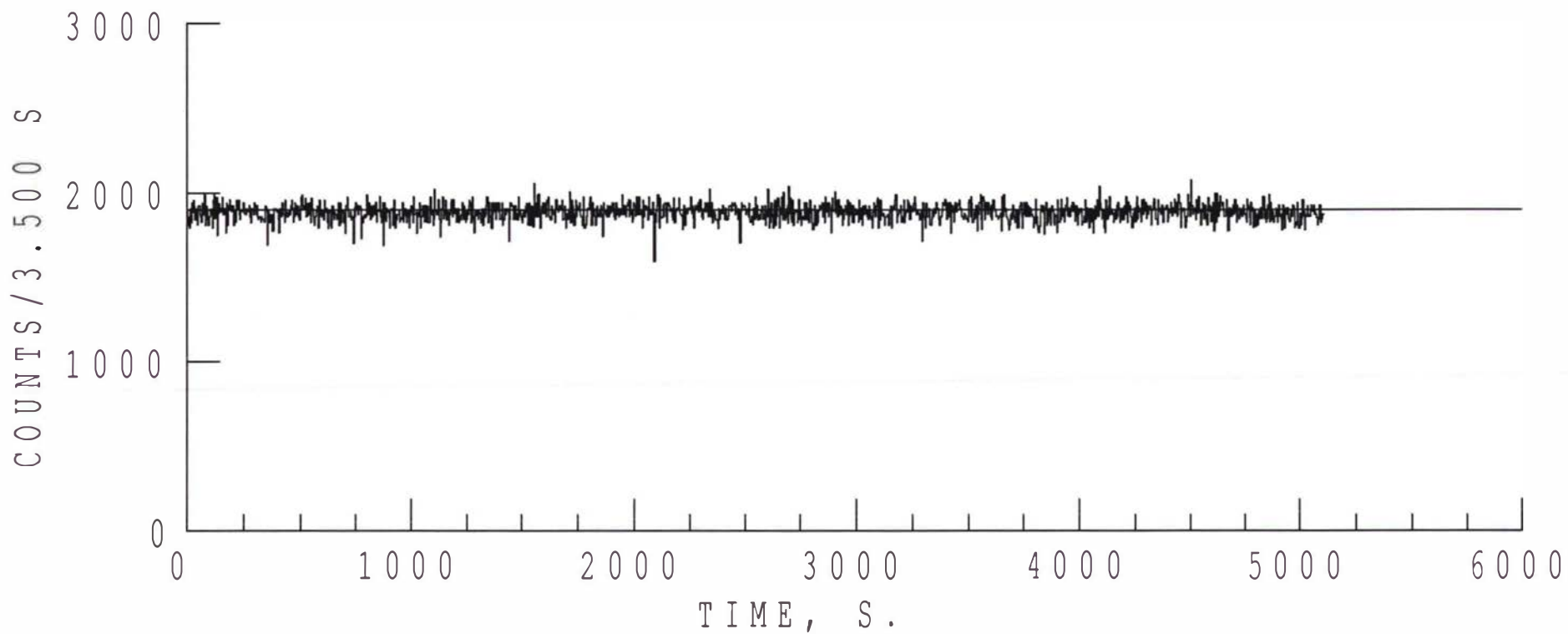
27/10/91 17856.180 s

0.250 S INTERVALS REGROUPED BY 14

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 946
EVENT OF 1991 OCT 27 DAY OF YEAR=300
EVENT CROSSING TIME AT BATSE : 37910. S. OR 10:31:50.4
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 139.300 75.100
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 27/10/ 91 IS:
RA= 163.497 DEC= 8.278 DIST= 5.109 AU
BATSE-ULYSSES DISTANCE = 764376712. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=111.79 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -946.52 SECS.
CROSSING TIME AT ULYSSES IS 36964. S. OR 10:16:03 +/- 446.66 SECONDS

110

14 / 4 / 93

ULYSSES RT

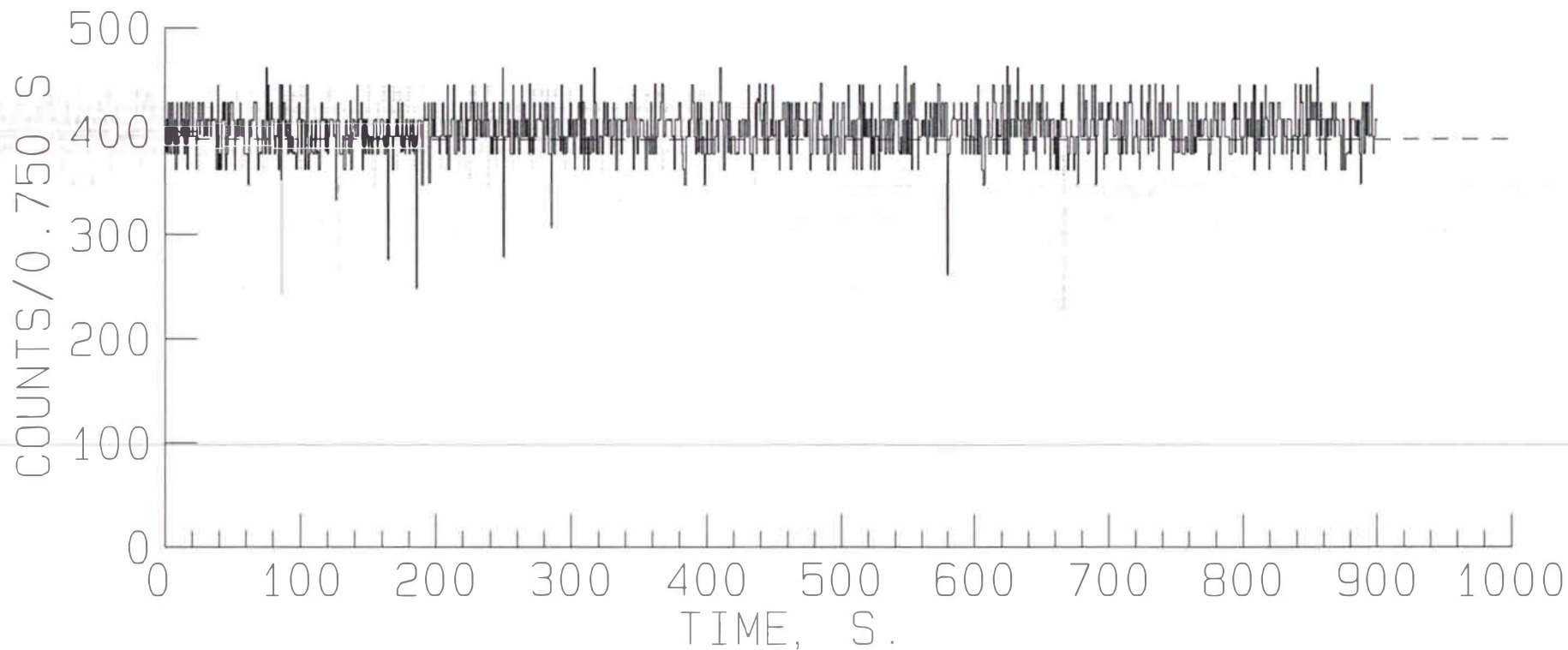
27/10/91 36504.000 s

0.250 S INTERVALS REGROUPED BY 3

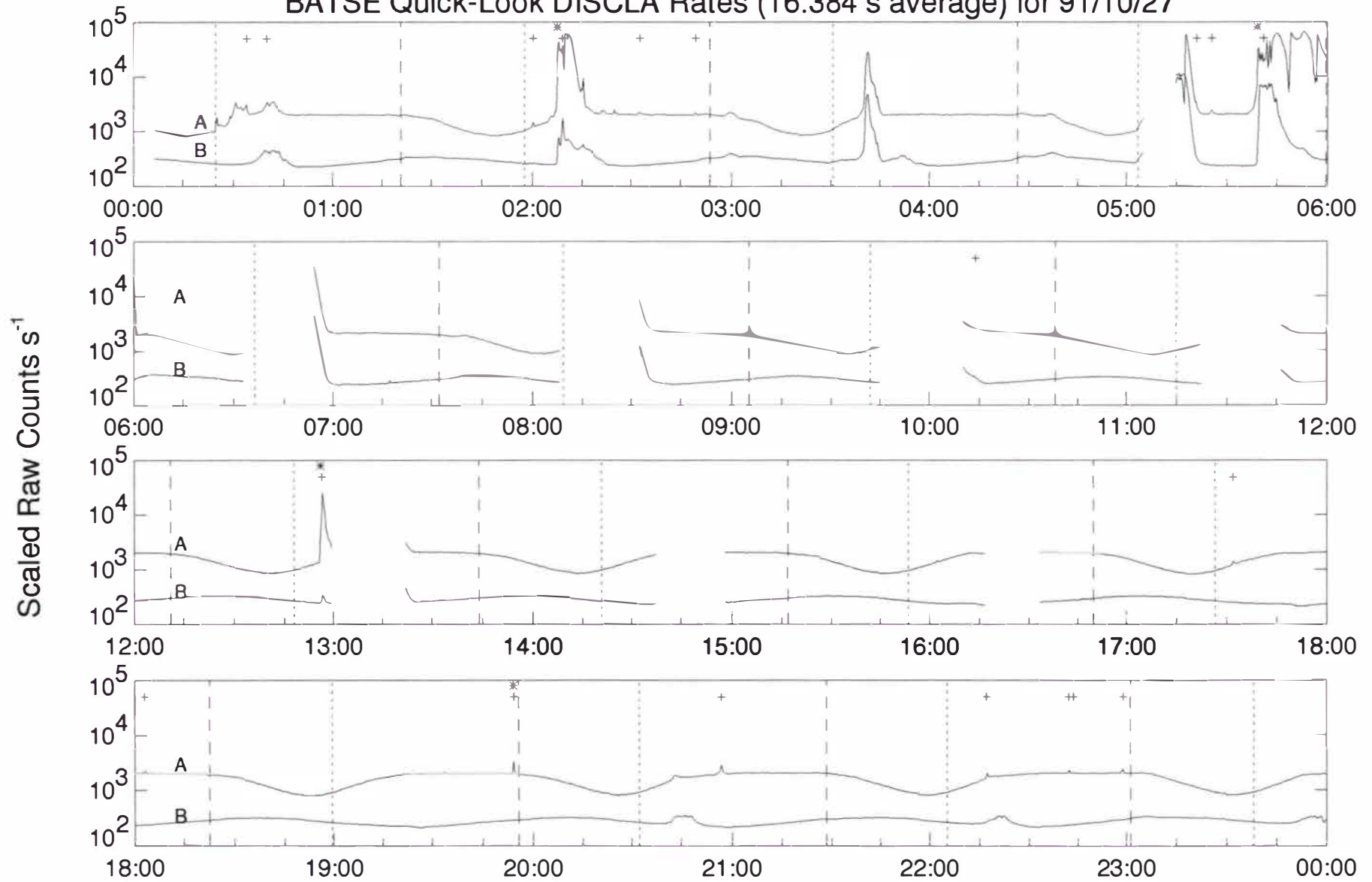
0- 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/27

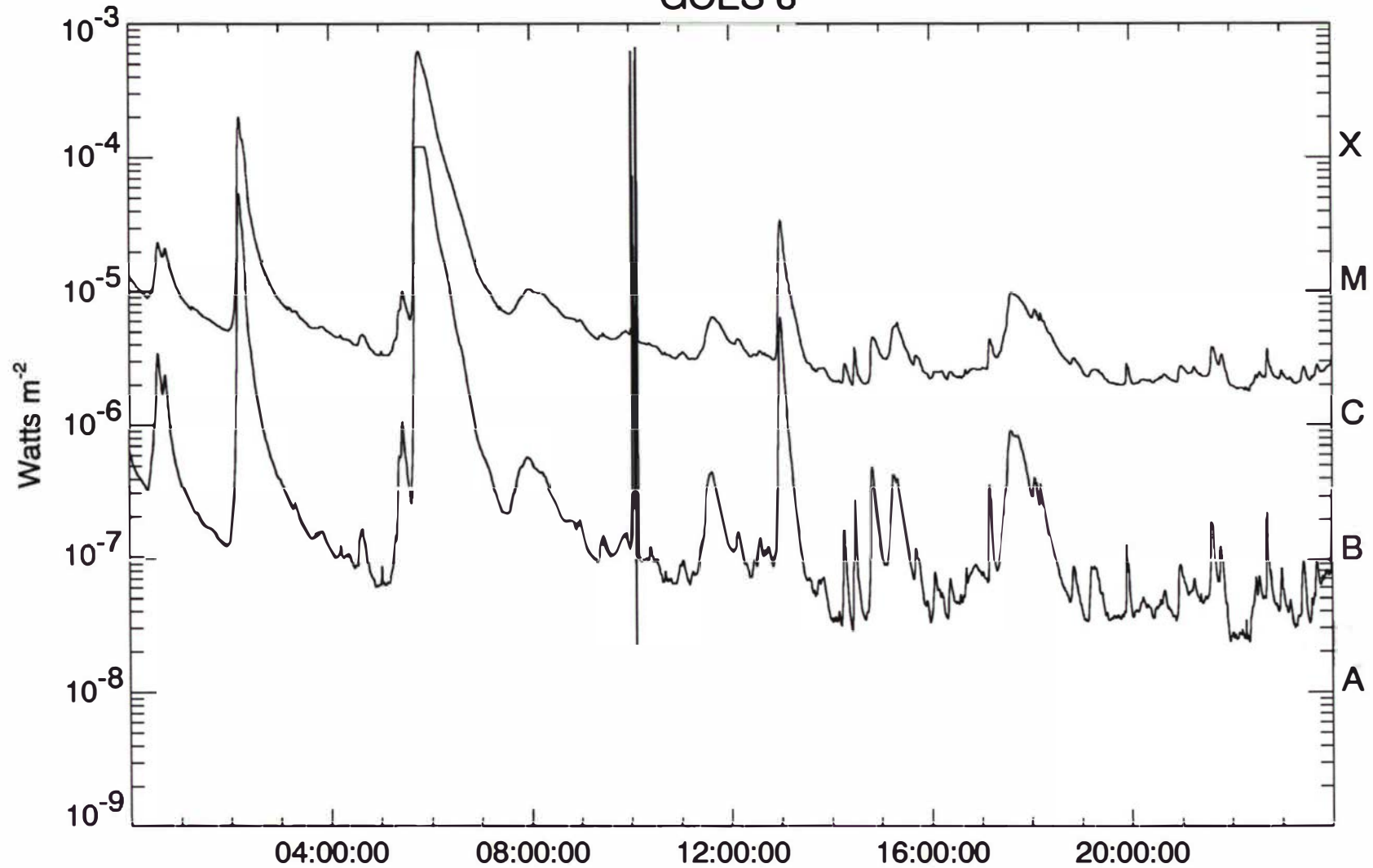


Current Time: 92/10/31, 2006 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/27, 0000:01

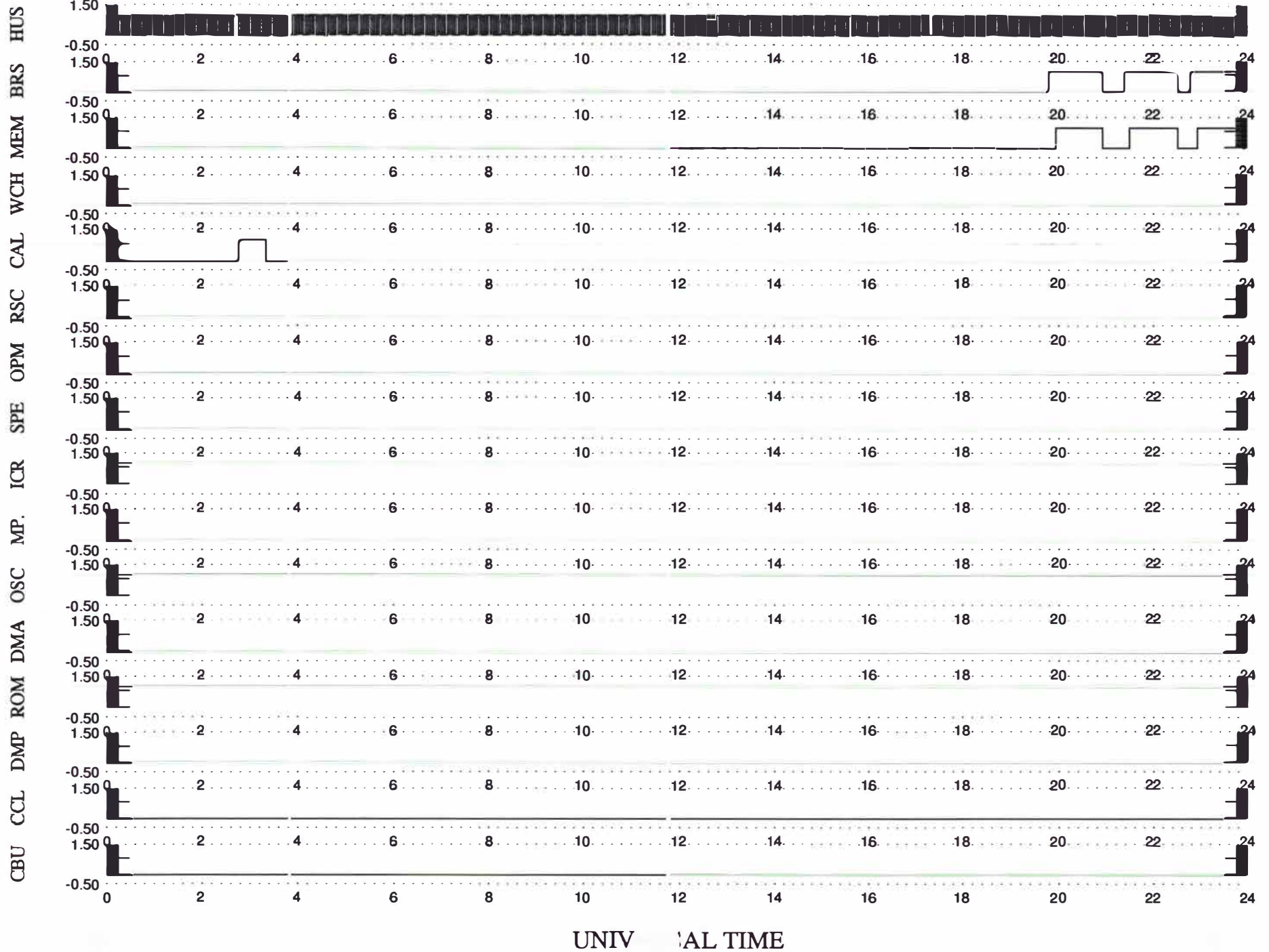
Plot created: 97/10/15, 0018

Channel

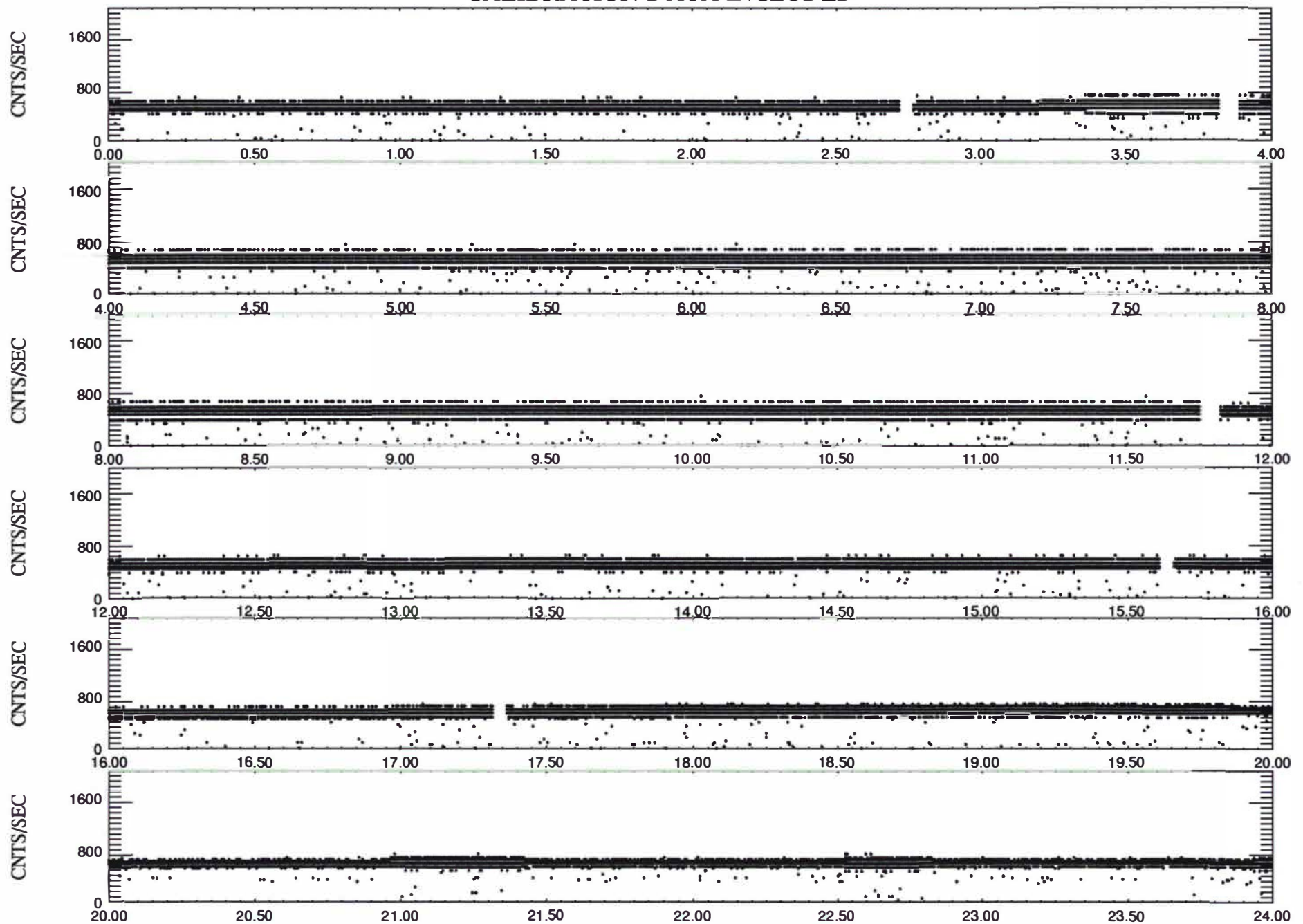
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

BURST NUMBER 0 - 2

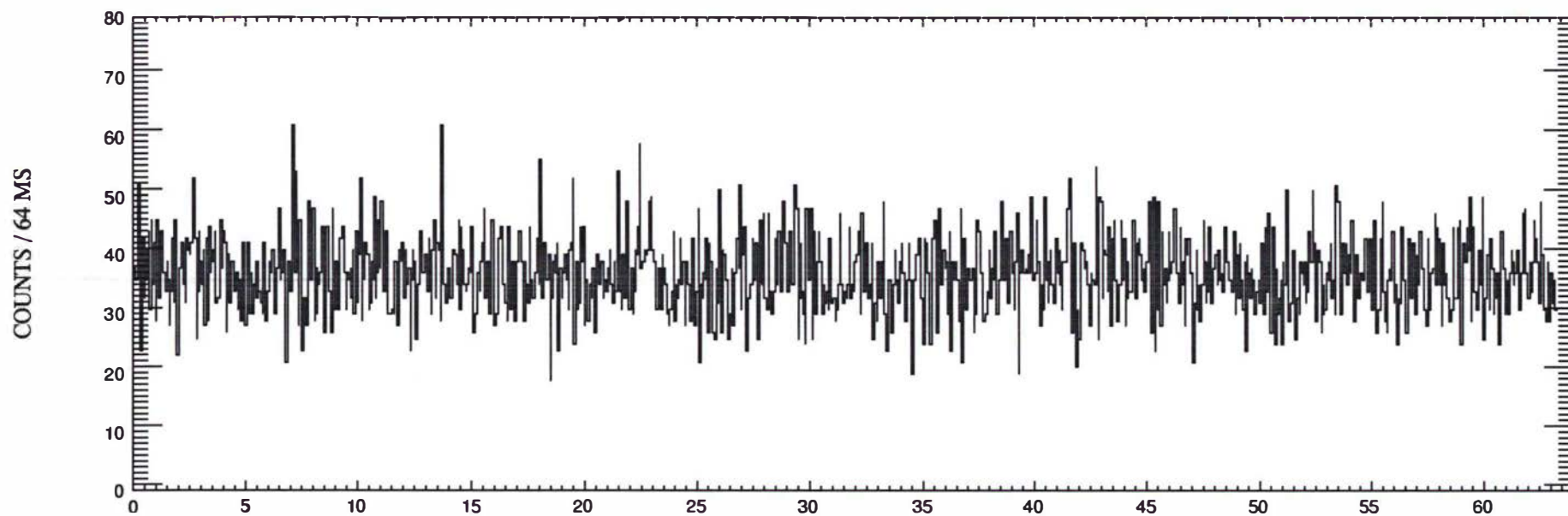


CALIBRATION DATA INCLUDED

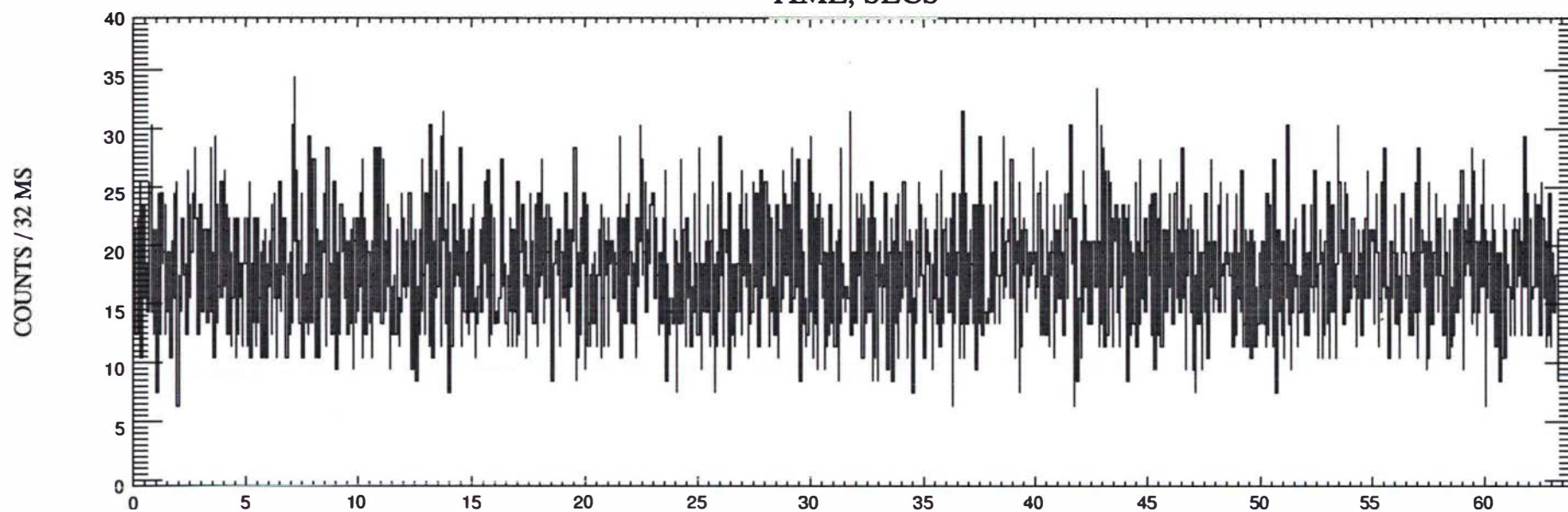


UNIVERSAL TIME

Burst Counter 3 at UT=23.957944306268 h=86248.600 s 23:57:28.600

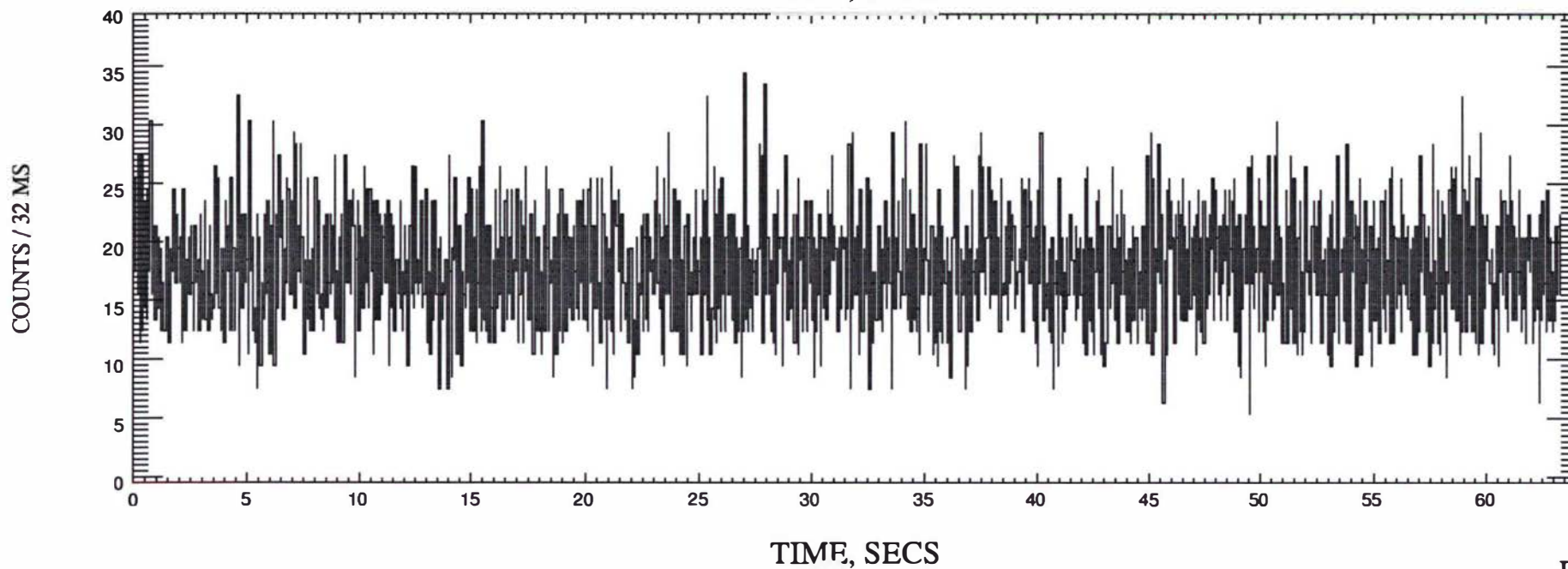
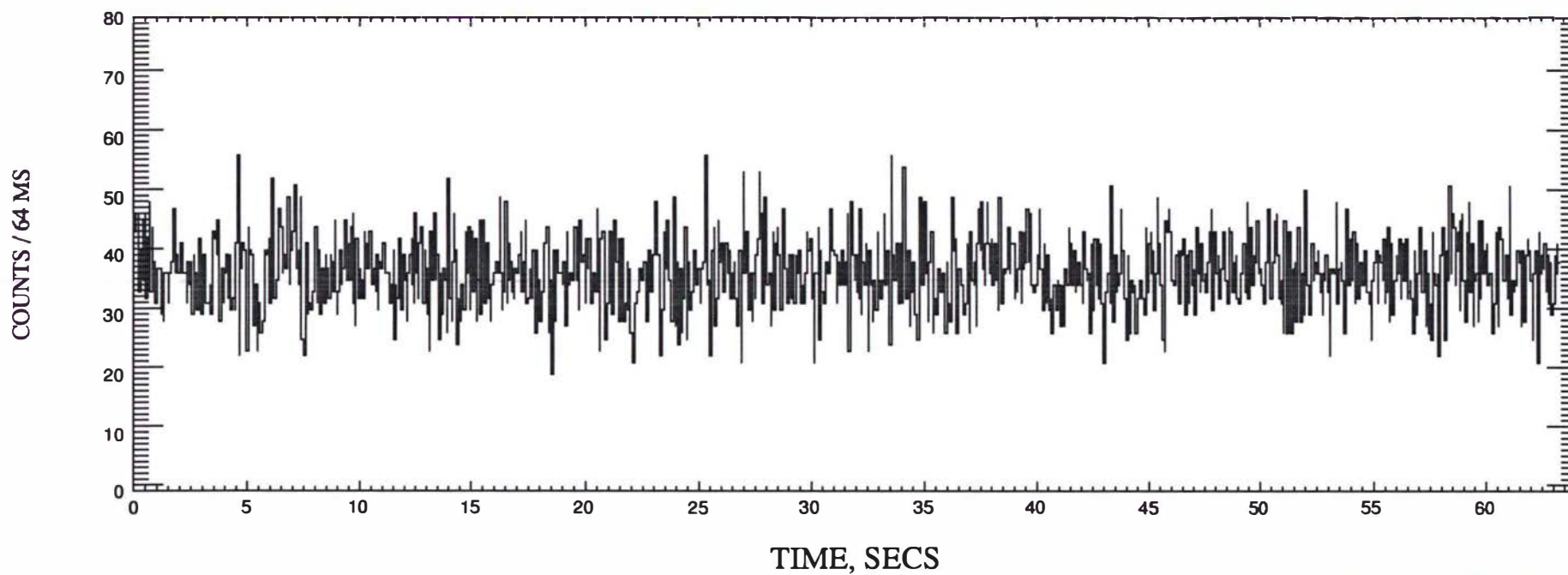


TIME, SECS

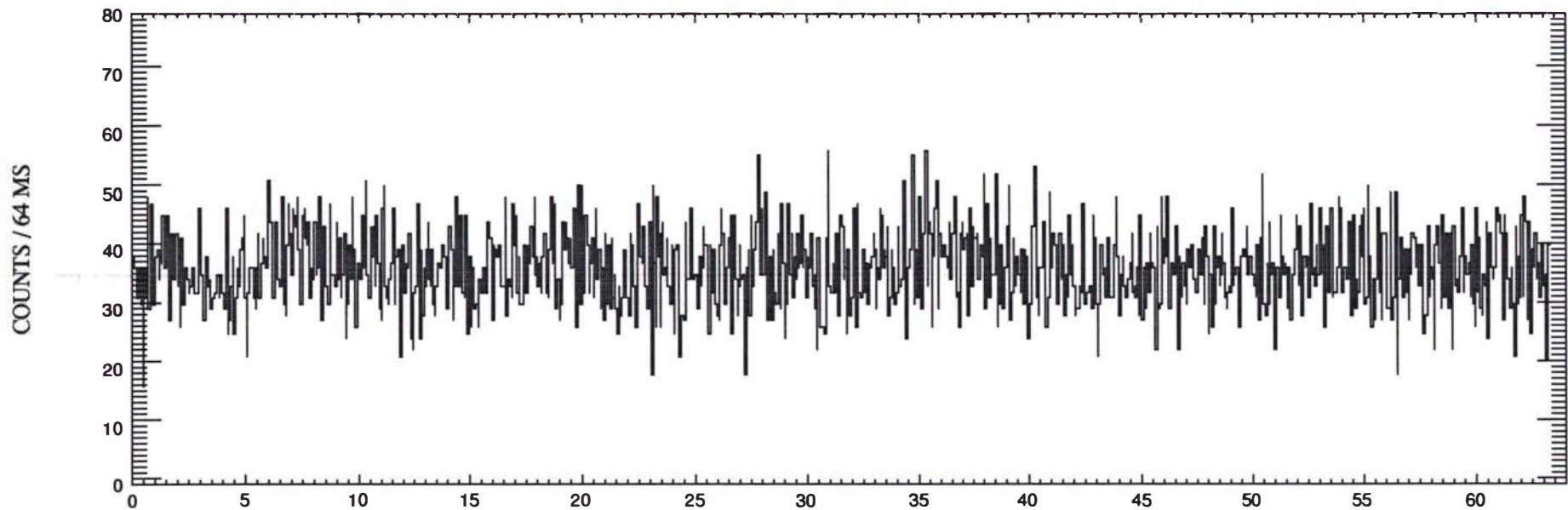


TIME, SECS

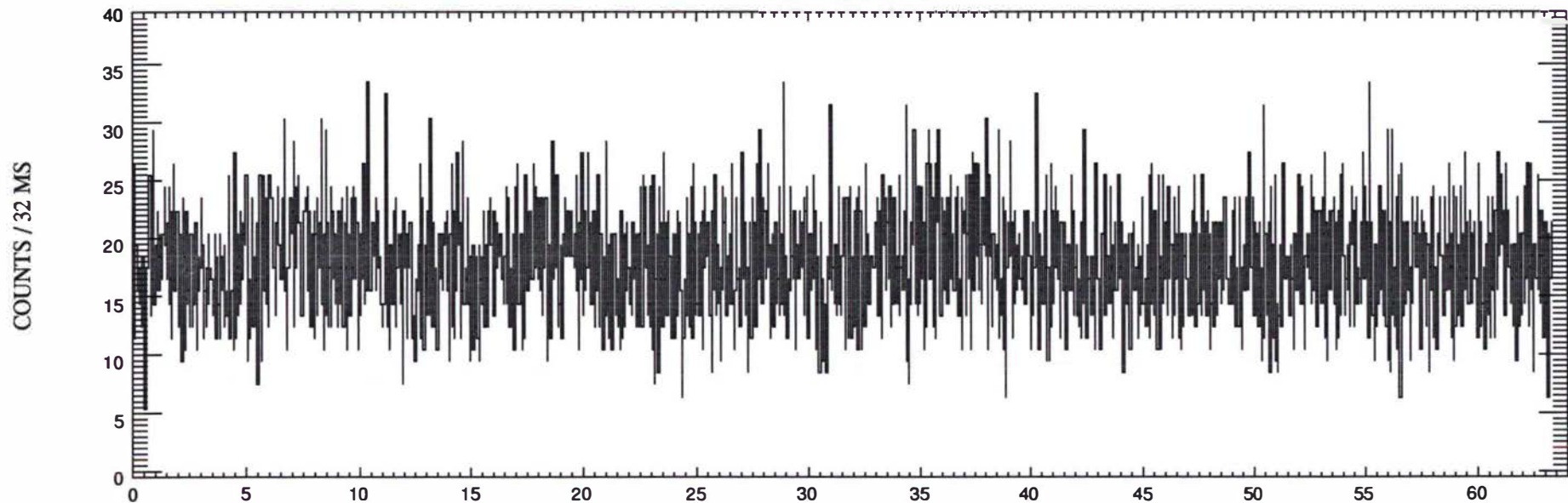
Burst Counter 2 at UT=22.676743693882 h=81636.277 s 22:40:36.277



Burst Counter 1 at UT=21.263939052158 h=76550.181 s 21:15:50.181

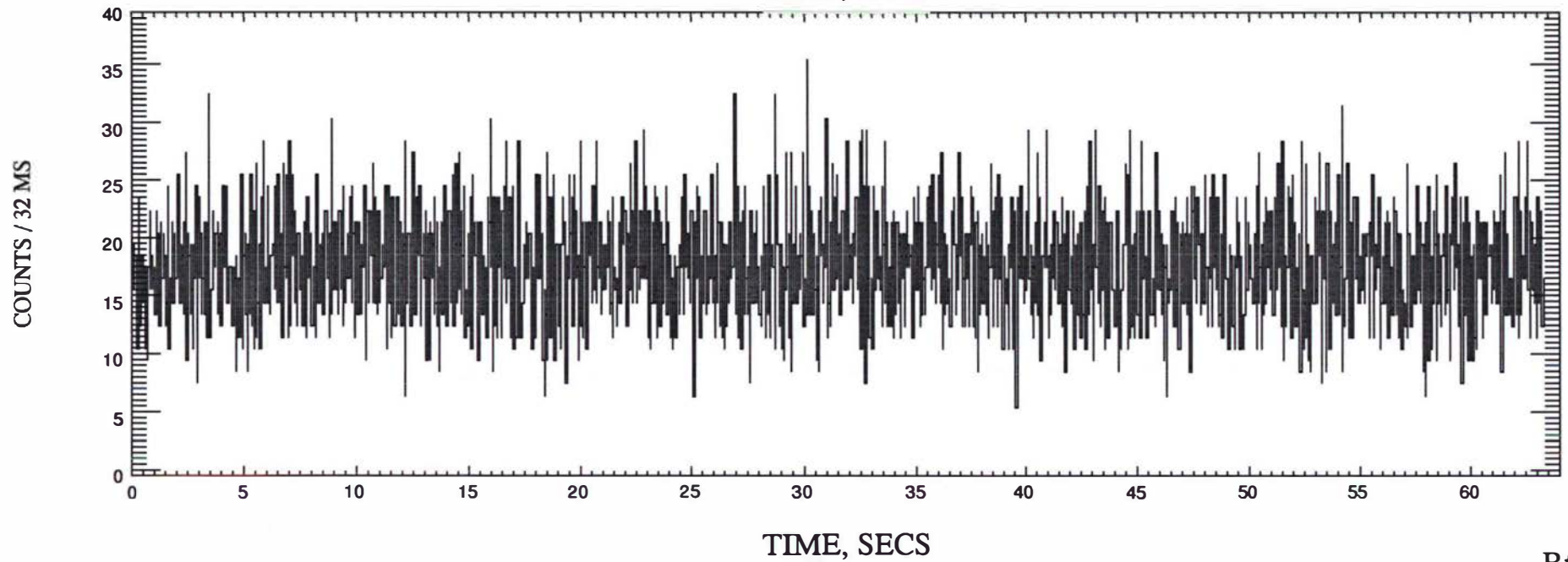
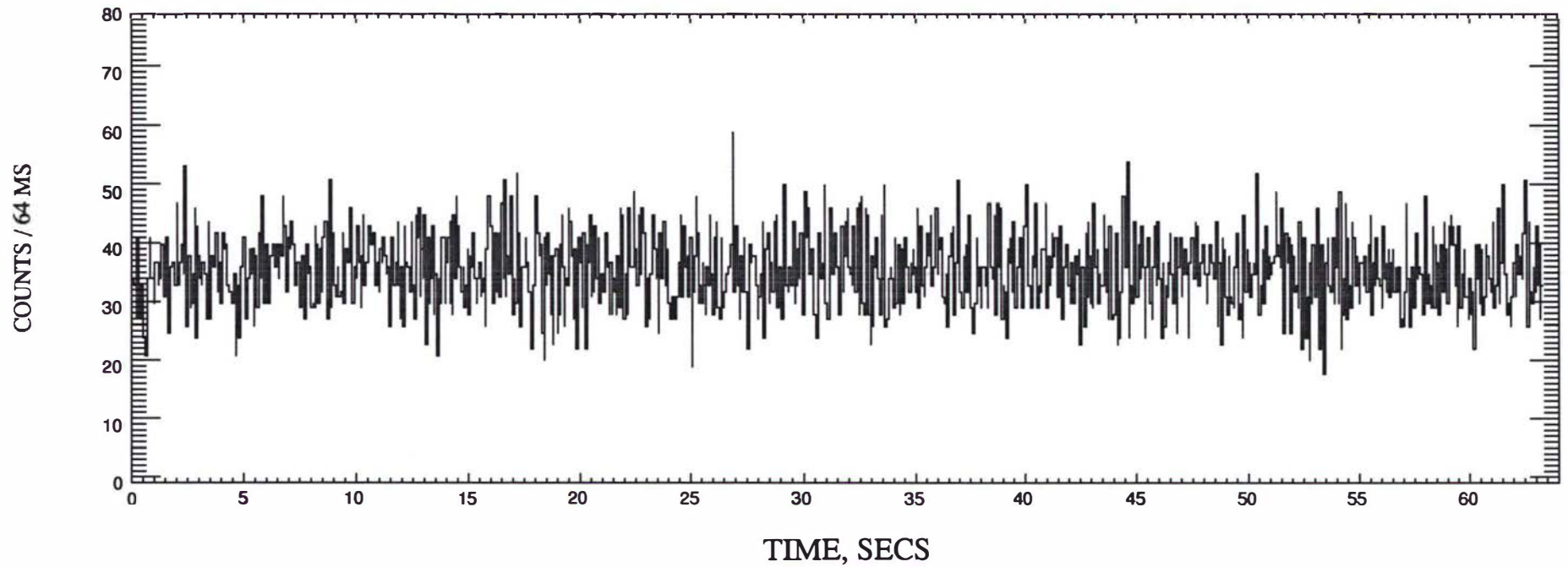


TIME, SECS

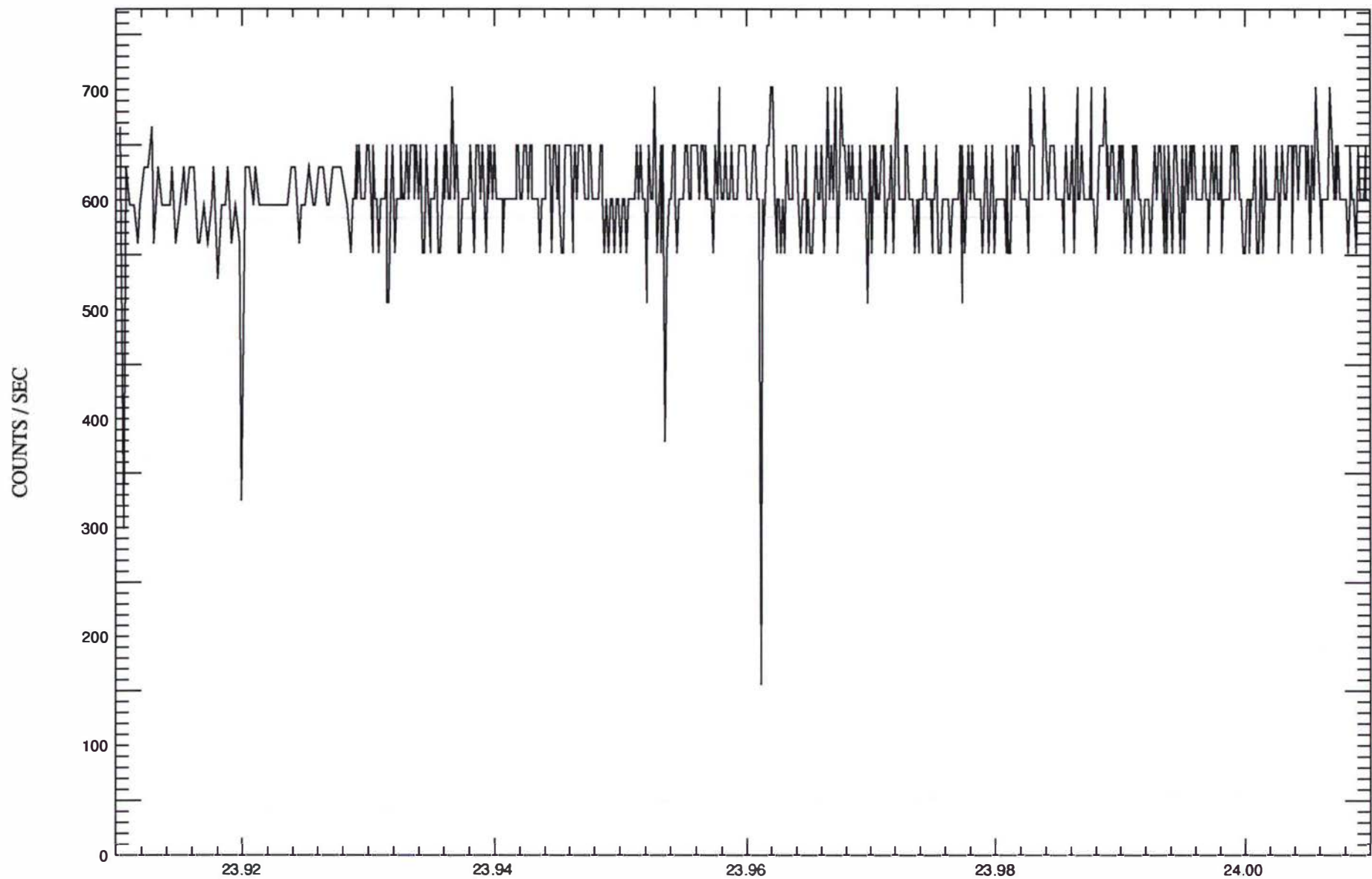


TIME, SECS

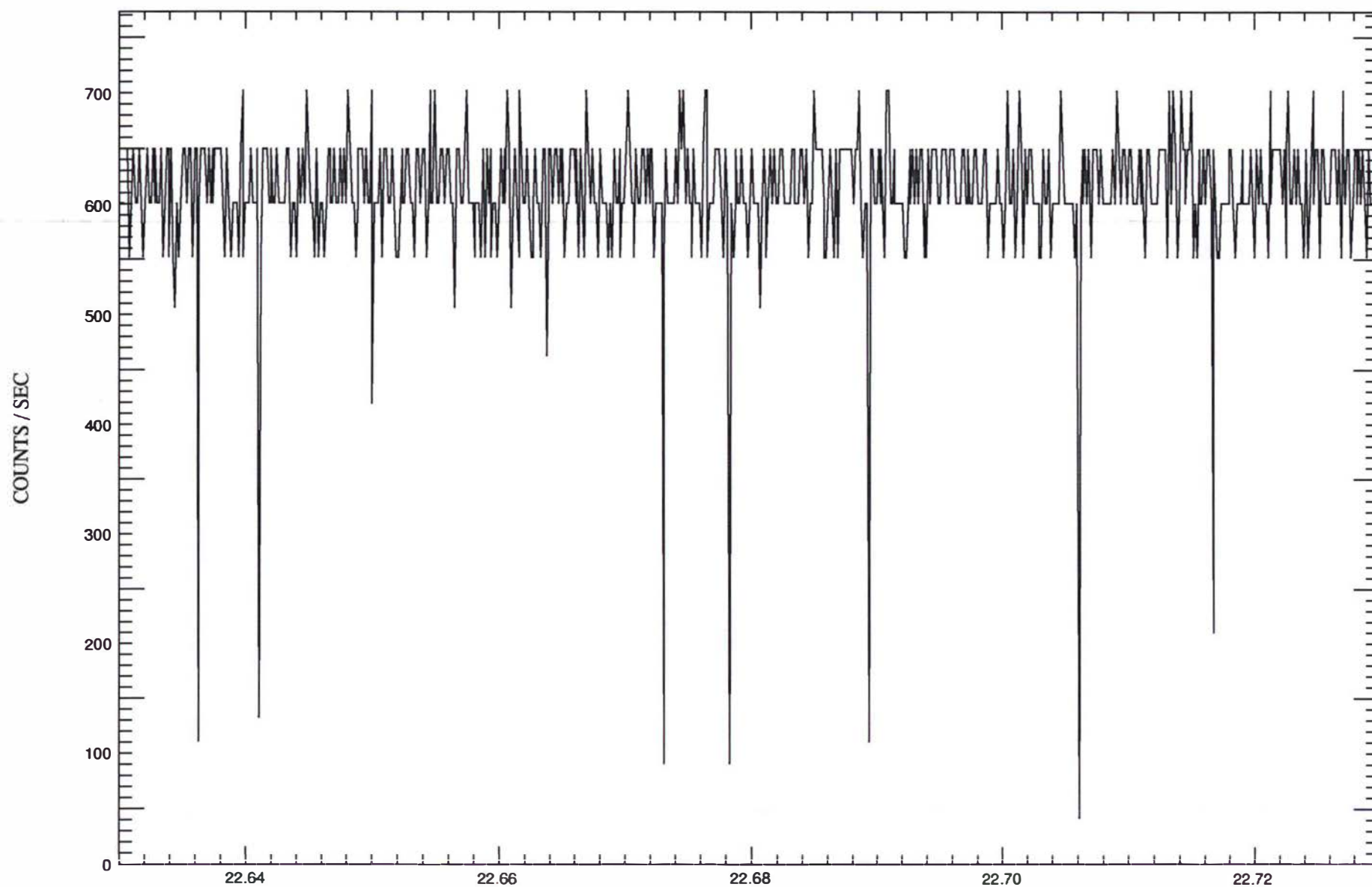
Burst Counter 0 at UT=19.703914057414 h=70934.091 s 19:42:14.091



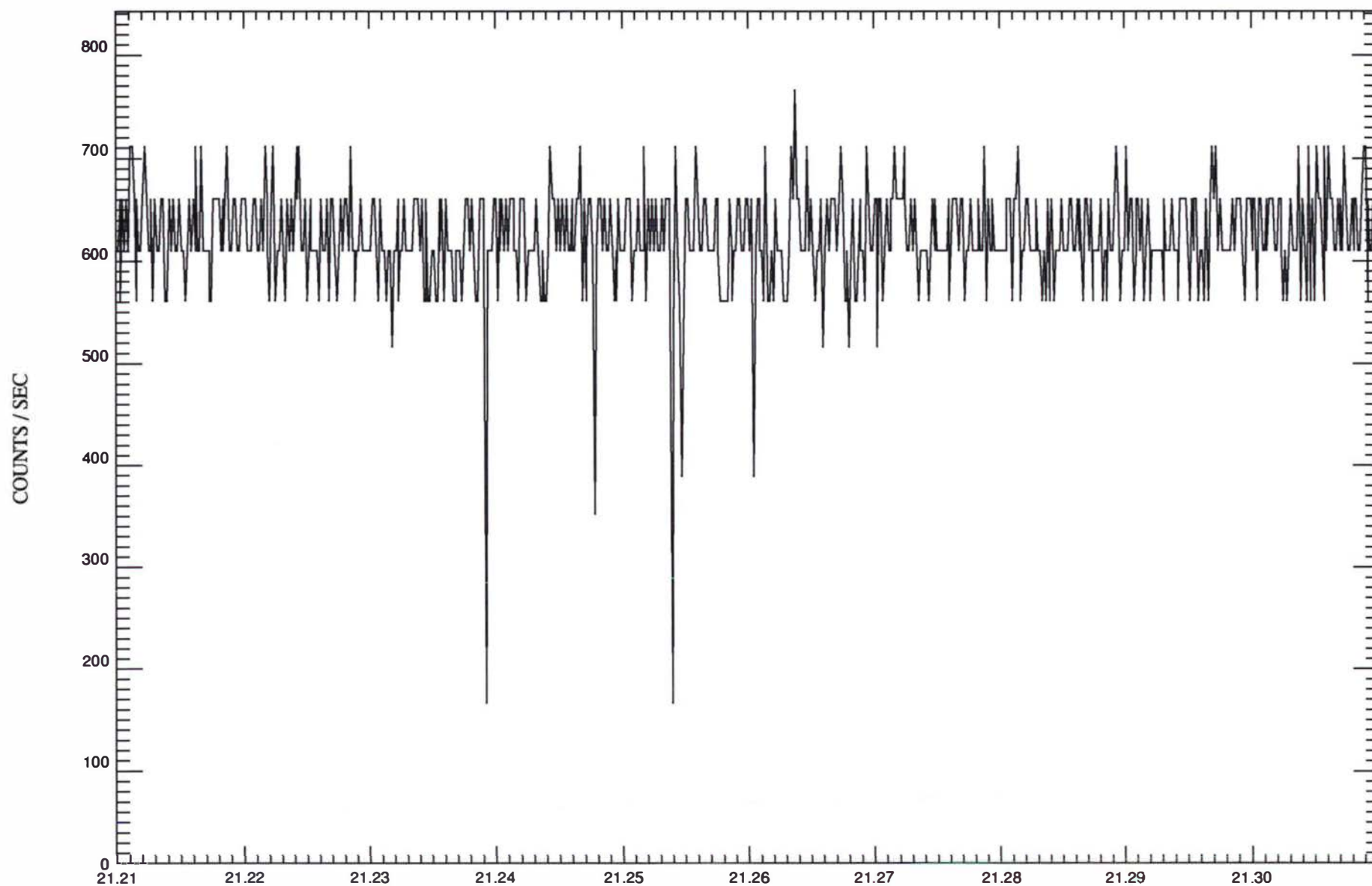
CALIBRATION DATA INCLUDED



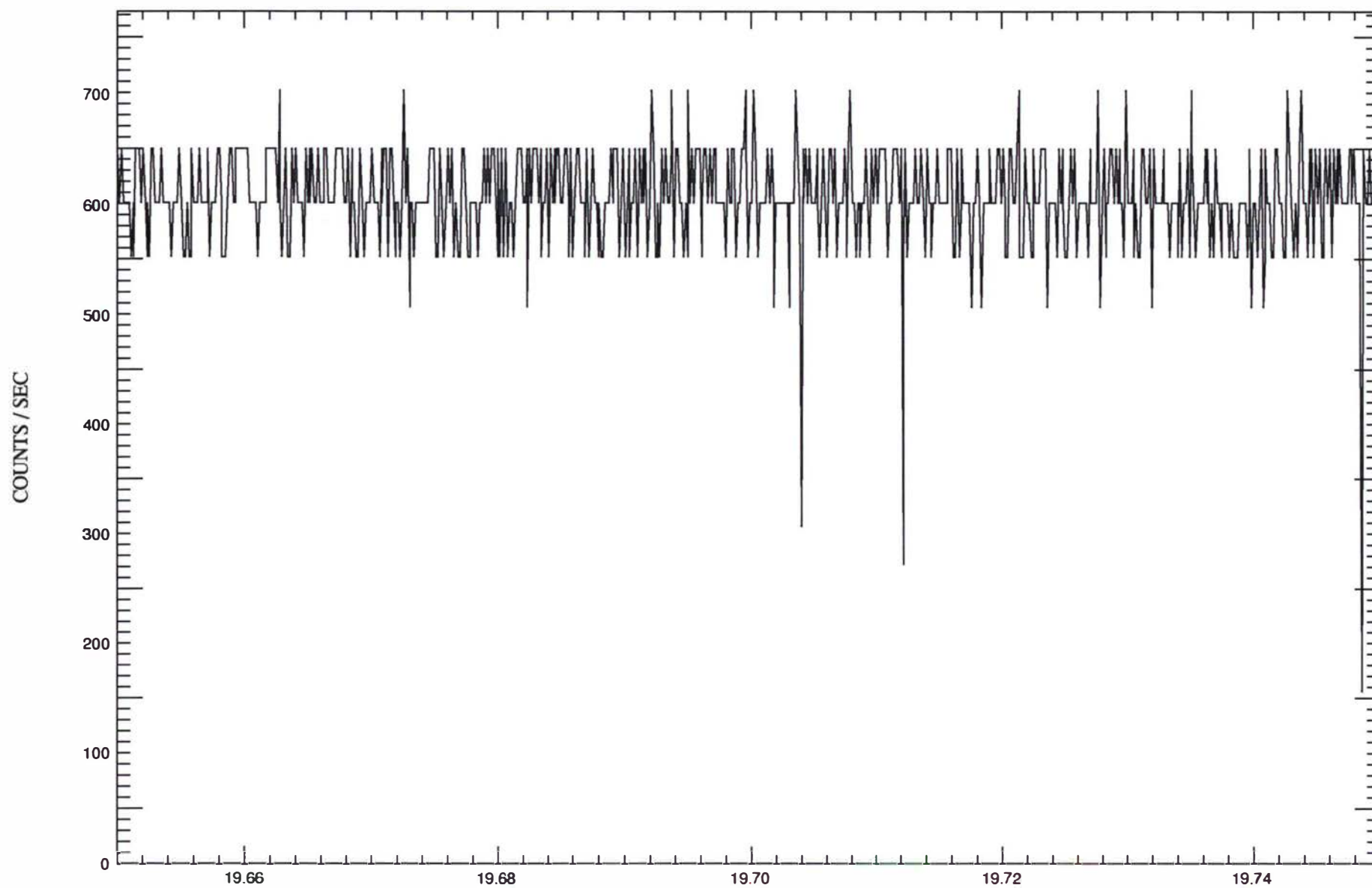
CALIBRATION DATA INCLUDED

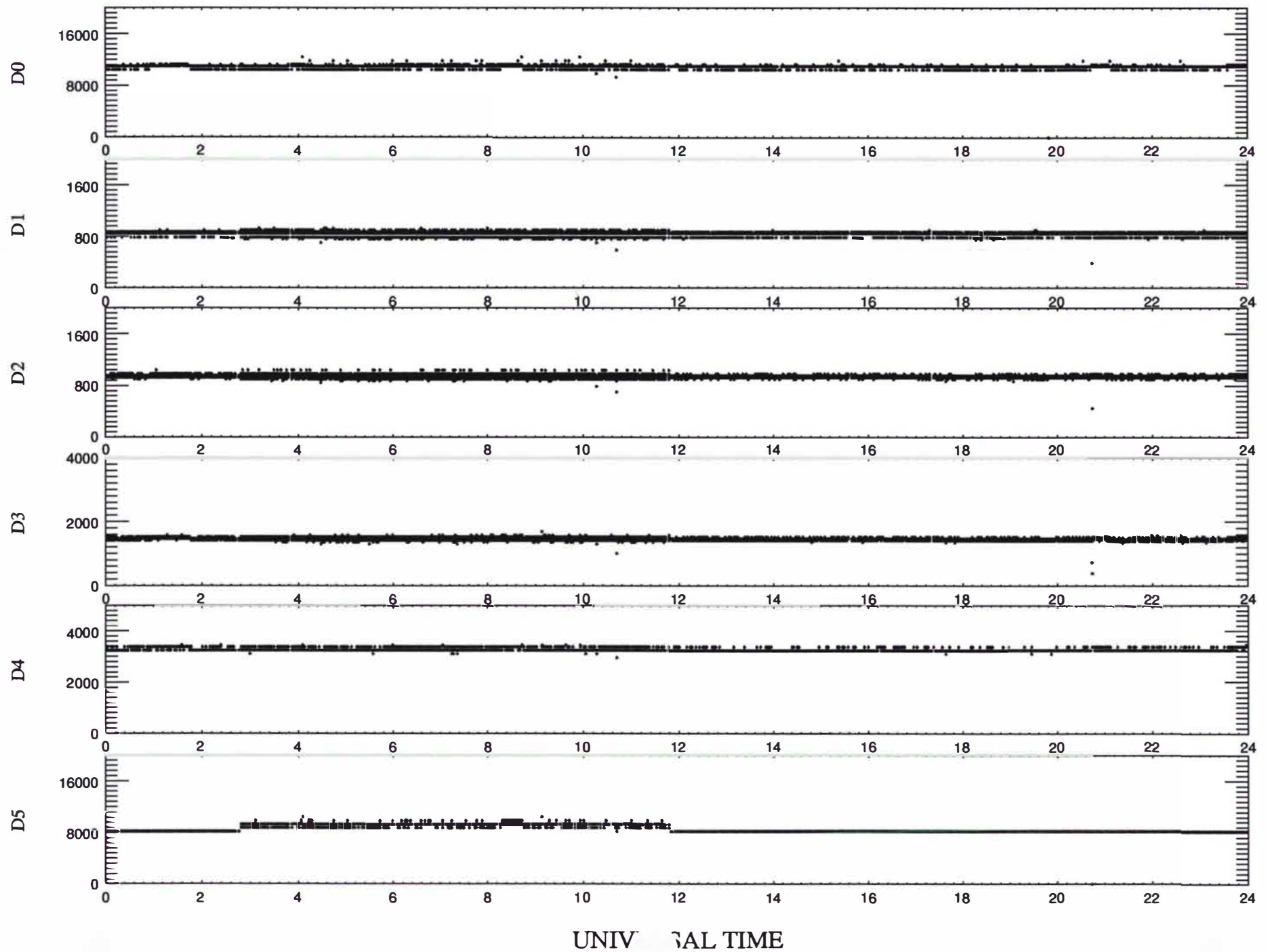


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





2 6 / 9 / 9 5

ULYSSES RT

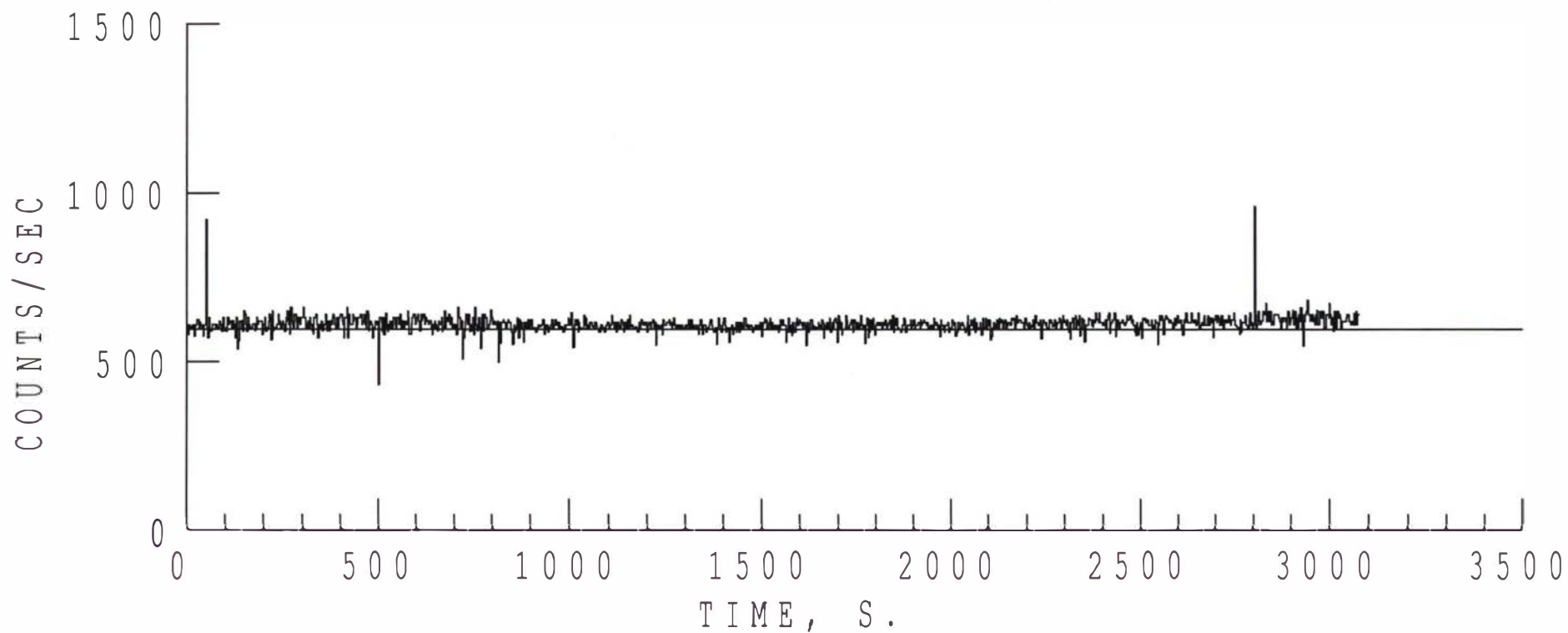
28 / 10 / 91 4248.936 s

0.500 S INTERVALS REGROUPED BY 5

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



2 6 / 9 / 9 5

ULYSSES RT

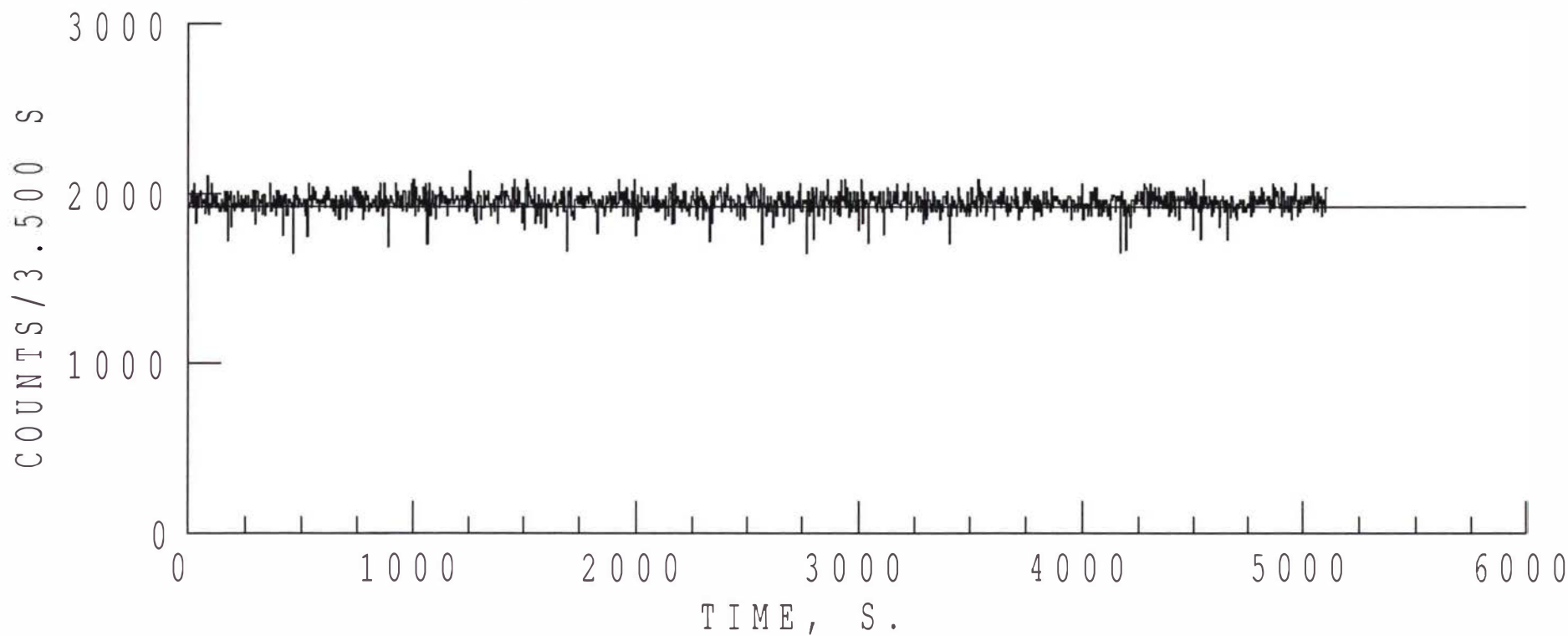
28/10/91 79596.258 s

0.500 S INTERVALS REGROUPED BY 7

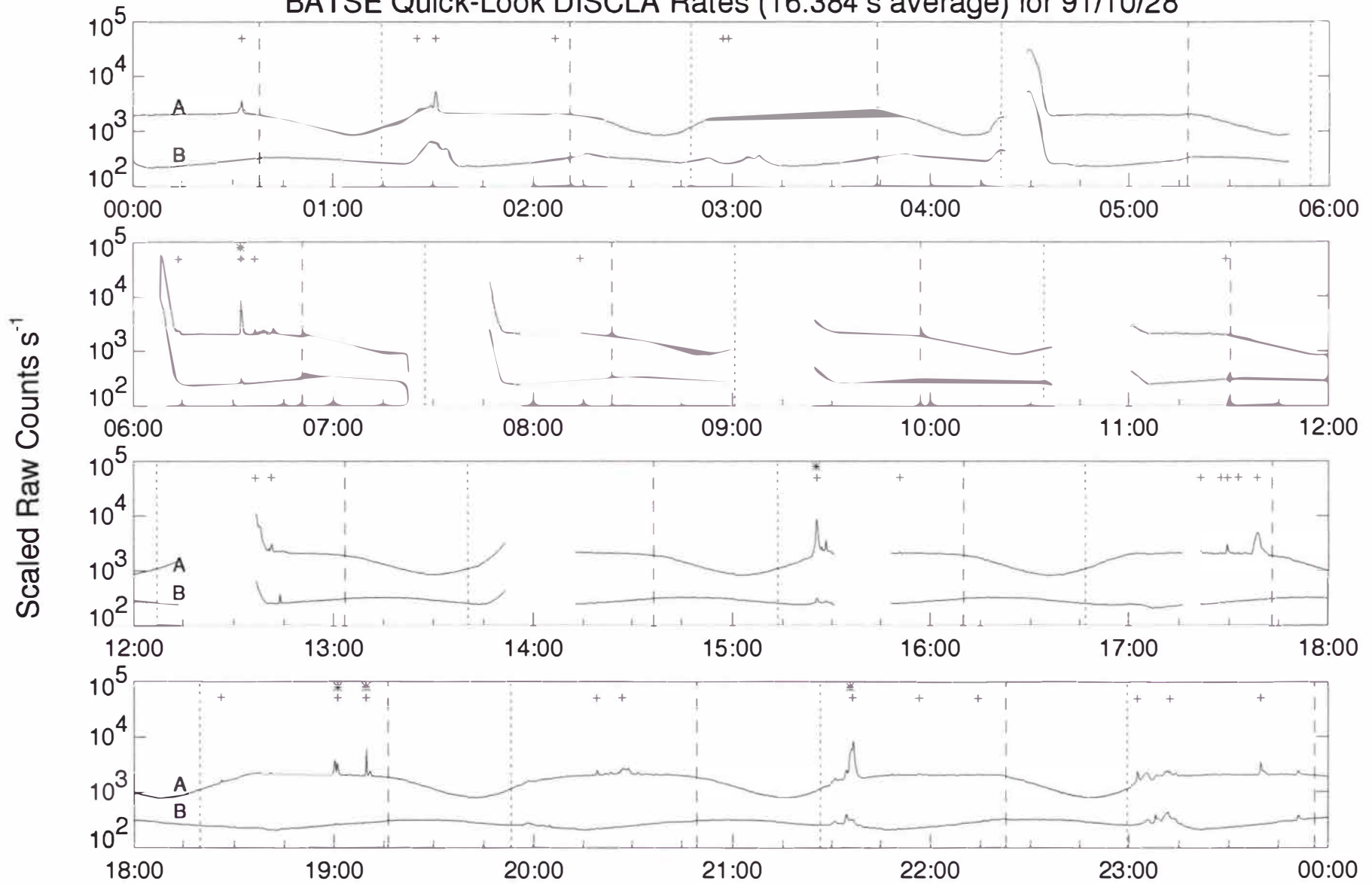
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/28



Current Time: 92/10/31, 2007 EDT

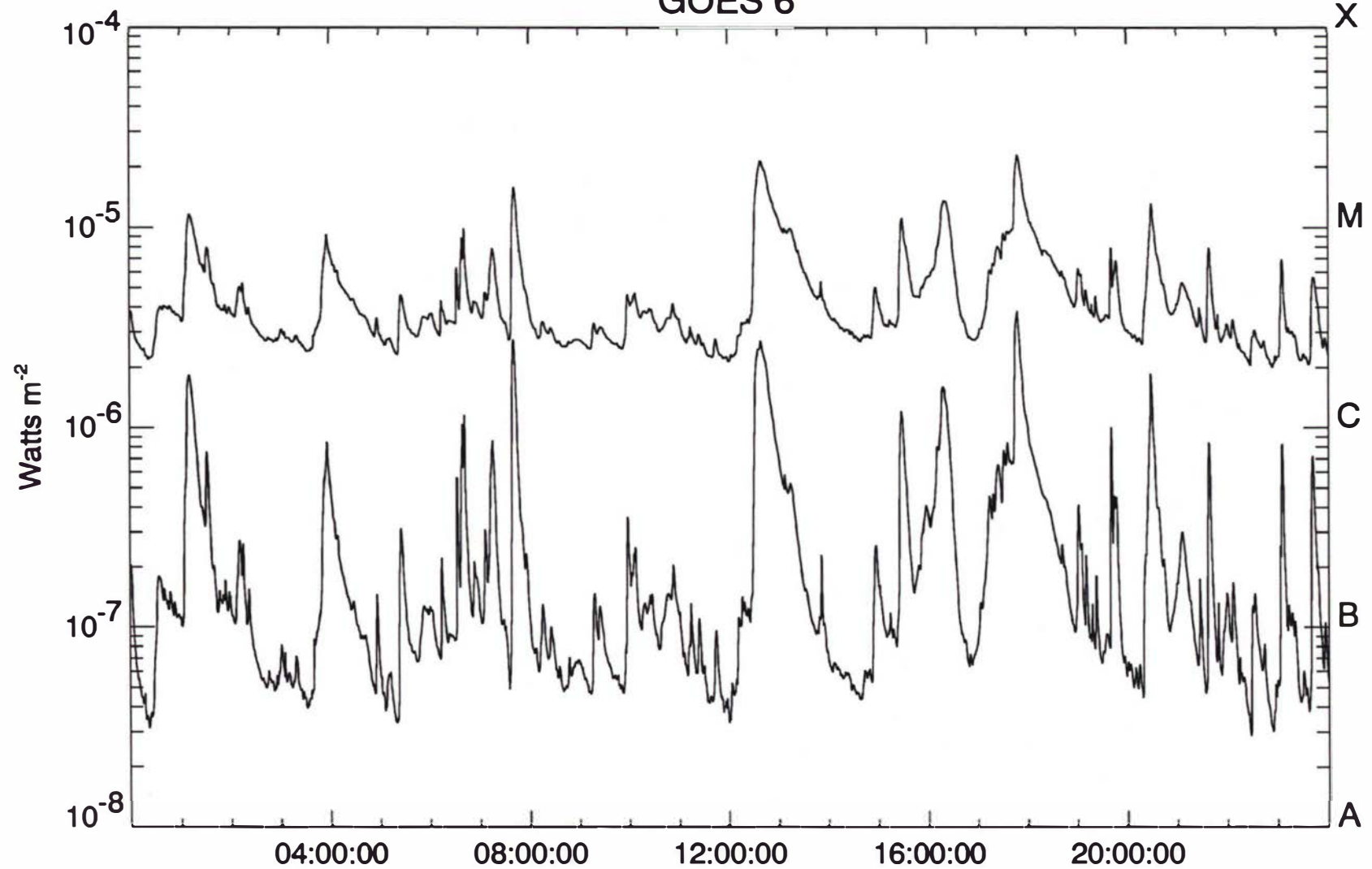
A: Channel 1 Most Sunward LAD

B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 6



Data Start: 91/10/28, 0000:02

Plot created: 97/10/15, 0023

Channel

1 (1.0 - 8.0 Angstroms)

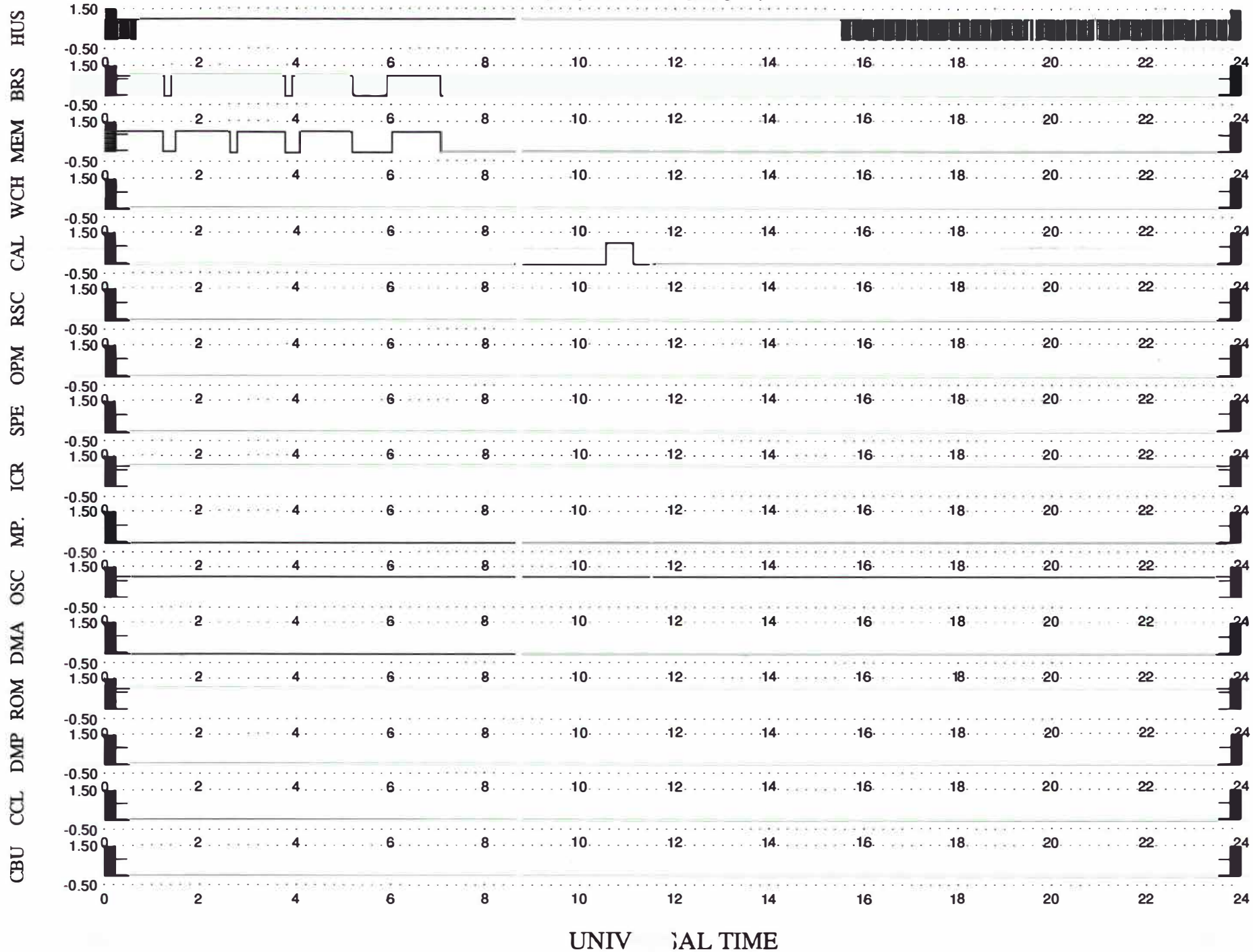
Background not subtracted

2 (0.5 - 4.0 Angstroms)

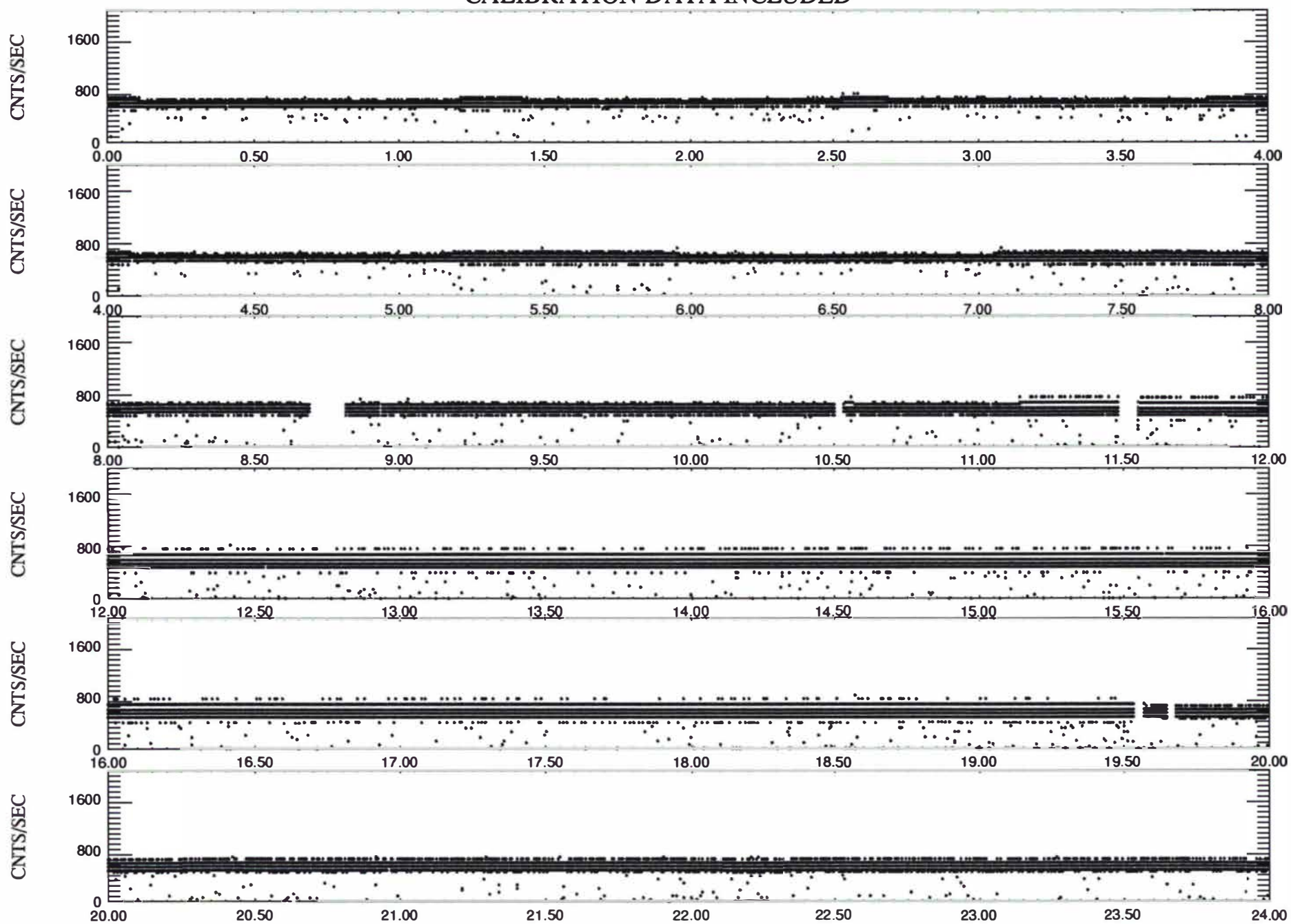
Background not subtracted

Sample average = 10

BURST NUMBER 3 - 7

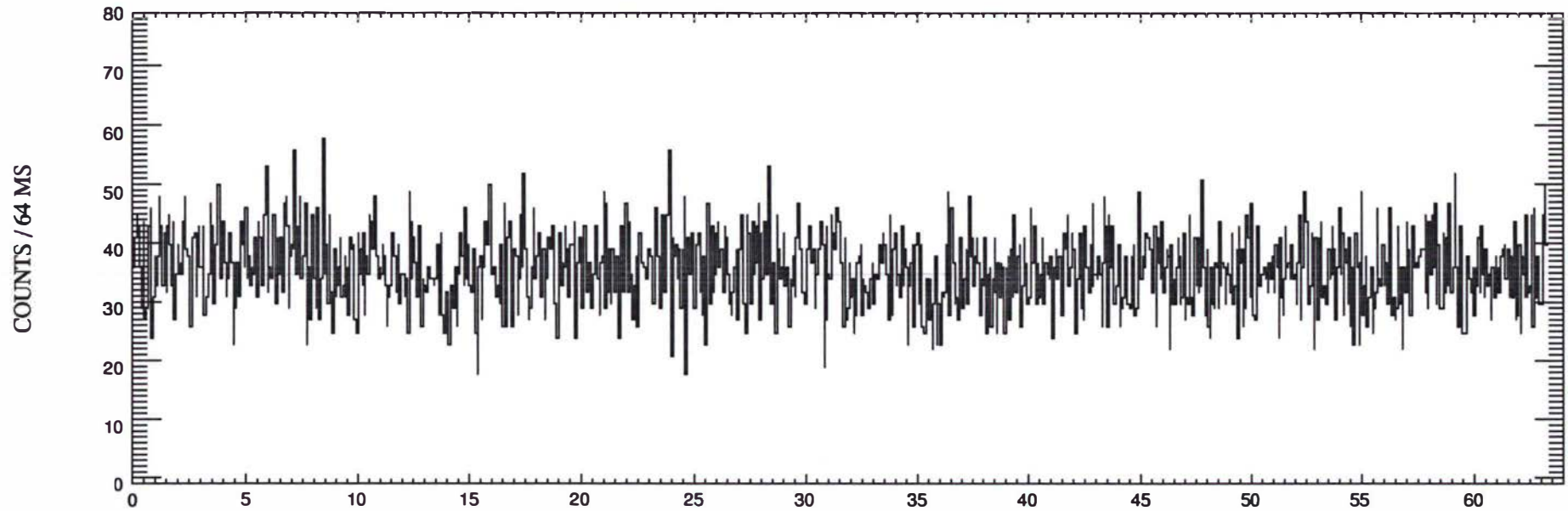


CALIBRATION DATA INCLUDED

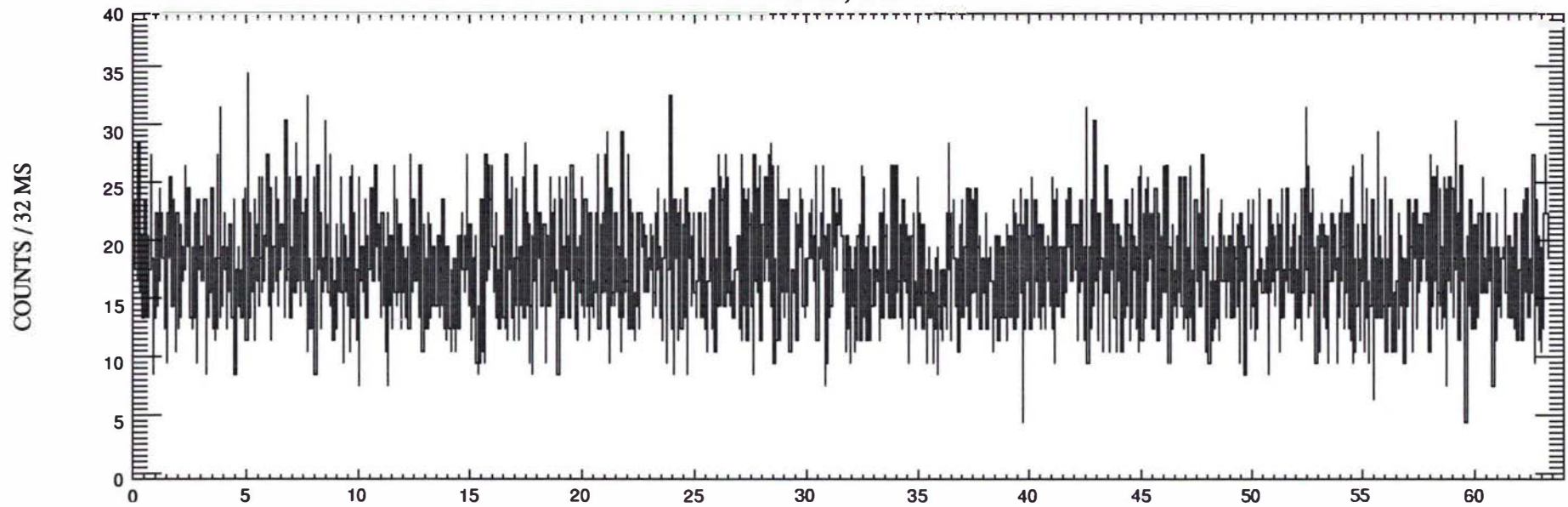


UNIV AL TIME

Burst Counter 7 at UT= 5.793529493544 h=20856.706 s 05:47:36.706

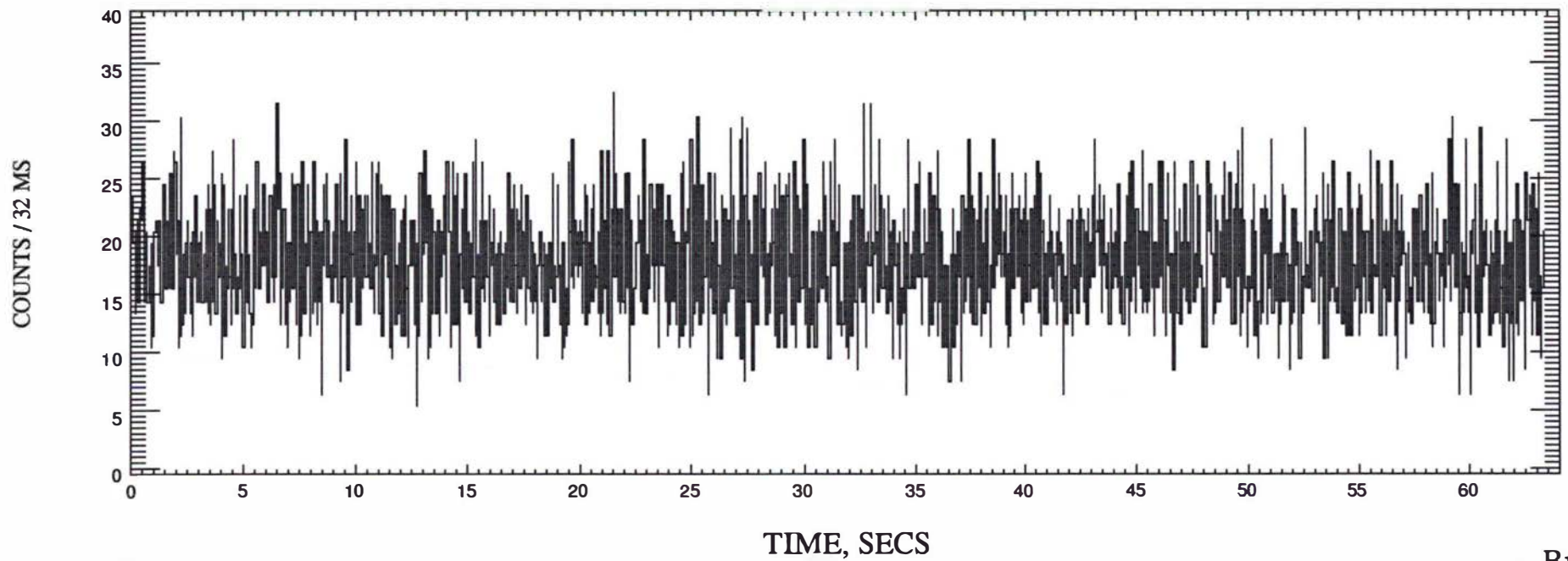
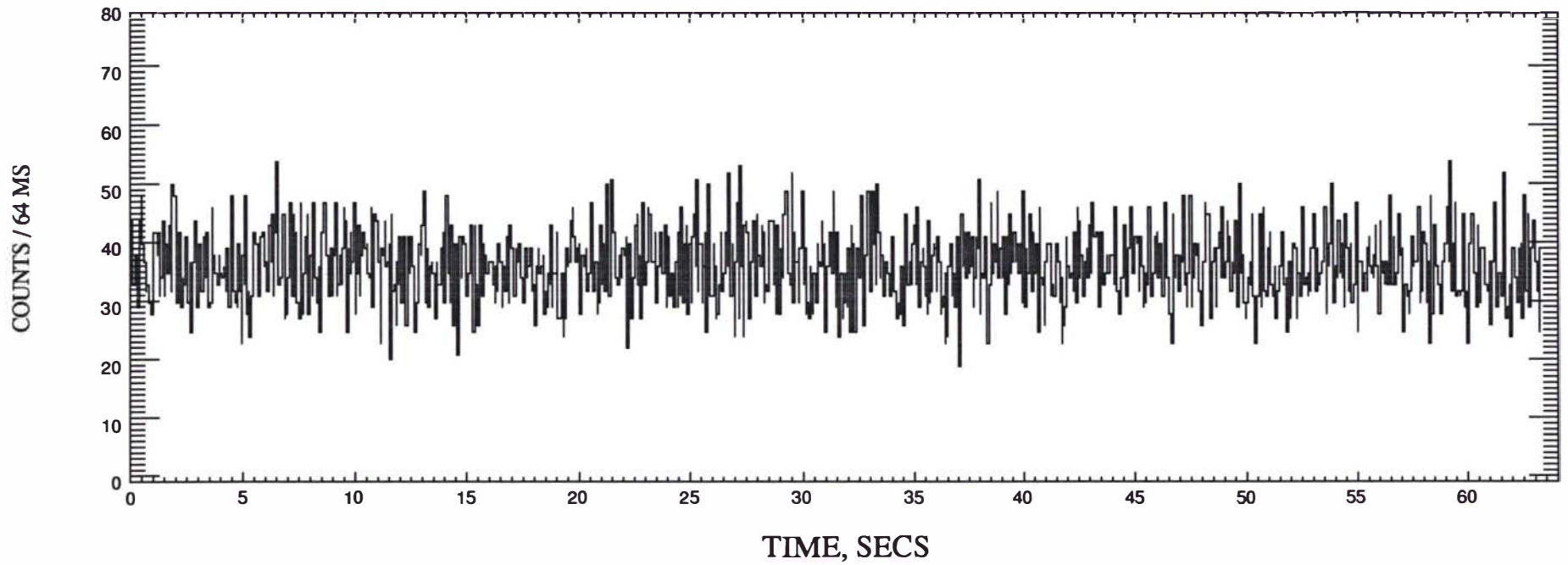


TIME, SECS

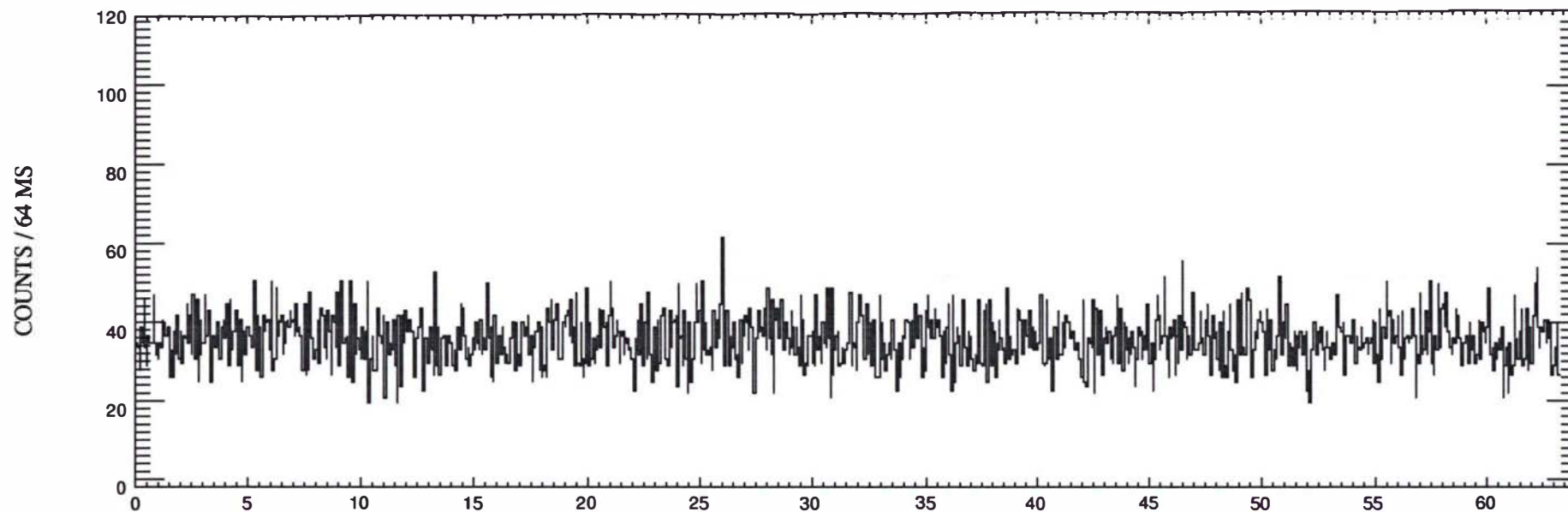


TIME, SECS

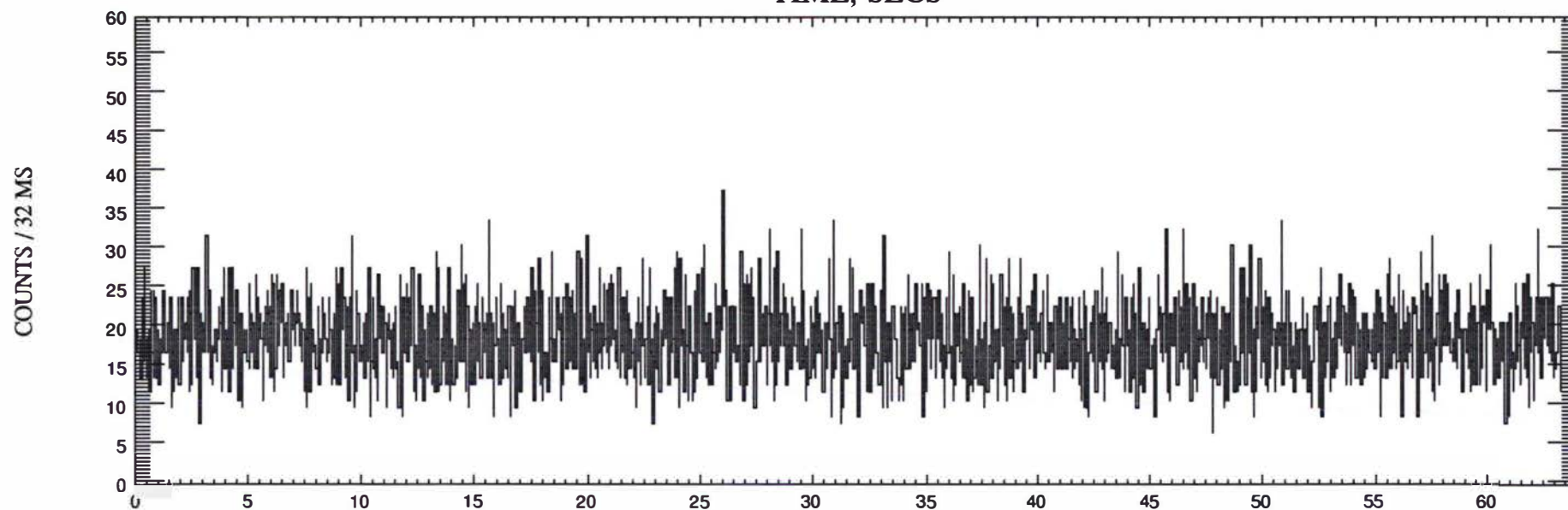
Burst Counter 6 at UT= 3.924328253004 h=14127.582 s 03:55:27.582



Burst Counter 5 at UT= 2.535419311523 h= 9127.510 s 02:32:07.510

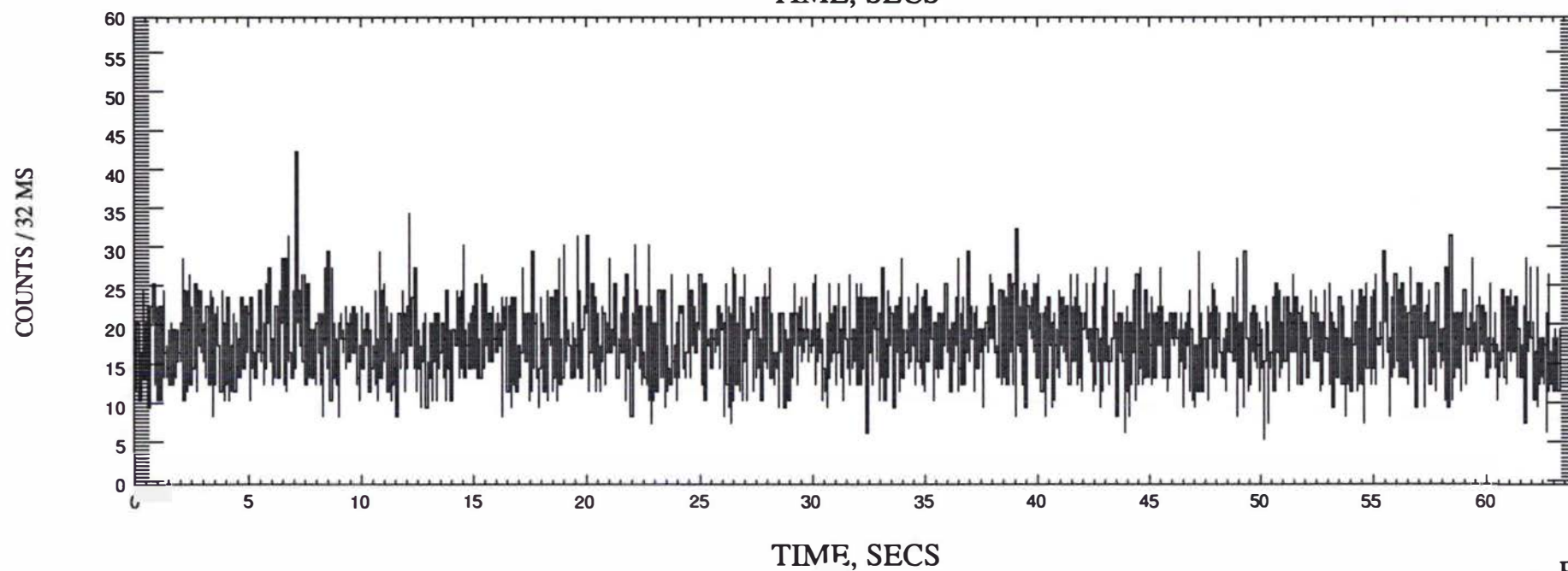
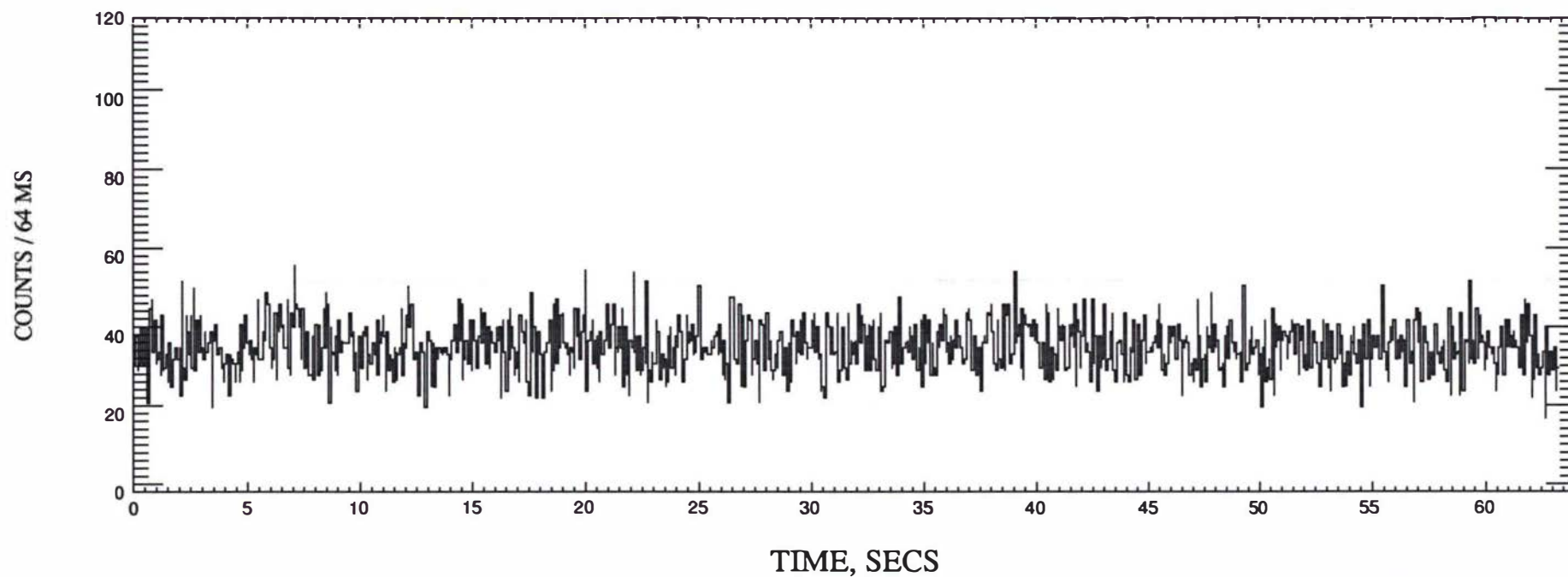


TIME, SECS

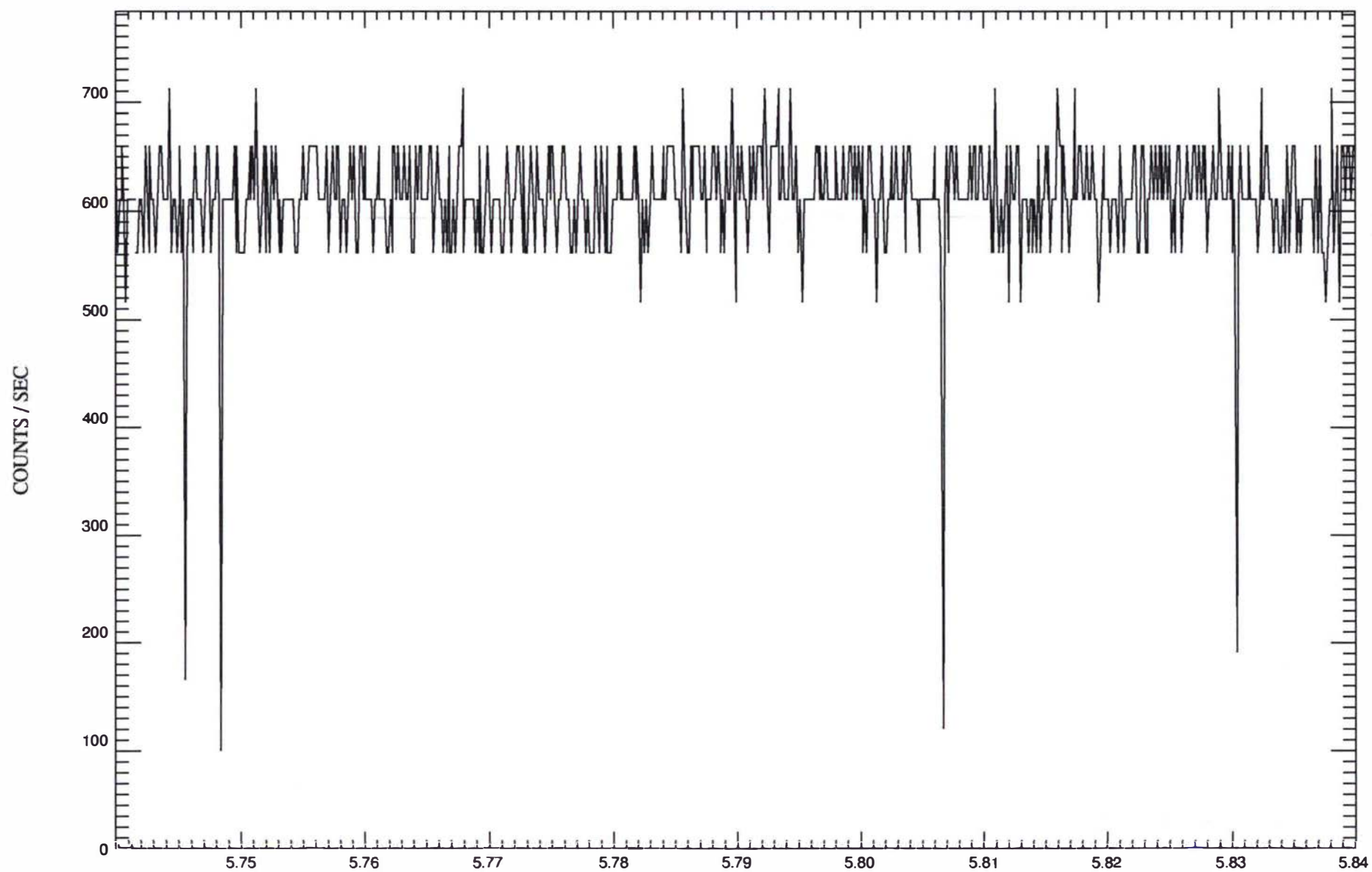


TIME, SECS

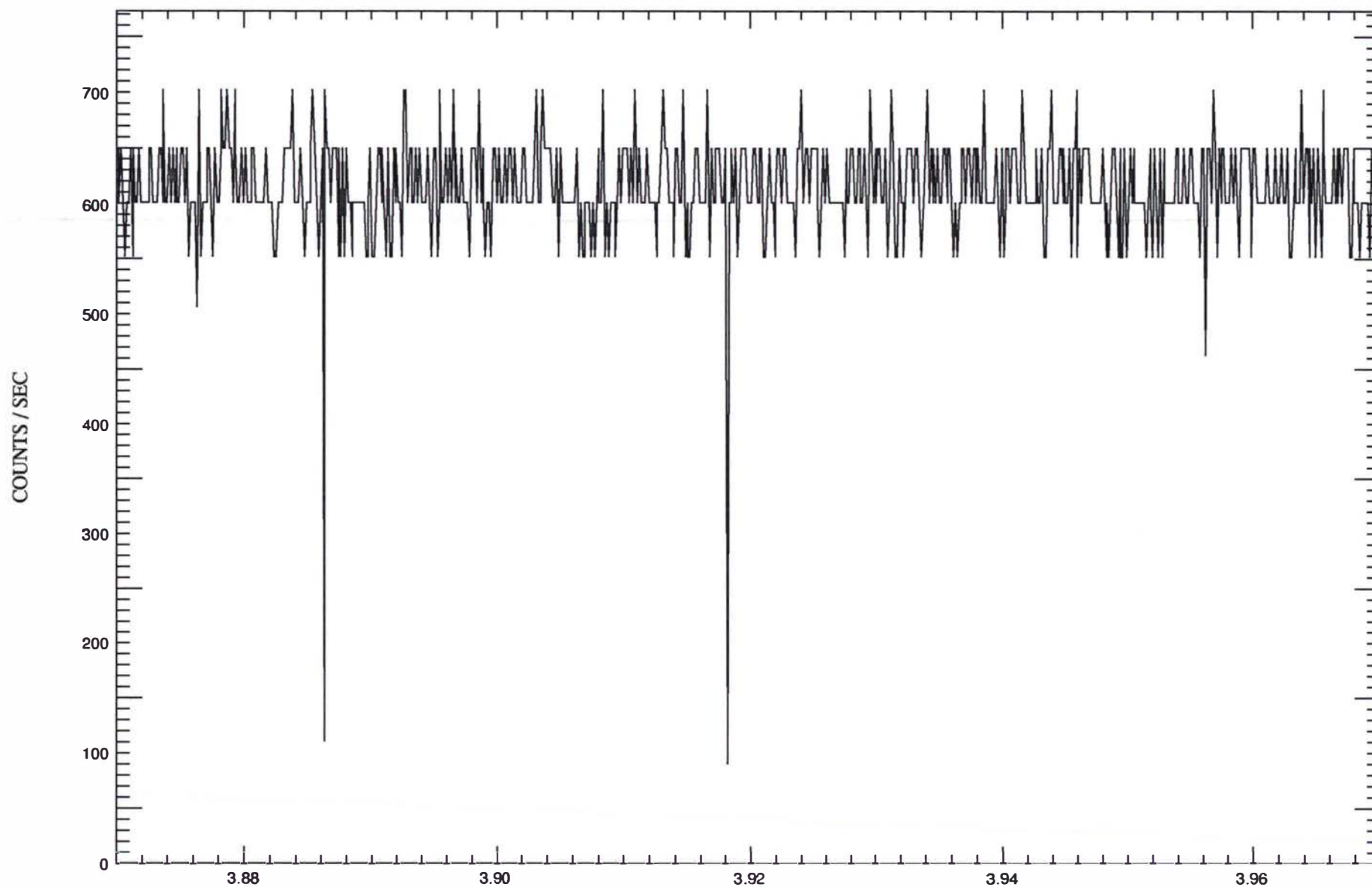
Burst Counter 4 at UT= 1.269837188721 h= 4571.414 s 01:16:11.414



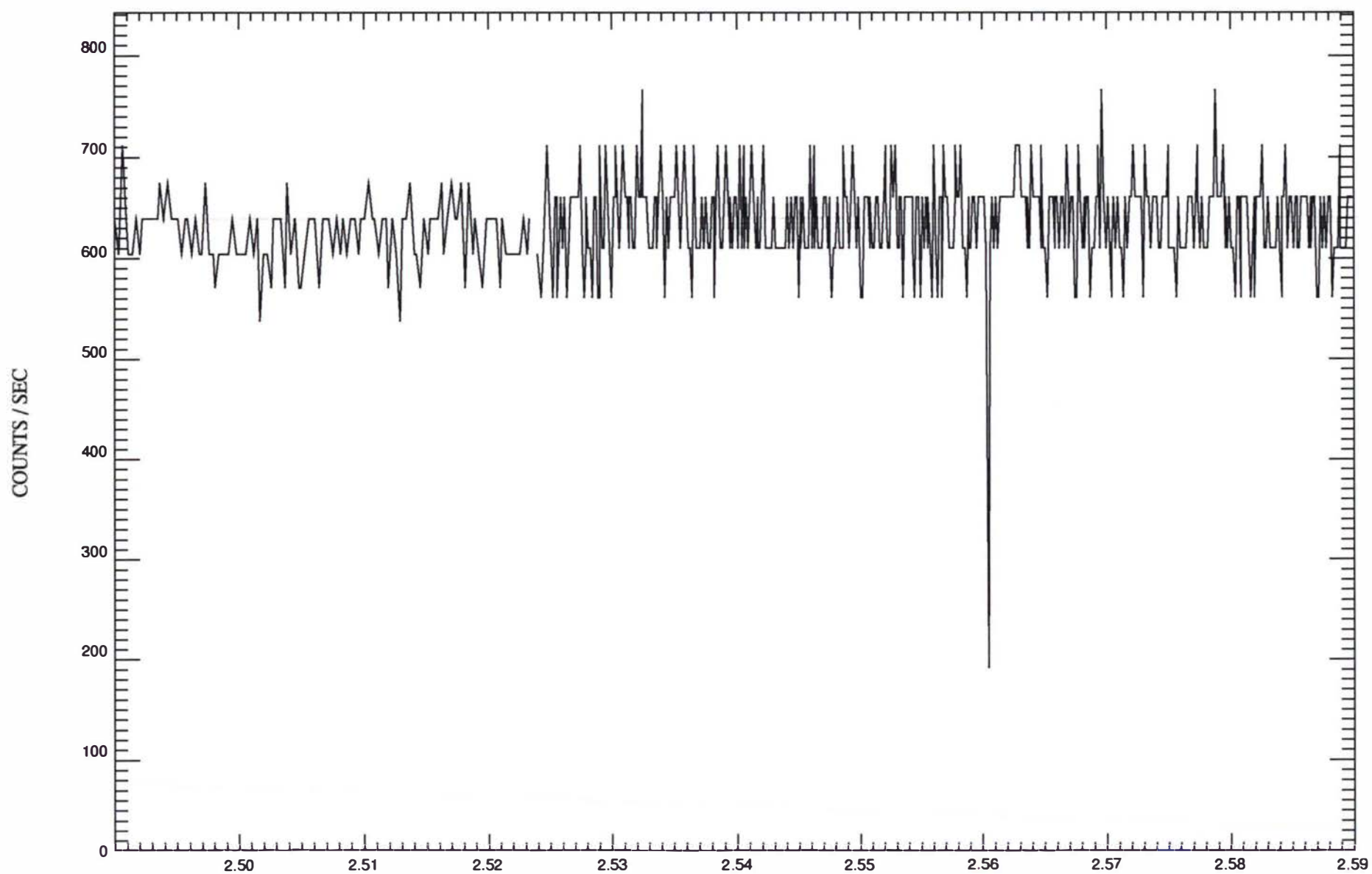
CALIBRATION DATA INCLUDED



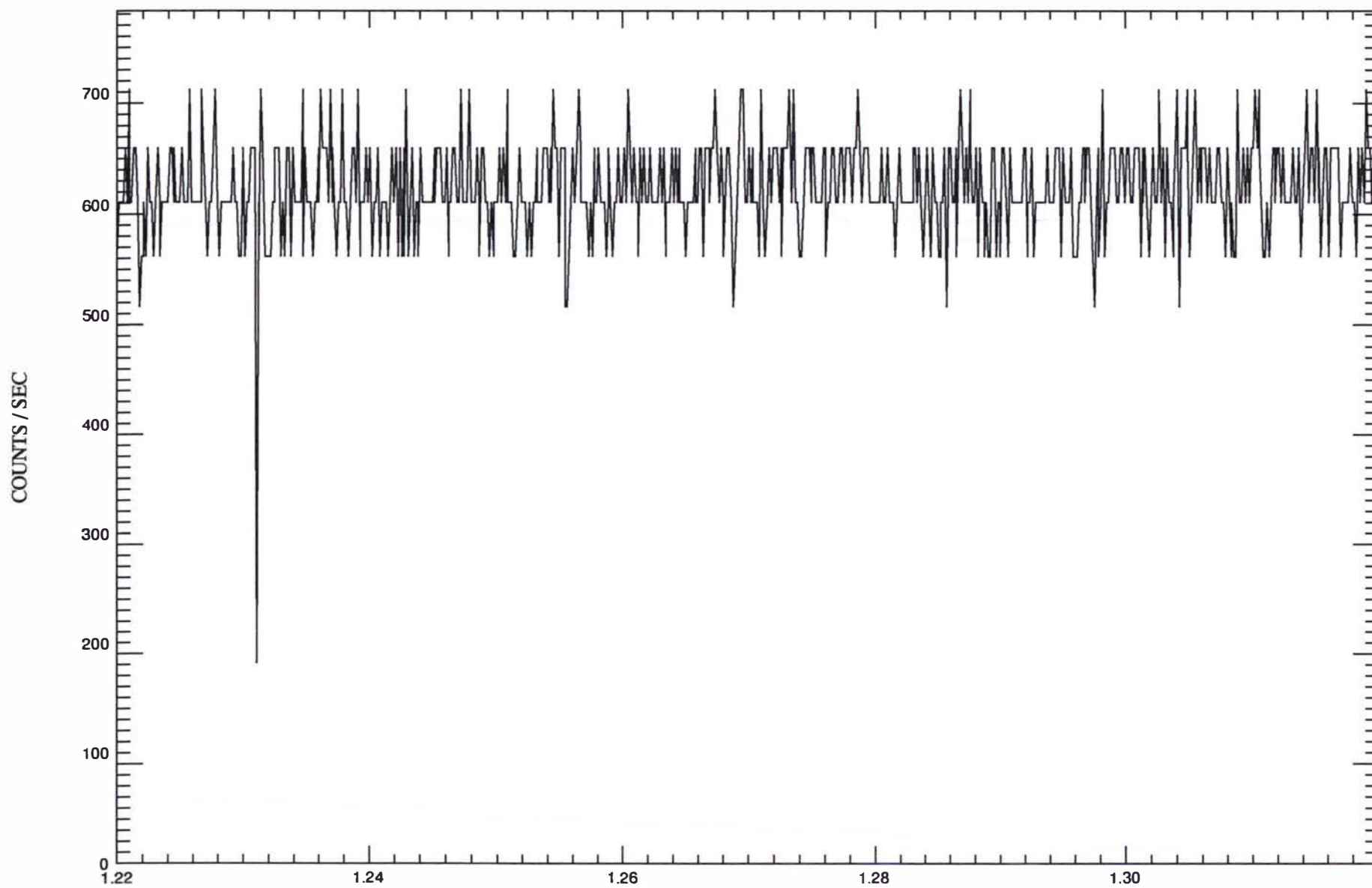
CALIBRATION DATA INCLUDED

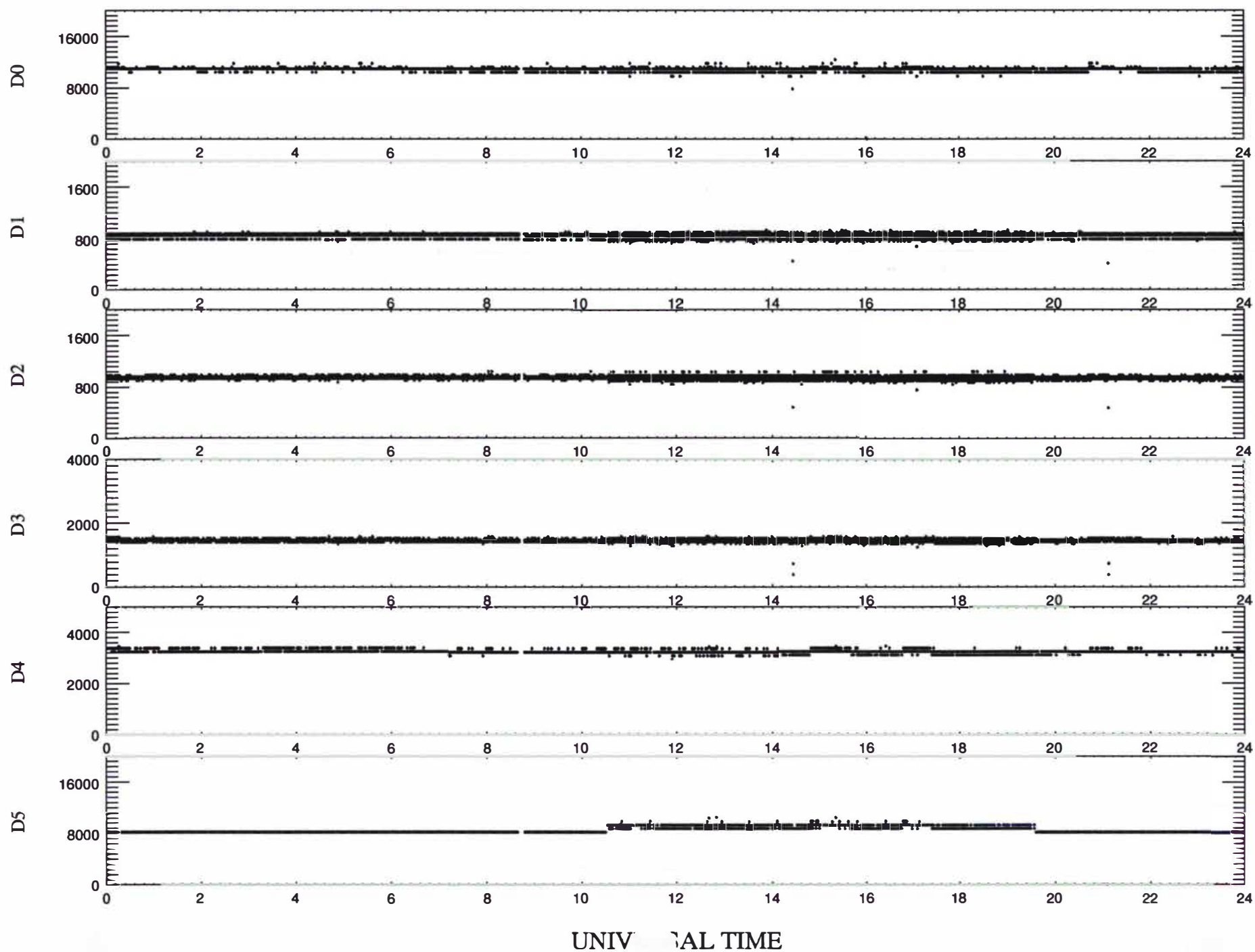


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





BATSE time corrected 9/30

Date: June 28 2002

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution? **No**

2. For 3 Spacecraft events

- ☐ Konus N/S anisotropy used to distinguish between positions?
- ☐ SAX anisotropy used to distinguish between positions?
- ☐ SAX Earth-blocking used to distinguish between positions?
- ☐ $\Sigma 3\Delta t$'s calculated?

3. For 4 Spacecraft Events

- ☐ BMAPSUM executed to get chisquare for alternate positions?

- ☒ ACCESS database updated?

PVO data were not in the directory.
But it was observed with 8 s resolution,
and $U \rightarrow$ PVO vector is $\approx U - \text{Earth}$

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

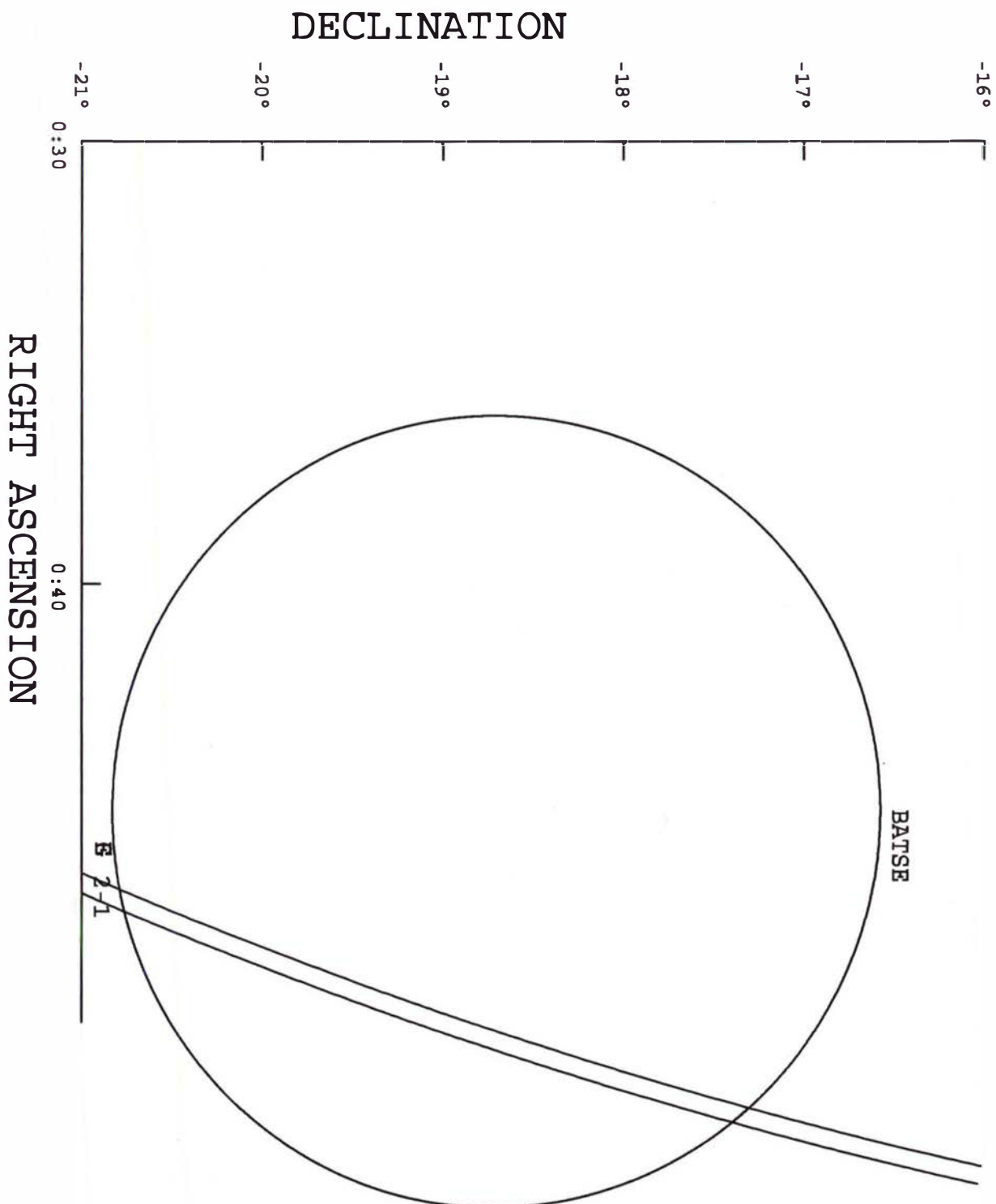
G=GALACTIC EQUATOR

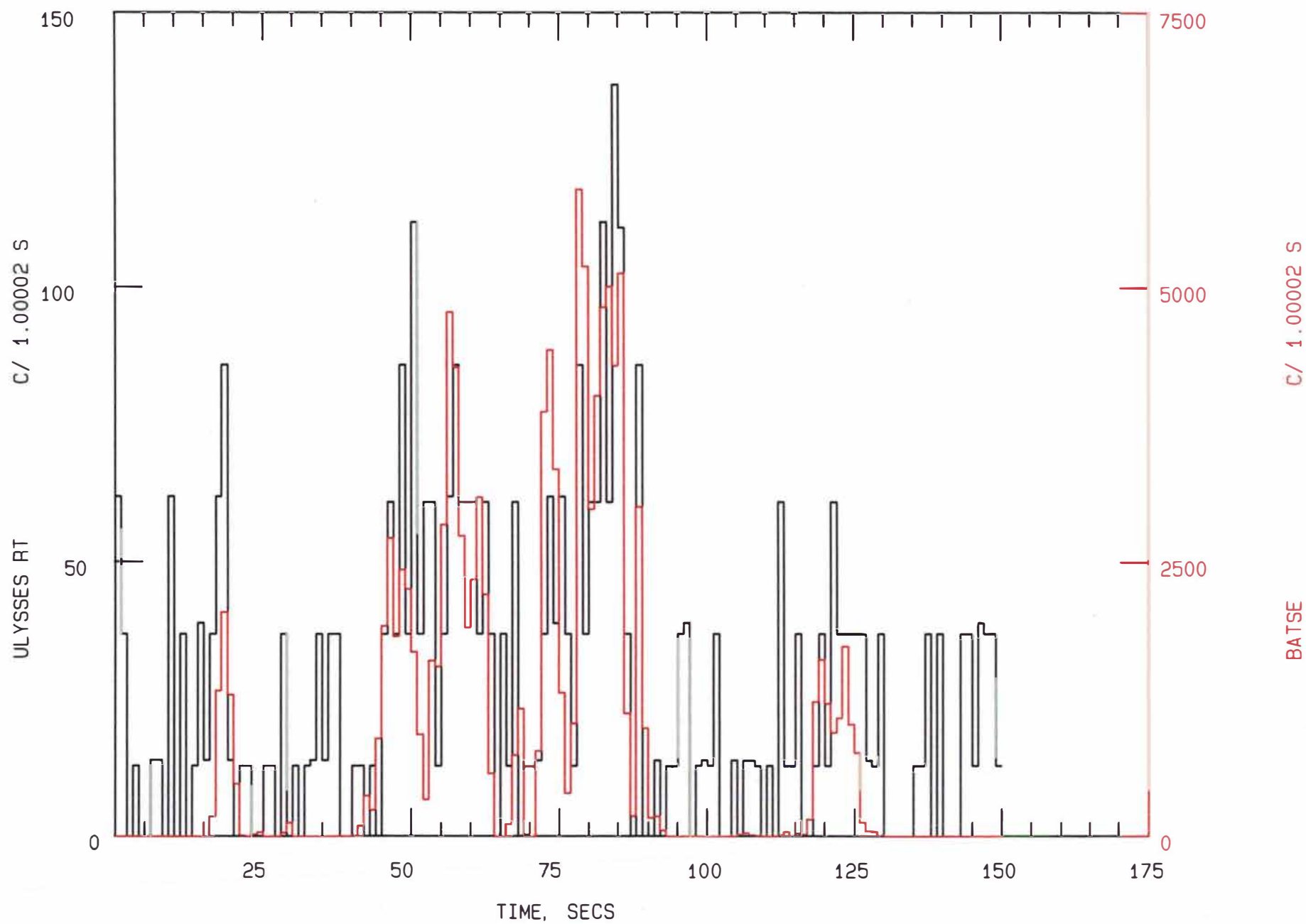
1 BATSE

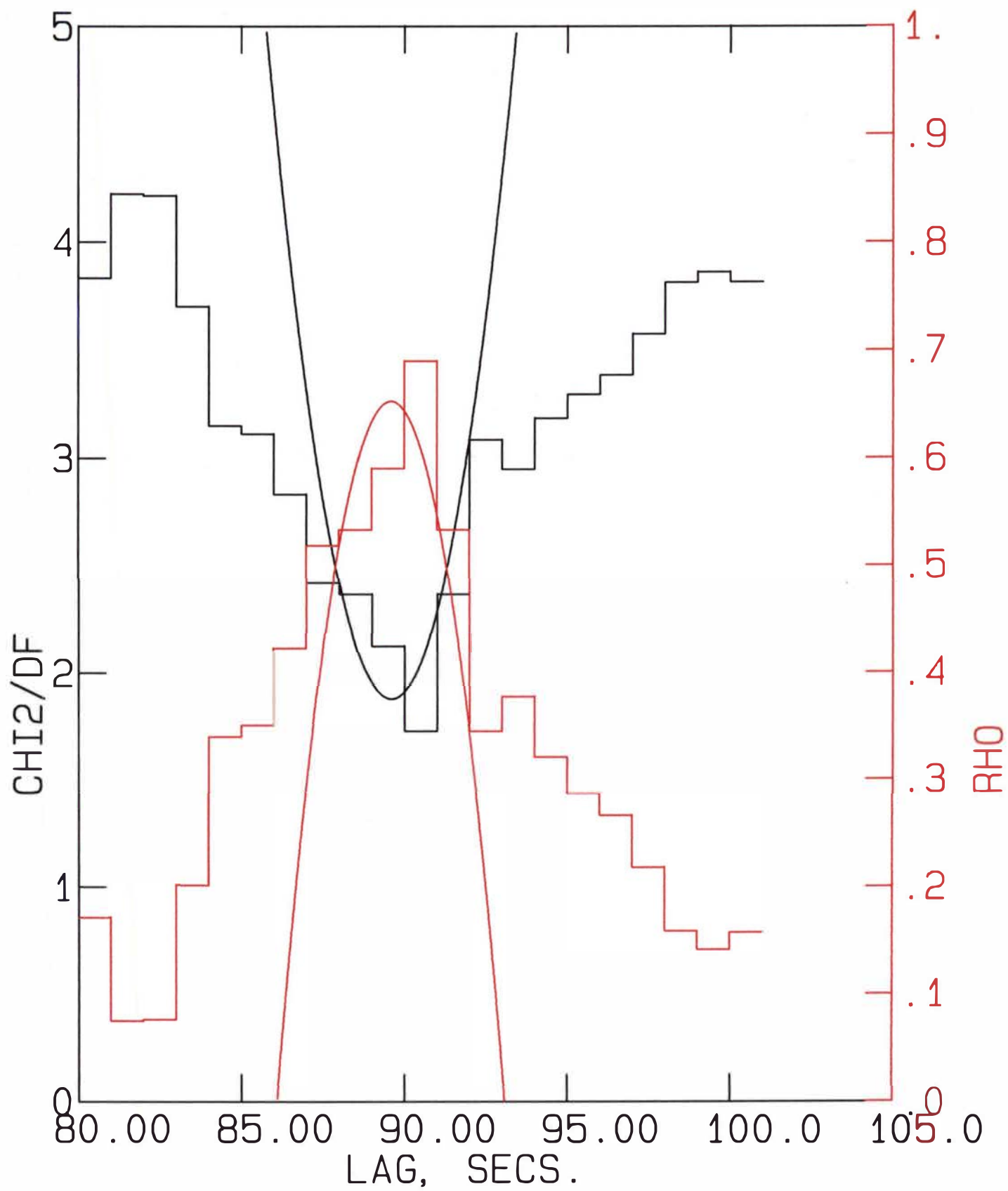
2 ULYSSES

EVENT OF OCT 29, 1991 4:50

28 / 6 / 2

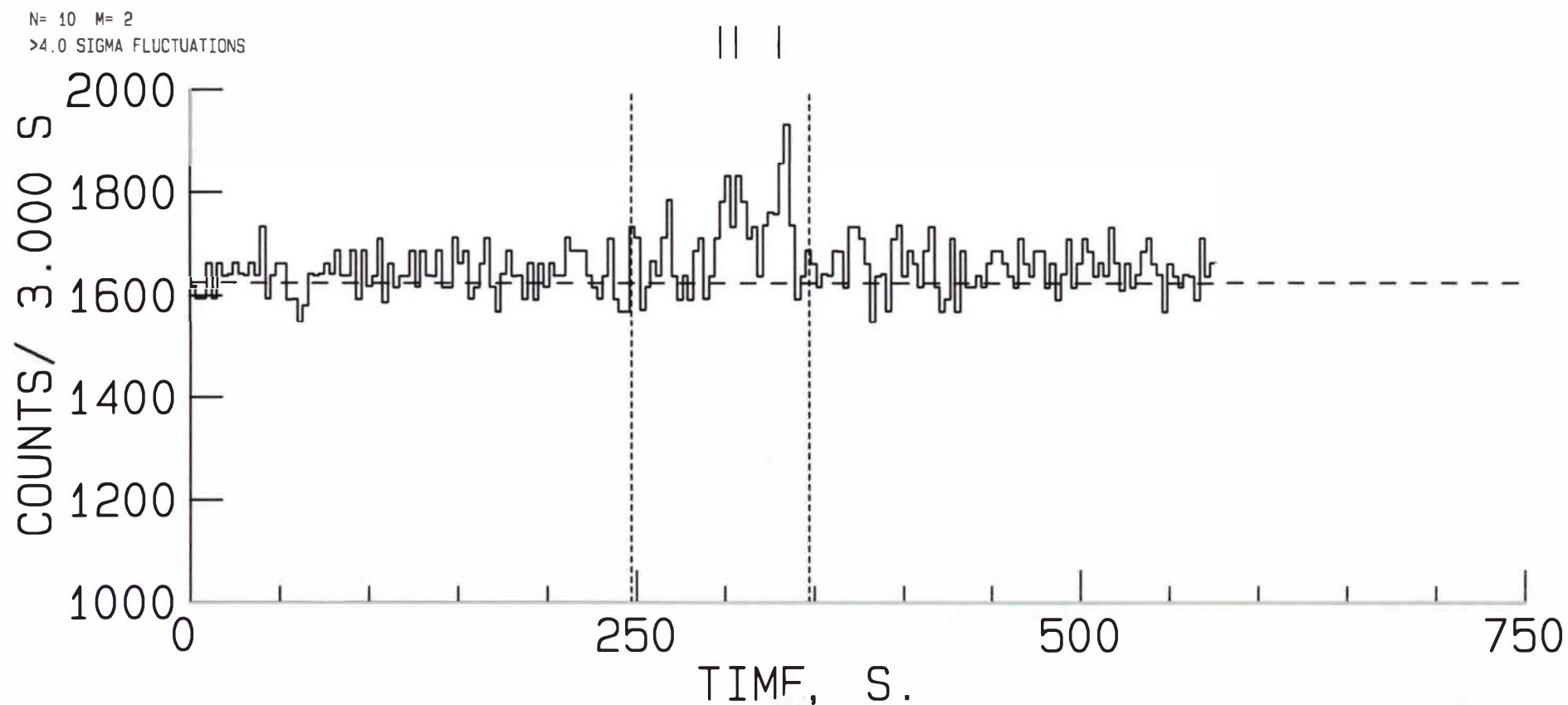






ULYSSES RT
29/10/91 19404.203 s
0.500 S INTERVALS REGROUPED BY 6
20- 165 keV

28 / 6 / 2



POSITION OF ULYSSES ON 29/10/1991 IS:

RA= 163.796 DEC= 8.160 DIST= 5.100 AU

THE DISTANCE BETWEEN TWO OBJECTS AT

.000 .000 .00 KM. AND

163.796 8.160 763009400.00 KM. IS

763009400.00 KM., OR 5.100 A.U., OR 2545.12 LIGHT-SECONDS

THE ANGLE BETWEEN THEM IS 161.907 DEGREES

From 081877@essdp2.lanl.gov Mon Aug 10 09:12:09 1992
Date: Mon, 10 Aug 92 10:05:15 -0600
From: 081877@essdp2.LANL.GOV
To: "khurley@sunspot.ssl.berkeley.edu"@BETA.LANL.GOV
Subject: PVO stuff
Content-Length: 450

Kevin, Here is the GB920525 ephemeris from tape.

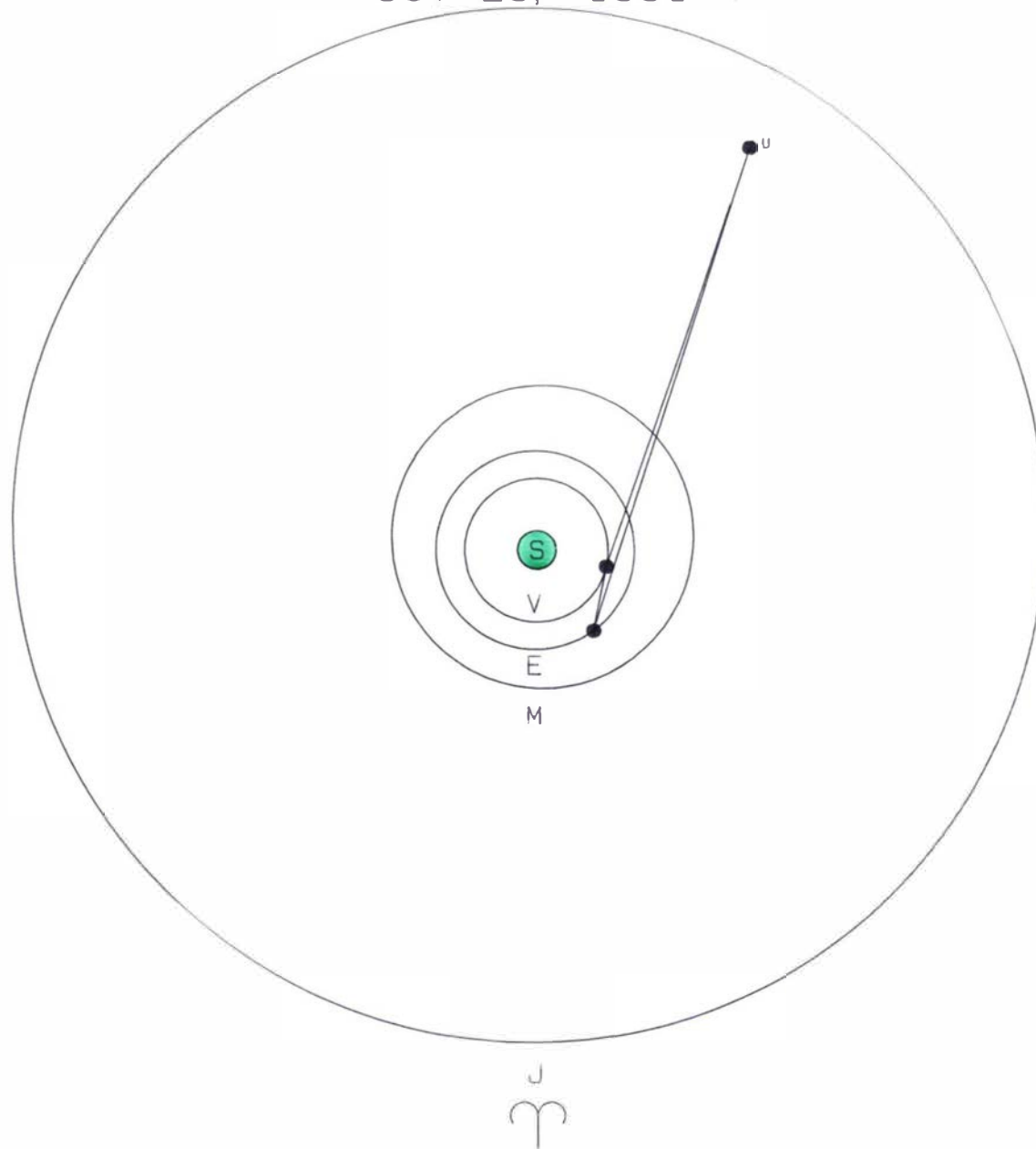
1992 day 146 at 12882 UT: 258083840. 56.19562 19.18962 (1950)

Also, I am about to send you some files with realtime data on the following events: 910428, 910505, 910517, 911016, 911029, 911123, 911217, 920220, 920331, and 920502. Generally, the data are not very interesting.

There was no PVO coverage for the following events: 910527, 910721, 910827, 910907, 910927, 911120, and 911210.

John

ULYSSES ORBIT - ECLIPTIC PLANE PROJECTION
OCT 29, 1991



DAY, MONTH, YEAR, AND HELIOCENTRIC ECLIPTIC LONGITUDE OF VENUS

29 10 1991 76.47

DAY, MONTH, YEAR, AND HELIOCENTRIC ECLIPTIC LONGITUDE OF EARTH

29 10 1991 35.06

DAY, MONTH, YEAR, AND HELIOCENTRIC ECLIPTIC LONGITUDE OF ULYSSES

POSITION OF ULYSSES ON 29/10/1991 IS:

RA= 163.796 DEC= 8.160 DIST= 5.100 AU

29 10 1991 151.94

INTERSPACECRAFT DISTANCES IN AU

VENUS-ULYSSES 4.448

EARTH-ULYSSES 5.100

EARTH-VENUS .657

Table 1 GRBs List

Event ID	Time(U.T.) (hr:mn)	Peak Counts Cp (cnts/4sec)	Bit
901009	00:15:52		Hi
901021	00:09:07		Hi
901103	05:52:56		Hi
901112	19:20:38		Lo Uly
901219	21:52:50		Hi Uly
910122	15:14:08		Hi Uly
910130	11:56:08		Hi
910204	08:58:47		Hi Uly
910206	08:45:29		Med Uly
910312	12:43:34		Hi Uly
910314	22:56:12		Lo Uly
910315	22:55:48		Lo Uly
910322	12:41:48		Med
910402	14:28:13		Med Uly
910429	03:11:50		Med GRO
910522	12:14:08		Hi Uly
910527	23:45:36		Hi
910709	20:22:38		Med
910717	04:33:05		Hi GRO
910723	14:06:16		Lo
910725	13:12:06		Med GRO
910803	08:33:28		Med GRO
910814	19:14:34		Lo GRO
910815	12:34:32		Med
910821	10:33:39		Hi
910827	13:11:18		Hi
910905	23:48:55		Med GRO
910907	01:04:56		Lo GRO?
910926	18:25:56		Lo GRO
911008	17:56:04		Lo
911016	11:01:30		Lo GRO
911029	04:50:52		Lo
accuracy			Hi <+-0.1s
			Med +-0.5s
			Lo +-2.0s

Murakami's
 Preliminary list
 SOLAR
 Requested Uly data Requested RT data Requested RT data n/o
 Got Ganga data
 Requested U. RT data
 Got Ganga data
 SOLAR
 Requested RT
 Requested RT data
 Uly RT
 RT requested
 RT requested
 Uly
 RT requested
 RT requested
 RT requested
 RT
 RT requested
 No data
 Requested RT
 Requested RT
 Requested RT
 Requested RT
 Requested RT
 Requested RT

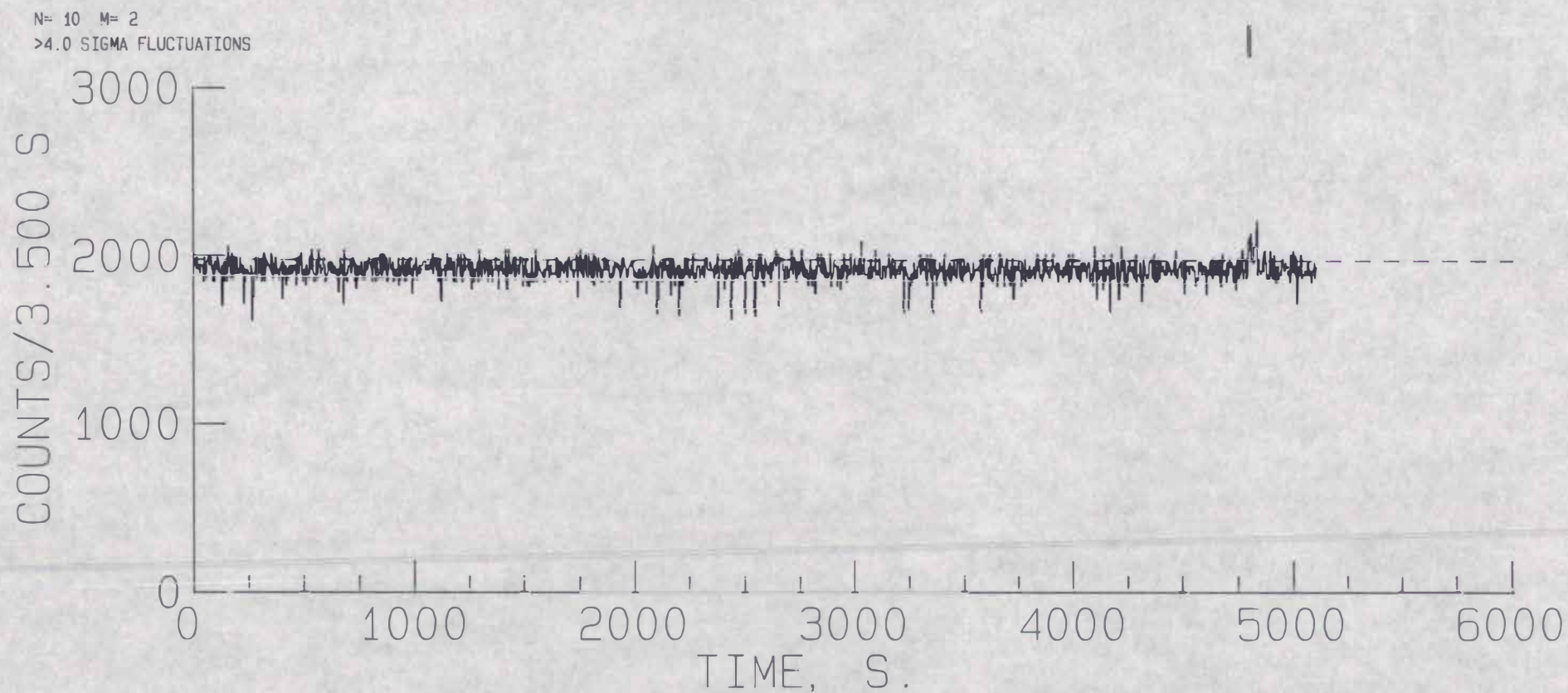
16/ 5/92

ULYSSES RT

29/10/91 14904.125 s

.500 S INTERVALS REGROUPED BY 7

20- 165 keV



PV0-RT

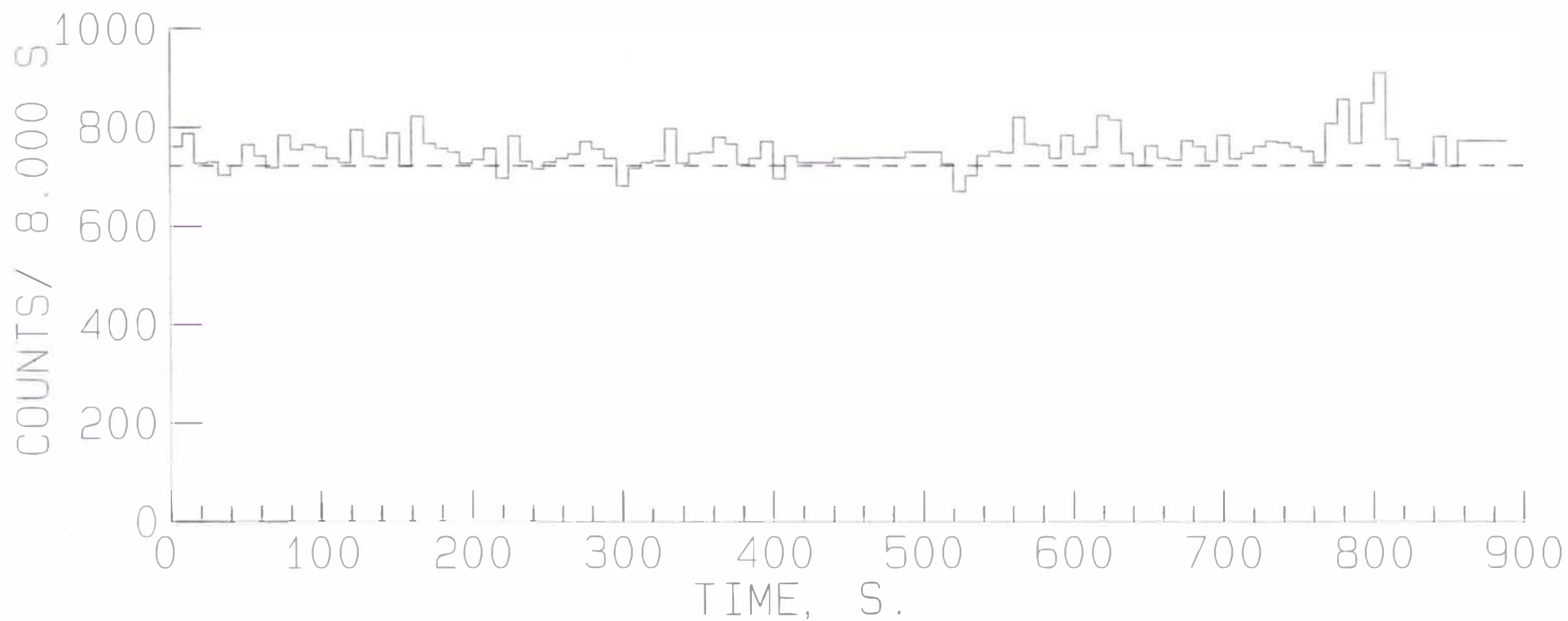
19 / 8 / 92

29/10/91

17008.129 s.

8.000 S. INTERVALS REGROUPED BY 1

100-2000 keV



PV0-RT

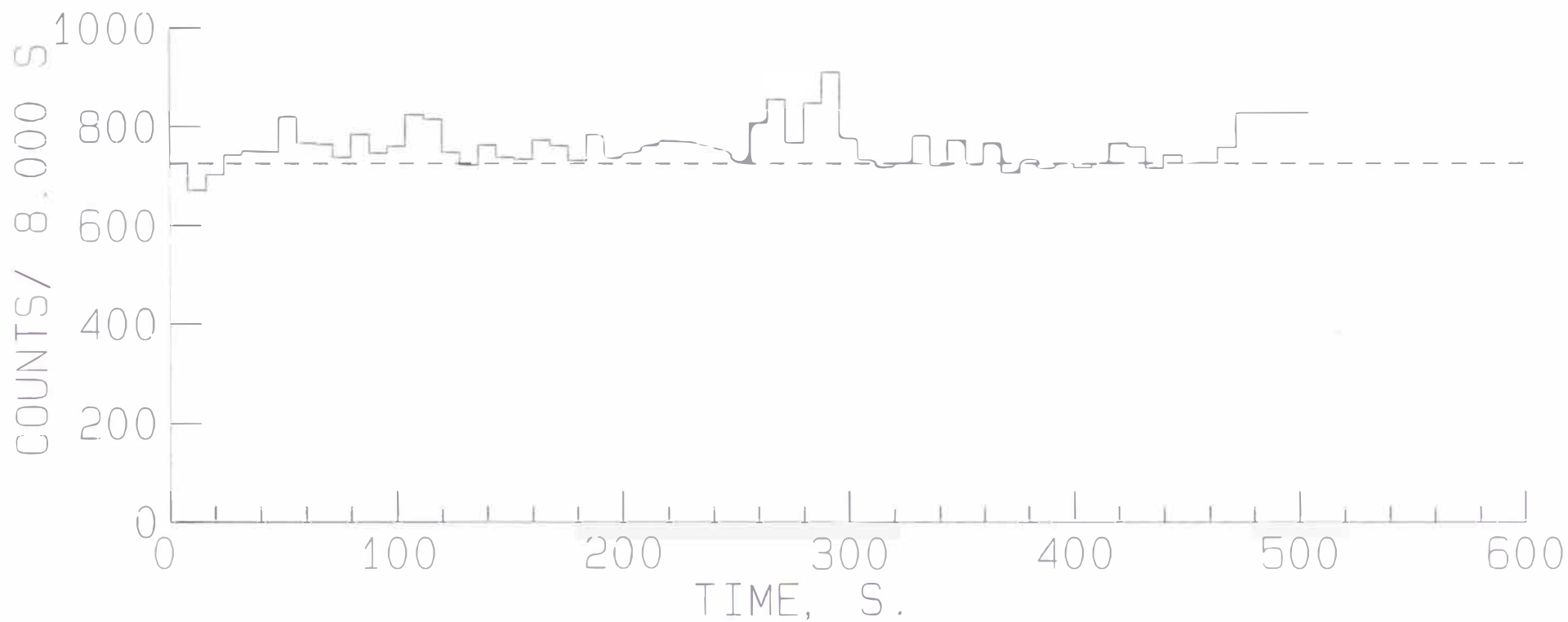
19 / 8 / 92

29/10/91

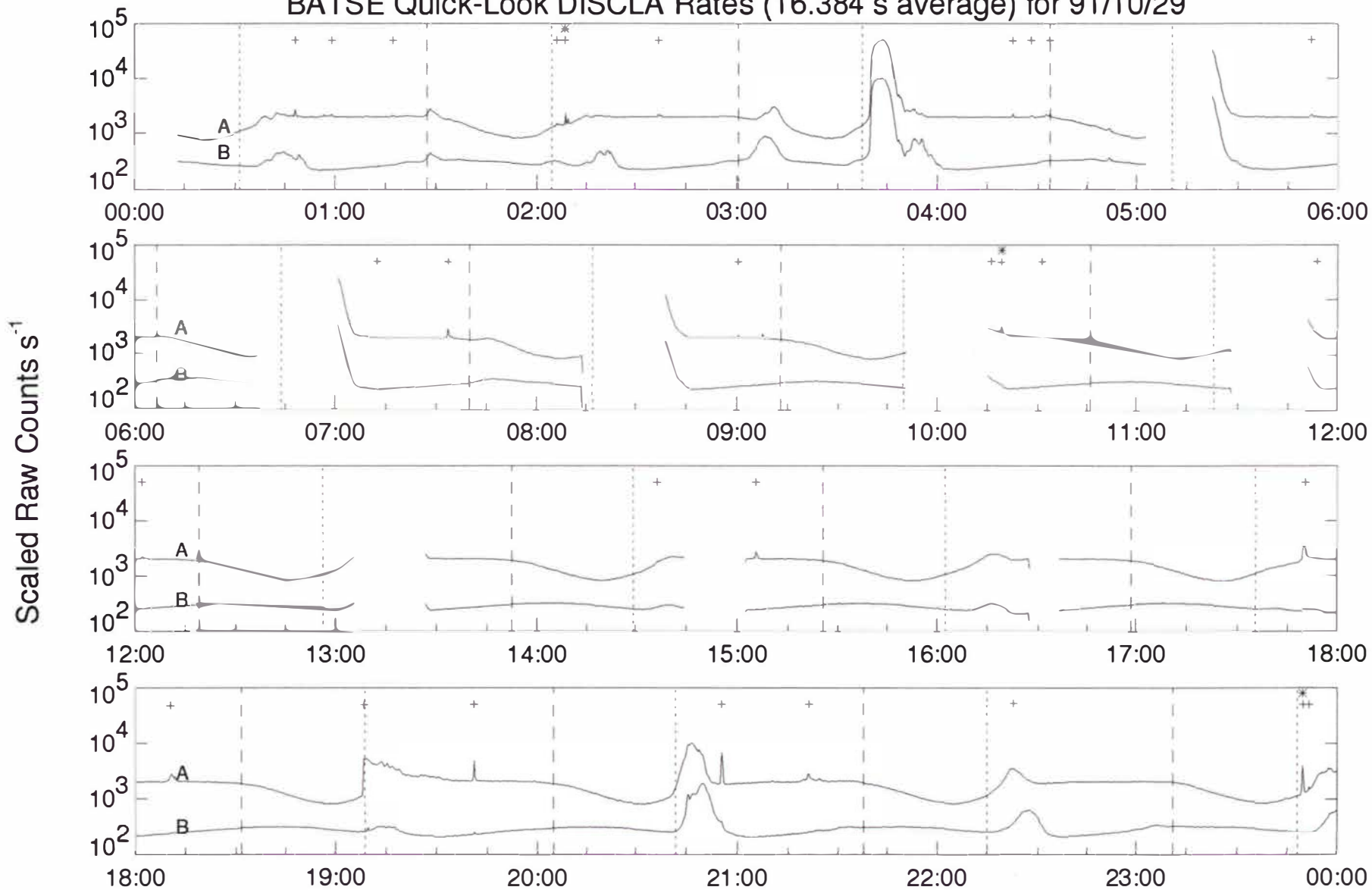
17520.129 s.

8.000 S. INTERVALS REGROUPED BY 1

100-2000 keV



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/29



Current Time: 92/10/31, 2008 EDT

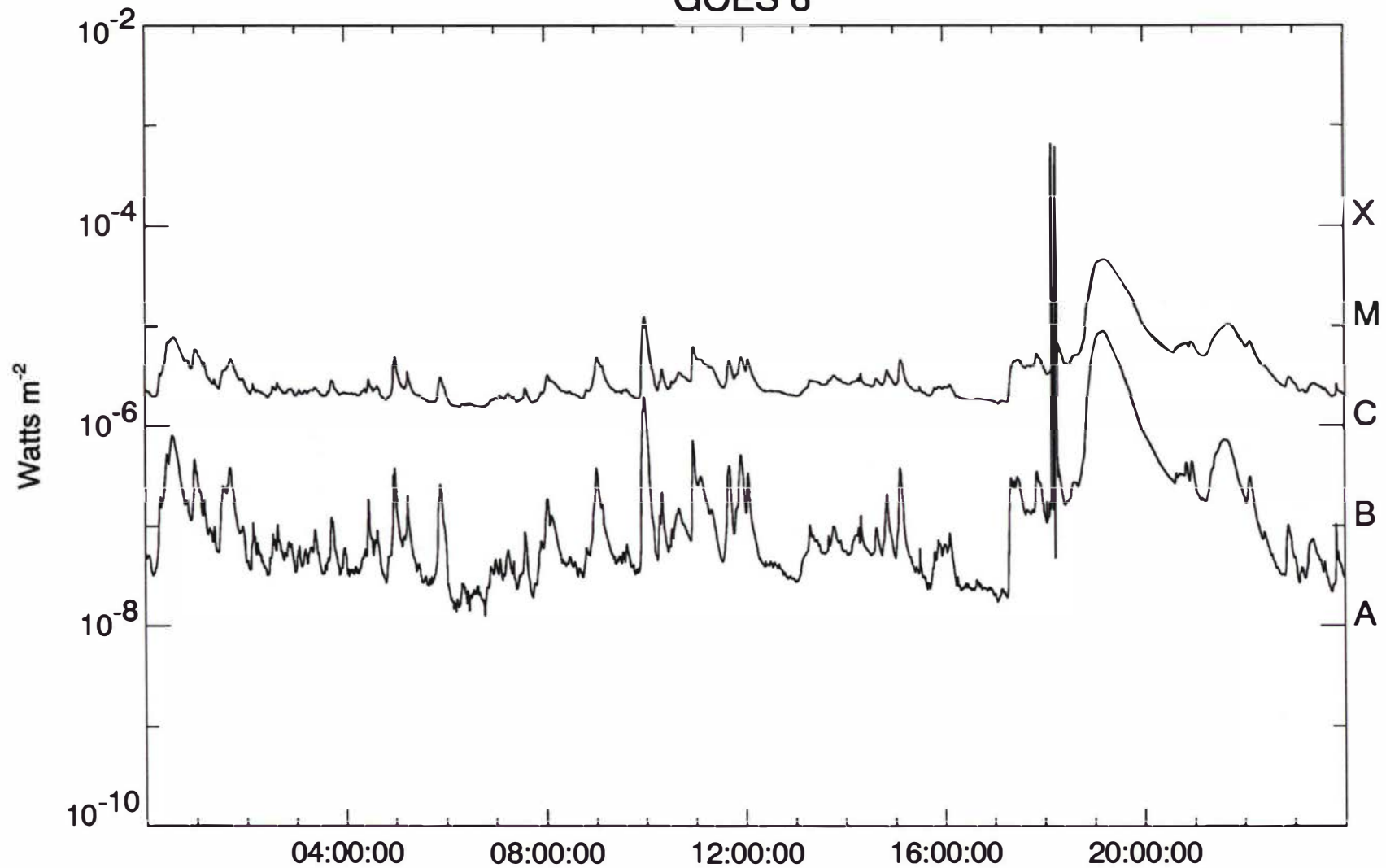
A: Channel 1 Most Sunward LAD

B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 6



Data Start: 91/10/29, 0000:00

Plot created: 97/10/15, 0027

Channel 1 (1.0 - 8.0 Angstroms)

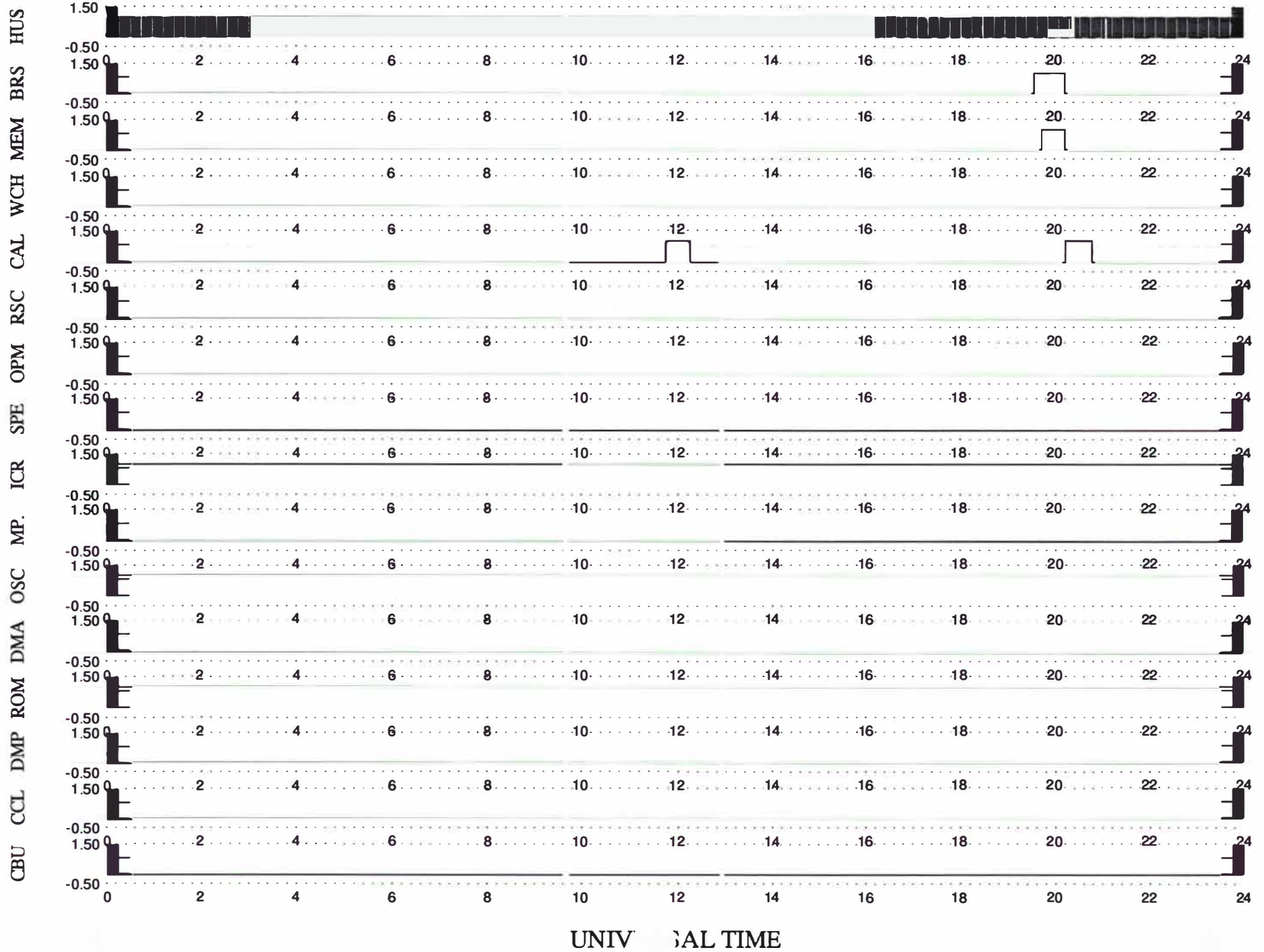
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

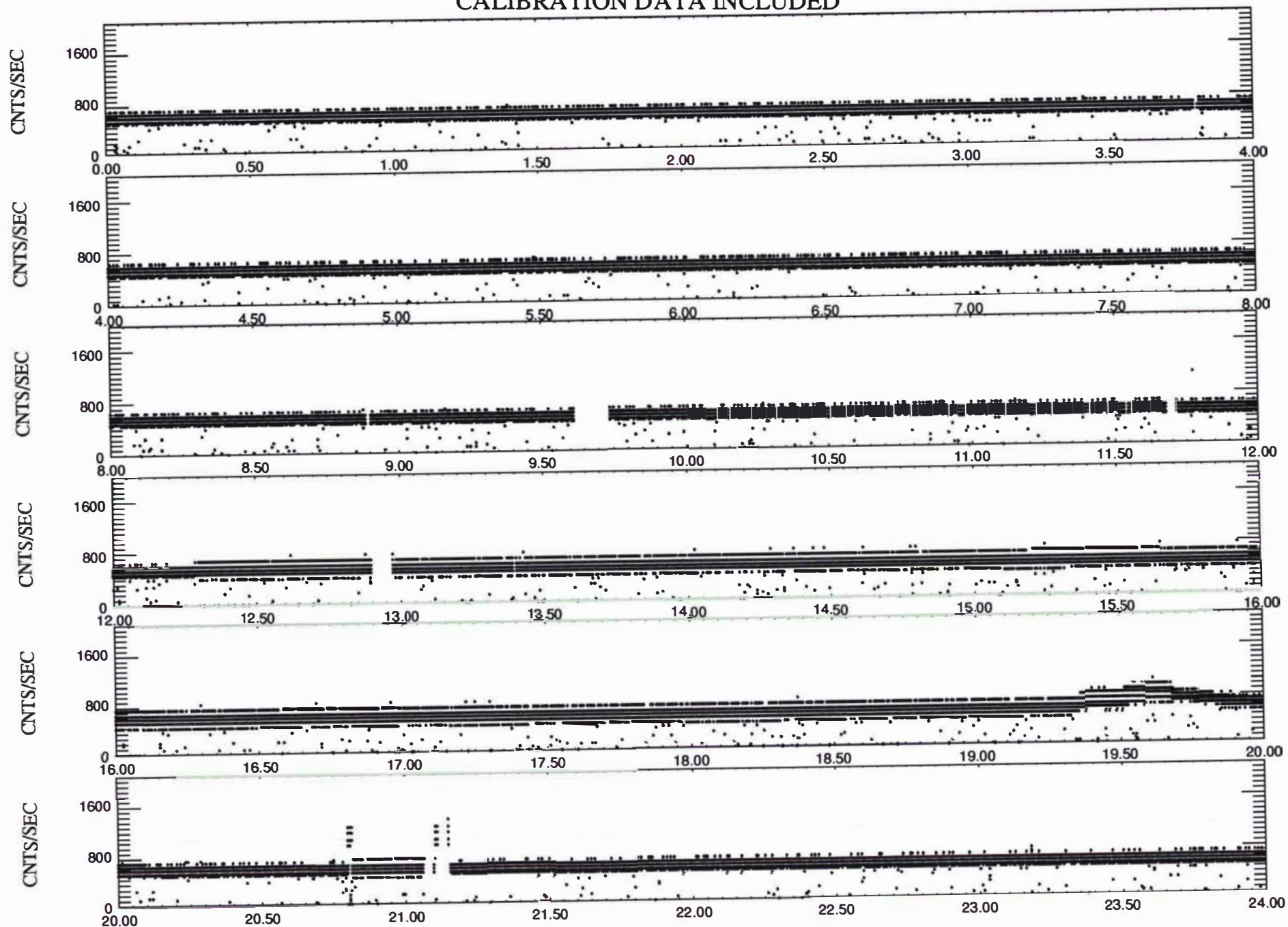
Background not subtracted

Sample average = 10

BURST NUMBER 8

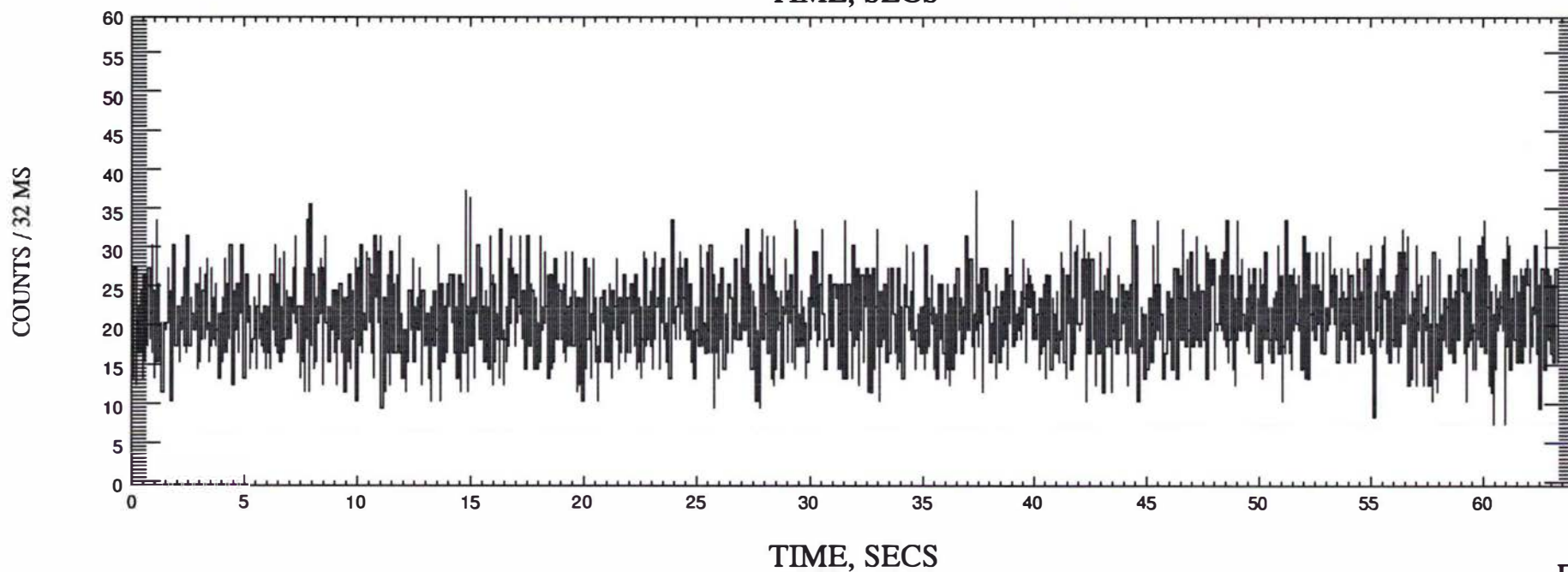
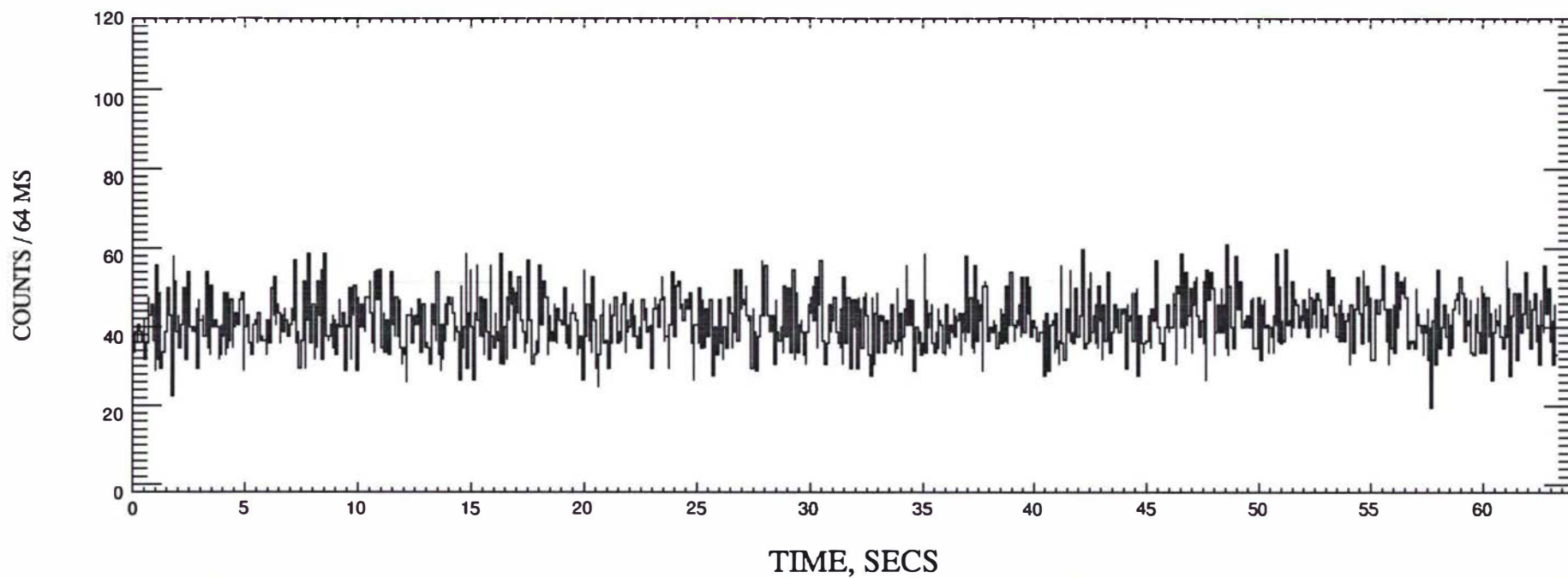


CALIBRATION DATA INCLUDED

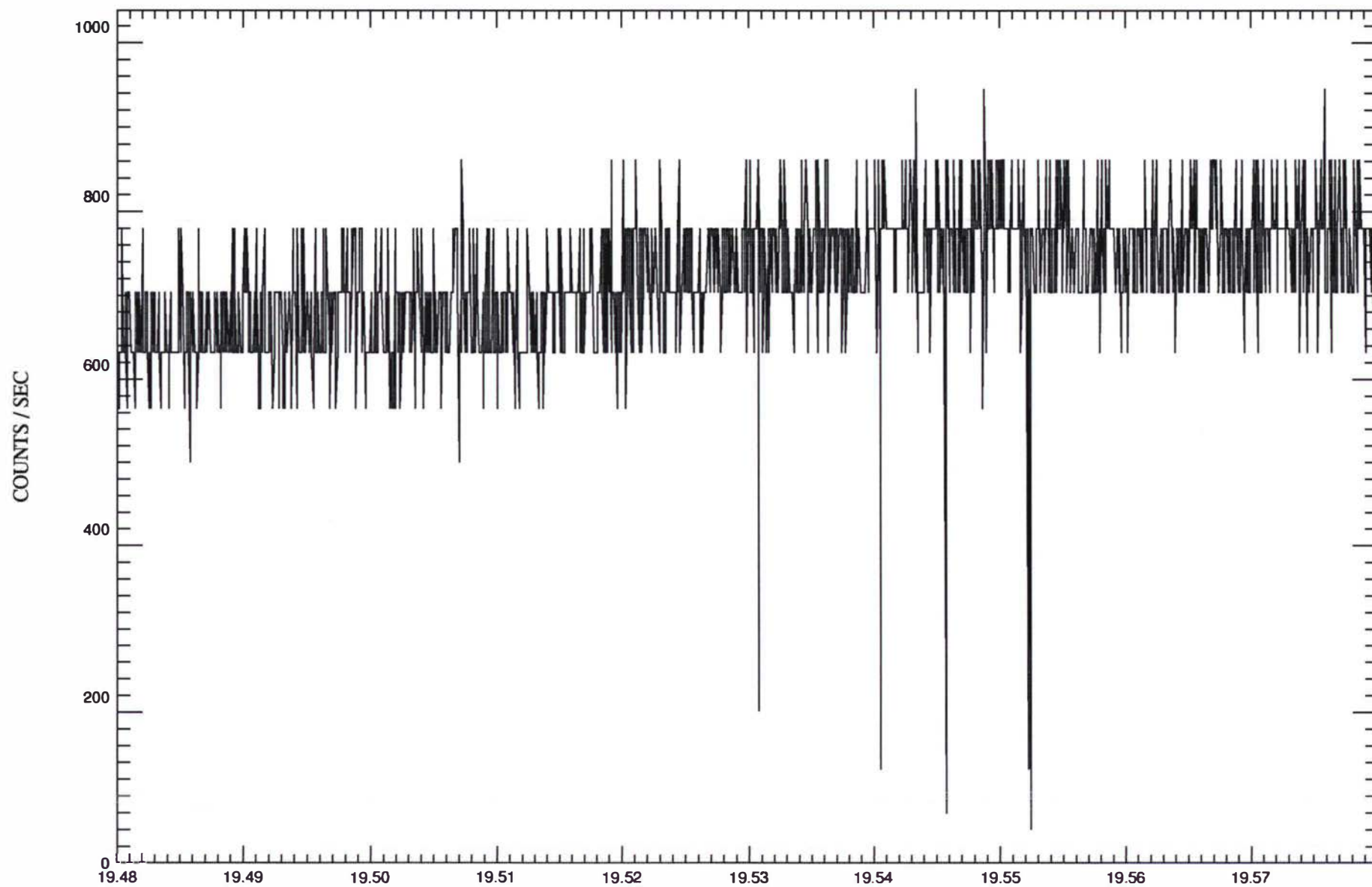


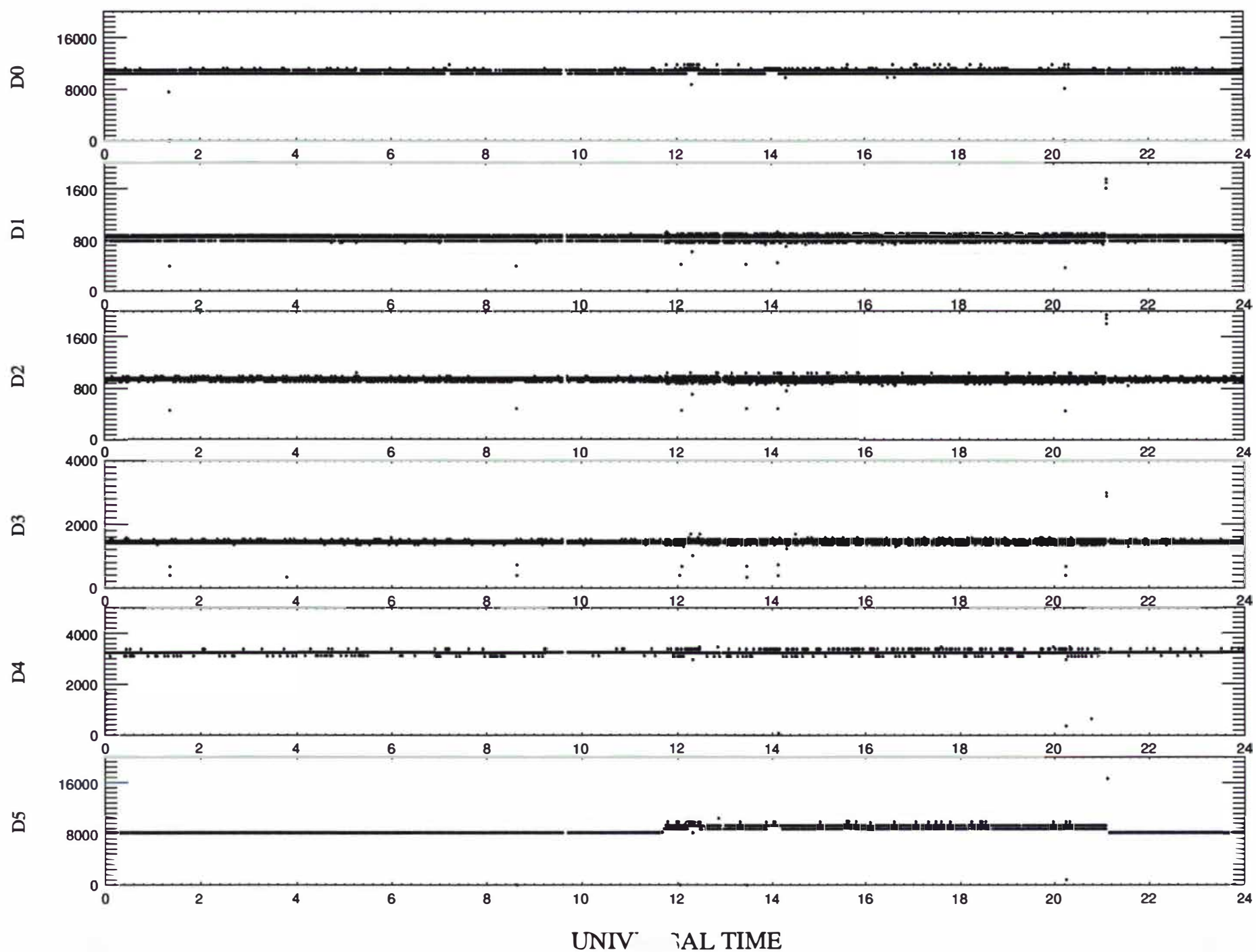
UNIV TIME

Burst Counter 8 at UT=19.529884232415 h=70307.583 s 19:31:47.583

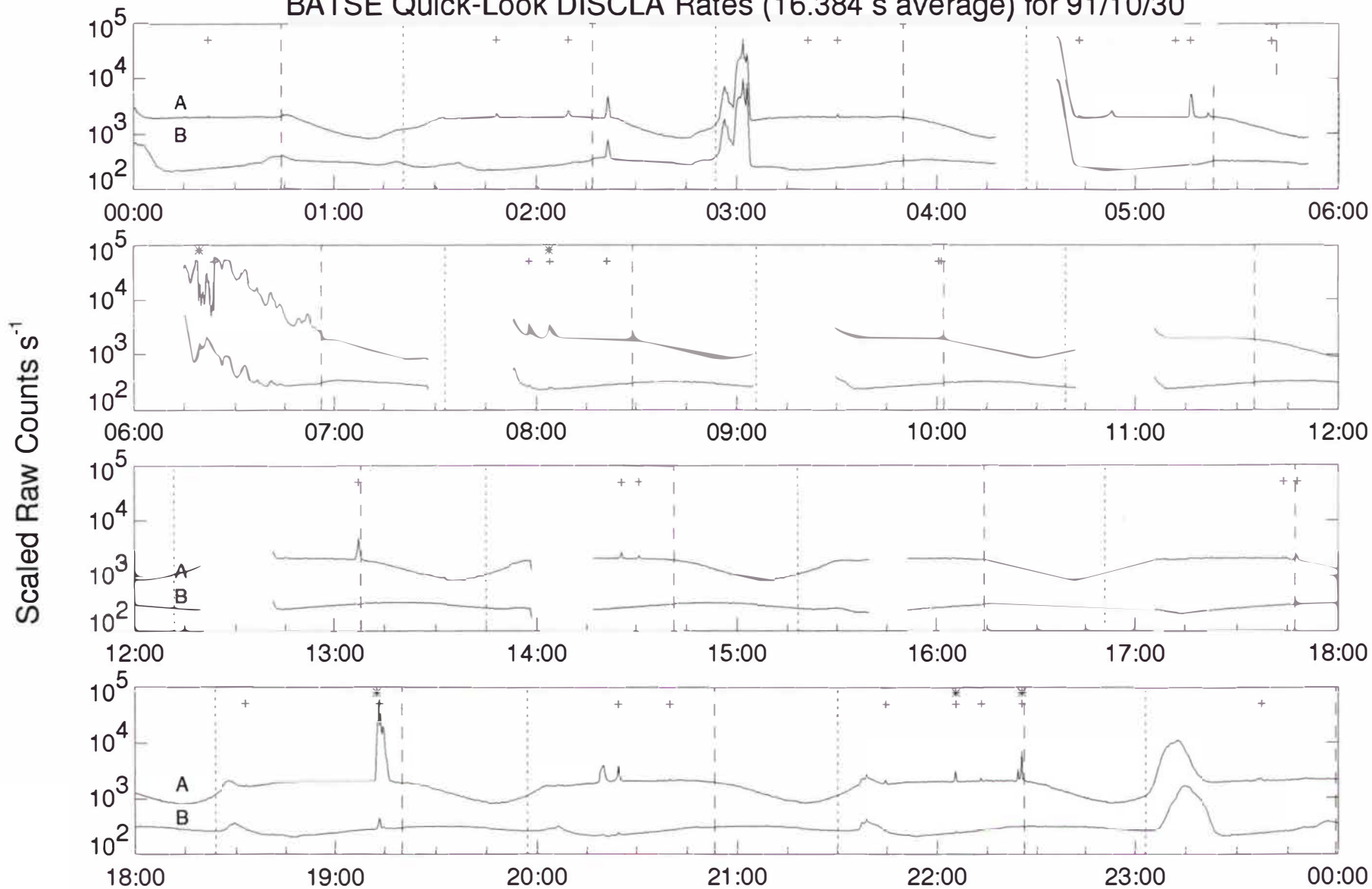


CALIBRATION DATA INCLUDED





BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/30

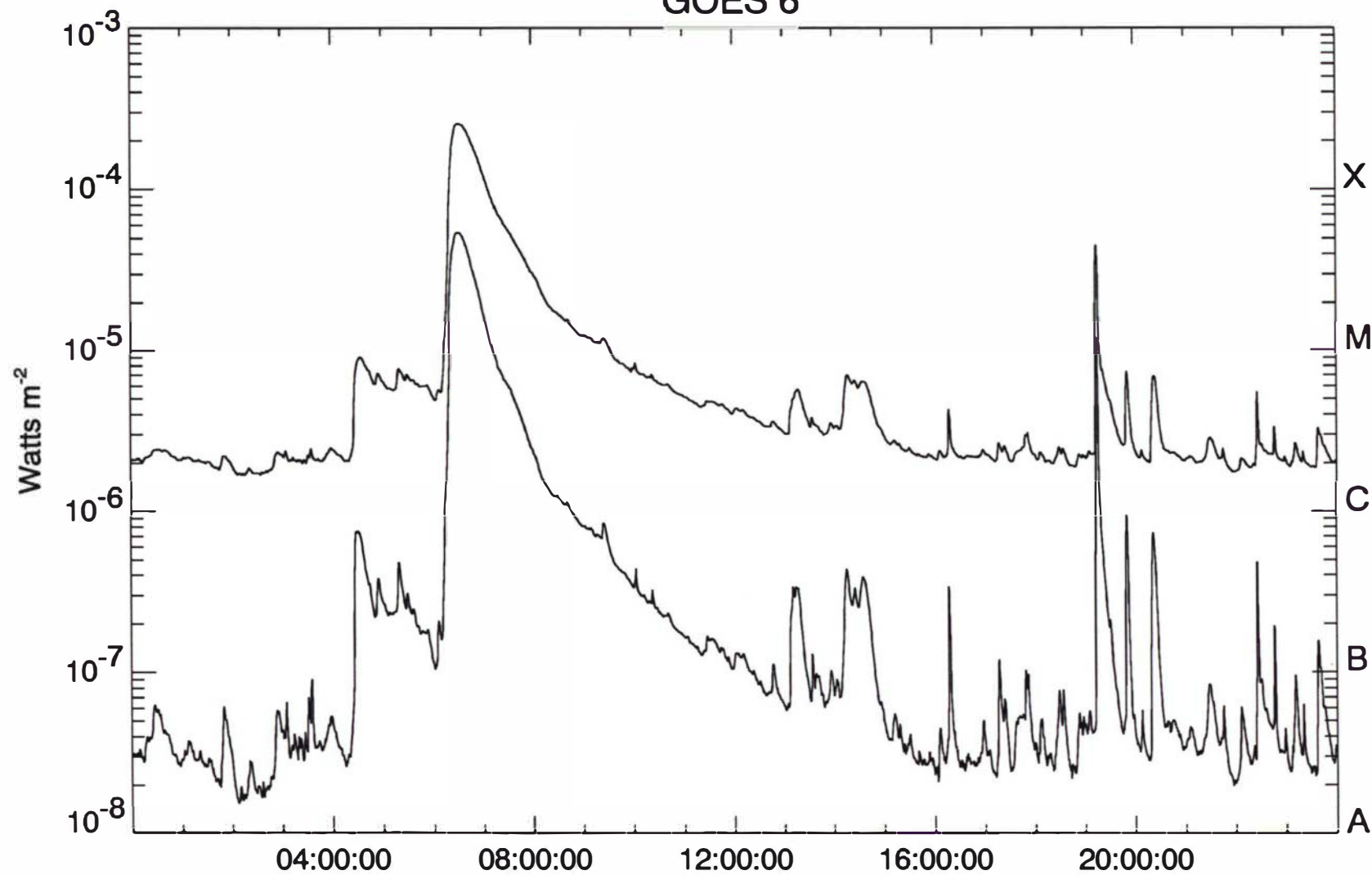


Current Time: 92/10/31, 2010 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/30, 0000:01

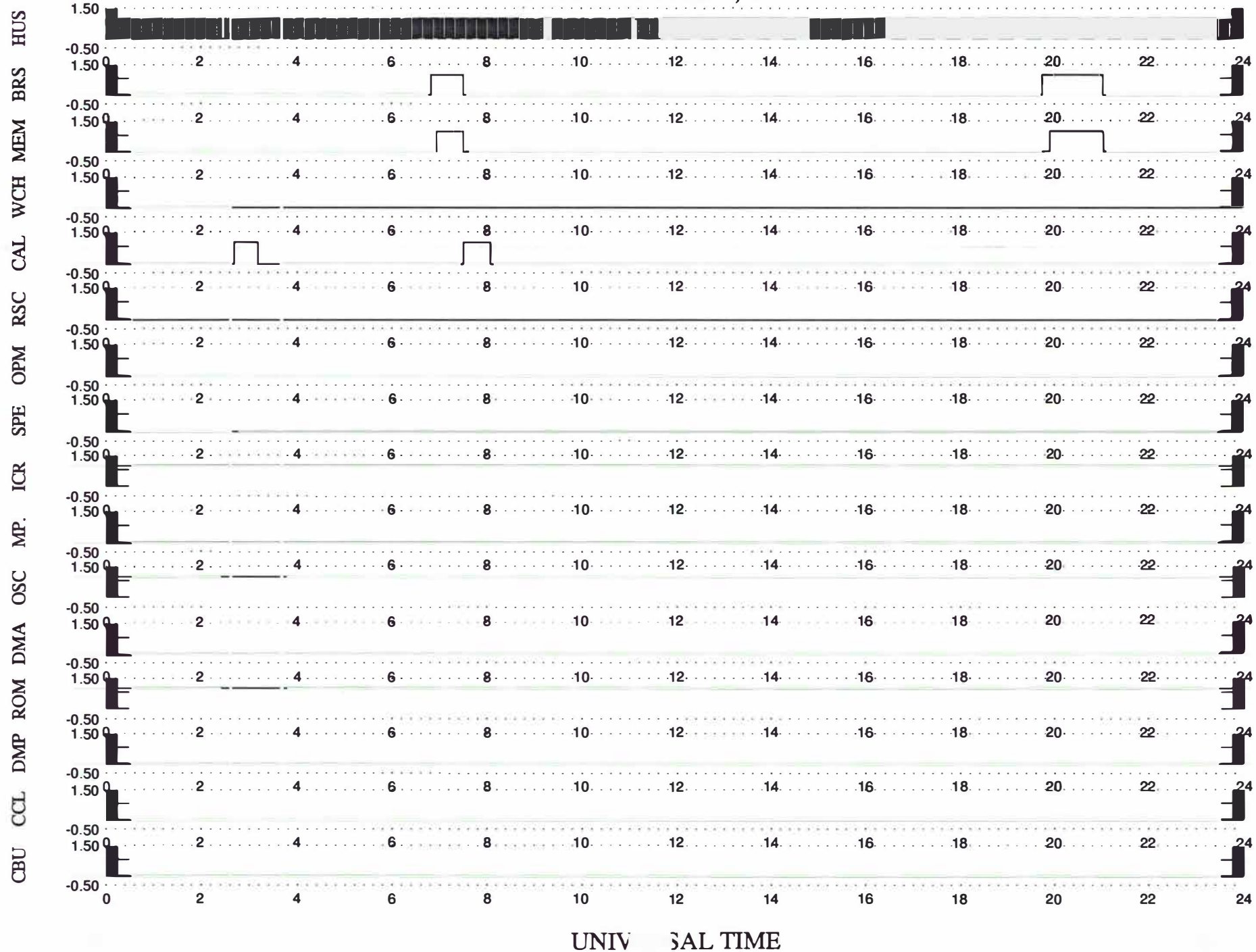
Plot created: 97/10/15, 0031

Channel

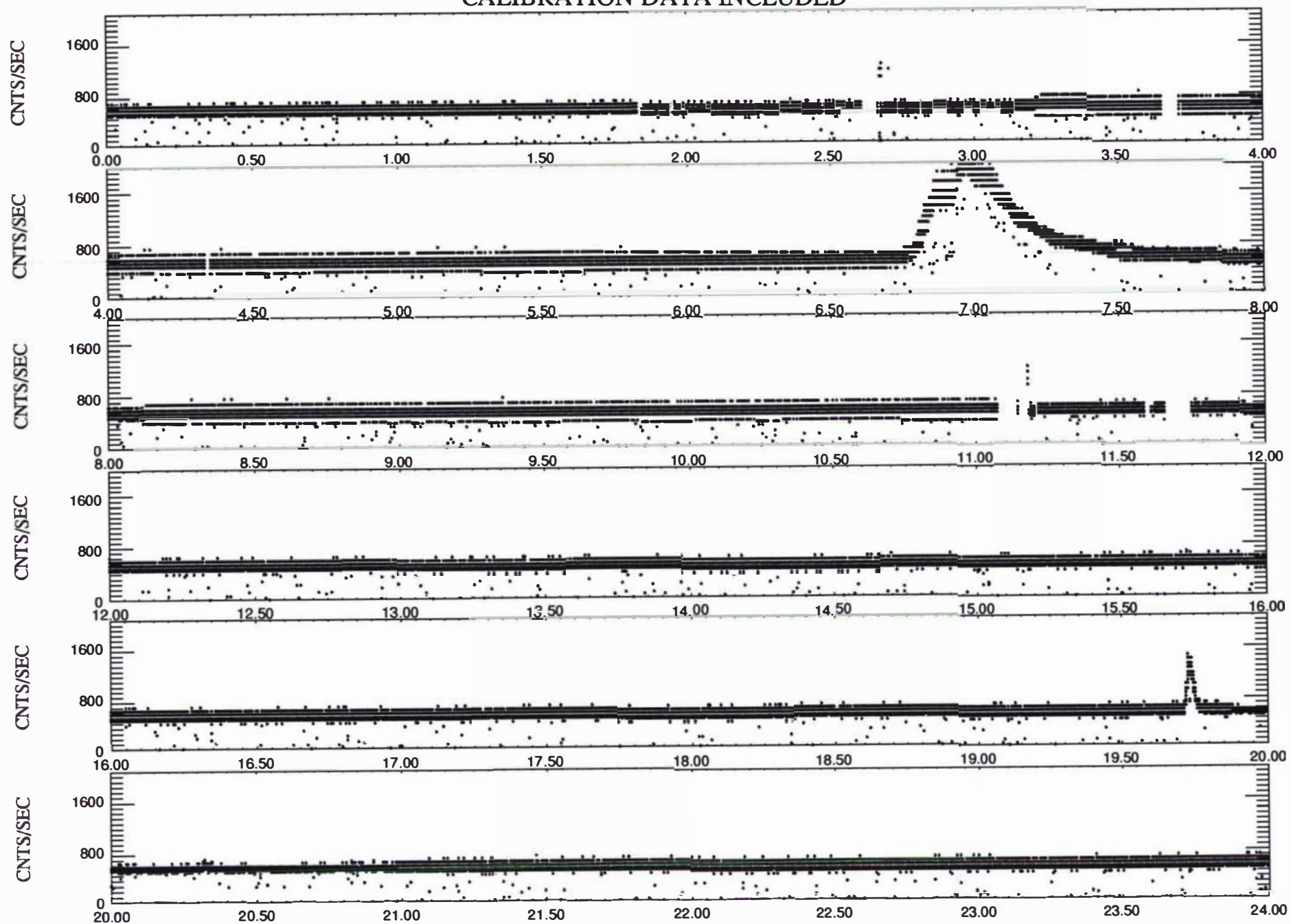
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

BURST NUMBER 9, 10

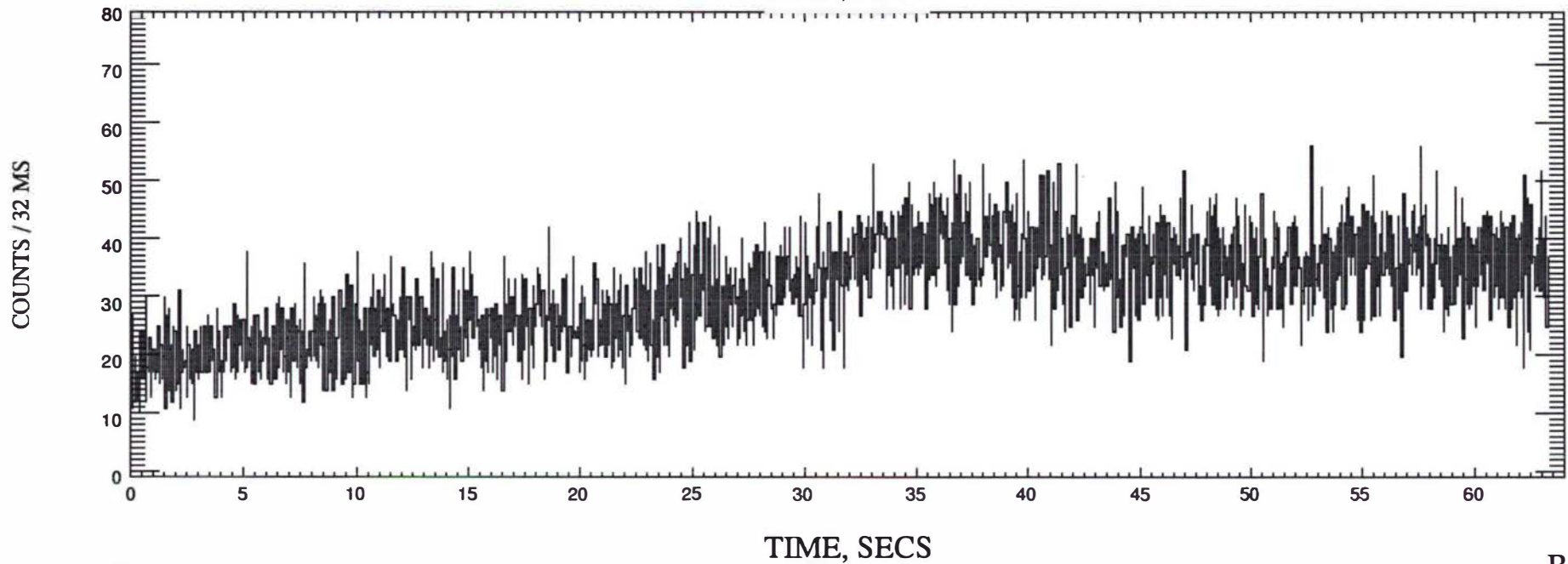
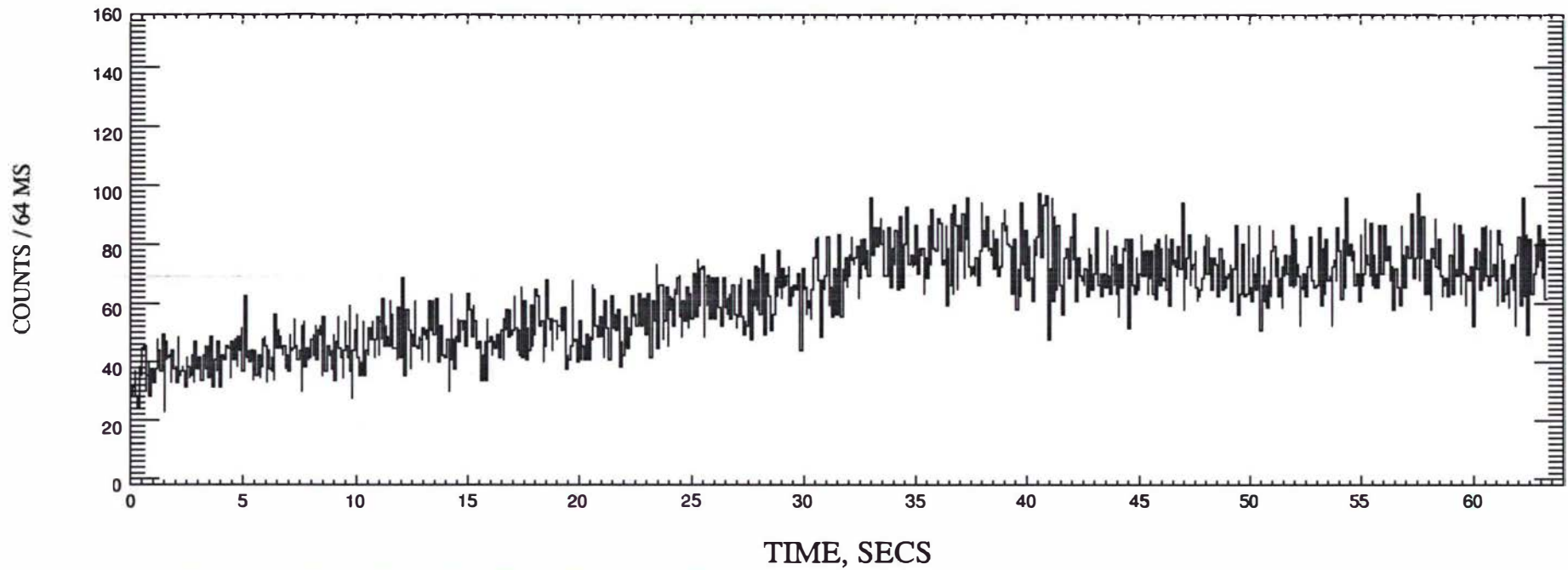


CALIBRATION DATA INCLUDED

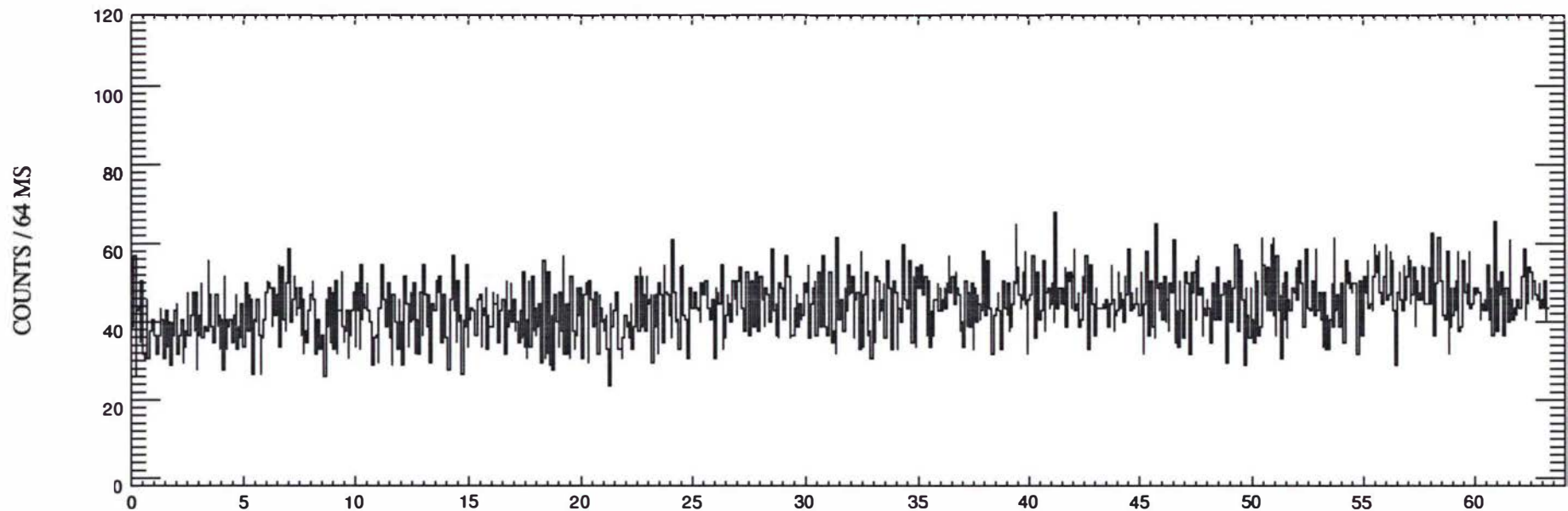


UNIV AL TIME

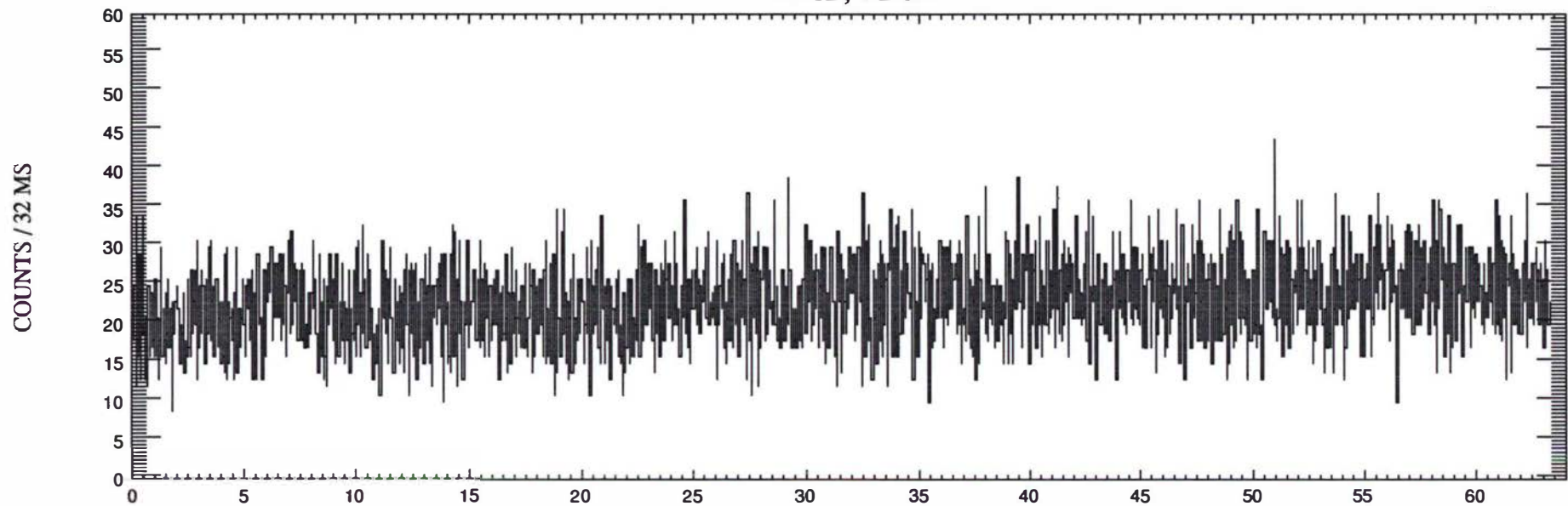
Burst Counter 10 at UT=19.718134278191 h=70985.283 s 19:43:05.283



Burst Counter 9 at UT= 6.787010167440 h=24433.237 s 06:47:13.237

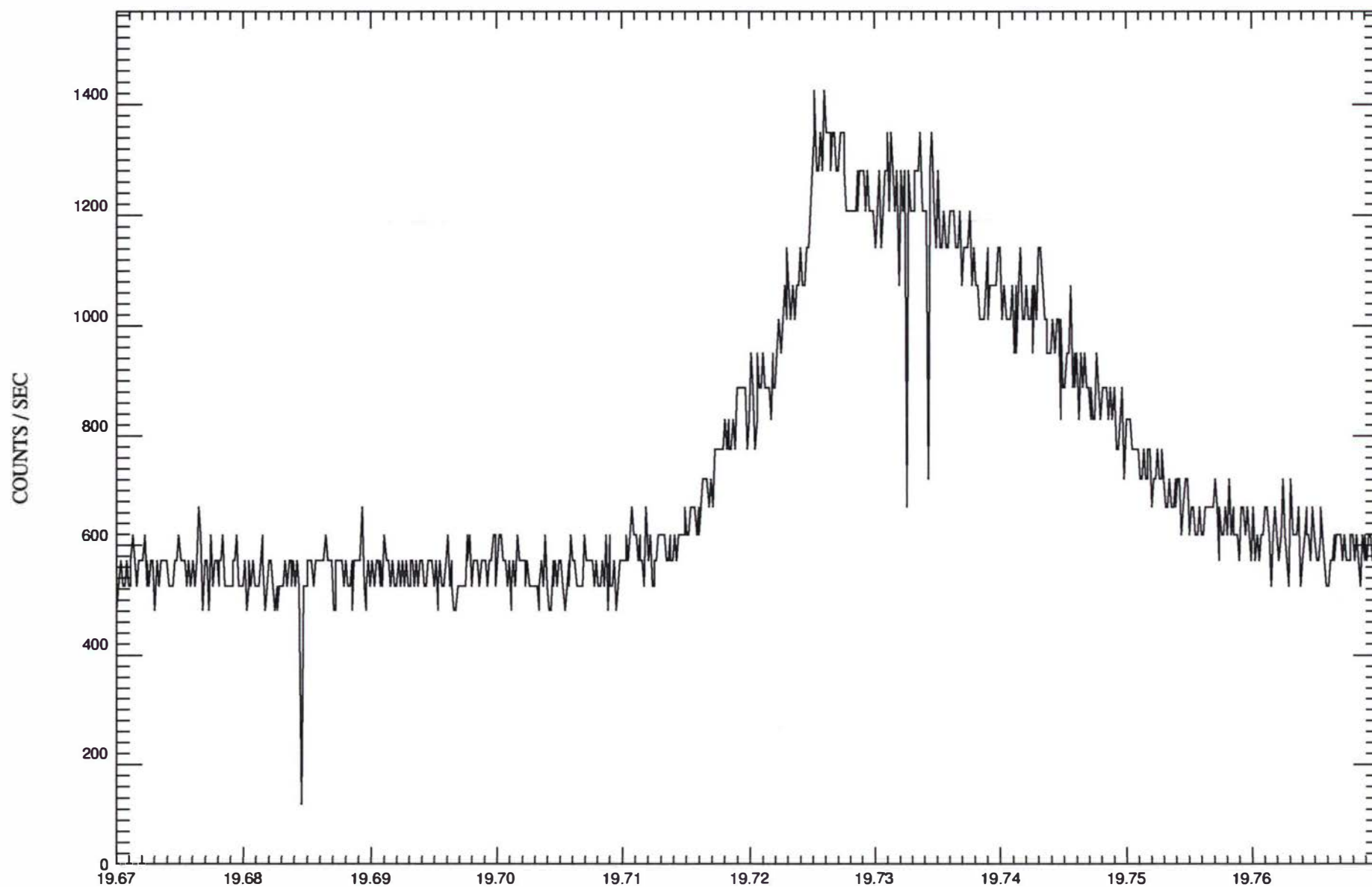


TIME, SECS

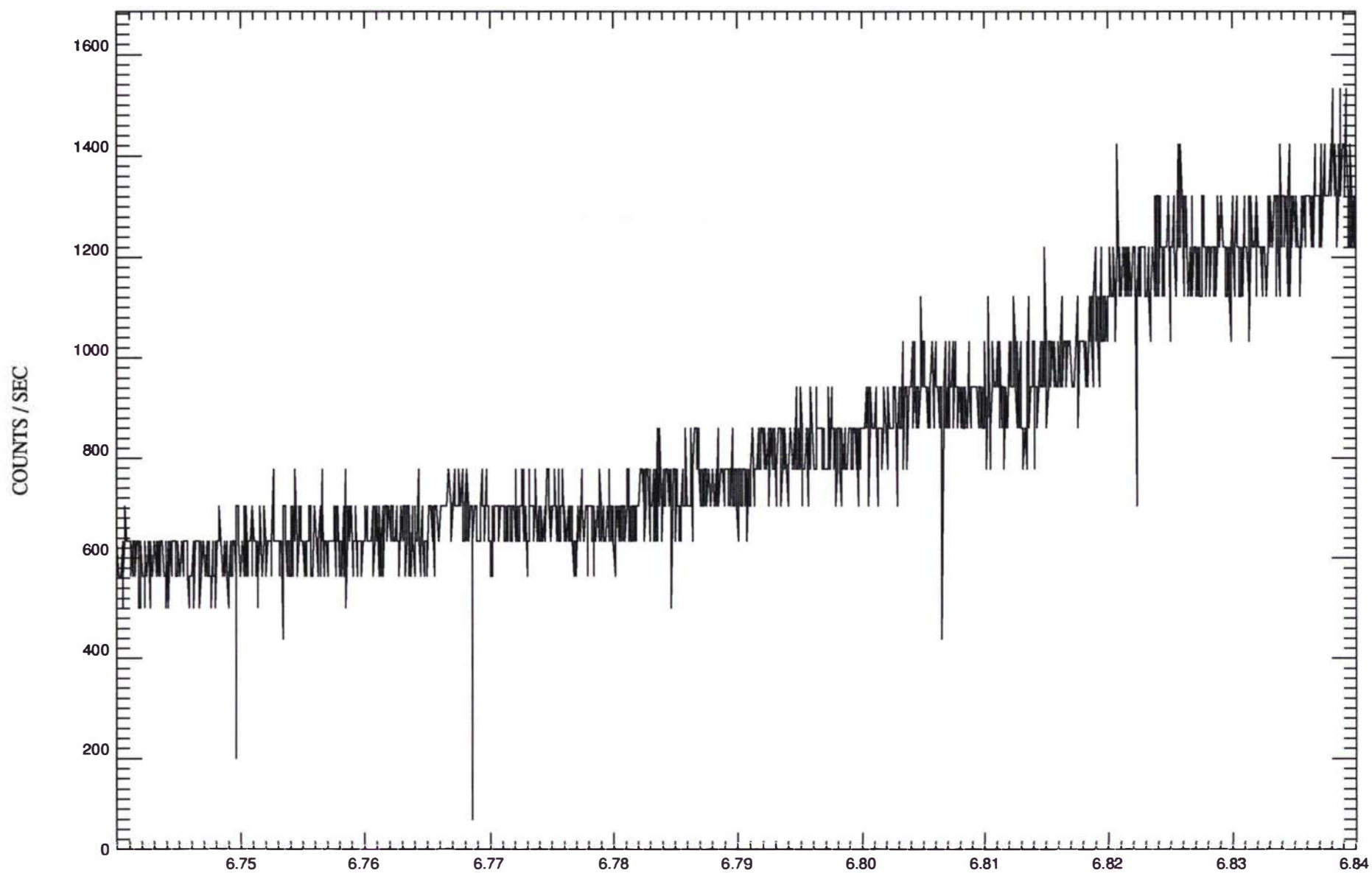


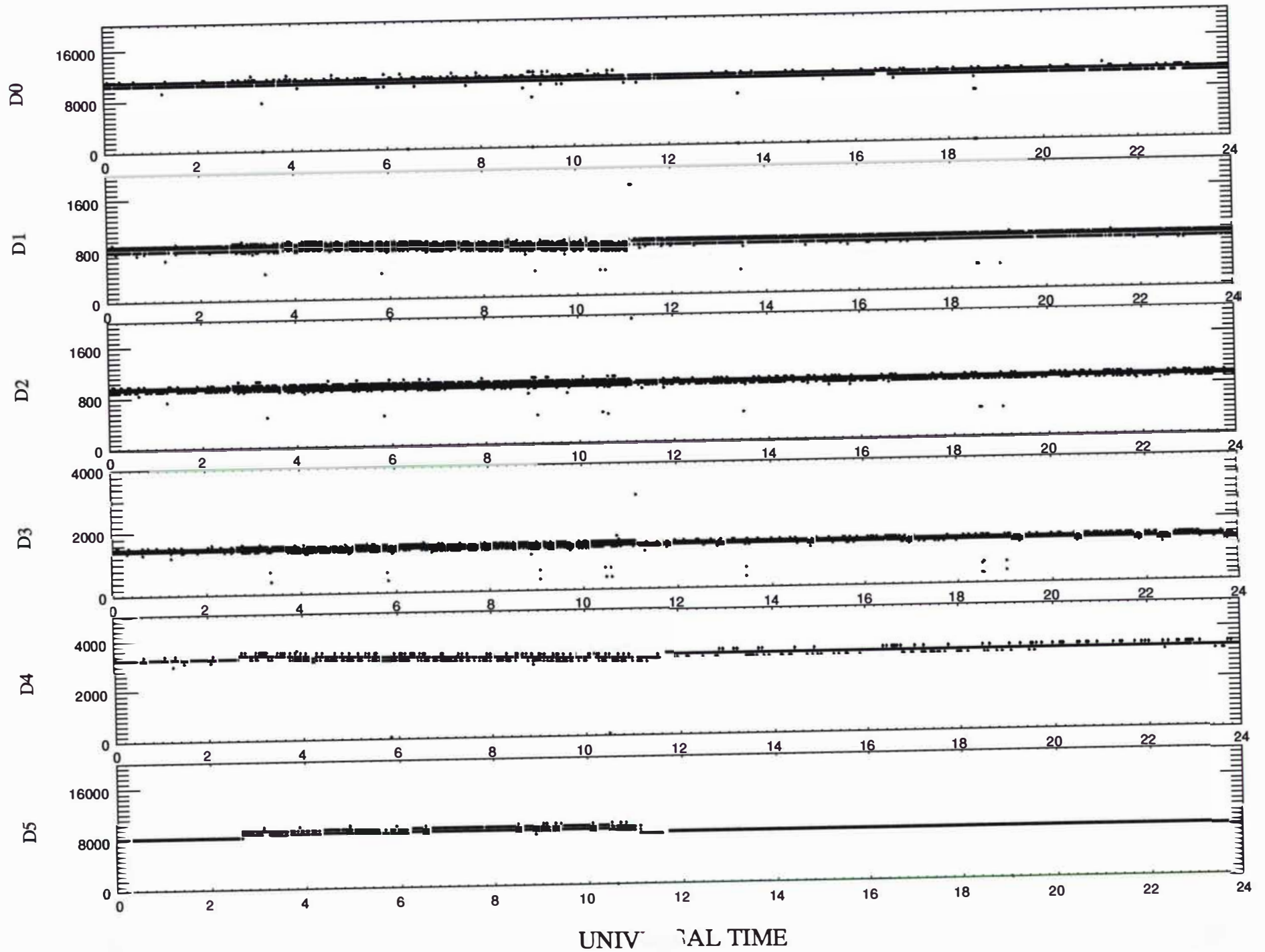
TIME, SECS

CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





CATSEARCH PROGRAM

BATSE BURST # 973
EVENT OF 1991 OCT 31 DAY OF YEAR=304
EVENT CROSSING TIME AT BATSE : 34581. S. OR 09:36:20.5
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 282.600 22.000
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 31/10/ 91 IS:
RA= 164.085 DEC= 8.045 DIST= 5.091 AU
BATSE-ULYSSES DISTANCE = 761546280. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 67.30 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 980.14 SECS.
CROSSING TIME AT ULYSSES IS 35561. S. OR 09:52:40 +/- 471.76 SECONDS

RI

Helio corr removed

Date: Feb 13 1997

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used? *But no check possible for large errors, due to missing stat file values*
- ☒ Were data checked by Joe Springer for 0.5 s errors?
- ☐ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration? *N/A*
- ☒ 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)?
- ☒ Does T_0 in data file agree with T_0 in plot?
- ☒ BATSE ephemeris for T_0 ?
- ☒ Error circle position and radius from public catalog used? *N/A*
- ☐ 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 database updated with JL's numbers

From: springer@pop.jpl.nasa.gov Mon Dec 9 06:37 PST 1996
From: Joe Springer <springer@pop.jpl.nasa.gov>
To: "'Kevin Hurley'" <khurley@sunspot.ssl.berkeley.edu>
Subject: RE: More times to check
Date: Mon, 9 Dec 1996 06:37:26 -0800
X-Mailer-Version: 1.0
Content-Transfer-Encoding: 7bit

Kevin,

I checked a range ten minutes before to ten minutes after each of these points and found no timing errors.

How big is the 'big list'? You have previously provided one with 575 events. I shudder.

Joe

From: Kevin Hurley
Sent: Friday, December 06, 1996 5:53 PM
To: Joe.B.Springer@jpl.nasa.gov; khurley@sunspot.ssl.berkeley.edu
Cc: khurley@sunspot.ssl.berkeley.edu
Subject: More times to check

Dear Joe,

Before I hit you with the big list of events to check, I wanted to ask if you could check the following times. We are again writing a paper on these, and need to get this straightened out quickly (i.e. within a couple of weeks).

Thanks

Kevin

Date UT (secs)

January 22 1991 55142
February 19 1991 42204
April 21 1991 34040
April 30 1991 60428
May 07 1991 53768
May 11 1991 08090
May 22 1991 43556
June 19 1991 55254
June 27 1991 15335
July 17 1991 17265
July 18 1991 09076
August 14 1991 70996
October 05 1991 26852
October 16 1991 41542
October 31 1991 35550
November 04 1991 52695
November 09 1991 11321
November 18 1991 66112
November 26 1991 43717
December 02 1991 71640
February 18 1992 68388
February 20 1992 49020

February 26 1992 30348
March 08 1992 17470
March 11 1992 07038
March 20 1992 45256
March 25 1992 64261
March 31 1992 66408
April 04 1992 49443
April 06 1992 11150
April 14 1992 84300
May 01 1992 75040
May 17 1992 10549
May 17 1992 50706
May 19 1991 60996
May 25 1992 14411
July 11 1992 58470
July 14 1992 46275
July 20 1992 09807
July 20 1992 18344
July 23 1992 73955

Added to MBL Fabio

From root Sat Feb 5 15:27 1994
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA01731; Sat, 5 Feb 94 15:26:40
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (5.0/SMI-SVR4)
id AA05250; Sat, 5 Feb 1994 14:30:29 +0800
Received: Sat, 5 Feb 94 14:33:38 PST from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9402052233.AA15162@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-maillld v1.7); Sat, 5 Feb 94 14:33:56 PST
Date: Sat, 5 Feb 94 14:33:56 PST
From: 068486@essdp2.span.nasa.gov
X-To: AMES::"KHURLEY@SPACE6.SSL.BERKELEY.EDU"
Subject: 64 S DATA SEARCH
To: KHURLEY@space6.ssl.berkeley.edu
Content-Length: 1442
Status: RO

KEVIN,

THESE ARE THE EVENTS FOR WHICH WE HAVE SCANNED THE DATA RECORDED AT 64 S
RESOLUTION. RESULTS ARE GIVEN BELOW.

DATE	TIME	
91/01/23	12:40	QUESTIONABLE RESPONSE-3.7 SIGMA IN THIRD C1 SAMPLE FROM THE FRAME AT 45047 S UT. C2@ 2.8 & C3@ 1.8 SIGMA.
91/06/19	14:14	YES-13.7 SIGMA IN 3RD AND 4TH C1 SAMPLES OF FRAME AT 51416 S UT, C2@ 6.5, C3@ 10.4, C4 & C5@ 3 SIGMA.
91/07/25	13:12	NO RESPONSE AT 3 SIGMA LEVEL. 2.9 SIGMA AT 20937 S UT
91/08/09	06:15	NO RESPONSE AT 3 SIGMA LEVEL. 2.8 SIGMA AT 22381 S UT
91/10/26	13:07	NO RESPONSE AT 3 SIGMA LEVEL. 2.0 SIGMA AT 47009 S UT
91/10/31	09:36	YES-6 SIGMA RESPONSE IN SUMMED C1 SAMPLES AT 34628 S UT. C2 PROBABLY SPILLED TWICE. C3@ 3.6 SIGMA, C4@ 3.3 SIGMA, C5@ 2.3 SIGMA. C3+4+5@ 5.1 SIGMA.
92/05/02	06:03	NO RESPONSE AT 3 SIGMA LEVEL. 2.7 SIGMA AT 20937 S UT

IN ALL CASES I SCANNED DATA IN THE RANGE OF POSSIBLE TIMES BASED UPON THE
DISTANCE BETWEEN THE EARTH AND VENUS, BUT I ALSO LOOKED AT DATA OUTSIDE THIS
WINDOW AS A REFERENCE. I WILL TRANSMIT TO YOU THE DATA FILES FOR THE MORE
LIKELY CANDIDATES. IT MAY BE THAT THE MORE QUESTIONABLE RESPONSE WOULD ALSO
BE USEFUL IF THE SOLUTION FOR A LOCATION IS CONSISTENT WITH ANOTHER SOLUTION.
I WOULD NOT ATTEMPT A DETERMINATION OF LOCATION, WITH THESE DATA, UNLESS THERE
IS ALREADY A BATSE LOCATION OR A CIRCLE OF POSITION.

REGARDS,

RAY

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

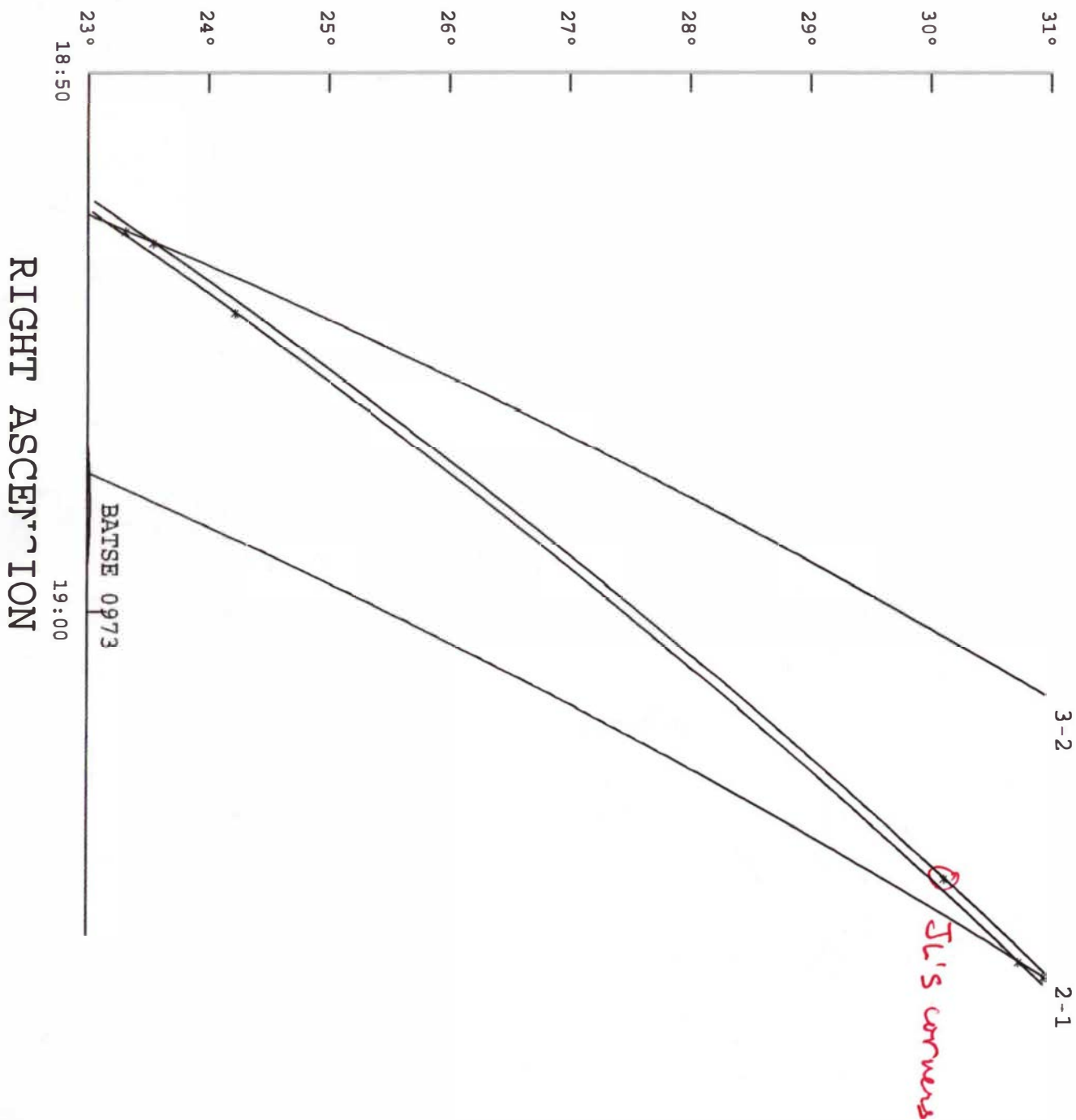
2 BATSE

3 PVO

EVENT OF OCT 31, 1991 9:51

8/10/97

DECLINATION



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

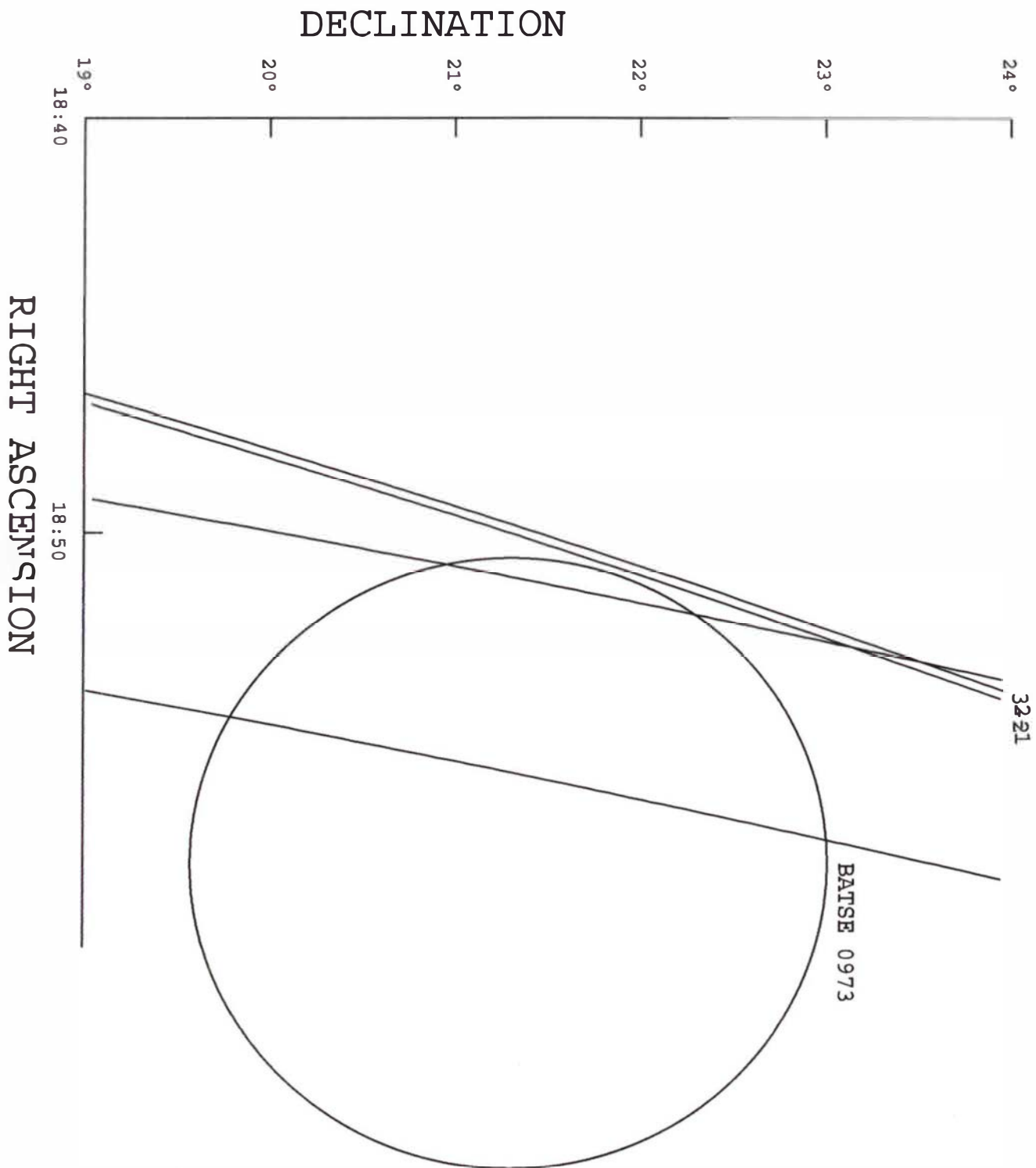
1 ULYSSES

2 BATSE

3 PVO

EVENT OF OCT 31, 1991 9:51

13 / 2/97



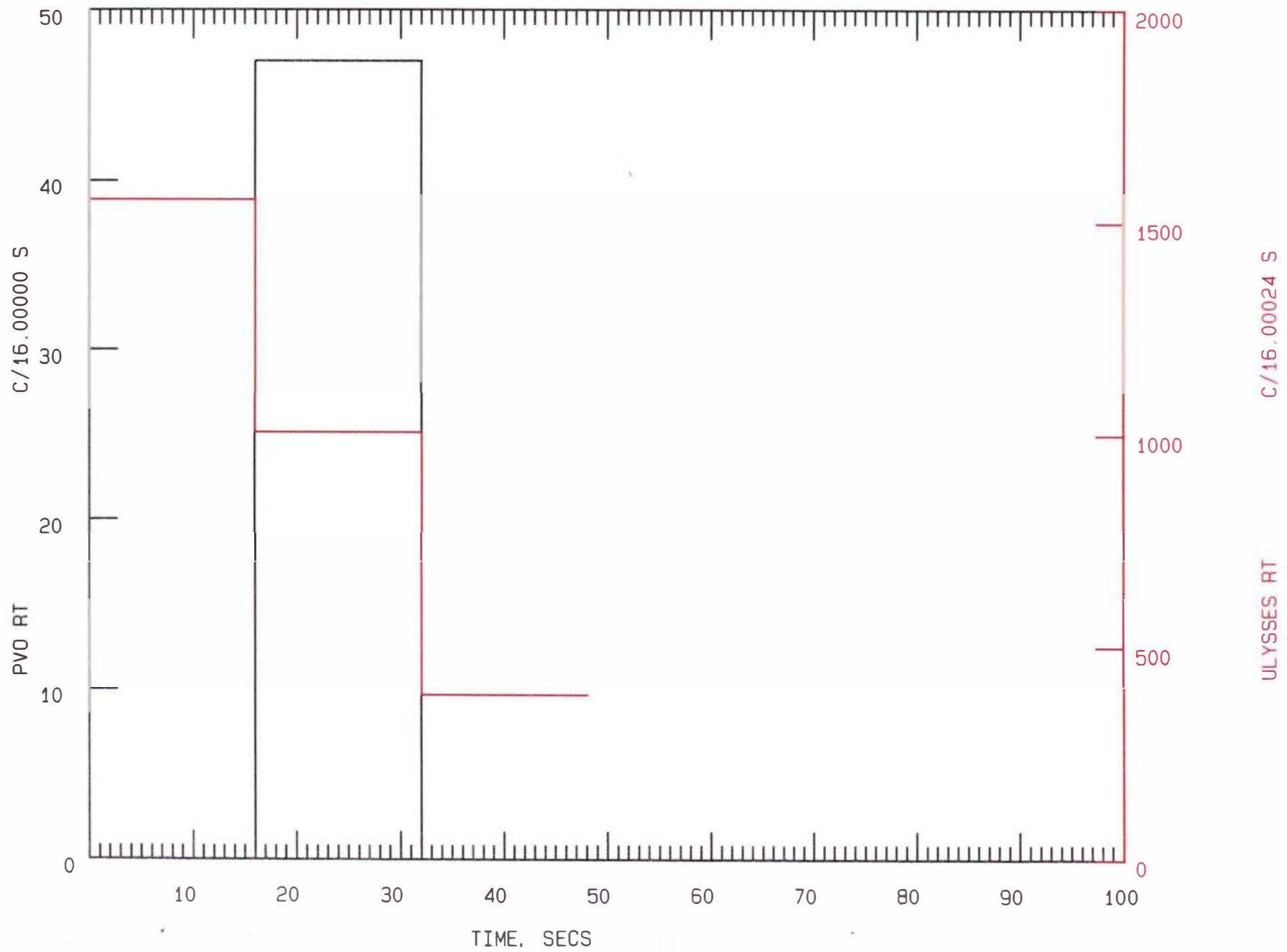
PV0 RT

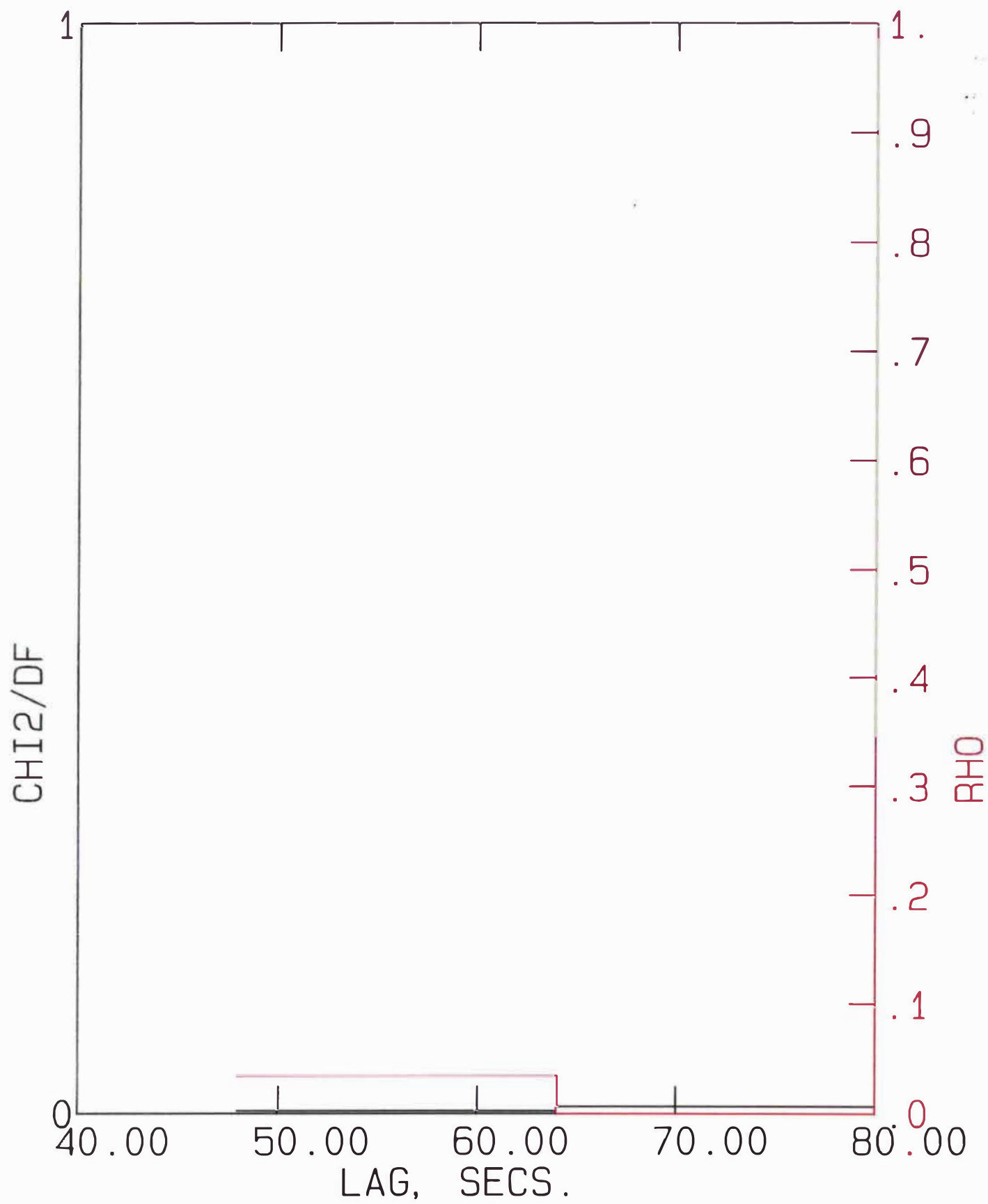
-ULYSSES RT CORRELATION

31/10/91

34692.711

12/ 2/97





BATSE

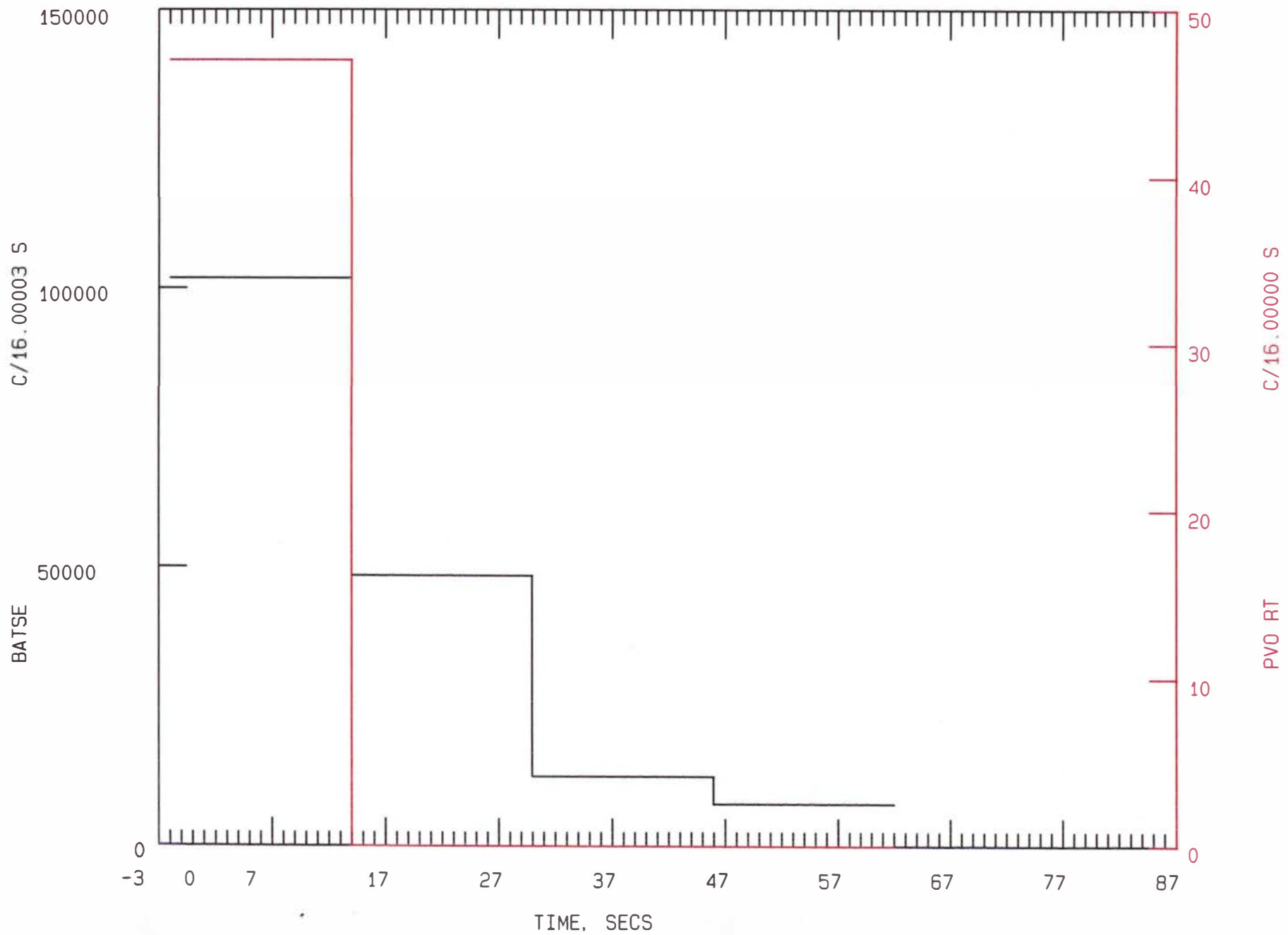
-PVO RT

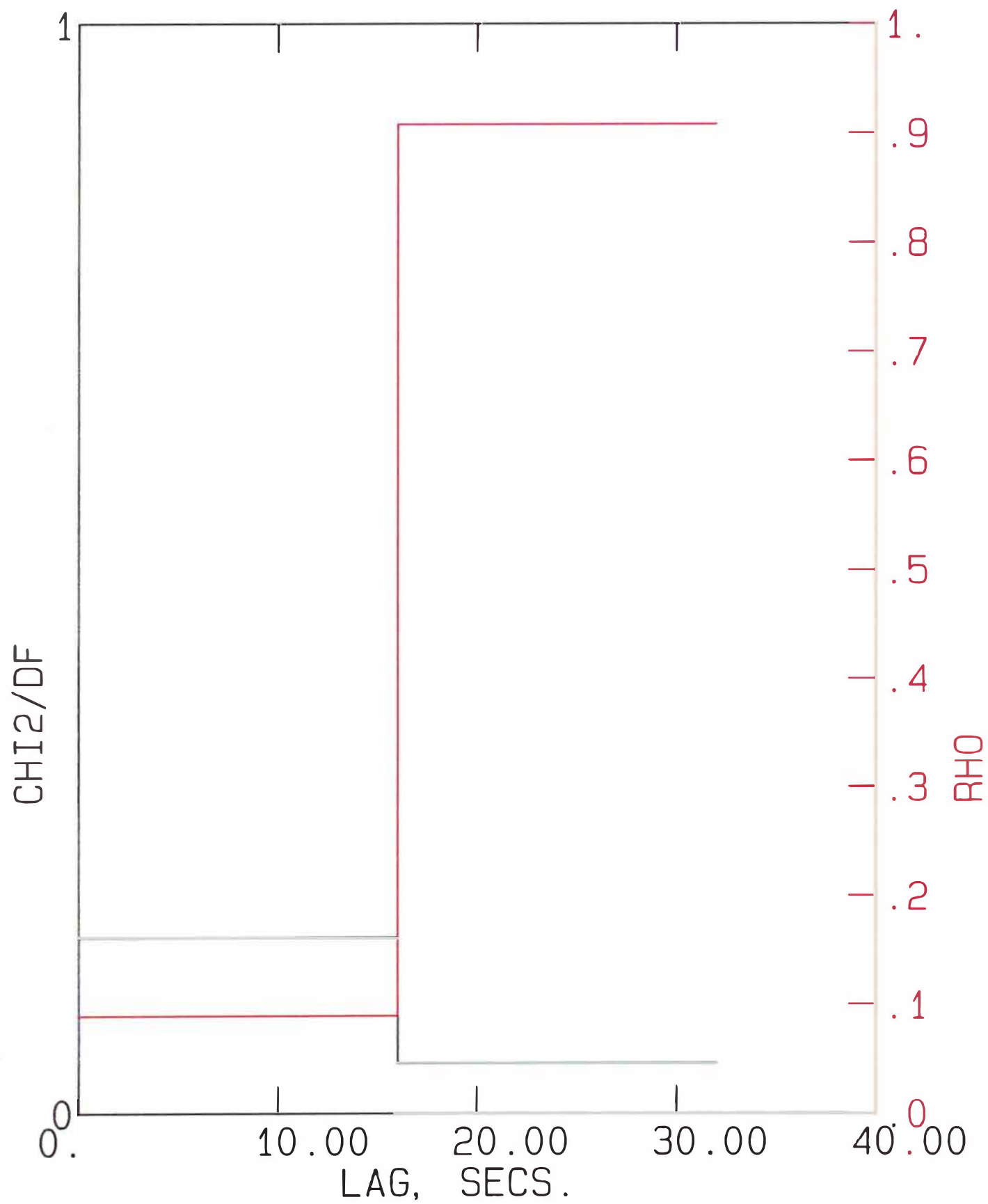
CORRELATION

31/10/91

34580.523

12/ 2/97





PV0 RT

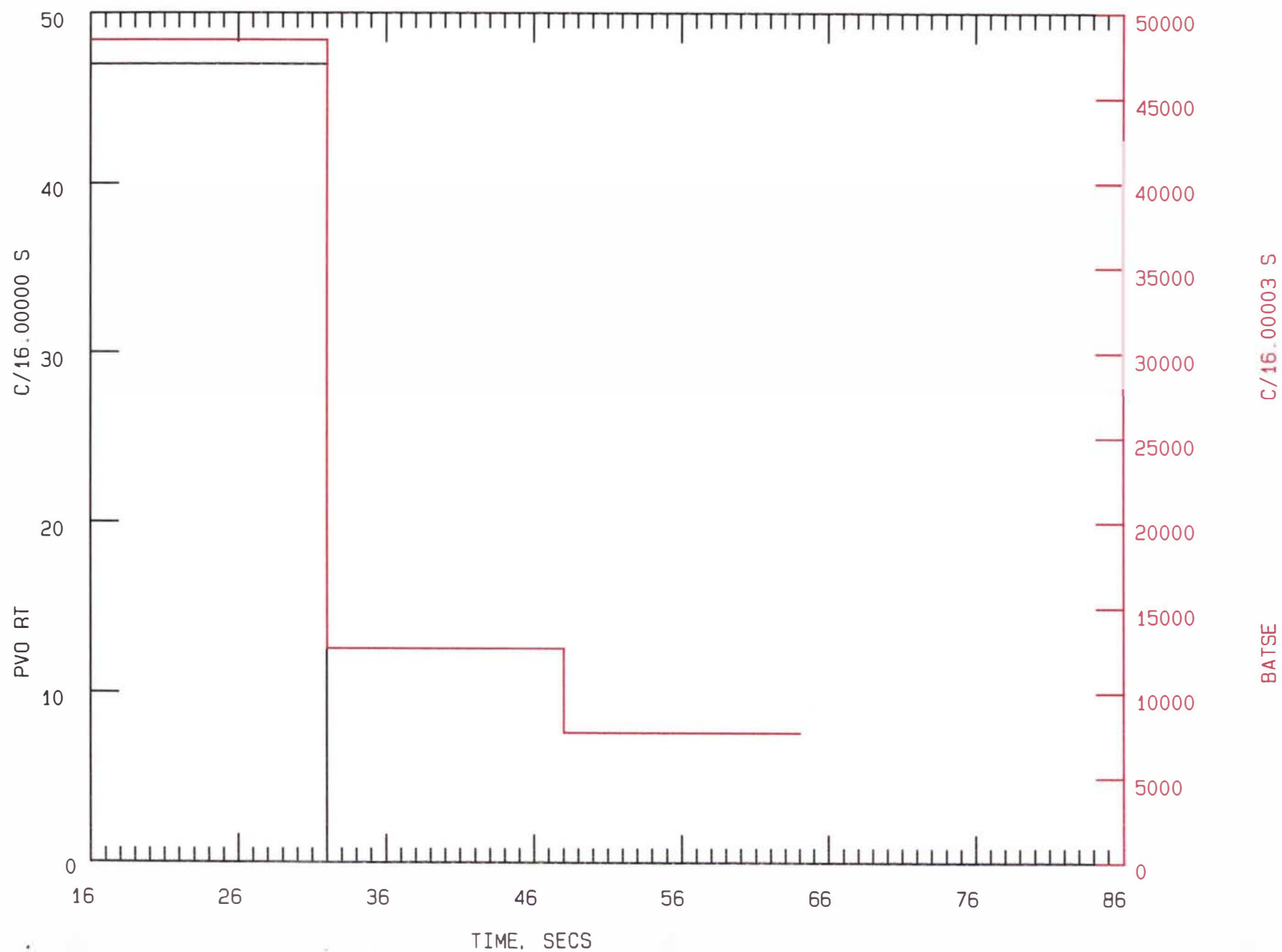
-BATSE

CORRELATION

31/10/91

34692.711

12/ 2/97



PVO RT

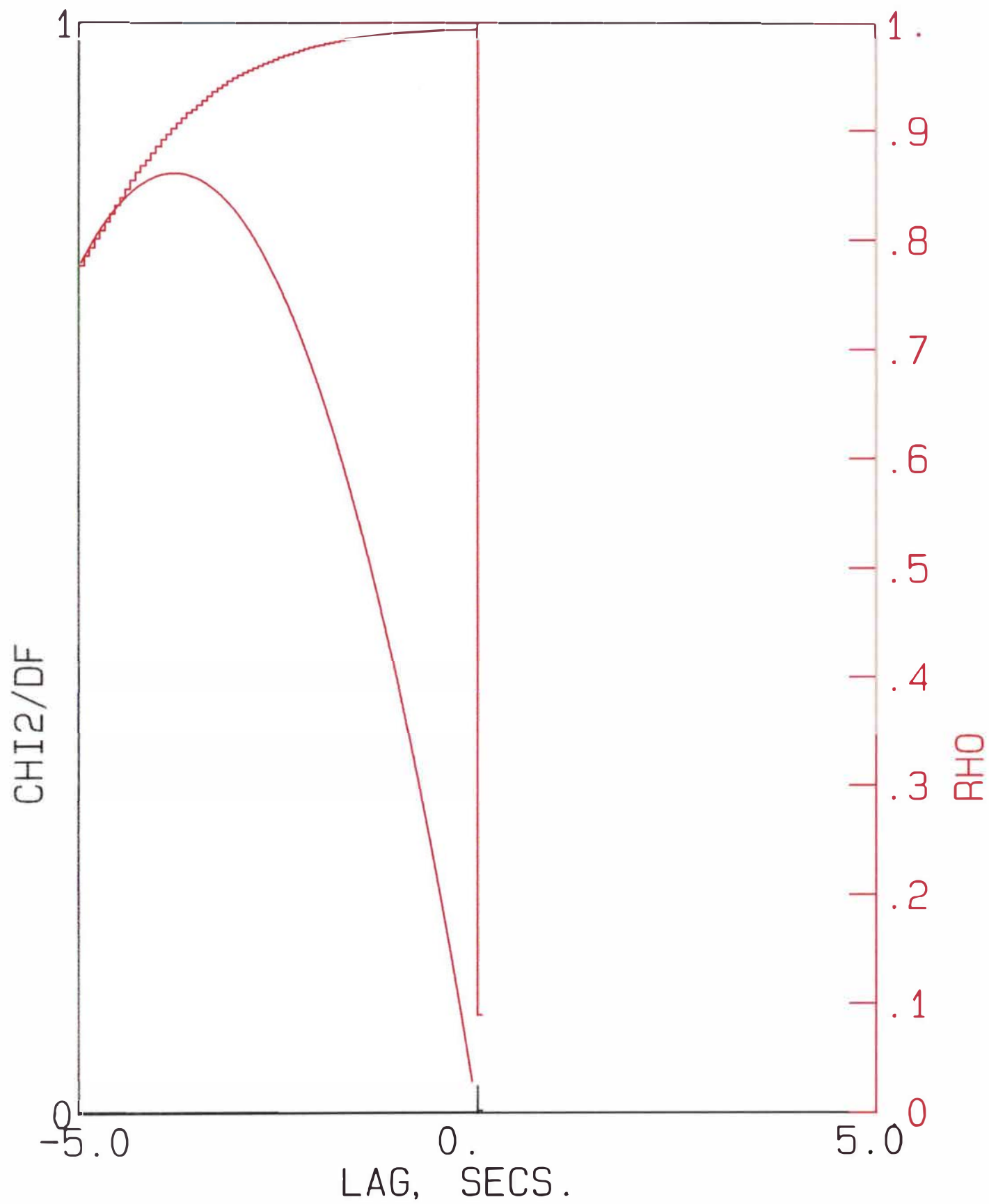
-BATSE

CORRELATION

31/10/91

34692.711

12/ 2/97



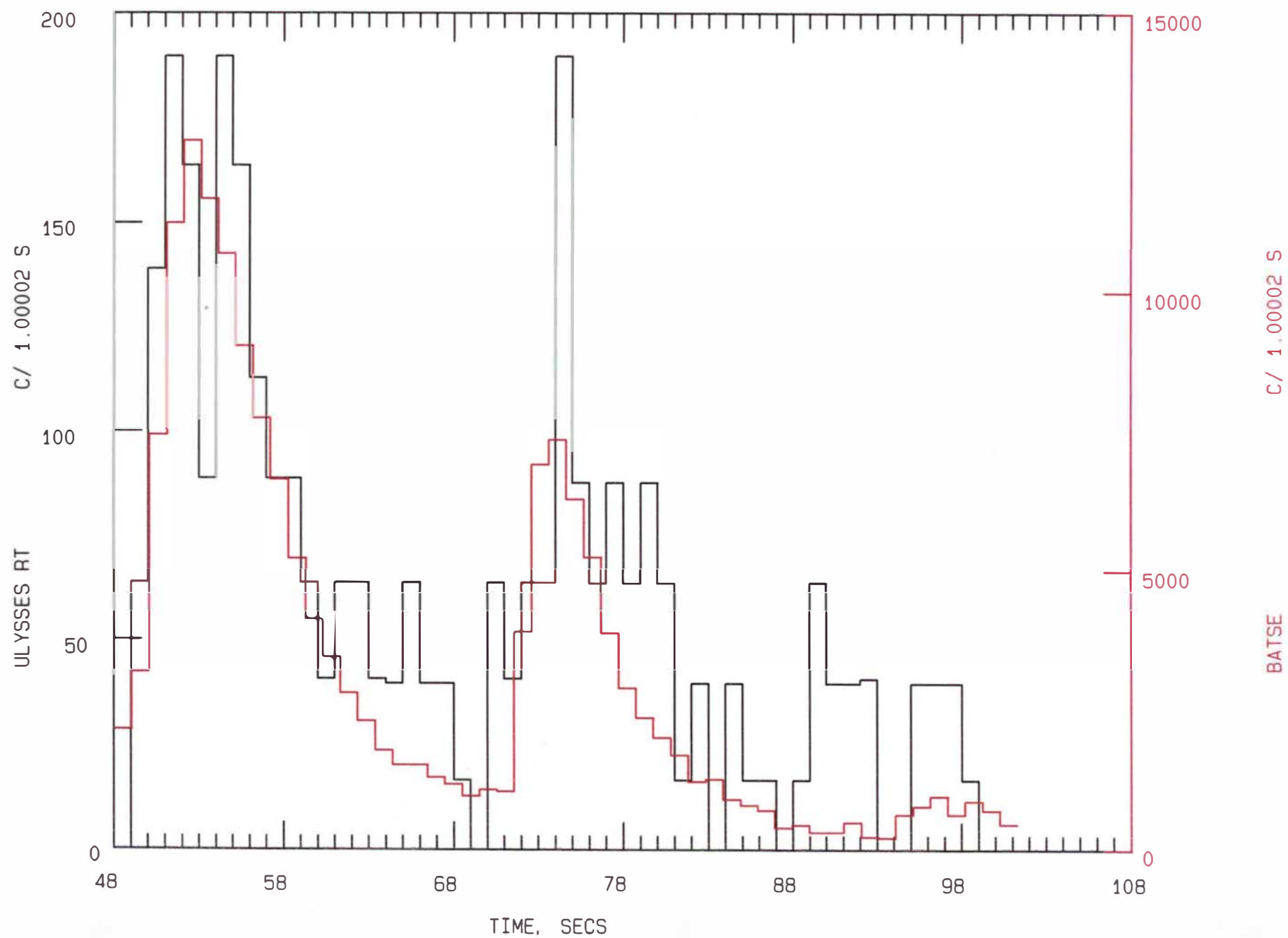
ULYSSES RT-BATSE

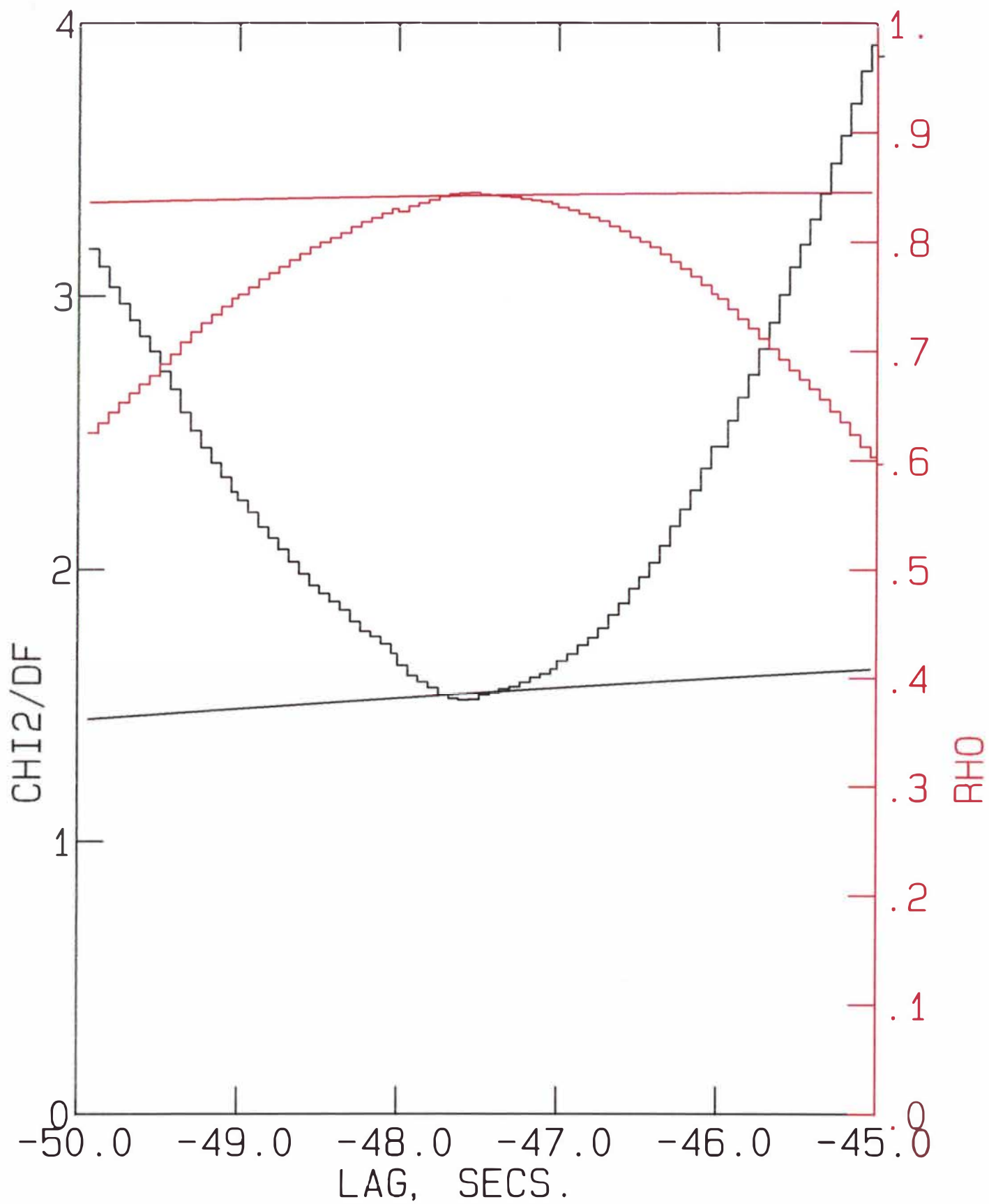
CORRELATION

31/10/91

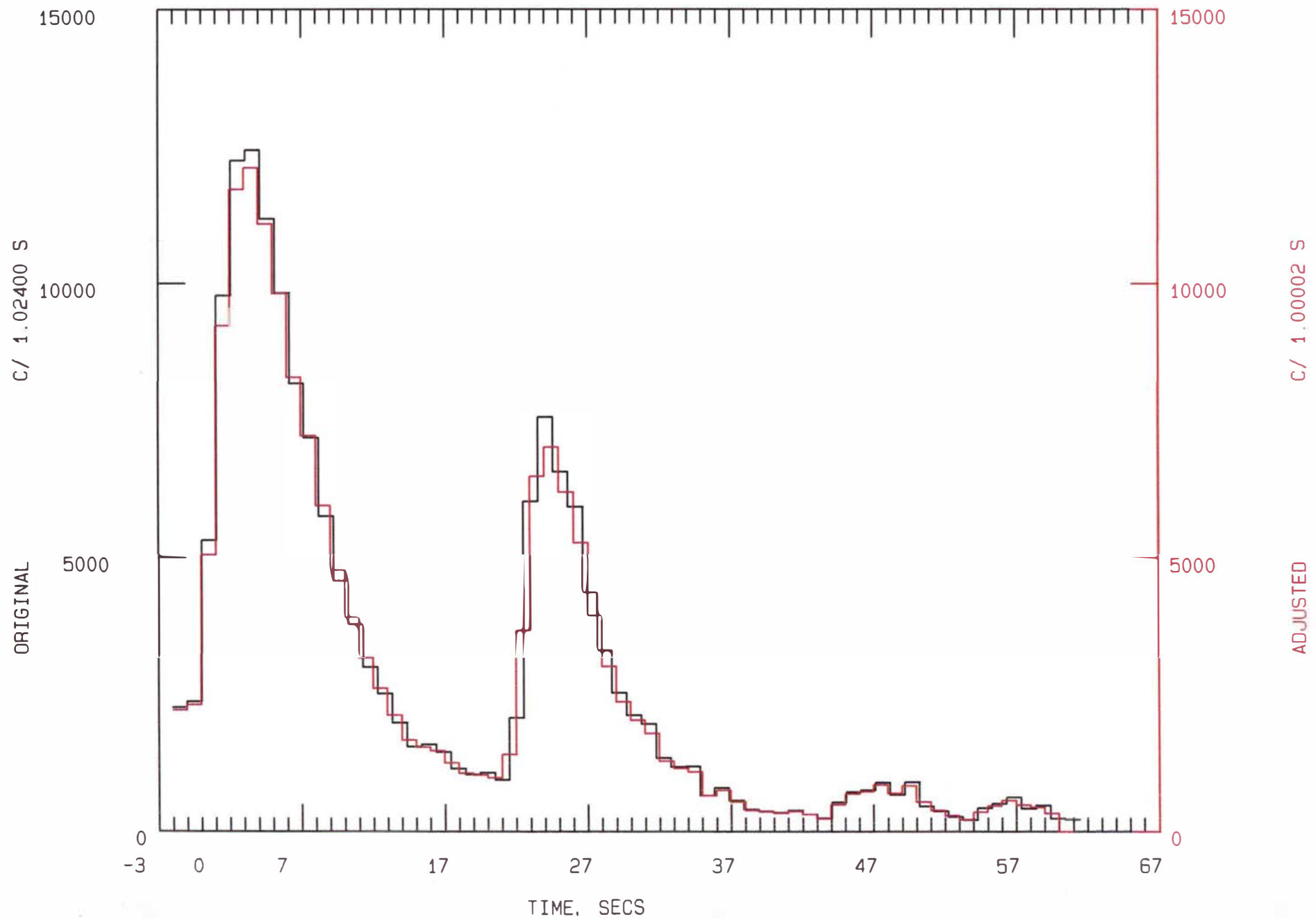
35495.426

12/ 2/97





12/ 2/97



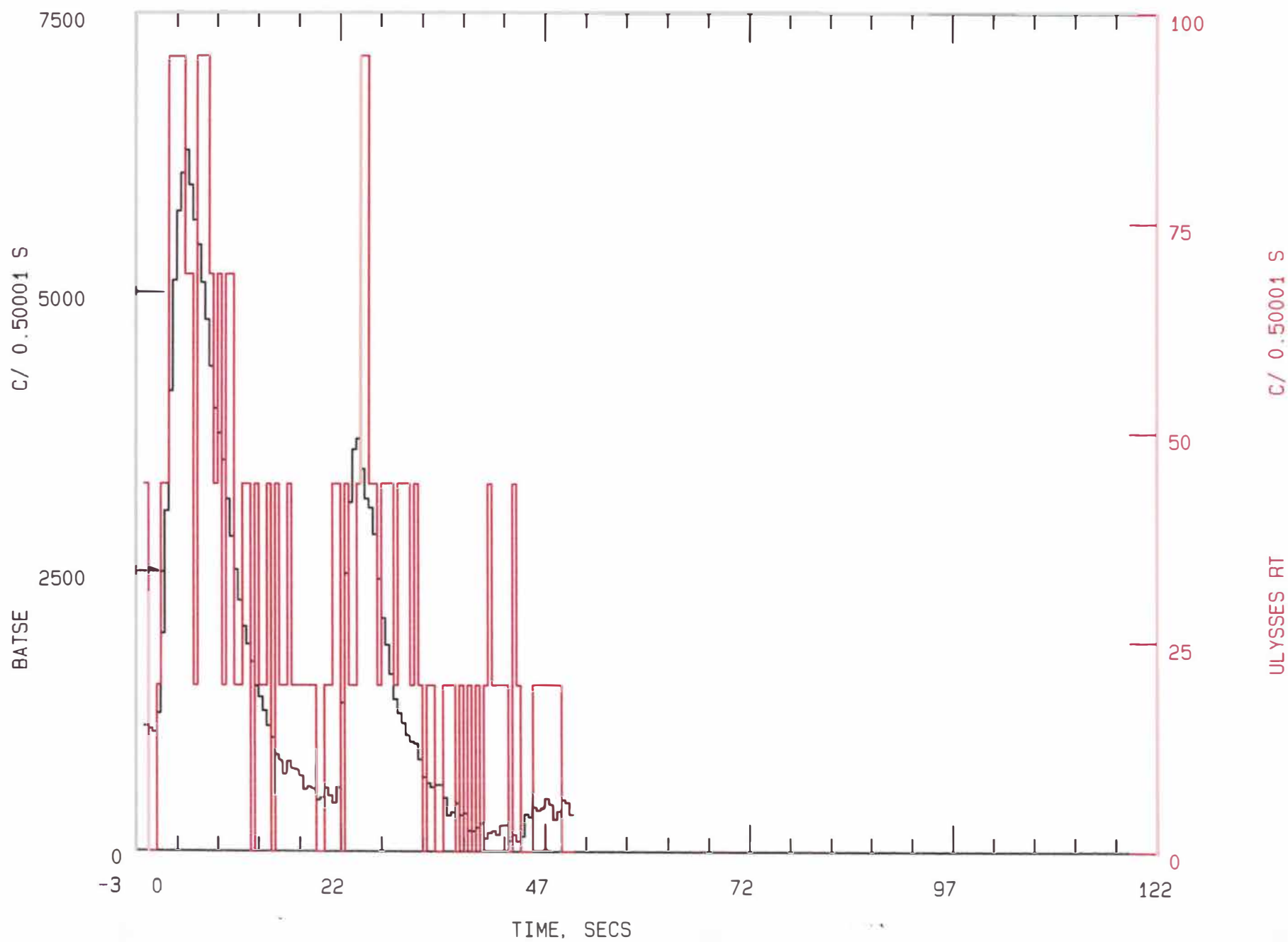
BATSE

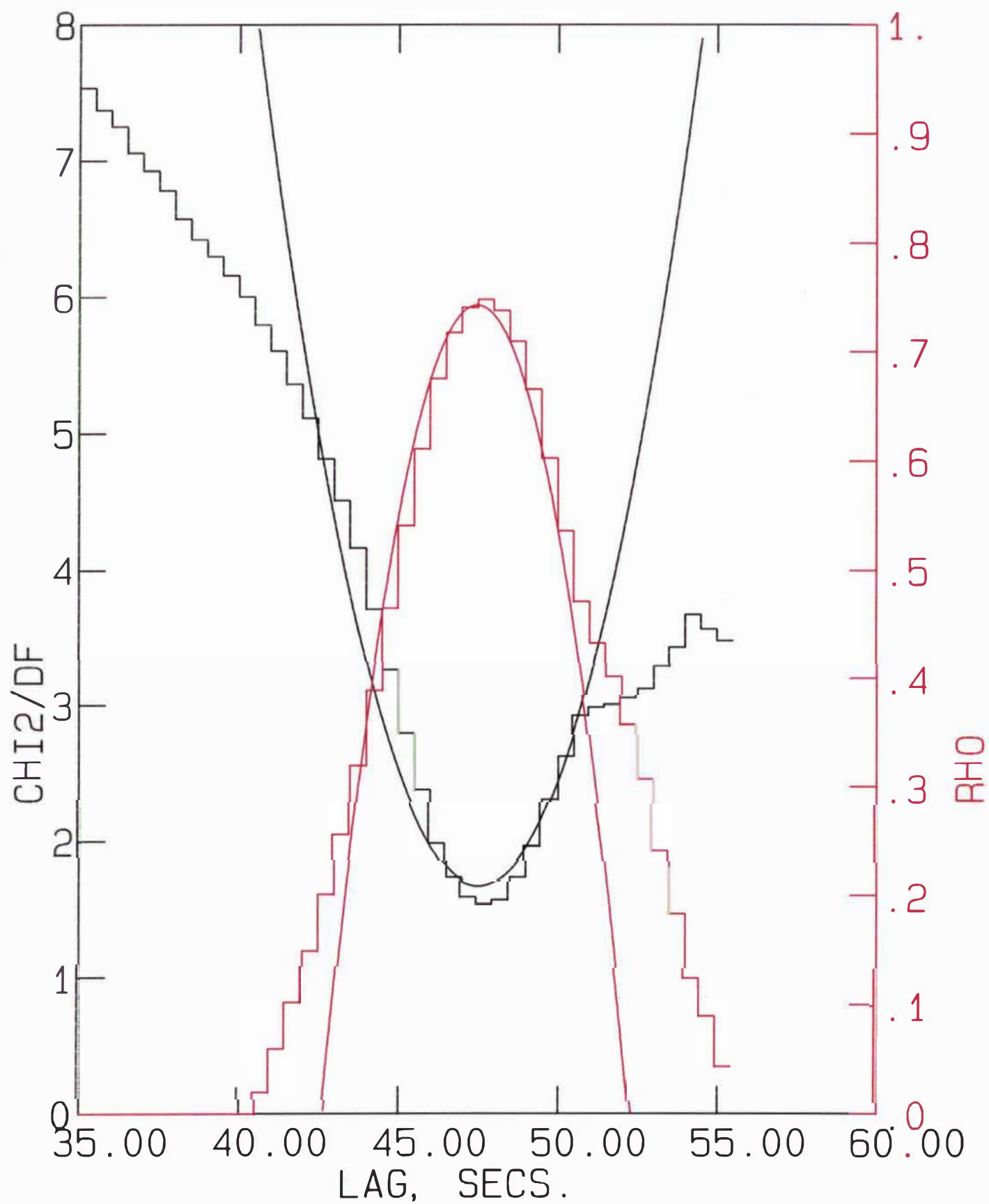
-ULYSSES RT CORRELATION

31/10/91

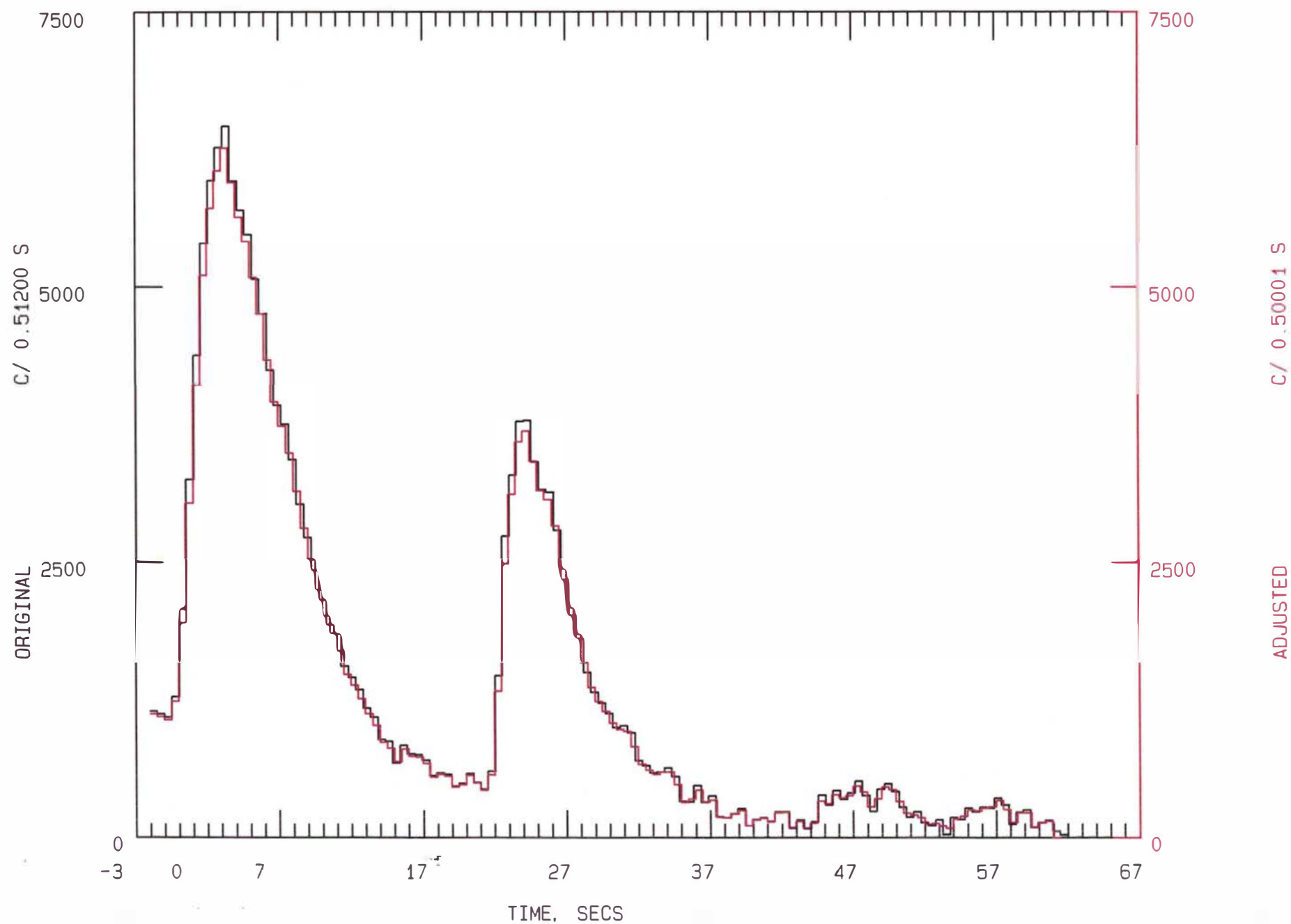
34580.523

12/ 2/97





12/ 2/97



ULYSSES RT

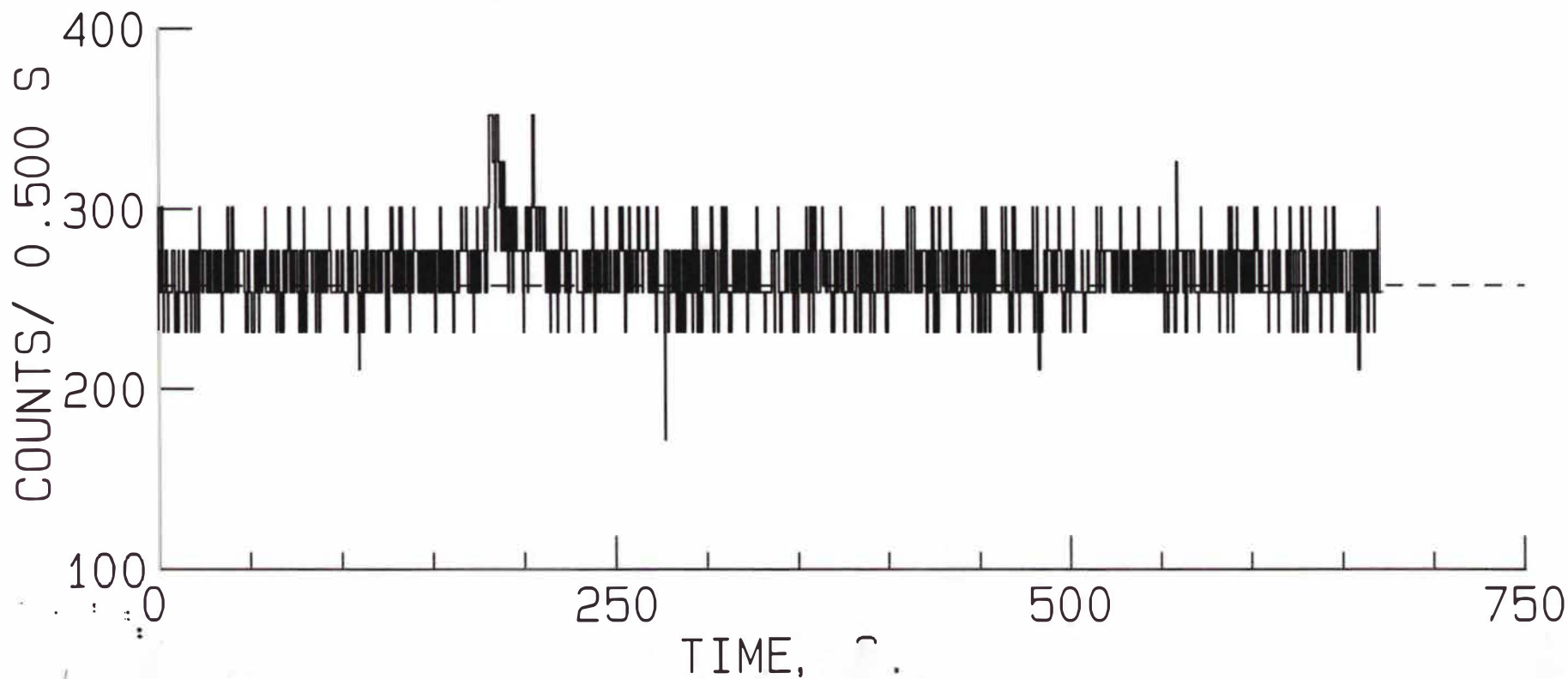
12 / 2 / 97

31/10/91 35364.422 s

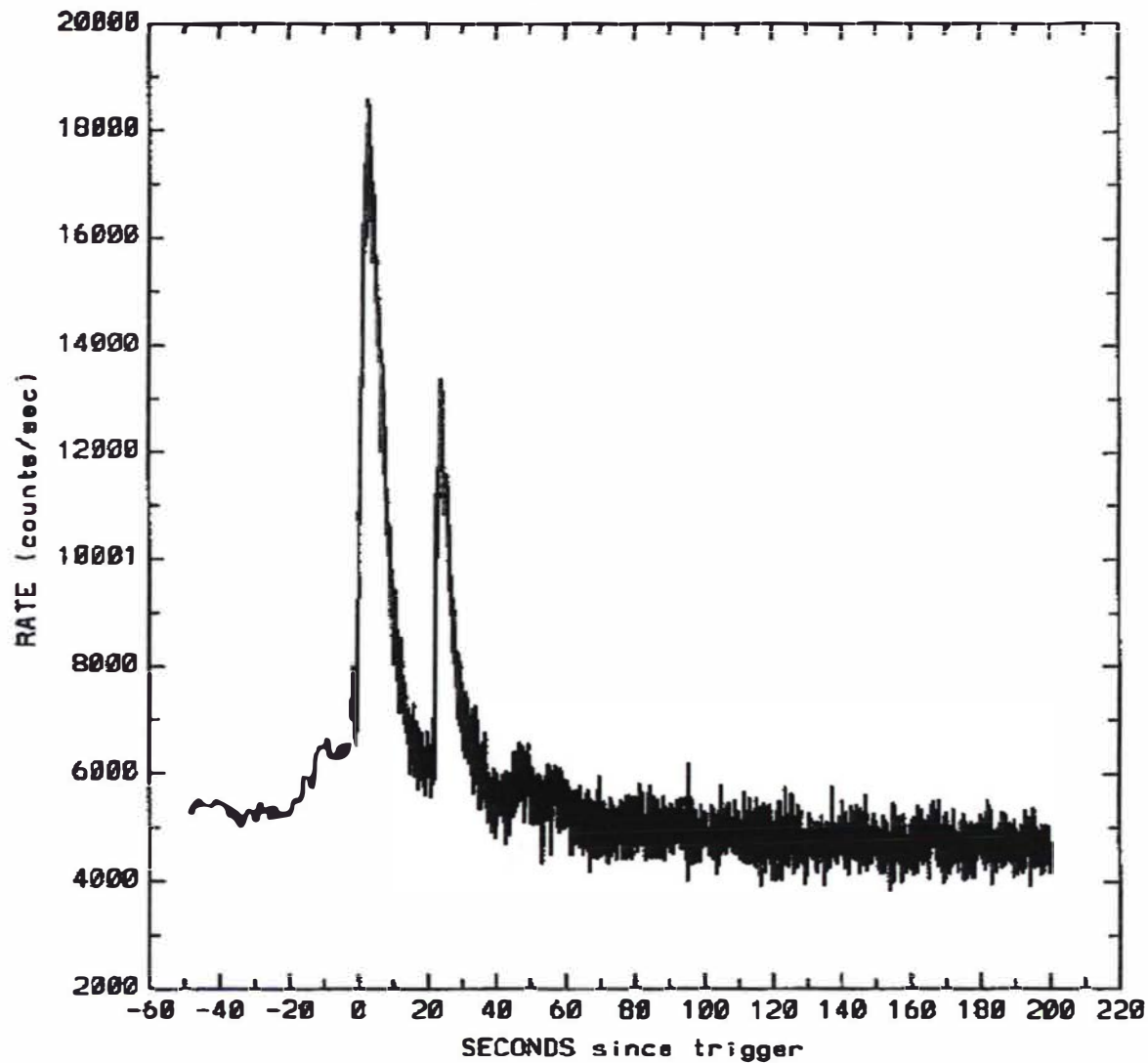
20- 164 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



DATA FOR K. HURLEY



38-JUL-1993 09:39.48

Created by NQPS 8D
(Burst Display)
Version 2.19*To OK*

Trigger = . 973

Trigger Time:
8560 / 34580.523Burst Data Type:
DISCSC*NO-OK as is*Deadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8]:
80001100Discriminators:
(1. 2)Quality Mask:
BOTSP1

PVO-RT

10 / 2 / 94

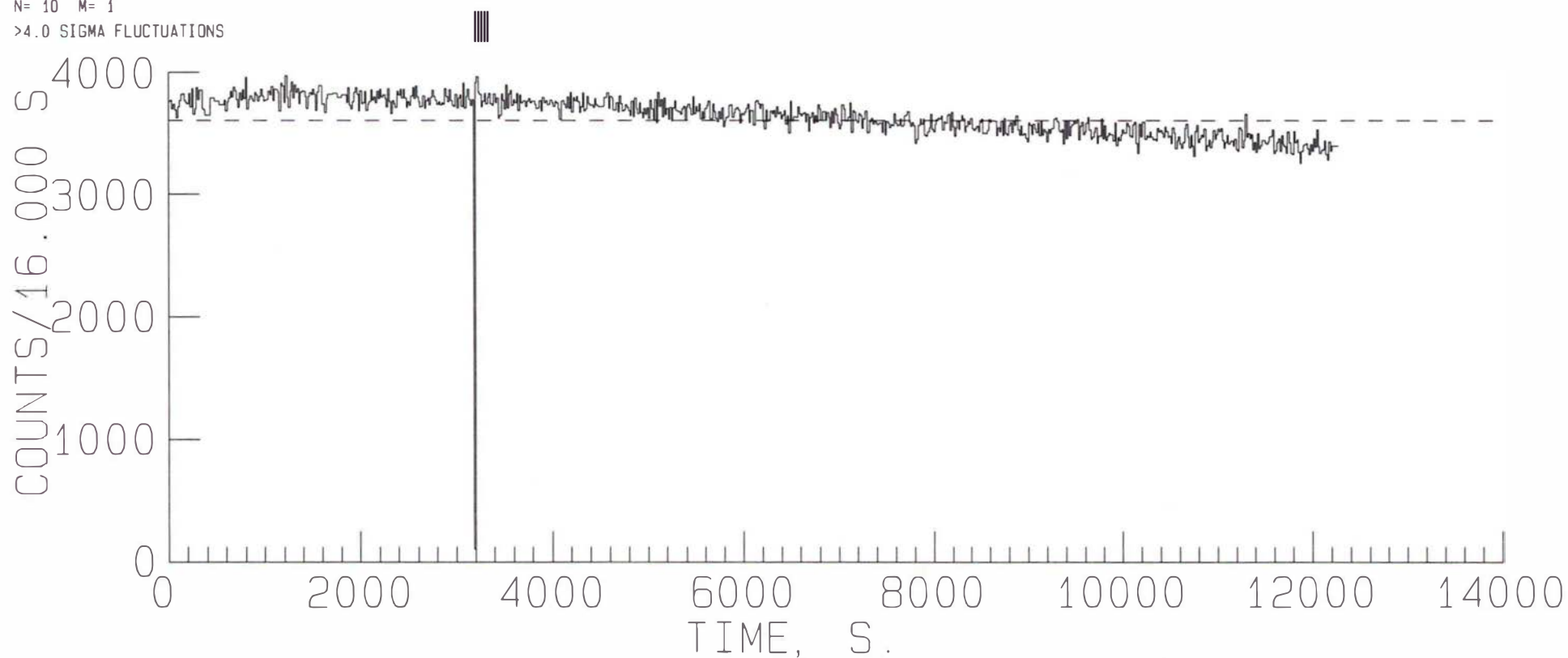
31/10/91

31492.713 s.

16.000 S. INTERVALS REGROUPED BY 1

100-2000 keV

N= 10 M= 1
>4.0 SIGMA FLUCTUATIONS



BATSE

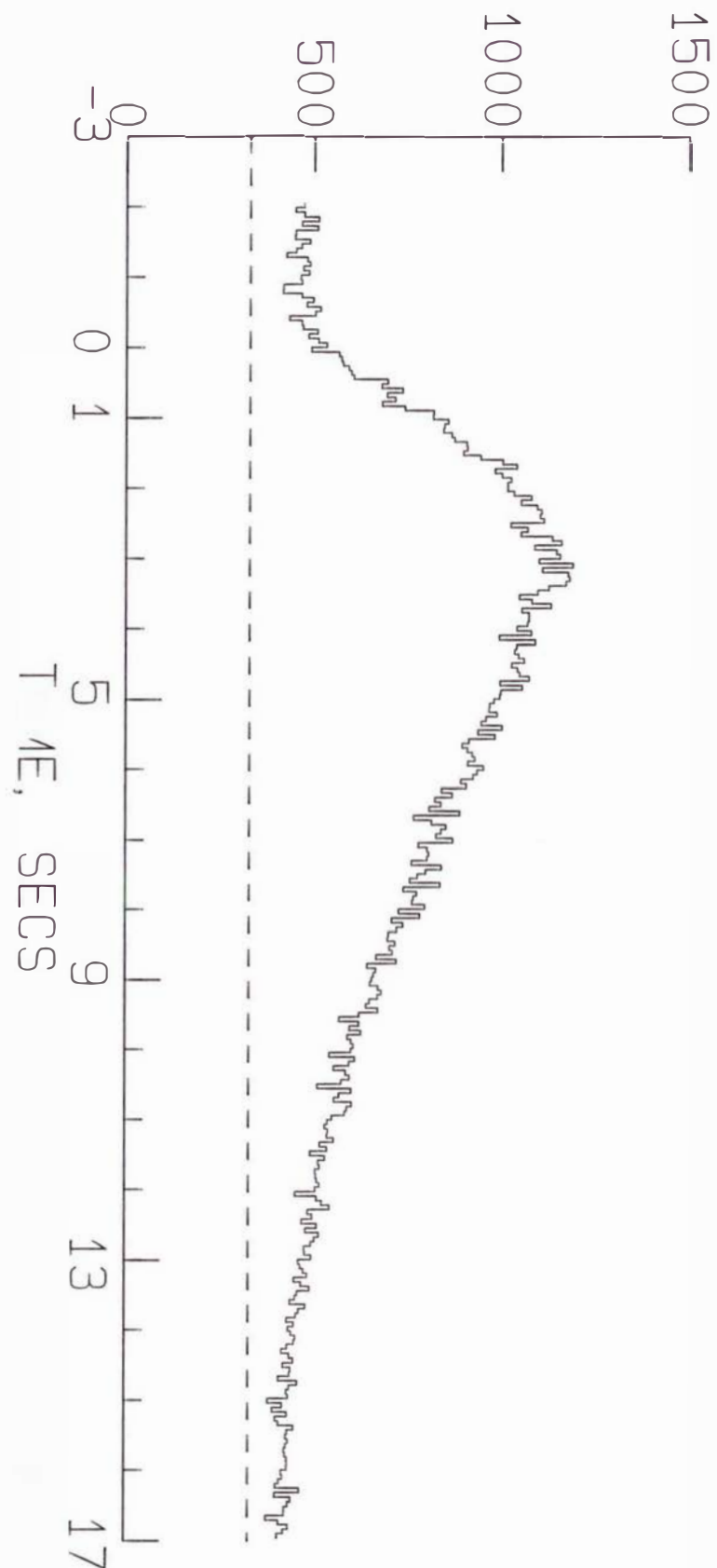
31/10/91

34580.523 *12.0422*

25- 100 keV

34580.523 NO - OK as is

COUNTS/ .064 S



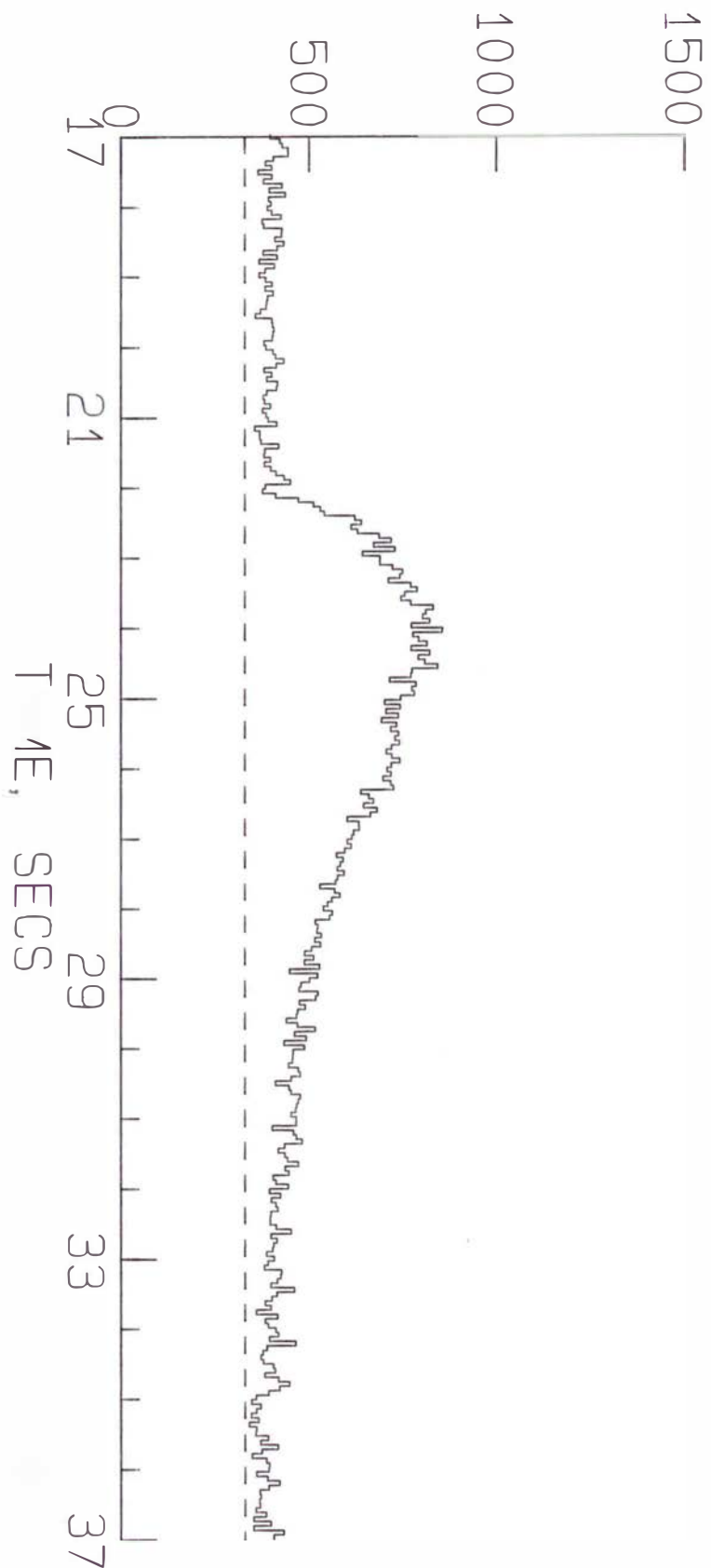
BATSE

31/10/91

34580.523

25- 100 keV

COUNTS/ .064 S



BATSE

31/10/91

34580.523

25- 100 keV

COUNTS/ .064 S

1500
1000
500
0

37

41

45

49

53

57

T 4E, SECS

BATSE

31/10/91

34580.523

25- 100 keV

COUNTS/ .064 S

1500
1000
500
0

57

61

65

69

73

77

T AE, SECS

CATSEARCH PROGRAM

BATSE BURST # 974
EVENT OF 1991 OCT 31 DAY OF YEAR=304
EVENT CROSSING TIME AT BATSE : 44357. S. OR 12:19:17.2
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 297.300 -29.900
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 31/10/ 91 IS:
RA= 164.085 DEC= 8.045 DIST= 5.091 AU
BATSE-ULYSSES DISTANCE = 761546280. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 48.89 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1670.26 SECS.
CROSSING TIME AT ULYSSES IS 46028. S. OR 12:47:07 +/- 407.65 SECONDS

No

14 / 4 / 93

ULYSSES RT

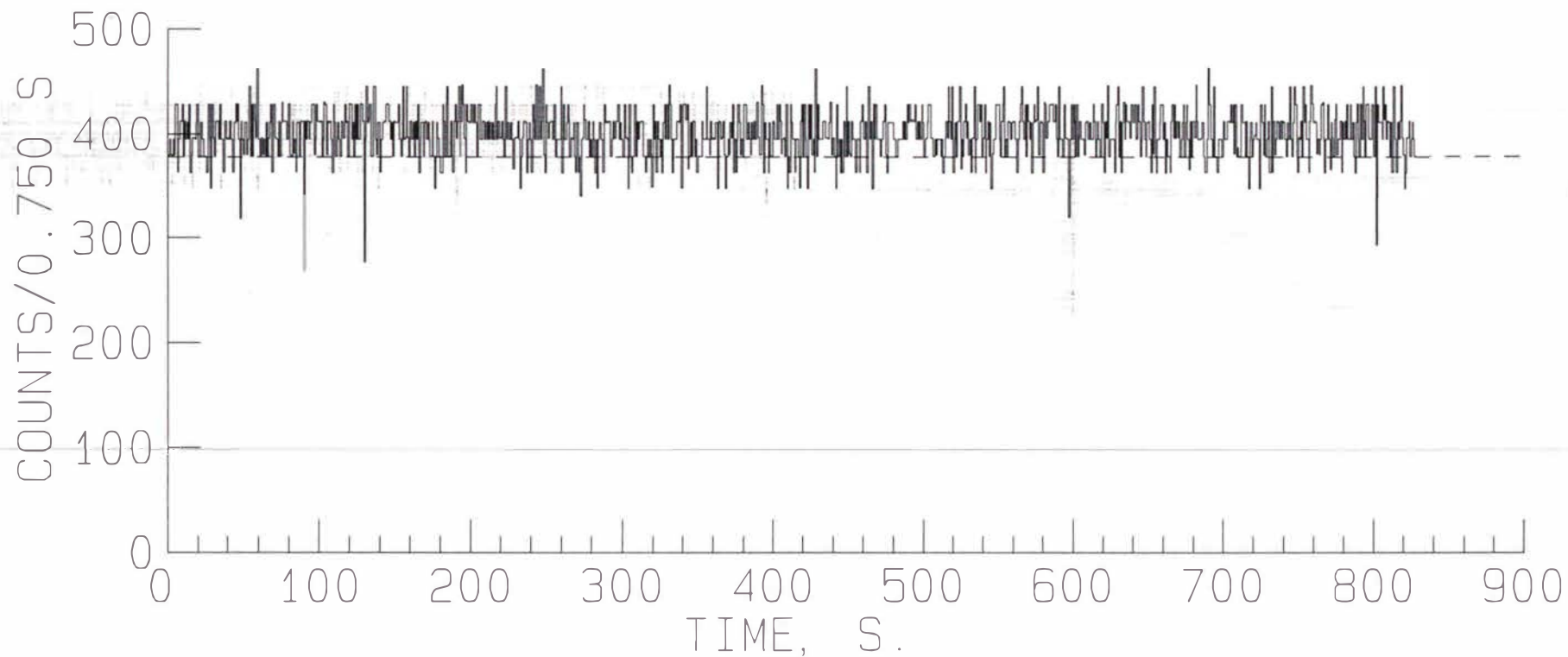
31/10/91 45612.098 s

0.250 S INTERVALS REGROUPED BY 3

0- 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



2 6 / 9 / 9 5

ULYSSES RT

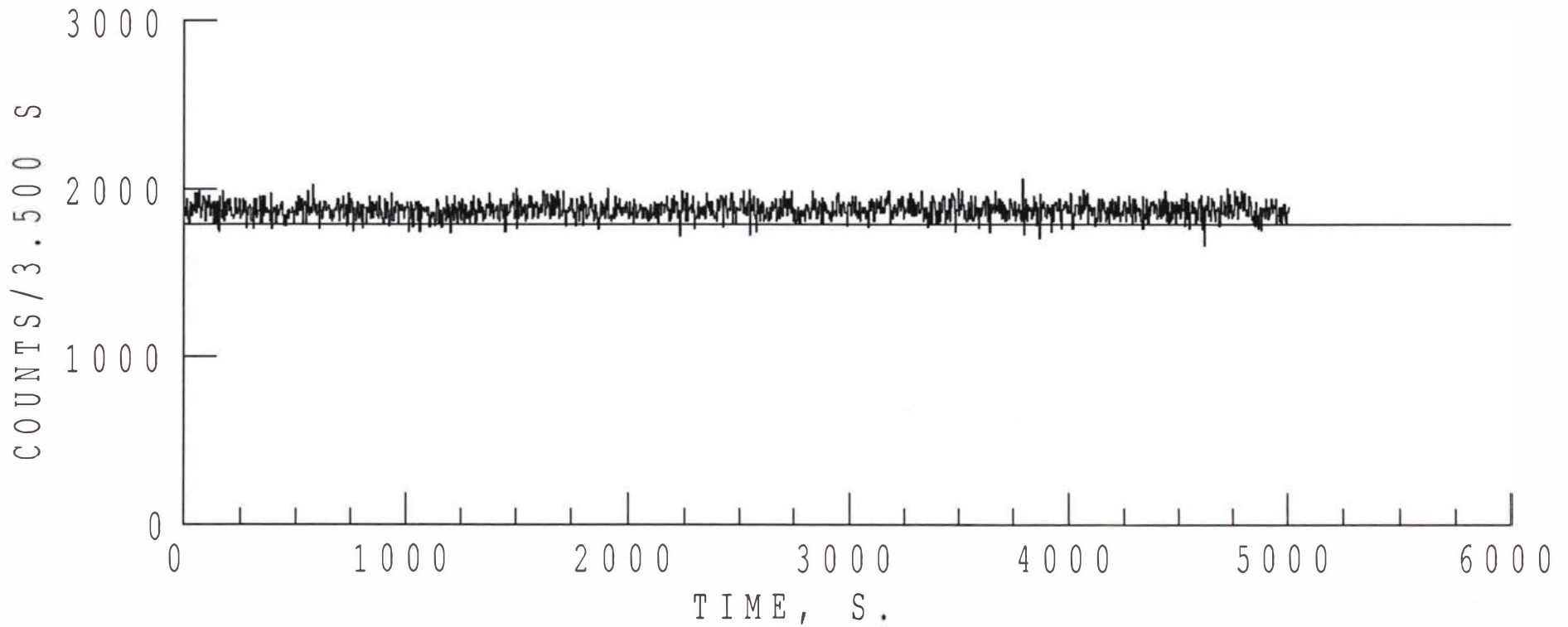
31 / 10 / 91 53604.230 s

0.250 S INTERVALS REGROUPED BY 14

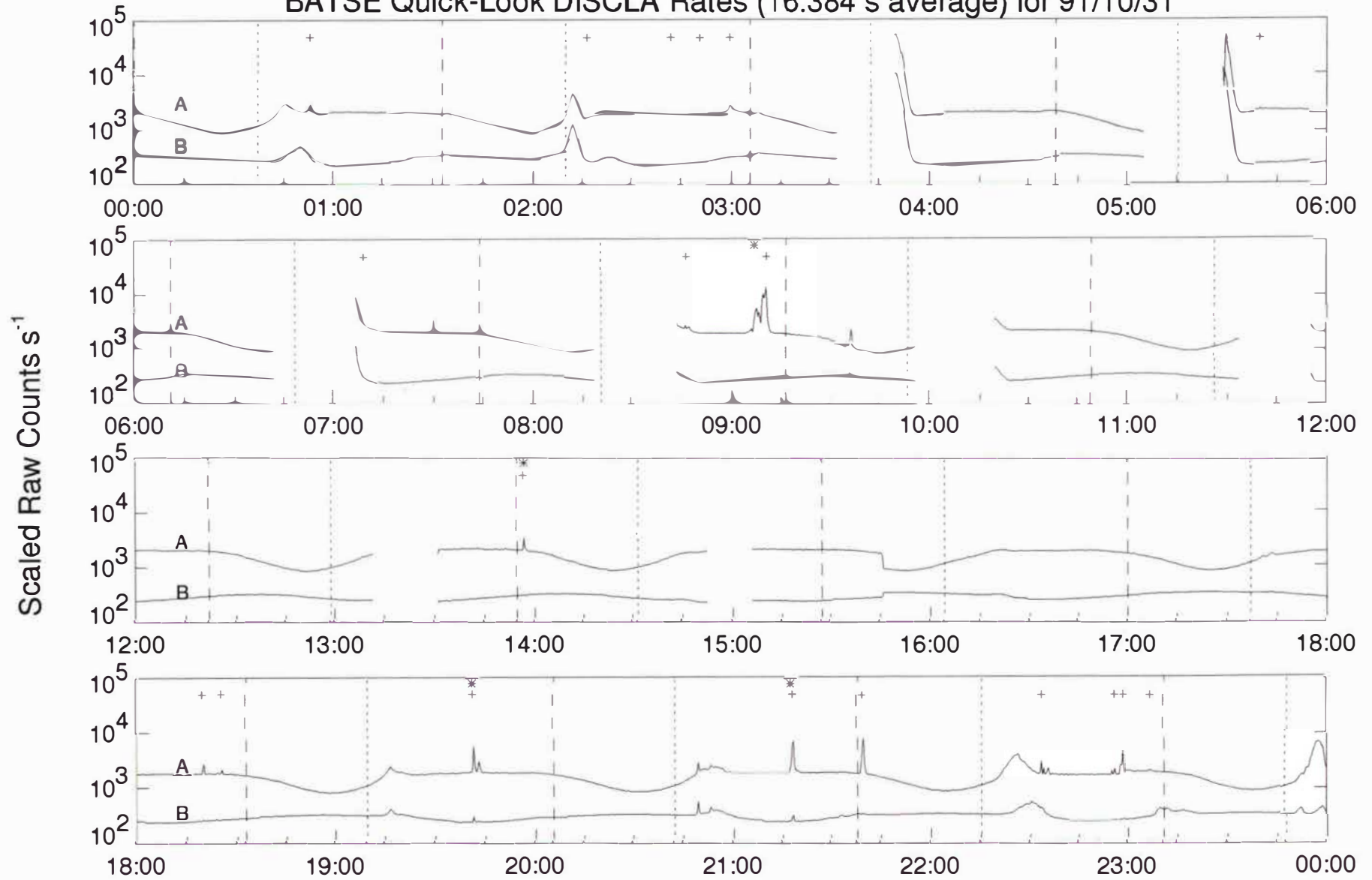
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 91/10/31

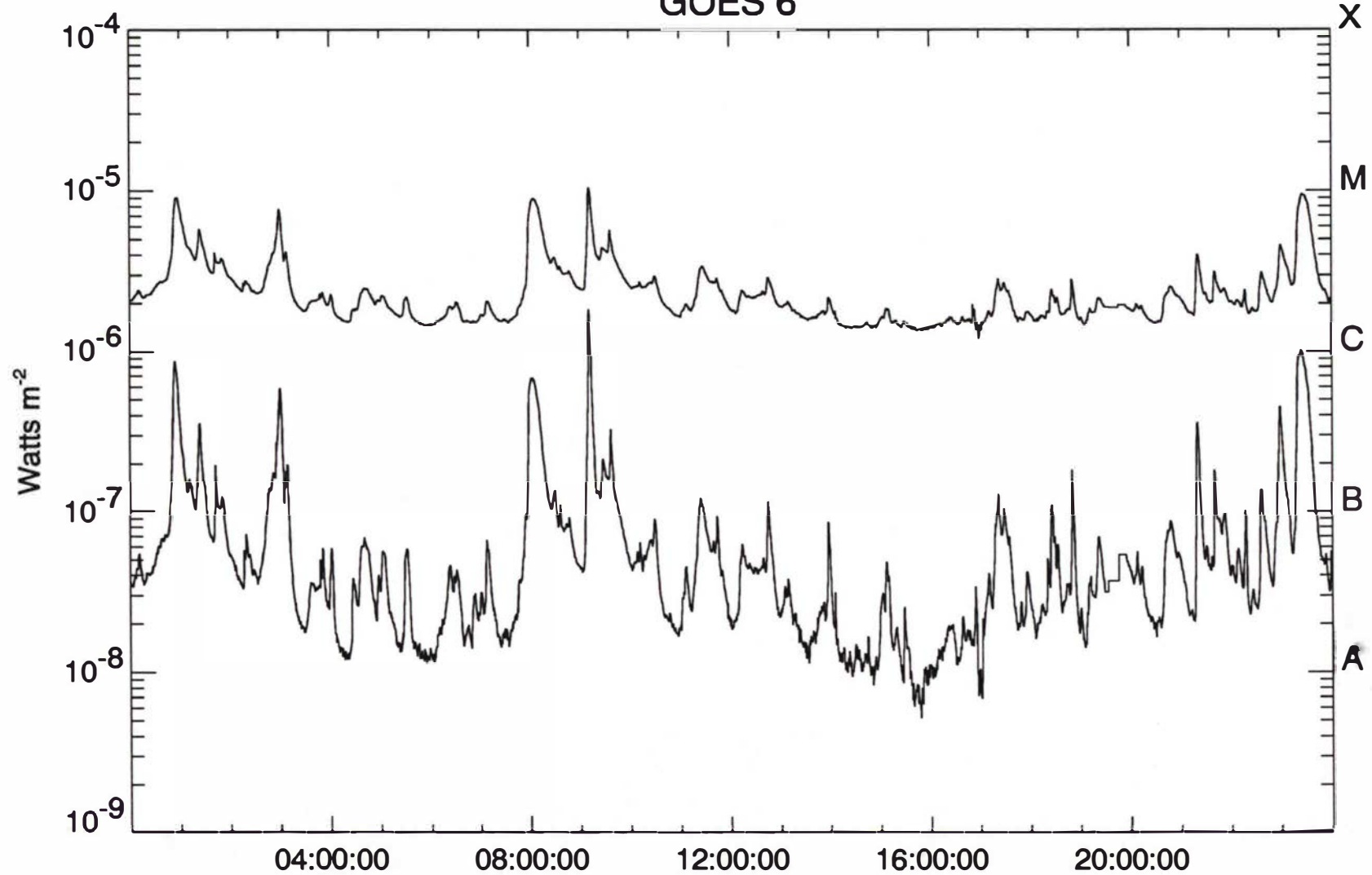


Current Time: 92/10/31, 2011 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 6



Data Start: 91/10/31, 0000:03

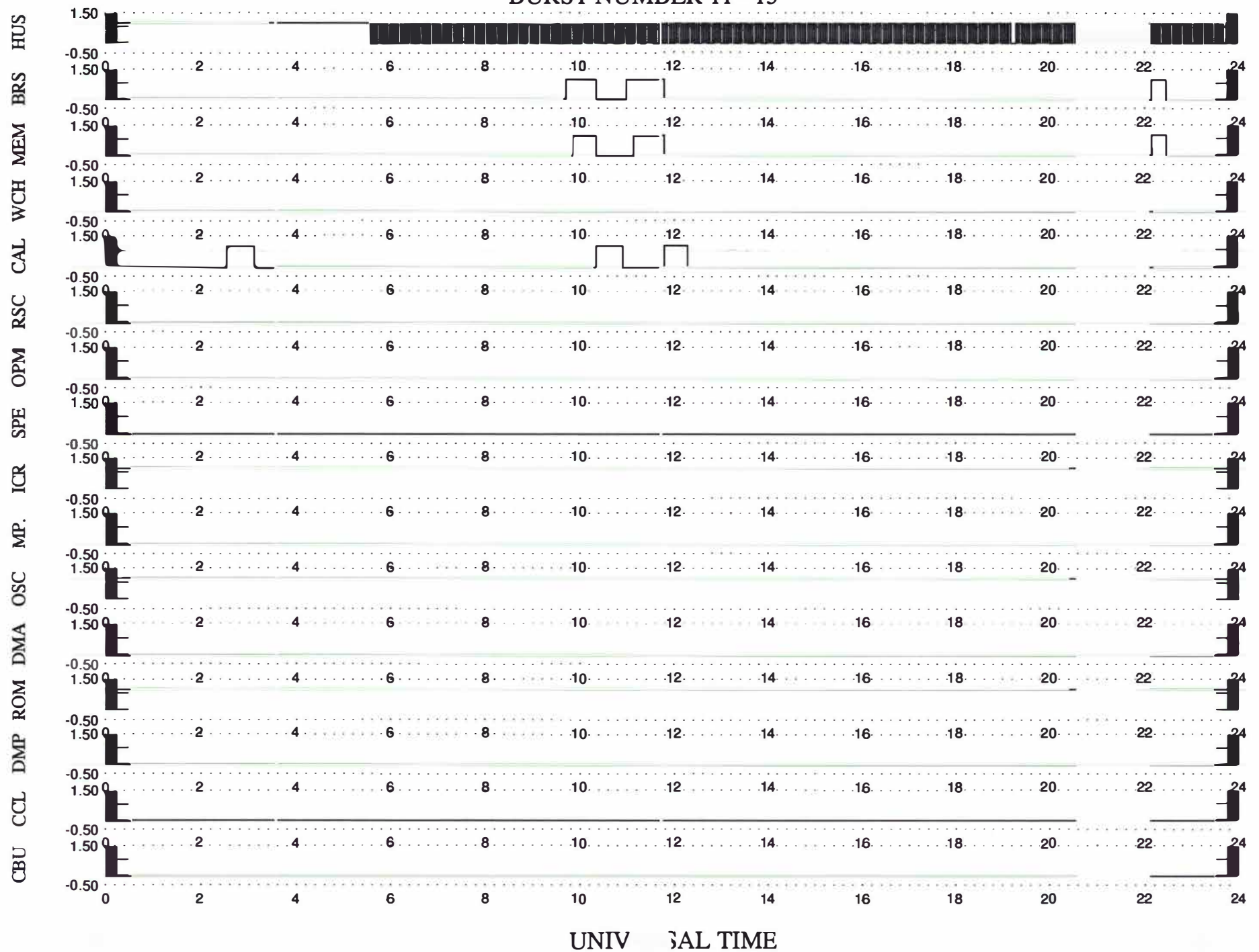
Plot created: 97/10/15, 0035

Channel

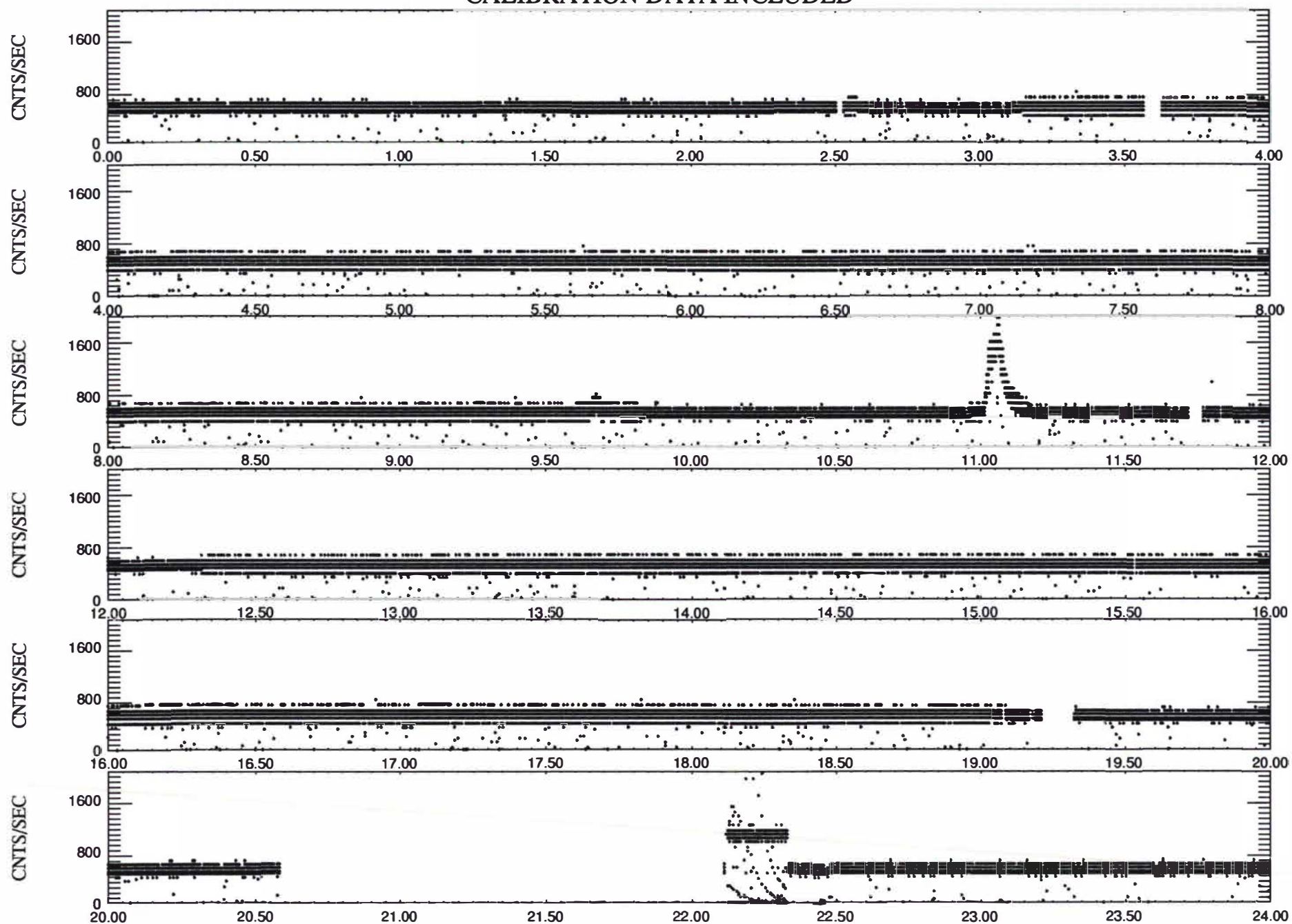
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Figure 1

Figure 2

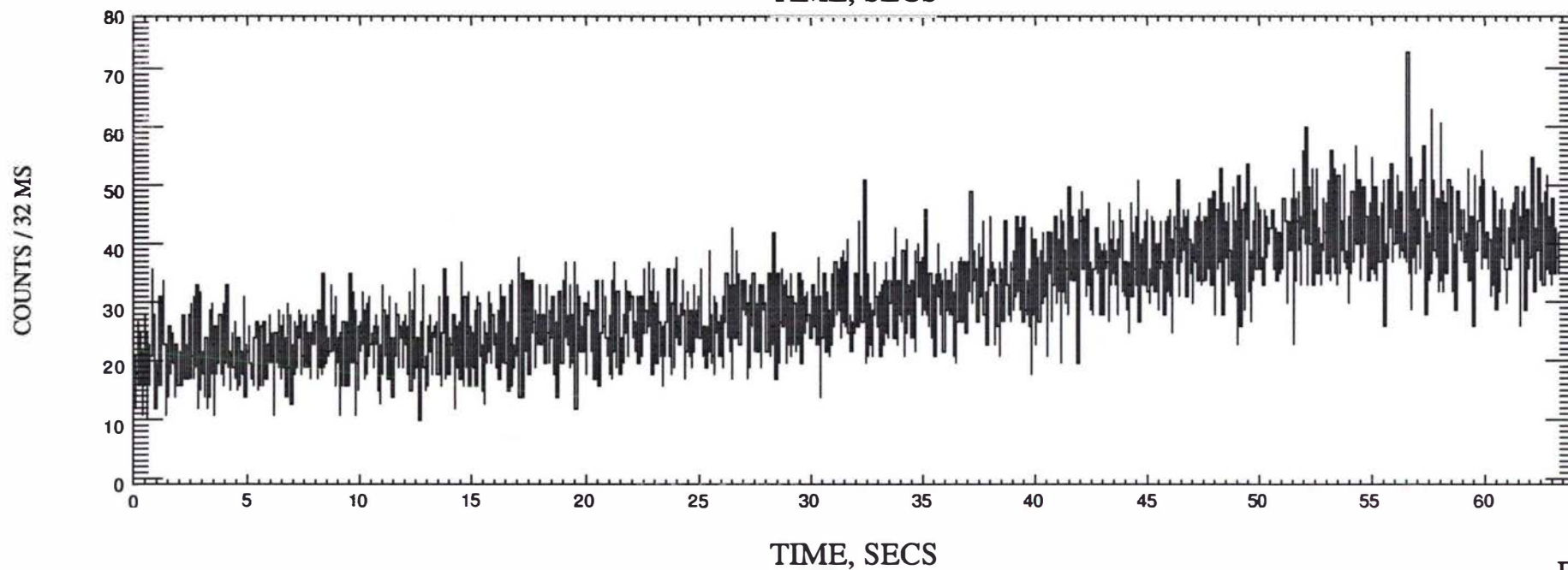
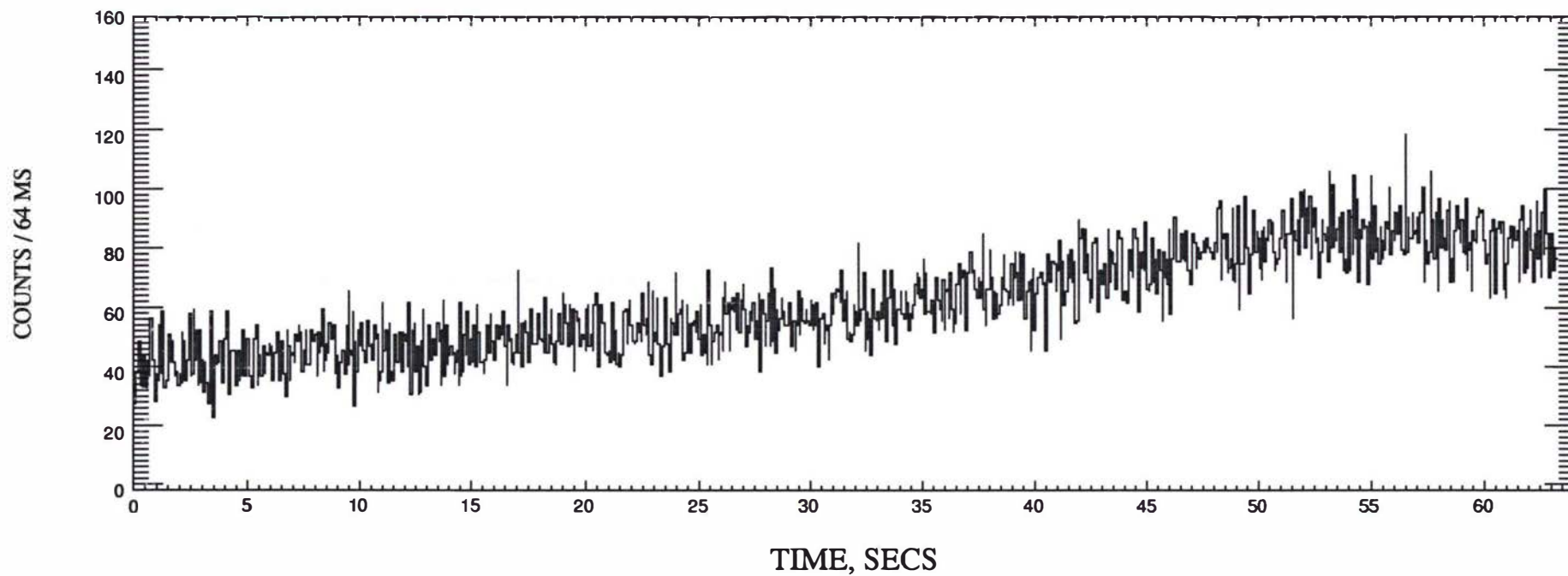
Figure 3



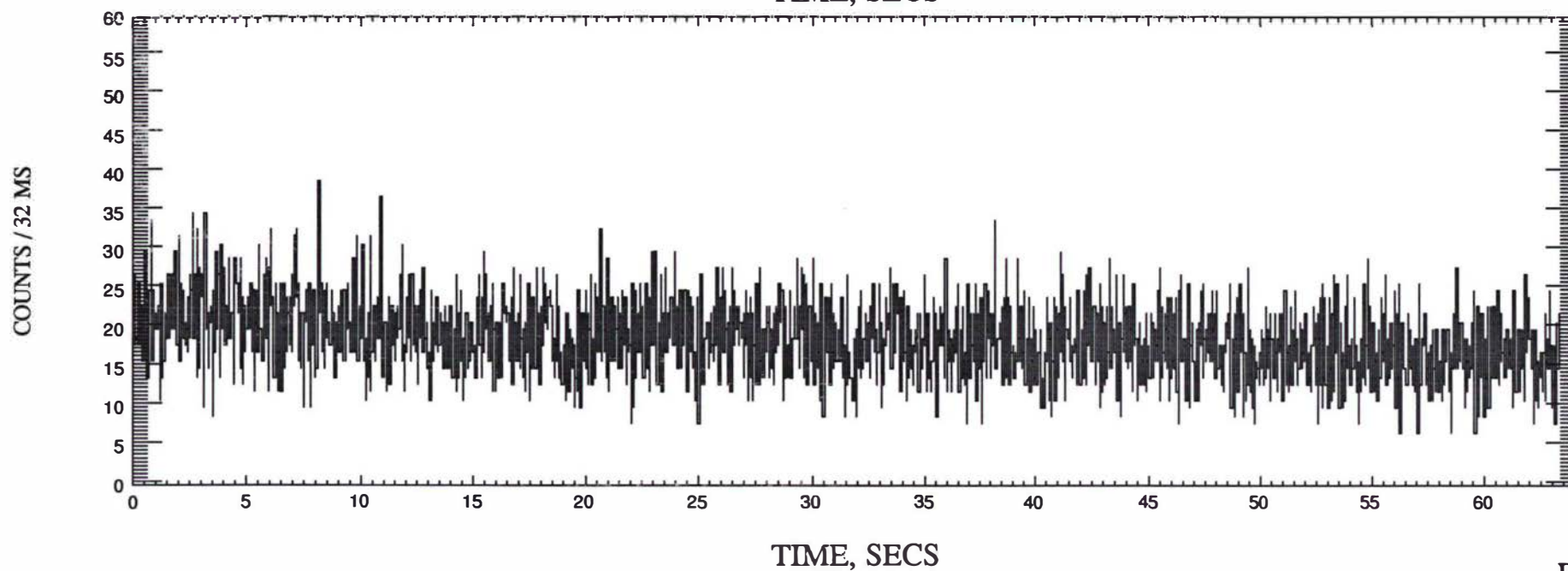
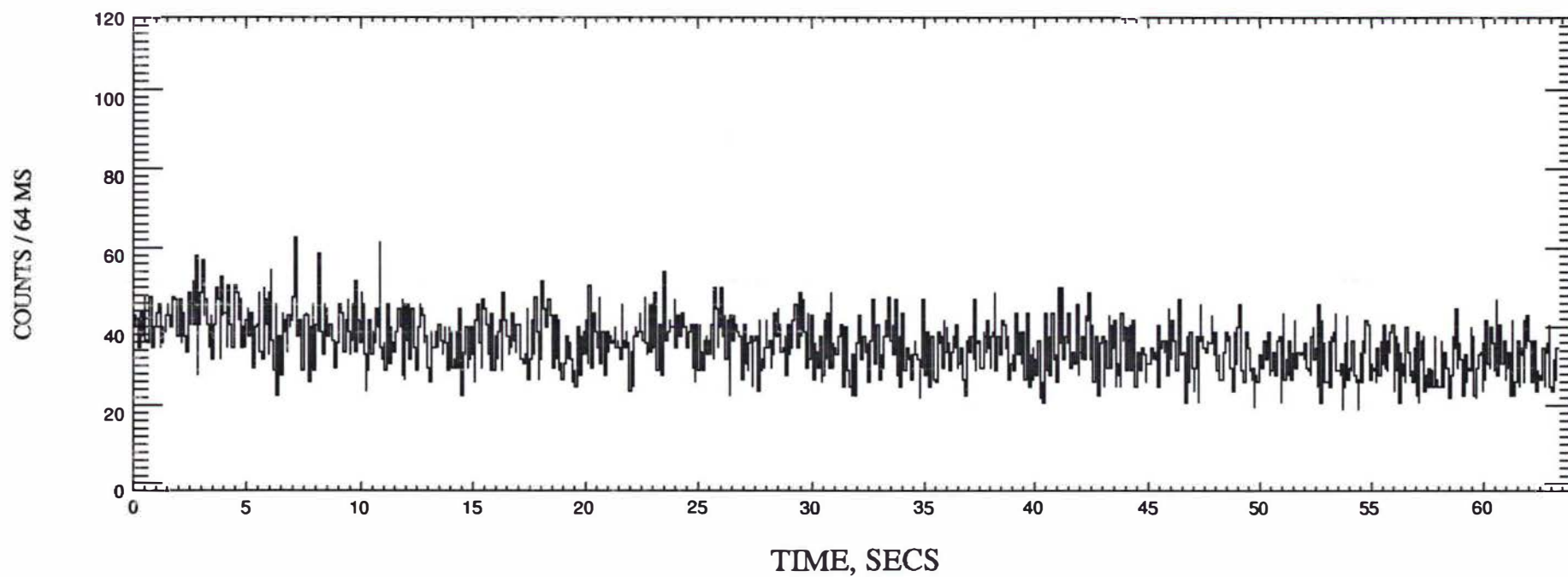
Figure 4

Figure 5

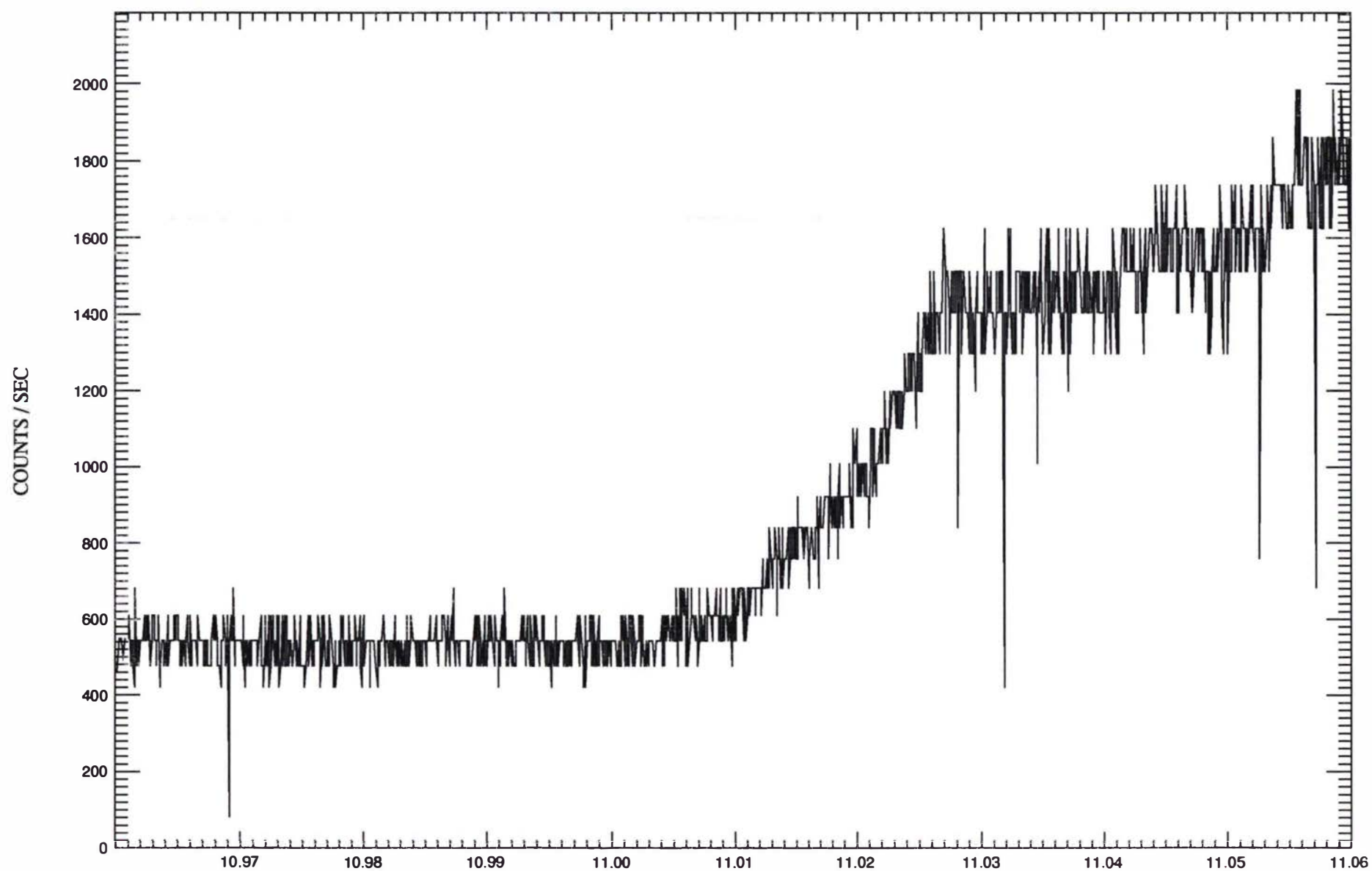
Burst Counter 12 at UT=11.014648713006 h=39652.735 s 11:00:52.735



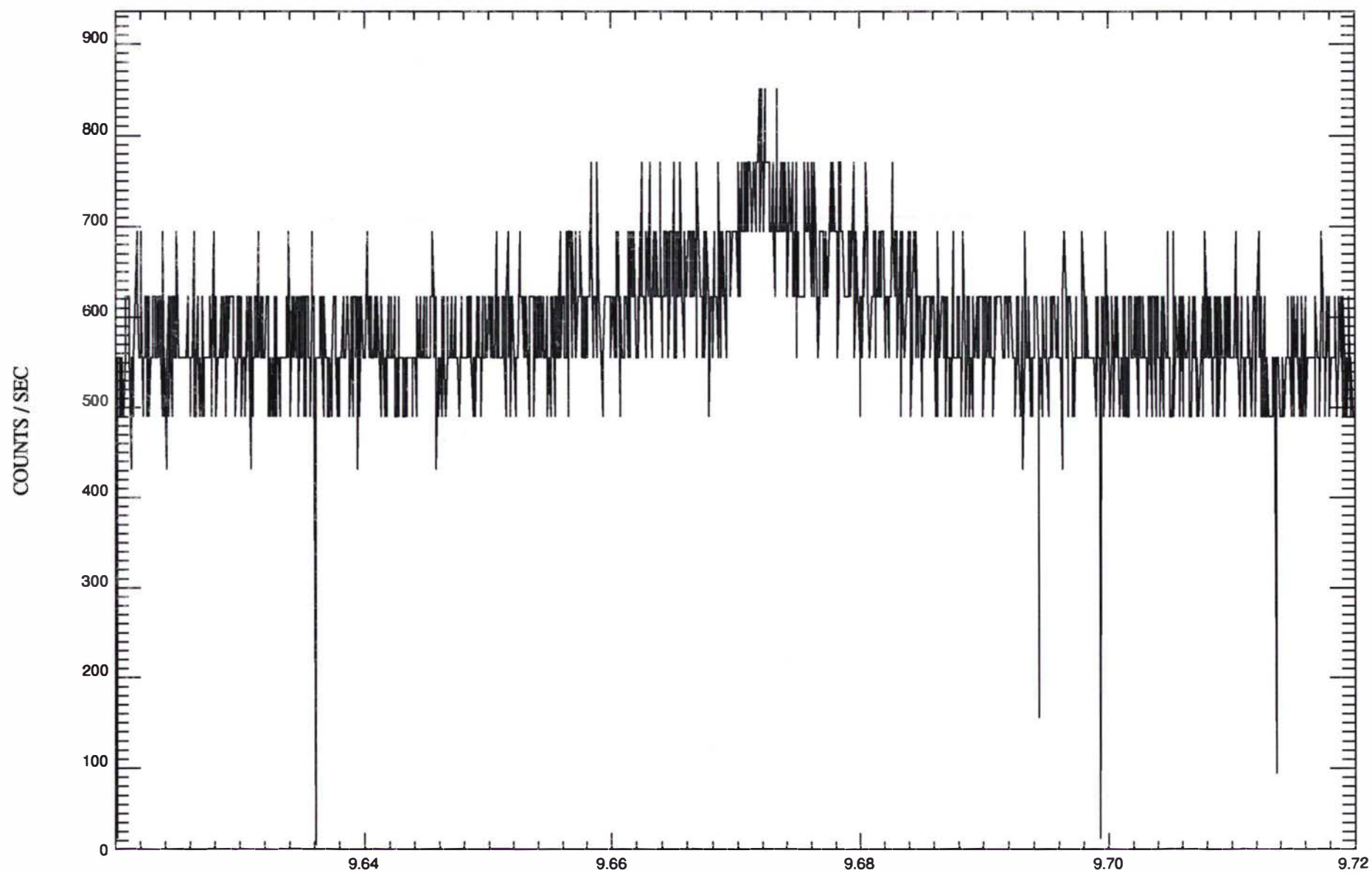
Burst Counter 11 at UT= 9.673376702203 h=34824.156 s 09:40:24.156



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1. The first part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$. It is shown that the solutions of the system (1) are bounded and tend to zero as $t \rightarrow \infty$ if the matrix A is stable and the matrix B is non-negative. The second part of the paper is devoted to the study of the asymptotic behavior of the solutions of the system (1) as $t \rightarrow \infty$ if the matrix A is not stable. It is shown that the solutions of the system (1) are bounded and tend to zero as $t \rightarrow \infty$ if the matrix A is not stable and the matrix B is non-negative.

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Case	Age	Sex	Duration of illness (years)	Site of lesion	Pathological findings	Response to treatment
1	45	M	10	Right frontal lobe	Large, well-circumscribed, solid, enhancing mass	Complete remission
2	52	F	5	Left parietal lobe	Small, well-circumscribed, solid, enhancing mass	Complete remission
3	60	M	8	Right temporal lobe	Large, well-circumscribed, solid, enhancing mass	Complete remission
4	58	F	12	Left occipital lobe	Small, well-circumscribed, solid, enhancing mass	Complete remission
5	65	M	15	Right parietal lobe	Large, well-circumscribed, solid, enhancing mass	Complete remission
6	70	F	20	Left frontal lobe	Small, well-circumscribed, solid, enhancing mass	Complete remission
7	75	M	25	Right occipital lobe	Large, well-circumscribed, solid, enhancing mass	Complete remission
8	80	F	30	Left parietal lobe	Small, well-circumscribed, solid, enhancing mass	Complete remission
9	85	M	35	Right frontal lobe	Large, well-circumscribed, solid, enhancing mass	Complete remission
10	90	F	40	Left temporal lobe	Small, well-circumscribed, solid, enhancing mass	Complete remission

1. The first step is to identify the problem or question that needs to be answered. This involves understanding the context and the specific requirements of the task.

