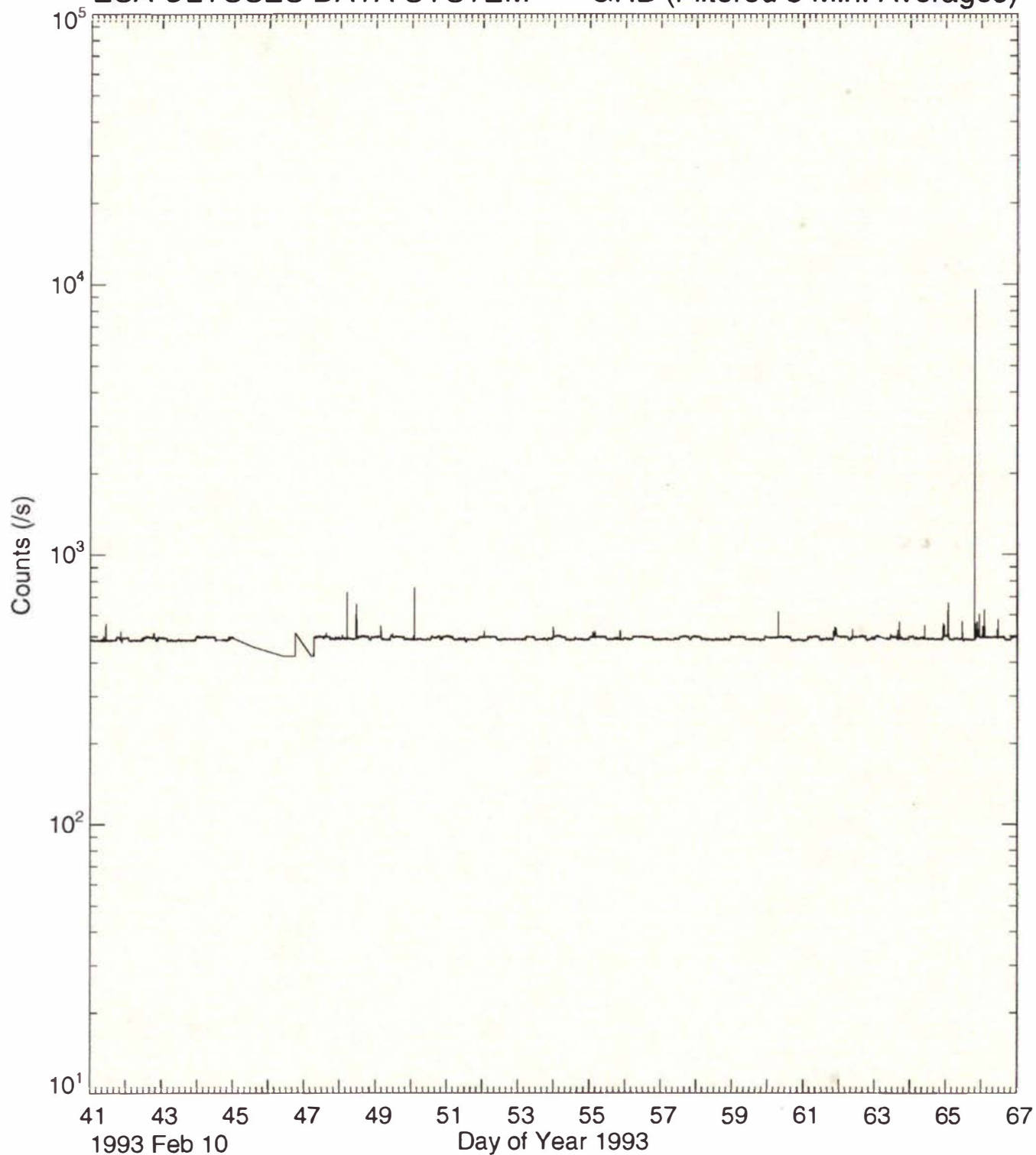


ESA ULYSSES DATA SYSTEM GRB (Filtered 5 Min. Averages)



.93.032.00.10.51.613

HUS monthly long term thermal data

818 HOLD RET

E002 2ARADTMP S/C

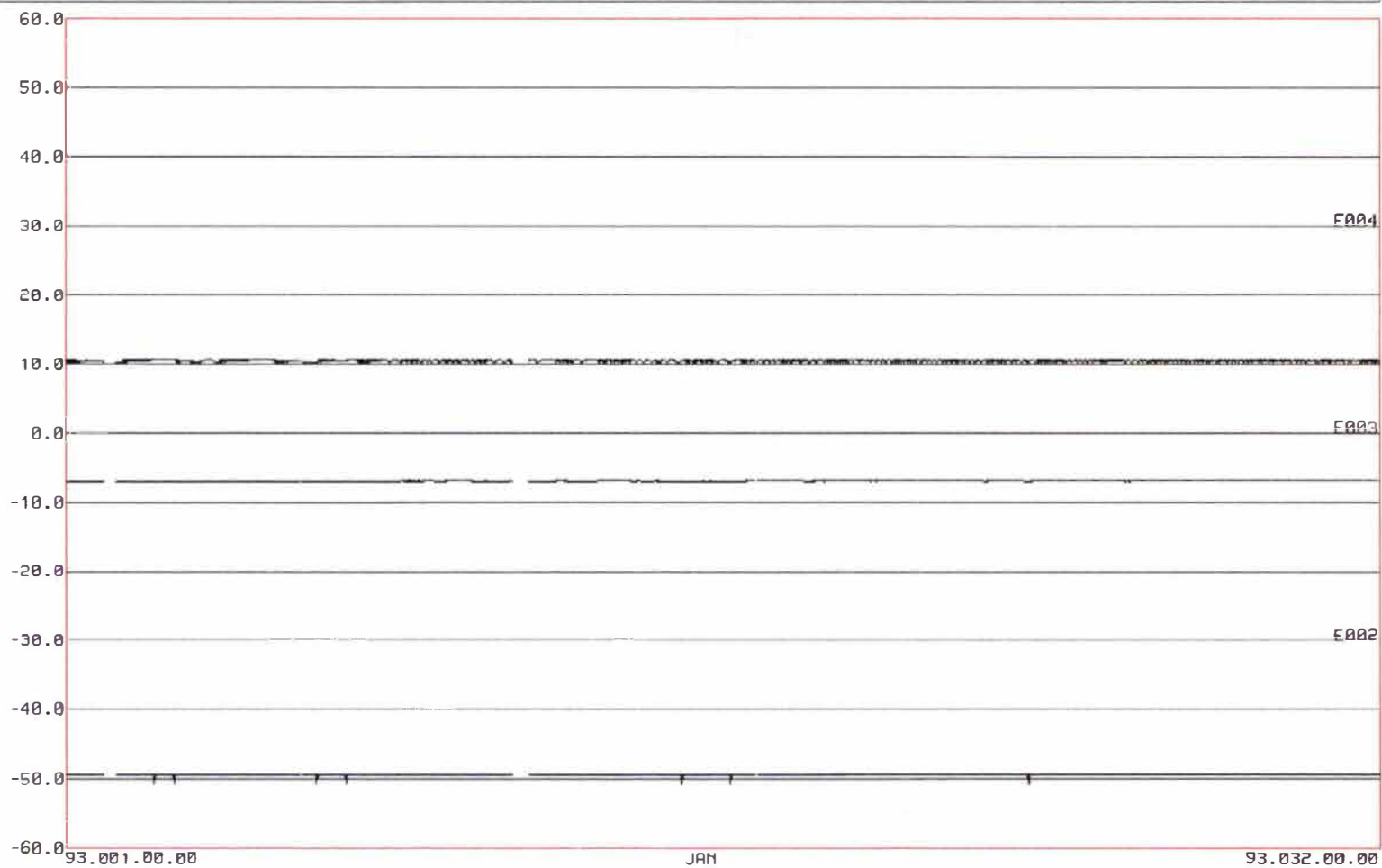
-6.8

E003 2BSENTMP S/C

-49.3

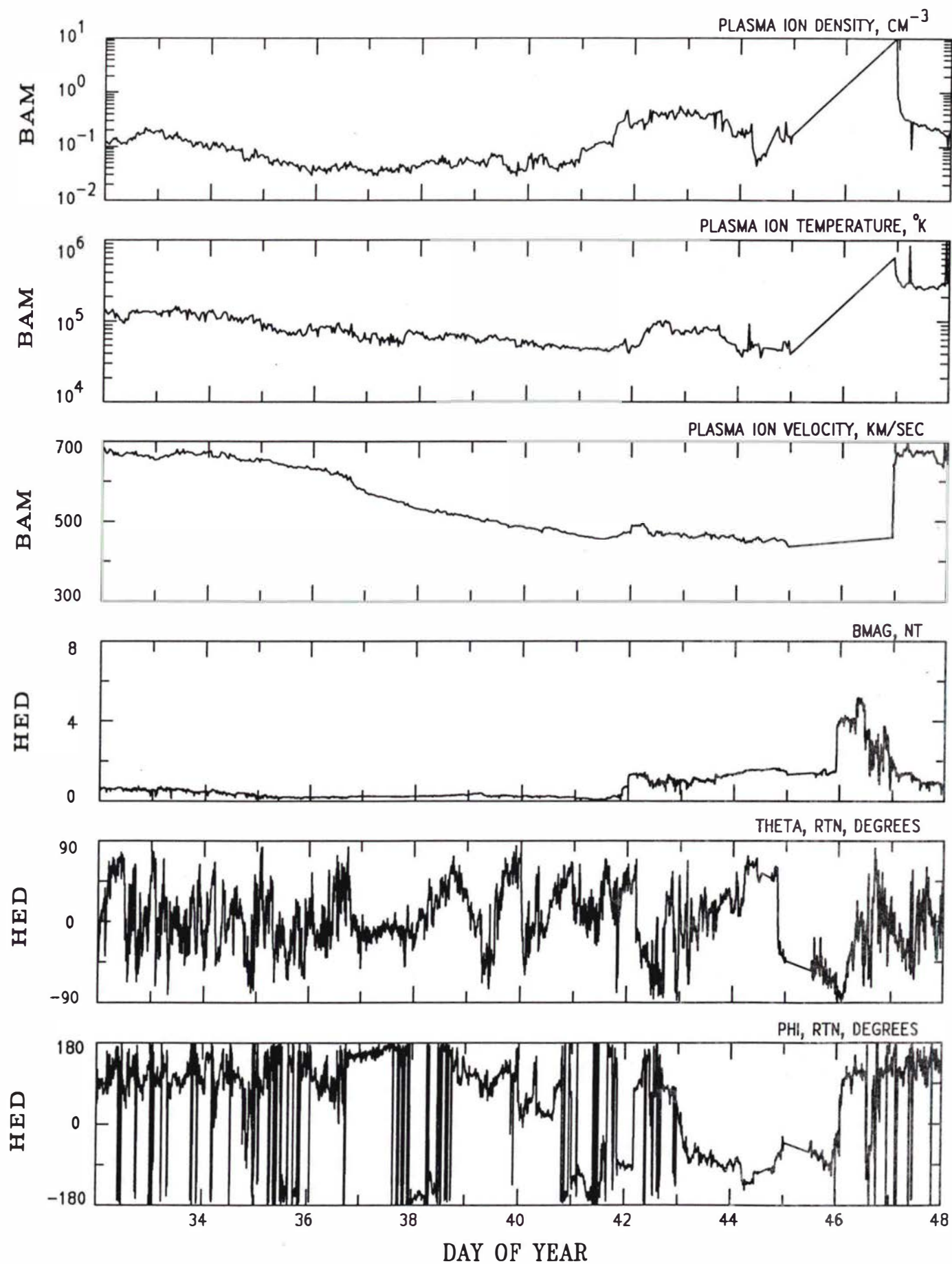
E004 2ASENSTMP EX

10.73



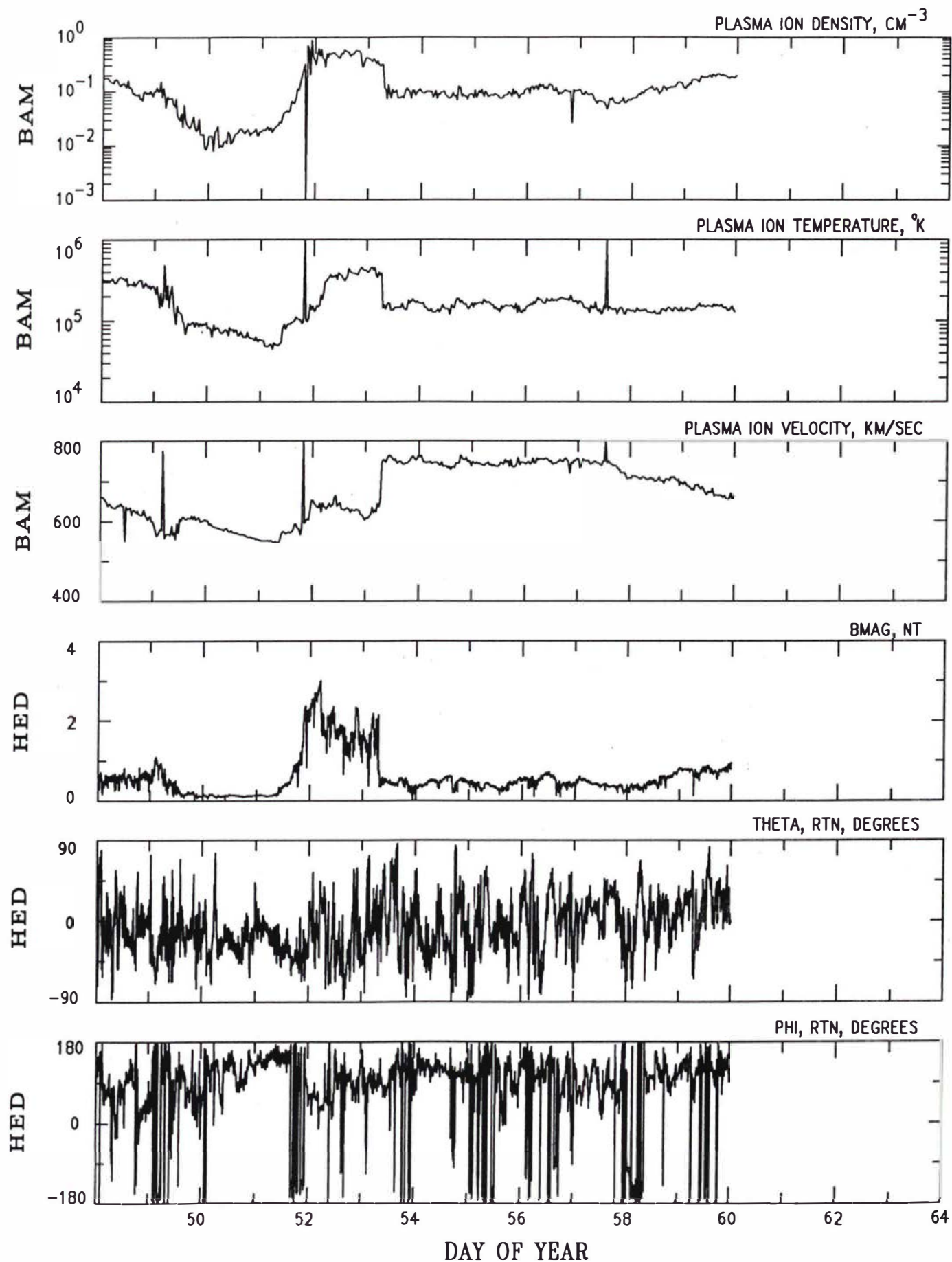
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

93 032 FEB 1 00:00:00.000 - 93 048 FEB 17 00:00:00.000



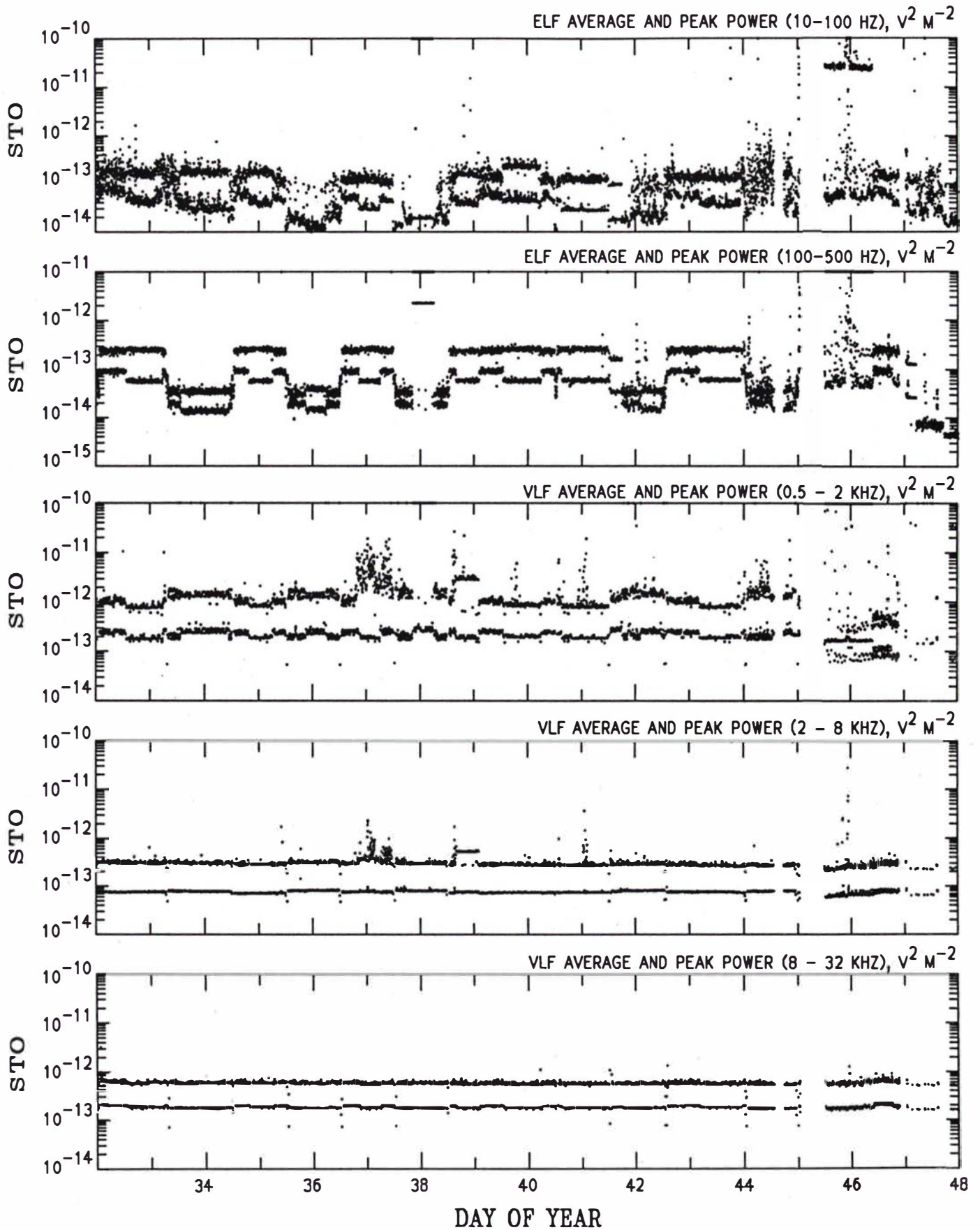
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

93 048 FEB 17 00:00:00.000 - 93 064 MAR 5 00:00:00.000



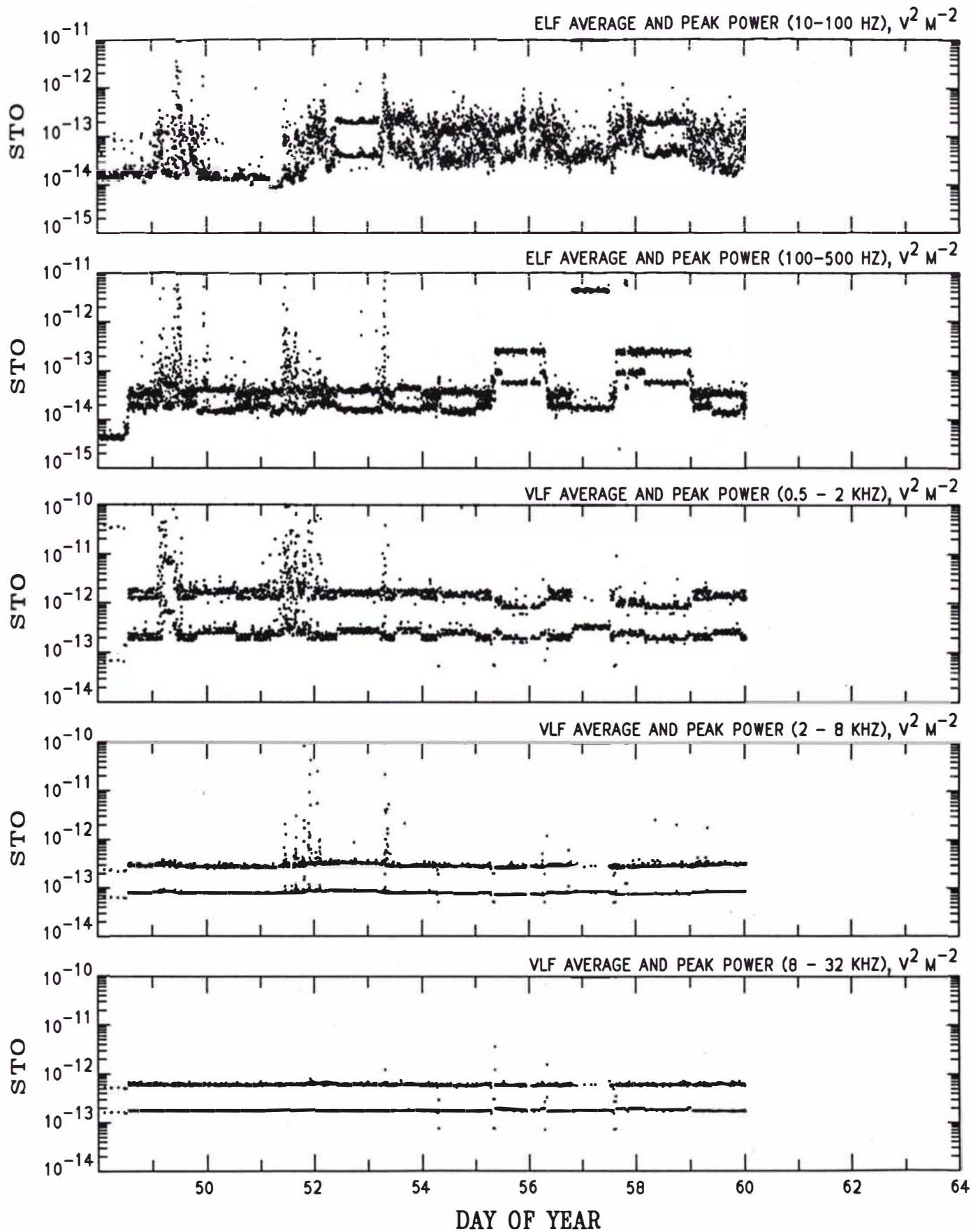
ULYSSES CDR - PLASMA WAVE

93 032 FEB 1 00:00:00.000 - 93 048 FEB 17 00:00:00.000



ULYSSES CDR - PLASMA WAVE

93 048 FEB 17 00:00:00.000 - 93 064 MAR 5 00:00:00.000



From HAGEDON@ssl.msfc.nasa.gov Wed Feb 3 10:11:29 1993
Date: Wed, 3 Feb 1993 12:11:02 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02153

TIME: TJD=9019 SECONDS=07145

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=99.0 AZIMUTH=328.9 ERROR= DEGREES

COMMENTS:

GOES M2.2 SOLAR FLARE. DUR.~500 SEC. BARELY VISIBLE ABOVE 300KEV.

CATSEARCH PROGRAM

BATSE BURST # 2154
EVENT OF 1993 FEB 1 DAY OF YEAR= 32
EVENT CROSSING TIME AT BATSE : 31641. S. OR 08:47:21.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 94.800 -20.500
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 1/ 2/ 93 IS:
RA= 160.745 DEC= -14.309 DIST= 4.215 AU
BATSE-ULYSSES DISTANCE = 630638800. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=117.16 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -960.30 SECS.
CROSSING TIME AT ULYSSES IS 30681. S. OR 08:31:20.6 +/- 360.36 SECONDS

NO

From HAGEDON@ssl.msfc.nasa.gov Wed Feb 3 10:19:15 1993
Date: Wed, 3 Feb 1993 12:18:56 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1377

BATSE BURST TRIGGER

NO.: 02154

TIME: TJD=9019 SECONDS=31641

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=97.7 AZIMUTH=204.5 ERROR= DEGREES

COMMENTS:

MAX RATES WERE THE ONLY AVAILABLE DATA AND WERE CONSISTENT WITH A
WEAK BURST. LOCATION COMPUTED FROM MAX RATES. NO OTHER INFORMATION
IS AVAILABLE.

9 / 6 / 94

ULYSSES RT

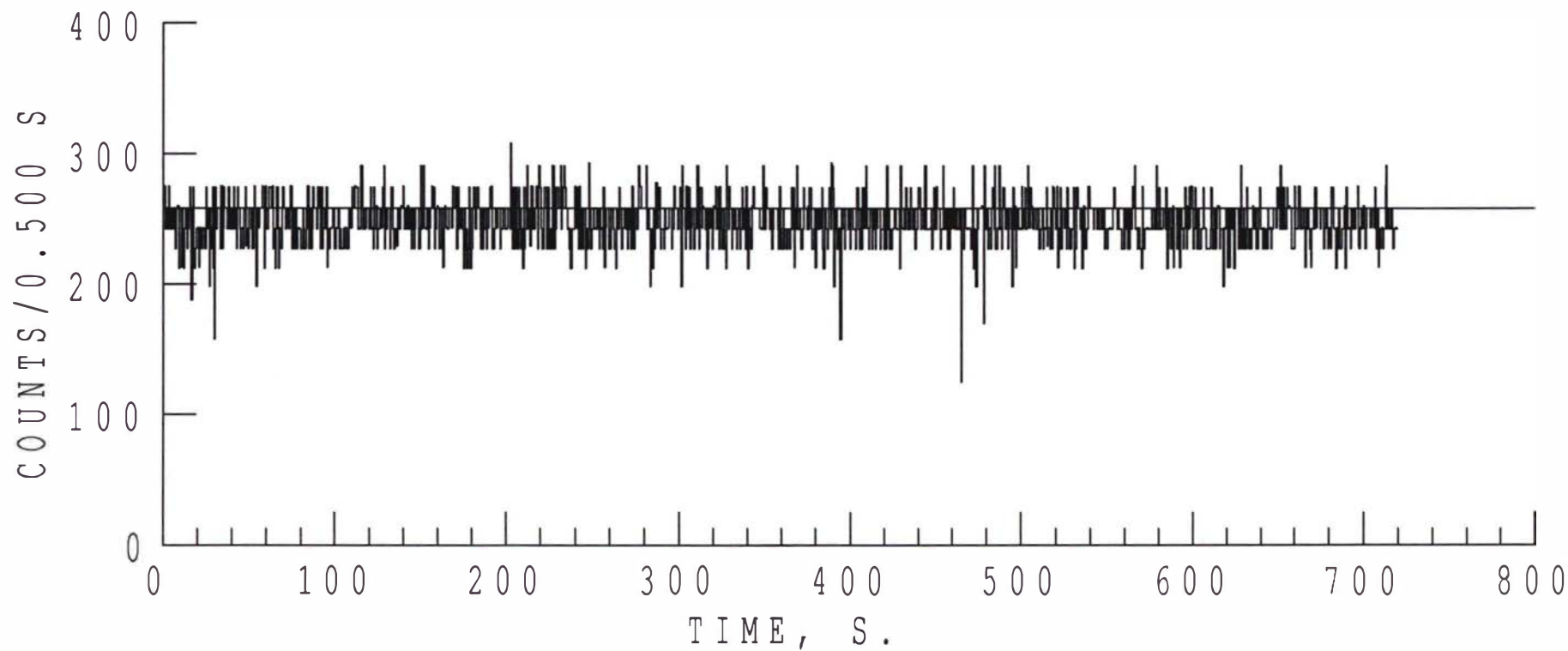
1 / 2 / 93 30312.148 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2155
EVENT OF 1993 FEB 1 DAY OF YEAR= 32
EVENT CROSSING TIME AT BATSE : 49892. S. OR 13:51:32.1
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 182.500 84.000
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 1/ 2/ 93 IS:
RA= 160.745 DEC= -14.309 DIST= 4.215 AU
BATSE-ULYSSES DISTANCE = 630638800. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 81.27 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 319.17 SECS.
CROSSING TIME AT ULYSSES IS 50211. S. OR 13:56:51.3 +/- 415.83 SECONDS

ND

From HAGEDON@ssl.msfc.nasa.gov Wed Feb 3 10:24:47 1993
Date: Wed, 3 Feb 1993 12:23:54 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02155

TIME: TJD=9019 SECONDS=49892

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=119.7 AZIMUTH=88.2 ERROR= DEGREES

COMMENTS:

BURST. SINGLE SPIKE. DUR.~0.8 SEC. SECOND, UNRELATED SPIKE OCCURS
AT ~T+90 SEC. VISIBLE ABOVE 300KEV.

From HAGEDON@ssl.msfc.nasa.gov Wed Feb 3 11:06:01 1993
Date: Wed, 3 Feb 1993 13:05:39 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2155	930201	9019	49892	6300	254	+89

9 / 6 / 94

ULYSSES RT

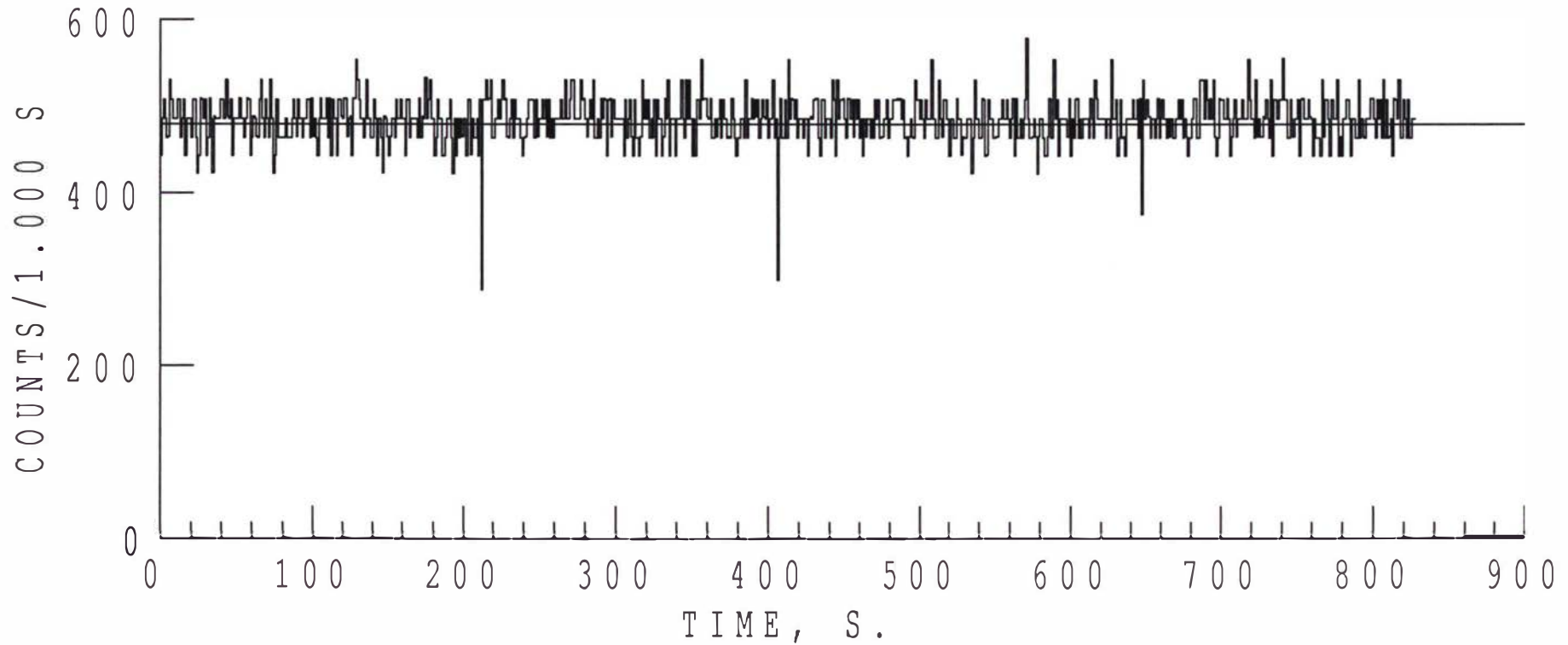
1 / 2 / 93 49788.199 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2156
EVENT OF 1993 FEB 1 DAY OF YEAR= 32
EVENT CROSSING TIME AT BATSE : 60116. S. OR 16:41:55.6
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 335.500 43.800
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 1/ 2/ 93 IS:
RA= 160.745 DEC= -14.309 DIST= 4.215 AU
BATSE-ULYSSES DISTANCE = 630638800. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 29.83 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1824.87 SECS.
CROSSING TIME AT ULYSSES IS 61940. S. OR 17:12:20.4 +/- 259.38 SECONDS

Trigger

From HAGEDON@ssl.msfc.nasa.gov Wed Feb 3 10:31:48 1993
Date: Wed, 3 Feb 1993 12:31:22 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1286

BATSE BURST TRIGGER

NO.: 02156

TIME: TJD=9019 SECONDS=60115

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=139.1 AZIMUTH=22.5 ERROR= DEGREES

COMMENTS:

INTENSE, COMPLEX, MULTI-PEAKED BURST. DUR.~180 SEC. 30 SEC PRECURSOR EPISODE
BEGINS AT T+0. MAIN EPISODE BEGINS AT ~T+80 SEC. VISIBLE ABOVE 300KEV.

From HAGEDON@ssl.msfc.nasa.gov Wed Feb 3 11:07:54 1993
Date: Wed, 3 Feb 1993 13:07:45 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2156	930201	9019	60115	66000	333	+40

Date:

Dec 16 '97

Helio corr removed

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)? *N/A*
- ☒ 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

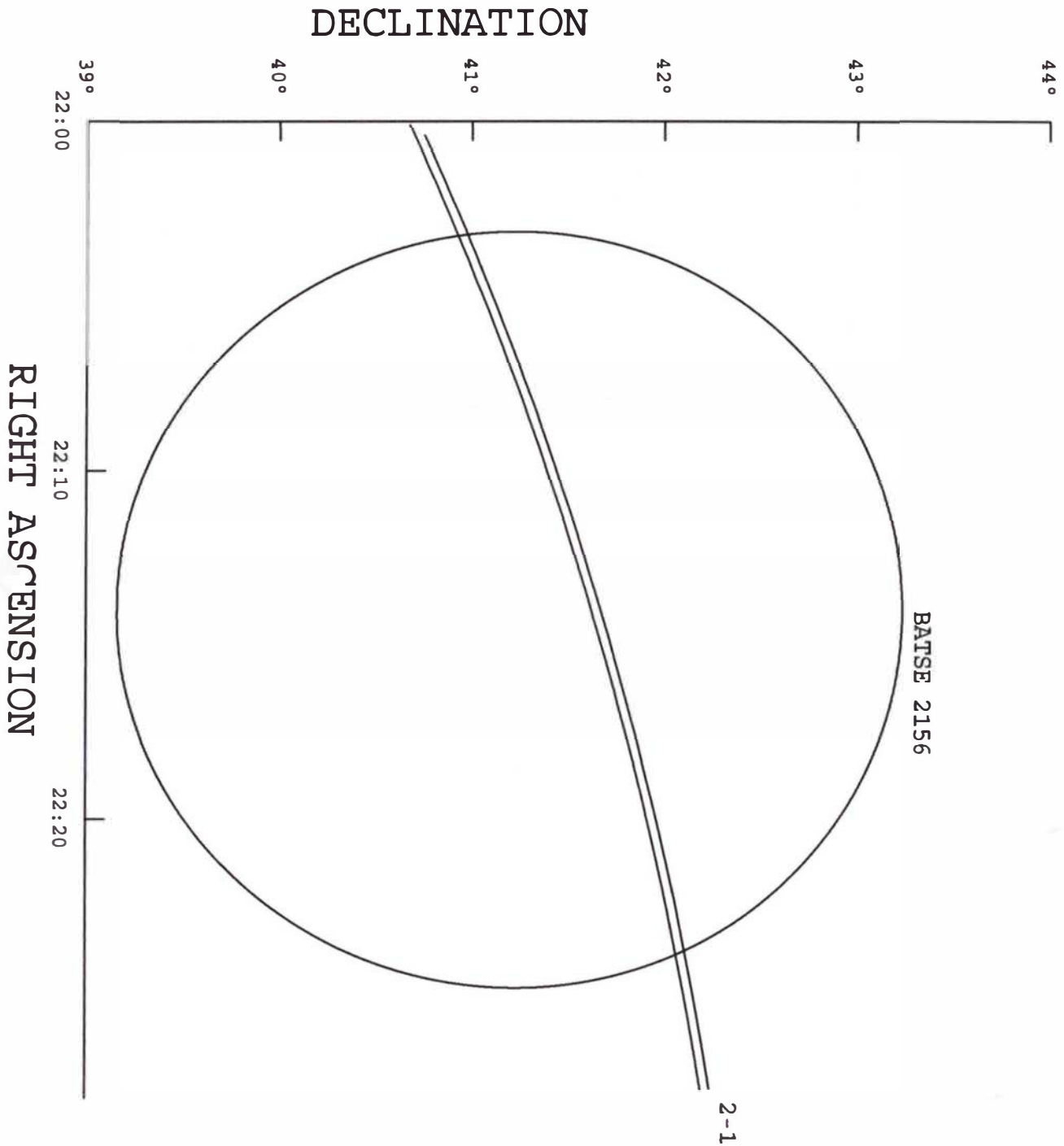
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 1, 1993 17:13

16/12/97



ULYSSES

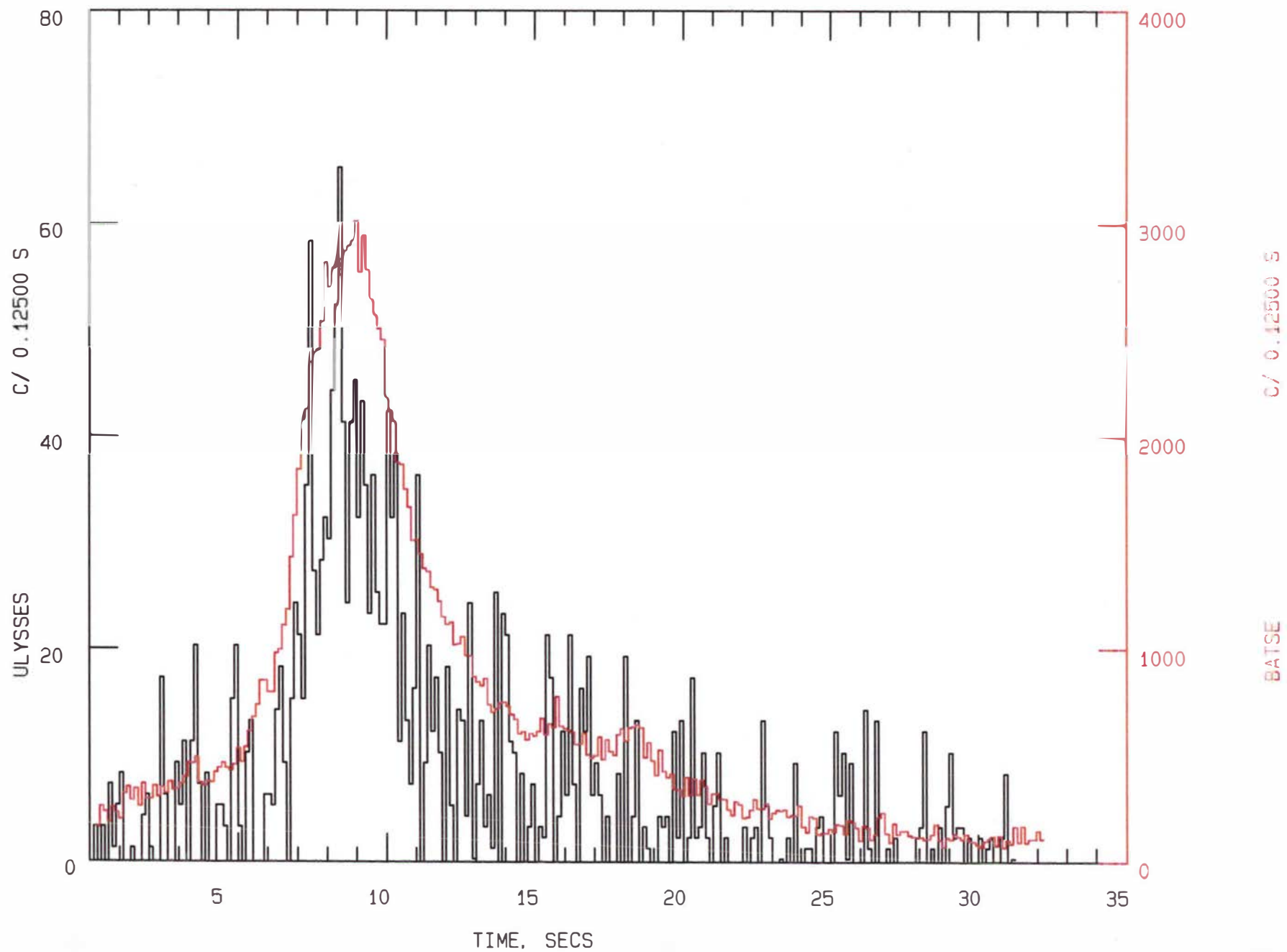
-BATSE

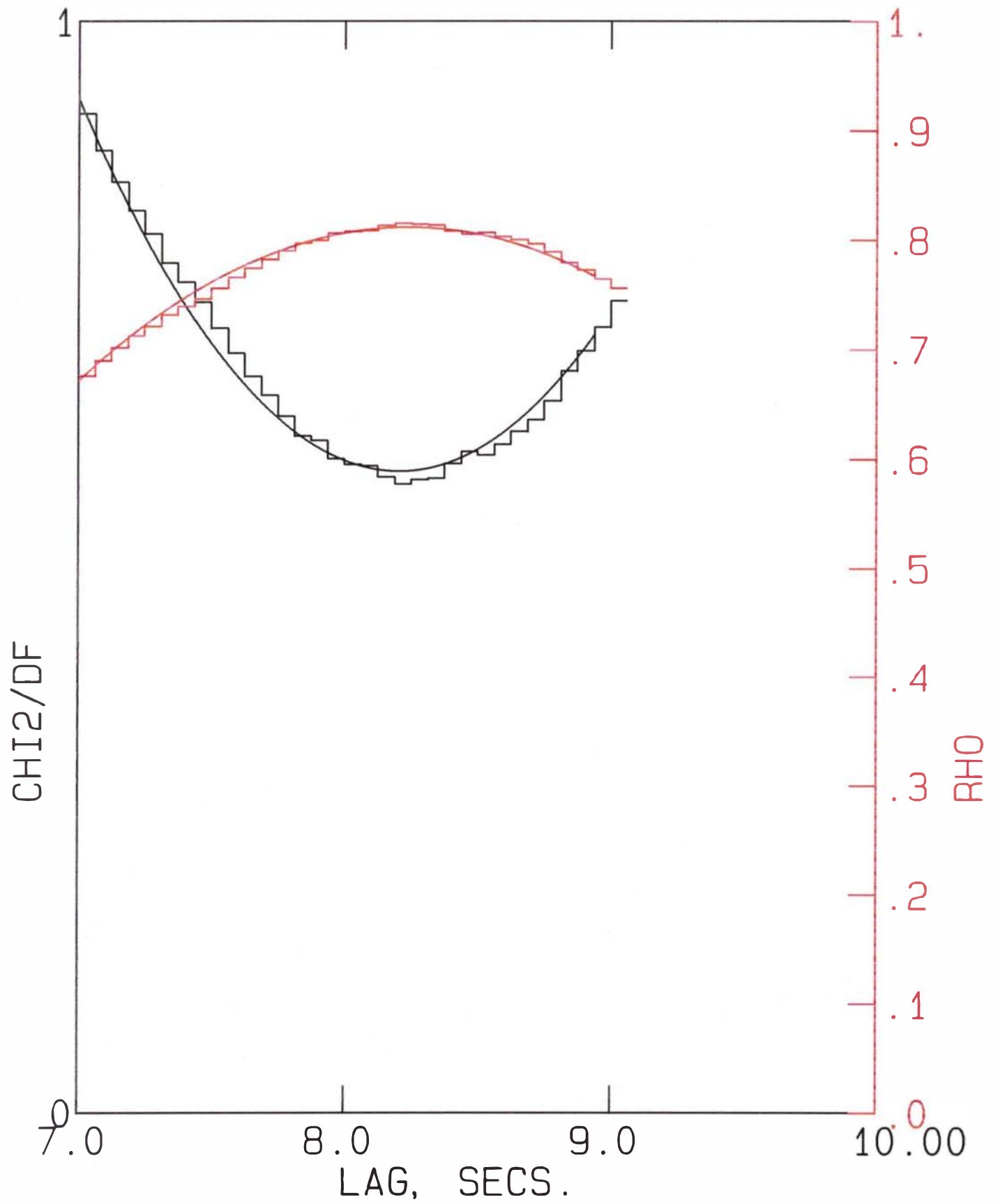
CORRELATION

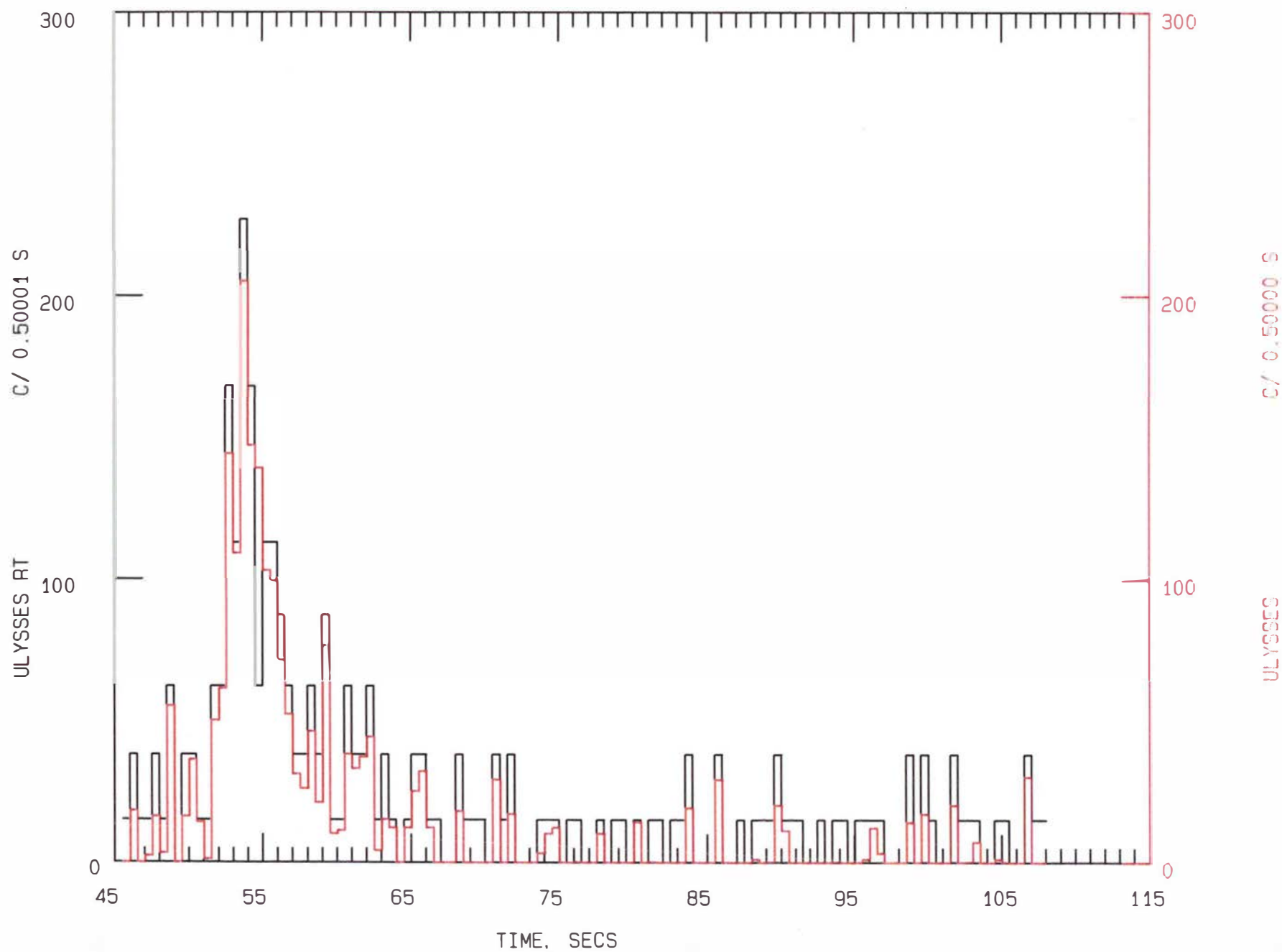
01/02/93

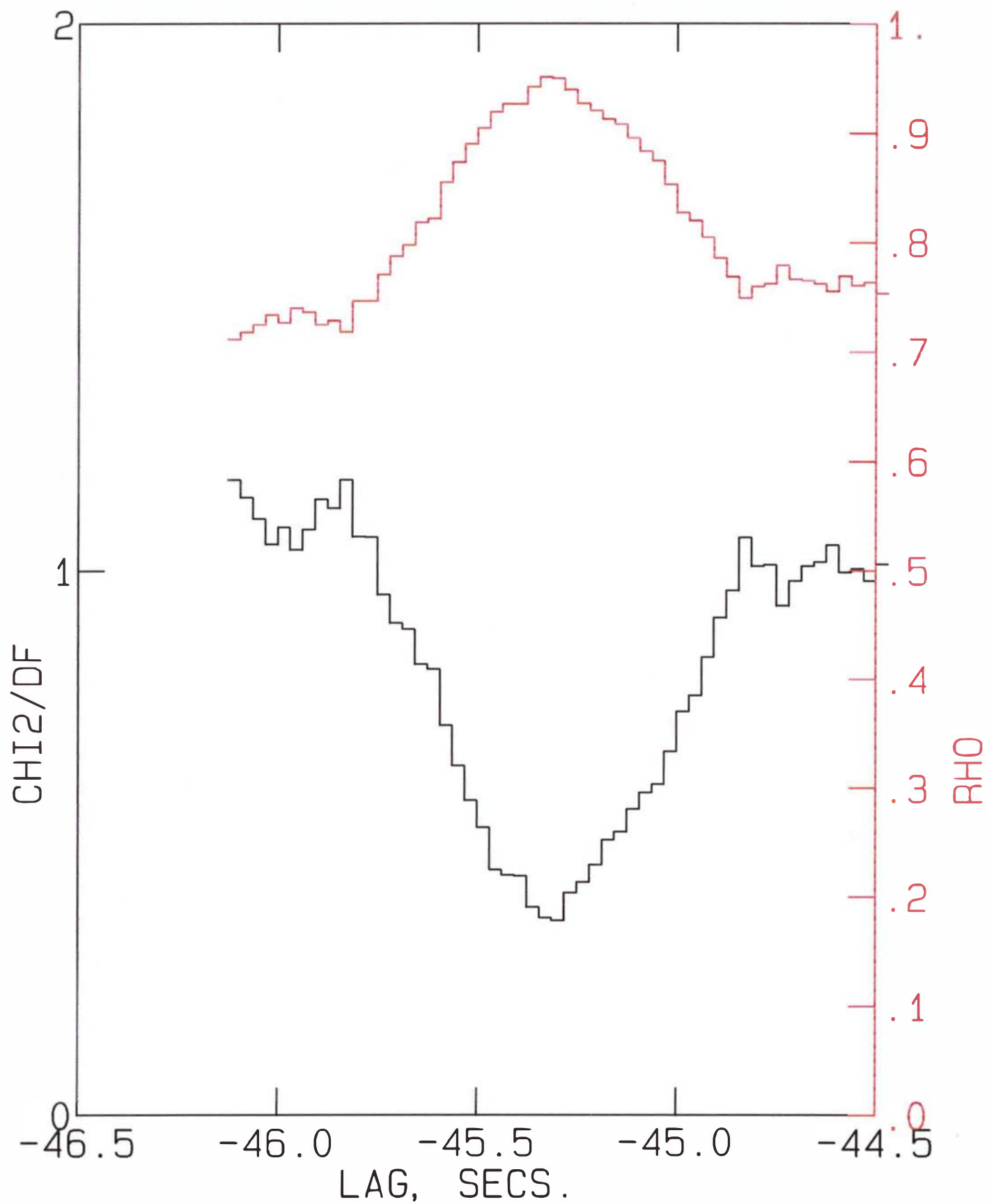
61985.259

16/12/97





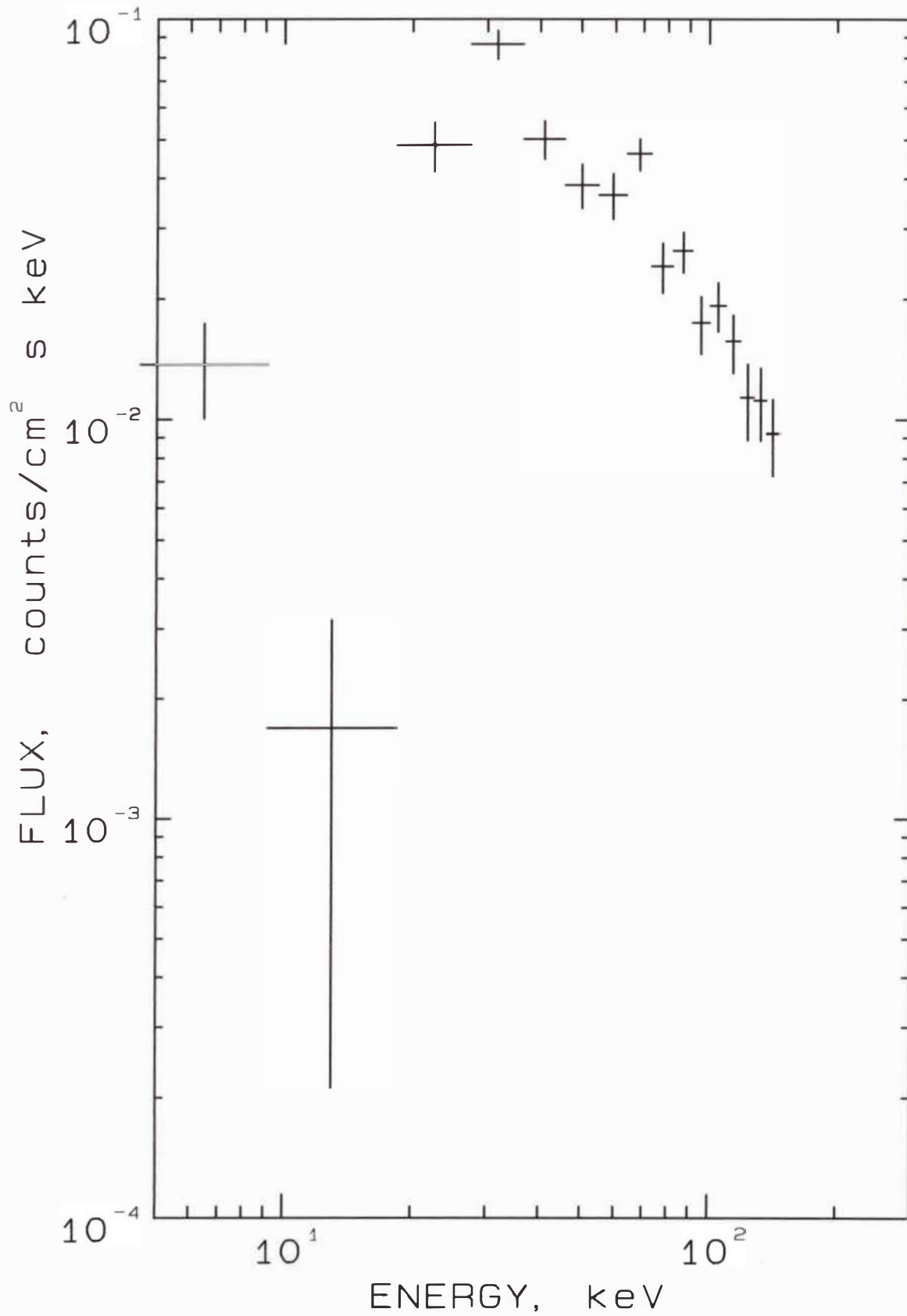




ULYSSES 01/02/93 61985.131

16/12/97

SPECTRUM INTEGRATED OVER 159.3 SECONDS, INTERVALS 2 TO 40



ULYSSES 01/02/93 61985.131 BURST SPECTRAL COUNT RATES

4- 18 keV

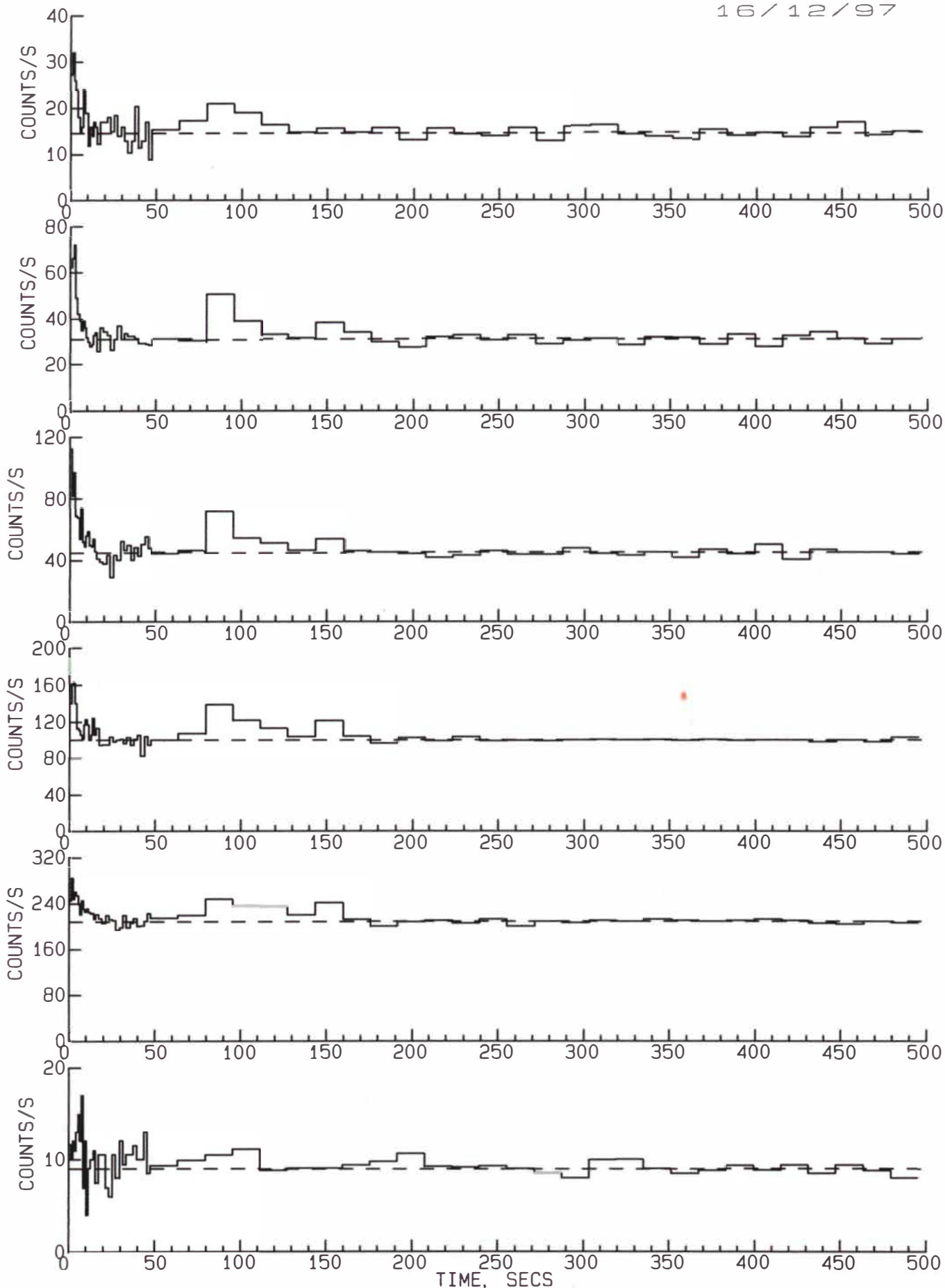
18- 45 keV

45- 73 keV

73-100 keV

100-127 keV

127-146 keV



16/12/97

ULYSSES

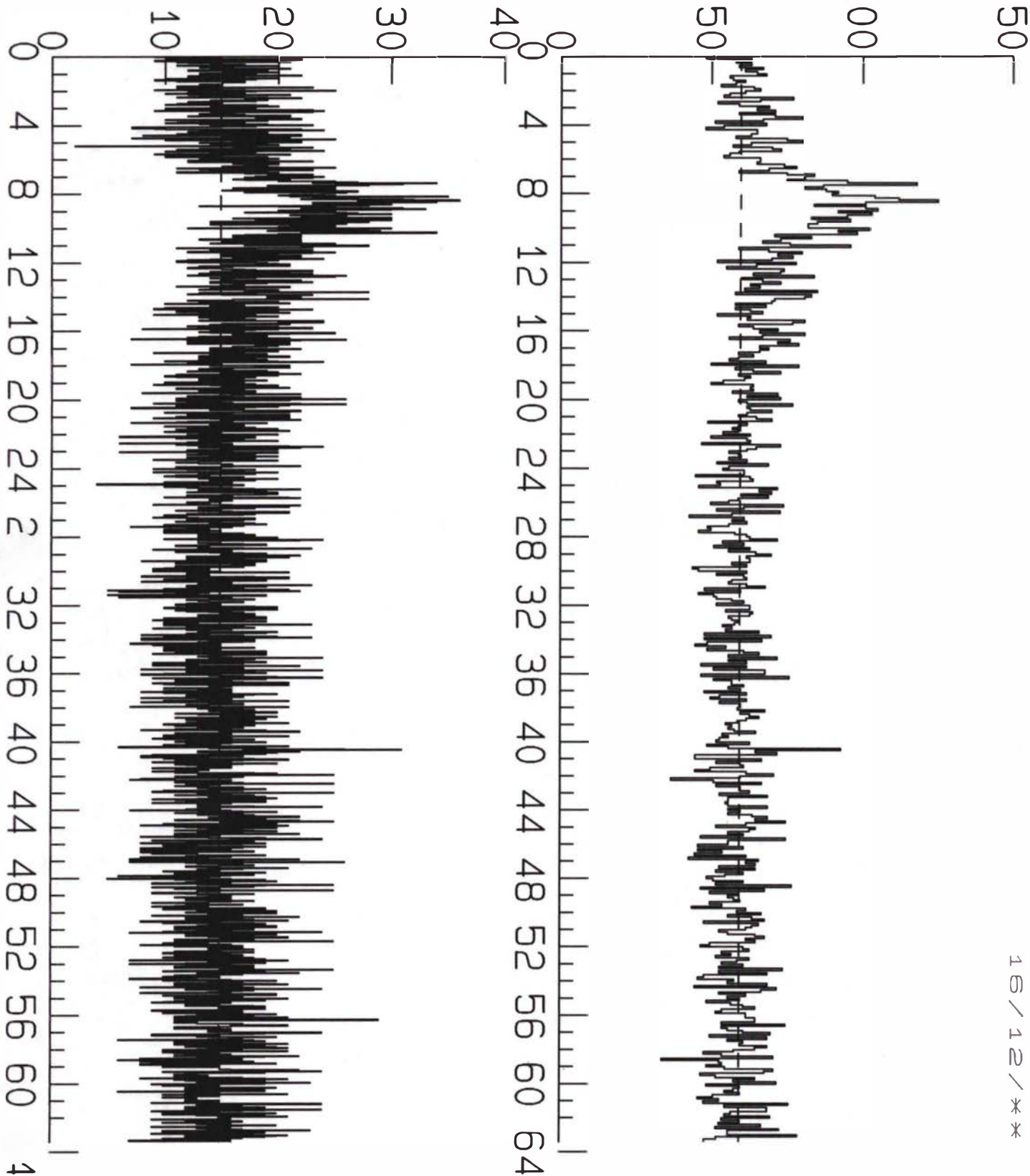
01/02/93

Ttrig=61985.259

21- 147 keV

COUNTS/0.031 S

COUNTS/0.125 S



15/12/88

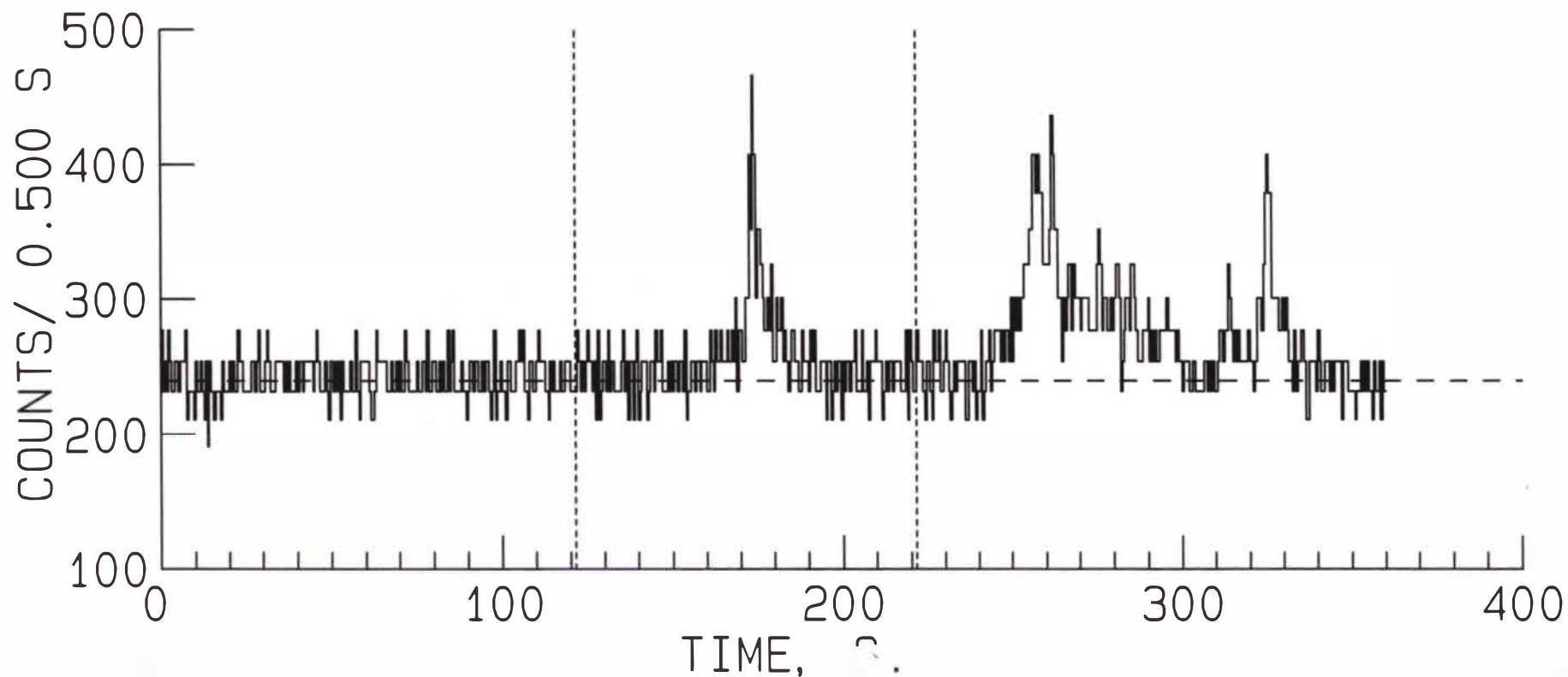
ULYSSES RT

16/12/97

1/ 2/93 61812.388 s

21- 147 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Added to MBL
12 Feb

From root Fri Feb 11 11:04 1994
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA04796; Fri, 11 Feb 94 11:04:56
Received: from SSTDP2.LANL.GOV by sunspot.ssl.berkeley.edu (5.0/SMI-SVR4)
id AA08305; Fri, 11 Feb 1994 10:08:42 +0800
Date: Fri, 11 Feb 1994 11:10:15 -0700 (MST)
From: 046369@SSTDP2.LANL.GOV
To: KHURLEY@space6.ssl.berkeley.edu
Message-Id: <940211111015.23c0a354@SSTDP2.LANL.GOV>
Subject: DMSP OBSERVATIONS OF GRB
Content-Length: 2047
Status: R

FROM: SMTP%"TERRELL@ESSDP2.LANL.GOV" (ESSDP2::TERRELL) (JAMES TERRELL 94/02/11)
TO: SMTP%"KHURLEY@SPACE6.SSL.BERKELEY.EDU" (KEVIN HURLEY)
CC:
SUBJ: DMSP OBSERVATIONS OF GRB

Kevin:

Here are some corrections, additions, or questions re your list of GRB as sent to me on 940106:

DATE	UT	COMMENTS---
920110	33478	DMSP SHOULD BE NA (NOT APPARENT), NOT NO (I.E., OMIT "NO") <i>What's the difference?</i>
920125	33247	DMSP ND (NO DATA, N/O IN YOUR NOTATION) ✓
920315	17694	ULYSSES TIME, BUT GRO DETECTED A GRB AT 15569!? <i>NO RECORD SET</i>
920414	84166	(PVO TIME) GRO DETECTED A GRB AT 84163!? <i>NO RECORD SET</i>
920714	47069	DMSP SHOULD BE NA, NOT NO (I.E., OMIT "NO") <i>What's the difference?</i>
920726	2066	ULYSSES TIME, BUT ULYSSES IS "NO"! DMSP10,11 @0165 (SOFT) ✓
920727	43347	ULYSSES TIME, BUT BATSE SAW IT!? (WHEN?) ✓
921004	49107	ULYSSES TIME, BUT EURECA SAW IT!? (WHEN?) ✓
930106	56259	DMSP YES (NOT AT 55260) ✓
930201	60115	DMSP8 YES (PEAKS AT 60129.0, 60211.0, 60281.0 UT) ✓
930318	44993	ULYSSES TIME, BUT BATSE AND EURECA SAW IT! (WHEN?) ✓
930405	32089	DMSP YES (8,10,11 AT 32105 AND 32110) ✓
930410	51547	DMSP NO ✓
930506	53571	DMSP8 YES AT 53577, 10ND, 11YES AT 53580 ✓
930506	57060	(ULYSSES TIME) DMSP8 YES AT 57669, 10NO, 11YES AT 57670, 57688, 57704 ✓
930510	41935	(ULYSSES TIME) NOT APPARENT IN FULL DMSP DATA ✓
930511	892	(ULYSSES TIME) NOT APPARENT IN FULL DMSP DATA ✓
930612	2657	DMSP10 YES AT 2662 (8SAA, 11NA) ✓
930825	31643	(ULYSSES TIME) 8NA, 10NA, 11? (SOFT PEAK ~33500) ✓
930922	12830	(ULYSSES TIME) NOT APPARENT IN DMSP DATA (DMSP11 GLITCH?) ✓
930922	23086	ULYSSES TIME, BUT BATSE SAW IT! (WHEN?) (DMSP8NA, 11NA, 10~23000?) ✓
930925	73995	(ULYSSES TIME) DMSP NA (NOT APPARENT) ✓
931006	18653	(ULYSSES TIME, 18062?CORR) DMSP NA ✓
931006	69587	(ULYSSES TIME, 68961?CORR) DMSP NA ✓
931006	77510	ULYSSES TIME, BUT BATSE YES! (WHEN?) (DMSP NA) ✓
931007	72864	(ULYSSES TIME, 72239?CORR) DMSP NA ✓
921011	45034	(ULYSSES TIME, 45200?CORR) DMSP NA ✓

I would appreciate any clarifications or comments, and especially more event times to check against DMSP data. We now have data processed thru 931118. --Jim

WATCH-EURECA Gamma Ray Bursts. Niels Lund, Soren Brandt & Alberto Castro-Tirado
Danish Space Research Institute.

Version 1.0 Aug. 9. 1993.

The data given below is pre-publication data. The data should not be quoted without prior consultations with the above authors. The list is prepared in support of searches for counterparts or multi-spacecraft identifications.
The positional uncertainty is 1-degree error-circle radius.

#	date	UT-time	sd	l(s)	m(s)	m/l	position(J2000)	t	comments	#Wm	sdp	theta	phi
1	920824	10:53					-----	2	Weak (BATSE)				
2	921004	14:00:21		?	15	>5	14h37.5m 34.1d	1	Two peaks			63.2	222.1
3	921022	15:20:57		60	55	>5	16h56.7m -09.5d	2	Two peaks				
4	921118	22:11					-----	2	Weak (BATSE)				
5	921207	16:00:48		?	16	>5	20h36.1m -41.8d	1	Two peaks			65.9	136.3
6	921218	02:30					-----	2	Weak (BATSE)				
7	930106	15:37					-----	2	Weak (BATSE)				
8	930201	16:42:12					-----	2	Weak (BATSE?)				
7	930217	14:44					-----	2	Weak (BATSE)				
8	930318	12:31:28		?	30	>5	10h03.3m* -20.0d*	2	BATSE trig 95s early?				
9	930410	14:19						1					
10	930426	12:40:35		?	18	>5		1					
11	930502	13:52					-----	2	Weak (BATSE)				
12	930610							1					
13	930614	03:40:32		11	9	2	11h20.7m +23.1d	1					

#	date	UT-time	sd	l(s)	m(s)	m/l	position(J2000)	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 6-10 keV band (Low NaI channel)

m(s): Duration in 10-180 keV band (Med CsI channel)

m/l: Hardness: (sd(Med NaI)+sd(Med CsI))/sd(Low NaI) (NOTE: EURECA energy bands)

Positions marked with asterisk can not be determined more than once from the WATCH data!

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.

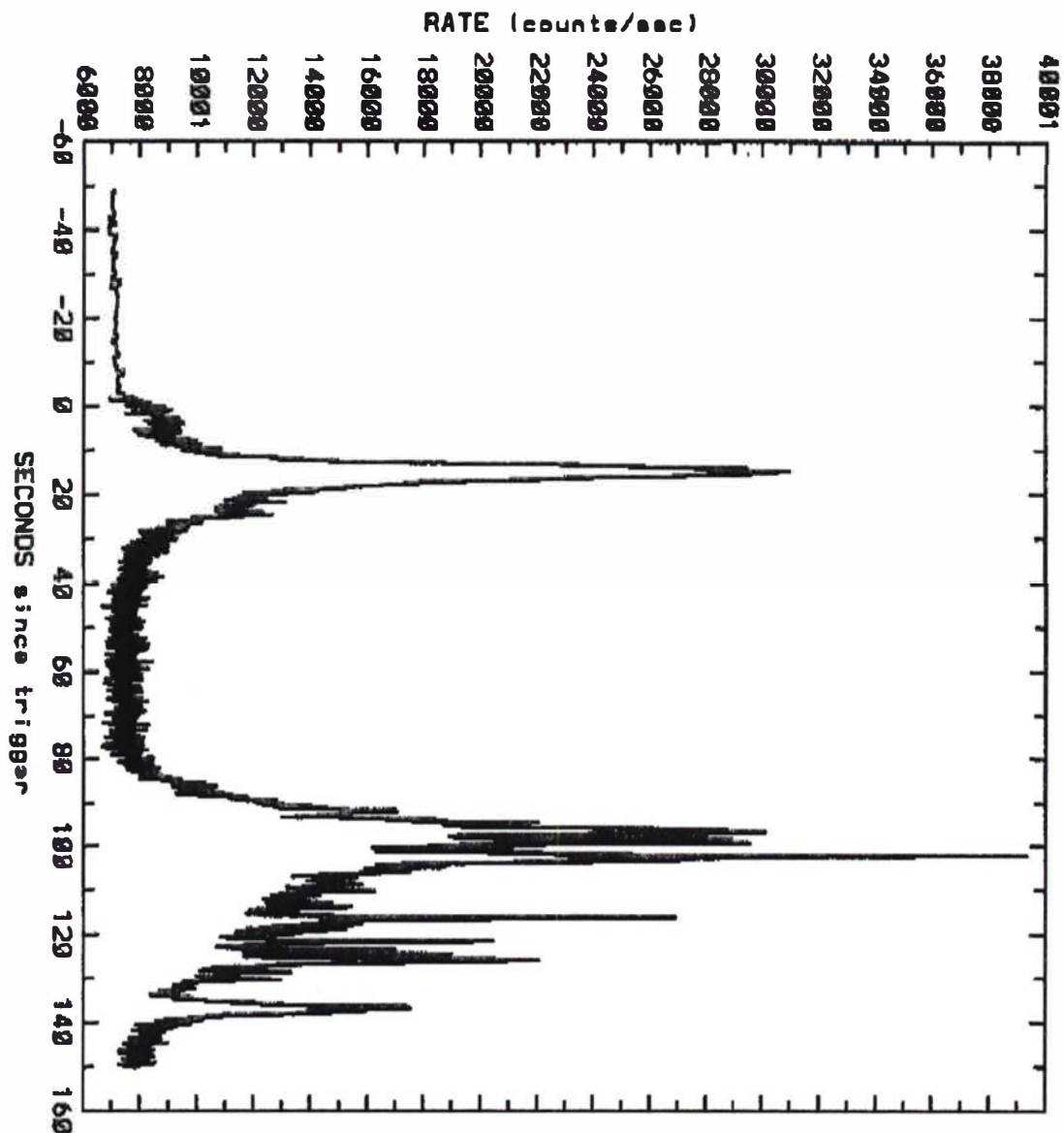
theta and phi: Source position in WATCH instrument coordinates.

WATCH-GRANAT Gamma Ray Bursts. Niels Lund, Alberto Castro-Tirado & Soren Brandt,
Danish Space Research Institute.

Version 2.0 Aug. 9. 1993.

The data given below is pre-publication data. The data should not be quoted without prior

Data for K. Hurley



6-MAY-1993 09:07.40

Created by MDS BD
(Burst Display)
Version 2.19

Trigger = 2150

Trigger Time:
9019 / 68115.500Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCSCMinimum Integ. Time:
0.064 secondsDelays (7.0):
10001010Discriminators:
1 1, 21Quality Mask:
BDLSP1

BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S

3000
2000
1000
0

-3

0 1

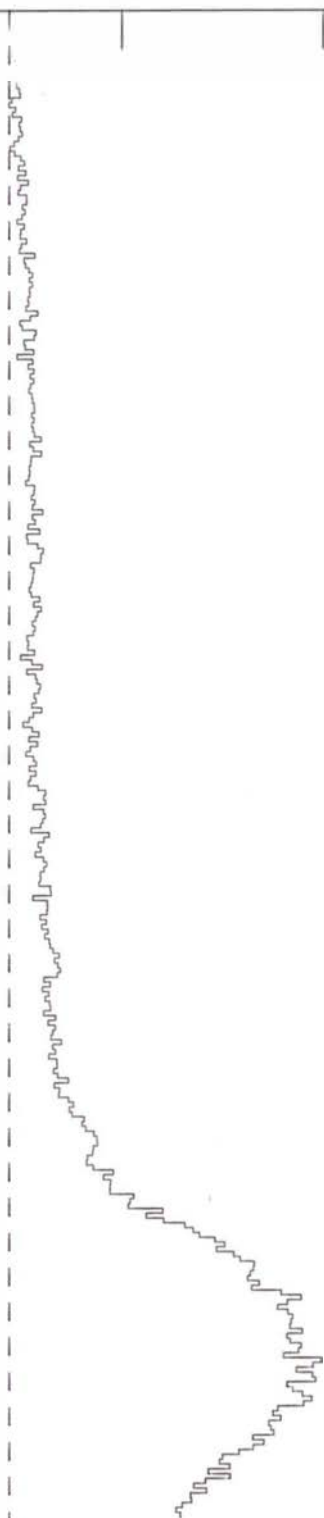
5

T IE, SECS

9

13

17



BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S

3000
2000
1000
0

17

21

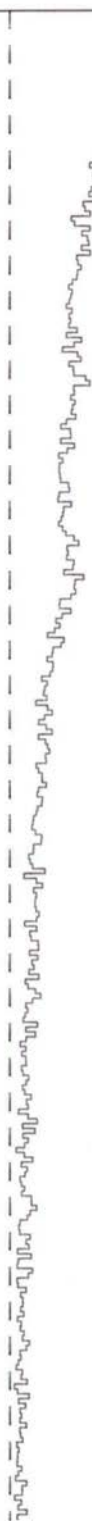
25

29

33

37

T IE, SECS



BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S

3000
2000
1000

37

41

45

49

53

57

T IE, SECS

BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S

3000
2000
1000
0

57

61

65

69

73

77

T IE, SECS

BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S

3000
2000
1000

97

81

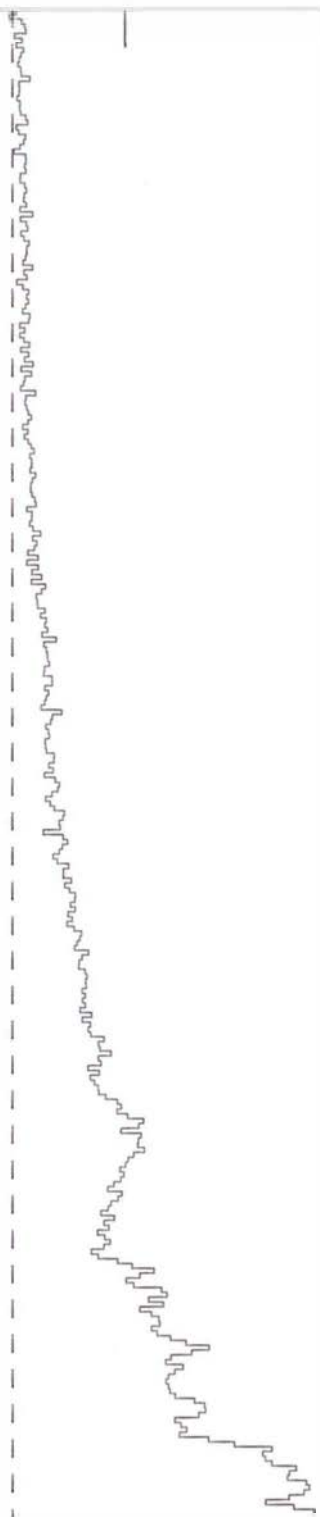
85

89

93

97

T IE, SECS



BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S

3000
2000
1000

97

101

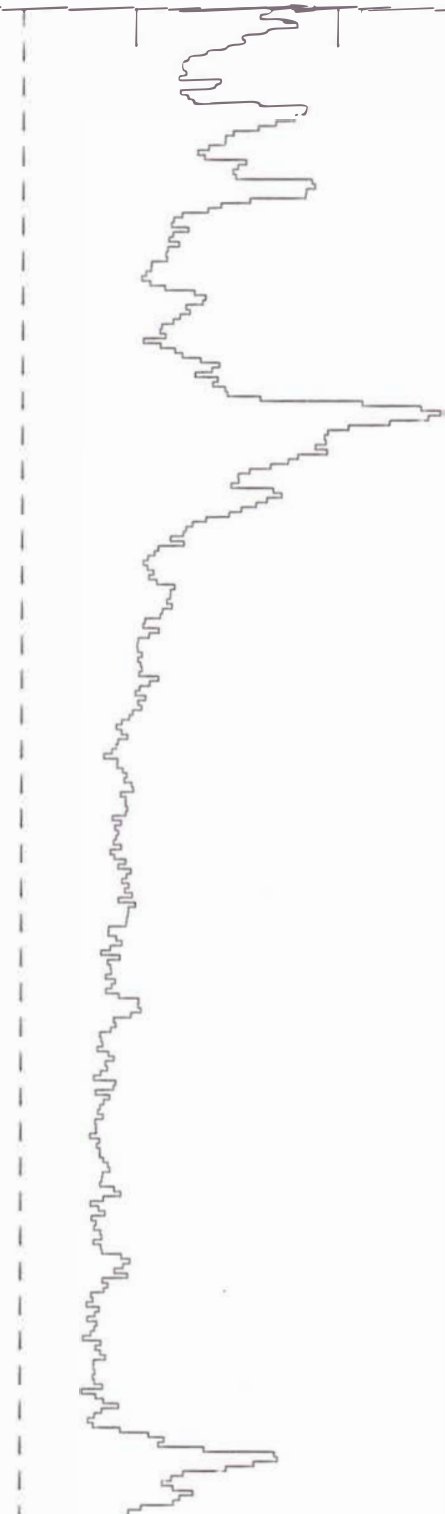
105

109

113

117

T
1E
SECS



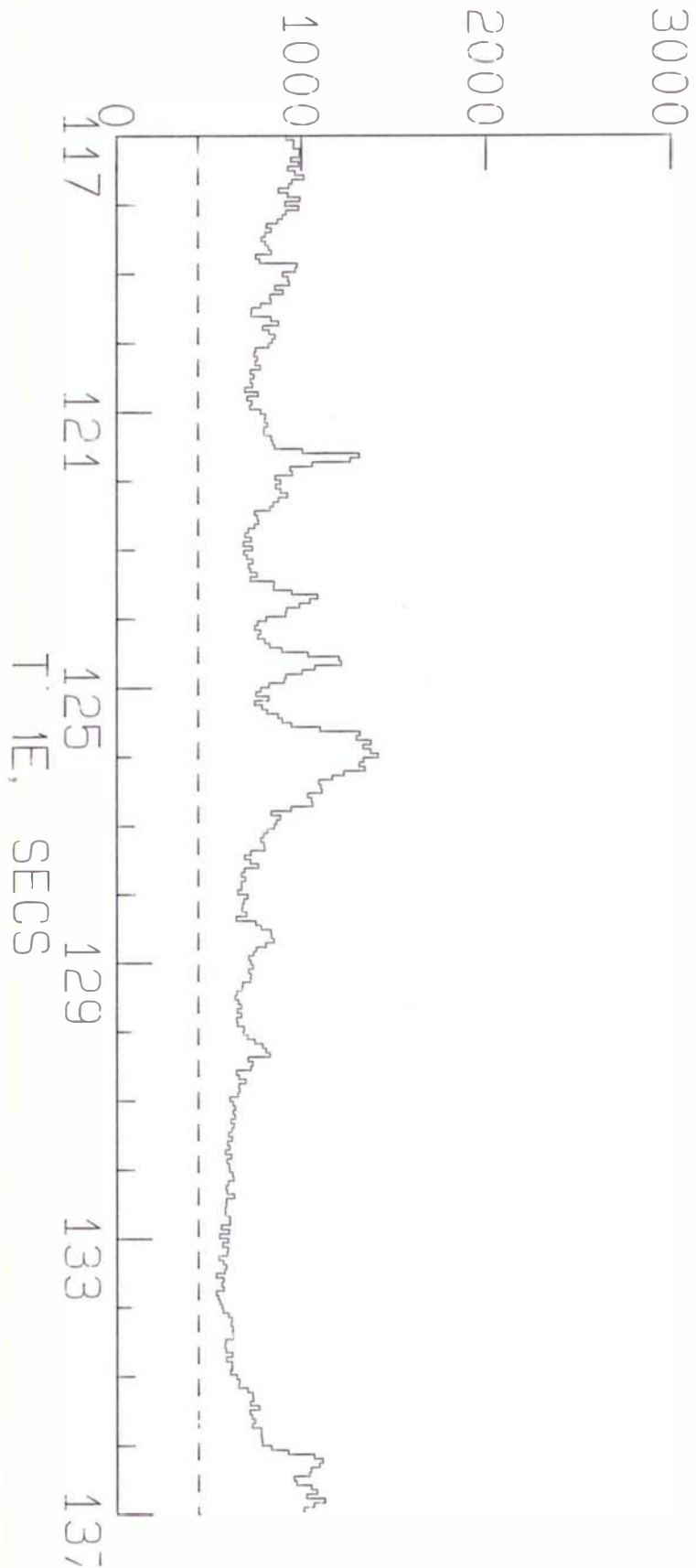
BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S



BATSE

01/02/93

60115.586

25- 100 keV

COUNTS/ .064 S

3000
2000
1000
0

137

141

145

149

153

157

TIME, SECS

22 / 5 / 93

From HAGEDON@ssl.msfc.nasa.gov Wed Feb 3 10:36:21 1993
Date: Wed, 3 Feb 1993 12:35:55 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02157

TIME: TJD=9019 SECONDS=71284

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

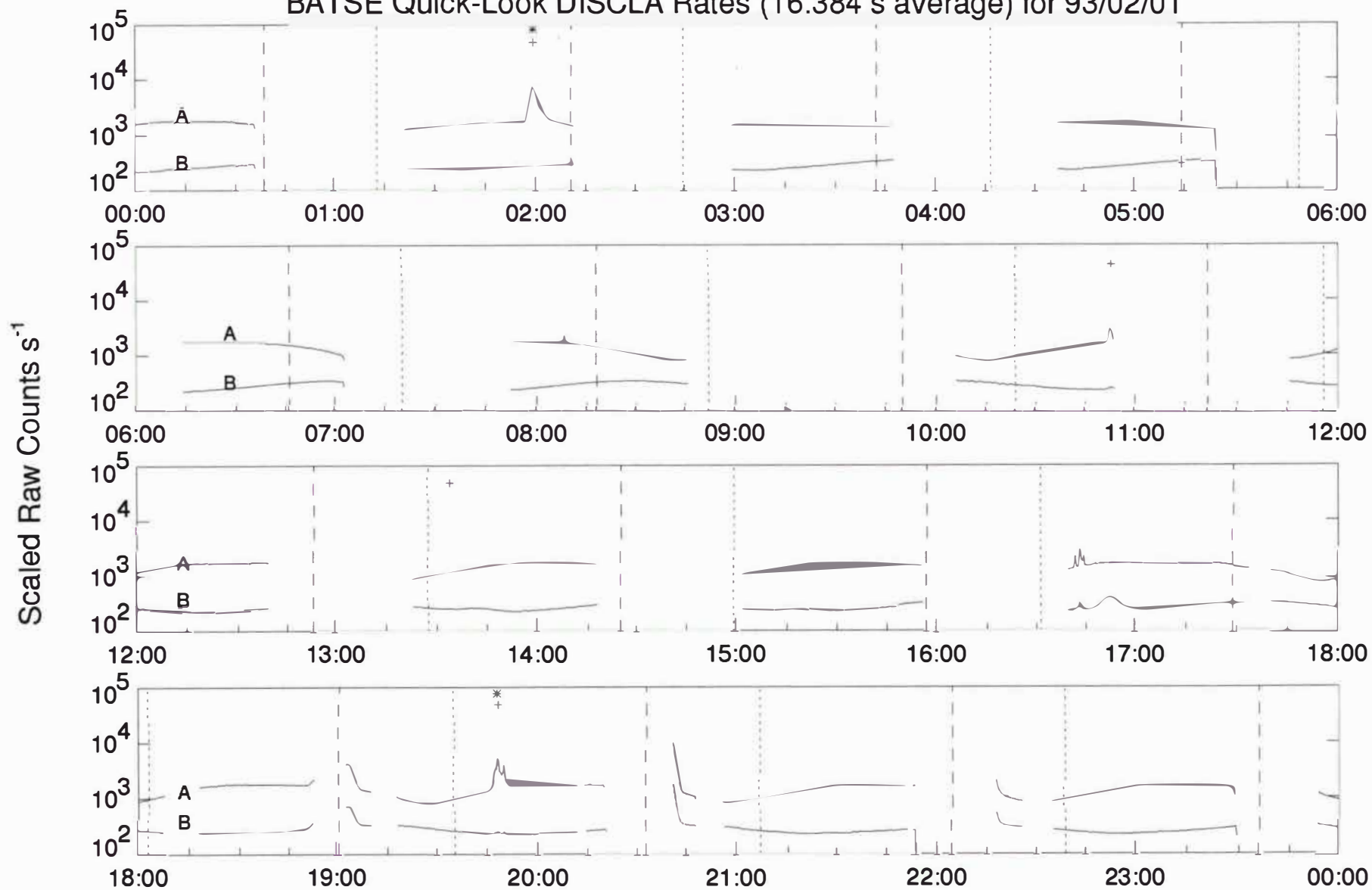
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=101.9 AZIMUTH=317.6 ERROR= DEGREES

COMMENTS:

GOES C4.9 SOLAR FLARE. DUR.~300 SEC. BARELY VISIBLE ABOVE 100KEV.

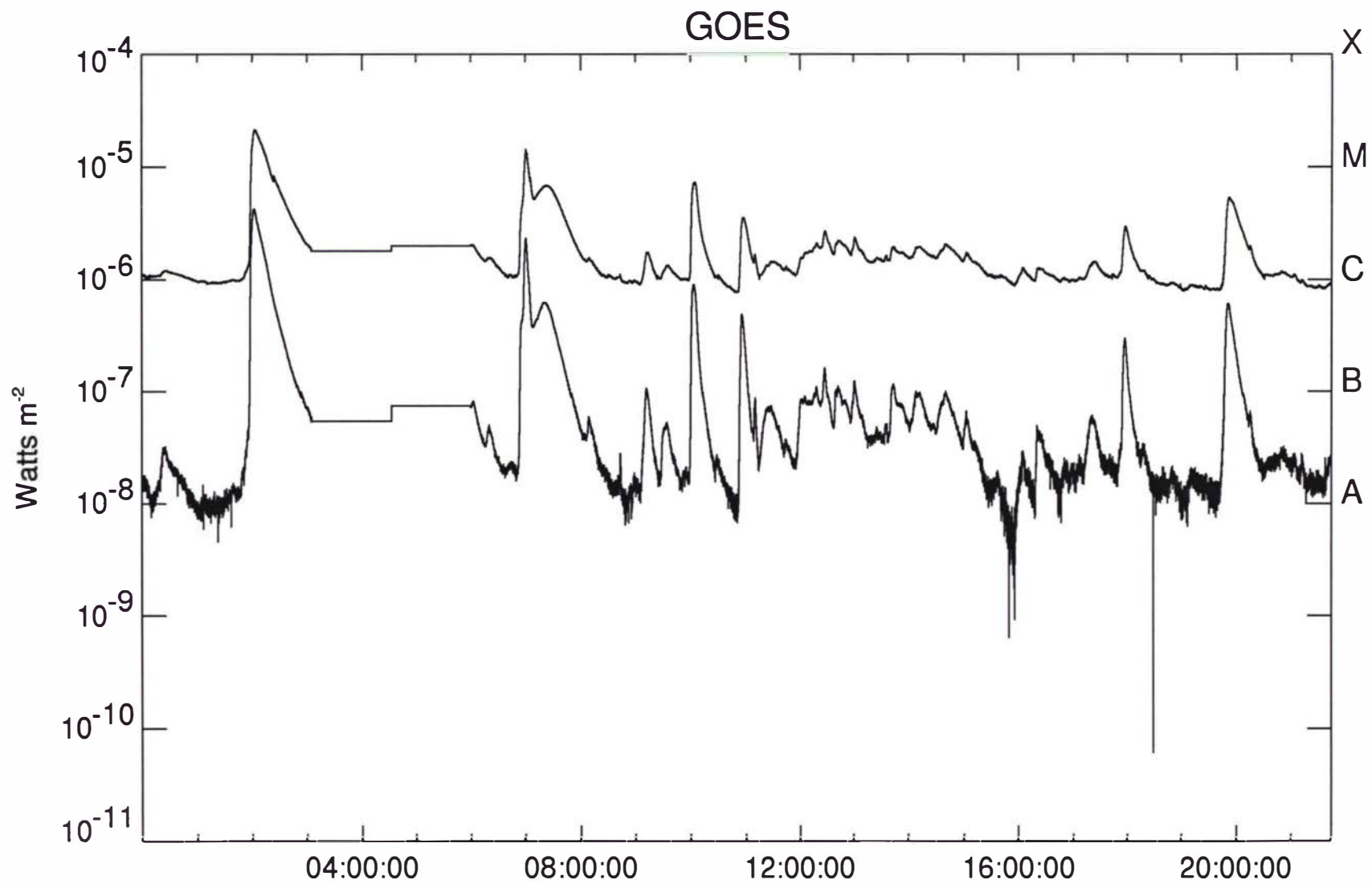
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/01



Current Time: 93/02/16, 1533 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: 93/02/01, 0000:02

Plot created: 95/06/01, 1602

Channel

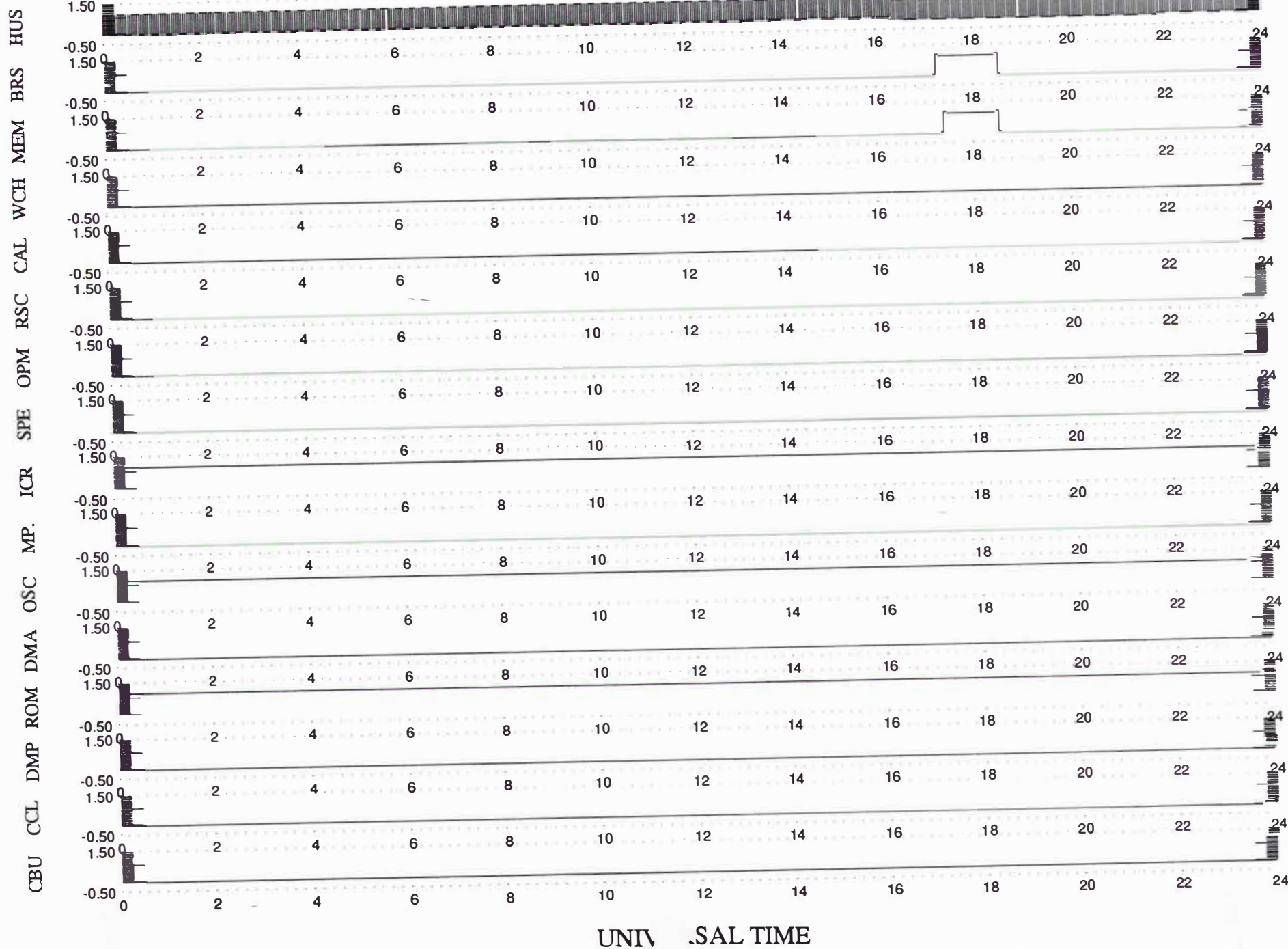
1 (1.0 - 8.0 Angstroms)

Background not subtracted

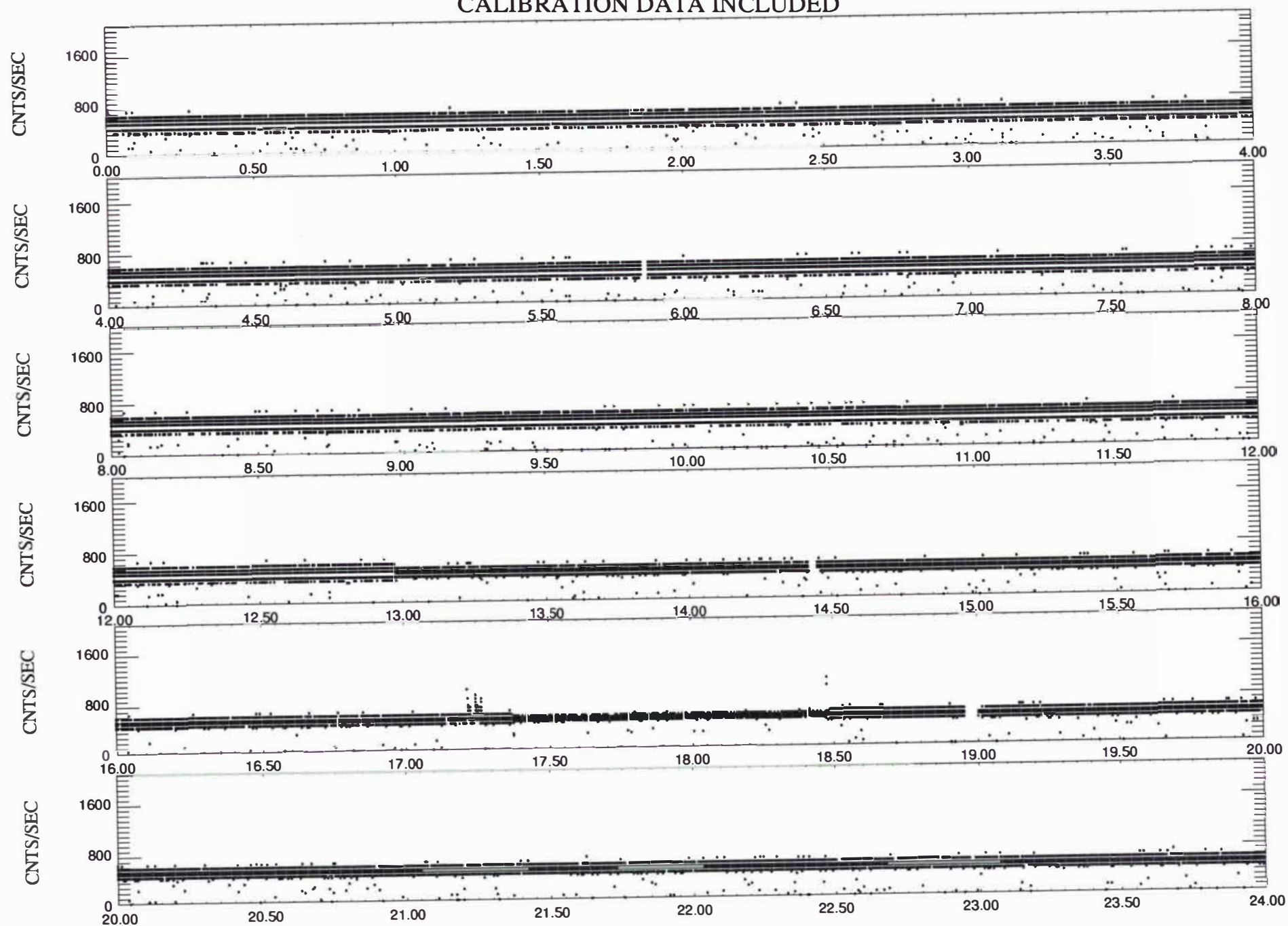
2 (0.5 - 4.0 Angstroms)

Background not subtracted

BURST NUMBER 15

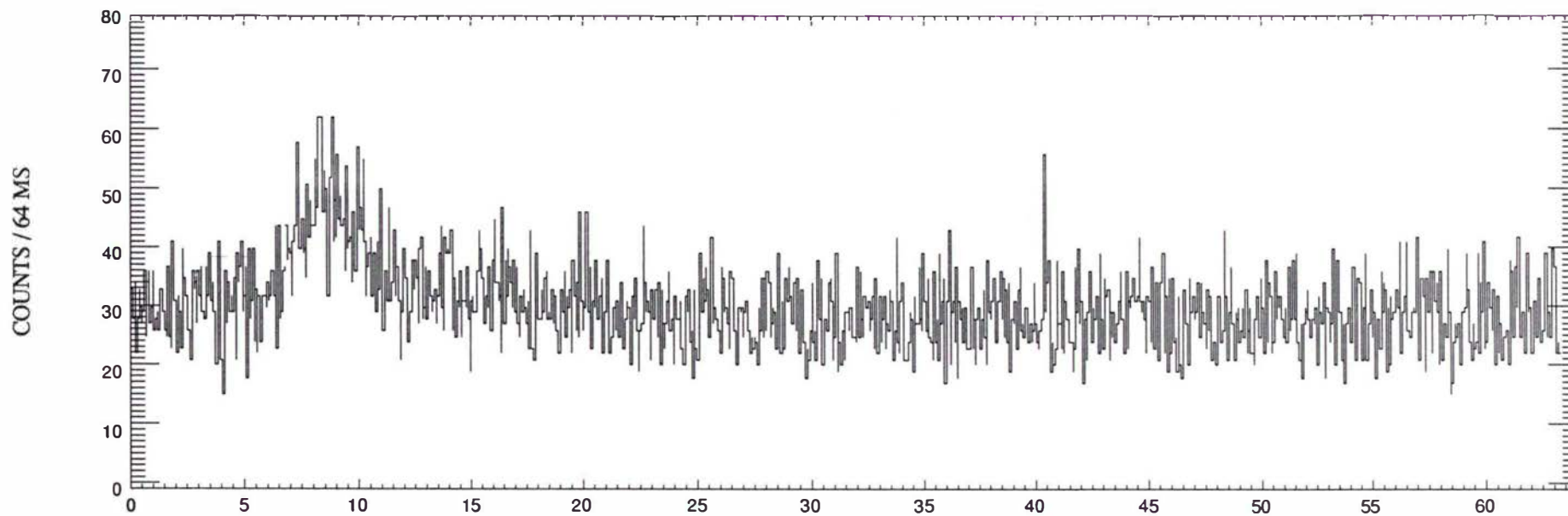


CALIBRATION DATA INCLUDED

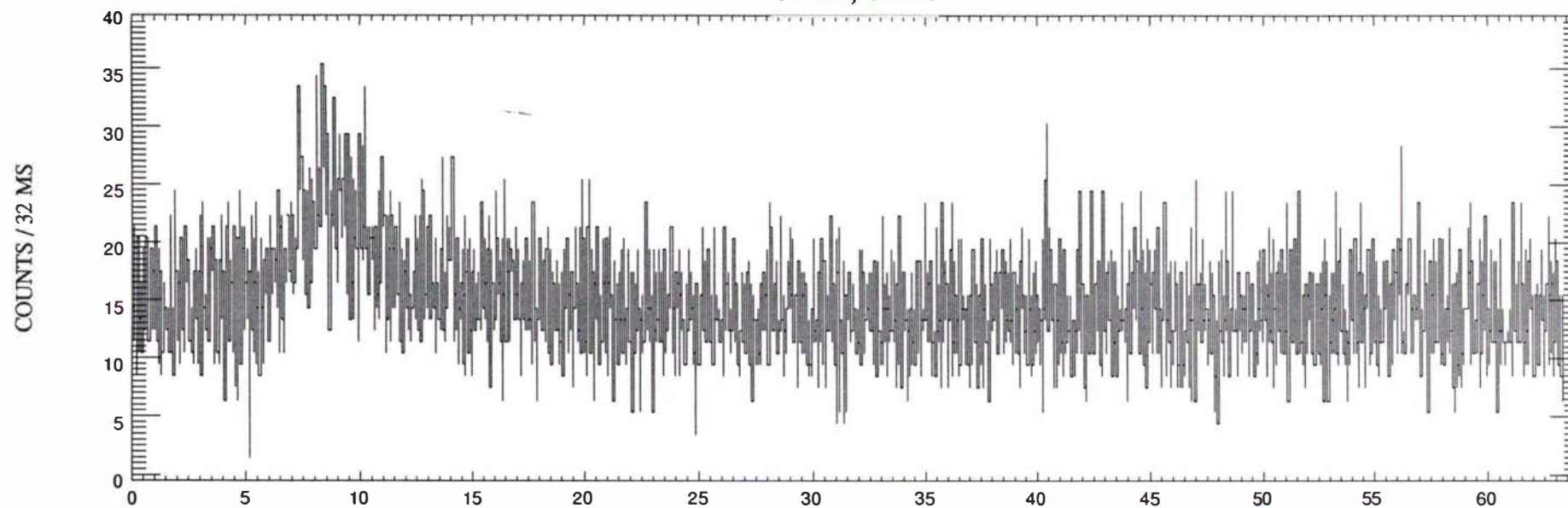


UNIV SAL TIME

Burst Counter 15 at UT=17.218090824551 h=61985.127 s 17:13:05.127



TIME, SECS



TIME, SECS

From MEEGAN@ssl.msfc.nasa.gov Wed Feb 3 11:06:02 1993
Date: Wed, 3 Feb 1993 13:05:38 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02158

TIME: TJD=9020 SECONDS=59608

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

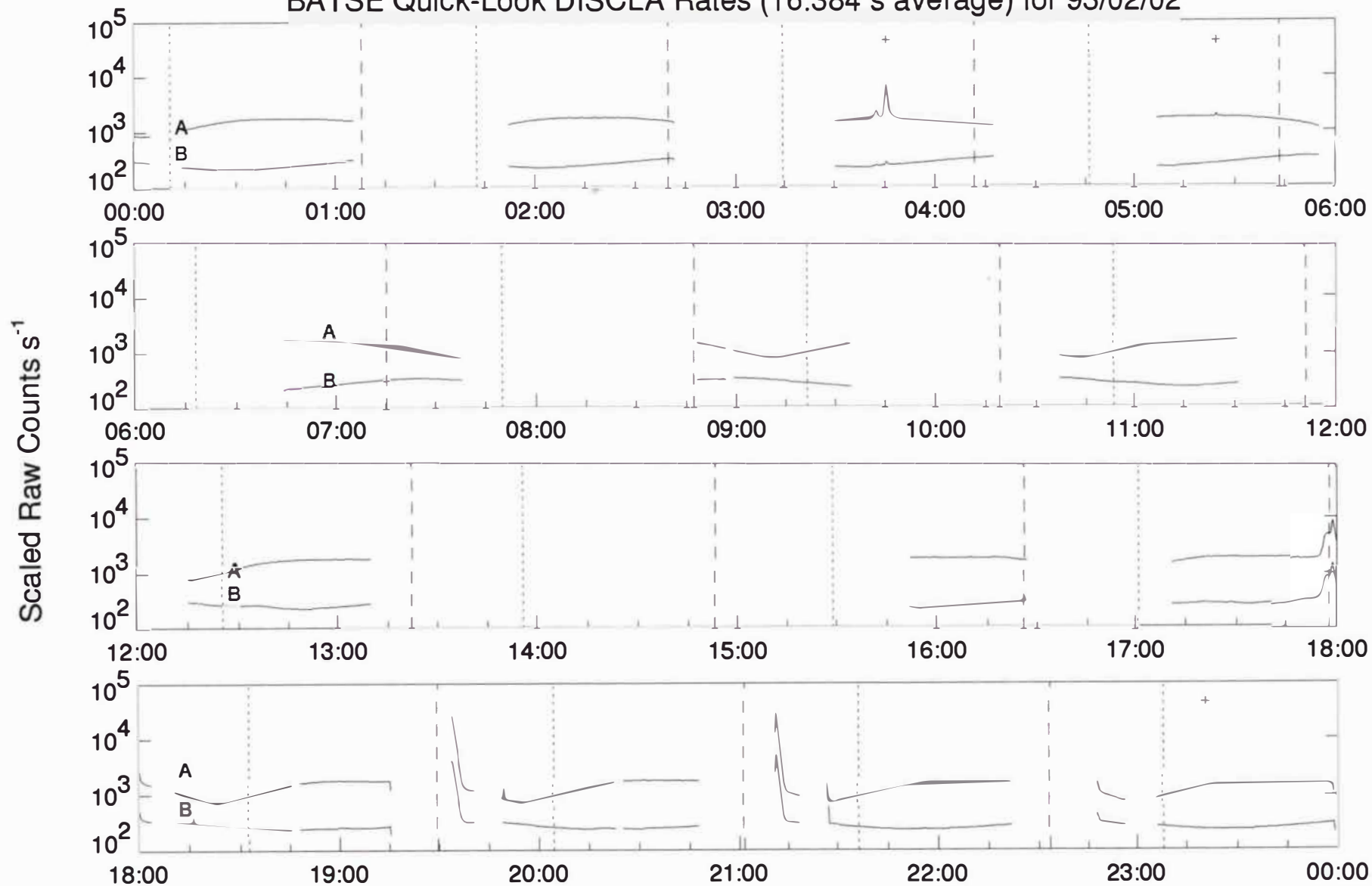
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON PRECIPITATION EVENT.

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

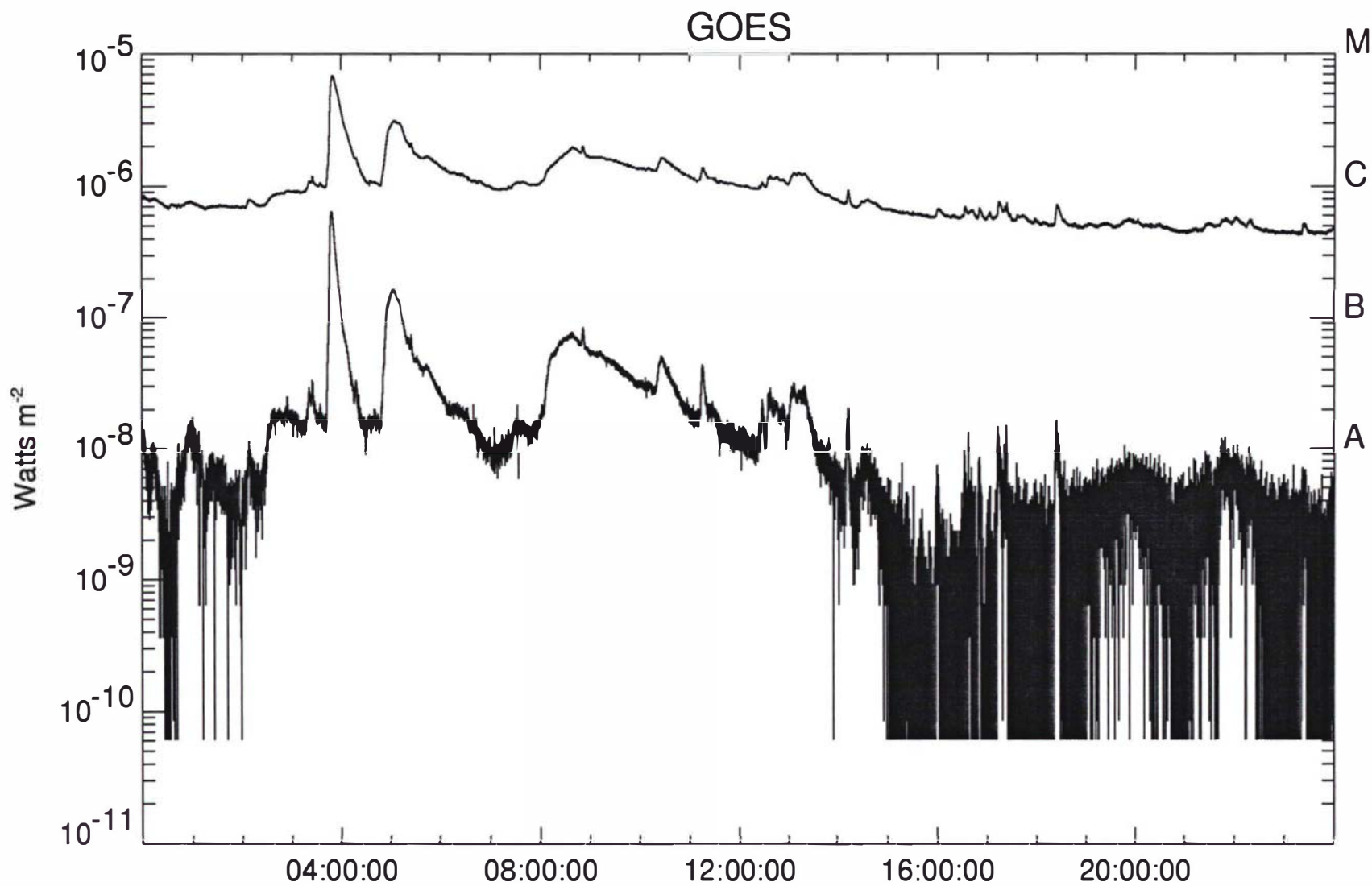
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/02



Current Time: 93/02/16, 1534 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



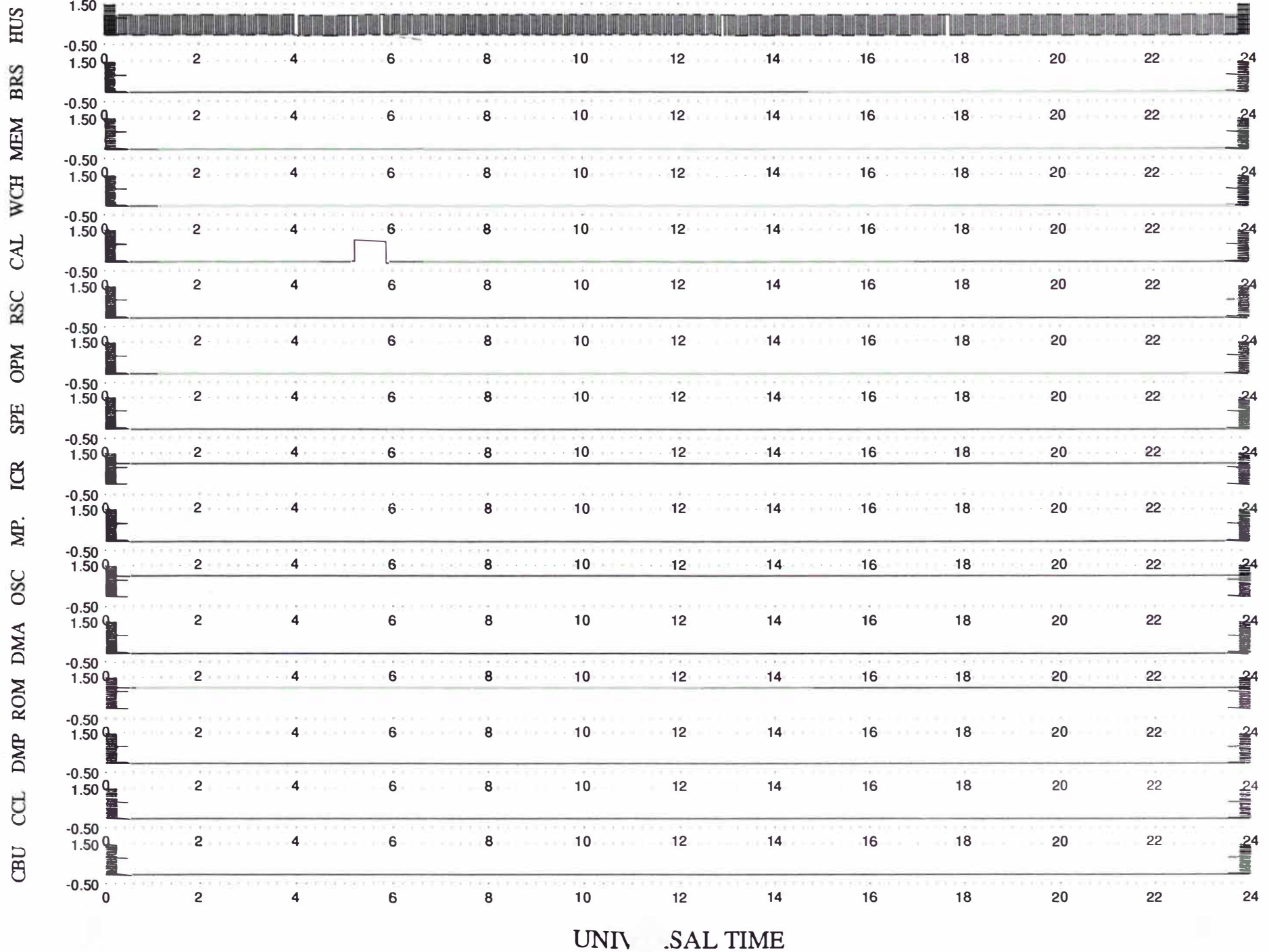
Data Start: 93/02/02, 0000:02

Plot created: 95/06/01, 1605

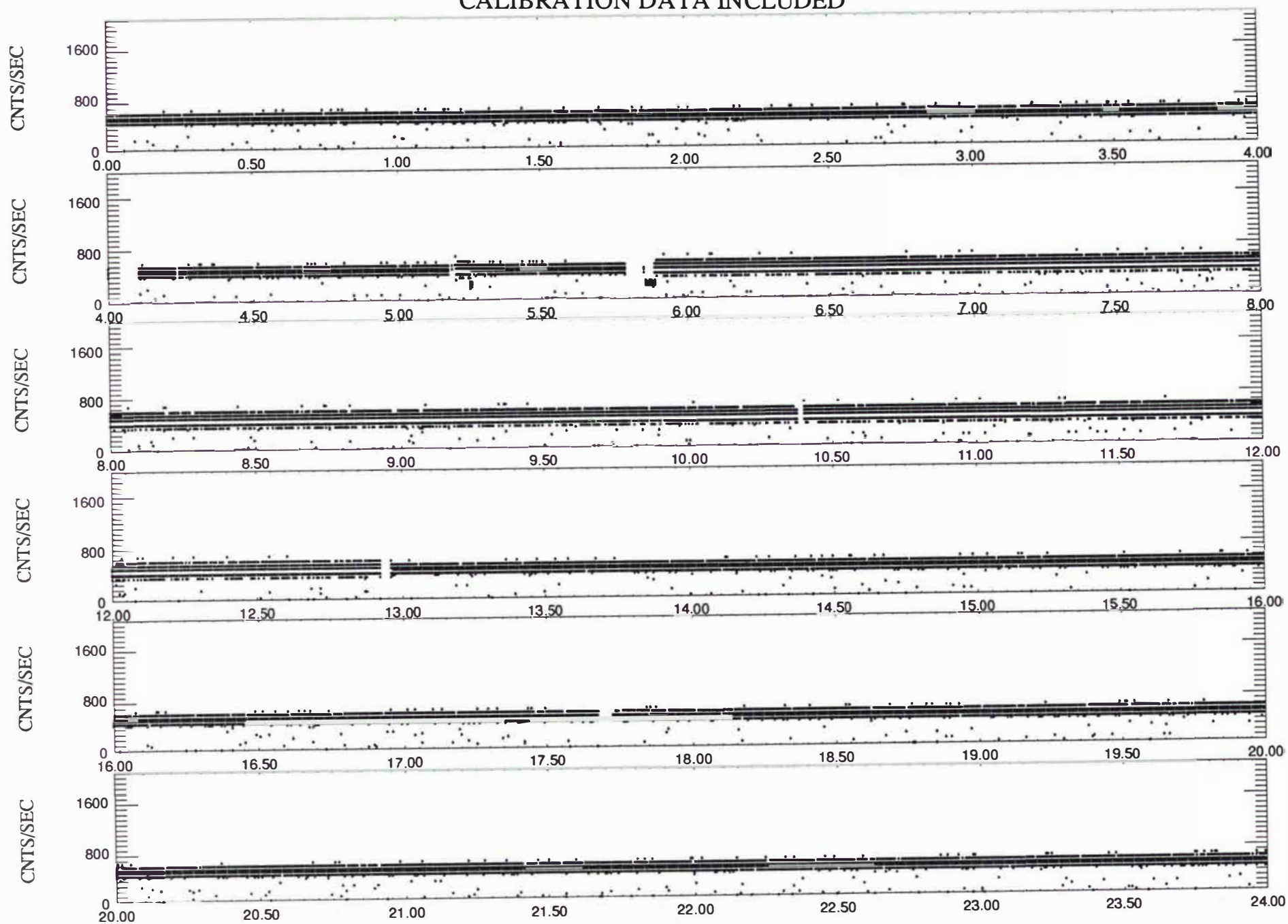
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

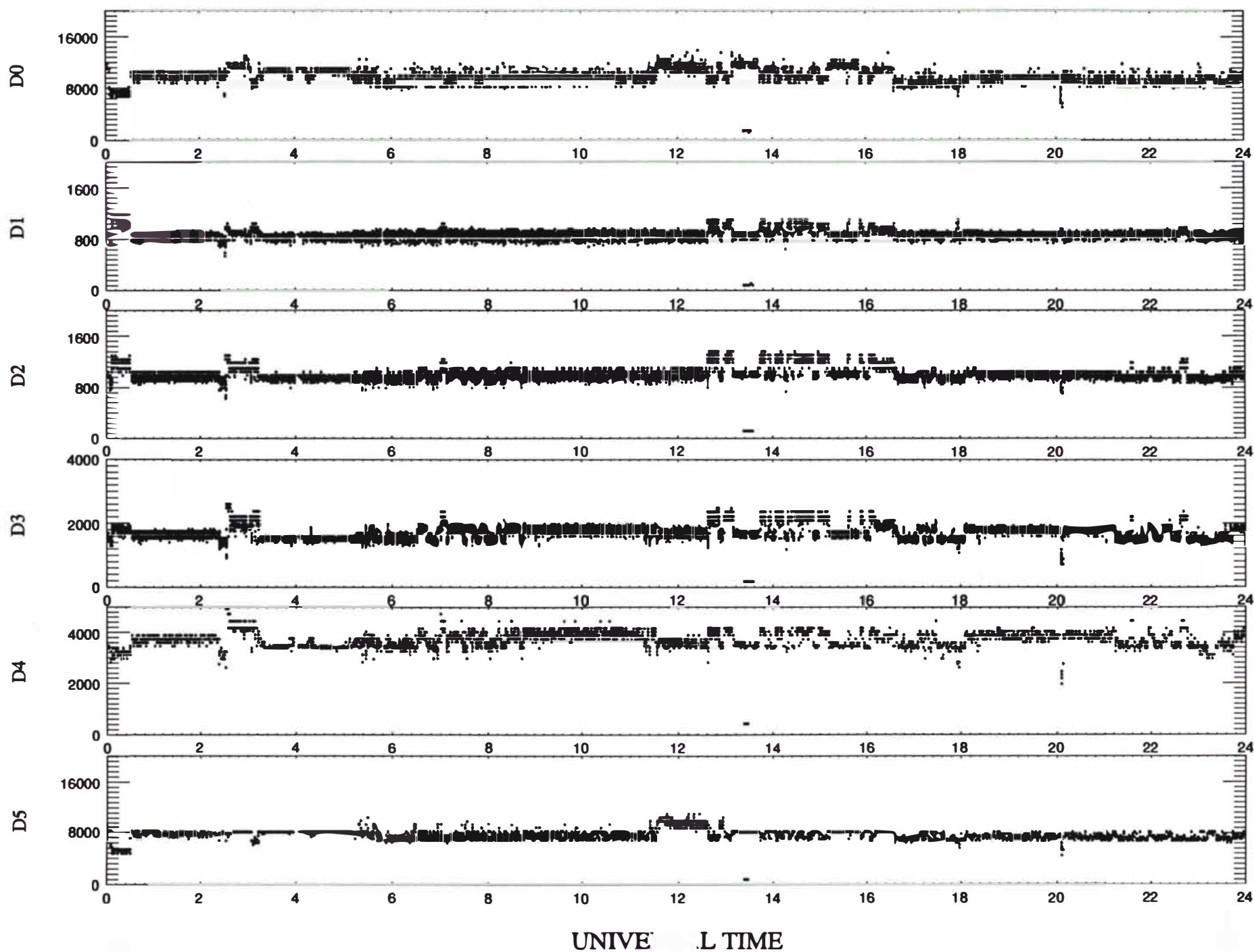
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV AL TIME



CATSEARCH PROGRAM

BATSE BURST # 2159
EVENT OF 1993 FEB 3 DAY OF YEAR= 34
EVENT CROSSING TIME AT BATSE : 3772. S. OR 01:02:51.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 270.500 80.900
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 3/ 2/ 93 IS:
RA= 160.319 DEC= -14.386 DIST= 4.193 AU
BATSE-ULYSSES DISTANCE = 627227920. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 72.65 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 623.85 SECS.
CROSSING TIME AT ULYSSES IS 4396. S. OR 01:13:15.6 +/- 406.19 SECONDS

No

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 4 10:07:34 1993
Date: Thu, 4 Feb 1993 12:07:12 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER
NO.: 2159
TIME: TJD=9021 SECONDS=03771
TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N
SIGNIFICANCE: SIGMA
INTENSITY: COUNTS/CM2
LOCATION: ZENITH=132.3 AZIMUTH=107.2 ERROR= DEGREES
COMMENTS:
SINGLE SPIKE BURST. DURATION APPROX. 128MS.
EVENT NOT VISIBLE ABOVE 300 KEV.

9 / 6 / 94

ULYSSES RT

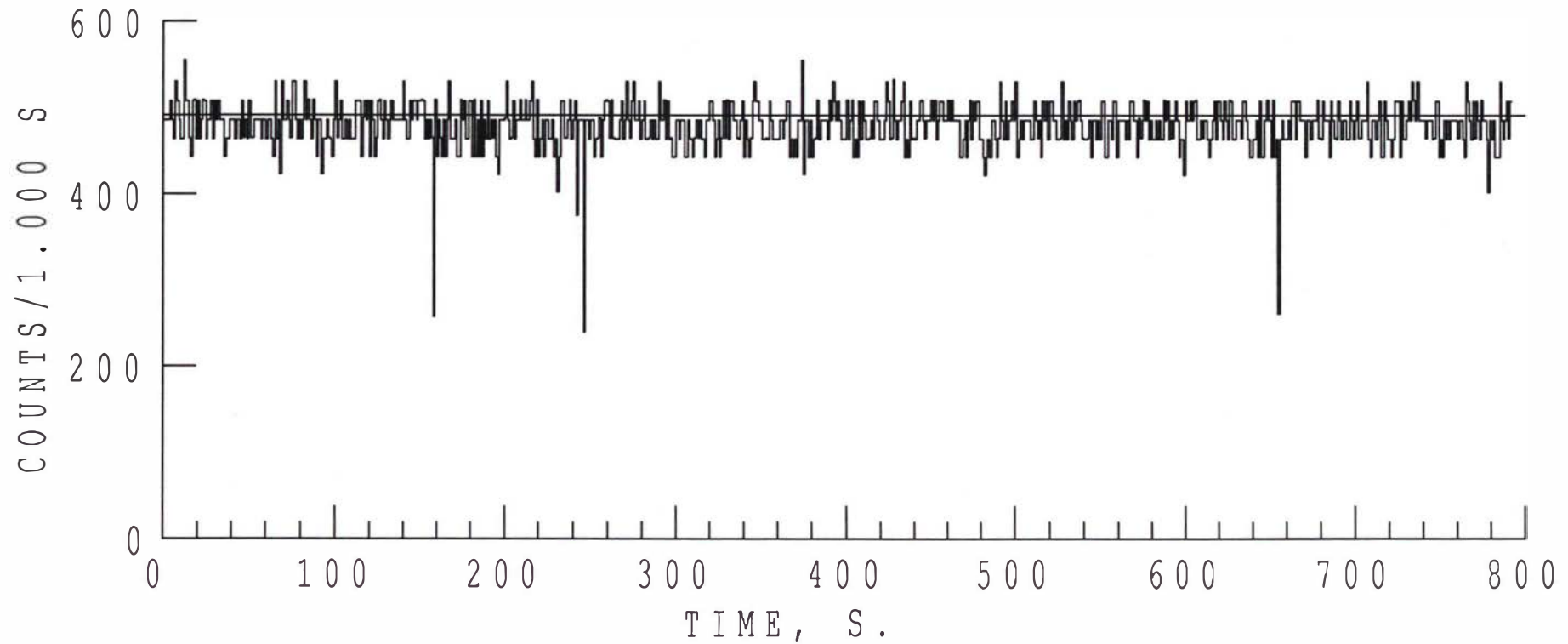
3 / 2 / 93 3996.181 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2160
EVENT OF 1993 FEB 3 DAY OF YEAR= 34
EVENT CROSSING TIME AT BATSE : 36934. S. OR 10:15:34.3
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 146.600 71.600
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 3/ 2/ 93 IS:
RA= 160.319 DEC= -14.386 DIST= 4.193 AU
BATSE-ULYSSES DISTANCE = 627227920. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 93.51 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -128.20 SECS.
CROSSING TIME AT ULYSSES IS 36806. S. OR 10:13:26.0 +/- 410.61 SECONDS

No

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 4 09:55:18 1993
Date: Thu, 4 Feb 1993 11:55:03 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02160

TIME: TJD=9021 SECONDS=36934

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=121.4 AZIMUTH=125.4 ERROR= DEGREES

COMMENTS:

DOUBLE PEAKED BURST OF TOTAL DURATION APPROX. 120 SEC.
NO EMISSION OBSERVED ABOVE 300 KEV.

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 4 09:57:01 1993
Date: Thu, 4 Feb 1993 11:56:54 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu", BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2160	930203	9021	36934	3650	131	+69

From root Thu Sep 2 10:59 1993
 Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
 id AA21882; Thu, 2 Sep 93 10:59:08
 Received: from space.mit.edu by sunspot.ssl.berkeley.edu (4.1/1.30.1)
 id AA16055; Thu, 2 Sep 93 11:02:18 PDT
 Message-Id: <9309021802.AA16055@sunspot.ssl.berkeley.edu>
 Received: from kiir.mit.edu by space.mit.edu AA17329; Thu, 2 Sep 93 14:03:20 EDT
 Received: by kiir AA00376; Thu, 2 Sep 93 14:03:07 -0500
 Date: Thu, 2 Sep 93 14:03:07 -0500
 From: Hans Krimm <hansk@space.mit.edu>
 To: khurley@space6.ssl.berkeley.edu
 Subject: IPN burst localizations
 Cc: grr@space.mit.edu, hansk@space.mit.edu, roland@space.mit.edu
 Status: R

Dear Professor Hurley:

I will be presenting a paper at the Huntsville Gamma Ray Burst Workshop entitled "Searches for Optical Counterparts of BATSE Gamma-Ray Bursts." The searches were made by comparing BATSE GRB observations with the observations of the Explosive Transient Camera (ETC), a wide-field CCD camera system capable of detecting short (1-10 s) celestial optical flashes as faint as $m = 9$ over a field-of-view of 0.75 steradians between -15 degs and +45 degs declination. We have access to the published BATSE GRB catalog and, as guest investigators, to catalog supplements through May 1993.

It would be very helpful to supplement this search with burst localization information from the Third Interplanetary Network. There are so far been four BATSE GRBs which are temporally coincident and spatially consistent with ETC observations, designated here by their BATSE catalog numbers:

GRB 910616	38364.809 sec UT	RA = 301.3	dec = 4.9	NO - solar prot
GRB 910702B	17195.660 sec UT	RA = 256.5	dec = 27.7	NO " "
GRB 921108	32977 sec UT	RA = 116	dec = 41	NO
GRB 930203	40948 sec UT	RA = 218.4	dec = 2.6	NO 220 8?

None of these BATSE bursts showed up in the list of 18 IPN localizations in your paper from the St. Louis conference; I was wondering if any of these bursts were among the 30 events mentioned in that paper for which annular segment fields were determined or if either of the latter two events have since been localized with the CGRO/Ulysses/MO network.

Furthermore, I would be interested in a list of bursts (times and rough positions) which may have been detected by Ulysses, PVO or MO during 1991-1993, but which were not seen by BATSE (perhaps included in the "The Ulysses Supplement to the First BATSE Catalog of Gamma-Ray Bursts" which you will be presenting at the conference).

I thank you for your assistance with this work.

Sincerely,

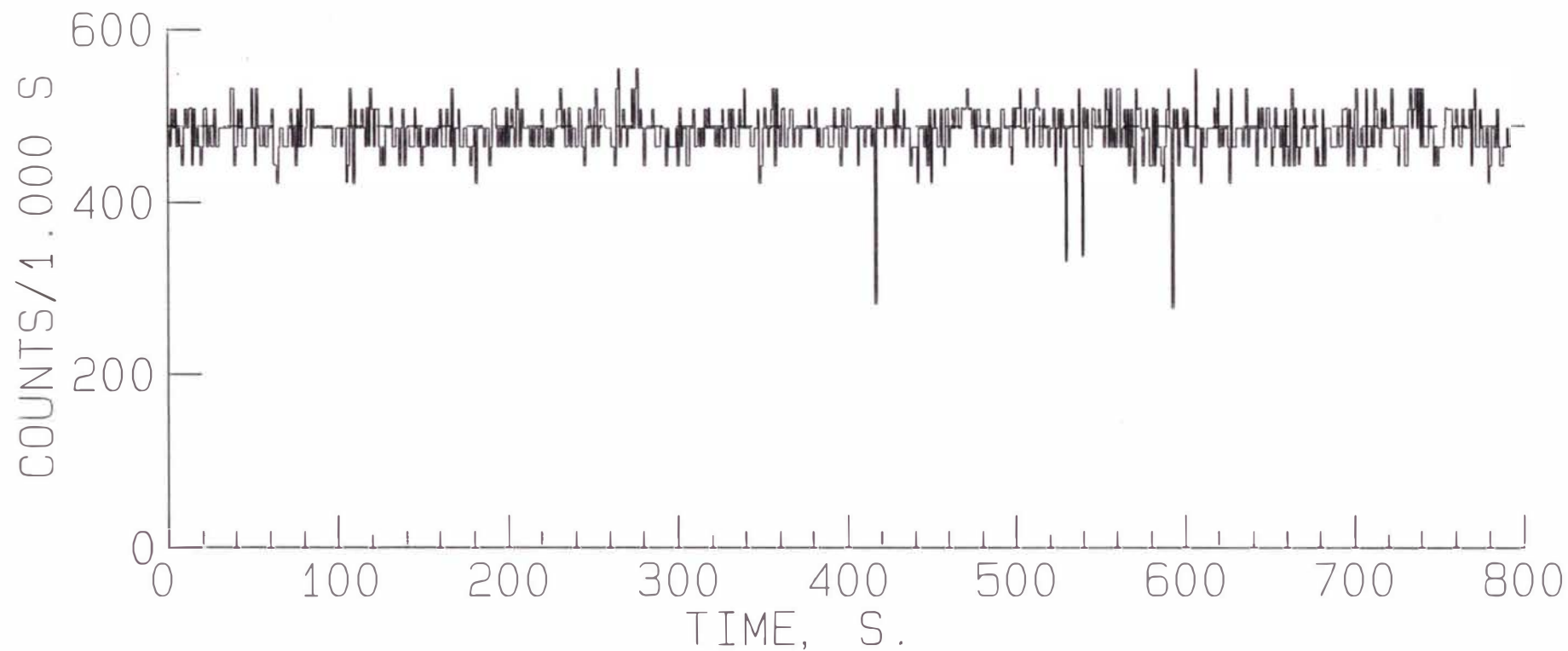
Hans

[Dr. Hans Krimm
 Mass. Institute of Technology
 617-253-7396]

13 / 2 / 93

ULYSSES RT
3 / 2 / 93 36396.191 s
.500 S INTERVALS REGROUPED BY 2
0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2161
EVENT OF 1993 FEB 3 DAY OF YEAR= 34
EVENT CROSSING TIME AT BATSE : 40949. S. OR 11:22:28.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 215.500 -27.500
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 3/ 2/ 93 IS:
RA= 160.319 DEC= -14.386 DIST= 4.193 AU
BATSE-ULYSSES DISTANCE = 627227920. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=127.25 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1266.44 SECS.
CROSSING TIME AT ULYSSES IS 39682. S. OR 11:01:22.3 +/- 319.90 SECONDS

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 4 10:20:12 1993
Date: Thu, 4 Feb 1993 12:19:58 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02161

TIME: TJD=9021 SECONDS=40948

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=53.3 AZIMUTH=75.7 ERROR= DEGREES

COMMENTS:

SINGLE SPIKE BURST. DURATION APPROX. 0.4SEC.
POSSIBLE SLIGHT EMISSION ABOVE 300 KEV.

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 4 10:18:27 1993
Date: Thu, 4 Feb 1993 12:18:24 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu", BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2161	930203	9021	40948	8100	220	+08

$\hookrightarrow \times 0.4s = 3200 c \Rightarrow \sim 32 c \text{ for Ulysses}$

CATSEARCH PROGRAM

BATSE BURST # 2161
EVENT OF 1993 FEB 3 DAY OF YEAR= 34
EVENT CROSSING TIME AT BATSE : 40949. S. OR 11:22:28.8
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 227.430 2.500
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 3/ 2/ 93 IS:
RA= 160.319 DEC= -14.386 DIST= 4.193 AU
BATSE-ULYSSES DISTANCE = 627238392. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=111.44 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -764.83 SECS.
CROSSING TIME AT ULYSSES IS 40184. S. OR 11:09:43.9 +/- 376.49 SECONDS

9 / 11 / 95

ULYSSES RT

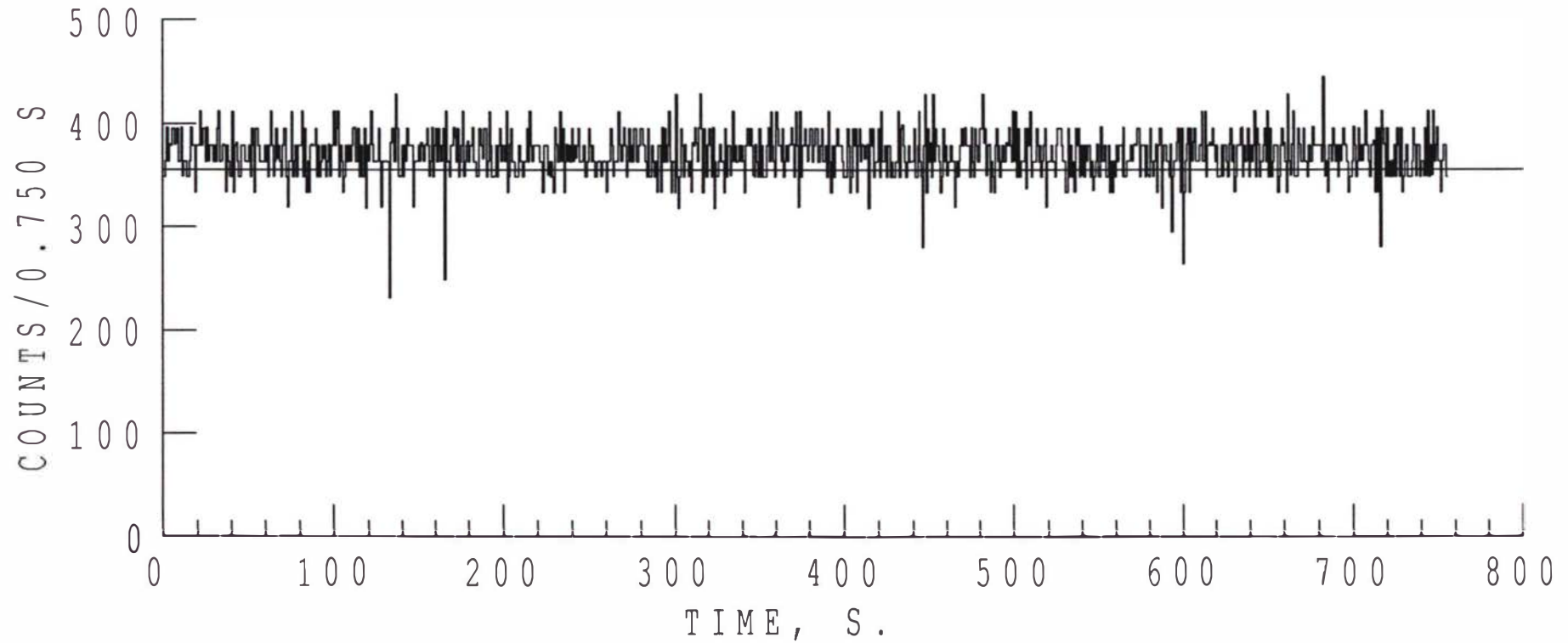
3 / 2 / 93 39816.246 s

0.250 S INTERVALS REGROUPED BY 3

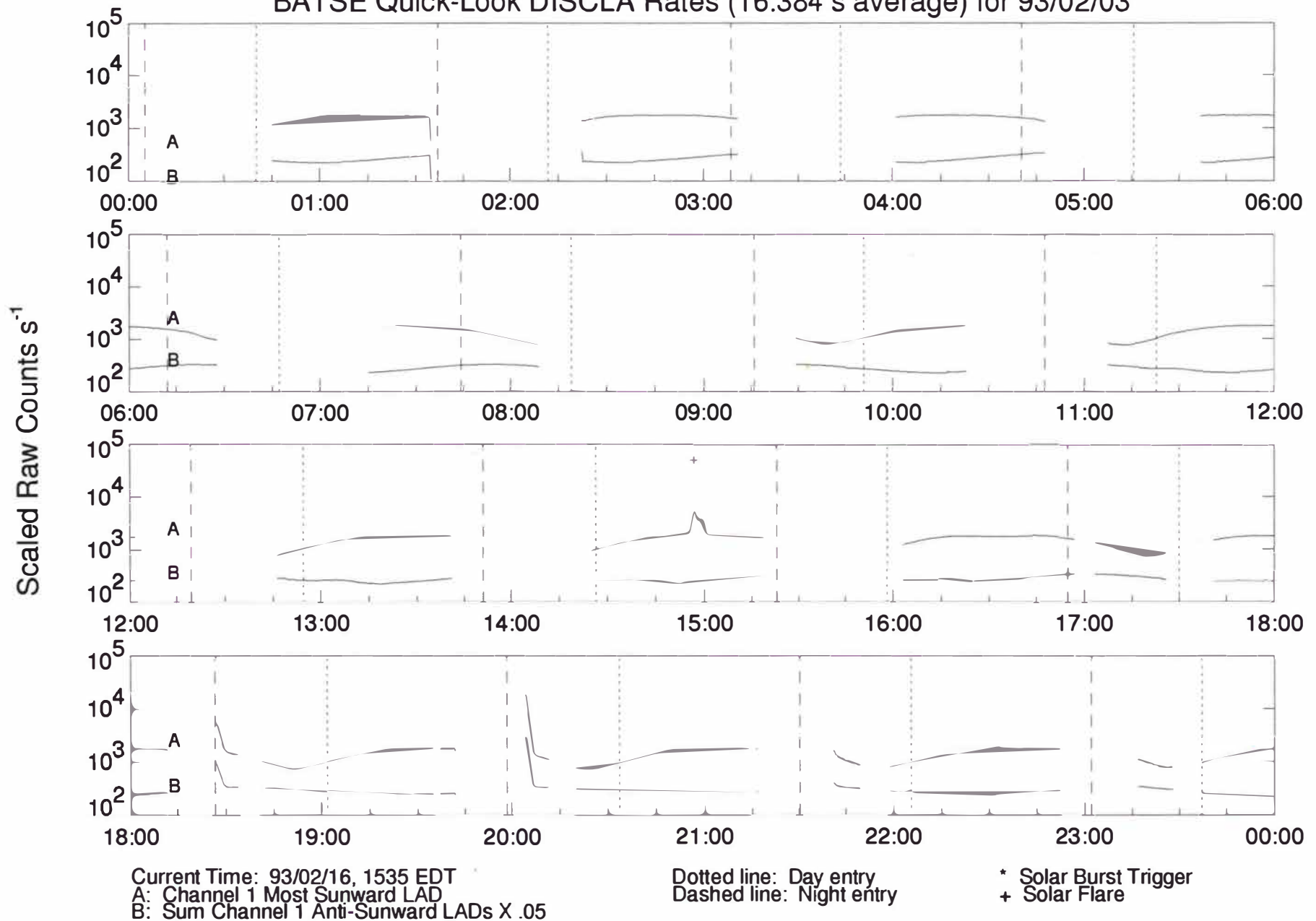
0 - 0 keV

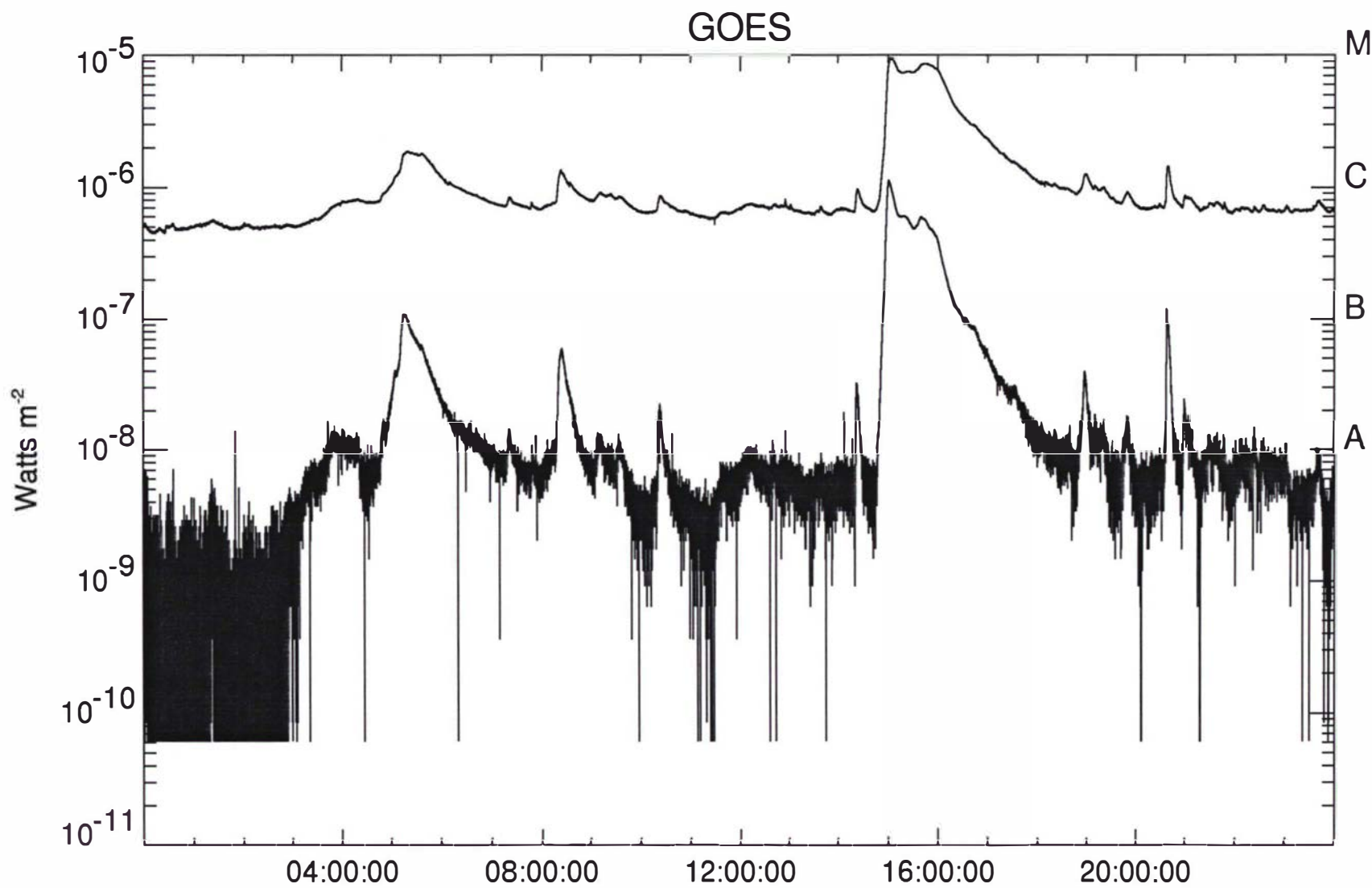
N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/03





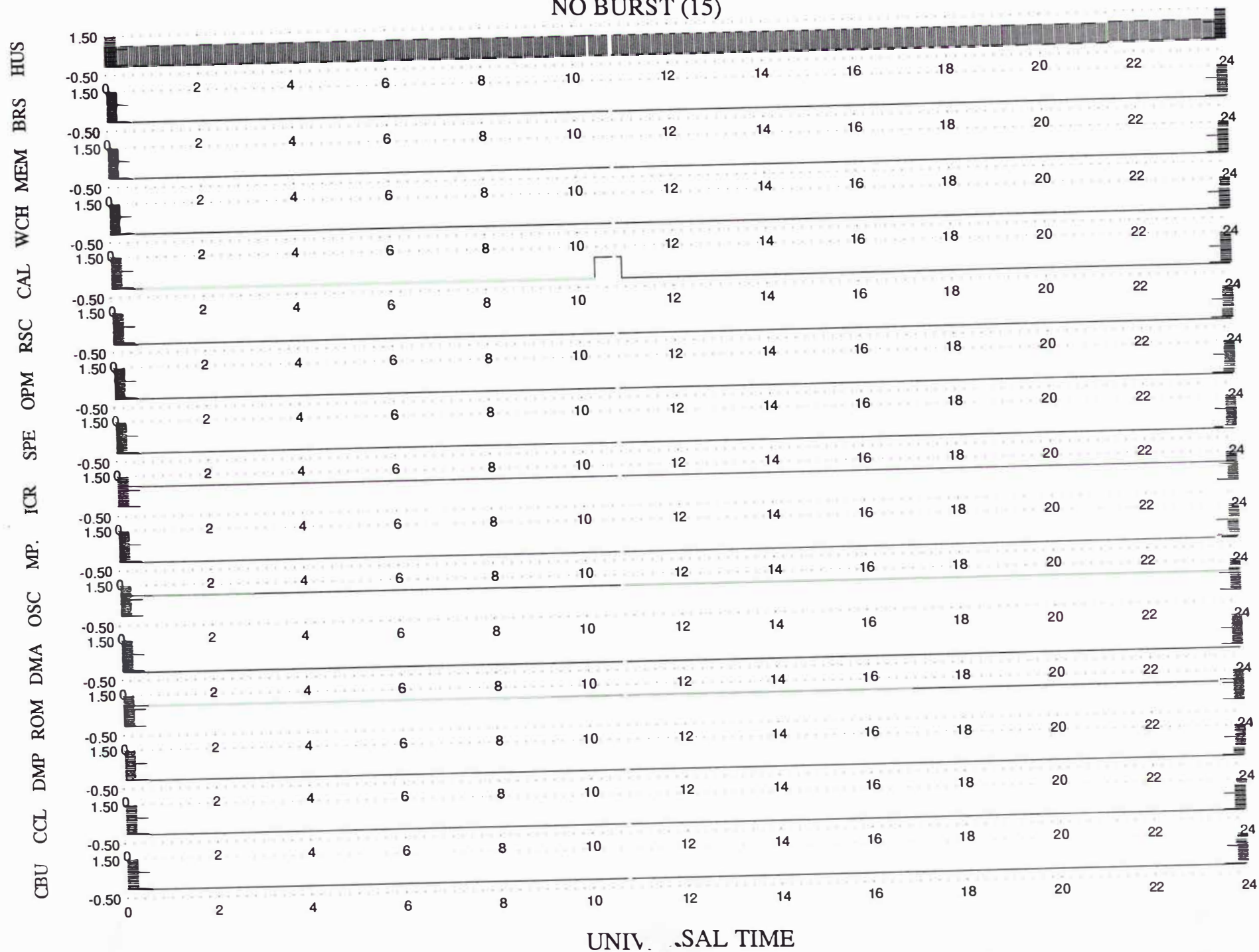
Data Start: 93/02/03, 0000:01

Plot created: 95/06/01, 1608

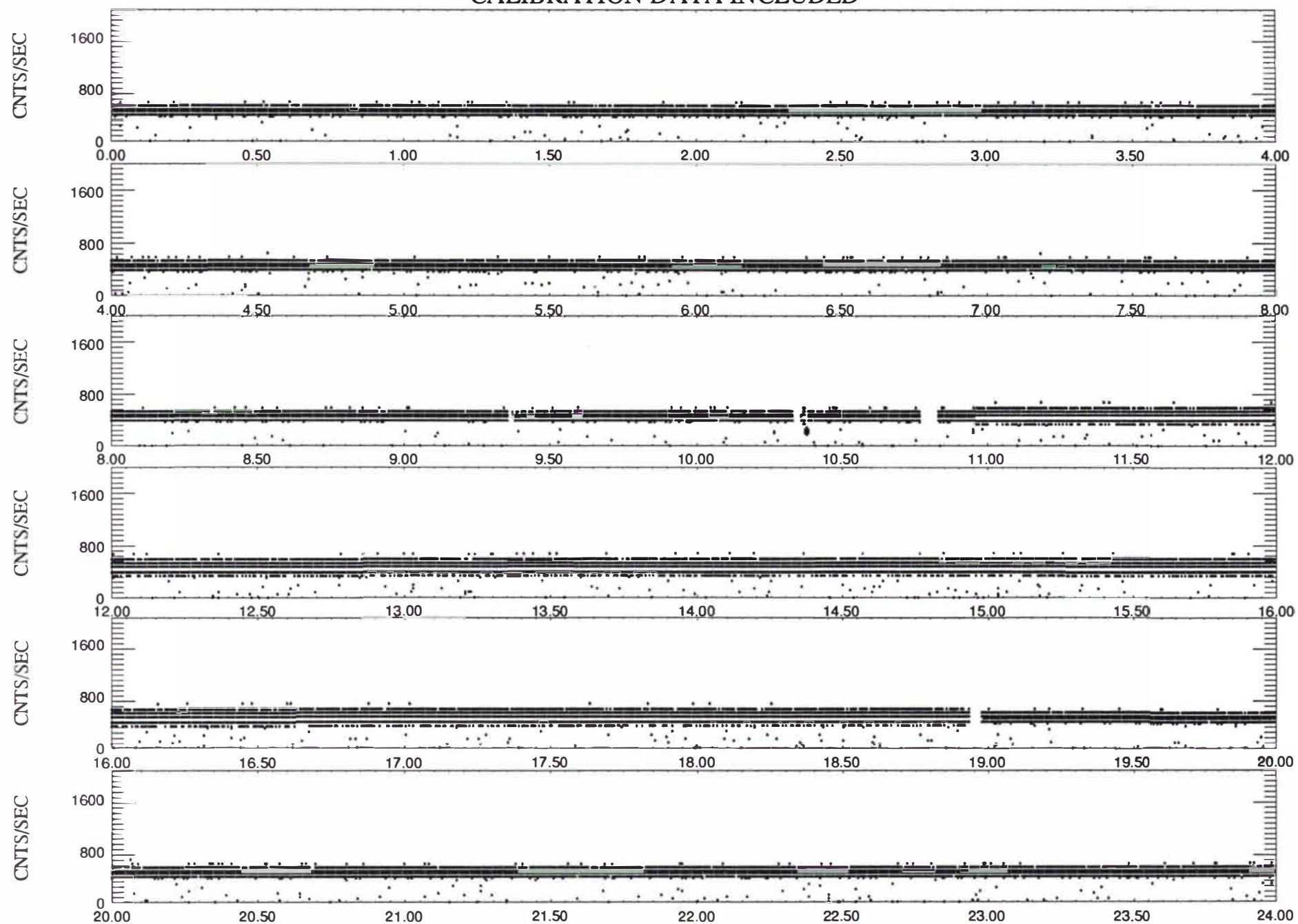
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

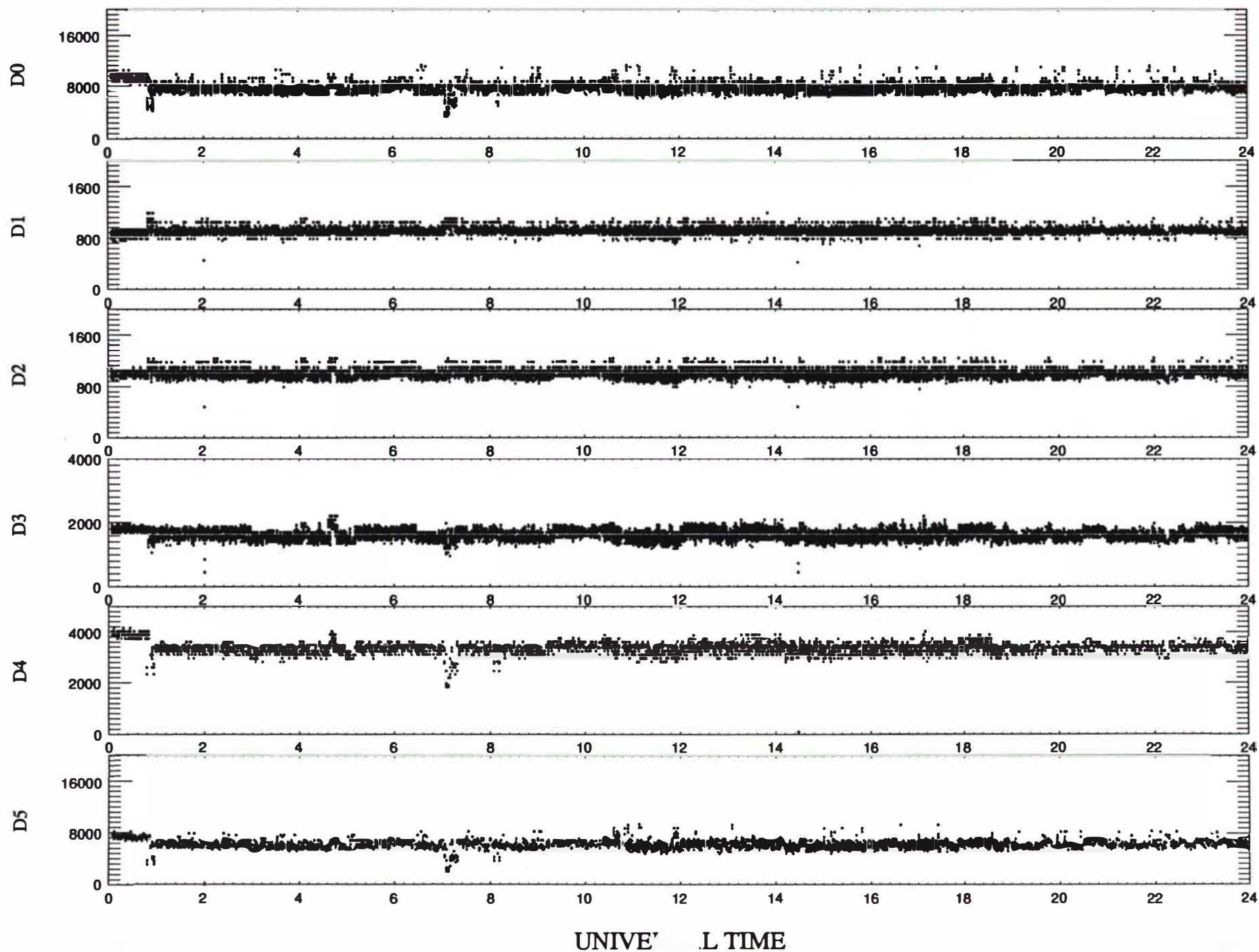
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



CATSEARCH PROGRAM

BATSE BURST # 2162
EVENT OF 1993 FEB 4 DAY OF YEAR= 35
EVENT CROSSING TIME AT BATSE : 45391. S. OR 12:36:31.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 120.100 62.000
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 4/ 2/ 93 IS:
RA= 160.101 DEC= -14.421 DIST= 4.182 AU
BATSE-ULYSSES DISTANCE = 625597280. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 97.38 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -267.95 SECS.
CROSSING TIME AT ULYSSES IS 45123. S. OR 12:32:03.0 +/- 405.23 SECONDS

00

From MEEGAN@ssl.msfc.nasa.gov Tue Feb 9 14:56:01 1993
Date: Tue, 9 Feb 1993 16:55:49 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02162

TIME: TJD=9022 SECONDS=45391

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=121. AZIMUTH=135. ERROR= DEGREES

COMMENTS:

VERY LITTLE DATA AVAILABLE ON THIS ONE. MAX RATES SHOW NO REASON TO
CONSIDER IT ANYTHING BUT A BURST.

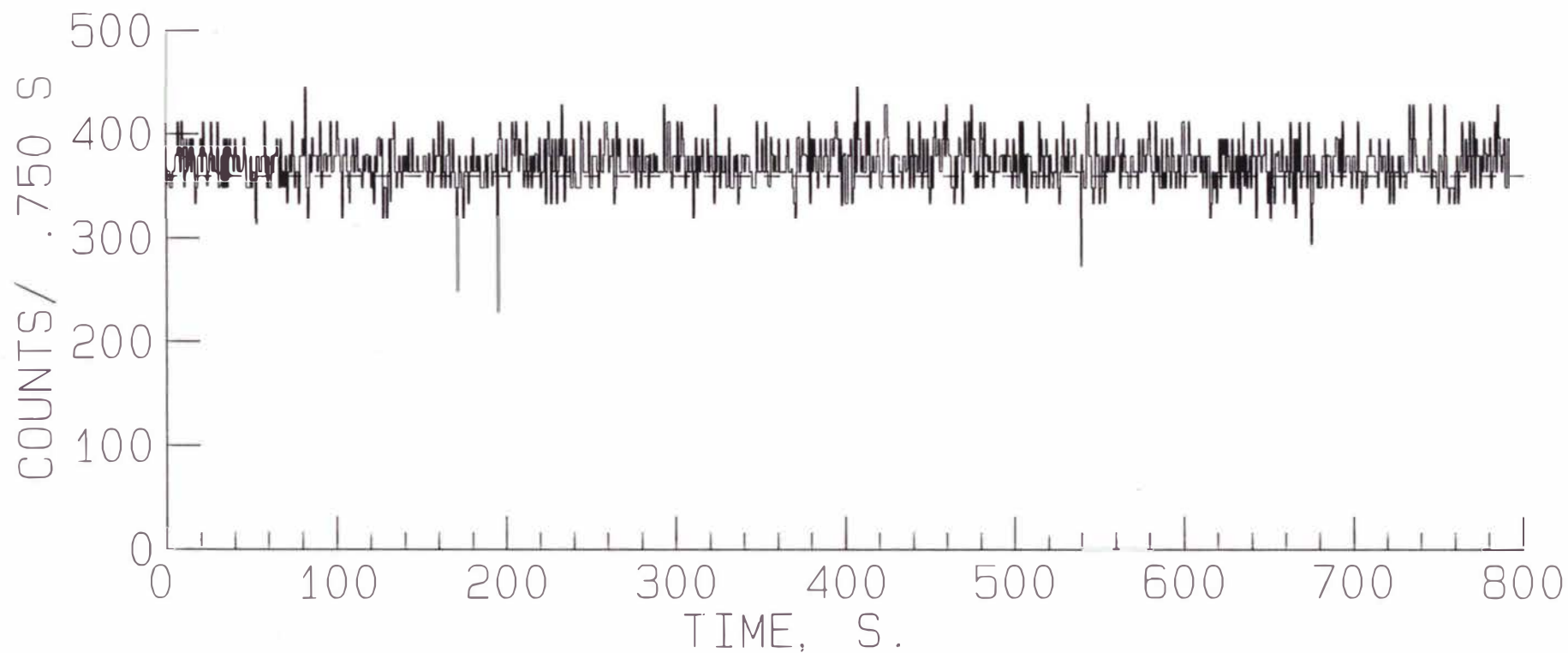
From MEEGAN@ssl.msfc.nasa.gov Tue Feb 9 14:57:32 1993
Date: Tue, 9 Feb 1993 16:57:40 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2162	930204	9022	45391	1100	120	+62

13 / 2 / 93

ULYSSES RT
4 / 2 / 93 44712.172 s
.250 S INTERVALS REGROUPED BY 3
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2163
EVENT OF 1993 FEB 4 DAY OF YEAR= 35
EVENT CROSSING TIME AT BATSE : 81170. S. OR 22:32:49.5
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 150.200 -49.600
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 4/ 2/ 93 IS:
RA= 160.101 DEC= -14.421 DIST= 4.182 AU
BATSE-ULYSSES DISTANCE = 625597280. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=143.90 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1686.12 SECS.
CROSSING TIME AT ULYSSES IS 79483. S. OR 22:04:43.4 +/- 237.85 SECONDS

No

From BHAT@ssl.msfc.nasa.gov Fri Feb 5 14:08:07 1993
Date: Fri, 5 Feb 1993 16:07:44 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1377

BATSE BURST TRIGGER

NO.: 2163

TIME: TJD=9022 SECONDS=81169

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=039.2 AZIMUTH=227.8 ERROR= DEGREES

COMMENTS:

THIS IS A SHORT WEAK BURST LASTING FOR ABOUT 1 SEC. THE TIME HISTORY CONSISTS
OF A SINGLE FORKED PULSE WITHOUT FINER STRUCTURE. SIGNAL IS marginally SEEN
ABOVE 300 KEV. IT HAS RATHER FAST RISE AND DECAY TIMES.

From BHAT@ssl.msfc.nasa.gov Fri Feb 5 14:10:09 1993
Date: Fri, 5 Feb 1993 16:10:09 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

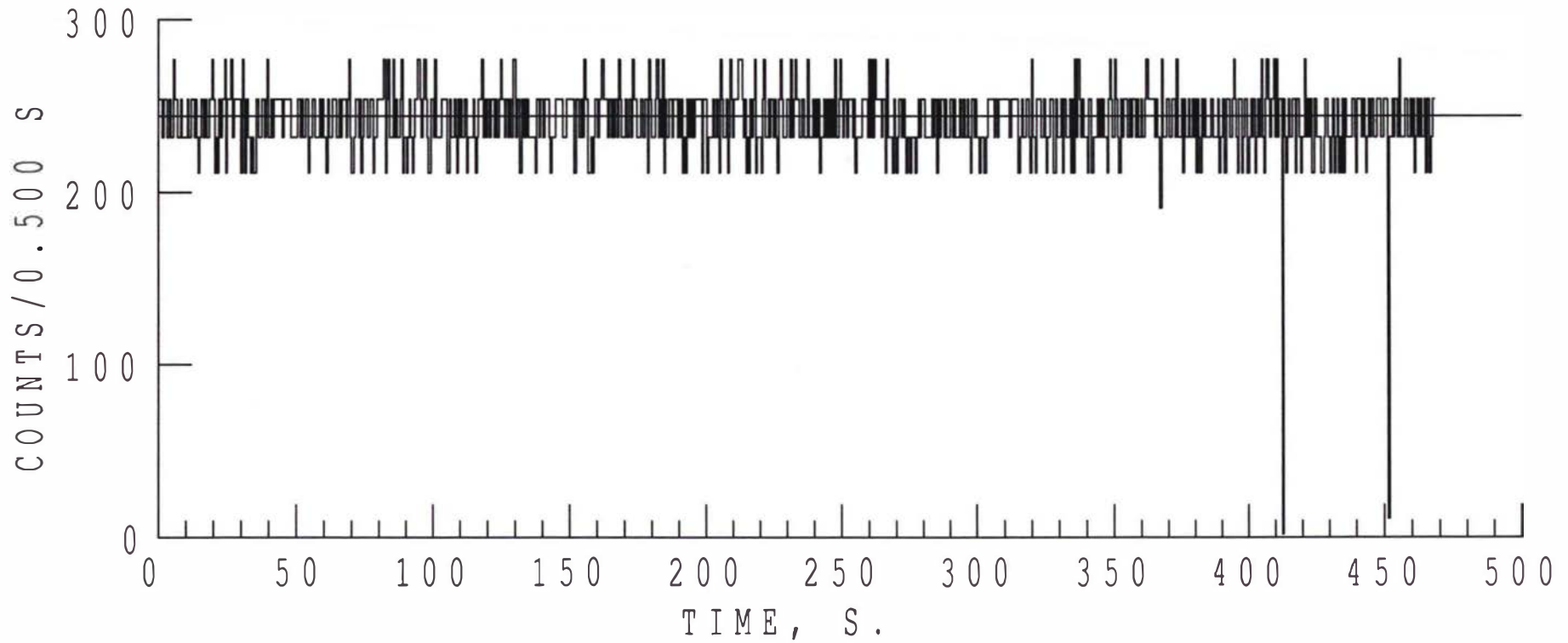
BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2163	930204	9022	81169	3500	141	-52

9 / 6 / 94

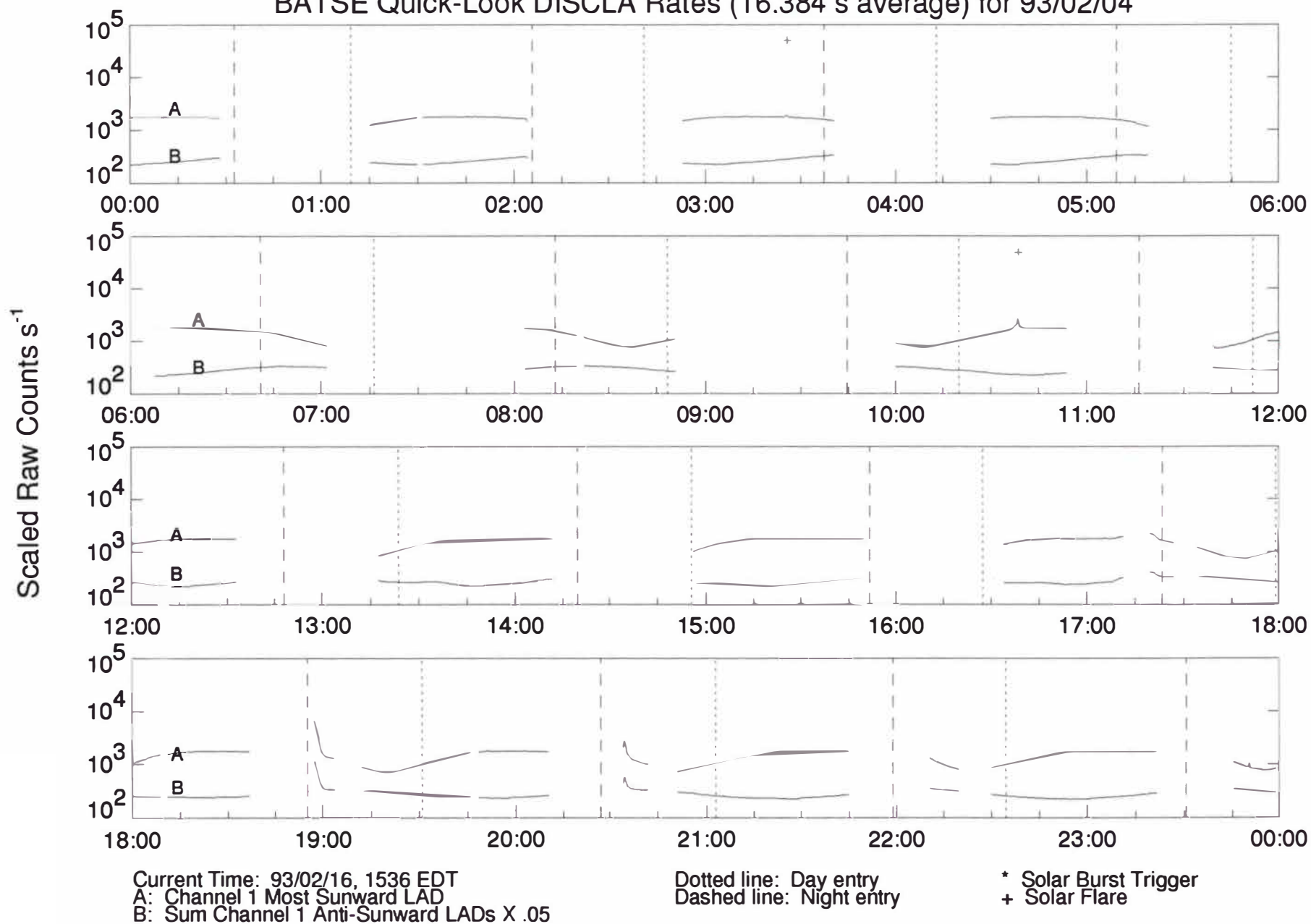
ULYSSES RT
4 / 2 / 93 79236.211 s
0 - 0 keV

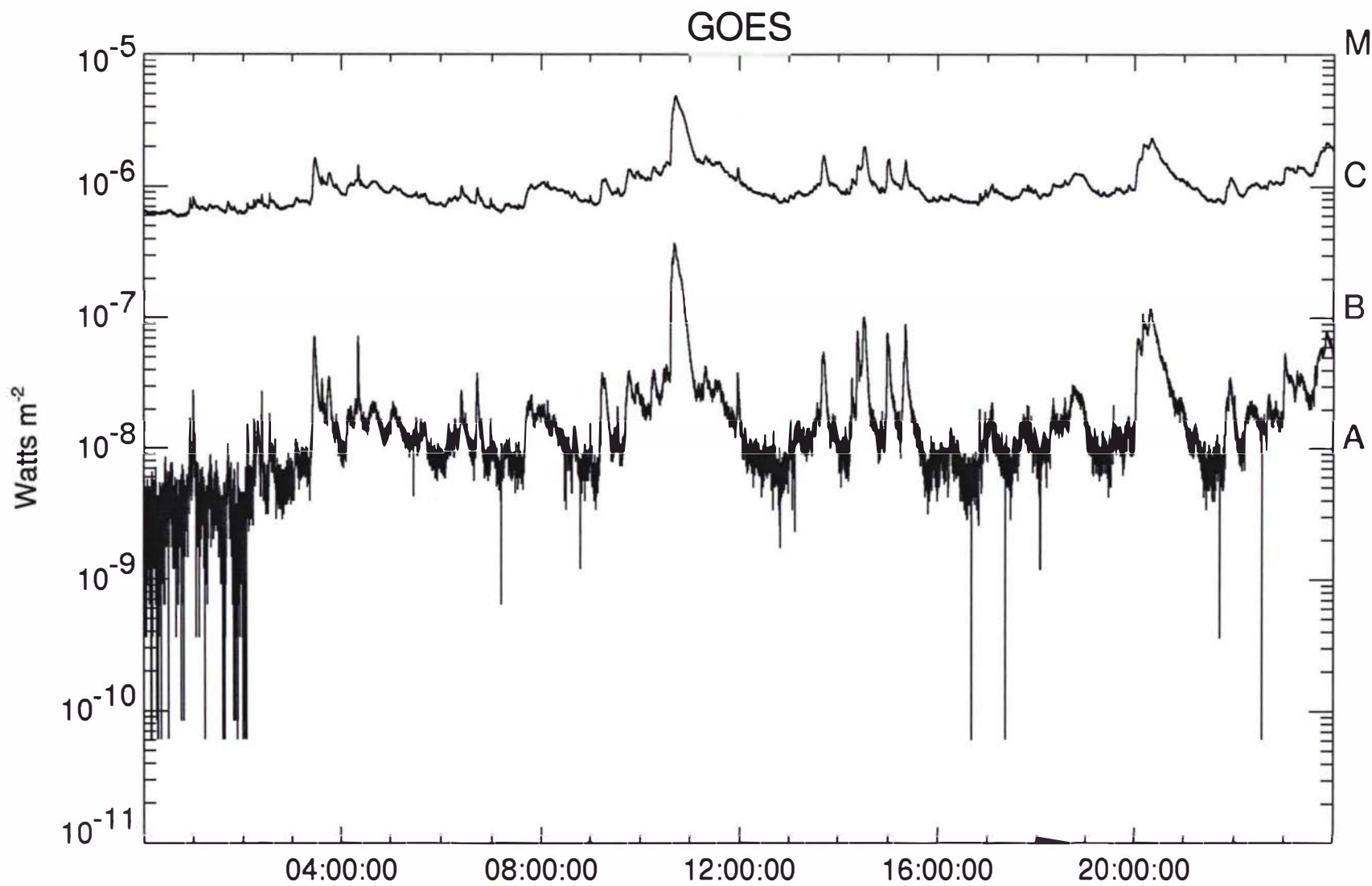
N= 10 H= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/04





Data Start: 93/02/04, 0000:01

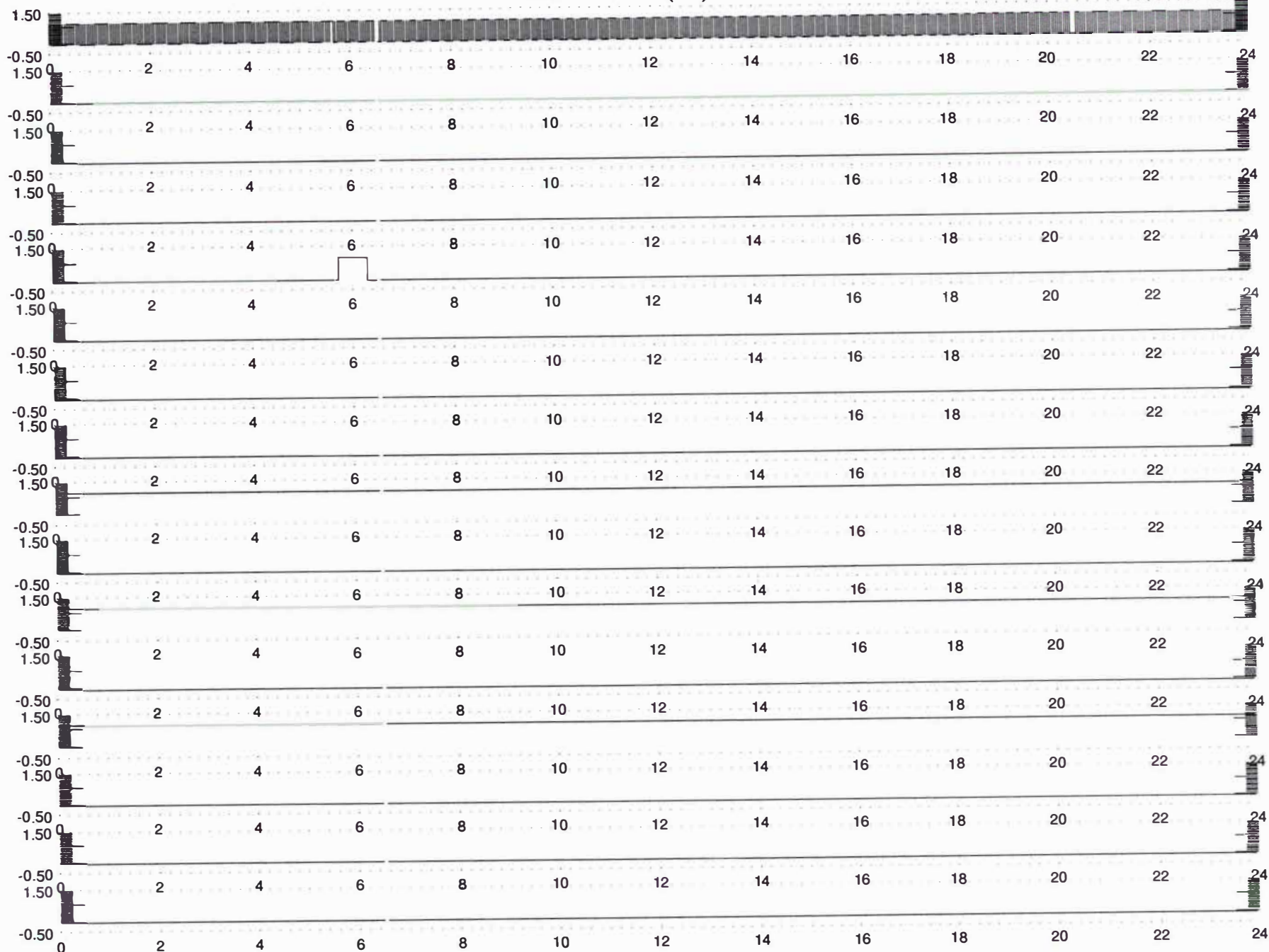
Plot created: 95/06/01, 1612

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

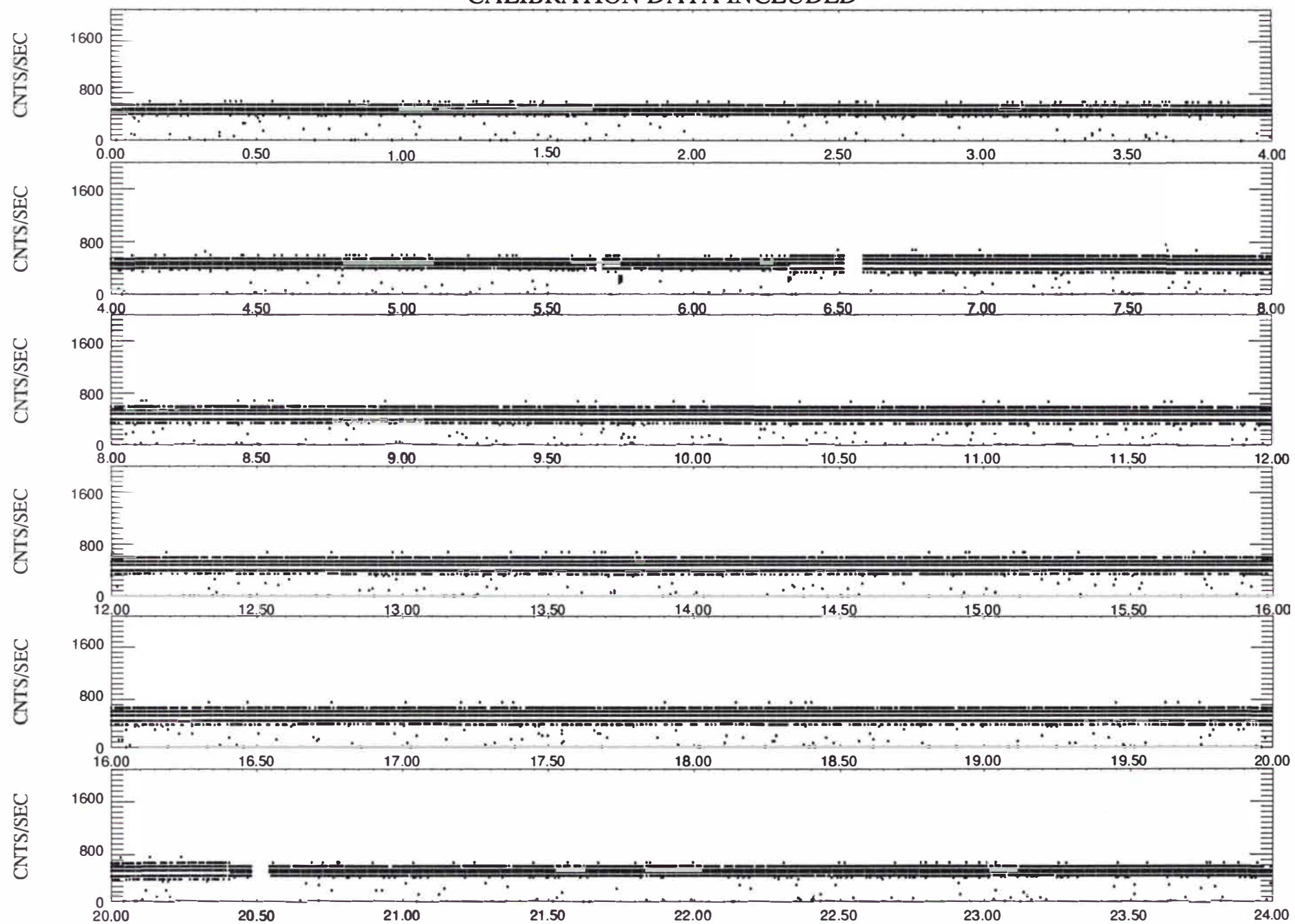
NO BURST (15)

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

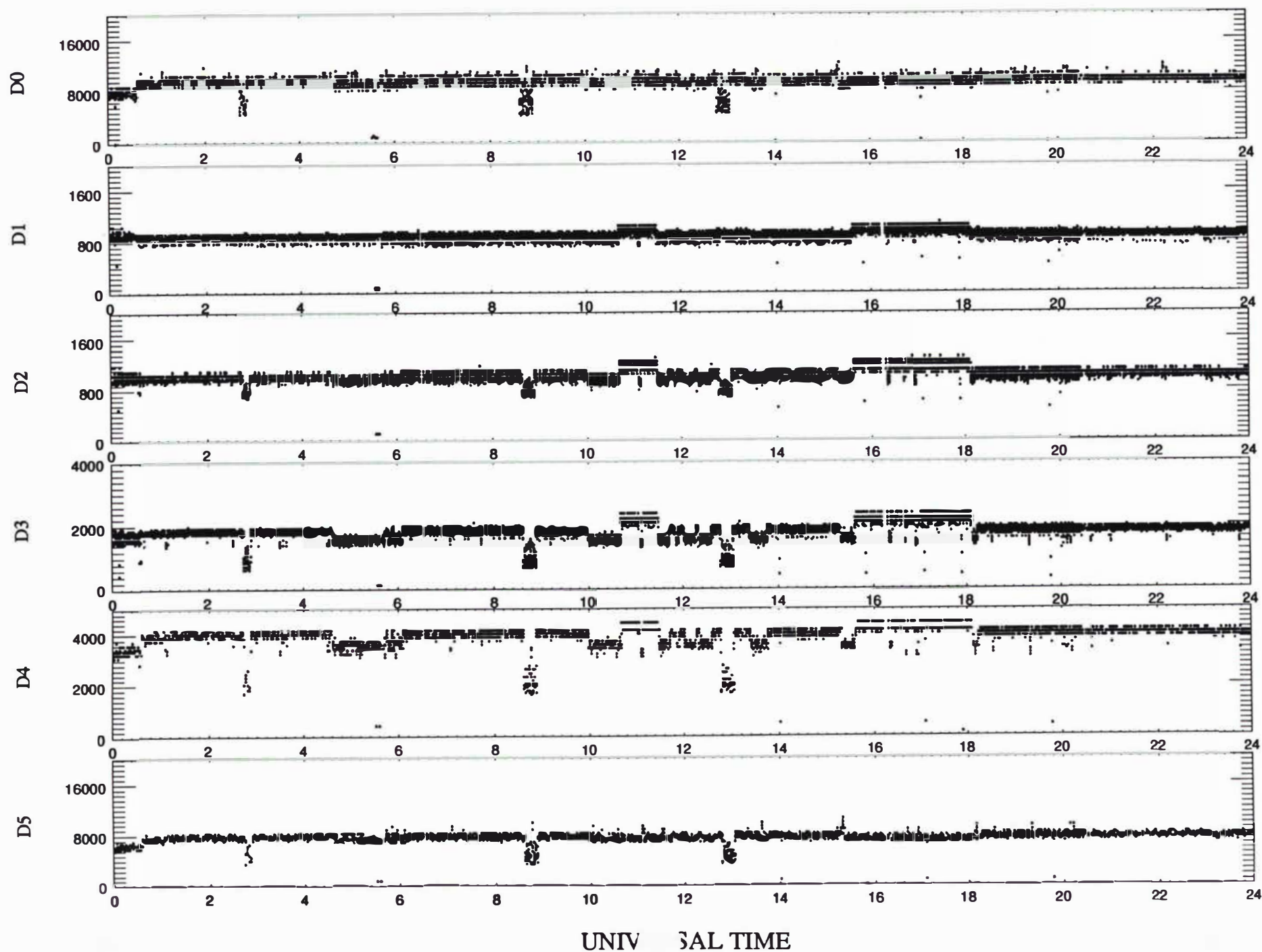


UNIV SAL TIME

CALIBRATION DATA INCLUDED



UNIV UNIV TIME



From RUBIN@ssl.msfc.nasa.gov Sun Feb 7 16:04:57 1993
Date: Sun, 7 Feb 1993 18:04:48 -0600 (CST)
From: RUBIN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02164

TIME: TJD=9023 SECONDS=19616

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=101 AZIMUTH=340 ERROR= DEGREES

COMMENTS:

CLASS M1.0 SOLAR FLARE

CATSEARCH PROGRAM

BATSE BURST # 2166
EVENT OF 1993 FEB 5 DAY OF YEAR= 36
EVENT CROSSING TIME AT BATSE : 36631. S. OR 10:10:31.1
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 277.800 -39.500
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 5/ 2/ 93 IS:
RA= 159.881 DEC= -14.454 DIST= 4.171 AU
BATSE-ULYSSES DISTANCE = 623996560. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 78.98 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 397.74 SECS.
CROSSING TIME AT ULYSSES IS 37029. S. OR 10:17:08.9 +/- 410.75 SECONDS

RI

From KOUVELIOTOU@ssl.msfc.nasa.gov Wed Feb 17 17:10:21 1993
Date: Wed, 17 Feb 1993 19:10:23 -0600 (CST)
From: KOUVELIOTOU@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02166

TIME: TJD=9023 SECONDS=36631

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=057.9 AZIMUTH=345.9 ERROR= DEGREES

COMMENTS:

VERY LITTLE DATA AVAILABLE FOR THIS EVENT. DOUBLE STRUCTURE
LASTING ~ 30 S. SEEN ABOVE 300 KEV.

Helio. corr never applied because of large uncertainty
Date: Apr 22 '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?

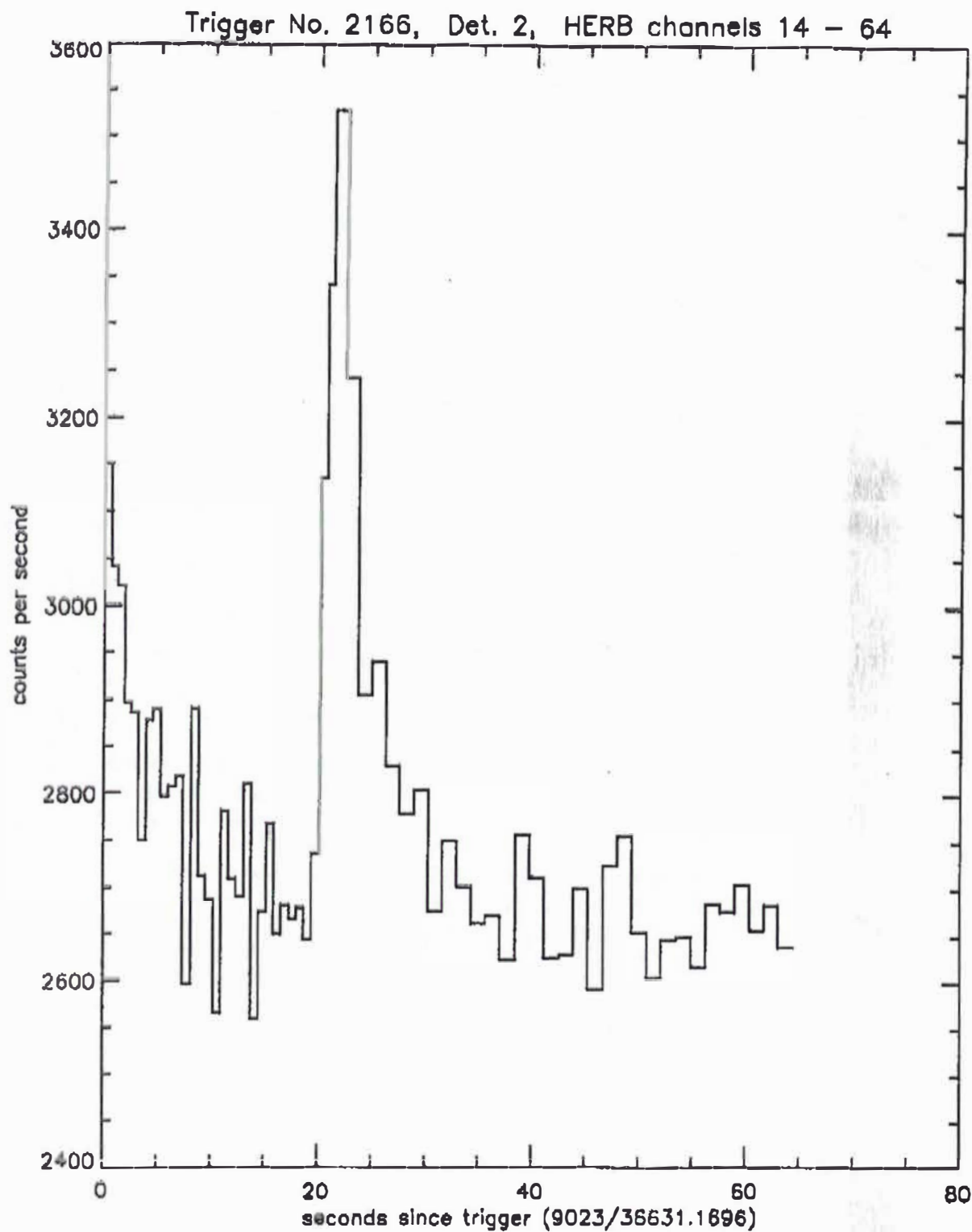
3. PVO Data

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

*Done by eye -
no good BATSE data types
 ± 10 s uncertainty*

For Kevin Hurley

Unequal st's

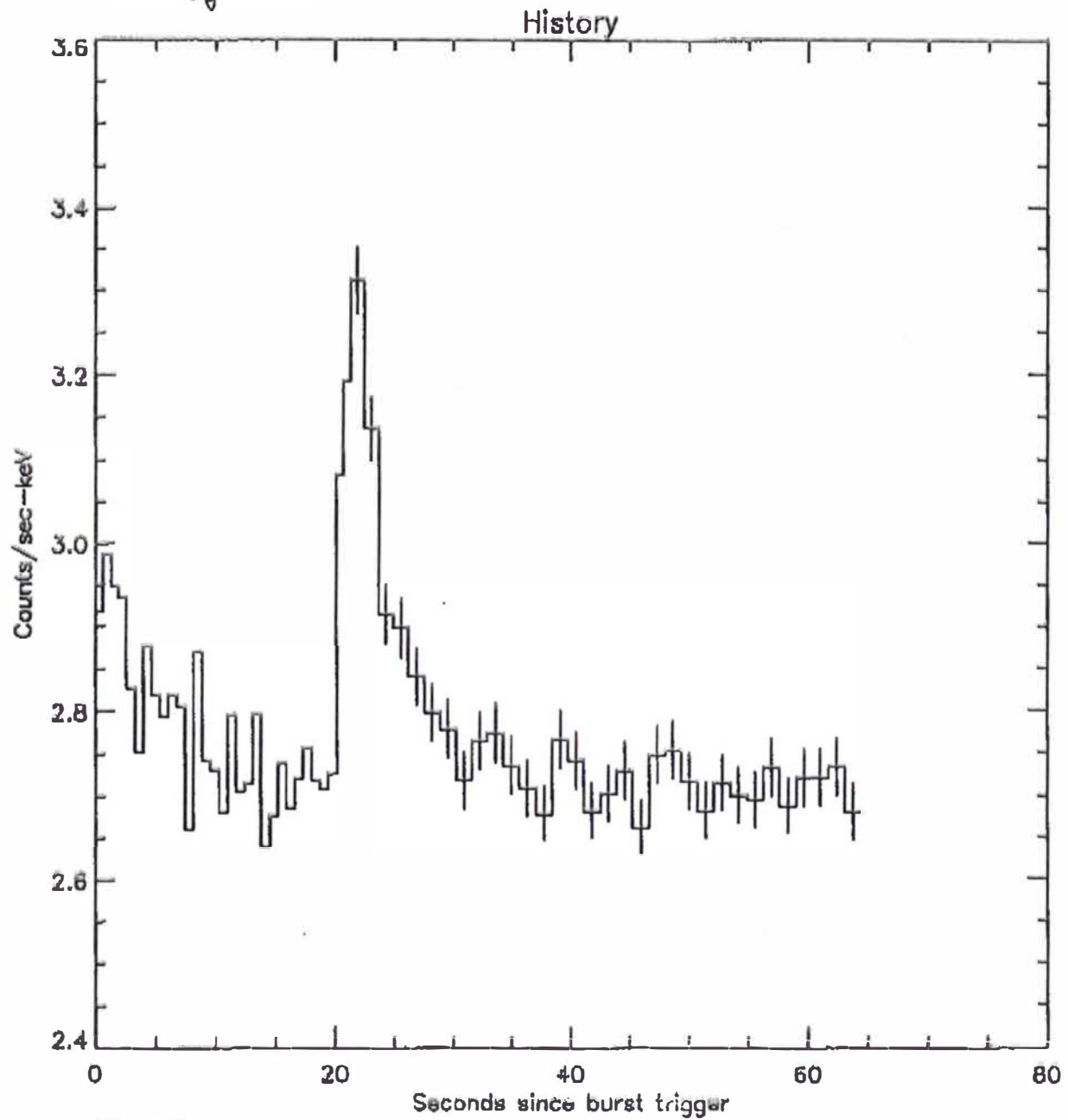


21-Apr-1998 18:37:58

From HENZE@fender.msfc.nasa.gov Wed Dec 17 16:49 PST 1997
Date: Wed, 17 Dec 1997 18:48:34 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: khurley@sunspot.ssl.berkeley.edu
Subject: Re: Number 2166?

The TTE data available for no. 2166 are only the second half; i.e., they are worthless for timing and may have missed a very short event or the later part of a long event. Our normal operations software does allow plots of HERB data, but other analysis software (using FITS versions of some of the IBDB versions of the data files) has been used to plot that event. I found such a plot and will fax it to you. It shows a peak at approx. T+21 s. However, a higher narrow spike before the trigger time and which could have caused the trigger is not and probably cannot be shown.

Trigger #2166

Def #2
HERB

" 1 - 4 "

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

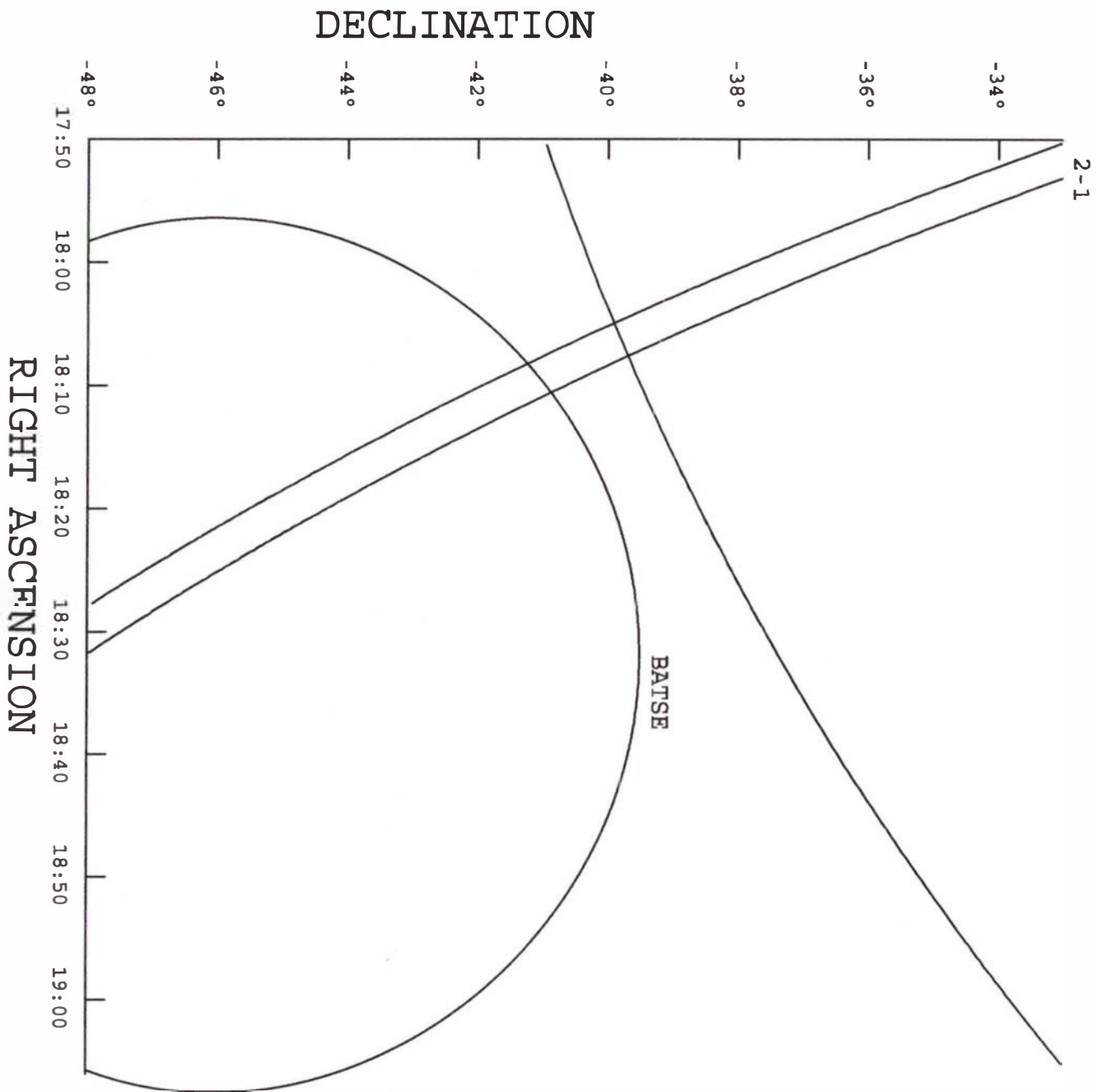
G=GALACTIC EQUATOR

1 ULYSSES

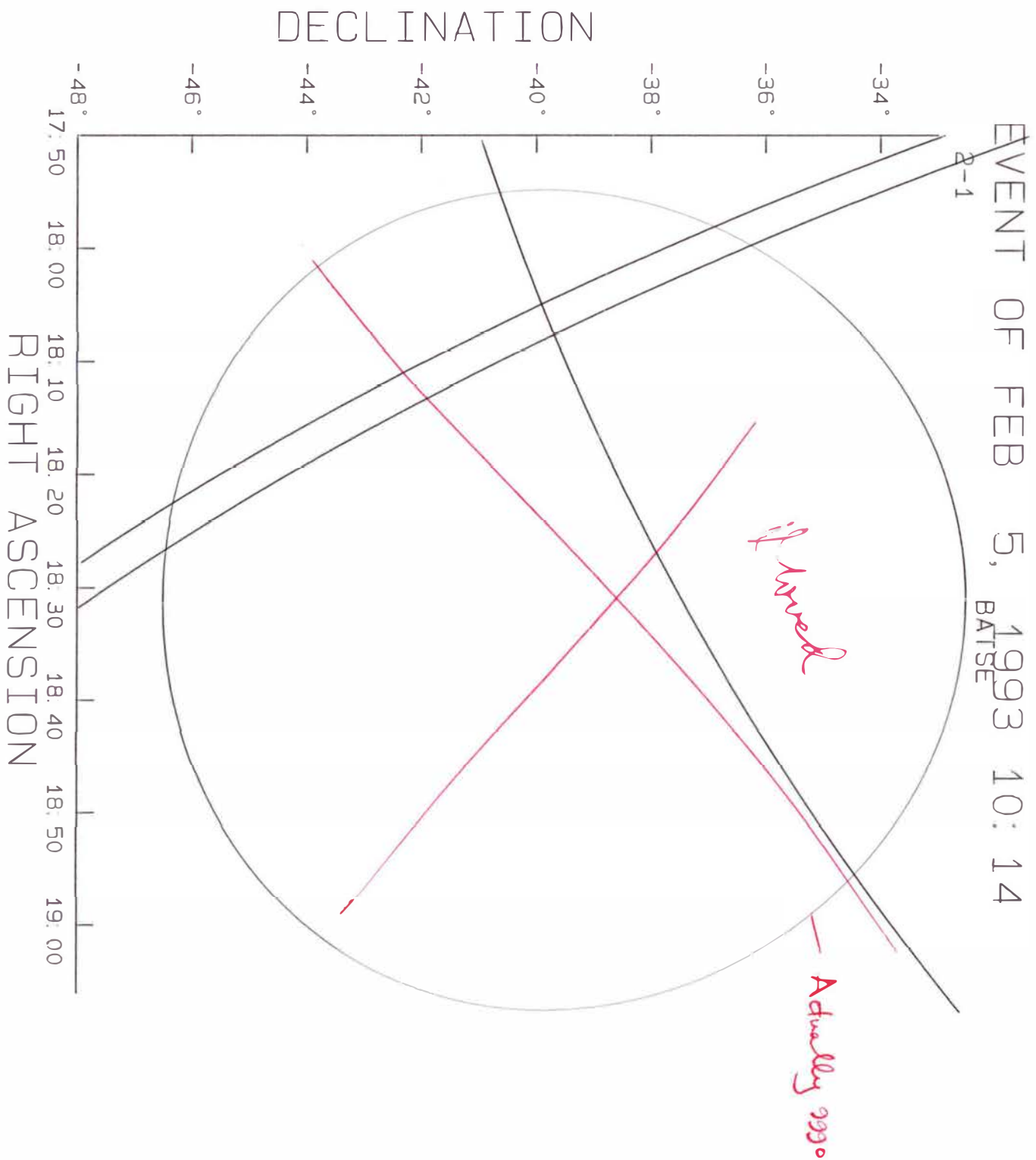
2 BATSE

EVENT OF FEB 5, 1993 10:14

5 / 3 / 98



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



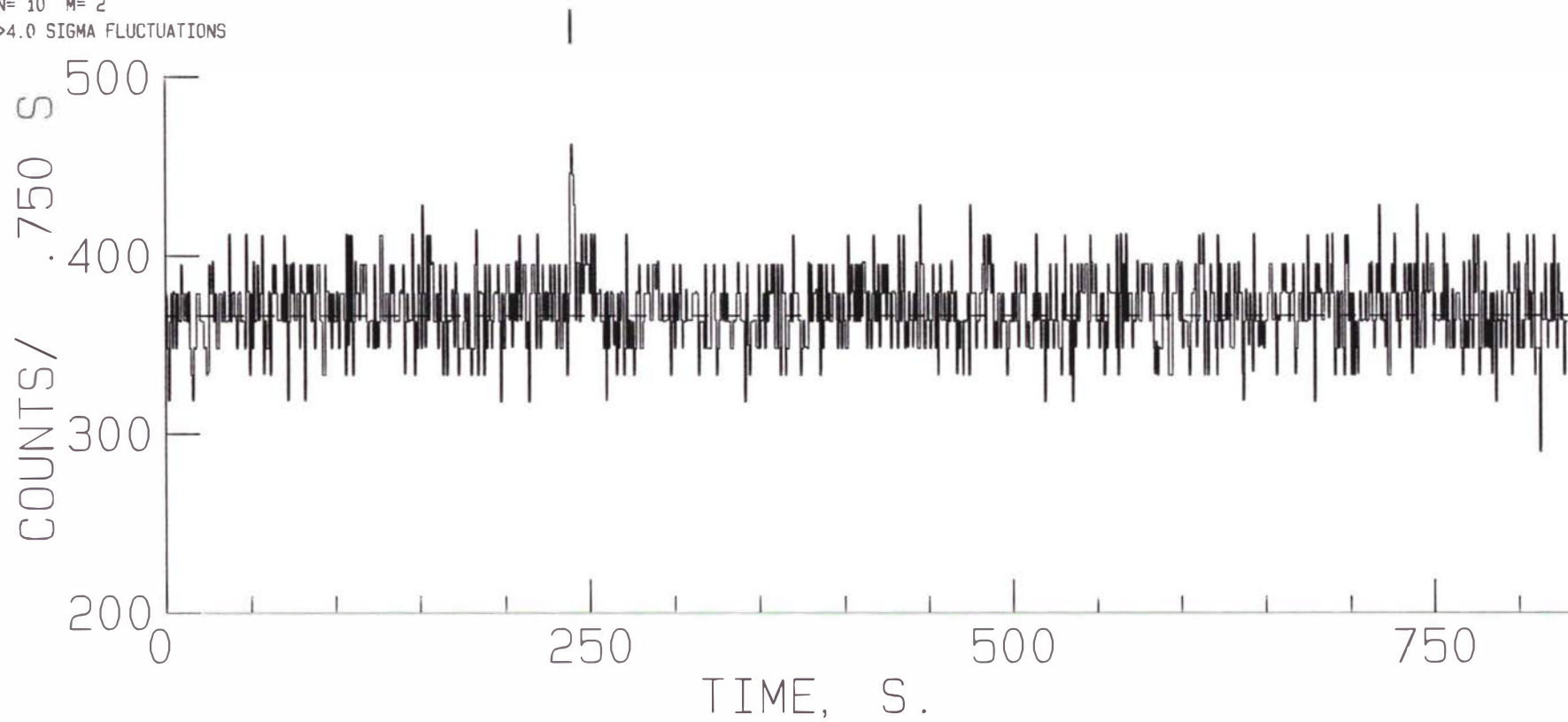
ULYSSES RT

8/ 6/95

5/ 2/93 36612.141 s

.250 S INTERVALS REGROUPED BY 3
21- 146 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE

05/02/93

36631.170

25- 50 keV

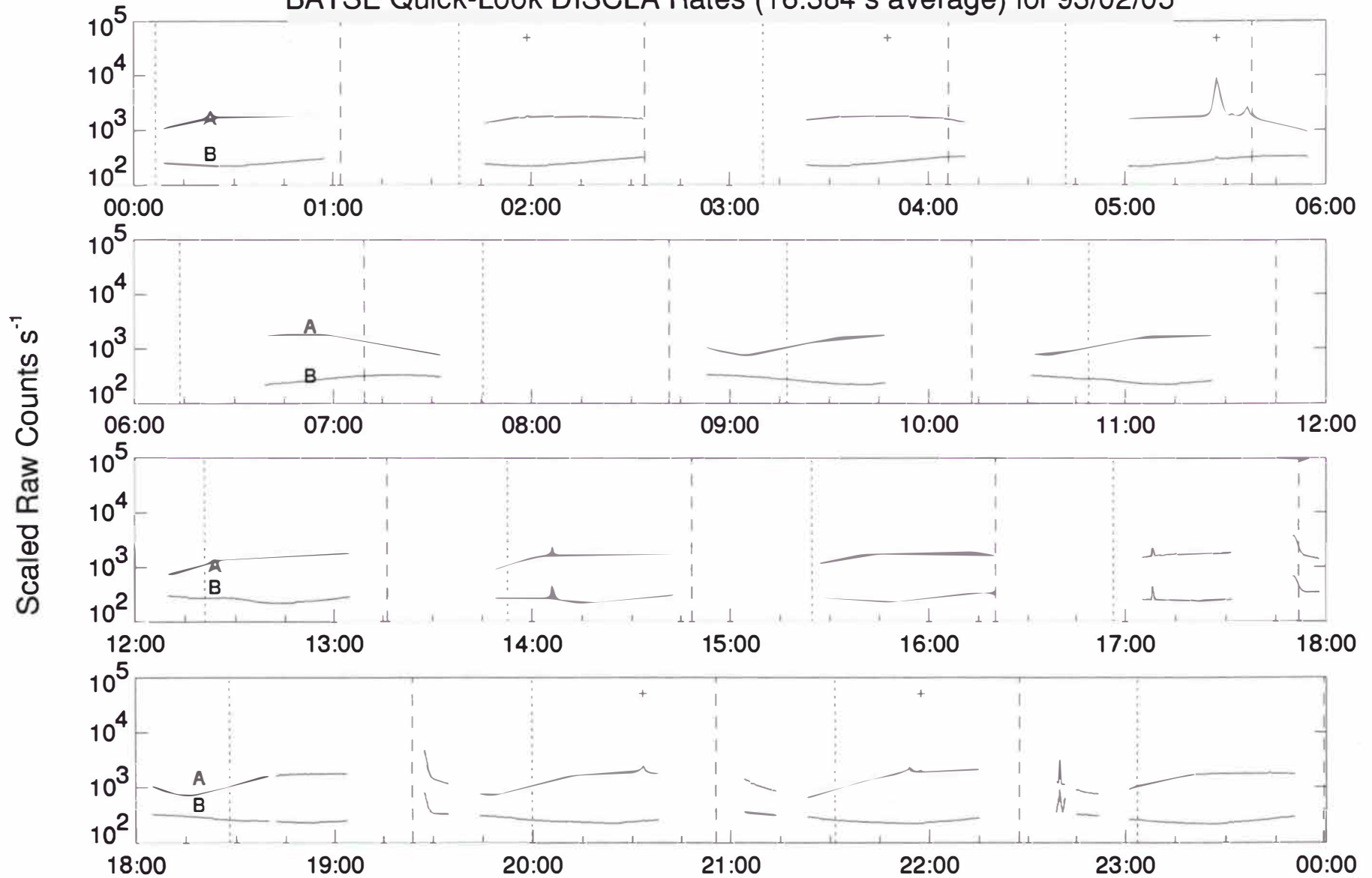
COUNTS/S TTS

15000
10000
5000
0

4 8 12 16 20
T, SECS

19/10/94

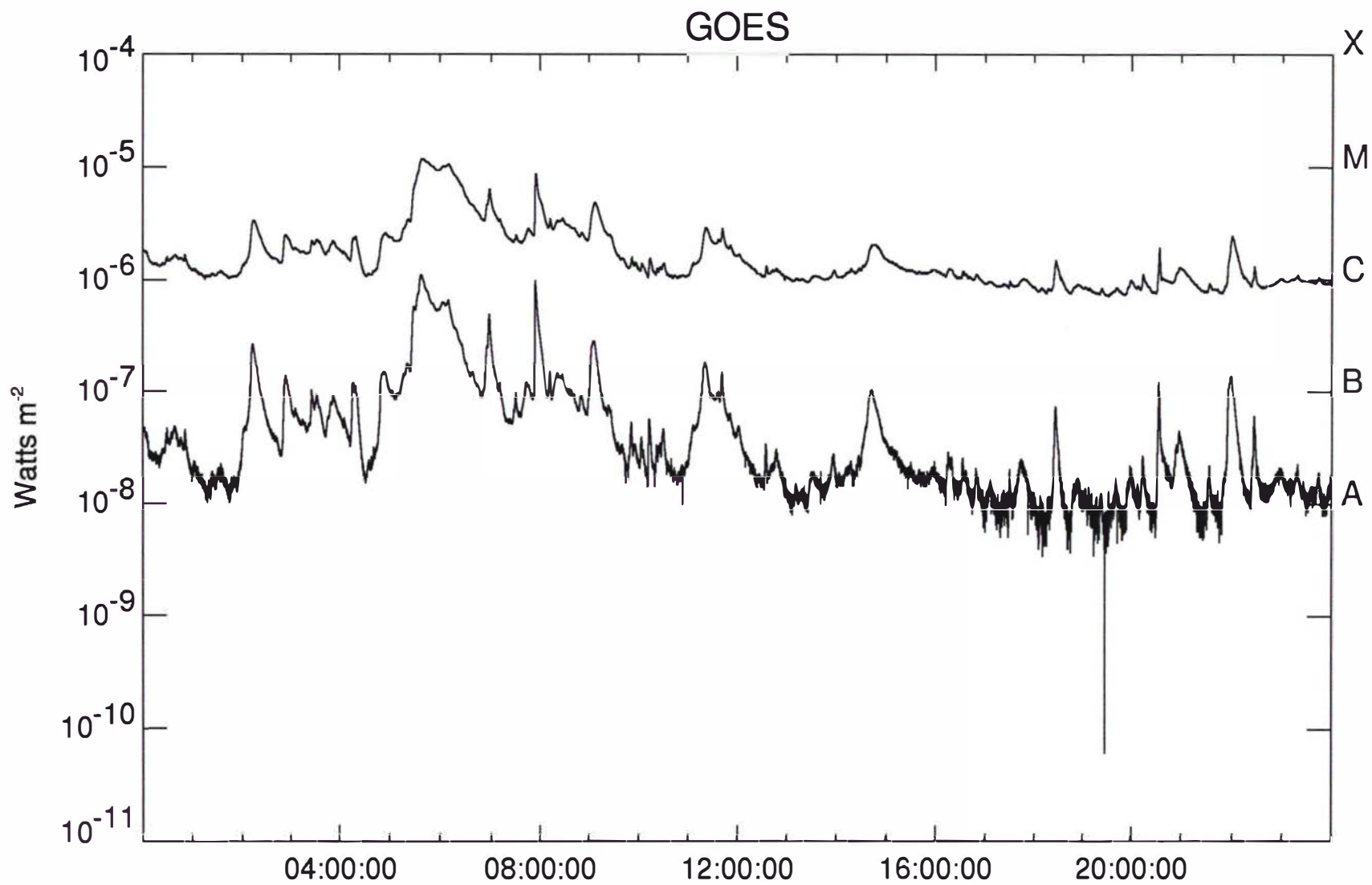
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/05



Current Time: 93/02/16, 1537 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



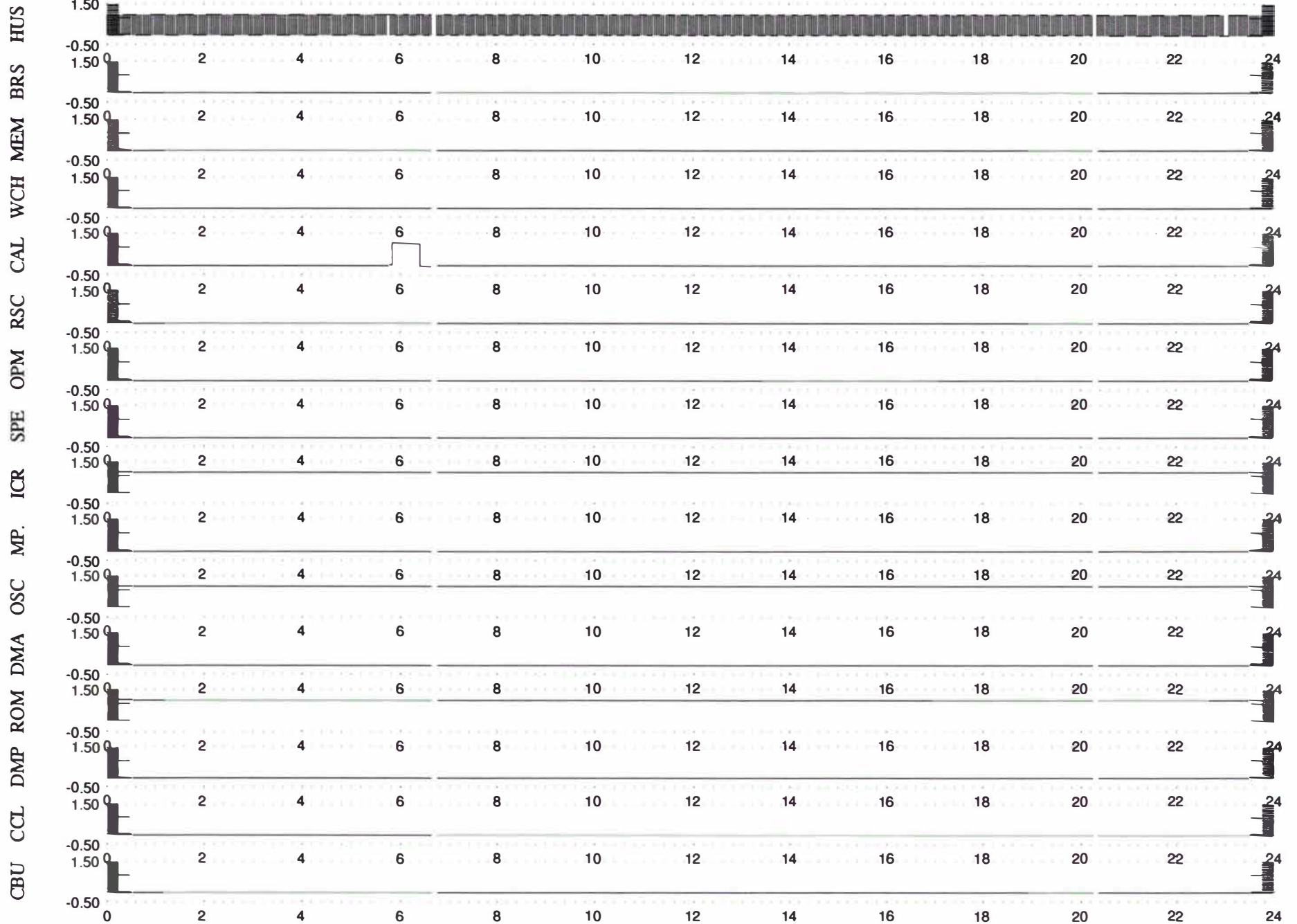
Data Start: 93/02/05, 0000:01

Plot created: 95/06/01, 1615

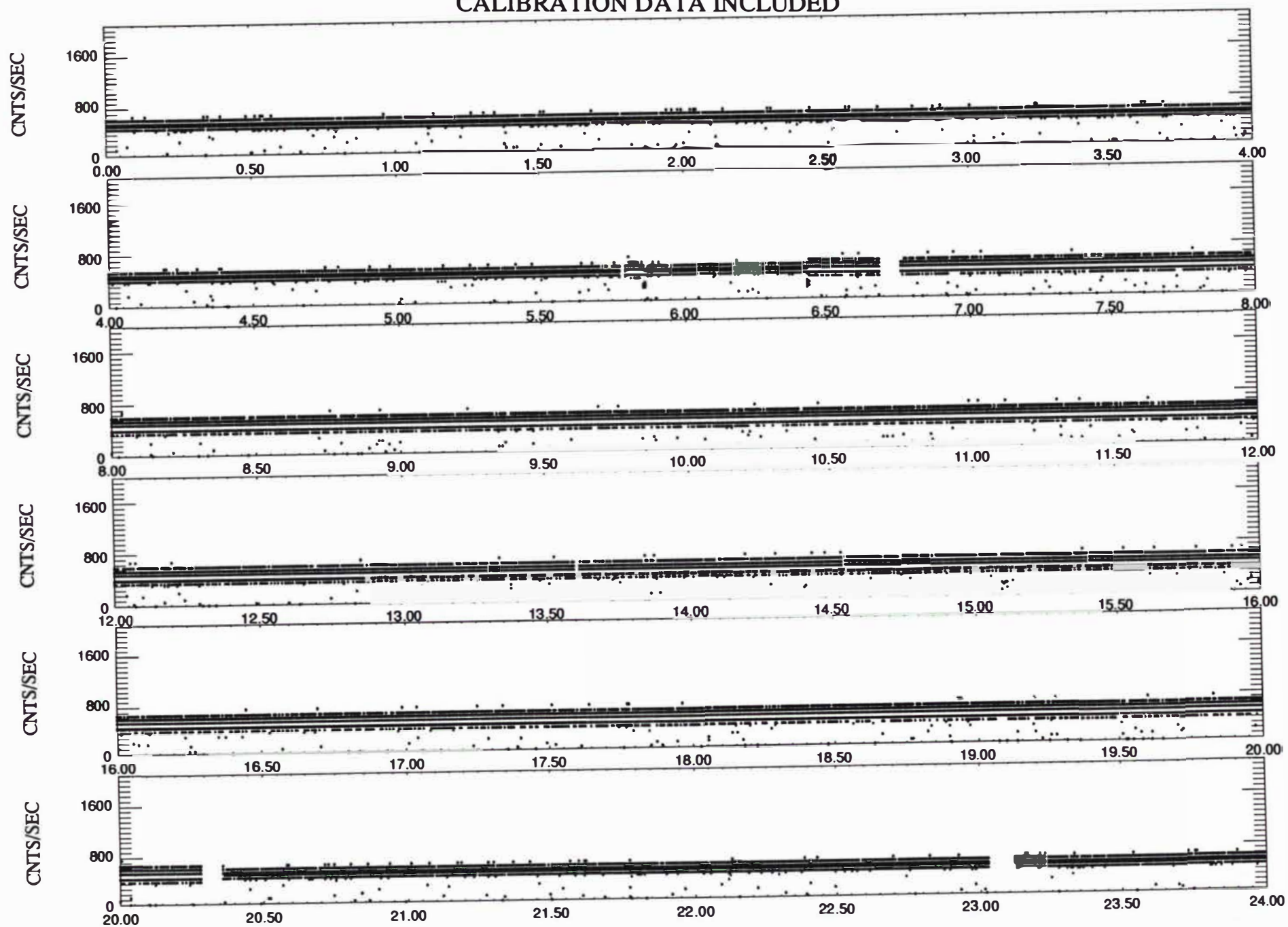
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

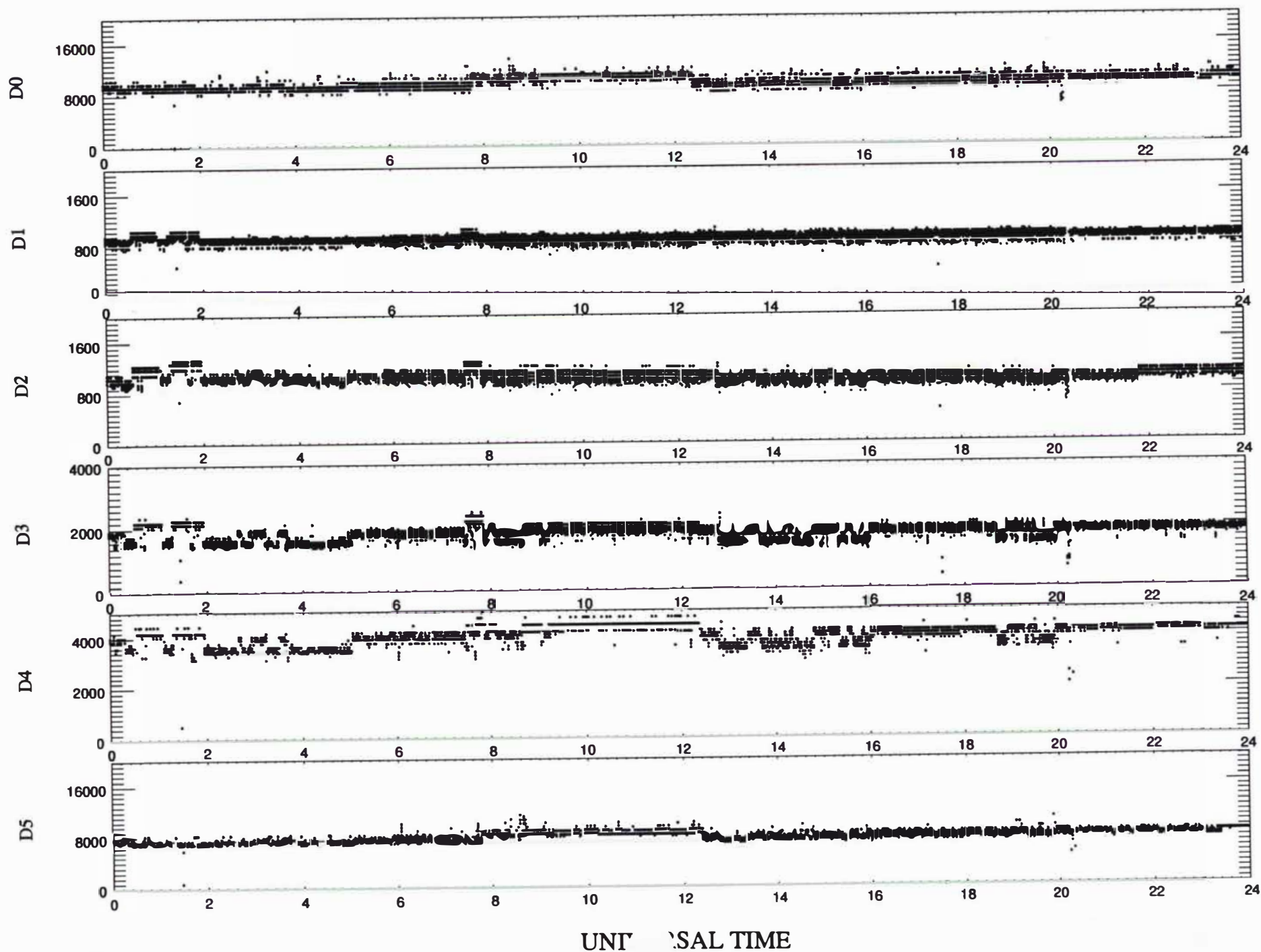
UNIV1 AL TIME



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



CATSEARCH PROGRAM

BATSE BURST # 2167

EVENT OF 1993 FEB 6 DAY OF YEAR= 37

EVENT CROSSING TIME AT BATSE : 4608. S. OR 01:16:48.3

COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)

BURST ARRIVAL DIRECTION: 8.100 -19.500

BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND

POSITION OF ULYSSES ON 6/ 2/ 93 IS:

RA= 159.658 DEC= -14.485 DIST= 4.161 AU

BATSE-ULYSSES DISTANCE = 622440720. KM.

ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 44.03 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1492.87 SECS.

CROSSING TIME AT ULYSSES IS 6101. S. OR 01:41:41.2 +/- 323.19 SECONDS

km

From PREECE@ssl.msfc.nasa.gov Mon Feb 8 07:39:50 1993

Date: Mon, 8 Feb 1993 9:39:52 -0600 (CST)

From: PREECE@ssl.msfc.nasa.gov

Subject: BATSE burst

To: khurley@sunspot.ssl.berkeley.edu

X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU

Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2167	930206	9024	04608	21500	002	-30

NO

9 / 6 / 94

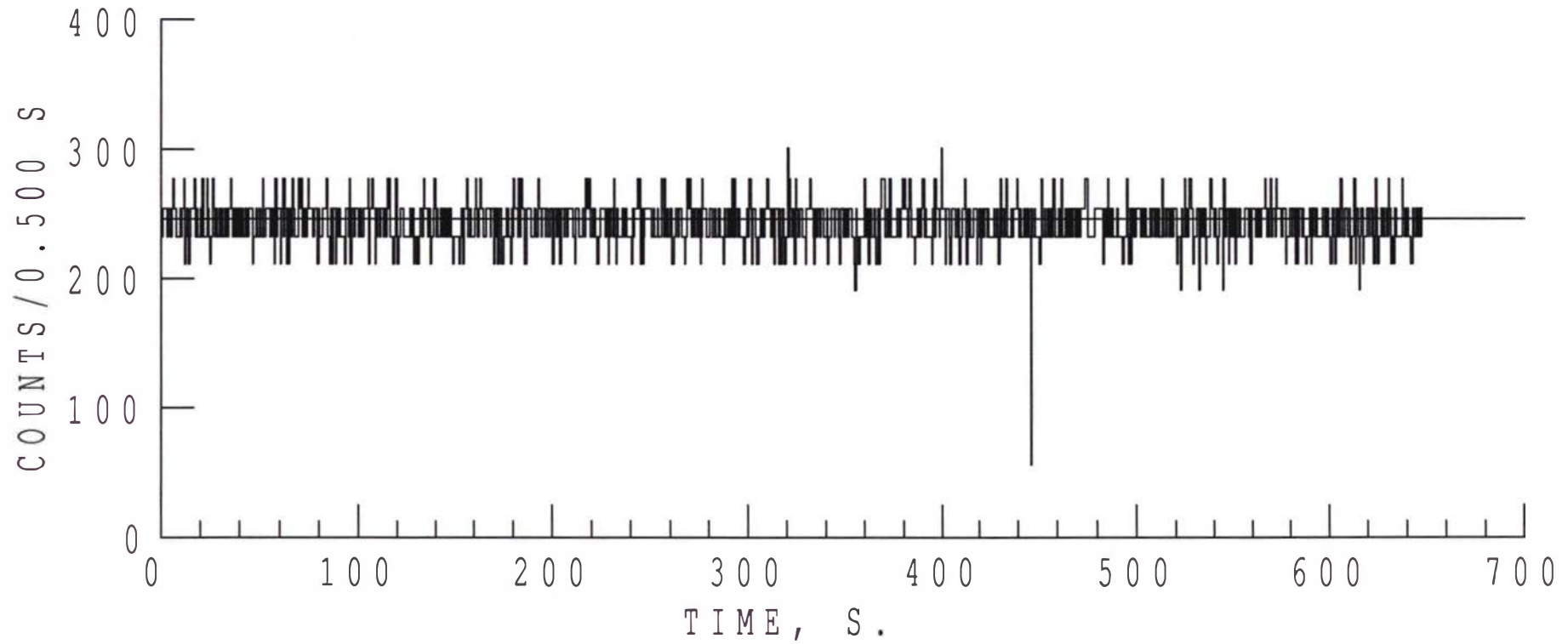
ULYSSES RT

6 / 2 / 93 5760.258 s

0 - 0 keV

B= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From PREECE@ssl.msfc.nasa.gov Mon Feb 8 08:09:10 1993
Date: Mon, 8 Feb 1993 10:08:50 -0600 (CST)
From: PREECE@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02168

TIME: TJD=9024 SECONDS=19453

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=106.2 AZIMUTH=332.0 ERROR= DEGREES

COMMENTS:

GOES UNCLASSIFIED C6 SOLAR FLARE. PERHAPS 50 SEC. LONG. CONSISTED OF 3 MAIN
PEAKS. MARGINALLY VISIBLE ABOVE 300 KEV.

CATSEARCH PROGRAM

BATSE BURST # 2169
EVENT OF 1993 FEB 6 DAY OF YEAR= 37
EVENT CROSSING TIME AT BATSE : 54192. S. OR 15:03:11.5
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 225.400 -63.600
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 6/ 2/ 93 IS:
RA= 159.658 DEC= -14.485 DIST= 4.161 AU
BATSE-ULYSSES DISTANCE = 622440720. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=113.64 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -832.38 SECS.
CROSSING TIME AT ULYSSES IS 53359. S. OR 14:49:19.1 +/- 367.59 SECONDS

From PREECE@ssl.msfc.nasa.gov Mon Feb 8 08:32:52 1993
Date: Mon, 8 Feb 1993 10:32:34 -0600 (CST)
From: PREECE@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02169

TIME: TJD=9024 SECONDS=54191

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=023.8 AZIMUTH=298.6 ERROR= DEGREES

COMMENTS:

WEAK GRB, IN COMPTEL FOV. 15 SEC. LONG, NOT VISIBLE ABOVE 300 KEV.

From PREECE@ssl.msfc.nasa.gov Mon Feb 8 08:33:56 1993
Date: Mon, 8 Feb 1993 10:34:04 -0600 (CST)
From: PREECE@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu", BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2169	930206	9024	54191	2500	213	-64

9 / 6 / 94

ULYSSES RT

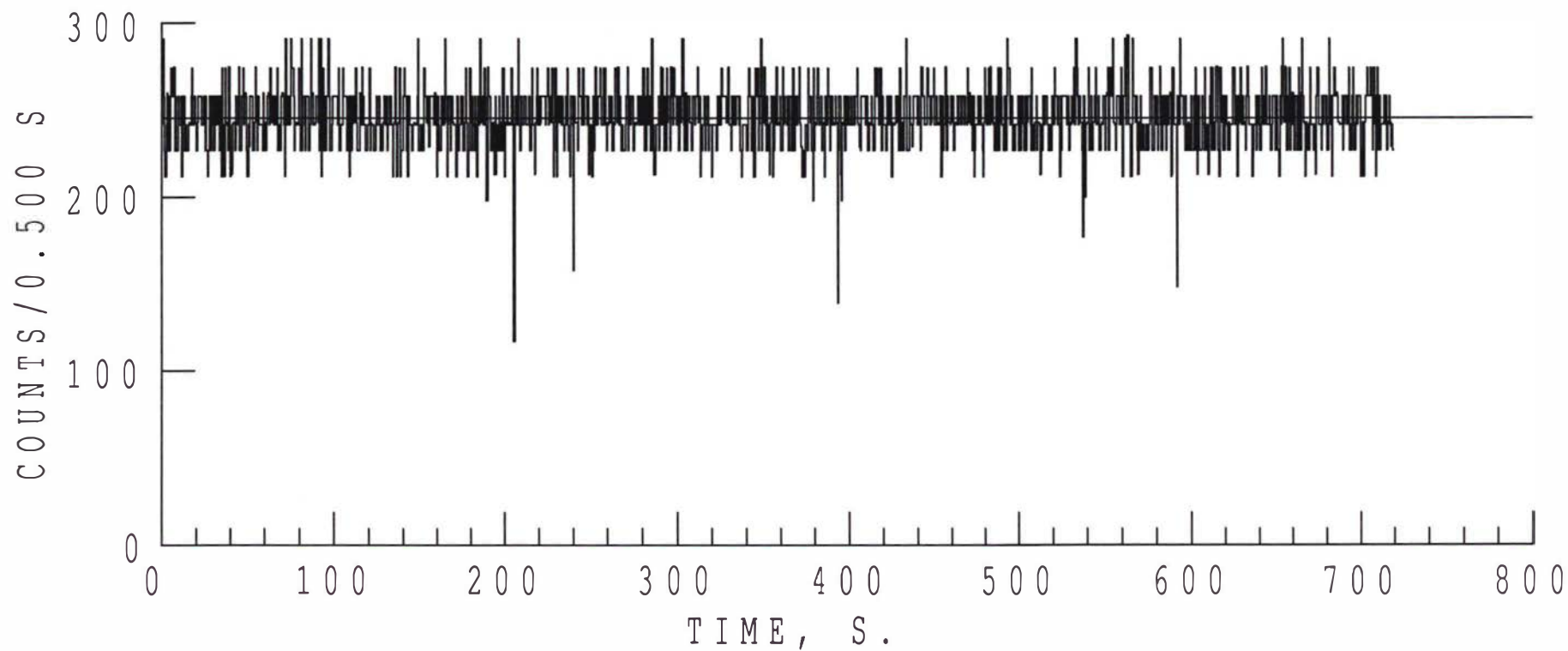
6 / 2 / 93 52992.246 s

0.250 S INTERVALS REGROUPED BY 2

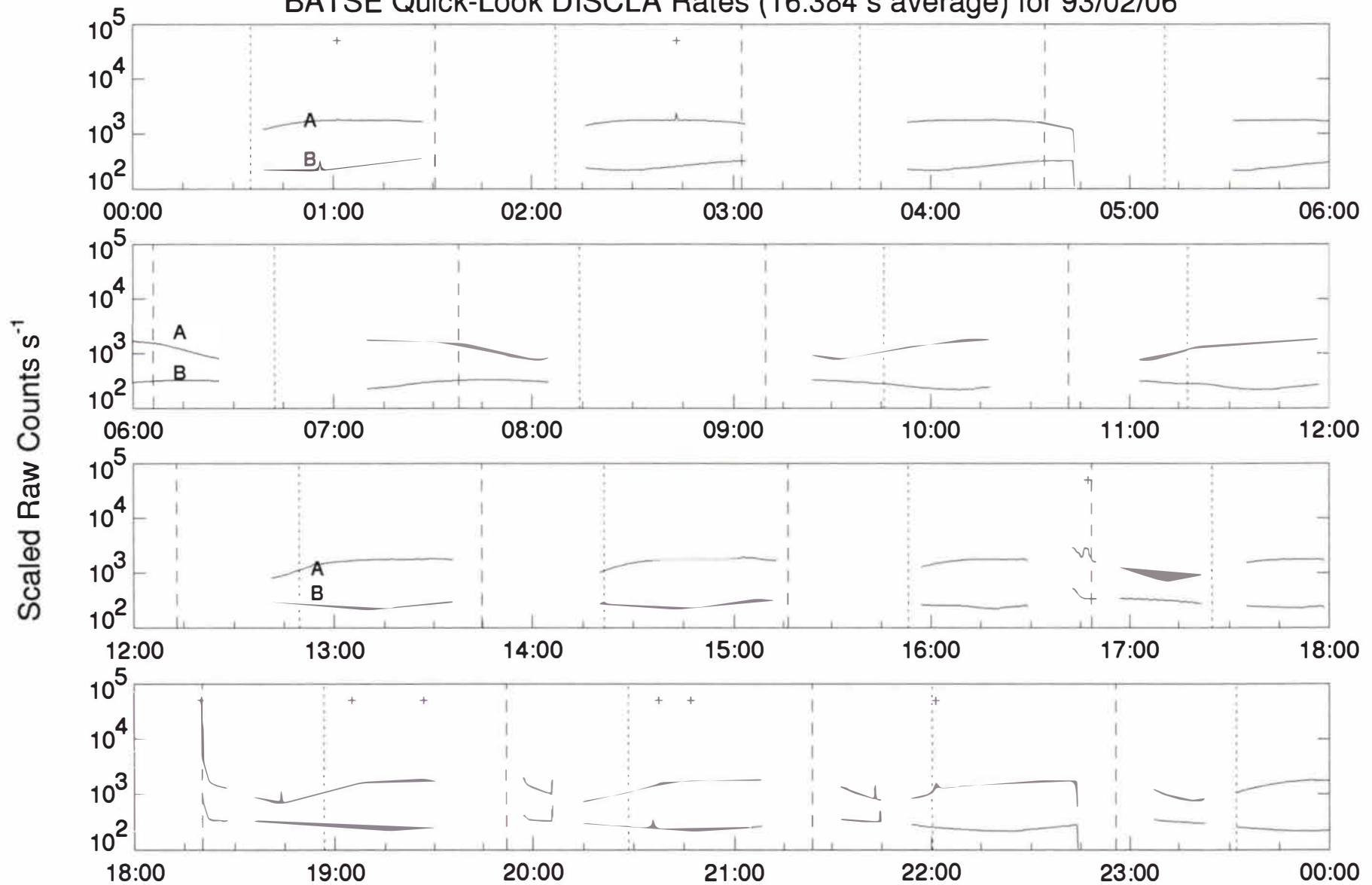
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



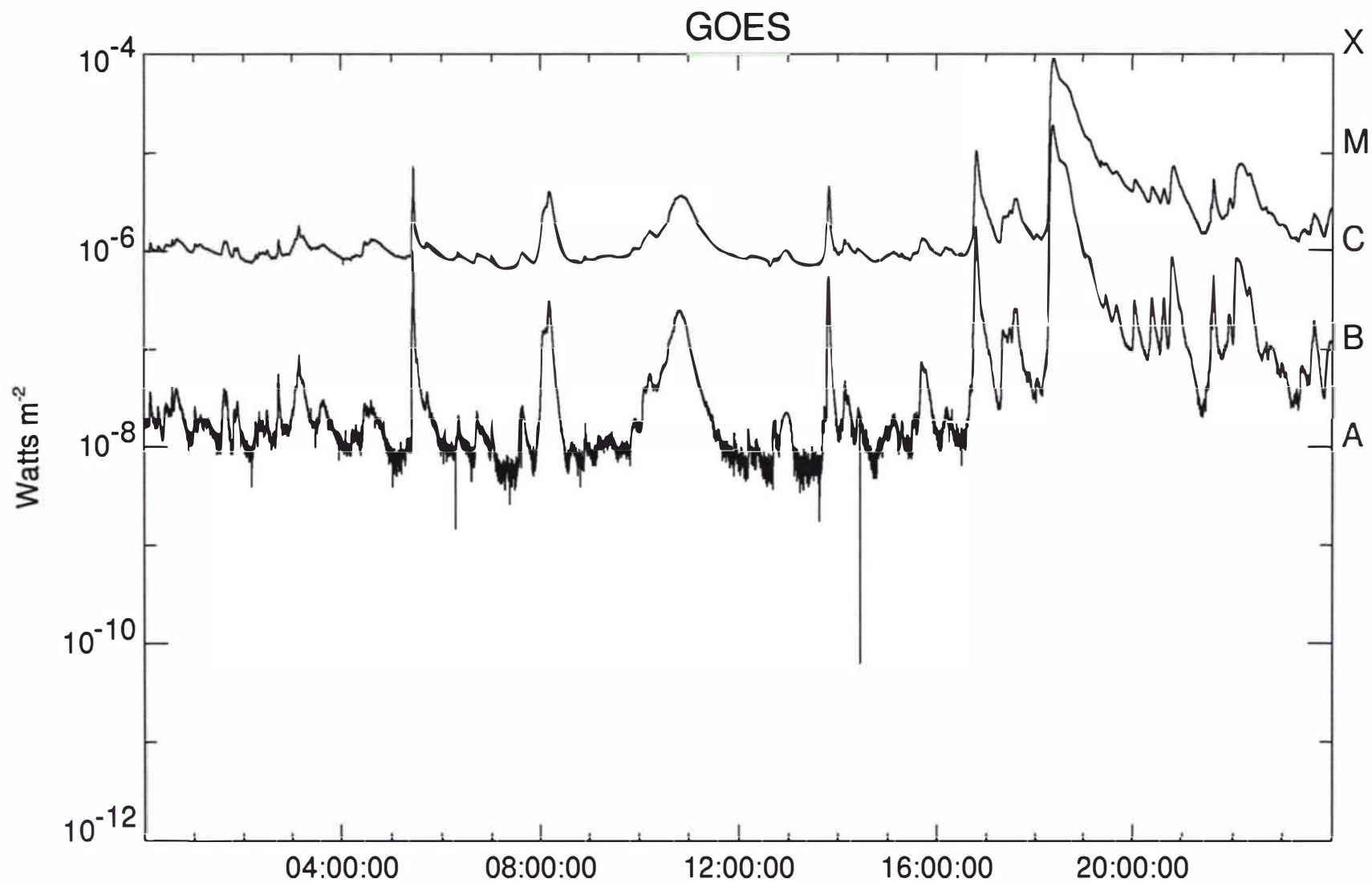
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/06



Current Time: 93/02/16, 1539 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



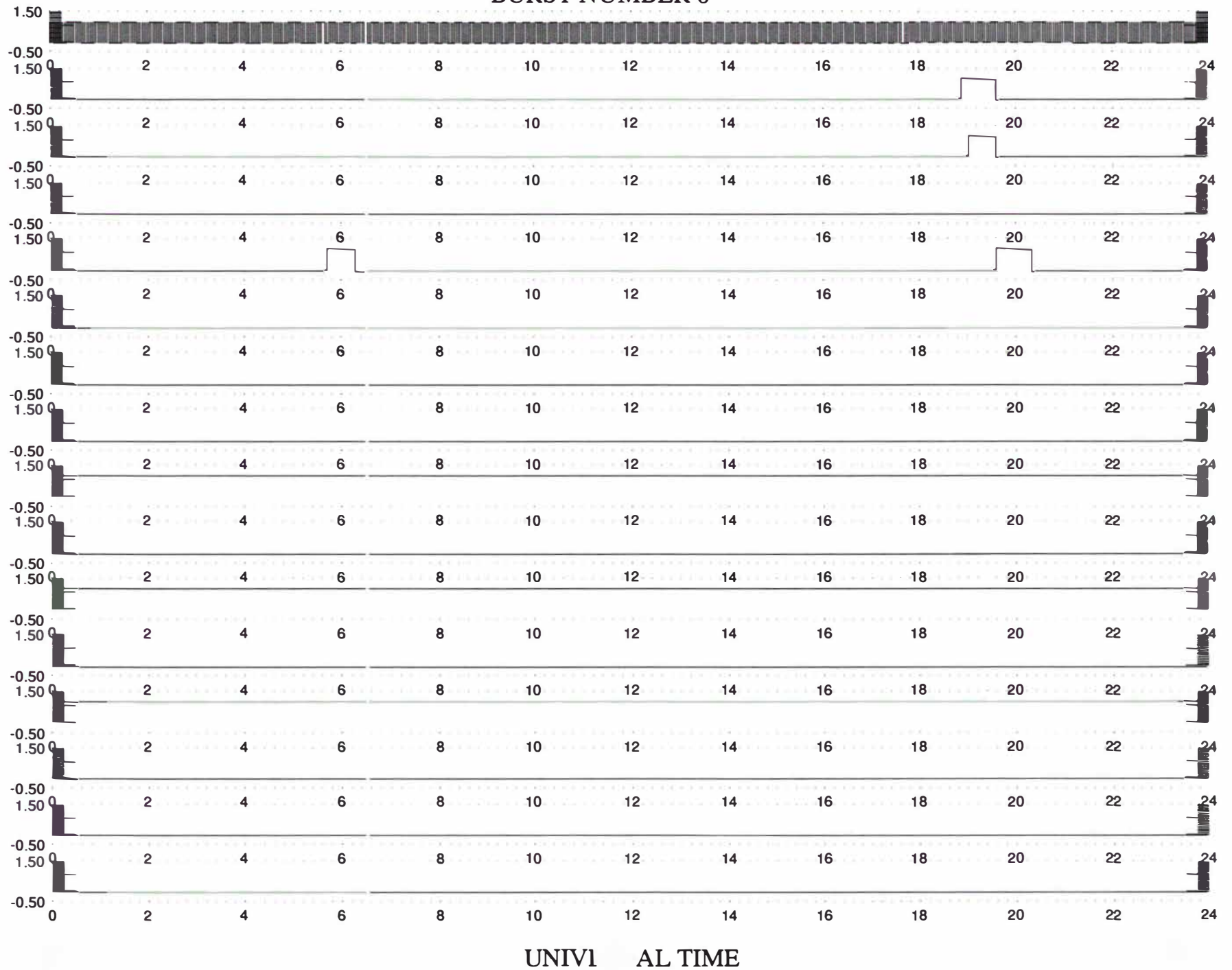
Data Start: 93/02/06, 0000:01

Plot created: 95/06/01, 1619

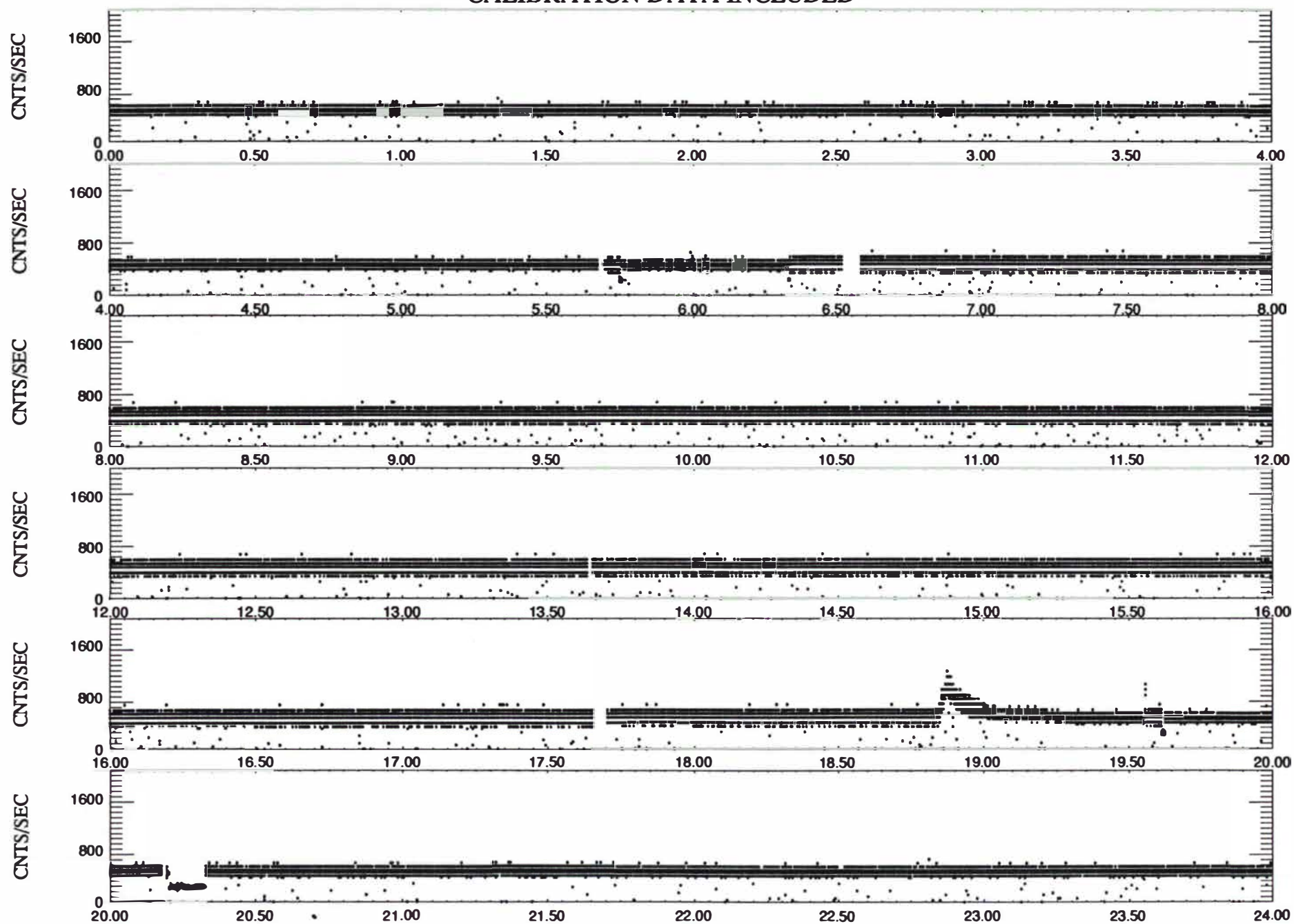
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

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

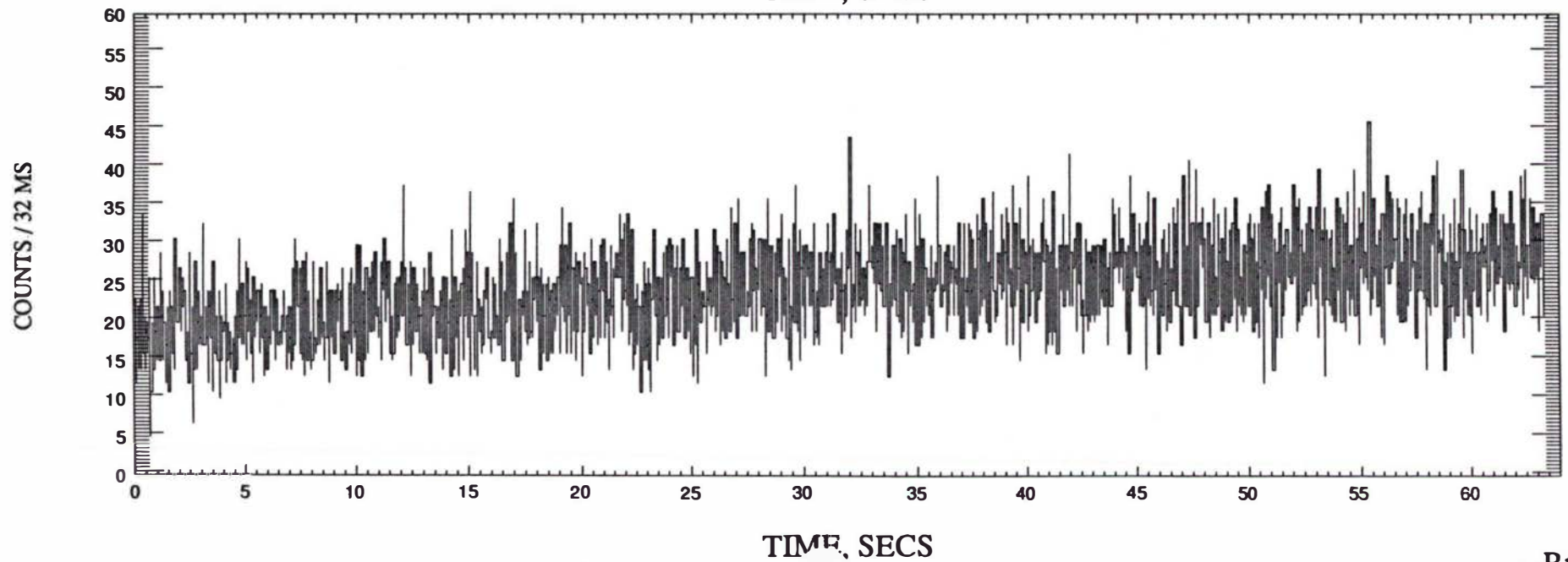
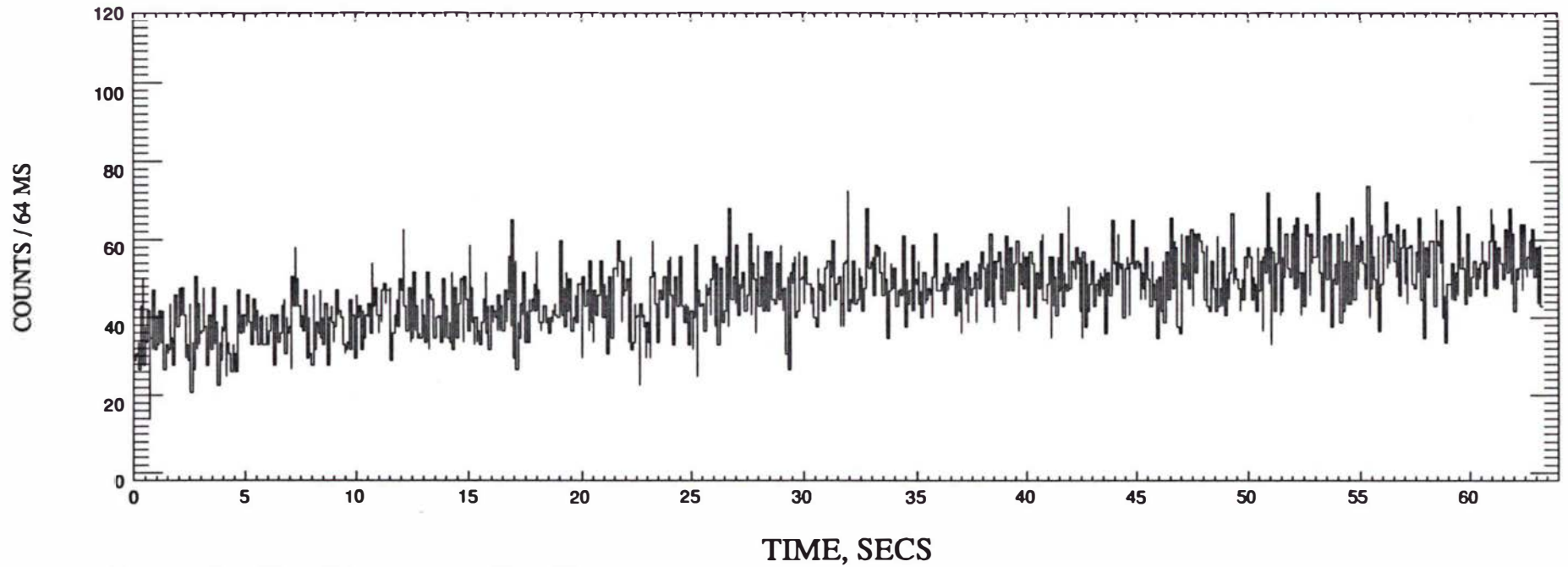


CALIBRATION DATA INCLUDED

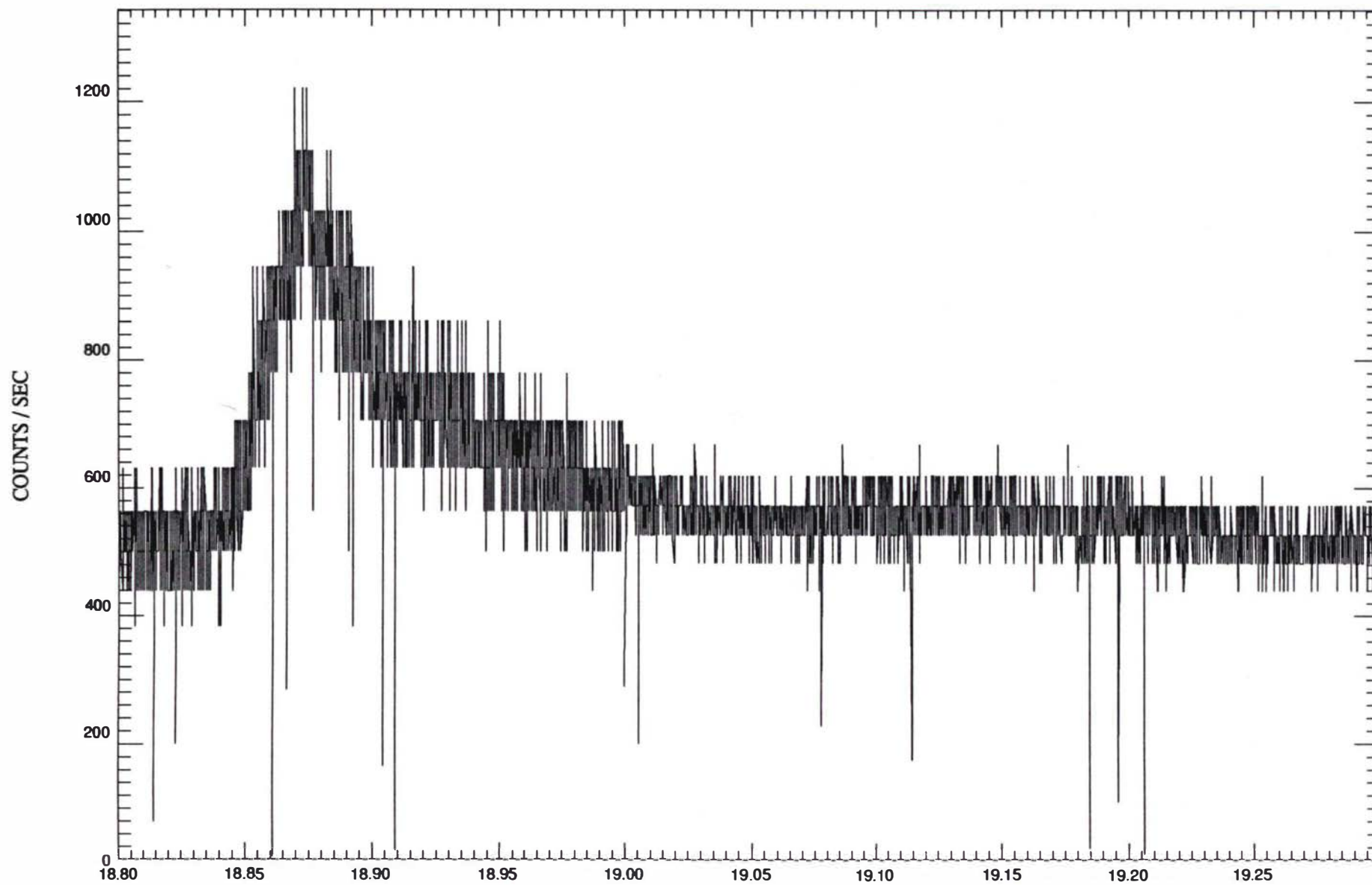


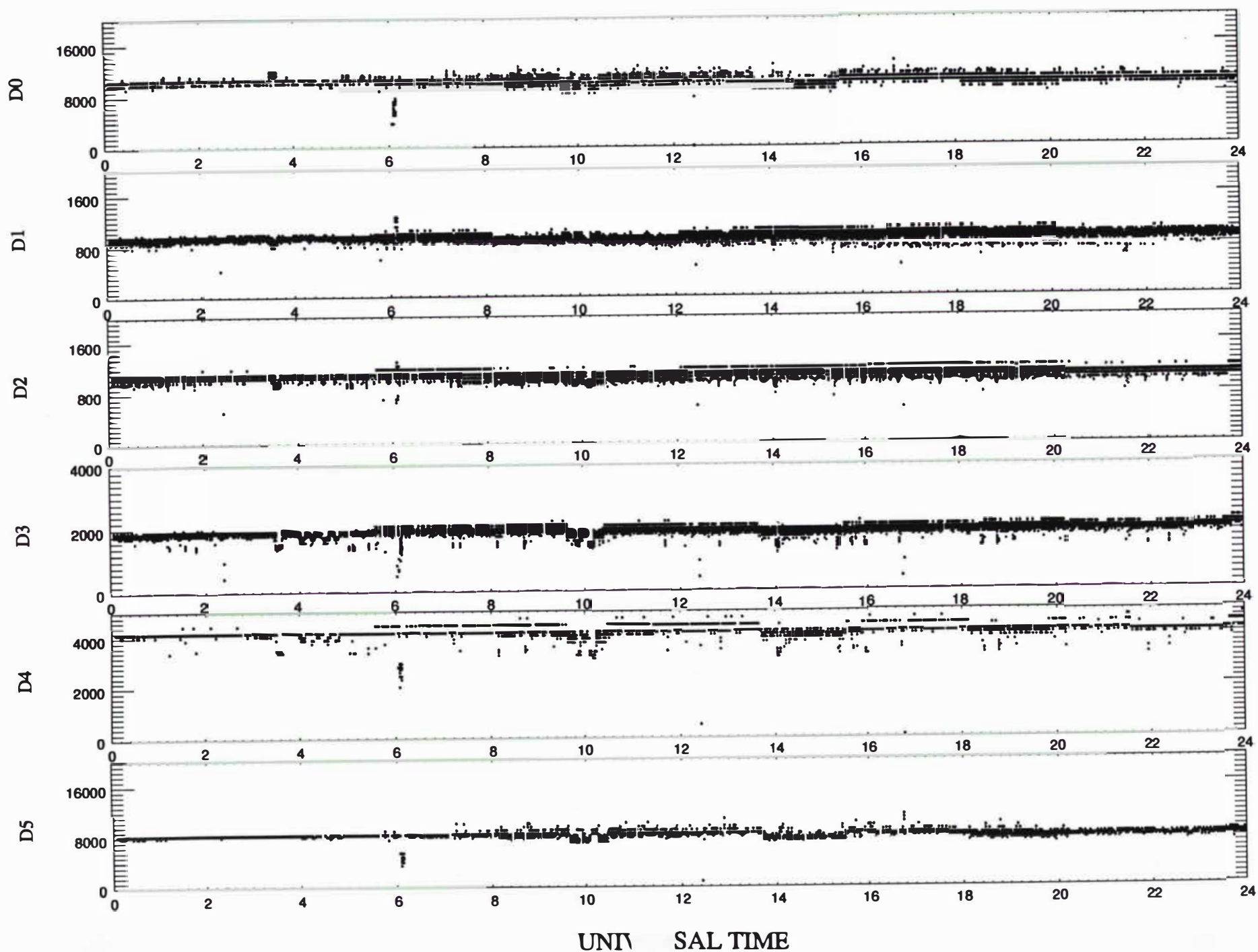
UNIV AL TIME

Burst Counter 0 at UT=18.853704973857 h=67873.338 s 18:51:13.338



CALIBRATION DATA INCLUDED





From KOSHUT@ssl.msfc.nasa.gov Tue Feb 9 14:24:57 1993
Date: Tue, 9 Feb 1993 16:23:44 -0600 (CST)
From: KOSHUT@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02170

TIME: TJD=9025 SECONDS=37269

Feb 7

TYPE: FLARE

SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SOLAR FLARE OF ~ 90 SECONDS DURATION. CLASSIFIED AS C2.0 FLARE IN GOES
X-RAY DATA

BATSE BURST TRIGGER

NO.: 02171

TIME: TJD=9025 SECONDS=39541

TYPE: FLARE

SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

STRONG SOLAR FLARE. DURATION IS UNKNOWN DUE TO MISSING PRE-TRIGGER DATA,
BUT LOWER-LIMIT OF 15 SECONDS CAN BE GIVEN. WEAK EMISSION ABOVE 300 KEV IS
OBSERVED. CLASSIFIED AS C3.7 FLARE IN GOES DATA.

BATSE BURST TRIGGER

NO.: 02172

TIME: TJD=9025 SECONDS=60364

TYPE: FLARE

SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

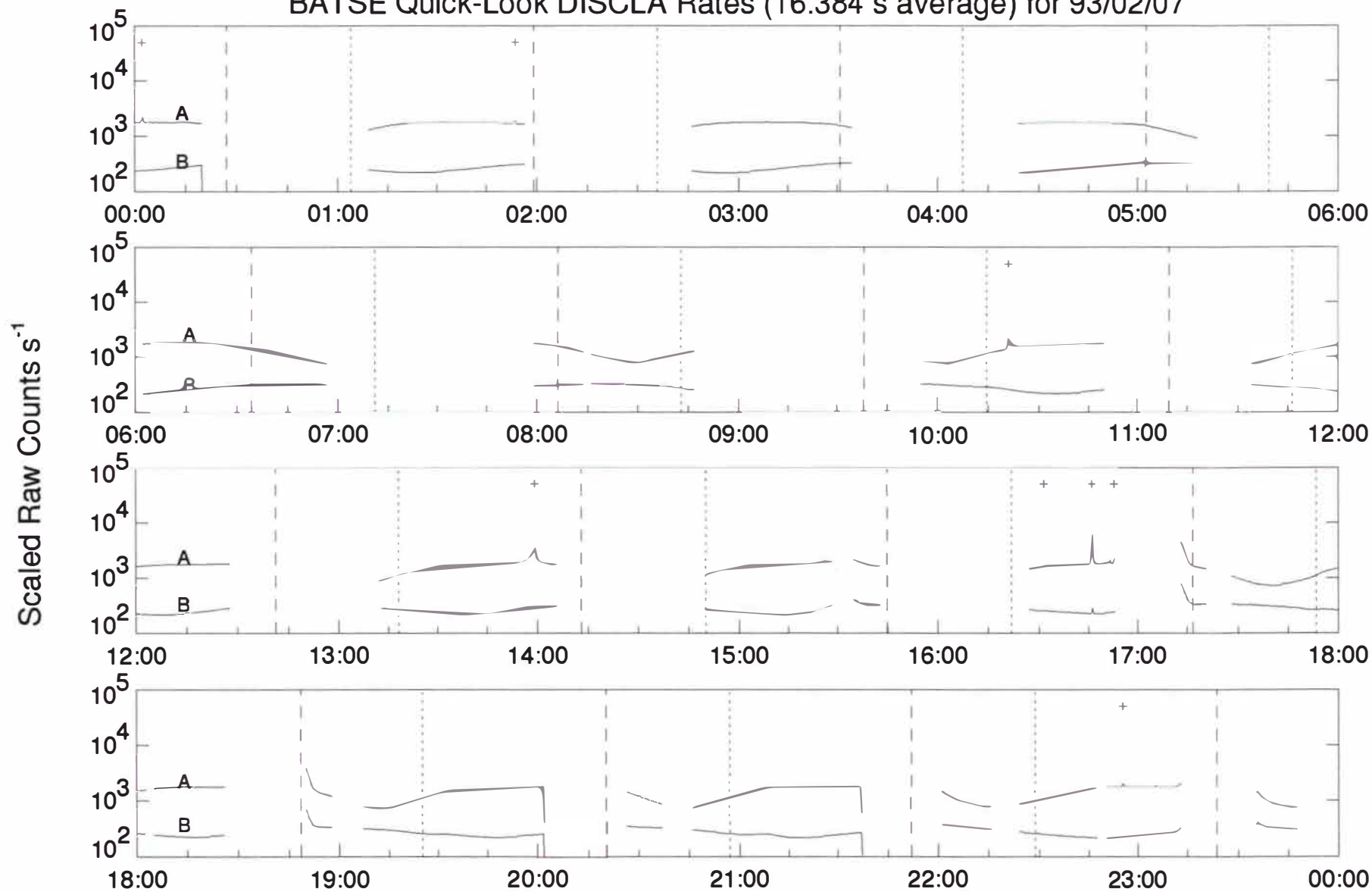
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SOLAR FLARE OF ~ 40 SECONDS DURATION. NO OBSERVED EMISSION ABOVE 300 KEV.
CLASSIFIED AS C1.5 FLARE IN GOES X-RAY DATA.

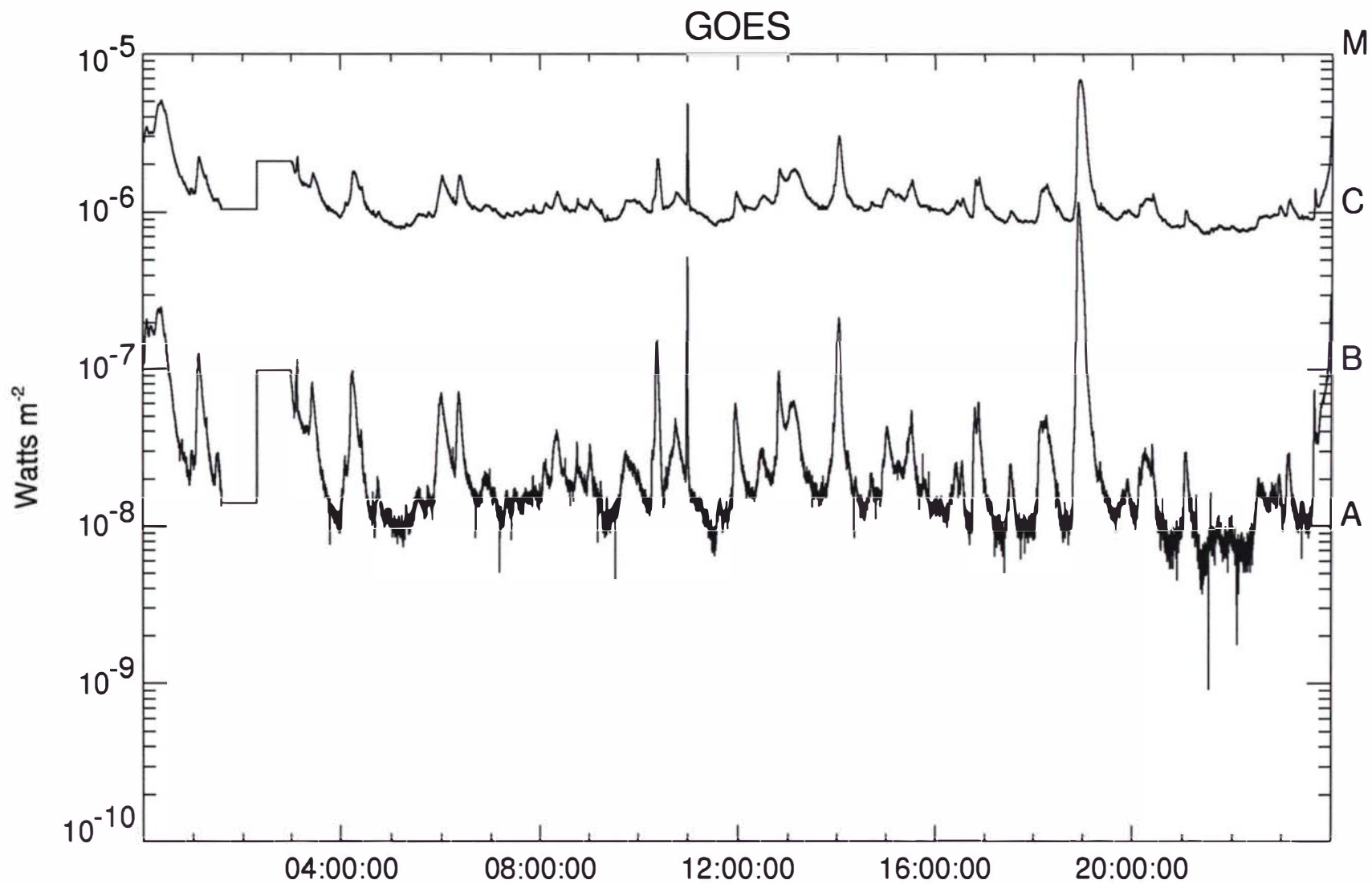
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/07



Current Time: 93/02/16, 1540 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



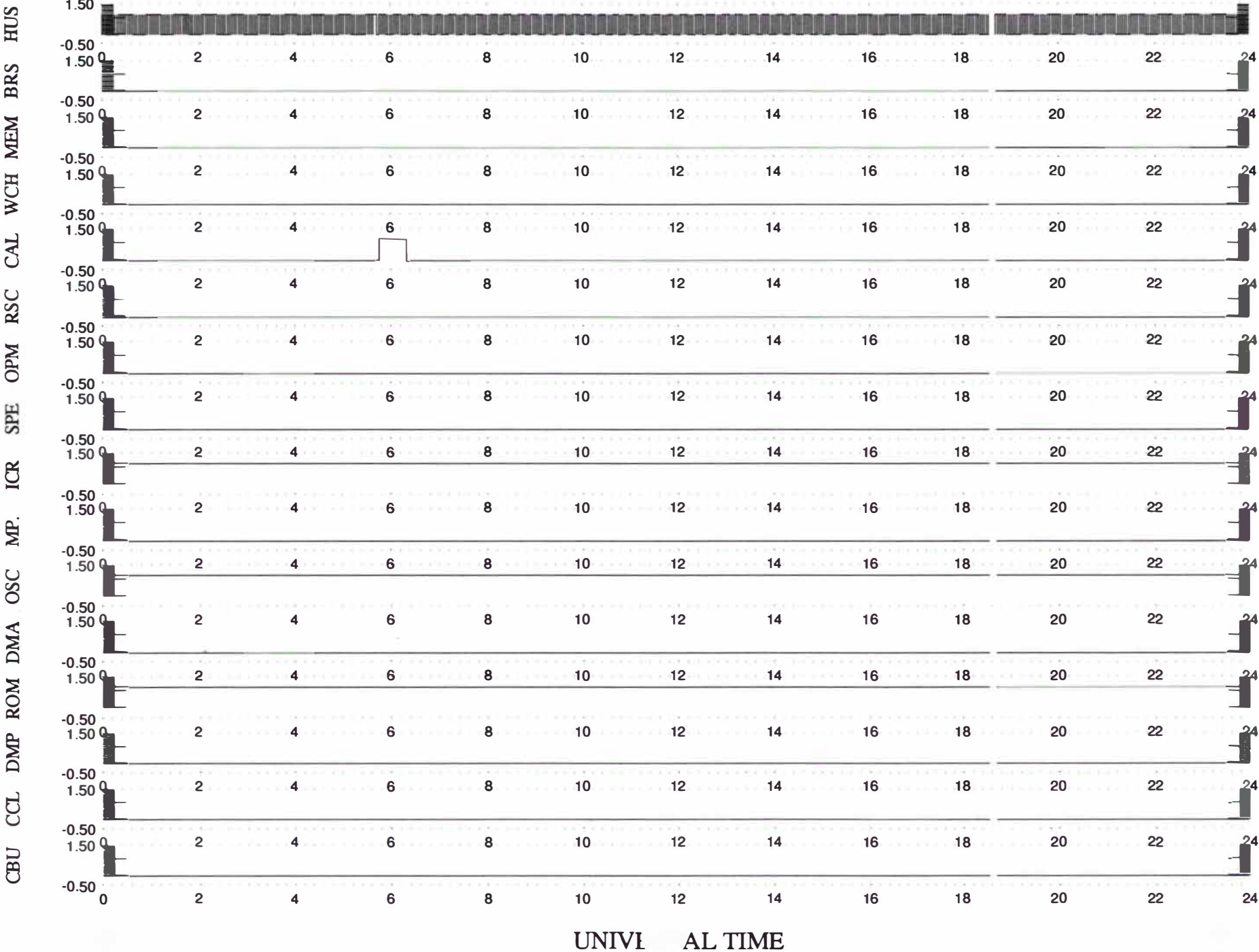
Data Start: 93/02/07, 0000:01

Plot created: 95/06/01, 1623

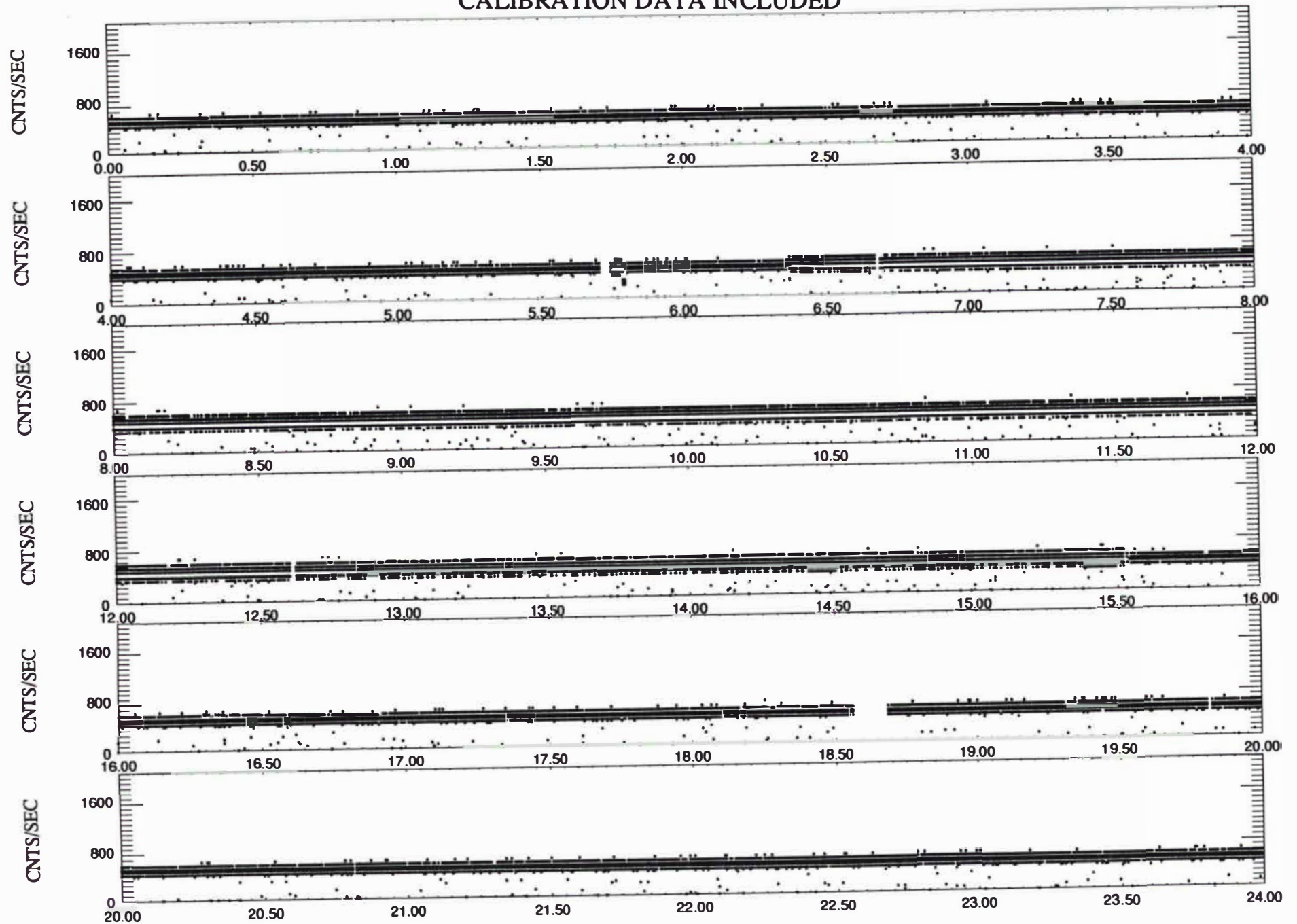
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

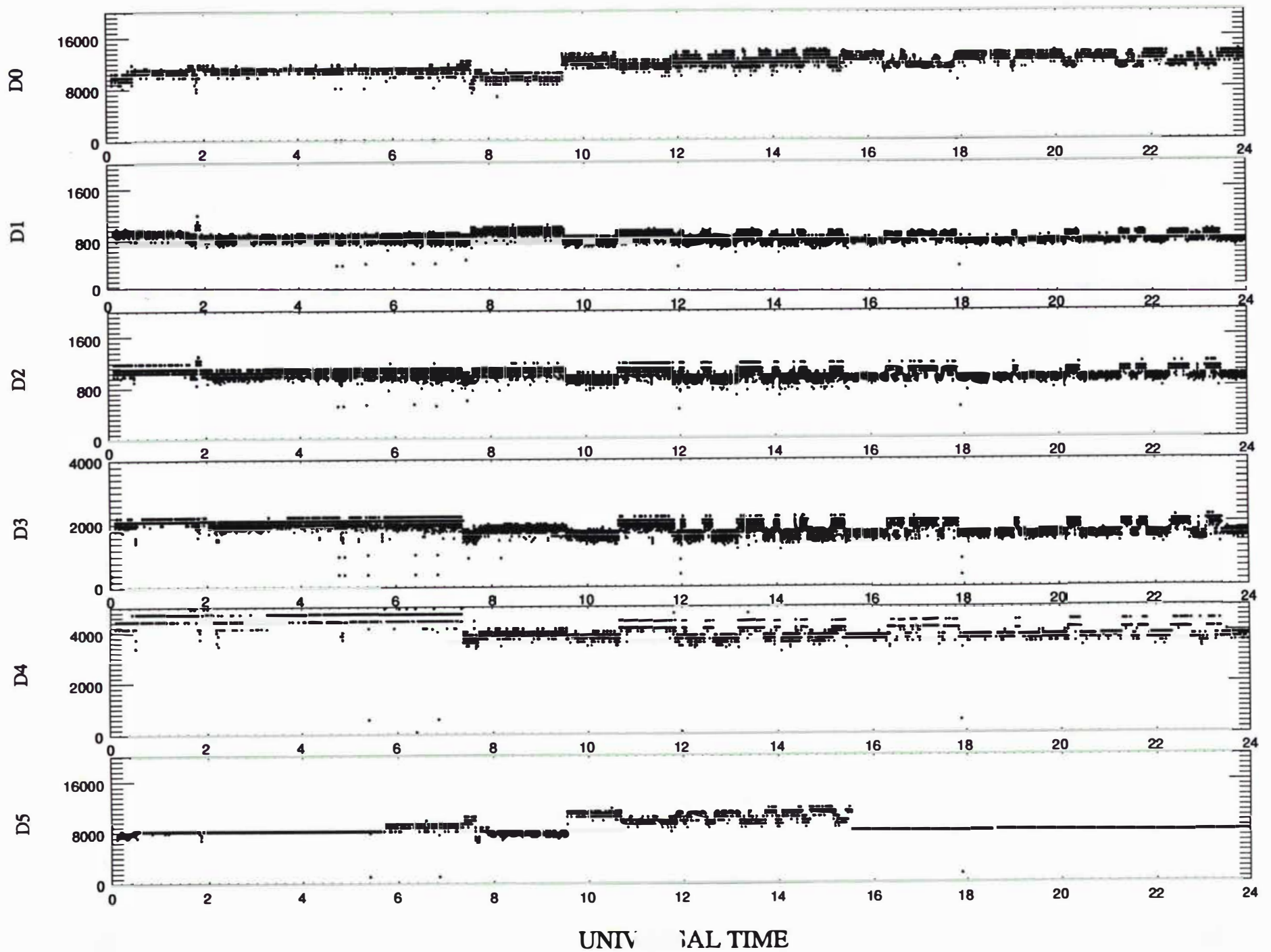
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIV AL TIME



From HAGEDON@ssl.msfc.nasa.gov Wed Feb 10 09:37:49 1993
Date: Wed, 10 Feb 1993 11:37:24 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02173

TIME: TJD=9026 SECONDS=29379

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
GOES C2.5 SOLAR FLARE. SINGLE SPIKE STRUCTURE. DUR.~25S.
NOT VISIBLE ABOVE 100KEV.

BATSE BURST TRIGGER

NO.: 02174

TIME: TJD=9026 SECONDS=~41403

TYPE: UNKNOWN SOLAR FLARE TRIGGER SIGNAL:

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
OVERWRITTEN DURING GAP. NO DATA. UNKNOWN EVENT.

BATSE BURST TRIGGER

NO.: 02175

TIME: TJD=9026 SECONDS=42030

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.

BATSE BURST TRIGGER

NO.: 02176

TIME: TJD=9026 SECONDS=61672

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

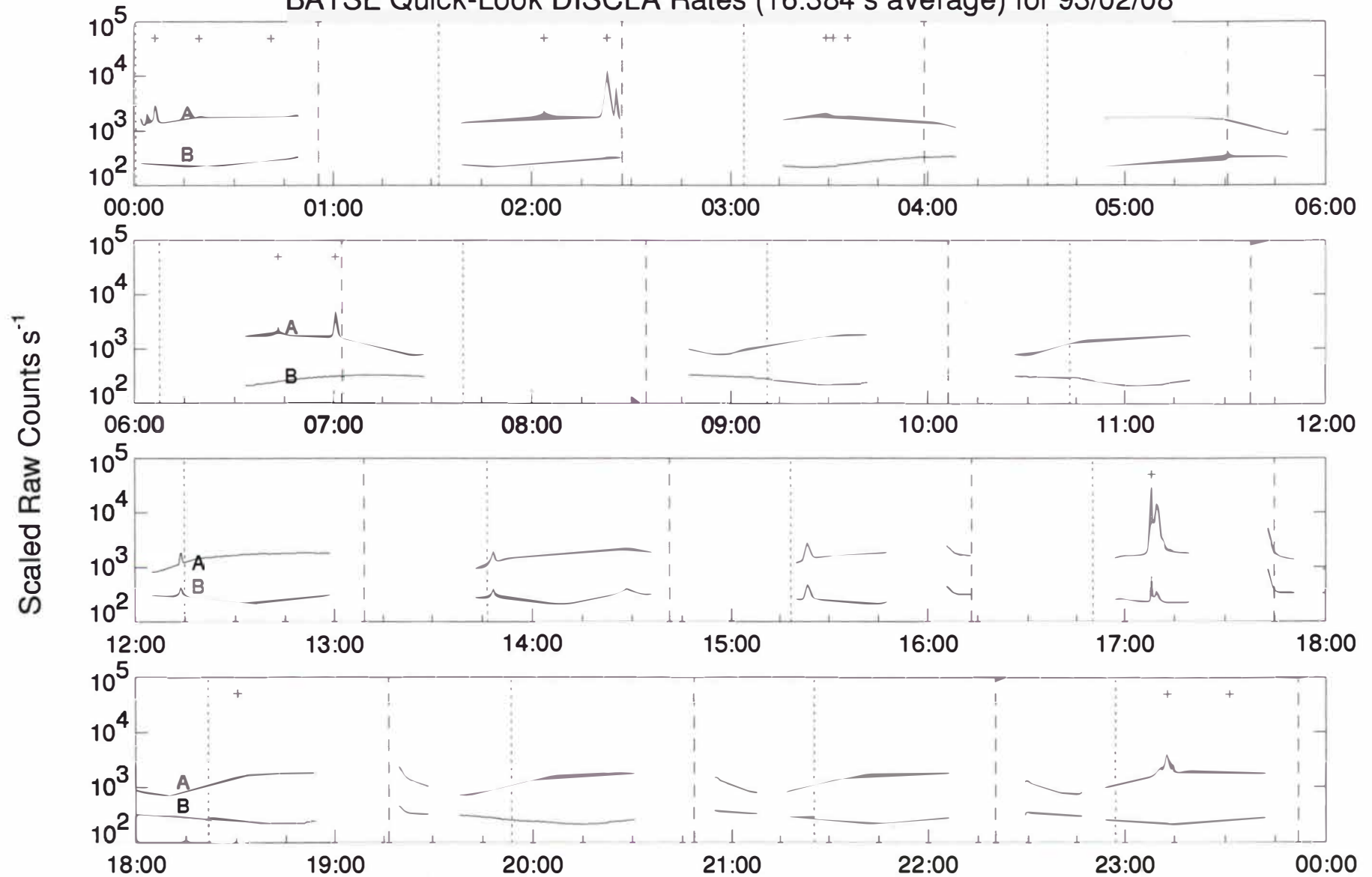
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
GOES C7.1 SOLAR FLARE. DUR.~250S. INITIAL 40 SEC SPIKE VISIBLE ABOVE 100KEV.
NOT VISIBLE ABOVE 300KEV.

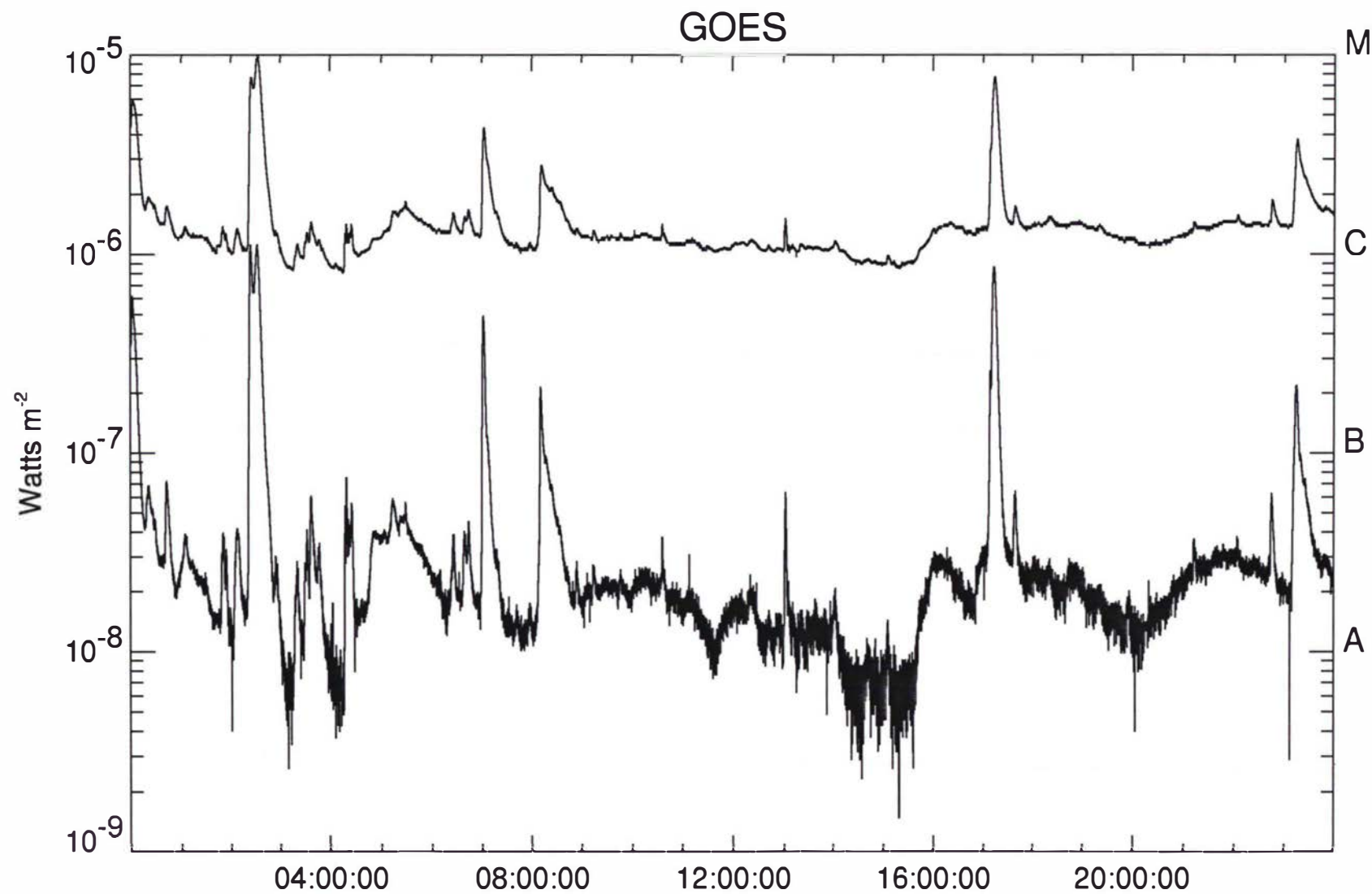
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/08



Current Time: 93/02/16, 1542 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: 93/02/08, 0000:00

Plot created: 95/06/01, 1627

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

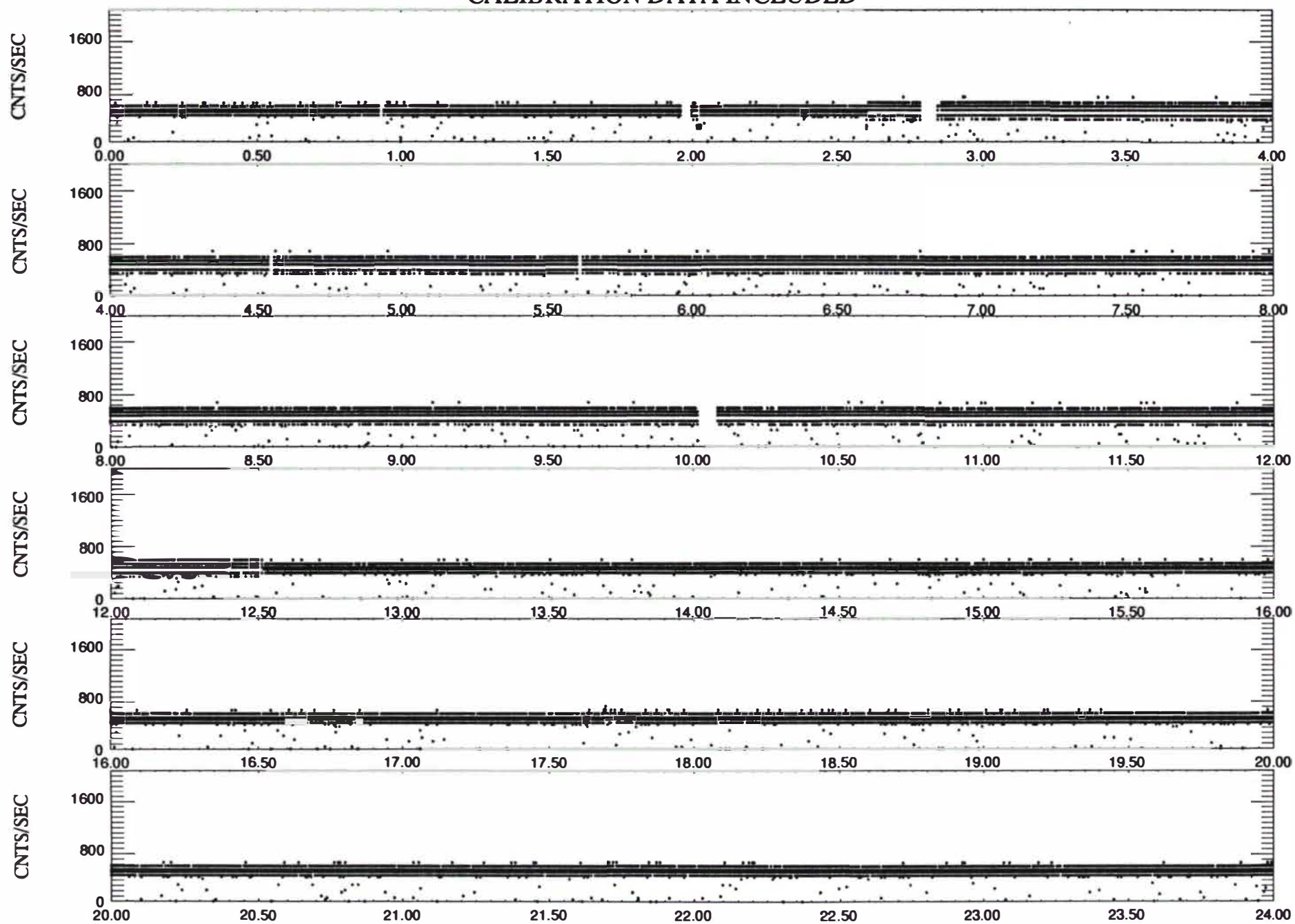
NO BURST (0)

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

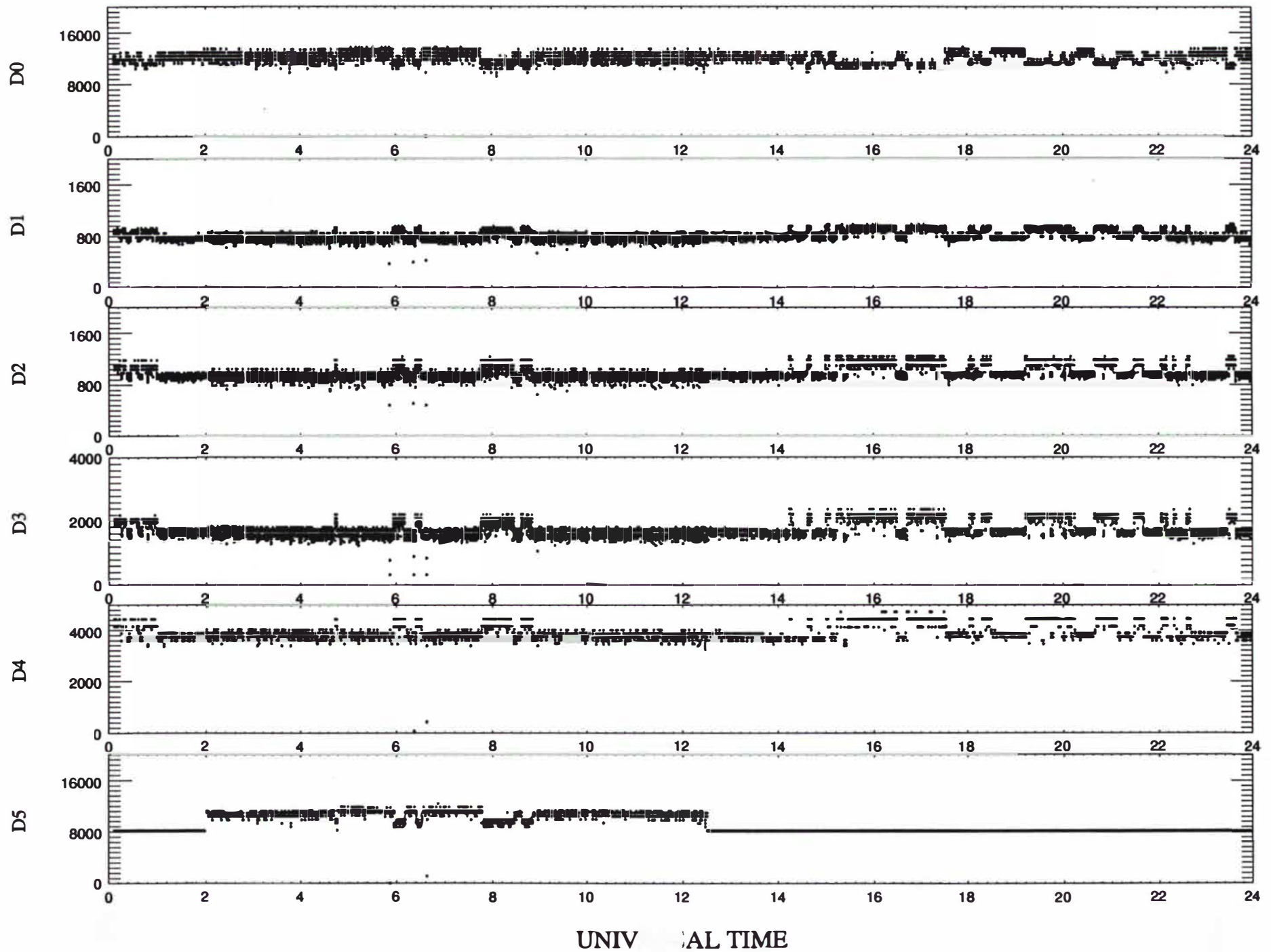


UNIV1 AL TIME

CALIBRATION DATA INCLUDED



UNIVI AL TIME



BATSEARCH PROGRAM

BATSE BURST # 2177
EVENT OF 1993 FEB 9 DAY OF YEAR= 40
EVENT CROSSING TIME AT BATSE : 15732. S. OR 04:22:12.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 246.000 -59.000
BATSE PEAK COUNTING RATE: 5000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 9/ 2/ 93 IS:
RA= 158.974 DEC= -14.565 DIST= 4.131 AU
BATSE-ULYSSES DISTANCE = 618057440. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=103.97 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -497.72 SECS.
CROSSING TIME AT ULYSSES IS 15234. S. OR 04:13:54 +/- 389.78 SECONDS

*Not in 4B catalog due to
superimposed solar event*

*Kommers untuggered
event*

From BRAINERD@ssl.msfc.nasa.gov Thu Feb 11 11:42:30 1993
Date: Thu, 11 Feb 1993 13:42:45 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2177	930209	9027	15732	5000	246	-59

RI

From BRAINERD@ssl.msfc.nasa.gov Thu Feb 11 11:25:07 1993
Date: Thu, 11 Feb 1993 13:25:01 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov (Jim Brainerd, (205) 544-4970)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1539

BATSE BURST TRIGGER

NO.: 02177

TIME: TJD=9027 SECONDS=15354

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=92.6 AZIMUTH=339.2 ERROR= DEGREES

COMMENTS:

GOES C2.6 SOLAR FLARE FOLLOWED BY AN UNTRIGGERED GAMMA-RAY BURST. SOLAR FLARE LASTS 240 SECONDS AND DOES NOT APPEAR ABOVE 300 KEV. THE GAMMA-RAY BURST STARTS 380 SECONDS AFTER THE TRIGGER AND LASTS 130 SECONDS. THE GAMMA-RAY BURST APPEARS ABOVE 300KEV AND HAS TWO COMPONENTS, THE FIRST A FAST RISE AND EPONENTIAL DECAY OUTBURST AND THE SECOND A LOWER FLUX OUTBURST.

From BRAINERD@ssl.msfc.nasa.gov Thu Feb 11 11:29:34 1993
Date: Thu, 11 Feb 1993 13:29:35 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov (Jim Brainerd, (205) 544-4970)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02178

TIME: TJD=9027 SECONDS=26320

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=101.8 AZIMUTH=341.6 ERROR= DEGREES

COMMENTS:

GOES M1.0 SOLAR FLARE OF 250 SECOND DURATION. NOT SEEN ABOVE 100KEV.

Date: Dec 16 '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)? *N/A*
- ☒ 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?

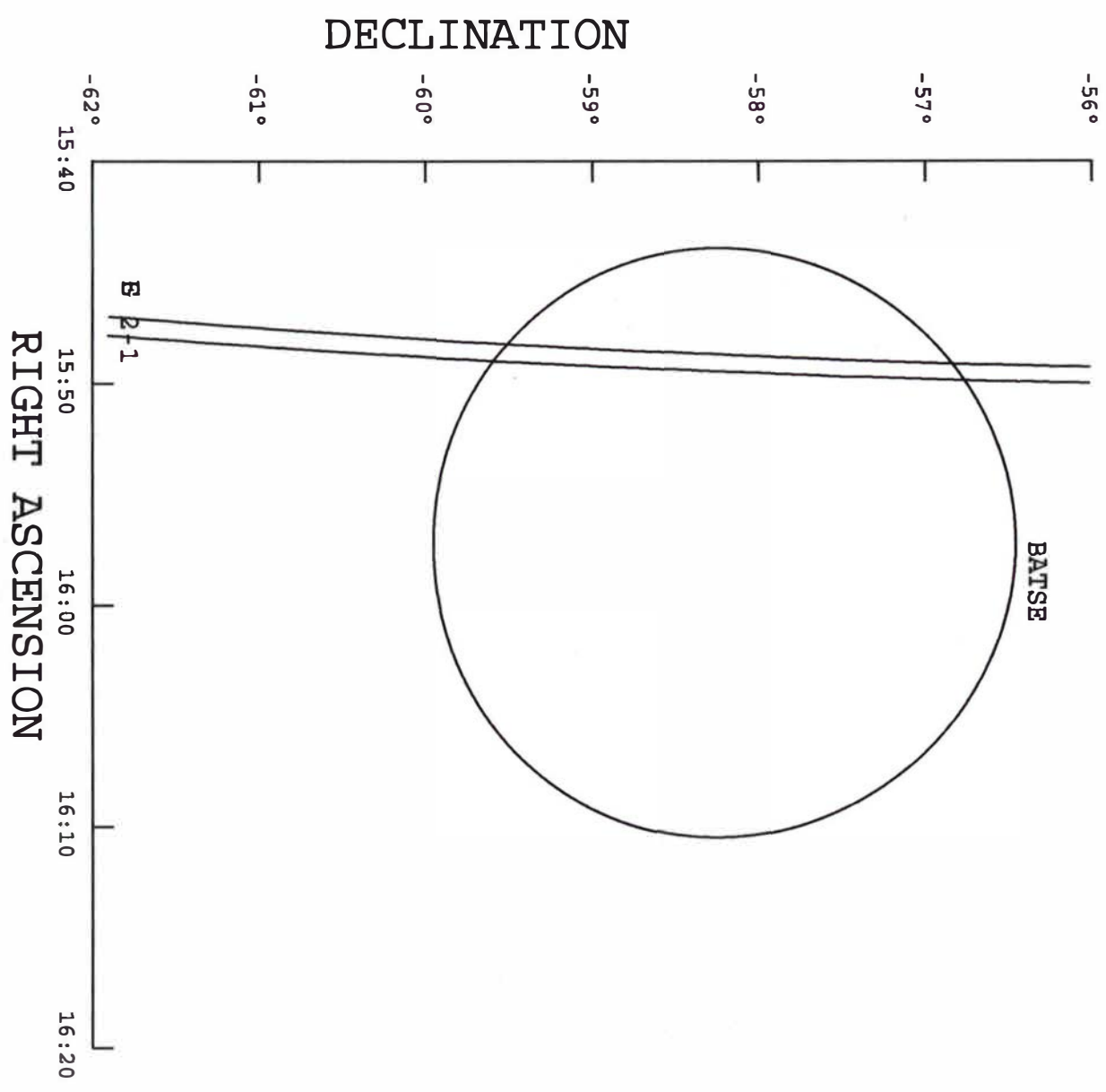
- ☒ ACCESS database updated?

*No - event is not in the BATSE catalog due to superimposed solar burst
Put in later*

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 FEB 9, 1993 4:10

24 / 2 / 4



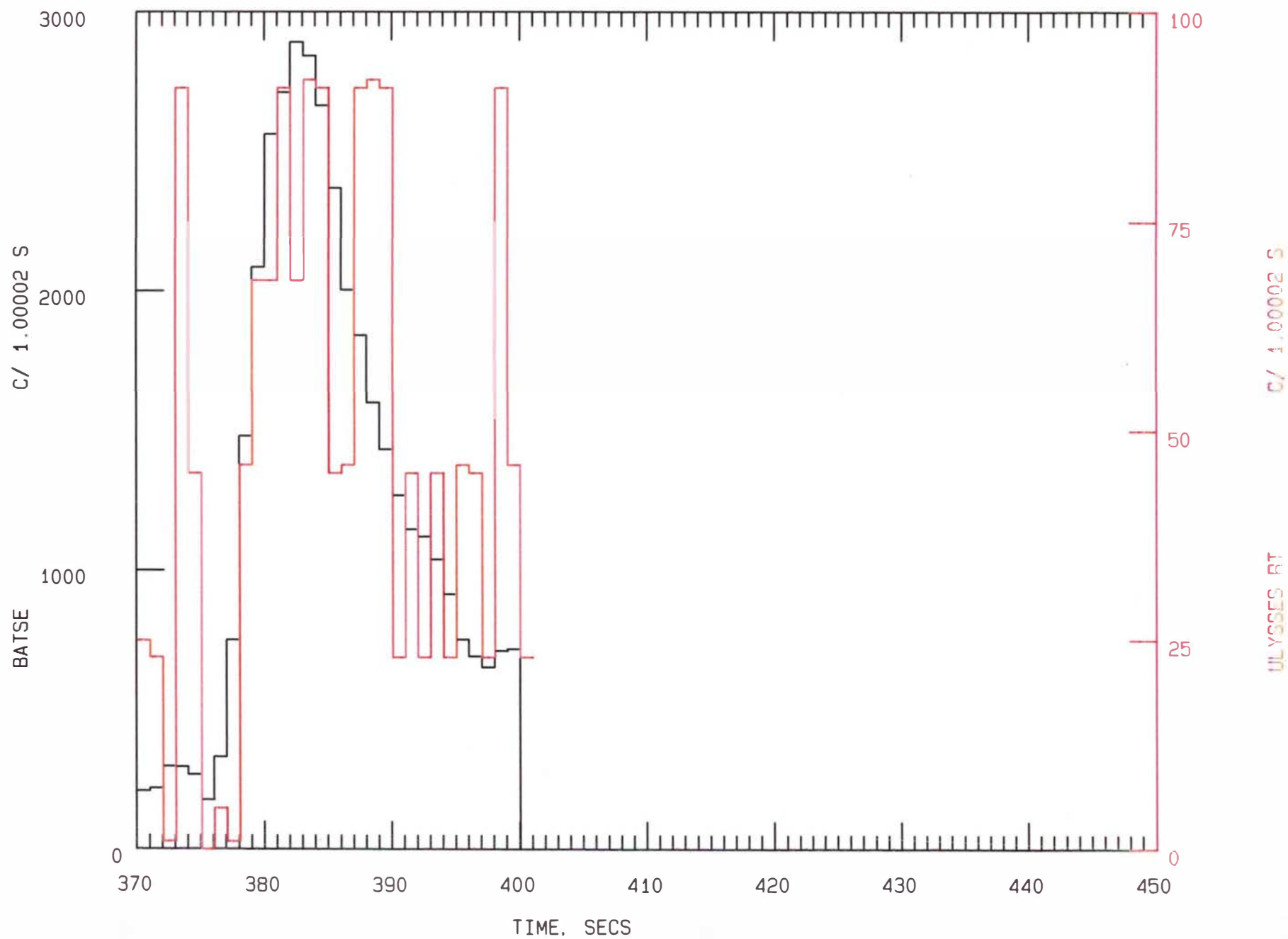
BATSE

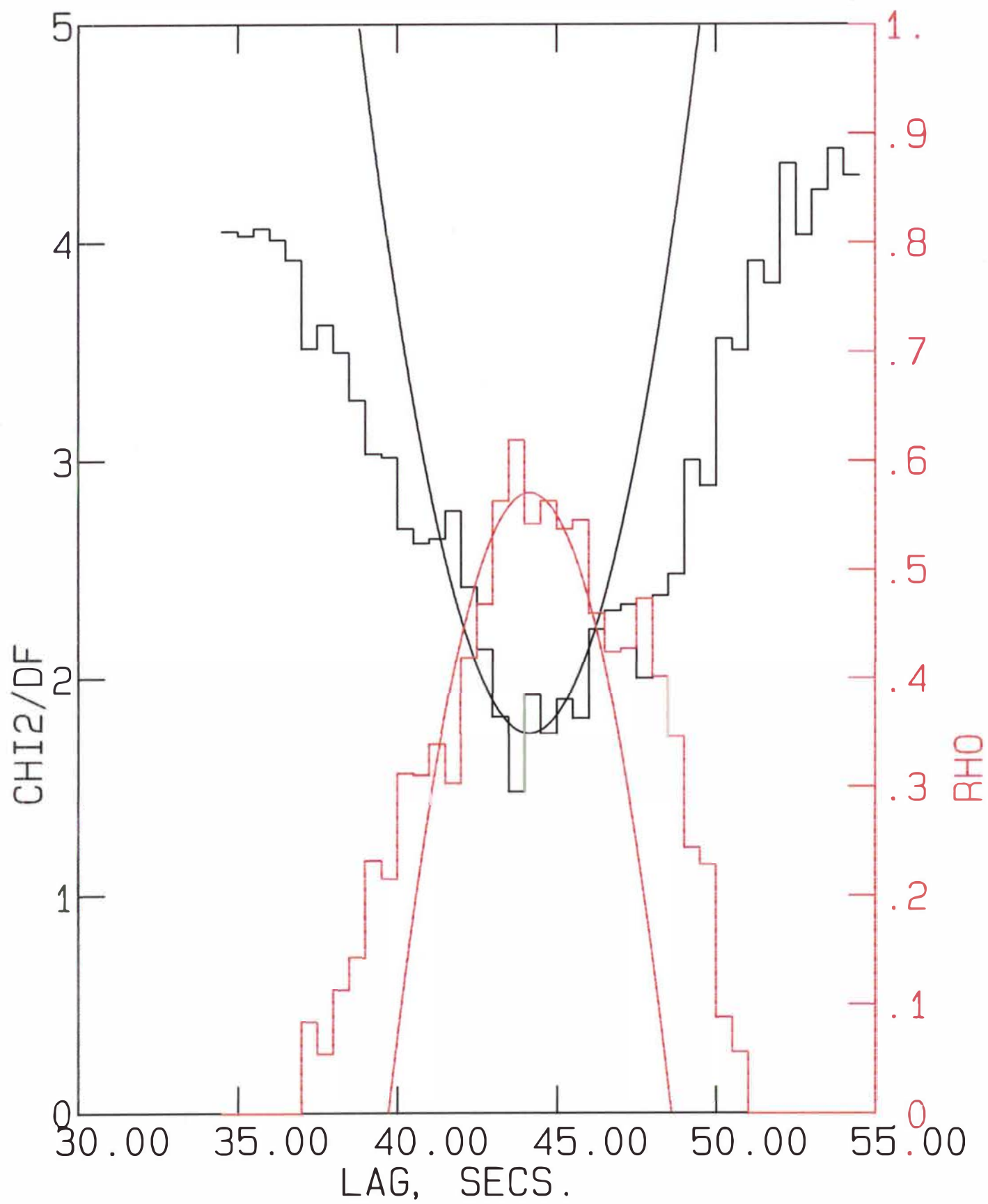
-ULYSSES RT CORRELATION

9/ 2/93

15354.498

16/12/97





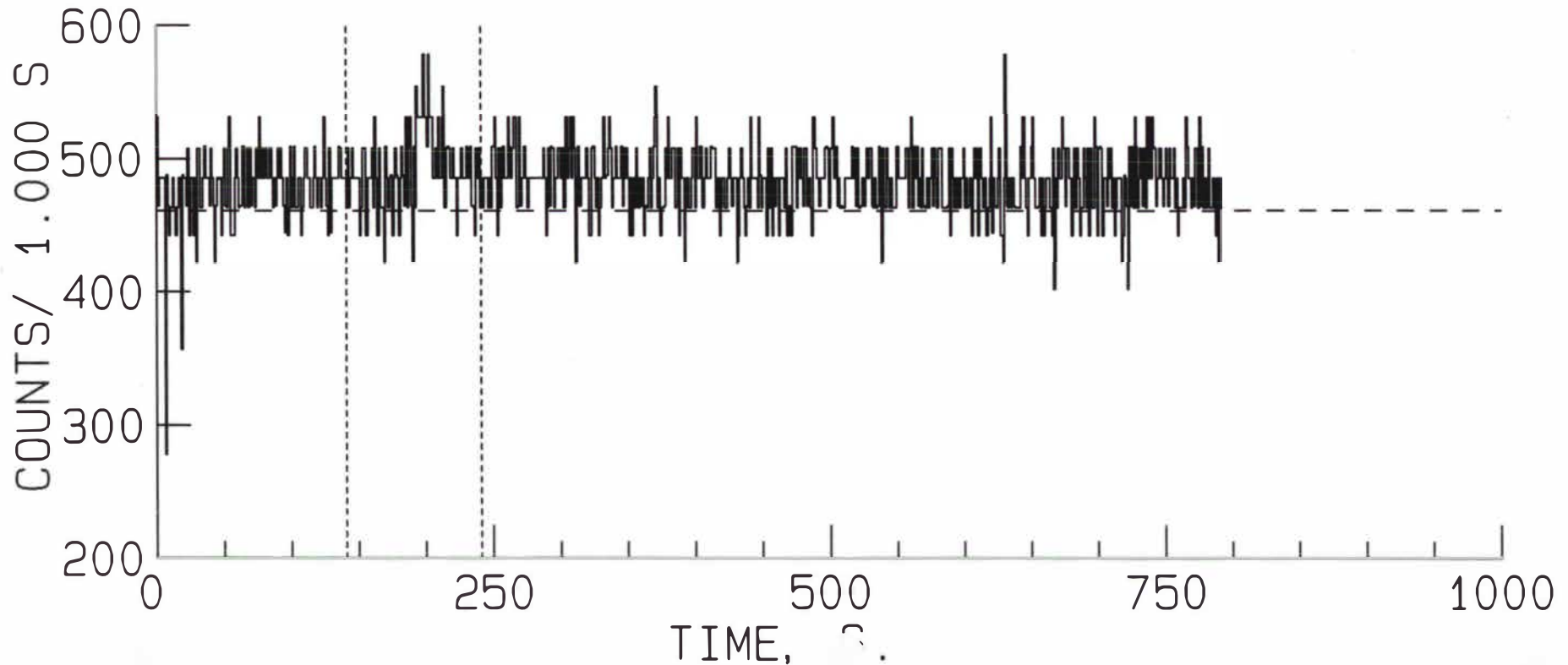
ULYSSES RT

16/12/97

9/ 2/93 14868.445 s

0.500 S INTERVALS REGROUPED BY 2
21- 146 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS



BATSE

09/02/93

15354.498

30- 100 keV

COUNTS/ .064 S

250

500

750

370

386

402

418

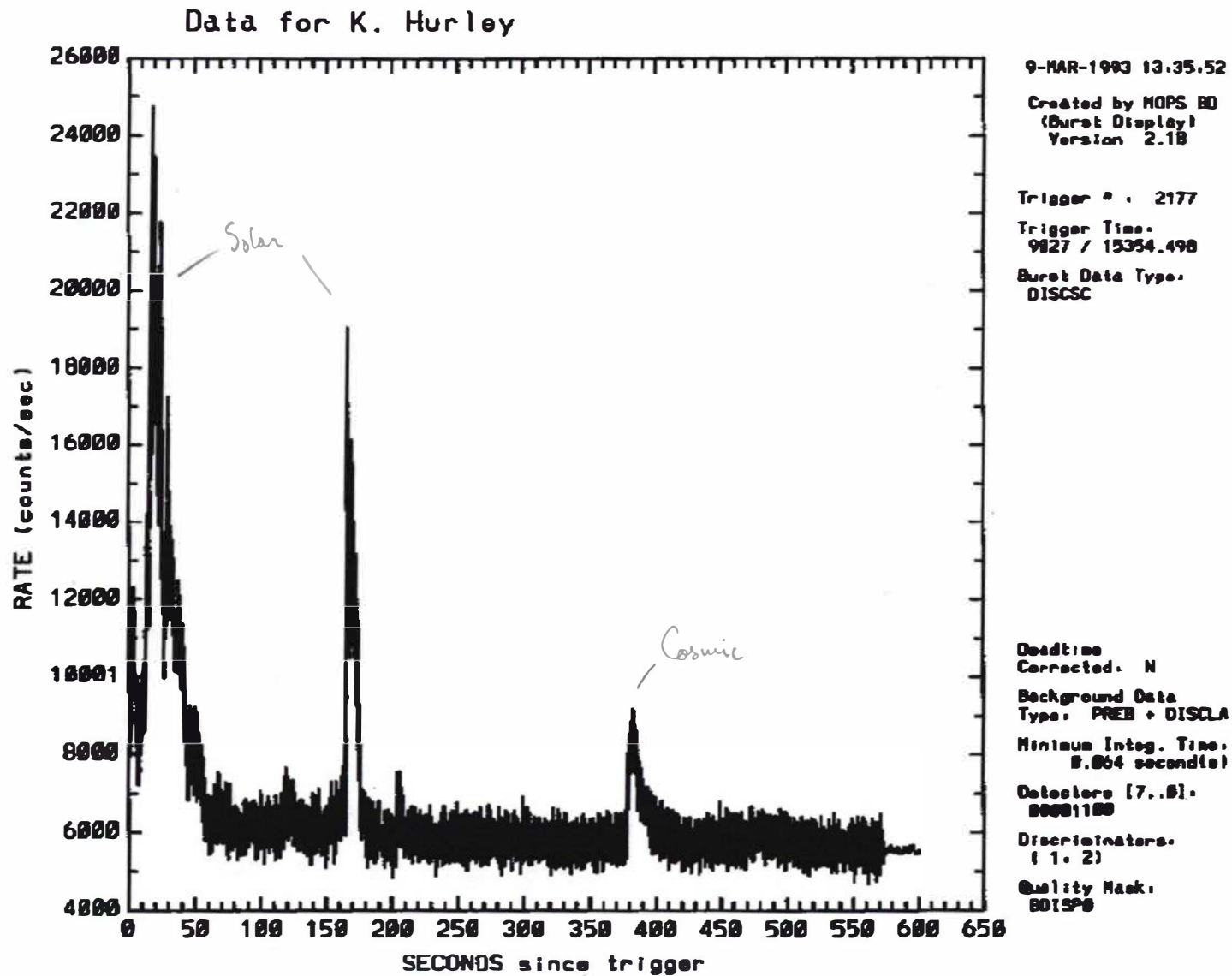
434

450

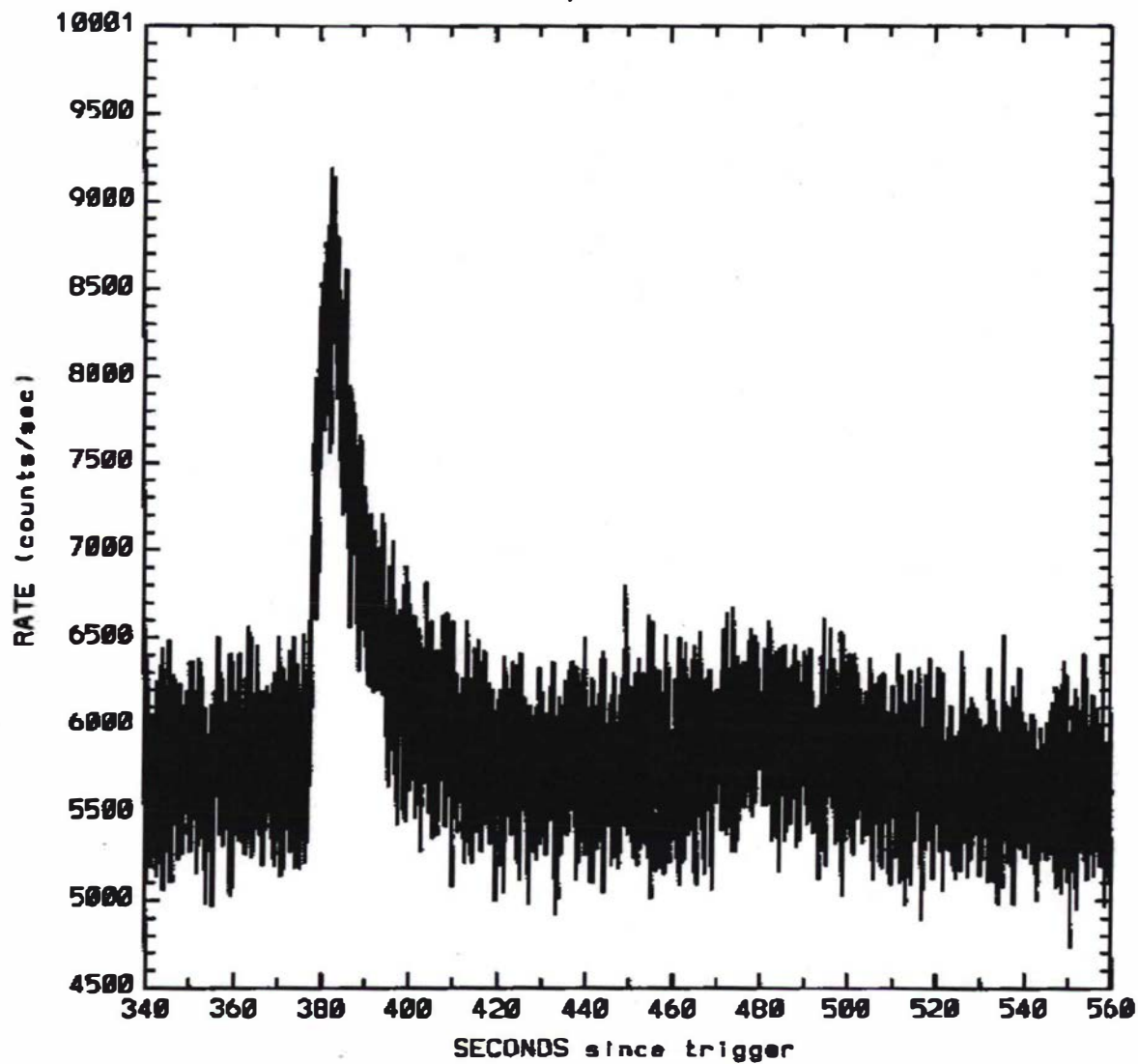
T^{IME}, SECS

8 / 6 / 95

DISCSC file has ~ 10000
count rates. Modify BATFILE.Scr
to accept this way + run it



Data for K. Hurley



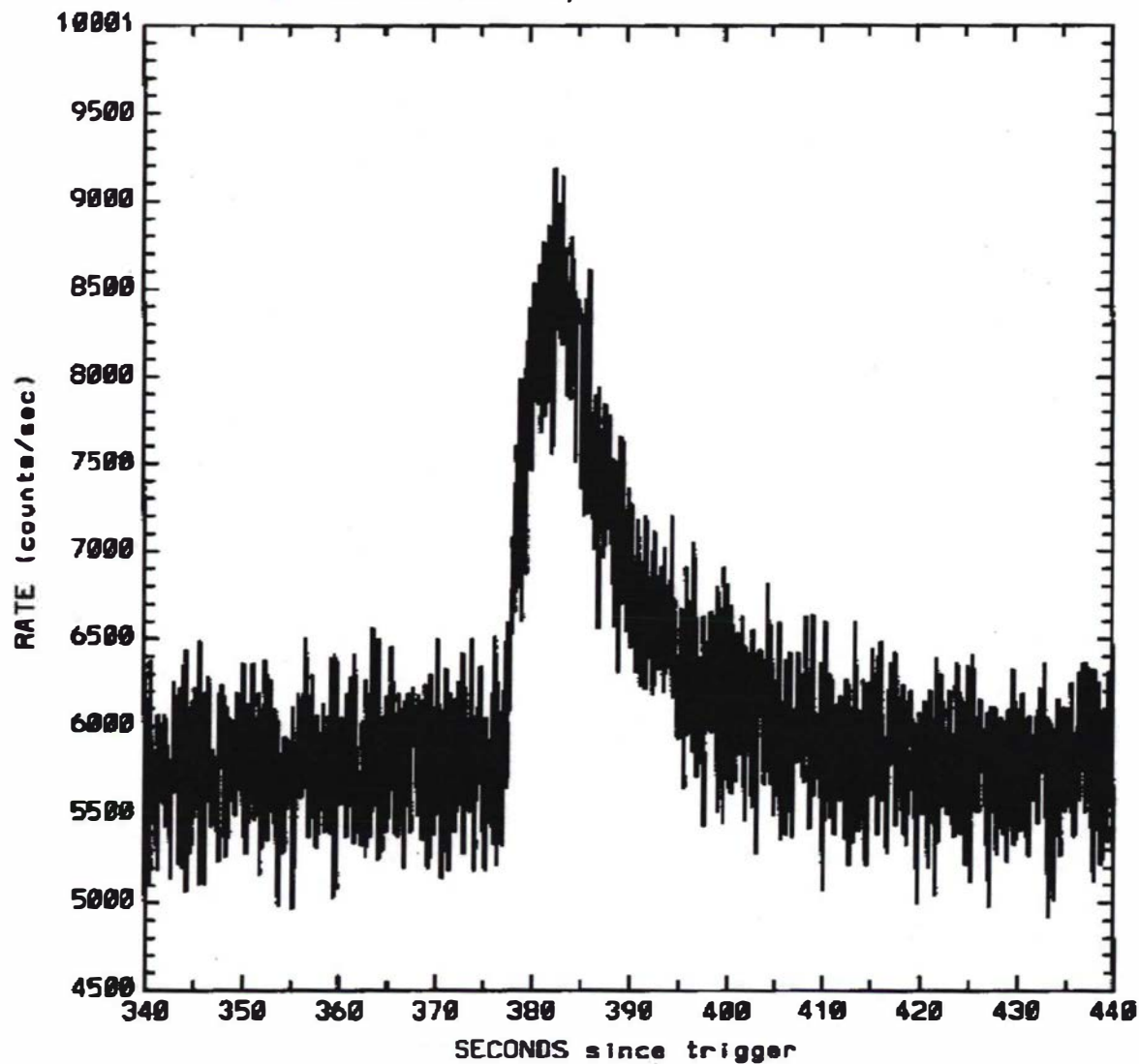
9-MAR-1993 13:36.43

Created by MOPS 80
(Burst Display)
Version 2.18

Trigger # : 2177

Trigger Time:
9827 / 15354.498Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
8.864 secondsDetectors [7..8]:
00001100Discriminators:
1 1. 2)Quality Mask:
80ISPO

Data for K. Hurley



9-MAR-1993 13.38.84

Created by MOPS 80
(Burst Display)
Version 2.18

Trigger # : 2177

Trigger Time:
9827 / 15354.498Burst Data Type:
DISCSCDeadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)Detectors [7..8]:
00001100Discriminators:
[1, 2]Quality Mask:
8015P8

From BRAINERD@ssl.msfc.nasa.gov Thu Feb 11 11:34:22 1993
Date: Thu, 11 Feb 1993 13:34:07 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov (Jim Brainerd, (205) 544-4970)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02179

TIME: TJD=9027 SECONDS=40315

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From BRAINERD@ssl.msfc.nasa.gov Thu Feb 11 11:37:46 1993
Date: Thu, 11 Feb 1993 13:37:44 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov (Jim Brainerd, (205) 544-4970)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02180

TIME: TJD=9027 SECONDS=53162

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

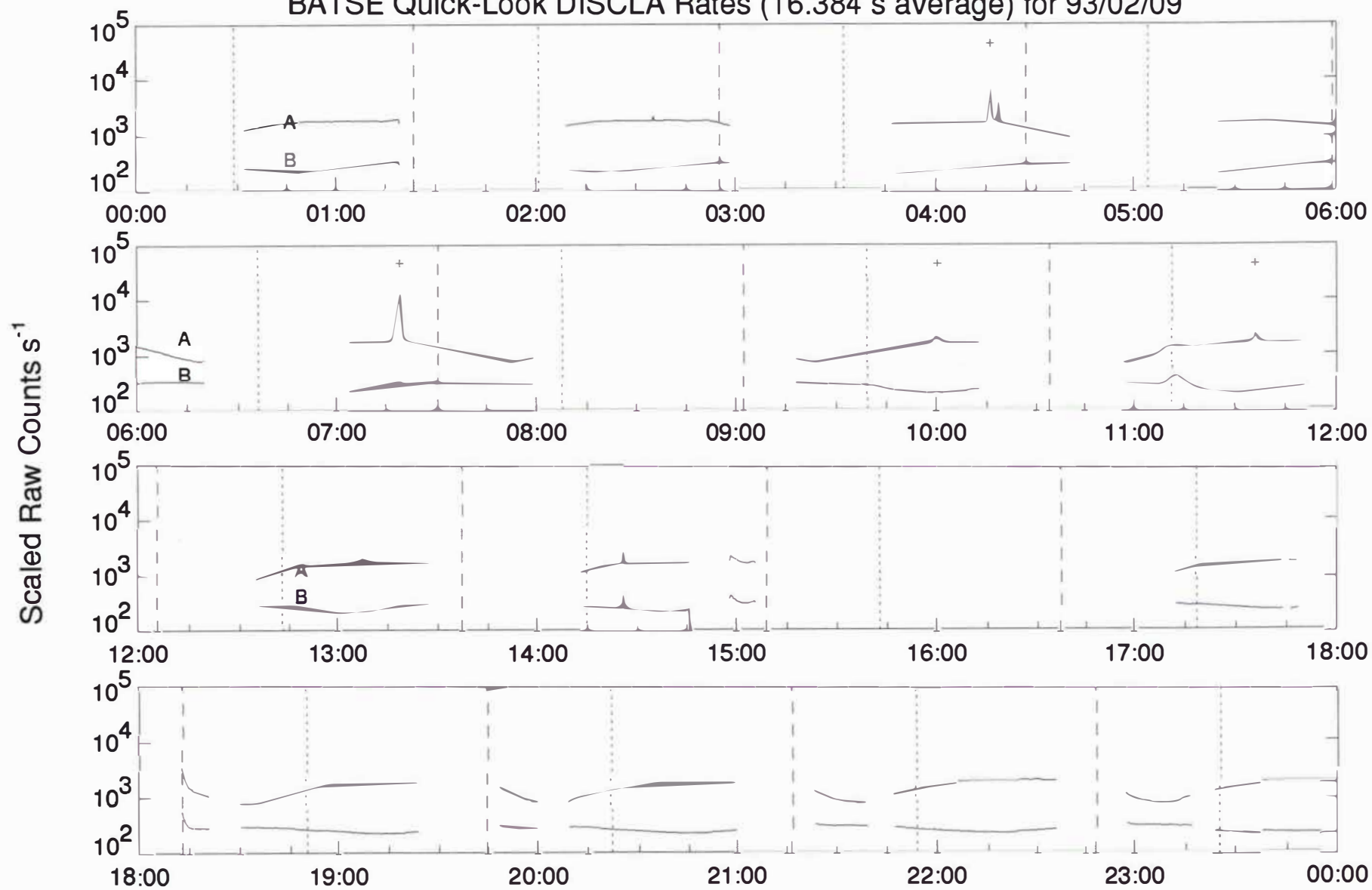
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/09



Current Time: 93/02/16, 1543 EDT

A: Channel 1 Most Sunward LAD

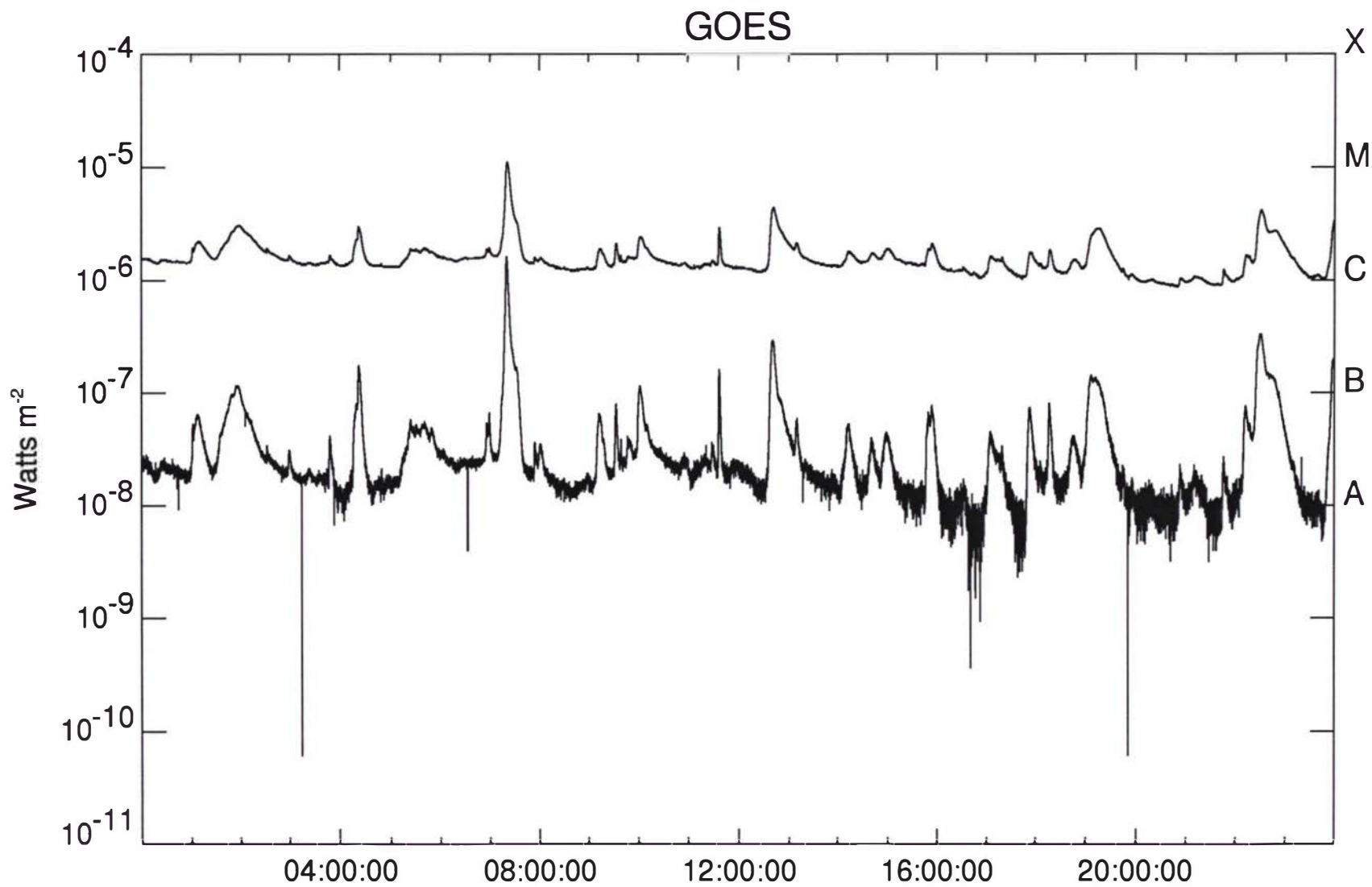
B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry

Dashed line: Night entry

* Solar Burst Trigger

+ Solar Flare

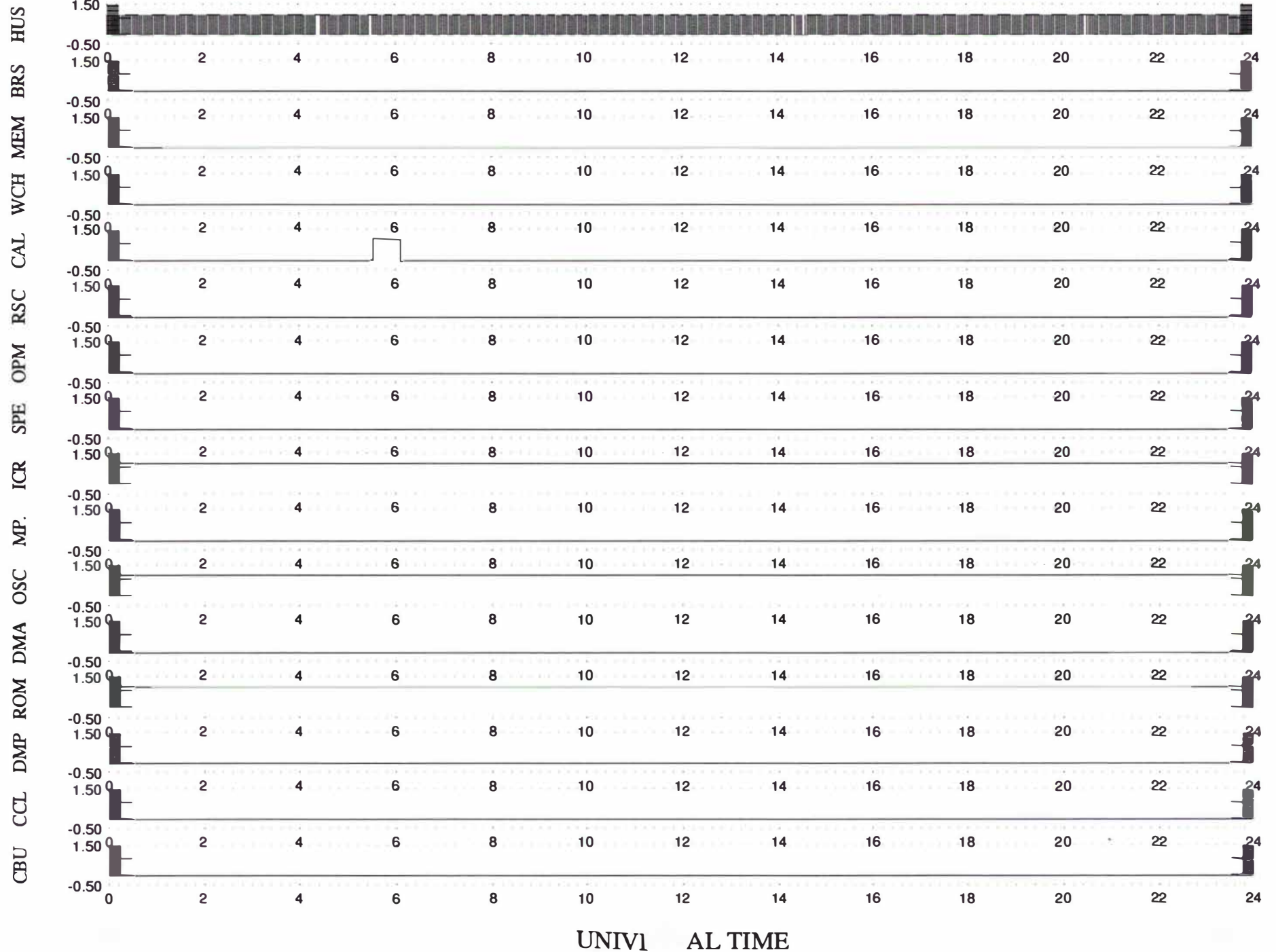


Data Start: 93/02/09, 0000:00

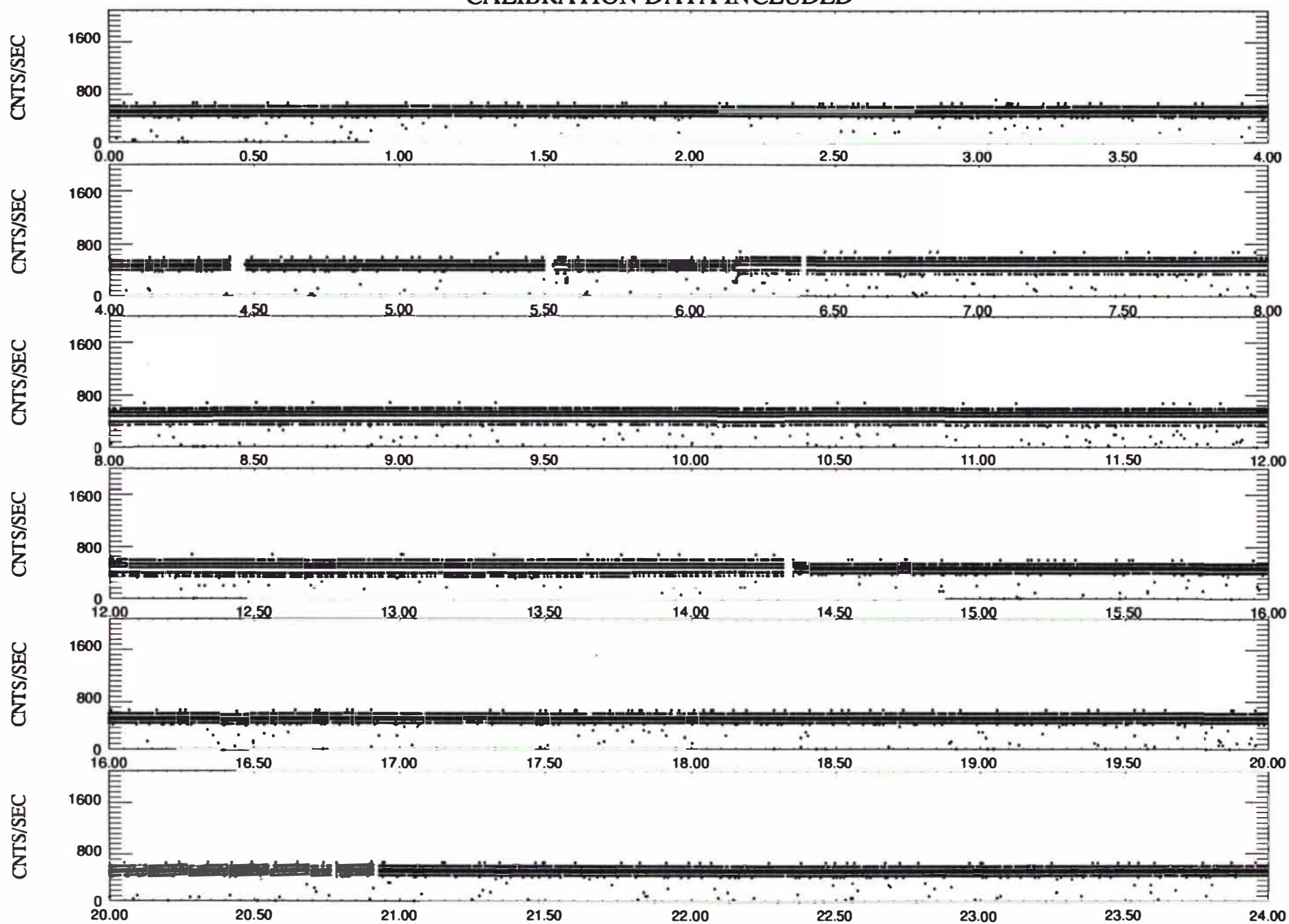
Plot created: 95/06/01, 1630

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted

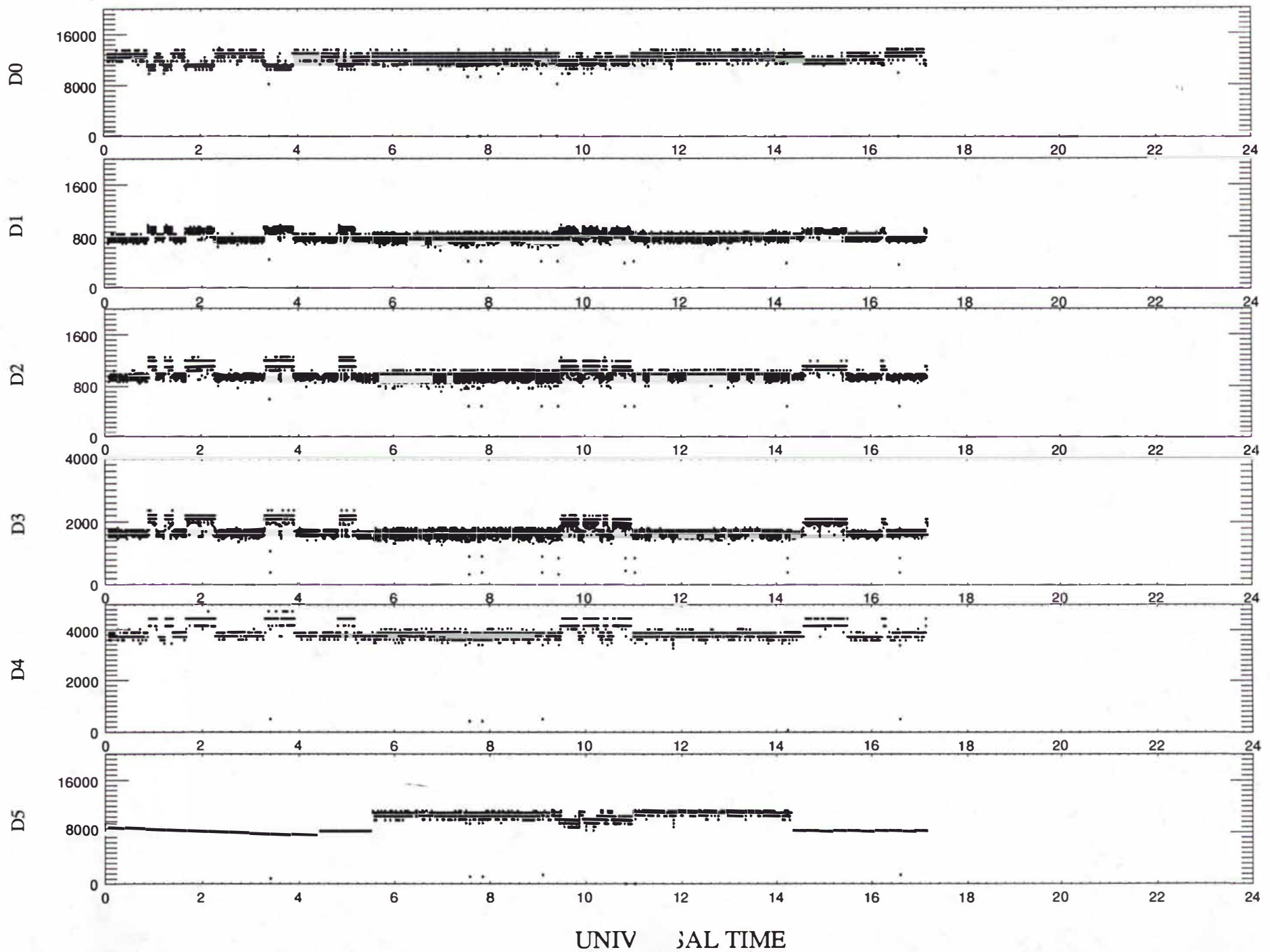
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIV AL TIME



CATSEARCH PROGRAM

BATSE BURST # 2181
EVENT OF 1993 FEB 10 DAY OF YEAR= 41
EVENT CROSSING TIME AT BATSE : 7812. S. OR 02:10:11.7
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 255.700 25.000
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 10/ 2/ 93 IS:
RA= 158.742 DEC= -14.588 DIST= 4.122 AU
BATSE-ULYSSES DISTANCE = 616681120. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 77.72 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 437.52 SECS.
CROSSING TIME AT ULYSSES IS 8249. S. OR 02:17:29.2 +/- 405.60 SECONDS

No

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 11 11:47:22 1993
Date: Thu, 11 Feb 1993 13:47:01 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02181

TIME: TJD=9028 SECONDS=07881

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=083.6 AZIMUTH=046.1 ERROR= DEGREES

COMMENTS:

SINGLE PEAK BURST WITH POSSIBLE SLIGHT EMISSION ABOVE 300 KEV.
DURATION APPROX. 70 SEC.

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 11 11:49:11 1993
Date: Thu, 11 Feb 1993 13:49:28 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu", BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2181	930210	9028	07881	2800	248	+24

9 / 6 / 94

ULYSSES RT

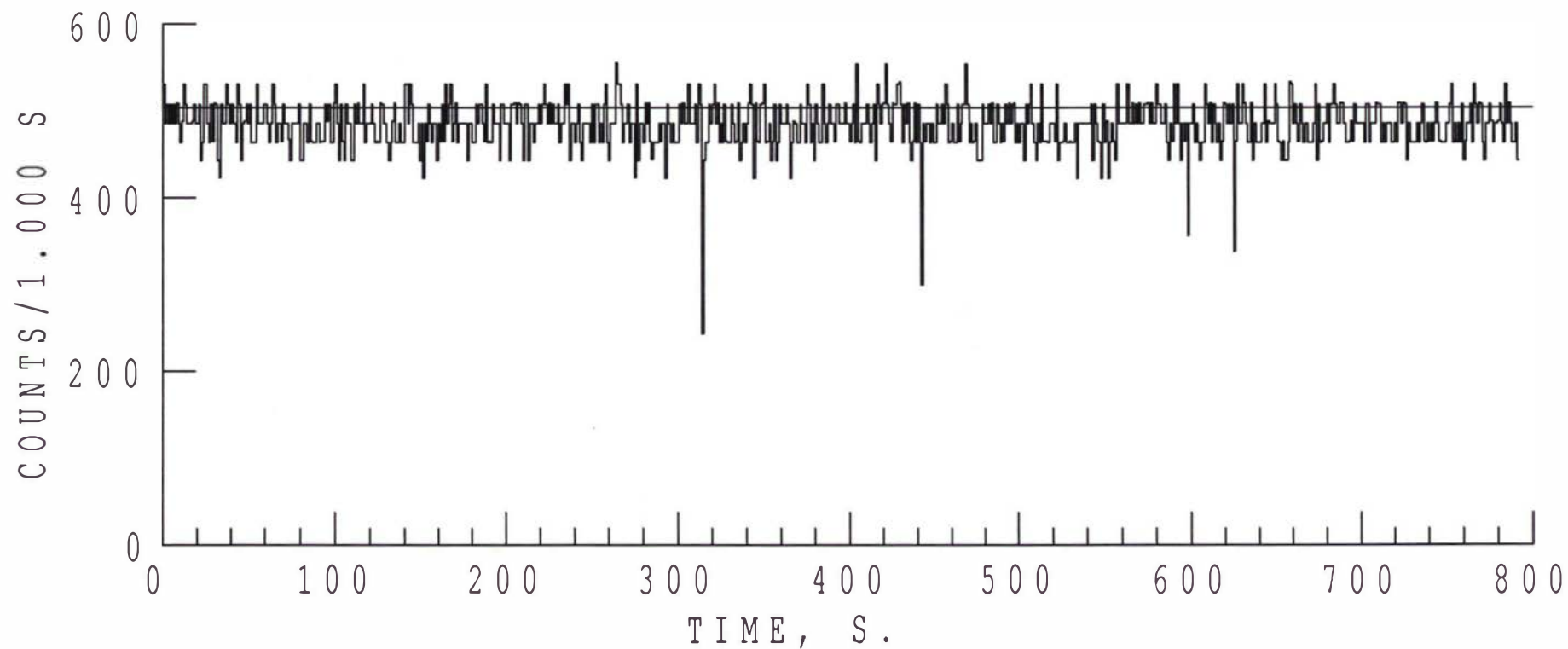
10 / 2 / 93 7848.184 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 11 11:40:30 1993
Date: Thu, 11 Feb 1993 13:39:57 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02182

TIME: TJD=9028 SECONDS=27454

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES M1.0 FLARE. DURATION APPROX. 175 SEC.
POSSIBLE SLIGHT EMISSION ABOVE 100 KEV.

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 11 11:44:08 1993
Date: Thu, 11 Feb 1993 13:43:49 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02183

TIME: TJD=9028 SECONDS=31027

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

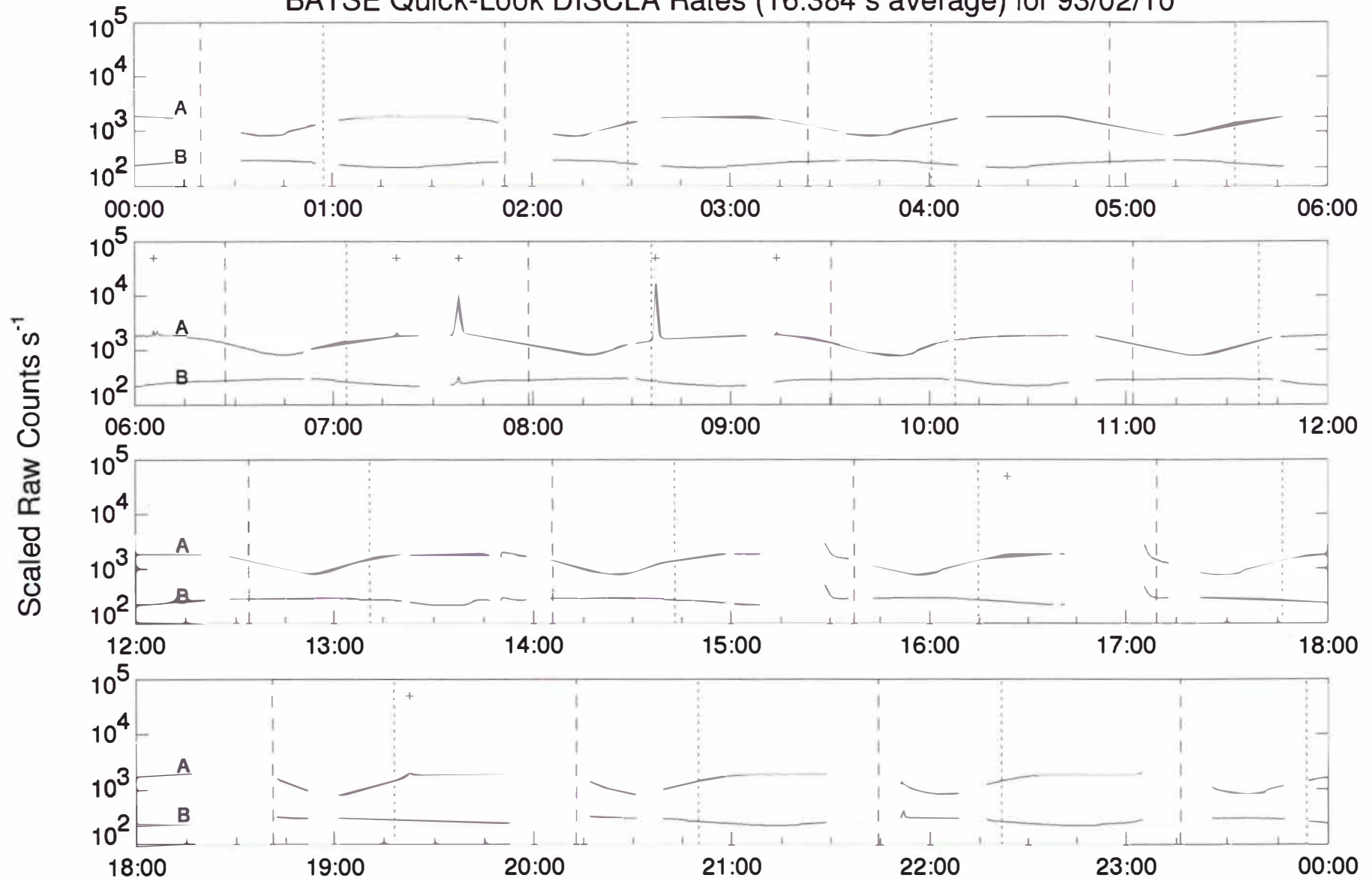
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES M1.5 FLARE. CLEARLY OBSERVED ABOVE 100 KEV, BUT NOT ABOVE
300 KEV. DURATION APPROX. 95 SEC.

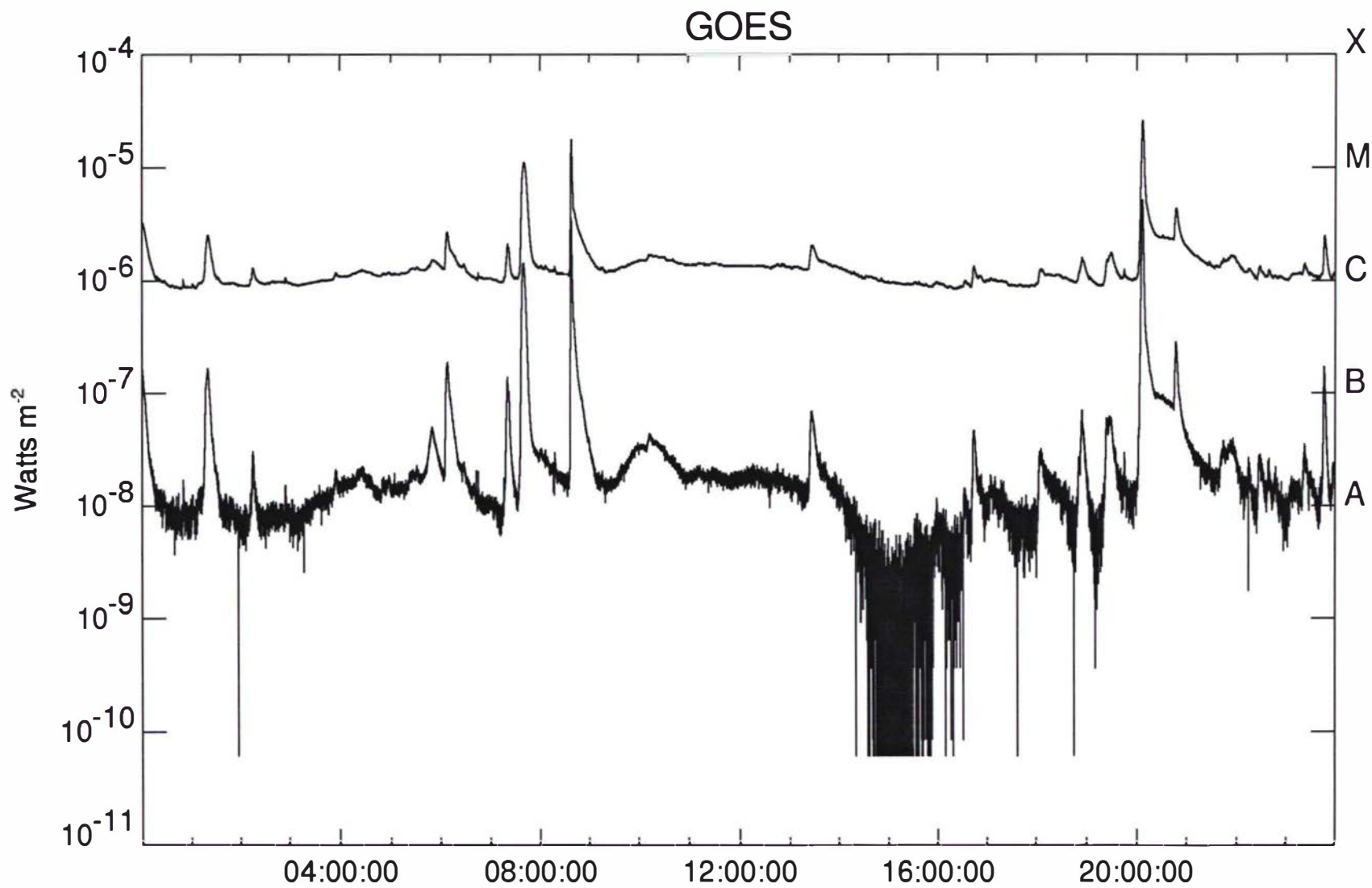
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/10



Current Time: 93/02/16, 1545 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



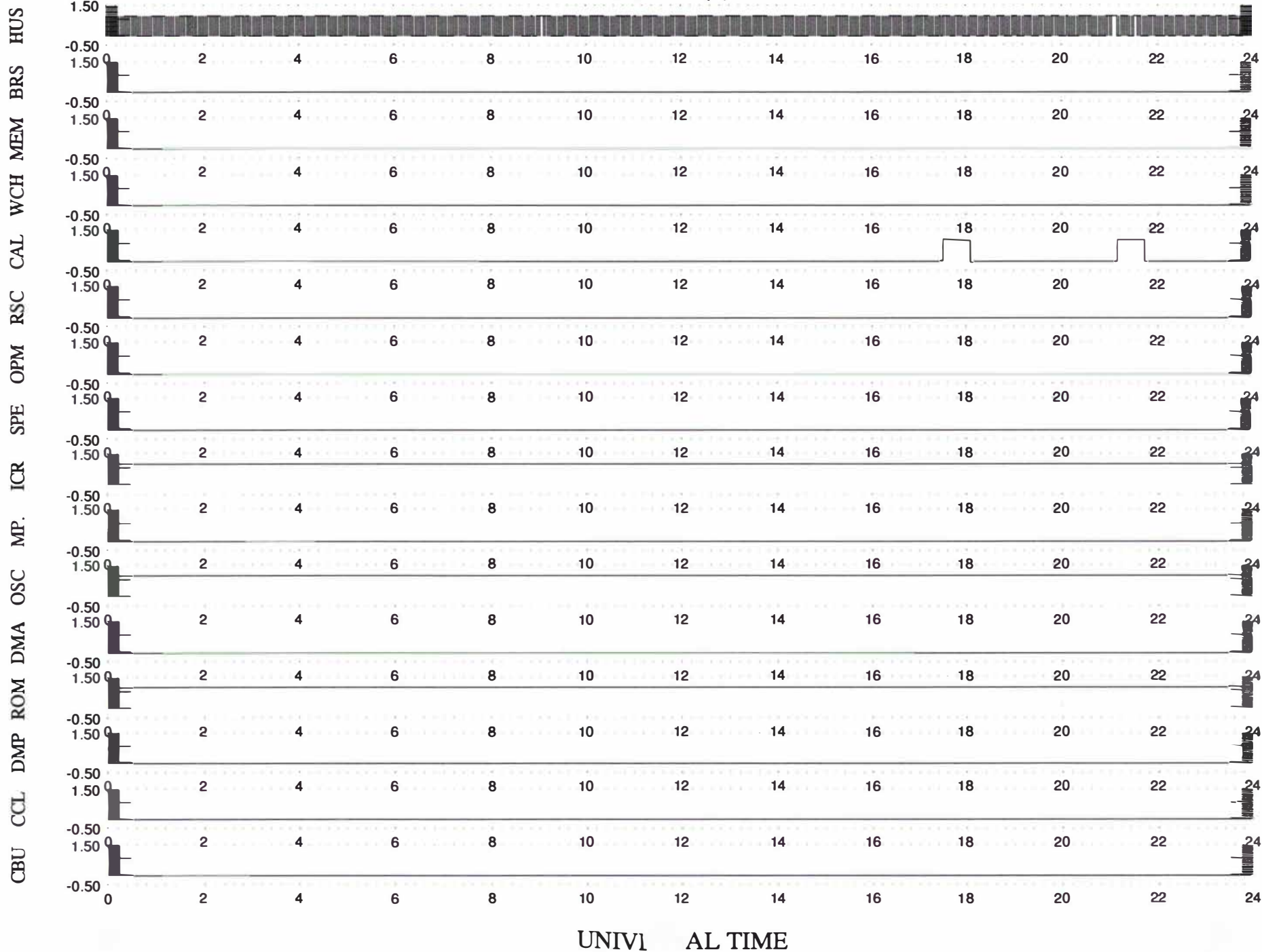
Data Start: 93/02/10, 0000:00

Plot created: 95/06/01, 1634

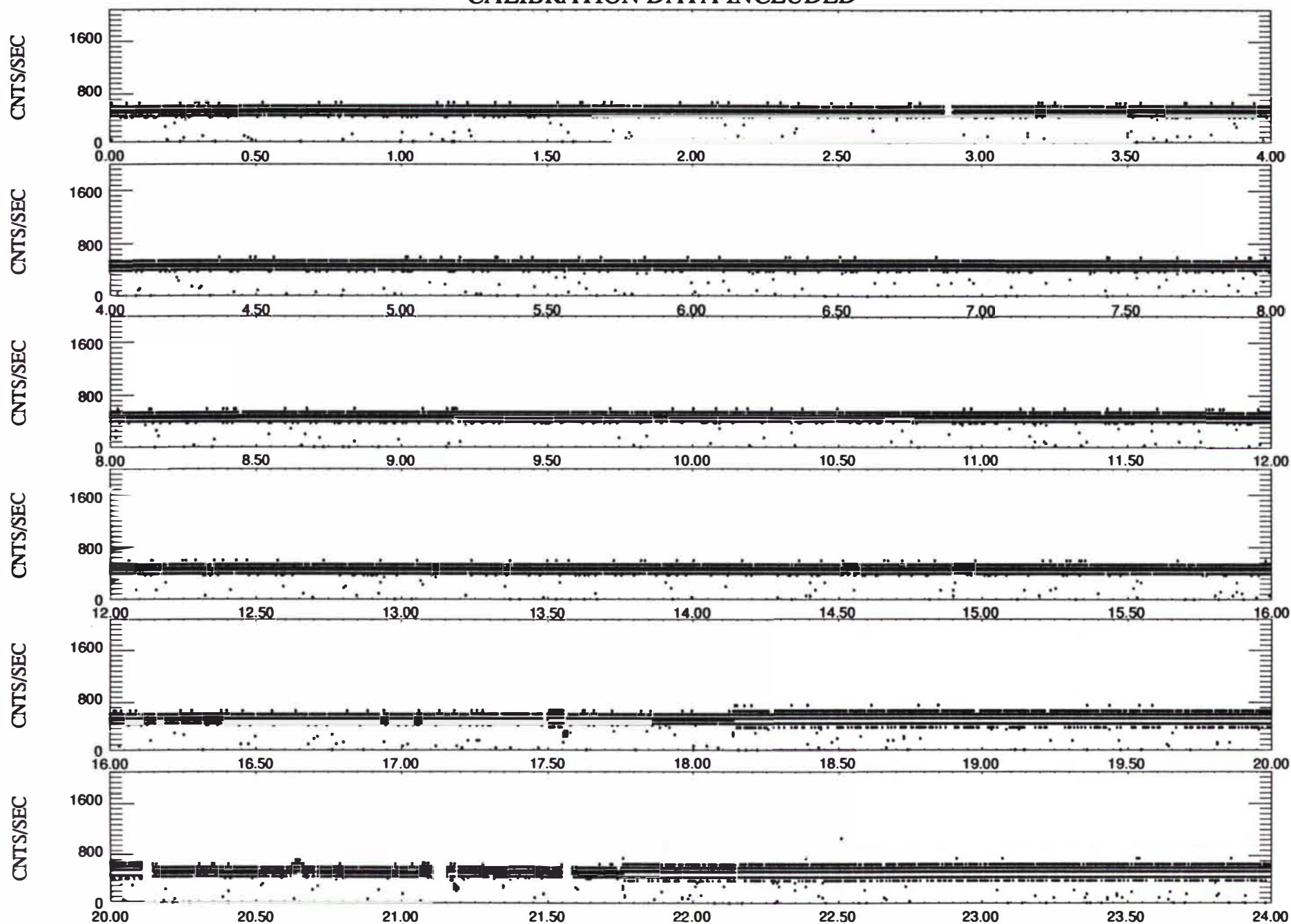
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

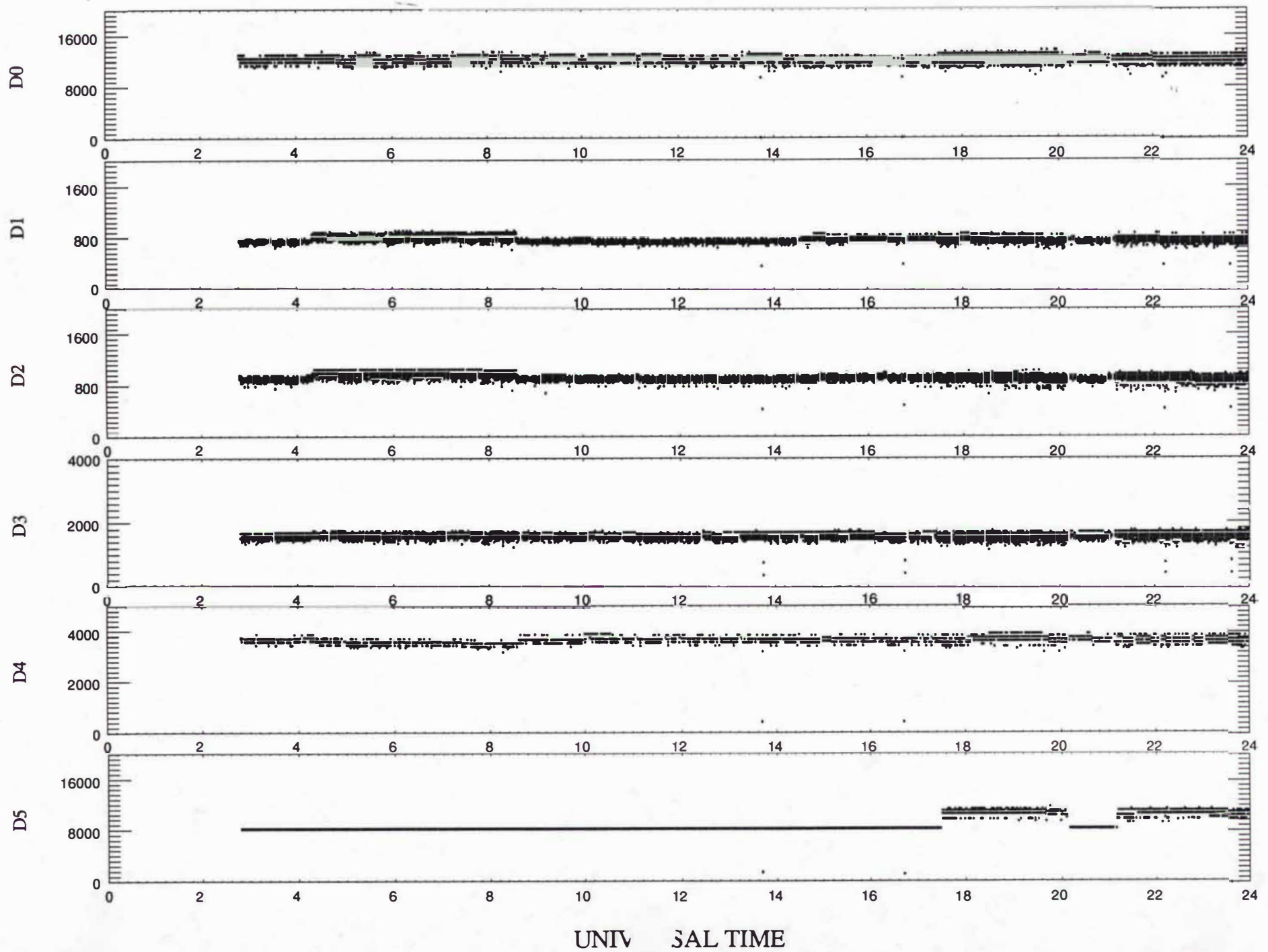
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIVERSE TIME



UNTRIGGERED

ULYSSES RT

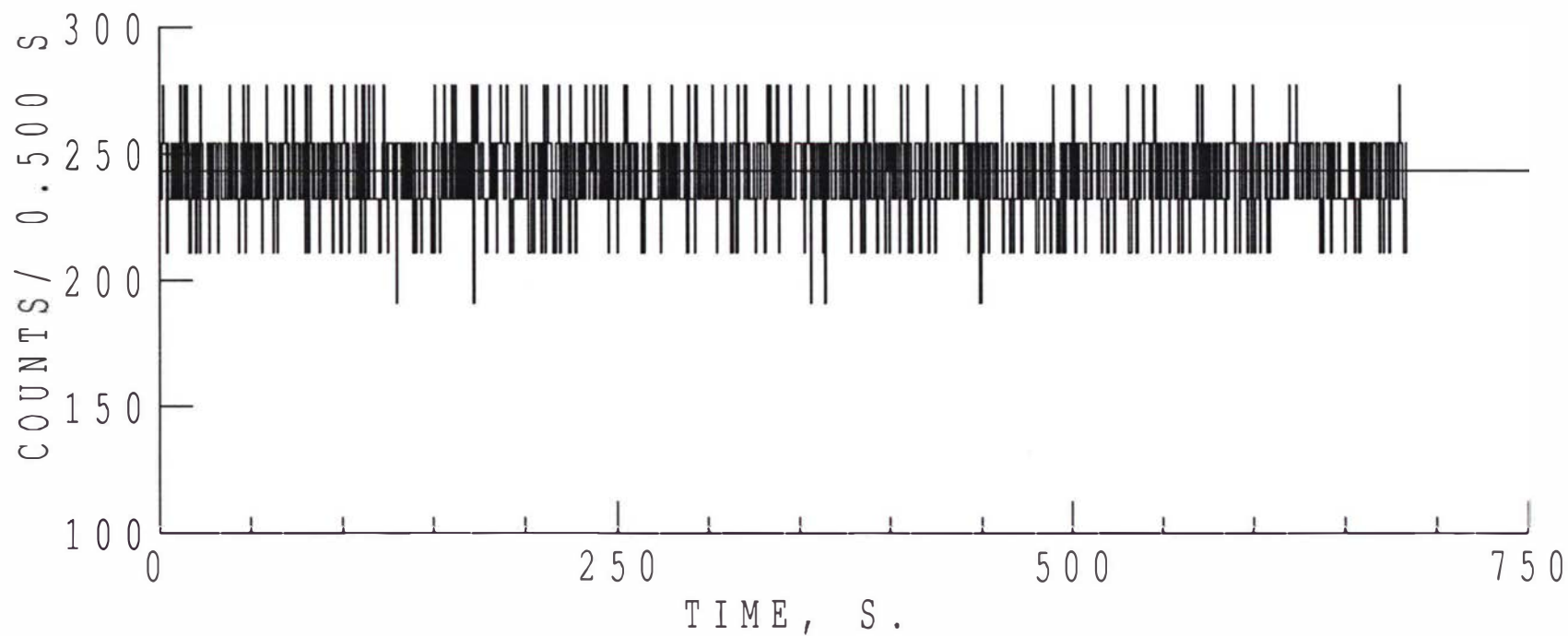
21 / 5 / 97

11 / 2 / 93 77400.125 s

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From BRIGGS@ssl.msfc.nasa.gov Sat Feb 13 16:05:16 1993
Date: Sat, 13 Feb 1993 18:05:21 -0600 (CST)
From: BRIGGS@ssl.msfc.nasa.gov (Michael S. Briggs, 205-544-7716, Code ES-64, MSFC)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02184

TIME: TJD=9029 SECONDS=11779

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: 5.5 SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=53.3 AZIMUTH=323.3 ERROR= DEGREES

COMMENTS:

WEAK SOLAR FLARE. SEVERAL SPIKES STARTING 100 SEC PRE-TRIGGER AND
EXTENDING 50 SEC POST-TRIGGER. GOES C3.1

BATSE BURST TRIGGER

NO.: 02185

TIME: TJD=9029 SECONDS=53095

TYPE: UNKNOWN SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=89 AZIMUTH=302.3 ERROR= DEGREES

COMMENTS:

SHORT, HARD EVENT WITH LOCATION BELOW EARTH HORIZON.
TOTAL DURATION IS 3 MSEC. EVENT CONSISTS OF TWO SEPARATED PEAKS.

BATSE BURST TRIGGER

NO.: 02186

TIME: TJD=9029 SECONDS=66663

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: 205. SIGMA

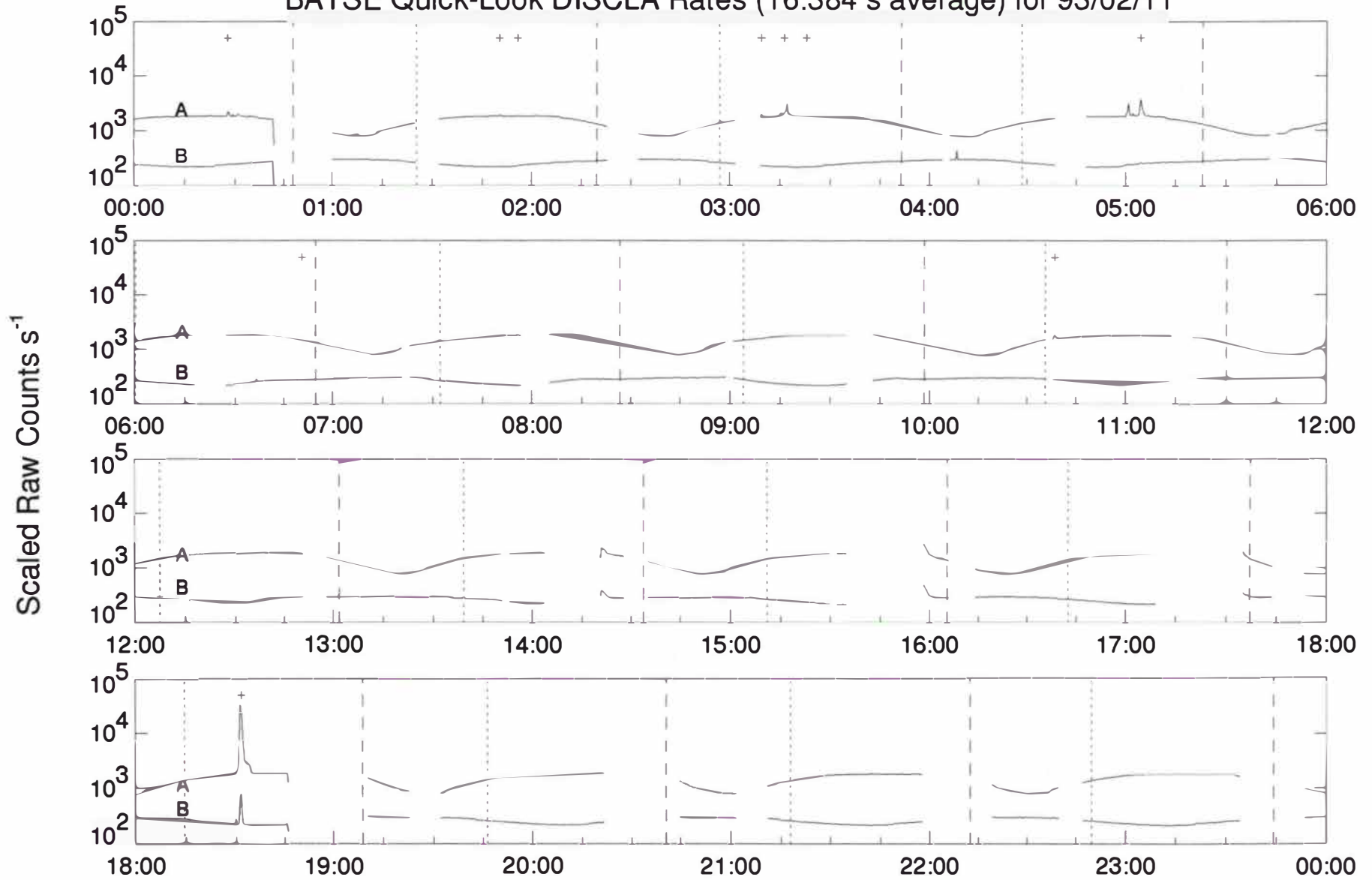
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=52.1 AZIMUTH=316.1 ERROR= DEGREES

COMMENTS:

STRONG SOLAR FLARE. GOES M2.7. STARTS 15 SEC PRE-TRIGGER AND EXTENDS
TO >60 SEC POST-TRIGGER. BARELY VISIBLE ABOVE 300 KEV.

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/11



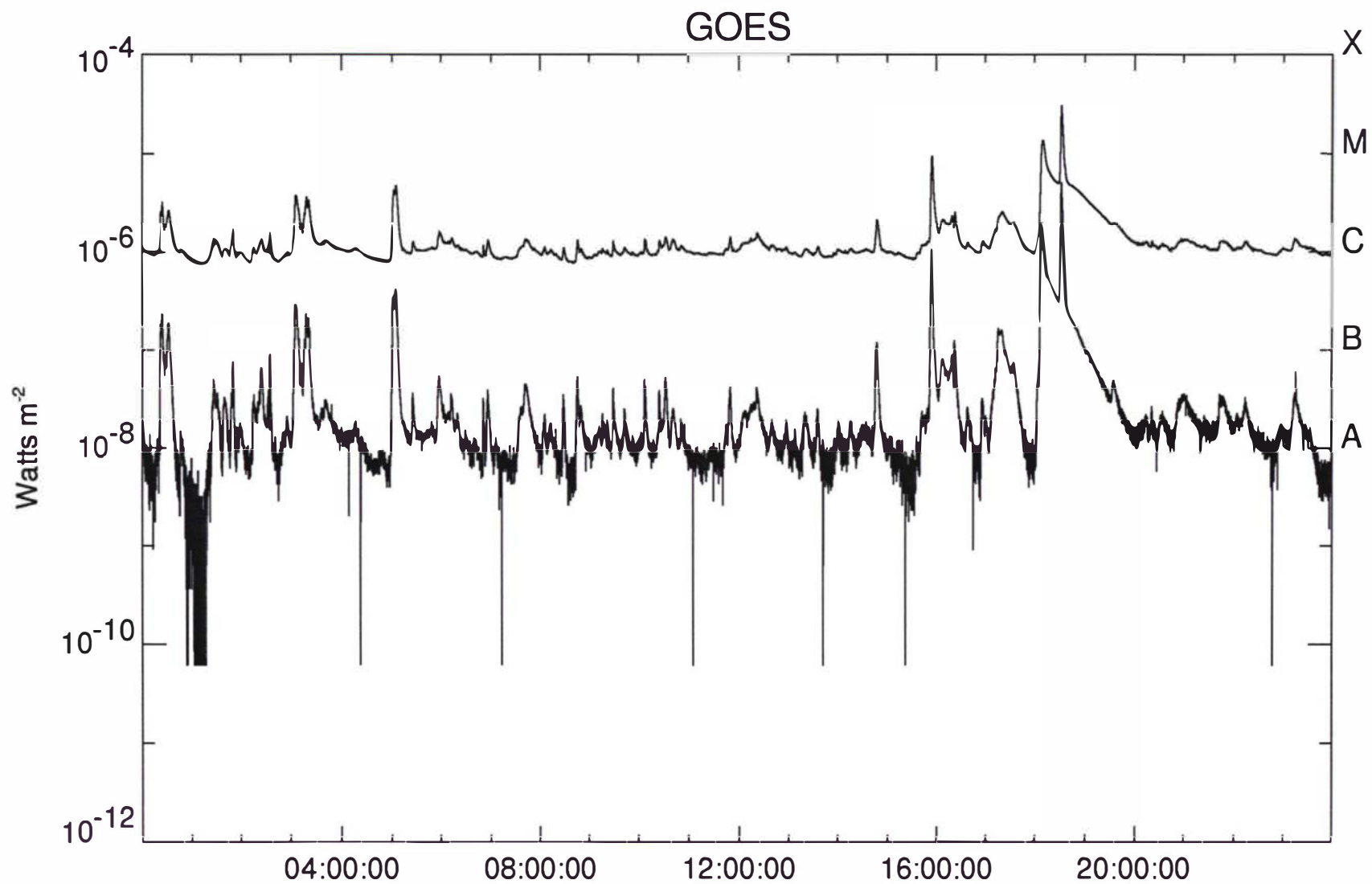
Current Time: 93/02/16, 1546 EDT

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



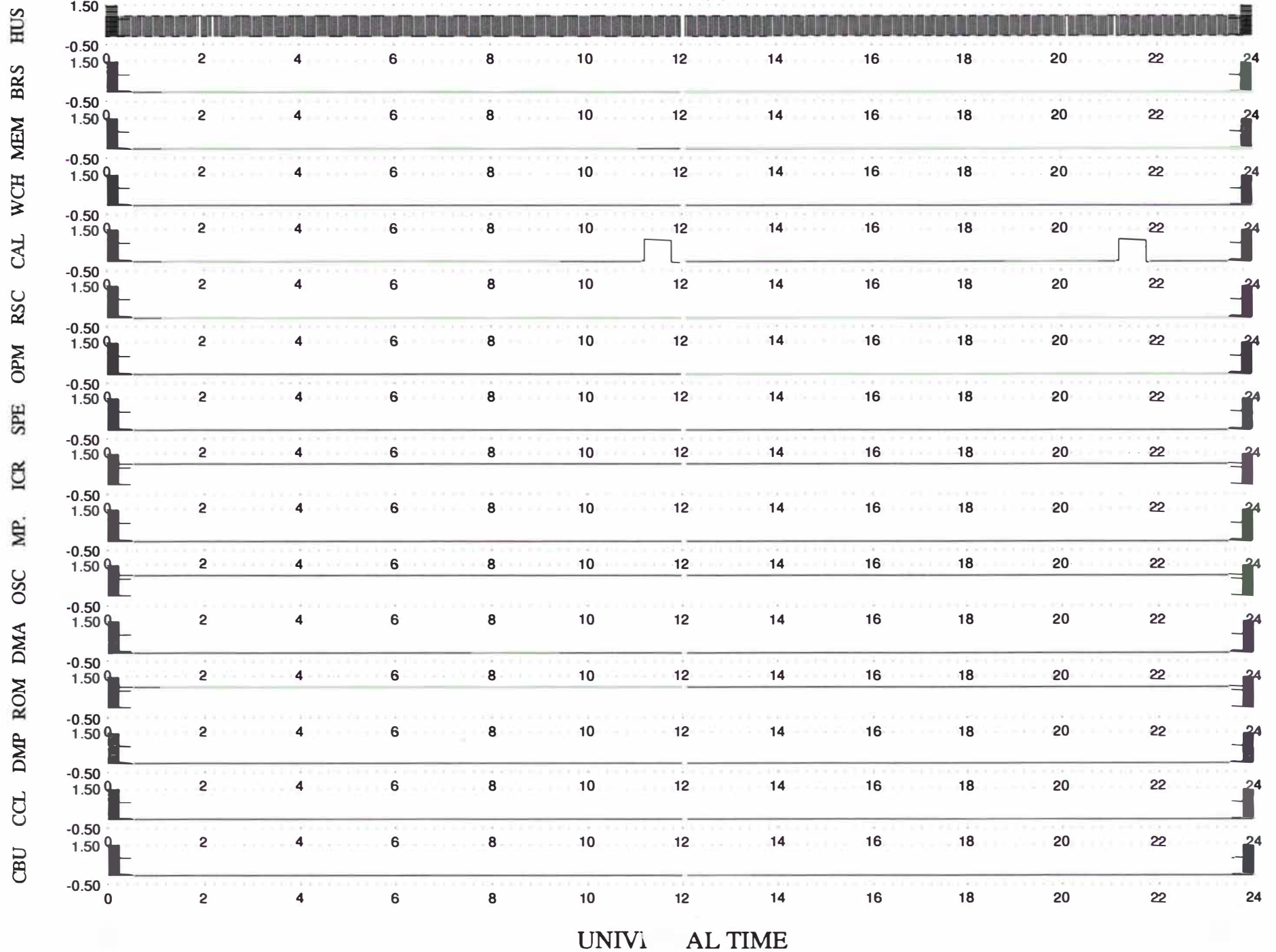
Data Start: 93/02/11, 0000:00

Plot created: 95/06/01, 1637

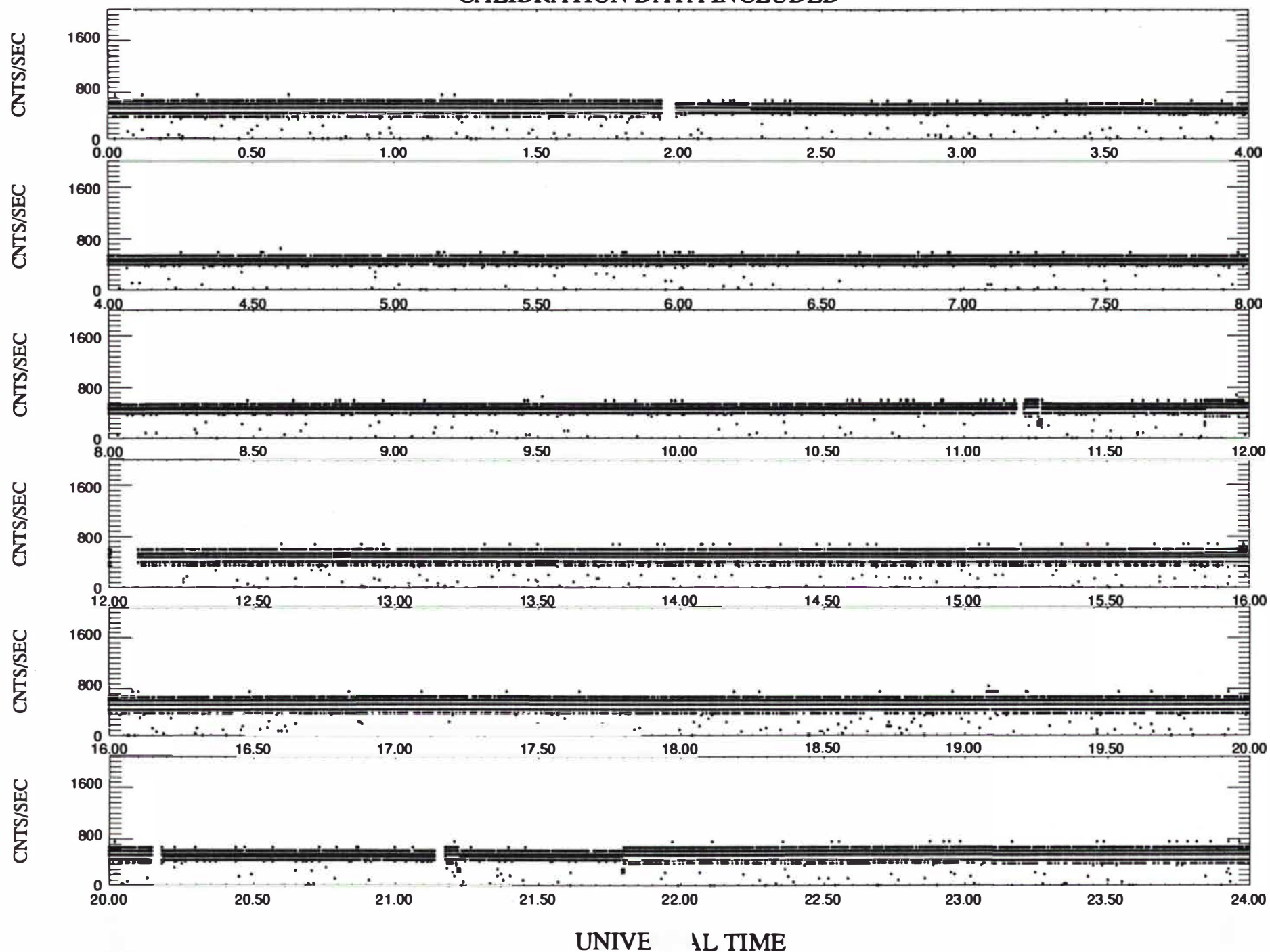
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

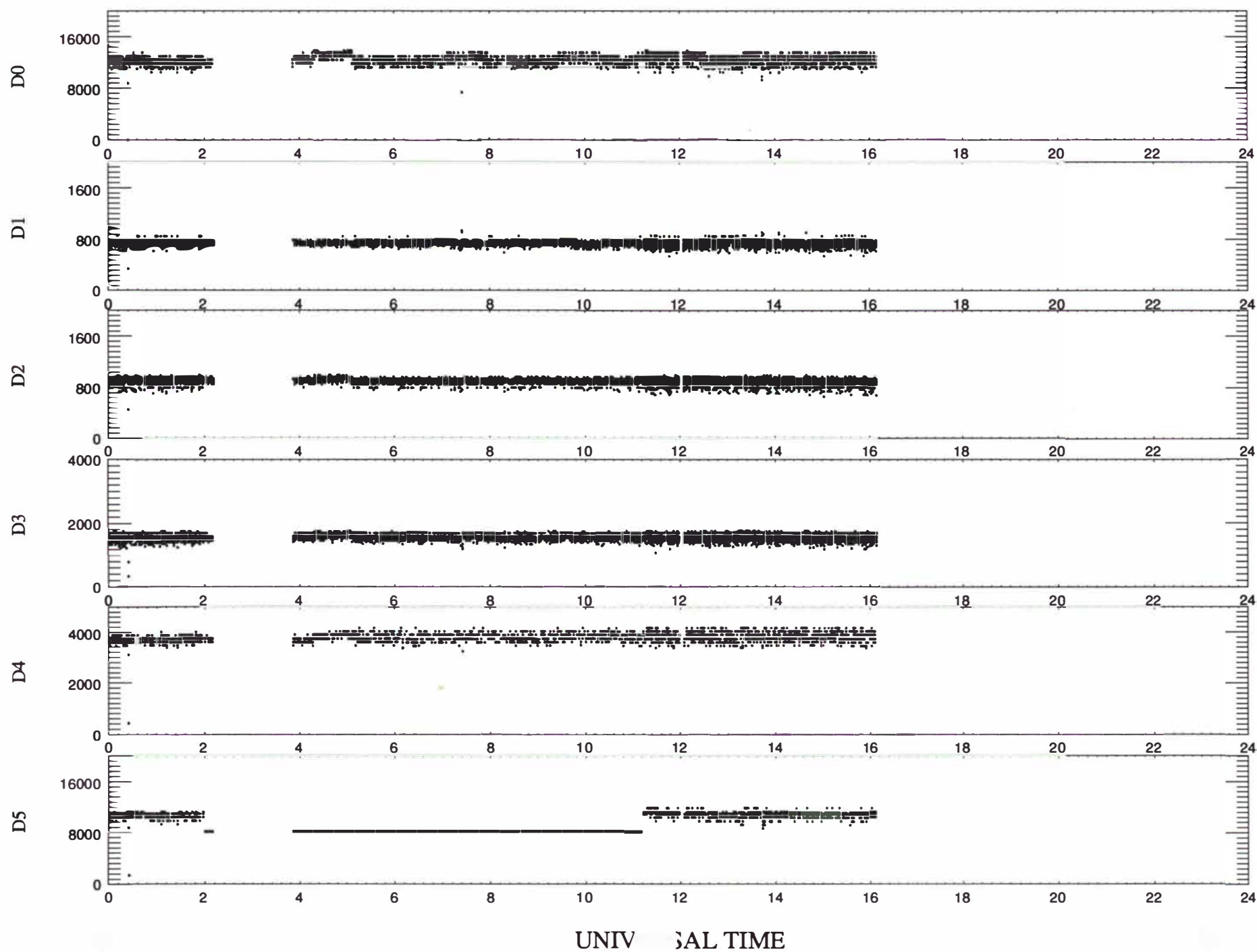
2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (0)



CALIBRATION DATA INCLUDED





CATSEARCH PROGRAM

BATSE BURST # 2187
EVENT OF 1993 FEB 12 DAY OF YEAR= 43
EVENT CROSSING TIME AT BATSE : 41397. S. OR 11:29:56.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 38.400 12.800
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 12/ 2/ 93 IS:
RA= 158.270 DEC= -14.627 DIST= 4.105 AU
BATSE-ULYSSES DISTANCE = 614078080. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 58.27 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1077.15 SECS.
CROSSING TIME AT ULYSSES IS 42474. S. OR 11:47:54.0 +/- 368.84 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Sun Feb 14 12:01:05 1993
Date: Sun, 14 Feb 1993 14:01:12 -0600 (CST)
From: SHARIFF@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02187

TIME: TJD=9030 SECONDS=41396

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=093.6 AZIMUTH=269.7 ERROR= DEGREES

COMMENTS:

GRB. SHORT, WEAK BURST, LASTING ~20S. NOT VISIBLE ABOVE 300KEV.

From SHARIFF@ssl.msfc.nasa.gov Sun Feb 14 12:11:01 1993
Date: Sun, 14 Feb 1993 14:11:31 -0600 (CST)
From: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2187	930212	9030	41396	1300	036	+06

110

9 / 6 / 94

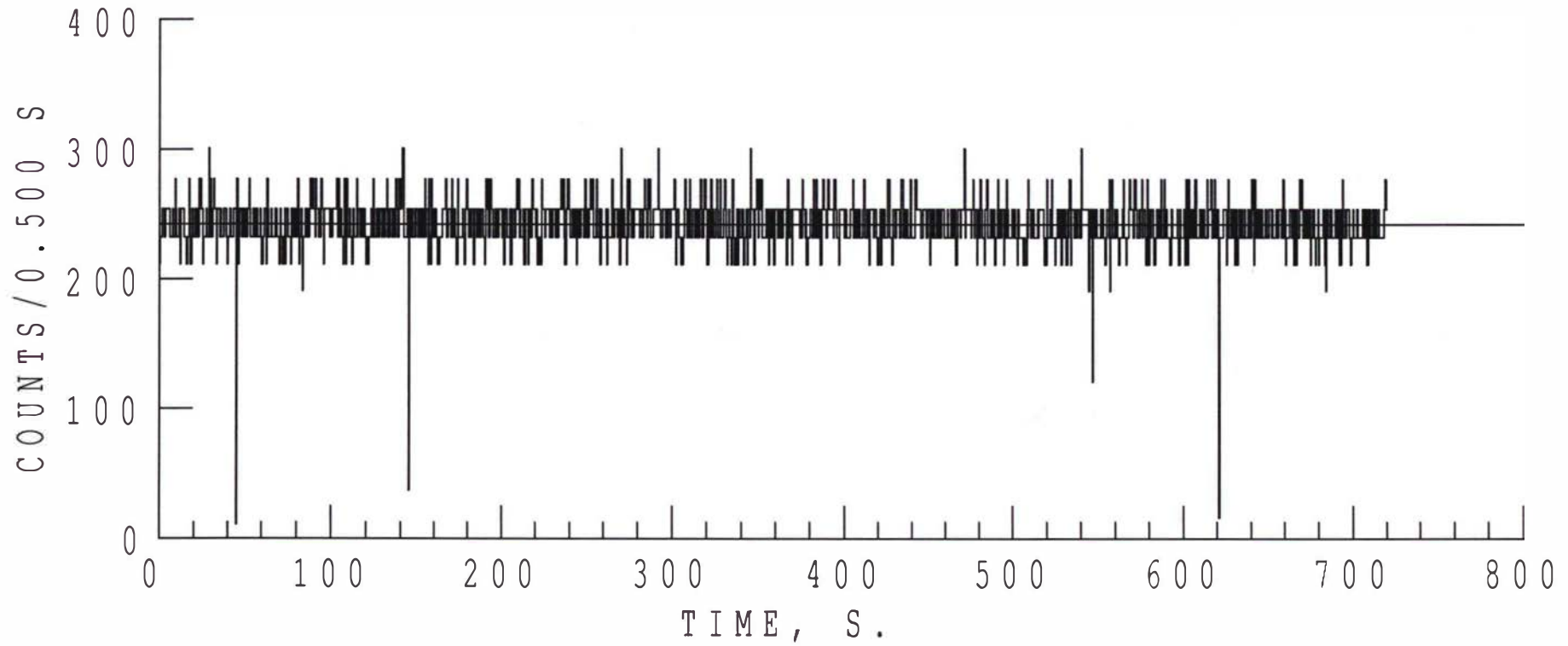
ULYSSES RT

12 / 2 / 93 42120.422 s

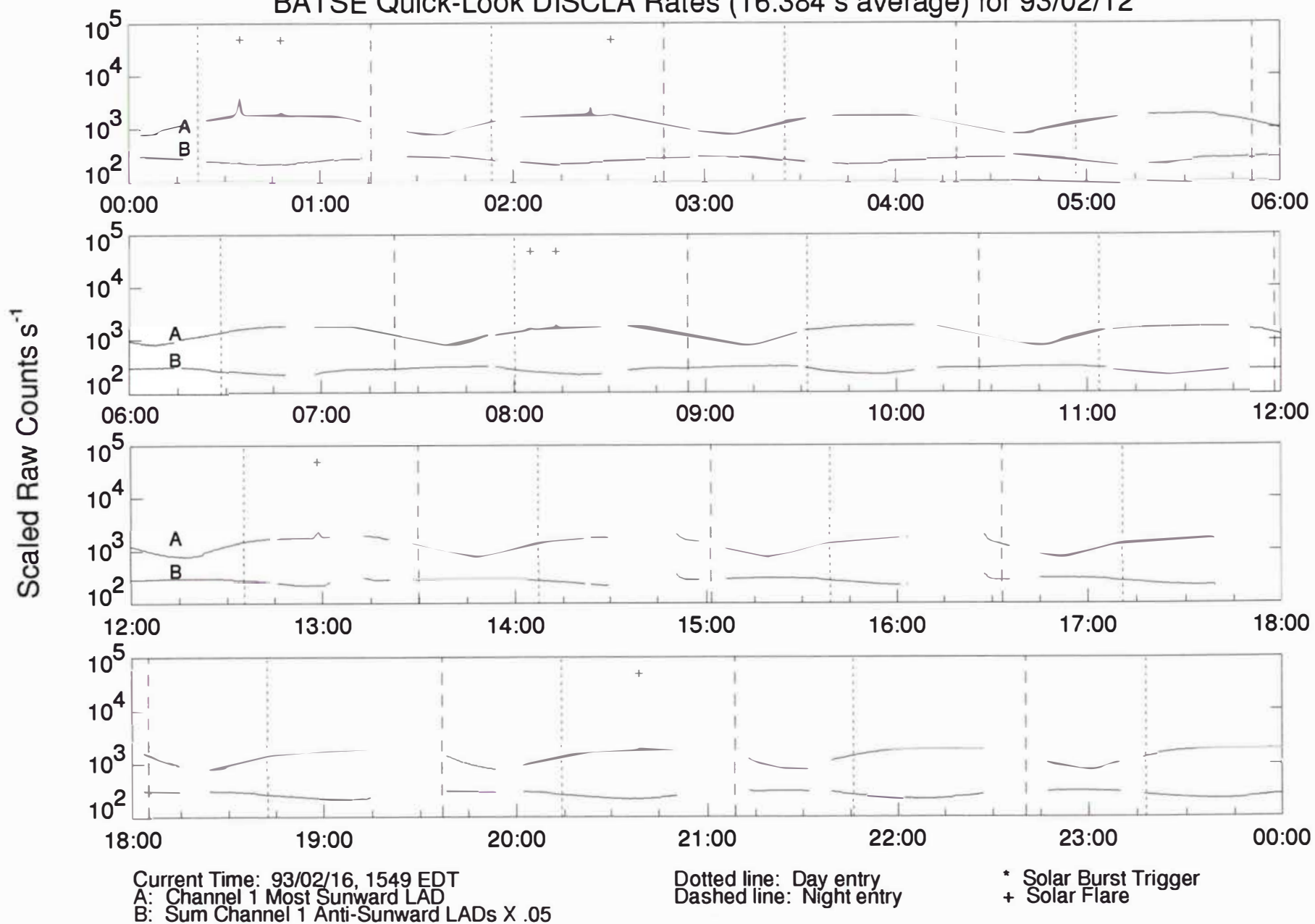
0 - 0 keV

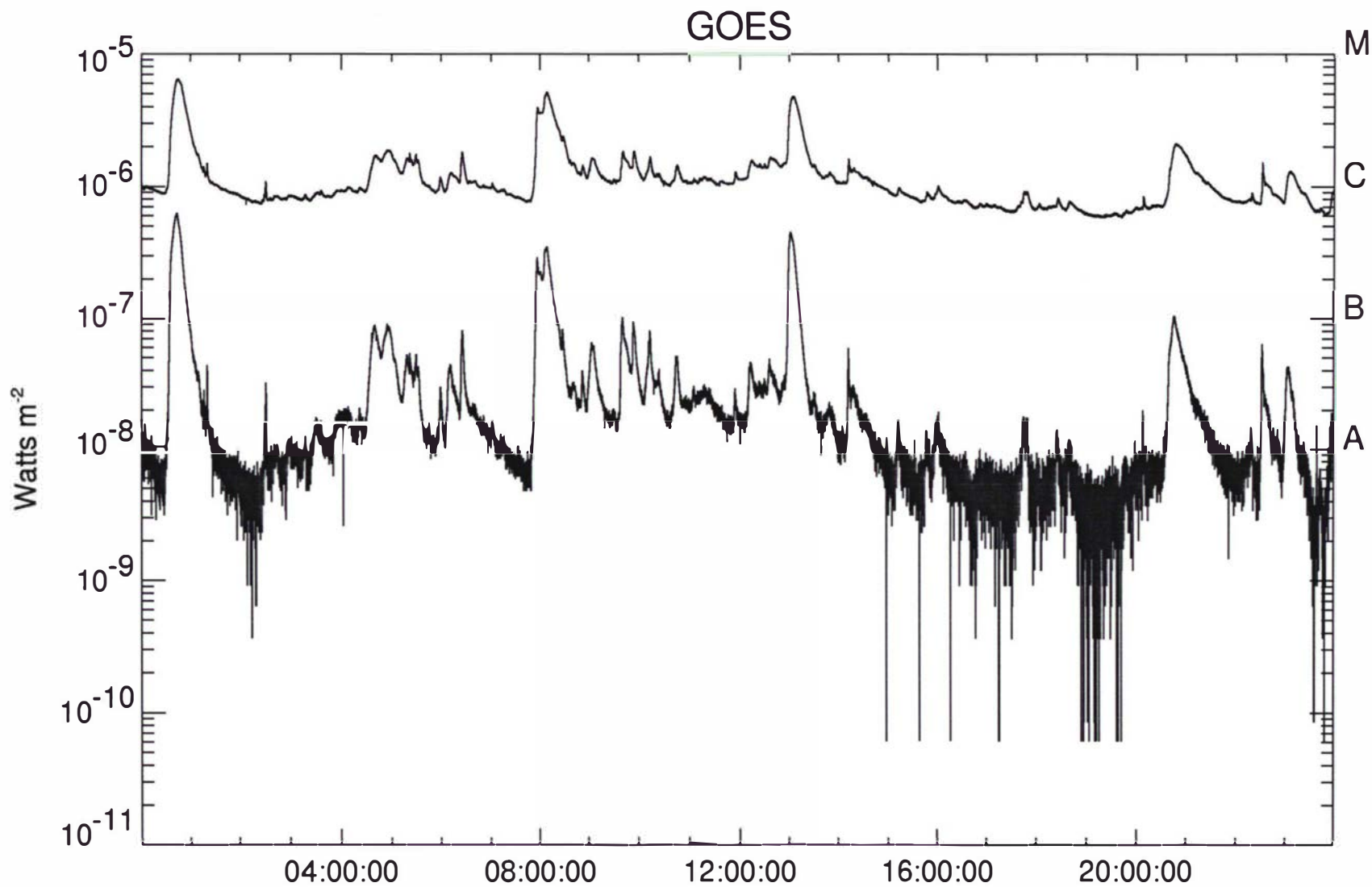
N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/12





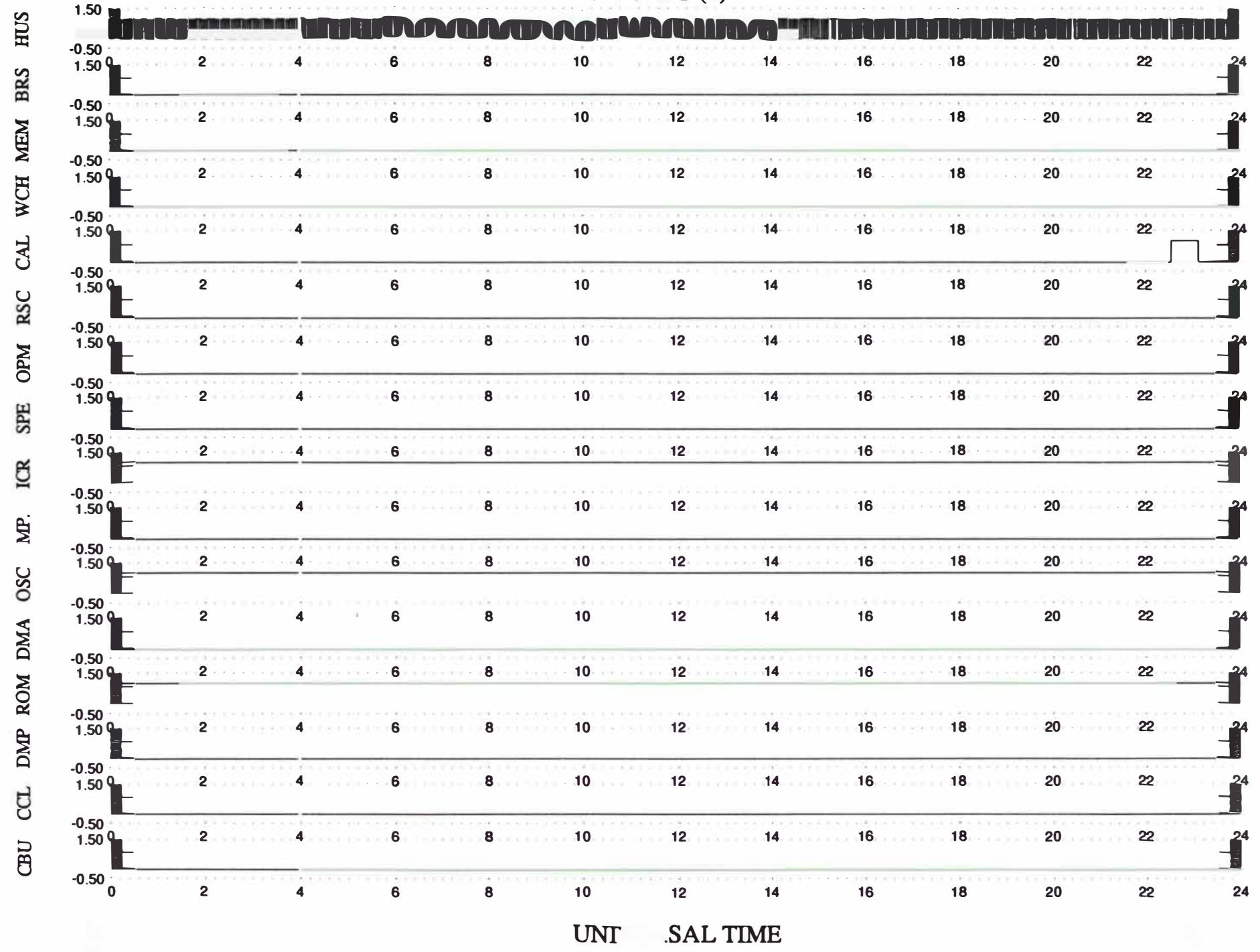
Data Start: 93/02/12, 0000:00

Plot created: 95/06/01, 1641

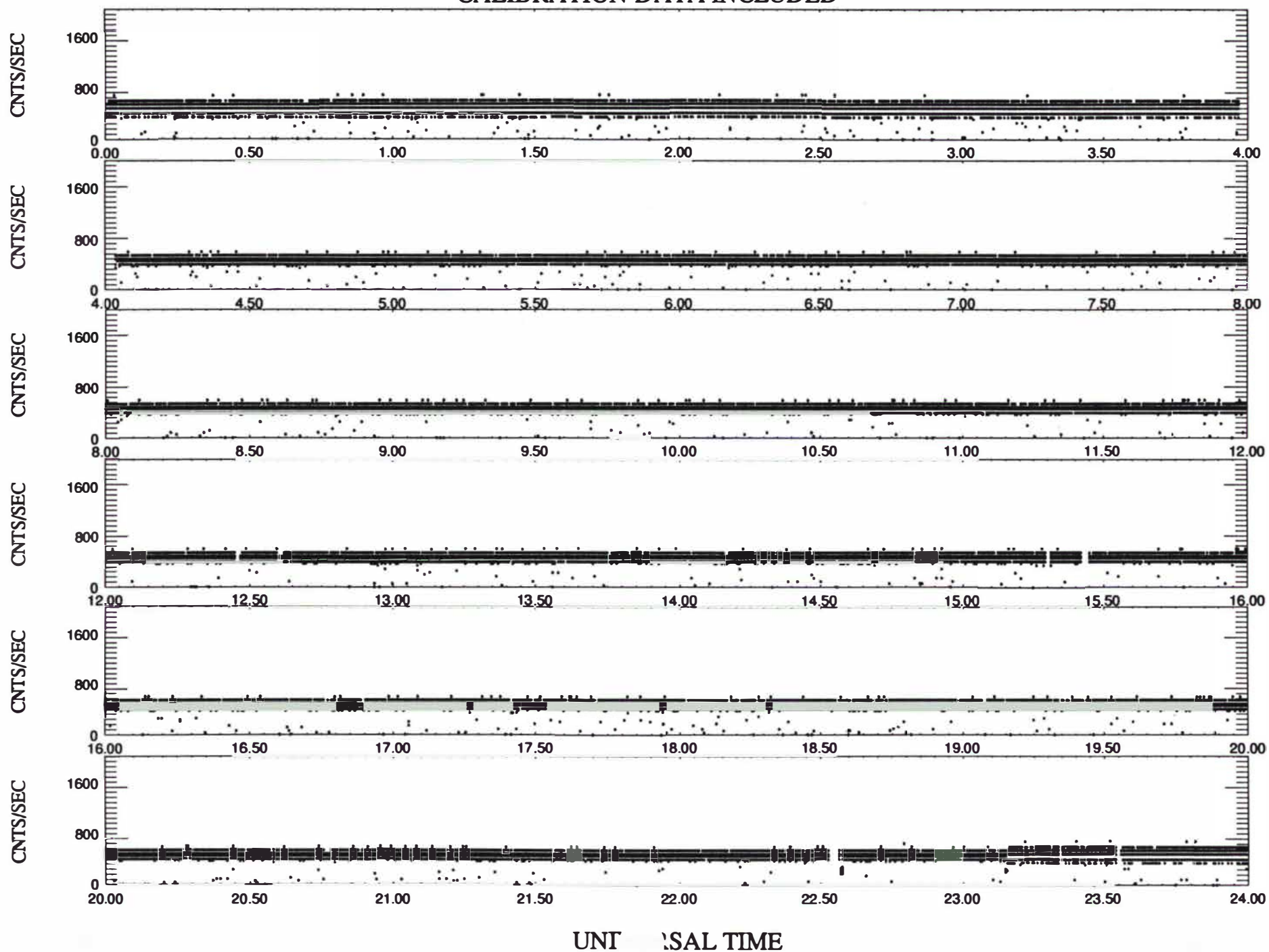
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

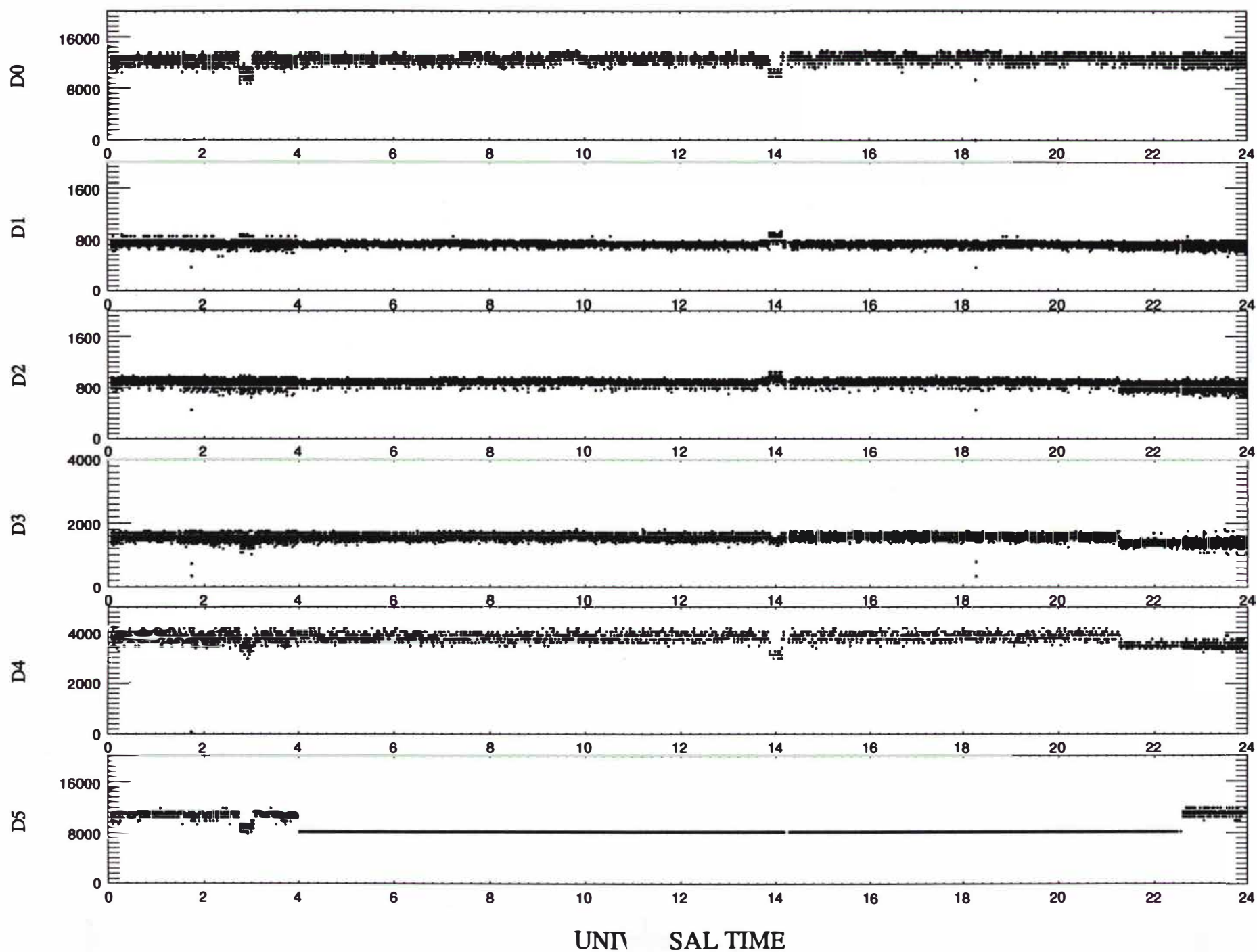
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (0)



CALIBRATION DATA INCLUDED





CATSEARCH PROGRAM

BATSE BURST # 2188
EVENT OF 1993 FEB 13 DAY OF YEAR= 44
EVENT CROSSING TIME AT BATSE : 31927. S. OR 08:52:06.9
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 16.000 49.300
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 13/ 2/ 93 IS:
RA= 158.030 DEC= -14.643 DIST= 4.096 AU
BATSE-ULYSSES DISTANCE = 612836400. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 46.45 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1408.51 SECS.
CROSSING TIME AT ULYSSES IS 33335. S. OR 09:15:35.4 +/- 328.60 SECONDS

From MEEGAN@ssl.msfc.nasa.gov Mon Feb 15 09:11:15 1993
Date: Mon, 15 Feb 1993 11:11:24 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02188

TIME: TJD=9031 SECONDS=31926

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=105. AZIMUTH=314. ERROR= DEGREES

COMMENTS:

FOUR PEAKS, EACH A FEW SECONDS LONG; TOTAL DURATION 80 SECONDS.
NOT SEEN ABOVE 300 KEV.

From MEEGAN@ssl.msfc.nasa.gov Mon Feb 15 09:17:30 1993
Date: Mon, 15 Feb 1993 11:18:01 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2188	930213	9031	31926	3500	012	+46

ND

9 / 6 / 94

ULYSSES RT

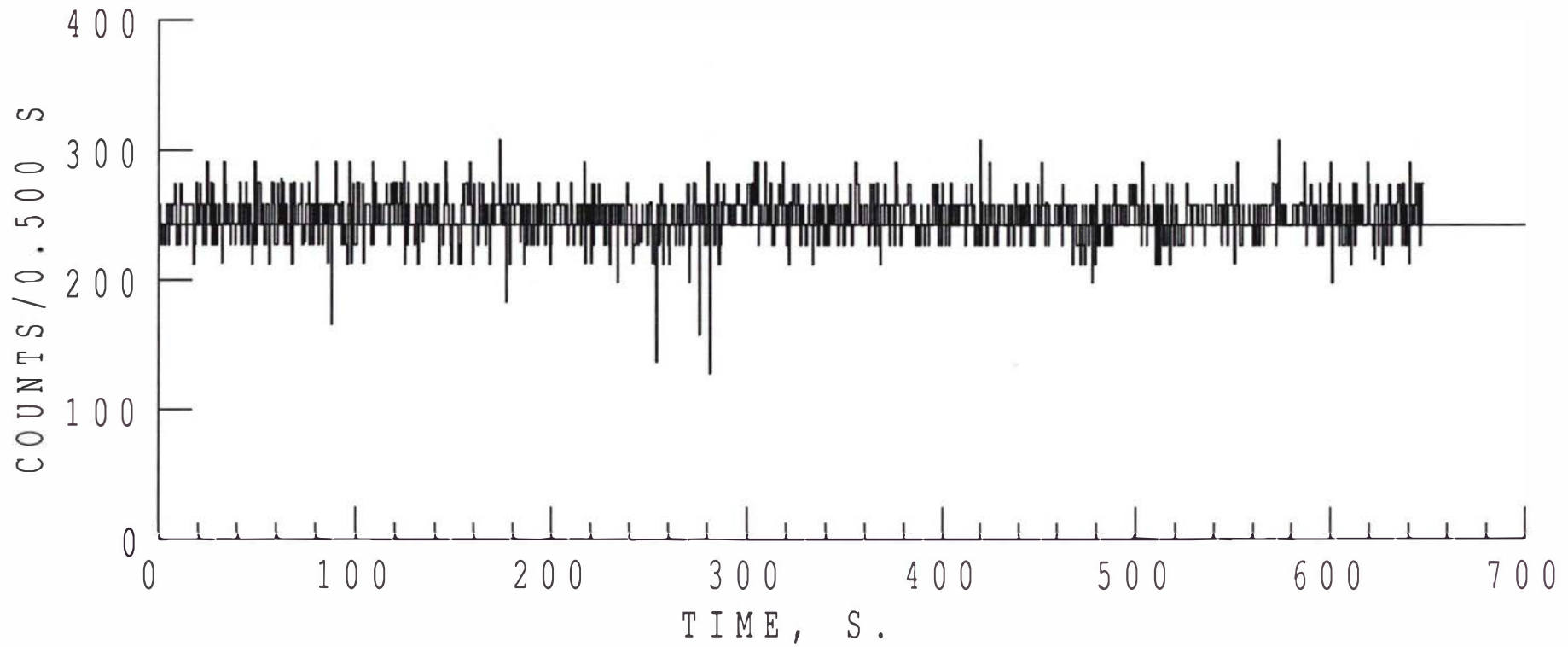
13 / 2 / 93 33012.129 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2189
EVENT OF 1993 FEB 13 DAY OF YEAR= 44
EVENT CROSSING TIME AT BATSE : 45944. S. OR 12:45:44.4
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 204.500 -67.900
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 13/ 2/ 93 IS:
RA= 158.030 DEC= -14.643 DIST= 4.096 AU
BATSE-ULYSSES DISTANCE = 612836400. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=119.01 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -991.28 SECS.
CROSSING TIME AT ULYSSES IS 44953. S. OR 12:29:13.2 +/- 345.33 SECONDS

From MEEGAN@ssl.msfc.nasa.gov Mon Feb 15 09:15:11 1993
Date: Mon, 15 Feb 1993 11:15:35 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02189

TIME: TJD=9031 SECONDS=45944

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 54. AZIMUTH=152. ERROR= DEGREES

COMMENTS:

SINGLE, WEAK, 20 SECOND PULSE. NOT SEEN ABOVE 300 KEV.

From MEEGAN@ssl.msfc.nasa.gov Mon Feb 15 09:19:09 1993
Date: Mon, 15 Feb 1993 11:19:36 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu", BATSE::KOUVELIOTOU
Content-Length: 108

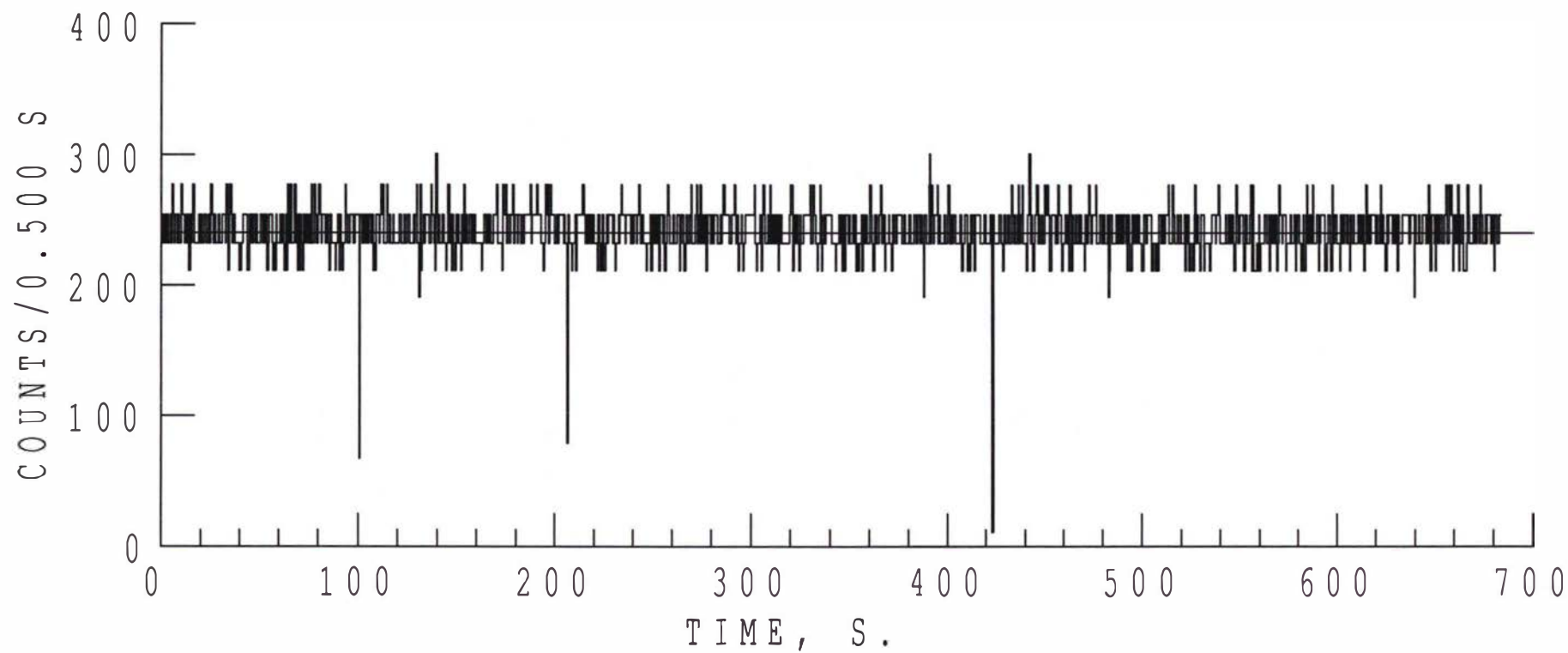
BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2189	930213	9031	45944	1600	208	-72

9 / 6 / 94

ULYSSES RT
13 / 2 / 93 44604.312 s
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From ULSSCI@jplgp.span.nasa.gov Sun Feb 14 07:13:55 1993
Date: Sun, 14 Feb 93 07:14:27 PST
From: ULSSCI@jplgp.span.nasa.gov
X-To: KHURLEY,MSOMMER,KWENZEL,DPAGE,SOMSYS
X-Cc: ULSSCI
Subject: Another DNEL !!!
To: KHURLEY@sunspot.ssl.berkeley.edu
Content-Length: 1376

A disconnect of non-essential loads (DNEL) occurred onboard the Ulysses spacecraft at 93.045.00:15 SCET. At this time, all instruments were switched off and shortly afterwards an autonomous reconfiguration switched the telemetry modulation off (this is a normal event following a DNEL). Telemetry was regained at 045.05:25 SCET and spacecraft health checks confirmed that the spacecraft had reconfigured itself correctly. No cause for the DNEL has, as yet, been established.

Reconfiguration began shortly afterwards with a main switch closure at 045.07:12 SCET followed by a switch-on of experiment heaters. After reconfiguration of the onboard protection logic, switch-on of instrument converters began at around 045.11:46 SCET. Further reconfiguration will take place during the next 24 hours.

The following command has been sent to the HUS experiment :

Z127 HUS ON

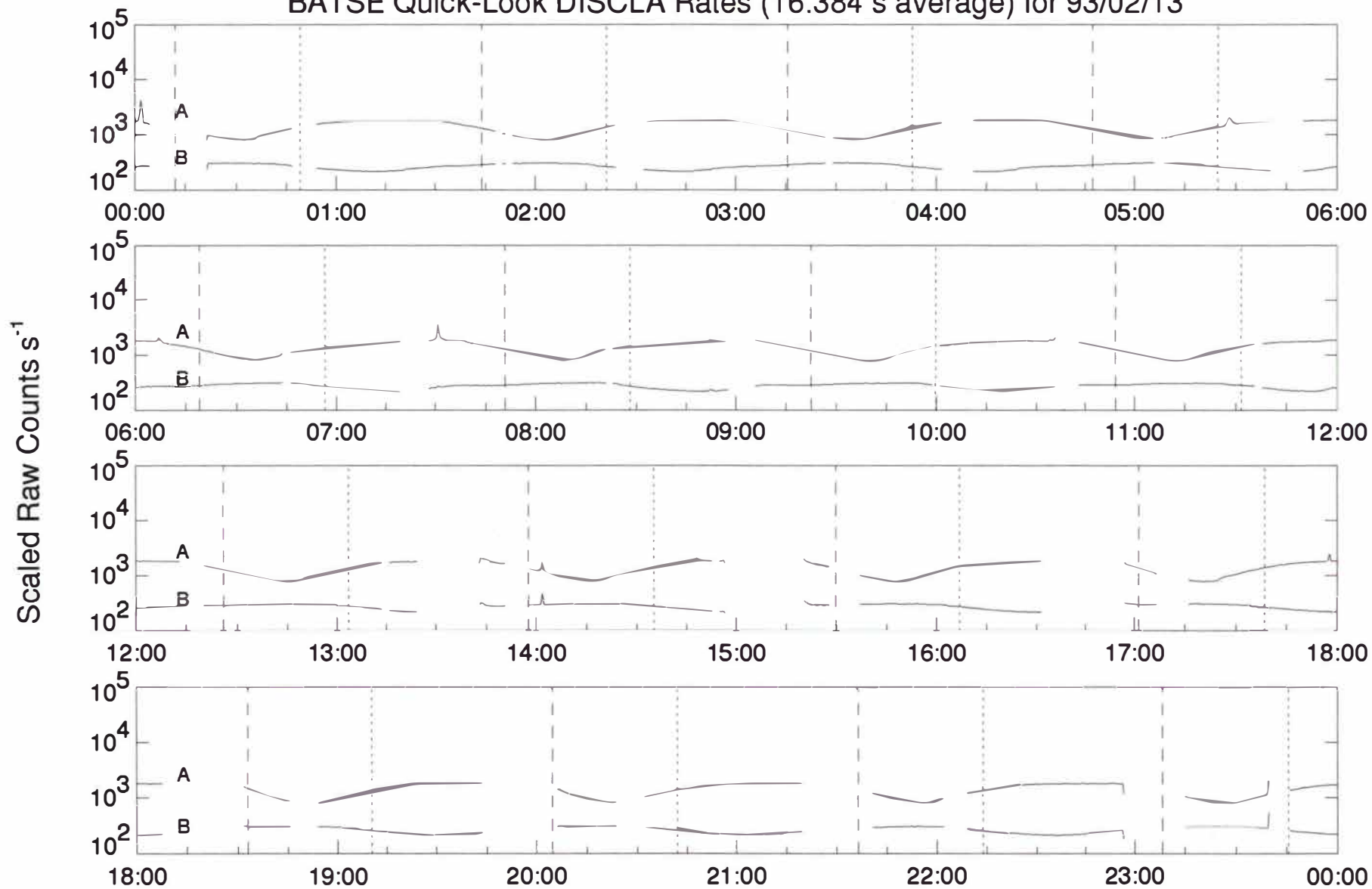
We believe that the following commands will place the instrument in the required configuration. Please confirm this asap so that we can continue with your reconfiguration.

Z019 04F0 UPPER & MEDIUM LEVEL DISCRIMINATOR THRESHOLDS
Z019 0113 LOWER LEVEL DISCRIMINATOR THRESHOLD
Wait 3 minutes
Z019 4044 HV1 1470 V
Wait 5 minutes
Z019 1046 HV2 1474 V
Wait 5 minutes
Z018 06B7 LLD BRV & SAMPLE TIME
Z018 1156 MLD BRV & SAMPLE TIME
Wait 2 minutes
Z018 0014 OPS MODE

Regards,

Nigel

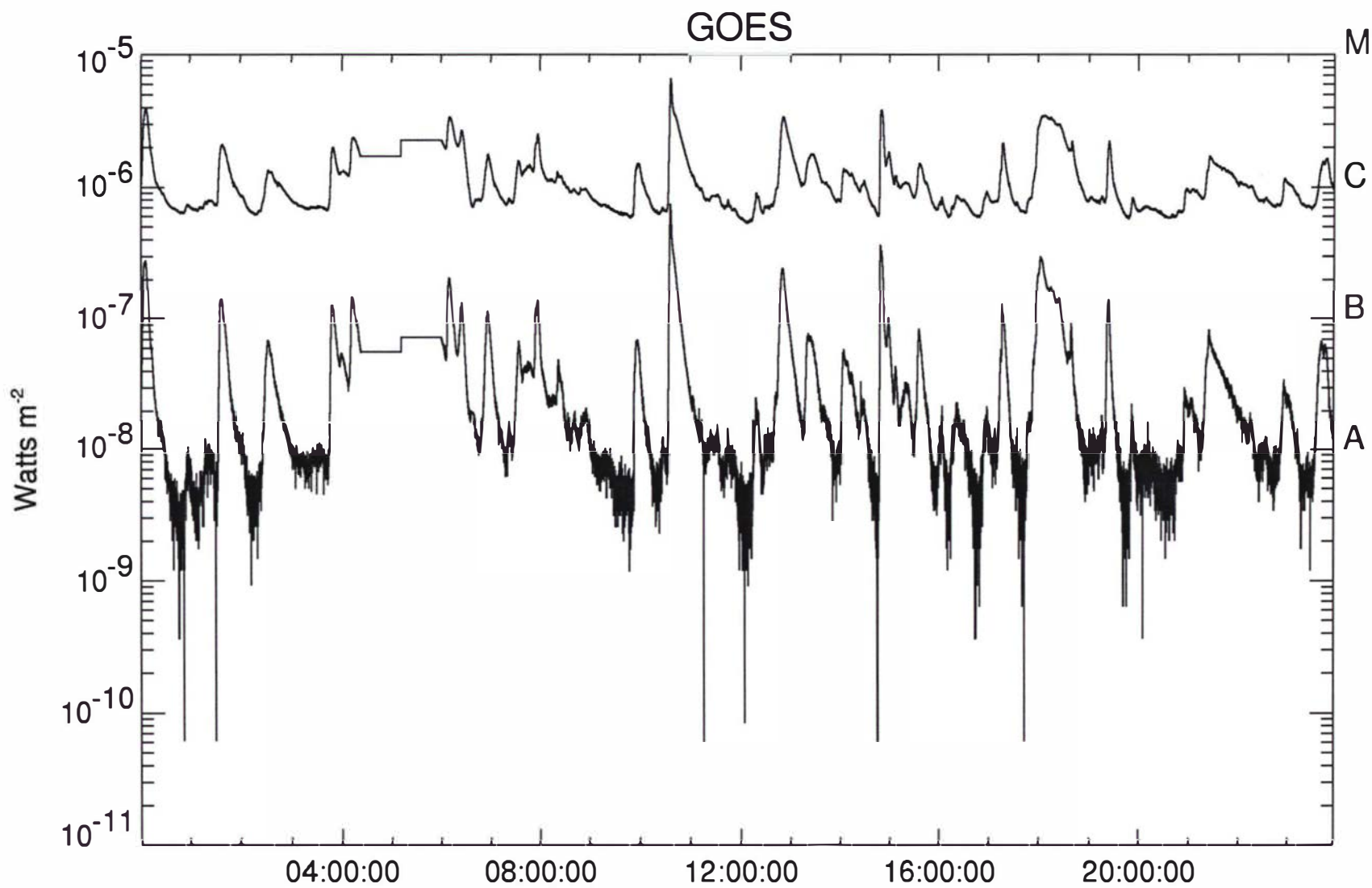
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/13



Current Time: 93/02/16, 1550 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



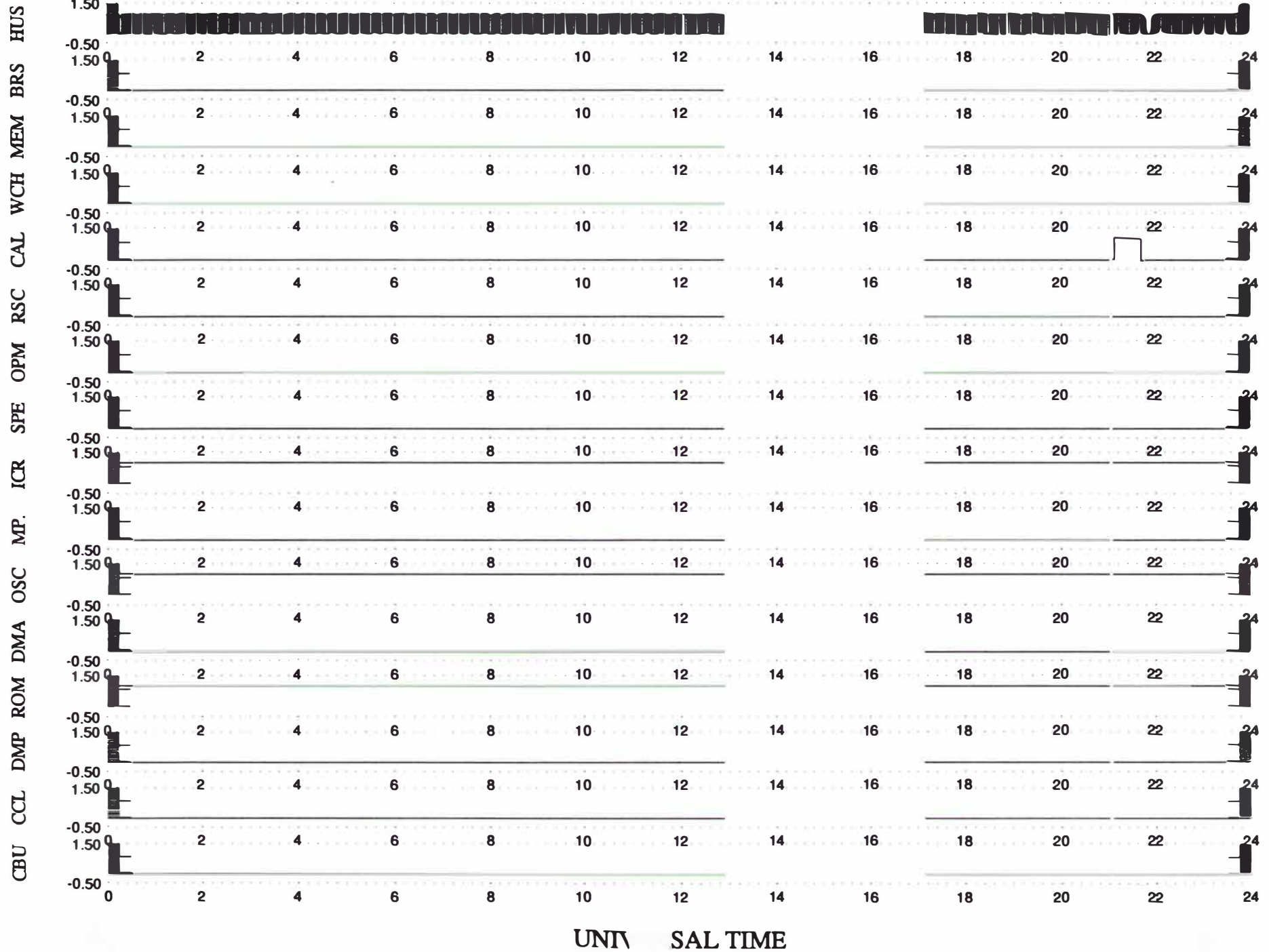
Data Start: 93/02/13, 0000:02

Plot created: 95/06/01, 1644

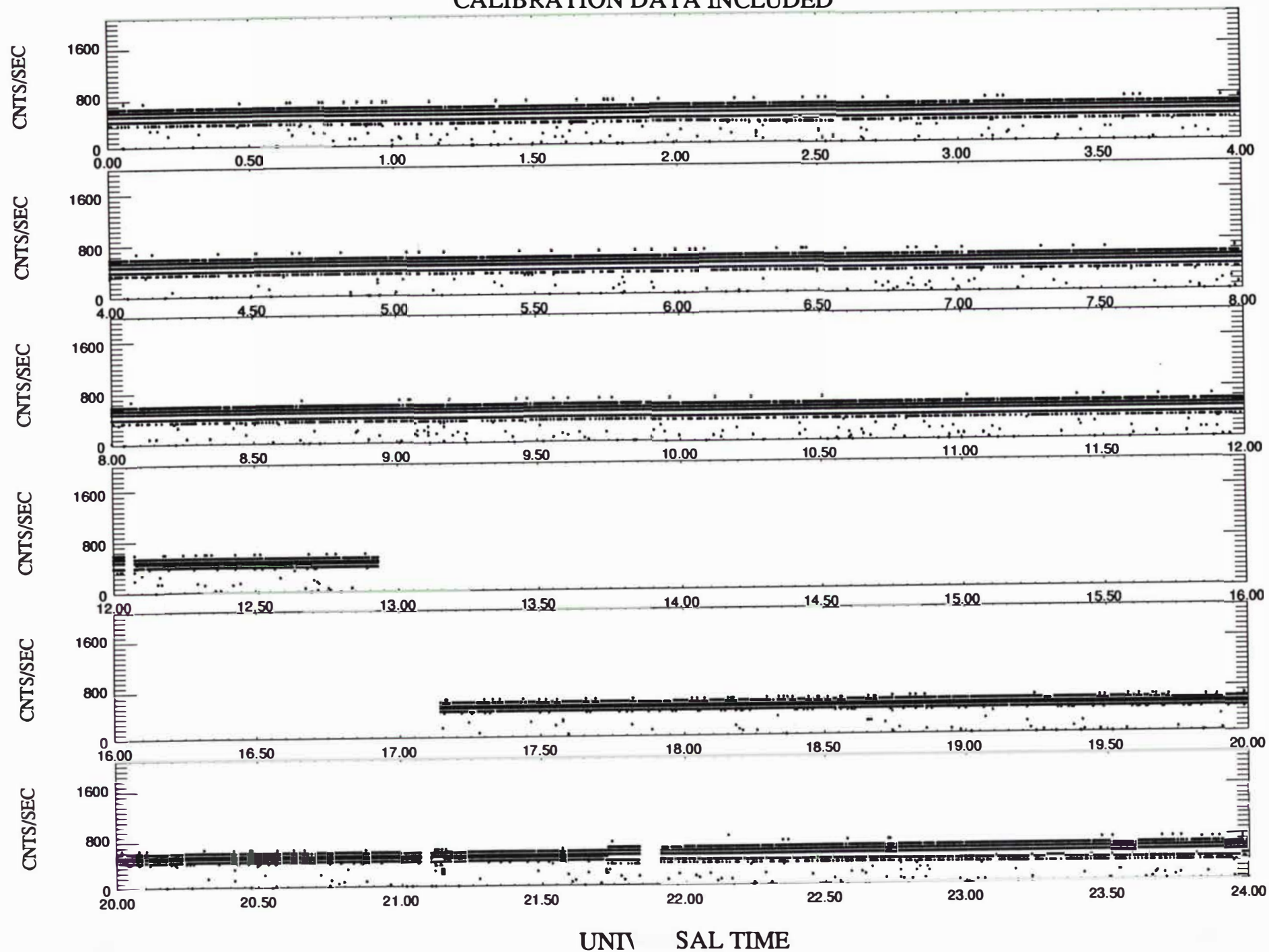
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

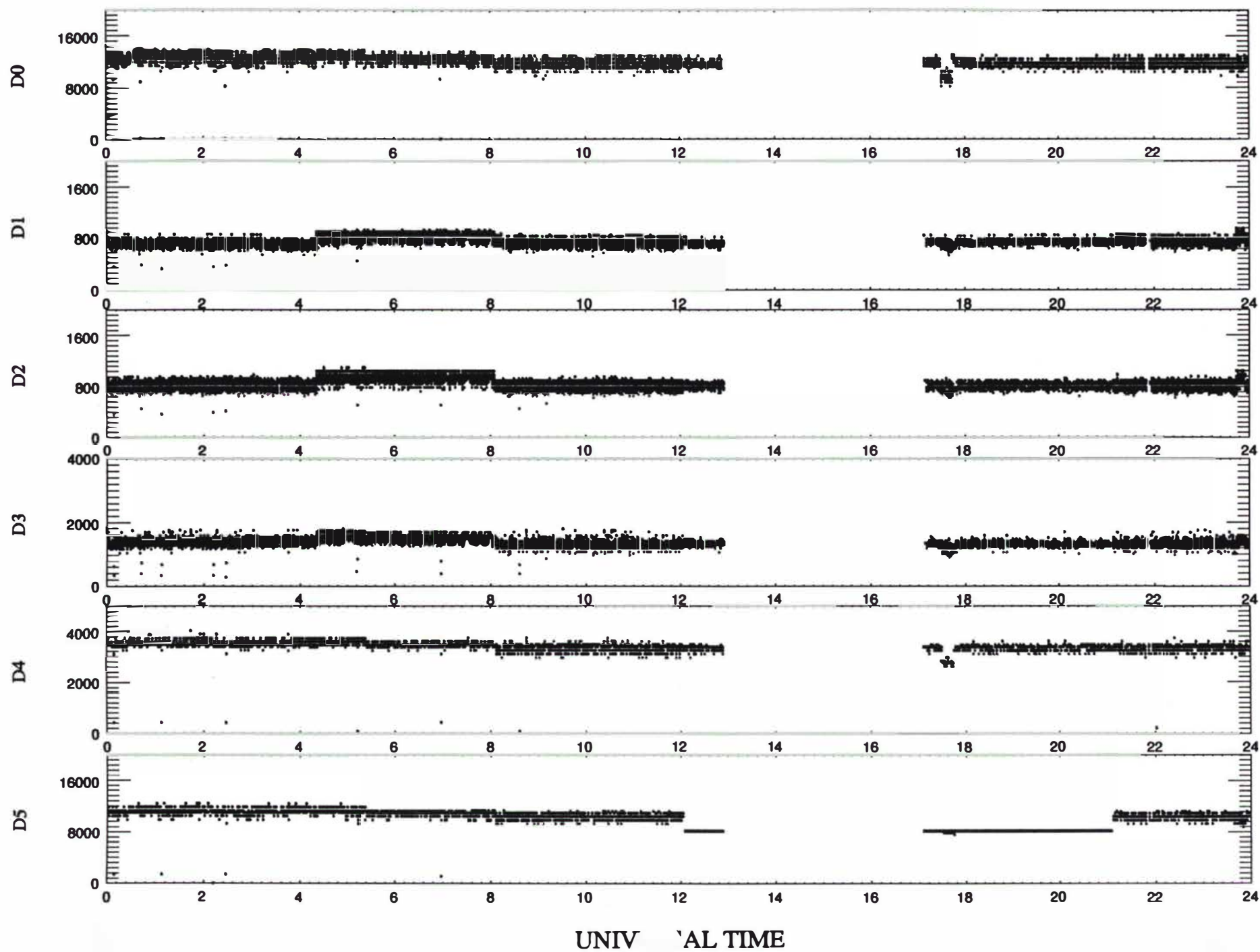
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (0)



CALIBRATION DATA INCLUDED





Date: Aug 1 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

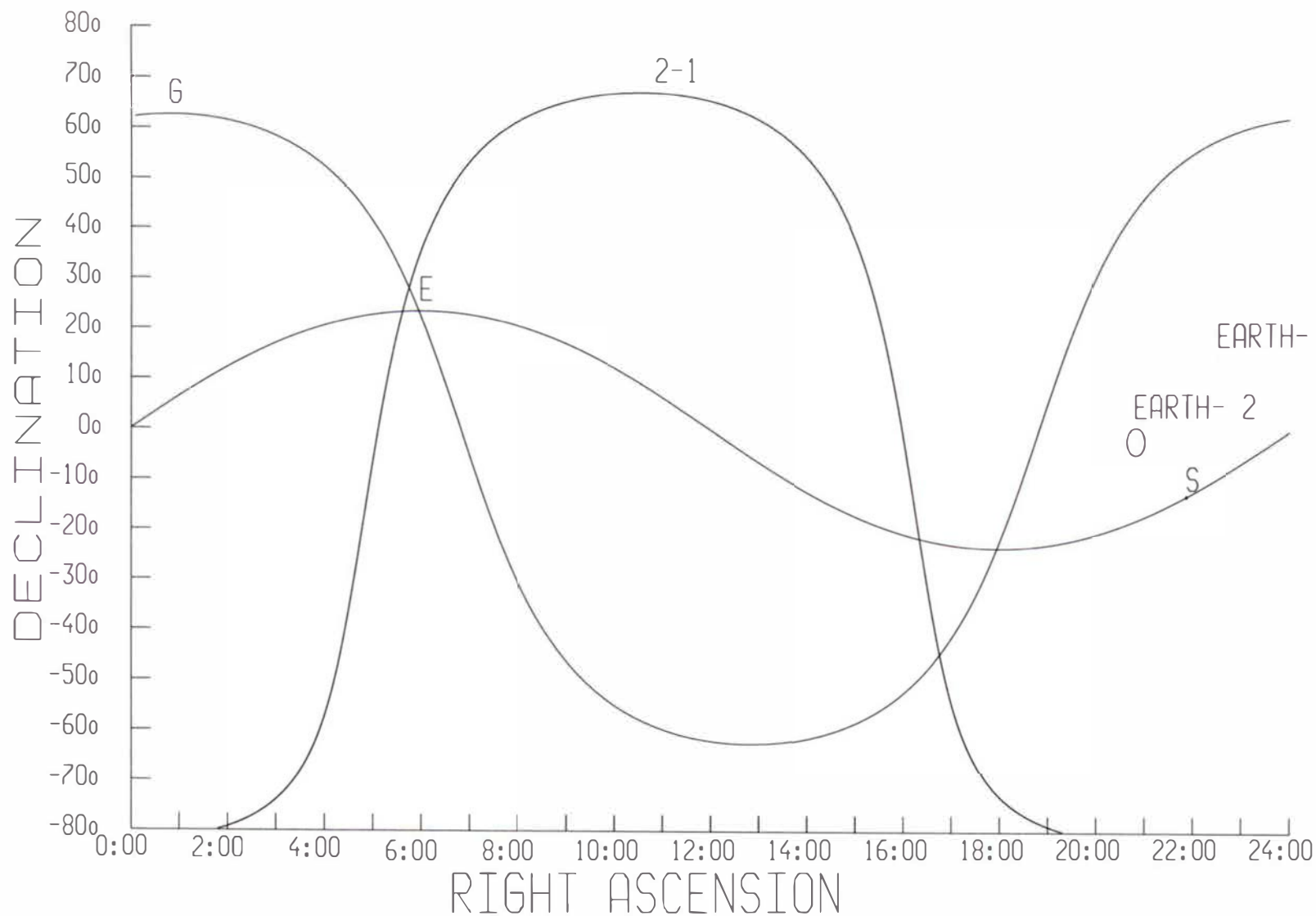
3. PVO Data

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

EVENT OF FEB 14, 1993 13:34

01/08/2011

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



PHEBUS 19930214 49226

ULYSSES RT

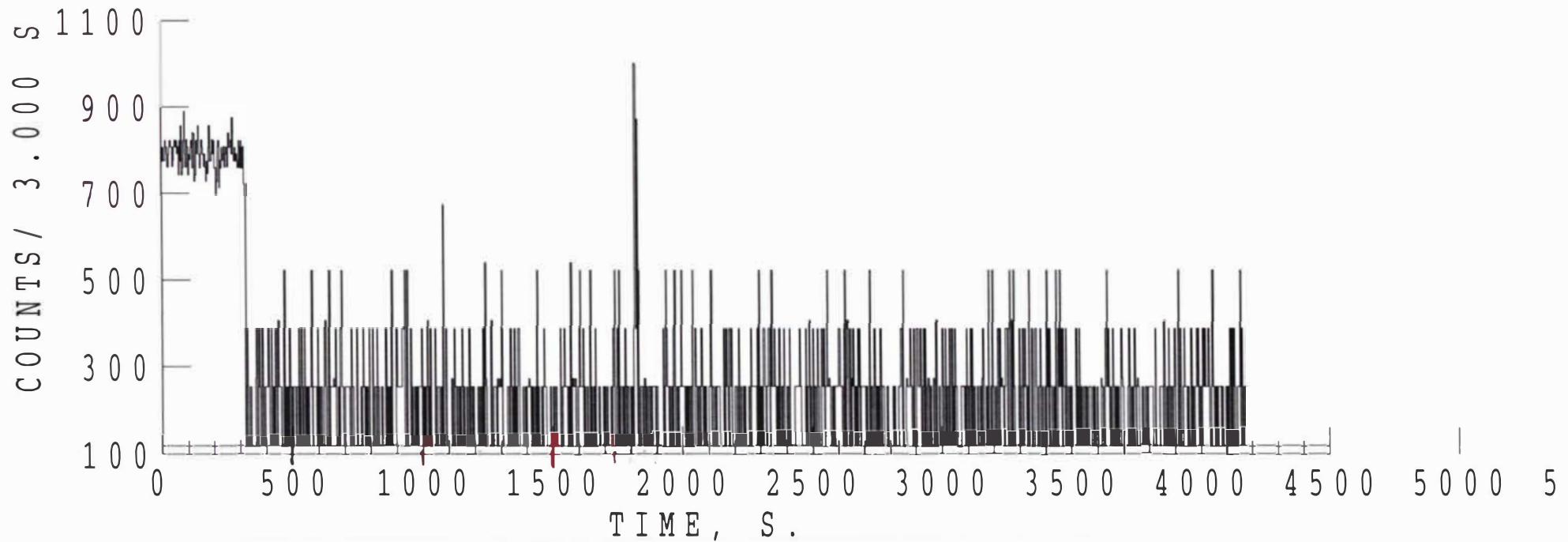
01 / 08 / 11

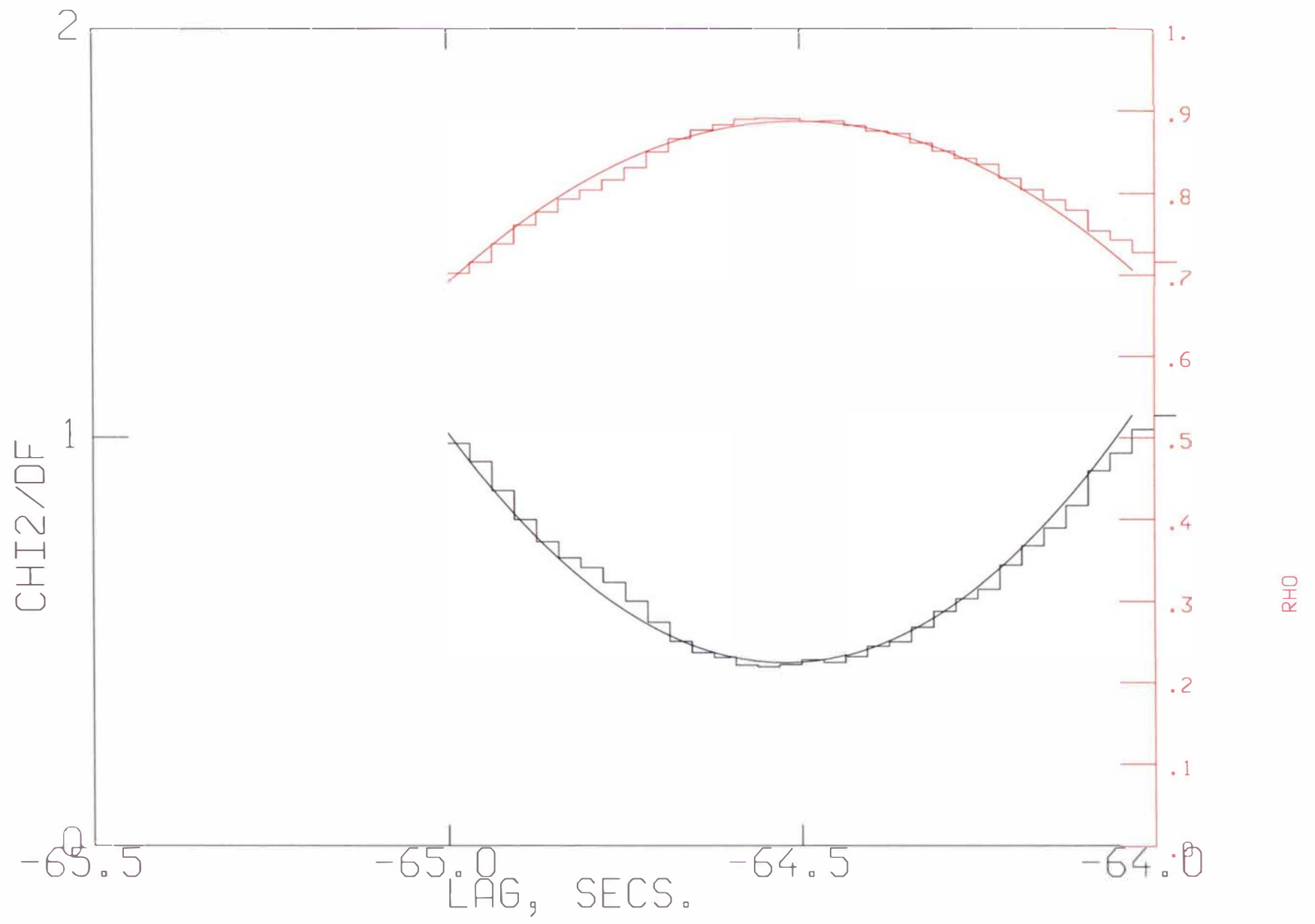
14/02/93 47124.191 s

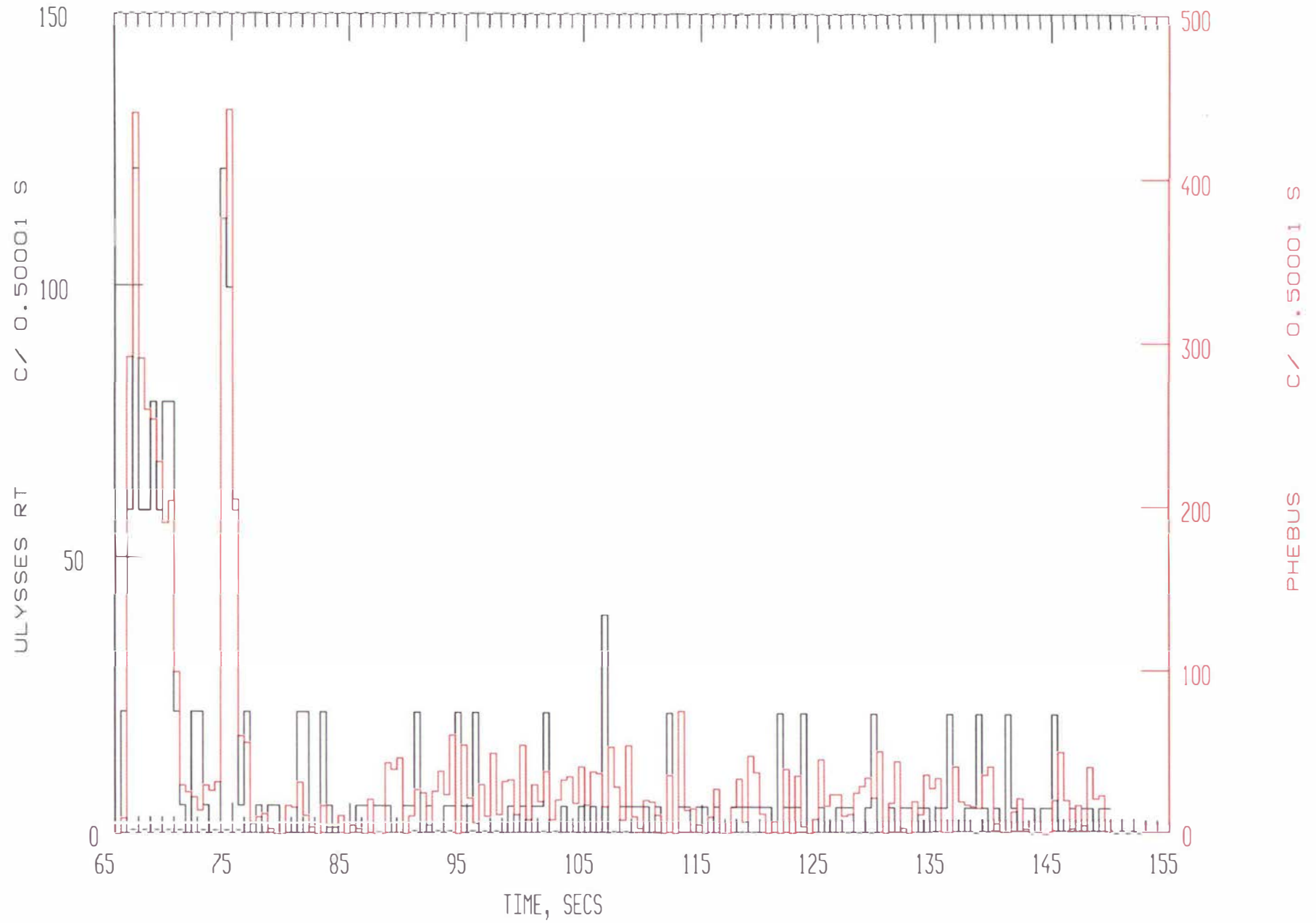
0.500 S INTERVALS REGROUPED BY 6

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS







PHEBUS

14/ 2/93 49226.734 s

100- 1600 keV

s

COUNTS/0.03125

75

50

25

0

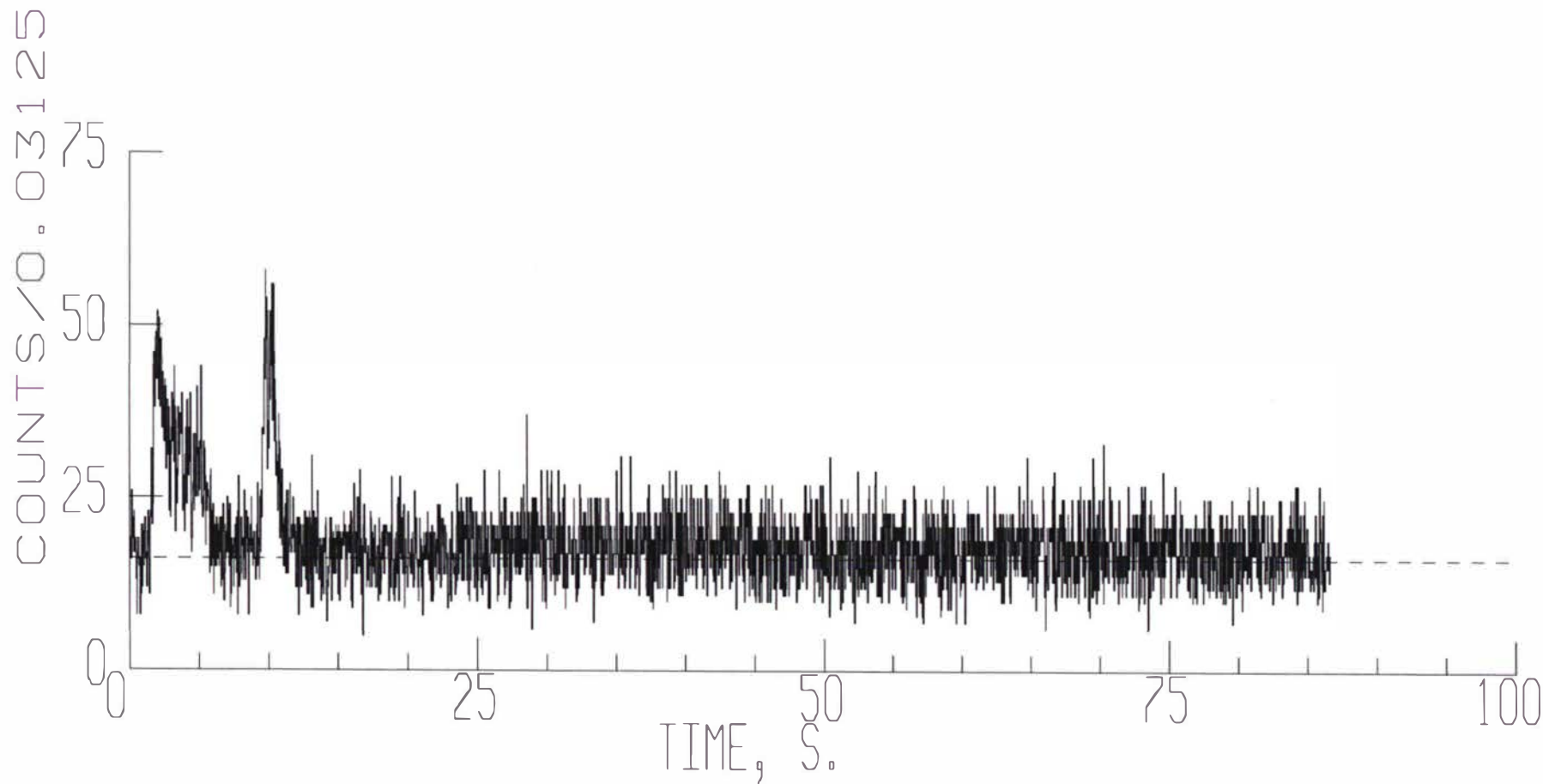
25

50

75

100

TIME, S.



CATSEARCH PROGRAM

BATSE BURST # 2190
EVENT OF 1993 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 14898. S. OR 04:08:17.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 256.900 16.600
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 14/ 2/ 93 IS:
RA= 157.790 DEC= -14.657 DIST= 4.089 AU
BATSE-ULYSSES DISTANCE = 611654560. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 77.34 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 446.99 SECS.
CROSSING TIME AT ULYSSES IS 15345. S. OR 04:15:44.8 +/- 402.40 SECONDS

From BHAT@ssl.msfc.nasa.gov Tue Feb 16 07:08:02 1993
Date: Tue, 16 Feb 1993 9:08:06 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1458

BATSE BURST TRIGGER

NO.: 2190

TIME: TJD=9032 SECONDS=14897

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=073.2 AZIMUTH=039.6 ERROR= DEGREES

COMMENTS:

THIS IS A SLOW RISE AND SLOW DECAY, ALMOST TRIANGULAR, BURST LASTING FOR ABOUT 125 SEC. THE PEAK COUNT RATE OCCURS AT 25 SEC AFTER THE TRIGGER WITH SMALLER SUBPULSES BEFORE AND AFTER THIS NARROW SHARP FEATURE. NO SIGNAL IS SEEN ABOVE 300 KEV.

From BHAT@ssl.msfc.nasa.gov Mon Feb 15 14:04:56 1993
Date: Mon, 15 Feb 1993 16:05:30 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2190	930214	9032	14897	6300	260	+19

21/2

CATSEARCH PROGRAM

BATSE BURST # 2191
EVENT OF 1993 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 27415. S. OR 07:36:55.1
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 282.800 -44.900
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 14/ 2/ 93 IS:
RA= 157.790 DEC= -14.657 DIST= 4.089 AU
BATSE-ULYSSES DISTANCE = 611654560. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 77.61 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 437.75 SECS.
CROSSING TIME AT ULYSSES IS 27853. S. OR 07:44:12.9 +/- 402.62 SECONDS

N/D

From BHAT@ssl.msfc.nasa.gov Tue Feb 16 07:17:04 1993
Date: Tue, 16 Feb 1993 9:17:24 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 2191

TIME: TJD=9032 SECONDS=27415

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=021.5 AZIMUTH=096.2 ERROR= DEGREES

COMMENTS:

THIS BURST LASTS FOR ABOUT 22 SEC AND CONSISTS OF A SINGLE SHARP RISE AND A SLOWER DEACY TIME PROFILE. SIGNAL IS SEEN ABOVE 300 KEV.

From BHAT@ssl.msfc.nasa.gov Mon Feb 15 14:06:47 1993
Date: Mon, 15 Feb 1993 16:07:19 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2191	930214	9032	27415	2600	277	-42

22 / 2 / 95

ULYSSES RT

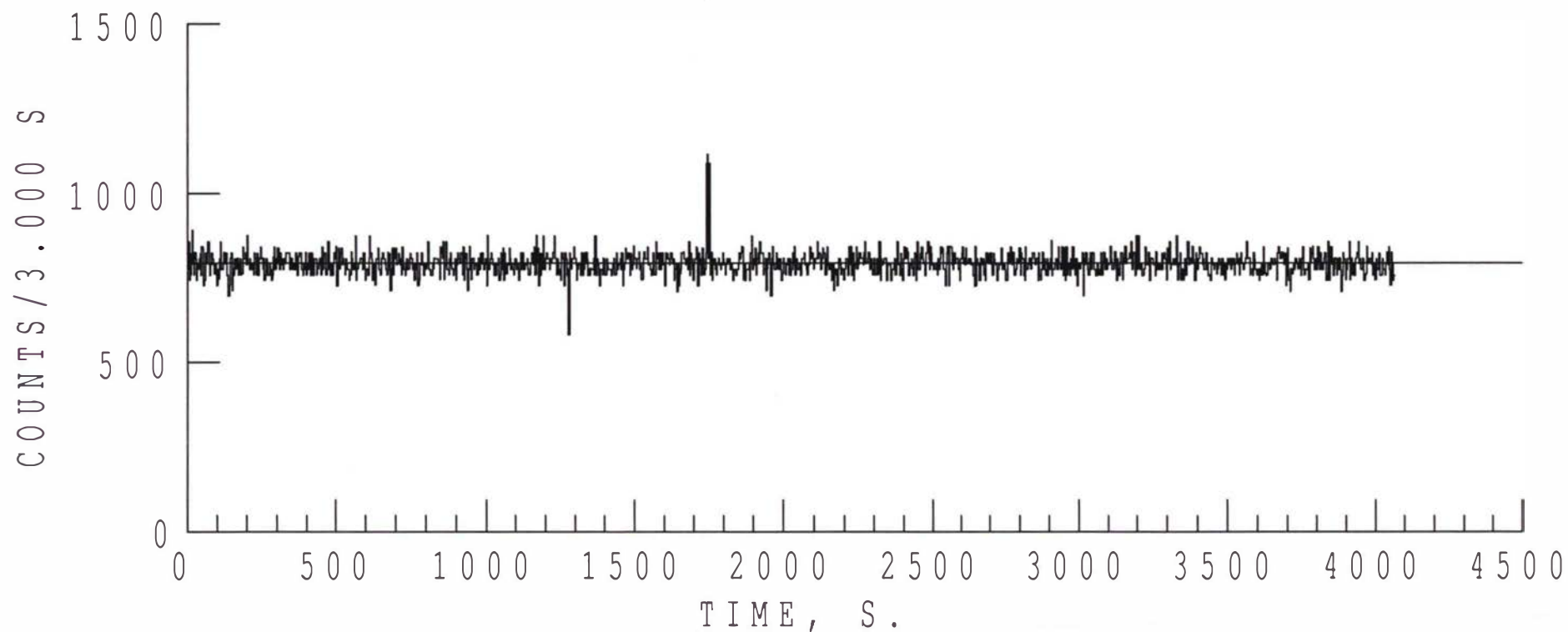
14 / 2 / 93 47196.195 s

0.500 S INTERVALS REGROUPED BY 6

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From root Fri Nov 12 06:59 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA01470; Fri, 12 Nov 93 06:59:38
Received: by comptel.unh.edu.unh.EDU (4.1/SMI-4.1)
id AA12718; Fri, 12 Nov 93 09:03:52 EST
From: mkippen@comptel.unh.EDU (R Marc Kippen)
Message-Id: <9311121403.AA12718@comptel.unh.edu.unh.EDU>
Subject: IPN data for recent bursts?
To: khurley@space6.ssl.berkeley.edu (Kevin Hurley)
Date: Fri, 12 Nov 93 9:03:51 EST
X-Mailer: ELM [version 2.3 PL11]
Status: R

Dear Kevin,

I would like to follow-up on recent COMPTEL-imaged bursts. Do you have
IPN triangulation arcs for any of the following:

BATSE #:	BURST:
2191	GRB 930214 <i>Data gap</i>
2330	GRB 930506 <i>NO - but what was COMPTEL position? This was a strong signal</i>
2375	GRB 930606 <i>Yes - sent to Vandenberg</i>
2387	GRB 930612 <i>Yes - need to look at all data</i>
2428	GRB 930704 <i>Yes - need to look at it</i>
2451	GRB 930720 <i>NO - approx 1/2 the energy</i>

Thank you,

Marc

R. Marc Kippen	==> Internet: RMKIPPEN@UNH.EDU
Space Science Center / Morse Hall	SPAN : 6865::MKIPPEN
University of New Hampshire	Phone : (603) 862-4703
Durham, NH 03824	FAX : (603) 862-4685

Dear Marc,

Here's the quick answer to your questions about the COMPTEL events.

2191: Ulysses data gap
2330: Not observed if I use the BATSE position to generate a Ulysses crossing window. But the event was so intense that we should have observed it. What was the COMPTEL position?
2375: Observed. COMPTEL, BATSE, and IPN locations are all mutually inconsistent. I had an exchange of data and mail with Martin Varendorff on this one a few months ago, with no conclusion as to how to make things consistent. If you want, I can send you the information. The Ulysses response was quite weak, so this may be part of the problem. But it doesn't solve the COMPTEL/BATSE inconsistency. Has the COMPTEL position changed?
2387: Observed. I have to triangulate it; I'll try to do it next week.
2428: Ditto.
2451: Not observed. Apparently it was too weak for us.

Kevin

From root Fri Nov 12 10:24 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA01636; Fri, 12 Nov 93 10:24:00
Received: by comptel.unh.edu.unh.EDU (4.1/SMI-4.1)
id AA21442; Fri, 12 Nov 93 12:28:20 EST
From: mkippen@comptel.unh.EDU (R Marc Kippen)
Message-Id: <9311121728.AA21442@comptel.unh.edu.unh.EDU>
Subject: Re: your mail
To: khurley@space6.ssl.berkeley.edu
Date: Fri, 12 Nov 93 12:28:19 EST
In-Reply-To: <9311122202.AA01616@space6.ssl.berkeley.edu>; from "khurley@space6.ssl.berkeley
X-Mailer: ELM [version 2.3 PL11]
Status: R

Kevin,

Thanks for the reply,

> 2330: Not observed if I use the BATSE position to generate a Ulysses
> crossing window. But the event was so intense that we should have observed
> it. What was the COMPTEL position?

This burst is short, with few events, so our position is really no more accurate than BATSE (ra, dec J2000 = 263.46, -16.33) with about a 10 deg uncertainty.

> 2375: Observed. COMPTEL, BATSE, and IPN locations are all mutually
> inconsistent. I had an exchange of data and mail with Martin Varendorff on
> this one a few months ago, with no conclusion as to how to make things
> consistent. If you want, I can send you the information. The Ulysses
> response was quite weak, so this may be part of the problem. But it doesn't
> solve the COMPTEL/BATSE inconsistency. Has the COMPTEL position changed?

Yes, please send this information to me as well as the other bursts as they become available.

Thanks again,

Marc

R. Marc Kippen	==> Internet: RMKIPPEN@UNH.EDU
Space Science Center / Morse Hall	SPAN : 6865::MKIPPEN
University of New Hampshire	Phone : (603) 862-4703
Durham, NH 03824	FAX : (603) 862-4685

MBL - JL 3/22/94

227 22 OCT 92
04 JUL 93
? - 14 FEB 93
(7:36)

N/O for MO should be NO

RI " "

RI " " (maybe - in 2nd channel?) Leave blank & now

In any case remove N/O

From BHAT@ssl.msfc.nasa.gov Tue Feb 16 07:24:15 1993
Date: Tue, 16 Feb 1993 9:24:22 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1458

BATSE BURST TRIGGER

NO.: 2192

TIME: TJD=9032 SECONDS=46321

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=049.8 AZIMUTH=313.5 ERROR= DEGREES

COMMENTS:

THIS IS TRIGGER OCCURED DURING A M2.0 FLARE. IT LASTS FOR ABOUT 183 SEC CUT SHORT BY SUN SET. THE TIME PROFILE CONSISTS OF SINGLE LARGE PULSE WITH SEVERAL SUB-PULSES SUPERPOSED. MIRGINAL SIGNAL IS SEEN ABOVE 300 KEV AT THE PEAK COUNT RATE.

CATSEARCH PROGRAM

BATSE BURST # 2193
EVENT OF 1993 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 65579. S. OR 18:12:58.6
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 191.600 29.200
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 14/ 2/ 93 IS:
RA= 157.790 DEC= -14.657 DIST= 4.089 AU
BATSE-ULYSSES DISTANCE = 611654560. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=125.33 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1179.78 SECS.
CROSSING TIME AT ULYSSES IS 64399. S. OR 17:53:18.8 +/- 321.08 SECONDS

NO

From BHAT@ssl.msfc.nasa.gov Tue Feb 16 08:50:15 1993
Date: Tue, 16 Feb 1993 10:50:26 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1370

BATSE BURST TRIGGER

NO.: 2193

TIME: TJD=9032 SECONDS=65578

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=126.5 AZIMUTH=075.9 ERROR= DEGREES

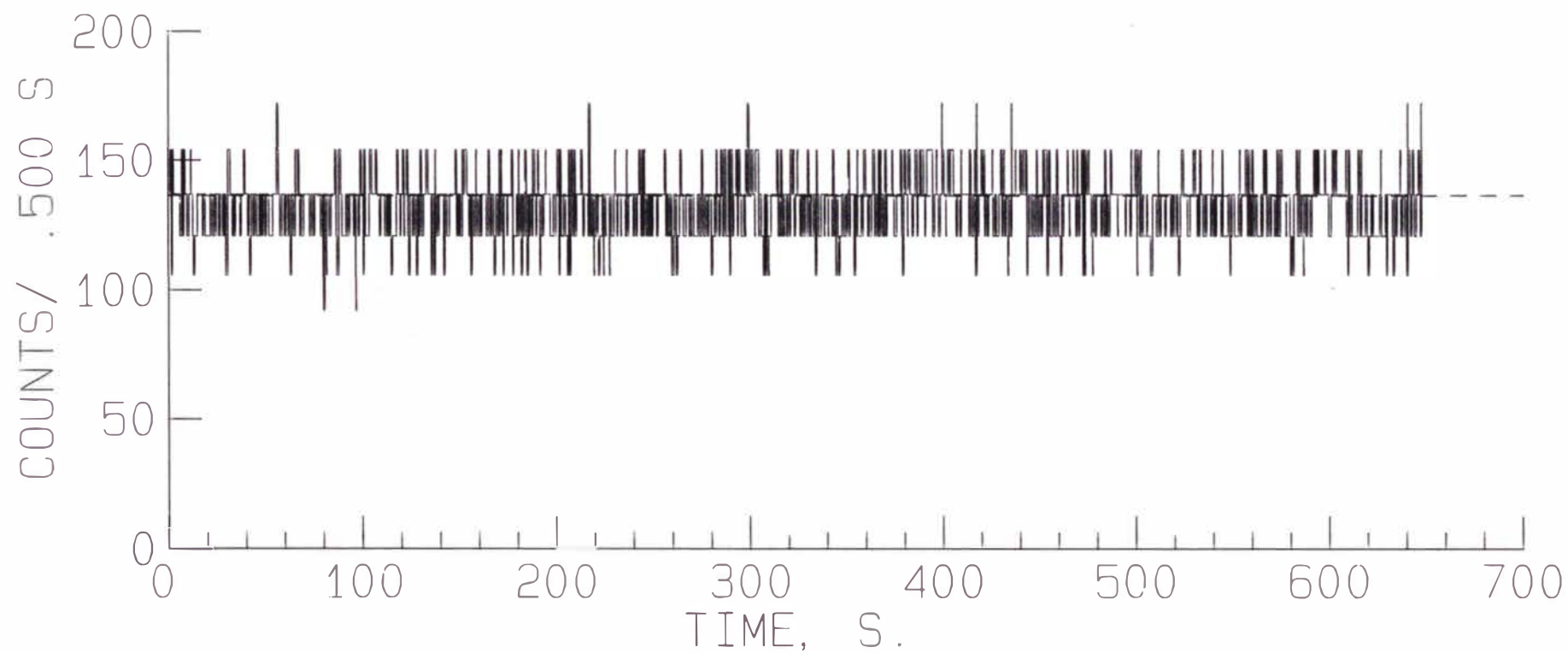
COMMENTS:

THIS IS A GOOD EXAMPLE OF A FAST RISE EXPONENTIAL DECAY TYPE SMOOTH PROFILE
BURST WHICH LASTS FOR ABOUT 150 SEC. SIGNIFICANT SIGNAL IS SEEN ABOVE
300 KEV

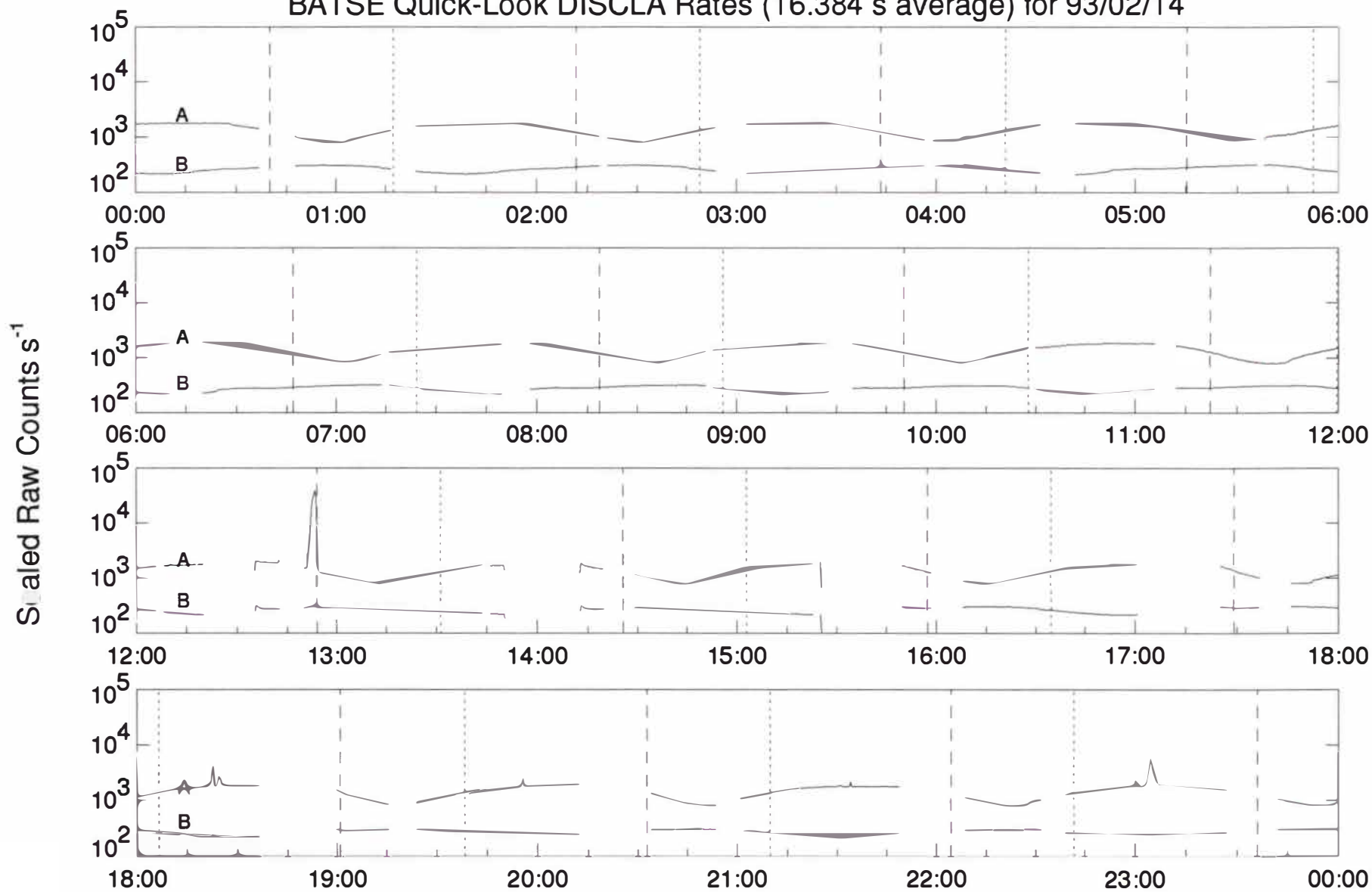
20 / 2 / 93

ULYSSES RT
14 / 2 / 93 64044.457 s
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/14



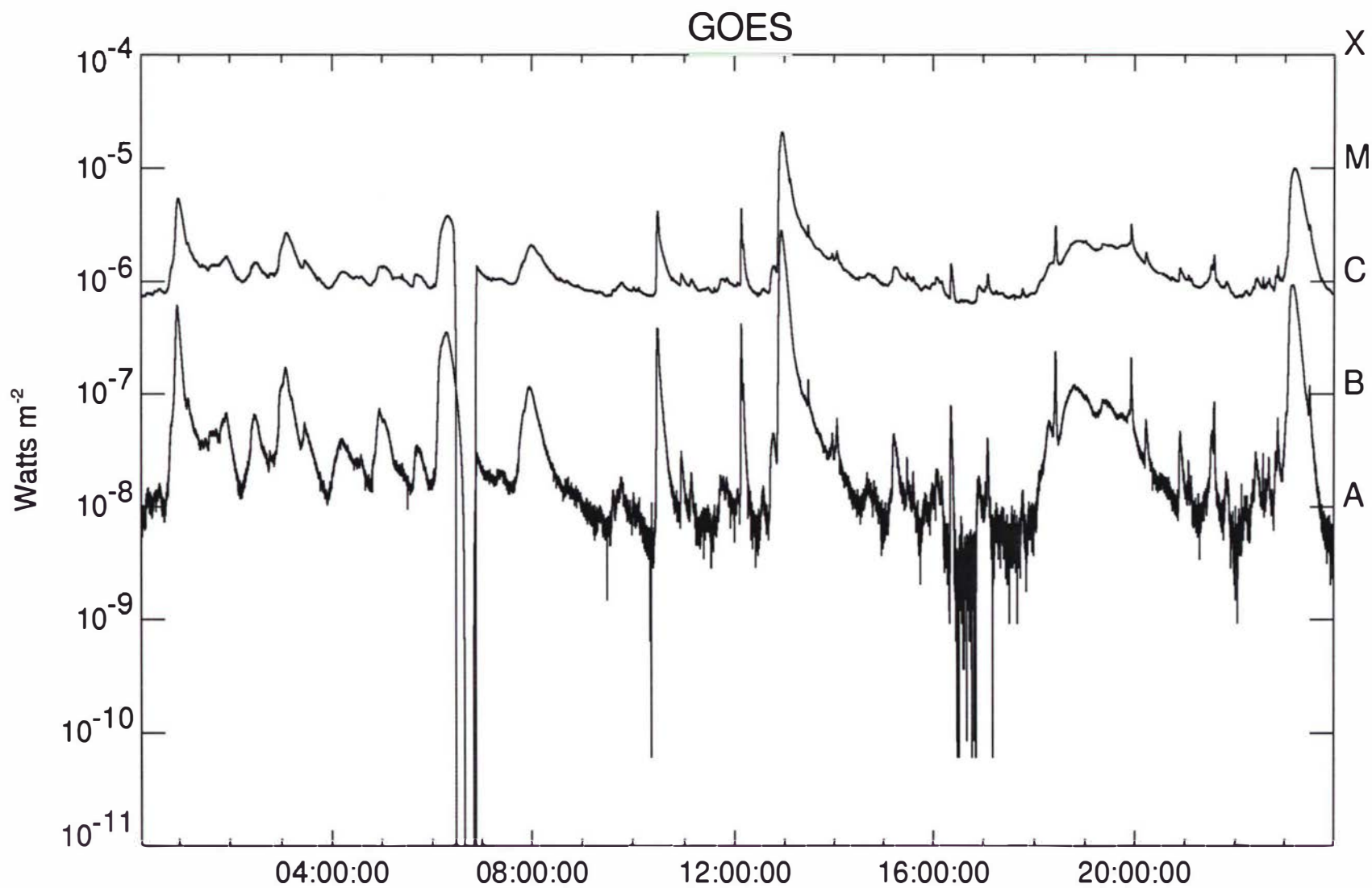
Current Time: 93/02/16, 1552 EDT

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



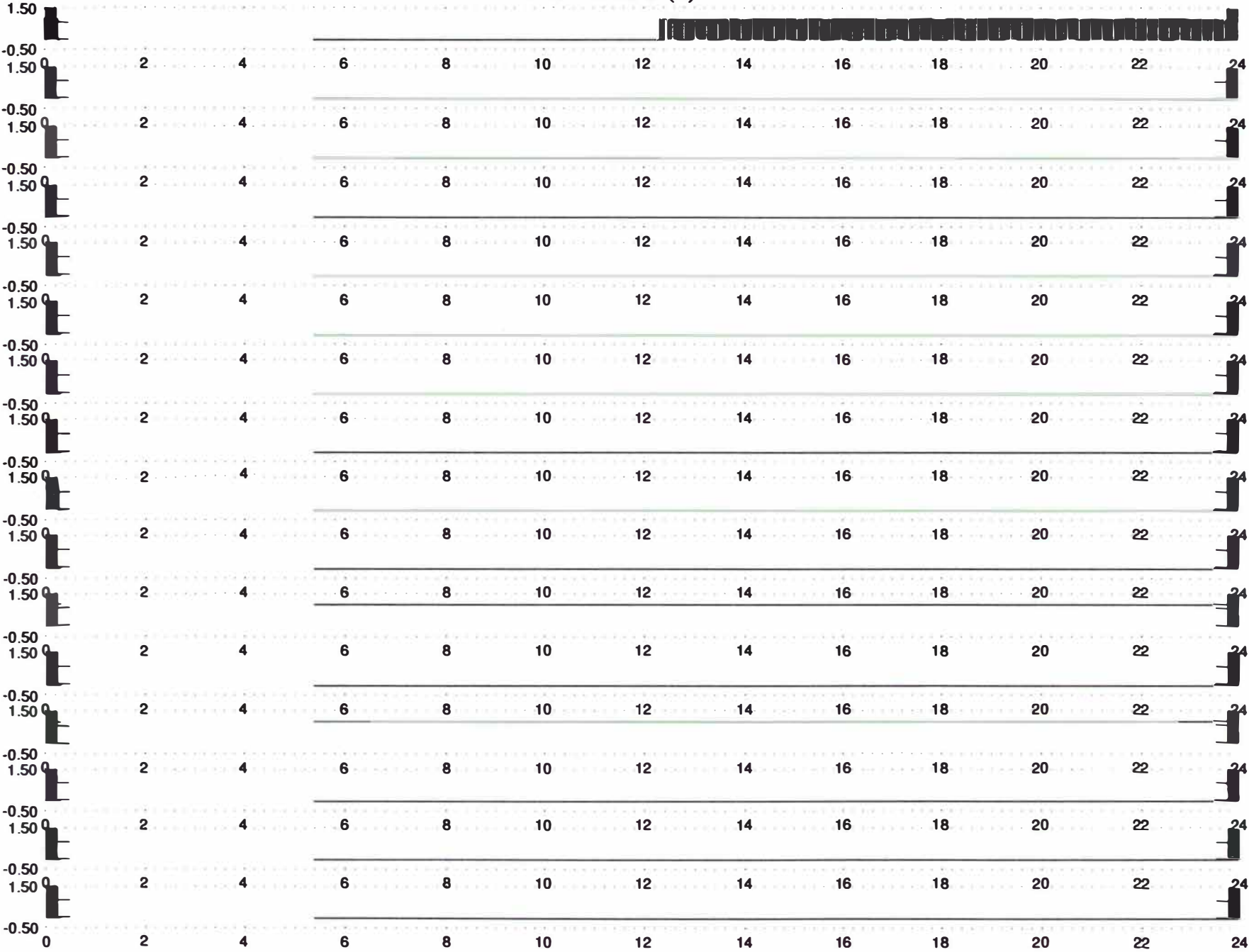
Data Start: 93/02/14, 0014:16

Plot created: 95/06/01, 1648

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

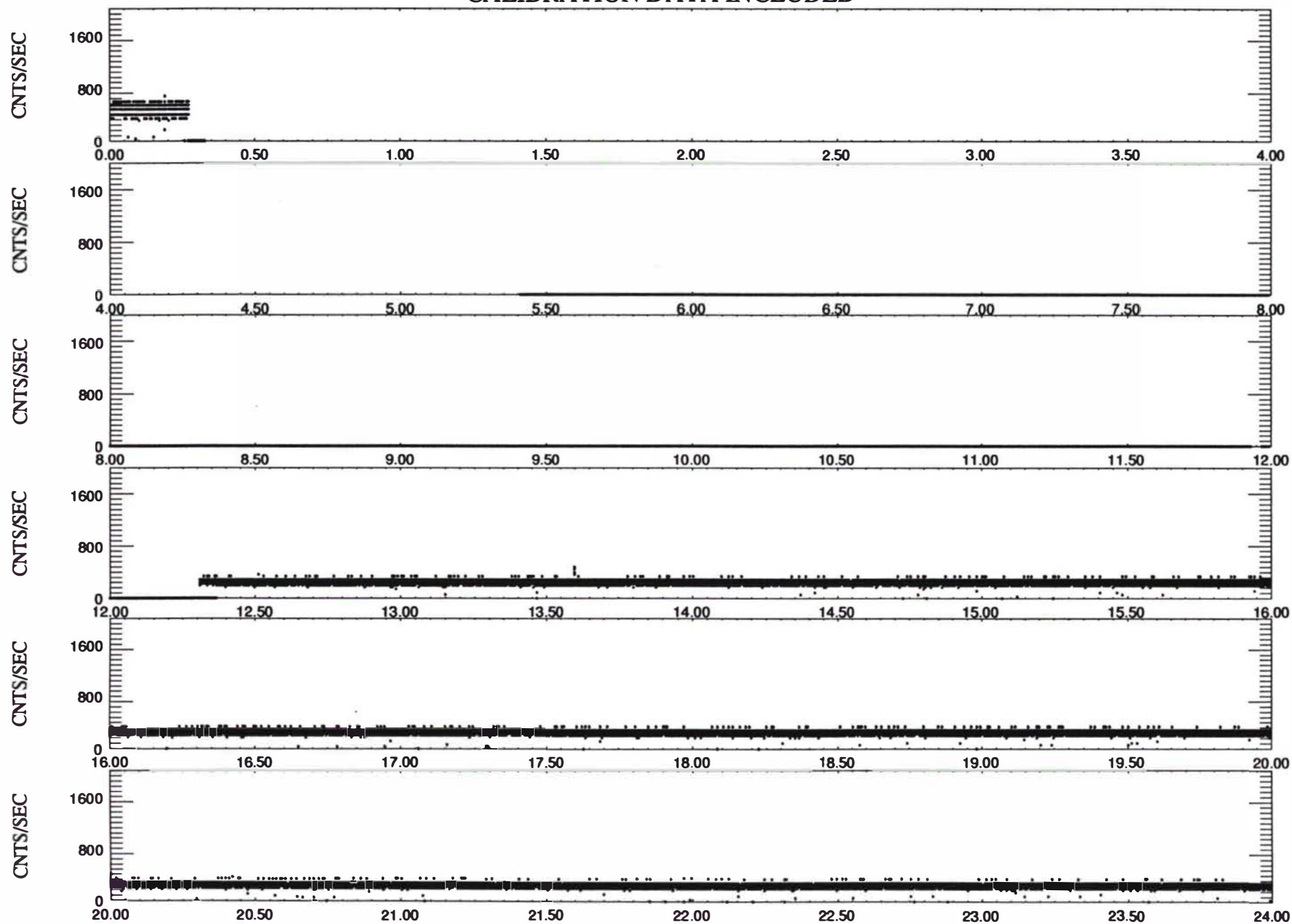
NO BURST (0)

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

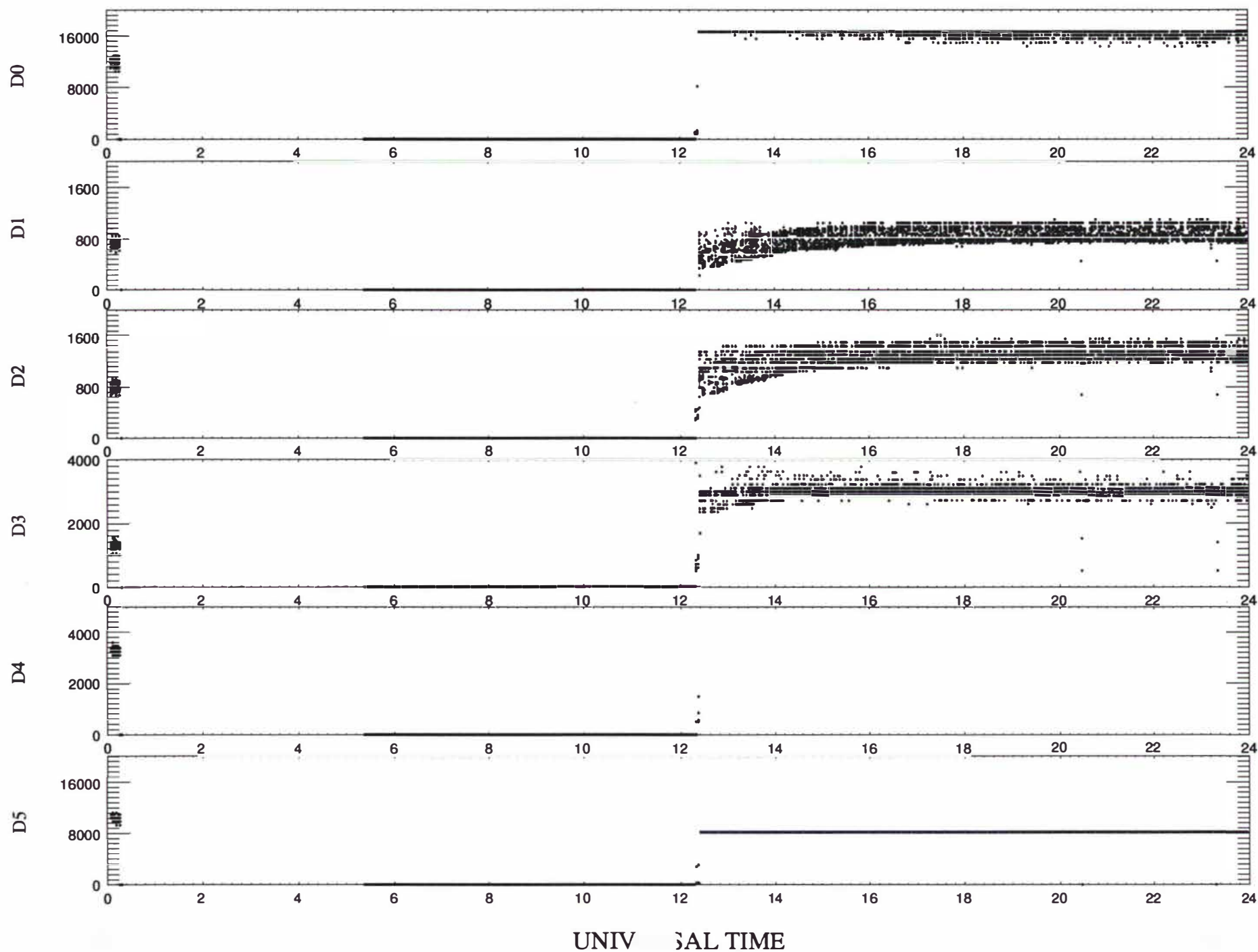


UNIV. AL TIME

CALIBRATION DATA INCLUDED



UNIV AL TIME



From HAGEDON@ssl.msfc.nasa.gov Tue Feb 16 12:28:58 1993
Date: Tue, 16 Feb 1993 14:28:53 -0600 (CST)
From: HAGEDON@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02194

TIME: TJD=9033 SECONDS=07405

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

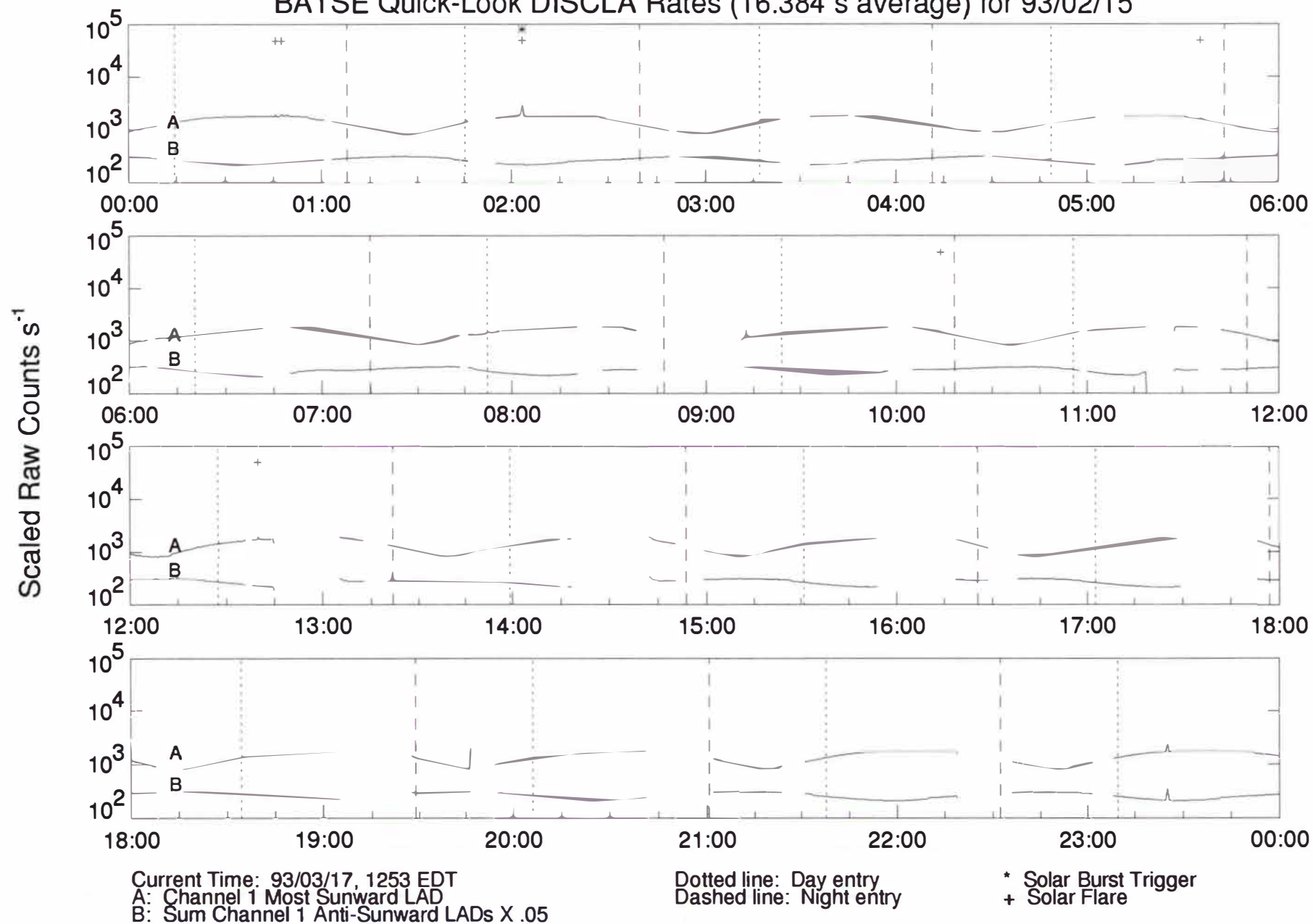
INTENSITY: COUNTS/CM2

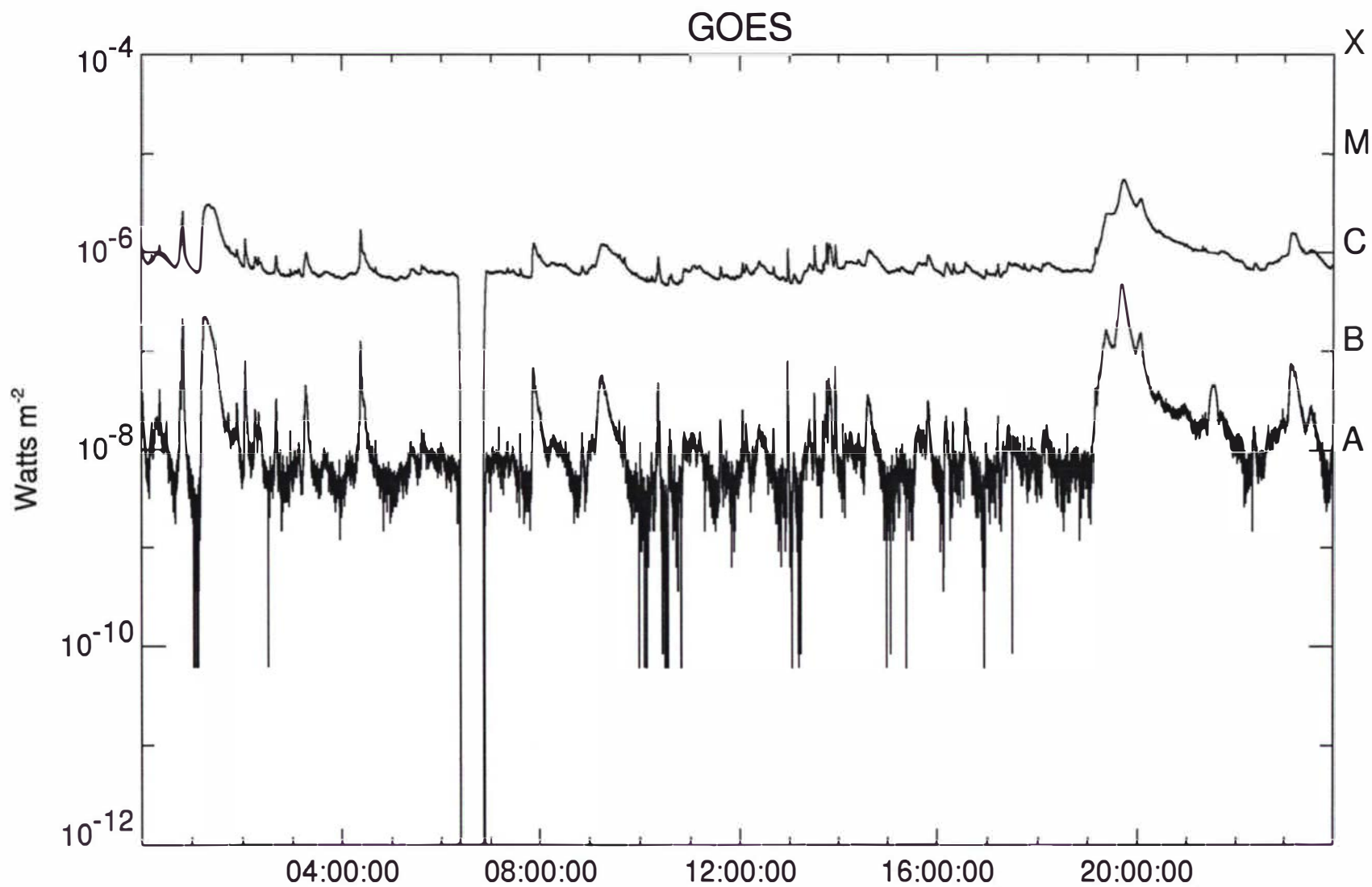
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES C1.1 SOLAR FLARE. DUR.~80S. MARGINALLY VISIBLE ABOVE 100KEV.

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/15





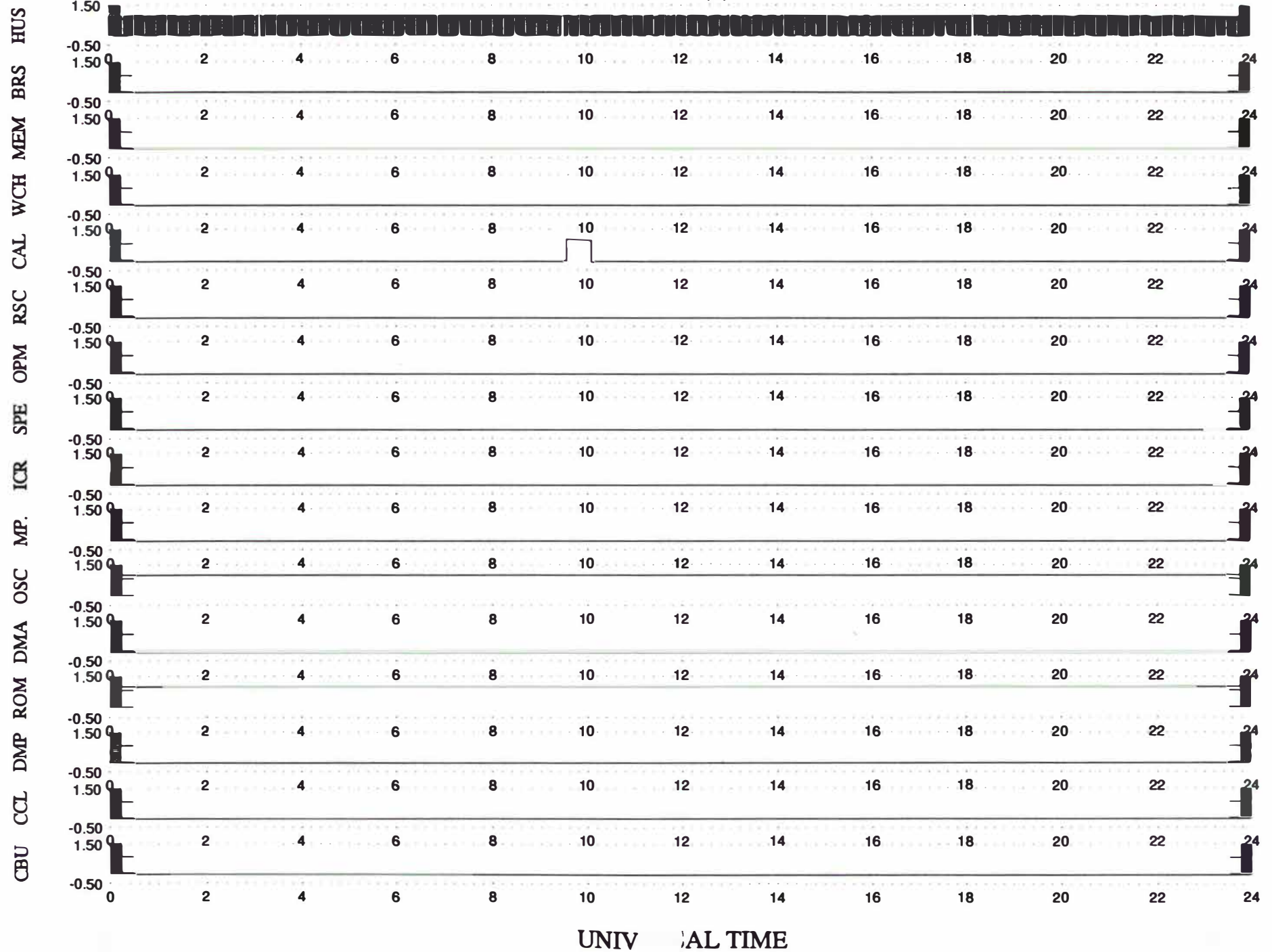
Data Start: 93/02/15, 0000:02

Plot created: 95/06/01, 1652

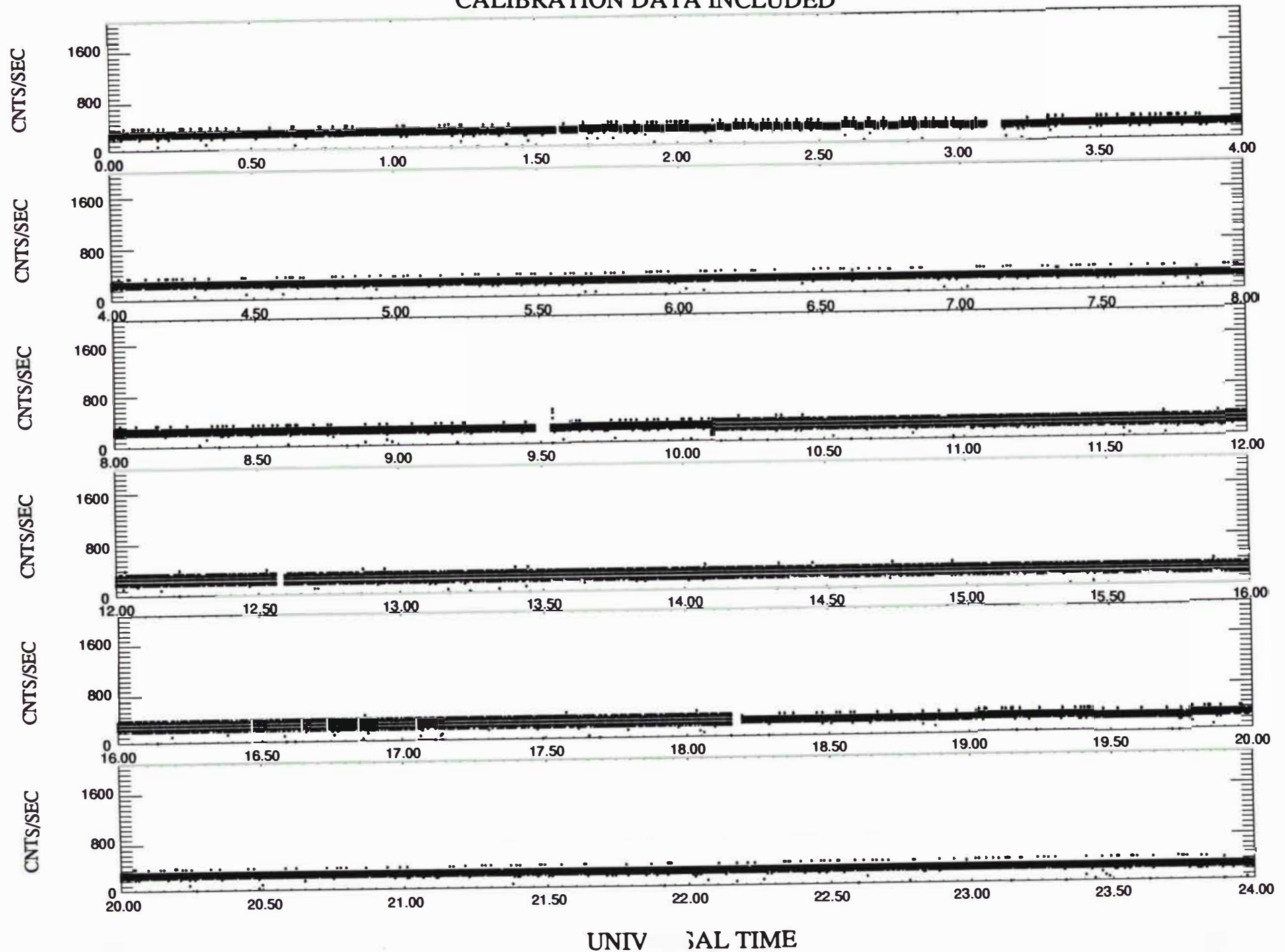
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

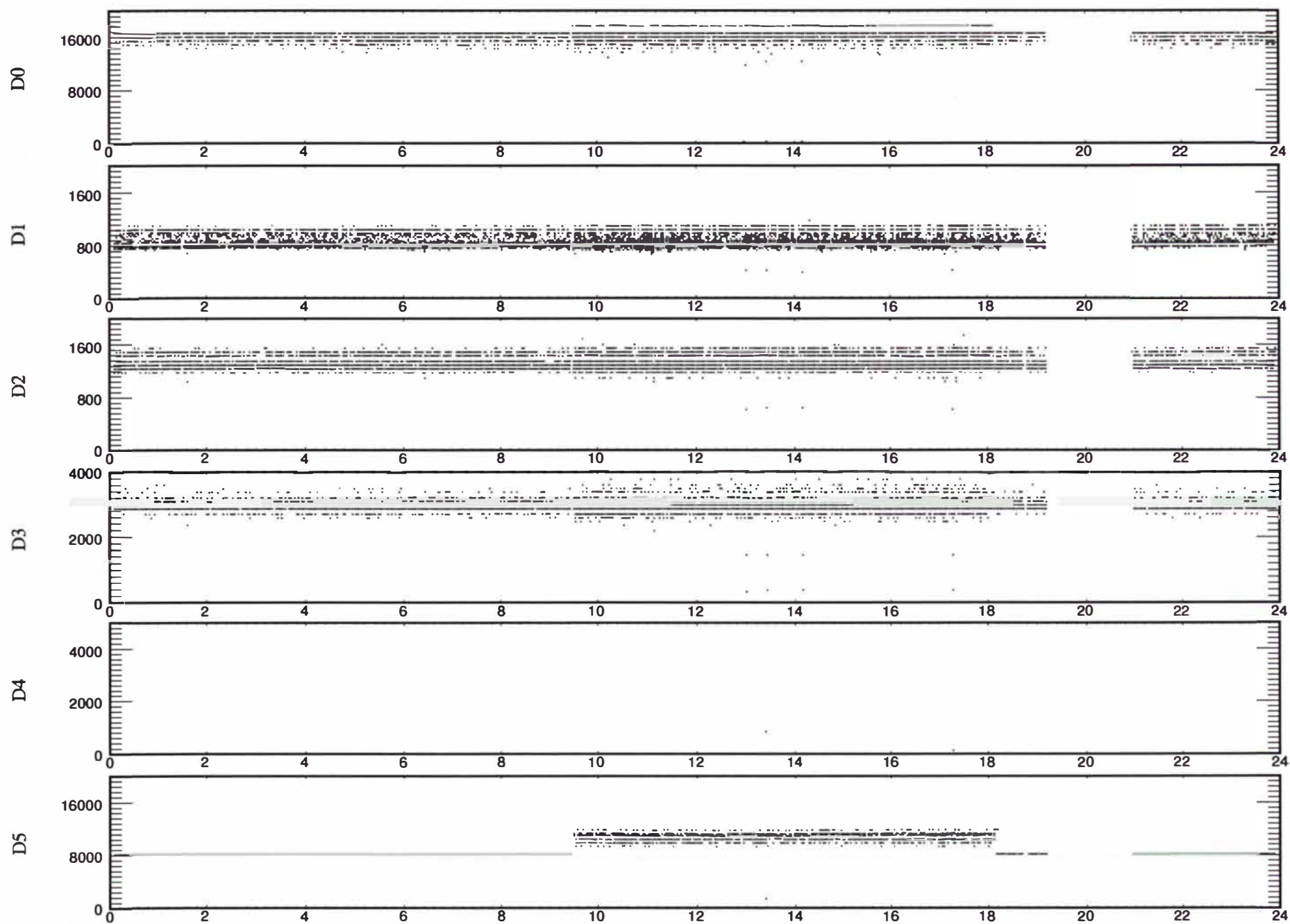
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (0)



CALIBRATION DATA INCLUDED





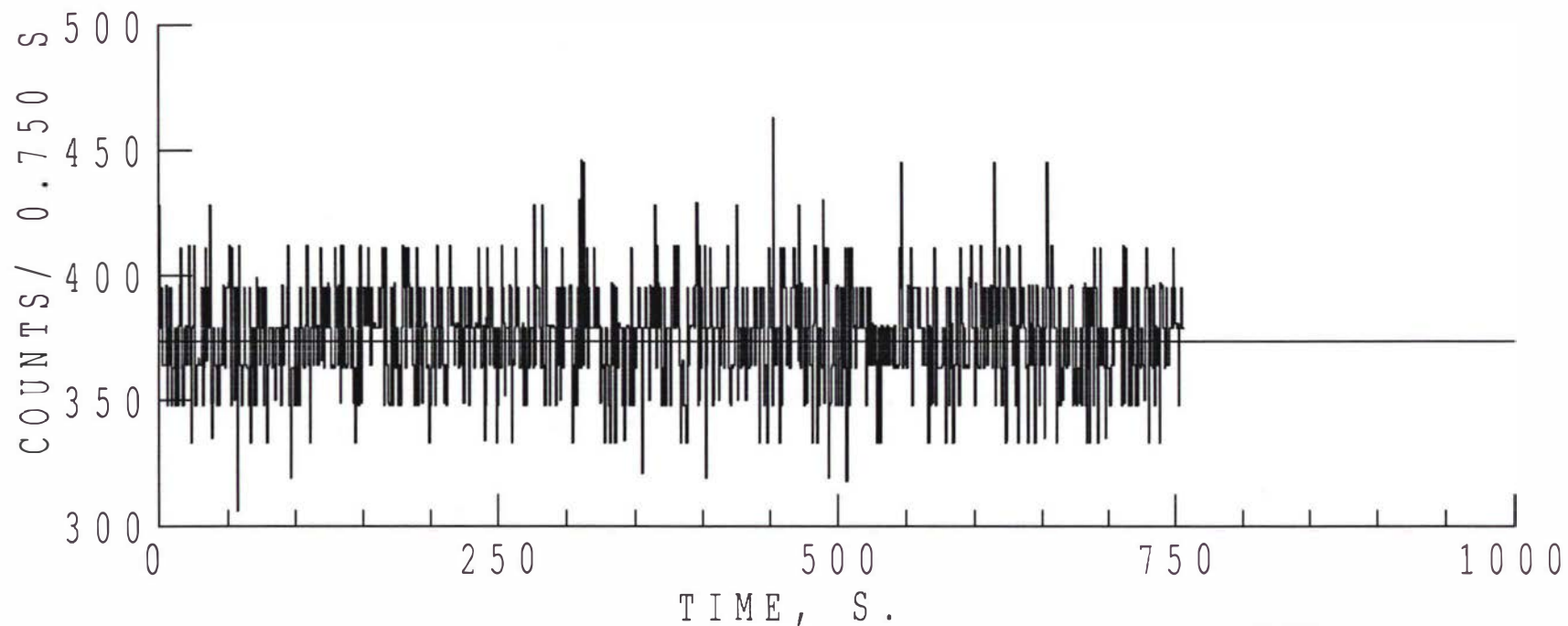
UNIV. AL TIME

Komms
UNTRIGGERED

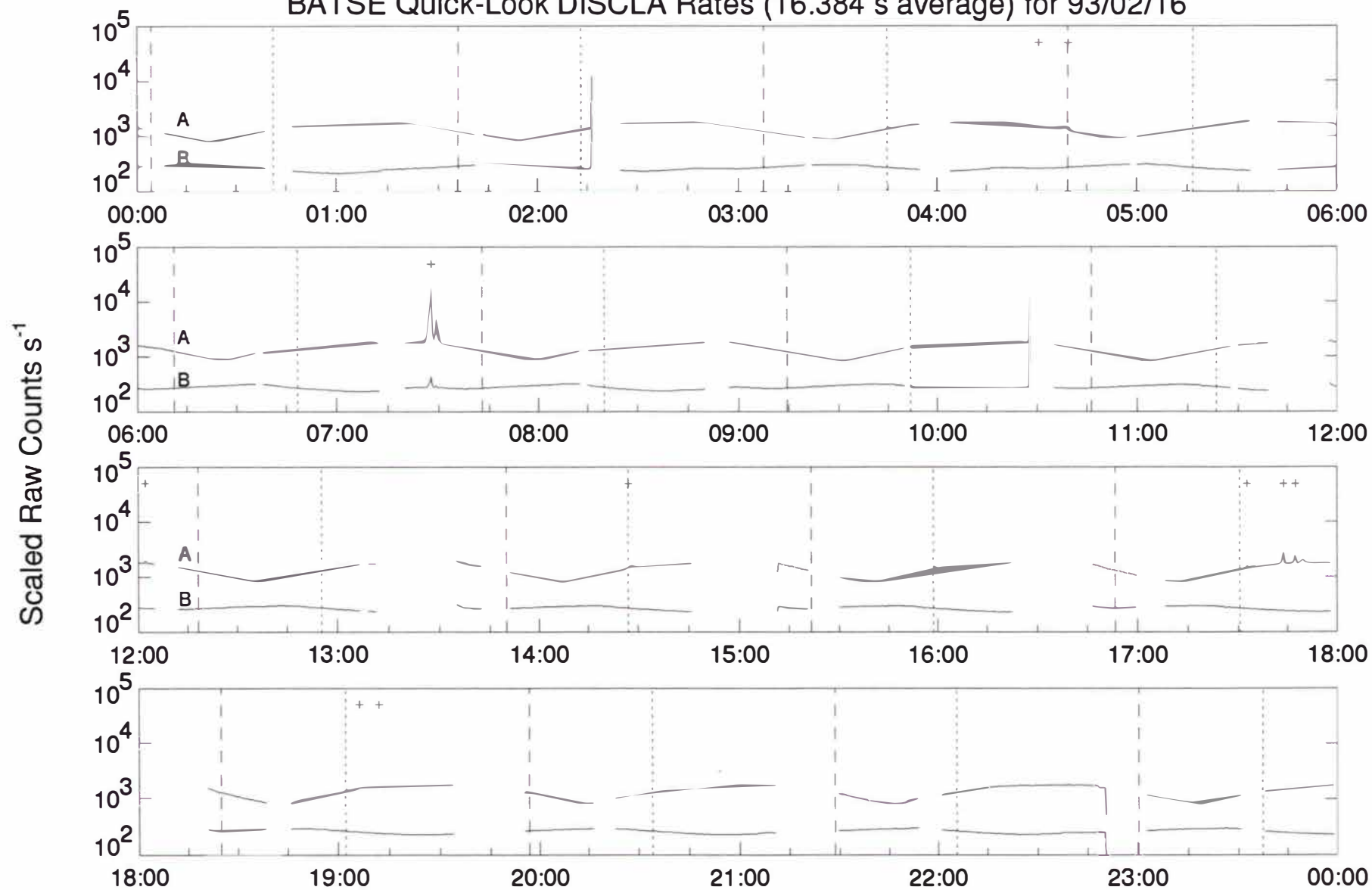
ULYSSES RT
16 / 2 / 93 55296.023 s
0.250 S INTERVALS REGROUPED BY 3
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



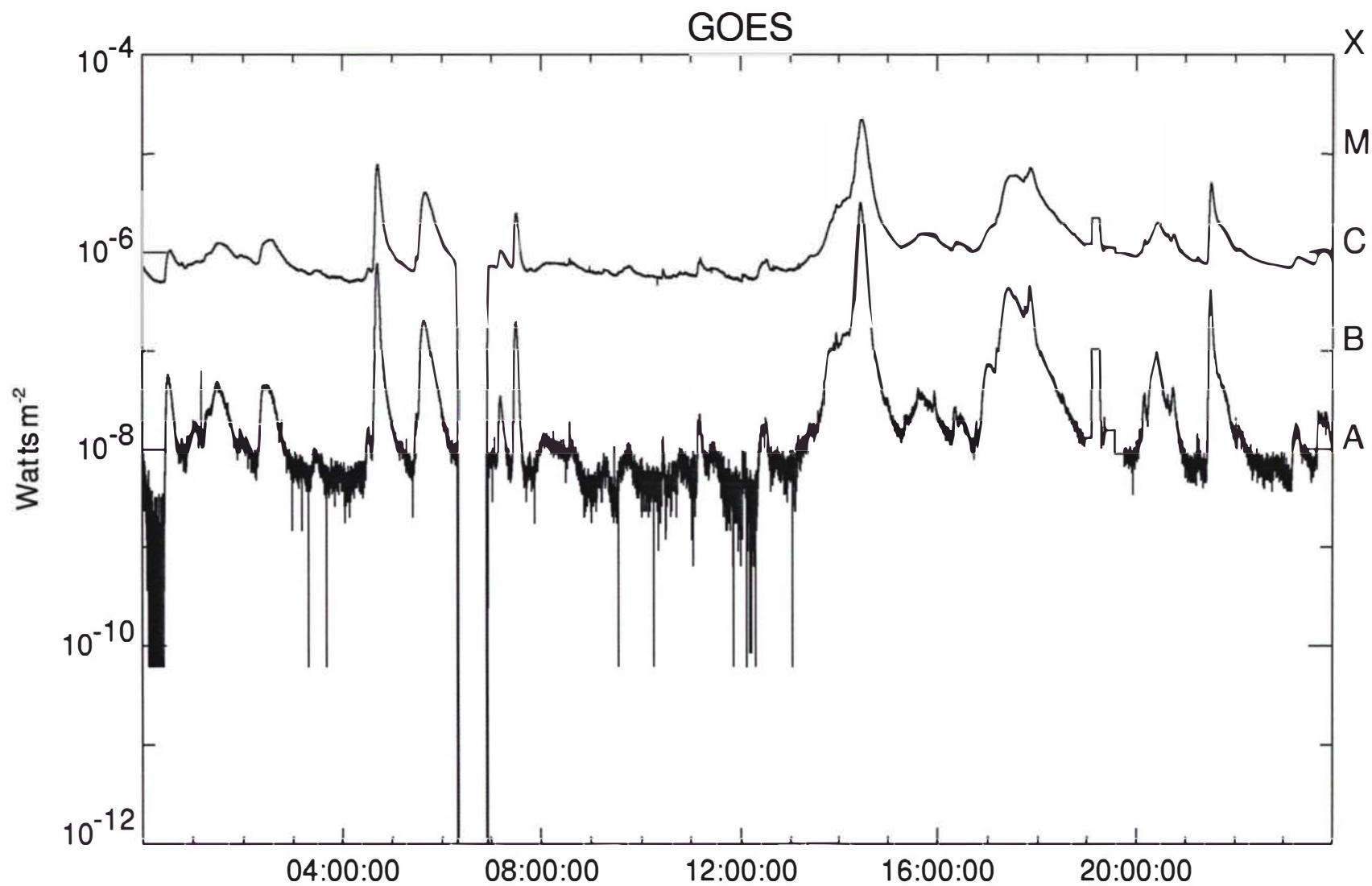
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/16



Current Time: 93/03/17, 1255 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

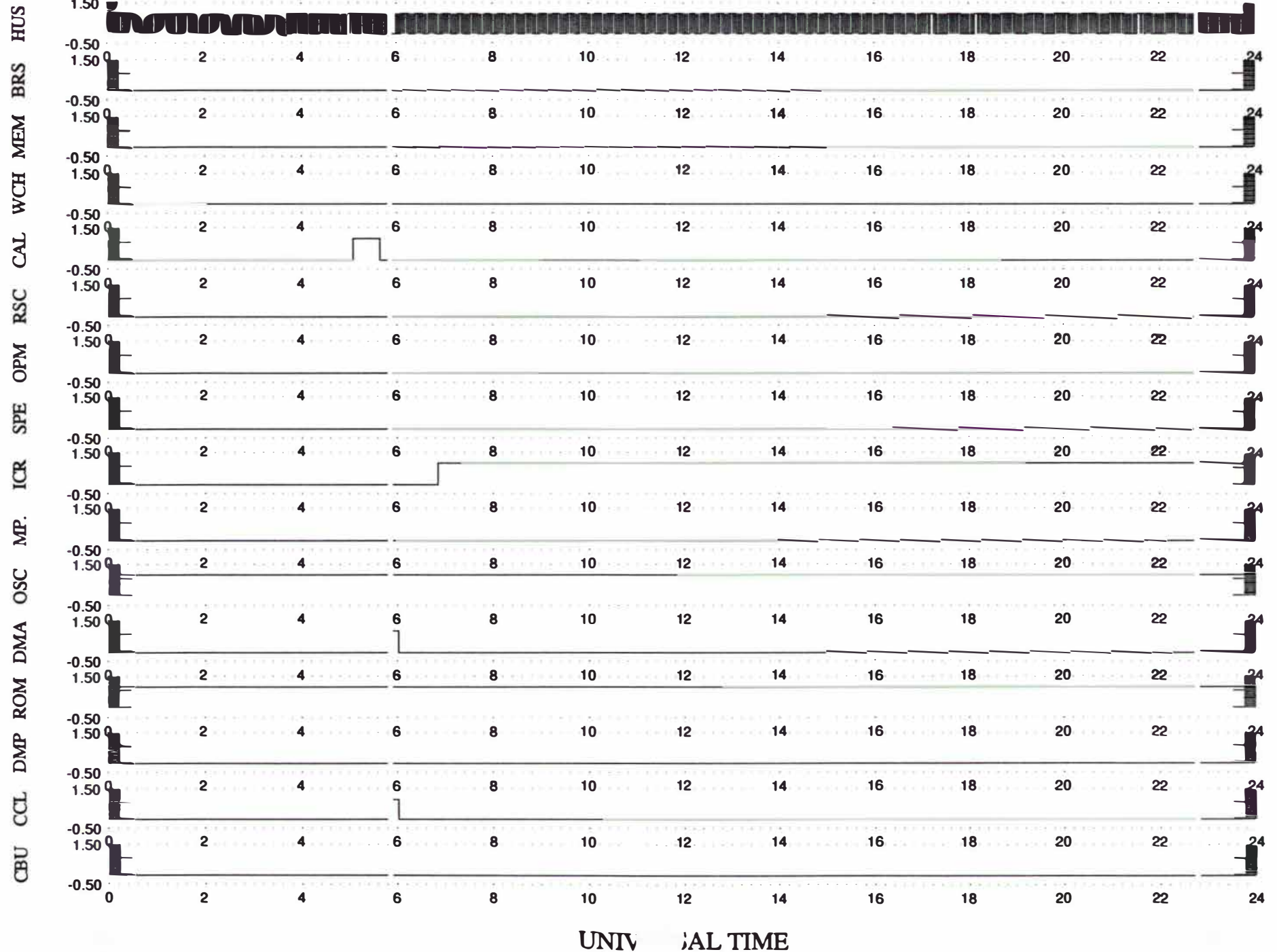


Data Start: 93/02/16, 0000:02

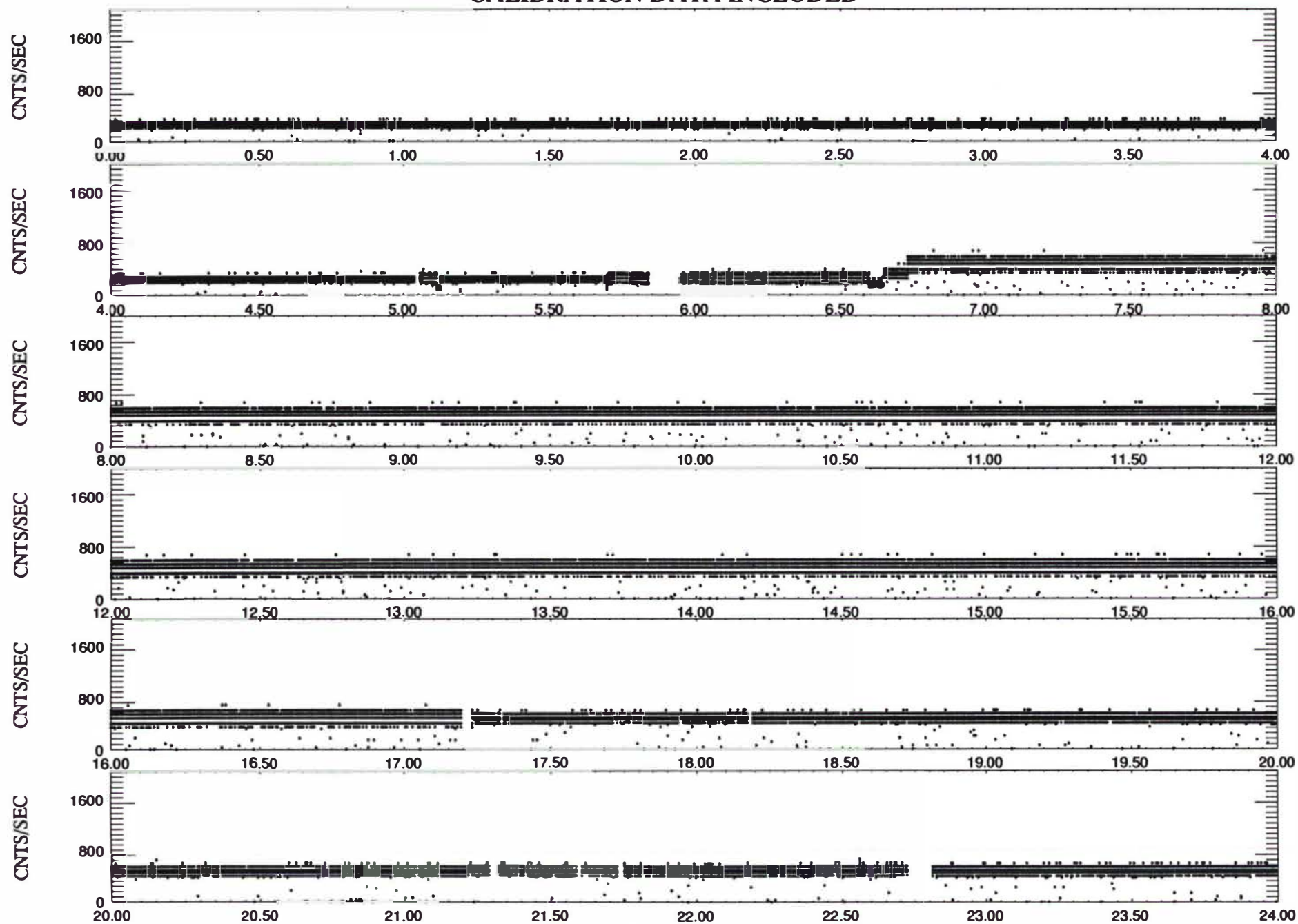
Plot created: 95/06/01, 1656

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (0)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME

Kommerz
UNTRIGGERED

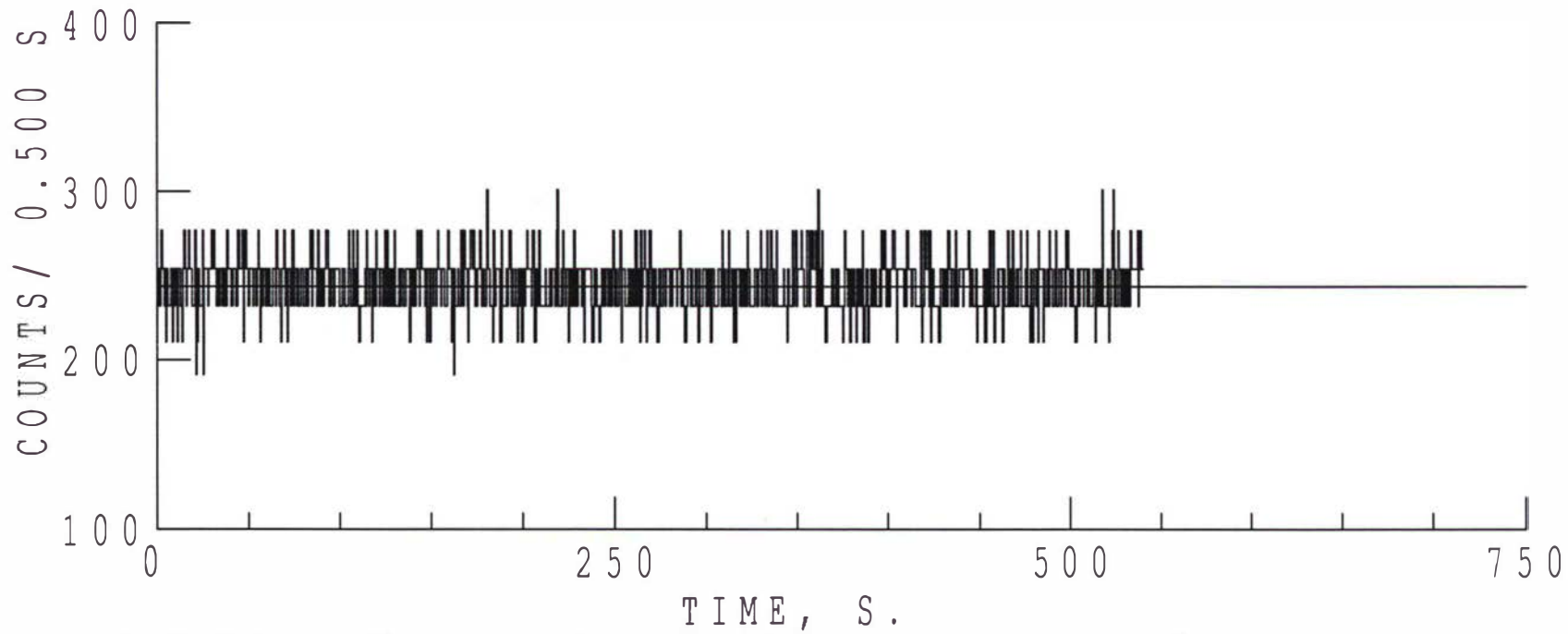
21 / 5 / 97

ULYSSES RT
17 / 2 / 93 70884.109 s
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

|

B= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 18 13:42:02 1993
Date: Thu, 18 Feb 1993 15:42:07 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1377

BATSE BURST TRIGGER

NO.: 02195

TIME: TJD=9035 SECONDS=04317

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES C4.2 FLARE. DURATION APPROX. 40 SEC. FOR MAIN PART OF EMISSION.
THE EVENT SHOW MUCH STRUCTURE; OBSERVED ABOVE 100 KEV, BUT NOT ABOVE
300 KEV.

BATSE BURST TRIGGER

NO.: 02196

TIME: TJD=9035 SECONDS=3811

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES M5.8 FLARE. EVENT IS CUT OFF BY A DATA GAP, BUT
DOES NOT APPEAR TO BE VISIBLE ABOVE 100 KEV.

BATSE BURST TRIGGER

NO.: 02196

TIME: TJD=9035 SECONDS=38110

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

CORRECTION TO PREVIOUS TRIGGER MESSAGE: CORRECT SECONDS=38110.
GOES M5.8 FLARE. EVENT IS CUT OFF BY A DATA GAP, BUT
DOES NOT APPEAR TO BE VISIBLE ABOVE 100 KEV.

CATSEARCH PROGRAM

BATSE BURST # 2197
EVENT OF 1993 FEB 17 DAY OF YEAR= 48
EVENT CROSSING TIME AT BATSE : 53078. S. OR 14:44:38.4
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 117.700 -.800
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 17/ 2/ 93 IS:
RA= 157.057 DEC= -14.686 DIST= 4.067 AU
BATSE-ULYSSES DISTANCE = 608378320. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=138.71 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1524.87 SECS.
CROSSING TIME AT ULYSSES IS 51554. S. OR 14:19:13.5 +/- 259.32 SECONDS

RI

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 18 13:51:16 1993
Date: Thu, 18 Feb 1993 15:51:23 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02197

TIME: TJD=9035 SECONDS=53078

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=134.7 AZIMUTH=185.3 ERROR= DEGREES

COMMENTS:

FAST RISE, WITH A SLOWER DECAY. DURATION APPROX 35 SEC.
POSSIBLE SLIGHT EMISSION ABOVE 300 KEV.

From MALLOZZI@ssl.msfc.nasa.gov Thu Feb 18 13:43:30 1993
Date: Thu, 18 Feb 1993 15:44:04 -0600 (CST)
From: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2197	930217	9035	53078	3600	119	-04

RI

Helio corr removed

Date: *Dec 16 '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)? *N/A*
- ☒ 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

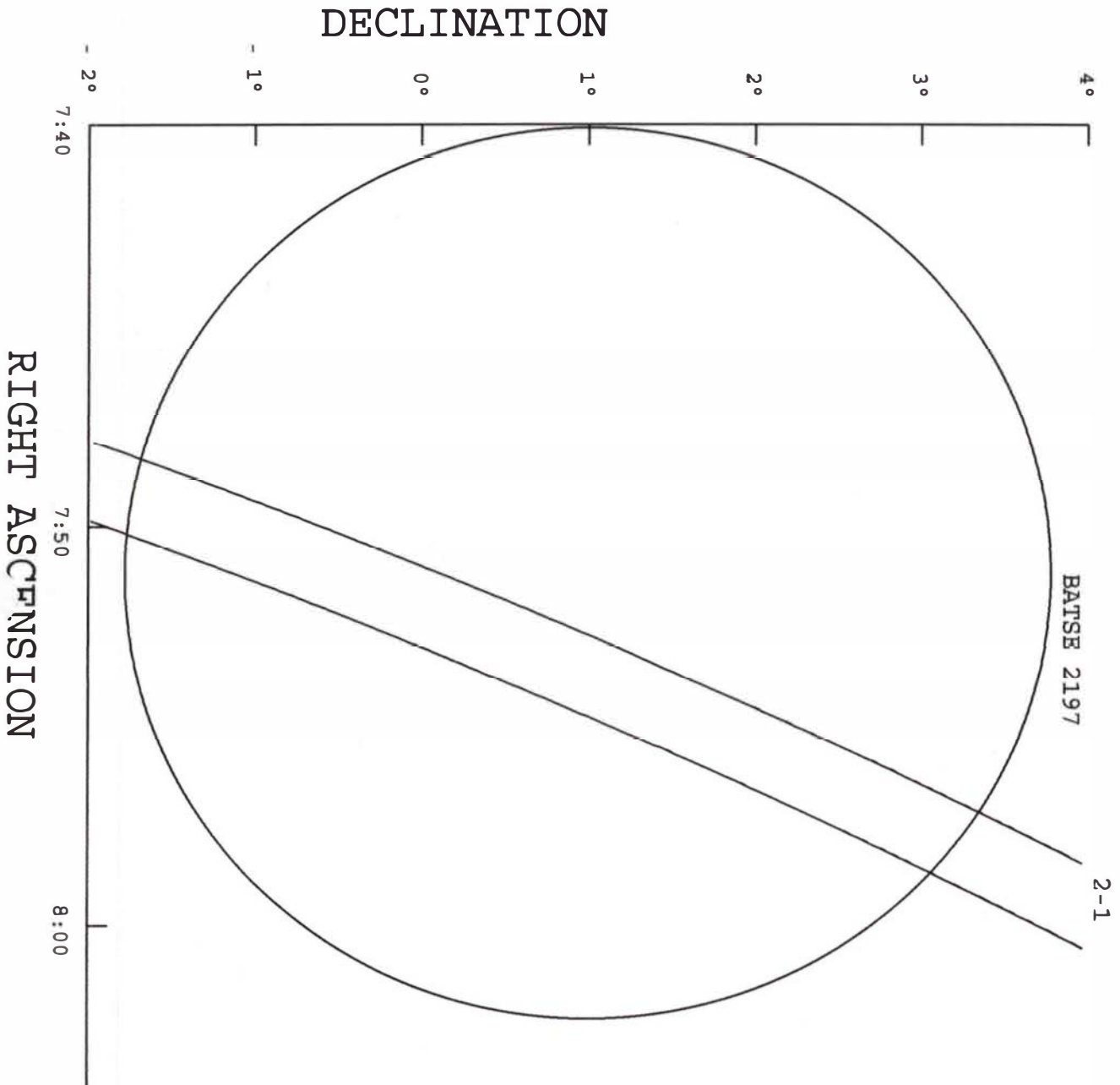
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 17, 1993 14:18

16/12/97



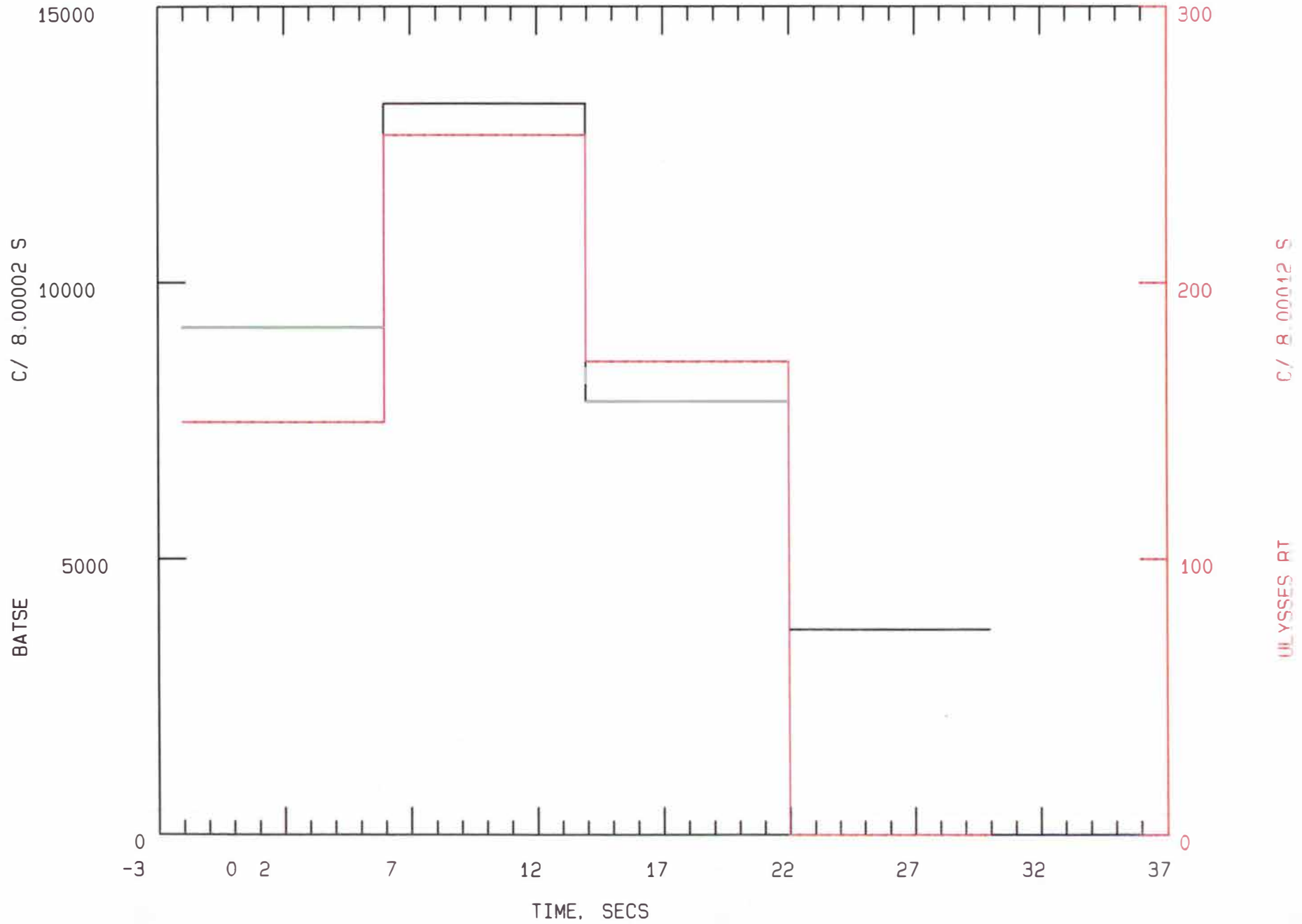
BATSE

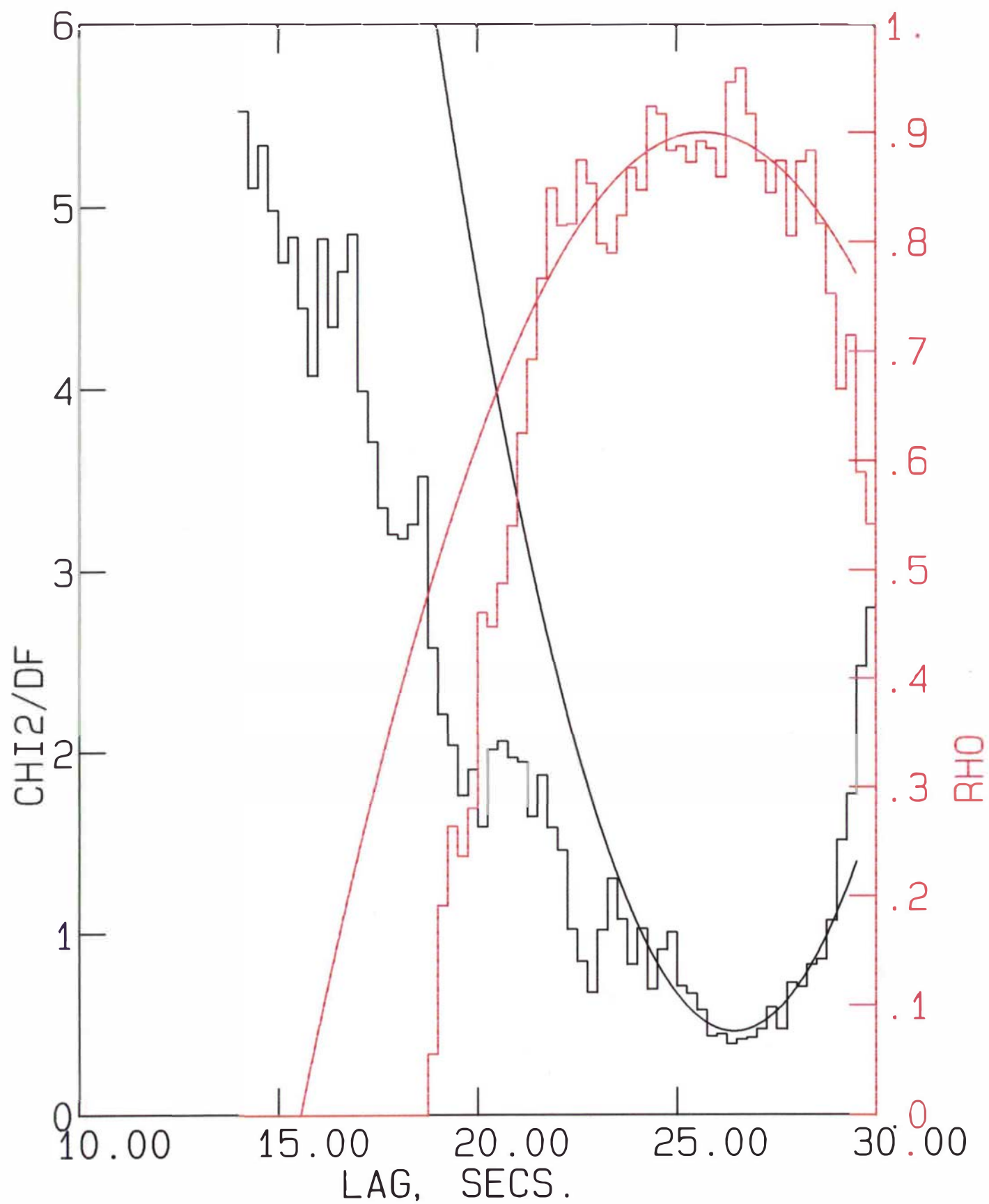
-ULYSSES RT CORRELATION

17/ 2/93

53078.402

16/12/97





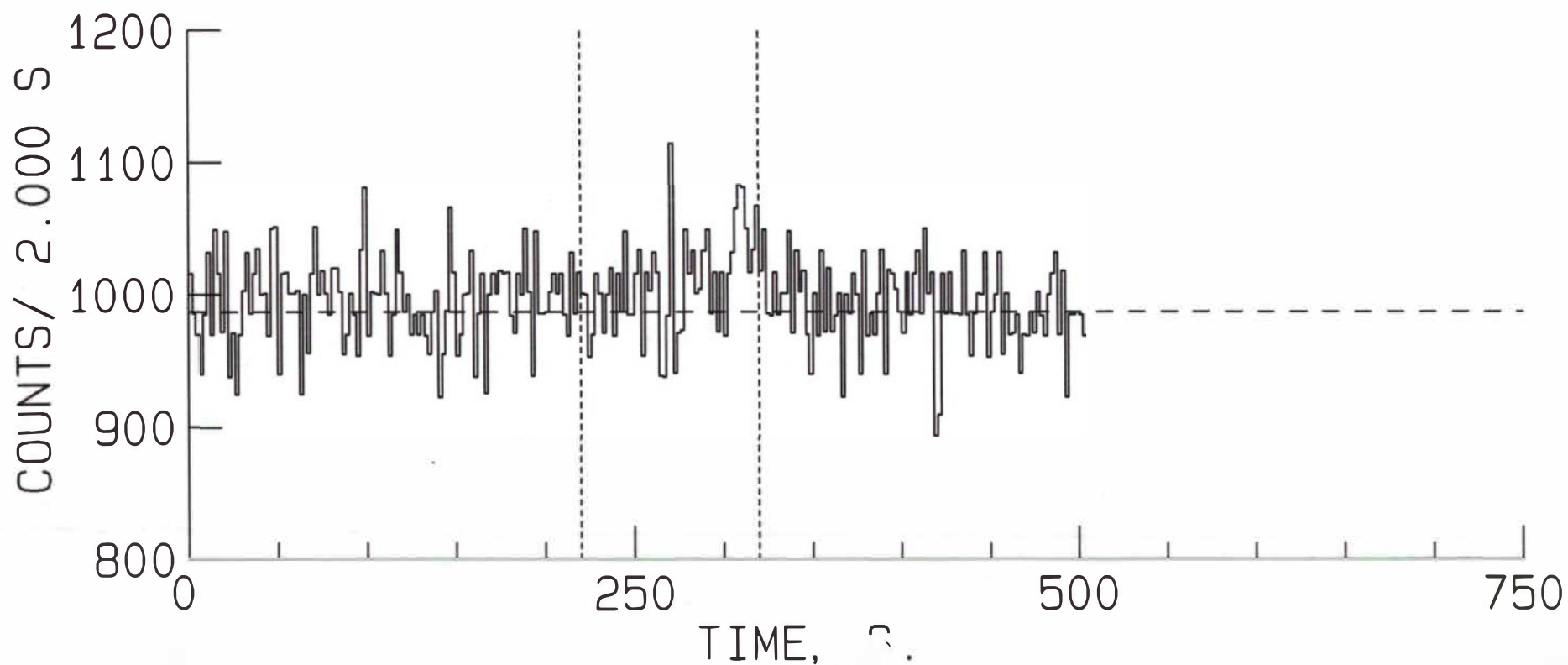
ULYSSES RT

16/12/97

17/ 2/93 51264.059 s

0.250 S INTERVALS REGROUPED BY 8

21- 146 keV

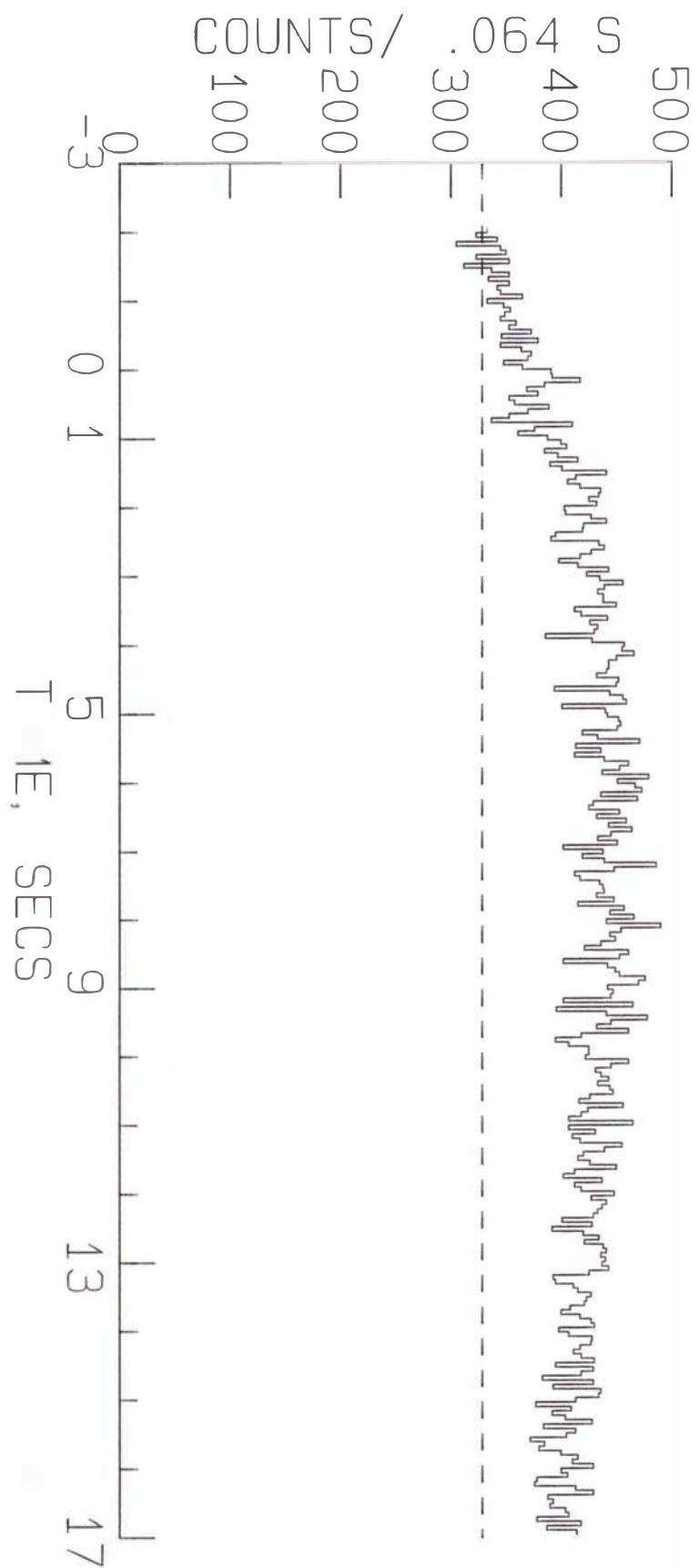


BATSE

17/02/93

53078.402

25- 100 keV

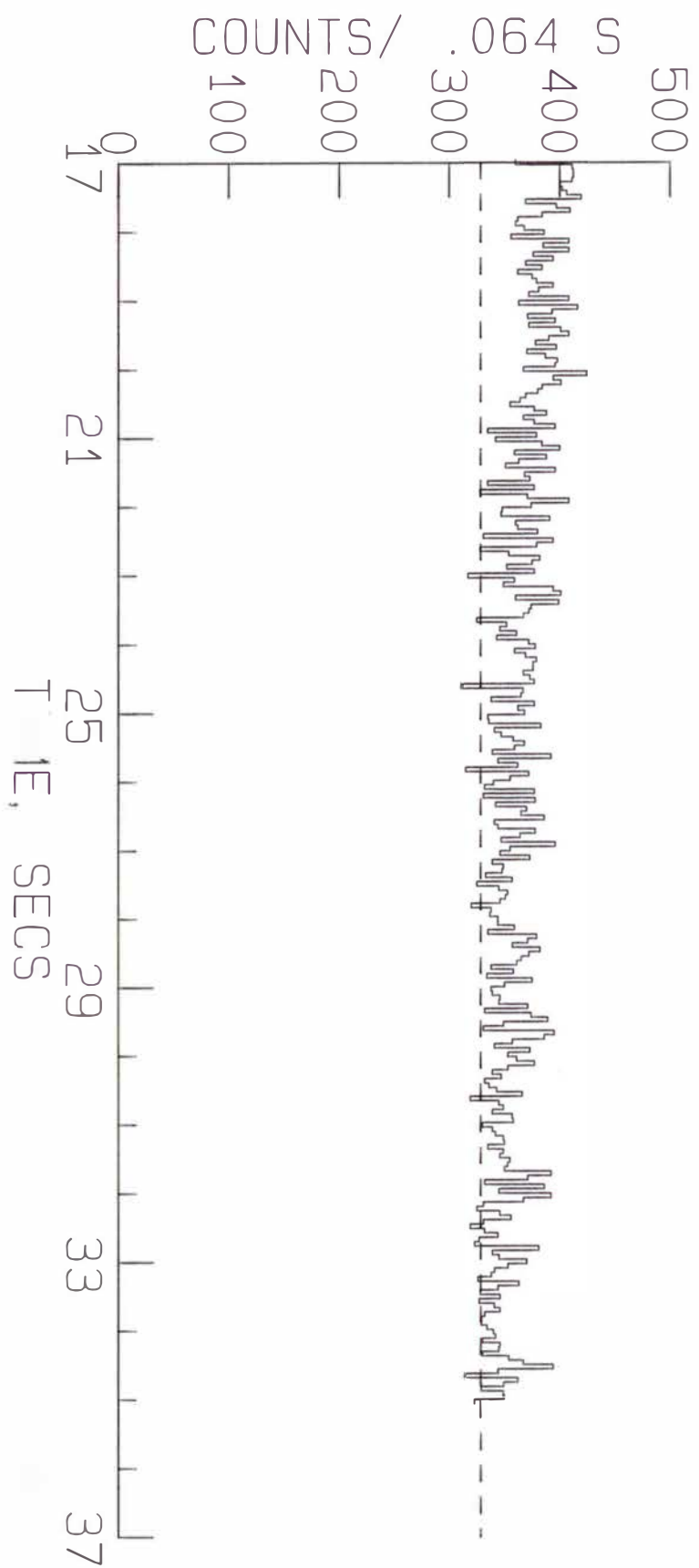


BATSE

17/02/93

53078.402

25- 100 keV



WATCH-EURECA Gamma Ray Bursts. Niels Lund, Soren Brandt & Alberto Castro-Tir. Danish Space Research Institute.

Version 1.0 Aug. 9. 1993.

The data given below is pre-publication data. The data should not be quoted without prior consultations with the above authors. The list is prepared in support of searches for counterparts or multi-spacecraft identifications.

The positional uncertainty is 1 degree error circle radius.

#	date	UT-time	sd	l(s)	m(s)	m/l	position(J2000)	t	comments	#Wm	sdp	theta	phi
1	920824	10:53						2	Weak (BATSE)				
2	921004	14:00:21		?	15	>5	14h37.5m 34.1d	1	Two peaks			63.2	222.1
3	921022	15:20:57		60	55	>5	16h56.7m -09.5d	2	Two peaks				
4	921118	22:11						2	Weak (BATSE)				
5	921207	16:00:48		?	16	>5	20h36.1m -41.8d	1	Two peaks			65.9	136.3
6	921218	02:30						2	Weak (BATSE)				
7	930106	15:37						2	Weak (BATSE)				
8	930201	16:42:12						2	Weak (BATSE?)				
7	930217	14:44						2	Weak (BATSE)				
8	930318	12:31:28		?	30	>5	10h03.3m* -20.0d*	2	BATSE trig 95s early?				
9	930410	14:19						1					
10	930426	12:40:35		?	18	>5		1					
11	930502	13:52						2	Weak (BATSE)				
12	930610							1					
13	930614	03:40:32		11	9	2	11h20.7m +23.1d	1					

#	date	UT-time	sd	l(s)	m(s)	m/l	position(J2000)	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 6-10 keV band (Low NaI channel)

m(s): Duration in 10-180 keV band (Med CsI channel)

m/l: Hardness: (sd(Med NaI)+sd(Med CsI)) / sd(Low NaI) (NOTE: EURECA energy bands)

Positions marked with asterisk can not be determined more than once from the WATCH data!

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.

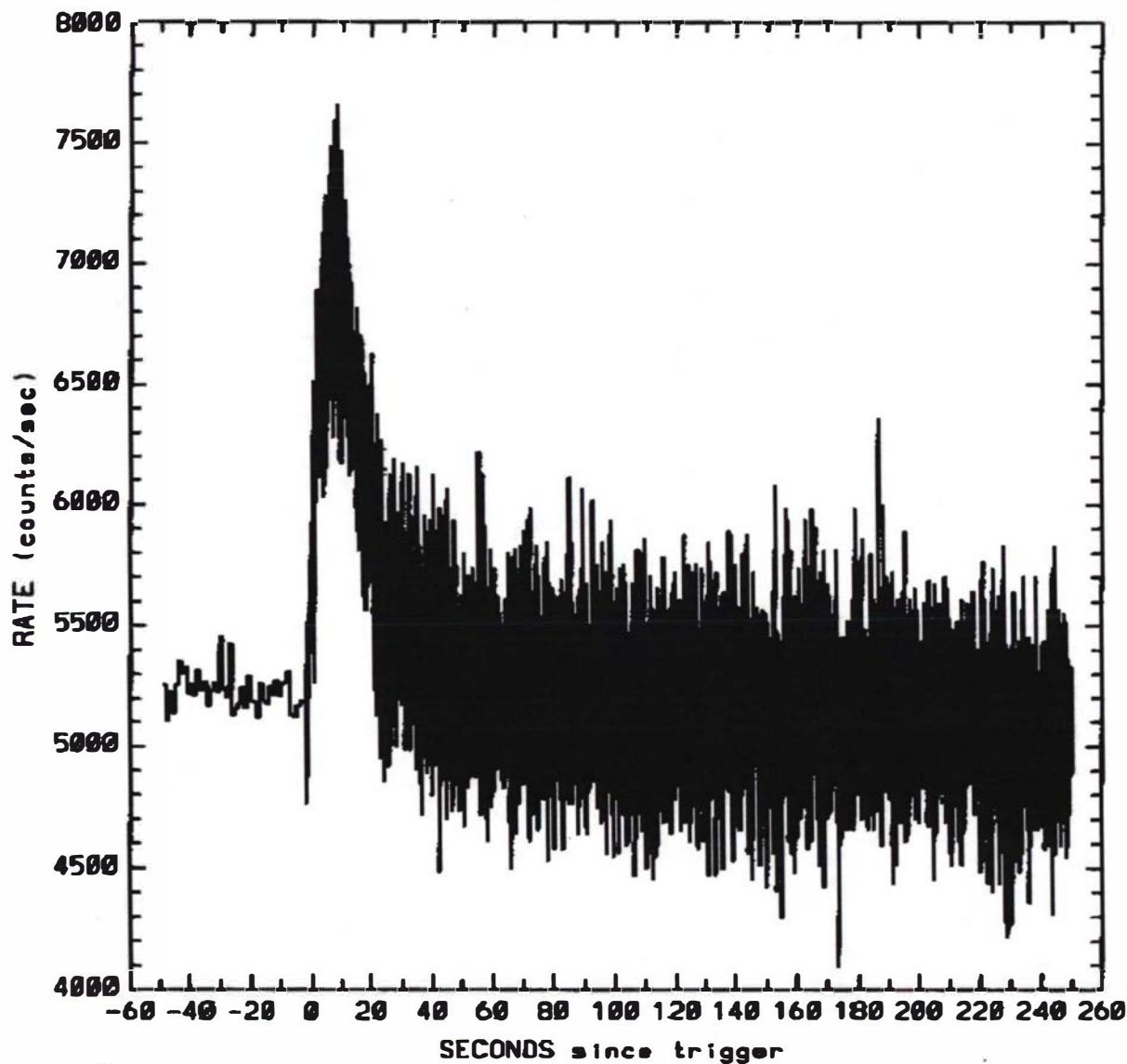
theta and phi: Source position in WATCH instrument coordinates.

WATCH GRANAT Gamma Ray Bursts. Niels Lund, Alberto Castro-Tirado & Soren Brandt, Danish Space Research Institute.

Version 2.0 Aug. 9. 1993.

The data given below is pre-publication data. The data should not be quoted without prior

Data for K. Hurley



25-MAR-1993 09:27:58

Created by HQPS BD
(Burst Display)
Version 2.18

Trigger # : 2197

Trigger Time:
9835 / 53078.402

Burst Data Type:
DISCSC

Deadtime
Corrected: N
Background Data
Type: PRED + DISCLA

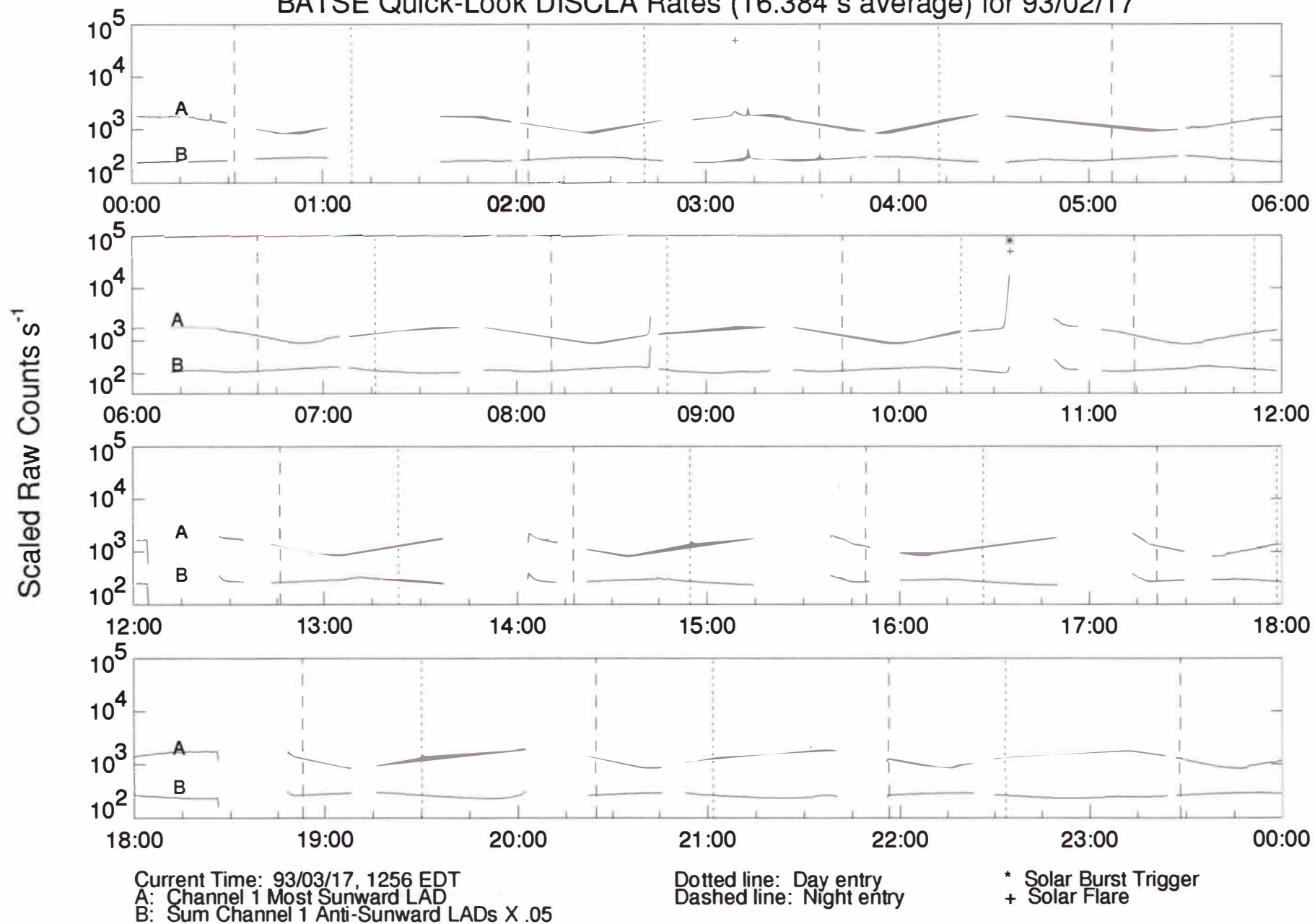
Minimum Integ. Time:
0.064 second(s)

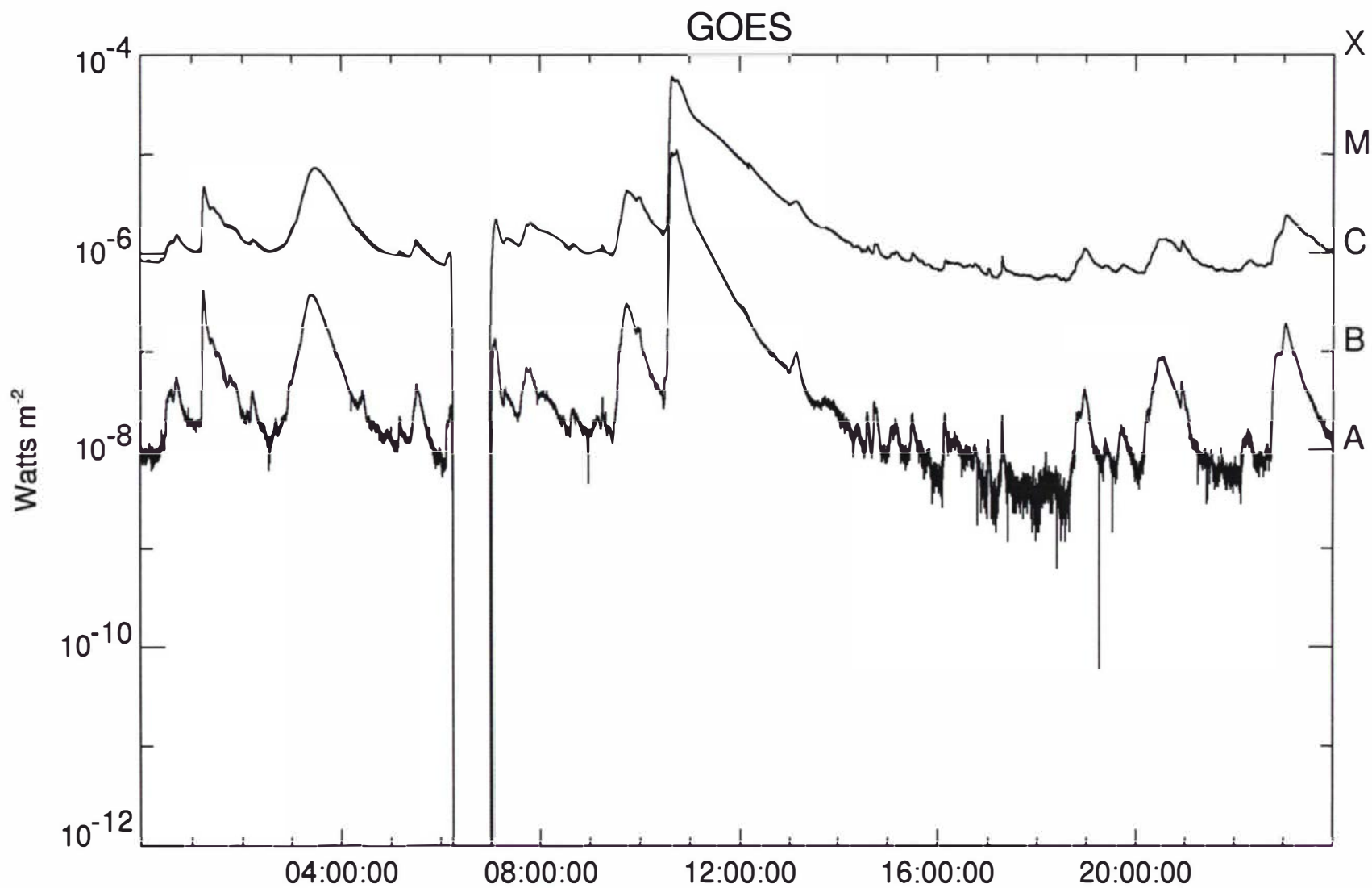
Detectors [7..0]:
10100000

Discriminators:
(1, 2)

Quality Mask:
BD[SP1

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/17





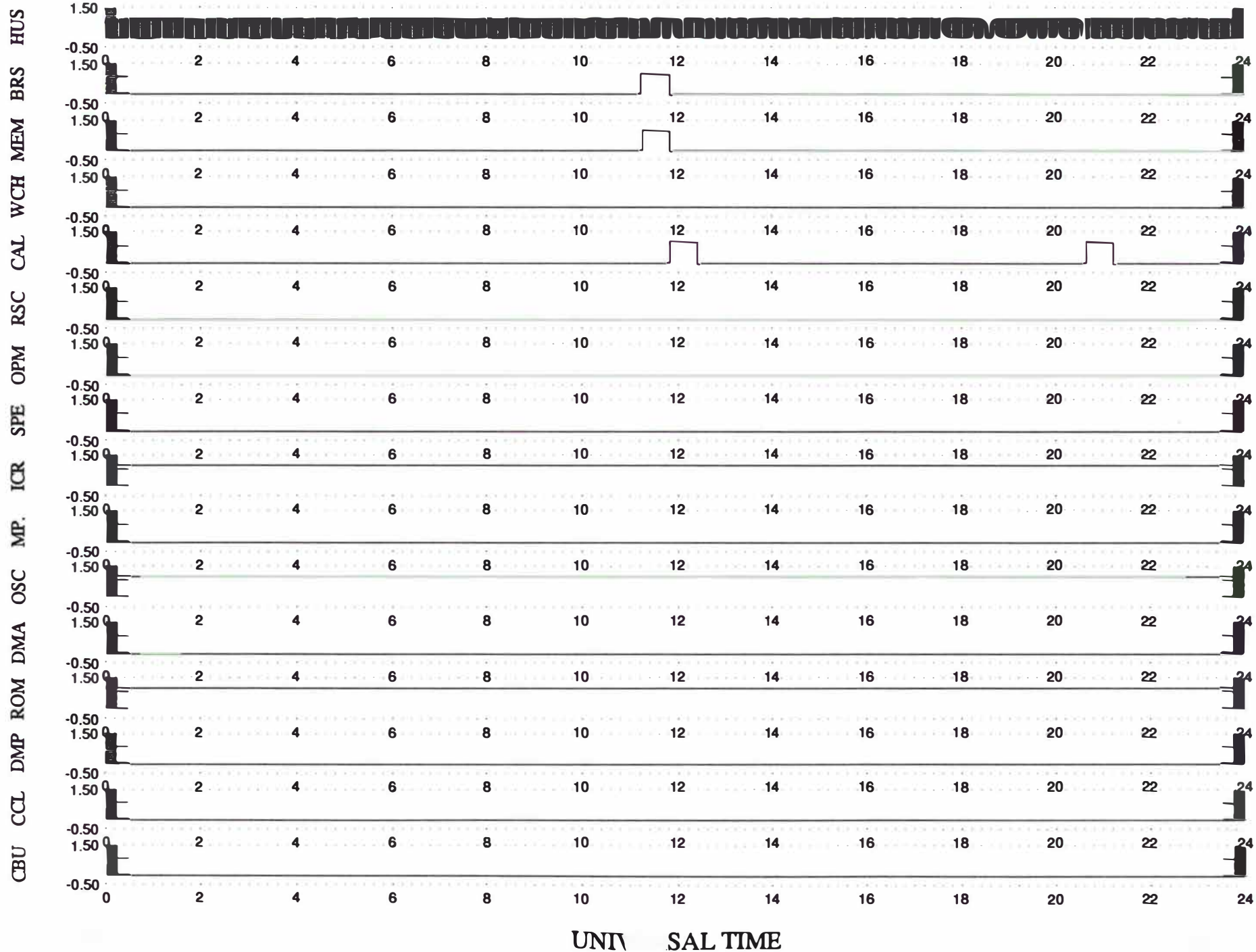
Data Start: 93/02/17, 0000:02

Plot created: 95/06/01, 1700

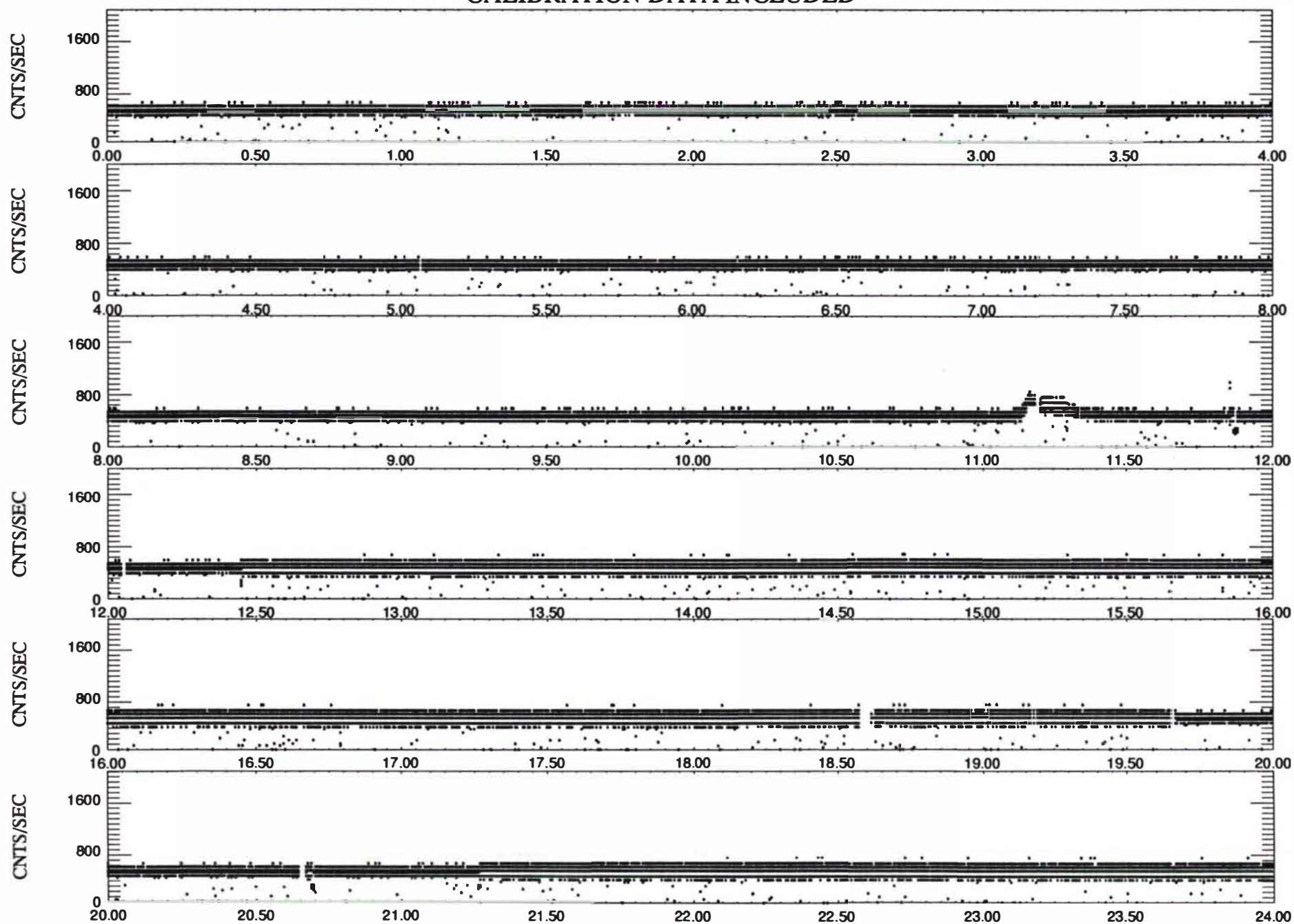
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BURST NUMBER 1

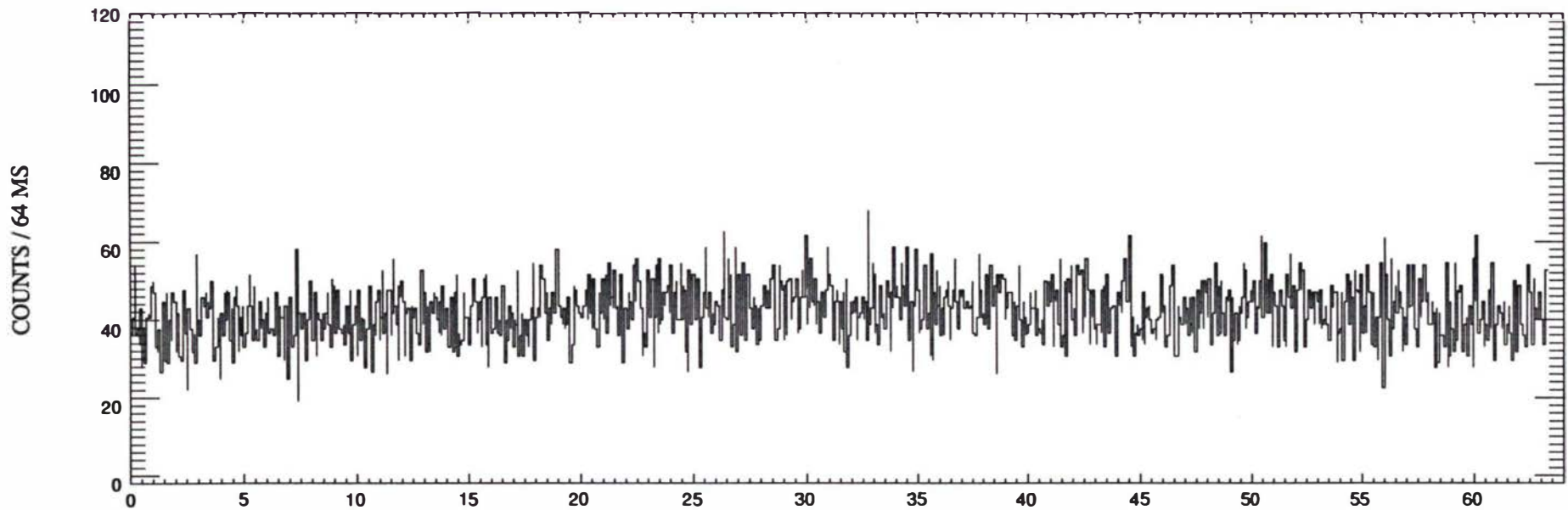


CALIBRATION DATA INCLUDED

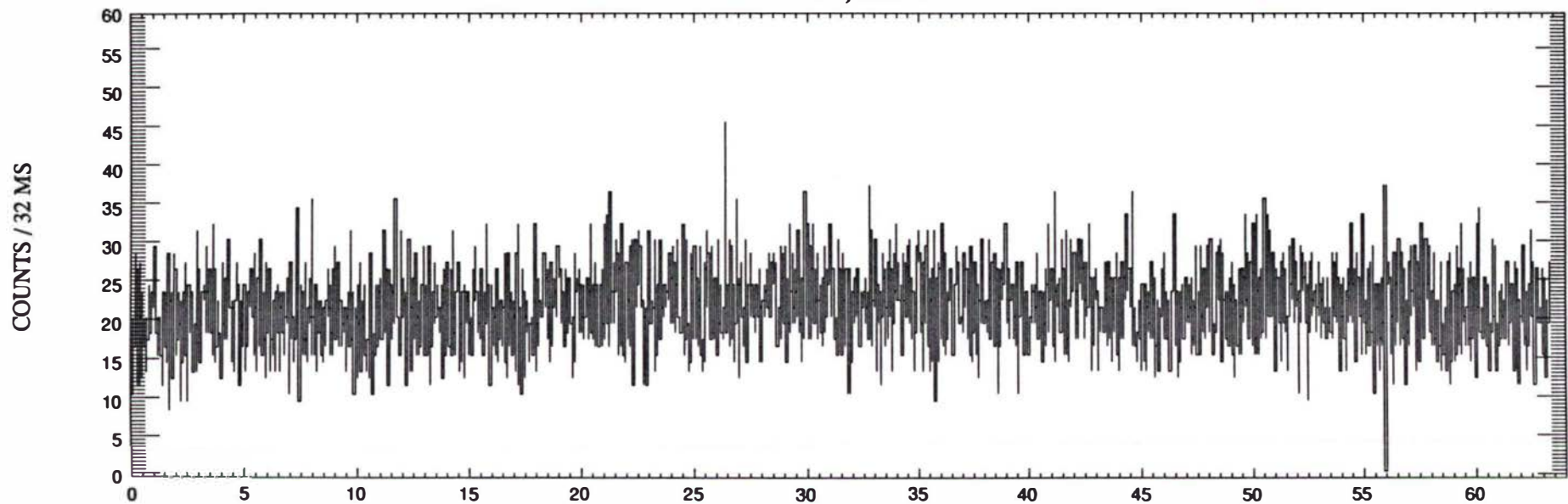


UNIV CAL TIME

Burst Counter 1 at UT=11.150972955492 h=40143.503 s 11:09:03.503

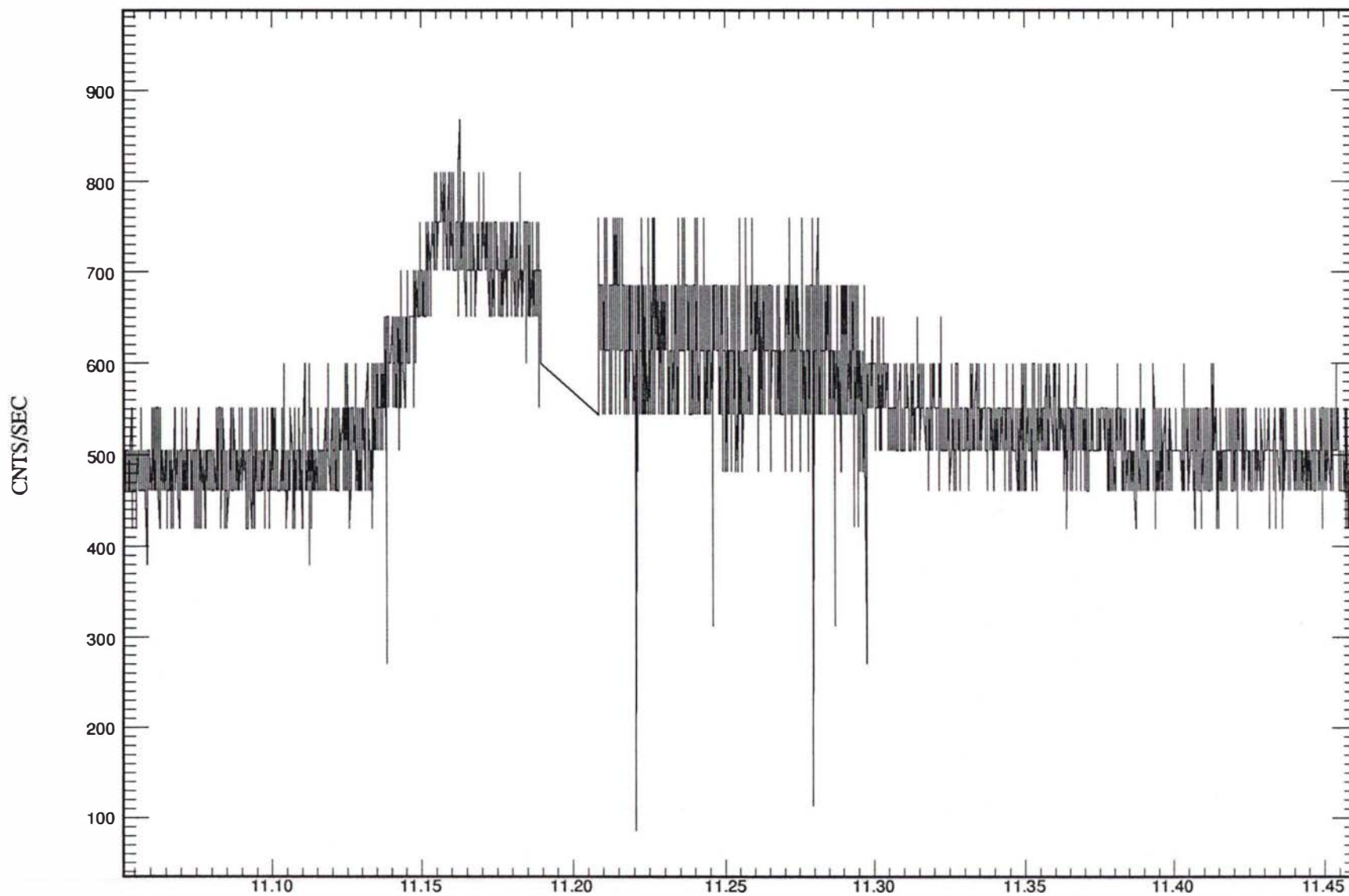


TIME, SECS

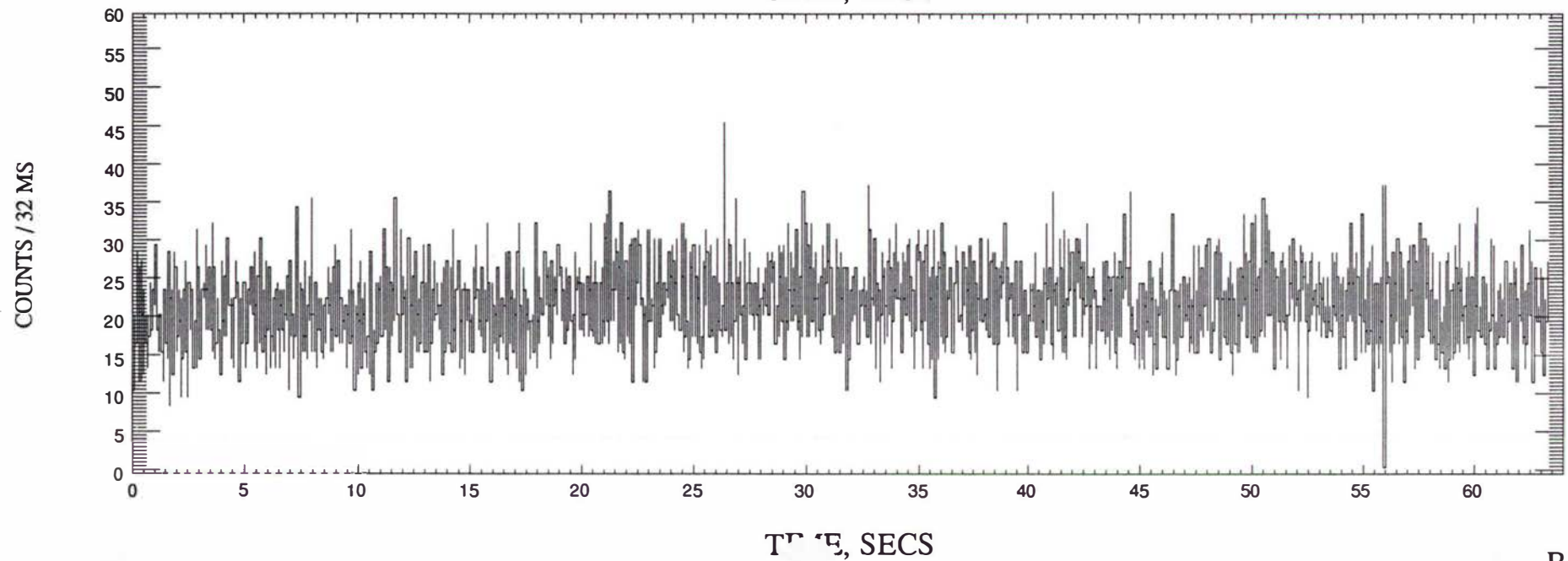
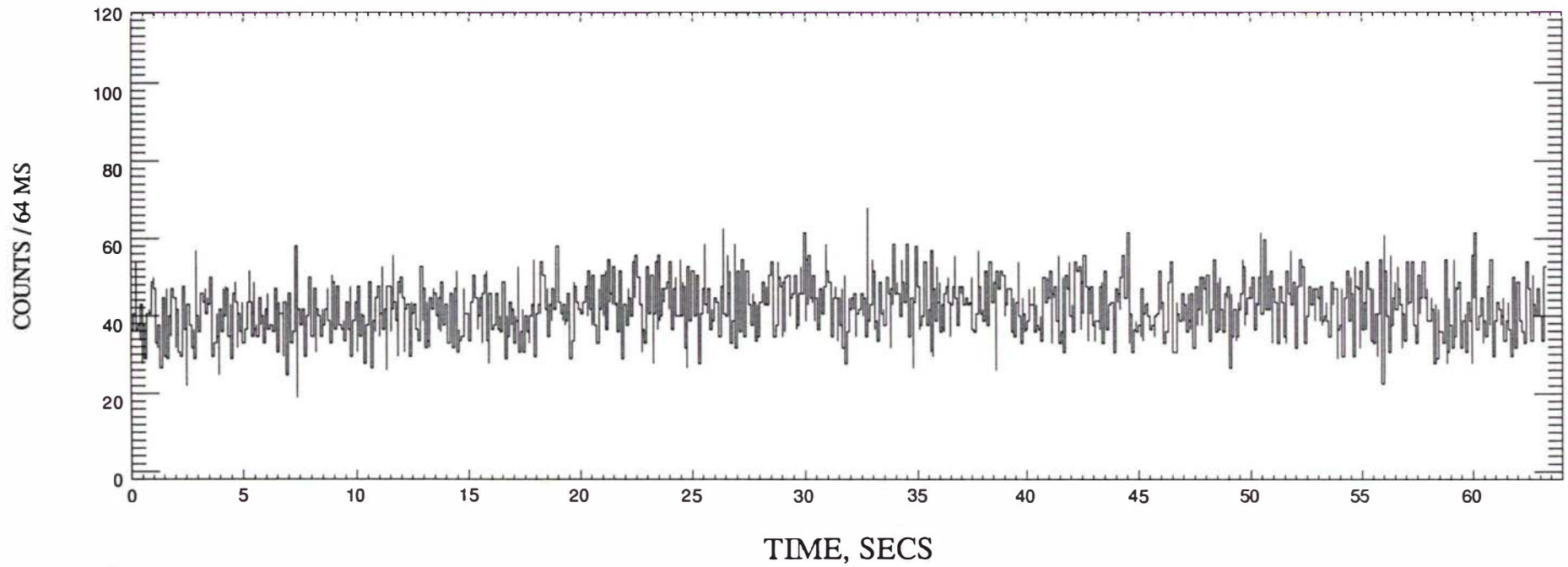


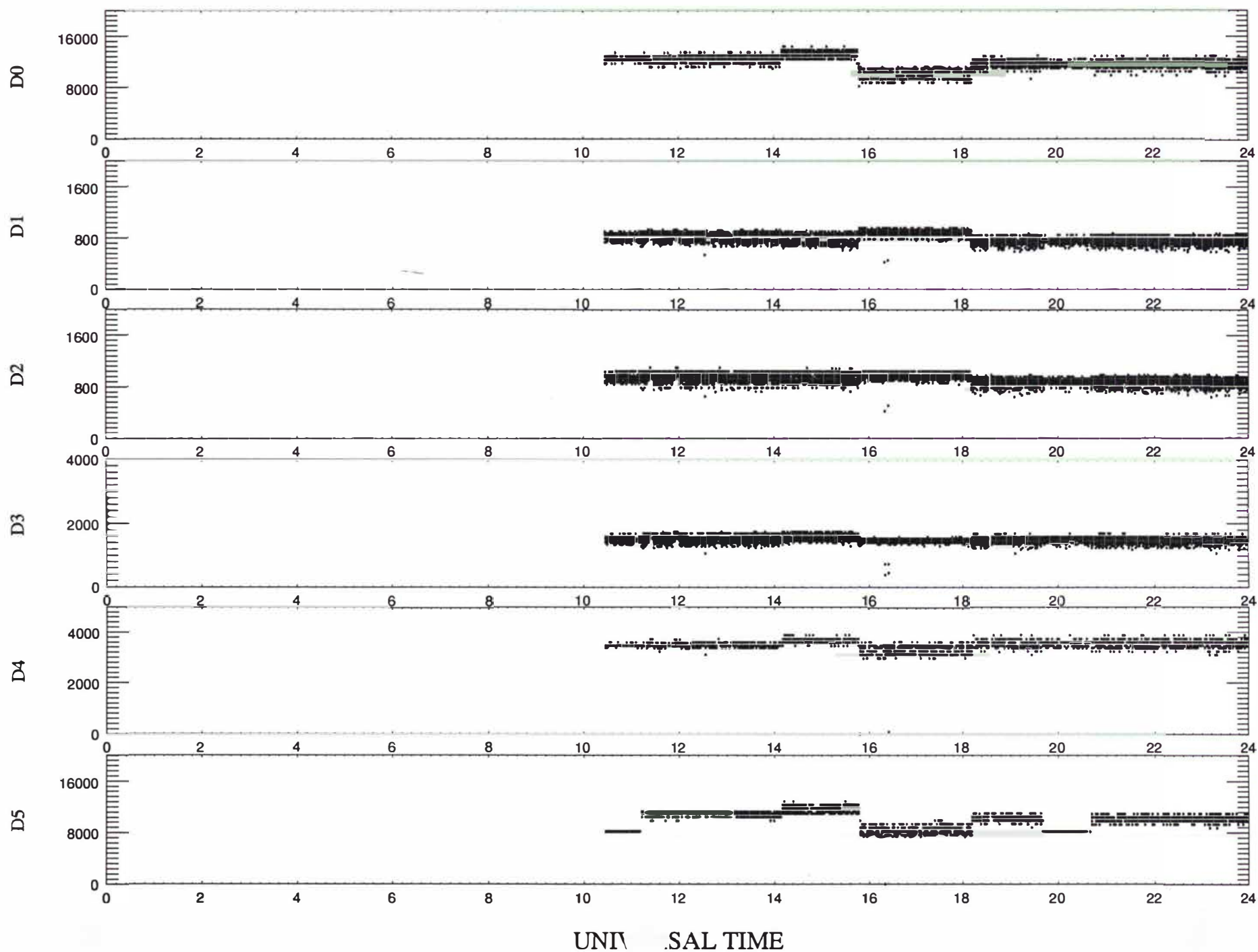
TIME, SECS

CALIBRATION DATA INCLUDED



Burst Counter 1 at UT=11.150971565247 h=40143.498 s 11:09:03.498





BATSEARCH PROGRAM

BATSE BURST # 2198
EVENT OF 1993 FEB 18 DAY OF YEAR= 49
EVENT CROSSING TIME AT BATSE : 364. S. OR 00:06:04.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 114.000 51.000
BATSE PEAK COUNTING RATE: 13000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 18/ 2/ 93 IS:
RA= 156.809 DEC= -14.691 DIST= 4.060 AU
BATSE-ULYSSES DISTANCE = 607390960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=104.45 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -505.50 SECS.
CROSSING TIME AT ULYSSES IS 86259. S. OR 23:57:38 +/- 382.95 SECONDS

Re-do for same time, but day 048

From BRAINERD@ssl.msfc.nasa.gov Fri Feb 19 15:05:09 1993
Date: Fri, 19 Feb 1993 17:05:00 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov (Jim Brainerd, (205) 544-4970)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02198

TIME: TJD=9036 SECONDS=00364

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=167.2 AZIMUTH=320.8 ERROR= DEGREES

COMMENTS:

GAMMA-RAY BURST OF 0.2 SECONDS DURATION. SEEN ABOVE 300KEV.

From BRAINERD@ssl.msfc.nasa.gov Fri Feb 19 14:57:00 1993
Date: Fri, 19 Feb 1993 16:57:35 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

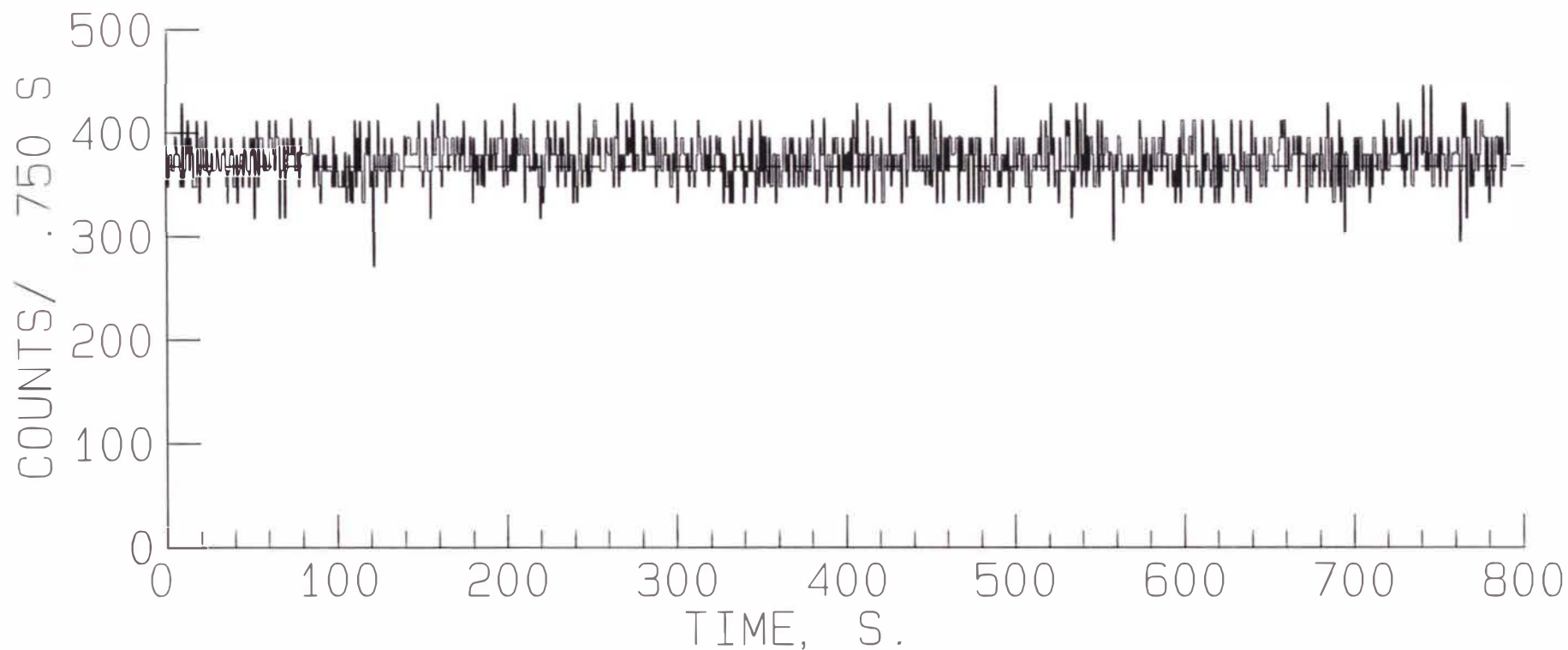
BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2198	930218	9036	00364	13000	114	+51

Ulysses crossing was previous day

13/ 3/93

ULYSSES RT
17/ 2/93 85860.094 s
.250 S INTERVALS REGROUPED BY 3
0- 0 keV

N= 10 M= 1
>4.0 SIGMA FLUCTUATIONS



From BRAINERD@ssl.msfc.nasa.gov Fri Feb 19 15:18:47 1993
Date: Fri, 19 Feb 1993 17:19:09 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov (Jim Brainerd, (205) 544-4970)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02199

TIME: TJD=9036 SECONDS=35485

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=043.6 AZIMUTH=300.6 ERROR= DEGREES

COMMENTS:

GOES M1.6 SOLAR FLARE, SEEN ABOVE 100KEV, NOT SEEN ABOVE 300KEV

From BRAINERD@ssl.msfc.nasa.gov Fri Feb 19 15:23:40 1993
Date: Fri, 19 Feb 1993 17:23:43 -0600 (CST)
From: BRAINERD@ssl.msfc.nasa.gov (Jim Brainerd, (205) 544-4970)
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02200

TIME: TJD=9036 SECONDS=39324

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

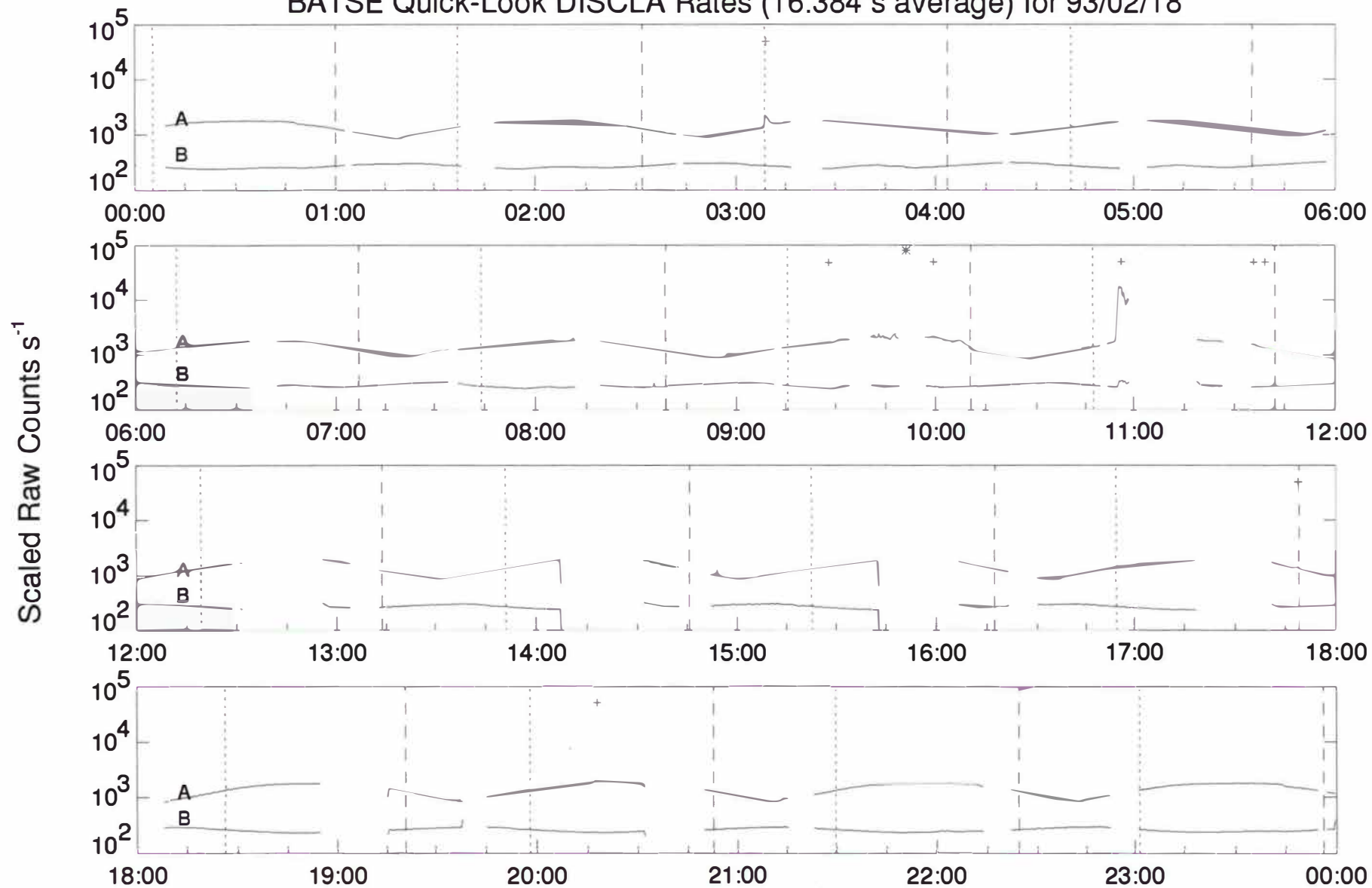
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=41.6 AZIMUTH=307.5 ERROR= DEGREES

COMMENTS:

GOES M1.1 SOLAR FLARE, SEEN ABOVE 100KEV, NOT SEEN ABOVE 300KEV.

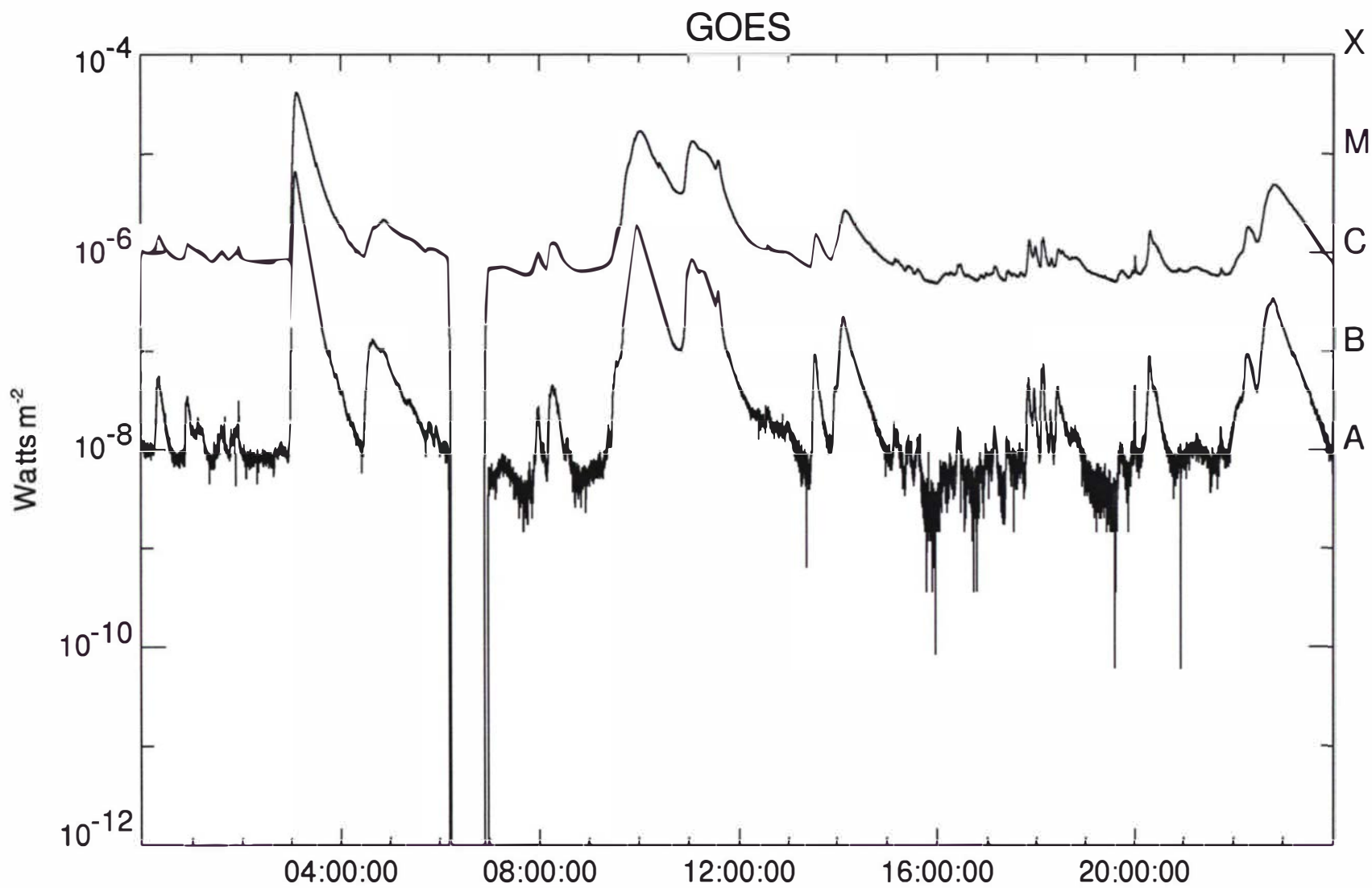
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/18



Current Time: 93/03/17, 1258 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



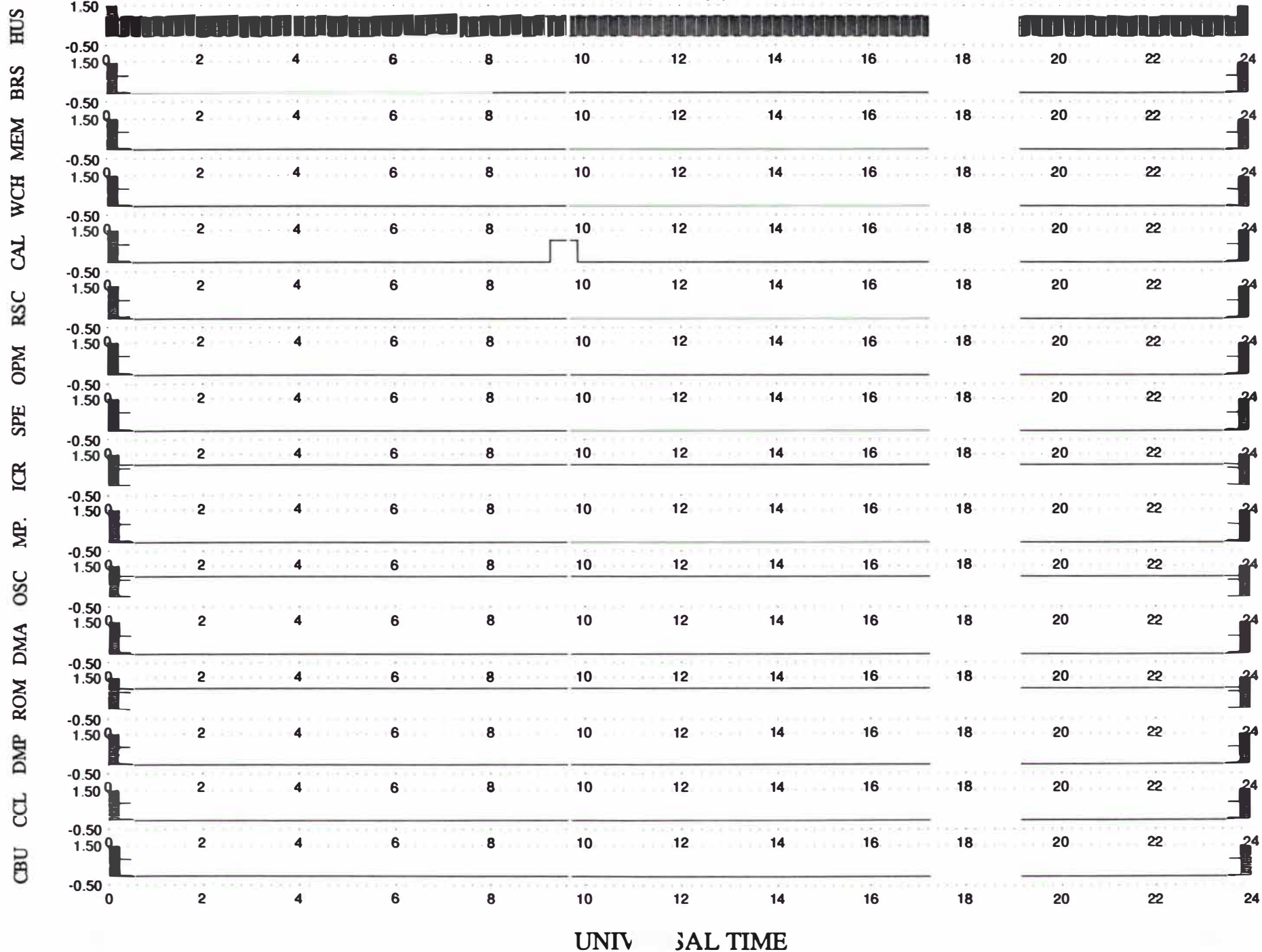
Data Start: 93/02/18, 0000:01

Plot created: 95/06/01, 1703

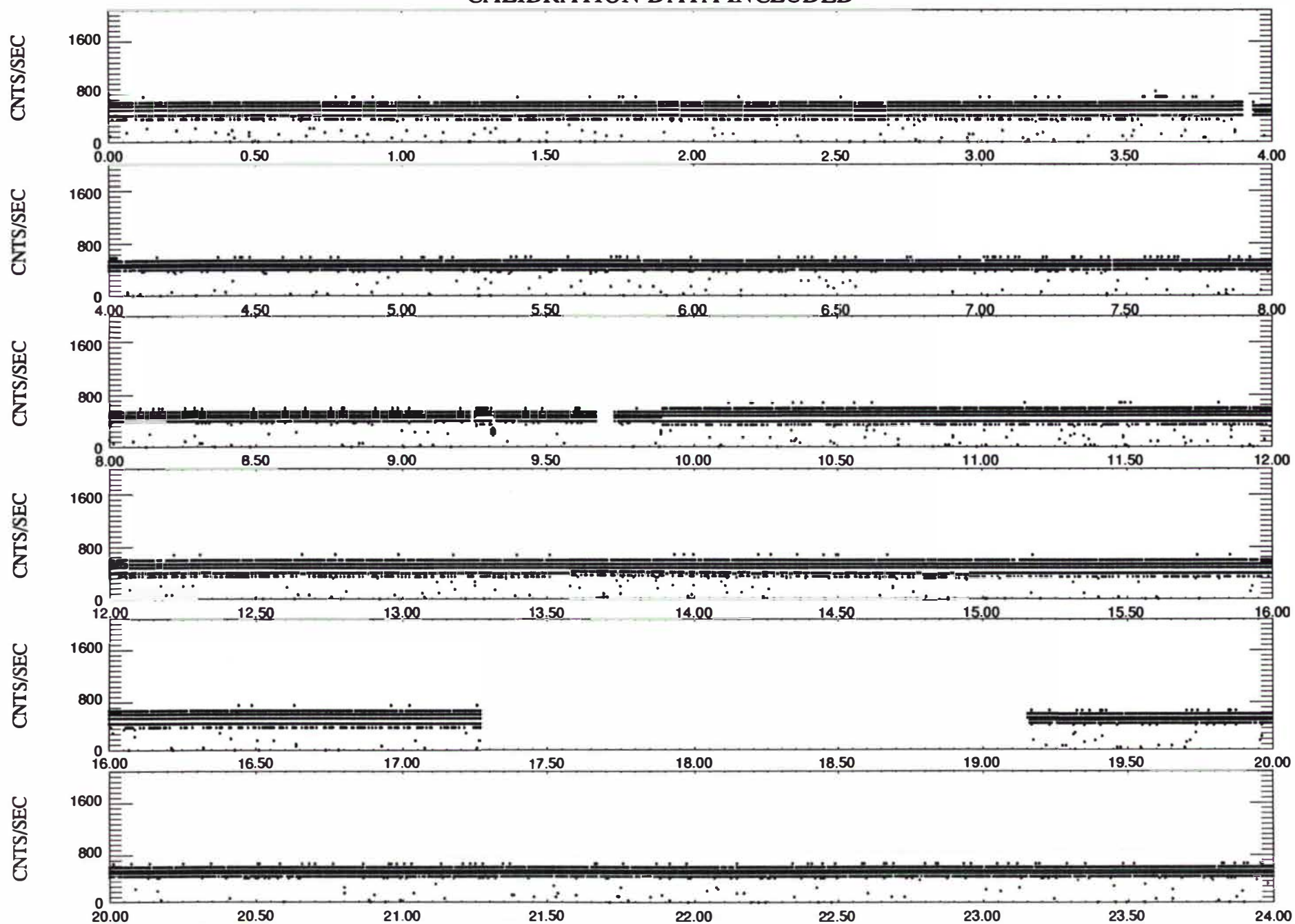
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

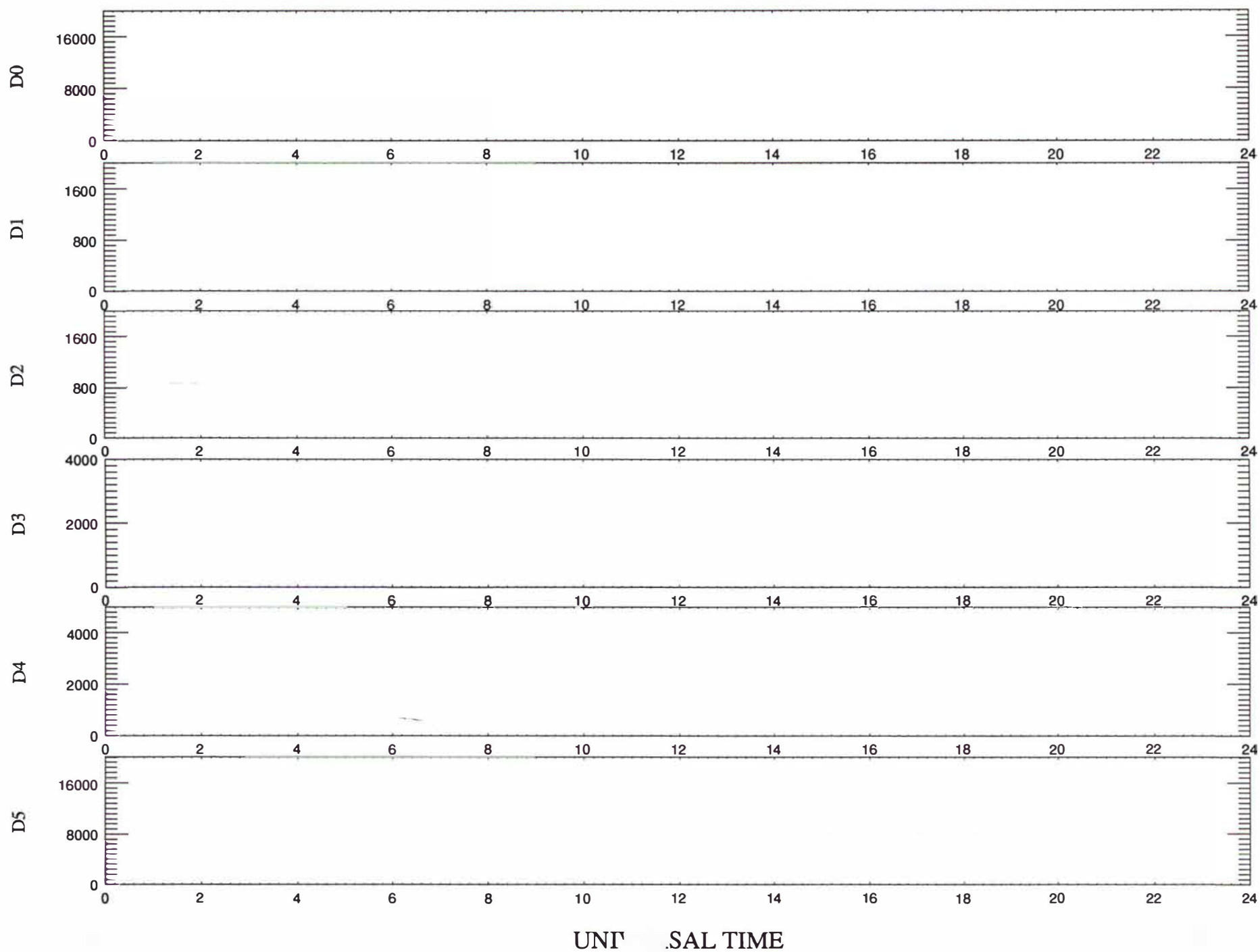
NO BURST (1)



CALIBRATION DATA INCLUDED



UNIV 3AL TIME



CATSEARCH PROGRAM

BATSE BURST # 2201
EVENT OF 1993 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 12041. S. OR 03:20:40.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 12.900 64.700
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 19/ 2/ 93 IS:
RA= 156.561 DEC= -14.694 DIST= 4.054 AU
BATSE-ULYSSES DISTANCE = 606433520. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 55.78 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1137.48 SECS.
CROSSING TIME AT ULYSSES IS 13178. S. OR 03:39:38.3 +/- 357.69 SECONDS

ND

9 / 6 / 94

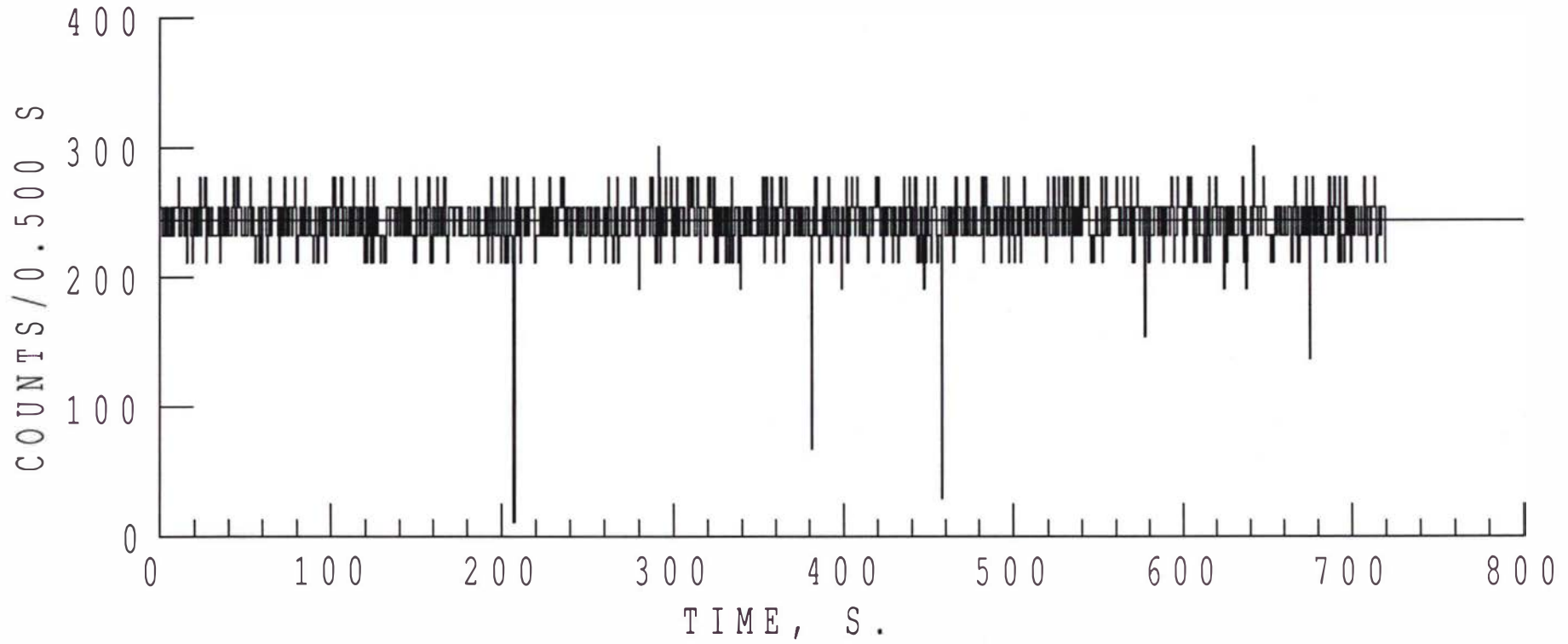
ULYSSES RT

19 / 2 / 93 12816.408 s

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2202
EVENT OF 1993 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 14346. S. OR 03:59:05.8
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 329.200 38.000
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 19/ 2/ 93 IS:
RA= 156.561 DEC= -14.694 DIST= 4.054 AU
BATSE-ULYSSES DISTANCE = 606433520. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 24.20 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1845.08 SECS.
CROSSING TIME AT ULYSSES IS 16191. S. OR 04:29:50.9 +/- 221.98 SECONDS

NO

From RUBIN@ssl.msfc.nasa.gov Mon Feb 22 12:32:40 1993
Date: Mon, 22 Feb 1993 14:32:19 -0600 (CST)
From: RUBIN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02202

TIME: TJD=9037 SECONDS=14345

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=83 AZIMUTH=334 ERROR= DEGREES

COMMENTS:

WEAK BURST LASTING ABOUT 20 SECONDS WITH COMPLEX TIME PROFILE. AT LEAST FOUR SPIKES PRESENT. SOFT SPECTRUM WITH MARGINAL EMISSION ABOVE 100 KEV.

9 / 6 / 94

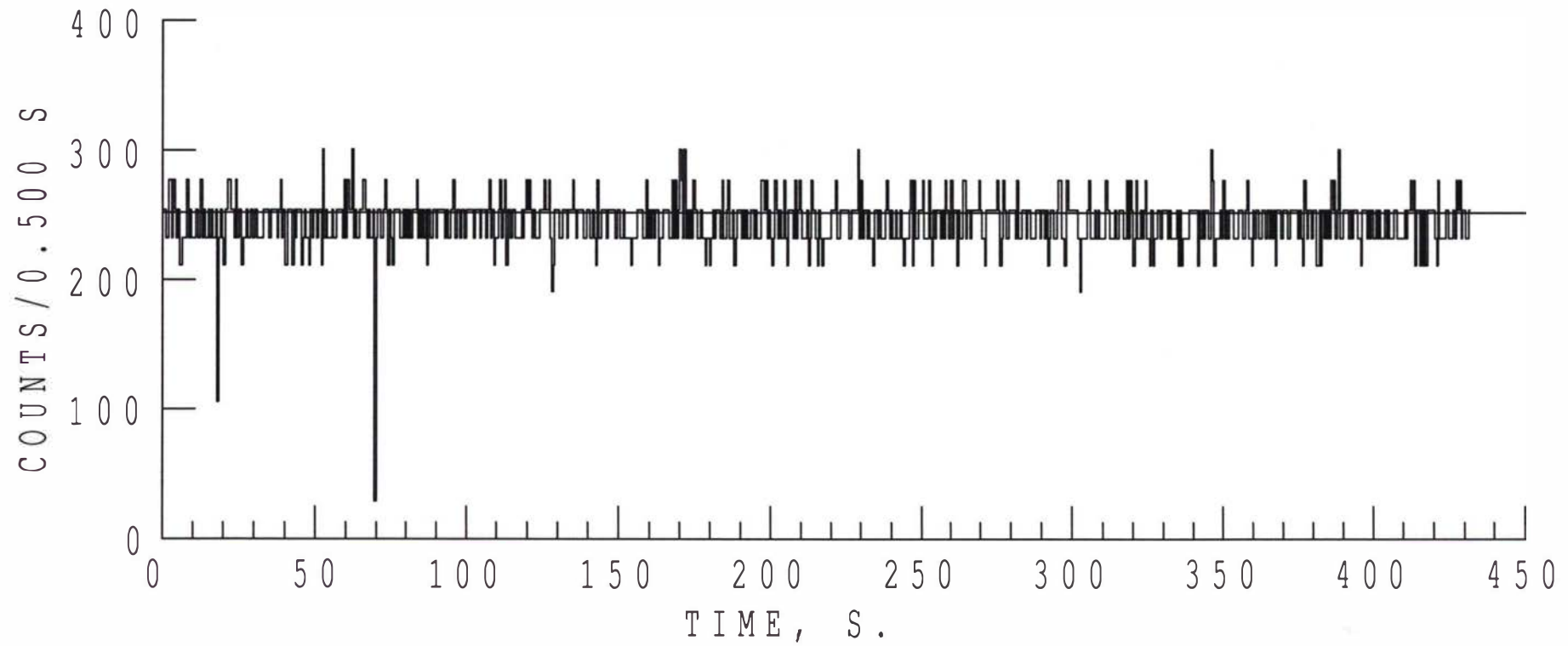
ULYSSES RT

19 / 2 / 93 15984.456 s

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2203
EVENT OF 1993 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 18493. S. OR 05:08:12.5
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 241.400 57.700
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 19/ 2/ 93 IS:
RA= 156.561 DEC= -14.694 DIST= 4.054 AU
BATSE-ULYSSES DISTANCE = 606433520. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 80.33 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 339.66 SECS.
CROSSING TIME AT ULYSSES IS 18832. S. OR 05:13:52.2 +/- 401.37 SECONDS

From RUBIN@ssl.msfc.nasa.gov Mon Feb 22 12:46:37 1993
Date: Mon, 22 Feb 1993 14:45:23 -0600 (CST)
From: RUBIN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02203

TIME: TJD=9037 SECONDS=18492

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=110 AZIMUTH=28 ERROR= DEGREES

COMMENTS:

BURST OF DURATION 7 SECONDS WITH WEAK SINGLE PEAK CONTAINING SUBSTRUCTURE.
MARGINAL EMISSION ABOVE 300 KEV.

9 / 6 / 94

ULYSSES RT

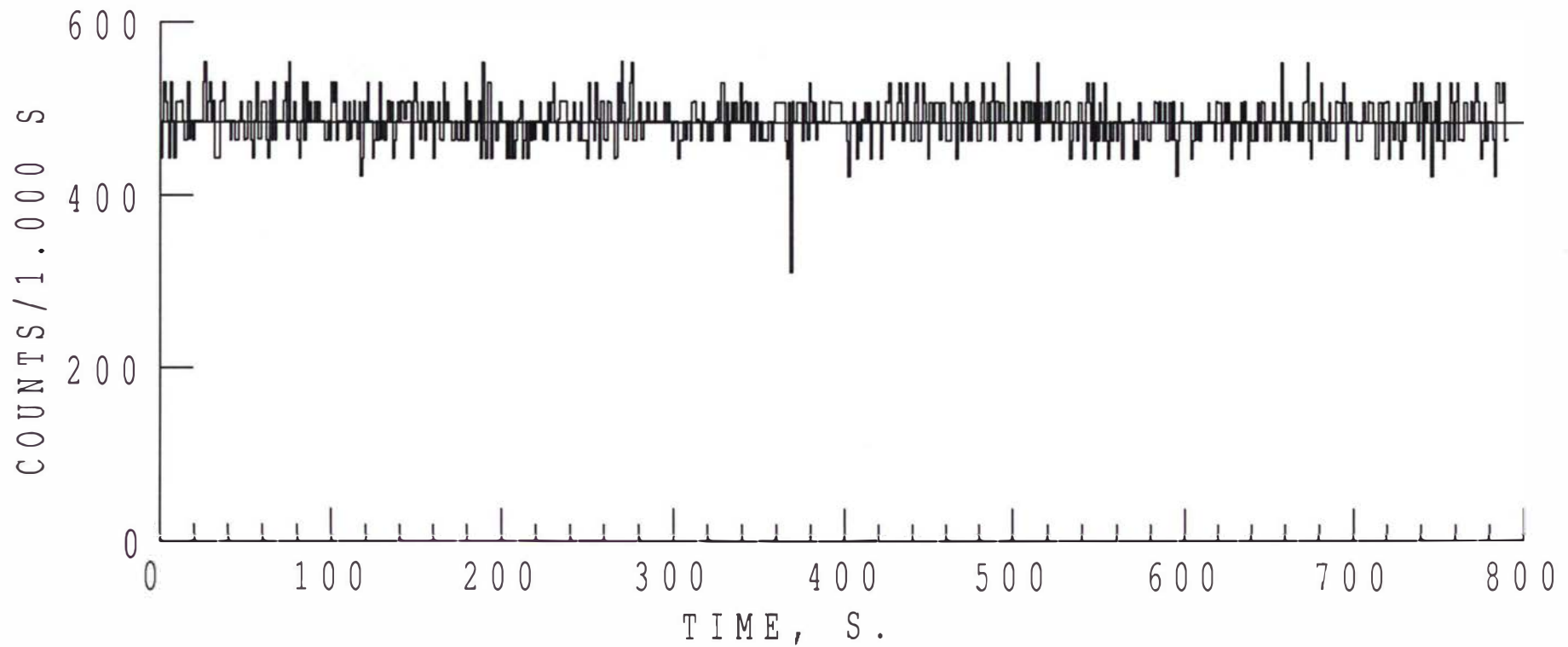
19 / 2 / 93 18432.496 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

R= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2204
EVENT OF 1993 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 30598. S. OR 08:29:57.7
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 58.600 -31.400
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 19/ 2/ 93 IS:
RA= 156.561 DEC= -14.694 DIST= 4.054 AU
BATSE-ULYSSES DISTANCE = 606433520. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 91.02 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -36.02 SECS.
CROSSING TIME AT ULYSSES IS 30562. S. OR 08:29:21.7 +/- 400.59 SECONDS

NO

From RUBIN@ssl.msfc.nasa.gov Mon Feb 22 13:29:28 1993
Date: Mon, 22 Feb 1993 15:29:31 -0600 (CST)
From: RUBIN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02204

TIME: TJD=9037 SECONDS=30597

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=80 AZIMUTH=199 ERROR= DEGREES

COMMENTS:

WEAK BURST. TOTAL DURATION ABOUT 20 SECONDS WITH ONE STRONG SPIKE LASTING
ABOUT 3 SECONDS AND ADDITIONAL WEAKER EMISSION. NOT VISIBLE ABOVE 300 KEV.

9 / 6 / 94

ULYSSES RT

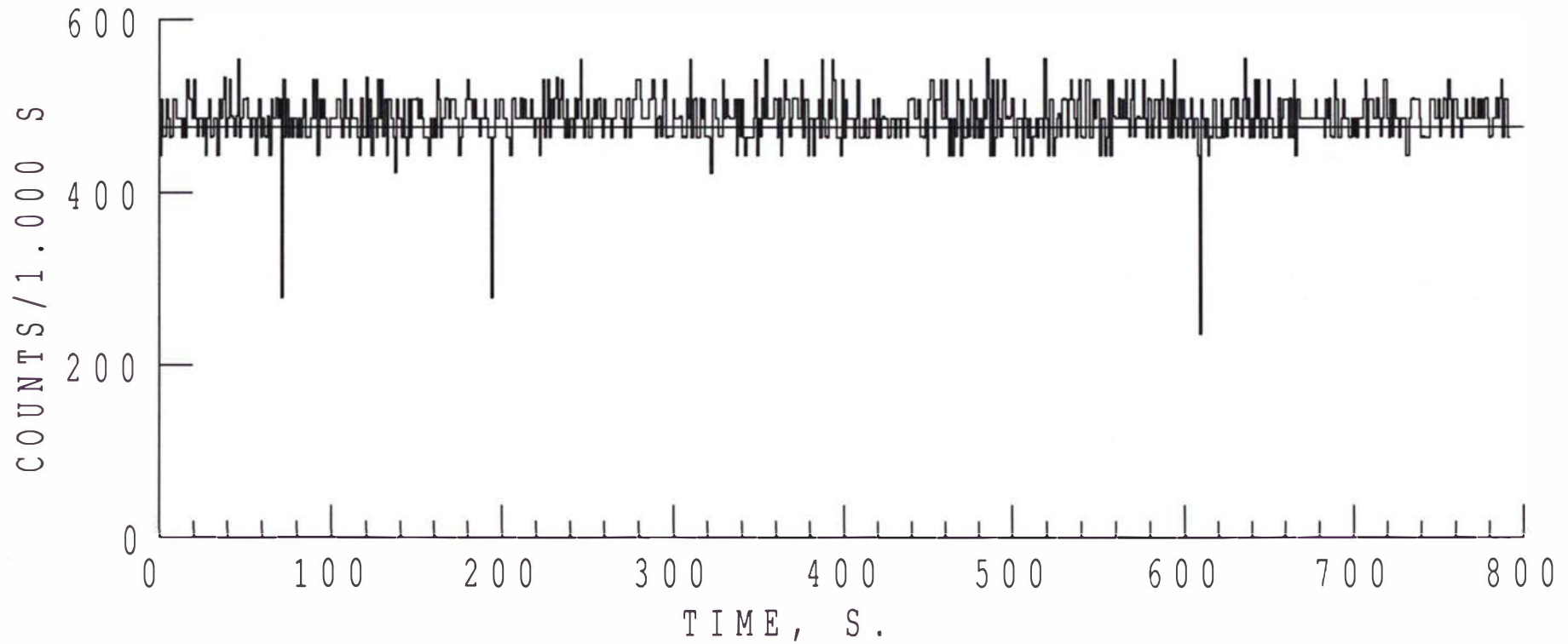
19 / 2 / 93 30168.172 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



CATSEARCH PROGRAM

BATSE BURST # 2205
EVENT OF 1993 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 75246. S. OR 20:54:05.9
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 311.300 8.900
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 19/ 2/ 93 IS:
RA= 156.561 DEC= -14.694 DIST= 4.054 AU
BATSE-ULYSSES DISTANCE = 606433520. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 25.38 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1827.65 SECS.
CROSSING TIME AT ULYSSES IS 77074. S. OR 21:24:33.6 +/- 228.27 SECONDS

10

9 / 6 / 94

ULYSSES RT

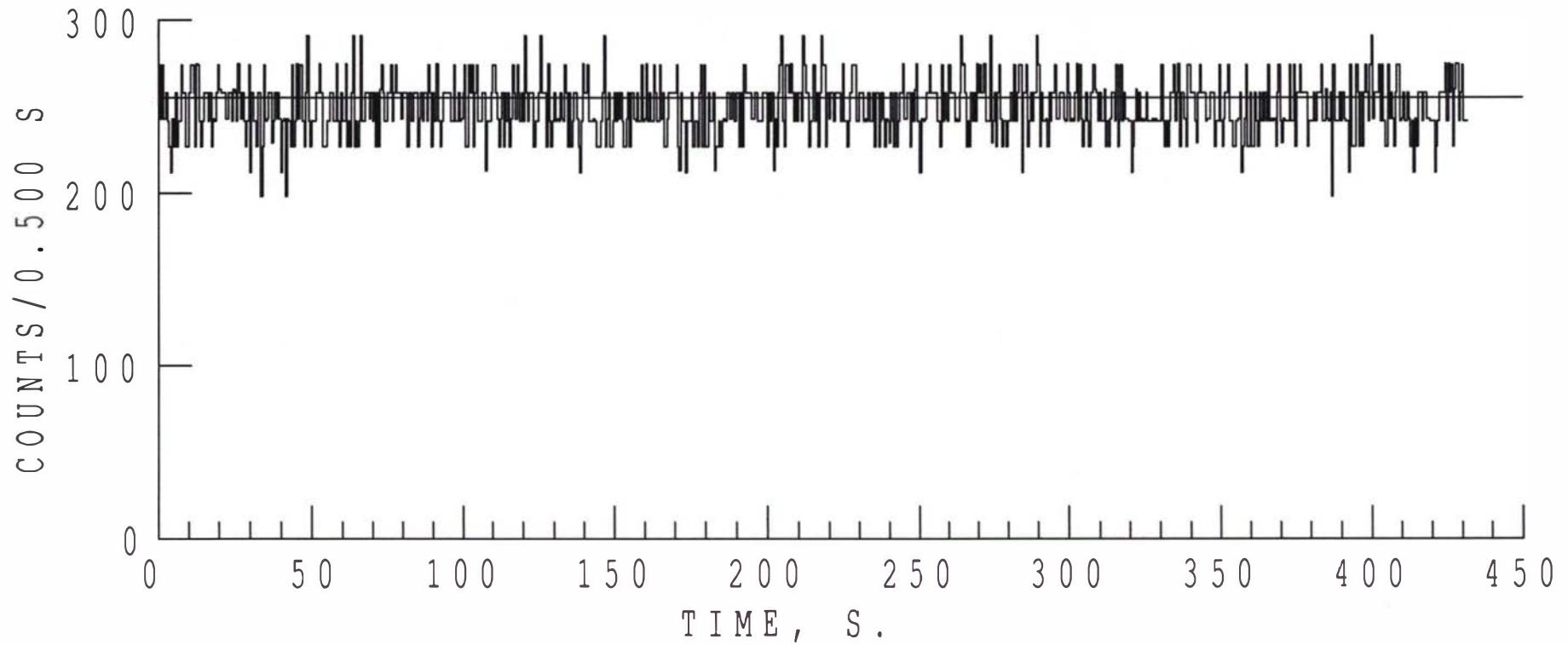
19 / 2 / 93 76860.156 s

0.250 S INTERVALS REGROUPED BY 2

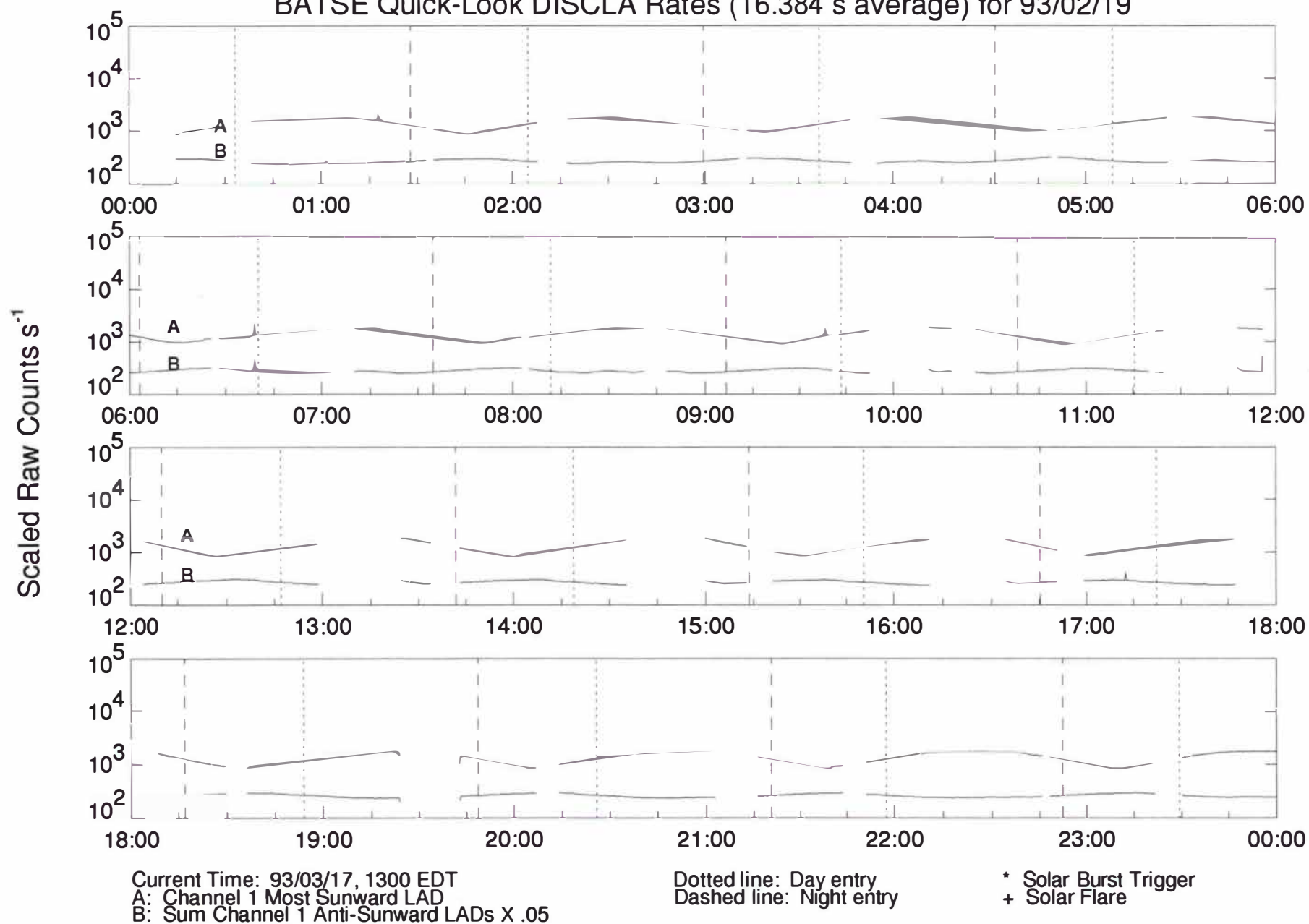
0 - 0 keV

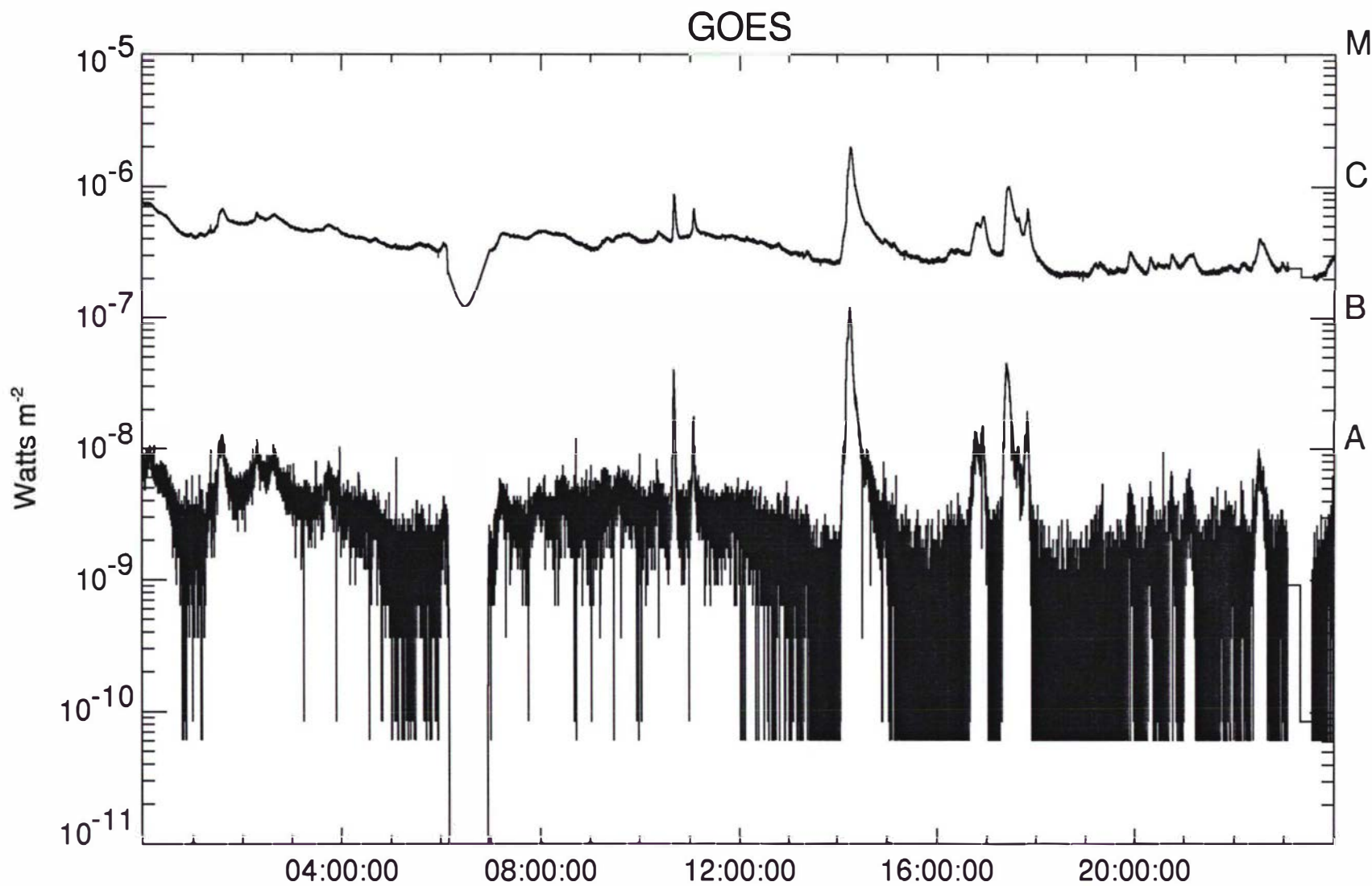
N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/19





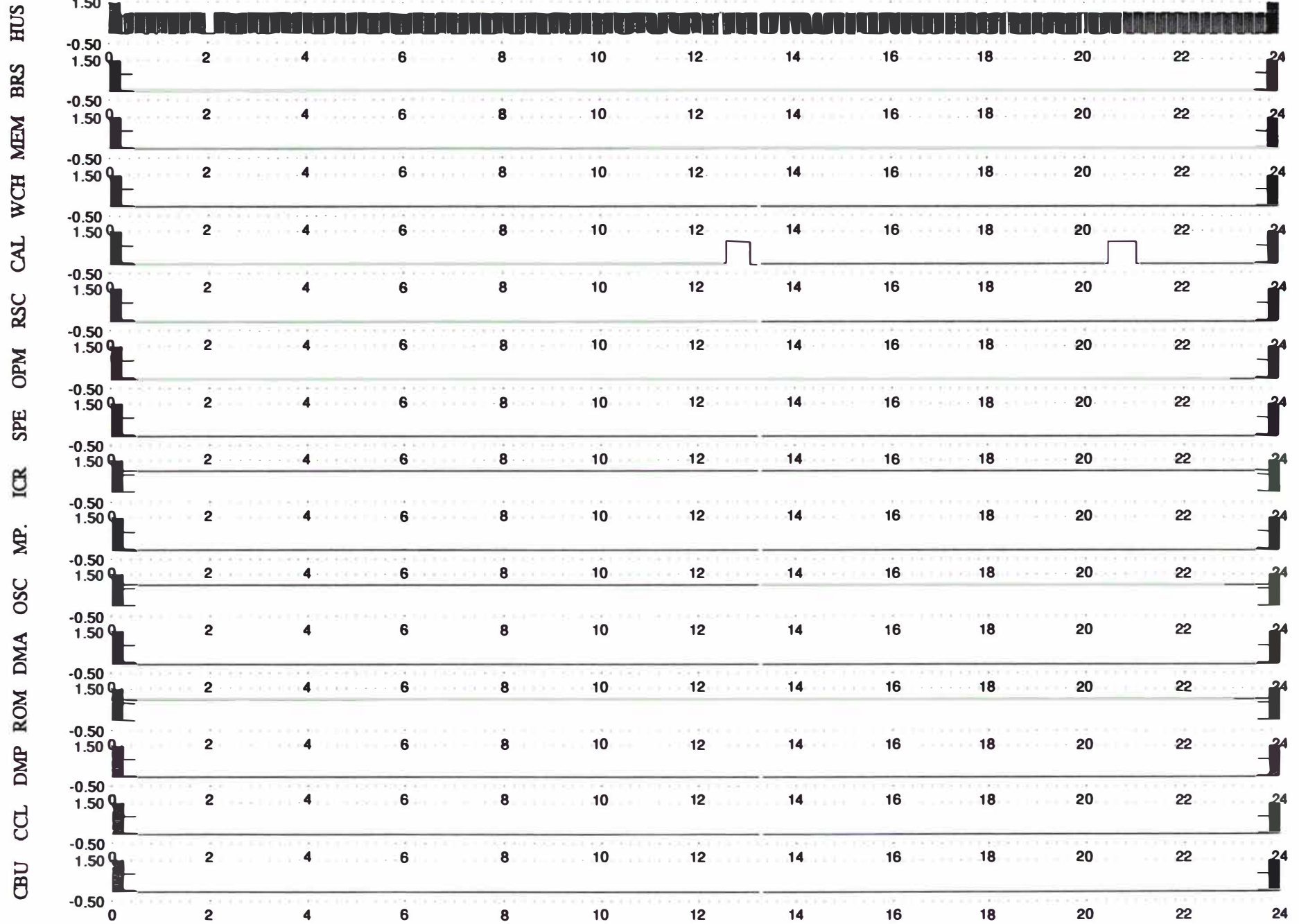
Data Start: 93/02/19, 0000:01

Plot created: 95/06/01, 1706

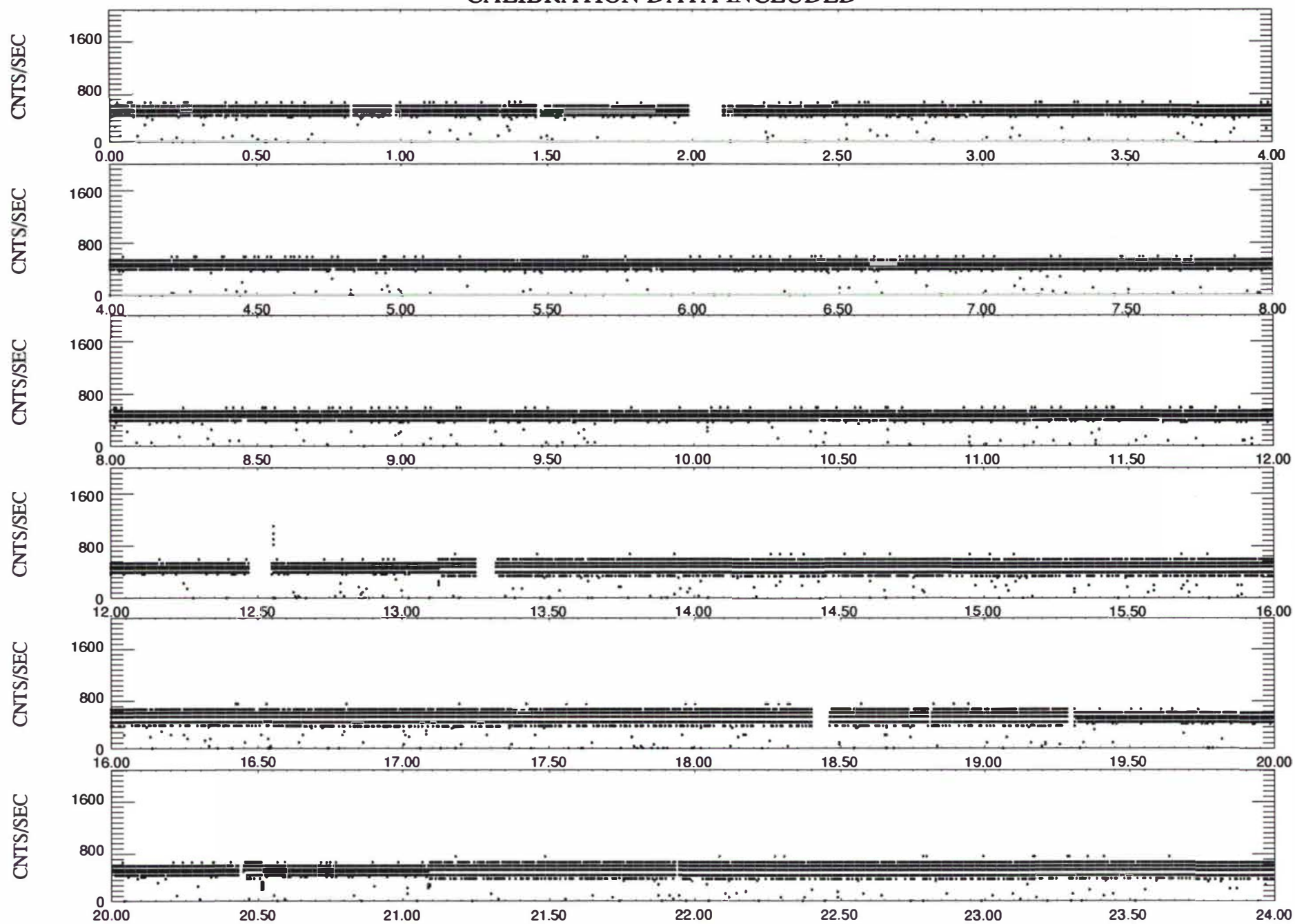
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

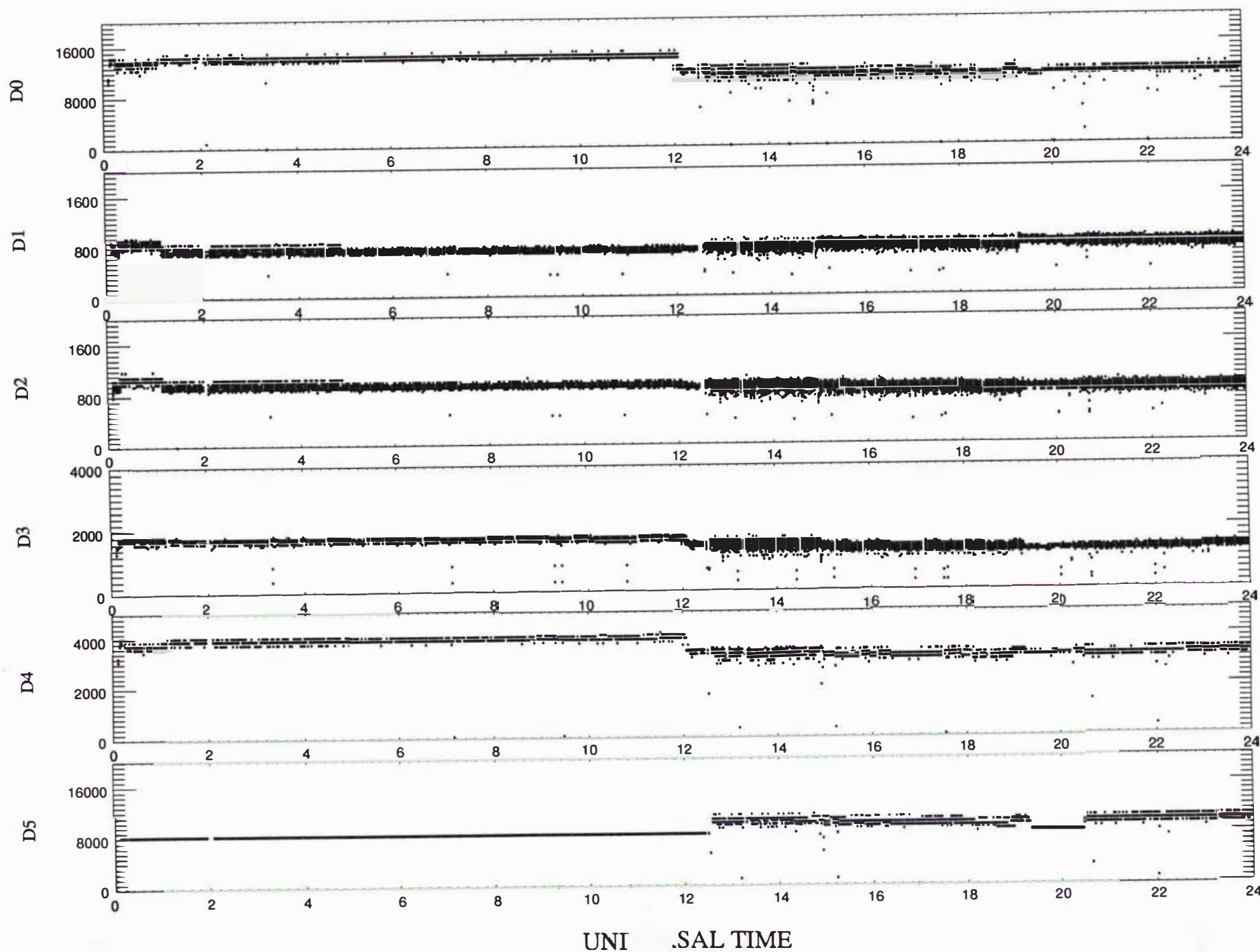
UNIVERSAL TIME



CALIBRATION DATA INCLUDED



UNIV TIME



 CATSEARCH PROGRAM

BATSE BURST # 2206
 EVENT OF 1993 FEB 20 DAY OF YEAR= 51
 EVENT CROSSING TIME AT BATSE : 5699. S. OR 01:34:58.8
 COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 195.000 -60.700
 BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 POSITION OF ULYSSES ON 20/ 2/ 93 IS:
 RA= 156.311 DEC= -14.695 DIST= 4.048 AU
 BATSE-ULYSSES DISTANCE = 605550880. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=126.21 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1193.18 SECS.
 CROSSING TIME AT ULYSSES IS 4506. S. OR 01:15:05.6 +/- 314.84 SECONDS

NO

From KOSHUT@ssl.msfc.nasa.gov Sun Feb 21 15:35:40 1993
 Date: Sun, 21 Feb 1993 17:36:02 -0600 (CST)
 From: KOSHUT@ssl.msfc.nasa.gov
 Subject: Burst Trigger Message
 To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
 X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
 Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02206

TIME: TJD=9038 SECONDS=05698

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=61. AZIMUTH=136. ERROR= DEGREES

COMMENTS:
 BURST OF < 1 SECOND DURATION. WEAK EMISSION OBSERVED ABOVE 300 KEV.
 PEAK RATE ~ 5500 C/S ABOVE BACKGROUND, INTEGRATED OVER ALL CHANNELS.

From KOSHUT@ssl.msfc.nasa.gov Sun Feb 21 15:37:30 1993
 Date: Sun, 21 Feb 1993 17:38:24 -0600 (CST)
 From: KOSHUT@ssl.msfc.nasa.gov
 Subject: BATSE burst
 To: khurley@sunspot.ssl.berkeley.edu
 X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
 Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2206	930220	9038	05698	5500	206	-56

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ULYSSES RT

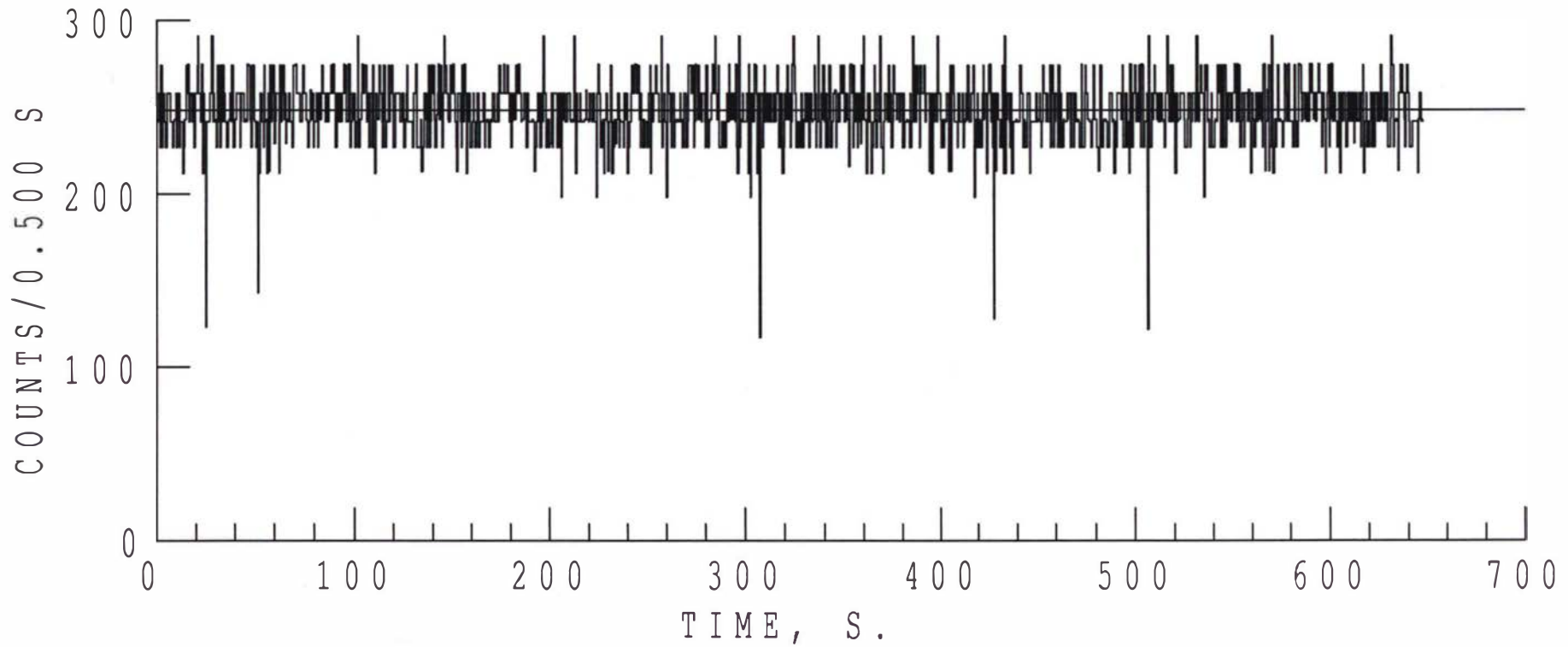
20 / 2 / 93 4176.122 s

0.250 S INTERVALS REGROUPED BY 2

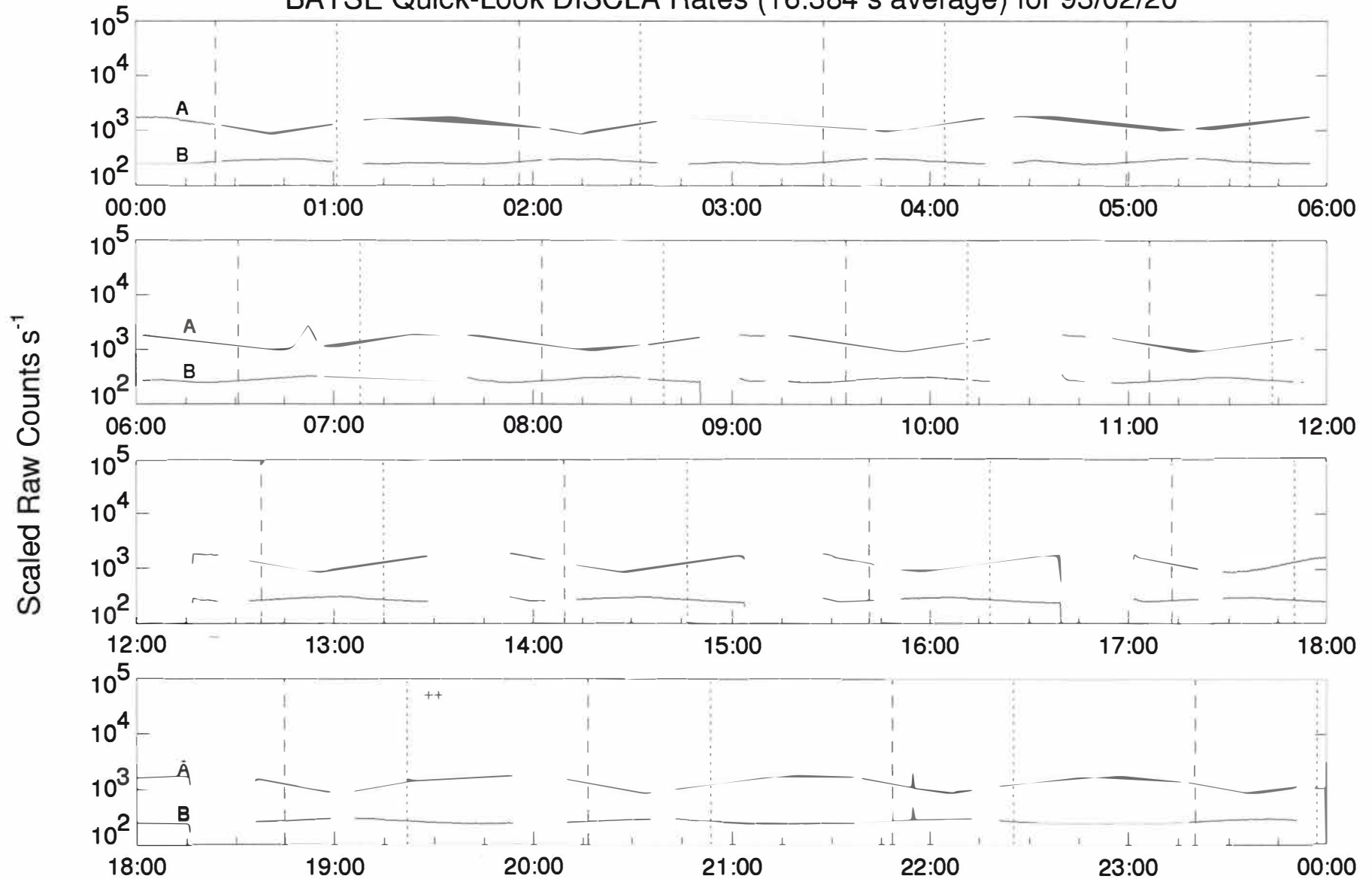
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



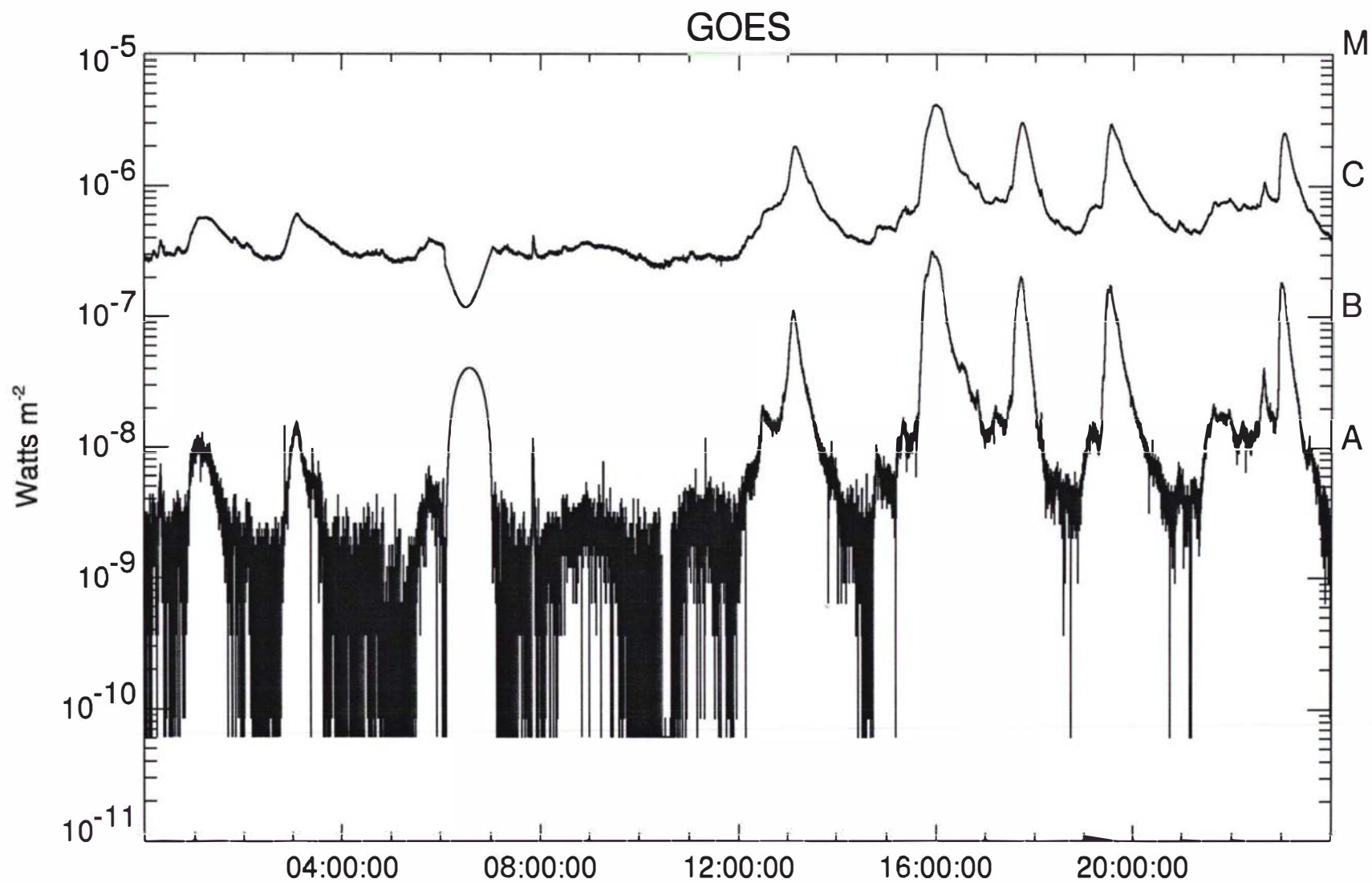
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/20



Current Time: 93/03/17, 1302 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: 93/02/20, 0000:01

Plot created: 95/06/01, 1709

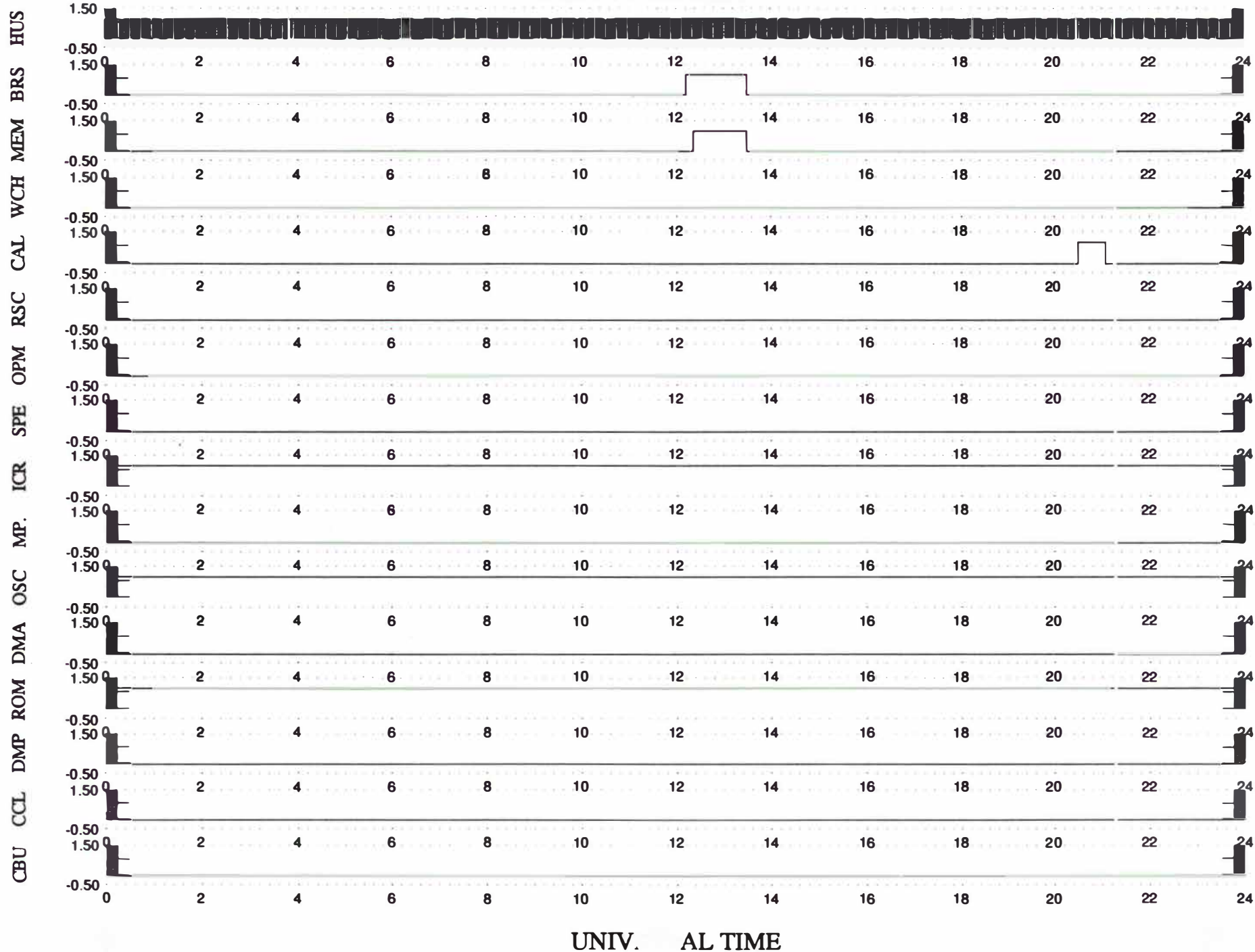
Channel 1 (1.0 - 8.0 Angstroms)

Background not subtracted

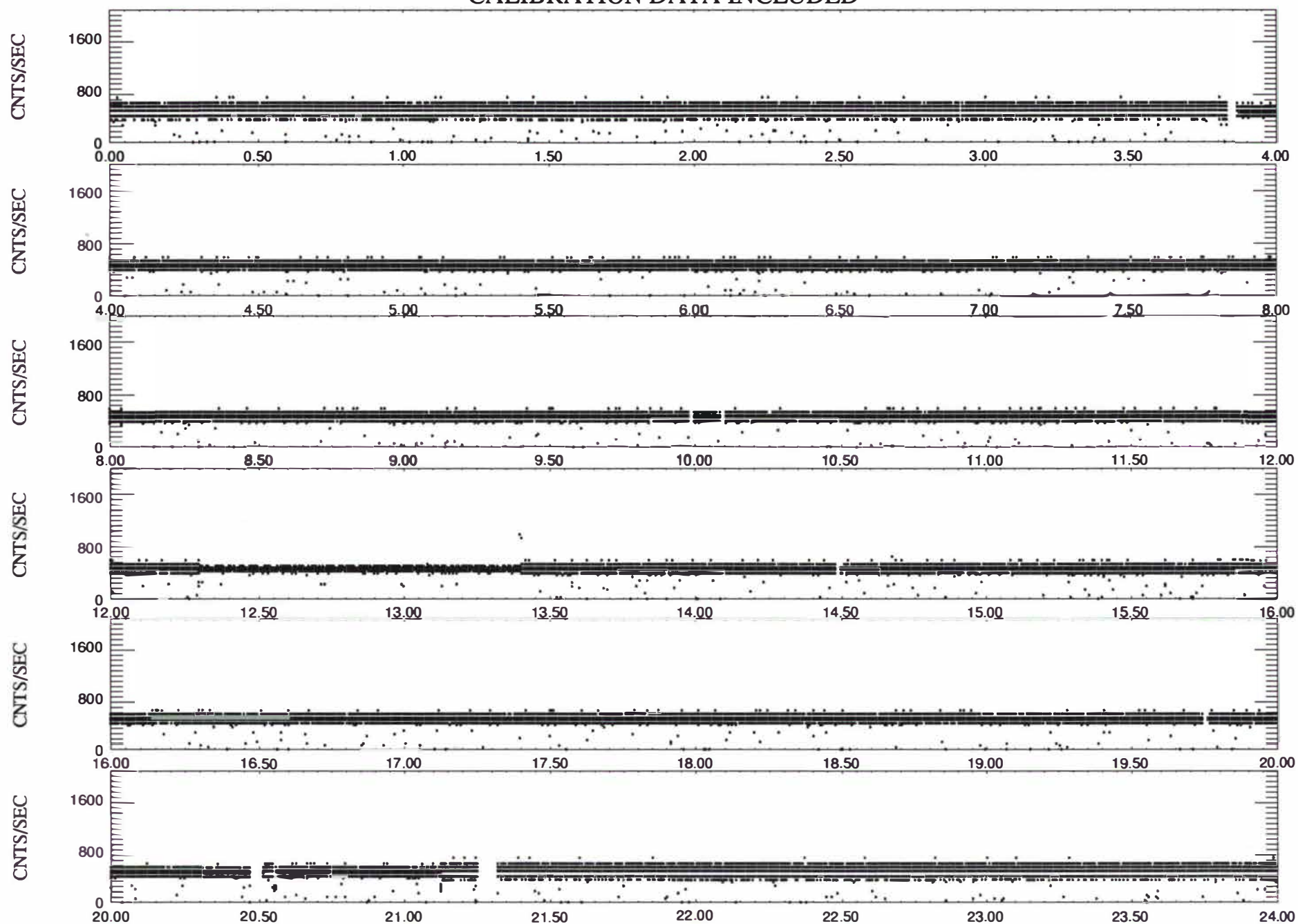
Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted

BURST NUMBER 2

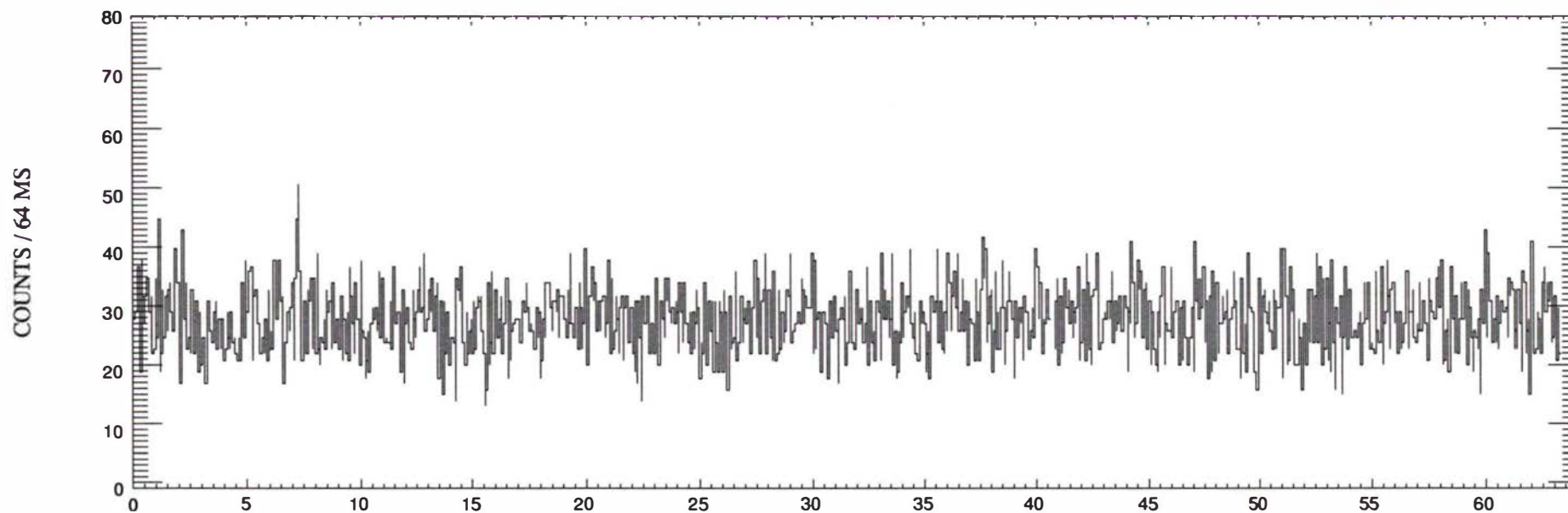


CALIBRATION DATA INCLUDED

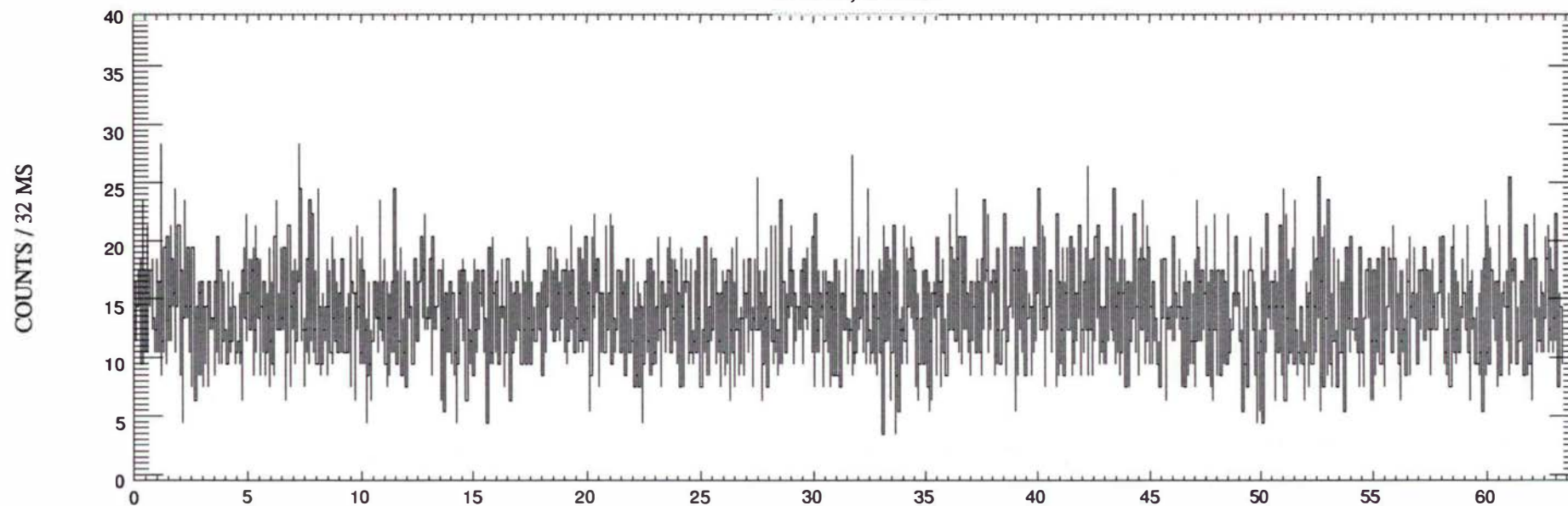


UNIV 3AL TIME

Burst Counter 2 at UT=12.146904025608 h=43728.854 s 12:08:48.854

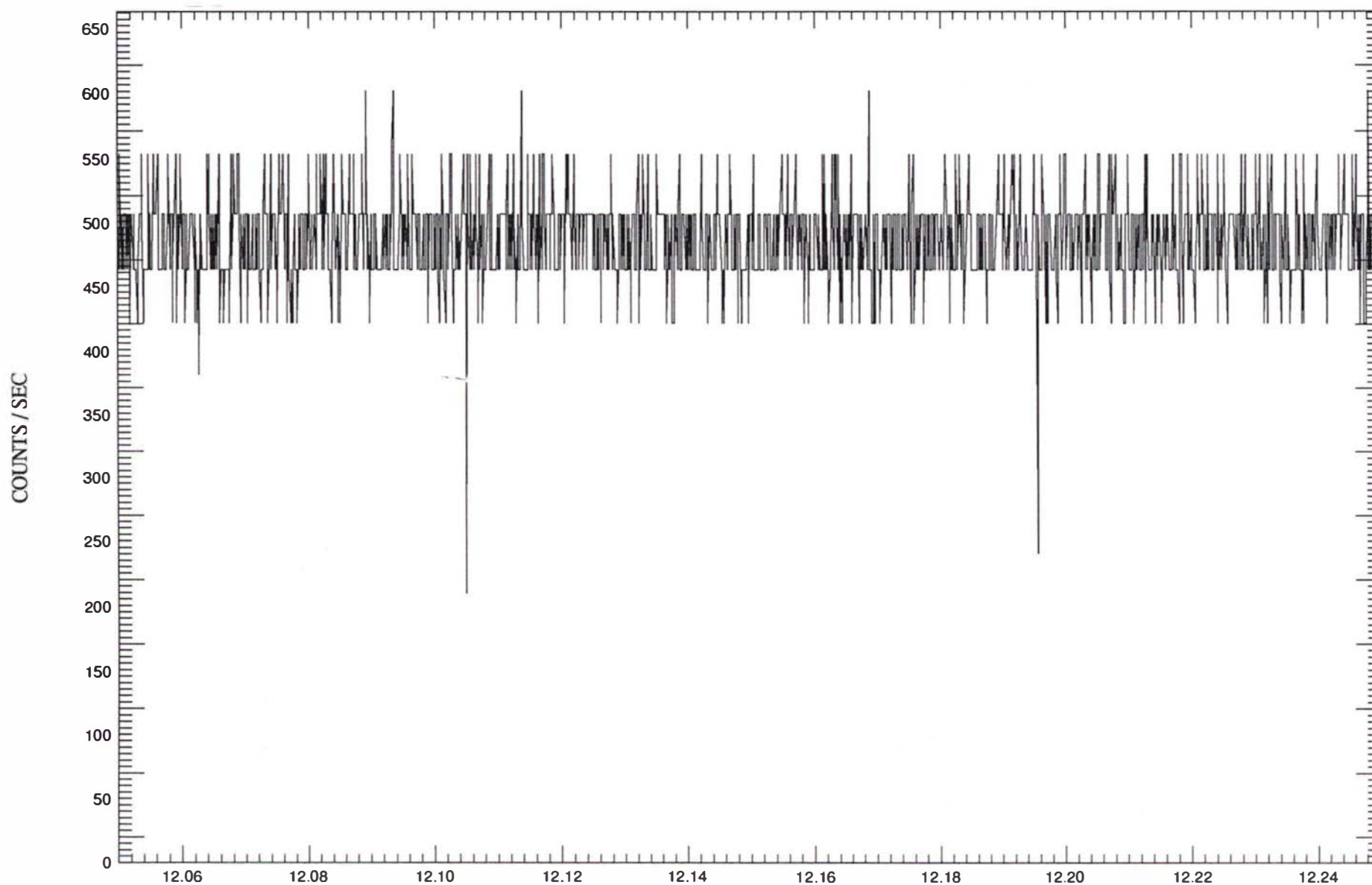


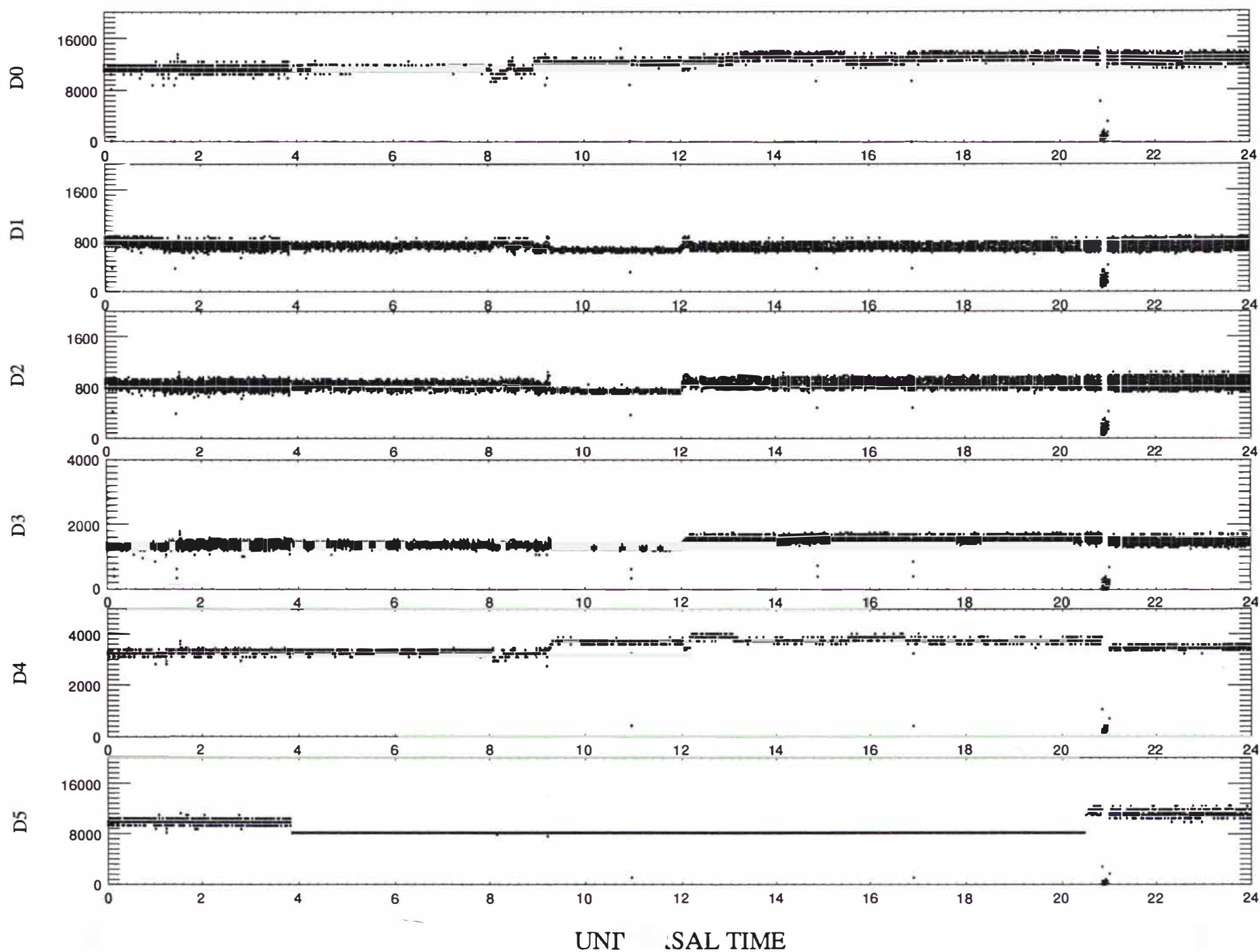
TIME, SECS



TIME, SECS

CALIBRATION DATA INCLUDED





CATSEARCH PROGRAM

BATSE BURST # 2207
EVENT OF 1993 FEB 21 DAY OF YEAR= 52
EVENT CROSSING TIME AT BATSE : 66188. S. OR 18:23:07.9
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 152.300 -18.500
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 21/ 2/ 93 IS:
RA= 156.061 DEC= -14.694 DIST= 4.042 AU
BATSE-ULYSSES DISTANCE = 604698160. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=174.76 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2008.62 SECS.
CROSSING TIME AT ULYSSES IS 64179. S. OR 17:49:39.3 +/- 51.49 SECONDS

No

From BHAT@ssl.msfc.nasa.gov Mon Feb 22 14:43:49 1993
Date: Mon, 22 Feb 1993 16:44:18 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1377

BATSE BURST TRIGGER

NO.: 2207

TIME: TJD=9039 SECONDS=66187

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=099.5 AZIMUTH=165.5 ERROR= DEGREES

COMMENTS:

THIS WEAK BURST LASTS FOR ABOUT 4 SEC. ITS TIME HISTORY CONSISTS MAINLY OF A SINGLE PULSE ABOUT 1.5 SEC WIDE WITH SOME WEAKER SIGNAL ON THE TRAILING EDGE OF THIS PULSE. NO SIGNAL IS SEEN ABOVE 300 KEV.

From BHAT@ssl.msfc.nasa.gov Mon Feb 22 14:53:22 1993
Date: Mon, 22 Feb 1993 16:54:11 -0600 (CST)
From: BHAT@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2207	930221	9039	66187	1850	138	-39

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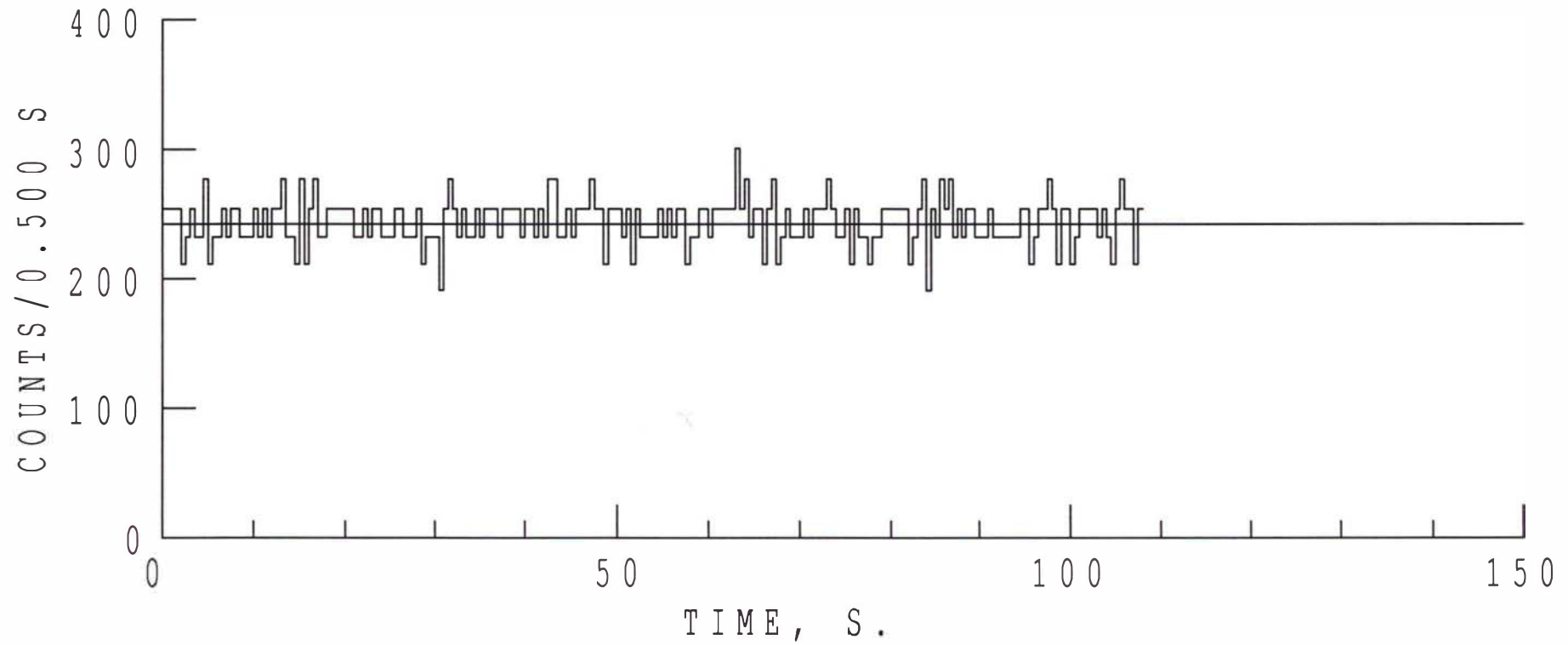
ULYSSES RT

21 / 2 / 93 64116.398 s

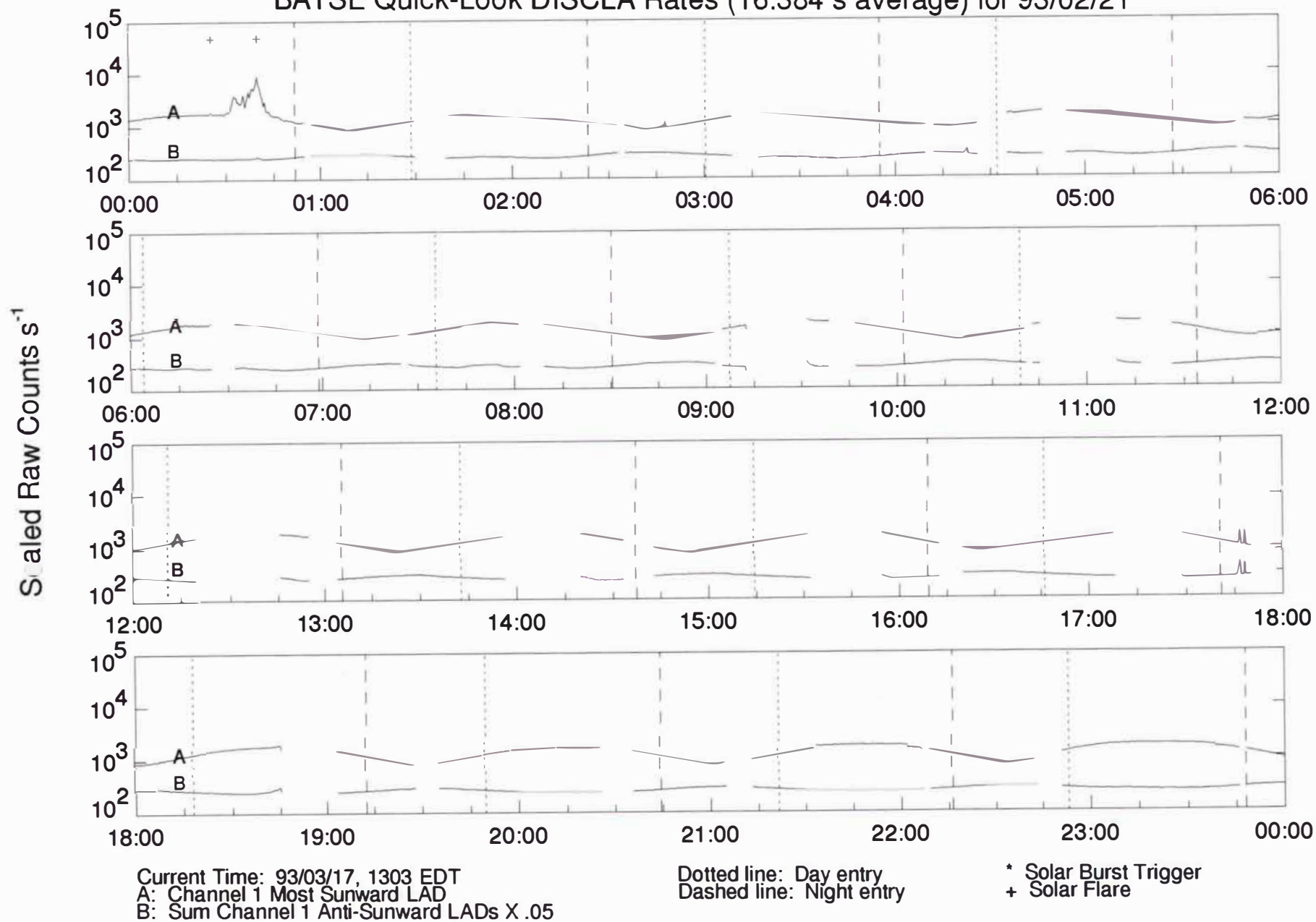
0 - 0 keV

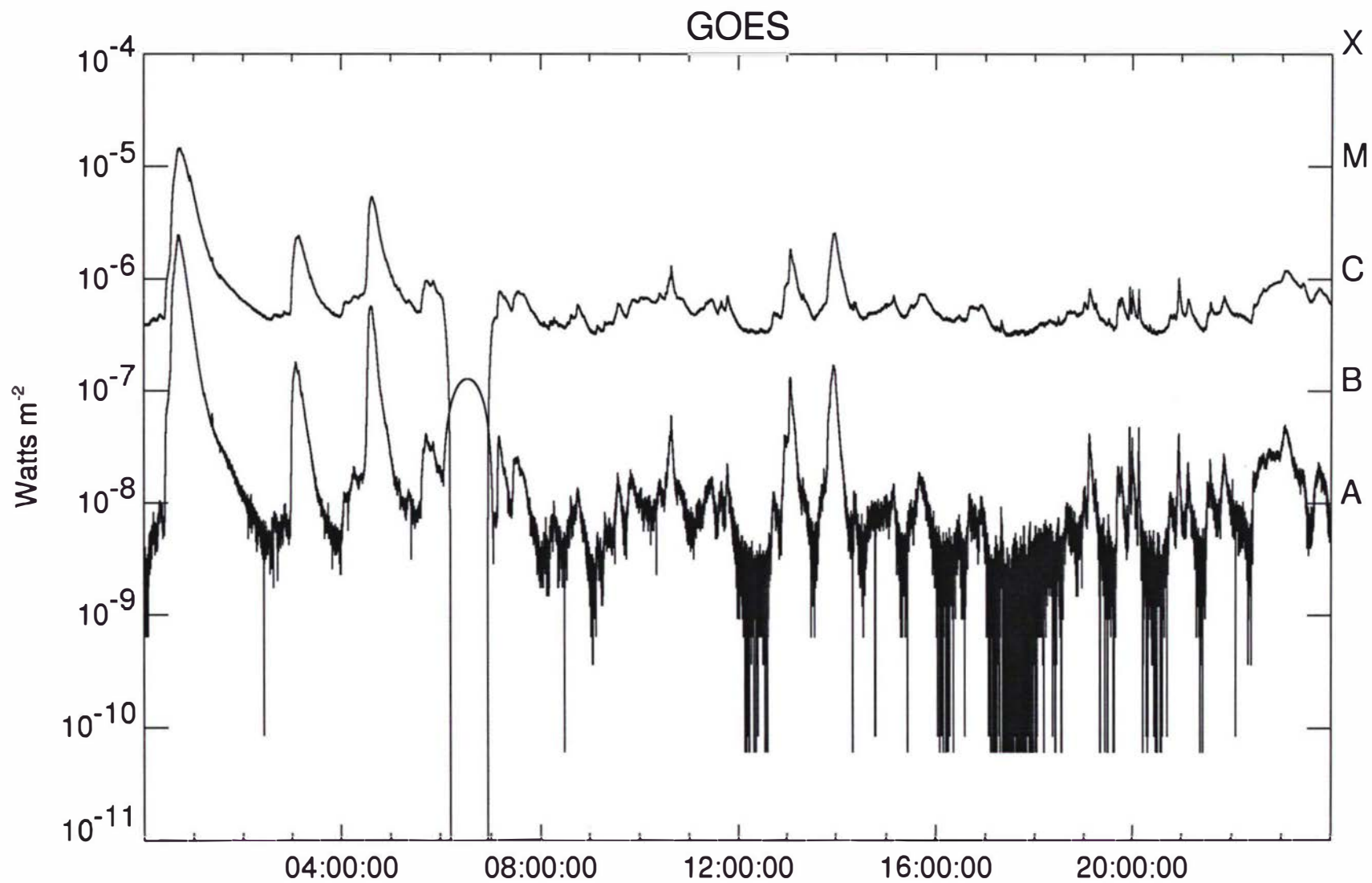
N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/21





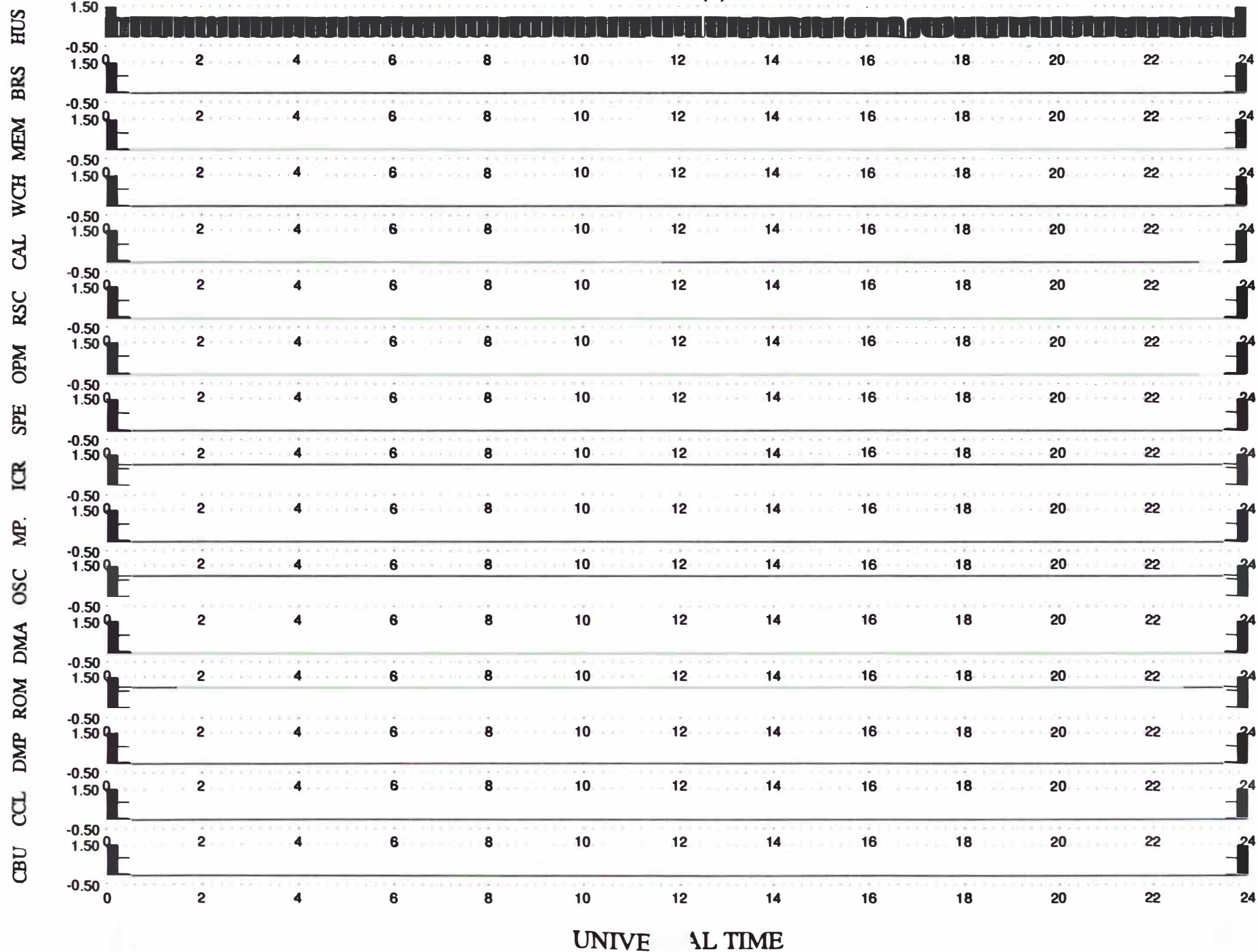
Data Start: 93/02/21, 0000:00

Plot created: 95/06/01, 1713

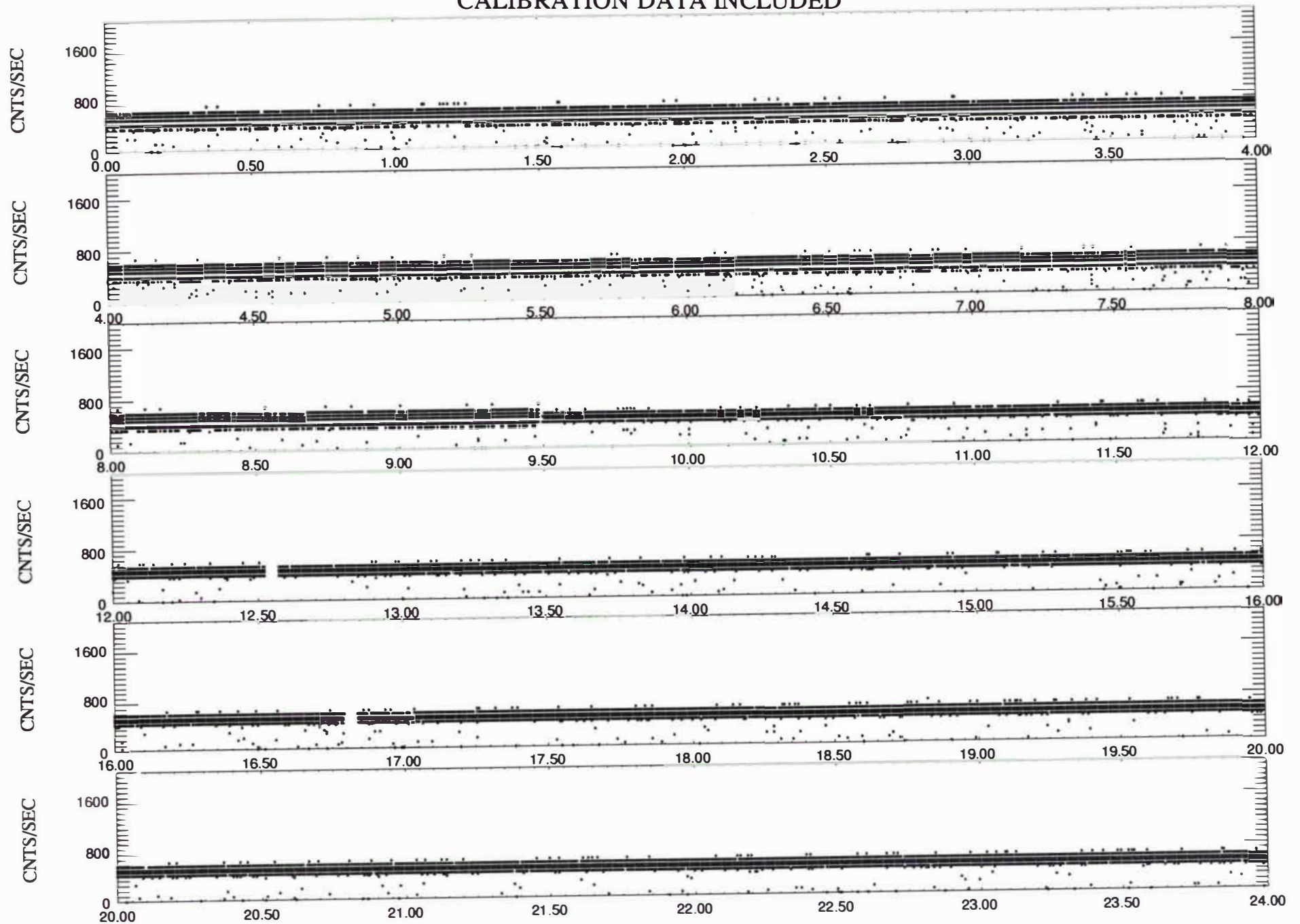
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

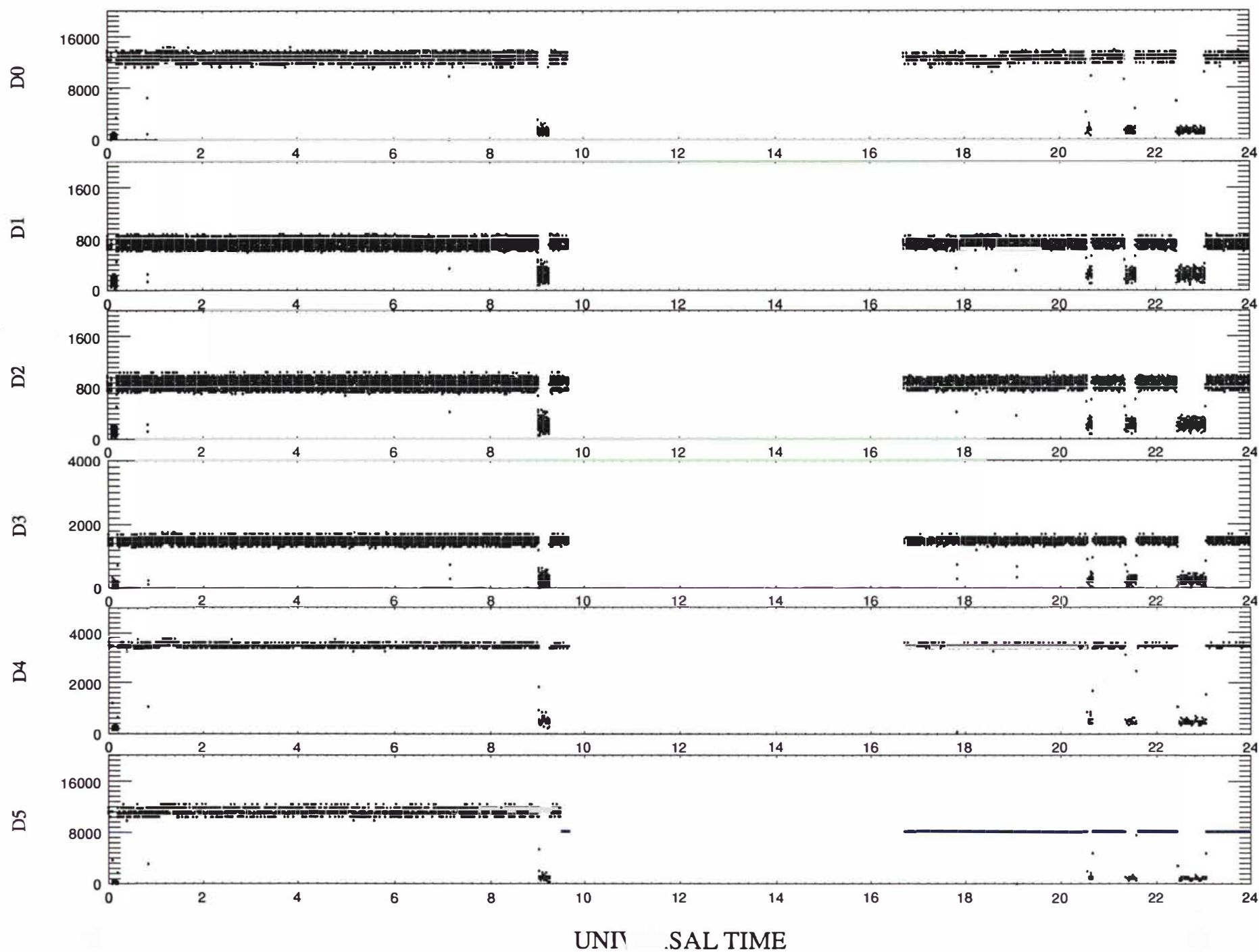
NO BURST (2)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



2 2 / 2 / 9 5

U L Y S S E S R T

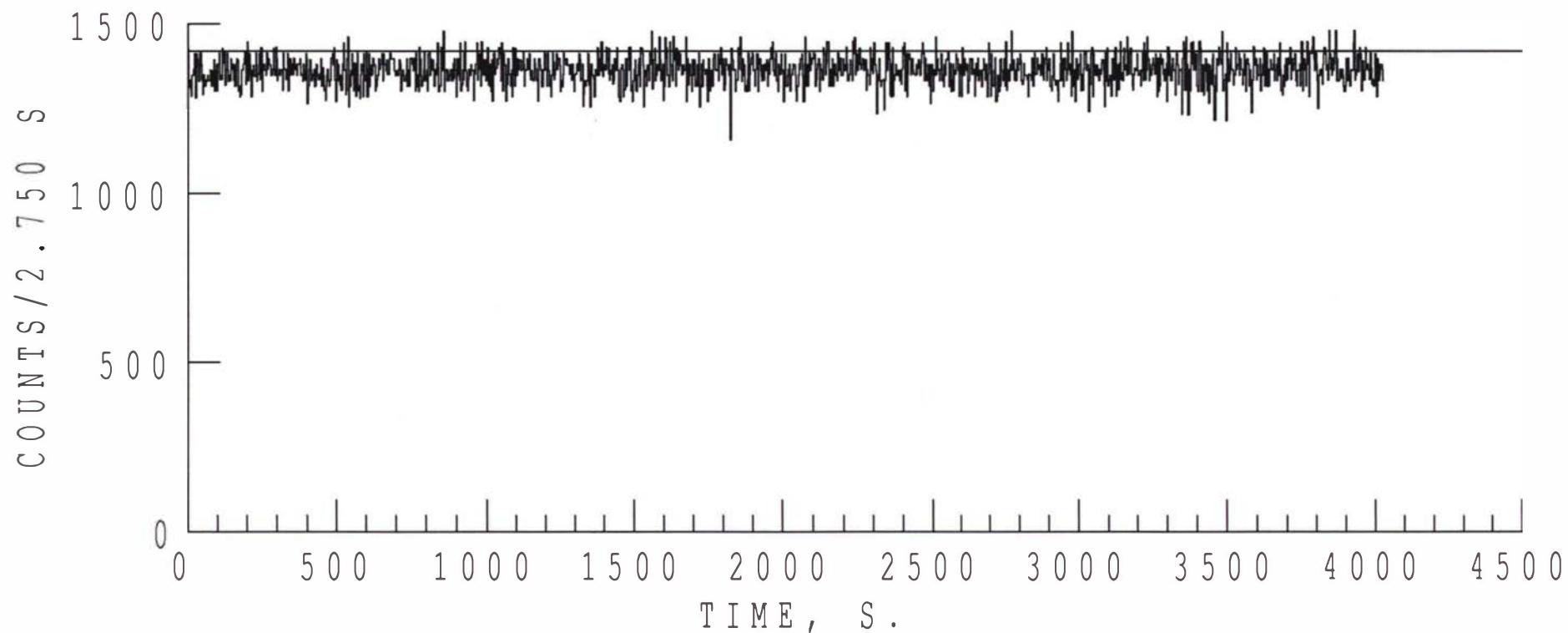
2 2 / 2 / 9 3 2 9 3 7 6 . 2 1 3 s

0 . 2 5 0 s I N T E R V A L S R E G R O U P E D B Y 1 1

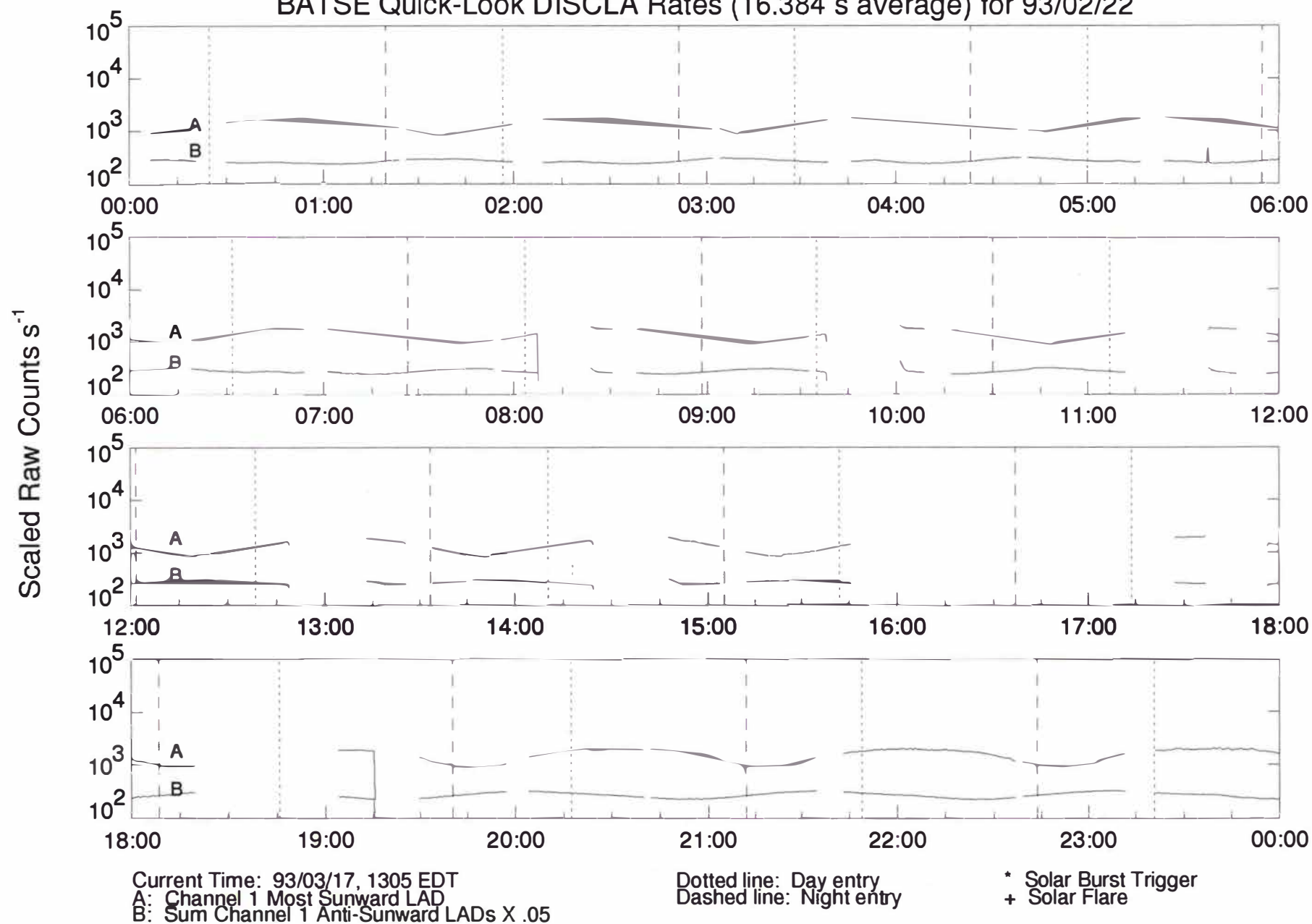
0 - 0 k e V

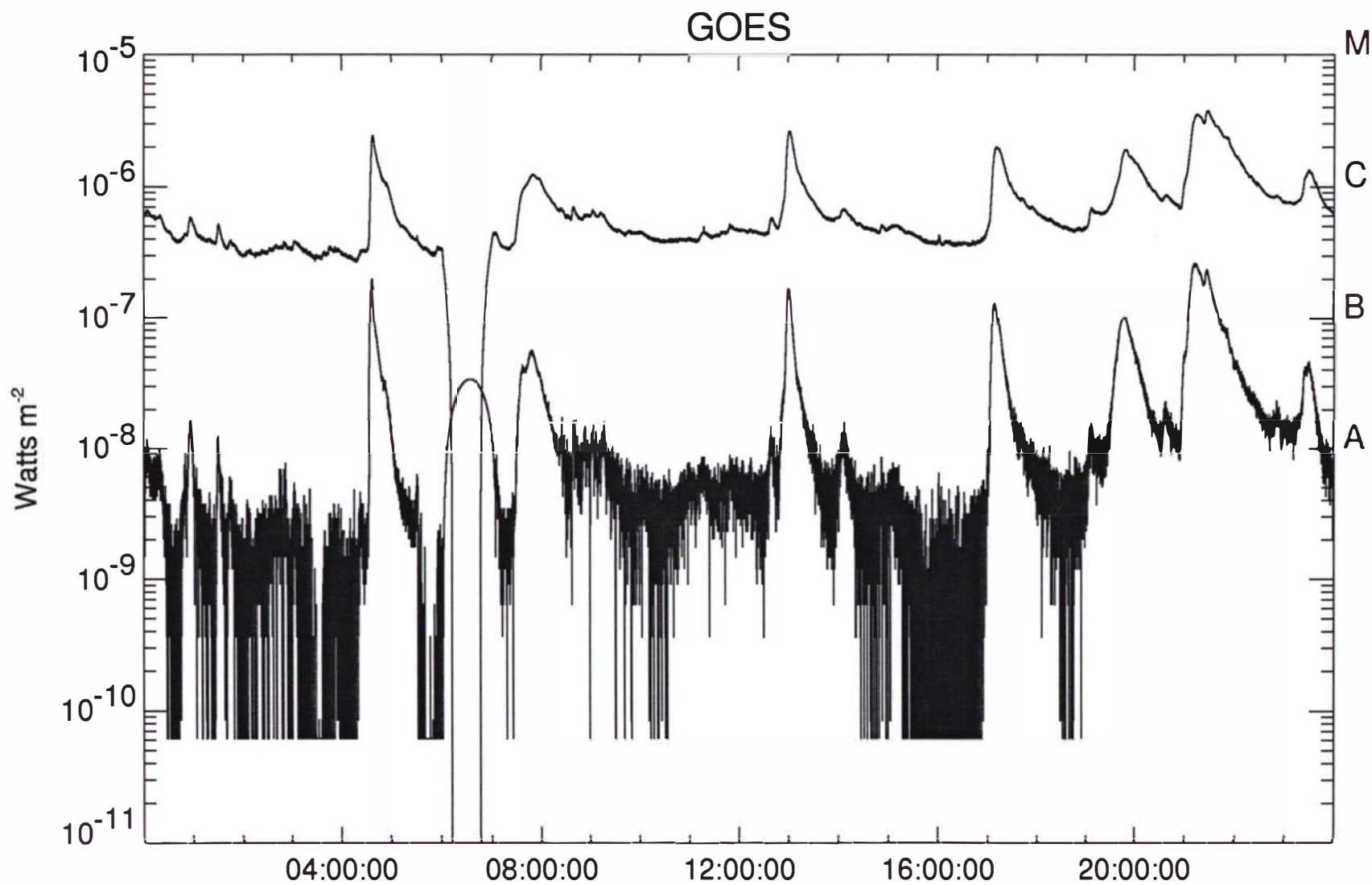
N = 10 M = 2

> 4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/22





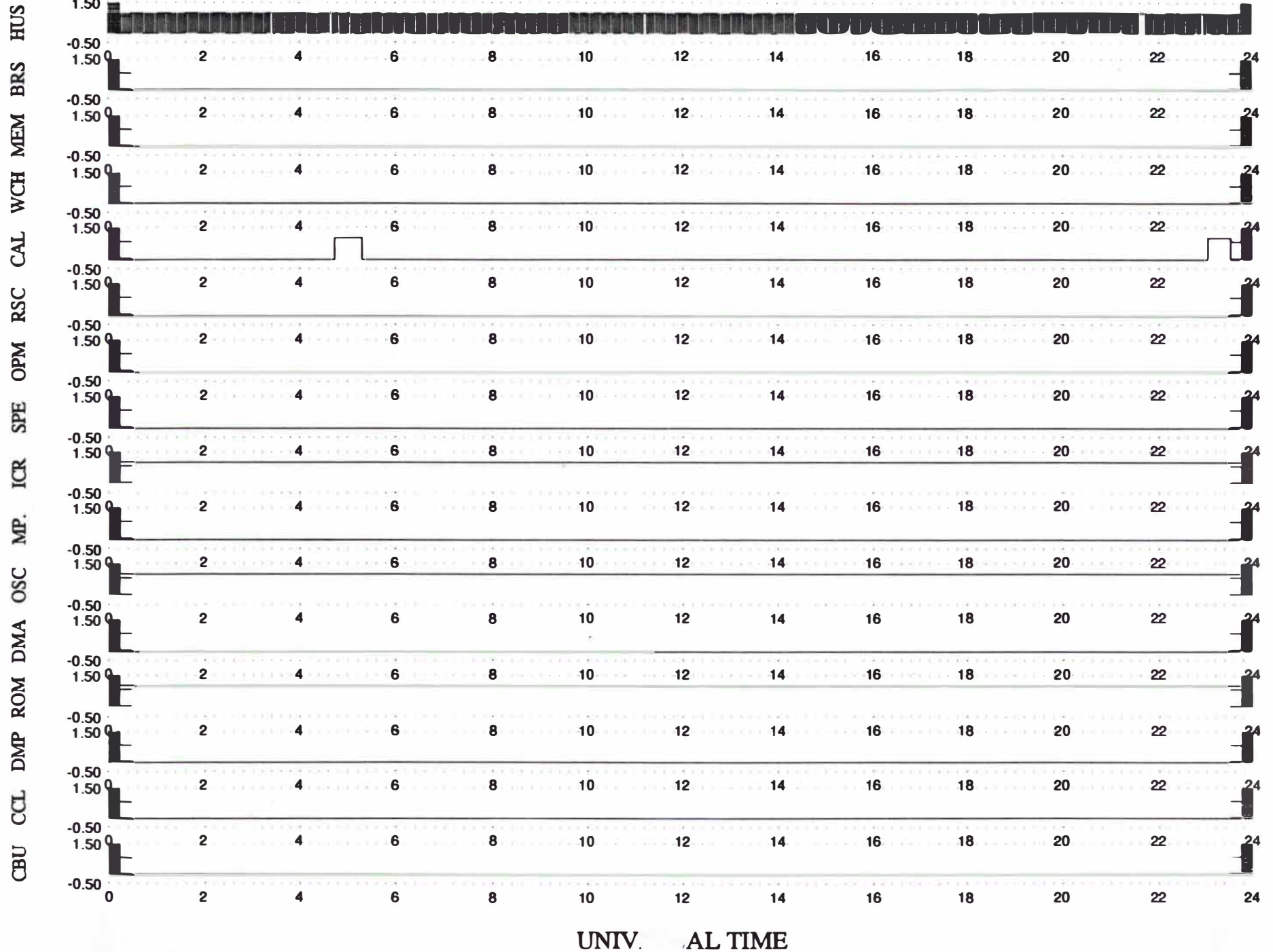
Data Start: 93/02/22, 0000:00

Plot created: 95/06/01, 1716

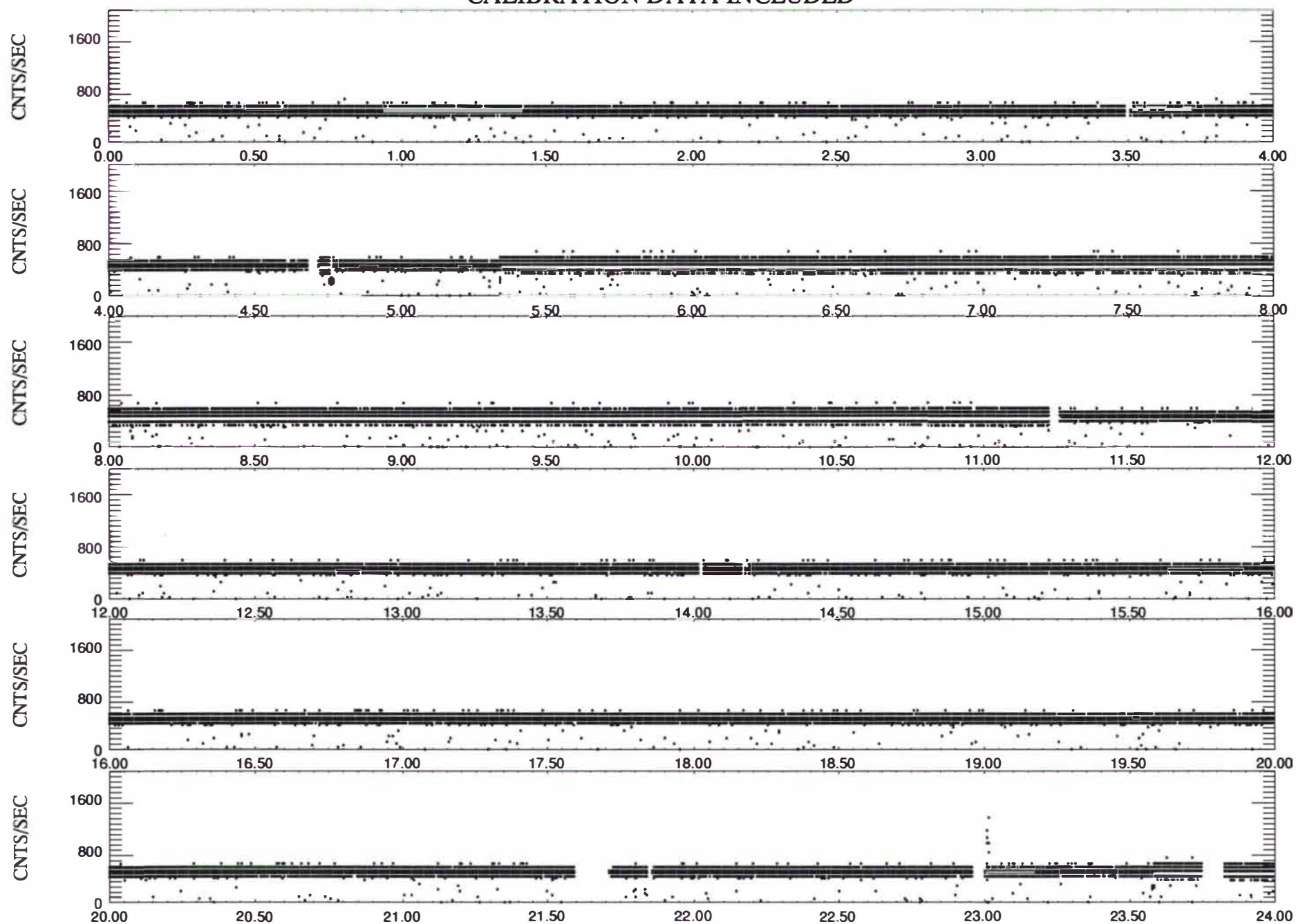
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

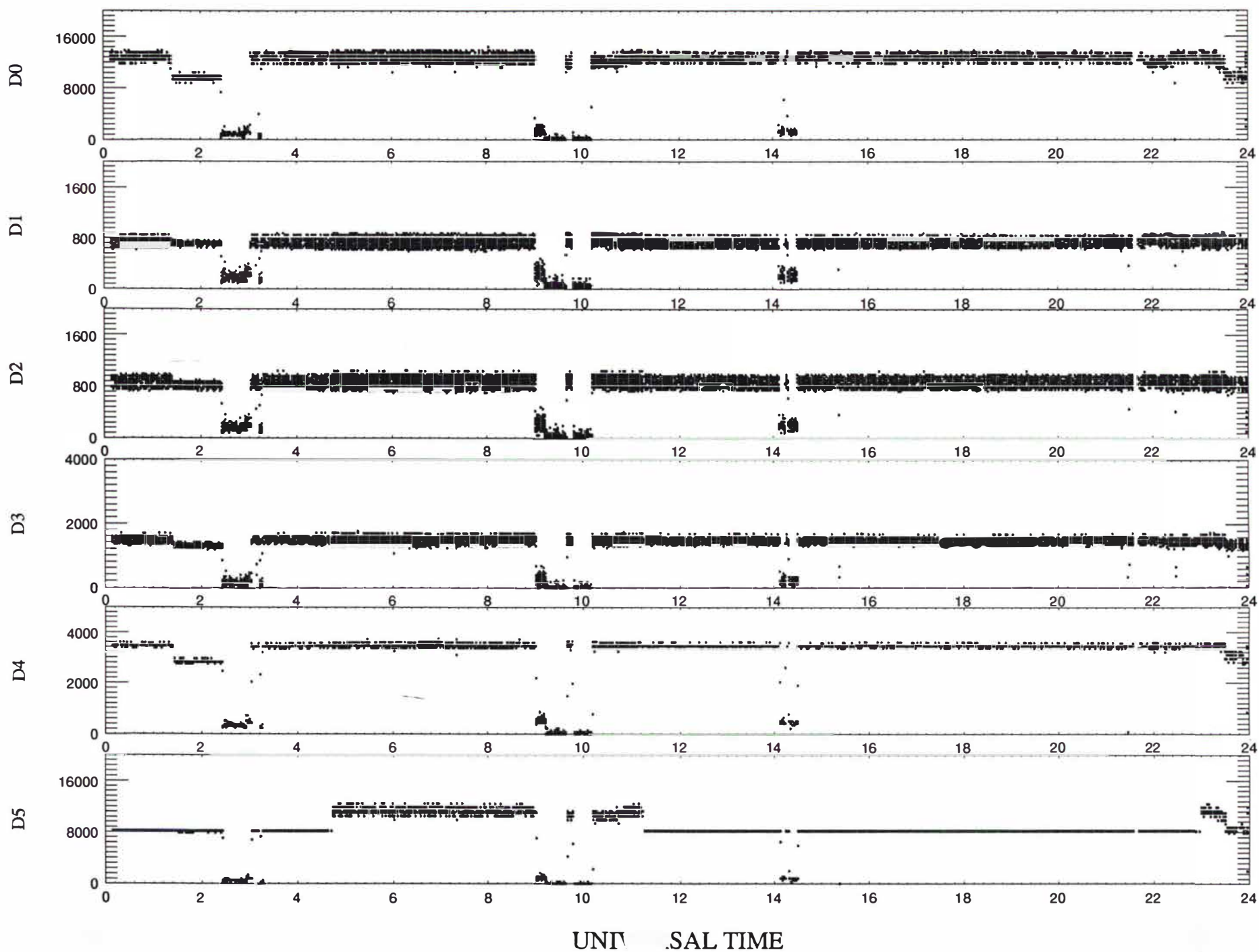
NO BURST (2)



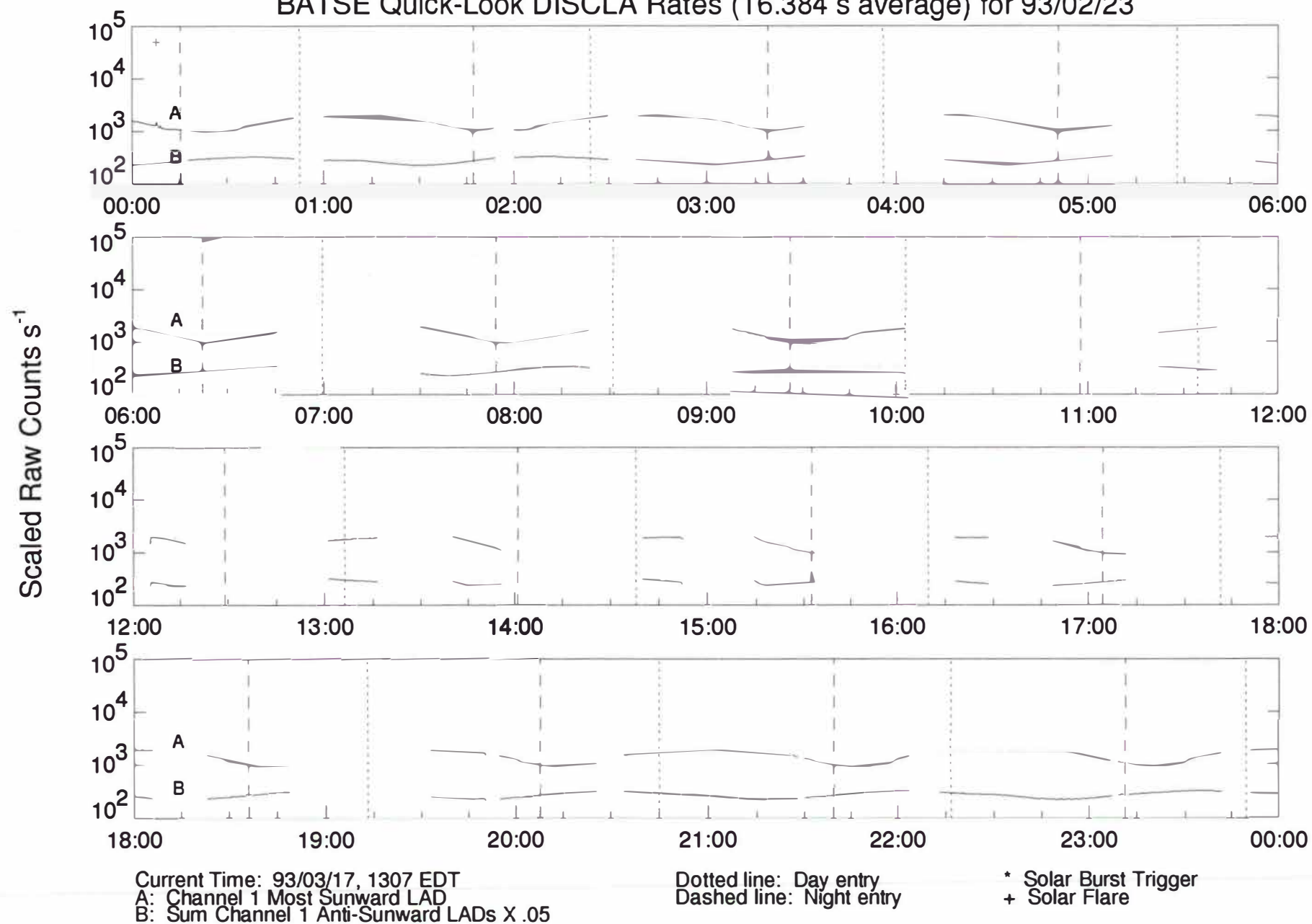
CALIBRATION DATA INCLUDED

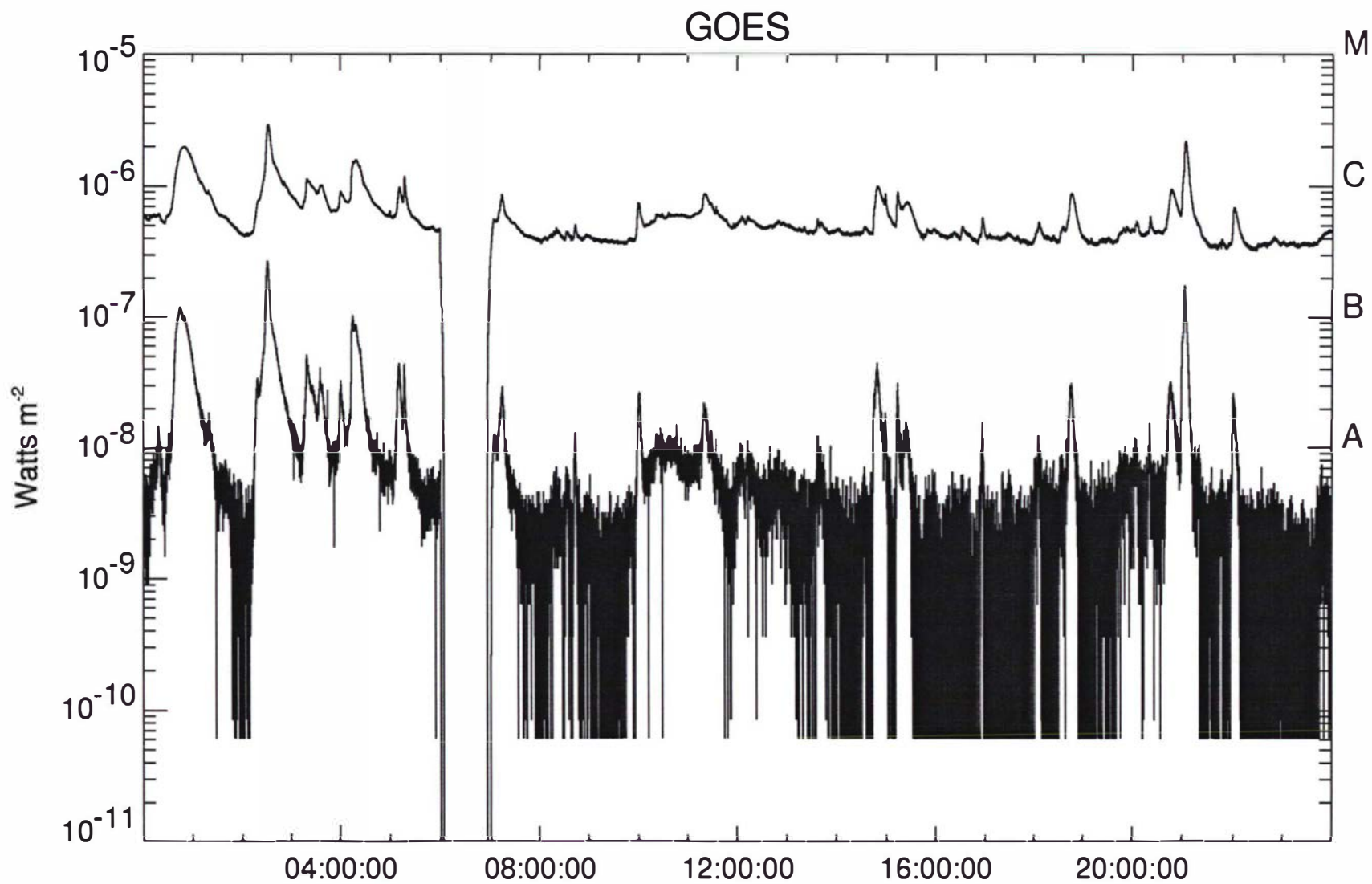


UNIV 3AL TIME



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/23





Data Start: 93/02/23, 0000:00

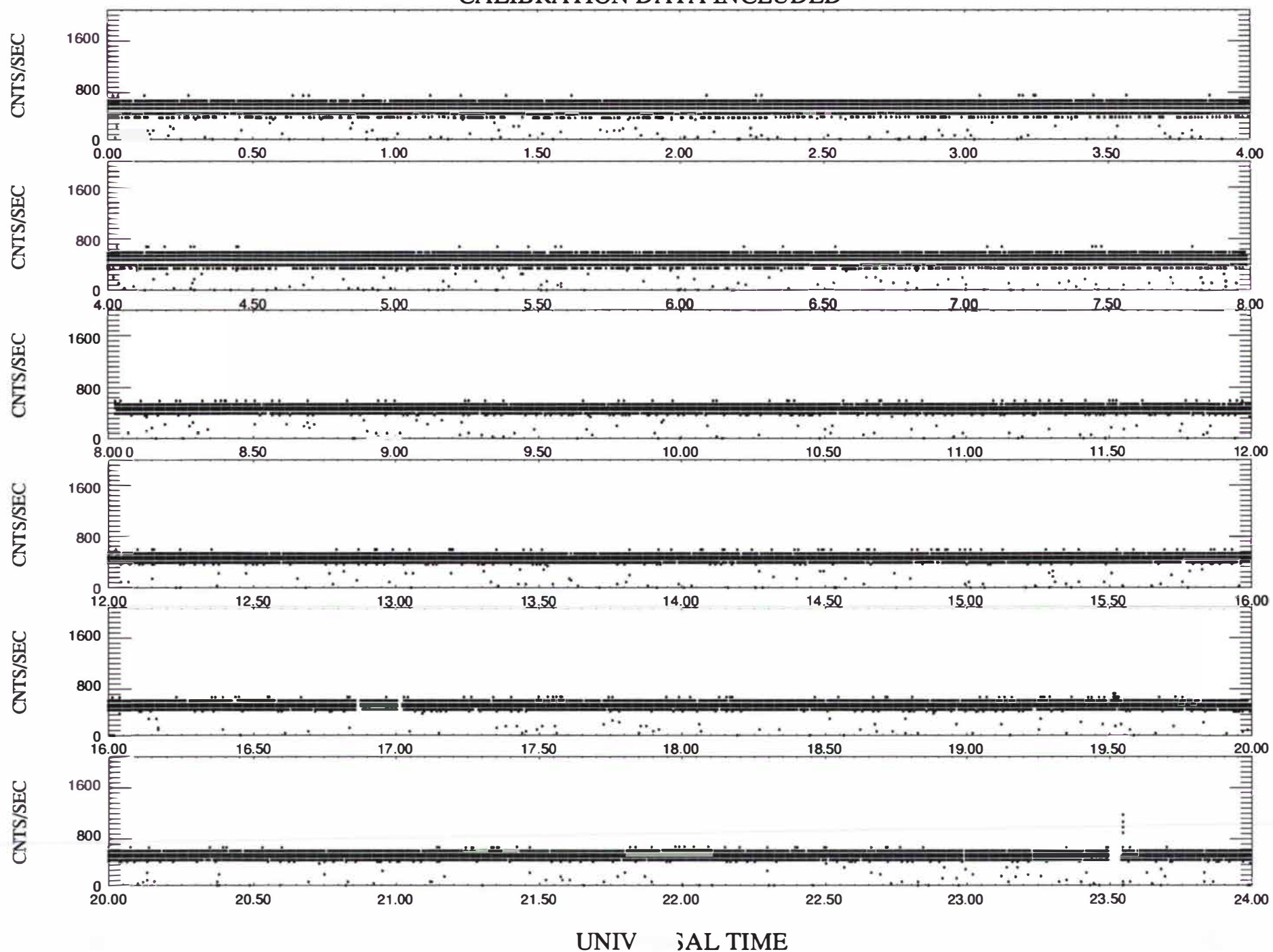
Plot created: 95/06/01, 1720

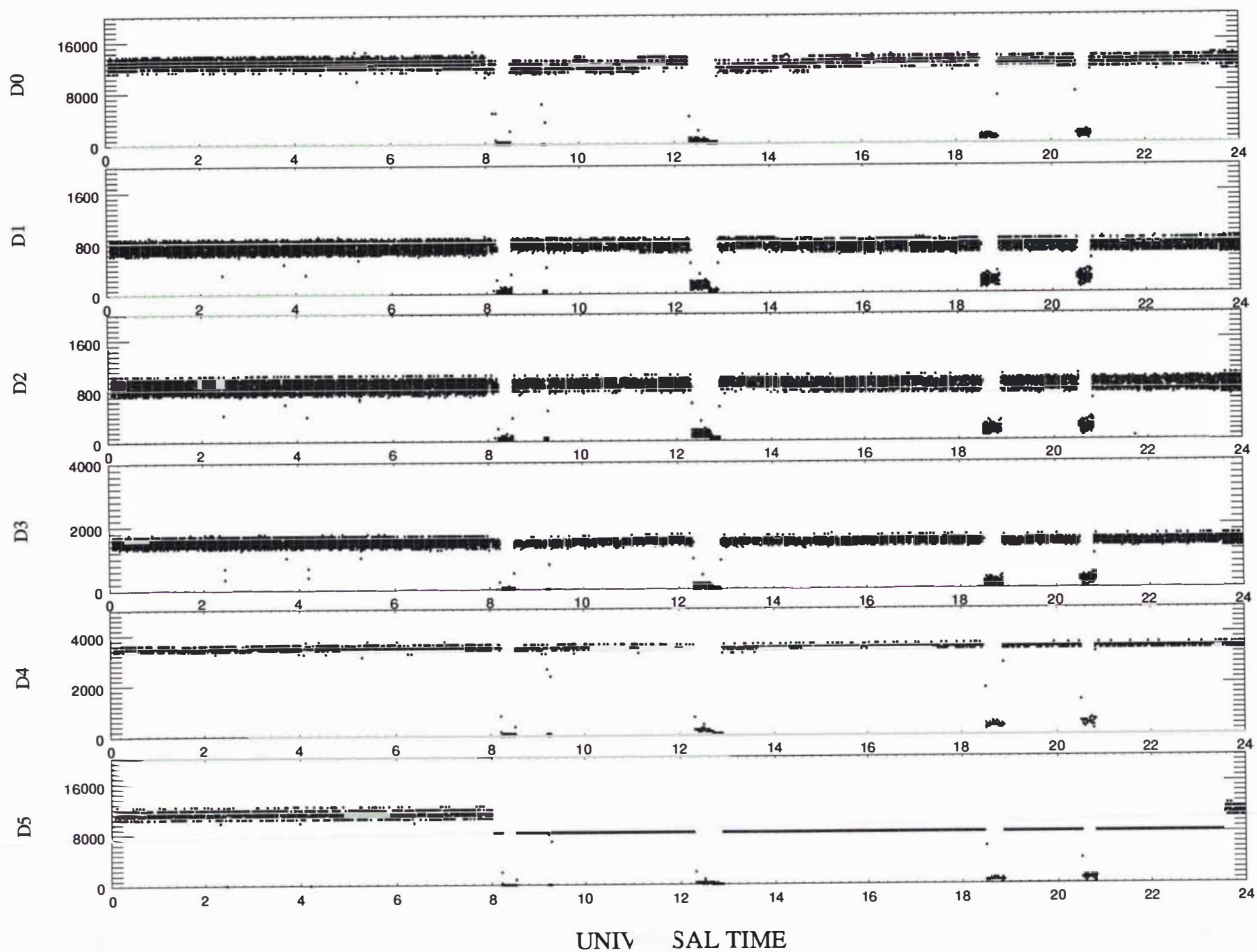
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

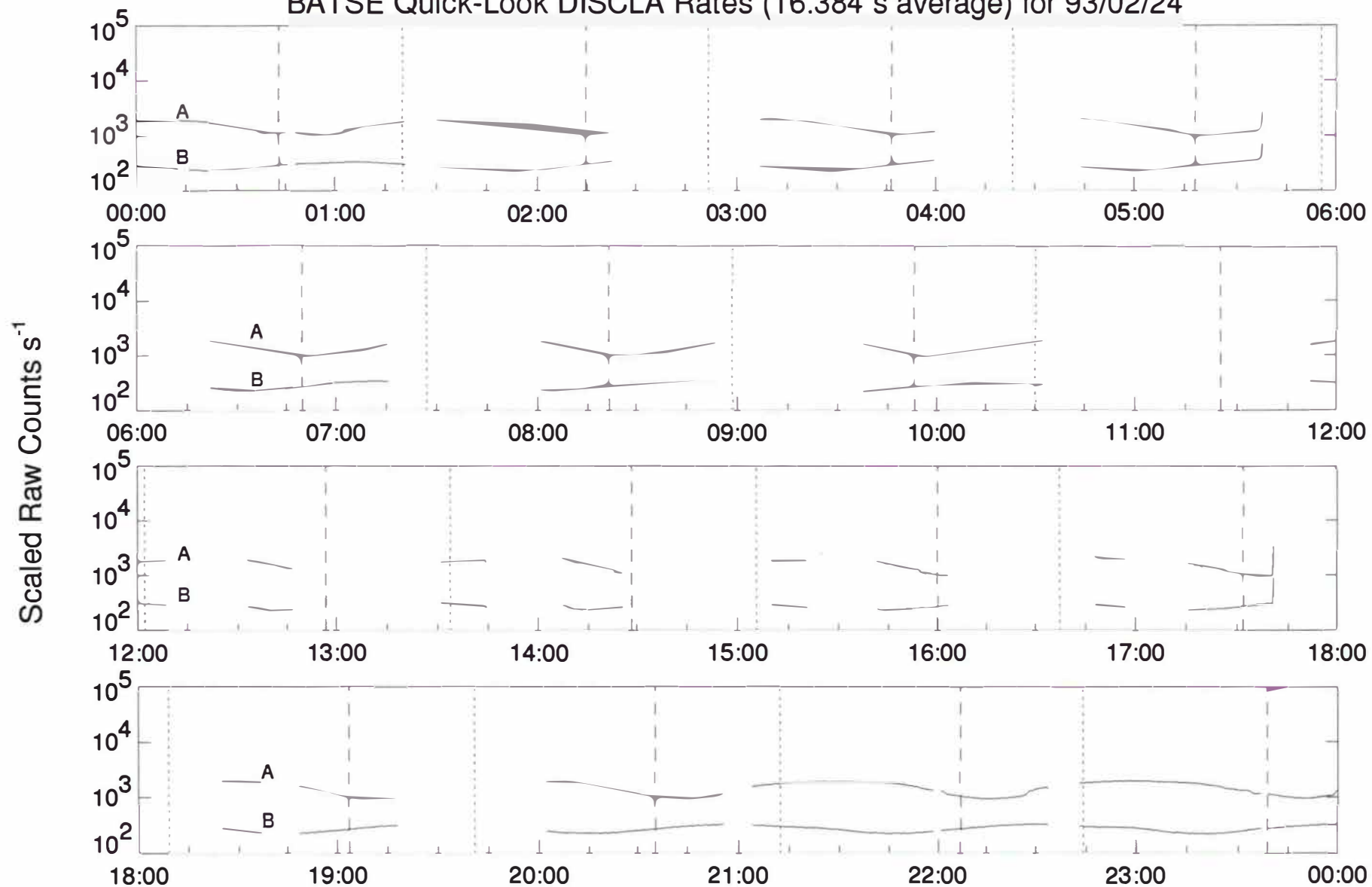
[illegible]

CALIBRATION DATA INCLUDED





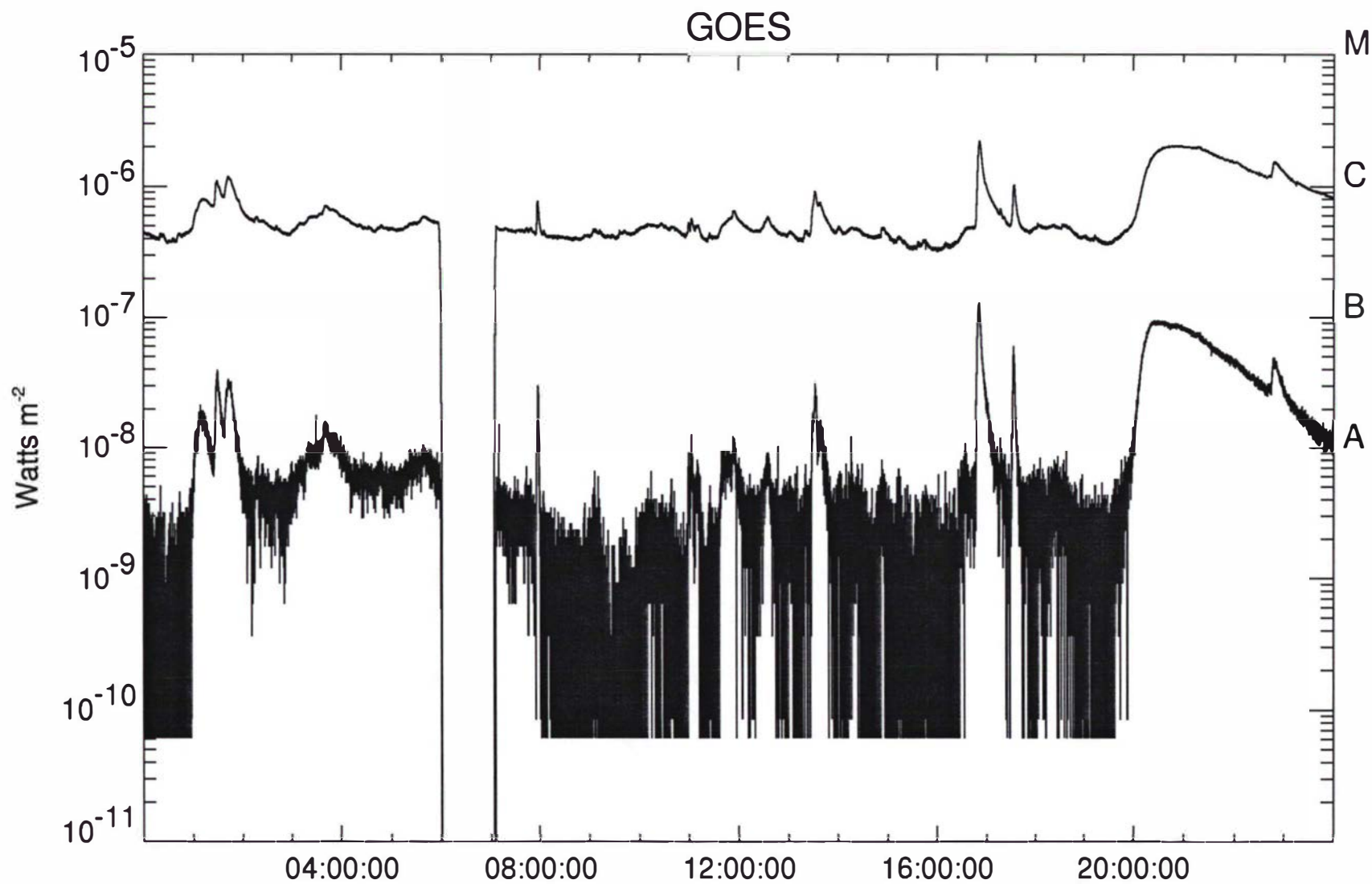
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/24



Current Time: 93/03/17, 1308 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: 93/02/24, 0000:02

Plot created: 95/06/01, 1724

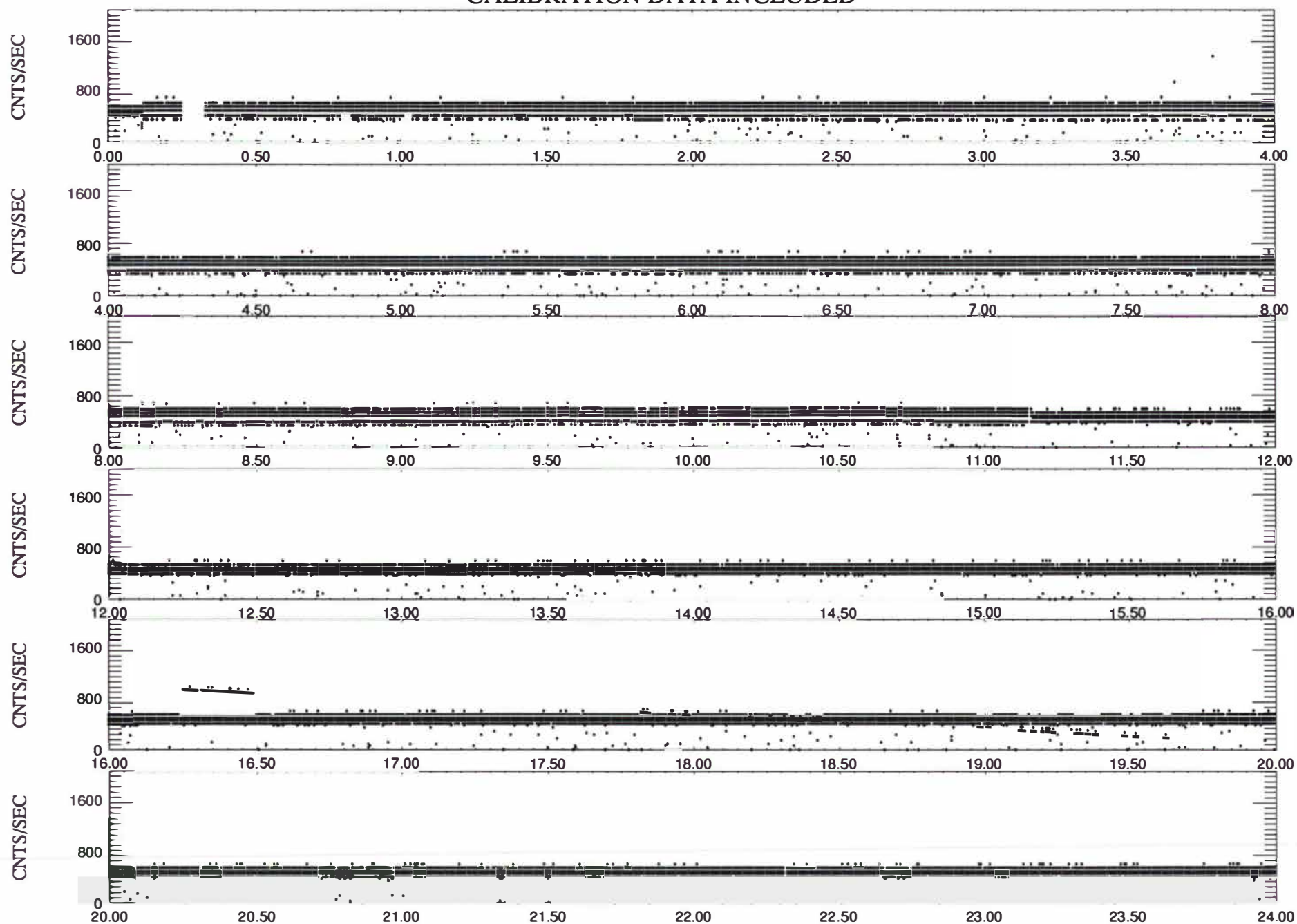
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

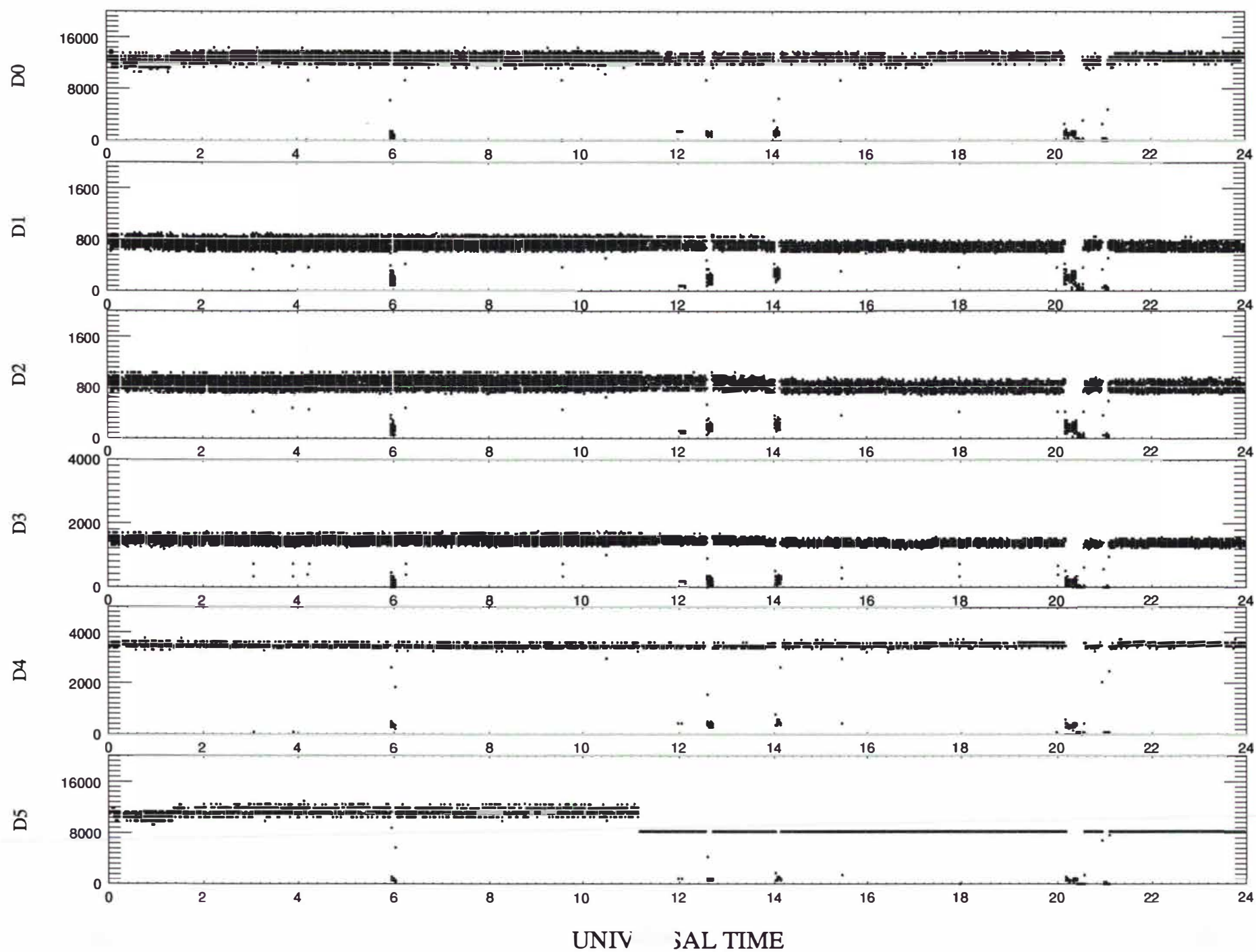
CPU	CCL	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



CALIBRATION DATA INCLUDED



UNIV UNIV TIME



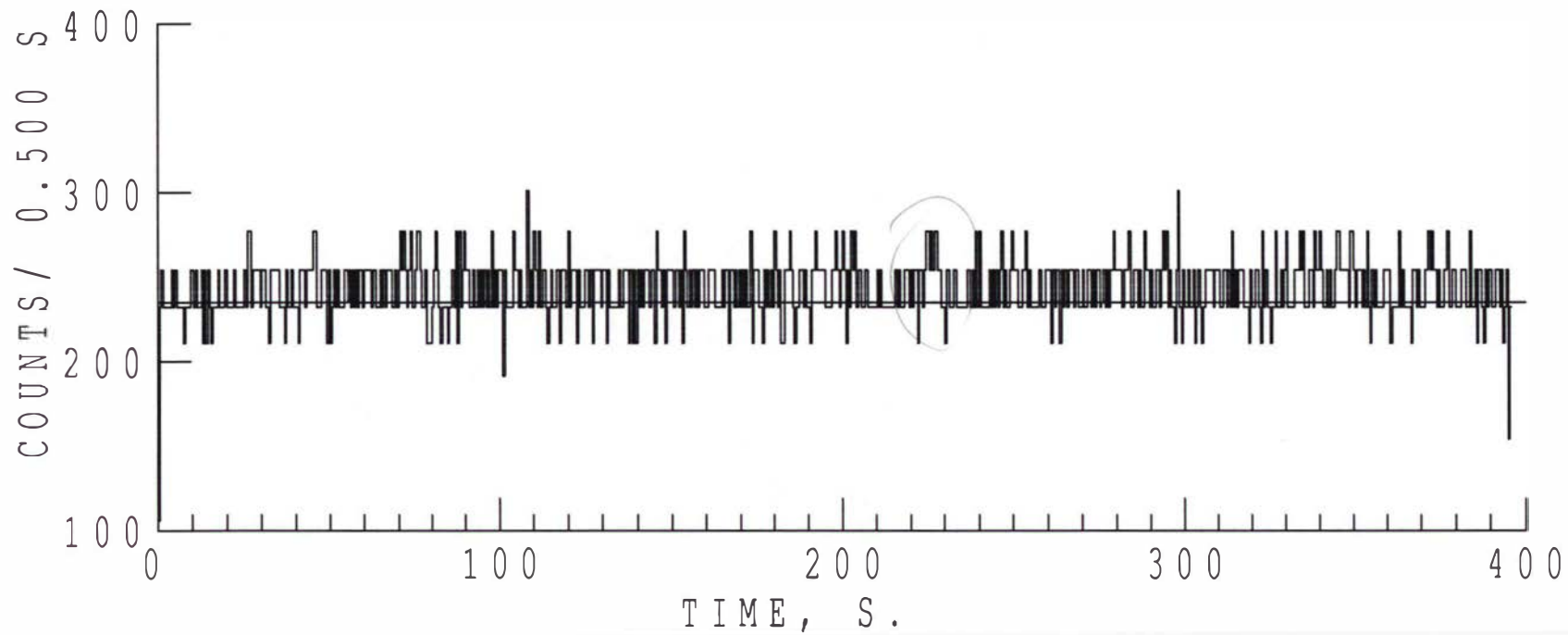
Komnig
UNTRIGGERED

ULYSSES RT
25 / 2 / 93 76824.438 s
0 - 0 keV

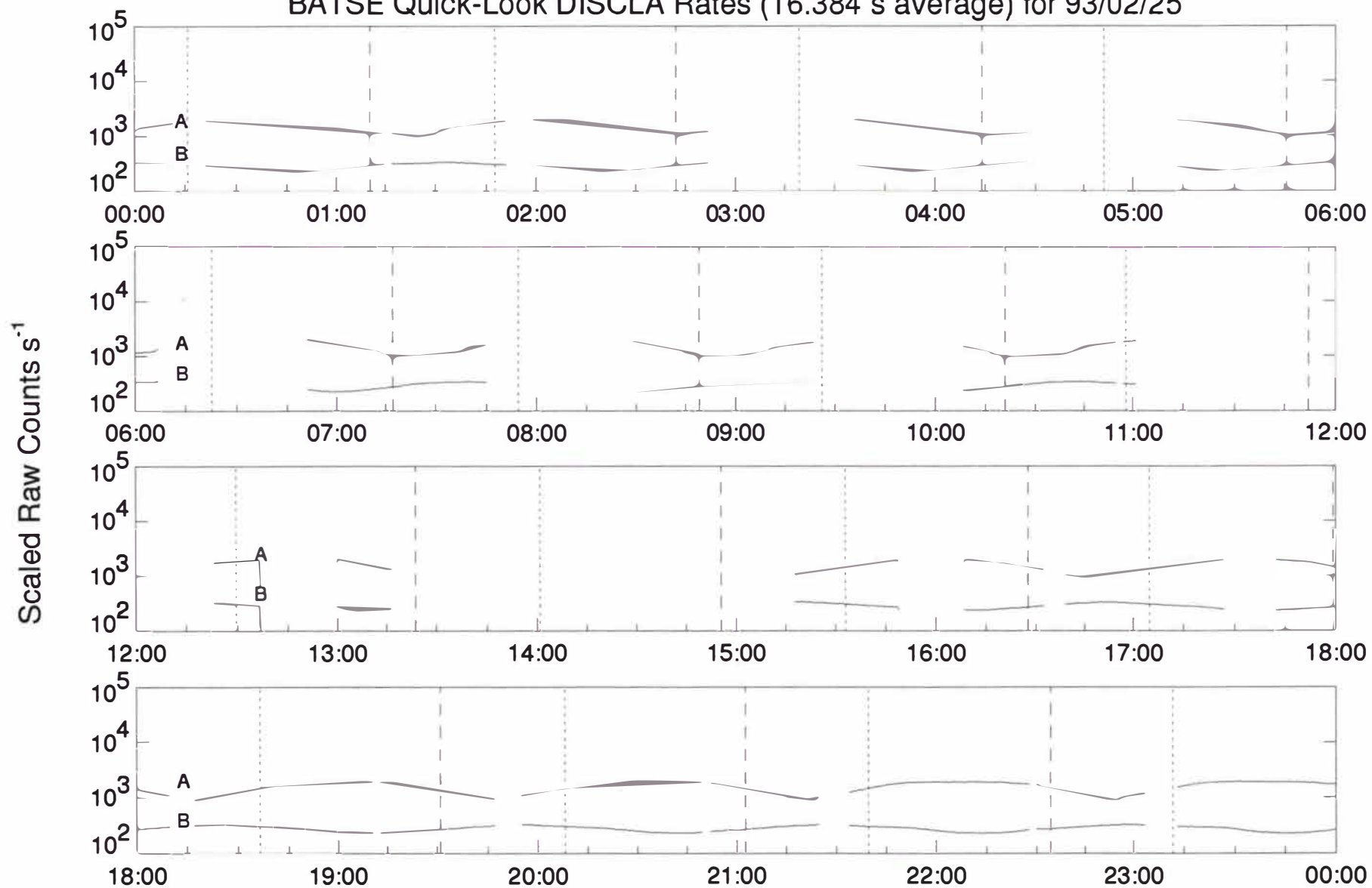
21 / 5 / 97

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



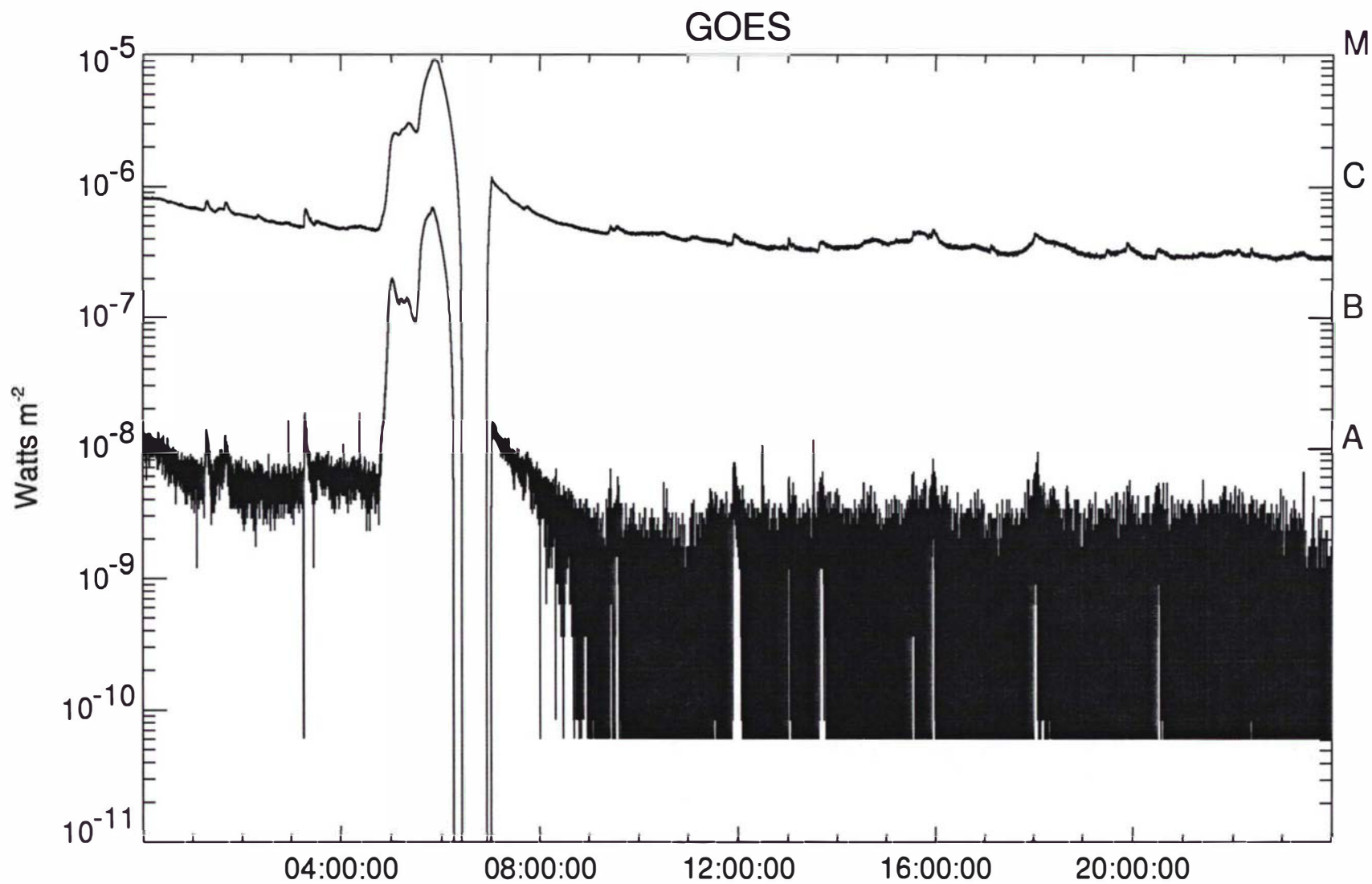
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/25



Current Time: 93/03/17, 1309 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



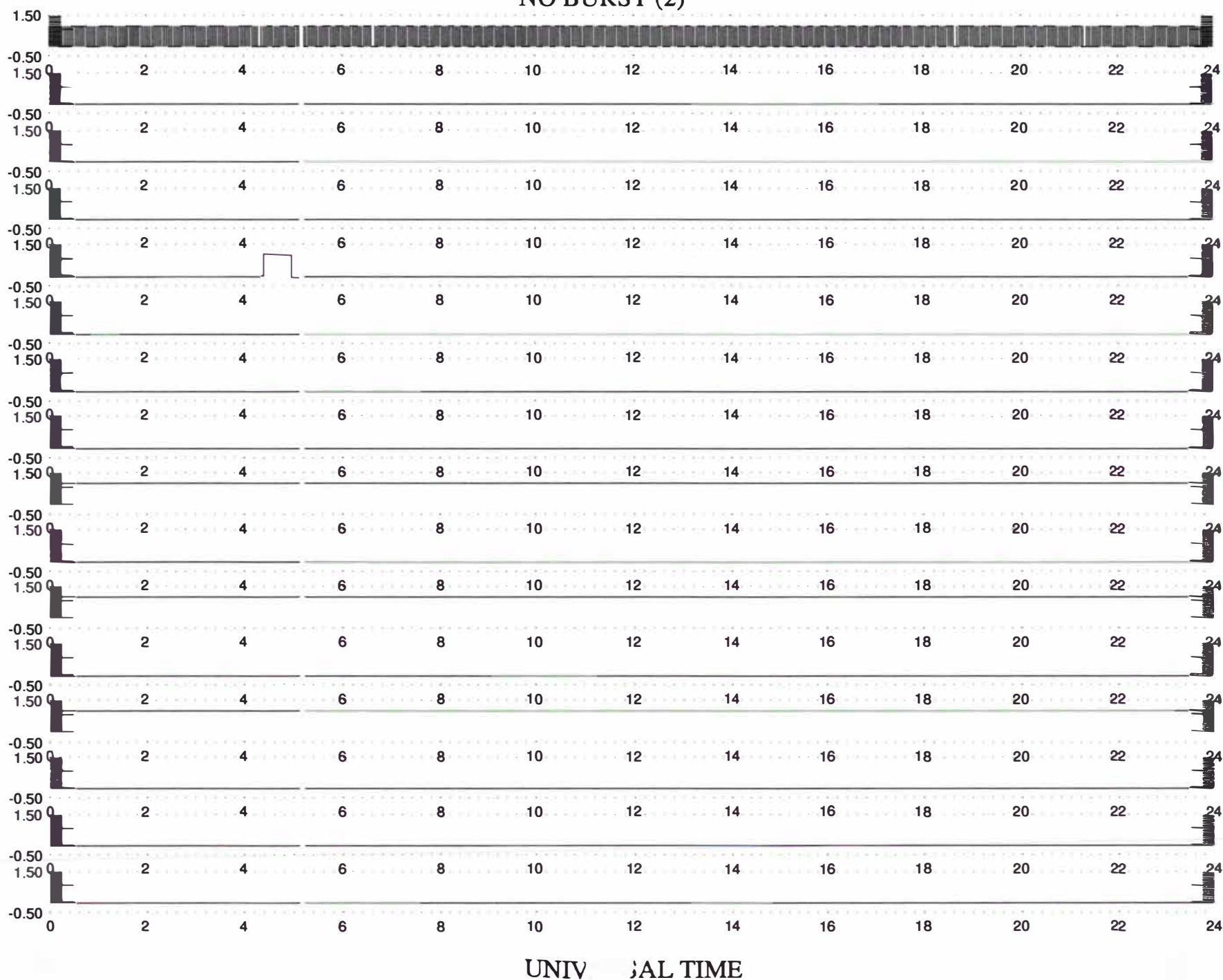
Data Start: 93/02/25, 0000:02

Plot created: 95/06/01, 1727

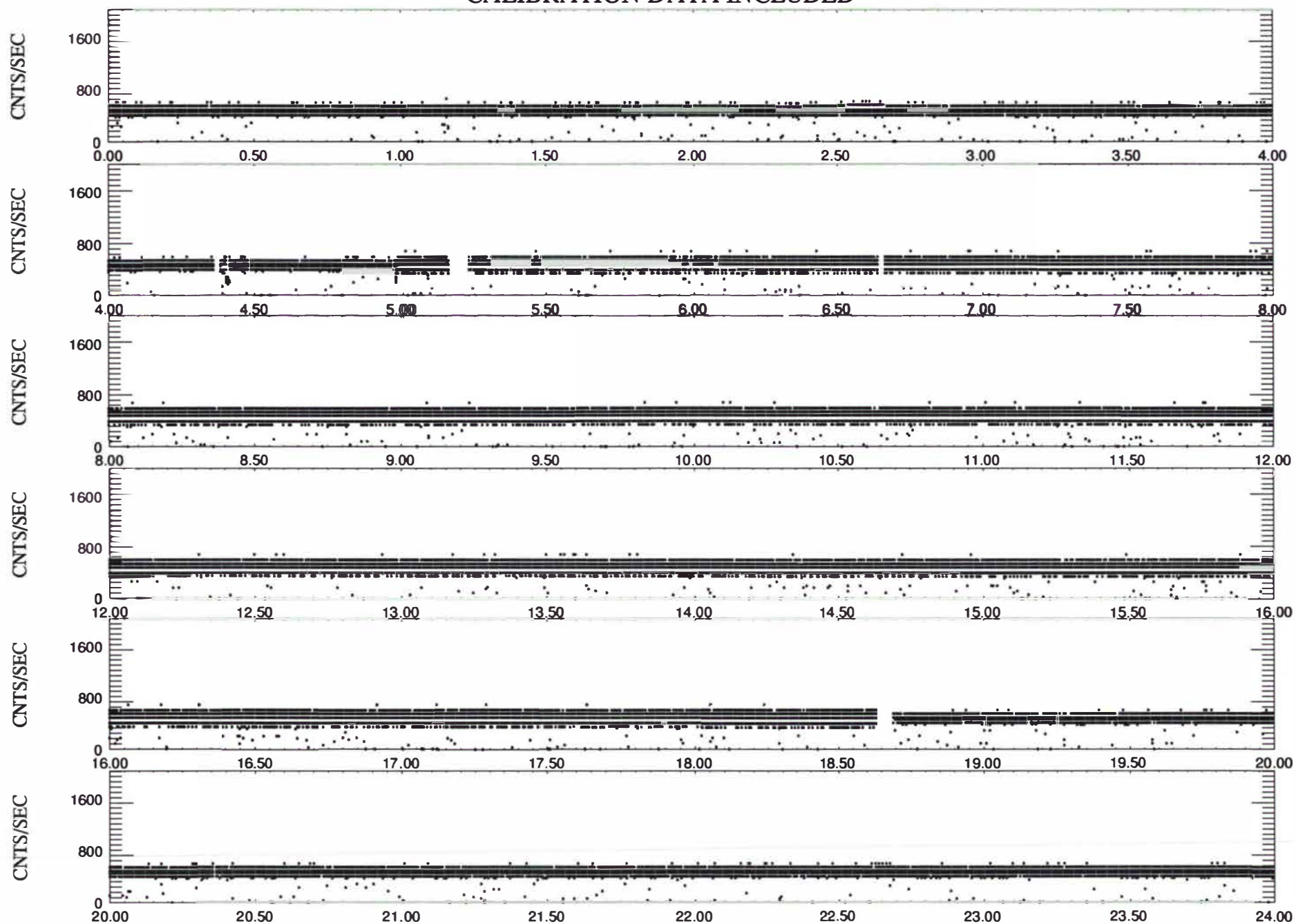
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

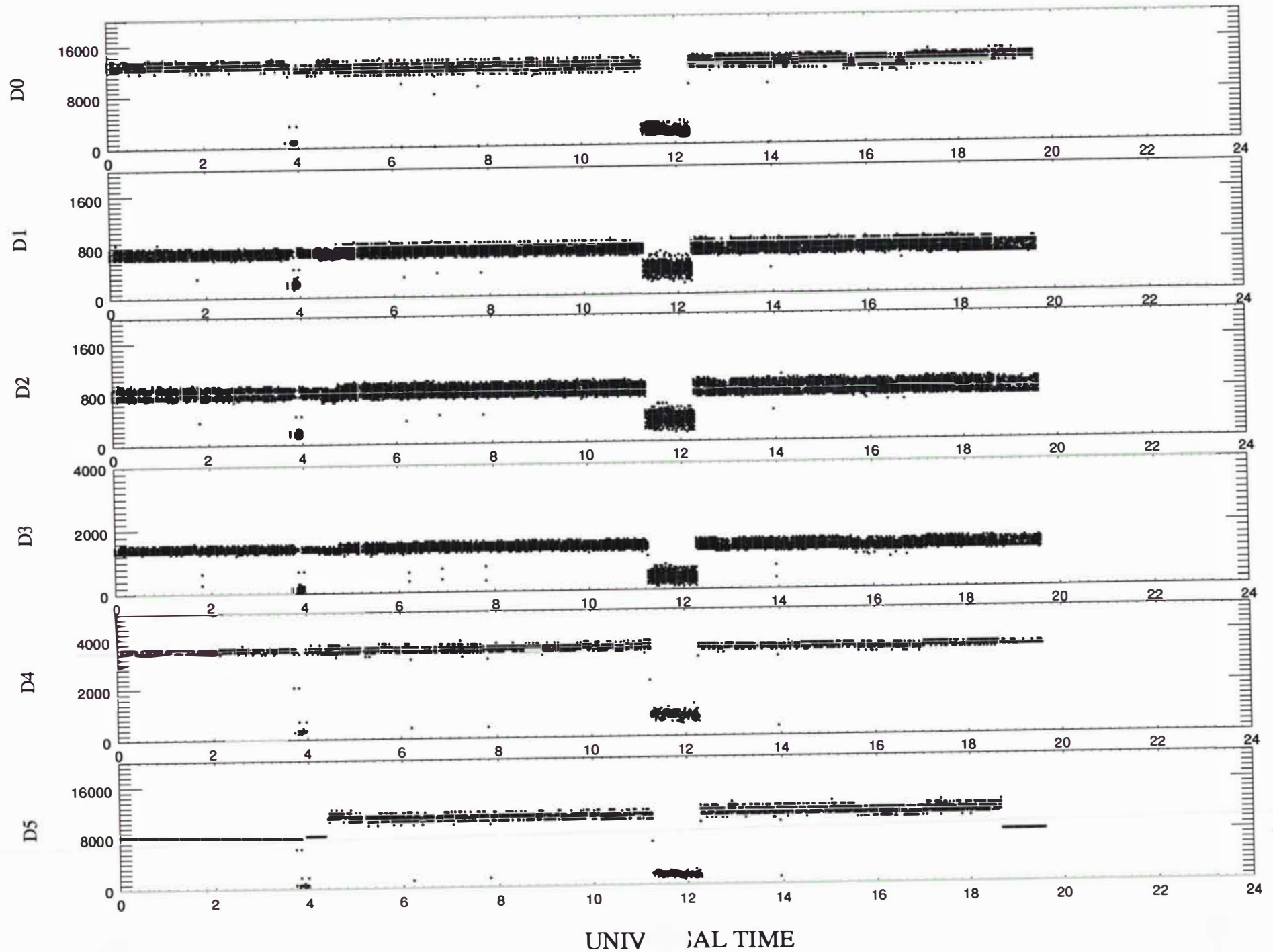
CBU	CCL	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



CALIBRATION DATA INCLUDED



UNIV 3AL TIME



From SHARIFF@ssl.msfc.nasa.gov Mon Mar 1 09:31:26 1993
Date: Mon, 1 Mar 1993 11:32:29 -0600 (CST)
From: SHARIFF@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02208

TIME: TJD=9044 SECONDS=14295

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

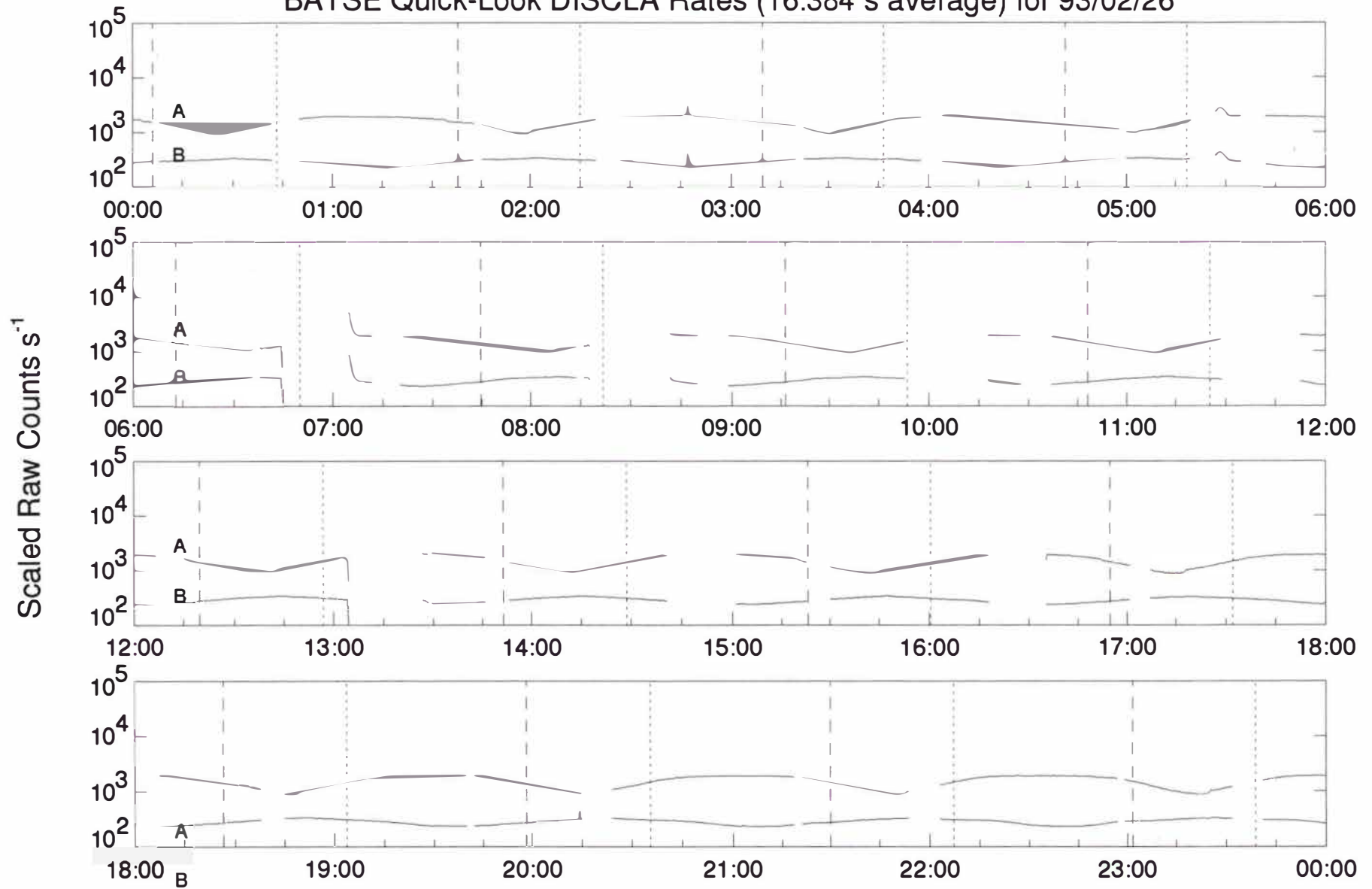
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=071.1 AZIMUTH=327.7 ERROR= DEGREES

COMMENTS:
SOLAR FLARE, UNCLASSIFIED GOES EVENT, WEAK, SOFT, LASTING ~35S. NOT VISIBLE ABOVE
100KEV.

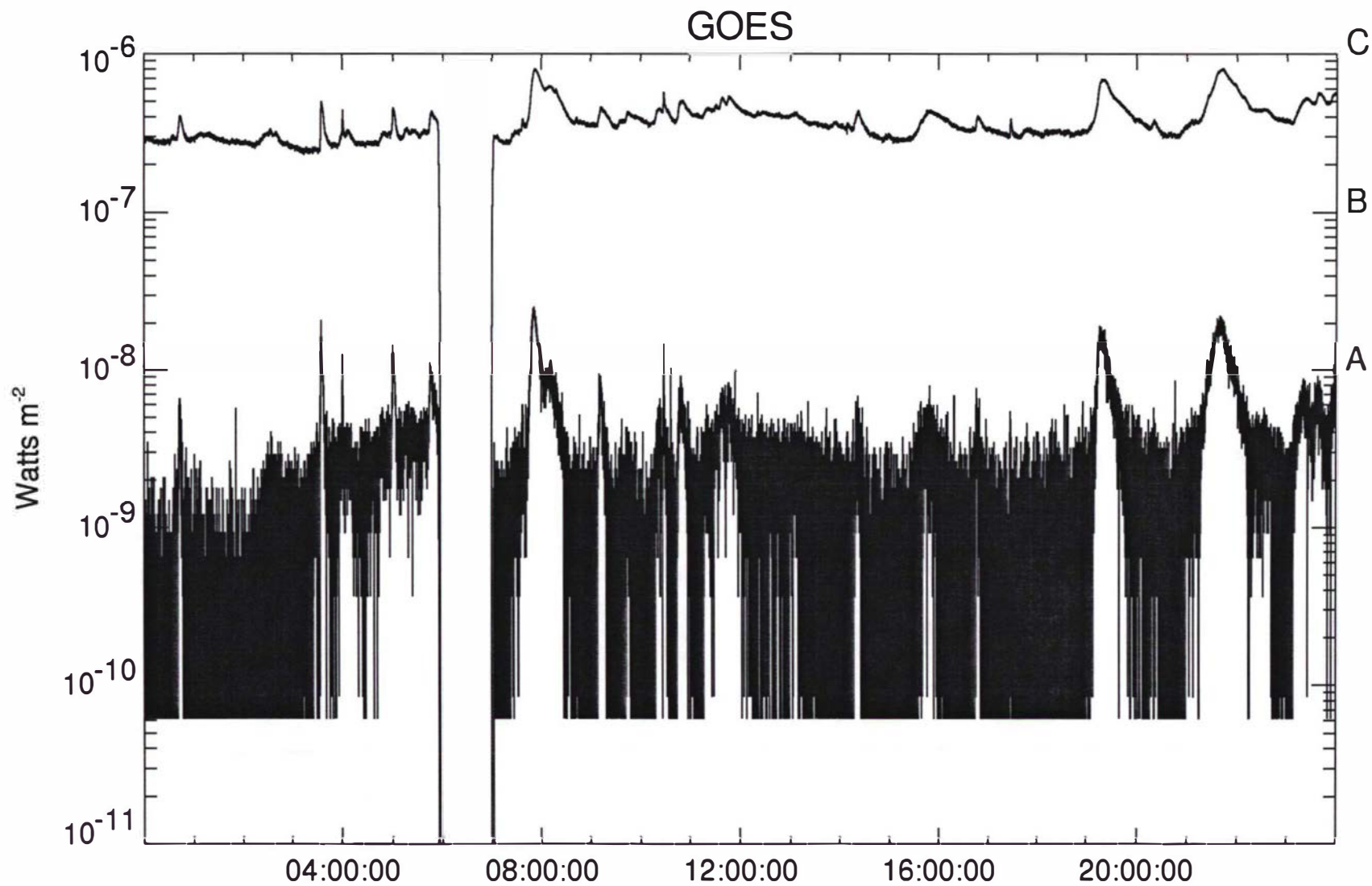
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/26



Current Time: 93/03/17, 1311 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



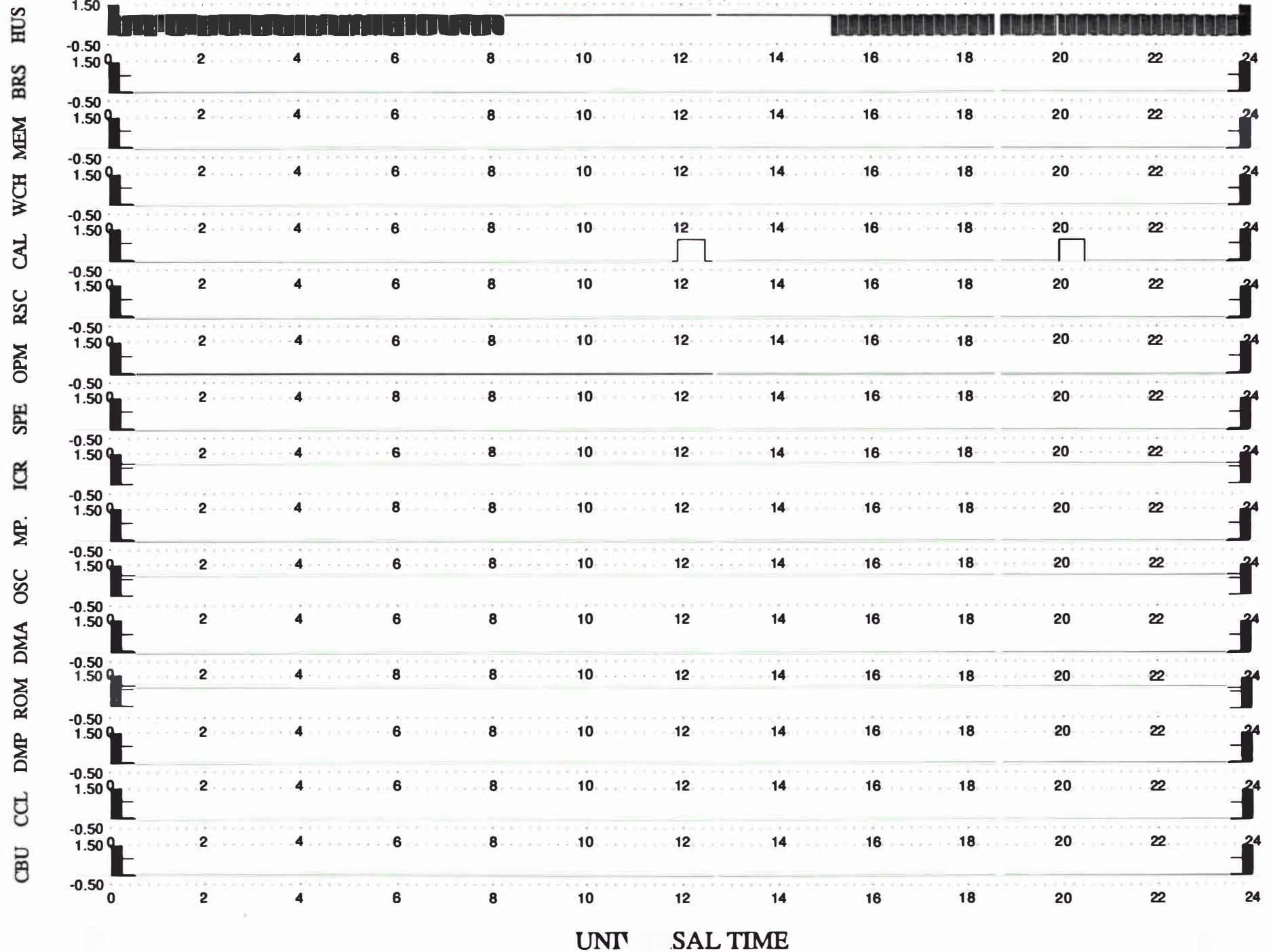
Data Start: 93/02/26, 0000:02

Plot created: 95/06/01, 1731

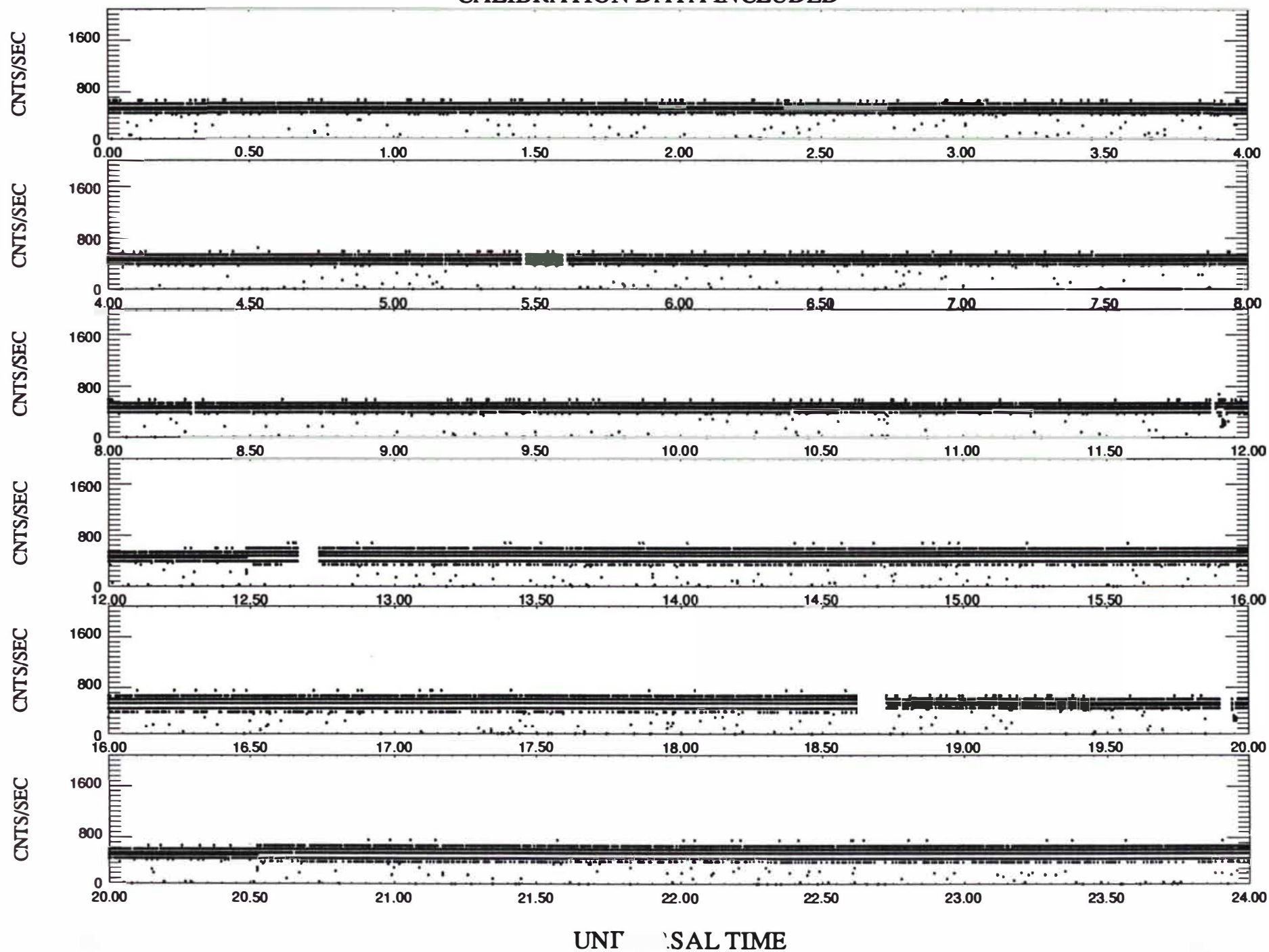
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

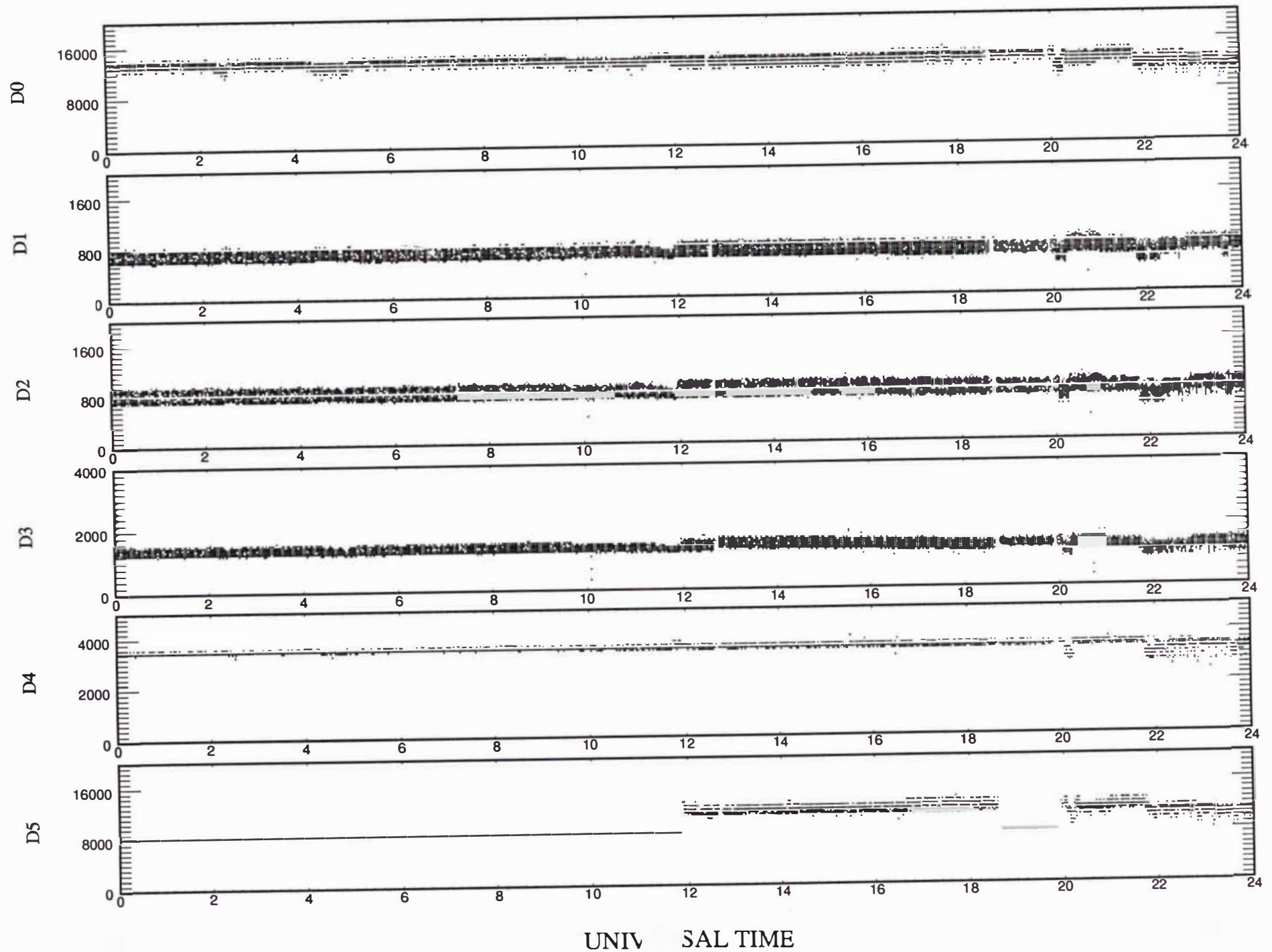
2 (0.5 - 4.0 Angstroms) Background not subtracted

NO BURST (2)



CALIBRATION DATA INCLUDED



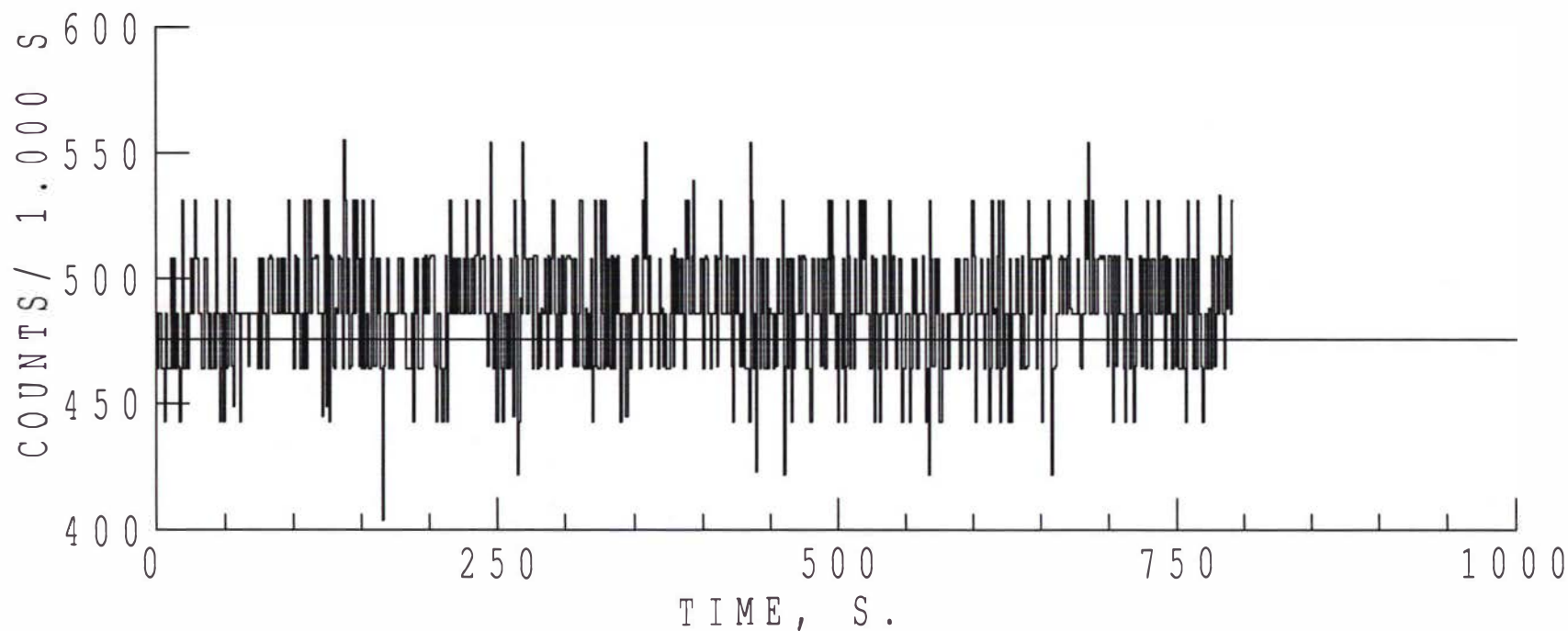


Kommers
UNTRIGGERED

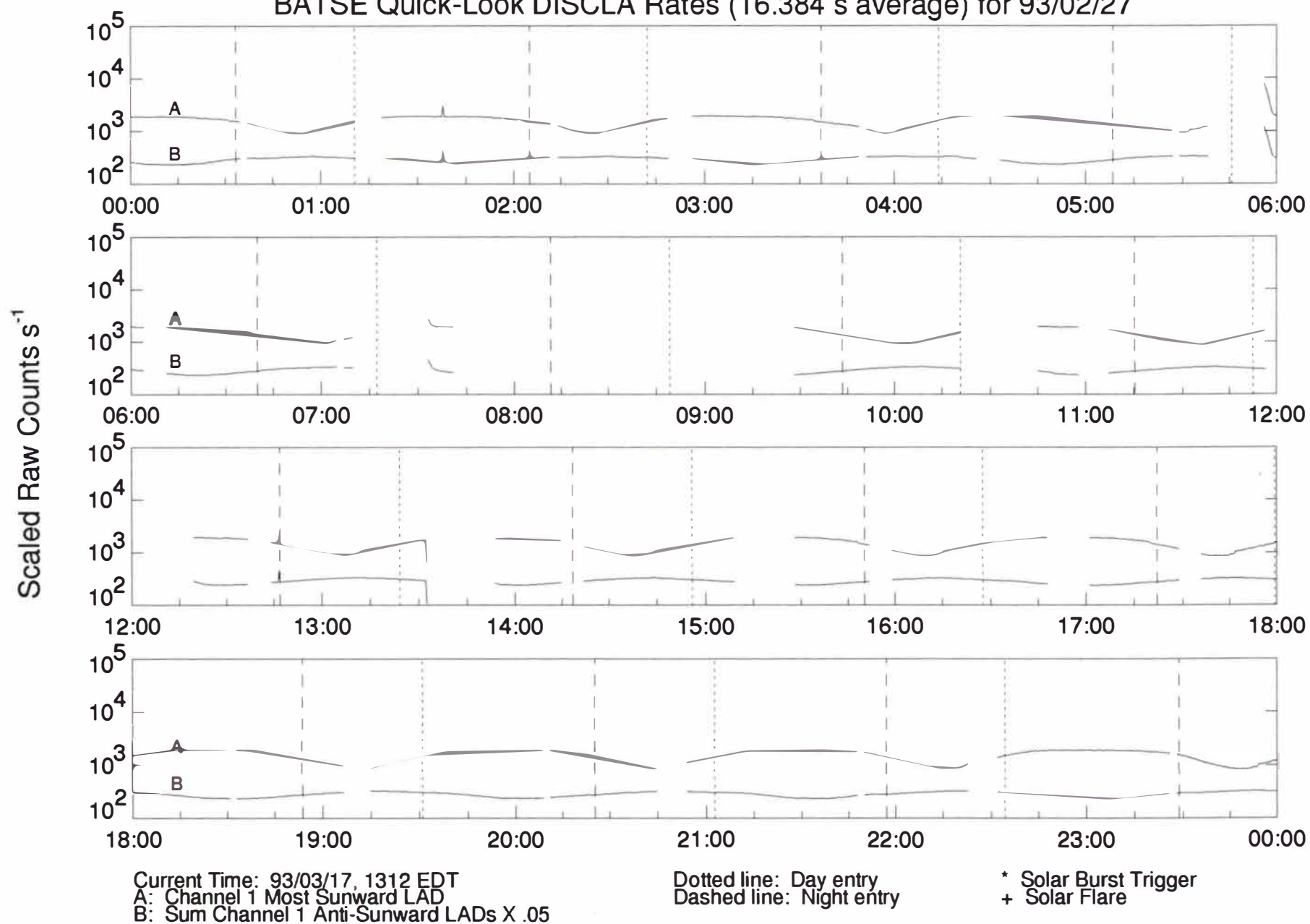
ULYSSES RT
27/ 2/93 72000.055 s
0.500 S INTERVALS REGROUPED BY 2
0 - 0 keV

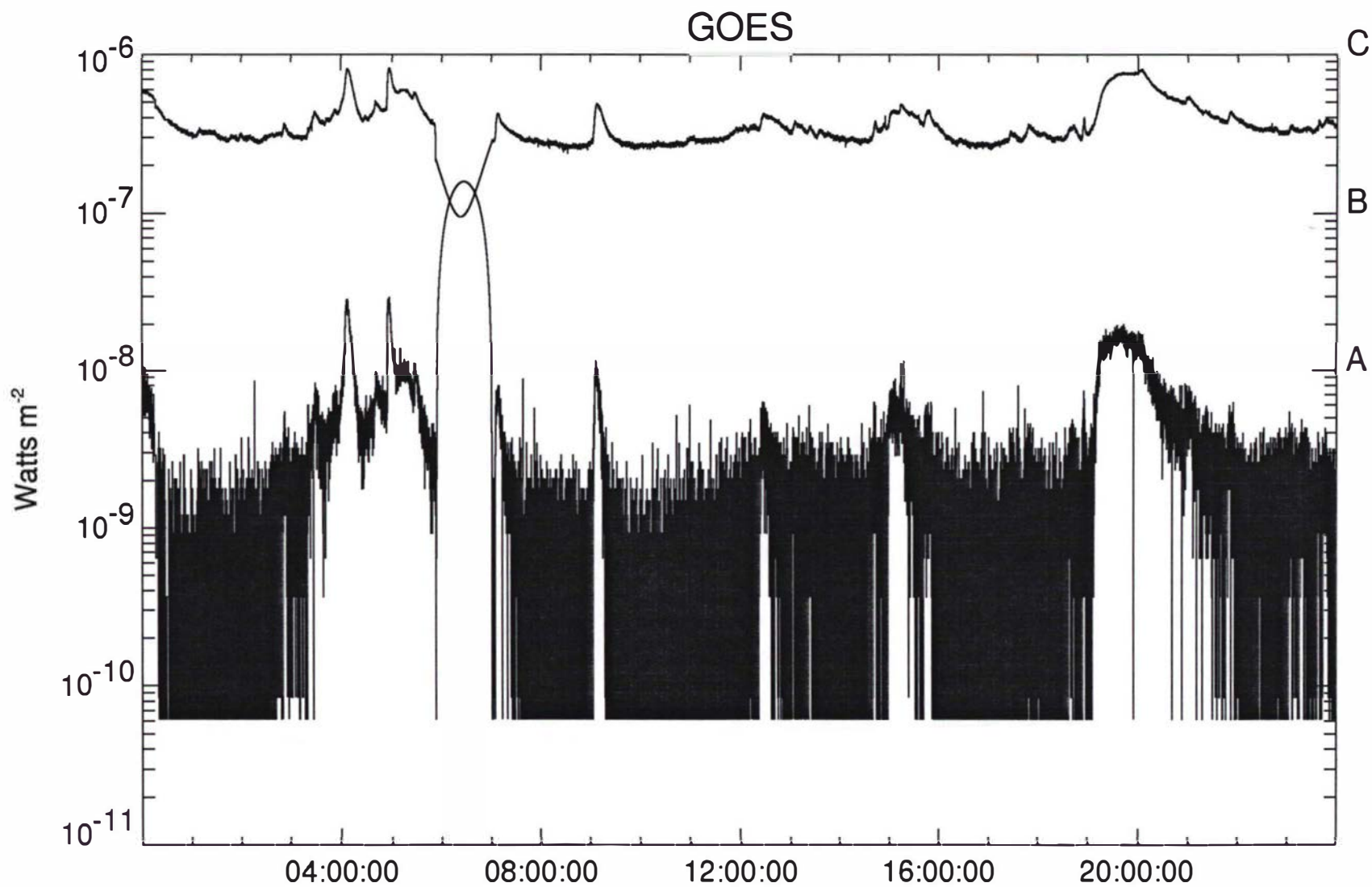
N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/27





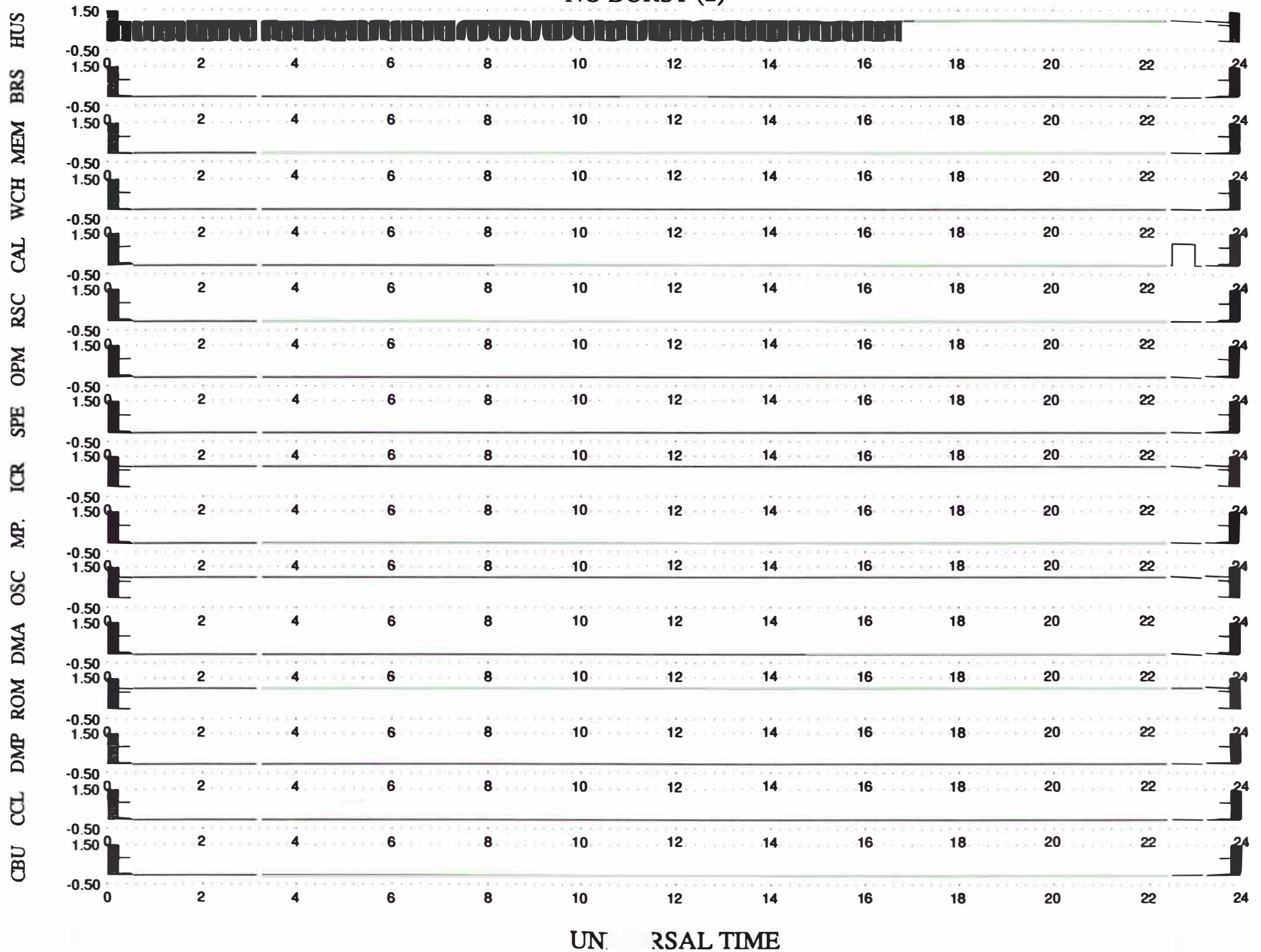
Data Start: 93/02/27, 0000:01

Plot created: 95/06/01, 1734

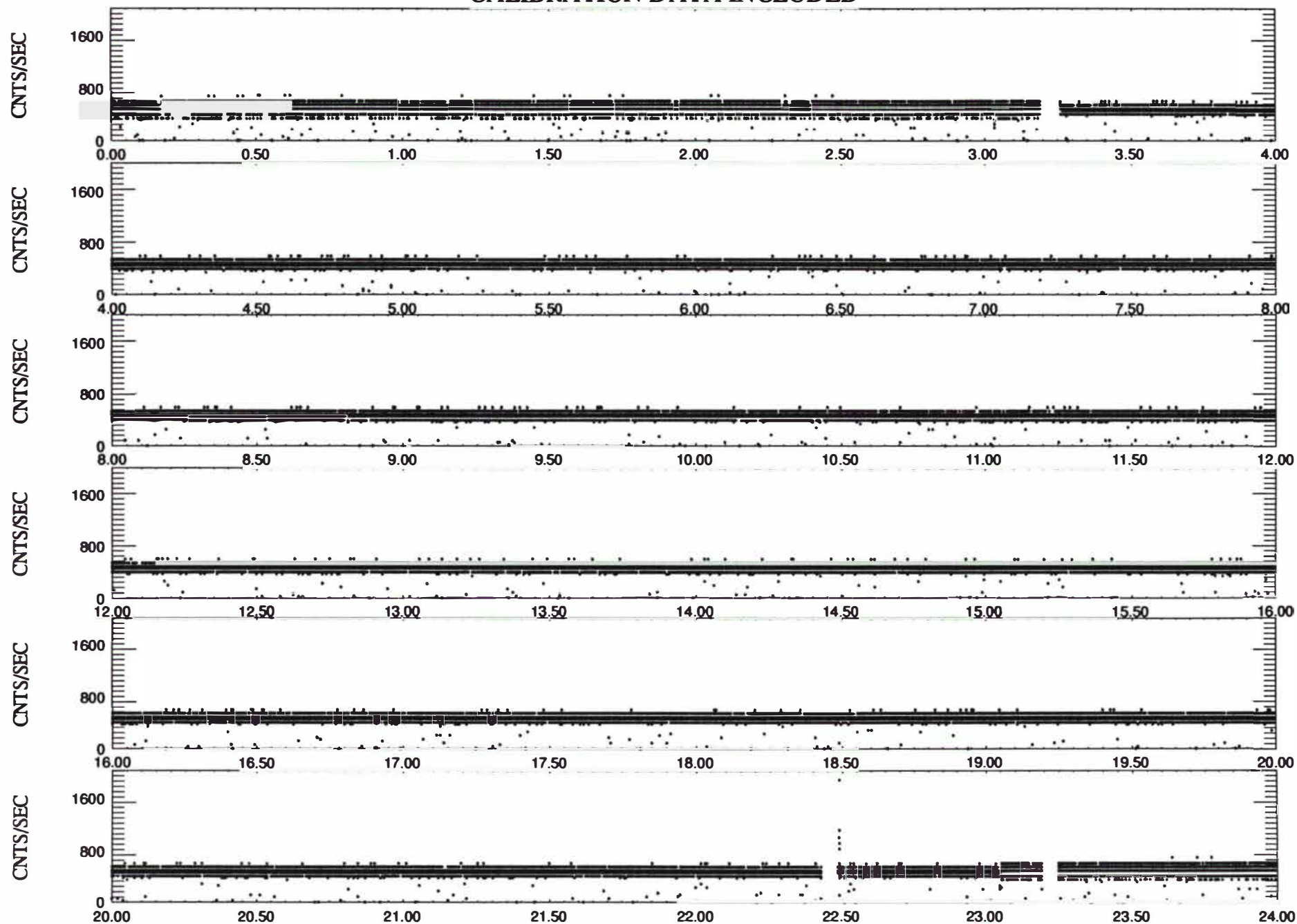
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

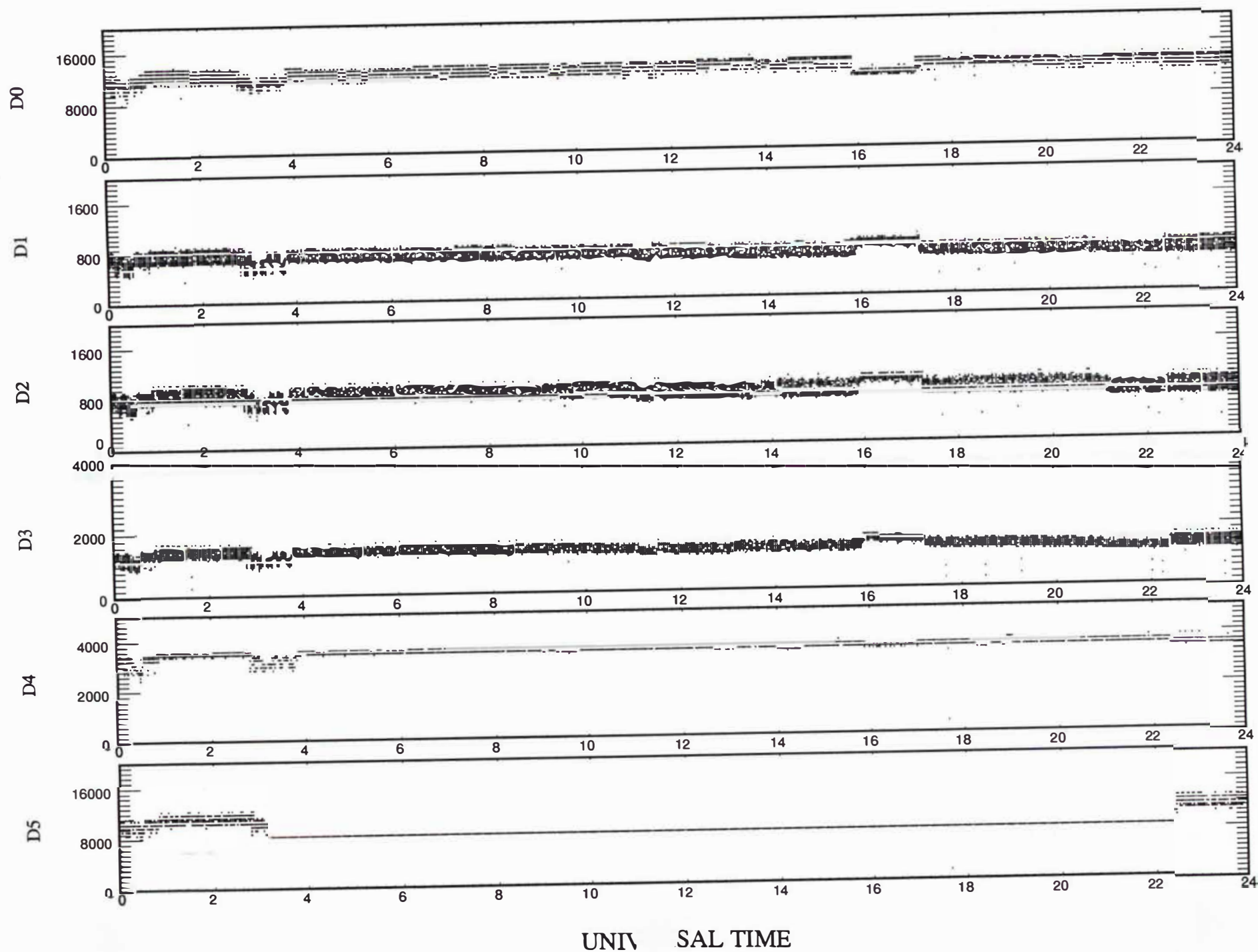
NO BURST (2)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



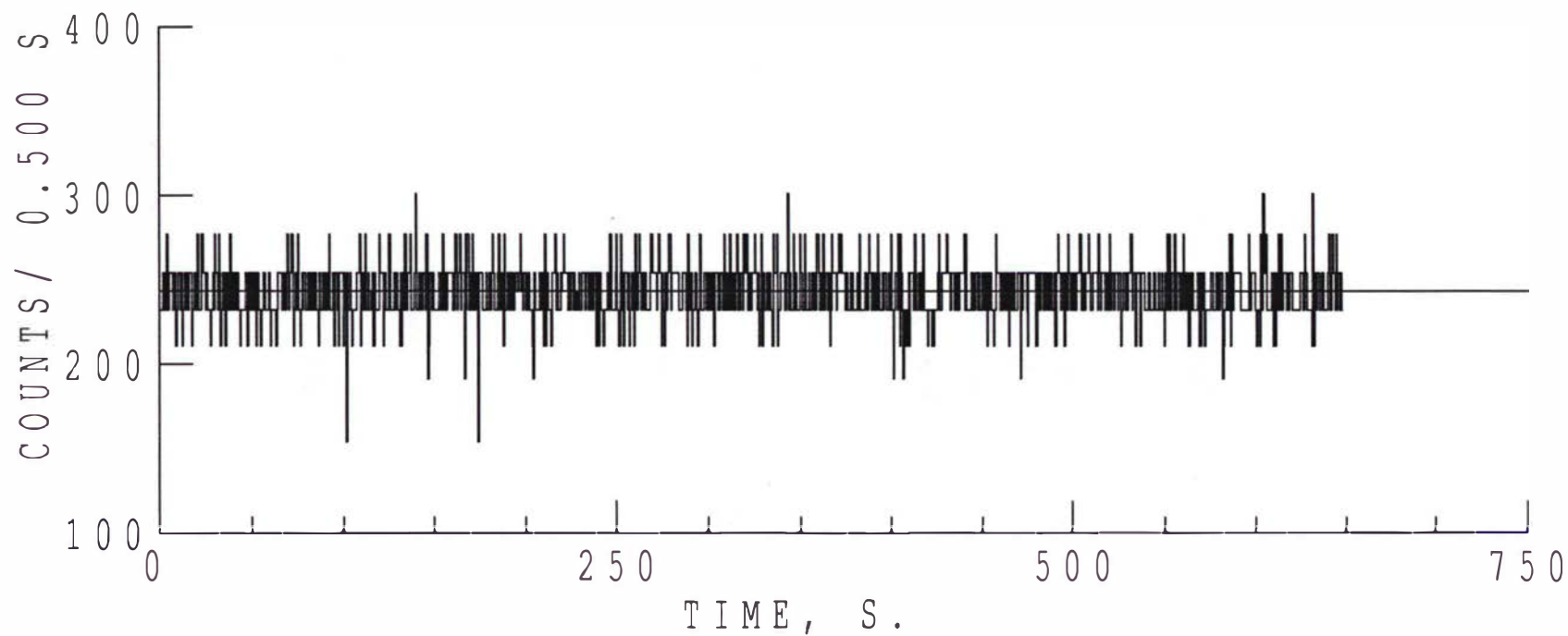
Lowmeyer
UNTRIGGERED

ULYSSES RT
28 / 2 / 93 74808.445 s
0 - 0 keV

21 / 5 / 97

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From MEEGAN@ssl.msfc.nasa.gov Mon Mar 1 14:10:48 1993
Date: Mon, 1 Mar 1993 16:11:24 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02209

TIME: TJD=9046 SECONDS=17244

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.

CATSEARCH PROGRAM

BATSE BURST # 2210
EVENT OF 1993 FEB 28 DAY OF YEAR= 59
EVENT CROSSING TIME AT BATSE : 29518. S. OR 08:11:57.5
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 89.700 -10.900
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 28/ 2/ 93 IS:
RA= 154.290 DEC= -14.628 DIST= 4.012 AU
BATSE-ULYSSES DISTANCE = 600195200. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=117.09 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -911.82 SECS.
CROSSING TIME AT ULYSSES IS 28606. S. OR 07:56:45.6 +/- 345.59 SECONDS

00

From MEEGAN@ssl.msfc.nasa.gov Mon Mar 1 14:14:21 1993
Date: Mon, 1 Mar 1993 16:15:28 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
To: jryan@unh.edu, GROBAD@ESTEC.BITNET, khurley@space6.ssl.berkeley.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02210

TIME: TJD=9046 SECONDS=29517

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 90. AZIMUTH= 77. ERROR= 12. DEGREES

COMMENTS:

WEAK, 0.1 SECOND BURST. NOT DETECTED ABOVE 300 KEV.

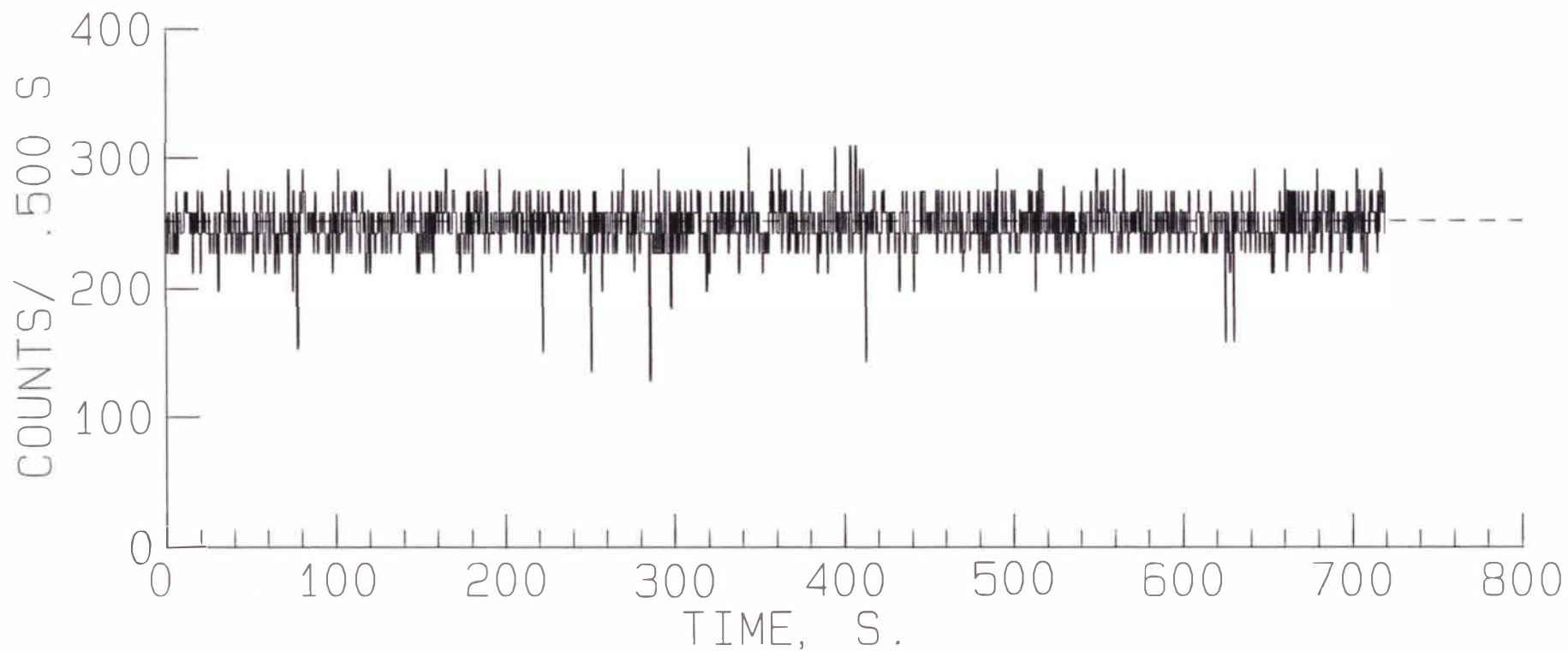
From MEEGAN@ssl.msfc.nasa.gov Mon Mar 1 14:24:11 1993
Date: Mon, 1 Mar 1993 16:25:18 -0600 (CST)
From: MEEGAN@ssl.msfc.nasa.gov
Subject: BATSE burst
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu",BATSE::KOUVELIOTOU
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2210	930228	9046	29517	6500	090	-11

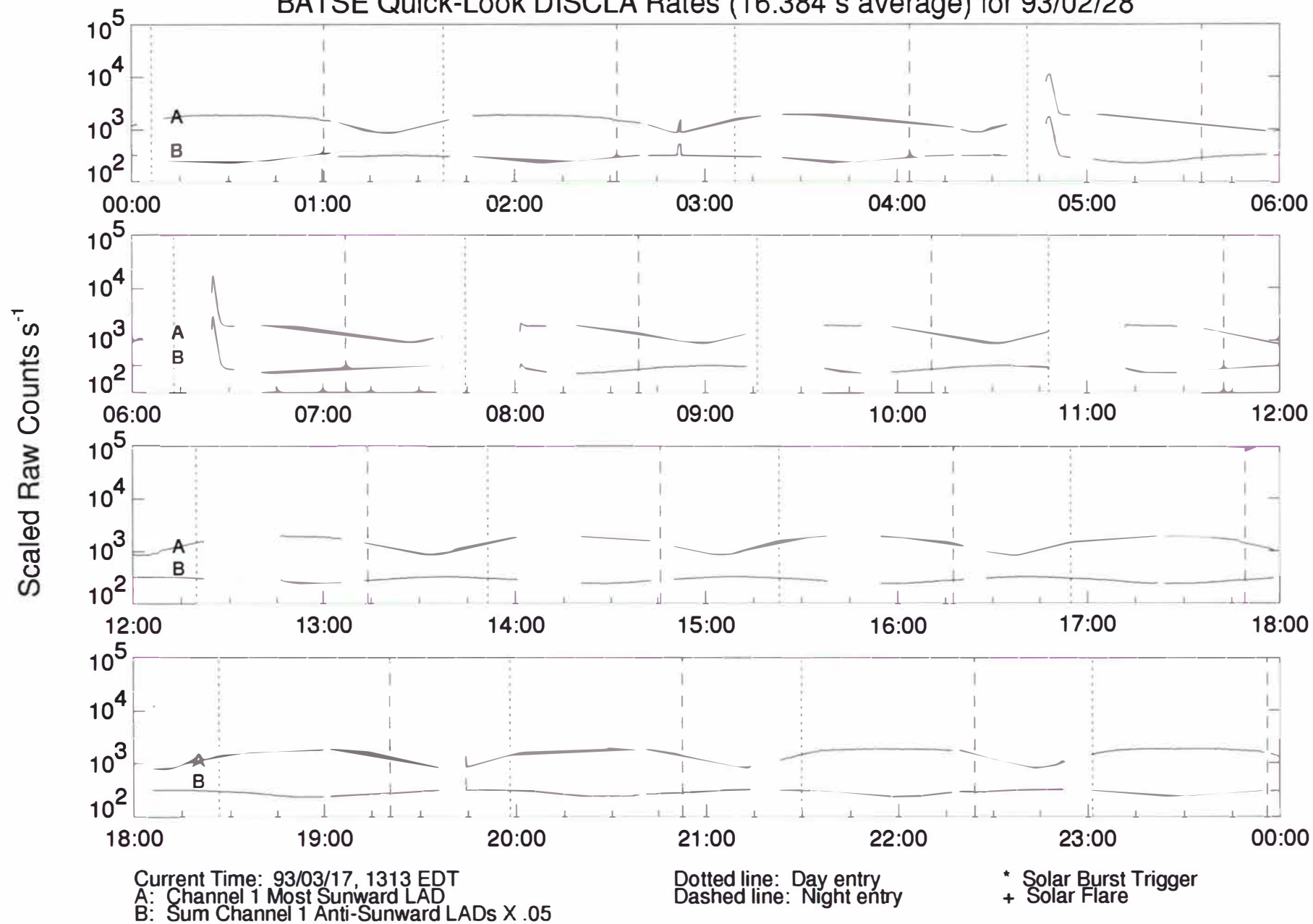
13/ 3/93

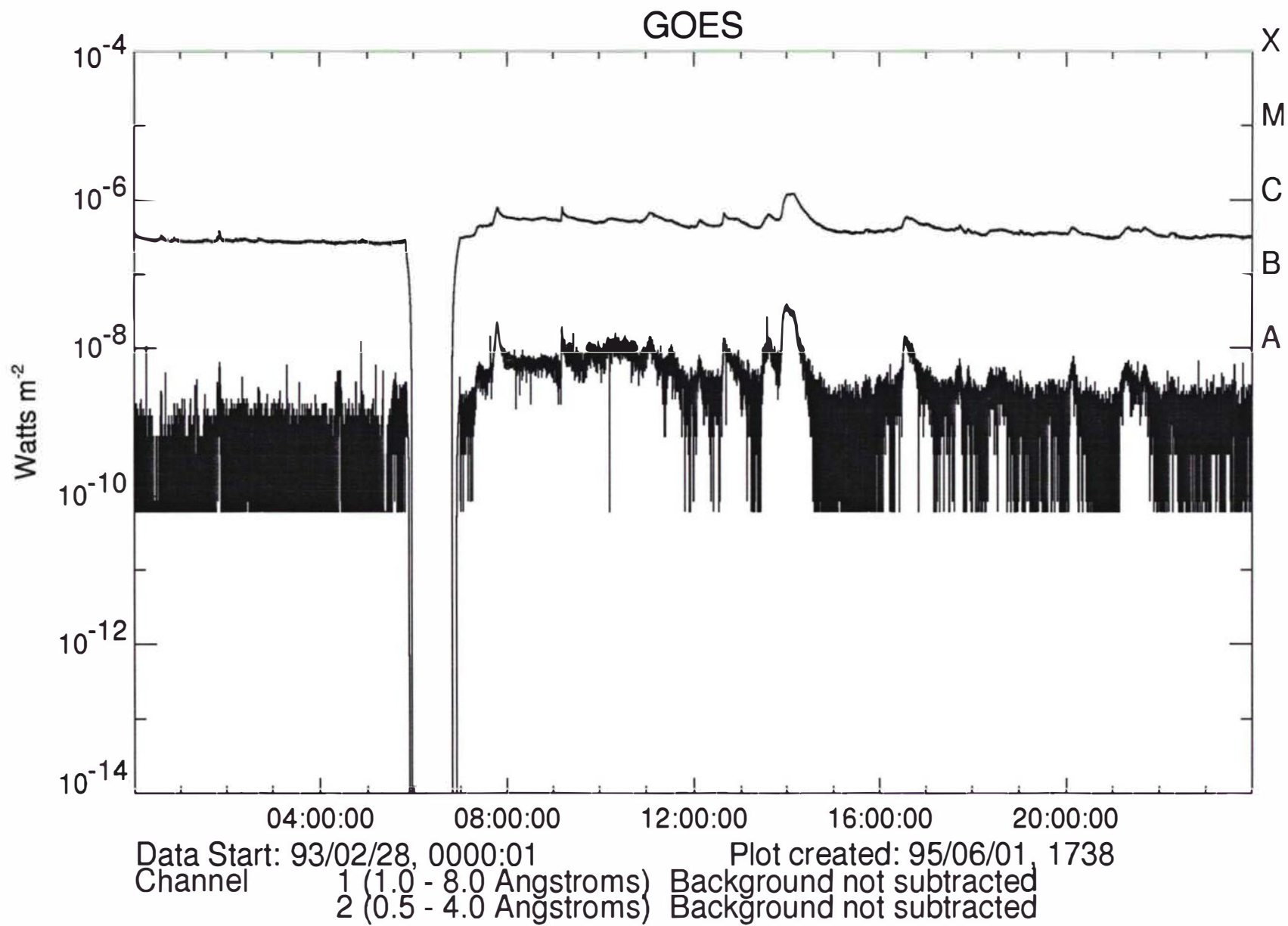
ULYSSES RT
28/ 2/93 28224.221 s
.250 S INTERVALS REGROUPED BY 2
0- 0 keV

N= 10 M= 1
>4.0 SIGMA FLUCTUATIONS

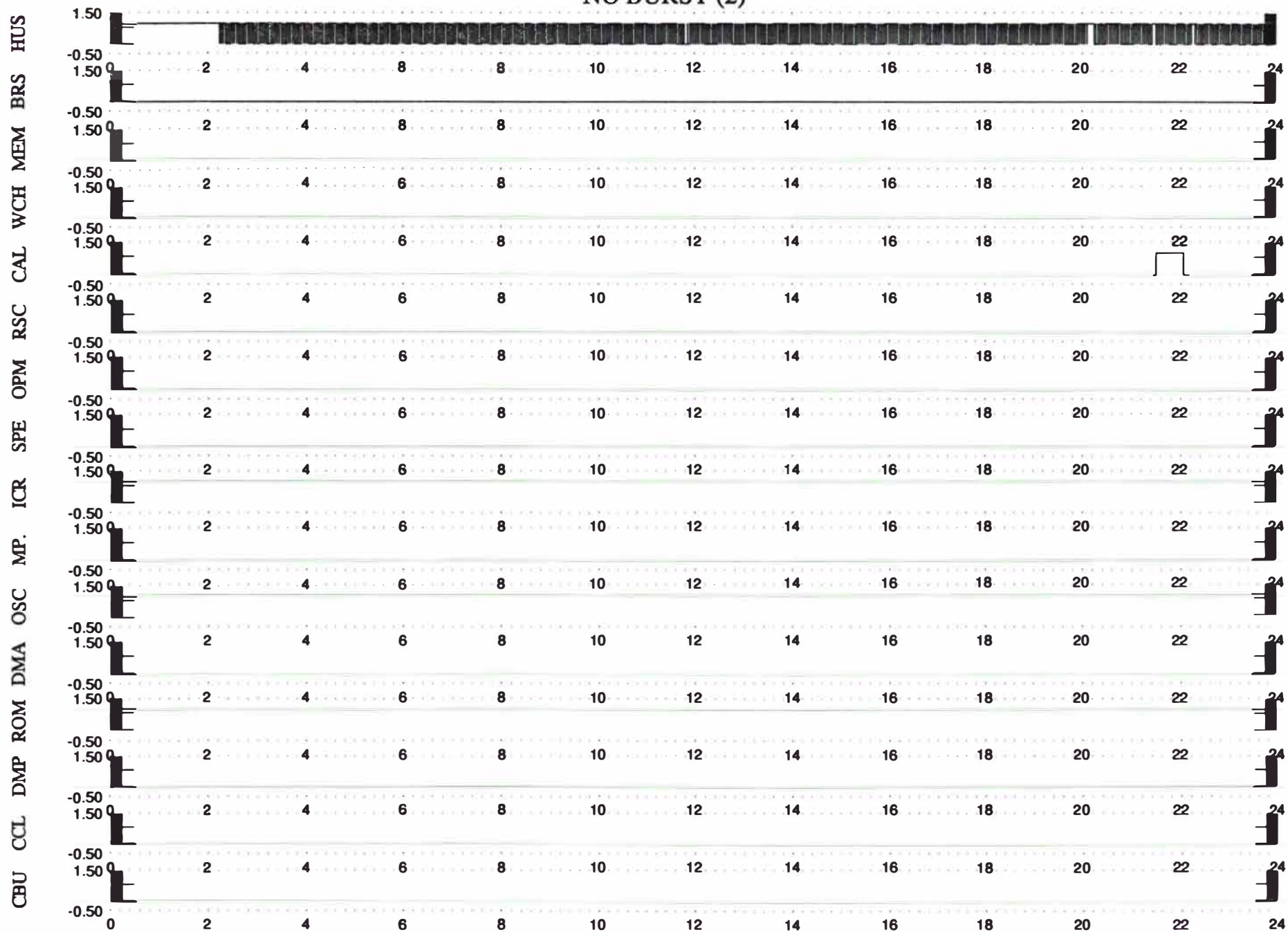


BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/02/28





NO BURST (2)



UNIVERSAL TIME

CALIBRATION DATA INCLUDED

