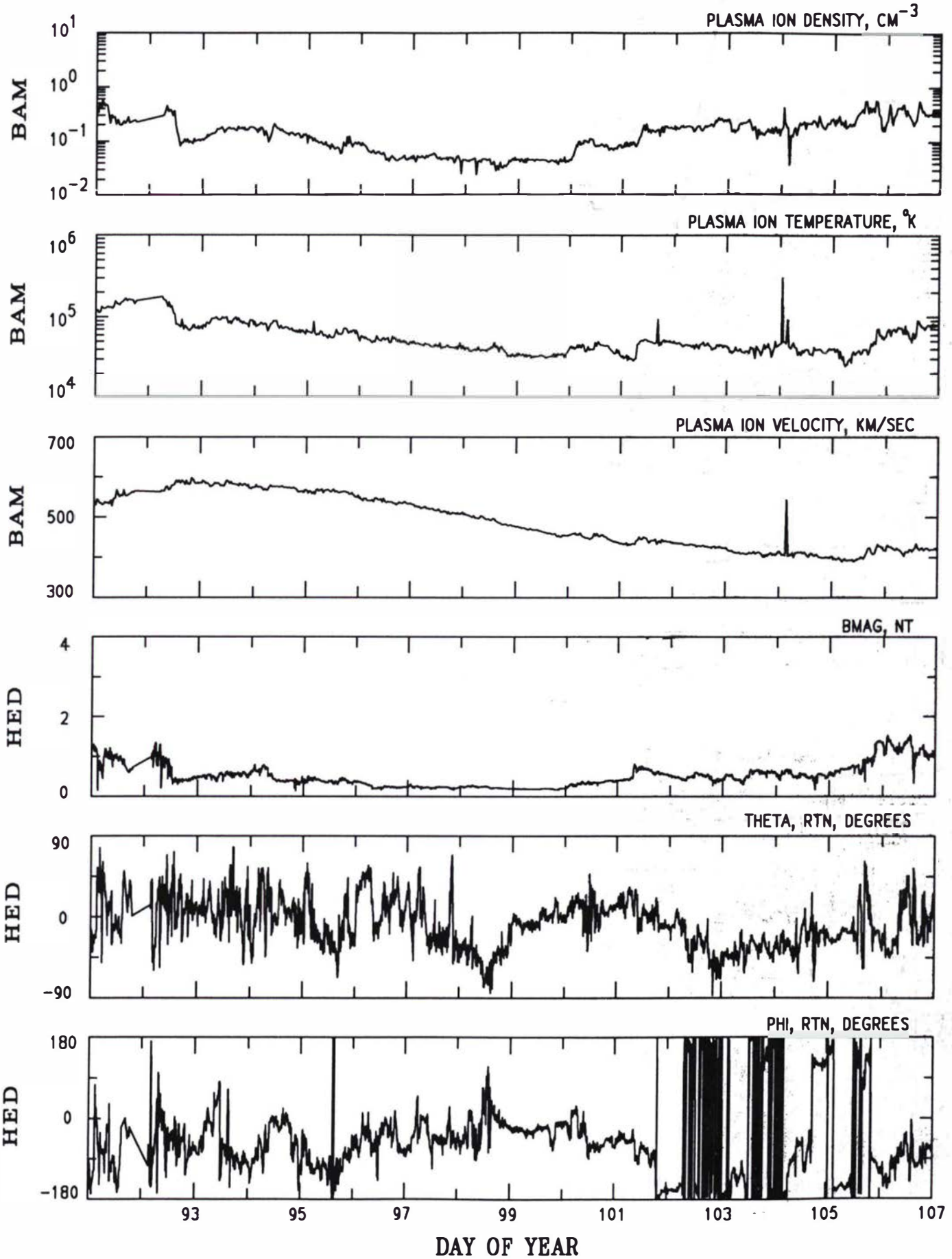
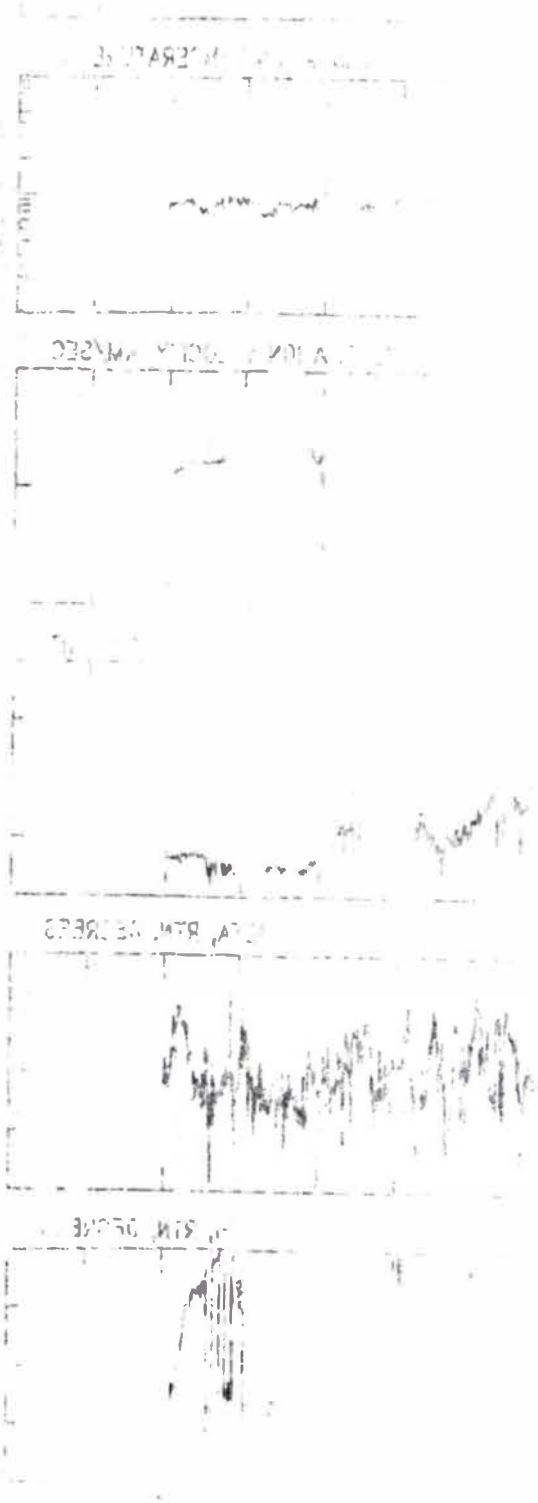
ULYSSES CDR – SOLAR WIND PLASMA AND MAGNETIC FIELD

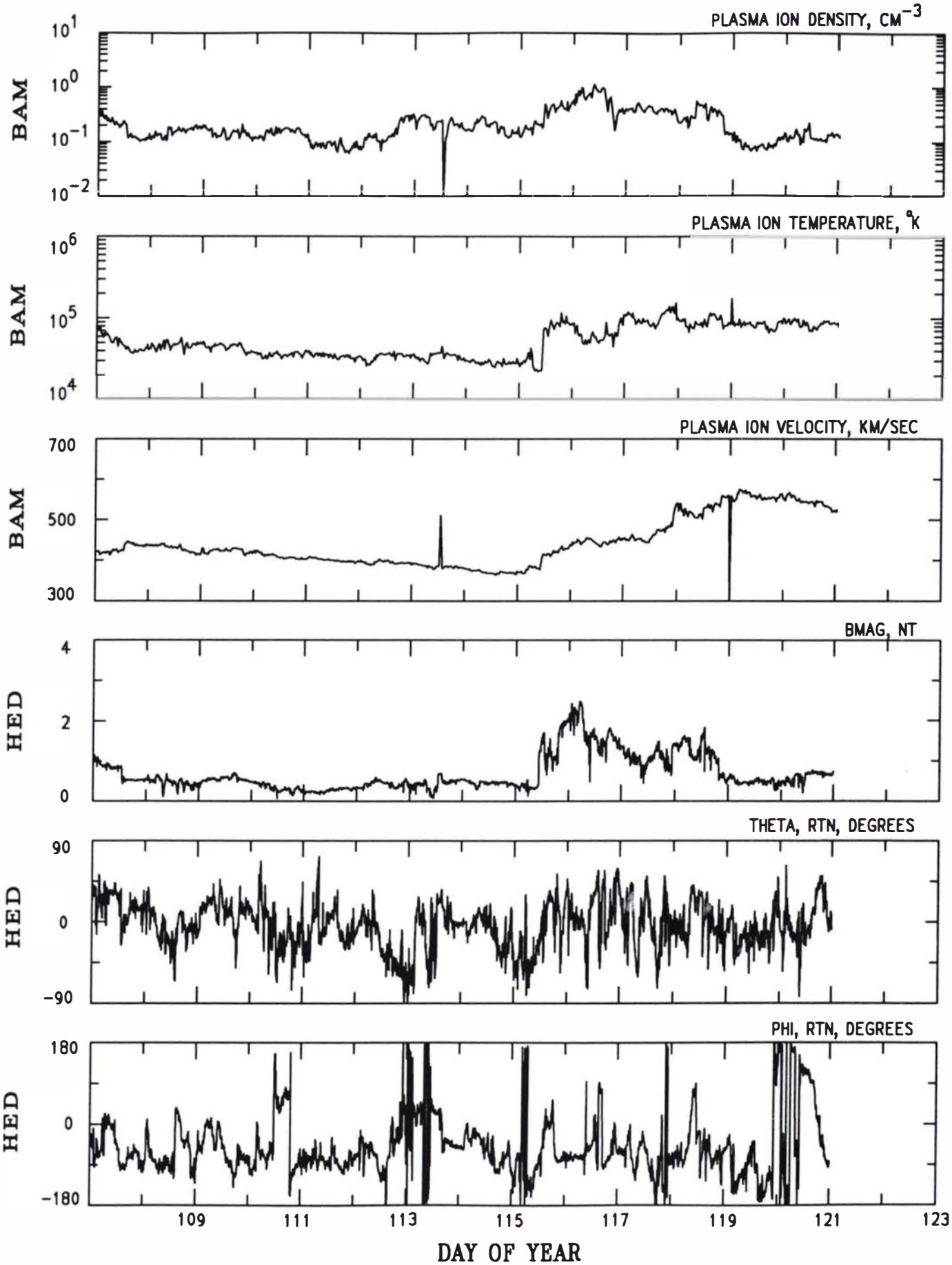
97 091 APR 1 00:00:00.000 – 97 107 APR 17 00:00:00.000





ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

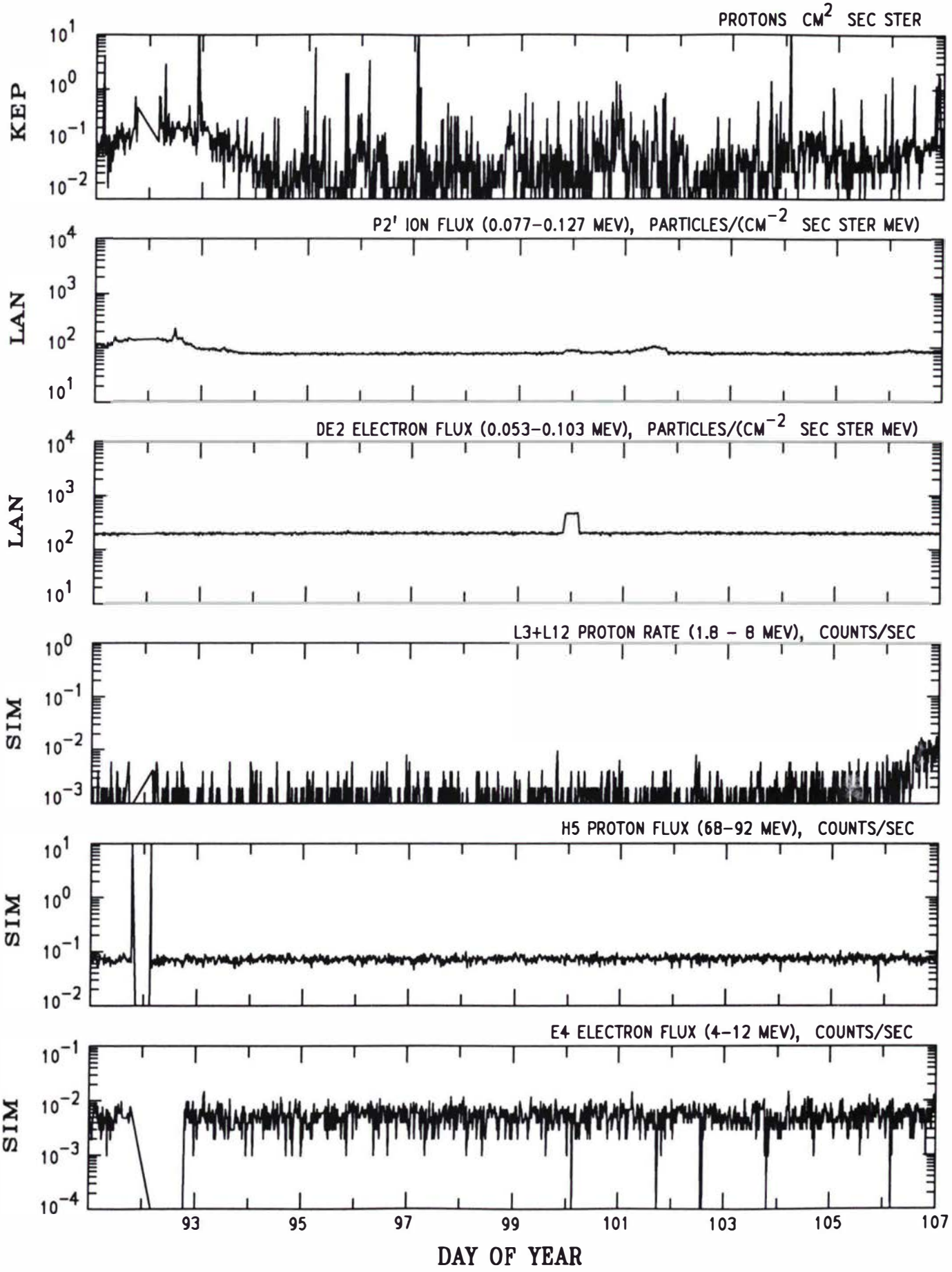
97 107 APR 17 00:00:00.000 - 97 123 MAY 3 00:00:00.000





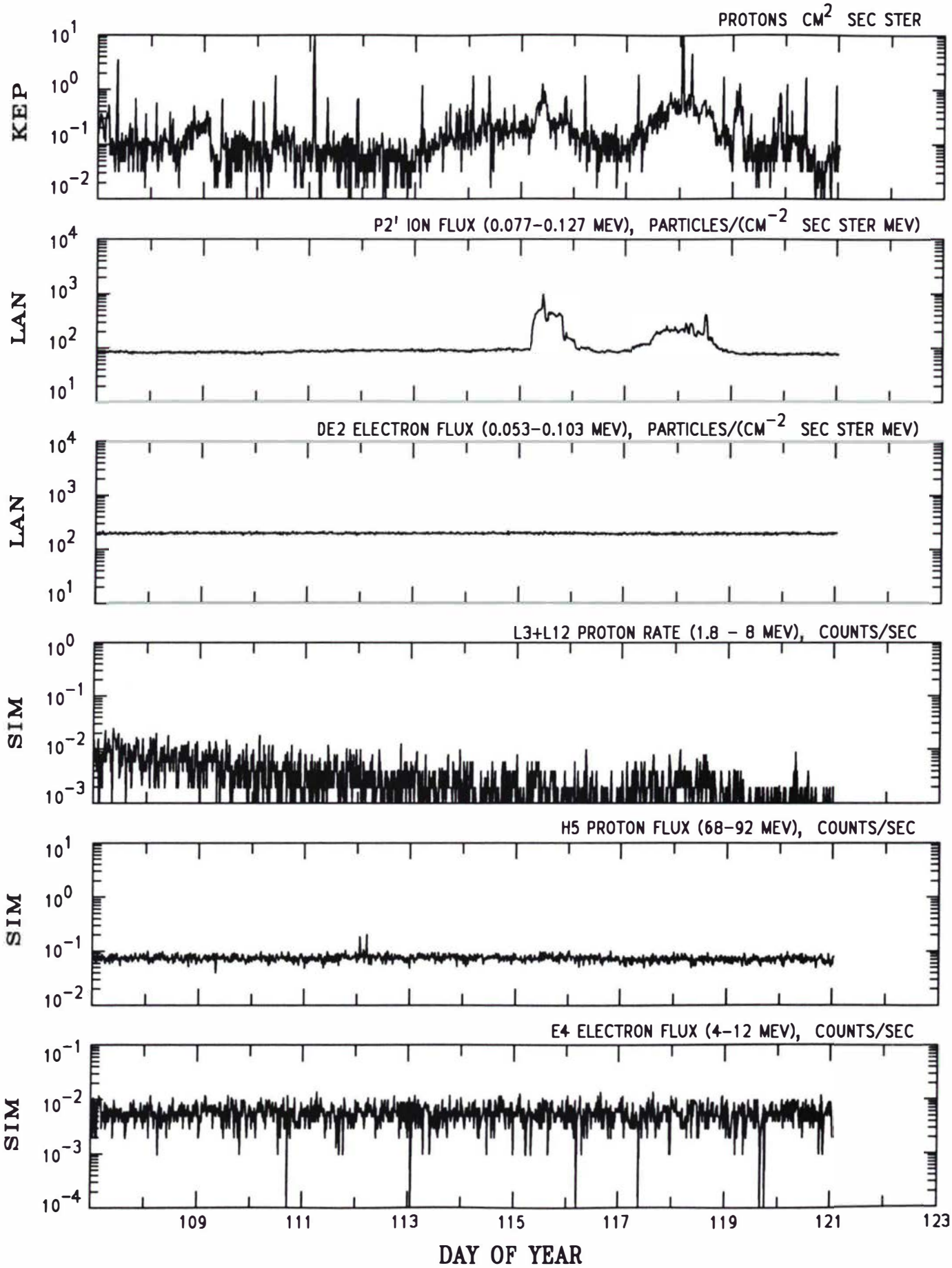
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

97 091 APR 1 00:00:00.000 - 97 107 APR 17 00:00:00.000



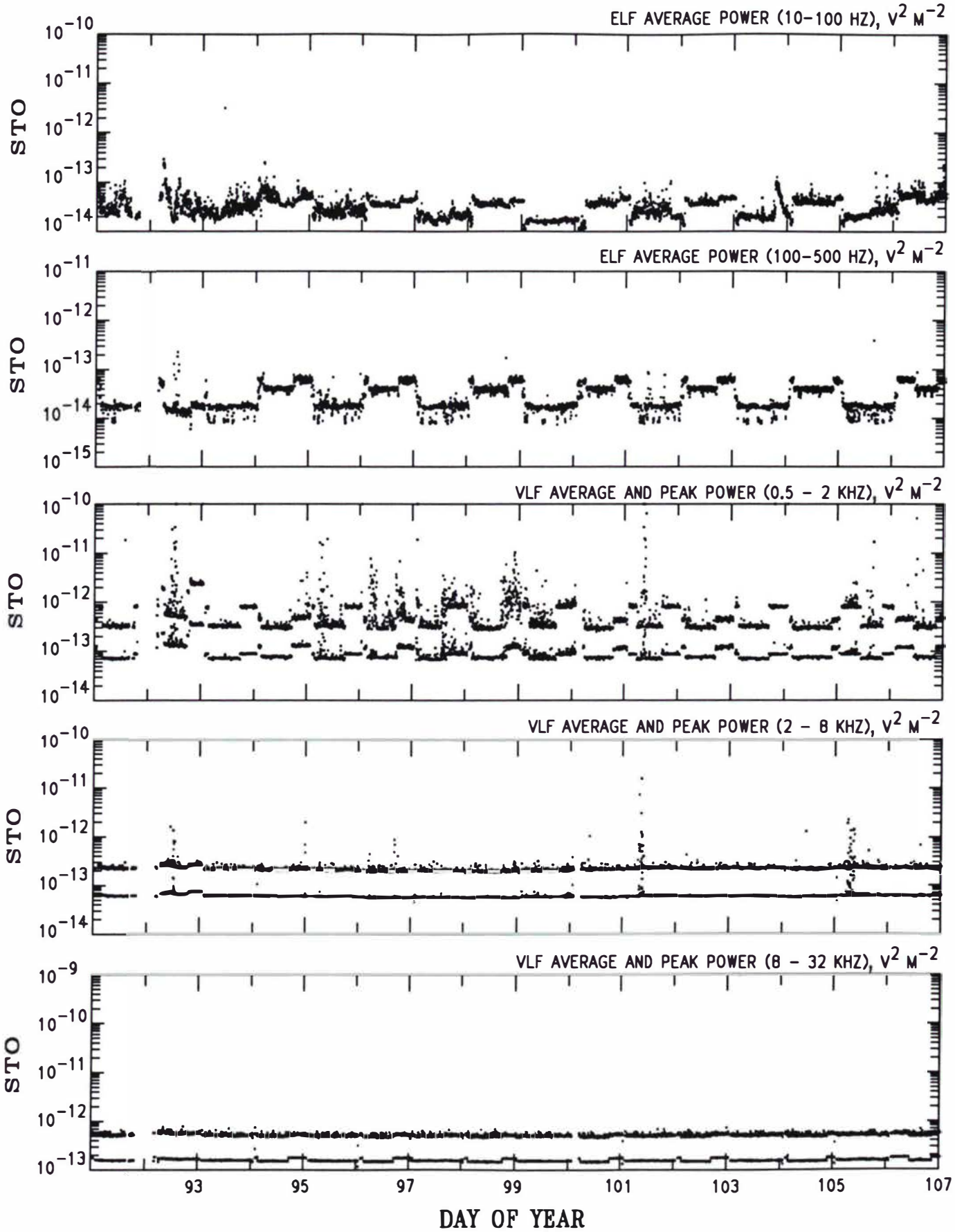
ULYSSES CDR – ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

97 107 APR 17 00:00:00.000 – 97 123 MAY 3 00:00:00.000



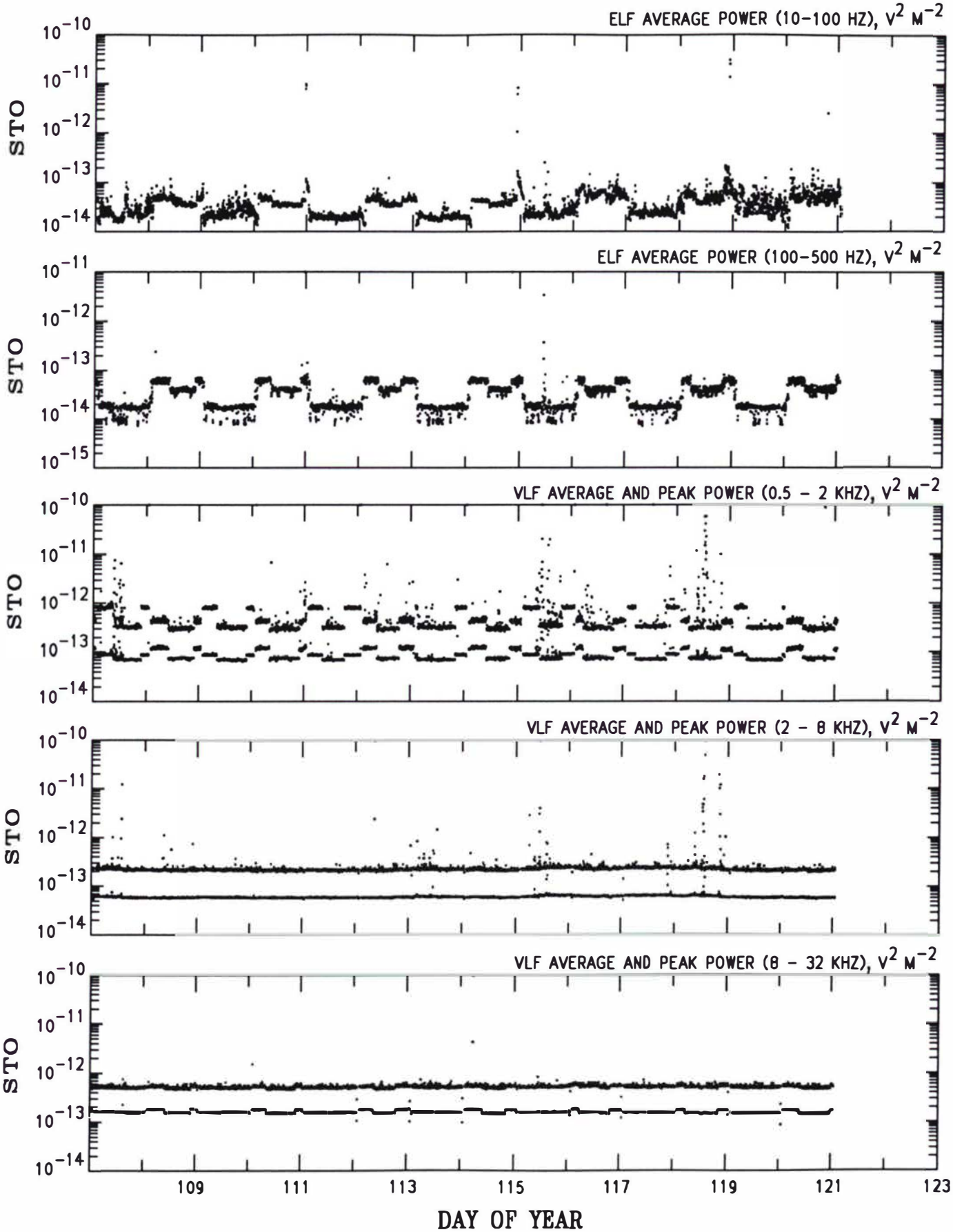
ULYSSES CDR - PLASMA WAVE

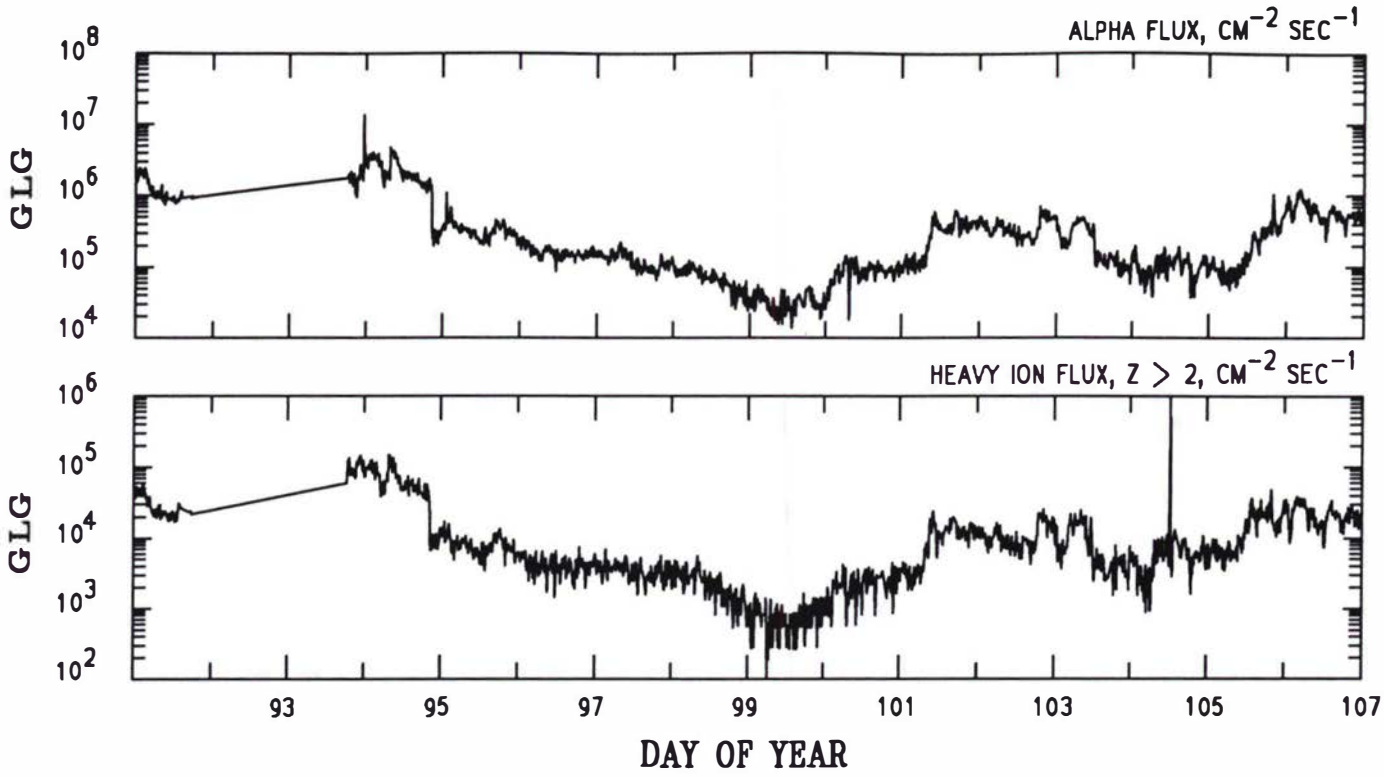
97 091 APR 1 00:00:00.000 - 97 107 APR 17 00:00:00.000



ULYSSES CDR - PLASMA WAVE

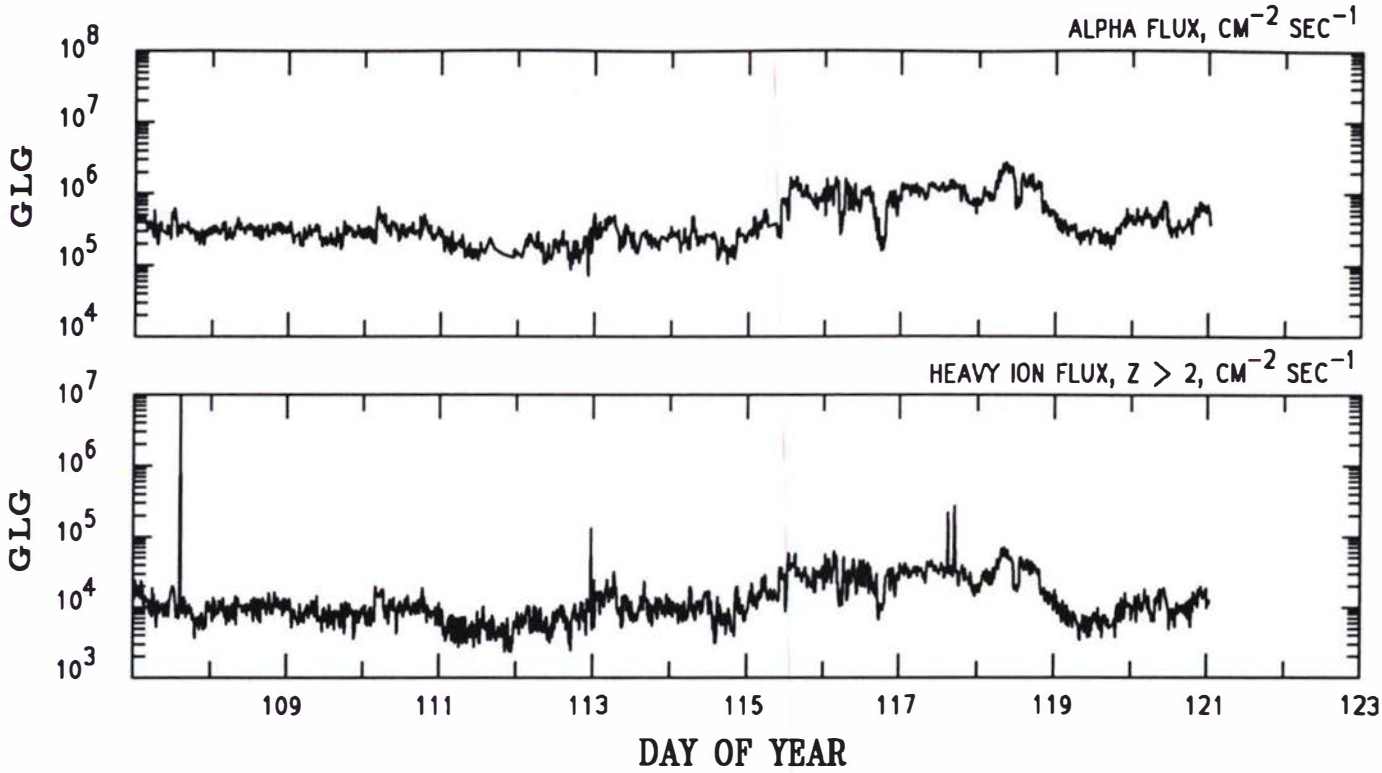
97 107 APR 17 00:00:00.000 - 97 123 MAY 3 00:00:00.000

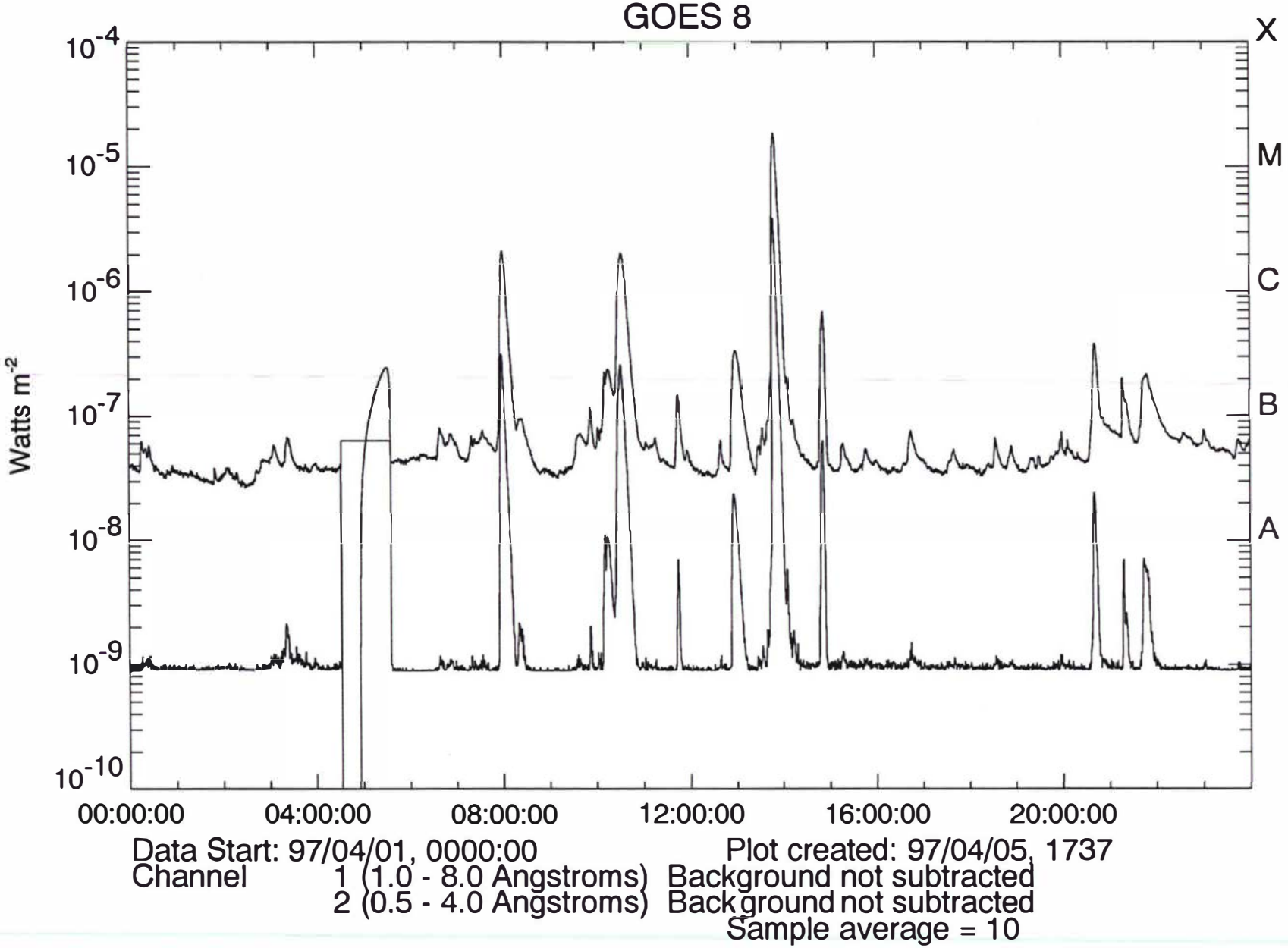


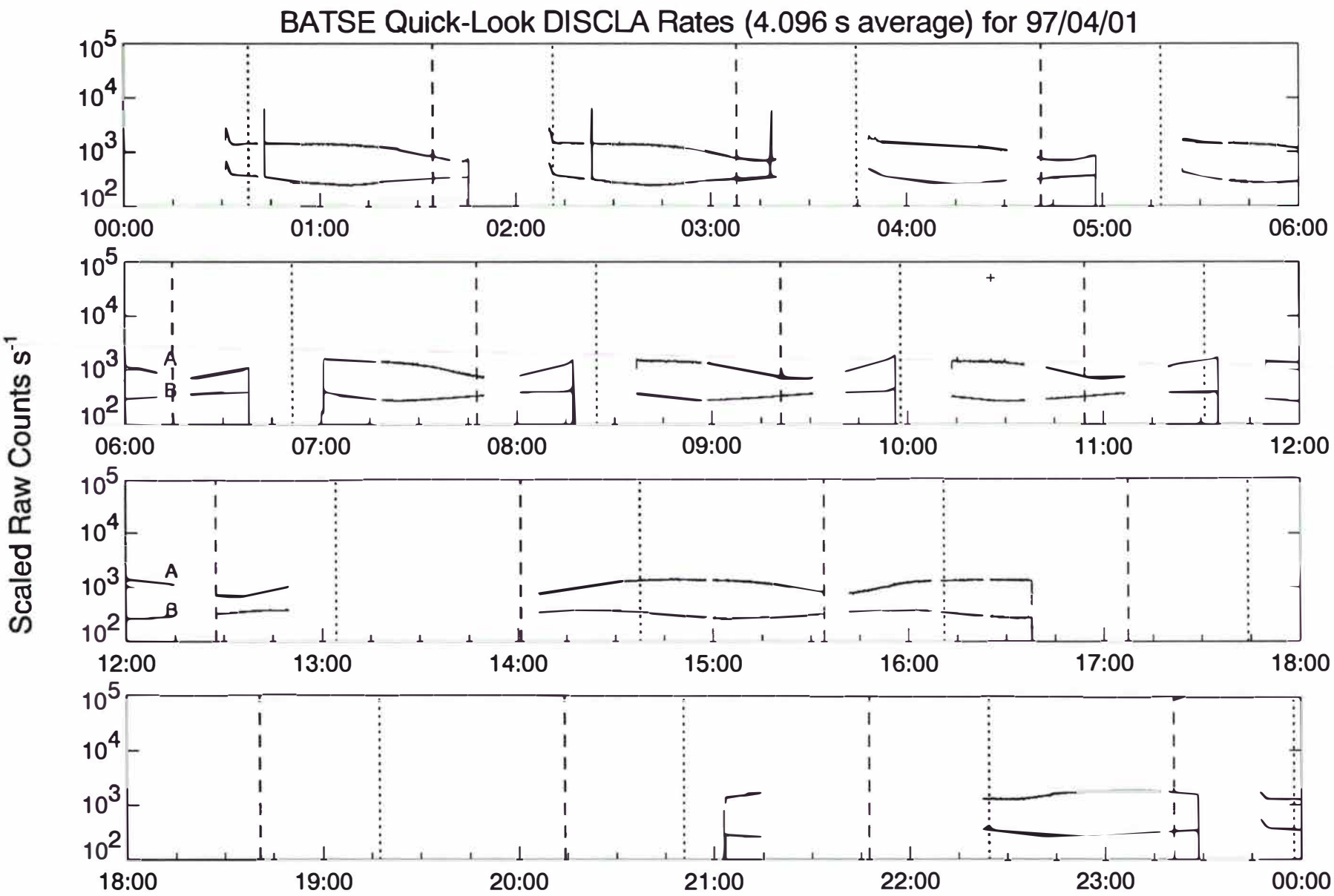

ULYSSES CDR – SOLAR WIND ION COMPOSITION
97 091 APR 1 00:00:00.000 – 97 107 APR 17 00:00:00.000
ALPHA FLUX, CM^{-2} SEC^{-1}
GLG
10^8
10^7
10^6
10^5
10^4
HEAVY ION FLUX, Z > 2, CM^{-2} SEC^{-1}
GLG
10^6
10^5
10^4
10^3
10^2
93
95
97
99
101
103
105
107
DAY OF YEAR

ULYSSES CDR – SOLAR WIND ION COMPOSITION

97 107 APR 17 00:00:00.000 – 97 123 MAY 3 00:00:00.000

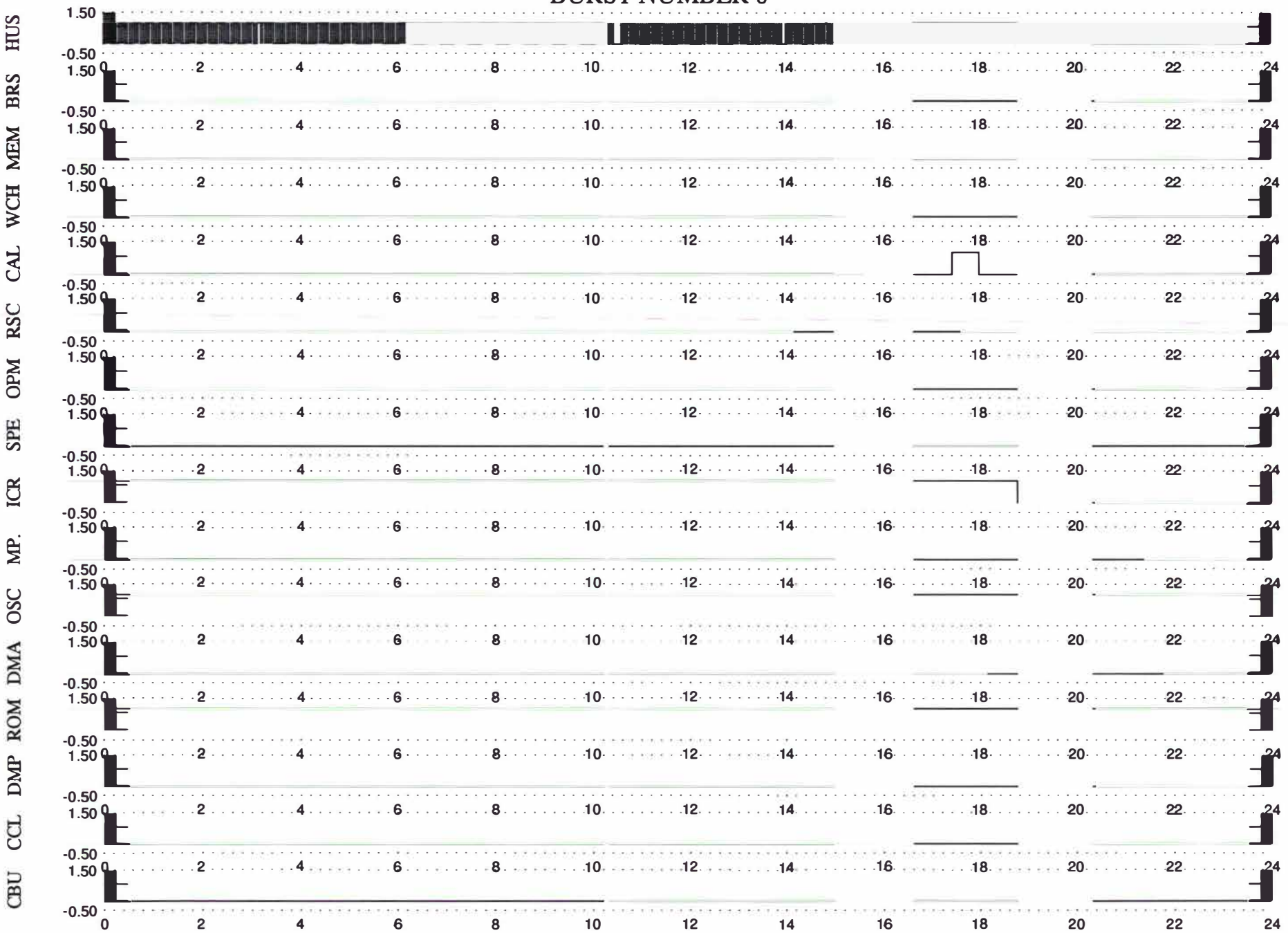



GOES 8
Watts m-2
10-4
10-5
10-6
10-7
10-8
10-9
10-10
X
M
C
B
A
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/01, 0000:00
Plot created: 97/04/05, 1737
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/01
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
00:00
01:00
02:00
03:00
04:00
05:00
06:00
A
B
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/06, 0830 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 91, year 1997 to day 91, year 1997 7/22/97

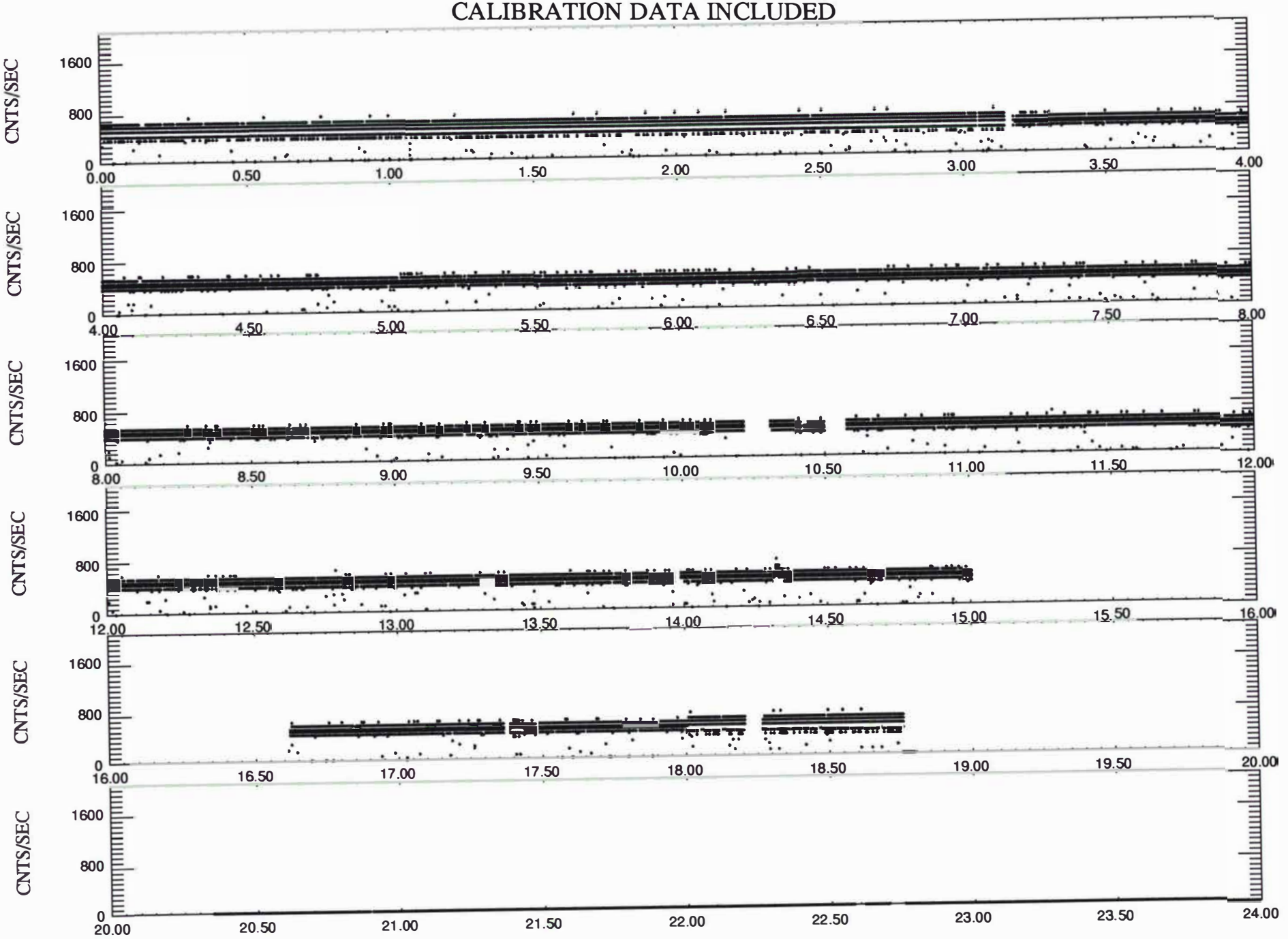
BURST NUMBER 0



UNIV AL TIME

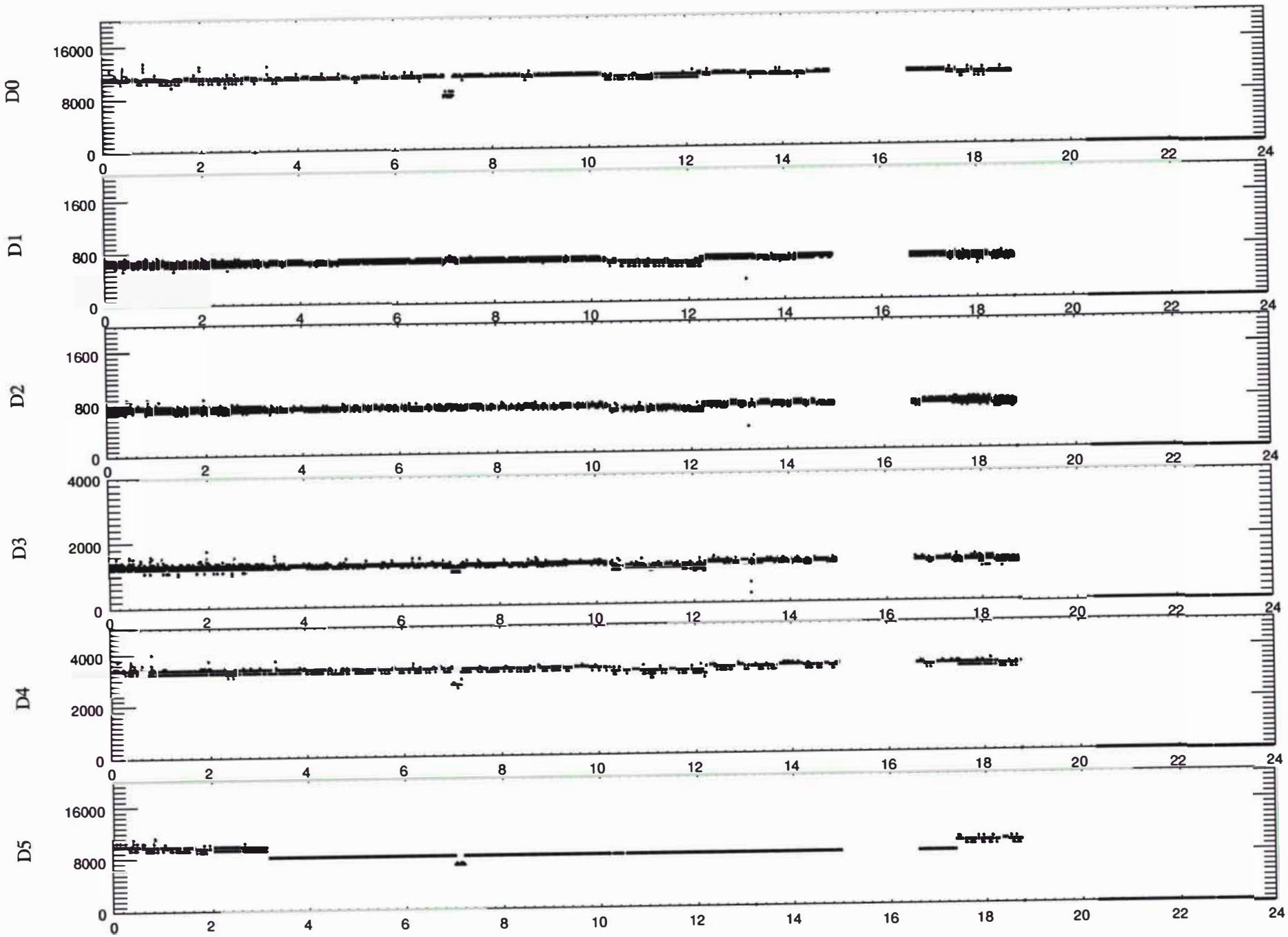
HUS 2A, MODE 1, NOT AVERAGED EDR day 91, year 1997 to day 91, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 91, year 1997 to day 91, year 1997 7/22/97



From RICHARDSON@ssl.msfc.nasa.gov Mon Apr 7 11:34 PDT 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA21155; Mon, 7 Apr 1997 11:34:23 -0700
From: RICHARDSON@ssl.msfc.nasa.gov
Date: Mon, 7 Apr 1997 13:34:12 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970407133412.2021fd54@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6151
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6151
EVENT OF 1997 APR 2 DAY OF YEAR= 92
EVENT CROSSING TIME AT BATSE : 6374. S. OR 01:46:14.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 310.000 34.000
BATSE PEAK COUNTING RATE: 5500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 2/ 4/ 97 IS:
RA= 155.894 DEC= 35.821 DIST= 4.293 AU
BATSE-ULYSSES DISTANCE = 642172484. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 73.89 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 594.36 SECS.
CROSSING TIME AT ULYSSES IS 6968. S. OR 01:56:08 +/- 416.32 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 2/ 4/ 97 IS:
RA= 173.007 DEC= 6.544 DIST= 0.675 AU
MARS-BATSE DISTANCE = 101028784. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 57.41 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 181.50 SECS.
CROSSING TIME AT MARS IS 6555. S. OR 01:49:15 +/- 52.05 SECONDS

BATSE BURST TRIGGER

NO.: 6151

TIME: TJD=0540 SECONDS=6374

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

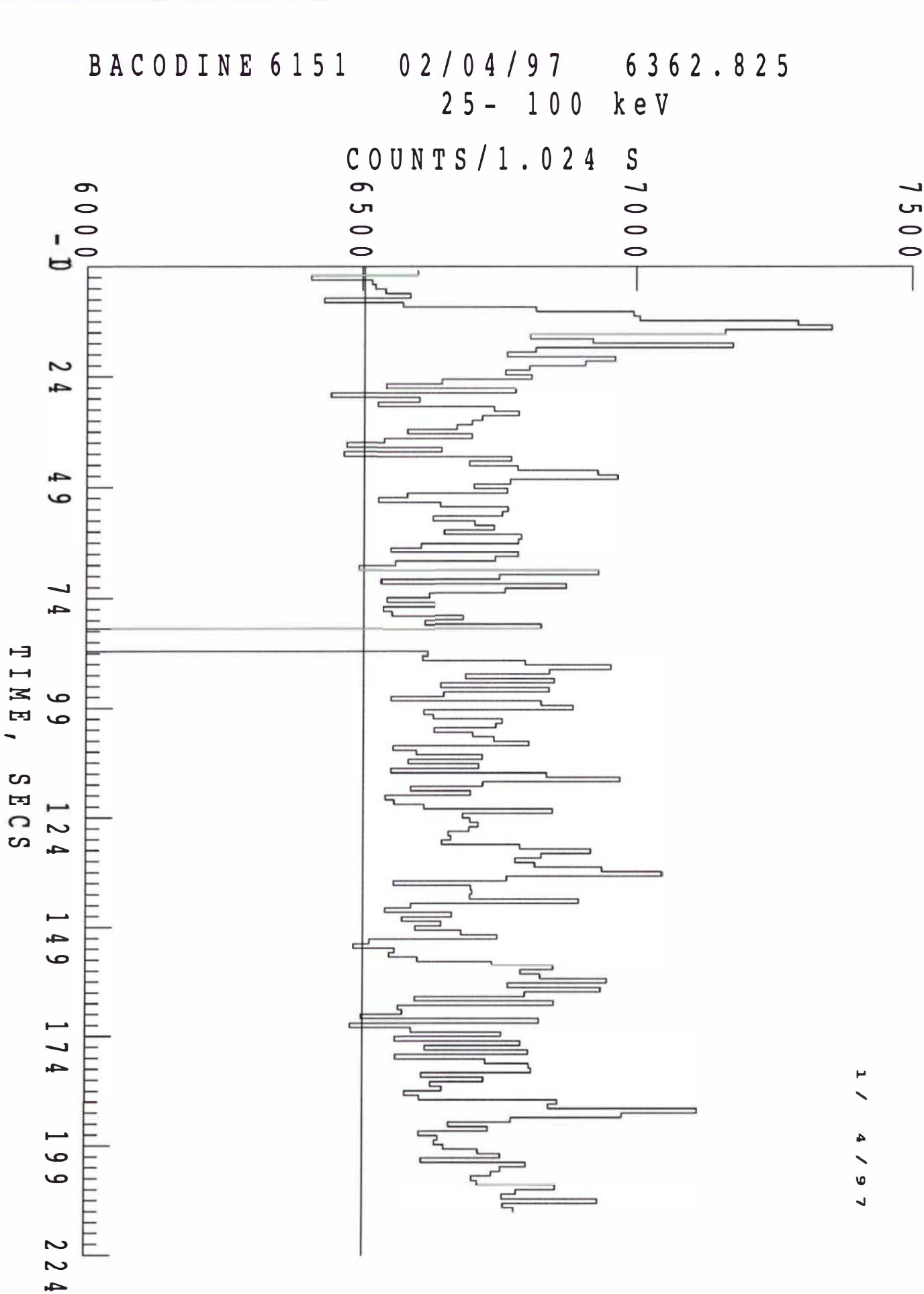
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=118.3 AZIMUTH=310.5 ERROR=3.3 DEGREES

COMMENTS:
GRB. SPIKEY, DUR.~20SEC. VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6151	970402	10540	06374	5500	310	+34	20


BACODINE 6151 02/04/97 6362.825
25- 100 keV
COUNTS/1.024 S
6000
6500
7000
7500
-D
24
49
74
99
124
149
174
199
224
TIME, SECS
11/ 4/97

BATSE# 6151

ULYSSES RT 7/ 4/97

2/ 4/97 6552.118 s

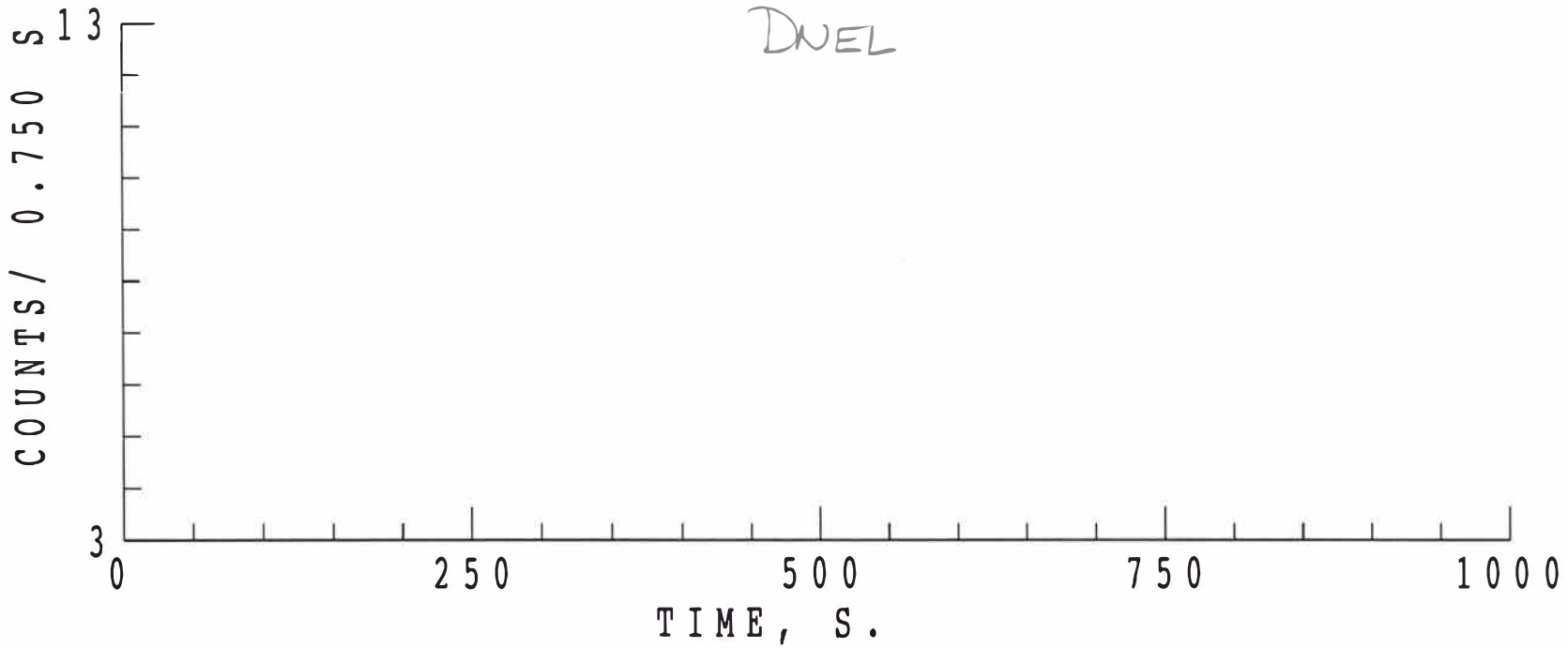
0.250 S INTERVALS REGROUPED BY 3

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

DUEL



From RICHARDSON@ssl.msfc.nasa.gov Fri Apr 4 13:05 PST 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id NAA06835; Fri, 4 Apr 1997 13:05:48 -0800
Date: Fri, 4 Apr 1997 15:05:48 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970404150548.210030bf@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6152
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6152
EVENT OF 1997 APR 2 DAY OF YEAR= 92
EVENT CROSSING TIME AT BATSE : 29991. S. OR 08:19:51.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 9.000 42.000
BATSE PEAK COUNTING RATE: 4000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 2/ 4/ 97 IS:
RA= 155.835 DEC= 35.801 DIST= 4.296 AU
BATSE-ULYSSES DISTANCE = 642734816. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 83.50 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 242.55 SECS.
CROSSING TIME AT ULYSSES IS 30234. S. OR 08:23:53 +/- 423.51 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 2/ 4/ 97 IS:
RA= 173.007 DEC= 6.544 DIST= 0.675 AU
MARS-BATSE DISTANCE = 101028784. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 50.69 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 213.48 SECS.
CROSSING TIME AT MARS IS 30204. S. OR 08:23:24 +/- 48.51 SECONDS

BATSE BURST TRIGGER

NO.: 6152

TIME: TJD=0540 SECONDS=29991

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=78.3 AZIMUTH=42.1 ERROR=3.5 DEGREES

COMMENTS:
GRB. PULSE WITH EXTENDED EMISSION. DUR.~75SEC. NOT VISIBLE ABOVE 300KEV.

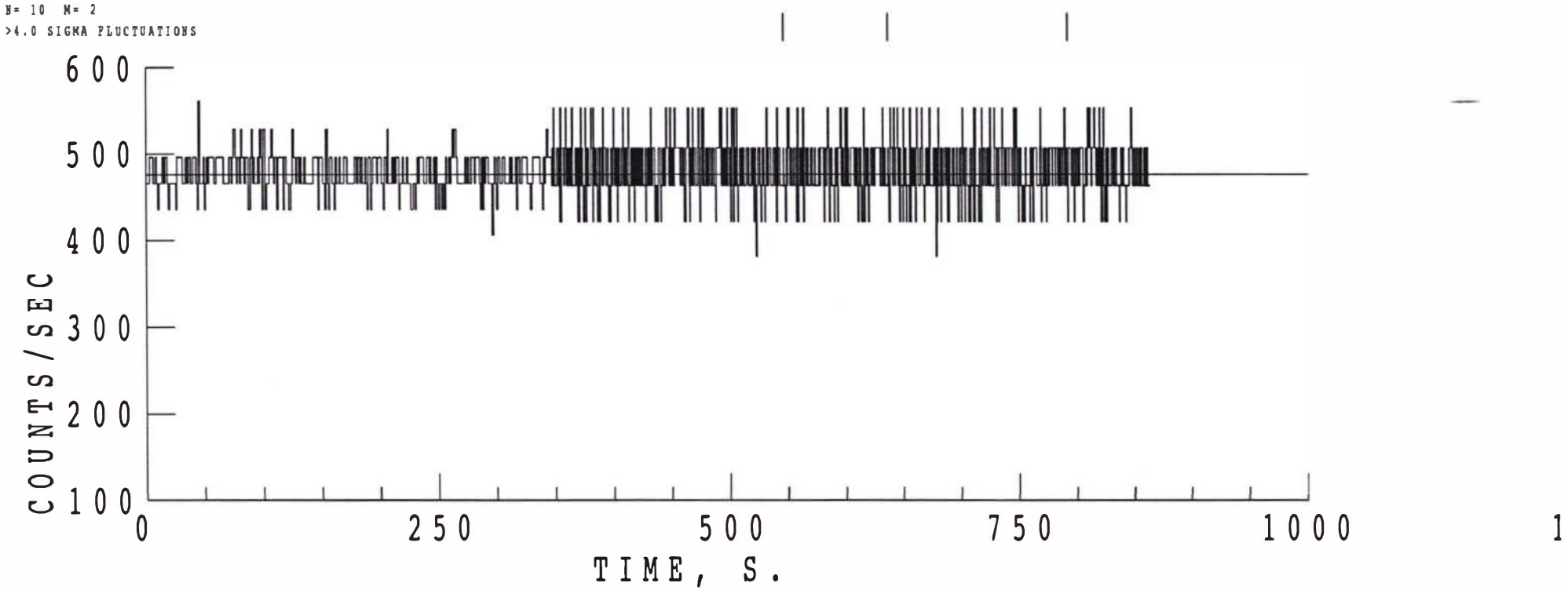
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6152	970402	10540	29991	4000	009	+42	75

BATSE# 6152

ULYSSES RT 7/ 4/97

2/ 4/97 29808.639 s

0- 0 keV



Date: Jan 5 2000

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? N/A

☑ 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 N/A

☐ 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?

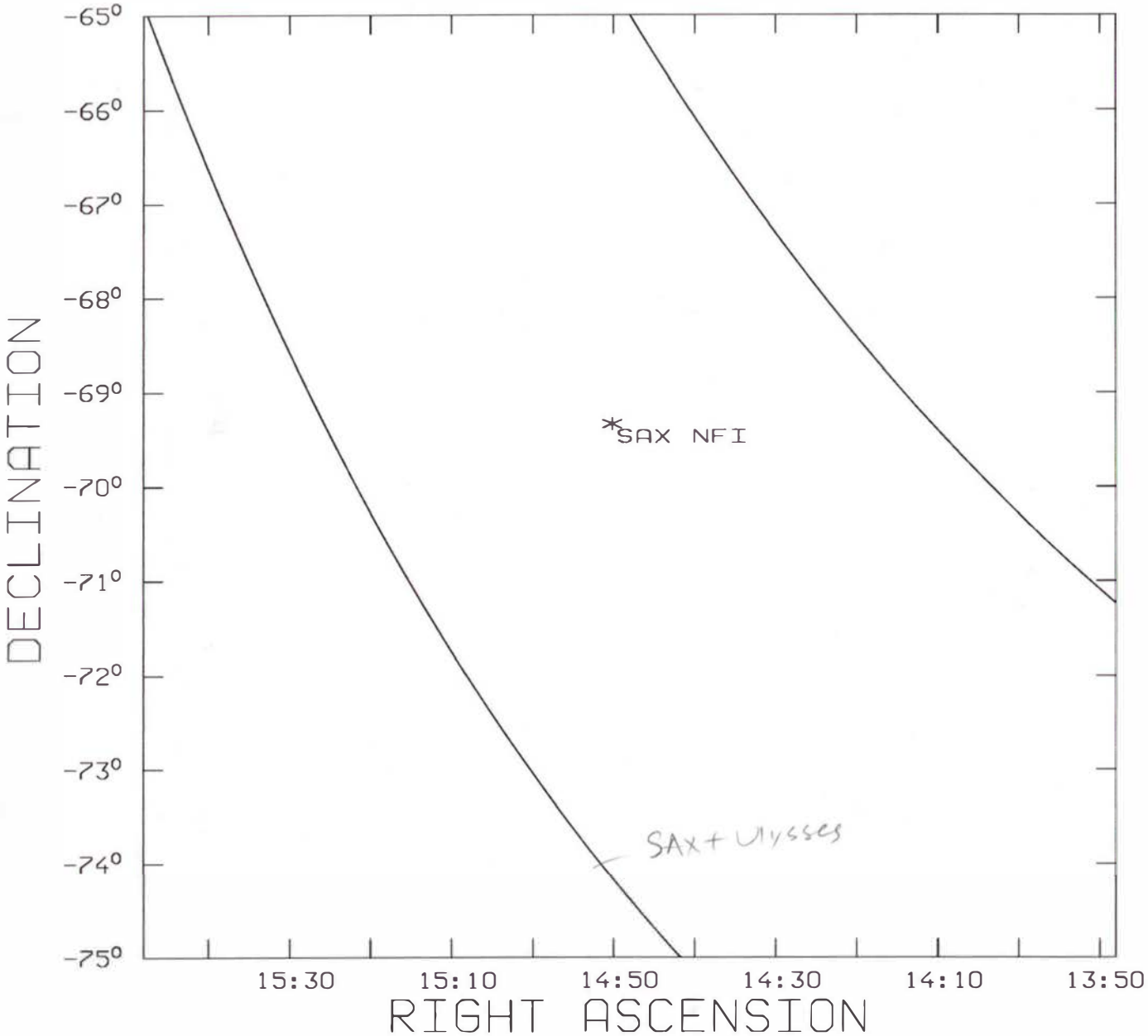
3. PVO Data N/A

☐ Ephemeris of PVO used (not Venus)?

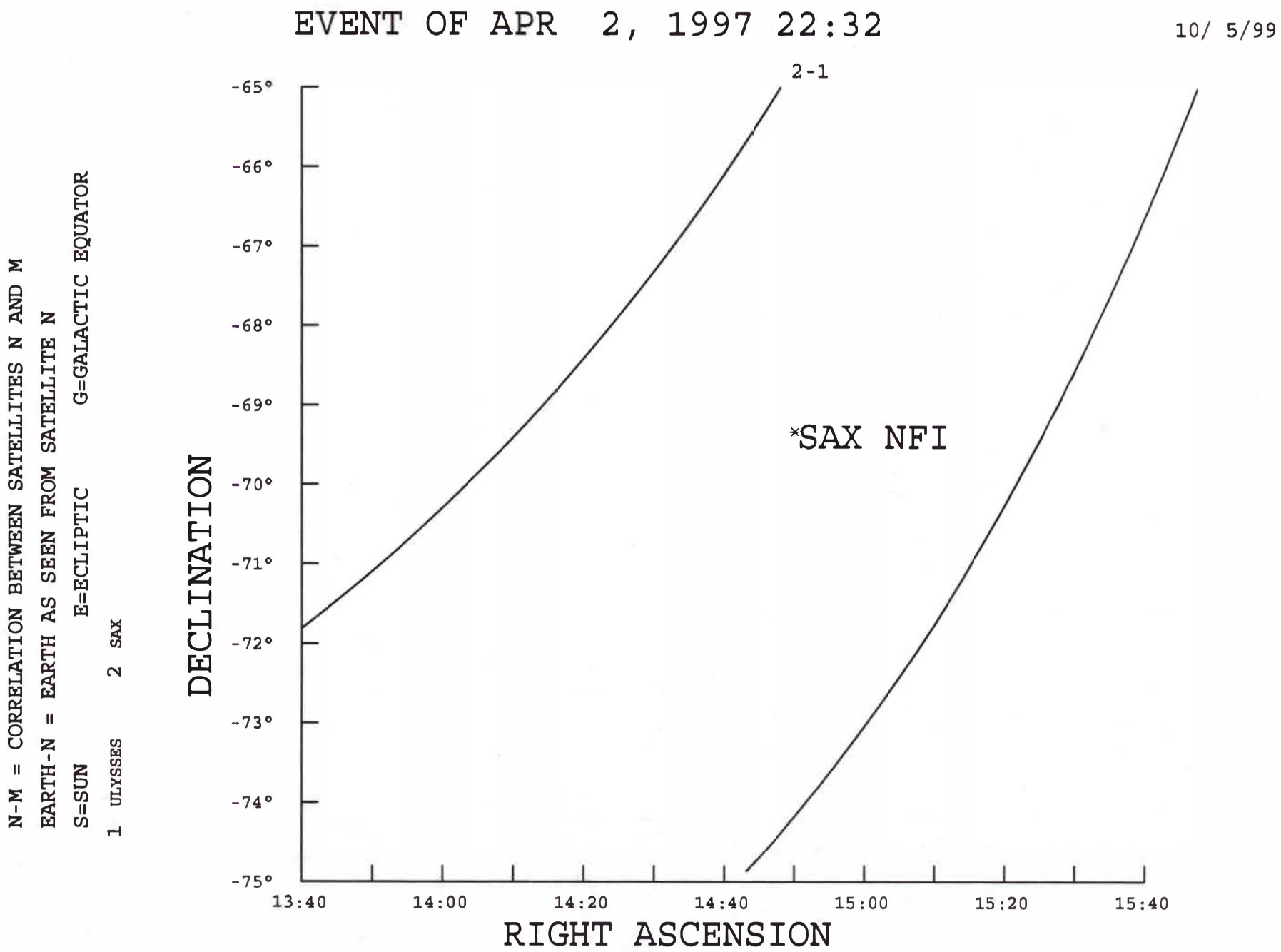
☐ 2000 coordinates used?

☐ Geocentric time used?

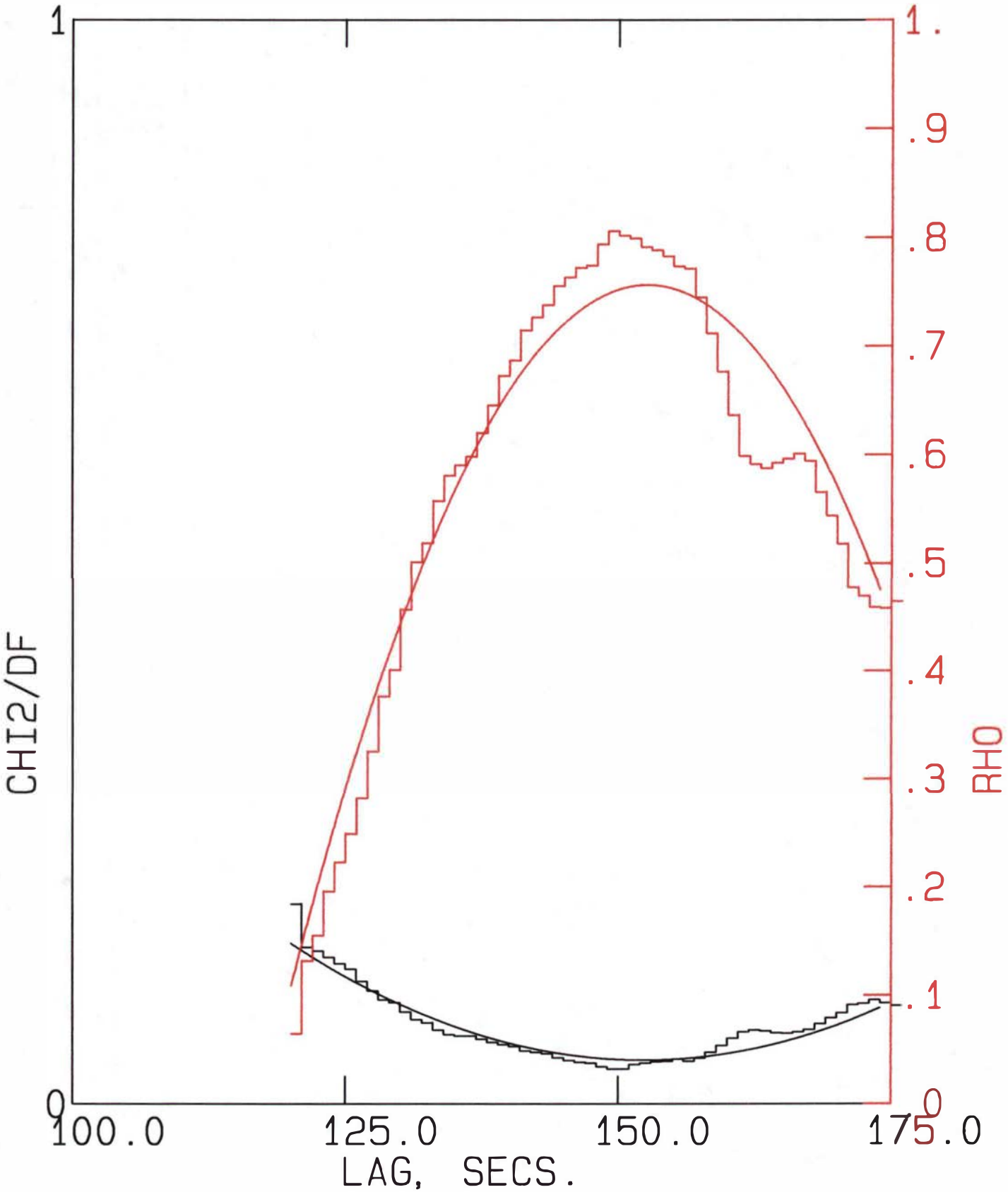
☑ ACCESS database updated?

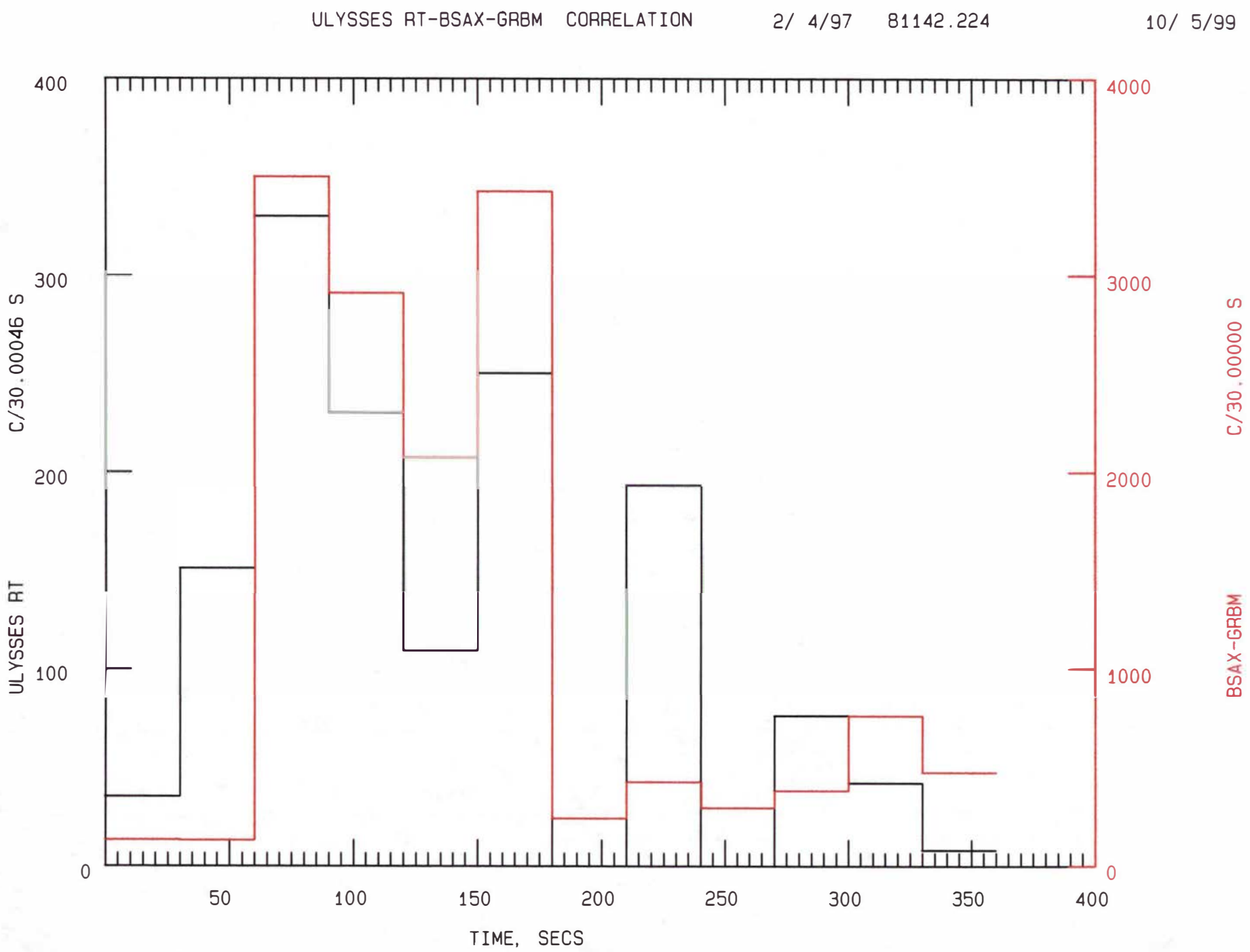

-65°
-66°
-67°
-68°
-69°
-70°
-71°
-72°
-73°
-74°
-75°
DECLINATION
*SAX NFI
SAX + Ulysses
15:30
15:10
14:50
14:30
14:10
13:50
RIGHT ASCENSION

970402


EVENT OF APR 2, 1997 22:32
10/ 5/99
2-1
*SAX NFI
DECLINATION
-65°
-66°
-67°
-68°
-69°
-70°
-71°
-72°
-73°
-74°
-75°
13:40
14:00
14:20
14:40
15:00
15:20
15:40
RIGHT ASCENSION
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 SAX

ULYSSES RT-BSAX-GRBM CORRELATION 2/ 4/97 81142.224




ULYSSES RT-BSAX-GRBM CORRELATION
2/ 4/97 81142.224
10/ 5/99
400
300
200
100
0
C/30.00046 S
ULYSSES RT
4000
3000
2000
1000
0
C/30.00000 S
BSAX-GRBM
50
100
150
200
250
300
350
400
TIME, SECS

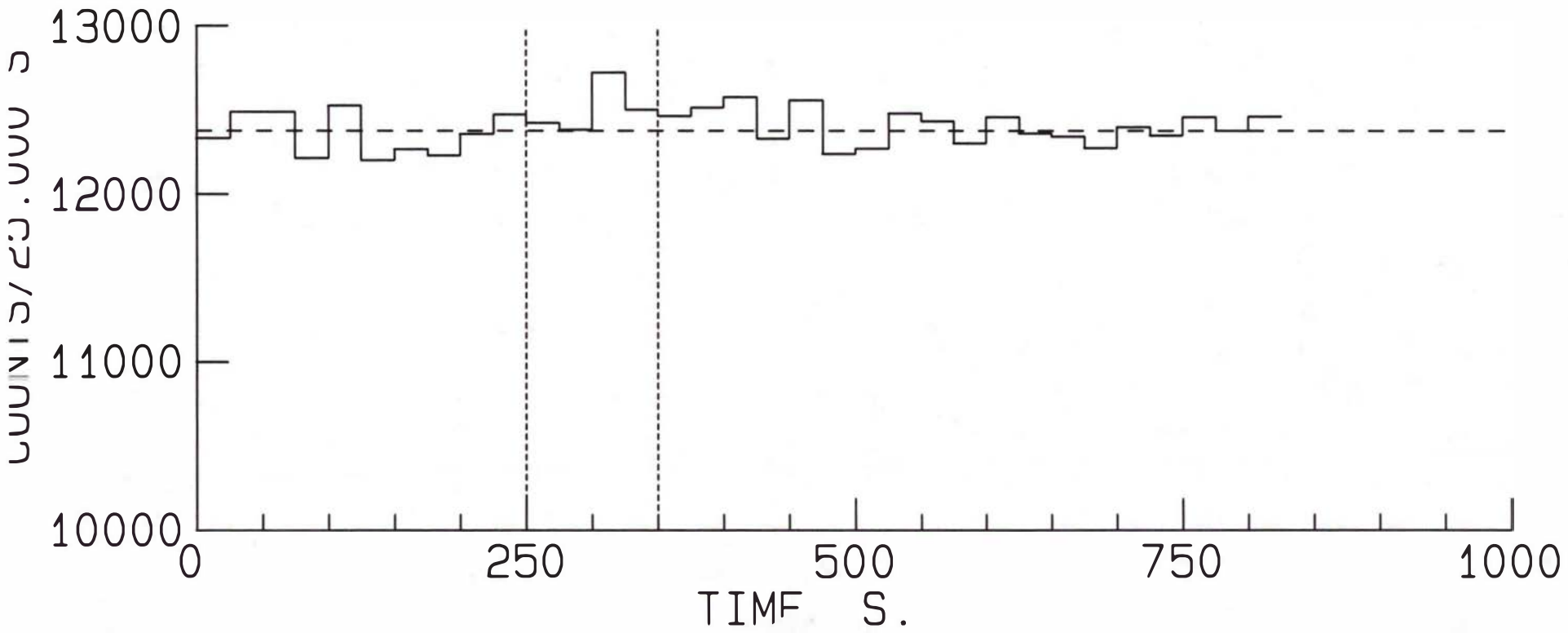
ULYSSES RT

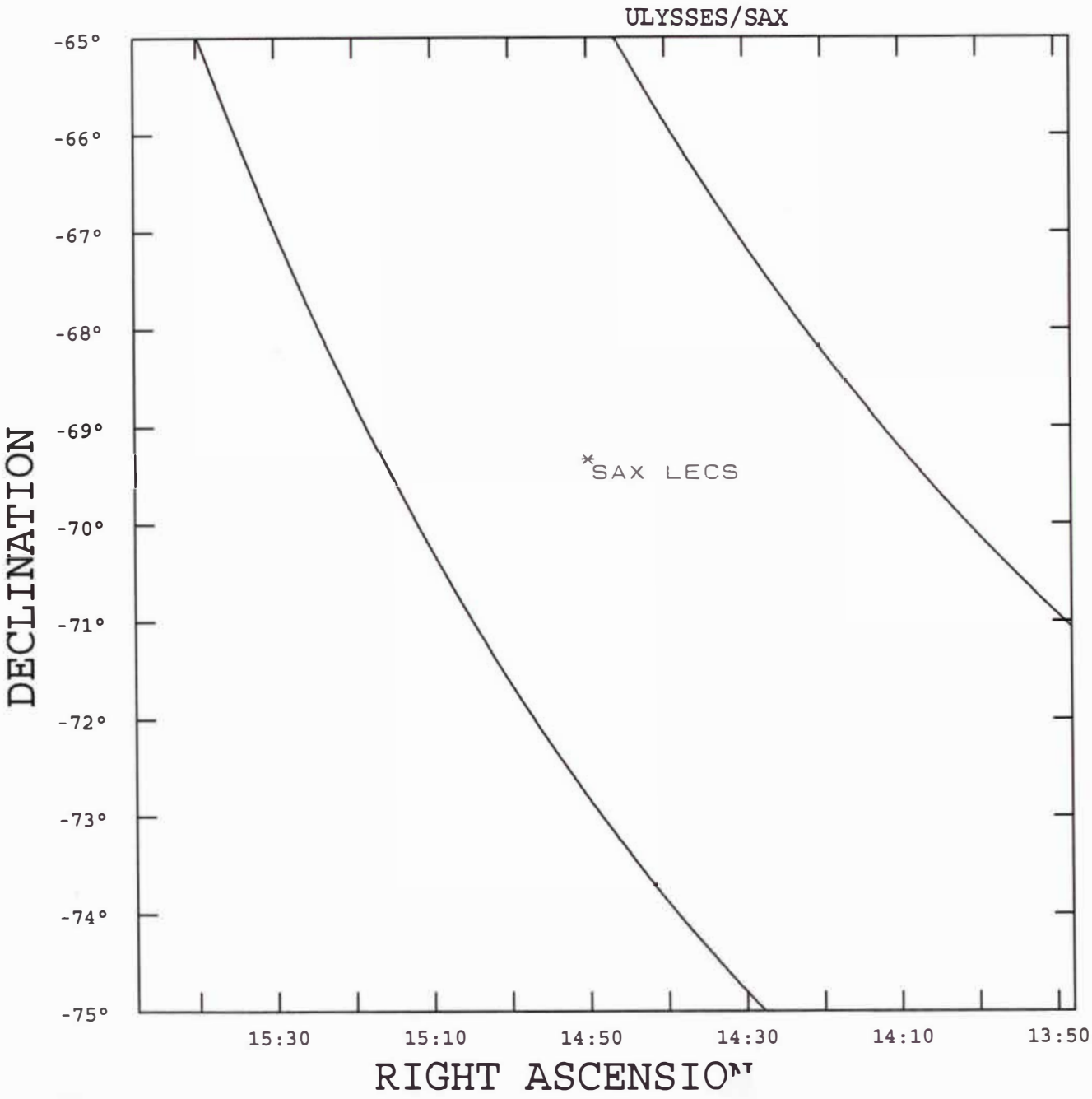
10/ 5/99

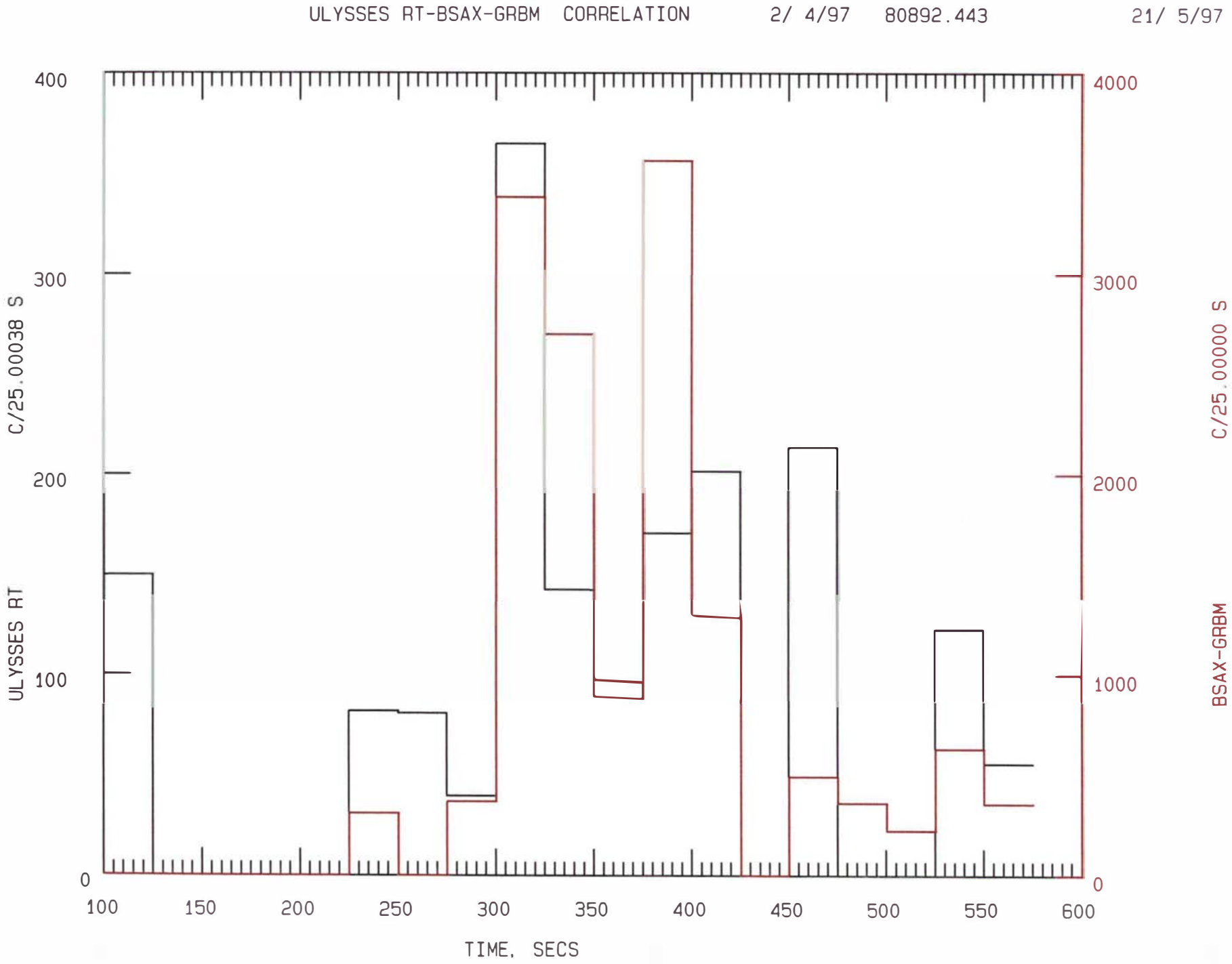
2/ 4/97 80892.192 s

0.250 S INTERVALS REGROUPED BY 100

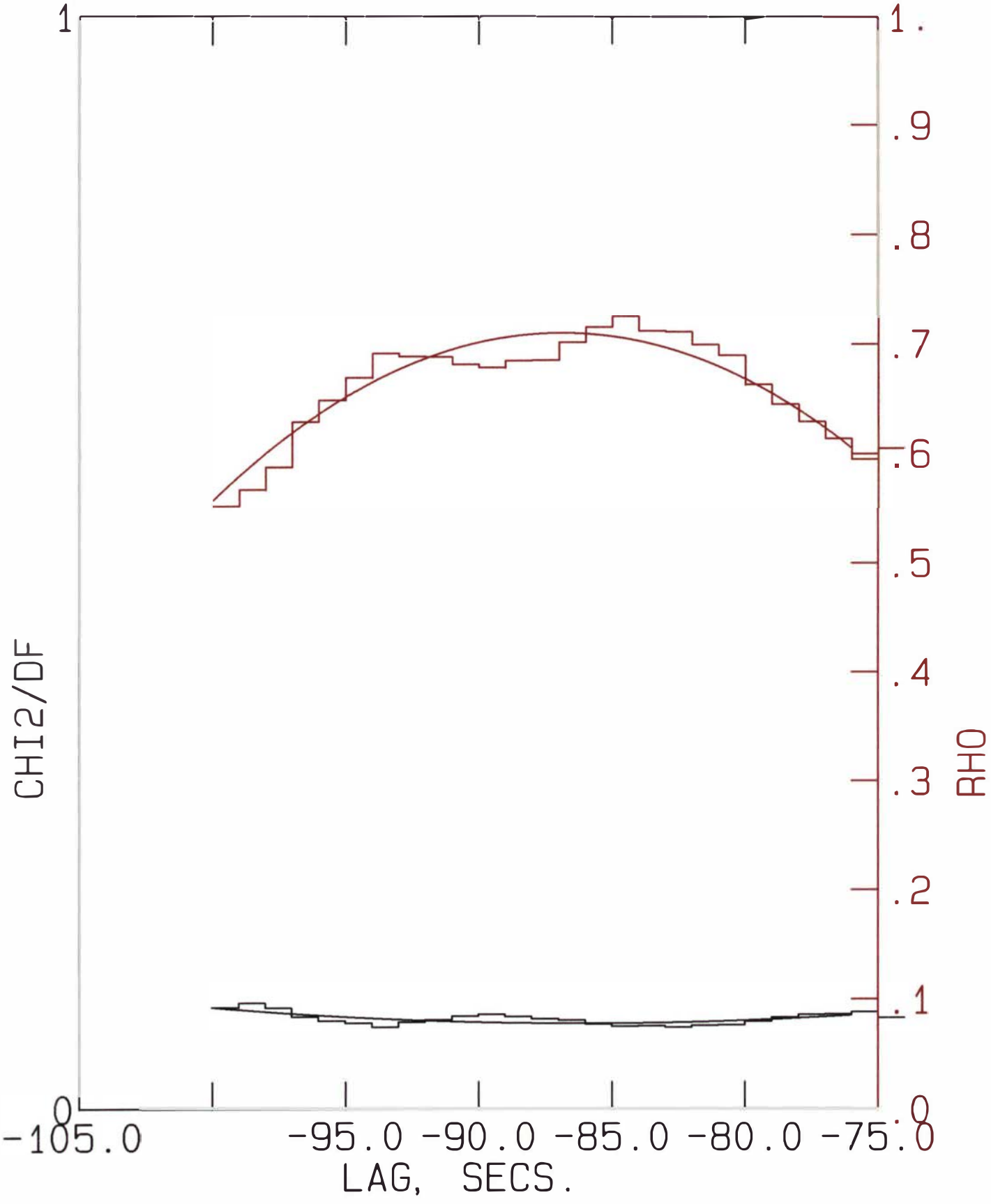
37- 37 keV




ULYSSES/SAX
-65°
-66°
-67°
-68°
-69°
-70°
-71°
-72°
-73°
-74°
-75°
DECLINATION
*SAX LECS
15:30
15:10
14:50
14:30
14:10
13:50
RIGHT ASCENSION


ULYSSES RT-BSAX-GRBM CORRELATION 2/ 4/97 80892.443 21/ 5/97
400
300
200
100
0
C/25.00038 S
ULYSSES RT
4000
3000
2000
1000
0
C/25.00000 S
BSAX-GRBM
100
150
200
250
300
350
400
450
500
550
600
TIME, SECS

ULYSSES RT-BSAX-GRBM CORRELATION 2/ 4/97 80892.443



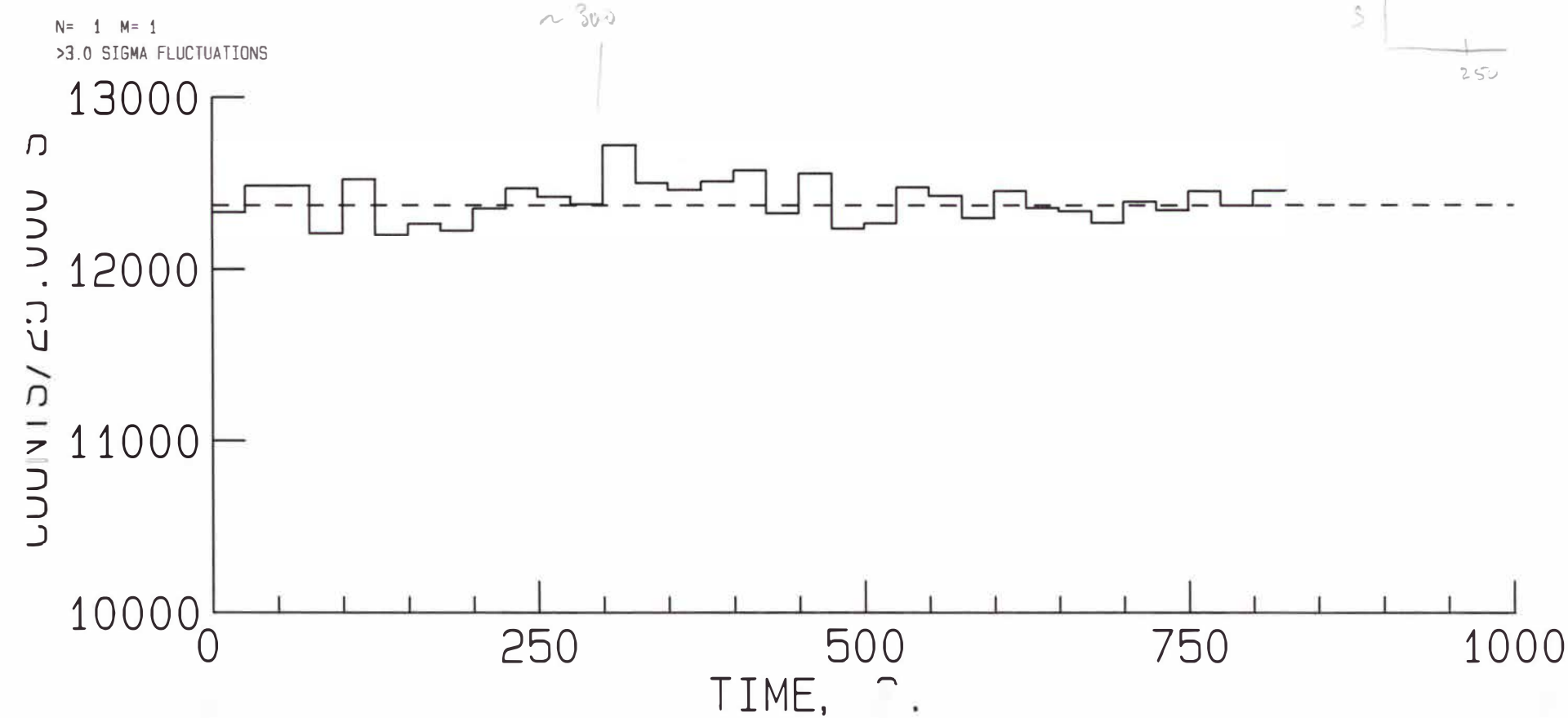
ULYSSES RT

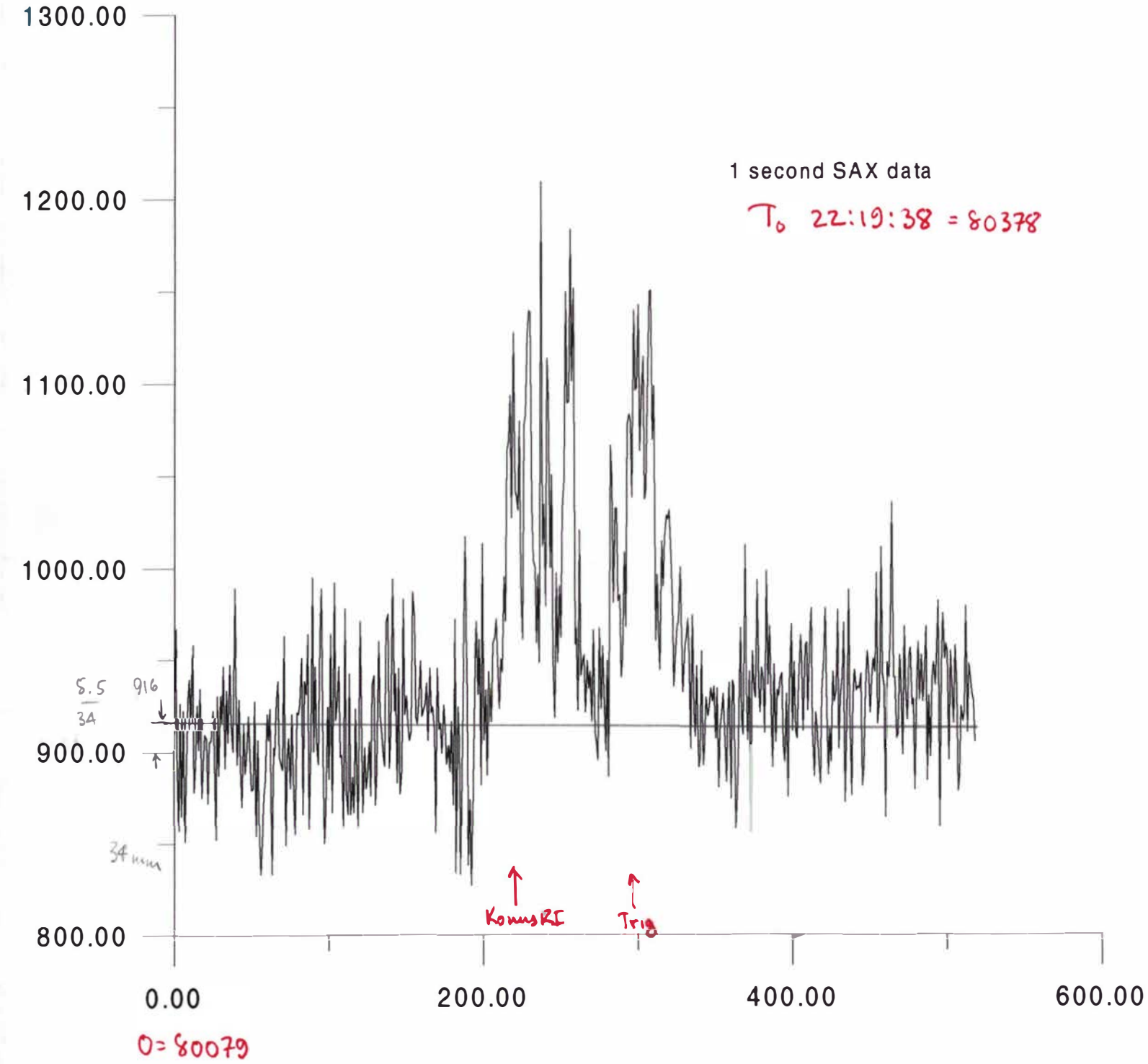
21/ 5/97

2/ 4/97 80892.192 s

0.250 S INTERVALS REGROUPED BY 100

21- 145 keV




1 second SAX data
T0 22:19:38 = 80378
1300.00
1200.00
1100.00
1000.00
900.00
800.00
5.5
916
34
34 counts
Konus RI
Trig
0.00
200.00
400.00
600.00
0 = 80079

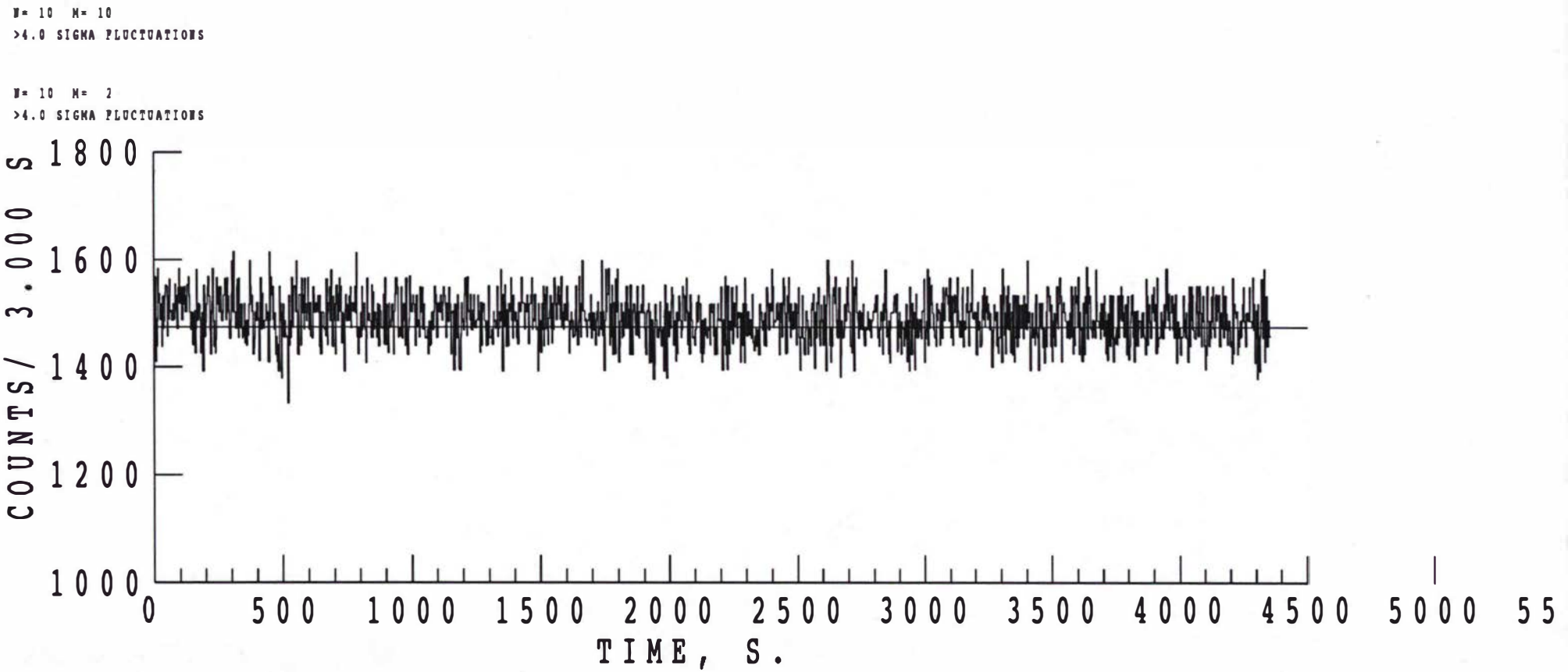
KONUS

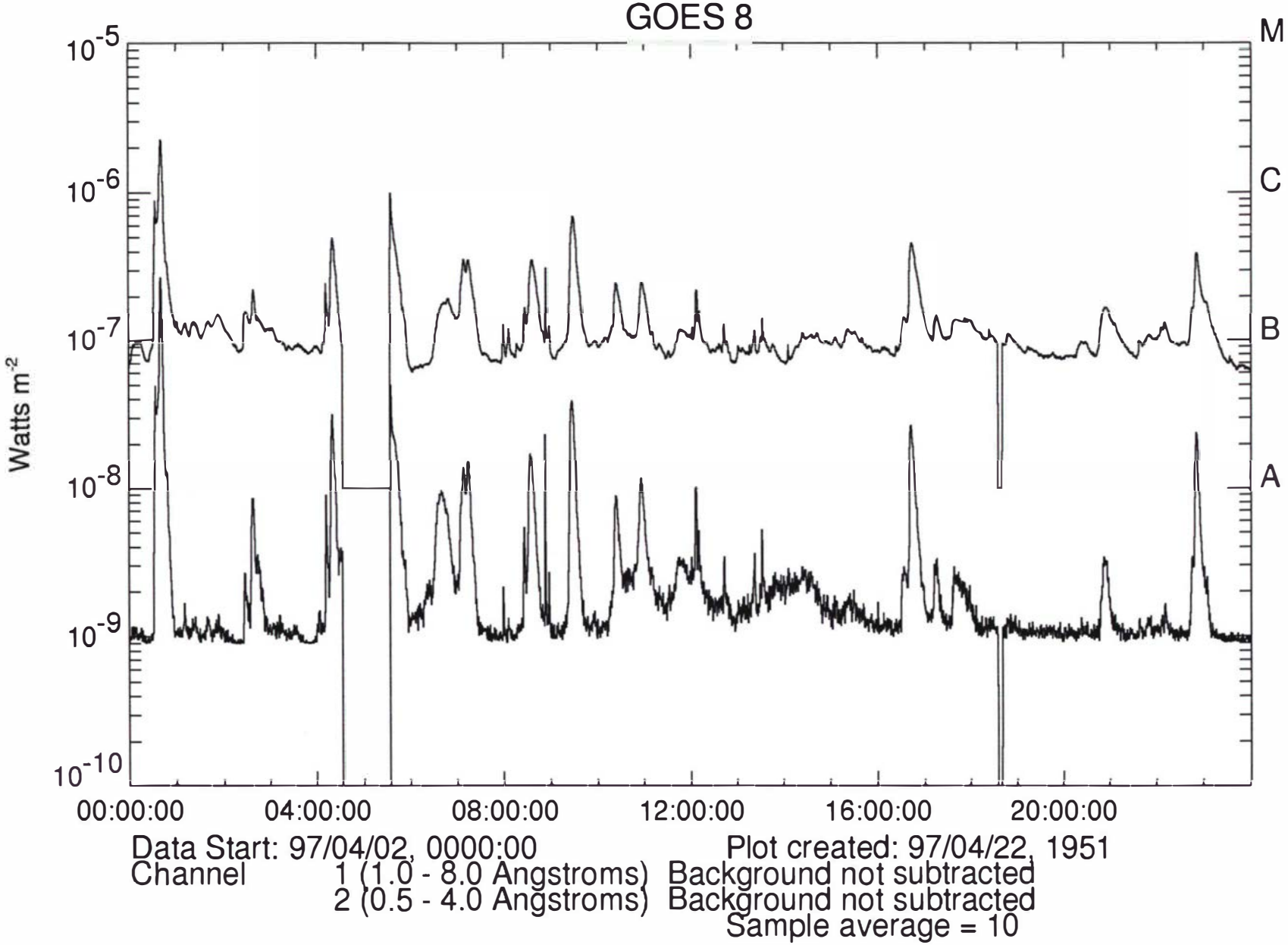
ULYSSES RT 02/02/00

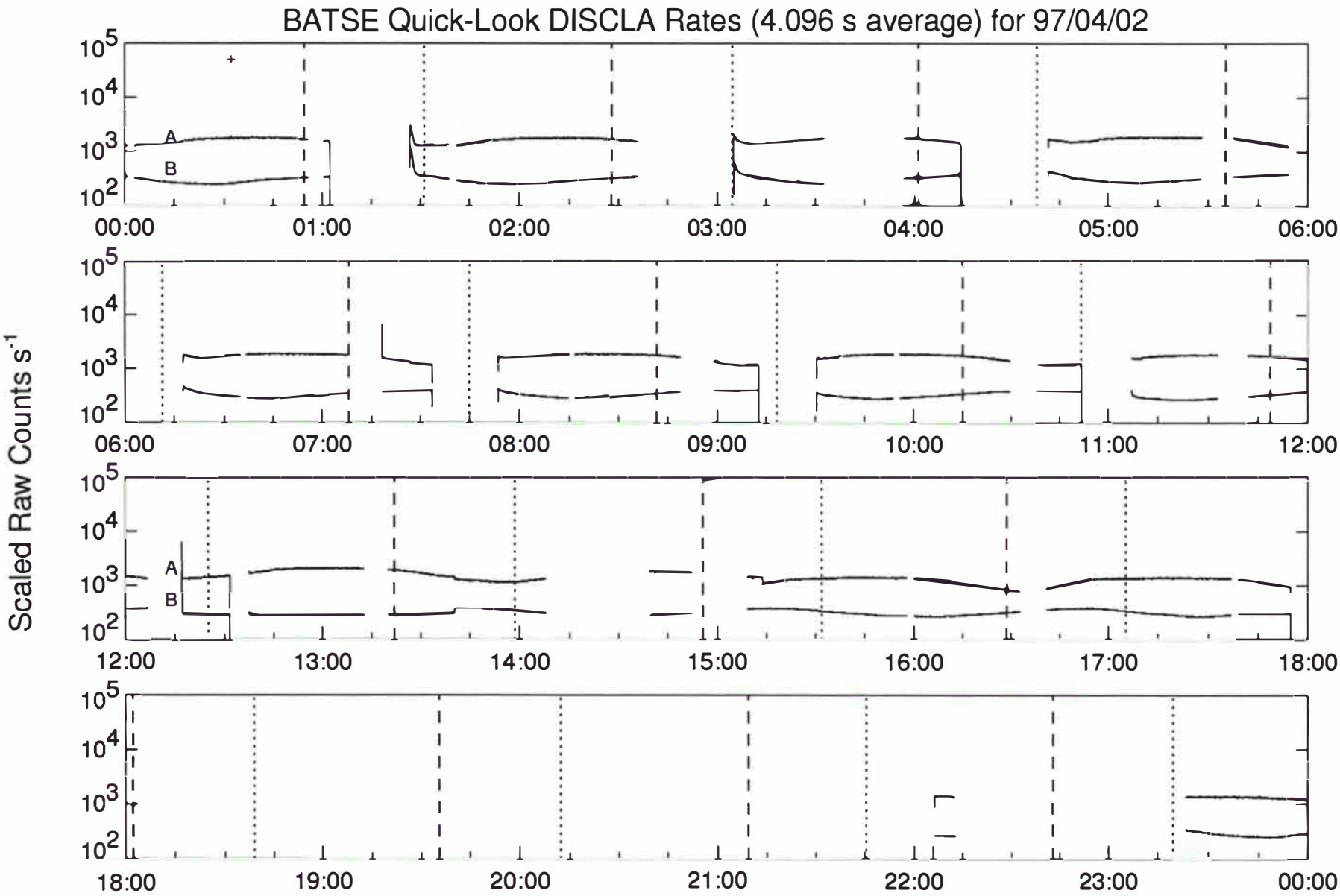
02/04/97 78120.156 s

0.250 S INTERVALS REGROUPED BY 12

0- 0 keV

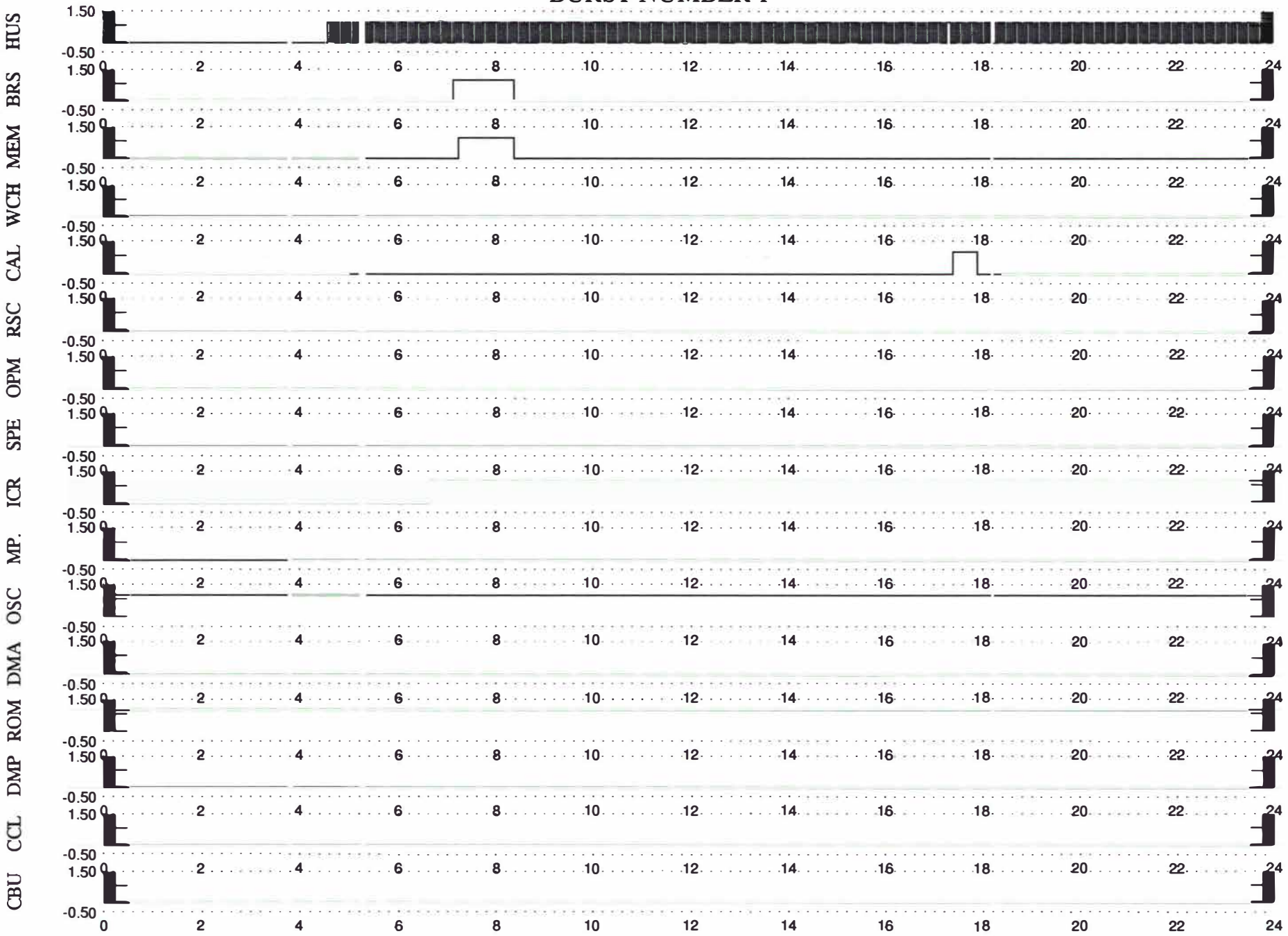



GOES 8
M
C
B
A
Watts m-2
10-5
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/02, 0000:00
Plot created: 97/04/22, 1951
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/02
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/22, 1952 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 92, year 1997 to day 92, year 1997 7/22/97

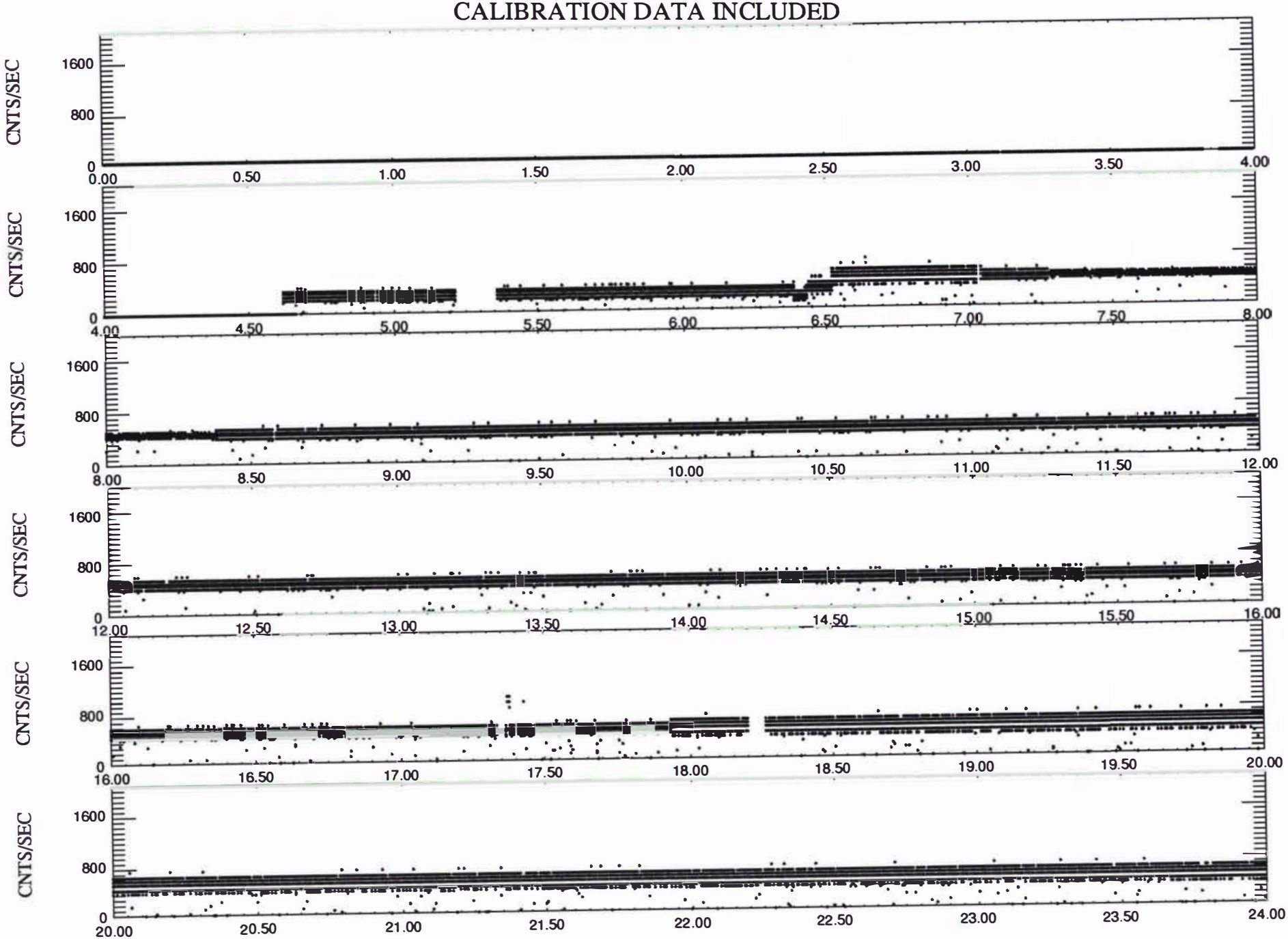
BURST NUMBER 1



UNIV. AL TIME

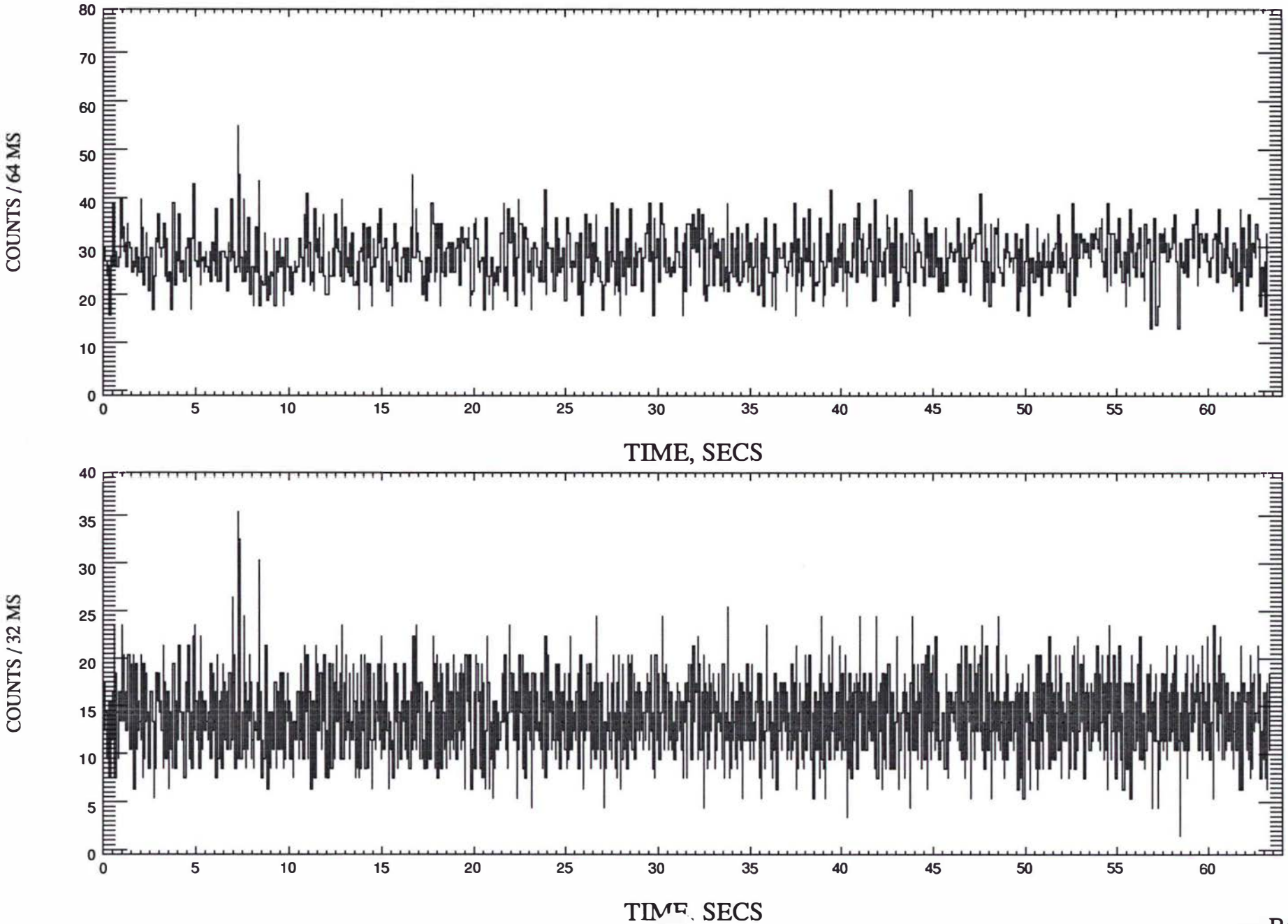
HUS 2A, MODE 1, NOT AVERAGED EDR day 92, year 1997 to day 92, year 1997 7/22/97

CALIBRATION DATA INCLUDED



HUS 2A TRIGGERED DATA EDR day 92, year 1997 7/22/97

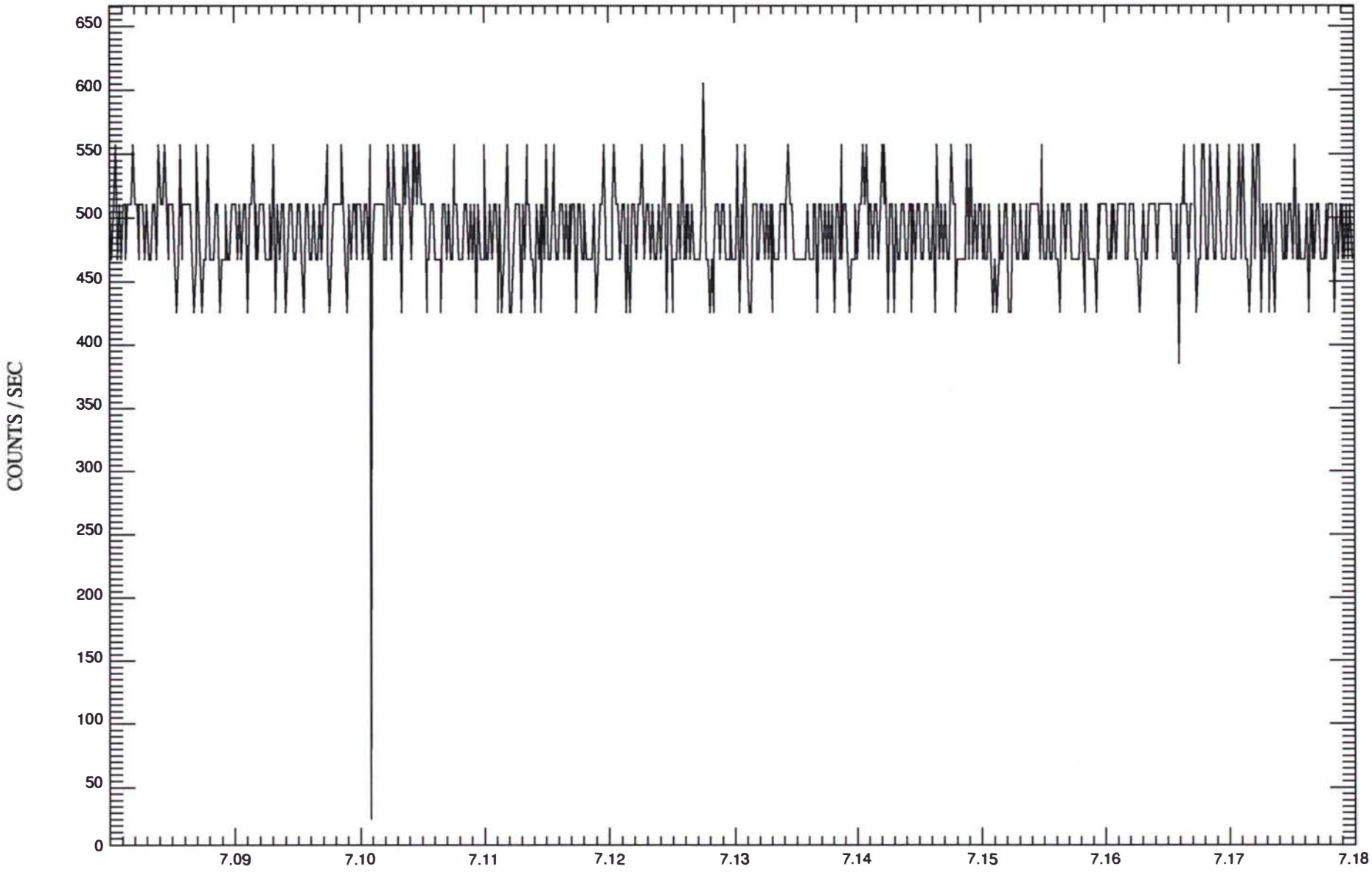
Burst Counter 1 at UT= 7.127695965237 h=25659.705 s 07:07:39.705



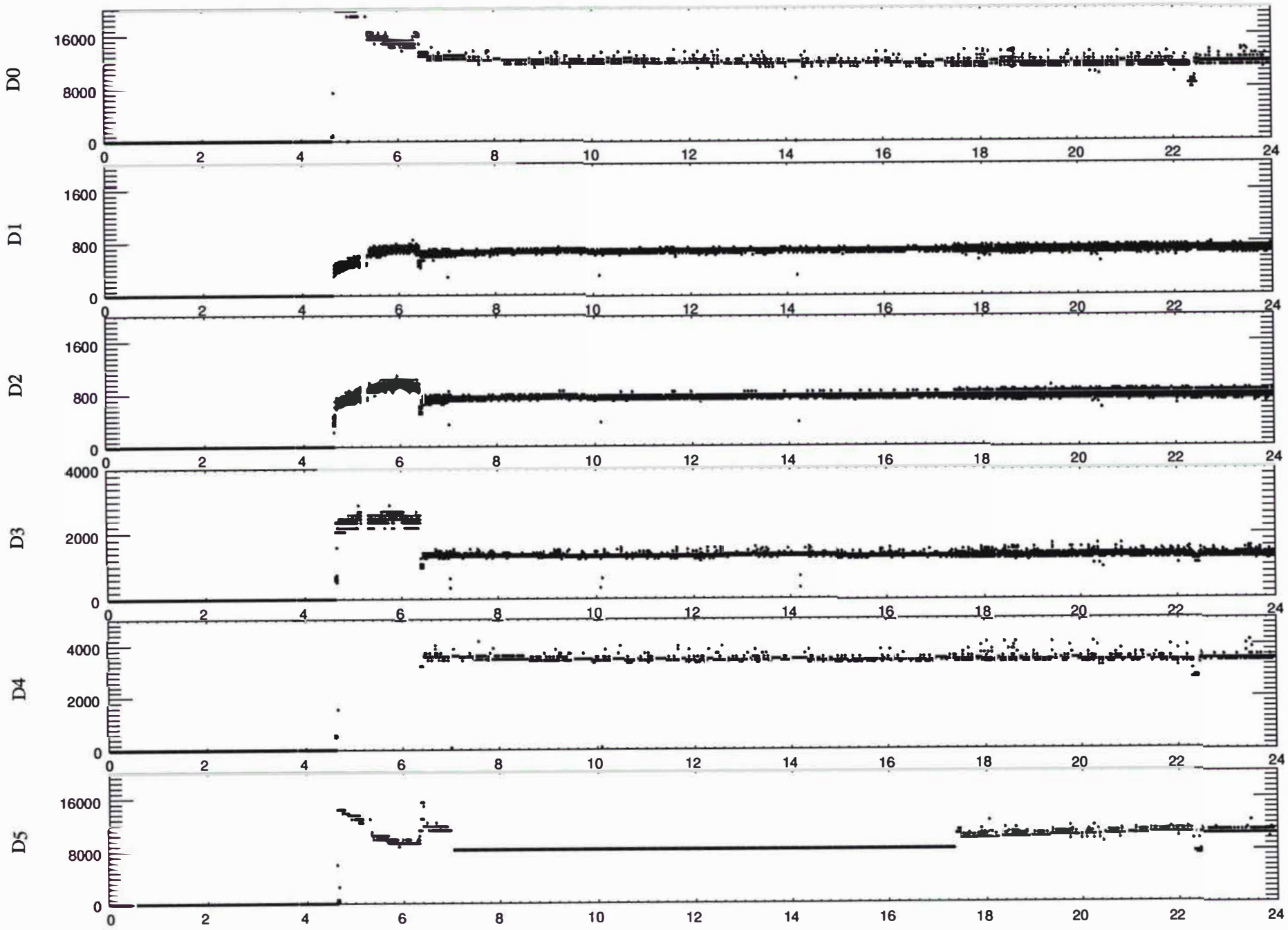
B# 1

HUS 2A, MODE 1, NOT AVERAGED EDR day 92, year 1997 to day 92, year 1997 7/22/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 92, year 1997 to day 92, year 1997 7/22/97



From WOODSP@ssl.msfc.nasa.gov Tue Apr 8 07:37 PDT 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id HAA07100; Tue, 8 Apr 1997 07:37:25 -0700
From: WOODSP@ssl.msfc.nasa.gov
Date: Tue, 8 Apr 1997 9:37:19 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970408093719.2021d462@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6153
Content-Type: text
Content-Length: 1122
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6153
EVENT OF 1997 APR 3 DAY OF YEAR= 93
EVENT CROSSING TIME AT BATSE : 14. S. OR 00:00:14.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 73.000 -45.000
BATSE PEAK COUNTING RATE: 4600 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 3/ 4/ 97 IS:
RA= 155.695 DEC= 35.753 DIST= 4.305 AU
BATSE-ULYSSES DISTANCE = 644063904. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 70.11 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 730.86 SECS.
CROSSING TIME AT ULYSSES IS 745. S. OR 00:12:24 +/- 411.84 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 3/ 4/ 97 IS:
RA= 172.701 DEC= 6.632 DIST= 0.678 AU
MARS-BATSE DISTANCE = 101422888. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 78.46 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 67.67 SECS.
CROSSING TIME AT MARS IS 82. S. OR 00:01:21 +/- 58.58 SECONDS

BATSE BURST TRIGGER

NO.: 6153

TIME: TJD=0541 SECONDS=14

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=69.5 AZIMUTH=82.6 ERROR=9 DEGREES

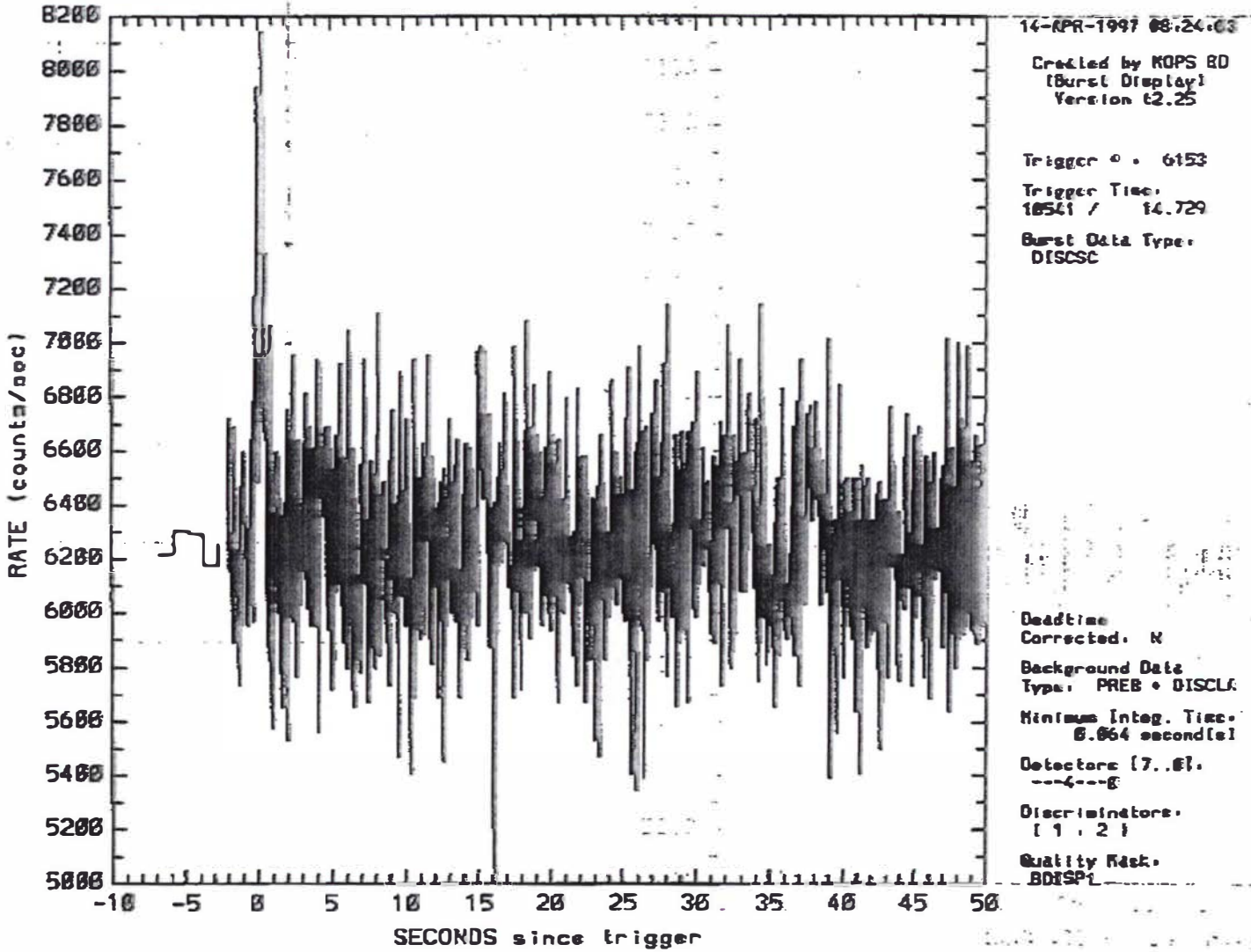
COMMENTS:
GRB LASTING ~ 1 SEC. HARD, WEAK EVENT WITH SUBSTRUCTURE. NOT
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6153	970403	10541	00014	4600	073	-45	1

R=94%

Too weak

DISCSC Data for K. Hurley. No. 6153



04-14-1997 08:06 205 544 5800 BATSE P.06
205 544 5800
04-14-97 06:00AM P006 #49

BATSE# 6153

ULYSSES RT 8/ 4/97

3/ 4/97 324.006 s

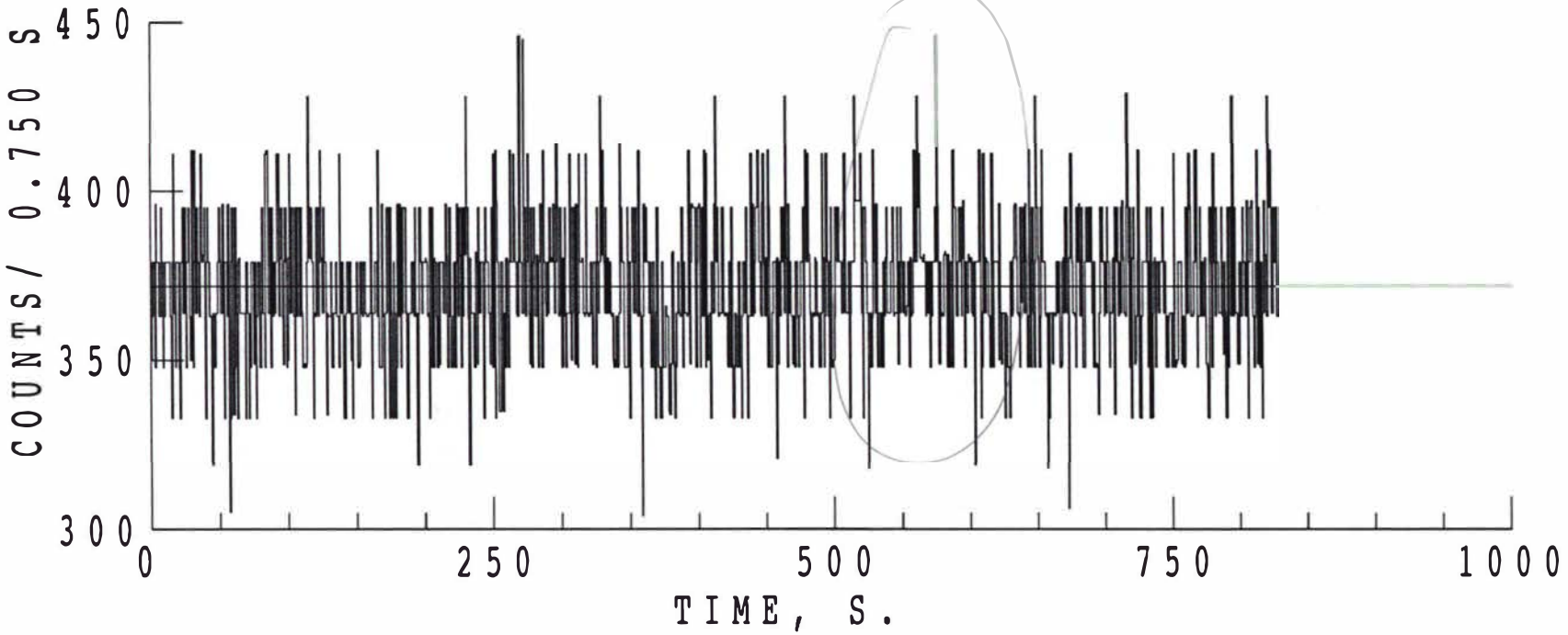
0.250 S INTERVALS REGROUPED BY 3

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

Too long



From WOODSP@ssl.msfc.nasa.gov Tue Apr 8 07:40 PDT 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id HAA07132; Tue, 8 Apr 1997 07:40:37 -0700
From: WOODSP@ssl.msfc.nasa.gov
Date: Tue, 8 Apr 1997 9:40:35 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970408094035.2021d462@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6154
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6154
EVENT OF 1997 APR 3 DAY OF YEAR= 93
EVENT CROSSING TIME AT BATSE : 57197. S. OR 15:53:17.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 45.000 9.000
BATSE PEAK COUNTING RATE: 4600 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 3/ 4/ 97 IS:
RA= 155.556 DEC= 35.703 DIST= 4.314 AU
BATSE-ULYSSES DISTANCE = 645435553. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 79.03 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 409.76 SECS.
CROSSING TIME AT ULYSSES IS 57607. S. OR 16:00:06 +/- 423.17 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 3/ 4/ 97 IS:
RA= 172.701 DEC= 6.632 DIST= 0.678 AU
MARS-BATSE DISTANCE = 101422888. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 54.42 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 196.87 SECS.
CROSSING TIME AT MARS IS 57394. S. OR 15:56:33 +/- 50.76 SECONDS

BATSE BURST TRIGGER

NO.: 6154

TIME: TJD=0541 SECONDS=57197

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=58.8 AZIMUTH=14.9 ERROR=3.5 DEGREES

COMMENTS:
GRB LASTING ~ 80 SEC. DOUBLE FRED WITH SOME VARIABILITY DURING
DECAY. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6154	970403	10541	57197	4600	045	+09	80

Helio corr removed 17/2/00

Date: Mar 27 '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? 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)?

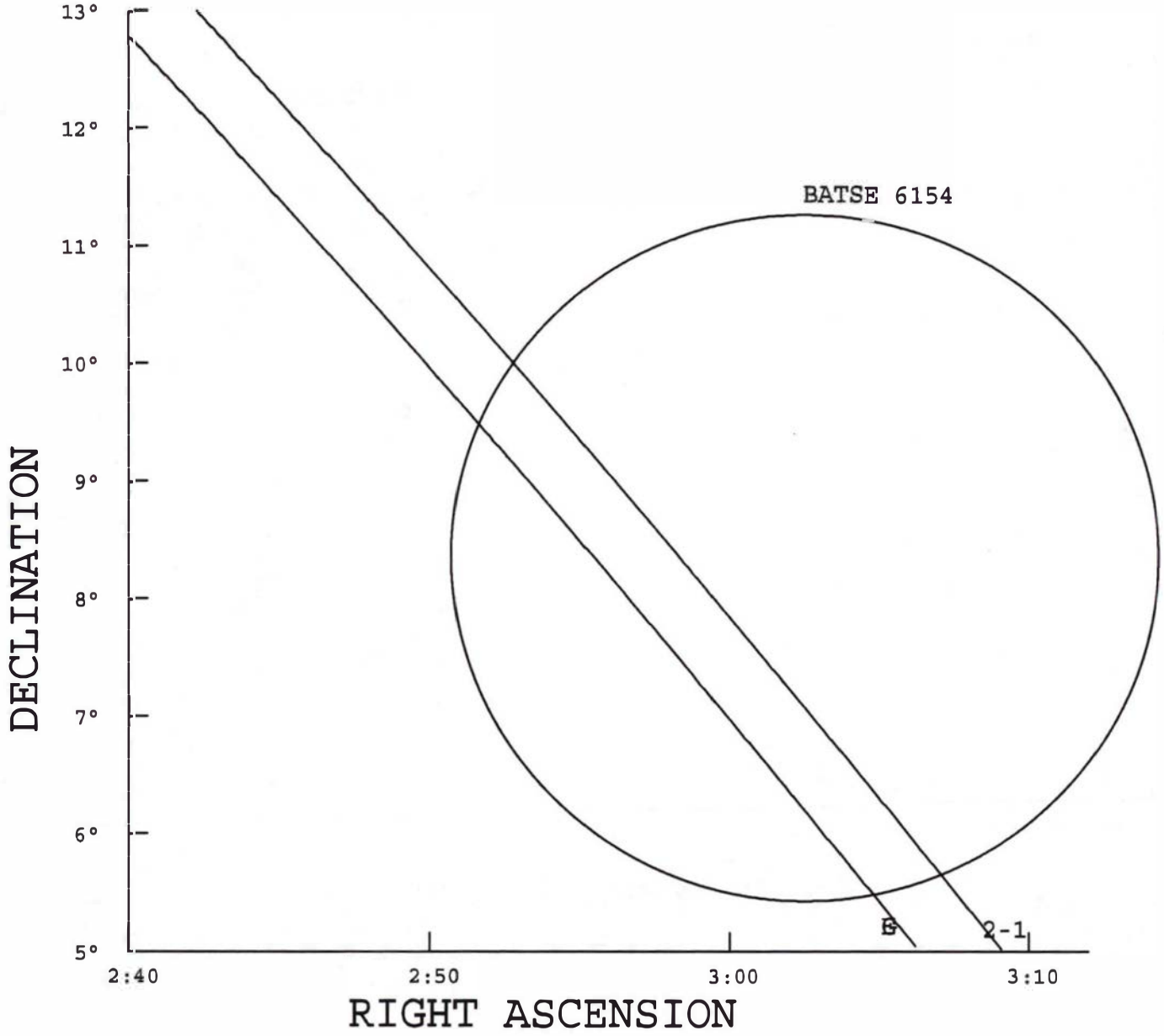
☐ 2000 coordinates used?

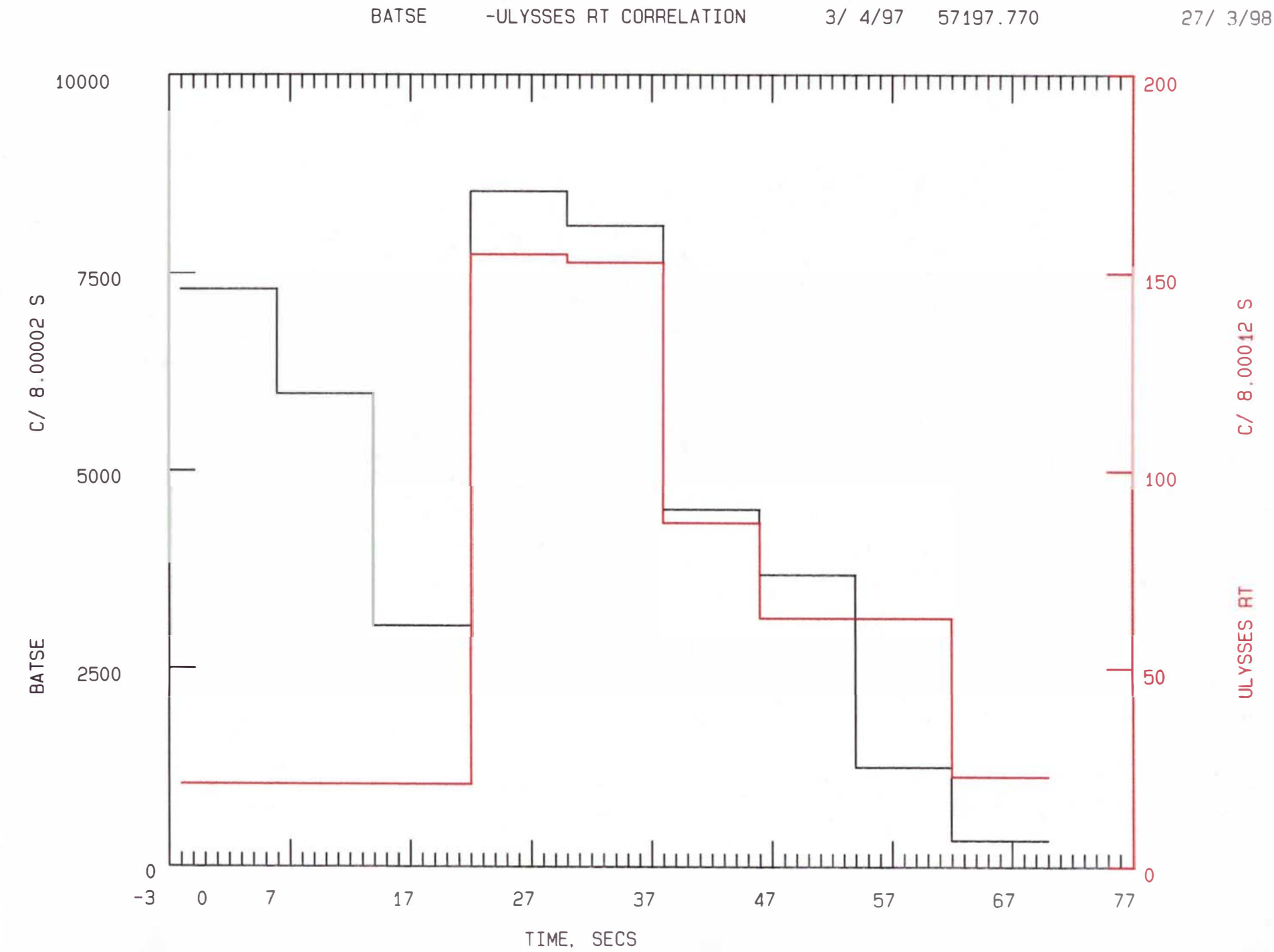
☐ Geocentric time used?

☑ ACCESS database updated?

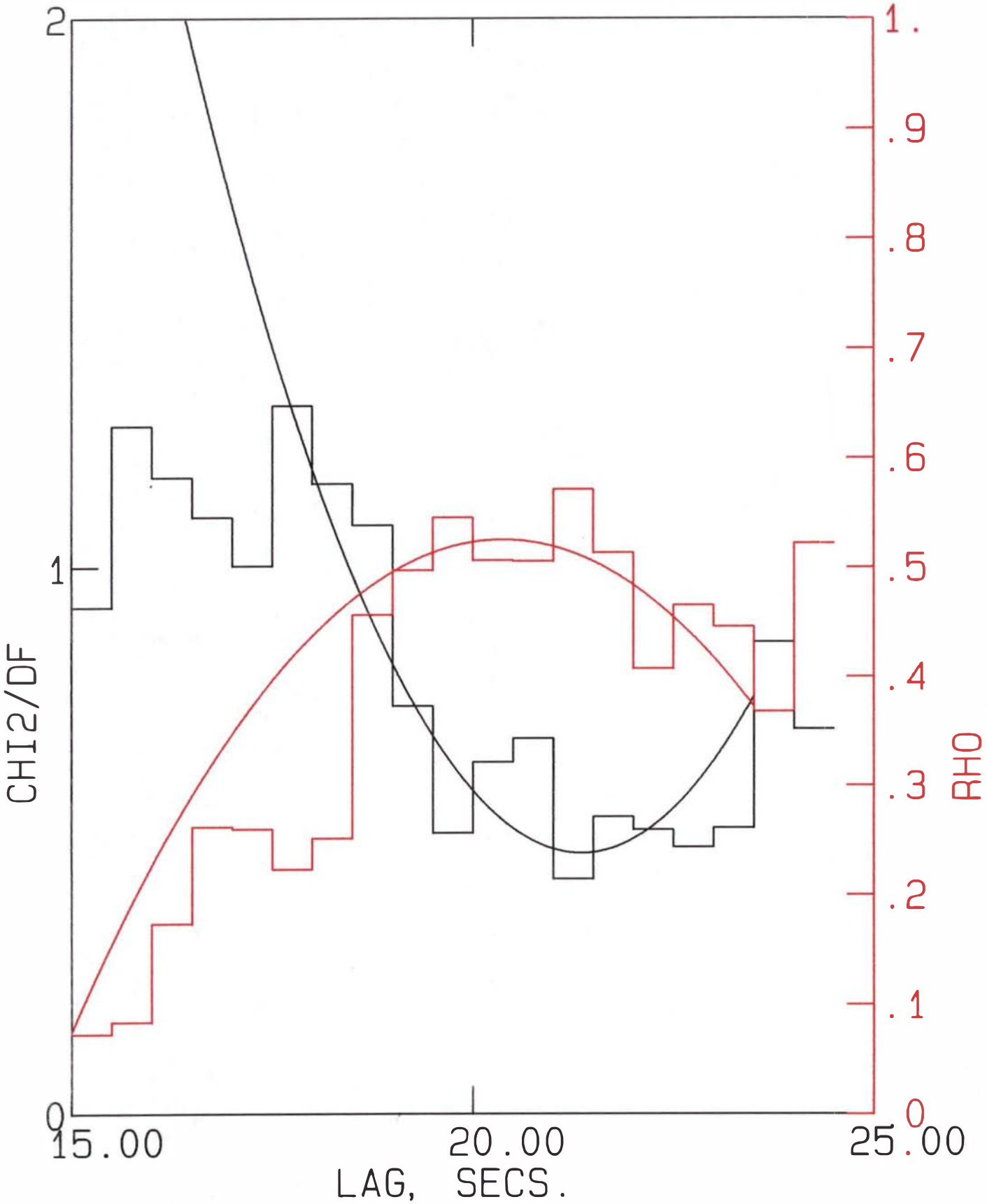
EVENT OF APR 3, 1997 16:00

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




BATSE -ULYSSES RT CORRELATION 3/ 4/97 57197.770 27/ 3/98
10000
7500
5000
2500
0
200
150
100
50
0
C/ 8.00002 S
BATSE
C/ 8.00012 S
ULYSSES RT
-3
0
7
17
27
37
47
57
67
77
TIME, SECS

BATSE -ULYSSES RT CORRELATION 3/ 4/97 57197.770

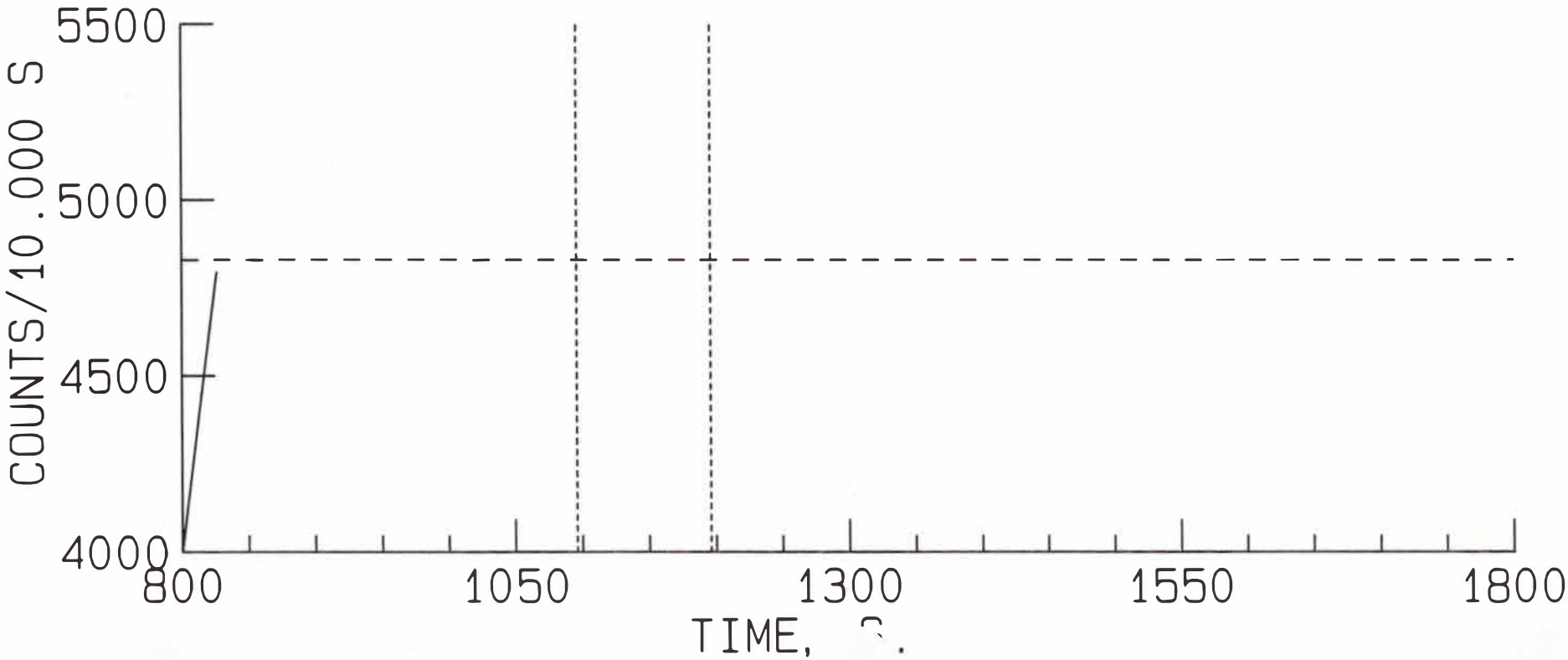


ULYSSES RT 27/ 3/98

3/ 4/97 57312.485 s

0.500 S INTERVALS REGROUPED BY 20

22- 148 keV

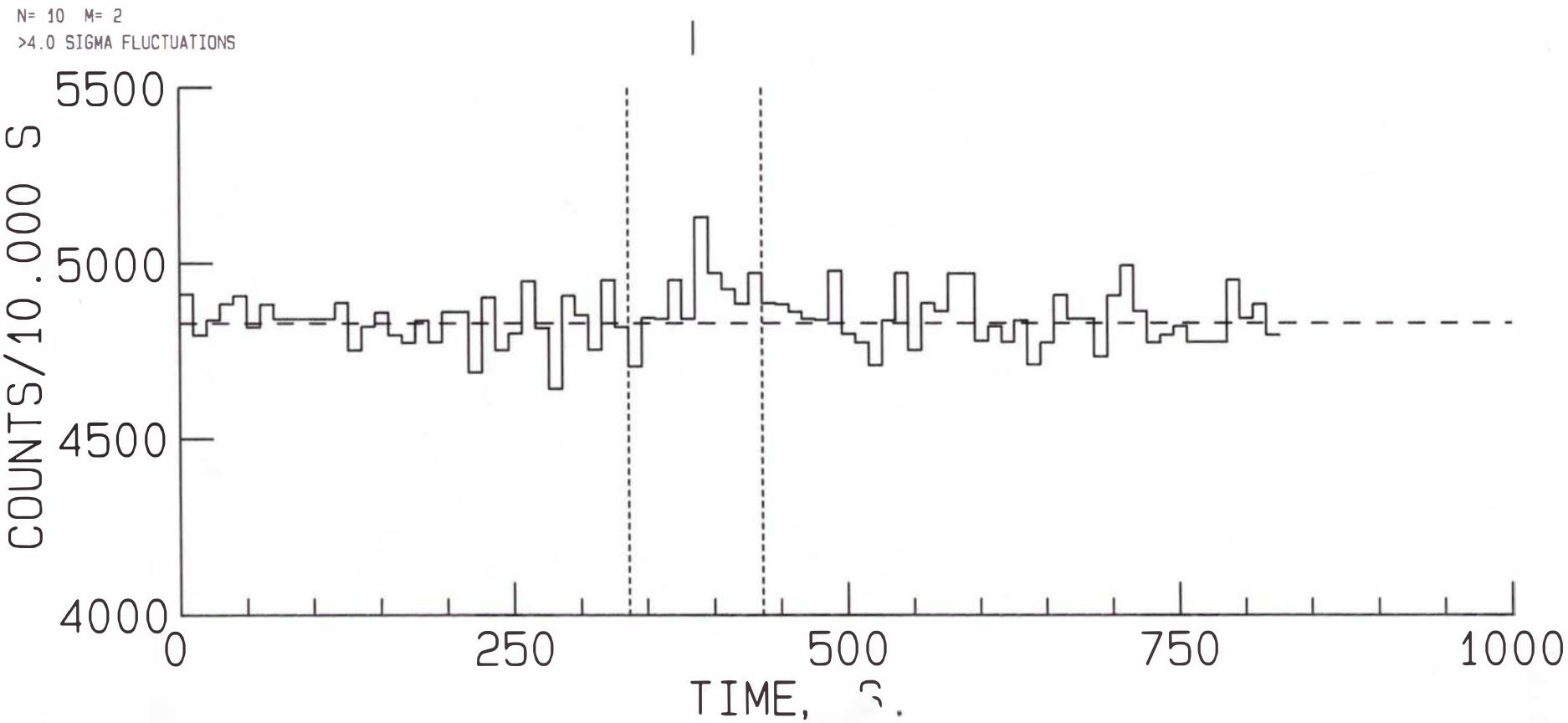


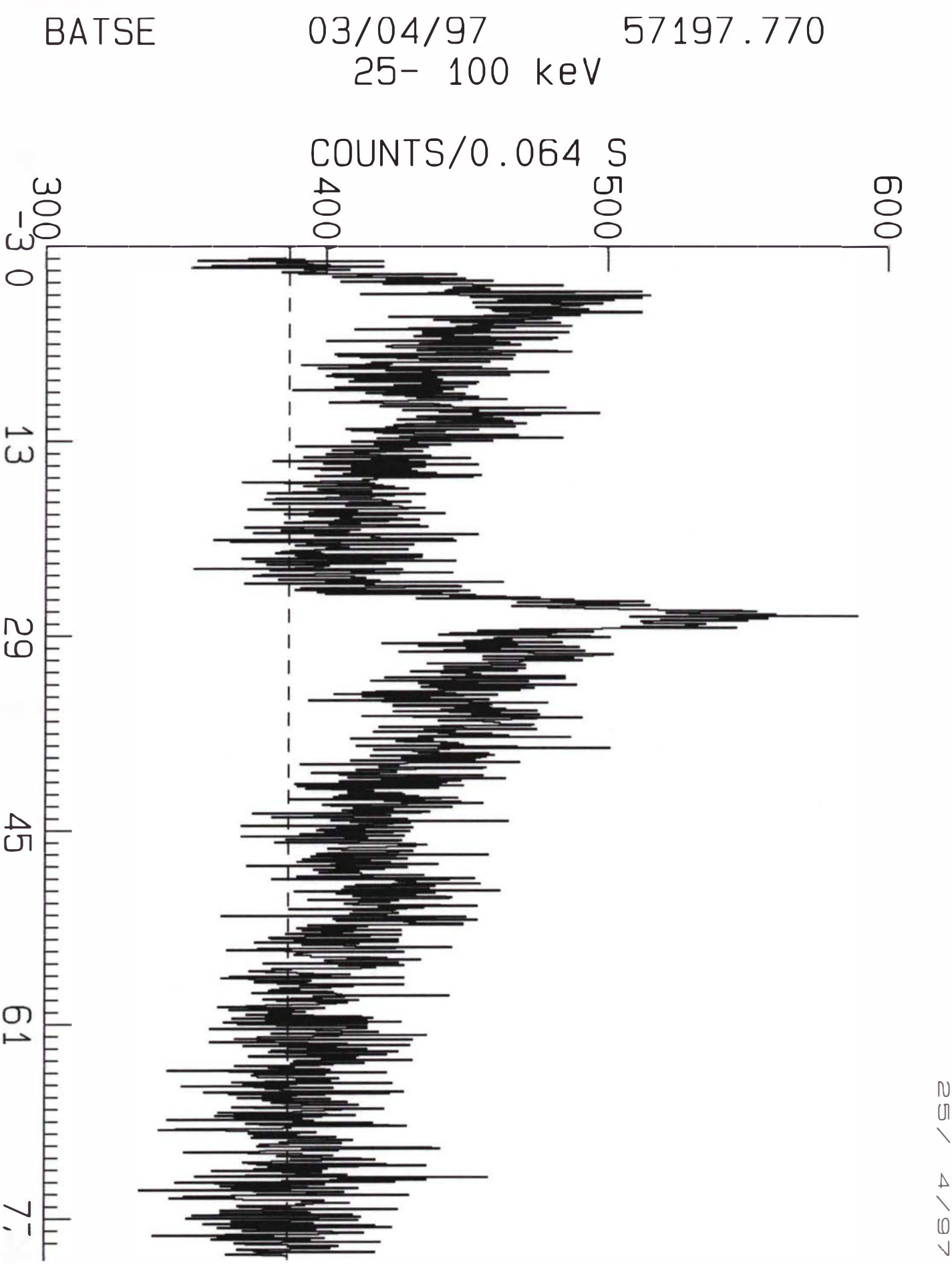
ULYSSES RT 27/ 3/98

3/ 4/97 57312.485 s

0.500 S INTERVALS REGROUPED BY 20

22- 148 keV

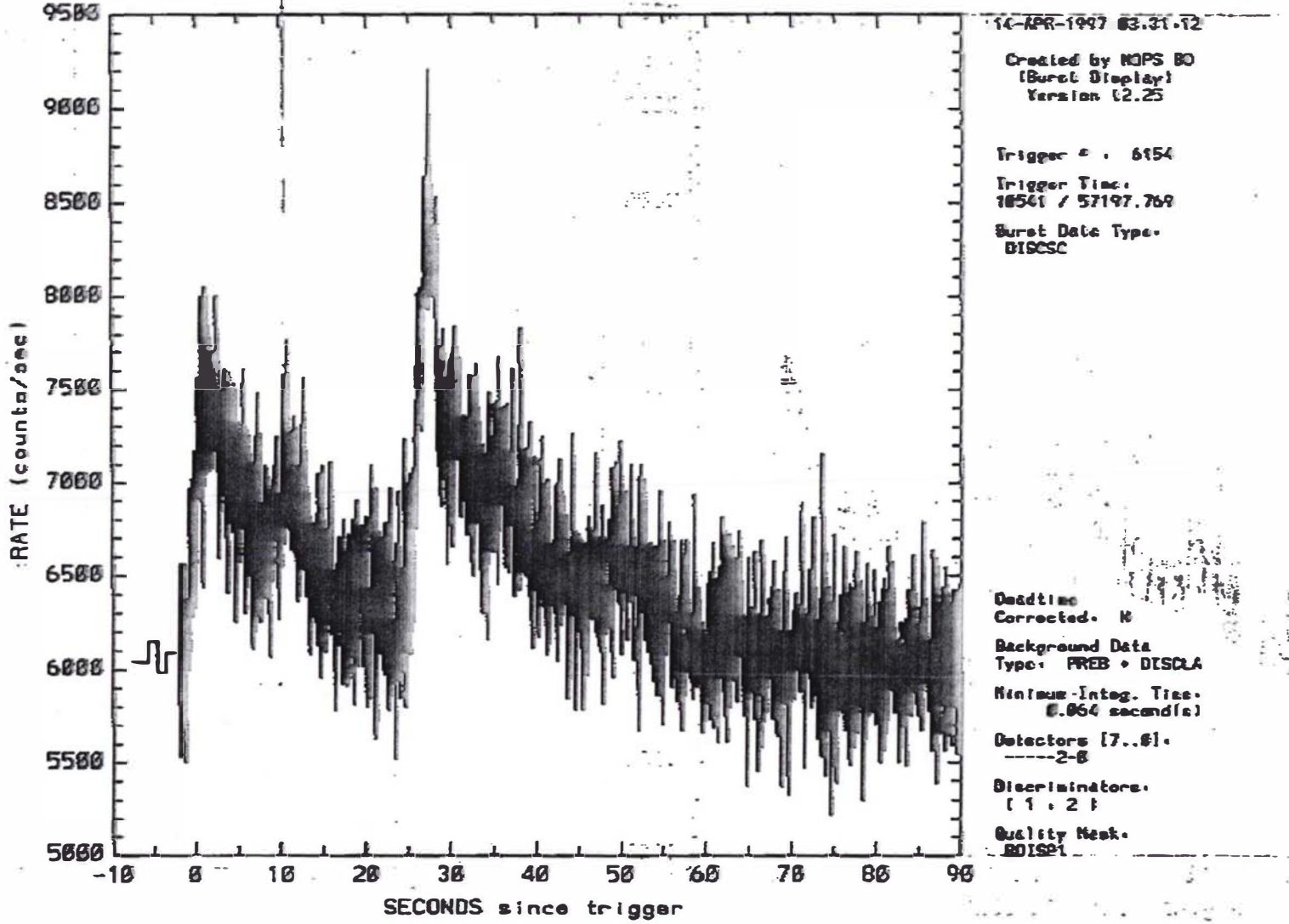



BATSE 03/04/97 57197.770
25- 100 keV
COUNTS/0.064 S
300
400
500
600
-3 0
13
29
45
61
7-

25/ 4/97

R=95%

04-14-1997 08:05 205 544 5800 BATSE P.05



205 544 5800 04-14-97 06:00AM P005 #49

From WOODSP@ssl.msfc.nasa.gov Tue Apr 8 07:50 PDT 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id HAA07195; Tue, 8 Apr 1997 07:50:12 -0700
From: WOODSP@ssl.msfc.nasa.gov
Date: Tue, 8 Apr 1997 9:49:42 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
        cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
        bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
        butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Message-Id: <970408094942.2021f6b4@ssl.msfc.nasa.gov>
Subject: Burst Trigger Message
Content-Type: text
Content-Length: 1215
X-Lines: 15
Status: RO

BATSE BURST TRIGGER

NO.: 6155

TIME: TJD=0541 SECONDS=77265

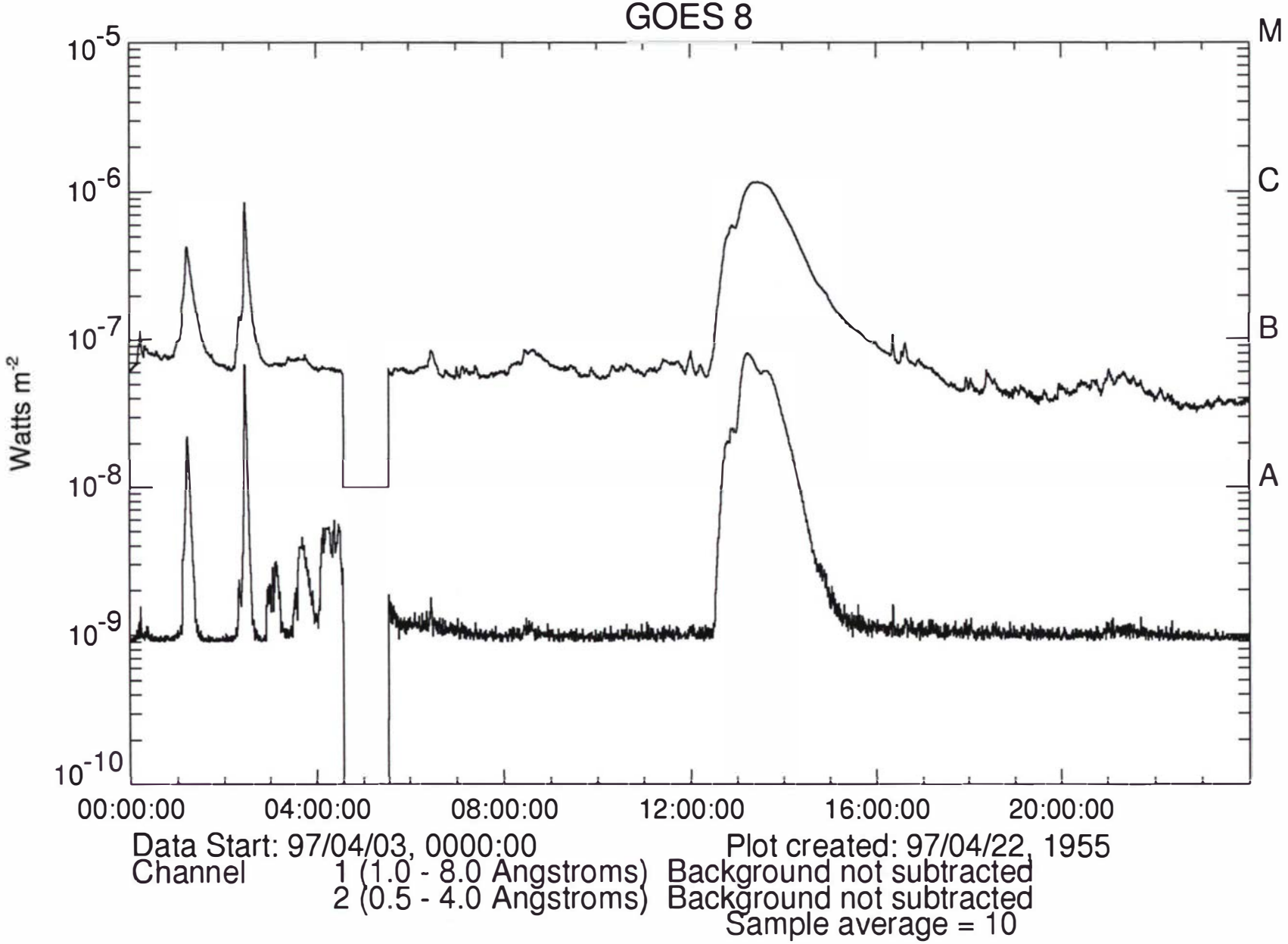
TYPE: ACCIDEN SOLAR FLARE TRIGGER SIGNAL:Y

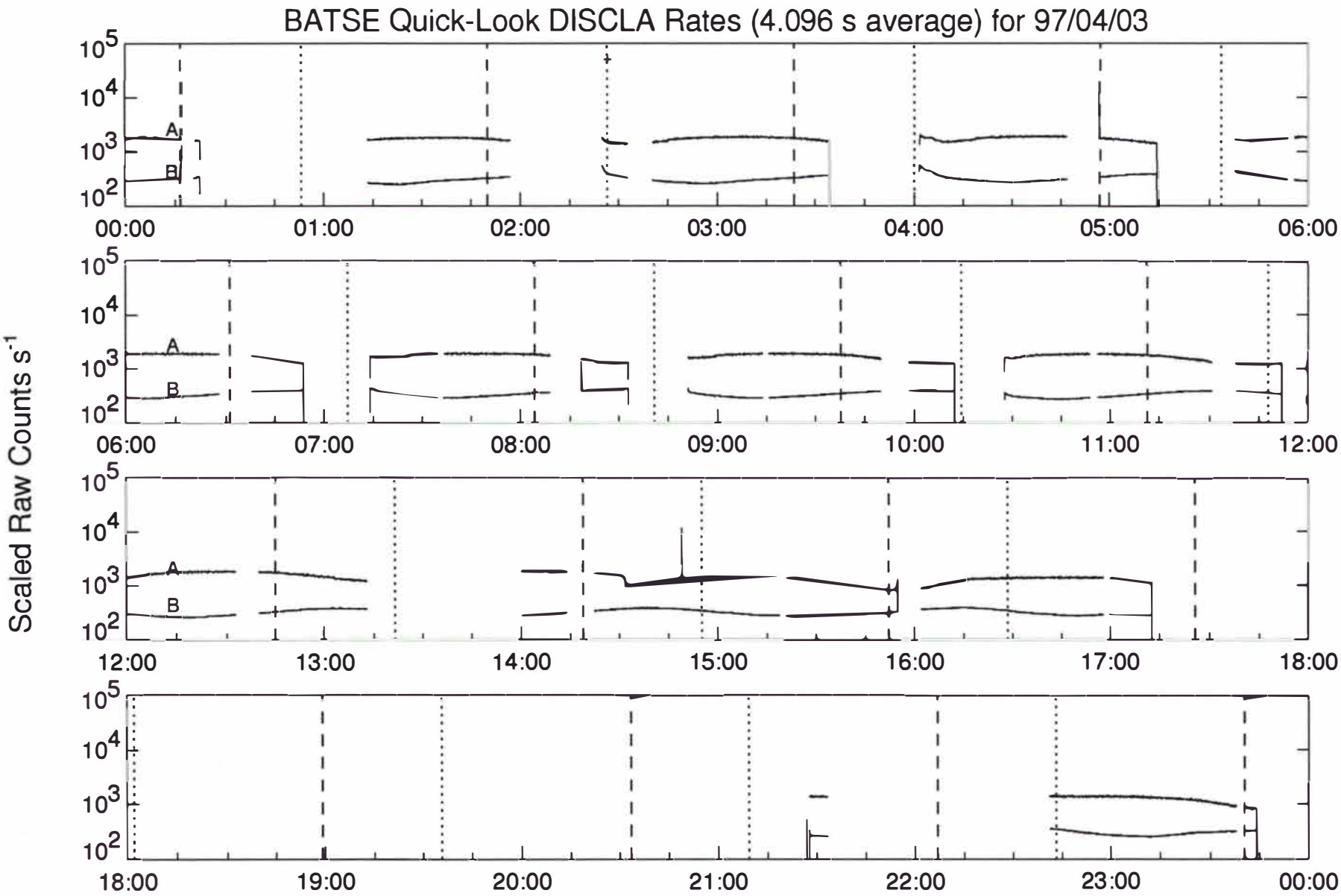
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

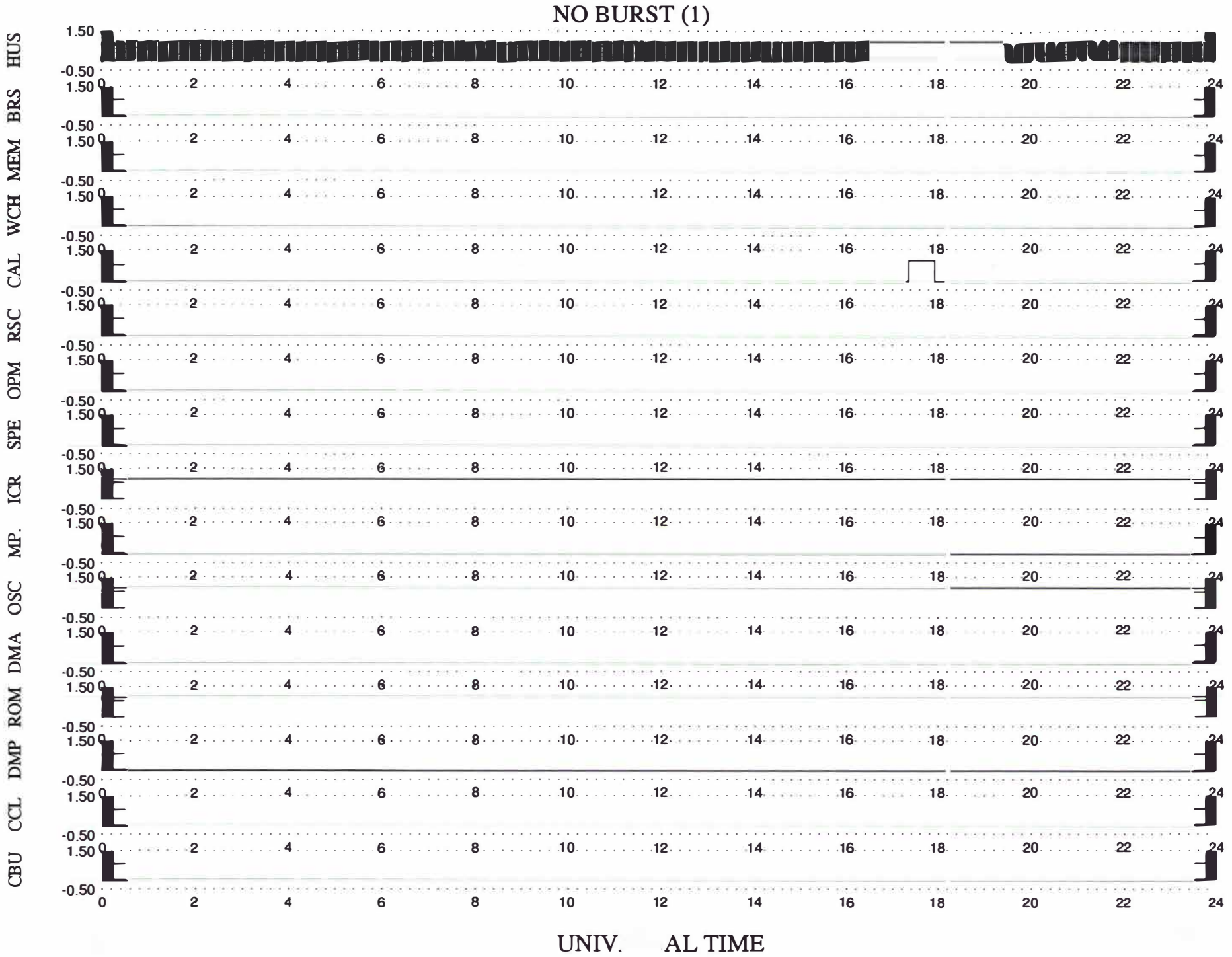
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ACCIDENTAL TRIGGER.


GOES 8
Watts m-2
10-5
10-6
10-7
10-8
10-9
10-10
M
C
B
A
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/03, 0000:00
Plot created: 97/04/22, 1955
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

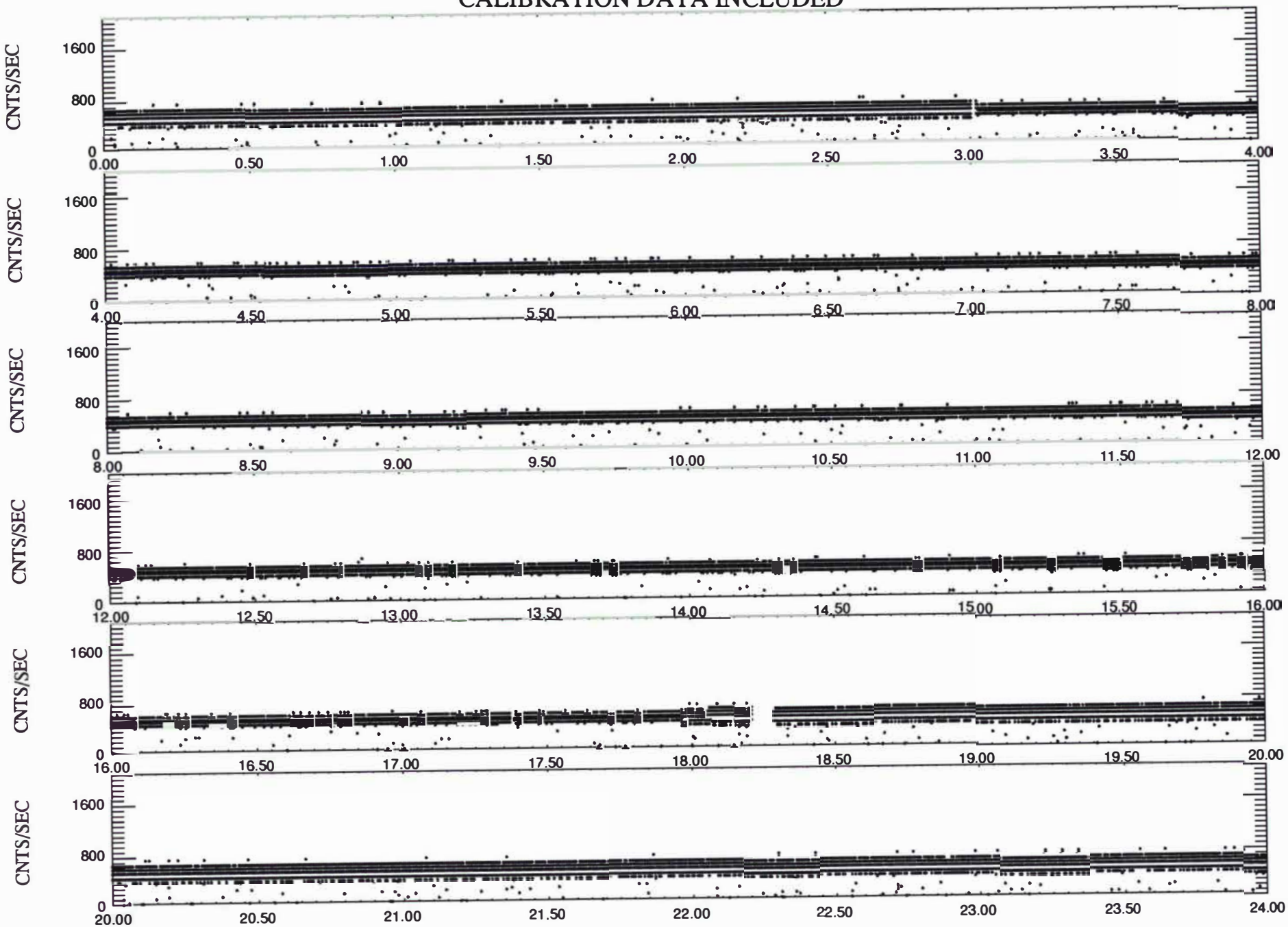

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/03
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/22, 1955 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 93, year 1997 to day 93, year 1997 7/22/97



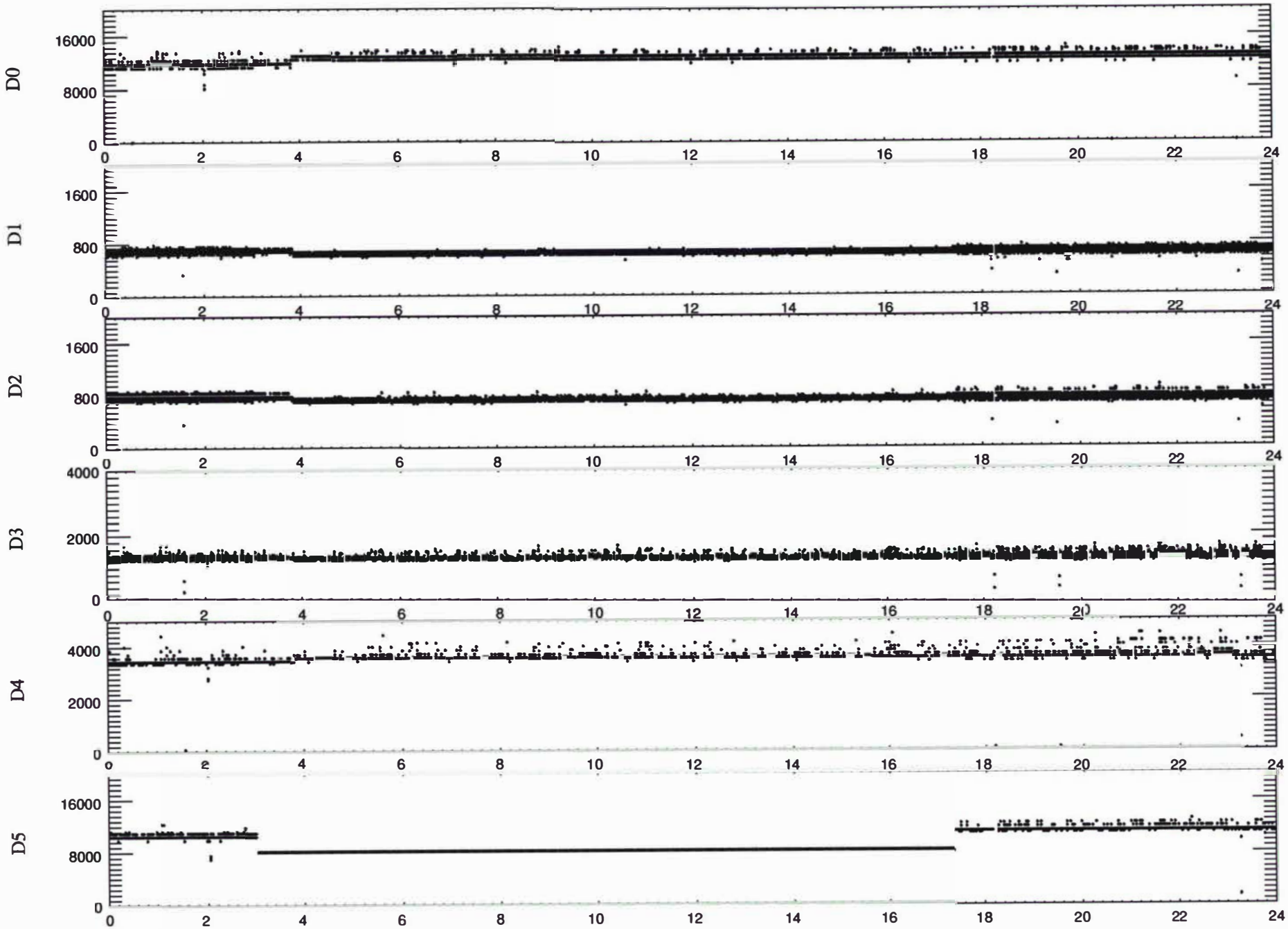
HUS 2A, MODE 1, NOT AVERAGED EDR day 93, year 1997 to day 93, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIVERSAL TIME

HUS 2B COUNTS / SEC EDR day 93, year 1997 to day 93, year 1997 7/22/97



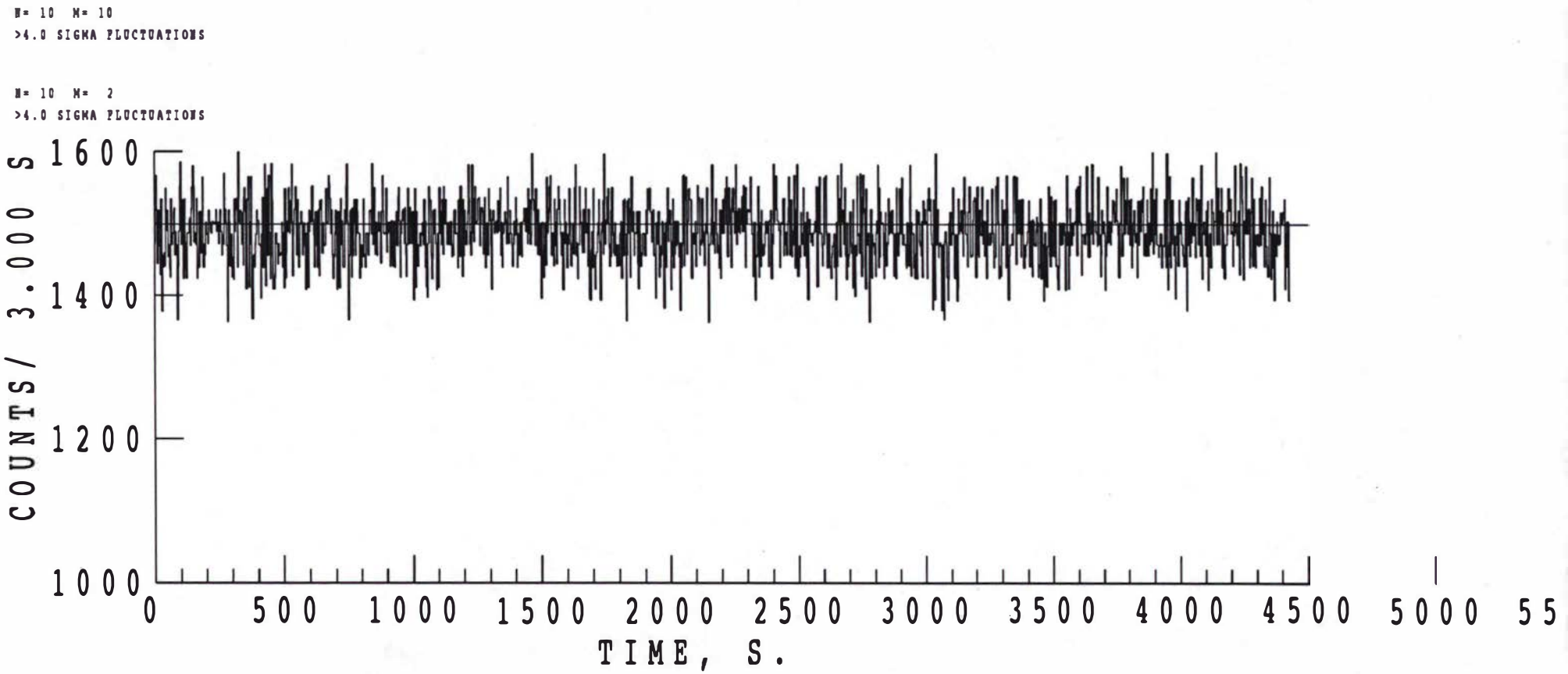
KONUS

ULYSSES RT 02/02/00

03/04/97 85824.086 s

0.250 S INTERVALS REGROUPED BY 12

0- 0 keV



SAX

HUS DATA

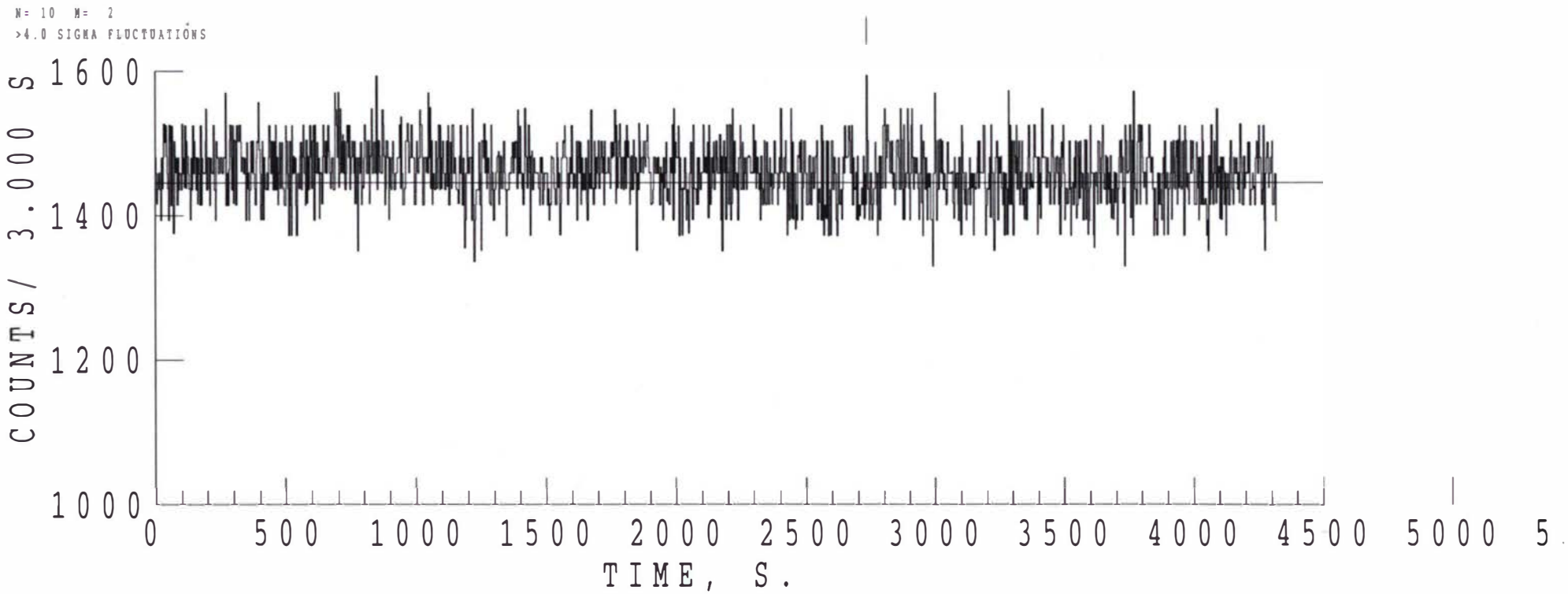
19/07/05

ULYSSES RT

04/04/97 41040.340 s

0.500 S INTERVALS REGROUPED BY 6

0- 0 keV



From RICHARDSON@ssl.msfc.nasa.gov Thu Apr 10 11:35 PDT 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id LAA28296; Thu, 10 Apr 1997 11:35:42 -0700
Date: Thu, 10 Apr 1997 13:35:28 -0500 (CDT)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970410133528.21003ef9@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6156
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6156
EVENT OF 1997 APR 4 DAY OF YEAR= 94
EVENT CROSSING TIME AT BATSE : 62068. S. OR 17:14:28.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 176.000 45.000
BATSE PEAK COUNTING RATE: 750 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 4/ 4/ 97 IS:
RA= 155.338 DEC= 35.623 DIST= 4.329 AU
BATSE-ULYSSES DISTANCE = 647642297. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=161.74 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2051.56 SECS.
CROSSING TIME AT ULYSSES IS 60016. S. OR 16:40:16 +/- 136.34 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 4/ 4/ 97 IS:
RA= 172.405 DEC= 6.716 DIST= 0.681 AU
MARS-BATSE DISTANCE = 101845120. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=141.59 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -266.19 SECS.
CROSSING TIME AT MARS IS 61802. S. OR 17:10:01 +/- 32.60 SECONDS

BATSE BURST TRIGGER

NO.: 6156

TIME: TJD=0542 SECONDS=62068

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=65.4 AZIMUTH=238.4 ERROR=15.6 DEGREES

COMMENTS:
PROBABLE WEAK GRB RIDING ON A PARTICLE EVENT. LOCATION UNCERTAIN DUE TO
PARTICLE EVENT.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6156	970404	10542	62068	750	176	+45	20

BATSE# 6156

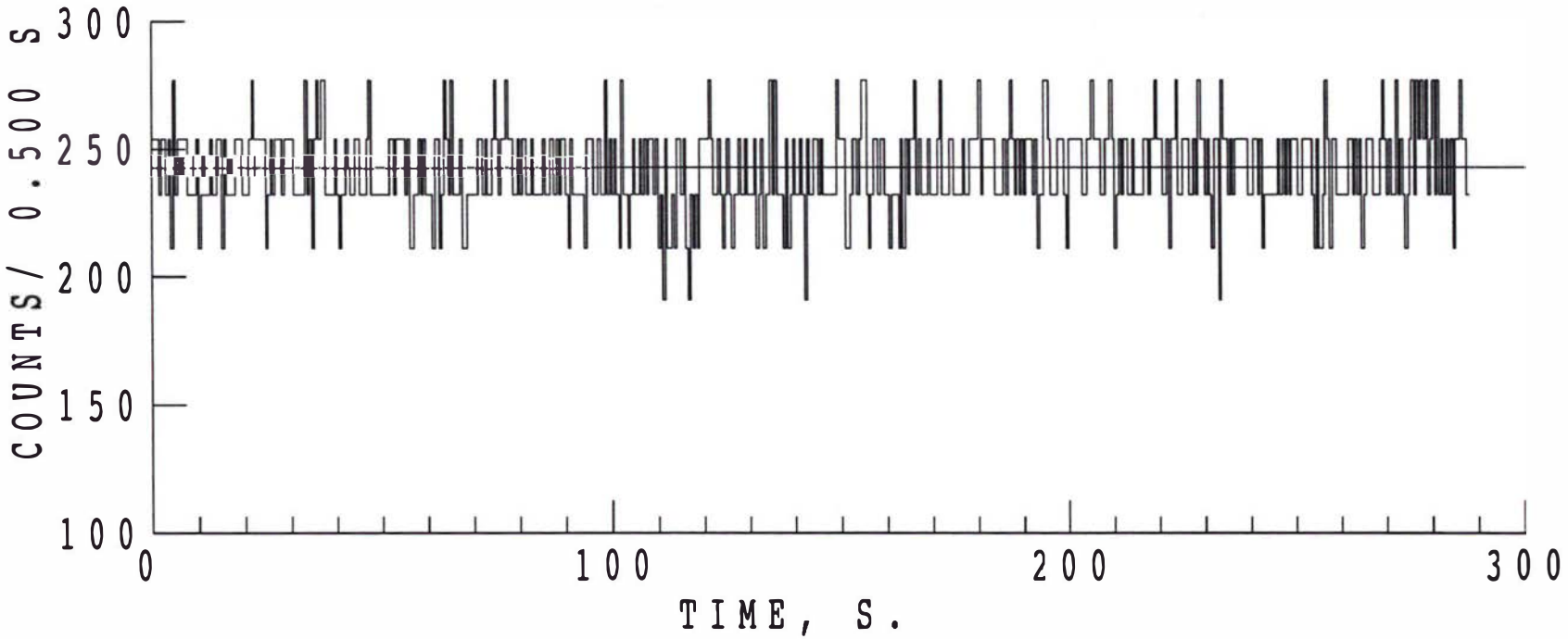
ULYSSES RT 11/ 4/97

4/ 4/97 59868.070 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@ssl.msfc.nasa.gov Tue Apr 8 11:38 PDT 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA09060; Tue, 8 Apr 1997 11:38:02 -0700
From: RICHARDSON@ssl.msfc.nasa.gov
Date: Tue, 8 Apr 1997 13:38:02 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970408133802.2021b48e@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6157
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6157
EVENT OF 1997 APR 4 DAY OF YEAR= 94
EVENT CROSSING TIME AT BATSE : 63011. S. OR 17:30:11.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 73.000 -54.000
BATSE PEAK COUNTING RATE: 19000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 4/ 4/ 97 IS:
RA= 155.335 DEC= 35.622 DIST= 4.329 AU
BATSE-ULYSSES DISTANCE = 647665694. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 65.95 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 880.30 SECS.
CROSSING TIME AT ULYSSES IS 63891. S. OR 17:44:51 +/- 405.89 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 4/ 4/ 97 IS:
RA= 172.405 DEC= 6.716 DIST= 0.681 AU
MARS-BATSE DISTANCE = 101845120. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 79.05 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 64.55 SECS.
CROSSING TIME AT MARS IS 63076. S. OR 17:31:15 +/- 58.89 SECONDS

BATSE BURST TRIGGER

NO.: 6157

TIME: TJD=0542 SECONDS=63011

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=75.2 AZIMUTH=87.3 ERROR=0.5 DEGREES

COMMENTS:
GRB. LOTS OF STRUCTURE. DUR~12 SEC. VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6157	970404	10542	63011	19000	073	-54	12

BATSE# 6157

ULYSSES RT 11/ 4/97

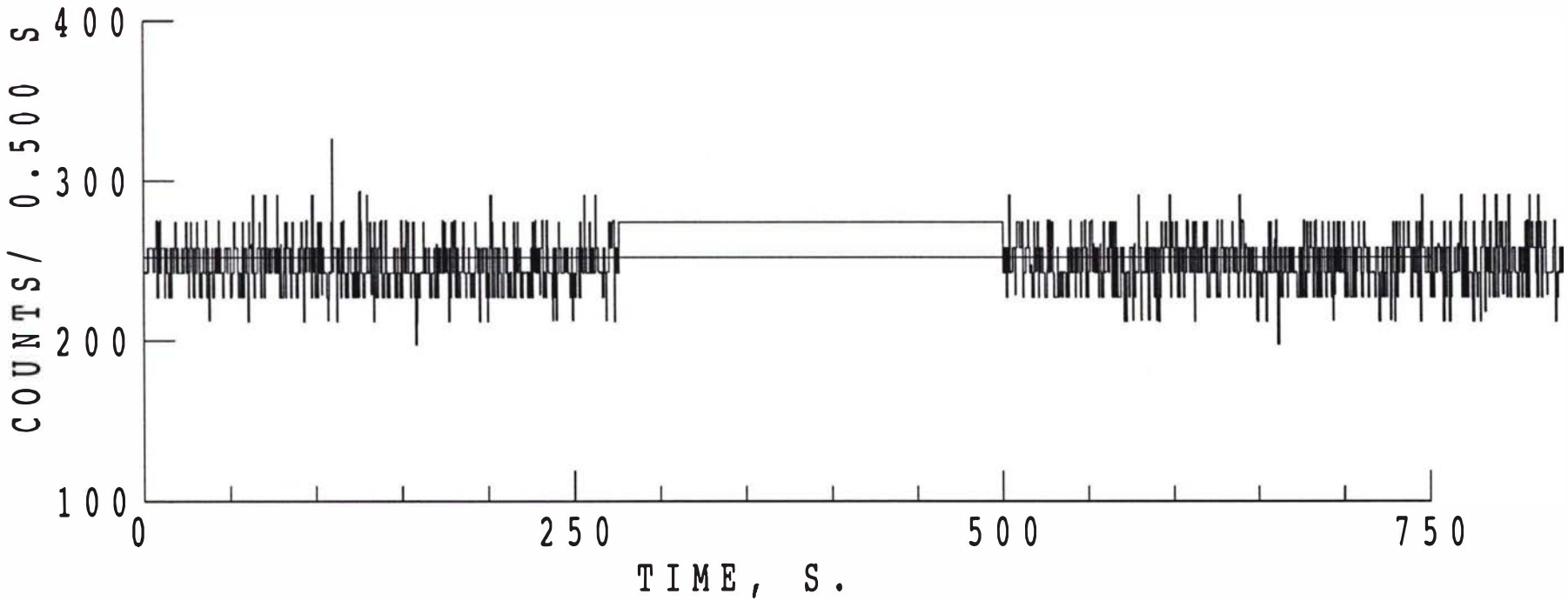
4/ 4/97 63468.117 s

0.250 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@ssl.msfc.nasa.gov Mon Apr 7 12:11 PDT 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA00612; Mon, 7 Apr 1997 12:11:04 -0700
From: RICHARDSON@ssl.msfc.nasa.gov
Date: Mon, 7 Apr 1997 13:38:33 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970407133833.2021fd54@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6158
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6158
EVENT OF 1997 APR 4 DAY OF YEAR= 94
EVENT CROSSING TIME AT BATSE : 72364. S. OR 20:06:04.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 216.000 -42.000
BATSE PEAK COUNTING RATE: 4000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 4/ 4/ 97 IS:
RA= 155.313 DEC= 35.613 DIST= 4.331 AU
BATSE-ULYSSES DISTANCE = 647893895. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 84.61 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 202.85 SECS.
CROSSING TIME AT ULYSSES IS 72567. S. OR 20:09:26 +/- 426.63 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 4/ 4/ 97 IS:
RA= 172.405 DEC= 6.716 DIST= 0.681 AU
MARS-BATSE DISTANCE = 101845120. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=117.15 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -155.00 SECS.
CROSSING TIME AT MARS IS 72209. S. OR 20:03:29 +/- 50.13 SECONDS

BATSE BURST TRIGGER
NO.: 6158

TIME: TJD=0542 SECONDS=72364

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=116.5 AZIMUTH=156.7 ERROR=4.7 DEGREES

COMMENTS:
GRB. SINGLE PULSE. DUR.~8SEC. NOT VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6158	970404	10542	72364	4000	216	-42	8

BATSE# 6158

ULYSSES RT 11/ 4/97

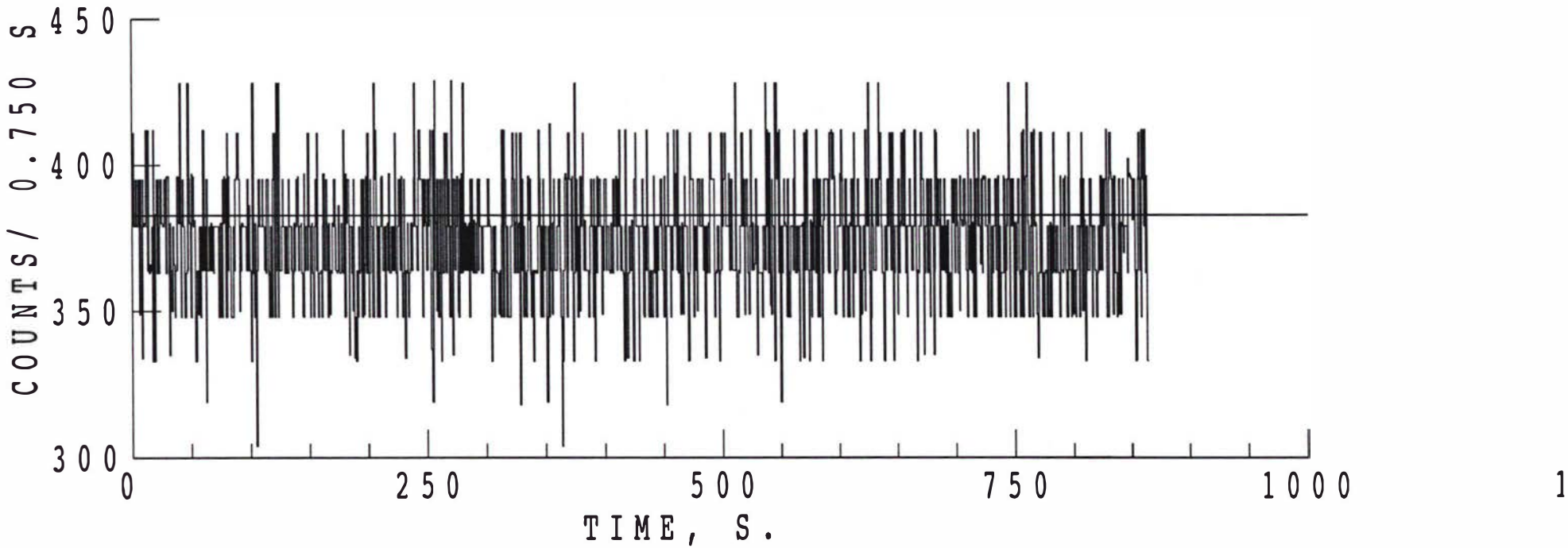
4/ 4/97 72144.227 s

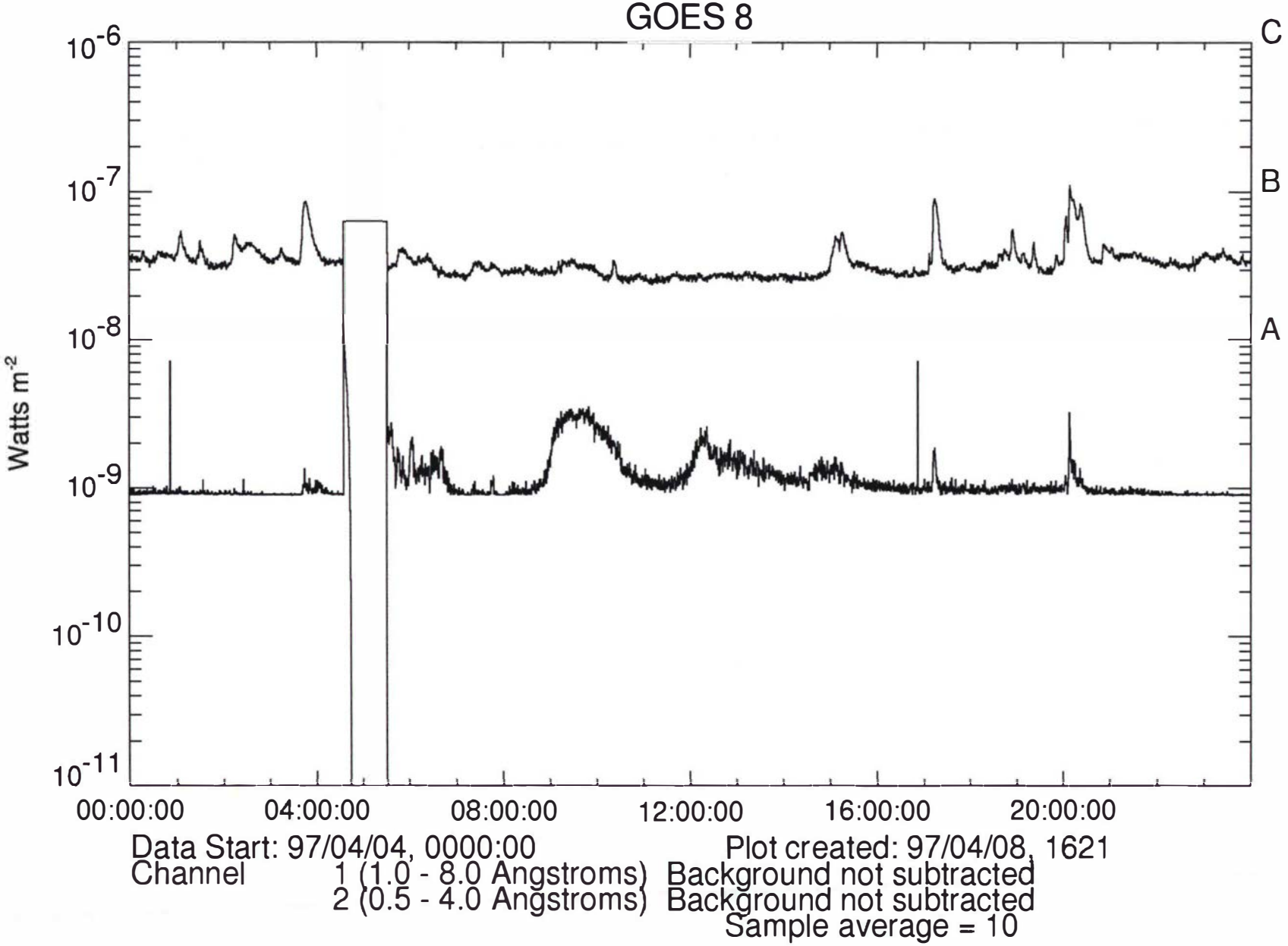
0.250 S INTERVALS REGROUPED BY 3

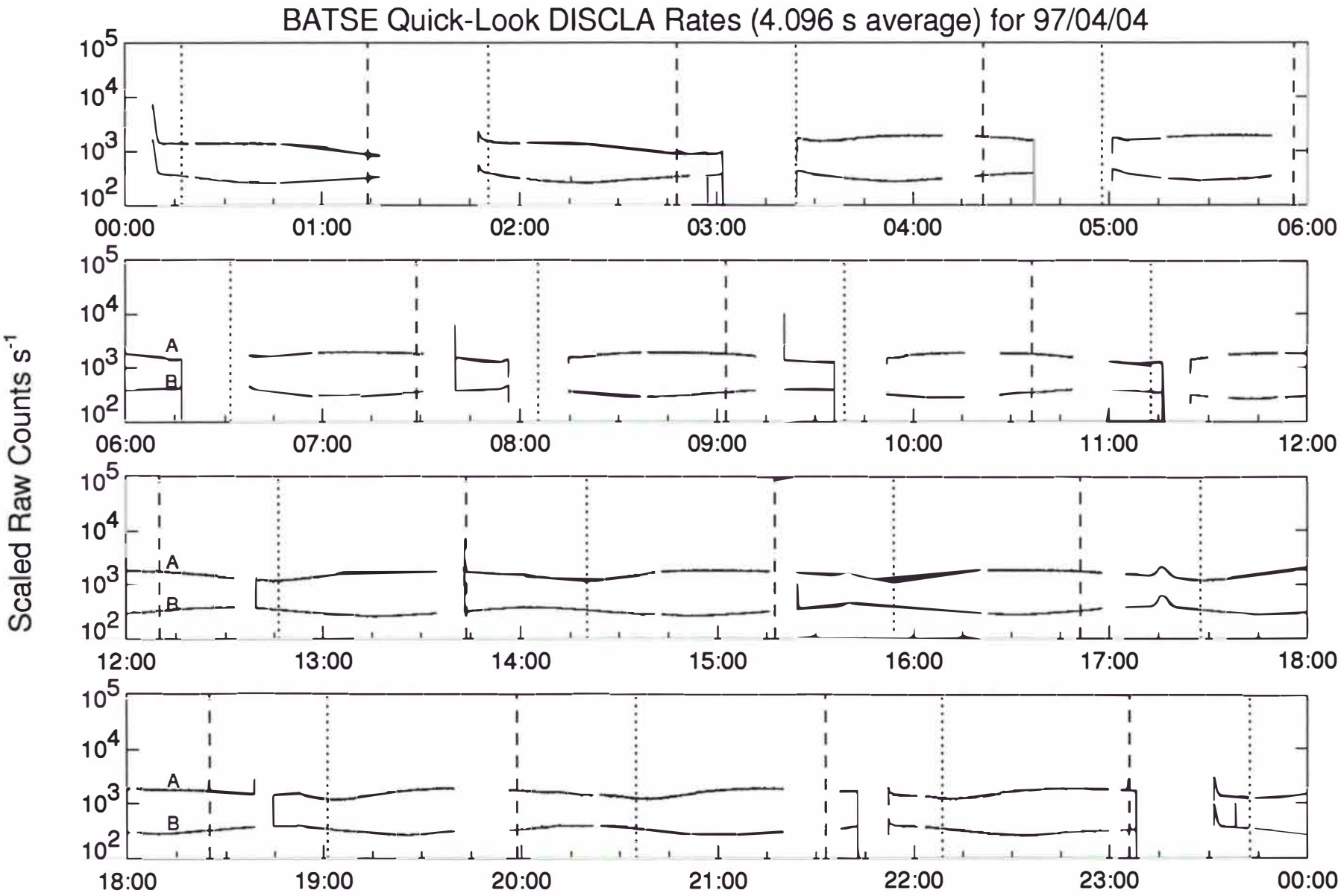
0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

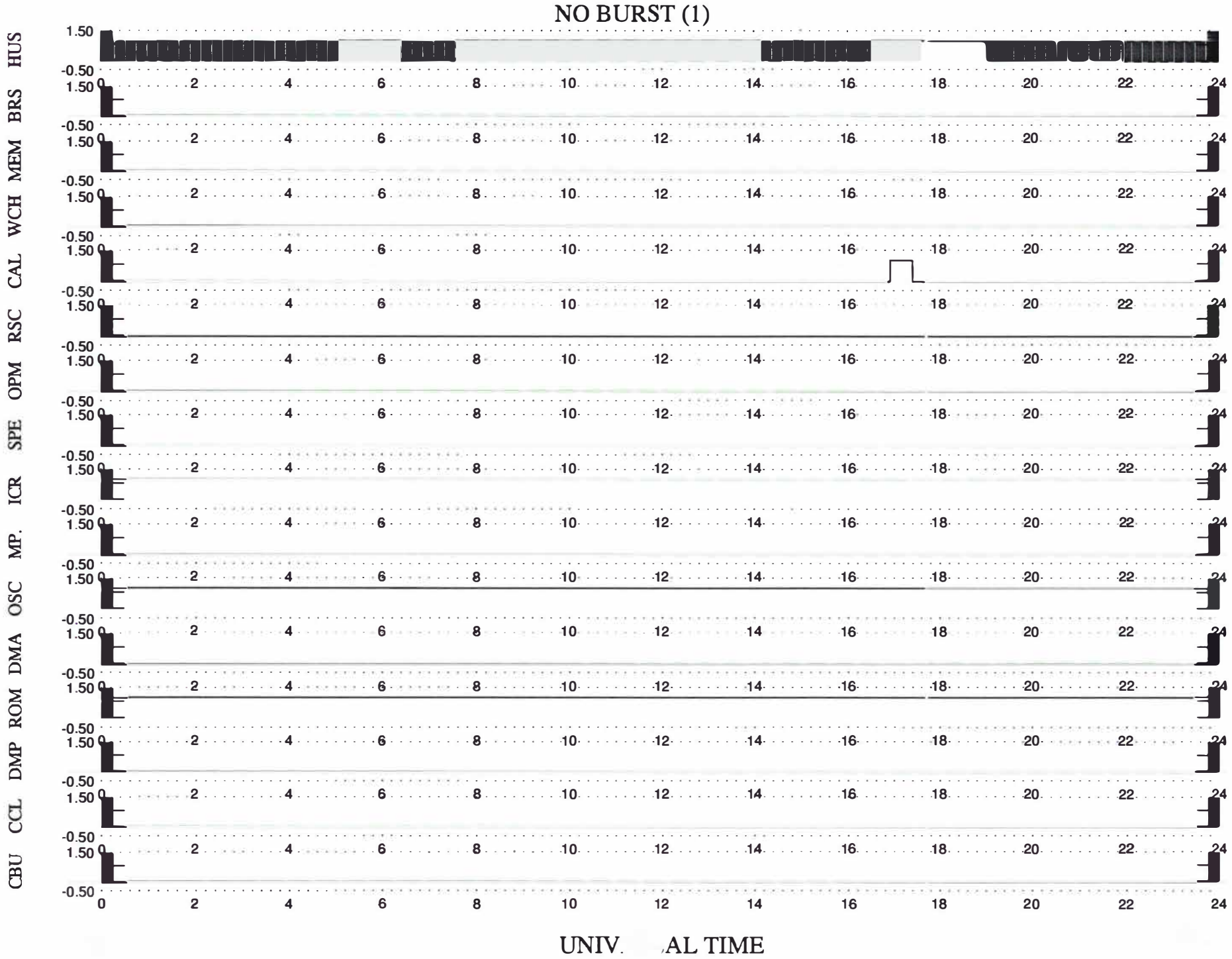
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS




GOES 8
C
B
A
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
10^{-11}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/04, 0000:00
Plot created: 97/04/08, 1621
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

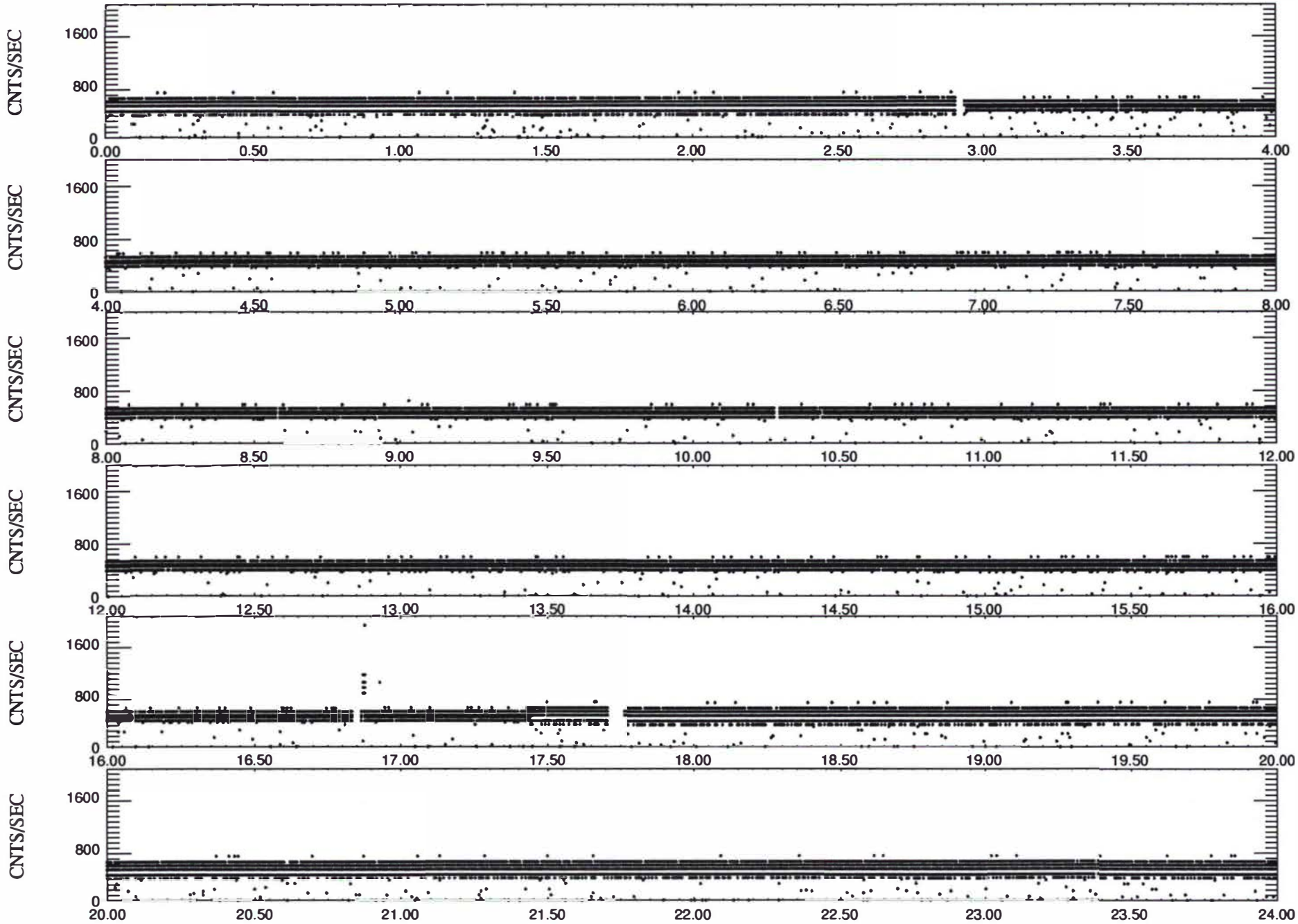

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/04
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Current Time: 97/04/08, 1622 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 94, year 1997 to day 94, year 1997 7/22/97



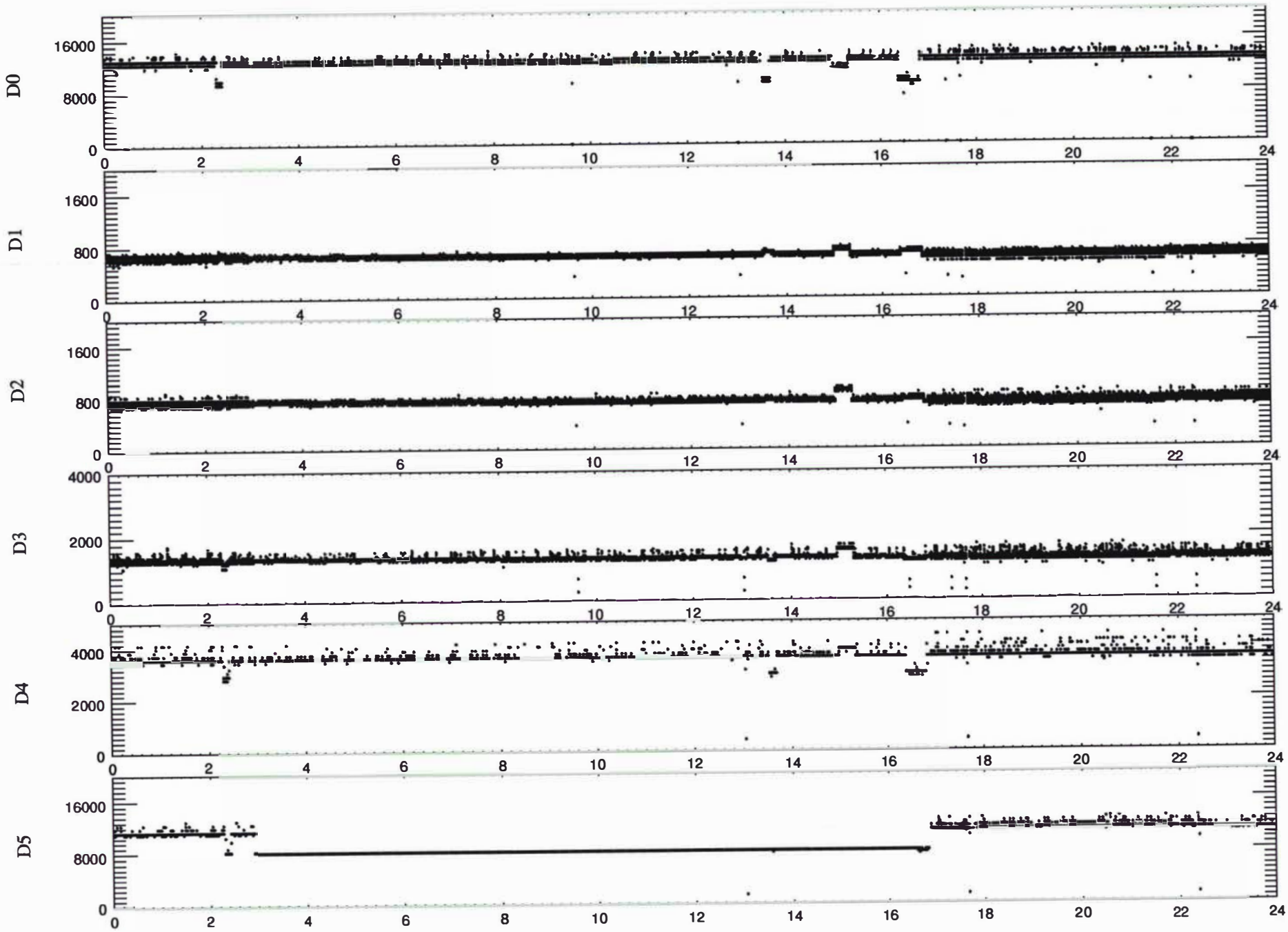
HUS 2A, MODE 1, NOT AVERAGED EDR day 94, year 1997 to day 94, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 94, year 1997 to day 94, year 1997 7/22/97



From DEAL@fender.msfc.nasa.gov Tue Apr 8 12:11 PDT 1997
Return-Path: <DEAL@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA09552; Tue, 8 Apr 1997 12:11:27 -0700
From: DEAL@fender.msfc.nasa.gov
Date: Tue, 8 Apr 1997 14:10:35 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970408141035.20c0295d@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6159
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6159
EVENT OF 1997 APR 5 DAY OF YEAR= 95
EVENT CROSSING TIME AT BATSE : 13319. S. OR 03:41:59.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 99.000 23.000
BATSE PEAK COUNTING RATE: 9500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 5/ 4/ 97 IS:
RA= 155.249 DEC= 35.589 DIST= 4.335 AU
BATSE-ULYSSES DISTANCE = 648565797. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=130.04 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1391.68 SECS.
CROSSING TIME AT ULYSSES IS 11927. S. OR 03:18:47 +/- 316.43 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 5/ 4/ 97 IS:
RA= 172.118 DEC= 6.796 DIST= 0.684 AU
MARS-BATSE DISTANCE = 102294968. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=108.16 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -106.35 SECS.
CROSSING TIME AT MARS IS 13213. S. OR 03:40:12 +/- 54.68 SECONDS

BATSE BURST TRIGGER
NO.: 6159

TIME: TJD=0543 SECONDS=13319

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=8.8 AZIMUTH=324.0 ERROR=0.5 DEGREES

COMMENTS:
GRB LASTING ~ 70 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6159	970405	10543	13319	9500	099	+23	70

Helio corr removed 17/2/00

Date: Mar 27 '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? No - bad slats

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

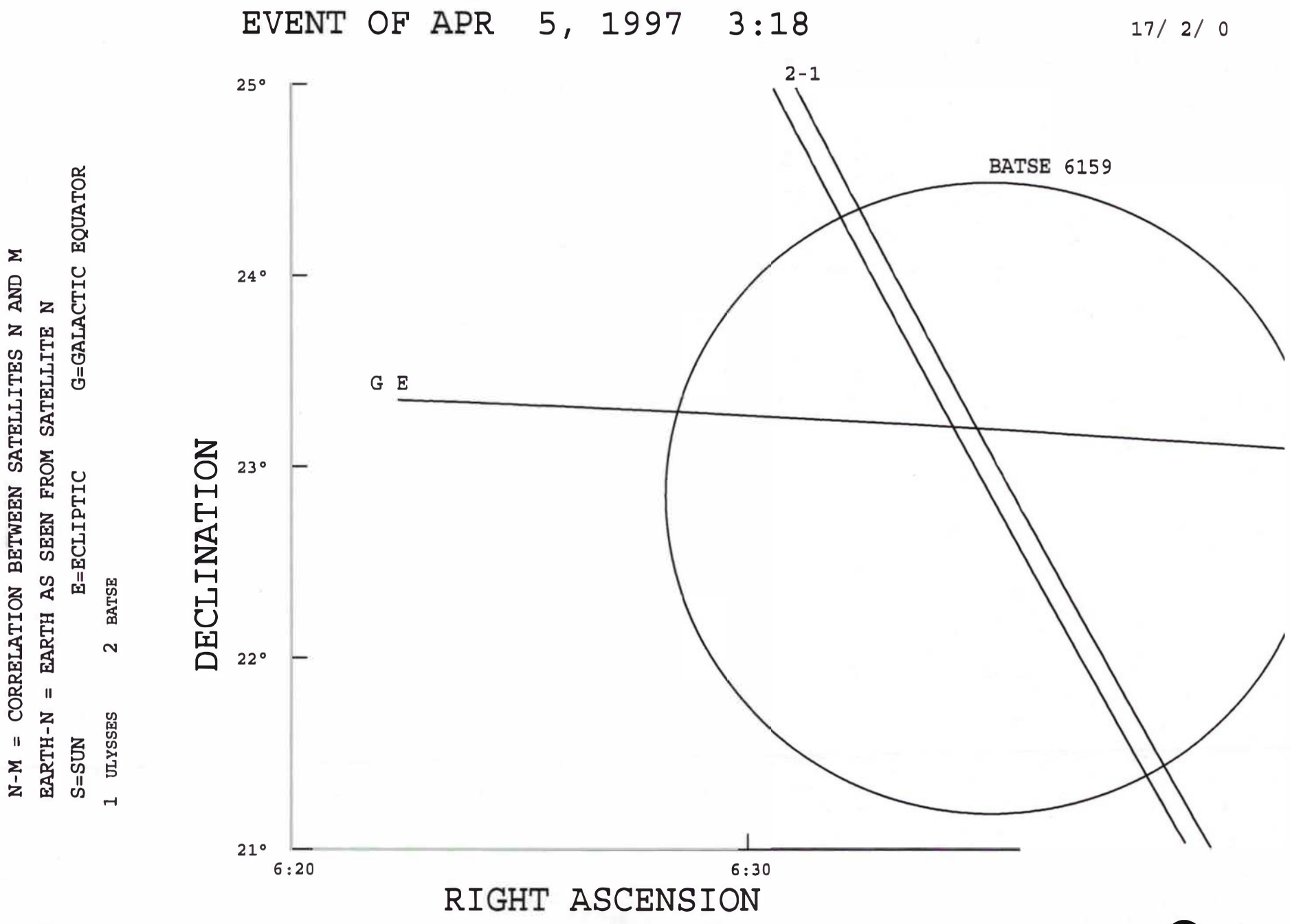
3. PVO Data

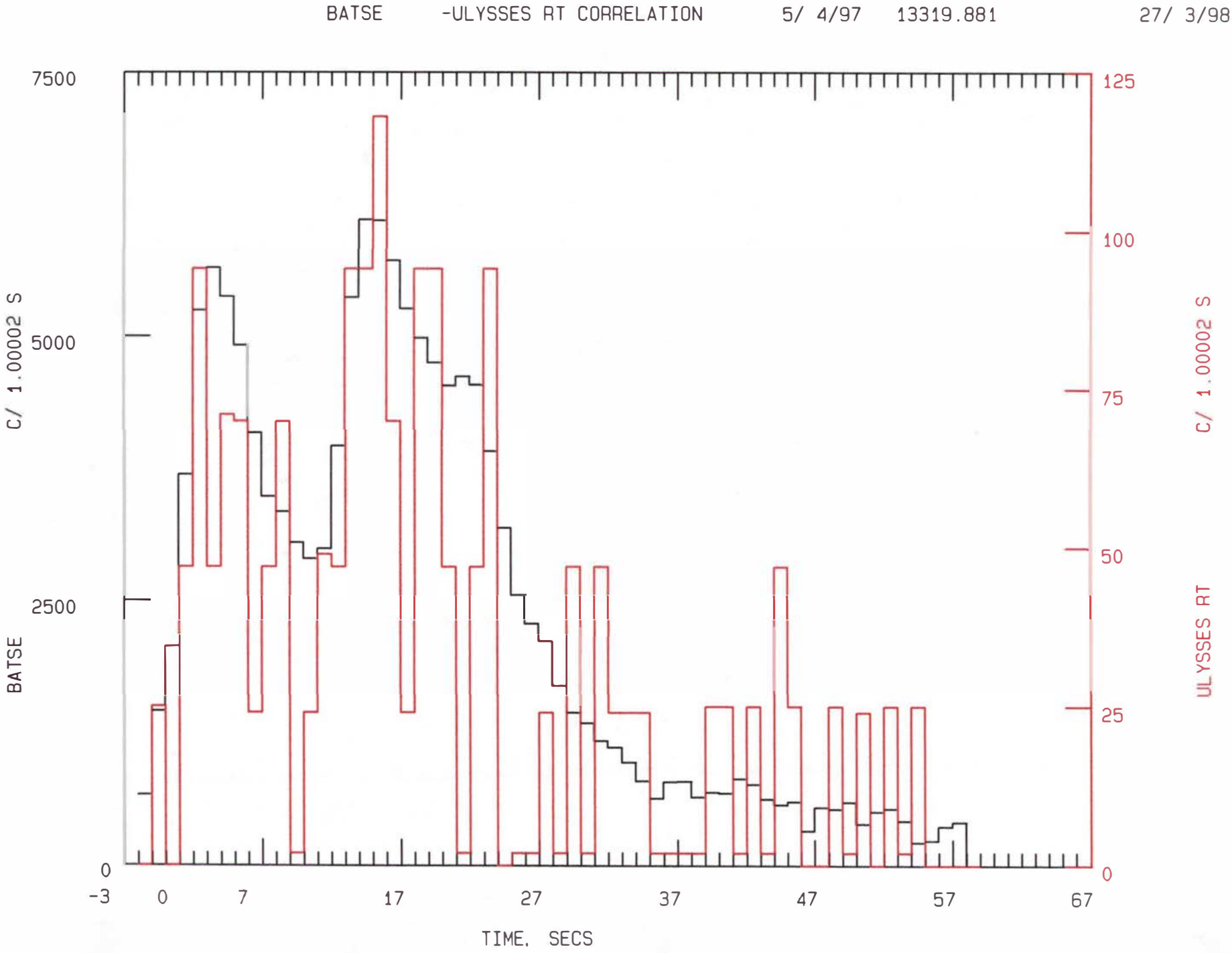
☐ Ephemeris of PVO used (not Venus)?

☐ 2000 coordinates used?

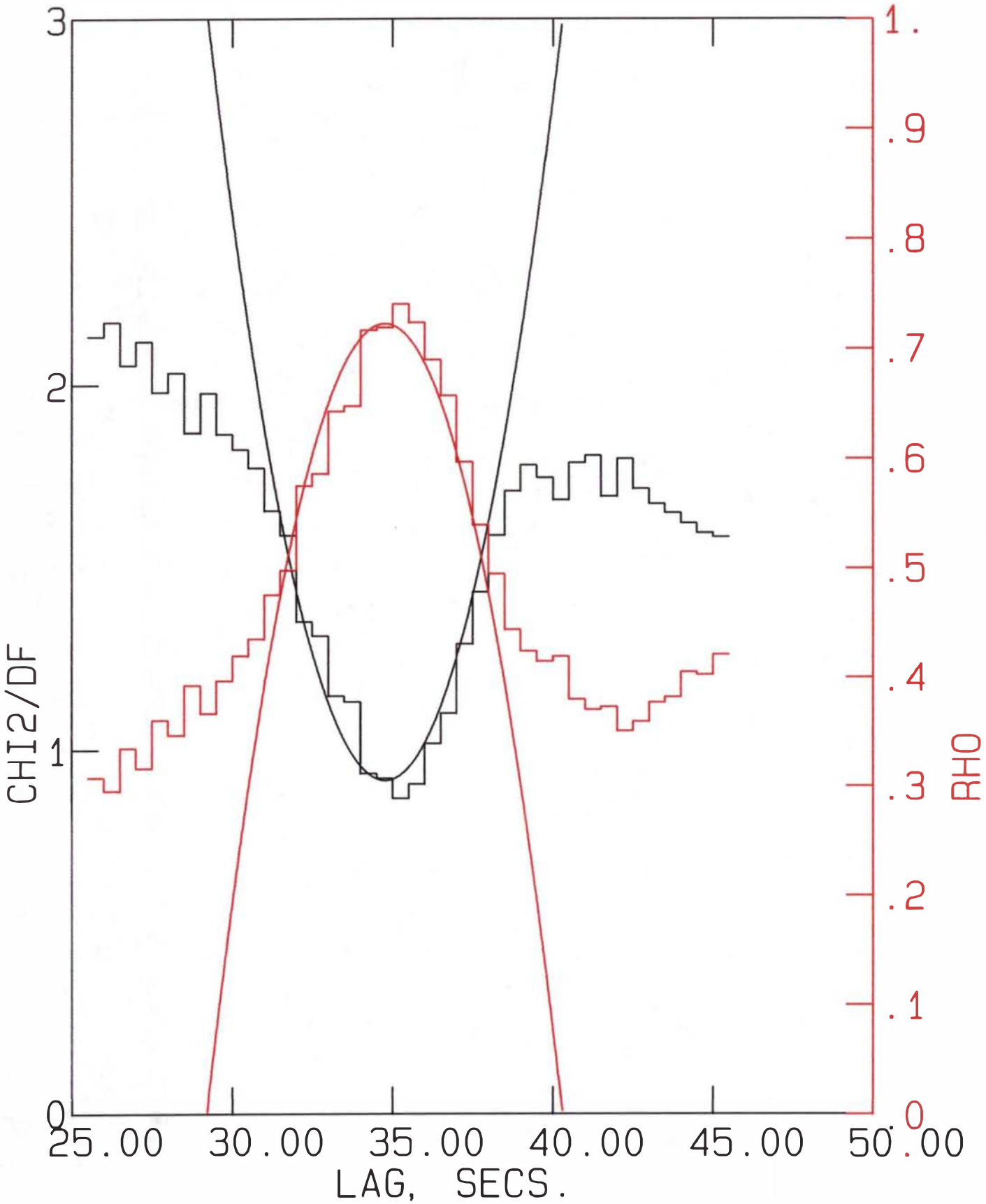
☐ Geocentric time used?

☑ ACCESS database updated?


EVENT OF APR 5, 1997 3:18
17/ 2/ 0
2-1
BATSE 6159
G E
25°
24°
23°
22°
21°
6:20
6:30
DECLINATION
RIGHT ASCENSION
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE


BATSE -ULYSSES RT CORRELATION 5/ 4/97 13319.881 27/ 3/98
7500
5000
2500
0
C/ 1.00002 S
BATSE
125
100
75
50
25
0
C/ 1.00002 S
ULYSSES RT
-3
0
7
17
27
37
47
57
67
TIME. SECS

BATSE -ULYSSES RT CORRELATION 5/ 4/97 13319.881

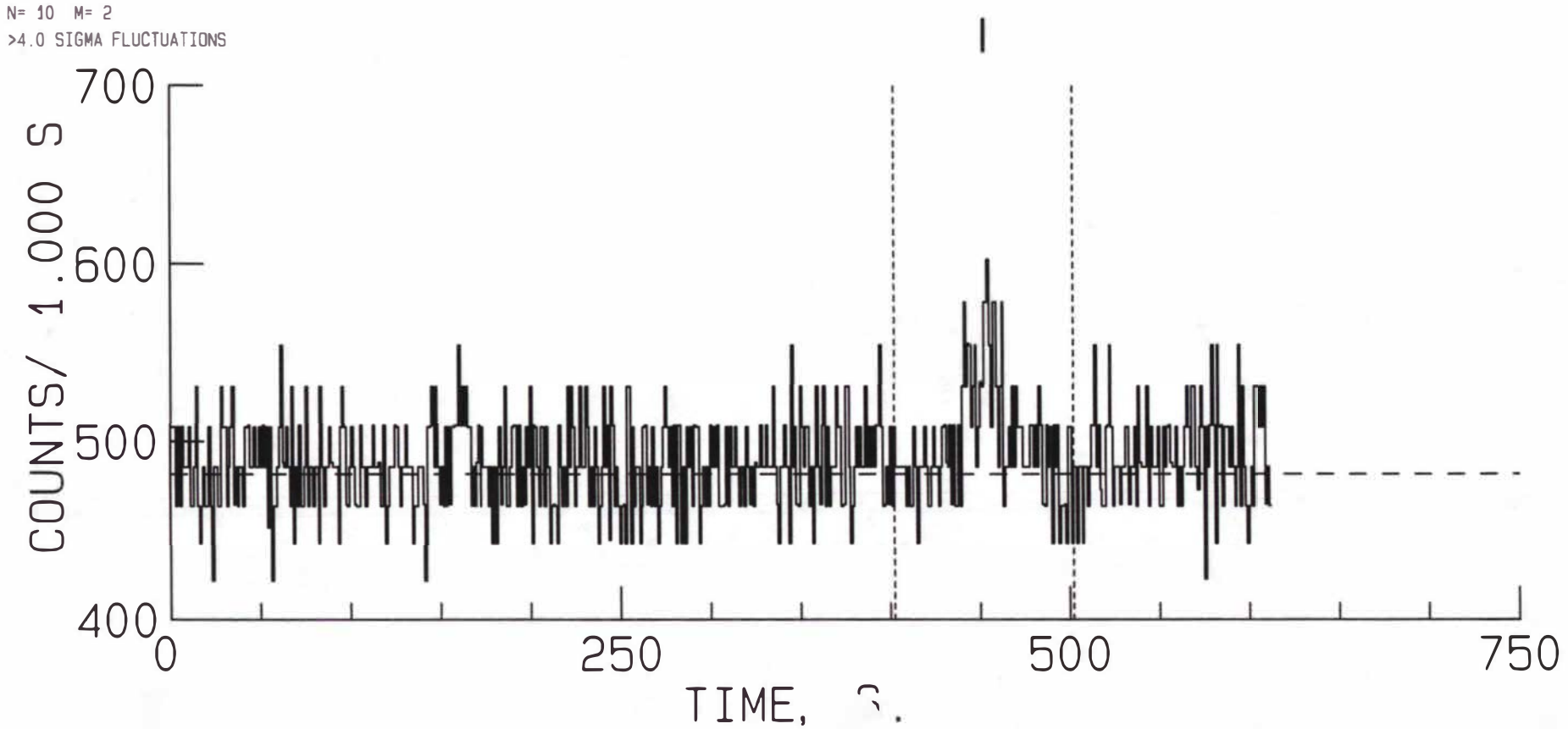


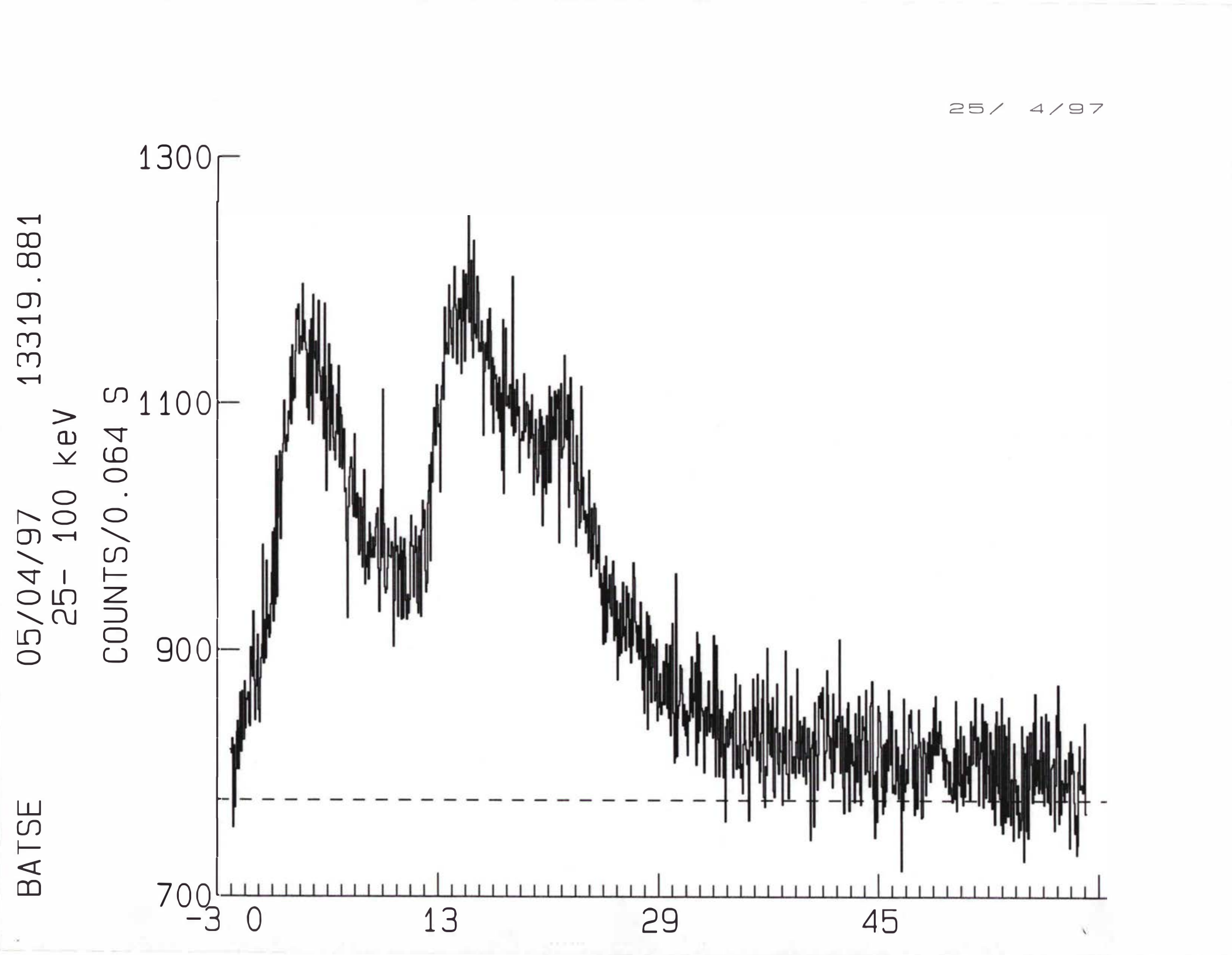
ULYSSES RT 27/ 3/98

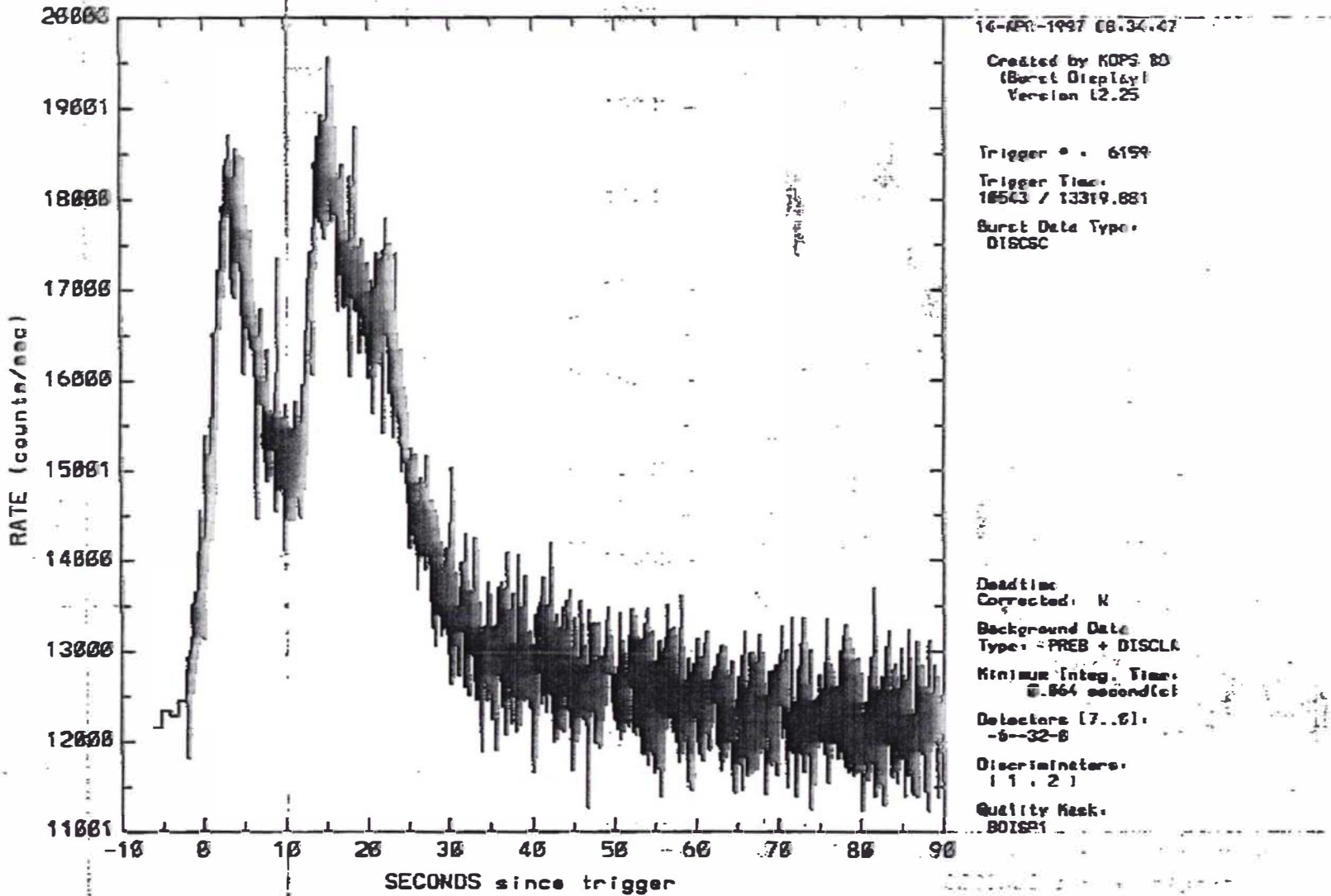
5/ 4/97 11520.038 s

0.500 S INTERVALS REGROUPED BY 2

22- 147 keV




25/ 4/97
BATSE 05/04/97 13319.881
25- 100 keV
COUNTS/0.064 S
1300
1100
900
700
-3 0
13
29
45


DISCSC Data for K. Hurley, No. 6159
RATE (counts/sec)
20000
19000
18000
17000
16000
15000
14000
13000
12000
11000
-10
0
10
20
30
40
50
60
70
80
90
SECONDS since trigger
14-APR-1997 08:34:47
Created by KOPS 80
(Burst Display)
Version 12.25
Trigger # : 6159
Trigger Time:
16543 / 13319.881
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: -PREB + DISCLA
Minimum Integ. Time:
0.064 seconds
Detectors [7..0]:
-6--32-0
Discriminators:
[1 , 2]
Quality Mask:
...BDIS01

Date: Jan 5 '10

BURST TRIANGULATION CHECKLIST

1. Ulysses Data N/A

☐ Jim Schmidling's stat file correction applied?

☐ Final ephemeris used?

☐ Final, CDROM data used?

☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data…")

☐ Was Mars-blocking used?

☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)

☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).

☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events

☐ Σ 3Δt's calculated, and/or BMAPSUM executed?

3. For INTEGRAL events

☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?

☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

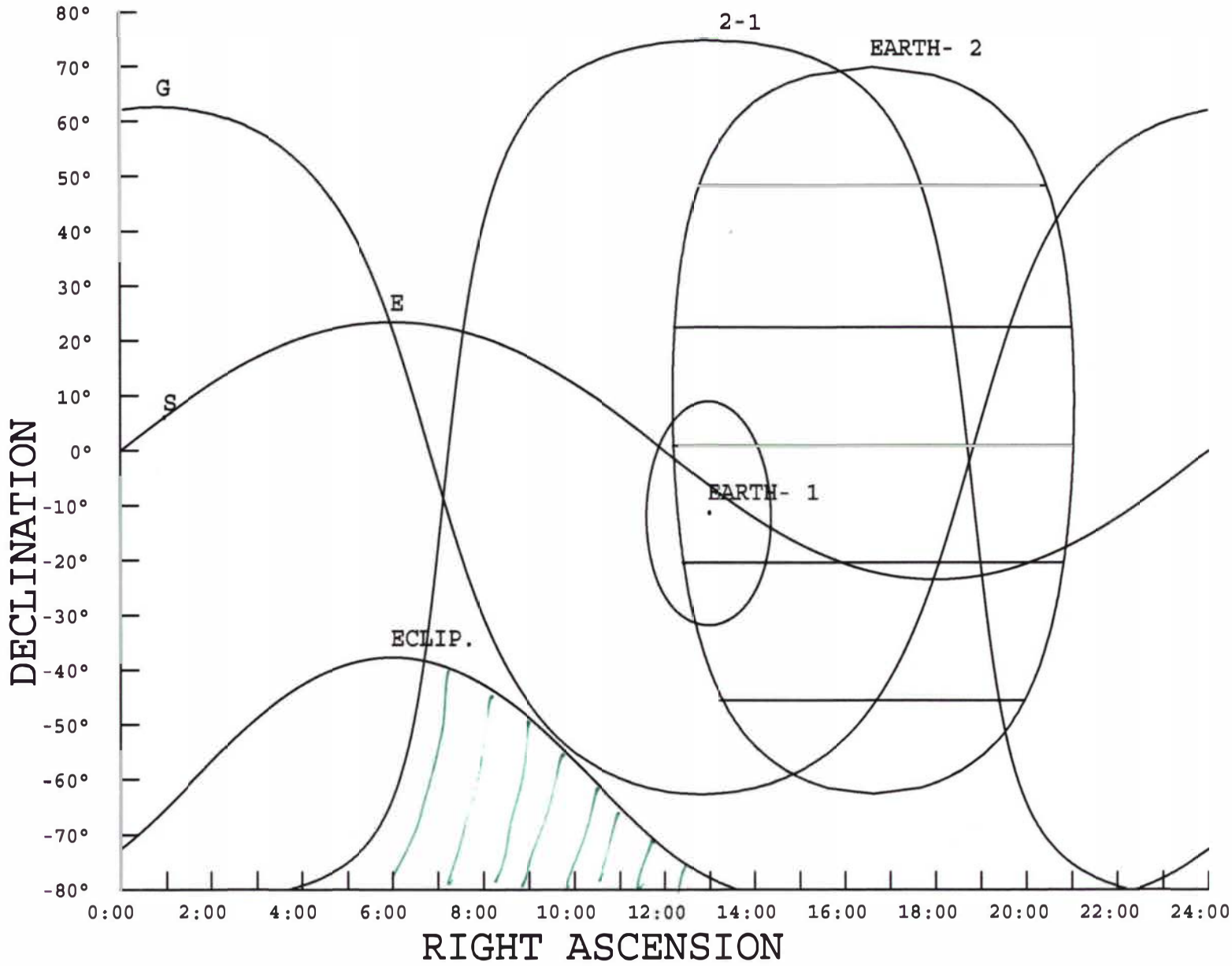
☐ Updated ephemeris used for bursts prior to September 30, 2003?

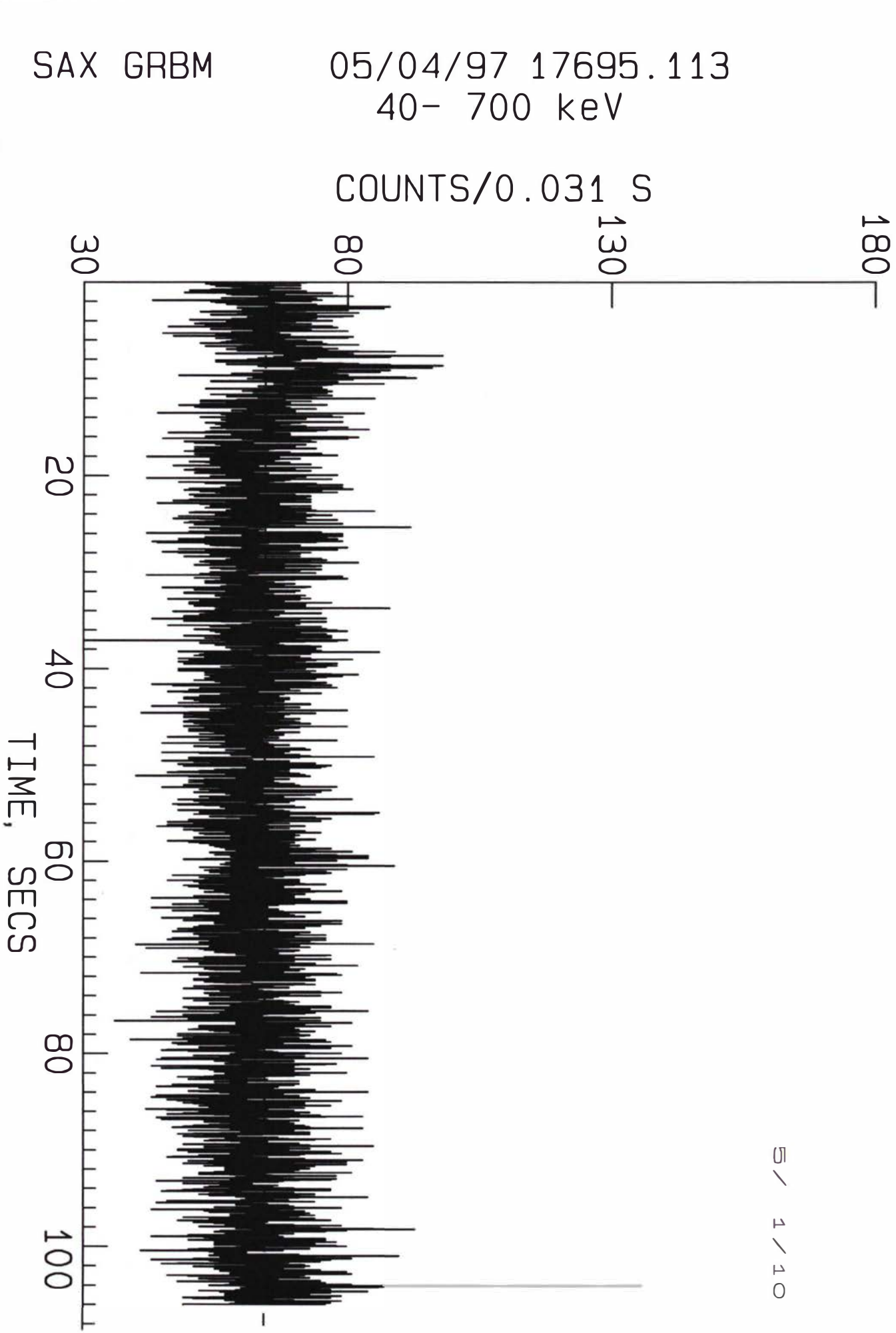
☑ ACCESS and MBL4 databases updated?

EVENT OF APR 5, 1997 4:54

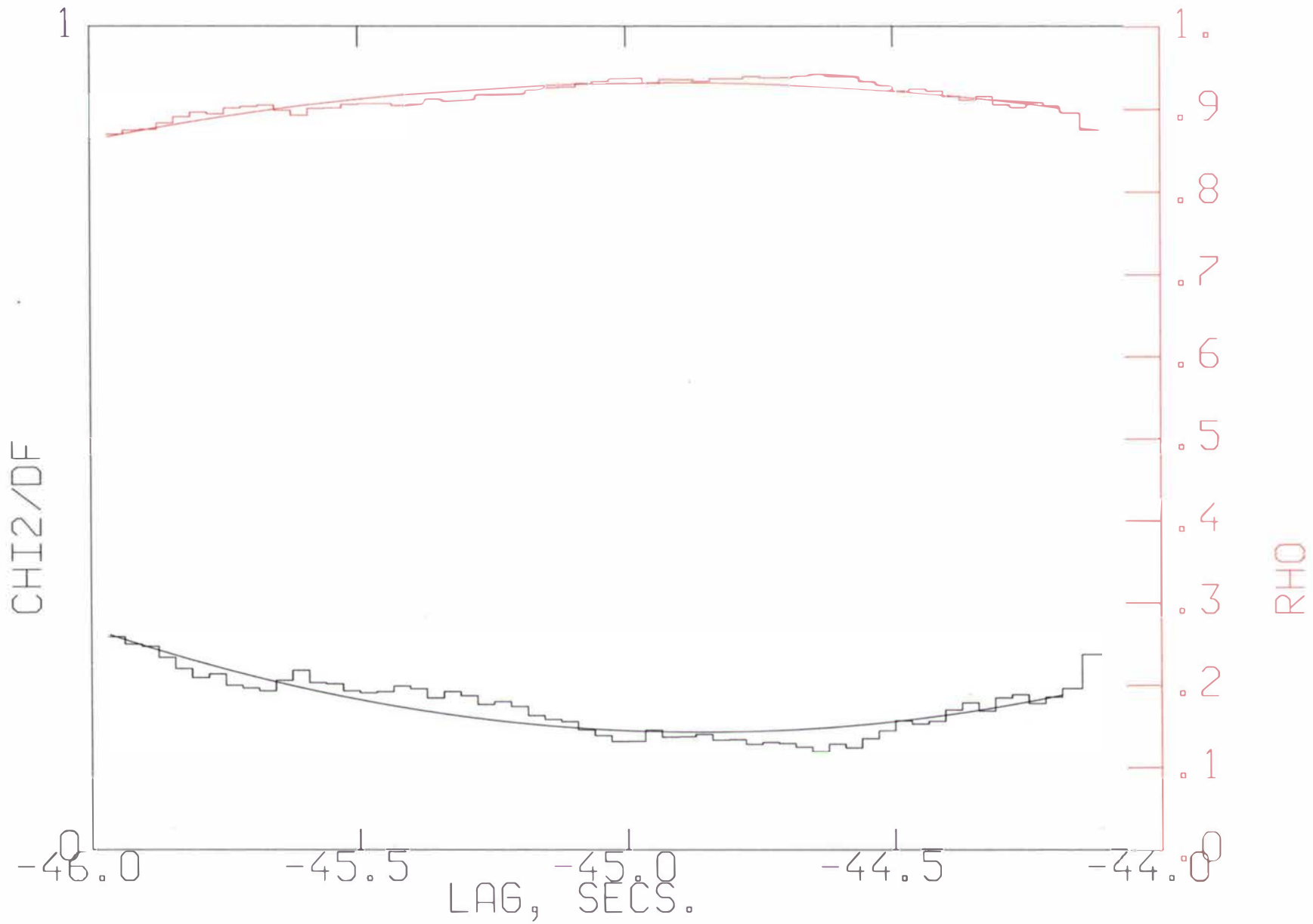
5/ 1/10

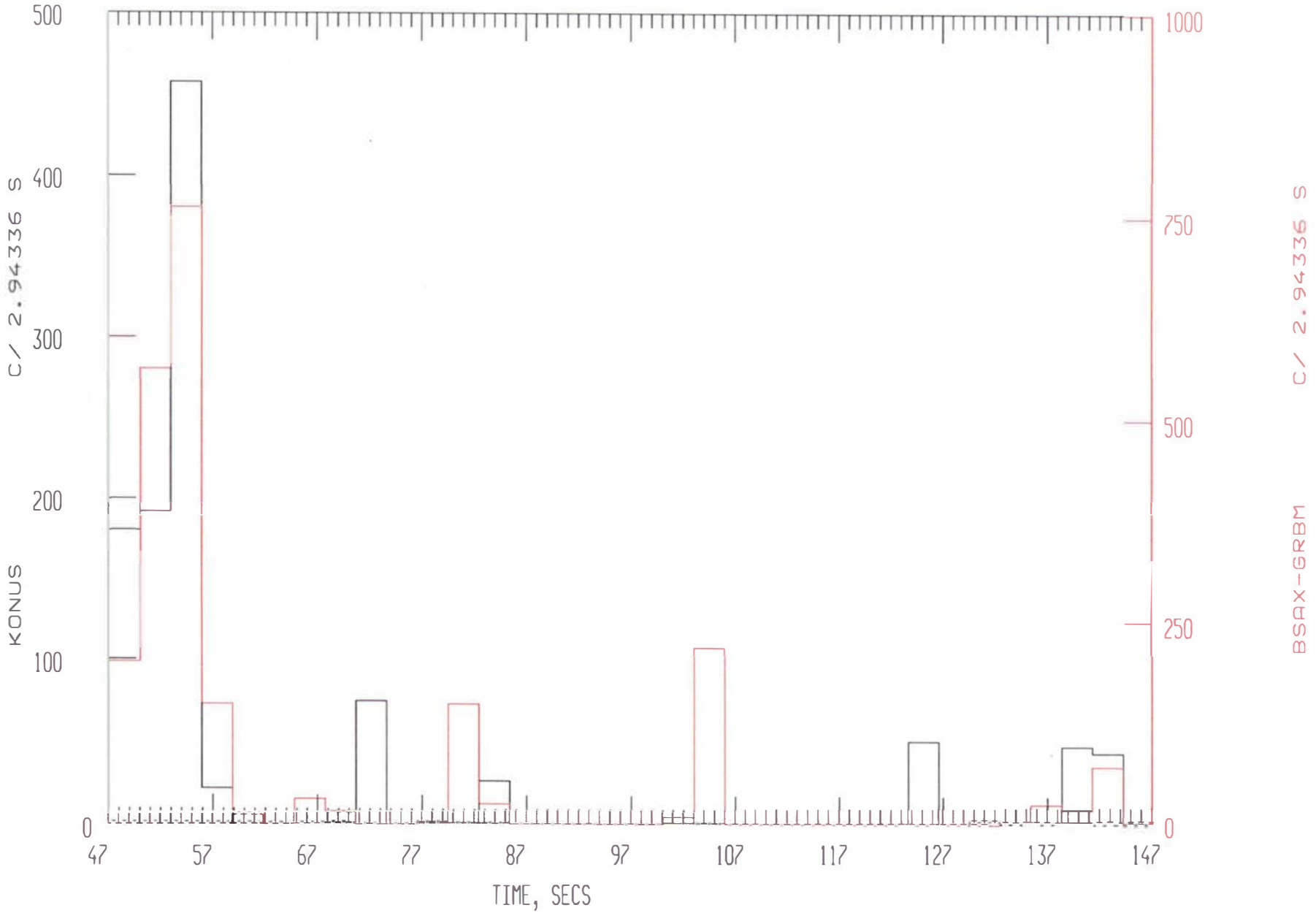
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 KONUS 2 SAX

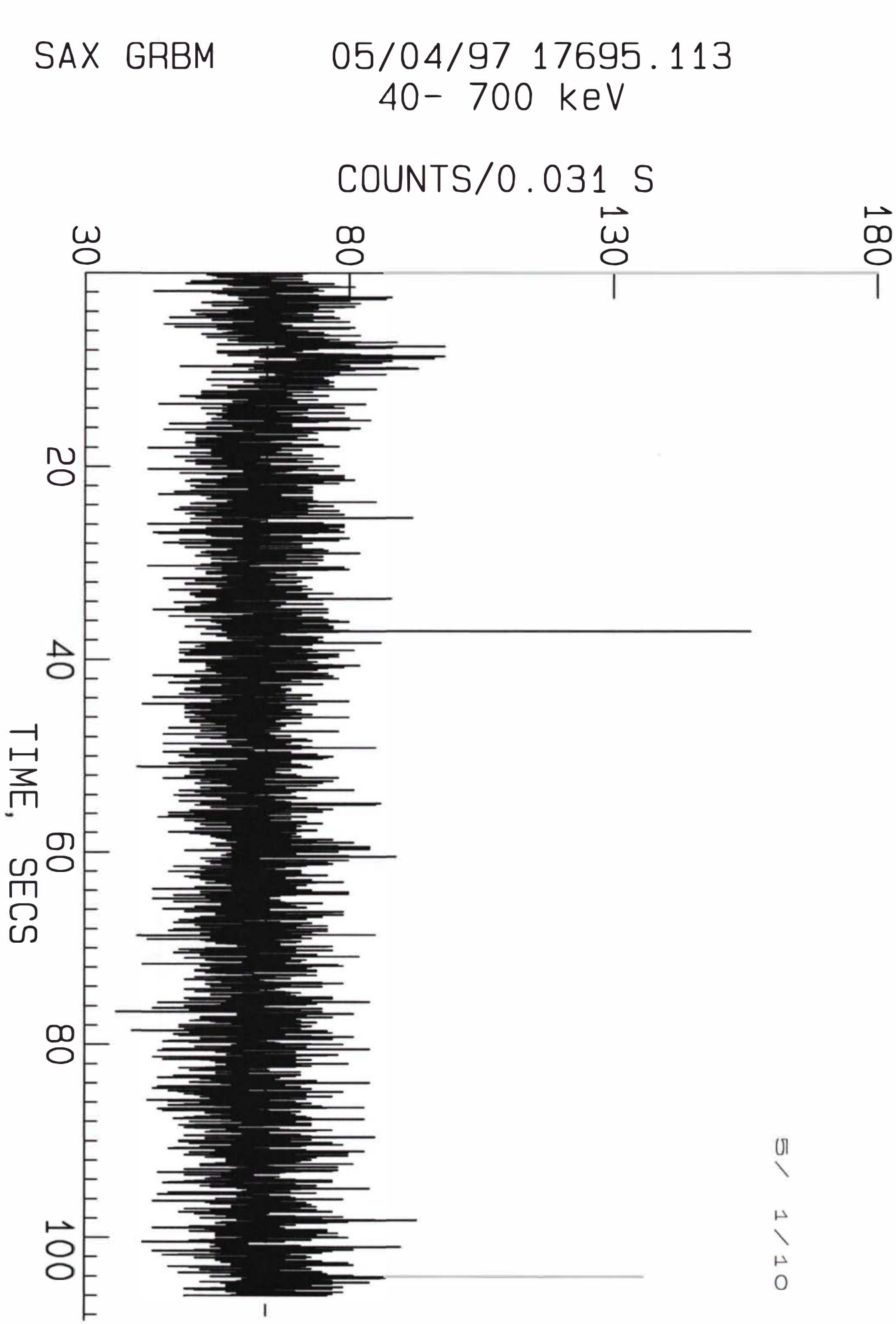


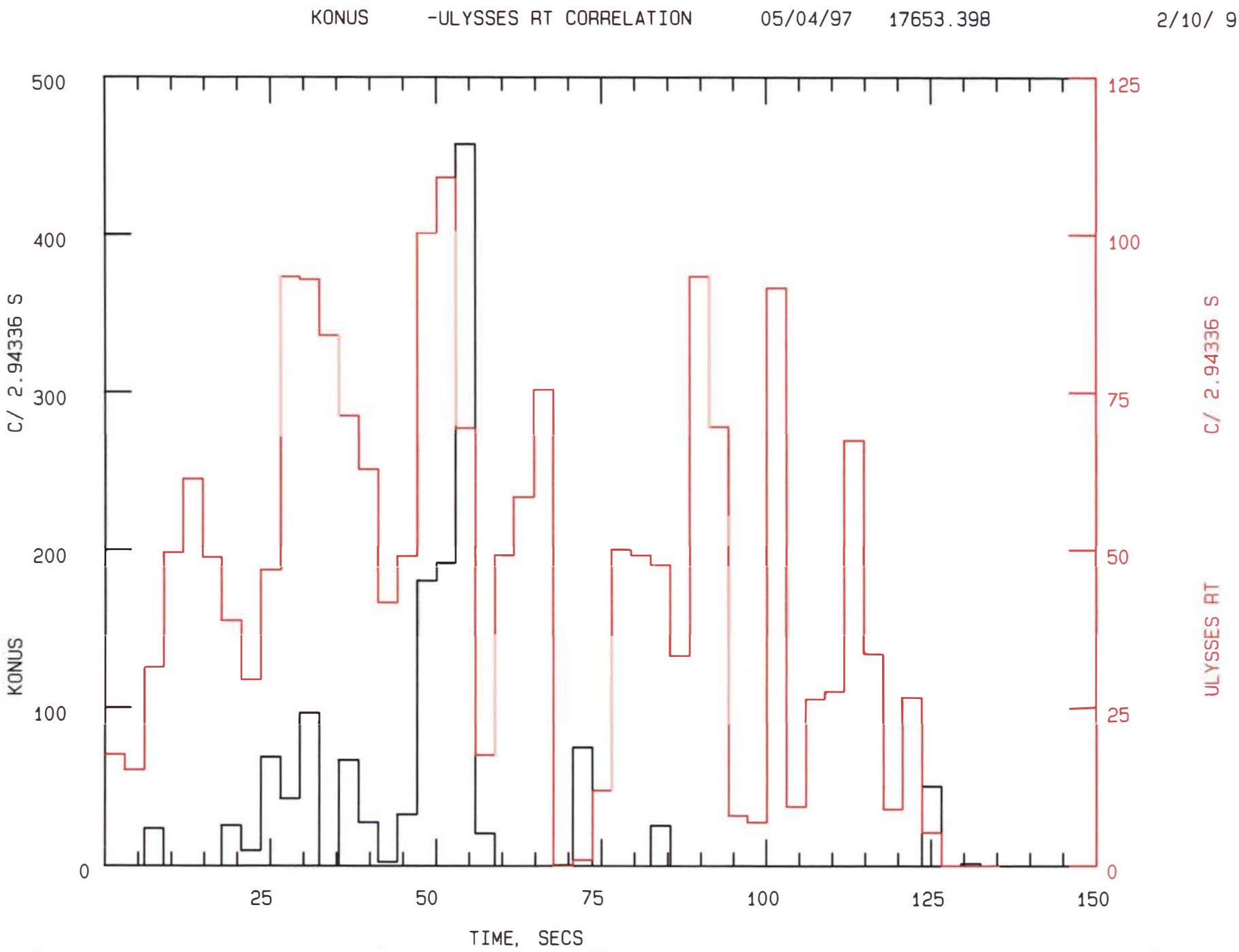

SAX GRBM
05/04/97 17695.113
40- 700 keV
COUNTS/0.031 S
30
80
130
180
20
40
60
80
100
TIME, SECS

KONUS -BSAX-GRBM CORRELATION 05/04/97 17653.398

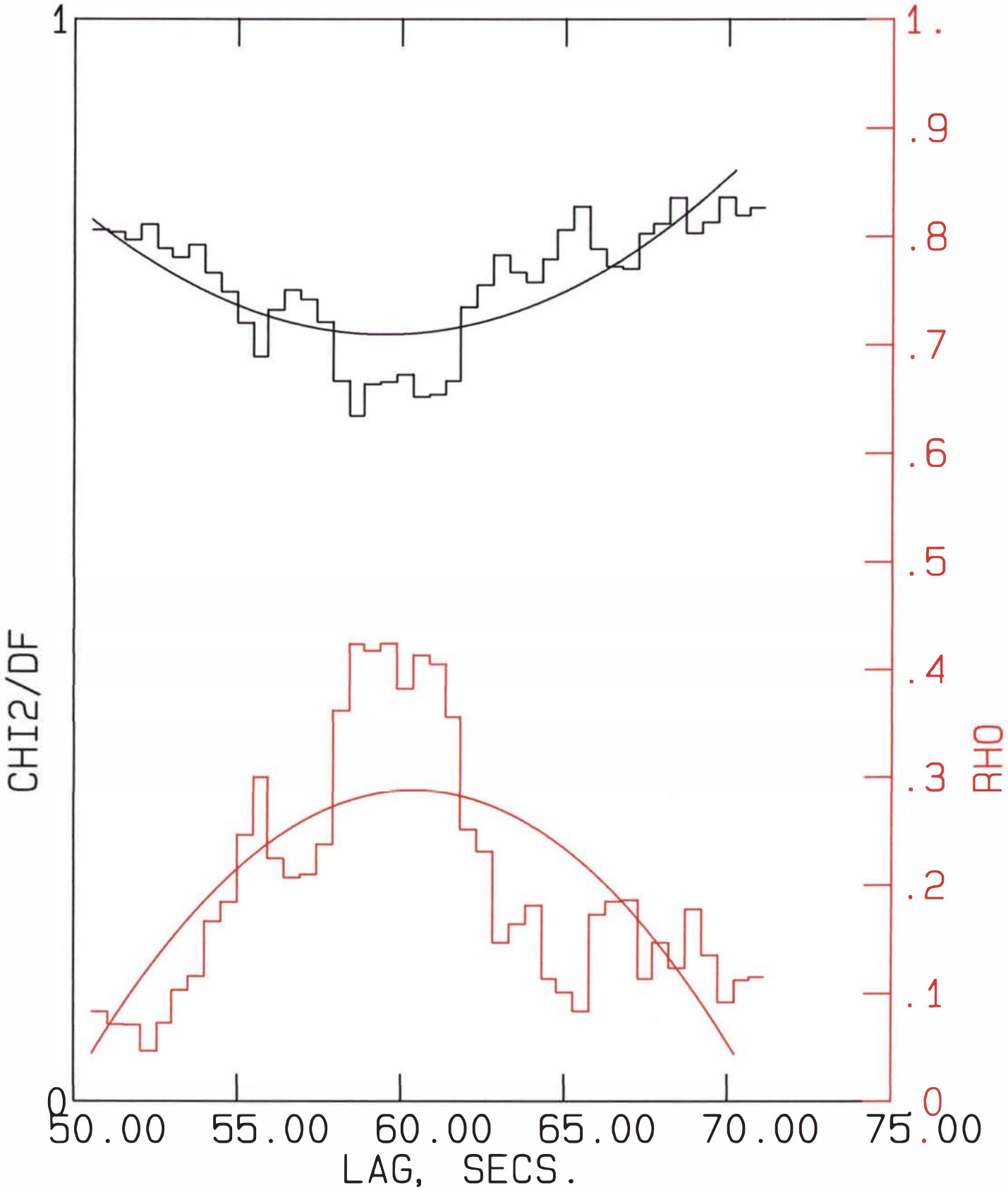



500
400
300
200
100
0
C/ 2.94336 S
KONUS
1000
750
500
250
0
C/ 2.94336 S
BSAX-GRBM
47
57
67
77
87
97
107
117
127
137
147
TIME, SECS


SAX GRBM
05/04/97 17695.113
40- 700 keV
COUNTS/0.031 S
30
80
130
180
20
40
60
80
100
TIME, SECS
5/ 1/10


KONUS -ULYSSES RT CORRELATION 05/04/97 17653.398 2/10/ 9
500
400
300
200
100
0
C/ 2.94336 S
KONUS
125
100
75
50
25
0
C/ 2.94336 S
ULYSSES RT
25
50
75
100
125
150
TIME, SECS

KONUS -ULYSSES RT CORRELATION 05/04/97 17653.398

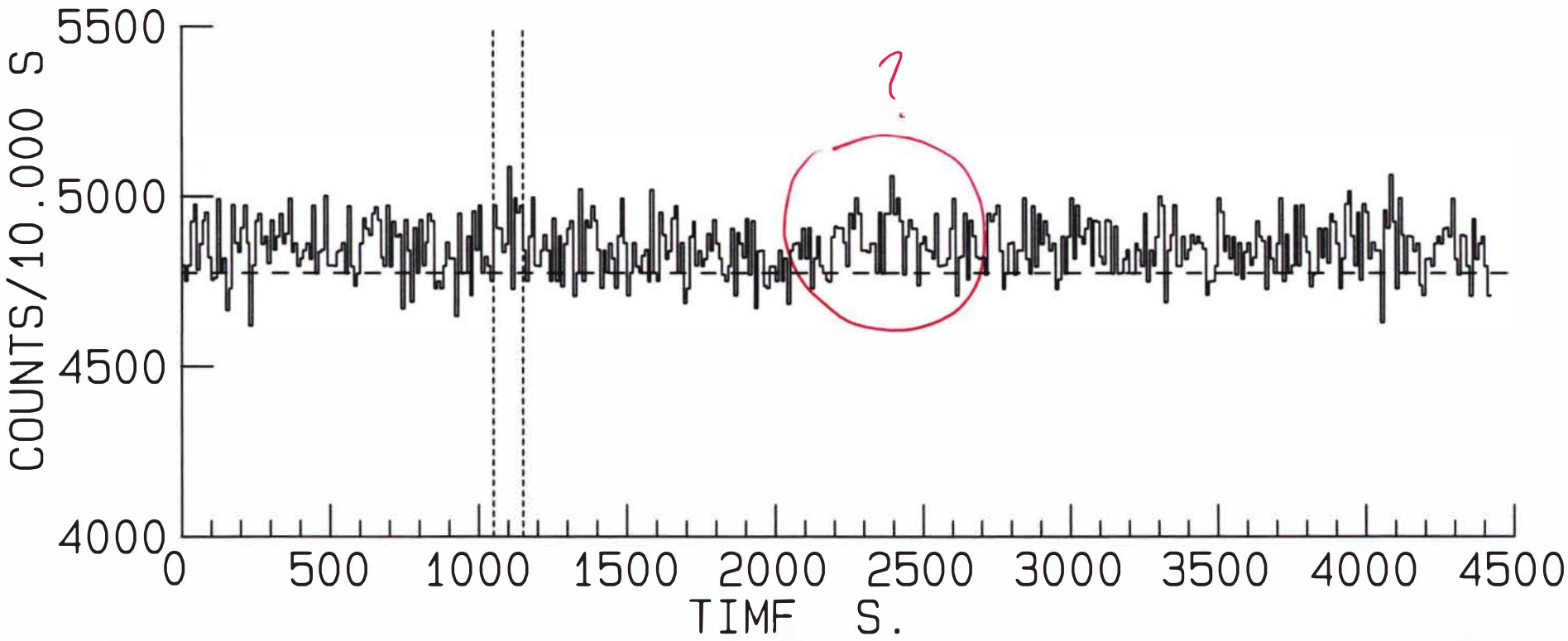


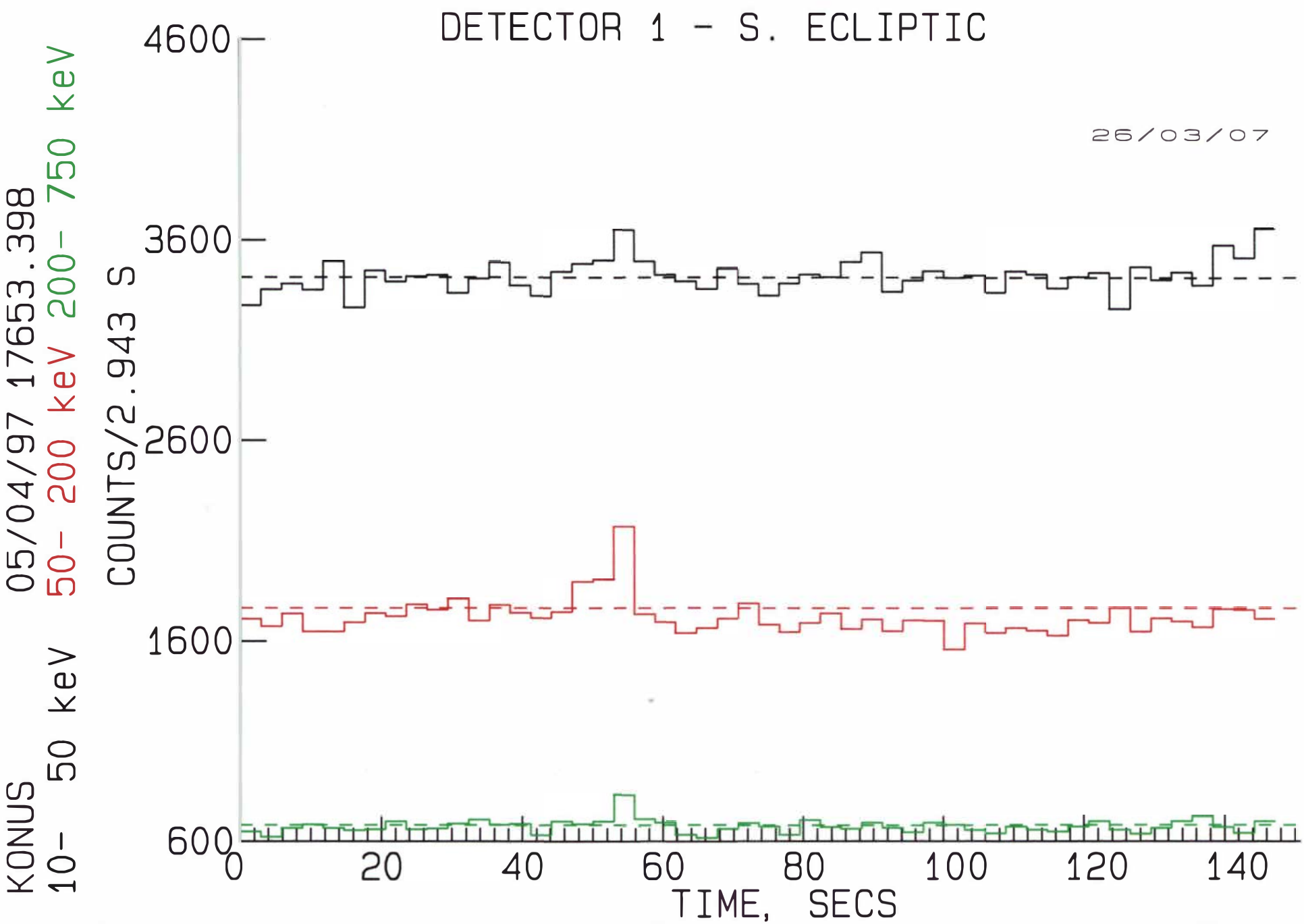
ULYSSES RT Not detected 2/10/ 9

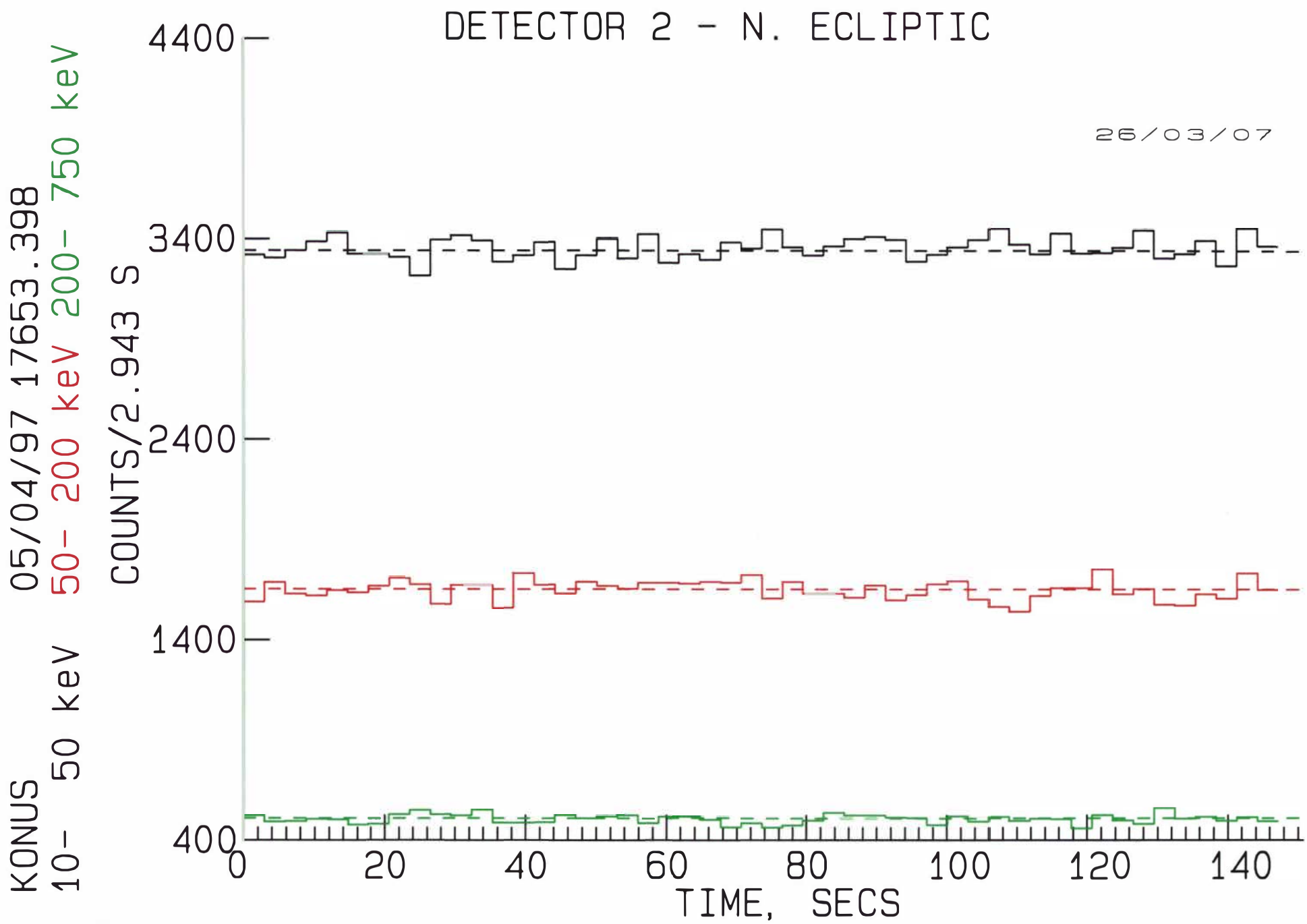
5/ 4/97 15480.081 s

0.500 S INTERVALS REGROUPED BY 20

22- 147 keV




DETECTOR 1 - S. ECLIPTIC
26/03/07
KONUS
05/04/97 17653.398
10- 50 keV
50- 200 keV
200- 750 keV
COUNTS/2.943 S
4600
3600
2600
1600
600
0
20
40
60
80
100
120
140
TIME, SECS


DETECTOR 2 - N. ECLIPTIC
26/03/07
KONUS
10- 50 keV
50- 200 keV
200- 750 keV
05/04/97 17653.398
COUNTS/2.943 S
4400
3400
2400
1400
400
0
20
40
60
80
100
120
140
TIME, SECS

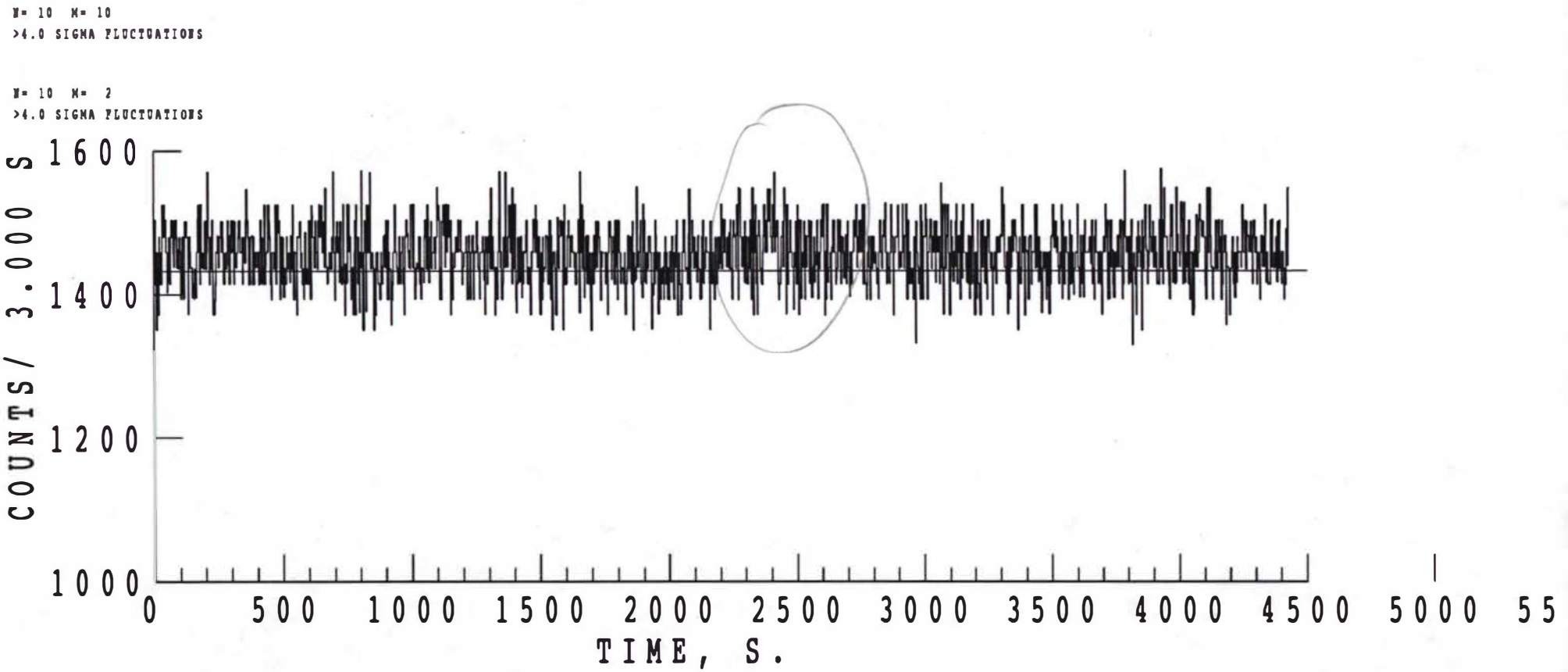
KONUS

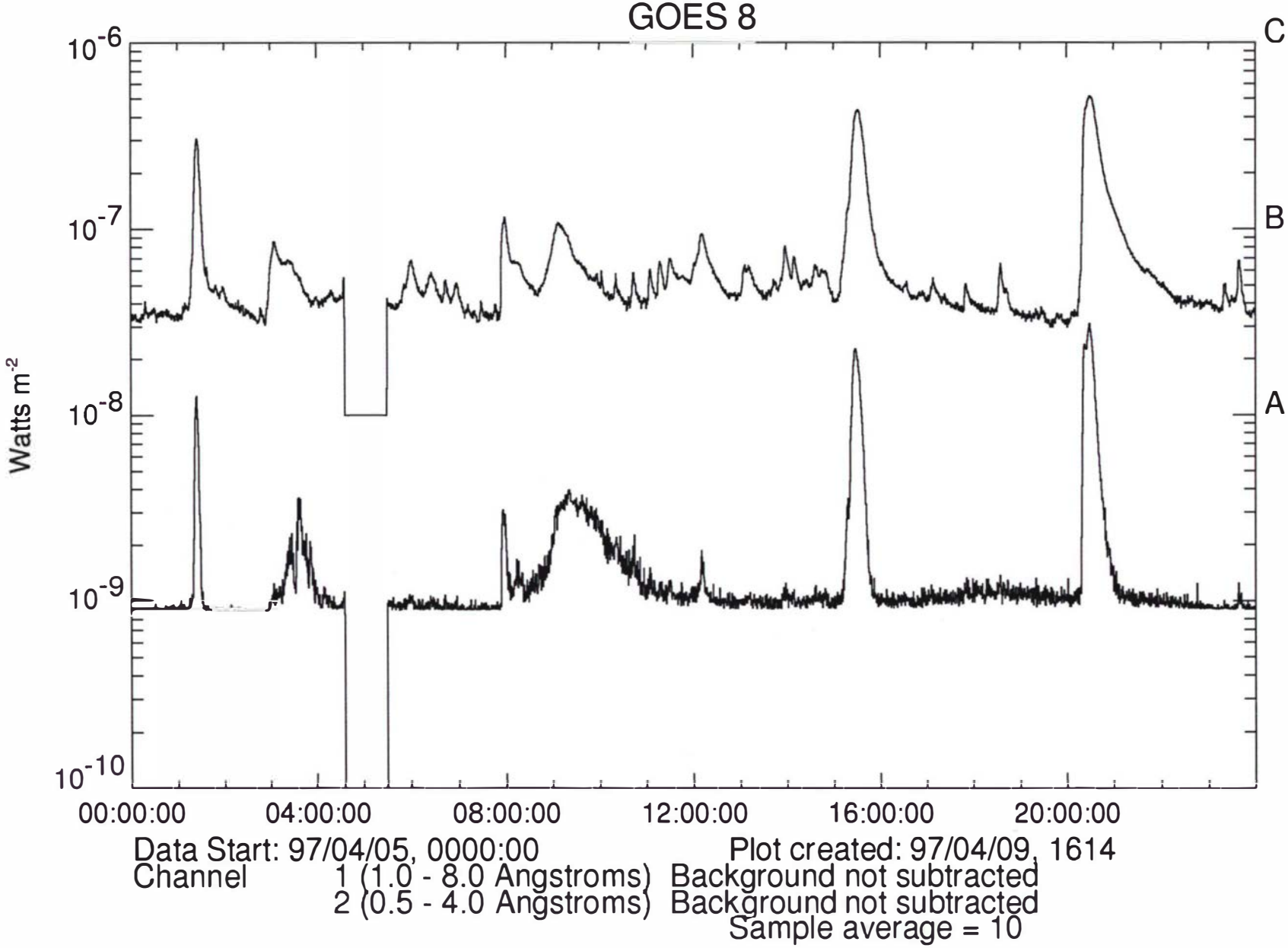
ULYSSES RT 02/02/00

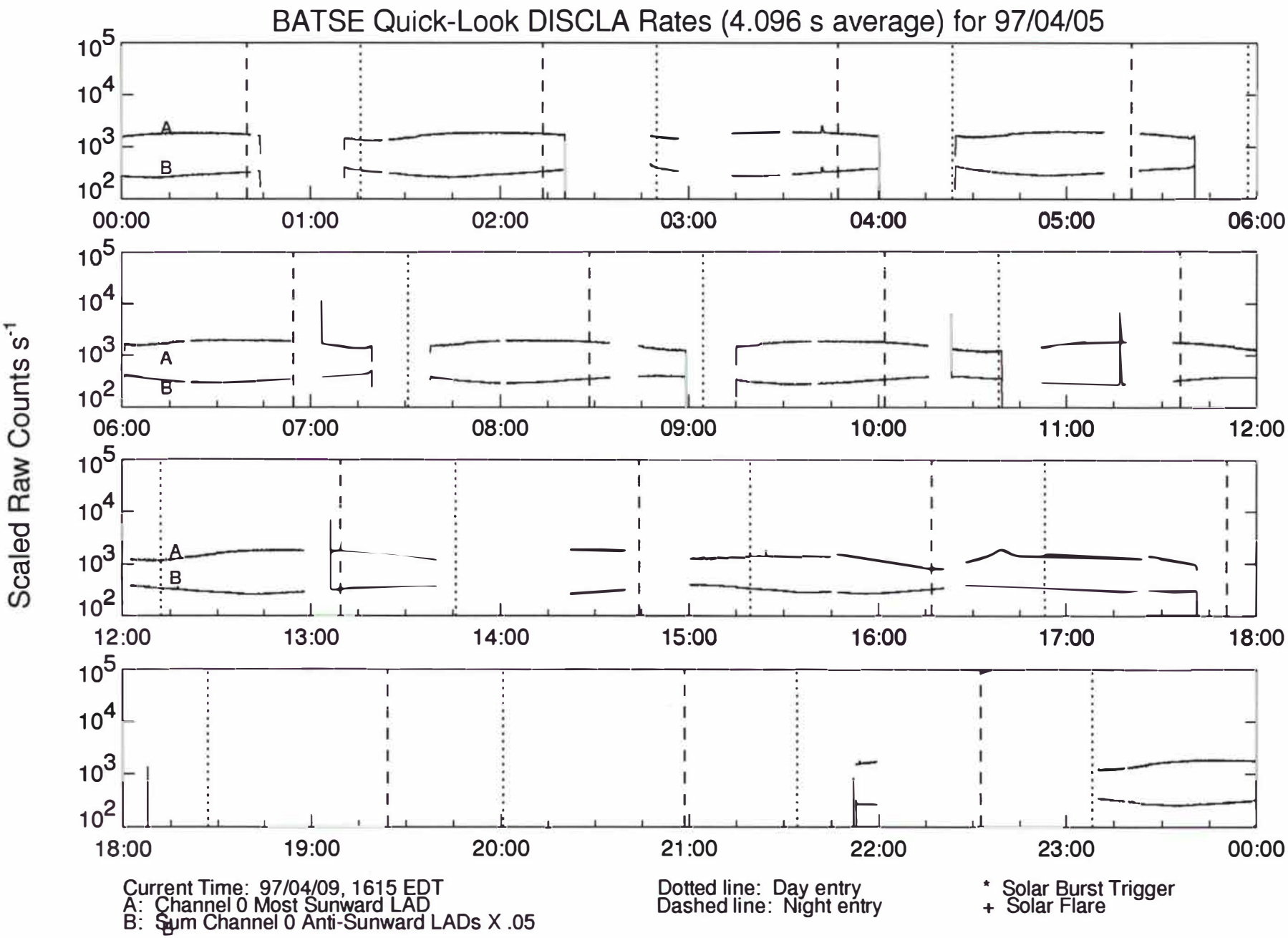
05/04/97 15480.081 s

0.500 S INTERVALS REGROUPED BY 6

0- 0 keV




GOES 8
C
B
A
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/05, 0000:00
Plot created: 97/04/09, 1614
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/05
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/09, 1615 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

From BUTTERWORTH@lheavx.gsfc.nasa.gov Tue May 6 09:56 PDT 1997
From: BUTTERWORTH@lheavx.gsfc.nasa.gov
Date: Tue, 6 May 1997 12:54:56 -0400 (EDT)
T khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, cline@apache.gsfc.nasa.gov
CC: BUTTERWORTH@lheavx.gsfc.nasa.gov
X-Vmsmail-To: @ULYSSES
X-Vmsmail-Cc: BUTTERWORTH
Subject: summary of Konus observations of 1997 events seen by Ulysses but not BATSE

Hi Everyone,

Here is a summary for this year to date of Konus observations corresponding to events seen by Ulysses but not reported by BATSE:

Ulysses event	Konus observation
970105 01:40	not detected
970105 18:17	not detected
970107 07:57	not detected
970107 14:13	not detected
970109 01:25	not detected
970110 08:53	not detected
970110 14:31	not detected
970111 23:35	trigger at 23:49:04.563 - peak ~60 seconds later S of ecliptic, hard event lasting 4 minutes with slow rise and decay
113 14:31	not detected
114 05:17	not detected
970115 13:36	not detected
970117 15:07	not observed (unrelated trigger at 14:27 will have prevented any further trigger until after 15:32)
970117 18:45	not detected
970124 12:51	trigger at 12:19:03.397 - peak 4.2 seconds later S of ecliptic, several peaks with the strongest the hardest
970126 15:30	not detected
970130 19:33	not detected
970204 11:18	not detected
970208 18:04	not detected
970212 22:50	not detected
970203 19:03	not detected
970216 14:35	not detected
970218 14:15	trigger at 14:09:56.145 - peak ~3 seconds later N of ecliptic, strong event lasting 5 seconds
970222 23:51	trigger at 23:53:26.565 - peak 0.7 seconds later N of ecliptic, moderately strong event lasting several seconds
970223 15:53	not detected
970224 21:08	not detected
970226 08:29	trigger at 08:46:25.868 - peak 39 seconds later N of ecliptic, strong, double broad FRED, with the second peak (39 seconds after the trigger) much softer than the first (12 seconds after the trigger)
970310 00:22	not detected

970313 07:53	trigger at 08:21:36.505 - peak 11 seconds later N of ecliptic, moderately strong event lasting 40 seconds
970316 13:16	not detected
970321 21:42	not detected
970322 00:16	not detected
970405 11:35	not detected
970405 23:44	trigger at 00:17:40.876 on 970406 N of ecliptic, moderately strong, multi-peaked event lasting over 15 seconds
970411 09:44	trigger at 09:52:45.166 - peak 4 seconds later N of ecliptic, broad event lasting 25 seconds with a FRED component lasting 0.5 seconds 4 seconds after the trigger
970421 06:47	instrument off

From kraken@rosserv.gsfc.nasa.gov Mon May 19 15:08 PDT 1997
X-Sender: kraken@lheapop.gsfc.nasa.gov
Mime-Version: 1.0
Date: Mon, 19 May 1997 18:09:39 -0500
    khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
From: kraken@rosserv.gsfc.nasa.gov (Peter Kurczynski)
Subject: Recent TGRS/Ulysses bursts
Cc: bonnard@iolanthe.gsfc.nasa.gov (Bonnard Teegarden),
        kraken@rosserv.gsfc.nasa.gov

Hi Kevin,

Here are the results of a search through TGRS data for some recent Ulysses bursts that you've sent emails about. Of the list below, TGRS sees one of your bursts in waiting mode data, and one as a bona fide triggered event.

Ulysses date/time	TGRS sees?	TGRS characteristics
970513 18:37	NO	
970506 15:55	YES (waiting mode)	at 970506:56500s (~15:40) <10 s long 450 cts/s 35-100 keV ~2s long 260 cts/s 100-300 keV (peak count rates)
961219 19:42	NO	
970411 9:44	YES (TGRS #553)	at 970411:35566 (~9:50) 10s long 430 cts/s 35-100 keV 10s long 410 cts/s 100-300 keV (peak count rates)
970405 23:49	NO*	
970405 11:35	NO*	

*there was a TGRS triggered event (#551) at 50507s, but this is outside the +/- 2200s time window from the time of the Ulysses burst.

I hope these are helpful,

Pete Kurczynski

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970315    074 56454.2 BATSE GRB#6124 (4264/S)  (5.69,62.18J)  (+UL)
       13 074 56454.9 PKS,462.9(50/S,90/S,<16S) (@85DEG)

970325    084 63382.8 KONUS(+UL@64176,MOD,15S),2 PEAKS(UL REPORT 8/9/97) (13SR)

970405    095U85440   UL@23:44@2200LS,MOD BURST, 5SEC (SEE NEXT LINE)
970406    096  1060.9 KONUS (MOD.STRONG,MULT.PKS,15S) (13:NR, SECONDARY PEAKS?)

970411    101 35565.2 KONUS(25SEC,35556?)+UL@35040,2200LS(MOD,10S) +TGR (13NR)

970420    110 72842.2 BATSE GRB#6198 (7316/S) (209.08,-21.09J) (+UL)
       13 110 72847.8 PEAK (740/S,<12S,HARD) @85 DEG

970421    111U24420   UL@06:47@2250LS INT BURST, 20SEC
       13 111 25691.6 PEAKS (60/S),711.6(60),721.6(40),<30SEC                  REP0624

970428 14 118           FIRST DATA, DMSP14 (LAUNCHED 970404;DELAY CORR=5.87S)

970506    126 56503.3 KONUS (+UL@57300,2400LS,MOD,10S) (13NO,14NO,NOTRIG)

970506A14 126 45619.1 STRONGPKS45619.1(7700/S,<6S,SOFT),633.1,655.1,NOTRIG;13NO      ??

970602    153 58855.7 KONUS>150S,COMPLEX,PK58953(+UL@56580,MOD,60S)(+TGRS/WIND)
       14 153 58917.0 PK(150/S),953.0(950,>58S,VERY HARD, INTENSE (13 NO)       REP0624
       14 153 58916.7 TRIGGER PK, +58944.3,58952.0

970607    158 33384.7 KONUS, HARD PEAK FOR 7SEC (+UL@33360,MOD,10S)
       13 158 33388.6 PEAK(180/S,<6S)                                          REP0723
       14 158 33388.7 PEAK(200/S,<6S, NOTRIG)                                  REP0723

970616    167 65390.3 BATSE#6274 STRONG,MULTIPEAK.X-RAY AFTER,IAU6683(13NO@127)
          167 65390.3 BATSE(20.46,-7.16J),X-RAY(19.72,-5.50J) (14NO@112,NOTRIG)
          167 65390.3 BATSE (X-RAY DUBIOUS,IAU6722. NO OPT VARIABLE, IAU6723)

970625    176 43993.7 KONUS (UL@46200,2900LS,MOD,15SEC,REPORTED 10/30/97)
       13 178 44002.0 PEAK(80/S,<4S) (14SA)

970627    178 79608.8 KONUS STRONG, MULTIPEAK, 20SEC (+UL@77340,STRONG,20S)
          178 79610   BEPPOSAX (13SR,14NO,NO TRIG)

970629    180 14424.  KONUS VERY SOFT(+UL@15960,STRONG. NEW SGR (SEE 970912)
       13 180 14429.0 PEAK(50/S,<2S,SOFT) (14NR)                               REP0903

970715    196 51674.3 KONUS STRONG,HARD PK@+20(+UL@54060,MOD,5S)
       13 196 51693.6 PEAK(190/S,<4S)  (14NR,NOTRIG)                           REP0903

970721    202 84667.1 KONUS(+UL@81720,MOD,10S,@3000LS)
       13 202 84671.9 PEAKS(HARD,1-SIDE,200/S,<8S),691.9(1-SIDE,240/S,<10S)    REP0903
       14 202 84672.1 PEAK (HARD,1-SIDE,470/S,<10S),692.1(1-SIDE,240/S,<10S)   REP0903
       14 202 84671.5 TRIGGER PEAK (EVT14)(84671.46)                           REP0903

970802    214 12328.2 BATSE GRB#6322,5750/2S    (13NO@32,14NO@40,GAP,NOTRIG)

970815    227 43624.4 BATSE GRB#6335,10395/2S (IAU6718 XRAYS;6721+NOOPT)
          227 43624.4 CONTINUED: 13NO@160DEG, 14NO@146DEG

970915    258 32870.9 KONUS 25S,HARD (+UL@30900,3100LS,MOD,10S)
       14 258 32873.2 PEAK (200/S,<2S,NO TRIG) (13NO)

970919    262 65669.5 BATSE#6389 (8048/S)
```

From TERRELL@nisdp0.lanl.gov Fri Feb 27 15:11 PST 1998
From: TERRELL@nisdp0.lanl.gov
Date: Fri, 27 Feb 1998 16:11:55 -0700
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
henze@fender.msfc.nasa.gov, filippo@botes1.tesre.bo.cnr.it,
kmarar@isac.ernet.in
X-Vmsmail-To: @MAILOUTUL.DIS
Subject: DMSP GRB: 1997(many),980109,980113,980119,980124,980125,980202,980203

From: jterrell@lanl.gov (James Terrell) 980227
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kmarar@isac.ernet.in, kraken@rosserv.gsfc.nasa.gov,
scott@milkyway.gsfc.nasa.gov, teegarden@lheavx.gsfc.nasa.gov,
vnp@isac.ernet.in, yosimori@rikkyo.ac.jp
Subj: DMSP GRB detections: 1997(many),980109,980113,980119,980124,980125,980202,980203

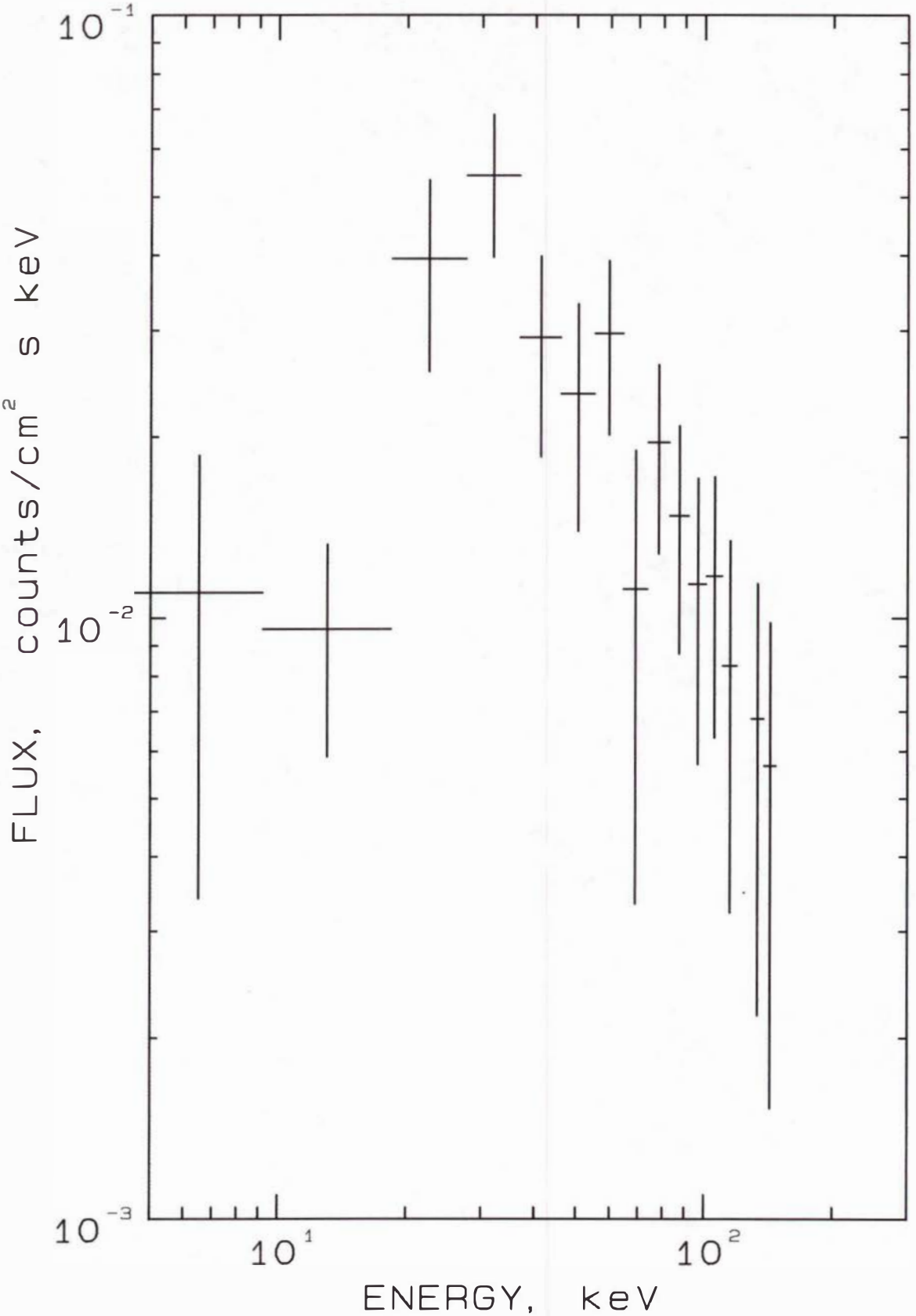
The following GRB were detected by DMSP13 or DMSP14 (or NOT detected, if indicated).
No detection can occur for bursts more than 118 degrees from spacecraft zenith,
or if in the presence of very high counting rates (SAA,SR,NR).
Data are normally in 2-sec counts, except when the DMSP14 trigger circuit is
tripped, giving 12.8ms data, usually reported here as 102.4ms counts.
Numerous other BATSE GRB were also detected, but not reported here; numerous
weak detections by Ulysses have not been checked because of low counting
rates expected at an indefinite time.

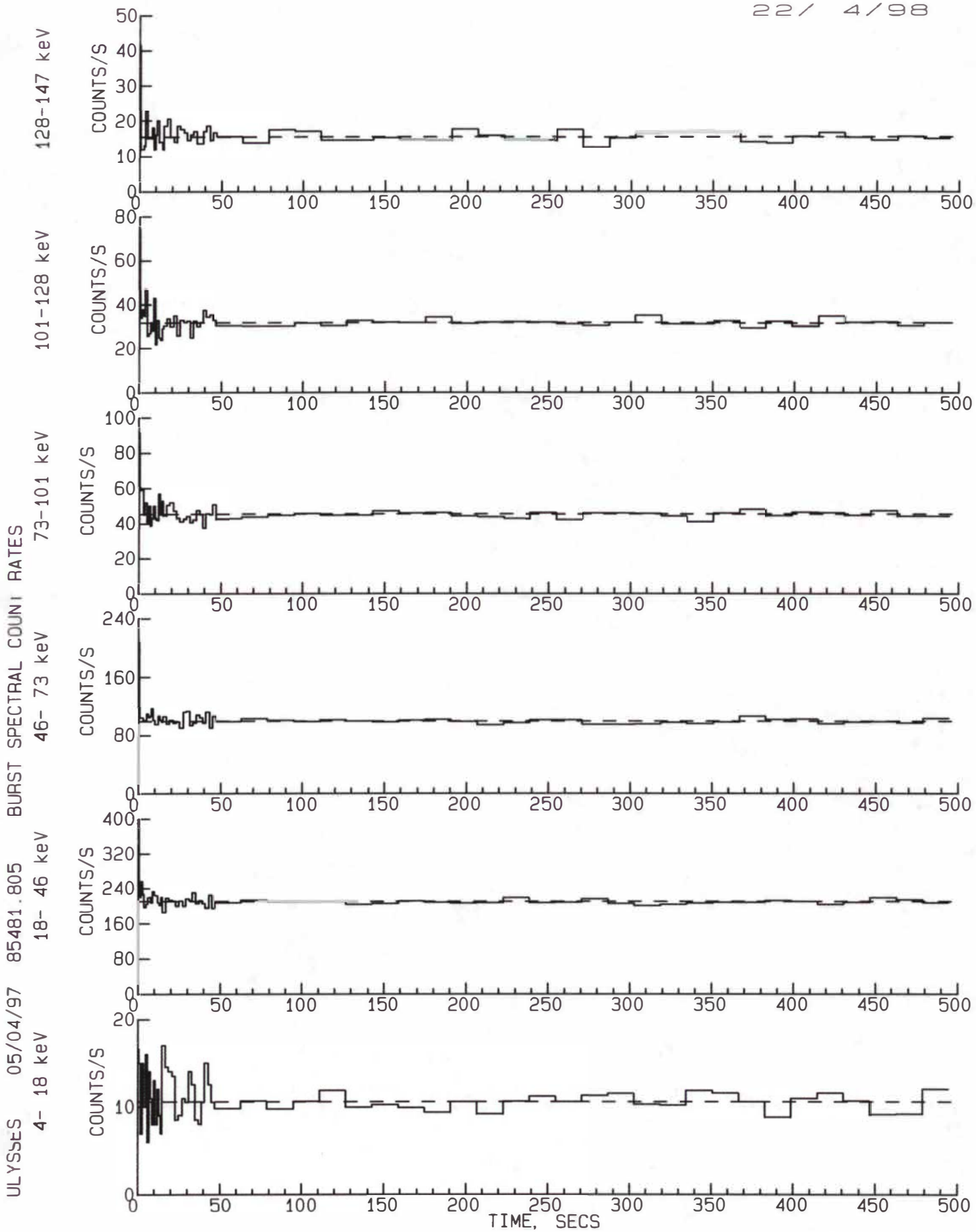
DATE	FL	DAY	TIME	NOTES---(ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)------REPORTED (NO=DATA CHECKED--SHOWS NO DETECTION)(SR=S. RADIATION BELT) (NR=NORTH RADIATION BELT)(SAA=SOUTH ATLANTIC ANOMALY)	
970111		011	35040.2	BATSE GRB#5773 (8727CTS/2S) (SEE IAU6569,6571,6574,6598)	
		011	35040.2	BEPPO SAX TRIG,INTENSE,50S,3 PEAKS(232.10,19.67J) IAU6533	
	13	011	35040.0	PEAKS(40/S),48.0(50/S),58.0(60/S),@24DEG,@848KM,SOFT	REP0313
970111		011	85744.6	KONUS (HARD,SLOW RISE) +TGR (UL:NO) (DMSP13:NO)	
970117		017	53211	TGR+SAX GRB (KONUS INOP)+UL@54420(STRONG,20S) (13:NO)	
970124		024	44343.4	KONUS(MULT PKS)+UL@46253@2100LS,STRONG+TGR (13SAA)	
970201		032	57250.7	BATSE GRB#5989 (53612/SEC) +UL	
	13	032	57222.1	PEAK (100/S,~30S,SOFT,BROAD) (@111DEG) UNCONVINCING	
970218		049	50996.1	KONUS (STRONG,5SEC) +UL@51274,2000LS (STRONG,8SEC)	
	13	049	51001.0	PEAK (320/S,<6S)	REP0624
970222		053	86006.6	KONUS (MOD.STRONG,SEV.SEC) +UL@85873,2000LS,MOD,2S(13NO)	
970226		057	31585.9	KONUS (STRONG,SOFT PK@+39) +UL@30547,2000LS(V.INT,40S)	
	13	057	31595.8	PEAK (270/S,10SEC) (MODERATELY STRONG)	REP0313
970228		059	10680.8	BEPPOSAX(IAU6572)MOD.INT.,80S,4 PKS (75.46,11.75J)IAU6578	
		059	10680.8	INT.X-RAY,RADIO(IAU6576,6577),OPTICAL(6584),MOTION(6629)	OPTICAL
	13	059	10659.1	PKS,667.1(60/S,ONE-SIDED,SOFT,@74DEG) DOUBTFUL (+UL,WIND)	
970313		072	30096.5	KONUS(MOD.STRONG,PK@+11,40S)+UL@28380,2000LS(MOD.INT,10S)	
	13	072	28355.8	PEAK (180/S,<2S,SOFT) (NO PEAK AT 30096!) (CONFLICT)	REP0501

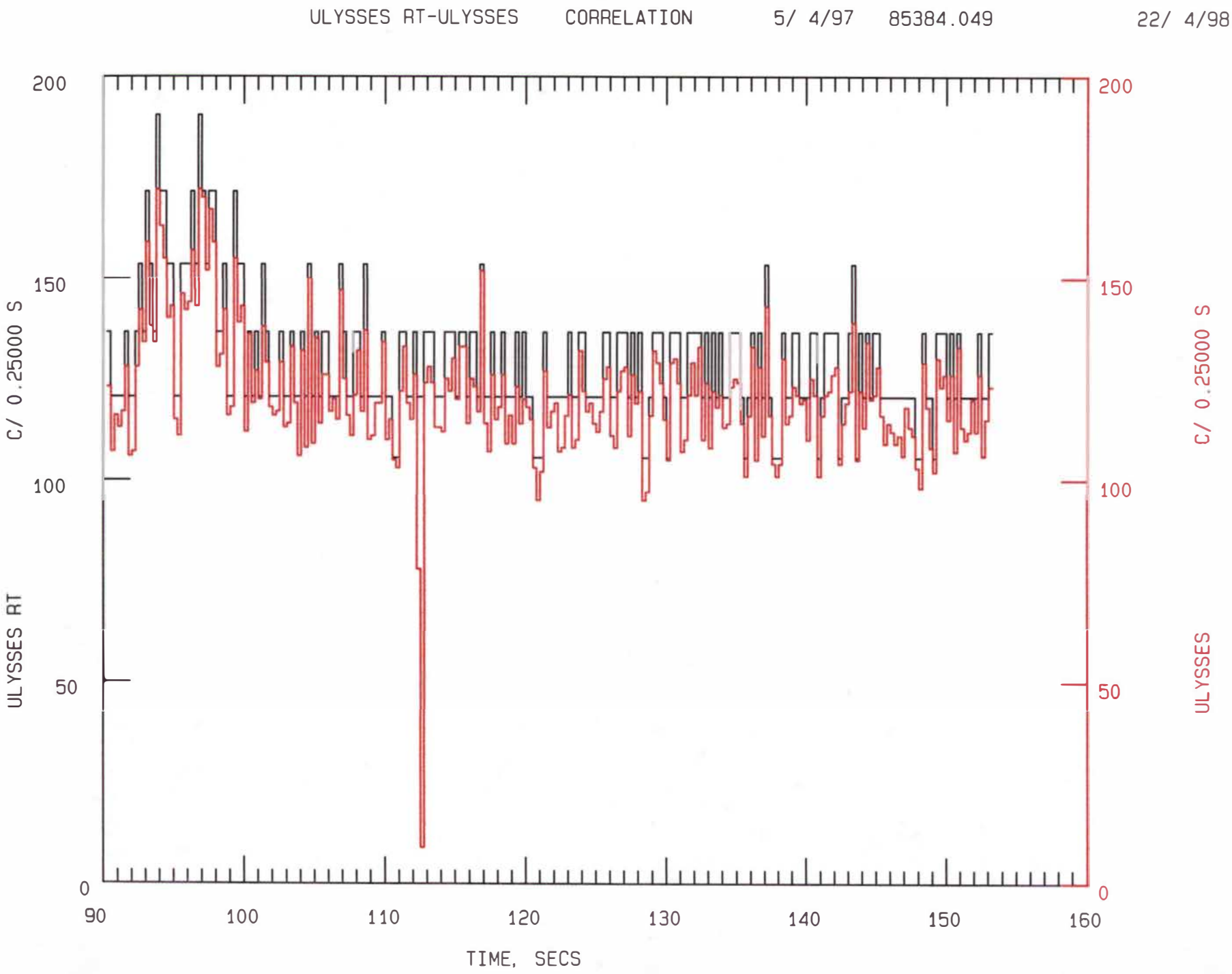
ULYSSES 05/04/97 85481.805

22/ 4/98

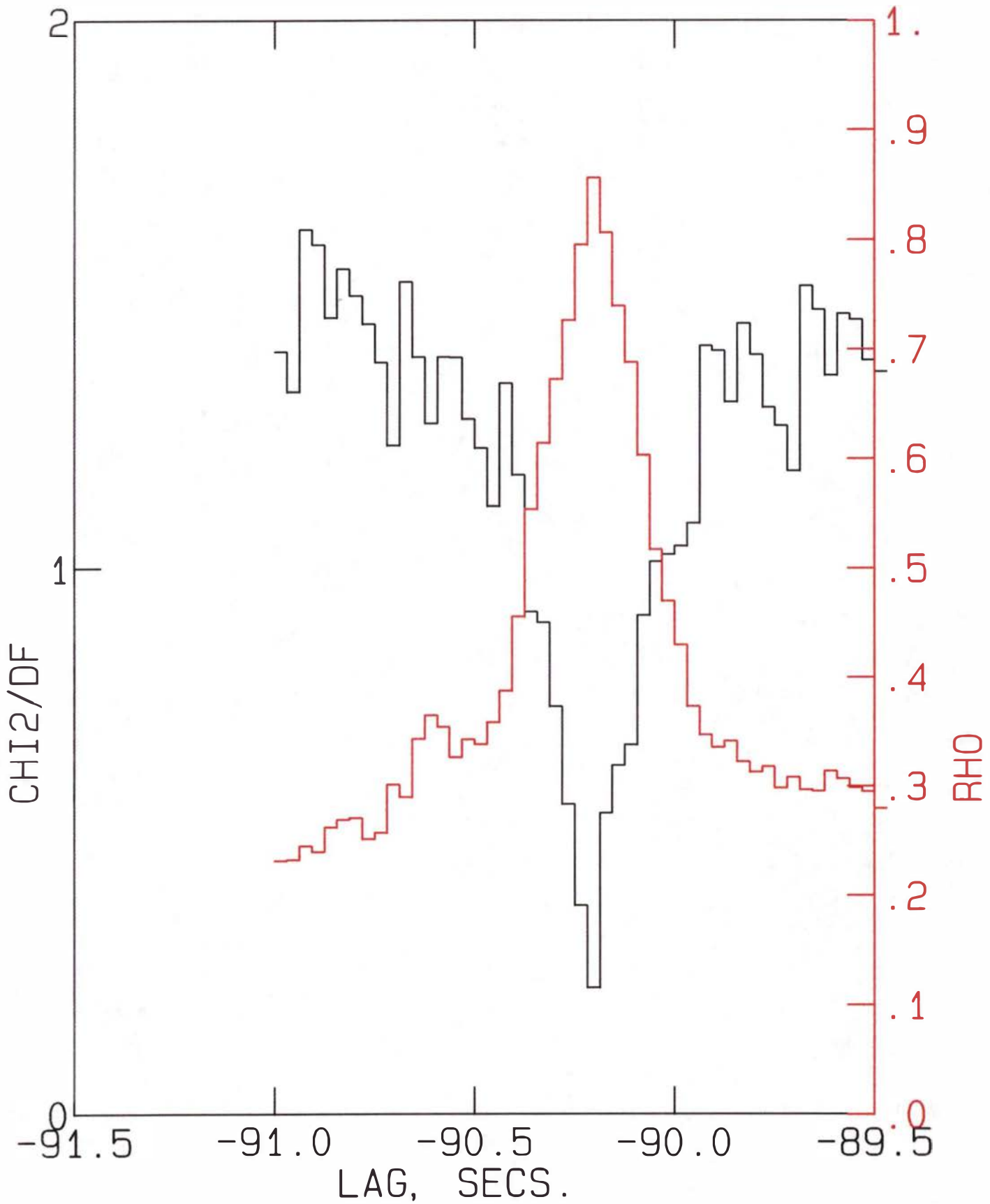
SPECTRUM INTEGRATED OVER 20.7 SECONDS, INTERVALS 2 TO 20

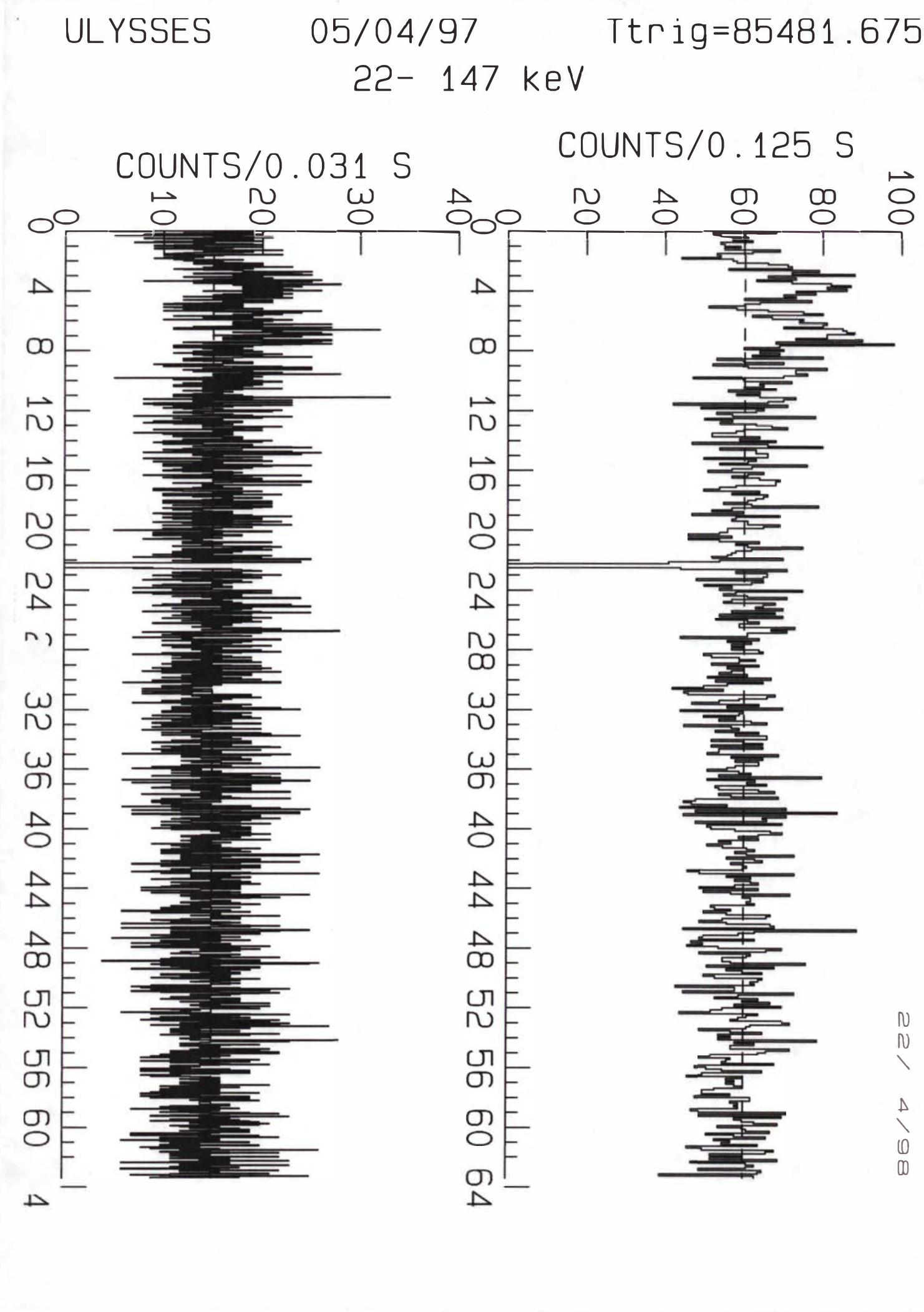



22/ 4/98
ULYSSES 05/04/97 85481.805 BURST SPECTRAL COUNT RATES
128-147 keV
101-128 keV
73-101 keV
46- 73 keV
18- 46 keV
4- 18 keV
COUNTS/S
TIME, SECS


ULYSSES RT-ULYSSES CORRELATION 5/ 4/97 85384.049 22/ 4/98
200
150
100
50
0
C/ 0.25000 S
ULYSSES RT
90
100
110
120
130
140
150
160
TIME, SECS
ULYSSES

ULYSSES RT-ULYSSES CORRELATION 5/ 4/97 85384.049



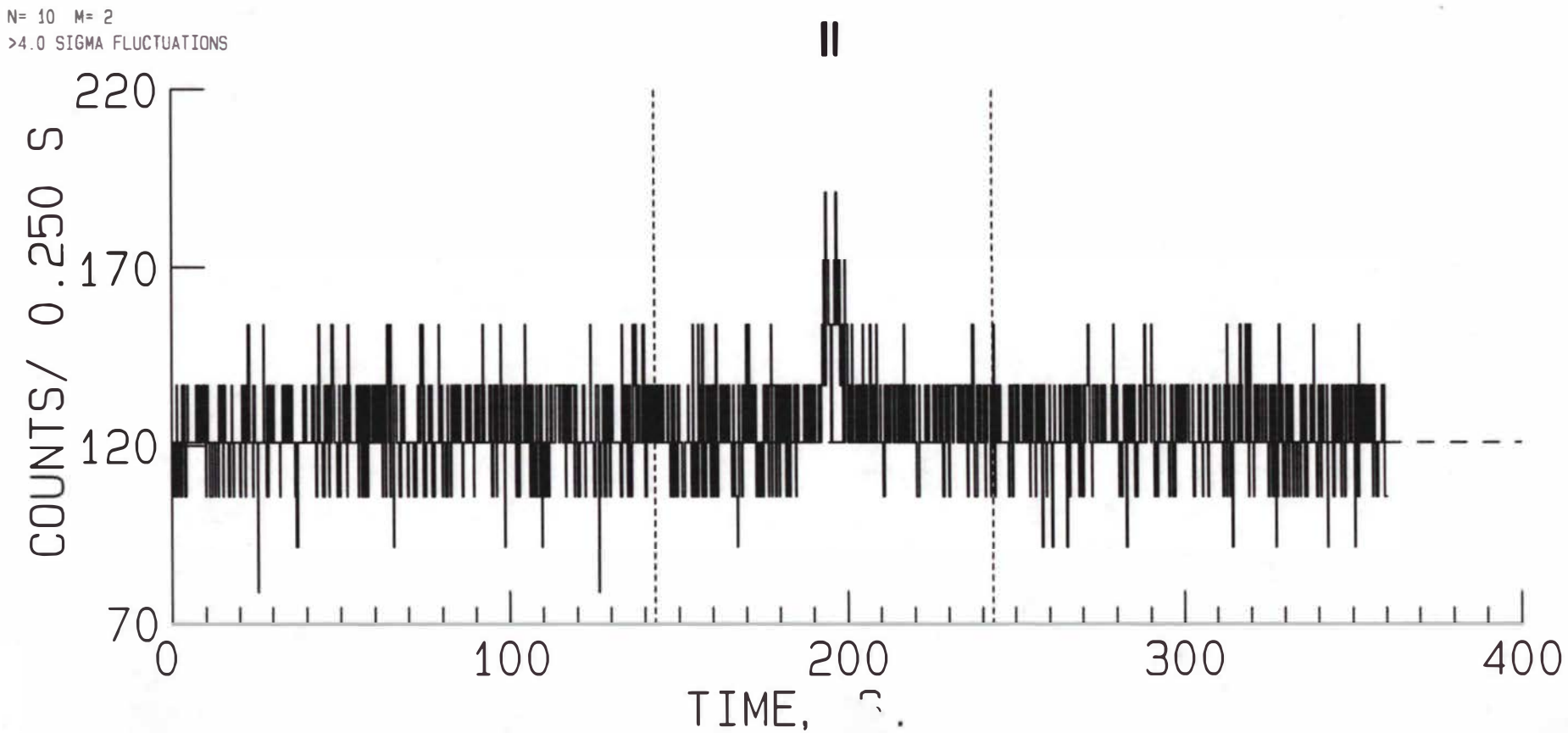

ULYSSES 05/04/97 Ttrig=85481.675
22- 147 keV
COUNTS/0.031 S
COUNTS/0.125 S
22/ 4/98

ULYSSES RT

22/ 4/98

5/ 4/97 85284.187 s

22- 147 keV



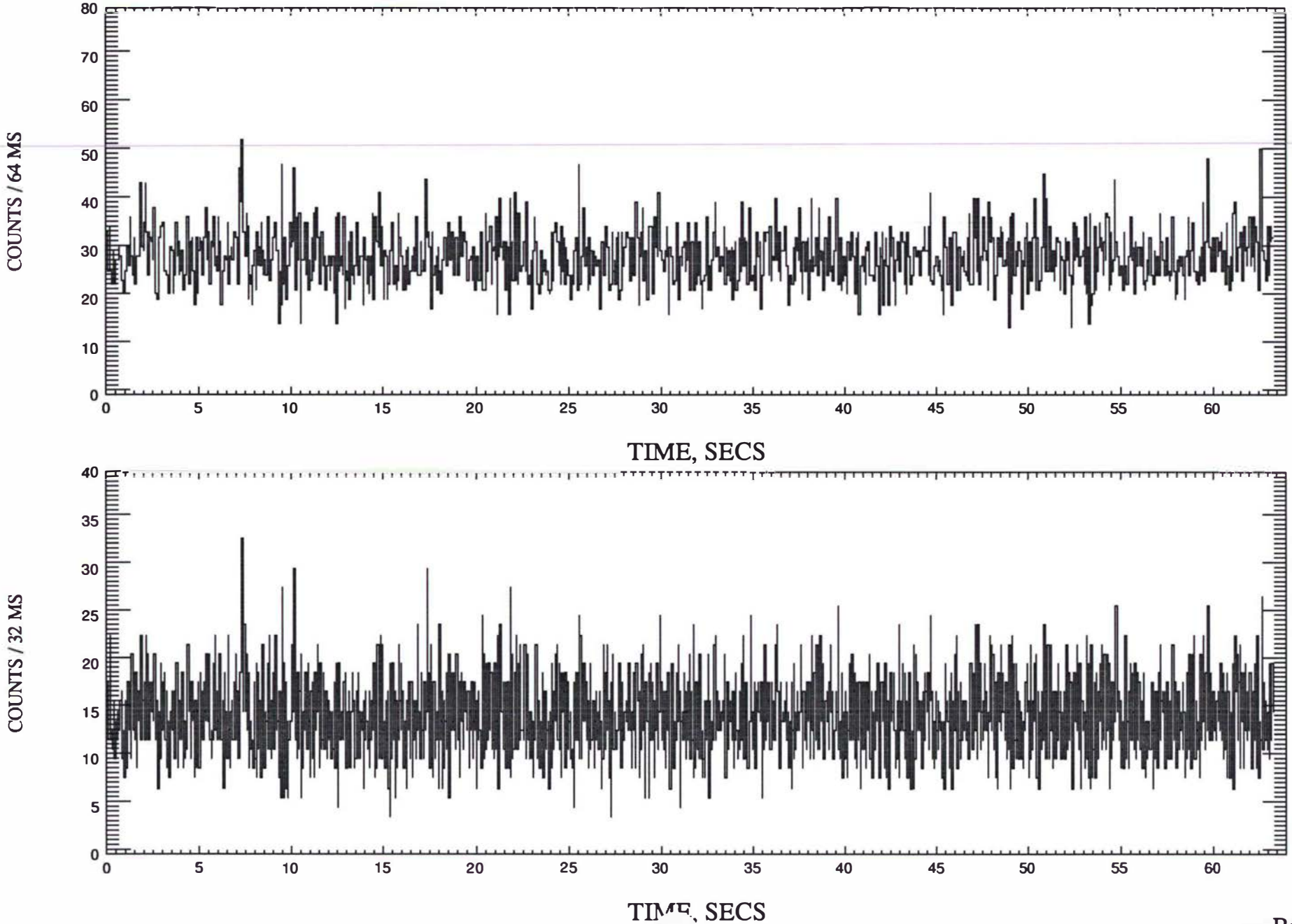
HUS MODES EDR day 95, year 1997 to day 95, year 1997 7/22/97

BURST NUMBER 2, 3



HUS 2A TRIGGERED DATA EDR day 95, year 1997 7/22/97

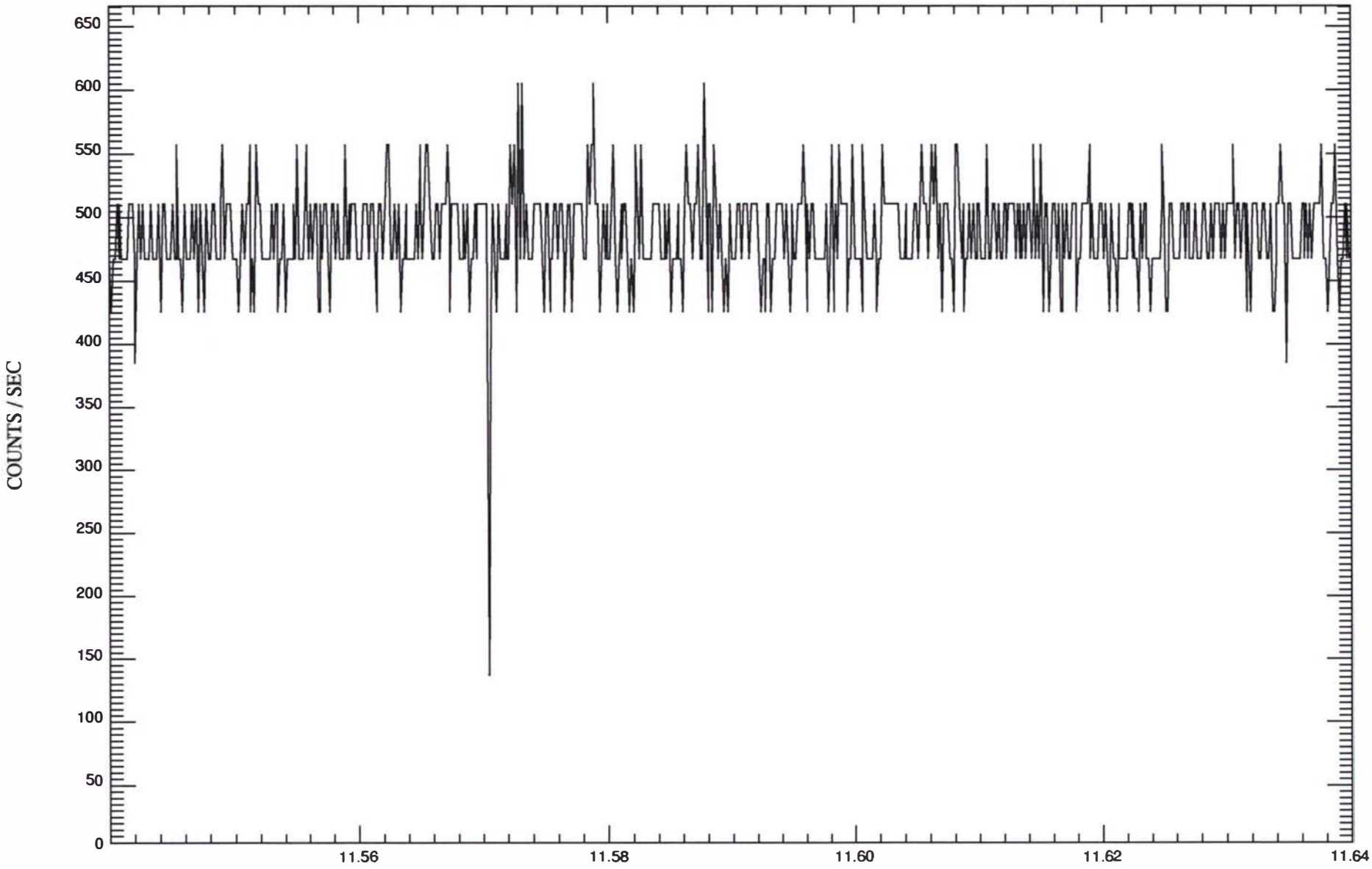
Burst Counter 2 at UT=11.587888514201 h=41716.399 s 11:35:16.399



B# 1

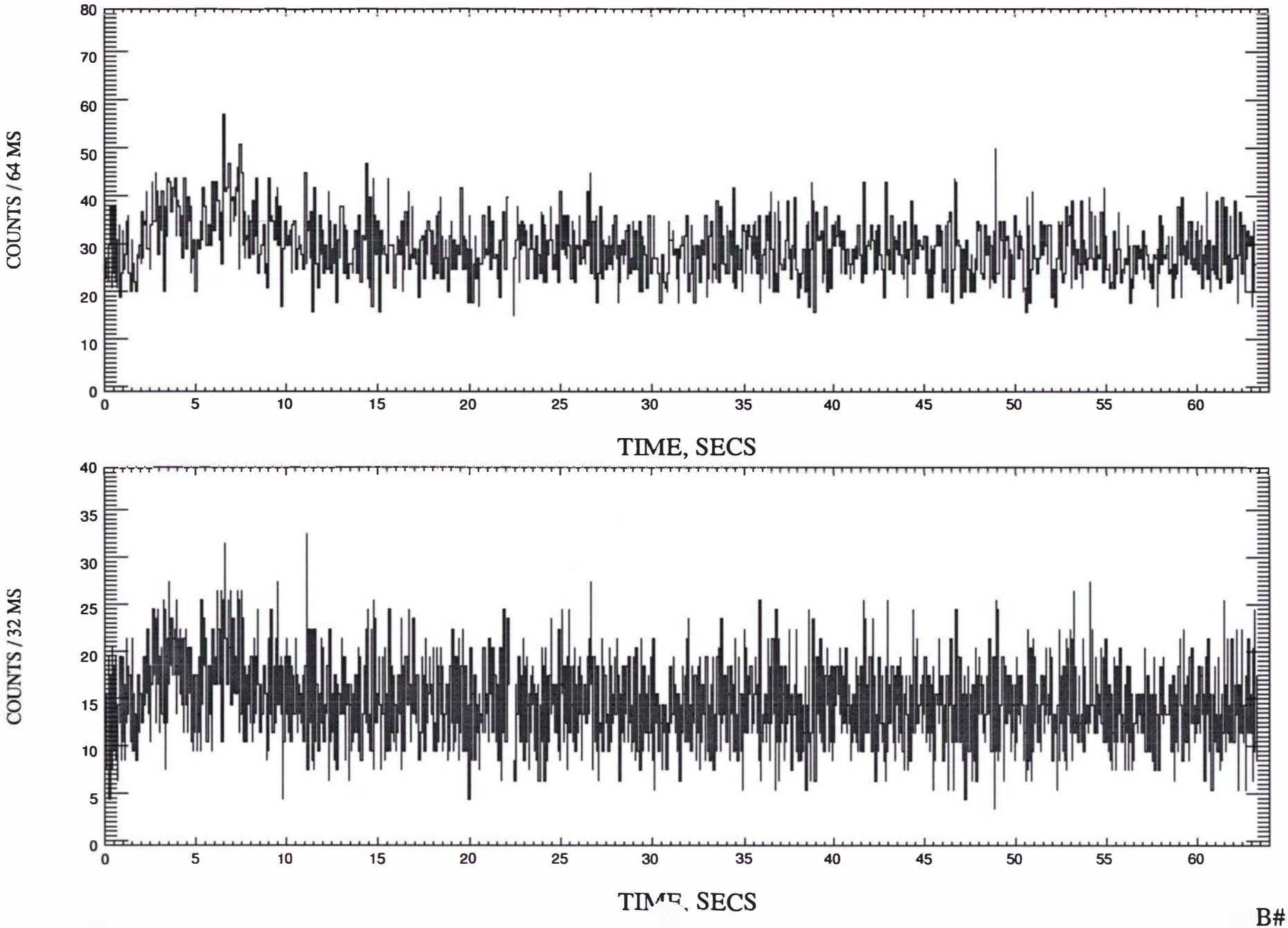
HUS 2A, MODE 1, NOT AVERAGED EDR day 95, year 1997 to day 95, year 1997 7/22/97

CALIBRATION DATA INCLUDED



HUS 2A TRIGGERED DATA EDR day 95, year 1997 7/22/97

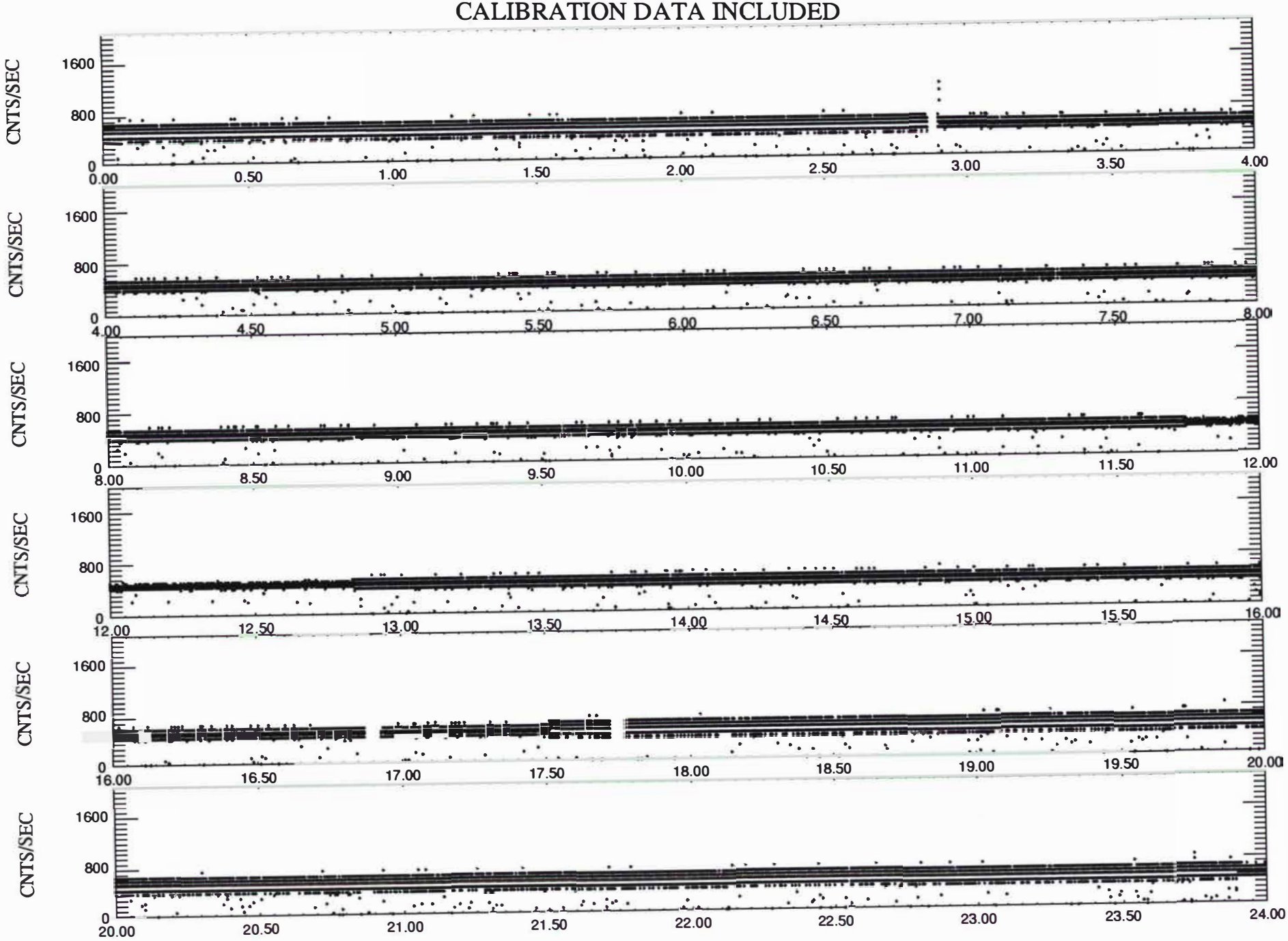
Burst Counter 3 at UT=23.744945877923 h=85481.805 s 23:44:41.805



B# 2

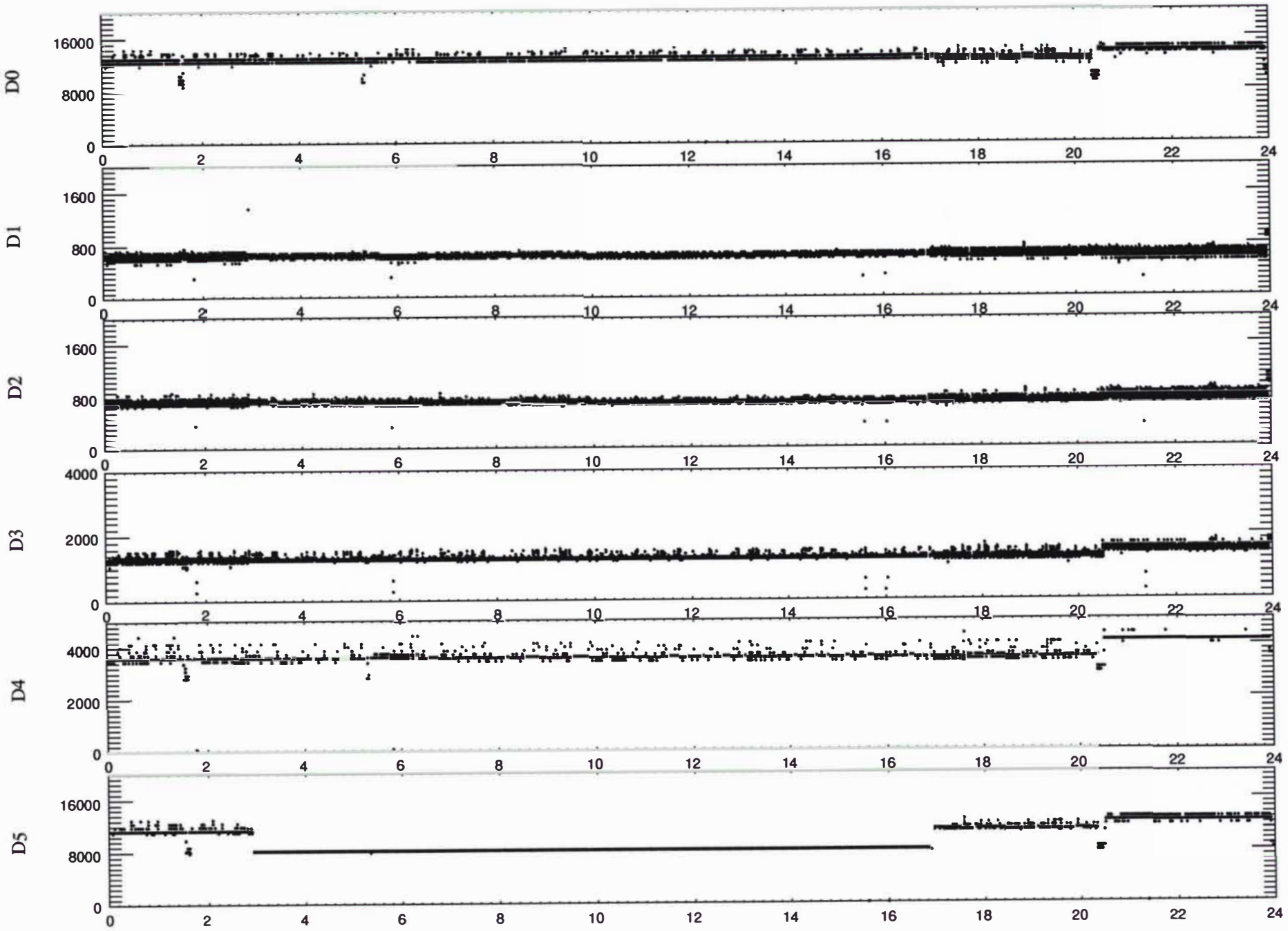
HUS 2A, MODE 1, NOT AVERAGED EDR day 95, year 1997 to day 95, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV 'AL TIME

HUS 2B COUNTS / SEC EDR day 95, year 1997 to day 95, year 1997 7/22/97



Date: Mar 26 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events N/A

☐ Was CHECKMO run to eliminate data gaps?

☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data…")

☐ Was Mars-blocking used?

☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)

☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).

☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events N/A

☐ Σ $3\Delta t$'s calculated, and/or BMAPSUM executed?

3. For INTEGRAL events N/A

☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?

☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

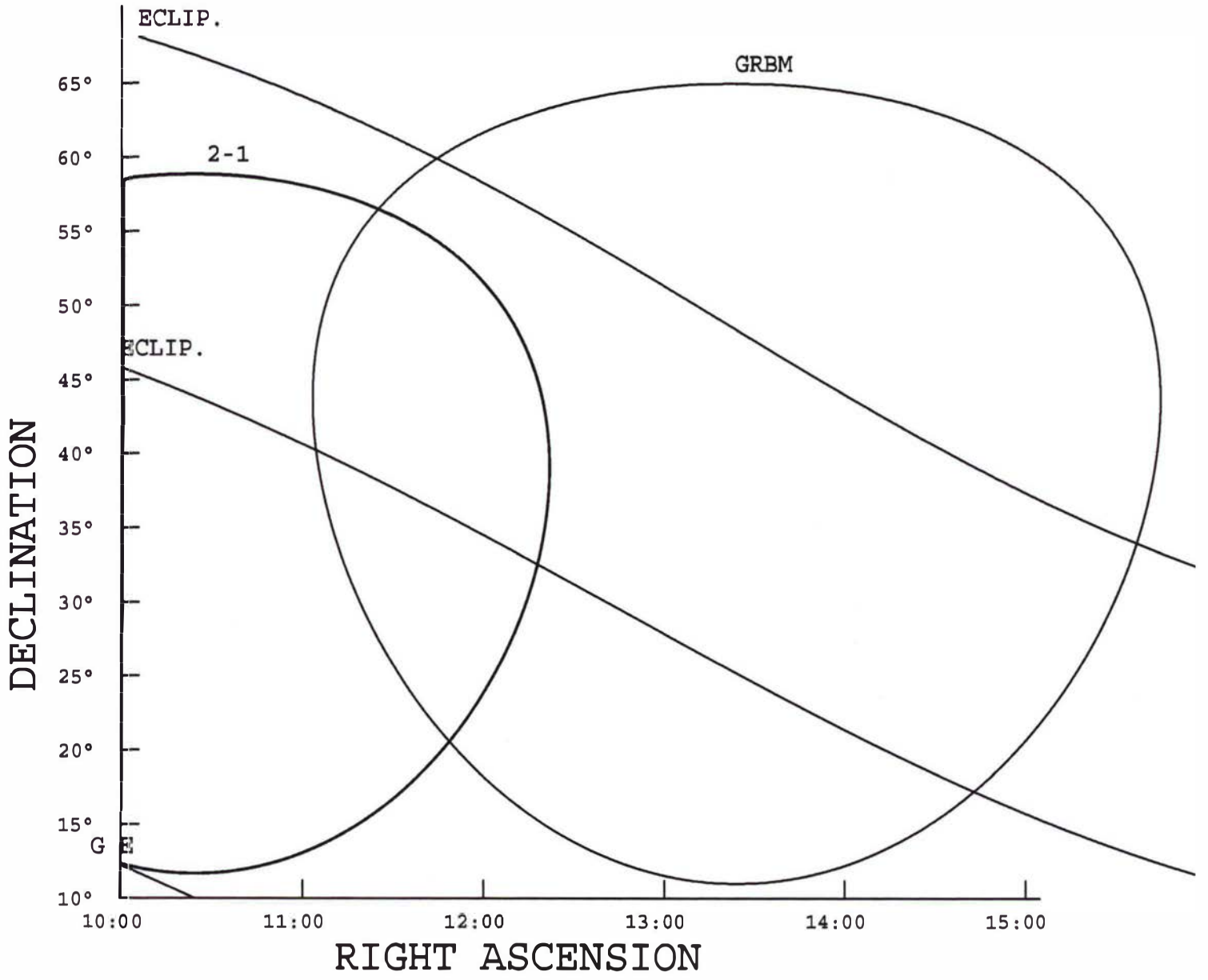
☐ Updated ephemeris used for bursts prior to September 30, 2003?

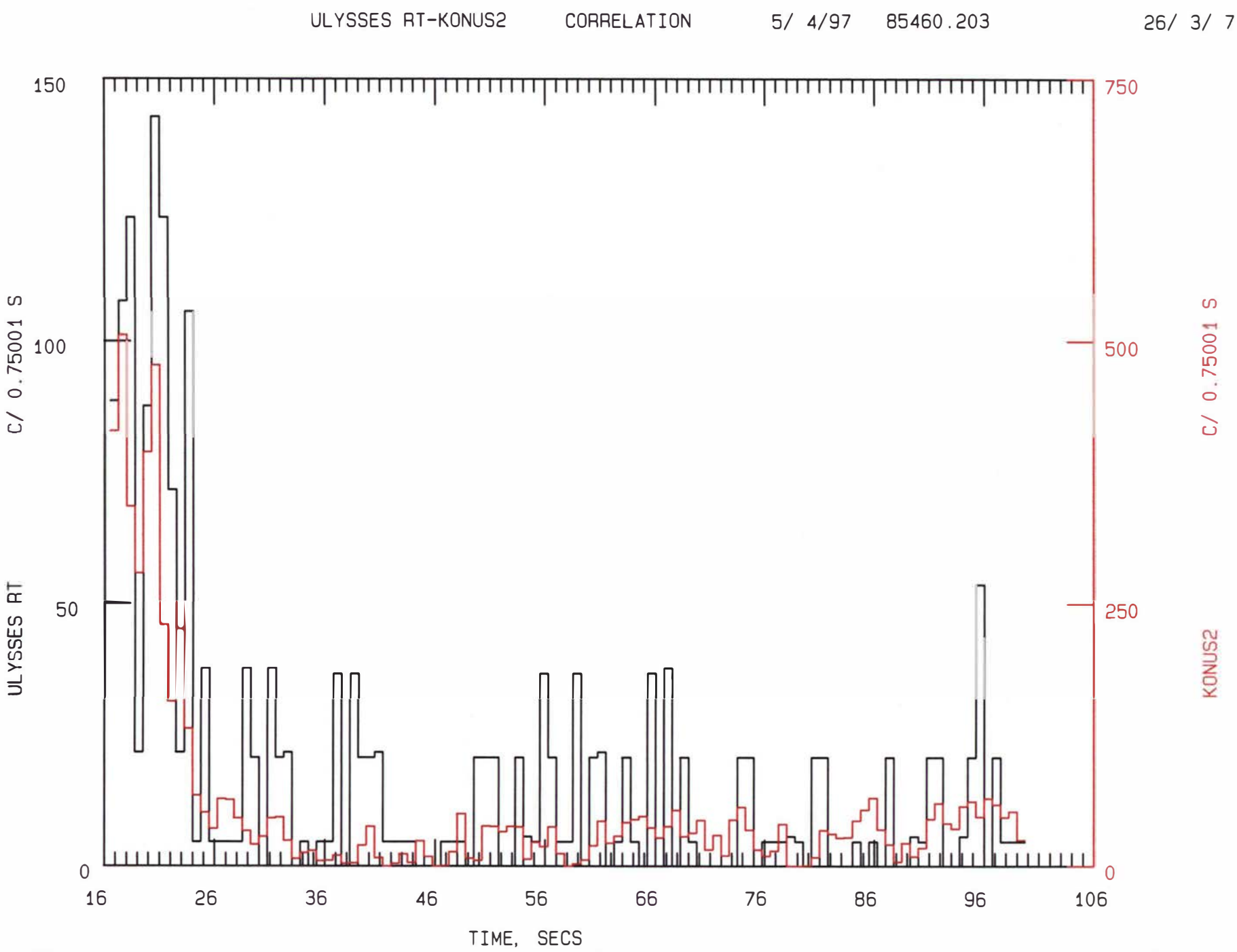
☑ ACCESS and MBL4 databases updated?

EVENT OF APR 5, 1997 23:44

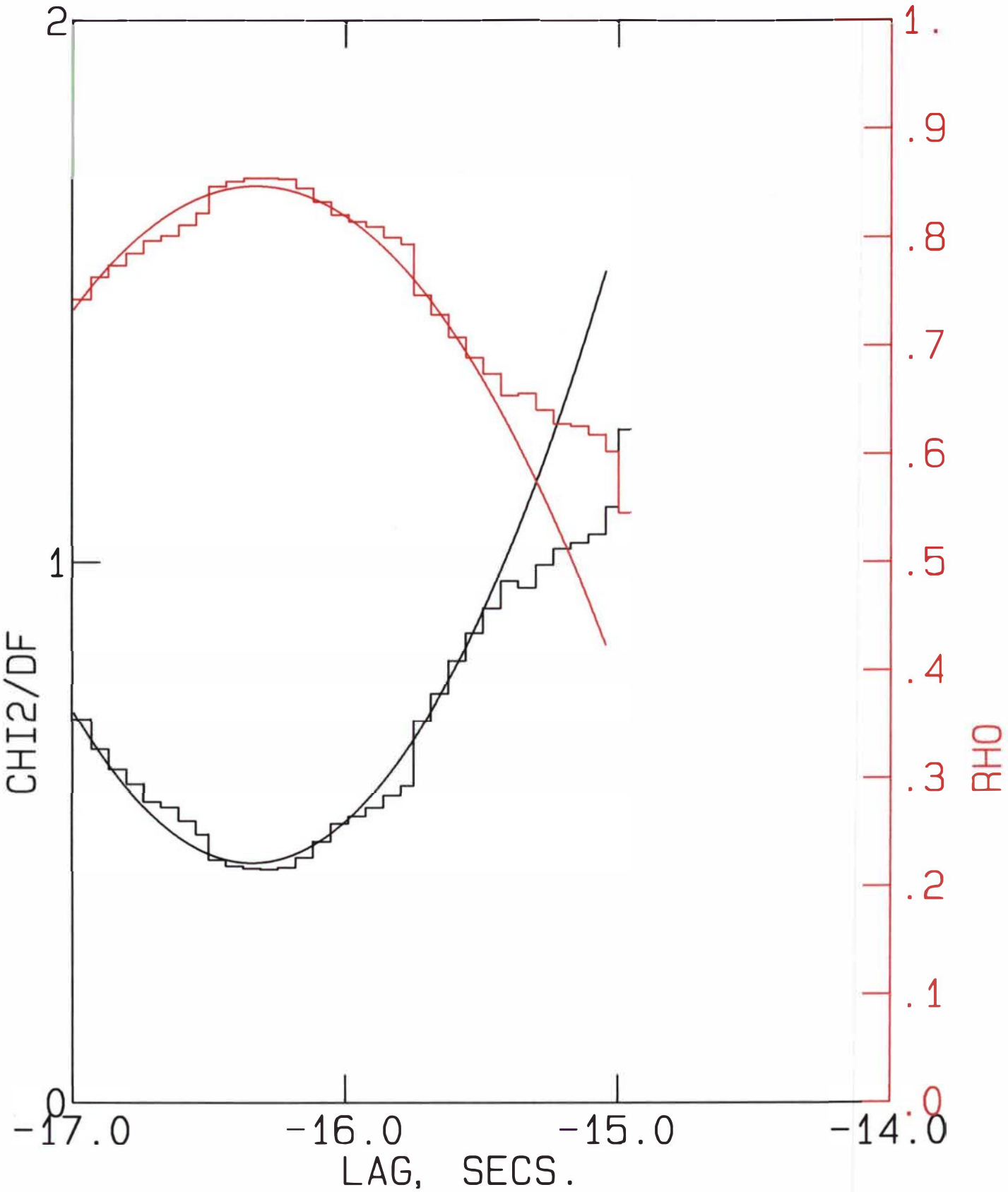
26/ 3/ 7

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 KONUS2




ULYSSES RT-KONUS2 CORRELATION 5/ 4/97 85460.203 26/ 3/ 7
150
100
50
0
C/ 0.75001 S
ULYSSES RT
750
500
250
0
C/ 0.75001 S
KONUS2
16
26
36
46
56
66
76
86
96
106
TIME, SECS

ULYSSES RT-KONUS2 CORRELATION 5/ 4/97 85460.203



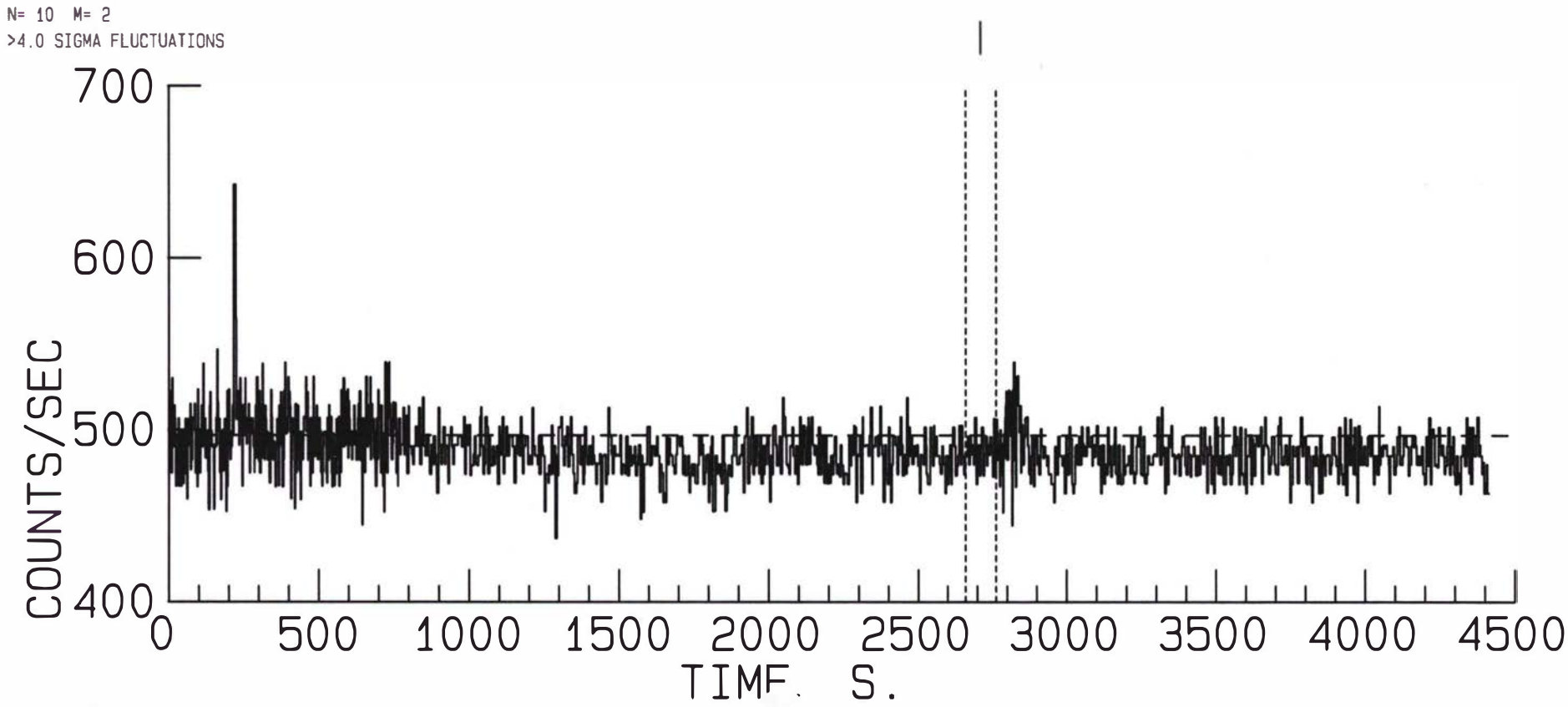
ULYSSES RT

26/ 3/ 7

5/ 4/97 85260.688 s

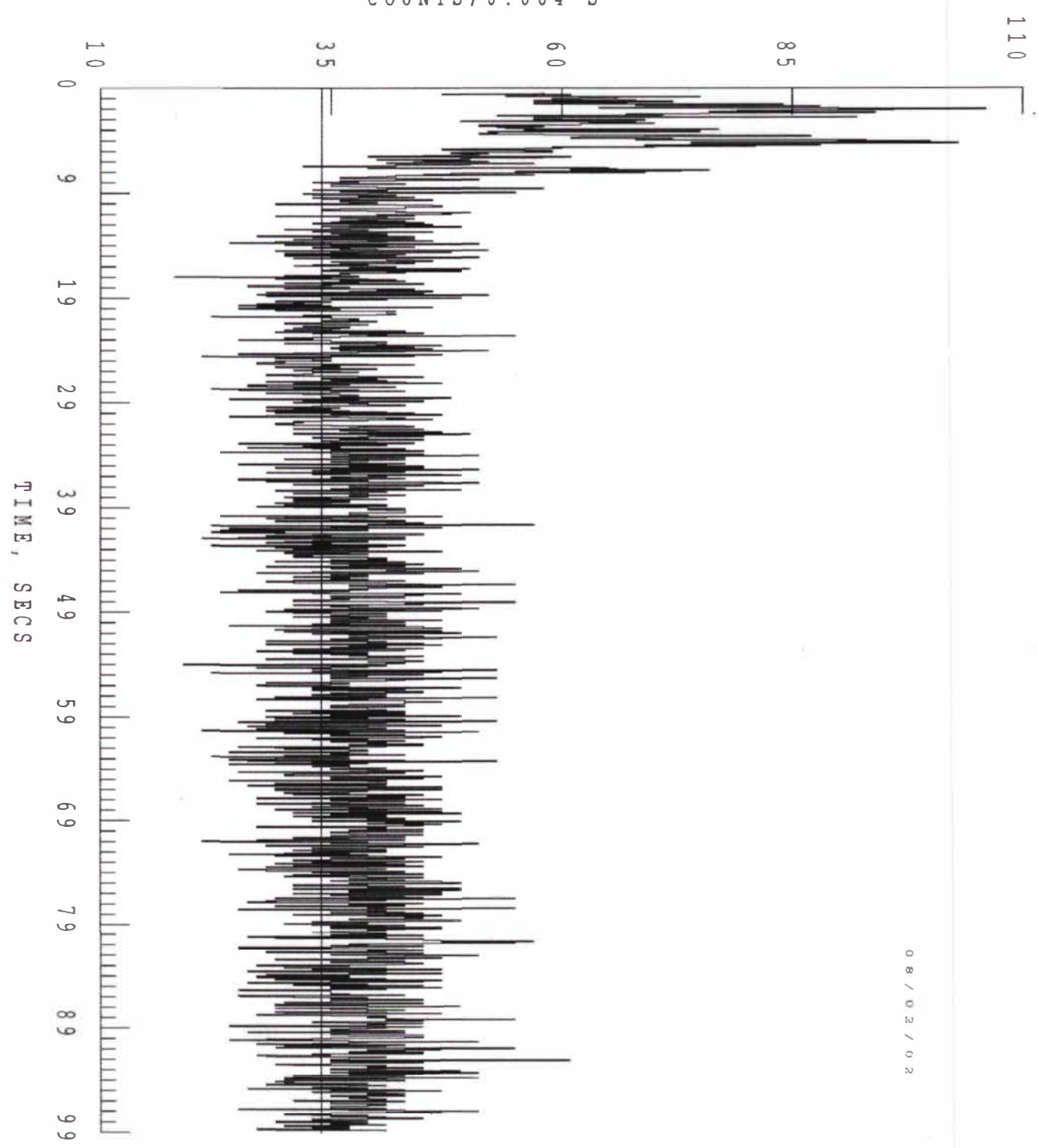
INTERVALS REGROUPED BY 8

22- 147 keV



KONUS2 06/04/97 1060.876

50- 200 keV



```
970315    074 56454.2 BATSE GRB#6124 (4264/S)  (5.69,62.18J)  (+UL)
       13 074 56454.9 PKS,462.9(50/S,90/S,<16S) (@85DEG)

970325    084 63382.8 KONUS(+UL@64176,MOD,15S),2 PEAKS(UL REPORT 8/9/97) (13SR)

970405    095U85440   UL@23:44@2200LS,MOD BURST, 5SEC (SEE NEXT LINE)
970406    096  1060.9 KONUS (MOD.STRONG,MULT.PKS,15S) (13:NR, SECONDARY PEAKS?)

970411    101 35565.2 KONUS(25SEC,35556?)+UL@35040,2200LS(MOD,10S) +TGR (13NR)

970420    110 72842.2 BATSE GRB#6198 (7316/S) (209.08,-21.09J) (+UL)
       13 110 72847.8 PEAK (740/S,<12S,HARD) @85 DEG

970421    111U24420   UL@06:47@2250LS INT BURST, 20SEC
       13 111 25691.6 PEAKS (60/S),711.6(60),721.6(40),<30SEC                  REP0624

970428 14 118           FIRST DATA, DMSP14 (LAUNCHED 970404;DELAY CORR=5.87S)

970506    126 56503.3 KONUS (+UL@57300,2400LS,MOD,10S) (13NO,14NO,NOTRIG)

970506A14 126 45619.1 STRONGPKS45619.1(7700/S,<6S,SOFT),633.1,655.1,NOTRIG;13NO    ??

970602    153 58855.7 KONUS>150S,COMPLEX,PK58953(+UL@56580,MOD,60S)(+TGRS/WIND)
       14 153 58917.0 PK(150/S),953.0(950,>58S,VERY HARD, INTENSE (13 NO)       REP0624
       14 153 58916.7 TRIGGER PK, +58944.3,58952.0

970607    158 33384.7 KONUS, HARD PEAK FOR 7SEC (+UL@33360,MOD,10S)
       13 158 33388.6 PEAK(180/S,<6S)                                          REP0723
       14 158 33388.7 PEAK(200/S,<6S, NOTRIG)                                  REP0723

   616    167 65390.3 BATSE#6274 STRONG,MULTIPEAK.X-RAY AFTER,IAU6683(13NO@127)
          167 65390.3 BATSE(20.46,-7.16J),X-RAY(19.72,-5.50J) (14NO@112,NOTRIG)
          167 65390.3 BATSE (X-RAY DUBIOUS,IAU6722. NO OPT VARIABLE, IAU6723)

970625    176 43993.7 KONUS (UL@46200,2900LS,MOD,15SEC,REPORTED 10/30/97)
       13 178 44002.0 PEAK(80/S,<4S) (14SA)

970627    178 79608.8 KONUS STRONG, MULTIPEAK, 20SEC (+UL@77340,STRONG,20S)
          178 79610   BEPPOSAX (13SR,14NO,NO TRIG)

970629    180 14424.  KONUS VERY SOFT(+UL@15960,STRONG. NEW SGR (SEE 970912)
       13 180 14429.0 PEAK(50/S,<2S,SOFT) (14NR)                               REP0903

970715    196 51674.3 KONUS STRONG,HARD PK@+20(+UL@54060,MOD,5S)
       13 196 51693.6 PEAK(190/S,<4S)  (14NR,NOTRIG)                           REP0903

970721    202 84667.1 KONUS(+UL@81720,MOD,10S,@3000LS)
       13 202 84671.9 PEAKS(HARD,1-SIDE,200/S,<8S),691.9(1-SIDE,240/S,<10S)    REP0903
       14 202 84672.1 PEAK (HARD,1-SIDE,470/S,<10S),692.1(1-SIDE,240/S,<10S)   REP0903
       14 202 84671.5 TRIGGER PEAK (EVT14)(84671.46)                           REP0903

970802    214 12328.2 BATSE GRB#6322,5750/2S    (13NO@32,14NO@40,GAP,NOTRIG)

970815    227 43624.4 BATSE GRB#6335,10395/2S (IAU6718 XRAYS;6721+NOOPT)
          227 43624.4 CONTINUED: 13NO@160DEG, 14NO@146DEG

  915    258 32870.9 KONUS 25S,HARD (+UL@30900,3100LS,MOD,10S)
       14 258 32873.2 PEAK (200/S,<2S,NO TRIG) (13NO)

970919    262 65669.5 BATSE#6389 (8048/S)
```

From TERRELL@nisdp0.lanl.gov Fri Feb 27 15:11 PST 1998
From: TERRELL@nisdp0.lanl.gov
Date: Fri, 27 Feb 1998 16:11:55 -0700
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
henze@fender.msfc.nasa.gov, filippo@botes1.tesre.bo.cnr.it,
kmarar@isac.ernet.in
X-Vmsmail-To: @MAILOUTUL.DIS
Subject: DMSP GRB: 1997(many),980109,980113,980119,980124,980125,980202,980203

From: jterrell@lanl.gov (James Terrell) 980227
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kmarar@isac.ernet.in, kraken@rosserv.gsfc.nasa.gov,
scott@milkyway.gsfc.nasa.gov, teegarden@lheavx.gsfc.nasa.gov,
vnp@isac.ernet.in, yosimori@rikkyo.ac.jp
Subj: DMSP GRB detections: 1997(many),980109,980113,980119,980124,980125,980202,980203

The following GRB were detected by DMSP13 or DMSP14 (or NOT detected, if indicated).
No detection can occur for bursts more than 118 degrees from spacecraft zenith,
or if in the presence of very high counting rates (SAA,SR,NR).
Data are normally in 2-sec counts, except when the DMSP14 trigger circuit is
tripped, giving 12.8ms data, usually reported here as 102.4ms counts.
Numerous other BATSE GRB were also detected, but not reported here; numerous
weak detections by Ulysses have not been checked because of low counting
rates expected at an indefinite time.

DATE	FL	DAY	TIME	NOTES---(ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)------REPORTED (NO=DATA CHECKED--SHOWS NO DETECTION)(SR=S. RADIATION BELT) (NR=NORTH RADIATION BELT)(SAA=SOUTH ATLANTIC ANOMALY)	
970111		011	35040.2	BATSE GRB#5773 (8727CTS/2S) (SEE IAU6569,6571,6574,6598)	
		011	35040.2	BEPPO SAX TRIG,INTENSE,50S,3 PEAKS(232.10,19.67J) IAU6533	
	13	011	35040.0	PEAKS(40/S),48.0(50/S),58.0(60/S),@24DEG,@848KM,SOFT	REP0313
970111		011	85744.6	KONUS (HARD,SLOW RISE) +TGR (UL:NO) (DMSP13:NO)	
970117		017	53211	TGR+SAX GRB (KONUS INOP)+UL@54420(STRONG,20S) (13:NO)	
970124		024	44343.4	KONUS(MULT PKS)+UL@46253@2100LS,STRONG+TGR (13SAA)	
970201		032	57250.7	BATSE GRB#5989 (53612/SEC) +UL	
	13	032	57222.1	PEAK (100/S,~30S,SOFT,BROAD) (@111DEG) UNCONVINCING	
970218		049	50996.1	KONUS (STRONG,5SEC) +UL@51274,2000LS (STRONG,8SEC)	
	13	049	51001.0	PEAK (320/S,<6S)	REP0624
970222		053	86006.6	KONUS (MOD.STRONG,SEV.SEC) +UL@85873,2000LS,MOD,2S(13NO)	
970226		057	31585.9	KONUS (STRONG,SOFT PK@+39) +UL@30547,2000LS(V.INT,40S)	
	13	057	31595.8	PEAK (270/S,10SEC) (MODERATELY STRONG)	REP0313
970228		059	10680.8	BEPPOSAX(IAU6572)MOD.INT.,80S,4 PKS (75.46,11.75J)IAU6578	
		059	10680.8	INT.X-RAY,RADIO(IAU6576,6577),OPTICAL(6584),MOTION(6629)	OPTICAL
	13	059	10659.1	PKS,667.1(60/S,ONE-SIDED,SOFT,@74DEG) DOUBTFUL (+UL,WIND)	
970313		072	30096.5	KONUS(MOD.STRONG,PK@+11,40S)+UL@28380,2000LS(MOD.INT,10S)	
	13	072	28355.8	PEAK (180/S,<2S,SOFT) (NO PEAK AT 30096!) (CONFLICT)	REP0501

From DEAL@fender.msfc.nasa.gov Tue Apr 8 12:11 PDT 1997
Return-Path: <DEAL@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id MAA09537; Tue, 8 Apr 1997 12:11:03 -0700
From: DEAL@fender.msfc.nasa.gov
Date: Tue, 8 Apr 1997 14:08:17 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970408140817.20c0295d@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6160
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST #   6160
EVENT OF 1997 APR 6 DAY OF YEAR= 96
EVENT CROSSING TIME AT BATSE   : 14951. S. OR 04:09:11.0
COORDINATES ARE   0.000   0.000   6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 341.000 -68.000
BATSE PEAK COUNTING RATE: 2500   C/S

EVENT CROSSING TIME AT ULYSSES   WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 6/ 4/ 97 IS:
RA= 155.045 DEC=   35.509 DIST=   4.350 AU
BATSE-ULYSSES DISTANCE = 650737872. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 32.67 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1827.30 SECS.
CROSSING TIME AT ULYSSES   IS 16778. S. OR   04:39:38 +/- 281.15 SECONDS

EVENT CROSSING TIME AT MARS   WILL BE FOUND
POSITION OF MARS ON 6/ 4/ 97 IS:
RA= 171.840 DEC=   6.870 DIST=   0.687 AU
MARS-BATSE DISTANCE = 102771864. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 61.56 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 163.24 SECS.
CROSSING TIME AT MARS   IS 15114. S. OR   04:11:54 +/-   54.82 SECONDS

BATSE BURST TRIGGER

NO.: 6160

TIME: TJD=0544 SECONDS=14951

TYPE: BURST   SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=110.9 AZIMUTH=87.0   ERROR=2.8   DEGREES

COMMENTS:
GRB LASTING ~ 120 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6160	970406	10544	14951	2500	341	-68	120

BATSE# 6160

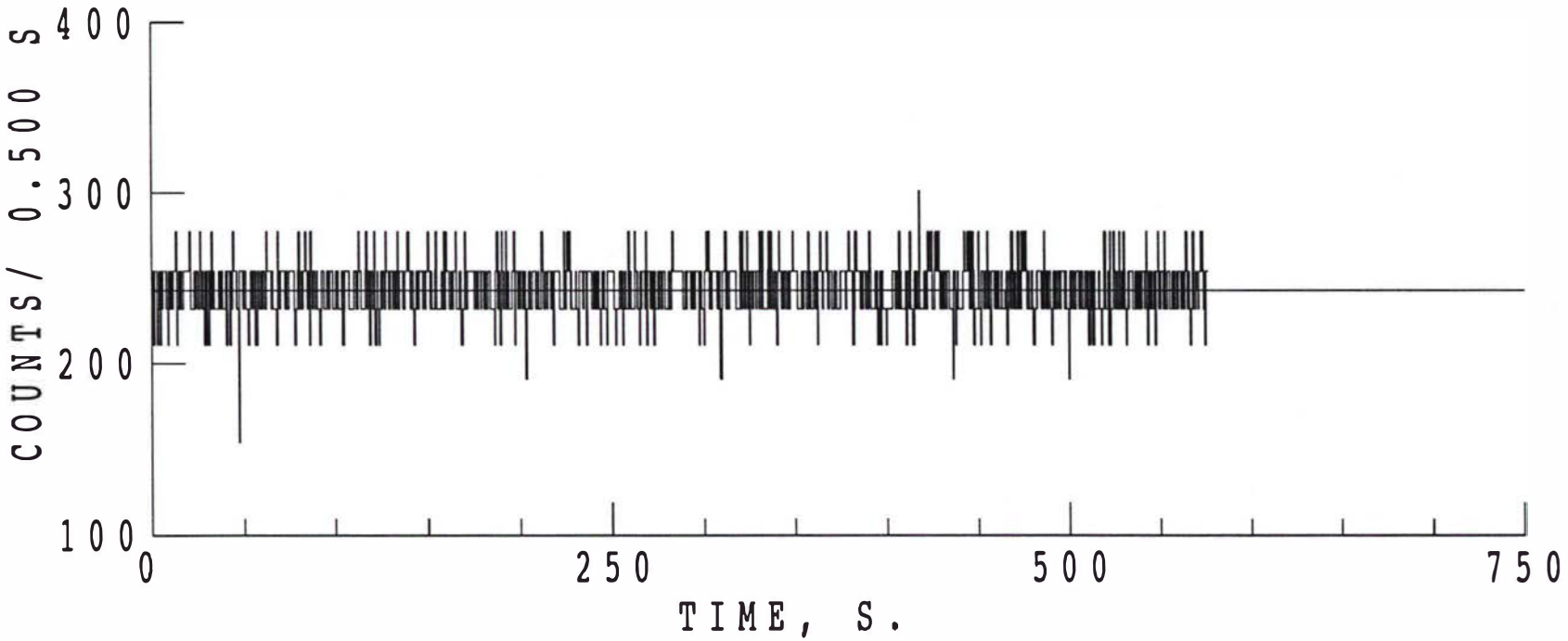
ULYSSES RT 9/ 4/97

6/ 4/97 16488.146 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From DEAL@fender.msfc.nasa.gov Thu Apr 10 08:05 PDT 1997
Return-Path: <DEAL@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id IAA26422; Thu, 10 Apr 1997 08:05:33 -0700
From: DEAL@fender.msfc.nasa.gov
Date: Thu, 10 Apr 1997 10:05:22 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970410100522.20c02bb7@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6161
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6161
EVENT OF 1997 APR 6 DAY OF YEAR= 96
EVENT CROSSING TIME AT BATSE : 22784. S. OR 06:19:44.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 51.000 -25.000
BATSE PEAK COUNTING RATE: 2600 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 6/ 4/ 97 IS:
RA= 155.027 DEC= 35.502 DIST= 4.351 AU
BATSE-ULYSSES DISTANCE = 650936325. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 64.90 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 921.19 SECS.
CROSSING TIME AT ULYSSES IS 23705. S. OR 06:35:05 +/- 405.35 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 6/ 4/ 97 IS:
RA= 171.840 DEC= 6.870 DIST= 0.687 AU
MARS-BATSE DISTANCE = 102771864. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 59.21 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 175.46 SECS.
CROSSING TIME AT MARS IS 22959. S. OR 06:22:39 +/- 53.80 SECONDS

BATSE BURST TRIGGER

NO.: 6161

TIME: TJD=0544 SECONDS=22784

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=63.2 AZIMUTH=49.9 ERROR=2.5 DEGREES

COMMENTS:
GRB LASTING ~ 45 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6161	970406	10544	22784	2600	051	-25	45

Helio corr removed 17/2/00

Date: Mar 27 '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)? 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)?

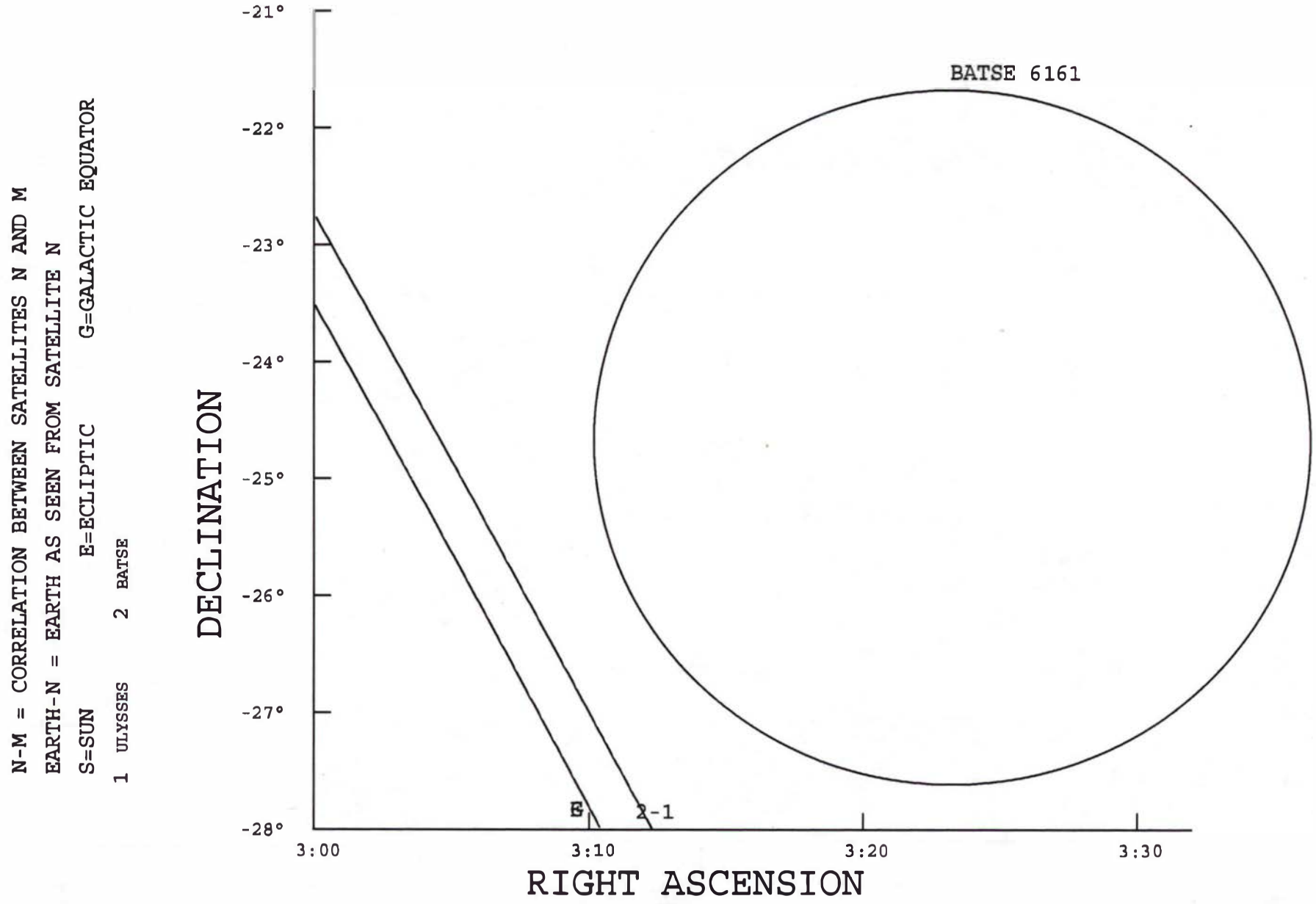
☐ 2000 coordinates used?

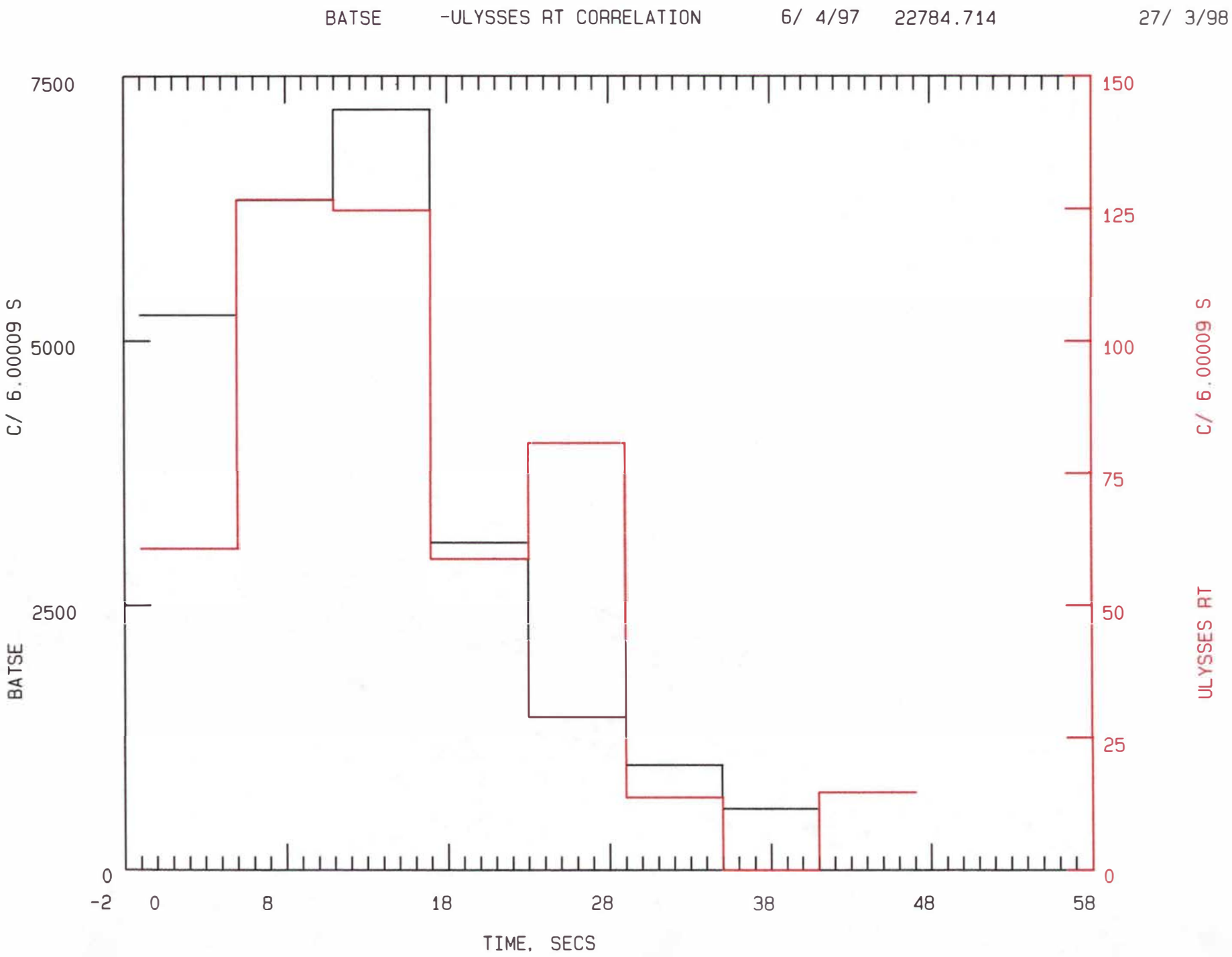
☐ Geocentric time used?

☑ ACCESS database updated?

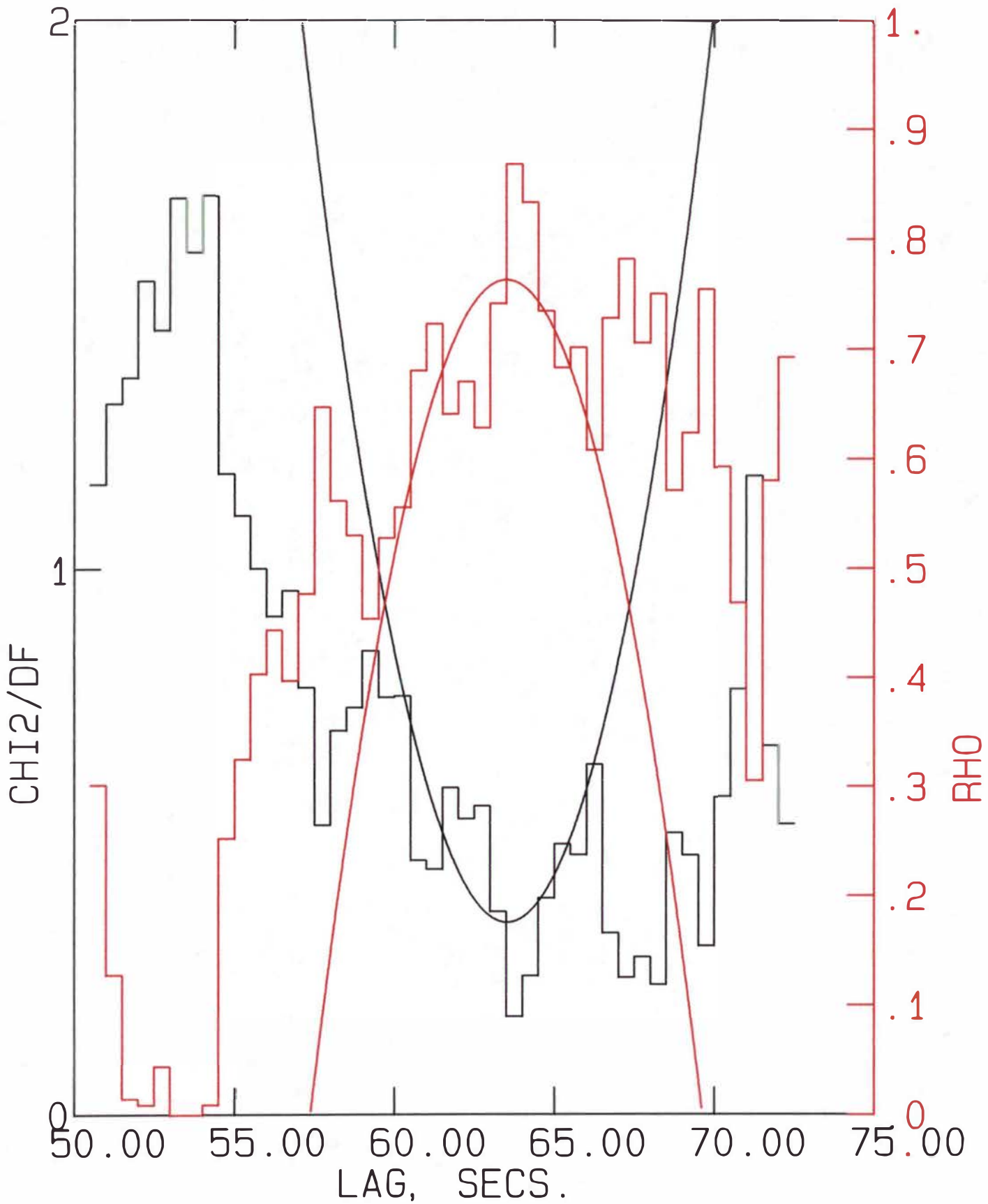
EVENT OF APR 6, 1997 6:36

17/ 2/ 0




BATSE -ULYSSES RT CORRELATION 6/ 4/97 22784.714 27/ 3/98
7500
5000
2500
0
C/ 6.00009 S
BATSE
150
125
100
75
50
25
0
C/ 6.00009 S
ULYSSES RT
-2
0
8
18
28
38
48
58
TIME, SECS

BATSE -ULYSSES RT CORRELATION 6/ 4/97 22784.714

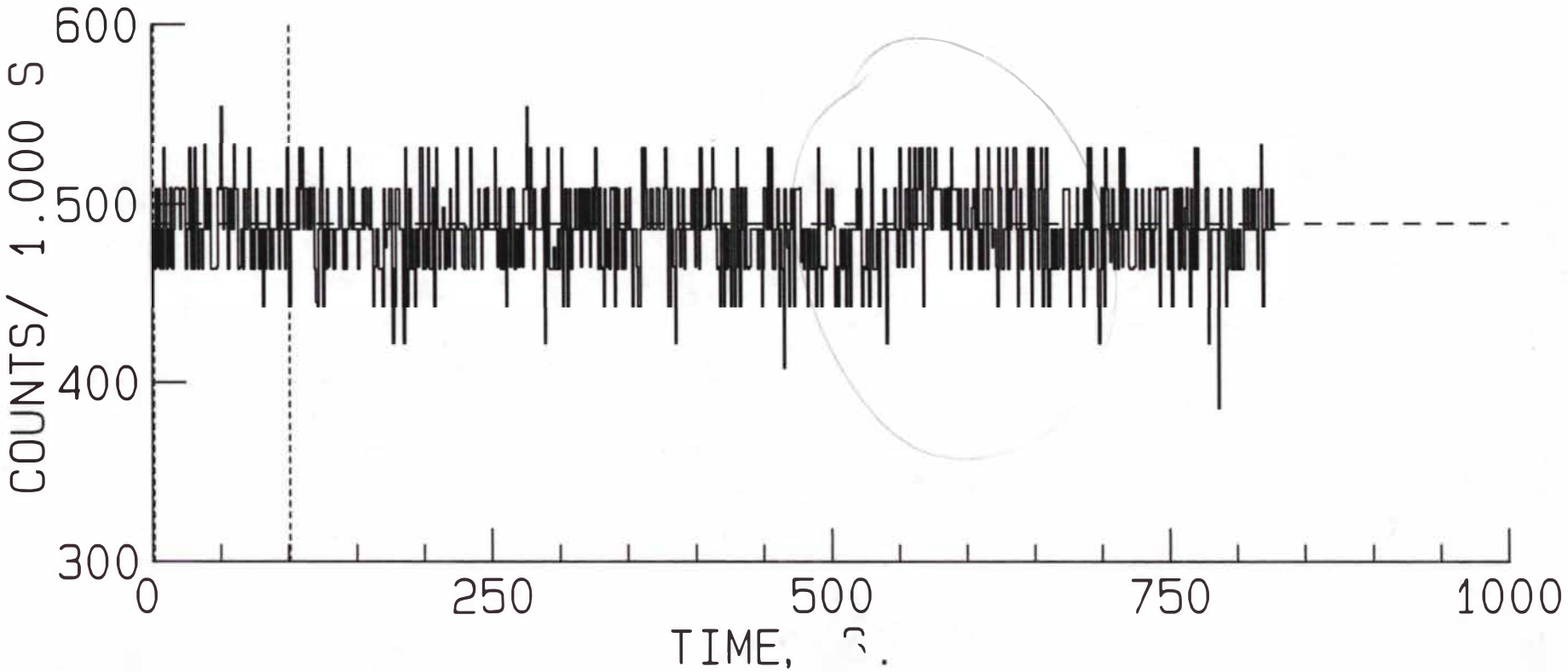


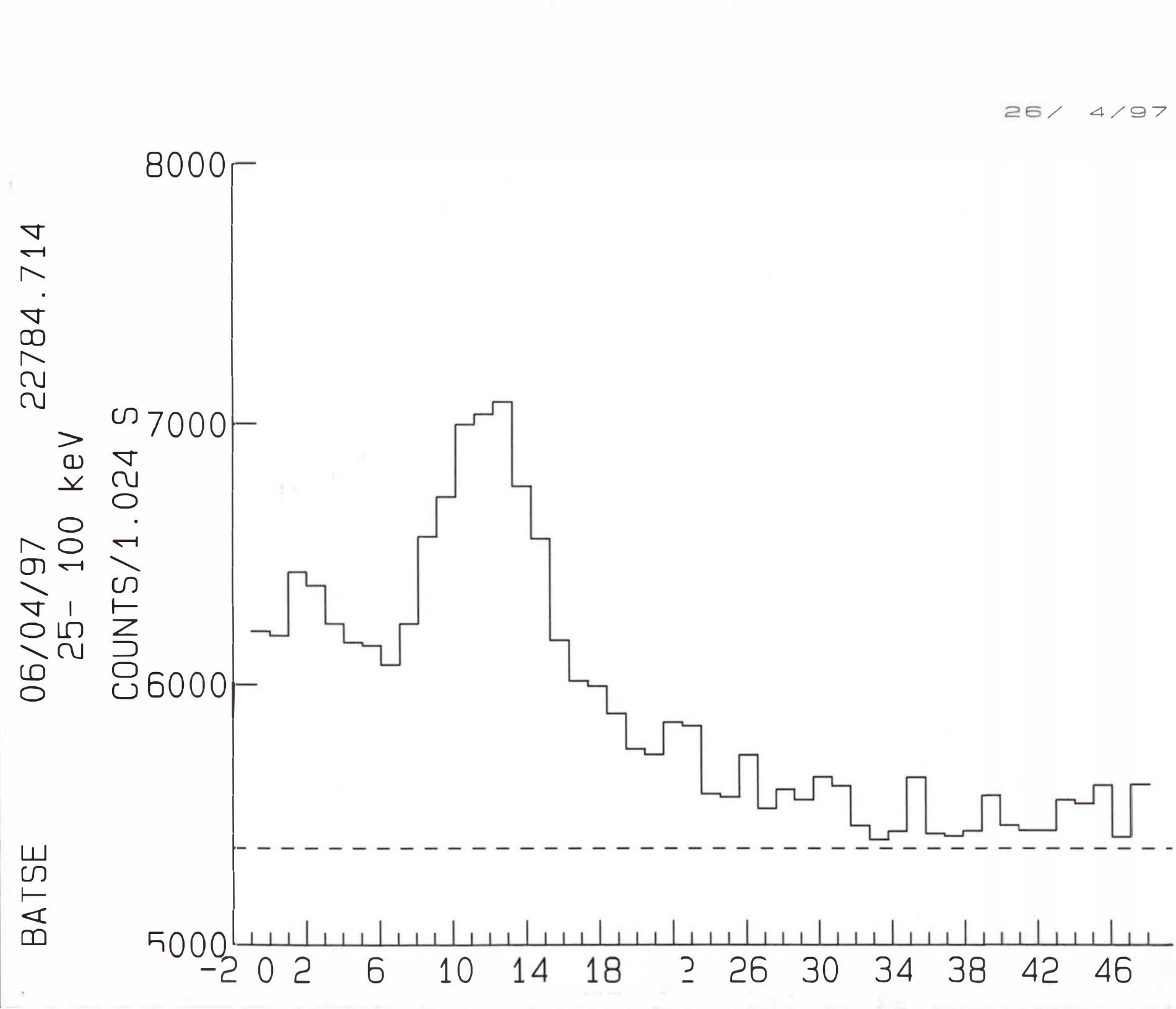
ULYSSES RT 27/ 3/98

6/ 4/97 23292.235 s

0.500 S INTERVALS REGROUPED BY 2

21- 146 keV

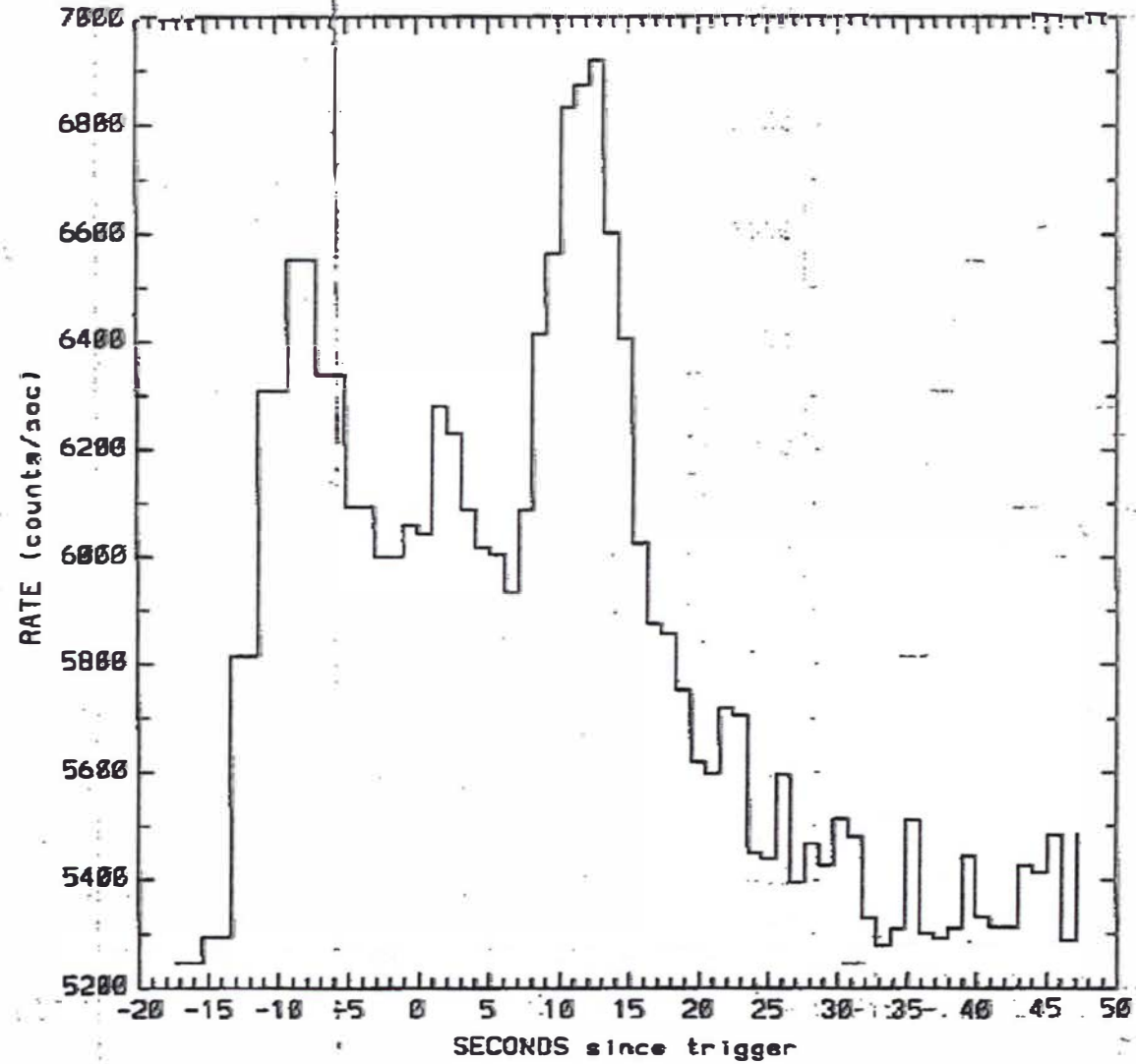



26/ 4/97
BATSE
06/04/97 22784.714
25- 100 keV
COUNTS/1.024 S
8000
7000
6000
5000
-2 0 2 6 10 14 18 2 26 30 34 38 42 46

R=94%

04-14-1997 08:05 205 544 5800 BATSE P.03

DISCLB Data for K. Hurley, No. 6161



14-APR-1997 08:29:29

Created by MOPS BD
(Burst Display)
Version t2.25

Trigger # : 6161

Trigger Time:
16540 / 22784.713

Burst Data Type:
DISCLB

Deadtime
Corrected: N

Background Data
Type: None

Minimum Integ. Time:
1.024 second(s)

Detectors [7..0]:
-------10

Discriminators:
[1 , 2]

Quality Mask:
BDISPT.

205 544 5800 04-14-97 06:00AM P003 #49

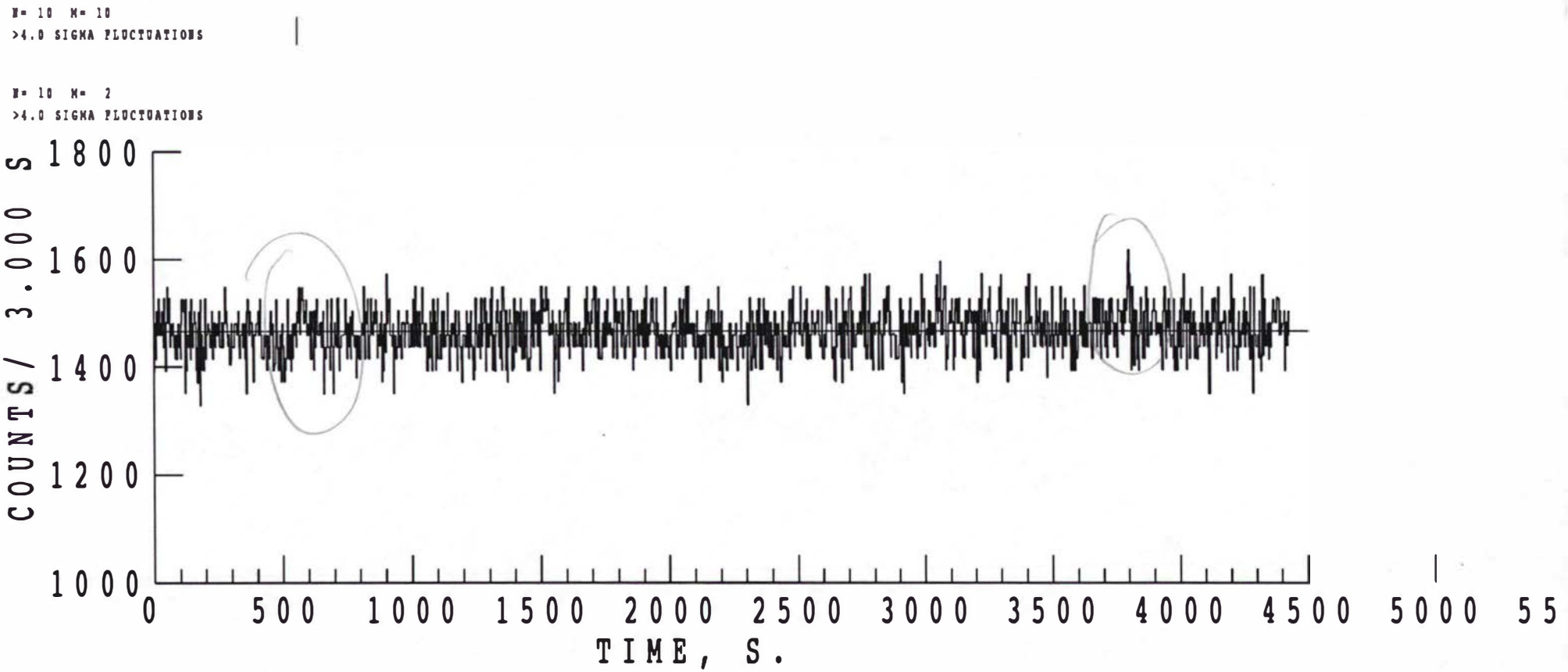
KONUS

ULYSSES RT 02/02/00

06/04/97 23292.236 s

0.500 S INTERVALS REGROUPED BY 6

0- 0 keV



Date: Jul 7 2003

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. BATSE Data

☐ BATSE ephemeris for T_0? N/A

☐ Error circle position and radius from public catalog used? N/A

☐ If MER data were used, is a 30 ms systematic error included? N/A

3. NEAR Data

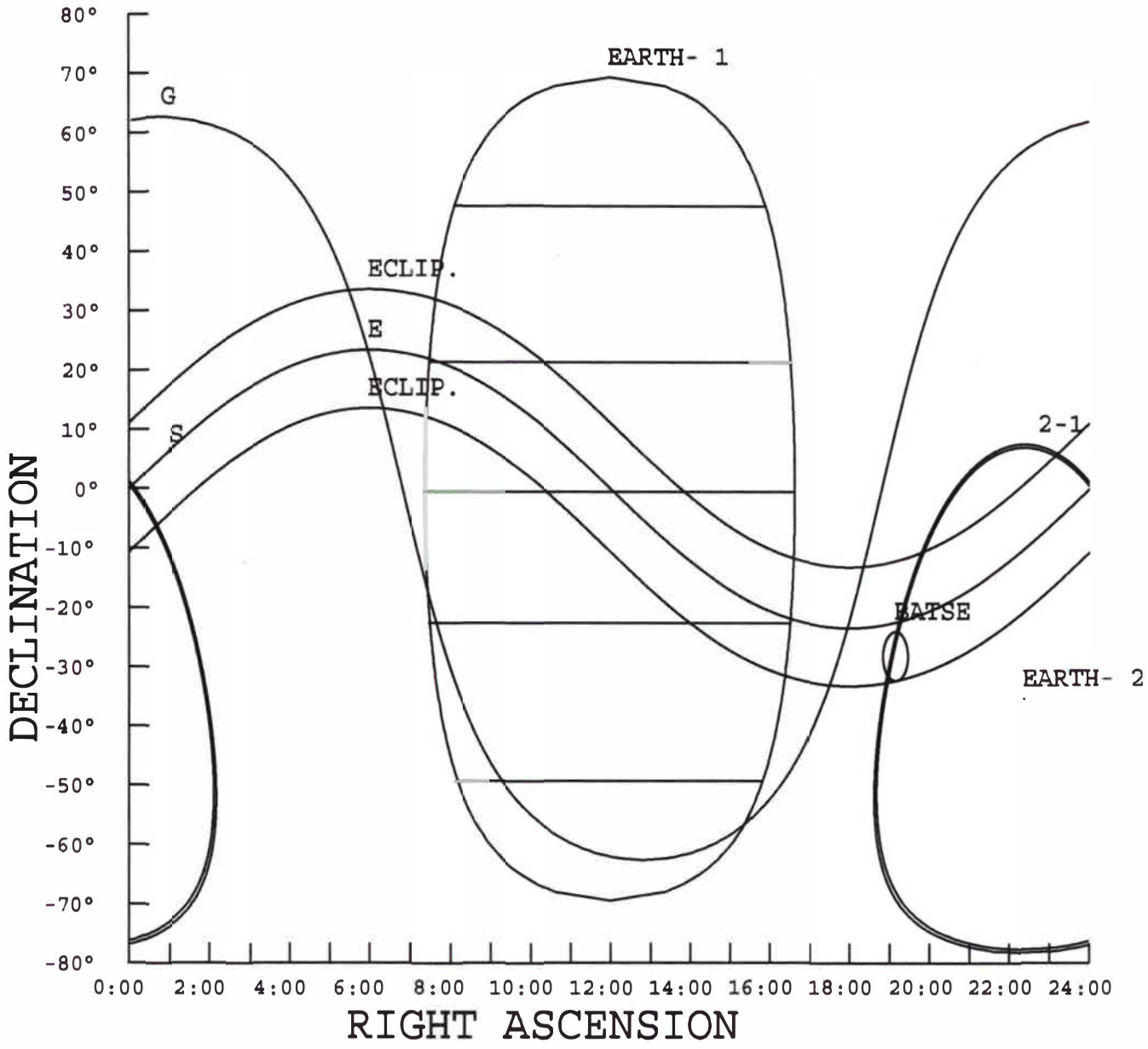
☐ Final, correct time used? (Files postmarked vwx@bocc1, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times)

☐ BATSE >100 keV data used for NEAR correlation?

☑ ACCESS database updated?

EVENT OF APR 6, 1997 7:04

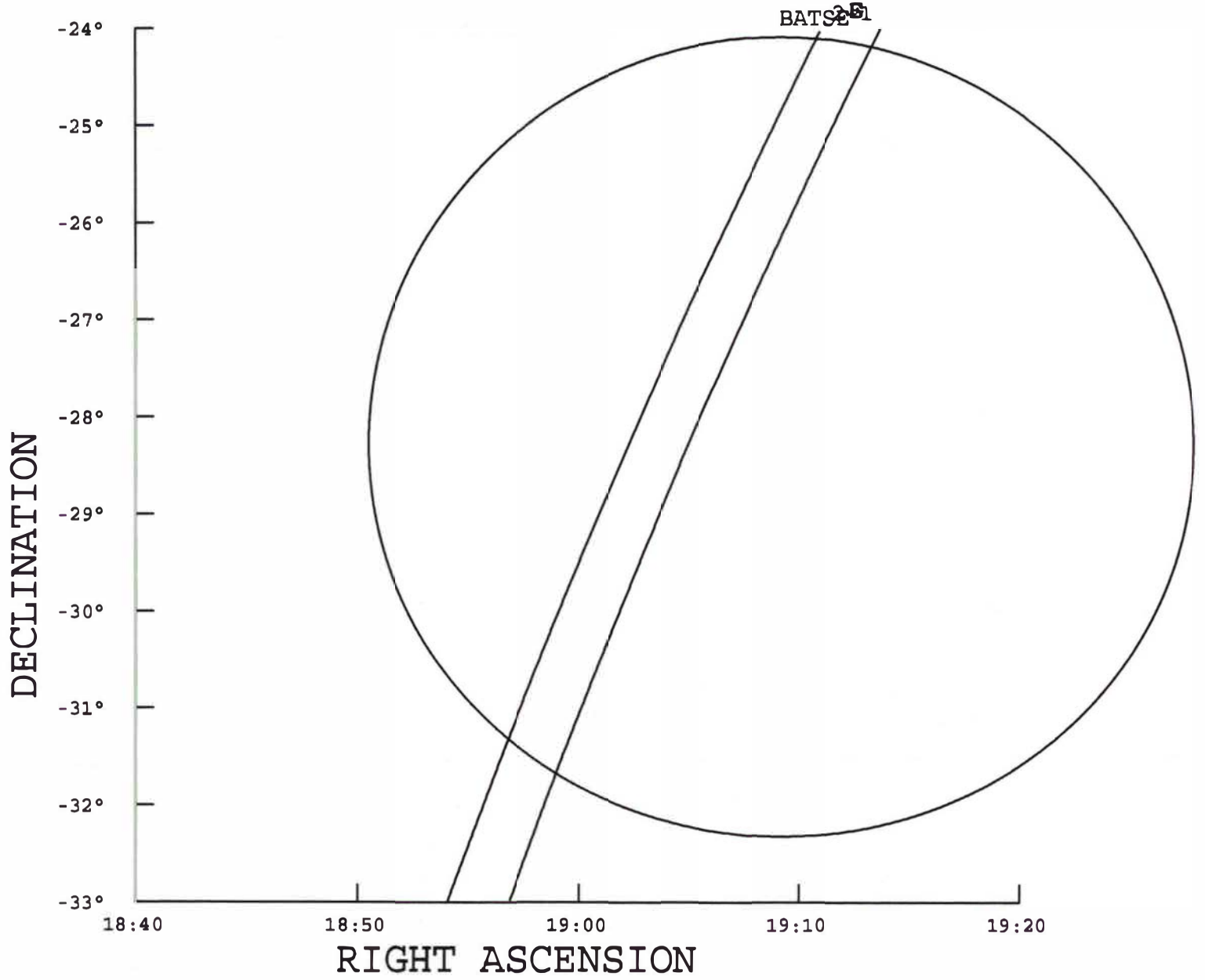
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 BATSE 2 ULYSSES

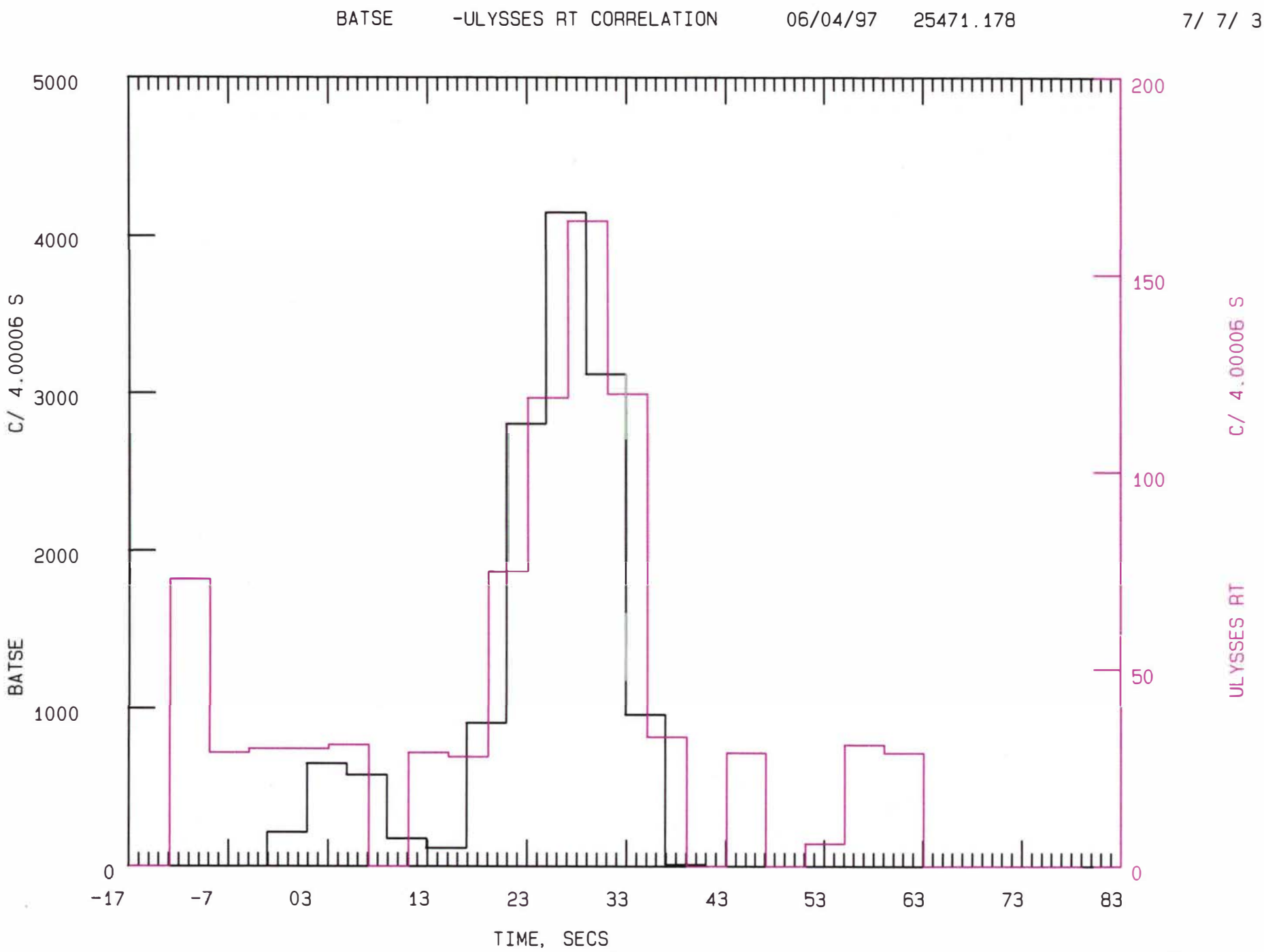


EVENT OF APR 6, 1997 7:04

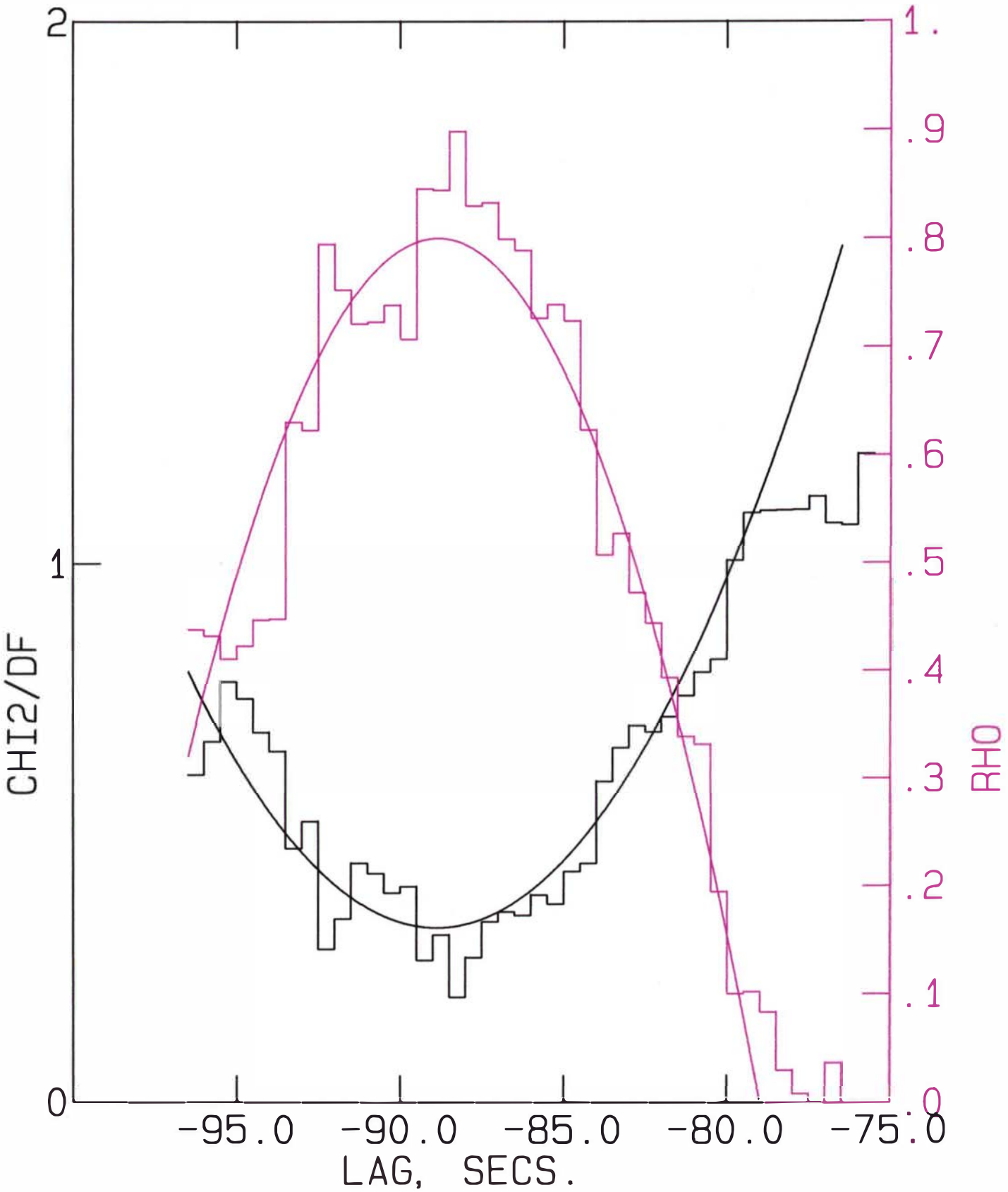
7/ 7/ 3

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




BATSE -ULYSSES RT CORRELATION 06/04/97 25471.178 7/ 7/ 3
5000
4000
3000
2000
1000
0
C/ 4.00006 S
BATSE
200
150
100
50
0
C/ 4.00006 S
ULYSSES RT
-17
-7
03
13
23
33
43
53
63
73
83
TIME, SECS

BATSE -ULYSSES RT CORRELATION 06/04/97 25471.178

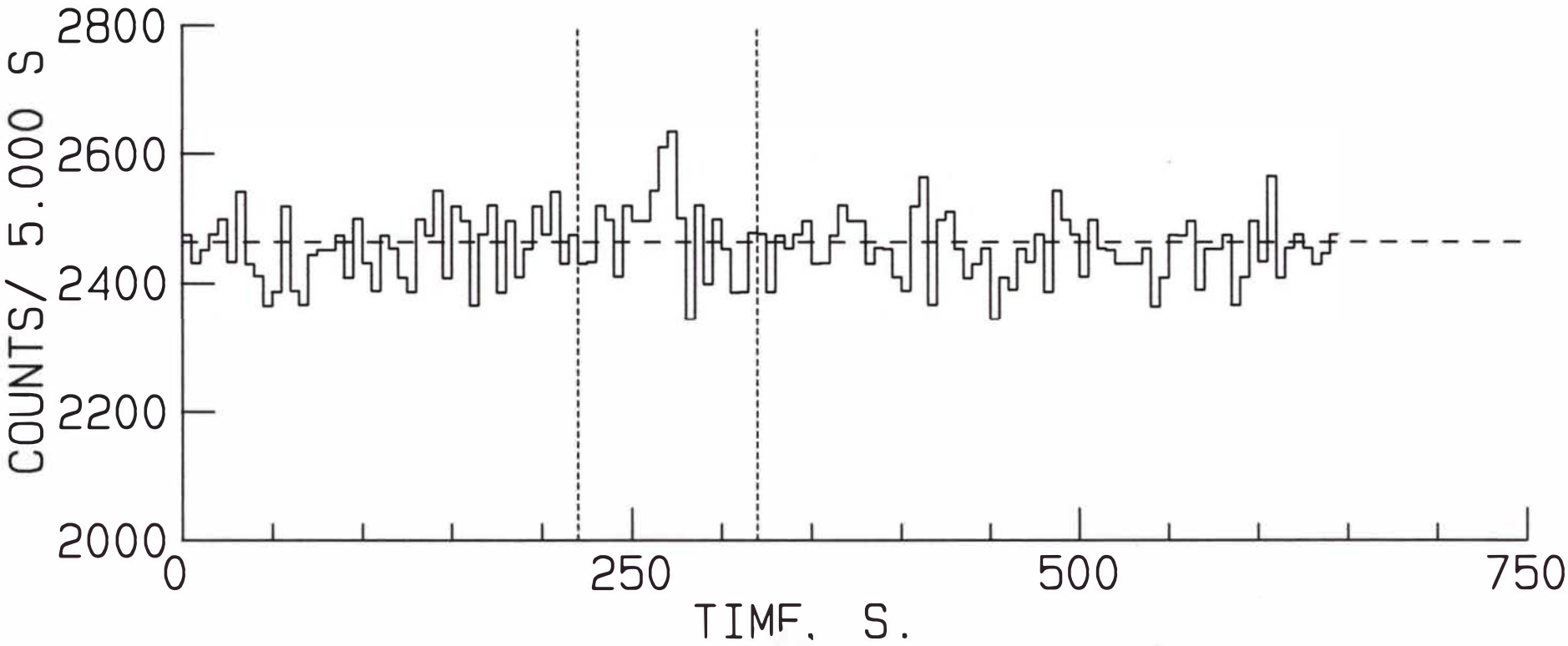


ULYSSES RT 7/ 7/ 3

6/ 4/97 26820.271 s

0.500 S INTERVALS REGROUPED BY 10

21- 146 keV



Date: Dec 7 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data…")

☐ Was Mars-blocking used?

☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)

☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).

☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events

☐ Σ 3Δt's calculated, and/or BMAPSUM executed?

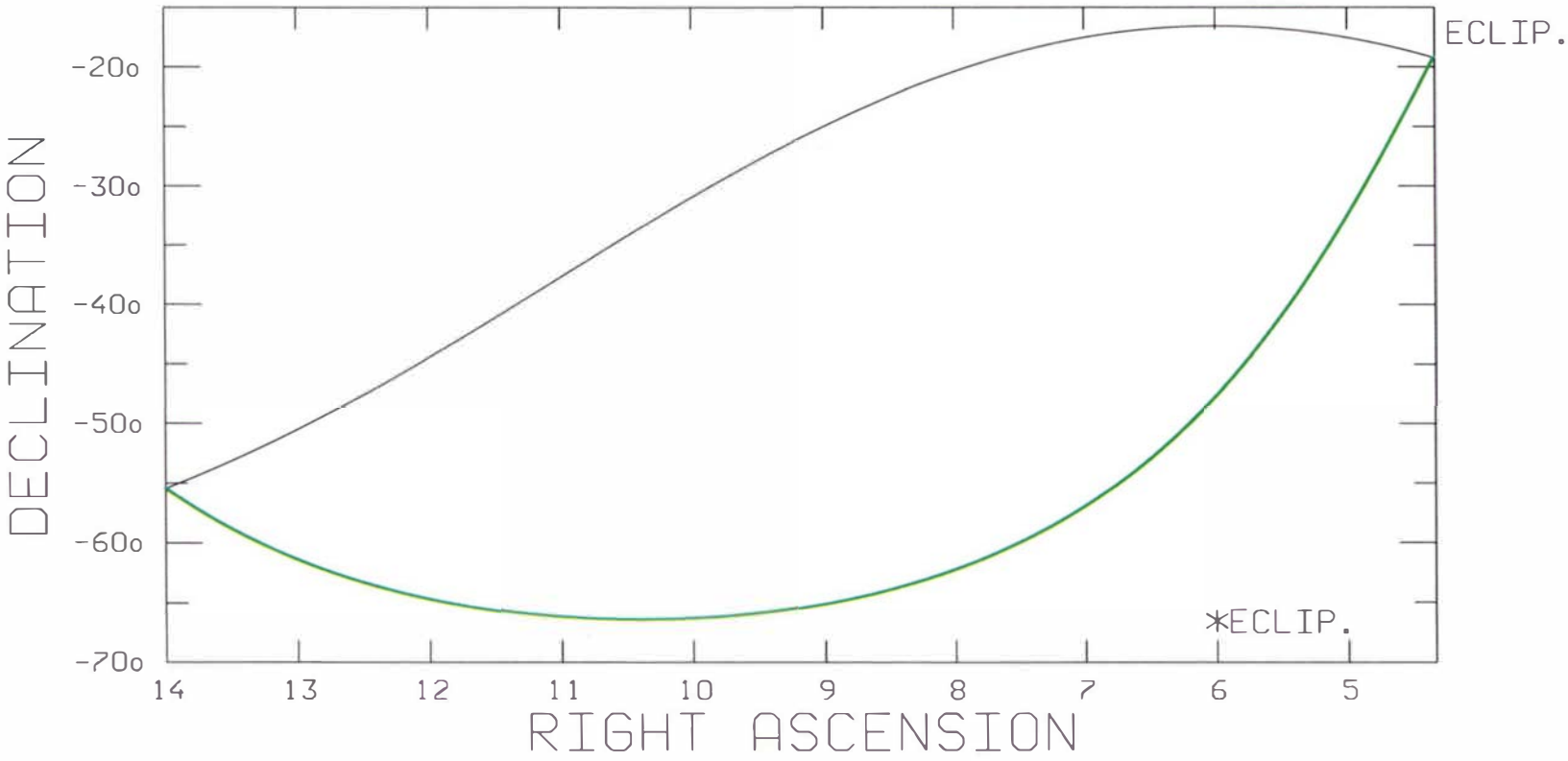
3. For INTEGRAL events

☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?

☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

☐ Updated ephemeris used for bursts prior to September 30, 2003?

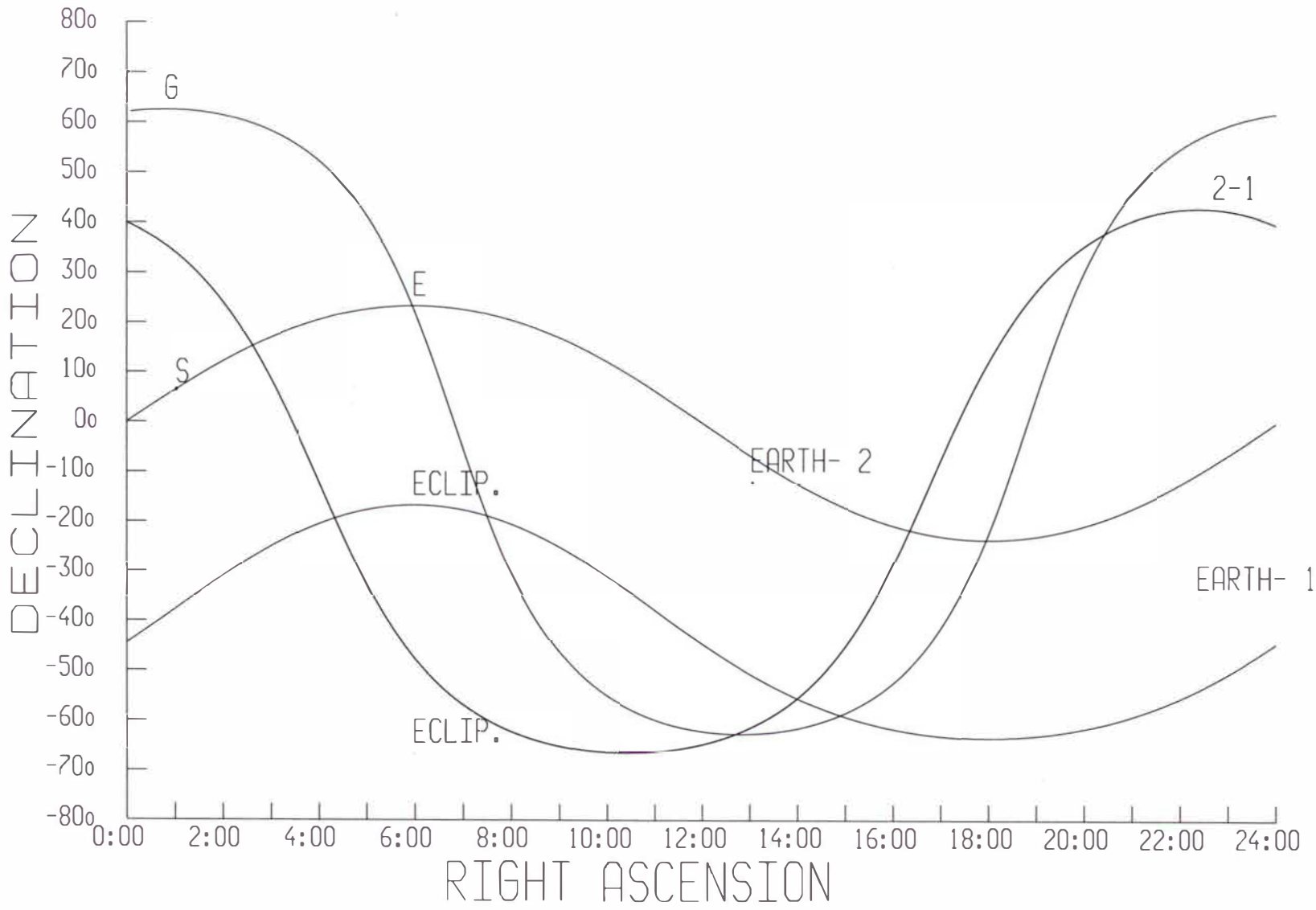
☑ ACCESS and MBL4 databases updated with identical times?


ECLIP.
*ECLIP.
DECLINATION
-20o
-30o
-40o
-50o
-60o
-70o
14
13
12
11
10
9
8
7
6
5
RIGHT ASCENSION

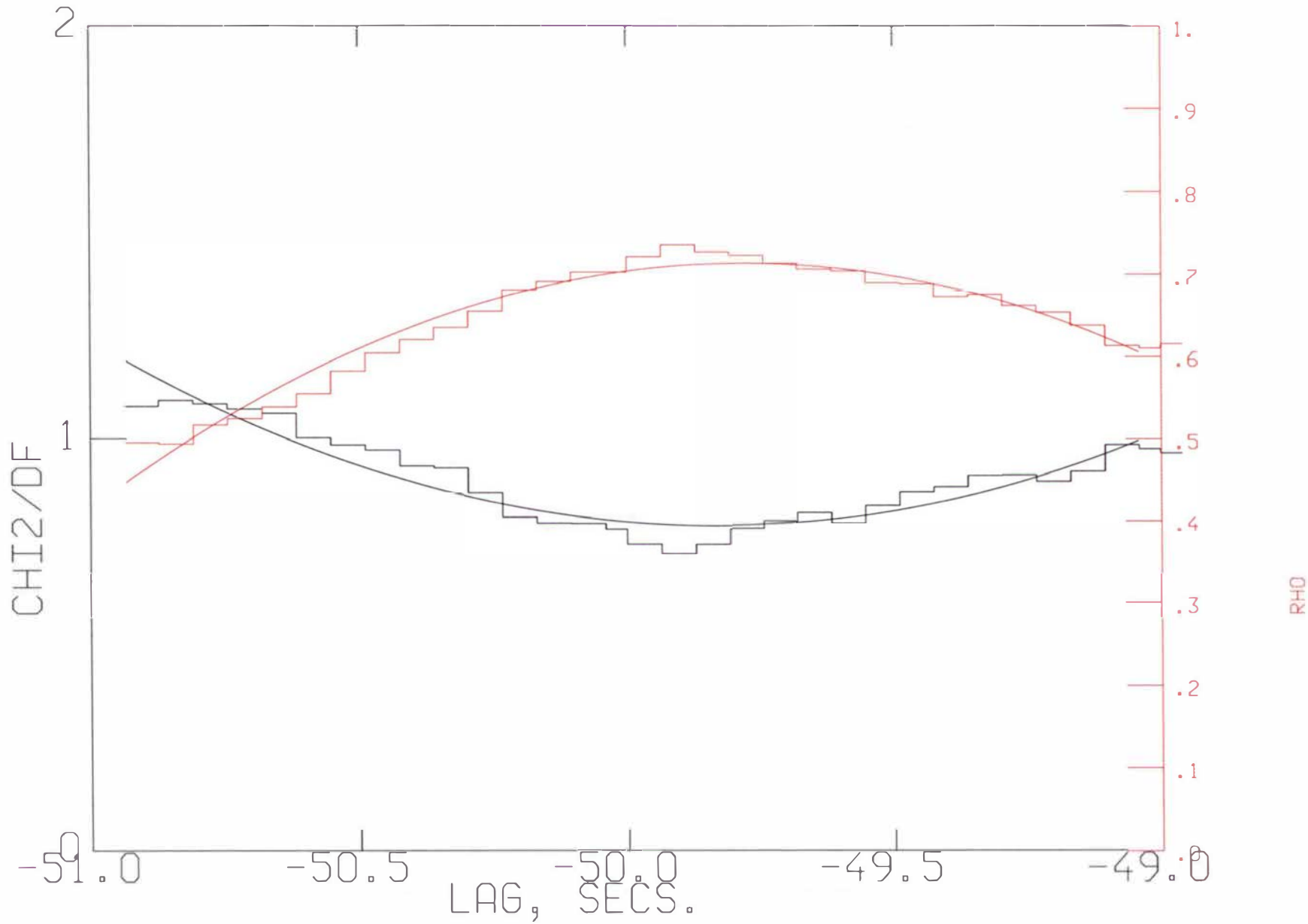
EVENT OF APR 6, 1997 16:14

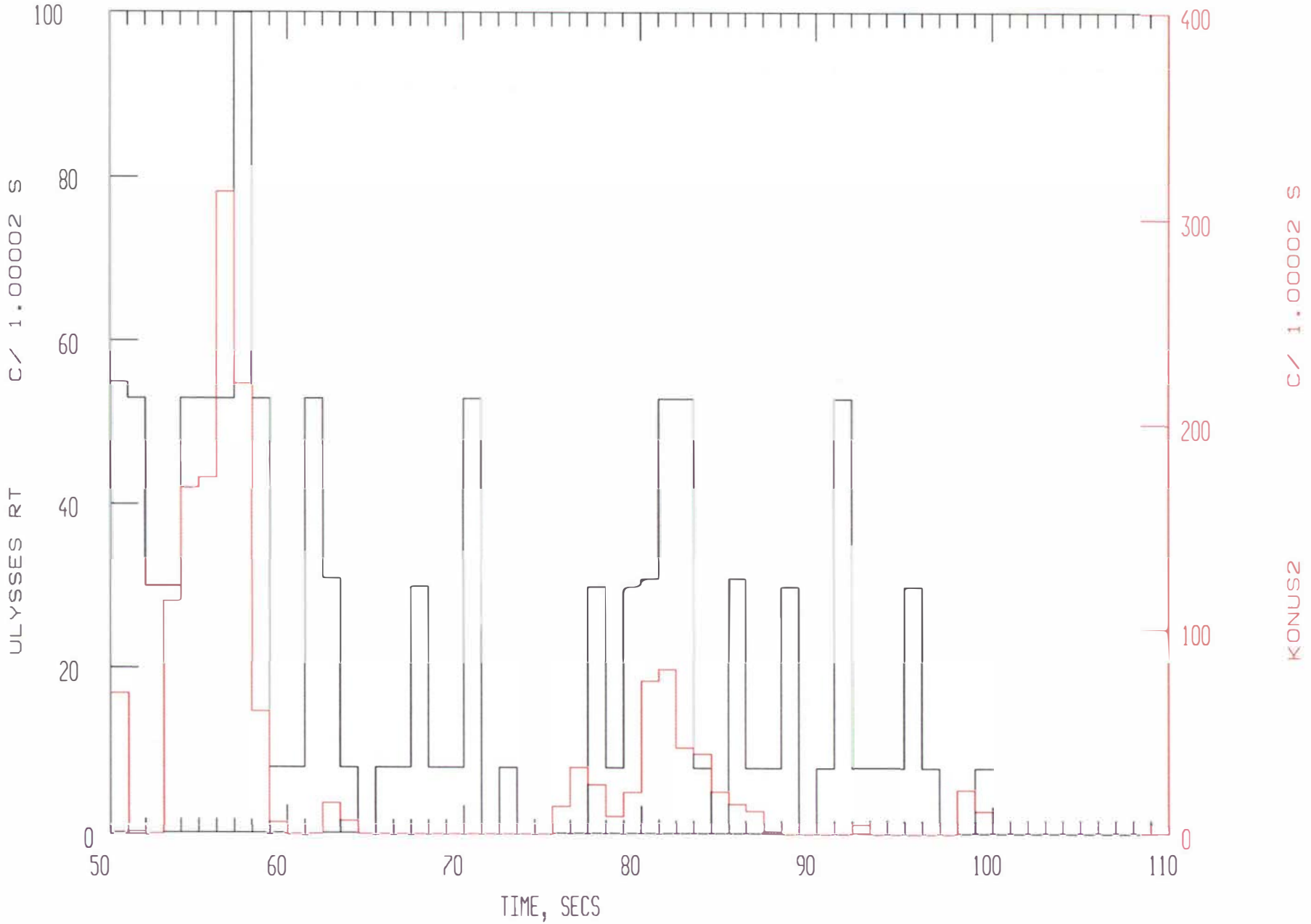
07/12/2011

N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 KONUS2



ULYSSES RT-KONUS2 CORRELATION 6/ 4/97 58476.155




100
80
60
40
20
0
ULYSSES RT C/ 1.00002 S
400
300
200
100
0
KONUS2 C/ 1.00002 S
50
60
70
80
90
100
110
TIME, SECS

KONUS 19970406 58542

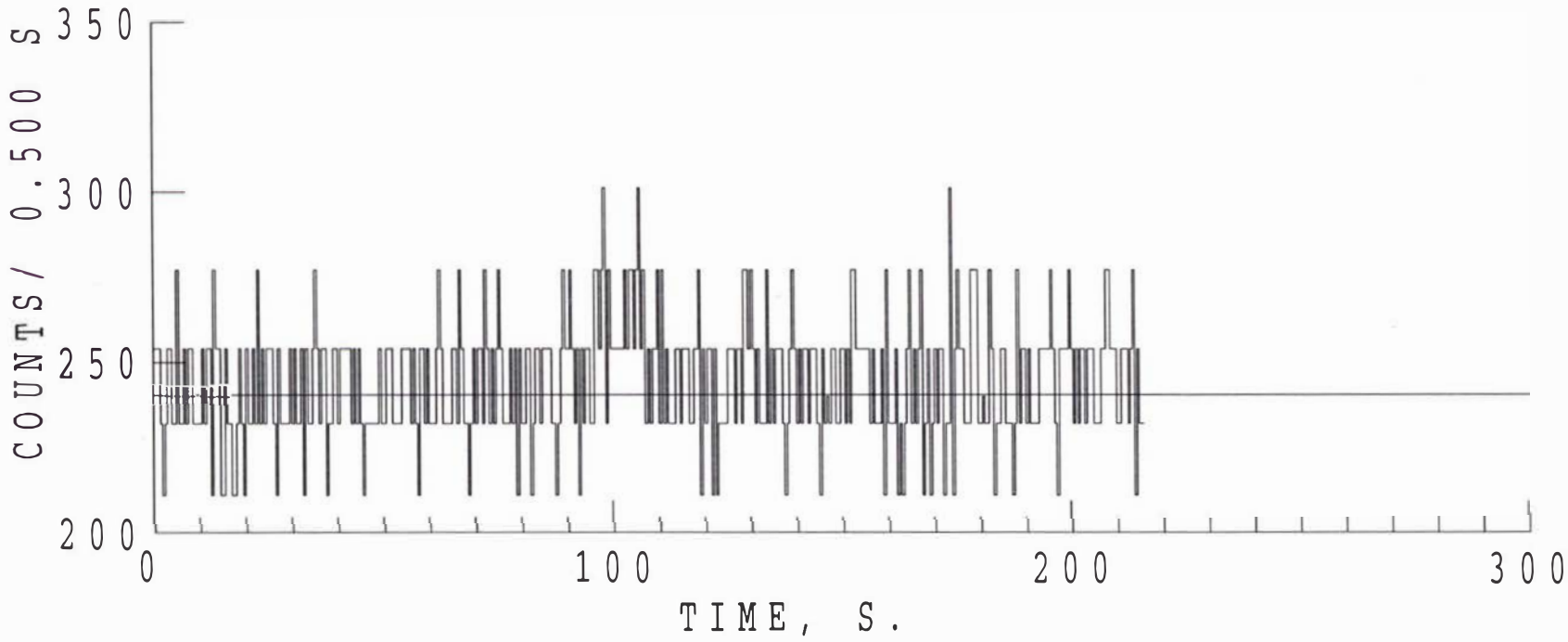
ULYSSES RT 05/12/11

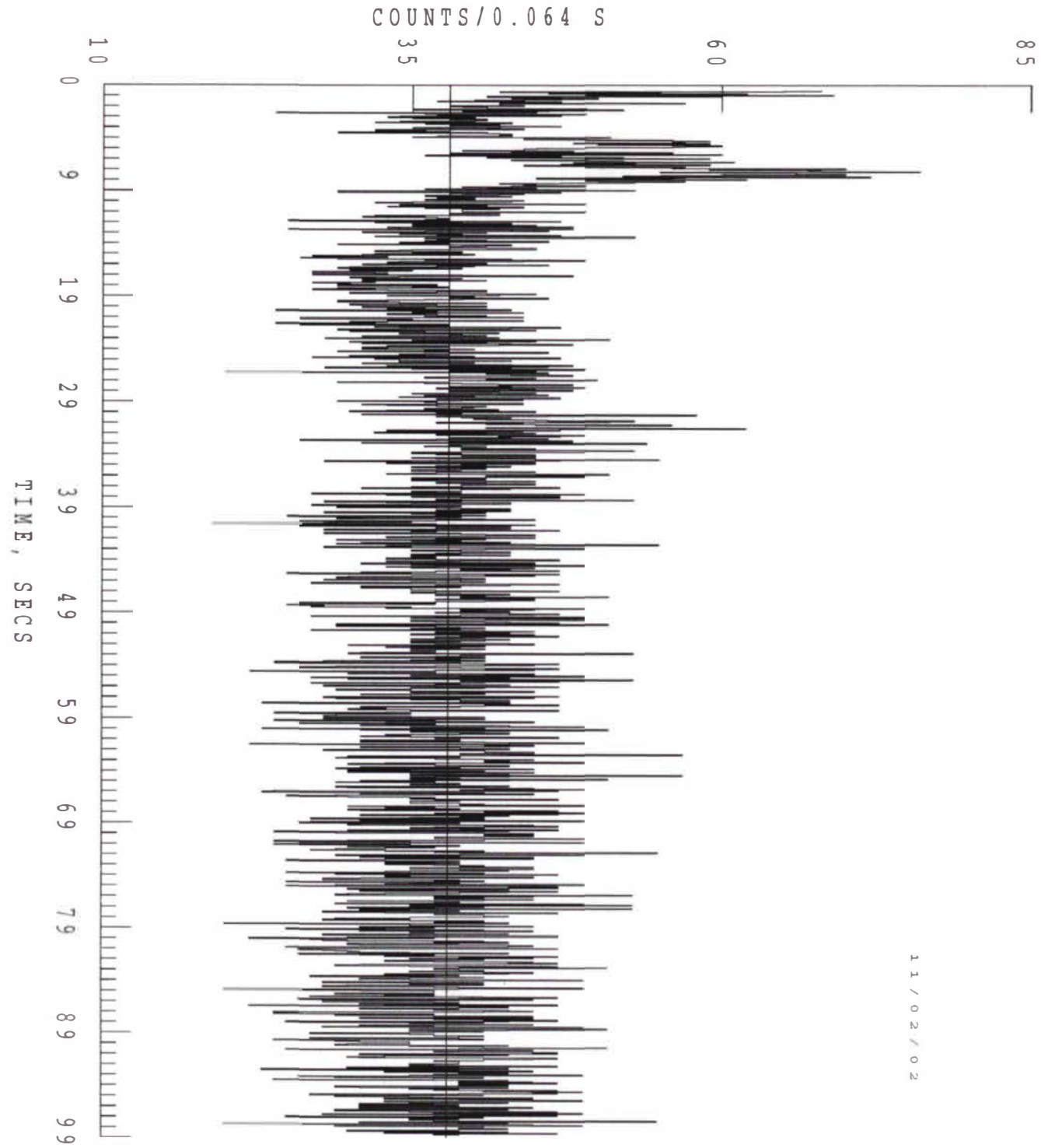
06/04/97 58428.160 s

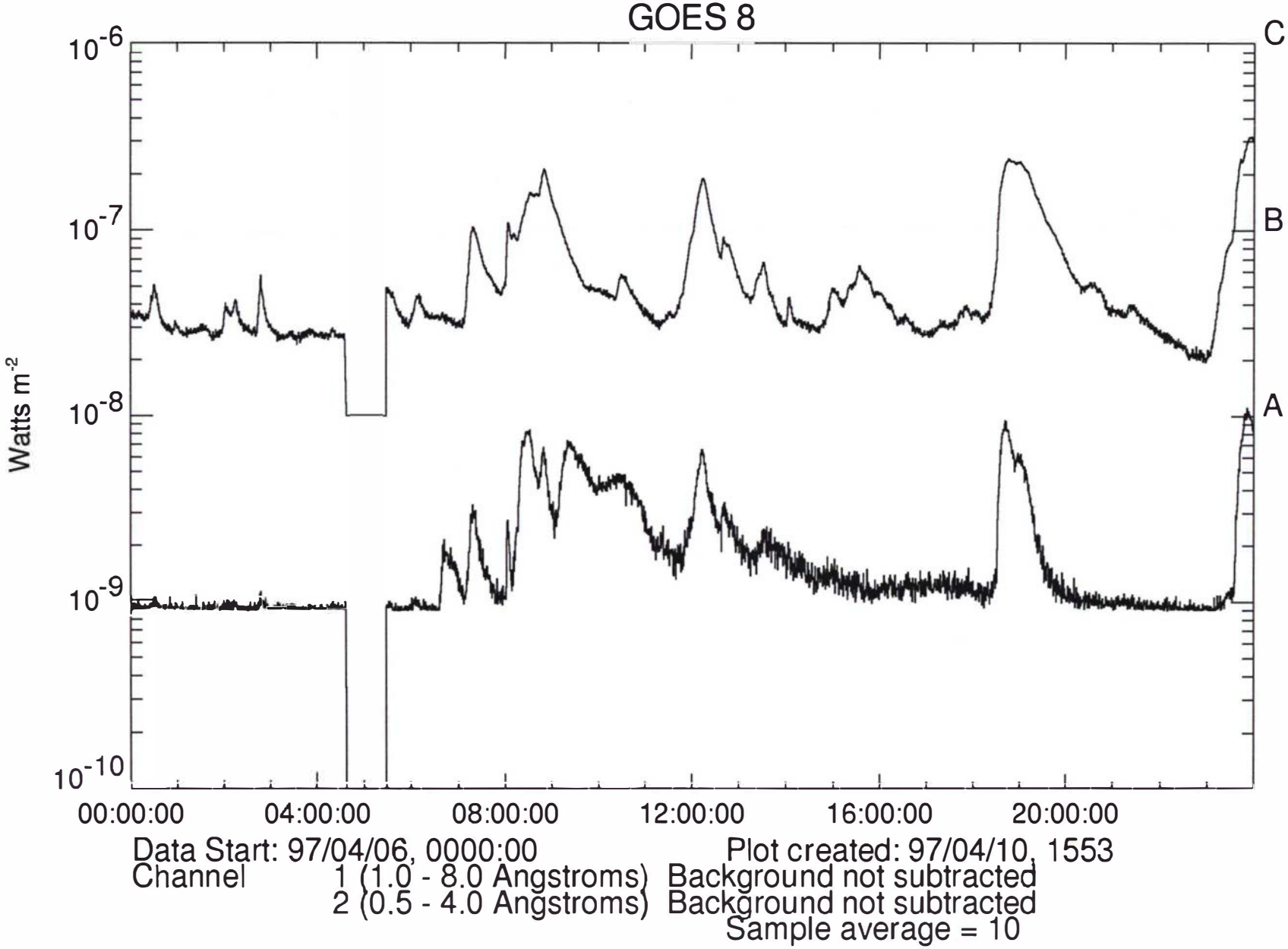
0- 0 keV

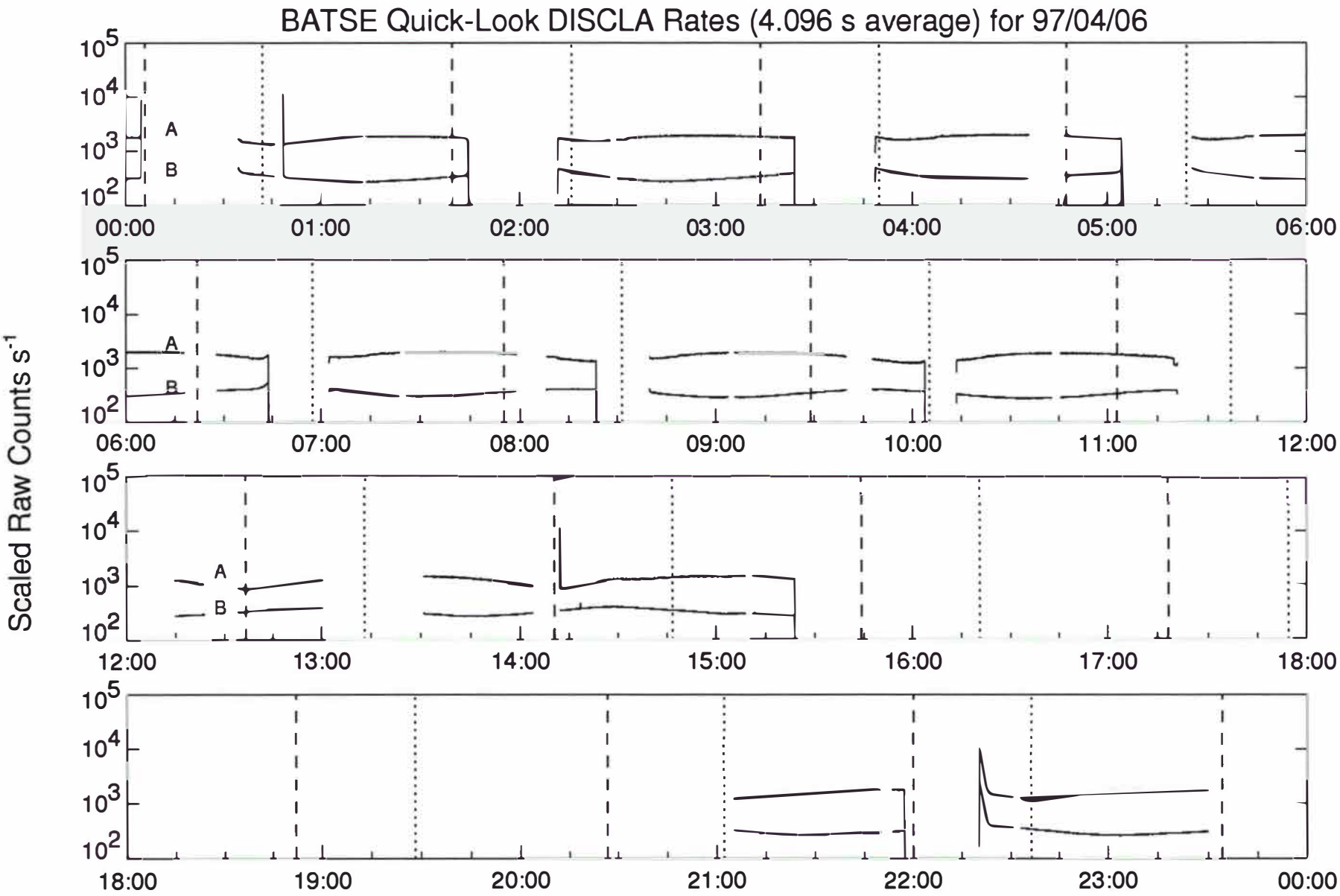
N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

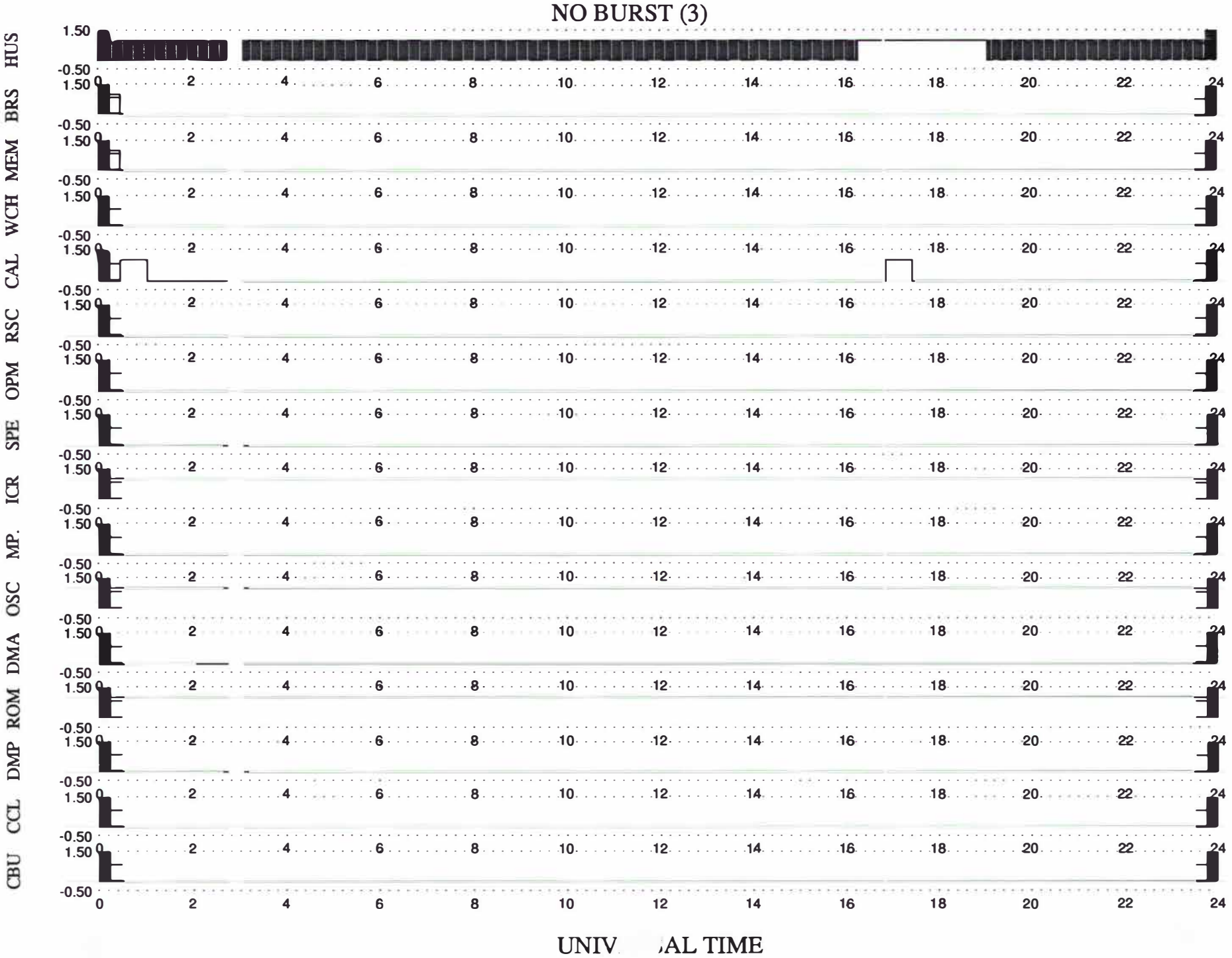



KONUS2
06/04/97
58087.874
50- 200 keV
COUNTS/0.064 S
10
35
60
85
0
9
19
29
39
49
59
69
79
89
99
TIME, SECS
11/02/02


GOES 8
C
B
A
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/06, 0000:00
Plot created: 97/04/10, 1553
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

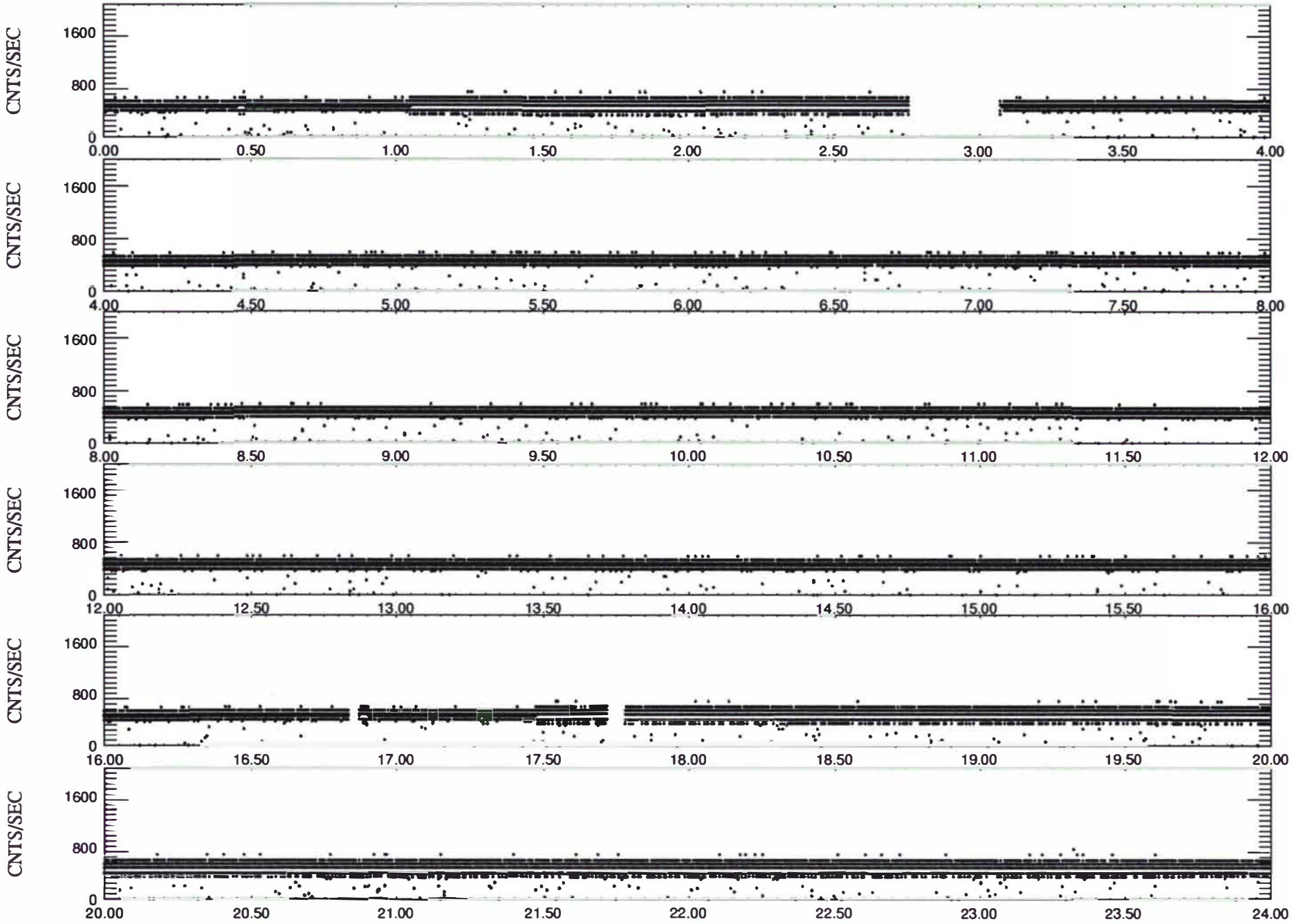

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/06
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/10, 1554 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 96, year 1997 to day 96, year 1997 7/22/97



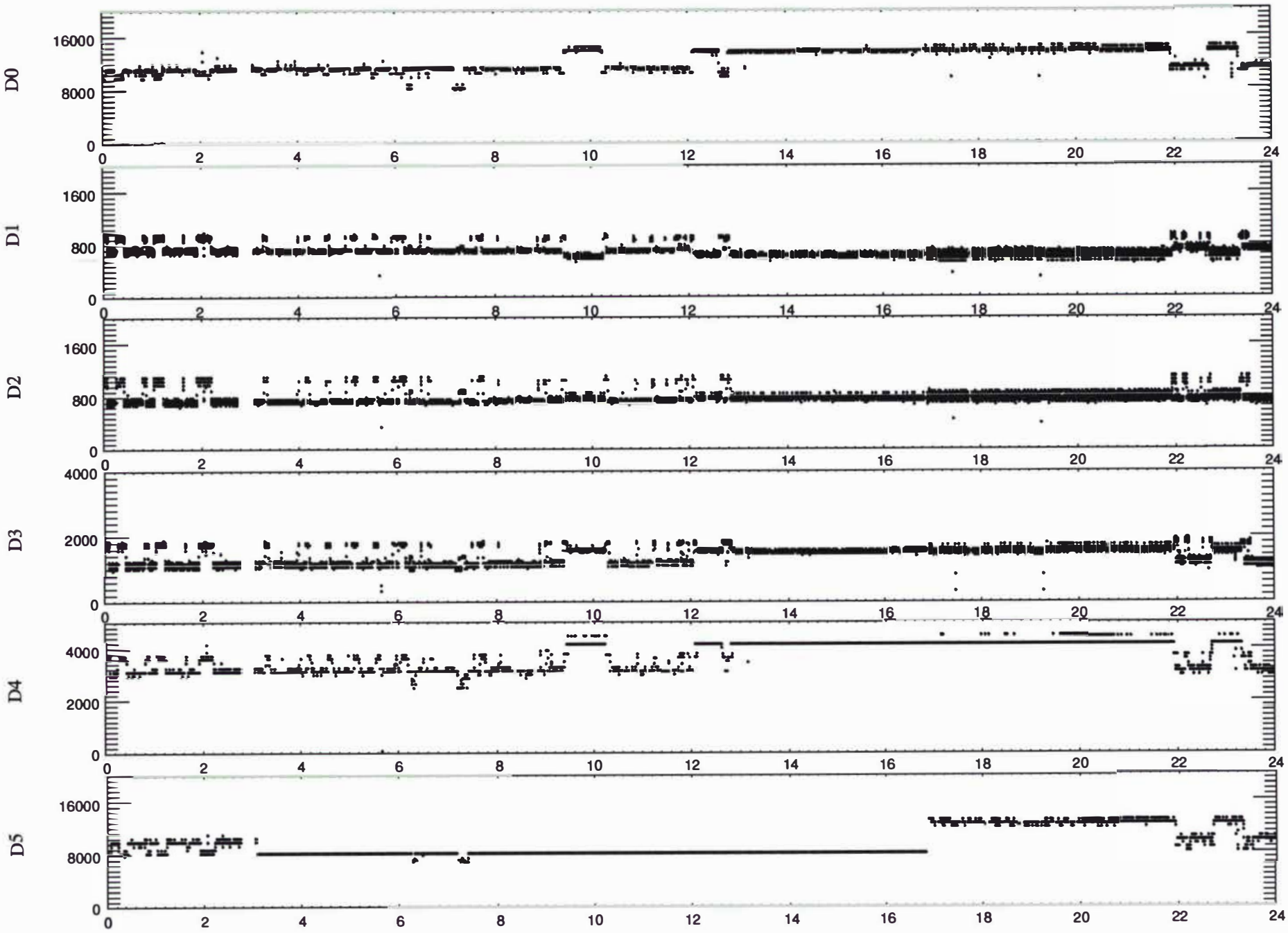
HUS 2A, MODE 1, NOT AVERAGED EDR day 96, year 1997 to day 96, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV 'AL TIME

HUS 2B COUNTS / SEC EDR day 96, year 1997 to day 96, year 1997 7/22/97



From WOODSP@ssl.msfc.nasa.gov Thu Apr 10 07:36 PDT 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id HAA26229; Thu, 10 Apr 1997 07:36:16 -0700
From: WOODSP@ssl.msfc.nasa.gov
Date: Thu, 10 Apr 1997 9:36:04 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970410093604.2021d83c@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6162
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6162
EVENT OF 1997 APR 7 DAY OF YEAR= 97
EVENT CROSSING TIME AT BATSE : 42954. S. OR 11:55:54.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 174.000 3.000
BATSE PEAK COUNTING RATE: 5500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 7/ 4/ 97 IS:
RA= 154.788 DEC= 35.401 DIST= 4.369 AU
BATSE-ULYSSES DISTANCE = 653615091. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=143.03 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1741.97 SECS.
CROSSING TIME AT ULYSSES IS 41212. S. OR 11:26:52 +/- 251.17 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 7/ 4/ 97 IS:
RA= 171.572 DEC= 6.939 DIST= 0.690 AU
MARS-BATSE DISTANCE = 103275224. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=175.38 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -343.37 SECS.
CROSSING TIME AT MARS IS 42611. S. OR 11:50:10 +/- 0.39 SECONDS

BATSE BURST TRIGGER

NO.: 6162

TIME: TJD=0545 SECONDS=42954

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=68.1 AZIMUTH=197.3 ERROR=3.8 DEGREES

COMMENTS:
GRB LASTING ~ 1 SEC. NO FINE TIME RESOLUTION DATA COVERING ENTIRE
BURST INTERVAL. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6162	970407	10545	42954	5500	174	+03	1

BATSE BURST# 6162

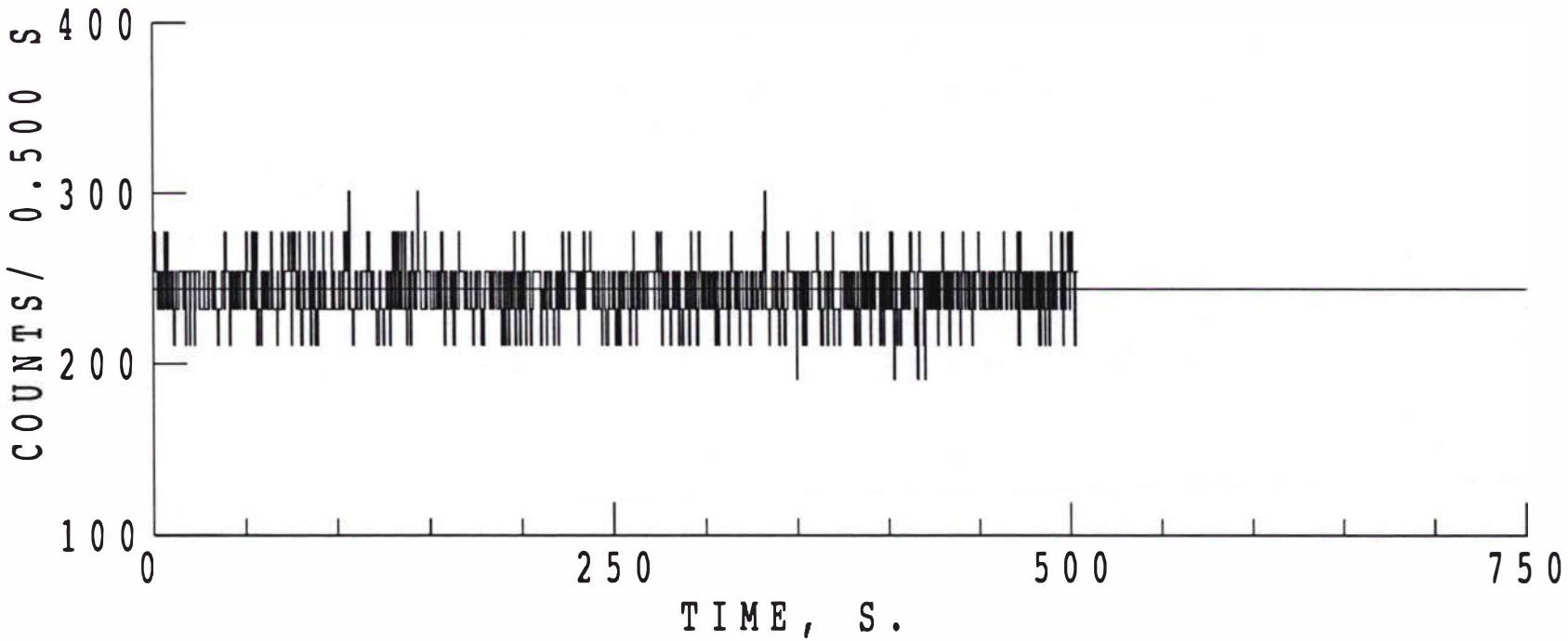
ULYSSES RT 8/ 9/97

7/ 4/97 40968.473 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From WOODSP@ssl.msfc.nasa.gov Thu Apr 10 07:37 PDT 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id HAA26253; Thu, 10 Apr 1997 07:37:53 -0700
From: WOODSP@ssl.msfc.nasa.gov
Date: Thu, 10 Apr 1997 9:37:51 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970410093751.2021d83c@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6163
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6163
EVENT OF 1997 APR 7 DAY OF YEAR= 97
EVENT CROSSING TIME AT BATSE : 71460. S. OR 19:51:00.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 143.000 49.000
BATSE PEAK COUNTING RATE: 2500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 7/ 4/ 97 IS:
RA= 154.725 DEC= 35.373 DIST= 4.374 AU
BATSE-ULYSSES DISTANCE = 654334432. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=163.88 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2096.82 SECS.
CROSSING TIME AT ULYSSES IS 69363. S. OR 19:16:03 +/- 123.36 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 7/ 4/ 97 IS:
RA= 171.572 DEC= 6.939 DIST= 0.690 AU
MARS-BATSE DISTANCE = 103275224. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=131.54 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -228.44 SECS.
CROSSING TIME AT MARS IS 71232. S. OR 19:47:11 +/- 41.30 SECONDS

BATSE BURST TRIGGER

NO.: 6163

TIME: TJD=0545 SECONDS=71460

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=68.0 AZIMUTH=263.6 ERROR=6.2 DEGREES

COMMENTS:
GRB LASTING ~ 26 SEC. SPIKEY TIME HISTORY. NOT VISIBLE ABOVE
300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6163	970407	10545	71460	2500	143	+49	26

BATSE# 6163

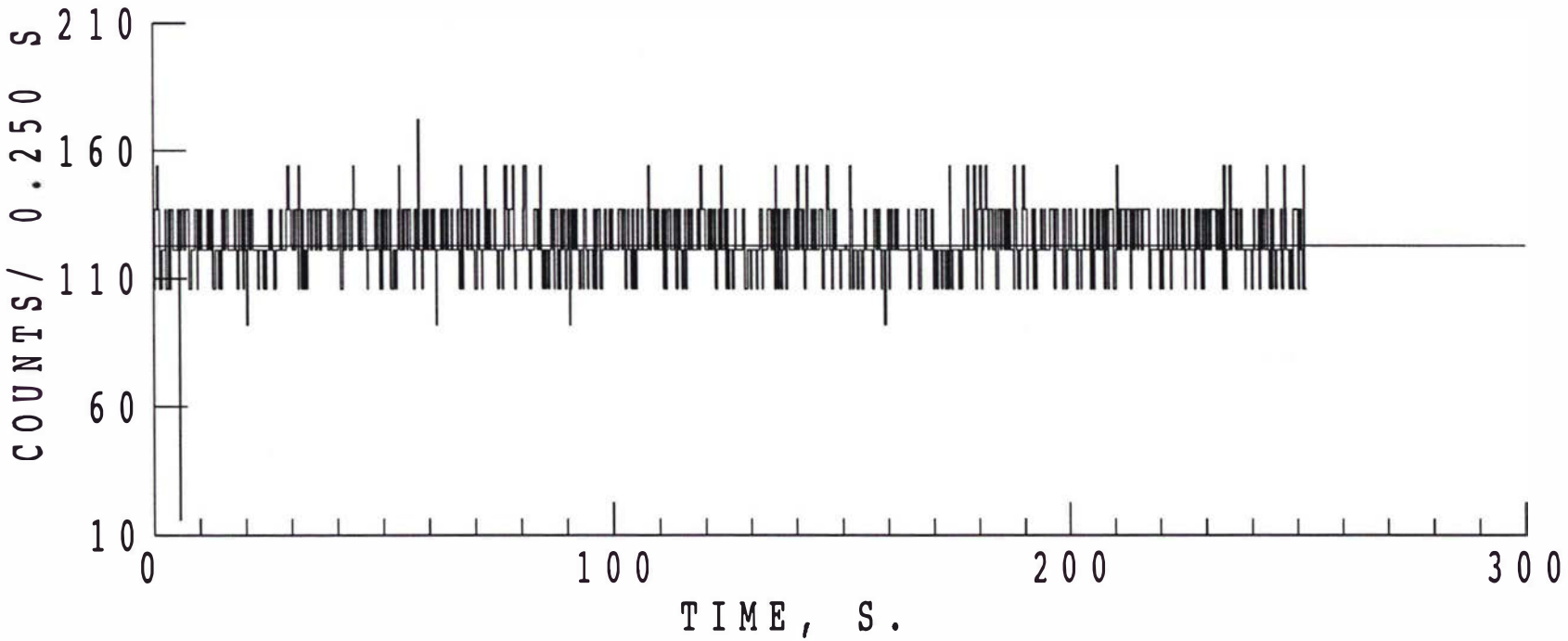
ULYSSES RT 10/ 4/97

7/ 4/97 69228.055 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From WOODSP@SSLLES.MSFC.NASA.GOV Wed Apr 9 09:59 PDT 1997
Date: Wed, 9 Apr 1997 11:55:35 -0500 (CDT)
From: WOODSP@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6164

TIME: TJD=0545 SECONDS=73079

TYPE: SGR SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=156.3 AZIMUTH=129.1 ERROR=1.5 DEGREES

COMMENTS:
SGR (1806-20) LASTING ~ 0.9 SEC. SINGLE PULSE WITH SUBSTRUCTURE.

BATSE# 1806

ULYSSES RT 14/ 4/97

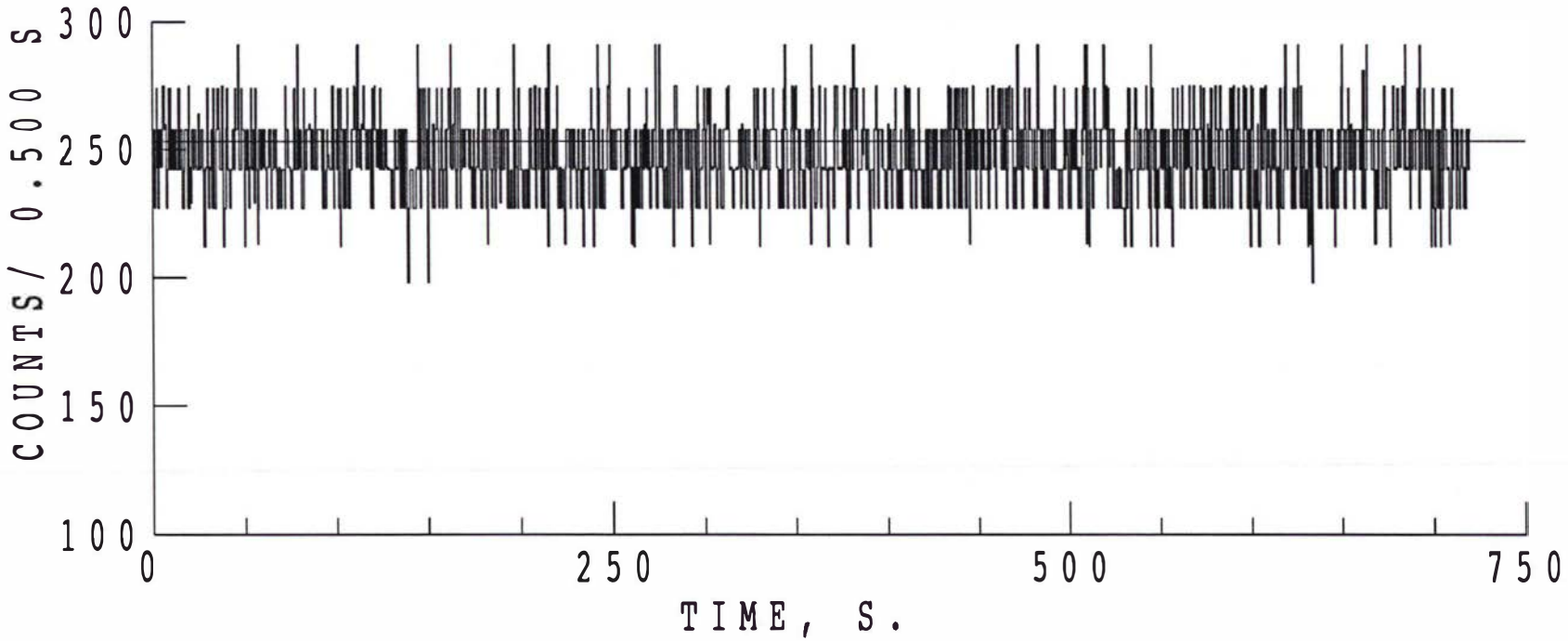
7/ 4/97 74052.109 s

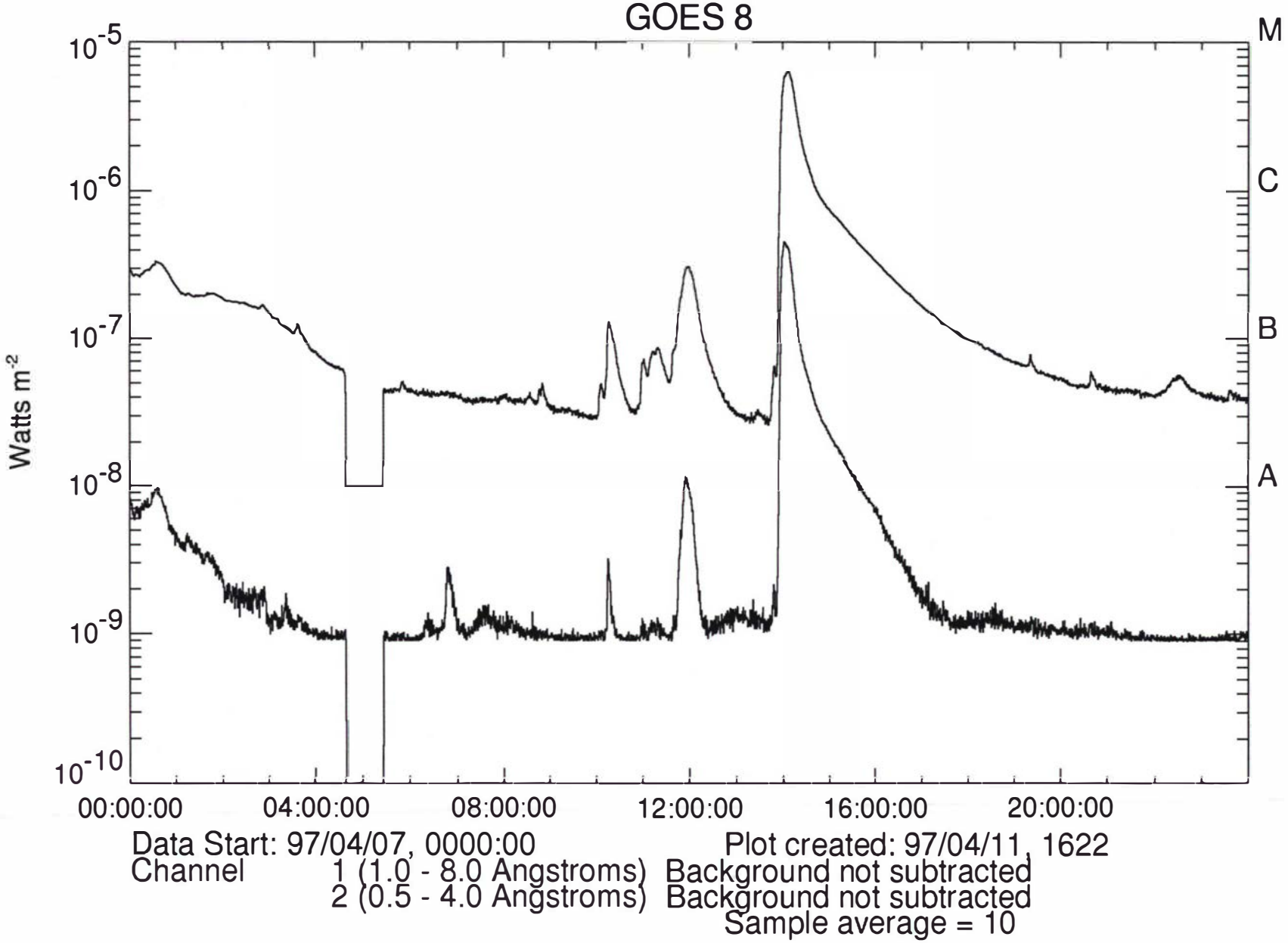
0.250 S INTERVALS REGROUPED BY 2

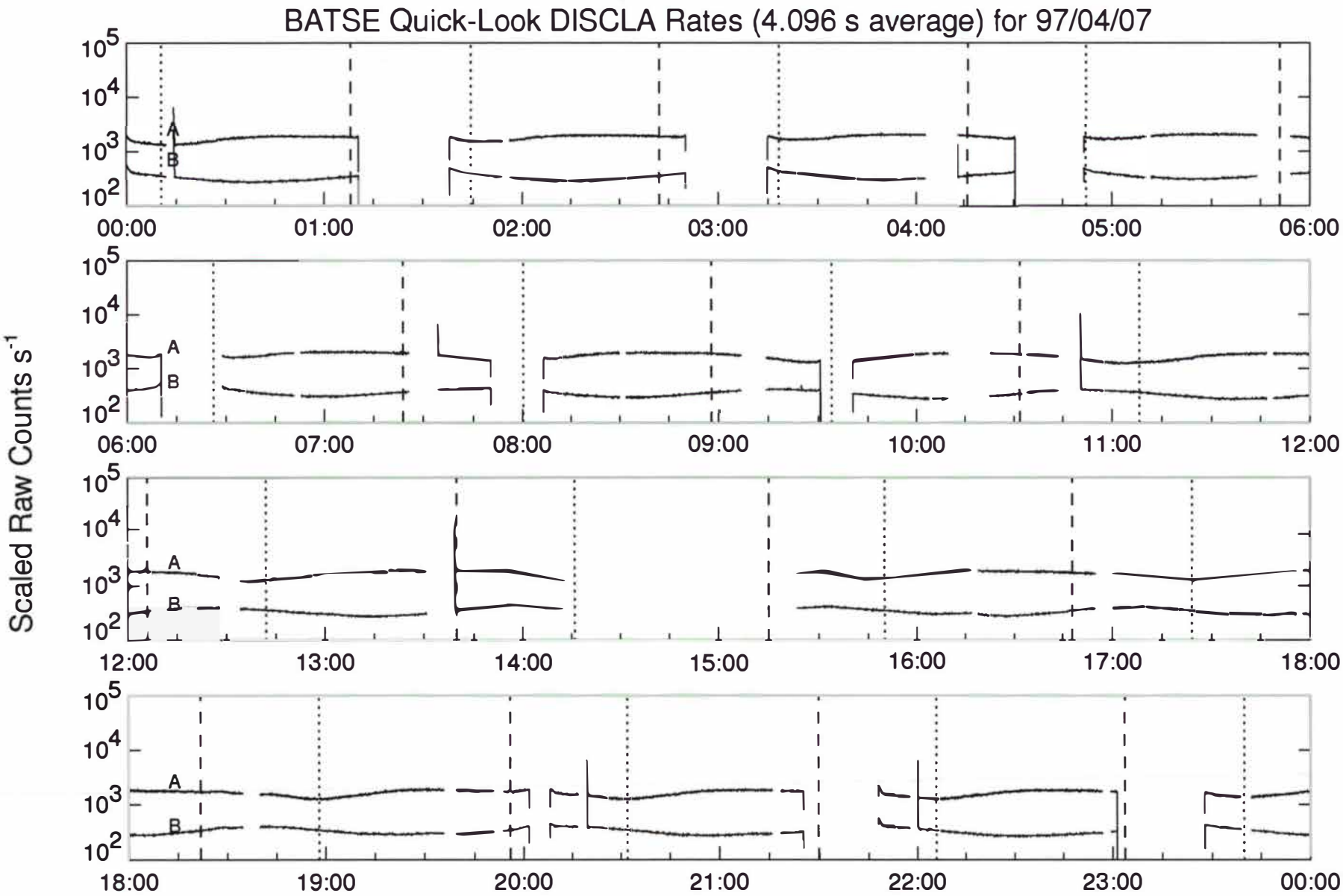
0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

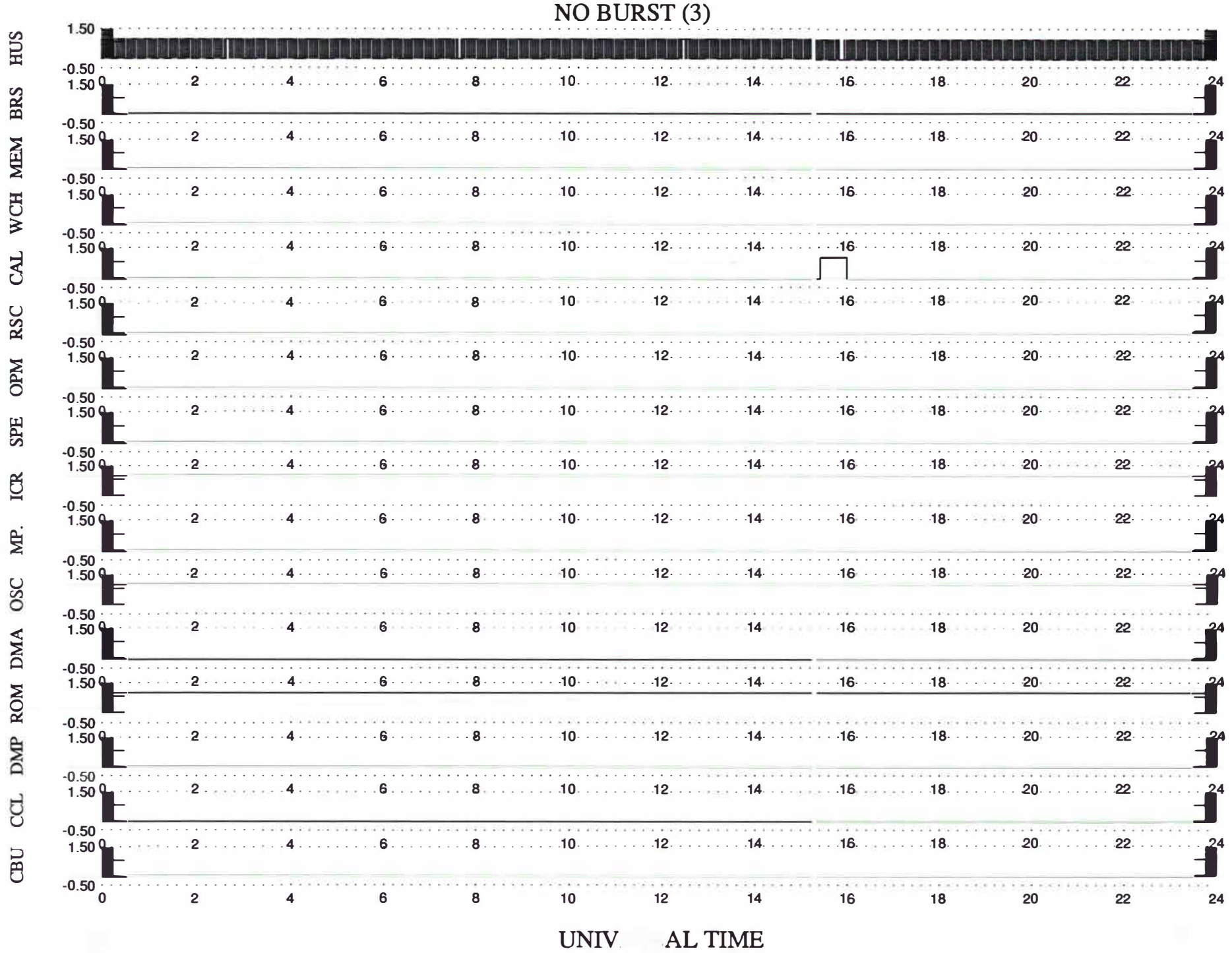
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS




GOES 8
M
C
B
A
Watts m-2
10-5
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/07, 0000:00
Plot created: 97/04/11, 1622
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

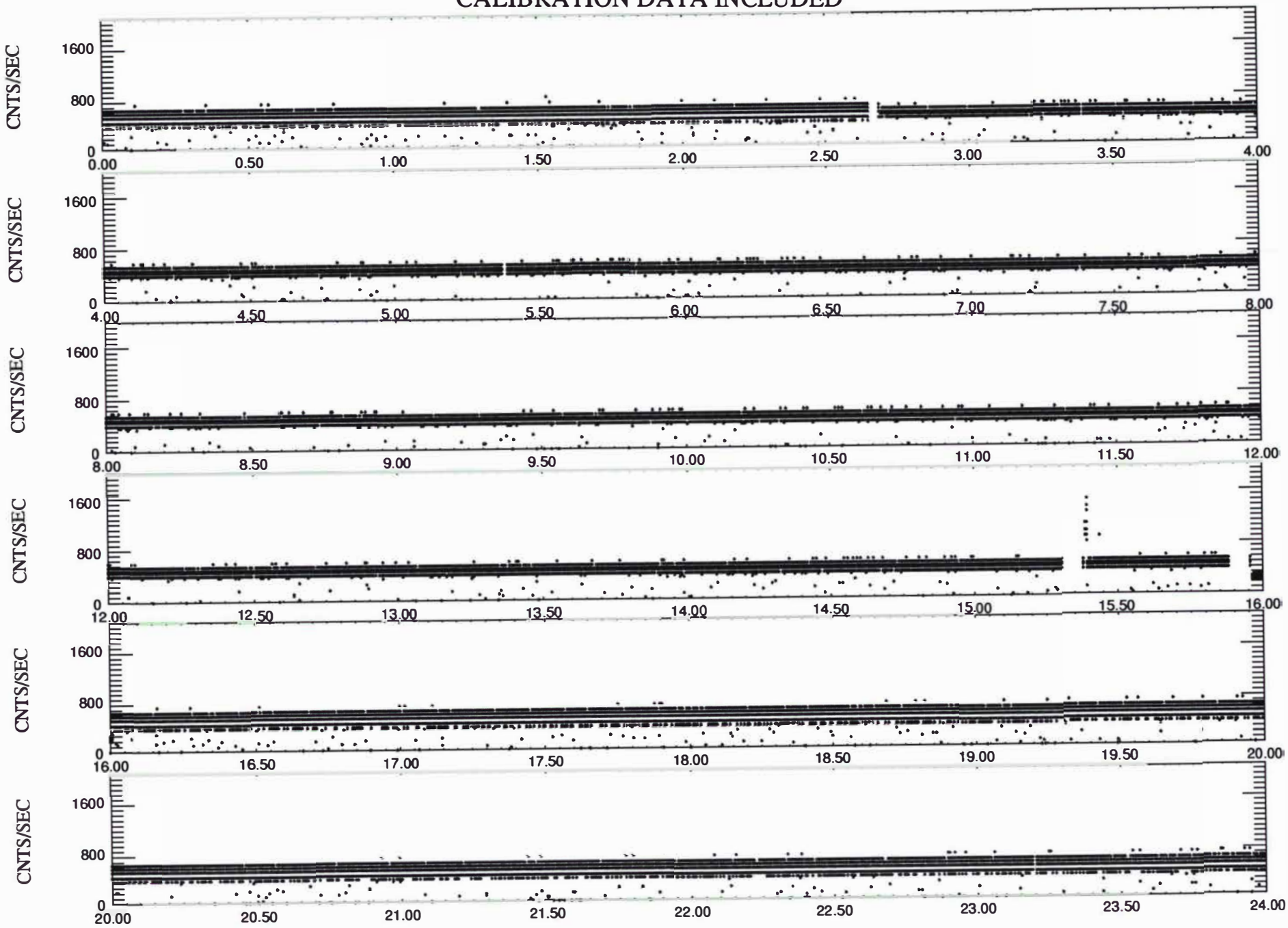

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/07
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/11, 1624 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 97, year 1997 to day 97, year 1997 7/22/97



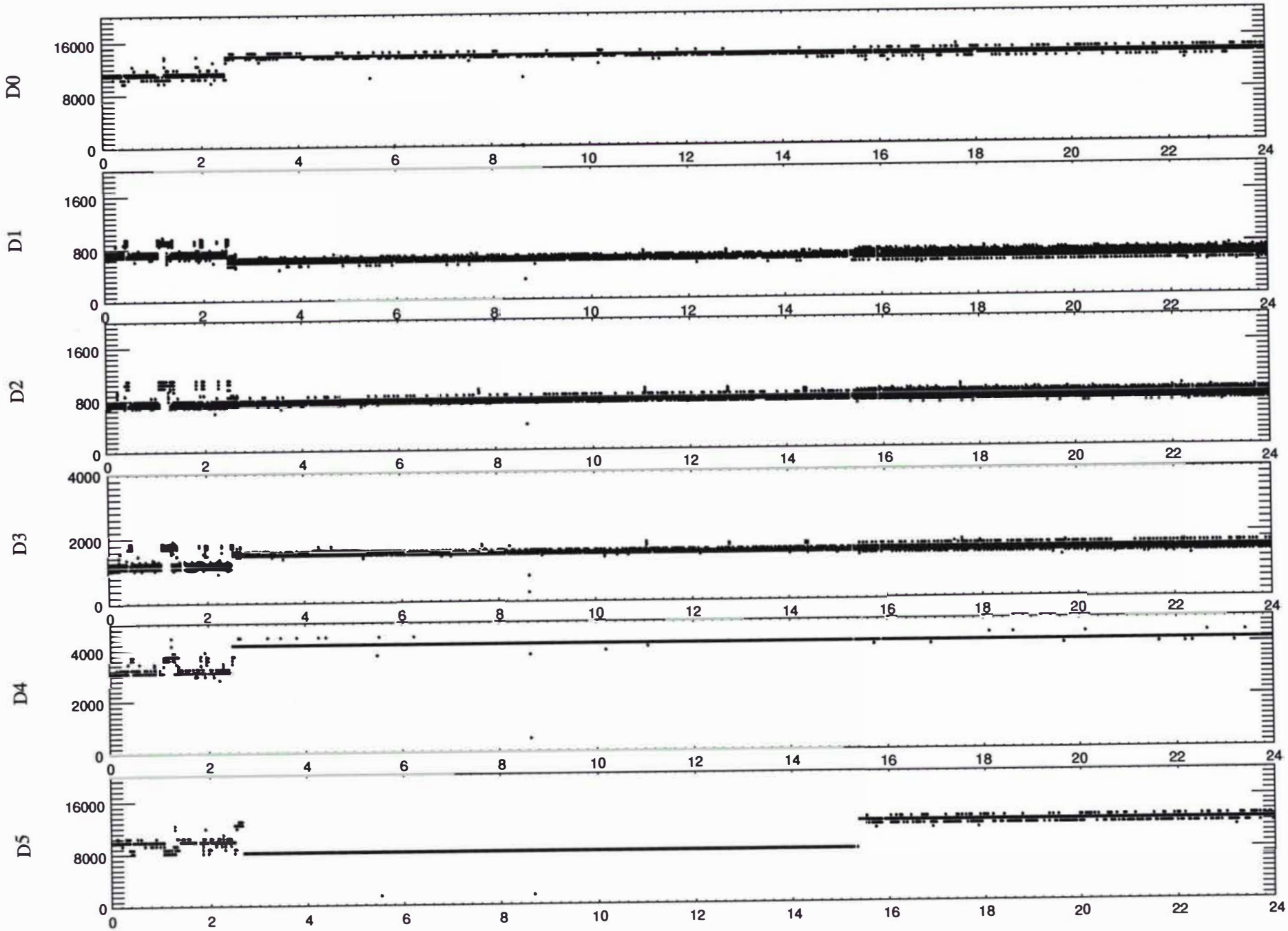
HUS 2A, MODE 1, NOT AVERAGED EDR day 97, year 1997 to day 97, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 97, year 1997 to day 97, year 1997 7/22/97



From SURASAK@ssl.msfc.nasa.gov Thu Apr 10 14:16 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA00276; Thu, 10 Apr 1997 14:16:35 -0700
e: Thu, 10 Apr 1997 16:16:29 -0500 (CDT)
om: SURASAK@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970410161629.21003ee2@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6165
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6165
EVENT OF 1997 APR 8 DAY OF YEAR= 98
EVENT CROSSING TIME AT BATSE : 7575. S. OR 02:06:15.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 162.000 11.000
BATSE PEAK COUNTING RATE: 2470 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 8/ 4/ 97 IS:
RA= 154.675 DEC= 35.352 DIST= 4.378 AU
BATSE-ULYSSES DISTANCE = 654909391. KM.
NGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=154.76 DEG.
GHT TRAVEL TIME ALONG PROJECTED PATH=-1975.92 SECS.
CROSSING TIME AT ULYSSES IS 5599. S. OR 01:33:19 +/- 181.74 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 8/ 4/ 97 IS:
RA= 171.315 DEC= 7.003 DIST= 0.694 AU
MARS-BATSE DISTANCE = 103804448. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=169.97 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -340.96 SECS.
CROSSING TIME AT MARS IS 7234. S. OR 02:00:34 +/- 5.29 SECONDS

BATSE BURST TRIGGER

NO.: 6165

TIME: TJD=0546 SECONDS=7575

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=62.7 AZIMUTH=218.2 ERROR=2.159 DEGREES

COMMENTS:
GRB. DUR~100S. SINGLE PULSE WITH SUBSTRUCTURE. NOT VISIBLE ABOVE 300 KEV.

SE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6165	970408	10546	07575	2470	162	+11	100

BATSE BURST# 6165

ULYSSES RT 8/ 9/97

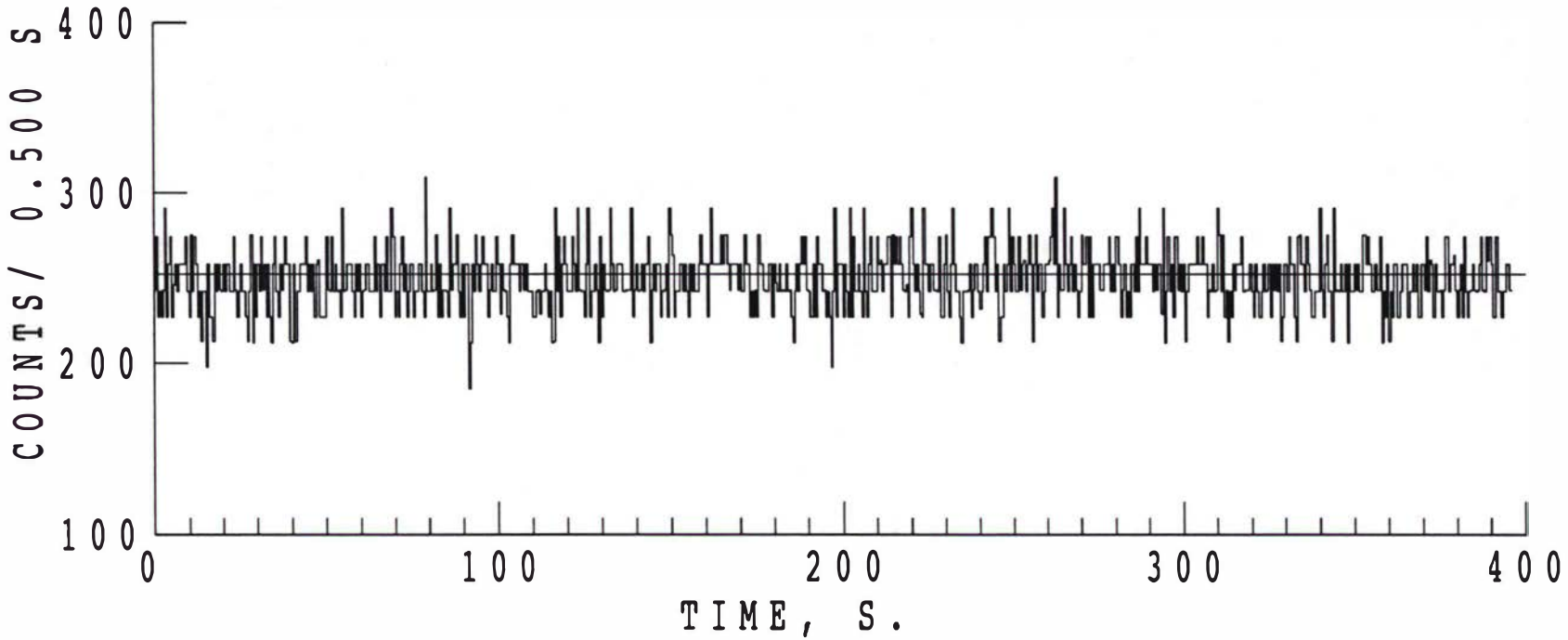
8/ 4/97 5400.072 s

0.250 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From SURASAK@ssl.msfc.nasa.gov Thu Apr 10 14:18 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id OAA00310; Thu, 10 Apr 1997 14:18:40 -0700
Date: Thu, 10 Apr 1997 16:18:35 -0500 (CDT)
From: SURASAK@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970410161835.21003ee2@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6166
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6166
EVENT OF 1997 APR 8 DAY OF YEAR= 98
EVENT CROSSING TIME AT BATSE : 21449. S. OR 05:57:29.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 168.000 7.000
BATSE PEAK COUNTING RATE: 8300 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 8/ 4/ 97 IS:
RA= 154.646 DEC= 35.338 DIST= 4.380 AU
BATSE-ULYSSES DISTANCE = 655266350. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=149.12 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1875.94 SECS.
CROSSING TIME AT ULYSSES IS 19573. S. OR 05:26:13 +/- 216.26 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 8/ 4/ 97 IS:
RA= 171.315 DEC= 7.003 DIST= 0.694 AU
MARS-BATSE DISTANCE = 103804448. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=176.71 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -345.68 SECS.
CROSSING TIME AT MARS IS 21103. S. OR 05:51:43 +/- 1.80 SECONDS

BATSE BURST TRIGGER
NO.: 6166

TIME: TJD=0546 SECONDS=21449

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=68.1 AZIMUTH=213.2 ERROR=8.955 DEGREES

COMMENTS:
GRB. DUR~ 0.07 S. THERE IS ONE MAIN PULSE, WITH MANY STRUCTURES. BARELY VISIBLE ABOVE 300 KEV. THIS IS POSSIBLE REPEATER OF THE PREVIOUSE BURST.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6166	970408	10546	21449	8300	168	+07	.07

BATSE# 6166

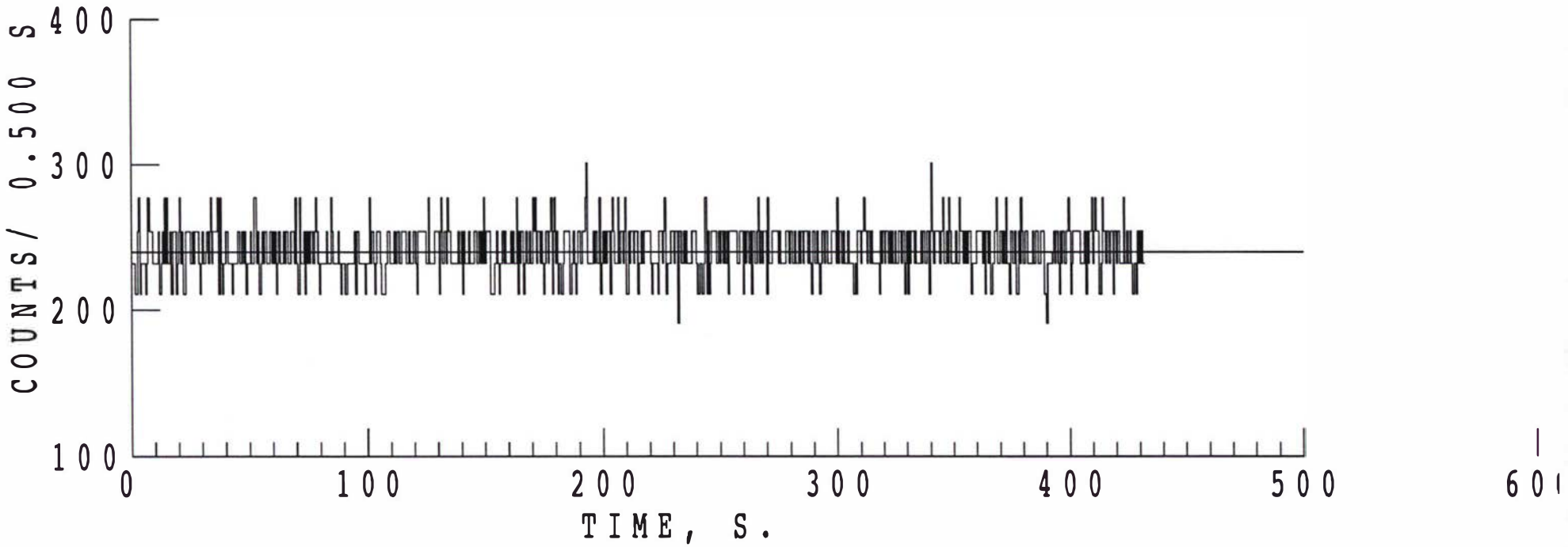
ULYSSES RT 10/ 4/97

8/ 4/97 19368.236 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



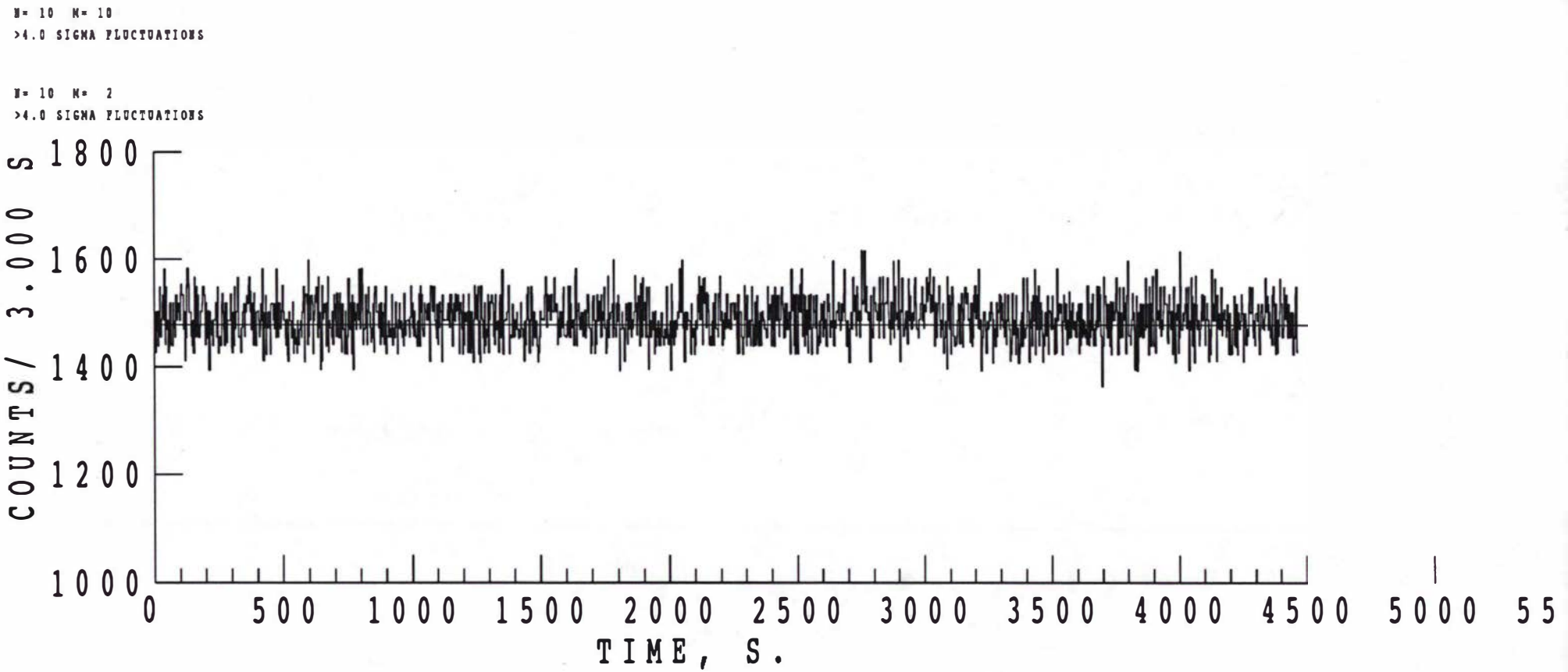
KONUS

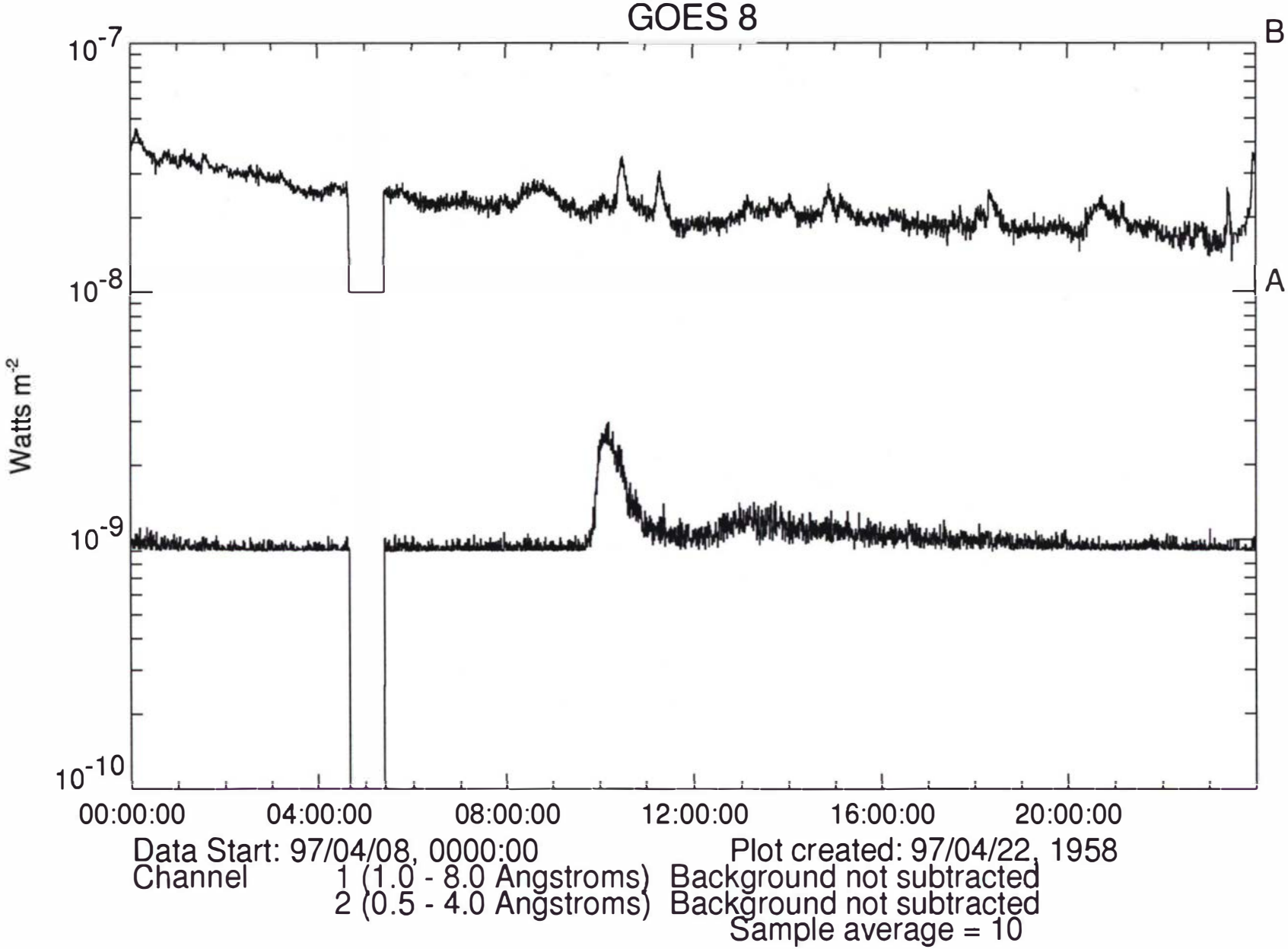
ULYSSES RT 02/02/00

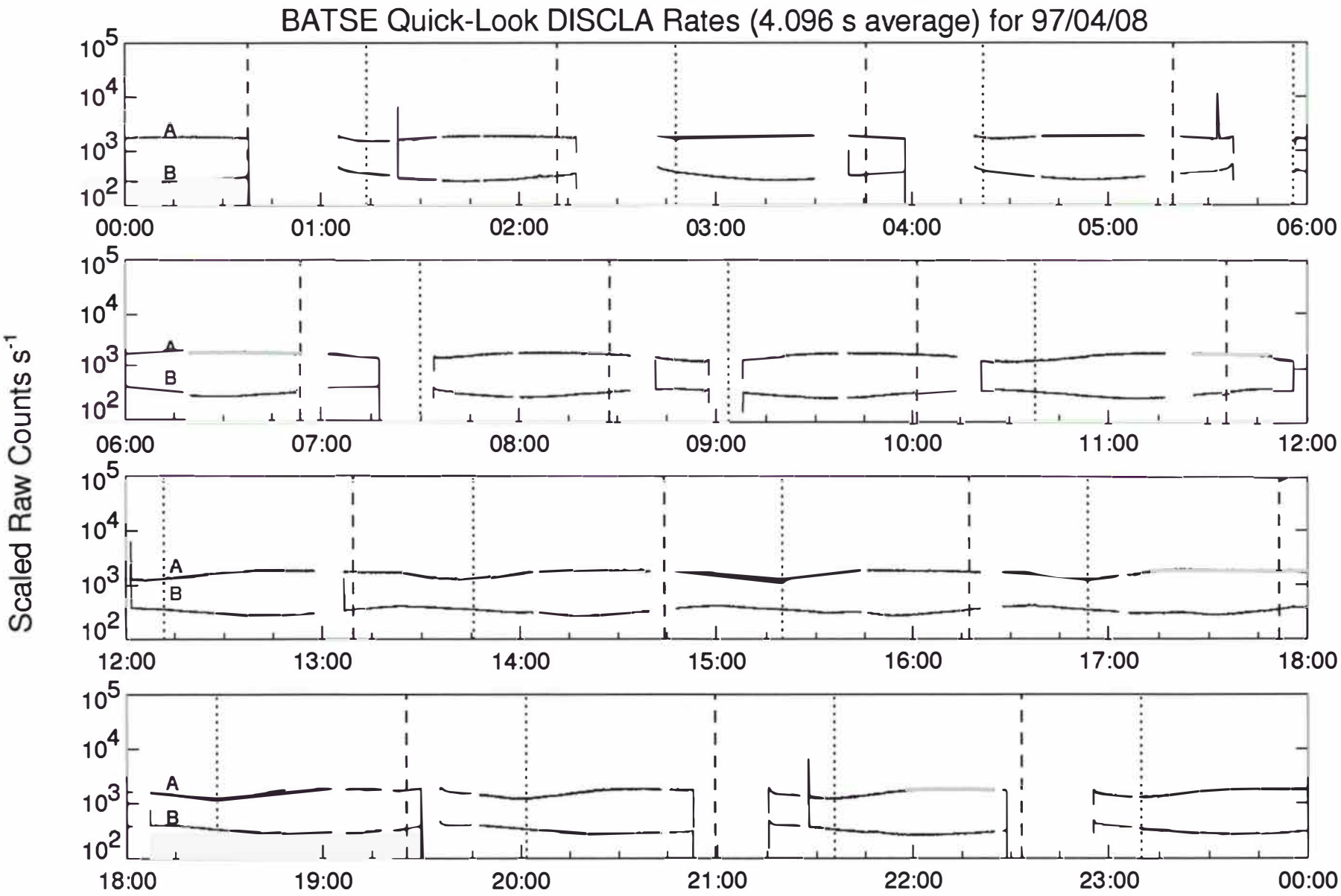
08/04/97 70956.094 s

0.250 S INTERVALS REGROUPED BY 12

0- 0 keV

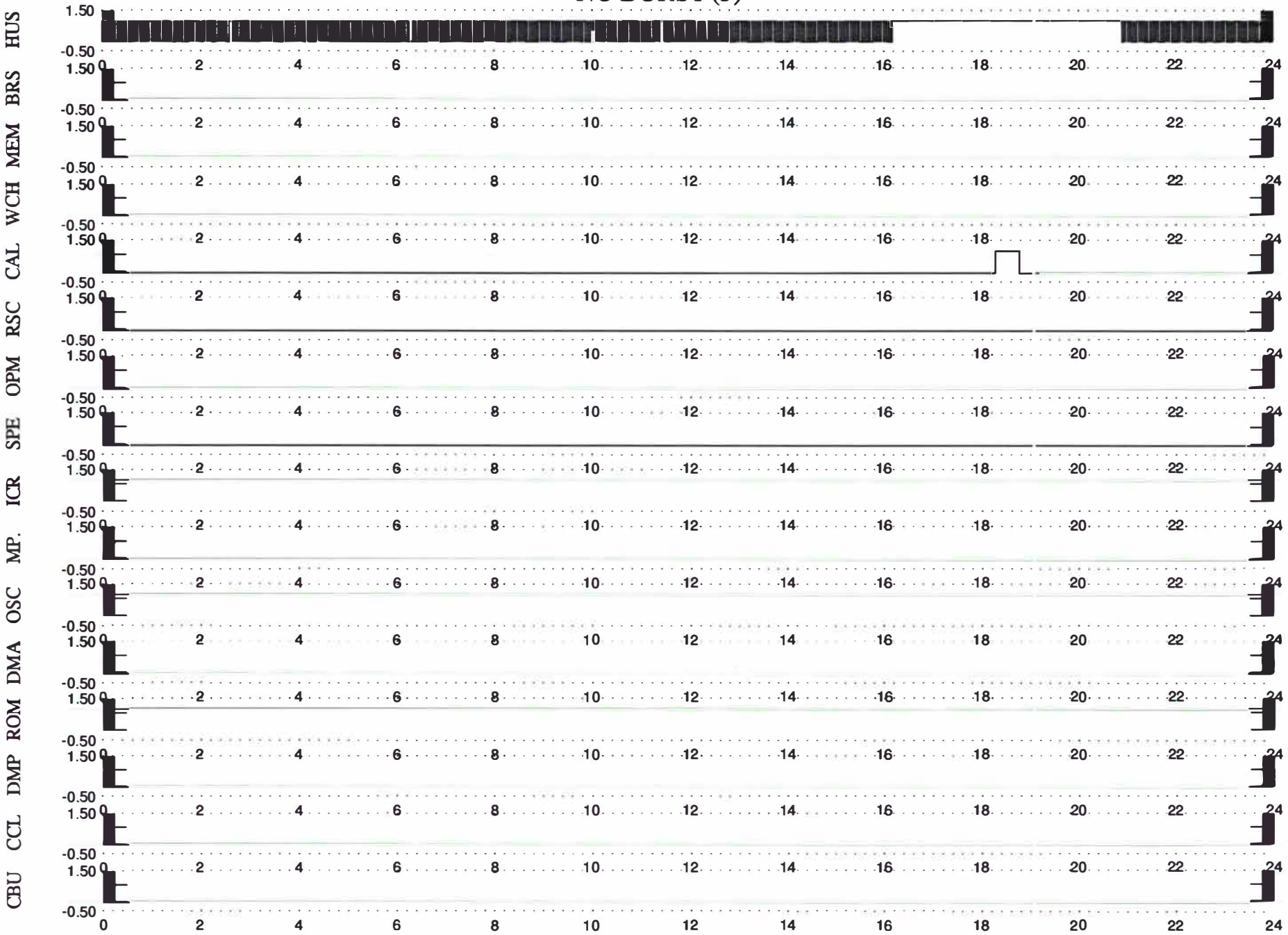



GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/08, 0000:00
Plot created: 97/04/22, 1958
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/08
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Current Time: 97/04/22, 1959 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 98, year 1997 to day 98, year 1997 7/22/97

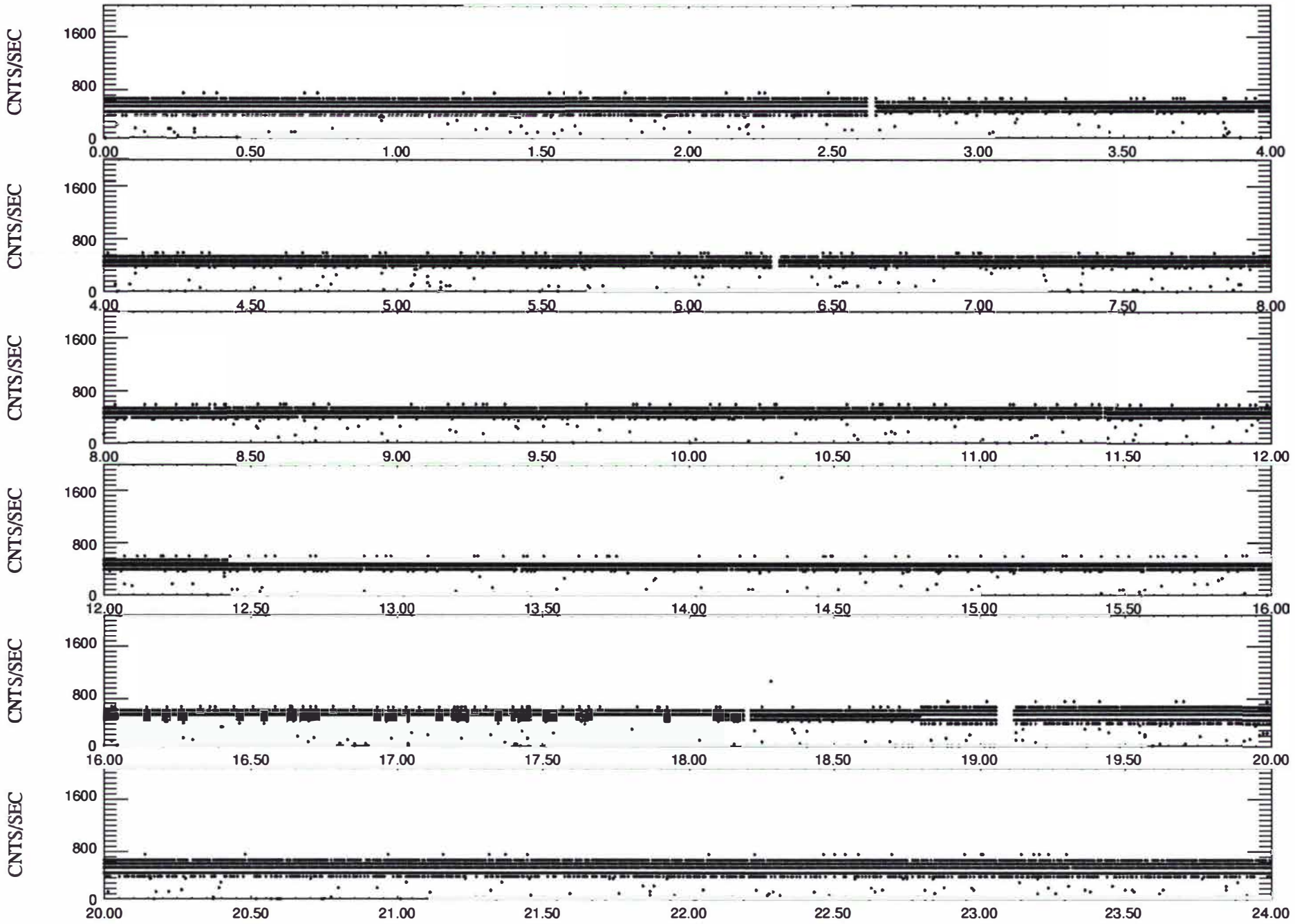
NO BURST (3)



UNIV SAL TIME

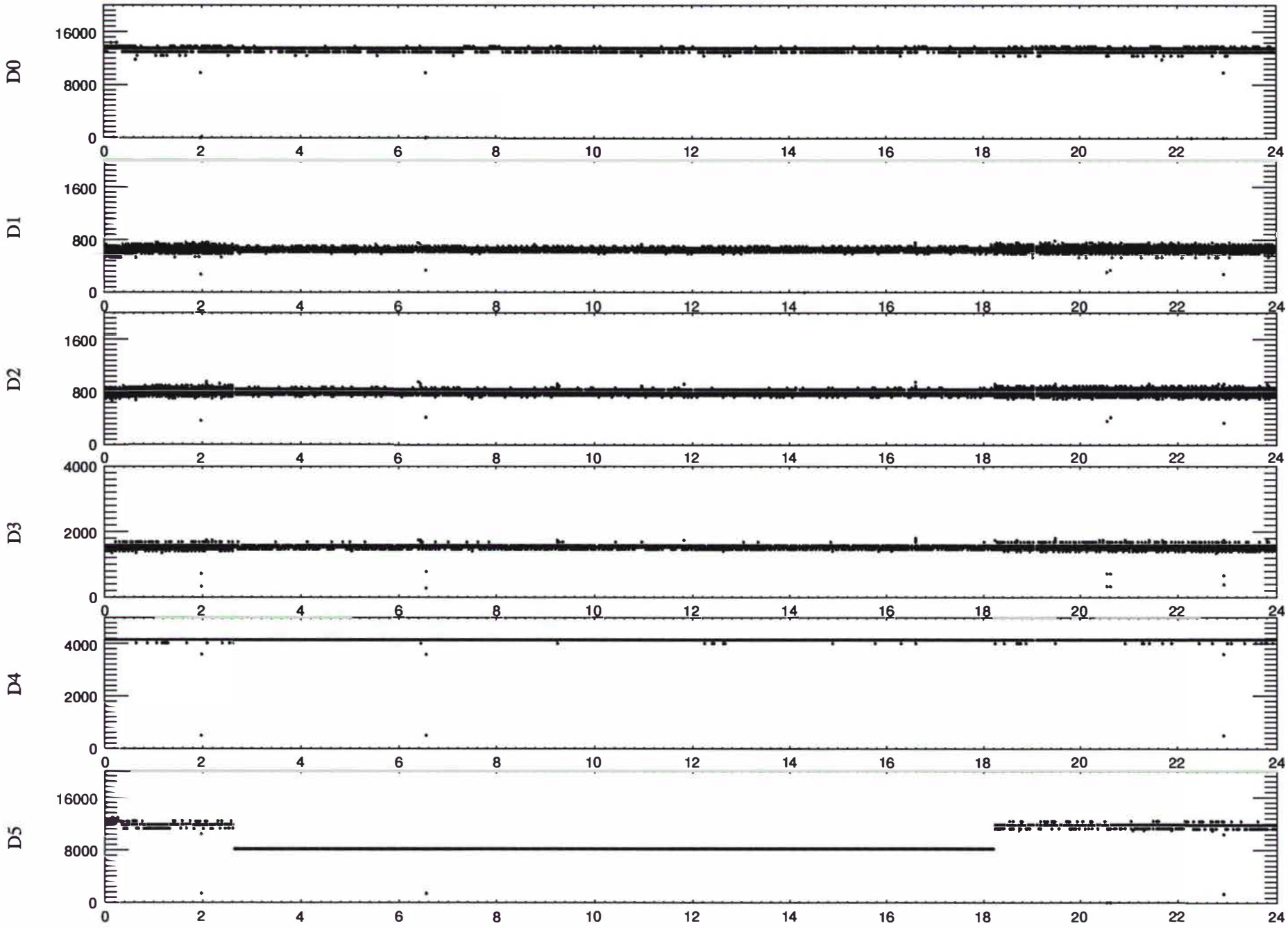
HUS 2A, MODE 1, NOT AVERAGED EDR day 98, year 1997 to day 98, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV :AL TIME

HUS 2B COUNTS / SEC EDR day 98, year 1997 to day 98, year 1997 7/22/97



From RICHARDSON@ssl.msfc.nasa.gov Fri Apr 11 09:21 PDT 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA06853; Fri, 11 Apr 1997 09:21:53 -0700
Date: Fri, 11 Apr 1997 11:21:44 -0500 (CDT)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970411112144.21004289@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6167
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

RI

BATSE BURST # 6167
EVENT OF 1997 APR 9 DAY OF YEAR= 99
EVENT CROSSING TIME AT BATSE : 67689. S. OR 18:48:09.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 15.000 36.000
BATSE PEAK COUNTING RATE: 6000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 9/ 4/ 97 IS:
RA= 154.364 DEC= 35.208 DIST= 4.403 AU
BATSE-ULYSSES DISTANCE = 658683289. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 80.63 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 357.56 SECS.
CROSSING TIME AT ULYSSES IS 68047. S. OR 18:54:06 +/- 431.80 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 9/ 4/ 97 IS:
RA= 171.069 DEC= 7.062 DIST= 0.698 AU
MARS-BATSE DISTANCE = 104358888. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 48.58 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 230.30 SECS.
CROSSING TIME AT MARS IS 67919. S. OR 18:51:59 +/- 48.82 SECONDS

BATSE BURST TRIGGER
NO.: 6167

TIME: TJD=0547 SECONDS=67689

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=84 AZIMUTH=352.8 ERROR=0.8 DEGREES

COMMENTS:
GRB STRONG PULSE WITH TWO PEAKS. EMISSION BEFORE AND AFTER PULSE. TOTAL DUR.~
110SEC. NOT VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6167	970409	10547	67689	6000	015	+36	110

Helio corr removed 17/2/00

Date: Mar 27 '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? 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?

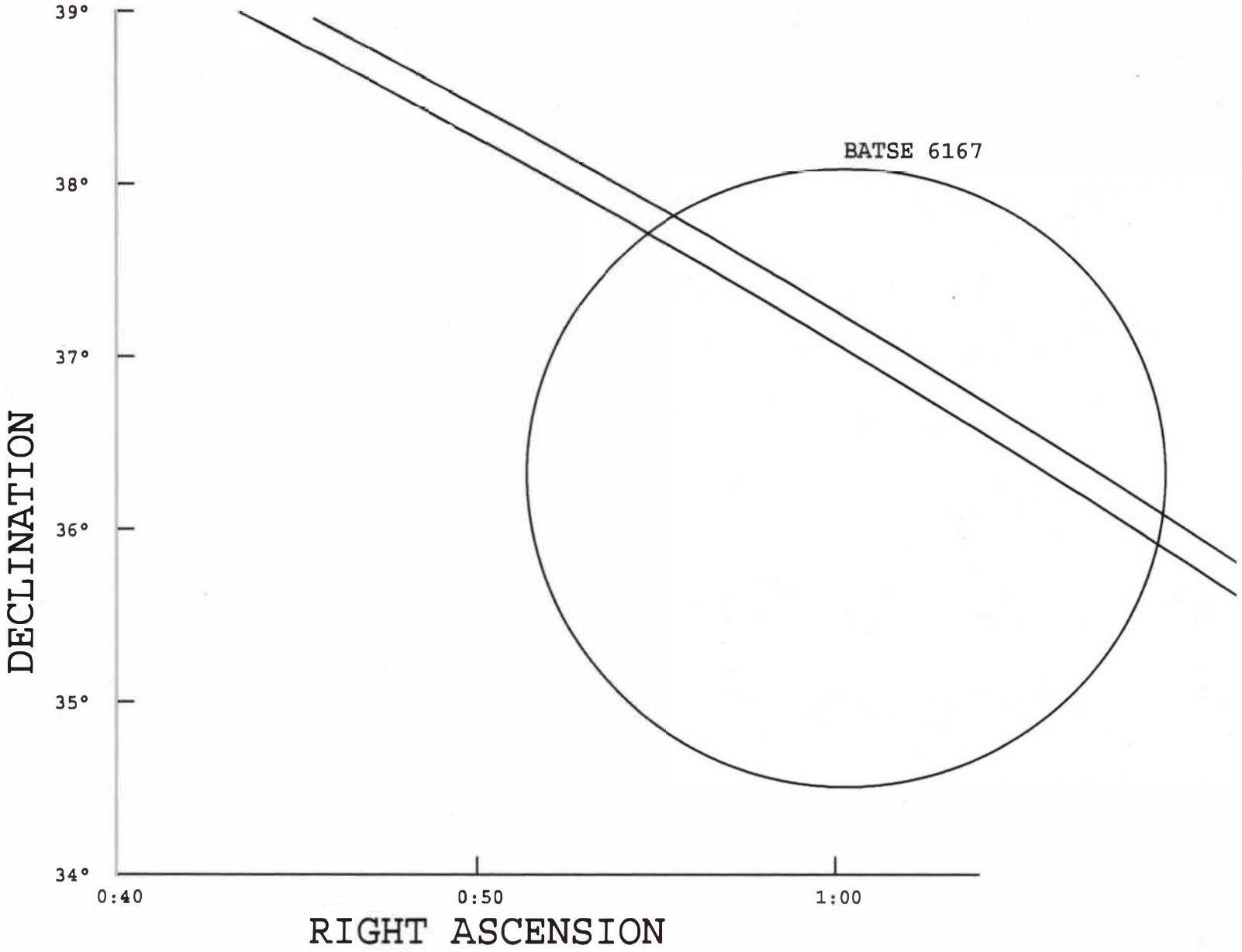
☐ Geocentric time used?

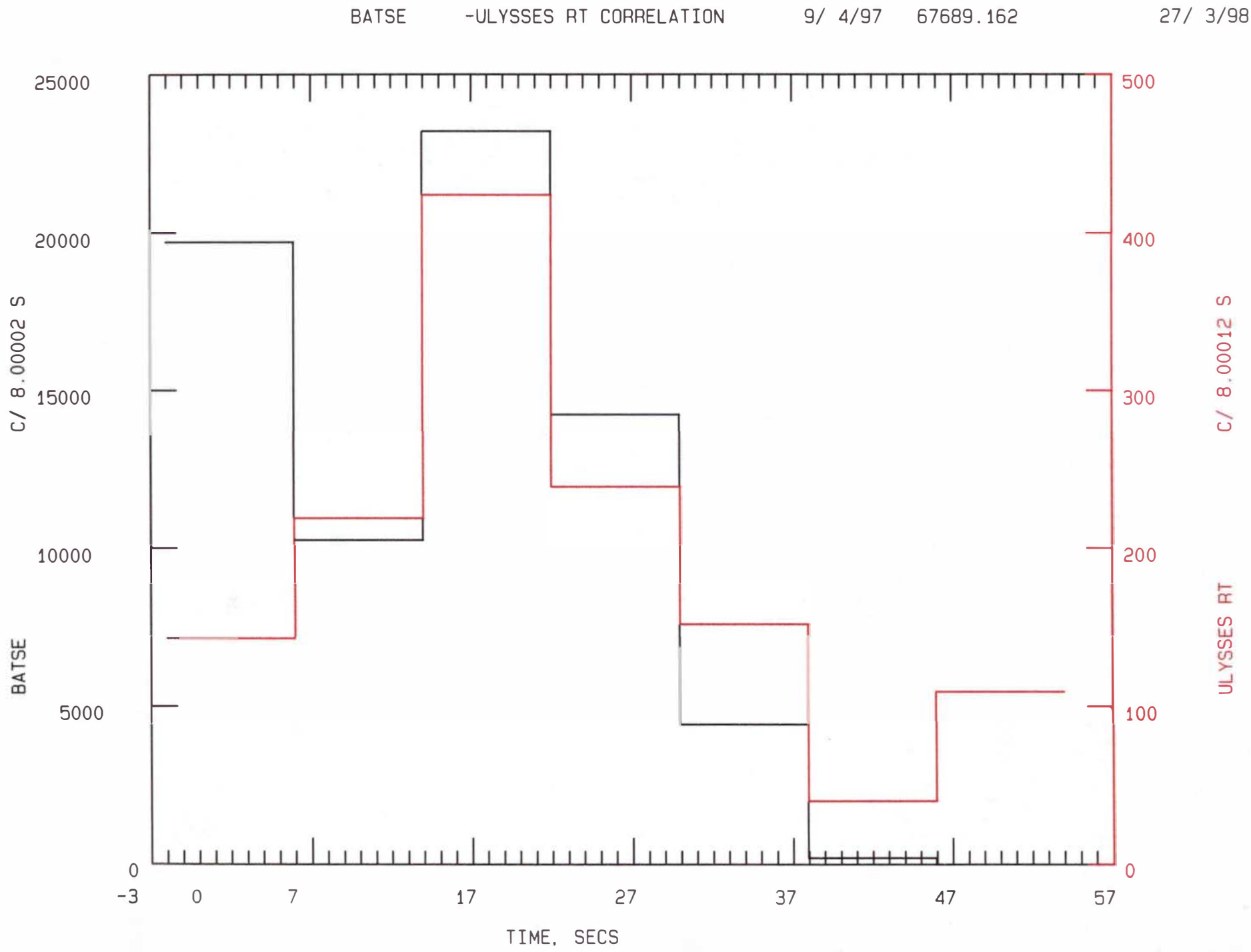
☑ ACCESS database updated?

EVENT OF APR 9, 1997 18:53

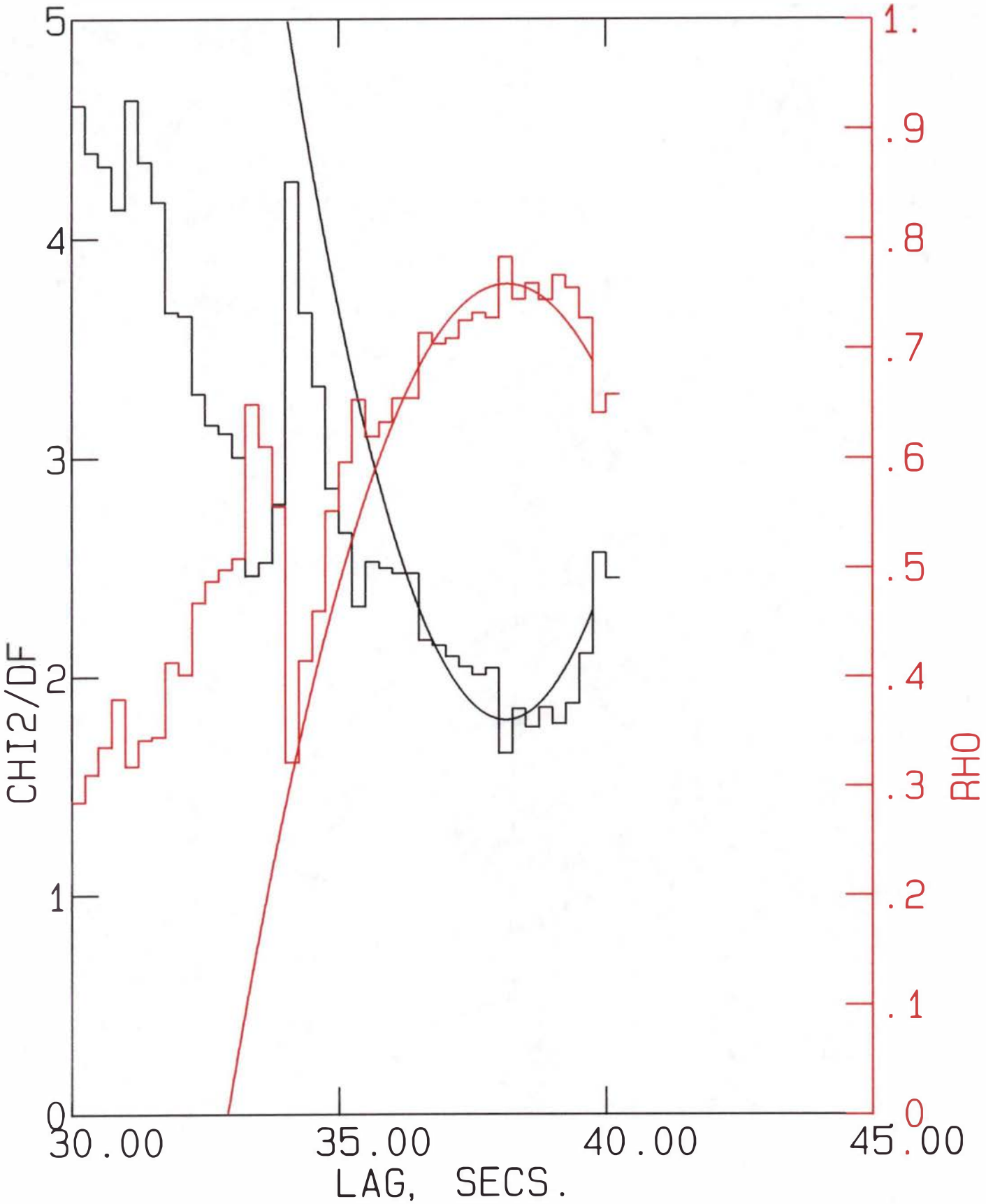
17/ 2/ 0

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




BATSE -ULYSSES RT CORRELATION 9/ 4/97 67689.162 27/ 3/98
25000
20000
15000
10000
5000
0
C/ 8.00002 S
BATSE
500
400
300
200
100
0
C/ 8.00012 S
ULYSSES RT
-3
0
7
17
27
37
47
57
TIME, SECS

BATSE -ULYSSES RT CORRELATION 9/ 4/97 67689.162

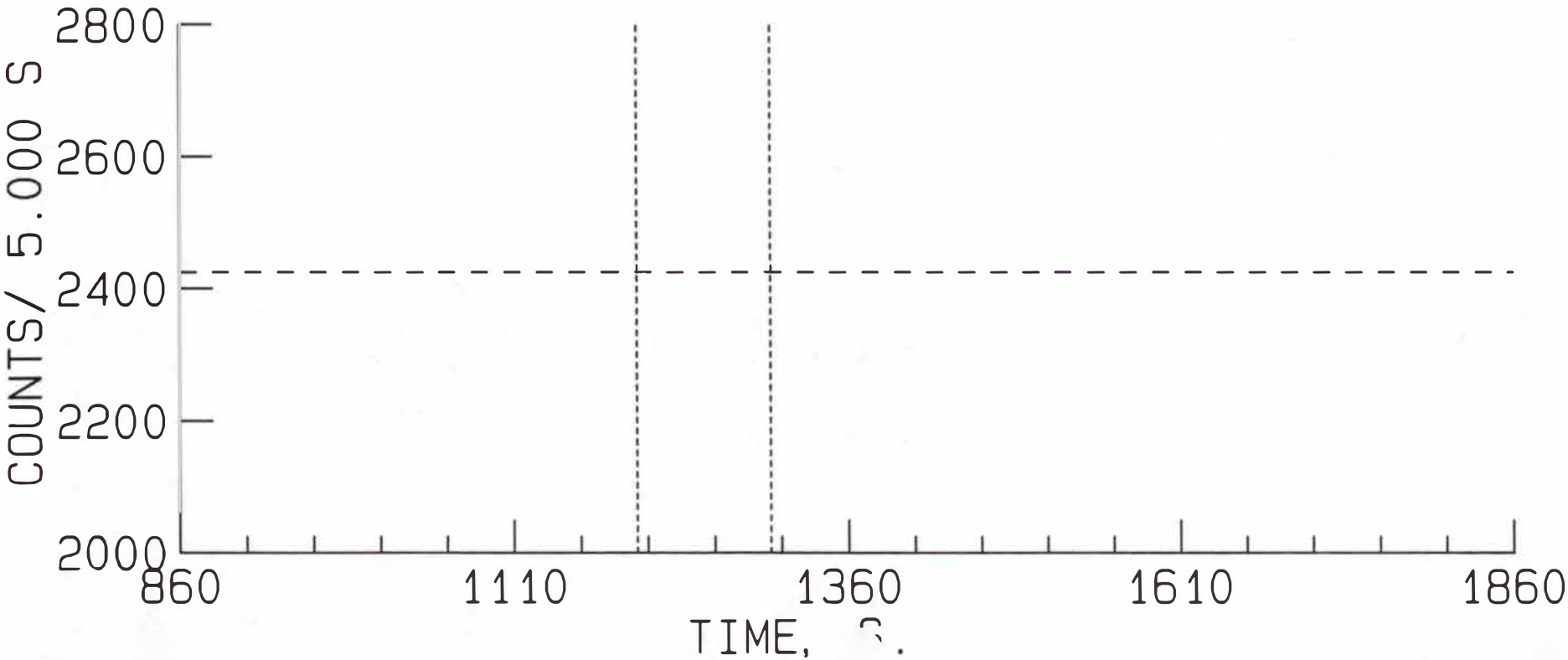


ULYSSES RT 27/ 3/98

9/ 4/97 67608.074 s

0.250 S INTERVALS REGROUPED BY 20

22- 148 keV

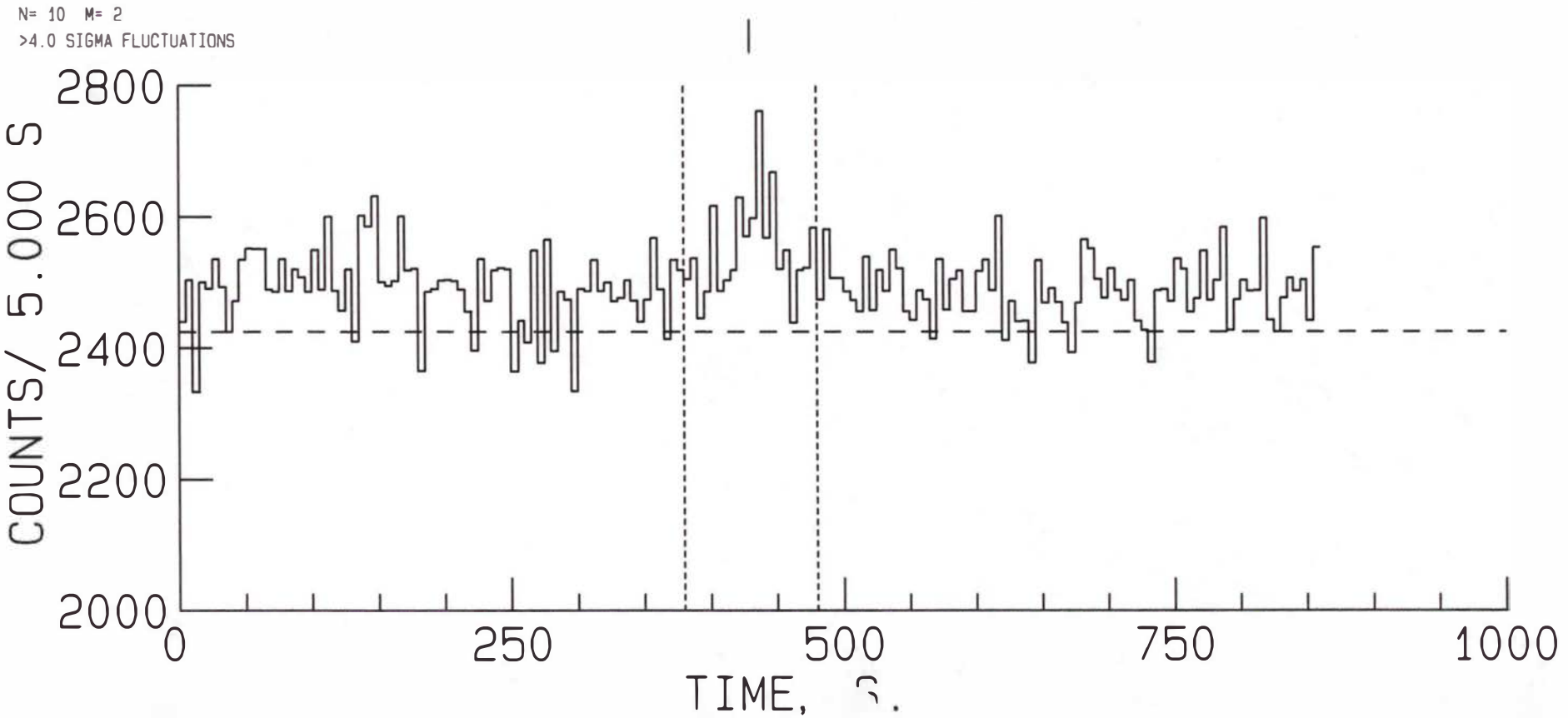


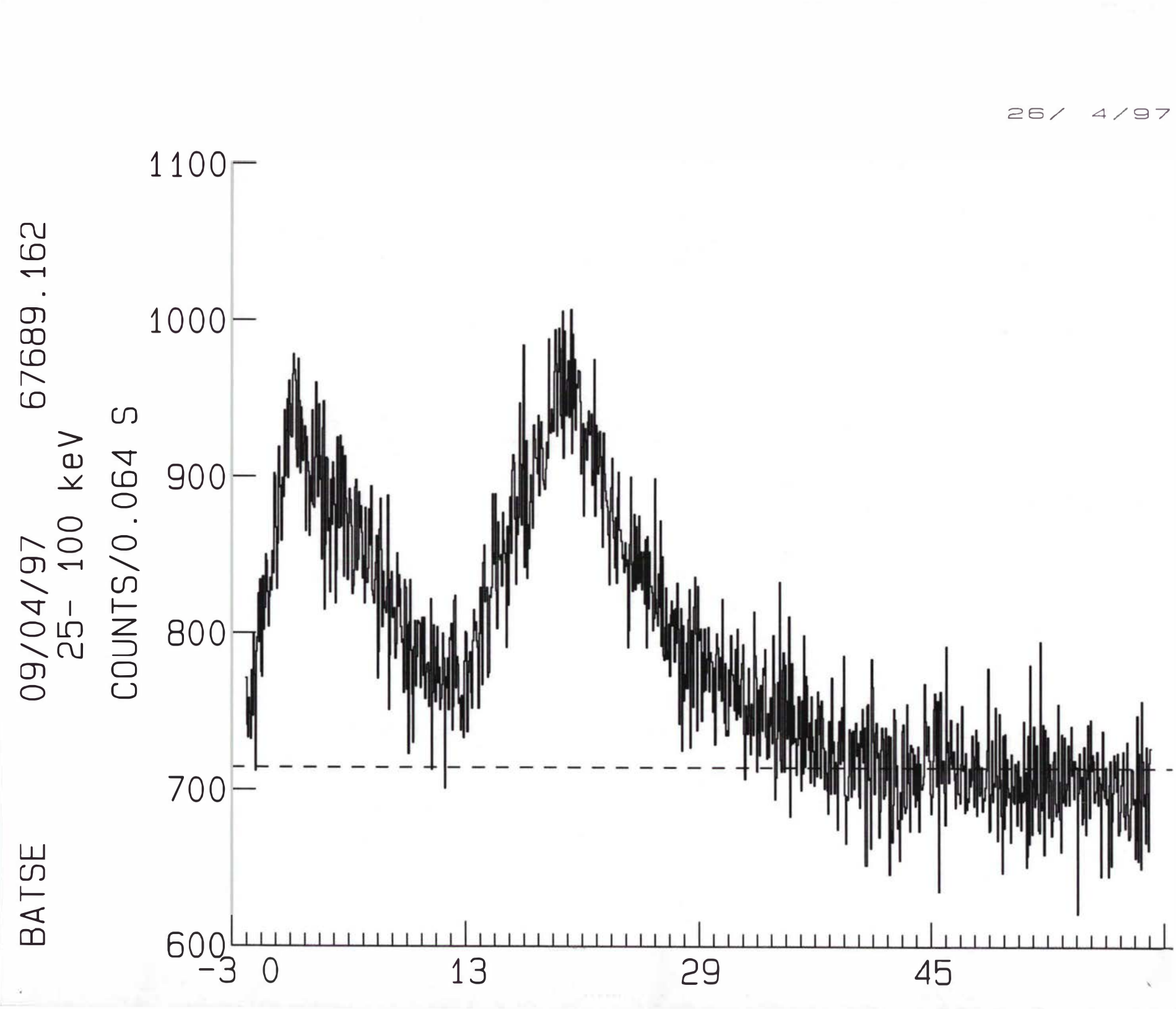
ULYSSES RT 27/ 3/98

9/ 4/97 67608.074 s

0.250 S INTERVALS REGROUPED BY 20

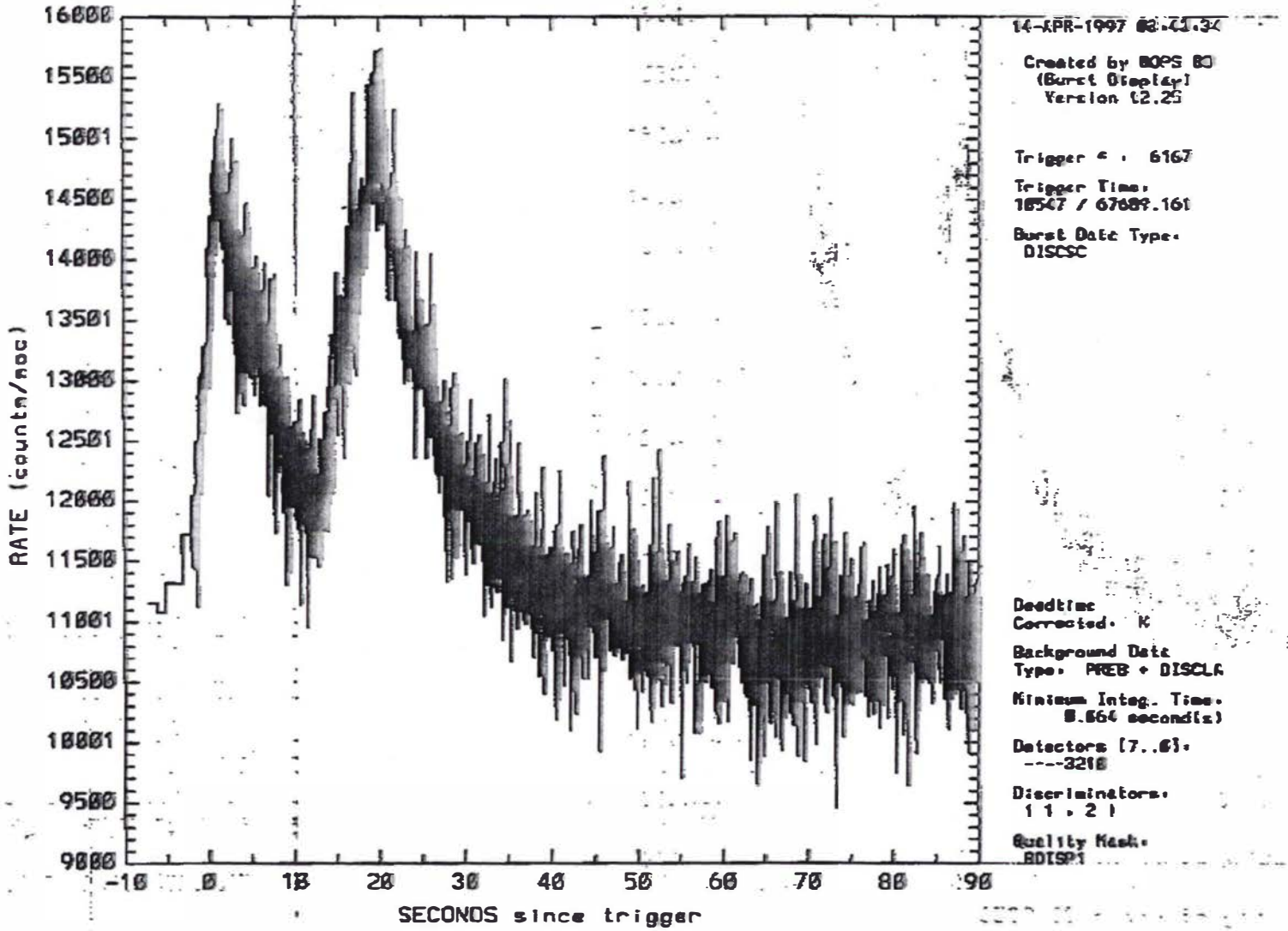
22- 148 keV



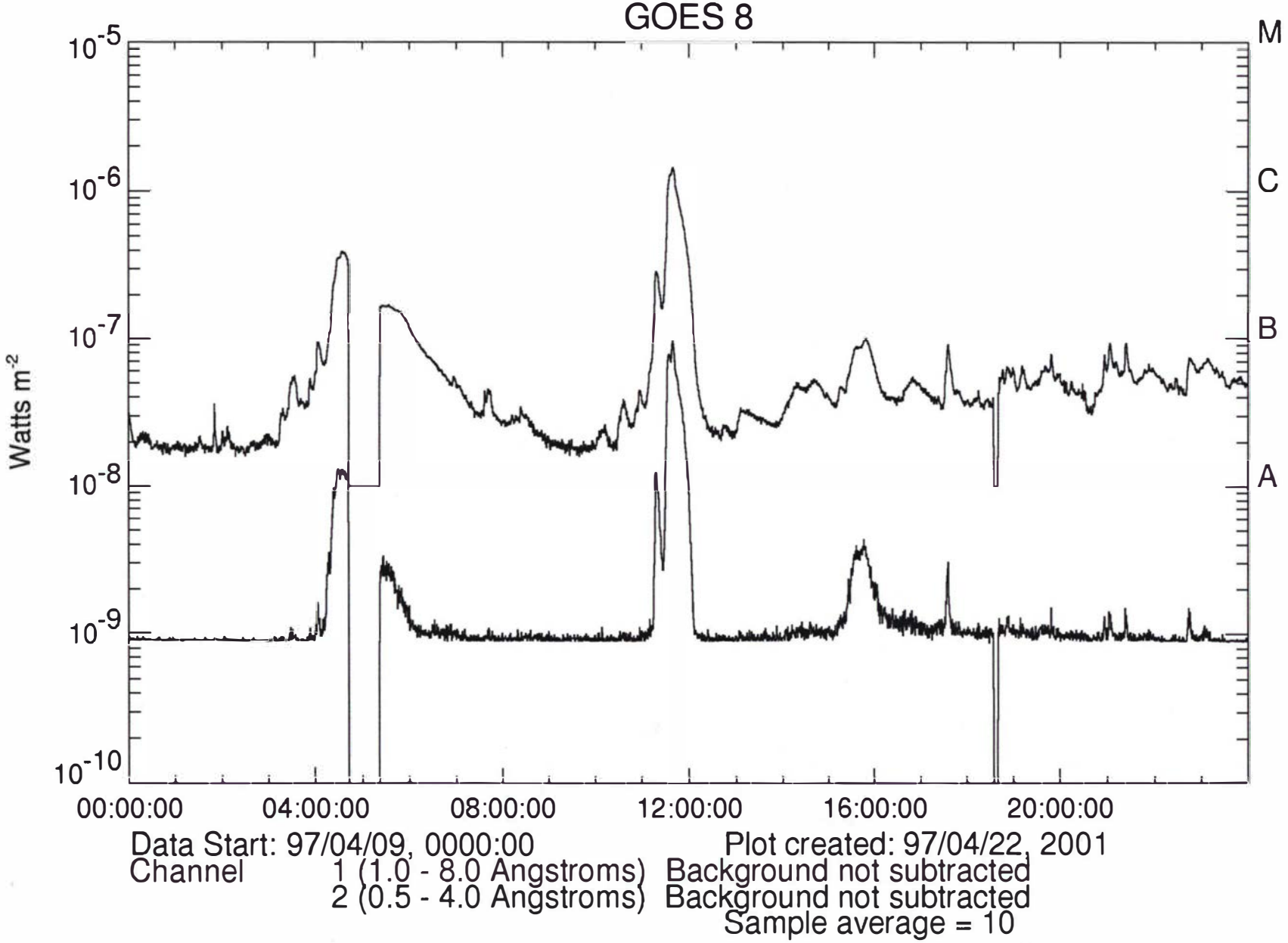

26/ 4/97
BATSE 09/04/97 67689.162
25- 100 keV
COUNTS/0.064 S
1100
1000
900
800
700
600
-3
0
13
29
45

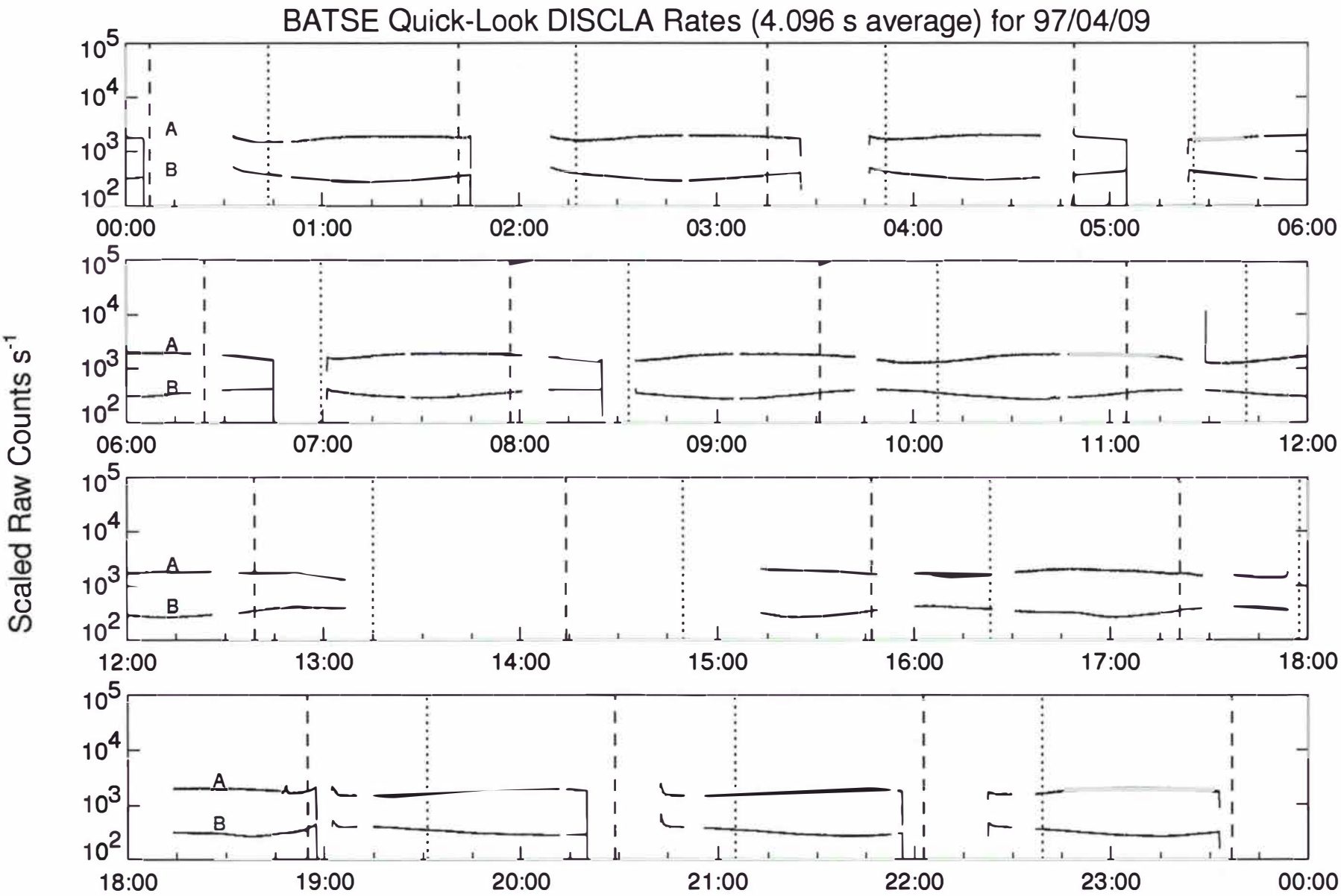
R=95%

04-14-1997 08:04 205 544 5800 BATSE P.02

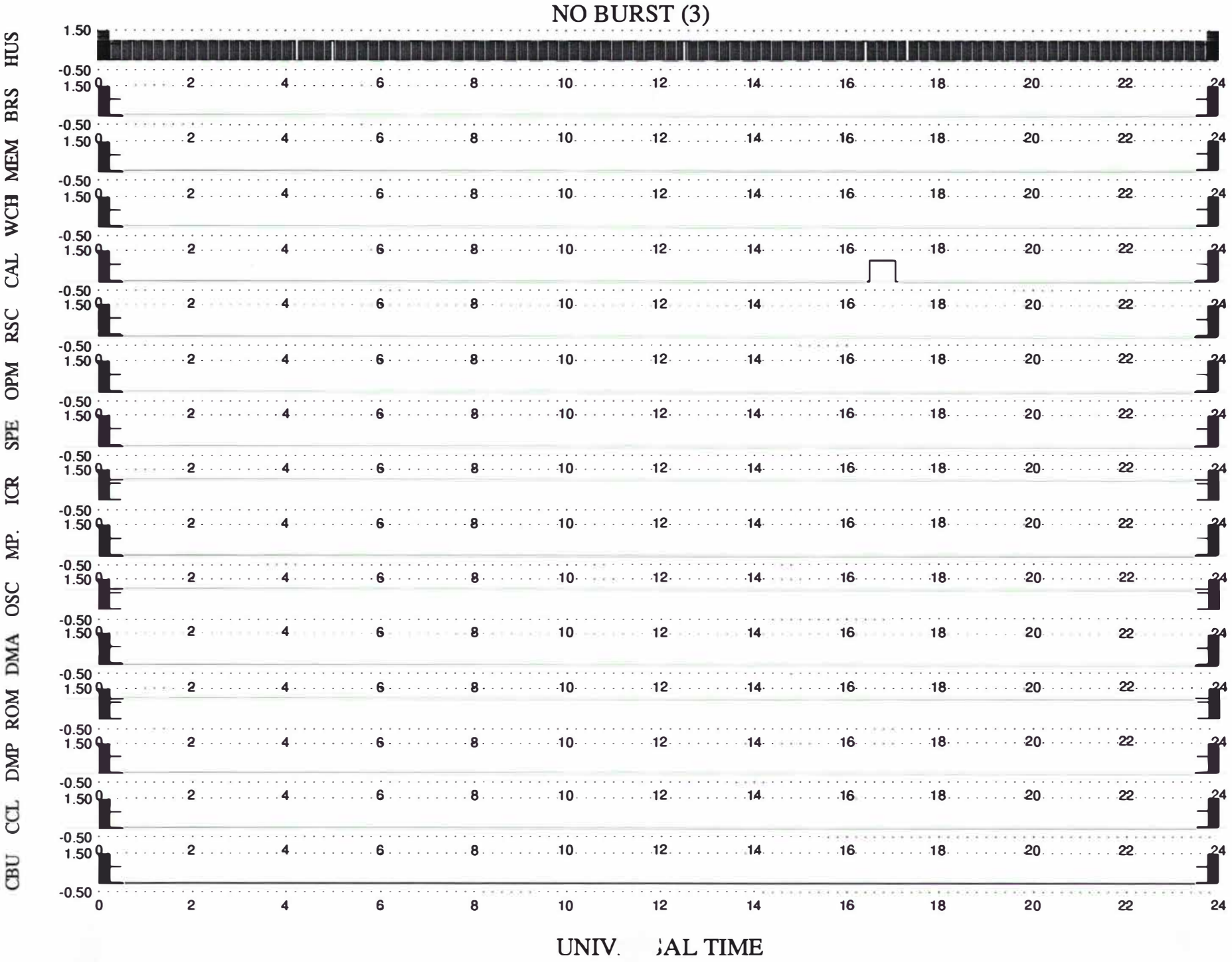


205 544 5800 04-14-97 06:00AM P002 #49


GOES 8
Watts m-2
10-5
10-6
10-7
10-8
10-9
10-10
M
C
B
A
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/09, 0000:00
Plot created: 97/04/22, 2001
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

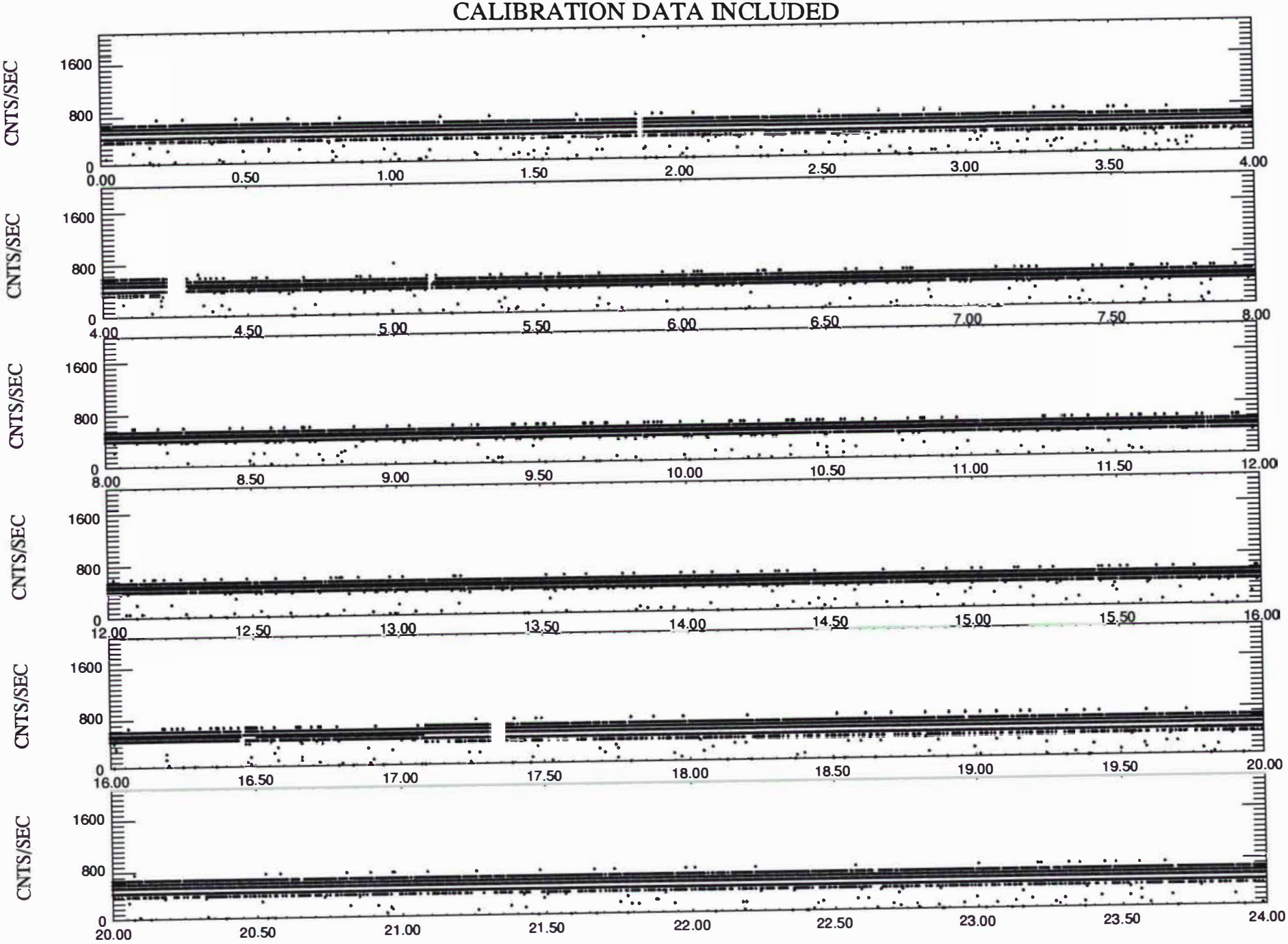

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/09
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/22, 2002 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 99, year 1997 to day 99, year 1997 7/22/97



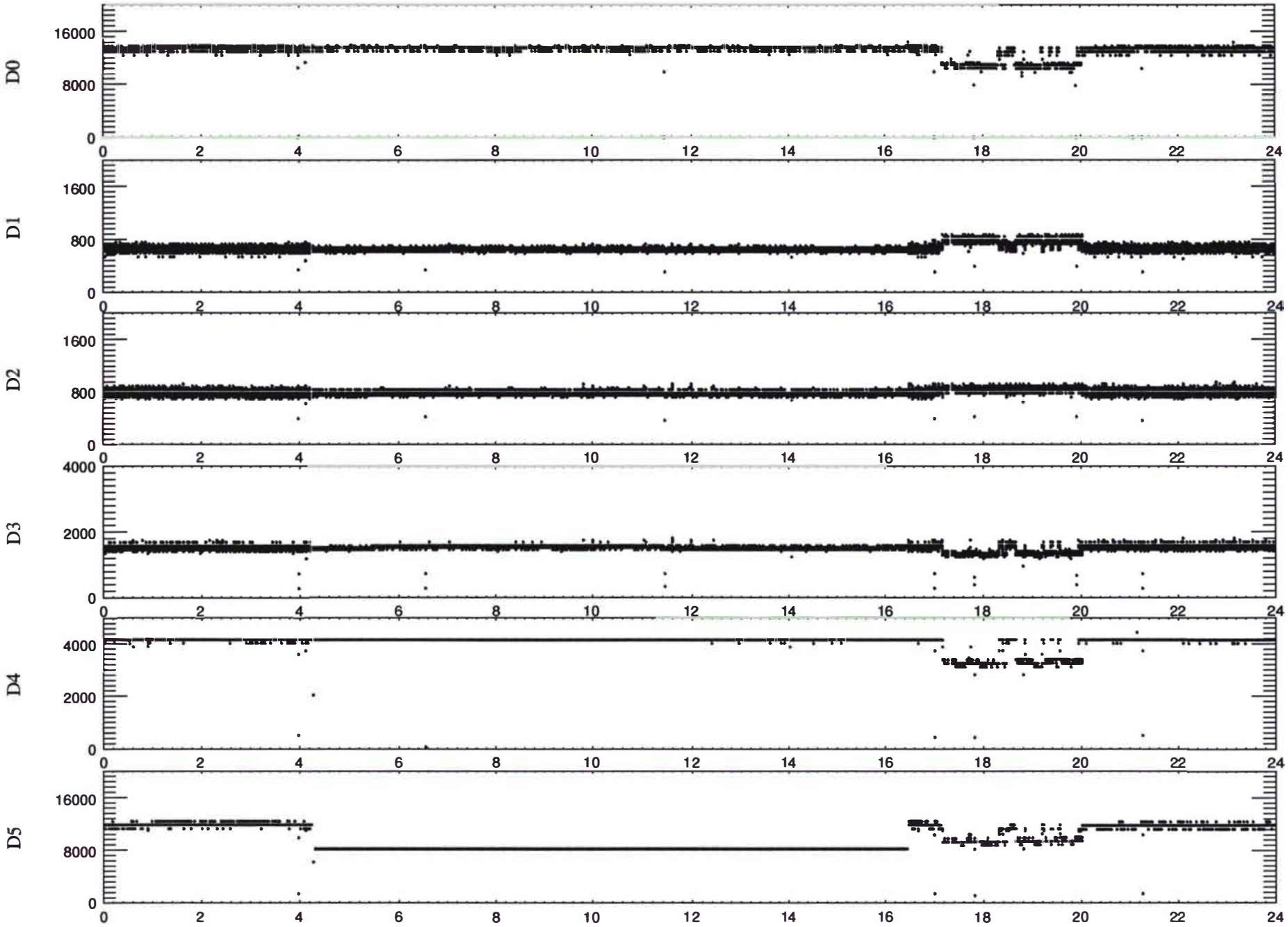
HUS 2A, MODE 1, NOT AVERAGED EDR day 99, year 1997 to day 99, year 1997 7/22/97

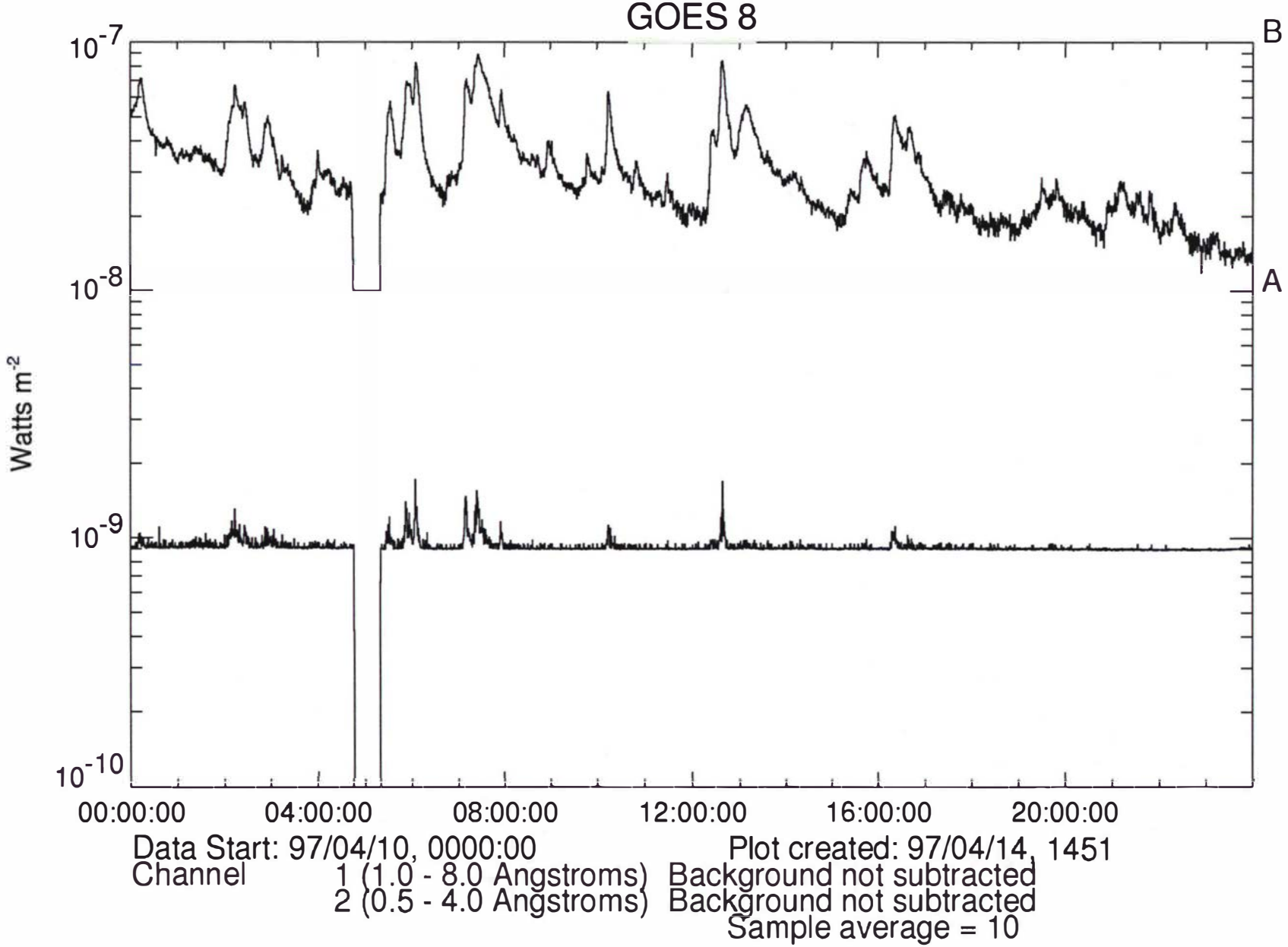
CALIBRATION DATA INCLUDED

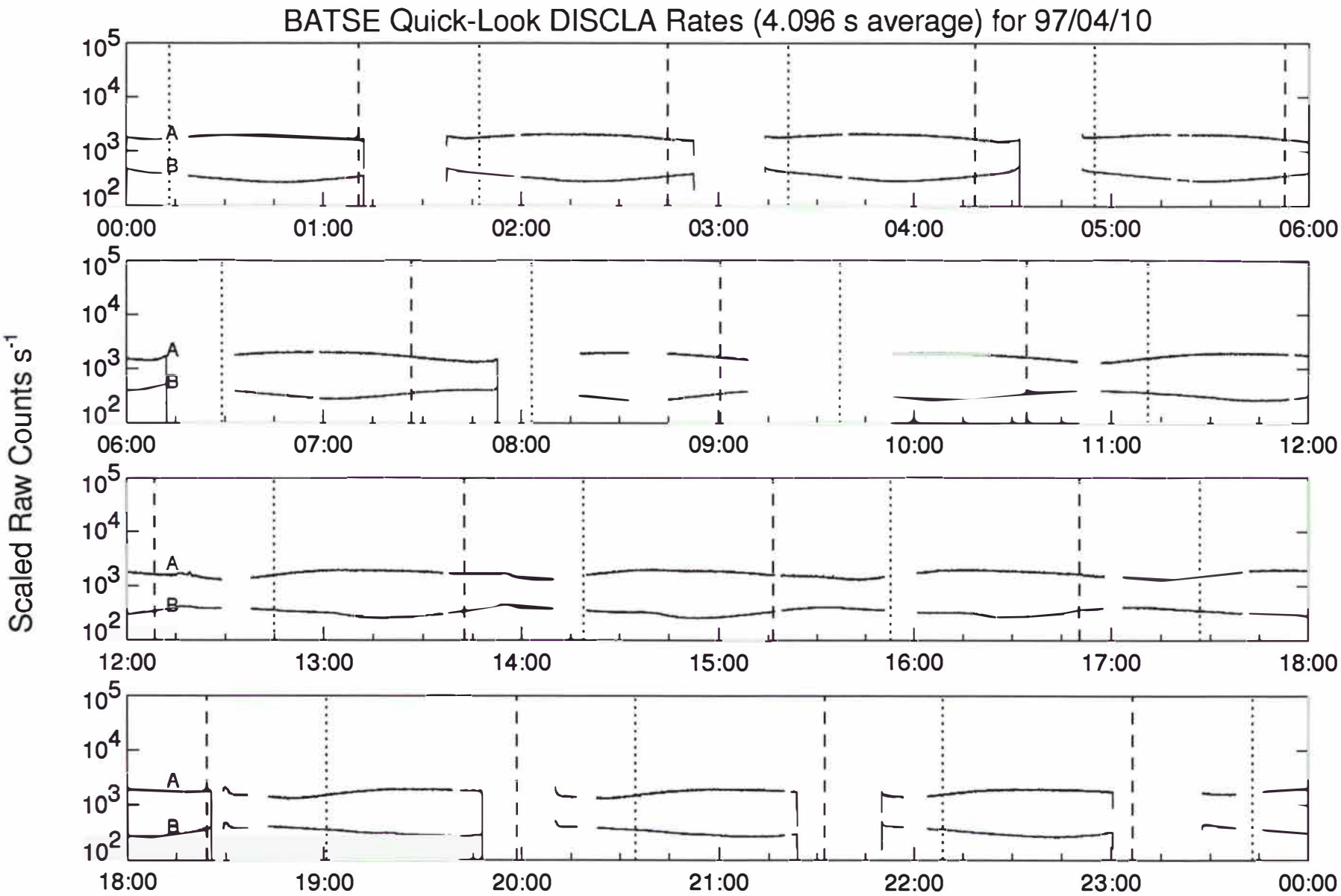


UNIV AL TIME

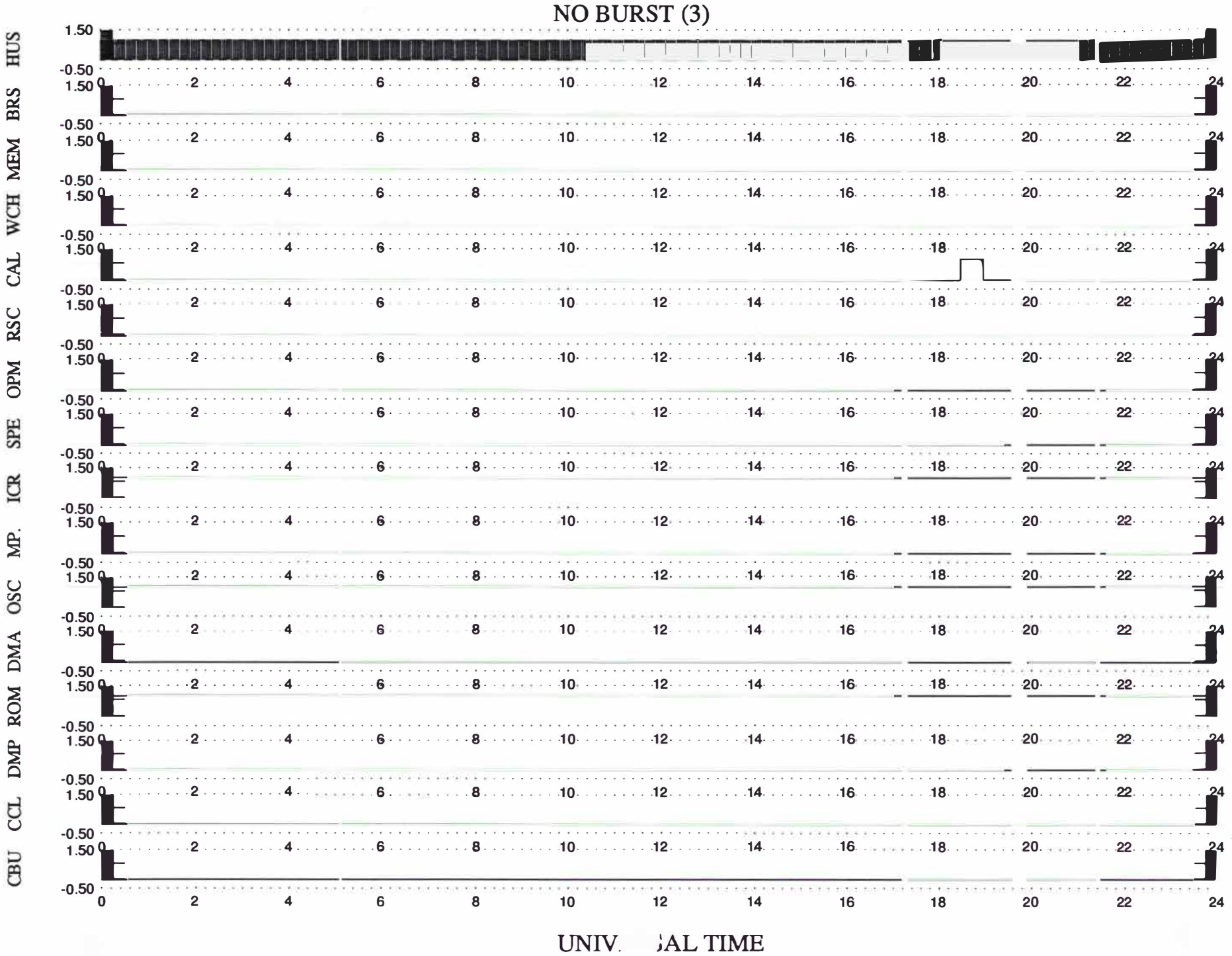
HUS 2B COUNTS / SEC EDR day 99, year 1997 to day 99, year 1997 7/22/97




GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/10, 0000:00
Plot created: 97/04/14, 1451
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

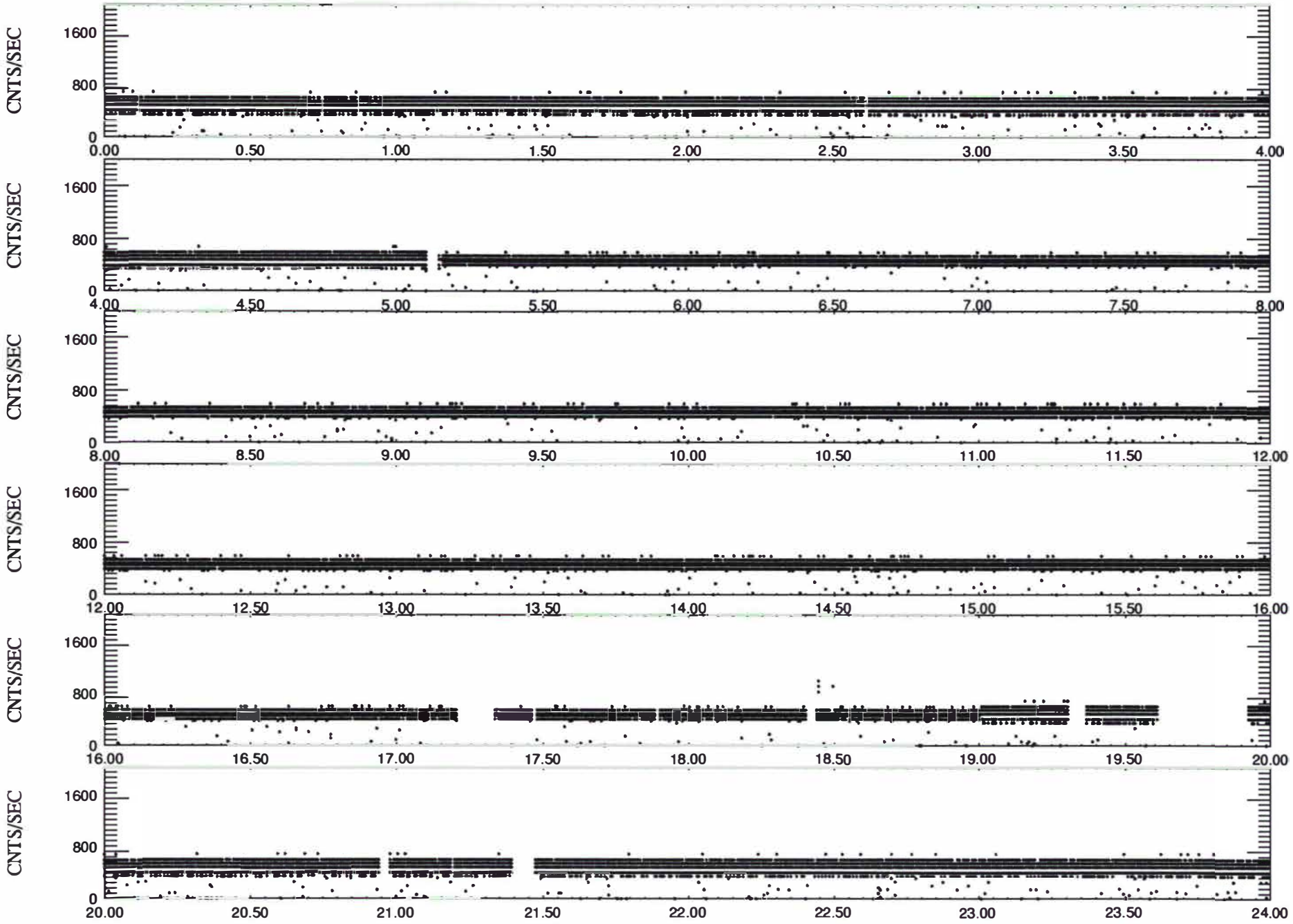

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/10
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/14, 1451 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 100, year 1997 to day 100, year 1997 7/22/97



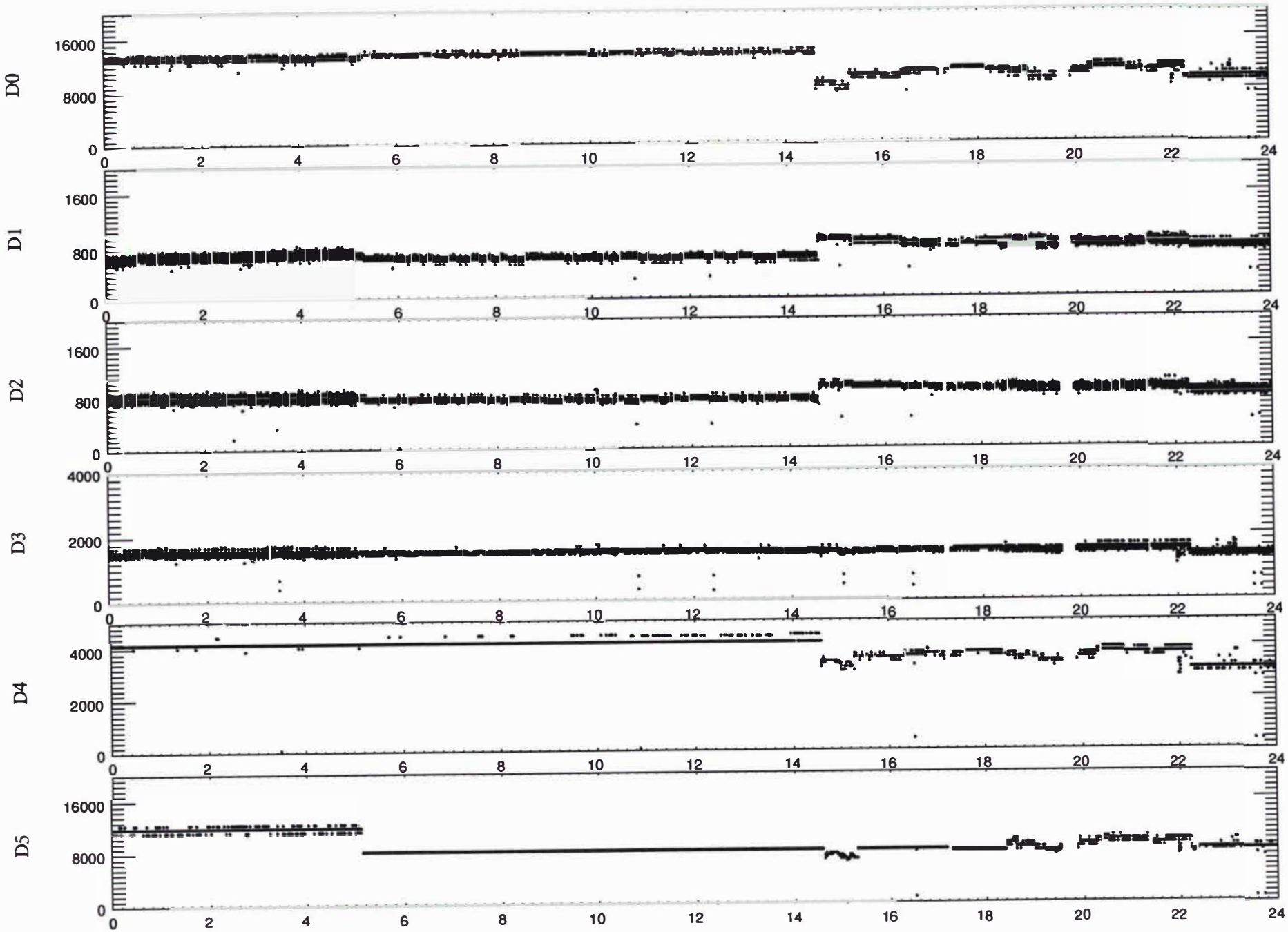
HUS 2A, MODE 1, NOT AVERAGED EDR day 100, year 1997 to day 100, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 100, year 1997 to day 100, year 1997 7/22/97



From woods@eagles.msfc.nasa.gov Mon Apr 14 06:21 PDT 1997
Return-Path: <woods@eagles.msfc.nasa.gov>
Received: from eagles by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id GAA06172; Mon, 14 Apr 1997 06:21:38 -0700
From: woods@eagles.msfc.nasa.gov
Date: Mon, 14 Apr 1997 08:23:10 -0500
Message-Id: <97041408231001@eagles.msfc.nasa.gov>
To: KHURLEY@sunspot.ssl.berkeley.edu
Subject: returned mail (trigger 6168)
X-VMS-To: KHURLEY@SUNSPOT.SSL.BERKELEY.EDU
Content-Type: text
Content-Length: 1860
X-Lines: 51
Status: RO

Subject: Crossing Windows for BATSE Burst 6168

****
BATSEARCH PROGRAM
****

BATSE BURST # 6168
EVENT OF 1997 APR 11 DAY OF YEAR=101
EVENT CROSSING TIME AT BATSE : 35545. S. OR 09:52:25.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 57.000 34.000
BATSE PEAK COUNTING RATE: 61000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 11/ 4/ 97 IS:
RA= 154.077 DEC= 35.065 DIST= 4.428 AU
BATSE-ULYSSES DISTANCE = 662383926. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=103.75 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -525.09 SECS.
CROSSING TIME AT ULYSSES IS 35020. S. OR 09:43:39 +/- 414.64 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 11/ 4/ 97 IS:
RA= 170.609 DEC= 7.164 DIST= 0.705 AU
MARS-BATSE DISTANCE = 105540808. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 74.95 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 91.42 SECS.
CROSSING TIME AT MARS IS 35636. S. OR 09:53:56 +/- 60.41 SECONDS

BATSE BURST TRIGGER
NO.: 6168

TIME: TJD=0549 SECONDS=35545

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=101.6 AZIMUTH=22.0 ERROR=0.4 DEGREES

COMMENTS:
GRB LASTING ~ 200 SEC. INITIAL RISE @ T - 15 SEC. MAIN PORTION
OF BURST STARTS @ T + 18 SEC. SINGLE PULSE DOUBLE PEAKED FRED.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6168	970411	10549	35545	61000	057	+34	250

```
970315    074 56454.2 BATSE GRB#6124 (4264/S)  (5.69,62.18J)  (+UL)
      13 074 56454.9 PKS,462.9(50/S,90/S,<16S) (@85DEG)

970325    084 63382.8 KONUS(+UL@64176,MOD,15S),2 PEAKS(UL REPORT 8/9/97) (13SR)

970405    095U85440   UL@23:44@2200LS,MOD BURST, 5SEC (SEE NEXT LINE)
970406    096  1060.9 KONUS (MOD.STRONG,MULT.PKS,15S) (13:NR, SECONDARY PEAKS?)

970411    101 35565.2 KONUS(25SEC,35556?)+UL@35040,2200LS(MOD,10S) +TGR (13NR)

970420    110 72842.2 BATSE GRB#6198 (7316/S) (209.08,-21.09J) (+UL)
      13 110 72847.8 PEAK (740/S,<12S,HARD) @85 DEG

970421    111U24420   UL@06:47@2250LS INT BURST, 20SEC
      13 111 25691.6 PEAKS (60/S),711.6(60),721.6(40),<30SEC                  REP0624

970428 14 118           FIRST DATA, DMSP14 (LAUNCHED 970404;DELAY CORR=5.87S)

970506    126 56503.3 KONUS (+UL@57300,2400LS,MOD,10S) (13NO,14NO,NOTRIG)

970506A14 126 45619.1 STRONGPKS45619.1(7700/S,<6S,SOFT),633.1,655.1,NOTRIG;13NO      ??

970602    153 58855.7 KONUS>150S,COMPLEX,PK58953(+UL@56580,MOD,60S)(+TGRS/WIND)
      14 153 58917.0 PK(150/S),953.0(950,>58S,VERY HARD, INTENSE (13 NO)       REP0624
      14 153 58916.7 TRIGGER PK, +58944.3,58952.0

970607    158 33384.7 KONUS, HARD PEAK FOR 7SEC (+UL@33360,MOD,10S)
      13 158 33388.6 PEAK(180/S,<6S)                                          REP0723
      14 158 33388.7 PEAK(200/S,<6S, NOTRIG)                                  REP0723

  616     167 65390.3 BATSE#6274 STRONG,MULTIPEAK.X-RAY AFTER,IAU6683(13NO@127)
          167 65390.3 BATSE(20.46,-7.16J),X-RAY(19.72,-5.50J) (14NO@112,NOTRIG)
          167 65390.3 BATSE (X-RAY DUBIOUS,IAU6722. NO OPT VARIABLE, IAU6723)

970625    176 43993.7 KONUS (UL@46200,2900LS,MOD,15SEC,REPORTED 10/30/97)
      13 178 44002.0 PEAK(80/S,<4S) (14SA)

970627    178 79608.8 KONUS STRONG, MULTIPEAK, 20SEC (+UL@77340,STRONG,20S)
          178 79610   BEPPOSAX (13SR,14NO,NO TRIG)

970629    180 14424.  KONUS VERY SOFT(+UL@15960,STRONG. NEW SGR (SEE 970912)
      13 180 14429.0 PEAK(50/S,<2S,SOFT) (14NR)                               REP0903

970715    196 51674.3 KONUS STRONG,HARD PK@+20(+UL@54060,MOD,5S)
      13 196 51693.6 PEAK(190/S,<4S)  (14NR,NOTRIG)                           REP0903

970721    202 84667.1 KONUS(+UL@81720,MOD,10S,@3000LS)
      13 202 84671.9 PEAKS(HARD,1-SIDE,200/S,<8S),691.9(1-SIDE,240/S,<10S)    REP0903
      14 202 84672.1 PEAK (HARD,1-SIDE,470/S,<10S),692.1(1-SIDE,240/S,<10S)   REP0903
      14 202 84671.5 TRIGGER PEAK (EVT14)(84671.46)                           REP0903

970802    214 12328.2 BATSE GRB#6322,5750/2S    (13NO@32,14NO@40,GAP,NOTRIG)

970815    227 43624.4 BATSE GRB#6335,10395/2S (IAU6718 XRAYS;6721+NOOPT)
          227 43624.4 CONTINUED: 13NO@160DEG, 14NO@146DEG

  915     258 32870.9 KONUS 25S,HARD (+UL@30900,3100LS,MOD,10S)
      14 258 32873.2 PEAK (200/S,<2S,NO TRIG) (13NO)

970919    262 65669.5 BATSE#6389 (8048/S)
```

From TERRELL@nisdp0.lanl.gov Fri Feb 27 15:11 PST 1998
From: TERRELL@nisdp0.lanl.gov
Date: Fri, 27 Feb 1998 16:11:55 -0700
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
henze@fender.msfc.nasa.gov, filippo@botes1.tesre.bo.cnr.it,
kmarar@isac.ernet.in
X-Vmsmail-To: @MAILOUTUL.DIS
Subject: DMSP GRB: 1997(many),980109,980113,980119,980124,980125,980202,980203

From: jterrell@lanl.gov (James Terrell) 980227
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kmarar@isac.ernet.in, kraken@rosserv.gsfc.nasa.gov,
scott@milkyway.gsfc.nasa.gov, teegarden@lheavx.gsfc.nasa.gov,
vnp@isac.ernet.in, yosimori@rikkyo.ac.jp
Subj: DMSP GRB detections: 1997(many),980109,980113,980119,980124,980125,980202,980203

The following GRB were detected by DMSP13 or DMSP14 (or NOT detected, if indicated).
No detection can occur for bursts more than 118 degrees from spacecraft zenith,
or if in the presence of very high counting rates (SAA,SR,NR).
Data are normally in 2-sec counts, except when the DMSP14 trigger circuit is
tripped, giving 12.8ms data, usually reported here as 102.4ms counts.
Numerous other BATSE GRB were also detected, but not reported here; numerous
weak detections by Ulysses have not been checked because of low counting
rates expected at an indefinite time.

DATE	FL	DAY	TIME	NOTES---(ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)------REPORTED (NO=DATA CHECKED--SHOWS NO DETECTION)(SR=S. RADIATION BELT) (NR=NORTH RADIATION BELT)(SAA=SOUTH ATLANTIC ANOMALY)	
970111		011	35040.2	BATSE GRB#5773 (8727CTS/2S) (SEE IAU6569,6571,6574,6598)	
		011	35040.2	BEPPO SAX TRIG,INTENSE,50S,3 PEAKS(232.10,19.67J) IAU6533	
	13	011	35040.0	PEAKS(40/S),48.0(50/S),58.0(60/S),@24DEG,@848KM,SOFT	REP0313
970111		011	85744.6	KONUS (HARD,SLOW RISE) +TGR (UL:NO) (DMSP13:NO)	
970117		017	53211	TGR+SAX GRB (KONUS INOP)+UL@54420(STRONG,20S) (13:NO)	
970124		024	44343.4	KONUS(MULT PKS)+UL@46253@2100LS,STRONG+TGR (13SAA)	
970201		032	57250.7	BATSE GRB#5989 (53612/SEC) +UL	
	13	032	57222.1	PEAK (100/S,~30S,SOFT,BROAD) (@111DEG) UNCONVINCING	
970218		049	50996.1	KONUS (STRONG,5SEC) +UL@51274,2000LS (STRONG,8SEC)	
	13	049	51001.0	PEAK (320/S,<6S)	REP0624
970222		053	86006.6	KONUS (MOD.STRONG,SEV.SEC) +UL@85873,2000LS,MOD,2S(13NO)	
970226		057	31585.9	KONUS (STRONG,SOFT PK@+39) +UL@30547,2000LS(V.INT,40S)	
	13	057	31595.8	PEAK (270/S,10SEC) (MODERATELY STRONG)	REP0313
970228		059	10680.8	BEPPOSAX(IAU6572)MOD.INT.,80S,4 PKS (75.46,11.75J)IAU6578	
		059	10680.8	INT.X-RAY,RADIO(IAU6576,6577),OPTICAL(6584),MOTION(6629)	OPTICAL
	13	059	10659.1	PKS,667.1(60/S,ONE-SIDED,SOFT,@74DEG) DOUBTFUL (+UL,WIND)	
970313		072	30096.5	KONUS(MOD.STRONG,PK@+11,40S)+UL@28380,2000LS(MOD.INT,10S)	
	13	072	28355.8	PEAK (180/S,<2S,SOFT) (NO PEAK AT 30096!) (CONFLICT)	REP0501

From BUTTERWORTH@lheavx.gsfc.nasa.gov Tue May 6 09:56 PDT 1997
From: BUTTERWORTH@lheavx.gsfc.nasa.gov
Date: Tue, 6 May 1997 12:54:56 -0400 (EDT)
To: khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, cline@apache.gsfc.nasa.gov
CC: BUTTERWORTH@lheavx.gsfc.nasa.gov
X-Vmsmail-To: @ULYSSES
X-Vmsmail-Cc: BUTTERWORTH
Subject: summary of Konus observations of 1997 events seen by Ulysses but not BATSE

Hi Everyone,

Here is a summary for this year to date of Konus observations corresponding to events seen by Ulysses but not reported by BATSE:

Ulysses event	Konus observation
970105 01:40	not detected
970105 18:17	not detected
970107 07:57	not detected
970107 14:13	not detected
970109 01:25	not detected
970110 08:53	not detected
970110 14:31	not detected
970111 23:35	trigger at 23:49:04.563 - peak ~60 seconds later S of ecliptic, hard event lasting 4 minutes with slow rise and decay
113 14:31	not detected
114 05:17	not detected
970115 13:36	not detected
970117 15:07	not observed (unrelated trigger at 14:27 will have prevented any further trigger until after 15:32)
970117 18:45	not detected
970124 12:51	trigger at 12:19:03.397 - peak 4.2 seconds later S of ecliptic, several peaks with the strongest the hardest
970126 15:30	not detected
970130 19:33	not detected
970204 11:18	not detected
970208 18:04	not detected
970212 22:50	not detected
970203 19:03	not detected
970216 14:35	not detected
970218 14:15	trigger at 14:09:56.145 - peak ~3 seconds later N of ecliptic, strong event lasting 5 seconds
970222 23:51	trigger at 23:53:26.565 - peak 0.7 seconds later N of ecliptic, moderately strong event lasting several seconds
970223 15:53	not detected
970224 21:08	not detected
970226 08:29	trigger at 08:46:25.868 - peak 39 seconds later N of ecliptic, strong, double broad FRED, with the second peak (39 seconds after the trigger) much softer than the first (12 seconds after the trigger)
970310 00:22	not detected

970313 07:53	trigger at 08:21:36.505 - peak 11 seconds later N of ecliptic, moderately strong event lasting 40 seconds
970316 13:16	not detected
970321 21:42	not detected
970322 00:16	not detected
970405 11:35	not detected
970405 23:44	trigger at 00:17:40.876 on 970406 N of ecliptic, moderately strong, multi-peaked event lasting over 15 seconds
970411 09:44	trigger at 09:52:45.166 - peak 4 seconds later N of ecliptic, broad event lasting 25 seconds with a FRED component lasting 0.5 seconds 4 seconds after the trigger
970421 06:47	instrument off

From kraken@rosserv.gsfc.nasa.gov Mon May 19 15:08 PDT 1997
X-Sender: kraken@lheapop.gsfc.nasa.gov
Mime-Version: 1.0
Date: Mon, 19 May 1997 18:09:39 -0500
    khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
From: kraken@rosserv.gsfc.nasa.gov (Peter Kurczynski)
Subject: Recent TGRS/Ulysses bursts
Cc: bonnard@iolanthe.gsfc.nasa.gov (Bonnard Teegarden),
        kraken@rosserv.gsfc.nasa.gov

Hi Kevin,

Here are the results of a search through TGRS data for some recent Ulysses bursts that you've sent emails about. Of the list below, TGRS sees one of your bursts in waiting mode data, and one as a bona fide triggered event.

Ulysses date/time	TGRS sees?	TGRS characteristics
970513 18:37	NO	
970506 15:55	YES (waiting mode)	at 970506:56500s (~15:40) <10 s long 450 cts/s 35-100 keV ~2s long 260 cts/s 100-300 keV (peak count rates)
961219 19:42	NO	
970411 9:44	YES (TGRS #553)	at 970411:35566 (~9:50) 10s long 430 cts/s 35-100 keV 10s long 410 cts/s 100-300 keV (peak count rates)
970405 23:49	NO*	
970405 11:35	NO*	

*there was a TGRS triggered event (#551) at 50507s, but this is outside the +/- 2200s time window from the time of the Ulysses burst.

I hope these are helpful,

Pete Kurczynski

Helio corr removed 17/2/00

Date: Mar 27 '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? 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)?

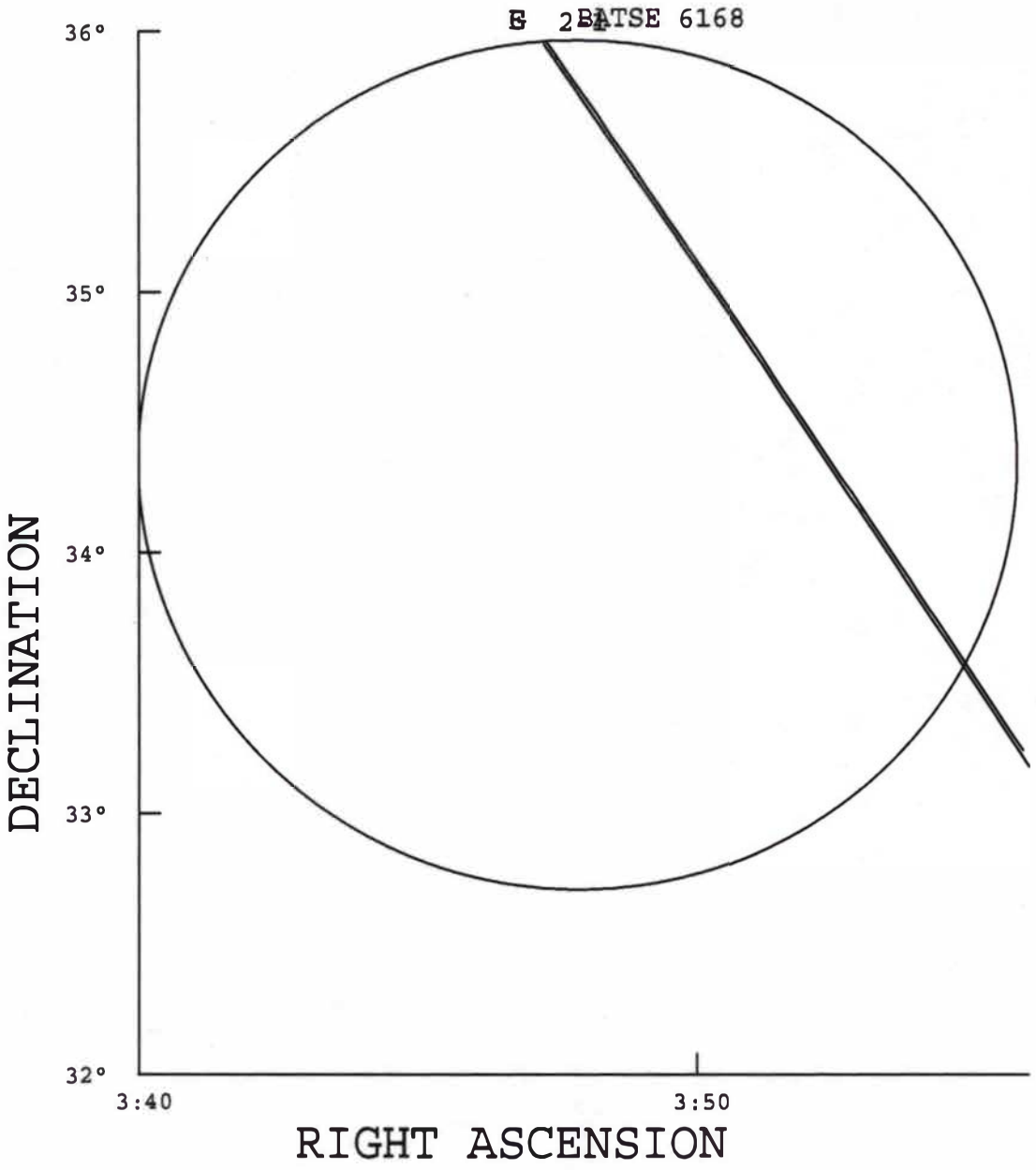
☐ 2000 coordinates used?

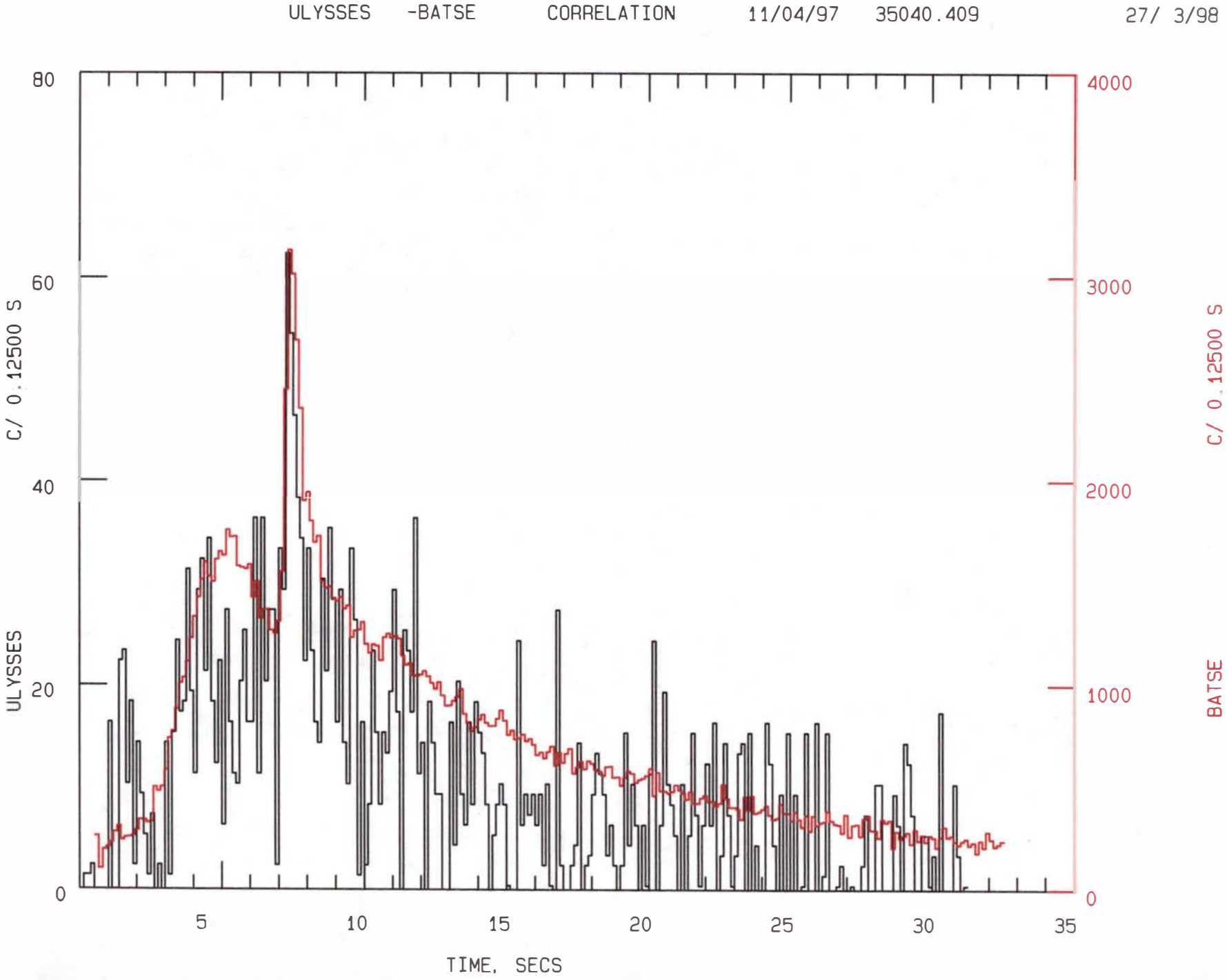
☐ Geocentric time used?

☑ ACCESS database updated?

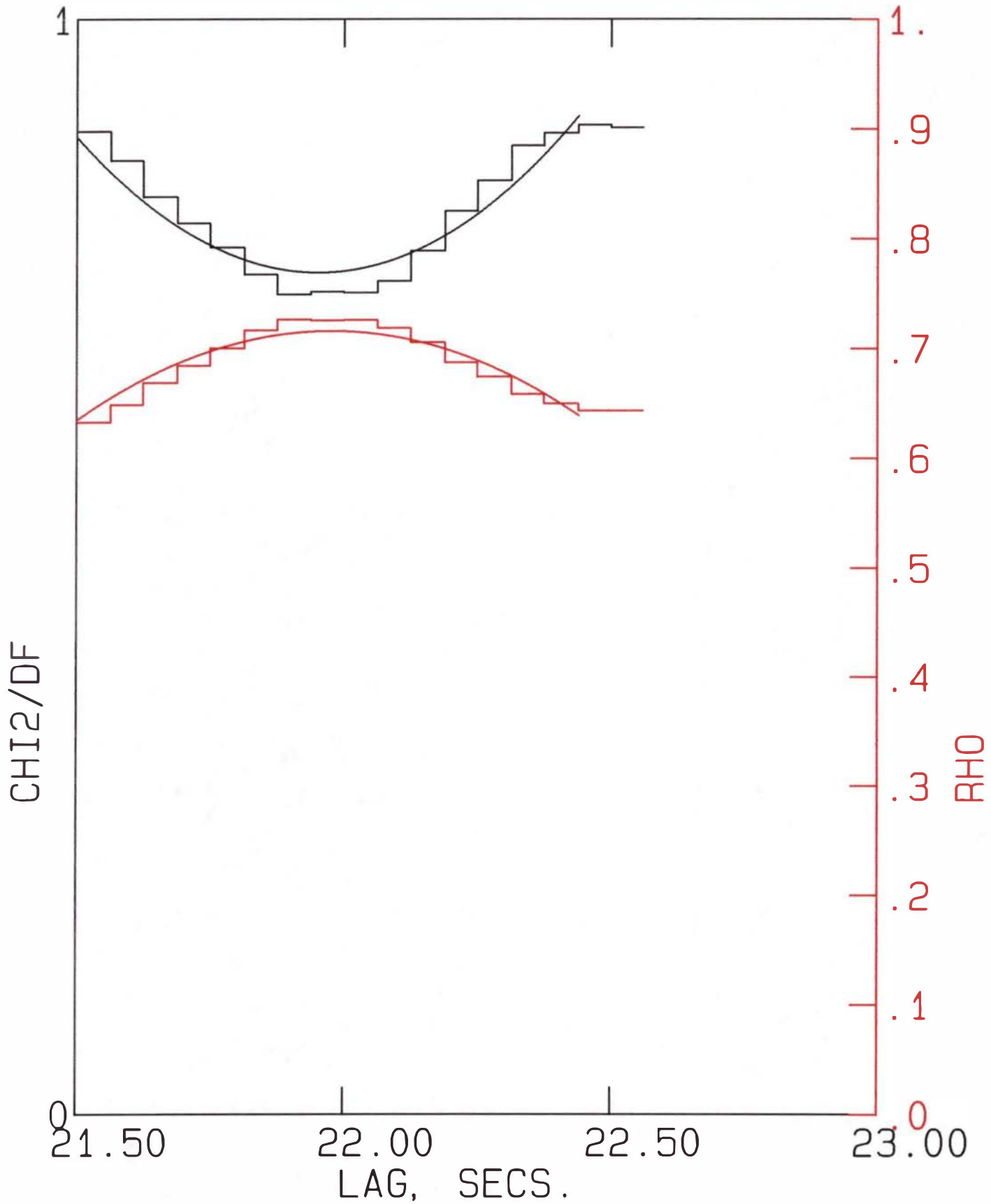
EVENT OF APR 11, 1997 9:44

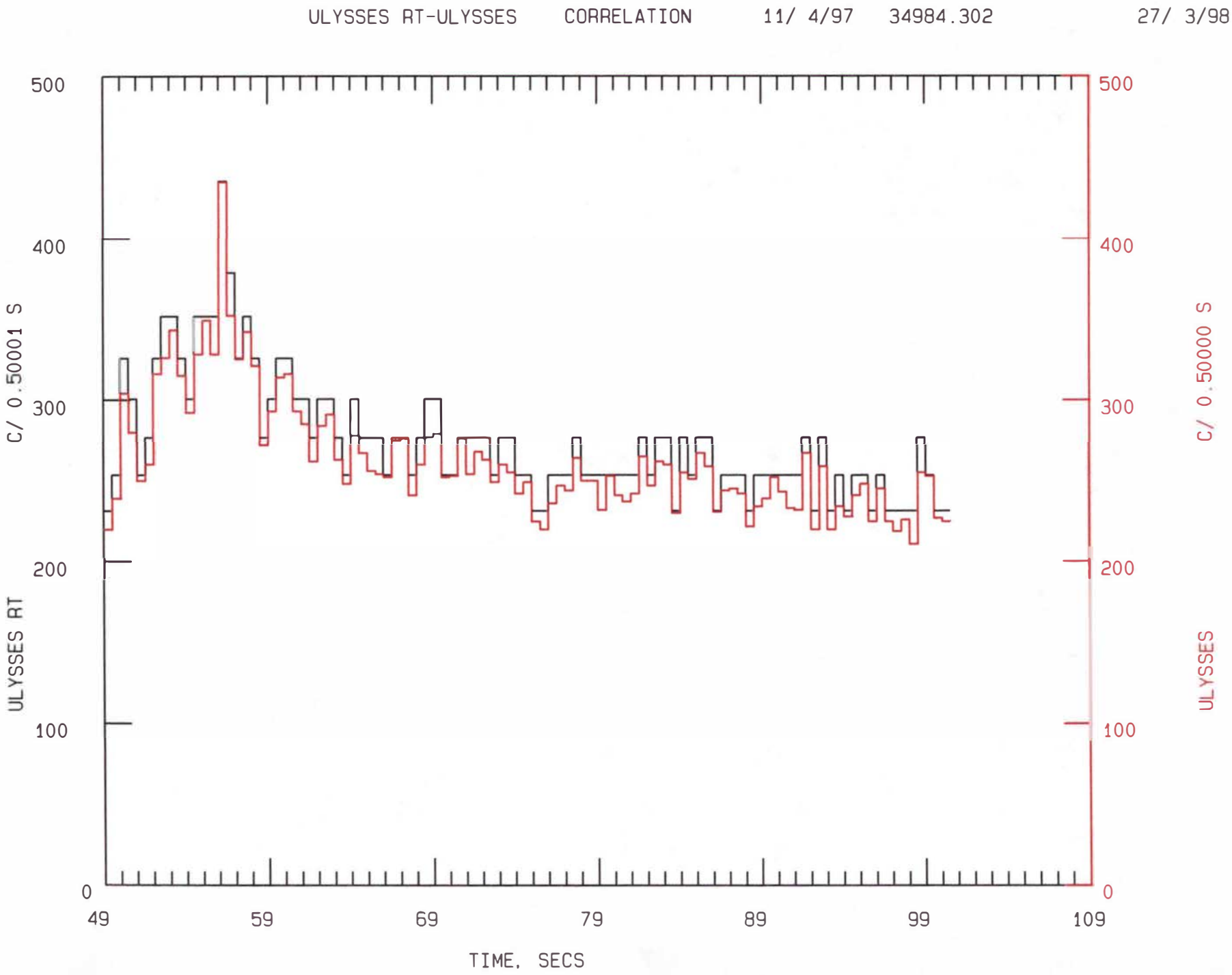
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE




ULYSSES -BATSE CORRELATION 11/04/97 35040.409 27/ 3/98
80
60
40
20
0
C/ 0.12500 S
ULYSSES
4000
3000
2000
1000
0
C/ 0.12500 S
BATSE
5
10
15
20
25
30
35
TIME, SECS

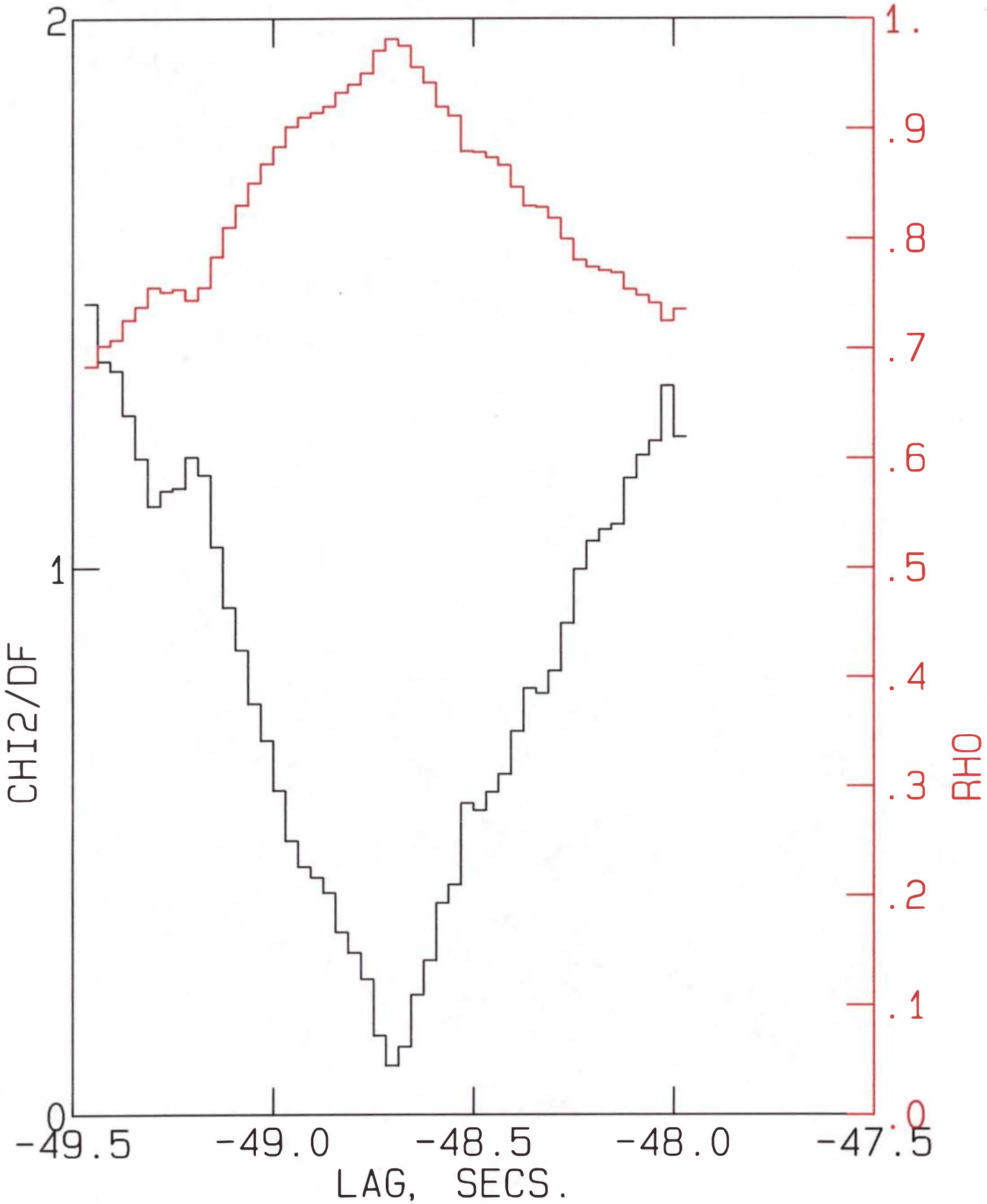
ULYSSES -BATSE CORRELATION 11/04/97 35040.409




ULYSSES RT-ULYSSES CORRELATION 11/ 4/97 34984.302 27/ 3/98
500
400
300
200
100
0
C/ 0.50001 S
ULYSSES RT
49
59
69
79
89
99
109
TIME, SECS
C/ 0.50000 S
ULYSSES

27/ 3/98

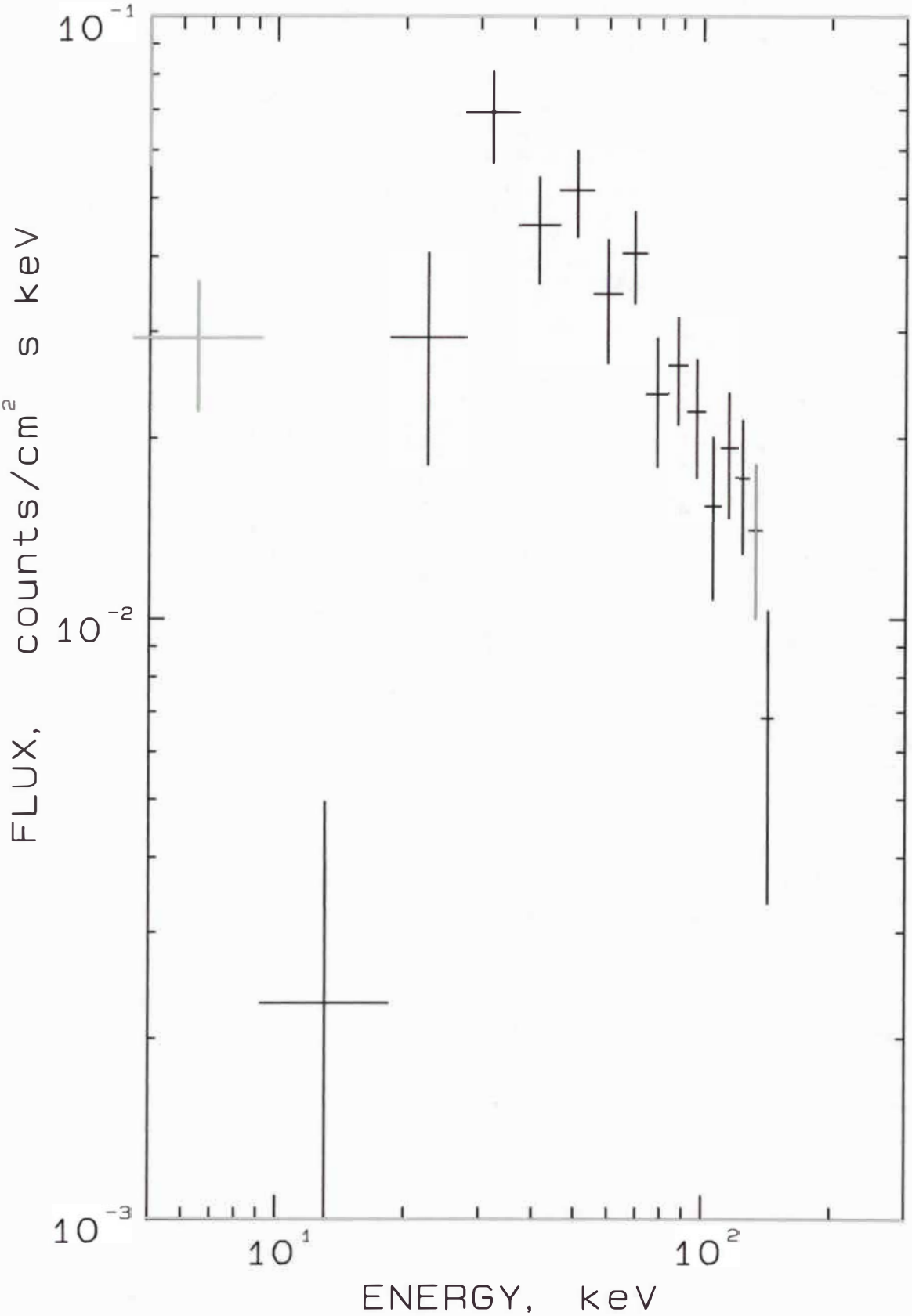
ULYSSES RT-ULYSSES CORRELATION 11/ 4/97 34984.302

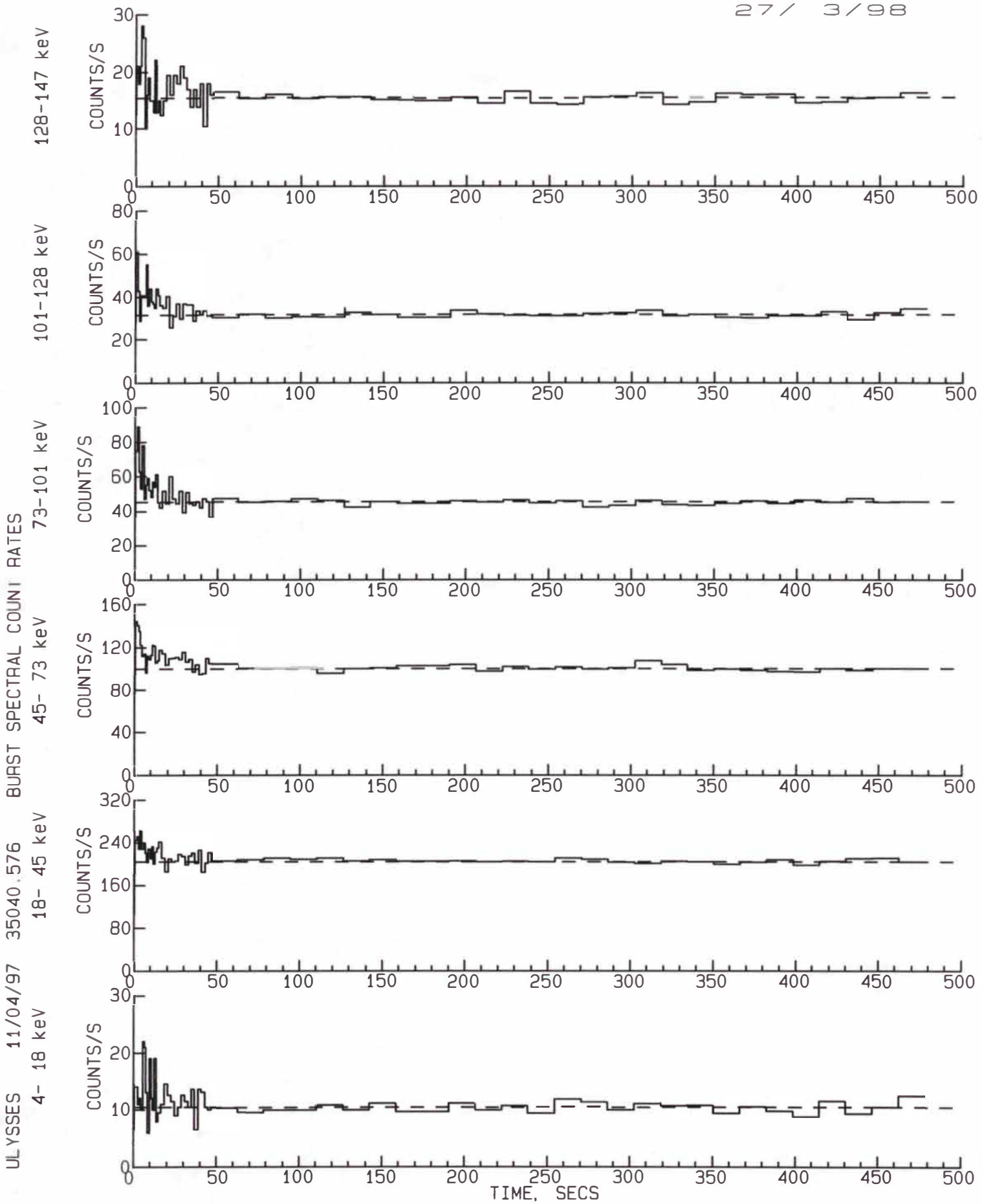


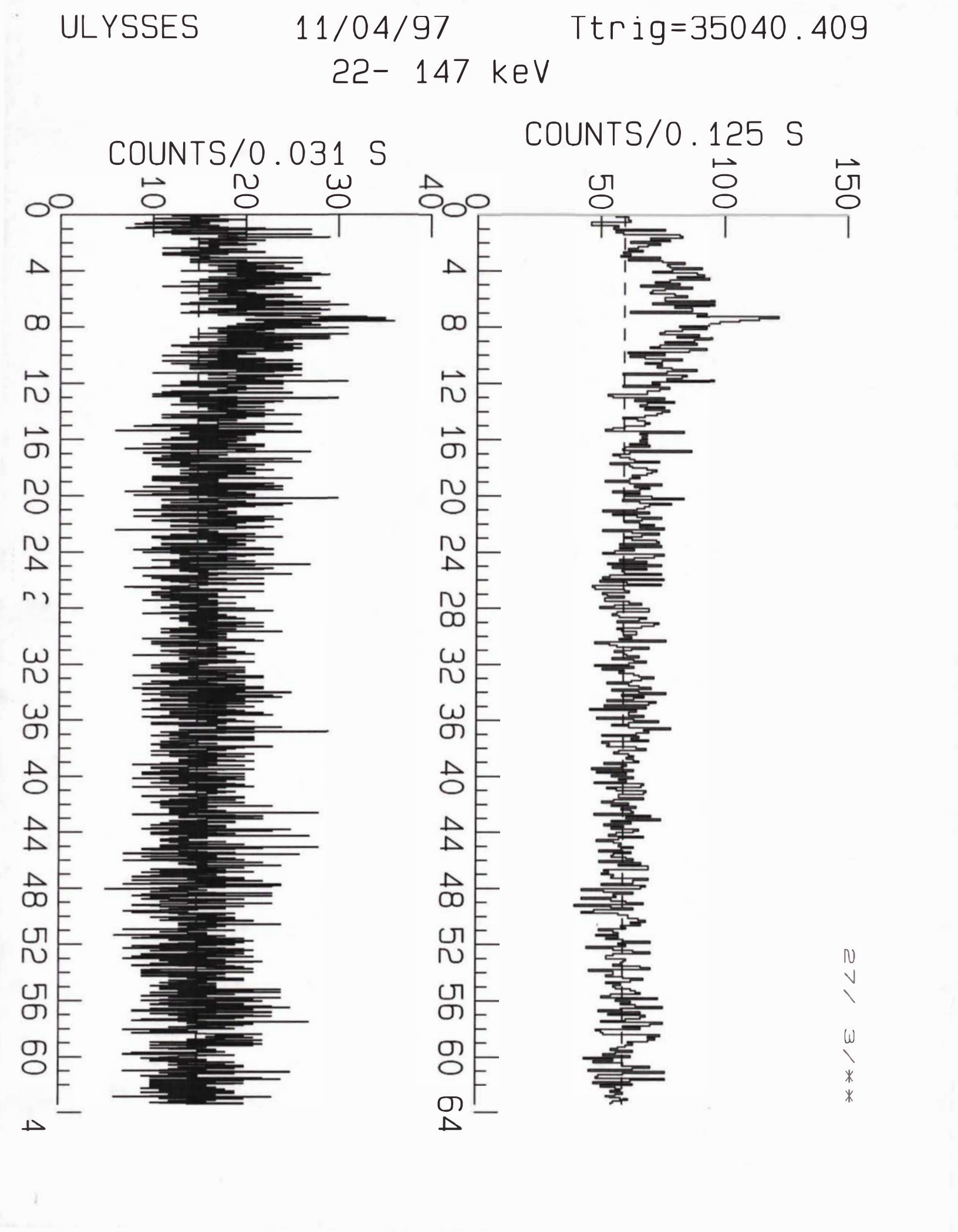
ULYSSES 11/04/97 35040.576

27/ 3/98

SPECTRUM INTEGRATED OVER 30.4 SECONDS, INTERVALS 2 TO 25




27/ 3/98
ULYSSES 11/04/97 35040.576 BURST SPECTRAL COUNT RATES
128-147 keV
101-128 keV
73-101 keV
45- 73 keV
18- 45 keV
4- 18 keV
COUNTS/S
TIME, SECS

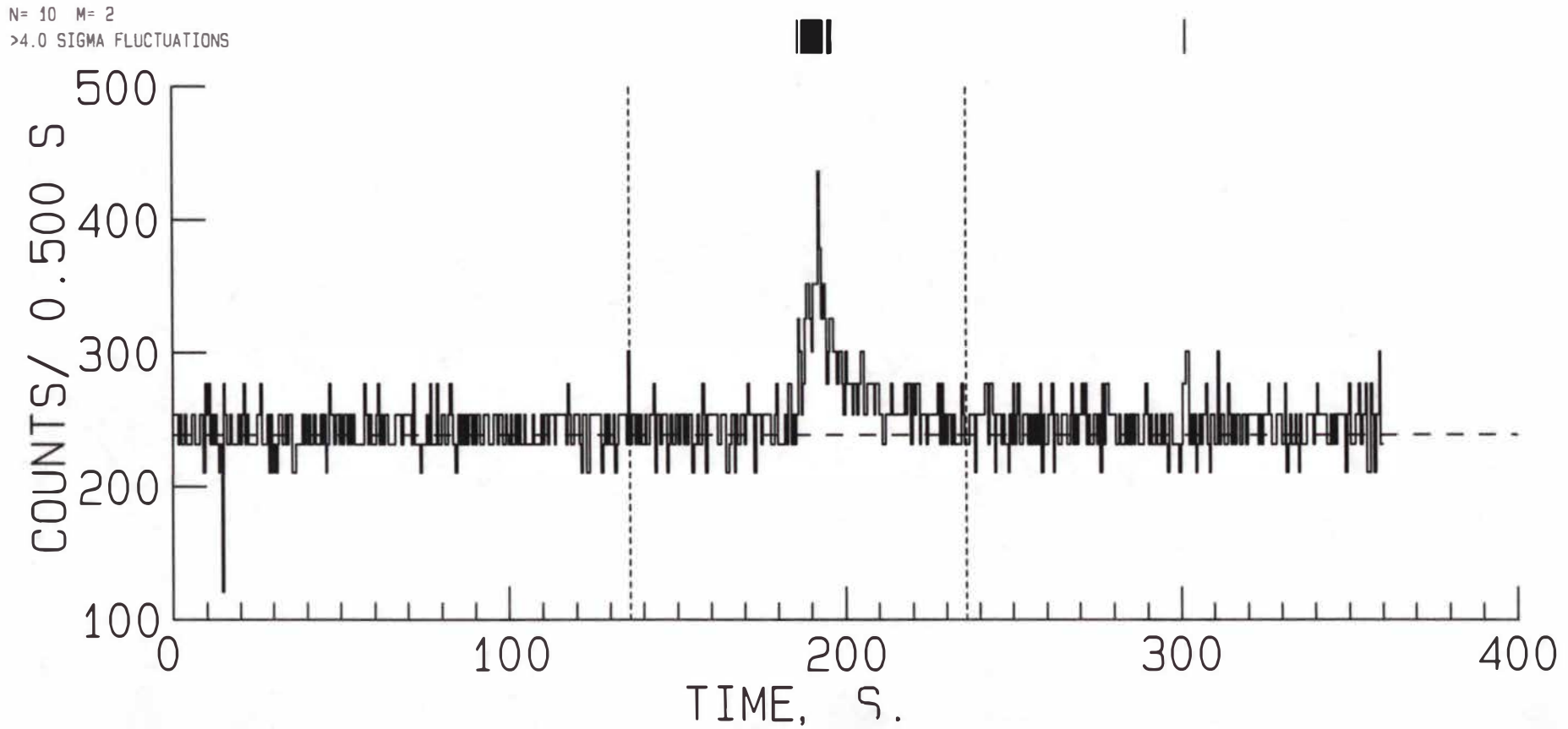

ULYSSES 11/04/97 Ttrig=35040.409
22- 147 keV
COUNTS/0.031 S
COUNTS/0.125 S
0 10 20 30 40
0 50 100 150
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64
27/ 3/**

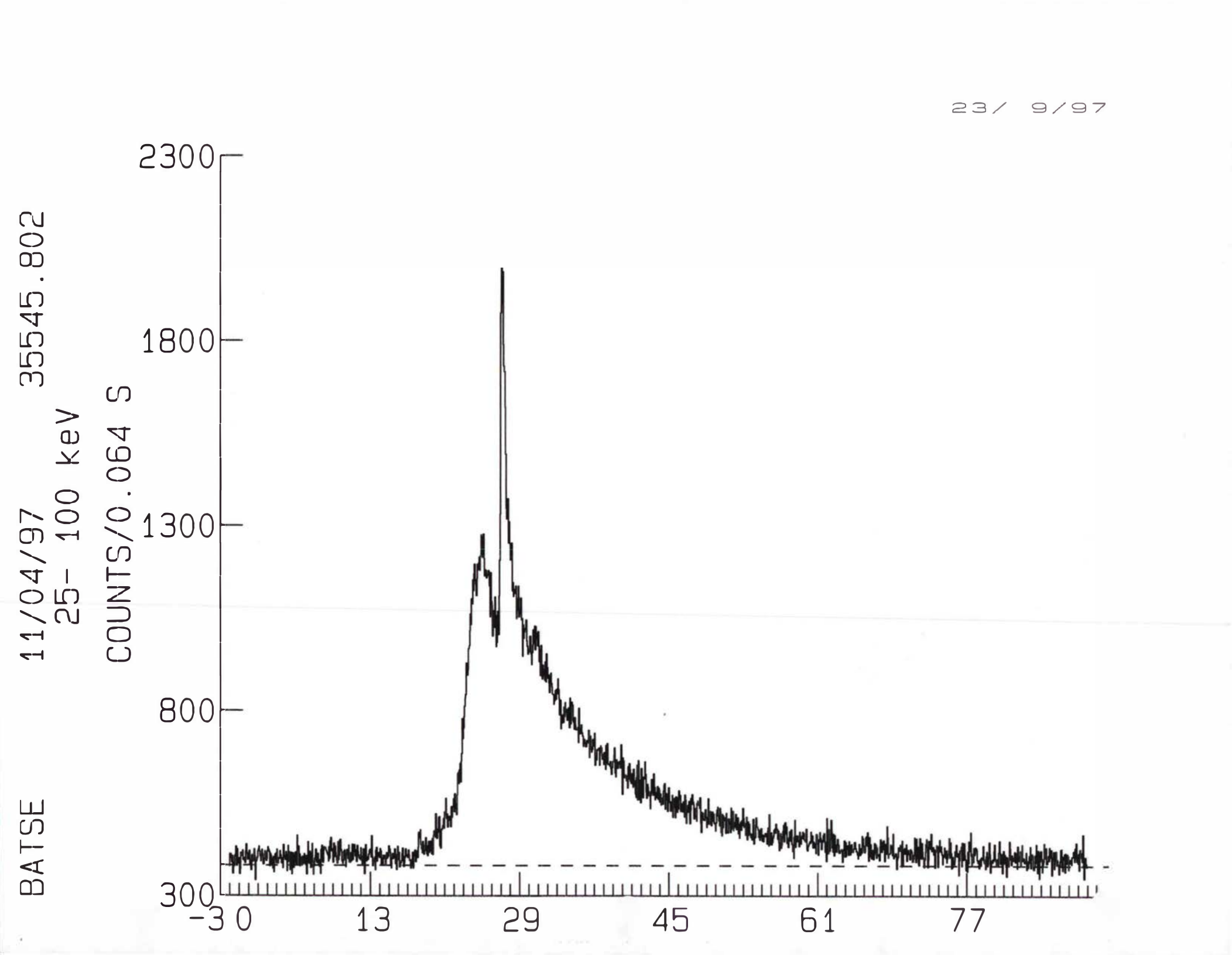
ULYSSES RT

27/ 3/98

11/ 4/97 34848.475 s

22- 147 keV




23/ 9/97
BATSE
11/04/97
25- 100 keV
COUNTS/0.064 S
35545.802
2300
1800
1300
800
300
-30
0
13
29
45
61
77

DISCSC Data for K. Hurley, No. 6168
RATE (counts/sec)
SECONDS since trigger
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
-10
0
10
20
30
40
50
60
70
80
90

From WOODSP@SSLLES.MSFC.NASA.GOV Mon Apr 14 13:04 PDT 1997
Date: Mon, 14 Apr 1997 15:03:44 -0500 (CDT)
From: WOODSP@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6169

TIME: TJD=0549 SECONDS=42280

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From WOODSP@SSLLES.MSFC.NASA.GOV Mon Apr 14 13:05 PDT 1997
Date: Mon, 14 Apr 1997 15:05:18 -0500 (CDT)
From: WOODSP@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6170

TIME: TJD=0549 SECONDS=47915

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From WOODSP@ssl.msfc.nasa.gov Mon Apr 14 13:06 PDT 1997
From: WOODSP@ssl.msfc.nasa.gov
Date: Mon, 14 Apr 1997 15:06:10 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6171

TIME: TJD=0549 SECONDS=64377

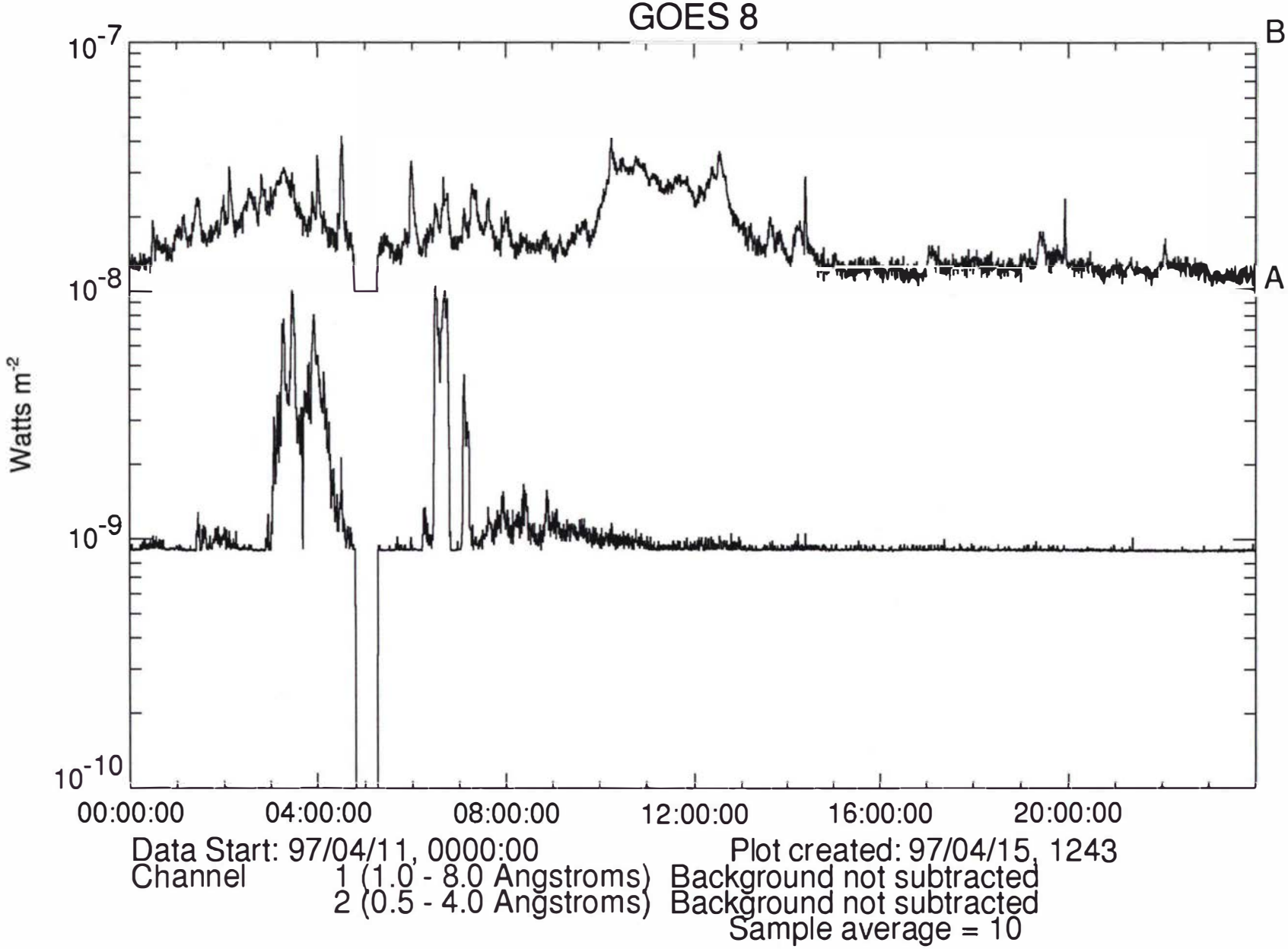
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

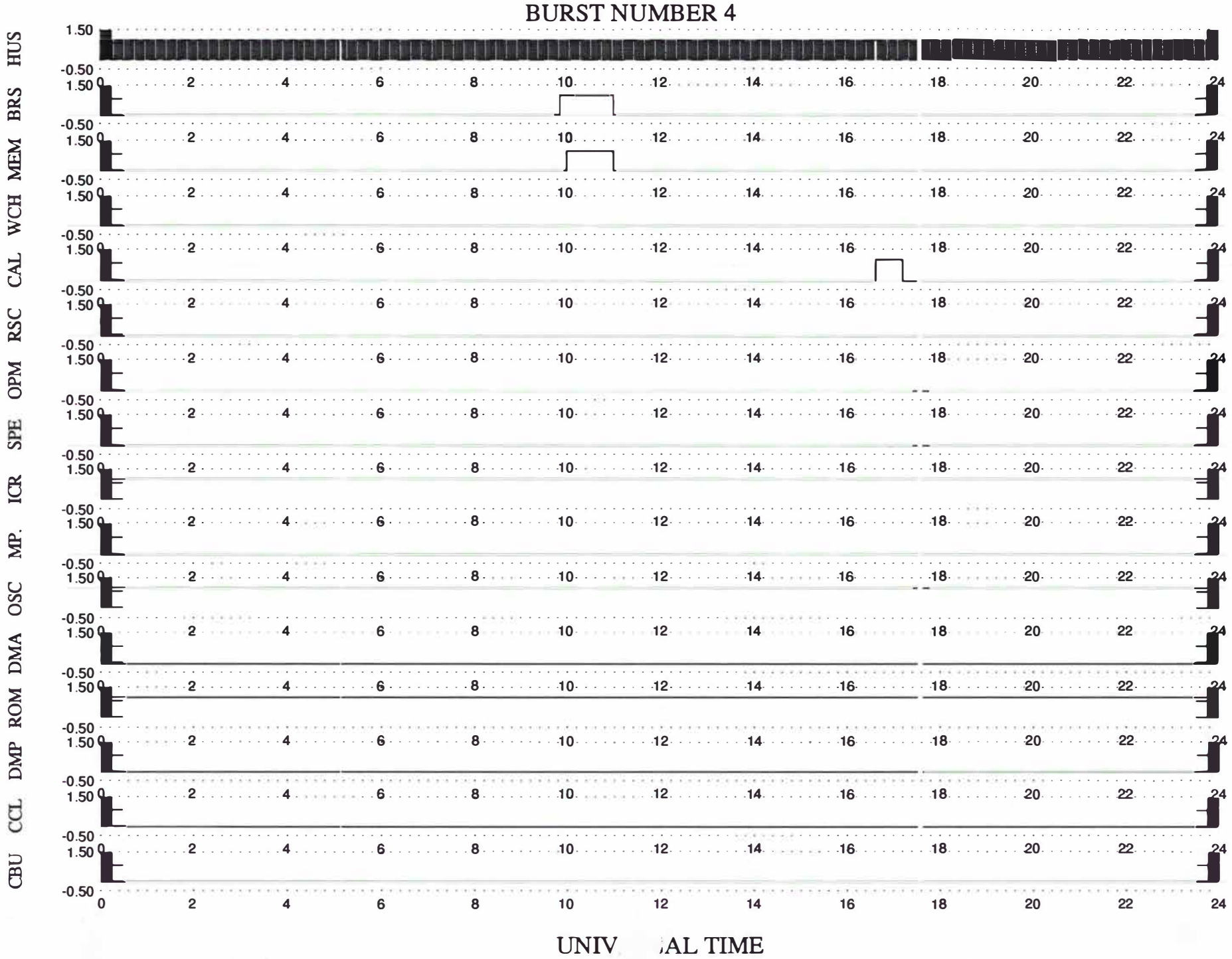
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

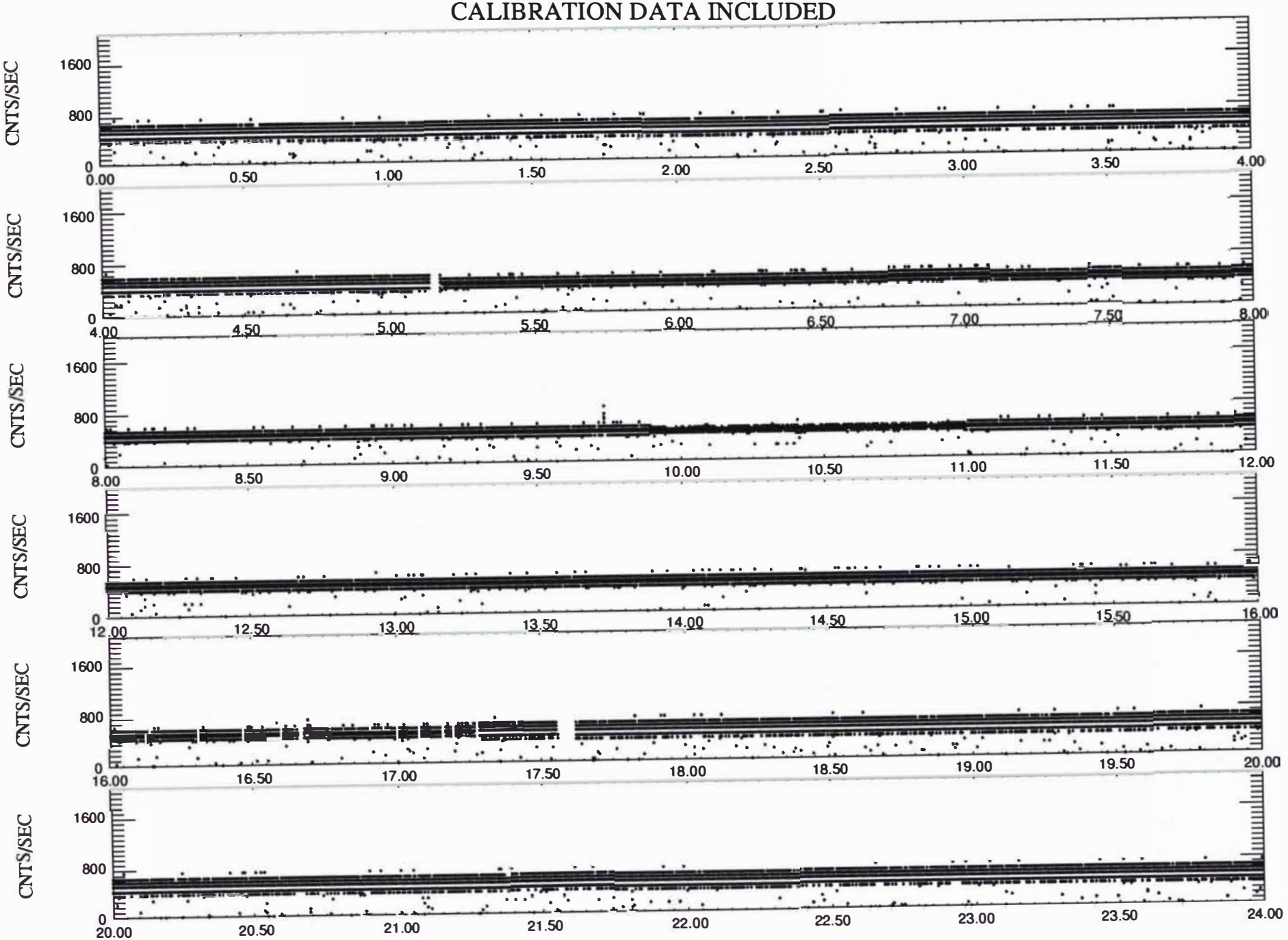

GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/11, 0000:00
Plot created: 97/04/15, 1243
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 101, year 1997 to day 101, year 1997 7/22/97



HUS 2A, MODE 1, NOT AVERAGED EDR day 101, year 1997 to day 101, year 1997 7/22/97

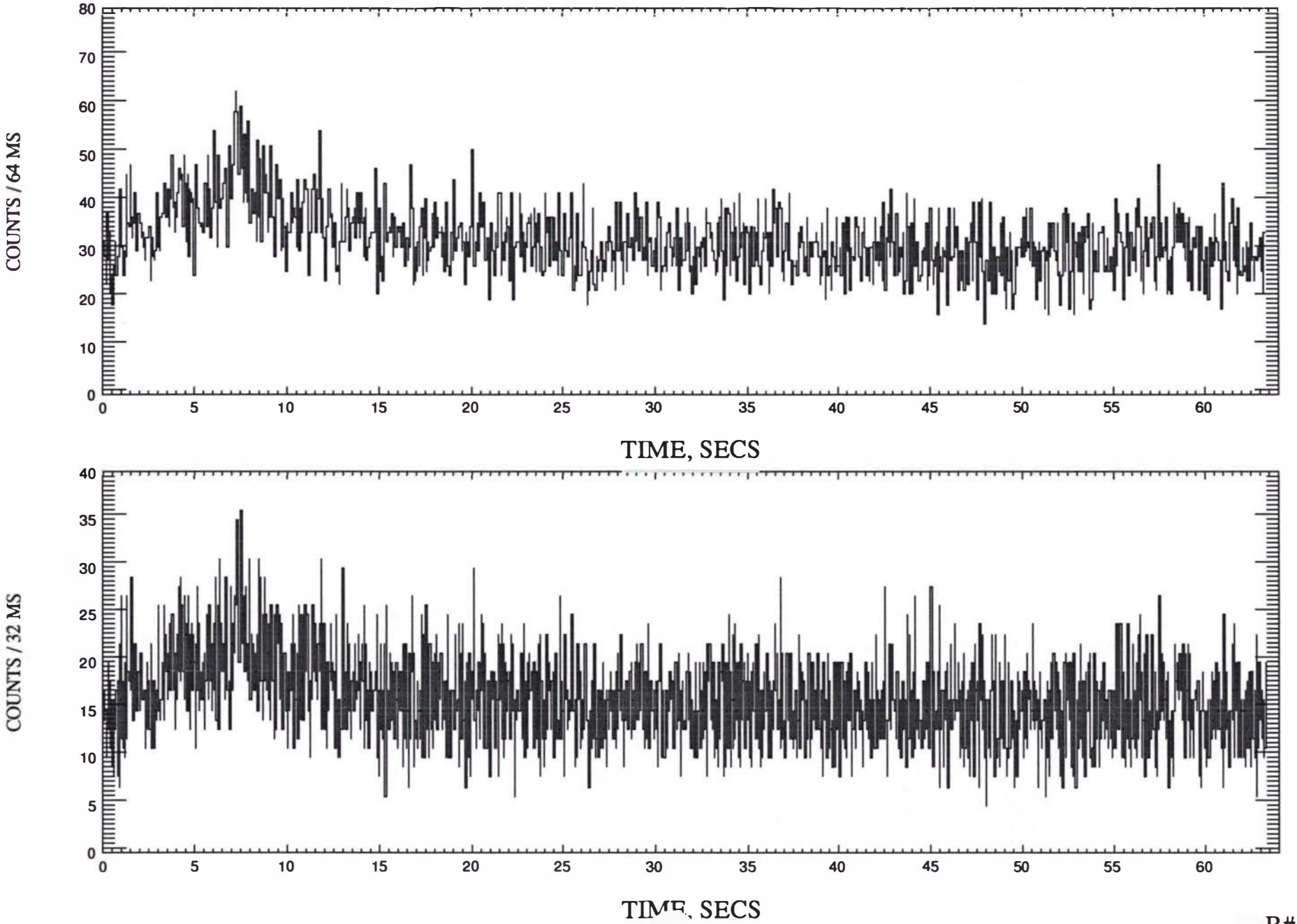
CALIBRATION DATA INCLUDED



UNIV AL TIME

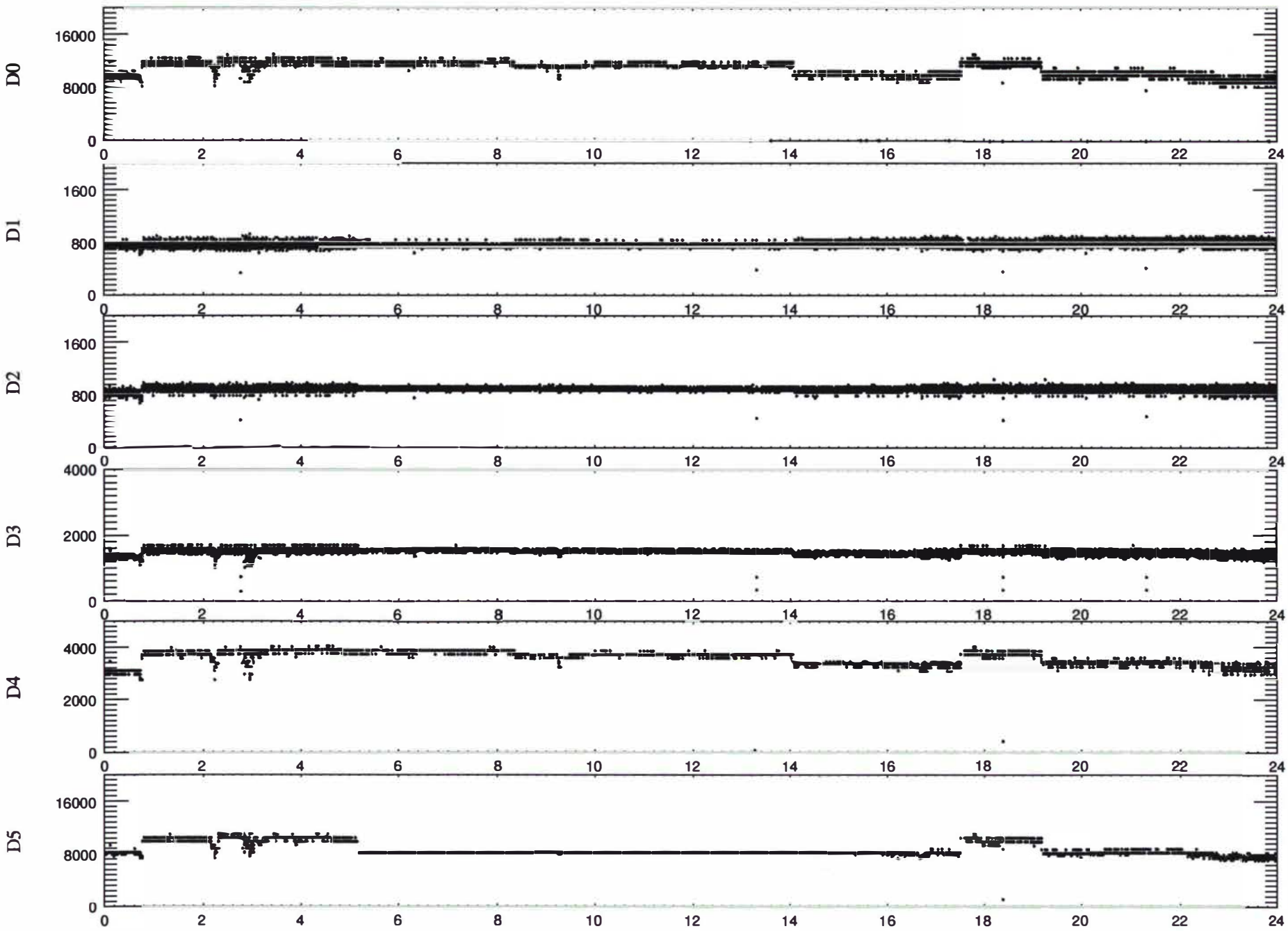
HUS 2A TRIGGERED DATA EDR day 101, year 1997 7/22/97

Burst Counter 4 at UT= 9.733493220011 h=35040.576 s 09:44:00.576



B# 1

HUS 2B COUNTS / SEC EDR day 101, year 1997 to day 101, year 1997 7/22/97



From HENZE@fender.msfc.nasa.gov Mon Apr 14 11:07 PDT 1997
Date: Mon, 14 Apr 1997 13:06:46 -0500 (CDT)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6172

TIME: TJD=0550 SECONDS=40258

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT

From HENZE@fender.msfc.nasa.gov Mon Apr 14 11:08 PDT 1997
Date: Mon, 14 Apr 1997 13:08:20 -0500 (CDT)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6173

TIME: TJD=0550 SECONDS=45904

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT

From khurley@sunspot Fri Sep 26 08:05 PDT 1997
Date: Fri, 26 Sep 1997 08:06:31 -0700
From: khurley@sunspot (Kevin Hurley)
To: dasmith@space.mit.edu
ject: Ulysses responses to XTE events
. khurley@sunspot

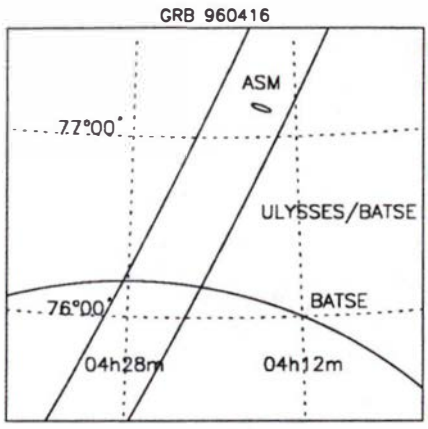
Dear Don,

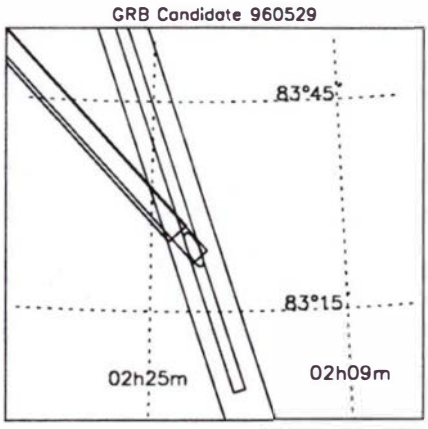
Well, that changes things a bit! Here are the replies.

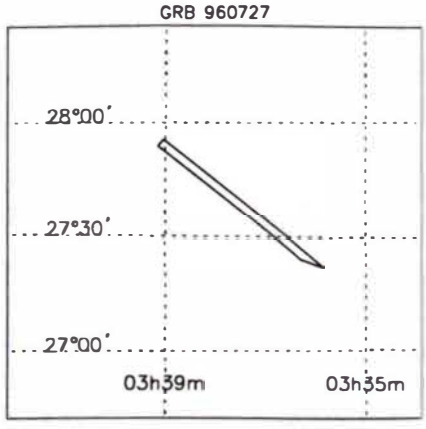
Kevin

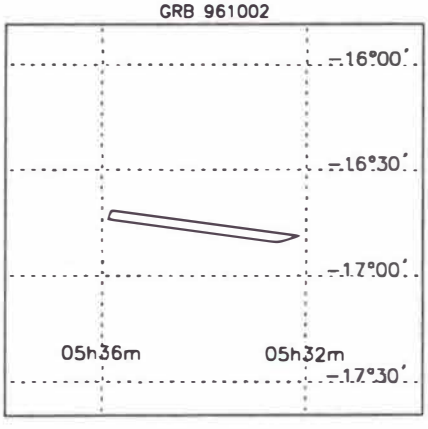
> From dasmith@space.mit.edu Thu Sep 25 08:43 PDT 1997
> From: "Don A. Smith" <dasmith@space.mit.edu>
> Subject: Re: PS
> To: khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
> Date: Thu, 25 Sep 1997 11:43:26 -0400 (EDT)
> Mime-Version: 1.0
>
> > I forgot to ask: why are all the times in the 50000 second range?
> > Is there something to be suspicious about here?
>
> I think we have a misunderstanding here. I gave the times in MJD,
> not in seconds. Am I to understand that you took the decimal
> number (e.g. 50232.23211) as the seconds of the day in question?
> Here are the numbers in the format you want:
>
>							Ulysses response
>	96	05	29	20054	35.5	83.5 'XTE'	NO
>	96	04	08	68196	110.5	-03.8 'XTE'	NO
	07	30	02545	100.8	-19.5	'XTE'	NO
>	96	10	02	75222	83.3	-16.8 'XTE'	RATE INCREASE
>	97	04	12	24132	283.8	-31.8 'XTE'	NO
>	96	10	29	68696	97.5	-41.7 'XTE'	NO
>	97	02	24	26044	179.8	-58.7 'XTE'	NO
>	96	12	30	07472	309.0	-69.0 'XTE'	RATE INCREASE

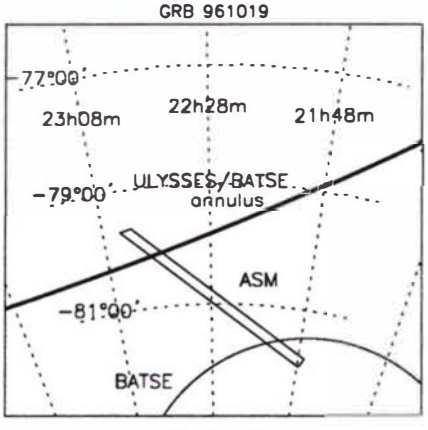
> That ought to be better,
> --
> Don Smith The Rossi X-Ray Timing Explorer
> dasmith@space.mit.edu http://www.mit.edu/~dasmith/
>
> "There are love dogs no one knows the names of
> Give your life to be one of them."
> - Rumi (13th Century Persian Sufi Mystic Poet)
>

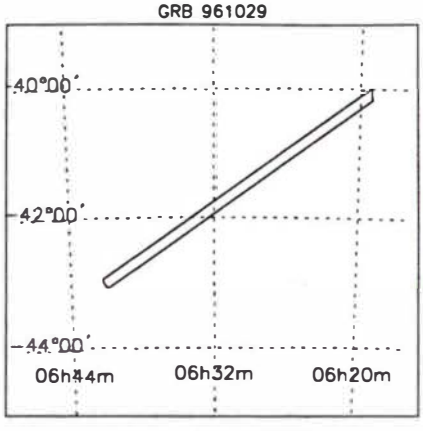

GRB 960416
ASM
77°00'
ULYSSES/BATSE
BATSE
76°00'
04h28m
04h12m

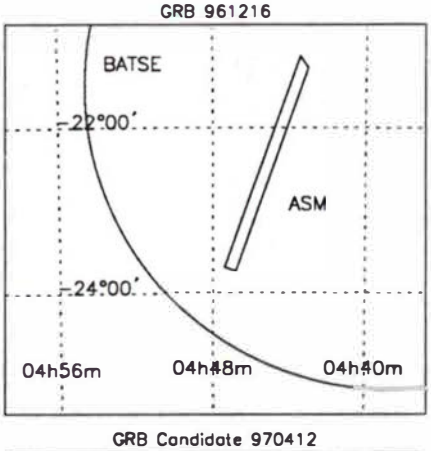

GRB Candidate 960529
83°45'
83°15'
02h25m
02h09m

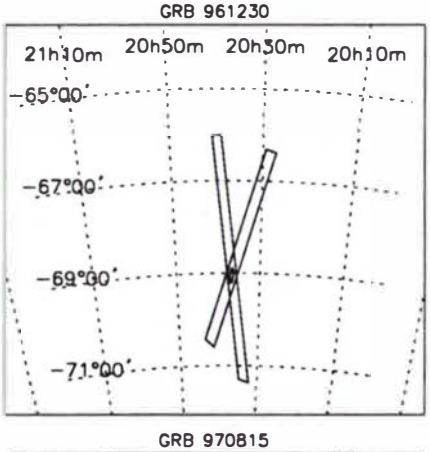

GRB 960727
28°00'
27°30'
27°00'
03h39m
03h35m

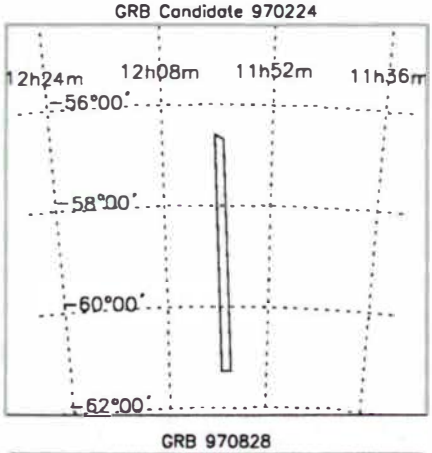

GRB 961002
-16°00'
-16°30'
-17°00'
-17°30'
05h36m
05h32m

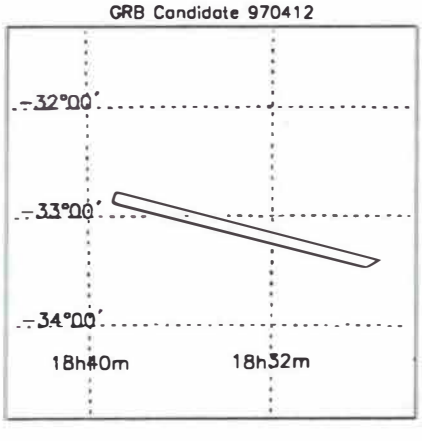

GRB 961019
77°00'
23h08m
22h28m
21h48m
-79°00'
ULYSSES/BATSE
annulus
ASM
-81°00'
BATSE

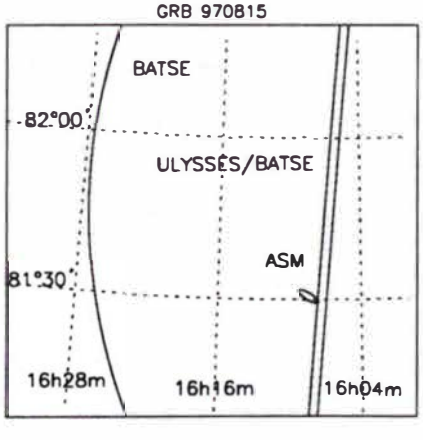

GRB 961029
40°00'
42°00'
44°00'
06h44m
06h32m
06h20m

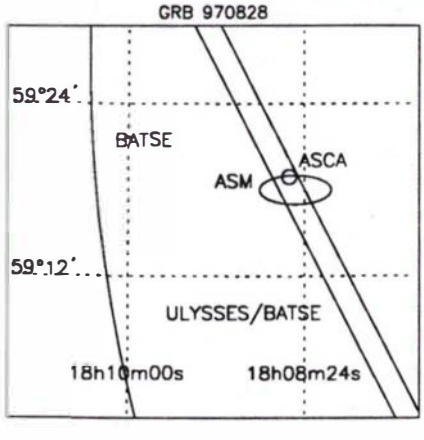

GRB 961216
BATSE
-22°00'
ASM
-24°00'
04h56m
04h48m
04h40m


GRB 961230
21h10m
20h50m
20h30m
20h10m
-65°00'
-67°00'
-69°00'
-71°00'


GRB Candidate 970224
12h24m
12h08m
11h52m
11h36m
-56°00'
-58°00'
-60°00'
-62°00'


GRB Candidate 970412
-32°00'
-33°00'
-34°00'
18h40m
18h32m


GRB 970815
BATSE
-82°00'
ULYSSES/BATSE
ASM
81°30'
16h28m
16h16m
16h04m


GRB 970828
59°24'
BATSE
ASCA
ASM
59°12'
ULYSSES/BATSE
18h10m00s
18h08m24s

XTE

25/ 9/97

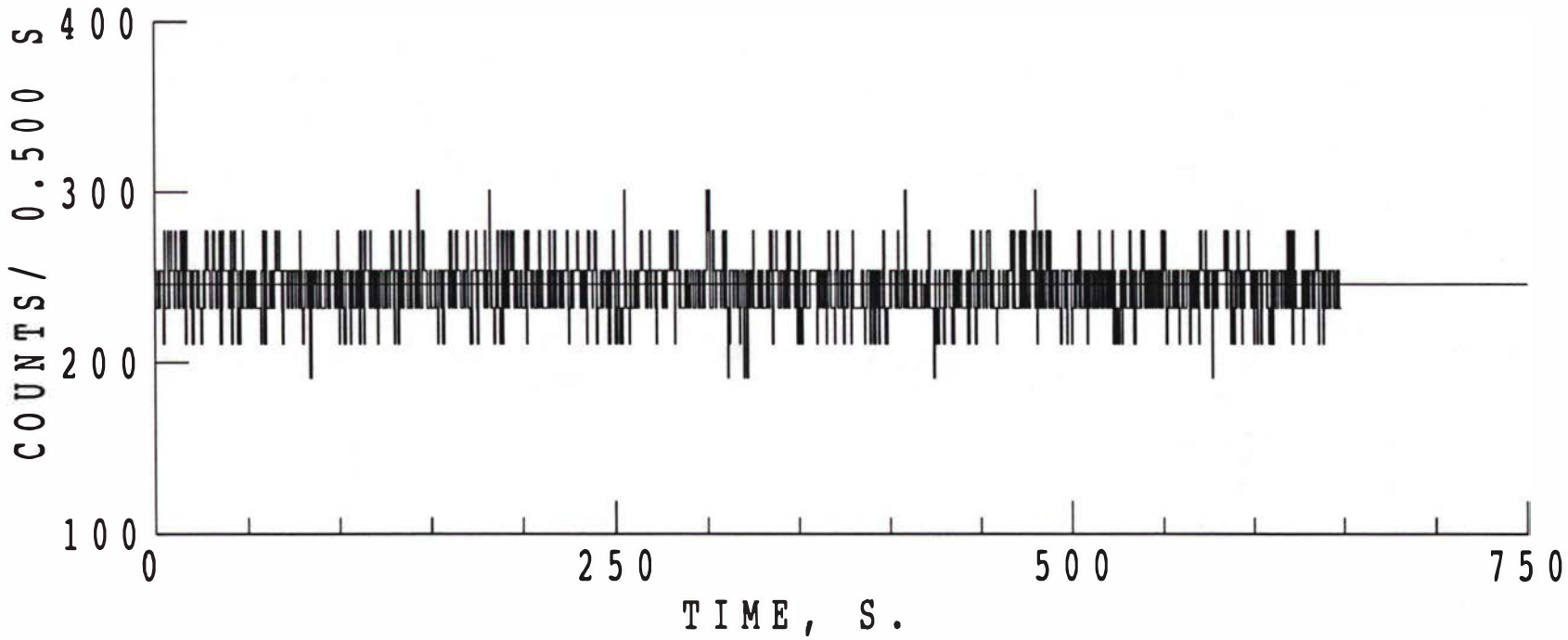
ULYSSES RT

12/ 4/97 25452.387 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HENZE@fender.msfc.nasa.gov Mon Apr 14 11:10 PDT 1997
Date: Mon, 14 Apr 1997 13:09:49 -0500 (CDT)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6174

TIME: TJD=0550 SECONDS=54461

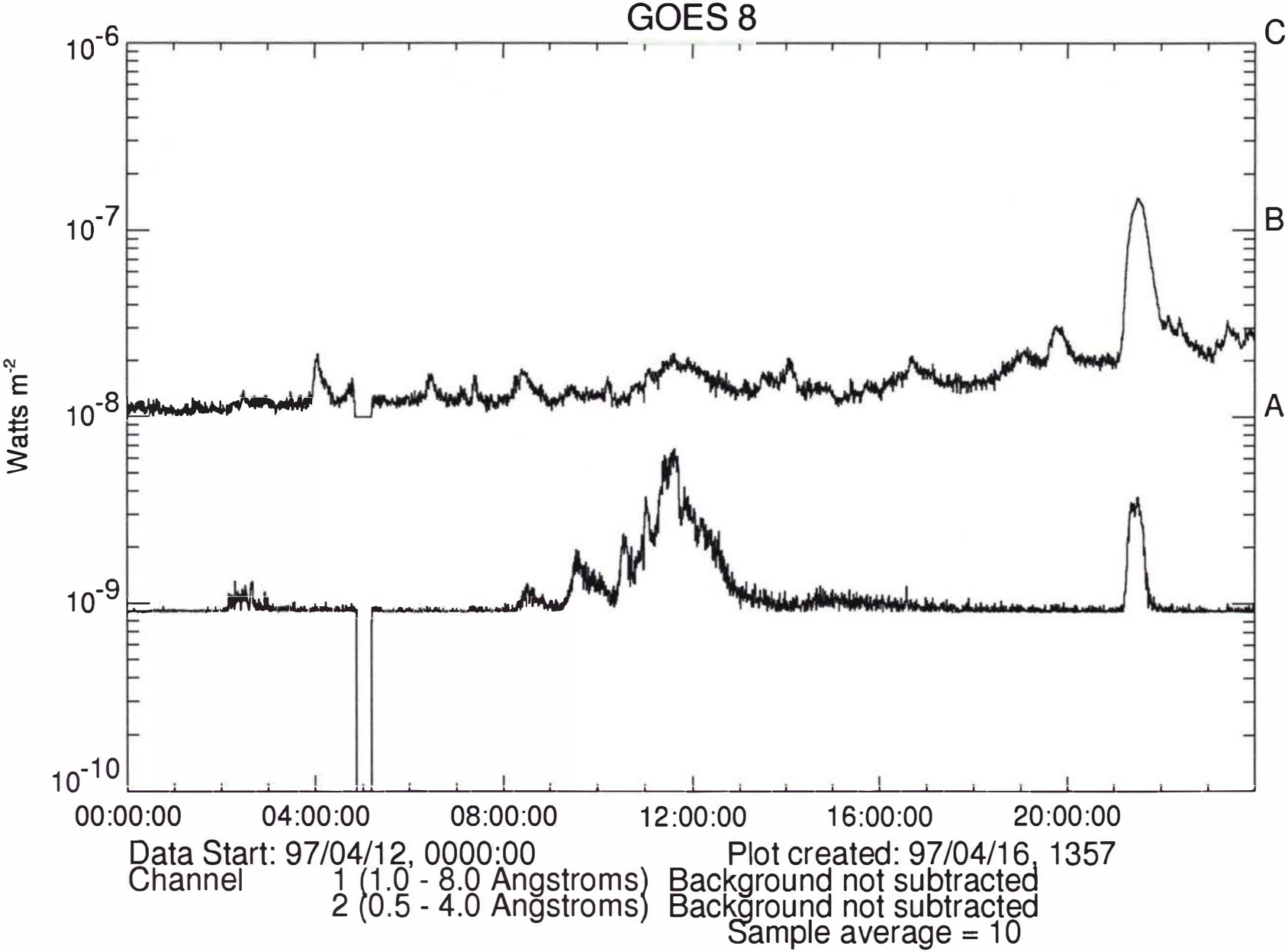
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

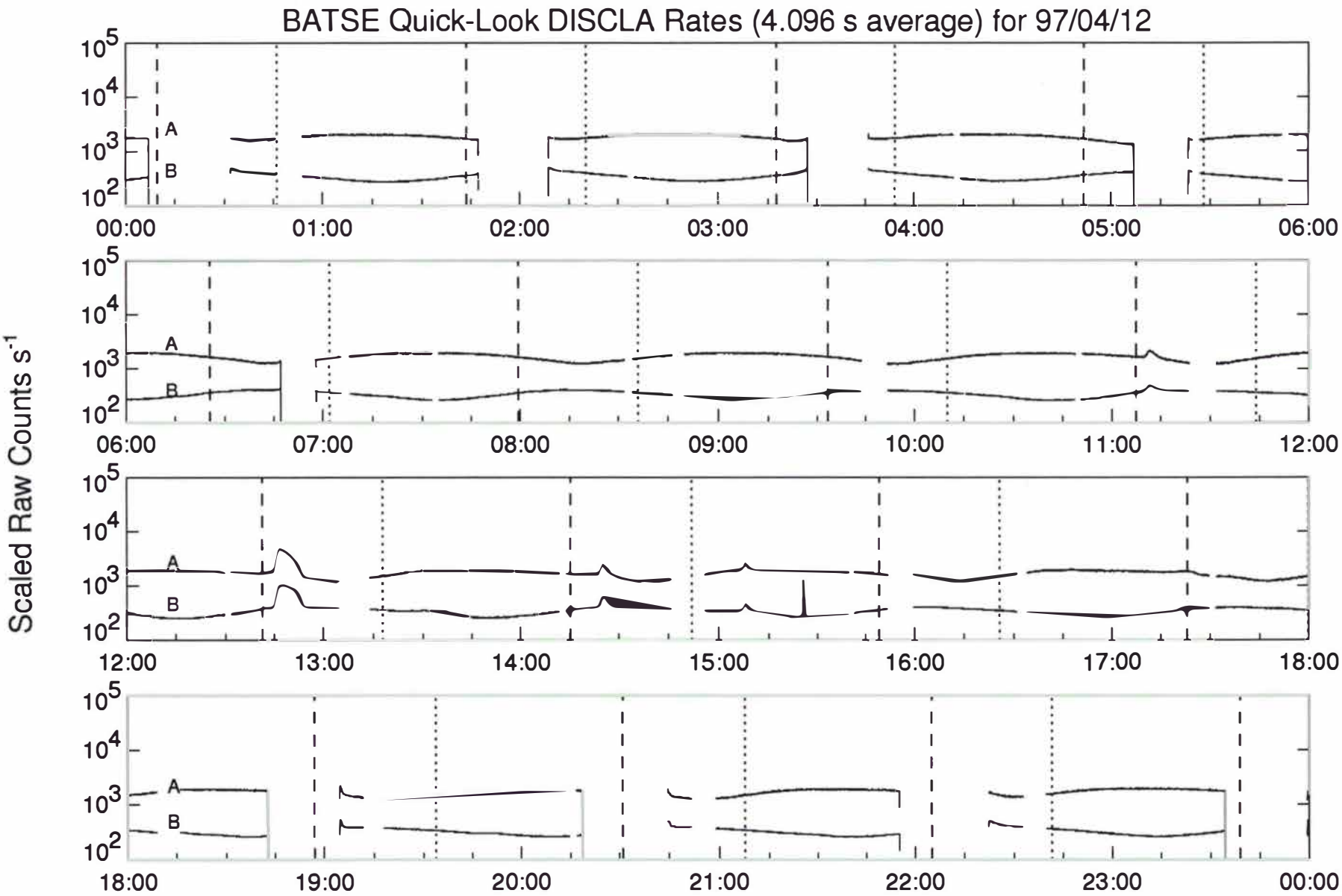
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

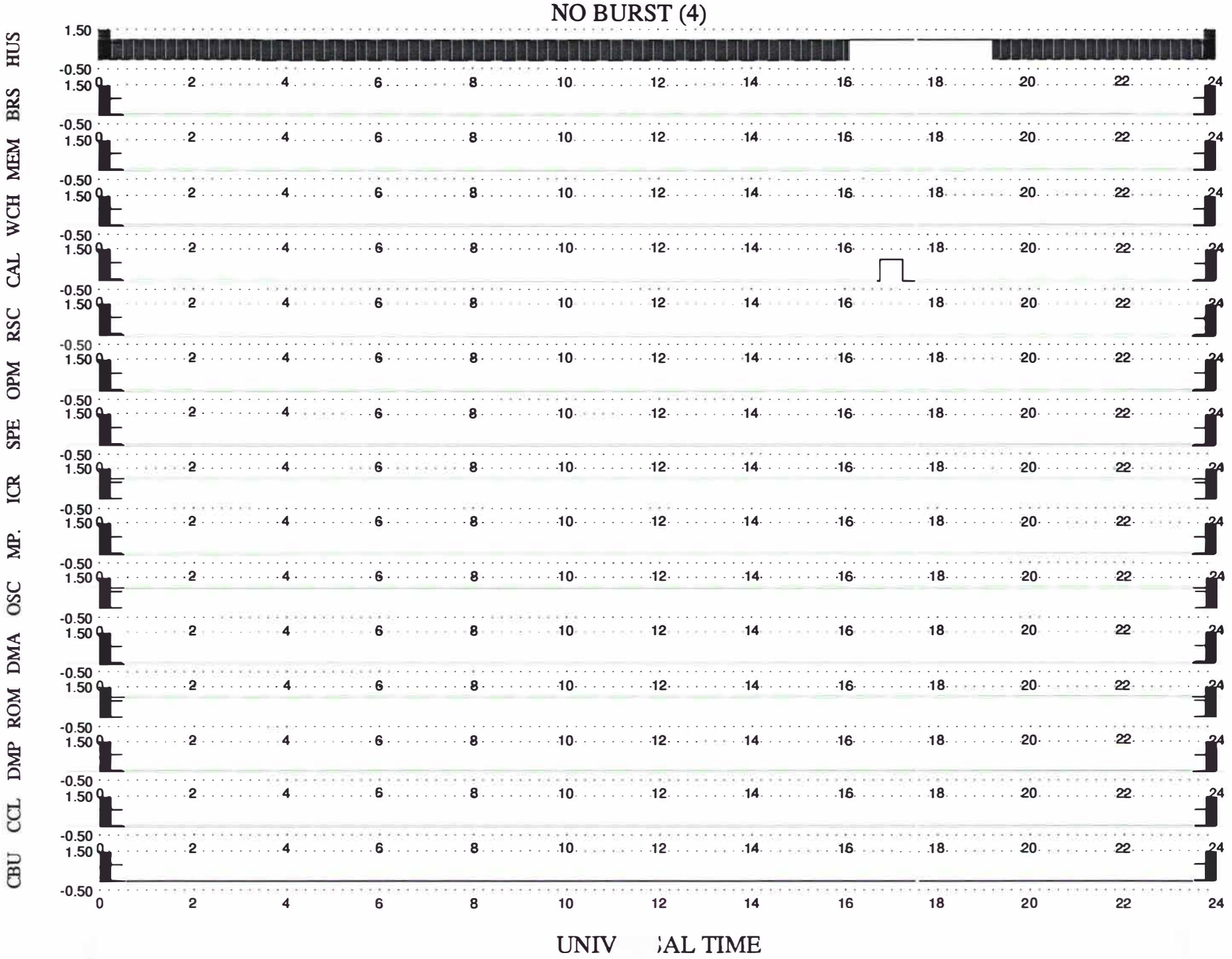
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT


GOES 8
C
B
A
Watts m-2
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/12, 0000:00
Plot created: 97/04/16, 1357
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

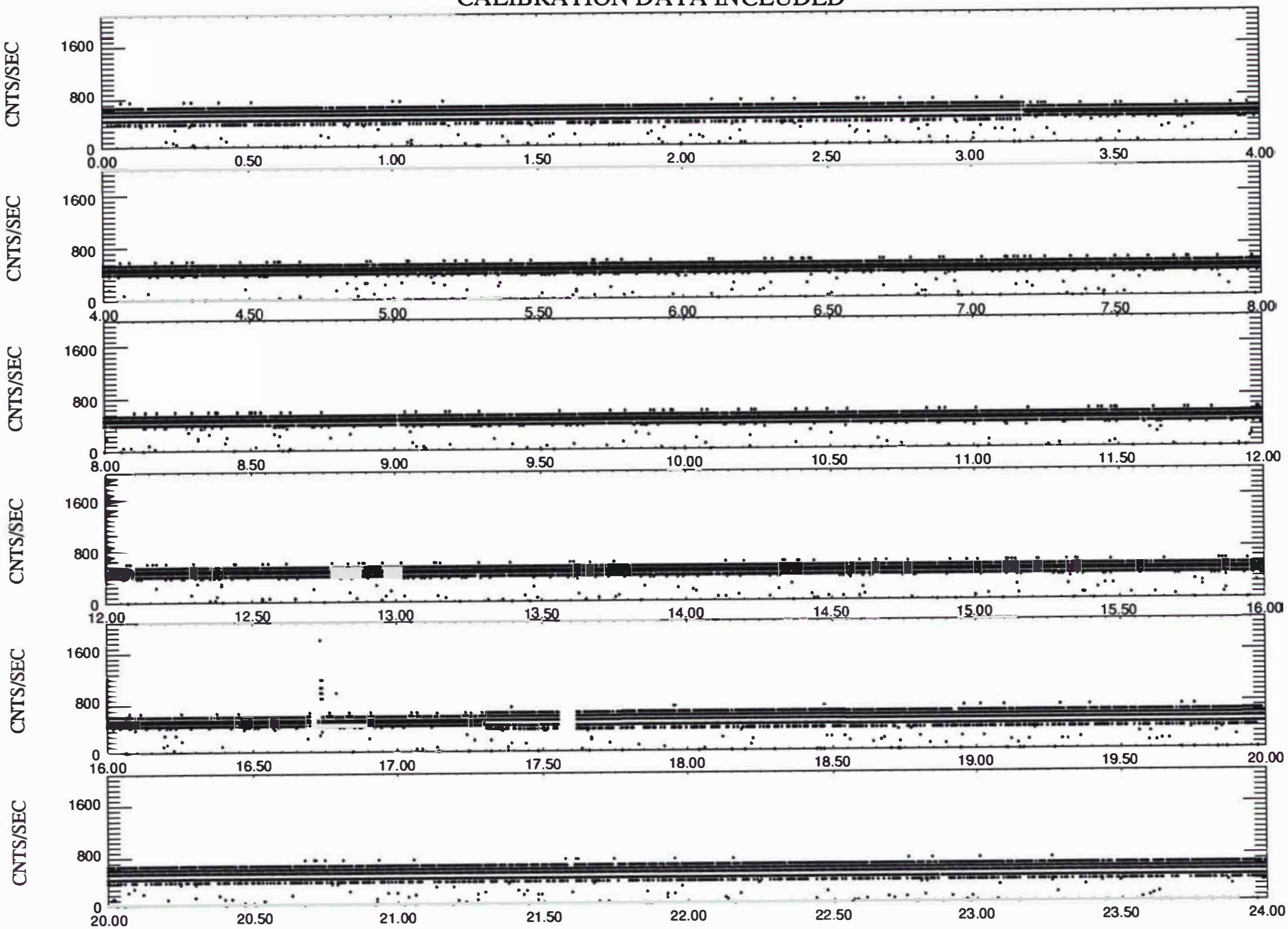

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/12
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Current Time: 97/04/16, 1358 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 102, year 1997 to day 102, year 1997 7/22/97



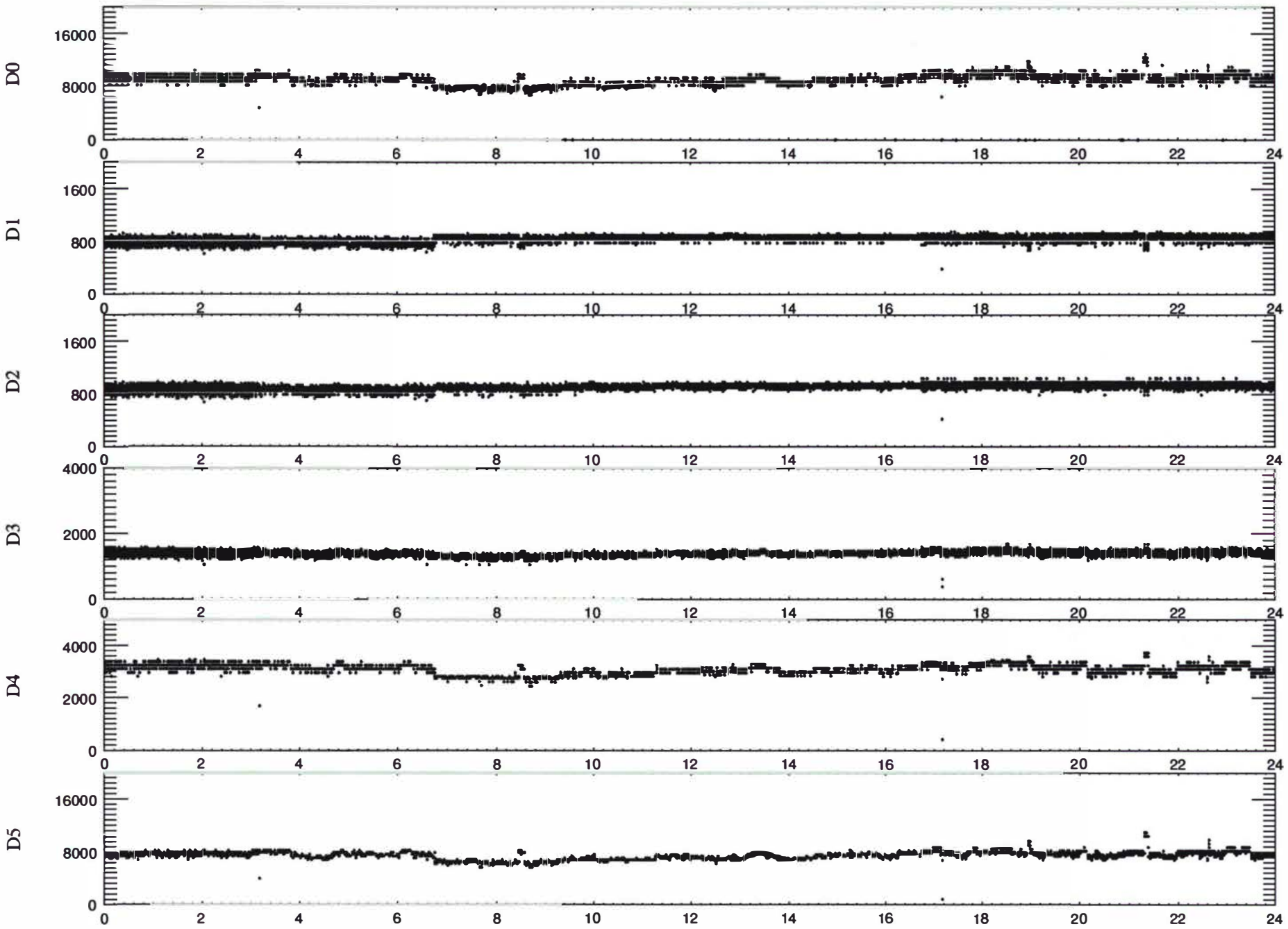
HUS 2A, MODE 1, NOT AVERAGED EDR day 102, year 1997 to day 102, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV 'AL TIME

HUS 2B COUNTS / SEC EDR day 102, year 1997 to day 102, year 1997 7/22/97



From HENZE@fender.msfc.nasa.gov Mon Apr 14 11:21 PDT 1997
Date: Mon, 14 Apr 1997 13:21:29 -0500 (CDT)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6175

TIME: TJD=0551 SECONDS=60705

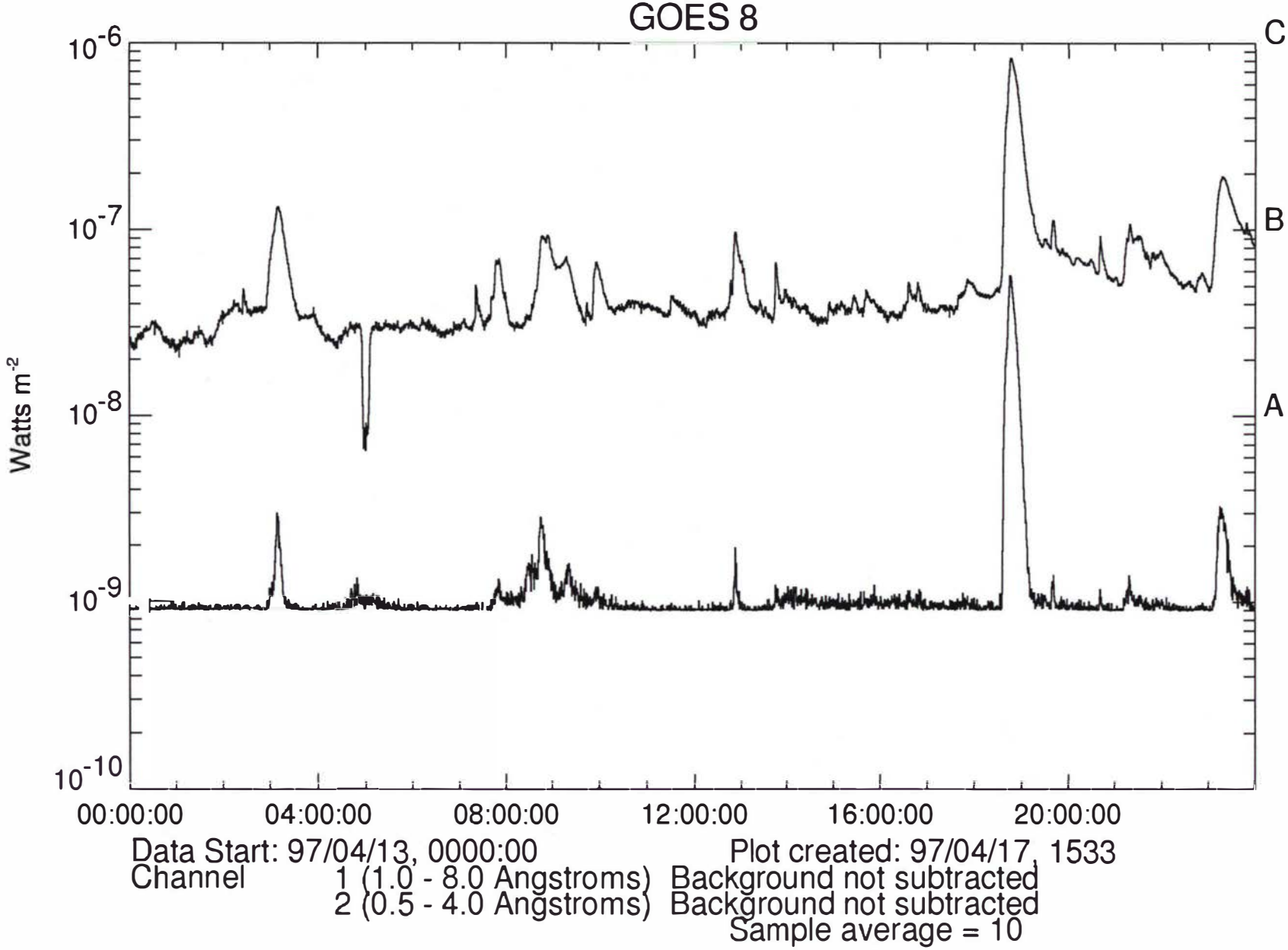
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

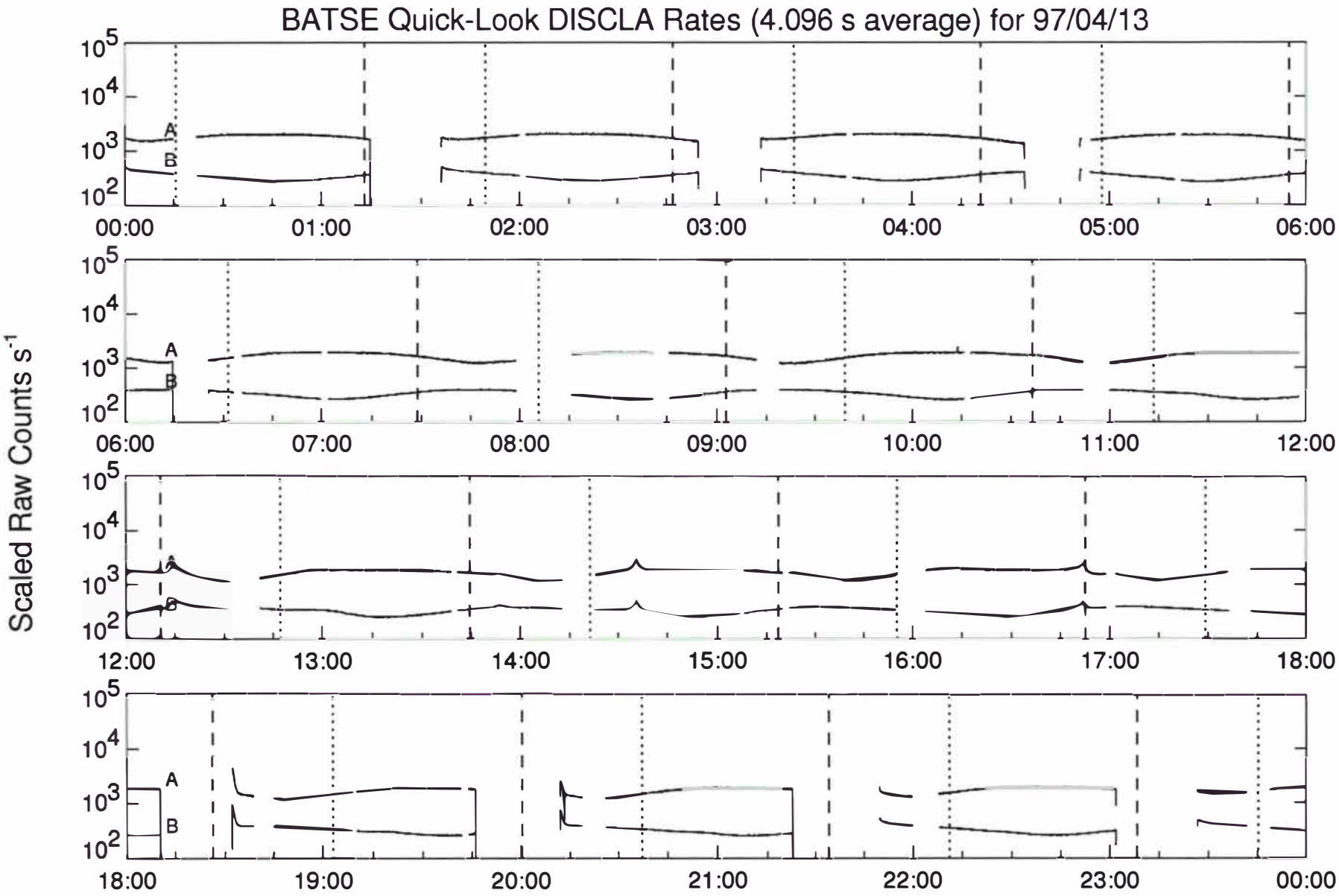
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

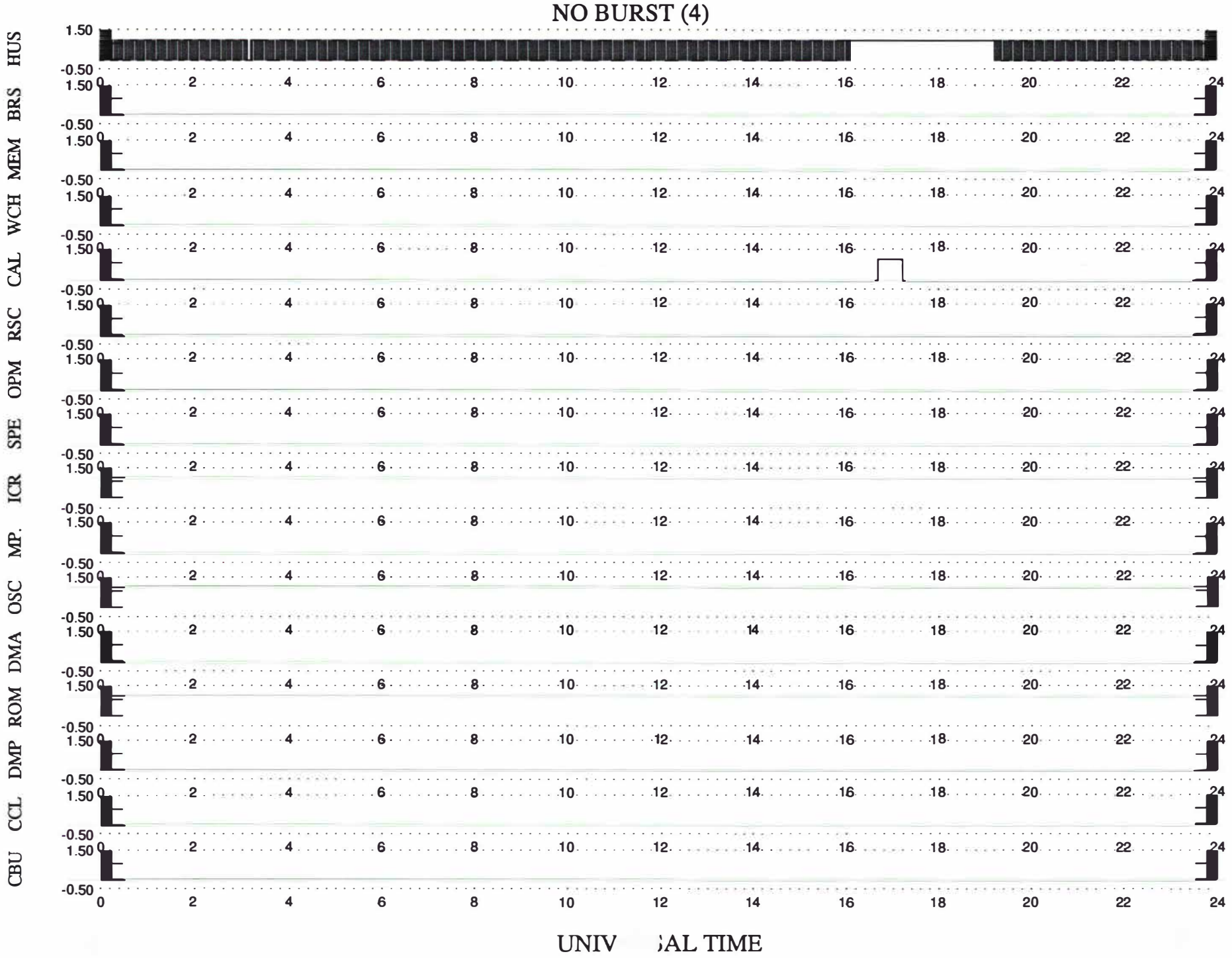
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLES AT EAST END OF SAA.


GOES 8
C
B
A
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/13, 0000:00
Plot created: 97/04/17, 1533
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

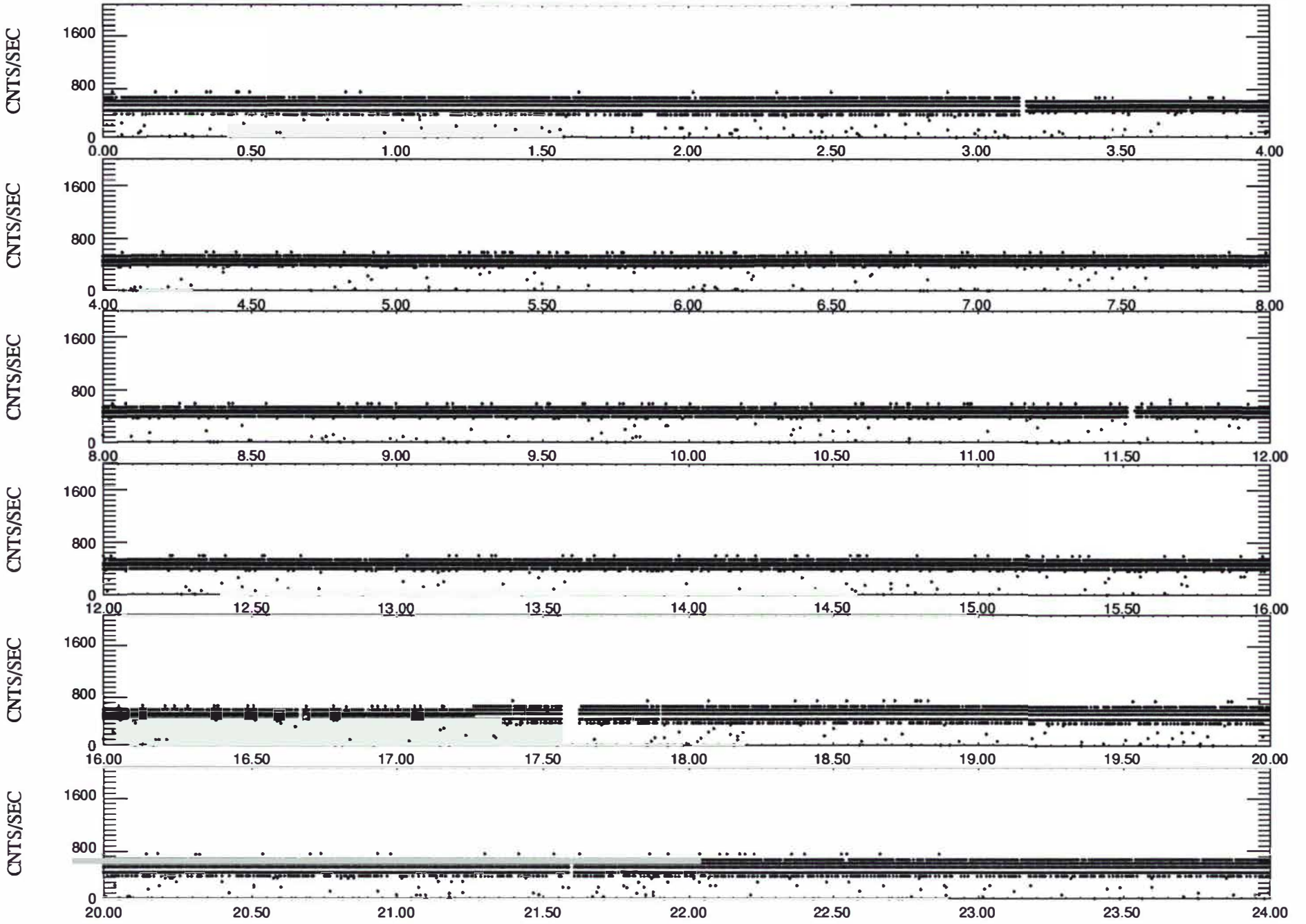

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/13
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/17, 1534 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 103, year 1997 to day 103, year 1997 7/22/97



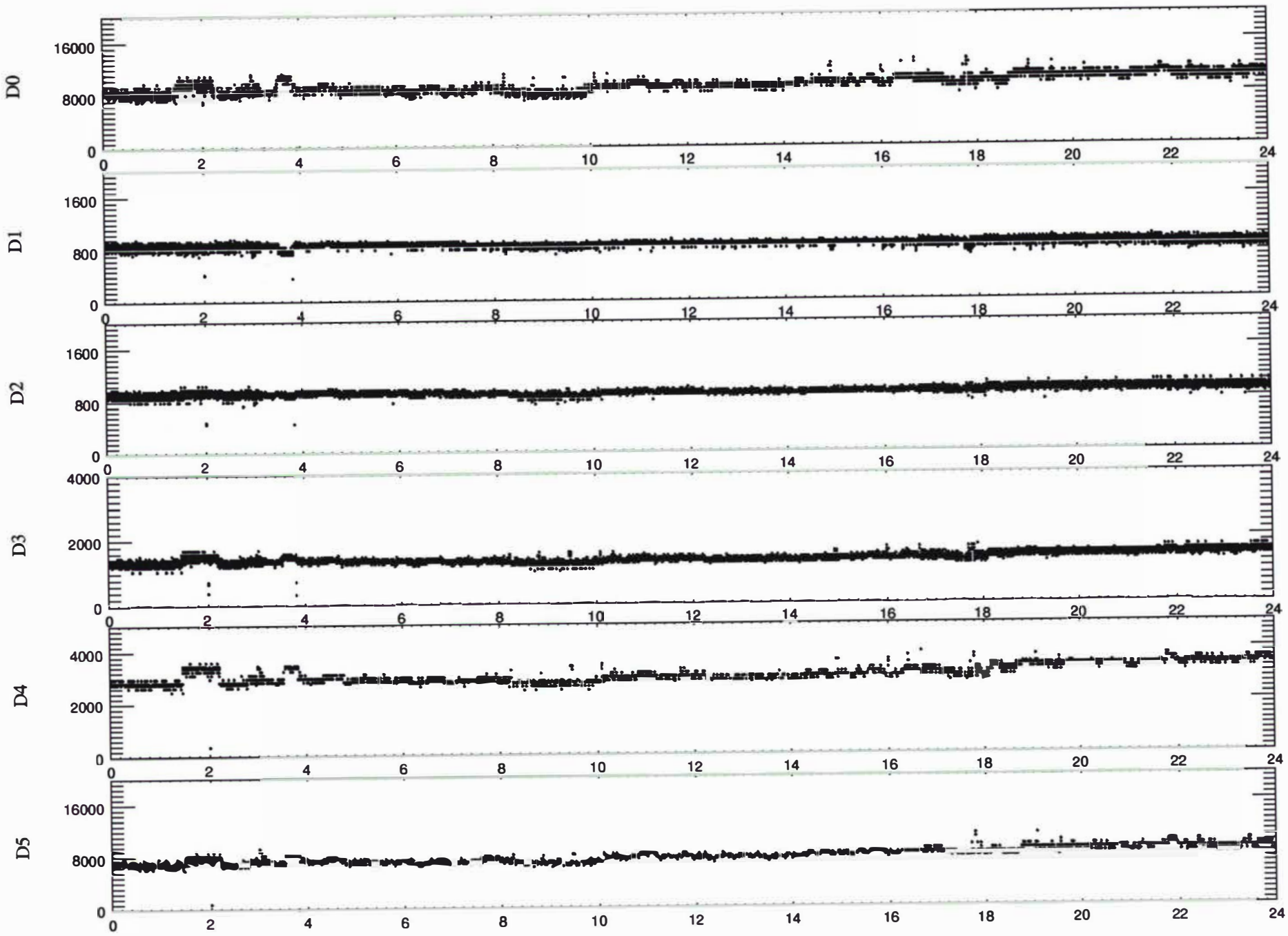
HUS 2A, MODE 1, NOT AVERAGED EDR day 103, year 1997 to day 103, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV :AL TIME

HUS 2B COUNTS / SEC EDR day 103, year 1997 to day 103, year 1997 7/22/97



From park@kabul.llnl.gov Mon Apr 14 09:24 PDT 1997
Date: Mon, 14 Apr 97 09:21:52 PDT
From: park@kabul.llnl.gov (Hyesook Park)
To: Elden.Ables@quickmail.llnl.gov, CLINE@tgrs.gsfc.nasa.gov,
FISHMAN@SSLMOR.mstc.nasa.gov, gehrels@lheavx.gstc.nasa.gov,
KOUVELIOTOU@batse.msfc.nasa.gov, llo@kabul.llnl.gov,
park@kabul.llnl.gov, elp@kabul.llnl.gov, MEEGAN@SSLMOR.mstc.nasa.gov,
bionta@kabul.llnl.gov, scott@rosserv.gsfc.nasa.gov, dhf@pacbell.net,
butterworth@lheavx.gstc.nasa.gov, DEAL@gibson.mstc.nasa.gov,
DLBBAT@cass09.ucsd.edu, wurtz1@llnl.gov,
Mark.McKernan@quickmail.llnl.gov, hartmann@grb.phys.clemson.edu,
ggwilli@cosmo.phys.clemson.edu, Mark.Eckart@quickmail.llnl.gov,
Andy.Hazi@quickmail.llnl.gov, William.Goldstein@quickmail.llnl.gov,
khurley@sunspot.ssl.berkeley.edu
Subject: Trig 6176 & 6177

Dear colleagues,

LOTIS recorded 2 triggers last night (3 hr 39 min apart but they are not from same direction). Both were type 1 triggers. The response times were 9 sec for Trig 6176 and 21 sec for Trig 6177. Scott and Kim, any more info on these triggers will be appreciated.

It was the first time we ever recorded 2 type 1 triggers in one night. We will monitor these locations tonight again.

Hye-Sook

From DEAL@fender.msfc.nasa.gov Wed Apr 16 06:23 PDT 1997
Return-Path: <DEAL@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id GAA25844; Wed, 16 Apr 1997 06:23:29 -0700
From: DEAL@fender.msfc.nasa.gov
Date: Wed, 16 Apr 1997 8:15:13 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970416081513.20c0312b@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6176
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6176
EVENT OF 1997 APR 14 DAY OF YEAR=104
EVENT CROSSING TIME AT BATSE : 26072. S. OR 07:14:32.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 112.000 2.000
BATSE PEAK COUNTING RATE: 2500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 4/ 97 IS:
RA= 153.600 DEC= 34.802 DIST= 4.473 AU
BATSE-ULYSSES DISTANCE = 669101457. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=129.32 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1414.09 SECS.
CROSSING TIME AT ULYSSES IS 24658. S. OR 06:50:57 +/- 328.32 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 4/ 97 IS:
RA= 170.006 DEC= 7.277 DIST= 0.718 AU
MARS-BATSE DISTANCE = 107486048. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=121.98 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -189.90 SECS.
CROSSING TIME AT MARS IS 25882. S. OR 07:11:22 +/- 49.91 SECONDS

BATSE BURST TRIGGER
NO.: 6176

TIME: TJD=0552 SECONDS=26072

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=125.5 AZIMUTH=83.5 ERROR=4.1 DEGREES

COMMENTS:
GRB LASTING ~ 22 S. NOT VISIBLE ABOVE 300 KEV.
OCCULTATION STEP IN TRIGGERED DETECTOR @ 25886 SOD. (CRAB)

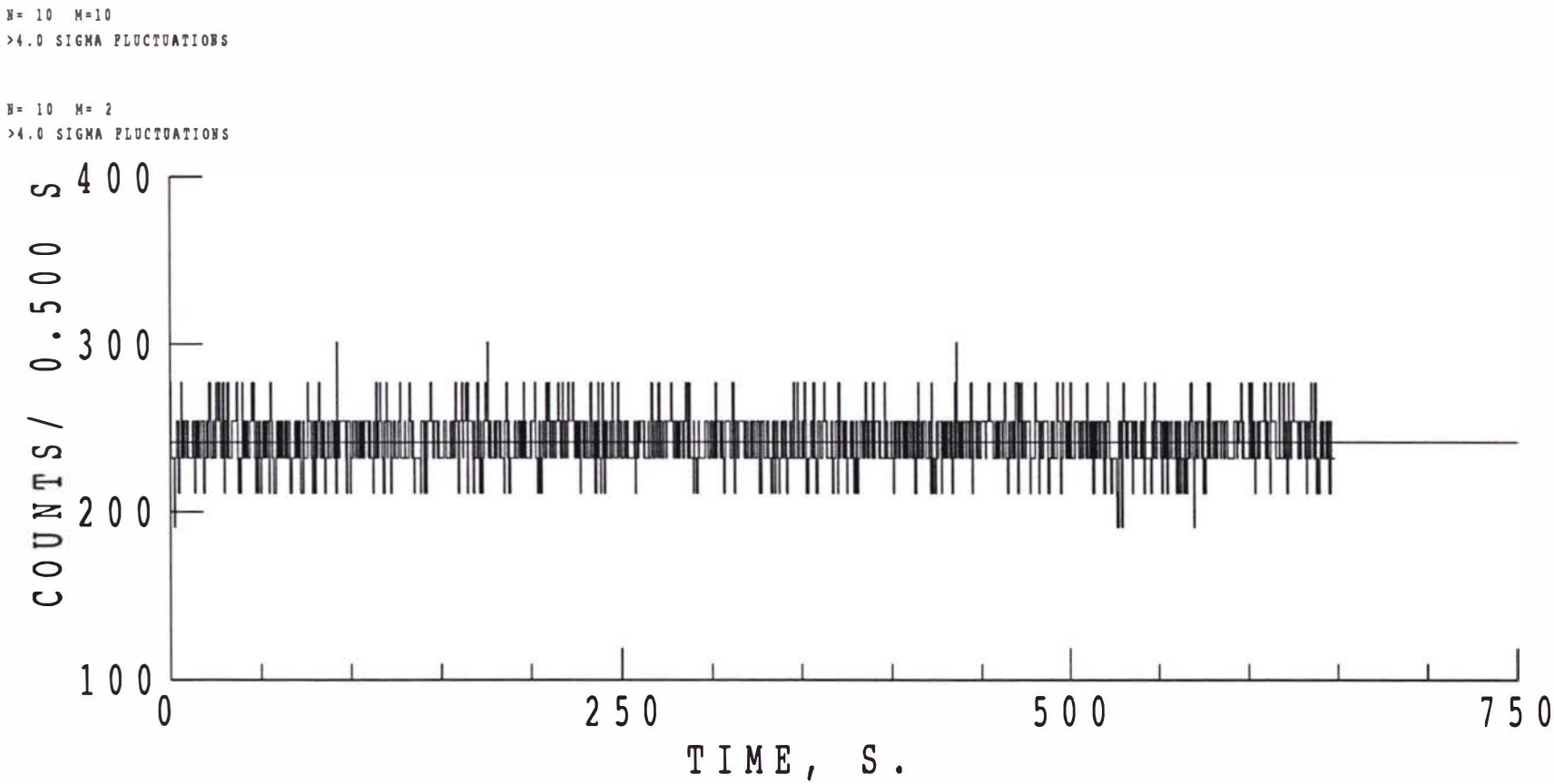
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6176	970414	10552	26072	2500	112	+02	22

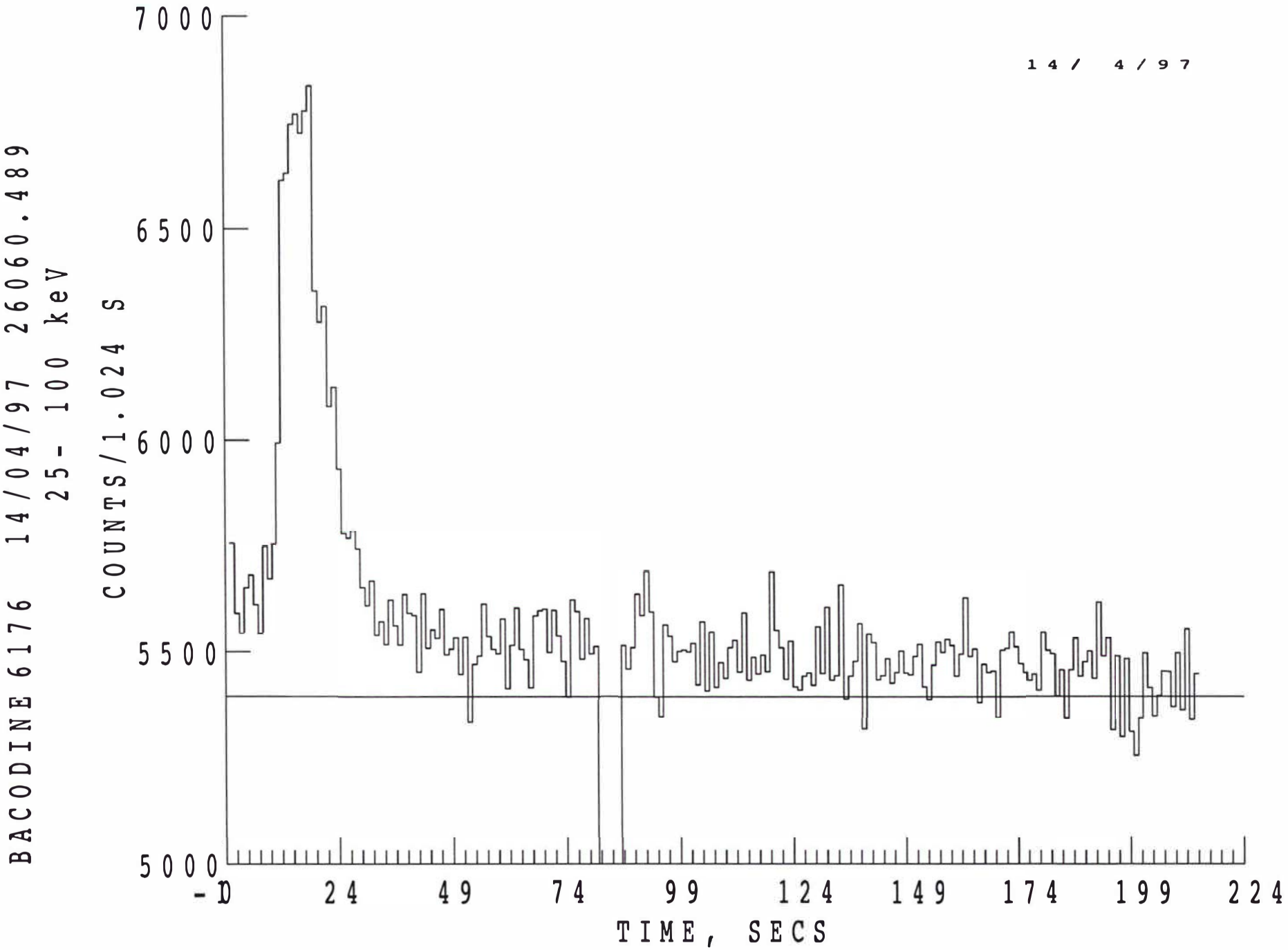
BATSE BURST# 6176

ULYSSES RT 18/ 4/97

14/ 4/97 24336.412 s

0- 0 keV




BACODINE 6176 14/04/97 26060.489
25- 100 keV
COUNTS/1.024 S
7000
6500
6000
5500
5000
14/ 4/97
-D
24
49
74
99
124
149
174
199
224
TIME, SECS

From DEAL@fender.msfc.nasa.gov Wed Apr 16 06:22 PDT 1997
Return-Path: <DEAL@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id GAA25827; Wed, 16 Apr 1997 06:22:29 -0700
    n: DEAL@fender.msfc.nasa.gov
Date: Wed, 16 Apr 1997 8:09:42 -0500 (CDT)
To: burst@compte1.sr.unh.edu, grobad@estsa2.estec.esa.nl,
        cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
        bacodine@pandora.gstc.nasa.gov, scott@circe.gstc.nasa.gov,
        butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
        gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
        PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
        khurley@sunspot.ssl.berkeley.edu, imm@egret.gstc.nasa.gov,
        mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
        matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
        messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Message-Id: <970416080942.20c02c11@fender.msfc.nasa.gov>
Subject: Burst Trigger Message
Content-Type: text
Content-Length: 1215
Status: R

Trigger

BATSE BURST TRIGGER

NO.: 6177

TIME: TJD=0552 SECONDS=39218

TYPE: SGR SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=64.8 AZIMUTH=237.5 ERROR=7.7 DEGREES

COMMENTS:
SGR LASTING ~ 0.5 S.

From springer@pop.jpl.nasa.gov Wed Dec 17 14:34 PST 1997
From: "Joe Springer" <springer@pop.jpl.nasa.gov>
To: "Kevin Hurley" <khurley@sunspot.ssl.berkeley.edu>
Subject: Re: possible timing error?
Date: Wed, 17 Dec 1997 14:33:56 -0800
MIME-Version: 1.0
charset="iso-8859-1"
Content-Transfer-Encoding: 7bit
X-Priority: 3
X-MSMail-Priority: Normal
X-MimeOLE: Produced By Microsoft MimeOLE V4.72.2106.4

Kevin,

We looked at the SDRs from 11:06 to 11:14 and found
pristine playback 512 bps data. No errors of any sort.

Trust it.

Joe
-----Original Message-----
From: Kevin Hurley <khurley@sunspot.ssl.berkeley.edu>
To: Joe.B.Springer@jpl.nasa.gov <Joe.B.Springer@jpl.nasa.gov>;
khurley@sunspot.ssl.berkeley.edu
<khurley@sunspot.ssl.berkeley.edu>
Date: Wednesday, December 17, 1997 11:45 AM
Subject: possible timing error?

Dear Joe,

>I am suspicious of the timing of a burst which occurred on day
>104 of 1997 around 11:10. It looks to me like we were in
playback
>mode. If my suspicion is correct, there would be perhaps a 0.25
>s error. Can you check it for me please?
>
>Kevin

From SURASAK@SSLLES.MSFC.NASA.GOV Wed Apr 16 14:04 PDT 1997
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id OAA29816; Wed, 16 Apr 1997 14:04:33 -0700
Date: Wed, 16 Apr 1997 16:04:28 -0500 (CDT)
From: SURASAK@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970416160428.20221a21@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6178
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6178
EVENT OF 1997 APR 14 DAY OF YEAR=104
EVENT CROSSING TIME AT BATSE : 46854. S. OR 13:00:54.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 352.000 37.000
BATSE PEAK COUNTING RATE: 2550 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 4/ 97 IS:
RA= 153.562 DEC= 34.779 DIST= 4.476 AU
BATSE-ULYSSES DISTANCE = 669674276. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 73.80 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 623.26 SECS.
CROSSING TIME AT ULYSSES IS 47477. S. OR 13:11:17 +/- 431.89 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 4/ 97 IS:
RA= 170.006 DEC= 7.277 DIST= 0.718 AU
MARS-BATSE DISTANCE = 107486048. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 44.32 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 256.53 SECS.
CROSSING TIME AT MARS IS 47111. S. OR 13:05:10 +/- 47.38 SECONDS

BATSE BURST TRIGGER

NO.: 6178

TIME: TJD=0552 SECONDS=46854

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

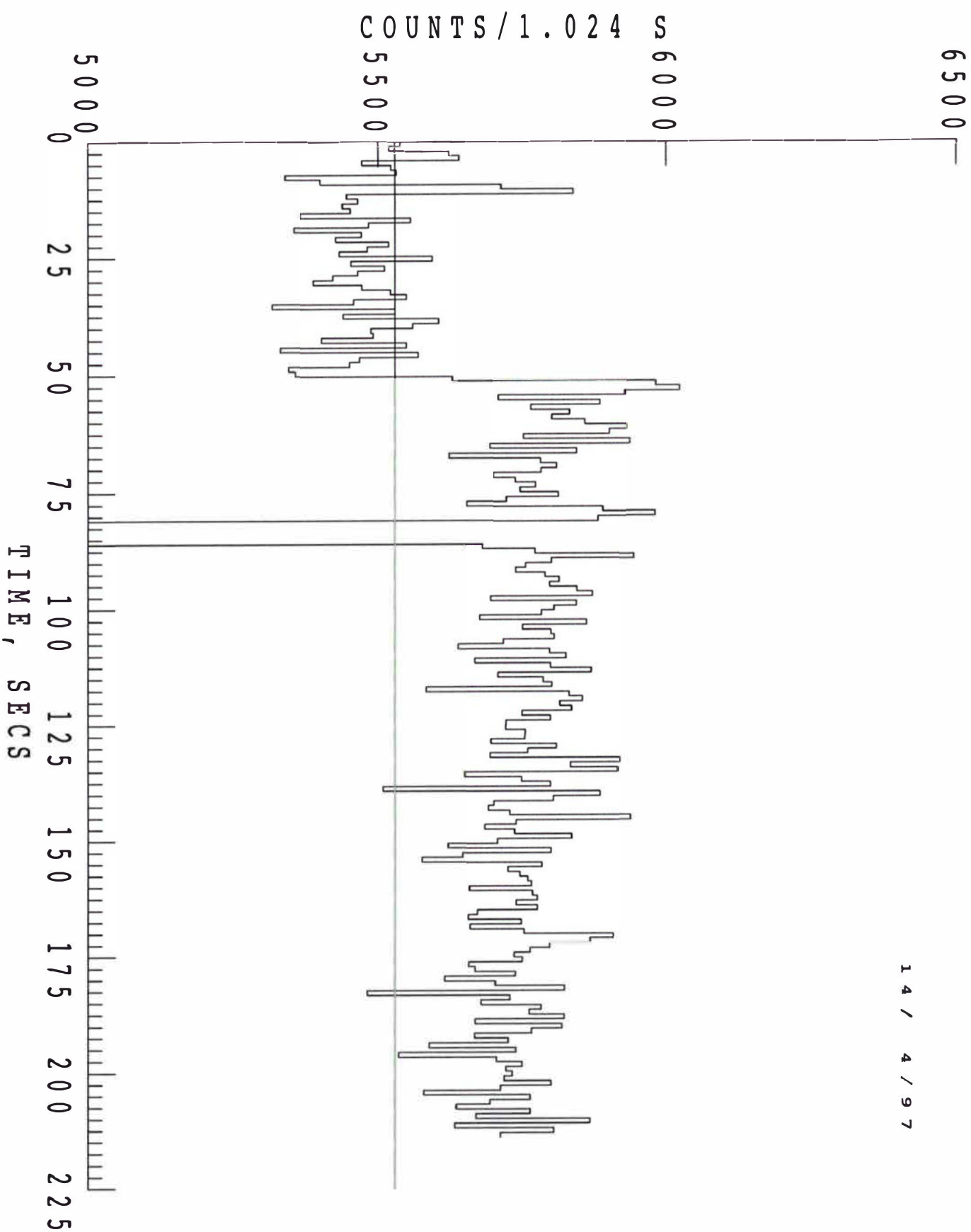
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=352.1 AZIMUTH=37.5 ERROR=7.492 DEGREES

COMMENTS:
GRB. DUR~ 3 SEC. SINGLE PULSE WITH STRUCTURES. BARELY VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6178	970414	10552	46854	2550	352	+37	3


BACODINE 6178 14/04/97 46843.593
25- 100 keV
COUNTS/1.024 S
5000
5500
6000
6500
0
25
50
75
100
125
150
175
200
225
TIME, SECS
14/ 4/97

BATSE BURST# 6178

ULYSSES RT 18/ 4/97

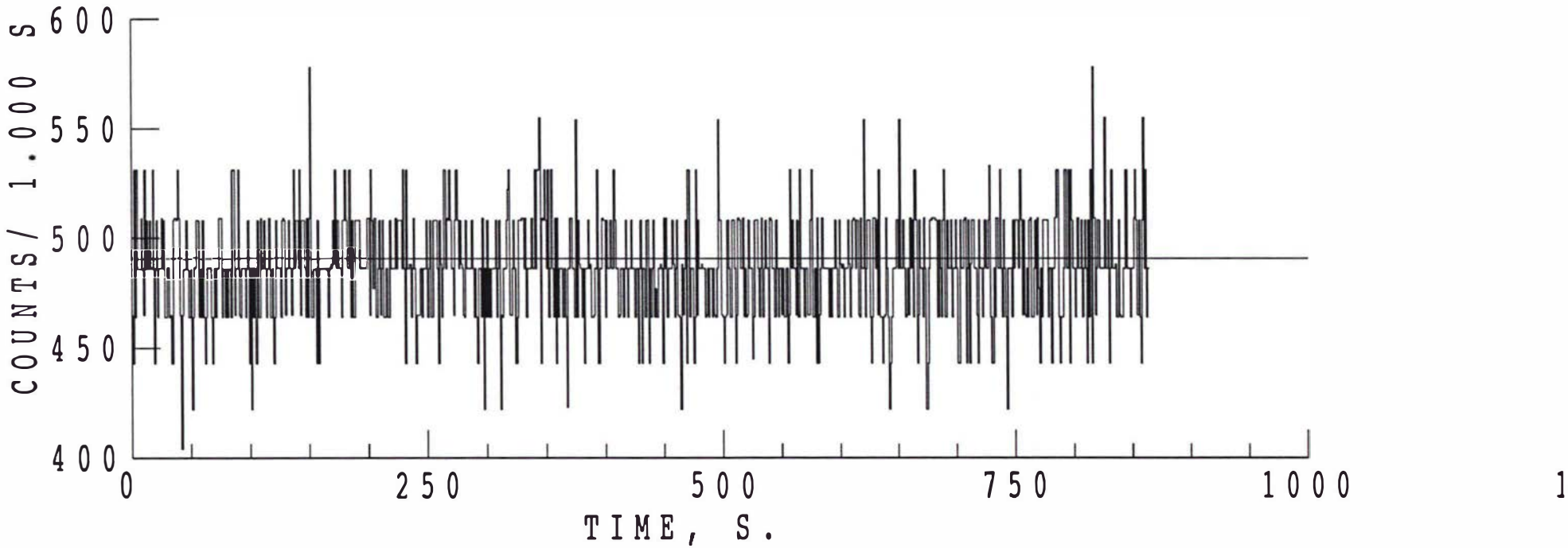
14/ 4/97 47052.180 s

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



From SURASAK@ssl.msfc.nasa.gov Wed Apr 16 13:58 PDT 1997
Date: Wed, 16 Apr 1997 15:57:48 -0500 (CDT)
From: SURASAK@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6179

TIME: TJD=0552 SECONDS=50453

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT!

From SURASAK@ssl.msfc.nasa.gov Wed Apr 16 14:10 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA29882; Wed, 16 Apr 1997 14:10:37 -0700
From: SURASAK@ssl.msfc.nasa.gov
Date: Wed, 16 Apr 1997 16:10:26 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970416161026.20221a21@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6180
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

NO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6180
EVENT OF 1997 APR 14 DAY OF YEAR=104
EVENT CROSSING TIME AT BATSE : 57903. S. OR 16:05:03.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 21.000 -26.000
BATSE PEAK COUNTING RATE: 4400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 4/ 97 IS:
RA= 153.542 DEC= 34.767 DIST= 4.478 AU
BATSE-ULYSSES DISTANCE = 669977163. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 41.48 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1674.29 SECS.
CROSSING TIME AT ULYSSES IS 59577. S. OR 16:32:57 +/- 332.42 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 4/ 97 IS:
RA= 170.006 DEC= 7.277 DIST= 0.718 AU
MARS-BATSE DISTANCE = 107486048. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 34.94 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 293.92 SECS.
CROSSING TIME AT MARS IS 58197. S. OR 16:09:56 +/- 40.11 SECONDS

BATSE BURST TRIGGER
NO.: 6180

TIME: TJD=0552 SECONDS=57903

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=21.3 AZIMUTH=-26.5 ERROR=8.357 DEGREES

COMMENTS:
GRB. DUR~1.5S. DOUBLE SPIKES. NOT VISIBLE ABOVE 300 KEV.

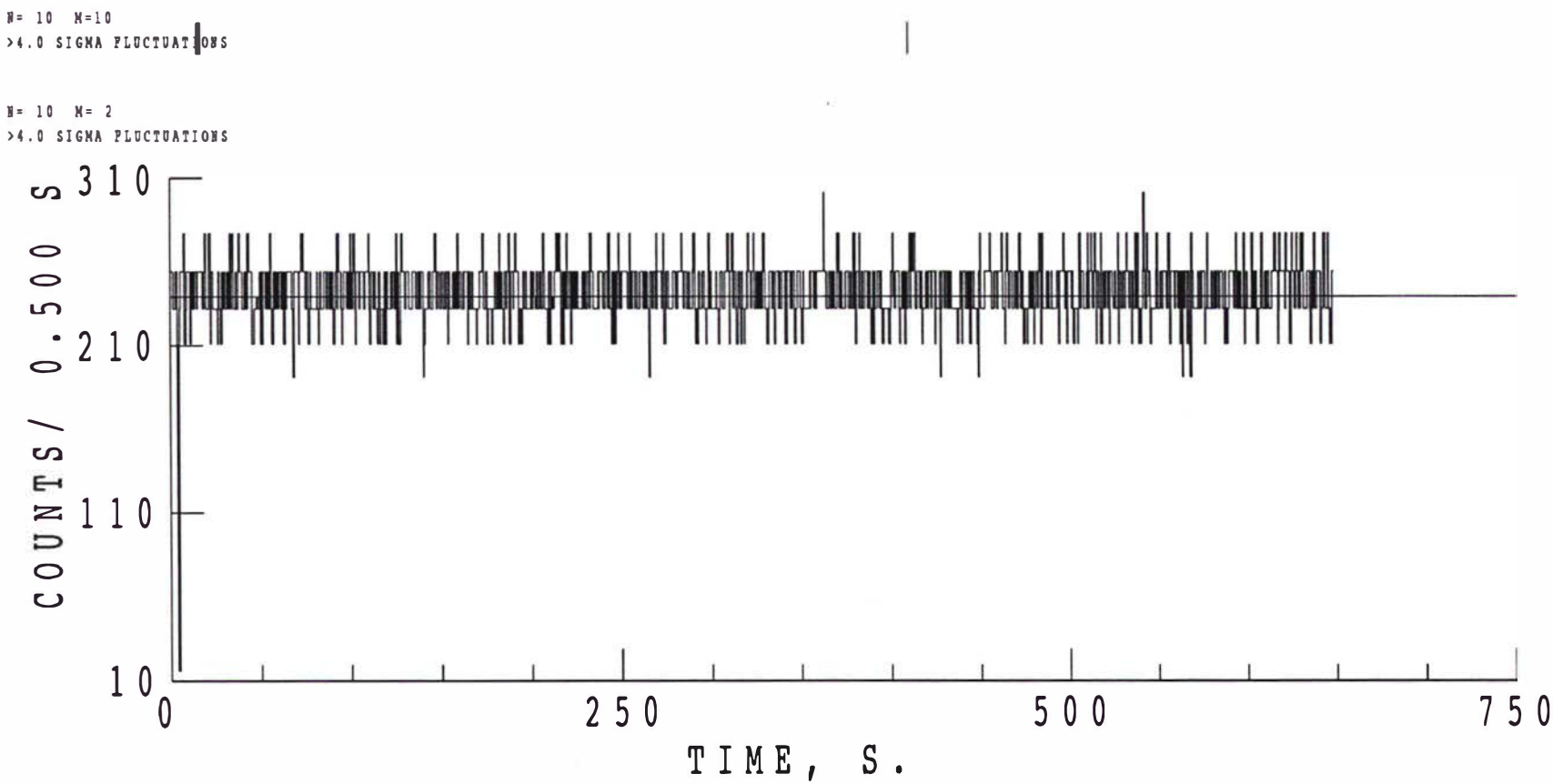
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6180	970414	10552	57903	4400	021	-26	1.5

BATSE BURST# 6180

ULYSSES RT 18/ 4/97

14/ 4/97 59256.324 s

0- 0 keV



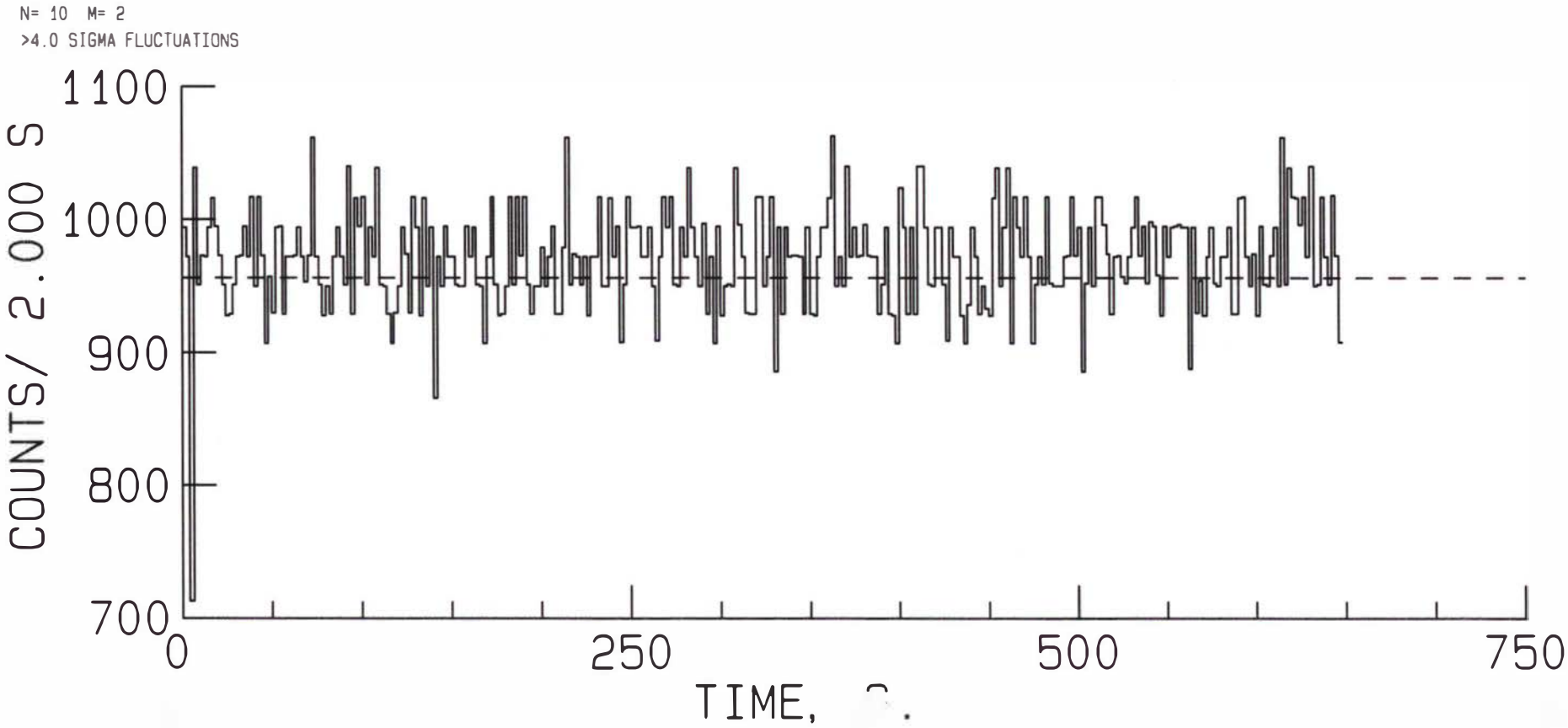
ULYSSES RT

2/ 5/97

14/ 4/97 59256.324 s

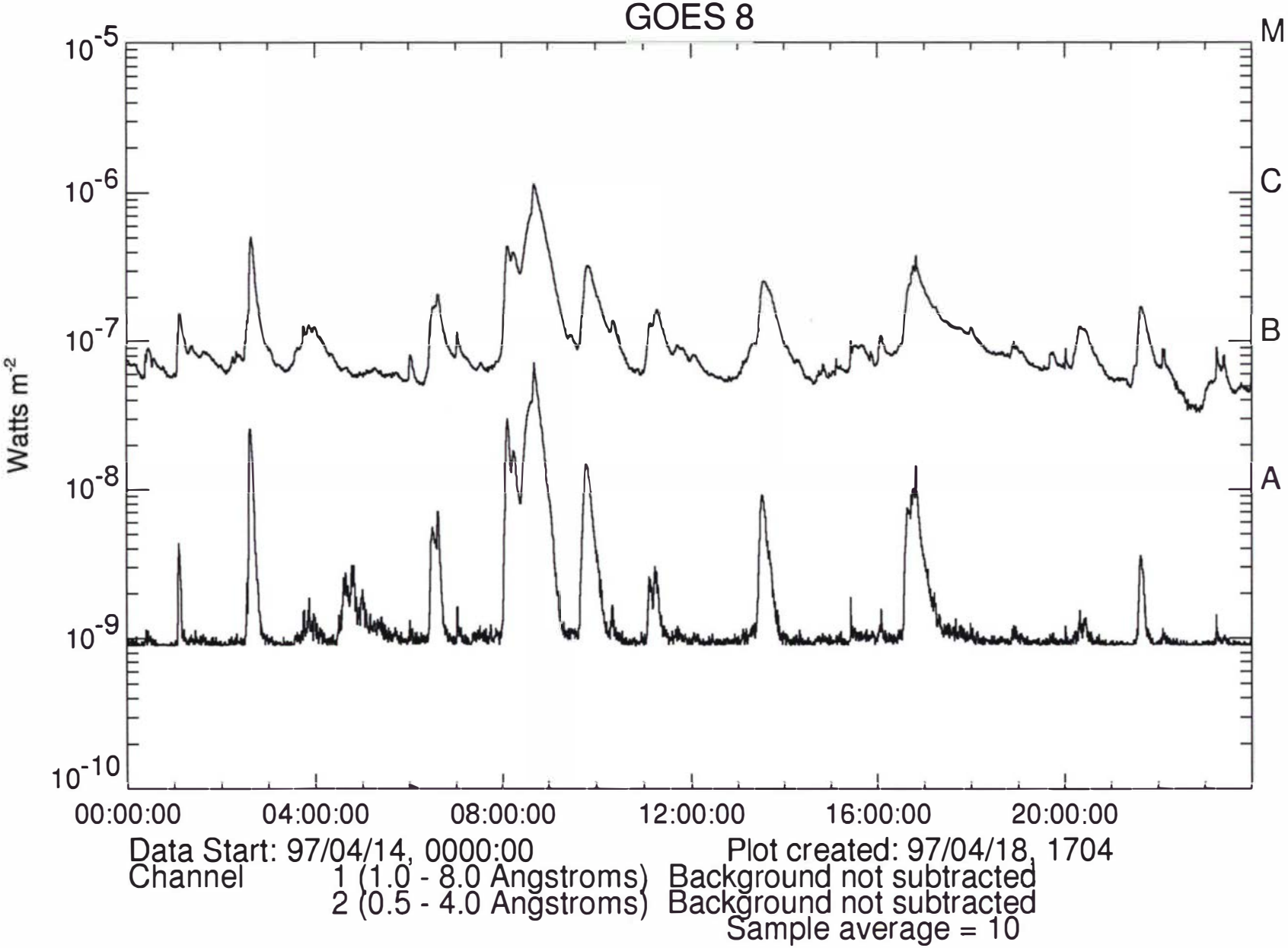
0.500 S INTERVALS REGROUPED BY 4

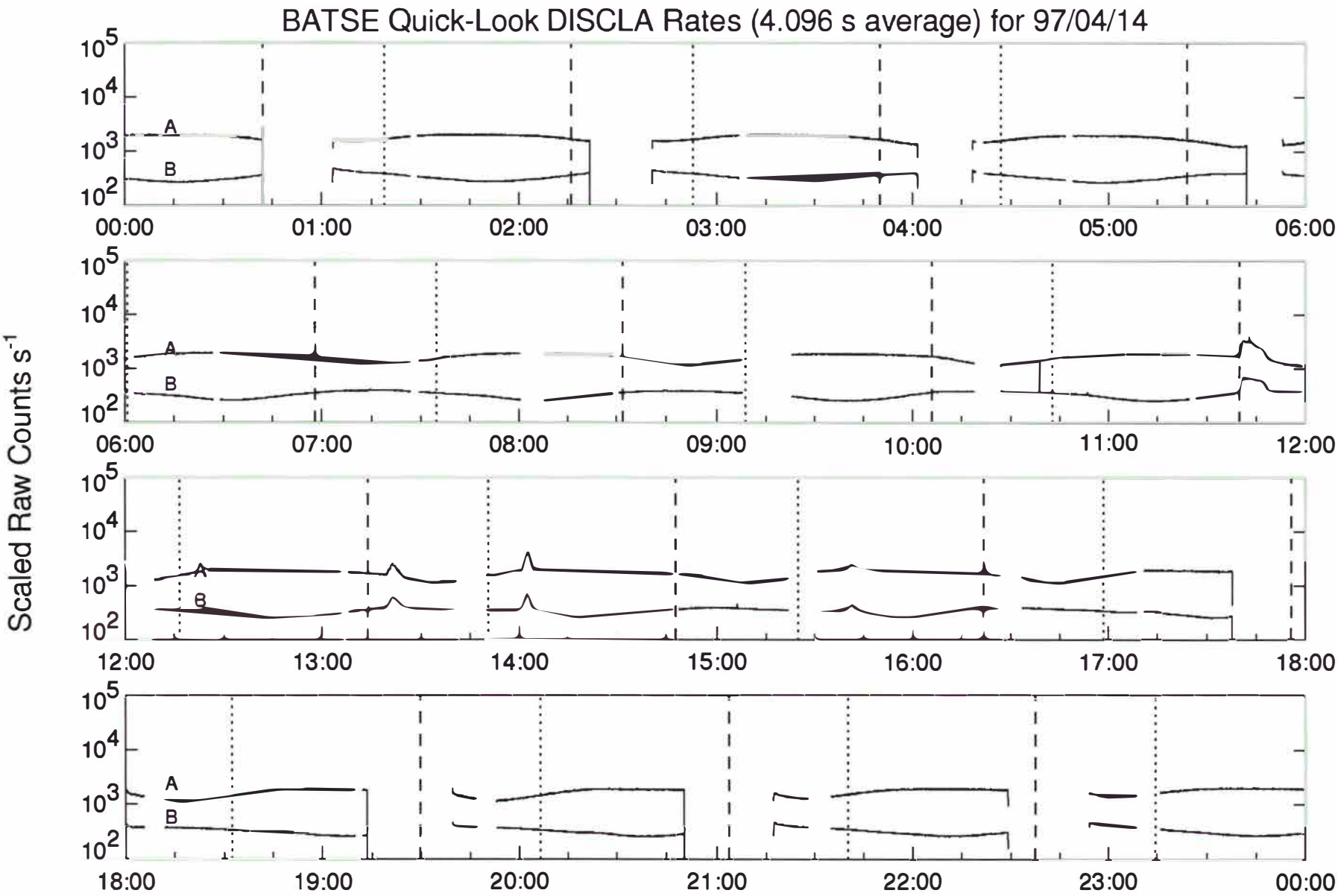
21- 145 keV



BATSE 14/04/97 57903.817
25- 100 keV
COUNTS/0.064 S
300
400
500
600
-3
0
1
5
9
13
17

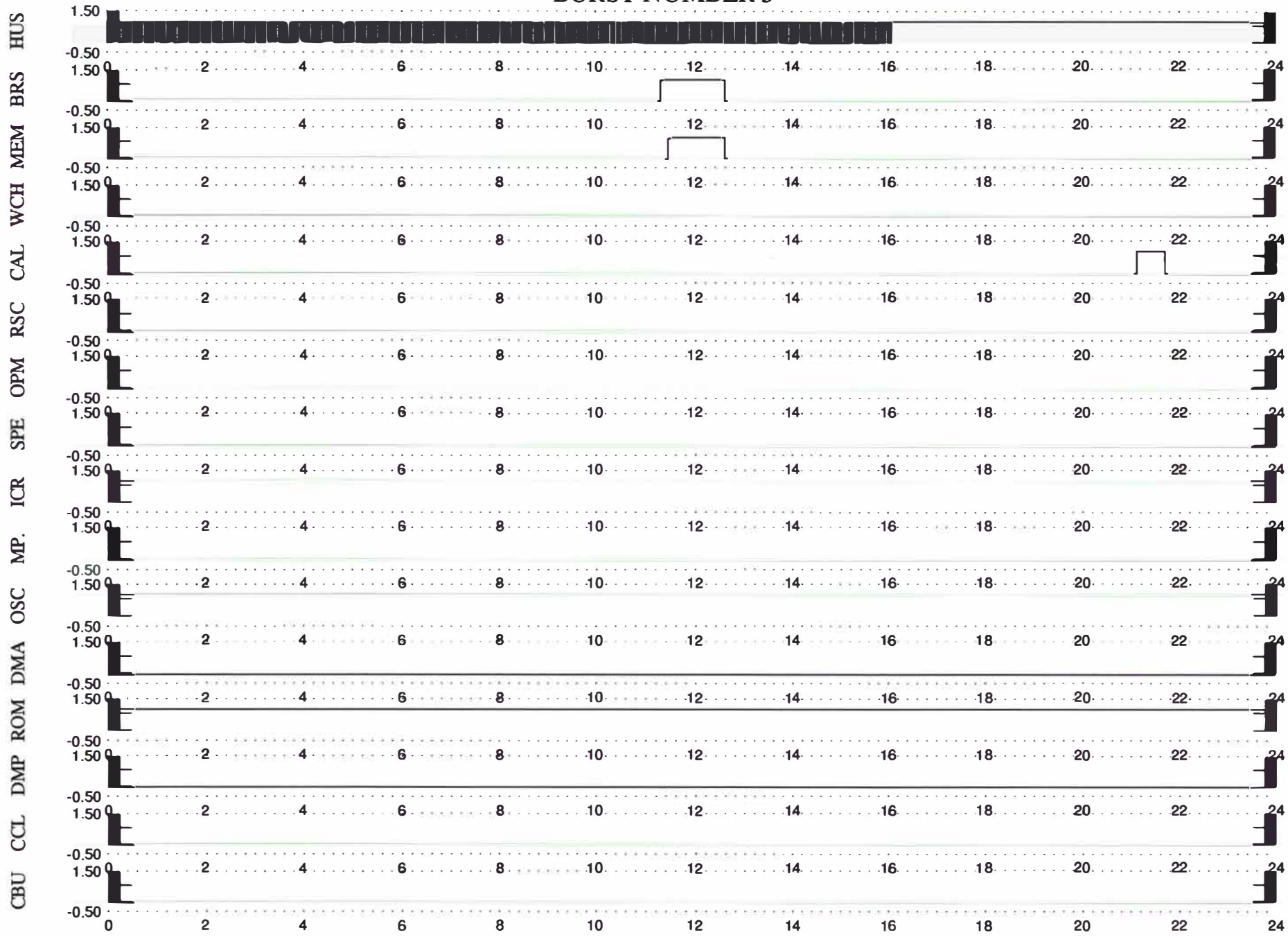
2/5/97


GOES 8
M
C
B
A
10^{-5}
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/14, 0000:00
Plot created: 97/04/18, 1704
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/14
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Current Time: 97/04/18, 1705 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 104, year 1997 to day 104, year 1997 7/22/97

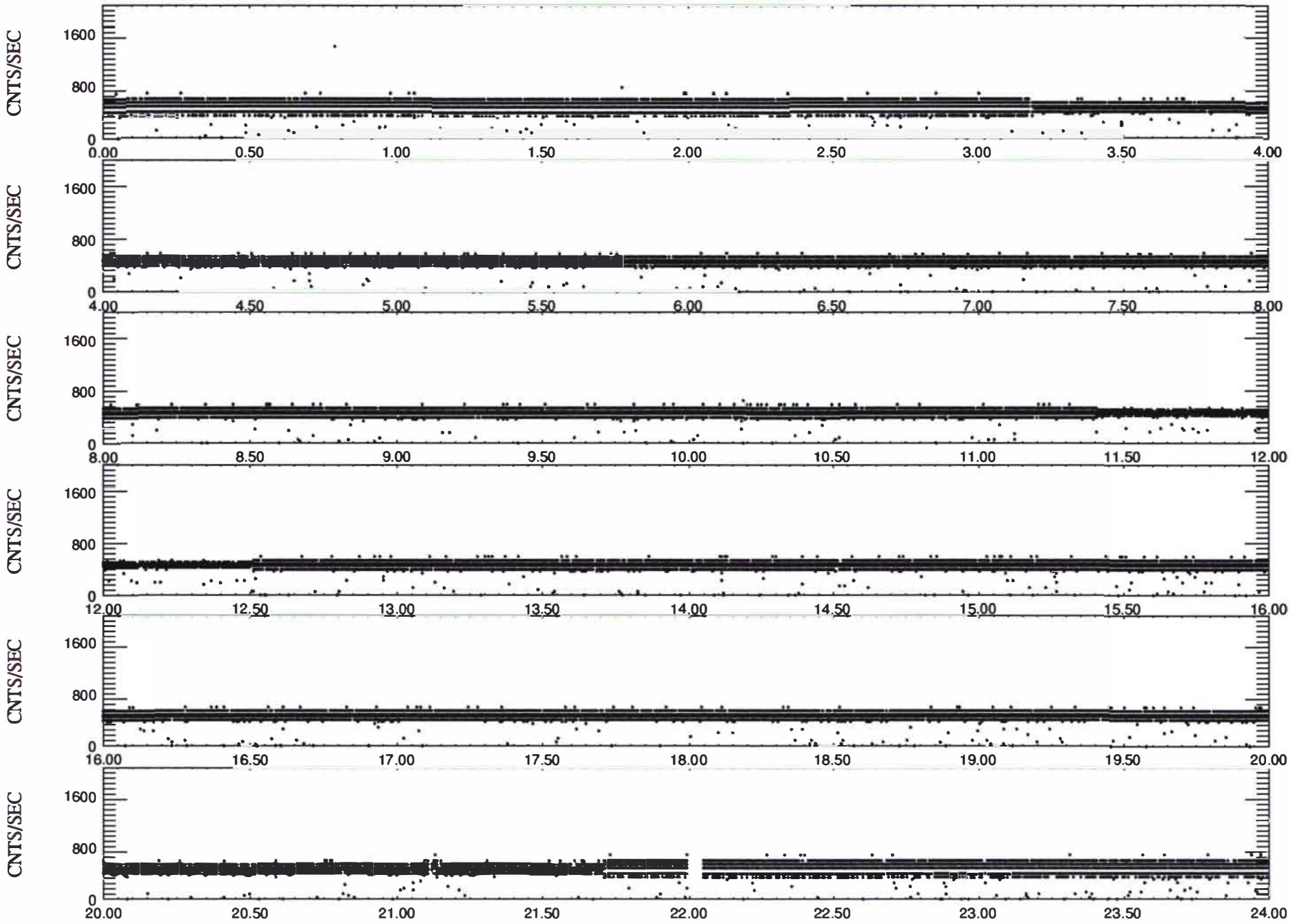
BURST NUMBER 5



UNIV SAL TIME

HUS 2A, MODE 1, NOT AVERAGED EDR day 104, year 1997 to day 104, year 1997 7/22/97

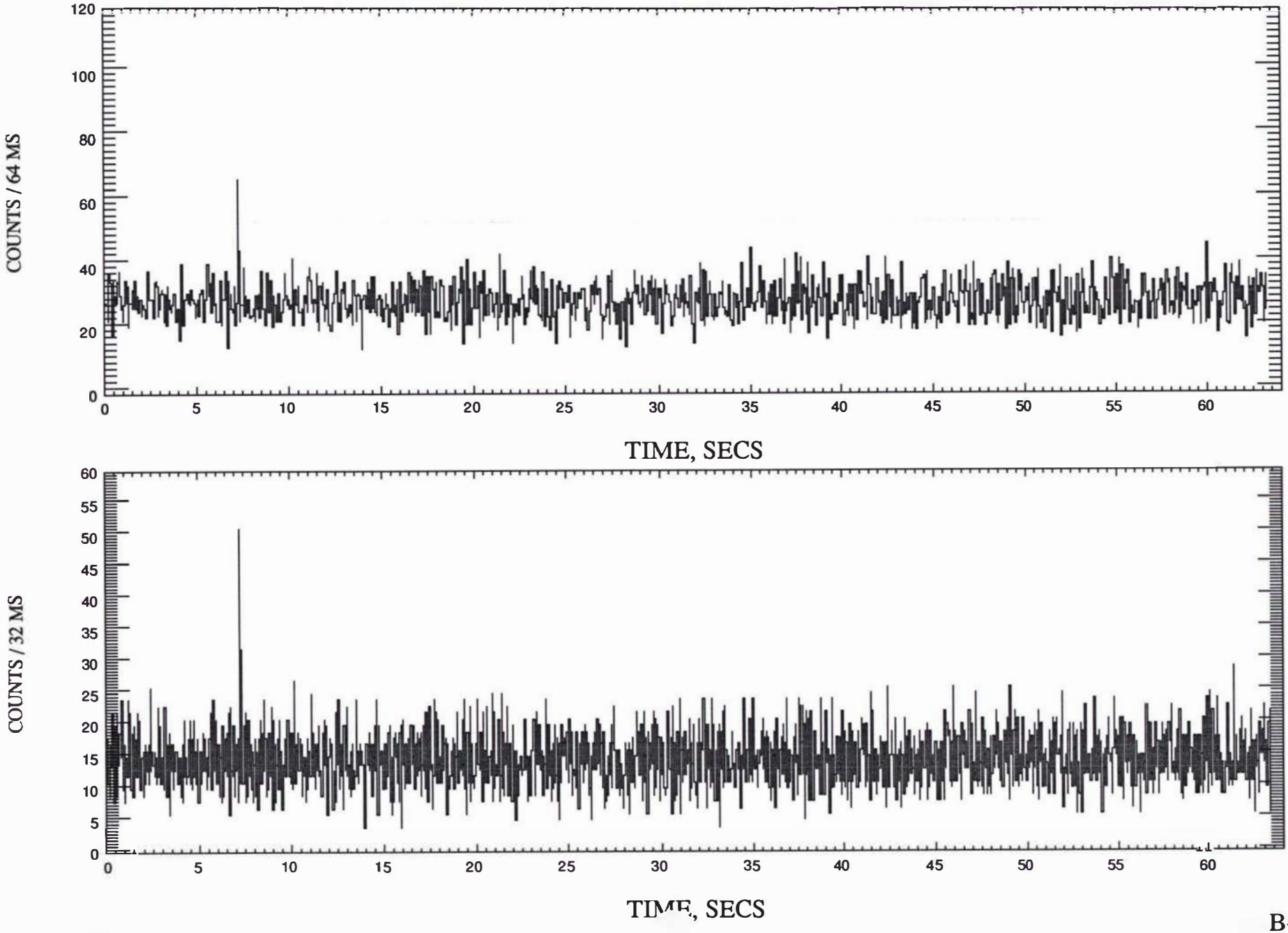
CALIBRATION DATA INCLUDED



UNIV SAL TIME

HUS 2A TRIGGERED DATA EDR day 104, year 1997 7/22/97

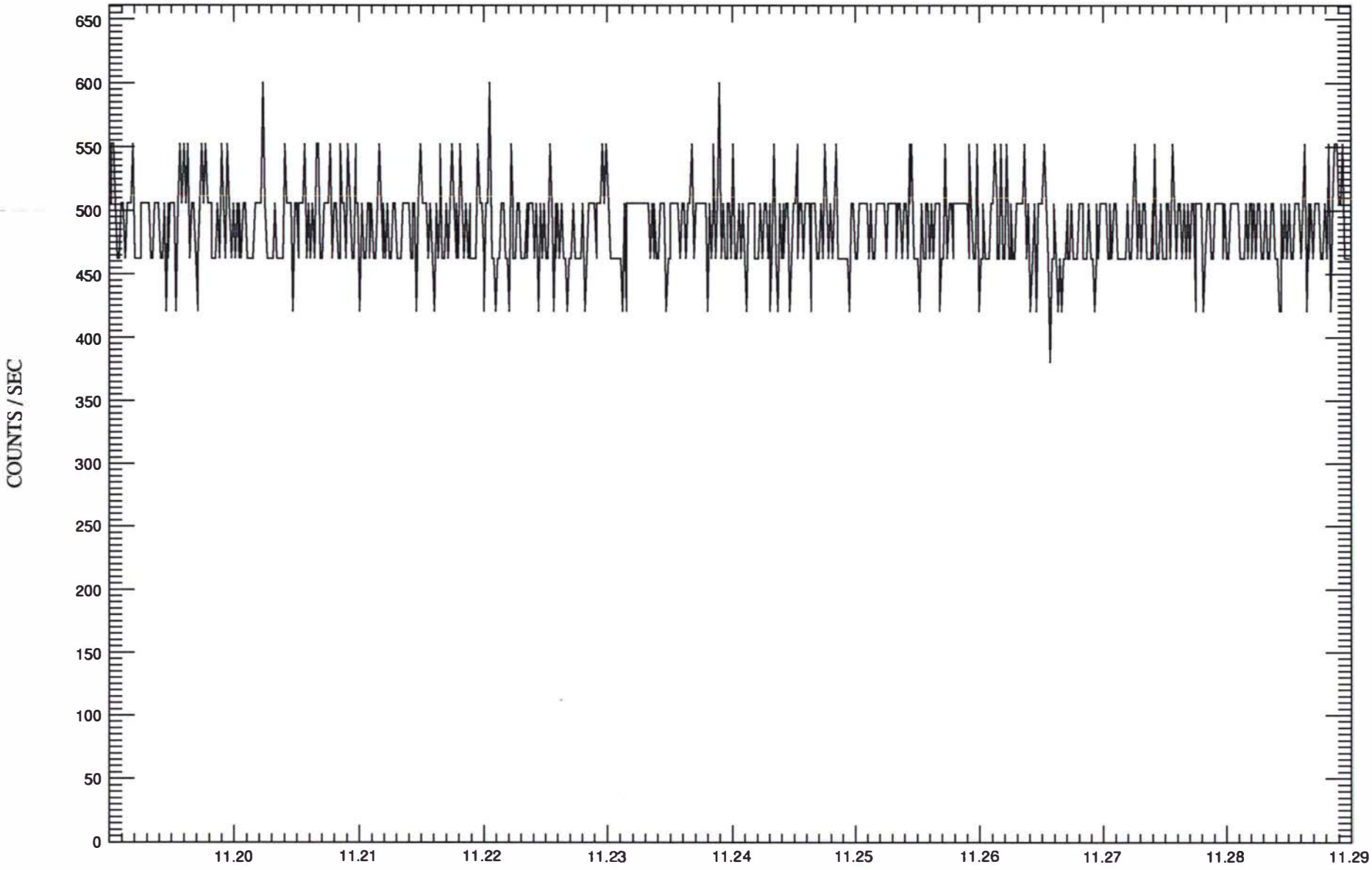
Burst Counter 5 at UT=11.239120886061 h=40460.835 s 11:14:20.835



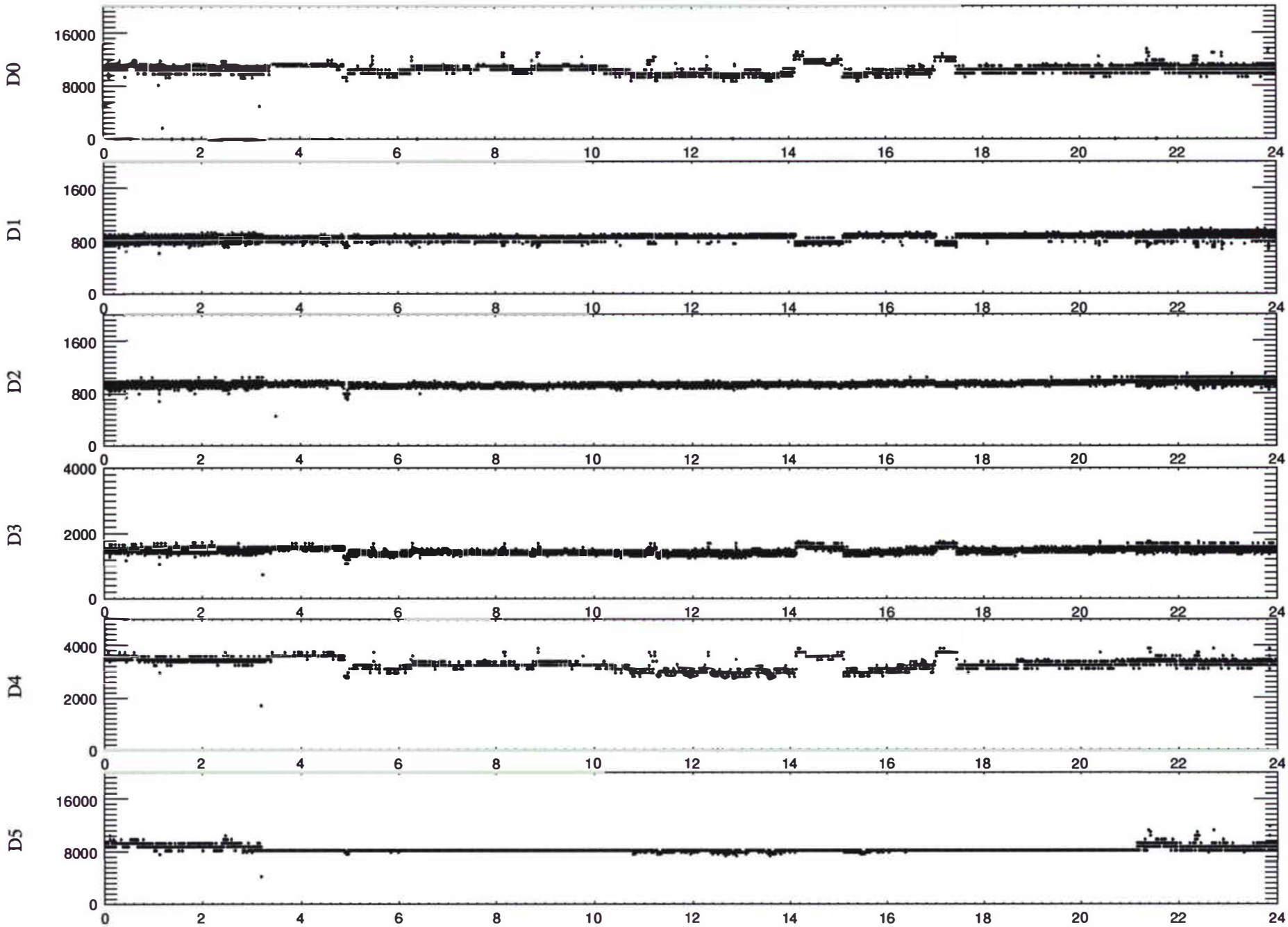
B# 1

HUS 2A, MODE 1, NOT AVERAGED EDR day 104, year 1997 to day 104, year 1997 7/22/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 104, year 1997 to day 104, year 1997 7/22/97



From WOODSP@ssl.msfc.nasa.gov Thu Apr 17 09:28 PDT 1997
From: WOODSP@ssl.msfc.nasa.gov
Date: Thu, 17 Apr 1997 11:27:17 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6181

TIME: TJD=0553 SECONDS=48511

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From WOODSP@ssl.msfc.nasa.gov Thu Apr 17 09:42 PDT 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id JAA06425; Thu, 17 Apr 1997 09:42:20 -0700
From: WOODSP@ssl.msfc.nasa.gov
Date: Thu, 17 Apr 1997 11:42:14 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970417114214.20226ec6@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6182
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6182
EVENT OF 1997 APR 15 DAY OF YEAR=105
EVENT CROSSING TIME AT BATSE : 56821. S. OR 15:47:01.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 42.000 -12.000
BATSE PEAK COUNTING RATE: 14000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 15/ 4/ 97 IS:
RA= 153.390 DEC= 34.674 DIST= 4.494 AU
BATSE-ULYSSES DISTANCE = 672321654. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 65.69 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 923.23 SECS.
CROSSING TIME AT ULYSSES IS 57744. S. OR 16:02:24 +/- 418.85 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 15/ 4/ 97 IS:
RA= 169.829 DEC= 7.304 DIST= 0.723 AU
MARS-BATSE DISTANCE = 108177664. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 51.58 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 224.25 SECS.
CROSSING TIME AT MARS IS 57045. S. OR 15:50:45 +/- 52.49 SECONDS

BATSE BURST TRIGGER
NO.: 6182

TIME: TJD=0553 SECONDS=56821

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

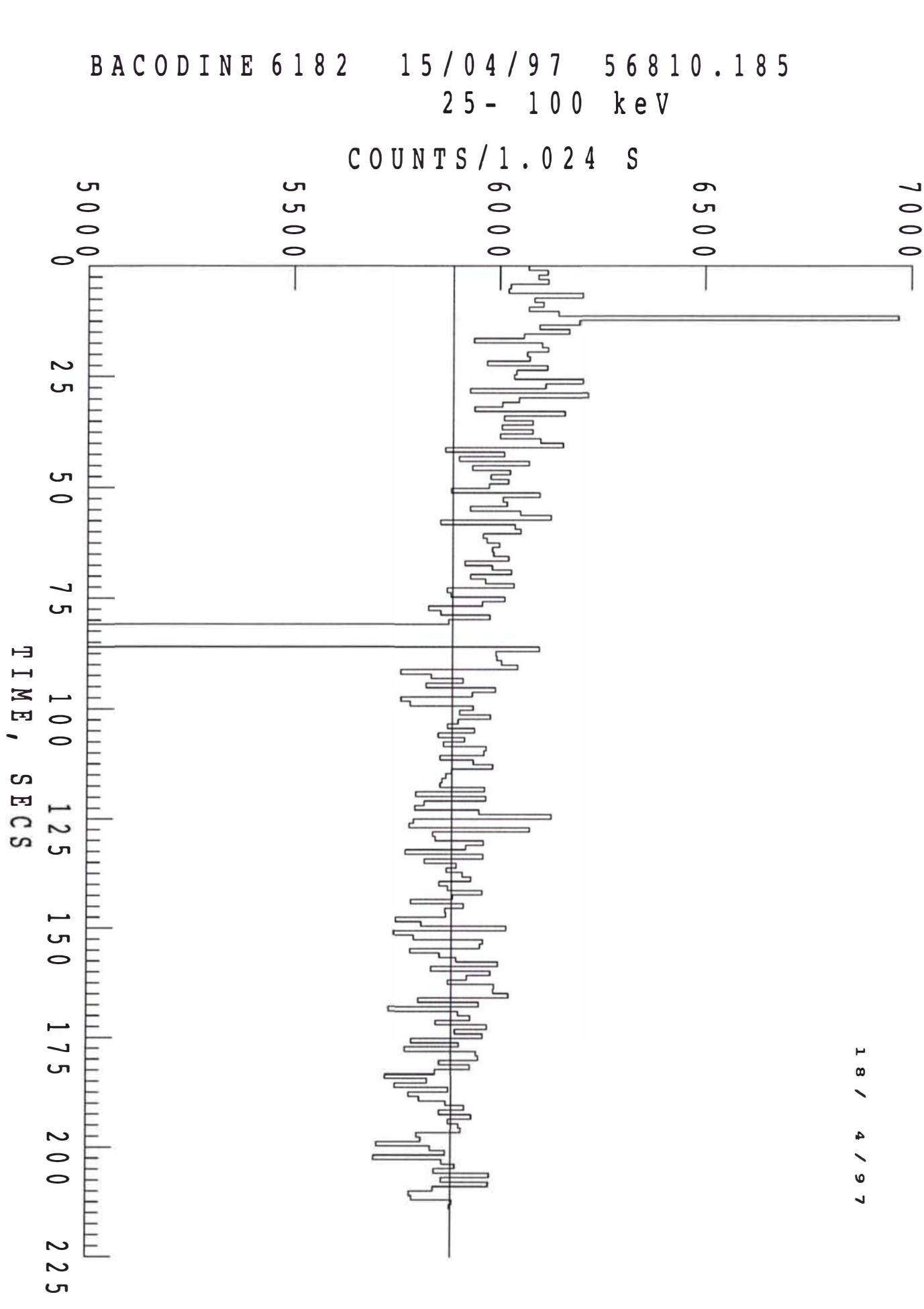
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=84.5 AZIMUTH=10.7 ERROR=5.2 DEGREES

COMMENTS:
GRB LASTING ~ 1 SEC. SINGLE SPIKE WITH SUBSTRUCTURE AND WEAK
TAIL. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6182	970415	10553	56821	14000	042	-12	1


BACODINE 6182 15/04/97 56810.185
25- 100 keV
COUNTS/1.024 S
5000
5500
6000
6500
7000
0
25
50
75
100
125
150
175
200
225
TIME, SECS
18/ 4/97

BATSE BURST# 6182

ULYSSES RT 18/ 4/97

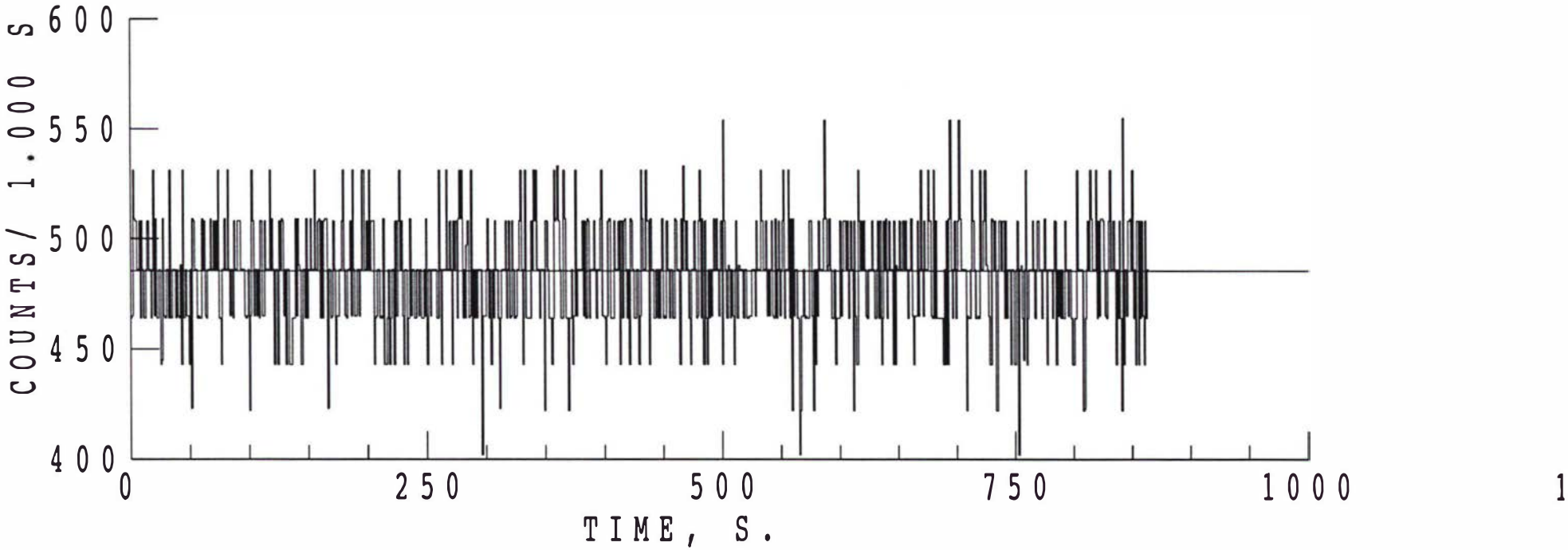
15/ 4/97 57312.320 S

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



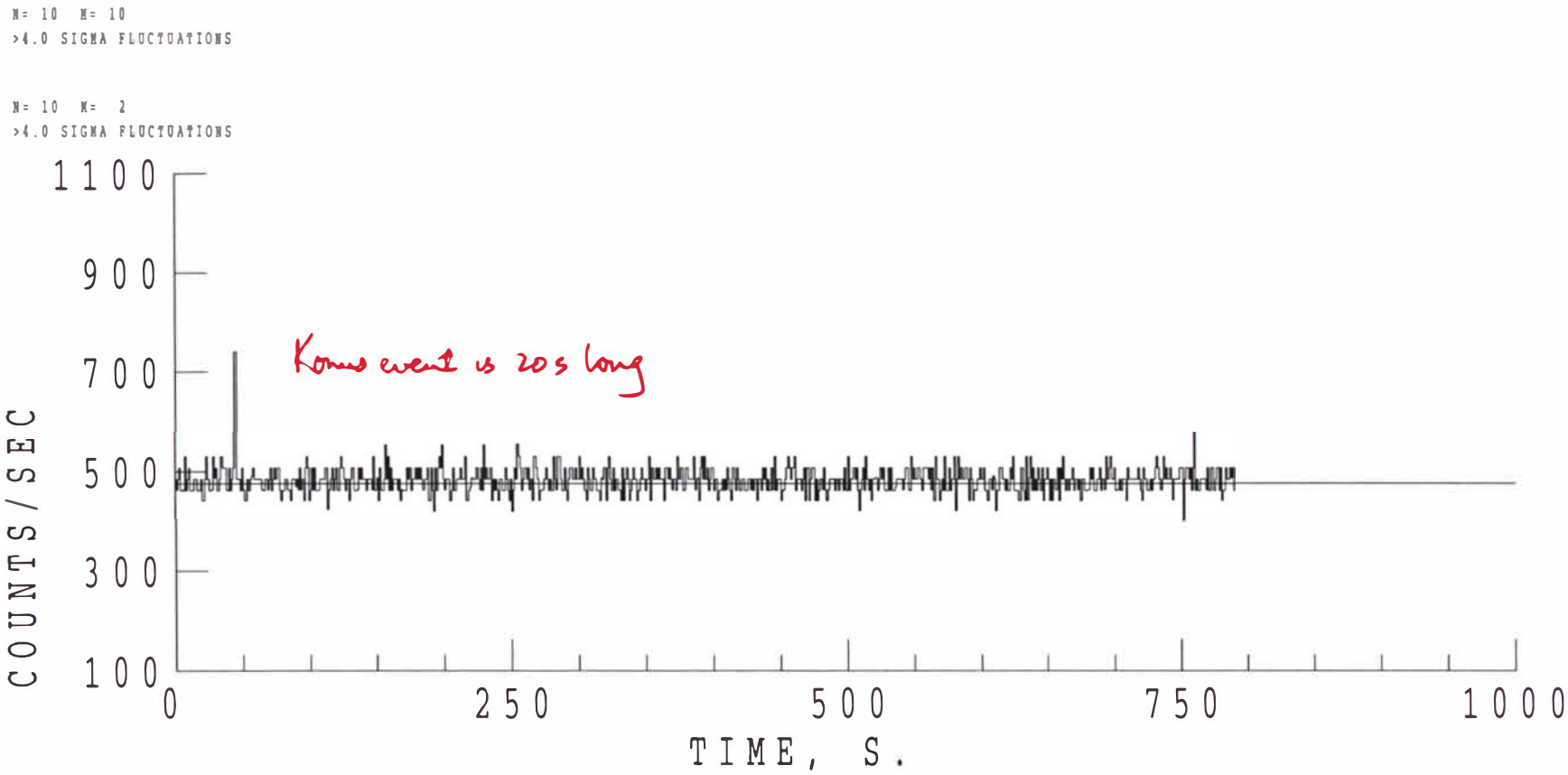
KONUS 19970415 74220

ULYSSES RT 06/12/11

15/04/97 73836.016 s

INTERVALS REGROUPED BY 2

0- 0 keV



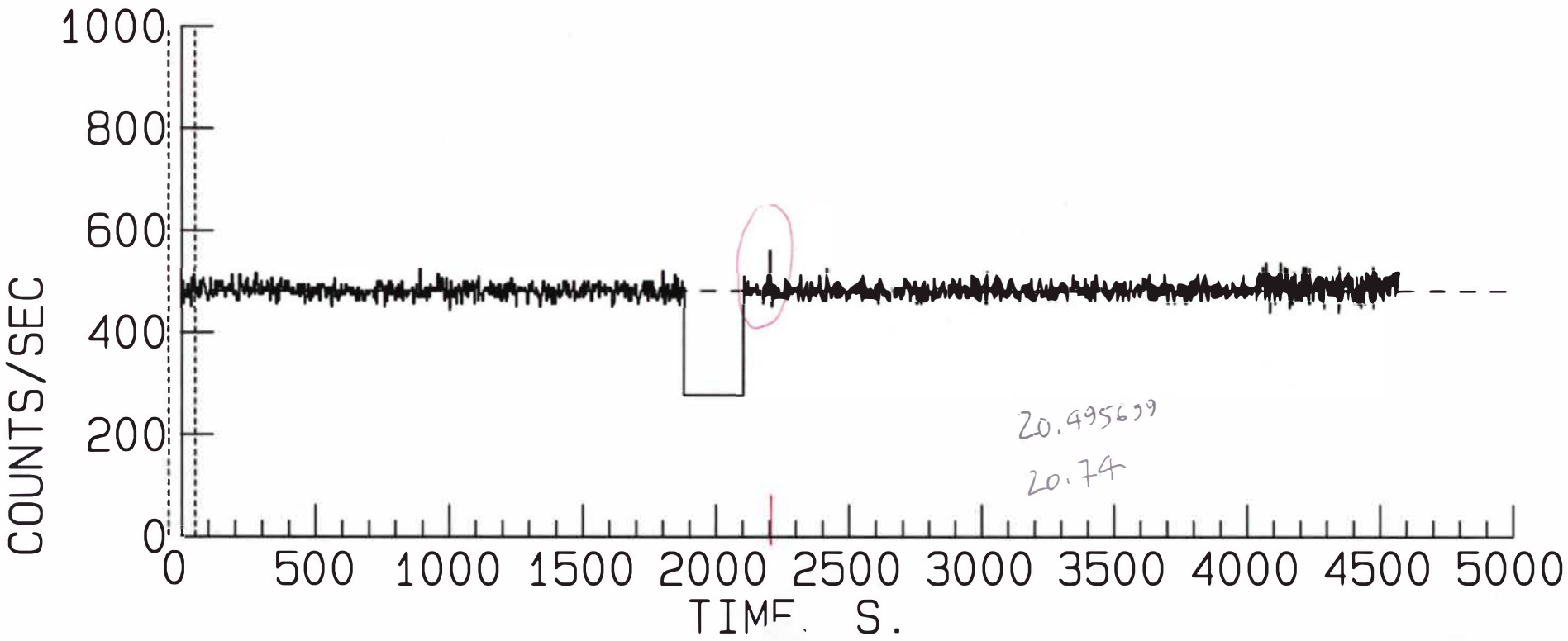
ULYSSES RT

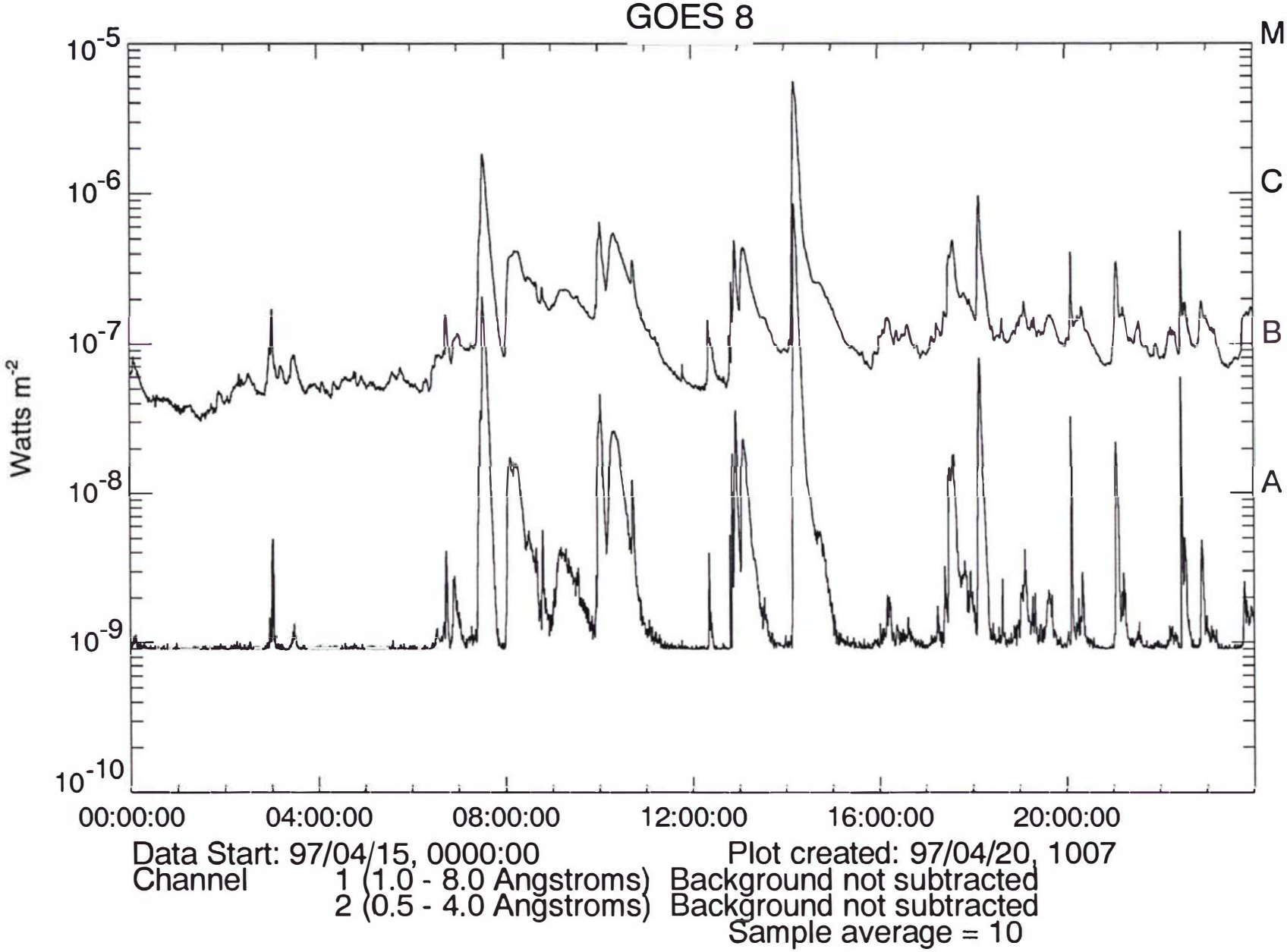
3/ 2/ 0

15/ 4/97 71676.490 s

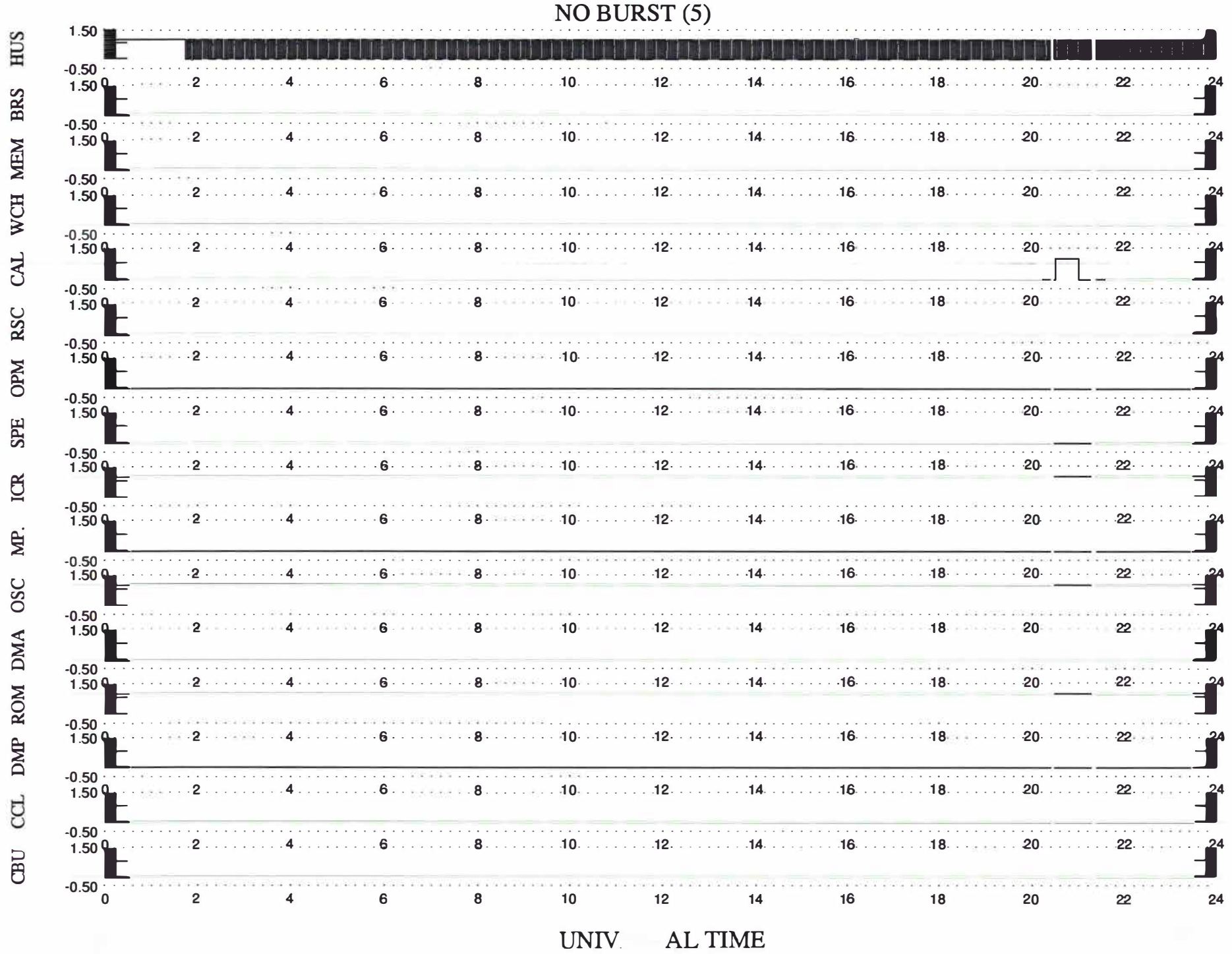
INTERVALS REGROUPED BY 7

22- 148 keV



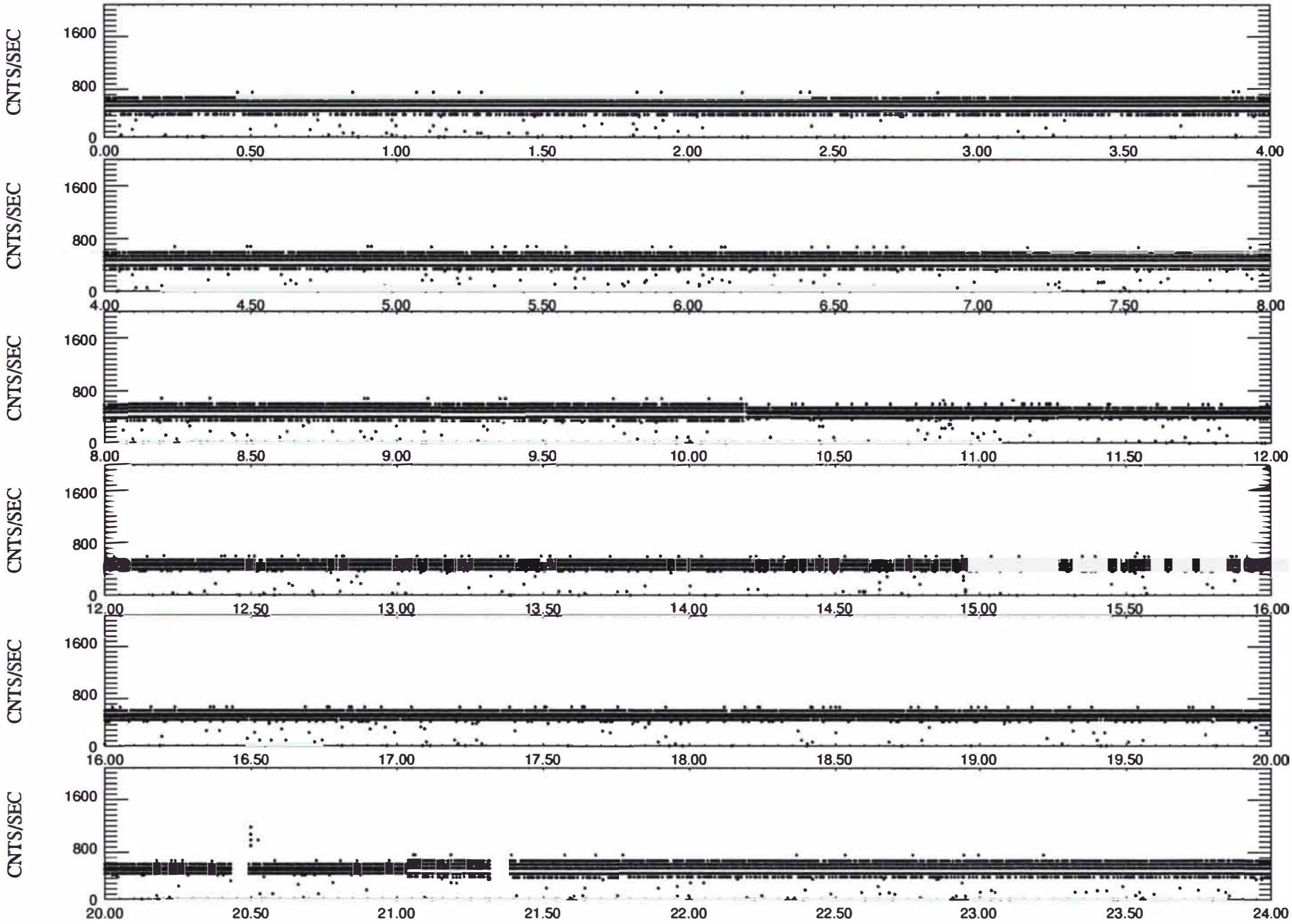

GOES 8
M
C
B
A
Watts m-2
10-5
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/15, 0000:00
Plot created: 97/04/20, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 105, year 1997 to day 105, year 1997 7/22/97



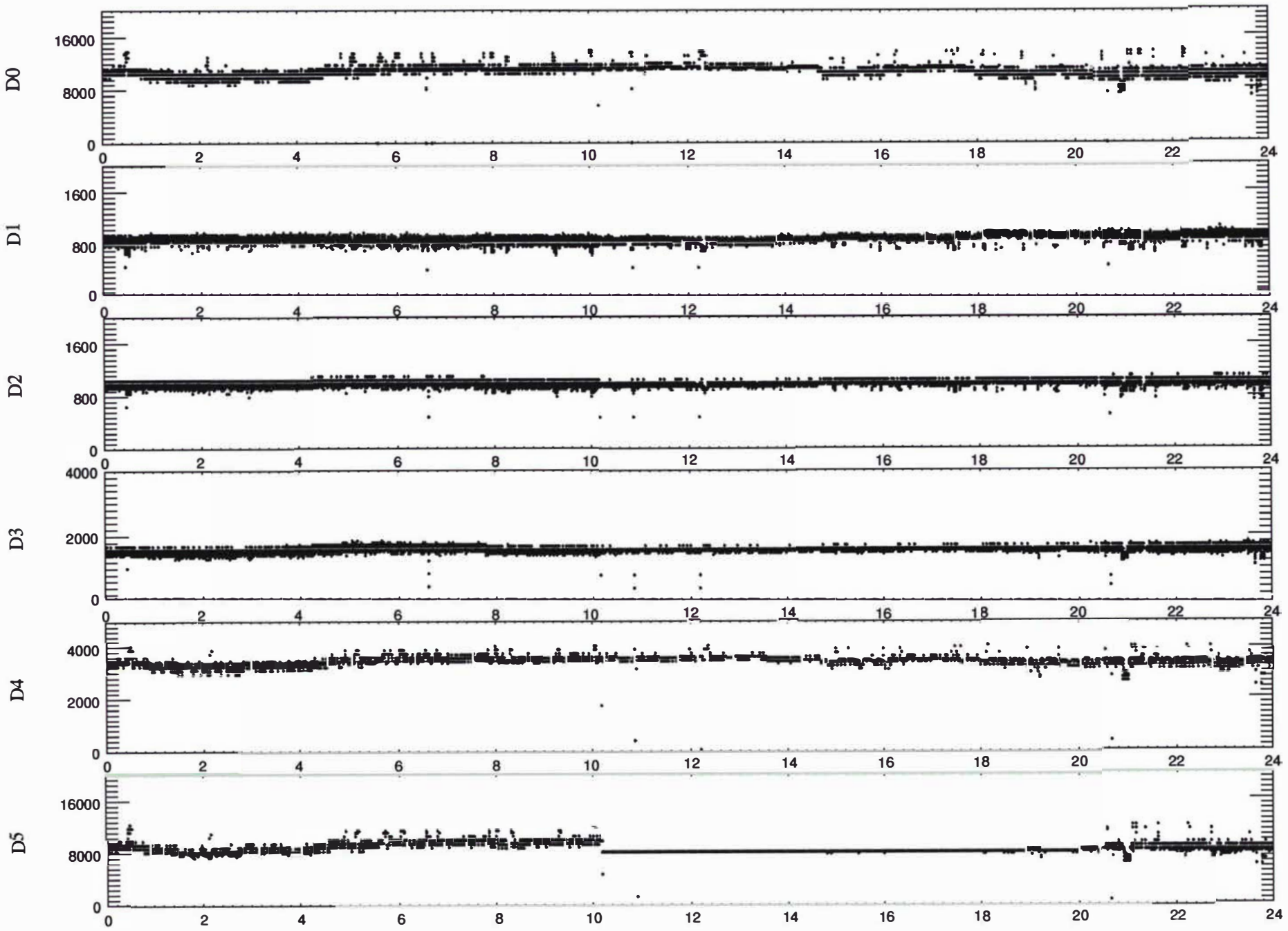
HUS 2A, MODE 1, NOT AVERAGED EDR day 105, year 1997 to day 105, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 105, year 1997 to day 105, year 1997 7/22/97



From SAHI@fender.msfc.nasa.gov Fri Apr 18 14:00 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Fri, 18 Apr 1997 16:00:22 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6183

TIME: TJD=0554 SECONDS=46554

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

From SAHI@fender.msfc.nasa.gov Fri Apr 18 14:03 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Fri, 18 Apr 1997 16:03:08 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6184

TIME: TJD=0554 SECONDS=52482

TYPE:ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

From SAHI@fender.msfc.nasa.gov Fri Apr 18 13:58 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Fri, 18 Apr 1997 15:58:10 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6185

TIME: TJD=0554 SECONDS=71107

TYPE: TGF SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: 16000 COUNTS/CM2

LOCATION: ZENITH=98.6 AZIMUTH=187.9 ERROR=6.26 DEGREES

COMMENTS:
TERRESTRIAL GAMMA RAY FLASH, DUR.~0.010 SECS.

From SAHI@fender.msfc.nasa.gov Fri Apr 18 14:08 PDT 1997
Return-Path: <SAHI@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id OAA18198; Fri, 18 Apr 1997 14:08:24 -0700
From: SAHI@fender.msfc.nasa.gov
Date: Fri, 18 Apr 1997 16:08:12 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970418160812.20c036e1@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6186
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6186
EVENT OF 1997 APR 16 DAY OF YEAR=106
EVENT CROSSING TIME AT BATSE : 79956. S. OR 22:12:36.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 309.000 -39.000
BATSE PEAK COUNTING RATE: 6000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 16/ 4/ 97 IS:
RA= 153.202 DEC= 34.551 DIST= 4.515 AU
BATSE-ULYSSES DISTANCE = 675371361. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 19.83 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2119.27 SECS.
CROSSING TIME AT ULYSSES IS 82075. S. OR 22:47:55 +/- 214.84 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 16/ 4/ 97 IS:
RA= 169.664 DEC= 7.326 DIST= 0.728 AU
MARS-BATSE DISTANCE = 108889736. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 48.32 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 241.52 SECS.
CROSSING TIME AT MARS IS 80198. S. OR 22:16:37 +/- 50.77 SECONDS

BATSE BURST TRIGGER

NO.: 6186

TIME: TJD=0554 SECONDS=79956

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: 6000 COUNTS/CM2

LOCATION: ZENITH=87.2 AZIMUTH=96.1 ERROR=1.56 DEGREES

COMMENTS:
BURST, DUR.~20 SECS. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6186	970416	10554	79956	6000	309	-39	20

BATSE BURST# 6186

ULYSSES RT 18/ 4/97

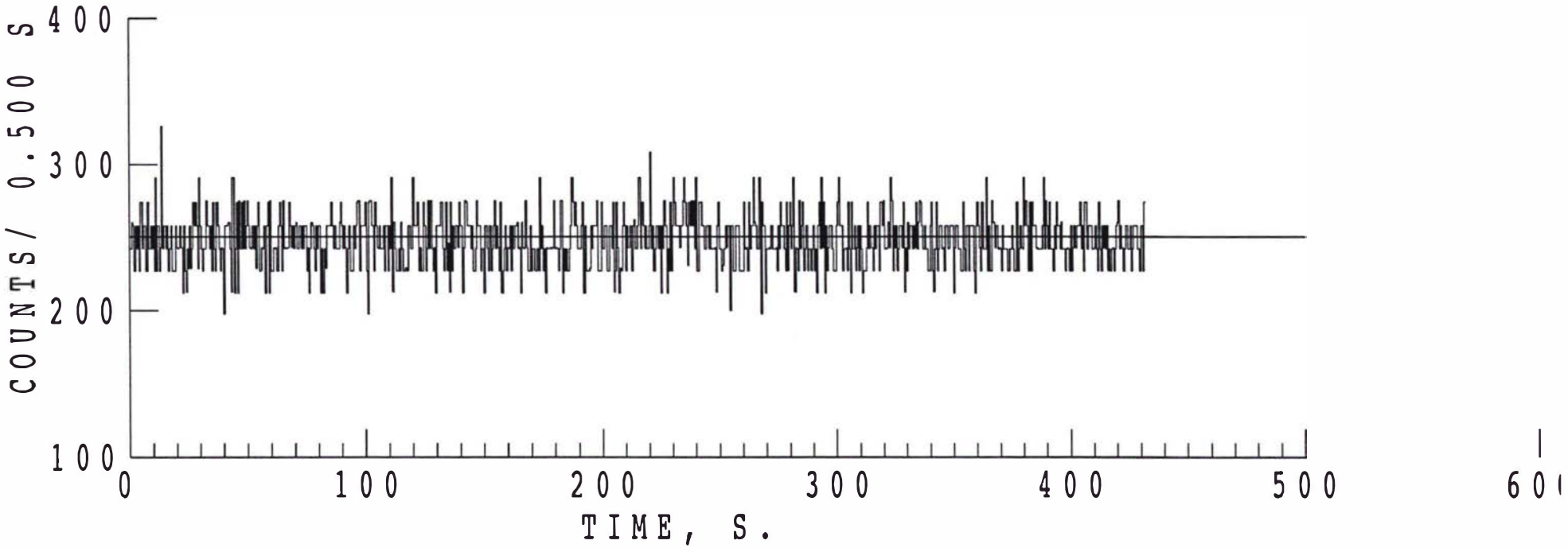
16/ 4/97 81864.125 s

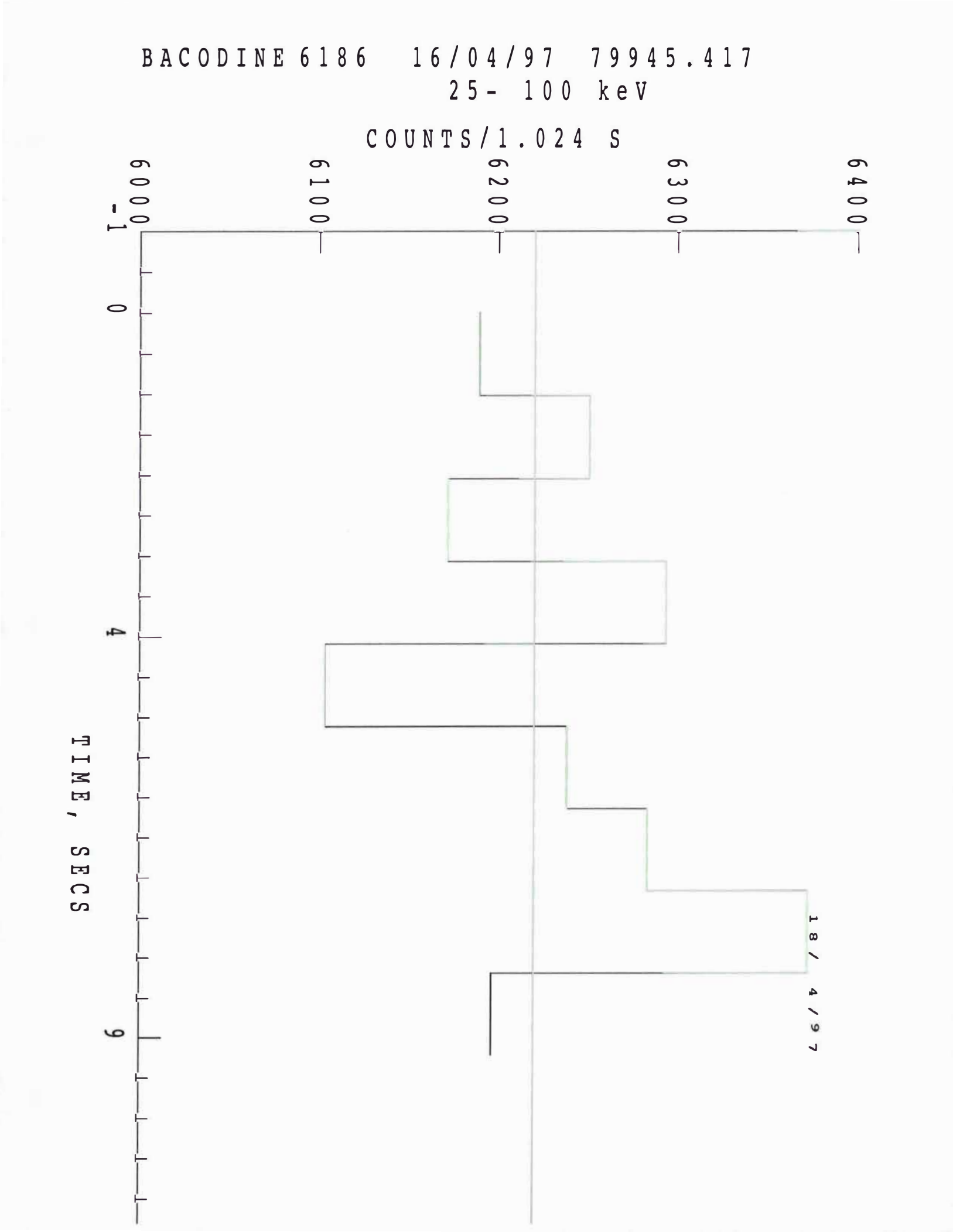
0.250 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS




BACODINE 6186 16/04/97 79945.417
25- 100 keV
COUNTS/1.024 S
6000
6100
6200
6300
6400
-1
0
4
9
TIME, SECS
18/ 4/97

Date: Mar 27 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events N/A

☐ Was CHECKMO run to eliminate data gaps?

☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data…")

☐ Was Mars-blocking used?

☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)

☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).

☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events N/A

☐ Σ $3\Delta t$'s calculated, and/or BMAPSUM executed?

3. For INTEGRAL events N/A

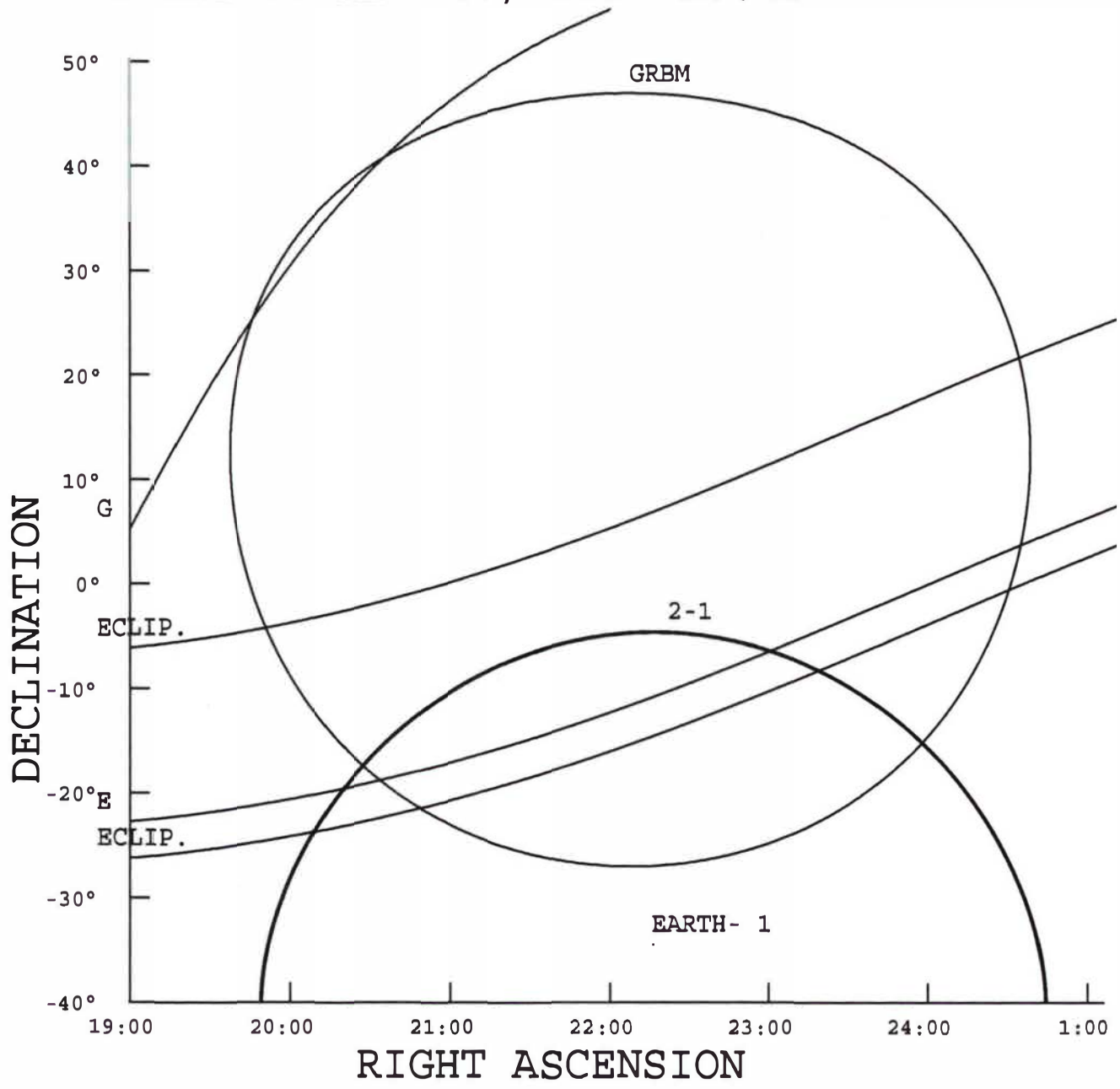
☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?

☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

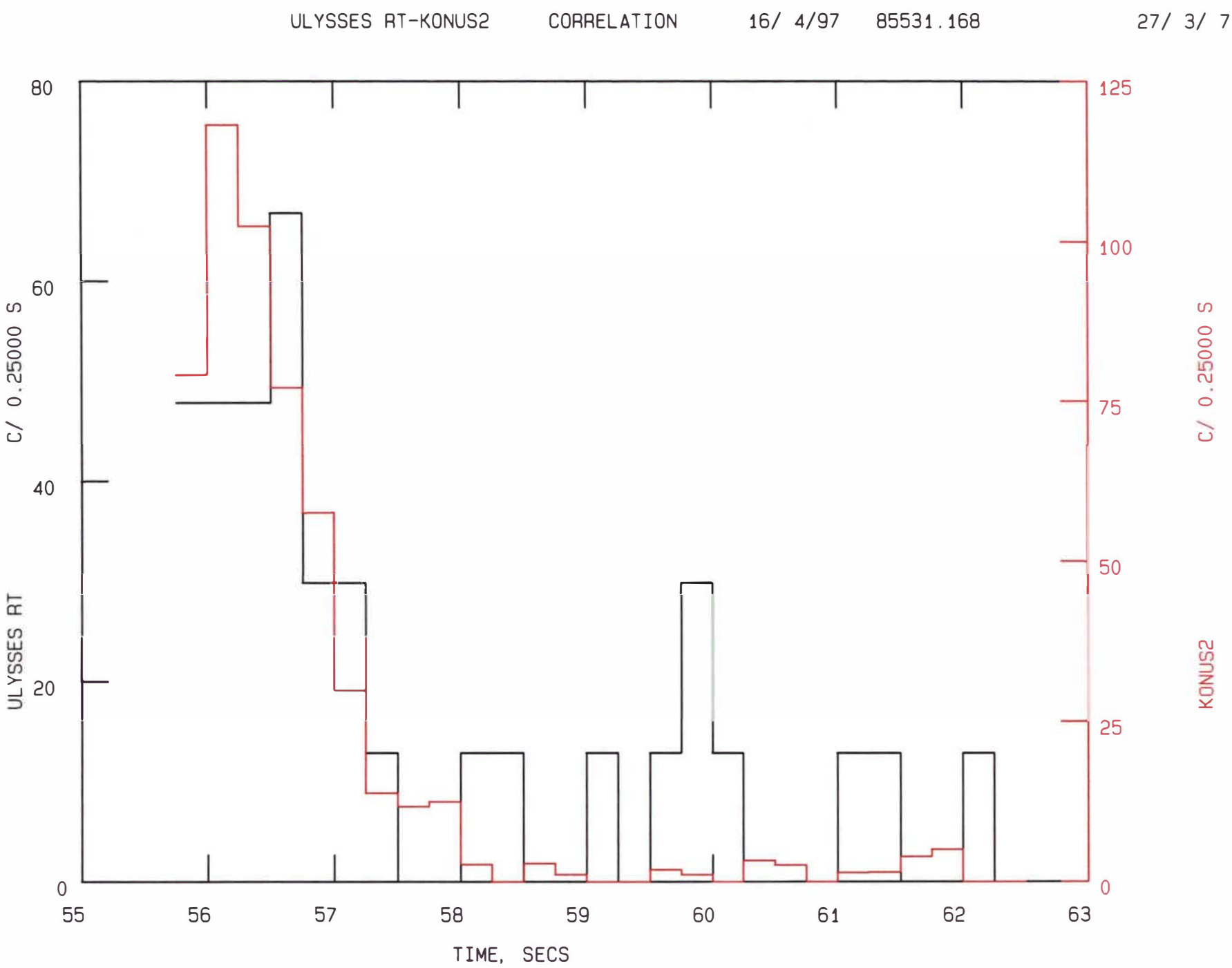
☐ Updated ephemeris used for bursts prior to September 30, 2003?

☑ ACCESS and MBL4 databases updated?

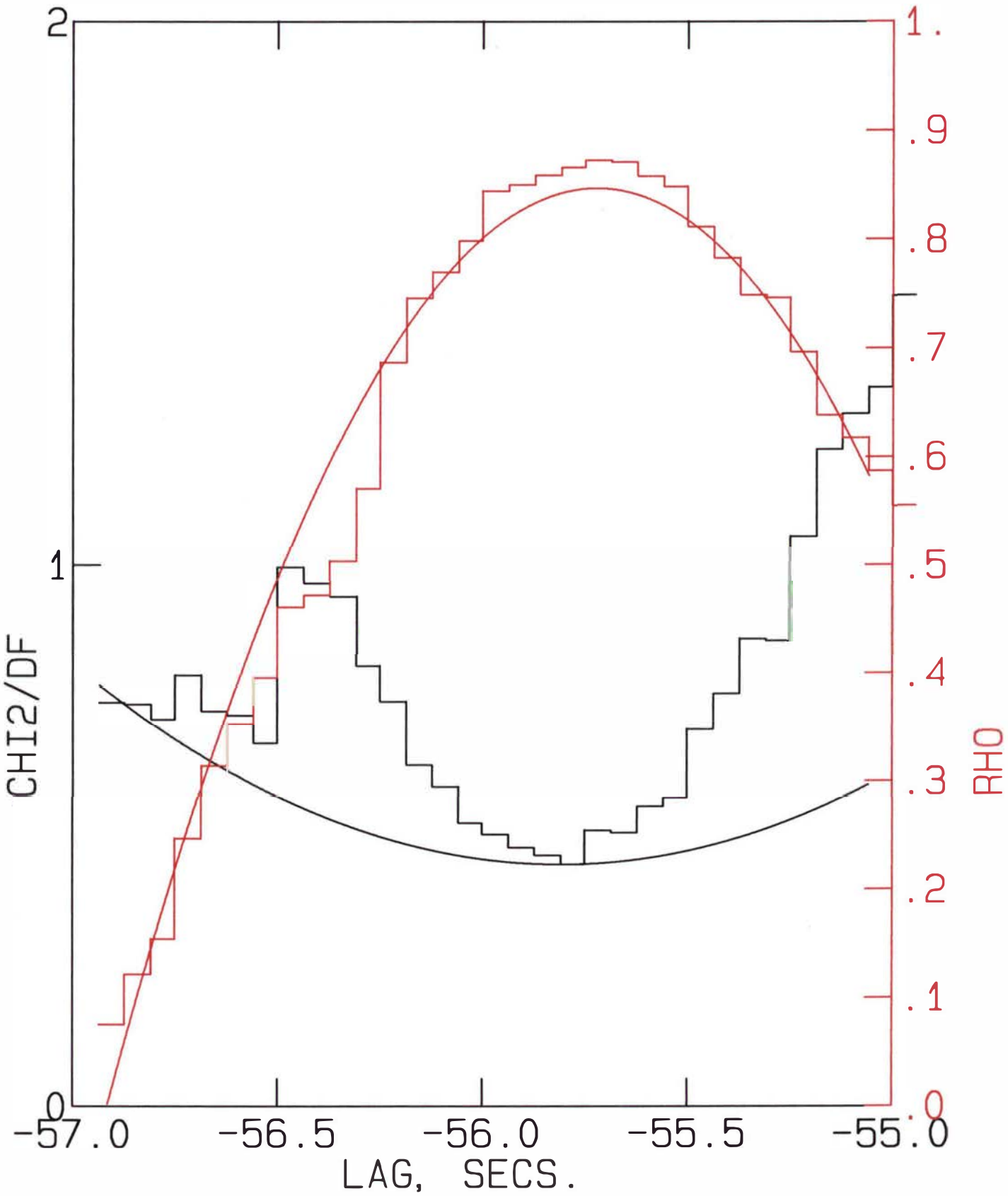
EVENT OF APR 16, 1997 23:45



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 KONUS2


ULYSSES RT-KONUS2 CORRELATION 16/ 4/97 85531.168 27/ 3/ 7
80
60
40
20
0
C/ 0.25000 S
ULYSSES RT
125
100
75
50
25
0
C/ 0.25000 S
KONUS2
55
56
57
58
59
60
61
62
63
TIME, SECS

ULYSSES RT-KONUS2 CORRELATION 16/ 4/97 85531.168

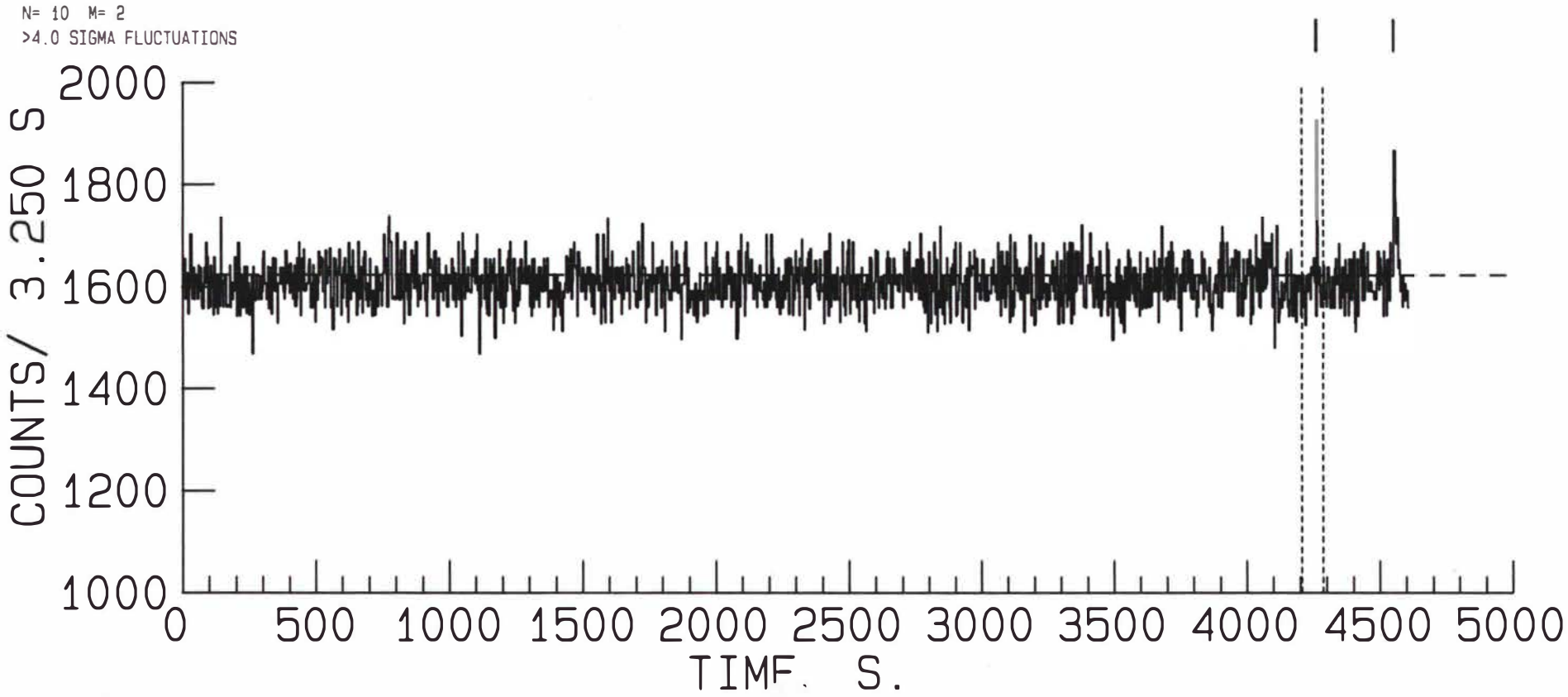


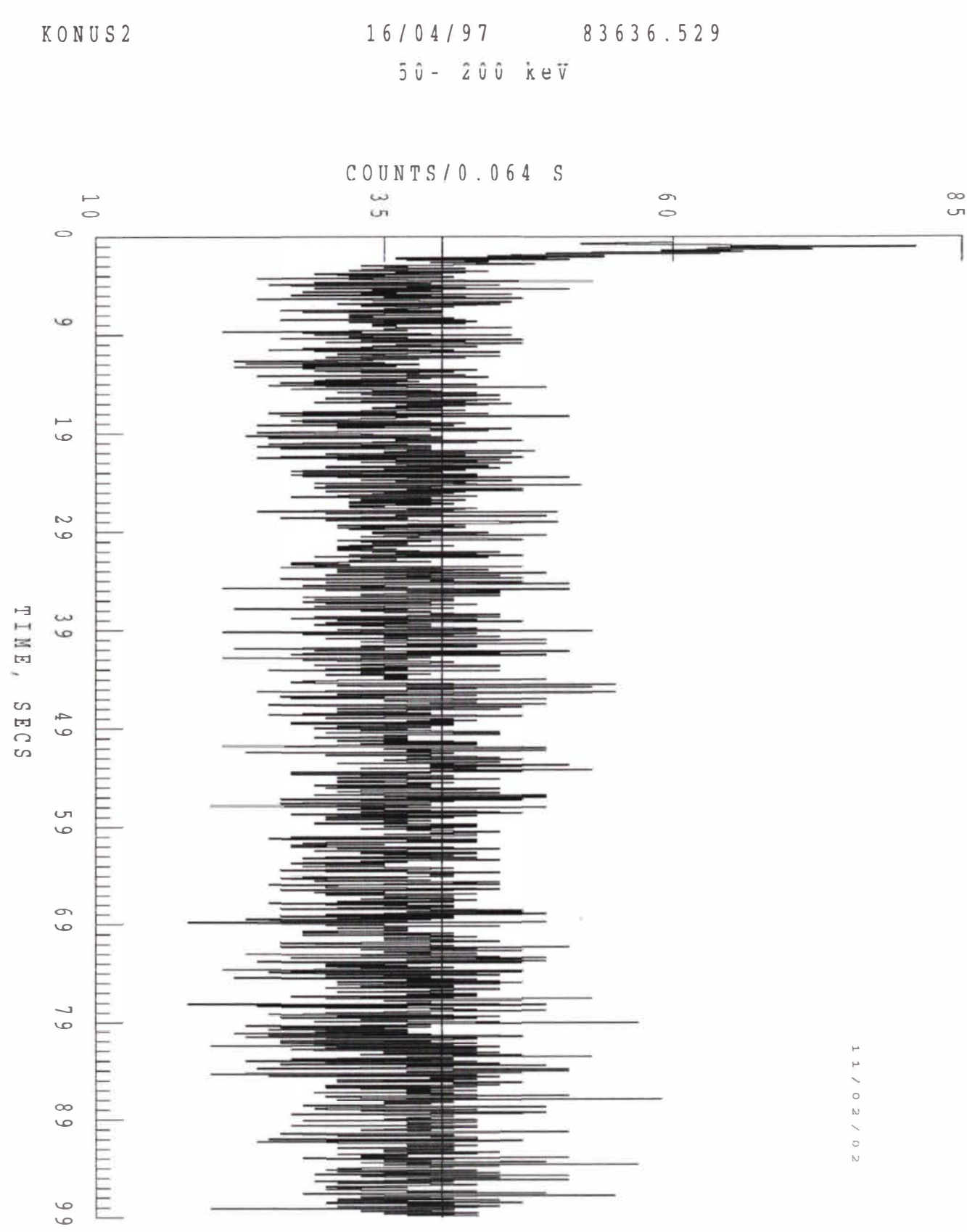
ULYSSES RT 27/ 3/ 7

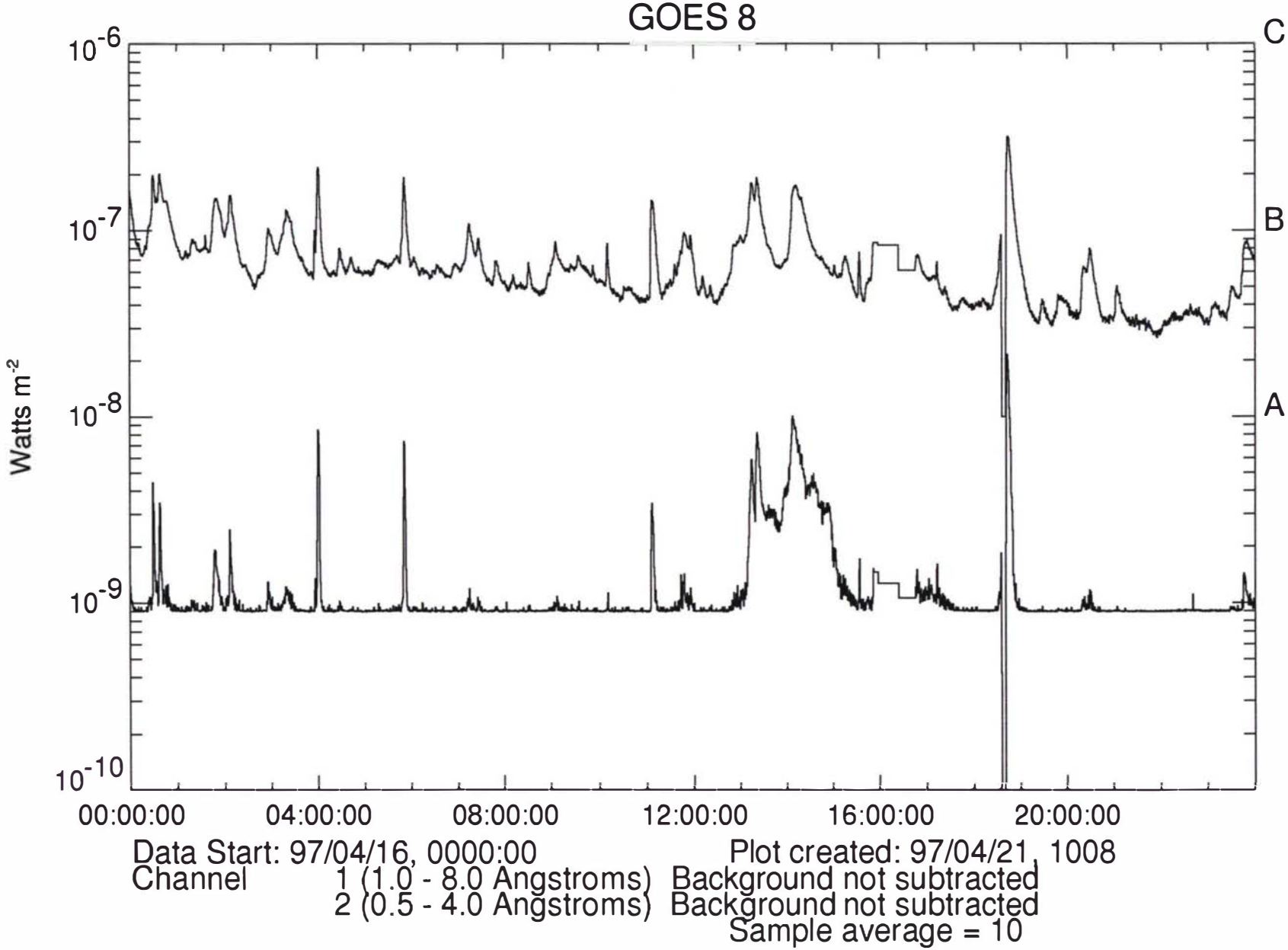
16/ 4/97 81324.125 s

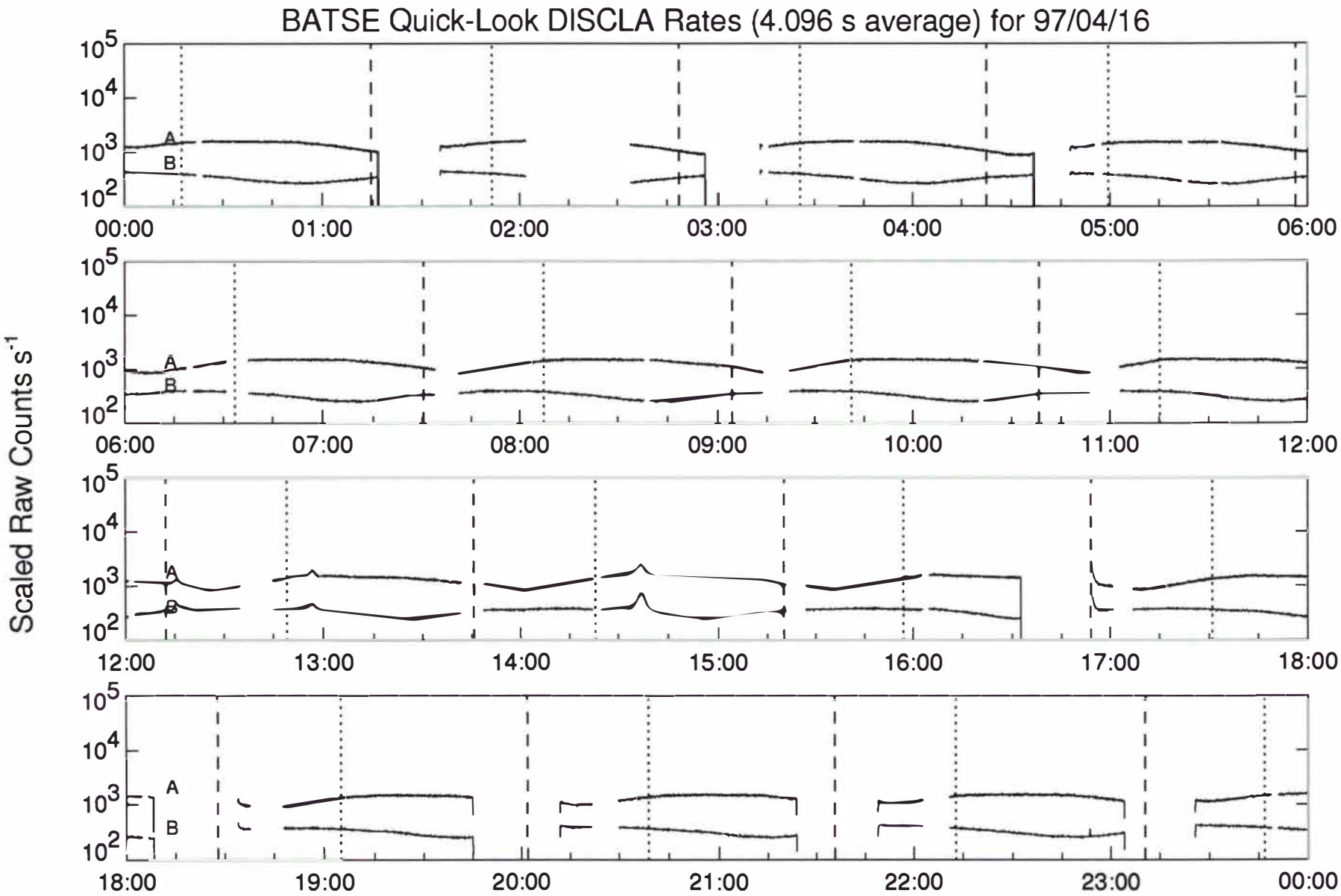
0.250 S INTERVALS REGROUPED BY 13

22- 147 keV

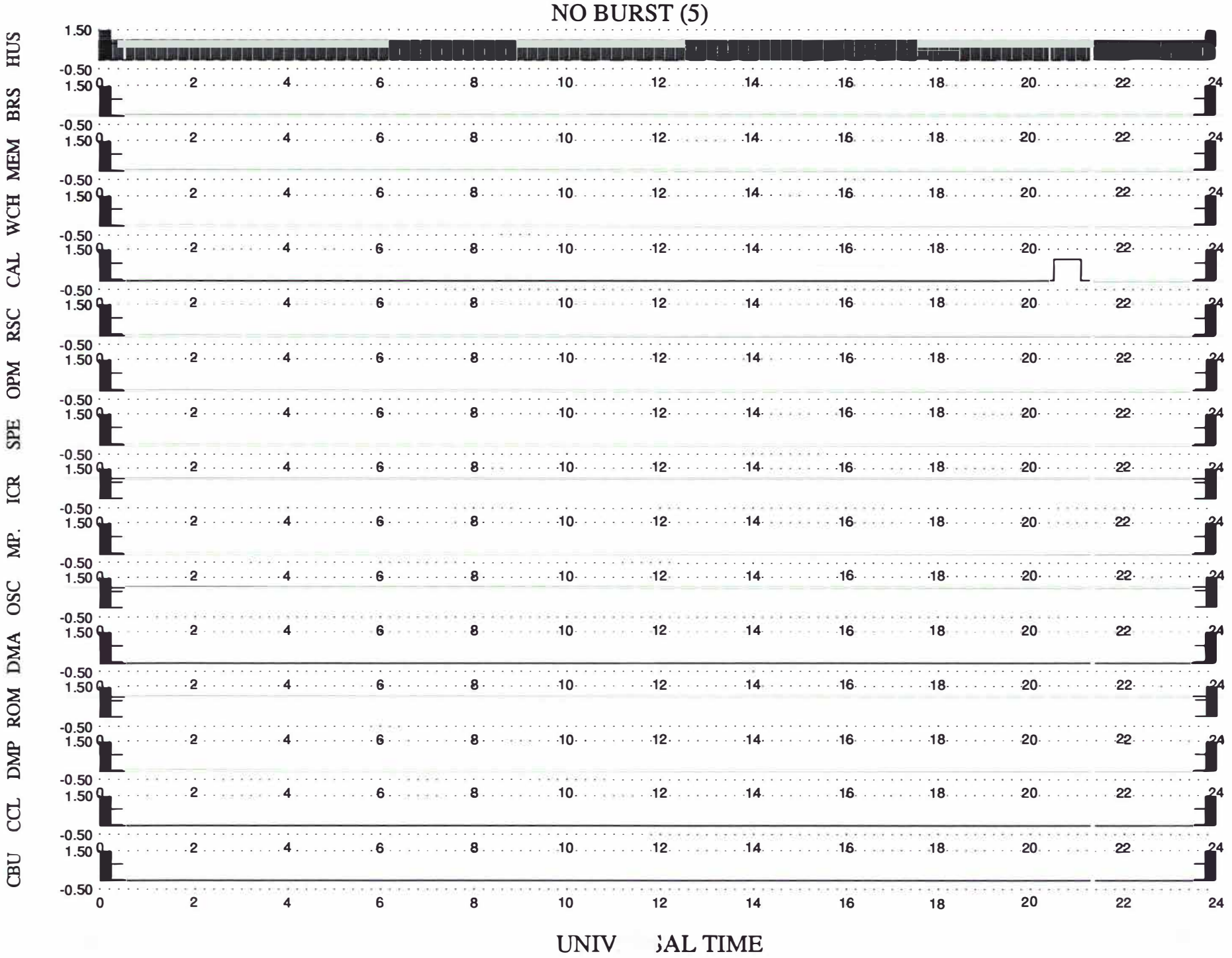



KONUS2
16/04/97
83636.529
50- 200 keV
COUNTS/0.064 S
10
35
60
85
0
9
19
29
39
49
59
69
79
89
99
TIME, SECS
11/02/02


GOES 8
C
B
A
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/16, 0000:00
Plot created: 97/04/21, 1008
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

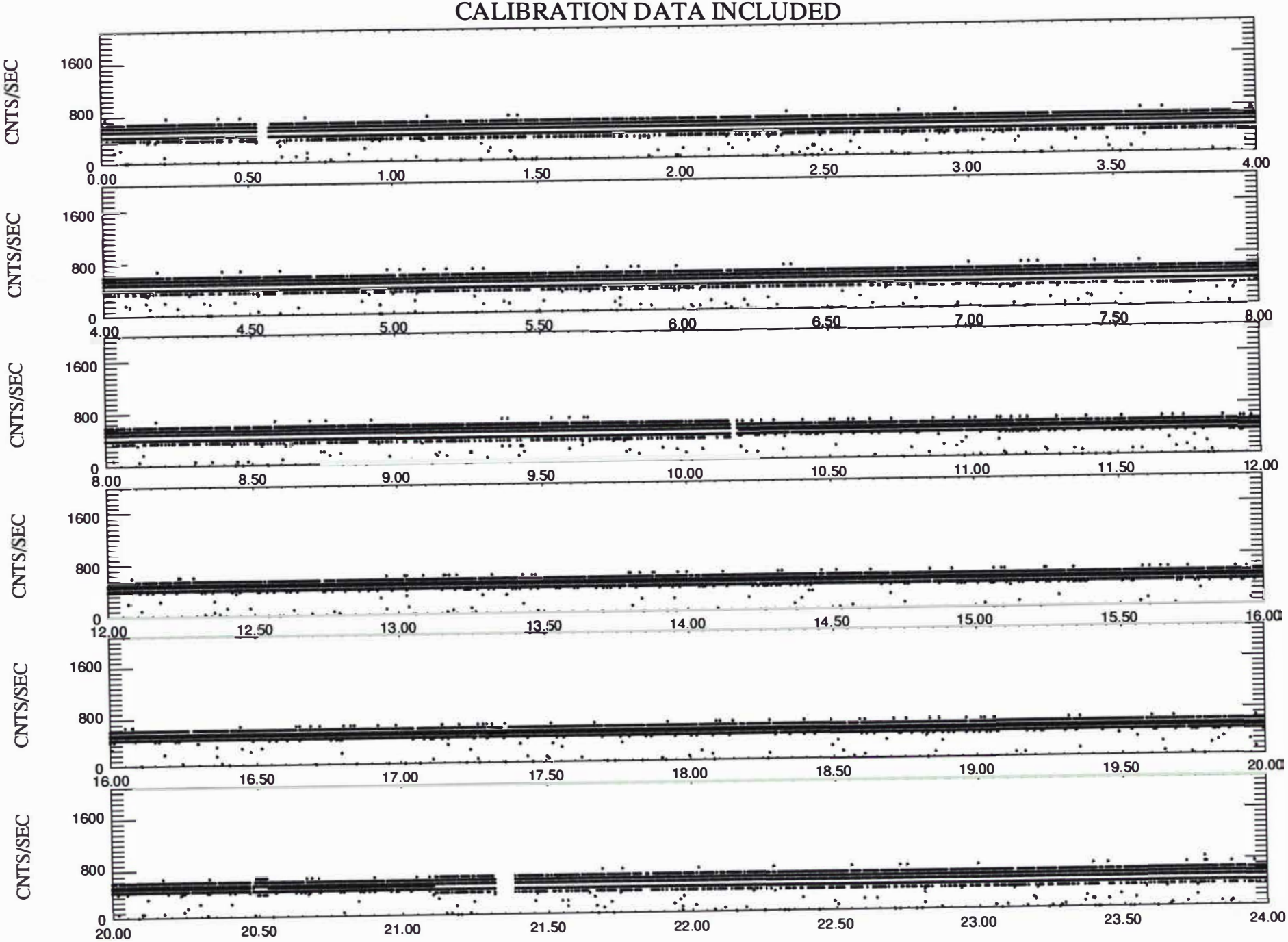

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/16
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Current Time: 97/04/21, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 106, year 1997 to day 106, year 1997 7/22/97



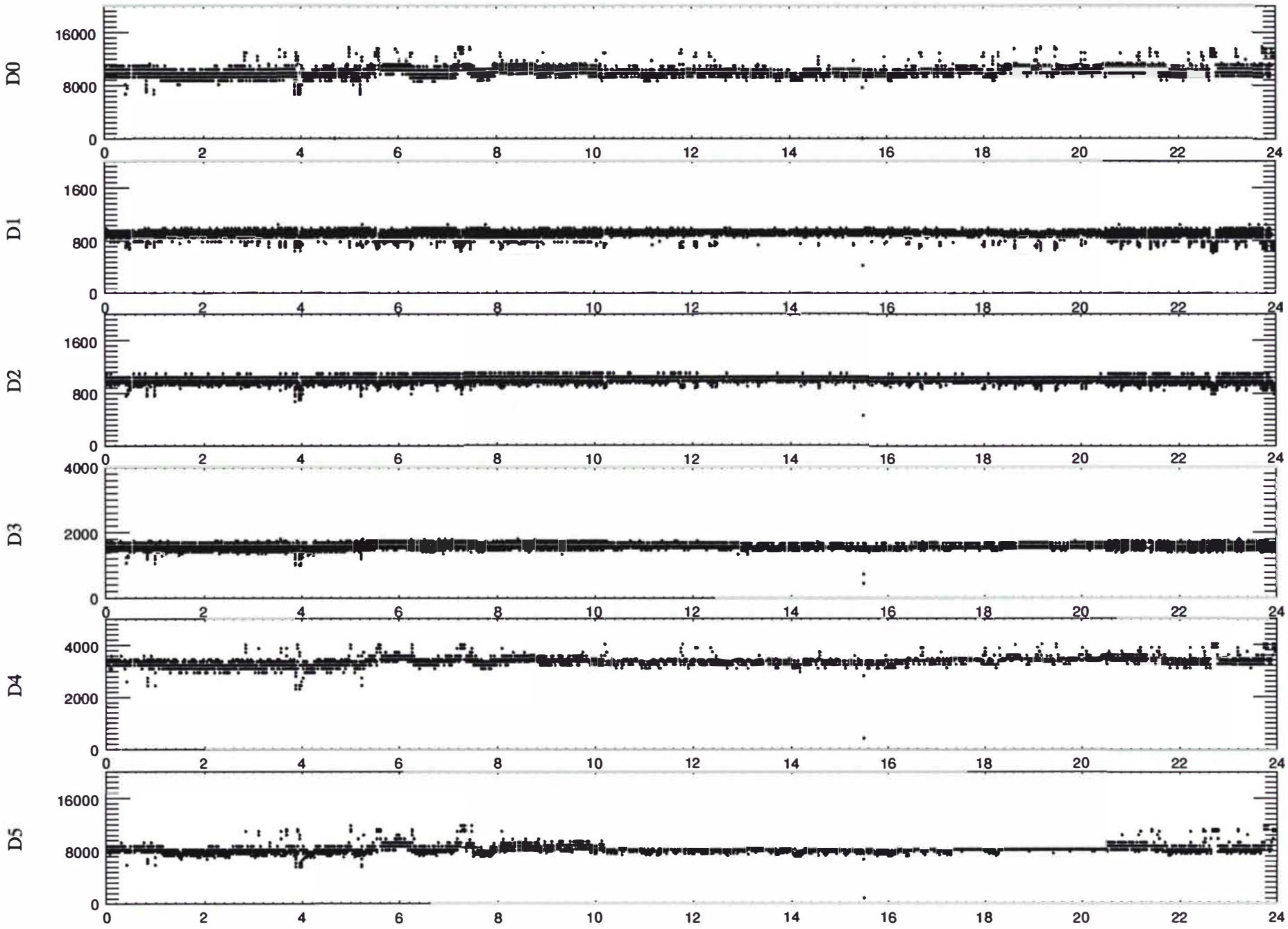
HUS 2A, MODE 1, NOT AVERAGED EDR day 106, year 1997 to day 106, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV 'AL TIME

HUS 2B COUNTS / SEC EDR day 106, year 1997 to day 106, year 1997 7/22/97



Date: Oct 2 '02

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data…")

☐ Was Mars-blocking used?

☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)

☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).

☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events

☐ Σ $3\Delta t$'s calculated, and/or BMAPSUM executed?

3. For INTEGRAL events

☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?

☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

☐ Updated ephemeris used for bursts prior to September 30, 2003?

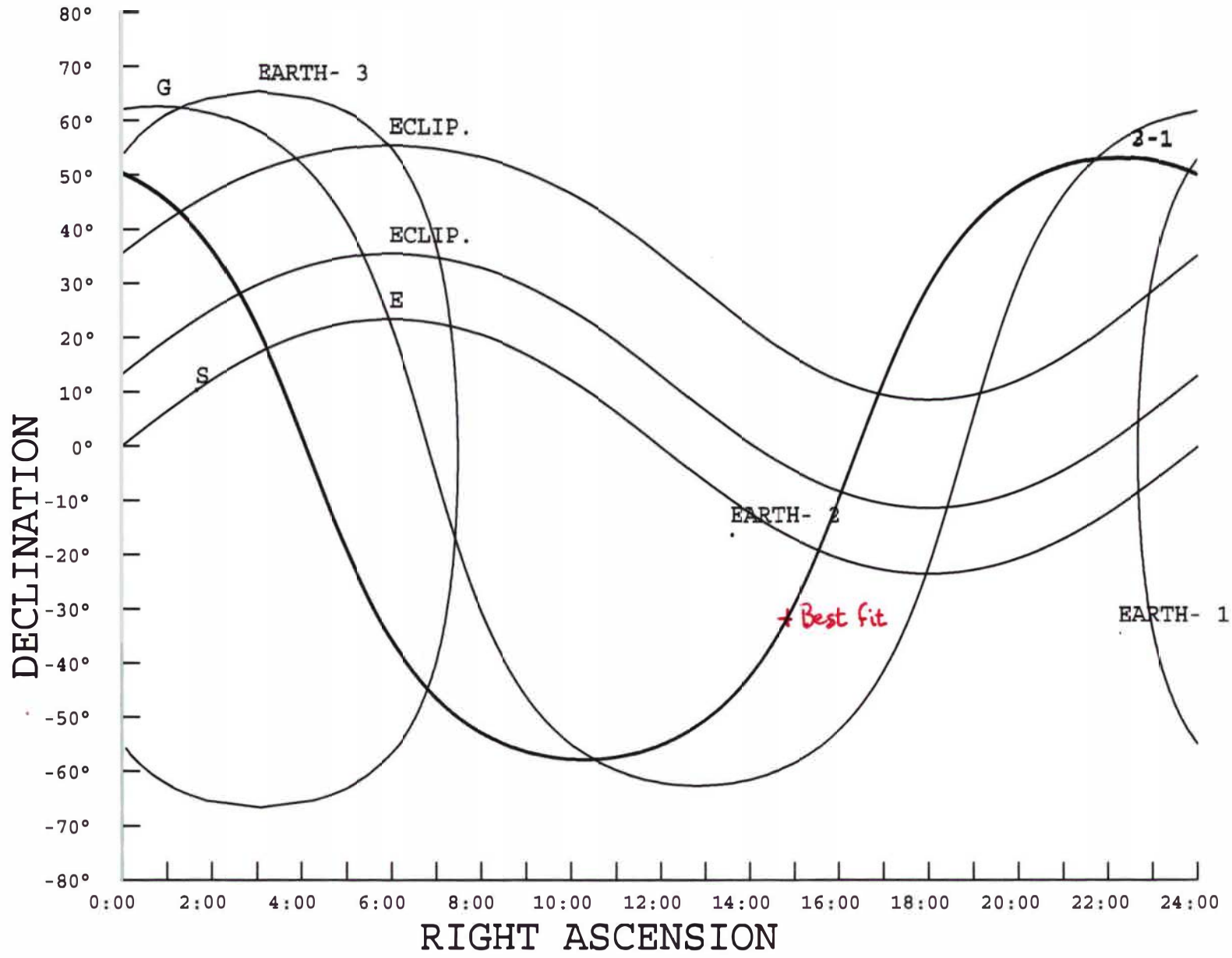
☑ ACCESS and MBL4 databases updated?

SAX added Jan 6

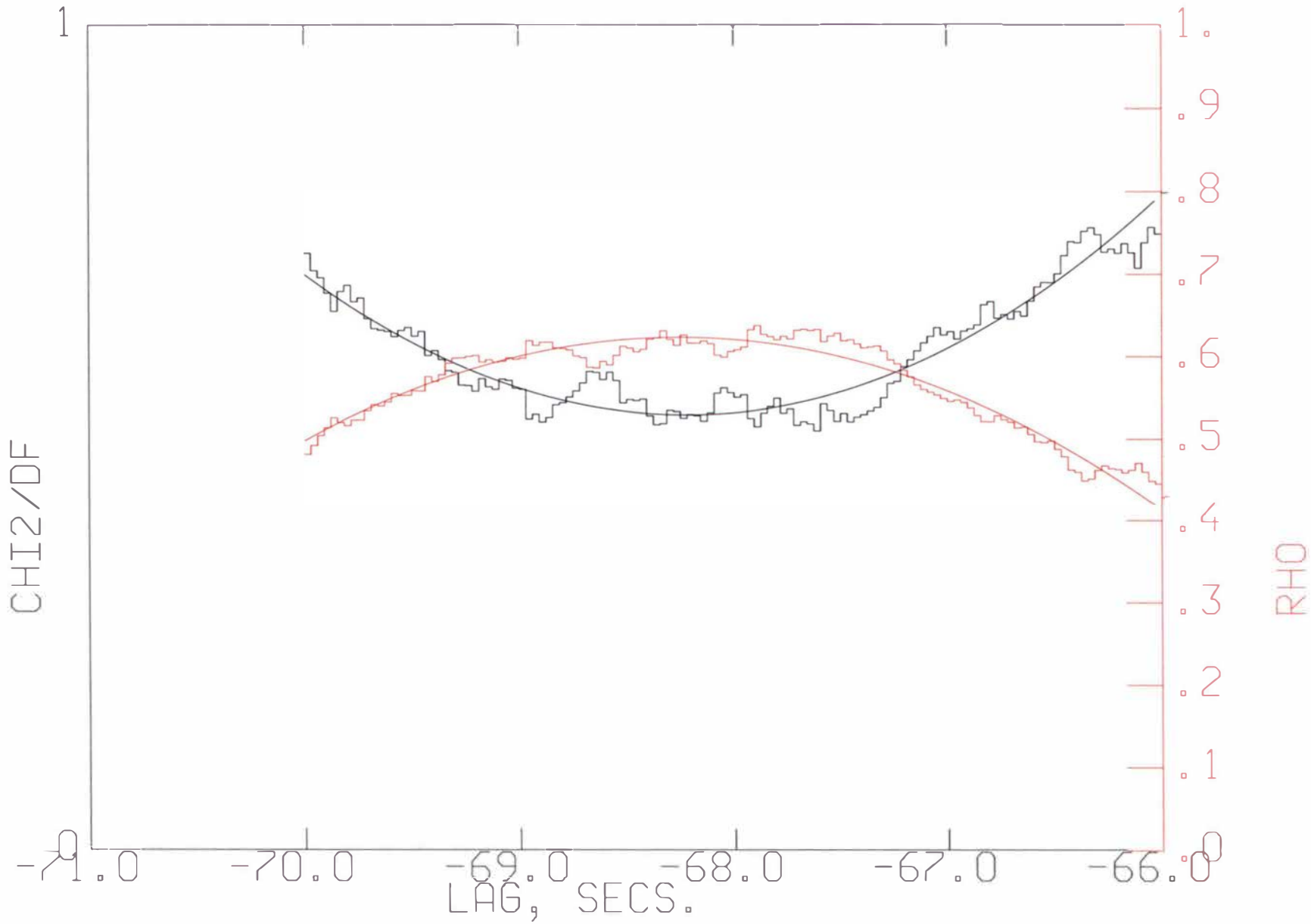
EVENT OF APR 17, 1997 0:23

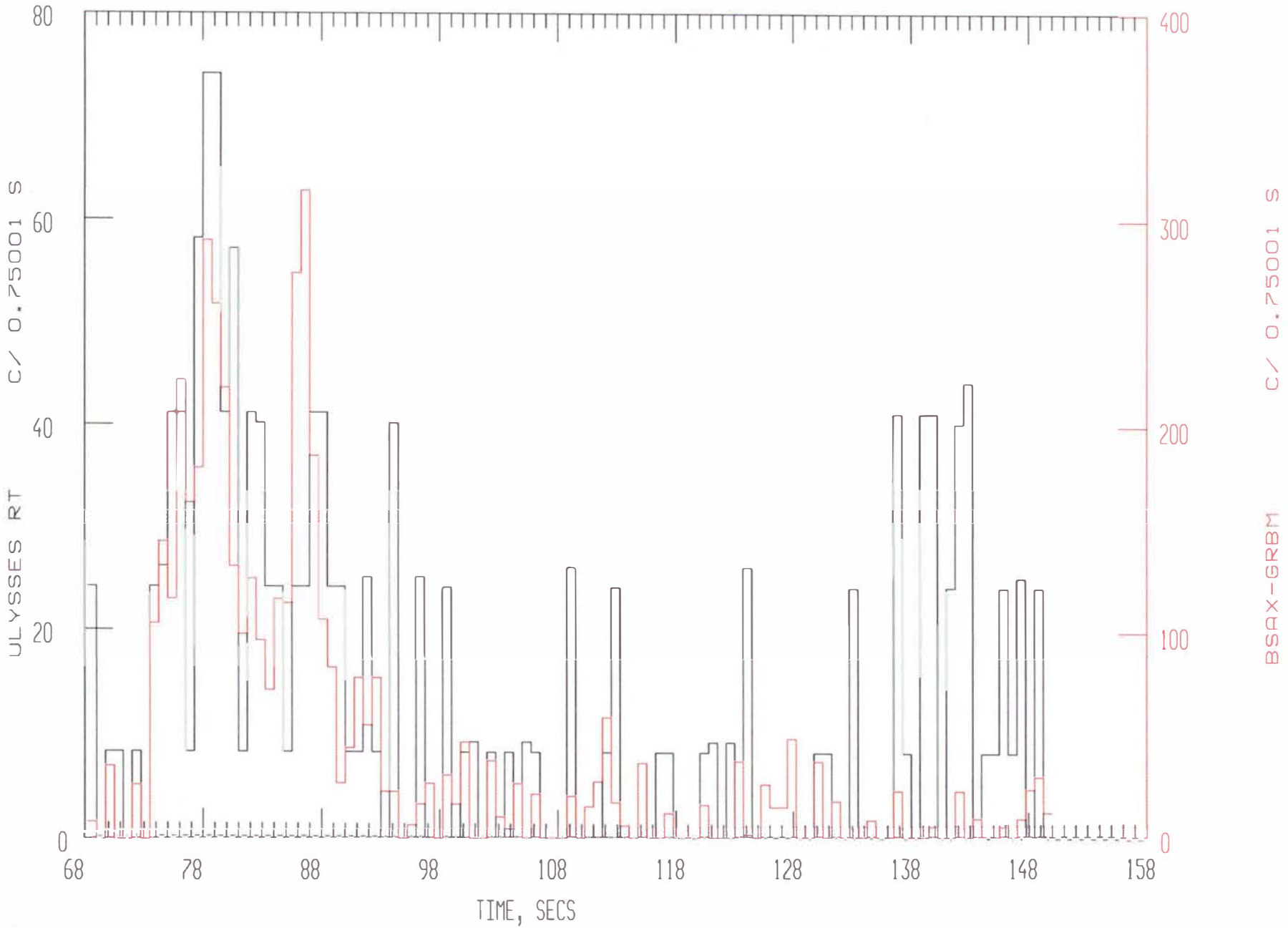
6/ 1/10

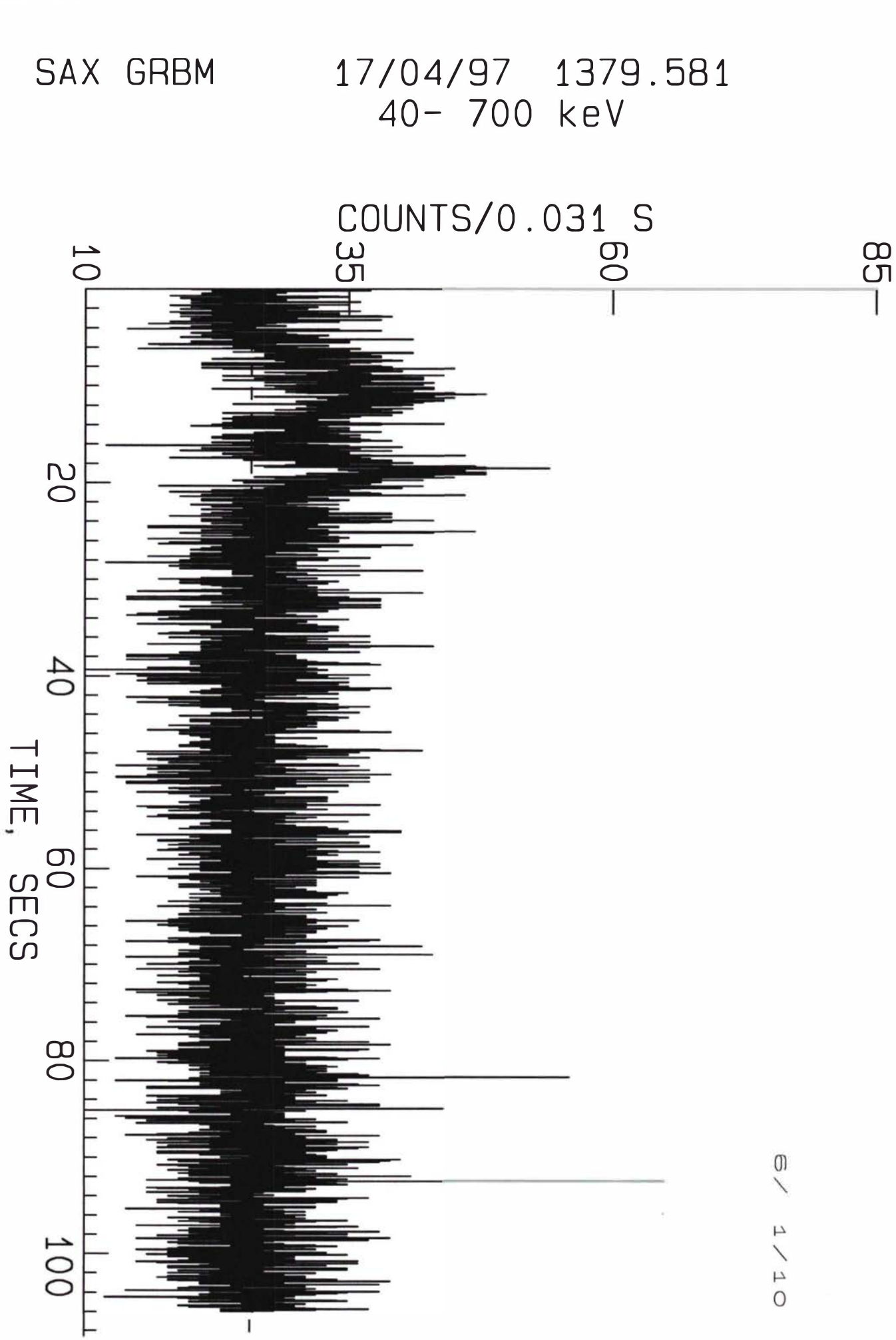
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 KONUS 3 SAX

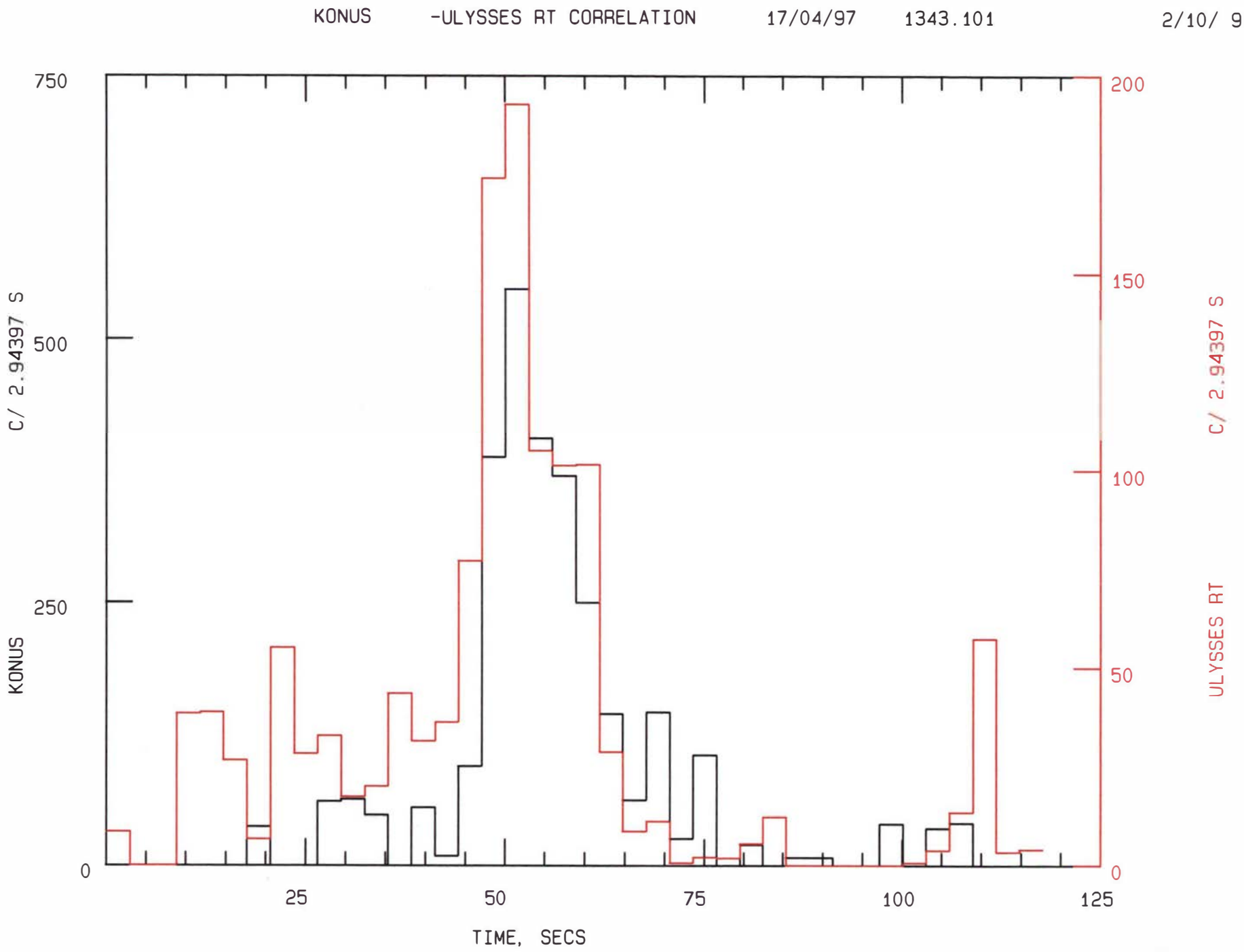


ULYSSES RT-BSAX-GRBM CORRELATION 17/ 4/97 1400.172

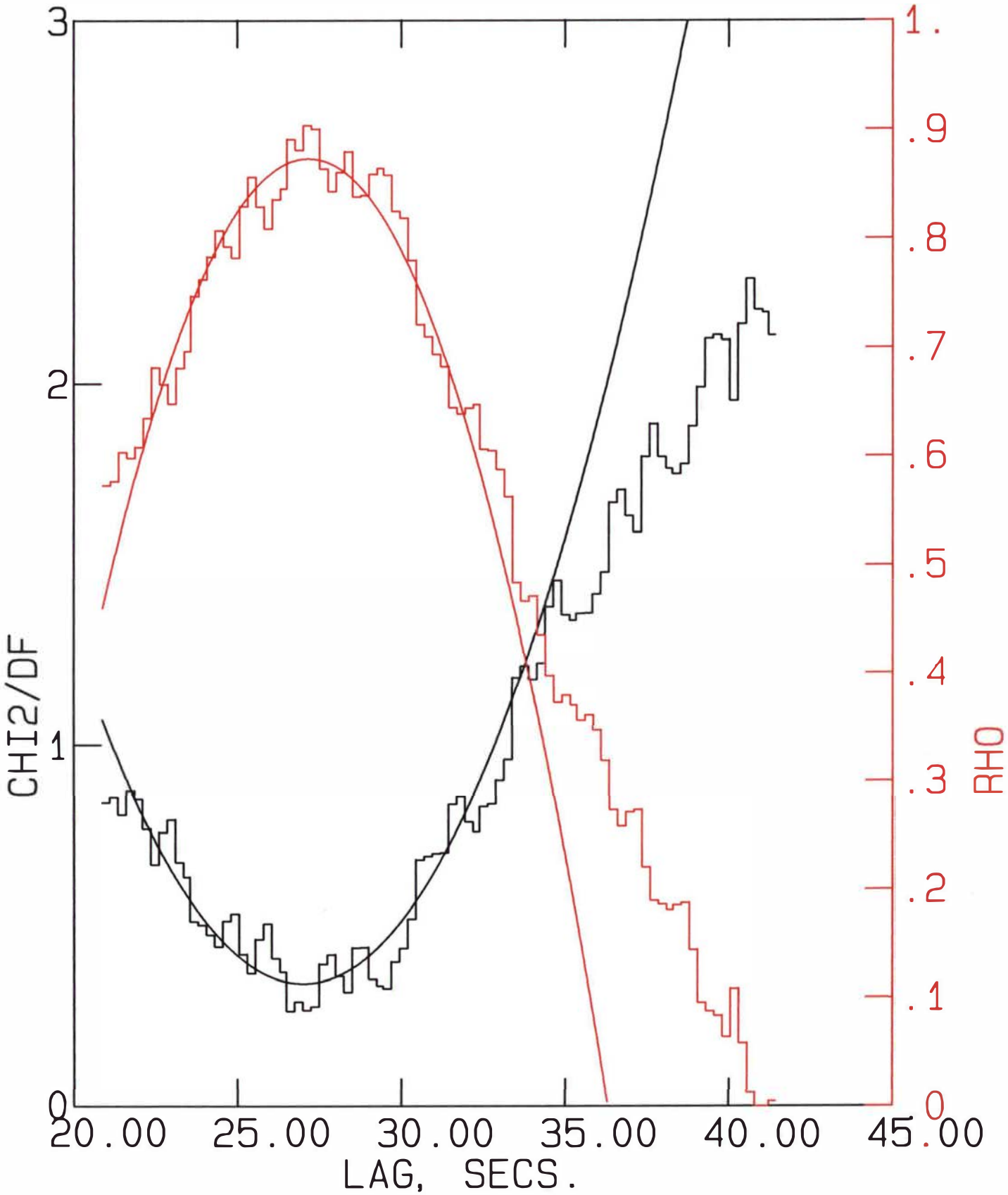



ULYSSES RT
C/ 0.75001 S
BSAX-GRBM
C/ 0.75001 S
TIME, SECS
0
20
40
60
80
100
200
300
400
68
78
88
98
108
118
128
138
148
158


SAX GRBM
17/04/97 1379.581
40- 700 keV
COUNTS/0.031 S
10
35
60
85
20
40
60
80
100
TIME, SECS
6/ 1/10


KONUS -ULYSSES RT CORRELATION 17/04/97 1343.101 2/10/ 9
750
500
250
0
C/ 2.94397 S
KONUS
200
150
100
50
0
C/ 2.94397 S
ULYSSES RT
25
50
75
100
125
TIME, SECS

KONUS -ULYSSES RT CORRELATION 17/04/97 1343.101



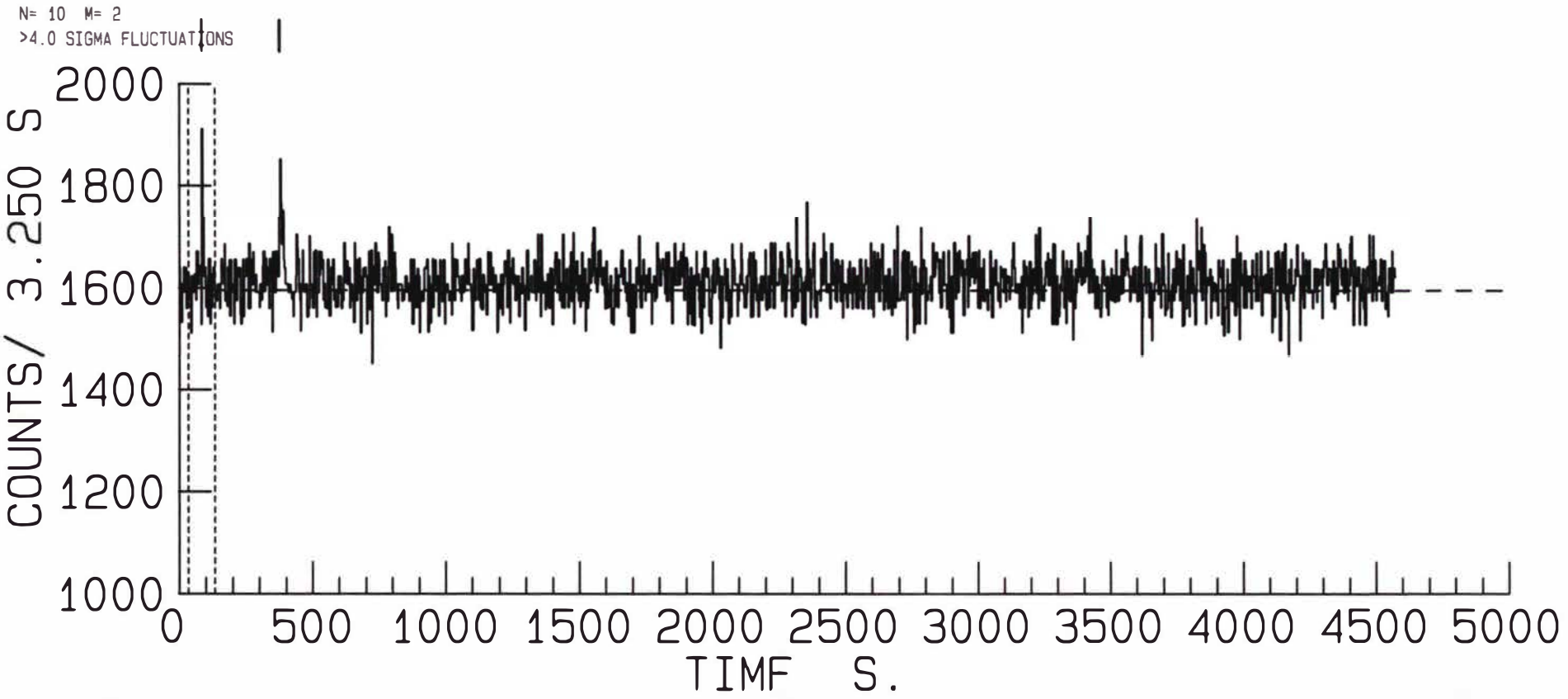
ULYSSES RT

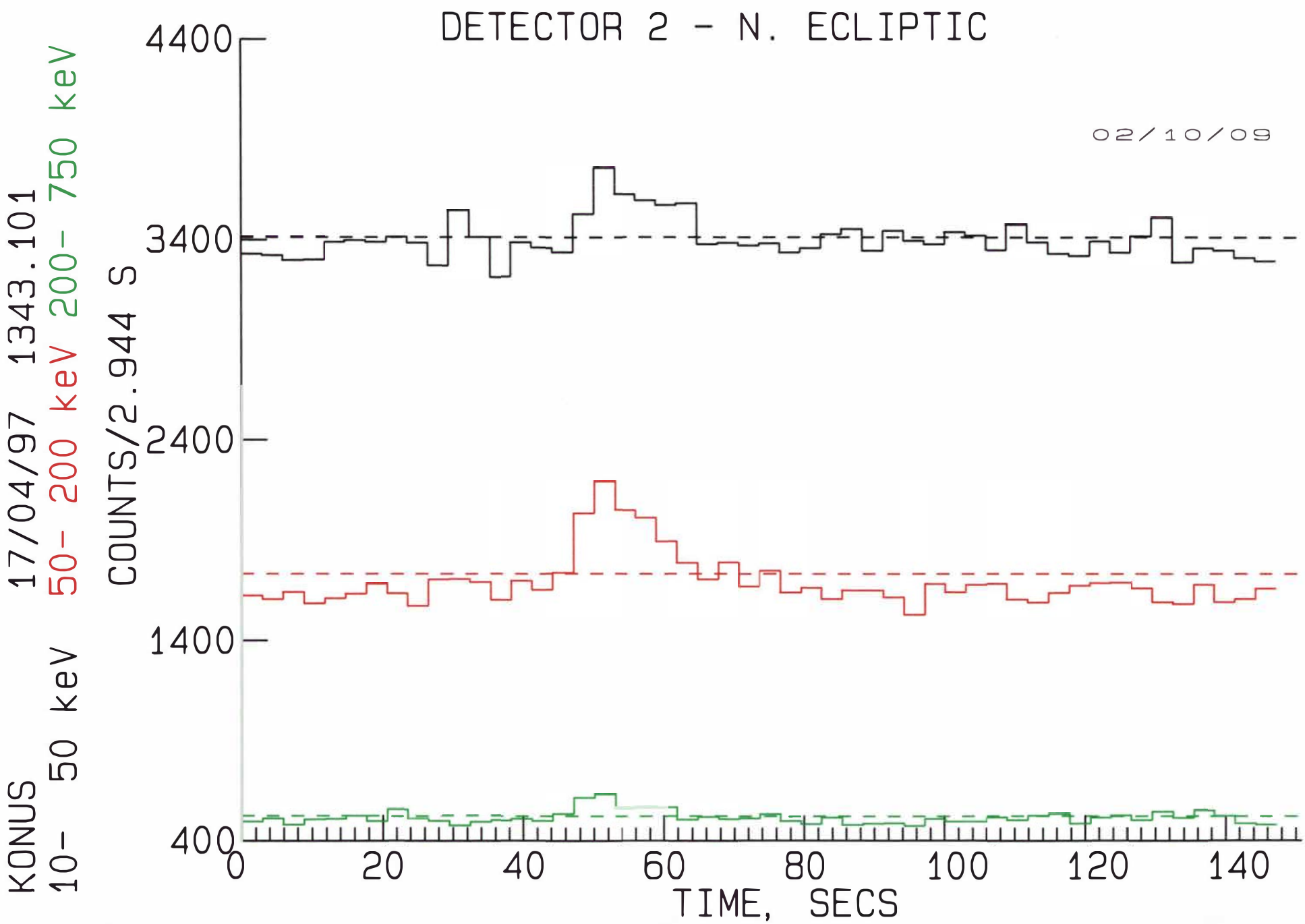
2/10/ 9

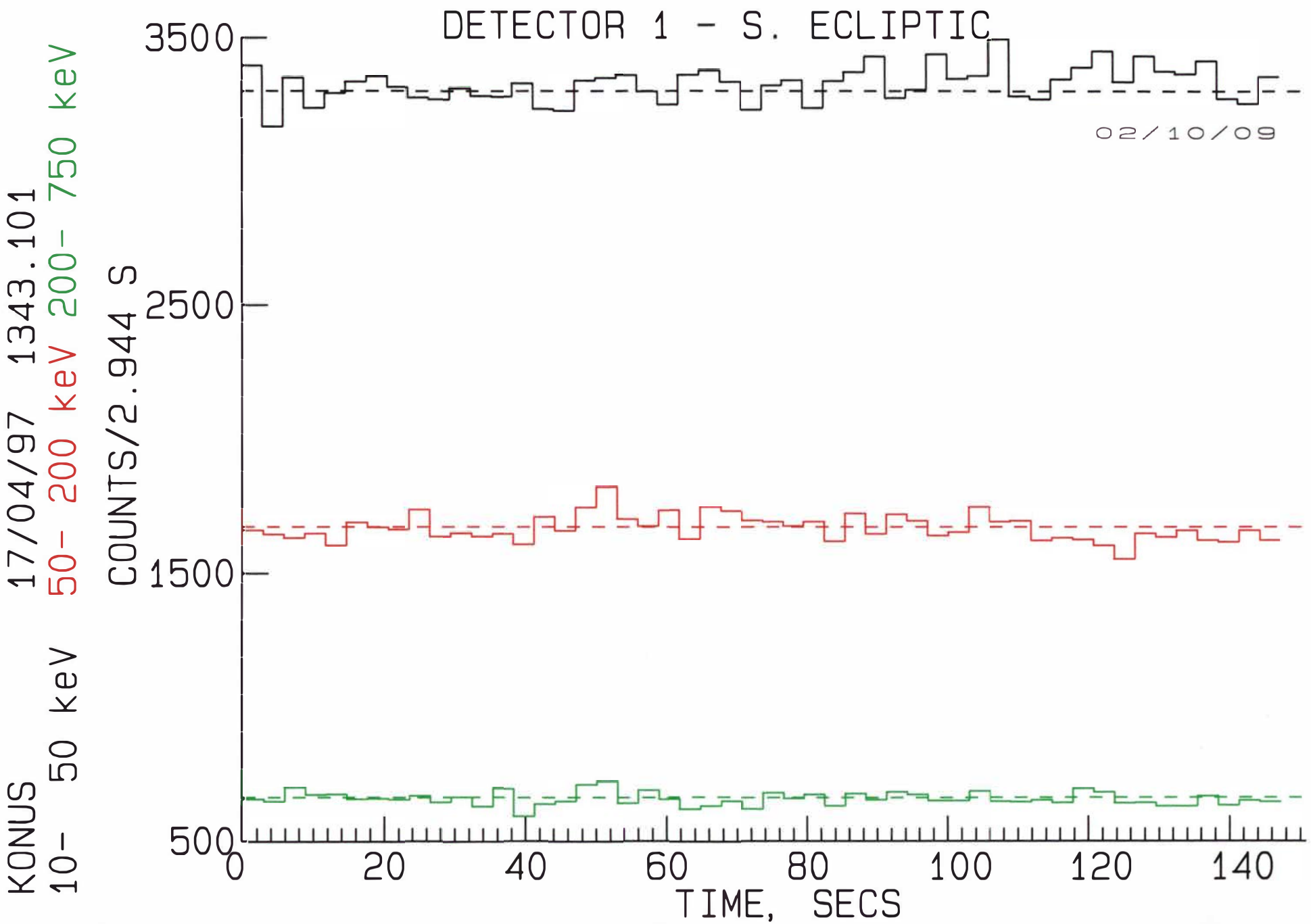
16/ 4/97 85500.180 s

0.250 S INTERVALS REGROUPED BY 13

22- 147 keV




DETECTOR 2 - N. ECLIPTIC
02/10/09
KONUS
10- 50 keV
50- 200 keV
200- 750 keV
17/04/97 1343.101
COUNTS/2.944 S
4400
3400
2400
1400
400
0
20
40
60
80
100
120
140
TIME, SECS


DETECTOR 1 - S. ECLIPTIC
02/10/09
KONUS 17/04/97 1343.101
10- 50 keV 50- 200 keV 200- 750 keV
COUNTS/2.944 S
3500
2500
1500
500
0
20
40
60
80
100
120
140
TIME, SECS

From SURASAK@ssl.msfc.nasa.gov Mon Apr 21 08:36 PDT 1997
From: SURASAK@ssl.msfc.nasa.gov
Date: Mon, 21 Apr 1997 10:34:59 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6187

TIME: TJD=0555 SECONDS=42306

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT!

From SURASAK@SSLLES.MSFC.NASA.GOV Mon Apr 21 15:10 PDT 1997
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id PAA06579; Mon, 21 Apr 1997 15:10:11 -0700
Date: Mon, 21 Apr 1997 17:10:06 -0500 (CDT)
From: SURASAK@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970421171007.21201ec3@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6188
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6188
EVENT OF 1997 APR 17 DAY OF YEAR=107
EVENT CROSSING TIME AT BATSE : 50016. S. OR 13:53:36.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 296.000 56.000
BATSE PEAK COUNTING RATE: 3900 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 17/ 4/ 97 IS:
RA= 153.108 DEC= 34.488 DIST= 4.525 AU
BATSE-ULYSSES DISTANCE = 676951571. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 95.85 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -229.98 SECS.
CROSSING TIME AT ULYSSES IS 49786. S. OR 13:49:46 +/- 436.50 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 17/ 4/ 97 IS:
RA= 169.512 DEC= 7.343 DIST= 0.733 AU
MARS-BATSE DISTANCE = 109621600. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 77.06 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 81.85 SECS.
CROSSING TIME AT MARS IS 50098. S. OR 13:54:57 +/- 63.12 SECONDS

BATSE BURST TRIGGER

NO.: 6188

TIME: TJD=0555 SECONDS=50016

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

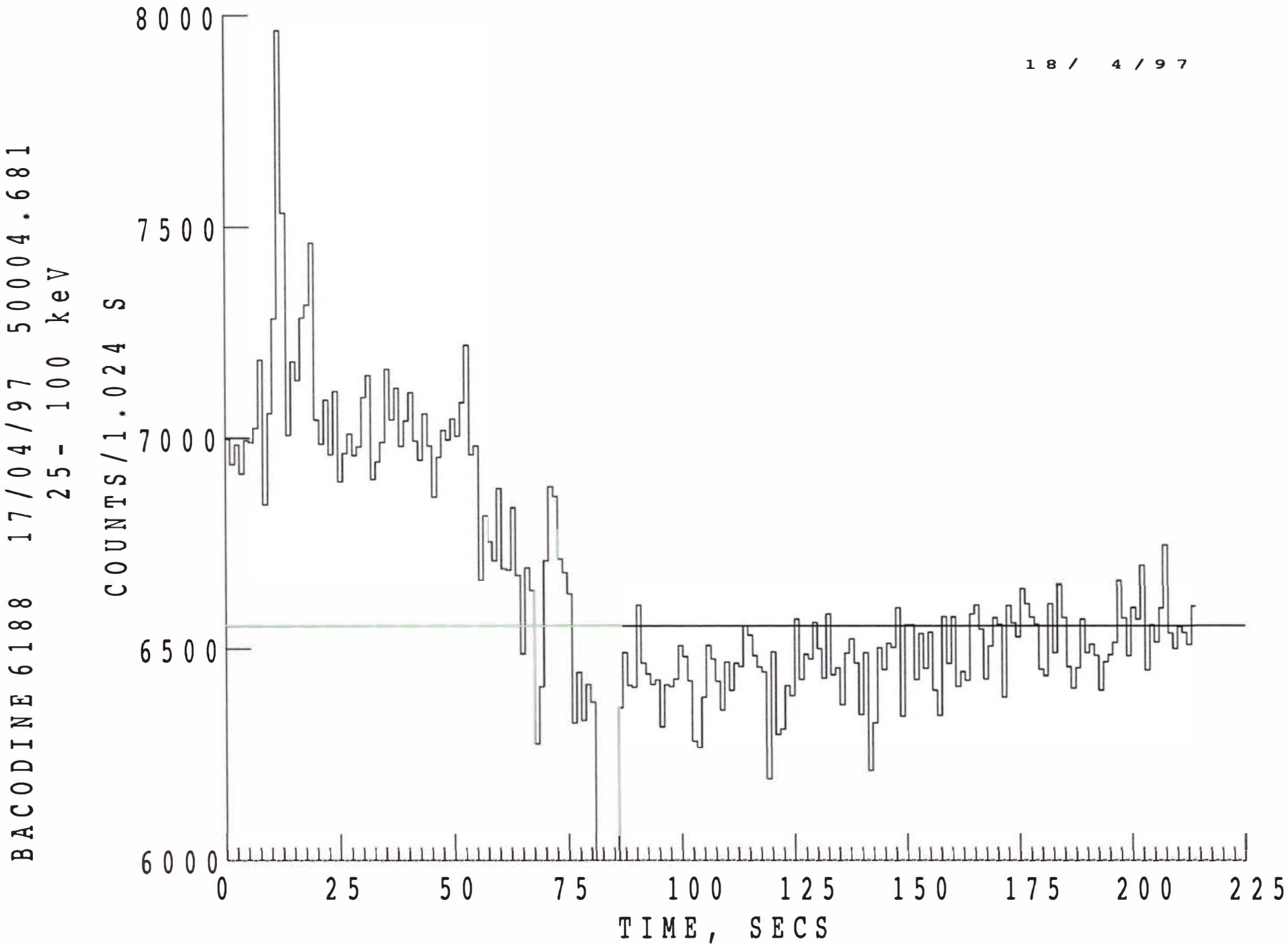
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=166.2 AZIMUTH=197.4 ERROR=6.23 DEGREES

COMMENTS:
GRB. DUR~9S. DOUBLE PULSES. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6188	970417	10555	50016	3900	296	+56	9


BACODINE 6188 17/04/97 50004.681
25- 100 keV
COUNTS/1.024 S
8000
7500
7000
6500
6000
0
25
50
75
100
125
150
175
200
225
TIME, SECS
18/ 4/97

BATSE BURST# 6188

ULYSSES RT 21/ 4/97

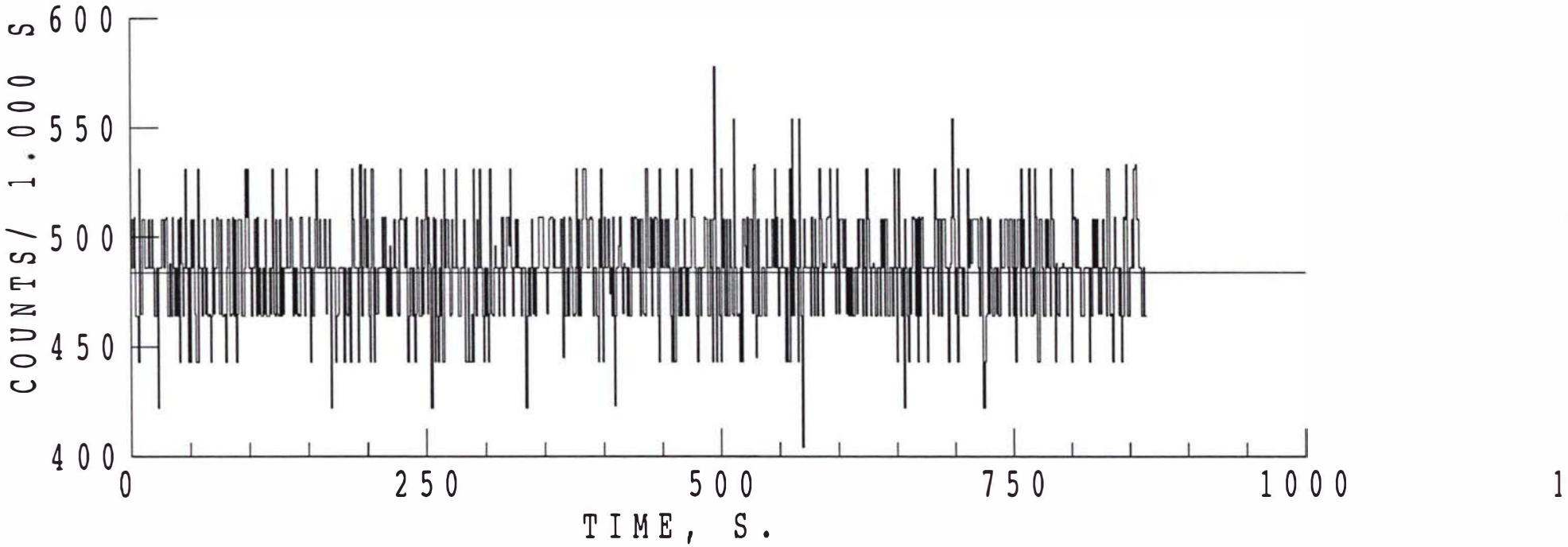
17/ 4/97 49356.266 S

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



From SURASAK@ssl.msfc.nasa.gov Fri Apr 18 12:19 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id MAA17215; Fri, 18 Apr 1997 12:19:40 -0700
Date: Fri, 18 Apr 1997 14:19:34 -0500 (CDT)
From: SURASAK@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970418141934.214002a4@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6189
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6189
EVENT OF 1997 APR 17 DAY OF YEAR=107
EVENT CROSSING TIME AT BATSE : 51659. S. OR 14:20:59.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 56.000 9.000
BATSE PEAK COUNTING RATE: 4200 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 17/ 4/ 97 IS:
RA= 153.105 DEC= 34.486 DIST= 4.525 AU
BATSE-ULYSSES DISTANCE = 676998937. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 89.31 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 27.39 SECS.
CROSSING TIME AT ULYSSES IS 51686. S. OR 14:21:26 +/- 442.45 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 17/ 4/ 97 IS:
RA= 169.512 DEC= 7.343 DIST= 0.733 AU
MARS-BATSE DISTANCE = 109621600. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 68.24 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 135.59 SECS.
CROSSING TIME AT MARS IS 51795. S. OR 14:23:14 +/- 61.02 SECONDS

BATSE BURST TRIGGER

NO.: 6189

TIME: TJD=0555 SECONDS=51659

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:115

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=92.7 AZIMUTH=347.3 ERROR=1.513 DEGREES

COMMENTS:
GRB. DUR~11S. DOUBLE PULSES WITH STRUCTURES. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6189	970417	10555	51659	4200	056	+09	11

BATSE BURST# 6189

ULYSSES RT 21/ 4/97

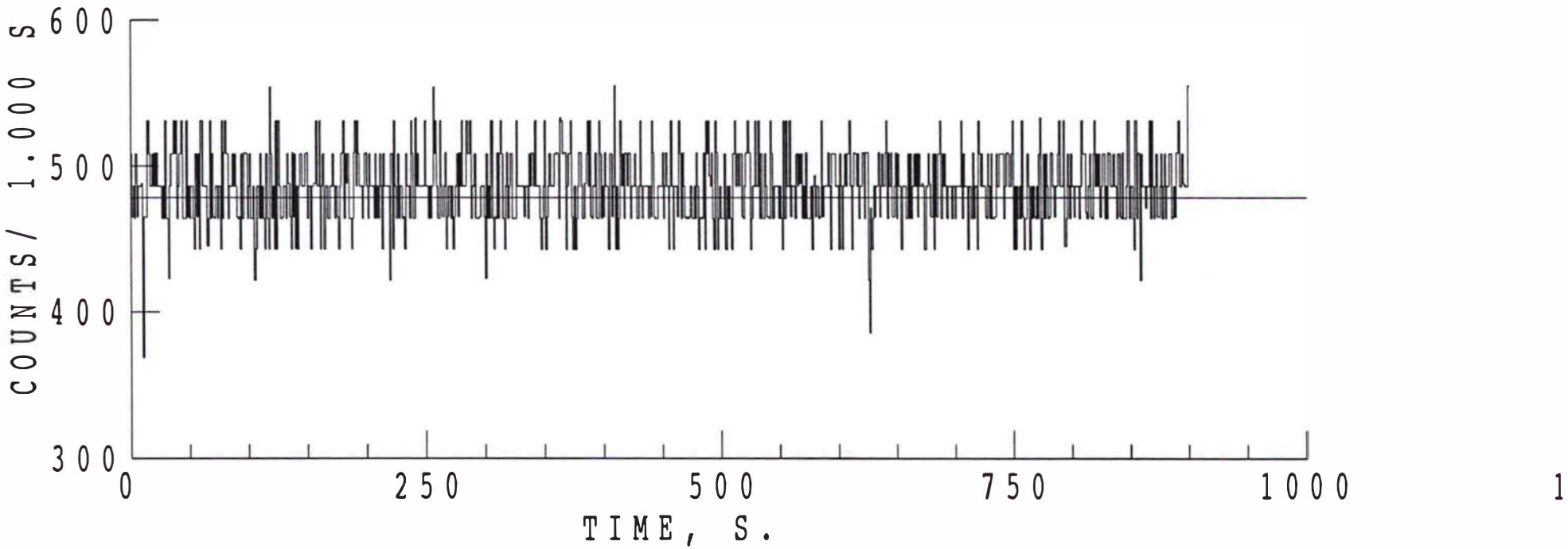
17/ 4/97 51228.289 s

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



From SURASAK@ssl.msfc.nasa.gov Fri Apr 18 12:21 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id MAA17240; Fri, 18 Apr 1997 12:21:05 -0700
Date: Fri, 18 Apr 1997 14:20:59 -0500 (CDT)
From: SURASAK@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970418142059.214002a4@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6190
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6190
EVENT OF 1997 APR 17 DAY OF YEAR=107
EVENT CROSSING TIME AT BATSE : 56824. S. OR 15:47:04.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 41.000 17.000
BATSE PEAK COUNTING RATE: 3100 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 17/ 4/ 97 IS:
RA= 153.097 DEC= 34.480 DIST= 4.526 AU
BATSE-ULYSSES DISTANCE = 677147599. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 82.47 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 295.94 SECS.
CROSSING TIME AT ULYSSES IS 57120. S. OR 15:51:59 +/- 443.26 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 17/ 4/ 97 IS:
RA= 169.512 DEC= 7.343 DIST= 0.733 AU
MARS-BATSE DISTANCE = 109621600. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 56.41 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 202.29 SECS.
CROSSING TIME AT MARS IS 57026. S. OR 15:50:26 +/- 55.96 SECONDS

BATSE BURST TRIGGER

NO.: 6190

TIME: TJD=0555 SECONDS=56824

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

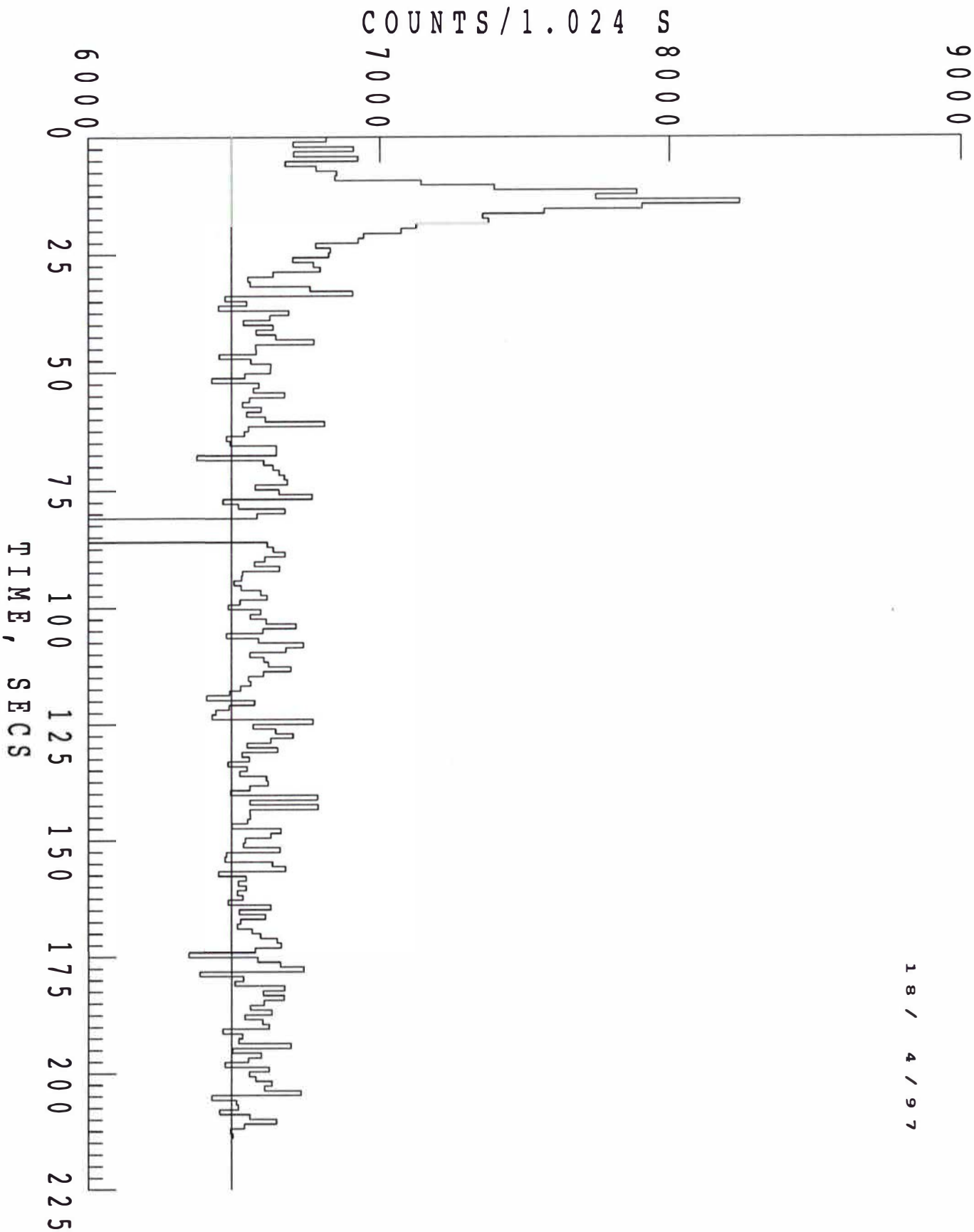
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=108.3 AZIMUTH=354 ERROR=3.216 DEGREES

COMMENTS:
GRB. DUR~65S. DOUBLE PEAKS. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6190	970417	10555	56824	3100	041	+17	65


BACODINE 6190 17/04/97 56812.233
25- 100 keV
COUNTS/1.024 S
6000
7000
8000
9000
0
25
50
75
100
125
150
175
200
225
TIME, SECS
18/ 4/97

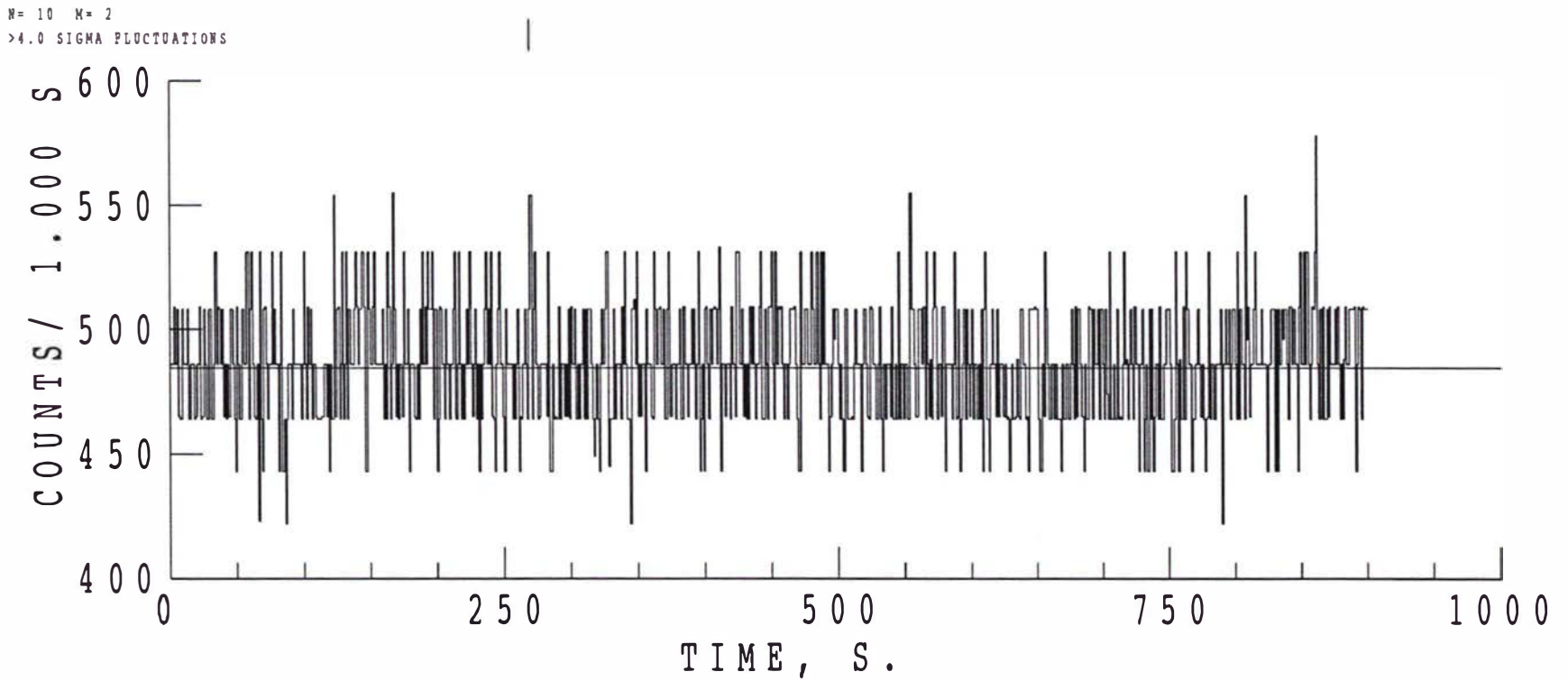
BATSE BURST# 6190

ULYSSES RT 21/ 4/97

17/ 4/97 56664.348 s

0.500 S INTERVALS REGROUPED BY 2

0- 0 keV



From DEAL@fender.msfc.nasa.gov Mon Apr 21 09:25 PDT 1997
From: DEAL@fender.msfc.nasa.gov
Date: Mon, 21 Apr 1997 11:24:13 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6193 Out of sequence

TIME: TJD=0555 SECONDS=57004

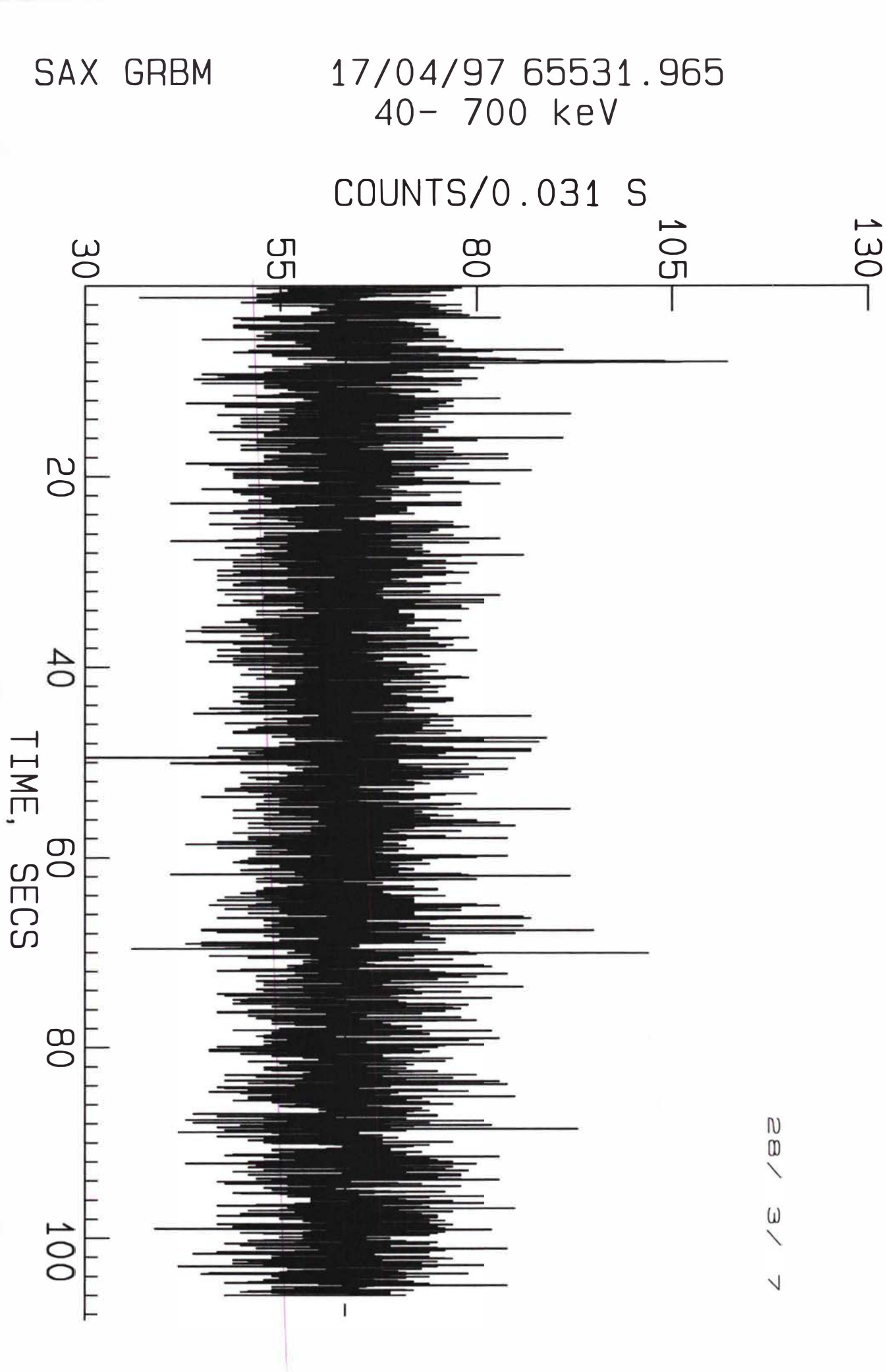
TYPE: SAA EXI SOLAR FLARE TRIGGER SIGNAL:Y

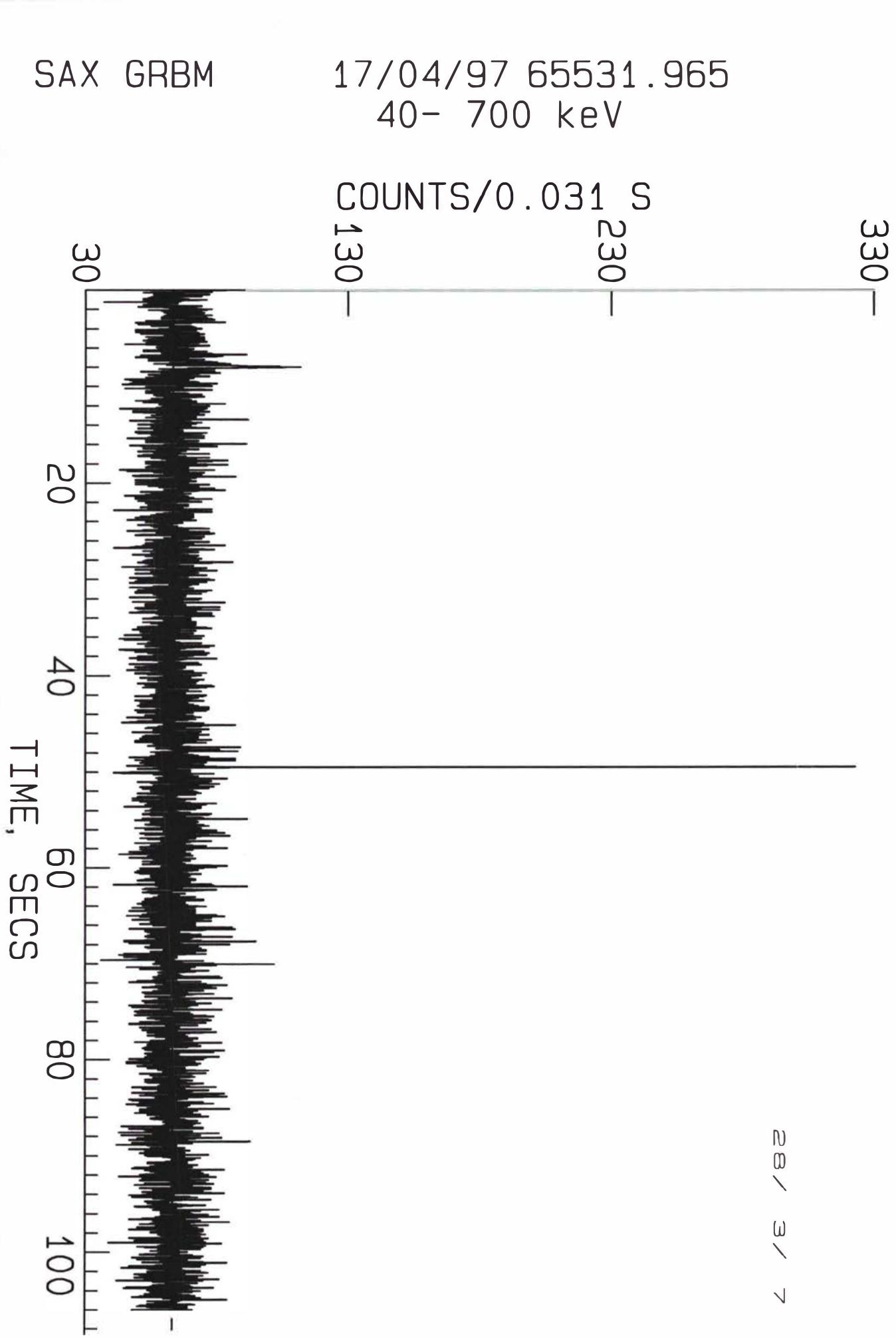
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA EXIT


SAX GRBM
17/04/97 65531.965
40- 700 keV
COUNTS/0.031 S
30
55
80
105
130
20
40
60
80
100
TIME, SECS
28/3/7


SAX GRBM
17/04/97 65531.965
40- 700 keV
COUNTS/0.031 S
30
130
230
330
20
40
60
80
100
TIME, SECS
28/3/7

SAX

HUS DATA

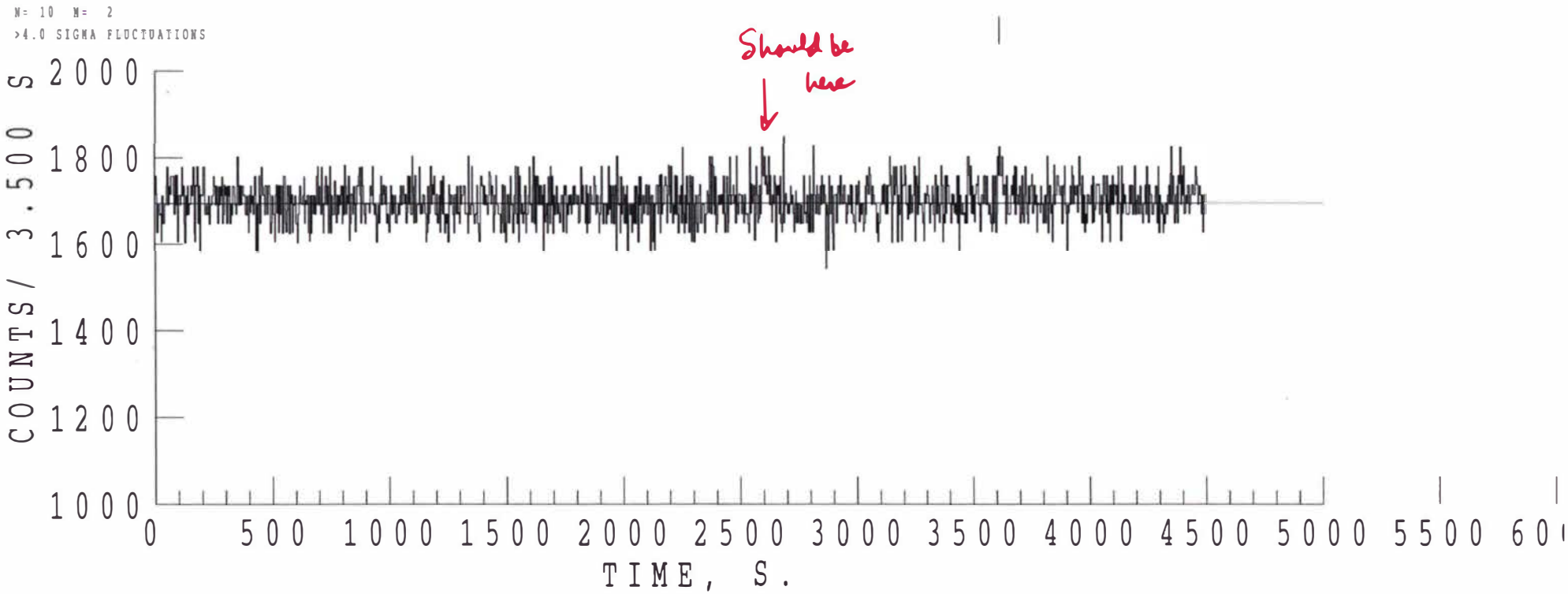
19/07/05

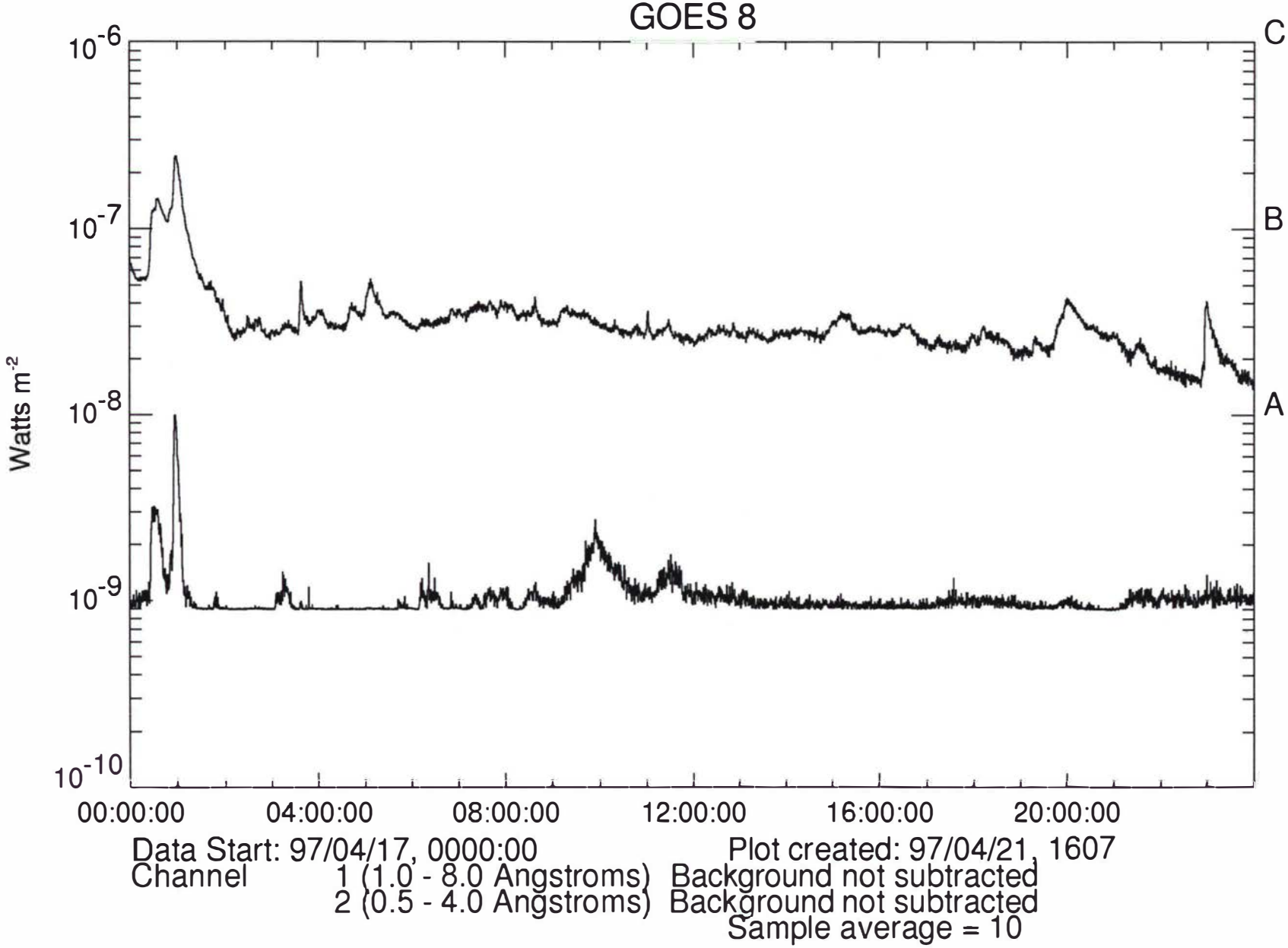
ULYSSES RT

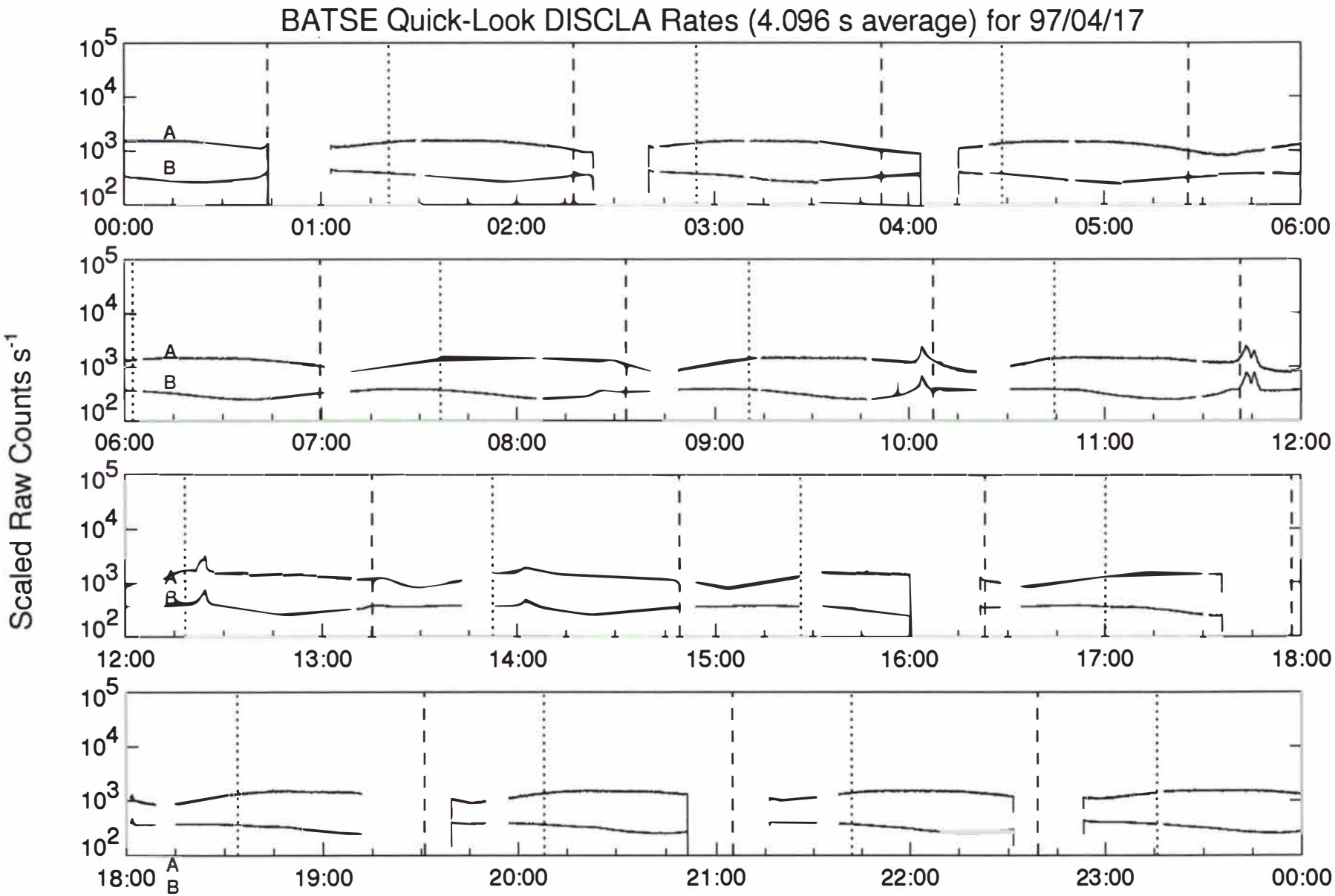
17/04/97 63288.430 s

0.500 S INTERVALS REGROUPED BY 7

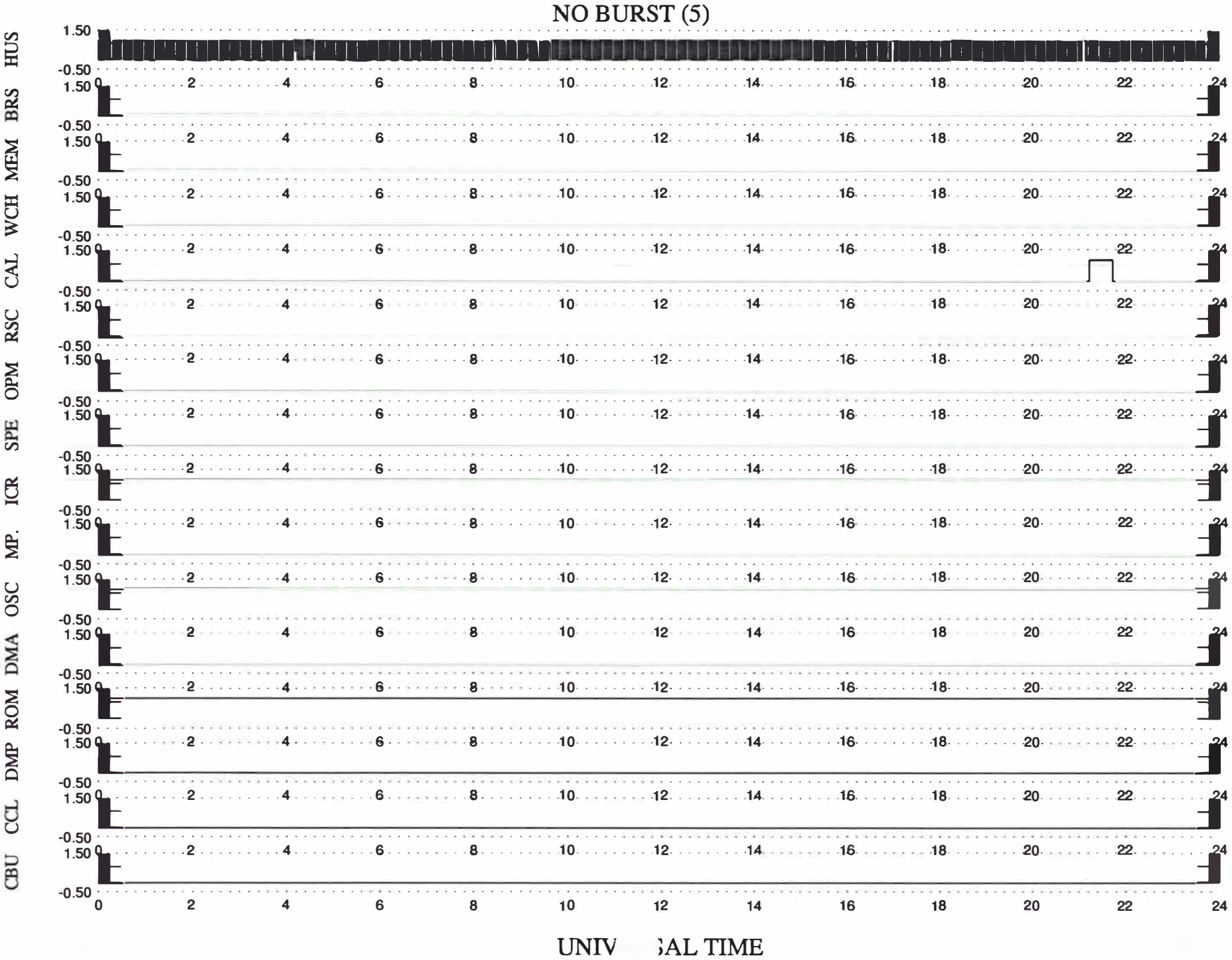
0- 0 keV




GOES 8
C
B
A
10^{-6}
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/17, 0000:00
Plot created: 97/04/21, 1607
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

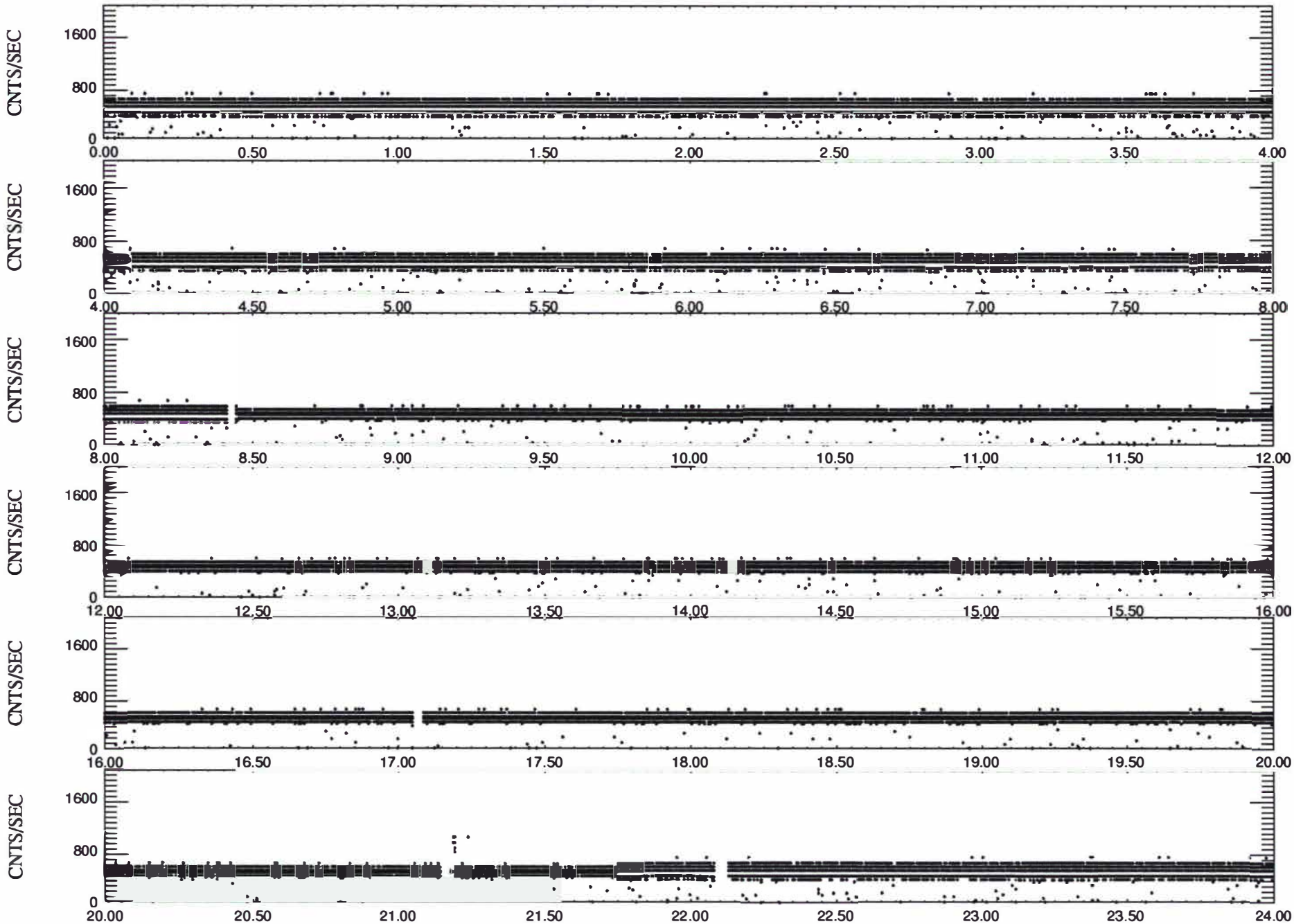

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/17
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/21, 1607 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 107, year 1997 to day 107, year 1997 7/22/97



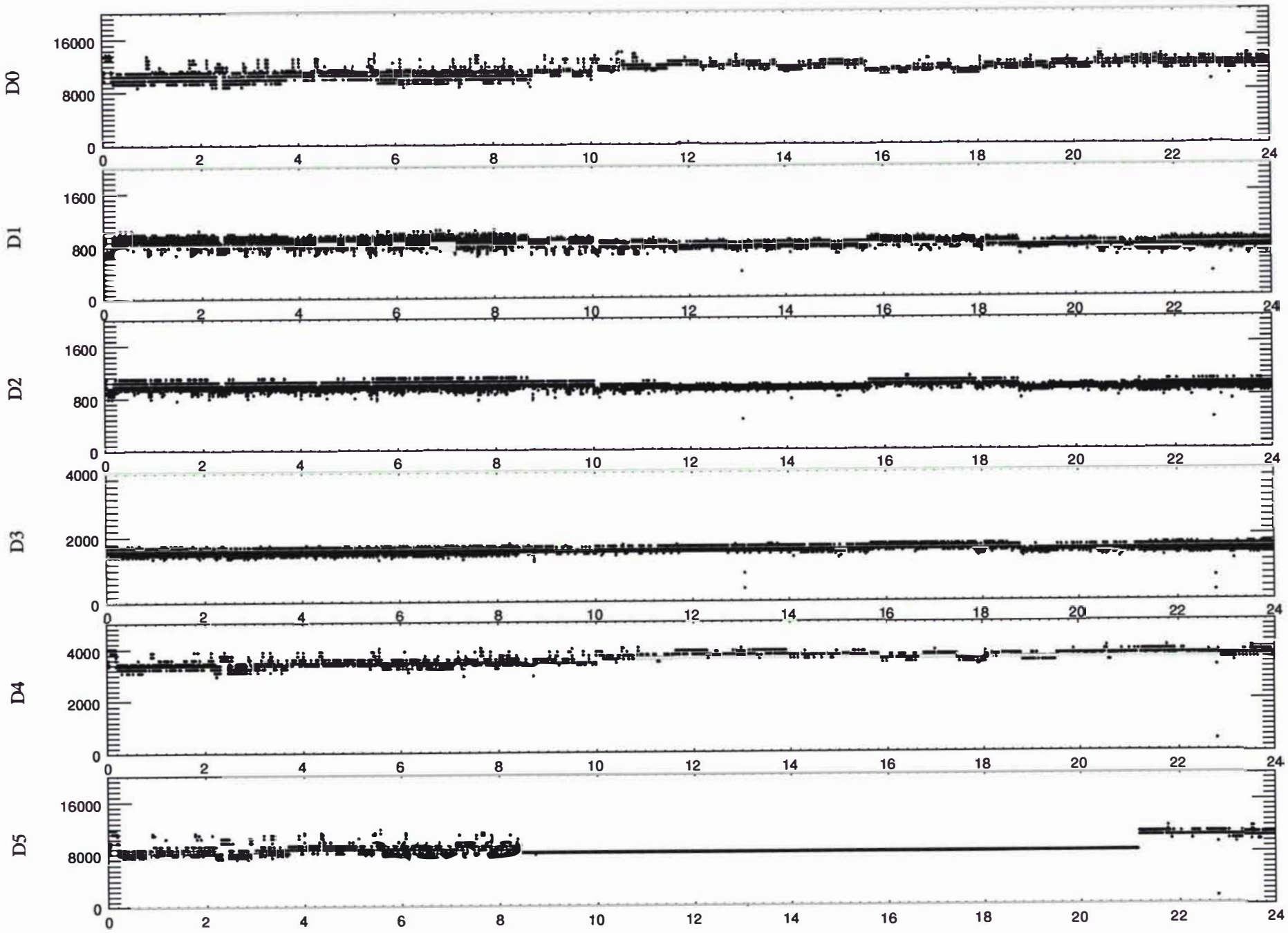
HUS 2A, MODE 1, NOT AVERAGED EDR day 107, year 1997 to day 107, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV SAL TIME

HUS 2B COUNTS / SEC EDR day 107, year 1997 to day 107, year 1997 7/22/97



Date: Dec 6 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data…")

☐ Was Mars-blocking used?

☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)

☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).

☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events

☐ Σ $3\Delta t$'s calculated, and/or BMAPSUM executed?

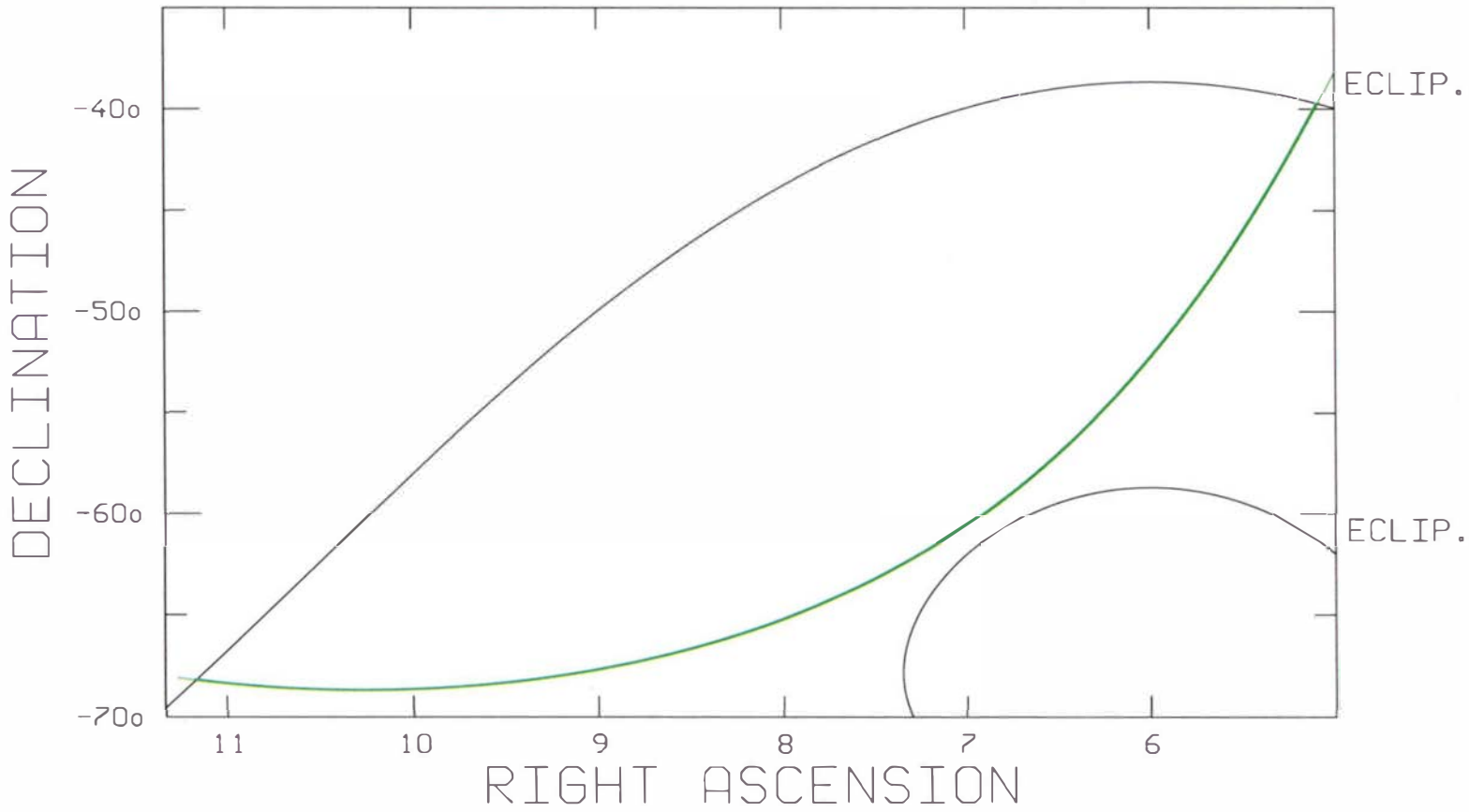
3. For INTEGRAL events

☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?

☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

☐ Updated ephemeris used for bursts prior to September 30, 2003?

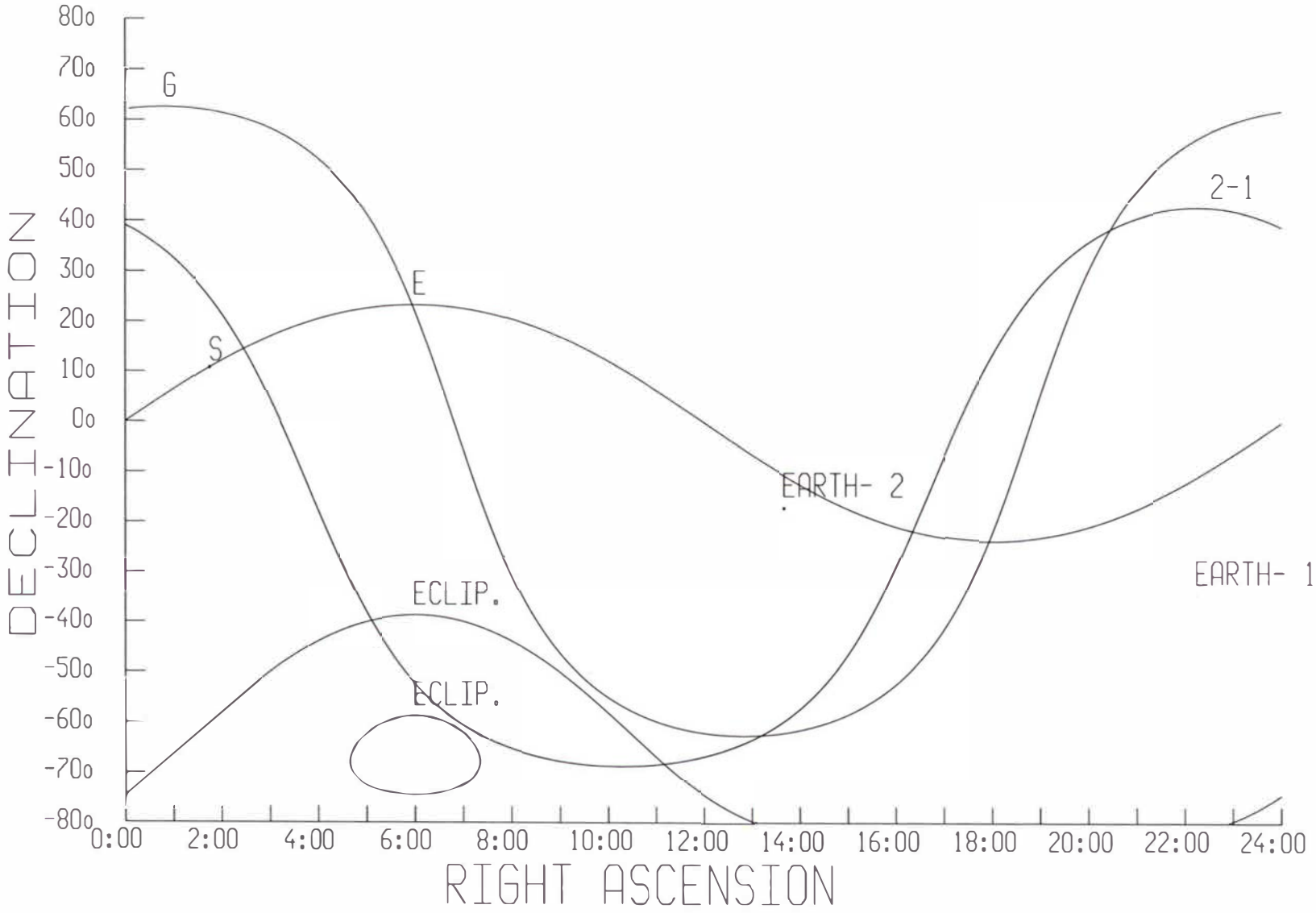
☑ ACCESS and MBL4 databases updated with identical times?


DECLINATION
-40o
-50o
-60o
-70o
11
10
9
8
7
6
RIGHT ASCENSION
ECLIP.
ECLIP.

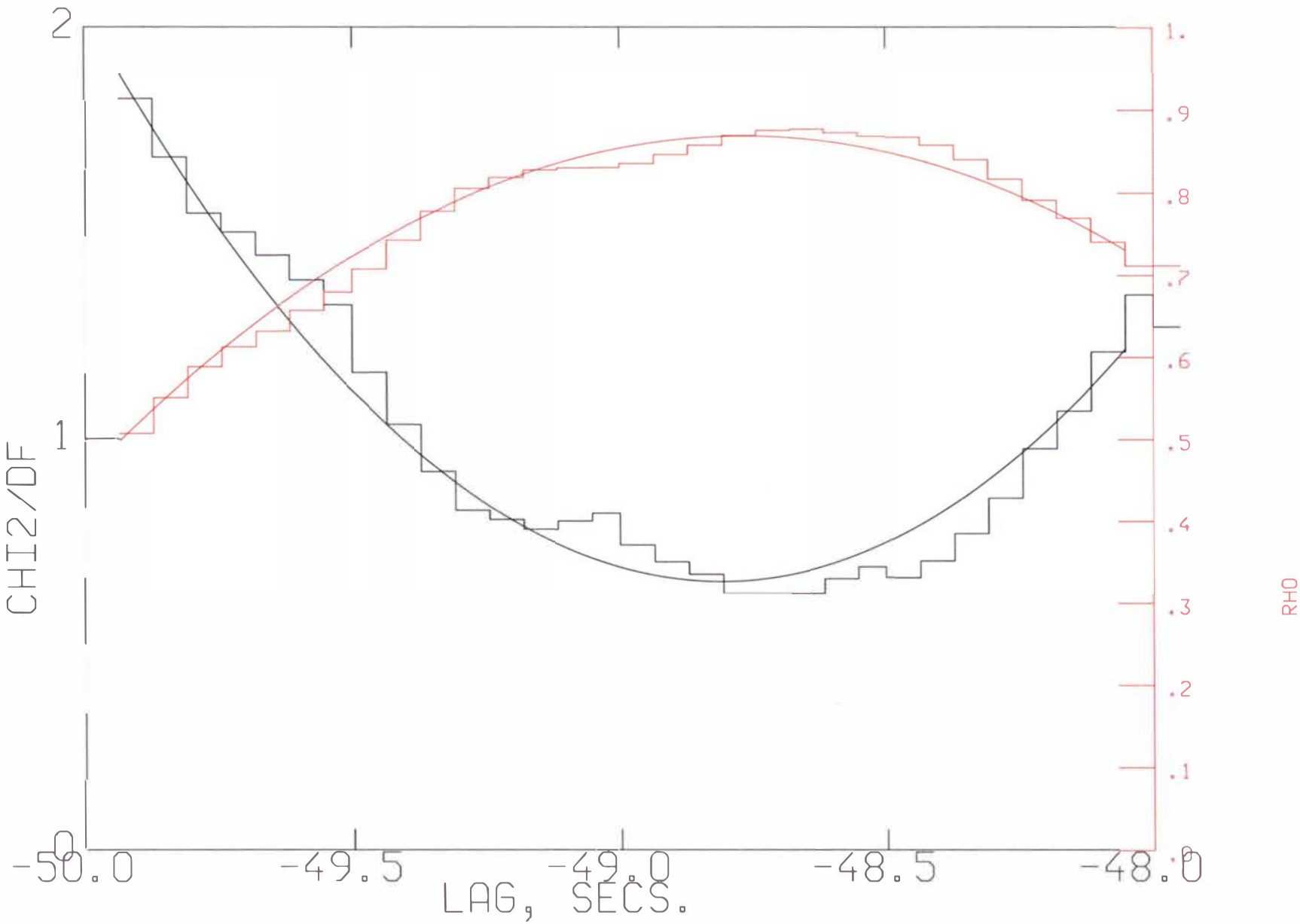
EVENT OF APR 18, 1997 10:26

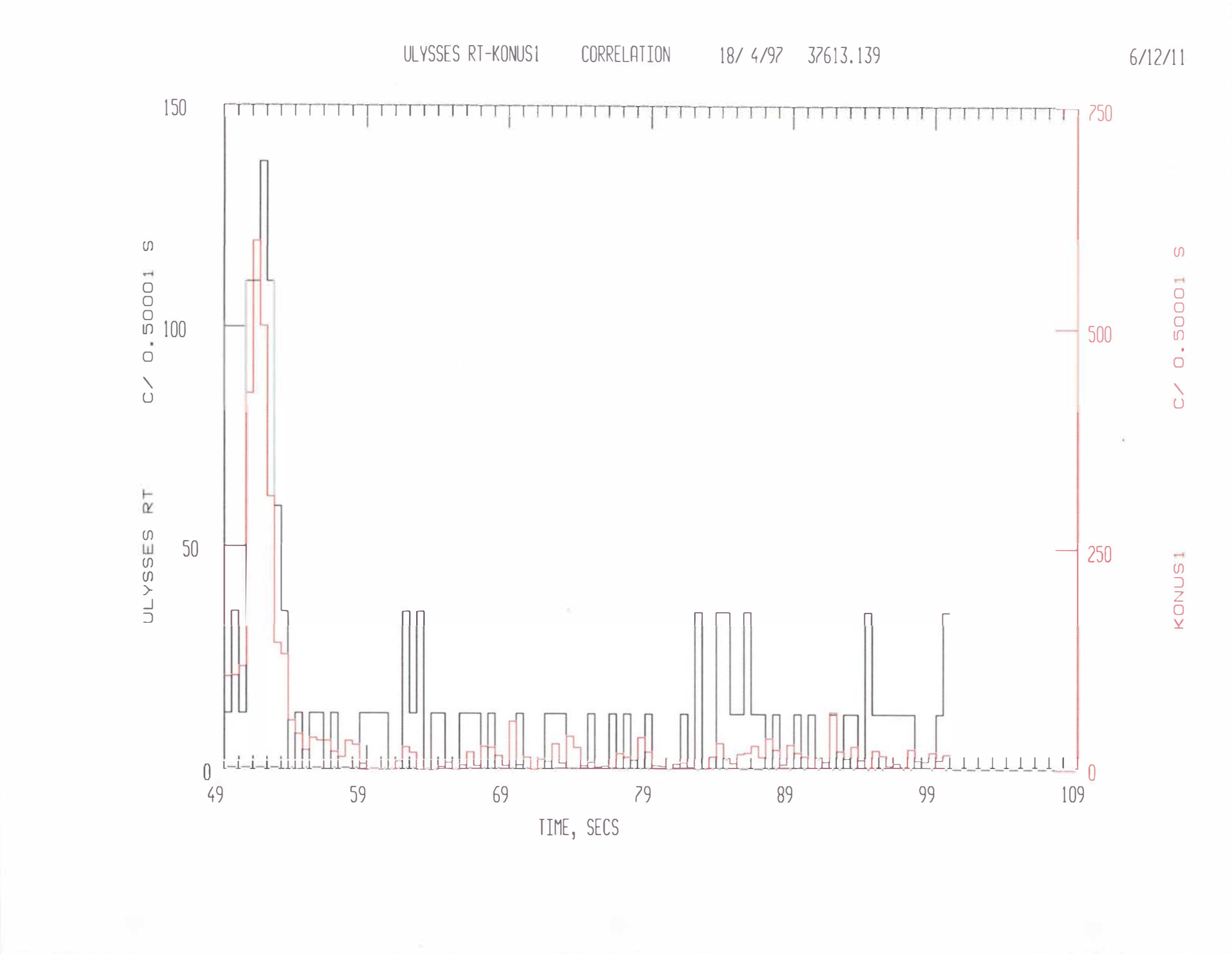
06/12/2011

Z-M = CORRELATION BETWEEN SATELLITES Z AND M
EARTH-Z = EARTH AS SEEN FROM SATELLITE Z
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 KONUS1



ULYSSES RT-KONUS1 CORRELATION 18/ 4/97 37613.139



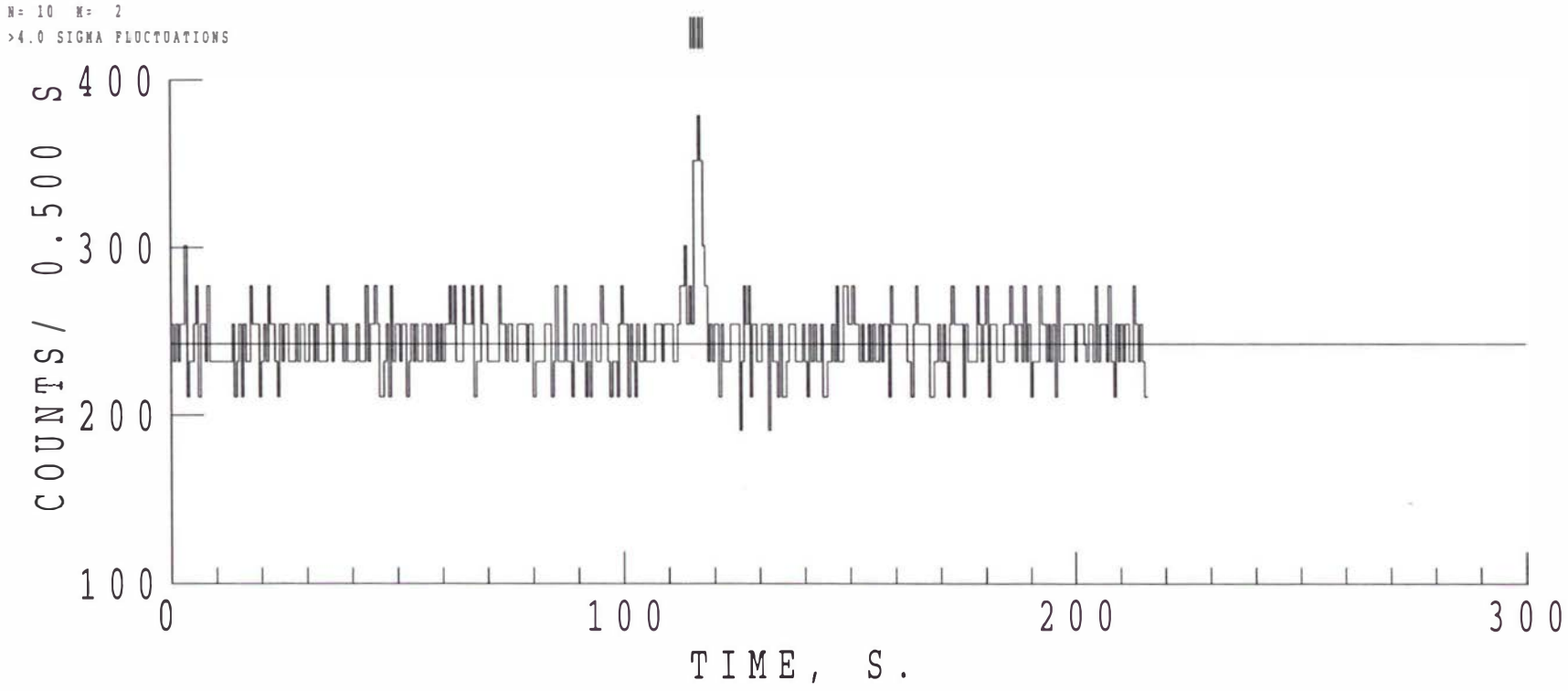

ULYSSES RT-KONUS1 CORRELATION 18/ 4/97 37613.139
6/12/11
150
100
50
0
ULYSSES RT C/ 0.50001 S
750
500
250
0
KONUS1 C/ 0.50001 S
49
59
69
79
89
99
109
TIME, SECS

KONUS 19970418 37663

ULYSSES RT 05/12/11

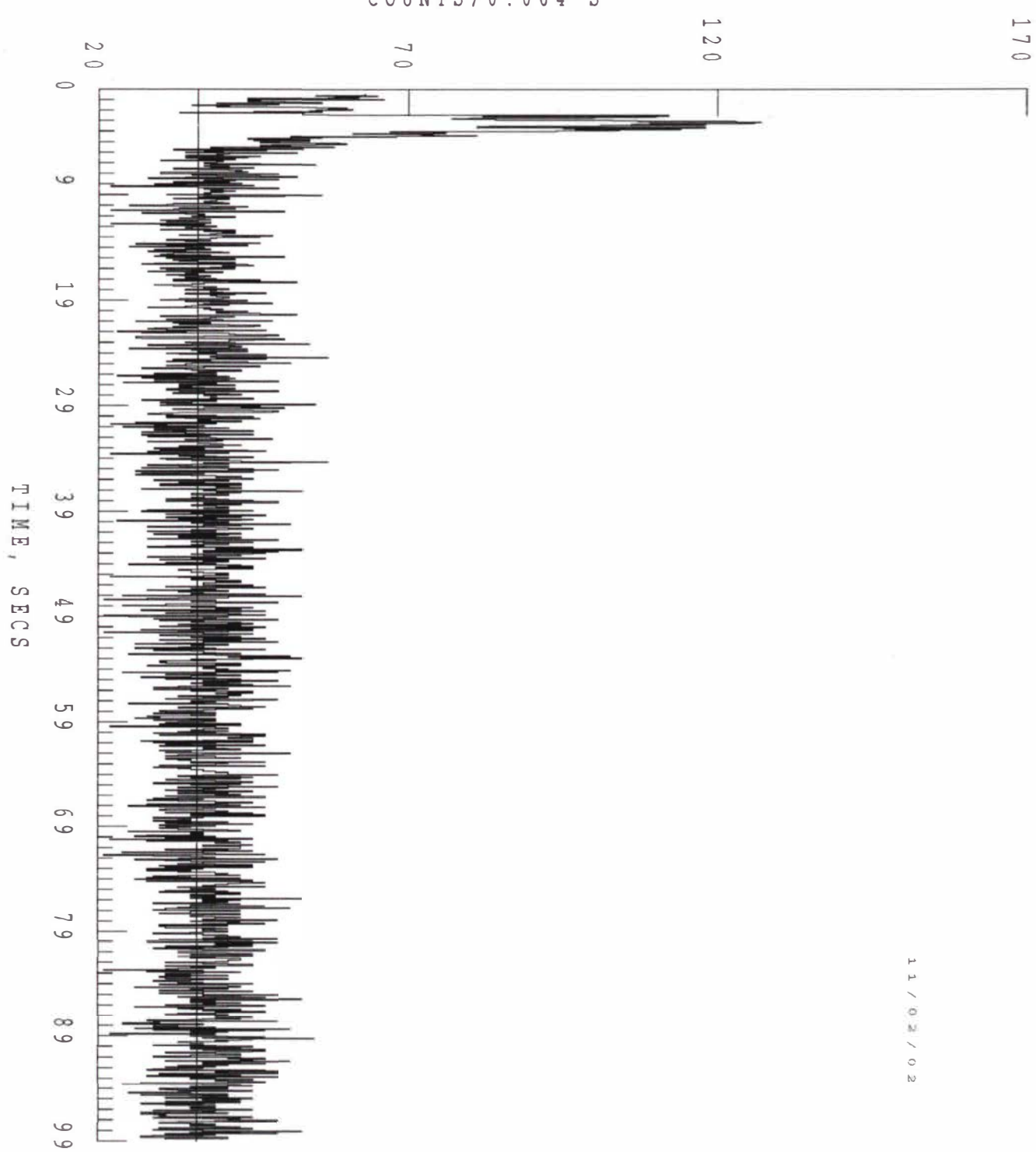
18/04/97 37548.145 s

0- 0 keV



KONUS1 18/04/97 37159.661

50- 200 keV



11/02/02

KONUS1 19970418 37159

ULYSSES RT 11/02/02

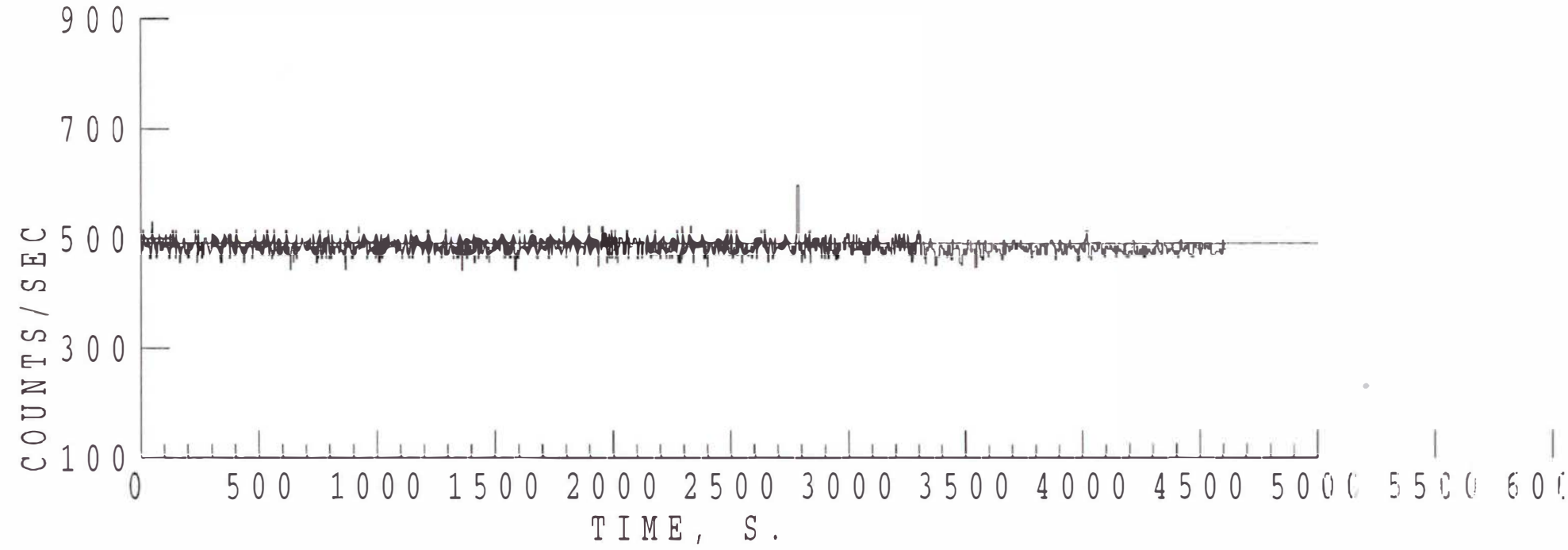
18/04/97 34880.617 s

INTERVALS REGROUPED BY 6

0- 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From DEAL@fender.msfc.nasa.gov Mon Apr 21 09:21 PDT 1997
From: DEAL@fender.msfc.nasa.gov
Date: Mon, 21 Apr 1997 11:20:51 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6191

TIME: TJD=0556 SECONDS=44257

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

From DEAL@fender.msfc.nasa.gov Mon Apr 21 09:22 PDT 1997
From: DEAL@fender.msfc.nasa.gov
Date: Mon, 21 Apr 1997 11:21:55 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6192

TIME: TJD=0556 SECONDS=48530

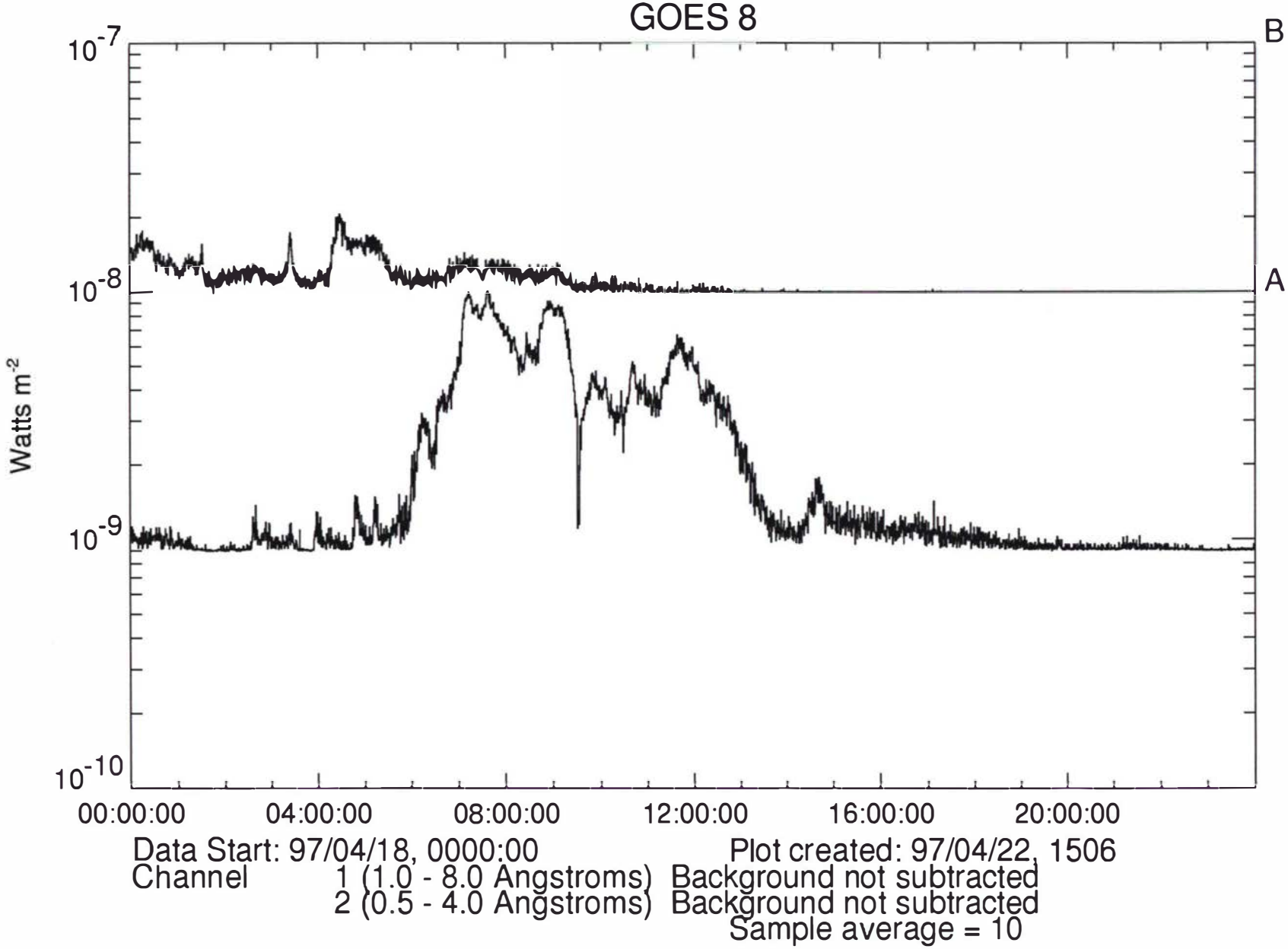
TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

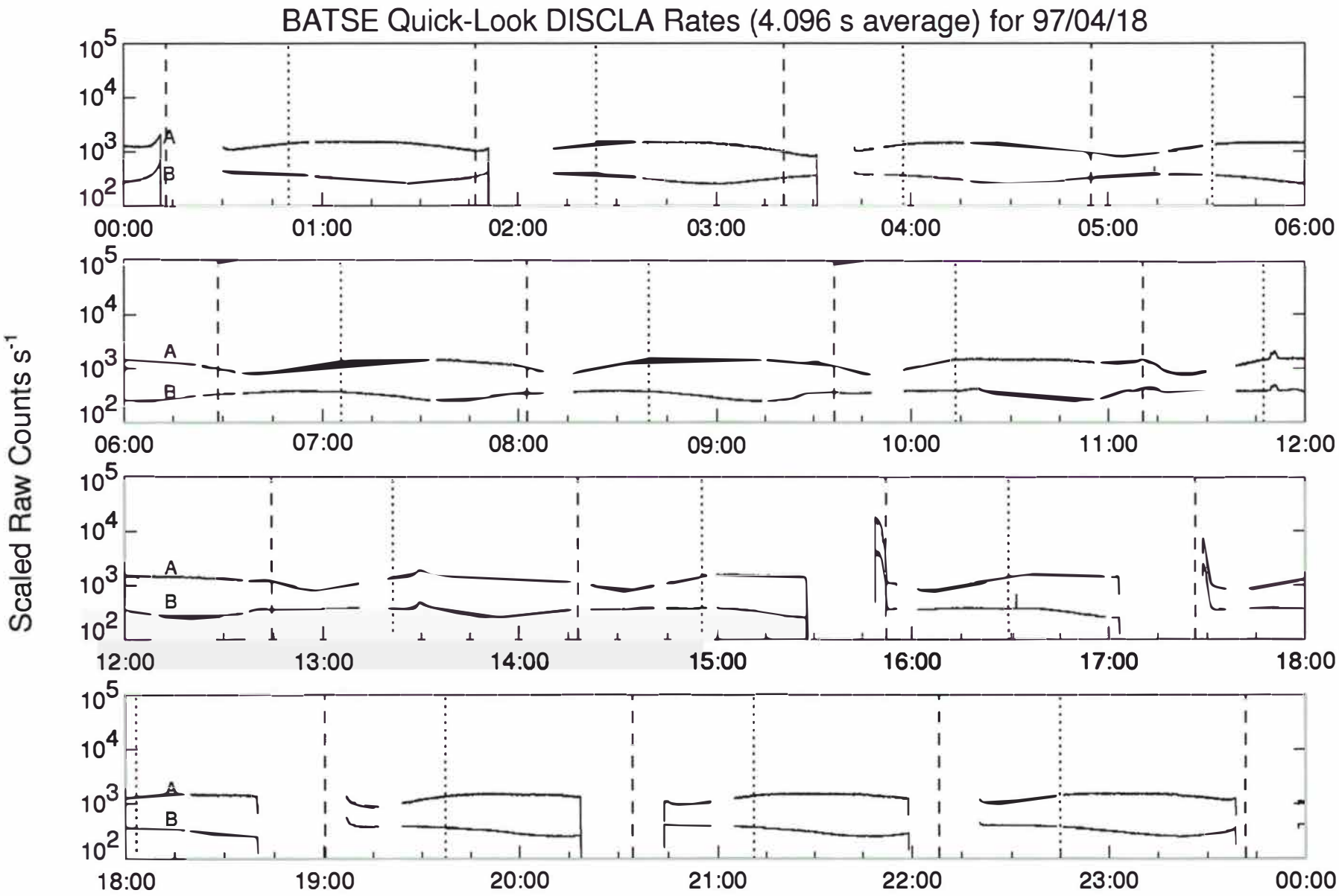
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

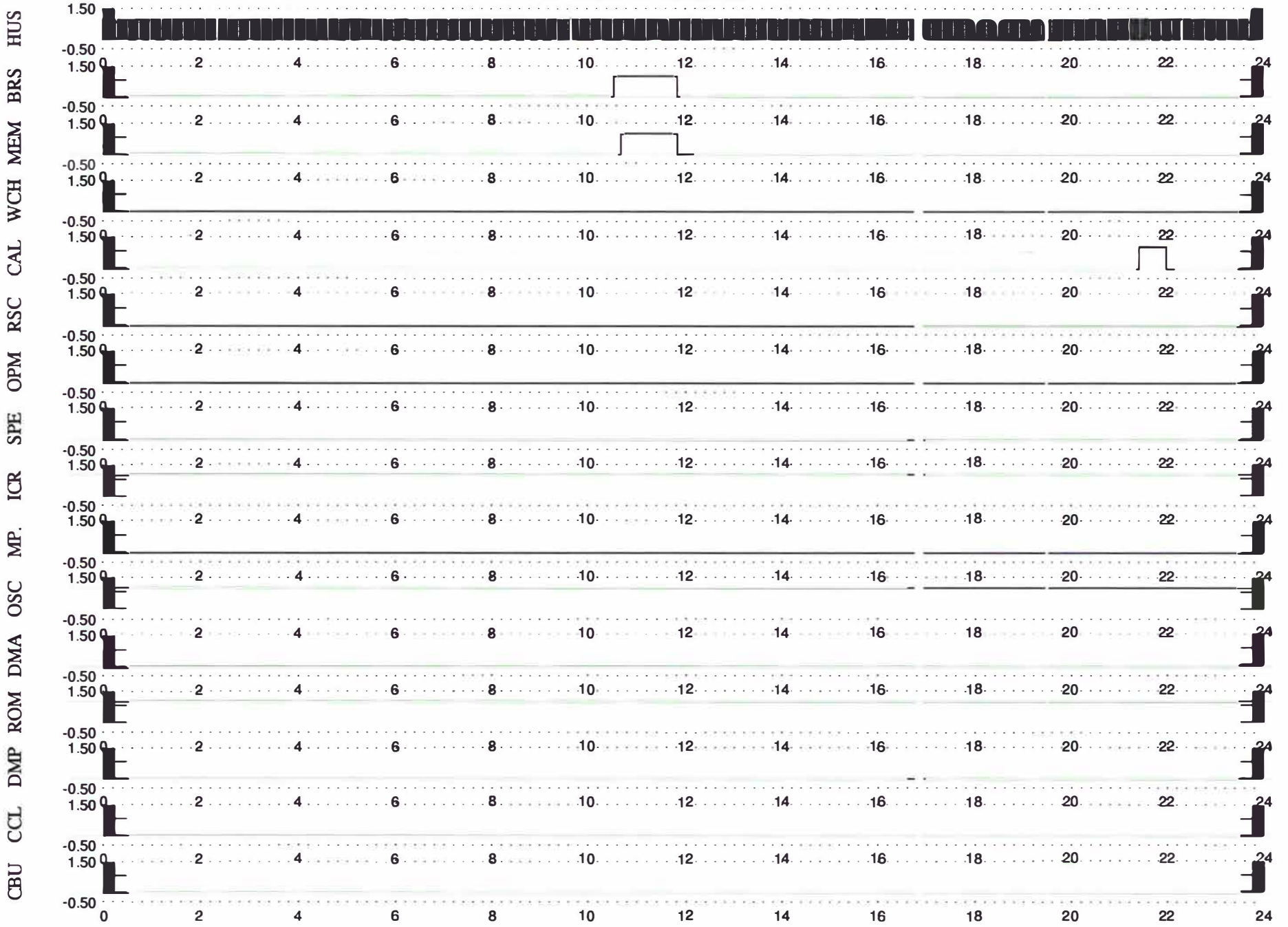
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT


GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/18, 0000:00
Plot created: 97/04/22, 1506
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

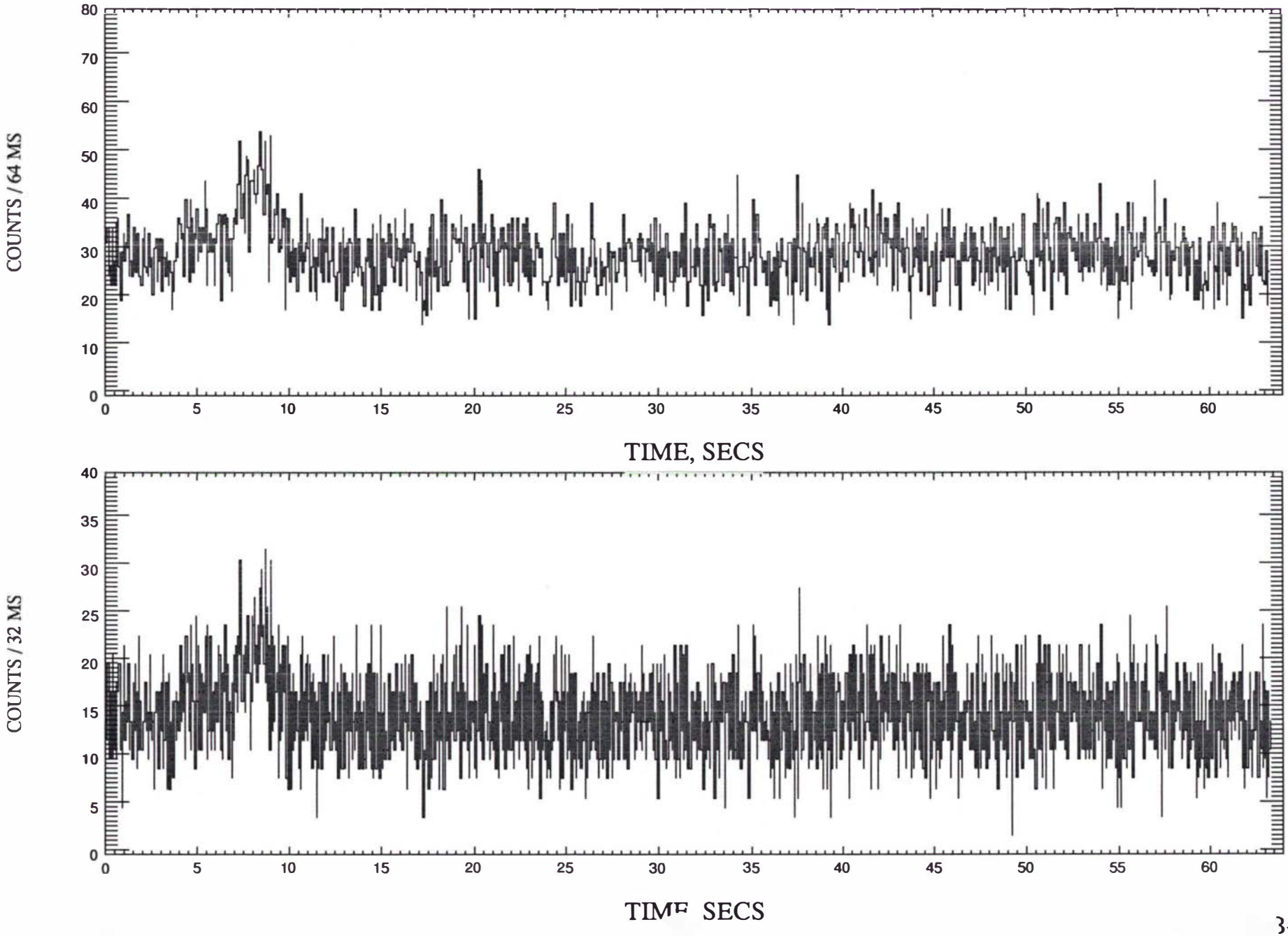

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/18
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/22, 1507 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

BURST NUMBER 6



HUS 2A TRIGGERED DATA EDR day 108, year 1997 9/2/97

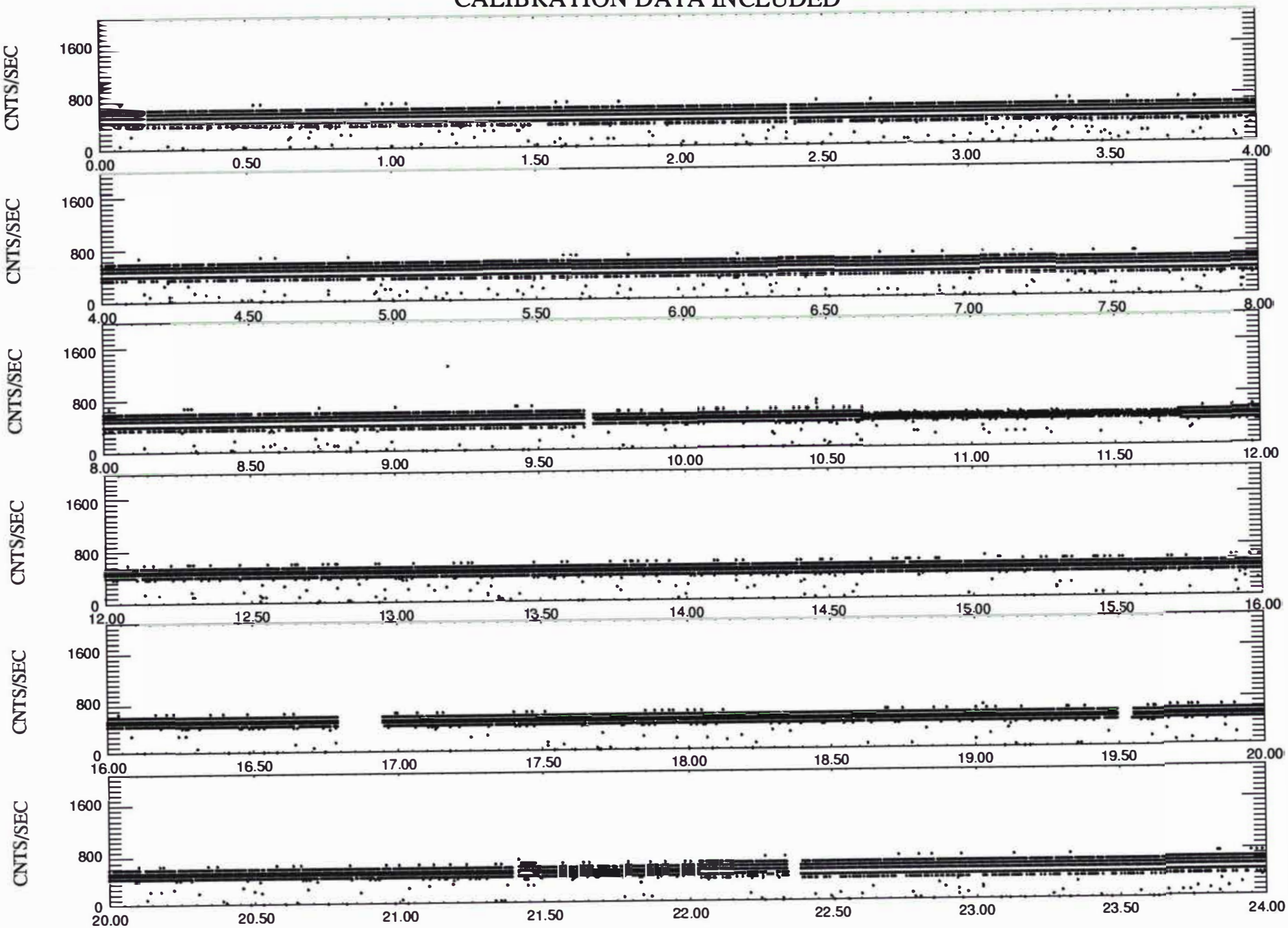
Burst Counter 6 at UT=10.462191073100 h=37663.888 s 10:27:43.888



3# 1

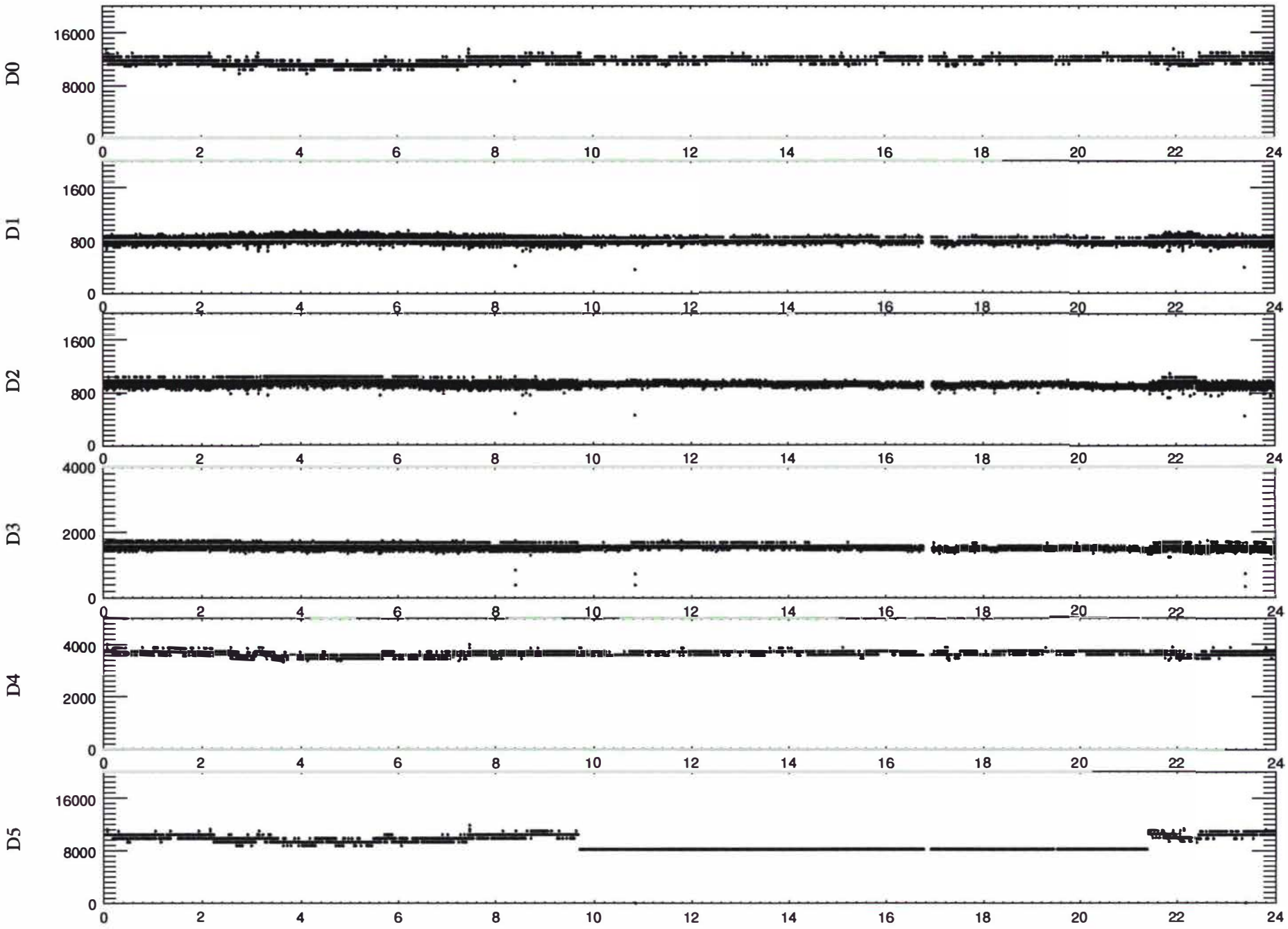
HUS 2A, MODE 1, NOT AVERAGED EDR day 108, year 1997 to day 108, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 108, year 1997 to day 108, year 1997 7/22/97



From SAHI@fender.msfc.nasa.gov Tue Apr 22 07:11 PDT 1997
Return-Path: <SAHI@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id HAA10920; Tue, 22 Apr 1997 07:11:09 -0700
From: SAHI@fender.msfc.nasa.gov
Date: Tue, 22 Apr 1997 9:10:57 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970422091057.20c0325f@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6194
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6194
EVENT OF 1997 APR 19 DAY OF YEAR=109
EVENT CROSSING TIME AT BATSE : 22334. S. OR 06:12:14.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 240.000 -63.000
BATSE PEAK COUNTING RATE: 7500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 19/ 4/ 97 IS:
RA= 152.876 DEC= 34.322 DIST= 4.552 AU
BATSE-ULYSSES DISTANCE = 681048544. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 61.08 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1098.57 SECS.
CROSSING TIME AT ULYSSES IS 23433. S. OR 06:30:32 +/- 411.91 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 19/ 4/ 97 IS:
RA= 169.243 DEC= 7.360 DIST= 0.743 AU
MARS-BATSE DISTANCE = 111142048. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 91.96 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -12.69 SECS.
CROSSING TIME AT MARS IS 22321. S. OR 06:12:01 +/- 64.13 SECONDS

BATSE BURST TRIGGER

NO.: 6194

TIME: TJD=0557 SECONDS=22334

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=48.4 AZIMUTH=124.7 ERROR=0.77 DEGREES

COMMENTS:
BURST, DOUBLE PULSE, FIRST HAS STRUCTURE, DUR.~50 SECS. NOT VISIBLE ABOVE 300 KE
V.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6194	970419	10557	22334	7500	240	-63	50

Helio corr removed 17/2/00

Date: Mar 27 '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? 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?

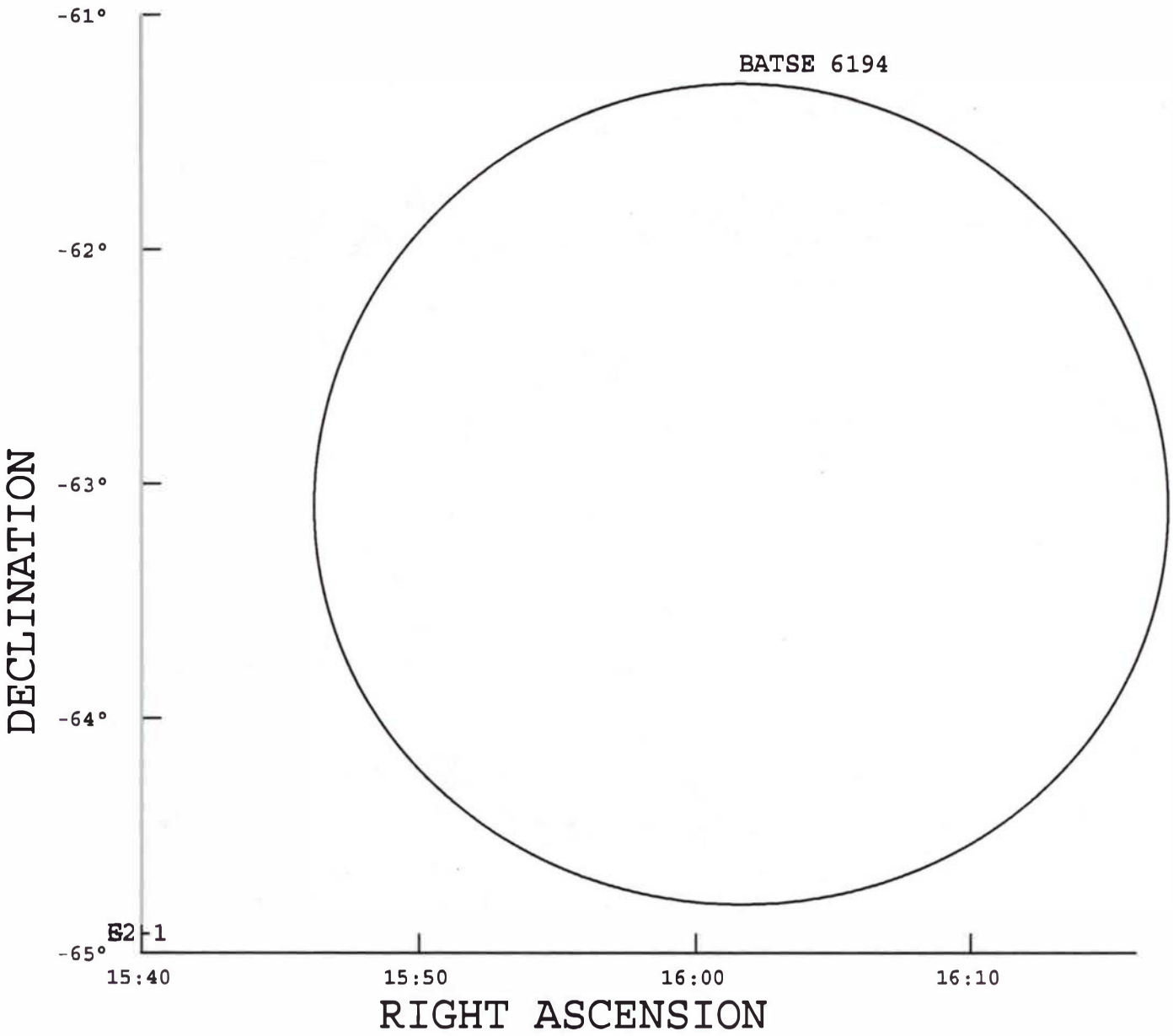
☐ Geocentric time used?

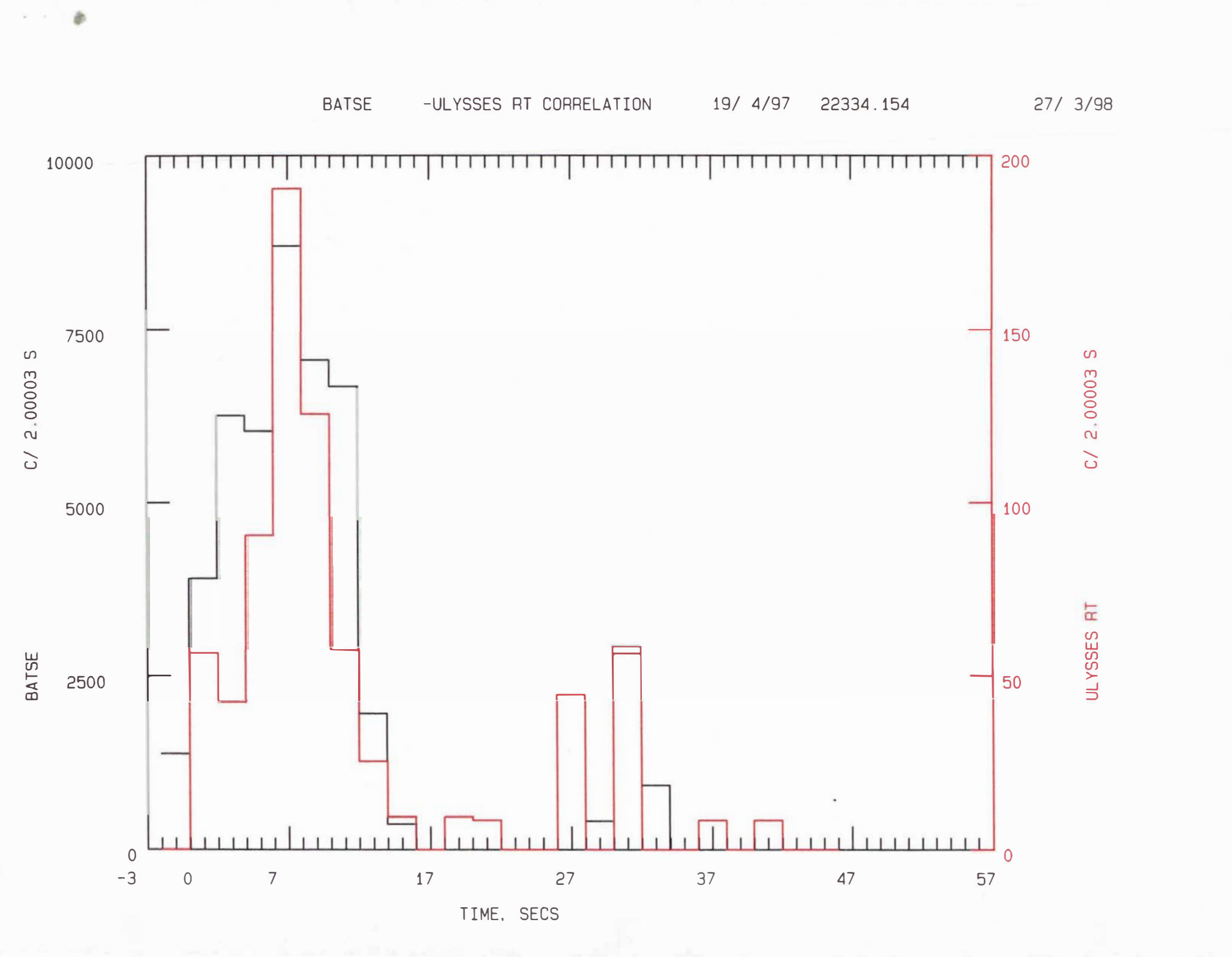
☑ ACCESS database updated?

EVENT OF APR 19, 1997 6:31

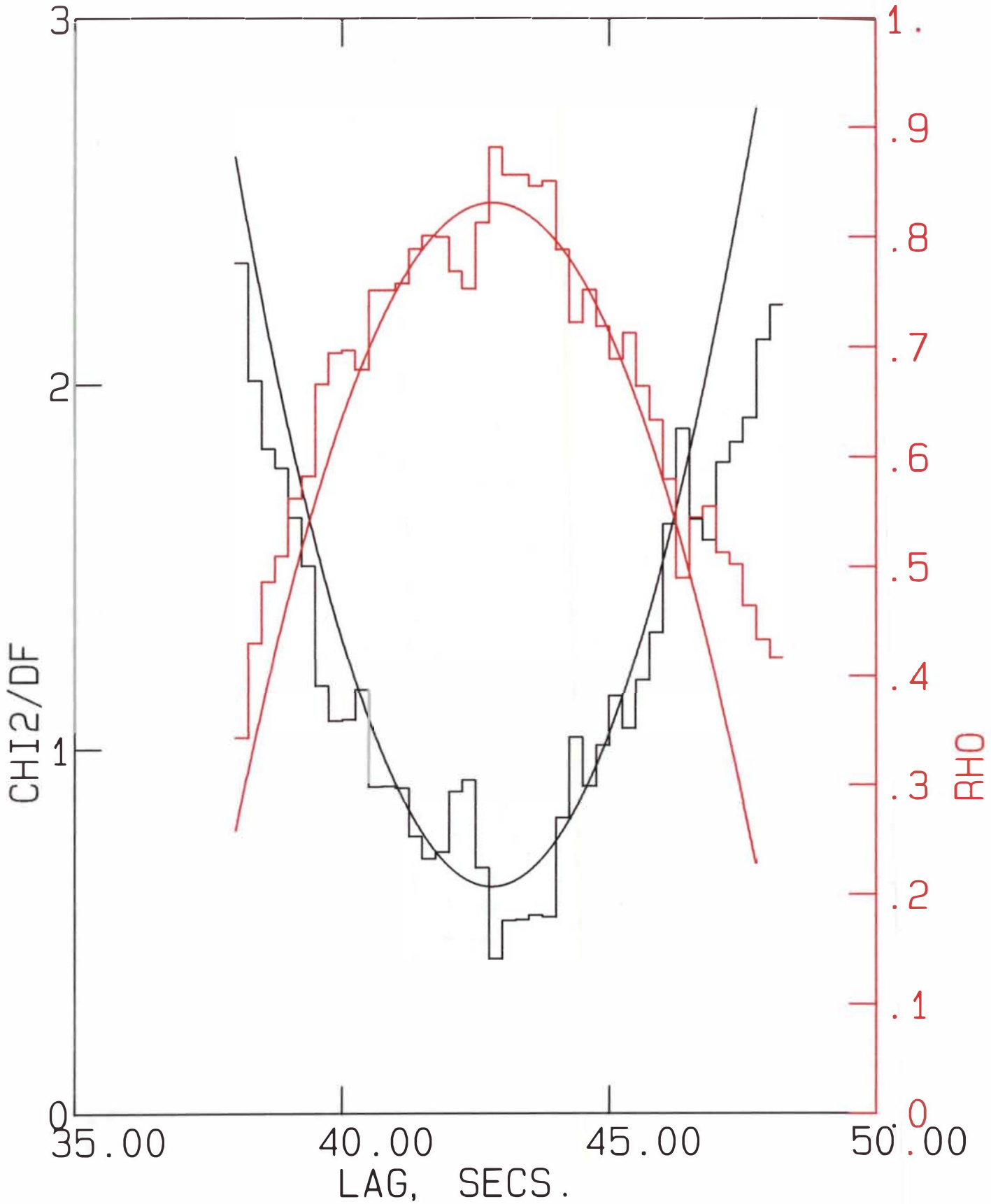
17/ 2/ 0

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




BATSE -ULYSSES RT CORRELATION 19/ 4/97 22334.154 27/ 3/98
10000
7500
5000
2500
0
200
150
100
50
0
C/ 2.00003 S
BATSE
C/ 2.00003 S
ULYSSES RT
-3
0
7
17
27
37
47
57
TIME, SECS

BATSE -ULYSSES RT CORRELATION 19/ 4/97 22334.154

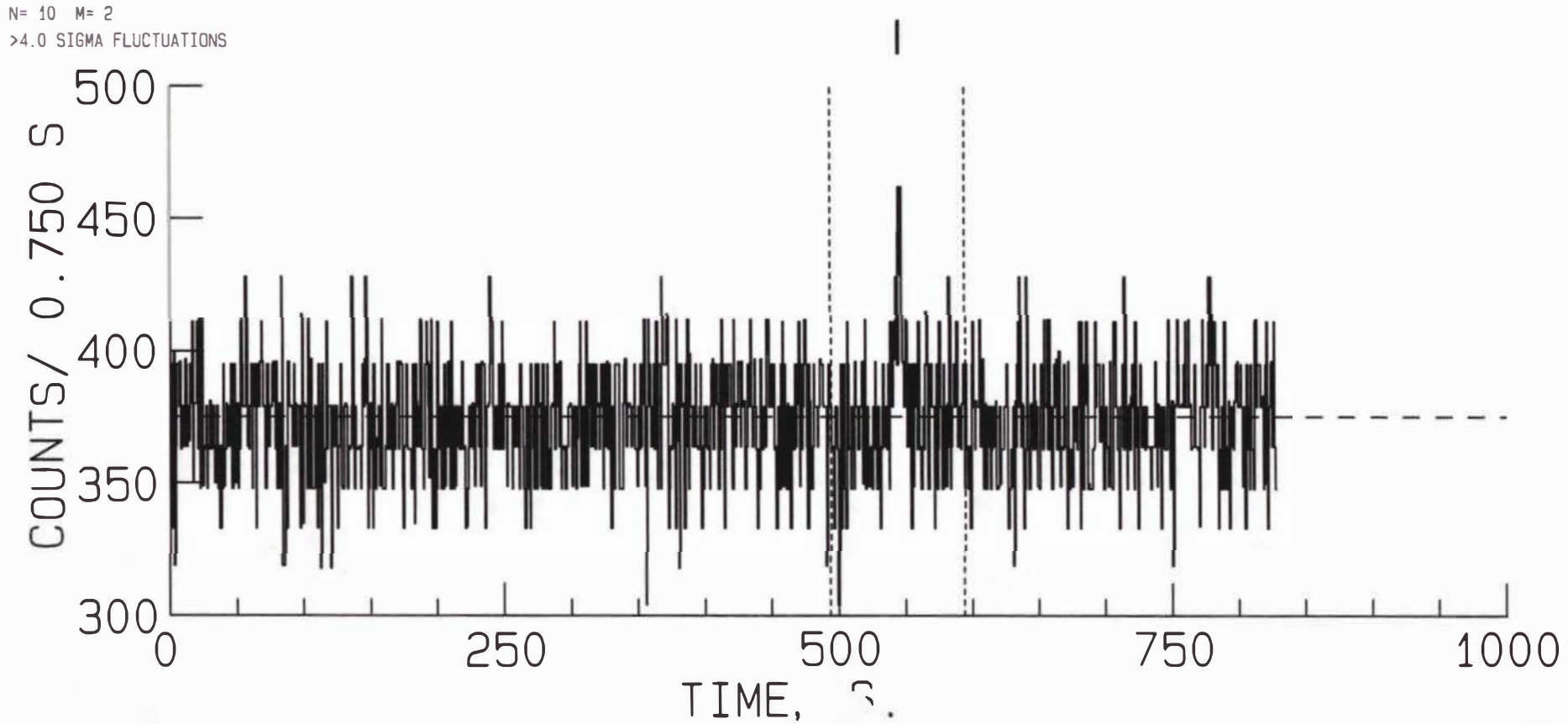


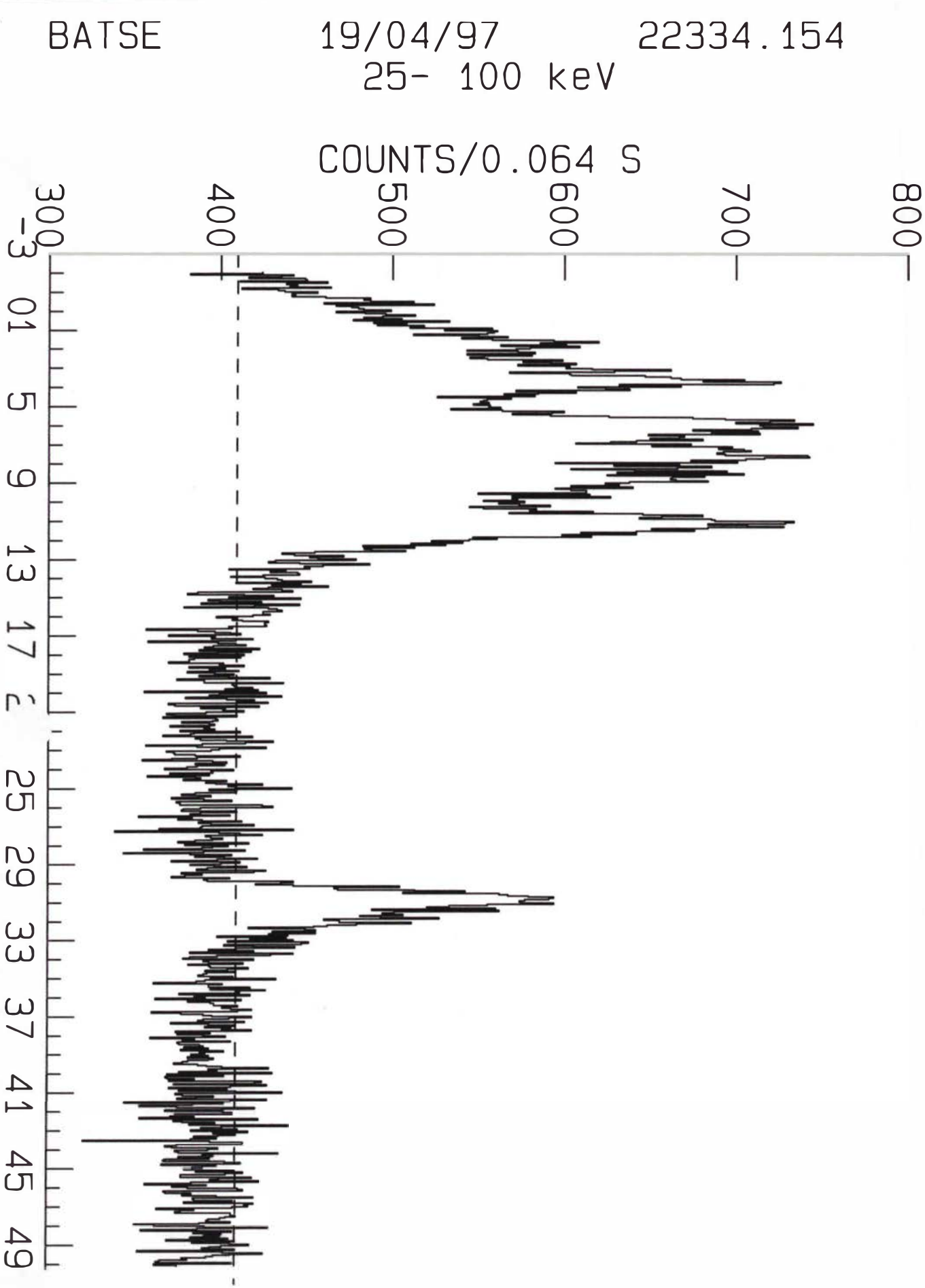
ULYSSES RT 27/ 3/98

19/ 4/97 23004.244 s

0.250 S INTERVALS REGROUPED BY 3

21- 147 keV




BATSE 19/04/97 22334.154
25- 100 keV
COUNTS/0.064 S
300
400
500
600
700
800
-3
01
5
9
13
17
21
25
29
33
37
41
45
49
23/ 9/97

DISCSC Data for K. Hurley, No. 6194
RATE (counts/sec)
SECONDS since trigger
12000
11500
11000
10500
10000
9500
9000
8500
8000
7500
7000
6500
6000
5500
5000
-10
0
10
20
30
40
50
60
70
10-AUG-1997 09:05:31
Created by HSPS BD
IBurst Display
Version 02.25
Trigger # : 6194
Trigger Time:
16997 / 22336.153
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 seconds
Detectors [7..0]:
---4---0
Discriminators:
[1 , 2]
Quality Mask:
0015pt

From SAHI@fender.msfc.nasa.gov Tue Apr 22 07:14 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Tue, 22 Apr 1997 9:14:08 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6195

TIME: TJD=0557 SECONDS=40656

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.

From SAHI@fender.msfc.nasa.gov Mon Apr 21 07:44 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Mon, 21 Apr 1997 9:43:20 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6196

TIME: TJD=0557 SECONDS=46502

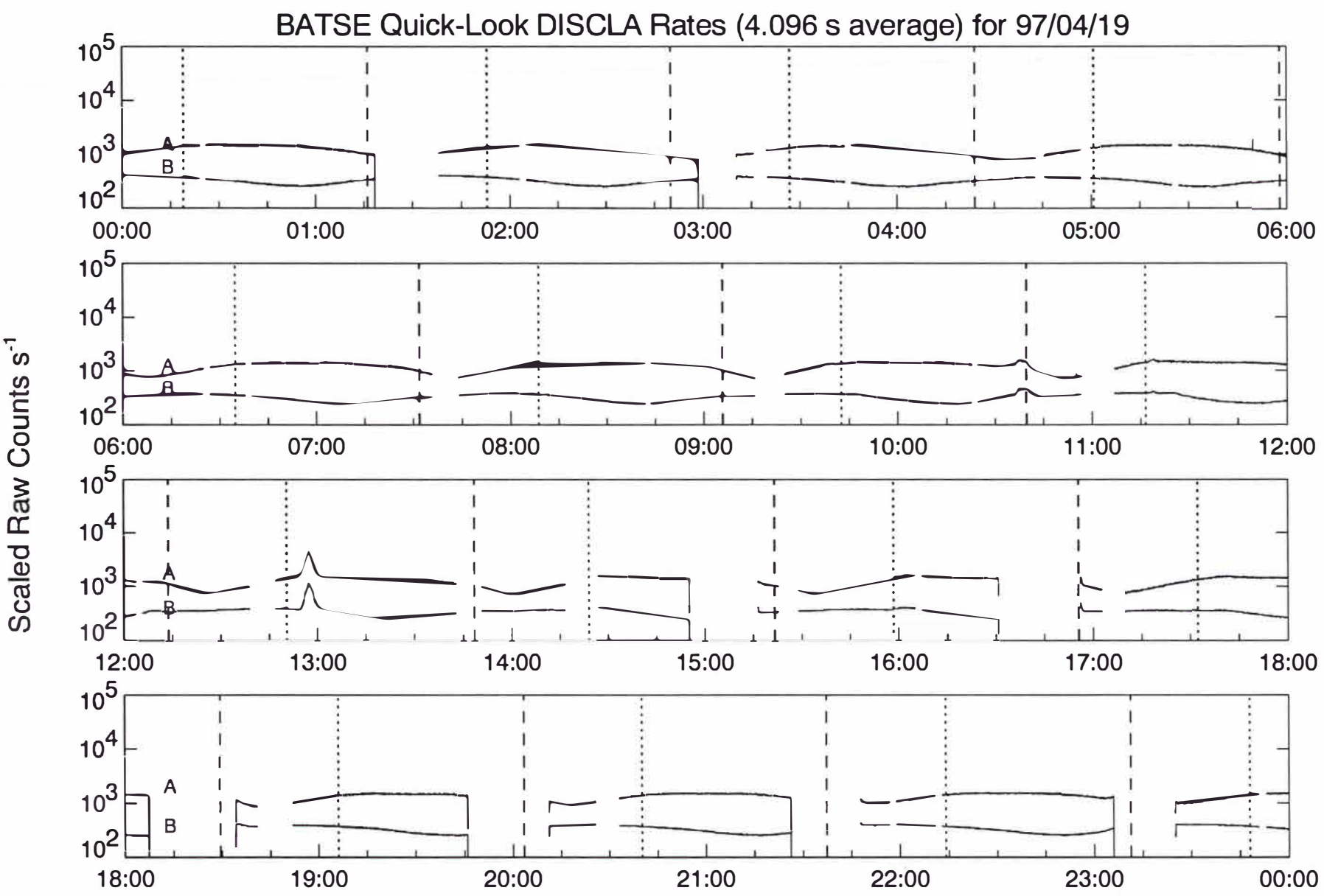
TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

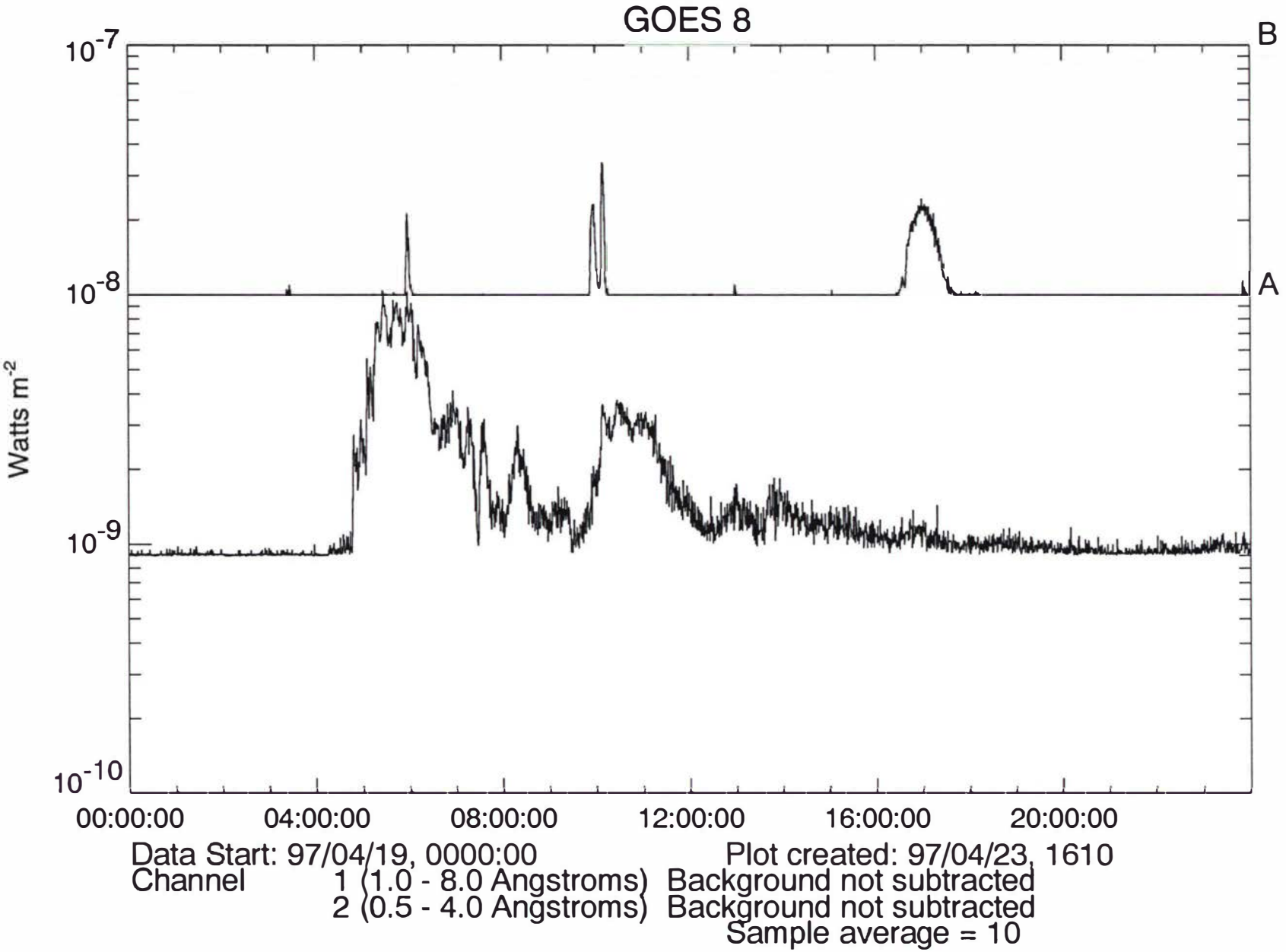
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

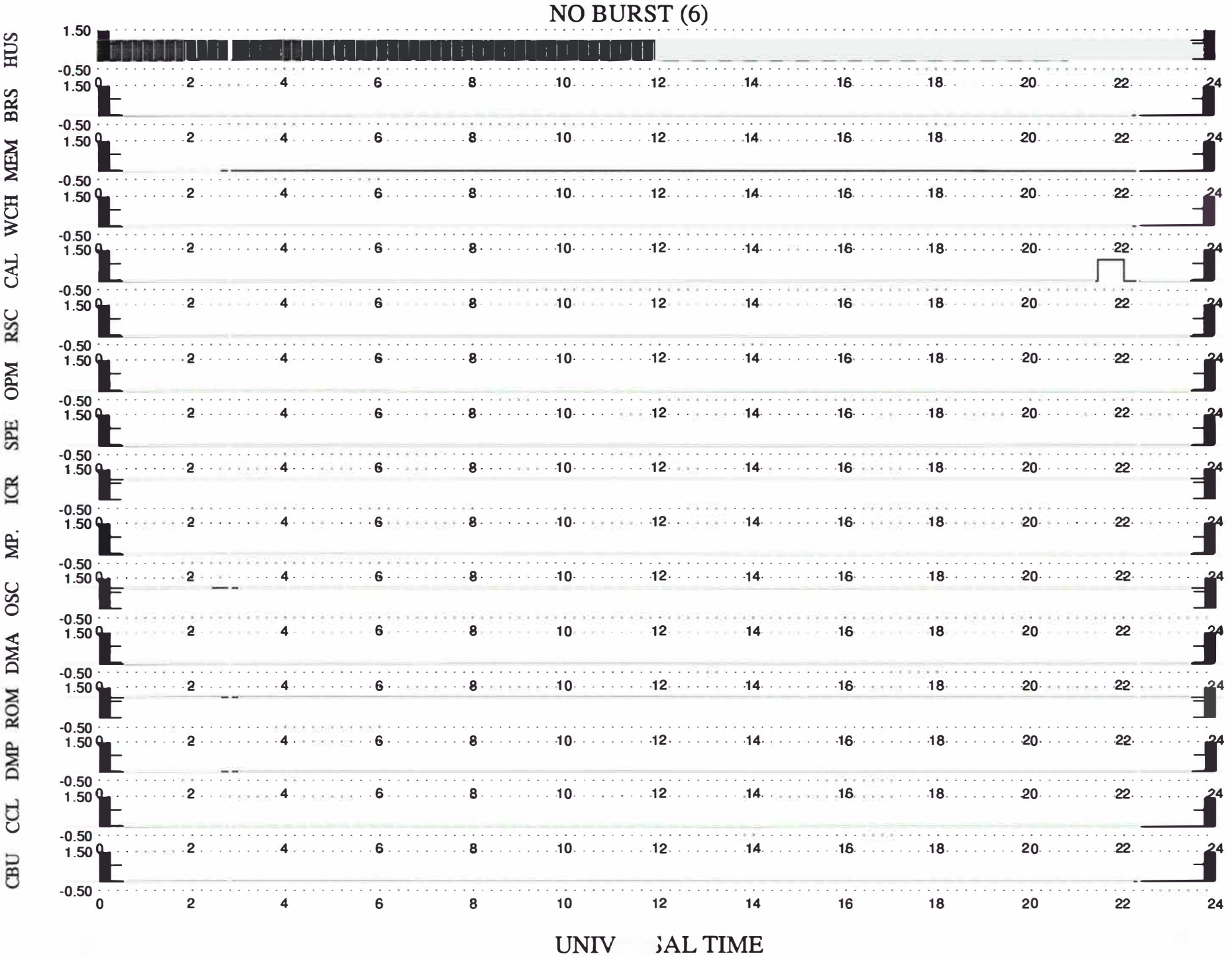
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/19
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/23, 1610 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

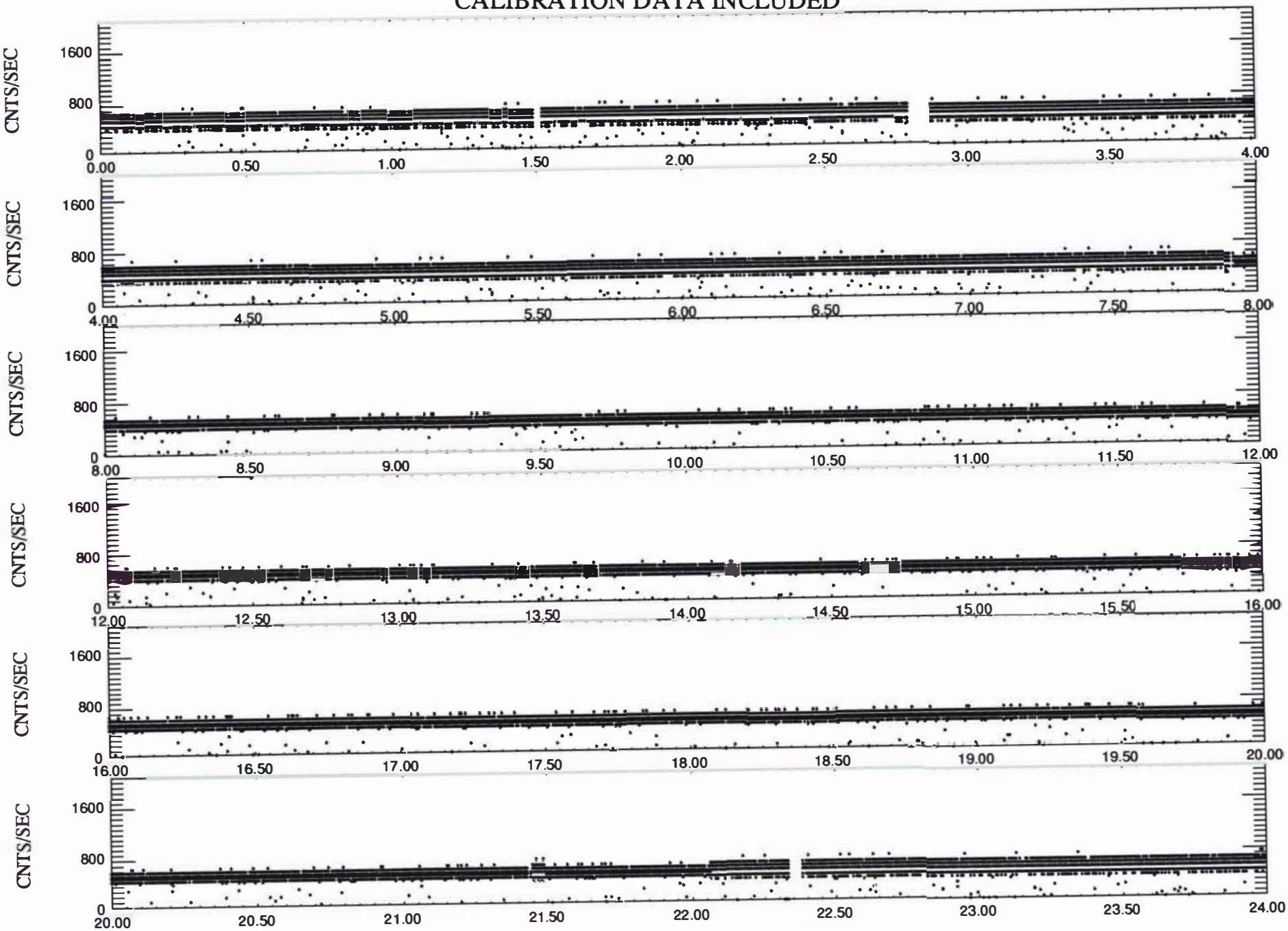

GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/19, 0000:00
Plot created: 97/04/23, 1610
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 109, year 1997 to day 109, year 1997 7/22/97

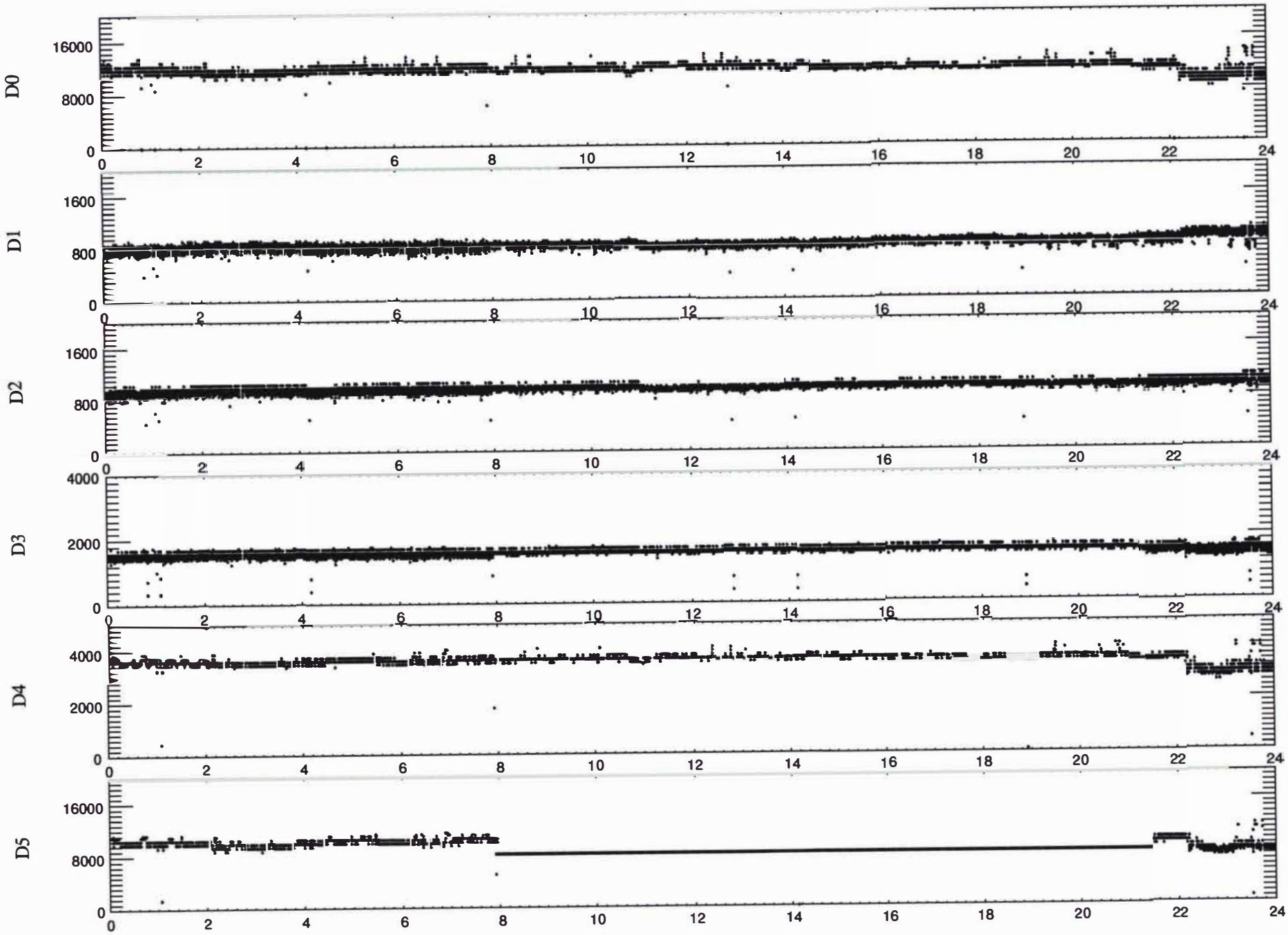


HUS 2A, MODE 1, NOT AVERAGED EDR day 109, year 1997 to day 109, year 1997 7/22/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 109, year 1997 to day 109, year 1997 7/22/97



From SURASAK@SSLLES.MSFC.NASA.GOV Mon Apr 21 08:27 PDT 1997
Date: Mon, 21 Apr 1997 10:26:12 -0500 (CDT)
From: SURASAK@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6197

TIME: TJD=0558 SECONDS=44487

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT!

From SURASAK@ssl.msfc.nasa.gov Tue Apr 22 11:30 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id LAA13057; Tue, 22 Apr 1997 11:30:09 -0700
Date: Tue, 22 Apr 1997 13:30:06 -0500 (CDT)
From: SURASAK@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970422133006.214012f3@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6198
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6198
EVENT OF 1997 APR 20 DAY OF YEAR=110
EVENT CROSSING TIME AT BATSE : 72842. S. OR 20:14:02.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 213.000 -16.000
BATSE PEAK COUNTING RATE: 210000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 20/ 4/ 97 IS:
RA= 152.670 DEC= 34.163 DIST= 4.579 AU
BATSE-ULYSSES DISTANCE = 684969892. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=103.82 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -545.93 SECS.
CROSSING TIME AT ULYSSES IS 72296. S. OR 20:04:56 +/- 426.90 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 20/ 4/ 97 IS:
RA= 169.127 DEC= 7.361 DIST= 0.748 AU
MARS-BATSE DISTANCE = 111929376. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=130.69 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -243.40 SECS.
CROSSING TIME AT MARS IS 72599. S. OR 20:09:58 +/- 45.46 SECONDS

BATSE BURST TRIGGER

NO.: 6198

TIME: TJD=0558 SECONDS=72842

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=67.6 AZIMUTH=181.6 ERROR=0.338 DEGREES

COMMENTS:
GRB. DUR~15S. MULTIPLE STRUCTURES WITH ONE MAIN STRONG PEAK!
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6198	970420	10558	72842	210000	213	-16	15

```
970315    074 56454.2 BATSE GRB#6124 (4264/S)  (5.69,62.18J)  (+UL)
       13 074 56454.9 PKS,462.9(50/S,90/S,<16S) (@85DEG)

970325    084 63382.8 KONUS(+UL@64176,MOD,15S),2 PEAKS(UL REPORT 8/9/97) (13SR)

970405    095U85440   UL@23:44@2200LS,MOD BURST, 5SEC (SEE NEXT LINE)
970406    096  1060.9 KONUS (MOD.STRONG,MULT.PKS,15S) (13:NR, SECONDARY PEAKS?)

970411    101 35565.2 KONUS(25SEC,35556?)+UL@35040,2200LS(MOD,10S) +TGR (13NR)

970420    110 72842.2 BATSE GRB#6198 (7316/S) (209.08,-21.09J) (+UL)
       13 110 72847.8 PEAK (740/S,<12S,HARD) @85 DEG

970421    111U24420   UL@06:47@2250LS INT BURST, 20SEC
       13 111 25691.6 PEAKS (60/S),711.6(60),721.6(40),<30SEC                  REP0624

970428 14 118           FIRST DATA, DMSP14 (LAUNCHED 970404;DELAY CORR=5.87S)

970506    126 56503.3 KONUS (+UL@57300,2400LS,MOD,10S) (13NO,14NO,NOTRIG)

970506A14 126 45619.1 STRONGPKS45619.1(7700/S,<6S,SOFT),633.1,655.1,NOTRIG;13NO      ??

970602    153 58855.7 KONUS>150S,COMPLEX,PK58953(+UL@56580,MOD,60S)(+TGRS/WIND)
       14 153 58917.0 PK(150/S),953.0(950,>58S,VERY HARD, INTENSE (13 NO)       REP0624
       14 153 58916.7 TRIGGER PK, +58944.3,58952.0

970607    158 33384.7 KONUS, HARD PEAK FOR 7SEC (+UL@33360,MOD,10S)
       13 158 33388.6 PEAK(180/S,<6S)                                          REP0723
       14 158 33388.7 PEAK(200/S,<6S, NOTRIG)                                  REP0723

  616     167 65390.3 BATSE#6274 STRONG,MULTIPEAK.X-RAY AFTER,IAU6683(13NO@127)
          167 65390.3 BATSE(20.46,-7.16J),X-RAY(19.72,-5.50J) (14NO@112,NOTRIG)
          167 65390.3 BATSE (X-RAY DUBIOUS,IAU6722. NO OPT VARIABLE, IAU6723)

970625    176 43993.7 KONUS (UL@46200,2900LS,MOD,15SEC,REPORTED 10/30/97)
       13 178 44002.0 PEAK(80/S,<4S) (14SA)

970627    178 79608.8 KONUS STRONG, MULTIPEAK, 20SEC (+UL@77340,STRONG,20S)
          178 79610   BEPPOSAX (13SR,14NO,NO TRIG)

970629    180 14424.  KONUS VERY SOFT(+UL@15960,STRONG. NEW SGR (SEE 970912)
       13 180 14429.0 PEAK(50/S,<2S,SOFT) (14NR)                               REP0903

970715    196 51674.3 KONUS STRONG,HARD PK@+20(+UL@54060,MOD,5S)
       13 196 51693.6 PEAK(190/S,<4S)  (14NR,NOTRIG)                           REP0903

970721    202 84667.1 KONUS(+UL@81720,MOD,10S,@3000LS)
       13 202 84671.9 PEAKS(HARD,1-SIDE,200/S,<8S),691.9(1-SIDE,240/S,<10S)    REP0903
       14 202 84672.1 PEAK (HARD,1-SIDE,470/S,<10S),692.1(1-SIDE,240/S,<10S)   REP0903
       14 202 84671.5 TRIGGER PEAK (EVT14)(84671.46)                           REP0903

970802    214 12328.2 BATSE GRB#6322,5750/2S    (13NO@32,14NO@40,GAP,NOTRIG)

970815    227 43624.4 BATSE GRB#6335,10395/2S (IAU6718 XRAYS;6721+NOOPT)
          227 43624.4 CONTINUED: 13NO@160DEG, 14NO@146DEG

  0915    258 32870.9 KONUS 25S,HARD (+UL@30900,3100LS,MOD,10S)
       14 258 32873.2 PEAK (200/S,<2S,NO TRIG) (13NO)

970919    262 65669.5 BATSE#6389 (8048/S)
```

From TERRELL@nisdp0.lanl.gov Fri Feb 27 15:11 PST 1998
From: TERRELL@nisdp0.lanl.gov
Date: Fri, 27 Feb 1998 16:11:55 -0700
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
henze@fender.msfc.nasa.gov, filippo@botes1.tesre.bo.cnr.it,
kmarar@isac.ernet.in
X-Vmsmail-To: @MAILOUTUL.DIS
Subject: DMSP GRB: 1997(many),980109,980113,980119,980124,980125,980202,980203

From: jterrell@lanl.gov (James Terrell) 980227
To: khurley@sunspot.ssl.berkeley.edu, bonnard@milkyway.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kmarar@isac.ernet.in, kraken@rosserv.gsfc.nasa.gov,
scott@milkyway.gsfc.nasa.gov, teegarden@lheavx.gsfc.nasa.gov,
vnp@isac.ernet.in, yosimori@rikkyo.ac.jp
Subj: DMSP GRB detections: 1997(many),980109,980113,980119,980124,980125,980202,980203

The following GRB were detected by DMSP13 or DMSP14 (or NOT detected, if indicated).
No detection can occur for bursts more than 118 degrees from spacecraft zenith,
or if in the presence of very high counting rates (SAA,SR,NR).
Data are normally in 2-sec counts, except when the DMSP14 trigger circuit is
tripped, giving 12.8ms data, usually reported here as 102.4ms counts.
Numerous other BATSE GRB were also detected, but not reported here; numerous
weak detections by Ulysses have not been checked because of low counting
rates expected at an indefinite time.

DATE	FL	DAY	TIME	NOTES---(ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)------	REPORTED
				(NO=DATA CHECKED--SHOWS NO DETECTION)(SR=S. RADIATION BELT)	
				(NR=NORTH RADIATION BELT)(SAA=SOUTH ATLANTIC ANOMALY)	
970111		011	35040.2	BATSE GRB#5773 (8727CTS/2S) (SEE IAU6569,6571,6574,6598)	
		011	35040.2	BEPPO SAX TRIG,INTENSE,50S,3 PEAKS(232.10,19.67J) IAU6533	
	13	011	35040.0	PEAKS(40/S),48.0(50/S),58.0(60/S),@24DEG,@848KM,SOFT	REP0313
970111		011	85744.6	KONUS (HARD,SLOW RISE) +TGR (UL:NO) (DMSP13:NO)	
970117		017	53211	TGR+SAX GRB (KONUS INOP)+UL@54420(STRONG,20S) (13:NO)	
970124		024	44343.4	KONUS(MULT PKS)+UL@46253@2100LS,STRONG+TGR (13SAA)	
970201		032	57250.7	BATSE GRB#5989 (53612/SEC) +UL	
	13	032	57222.1	PEAK (100/S,~30S,SOFT,BROAD) (@111DEG) UNCONVINCING	
970218		049	50996.1	KONUS (STRONG,5SEC) +UL@51274,2000LS (STRONG,8SEC)	
	13	049	51001.0	PEAK (320/S,<6S)	REP0624
970222		053	86006.6	KONUS (MOD.STRONG,SEV.SEC) +UL@85873,2000LS,MOD,2S(13NO)	
970226		057	31585.9	KONUS (STRONG,SOFT PK@+39) +UL@30547,2000LS(V.INT,40S)	
	13	057	31595.8	PEAK (270/S,10SEC) (MODERATELY STRONG)	REP0313
970228		059	10680.8	BEPPOSAX(IAU6572)MOD.INT.,80S,4 PKS (75.46,11.75J)IAU6578	
		059	10680.8	INT.X-RAY,RADIO(IAU6576,6577),OPTICAL(6584),MOTION(6629)	OPTICAL
	13	059	10659.1	PKS,667.1(60/S,ONE-SIDED,SOFT,@74DEG) DOUBTFUL (+UL,WIND)	
970313		072	30096.5	KONUS(MOD.STRONG,PK@+11,40S)+UL@28380,2000LS(MOD.INT,10S)	
	13	072	28355.8	PEAK (180/S,<2S,SOFT) (NO PEAK AT 30096!) (CONFLICT)	REP0501

From fjv@nofs.navy.mil Thu May 1 13:34 PDT 1997
Return-Path: <fjv@nofs.navy.mil>
Received: from nofs.navy.mil by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id NAA26612; Thu, 1 May 1997 13:34:55 -0700
eived: by nofs.navy.mil; id QAA03411; Thu, 1 May 1997 16:37:37 -0400 (EDT)
Received: from vrba.nofs.navy.mil(192.68.148.187) by charon.nofs.navy.mil via smap (3.2)
        id xma003409; Thu, 1 May 97 16:37:23 -0400
Received: by vrba.nofs.navy.mil (5.65/DEC-Ultrix/4.3)
        id AA18822; Thu, 1 May 1997 13:35:52 -0700
Date: Thu, 1 May 1997 13:35:52 -0700
From: fjv@nofs.navy.mil (Fred Vrba)
Message-Id: <9705012035.AA18822@vrba.nofs.navy.mil>
To: khurley@sunspot.ssl.berkeley.edu
Content-Type: text
Content-Length: 276
X-Lines: 8
Status: RO

Hi Kevin:

We managed to observe >2.3 degree^2 around BATSE trigger 6198
with the 40-inch tel here about a day after the burst. Is there or will
there be an IPN annulus for this burst? If so, could you send it to me.
Thanks.

Best Wishes, Fred

Helio corr removed 17/2/00

Date: Mar 26 '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? 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)?

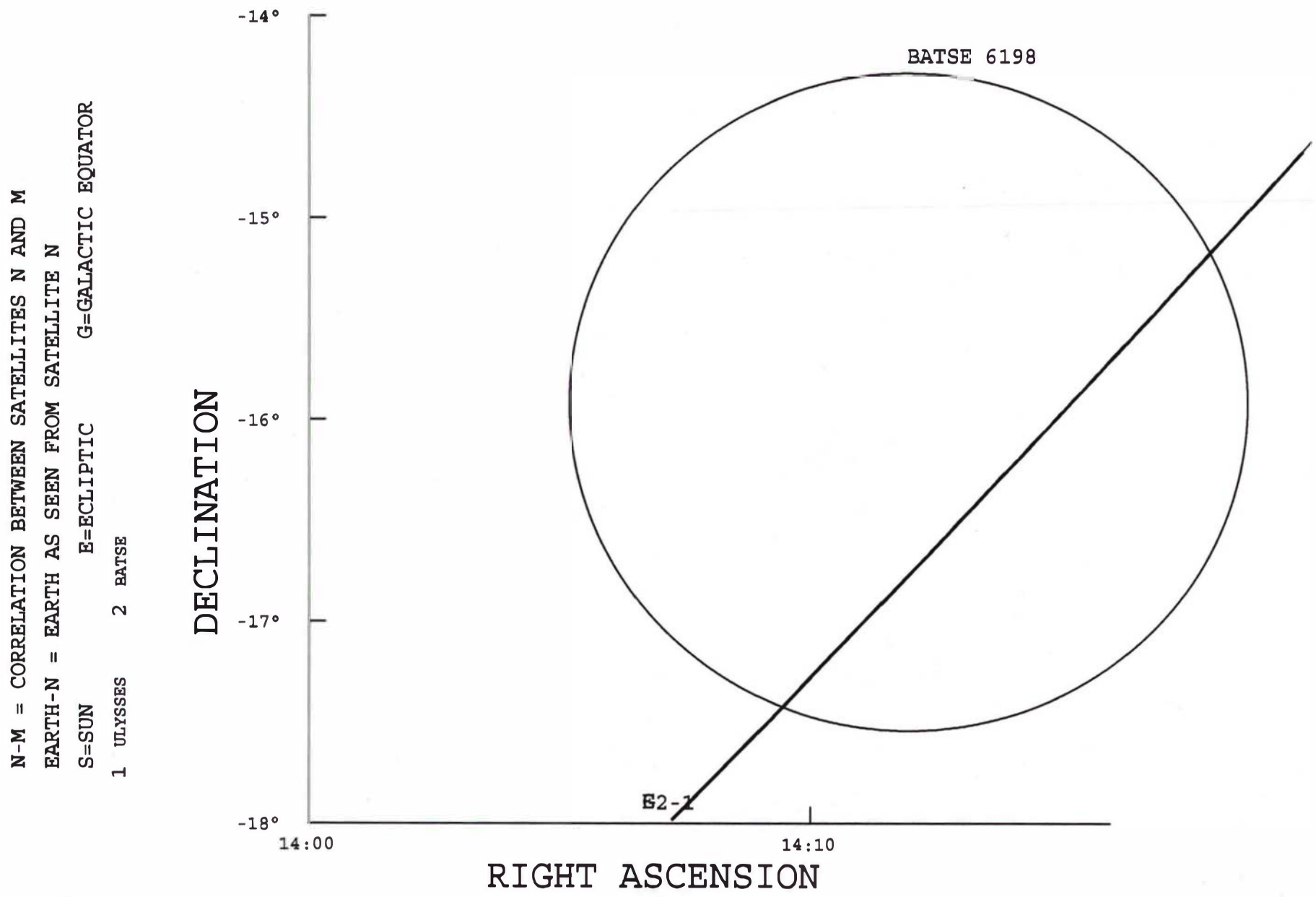
☐ 2000 coordinates used?

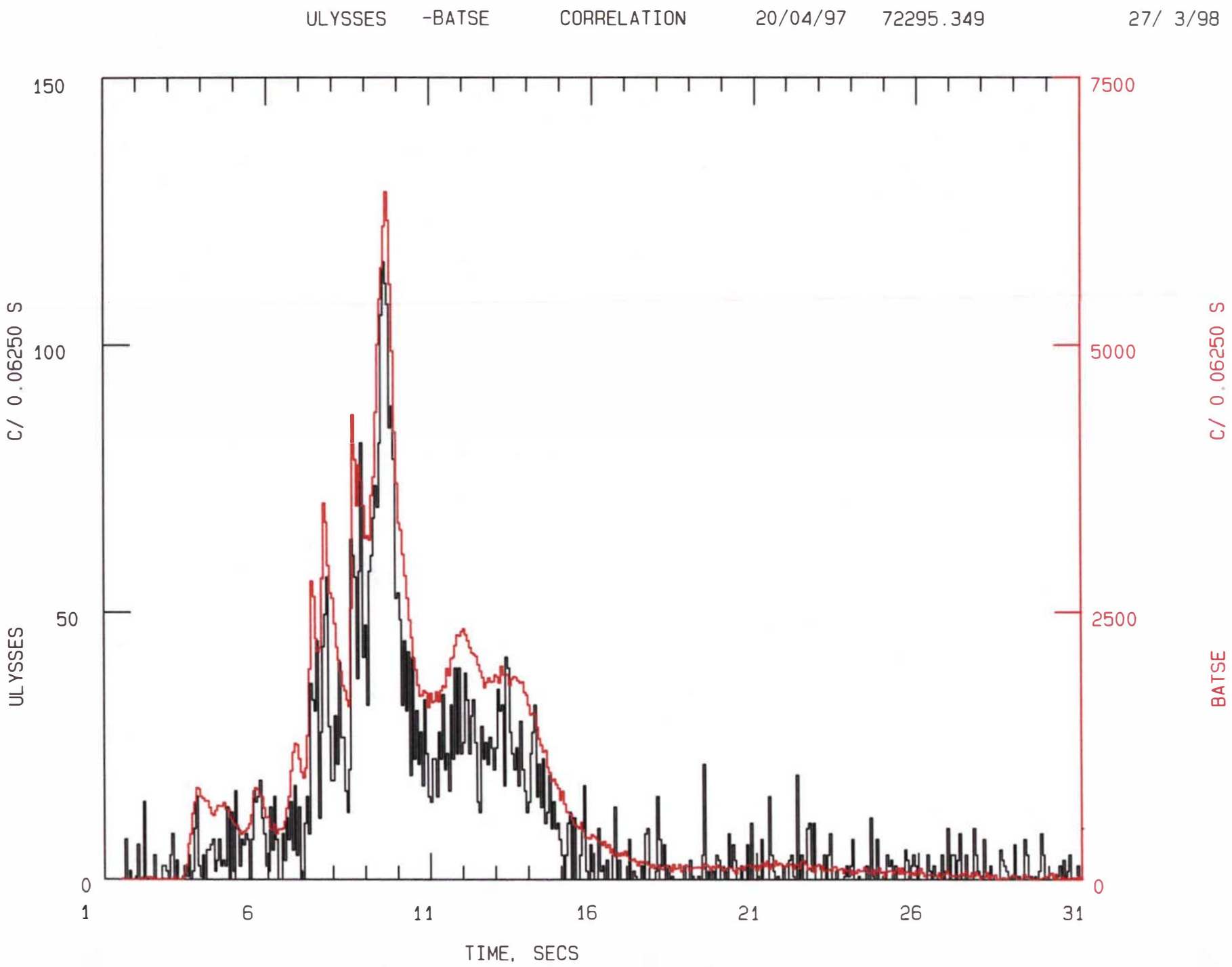
☐ Geocentric time used?

☑ ACCESS database updated?

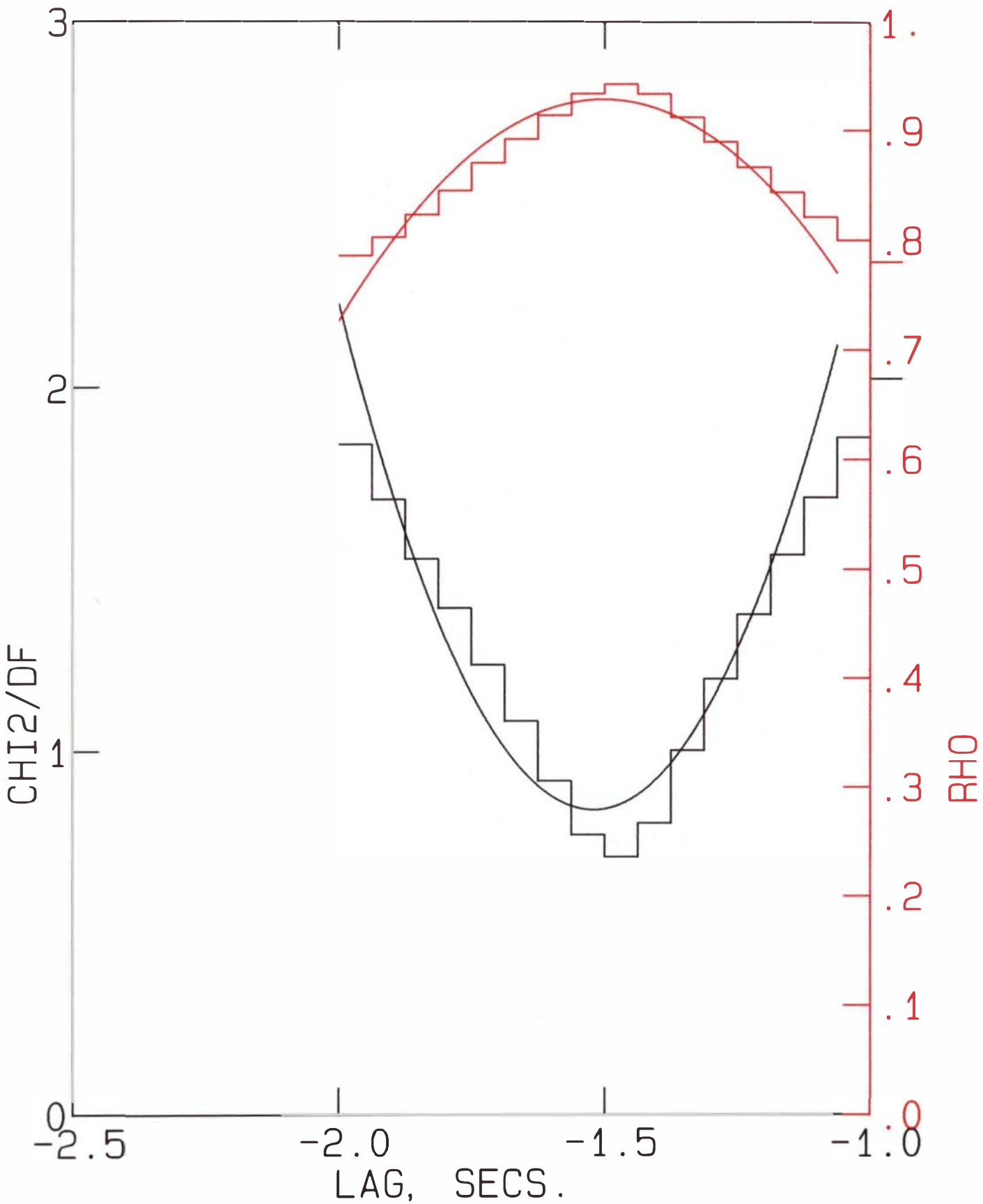
EVENT OF APR 20, 1997 20:04

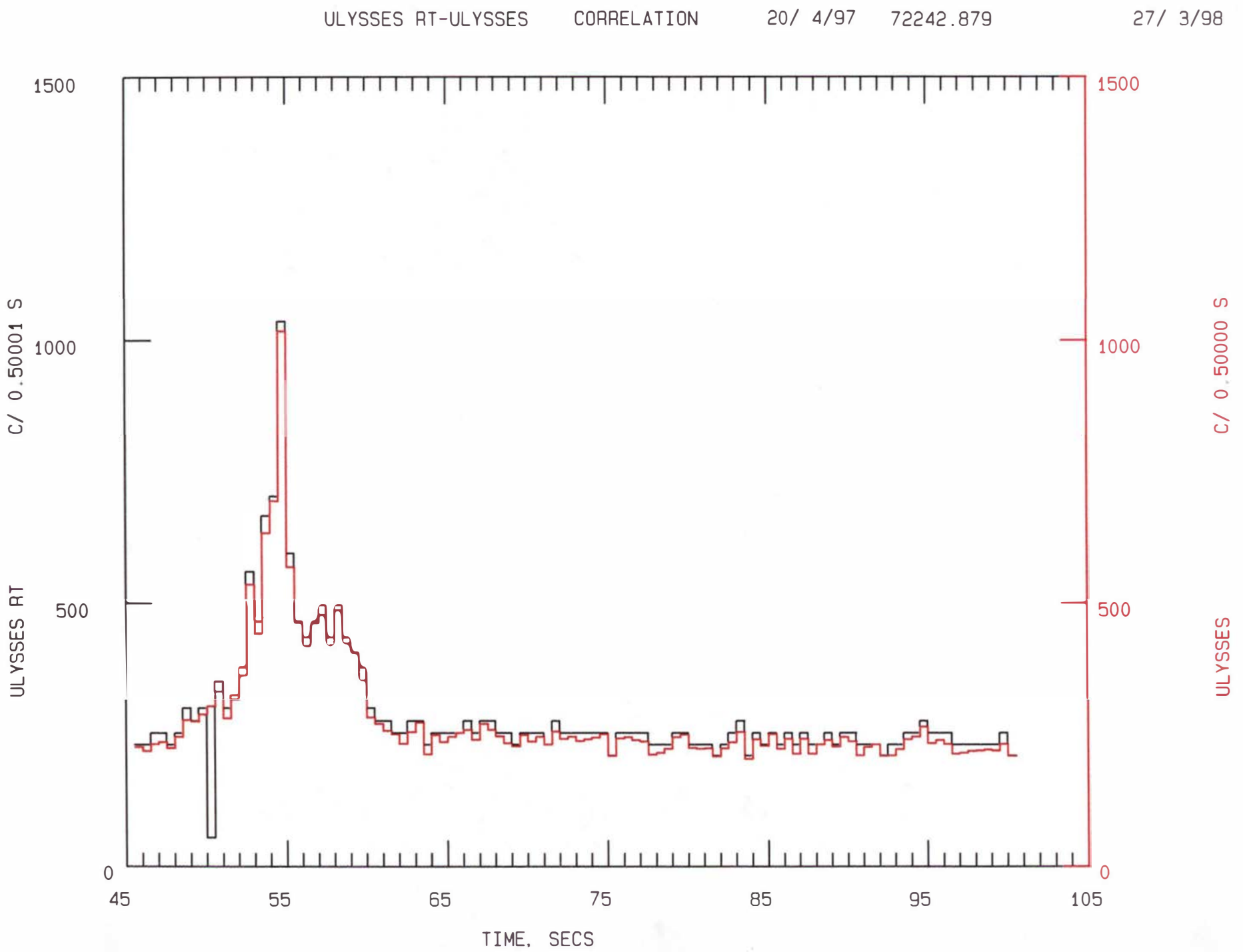
17/ 2/ 0



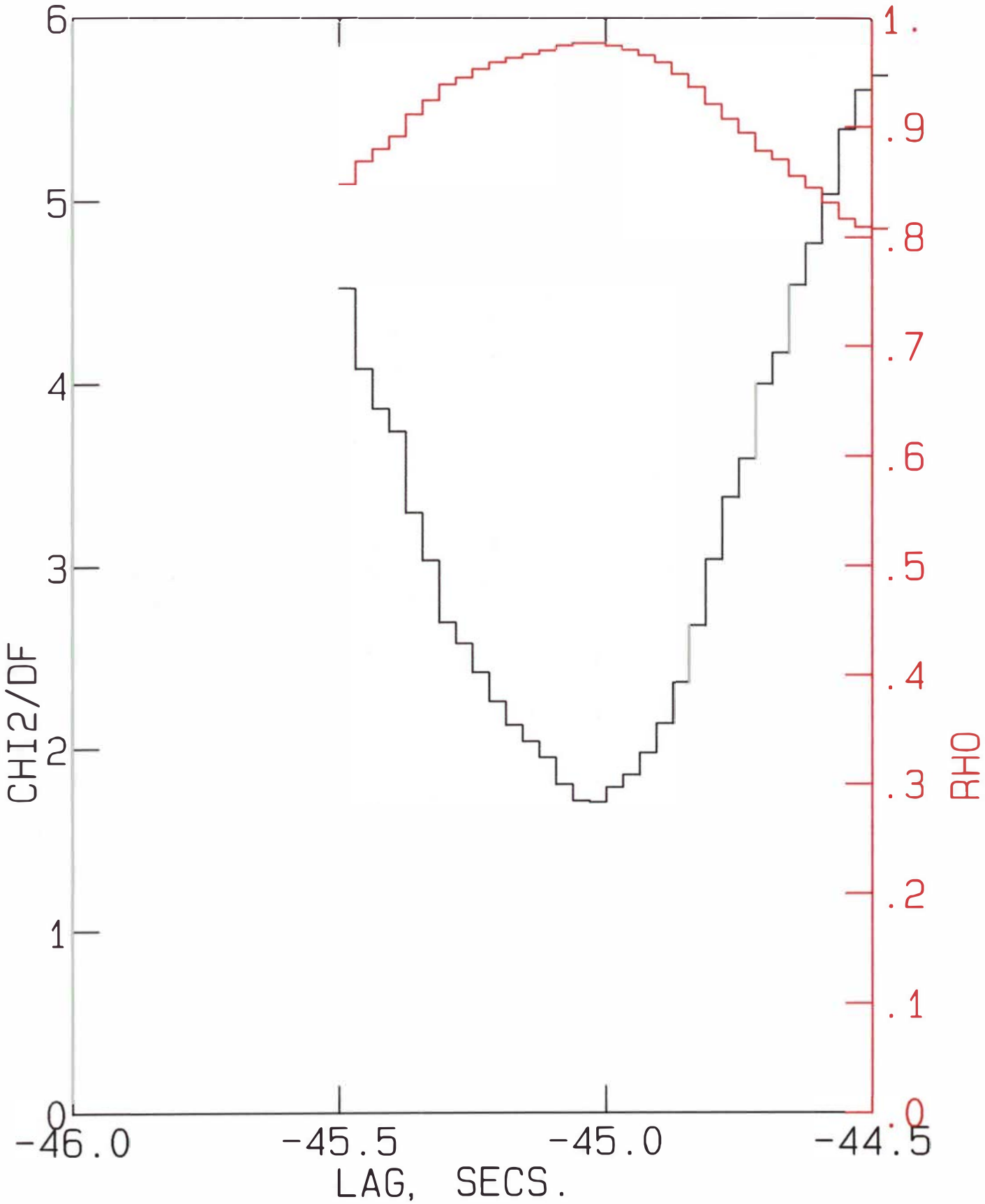

ULYSSES -BATSE CORRELATION 20/04/97 72295.349 27/ 3/98
150
100
50
0
C/ 0.06250 S
ULYSSES
7500
5000
2500
0
C/ 0.06250 S
BATSE
1
6
11
16
21
26
31
TIME, SECS

ULYSSES -BATSE CORRELATION 20/04/97 72295.349




ULYSSES RT-ULYSSES CORRELATION 20/ 4/97 72242.879 27/ 3/98
1500
1000
500
0
C/ 0.50001 S
ULYSSES RT
1500
1000
500
0
C/ 0.50000 S
ULYSSES
45
55
65
75
85
95
105
TIME, SECS

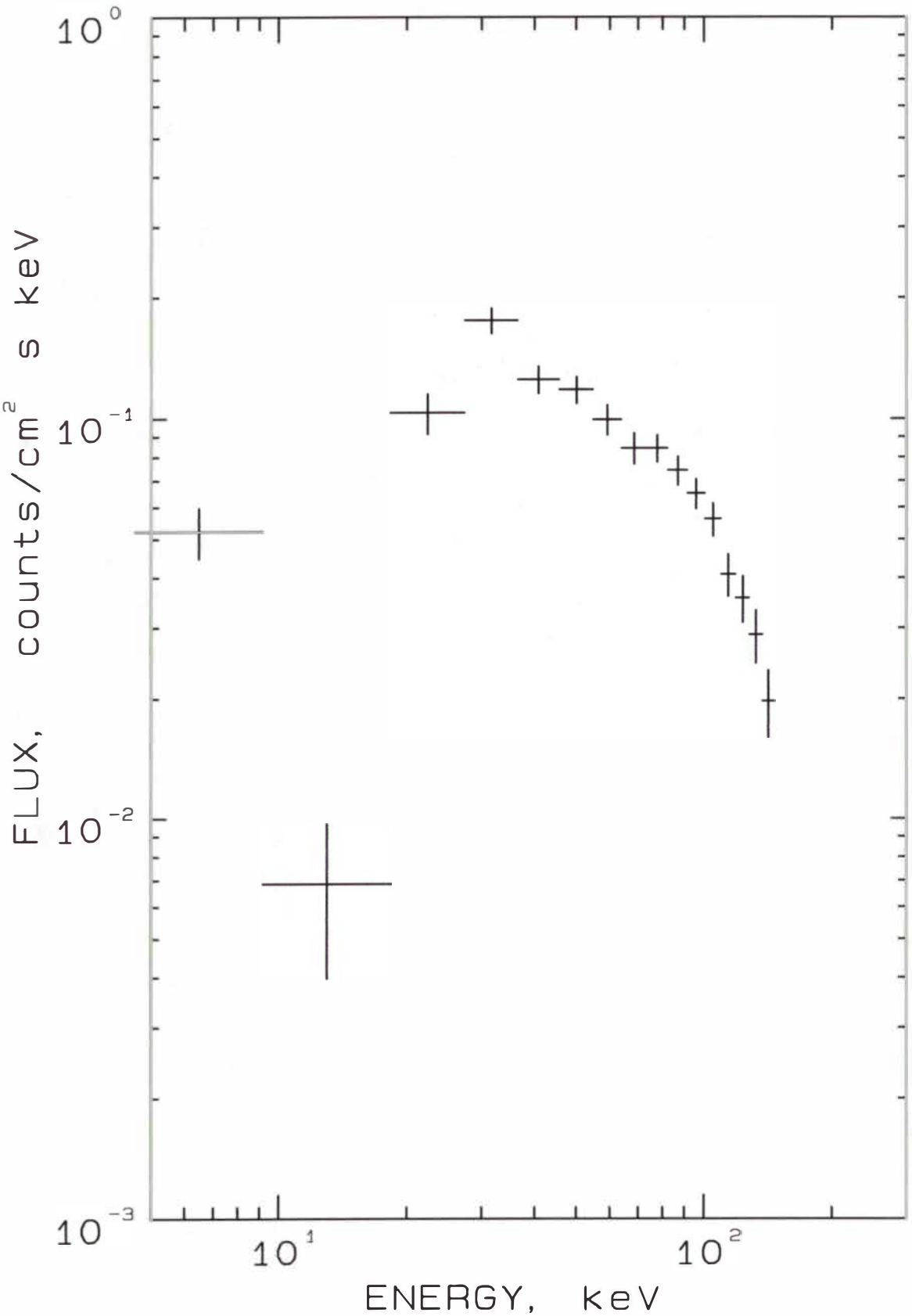
ULYSSES RT-ULYSSES CORRELATION 20/ 4/97 72242.879

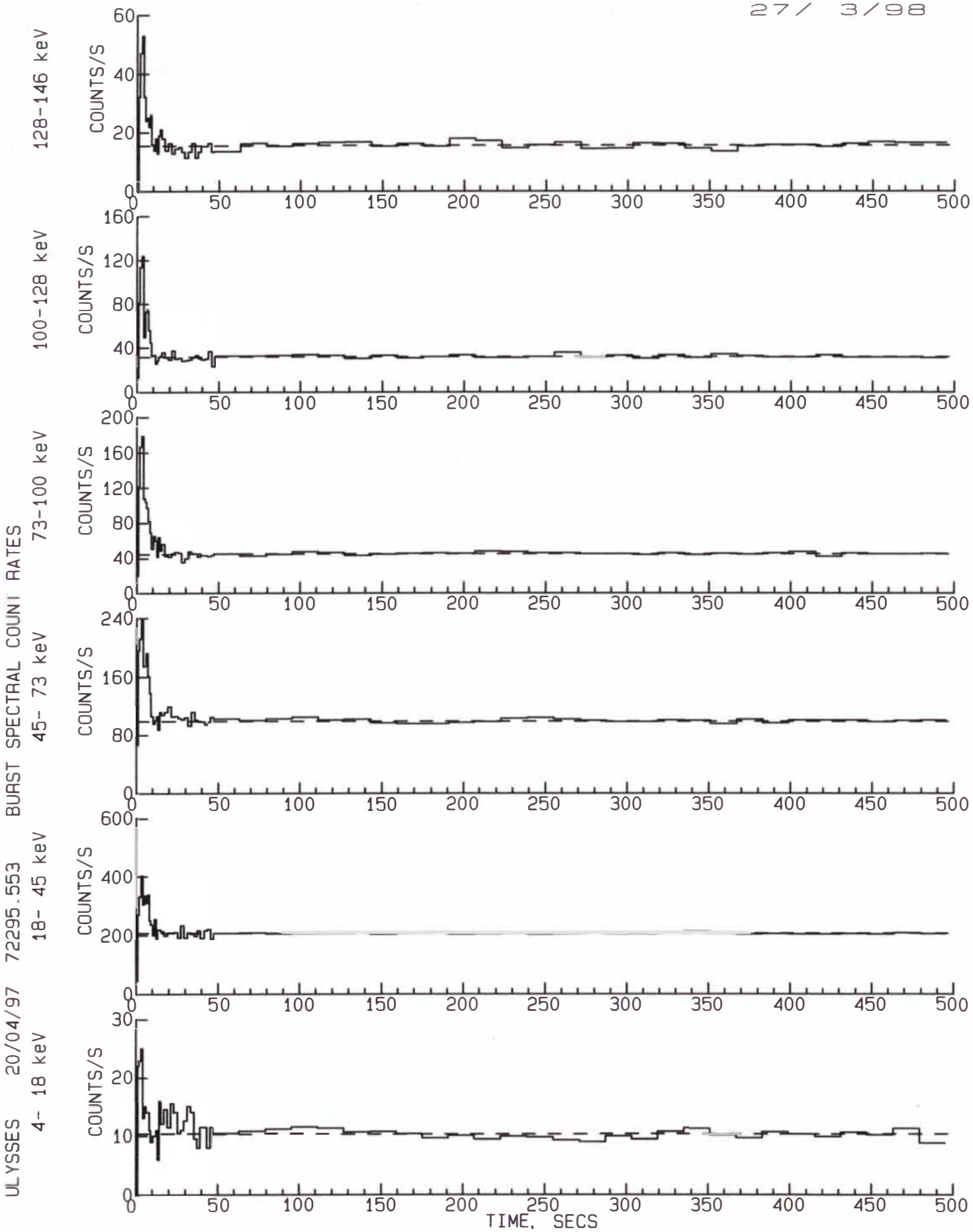


ULYSSES 20/04/97 72295.553

27/ 3/98

SPECTRUM INTEGRATED OVER 31.1 SECONDS, INTERVALS 2 TO 25




27/ 3/98
ULYSSES 20/04/97 72295.553 BURST SPECTRAL COUNT RATES
128-146 keV
100-128 keV
73-100 keV
45- 73 keV
18- 45 keV
4- 18 keV
COUNTS/S
TIME, SECS

ULYSSES 20/04/97 Ttrig=72295.349

21- 147 keV

COUNTS/0.031 S

0 20 40 60 80

0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64

COUNTS/0.125 S

0 100 200 300

0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64

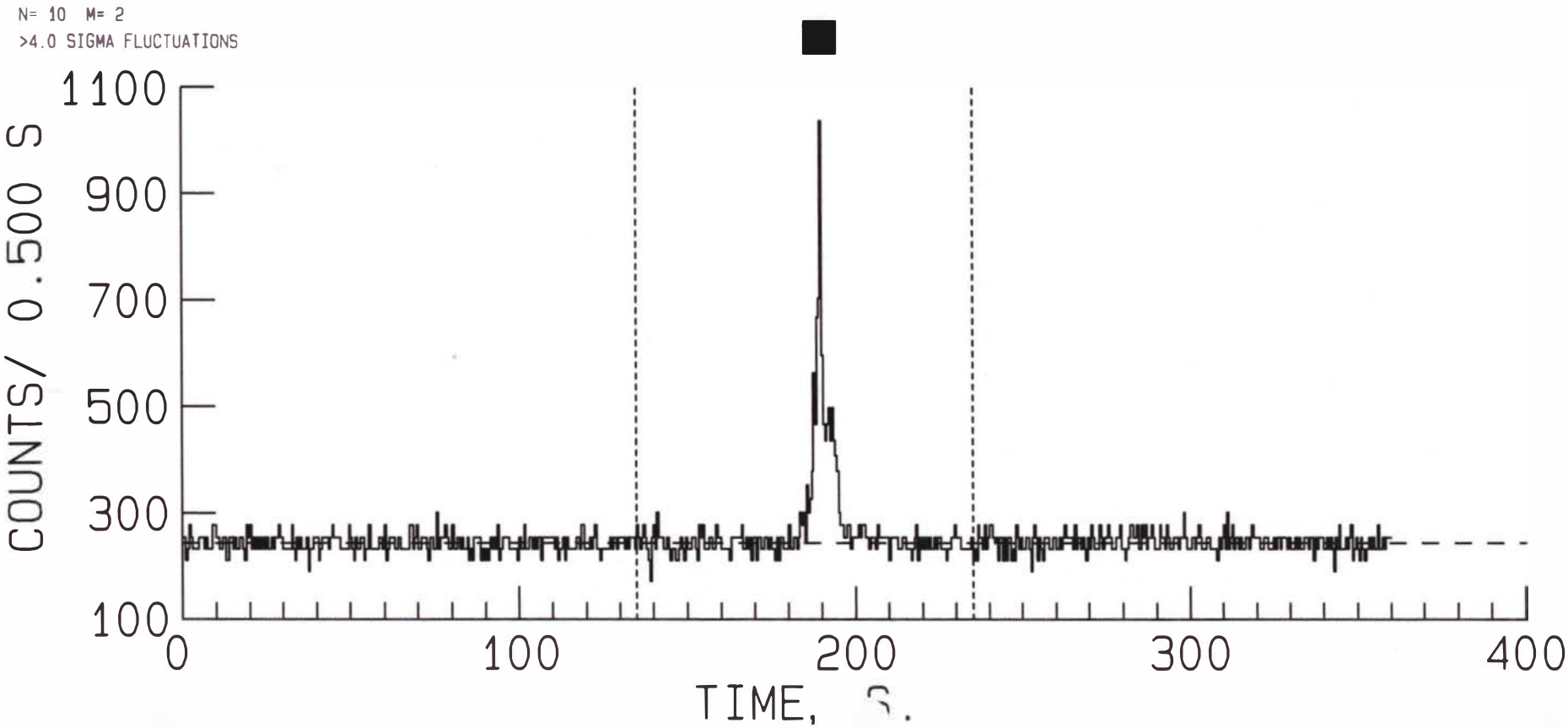
27/ 3/***

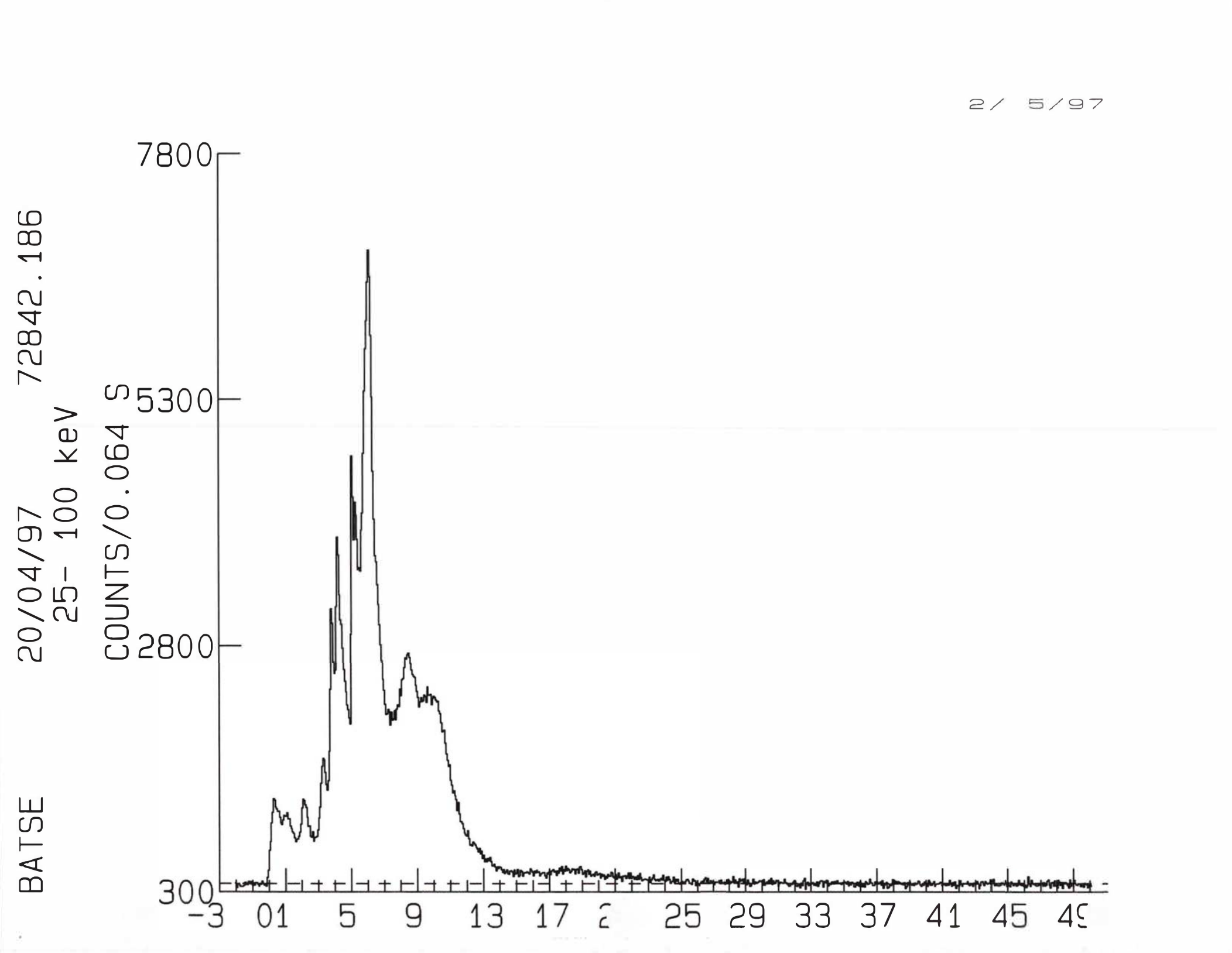
ULYSSES RT

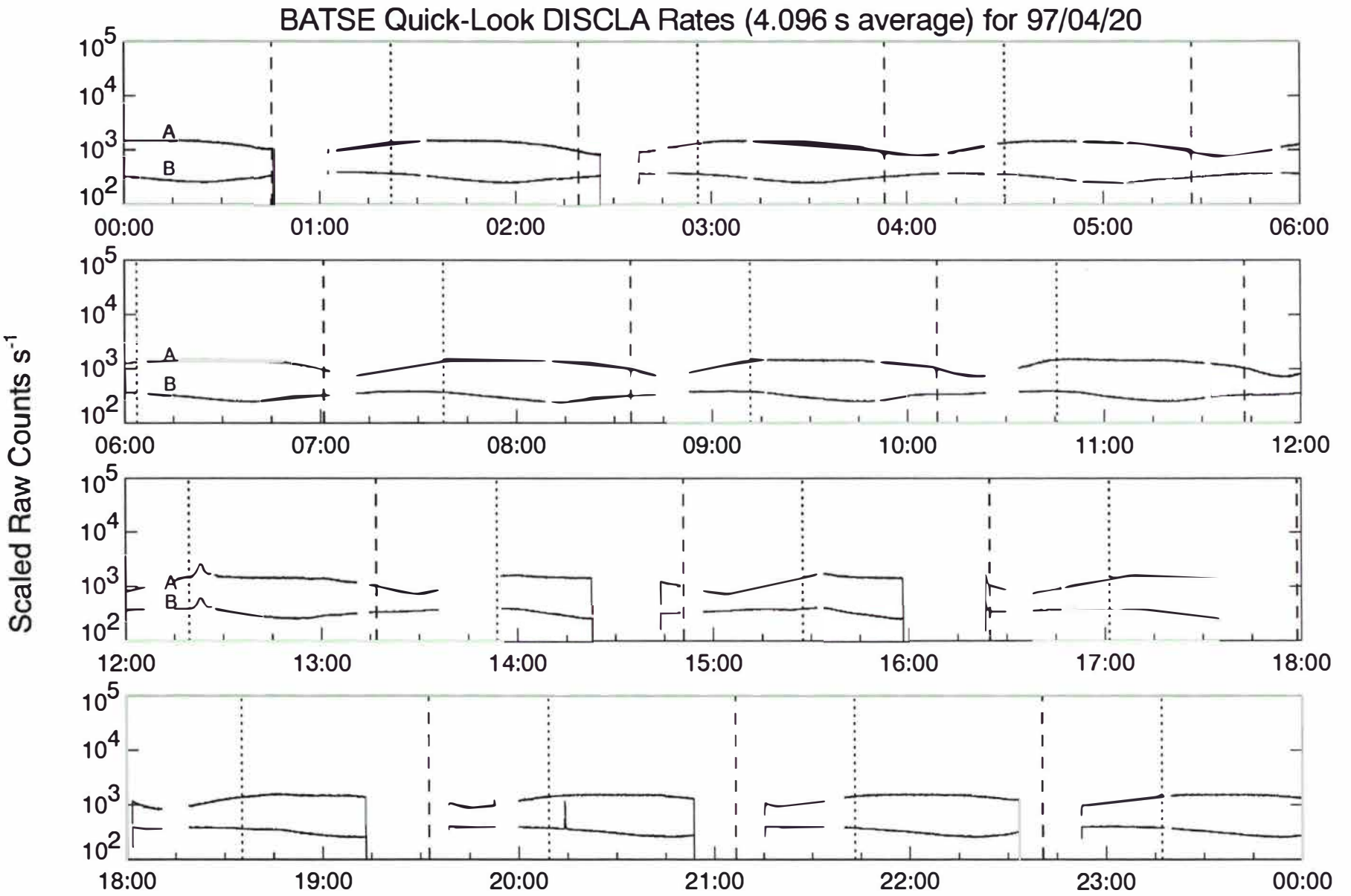
27/ 3/98

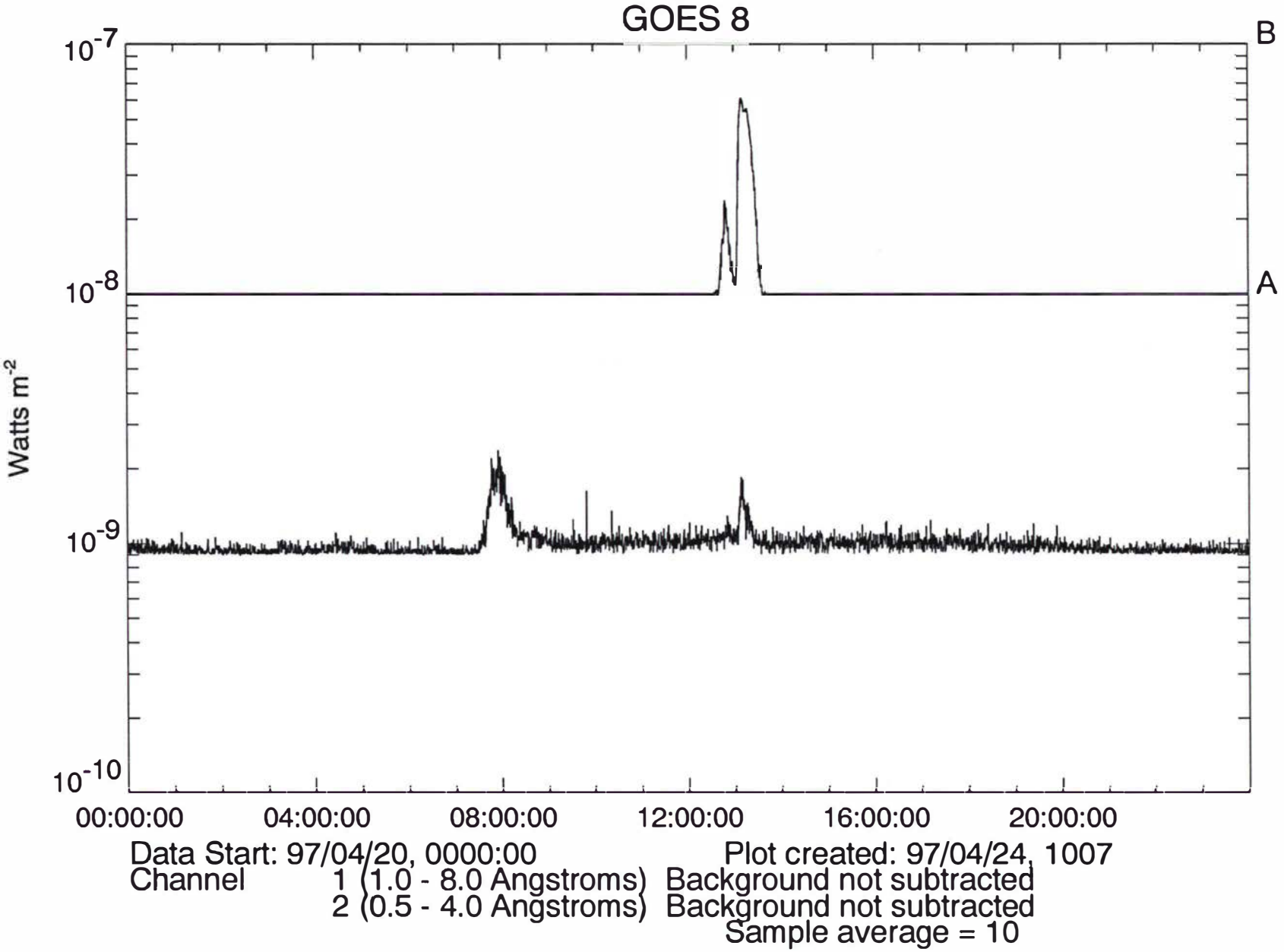
20/ 4/97 72108.092 s

21- 147 keV

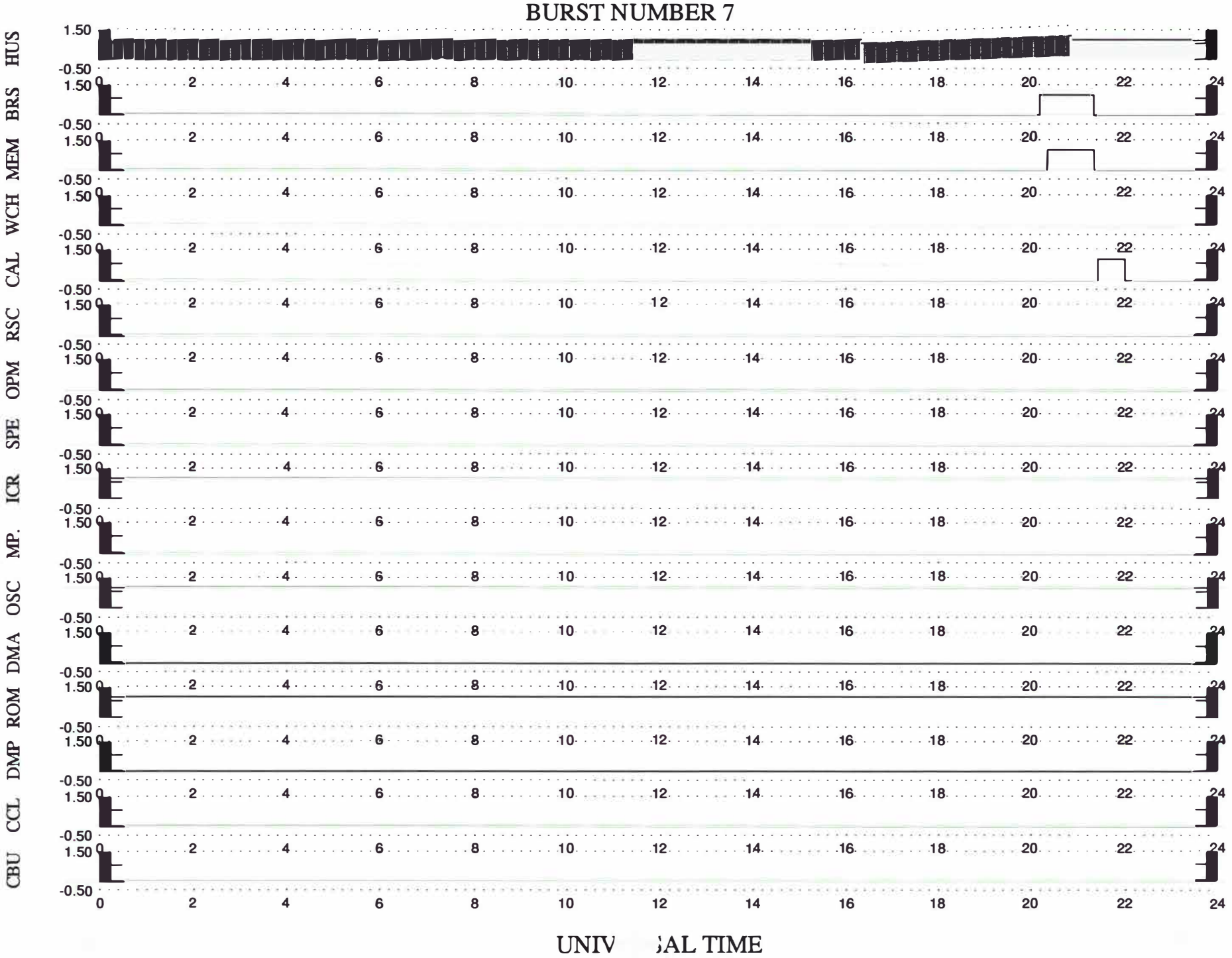



2/ 5/97
BATSE 20/04/97 72842.186
25- 100 keV
COUNTS/0.064 S
7800
5300
2800
300
-3
01
5
9
13
17
25
29
33
37
41
45


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/20
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/24, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

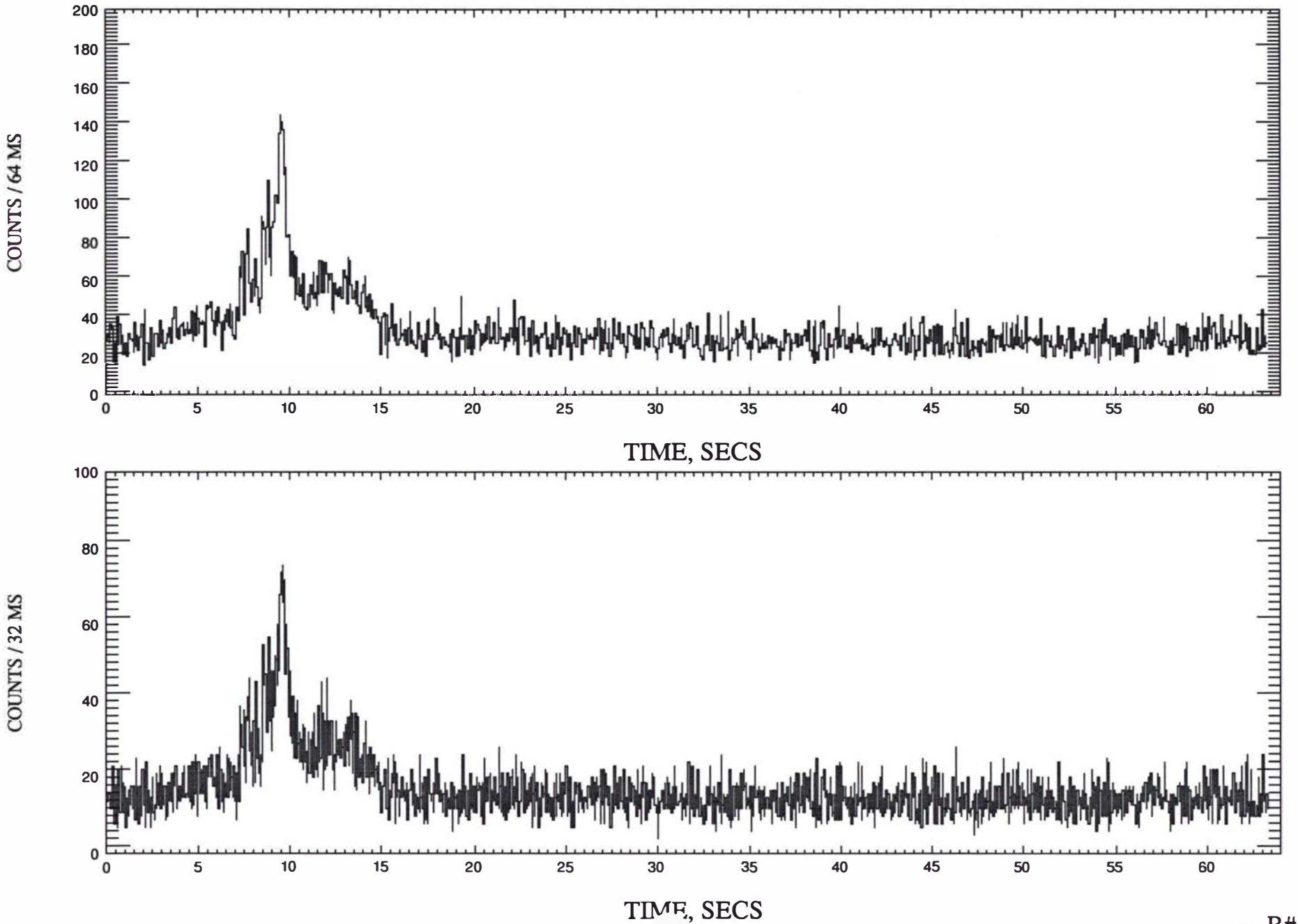

GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/20, 0000:00
Plot created: 97/04/24, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 110, year 1997 to day 110, year 1997 7/22/97



HUS 2A TRIGGERED DATA EDR day 110, year 1997 7/22/97

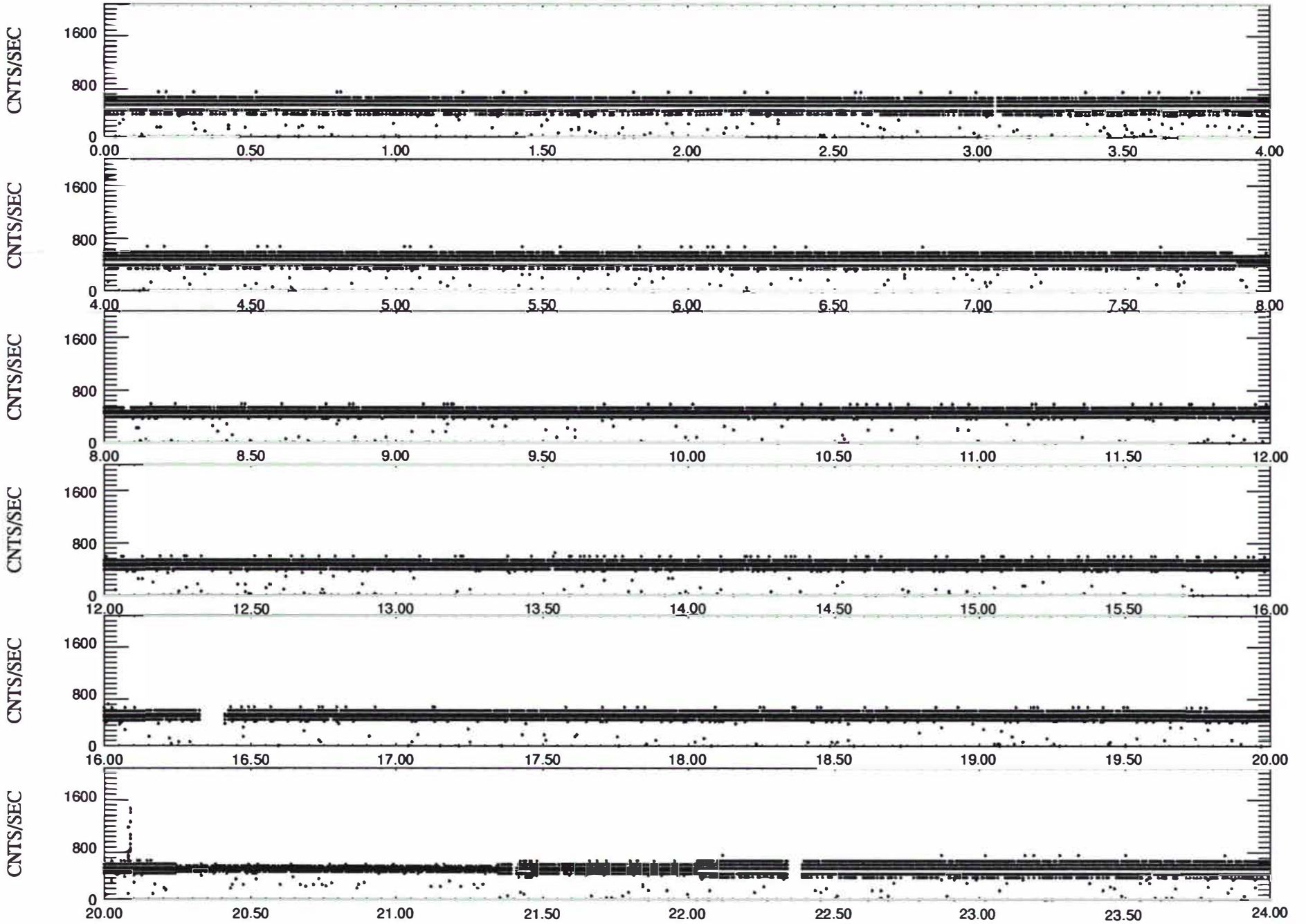
Burst Counter 7 at UT=20.082098180983 h=72295.553 s 20:04:55.553



B# 1

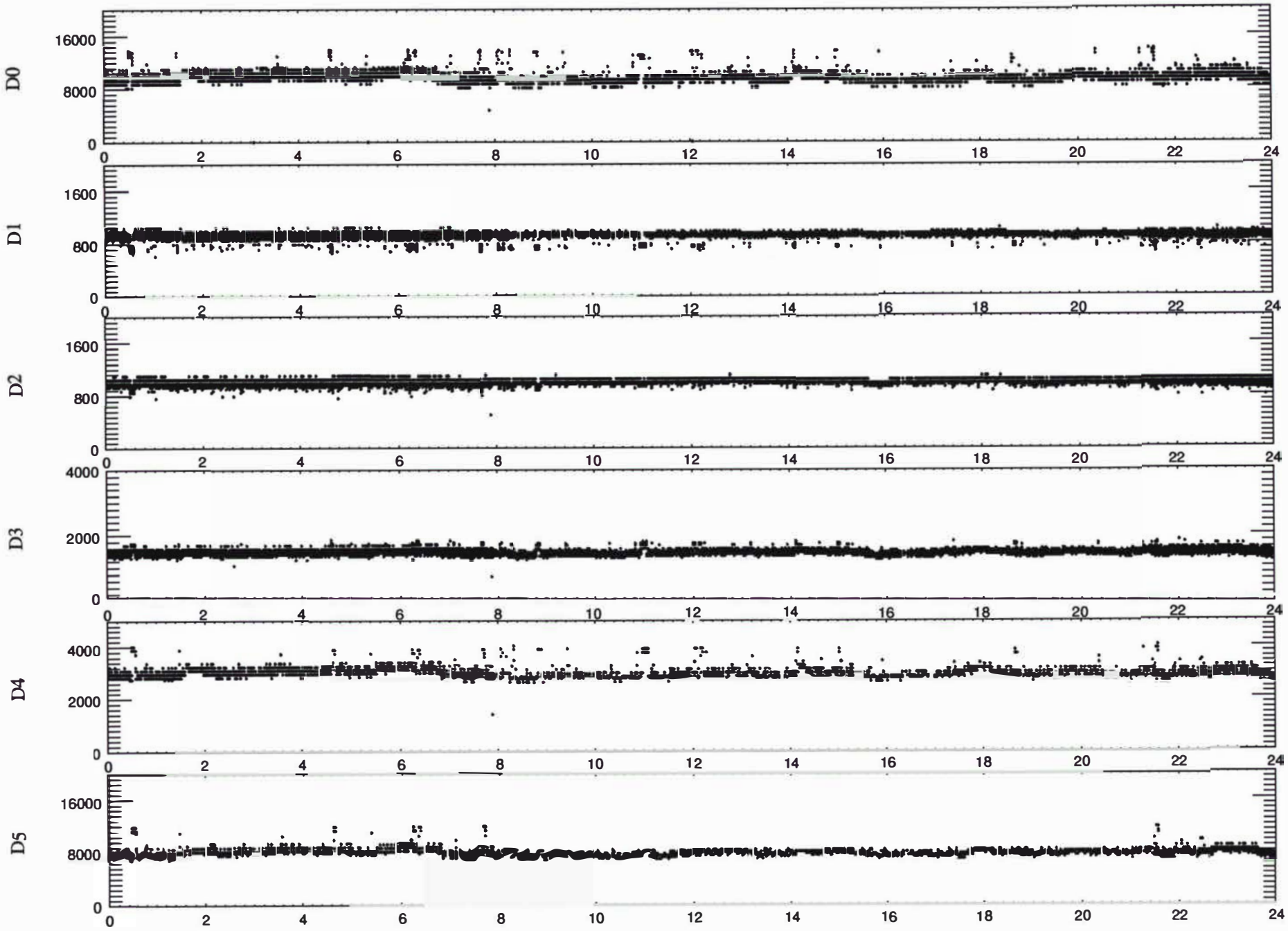
HUS 2A, MODE 1, NOT AVERAGED EDR day 110, year 1997 to day 110, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV SAL TIME

HUS 2B COUNTS / SEC EDR day 110, year 1997 to day 110, year 1997 7/22/97



Date: Dec 6 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

☐ Konus ecliptic latitude used with latest calibration? N/A

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data…")

☐ Was Mars-blocking used?

☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)

☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).

☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events

☐ Σ 3Δt's calculated, and/or BMAPSUM executed?

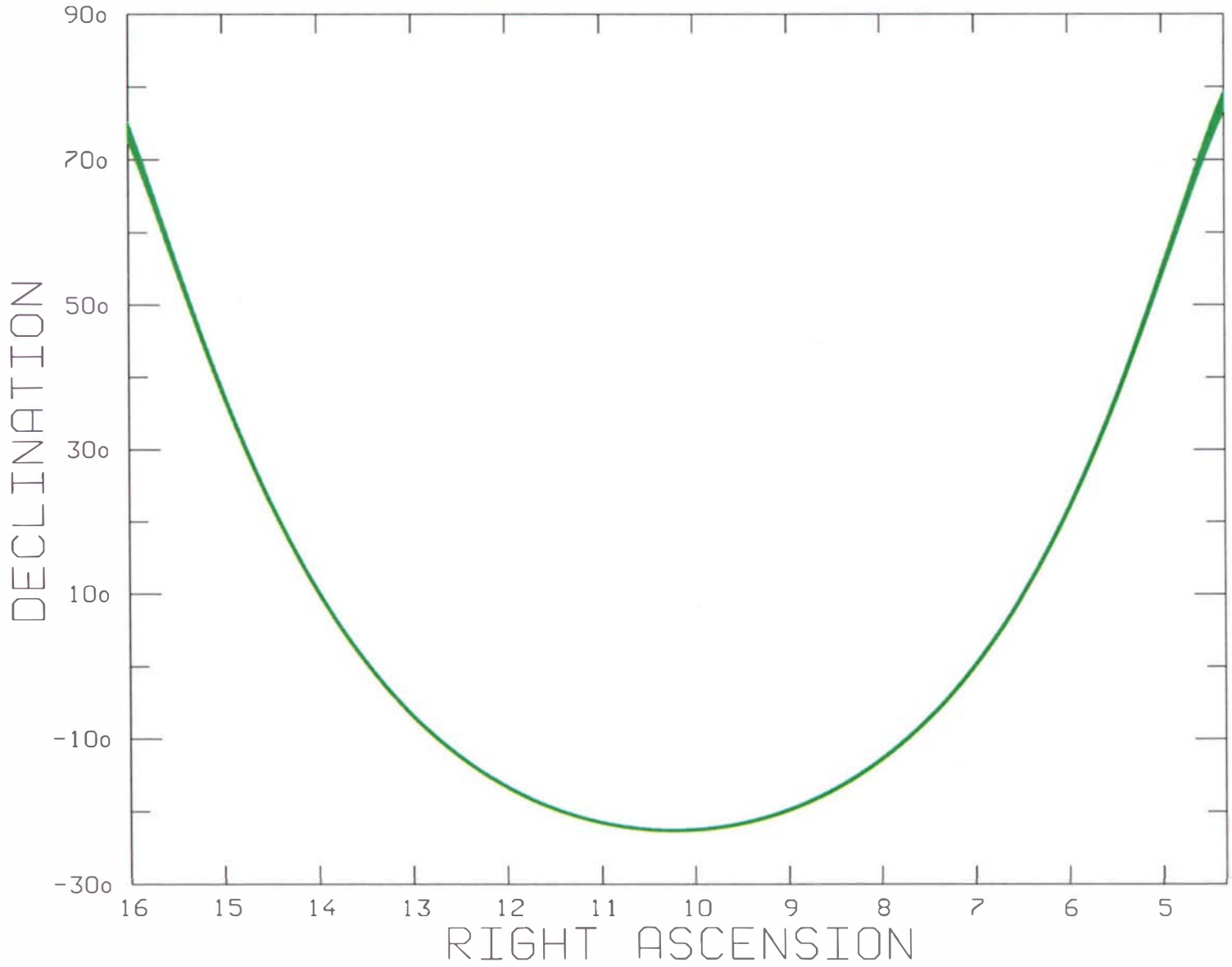
3. For INTEGRAL events

☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?

☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

☐ Updated ephemeris used for bursts prior to September 30, 2003?

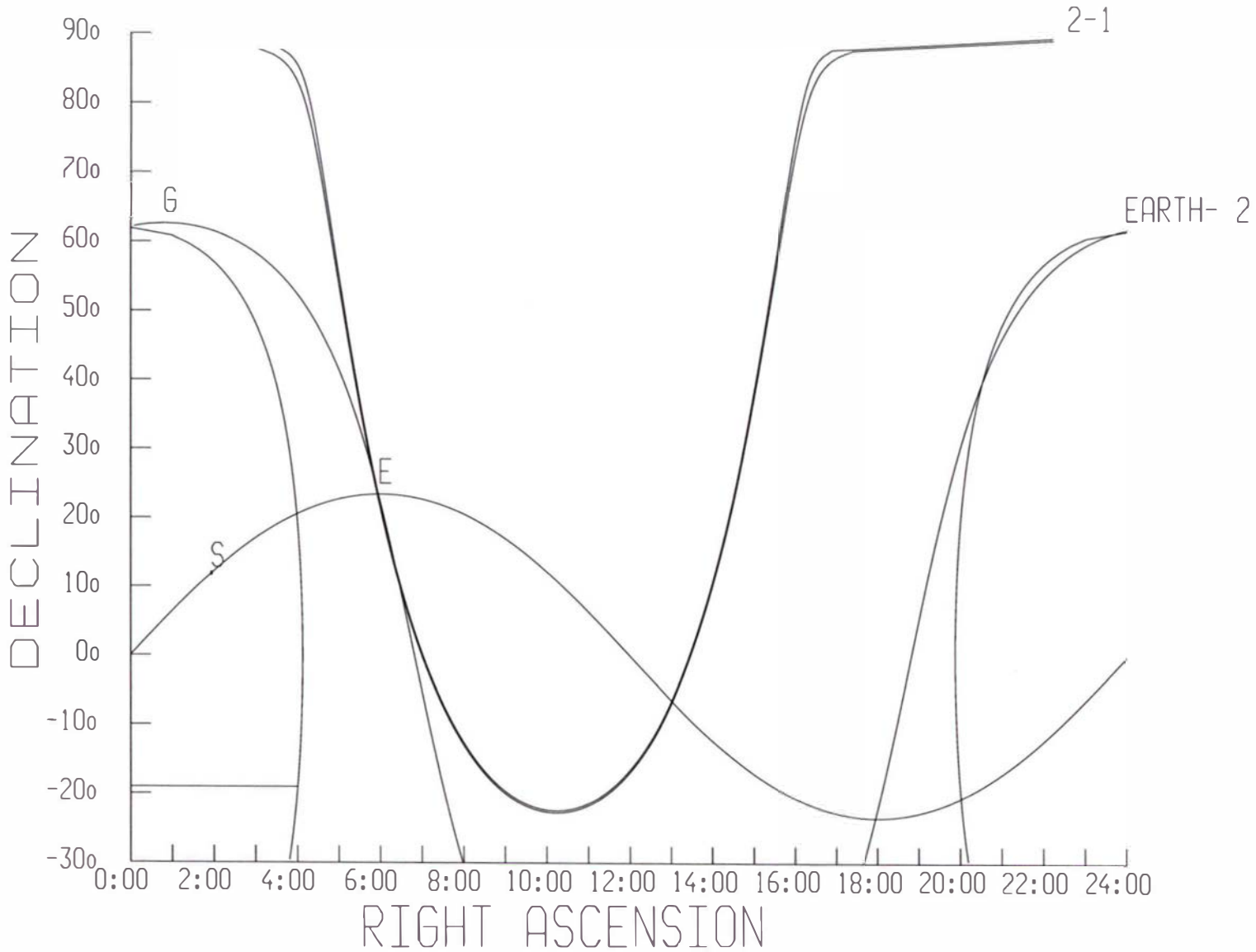
☑ ACCESS and MBL4 databases updated with identical times?


90o
70o
50o
30o
10o
-10o
-30o
DECLINATION
16
15
14
13
12
11
10
9
8
7
6
5
RIGHT ASCENSION

EVENT OF APR 21, 1997 6:47

06/12/2011

N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 DMSP13

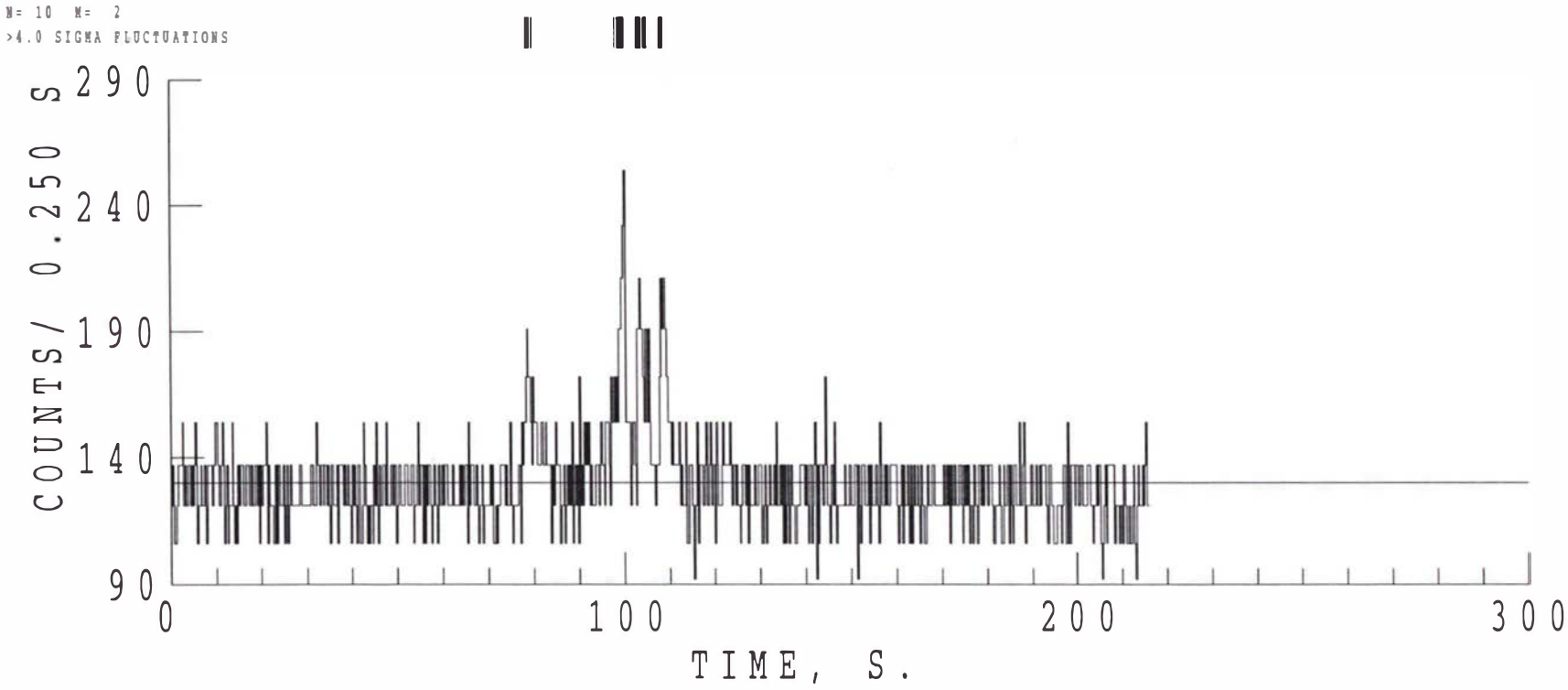


KONUS 19970421 24435

ULYSSES RT 05/12/11

21/04/97 24336.049 s

0- 0 keV



From TERRELL@nisdp0.lanl.gov Tue Jun 24 11:30 PDT 1997
From: TERRELL@nisdp0.lanl.gov
Date: Tue, 24 Jun 1997 12:30:23 -0600
To: khurley@sunspot.ssl.berkeley.edu, bonnard@rosserv.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, chryssa.kouveliotou@msfc.nasa.gov,
cline@lheavx.gsfc.nasa.gov, henze@fender.msfc.nasa.gov
X-Vmsmail-To: @MAILOUTUL.DIS
Subject: DMSP GRB DATA

From: jterrell@lanl.gov (James Terrell) 970624
To: khurley@sunspot.ssl.berkeley.edu,butterworth@lheavx.gsfc.nasa.gov,
filippo@botes1.tesre.bo.cnr.it,cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in,scott@rosserv.gsfc.nasa.gov,
teegarden@lheavx.gsfc.nasa.gov,yosimori@rikkyo.ac.jp,
bonnard@rosserv.gsfc.nasa.gov,chryssa.kouveliotou@msfc.nasa.gov,
henze@fender.msfc.nasa.gov
Subj: DMSP GRB detections: GRB 970218, 970421, 970602

DMSP 13 did not detect the GRB of 961219 reported by Ulysses at 70920 UT.

DMSP 13 detected a GRB on 18 Feb 1997 with peak at 51001.0 UT, lasting <6sec. This is evidently the GRB detected by Ulysses, and by Konus at 50996.1 UT.

DMSP 13 detected a GRB on 21 April at 25691.6 UT, with other peaks at 25711.6 and 25721.6 UT, lasting 20 sec. This apparently corresponds to the GRB detected by Ulysses at 24420 UT.

1st Ulysses peak
20s later
30s later

DMSP 14 was launched 970404, and data has been obtained starting 970428.

DMSP 14 detected a GRB event on 2 June 1997 with peaks at 58917.0 and 58953.0 UT
other times, lasting 60 seconds. This apparently corresponds to the GRB detected at 56580 UT by Ulysses. The burst was strong and very hard. Trigger data was obtained.
DMSP 13 did not detect this GRB. --Jim (leaving for Alaska now)

From BUTTERWORTH@lheavx.gsfc.nasa.gov Tue May 6 09:56 PDT 1997
From: BUTTERWORTH@lheavx.gsfc.nasa.gov
Date: Tue, 6 May 1997 12:54:56 -0400 (EDT)
To: khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, cline@apache.gsfc.nasa.gov
CC: BUTTERWORTH@lheavx.gsfc.nasa.gov
X-Vmsmail-To: @ULYSSES
X-Vmsmail-Cc: BUTTERWORTH
Subject: summary of Konus observations of 1997 events seen by Ulysses but not BATSE

Hi Everyone,

Here is a summary for this year to date of Konus observations corresponding to events seen by Ulysses but not reported by BATSE:

Ulysses event	Konus observation
970105 01:40	not detected
970105 18:17	not detected
970107 07:57	not detected
970107 14:13	not detected
970109 01:25	not detected
970110 08:53	not detected
970110 14:31	not detected
970111 23:35	trigger at 23:49:04.563 - peak ~60 seconds later S of ecliptic, hard event lasting 4 minutes with slow rise and decay
113 14:31	not detected
114 05:17	not detected
970115 13:36	not detected
970117 15:07	not observed (unrelated trigger at 14:27 will have prevented any further trigger until after 15:32)
970117 18:45	not detected
970124 12:51	trigger at 12:19:03.397 - peak 4.2 seconds later S of ecliptic, several peaks with the strongest the hardest
970126 15:30	not detected
970130 19:33	not detected
970204 11:18	not detected
970208 18:04	not detected
970212 22:50	not detected
970203 19:03	not detected
970216 14:35	not detected
970218 14:15	trigger at 14:09:56.145 - peak ~3 seconds later N of ecliptic, strong event lasting 5 seconds
970222 23:51	trigger at 23:53:26.565 - peak 0.7 seconds later N of ecliptic, moderately strong event lasting several seconds
970223 15:53	not detected
970224 21:08	not detected
970226 08:29	trigger at 08:46:25.868 - peak 39 seconds later N of ecliptic, strong, double broad FRED, with the second peak (39 seconds after the trigger) much softer than the first (12 seconds after the trigger)
970310 00:22	not detected

970313 07:53	trigger at 08:21:36.505 - peak 11 seconds later N of ecliptic, moderately strong event lasting 40 seconds
970316 13:16	not detected
970321 21:42	not detected
970322 00:16	not detected
970405 11:35	not detected
970405 23:44	trigger at 00:17:40.876 on 970406 N of ecliptic, moderately strong, multi-peaked event lasting over 15 seconds
970411 09:44	trigger at 09:52:45.166 - peak 4 seconds later N of ecliptic, broad event lasting 25 seconds with a FRED component lasting 0.5 seconds 4 seconds after the trigger
970421 06:47	instrument off

From SAHI@fender.msfc.nasa.gov Tue Apr 22 13:00 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Tue, 22 Apr 1997 14:59:11 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6199

TIME: TJD=0559 SECONDS=42526

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.

From HENZE@fender.msfc.nasa.gov Thu Apr 24 09:56 PDT 1997
Date: Thu, 24 Apr 1997 11:55:47 -0500 (CDT)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6200

TIME: TJD=0559 SECONDS=74763

TYPE: SGR SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=086.6 AZIMUTH=133.5 ERROR=006.3 DEGREES

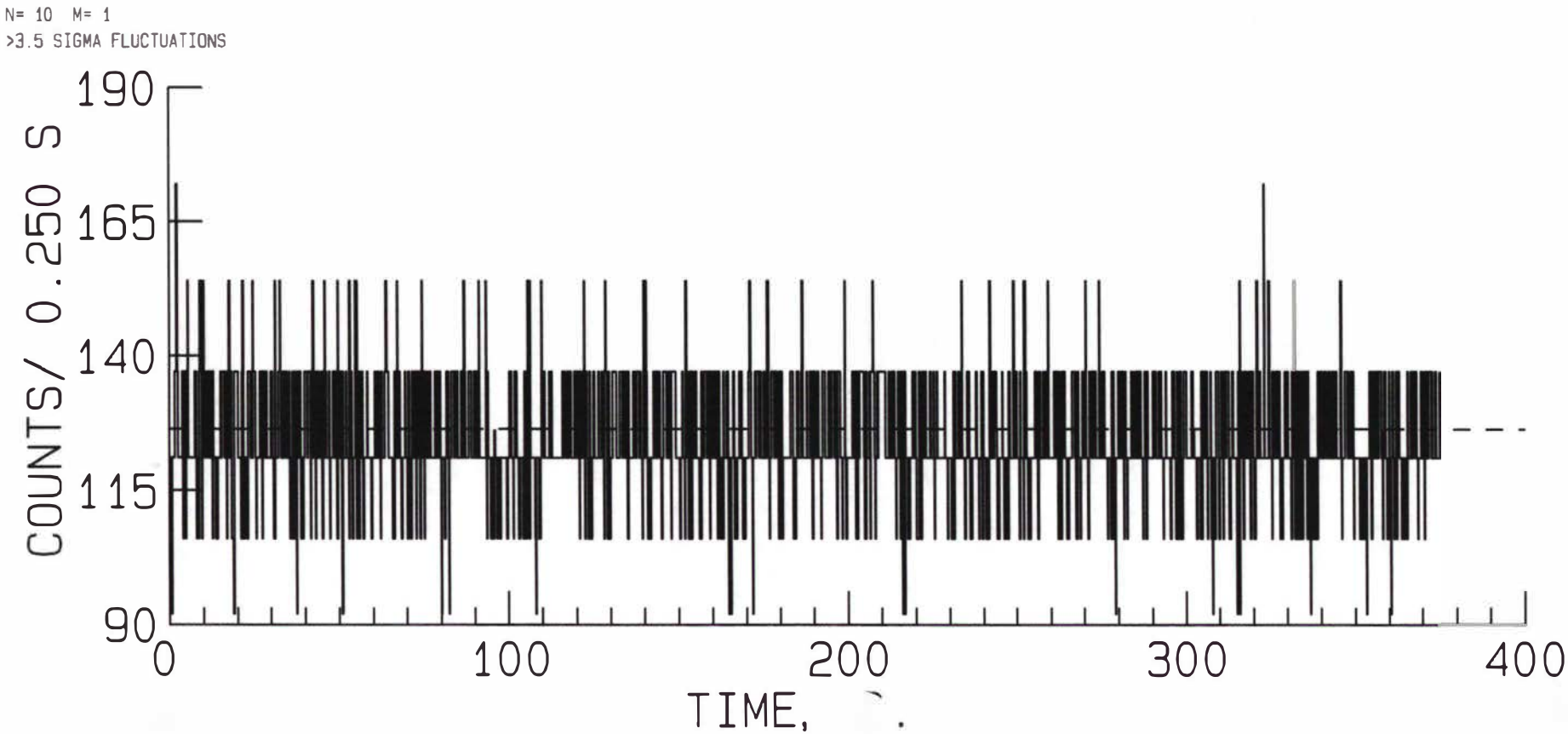
COMMENTS:
SOFT GAMMA-RAY REPEATER 1806-20. DOUBLE PULSE, DUR. ~0.1 S.
NOT VISIBLE ABOVE 100 KEV.

ULYSSES RT

30/ 8/97

21/ 4/97 75672.155 s

22- 147 keV

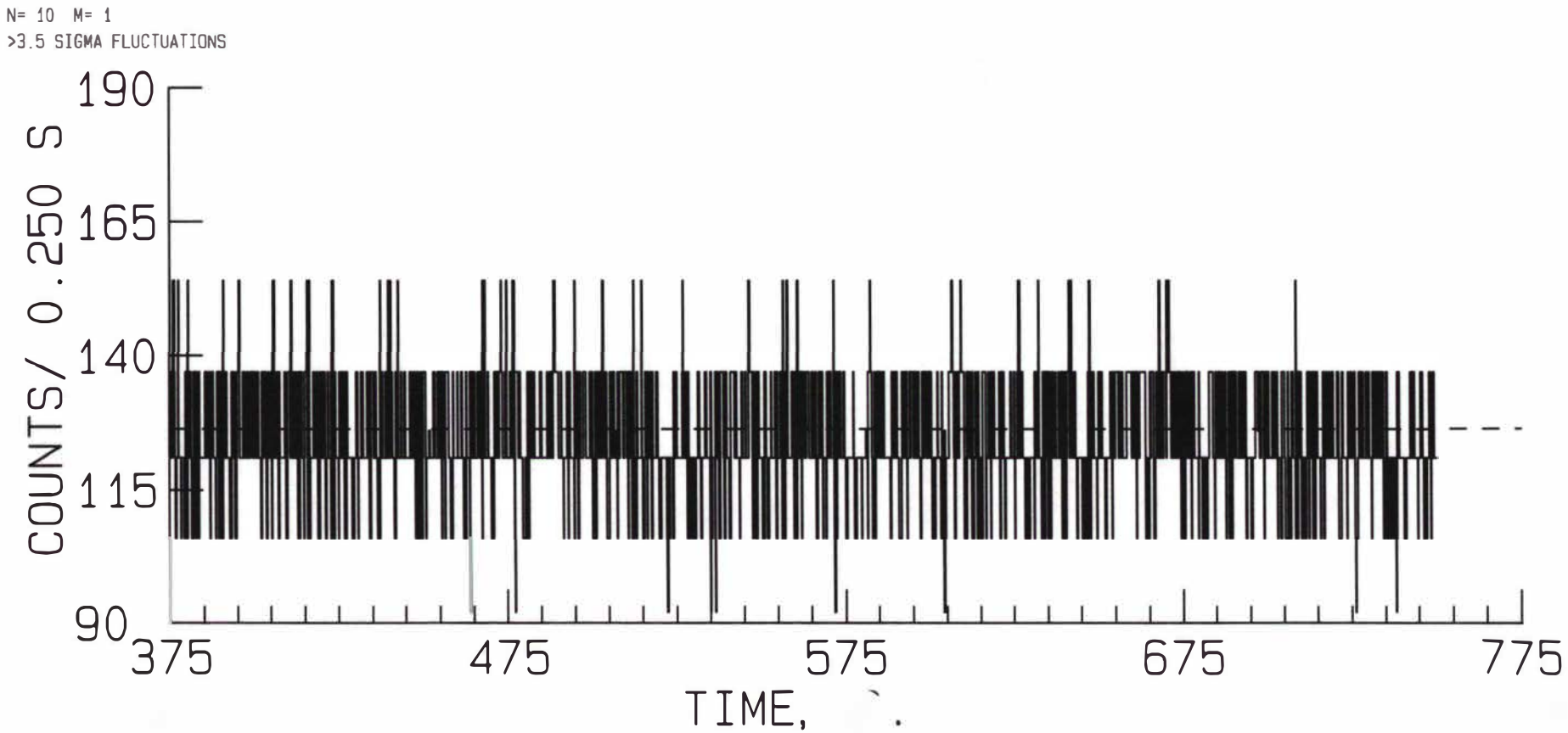


ULYSSES RT

30/ 8/97

21/ 4/97 75672.155 s

22- 147 keV

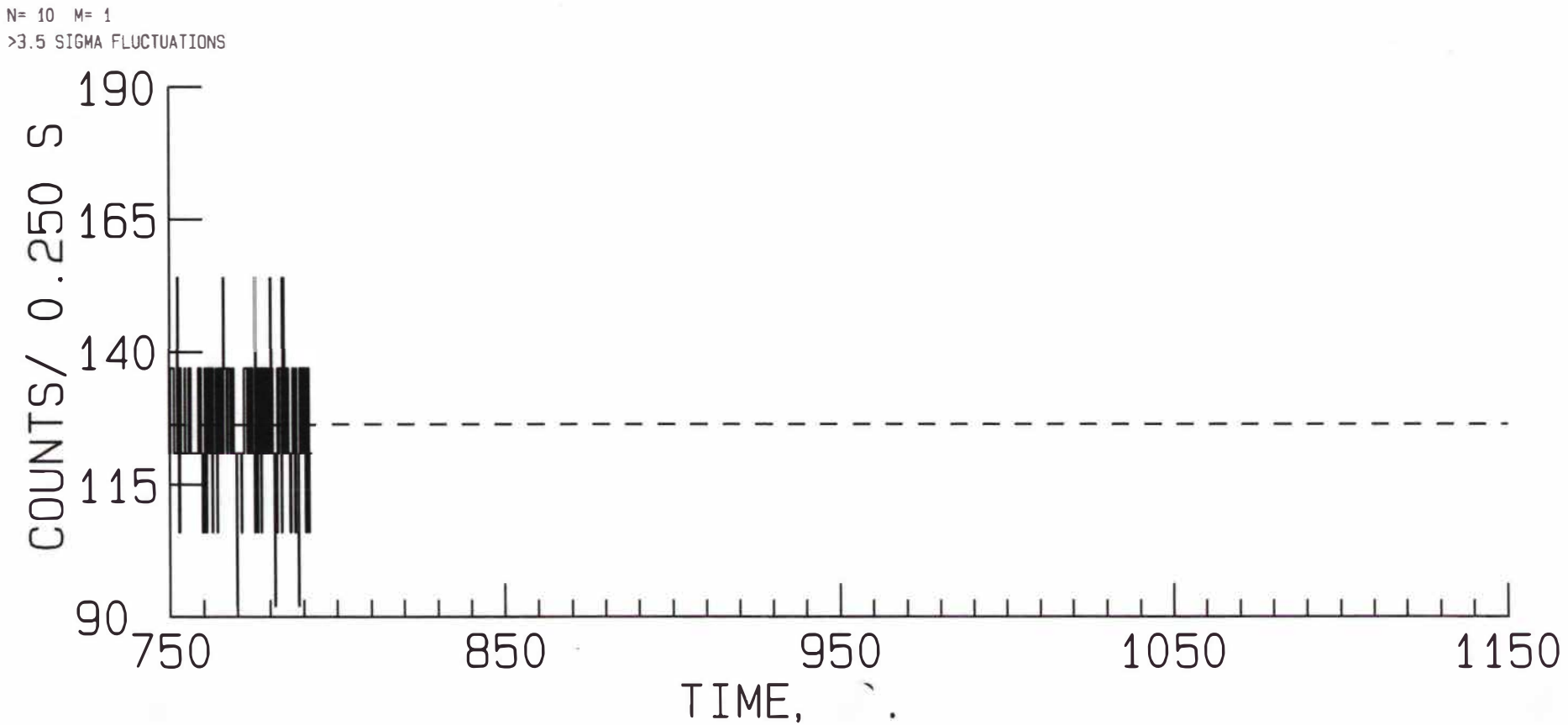


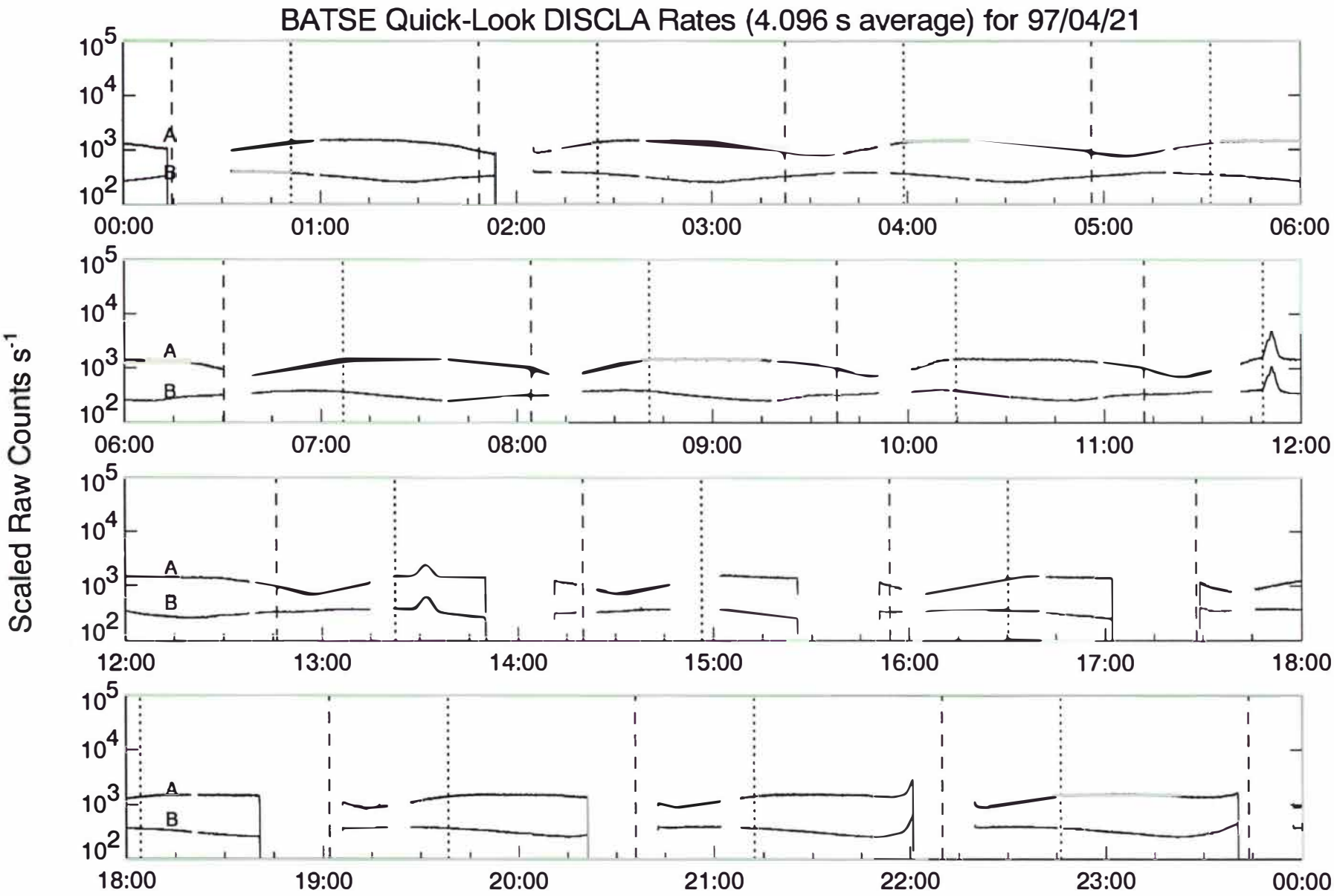
ULYSSES RT

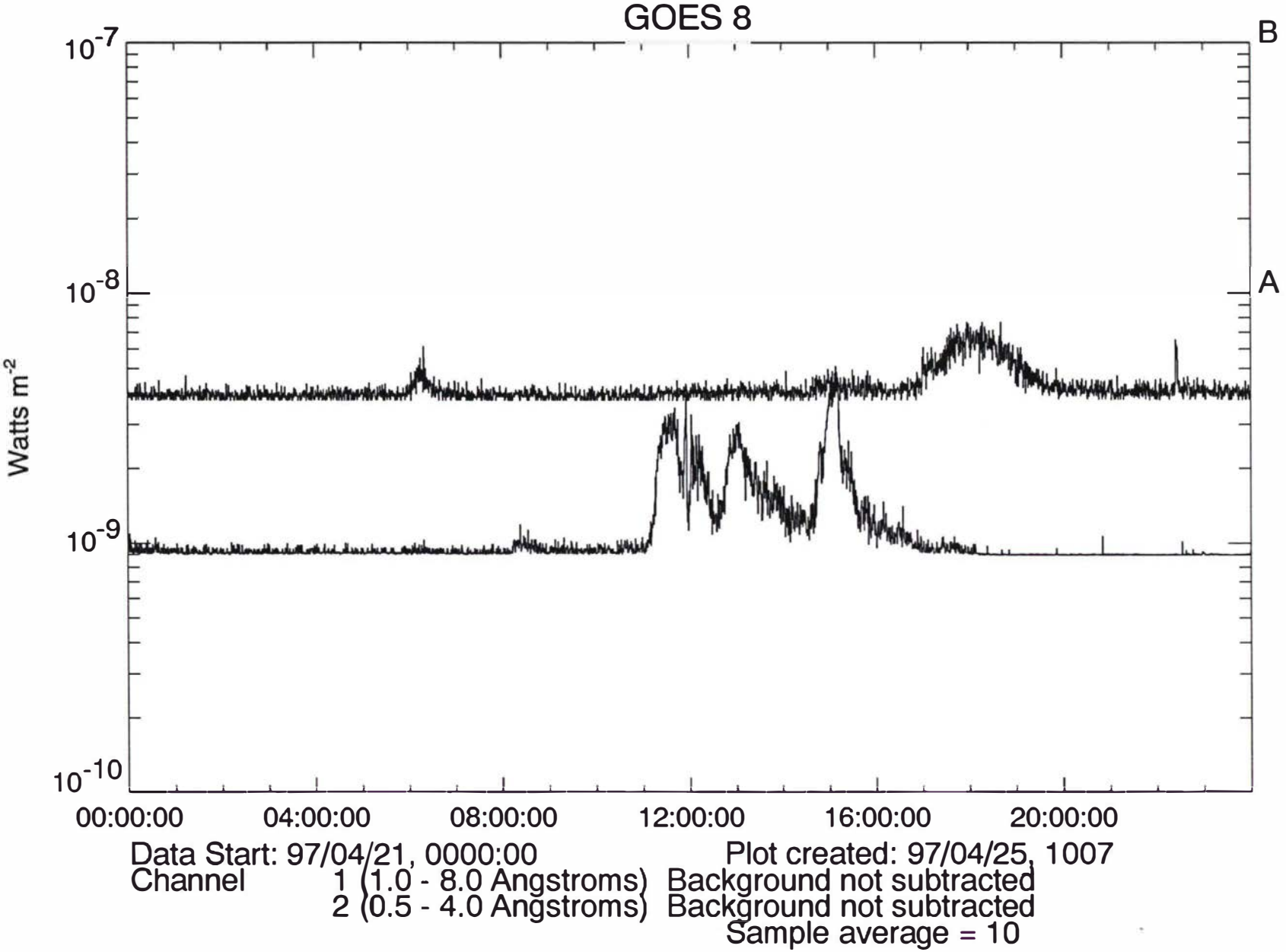
30/ 8/97

21/ 4/97 75672.155 s

22- 147 keV



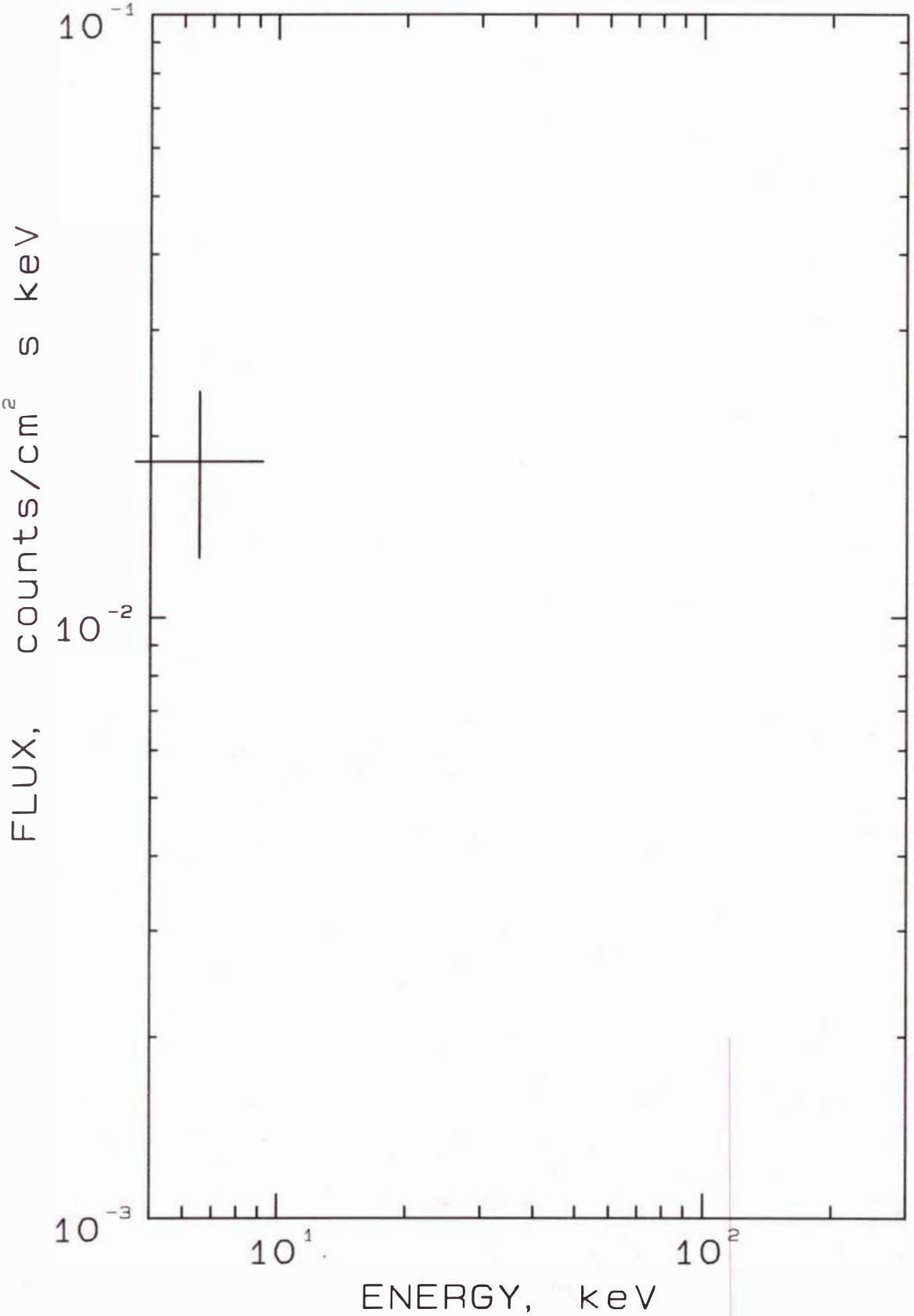

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/21
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/25, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare


GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/21, 0000:00
Plot created: 97/04/25, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

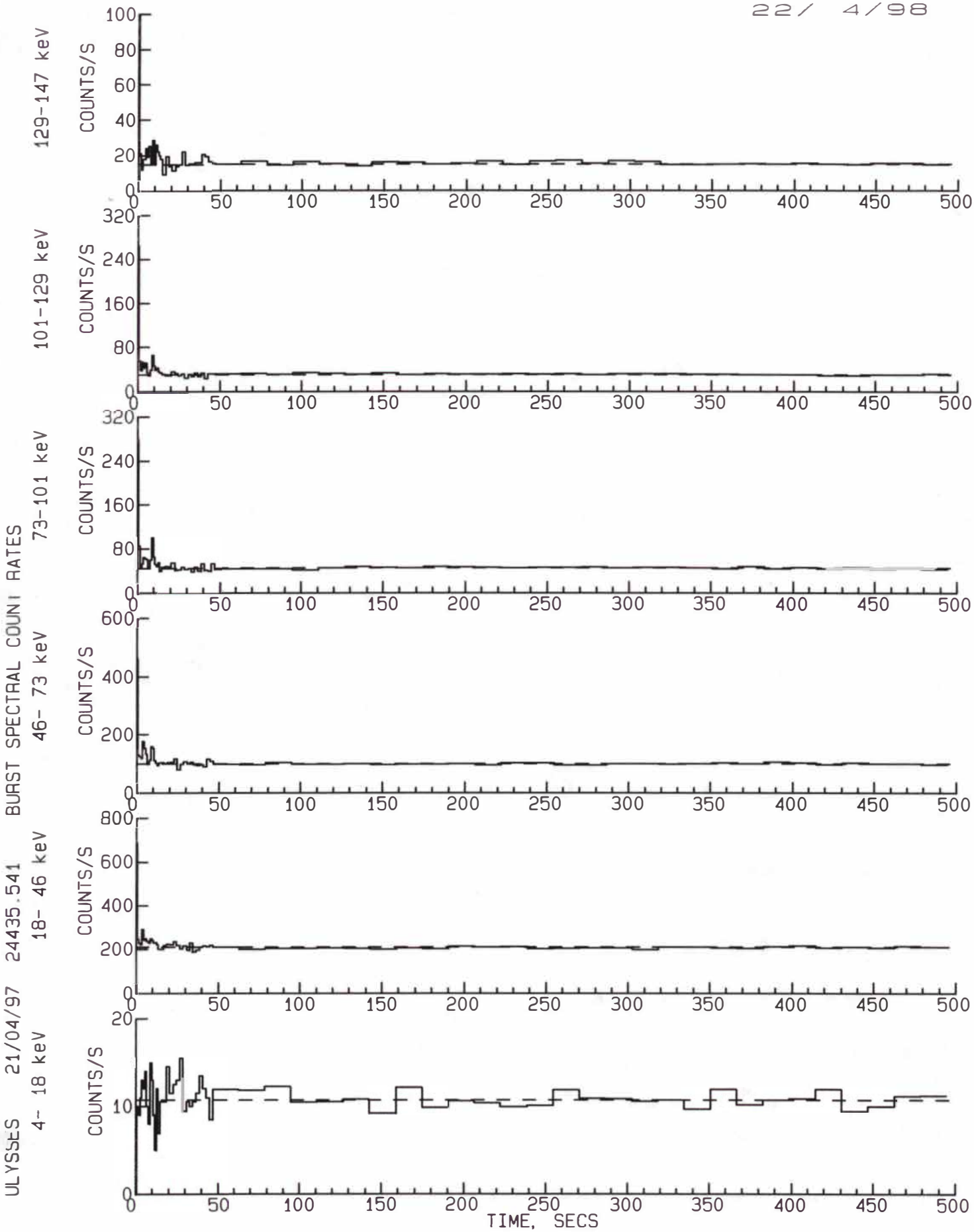
ULYSSES 21/04/97 24435.541

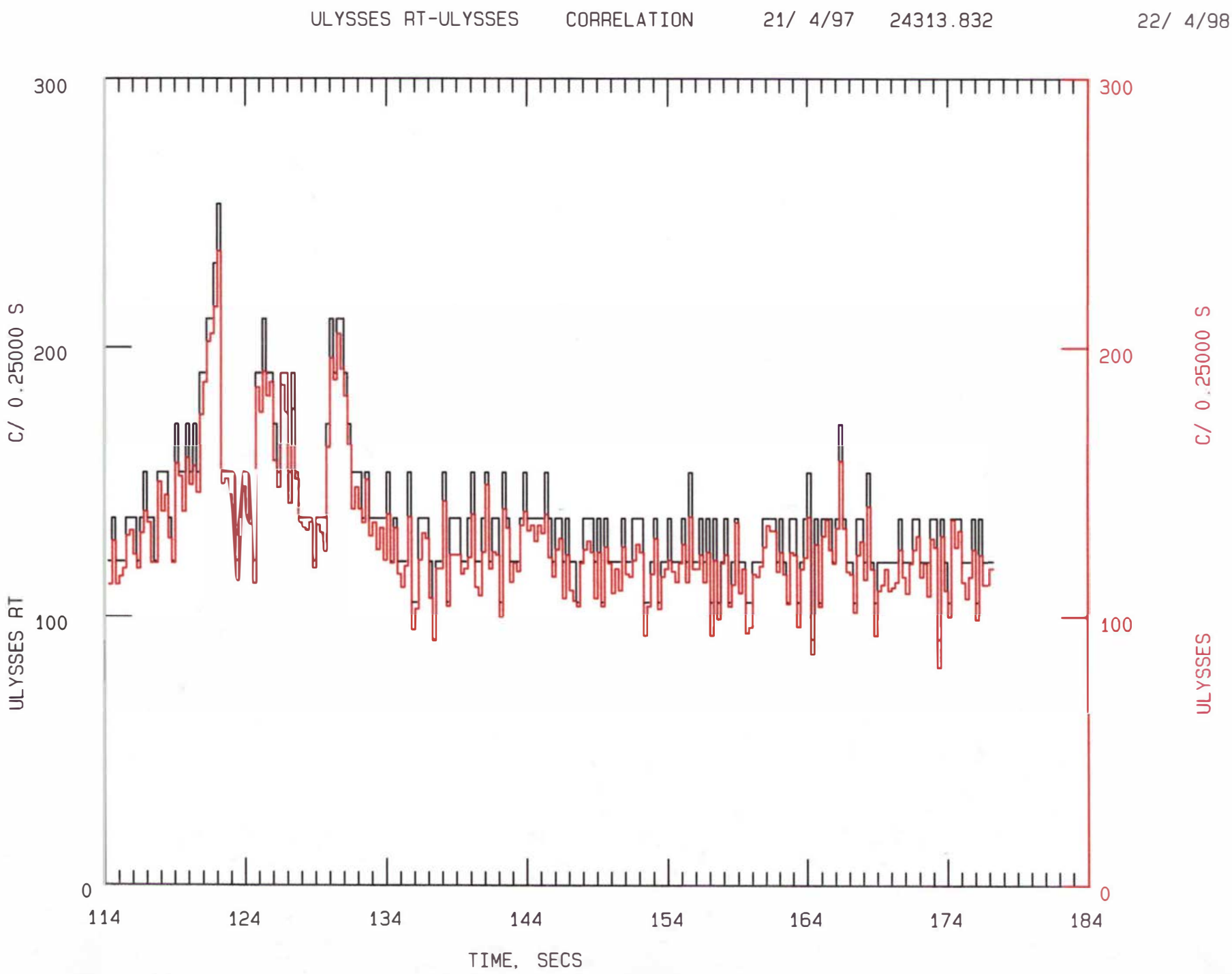
22/ 4/98

SPECTRUM INTEGRATED OVER 62.5 SECONDS, INTERVALS 2 TO 34



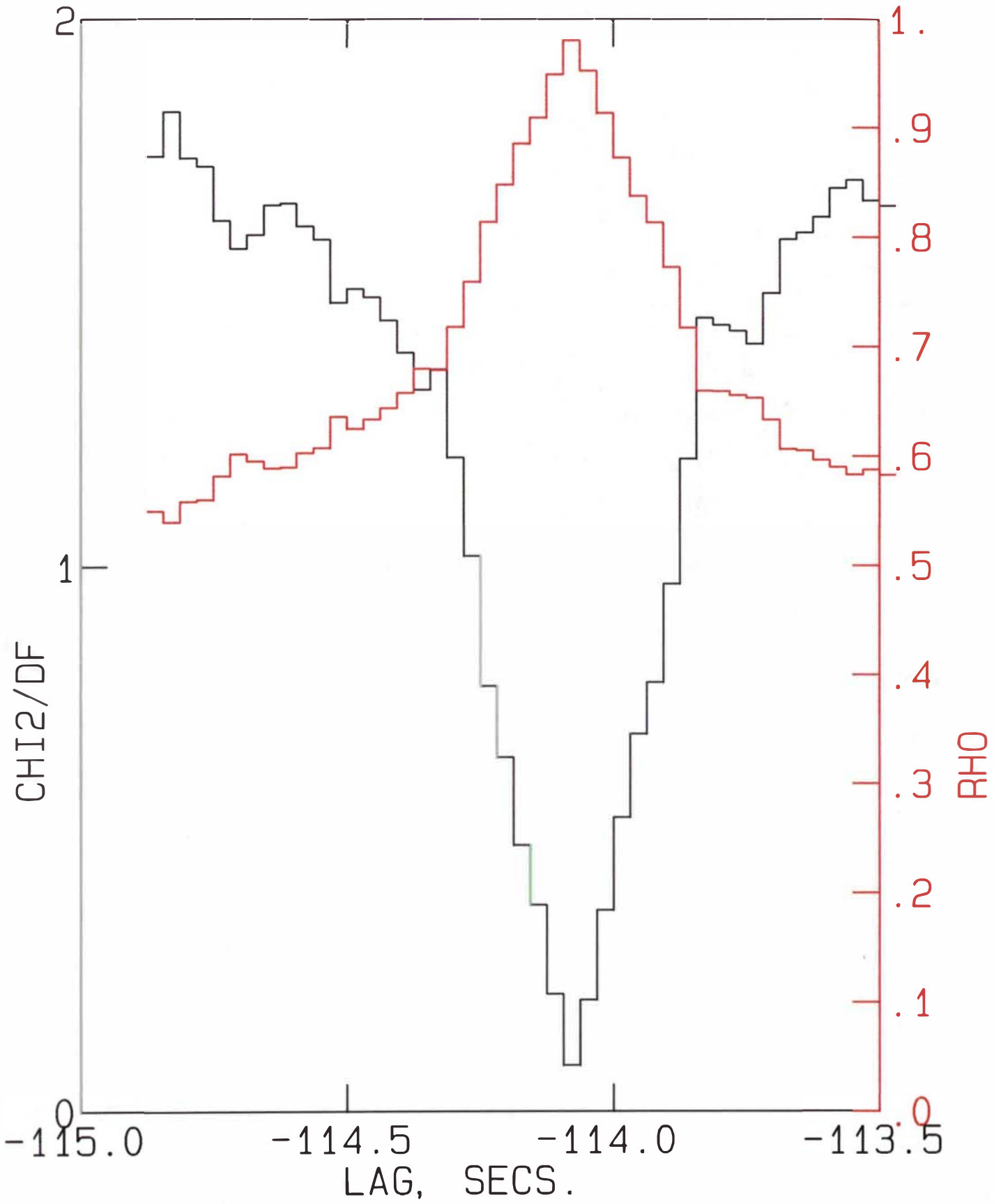
22/ 4/98

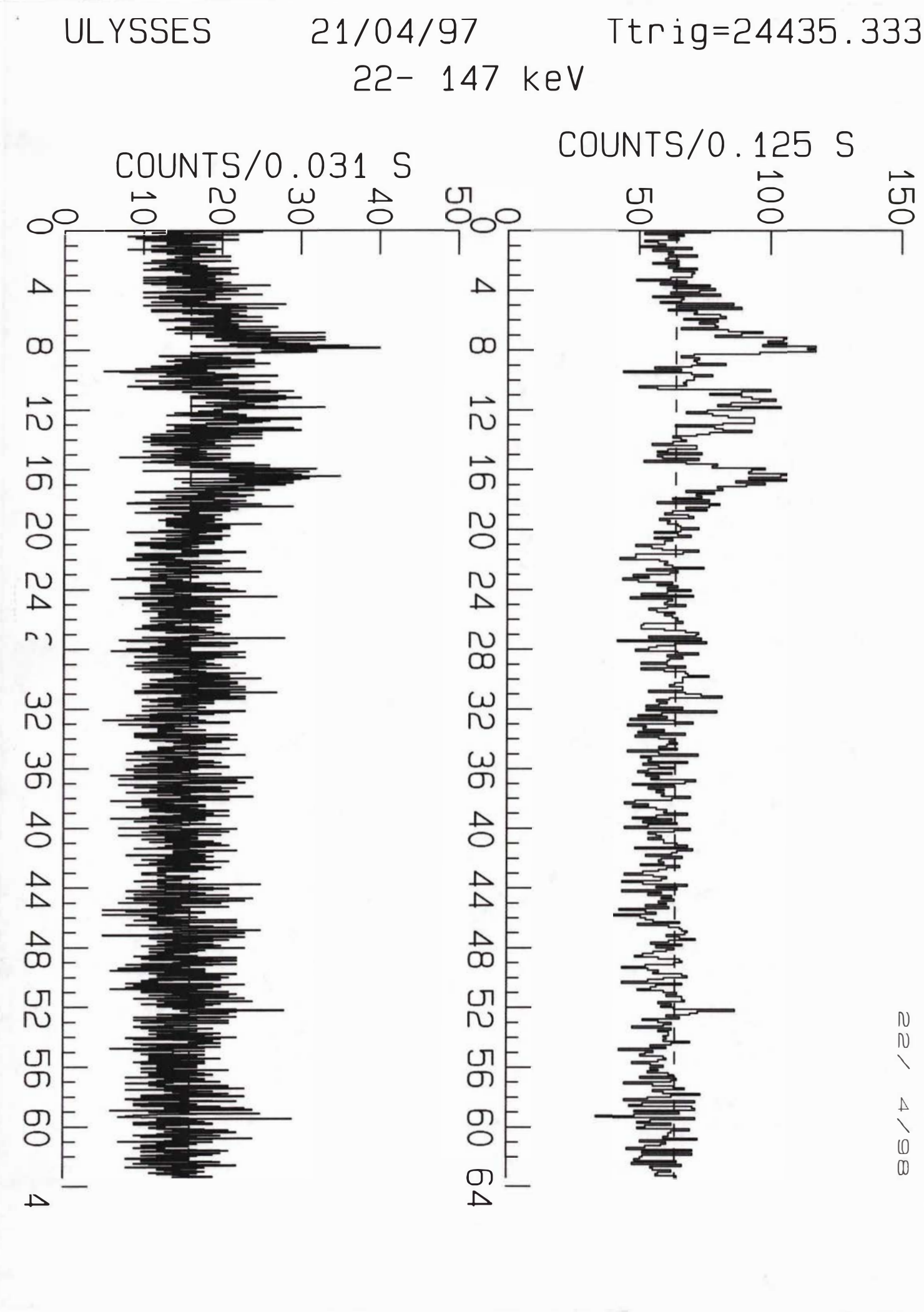

ULYSSES 21/04/97 24435.541 BURST SPECTRAL COUNT RATES
129-147 keV
101-129 keV
73-101 keV
46- 73 keV
18- 46 keV
4- 18 keV
COUNTS/S
TIME, SECS


ULYSSES RT-ULYSSES CORRELATION 21/ 4/97 24313.832 22/ 4/98
300
200
100
0
C/ 0.25000 S
ULYSSES RT
114
124
134
144
154
164
174
184
TIME, SECS
ULYSSES

22/ 4/98

ULYSSES RT-ULYSSES CORRELATION 21/ 4/97 24313.832



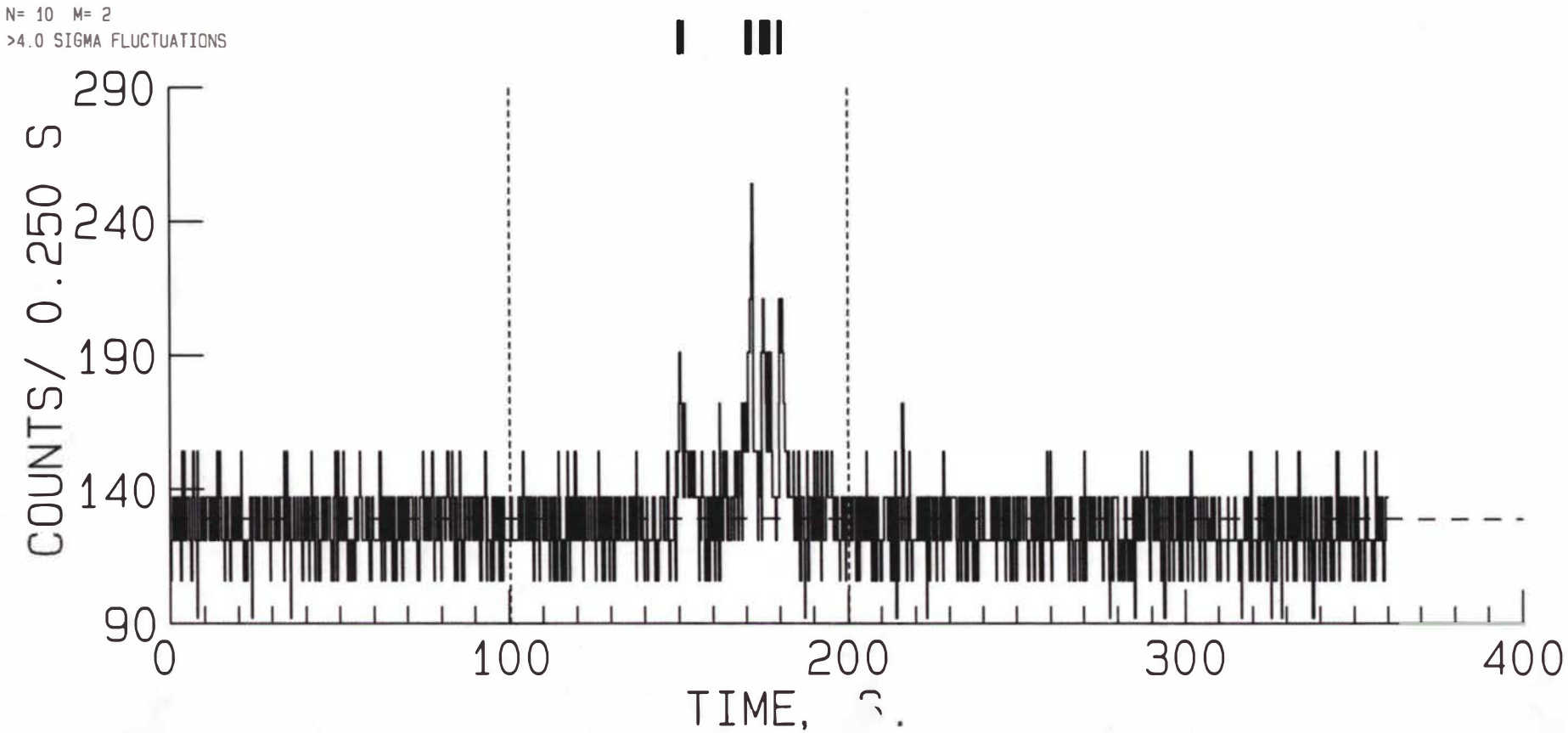

ULYSSES 21/04/97 Ttrig=24435.333
22- 147 keV
COUNTS/0.031 S
COUNTS/0.125 S
22/ 4/98

ULYSSES RT

22/ 4/98

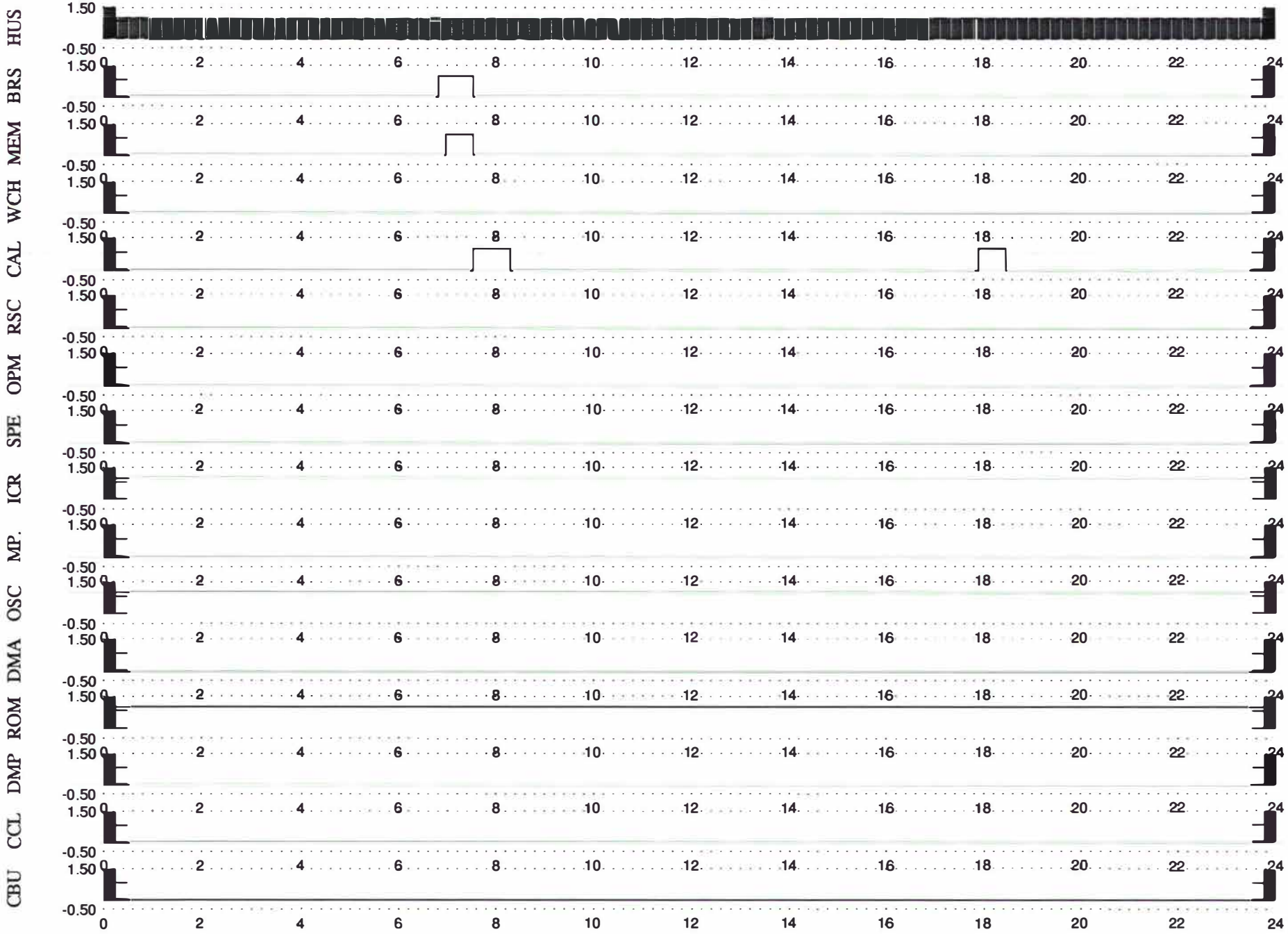
21/ 4/97 24264.048 s

22- 147 keV



HUS MODES EDR day 111, year 1997 to day 111, year 1997 7/22/97

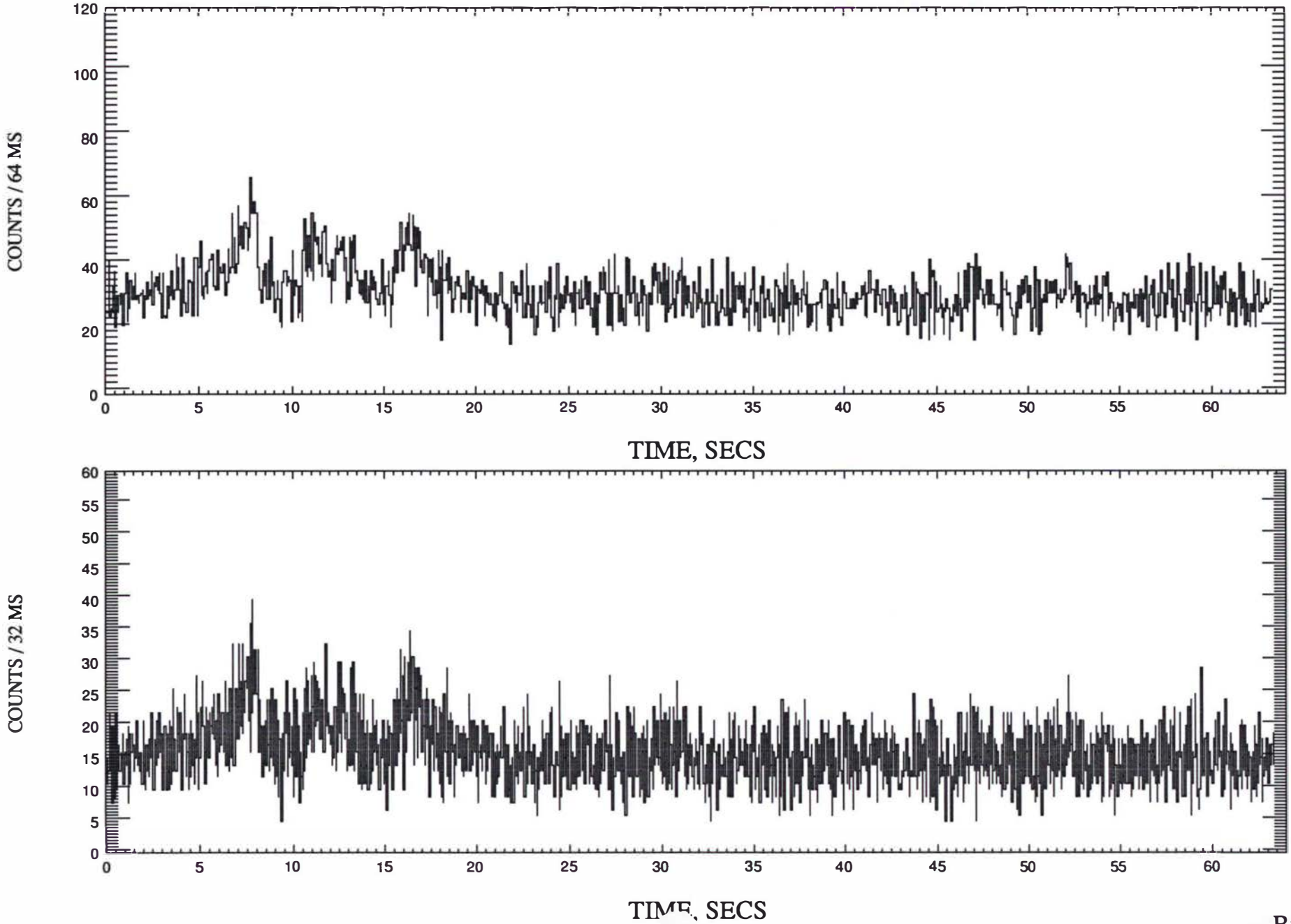
BURST NUMBER 8



UNIV SAL TIME

HUS 2A TRIGGERED DATA EDR day 111, year 1997 7/22/97

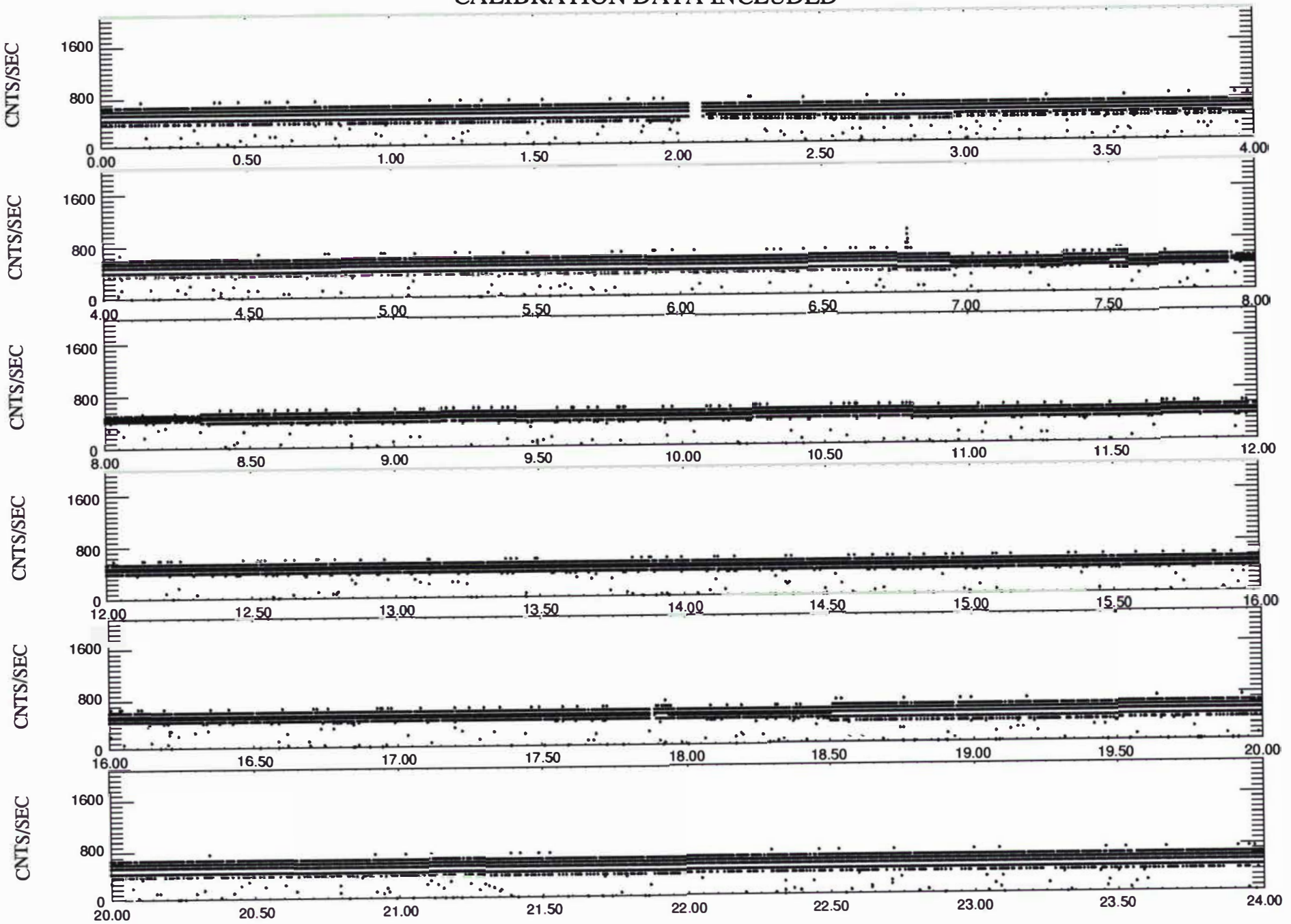
Burst Counter 8 at UT= 6.787650235494 h=24435.541 s 06:47:15.541



B# 1

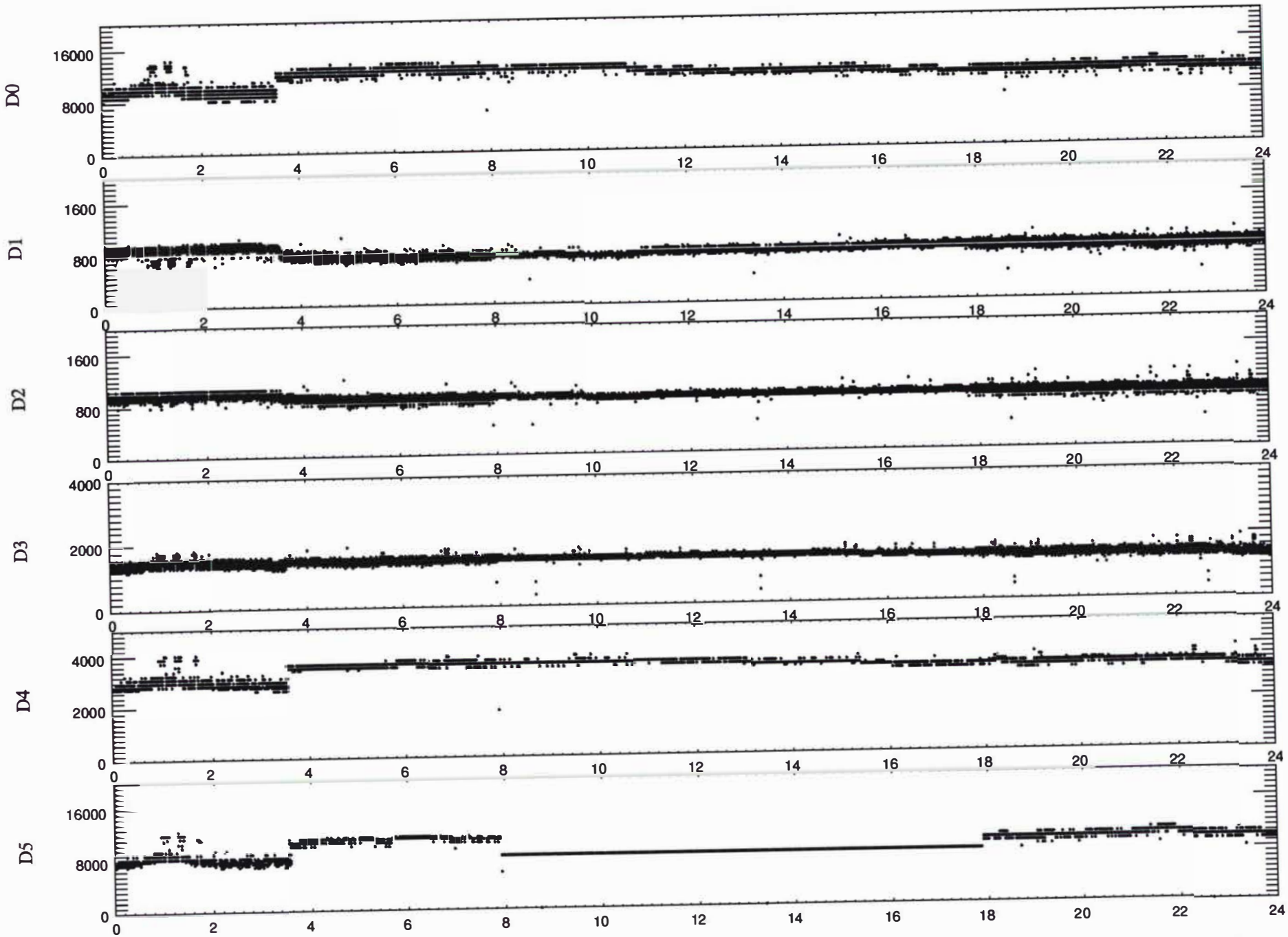
HUS 2A, MODE 1, NOT AVERAGED EDR day 111, year 1997 to day 111, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 111, year 1997 to day 111, year 1997 7/22/97



From DEAL@fender.msfc.nasa.gov Thu Apr 24 12:34 PDT 1997
From: DEAL@fender.msfc.nasa.gov
Date: Thu, 24 Apr 1997 14:33:03 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6201

TIME: TJD=0560 SECONDS=40533

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

From DEAL@fender.msfc.nasa.gov Thu Apr 24 12:35 PDT 1997
From: DEAL@fender.msfc.nasa.gov
Date: Thu, 24 Apr 1997 14:34:28 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6202

TIME: TJD=0560 SECONDS=46467

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

From SAHI@fender.msfc.nasa.gov Thu Apr 24 14:25 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Thu, 24 Apr 1997 16:24:27 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6203

TIME: TJD=0561 SECONDS=44464

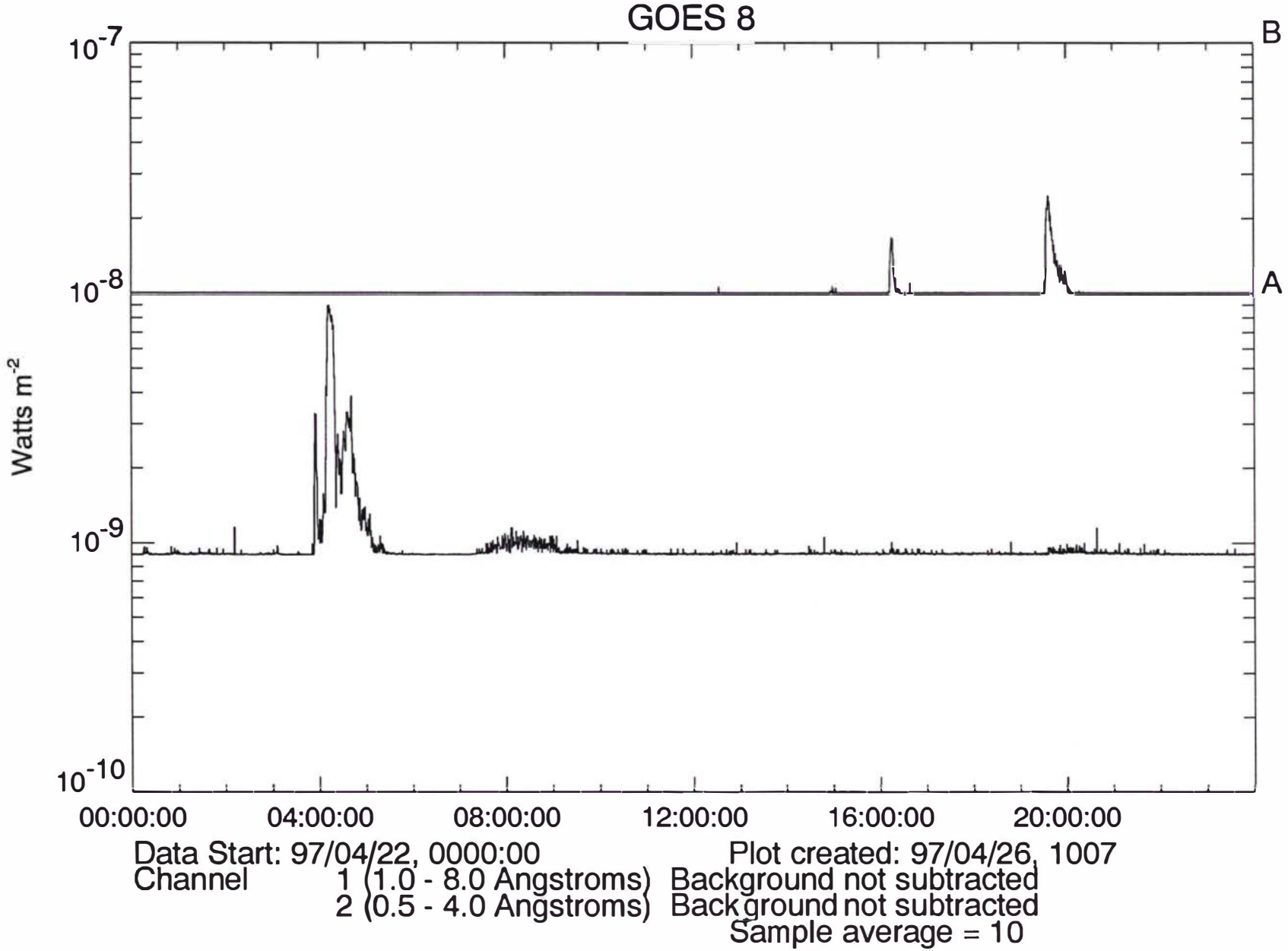
TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

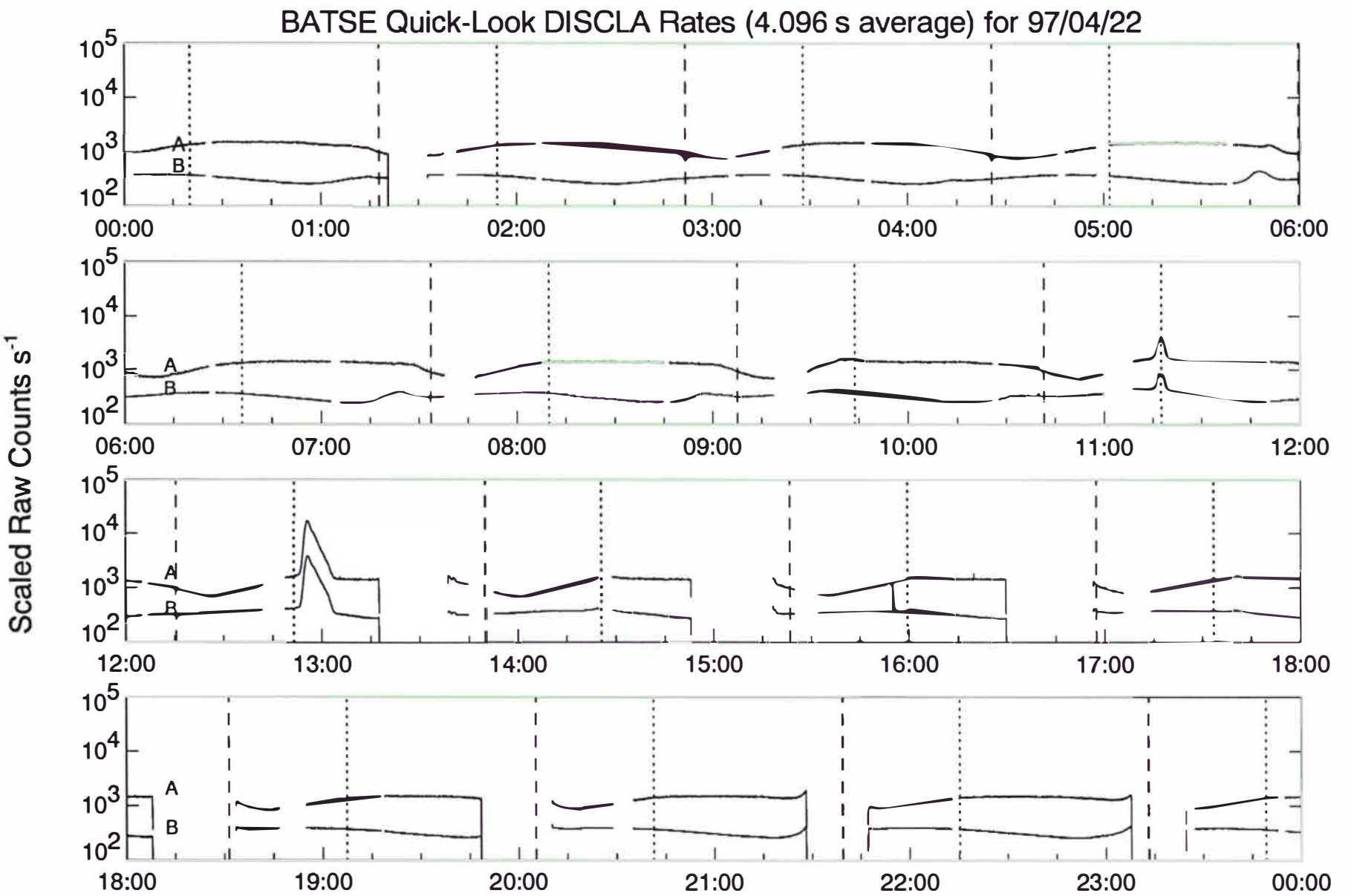
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.


GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/22, 0000:00
Plot created: 97/04/26, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

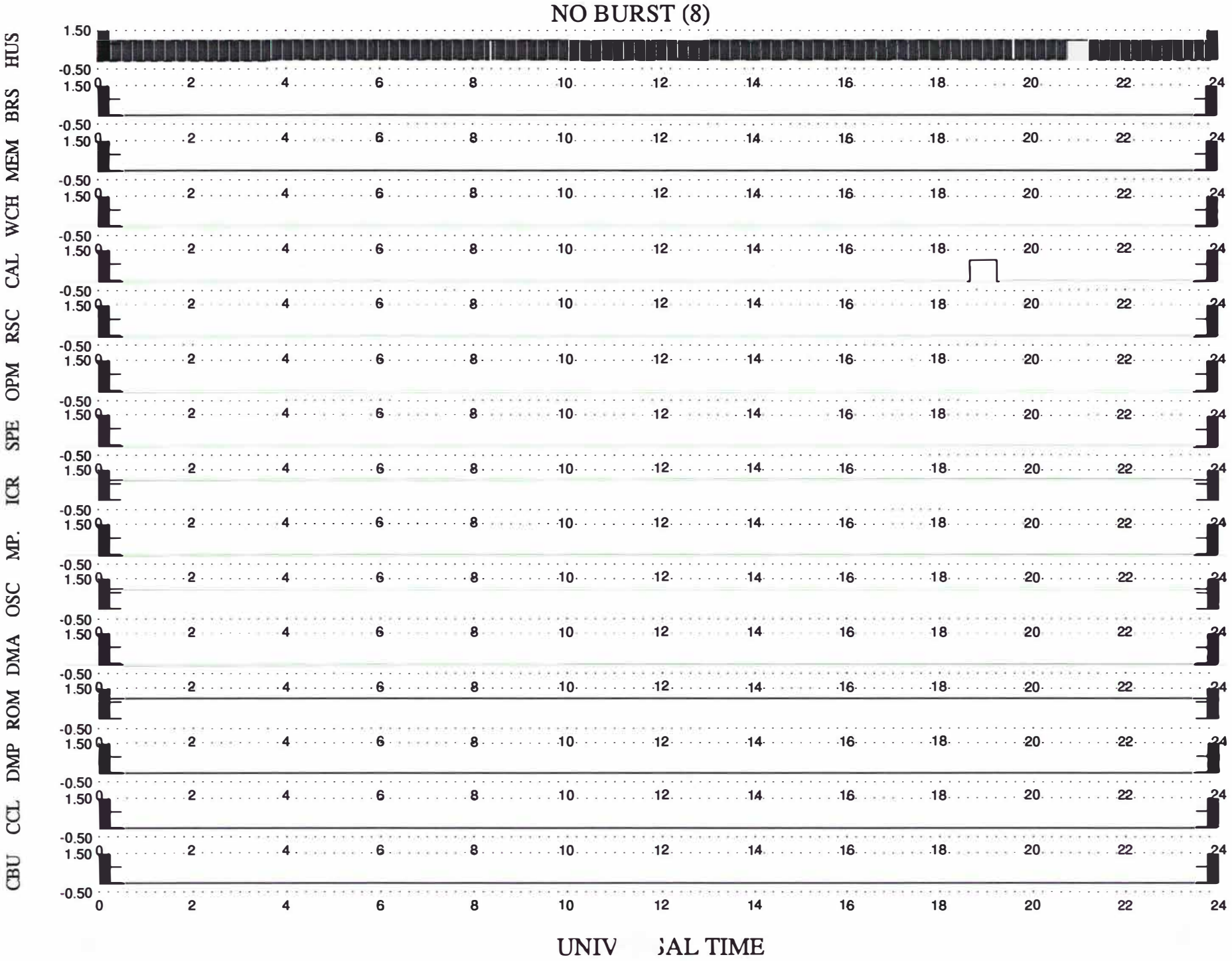


Current Time: 97/04/26, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

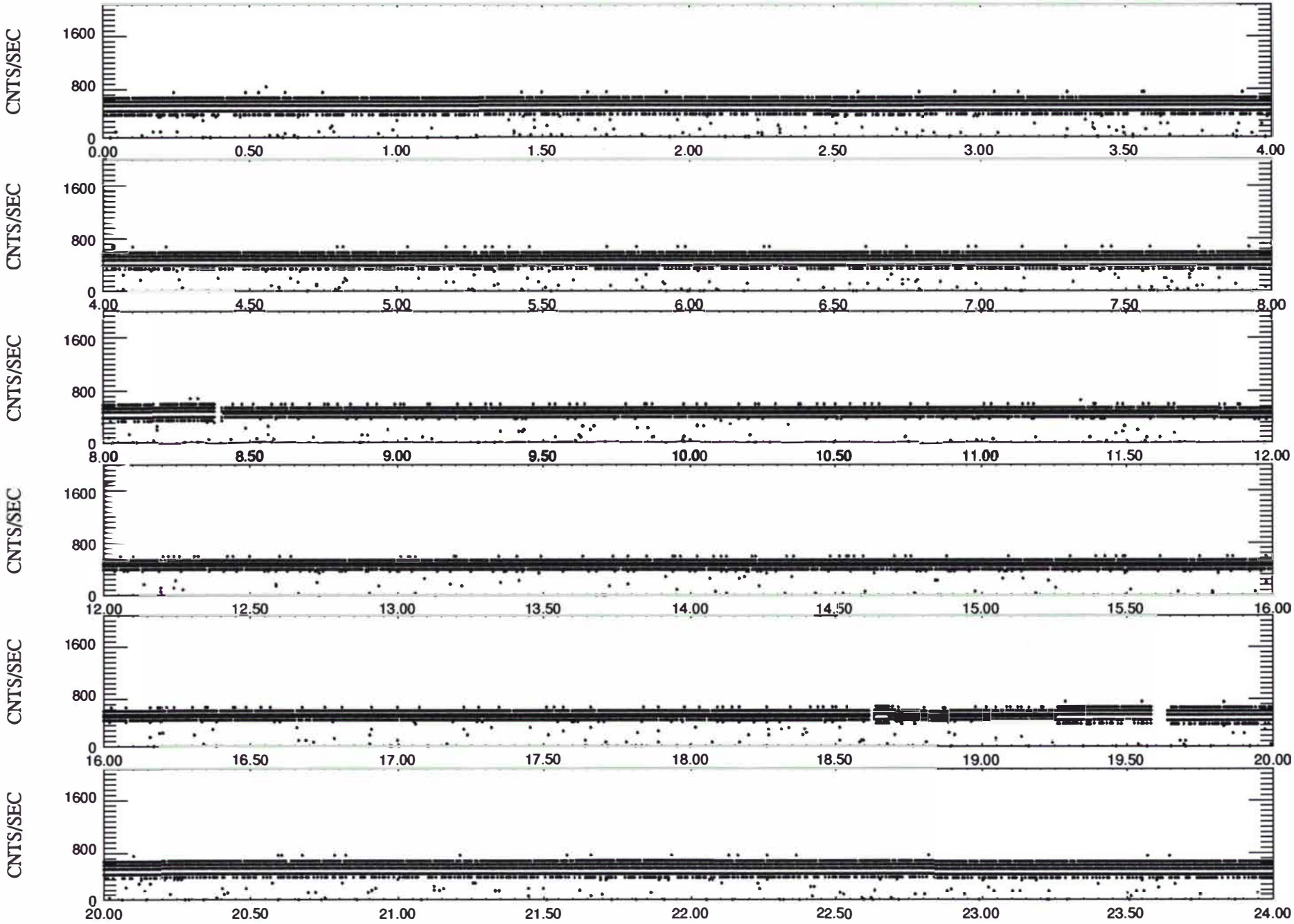
* Solar Burst Trigger
\+ Solar Flare

HUS MODES EDR day 112, year 1997 to day 112, year 1997 7/22/97



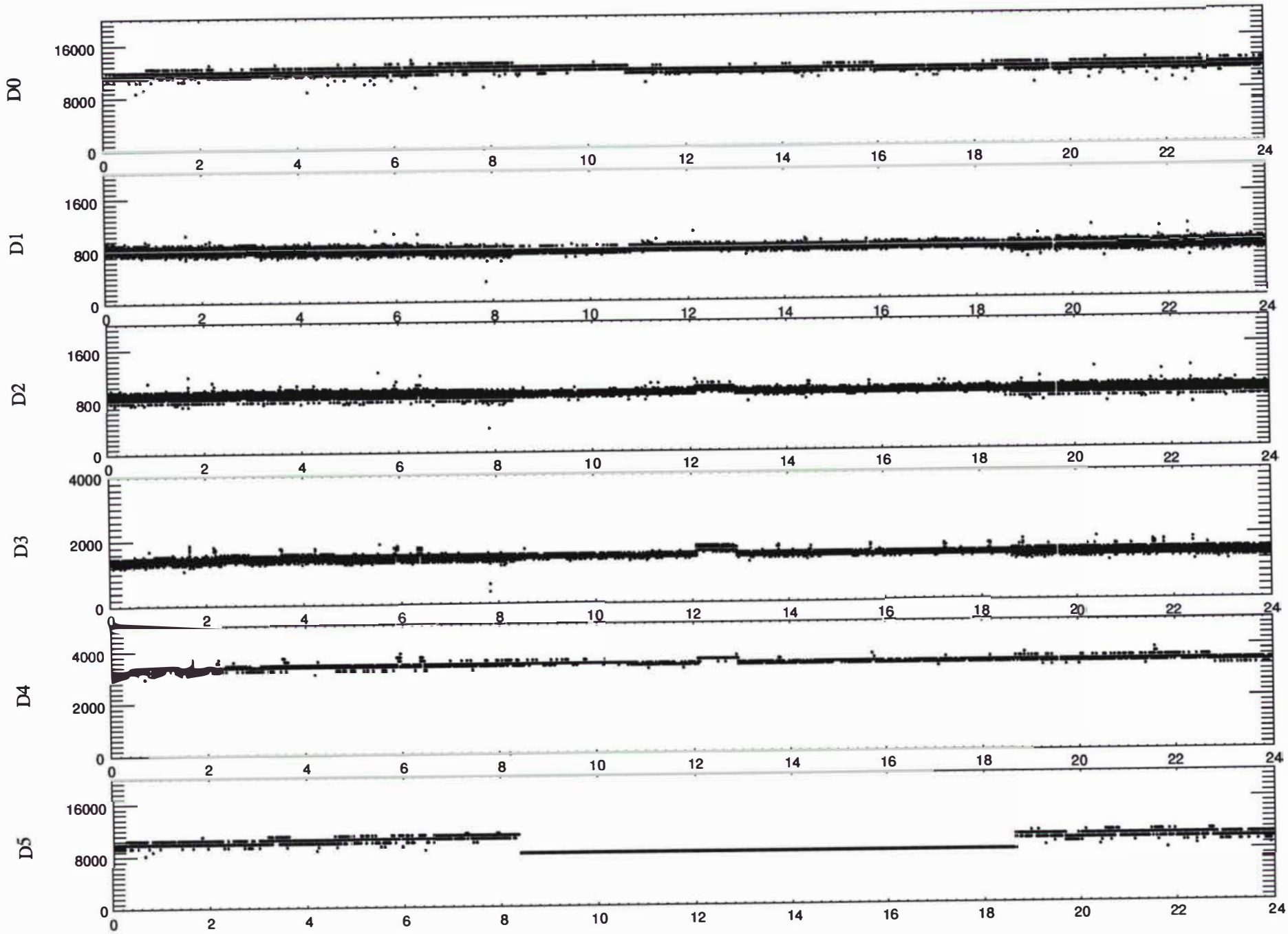
HUS 2A, MODE 1, NOT AVERAGED EDR day 112, year 1997 to day 112, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV SAL TIME

HUS 2B COUNTS / SEC EDR day 112, year 1997 to day 112, year 1997 7/22/97



From SAHI@fender.msfc.nasa.gov Thu Apr 24 14:25 PDT 1997
Return-Path: <SAHI@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id OAA02747; Thu, 24 Apr 1997 14:25:00 -0700
    m: SAHI@fender.msfc.nasa.gov
Date: Thu, 24 Apr 1997 16:24:27 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
        cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
        bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
        butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
        gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
        PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
        khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
        mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
        matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
        messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Message-Id: <970424162427.20c03ea5@fender.msfc.nasa.gov>
Subject: Burst Trigger Message
Content-Type: text
Content-Length: 1215
X-Lines: 15
Status: RO

BATSE BURST TRIGGER

NO.: 6203

TIME: TJD=0561 SECONDS=44464

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

NIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.

From SAHI@fender.msfc.nasa.gov Thu Apr 24 14:29 PDT 1997
Return-Path: <SAHI@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id OAA02817; Thu, 24 Apr 1997 14:28:58 -0700
From: SAHI@fender.msfc.nasa.gov
Date: Thu, 24 Apr 1997 16:28:45 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970424162845.20c0329f@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6204
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6204
EVENT OF 1997 APR 23 DAY OF YEAR=113
EVENT CROSSING TIME AT BATSE : 62293. S. OR 17:18:13.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 291.000 6.000
BATSE PEAK COUNTING RATE: 8500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 23/ 4/ 97 IS:
RA= 152.326 DEC= 33.865 DIST= 4.627 AU
BATSE-ULYSSES DISTANCE = 692204742. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 55.81 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1297.41 SECS.
CROSSING TIME AT ULYSSES IS 63590. S. OR 17:39:50 +/- 401.30 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 23/ 4/ 97 IS:
RA= 168.851 DEC= 7.334 DIST= 0.765 AU
MARS-BATSE DISTANCE = 114392536. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 59.23 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 195.19 SECS.
CROSSING TIME AT MARS IS 62488. S. OR 17:21:28 +/- 59.89 SECONDS

BATSE BURST TRIGGER

NO.: 6204

TIME: TJD=0561 SECONDS=62293

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=127.6 AZIMUTH=124.9 ERROR=4.8 DEGREES

COMMENTS:
BURST, SINGLE SPIKE, DUR.~0.02 SECS. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6204	970423	10561	62293	8500	291	+06	.02

BATSE BURST# 6204

ULYSSES RT 24/ 4/97

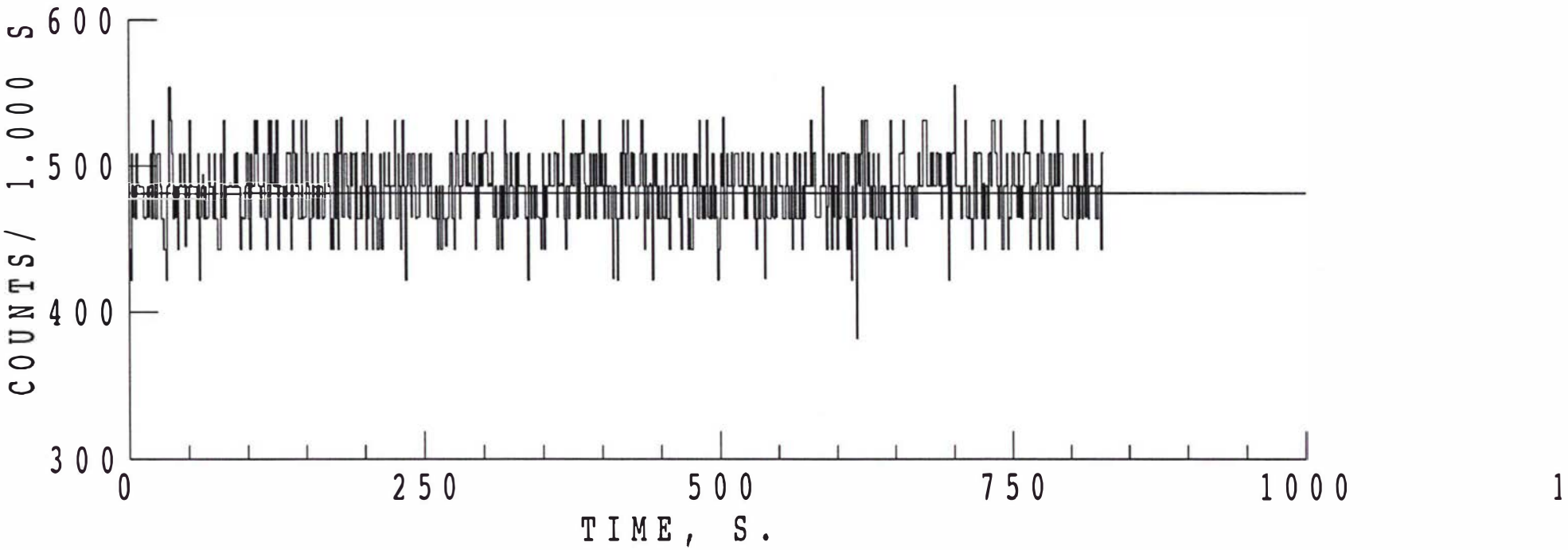
23/ 4/97 63180.043 s

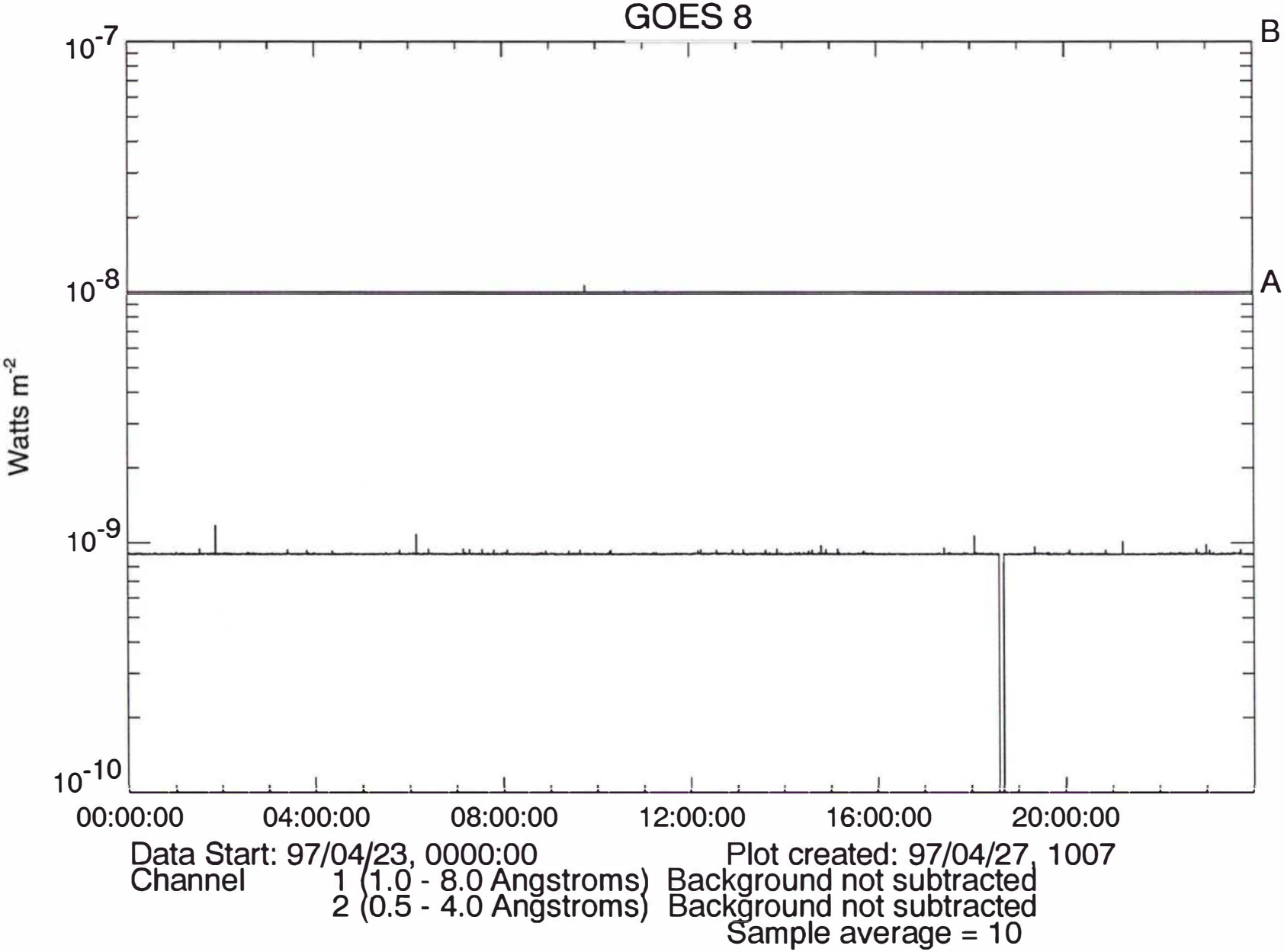
0.500 S INTERVALS REGROUPED BY 2

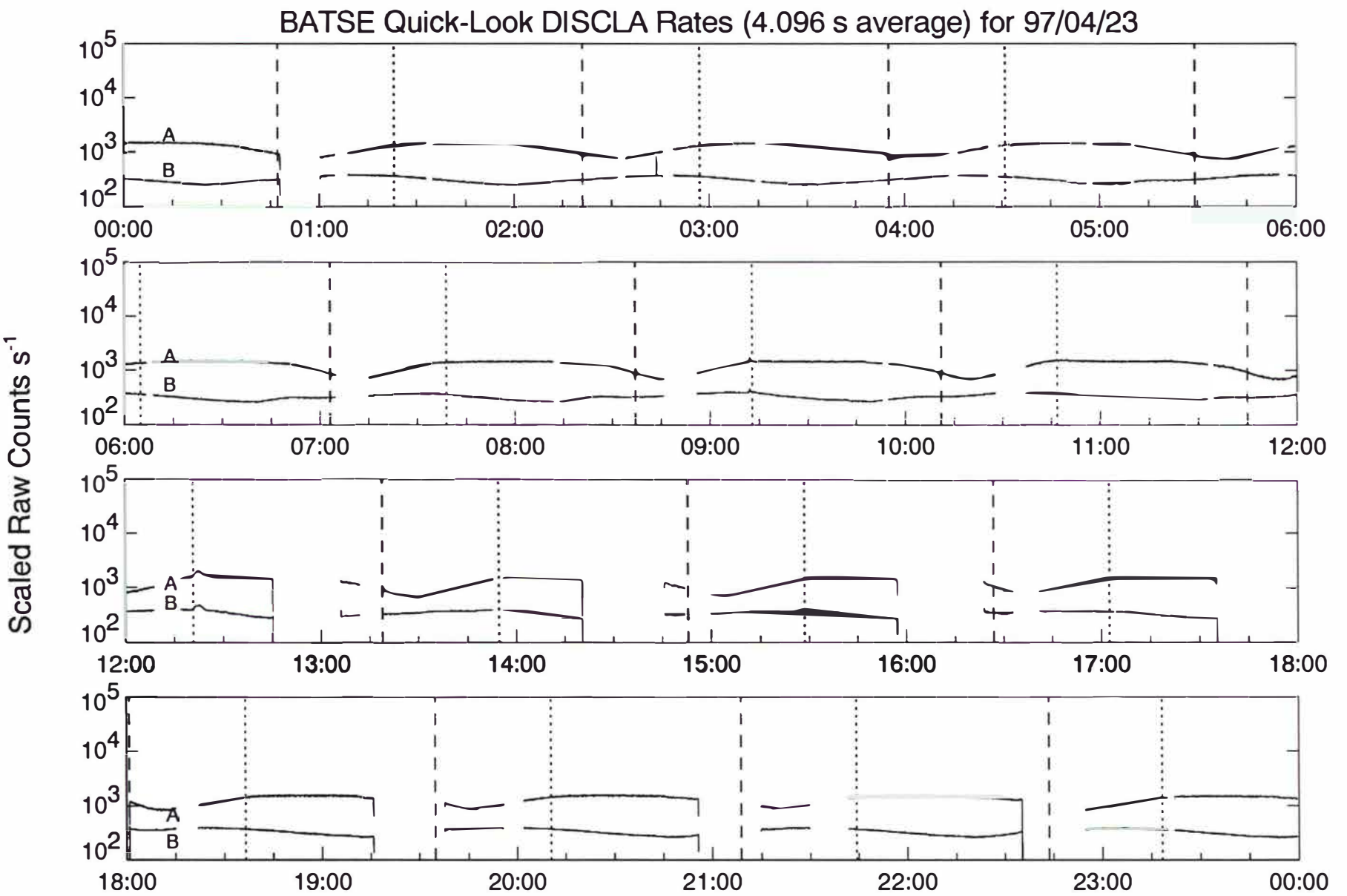
0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS




GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/23, 0000:00
Plot created: 97/04/27, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

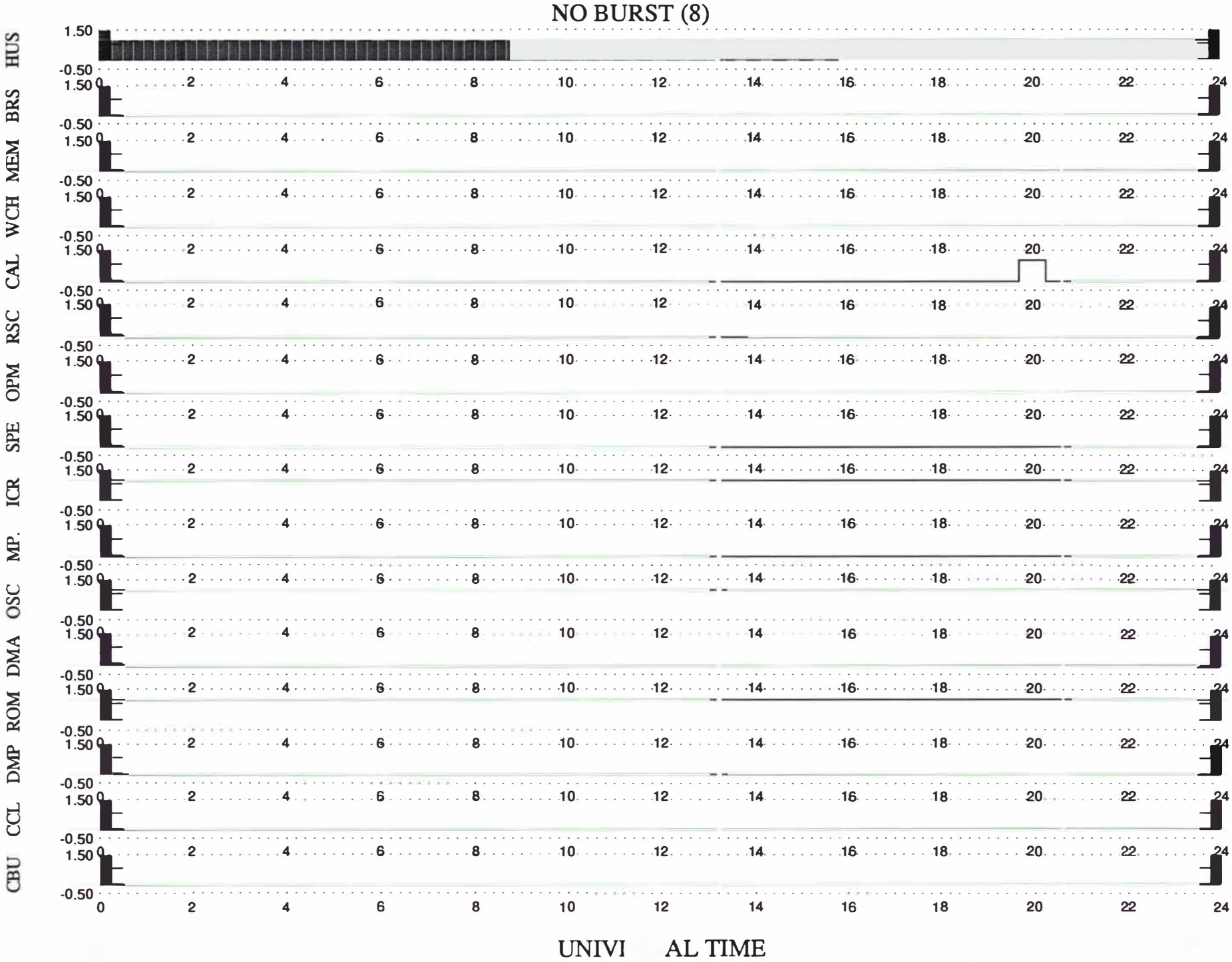


Current Time: 97/04/27, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

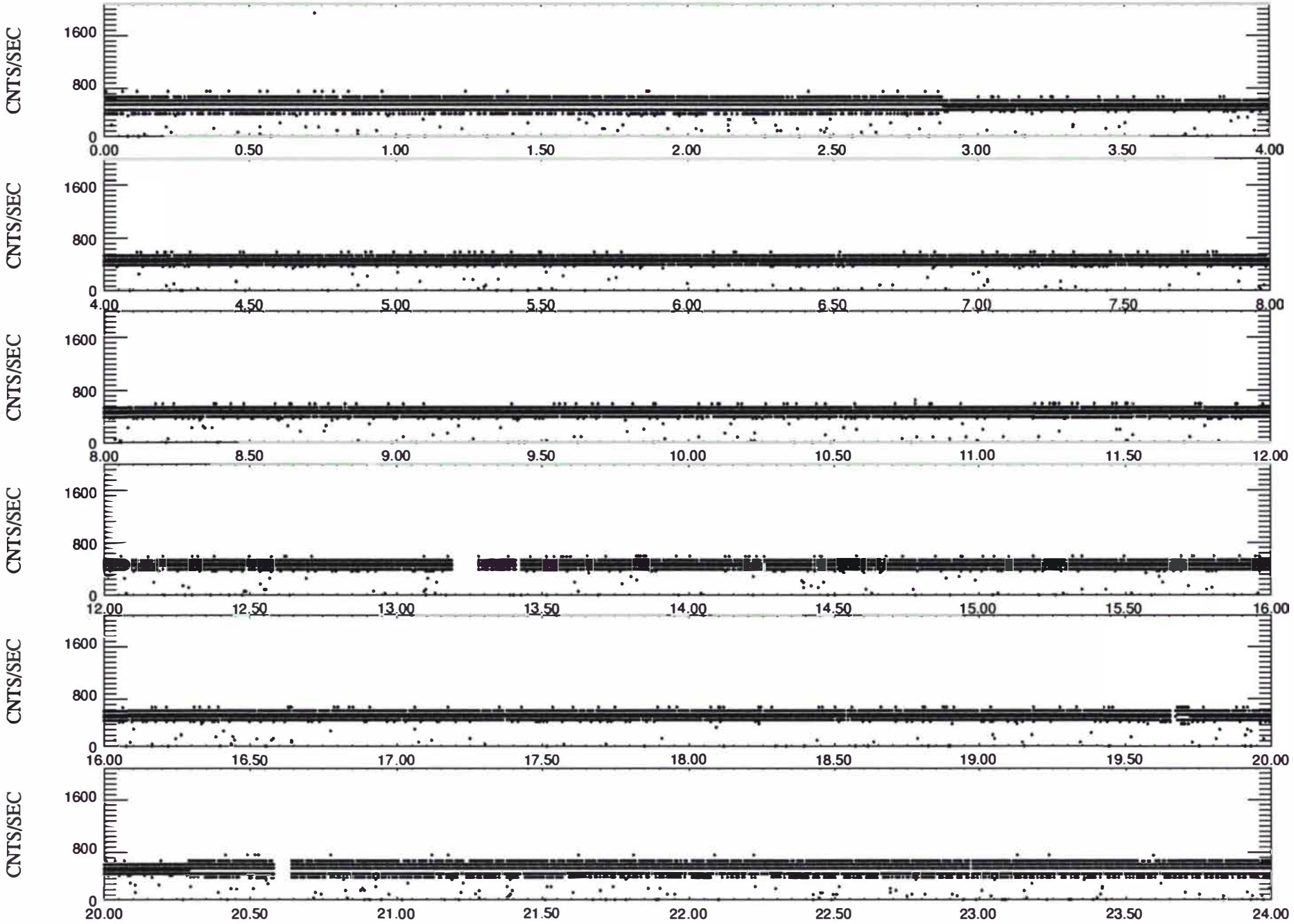
* Solar Burst Trigger
\+ Solar Flare

HUS MODES EDR day 113, year 1997 to day 113, year 1997 7/22/97



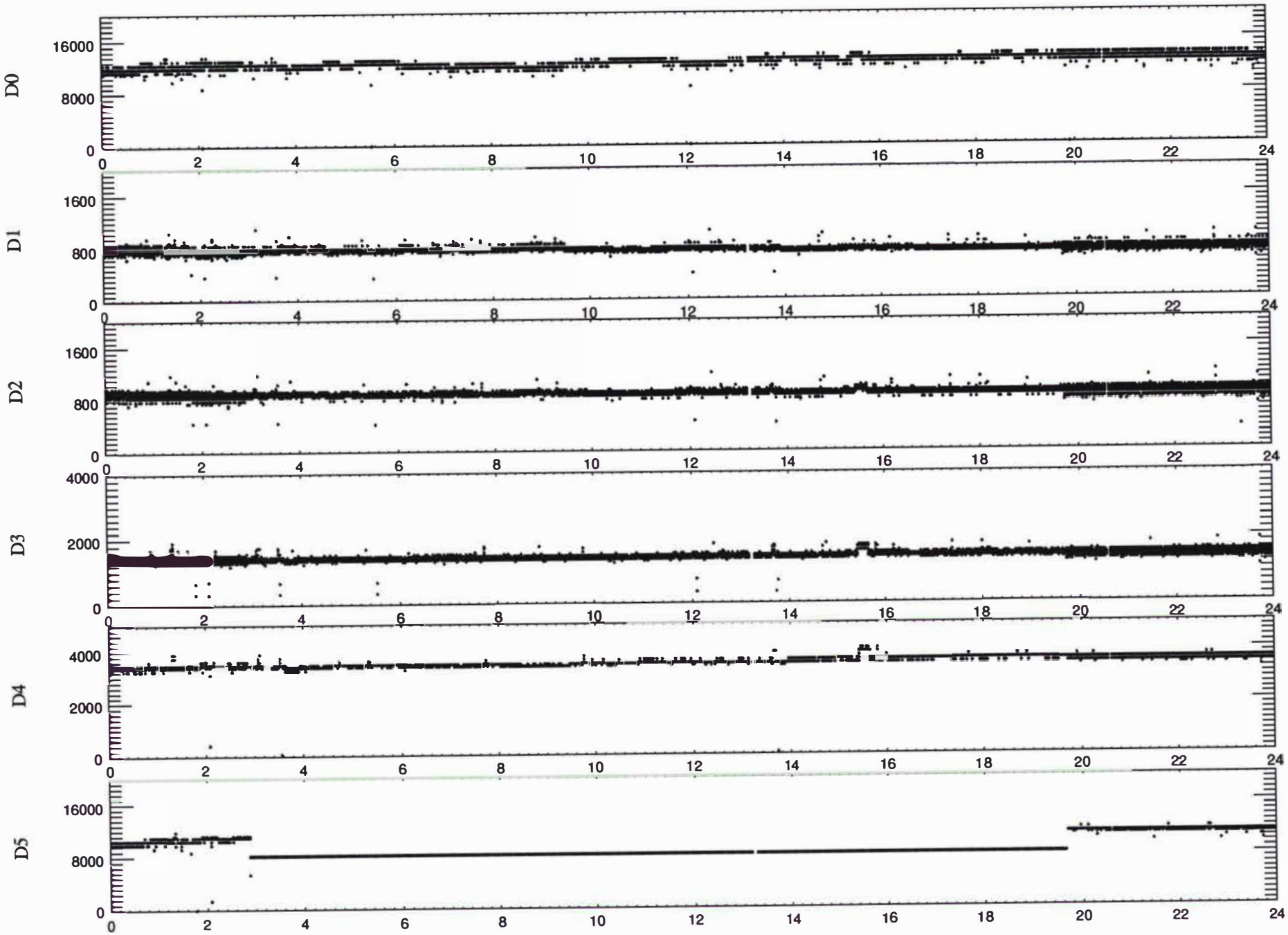
HUS 2A, MODE 1, NOT AVERAGED EDR day 113, year 1997 to day 113, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 113, year 1997 to day 113, year 1997 7/22/97



From SURASAK@ssl.msfc.nasa.gov Mon Apr 28 12:14 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id MAA21668; Mon, 28 Apr 1997 12:14:52 -0700
From: SURASAK@ssl.msfc.nasa.gov
Date: Mon, 28 Apr 1997 14:14:38 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970428141438.21206931@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6205
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6205
EVENT OF 1997 APR 24 DAY OF YEAR=114
EVENT CROSSING TIME AT BATSE : 16085. S. OR 04:28:05.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 54.000 5.000
BATSE PEAK COUNTING RATE: 10250 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 24/ 4/ 97 IS:
RA= 152.274 DEC= 33.816 DIST= 4.635 AU
BATSE-ULYSSES DISTANCE = 693384977. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 85.95 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 163.29 SECS.
CROSSING TIME AT ULYSSES IS 16248. S. OR 04:30:48 +/- 453.03 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 24/ 4/ 97 IS:
RA= 168.784 DEC= 7.315 DIST= 0.770 AU
MARS-BATSE DISTANCE = 115245432. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 66.23 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 154.96 SECS.
CROSSING TIME AT MARS IS 16240. S. OR 04:30:39 +/- 63.43 SECONDS

BATSE BURST TRIGGER
NO.: 6205

TIME: TJD=0562 SECONDS=16085

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=91.1 AZIMUTH=351 ERROR=4.029 DEGREES

COMMENTS:
GRB. DUR~0.3S. MULTIPULSES. VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6205	970424	10562	16085	10250	054	+05	.3

BATSE BURST# 6205

ULYSSES RT 28/ 4/97

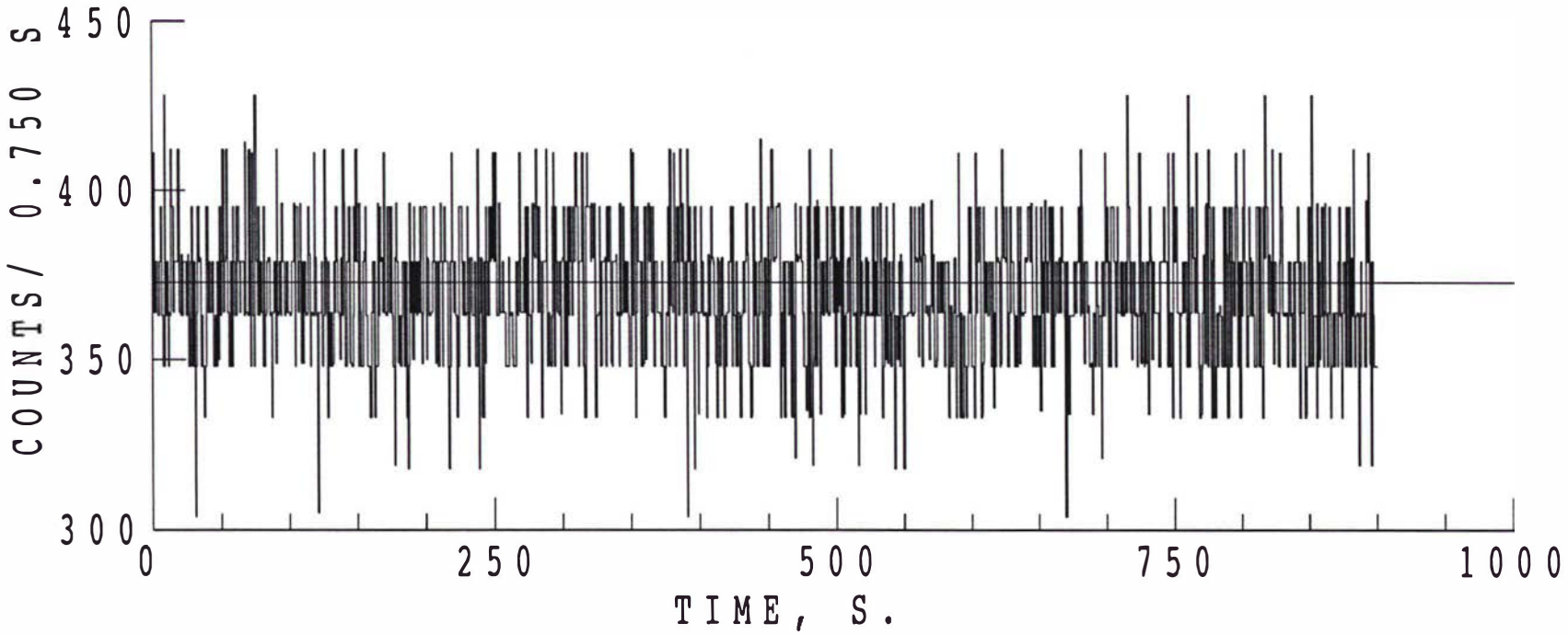
24/ 4/97 15804.008 s

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



From SURASAK@ssl.msfc.nasa.gov Fri Apr 25 13:31 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id NAA06626; Fri, 25 Apr 1997 13:31:38 -0700
Date: Fri, 25 Apr 1997 15:31:11 -0500 (CDT)
From: SURASAK@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970425153111.21401d2d@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6206
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6206
EVENT OF 1997 APR 24 DAY OF YEAR=114
EVENT CROSSING TIME AT BATSE : 29211. S. OR 08:06:51.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 267.000 -44.000
BATSE PEAK COUNTING RATE: 15400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 24/ 4/ 97 IS:
RA= 152.257 DEC= 33.800 DIST= 4.638 AU
BATSE-ULYSSES DISTANCE = 693775108. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 50.46 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1473.28 SECS.
CROSSING TIME AT ULYSSES IS 30684. S. OR 08:31:24 +/- 382.21 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 24/ 4/ 97 IS:
RA= 168.784 DEC= 7.315 DIST= 0.770 AU
MARS-BATSE DISTANCE = 115245432. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 79.02 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 73.20 SECS.
CROSSING TIME AT MARS IS 29284. S. OR 08:08:04 +/- 66.63 SECONDS

BATSE BURST TRIGGER

NO.: 6206

TIME: TJD=0562 SECONDS=29211

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=75.3 AZIMUTH=118.9 ERROR=2.721 DEGREES

COMMENTS:
GRB. DUR~1.5S. SINGLE PULSE. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6206	970424	10562	29211	15400	267	-44	1.5

Helio corr removed 17/2/00

Date: Mar 27 '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)? 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?

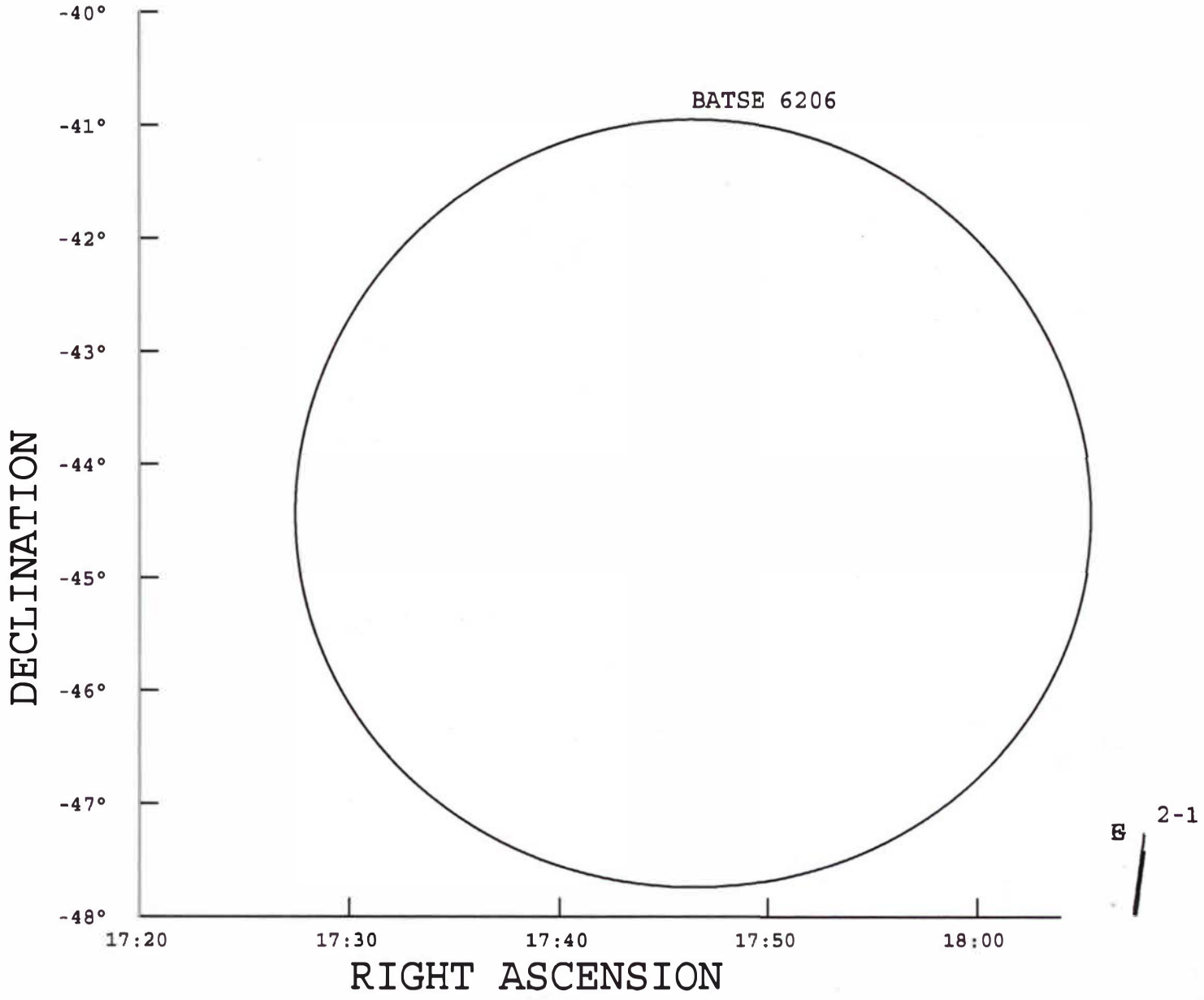
☐ Geocentric time used?

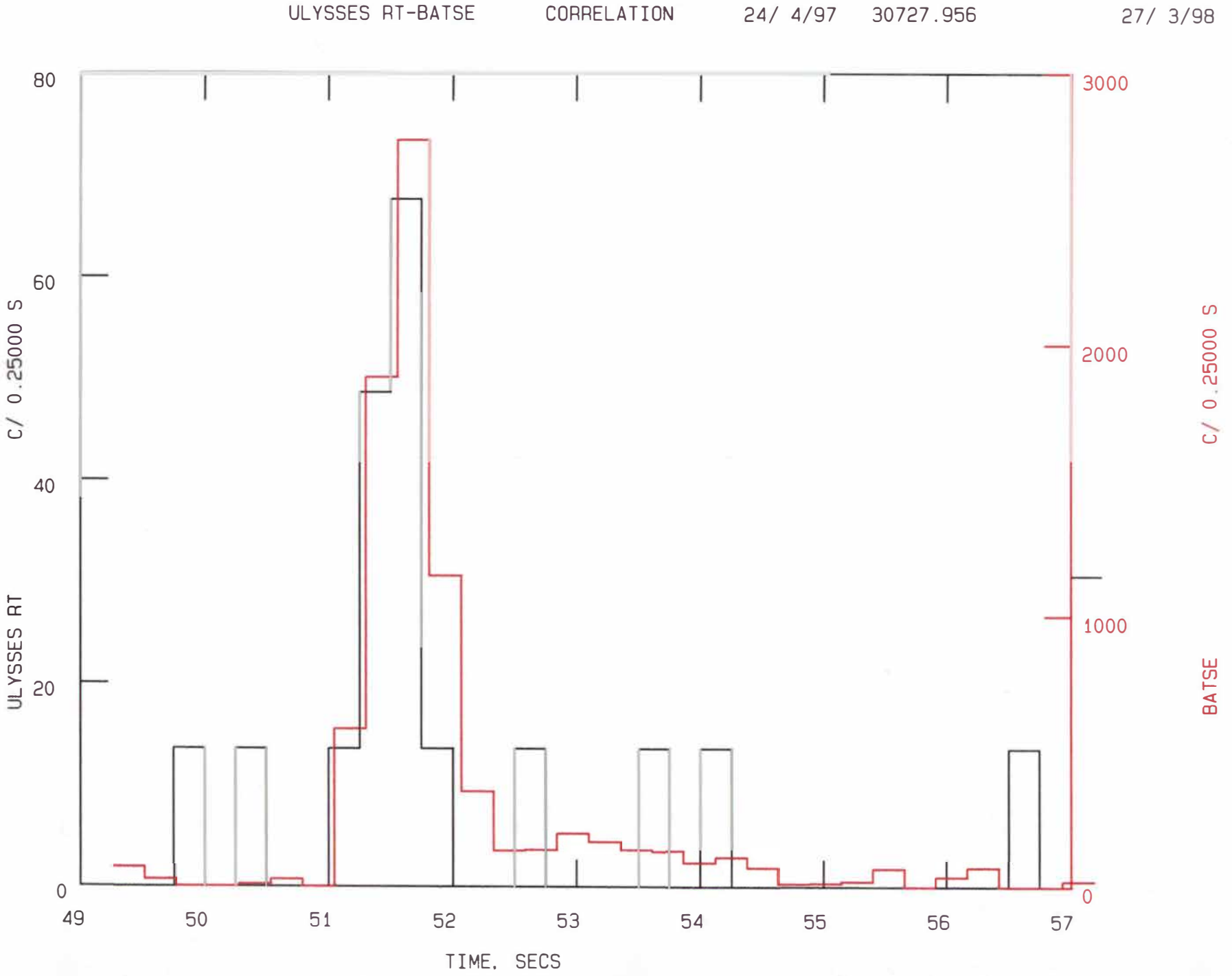
☑ ACCESS database updated?

EVENT OF APR 24, 1997 8:32

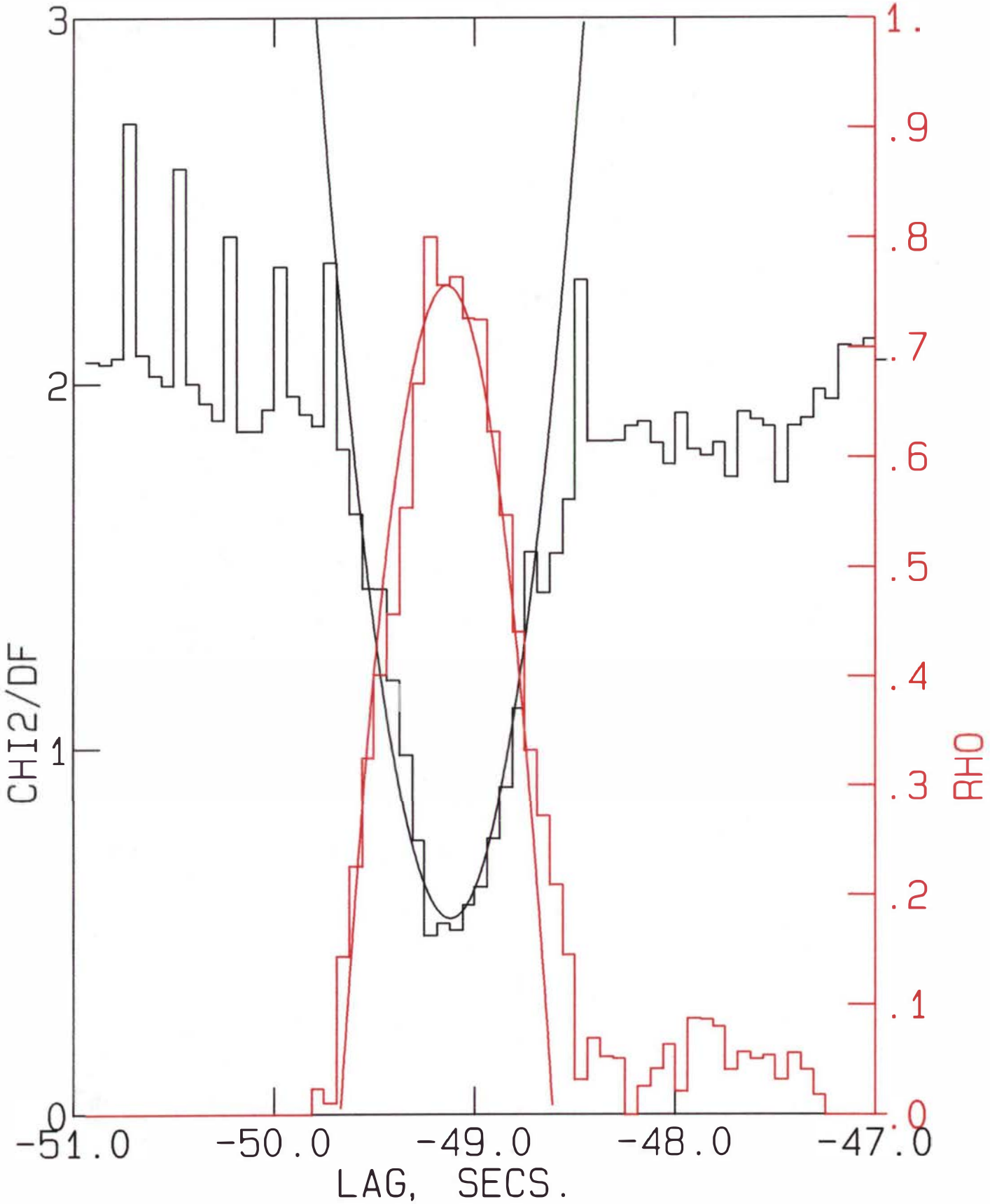
17/ 2/ 0

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




ULYSSES RT-BATSE CORRELATION 24/ 4/97 30727.956 27/ 3/98
80
60
40
20
0
C/ 0.25000 S
ULYSSES RT
3000
2000
1000
0
C/ 0.25000 S
BATSE
49
50
51
52
53
54
55
56
57
TIME. SECS

ULYSSES RT-BATSE CORRELATION 24/ 4/97 30727.956

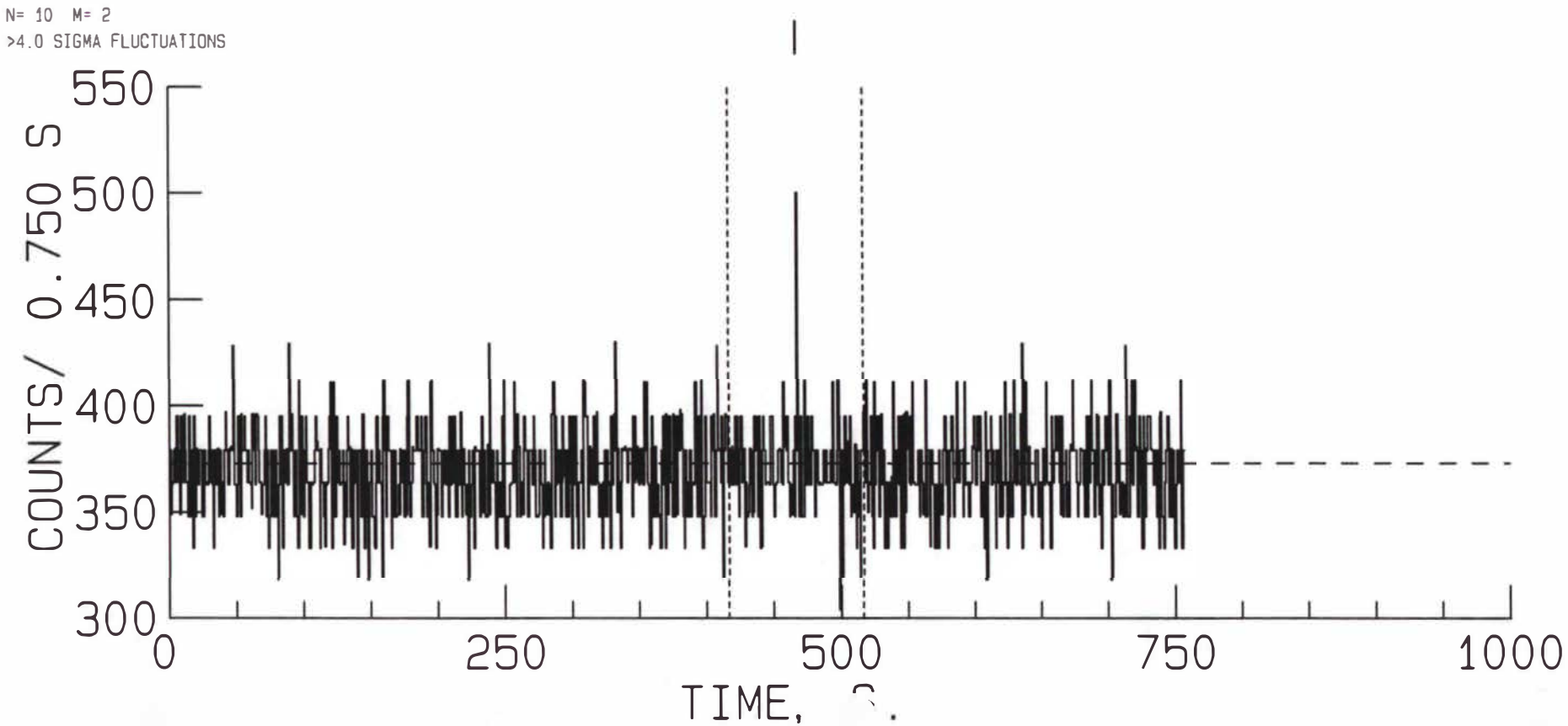


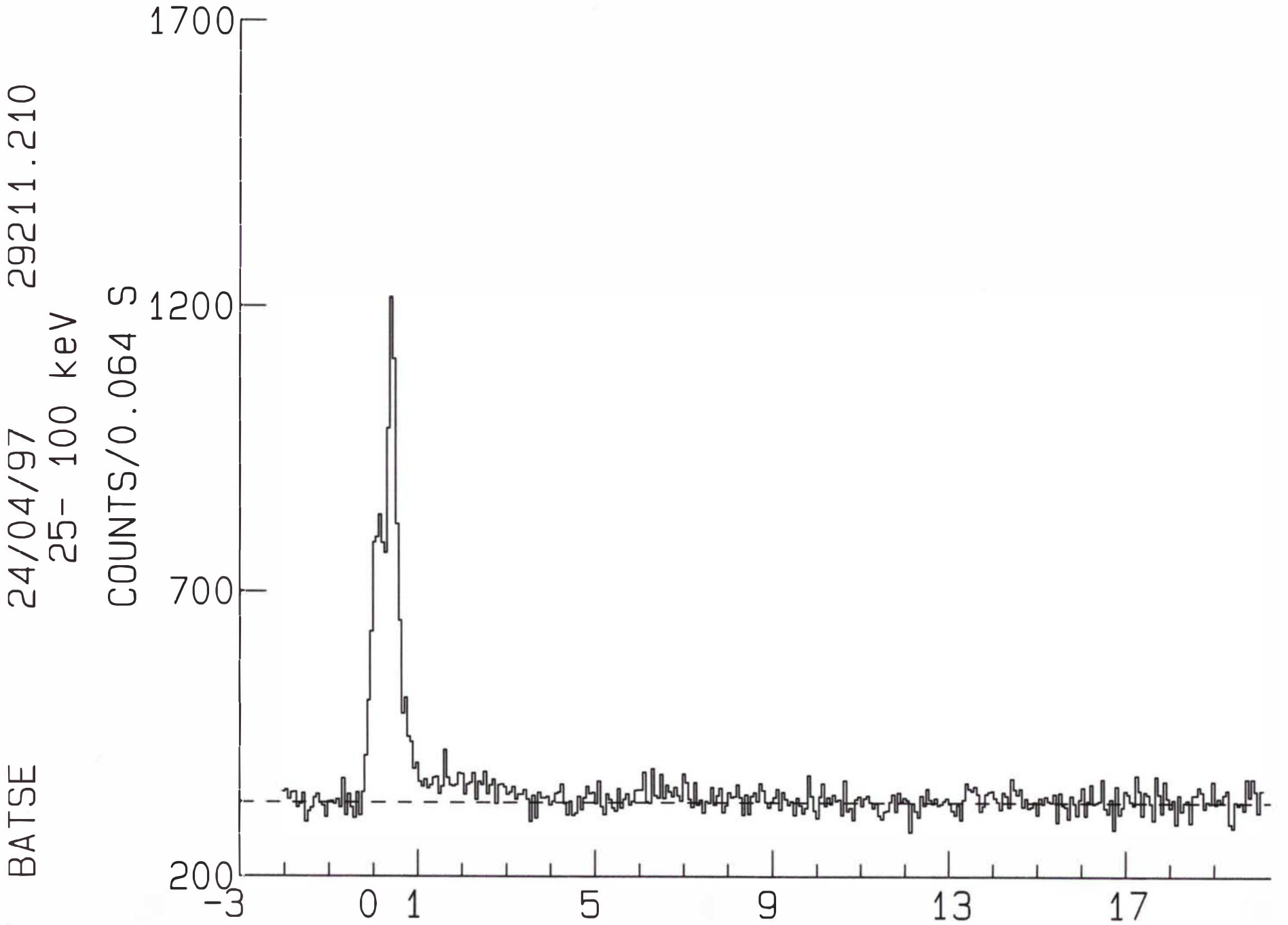
ULYSSES RT 27/ 3/98

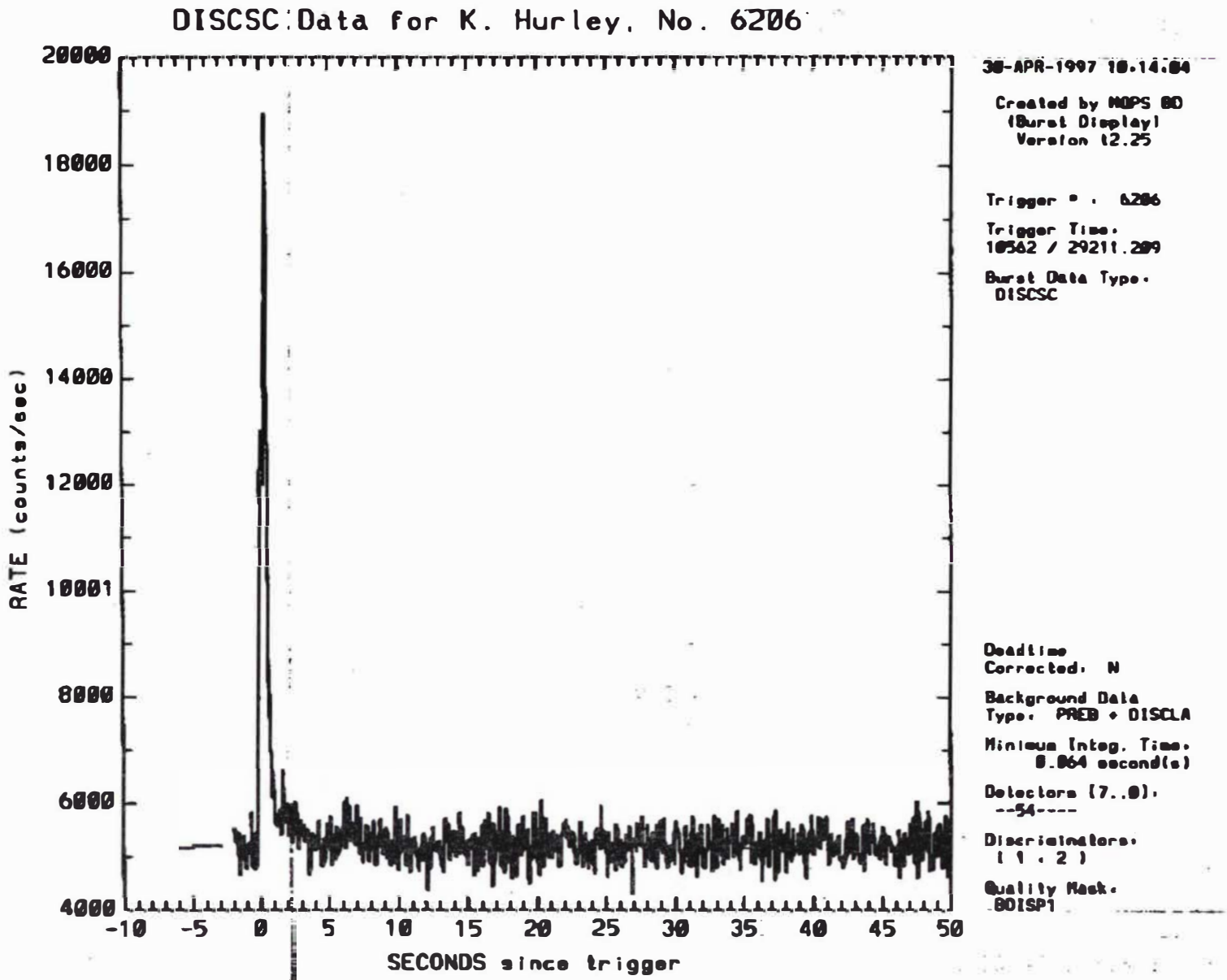
24/ 4/97 30312.177 s

0.250 S INTERVALS REGROUPED BY 3

22- 147 keV



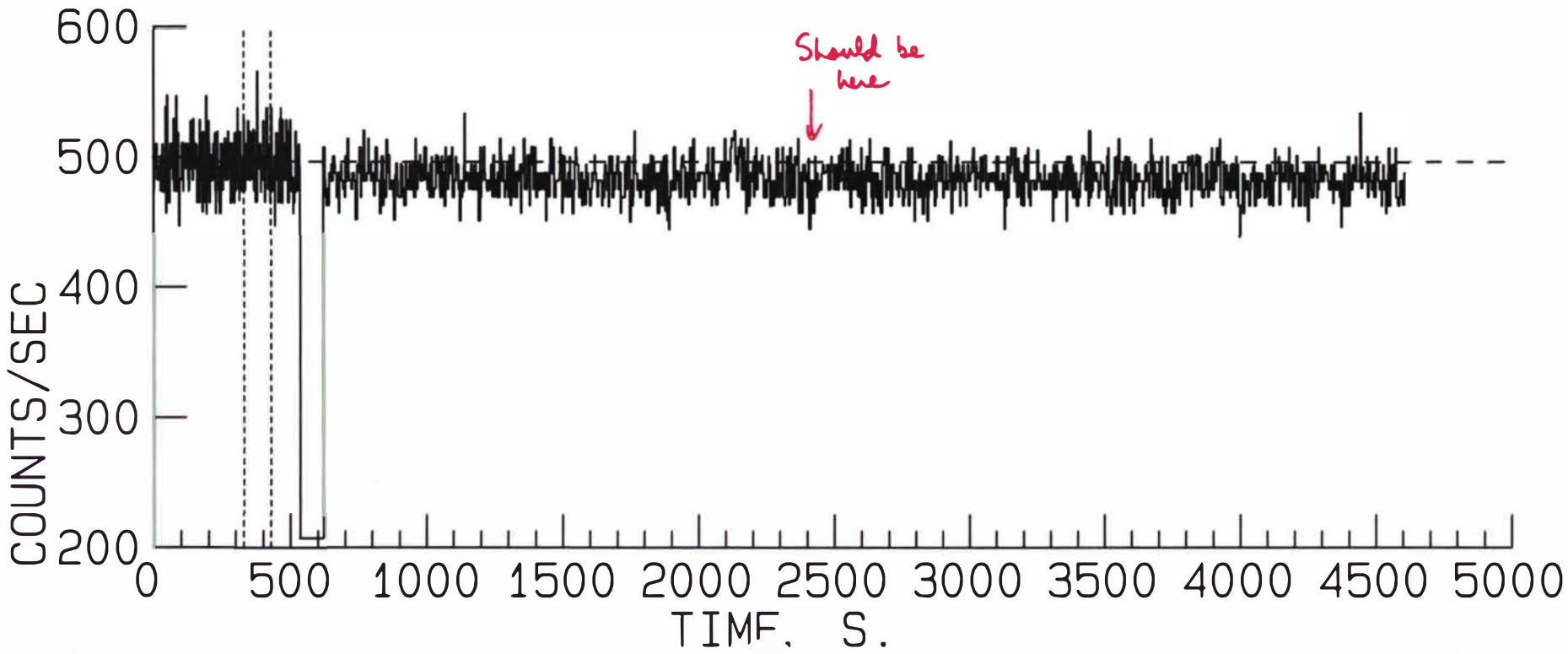

BATSE 24/04/97 29211.210
25- 100 keV
COUNTS/0.064 S
1700
1200
700
200
-3
0
1
5
9
13
17


DISCSC Data for K. Hurley, No. 6206
RATE (counts/sec)
20000
18000
16000
14000
12000
10001
8000
6000
4000
-10 -5 0 5 10 15 20 25 30 35 40 45 50
SECONDS since trigger
30-APR-1997 10.14.04
Created by MOPS BD
(Burst Display)
Version 12.25
Trigger # : 6206
Trigger Time:
10562 / 29211.209
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)
Detectors (7..0):
--54----
Discriminators:
(1 , 2)
Quality Mask:
BDISP1

SAX

29/ 8/ 5

ULYSSES RT
24/ 4/97 33480.215 s
INTERVALS REGROUPED BY 7
22- 147 keV



Date: Dec 27 '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?

U/B ratio out of bounds

χ^2 " " "

Lags disagree

☐ ACCESS database updated?

From SURASAK@ssl.msfc.nasa.gov Mon Apr 28 12:17 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA21714; Mon, 28 Apr 1997 12:17:26 -0700
From: SURASAK@ssl.msfc.nasa.gov
Date: Mon, 28 Apr 1997 14:17:22 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970428141722.21206931@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6207
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

Too weak to triangulate

****
BATSEARCH PROGRAM
****

BATSE BURST # 6207
EVENT OF 1997 APR 24 DAY OF YEAR=114
EVENT CROSSING TIME AT BATSE : 36575. S. OR 10:09:35.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 198.000 -17.000
BATSE PEAK COUNTING RATE: 7000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 24/ 4/ 97 IS:
RA= 152.248 DEC= 33.792 DIST= 4.639 AU
BATSE-ULYSSES DISTANCE = 693987828. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=113.08 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -907.30 SECS.
CROSSING TIME AT ULYSSES IS 35668. S. OR 09:54:27 +/- 405.97 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 24/ 4/ 97 IS:
RA= 168.784 DEC= 7.315 DIST= 0.770 AU
MARS-BATSE DISTANCE = 115245432. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=142.24 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -303.93 SECS.
CROSSING TIME AT MARS IS 36271. S. OR 10:04:31 +/- 36.25 SECONDS

BATSE BURST TRIGGER
NO.: 6207

TIME: TJD=0562 SECONDS=36575

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=57.1 AZIMUTH=194.2 ERROR=1.595 DEGREES

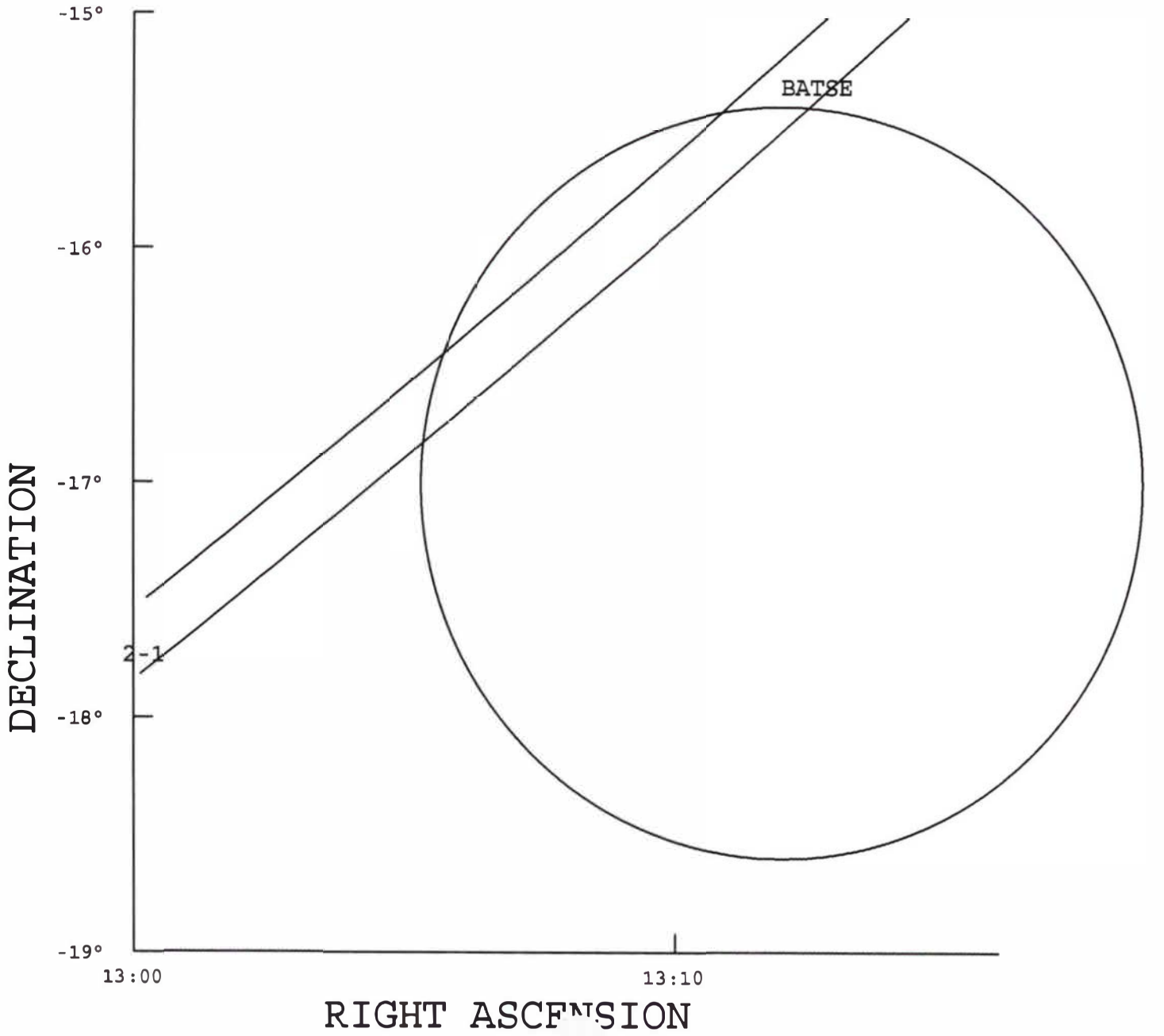
COMMENTS:
GRB DUR~ 100 S. MULTI PEAKS. ABOUT 5 OF THEM WITH THE STRONG ONE IN THE MIDDLE.
VISIBLE ABOVE 300 KEV.

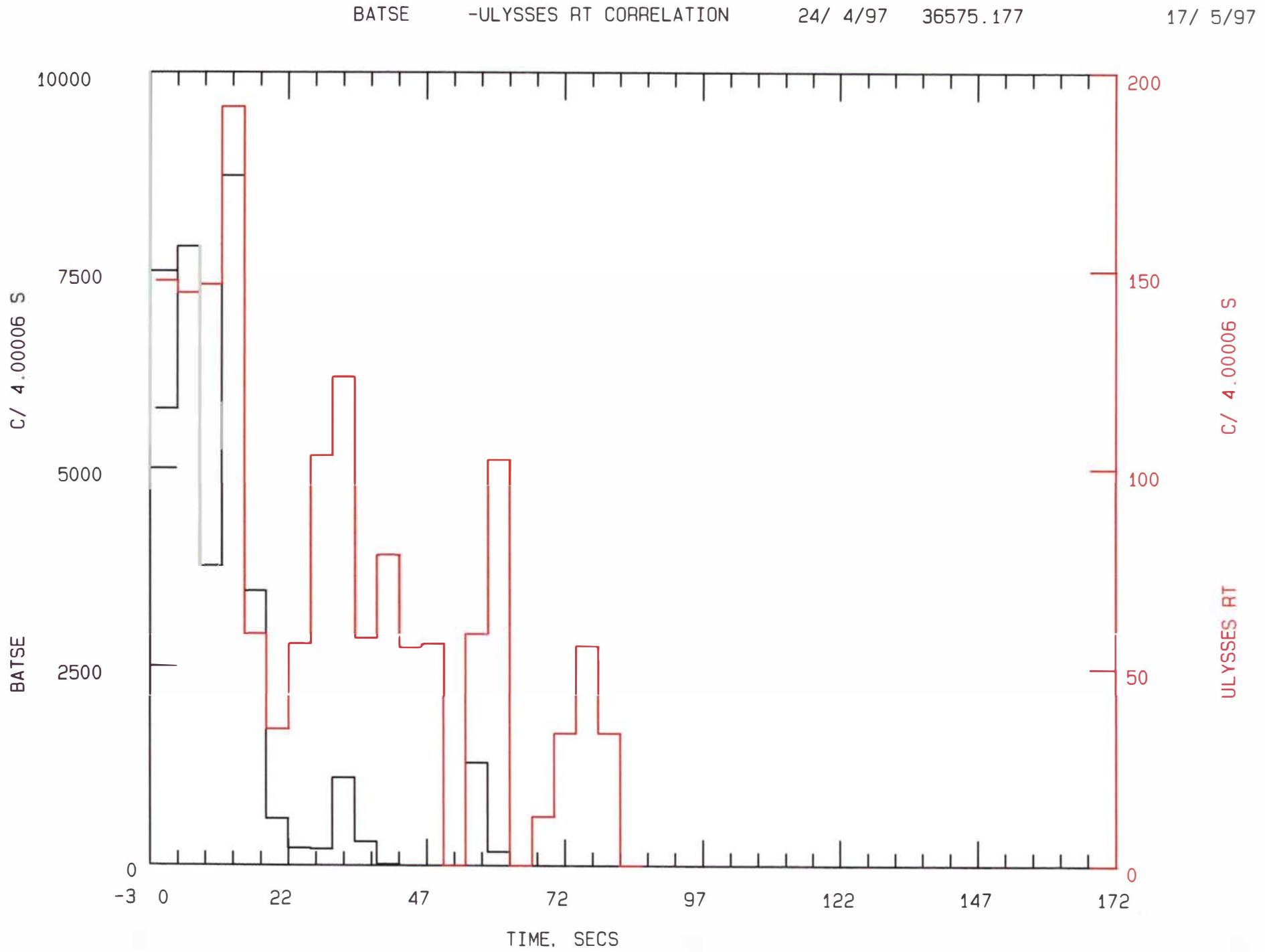
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6207	970424	10562	36575	7000	198	-17	100

EVENT OF APR 24, 1997 9:52

17/ 5/97

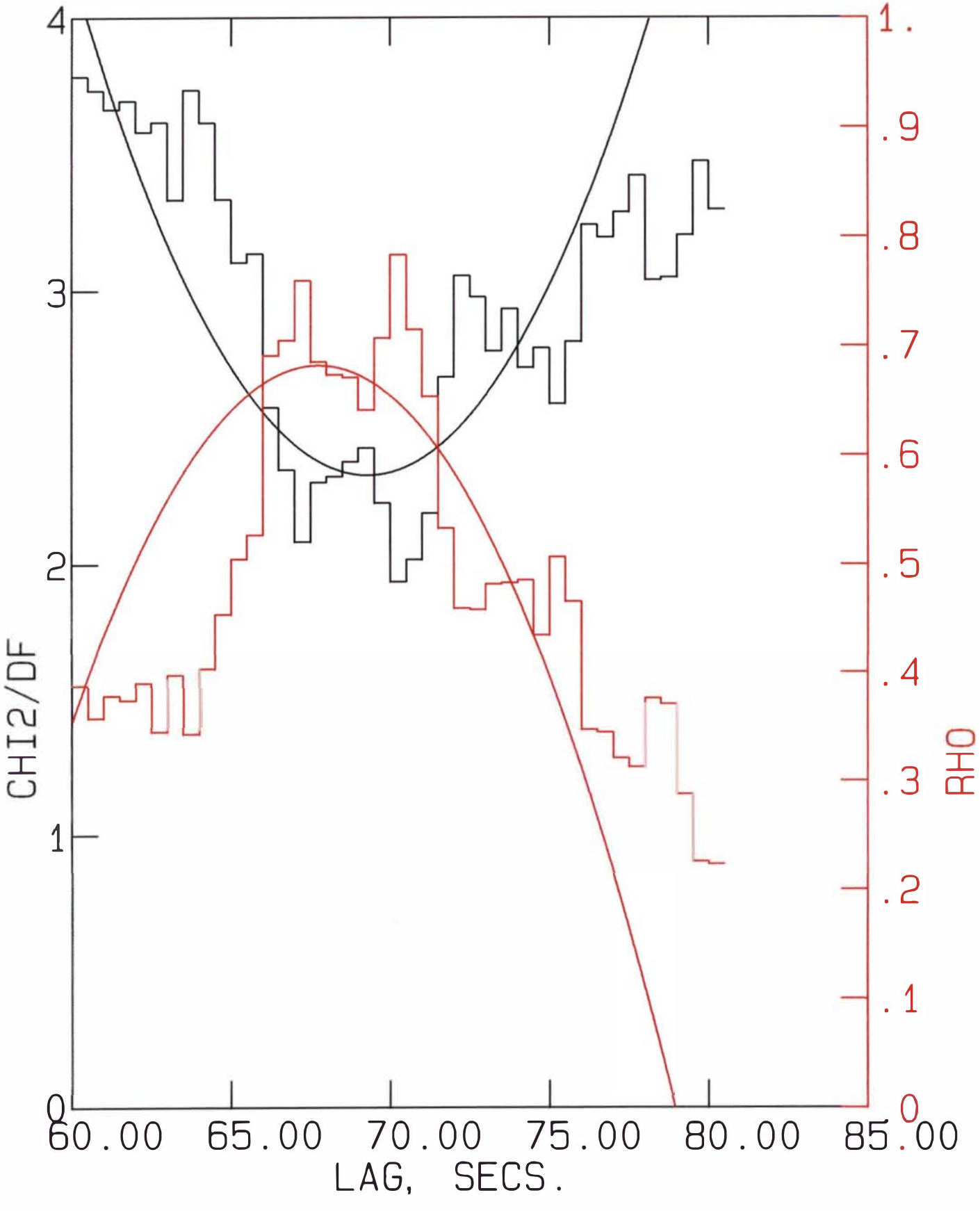
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE

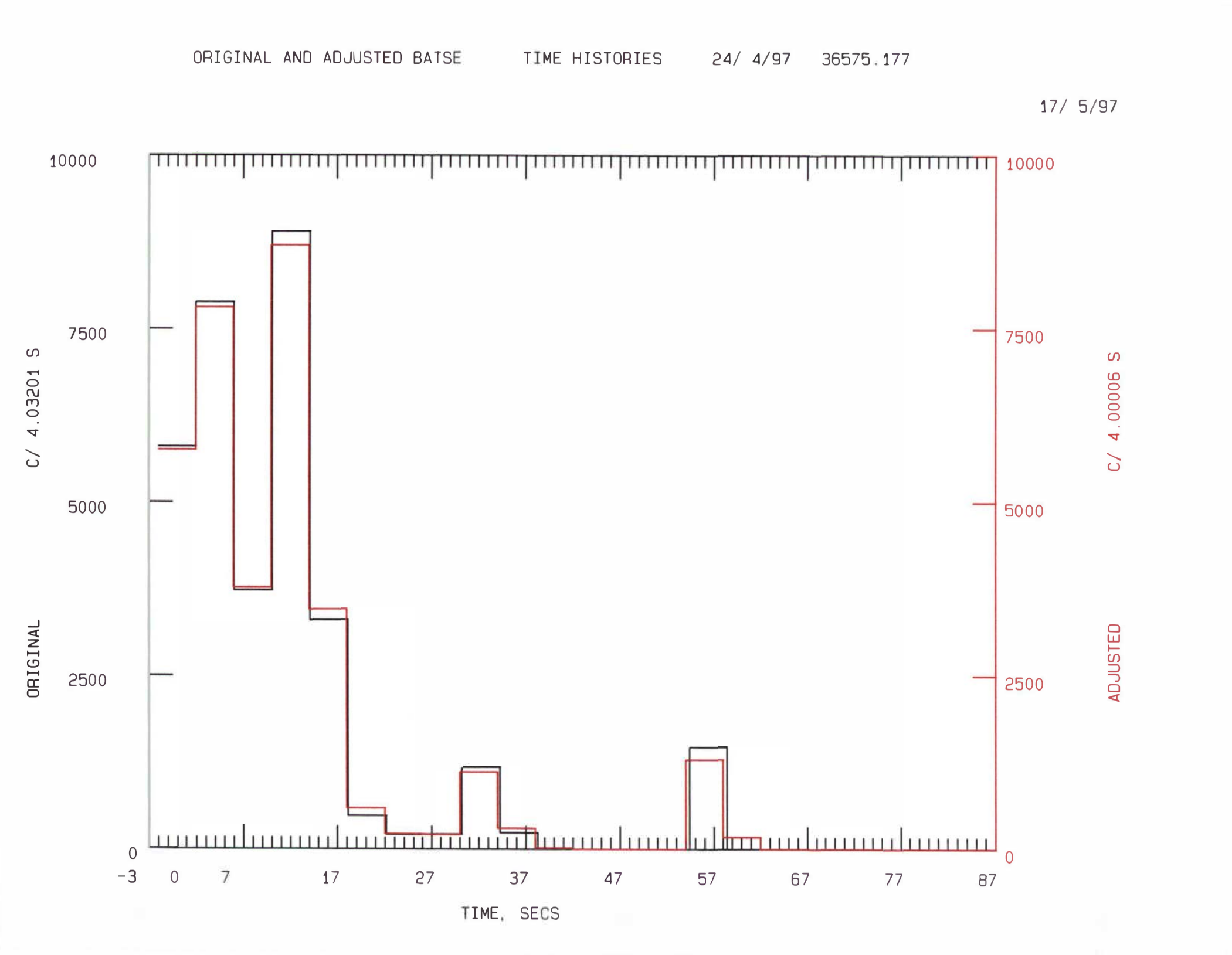



BATSE -ULYSSES RT CORRELATION 24/ 4/97 36575.177 17/ 5/97
10000
7500
5000
2500
0
C/ 4.00006 S
BATSE
200
150
100
50
0
C/ 4.00006 S
ULYSSES RT
-3
0
22
47
72
97
122
147
172
TIME, SECS

17/ 5/97

BATSE -ULYSSES RT CORRELATION 24/ 4/97 36575.177




ORIGINAL AND ADJUSTED BATSE TIME HISTORIES 24/ 4/97 36575.177
17/ 5/97
10000
7500
5000
2500
0
C/ 4.03201 S
ORIGINAL
10000
7500
5000
2500
0
C/ 4.00006 S
ADJUSTED
-3
0
7
17
27
37
47
57
67
77
87
TIME, SECS

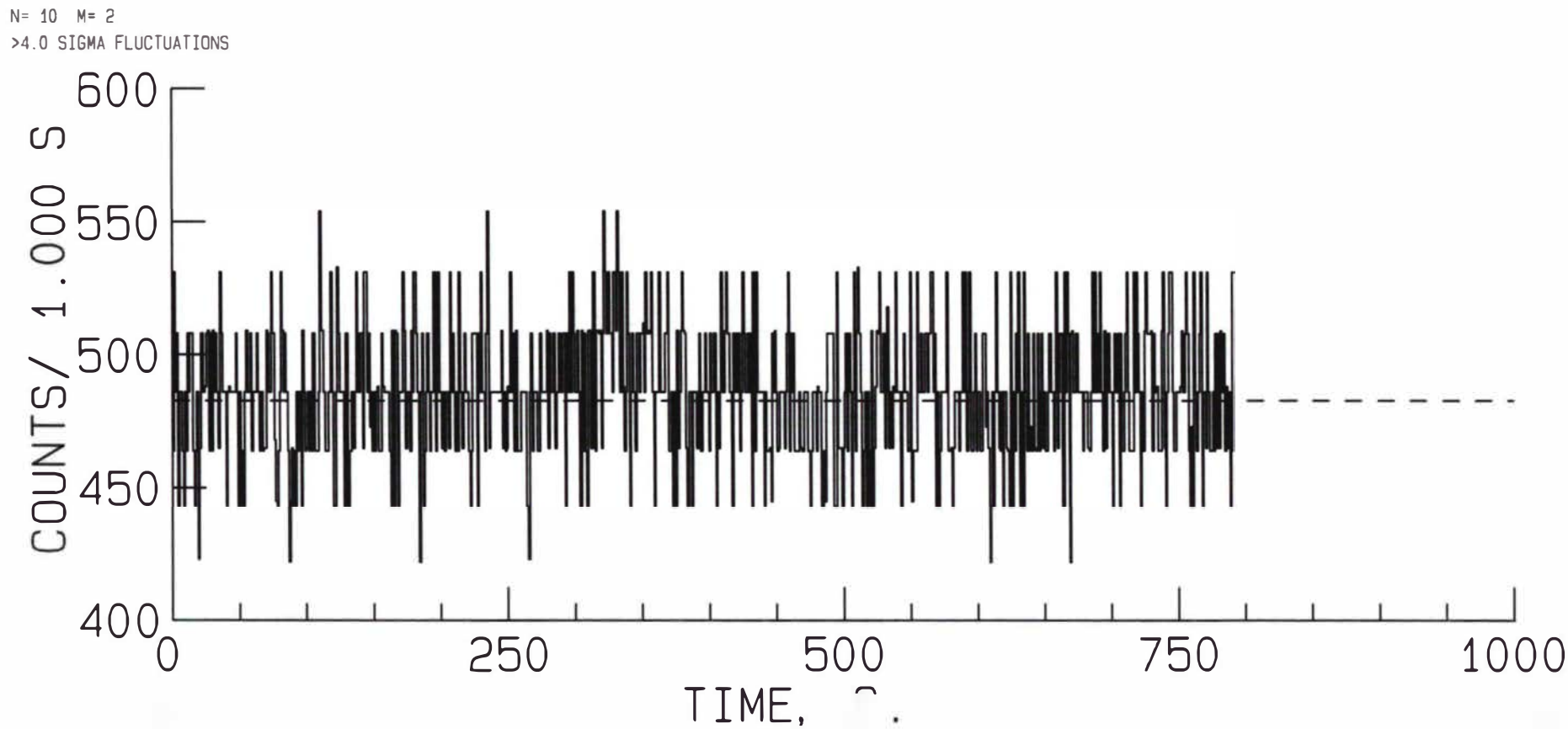
ULYSSES RT

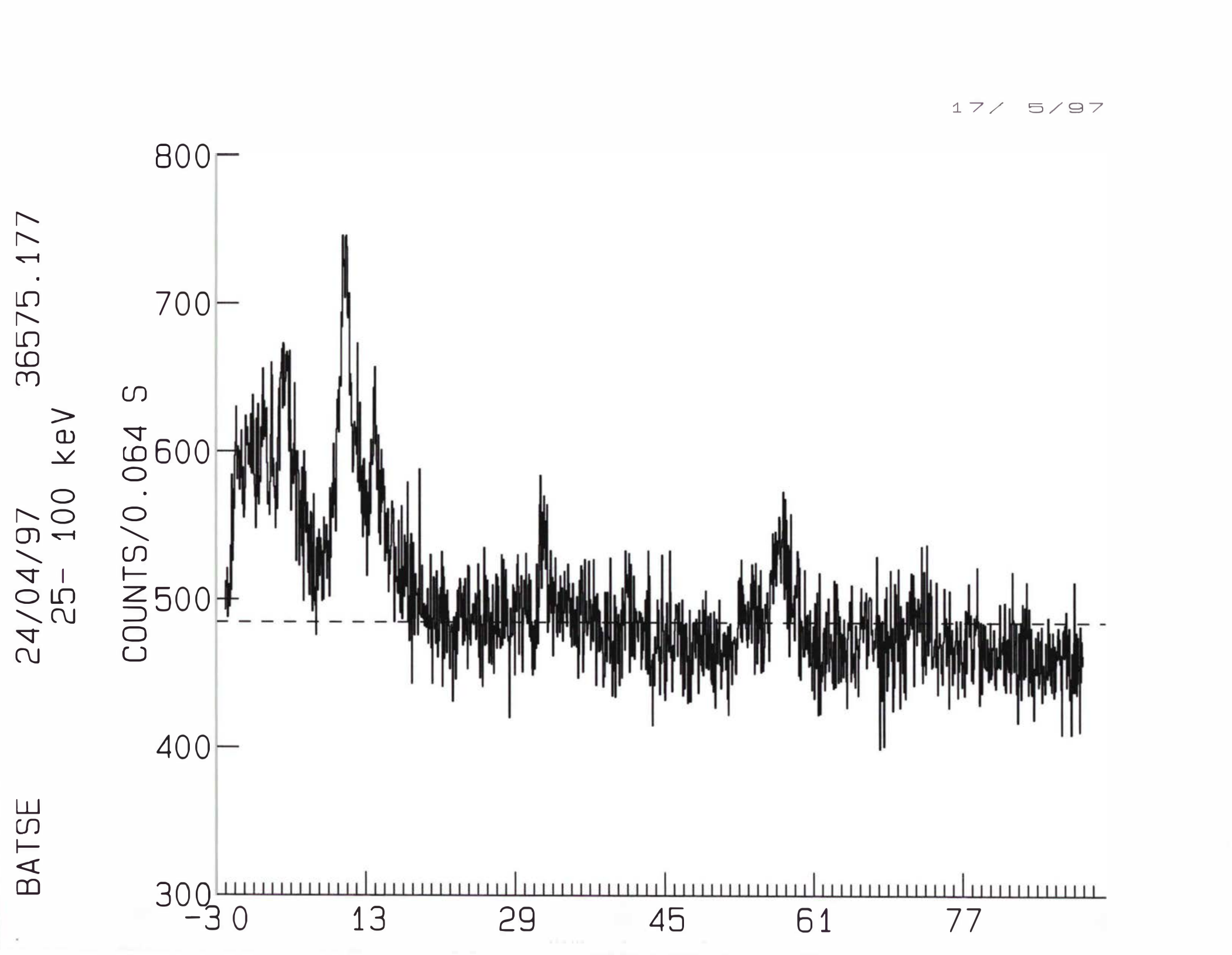
17/ 5/97

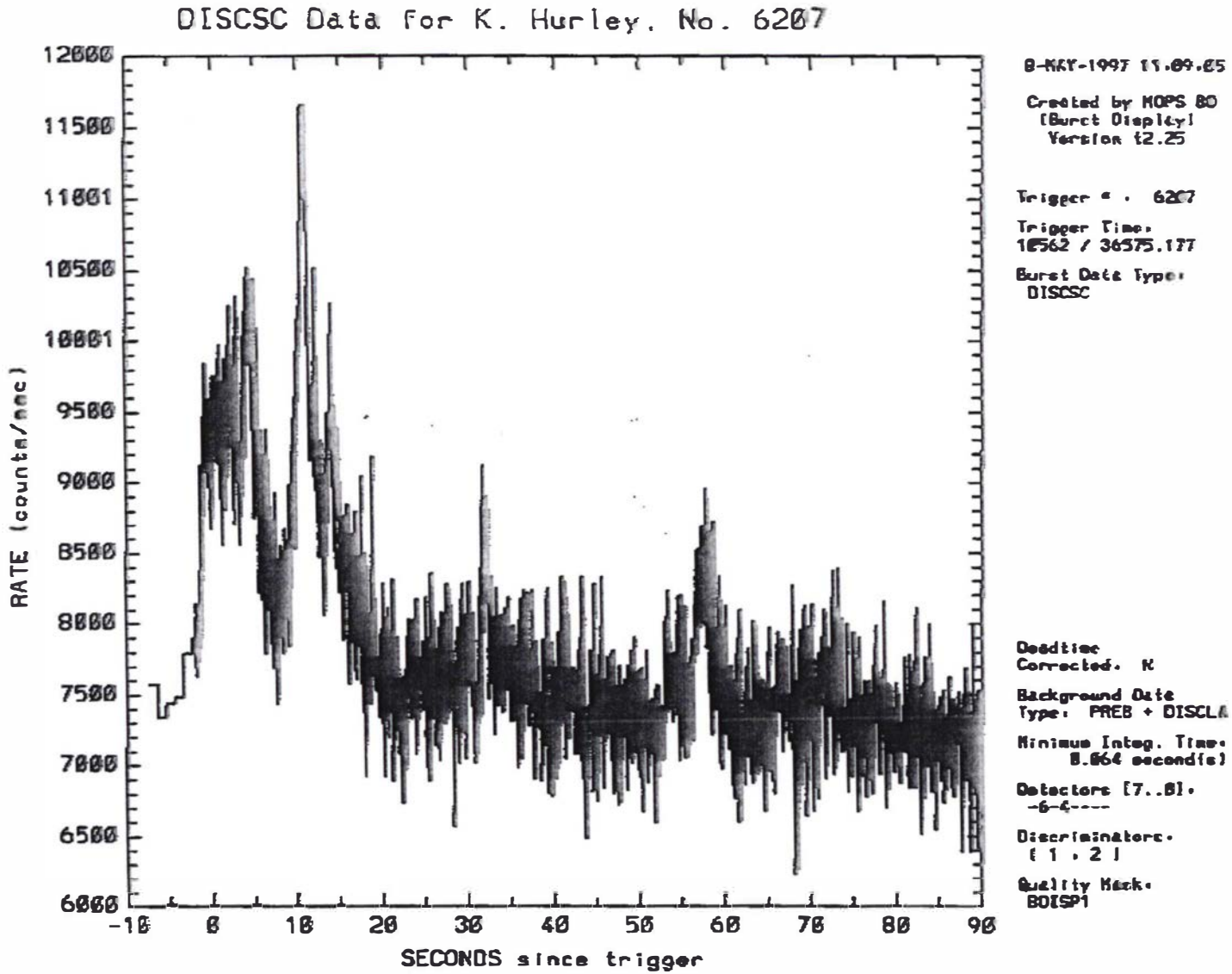
24/ 4/97 35280.235 s

0.500 S INTERVALS REGROUPED BY 2

21- 145 keV




17/ 5/97
BATSE
24/04/97 36575.177
25- 100 keV
COUNTS/0.064 S
800
700
600
500
400
300
-30
13
29
45
61
77

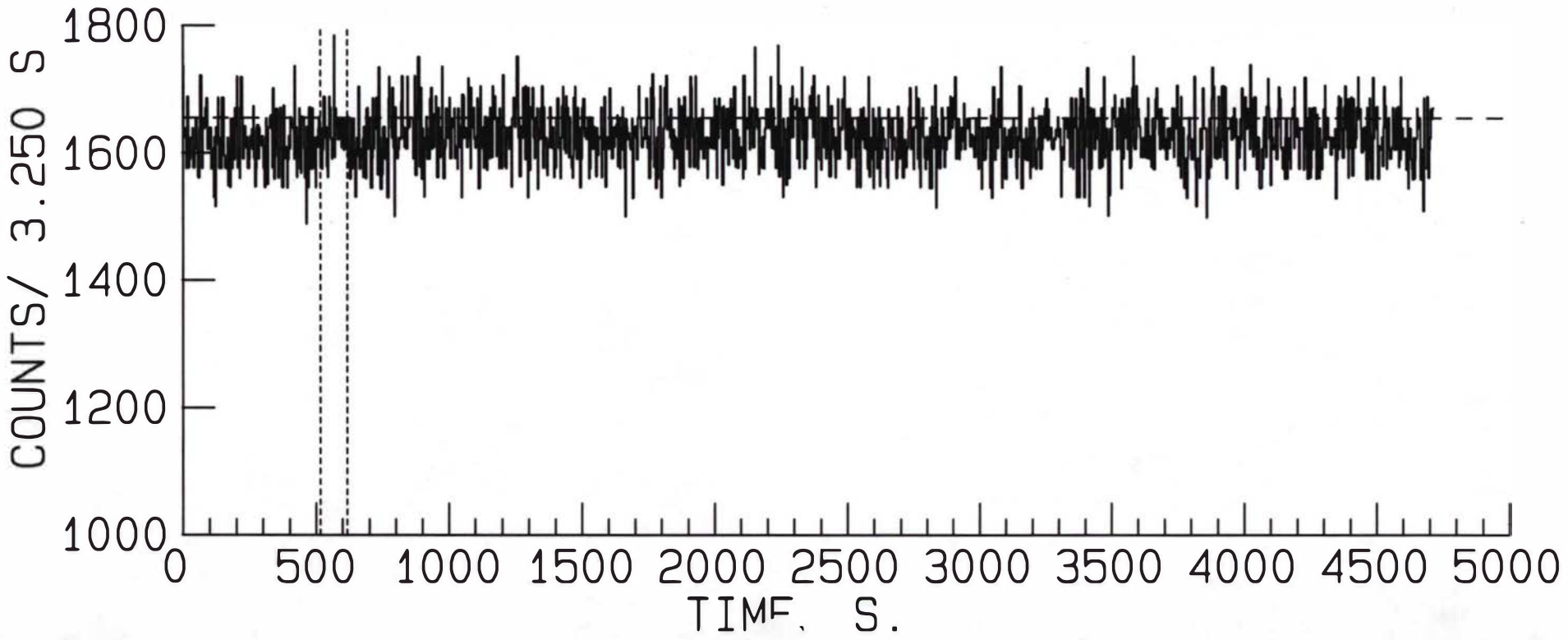

DISCSC Data For K. Hurley. No. 6207
RATE (counts/sec)
12000
11500
11001
10500
10001
9500
9000
8500
8000
7500
7000
6500
6000
-10
0
10
20
30
40
50
60
70
80
90
SECONDS since trigger
8-MAY-1997 11:09:05
Created by MOPS 80
(Burst Display)
Version t2.25
Trigger # . 6207
Trigger Time:
10562 / 36575.177
Burst Data Type:
DISCSC
Deadtime
Corrected. N
Background Data
Type. PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)
Detectors [7..0].
-6-4----
Discriminators.
(1 , 2)
Quality Mask.
BDISP1

ULYSSES RT 5/ 2/ 0

24/ 4/97 83736.059 s

0.250 S INTERVALS REGROUPED BY 13

22- 147 keV



KONUS 19970424 84286

ULYSSES RT

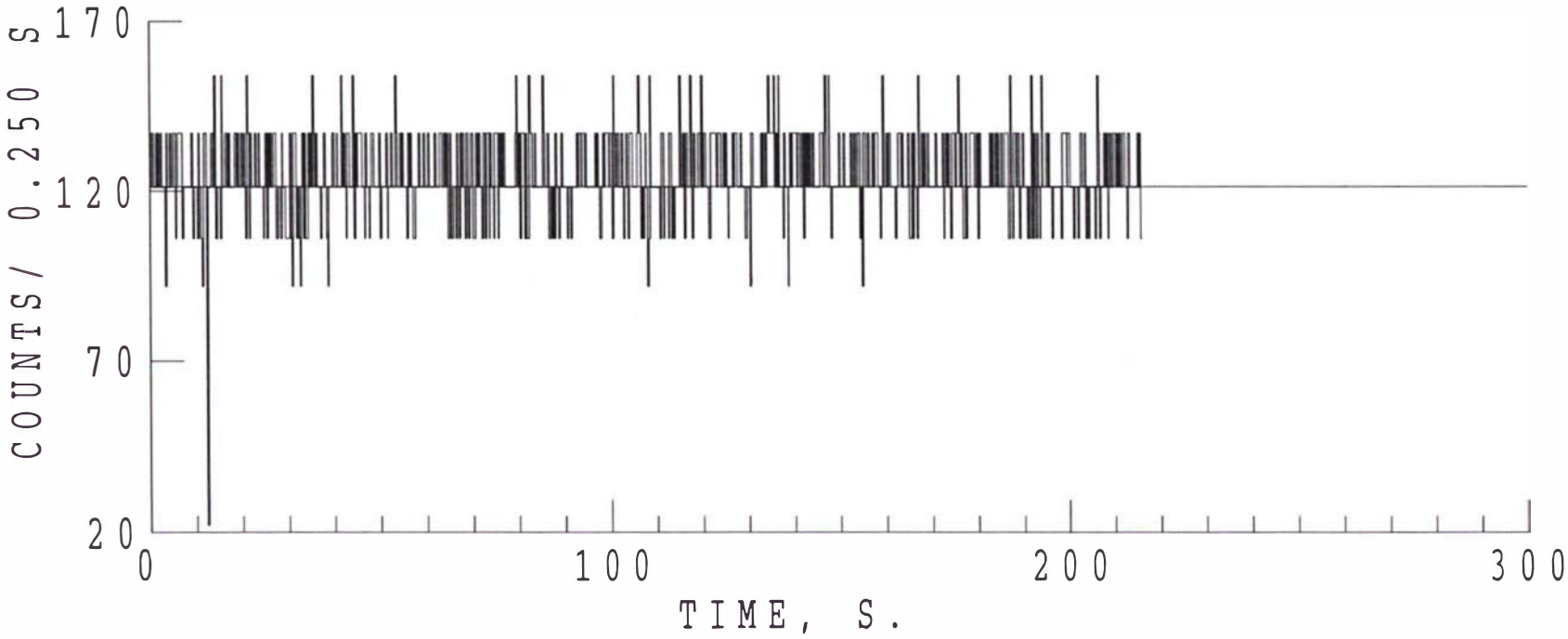
05/12/11

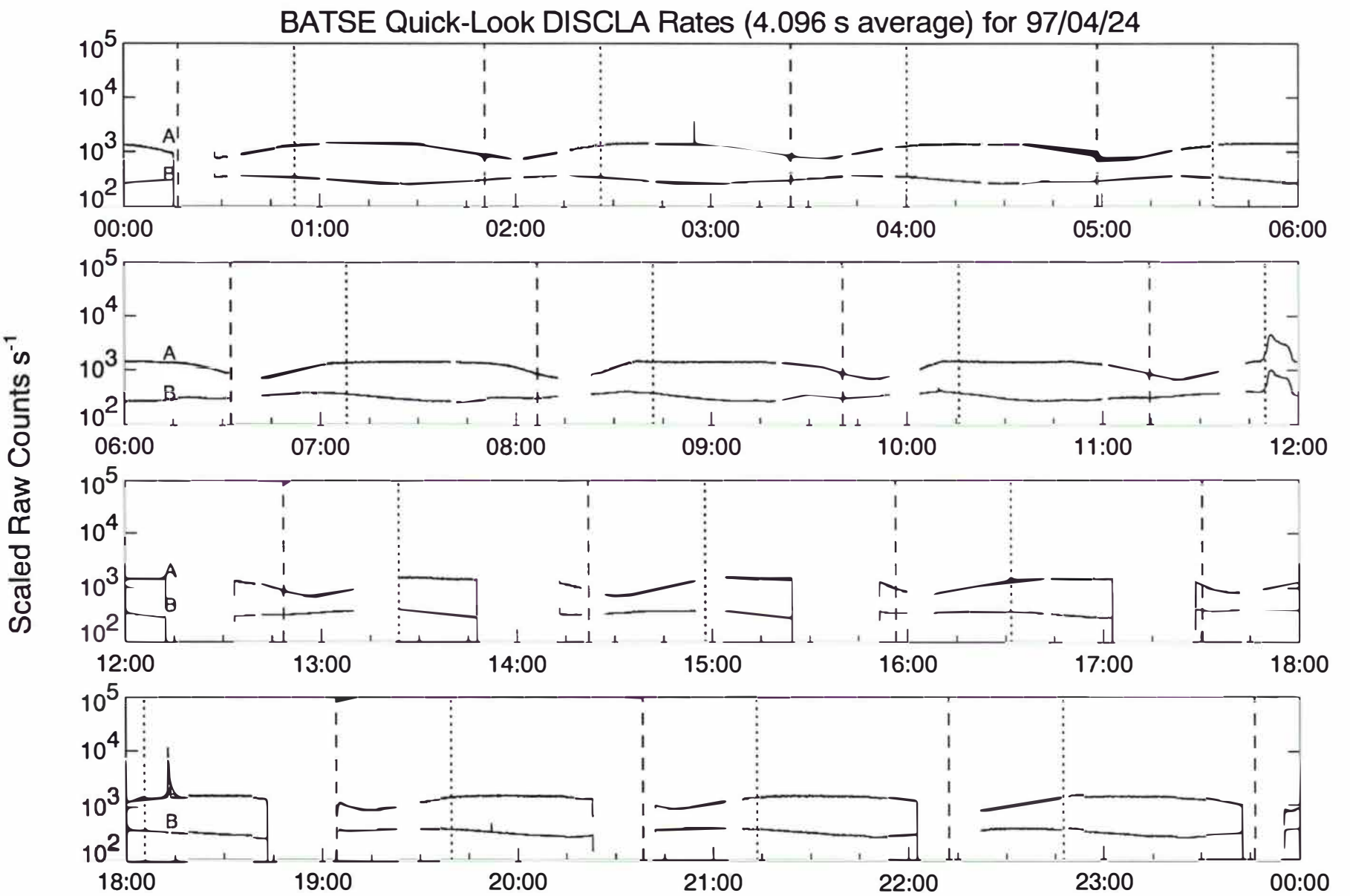
24/04/97 84168.062 s

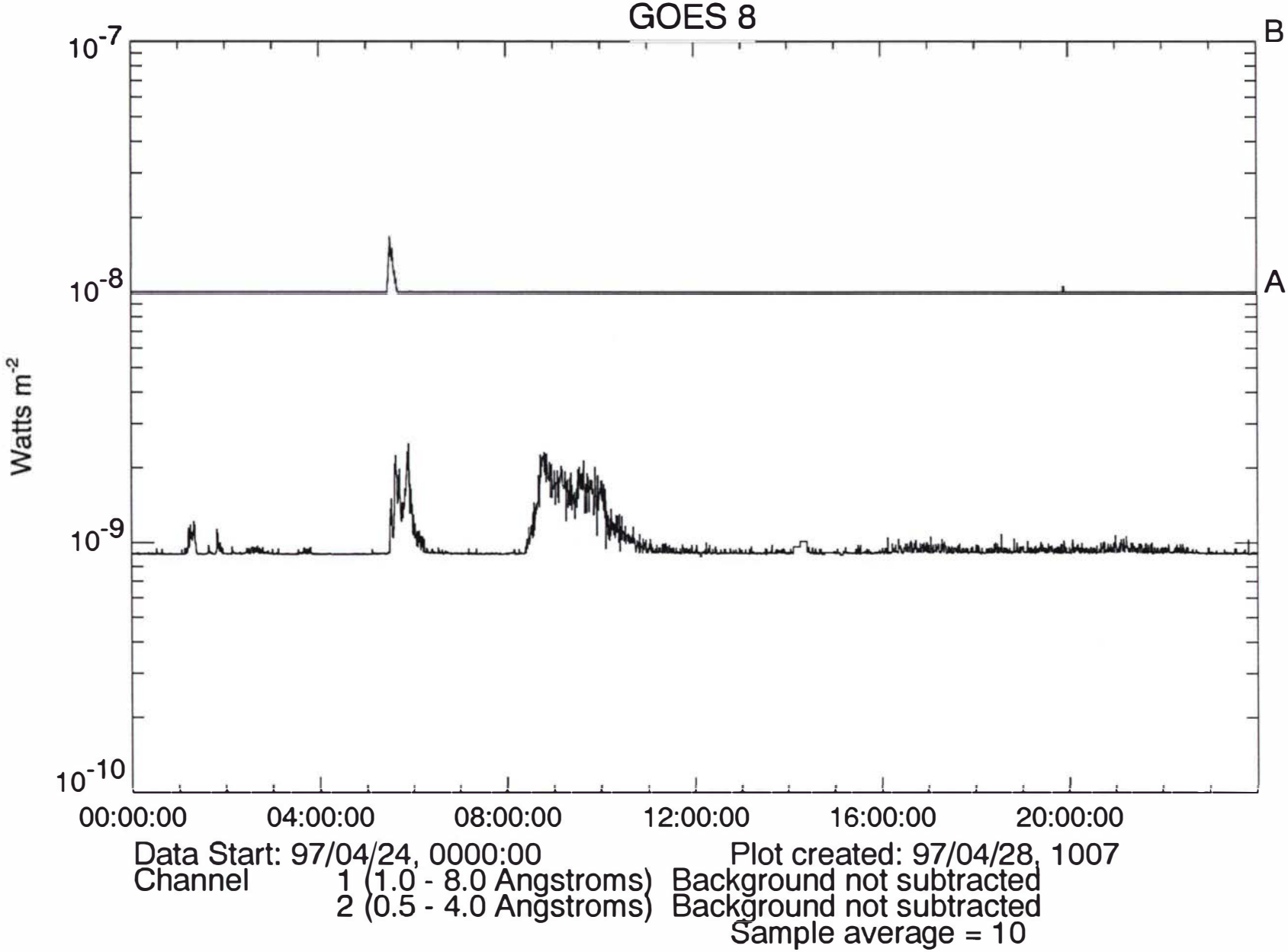
0- 0 keV

M= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

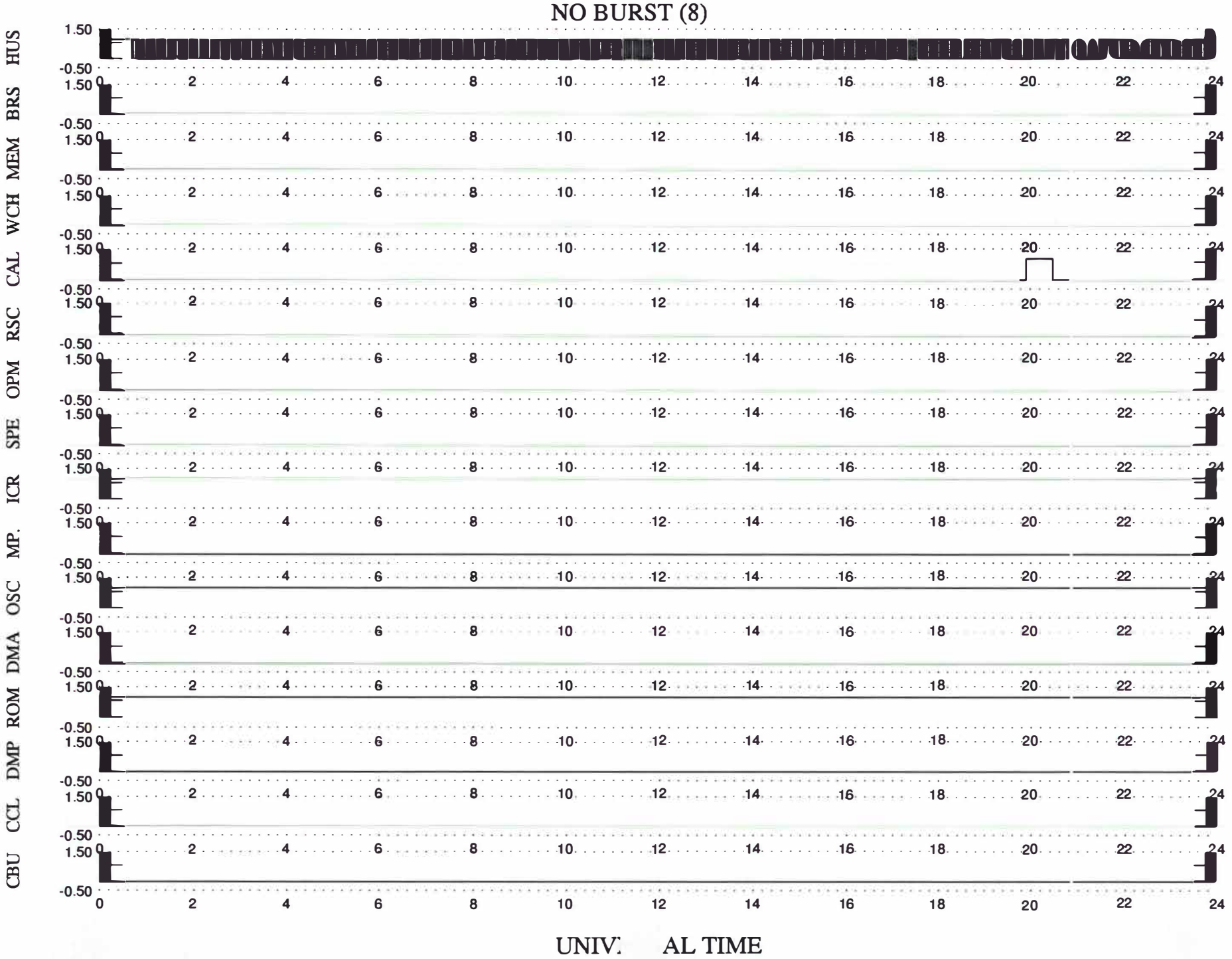
M= 10 M= 2
>4.0 SIGMA FLUCTUATIONS




BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/24
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/28, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

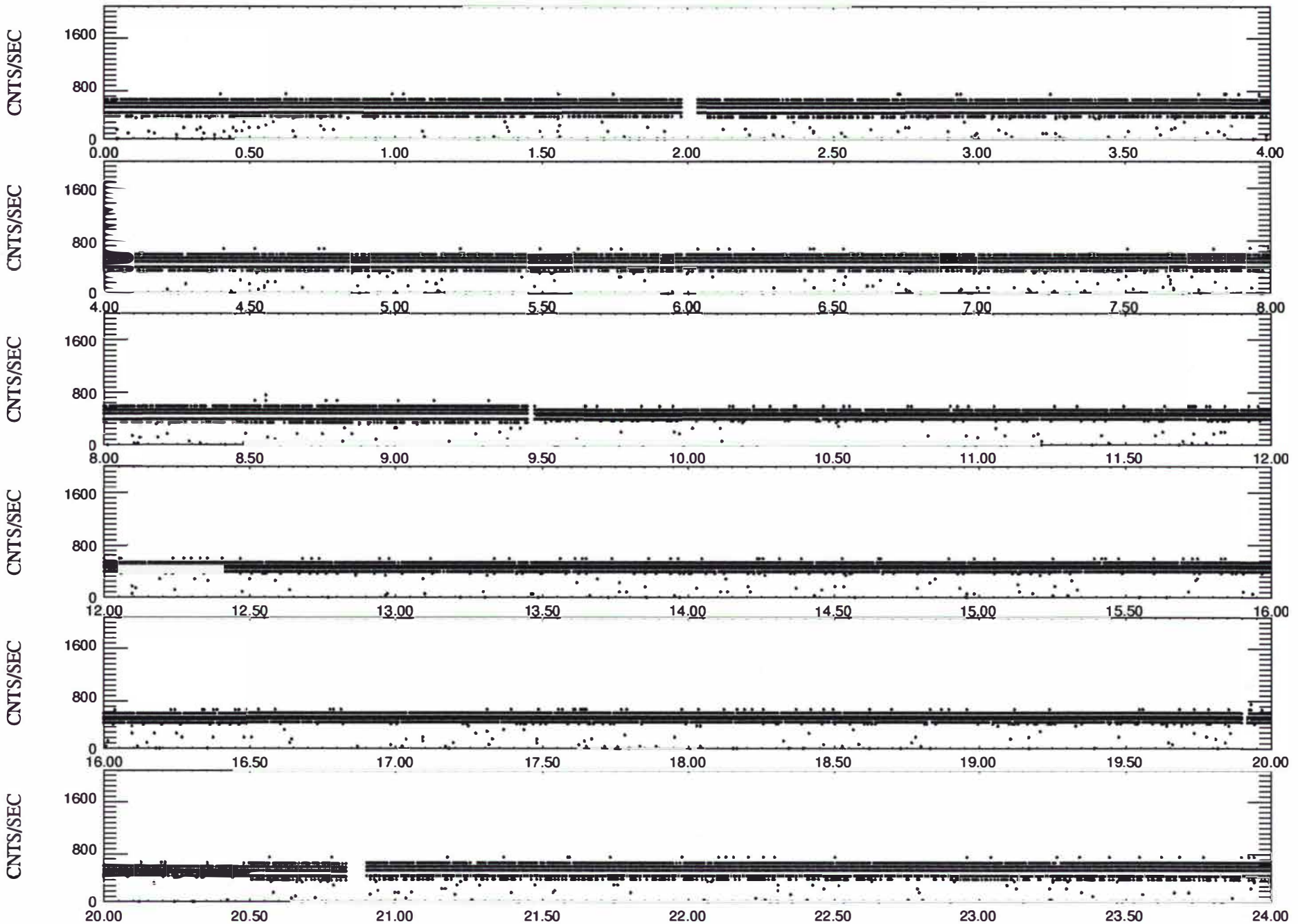

GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/24, 0000:00
Plot created: 97/04/28, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 114, year 1997 to day 114, year 1997 7/22/97



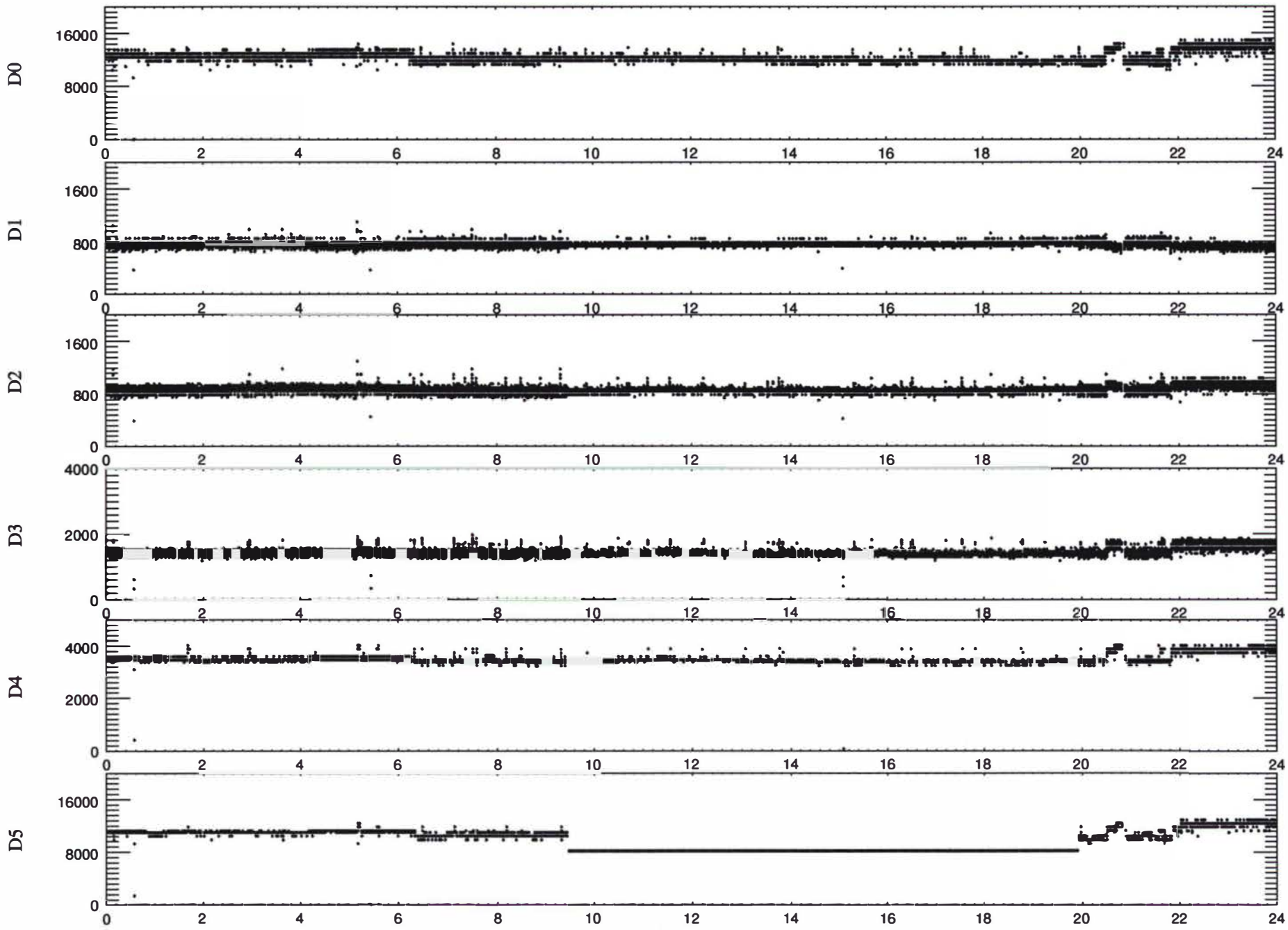
HUS 2A, MODE 1, NOT AVERAGED EDR day 114, year 1997 to day 114, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIVERSAL TIME

HUS 2B COUNTS / SEC EDR day 114, year 1997 to day 114, year 1997 7/22/97



From SAHI@fender.msfc.nasa.gov Sat Apr 26 10:20 PDT 1997
From: SAHI@fender.msfc.nasa.gov
Date: Sat, 26 Apr 1997 12:19:55 -0500 (CDT)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6208

TIME: TJD=0563 SECONDS=40513

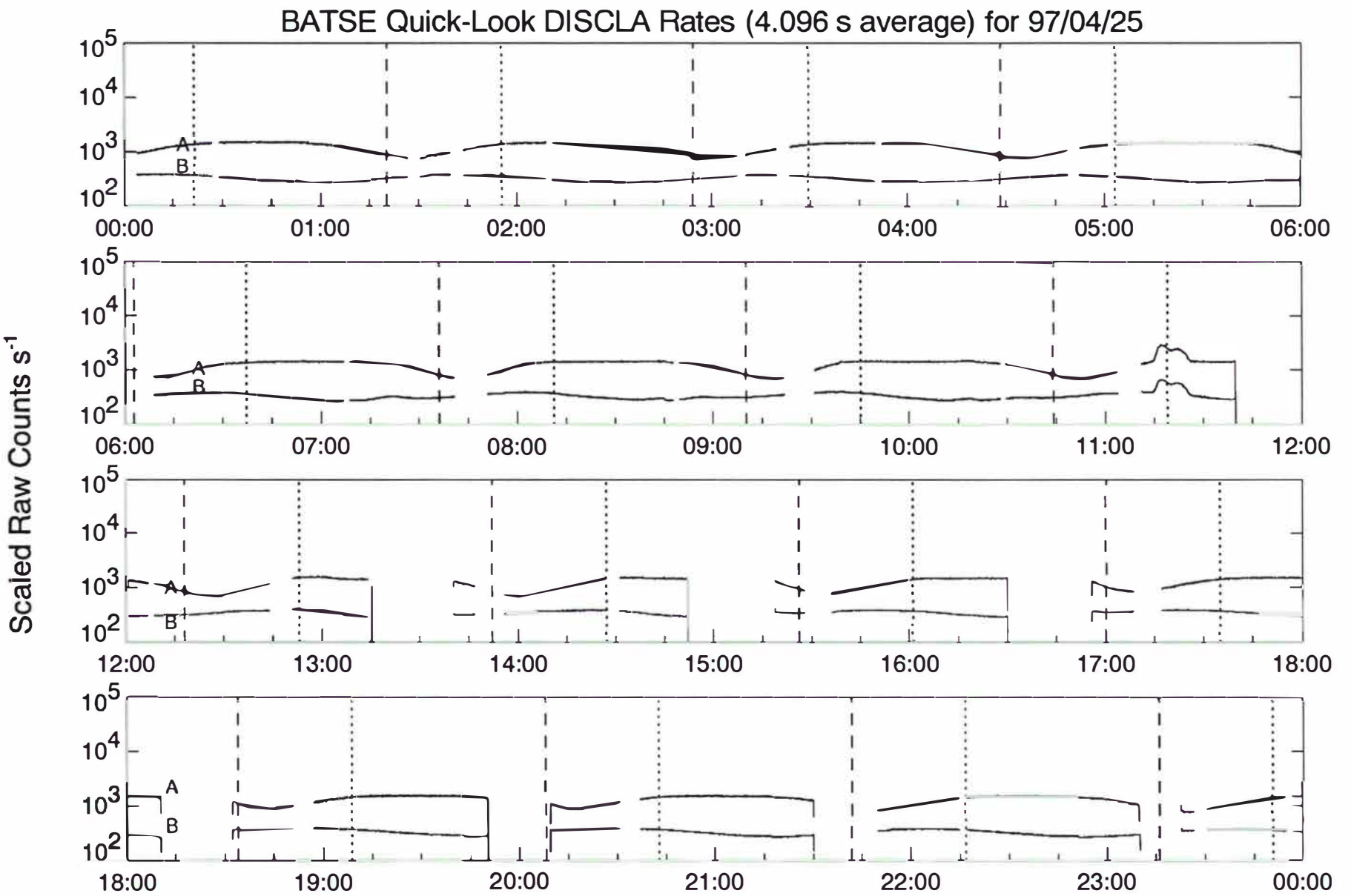
TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

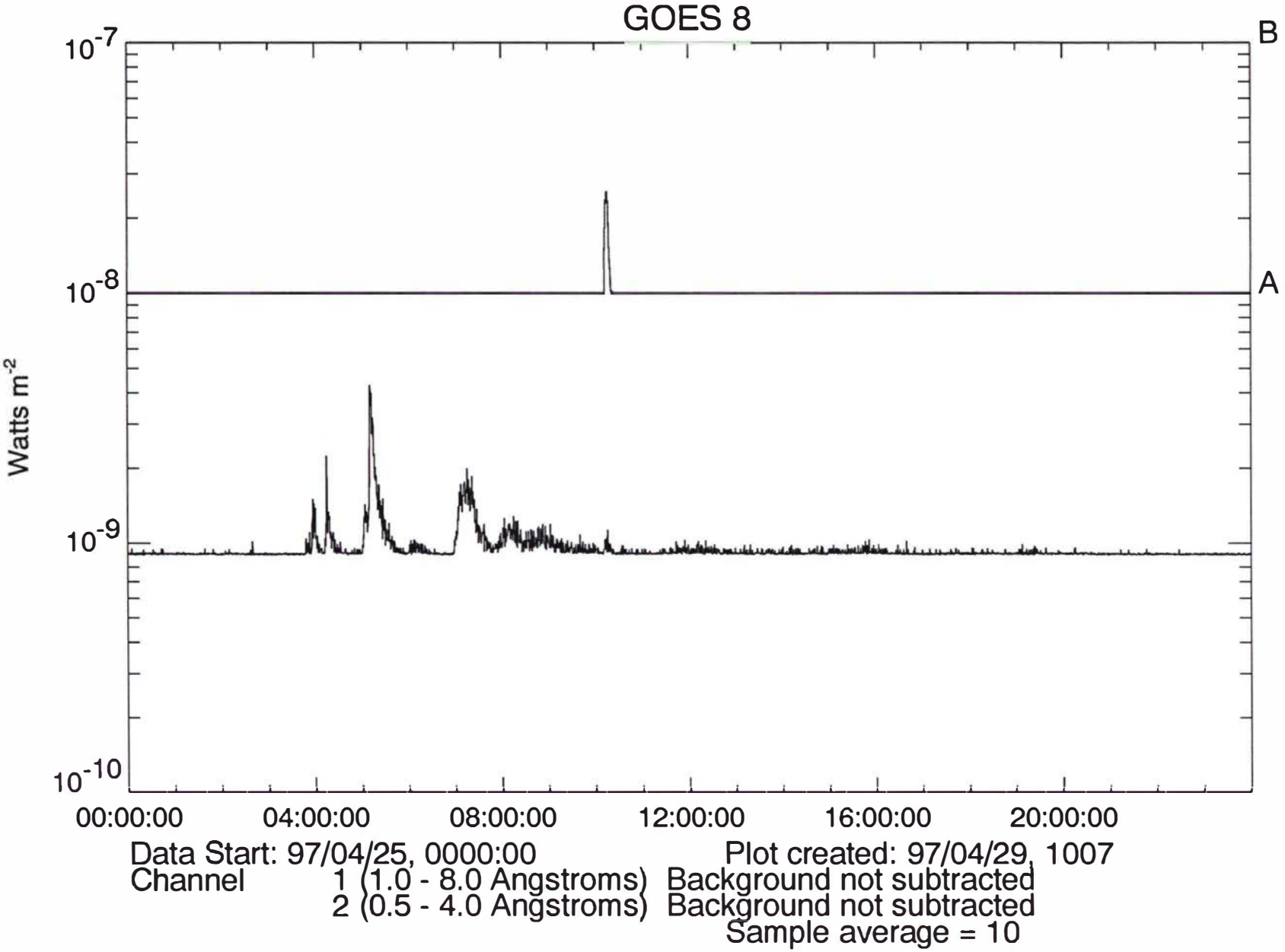
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

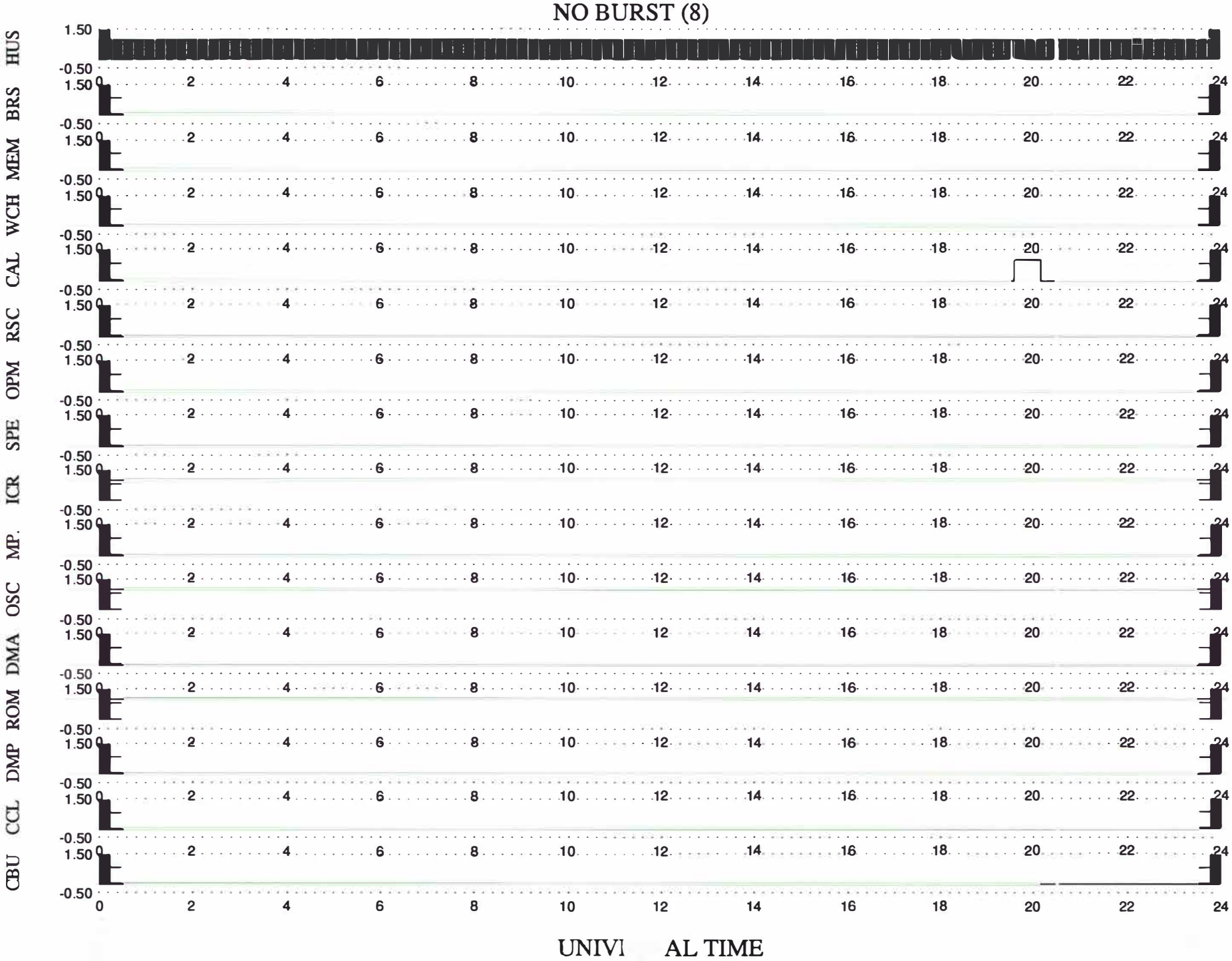
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/25
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/29, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

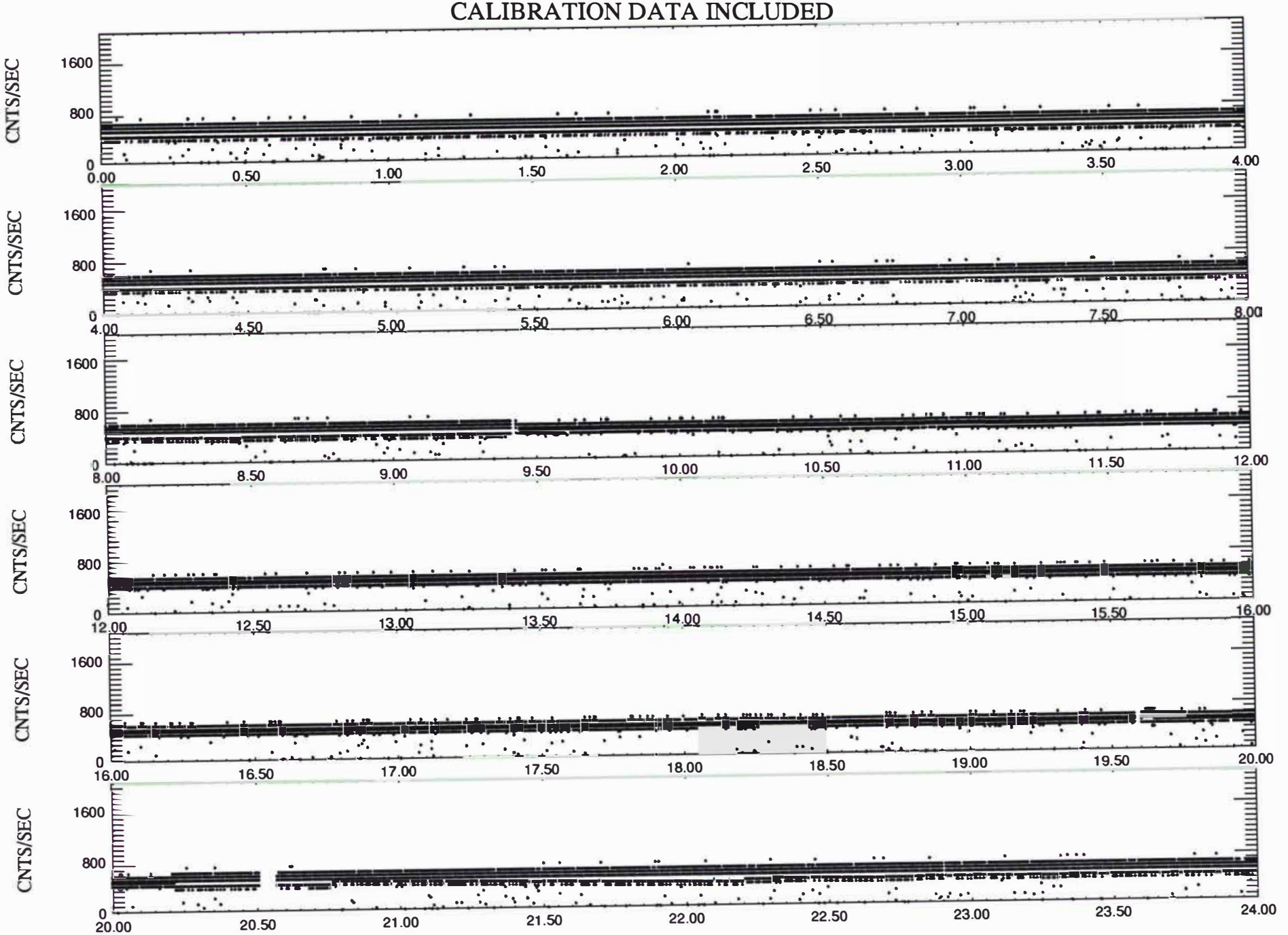

GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/25, 0000:00
Plot created: 97/04/29, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 115, year 1997 to day 115, year 1997 7/22/97



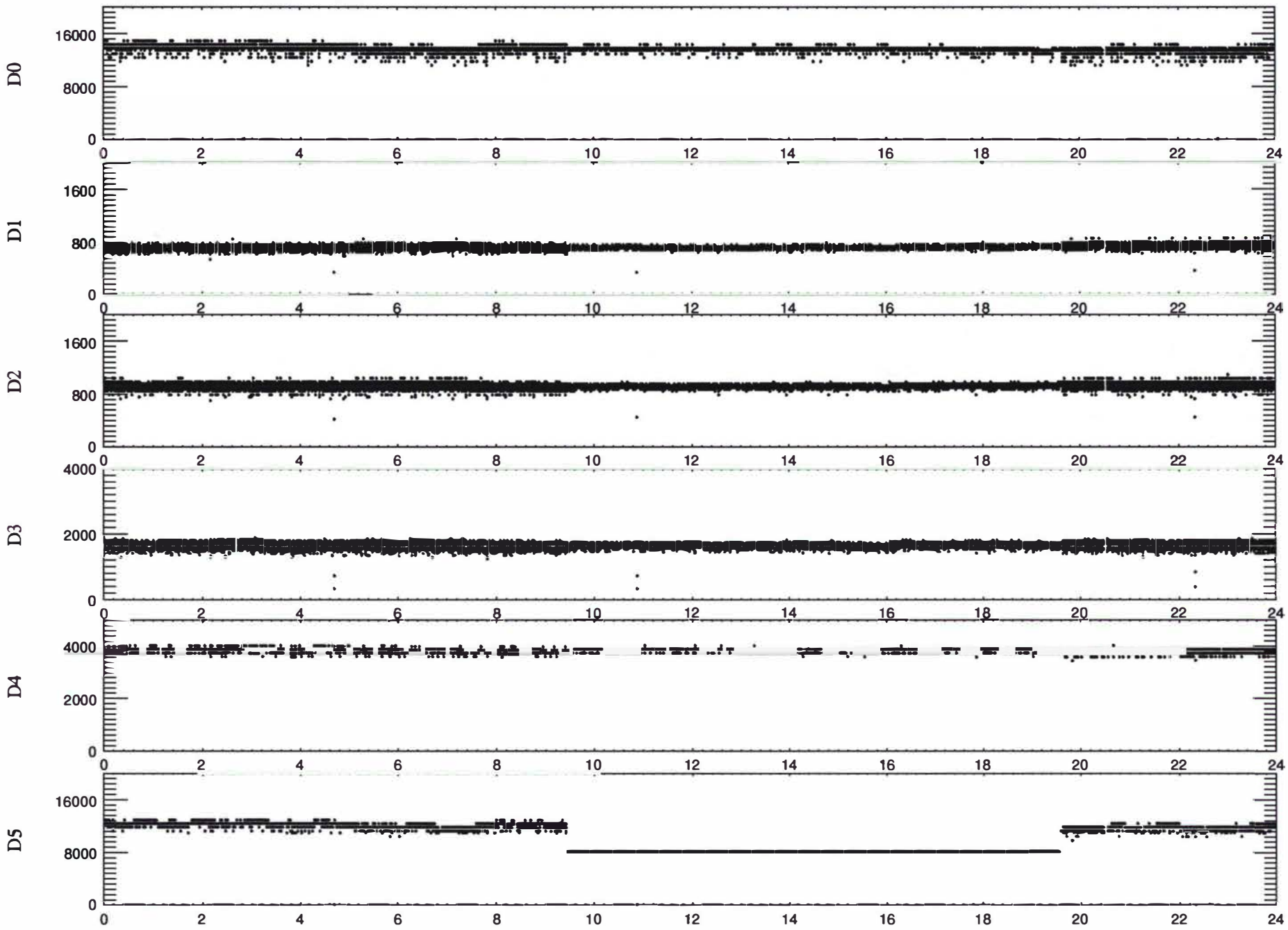
HUS 2A, MODE 1, NOT AVERAGED EDR day 115, year 1997 to day 115, year 1997 7/22/97

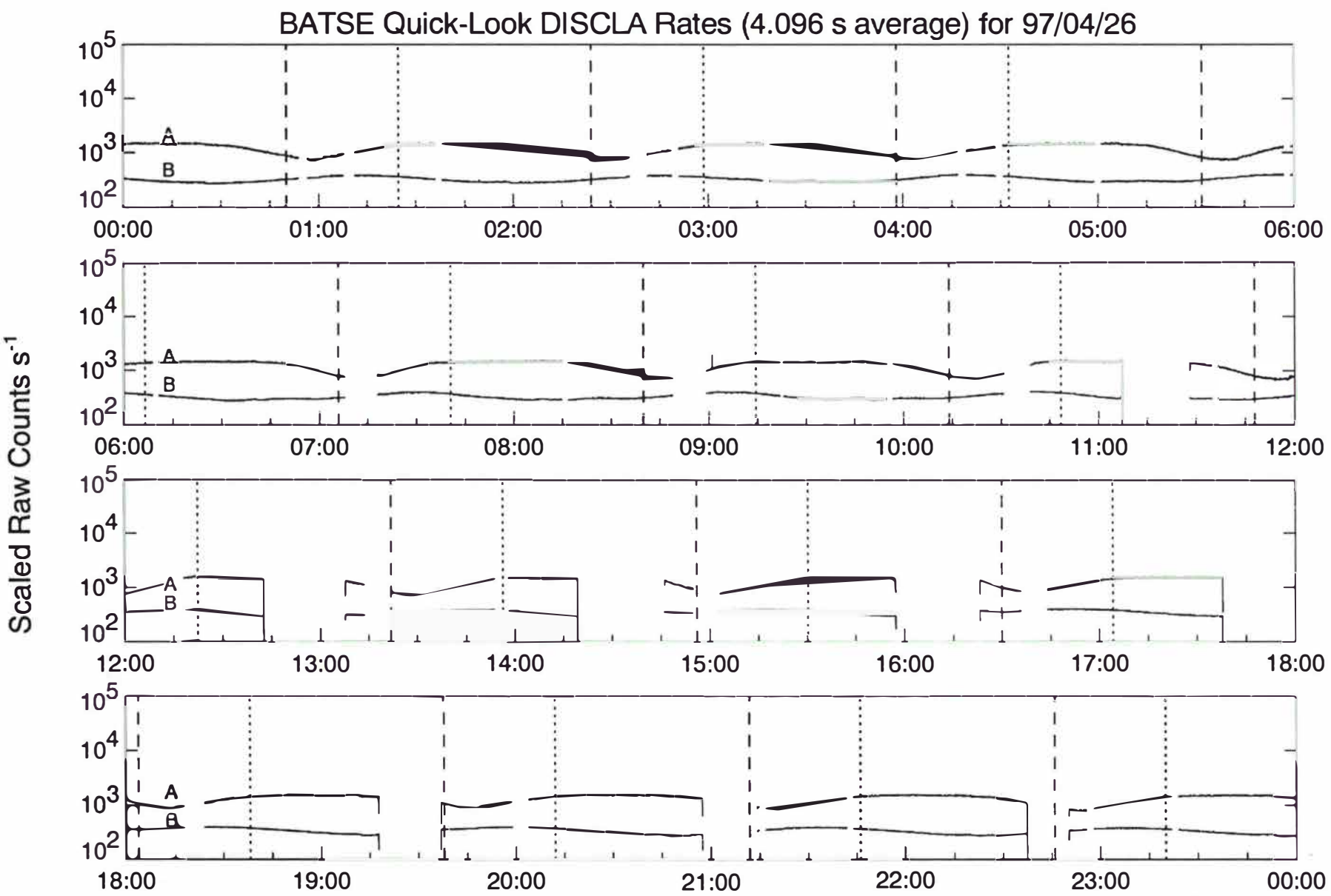
CALIBRATION DATA INCLUDED

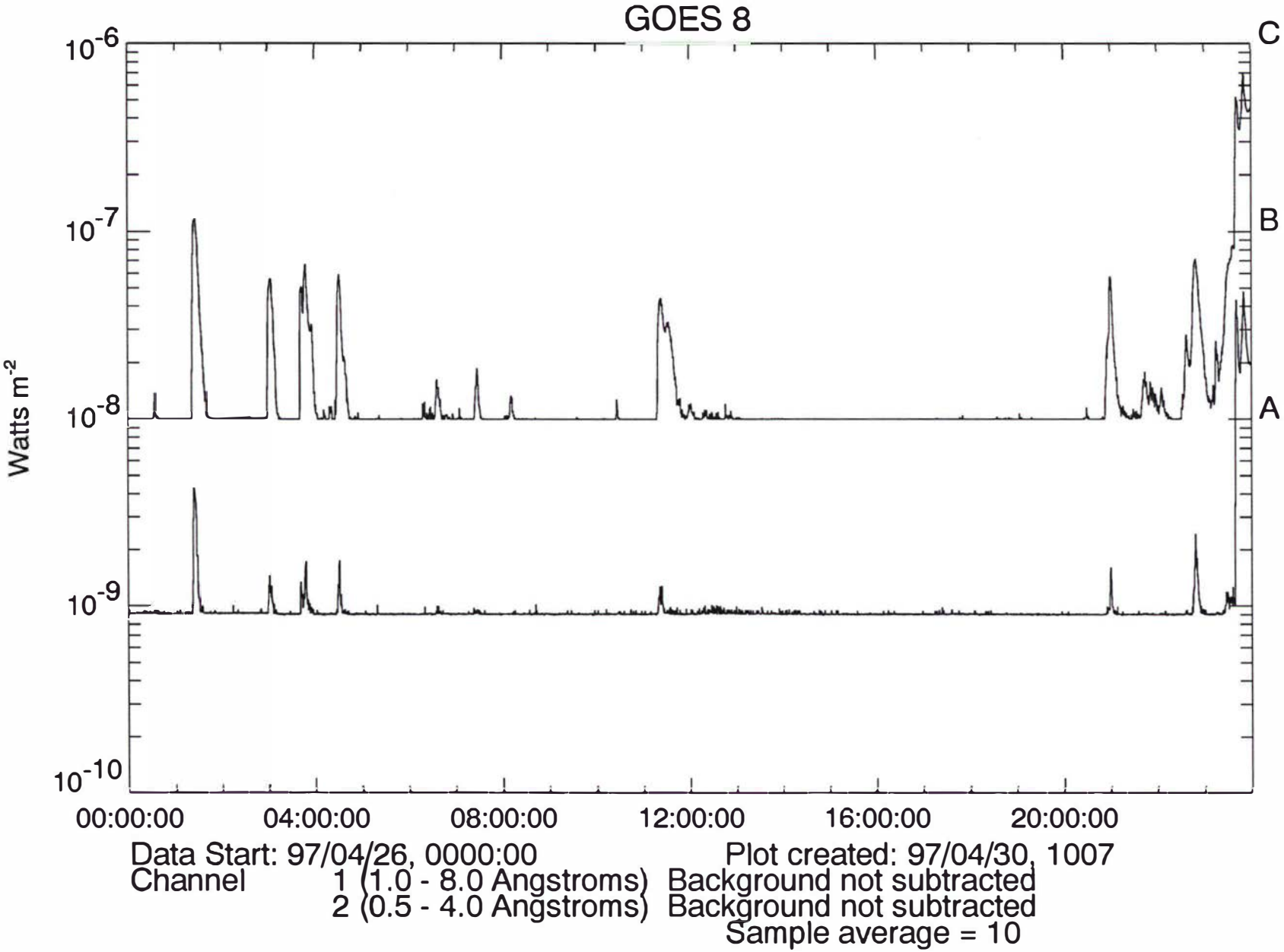


UNIVERSAL TIME

HUS 2B COUNTS / SEC EDR day 115, year 1997 to day 115, year 1997 7/22/97




BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/26
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/04/30, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare


GOES 8
C
B
A
Watts m-2
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/26, 0000:00
Plot created: 97/04/30, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

From SURASAK@ssl.msfc.nasa.gov Mon Apr 28 12:20 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id MAA21776; Mon, 28 Apr 1997 12:20:42 -0700
From: SURASAK@ssl.msfc.nasa.gov
Date: Mon, 28 Apr 1997 14:20:33 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970428142033.21206931@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6029
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # ~~6029~~ 6209
EVENT OF 1997 APR 26 DAY OF YEAR=116
EVENT CROSSING TIME AT BATSE : 43113. S. OR 11:58:33.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 313.000 59.000
BATSE PEAK COUNTING RATE: 6400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 26/ 4/ 97 IS:
RA= 152.031 DEC= 33.571 DIST= 4.674 AU
BATSE-ULYSSES DISTANCE = 699300134. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 93.92 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -159.35 SECS.
CROSSING TIME AT ULYSSES IS 42954. S. OR 11:55:53 +/- 451.61 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 26/ 4/ 97 IS:
RA= 168.684 DEC= 7.263 DIST= 0.782 AU
MARS-BATSE DISTANCE = 116995760. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 72.14 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 119.66 SECS.
CROSSING TIME AT MARS IS 43233. S. OR 12:00:32 +/- 66.31 SECONDS

BATSE BURST TRIGGER

NO.: 6209

TIME: TJD=0564 SECONDS=43113

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=173. AZIMUTH=239.4 ERROR=3.578 DEGREES

COMMENTS:
GRB. DOUBLE PULSES, FIRST ONE STRONGER THAN THE SECOND ONE. DUR~ 45 S.
VISIBLE ABOVE 300 KEV. OCCULTATION STEP IN DET 5 AFTER FIRST PULSE.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6029	970426	10564	43113	6400	313	+59	45

6209

BATSE BURST# 6029

ULYSSES RT 28/ 4/97

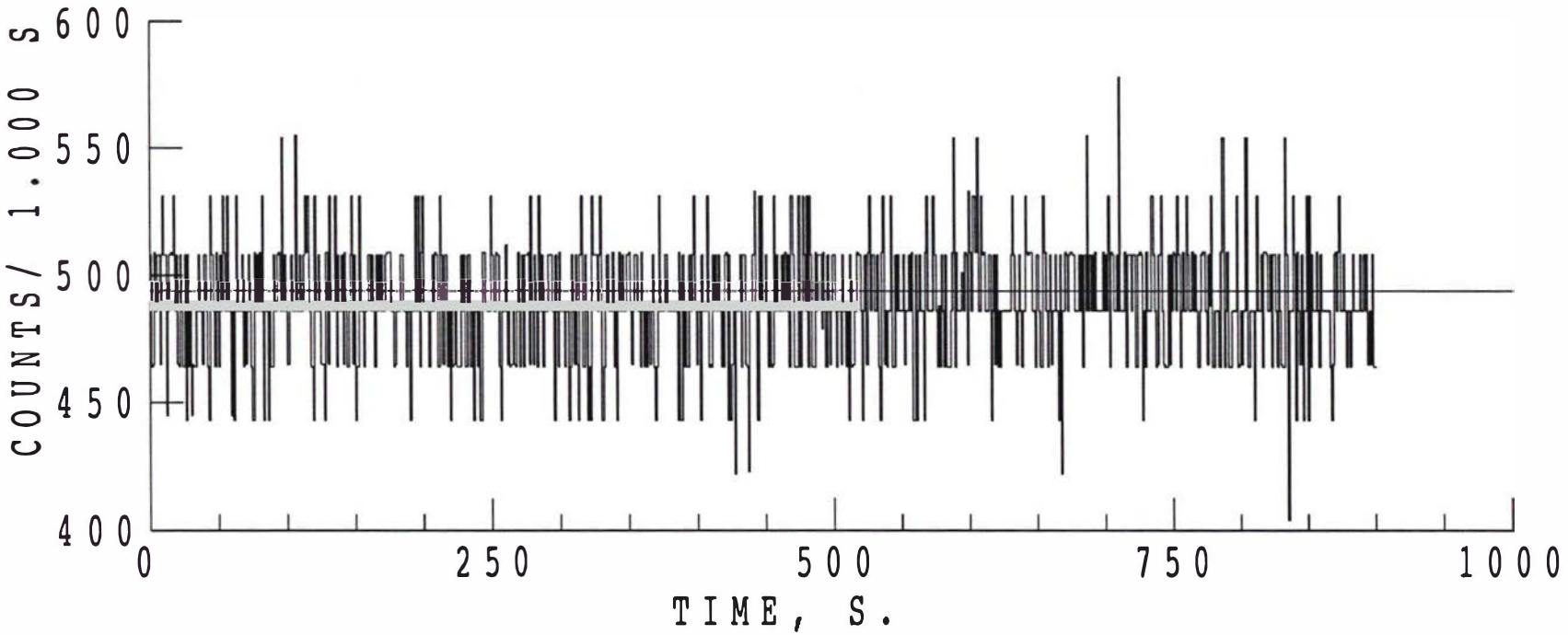
26/ 4/97 42516.328 s

0.500 S INTERVALS REGROUPED BY 2

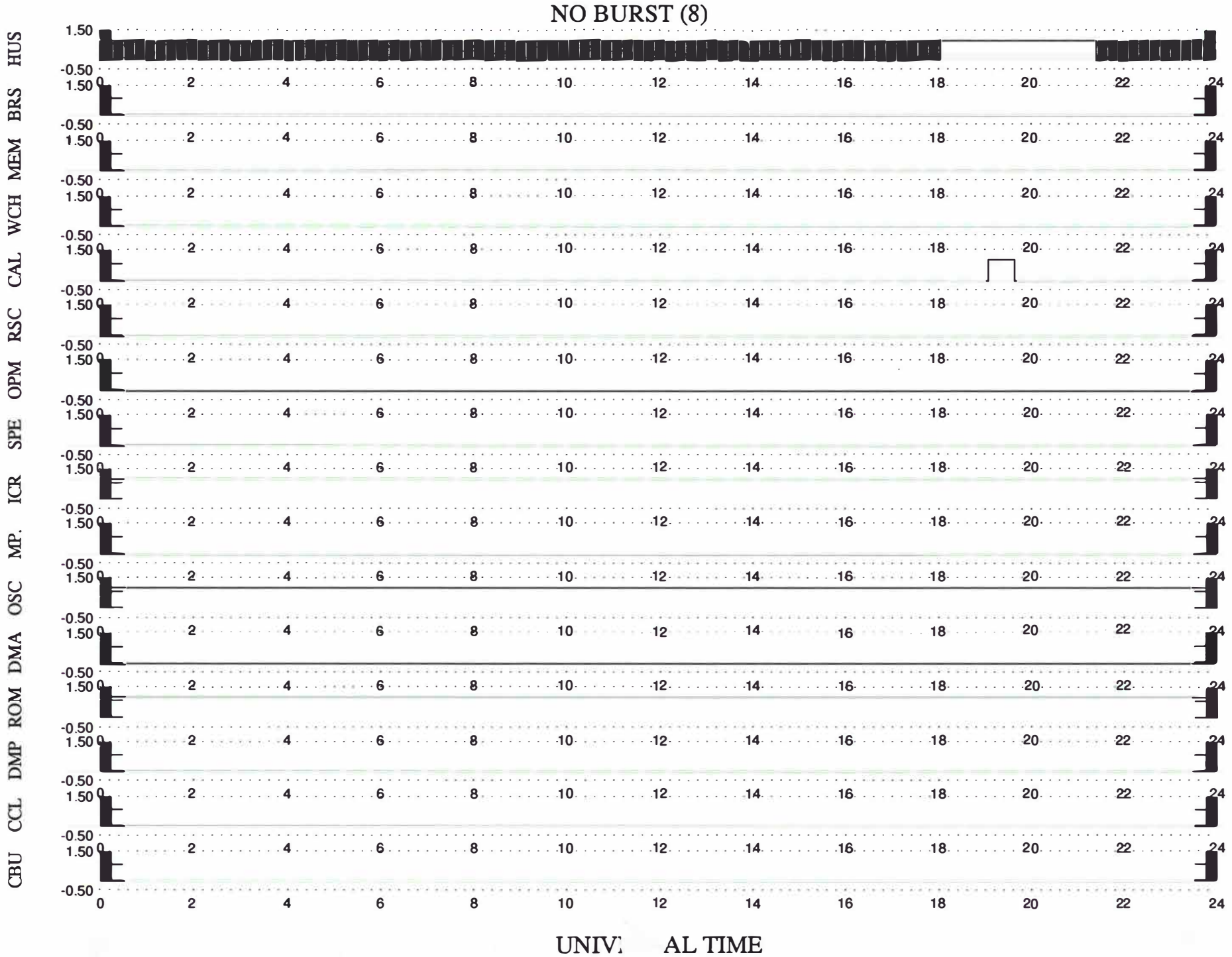
0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

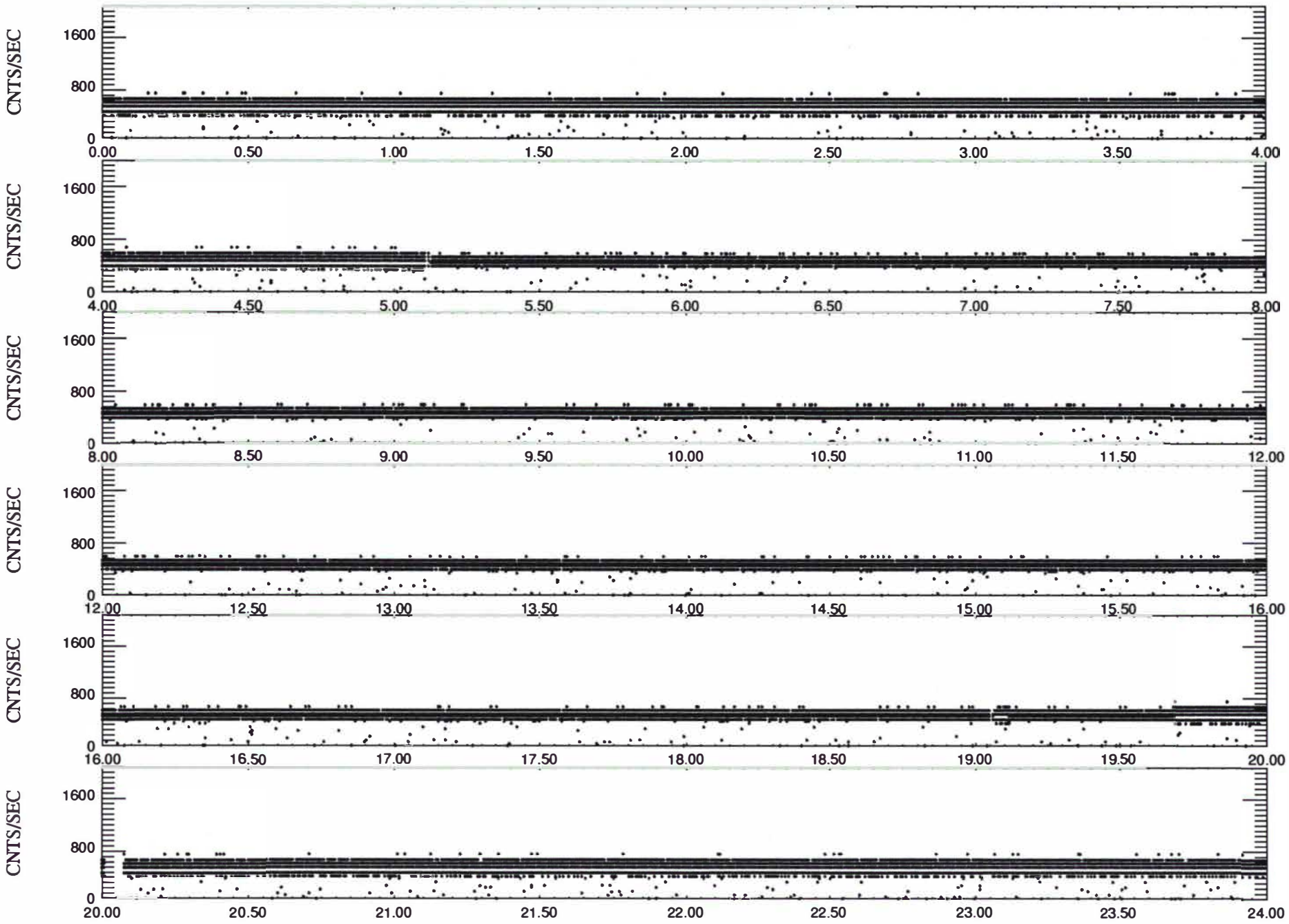


HUS MODES EDR day 116, year 1997 to day 116, year 1997 7/22/97



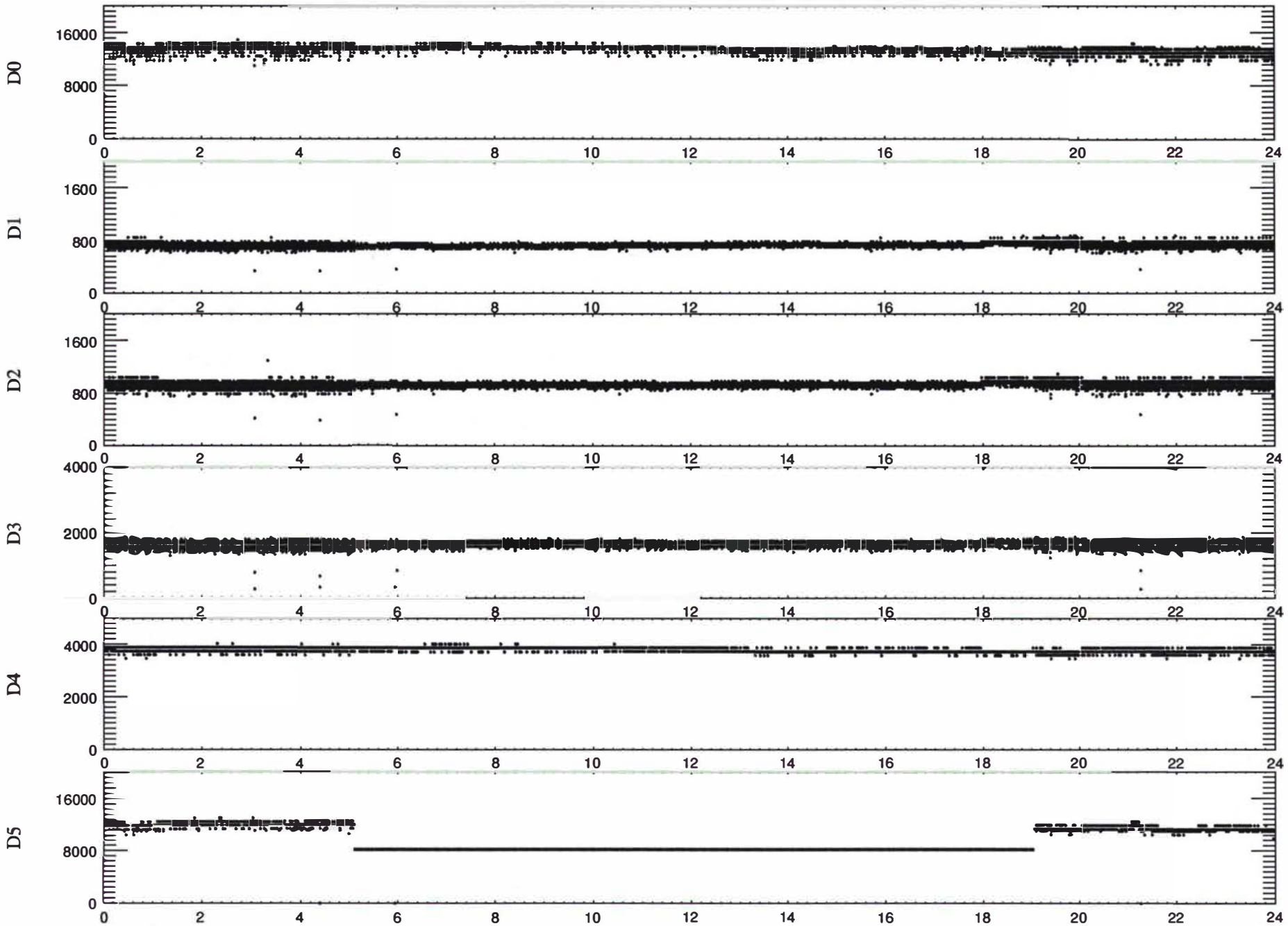
HUS 2A, MODE 1, NOT AVERAGED EDR day 116, year 1997 to day 116, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 116, year 1997 to day 116, year 1997 7/22/97



From HENZE@fender.msfc.nasa.gov Mon Apr 28 10:08 PDT 1997
Date: Mon, 28 Apr 1997 12:07:54 -0500 (CDT)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@pandora.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6210

TIME: TJD=0565 SECONDS=38083

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY. HV OFF AT T+4 S.

Date: Feb 16 2010

BURST TRIANGULATION CHECKLIST

1. Ulysses Data N/A

☐ Jim Schmidling's stat file correction applied?

☐ Final ephemeris used?

☐ Final, CDROM data used?

☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. BATSE Data 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?

3. NEAR Data N/A

☐ Final, correct time used? (Files postmarked vwx@bocc1, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times)

☐ BATSE >100 keV data used for NEAR correlation?

4. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

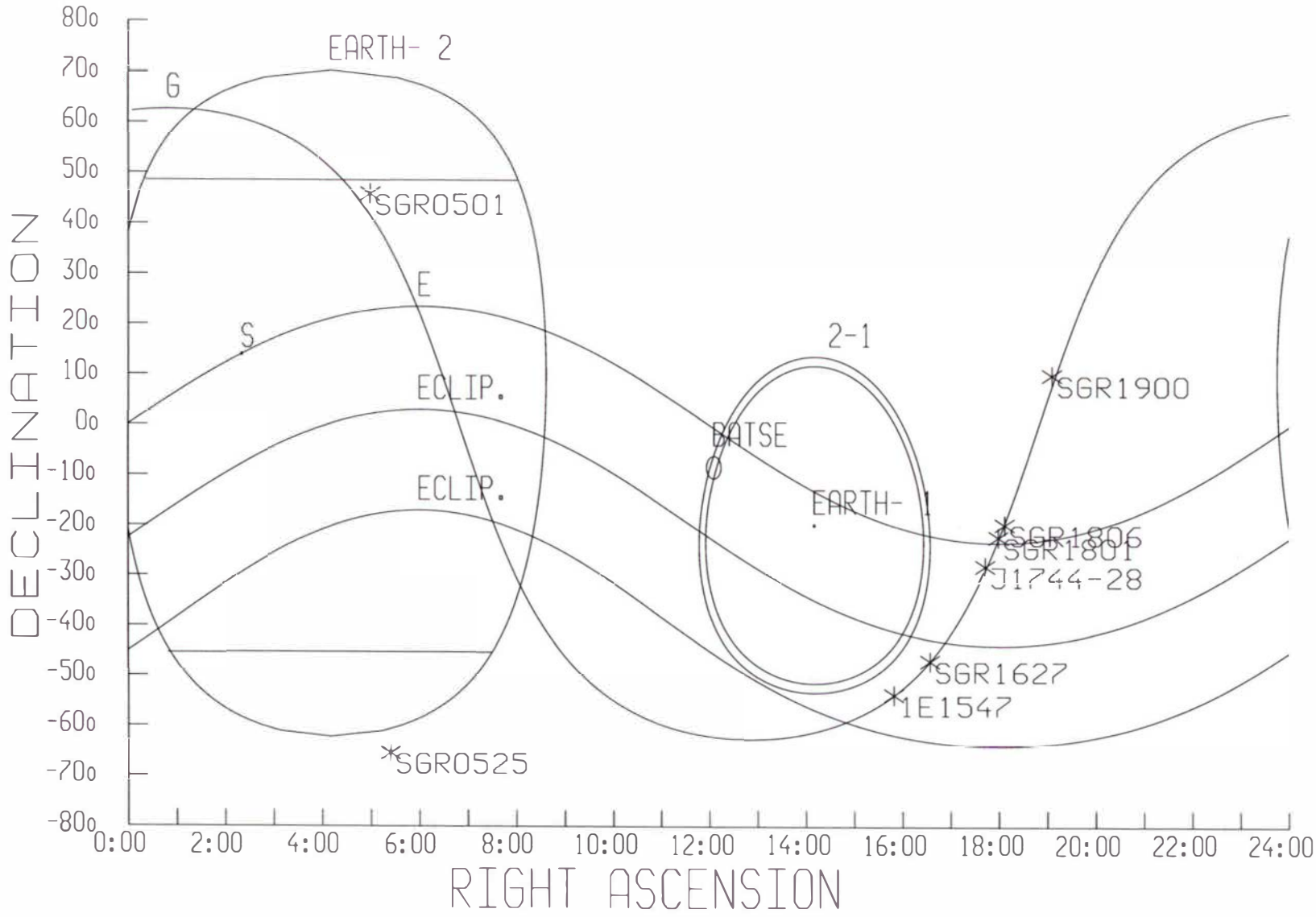
☐ Σ 3Δt's calculated?

☑ ACCESS database updated?

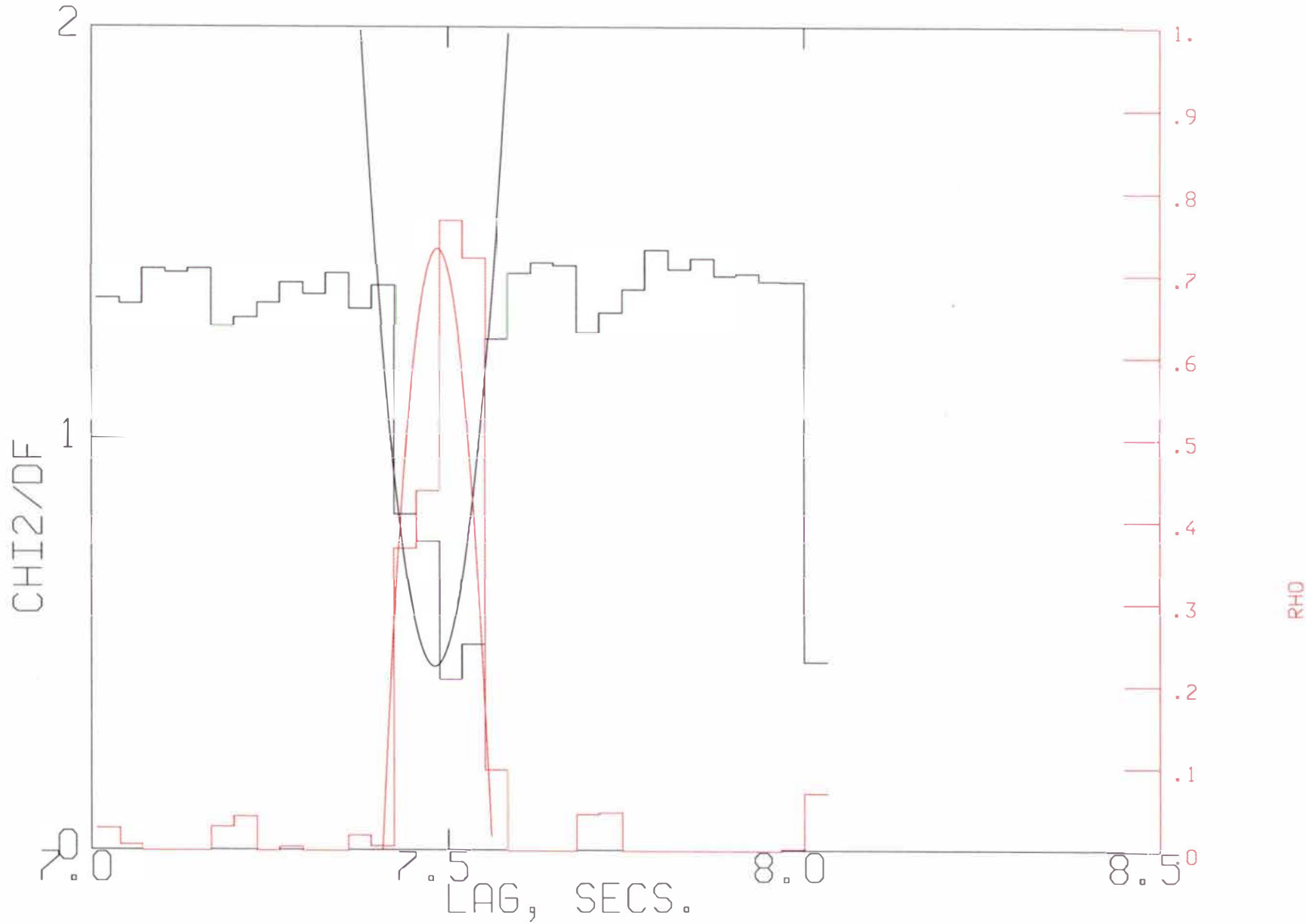
EVENT OF APR 27, 1997 12:42

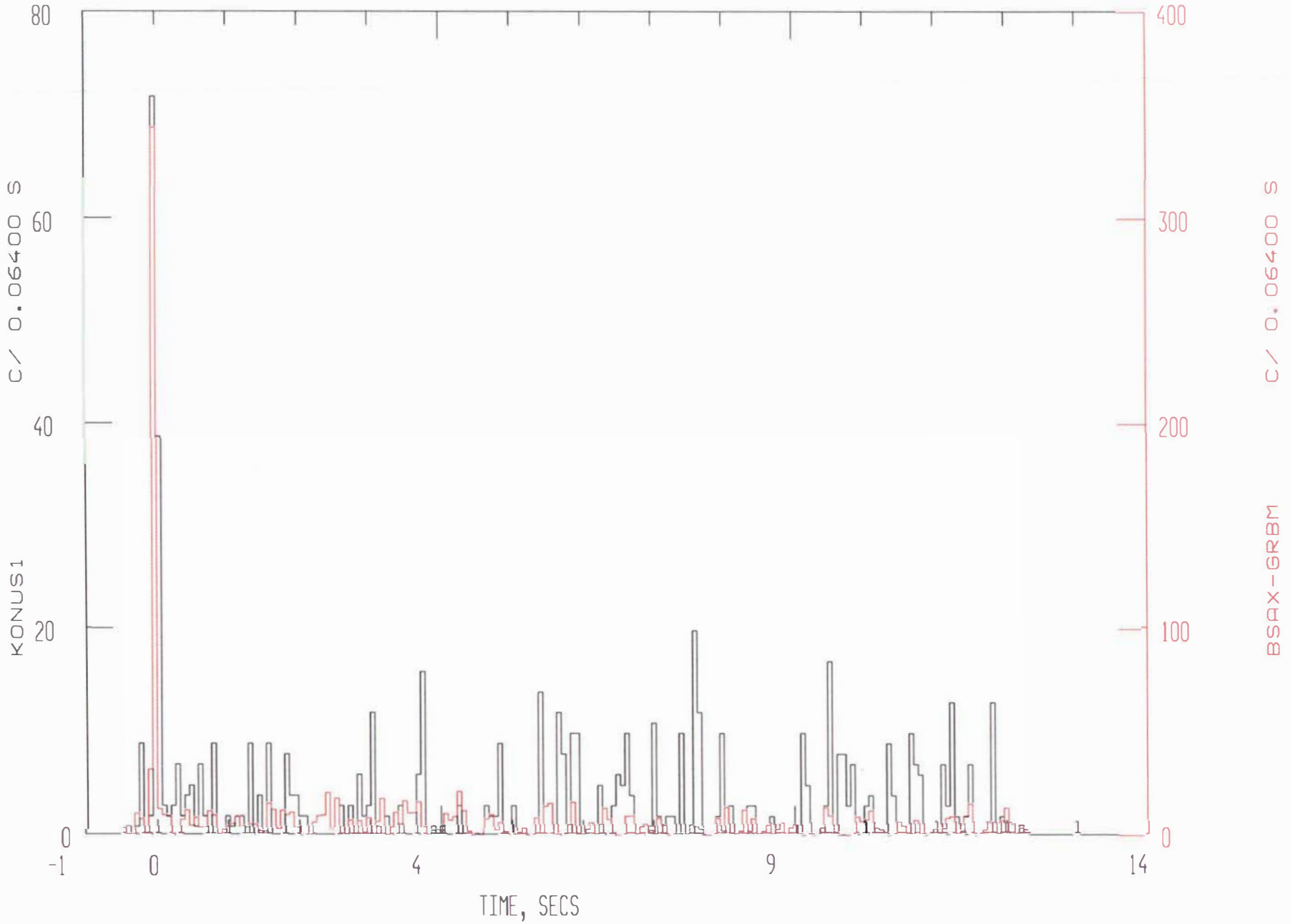
09/02/2010

Z-M = CORRELATION BETWEEN SATELLITES Z AND M
EARTH-Z = EARTH AS SEEN FROM SATELLITE Z
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 KONUS1 2 SAX



KONUS1 -BSAX-GRBM CORRELATION 27/04/97 45723.327




80
60
40
20
0
C/ 0.06400 S
KONUS1
400
300
200
100
0
C/ 0.06400 S
BSAX-GRBM
-1
0
4
9
14
TIME, SECS

From HENZE@fender.msfc.nasa.gov Wed Apr 30 09:52 PDT 1997
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id JAA11308; Wed, 30 Apr 1997 09:52:34 -0700
From: HENZE@fender.msfc.nasa.gov
Date: Wed, 30 Apr 1997 11:52:14 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970430115214.20c0415b@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6211
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6211
EVENT OF 1997 APR 27 DAY OF YEAR=117
EVENT CROSSING TIME AT BATSE : 45719. S. OR 12:41:59.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 181.000 -8.000
BATSE PEAK COUNTING RATE: 57000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 27/ 4/ 97 IS:
RA= 151.931 DEC= 33.460 DIST= 4.692 AU
BATSE-ULYSSES DISTANCE = 701955430. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=130.19 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1511.07 SECS.
CROSSING TIME AT ULYSSES IS 44208. S. OR 12:16:47 +/- 337.58 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 27/ 4/ 97 IS:
RA= 168.652 DEC= 7.230 DIST= 0.788 AU
MARS-BATSE DISTANCE = 117892168. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=160.42 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -370.50 SECS.
CROSSING TIME AT MARS IS 45349. S. OR 12:35:48 +/- 17.26 SECONDS

BATSE BURST TRIGGER
NO.: 6211

TIME: TJD=0565 SECONDS=45719

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=056.3 AZIMUTH=215.5 ERROR=001.6 DEGREES

COMMENTS:
SINGLE SPIKE, DUR. ~0.1 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6211	970427	10565	45719	57000	181	-08	.1

BATSE BURST# 6211

ULYSSES RT

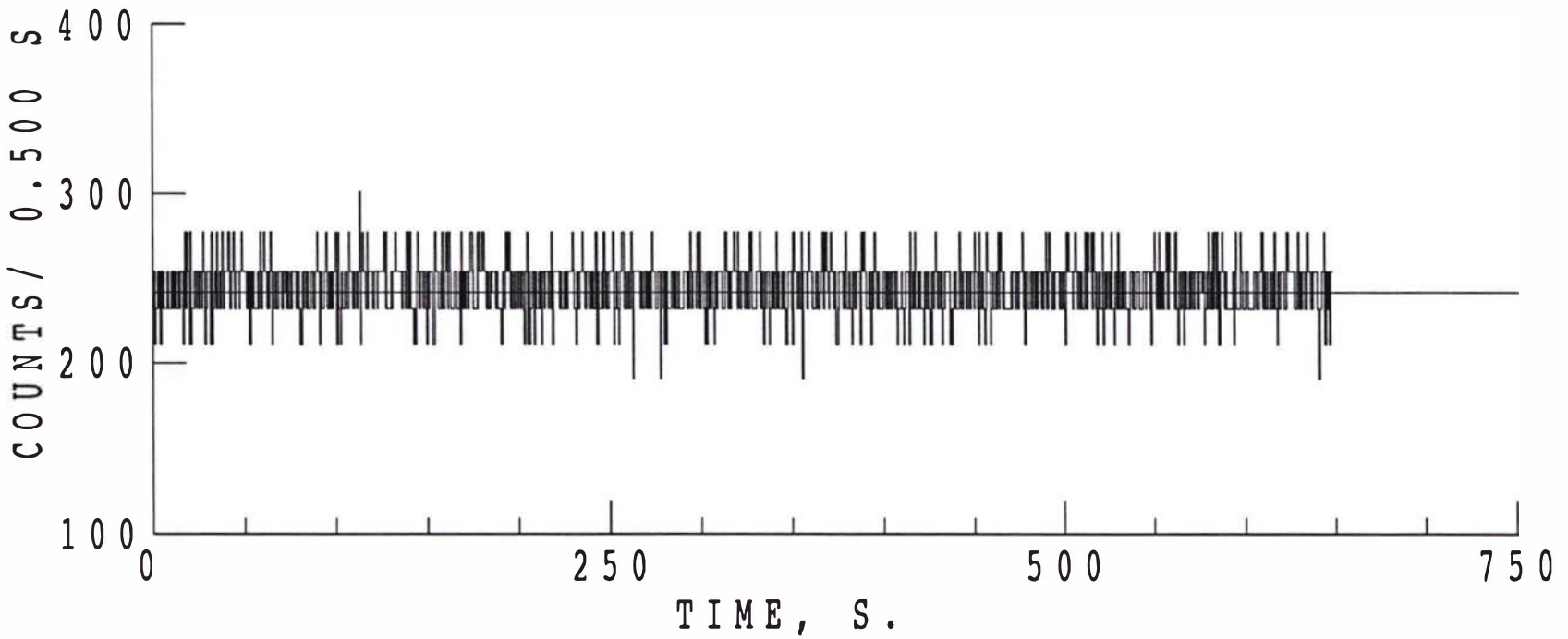
30/ 4/97

27/ 4/97 43884.359 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HENZE@fender.msfc.nasa.gov Tue Apr 29 11:14 PDT 1997
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id LAA00131; Tue, 29 Apr 1997 11:14:14 -0700
From: HENZE@fender.msfc.nasa.gov
Date: Tue, 29 Apr 1997 13:13:57 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970429131357.20c041e1@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6212
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

```
         ********************
         *BATSEARCH PROGRAM*
         ********************

 BATSE BURST #     6212
 EVENT OF 1997 APR 27 DAY OF YEAR=117
 EVENT CROSSING TIME AT BATSE      : 75032. S. OR 20:50:32.0
 COORDINATES ARE    0.000    0.000       6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 290.000    42.000
 BATSE PEAK COUNTING RATE:    2400     C/S

 EVENT CROSSING TIME AT ULYSSES     WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON 27/ 4/  97 IS:
 RA=  151.899 DEC=    33.423 DIST=     4.698 AU
 BATSE-ULYSSES DISTANCE =  702831921. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 84.66 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=  218.26 SECS.
 CROSSING TIME AT ULYSSES     IS 75250. S. OR   20:54:10 +/-  458.57 SECONDS

 EVENT CROSSING TIME AT MARS       WILL BE FOUND
 POSITION OF MARS ON 27/ 4/  97 IS:
 RA=  168.652 DEC=     7.230 DIST=     0.788 AU
 MARS-BATSE DISTANCE =  117892168. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 72.58 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=  117.71 SECS.
 CROSSING TIME AT MARS       IS 75150. S. OR   20:52:29 +/-   66.93 SECONDS


                BATSE BURST TRIGGER
NO.: 6212

TIME: TJD=0565 SECONDS=75032

TYPE: BURST                    SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE:       SIGMA

INTENSITY:          COUNTS/CM2

LOCATION: ZENITH=157.2  AZIMUTH=160.1  ERROR=004.7 DEGREES

COMMENTS:
SINGLE PULSE, DUR. ~17 S. NOT VISIBLE ABOVE 300 KEV.


 BATSE #   Date     TJD     SoD   Max ct/s   RA   Dec  Dur (s)
   6212   970427   10565   75032     2400   290   +42     17
```

BATSE BURST# 6212

ULYSSES RT 29/ 4/97

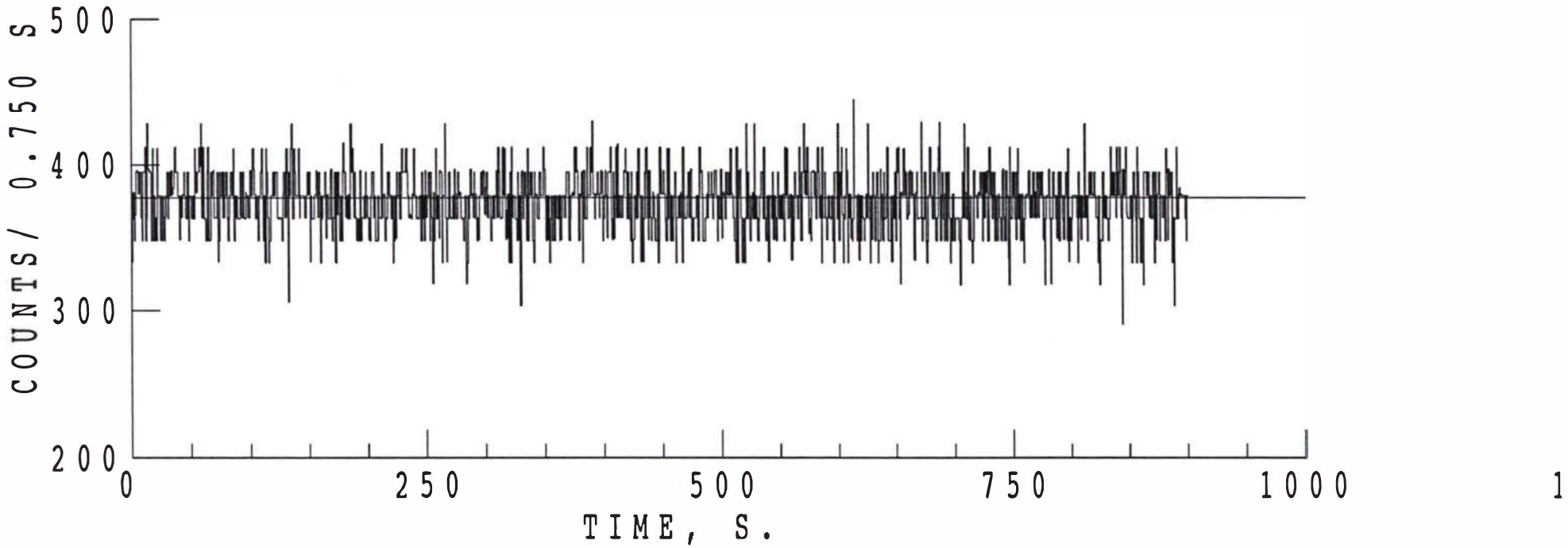
27/ 4/97 74808.227 s

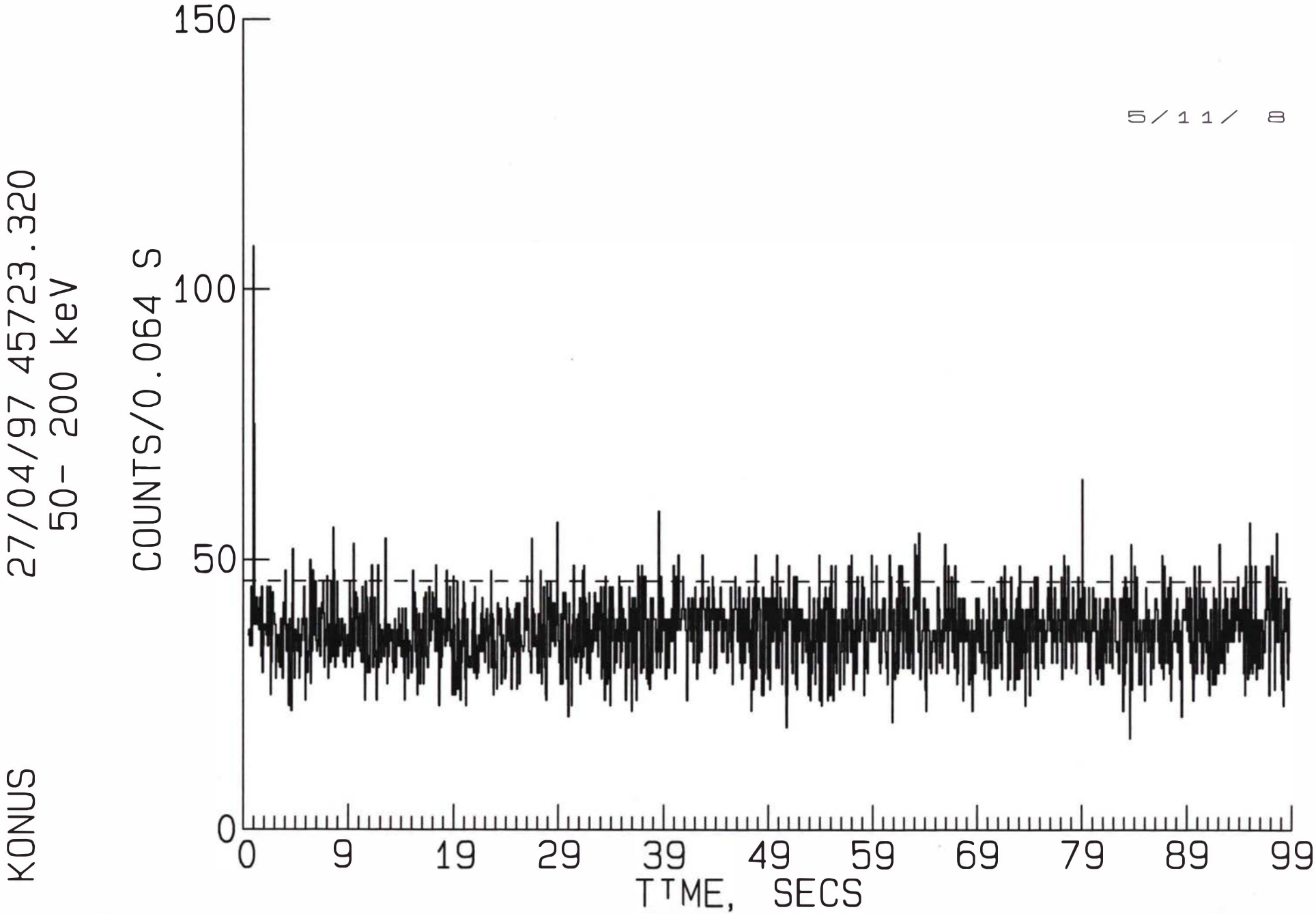
0.250 S INTERVALS REGROUPED BY 3

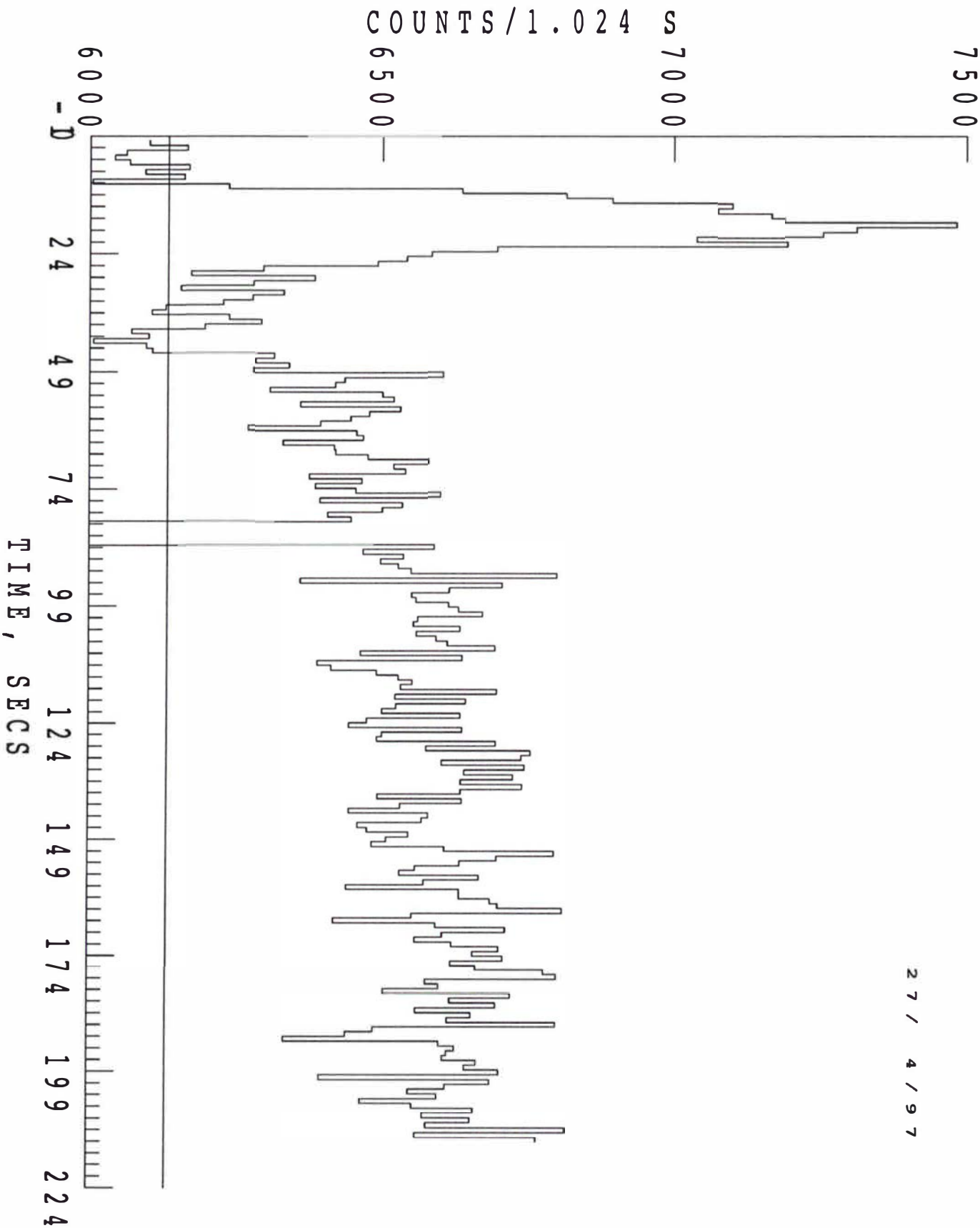
0- 0 keV

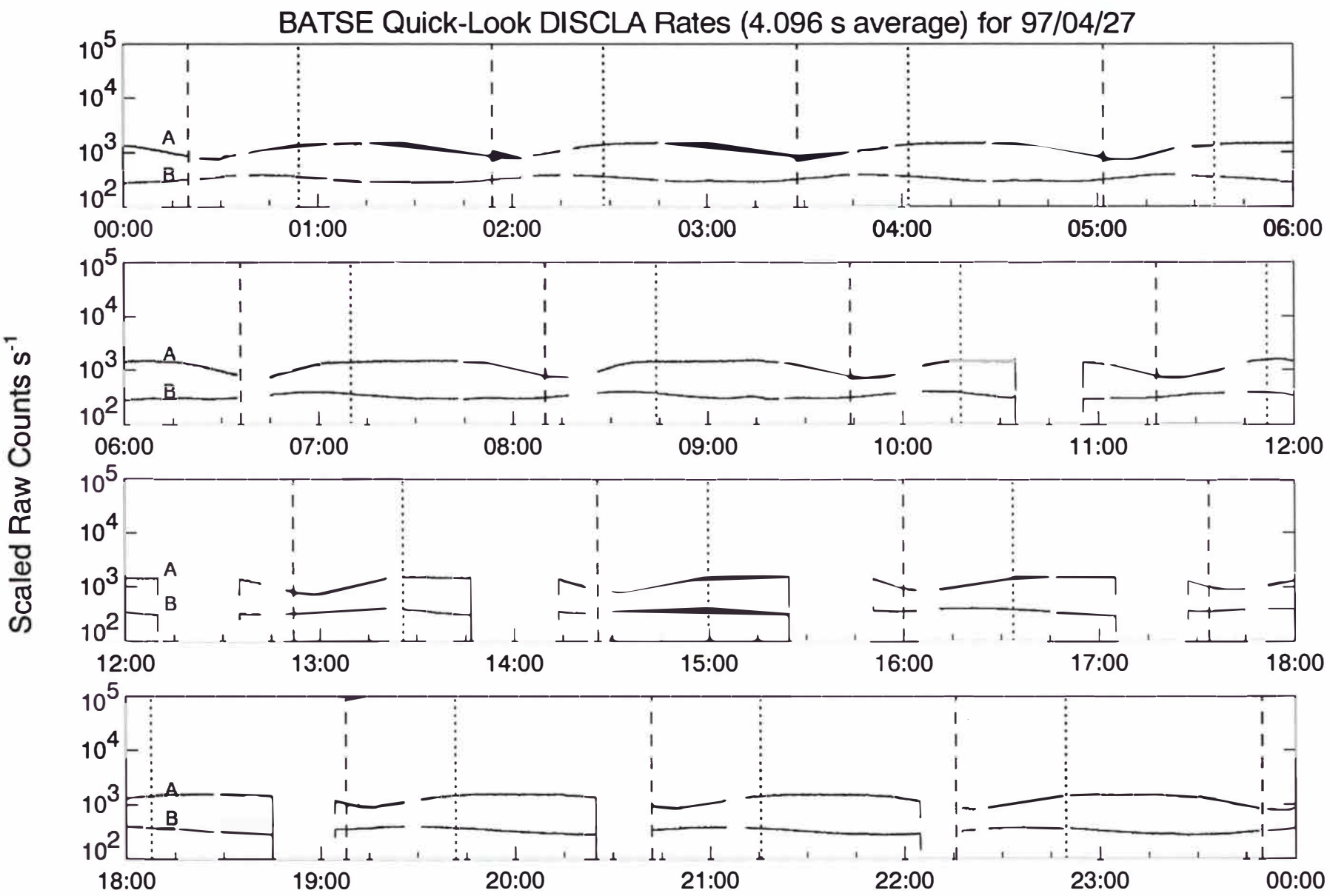
N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

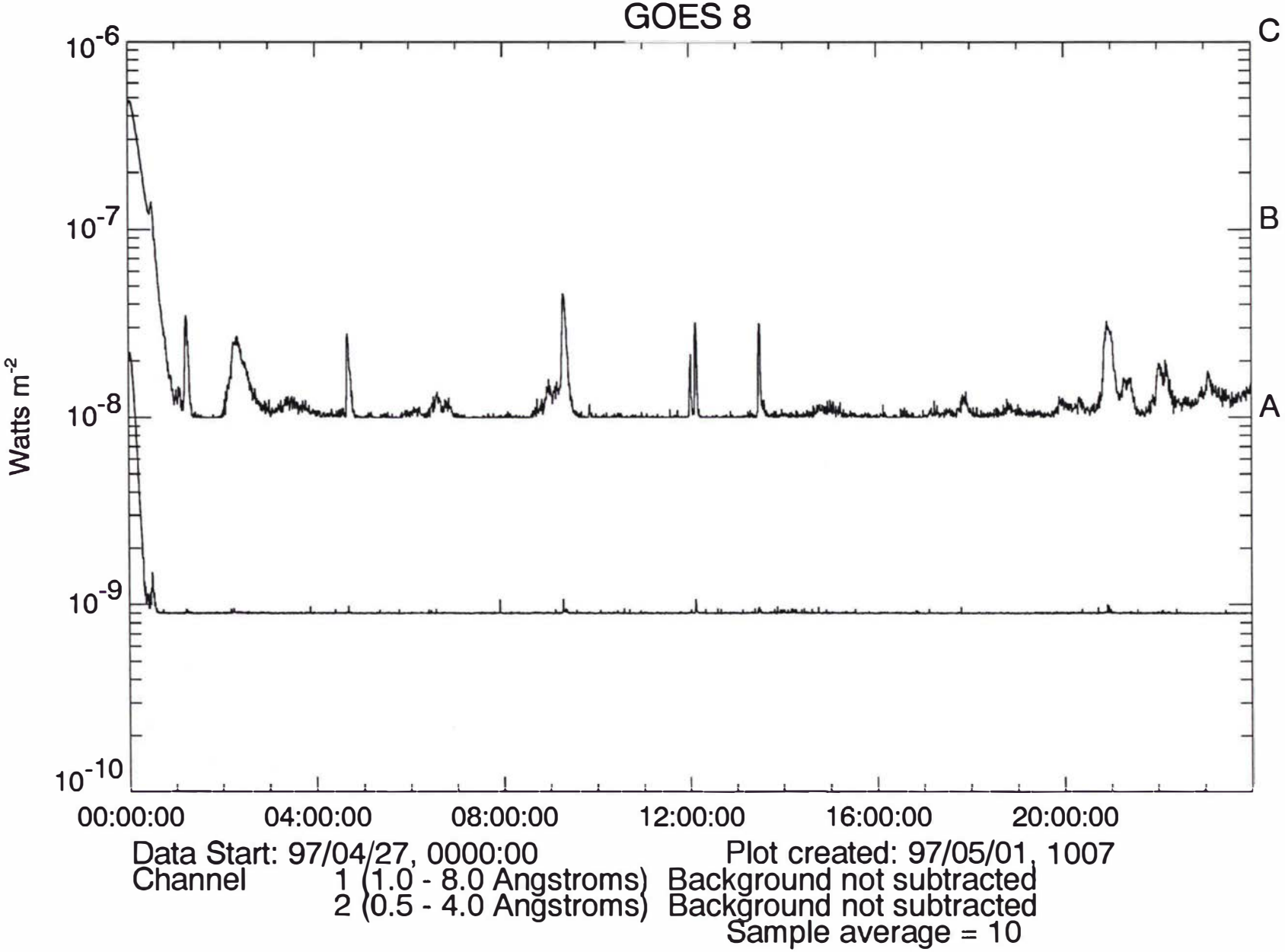
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



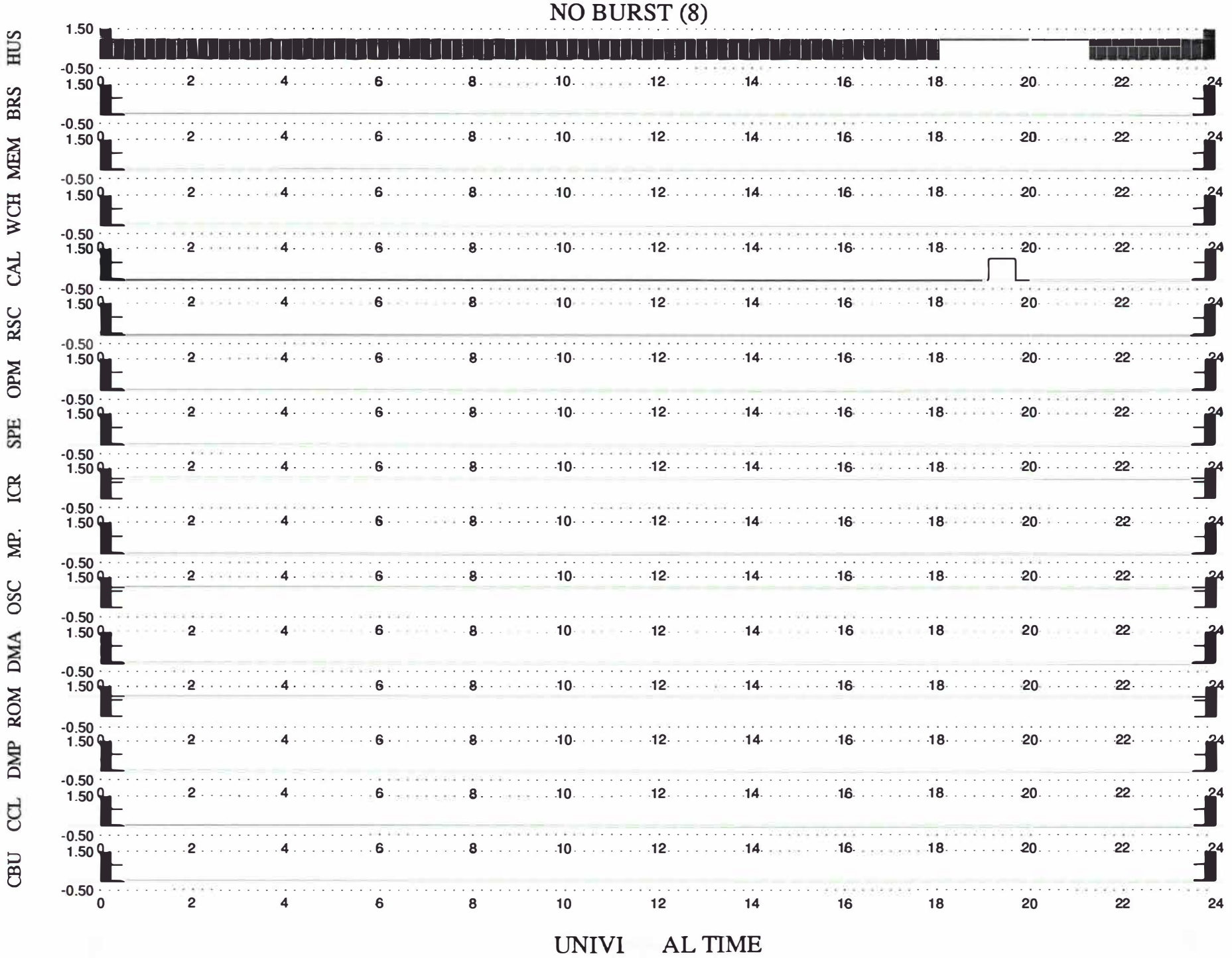

KONUS
27/04/97 45723.320
50- 200 keV
COUNTS/0.064 S
150
100
50
0
0
9
19
29
39
49
59
69
79
89
99
TTME, SECS
5/11/ 8


BACODINE 6212 27/04/97 75021.001
25- 100 keV
COUNTS/1.024 S
6000
6500
7000
7500
-0
24
49
74
99
124
149
174
199
224
TIME, SECS
27/ 4/97


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/27
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/05/01, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

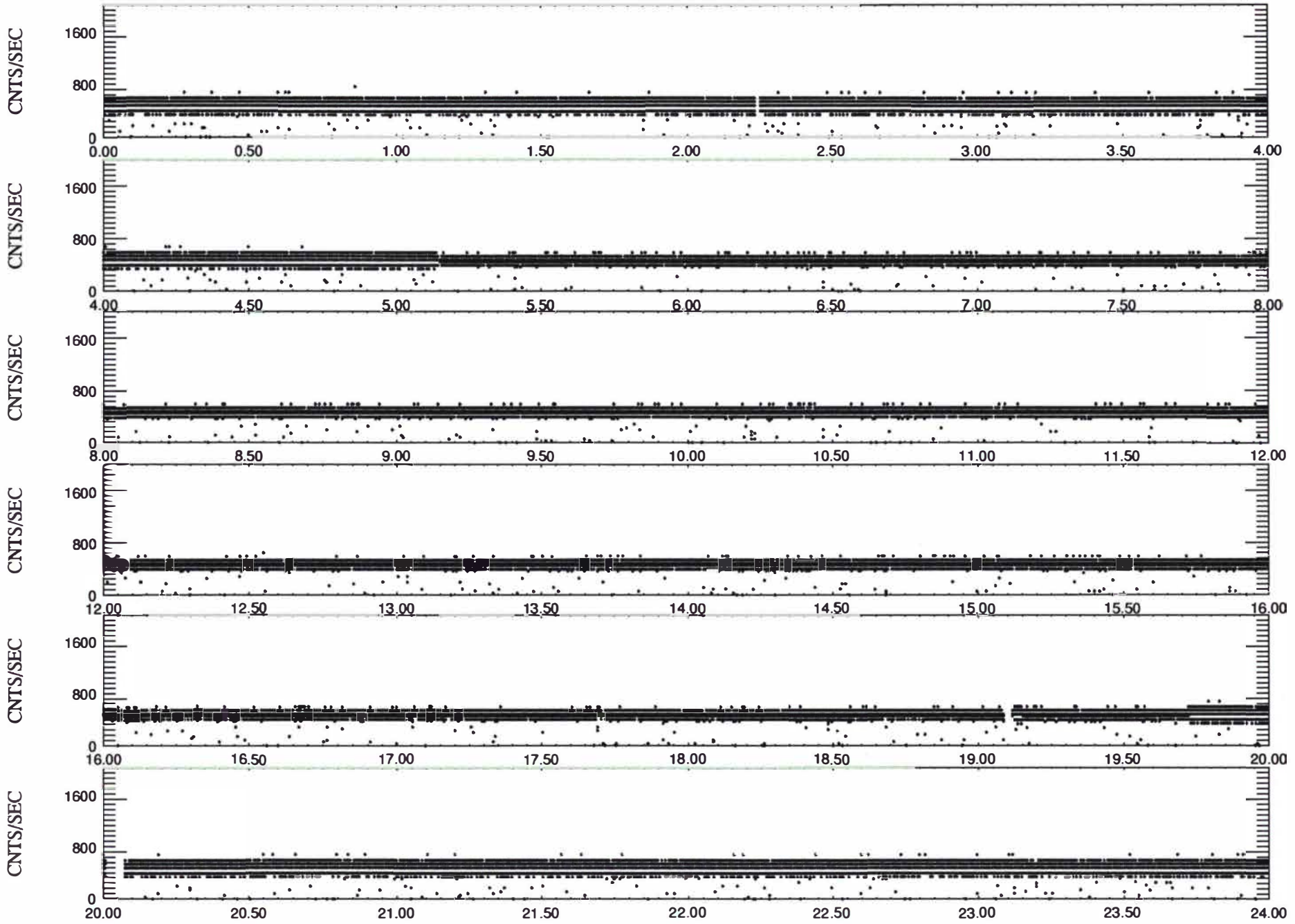

GOES 8
C
B
A
Watts m-2
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/27, 0000:00
Plot created: 97/05/01, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 117, year 1997 to day 117, year 1997 7/22/97



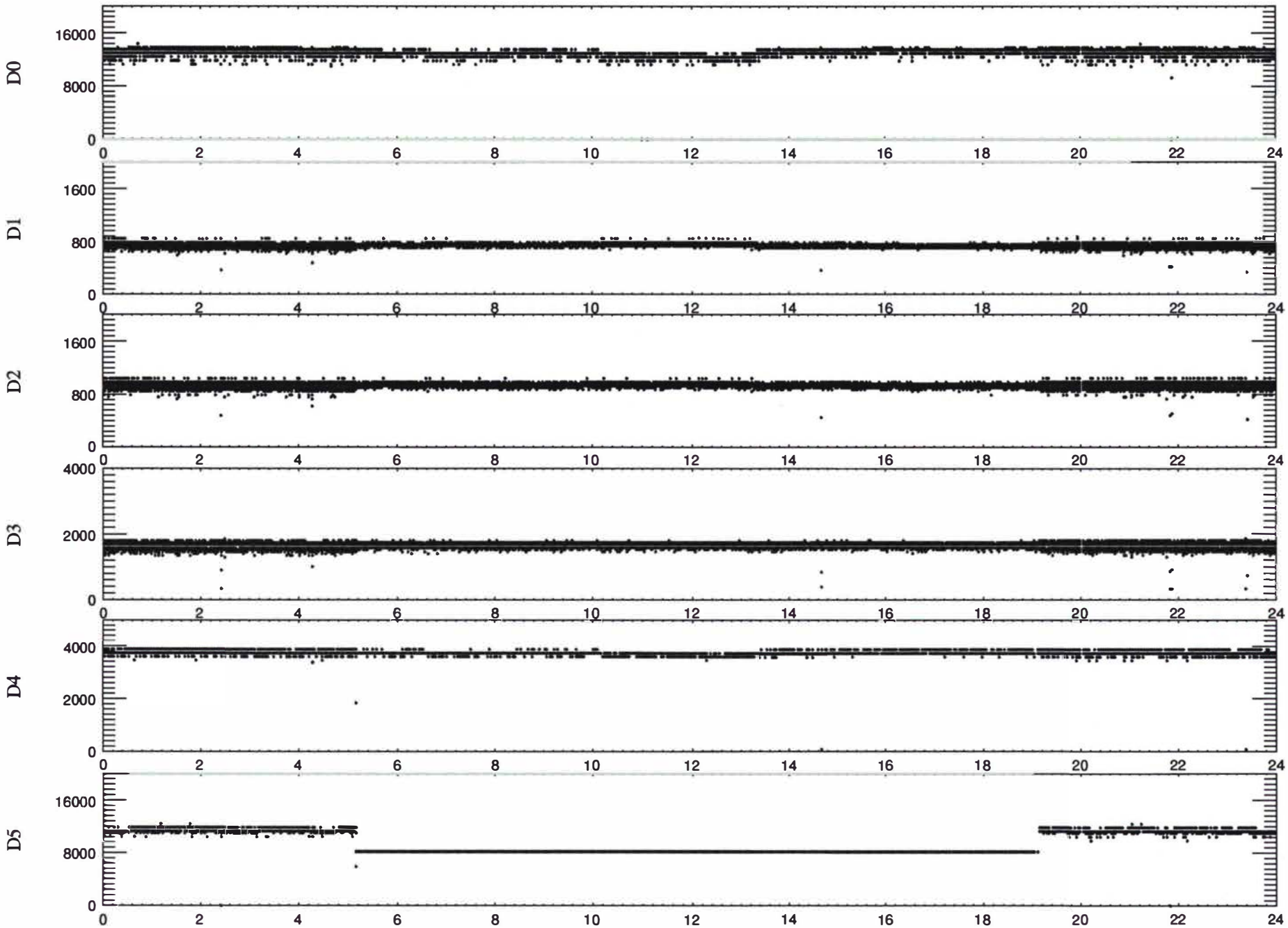
HUS 2A, MODE 1, NOT AVERAGED EDR day 117, year 1997 to day 117, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 117, year 1997 to day 117, year 1997 7/22/97



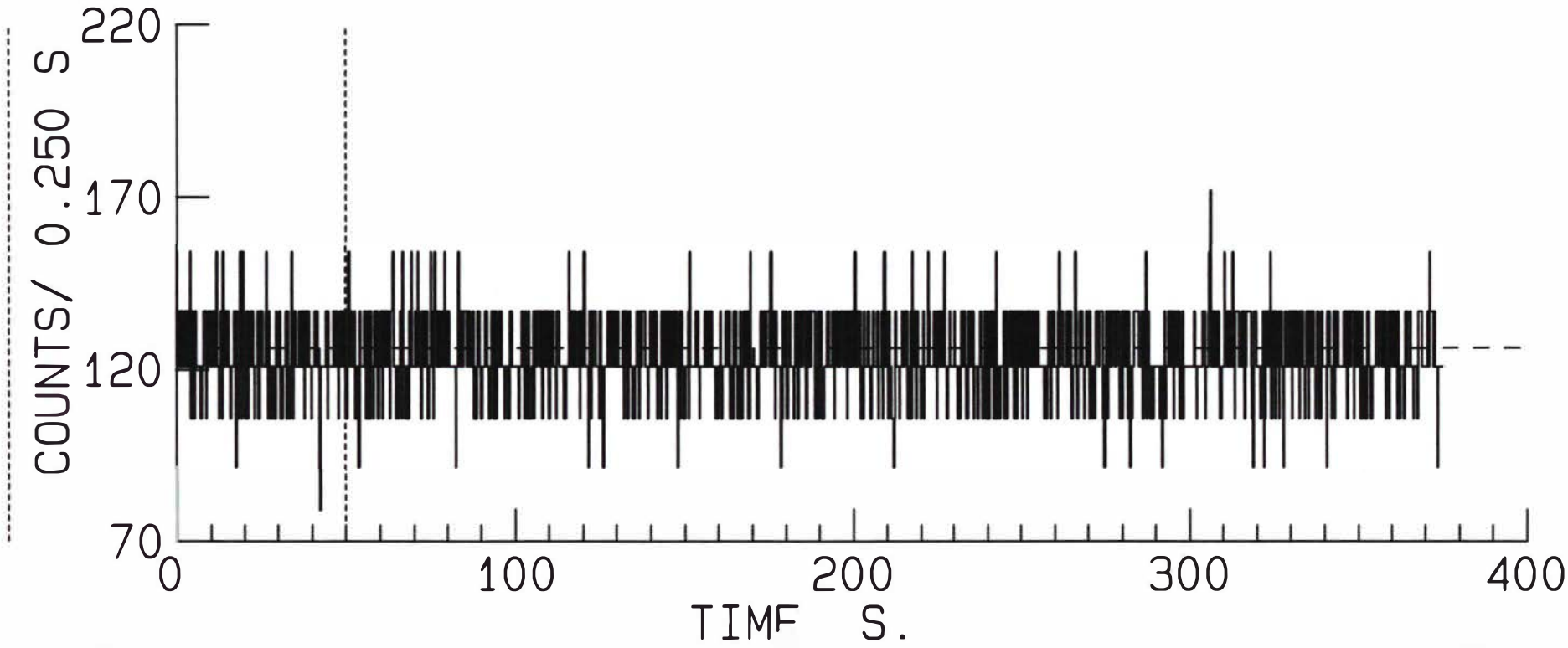
Konus
.68s long

ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

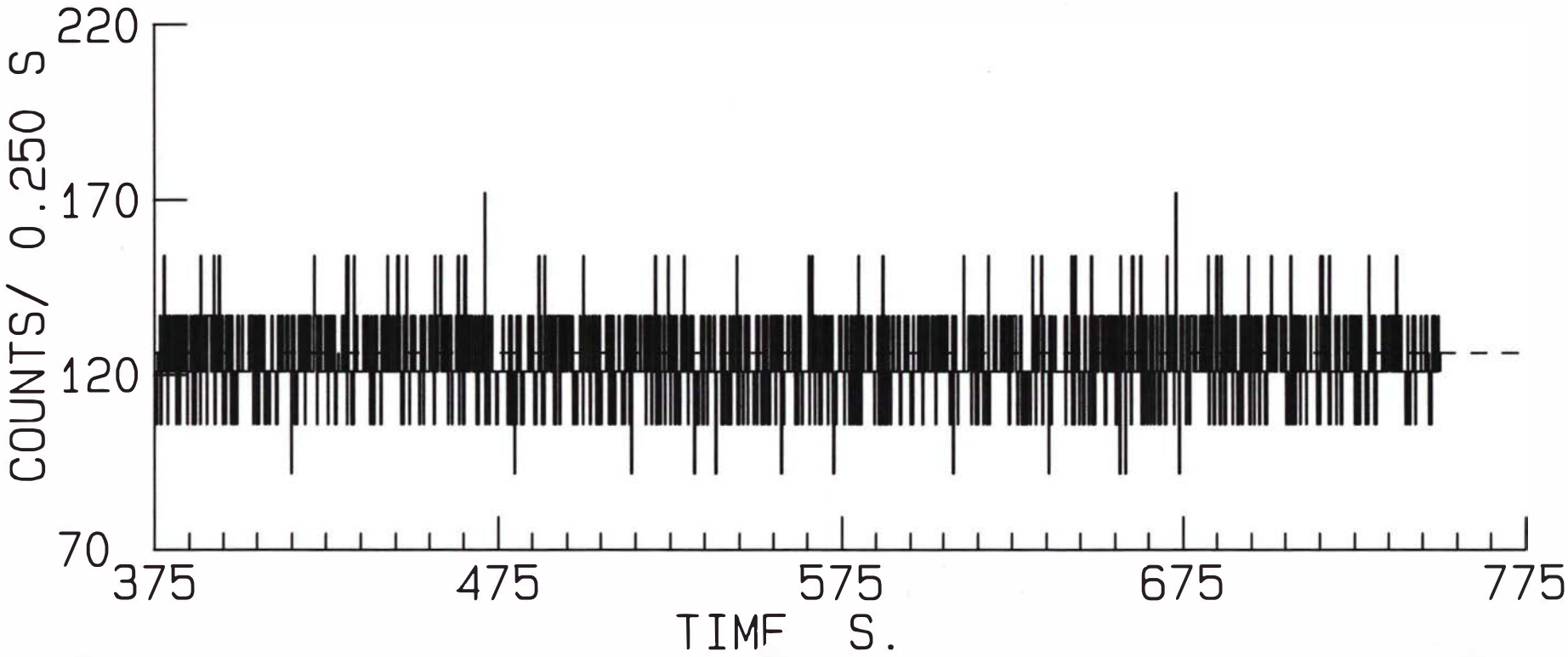


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

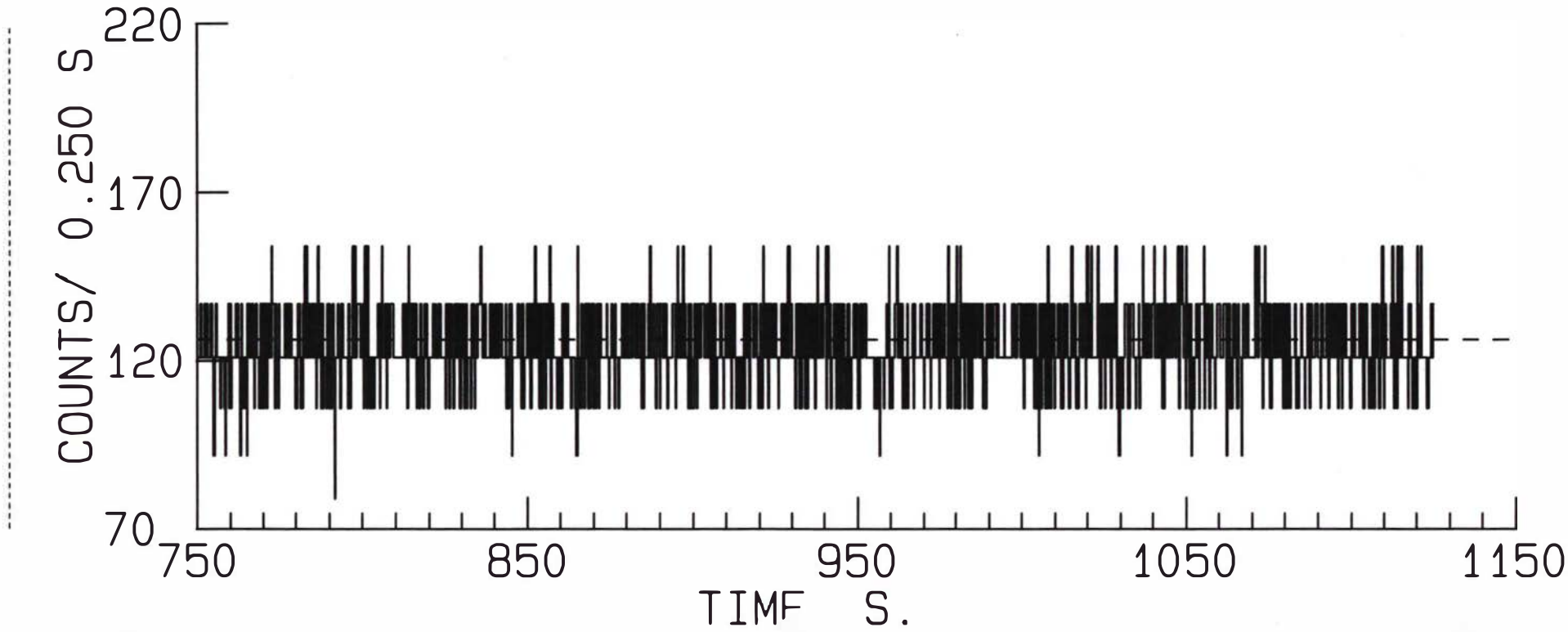


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

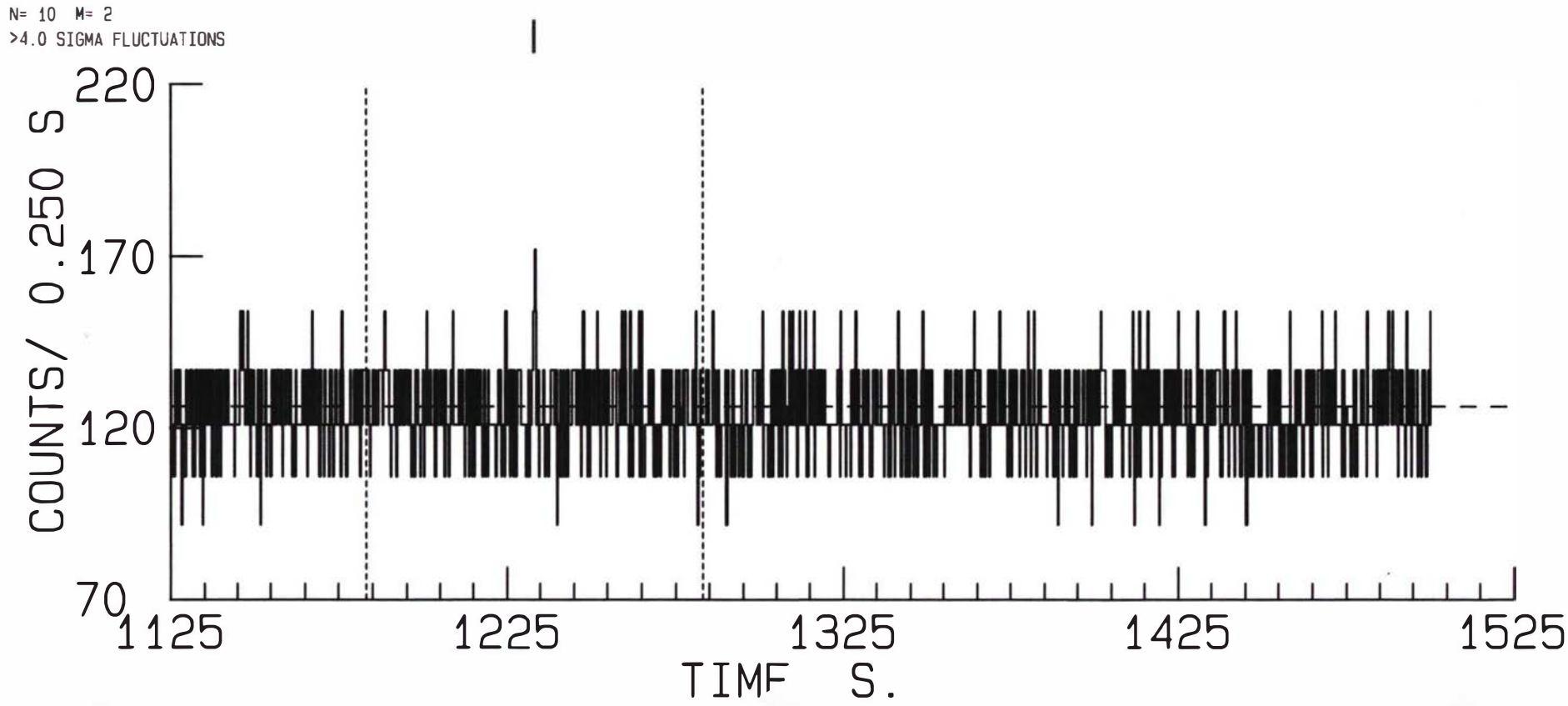


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

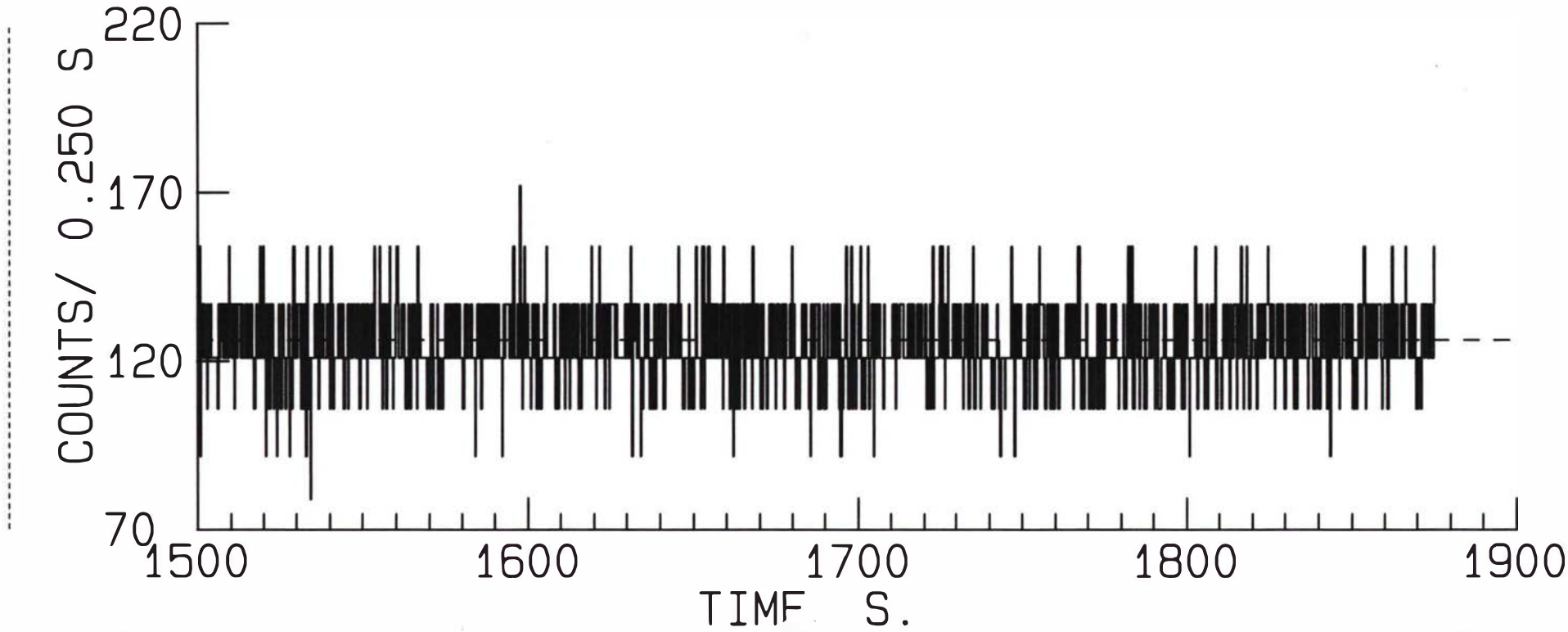


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

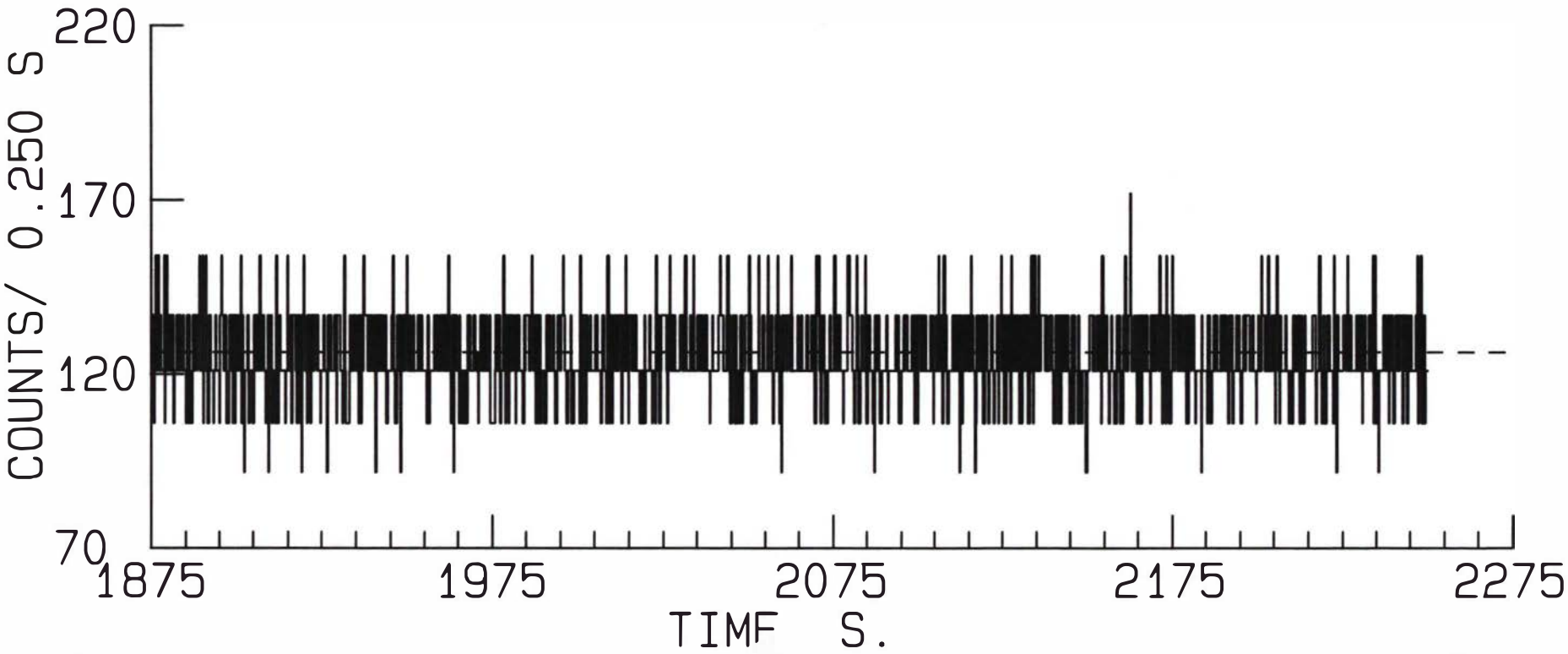


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

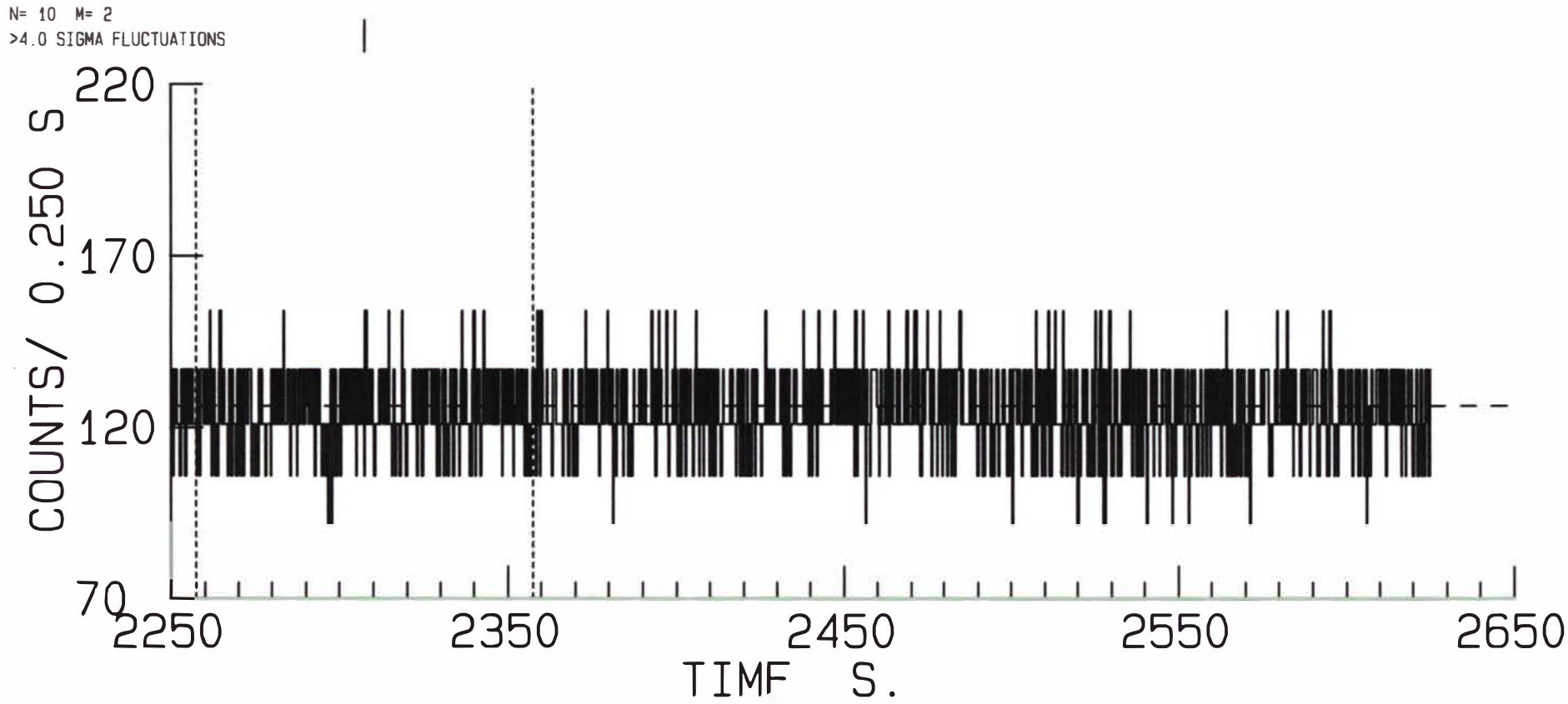


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

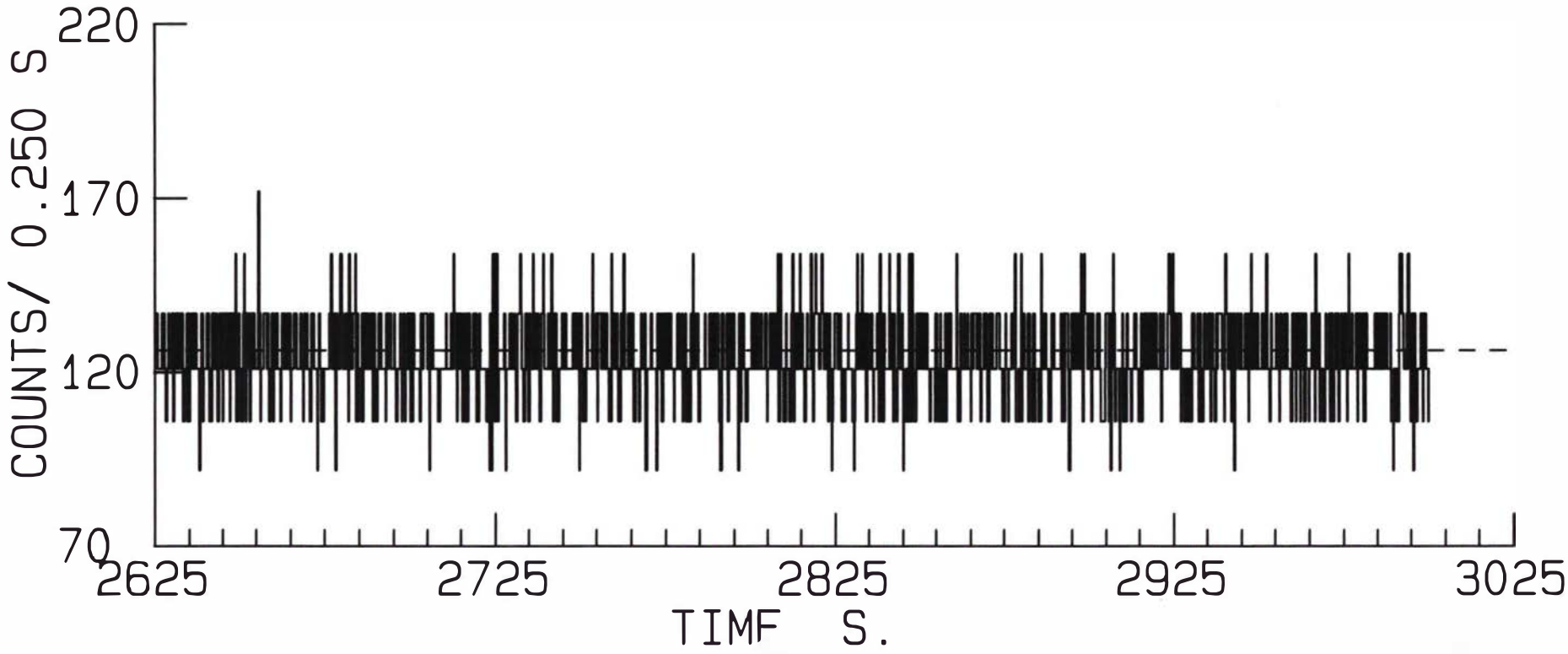


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

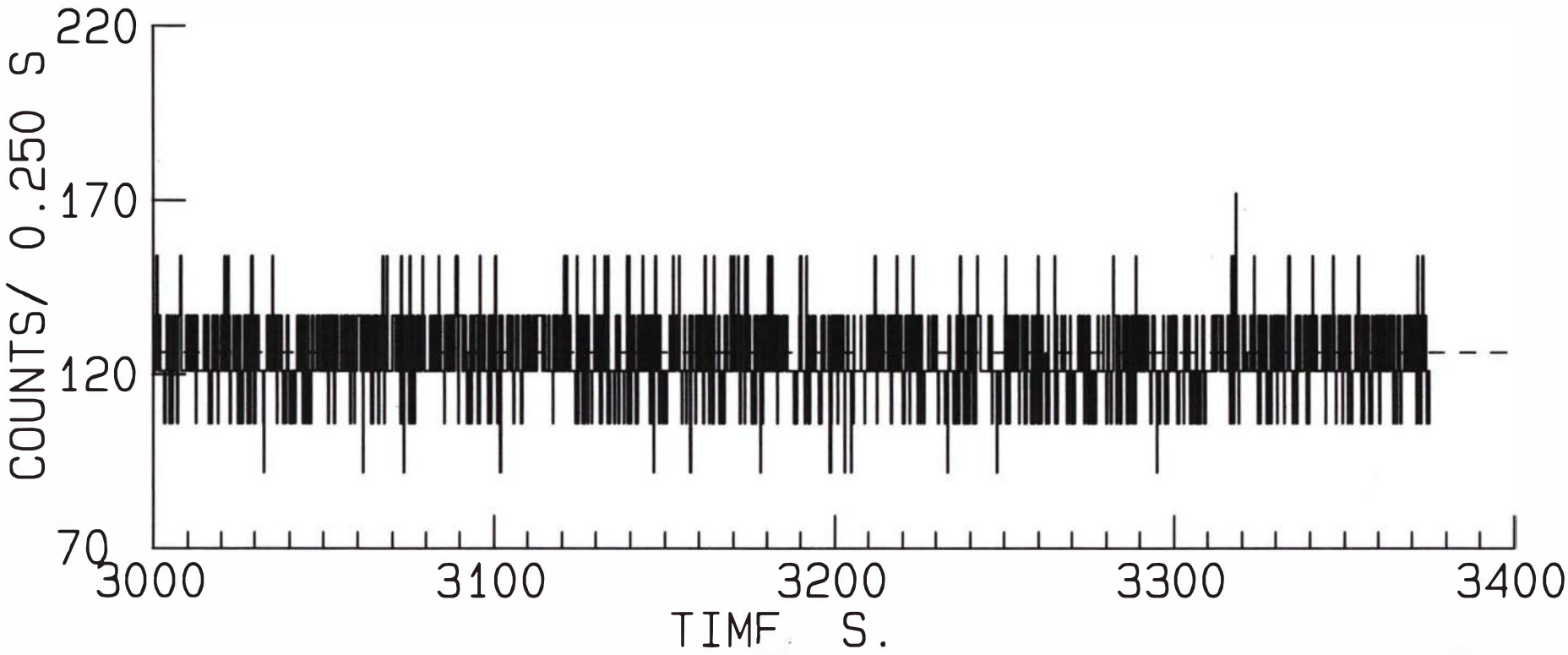


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

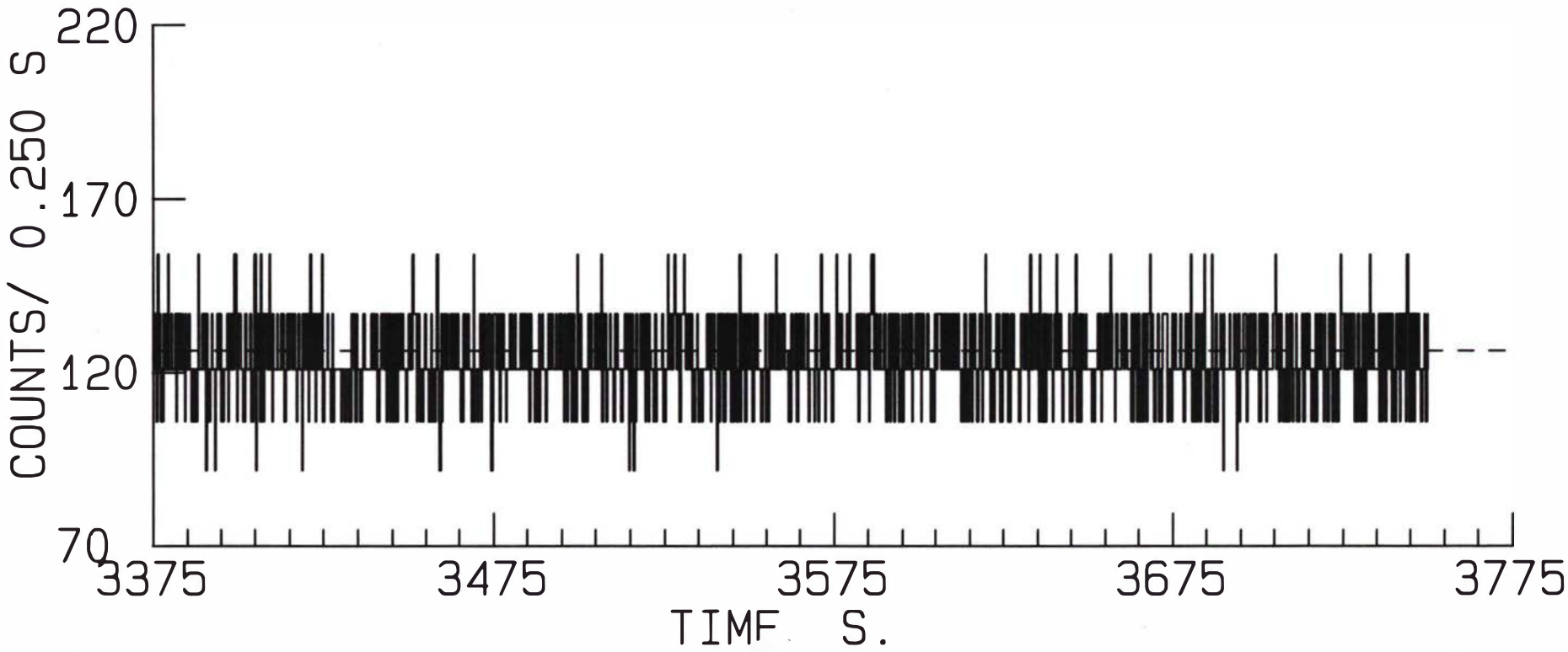


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

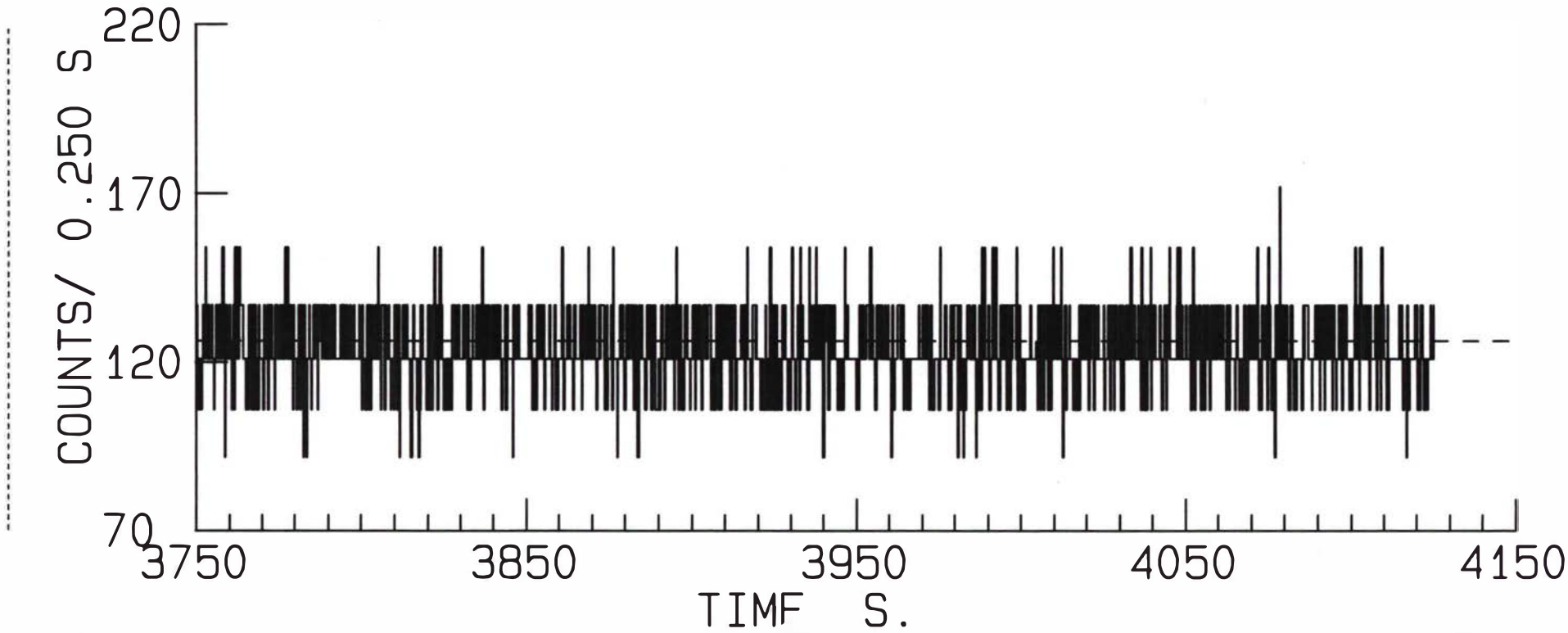


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

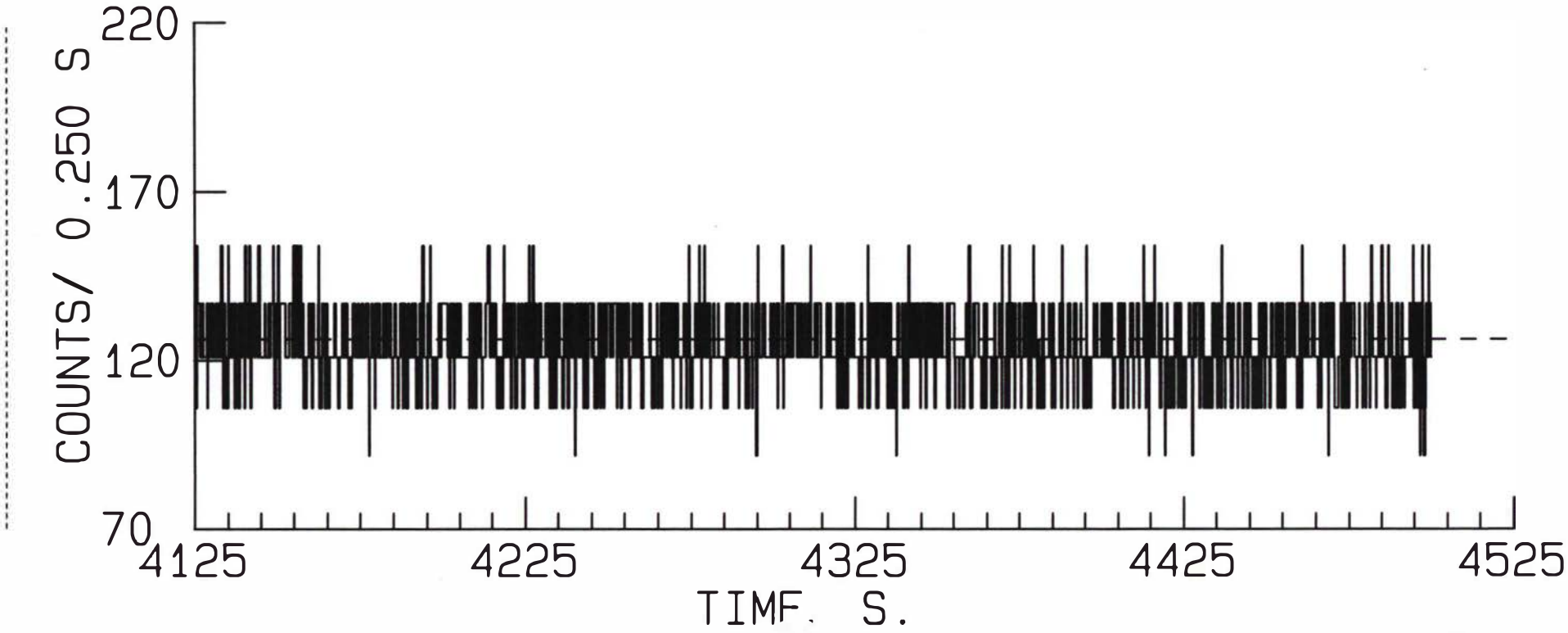


ULYSSES RT

27/10/ 8

28/ 4/97 10980.240 s

22- 148 keV

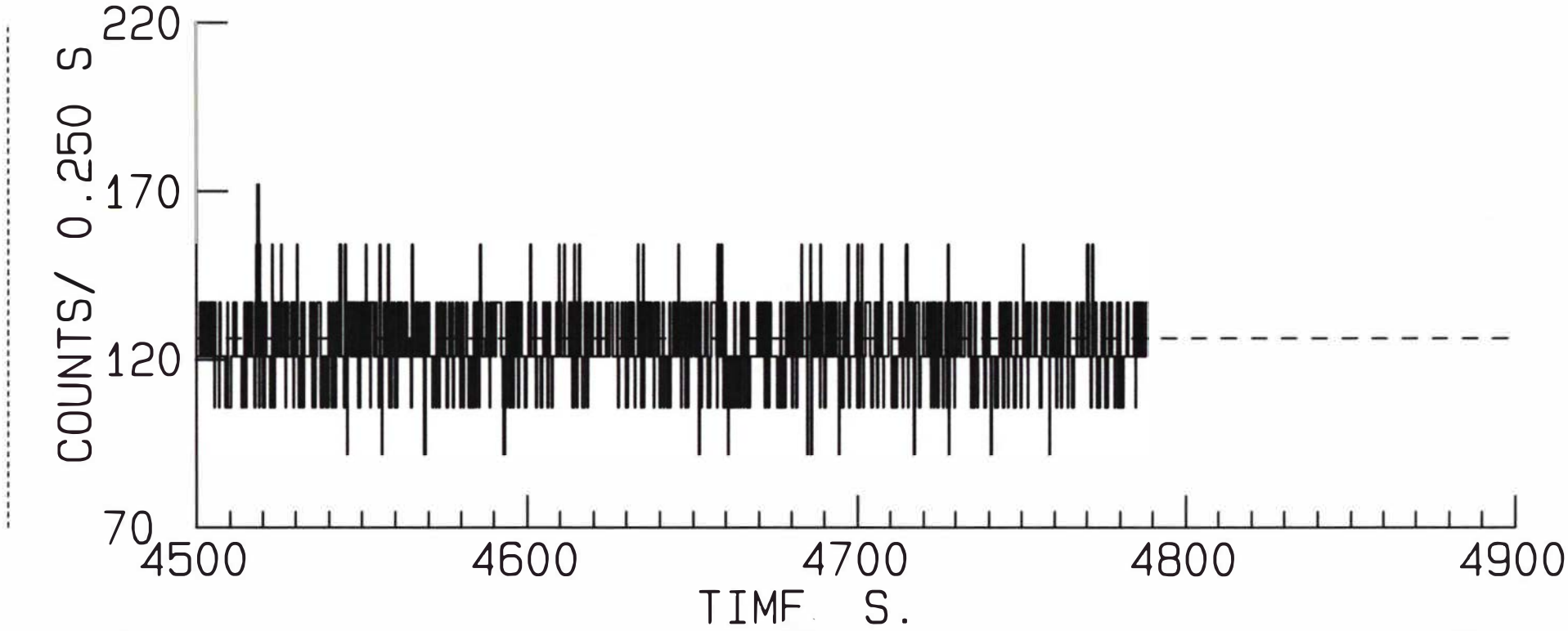


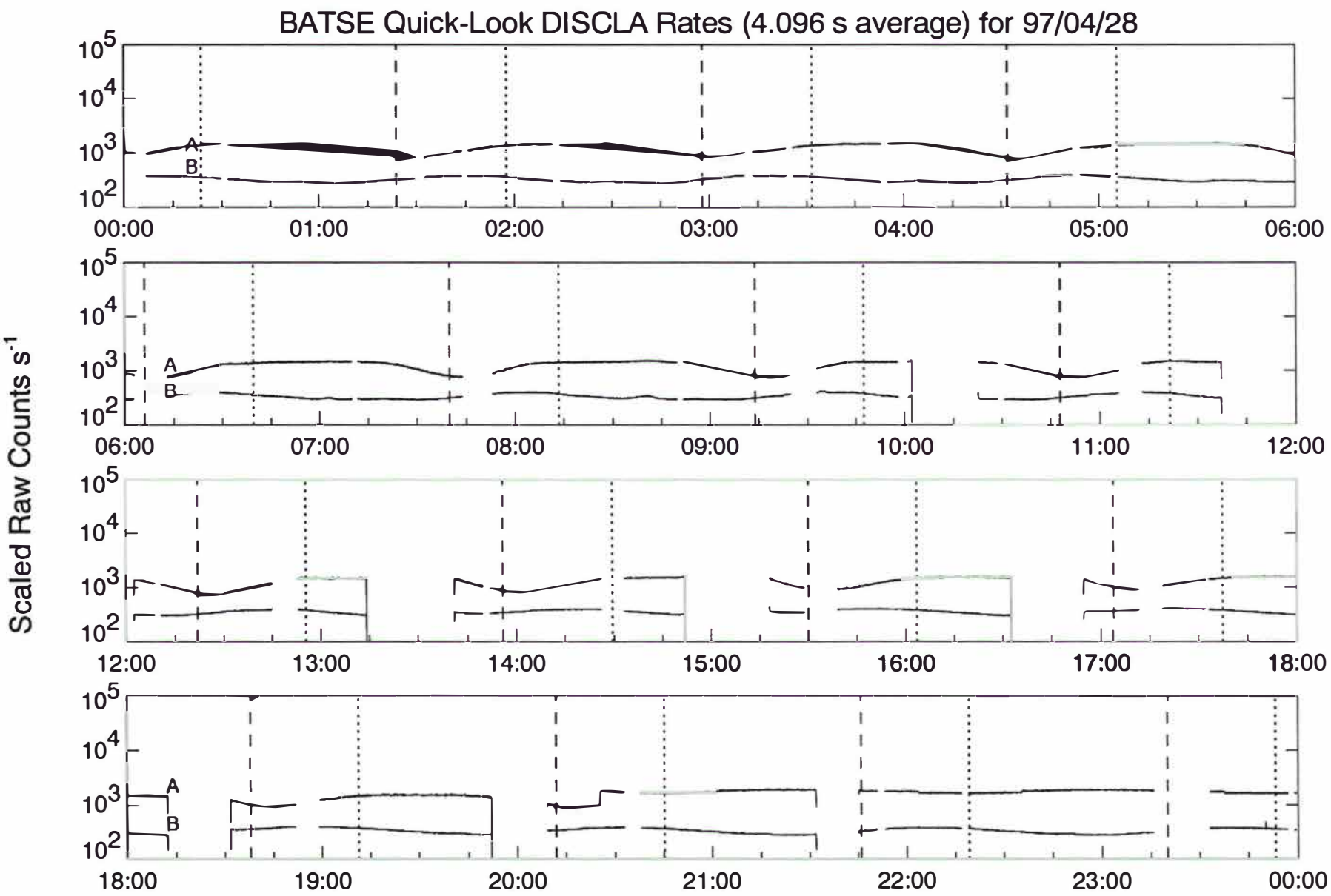
ULYSSES RT

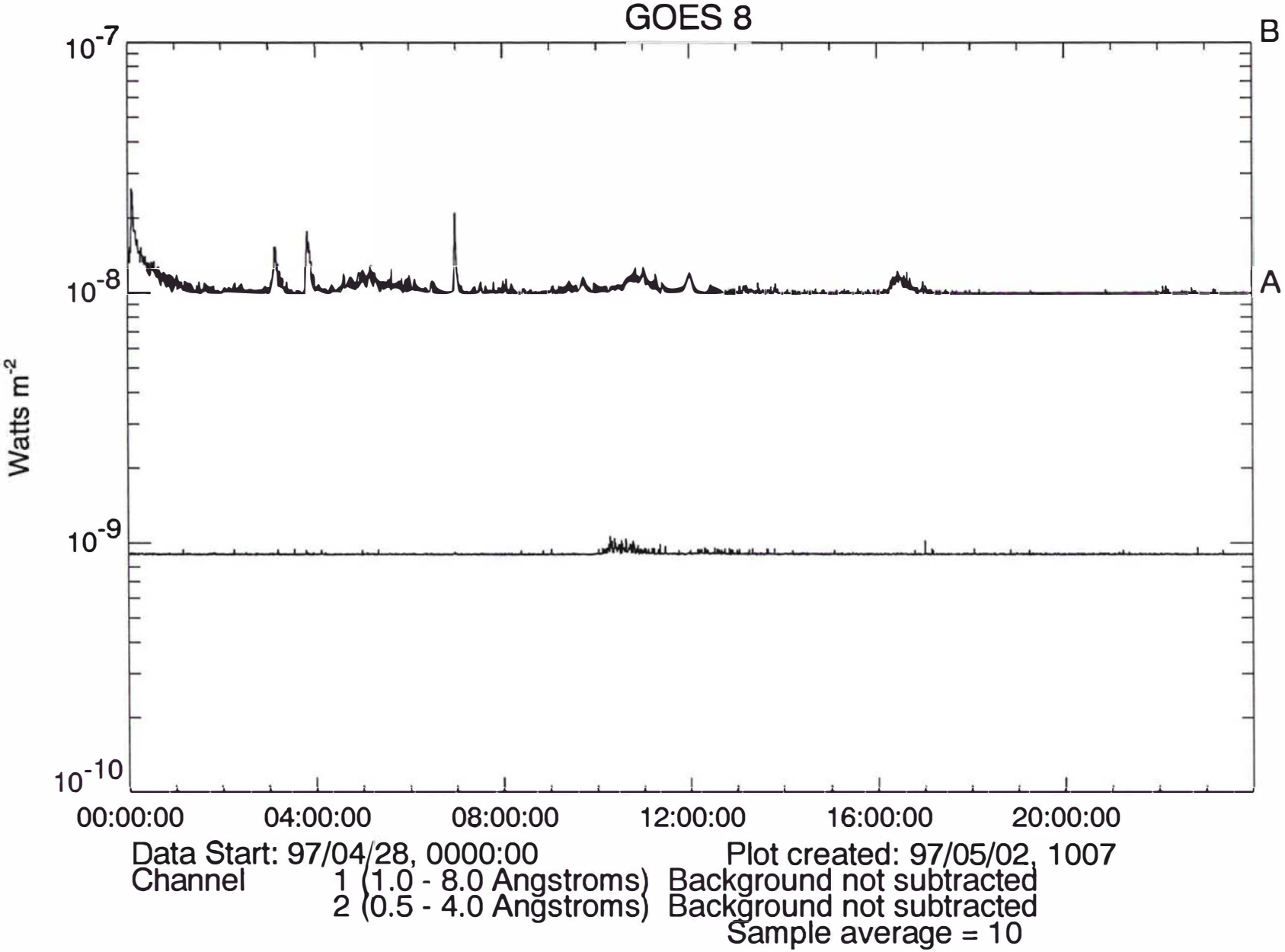
27/10/ 8

28/ 4/97 10980.240 s

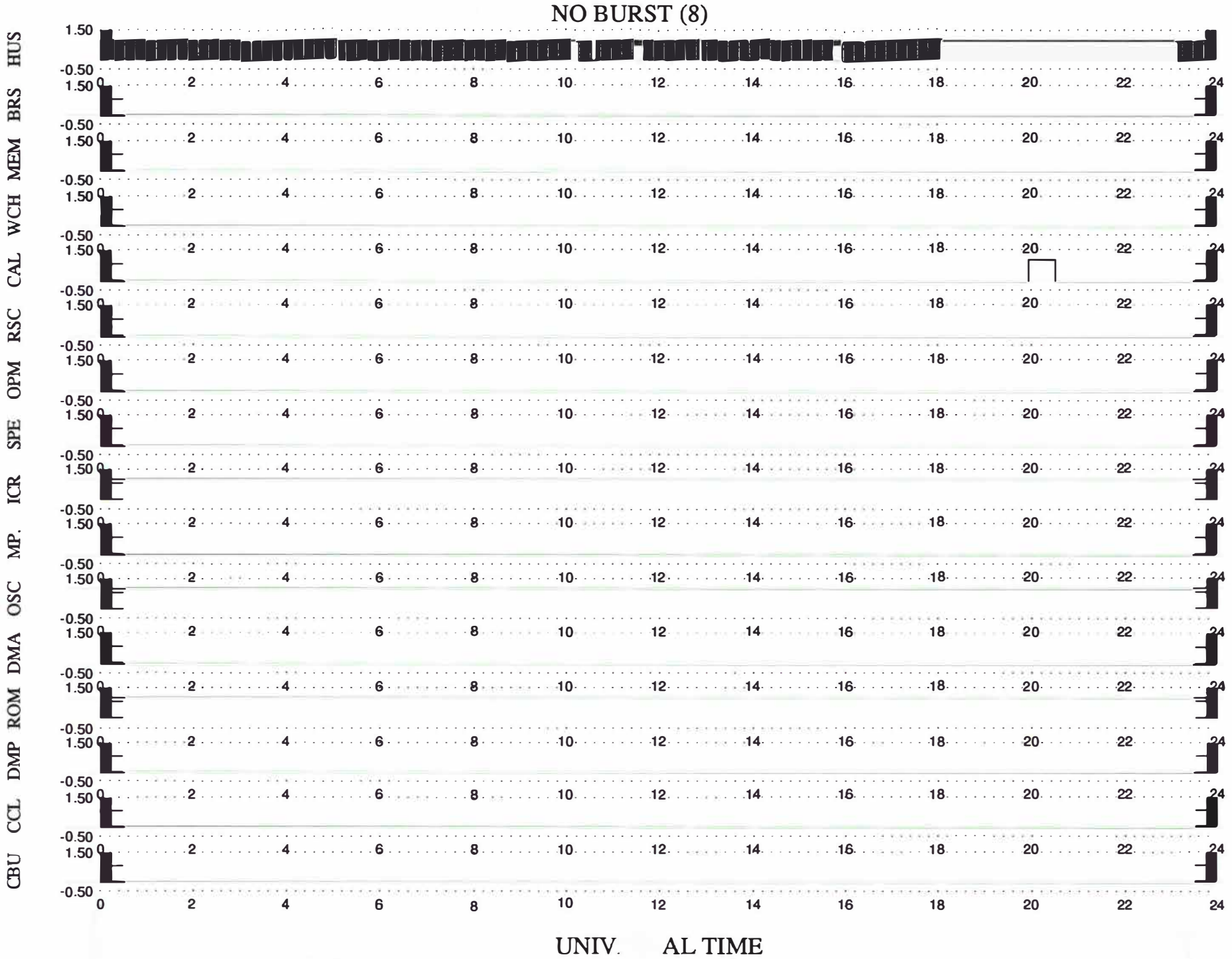
22- 148 keV




BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/28
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/05/02, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

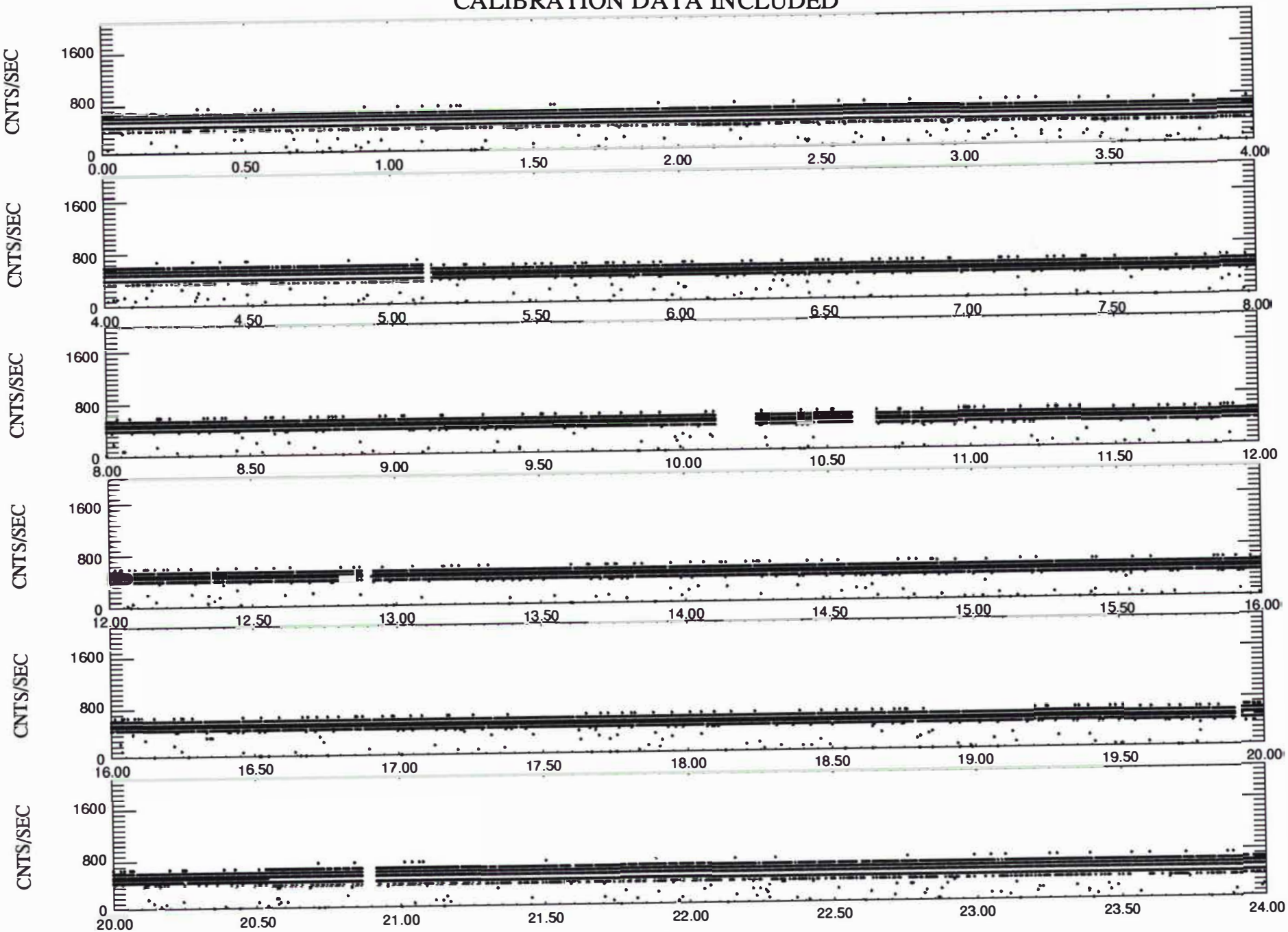

GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/28, 0000:00
Plot created: 97/05/02, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 118, year 1997 to day 118, year 1997 7/22/97



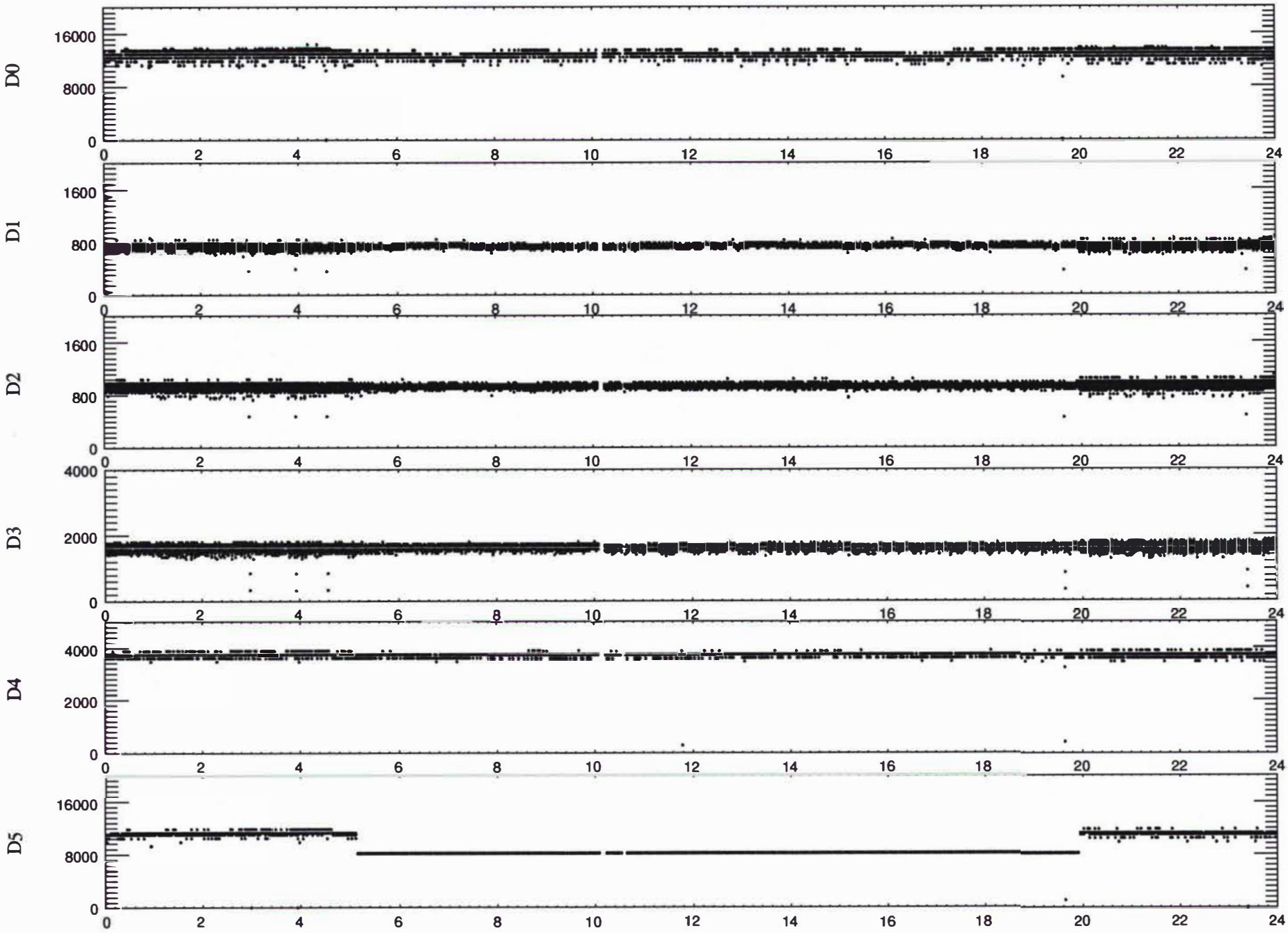
HUS 2A, MODE 1, NOT AVERAGED EDR day 118, year 1997 to day 118, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 118, year 1997 to day 118, year 1997 7/22/97



From SURASAK@ssl.msfc.nasa.gov Wed Apr 30 14:54 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id OAA14261; Wed, 30 Apr 1997 14:54:37 -0700
Date: Wed, 30 Apr 1997 16:54:26 -0500 (CDT)
From: SURASAK@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970430165426.21402d04@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6213
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

```
         ********************
         *BATSEARCH PROGRAM*
         ********************

 BATSE BURST #    6213
 EVENT OF 1997 APR 29 DAY OF YEAR=119
 EVENT CROSSING TIME AT BATSE     : 25909. S. OR 07:11:49.0
 COORDINATES ARE   0.000   0.000       6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 225.000   11.000
 BATSE PEAK COUNTING RATE:  11800    C/S

 EVENT CROSSING TIME AT ULYSSES    WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON 29/ 4/  97 IS:
 RA=  151.769 DEC=   33.268 DIST=    4.723 AU
 BATSE-ULYSSES DISTANCE =  706553460. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=109.97 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= -804.78 SECS.
 CROSSING TIME AT ULYSSES    IS 25104. S. OR   06:58:24 +/-  422.36 SECONDS

 EVENT CROSSING TIME AT MARS       WILL BE FOUND
 POSITION OF MARS ON 29/ 4/  97 IS:
 RA=  168.623 DEC=    7.150 DIST=    0.800 AU
 MARS-BATSE DISTANCE =  119724976. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=124.27 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= -224.87 SECS.
 CROSSING TIME AT MARS       IS 25684. S. OR   07:08:04 +/-   53.88 SECONDS


                BATSE BURST TRIGGER
NO.: 6213

TIME: TJD=0567 SECONDS=25909

TYPE: BURST                    SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE:       SIGMA

INTENSITY:          COUNTS/CM2

LOCATION: ZENITH=96.5   AZIMUTH=188.0  ERROR=1.706 DEGREES

COMMENTS:
GRB. SINGLE PULSE, DUR~10S. FRED. VISIBLE ABOVE 300 KEV.


 BATSE #   Date     TJD     SoD   Max ct/s   RA   Dec  Dur (s)
   6213   970429   10567   25909    11800   225   +11     10
```

BATSE BURST# 6213

ULYSSES RT 30/ 4/97

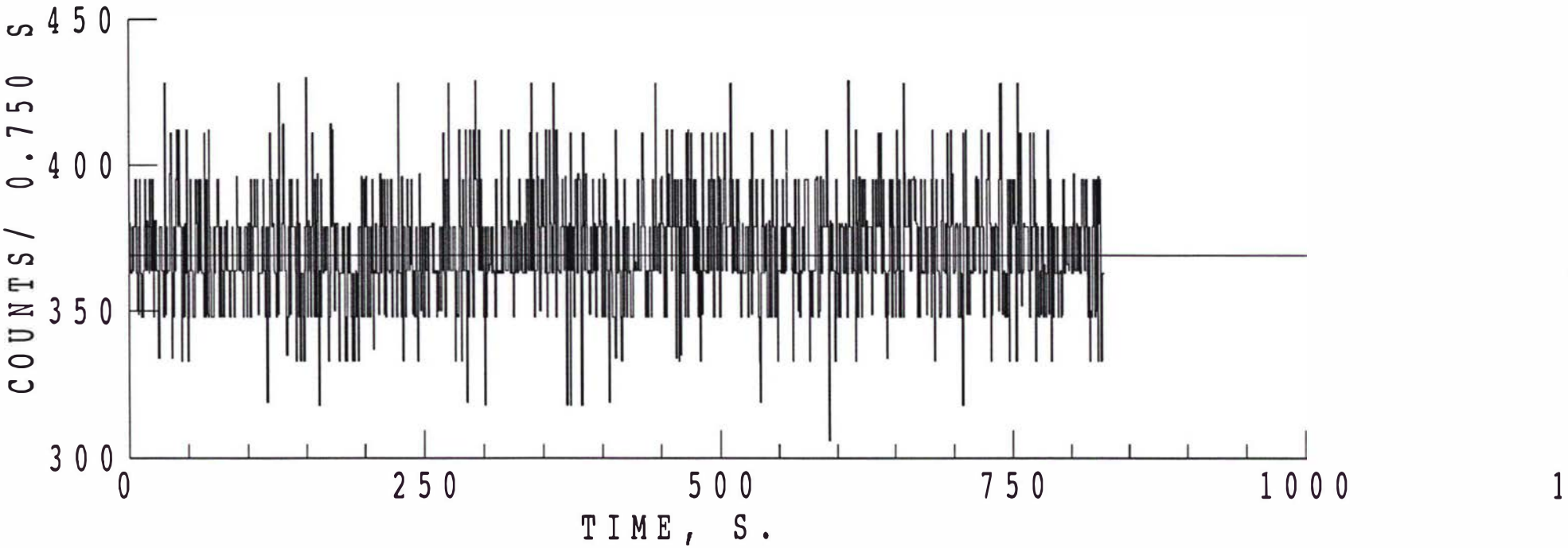
29/ 4/97 24696.166 s

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



From SURASAK@ssl.msfc.nasa.gov Thu May 1 11:43 PDT 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id LAA25479; Thu, 1 May 1997 11:43:43 -0700
From: SURASAK@ssl.msfc.nasa.gov
Date: Thu, 1 May 1997 13:43:15 -0500 (CDT)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970501134315.2120896c@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6214
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST #   6214
EVENT OF 1997 APR 29 DAY OF YEAR=119
EVENT CROSSING TIME AT BATSE   : 41784. S. OR 11:36:24.0
COORDINATES ARE   0.000   0.000   6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 35.000   27.000
BATSE PEAK COUNTING RATE: 19200   C/S

EVENT CROSSING TIME AT ULYSSES   WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 29/ 4/ 97 IS:
RA= 151.754 DEC=   33.247 DIST=   4.726 AU
BATSE-ULYSSES DISTANCE = 707033401. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 85.04 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 204.08 SECS.
CROSSING TIME AT ULYSSES   IS 41988. S. OR   11:39:48 +/- 461.02 SECONDS

EVENT CROSSING TIME AT MARS   WILL BE FOUND
POSITION OF MARS ON 29/ 4/ 97 IS:
RA= 168.623 DEC=   7.150 DIST=   0.800 AU
MARS-BATSE DISTANCE = 119724976. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 56.40 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 221.02 SECS.
CROSSING TIME AT MARS   IS 42005. S. OR   11:40:05 +/-   61.11 SECONDS

BATSE BURST TRIGGER

NO.: 6214

TIME: TJD=0567 SECONDS=41784

TYPE: BURST   SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=119.9 AZIMUTH=352.3 ERROR=0.981 DEGREES

COMMENTS:
GRB. DOUBLE PULSE, DUR~40S. SECOND PEAK MORE INTENSE: MAX~T+30S.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6214	970429	10567	41784	19200	035	+27	40

Helio corr removed 17/2/00

Date: Mar 27 '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? 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?

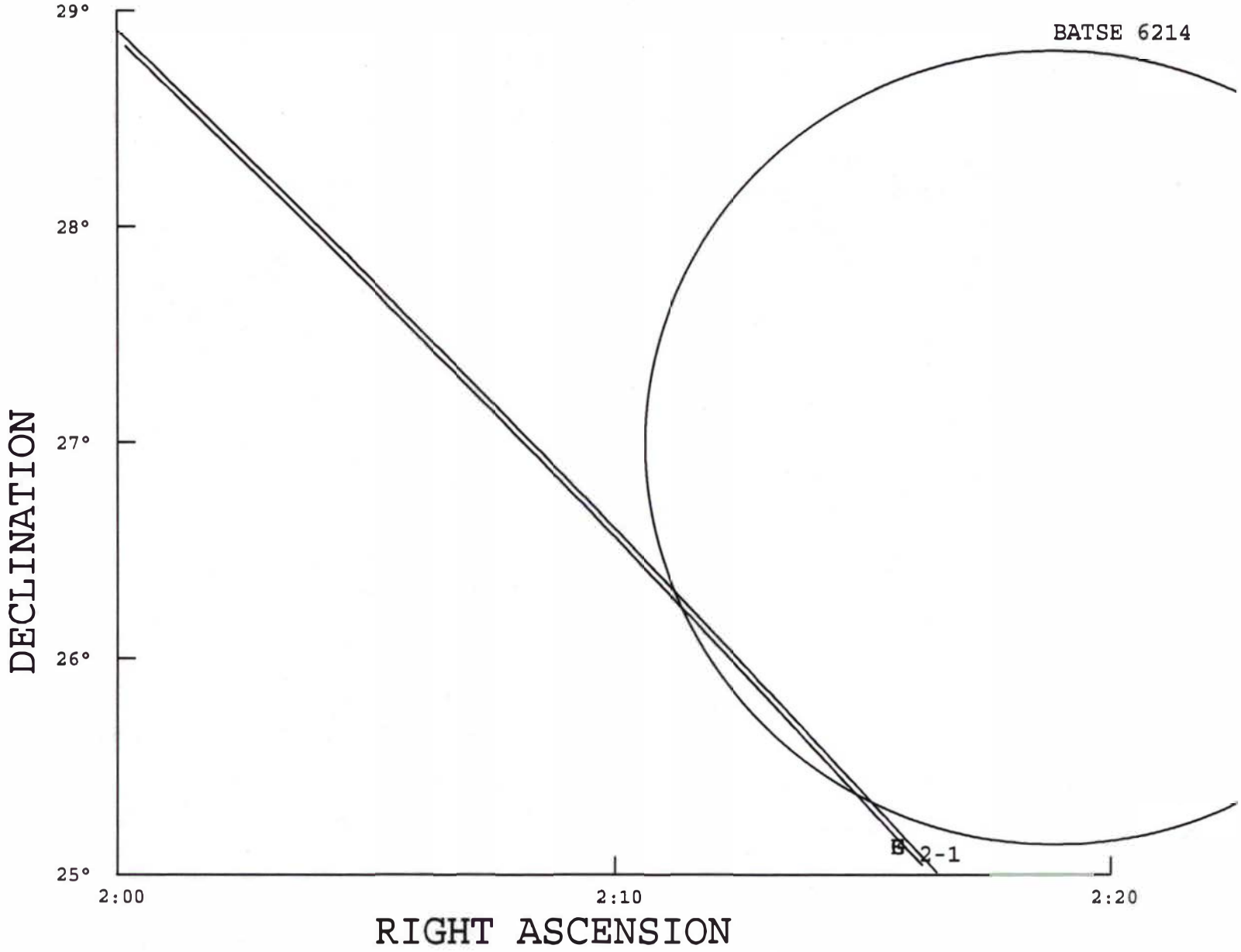
☐ Geocentric time used?

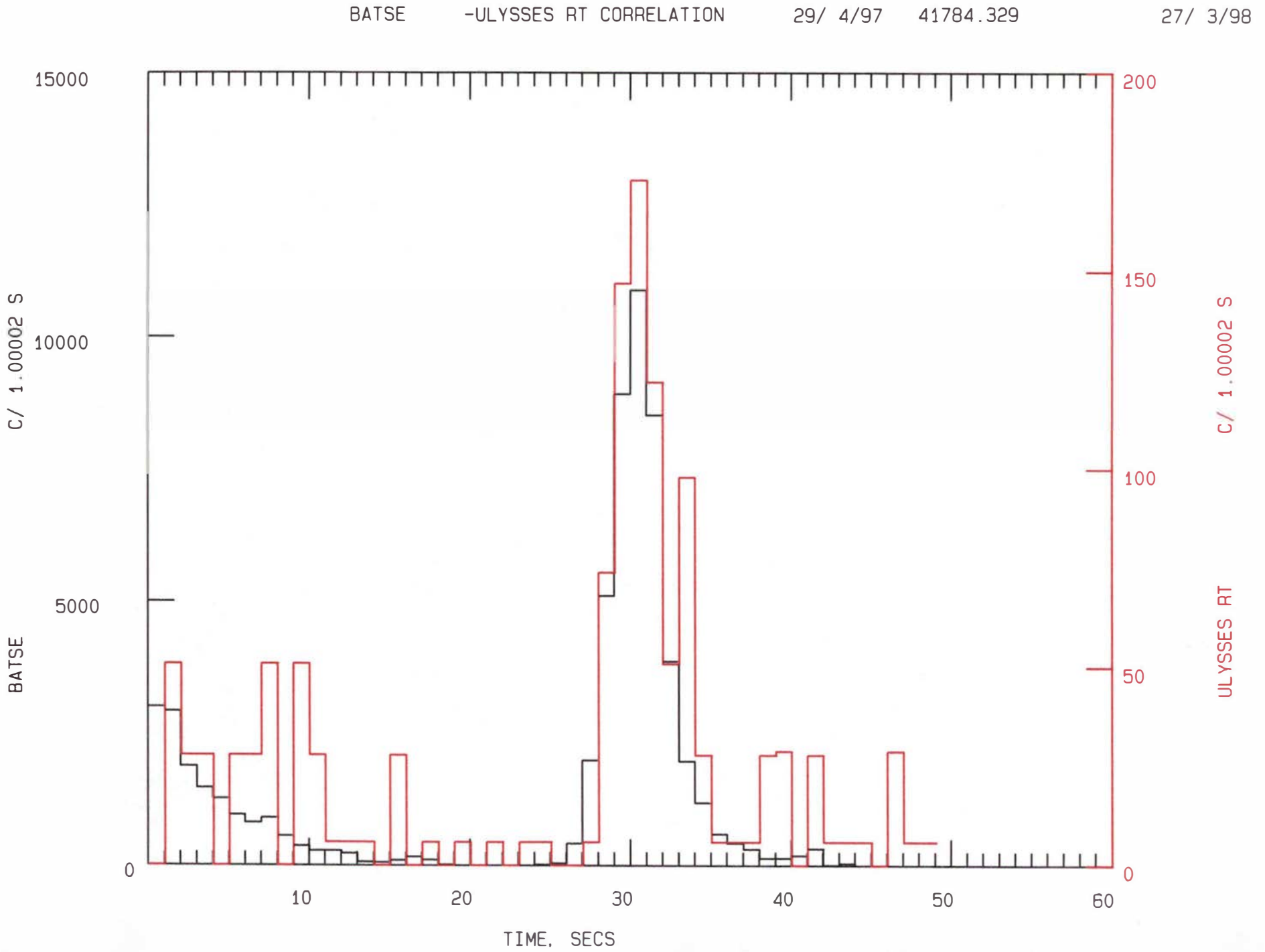
☑ ACCESS database updated?

EVENT OF APR 29, 1997 11:41

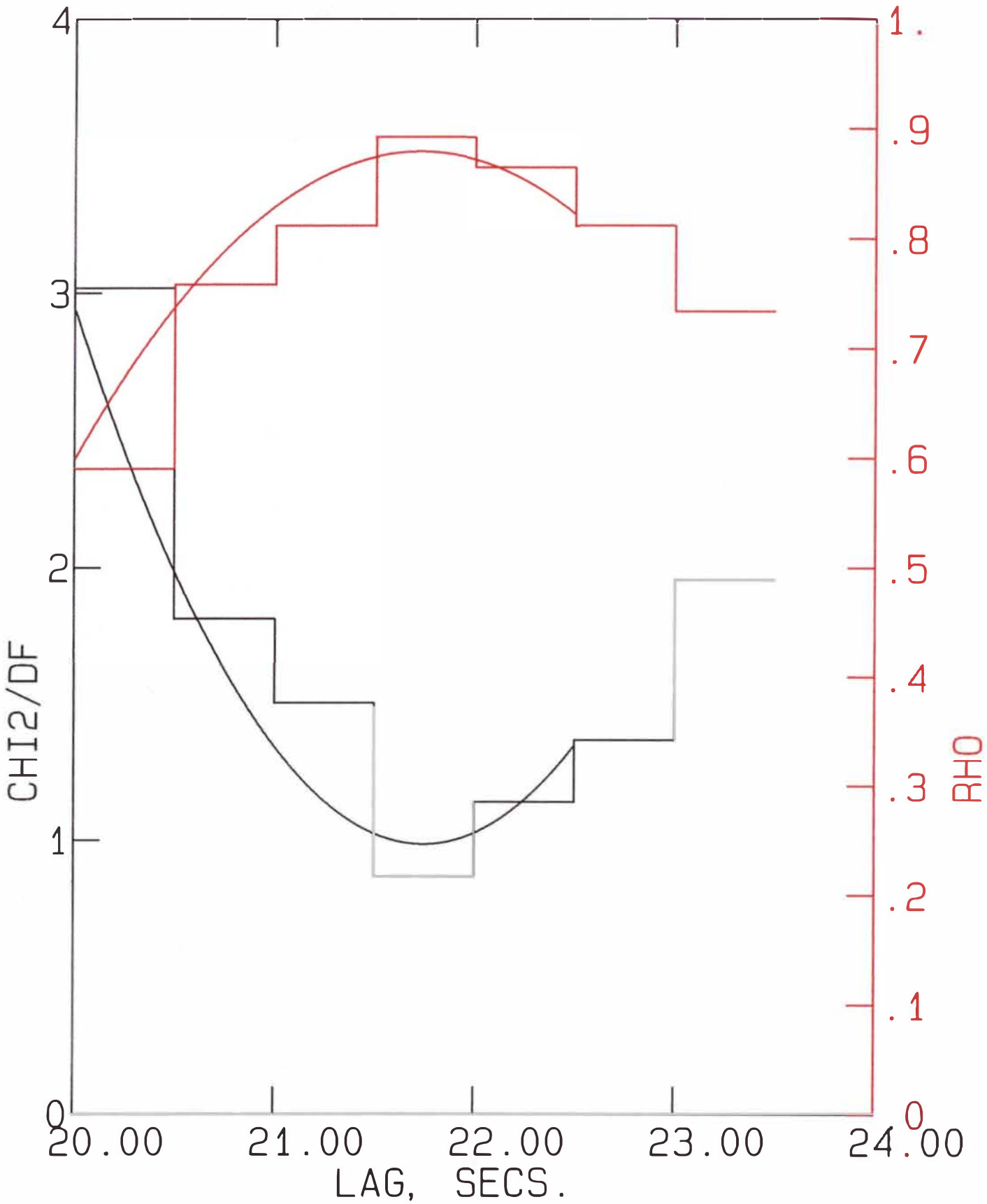
17/ 2/ 0

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




BATSE -ULYSSES RT CORRELATION 29/ 4/97 41784.329 27/ 3/98
15000
10000
5000
0
C/ 1.00002 S
BATSE
200
150
100
50
0
C/ 1.00002 S
ULYSSES RT
10
20
30
40
50
60
TIME, SECS

BATSE -ULYSSES RT CORRELATION 29/ 4/97 41784.329

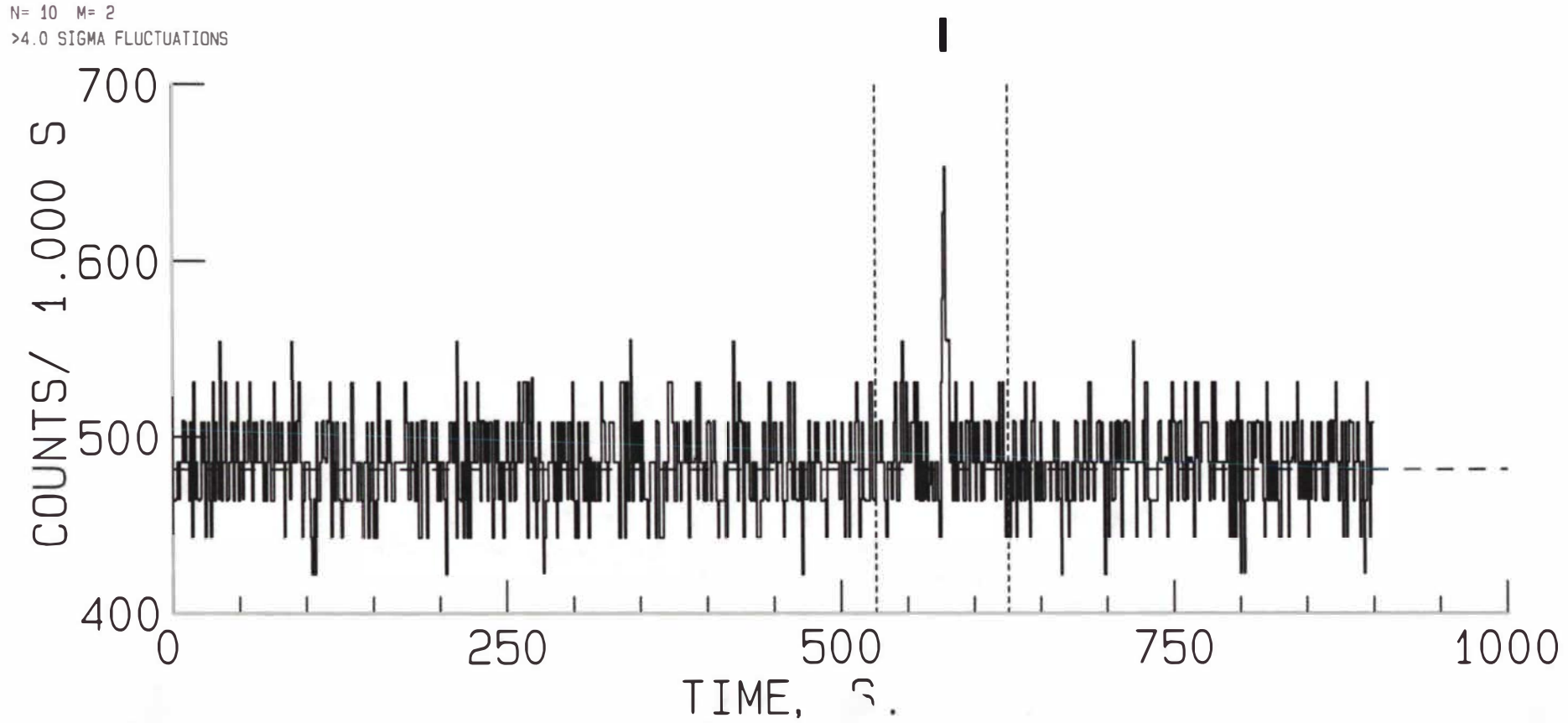


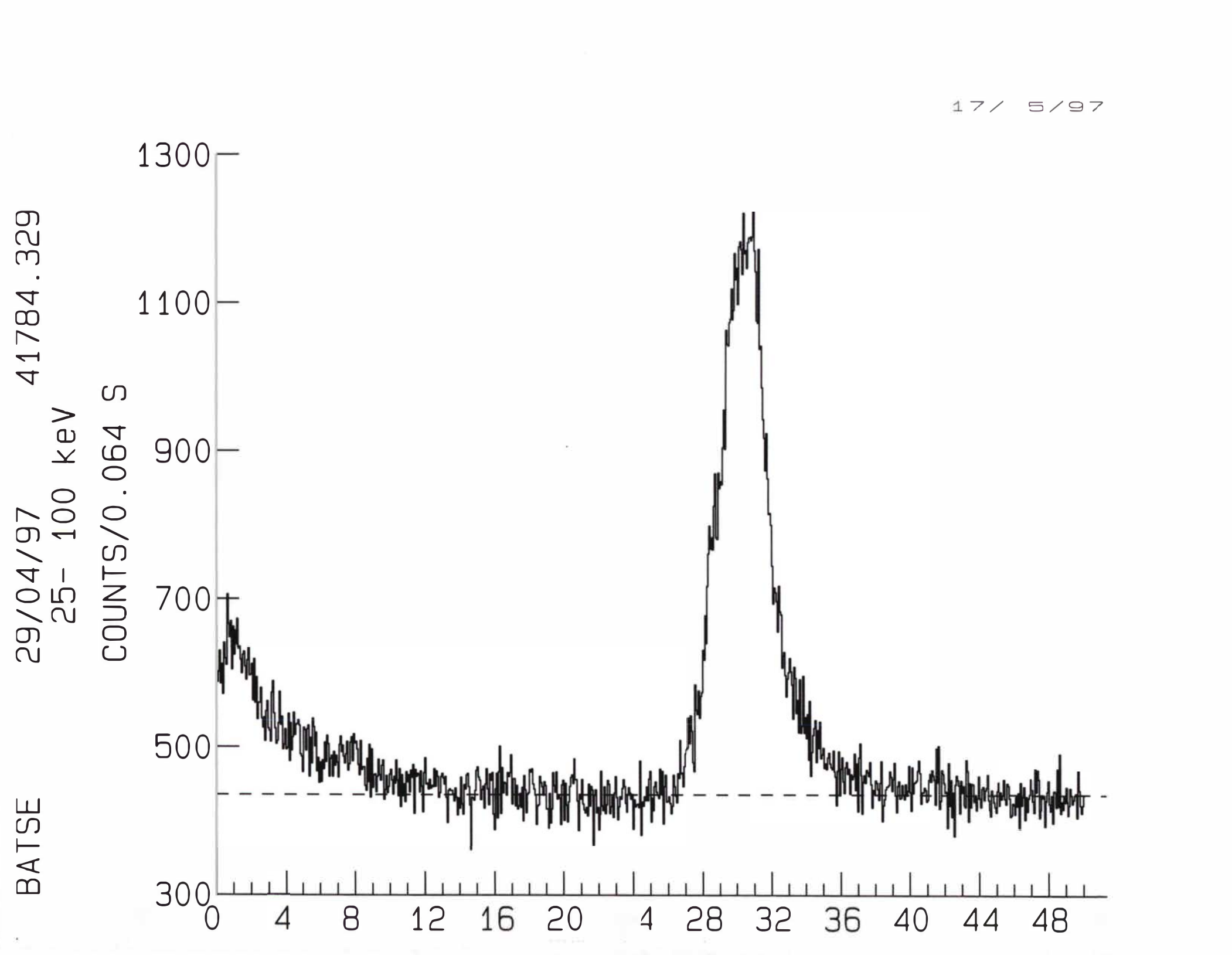
ULYSSES RT 27/ 3/98

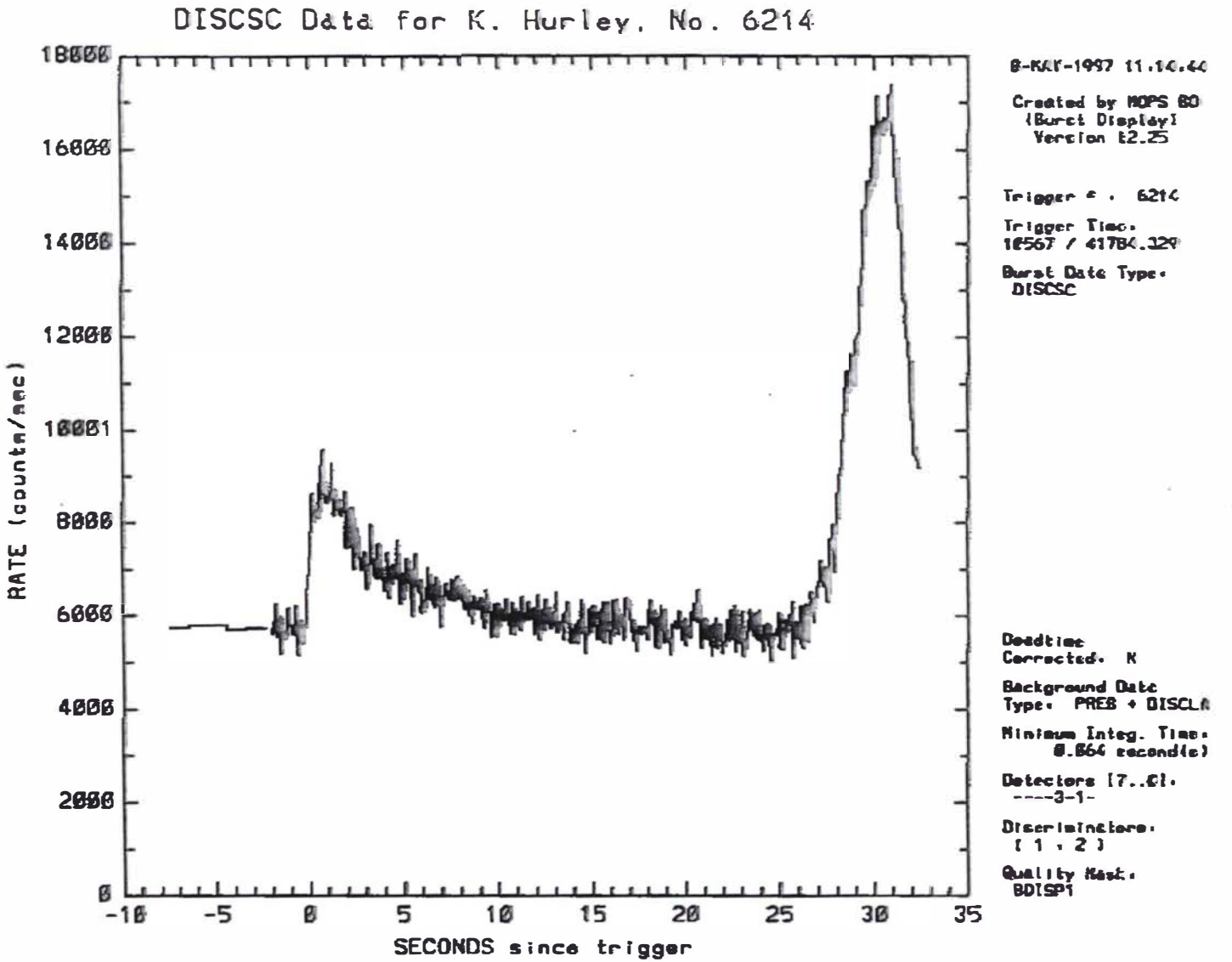
29/ 4/97 41544.359 s

0.500 S INTERVALS REGROUPED BY 2

22- 147 keV

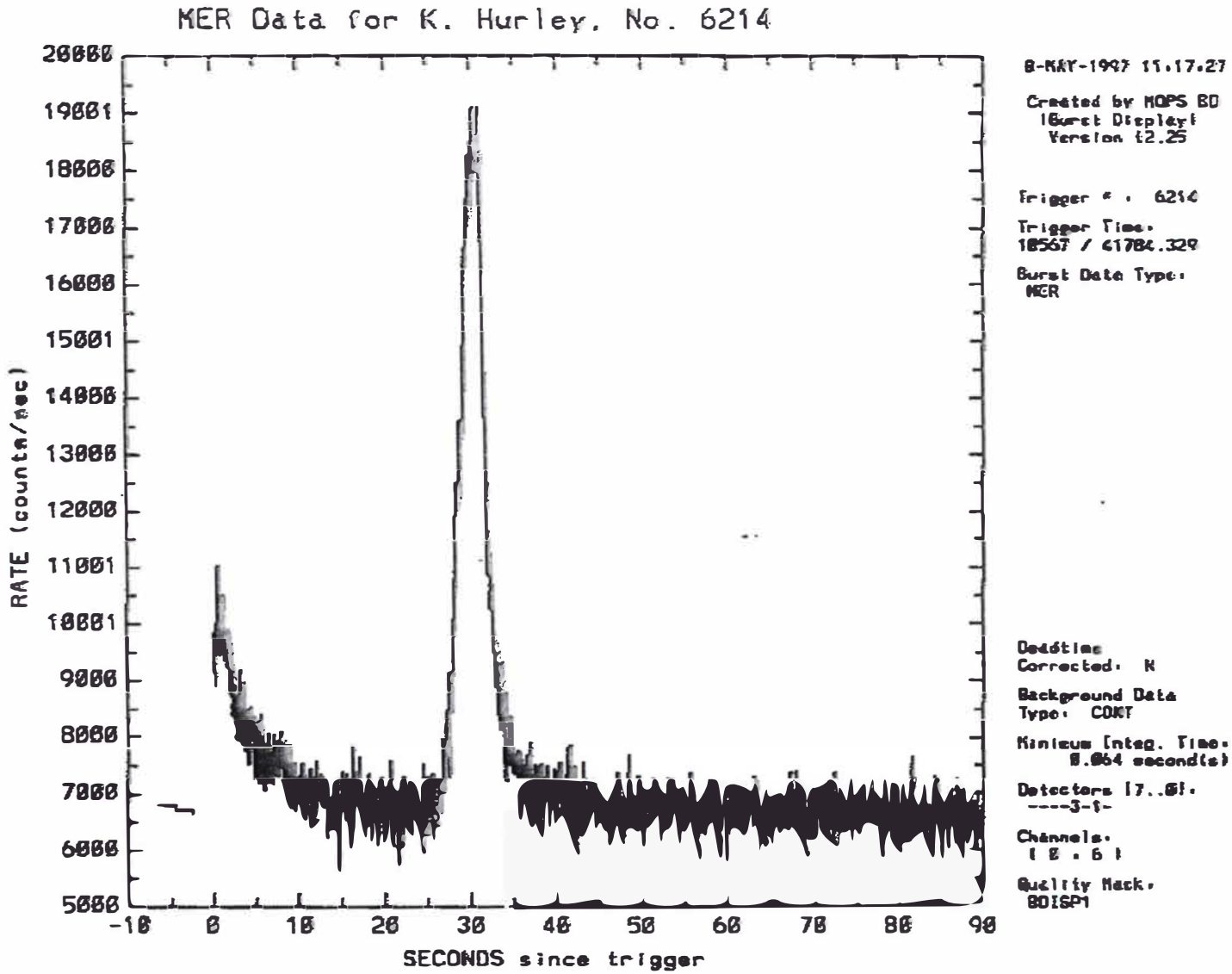



17/ 5/97
BATSE 29/04/97 41784.329
25- 100 keV
COUNTS/0.064 S
1300
1100
900
700
500
300
0
4
8
12
16
20
4
28
32
36
40
44
48

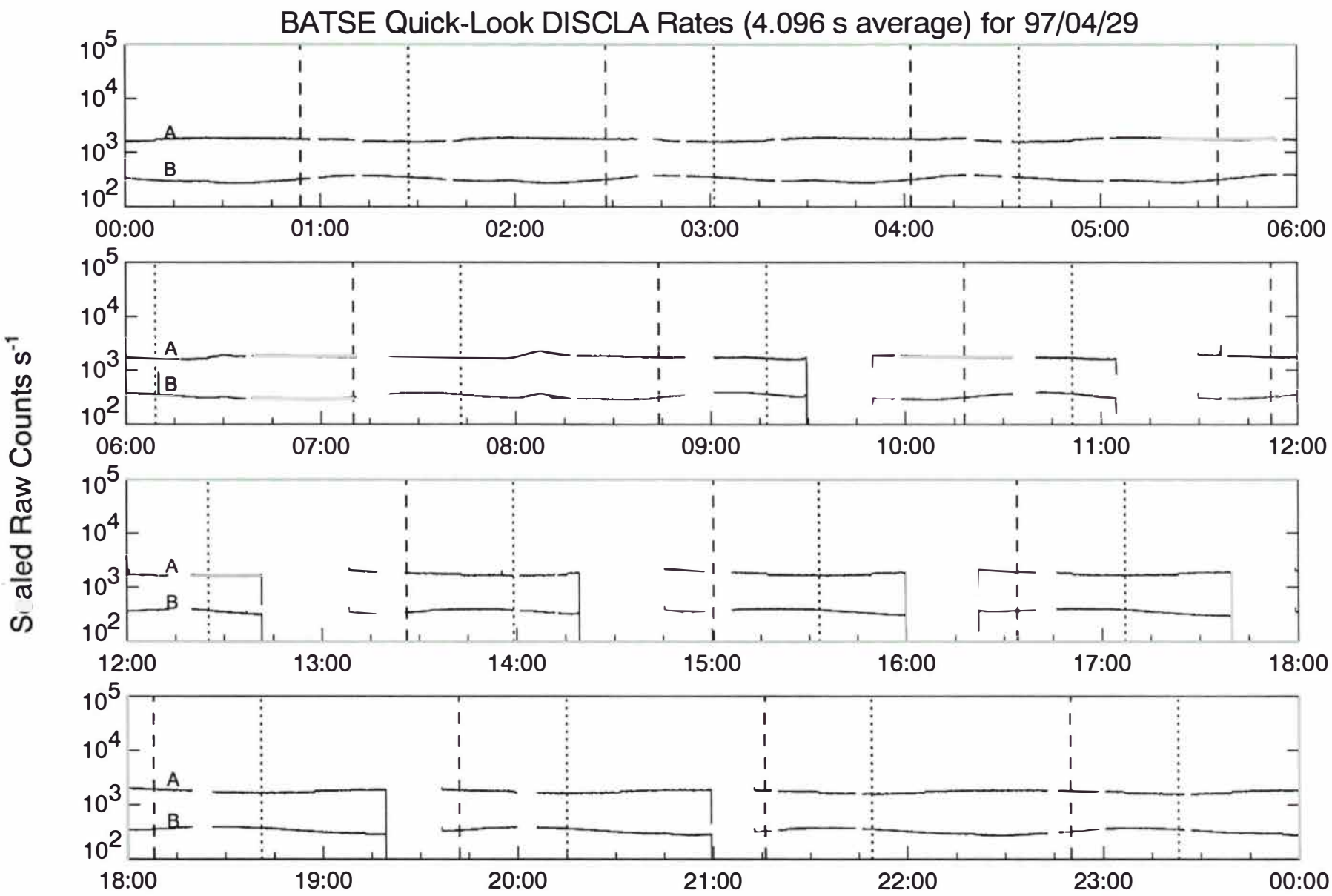

DISCSC Data for K. Hurley, No. 6214
RATE (counts/sec)
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
-10
-5
0
5
10
15
20
25
30
35
SECONDS since trigger
8-MAY-1997 11:14:44
Created by MOPS BD
(Burst Display)
Version t2.25
Trigger # . 6214
Trigger Time:
10567 / 41784.329
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)
Detectors [7..0]:
----3-1-
Discriminators:
[1 , 2]
Quality Mask:
BDISP1

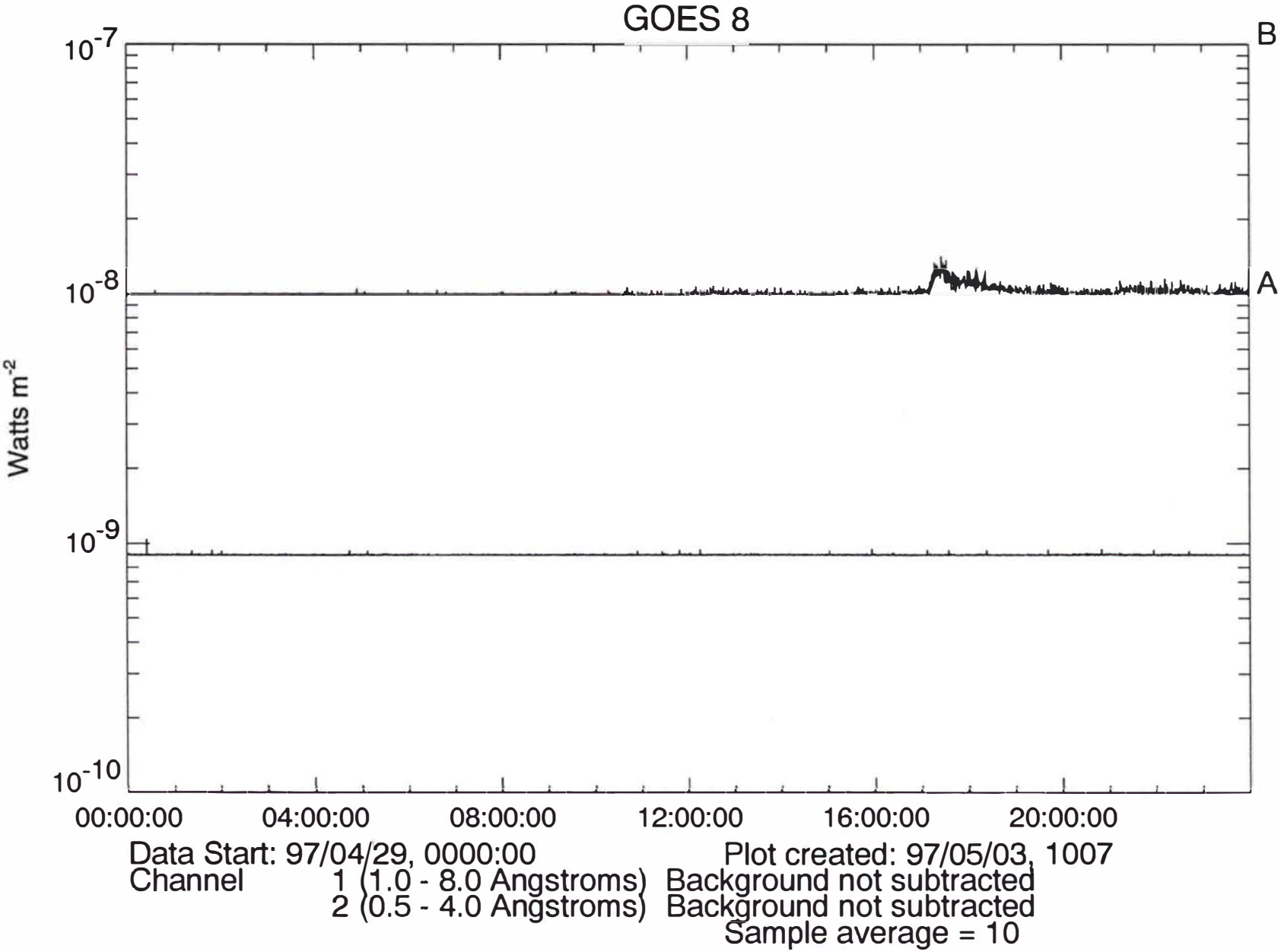
R=95%

05-08-1997 10:58 205 544 5800 BATSE P.06

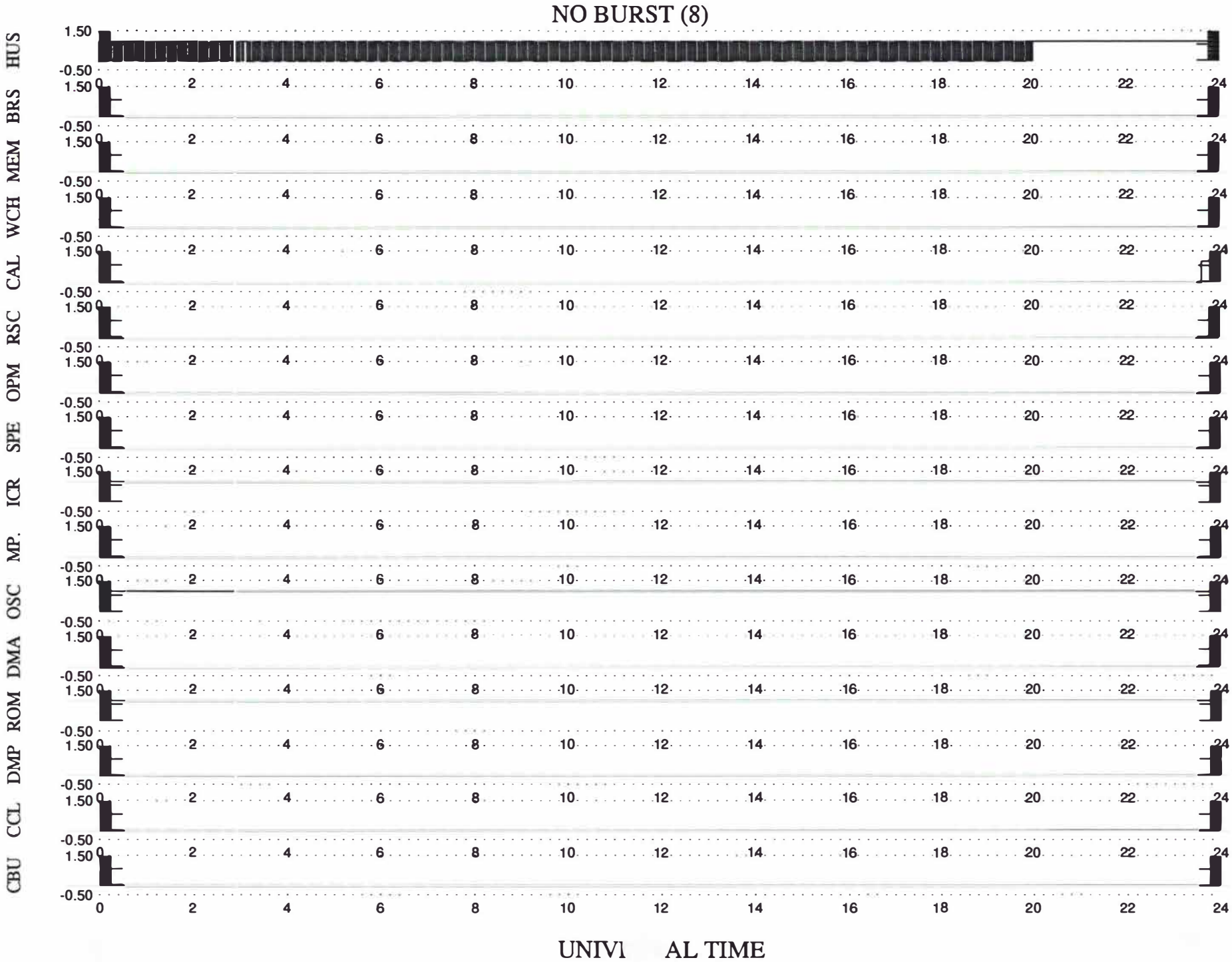


205 544 5800 05-08-97 08:55AM P006 #18


BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/29
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/05/03, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

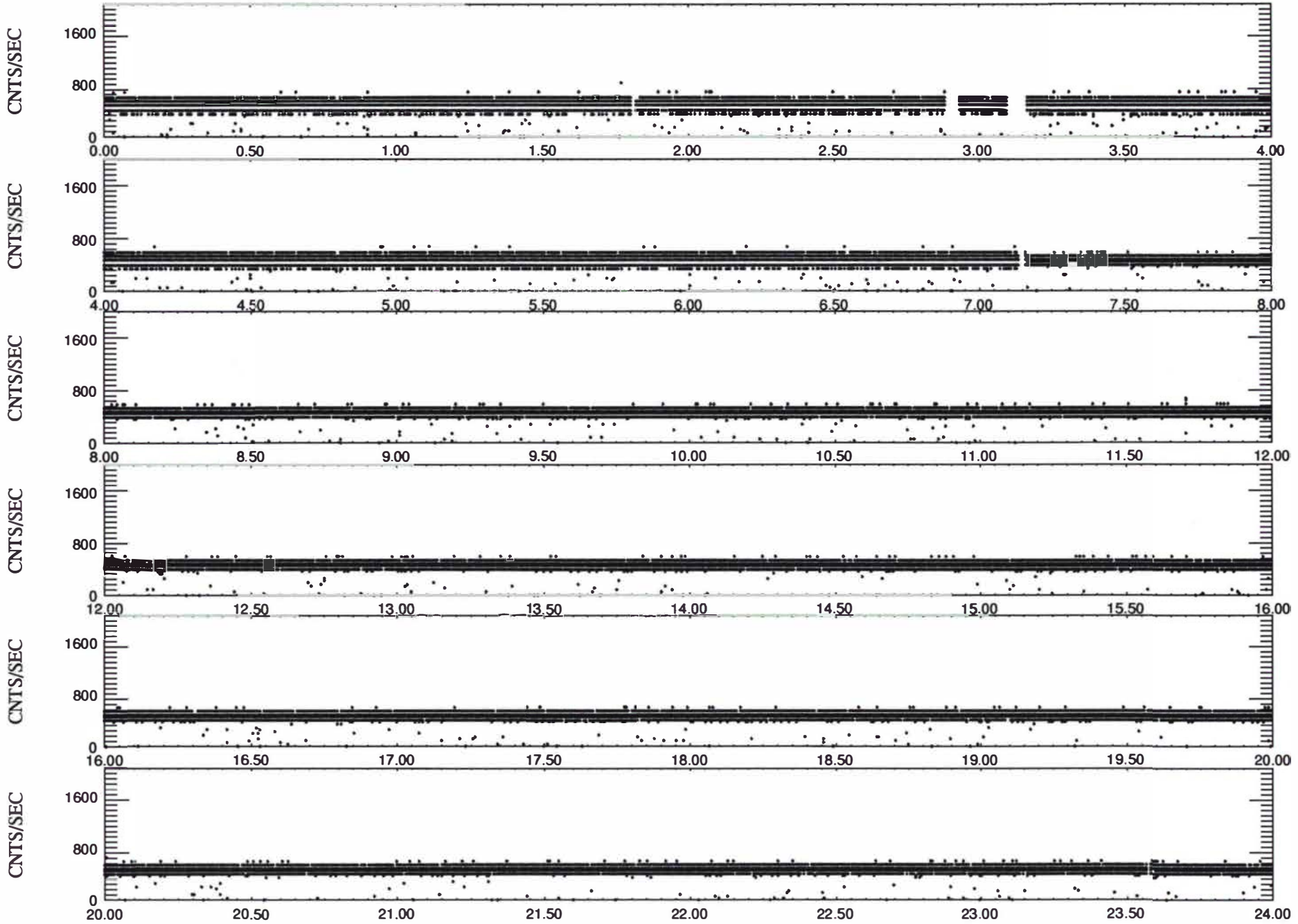

GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/29, 0000:00
Plot created: 97/05/03, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 119, year 1997 to day 119, year 1997 7/22/97



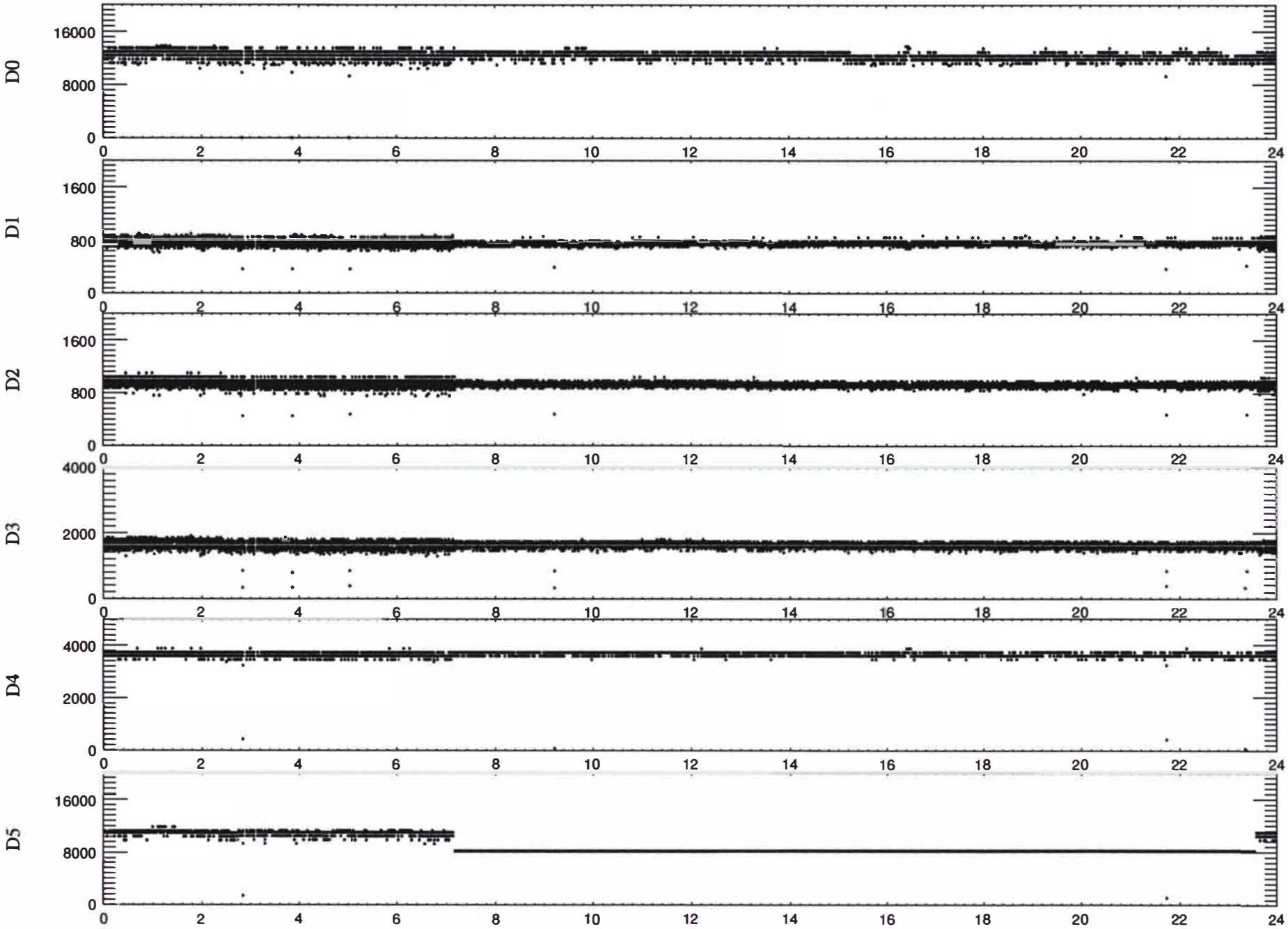
HUS 2A, MODE 1, NOT AVERAGED EDR day 119, year 1997 to day 119, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 119, year 1997 to day 119, year 1997 7/22/97



From WOODSP@SSLLES.MSFC.NASA.GOV Mon May 5 08:27 PDT 1997
Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id IAA11058; Mon, 5 May 1997 08:27:43 -0700
Date: Mon, 5 May 1997 10:27:27 -0500 (CDT)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970505102727.21c078dd@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6215
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6215
EVENT OF 1997 APR 30 DAY OF YEAR=120
EVENT CROSSING TIME AT BATSE : 69518. S. OR 19:18:38.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 260.000 45.000
BATSE PEAK COUNTING RATE: 7500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 30/ 4/ 97 IS:
RA= 151.663 DEC= 33.128 DIST= 4.745 AU
BATSE-ULYSSES DISTANCE = 709876094. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=101.55 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -473.90 SECS.
CROSSING TIME AT ULYSSES IS 69044. S. OR 19:10:44 +/- 445.59 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 30/ 4/ 97 IS:
RA= 168.626 DEC= 7.103 DIST= 0.807 AU
MARS-BATSE DISTANCE = 120660408. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 94.05 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -28.42 SECS.
CROSSING TIME AT MARS IS 69490. S. OR 19:18:09 +/- 69.27 SECONDS

BATSE BURST TRIGGER
NO.: 6215

TIME: TJD=0568 SECONDS=69518

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=141.3 AZIMUTH=190.5 ERROR=11 DEGREES

COMMENTS:
GRB LASTING ~ 0.3 SEC. SINGLE PULSE WITH SUBSTRUCTURE. HARD
SPECTRUM. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6215	970430	10568	69518	7500	260	+45	.3

BATSE BURST# 6215

ULYSSES RT 5/ 5/97

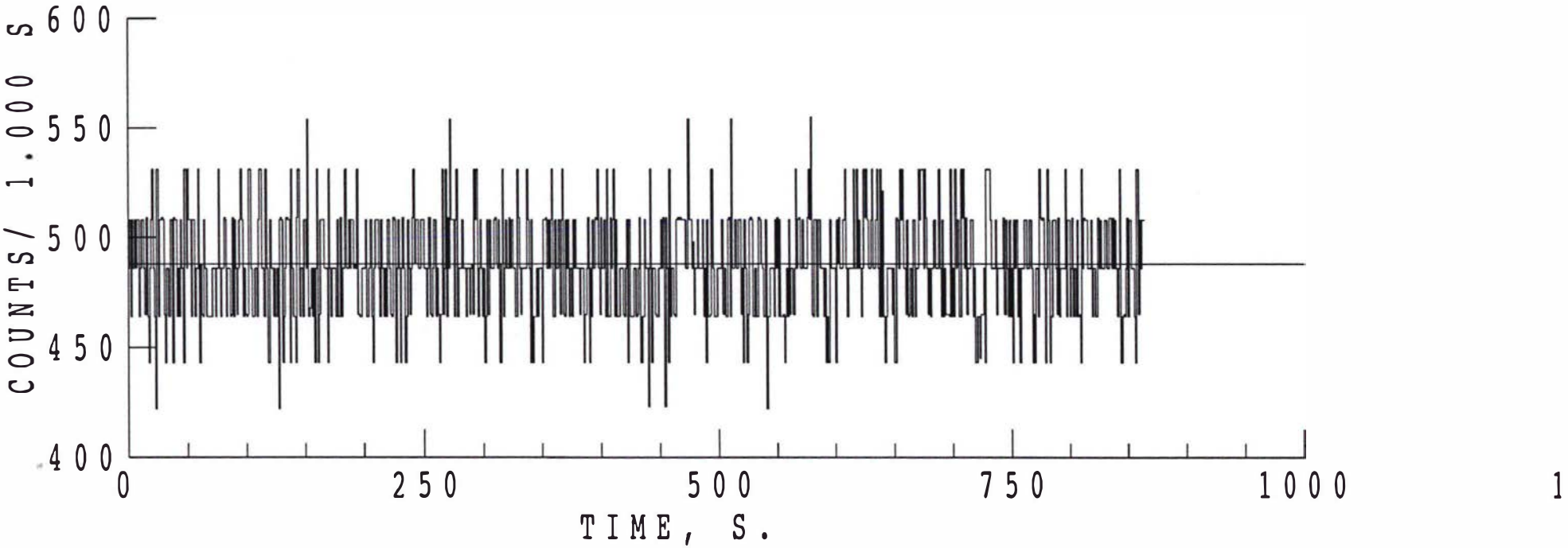
30/ 4/97 68616.195 s

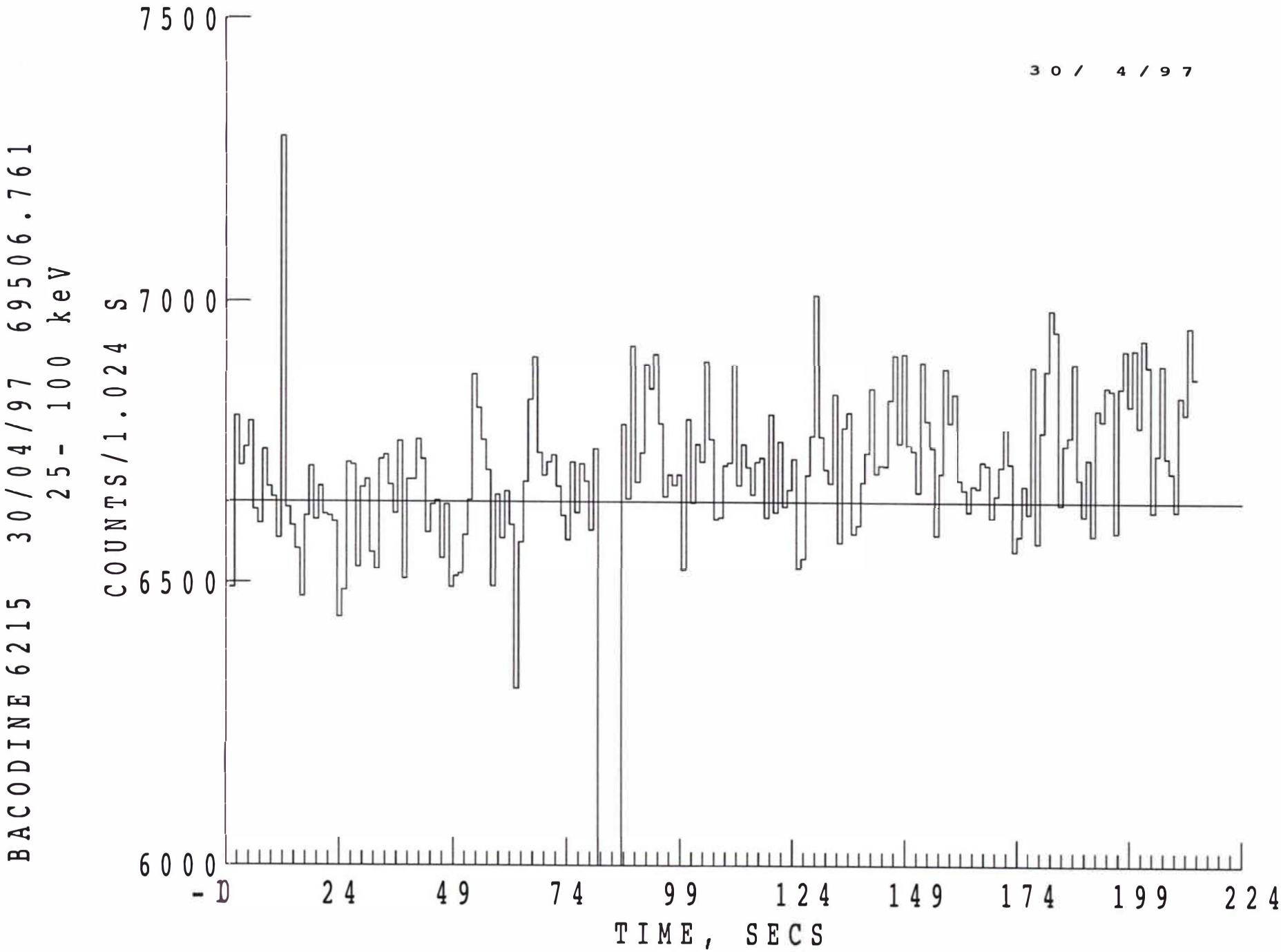
0.500 S INTERVALS REGROUPED BY 2

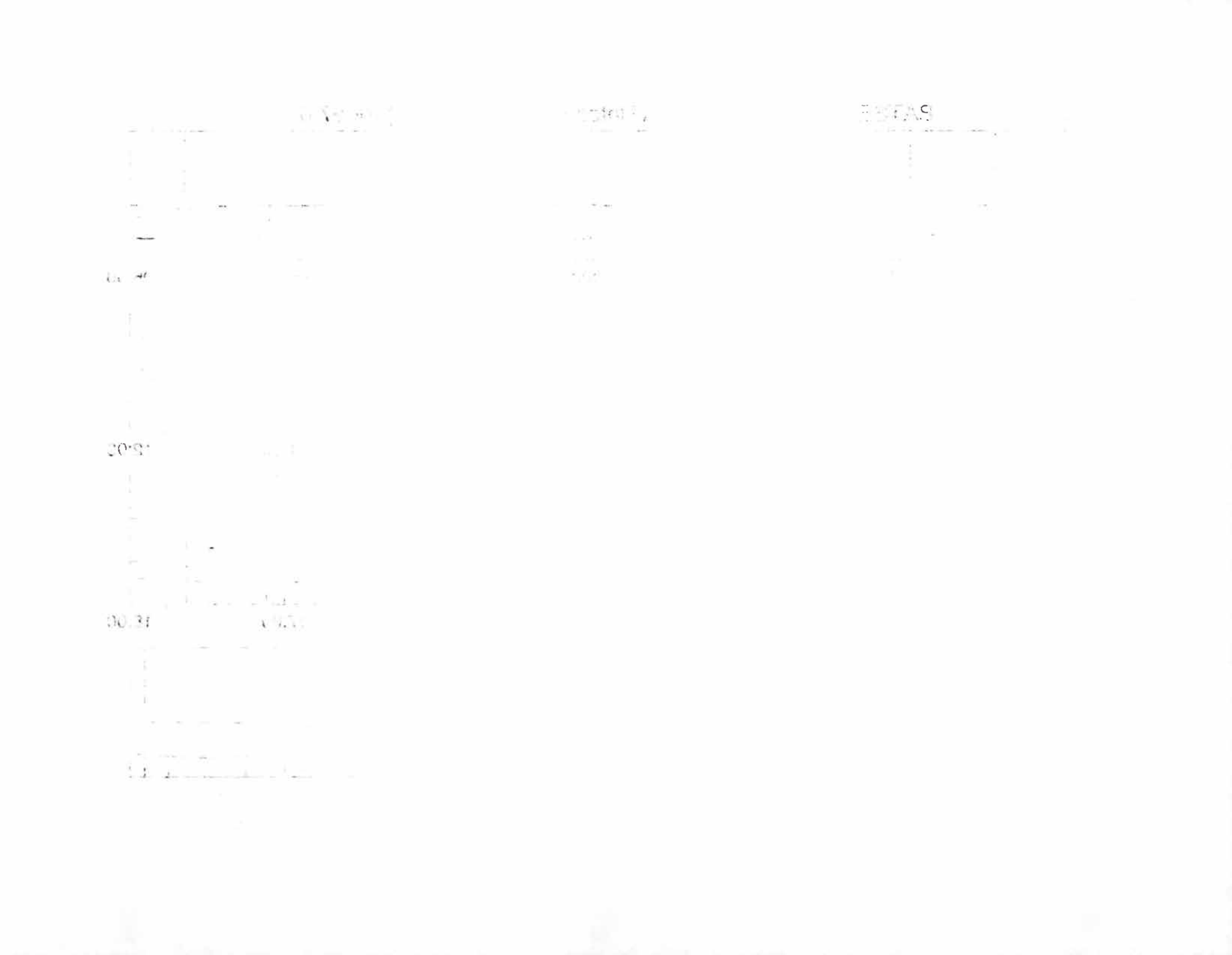
0- 0 keV

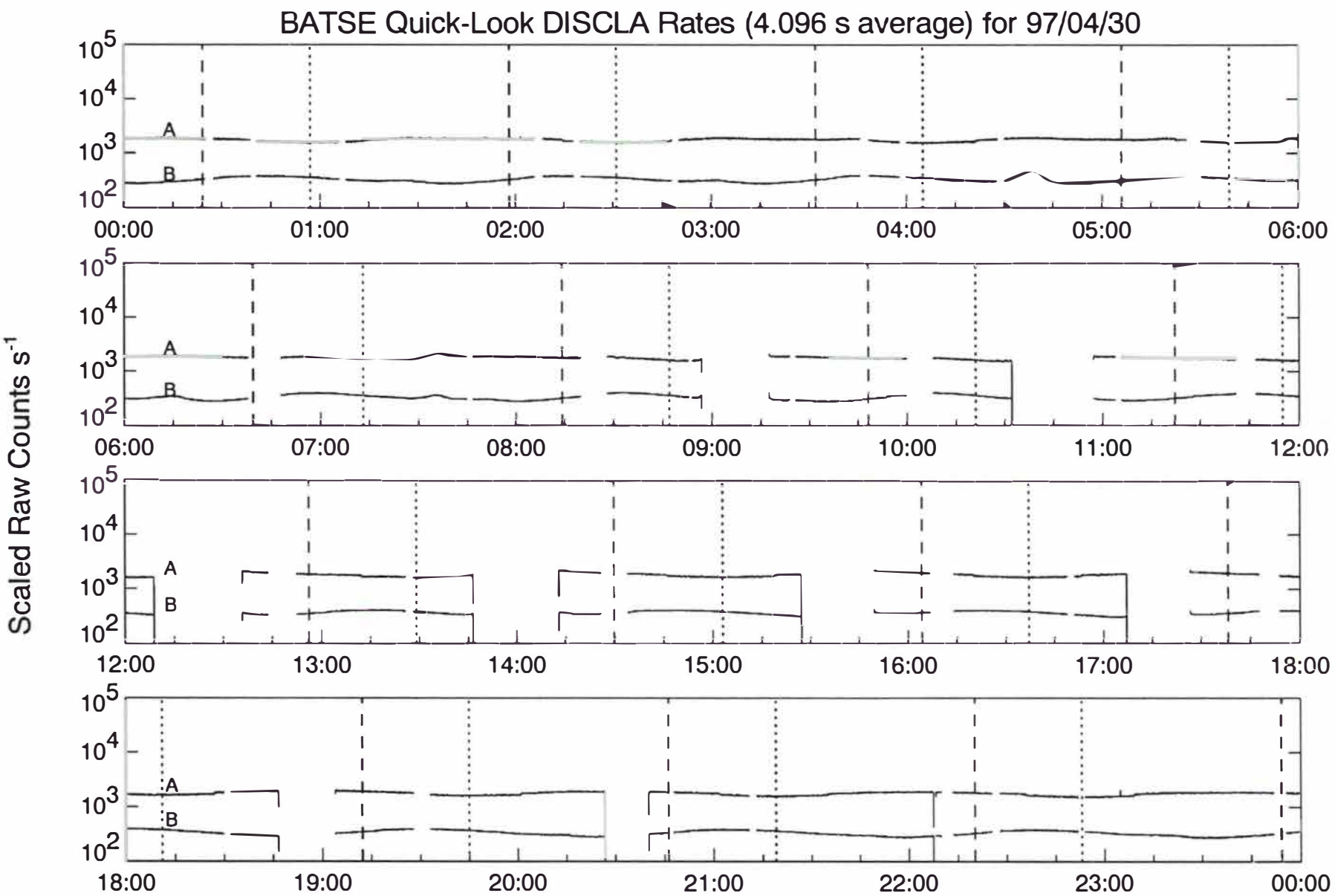
N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

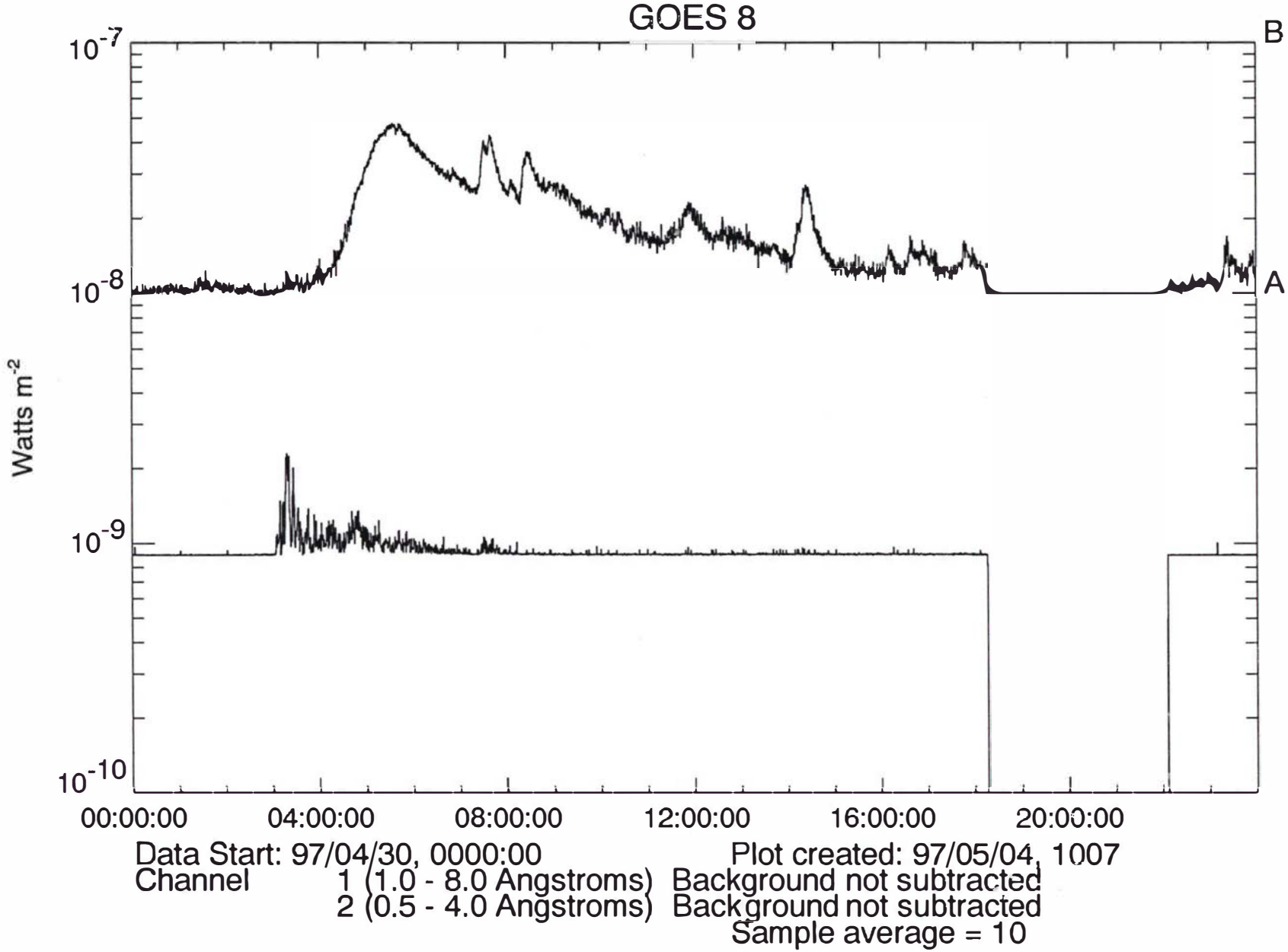
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



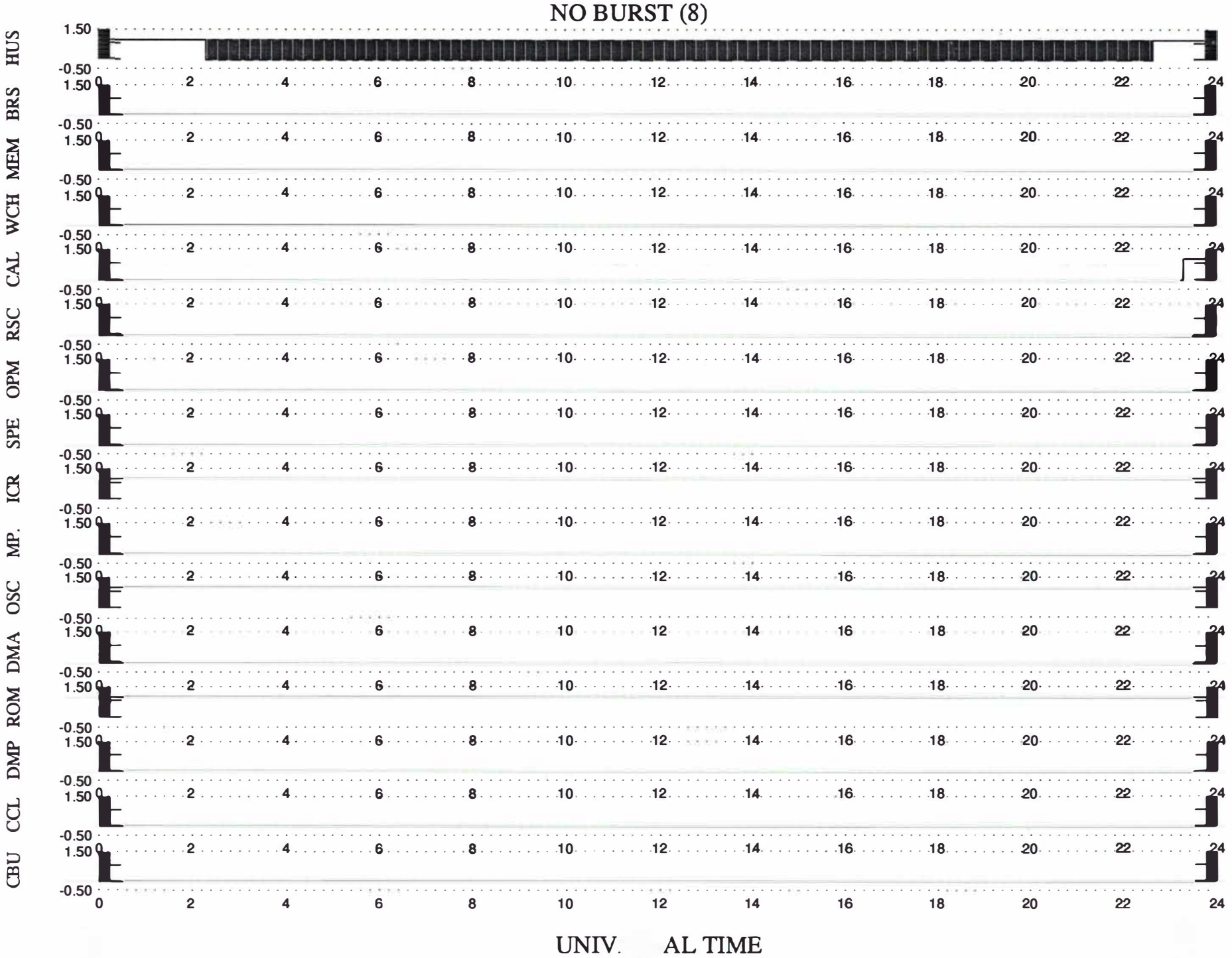

BACODINE 6215 30/04/97 69506.761
25- 100 keV
COUNTS/1.024 S
7500
7000
6500
6000
30/ 4/97
-D
24
49
74
99
124
149
174
199
224
TIME, SECS




BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/04/30
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/05/04, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare


GOES 8
B
A
10^{-7}
10^{-8}
10^{-9}
10^{-10}
Watts m^{-2}
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/04/30, 0000:00
Plot created: 97/05/04, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

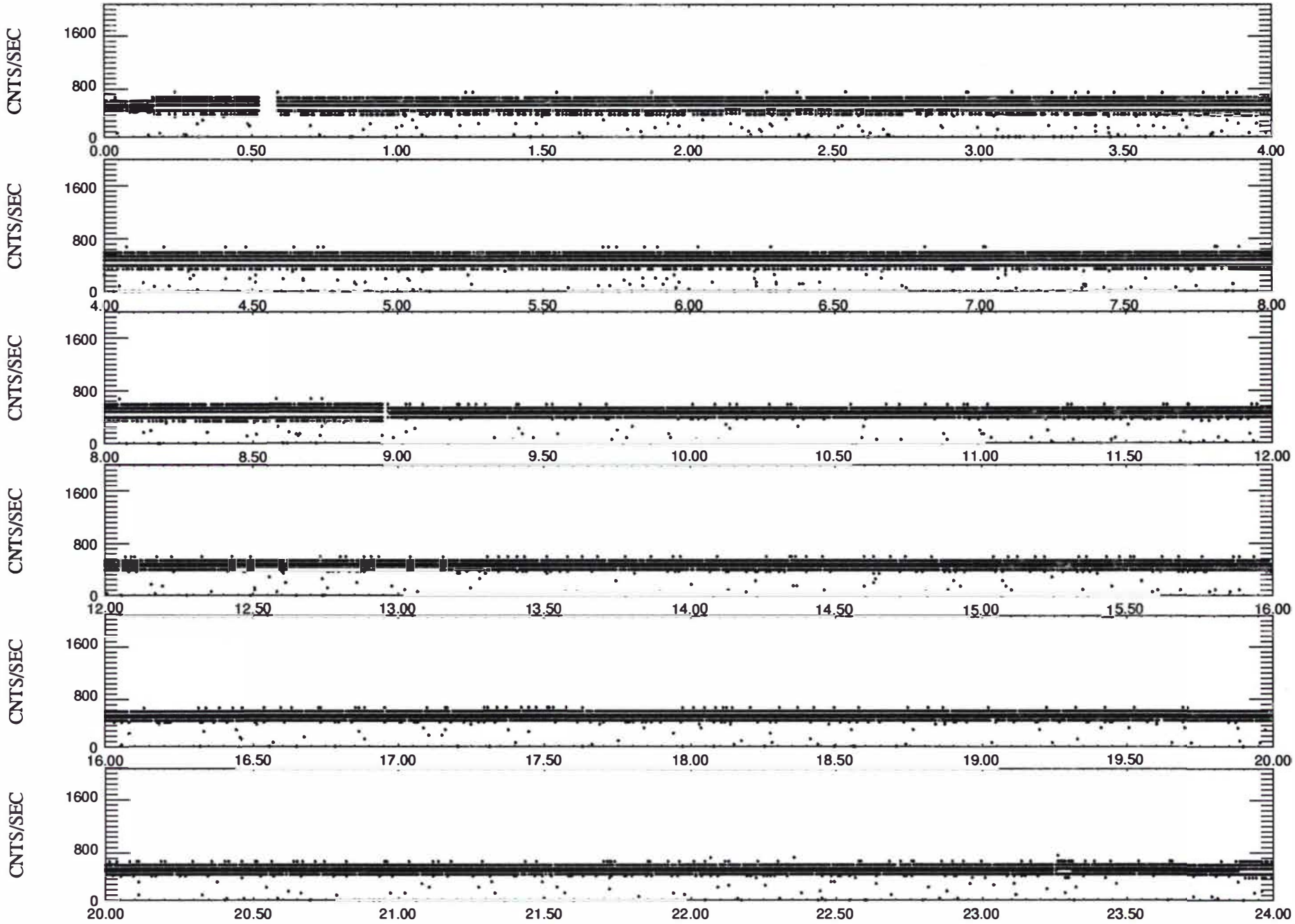
HUS MODES EDR day 120, year 1997 to day 120, year 1997 7/22/97



BUS 2A MODE I, NON AVENIDA EDR

HUS 2A, MODE 1, NOT AVERAGED EDR day 120, year 1997 to day 120, year 1997 7/22/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 120, year 1997 to day 120, year 1997 7/22/97

