

.93.152.00.11.24.306

HUS monthly long term thermal data

818

RET

E002 2ARADTMP S/C

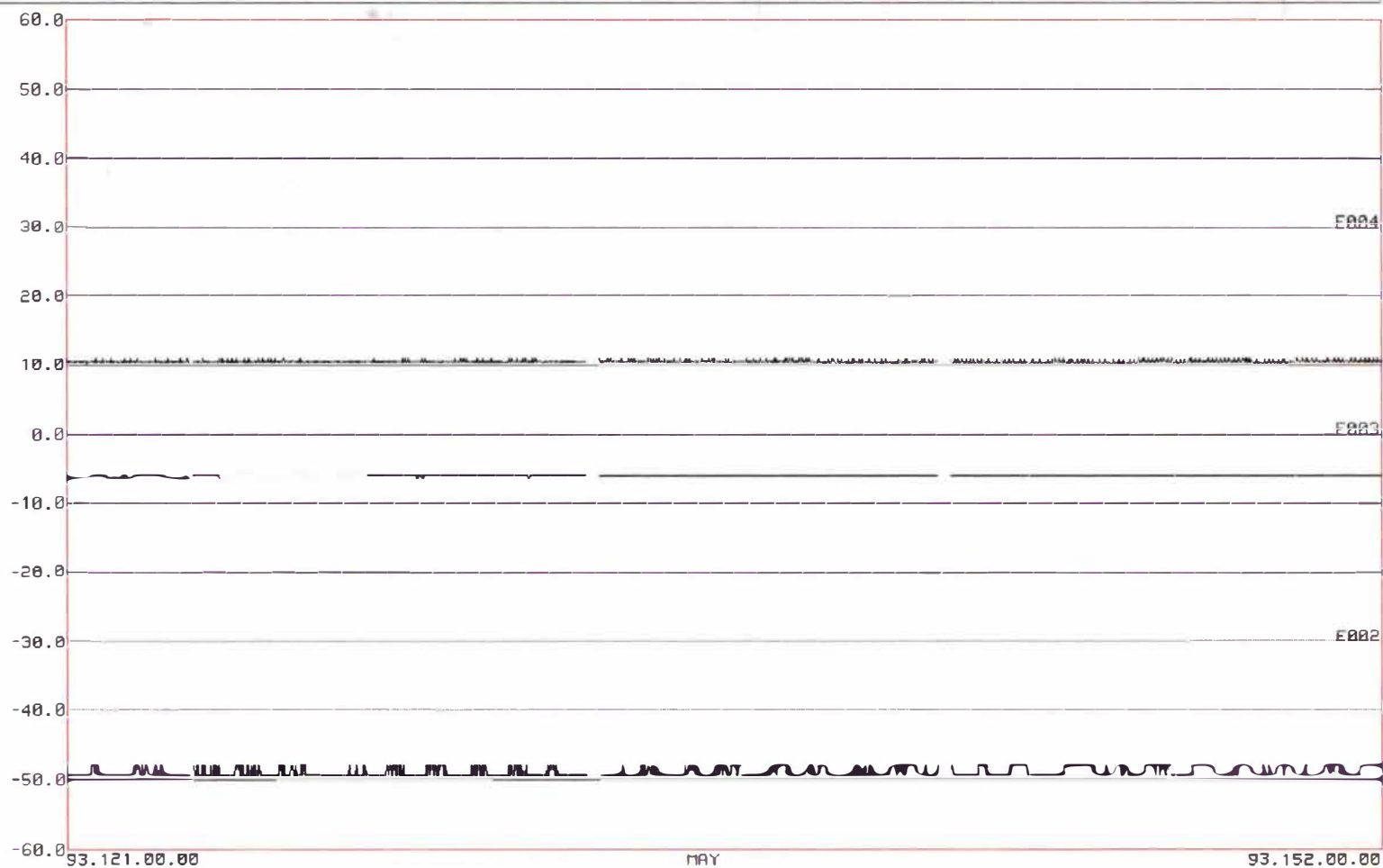
-6.1

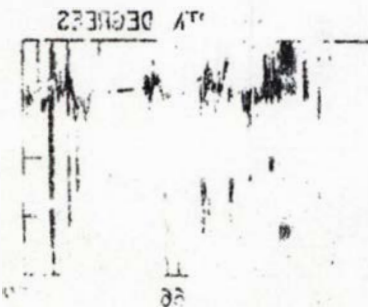
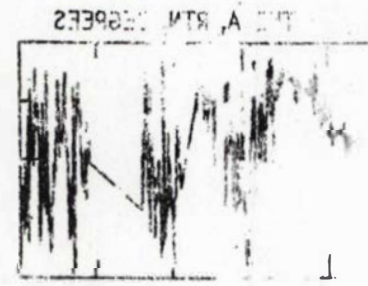
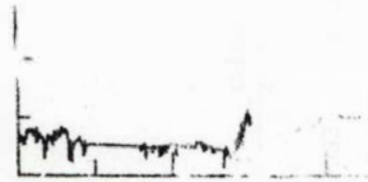
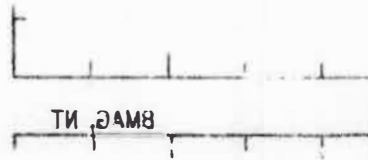
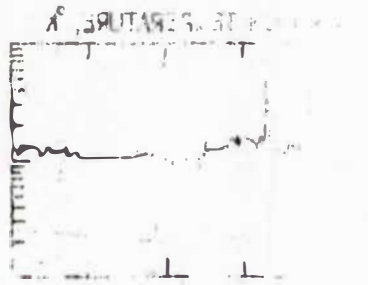
E003 2BSENTMP S/C

-48.0

E004 2ASENSTMP EX

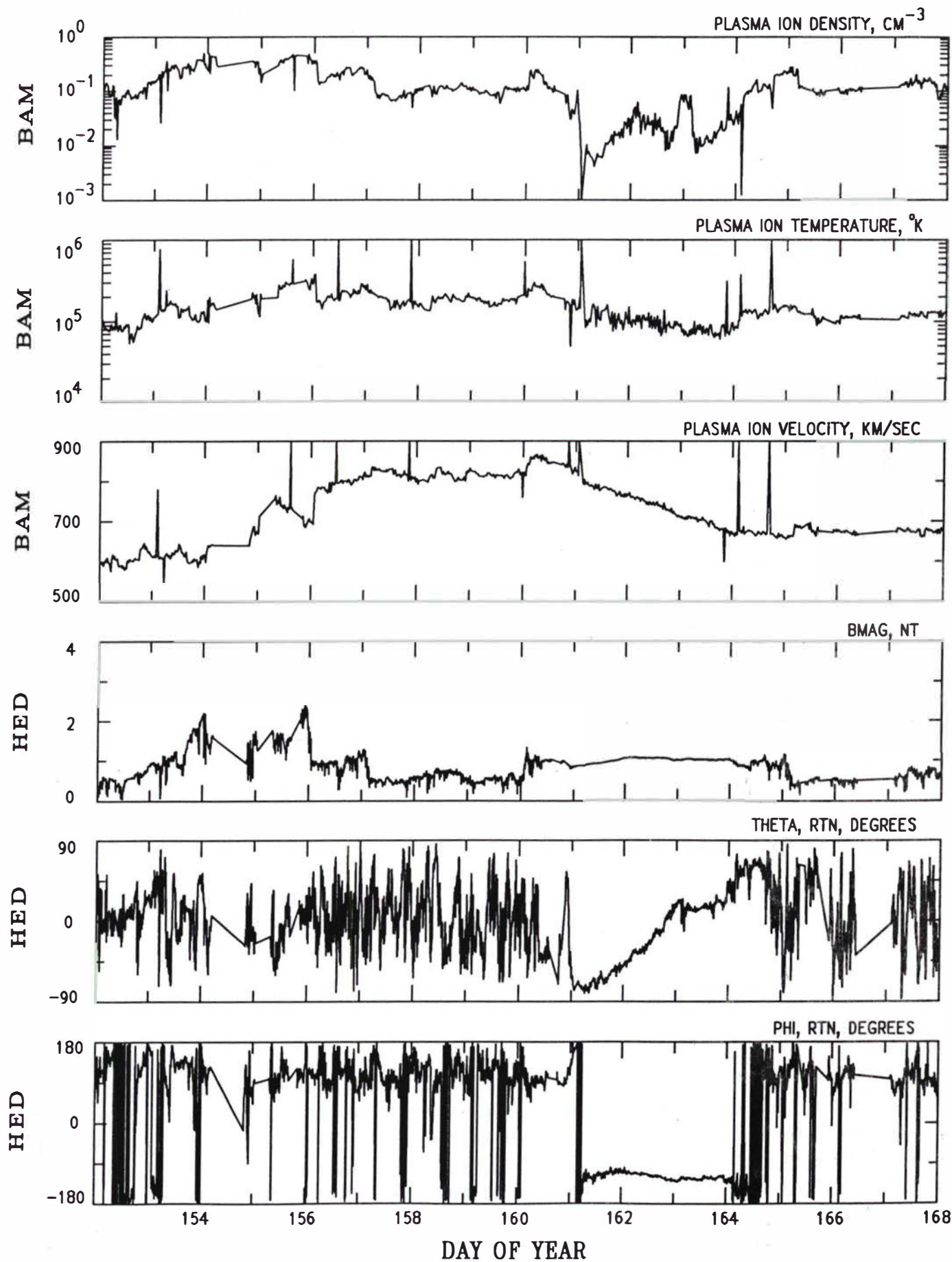
10.45





ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

93 152 JUN 1 00:00:00.000 - 93 168 JUN 17 00:00:00.000



1000 1000 1000

1000

1000 1000 1000

1000 1000 1000

1000 1000 1000

1000

1000

1000 1000 1000

1000 1000 1000

1000 1000 1000

1000 1000 1000

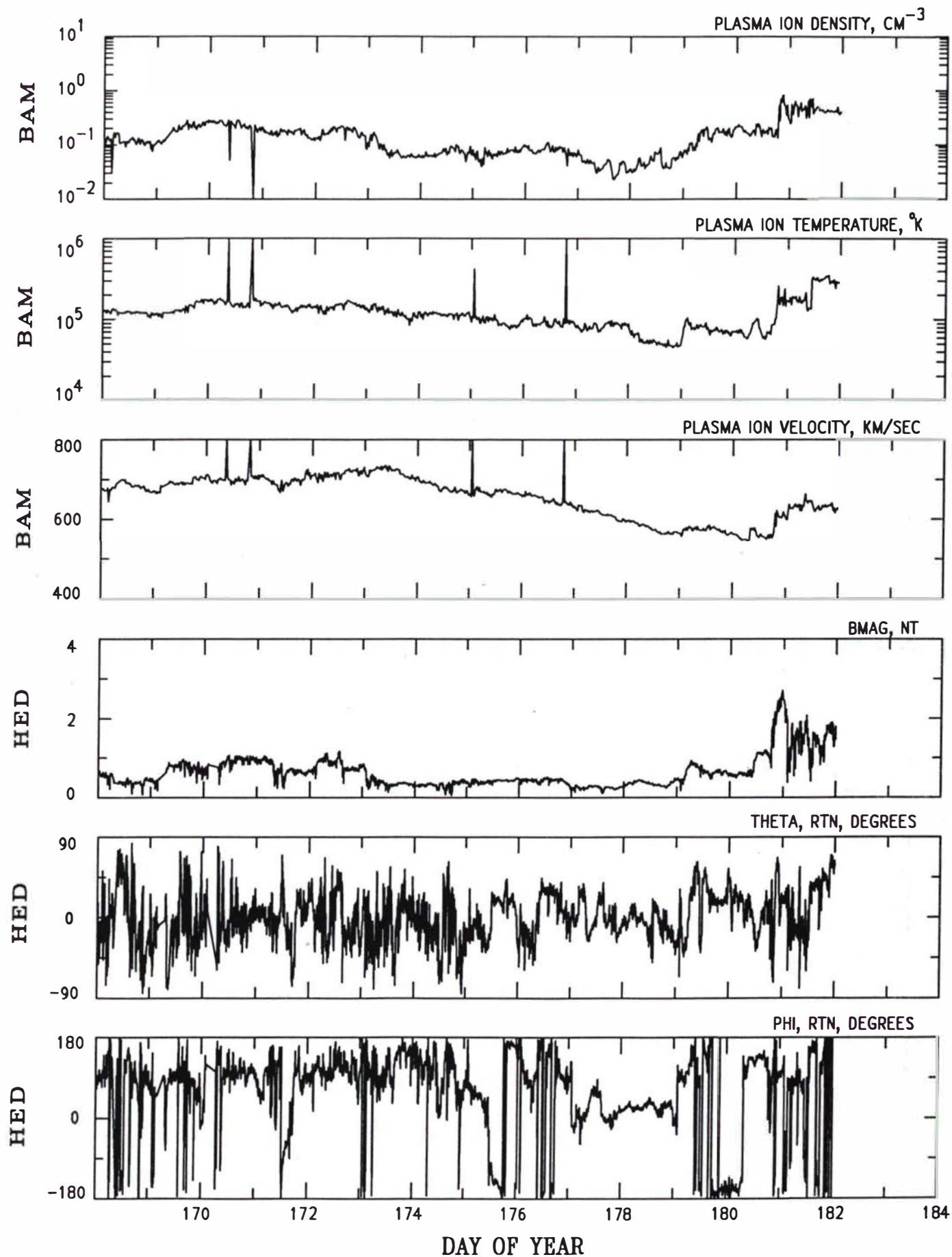
1000 1000 1000

1000 1000 1000

1000 1000 1000

ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

93 168 JUN 17 00:00:00.000 - 93 184 JUL 3 00:00:00.000



1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

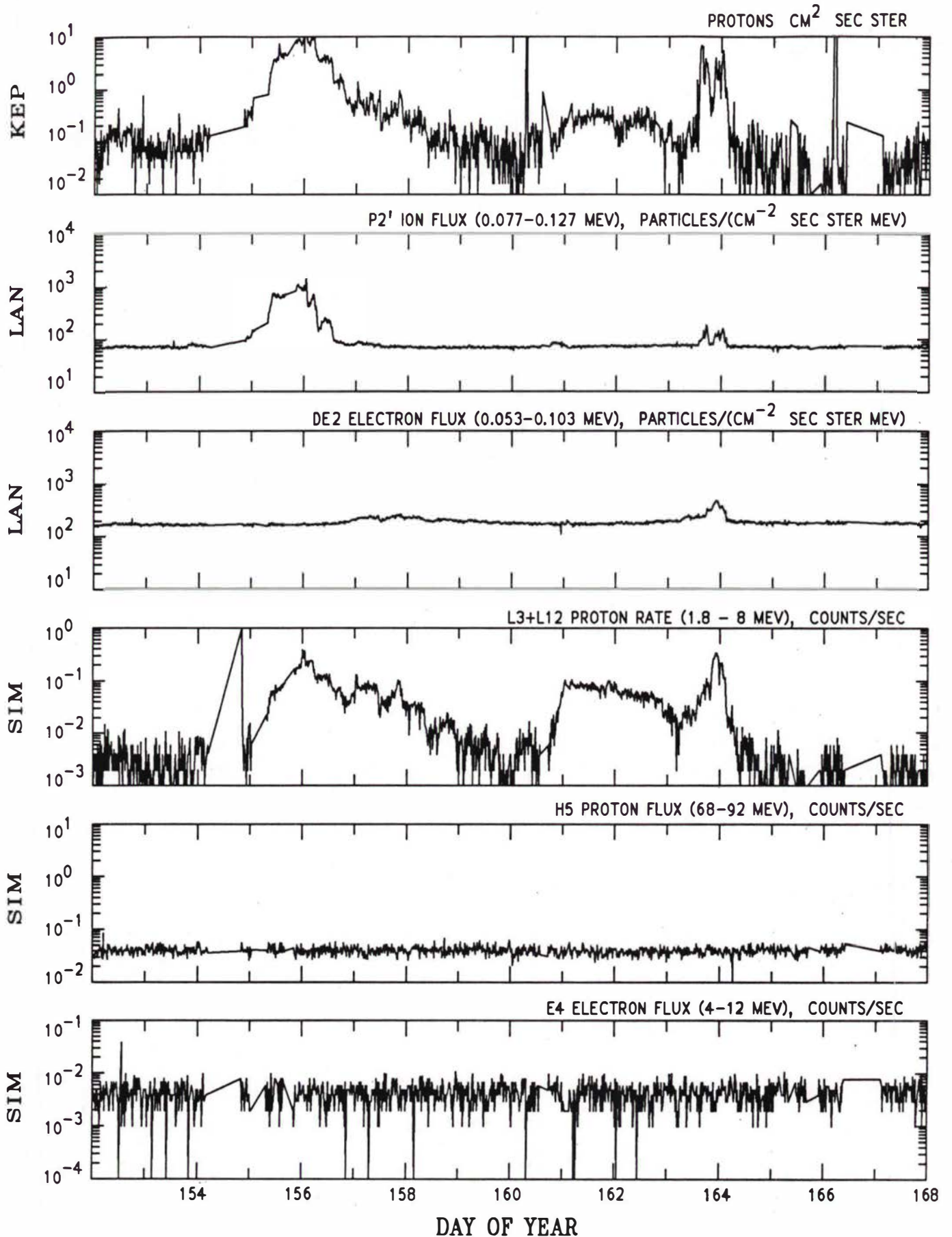
1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

1. 2. 3. 4. 5. 6. 7. 8. 9. 10.

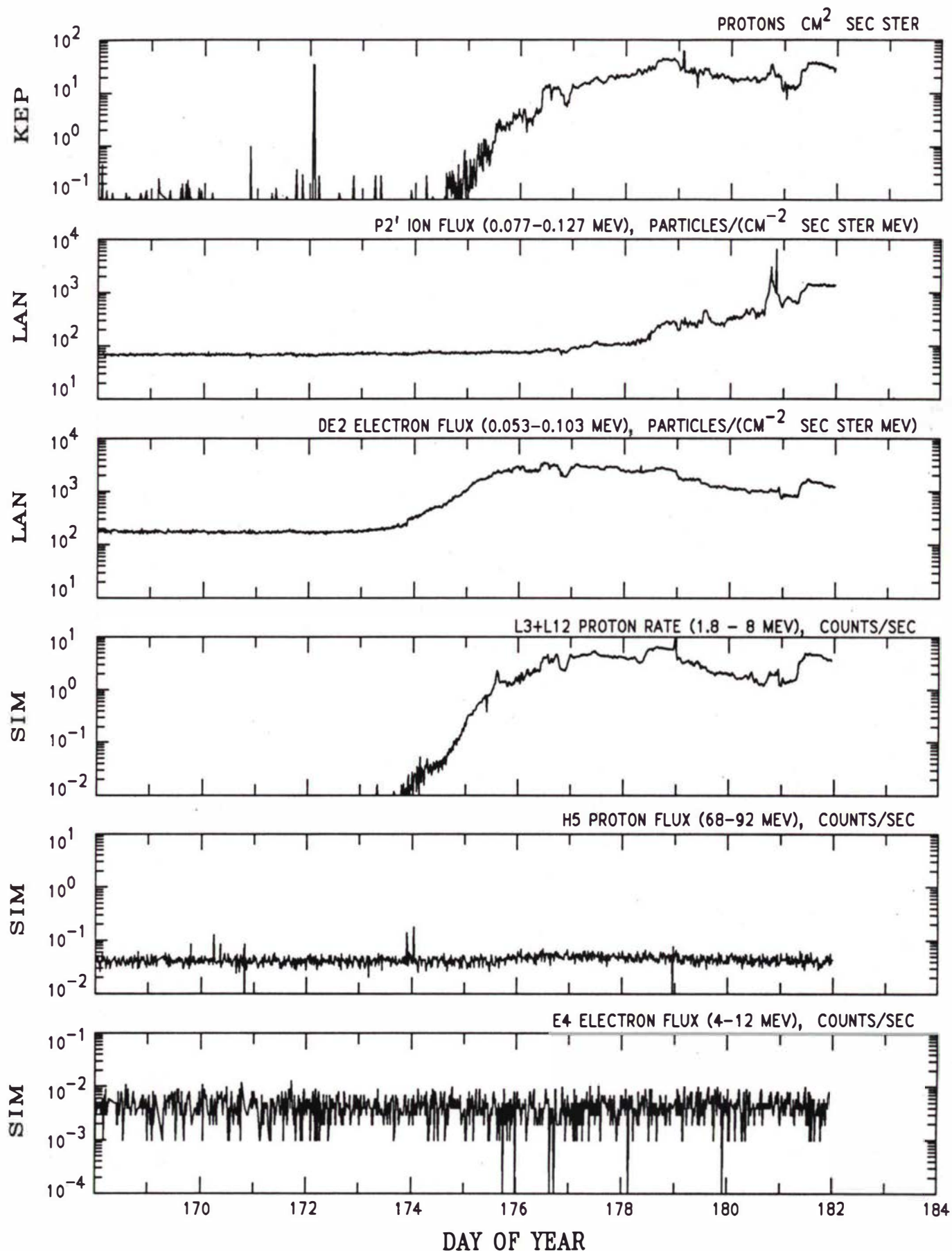
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

93 152 JUN 1 00:00:00.000 - 93 168 JUN 17 00:00:00.000



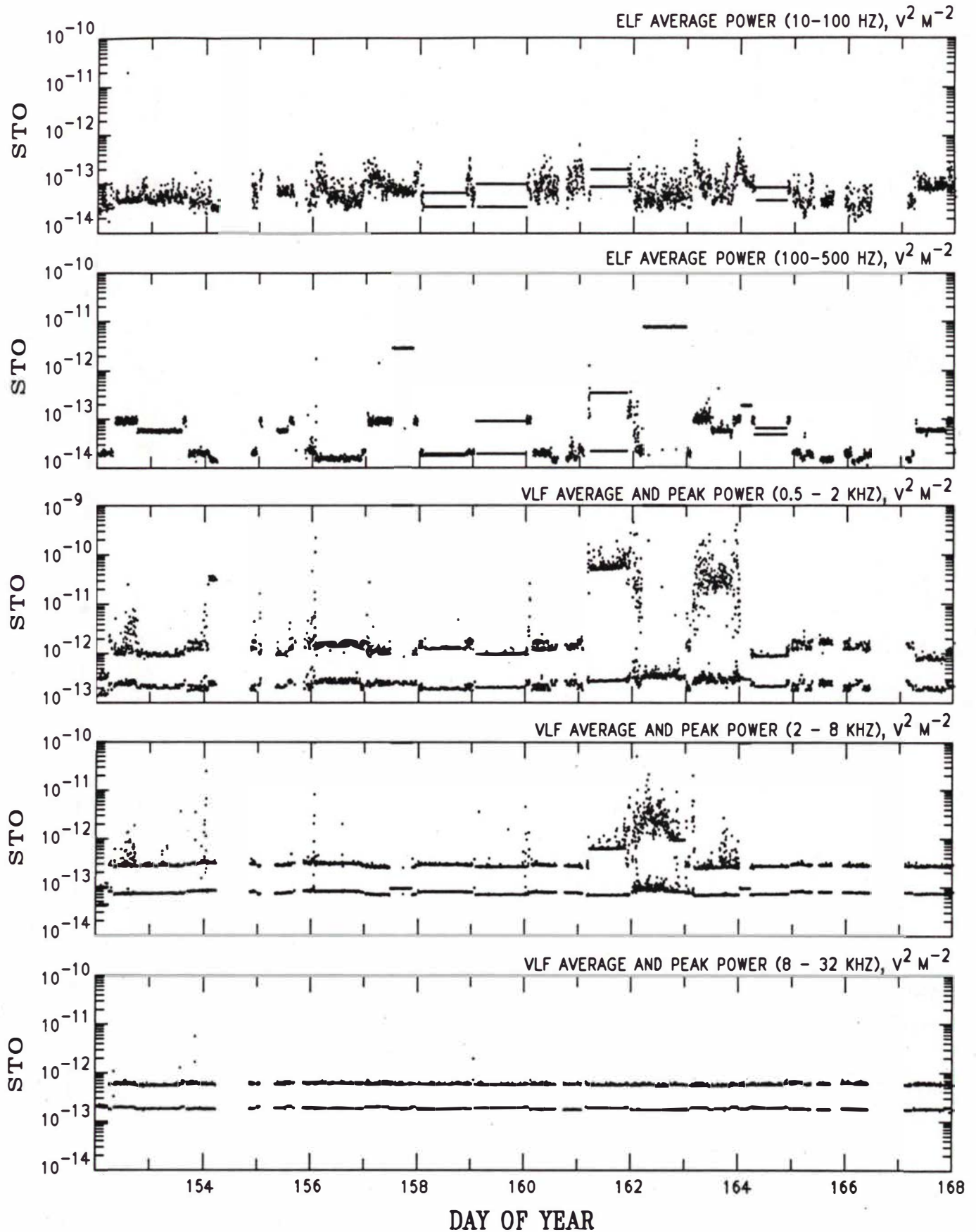
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

93 168 JUN 17 00:00:00.000 - 93 184 JUL 3 00:00:00.000



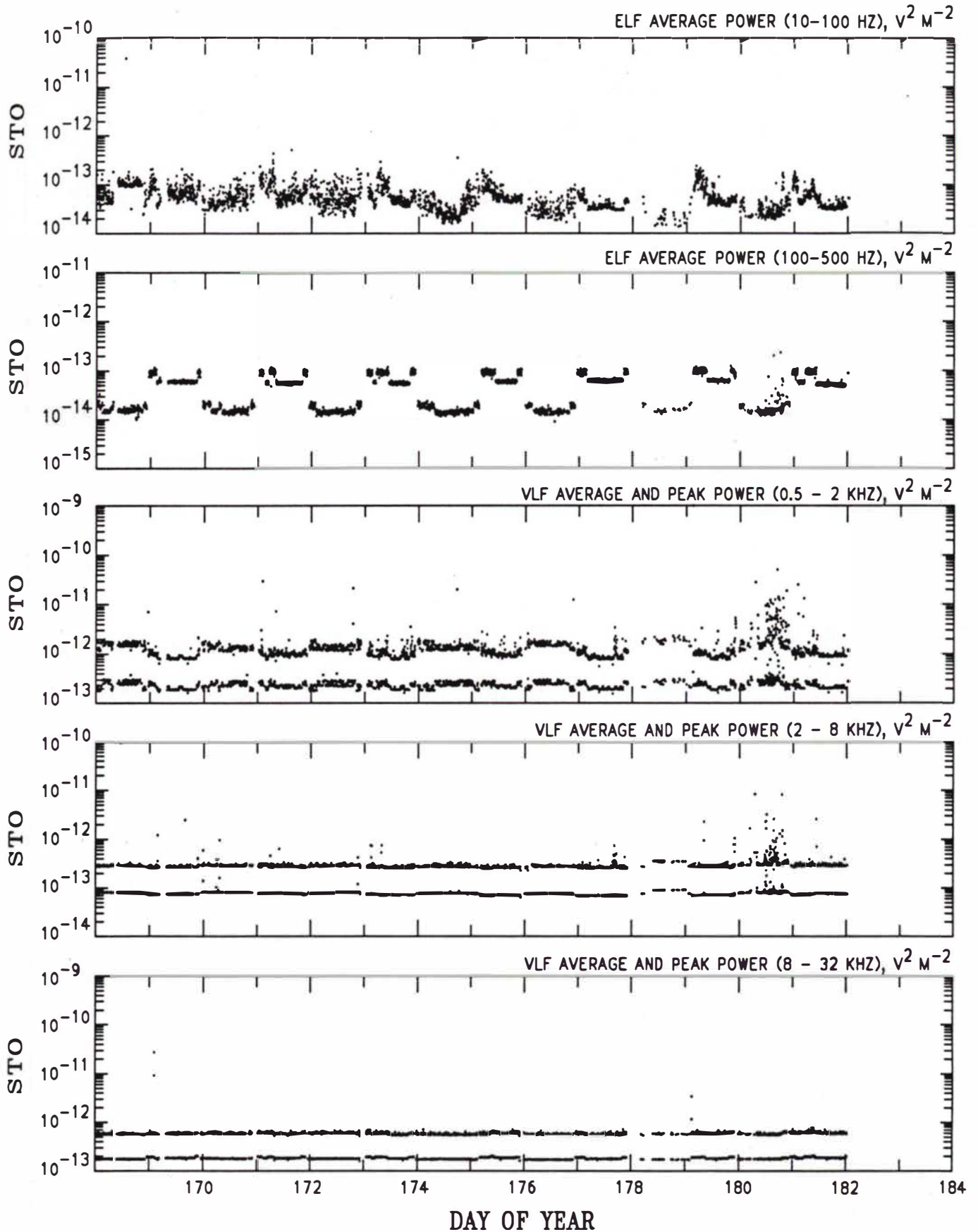
ULYSSES CDR - PLASMA WAVE

93 152 JUN 1 00:00:00.000 - 93 168 JUN 17 00:00:00.000



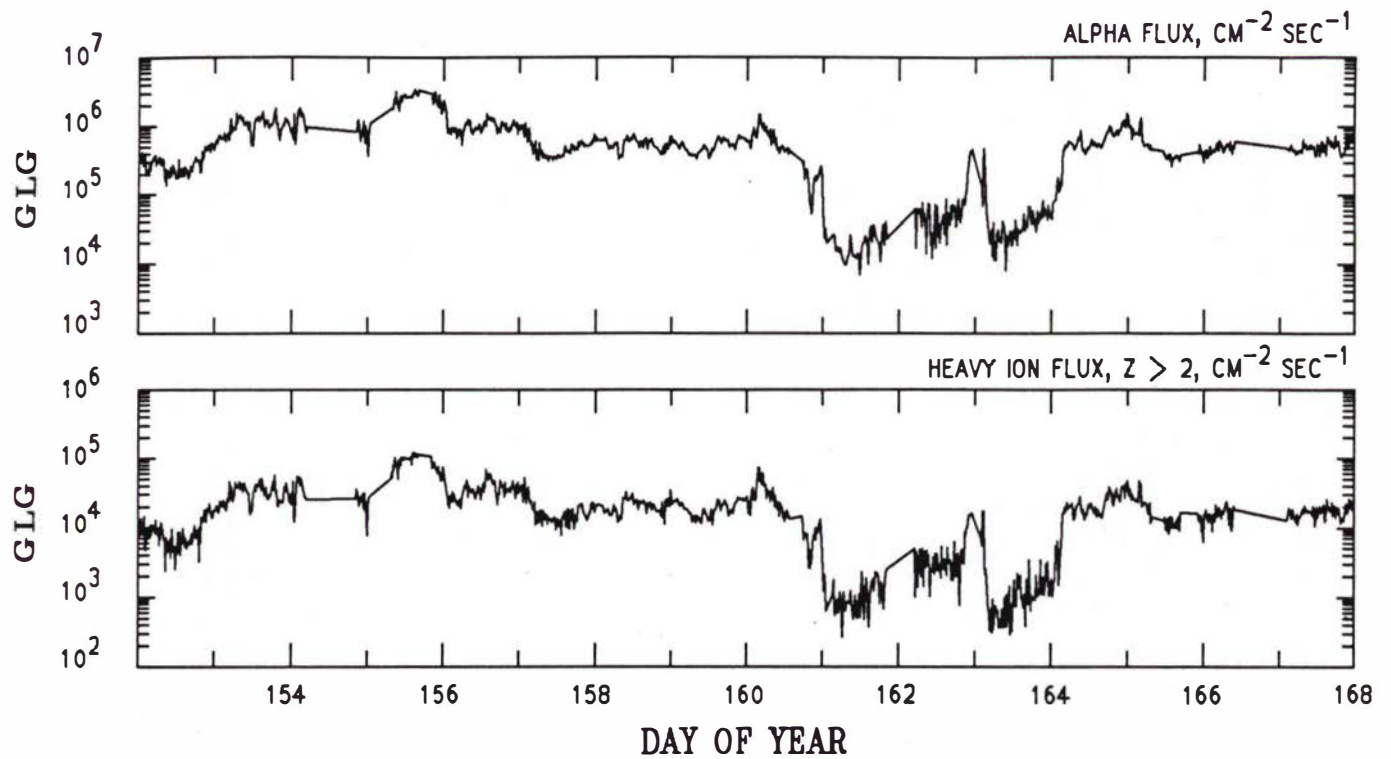
ULYSSES CDR - PLASMA WAVE

93 168 JUN 17 00:00:00.000 - 93 184 JUL 3 00:00:00.000



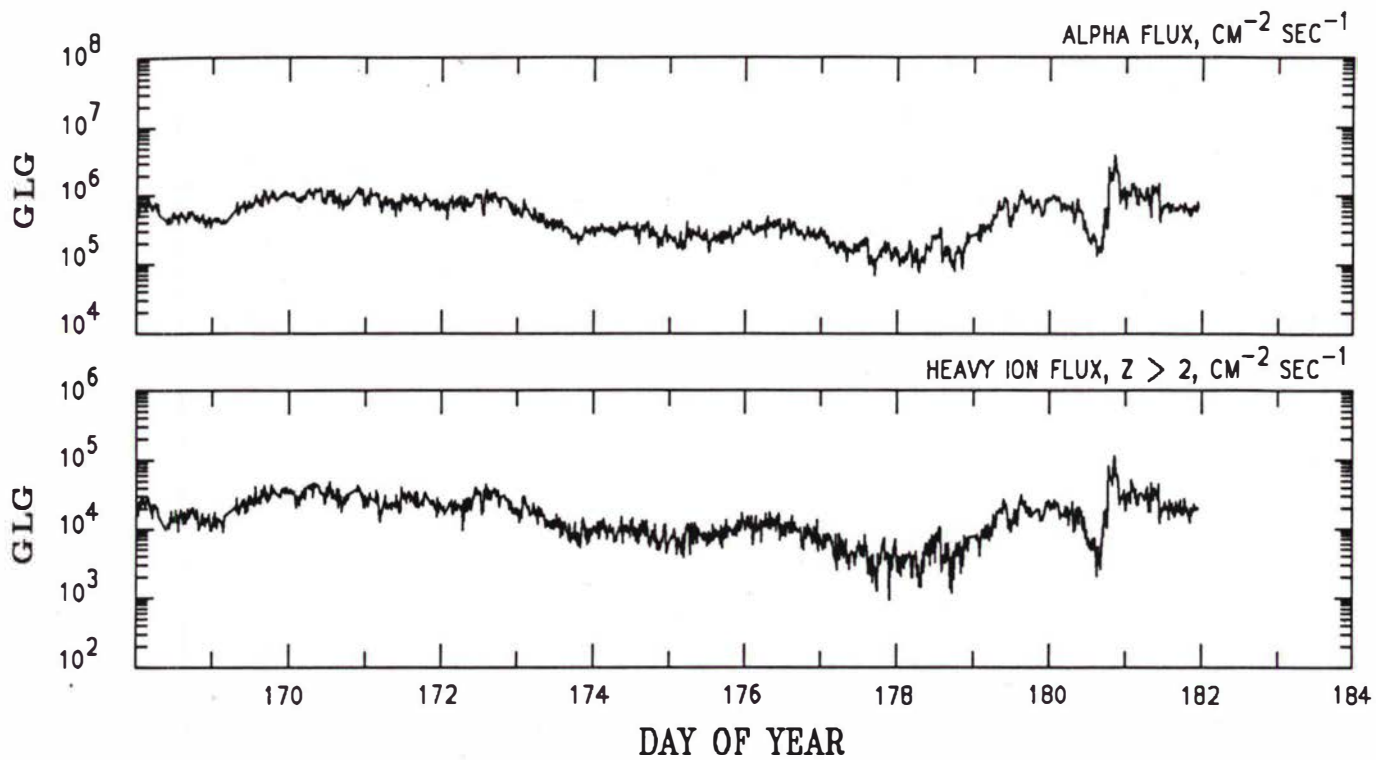
ULYSSES CDR - SOLAR WIND ION COMPOSITION

93 152 JUN 1 00:00:00.000 - 93 168 JUN 17 00:00:00.000



ULYSSES CDR - SOLAR WIND ION COMPOSITION

93 168 JUN 17 00:00:00.000 - 93 184 JUL 3 00:00:00.000



BATSEARCH PROGRAM

BATSE BURST # 2363
EVENT OF 1993 JUN 1 DAY OF YEAR=152
EVENT CROSSING TIME AT BATSE : 22256. S. OR 06:10:56.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 106.000 -27.000
BATSE PEAK COUNTING RATE: 1000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 1/ 6/ 93 IS:
RA= 142.747 DEC= -10.926 DIST= 4.743 AU
BATSE-ULYSSES DISTANCE = 709582720. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=141.91 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1862.90 SECS.
CROSSING TIME AT ULYSSES IS 20393. S. OR 05:39:53 +/- 275.21 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Thu Jun 3 10:43:23 1993
Date: Thu, 3 Jun 1993 12:45:39 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2363	930601	9139	22256	1000	106	-27

NO

From SHARIFF@ssl.msfc.nasa.gov Thu Jun 3 10:25:12 1993
Date: Thu, 3 Jun 1993 12:27:02 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02363

TIME: TJD=9139 SECONDS=22256

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=120.3 AZIMUTH=190.3 ERROR= DEGREES

COMMENTS:

BURST, SINGLE SPIKE, LASTING ~1S. NOT VISIBLE ABOVE 300KEV.

CATSEARCH PROGRAM

BATSE BURST # 2363
EVENT OF 1993 JUN 1 DAY OF YEAR=152
EVENT CROSSING TIME AT BATSE : 22256. S. OR 06:10:56.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 95.560 3.200
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 1/ 6/ 93 IS:
RA= 142.747 DEC= -10.926 DIST= 4.743 AU
BATSE-ULYSSES DISTANCE = 709594688. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=130.97 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1551.93 SECS.
CROSSING TIME AT ULYSSES IS 20704. S. OR 05:45:04.0 +/- 336.71 SECONDS

9 / 11 / 95

ULYSSES RT

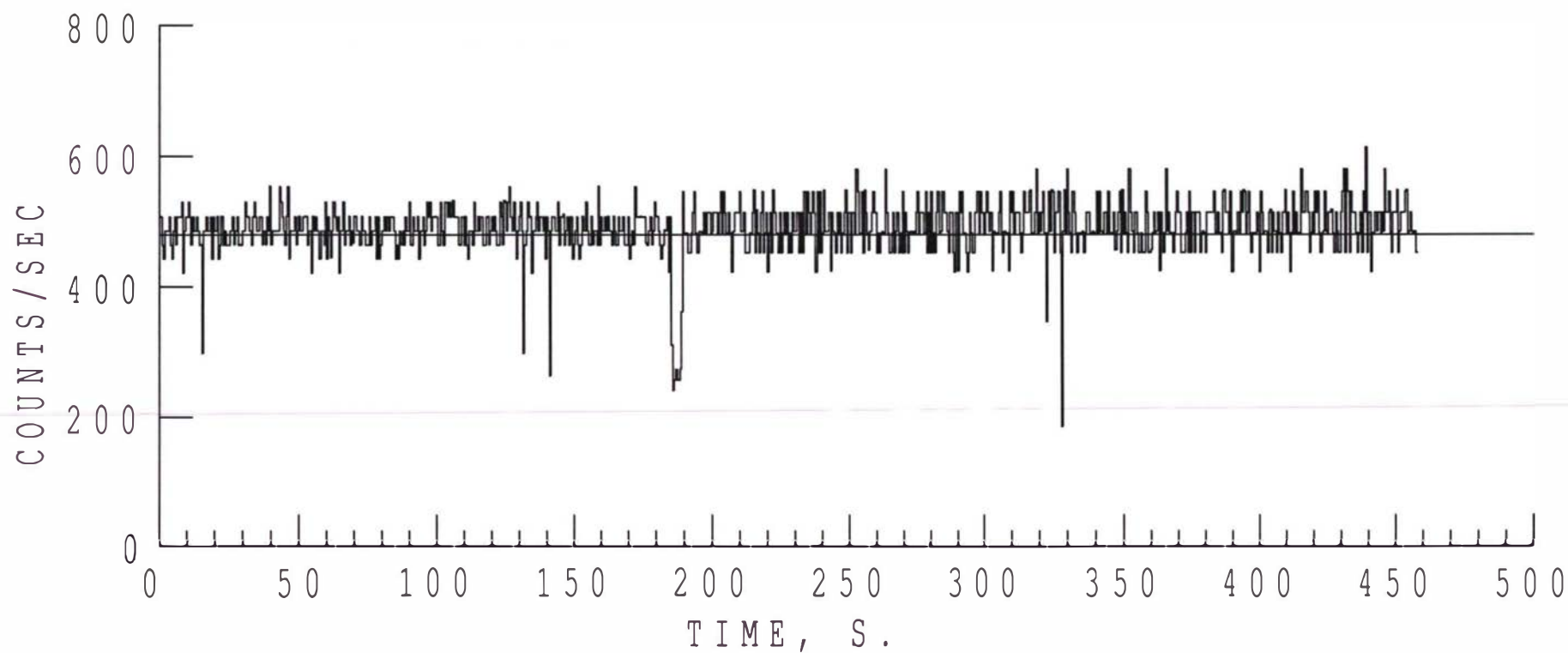
1 / 6 / 93 20376.400 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

M= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



 BATSEARCH PROGRAM

BATSE BURST # 2364
 EVENT OF 1993 JUN 1 DAY OF YEAR=152
 EVENT CROSSING TIME AT BATSE : 51588. S. OR 14:19:48.0
 COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 125.000 37.000
 BATSE PEAK COUNTING RATE: 1300 C/S
 EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 POSITION OF ULYSSES ON 1/ 6/ 93 IS:
 RA= 142.747 DEC= -10.926 DIST= 4.743 AU
 BATSE-ULYSSES DISTANCE = 709582720. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=129.26 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1497.72 SECS.
 CROSSING TIME AT ULYSSES IS 50090. S. OR 13:54:50 +/- 345.46 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Thu Jun 3 10:44:53 1993
 Date: Thu, 3 Jun 1993 12:47:12 -0500 (CDT)
 From: SHARIFF@ssl.msfc.nasa.gov
 To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
 Cc: SHARIFF@ssl.msfc.nasa.gov
 Subject: BATSE burst
 Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2364	930601	9139	51588	1300	125	+37

NO

From SHARIFF@ssl.msfc.nasa.gov Thu Jun 3 10:31:01 1993
 Date: Thu, 3 Jun 1993 12:33:06 -0500 (CDT)
 From: SHARIFF@ssl.msfc.nasa.gov
 To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
 "LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
 "15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
 "CASS09::GRUBER"@ssl.msfc.nasa.gov,
 "CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
 HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
 Subject: Burst Trigger Message
 Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02364

TIME: TJD=9139 SECONDS=51588

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=147.0 AZIMUTH=098.0 ERROR= DEGREES

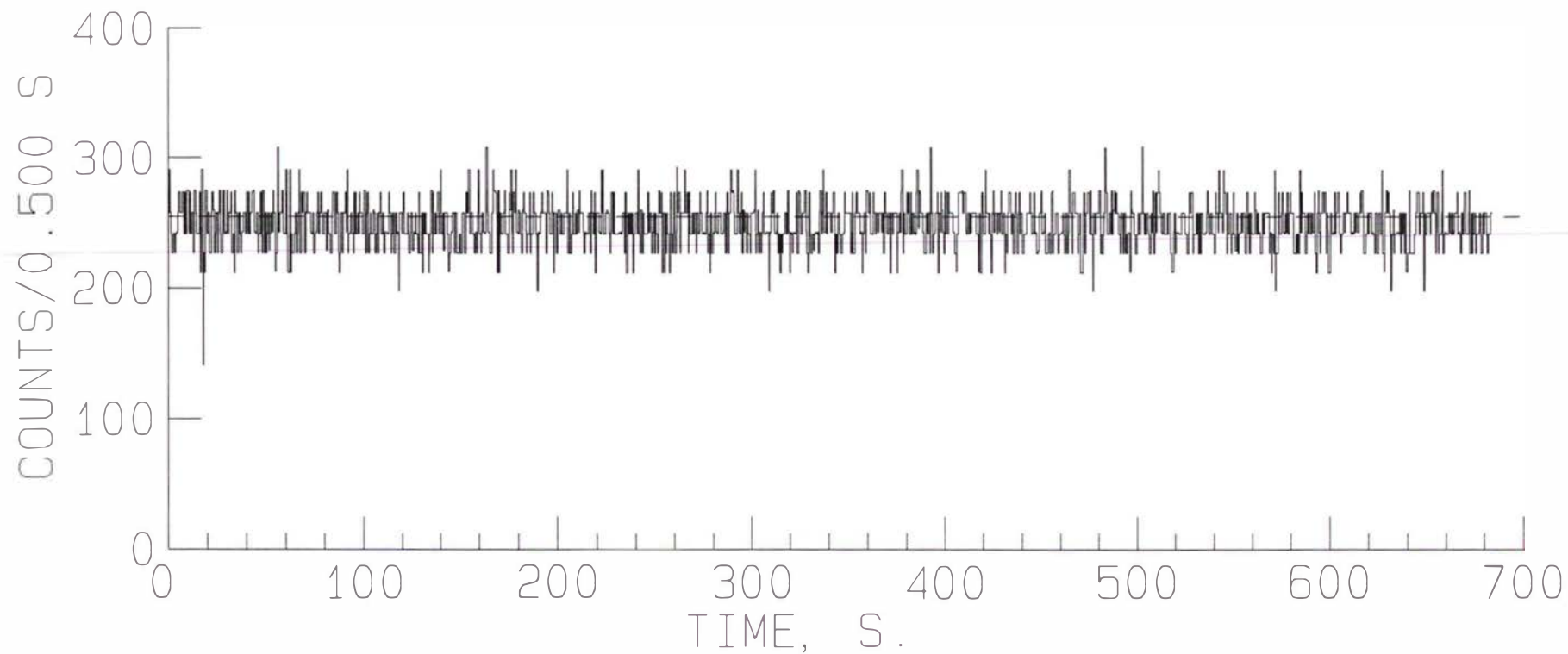
COMMENTS:

BURST, SINGLE PEAK WITH SUBSTRUCTURE, LASTING ~12S. NOT VISIBLE ABOVE 300KEV.

3 / 6 / 93

ULYSSES RT
1 / 6 / 93 49752.105 s
0.250 S INTERVALS REGROUPED BY 2
0 - 0 keV

N = 10 M = 2
>4.0 SIGMA FLUCTUATIONS



BATSEARCH PROGRAM

BATSE BURST # 2365
EVENT OF 1993 JUN 1 DAY OF YEAR=152
EVENT CROSSING TIME AT BATSE : 72582. S. OR 20:09:42.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 194.000 72.000
BATSE PEAK COUNTING RATE: 4200 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 1/ 6/ 93 IS:
RA= 142.747 DEC= -10.926 DIST= 4.743 AU
BATSE-ULYSSES DISTANCE = 709582720. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 90.55 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -22.81 SECS.
CROSSING TIME AT ULYSSES IS 72559. S. OR 20:09:19 +/- 460.57 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Thu Jun 3 10:47:16 1993
Date: Thu, 3 Jun 1993 12:49:33 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2365	930601	9139	72582	4200	194	+72

NO

From SHARIFF@ssl.msfc.nasa.gov Thu Jun 3 10:36:17 1993
Date: Thu, 3 Jun 1993 12:38:20 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02365

TIME: TJD=9139 SECONDS=72582

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=113.0 AZIMUTH=049.4 ERROR= DEGREES

COMMENTS:

BURST, SINGLE PEAK, LASTING ~0.8S. NOT VISIBLE ABOVE 300KEV.

3 / 6 / 93

ULYSSES RT

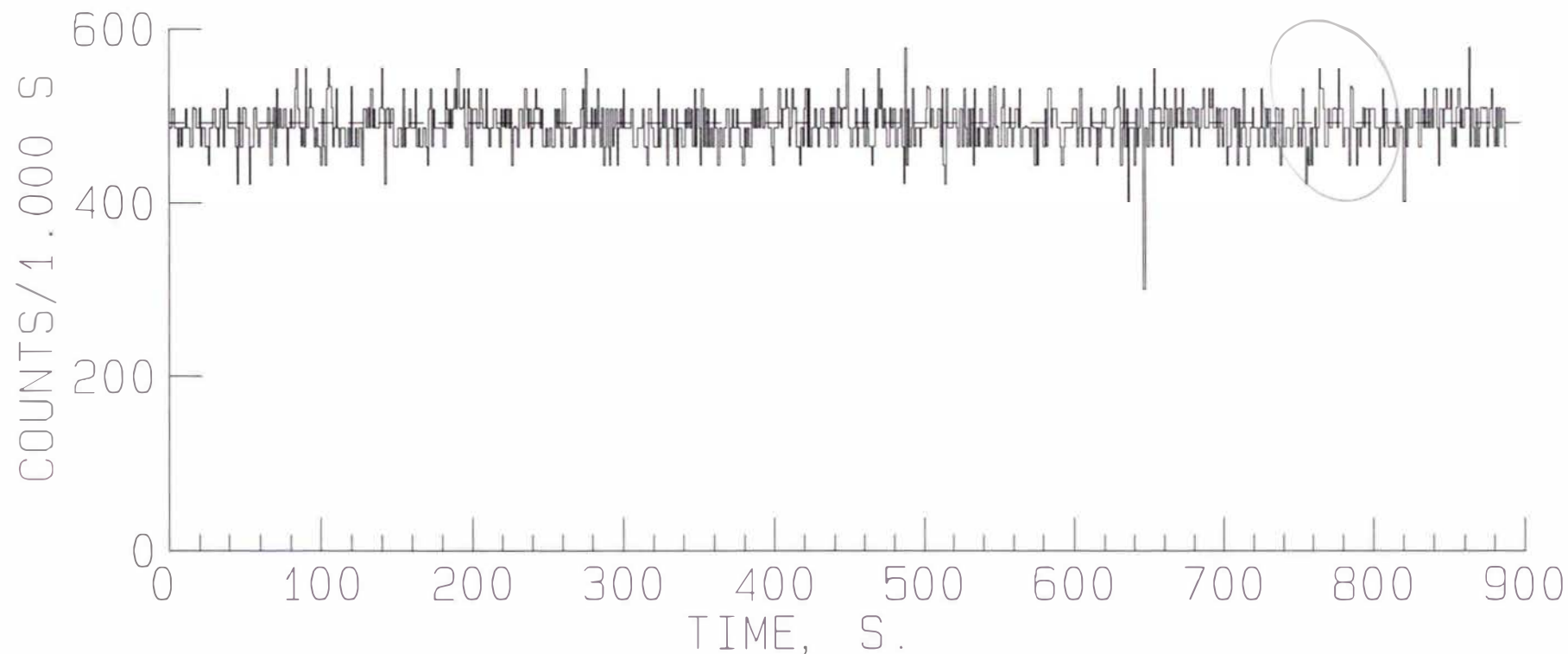
1 / 6 / 93 72108.203 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From SHARIFF@ssl.msfc.nasa.gov Thu Jun 3 10:40:41 1993
Date: Thu, 3 Jun 1993 12:42:45 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02366

TIME: TJD=9139 SECONDS=75730

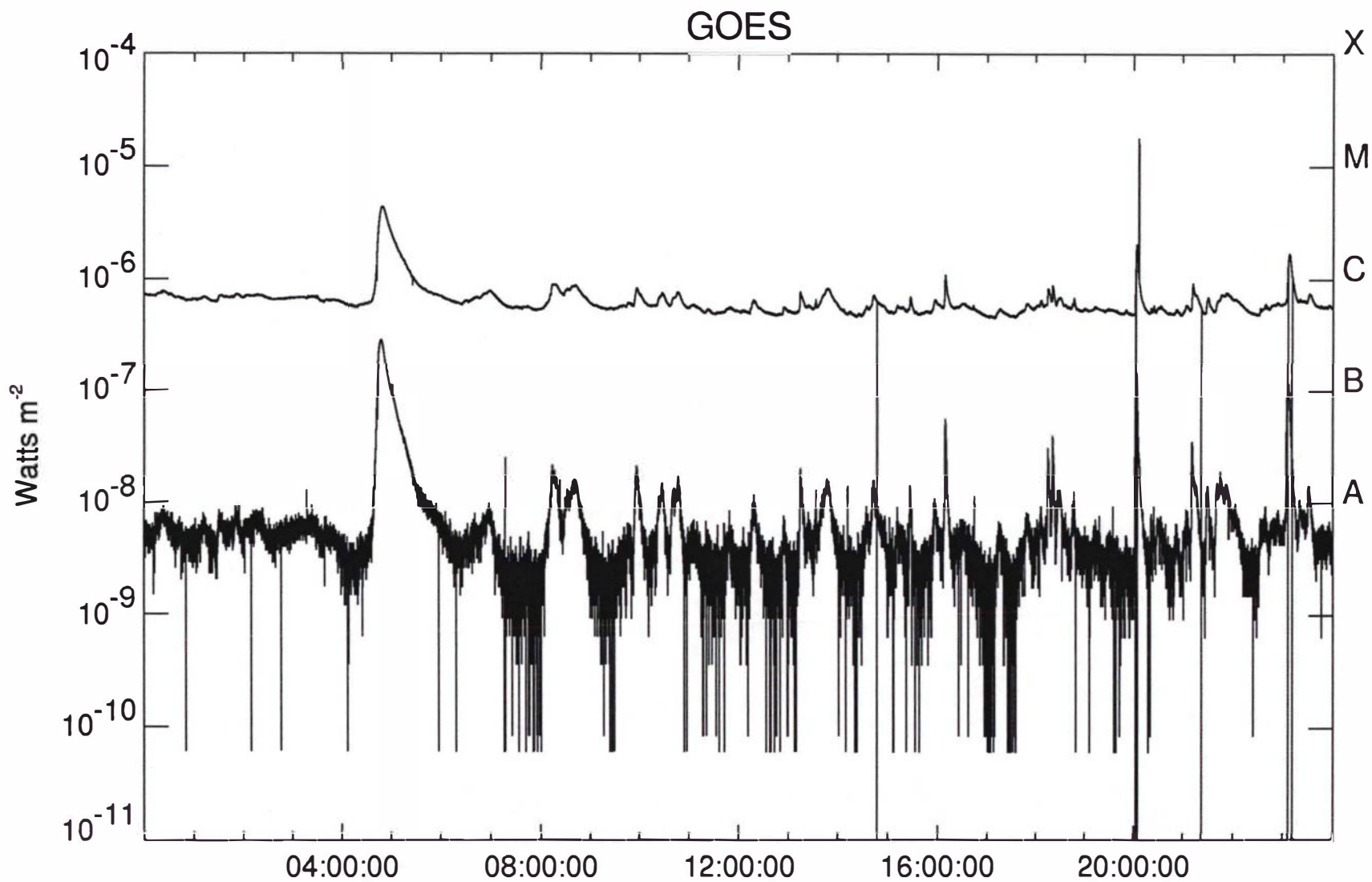
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON PREC. EVENT.



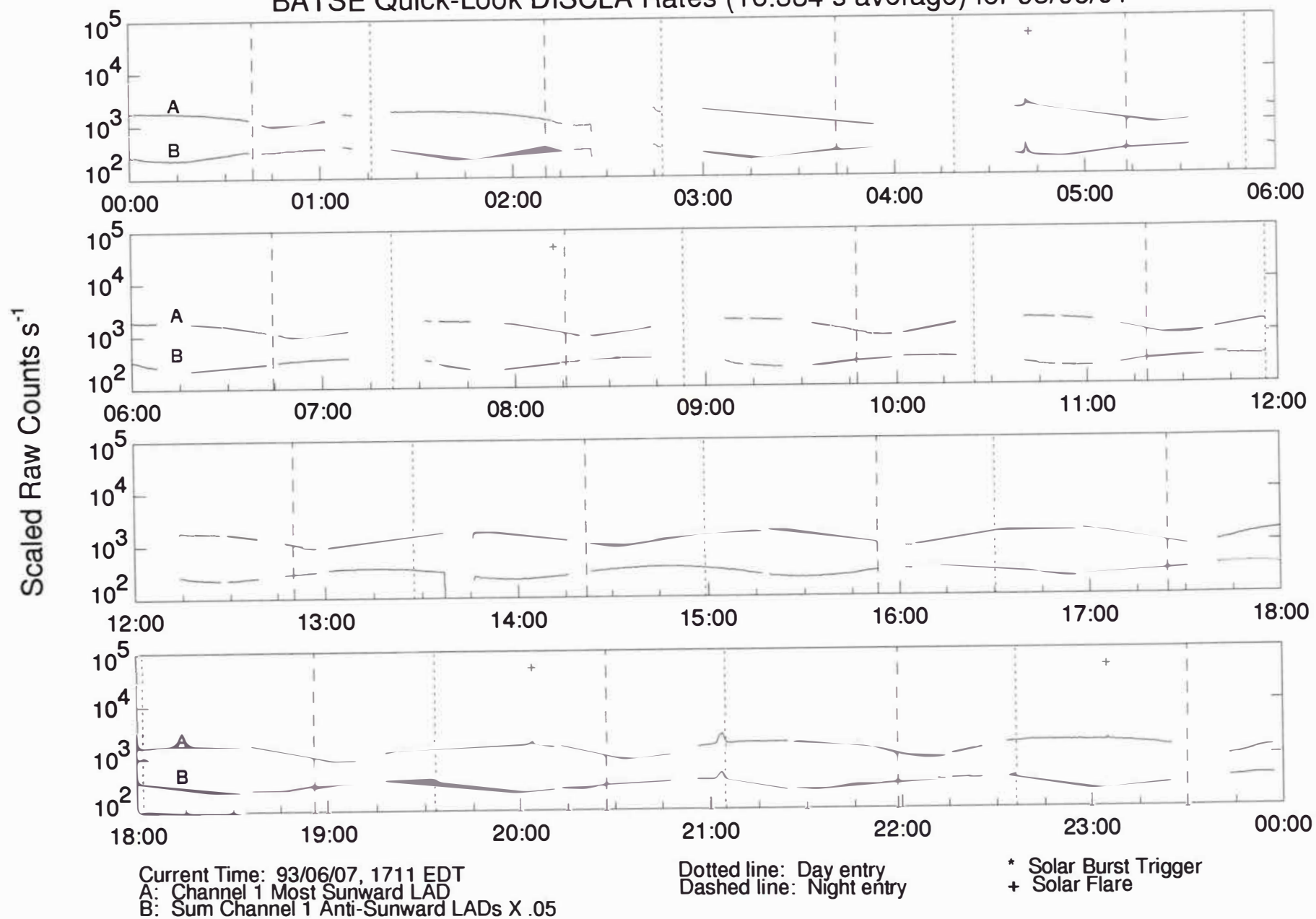
Data Start: 93/06/01, 0000:01

Plot created: 93/10/28, 0200

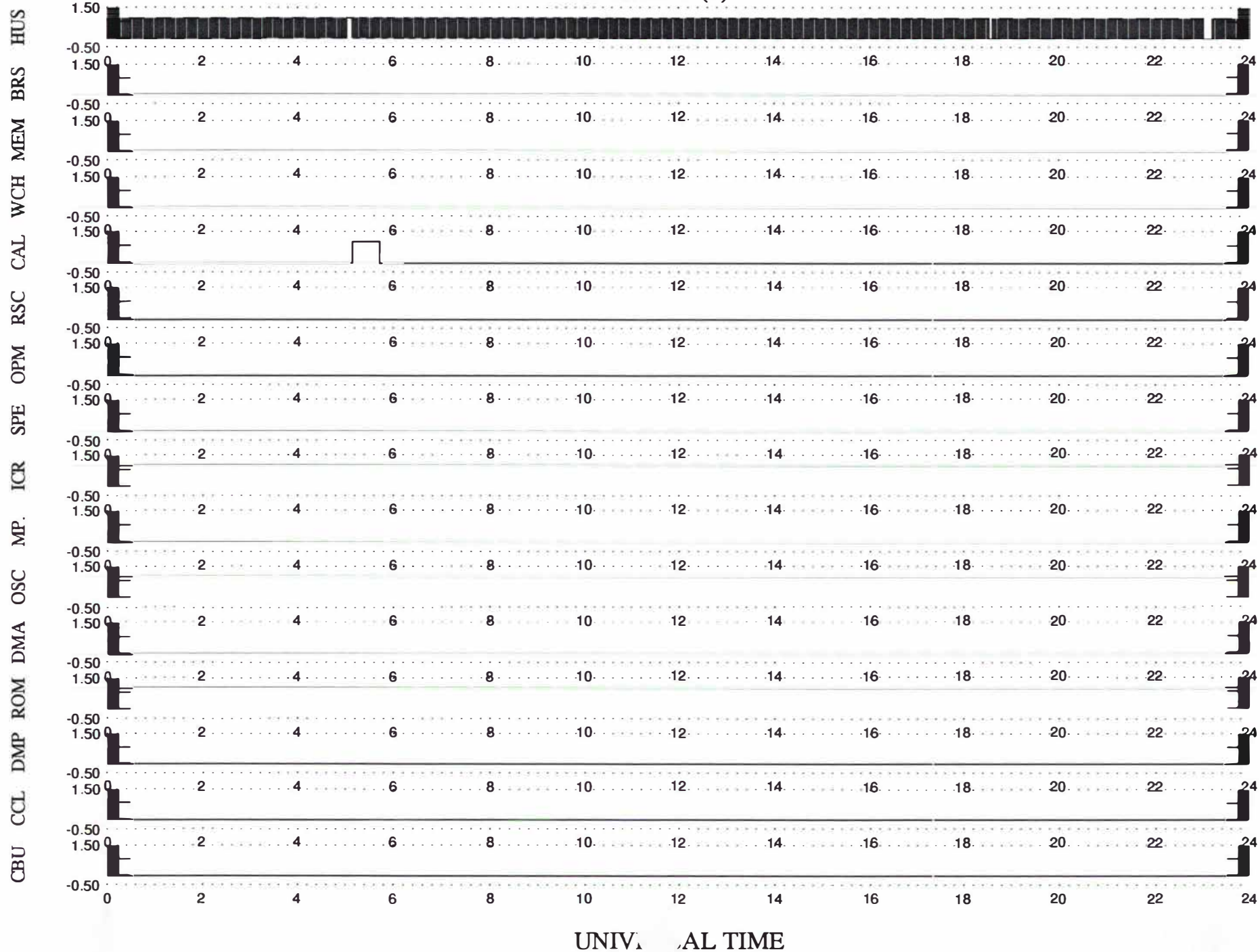
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

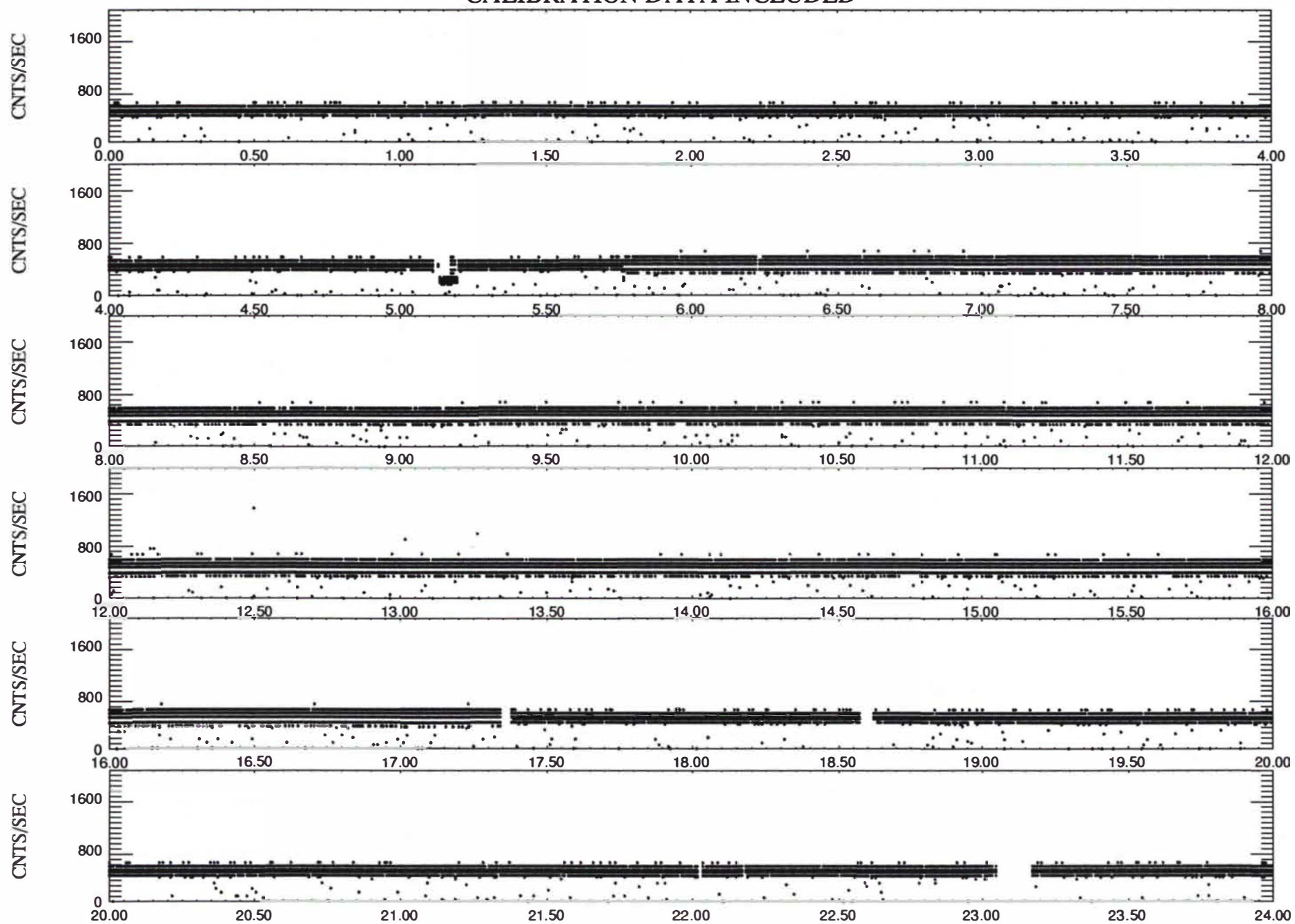
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/01



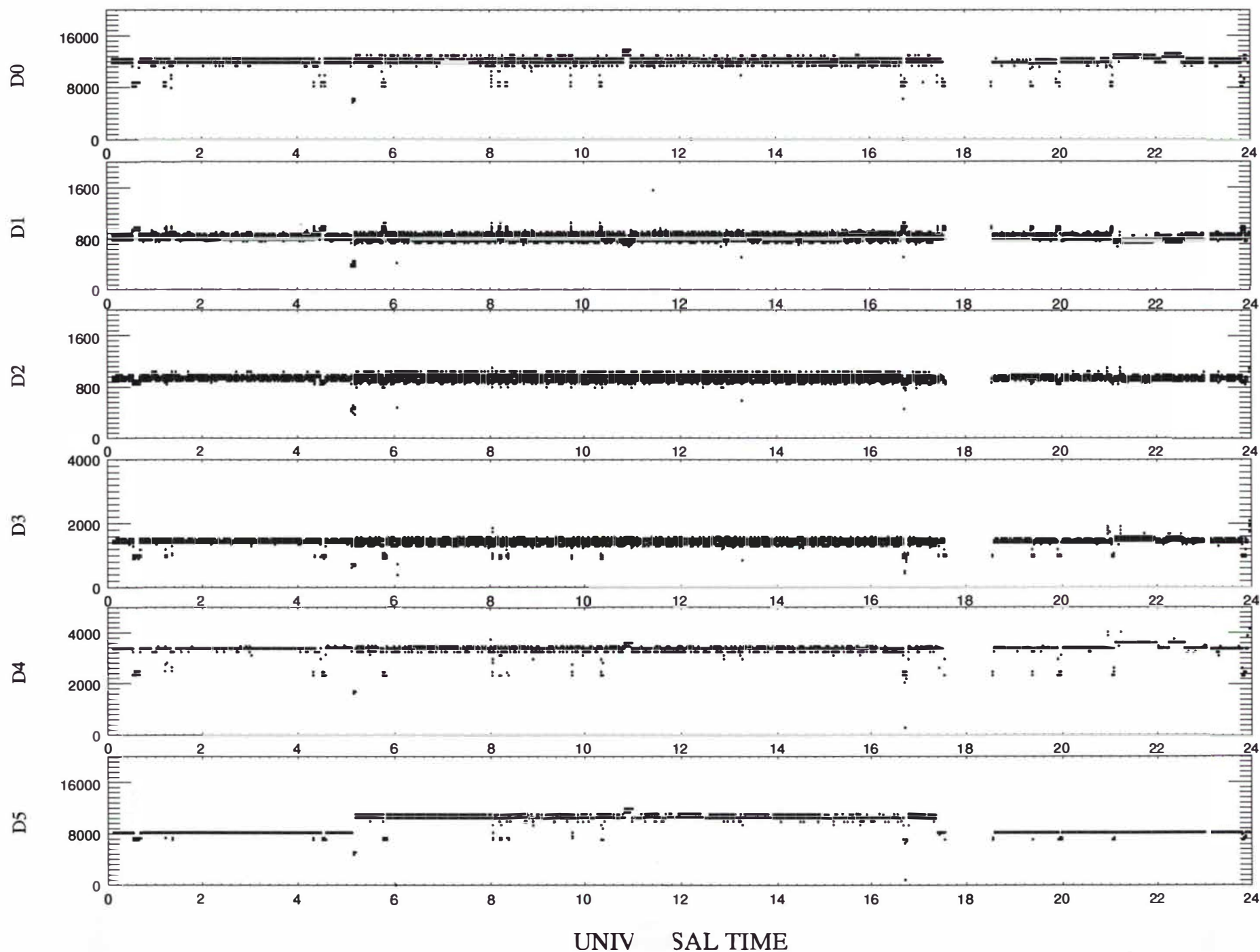
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV AL TIME



BATSEARCH PROGRAM

BATSE BURST # 2367
EVENT OF 1993 JUN 2 DAY OF YEAR=153
EVENT CROSSING TIME AT BATSE : 49384. S. OR 13:43:04.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 261.000 40.000
BATSE PEAK COUNTING RATE: 14500 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 2/ 6/ 93 IS:
RA= 142.790 DEC= -10.922 DIST= 4.755 AU
BATSE-ULYSSES DISTANCE = 711362960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 61.49 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1132.67 SECS.
CROSSING TIME AT ULYSSES IS 50517. S. OR 14:01:56 +/- 429.20 SECONDS

From MALLOZZI@ssl.msfc.nasa.gov Thu Jun 3 15:39:28 1993
Date: Thu, 3 Jun 1993 17:41:48 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2367	930602	9140	49384	14500	261	+40

xb

From MALLOZZI@ssl.msfc.nasa.gov Thu Jun 3 15:48:29 1993
Date: Thu, 3 Jun 1993 17:50:40 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02367

TIME: TJD=9140 SECONDS=49384

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=069.6 AZIMUTH=034.7 ERROR= DEGREES

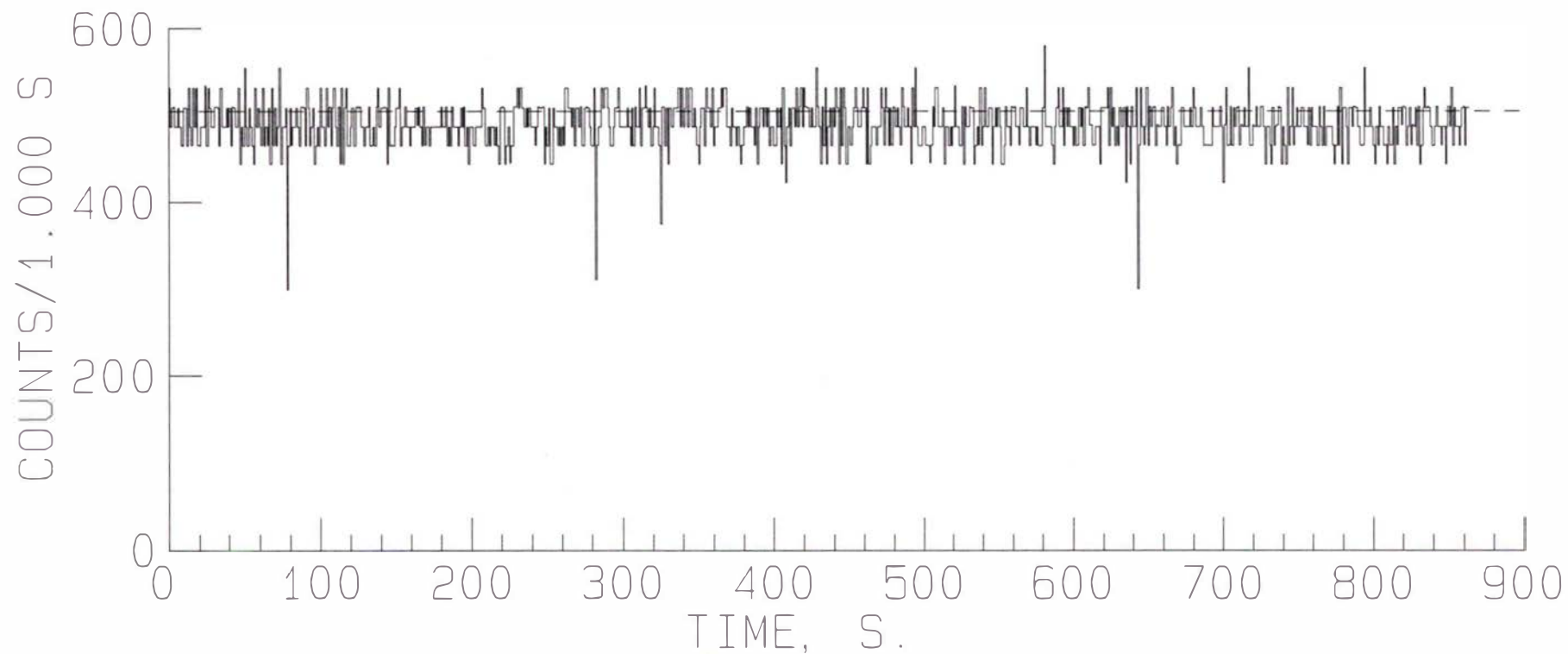
COMMENTS:

SINGLE MAIN PEAK; DURATION APPROX. 2.5 SEC. SECOND SMALL PEAK APPROX.
10 SEC AFTER TRIGGER. EVENT OBSERVED ABOVE 100 KEV, BUT NOT ABOVE 300 KEV.

4 / 6 / 93

ULYSSES RT
2 / 6 / 93 50076.199 s
0.500 S INTERVALS REGROUPED BY 2
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSEARCH PROGRAM

BATSE BURST # 2368
EVENT OF 1993 JUN 2 DAY OF YEAR=153
EVENT CROSSING TIME AT BATSE : 69892. S. OR 19:24:52.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 217.000 -24.000
BATSE PEAK COUNTING RATE: 1800 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 2/ 6/ 93 IS:
RA= 142.790 DEC= -10.922 DIST= 4.755 AU
BATSE-ULYSSES DISTANCE = 711362960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=108.73 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -762.04 SECS.
CROSSING TIME AT ULYSSES IS 69130. S. OR 19:12:09 +/- 428.57 SECONDS

From MALLOZZI@ssl.msfc.nasa.gov Thu Jun 3 15:41:41 1993
Date: Thu, 3 Jun 1993 17:44:04 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2368	930602	9140	69892	1800	217	-24

ND

From MALLOZZI@ssl.msfc.nasa.gov Thu Jun 3 15:51:20 1993
Date: Thu, 3 Jun 1993 17:53:31 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02368

TIME: TJD=9140 SECONDS=69892

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=043.5 AZIMUTH=124.9 ERROR= DEGREES

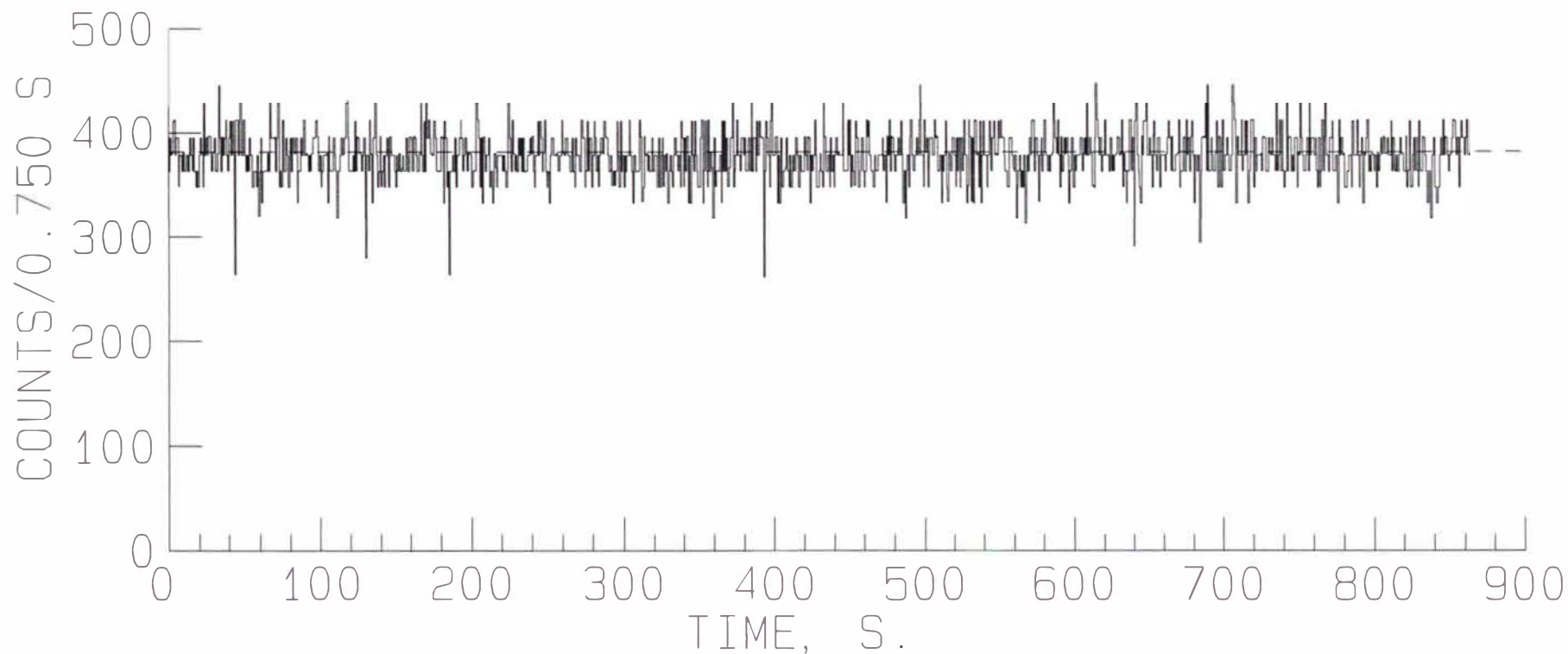
COMMENTS:

WEAK, SINGLE PEAK BURST. DURATION APPROX 10 SEC.
POSSIBLE EMISSION ABOVE 300 KEV.

4 / 6 / 93

ULYSSES RT
2 / 6 / 93 68688.242 s
0.250 S INTERVALS REGROUPED BY 3
0 - 0 keV

N = 10 M = 2
>4.0 SIGMA FLUCTUATIONS



From MALLOZZI@ssl.msfc.nasa.gov Fri Jun 4 08:31:35 1993
Date: Fri, 4 Jun 1993 10:31:24 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02369

TIME: TJD=9140 SECONDS=77177

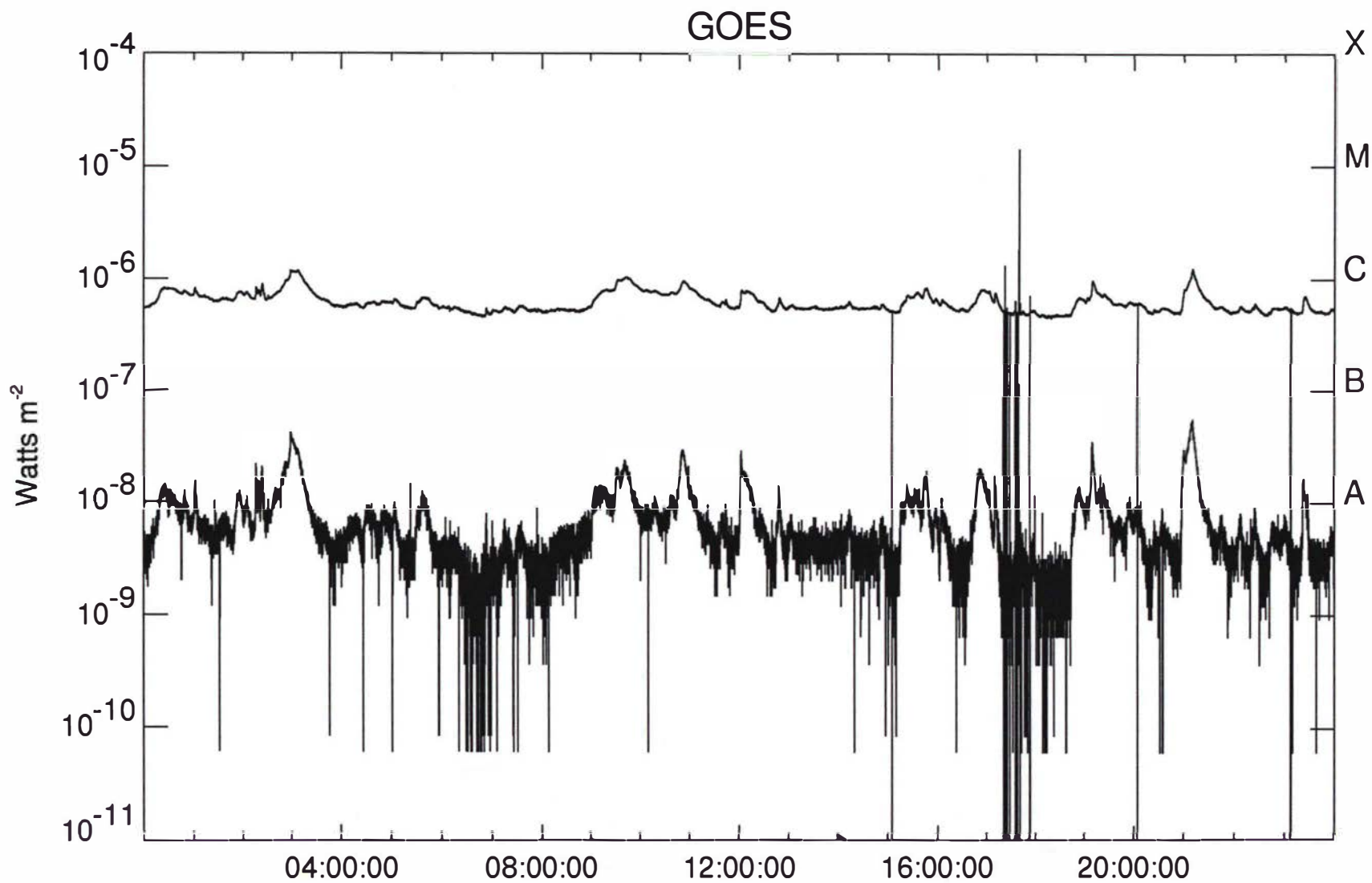
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

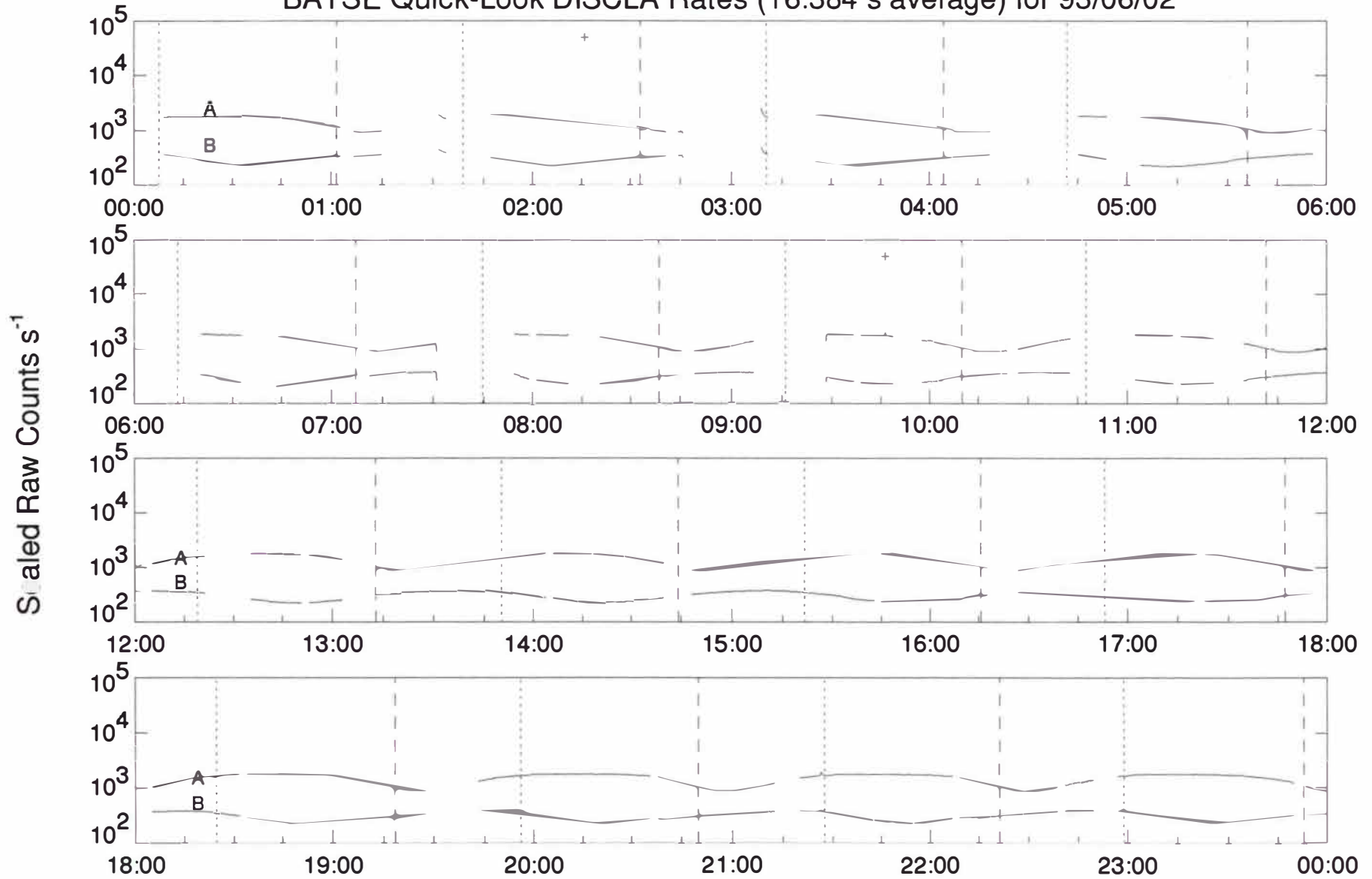


Data Start: 93/06/02, 0000:01

Plot created: 93/10/28, 0200

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

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

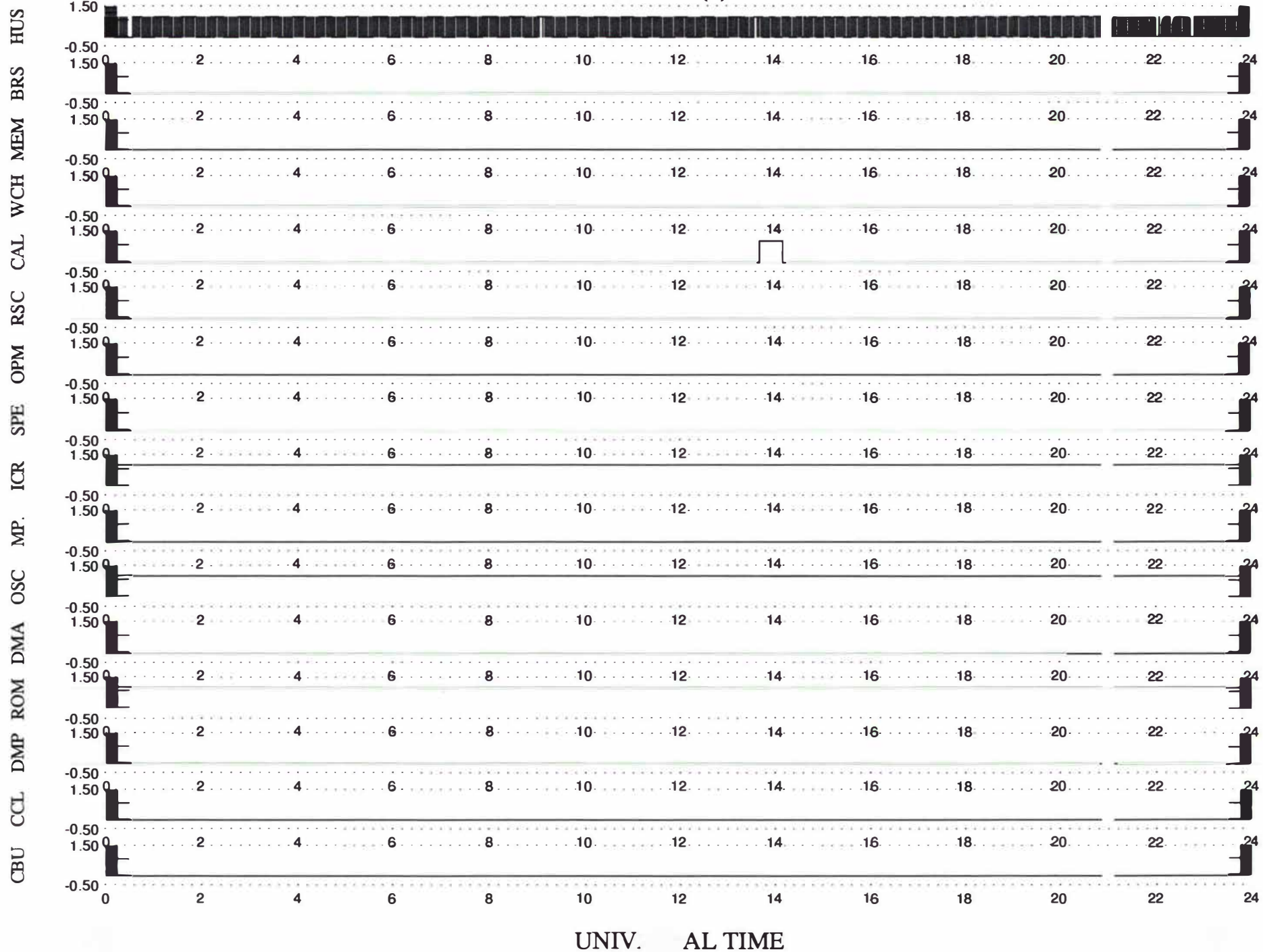


Current Time: 93/06/07, 1714 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

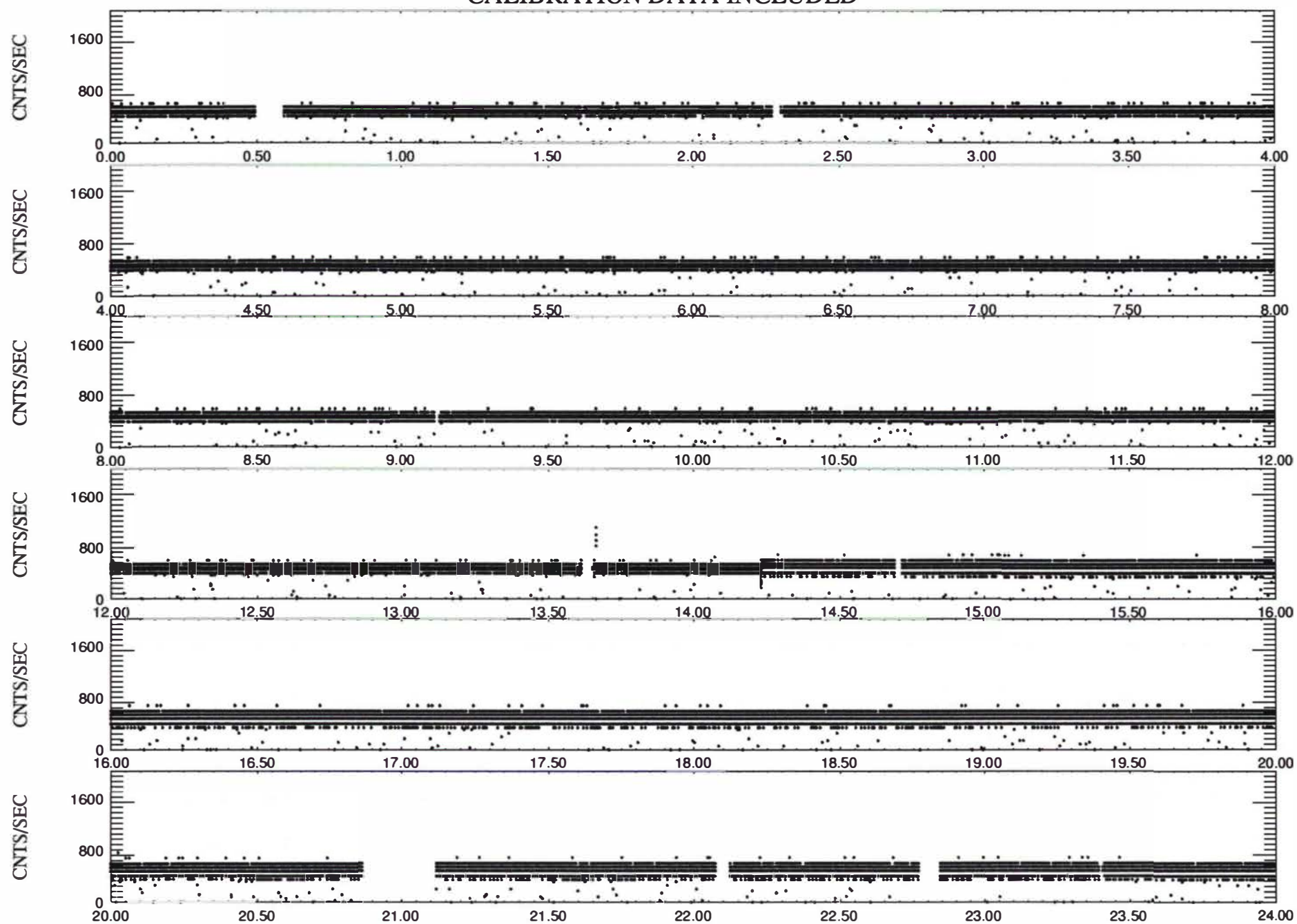
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

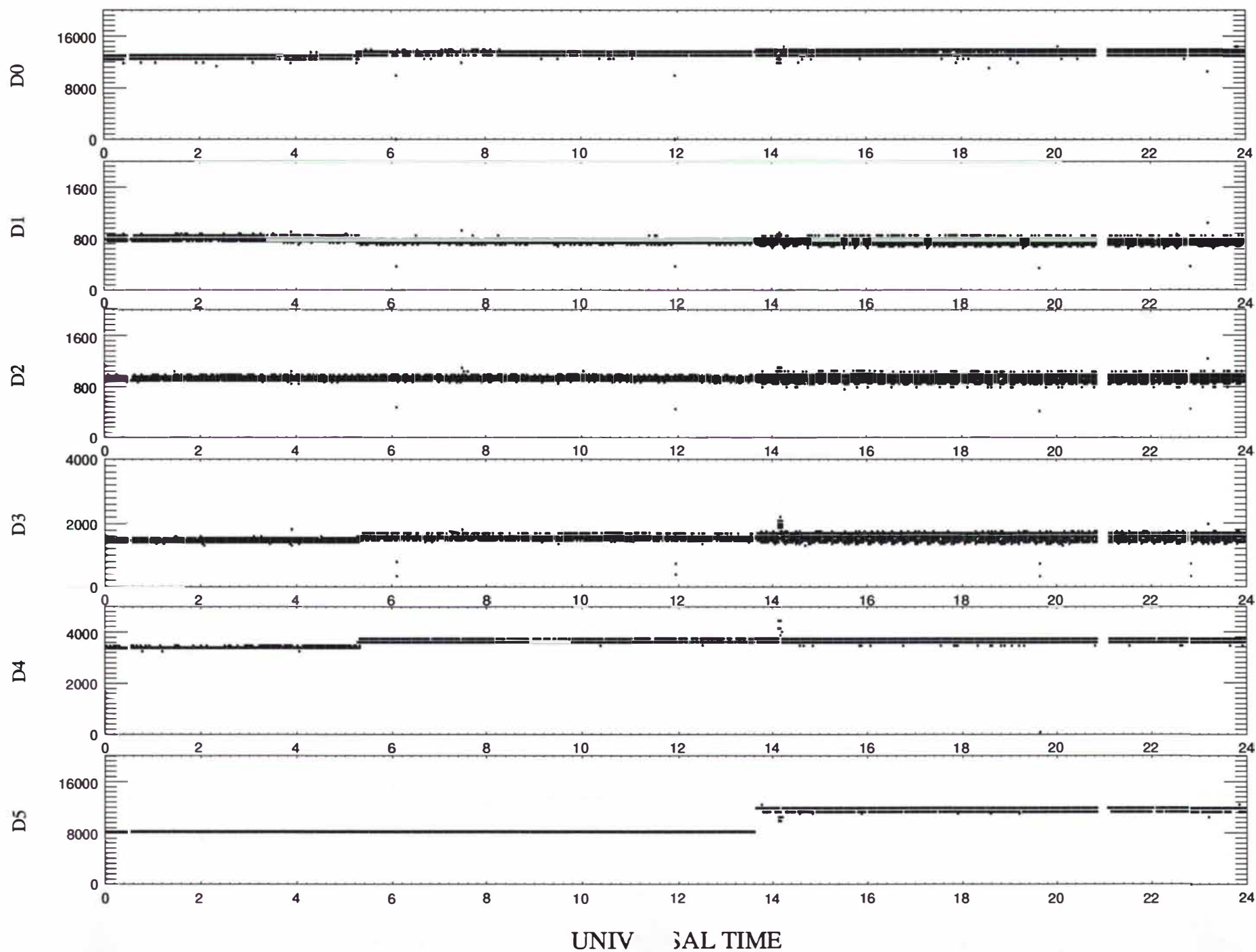
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV. AL TIME



 BATSEARCH PROGRAM

BATSE BURST # 2371
 EVENT OF 1993 JUN 3 DAY OF YEAR=154
 EVENT CROSSING TIME AT BATSE : 49439. S. OR 13:43:59.0
 COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 118.000 -2.000
 BATSE PEAK COUNTING RATE: 16000 C/S
 EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 POSITION OF ULYSSES ON 3/ 6/ 93 IS:
 RA= 142.835 DEC= -10.919 DIST= 4.767 AU
 BATSE-ULYSSES DISTANCE = 713143200. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=153.79 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2134.15 SECS.
 CROSSING TIME AT ULYSSES IS 47305. S. OR 13:08:24 +/- 200.01 SECONDS

From KOSHUT@ssl.msfc.nasa.gov Fri Jun 4 15:59:55 1993
 Date: Fri, 4 Jun 1993 17:59:57 -0500 (CDT)
 From: KOSHUT@ssl.msfc.nasa.gov
 To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
 Cc: KOSHUT@ssl.msfc.nasa.gov
 Subject: BATSE burst
 Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2371	930603	9141	49439	16000	118	-02

N/O

From KOSHUT@ssl.msfc.nasa.gov Fri Jun 4 15:57:58 1993
 Date: Fri, 4 Jun 1993 17:57:44 -0500 (CDT)
 From: KOSHUT@ssl.msfc.nasa.gov
 To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
 "LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
 "15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
 "CASS09::GRUBER"@ssl.msfc.nasa.gov,
 "CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
 HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
 Subject: Burst Trigger Message
 Content-Length: 1458

BATSE BURST TRIGGER

NO.: 02371

TIME: TJD=9141 SECONDS=49439

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=135. AZIMUTH=161. ERROR= DEGREES

COMMENTS:

MODERATELY STRONG BURST OF ~ 40 SECONDS DURATION. THE TIME HISTORY
 CONSISTS OF TWO PULSES RIDING ON TOP OF RELATIVELY SMOOTH ENVELOPE.
 PEAK RATE (16000 C/S) IS OBSERVED AT ~ TRIGGER + 8 SECONDS.
 EMISSION ABOVE 300 KEV IS OBSERVED.

From KOSHUT@ssl.msfc.nasa.gov Fri Jun 4 14:46:40 1993
Date: Fri, 4 Jun 1993 16:46:32 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02370

TIME: TJD=9141 SECONDS=14440

TYPE: PARTICIL SOLAR FLARE TRIGGER SIGNAL:N

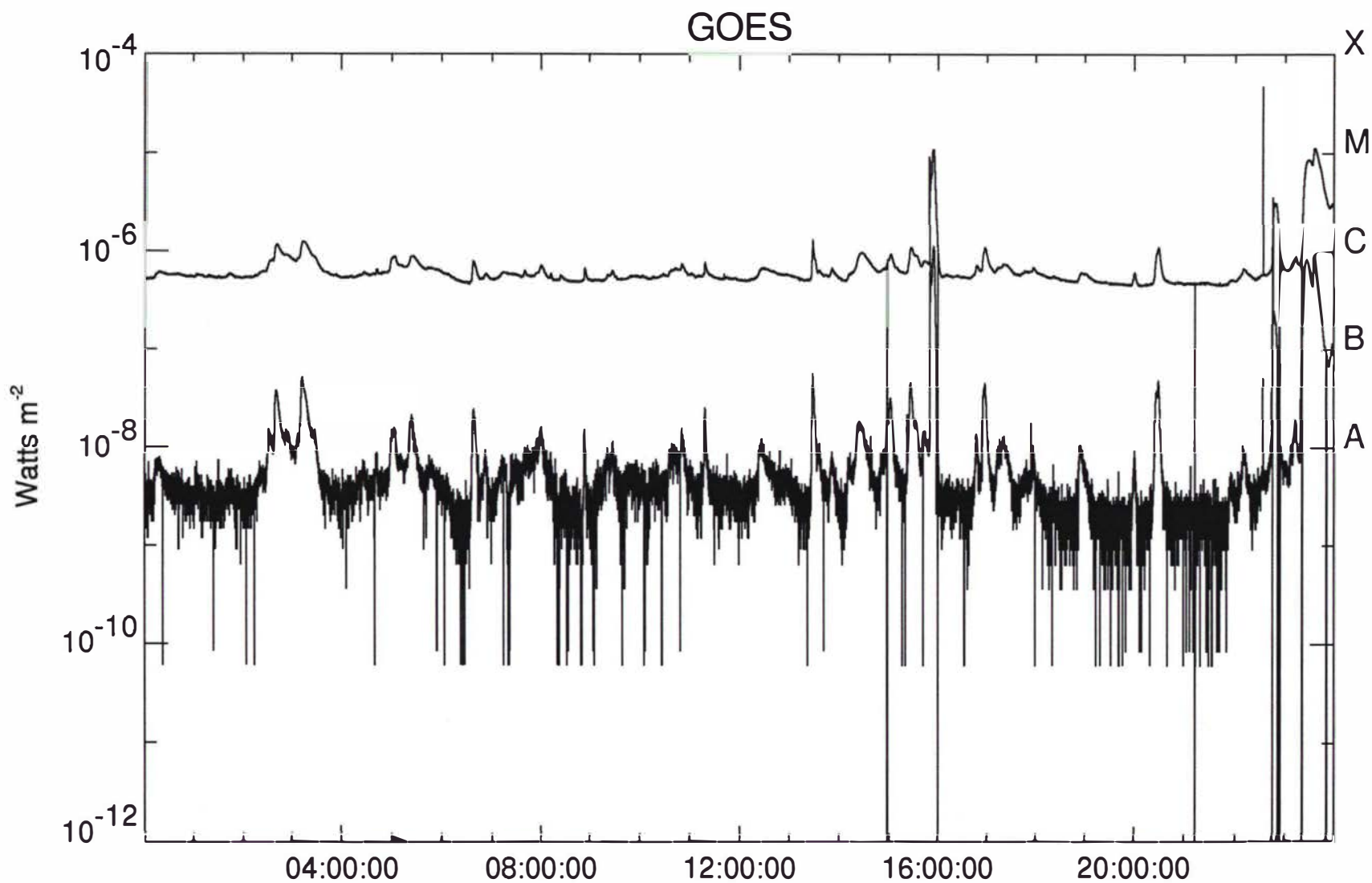
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

PARTICLE PRECIPITATION EVENT. THIS IS A RETRANSMISSION OF A PREVIOUS MESSAGE,
SOME PEOPLE MAY NOT HAVE RECIEVED THE FIRST.



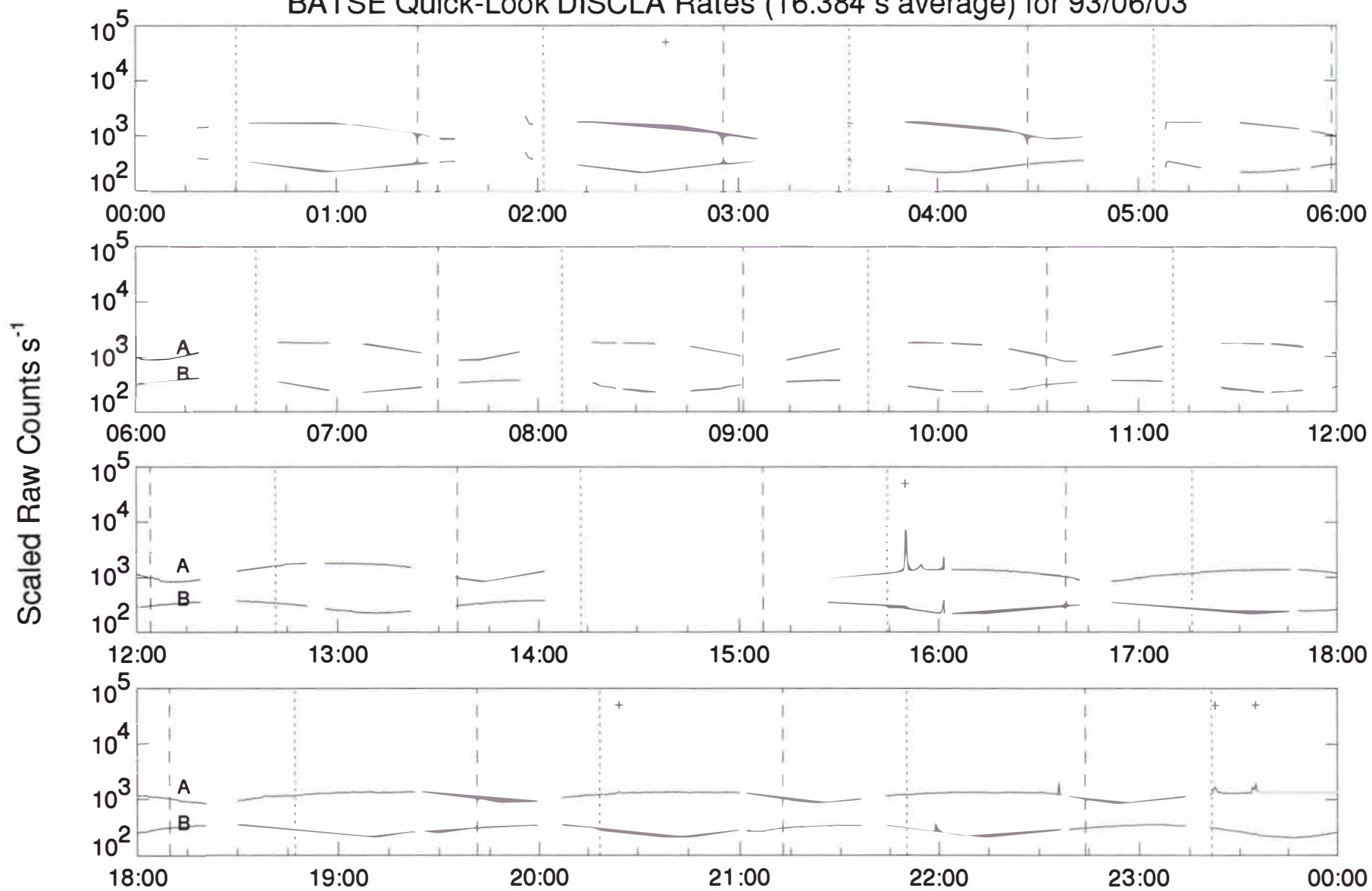
Data Start: 93/06/03, 0000:00

Plot created: 93/10/28, 0200

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/03



Current Time: 93/06/07, 1715 EDT

A: Channel 1 Most Sunward LAD

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

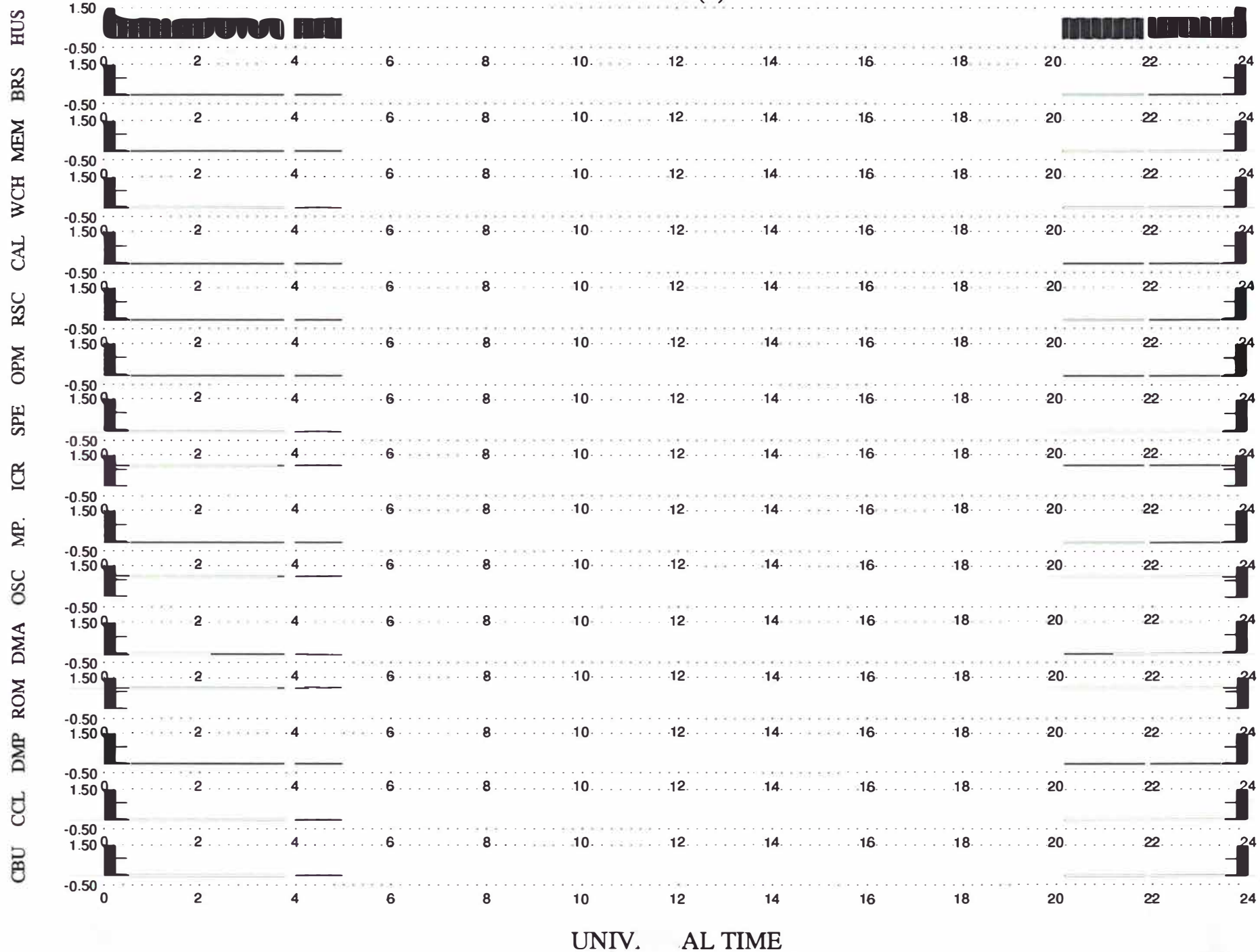
Dotted line: Day entry

Dashed line: Night entry

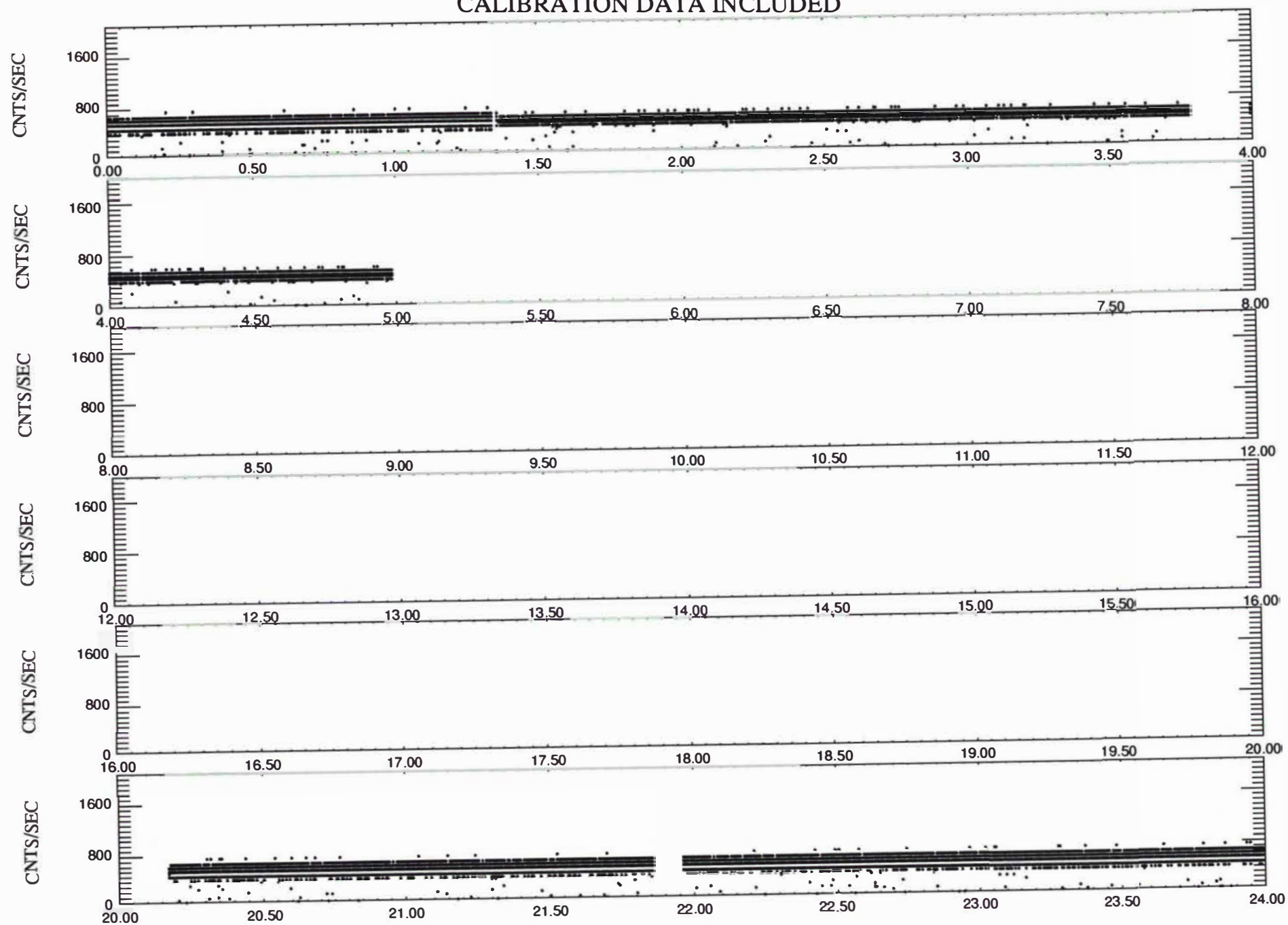
* Solar Burst Trigger

+ Solar Flare

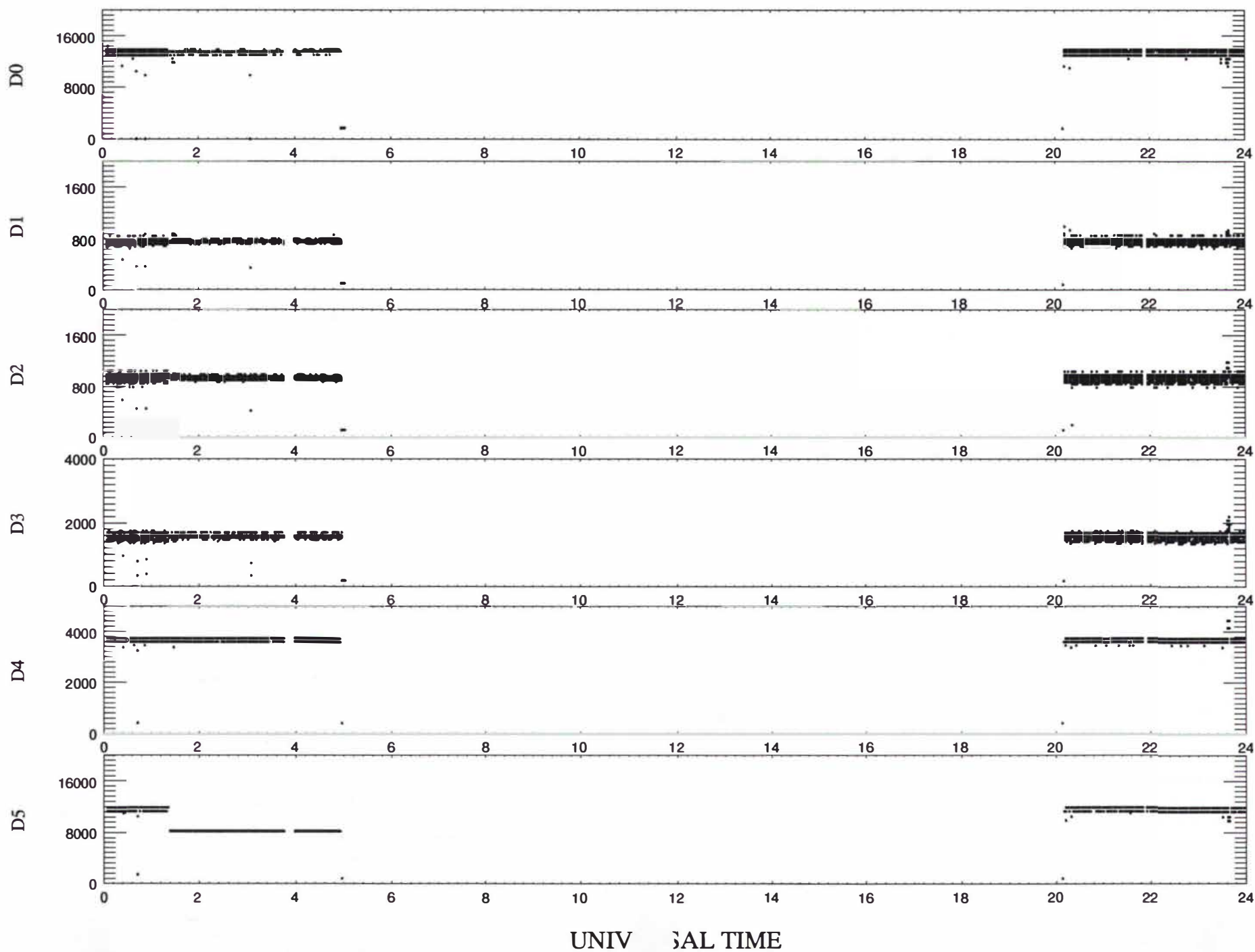
NO BURST (4)

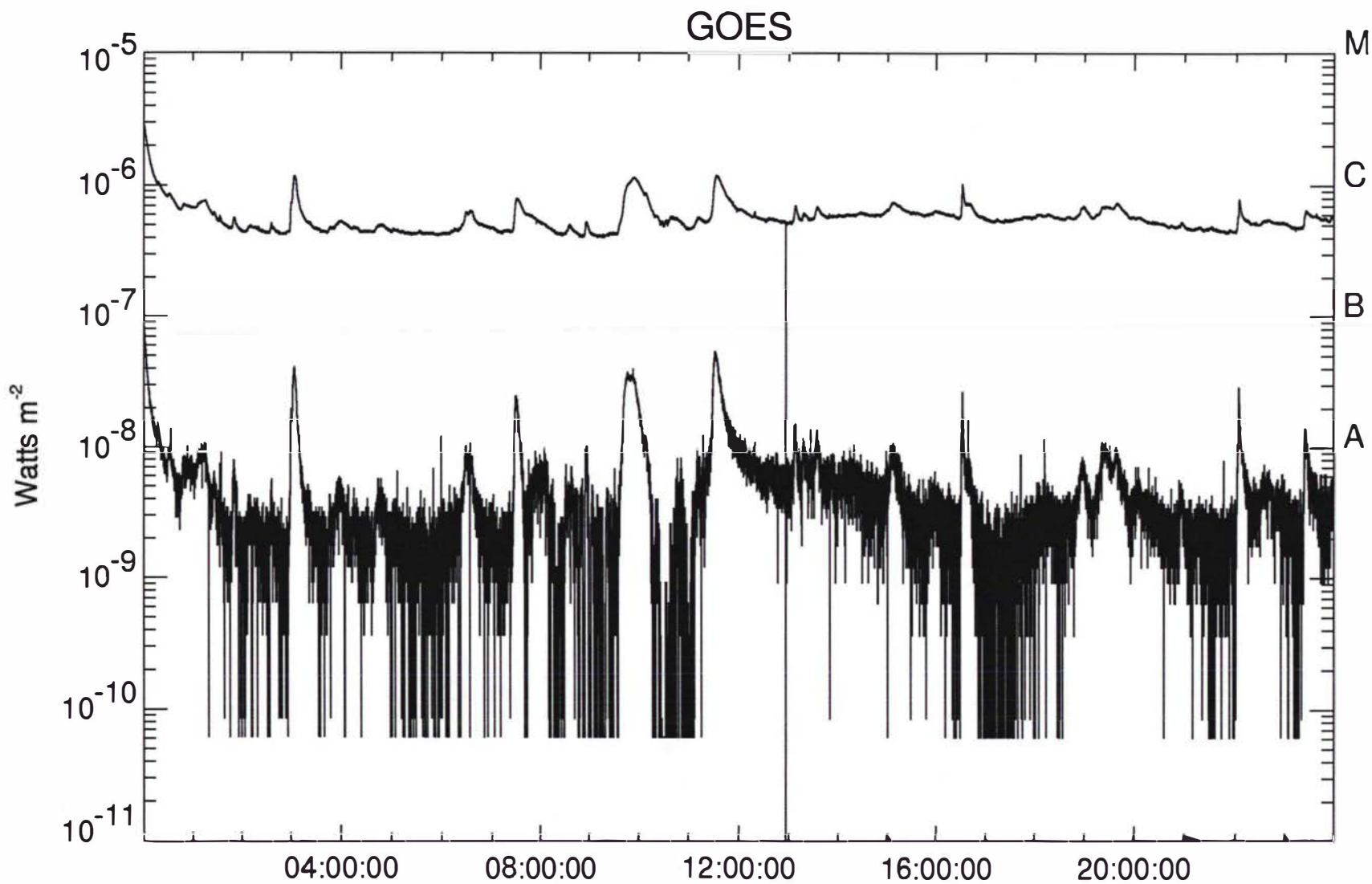


CALIBRATION DATA INCLUDED



UNIV. AL TIME





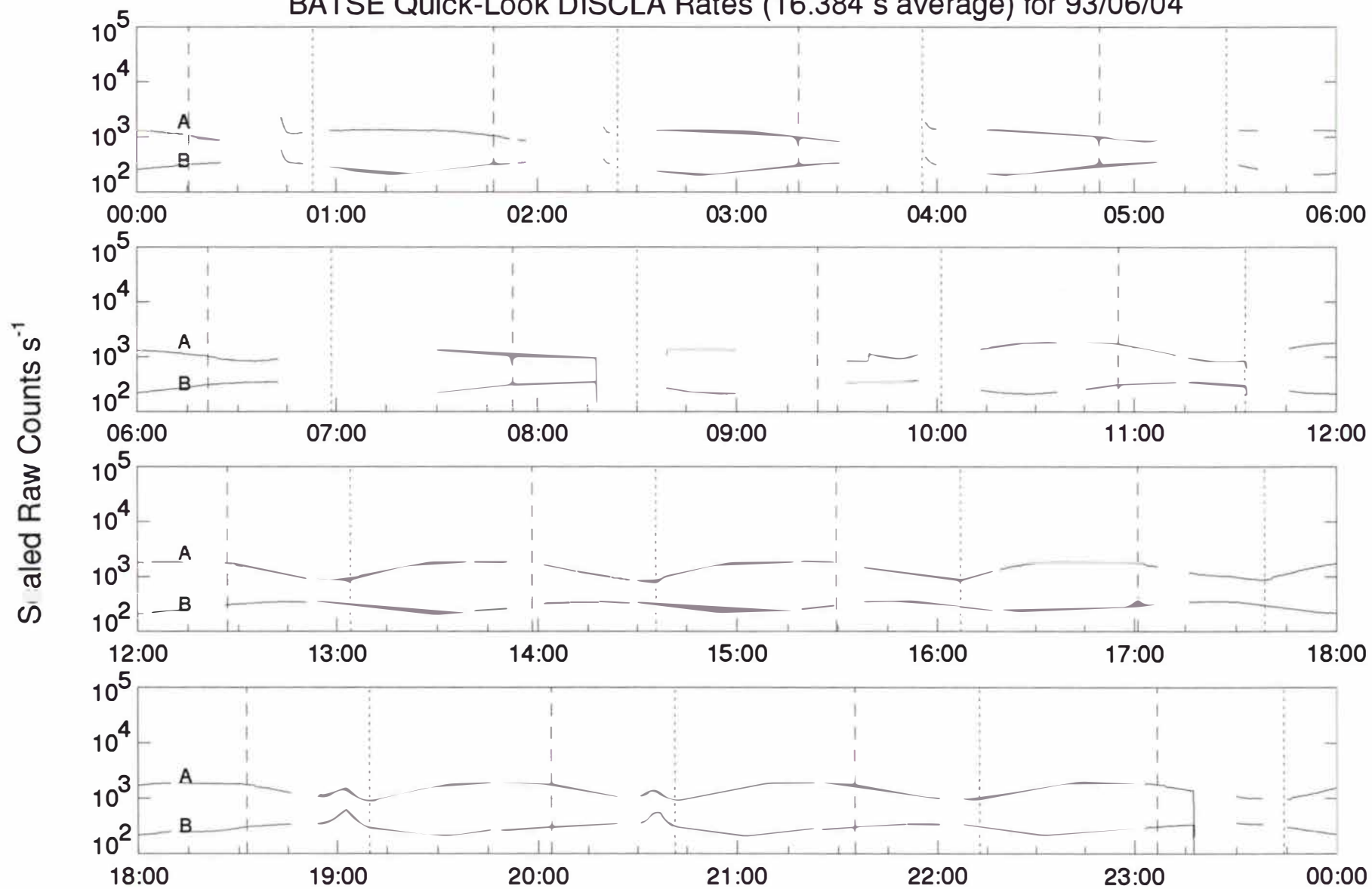
Data Start: 93/06/04, 0000:00

Plot created: 93/10/28, 0200

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/04



Current Time: 93/06/07, 1716 EDT

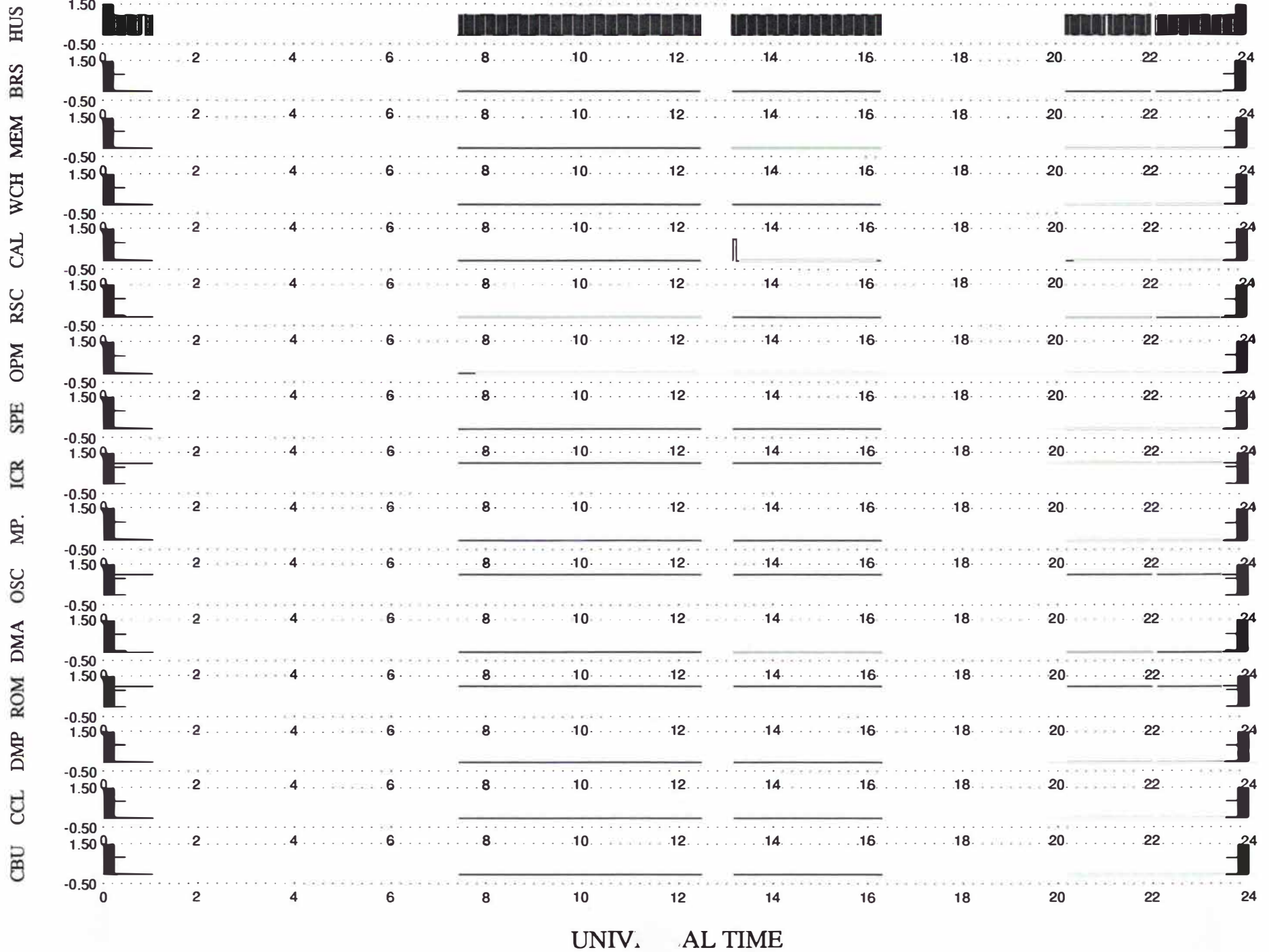
A: Channel 1 Most Sunward LAD

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

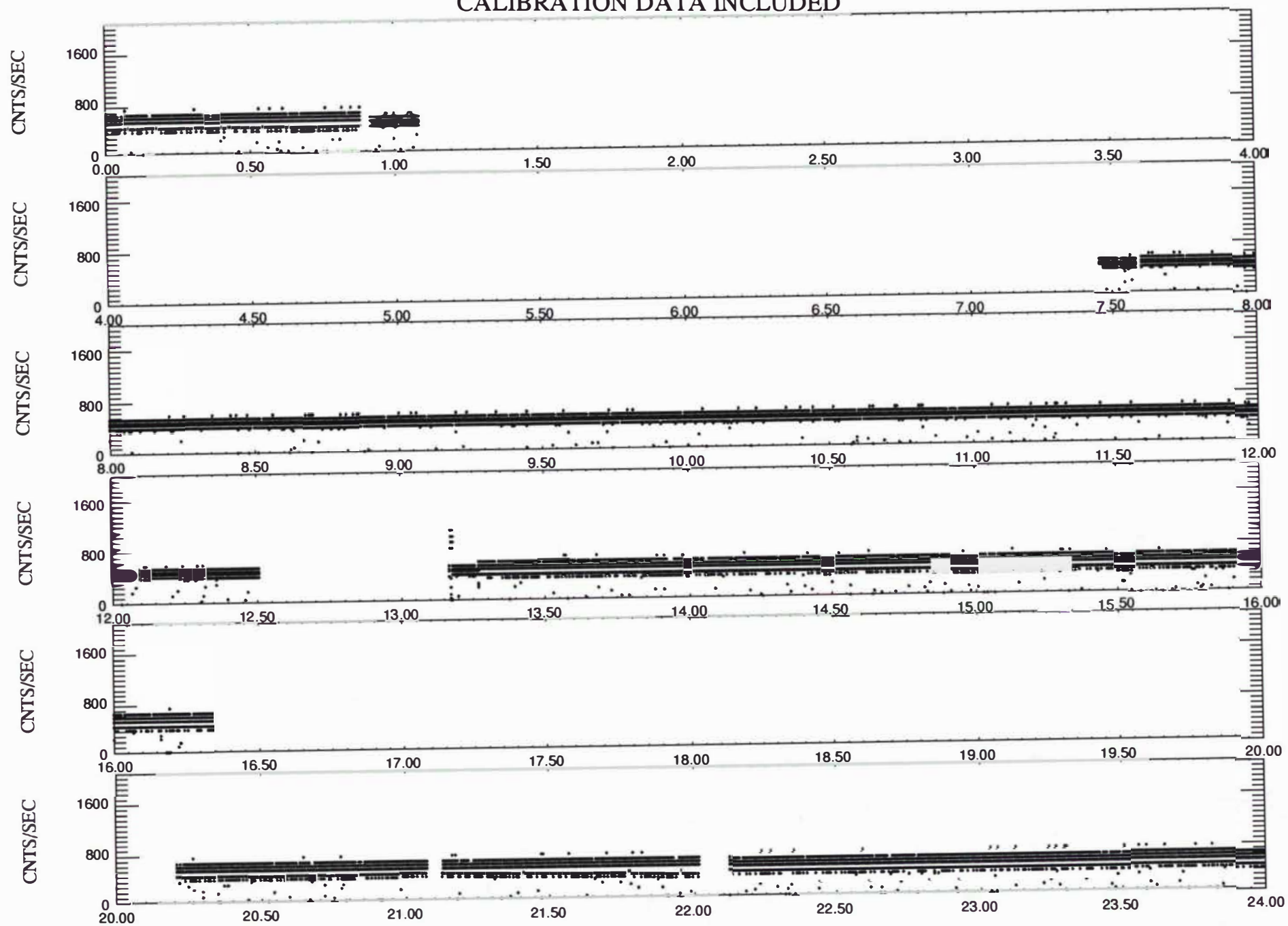
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

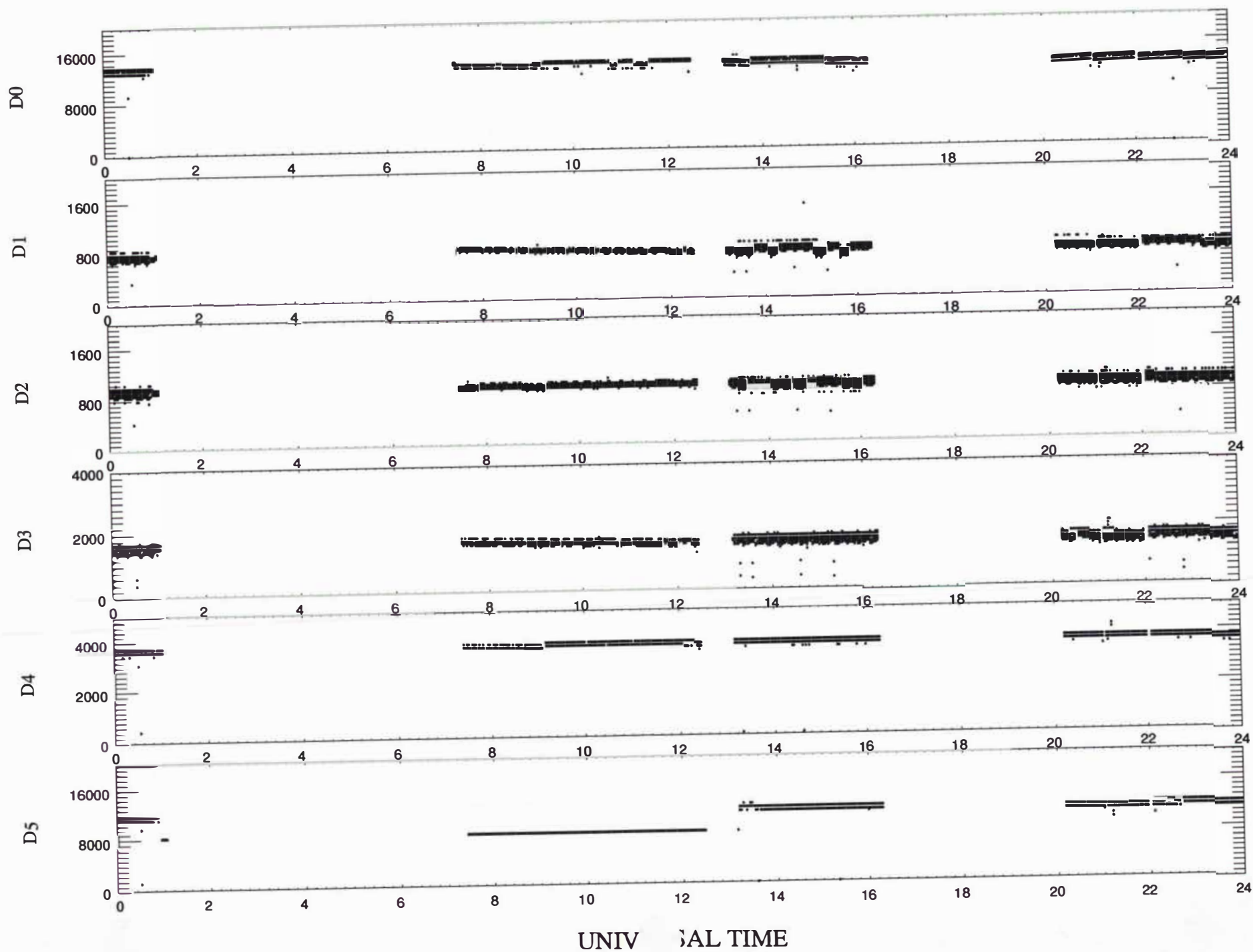
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV: AL TIME



BATSEARCH PROGRAM

BATSE BURST # 2372
EVENT OF 1993 JUN 5 DAY OF YEAR=156
EVENT CROSSING TIME AT BATSE : 8088. S. OR 02:14:48.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 163.000 -42.000
BATSE PEAK COUNTING RATE: 3500 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 5/ 6/ 93 IS:
RA= 142.934 DEC= -10.918 DIST= 4.790 AU
BATSE-ULYSSES DISTANCE = 716658800. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=144.31 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1941.42 SECS.
CROSSING TIME AT ULYSSES IS 6147. S. OR 01:42:26 +/- 262.68 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 7 10:35:53 1993
Date: Mon, 7 Jun 1993 12:36:05 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2372	930605	9143	08088	3500	163	-42

NO

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 7 10:24:36 1993
Date: Mon, 7 Jun 1993 12:24:30 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02372

TIME: TJD=9143 SECONDS=08088

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=062.9 AZIMUTH=258.5 ERROR= DEGREES

COMMENTS:

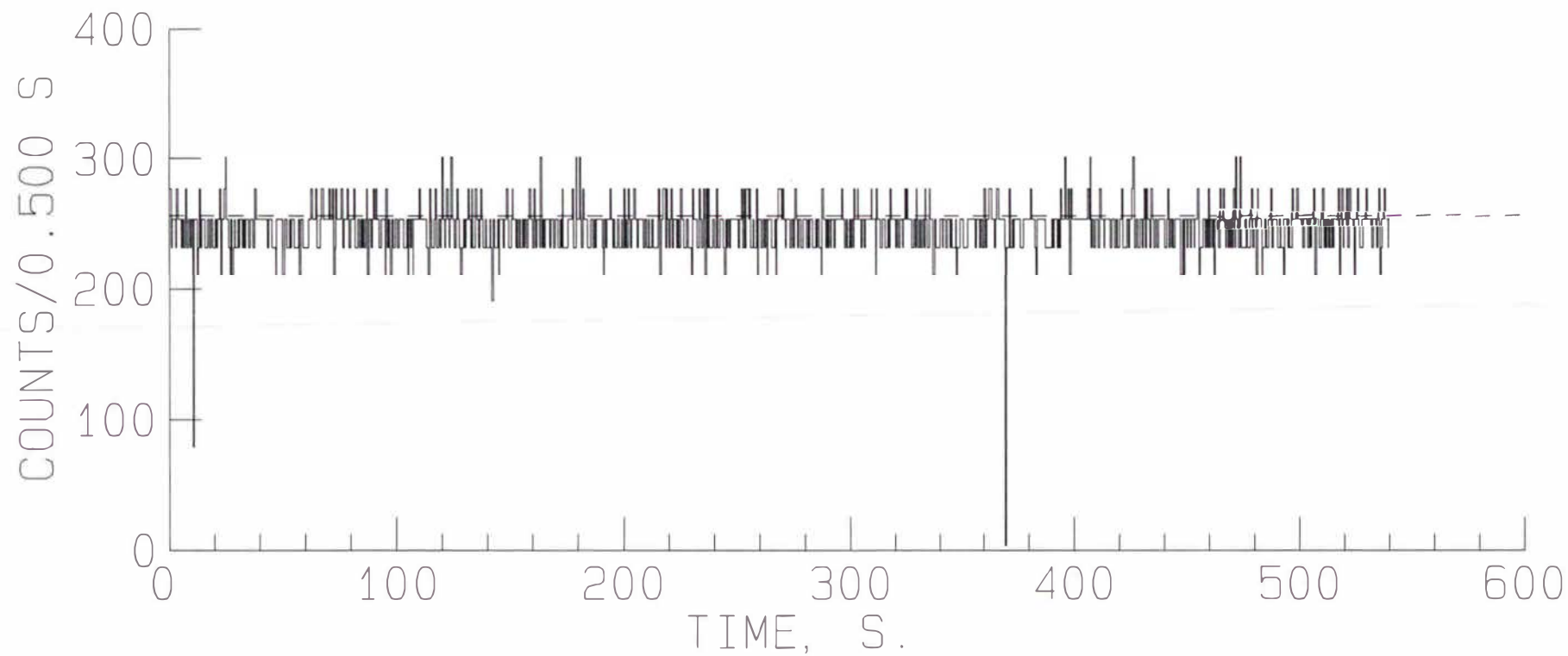
BURST, WEAK SINGLE SPIKE, DUR ~0.2S. NOT VISIBLE ABOVE 300KEV.

10 / 6 / 93

ULYSSES RT
5 / 6 / 93 5868.493 s
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSEARCH PROGRAM

BATSE BURST # 2373
EVENT OF 1993 JUN 5 DAY OF YEAR=156
EVENT CROSSING TIME AT BATSE : 24680. S. OR 06:51:20.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 286.000 39.000
BATSE PEAK COUNTING RATE: 2000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 5/ 6/ 93 IS:
RA= 142.934 DEC= -10.918 DIST= 4.790 AU
BATSE-ULYSSES DISTANCE = 716658800. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 43.19 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1743.04 SECS.
CROSSING TIME AT ULYSSES IS 26423. S. OR 07:20:23 +/- 360.50 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 7 10:37:21 1993
Date: Mon, 7 Jun 1993 12:37:33 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2373	930605	9143	24680	2000	286	+39

NO

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 7 10:31:04 1993
Date: Mon, 7 Jun 1993 12:30:59 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02373

TIME: TJD=9143 SECONDS=24680

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=129.3 AZIMUTH=128.1 ERROR= DEGREES

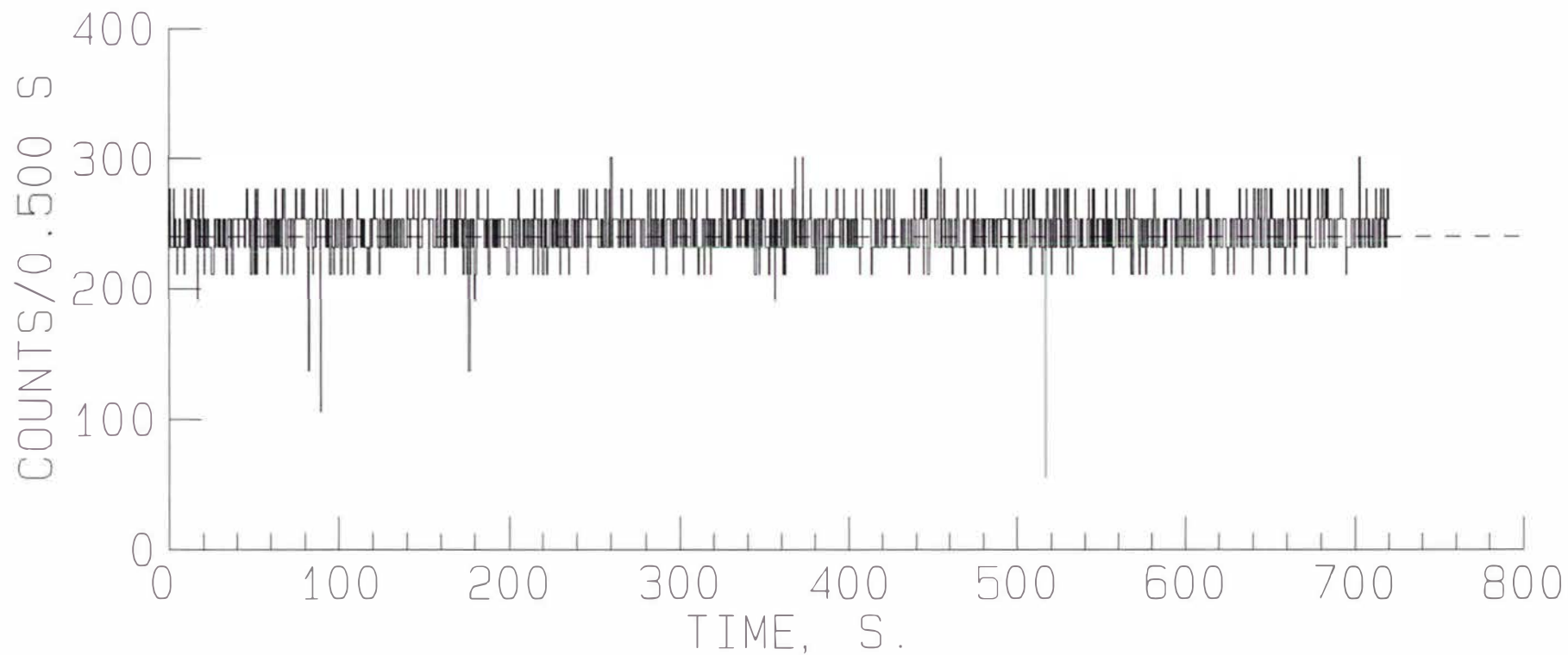
COMMENTS:

BURST, DOUBLE PEAKED, DUR ~60S. NOT VISIBLE ABOVE 300KEV.

10 / 6 / 93

ULYSSES RT
5 / 6 / 93 26064.311 s
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From SHARIFF@ssl.msfc.nasa.gov Mon Jun 7 10:33:59 1993
Date: Mon, 7 Jun 1993 12:33:58 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02374

TIME: TJD=9143 SECONDS=64109

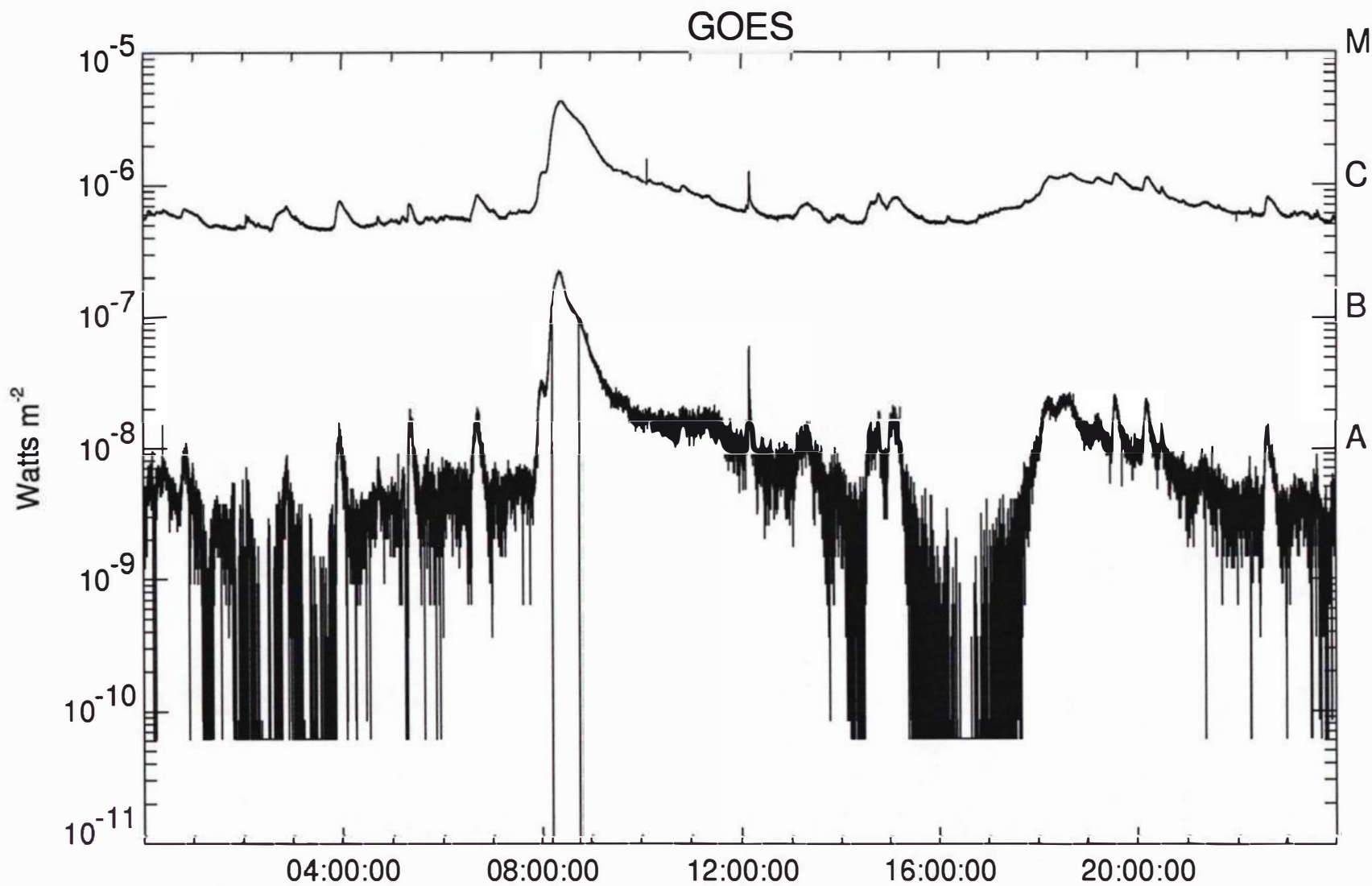
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON PREC. EVENT



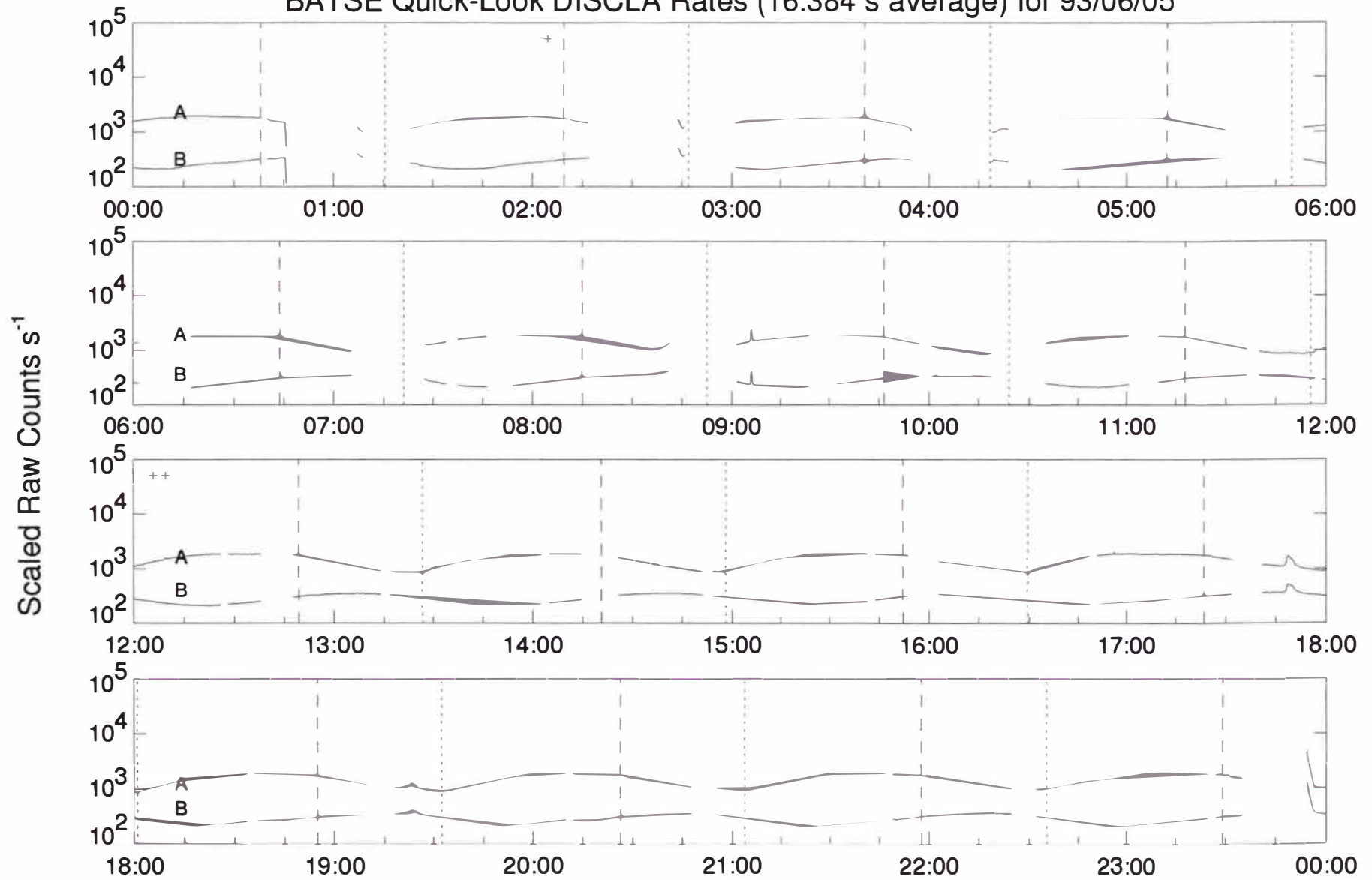
Data Start: 93/06/05, 0000:03

Plot created: 93/10/28, 0200

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/05

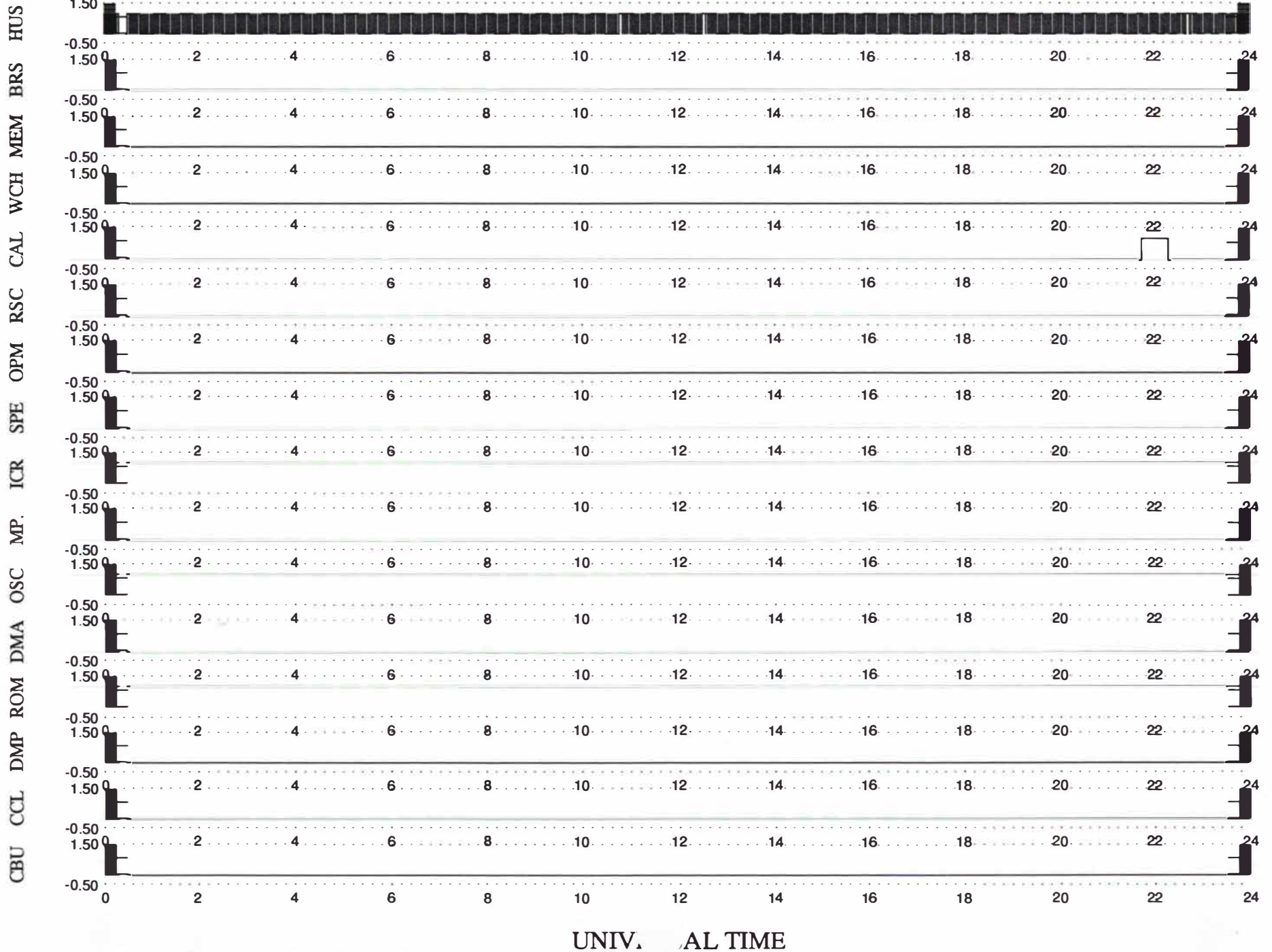


Current Time: 93/06/07, 1717 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

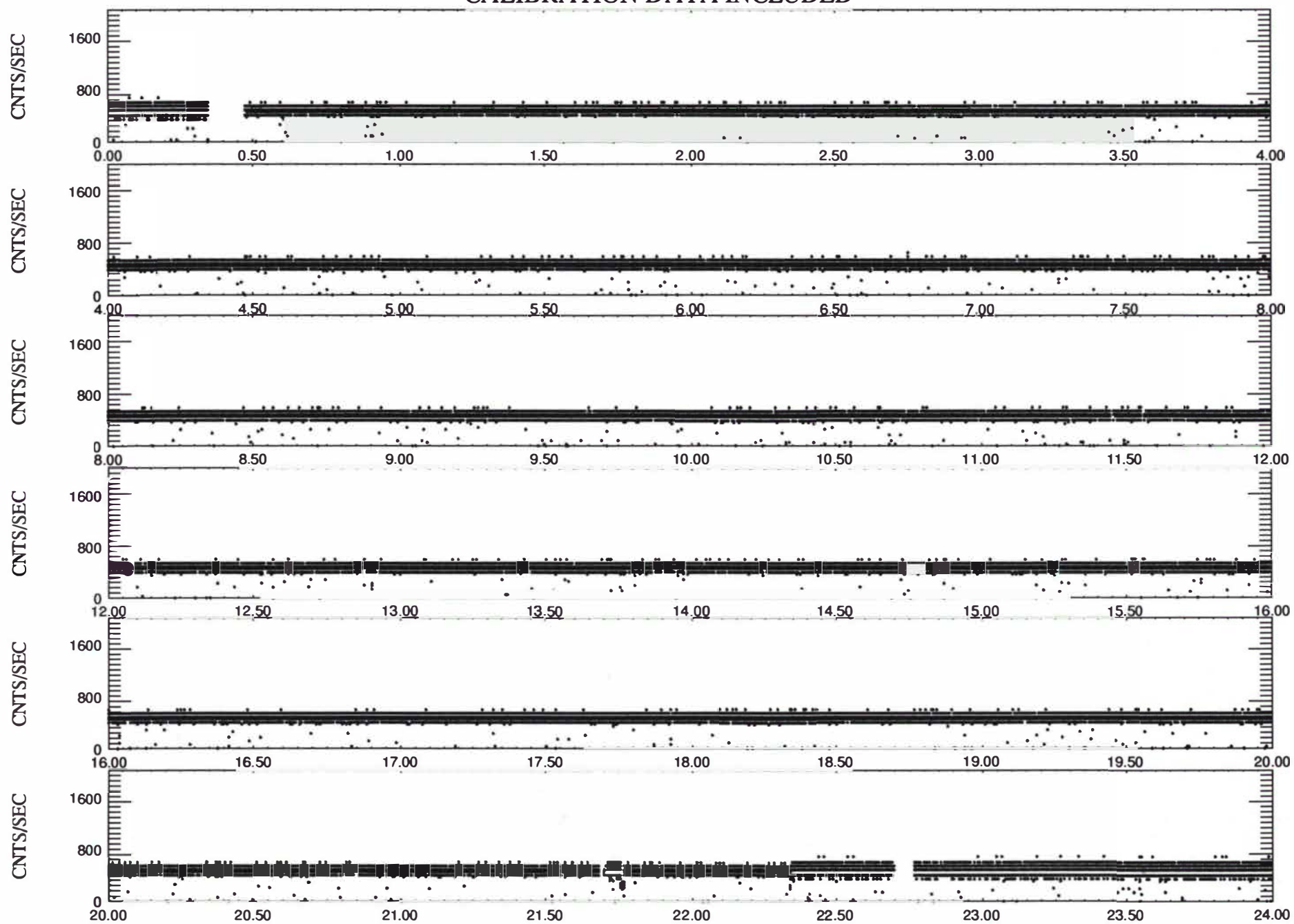
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

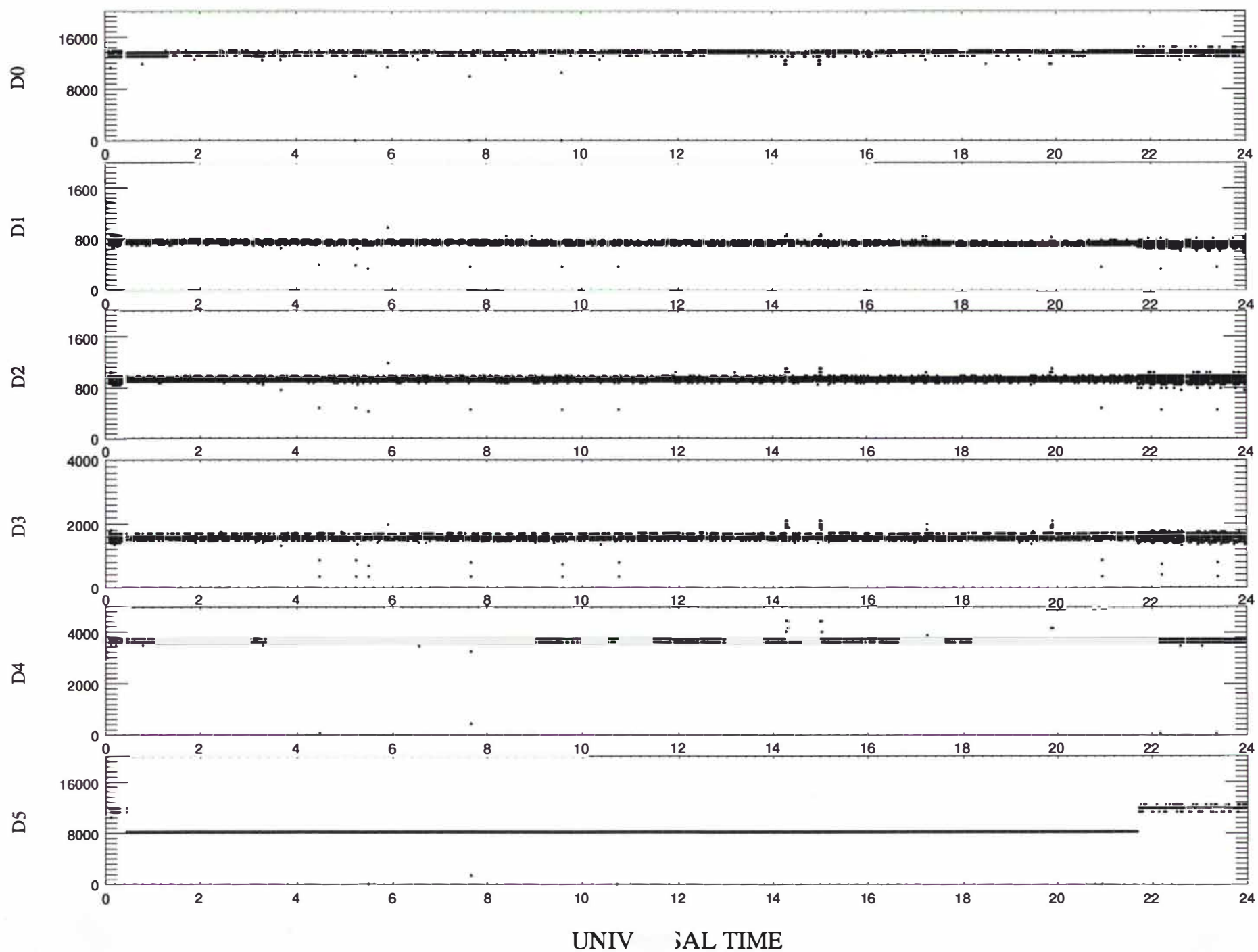
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV AL TIME



BATSEARCH PROGRAM

BATSE BURST # 2375
EVENT OF 1993 JUN 6 DAY OF YEAR=157
EVENT CROSSING TIME AT BATSE : 26328. S. OR 07:18:48.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 243.000 -69.000
BATSE PEAK COUNTING RATE: 4000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 6/ 6/ 93 IS:
RA= 142.988 DEC= -10.919 DIST= 4.802 AU
BATSE-ULYSSES DISTANCE = 718394160. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 96.64 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -277.16 SECS.
CROSSING TIME AT ULYSSES IS 26051. S. OR 07:14:10 +/- 459.03 SECONDS

From KOSHUT@ssl.msfc.nasa.gov Tue Jun 8 06:50:44 1993
Date: Tue, 8 Jun 1993 8:50:59 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: KOSHUT@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2375	930606	9144	26328	4000	243	-69

RI? Too weak

From KOSHUT@ssl.msfc.nasa.gov Tue Jun 8 11:32:19 1993
Date: Tue, 8 Jun 1993 13:32:12 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02375

TIME: TJD=9144 SECONDS=26328

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=37. AZIMUTH=202. ERROR= DEGREES

COMMENTS:

BURST OF ~ 80 SECONDS DURATION, WITH PEAK RATE OBSERVED AT
~TRIGGER + 12 SECONDS. EMISSION OBSERVED ABOVE 300 KEV.

From root Fri Jun 11 13:42 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA08793; Fri, 11 Jun 93 13:42:57
Received: by comptel.unh.edu.unh.EDU (4.1/SMI-4.1)
id AA07533; Fri, 11 Jun 93 16:44:44 EDT
Date: Fri, 11 Jun 93 16:44:44 EDT
From: mvarendo@comptel.unh.EDU (Martin Varendorff)
Message-Id: <9306112044.AA07533@comptel.unh.edu.unh.EDU>
To: khurley@space6.ssl.berkeley.edu
Status: R

Hello Kevin,

our best MaxLik position is (epoch 2000.)

$\alpha = 273$ $\delta = -81.5$

The BATSE position is about 15 degrees away.

The 1 sigma contour is approximately circular and has
a radius of about 1.5-2 degrees.

If you tell me your fax number, than I can send you an image.

Would you please send us the center and radius of the timing arc.

Best regards
Martin

Ulysses RI would be ~consistent with $\alpha = 290$ $\delta = -75$

*This COMPTTEL response was not in
Kippen's list of 5/96*

ULYSSES RT

25 / 5 / 96

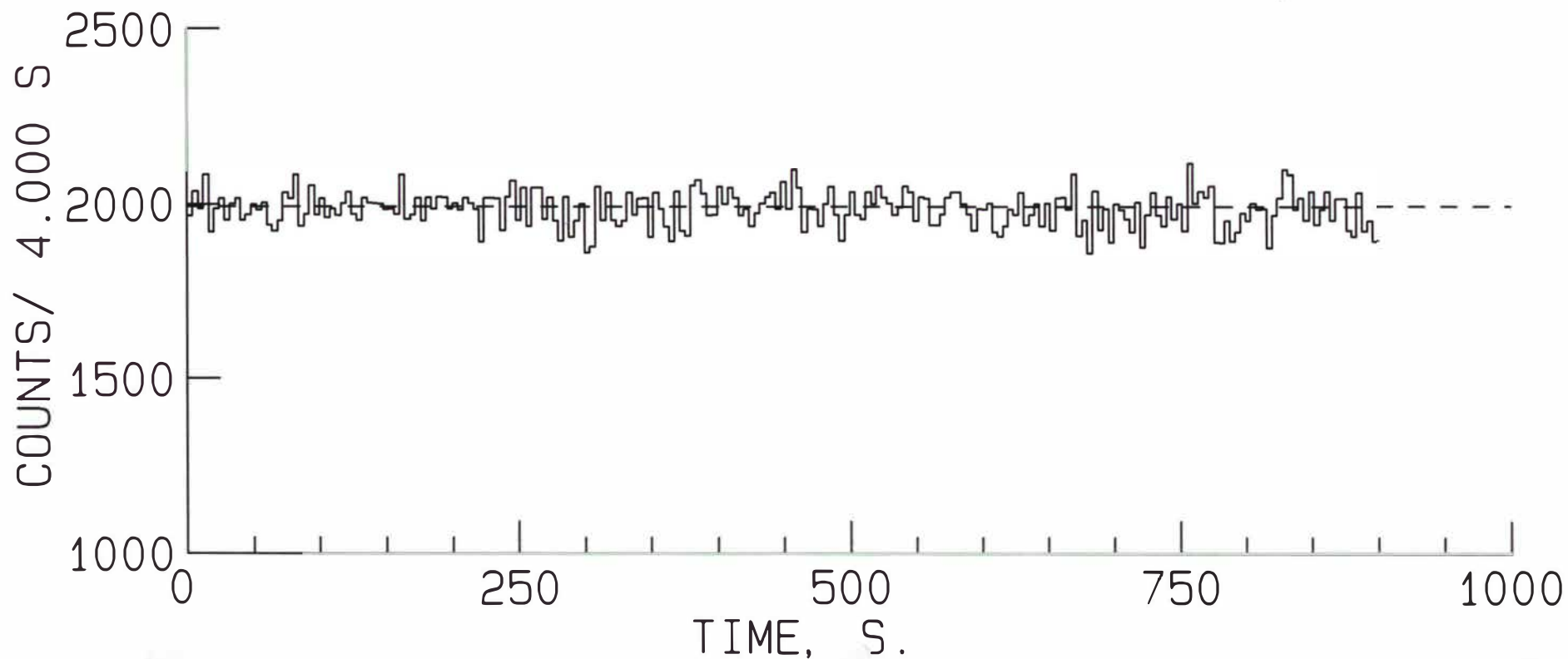
6 / 6 / 93 25596.142 s

0.250 S INTERVALS REGROUPED BY 16

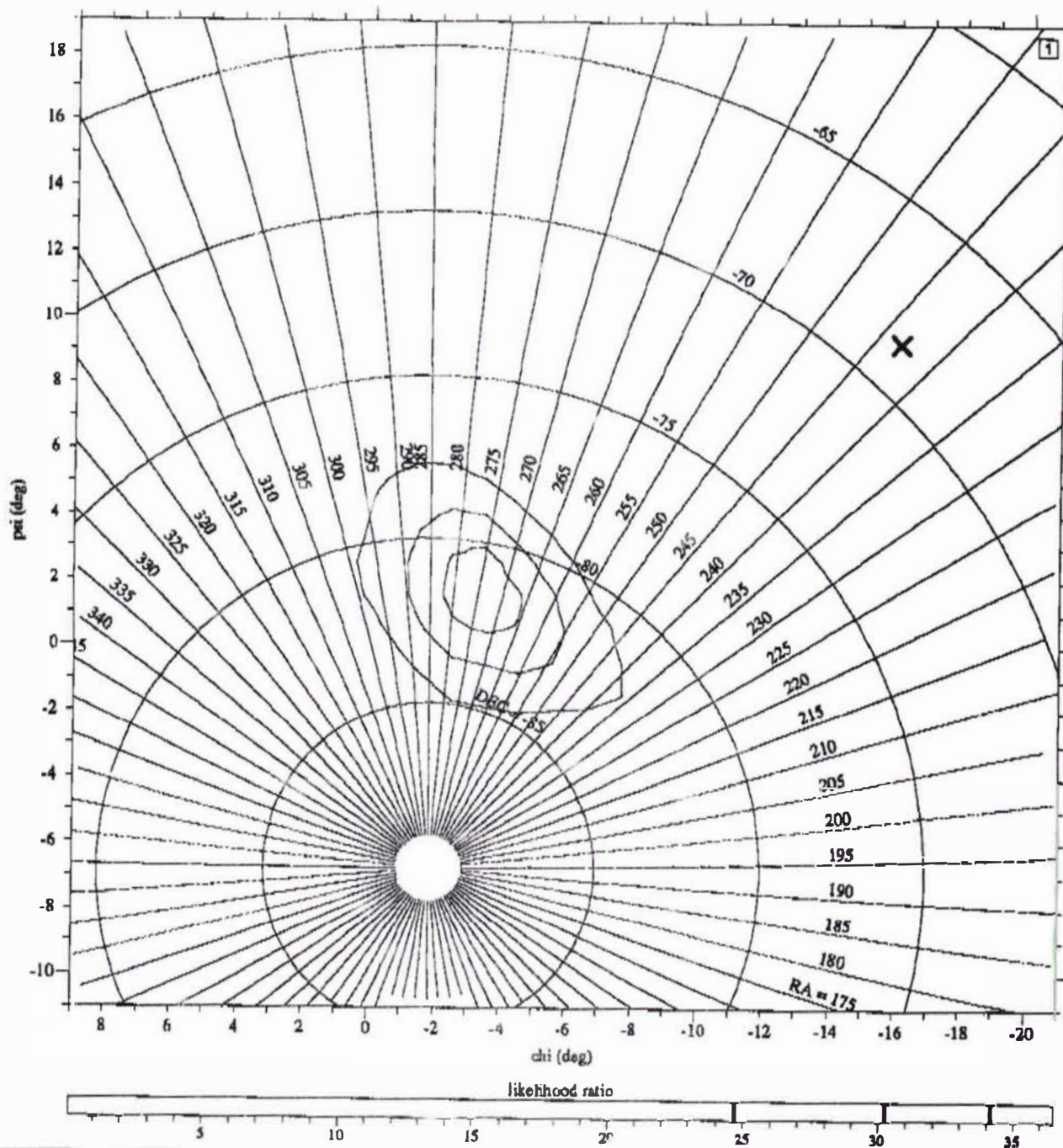
21- 144 keV

4.13 σ

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Maximum Likelihood Map



X GRB930606 Bal

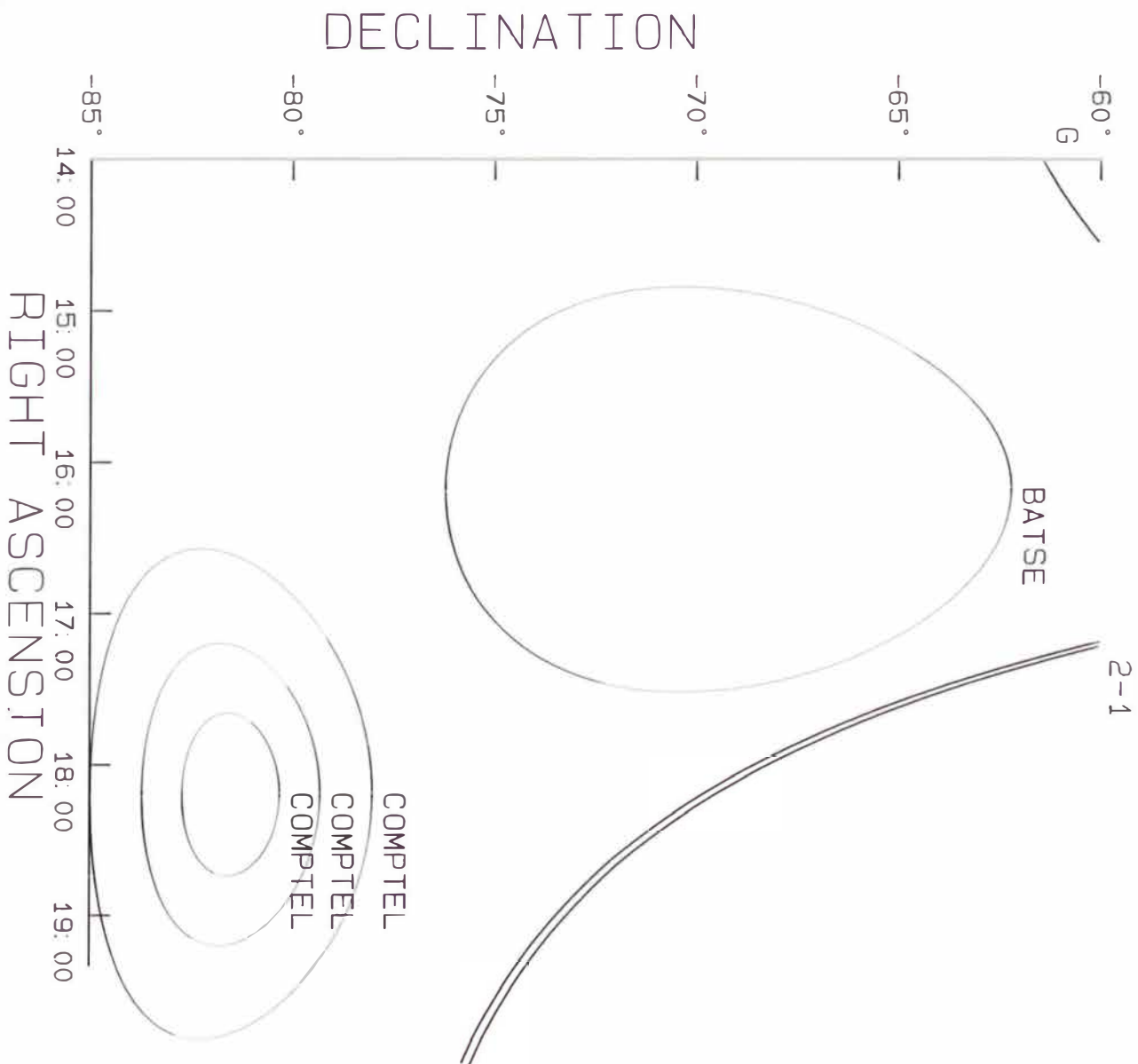
Dataset Identifier: /home4/cassida/S/U2771.MLM
Burst test image

ICORBS - 0
CHIPOL - 284.820007
PSIPOL - 6.750000
CHIORT - 300.190002
PSIORI - -83.010002

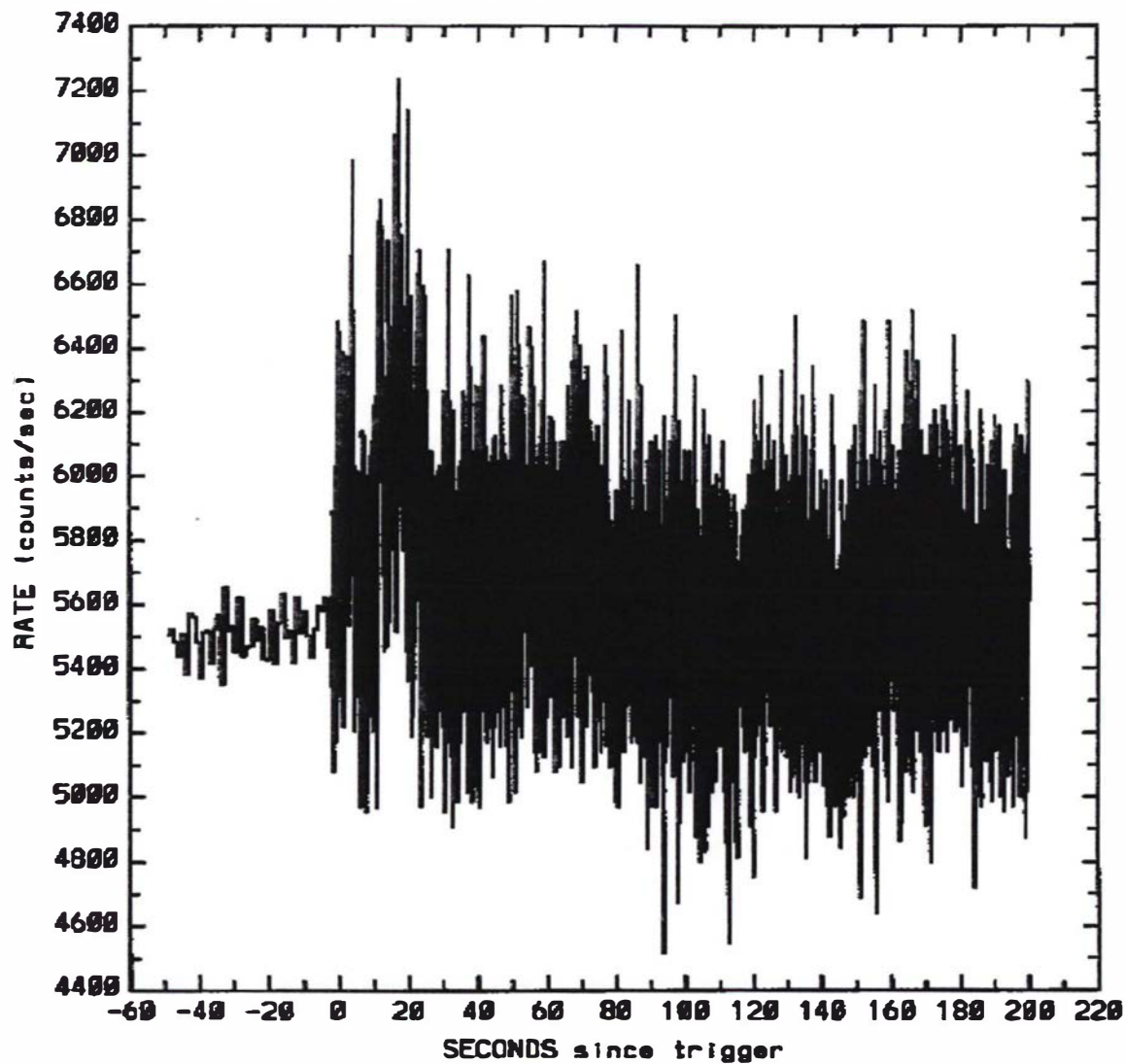
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE

EVENT OF JUN 6, 1993 7:20

2 / 7/93



DATA FOR K. HURLEY



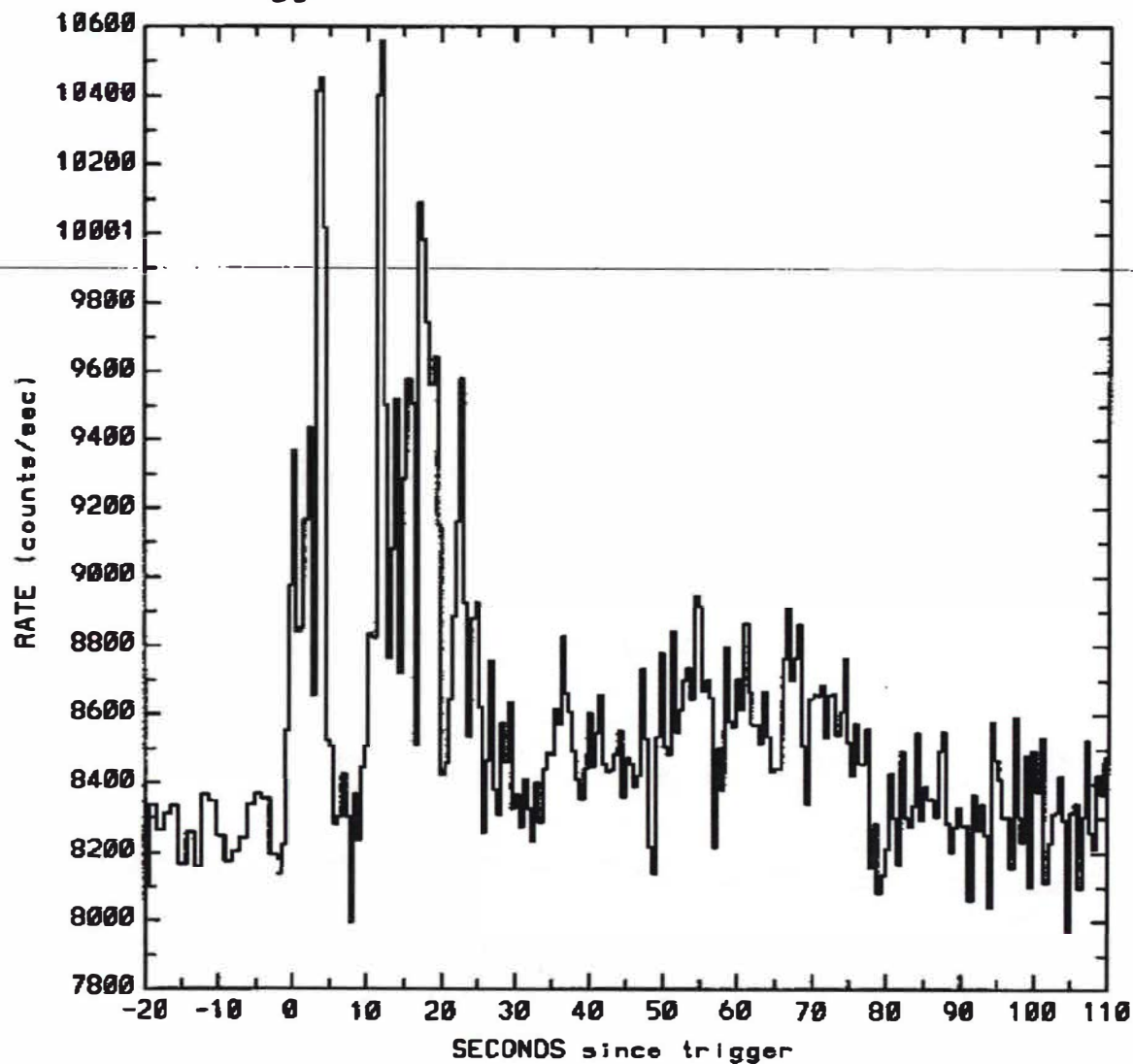
3-SEP-1993 12:56:18

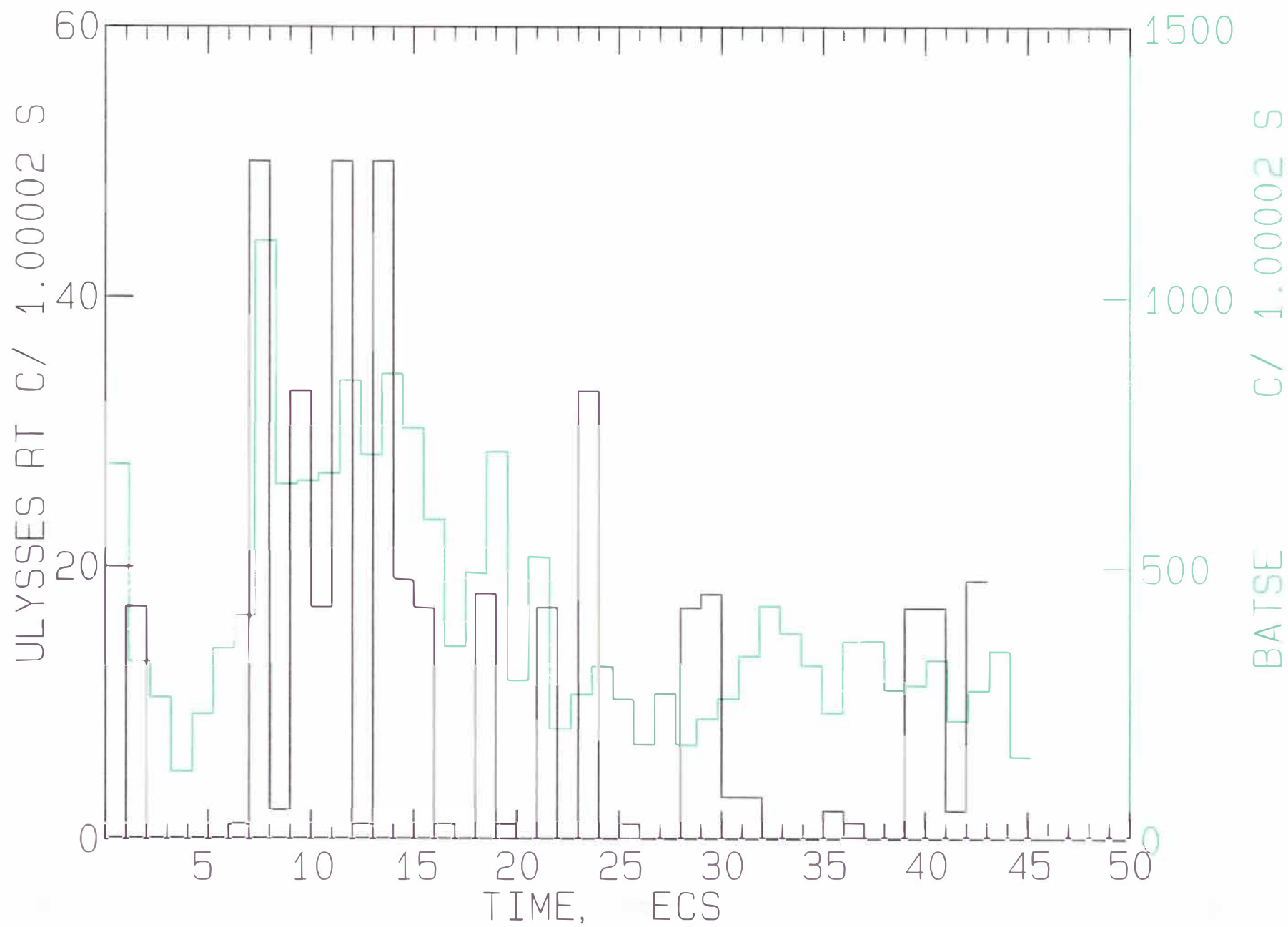
Created by MOPS BD
(Burst Display)
Version 2.28

Trigger # . 2375

Trigger Time:
9144 / 26320.786Burst Data Type:
DISCSCDeadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
8.964 second(s)Detectors [7..8]:
S1000100Discriminators:
(1. 2)Quality Rank:
BDISP1

Trigger No. 2375





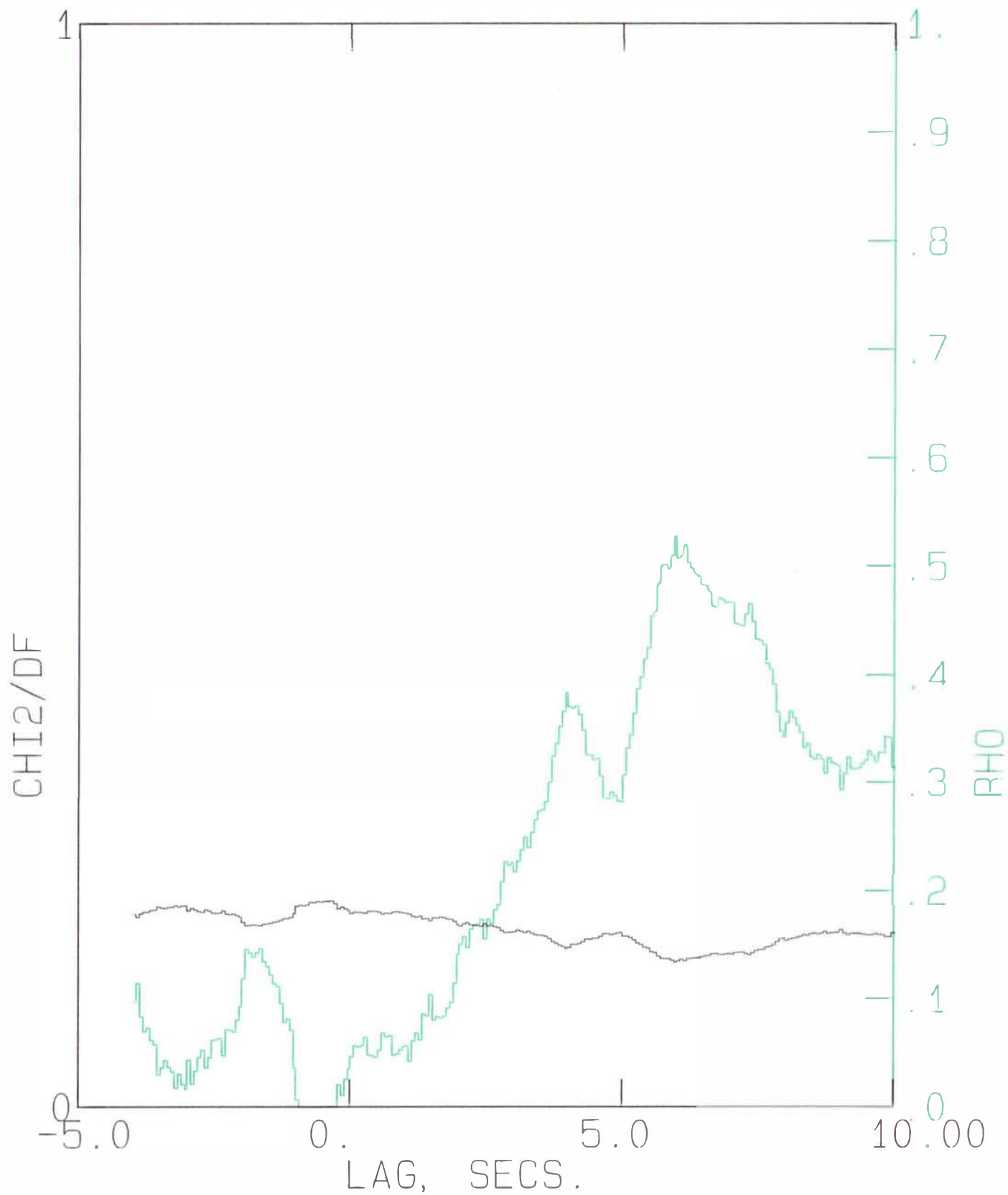
ULYSSES RT-BATSE

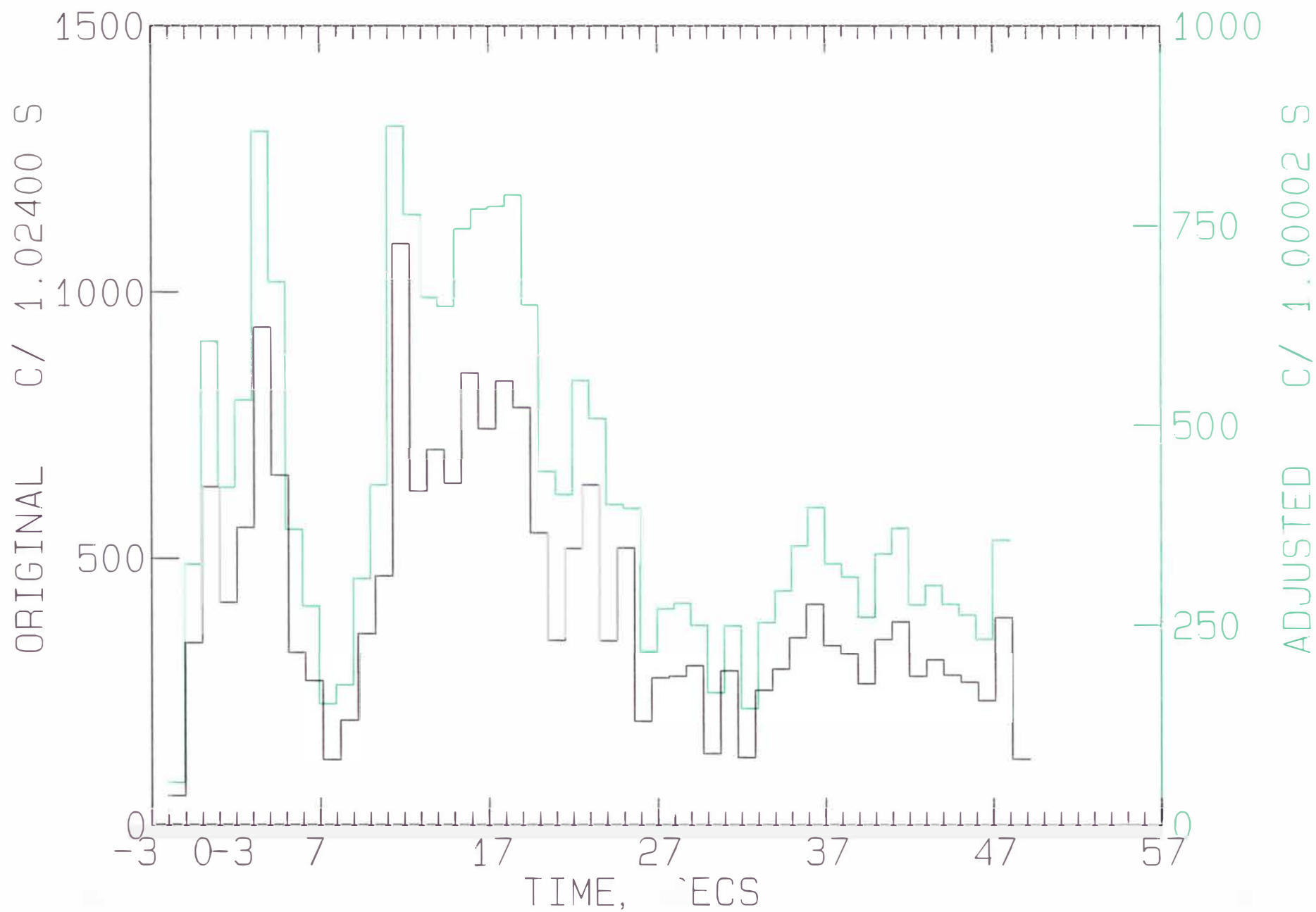
CORRELATION

6/ 6/93

26416.154

17/ 6/93



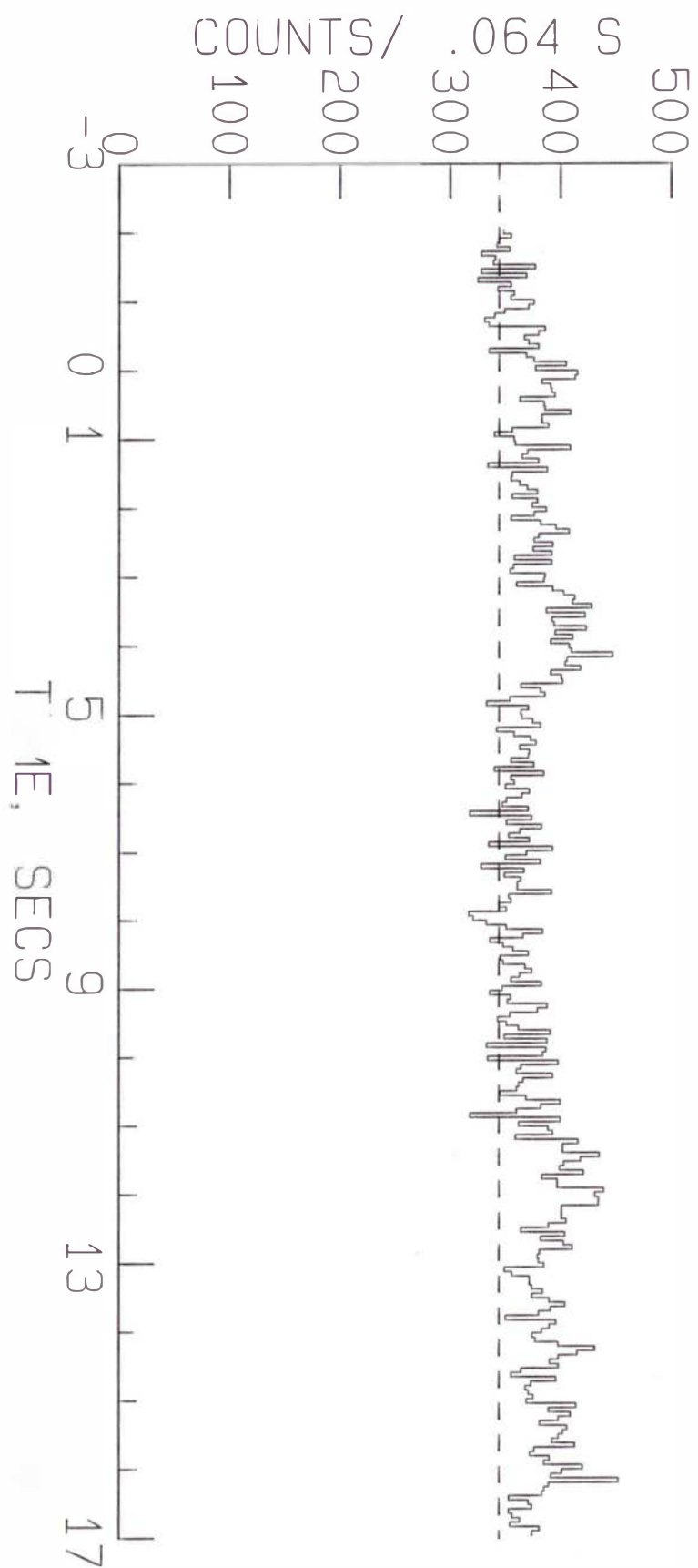


BATSE

06/06/93

24060.545

30- 100 keV



BATSE

06/06/93

24060.545

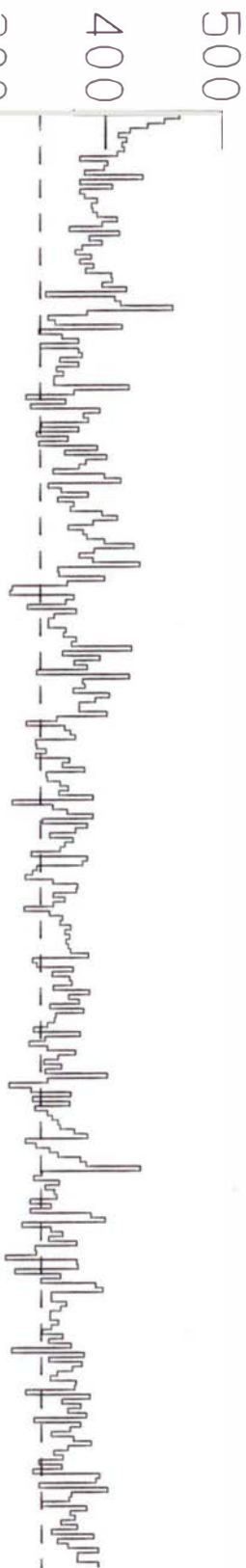
30- 100 keV

COUNTS/ .064 S

500
400
300
200
100
0

17 21 25 29 33 37

T IE, SECS

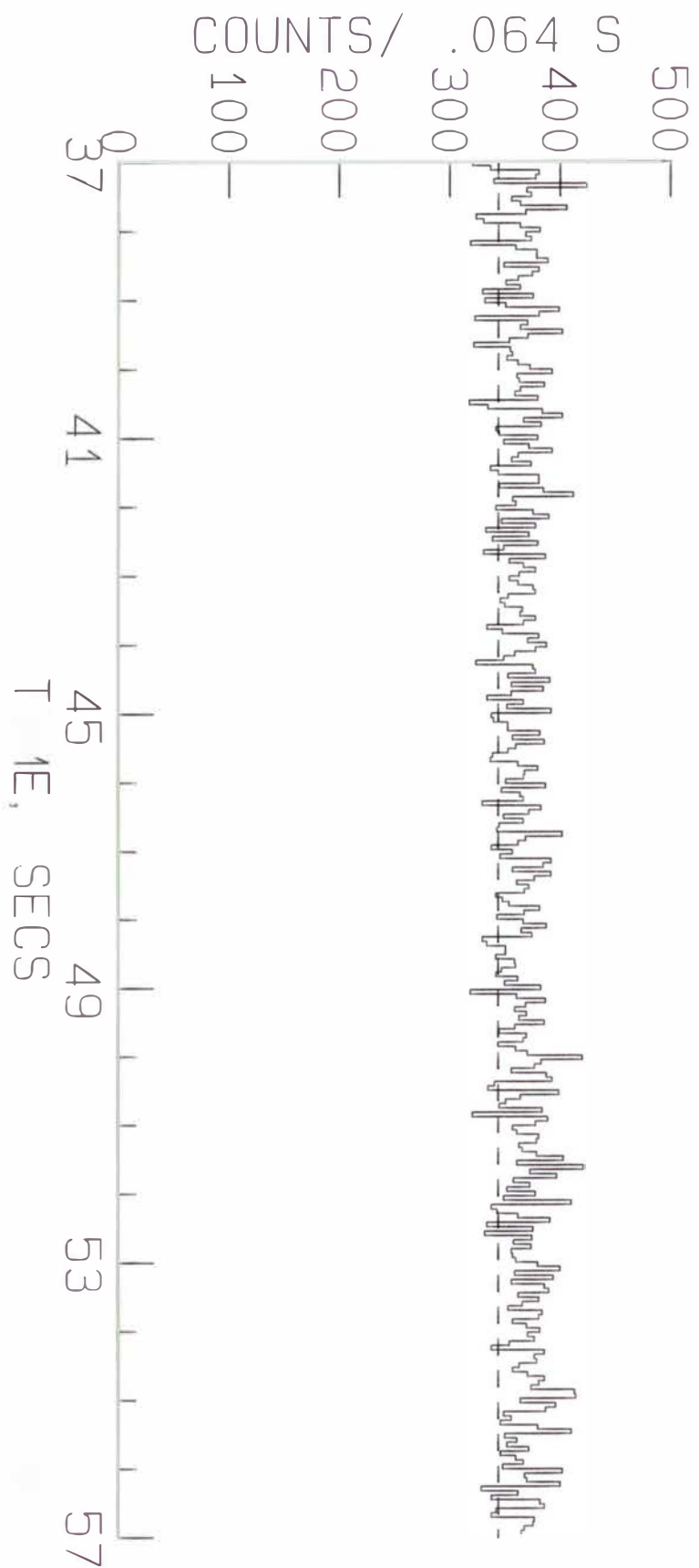


BATSE

06/06/93

24060.545

30- 100 keV

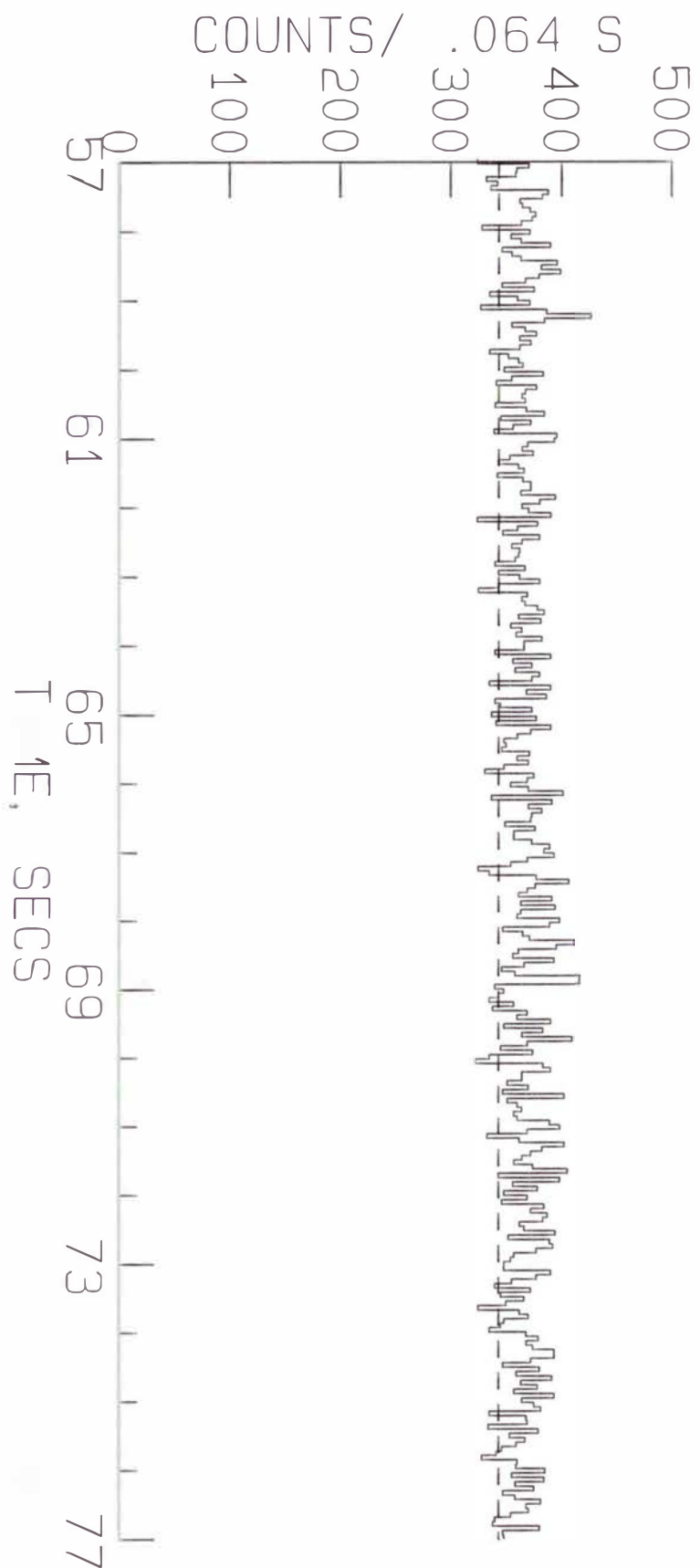


BATSE

06/06/93

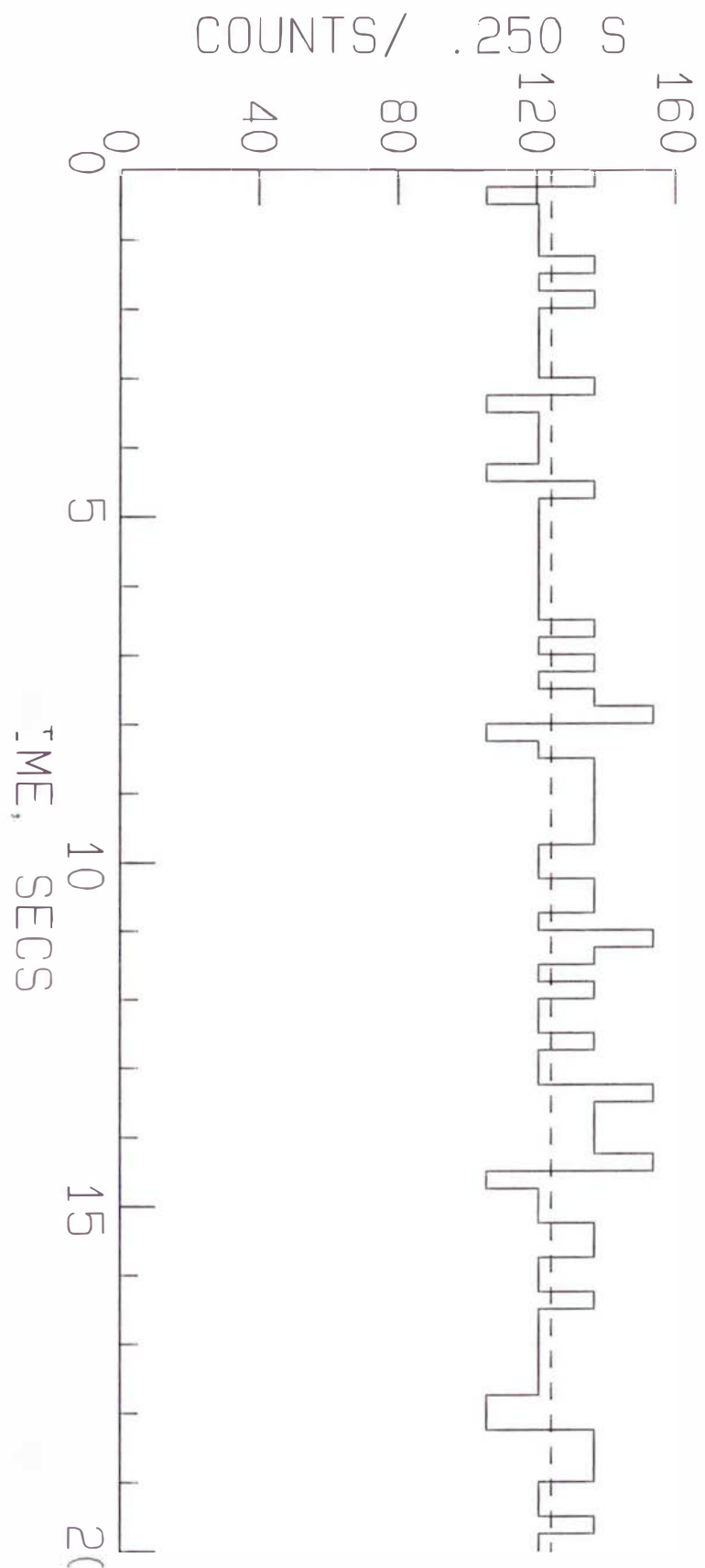
24060.545

30- 100 keV



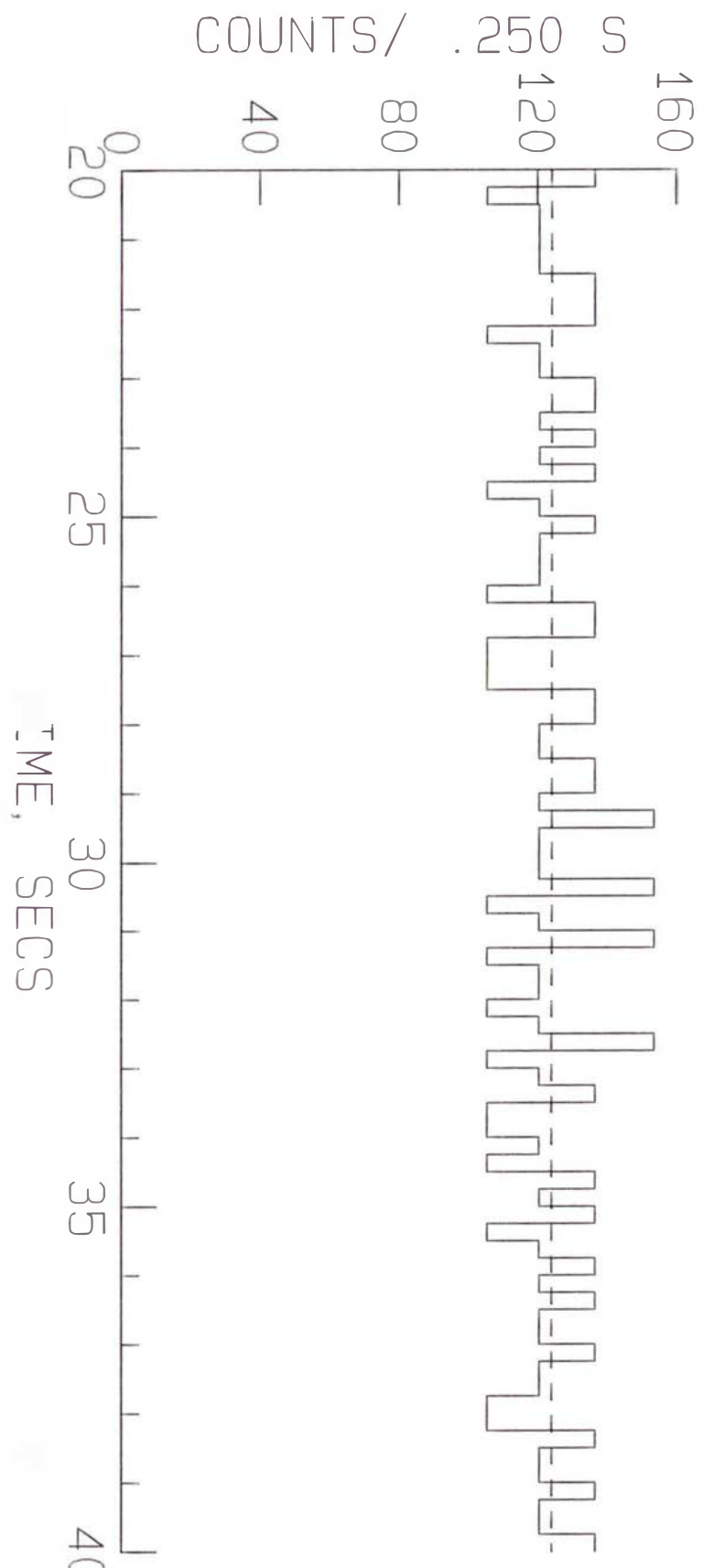
ULYSSES RT 6/ 6/93

0- 0 keV 26416.154 S



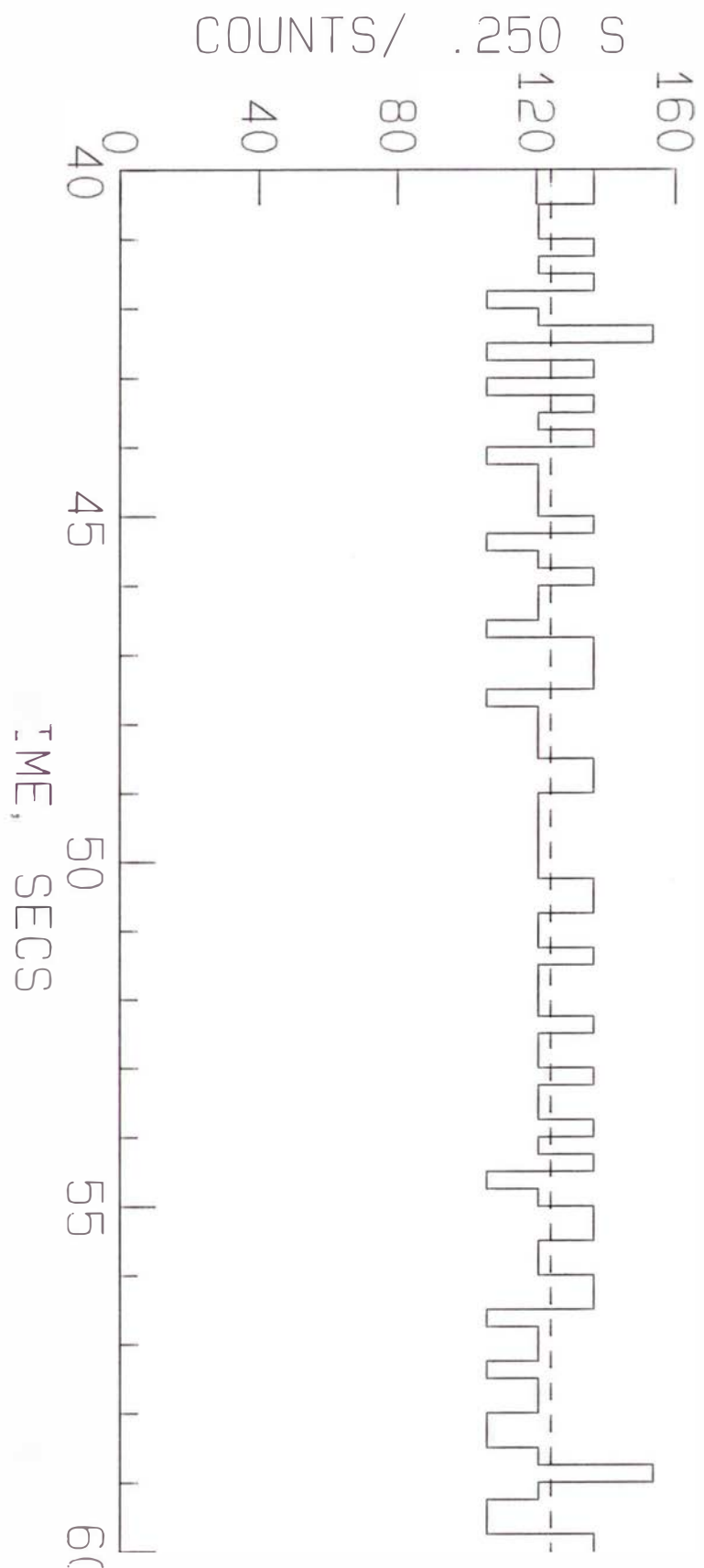
ULYSSES RT 6/ 6/93

0- 0 keV 26416.154 S



ULYSSES RT 6/ 6/93

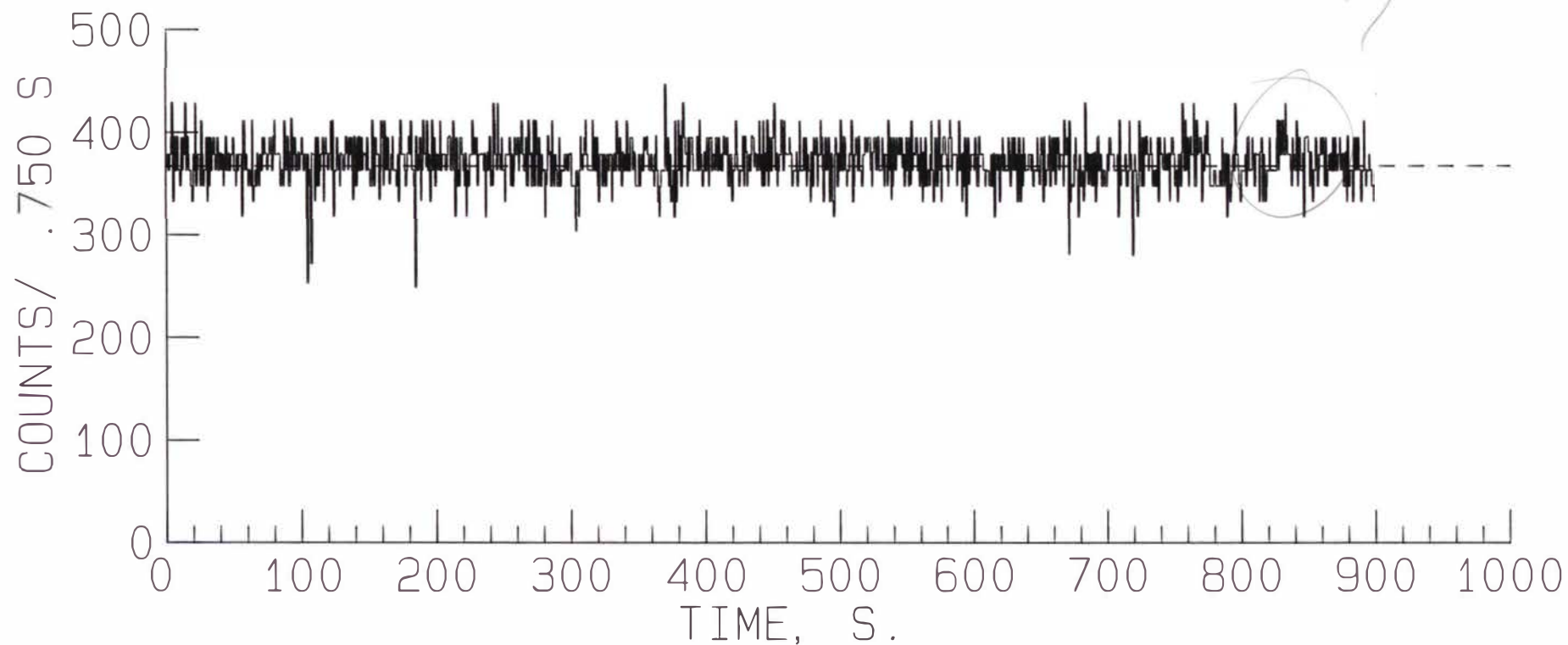
0- 0 keV 26416.154 S



11 / 6 / 93

ULYSSES RT
6/ 6/93 25596.143 s
.250 S INTERVALS REGROUPED BY 3
0- 0 keV

N= 40 M=80
>3.0 SIGMA FLUCTUATIONS



can be narrowed.

* 4 20 JAN 93 20 23:31:40 84700 2 BATSE #2138. GRS sensitivity was compromised by the abnormally long 60 s bins. Even so, a fairly convincing response is seen in two consecutive bins at about 23:35. It should be possible to refine the time using "centroiding". Unfortunately, MO was not very far away yet. A moderately significant hard-to-soft spectral evolution is seen.

5 22 JAN 93 22 12:21:18 44478 2 BATSE #2142. No GRS response was seen near the predicted time of 12:18:34.

* 6 27 JAN 93 27 16:14:25 58465 2 BATSE #2149. A weak GRS enhancement in band1 (120-240 keV) is seen in consecutive bins at the predicted time. Sensitivity was again compromised by 60 s binning, but this was a long event. I think the response is real (though perhaps useless for time-of-arrival).

7 10 MAR 93 69 07:19:20 26360 2 BATSE #2232. No GRS response near the predicted time. However, two crucial bins are missing, probably due to poor data quality. They cannot be recovered.

8 28 APR 93 118 01:07:12 4032 2 BATSE #2320. No GRS response near the predicted time.

9 31 MAY 93 151 15:53:38 57218 2 BATSE #2362. No GRS response near the predicted time.

10 6 JUN 93 157 07:18:48 26328 2 BATSE #2375. No GRS response near the predicted time.

*11 12 JUN 93 163 00:44:17 2657 2 BATSE #2387. Clear response in 1 or 2 bins at 00:43:37.

*12 12 JUN 93 163 08:53:57 32037 2 BATSE #2389. Clear response in one bin at 09:07:48.

13 14 JUN 93 165 03:40:30 13230 2 BATSE #2393. No response near the predicted time. This is surprising, because the event was intense and the spacecraft apparently was not blocking the detector.

14 14 JUN 93 165 16:34:37 59677 2 BATSE #2394. No response near the predicted time, although there was a data gap that ended at 16:39:34. This was a weak event that probably should not have been seen by GRS.

*15 28 JUN 93 179 03:20:36 12036 1 Ulysses only. Definite response at 03:35:09.0. Note that the fractional second on the printout is incorrect.

16 6 JUL 93 187 05:13:30 18810 2 BATSE #2431. The one-and-only known triggered event. David Palmer has done some arrival time analysis. Have I sent you any data on this event? Do you want any? (Trigger data and mapping data are mutually exclusive.)

17 6 JUL 93 187 08:09:10 29350 2 BATSE #2432. No response near the predicted time.

18 8 JUL 93 189 05:12:38 18758 2 BATSE #2433. No response near the predicted time.

19 11 JUL 93 192 03:32:01 12721 2 BATSE #2441. No response near the predicted time.

20 14 JUL 93 195 16:12:53 58373 2 BATSE #2446. No response near the predicted time.

*21 20 JUL 93 201 14:35:09 52509 2 BATSE #2450. Definite response, probably in two bins, at about 14:49.

From root Wed Jan 26 09:21 1994
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AB01596; Wed, 26 Jan 94 09:21:57
Received: from lpl.arizona.edu (hindmost.LPL.Arizona.EDU) by sunspot.ssl.berkeley.edu (5.0/SMI)
id AA26699; Wed, 26 Jan 1994 08:26:17 +0800
Received: from peewee.lpl.arizona.edu by lpl.arizona.edu (4.1/hindmost-MX-1.4)
id AA04397; Wed, 26 Jan 94 09:28:59 MST
Received: by peewee.lpl.arizona.edu (5.0/SMI-SVR4)
id AA02684; Wed, 26 Jan 94 09:32:09 MST
Date: Wed, 26 Jan 94 09:32:09 MST
From: jlaros@peewee.lpl.arizona.edu (John Laros)
Message-Id: <9401261632.AA02684@peewee.lpl.arizona.edu>
To: khurley@sunspot.ssl.berkeley.edu
Subject: MO bursts
Content-Type: X-sun-attachment
Content-Length: 5685
Status: R

X-Sun-Data-Type: text
X-Sun-Data-Description: text
X-Sun-Data-Name: text
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 16

Kevin,

Here it comes: MO time history and ephemeris data on all 27 of the Ulysses events for which there was GRS coverage. It looks like about 10 bursts were actually detected by GRS. Please note that the time history files have a line at the end, labelled "Ensemble values", that was not in the sample I sent you. These are empirically determined means and sigmas for the data set. For reasons that have not yet been determined, the empirical sigmas are larger than the theoretical ones at the lower energies.

If there were any intense non-Ulysses bursts during the MO lifetime, such as WATCH events, would you please send me the information on them?

Thanks,

John

X-Sun-Data-Type: default
X-Sun-Data-Description: default
X-Sun-Data-Name: ulysses.lst
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 106

MO/GRS Burst Coverage of Ulysses Events

(* indicates probable GRS detection of the burst)

	DATE	DOY	TIME	T,SEC	NSAT (1=Ulysses, 2=GRO)	
1	4 OCT 92	278	13:38:27	49107	1	Ulysses/PVO/WATCH. MO was only 10 lt-sec away, and the sensitivity was seriously degraded by high background rates. If the WATCH time of 14:00:21 is accurate, then there is no GRS detection. However, there may be some GRS candidates within a few minutes of 14:00.
2	22 OCT 92	296	15:20:59	55259	2	BATSE #1997. There was no significant GRS response near 15:21. A leakage current glitch (a low bin followed by a high bin) is seen at 15:24.
3	13 DEC 92	348	14:56:42	53802	1	Ulysses only. There is no clear GRS response. This event merits further consideration only if the time window at MO

28/ 3/94

MO-RT

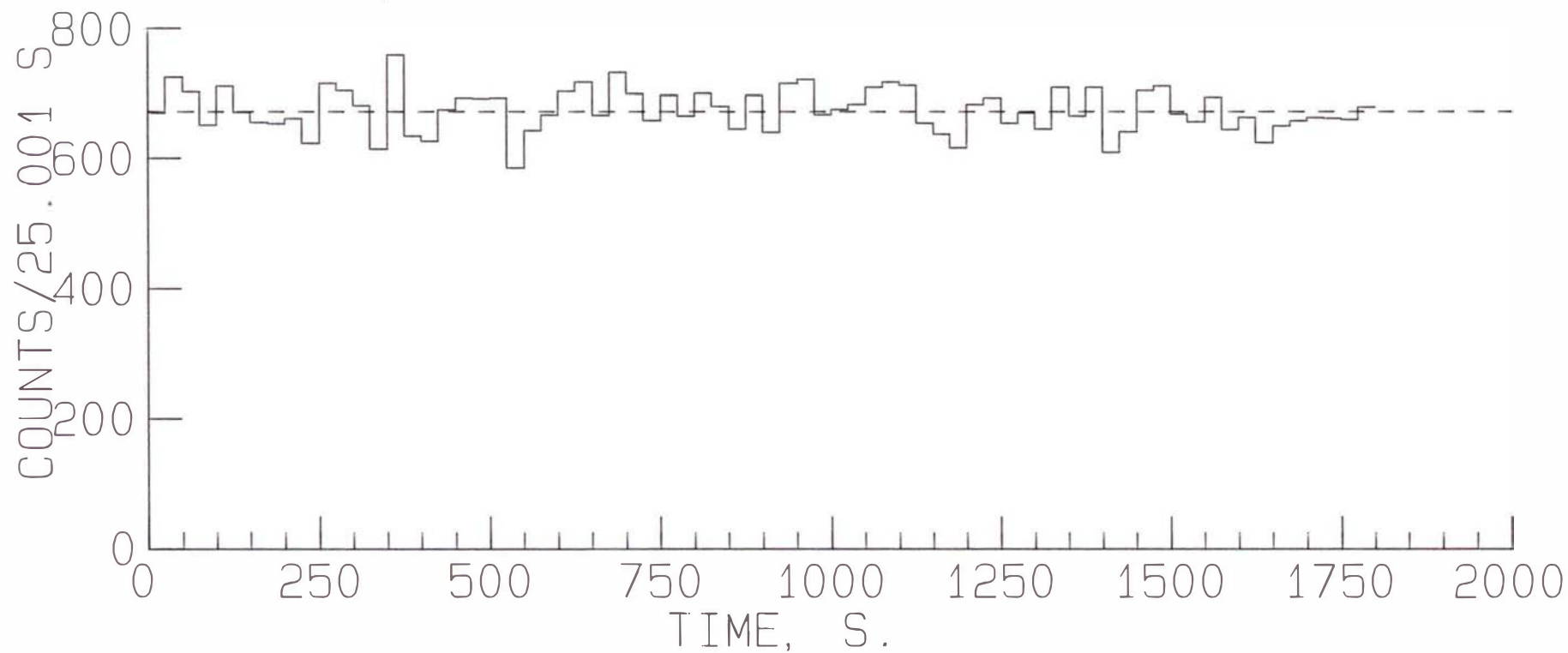
6/ 6/93

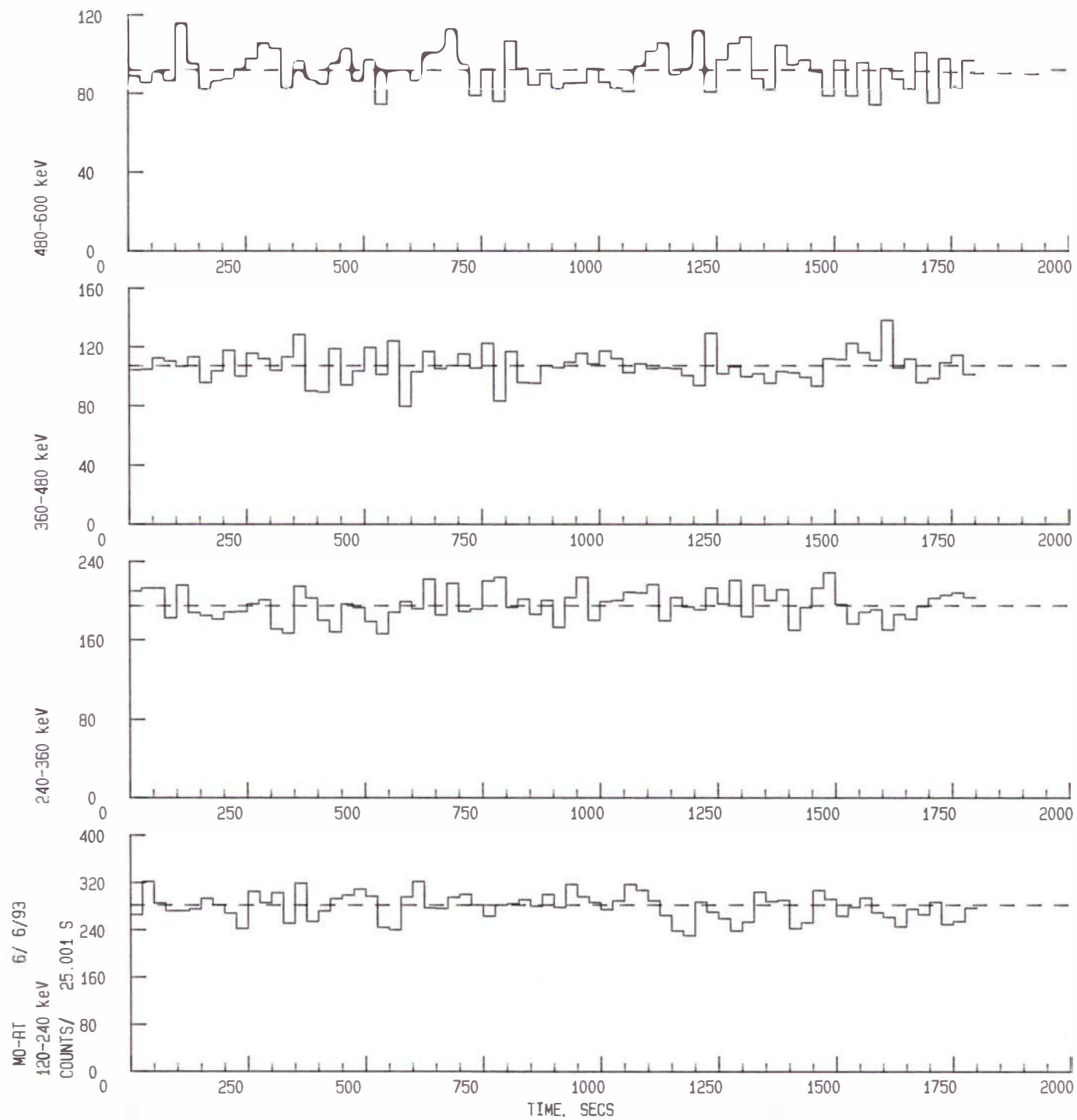
25630.119 s.

25.001 S. INTERVALS REGROUPED BY 1

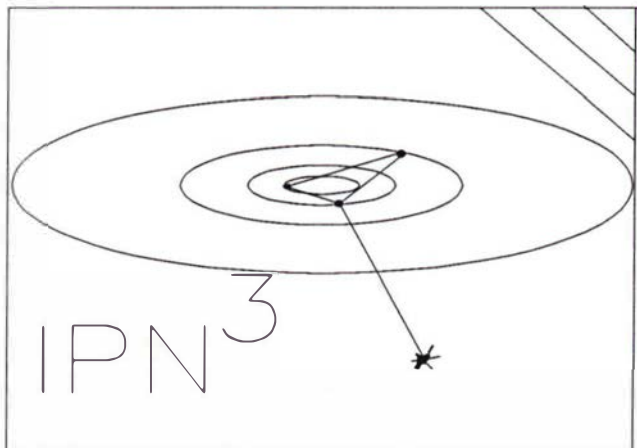
120- 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS





fixed 1/2/99

 IPN3	FAX FROM K. HURLEY UNIVERSITY OF CALIFORNIA SPACE SCIENCES LABORATORY BERKELEY, CA. 94720 PHONE: (510) 643-9173 FAX: (510) 643-8640 (OFFICE), -8302 (SECT'Y) E-MAIL: khurley@sunspot.ssl.berkeley.edu
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TO: Martin Varendorff, UNH; C. Kouveliotou, Marshall

FAX #: 603 862 4685; 205 544 5800

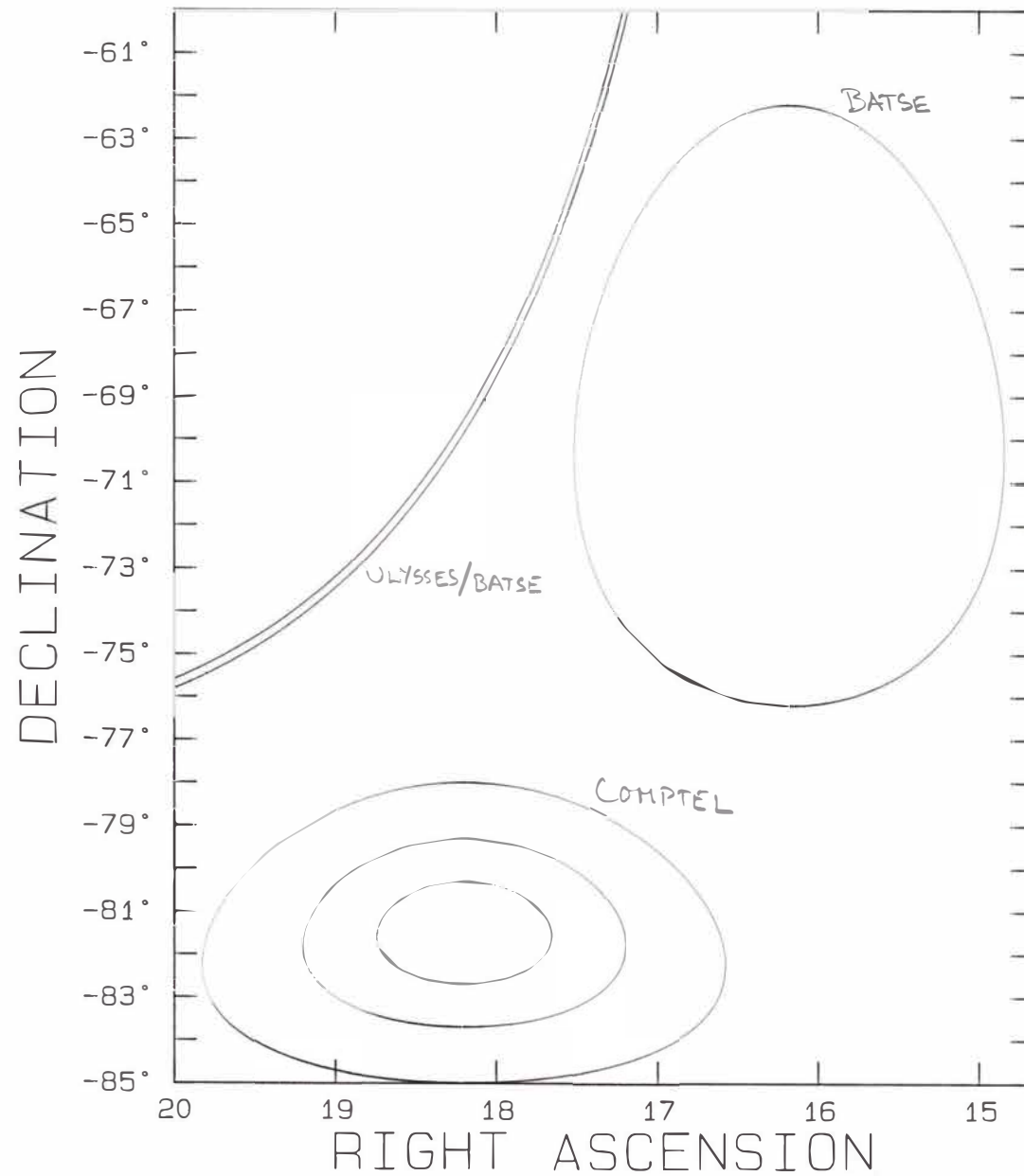
DATE: July 2, 1993

TOTAL NUMBER OF PAGES:2

Sorry for the long delay in getting back to you about this event. First, I had doubts about the Ulysses response actually corresponding to the burst (it was very weak). Then, I had problems with the BATSE trigger time. I think everything is corrected now, but as you can see, we have three mutually inconsistent positions anyway! I've used a 7 degree error radius for BATSE, and 1.2, 2.2, and 3.5 degree radii for COMPTEL. I'll e-mail you the numbers. Any ideas on how to fix this?

2/ 7/93

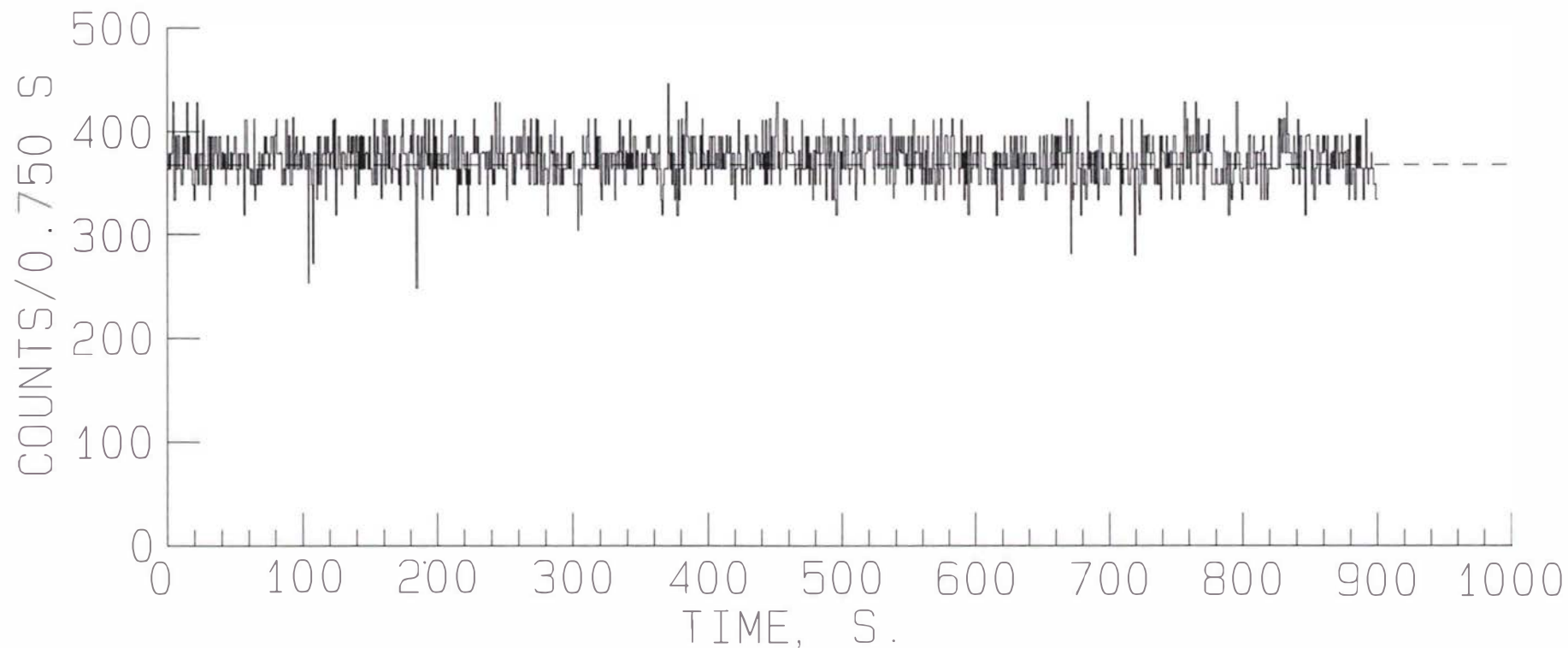
JUN 6, 1993 7: 20



10 / 6 / 93

ULYSSES RT
6 / 6 / 93 25596.143 s
0.250 S INTERVALS REGROUPED BY 3
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From KOSHUT@ssl.msfc.nasa.gov Tue Jun 8 06:11:12 1993
Date: Tue, 8 Jun 1993 8:11:16 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02376

TIME: TJD=9144 SECONDS=65392

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE PRECIPITATION EVENT.

BATSEARCH PROGRAM

BATSE BURST # 2377
EVENT OF 1993 JUN 6 DAY OF YEAR=157
EVENT CROSSING TIME AT BATSE : 75007. S. OR 20:50:07.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 153.000 24.000
BATSE PEAK COUNTING RATE: 17000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 6/ 6/ 93 IS:
RA= 142.988 DEC= -10.919 DIST= 4.802 AU
BATSE-ULYSSES DISTANCE = 718394160. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=143.74 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1932.14 SECS.
CROSSING TIME AT ULYSSES IS 73075. S. OR 20:17:54 +/- 266.75 SECONDS

From KOSHUT@ssl.msfc.nasa.gov Tue Jun 8 07:47:43 1993
Date: Tue, 8 Jun 1993 9:47:58 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: KOSHUT@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2377	930606	9144	75007	17000	153	+24

NO

From KOSHUT@ssl.msfc.nasa.gov Tue Jun 8 11:43:40 1993
Date: Tue, 8 Jun 1993 13:43:39 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02377

TIME: TJD=9144 SECONDS=75007

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=130. AZIMUTH=288. ERROR= DEGREES

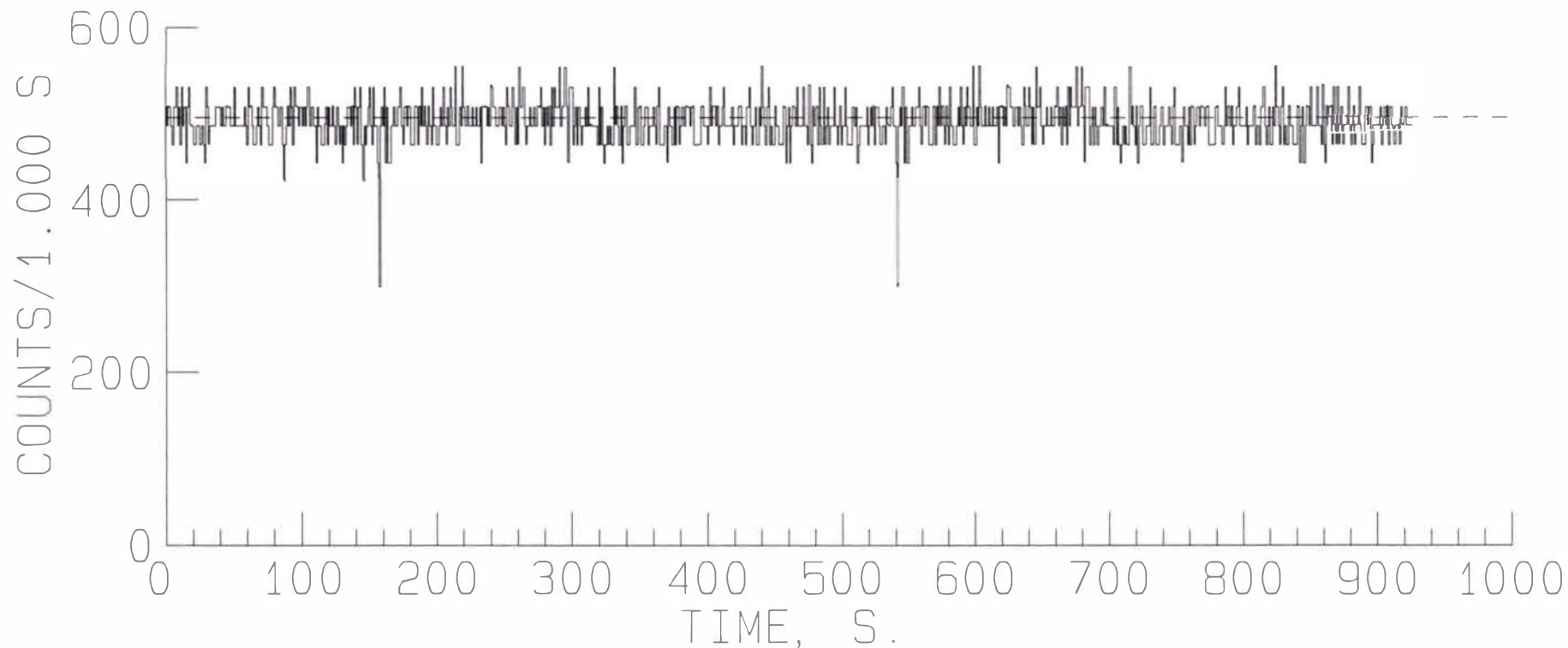
COMMENTS:

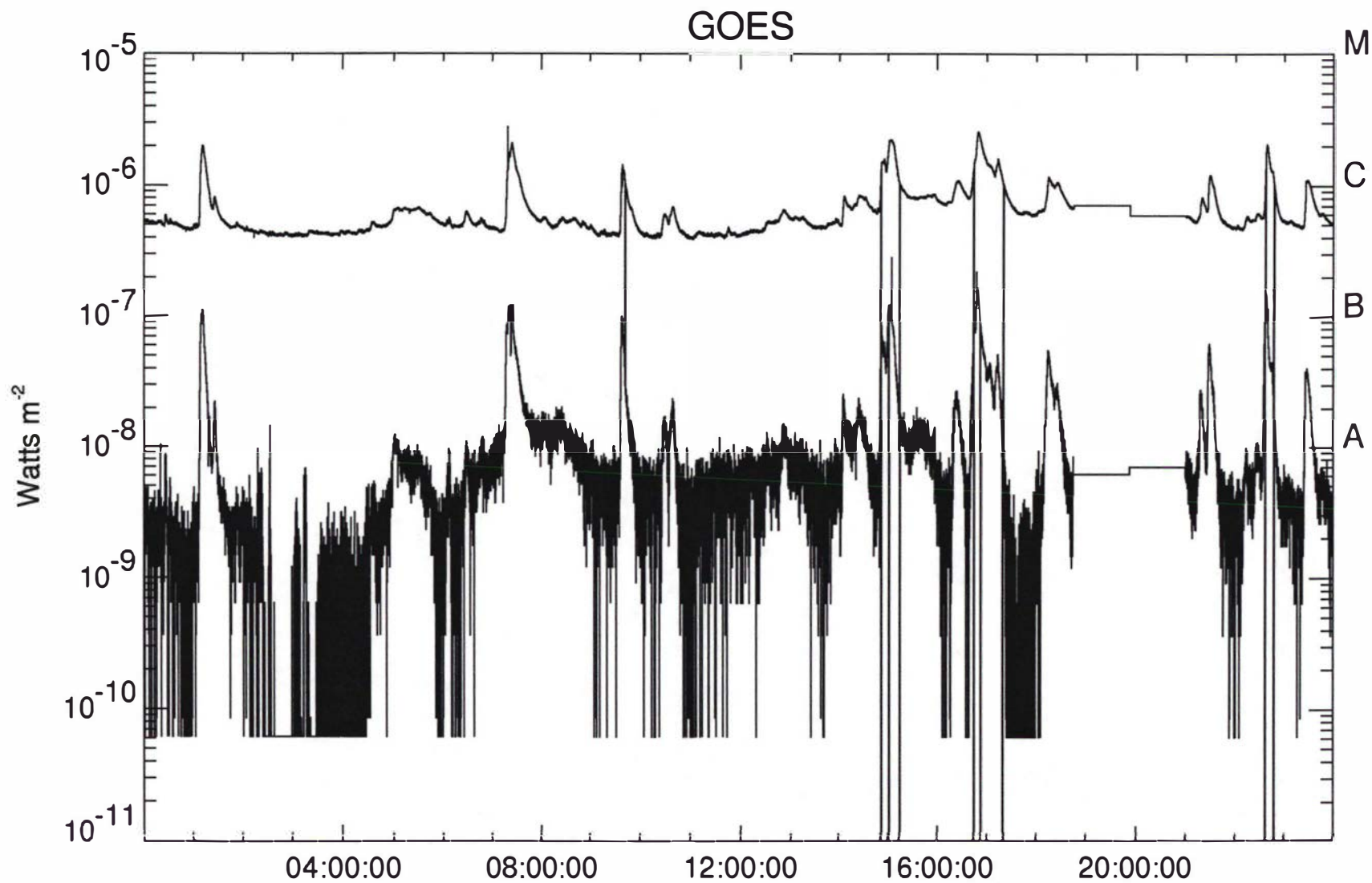
BURST OF ~ 1 SECOND DURATION, WITH EMISSION OBSERVED ABOVE 300 KEV.

10 / 6 / 93

ULYSSES RT
6 / 6 / 93 72792.367 s
0.500 S INTERVALS REGROUPED BY 2
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





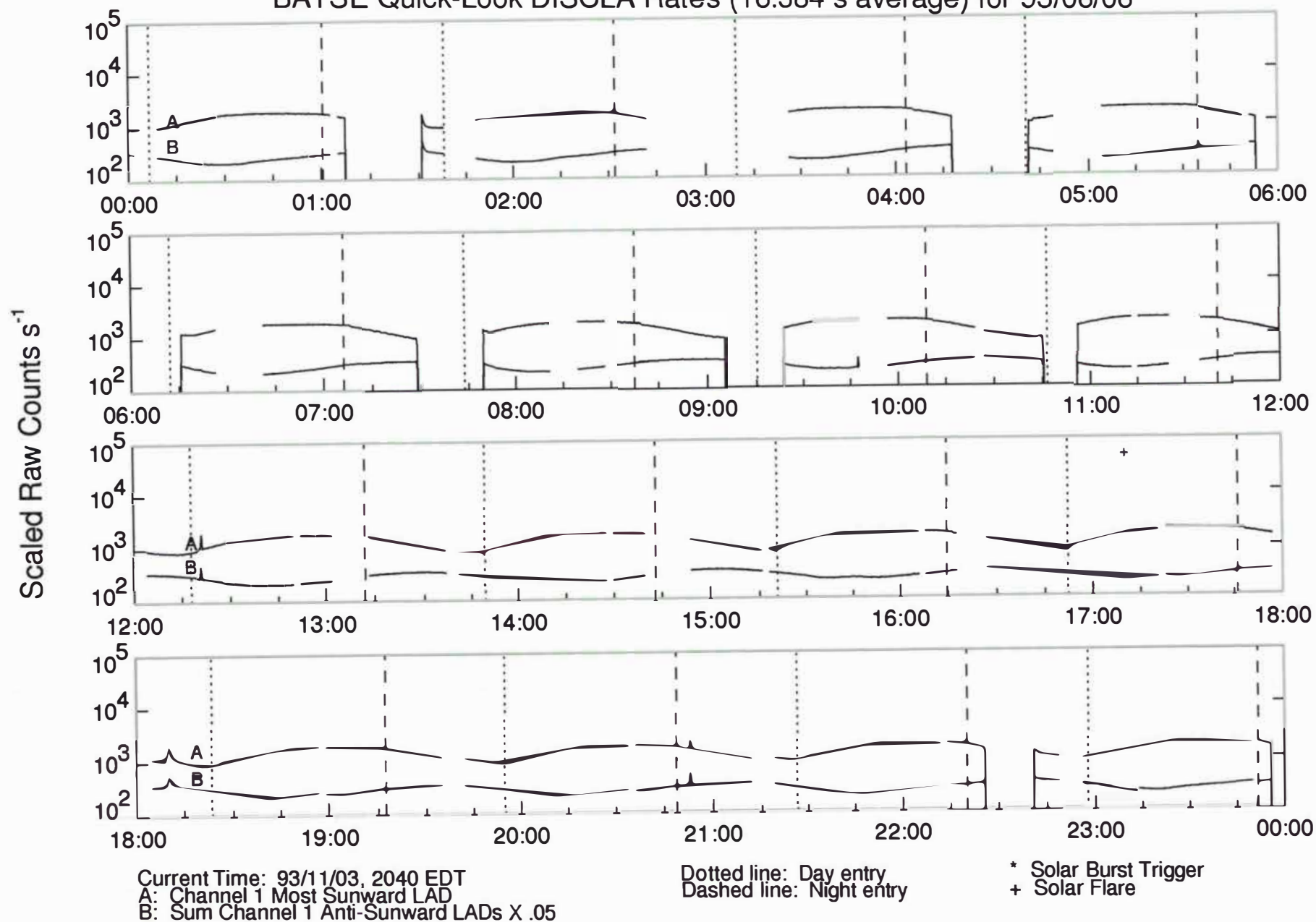
Data Start: 93/06/06, 0000:02

Plot created: 93/10/28, 0200

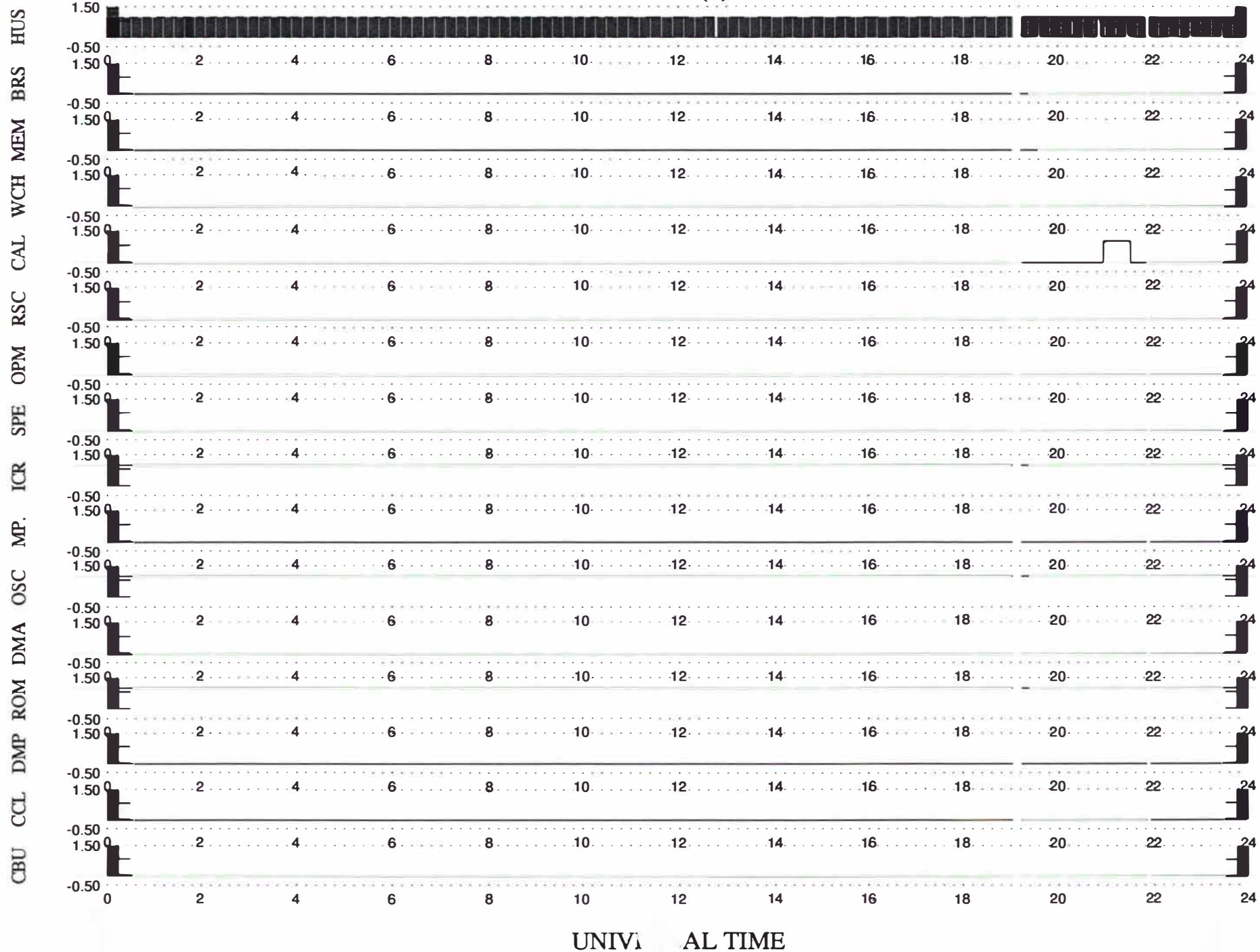
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

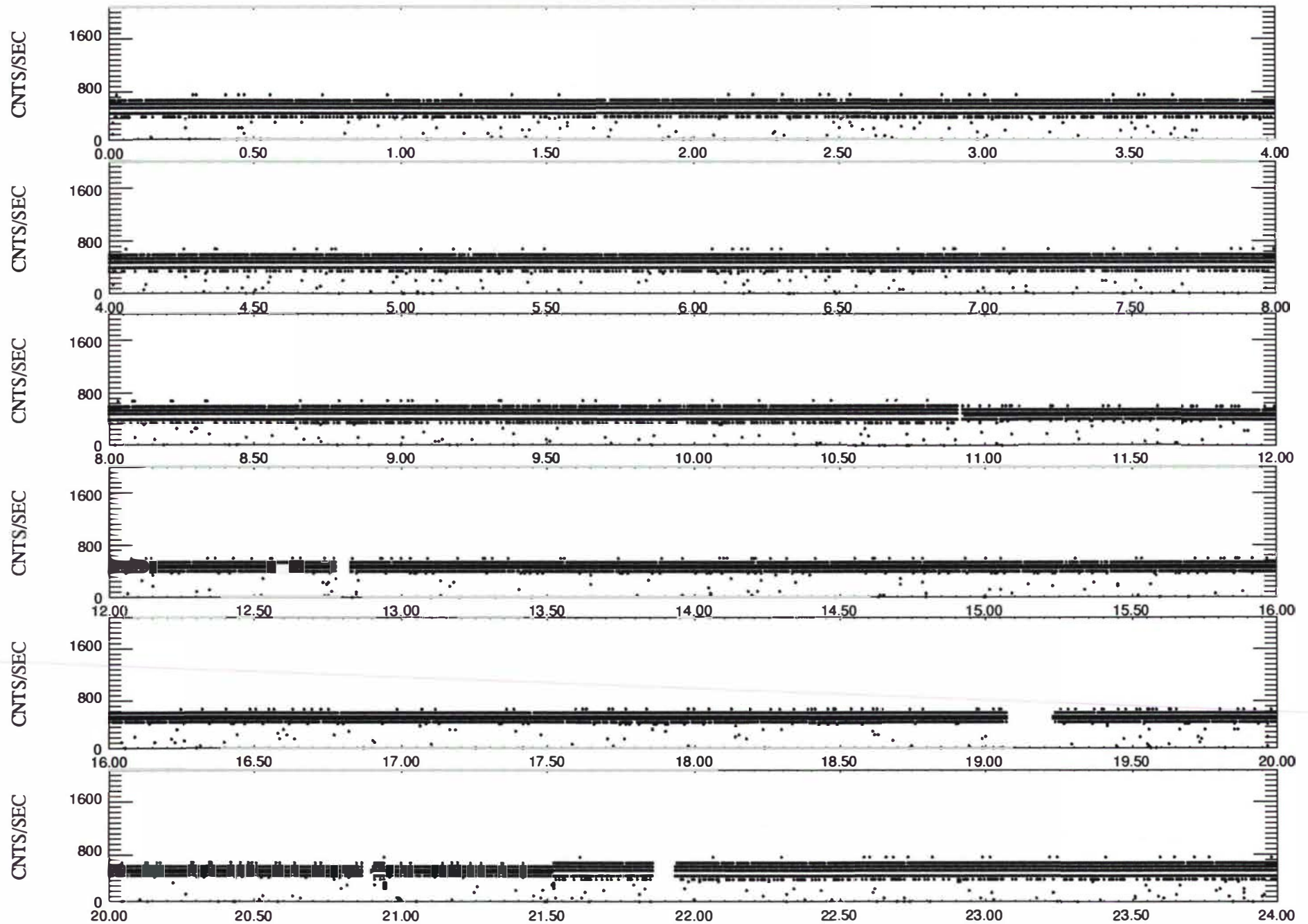
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/06



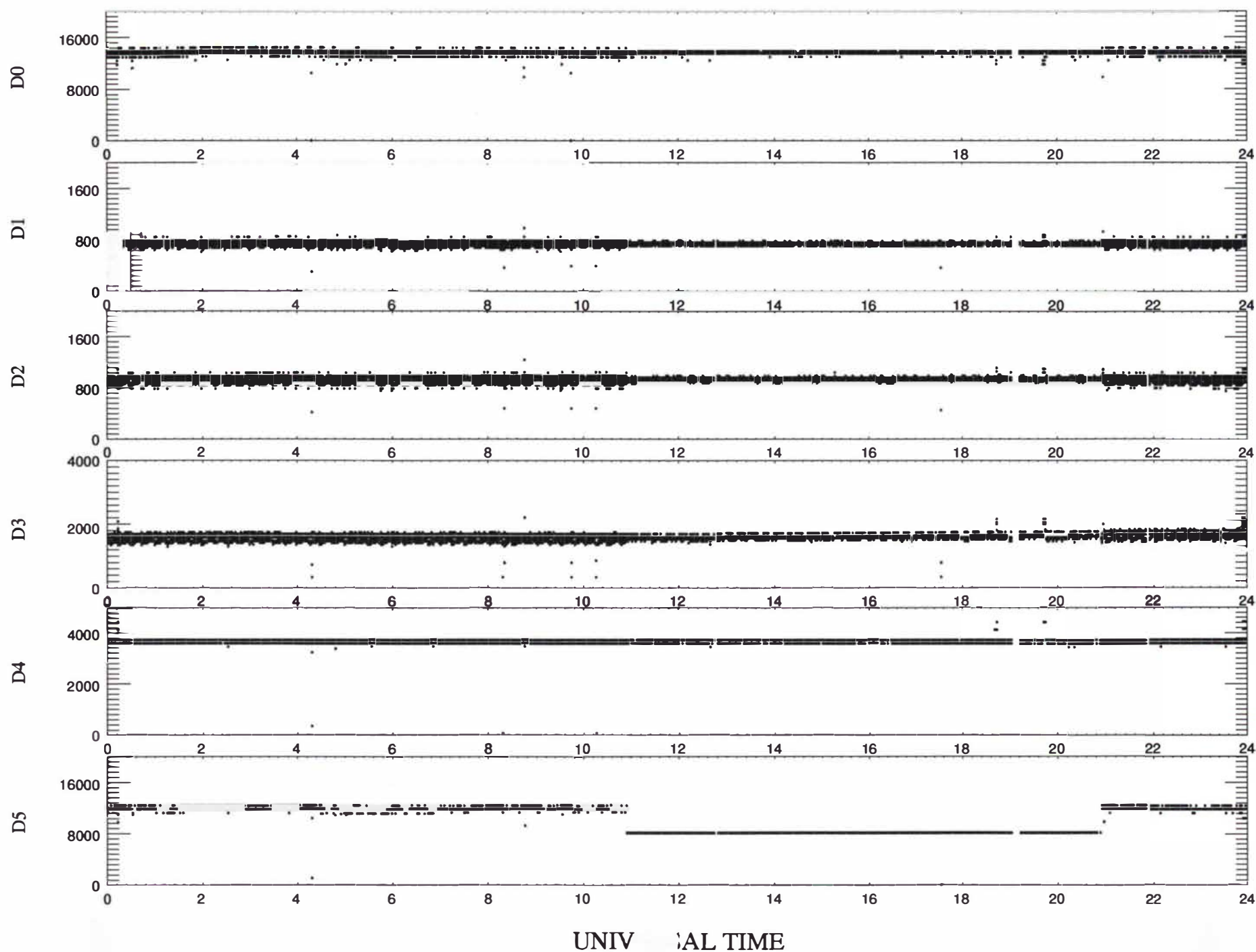
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



From HAGEDON@ssl.msfc.nasa.gov Wed Jun 9 09:37:45 1993
Date: Wed, 9 Jun 1993 11:37:43 -0500 (CDT)
From: HAGEDON@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02378

TIME: TJD=9145 SECONDS=20533

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES C4.1 SOLAR FLARE. DUR.~140S. NOT VISIBLE ABOVE 300KEV.

From HAGEDON@ssl.msfc.nasa.gov Wed Jun 9 09:42:07 1993
Date: Wed, 9 Jun 1993 11:42:15 -0500 (CDT)
From: HAGEDON@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02379

TIME: TJD=9145 SECONDS=51549

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES M5.4 SOLAR FLARE. DUR.~300S. NOT VISIBLE ABOVE 300KEV.

 BATSEARCH PROGRAM

BATSE BURST # 2380
 EVENT OF 1993 JUN 7 DAY OF YEAR=158
 EVENT CROSSING TIME AT BATSE : 76089. S. OR 21:08:09.0
 COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 166.000 33.000
 BATSE PEAK COUNTING RATE: 3900 C/S
 EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 POSITION OF ULYSSES ON 7/ 6/ 93 IS:
 RA= 143.044 DEC= -10.922 DIST= 4.814 AU
 BATSE-ULYSSES DISTANCE = 720114560. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=130.92 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1573.50 SECS.
 CROSSING TIME AT ULYSSES IS 74515. S. OR 20:41:55 +/- 341.20 SECONDS

From HAGEDON@ssl.msfc.nasa.gov Wed Jun 9 09:52:21 1993
 Date: Wed, 9 Jun 1993 11:52:35 -0500 (CDT)
 From: HAGEDON@ssl.msfc.nasa.gov
 To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
 Cc: HAGEDON@ssl.msfc.nasa.gov
 Subject: BATSE burst
 Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2380	930607	9145	76089	3900	166	+33

ND

From HAGEDON@ssl.msfc.nasa.gov Wed Jun 9 09:48:23 1993
 Date: Wed, 9 Jun 1993 11:48:19 -0500 (CDT)
 From: HAGEDON@ssl.msfc.nasa.gov
 To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
 "LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
 "15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
 "CASS09::GRUBER"@ssl.msfc.nasa.gov,
 "CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
 HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
 Subject: Burst Trigger Message
 Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02380

TIME: TJD=9145 SECONDS=76089

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=136. AZIMUTH=272 ERROR= DEGREES

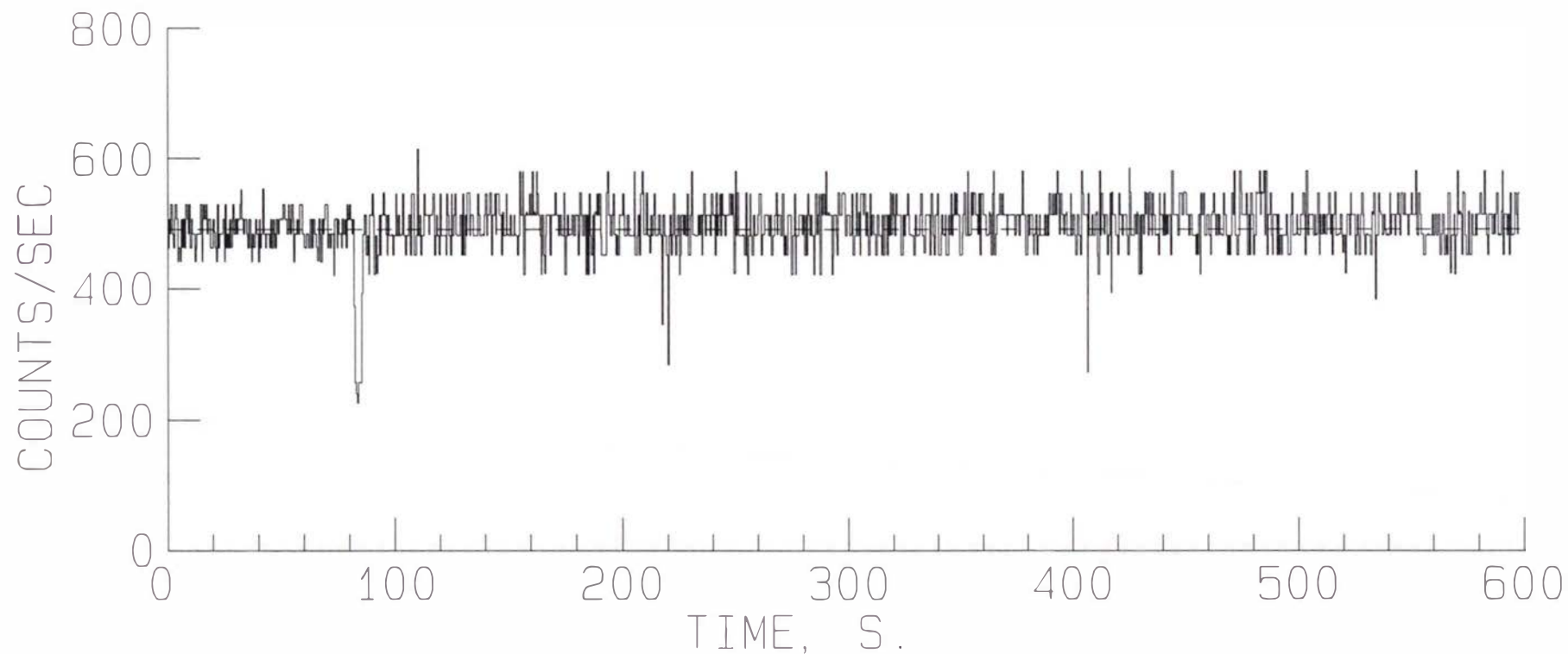
COMMENTS:

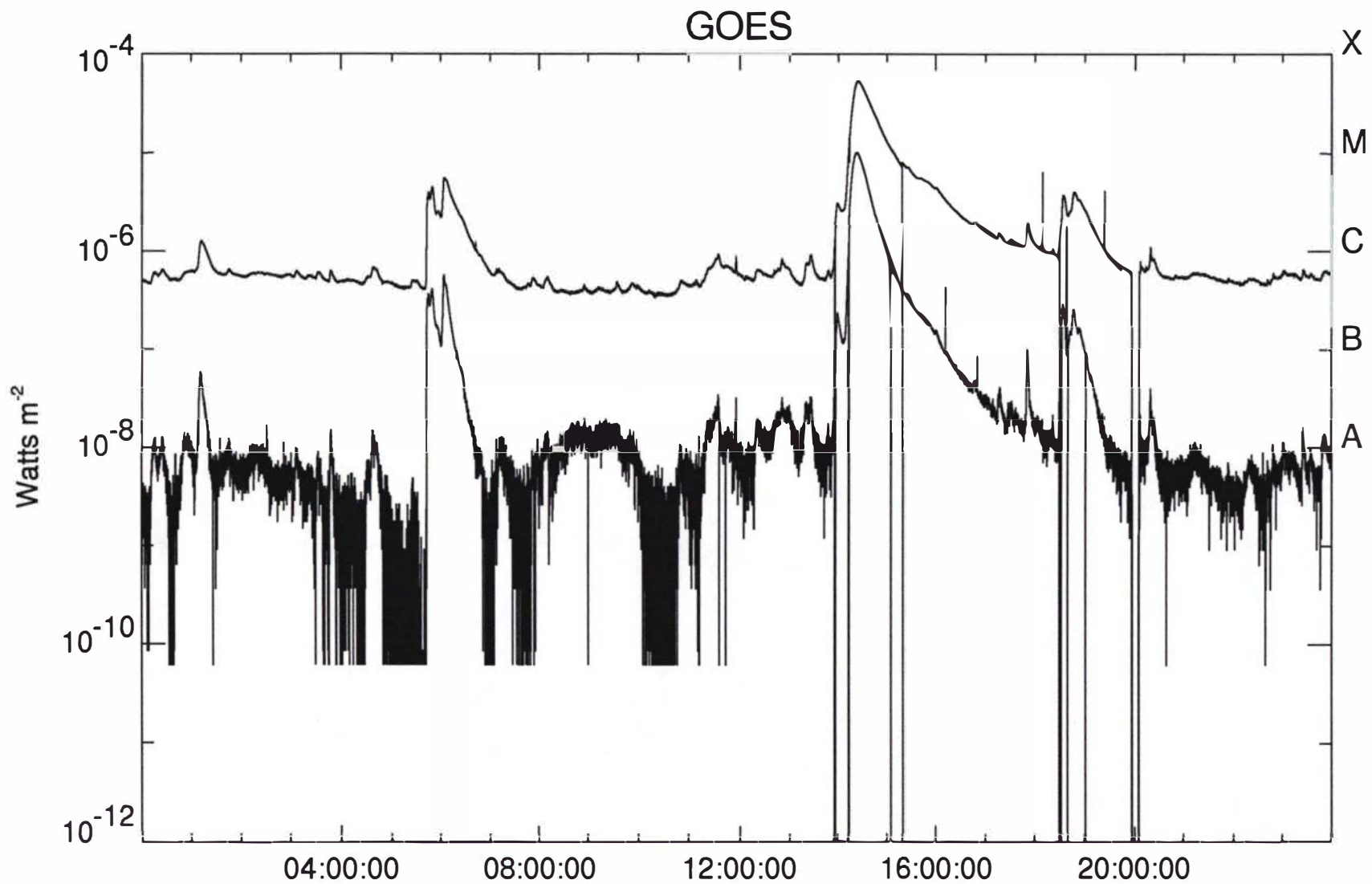
GRB. COMPLEX EVENT. FAST RISE, SLOWER DECAY. DUR.~90S. VISIBLE ABOVE 300KEV.

10 / 6 / 93

ULYSSES RT
7 / 6 / 93 74160.234 s
0.250 S INTERVALS REGROUPED BY 2
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





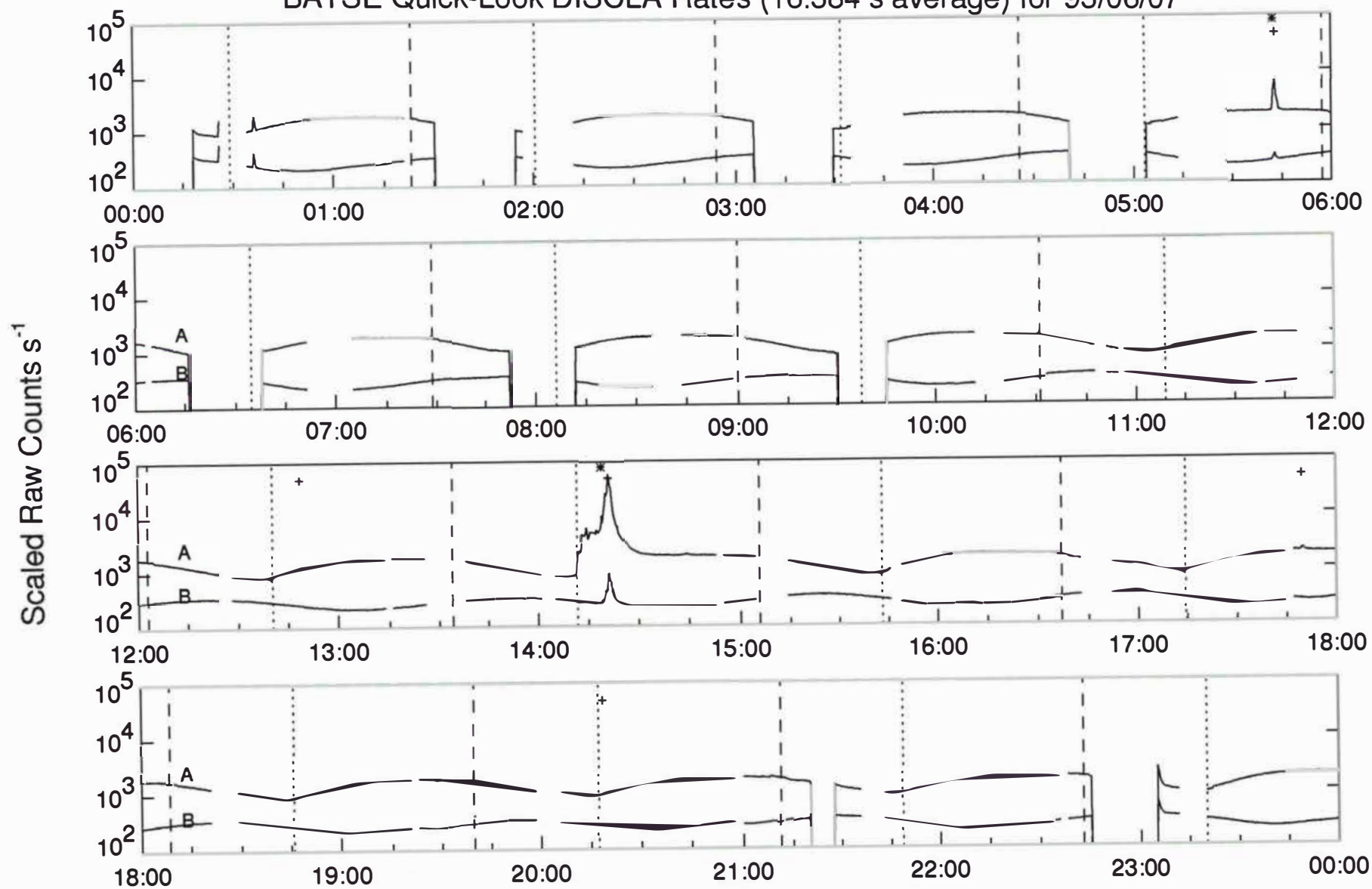
Data Start: 93/06/07, 0000:02

Plot created: 93/10/28, 0201

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/07

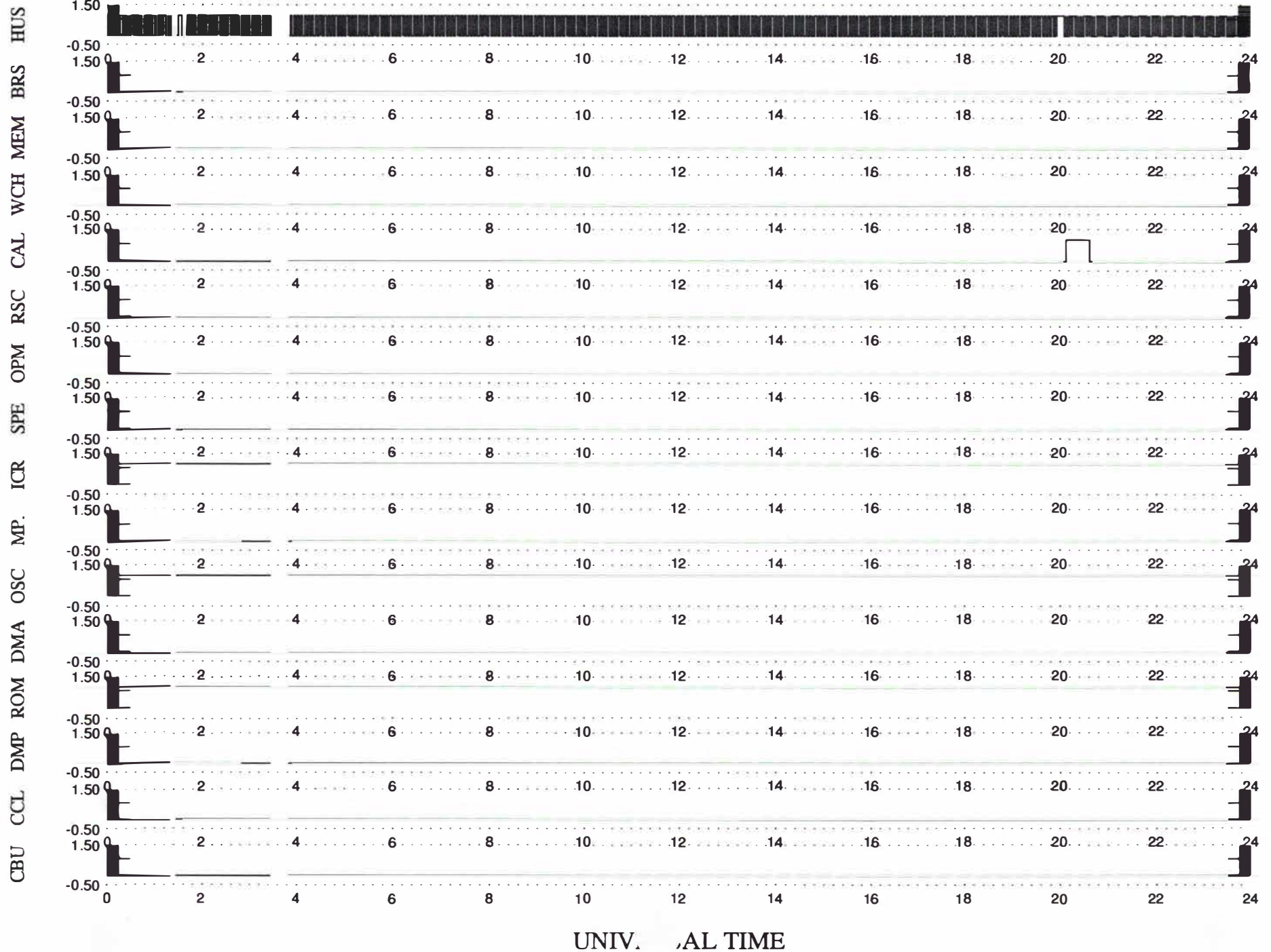


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

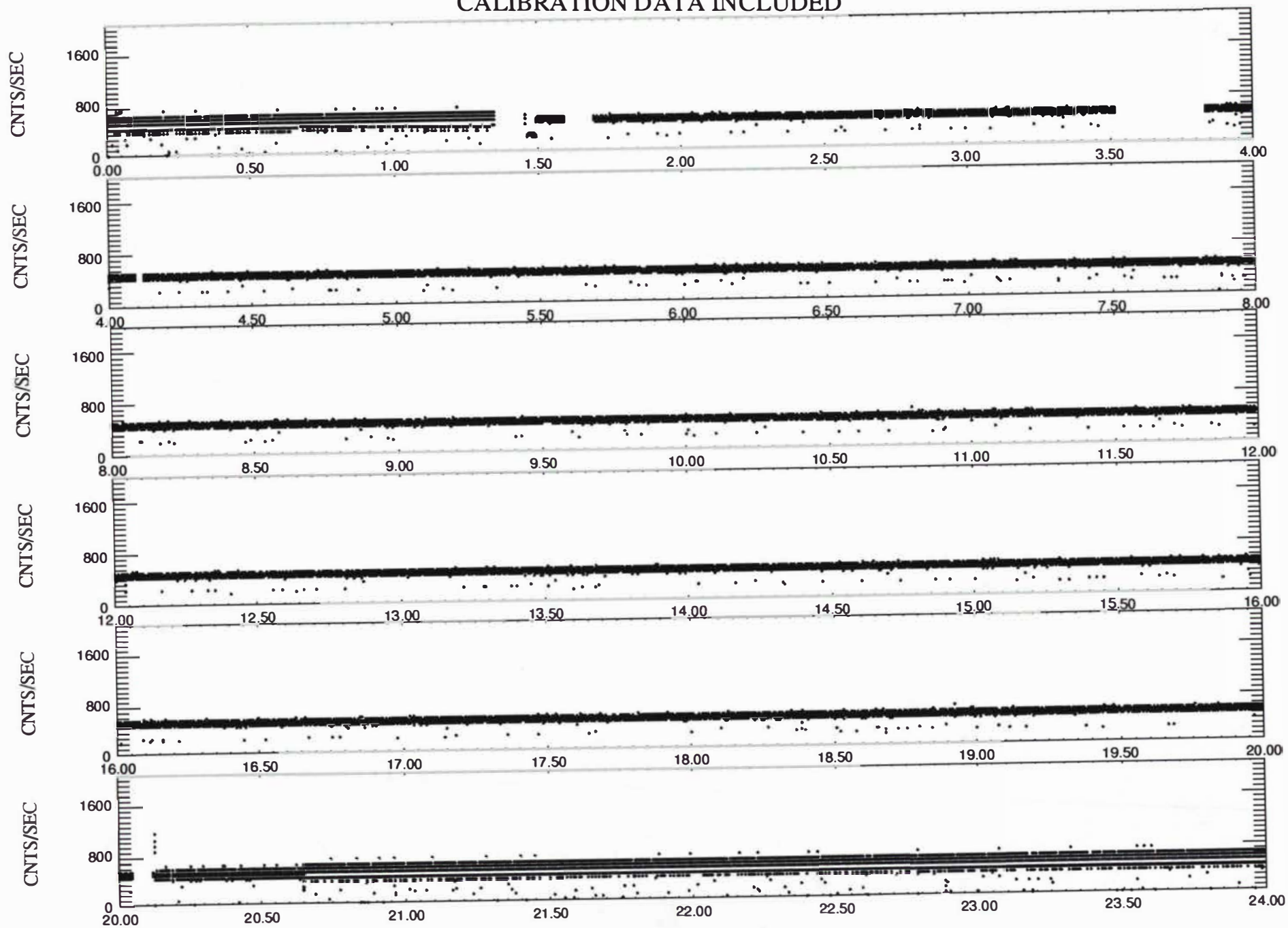
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

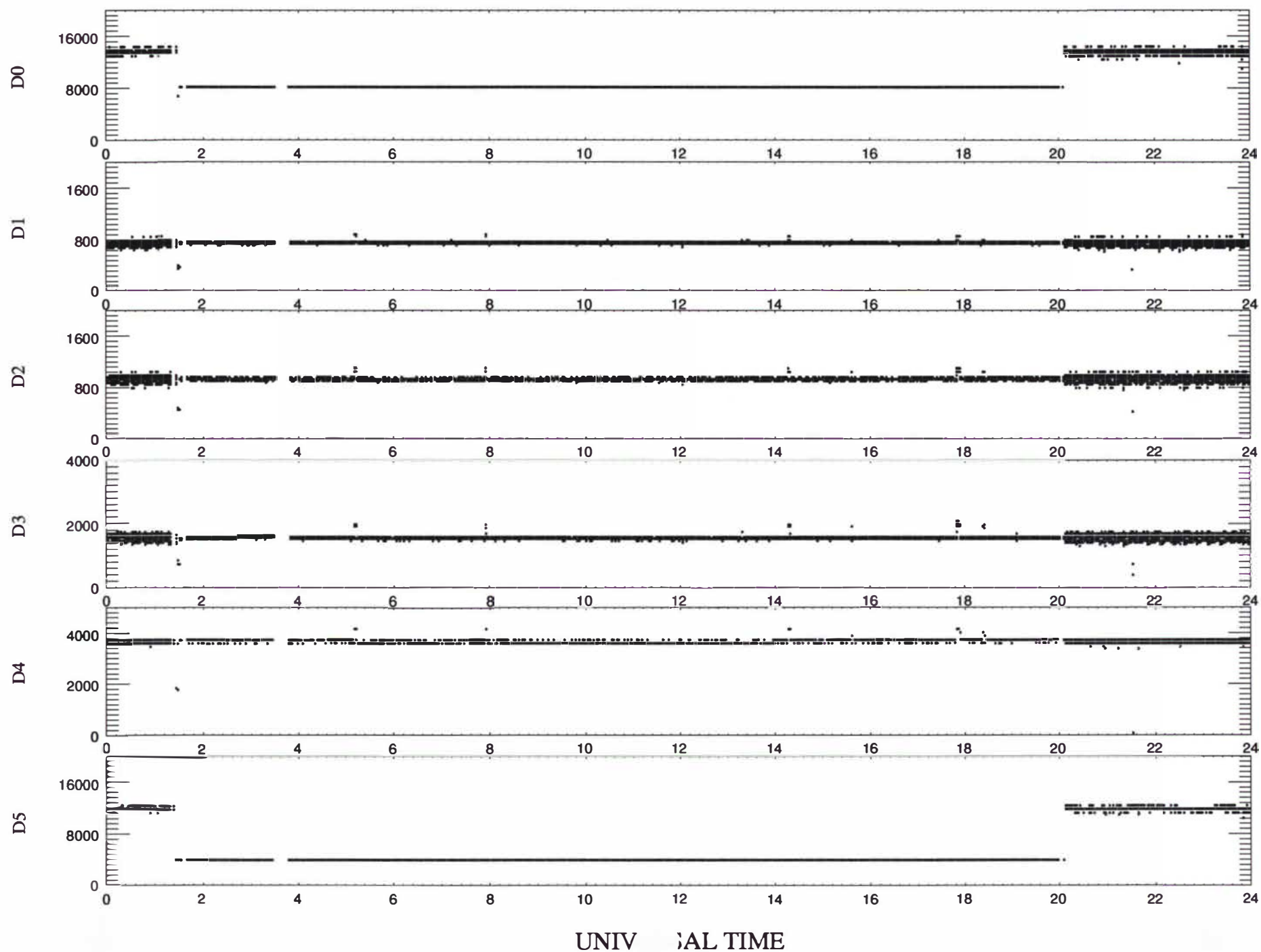
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV. AL TIME



BATSEARCH PROGRAM

BATSE BURST # 2381
EVENT OF 1993 JUN 8 DAY OF YEAR=159
EVENT CROSSING TIME AT BATSE : 41350. S. OR 11:29:10.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 320.000 -15.000
BATSE PEAK COUNTING RATE: 2500 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 8/ 6/ 93 IS:
RA= 143.103 DEC= -10.927 DIST= 4.825 AU
BATSE-ULYSSES DISTANCE = 721834960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 26.11 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2162.10 SECS.
CROSSING TIME AT ULYSSES IS 43512. S. OR 12:05:12 +/- 266.80 SECONDS

From BRAINERD@ssl.msfc.nasa.gov Wed Jun 9 13:52:17 1993
Date: Wed, 9 Jun 1993 15:52:36 -0500 (CDT)
From: BRAINERD@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: BRAINERD@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2381	930608	9146	41350	2500	320	-15

NO

From BRAINERD@ssl.msfc.nasa.gov Wed Jun 9 13:32:12 1993
Date: Wed, 9 Jun 1993 15:32:14 -0500 (CDT)
From: "Jim Brainerd, (205) 544-4970" <BRAINERD@ssl.msfc.nasa.gov>
To: igse@unhrrc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Cc: BRAINERD@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02381

TIME: TJD=9146 SECONDS=41350

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=067.9 AZIMUTH=113.8 ERROR= DEGREES

COMMENTS:

GAMMA-RAY BURST OF 10 SECONDS DURATION. IT HAS A TEN SECOND PRECURSOR.

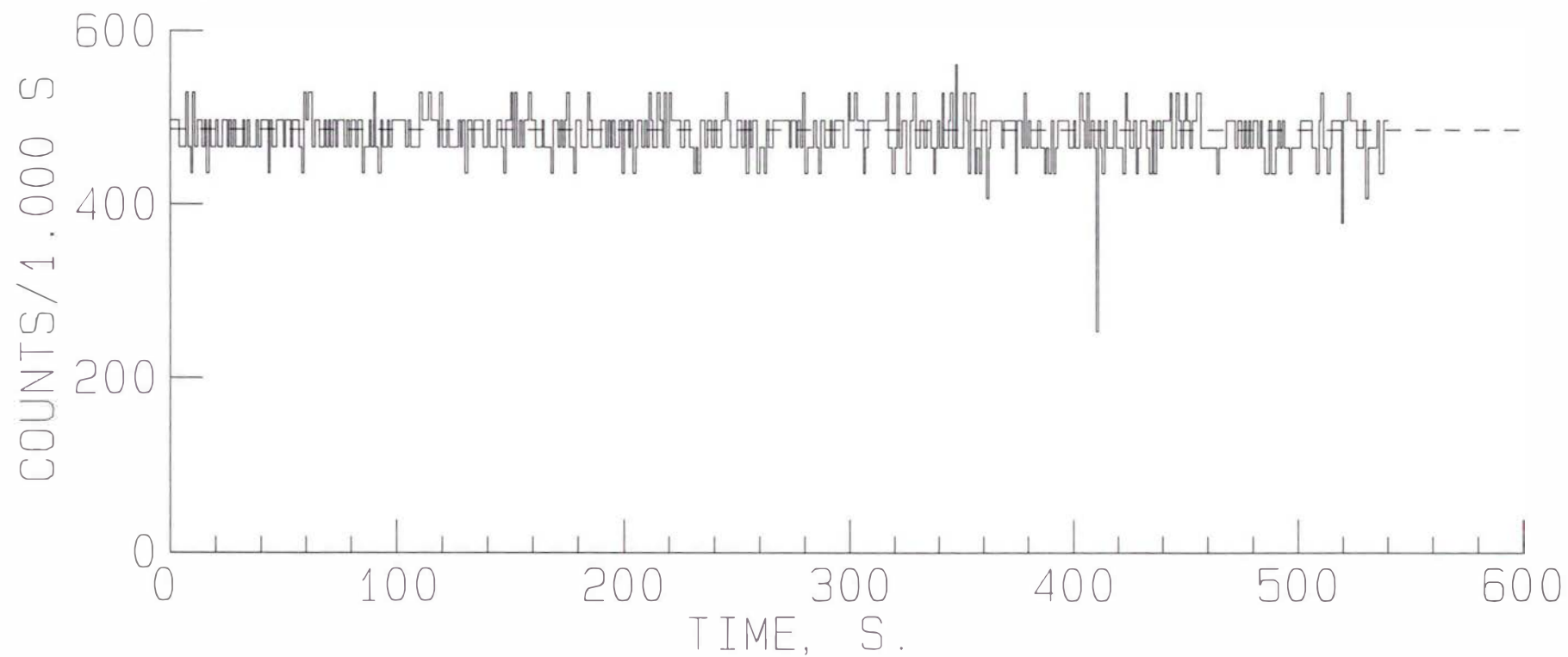
NOT SEEN ABOVE 300 KEV

10 / 6 / 93

ULYSSES RT
8 / 6 / 93 43236.590 s
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSEARCH PROGRAM

BATSE BURST # 2382
EVENT OF 1993 JUN 8 DAY OF YEAR=159
EVENT CROSSING TIME AT BATSE : 70894. S. OR 19:41:34.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 105.000 66.000
BATSE PEAK COUNTING RATE: 2700 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 8/ 6/ 93 IS:
RA= 143.103 DEC= -10.927 DIST= 4.825 AU
BATSE-ULYSSES DISTANCE = 721834960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 98.11 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -339.71 SECS.
CROSSING TIME AT ULYSSES IS 70554. S. OR 19:35:54 +/- 458.69 SECONDS

From BRAINERD@ssl.msfc.nasa.gov Wed Jun 9 13:54:26 1993
Date: Wed, 9 Jun 1993 15:54:39 -0500 (CDT)
From: BRAINERD@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: BRAINERD@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2382	930608	9146	70894	2700	105	+66

NO

From BRAINERD@ssl.msfc.nasa.gov Wed Jun 9 13:40:46 1993
Date: Wed, 9 Jun 1993 15:40:49 -0500 (CDT)
From: "Jim Brainerd, (205) 544-4970" <BRAINERD@ssl.msfc.nasa.gov>
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Cc: BRAINERD@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02382

TIME: TJD=9146 SECONDS=70894

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=147.8 AZIMUTH=354.7 ERROR= DEGREES

COMMENTS:

GAMMA-RAY BURST OF 2 SECONDS DURATION. NOT SEEN ABOVE 300 KEV.

CATSEARCH PROGRAM

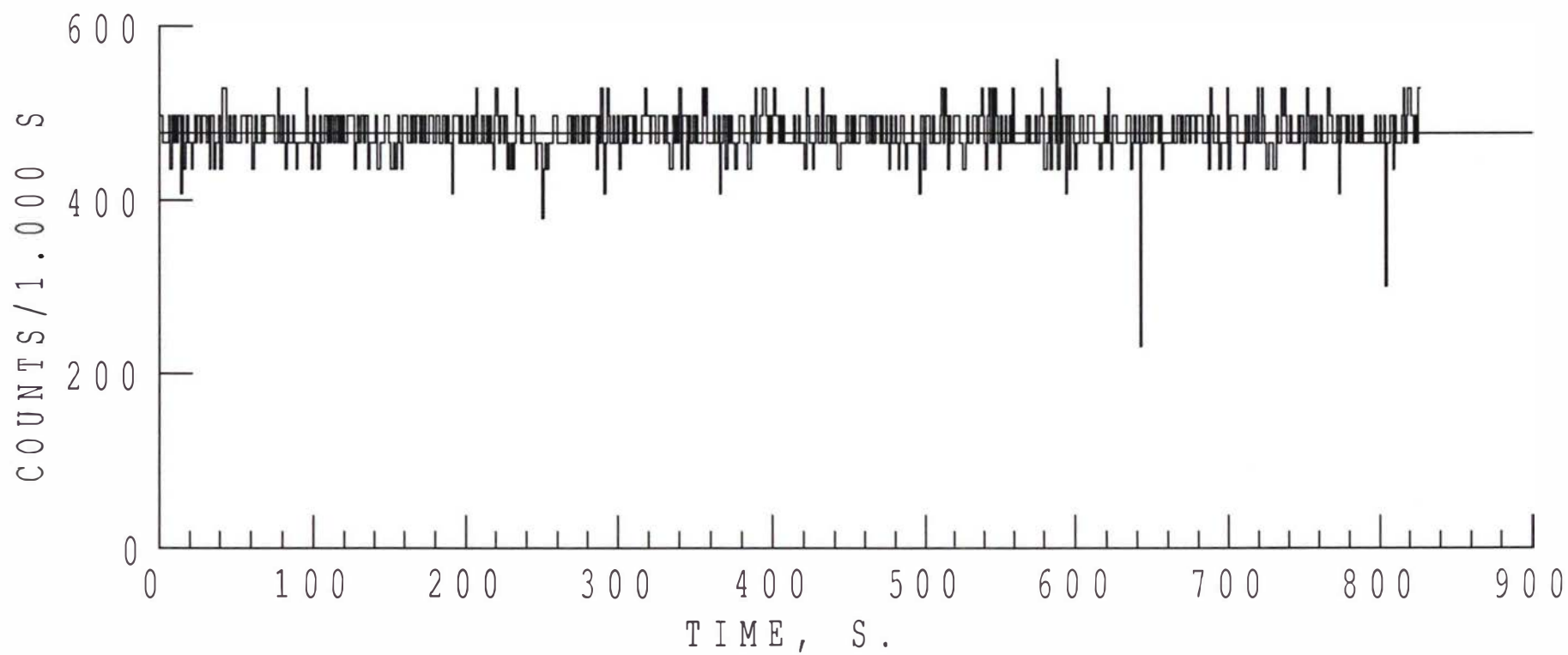
BATSE BURST # 2382
EVENT OF 1993 JUN 8 DAY OF YEAR=159
EVENT CROSSING TIME AT BATSE : 70894. S. OR 19:41:34.2
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 105.050 40.790
BATSE PEAK COUNTING RATE: 0000 C/S

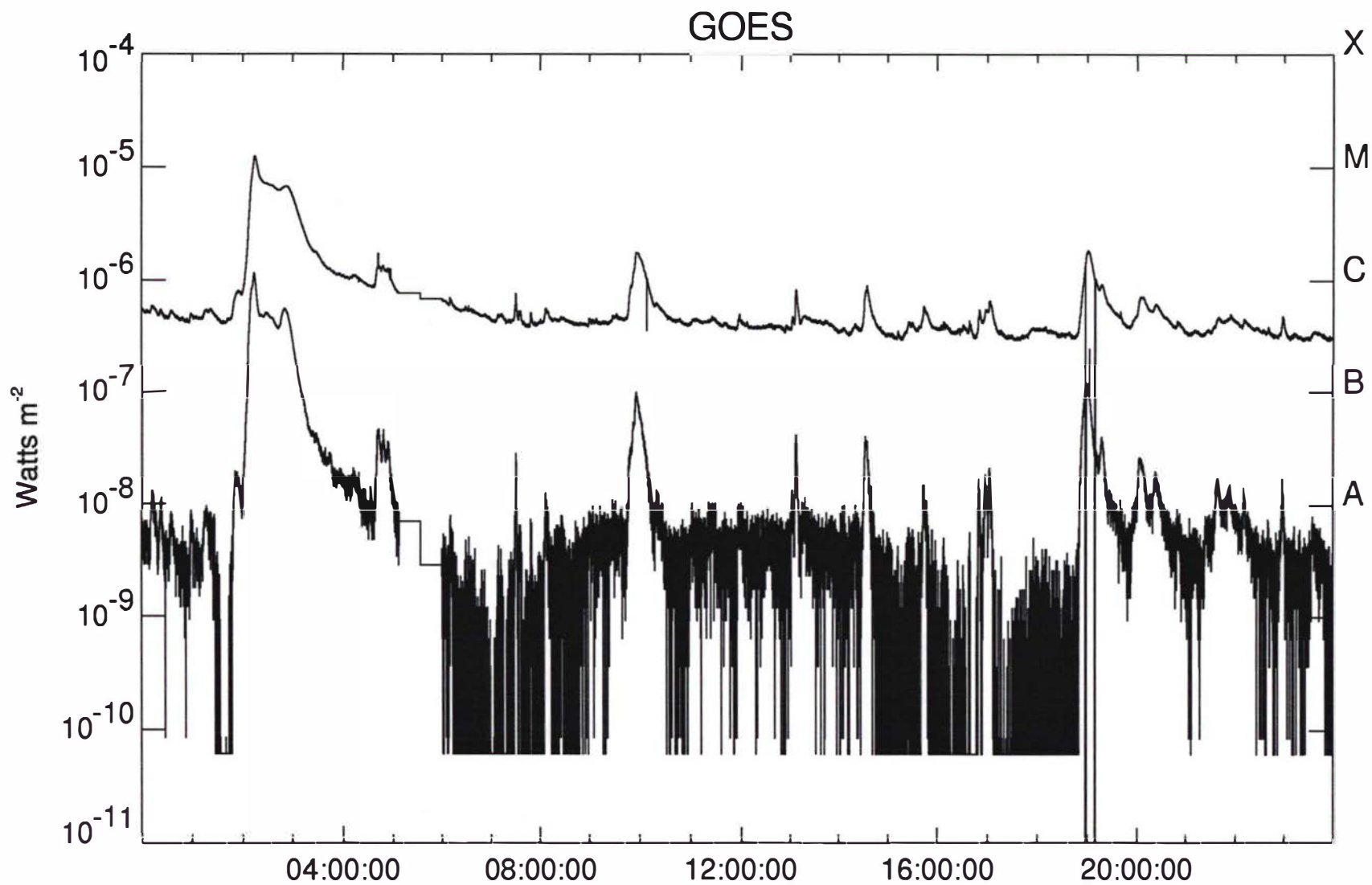
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 8/ 6/ 93 IS:
RA= 143.103 DEC= -10.927 DIST= 4.825 AU
BATSE-ULYSSES DISTANCE = 721842440. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=117.49 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1111.28 SECS.
CROSSING TIME AT ULYSSES IS 69783. S. OR 19:23:02.9 +/- 403.97 SECONDS

9 / 11 / 95

ULYSSES RT
8 / 6 / 93 69372.984 s
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





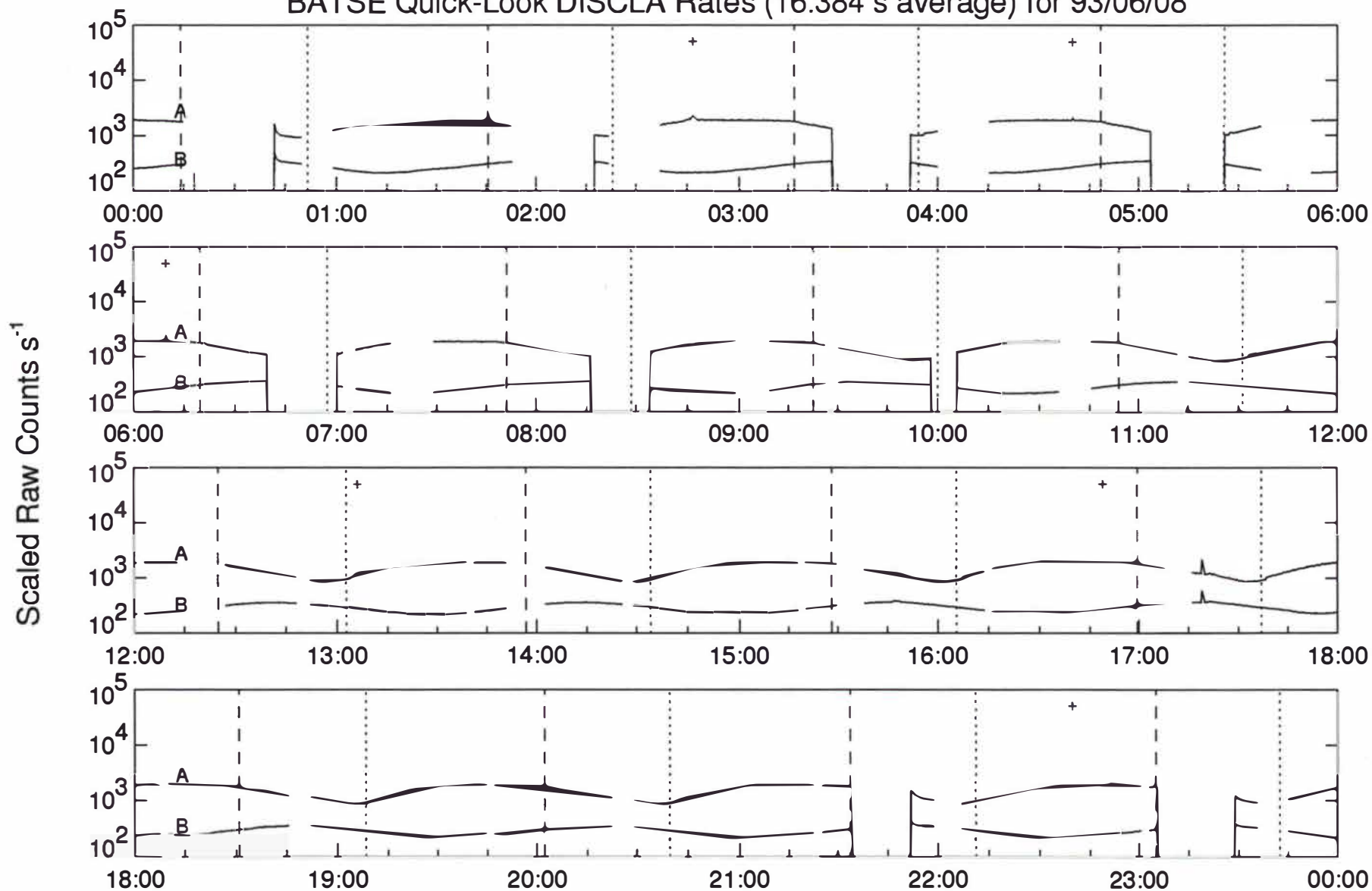
Data Start: 93/06/08, 0000:01

Plot created: 93/10/28, 0201

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/08

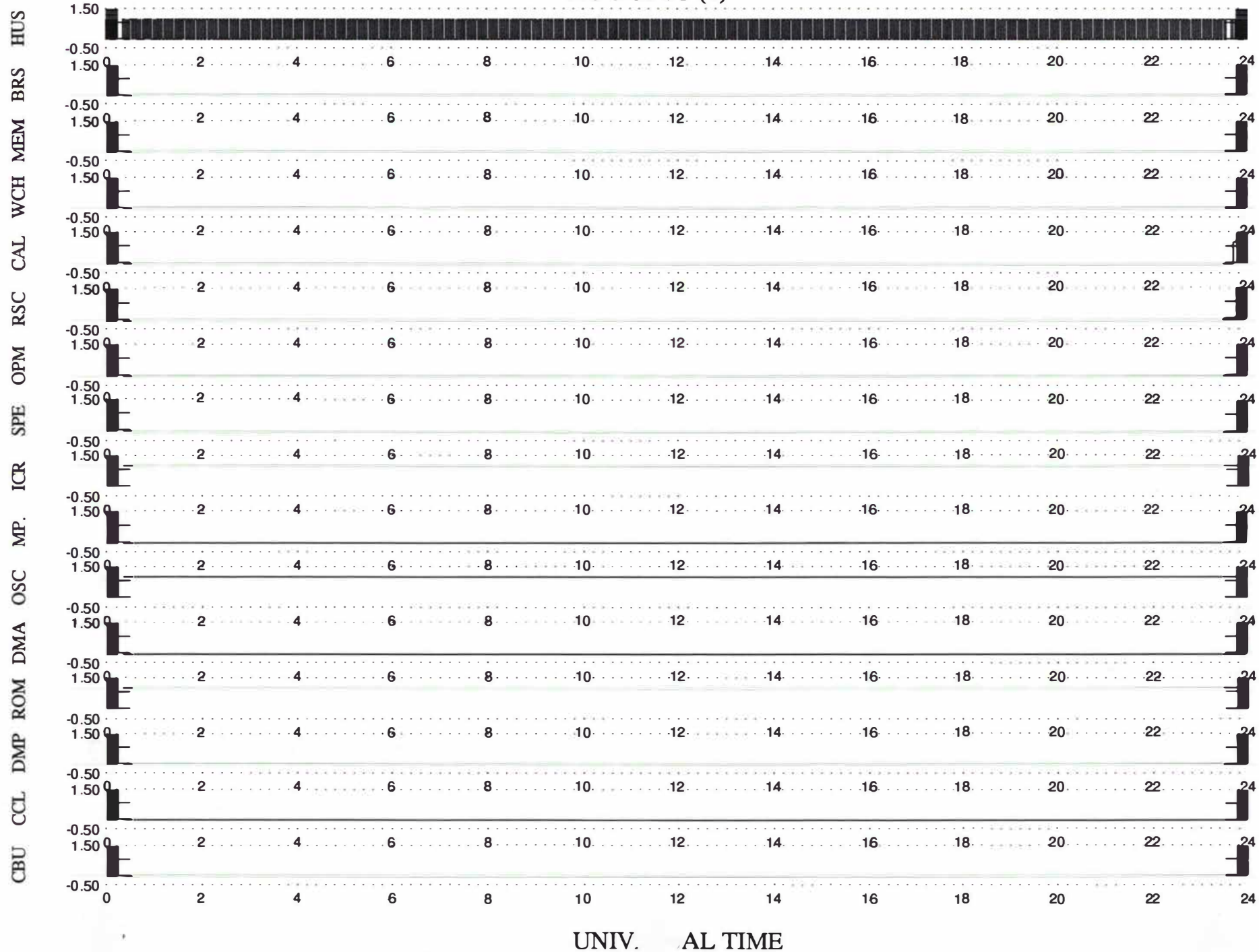


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

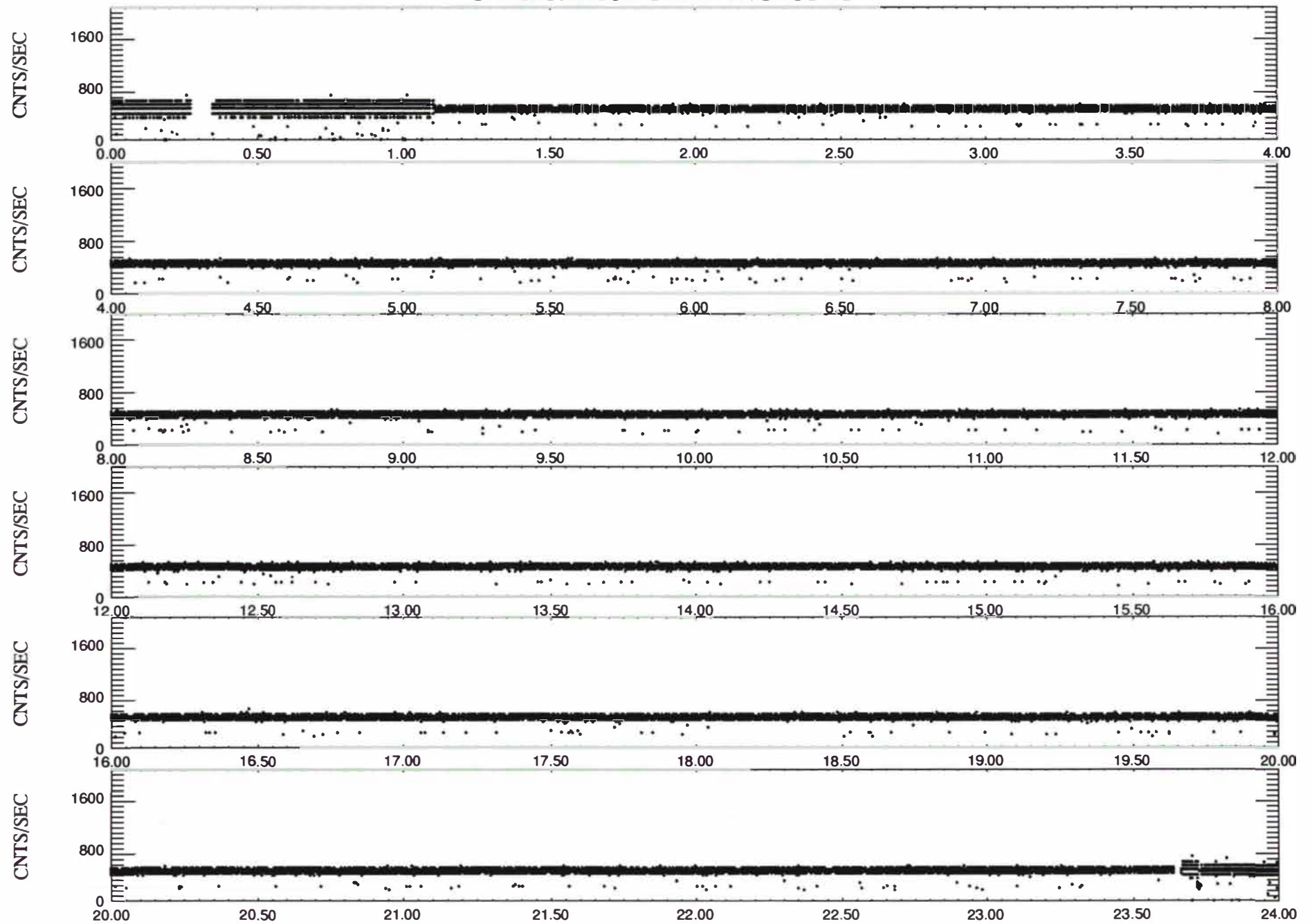
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

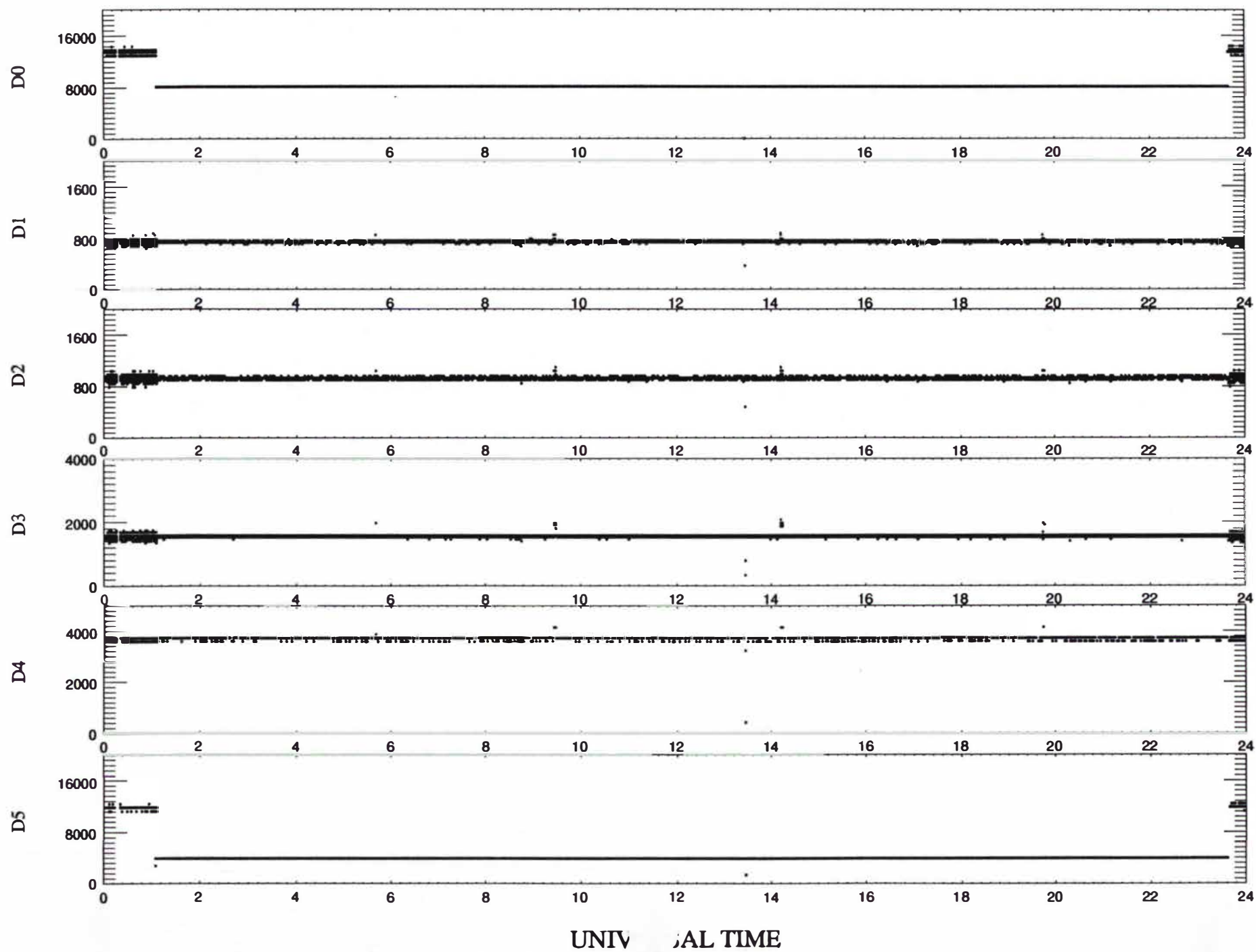
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV AL TIME



BATSEARCH PROGRAM

BATSE BURST # 2383
EVENT OF 1993 JUN 9 DAY OF YEAR=160
EVENT CROSSING TIME AT BATSE : 36444. S. OR 10:07:24.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 207.000 -17.000
BATSE PEAK COUNTING RATE: 11500 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 9/ 6/ 93 IS:
RA= 143.164 DEC= -10.933 DIST= 4.836 AU
BATSE-ULYSSES DISTANCE = 723540400. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=118.00 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1133.06 SECS.
CROSSING TIME AT ULYSSES IS 35311. S. OR 09:48:30 +/- 402.76 SECONDS

From ZMYEWSKI@ssl.msfc.nasa.gov Tue Jun 15 09:57:04 1993
Date: Tue, 15 Jun 1993 11:57:40 -0500 (CDT)
From: ZMYEWSKI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: ZMYEWSKI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2383	930609	9147	36444	11500	207	-17

RI ?

From ZMYEWSKI@ssl.msfc.nasa.gov Tue Jun 15 09:46:02 1993
Date: Tue, 15 Jun 1993 11:42:23 -0500 (CDT)
From: ZMYEWSKI@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02383

TIME: TJD=9147 SECONDS=36444

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=091.0 AZIMUTH=222.0 ERROR= DEGREES

COMMENTS:

GRB LASTING APPROX. 60 SECONDS. SEEN ABOVE 300KEV.

Helio corr removed

Date: Jan 3 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☒ Were data checked by Joe Springer for 0.5 s errors?
- ☒ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution? *No - bad stats*

2. BATSE Data

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

3. PVO Data

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

- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

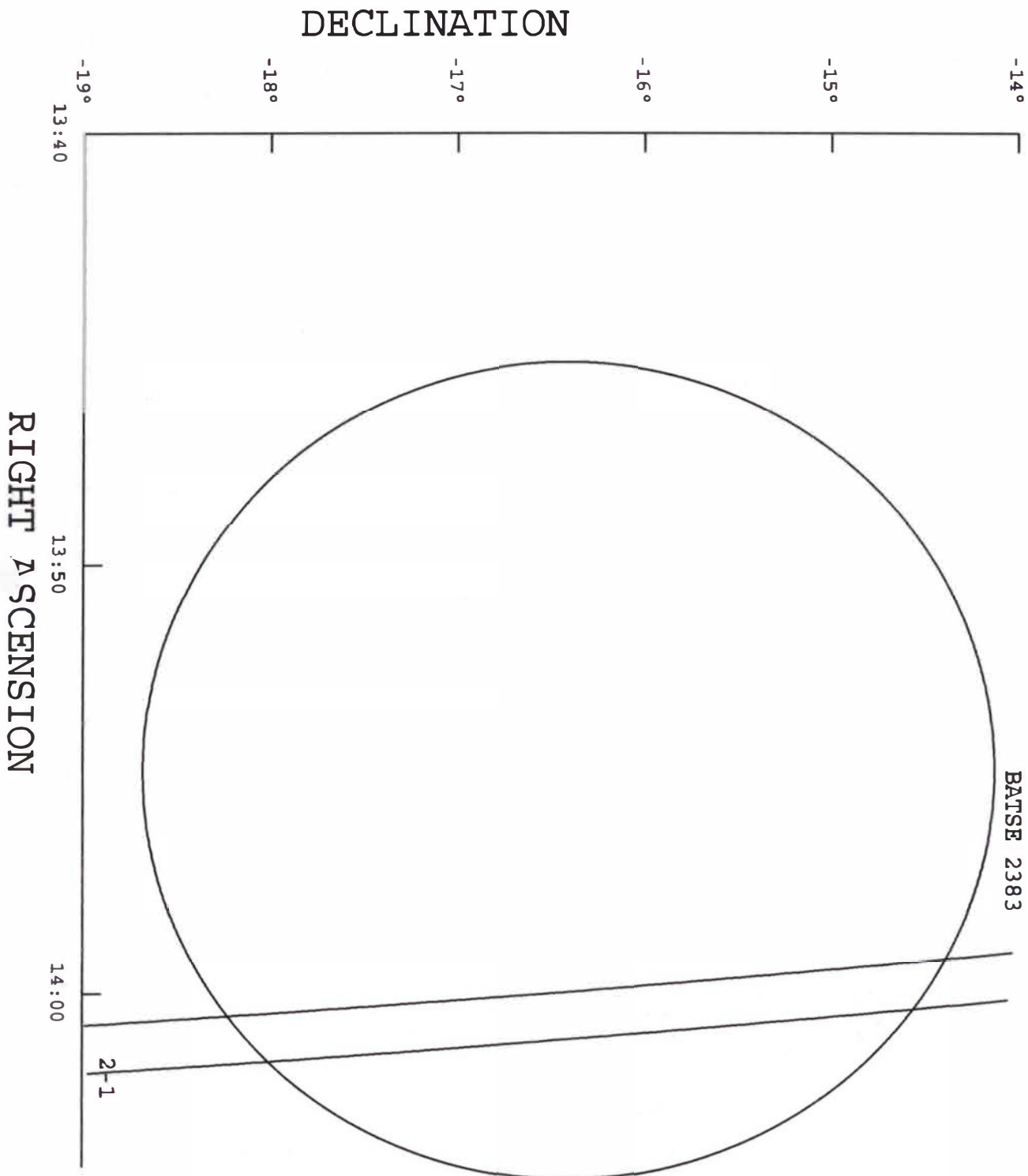
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF JUN 9, 1993 9:49

3 / 1/98



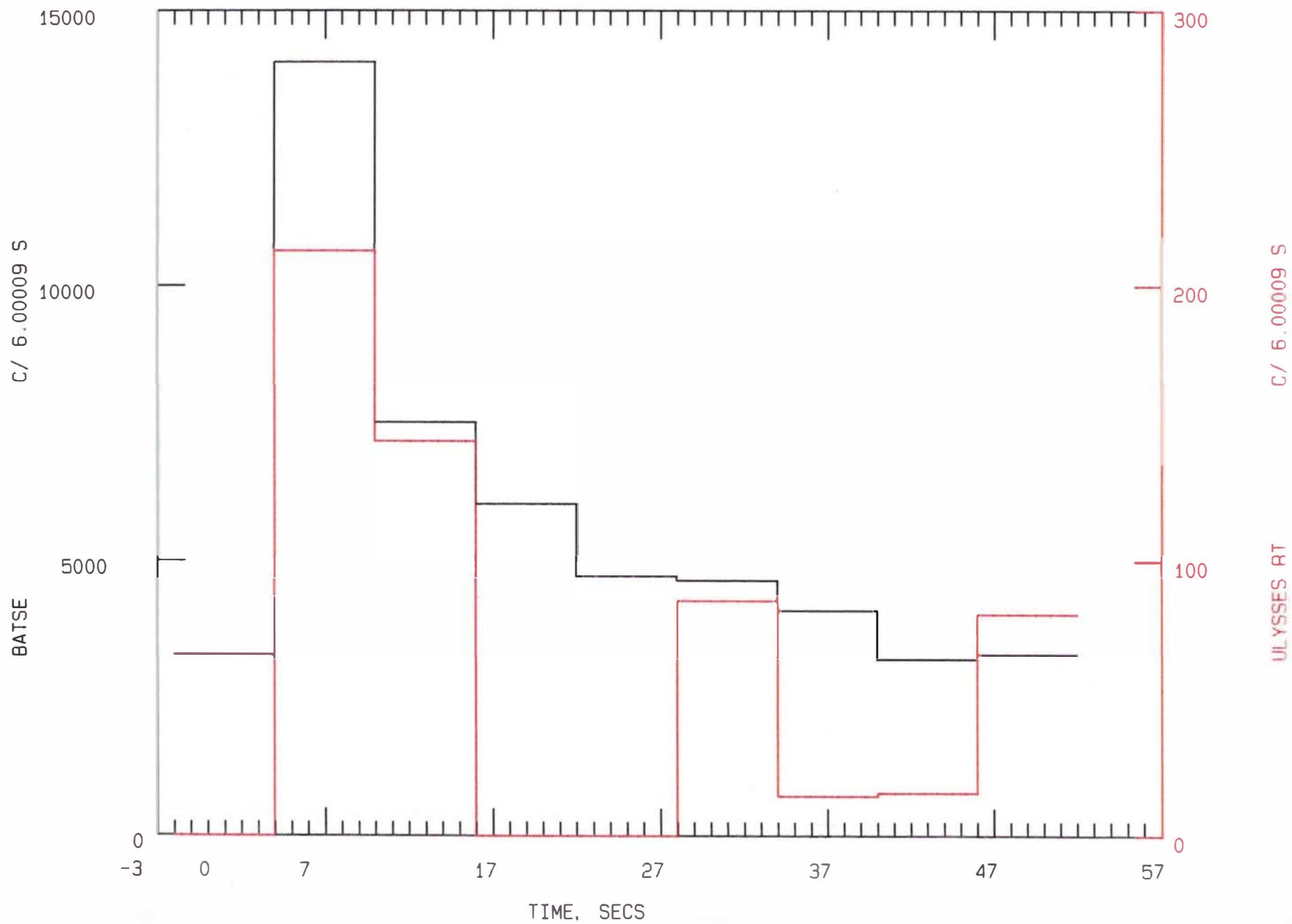
BATSE

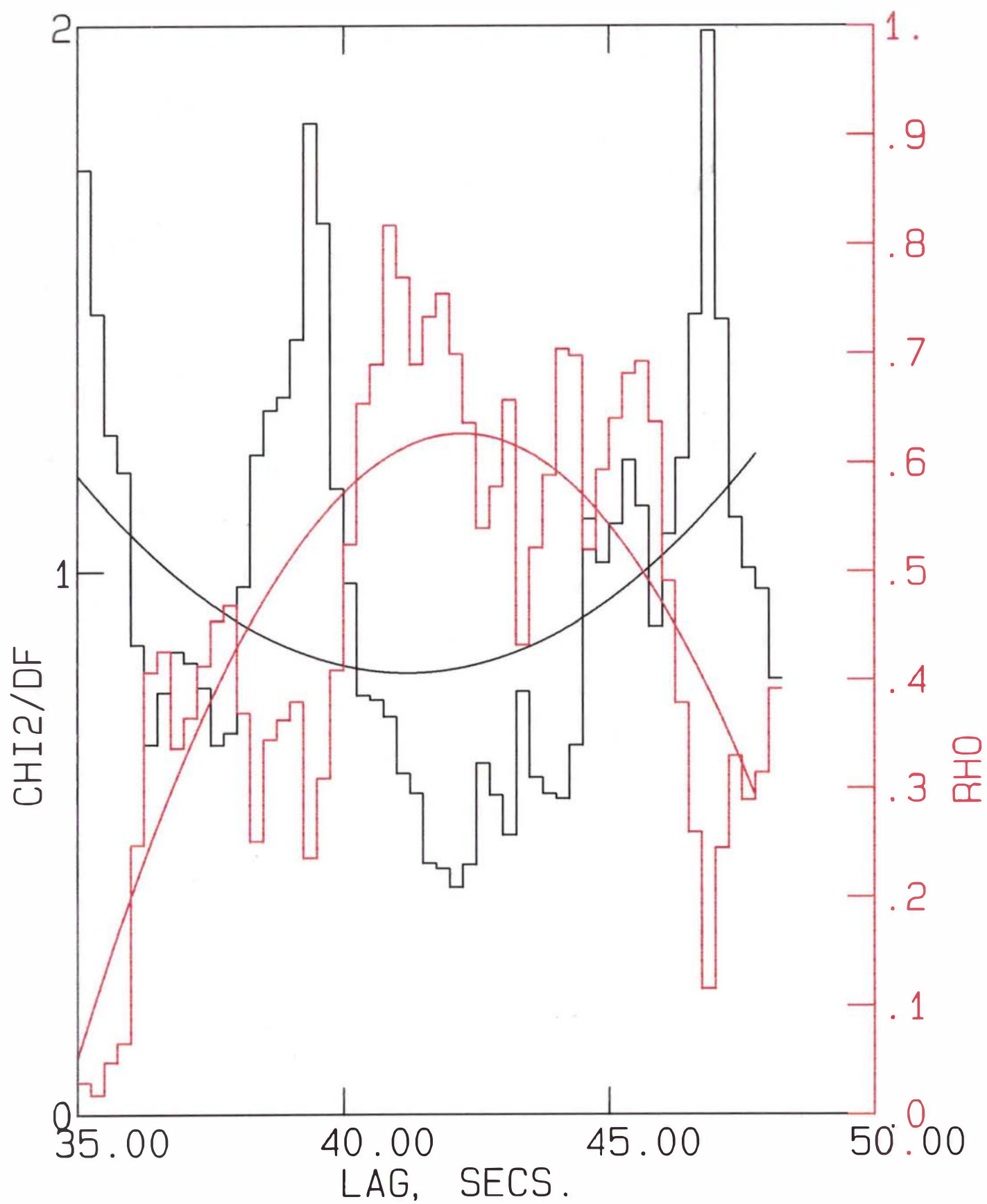
-ULYSSES RT CORRELATION

9/ 6/93

36444.162

3/ 1/98





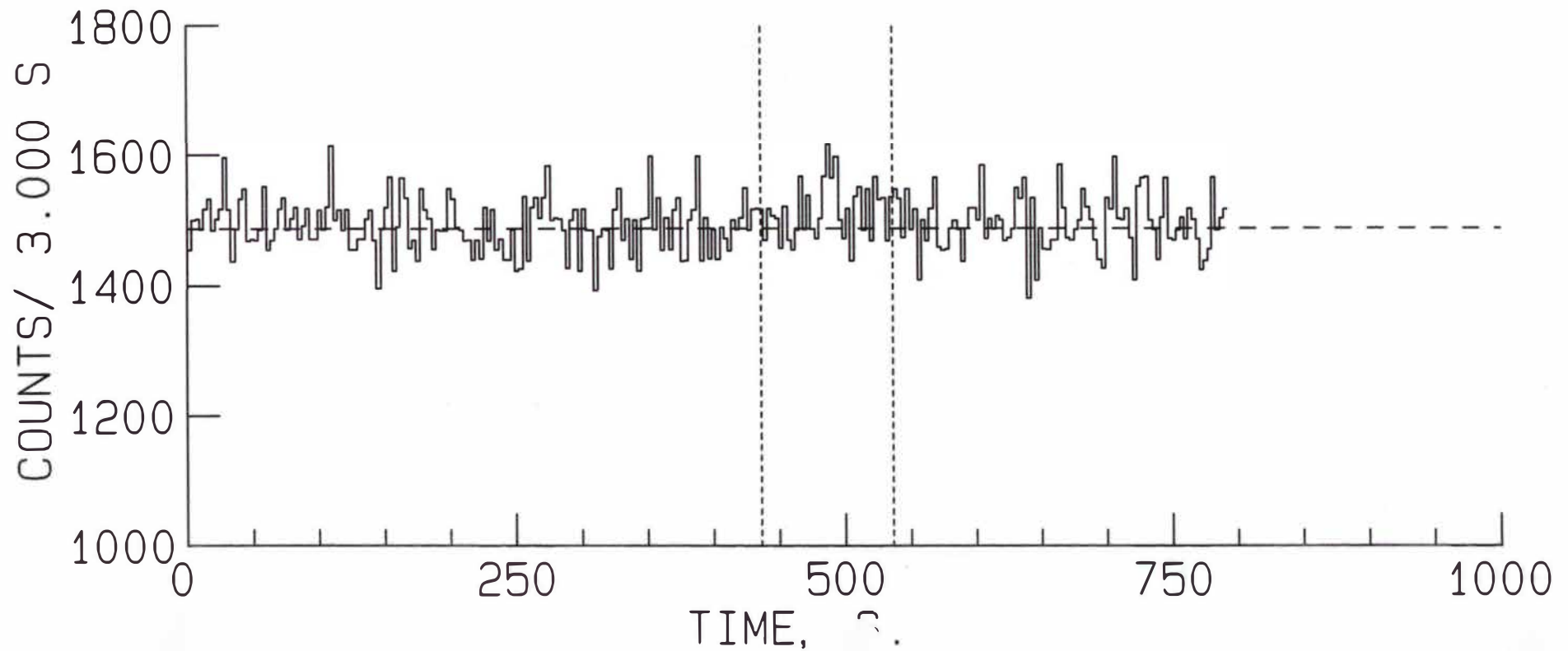
ULYSSES RT

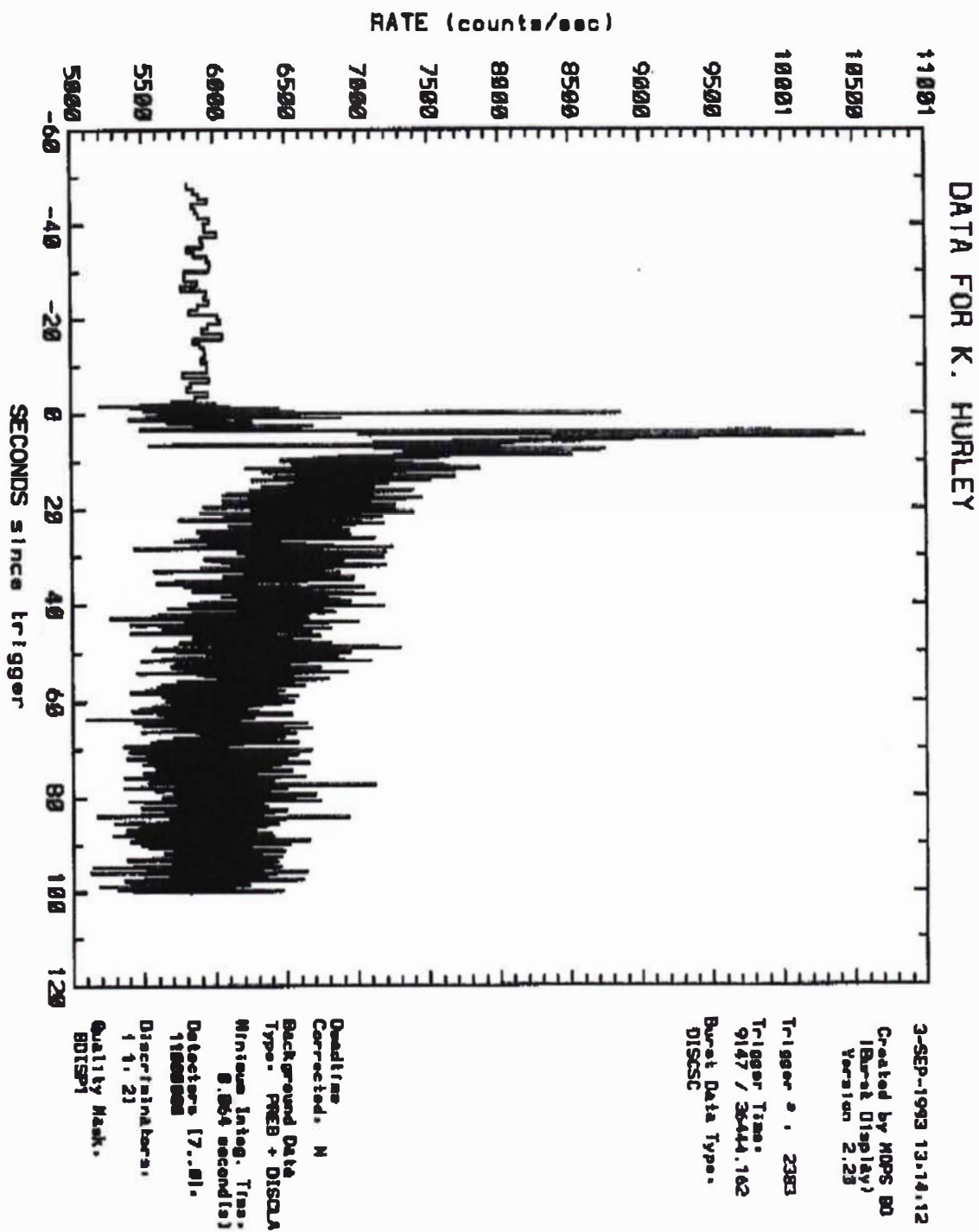
3 / 1 / 98

9 / 6 / 93 34920.047 s

0.250 S INTERVALS REGROUPED BY 12

21- 144 keV



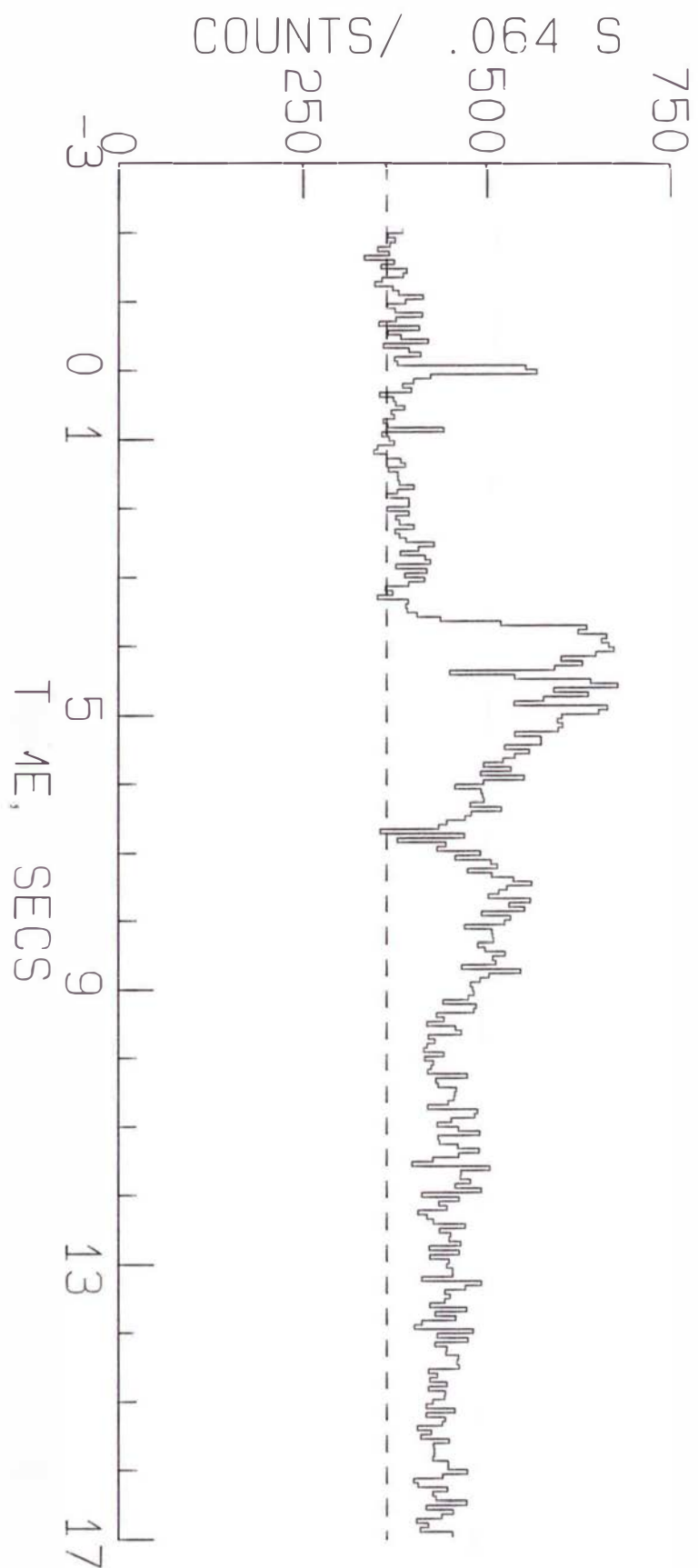


BATSE

09/06/93

36444.162

25- 100 keV

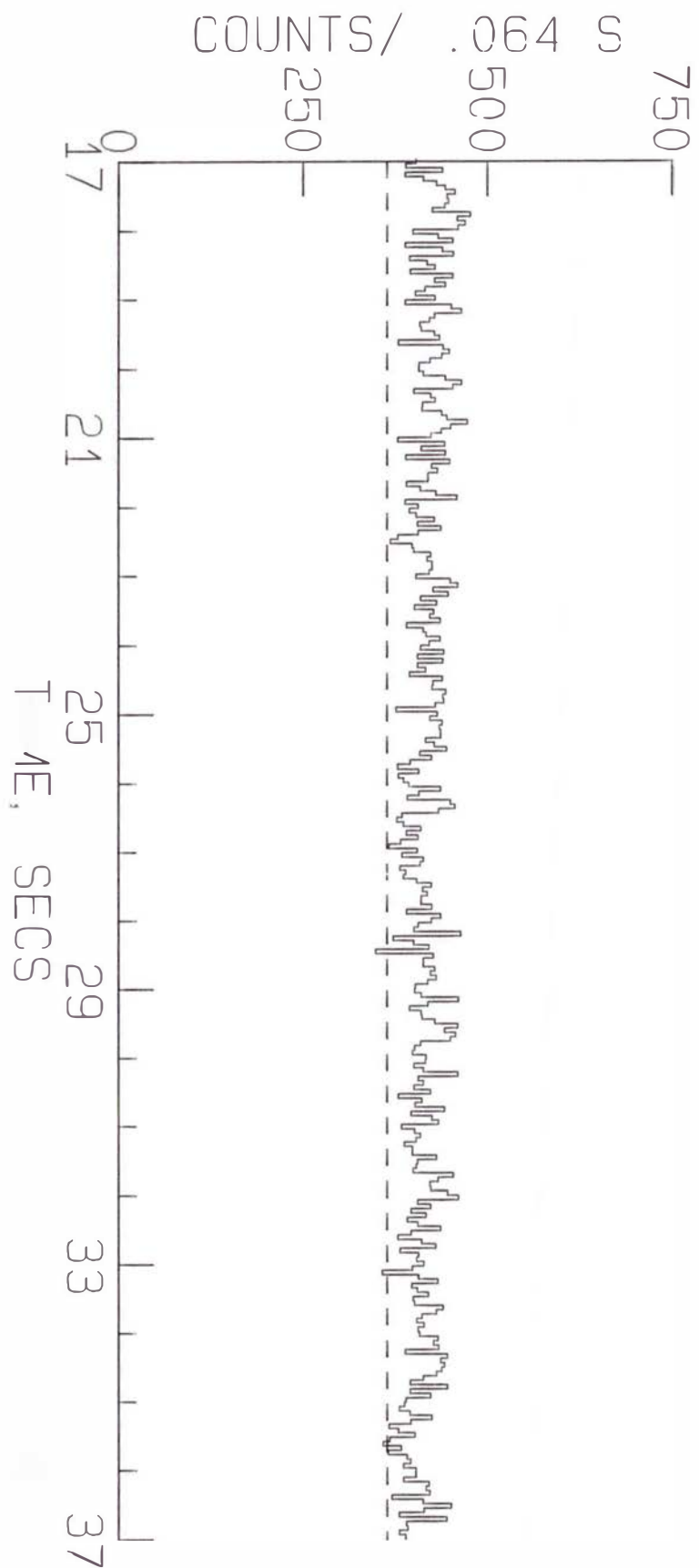


BATSE

09/06/93

36444.162

25- 100 keV

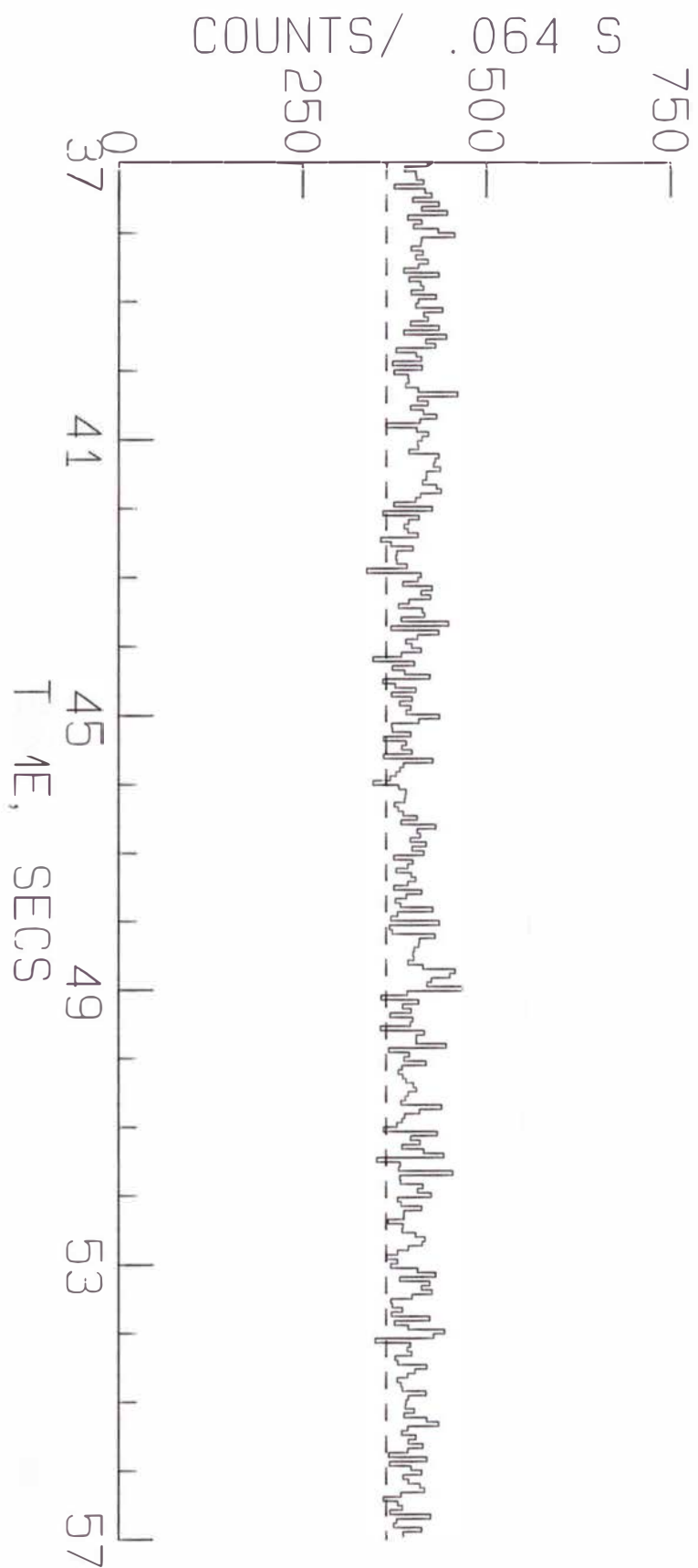


BATSE

09/06/93

36444.162

25- 100 keV



BATSEARCH PROGRAM

BATSE BURST # 2384
EVENT OF 1993 JUN 9 DAY OF YEAR=160
EVENT CROSSING TIME AT BATSE : 69988. S. OR 19:26:28.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 211.000 -30.000
BATSE PEAK COUNTING RATE: 3300 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 9/ 6/ 93 IS:
RA= 143.164 DEC= -10.933 DIST= 4.836 AU
BATSE-ULYSSES DISTANCE = 723540400. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=114.56 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1003.07 SECS.
CROSSING TIME AT ULYSSES IS 68985. S. OR 19:09:44 +/- 415.88 SECONDS

From ZMYEWSKI@ssl.msfc.nasa.gov Tue Jun 15 09:59:14 1993
Date: Tue, 15 Jun 1993 11:59:44 -0500 (CDT)
From: ZMYEWSKI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: ZMYEWSKI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2384	930609	9147	69988	3300	211	-30

NO

From ZMYEWSKI@ssl.msfc.nasa.gov Tue Jun 15 09:46:30 1993
Date: Tue, 15 Jun 1993 11:46:13 -0500 (CDT)
From: ZMYEWSKI@ssl.msfc.nasa.gov
To: igse@unhrc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02384

TIME: TJD=9147 SECONDS=69988

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=078.0 AZIMUTH=219.0 ERROR= DEGREES

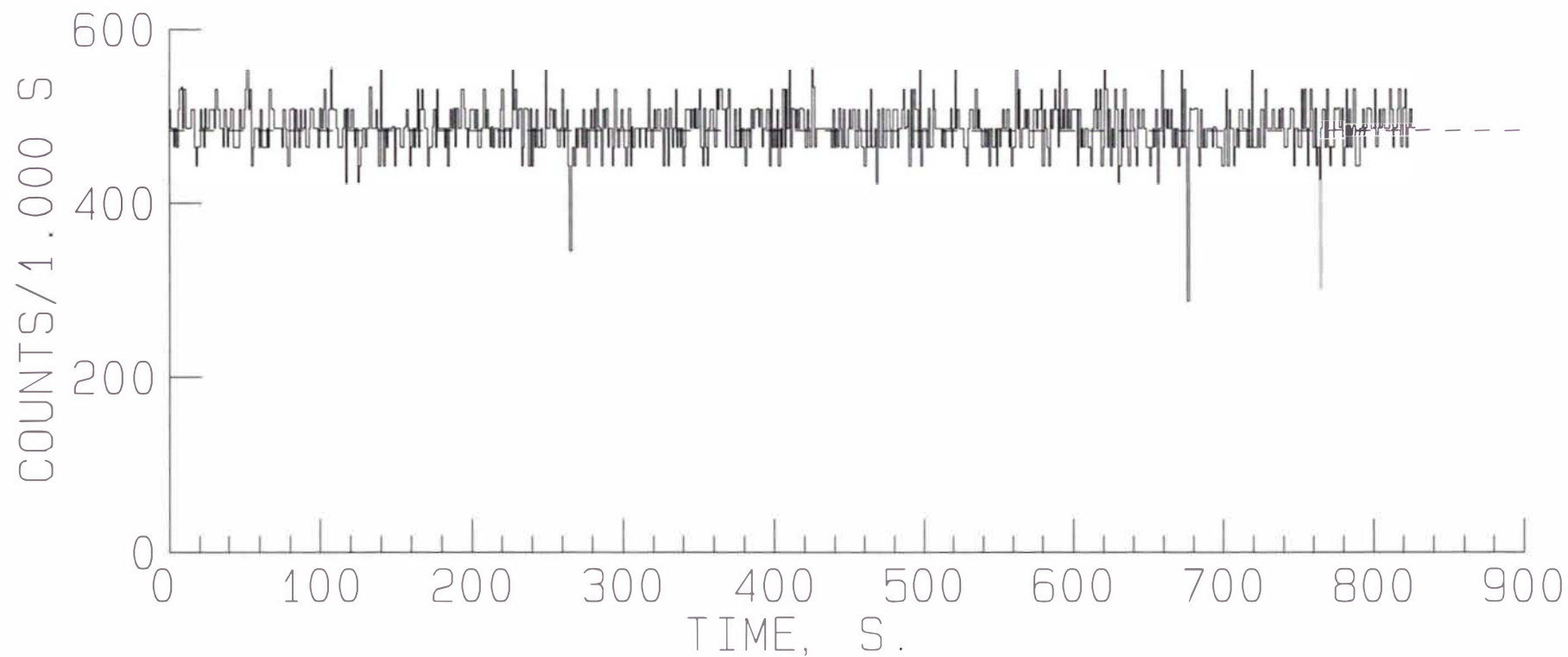
COMMENTS:

GRB. WEAK 300MS PULSE. NOT SEEN ABOVE 300KEV.

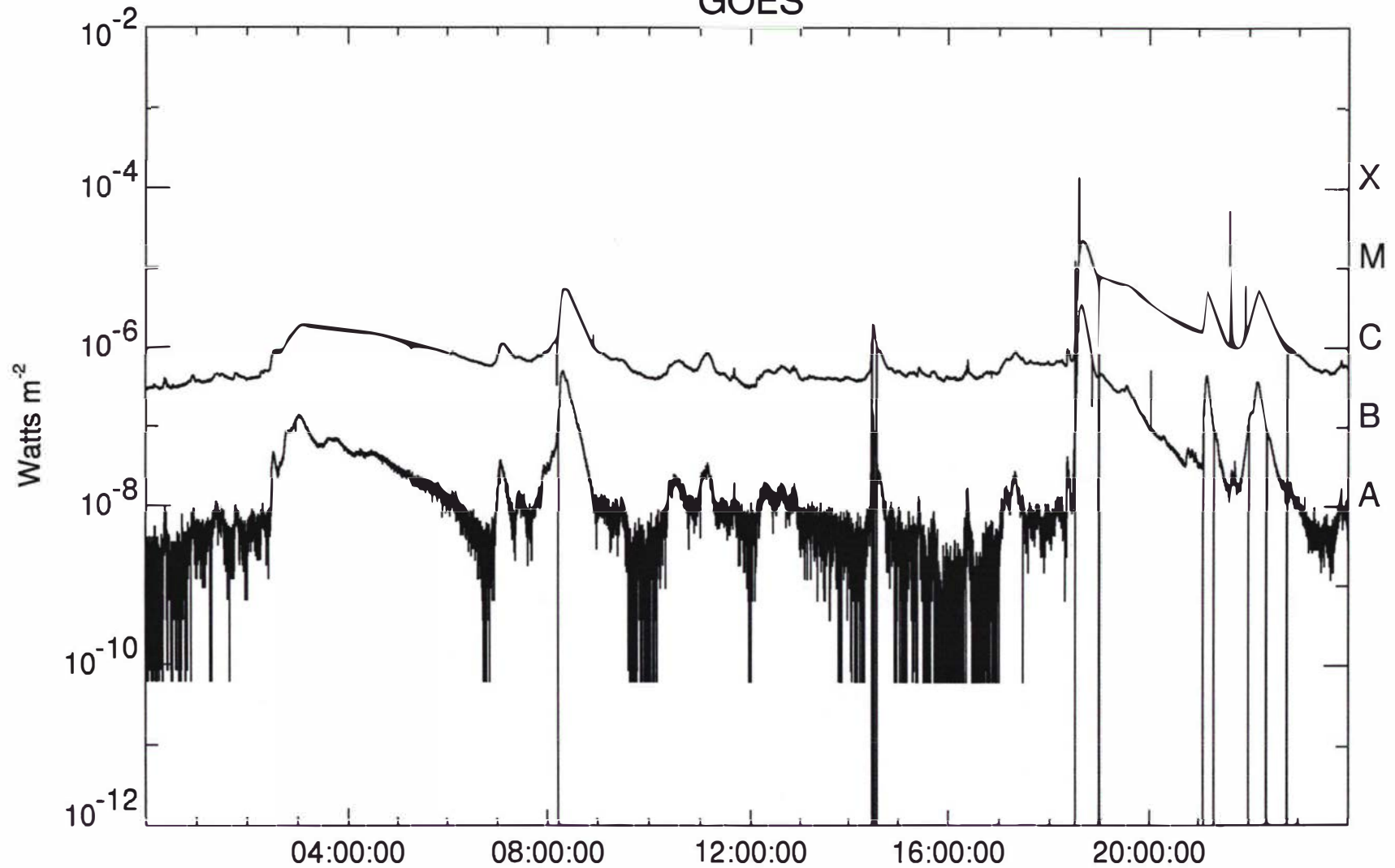
15 / 6 / 93

ULYSSES RT
9 / 6 / 93 68580.266 s
0.500 S INTERVALS REGROUPED BY 2
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



GOES

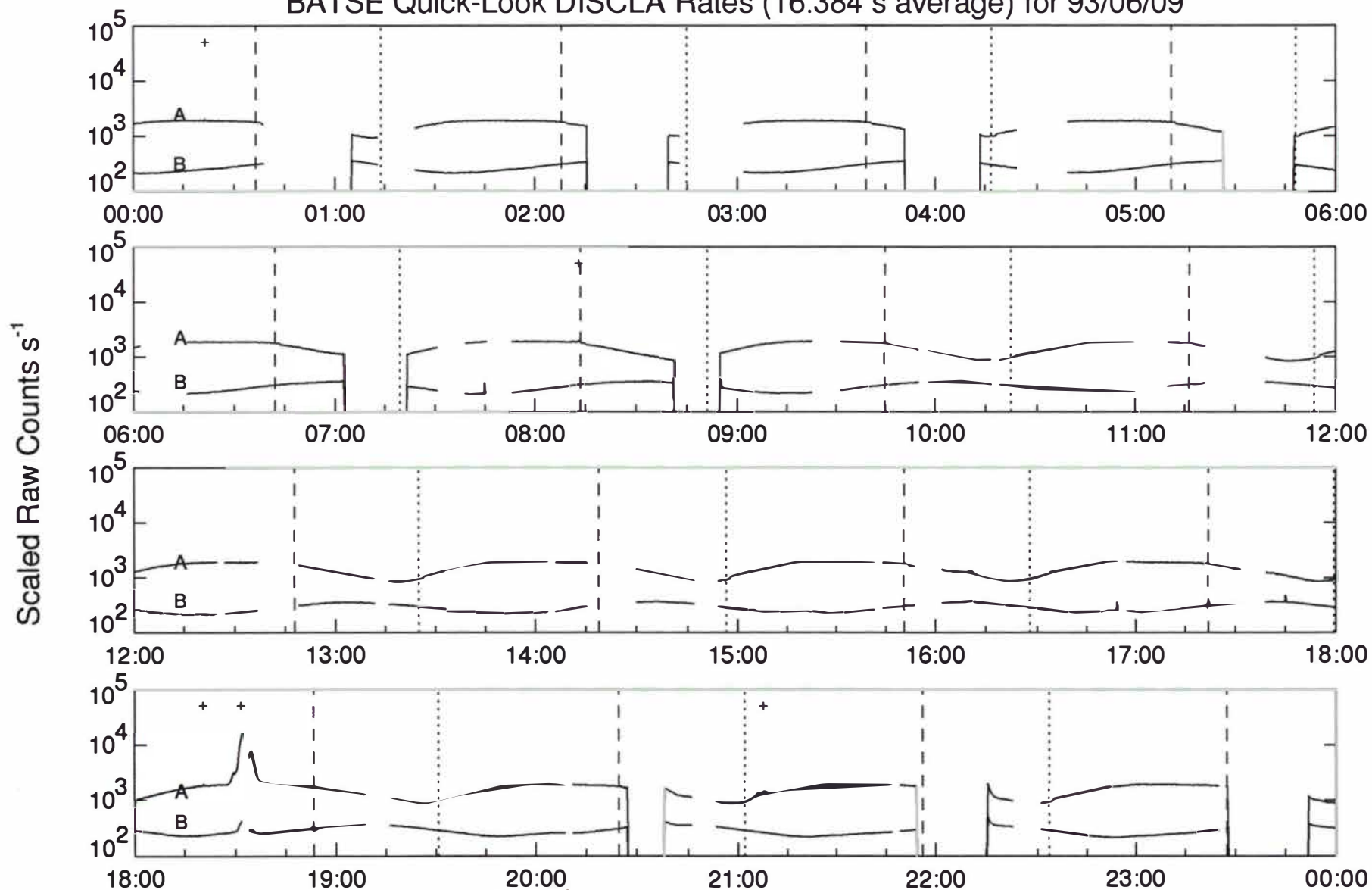


Data Start: 93/06/09, 0000:01

Plot created: 93/10/28, 0201

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

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/09

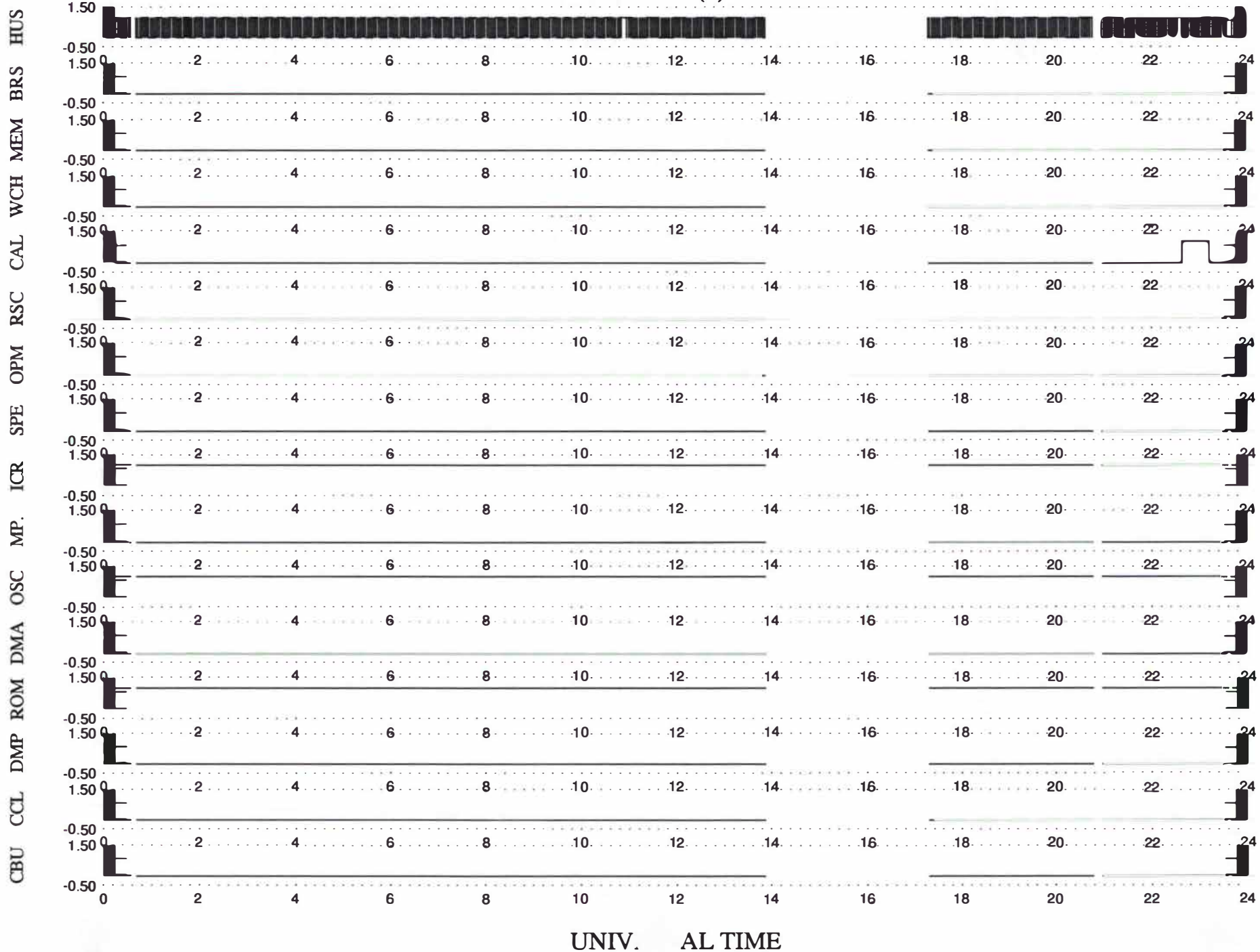


Current Time: 93/11/03, 2040 EDT
A: Channel 1 Most Sunward LAD
B: Sum Channel 1 Anti-Sunward LADs X .05

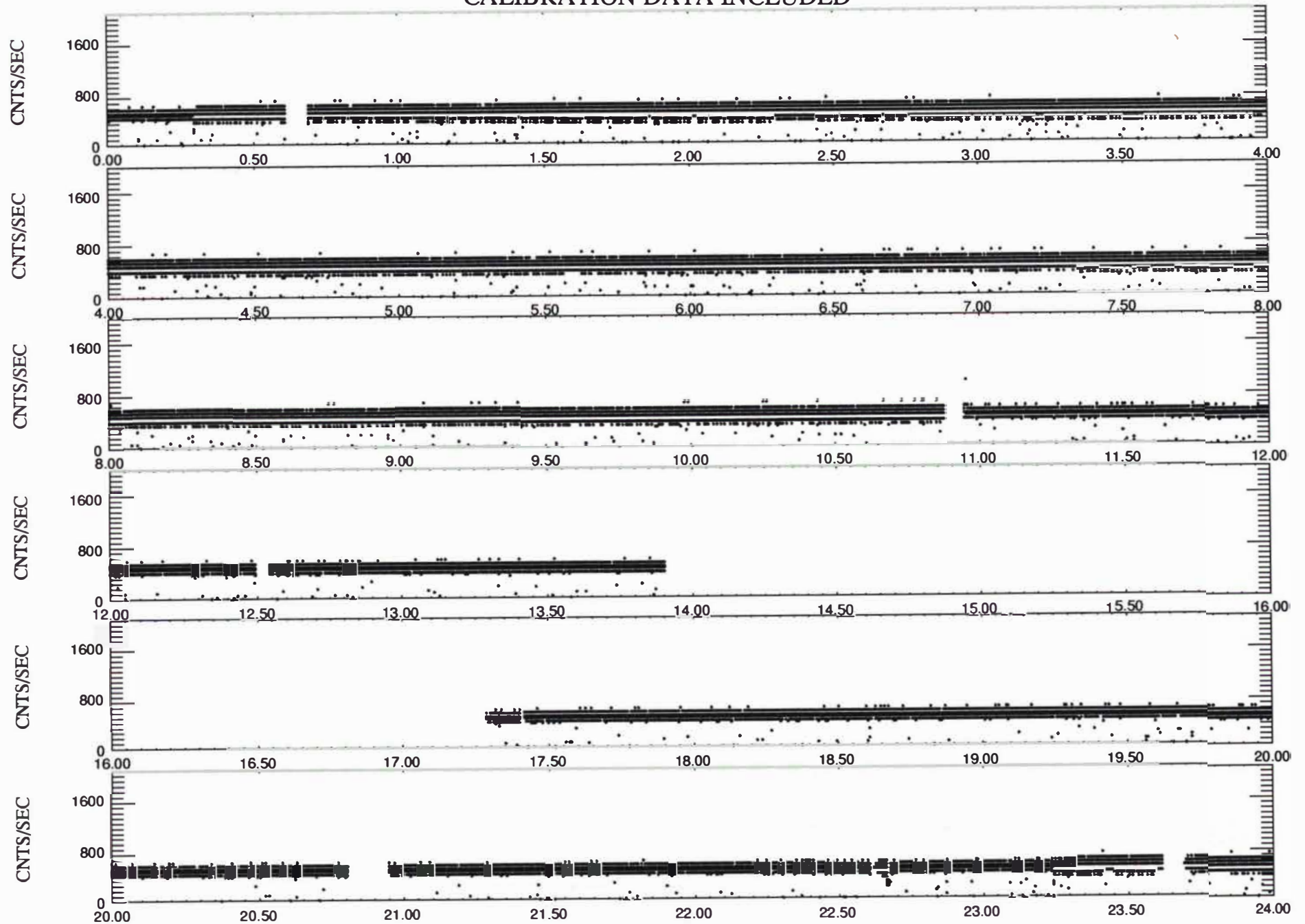
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

NO BURST (4)

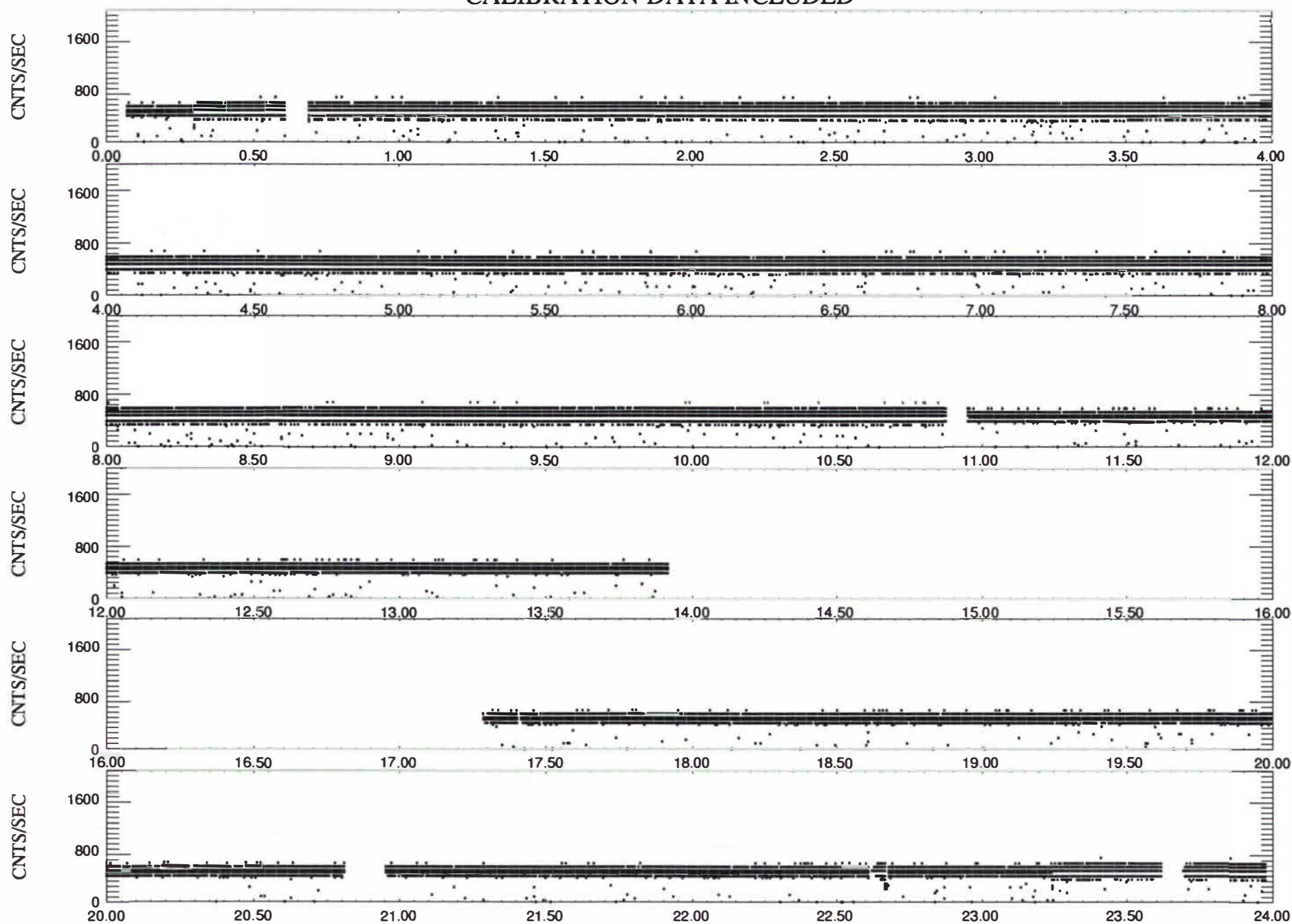


CALIBRATION DATA INCLUDED



UNIV AL TIME

CALIBRATION DATA INCLUDED



UNIV AL TIME

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

Version 1.0 Aug. 9. 1993.

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

#	date	UT-time	sd	l(s)	m(s)	m/l	position(J2000)	t	comments	#Wm	sdp	theta	phi
1	920824	10:53						2	Weak (BATSE)				
2	921004	14:00:21		?	15	>5	14h37.5m 34.1d	1	Two peaks			63.2	222.1
3	921022	15:20:57		60	55	>5	16h56.7m -09.5d	2	Two peaks				
4	921118	22:11						2	Weak (BATSE)				
5	921207	16:00:48		?	16	>5	20h36.1m -41.8d	1	Two peaks			65.9	136.3
6	921218	02:30						2	Weak (BATSE)				
7	930106	15:37						2	Weak (BATSE)				
8	930201	16:42:12						2	Weak (BATSE?)				
7	930217	14:44						2	Weak (BATSE)				
8	930316	12:31:28		?	30	>5	10h03.3m* -20.0d*	2	BATSE trig 95s early?				
9	930410	14:19						1					
10	930426	12:40:35		?	18	>5		1					
11	930502	13:52						2	Weak (BATSE)				
12	930610							1					
13	930614	03:40:32		11	9	2	11h20.7m +23.1d	1					

#	date	UT-time	sd	l(s)	m(s)	m/l	position(J2000)	t	comments	#Wm
---	------	---------	----	------	------	-----	-----------------	---	----------	-----

comments:

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

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

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

l(s): Duration in 6-10 keV band (Low NaI channel)

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

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

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

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

m: 1 motor rotation in 4 ms steps

r: raw memory (4 ms steps)

#Wm Telemetry session and WATCH unit identifier

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

theta and phi: Source position in WATCH instrument coordinates.

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

~~Version 2.0 Aug. 9. 1993.~~

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

BATSEARCH PROGRAM

BATSE BURST # 2385
EVENT OF 1993 JUN 10 DAY OF YEAR=161
EVENT CROSSING TIME AT BATSE : 64332. S. OR 17:52:12.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 216.000 -1.000
BATSE PEAK COUNTING RATE: 2000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 10/ 6/ 93 IS:
RA= 143.229 DEC= -10.940 DIST= 4.848 AU
BATSE-ULYSSES DISTANCE = 725230880. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=107.10 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -711.40 SECS.
CROSSING TIME AT ULYSSES IS 63621. S. OR 17:40:20 +/- 440.62 SECONDS

From ZMYEWSKI@ssl.msfc.nasa.gov Tue Jun 15 10:01:31 1993
Date: Tue, 15 Jun 1993 12:02:07 -0500 (CDT)
From: ZMYEWSKI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: ZMYEWSKI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2385	930610	9148	64332	2000	216	-01

NO

From ZMYEWSKI@ssl.msfc.nasa.gov Tue Jun 15 09:53:32 1993
Date: Tue, 15 Jun 1993 11:53:56 -0500 (CDT)
From: ZMYEWSKI@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02385

TIME: TJD=9148 SECONDS=64332

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=107.0 AZIMUTH=212.0 ERROR= DEGREES

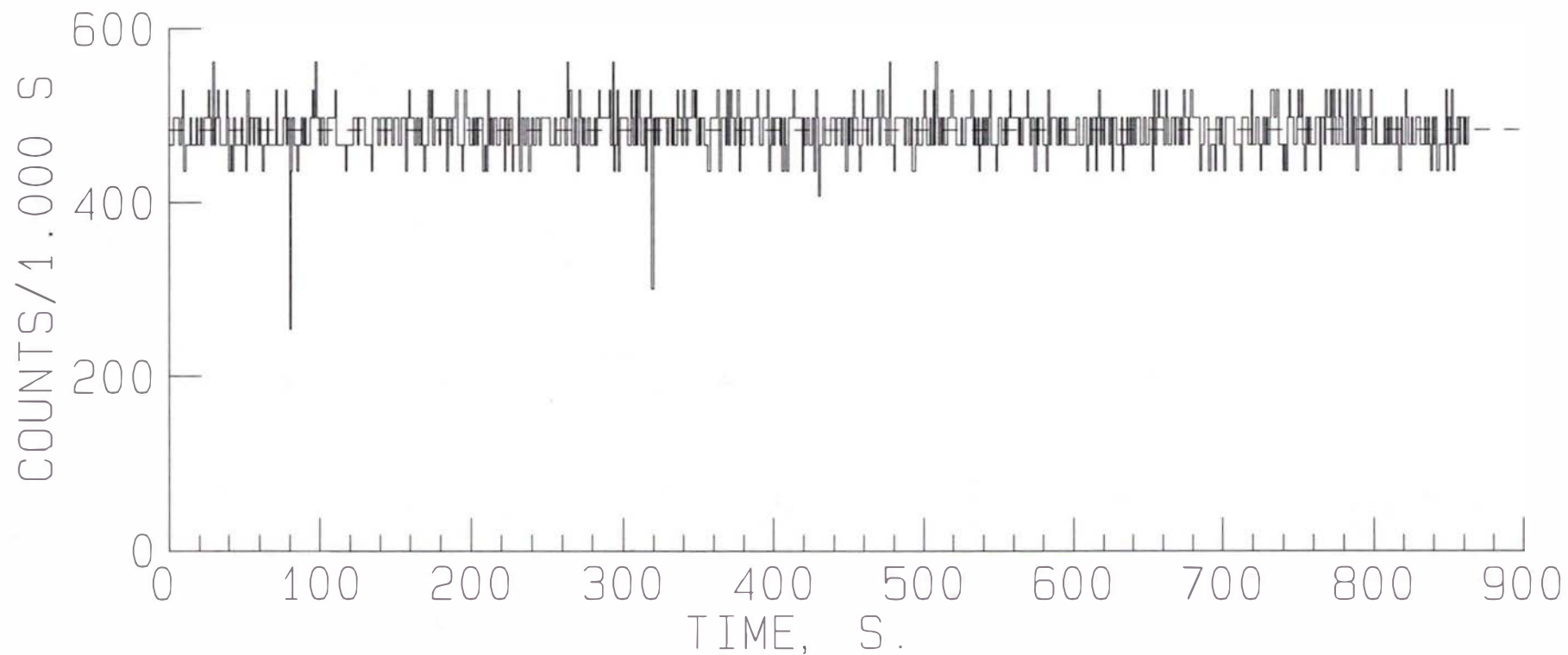
COMMENTS:

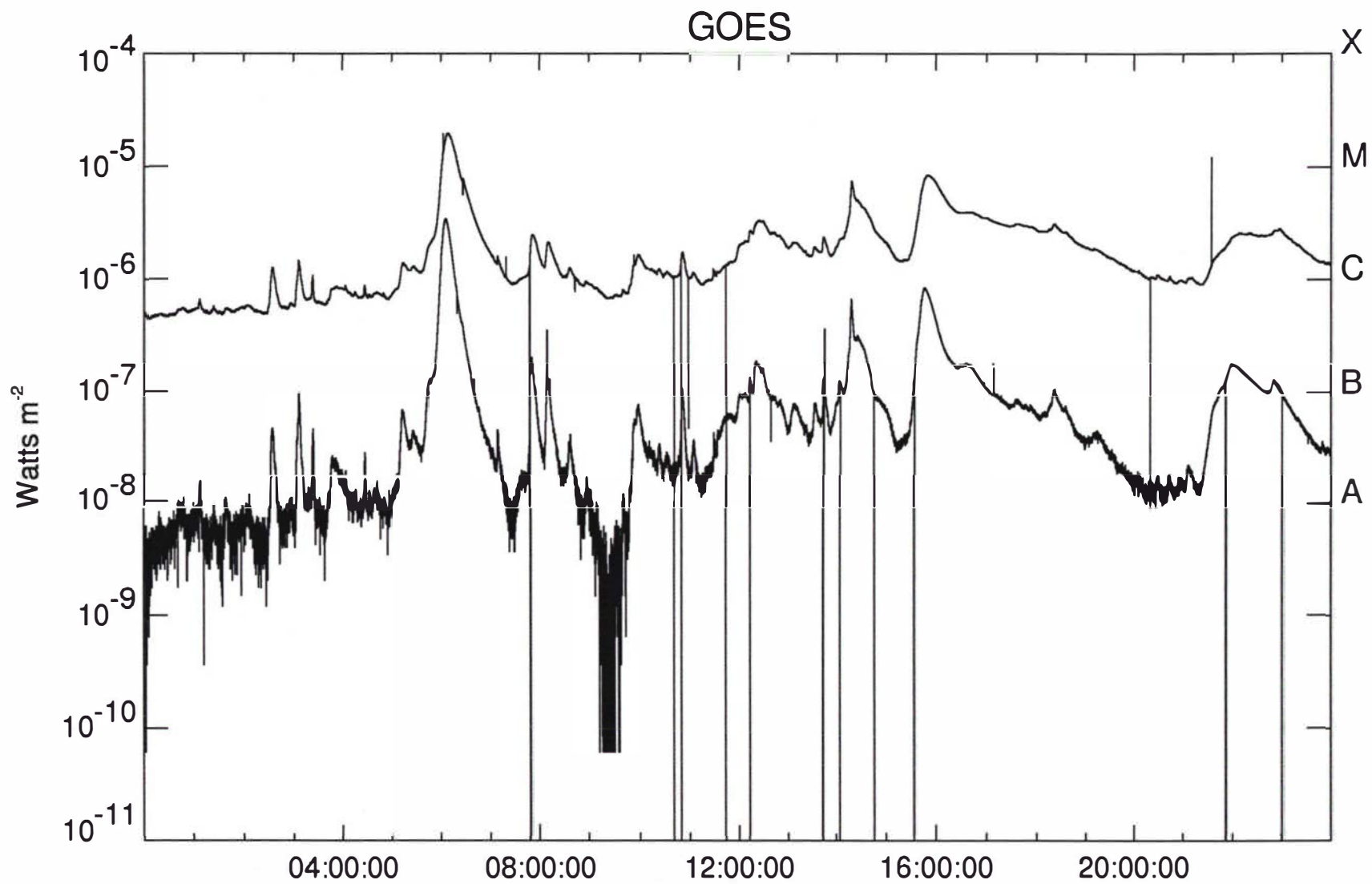
GRB LASTING APPROX. 35 SECONDS. NOT SEEN ABOVE 300KEV.

15 / 6 / 93

ULYSSES RT
10 / 6 / 93 63180.520 s
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





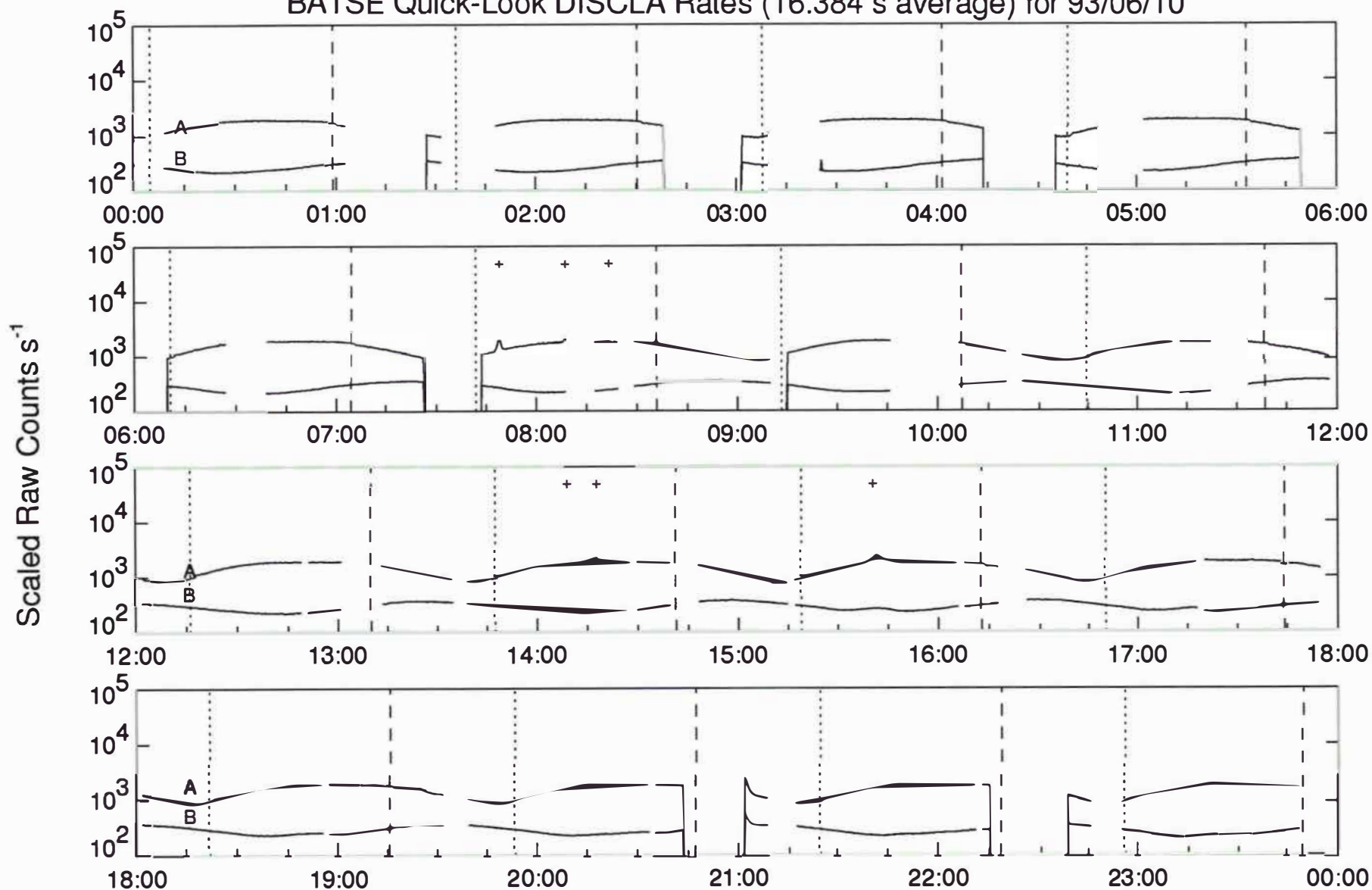
Data Start: 93/06/10, 0000:01

Plot created: 93/10/28, 0201

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/10

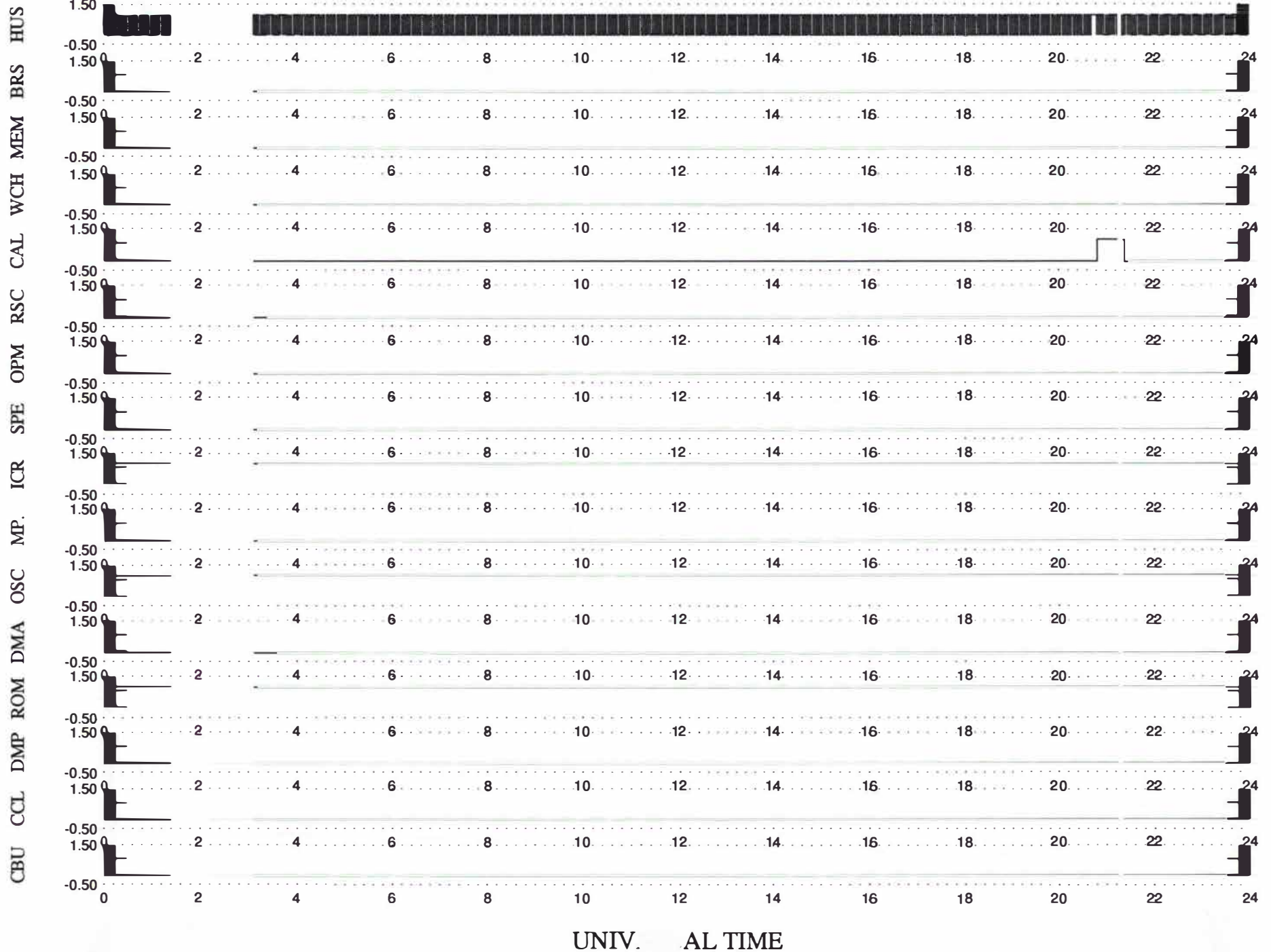


Current Time: 93/11/03, 2040 EDT
A: Channel 1 Most Sunward LAD
B: Sum Channel 1 Anti-Sunward LADs X .05

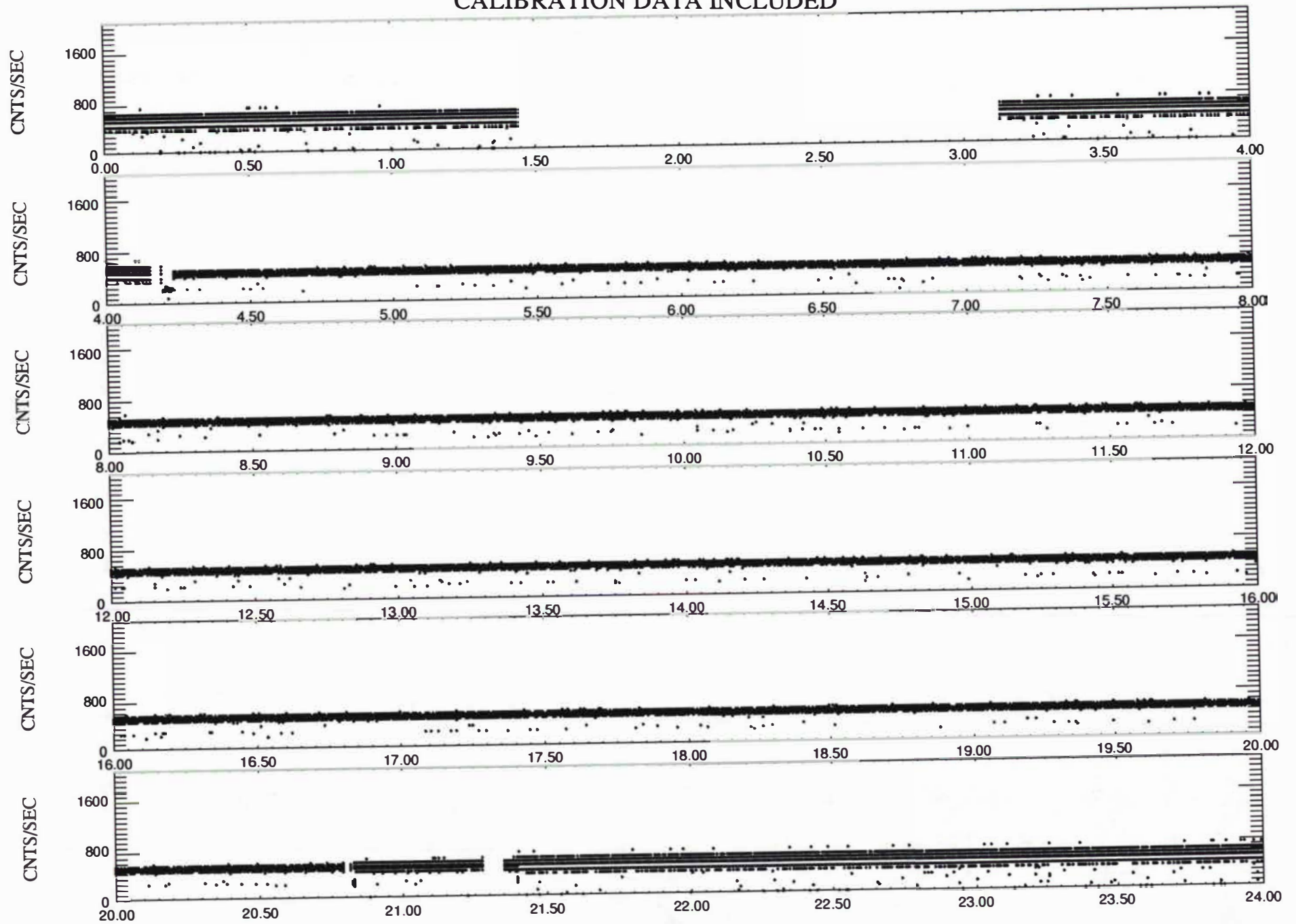
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

NO BURST (4)

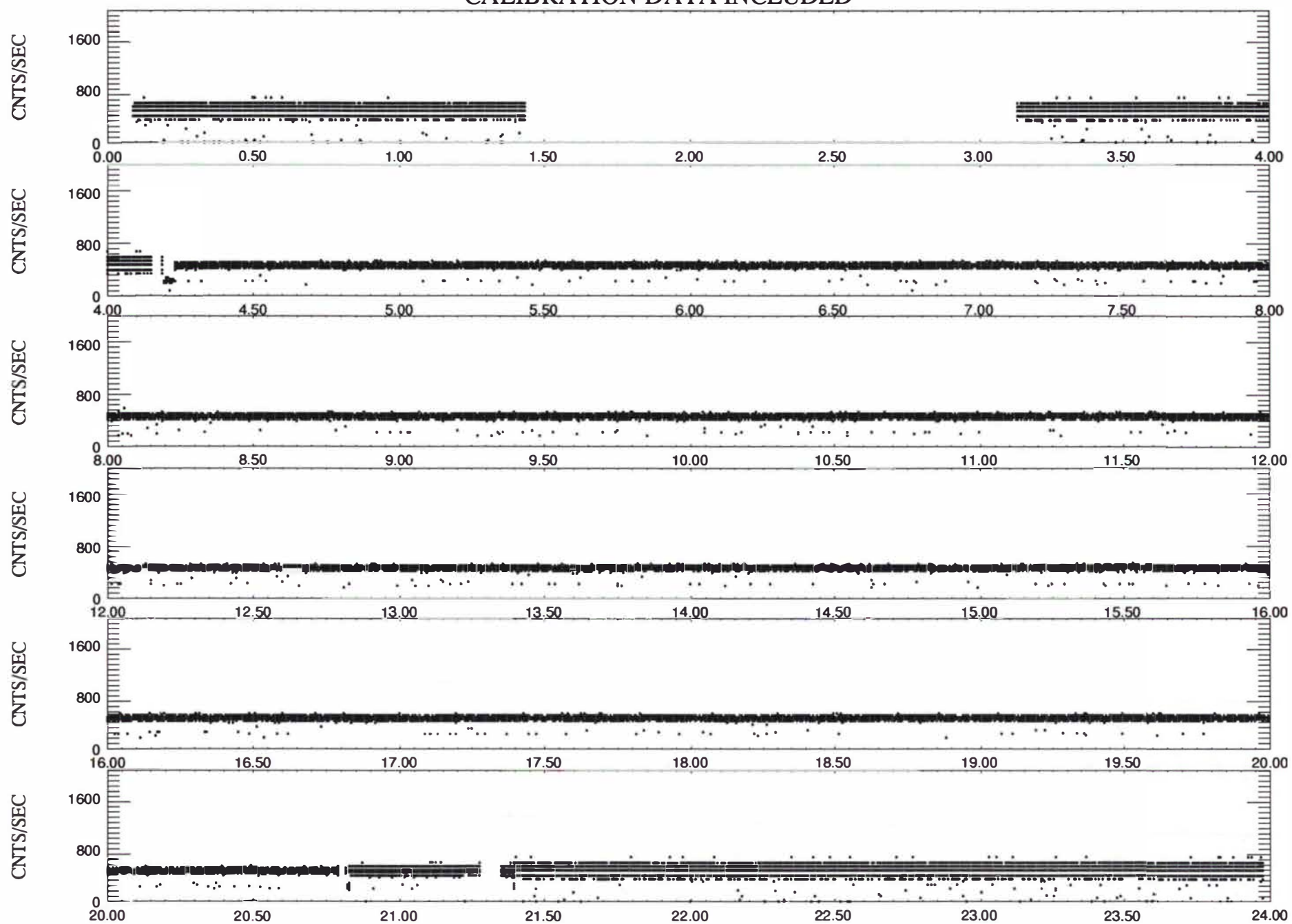


CALIBRATION DATA INCLUDED



UNIV AL TIME

CALIBRATION DATA INCLUDED



UNIV: AL TIME

From MALLOZZI@ssl.msfc.nasa.gov Sat Jun 12 13:33:19 1993
Date: Sat, 12 Jun 1993 15:33:38 -0500 (CDT)
From: "ROBERT S. MALLOZZI 205-544-6257" <MALLOZZI@ssl.msfc.nasa.gov>
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02386

TIME: TJD=9149 SECONDS=10695

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

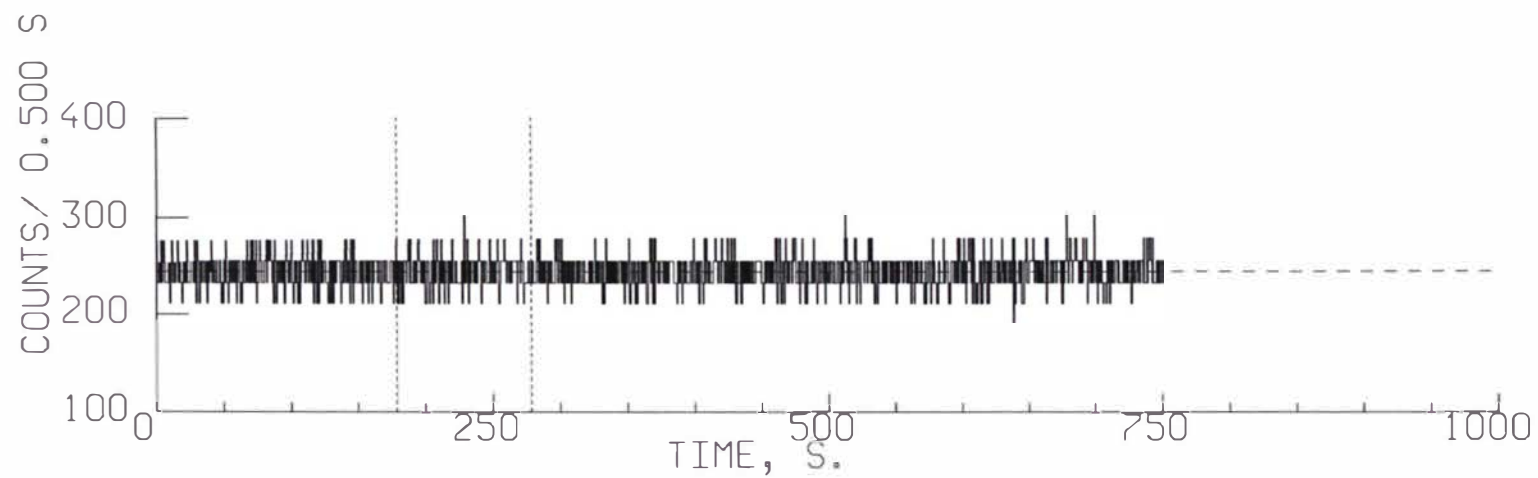
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

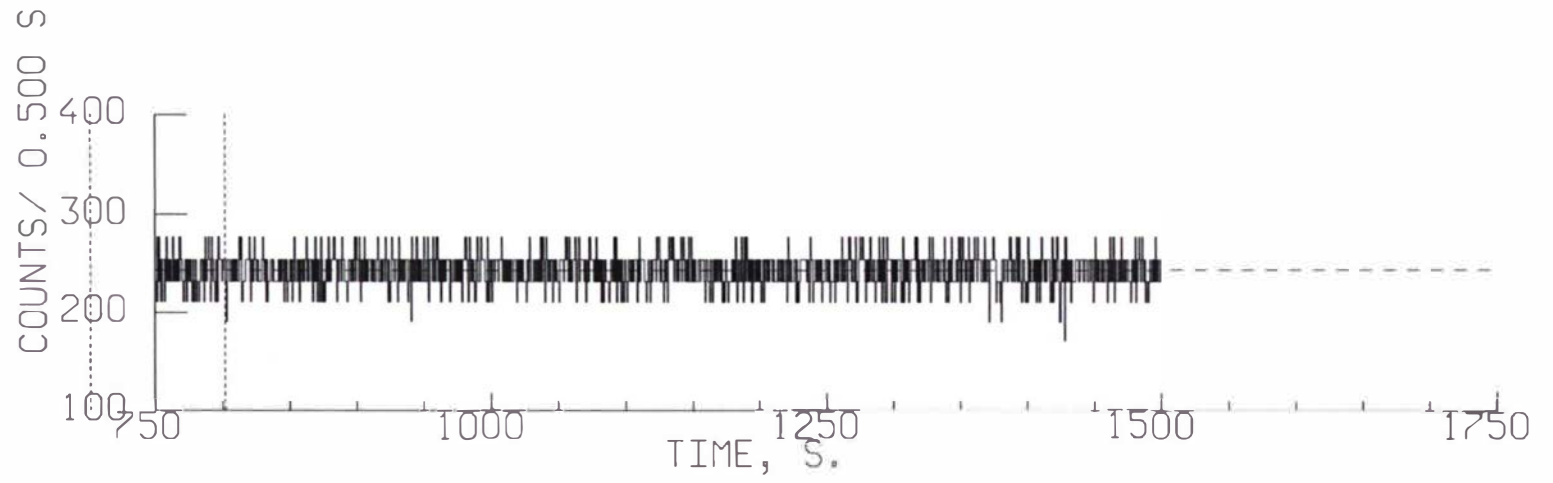
ULYSSES RT
11/ 6/93 79092.094 s
21- 144 keV

3/ 8/11



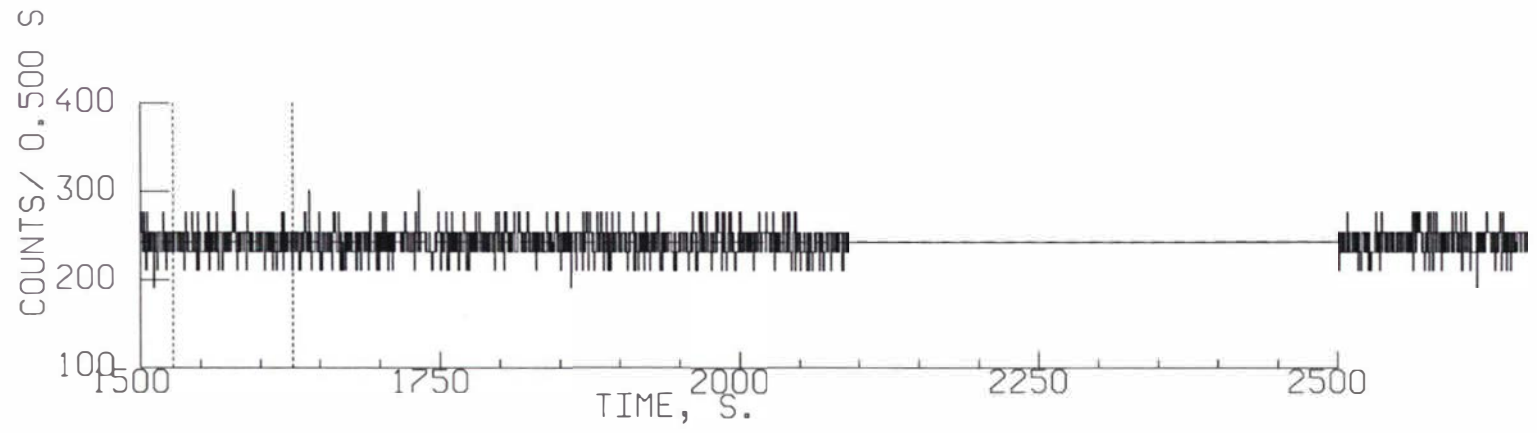
ULYSSES RT
11/ 6/93 79092.094 s
21- 144 keV

3/ 8/11



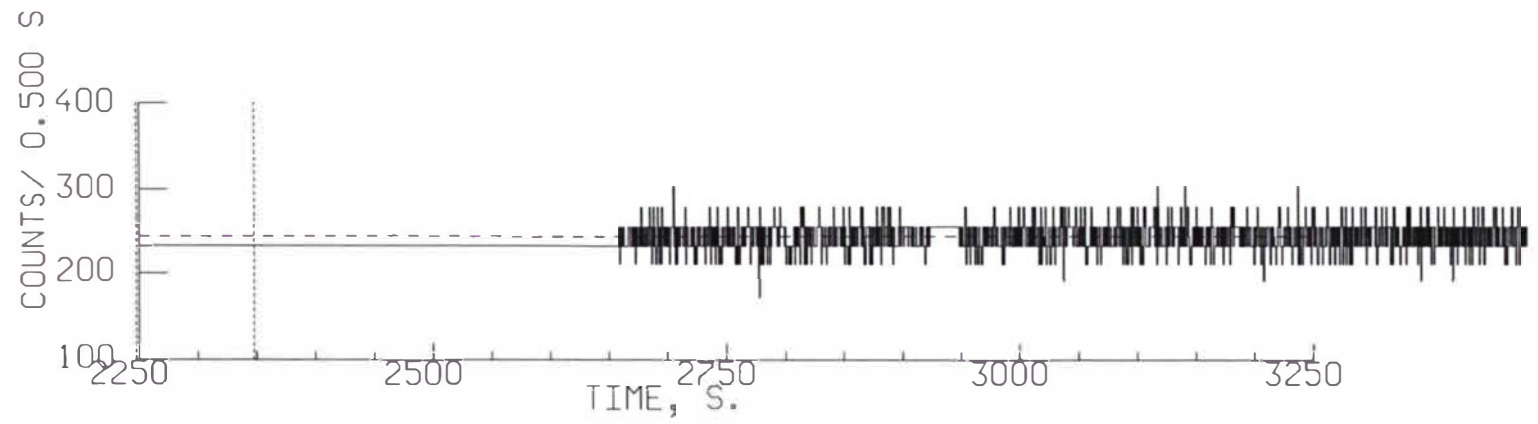
ULYSSES RT
11/ 6/93 79092.094 s
21- 144 keV

3/ 8/11



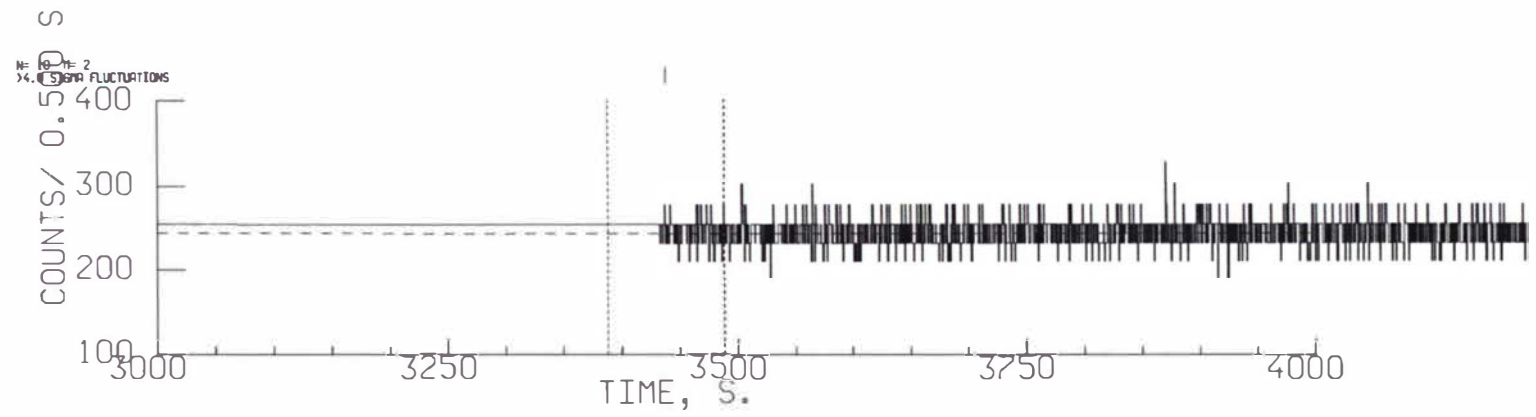
ULYSSES RT
11/ 6/93 79092.094 s
21- 144 keV

3/ 8/11



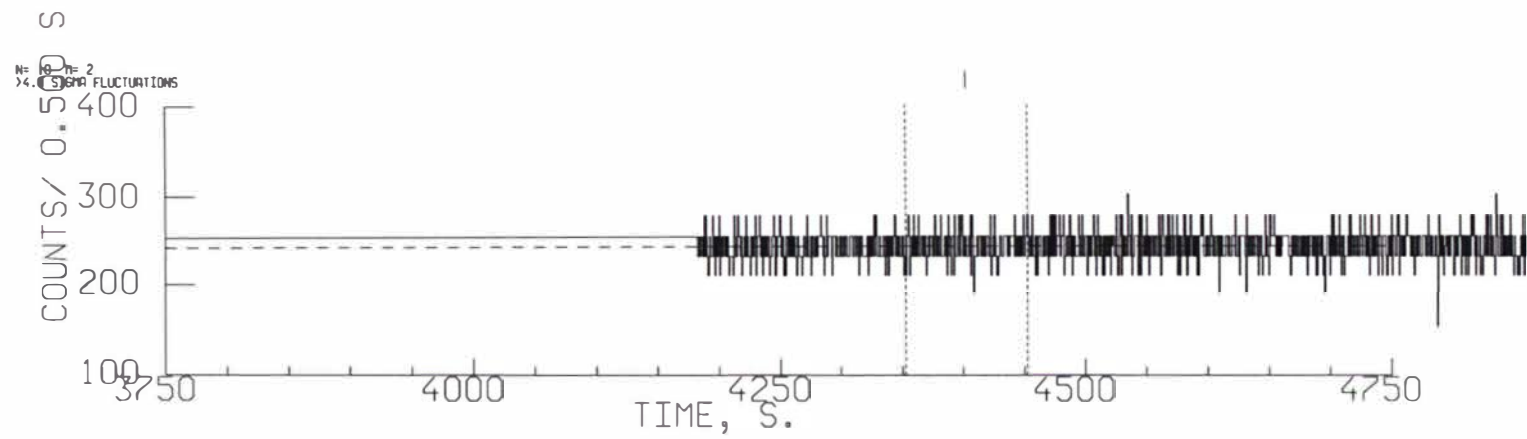
ULYSSES RT
11/ 6/93 79092.094 s
21- 144 keV

3/ 8/11



ULYSSES RT
11/ 6/93 79092.094 s
21- 144 keV

3/ 8/11



2 2 / 2 / 9 5

U L Y S S E S R T

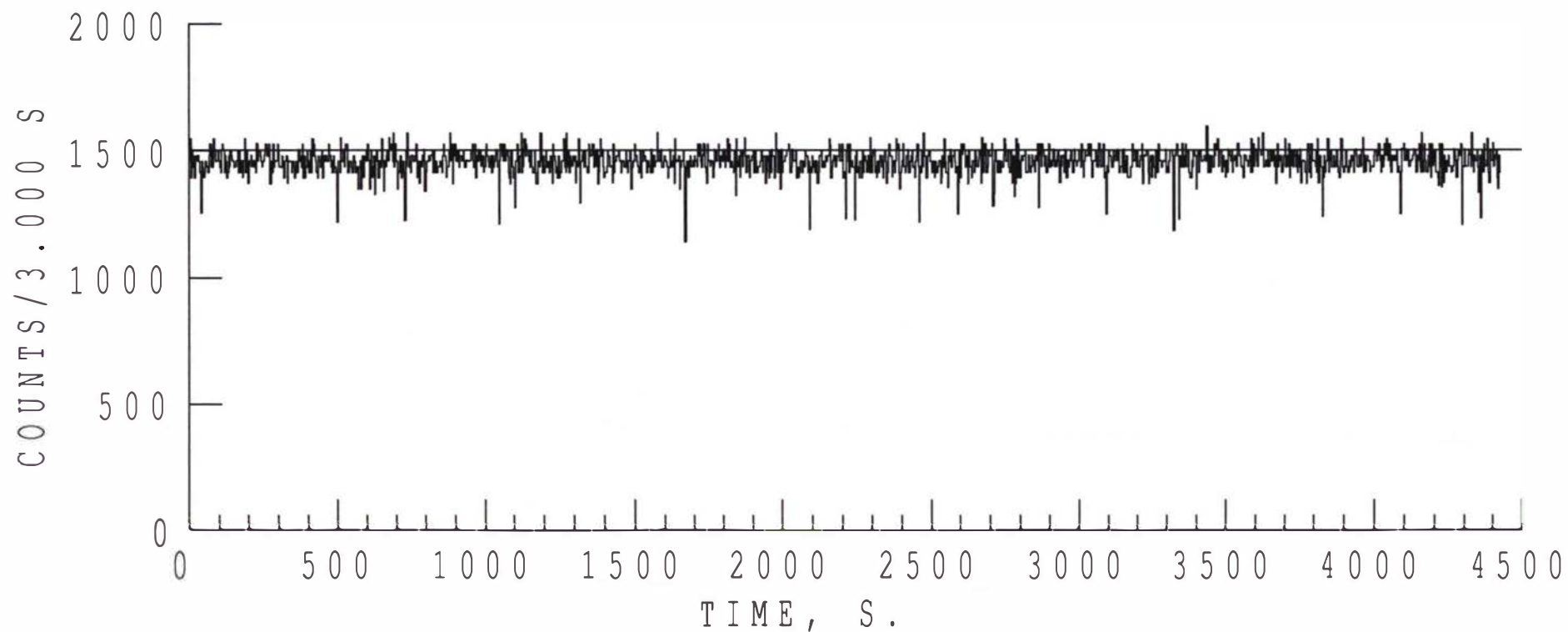
1 1 / 6 / 9 3 7 9 0 9 2 . 1 0 2 s

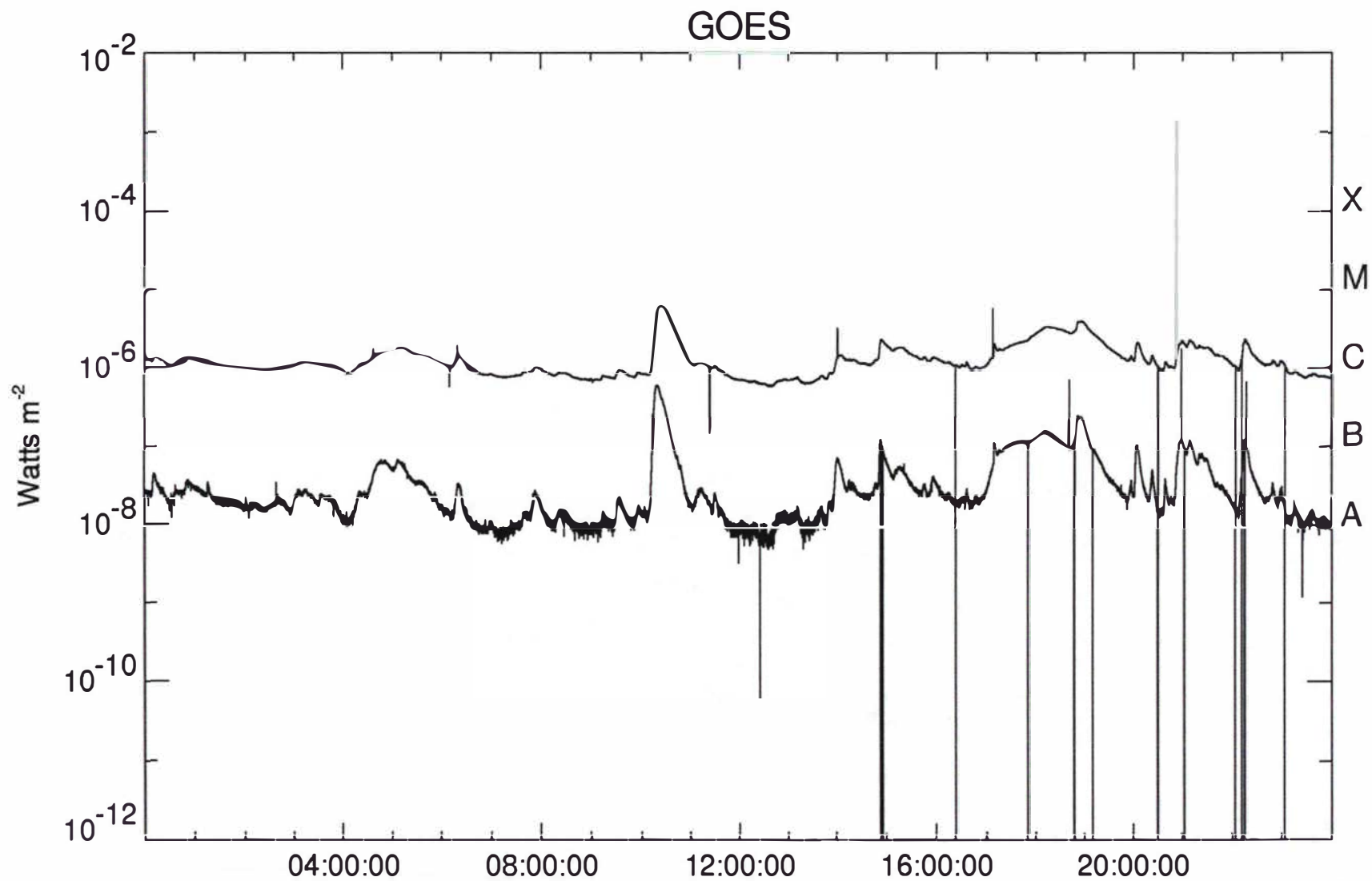
0 . 5 0 0 S I N T E R V A L S R E G R O U P E D B Y 6

0 - 0 k e V

N = 10 M = 2

> 4.0 SIGMA FLUCTUATIONS



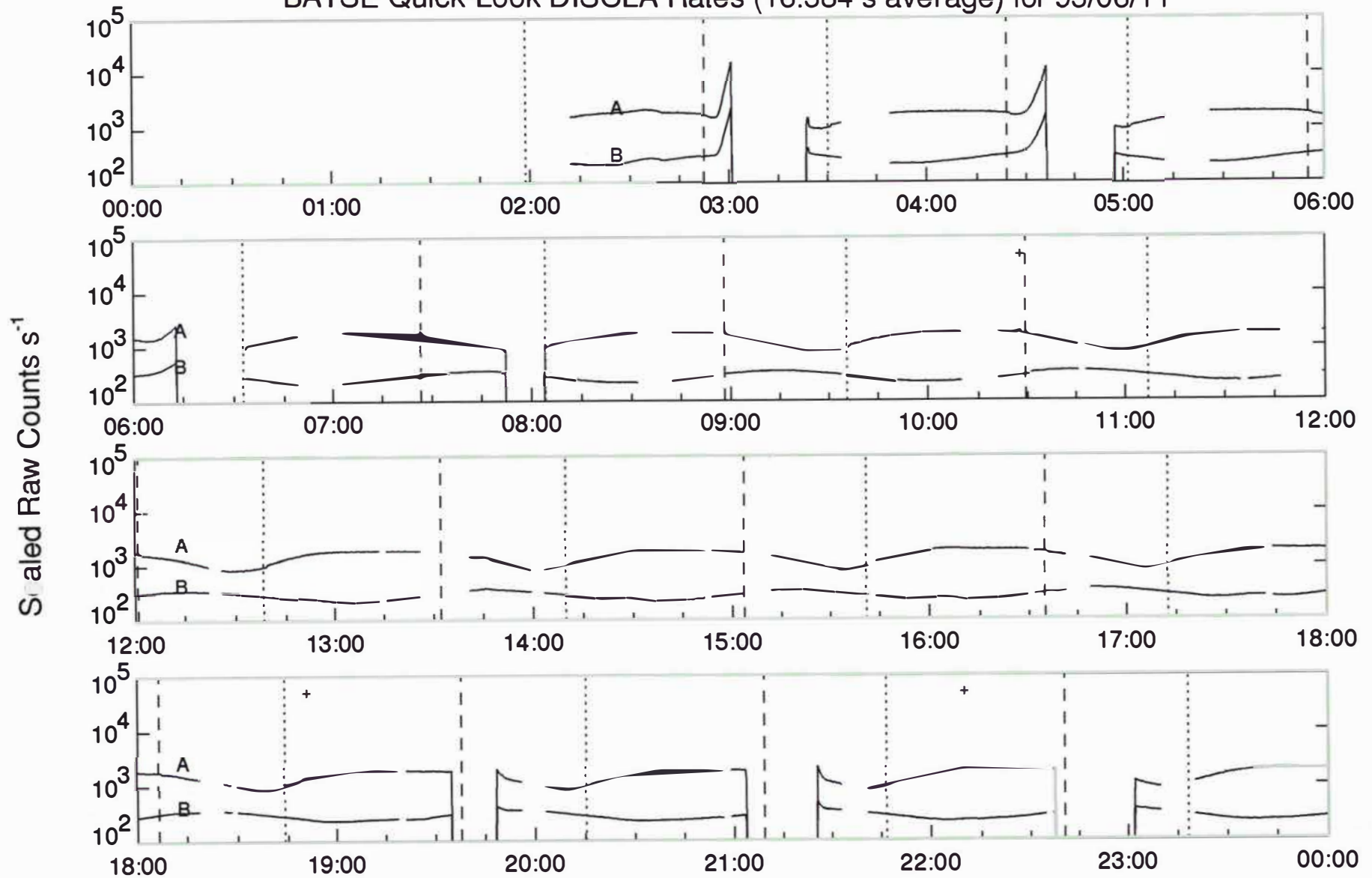


Data Start: 93/06/11, 0000:00

Plot created: 93/10/28, 0201

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

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/11

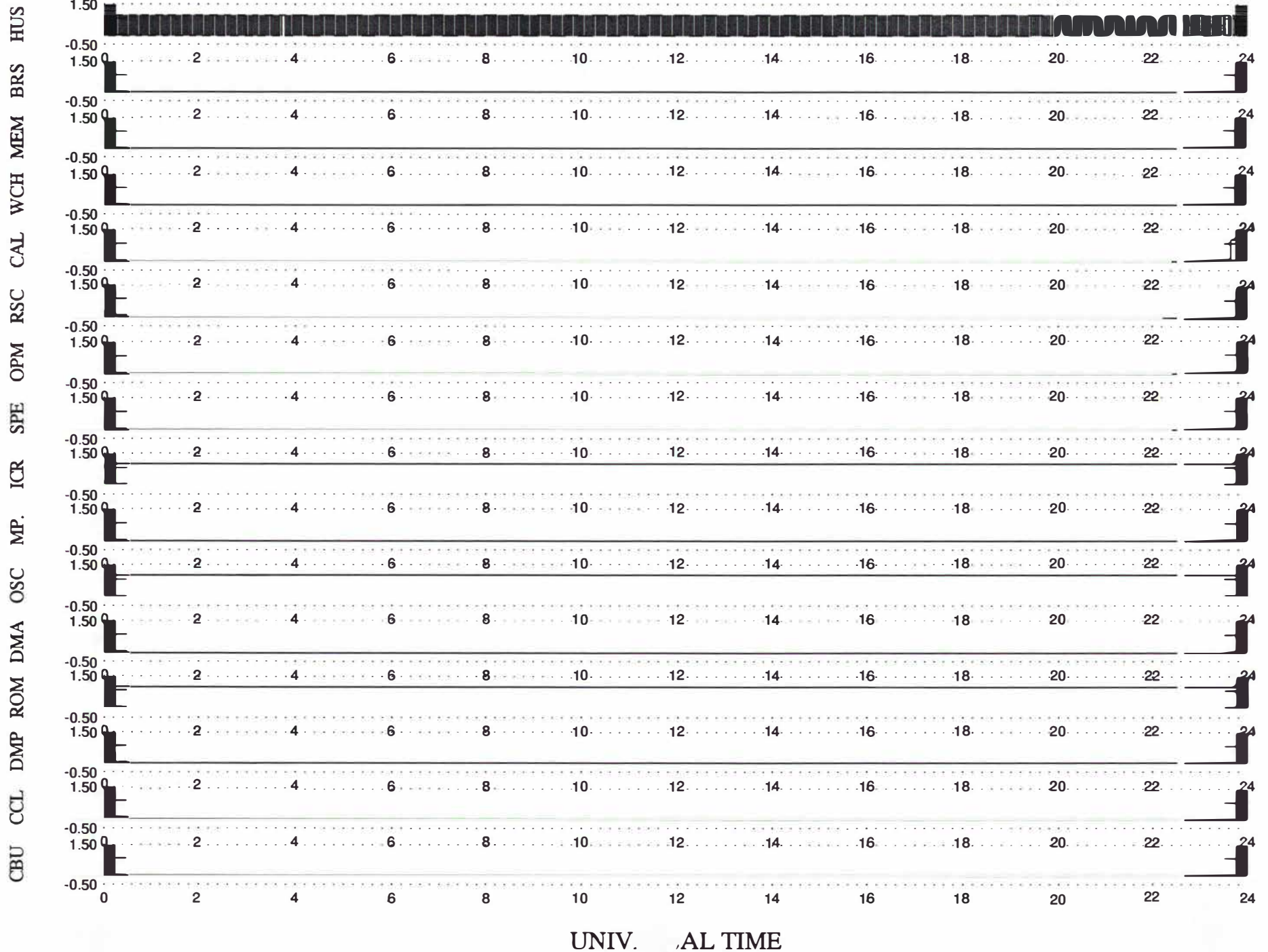


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

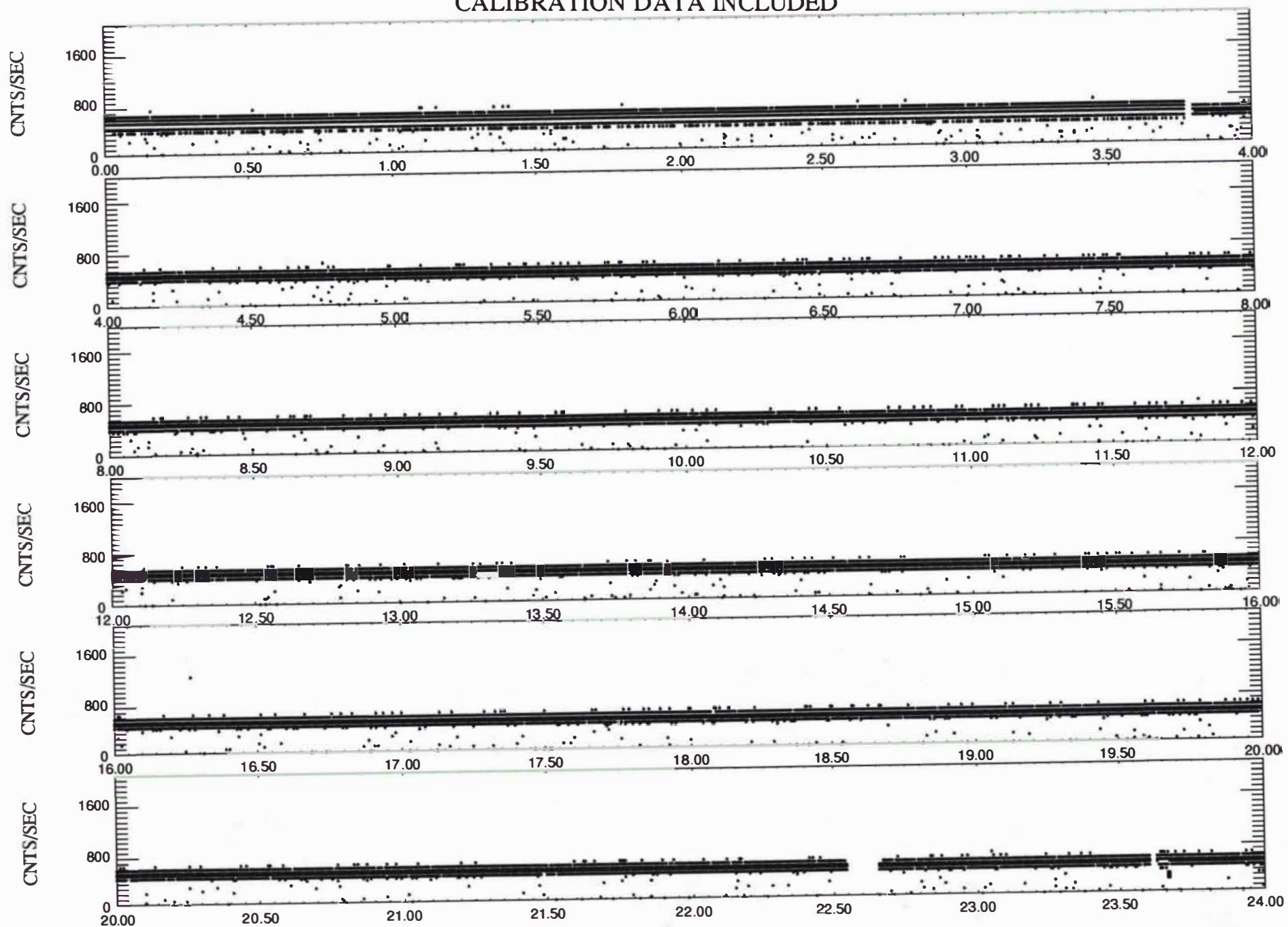
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

NO BURST (4)

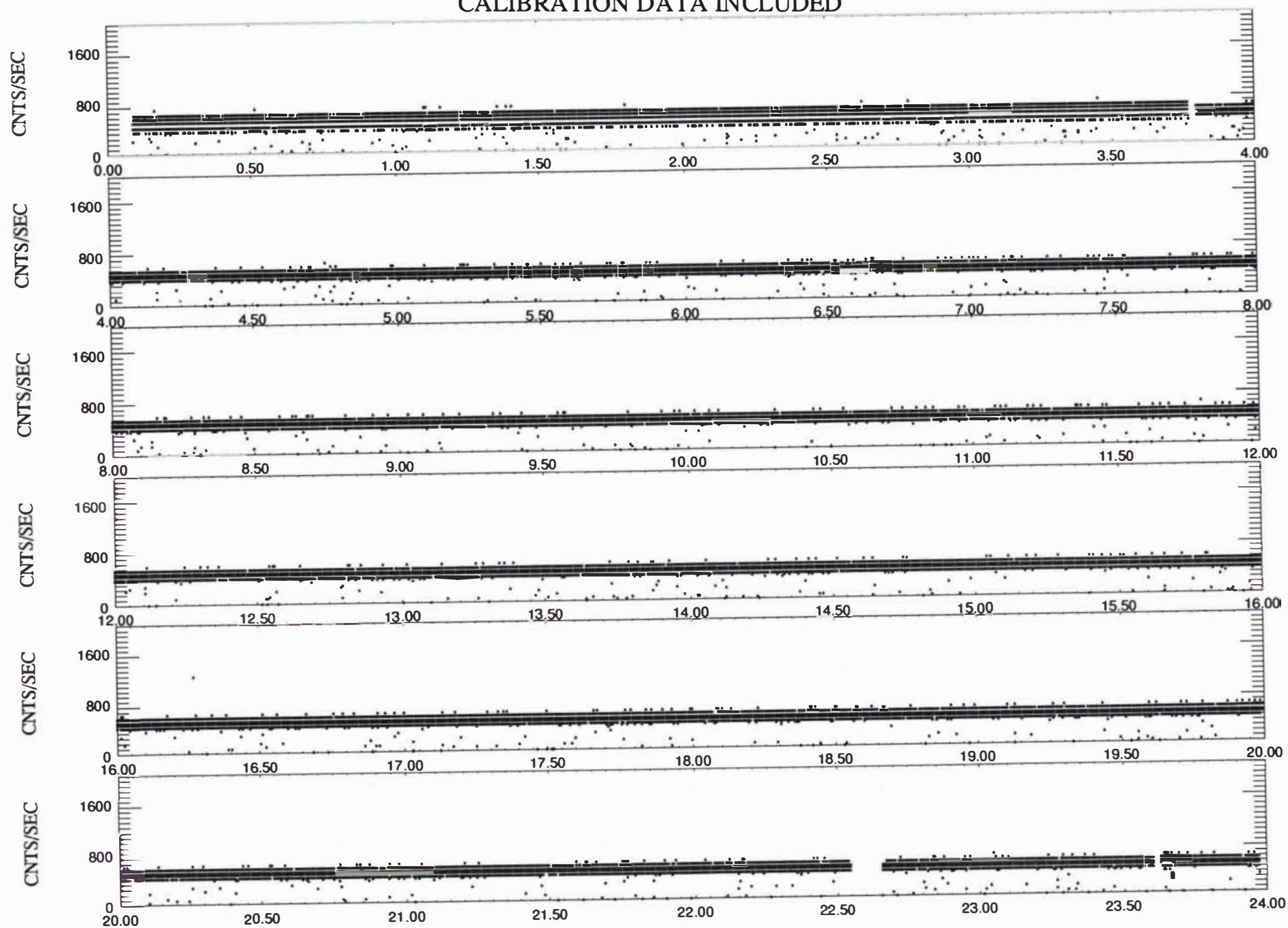


CALIBRATION DATA INCLUDED



UNIV. AL TIME

CALIBRATION DATA INCLUDED



UNIV. AL TIME

BATSEARCH PROGRAM

BATSE BURST # 2387
EVENT OF 1993 JUN 12 DAY OF YEAR=163
EVENT CROSSING TIME AT BATSE : 2657. S. OR 00:44:17.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 115.000 -67.000
BATSE PEAK COUNTING RATE: 12000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 12/ 6/ 93 IS:
RA= 143.365 DEC= -10.959 DIST= 4.870 AU
BATSE-ULYSSES DISTANCE = 728566960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=120.83 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1245.60 SECS.
CROSSING TIME AT ULYSSES IS 1411. S. OR 00:23:31 +/- 393.38 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:49:54 1993
Date: Mon, 14 Jun 1993 12:50:30 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2387	930612	9150	02657	12000	115	-67

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:35:19 1993
Date: Mon, 14 Jun 1993 12:27:37 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1222

BATSE BURST TRIGGER

NO.: 02387

TIME: TJD=9150 SECONDS=02657

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=029.1 AZIMUTH=278.6 ERROR= DEGREES

COMMENTS:

BURST, SINGLE SPIKE, FAST RISE EXPONENTIAL DECAY. LASTING ~55S. VISIBLE ABOVE 300Kev.

Helio corr removed
Date: Jan 3 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

*This event was redone to get the
B/U aberration-corrected annulus +
count ratio*

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

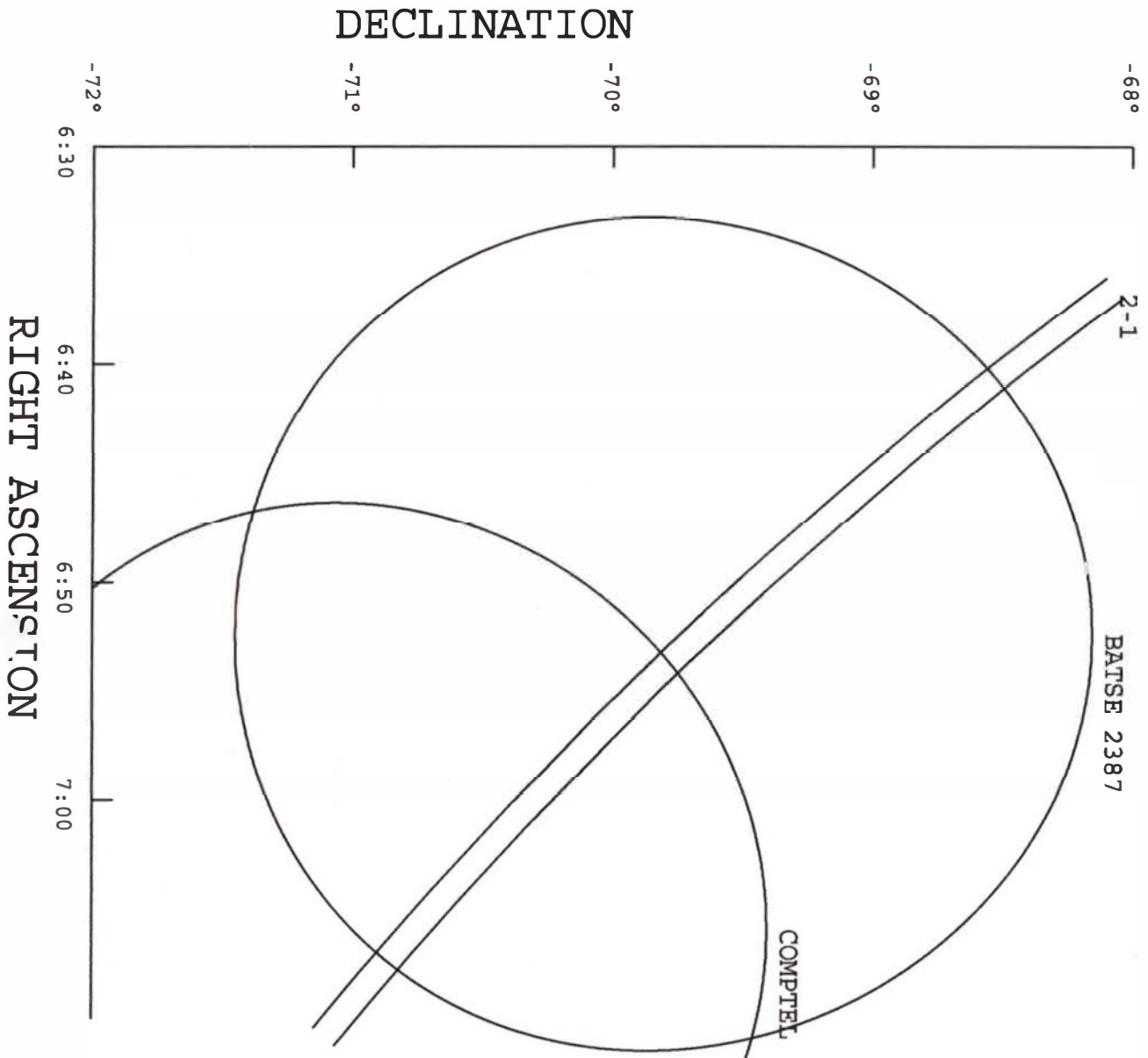
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF JUN 12, 1993 0:25

3 / 1/98



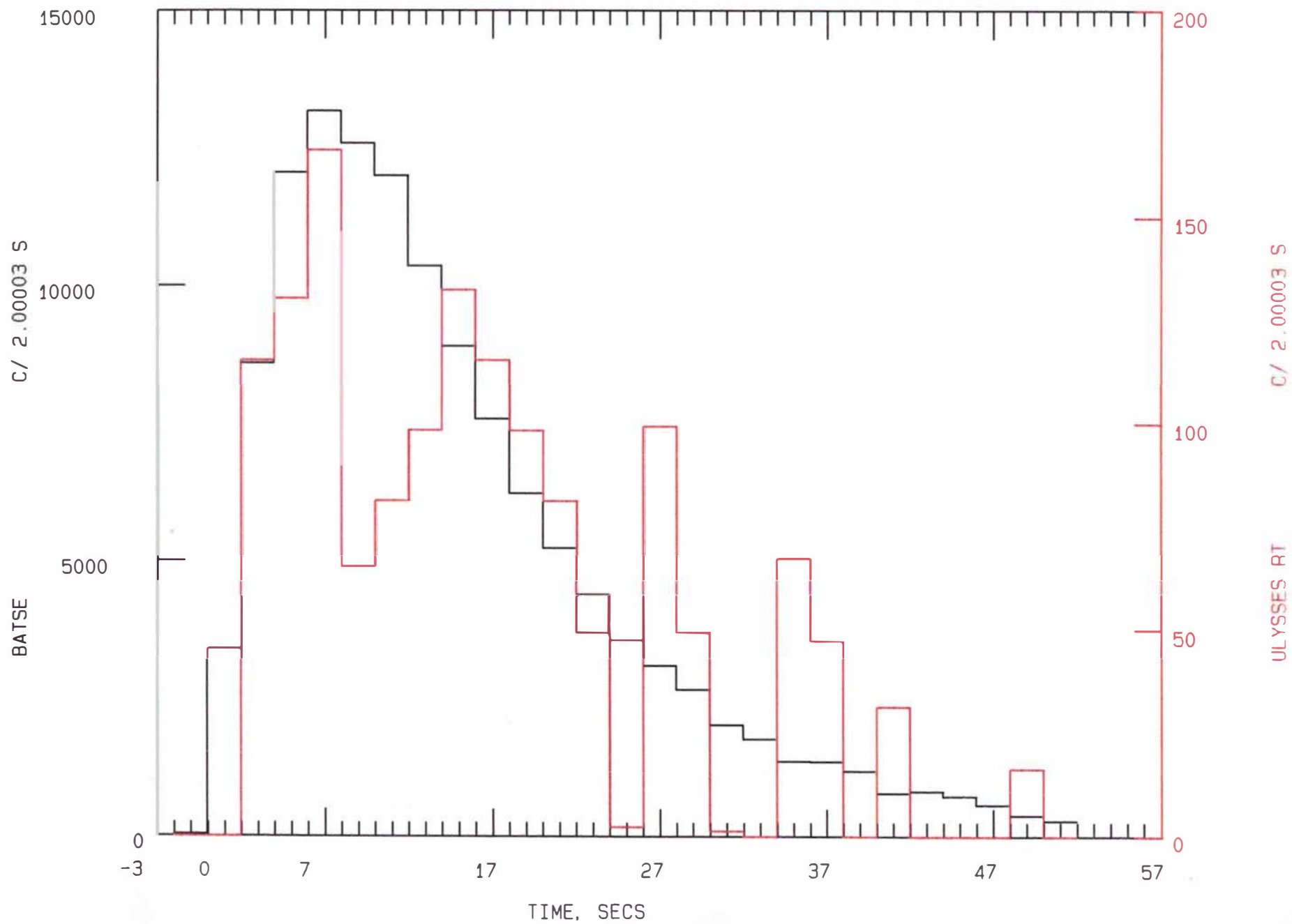
BATSE

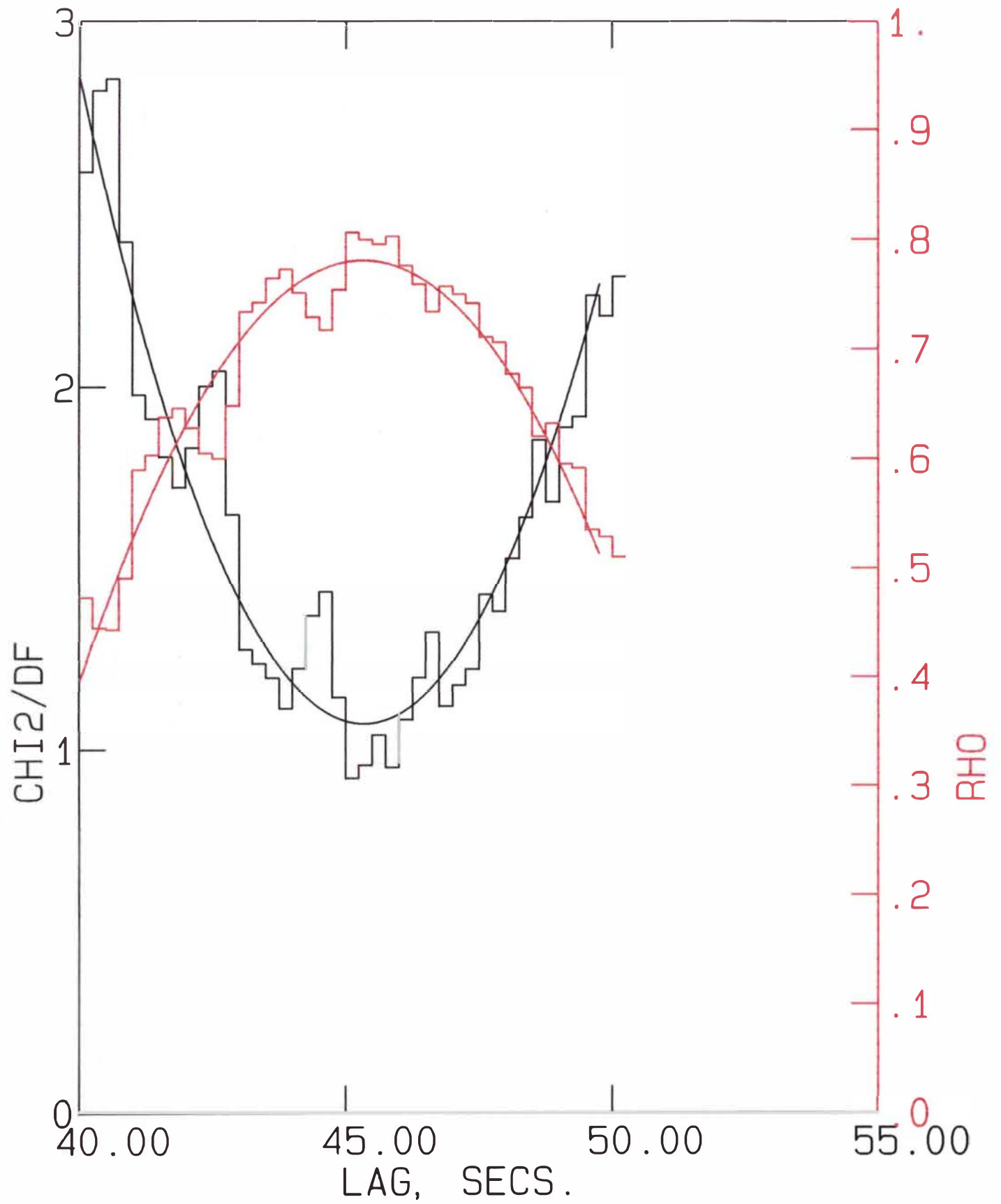
-ULYSSES RT CORRELATION

12/ 6/93

2657.666

3/ 1/98





ULYSSES RT

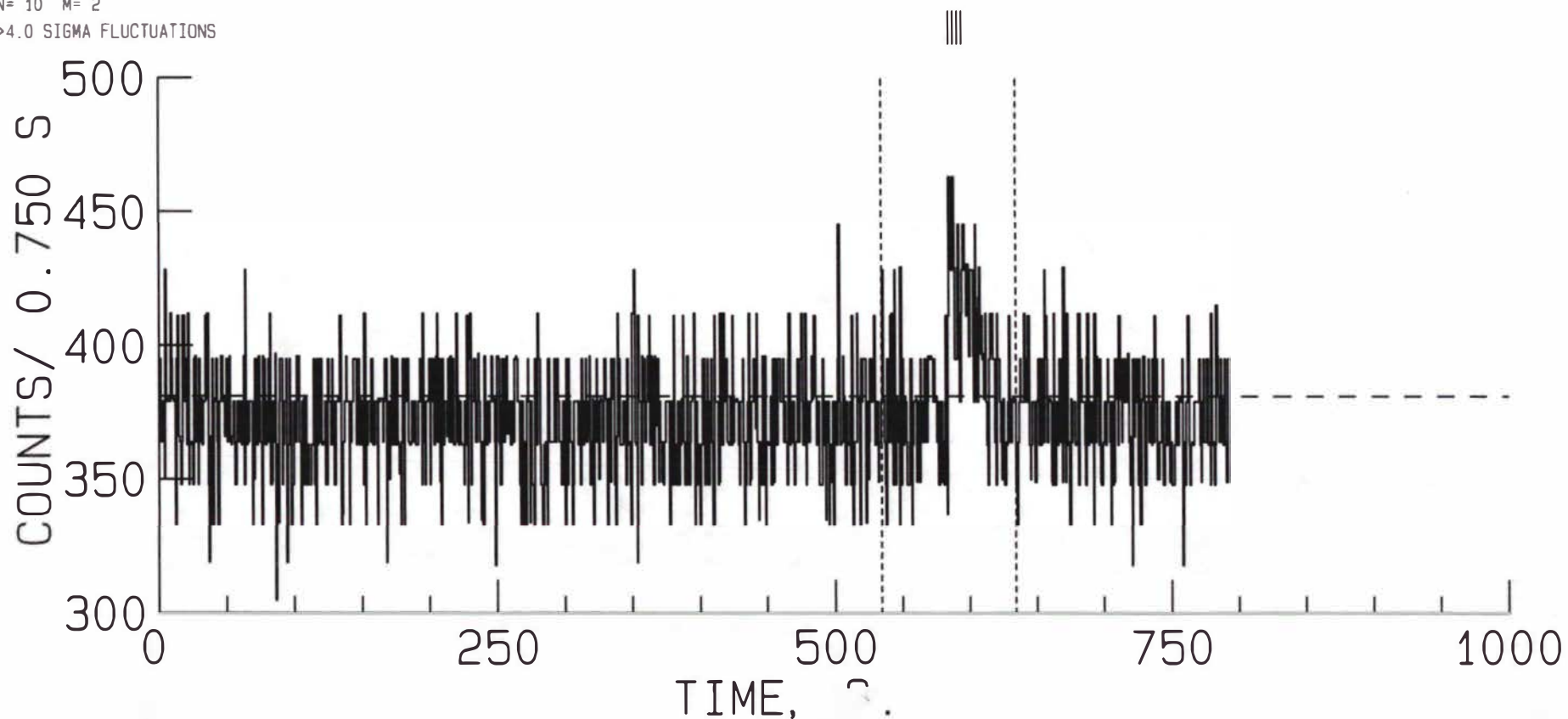
3 / 1 / 98

12 / 6 / 93 1008.234 s

0.250 S INTERVALS REGROUPED BY 3

21- 145 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From springer@pop.jpl.nasa.gov Tue Nov 19 09:43 PST 1996
Return-Path: <springer@pop.jpl.nasa.gov>
Received: from pop.jpl.nasa.gov by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA13354; Tue, 19 Nov 1996 09:43:20 -0800
eived: from billevans (billevans.jpl.nasa.gov [137.78.252.52]) by pop.jpl.nasa.gov (8.7.5/8.7
ssage-Id: <3.0.32.19961119094312.00942100@pop.jpl.nasa.gov>
X-Sender: springer@pop.jpl.nasa.gov
X-Mailer: Windows Eudora Pro Version 3.0 (32)
Date: Tue, 19 Nov 1996 09:43:13 -0800
To: khurley@sunspot.ssl.berkeley.edu
From: Joe Springer <springer@pop.jpl.nasa.gov>
Subject: validation of 1993 data points
Mime-Version: 1.0
X-Lines: 26
Status: RO

Kevin,

As requested Thursday, I have checked the following
eleven data points and found no timing errors. Specifically,
we checked as follows:

Type	Date	Sec/Day	Validation Results:
ULYSSES	1/20/93	85352.726	no errors - 10 before to 60 after
ULYSSES RT	1/27/93	59477.129	no errors - 10 before to 10 after
ULYSSES RT	6/12/93	1558.242	no errors - 10 before to 10 after
YSSSES RT	6/12/93	34201.245	no errors - 10 before to 10 after
LYSSES RT	7/4/93	60210.297	no errors - 10 before to 10 after
ULYSSES	7/6/93	20282.957	no errors - 10 before to 60 after
ULYSSES RT	7/20/93	54122.35	no errors - 10 before to 10 after
ULYSSES RT	7/24/93	60281.23	no errors - 10 before to 10 after
ULYSSES RT	7/31/93	10688.221	no errors - 10 before to 10 after
ULYSSES RT	7/31/93	22050.147	no errors - 10 before to 10 after
ULYSSES RT	8/1/93	9752.522	no errors - 10 before to 10 after

Regards,

Joe
Kevin,

Roger suggested that the appropriate data to examine
for a trigger was ten minutes before and 60 minutes
after the event time, while ten minutes before and after
the other times was sufficient.

Joe

At 12:58 PM 11/19/96 -0800, you wrote:

>Dear Joe,

>

>Thanks. Can you tell me what units 10 and 60 are? Minutes? Headers?

>

evin

COMPTTEL/BATSE/IPN Burst Localizations

All Coordinates Epoch J2000.0

UB= Ulysses/BATSE UP = Ulysses/PVO BP= BATSE/PVO							BATSE Position					COMPTTEL Position			
Center							Radius								
Burst	Rf	Ra	Dec	Radius	(-/+)	D (AU)	Ra	Dec	lσ	Smin	Rf	Ra	Dec	lσ	Smin
GRB910425 UB	1	115.140	23.172	51.733	0.053	2.848	91.29	-22.77	1.02	0.27	3	90.20	-22.20	0.92	0.28
GRB910503 UB	1	117.730	22.657	30.352	0.010	3.042	87.45	38.74	0.87	0.03	3	87.00	38.60	0.44	0.30
GRB910601 UB	1	307.038	-20.538	52.936	0.011	3.708	310.12	32.34	0.17	0.02	3	309.90	32.70	0.46	0.37
GRB910627 UB	1	134.824	18.425	66.820	0.031	4.215	197.99	-2.48	0.28	1.28	3	199.40	-5.00	1.63	0.96
UP	1	133.523	18.792	68.352	0.036	3.621	-	-	-	1.53	-	-	-	-	0.71
GRB910709	NA	NA	NA	NA	NA	NA	172.77	81.67	2.31	NA	3	144.10	75.60	1.80	NA
GRB910814 UB	1	328.558	-13.966	45.699	0.018	4.918	346.35	30.43	0.48	1.89	3	343.80	29.50	0.39	0.19
UP	1	328.287	-14.629	46.428	0.019	4.626	-	-	-	1.87	-	-	-	-	0.17
GRB911118 UB	1	166.979	6.889	30.110	0.017	4.972	167.03	-20.85	0.36	2.37	3	166.30	-22.50	1.11	0.71
UP	1	162.619	8.562	32.018	0.019	4.248	-	-	-	2.29	-	-	-	-	0.75
BP	1	190.131	-2.551	30.766	0.086	0.813	-	-	-	1.76	-	-	-	-	0.23
GRB920622 UB	1	150.167	6.667	41.335	0.009	5.800	162.1	47.17	0.31	0.43	3	162.50	49.20	0.81	2.44
GRB920627 UB	1	150.590	6.327	23.540	0.049	5.869	166.02	-2.58	0.65	5.74		166.80	-8.50	1.18	1.61
GRB920830 UB	1	338.192	0.949	86.268	0.018	?	258.53	-73.99	0.54	1.81	3	259.00	-74.50	1.35	1.78
GRB930118	NA	NA	NA	NA	NA	NA	228.40	-34.30	?	NA	4	221.80	-34.80	1.47	NA
GRB930131 UB	1	161.411	-14.563	22.256	0.011	4.218	182.04	-8.24	2.16	1.09	3	186.20	-7.90	1.77	2.93
GRB930309 UB	1	332.600	14.645	36.601	0.035	3.998	325.41	51.73	0.72	0.93	3	322.70	55.20	0.74	4.67
GRB930612 UB	1	143.974	-11.184	63.928	0.053	4.870	103.07	-69.76	0.4	0.07	3	106.50	-71.00	1.60	0.17
GRB930704 UB	1	146.146	-11.823	82.959	0.113	5.089	100.9	60.8	0.59	2.01	3	99.30	62.80	1.08	0.07
BM	1	159.825	8.635	68.701	2.319	1.981	-	-	-	1.04	-	-	-	-	0.45
GRB931229	NA	NA	NA	NA	NA	NA	240.06	19.7	1.4	NA	3	241.90	21.00	2.35	NA
GRB940217 UB	1	328.736	51.947	69.334	0.050	3.038	29.07	4.55	0.69	0.84	3	30.10	3.10	0.32	0.94
GRB940301 UB	1	321.914	52.508	59.395	0.136	2.953	103.51	64.35	0.35	0.02	3	102.70	64.00	0.40	0.17
GRB940314 UB	1	314.850	51.972	64.530	0.220	?	354.86	-2.14	0.94	0.77	3	356.00	-1.40	1.43	0.92
GRB940520 UB	1	300.149	41.387	40.380	0.133	2.986	323.5	6.93	0.88	0.16	3	324.70	7.70	0.70	0.27
GRB940619 UB	1	303.998	39.140	69.375	0.211	3.039	299.05	-29.89	0.34	0.20	3	298.50	-31.50	1.15	1.44
GRB940708 UB	1	308.119	39.489	17.431	0.038	?	301.58	24.66	1.02	1.61	3	300.50	22.70	1.03	0.56
GRB940728 UB	1	133.614	-41.397	36.245	0.131	?	85.49	-39.87	1.44	0.17	3	85.10	-38.00	1.10	0.75
GRB940921 UB	2	155.516	-55.210	54.361	0.121	2.583	196.59	-18.71	?	6.49	4	207.10	-16.40	0.68	0.75
GRB941017	NA	NA	NA	NA	NA	NA	302.63	11.10	?	NA	4	301.70	13.30	2.10	NA
GRB950208 UB	2	334.715	-27.012	83.397	0.022	2.301	337.06	54.19	?	2.17	4	344.80	56.00	1.95	0.05
GRB950421 UB	2	177.048	-19.097	81.048	0.226	2.171	71.92	-63.03	?	1.41	4	70.10	-61.70	1.43	0.11
GRB950425 UB	2	178.121	-21.566	17.005	0.207	2.154	163.16	-35.21	?	1.90	4	164.90	-33.80	0.34	0.11
GRB950522 UB	2	7.656	42.578	86.989	0.063	2.039	109.57	19.31	?	1.60	4	110.81	20.34	1.14	1.47
1 Hurley, K. et al Huntsville workshop (1995)							Smin = minimum distance between point and IPN annulus								
2 BACODINE/IPN burst alert messages (Hurley)															
3 BATSE 3B Catalog															
4 Meegan, C. Priv. Comm. (Trigger Messages)															

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

*Added to MBL
12 Feb*

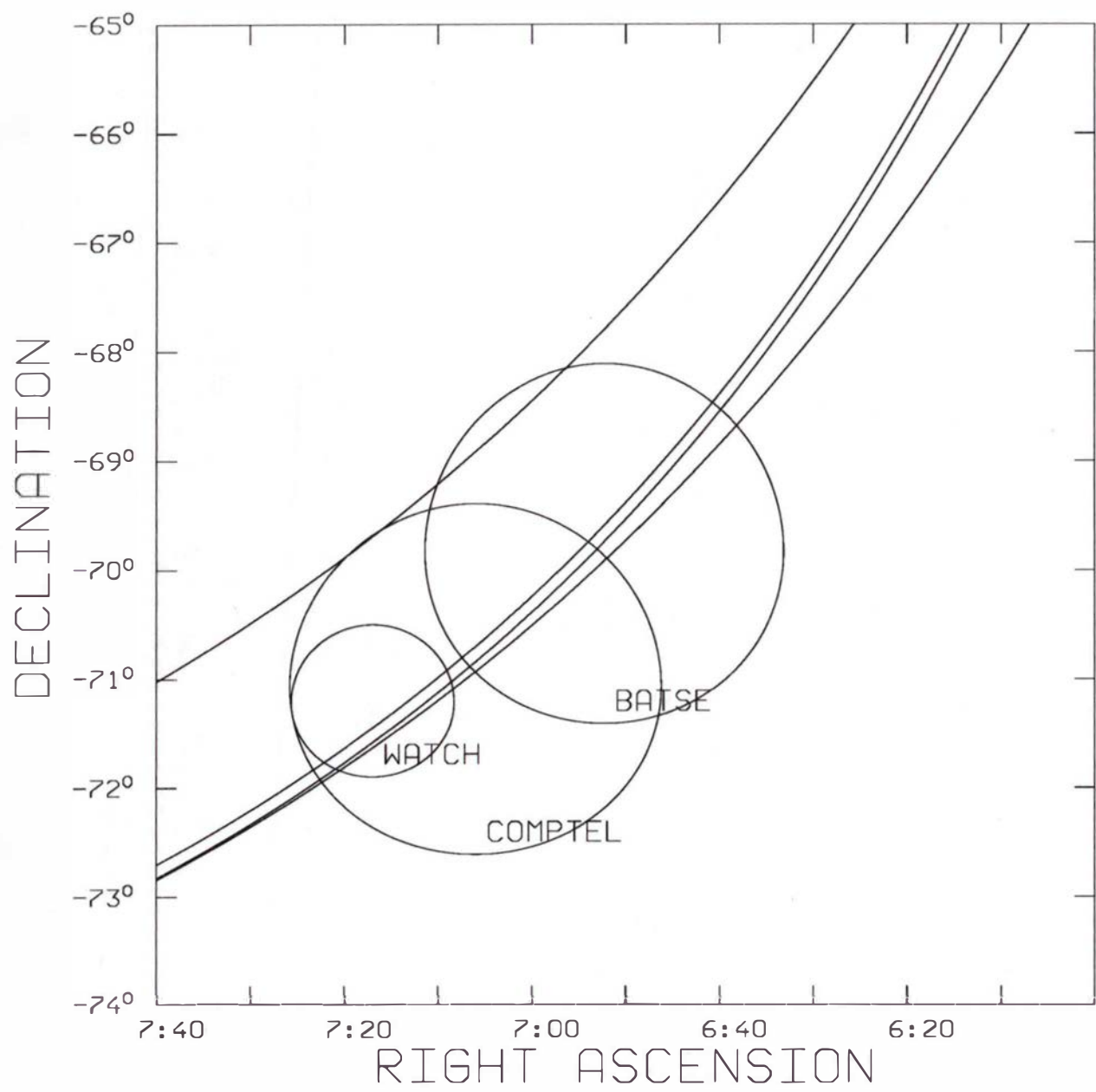
FROM: SMTP%"TERRELL@ESSDP2.LANL.GOV" (ESSDP2::TERRELL) (JAMES TERRELL 94/02/11)
TO: SMTP%"KHURLEY@SPACE6.SSL.BERKELEY.EDU" (KEVIN HURLEY)
CC:
SUBJ: DMSP OBSERVATIONS OF GRB

Kevin:

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

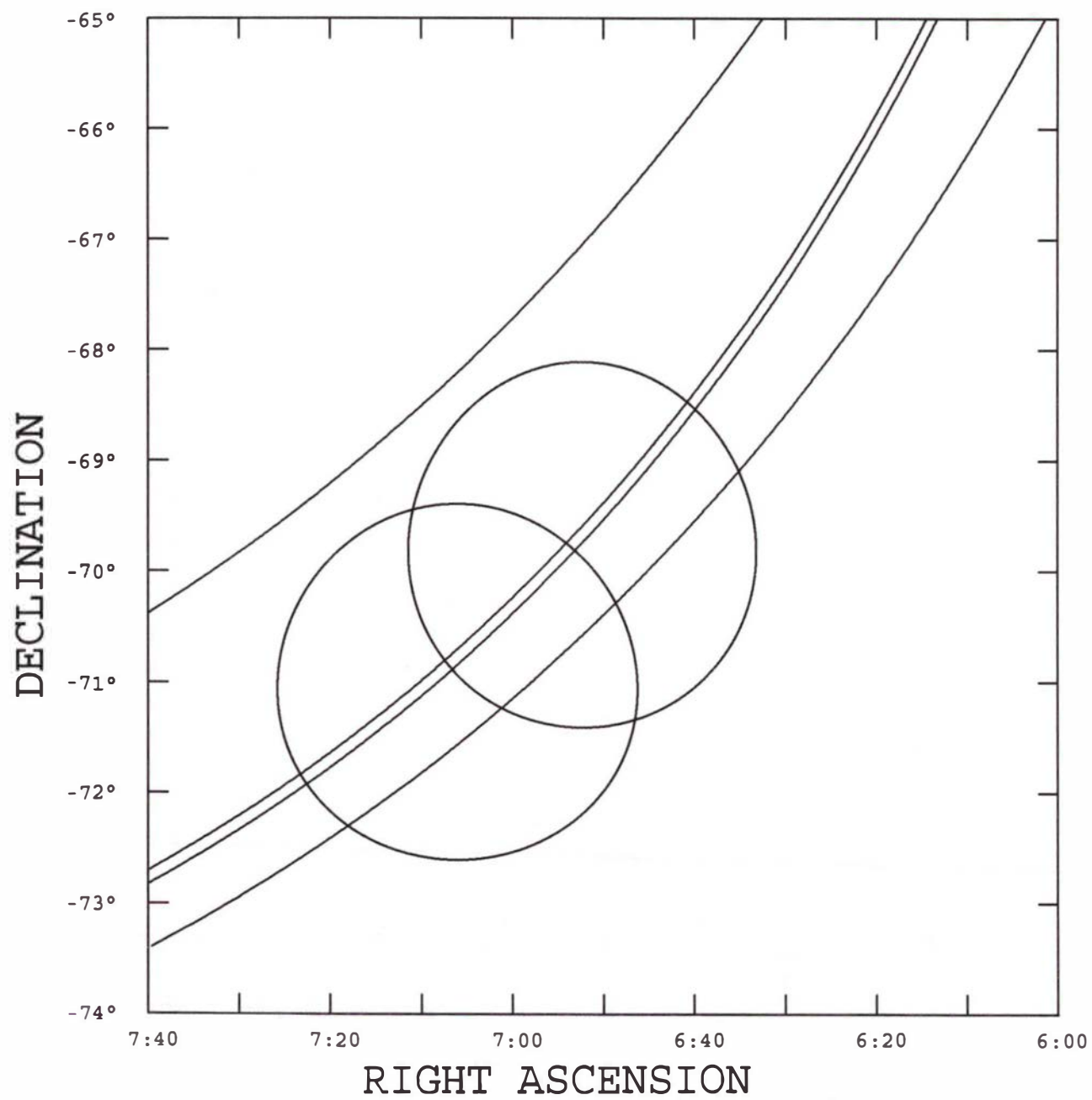
DATE	UT	COMMENTS---
920110	33478	DMSP SHOULD BE NA (NOT APPARENT), NOT NO (I.E., OMIT "NO") <i>What's the difference?</i>
920125	33247	DMSP ND (NO DATA, N/O IN YOUR NOTATION) ✓
920315	17694	ULYSSES TIME, BUT GRO DETECTED A GRB AT 15569!? <i>NO RECORD YET</i>
920414	84166	(PVO TIME) GRO DETECTED A GRB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

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

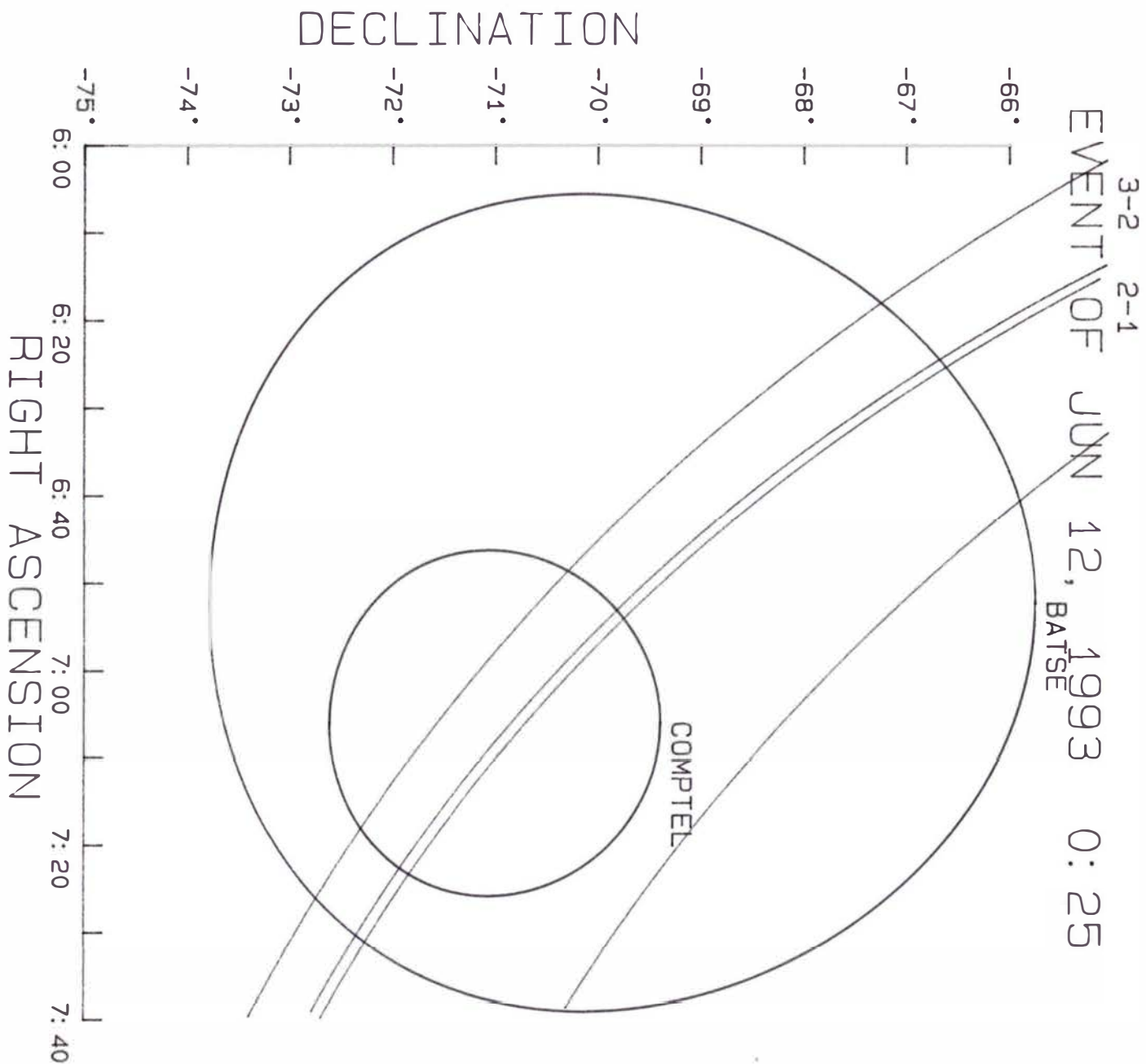


19/10/95

JUN 12, 1993 0:25



EARTH-N = EARTH AS SEEN FROM SATELLITE N
 S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
 1 ULYSSES 2 BATSE 3 MO



11/ 7/95

MO-RT

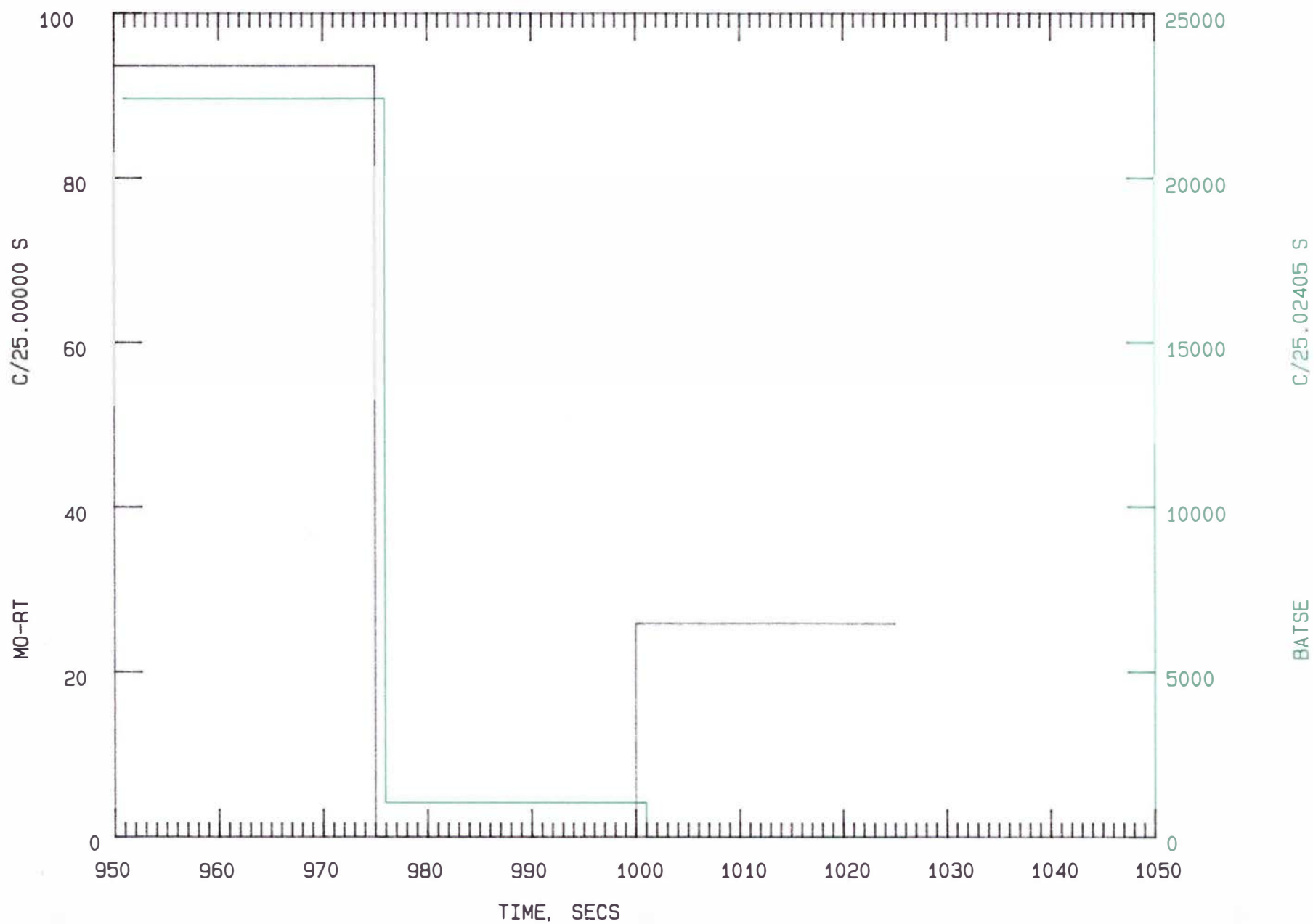
-BATSE

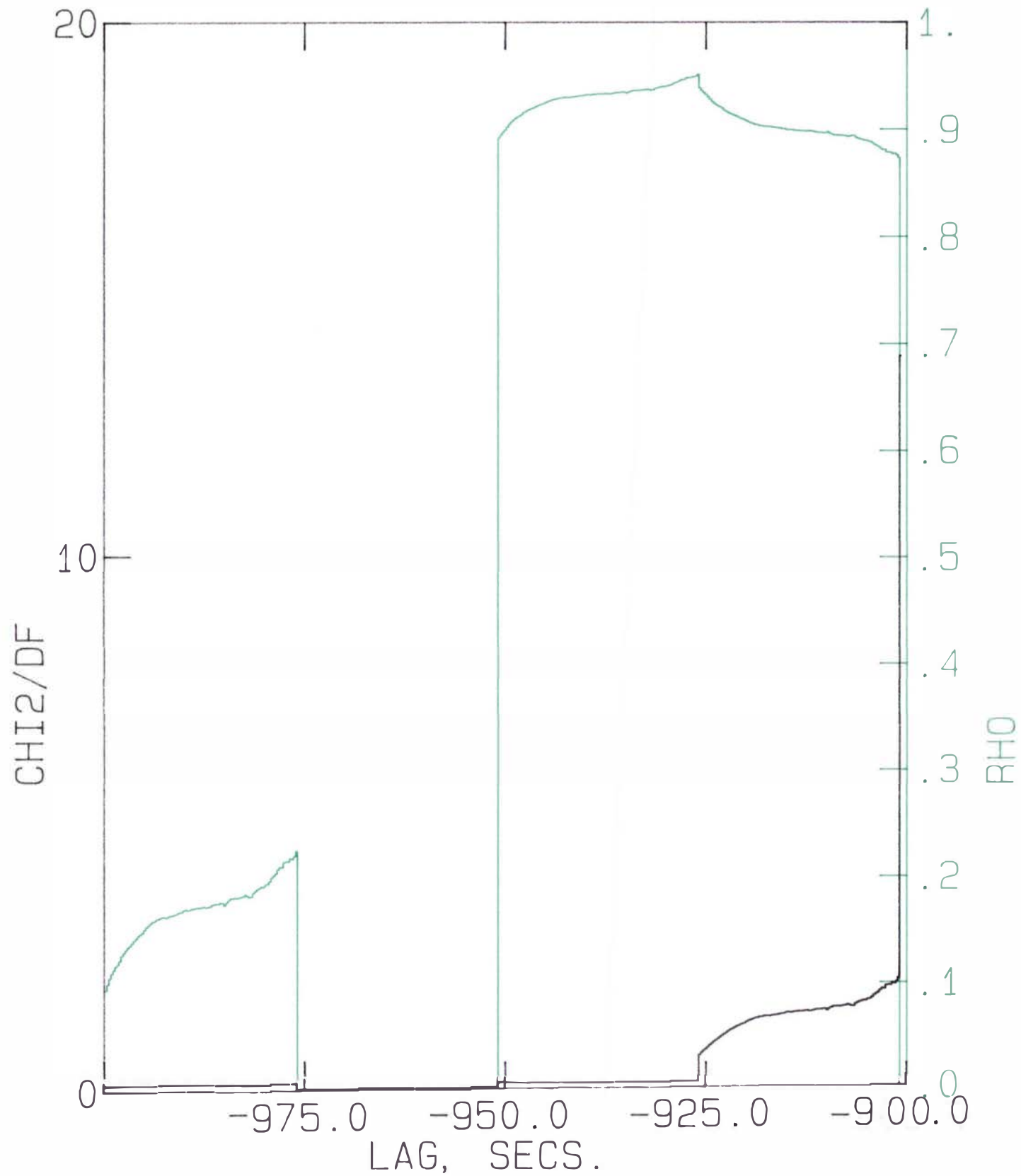
CORRELATION

12/ 6/93

1692.992

11/ 7/95





11 / 7 / 95

MO-RT

12 / 6 / 93

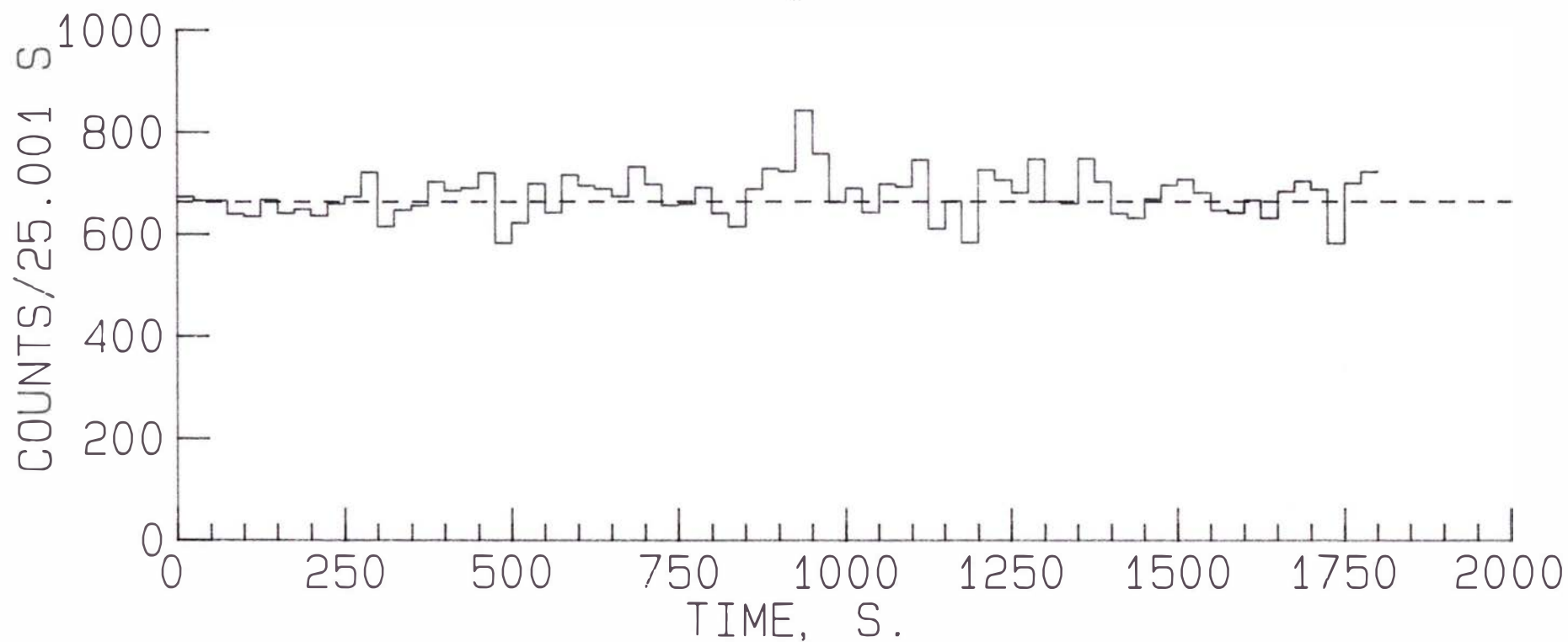
1692.992 s.

25.001 S. INTERVALS REGROUPED BY 1

110- 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS

1



11/ 7/95

MO-RT 12/ 6/93

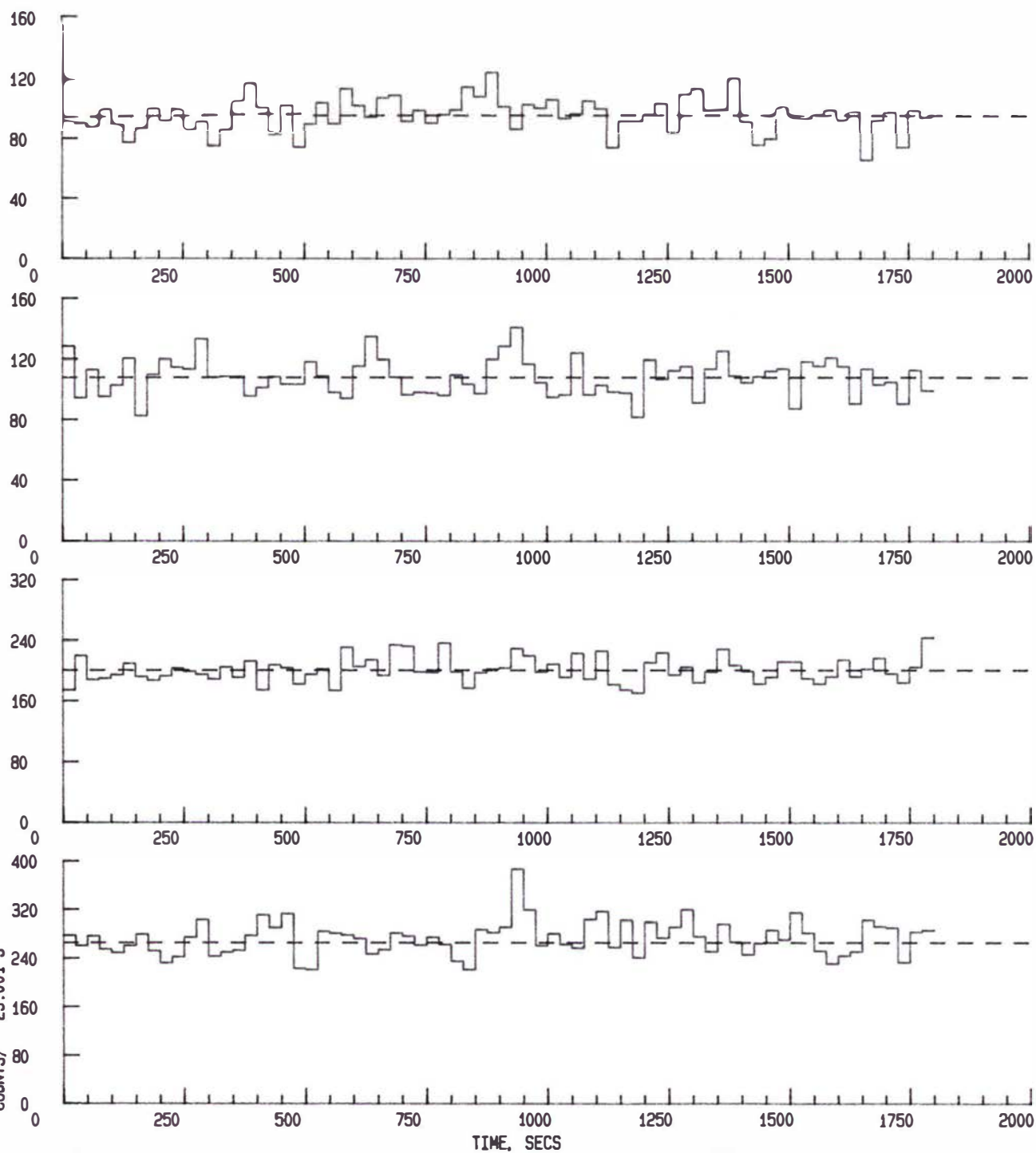
120-240 keV

COUNTS/
25.001 S

240-360 keV

360-480 keV

480-600 keV



BATSE

12/06/93

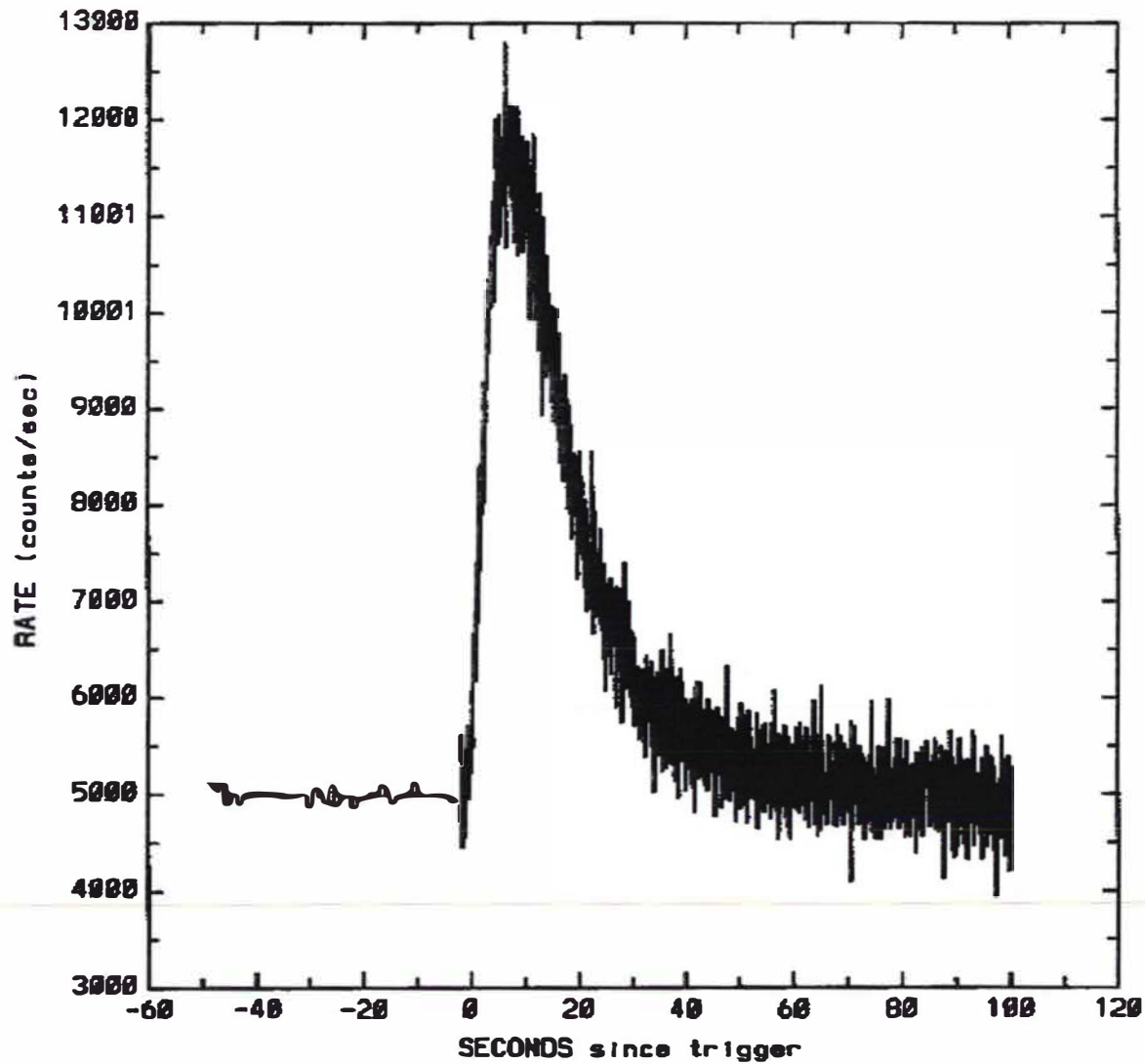
2657.666

25- 100 keV

COUNTS/ .064 S



DATA FOR K. HURLEY



3-SEP-1993 13:21:44

Created by MOPS BD
(Burst Display)
Version 2.28

Trigger # : 2387

Trigger Time:
9150 / 2657.666Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PRED + DISCLAMinimum Integ. Time:
0.964 secondsDetectors [7..8],
01000100Discriminators:
1 1. 21Quality Mask:
BDISP1

BATSEARCH PROGRAM

BATSE BURST # 2388
EVENT OF 1993 JUN 12 DAY OF YEAR=163
EVENT CROSSING TIME AT BATSE : 14276. S. OR 03:57:56.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 87.000 33.000
BATSE PEAK COUNTING RATE: 4400 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 12/ 6/ 93 IS:
RA= 143.365 DEC= -10.959 DIST= 4.870 AU
BATSE-ULYSSES DISTANCE = 728566960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=110.64 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -856.73 SECS.
CROSSING TIME AT ULYSSES IS 13419. S. OR 03:43:39 +/- 431.83 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:51:57 1993
Date: Mon, 14 Jun 1993 12:52:26 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2388	930612	9150	14276	4400	087	+33

NO

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:38:42 1993
Date: Mon, 14 Jun 1993 12:34:30 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1278

BATSE BURST TRIGGER

NO.: 02388

TIME: TJD=9150 SECONDS=14276

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=112.9 AZIMUTH=350.0 ERROR= DEGREES

COMMENTS:

BURST, COMPLEX. AFTER THE MAIN PEAK SPIKEY EMISSION FOLLOWS. LASTING
~85S.VISIBLE ABOVE 300KEV.

14 / 6 / 93

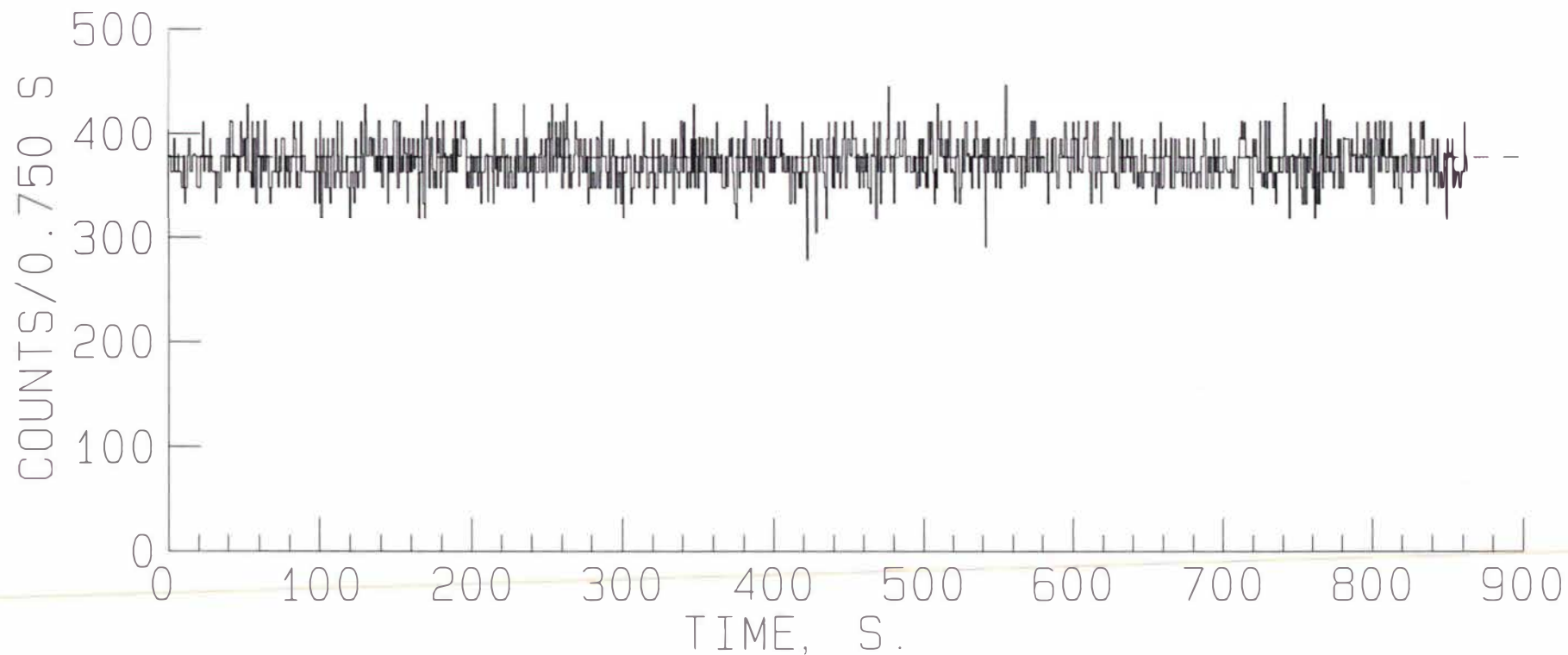
ULYSSES RT

12 / 6 / 93 12996.170 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Date: Apr 1 92

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☒ Jim Schmidling's stat file correction applied? *No helio corr applied*
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☒ Were data checked by Joe Springer for 0.5 s errors?
- ☐ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☒ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. BATSE Data

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

3. PVO Data

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

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

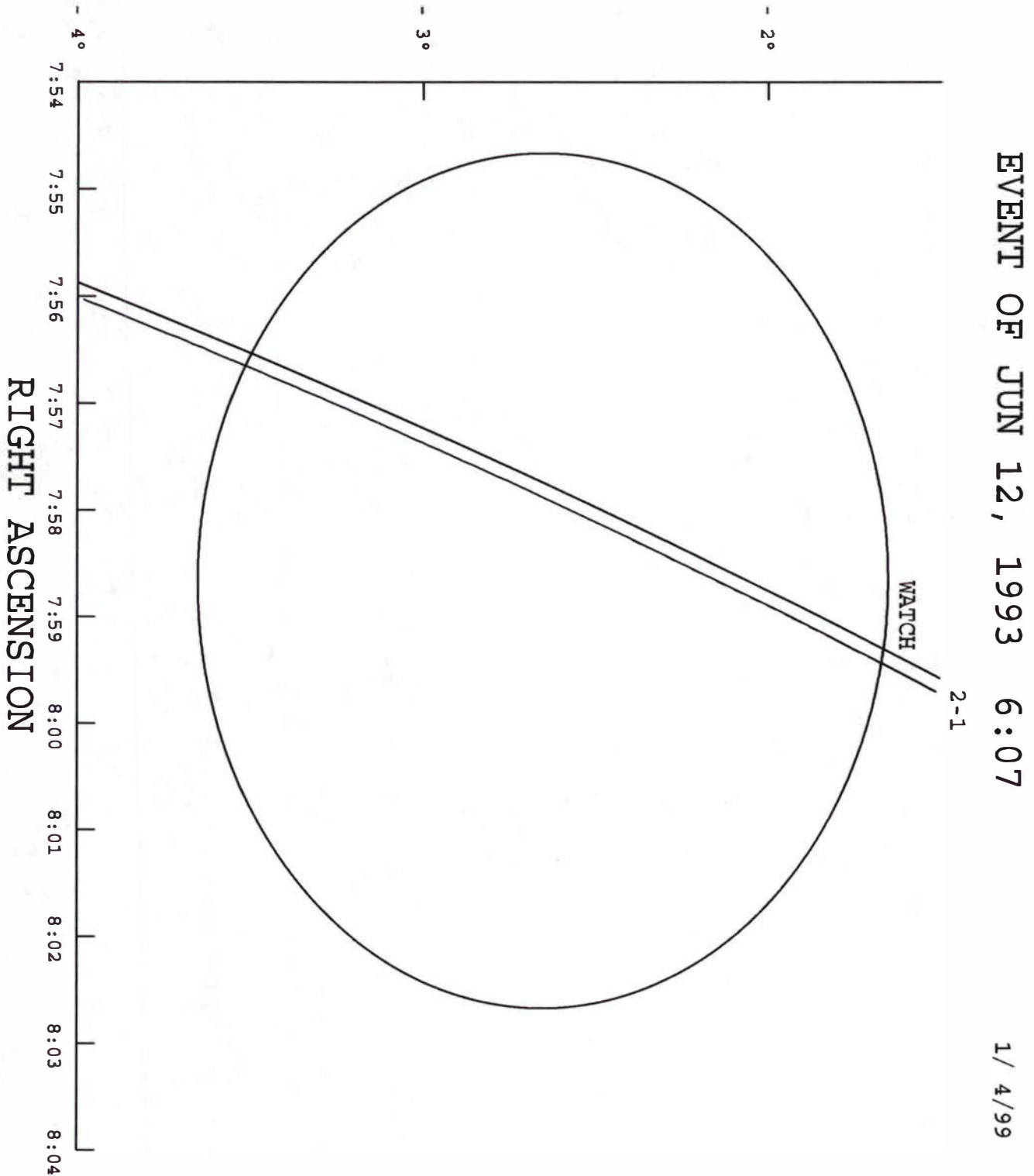
E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

2 PHEBUS

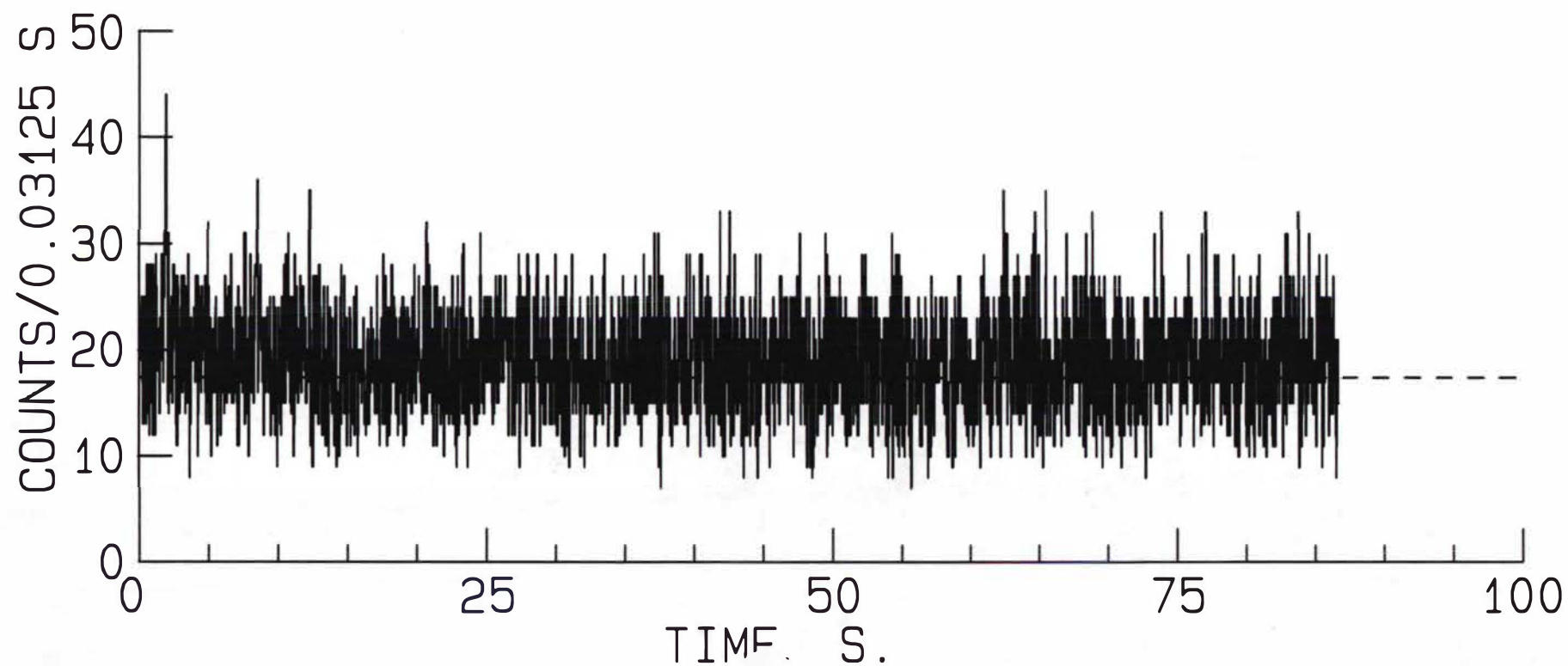
DECLINATION



PHEBUS

12/ 6/93 24299.875 s

100- 1600 keV



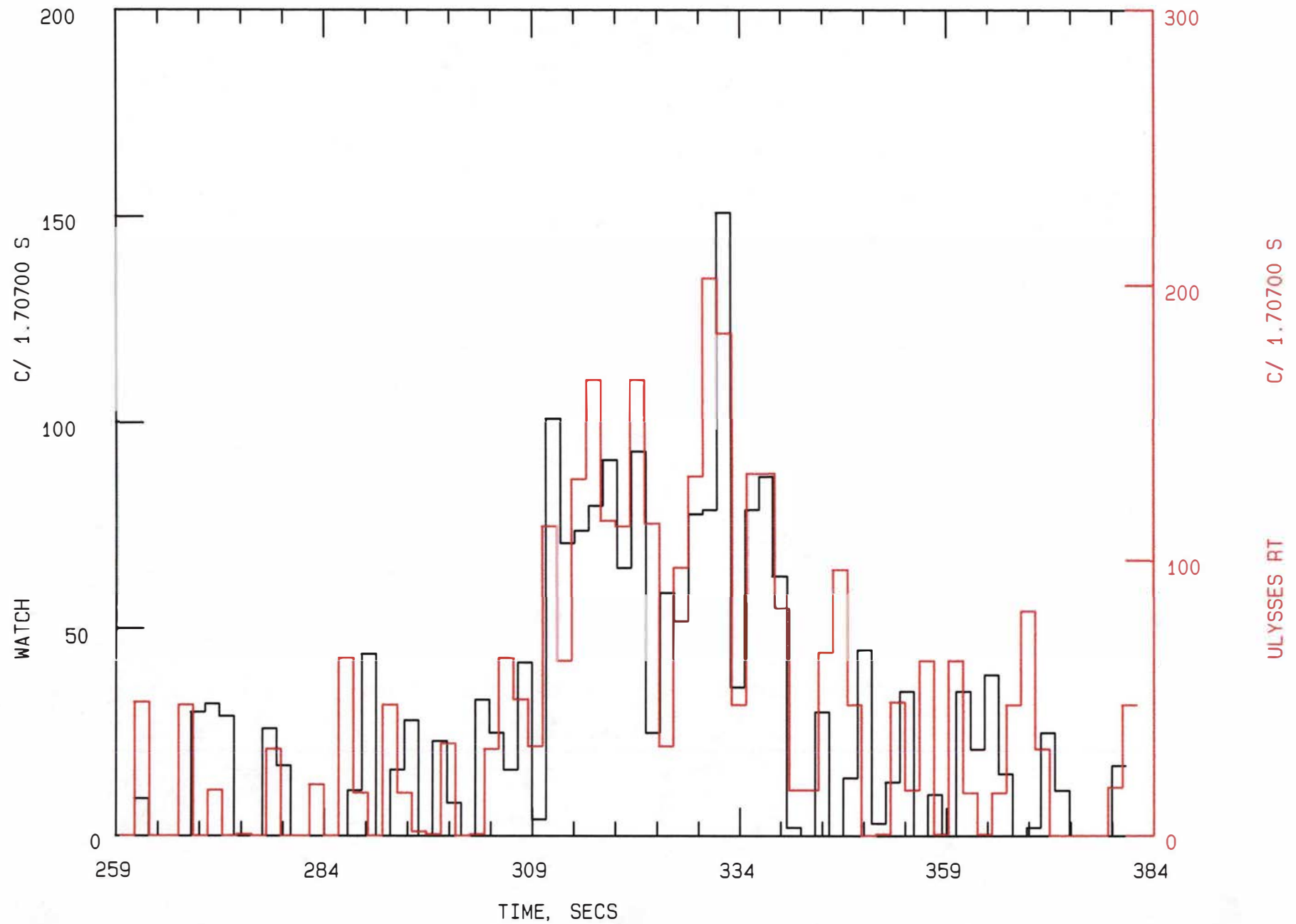
WATCH

-ULYSSES RT CORRELATION

12/06/93

23971.300

1/ 4/99

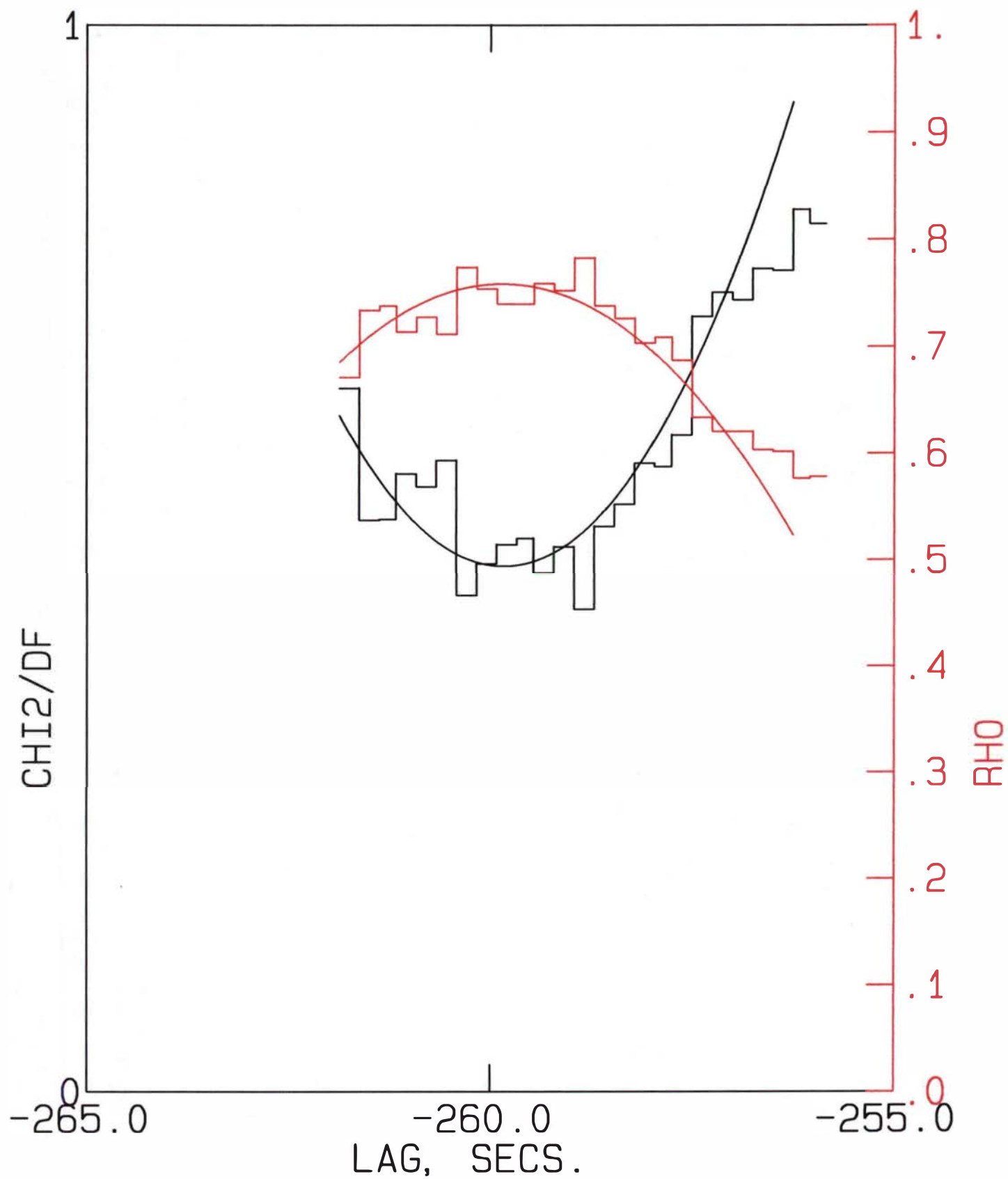


WATCH

-ULYSSES RT CORRELATION

12/06/93

23971.300



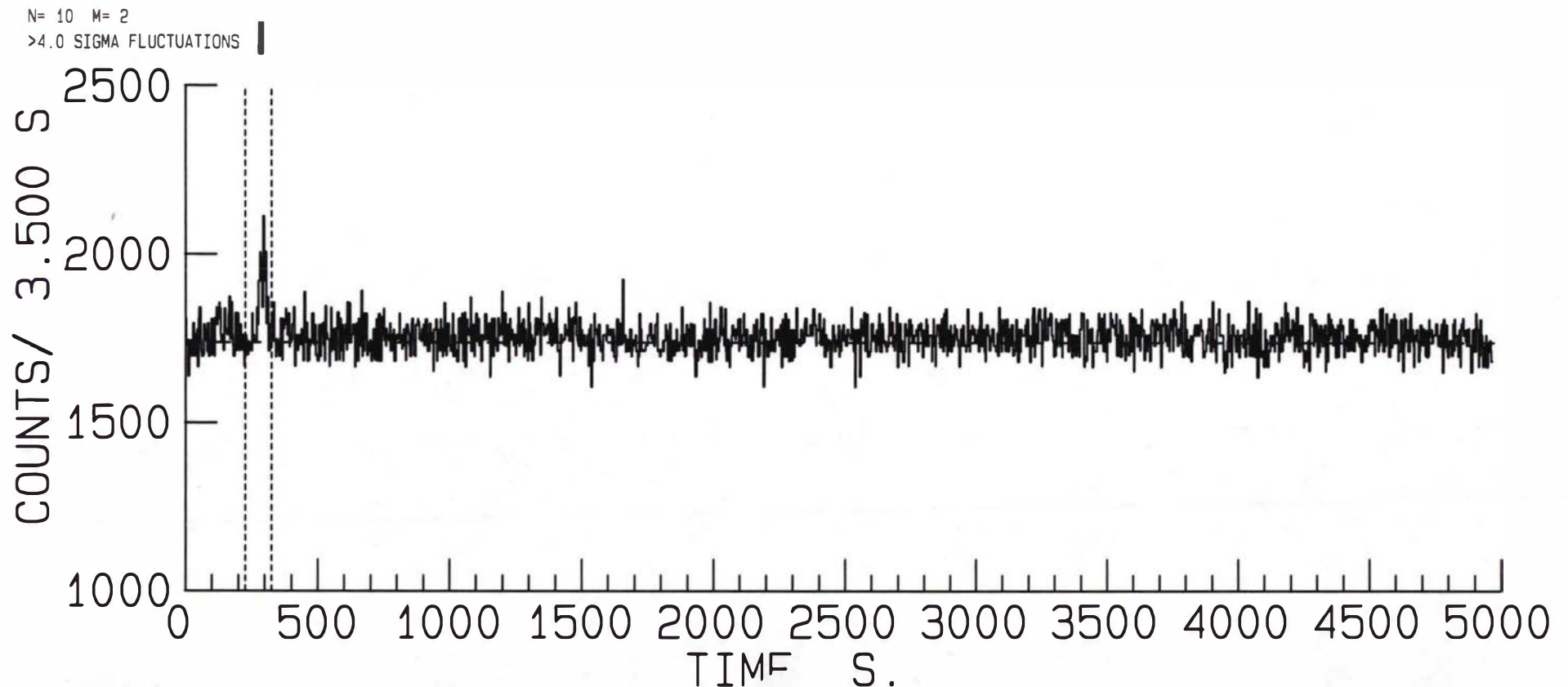
ULYSSES RT

1 / 4 / 99

12 / 6 / 93 21816.054 s

0.250 S INTERVALS REGROUPED BY 14

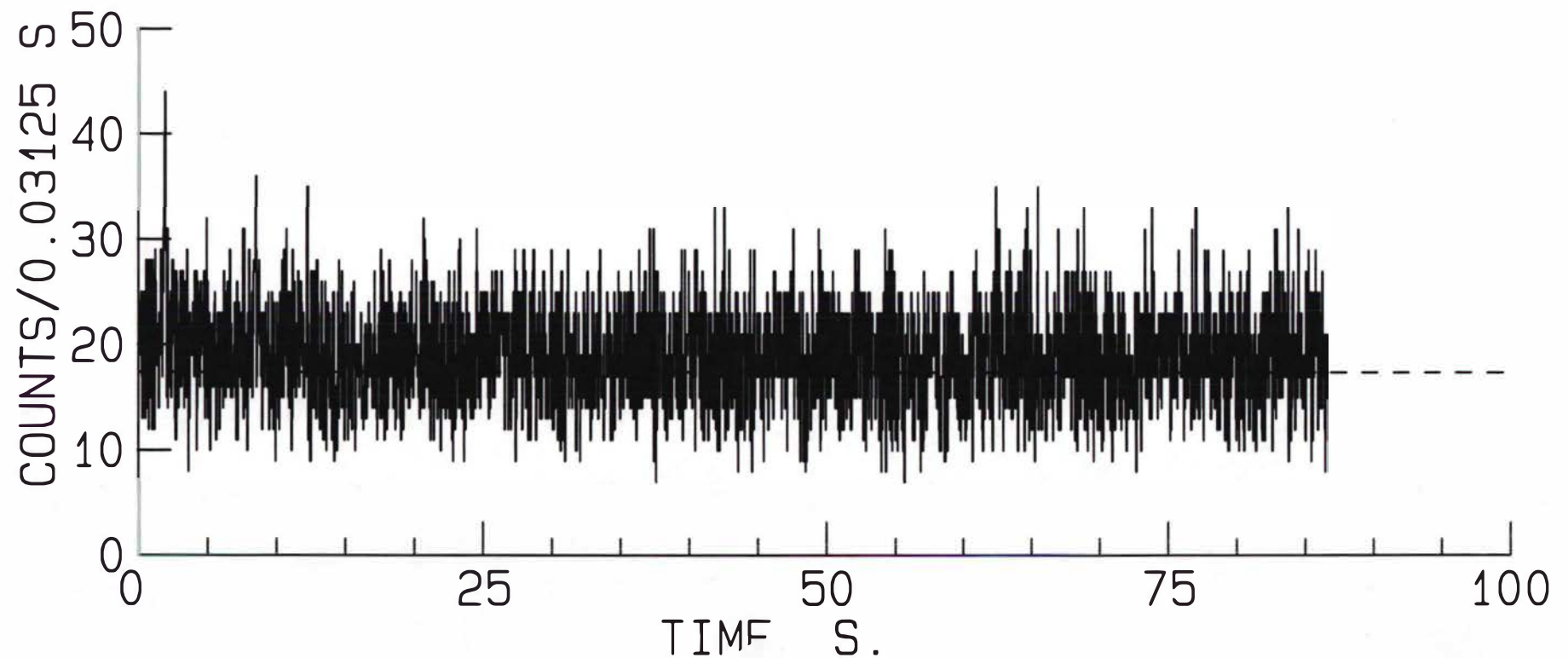
21- 145 keV



PHEBUS

12/ 6/93 24299.875 s

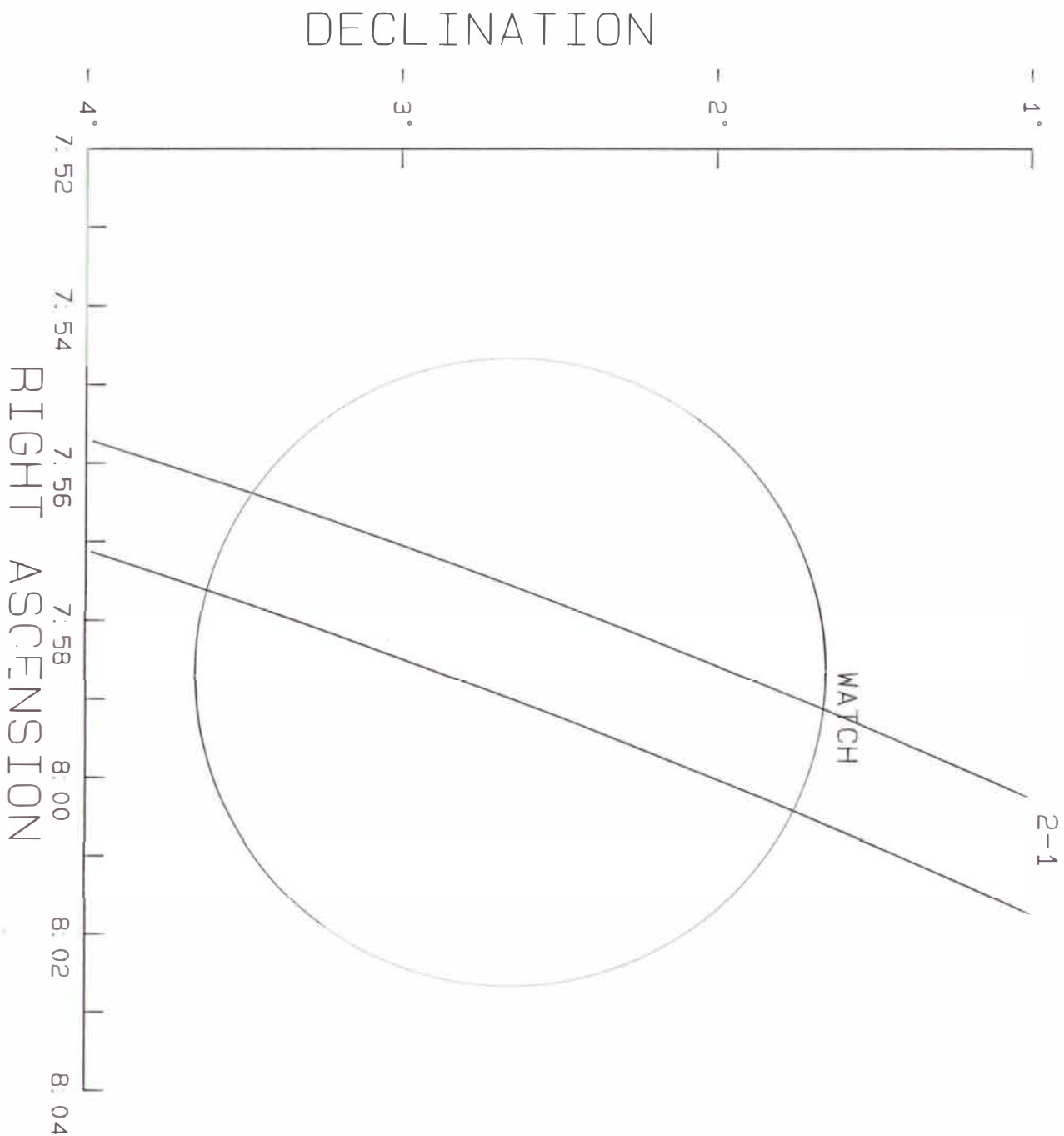
100- 1600 keV



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

EVENT OF JUN 12, 1993 6:06

30/10/93



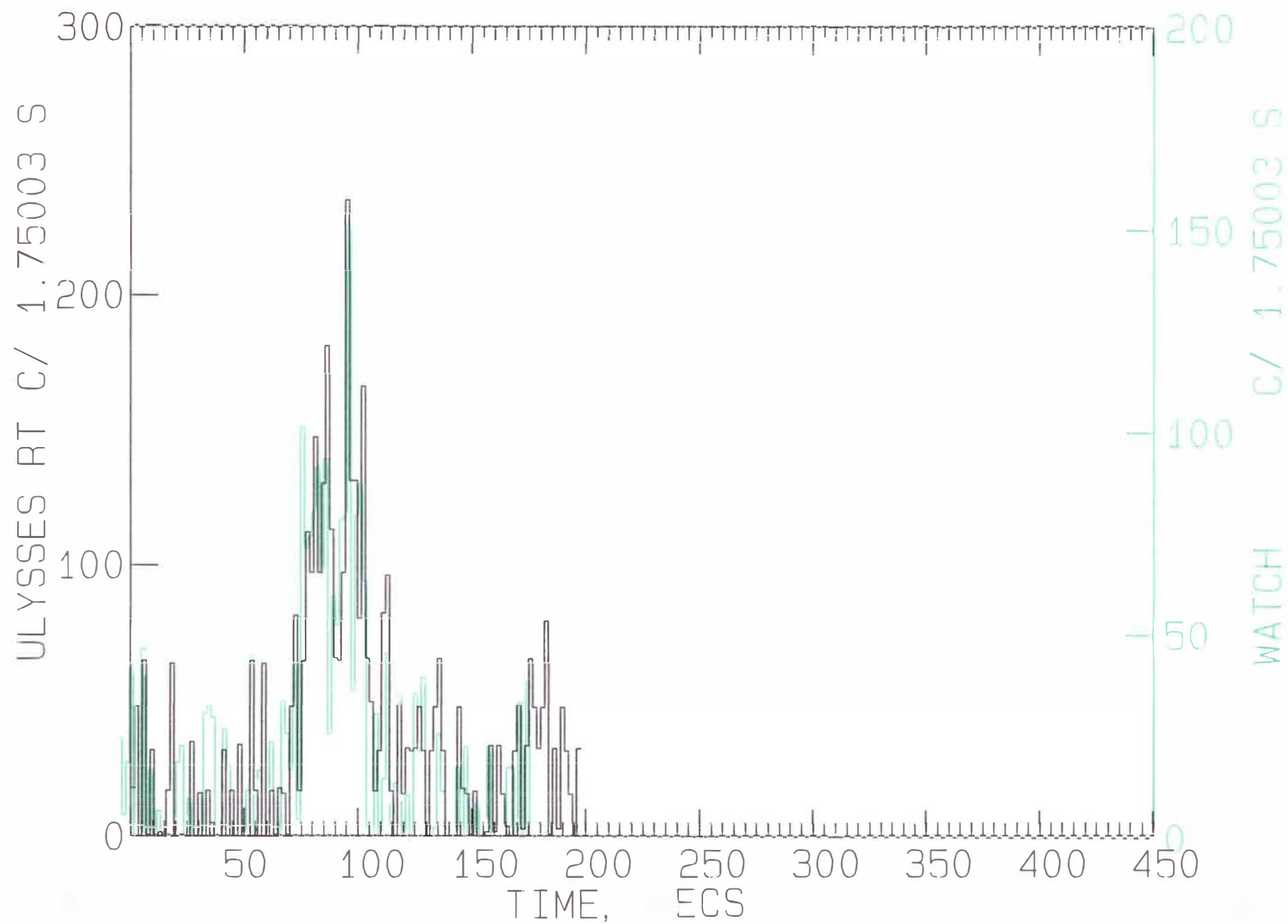
ULYSSES RT-WATCH

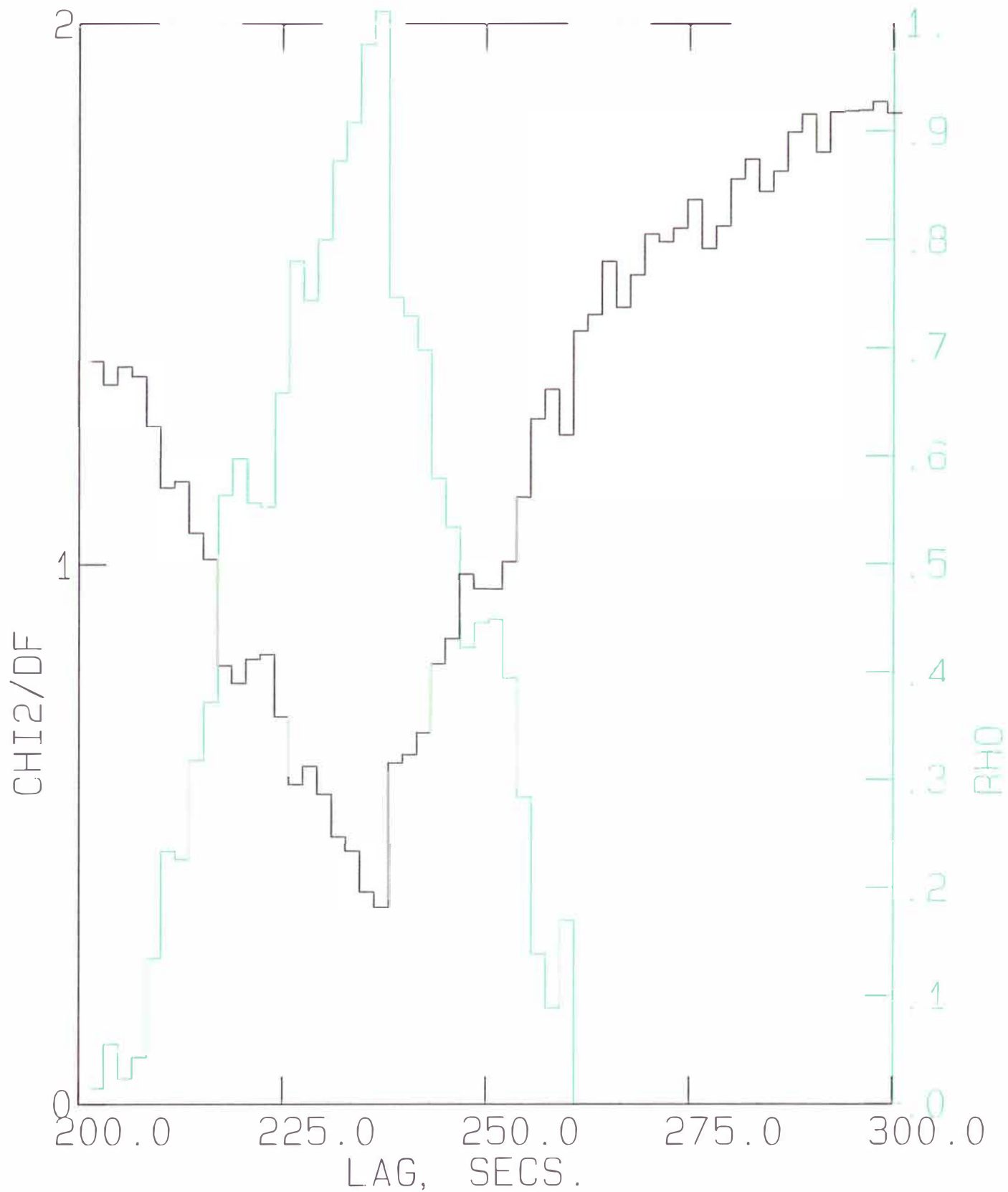
CORRELATION

12/ 6/93

22016.059

30/10/93





ORIGINAL AND ADJUSTED WATCH

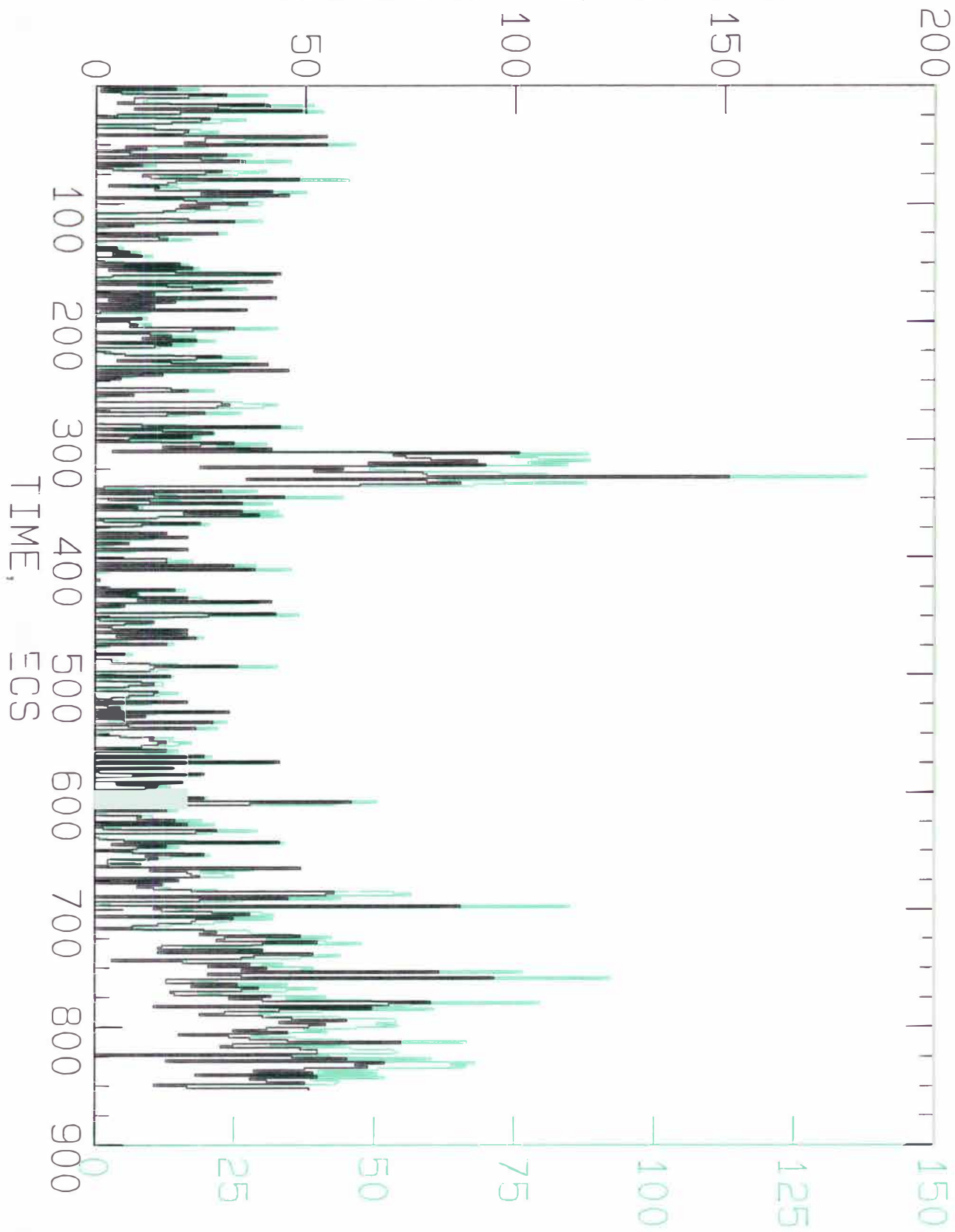
TIME HISTORIES

12/06/93

23971.300

30/10/93

ORIGINAL C/ 1.70700 S



ADJUSTED C/ 1.75003 S

watch.dat

From root Thu Oct 28 08:10 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA20433; Thu, 28 Oct 93 08:10:34
Received: from danpost.uni-c.dk by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA09256; Thu, 28 Oct 93 08:14:54 PDT
Received: from uhuru.dsri.dk (uhuru.dsri.dk [129.142.171.2]) by danpost.uni-c.dk (8.6.2/8.6) v
Received: by uhuru.dsri.dk (4.1/SMI-4.1)
id AA00850; Thu, 28 Oct 93 16:12:34 +0100
Date: Thu, 28 Oct 93 16:12:34 +0100
From: Soeren Brandt <sb@dsri.dk>
Message-Id: <9310281512.AA00850@uhuru.dsri.dk>
To: khurley@sunspot.ssl.berkeley.edu
Subject: GRBs
Status: R

Hello Kevin,

Thanks for the timing circle of GRB 920814. It is sad that
our pair hypothesis has to go, but it shows the importance of
getting small error boxes to avoid chasing correlation which
are not there.

I send the WATCH-EURECA data for GRB 920918. The position is
alfa (J2000) = 16h23m30s, delta (J2000) = -04d18m.

I have also found a burst on 12 June 1993 at
alfa (J2000) = 07h58m40s, delta (J2000) = -02d39m.
Those data are also included.

Soren

119.667

-2.65

WATCH-EURECA data for GRB 920918
alfa (J2000) = 16h23m30s
delta (J2000) = -04d18m

number of bins	256								
start of first bin	34608.50	09:36:48.50							
end of last bin	35069.74	09:44:29.74							
duration per bin	1.802 sec								
399	395	429	406	398	401	432	421	414	407
403	418	428	420	450	426	423	421	410	434
429	432	419	423	411	390	416	395	426	416
432	359	405	416	396	451	411	440	402	414
431	413	400	415	421	400	440	412	404	413
407	470	414	421	425	427	414	429	391	432
401	406	431	444	396	429	435	424	416	444
401	436	423	417	421	441	410	395	449	431
393	437	390	390	425	424	406	449	419	416
406	403	470	378	383	417	415	406	444	425
400	428	455	430	422	424	419	451	438	410
444	421	440	448	420	411	424	418	412	387
437	429	436	428	437	434	413	441	443	425
445	440	438	437	482	458	459	476	476	419
451	457	477	471	427	446	419	461	482	518
543	481	522	506	522	512	540	422	446	470
442	444	448	527	472	507	479	419	449	481
463	456	452	468	450	444	460	391	426	434
403	481	420	429	438	484	462	419	447	418
432	429	446	436	455	464	461	407	429	443
436	425	398	457	442	452	447	461	429	431
418	398	443	480	445	419	455	429	448	452
435	412	445	439	433	427	464	441	426	418
439	419	467	443	497	452	428	434	448	453
433	449	442	404	445	445	431	460	434	462
429	451	463	492	440	430				

WATCH-EURECA data for GRB 930612

alfa (J2000) = 07h58m40s

delta (J2000) = -02d39m

```
number of bins      512
start of first bin  23971.30    06:39:31.30
end of last bin     24845.25    06:54:05.25
duration per bin    1.707 sec
```

401	419	401	406	431	422	409	409	405	441
429	409	449	420	405	387	427	425	418	387
385	414	422	421	392	455	426	426	421	455
407	412	374	408	431	397	425	435	400	411
398	404	430	426	411	413	449	419	417	403
415	414	442	425	446	397	421	424	436	420
427	419	416	397	376	376	422	433	378	409
389	382	394	429	375	415	417	393	390	396
405	380	408	404	411	364	395	402	420	386
423	403	419	444	404	371	399	442	392	41
423	430	390	414	389	443	403	419	350	414
392	436	401	395	355	411	388	408	410	408
433	423	380	413	418	411	424	396	418	414
394	375	402	407	430	424	405	418	441	369
374	446	394	416	399	406	374	371	370	383
418	422	396	409	377	395	388	430	432	429
380	395	426	417	393	384	398	381	411	444
394	416	428	384	423	408	371	433	425	416
442	404	501	471	474	480	491	465	493	425
459	452	478	479	551	436	479	487	463	402
391	430	398	414	445	403	413	435	393	410
393	435	421	439	415	385	402	425	411	370
381	369	417	369	422	396	377	408	393	391
422	392	389	369	394	417	417	372	433	399
438	363	388	395	361	401	397	374	377	385
419	377	410	382	422	410	442	391	407	393
375	400	443	427	397	401	414	407	369	404
422	376	422	405	424	381	395	417	392	380
369	397	407	399	382	404	404	413	434	414
413	398	396	418	393	383	411	414	408	398
378	415	414	408	404	387	422	386	403	406
393	432	381	412	394	407	428	378	408	424
387	395	387	406	414	413	417	415	411	387
417	393	379	426	392	387	444	396	375	419
390	401	426	409	395	385	421	405	415	412
397	391	401	405	426	413	461	437	377	385
417	398	392	411	410	419	391	422	387	402
429	424	399	381	401	407	444	404	417	410
400	409	426	412	415	403	403	411	377	449
413	422	423	425	368	420	377	416	410	414
423	457	455	393	446	425	394	397	487	414
416	428	437	391	433	424	423	415	409	400
426	429	425	449	431	429	453	440	416	415
440	415	452	438	435	404	421	437	427	441
435	482	427	435	495	417	417	434	423	439
435	418	419	442	432	440	480	470	414	466
444	431	425	440	447	460	444	455	451	441
433	446	420	432	437	446	473	433	430	449
453	453	388	447	460	417	469	462		

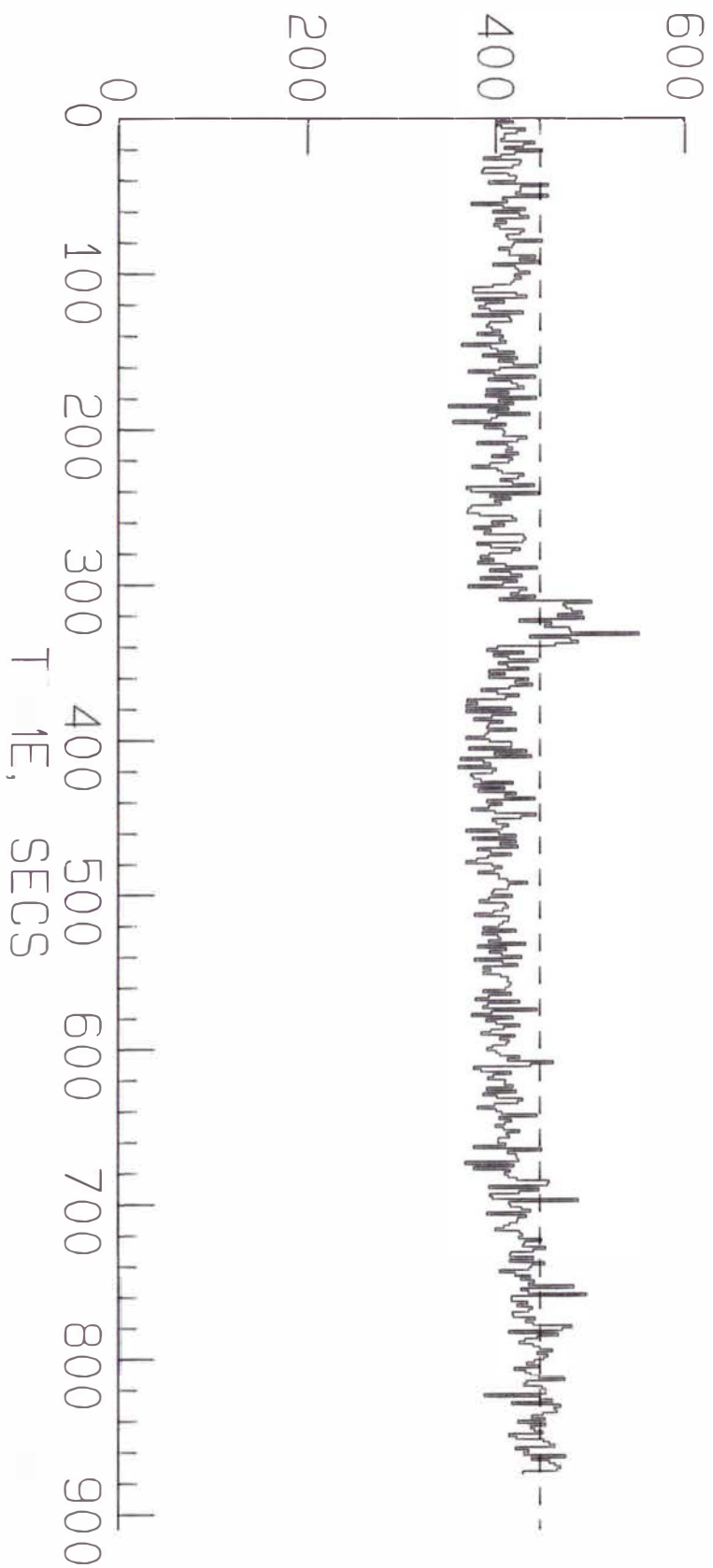
WATCH

12/06/93

23971.300

15- 150 keV

COUNTS/1.707 S



28/10/93

BATSEARCH PROGRAM

BATSE BURST # 2389
EVENT OF 1993 JUN 12 DAY OF YEAR=163
EVENT CROSSING TIME AT BATSE : 32037. S. OR 08:53:57.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 349.000 -4.000
BATSE PEAK COUNTING RATE: 12000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 12/ 6/ 93 IS:
RA= 143.365 DEC= -10.959 DIST= 4.870 AU
BATSE-ULYSSES DISTANCE = 728566960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 29.57 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2113.61 SECS.
CROSSING TIME AT ULYSSES IS 34151. S. OR 09:29:10 +/- 290.34 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:53:30 1993
Date: Mon, 14 Jun 1993 12:54:05 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2389	930612	9150	32037	12000	349	-04

RT

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:40:13 1993
Date: Mon, 14 Jun 1993 12:40:36 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02389

TIME: TJD=9150 SECONDS=32037

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=071.9 AZIMUTH=082.5 ERROR= DEGREES

COMMENTS:

BURST, SINGLE PEAK WITH SUBSTRUCTURE, LASTING ~100S. RISE FASTER THAN FALL. VISI
BLE ABOVE 300KEV.

Helio corr removed

Date: Jan 3 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

*Re-run to get 1/3 aberration-corrected
annulus + counts ratio. But Δt
changed by 3 s. Possibly old CORREL
program was run for insufficiently regrouped
data*

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

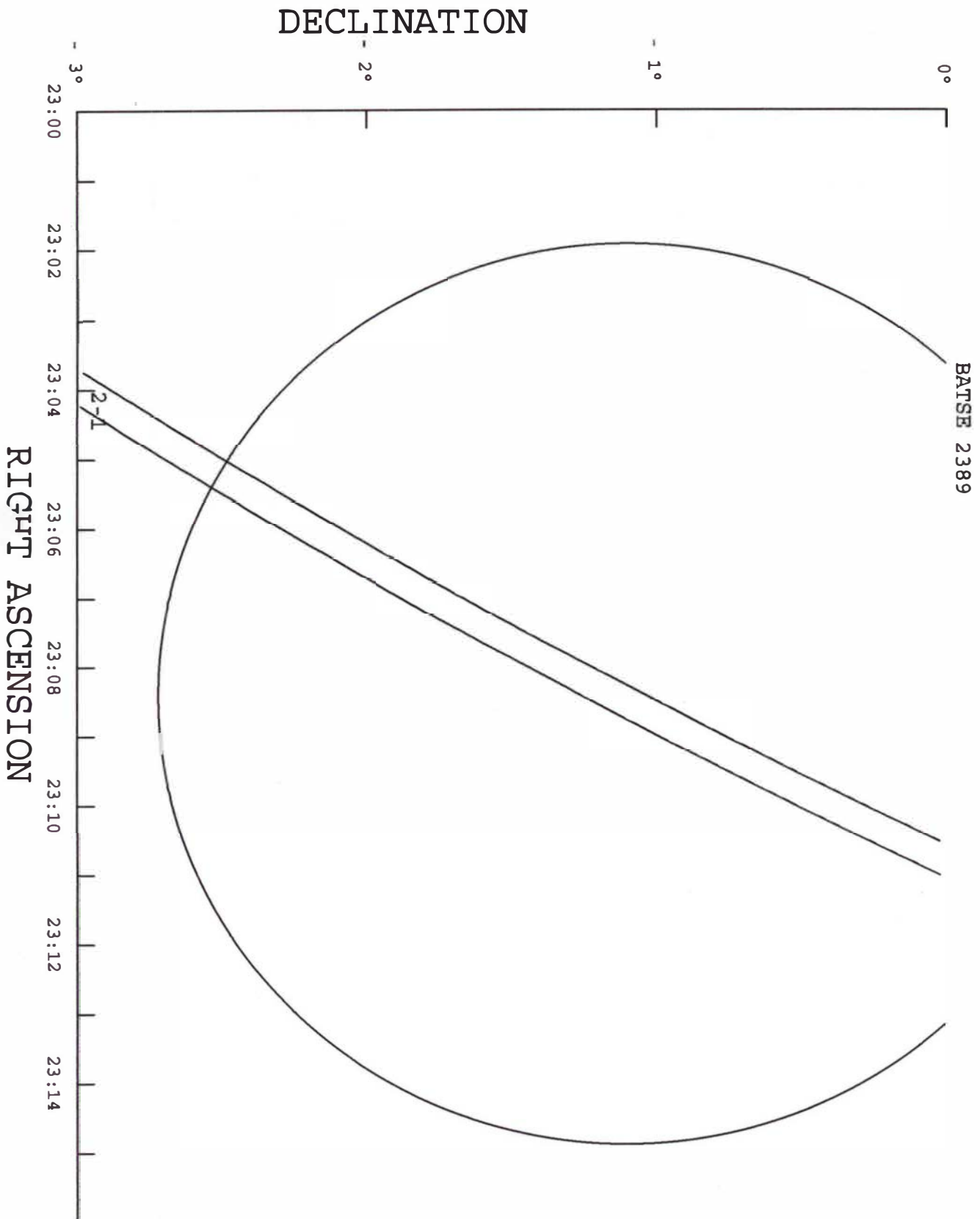
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF JUN 12, 1993 9:29

3 / 1/98



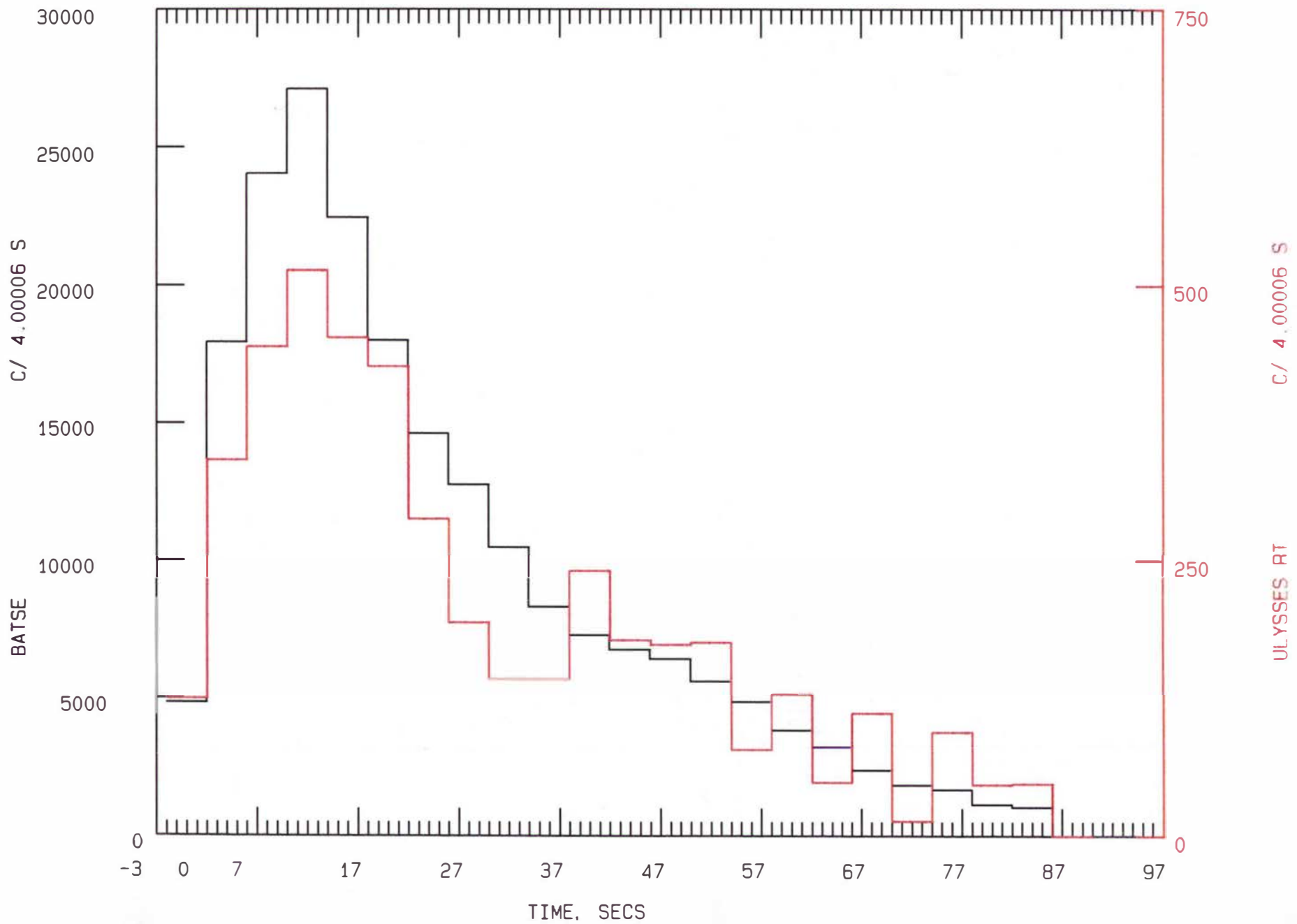
BATSE

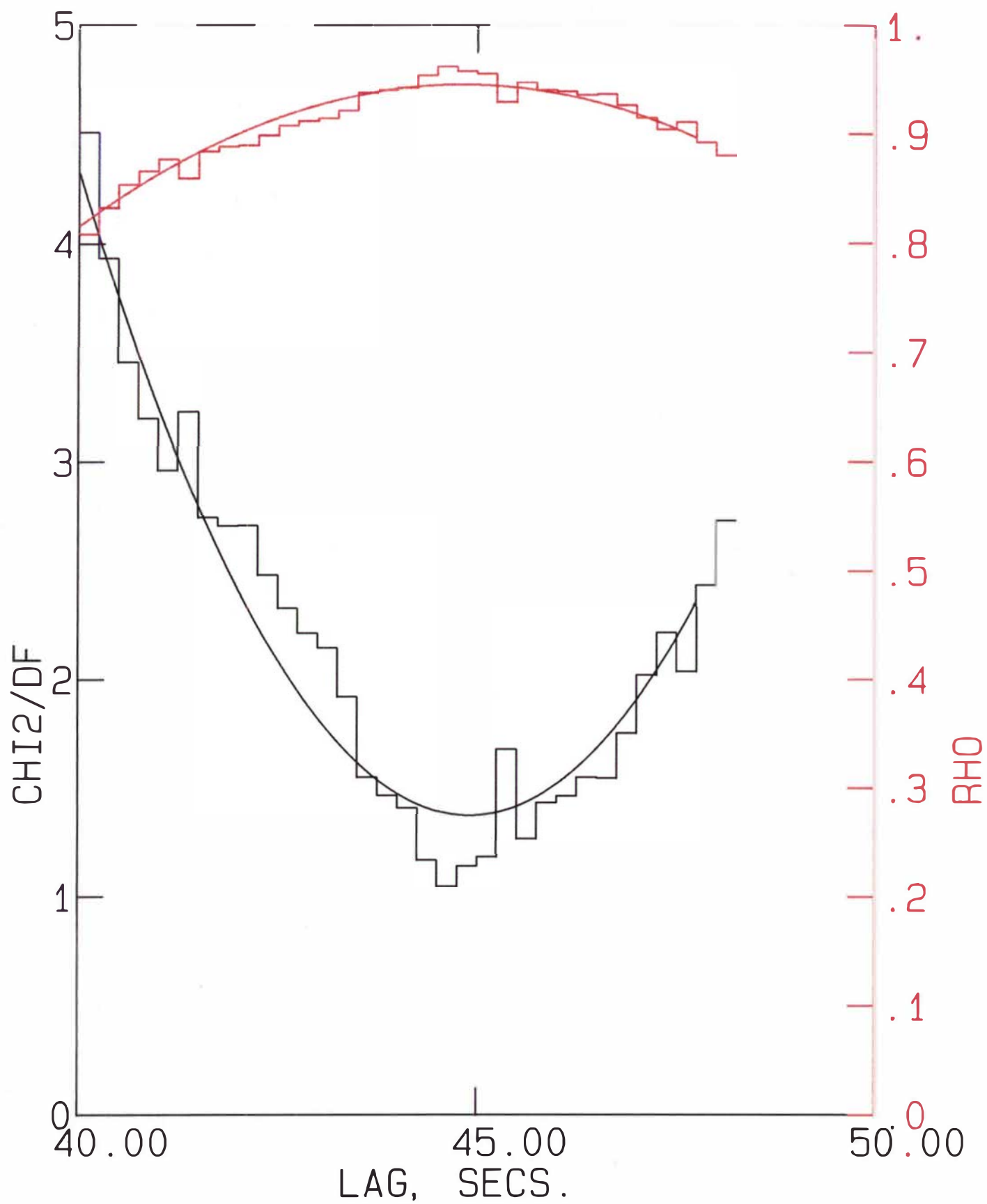
-ULYSSES RT CORRELATION

12/ 6/93

32037.890

3/ 1/98





ULYSSES RT

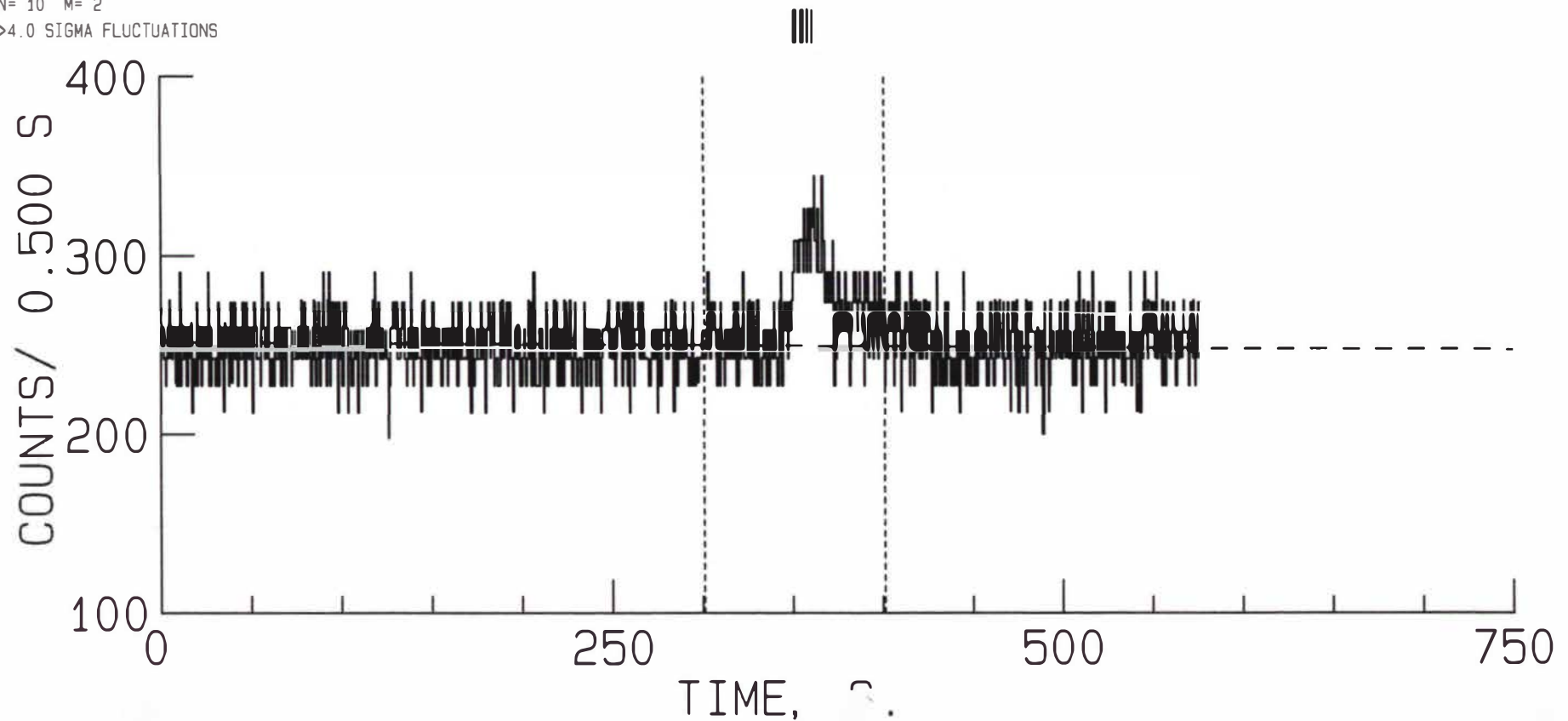
3 / 1 / 98

12 / 6 / 93 33876.241 s

0.250 S INTERVALS REGROUPED BY 2

21- 145 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From springer@pop.jpl.nasa.gov Tue Nov 19 09:43 PST 1996
Return-Path: <springer@pop.jpl.nasa.gov>
Received: from pop.jpl.nasa.gov by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA13354; Tue, 19 Nov 1996 09:43:20 -0800
Received: from billevans (billevans.jpl.nasa.gov [137.78.252.52]) by pop.jpl.nasa.gov (8.7.5/8.7)
Message-Id: <3.0.32.19961119094312.00942100@pop.jpl.nasa.gov>
X-Sender: springer@pop.jpl.nasa.gov
X-Mailer: Windows Eudora Pro Version 3.0 (32)
Date: Tue, 19 Nov 1996 09:43:13 -0800
To: khurley@sunspot.ssl.berkeley.edu
From: Joe Springer <springer@pop.jpl.nasa.gov>
Subject: validation of 1993 data points
Mime-Version: 1.0
X-Lines: 26
Status: RO

Kevin,

As requested Thursday, I have checked the following
eleven data points and found no timing errors. Specifically,
we checked as follows:

Type	Date	Sec/Day	Validation Results:
ULYSSES	1/20/93	85352.726	no errors - 10 before to 60 after
ULYSSES RT	1/27/93	59477.129	no errors - 10 before to 10 after
ULYSSES RT	6/12/93	1558.242	no errors - 10 before to 10 after
YSES RT	6/12/93	34201.245	no errors - 10 before to 10 after
YSES RT	7/4/93	60210.297	no errors - 10 before to 10 after
ULYSSES	7/6/93	20282.957	no errors - 10 before to 60 after
ULYSSES RT	7/20/93	54122.35	no errors - 10 before to 10 after
ULYSSES RT	7/24/93	60281.23	no errors - 10 before to 10 after
ULYSSES RT	7/31/93	10688.221	no errors - 10 before to 10 after
ULYSSES RT	7/31/93	22050.147	no errors - 10 before to 10 after
ULYSSES RT	8/1/93	9752.522	no errors - 10 before to 10 after

Regards,

Joe
Kevin,

Roger suggested that the appropriate data to examine
for a trigger was ten minutes before and 60 minutes
after the event time, while ten minutes before and after
the other times was sufficient.

Joe

At 12:58 PM 11/19/96 -0800, you wrote:

>Dear Joe,

>

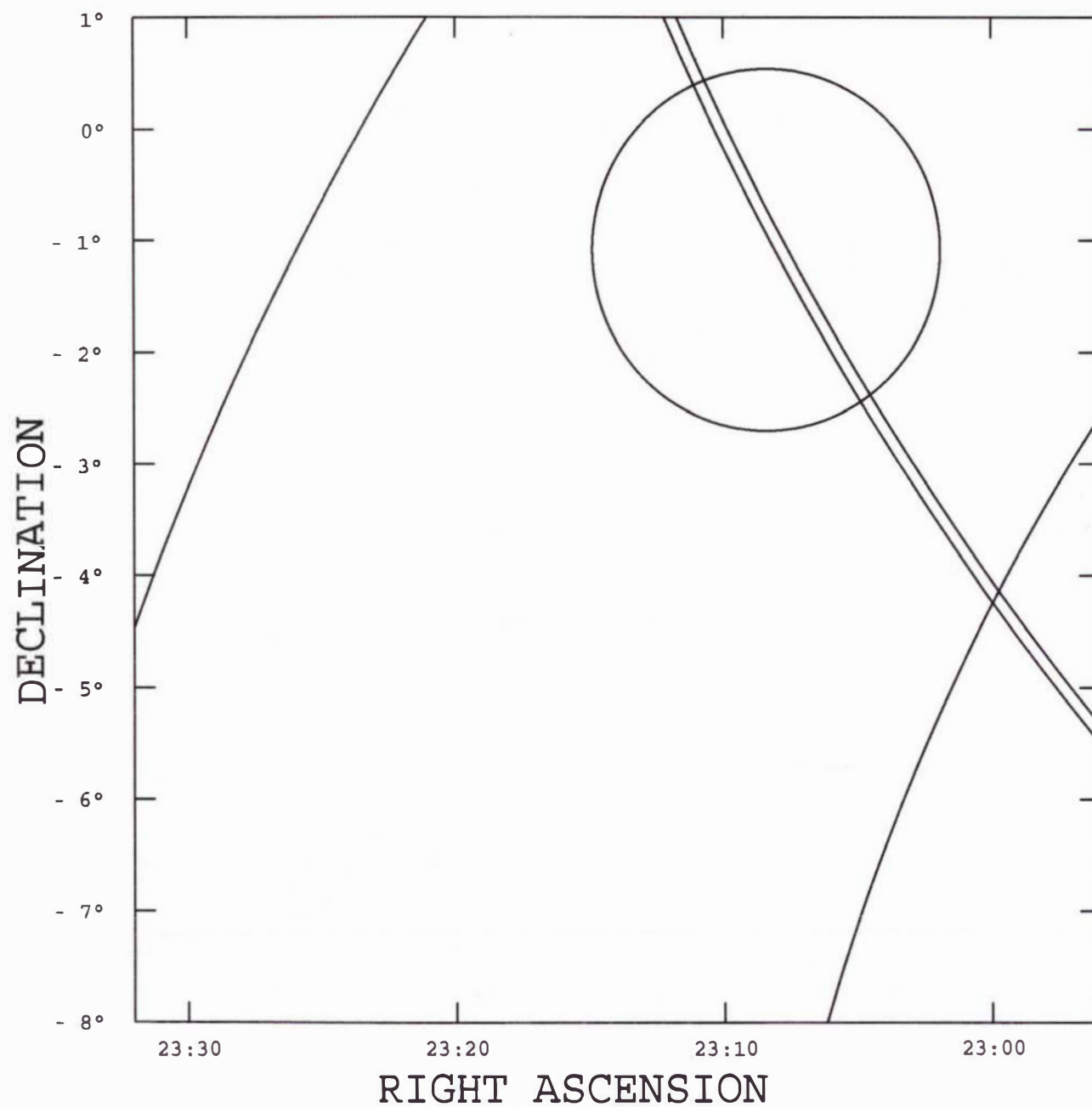
>Thanks. Can you tell me what units 10 and 60 are? Minutes? Headers?

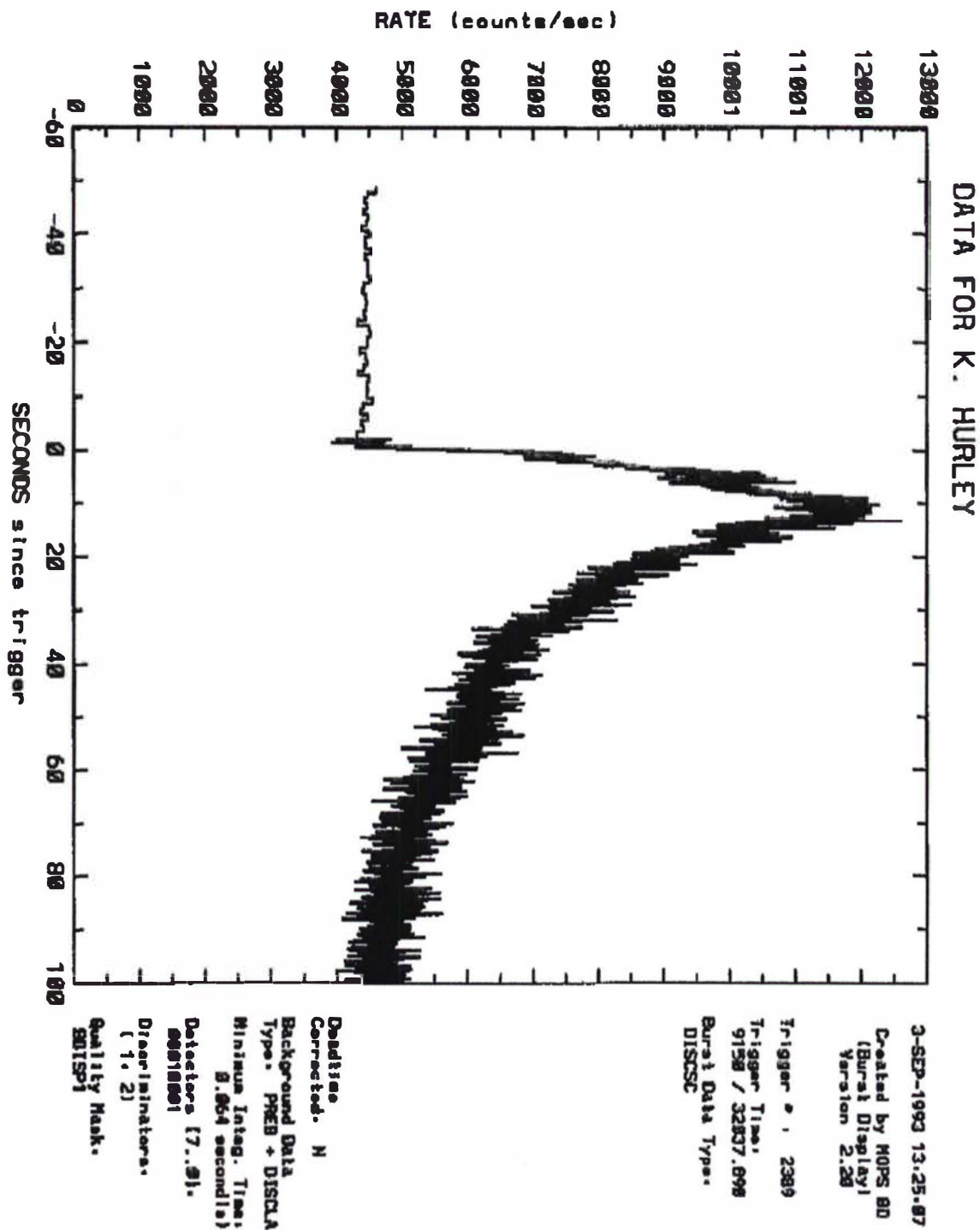
>

Kevin

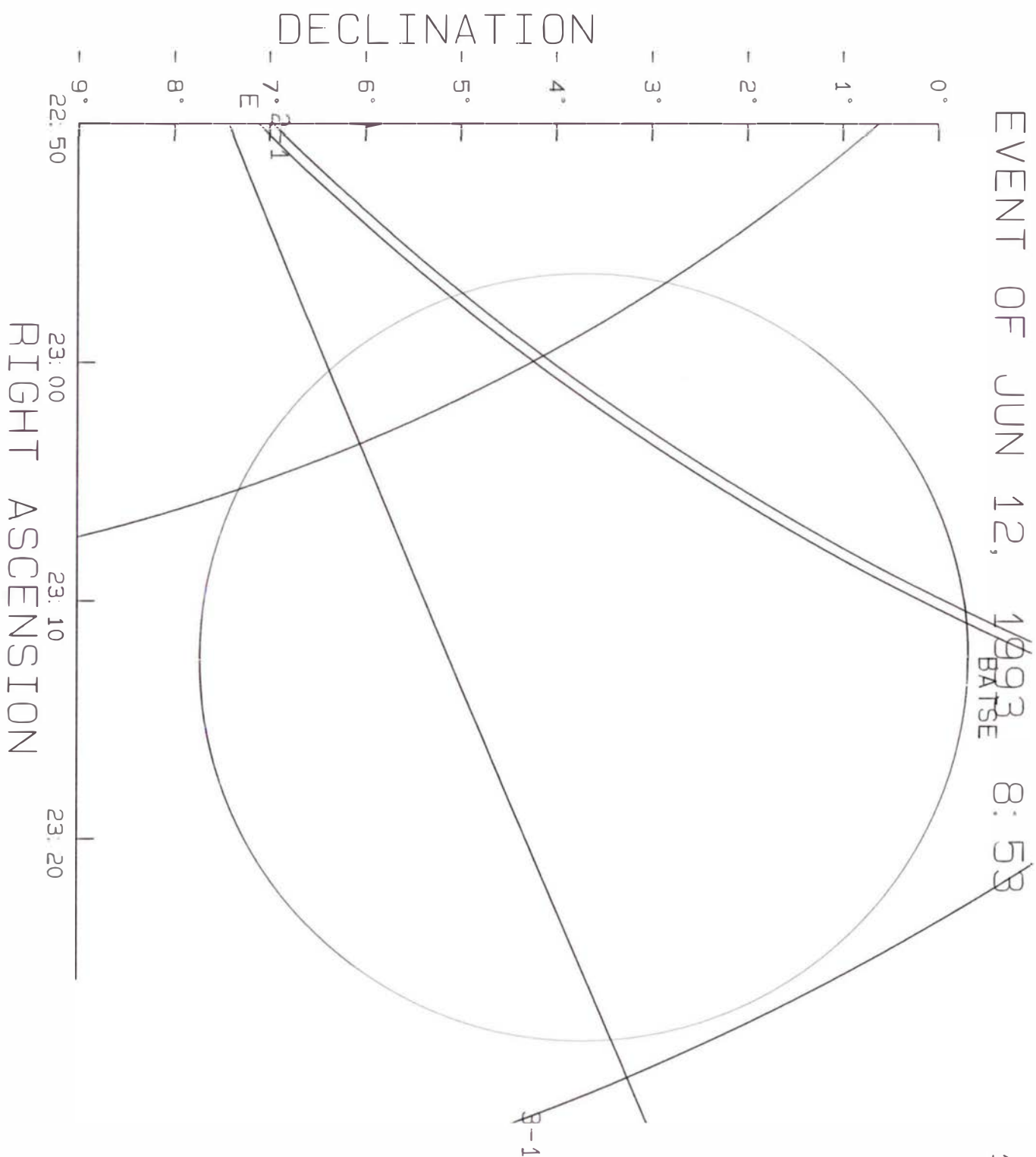
20/10/95

JUN 12, 1993 8:53





EARTH-N = EARTH AS SEEN FROM SATELLITE N
 S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
 1 BATSE 2 ULYSSES 3 MO



12/ 7/95

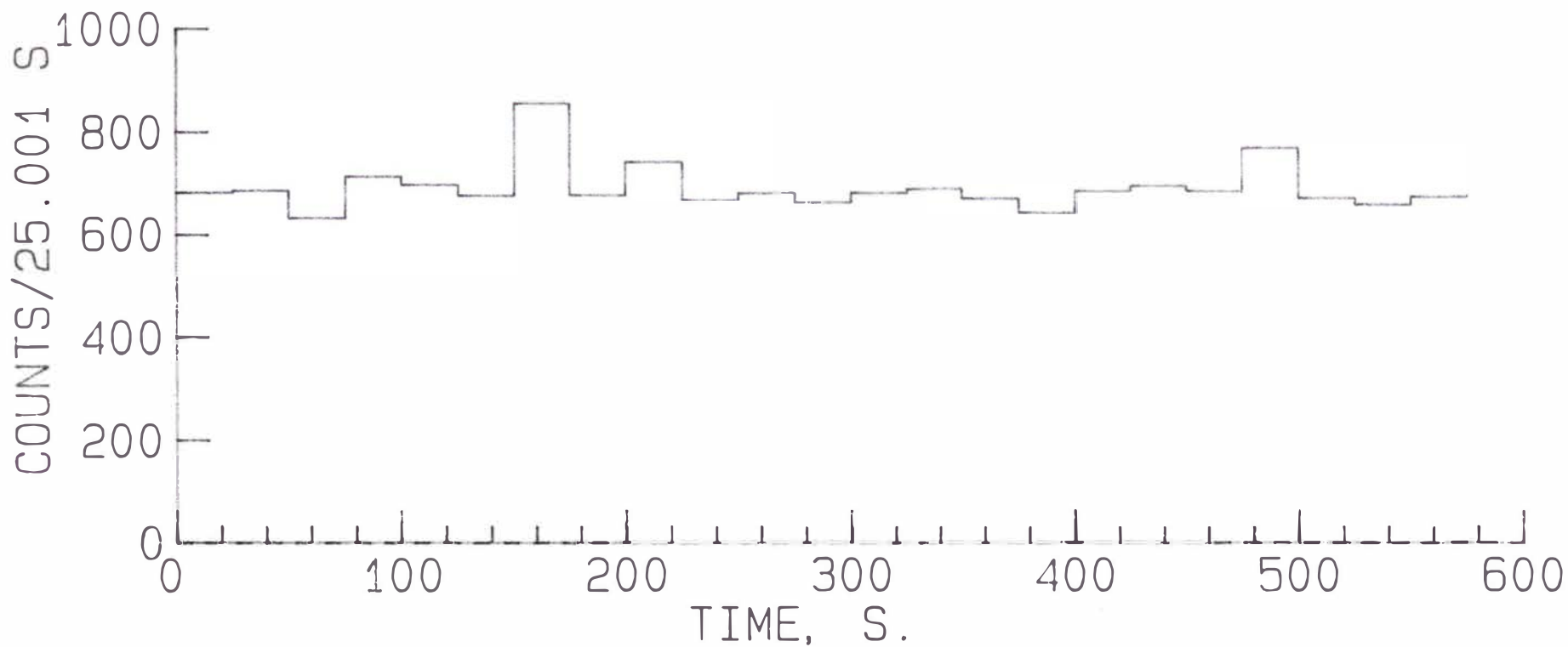
MO-RT

12/ 6/93

32718.795 s.

25.001 S. INTERVALS REGROUPED BY 1
100- 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS



12/ 7/95

MO-RT 12/ 6/93

120-240 keV

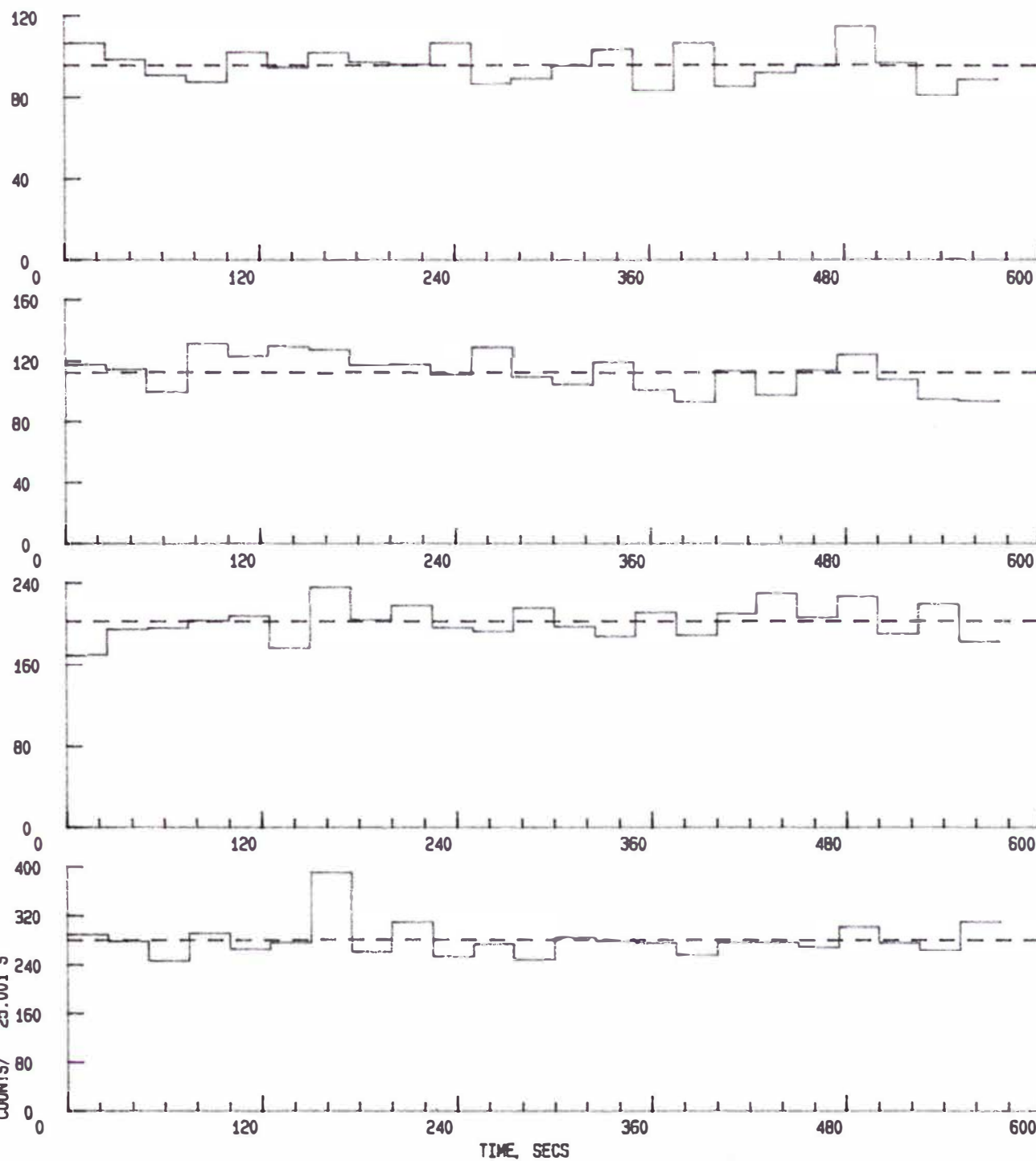
COUNTS/
25.001 S

120-240 keV

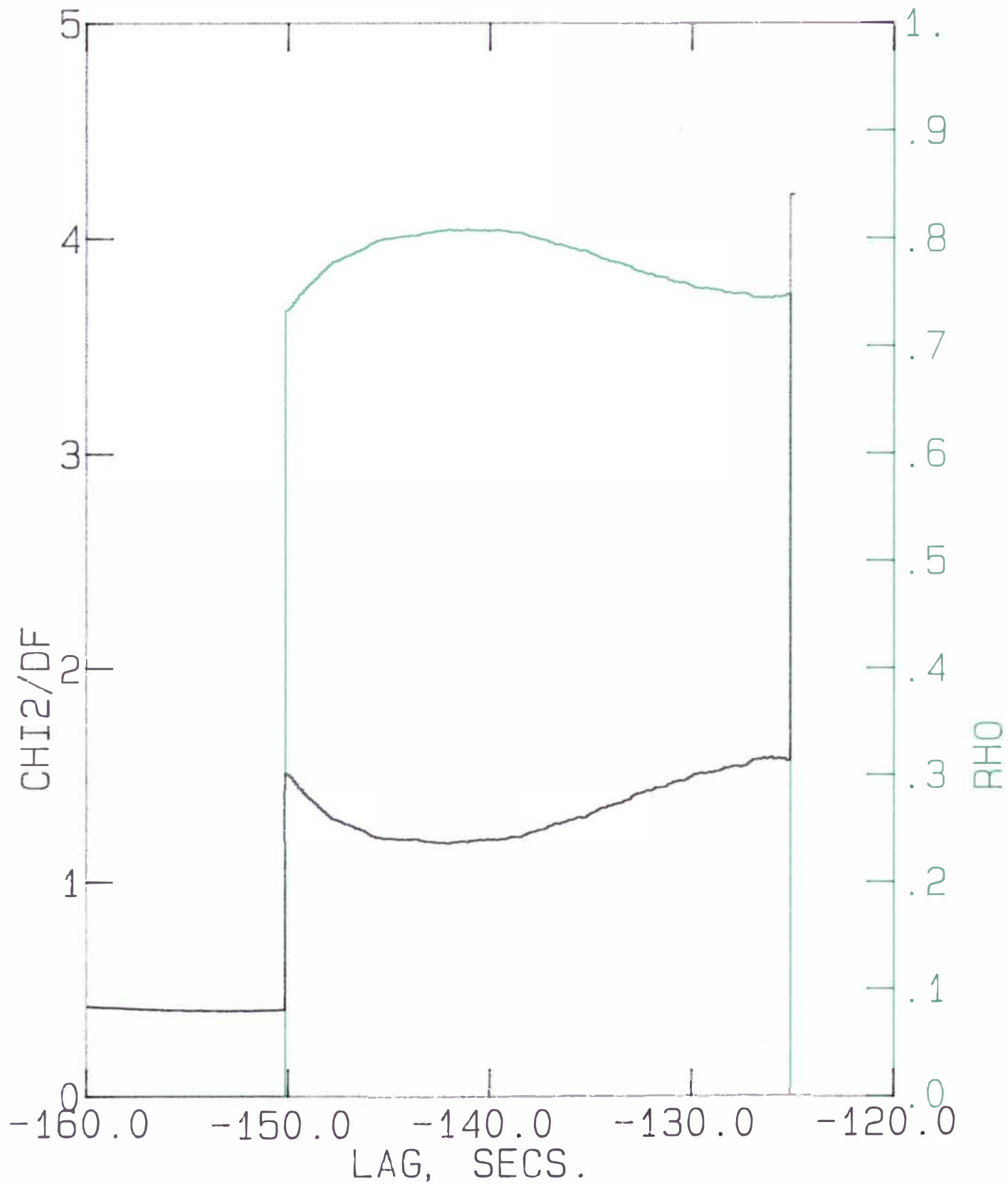
240-360 keV

360-480 keV

480-600 keV



MO-RT -BATSE CORRELATION 12/ 6/93 32718.795 12/ 7/95



MO-RT

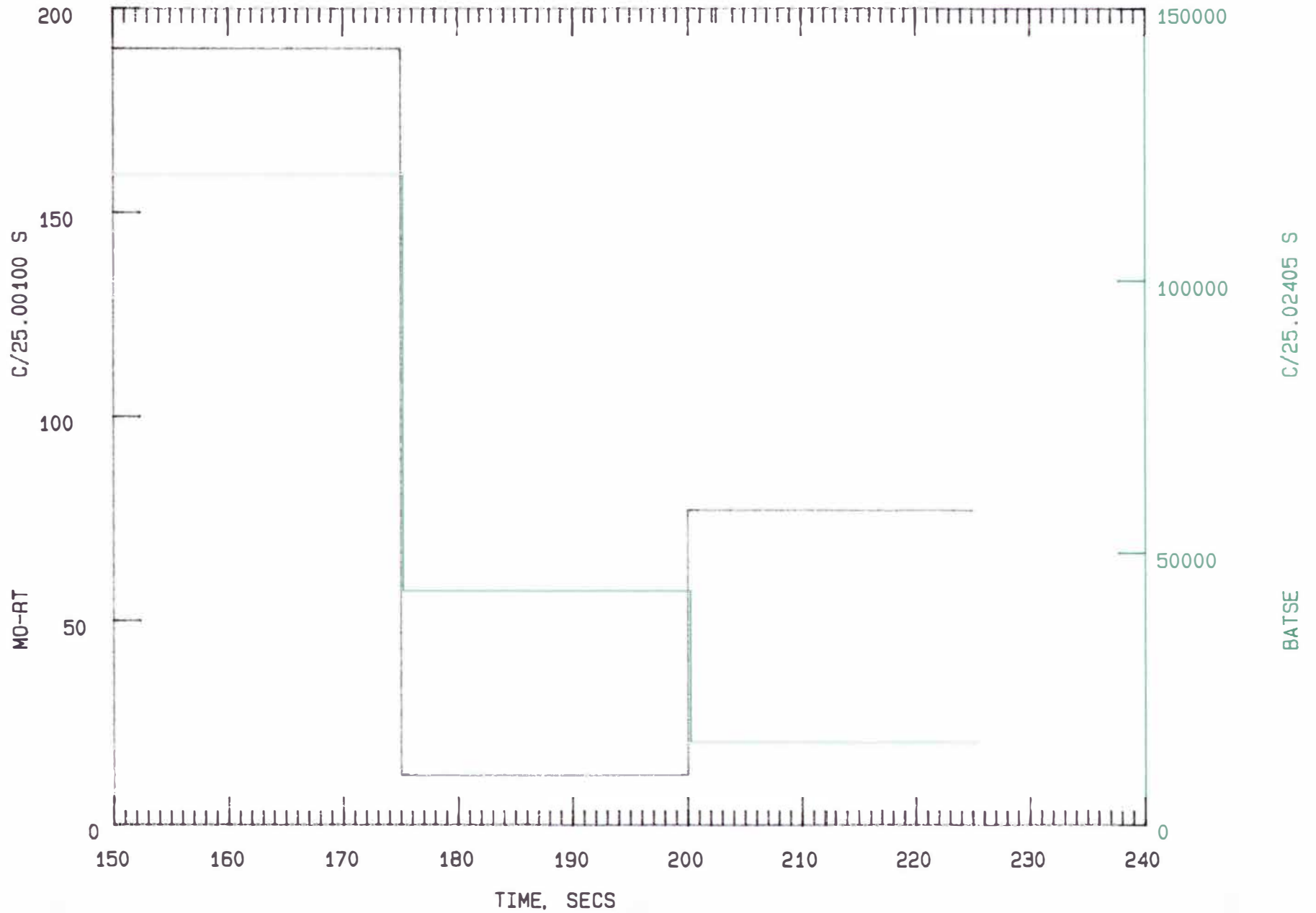
-BATSE

CORRELATION

12/ 6/93

32718.795

12/ 7/95



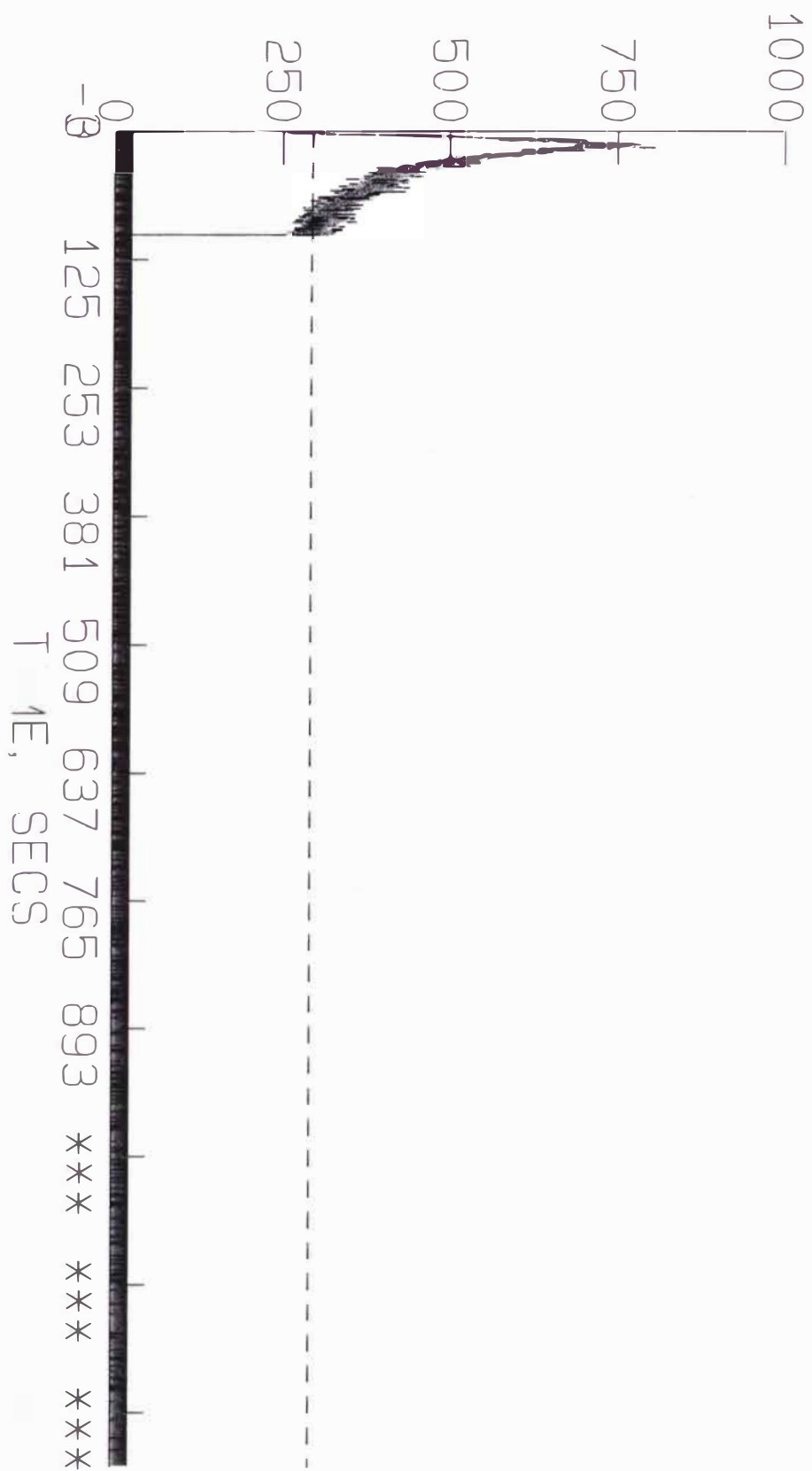
BATSE

12/06/93

32037.890

25- 100 keV

COUNTS/ .064 S



From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:44:02 1993
Date: Mon, 14 Jun 1993 12:43:16 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02390

TIME: TJD=9150 SECONDS=50729

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON PREC. EVENT.

BATSEARCH PROGRAM

BATSE BURST # 2391
EVENT OF 1993 JUN 12 DAY OF YEAR=163
EVENT CROSSING TIME AT BATSE : 60320. S. OR 16:45:20.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 35.000 25.000
BATSE PEAK COUNTING RATE: 1800 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 12/ 6/ 93 IS:
RA= 143.365 DEC= -10.959 DIST= 4.870 AU
BATSE-ULYSSES DISTANCE = 728566960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 68.86 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 876.55 SECS.
CROSSING TIME AT ULYSSES IS 61197 S OR 16:59:56 +/- 456.84 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:55:34 1993
Date: Mon, 14 Jun 1993 12:56:04 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2391	930612	9150	60320	1800	035	+25

No

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 14 10:47:44 1993
Date: Mon, 14 Jun 1993 12:48:03 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02391

TIME: TJD=9150 SECONDS=60320

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=097.5 AZIMUTH=035.2 ERROR= DEGREES

COMMENTS:

BURST, WEAK SINGLE PULSE, LASTING ~16S. NOT VISIBLE ABOVE 300KEV.

From jlaros@LPL.Arizona.EDU Fri Mar 31 13:11 PST 1995
Date: Fri, 31 Mar 1995 14:14:47 +0700
From: jlaros@LPL.Arizona.EDU (John Laros)
To: khurley@sunspot.ssl.berkeley.edu
Subject: mo' MO data

Kevin,

What do you have on BATSE #2391? MO has a 3-sigma bump only in the softest band I look at, namely 80-160 keV. I would only believe it if the BATSE description indicated an intense, long, soft event.

John

Komares + Stern
UNTRIGGERED

ULYSSES RT

21 / 5 / 97

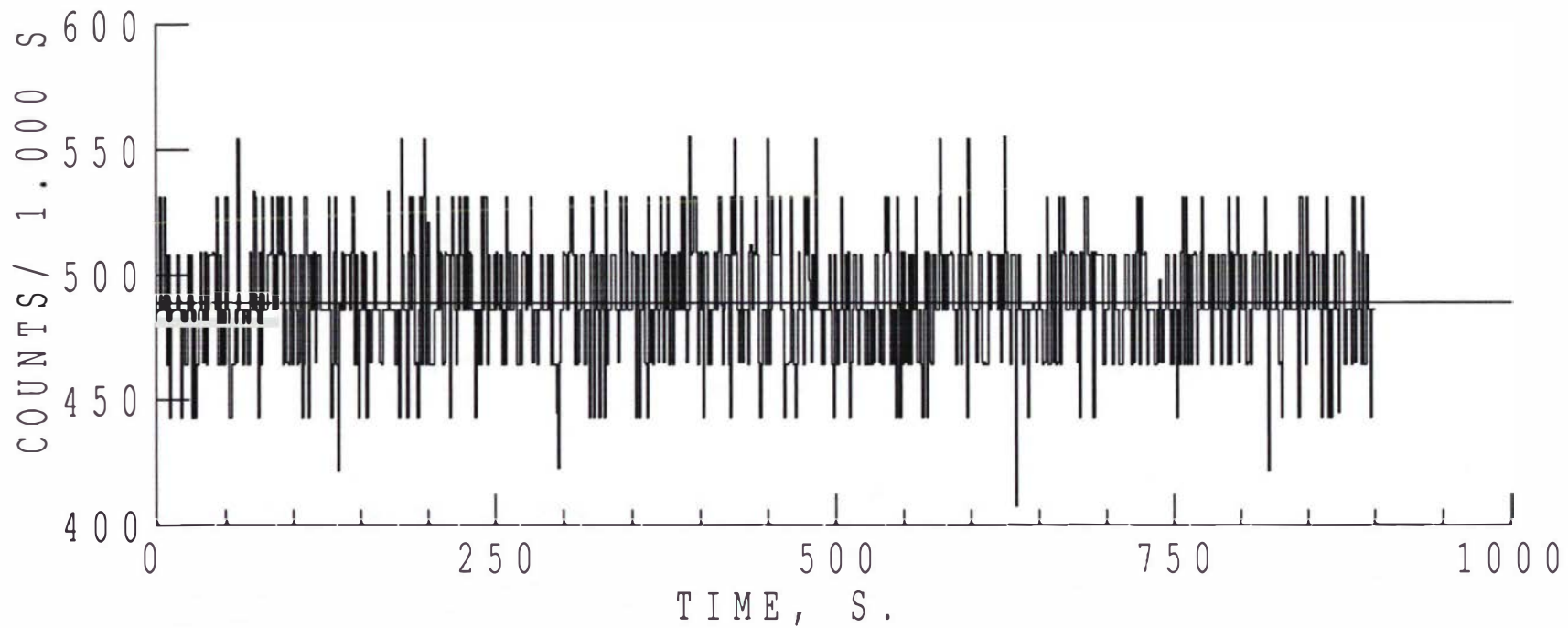
12 / 6 / 93 55692.074 s

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



14 / 6 / 93

ULYSSES RT

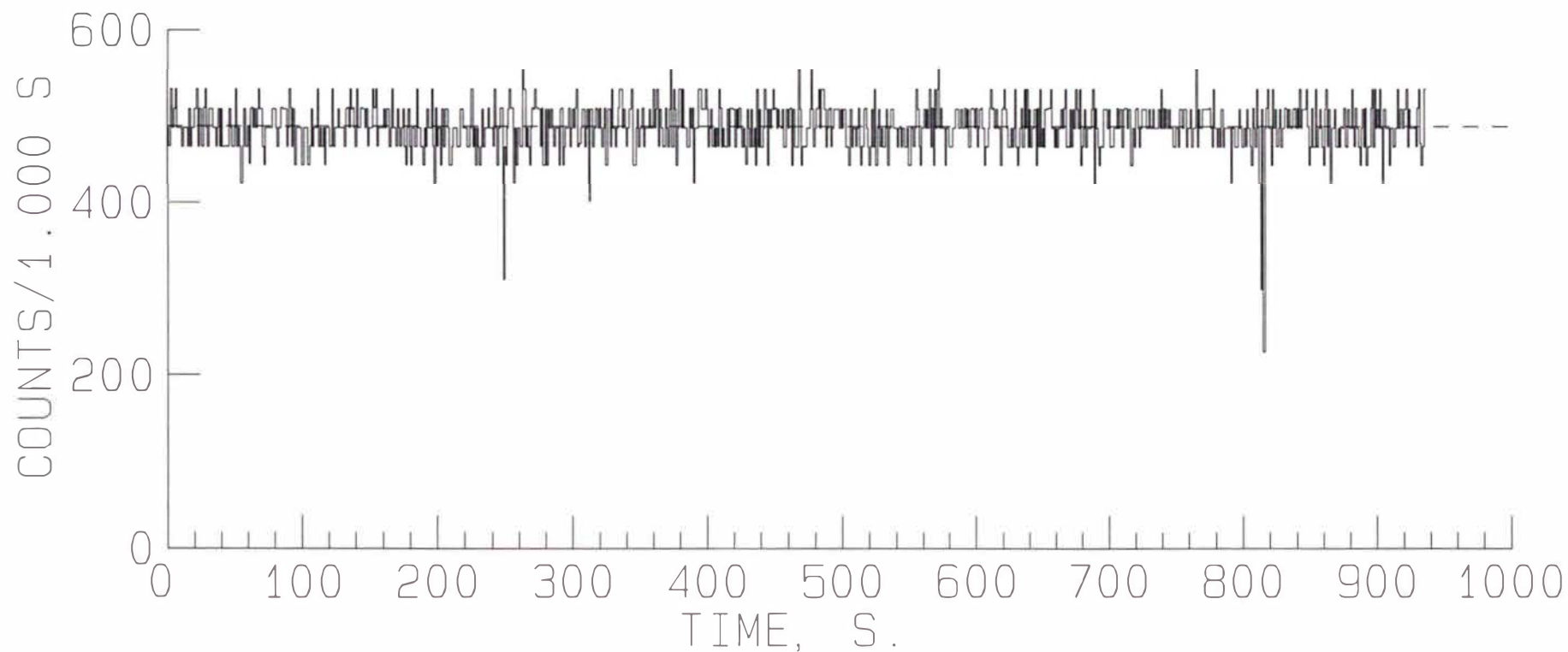
12 / 6 / 93 60732.156 s

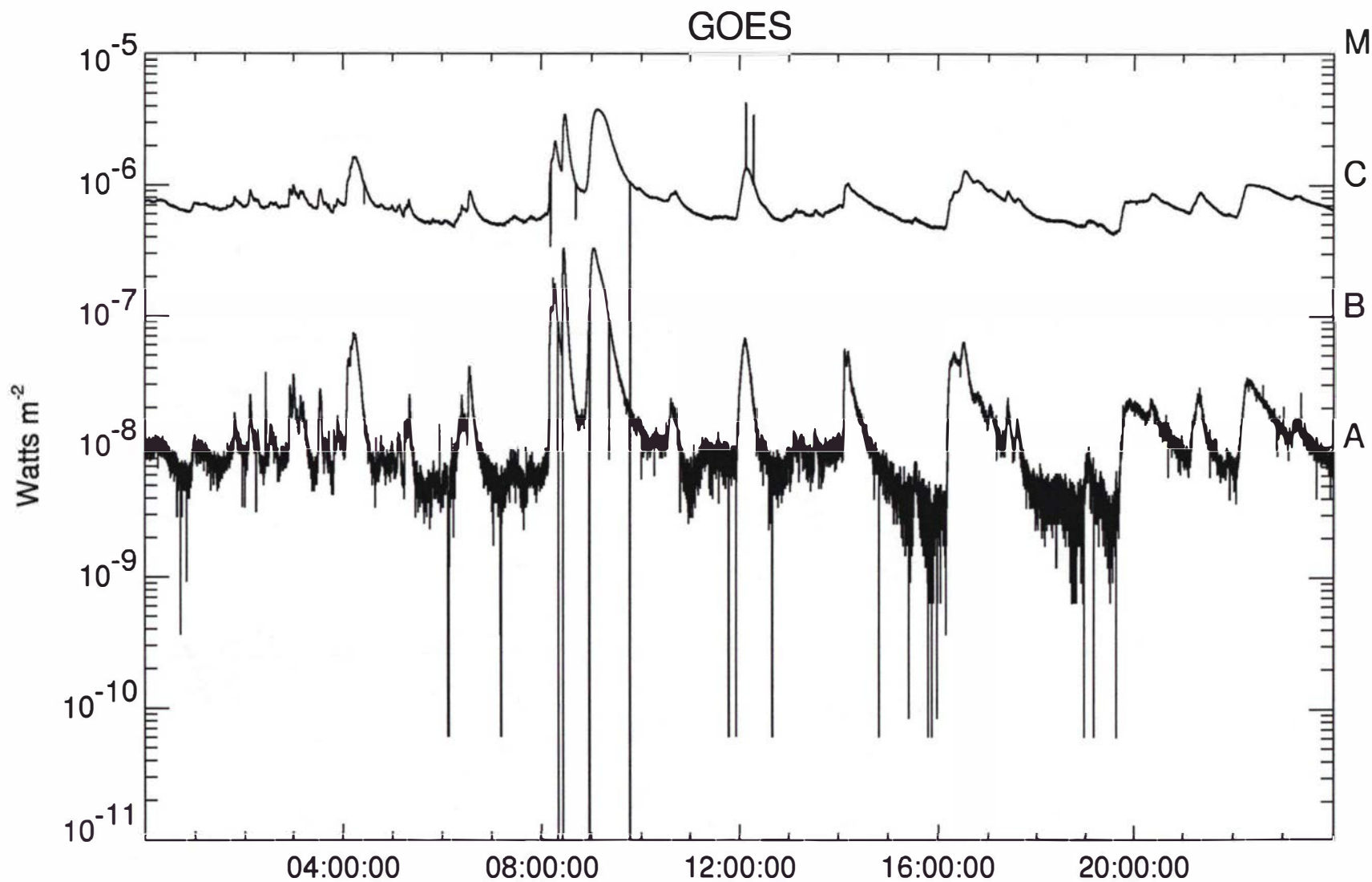
0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



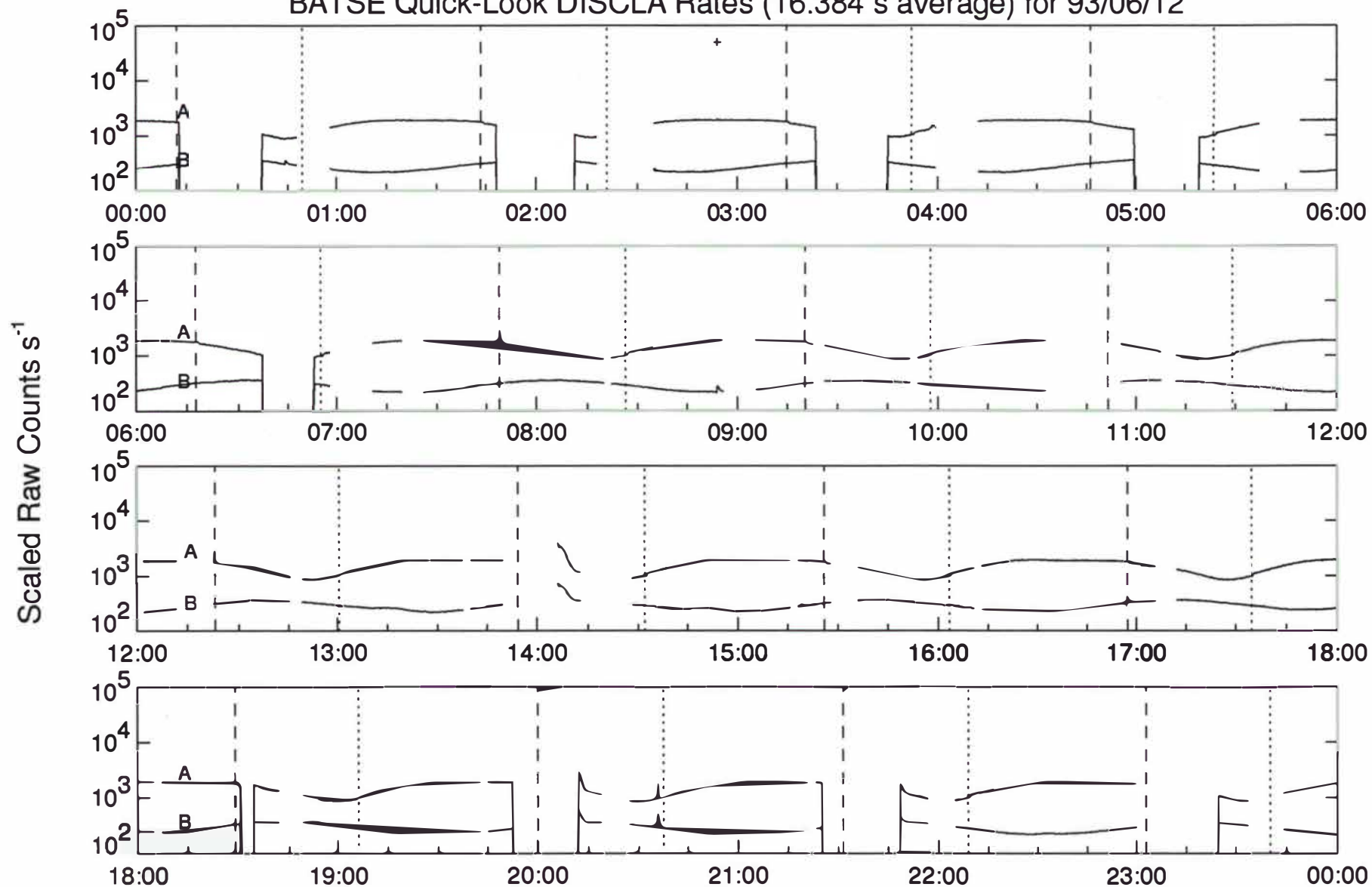


Data Start: 93/06/12, 0000:00

Plot created: 93/10/28, 0201

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

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/12

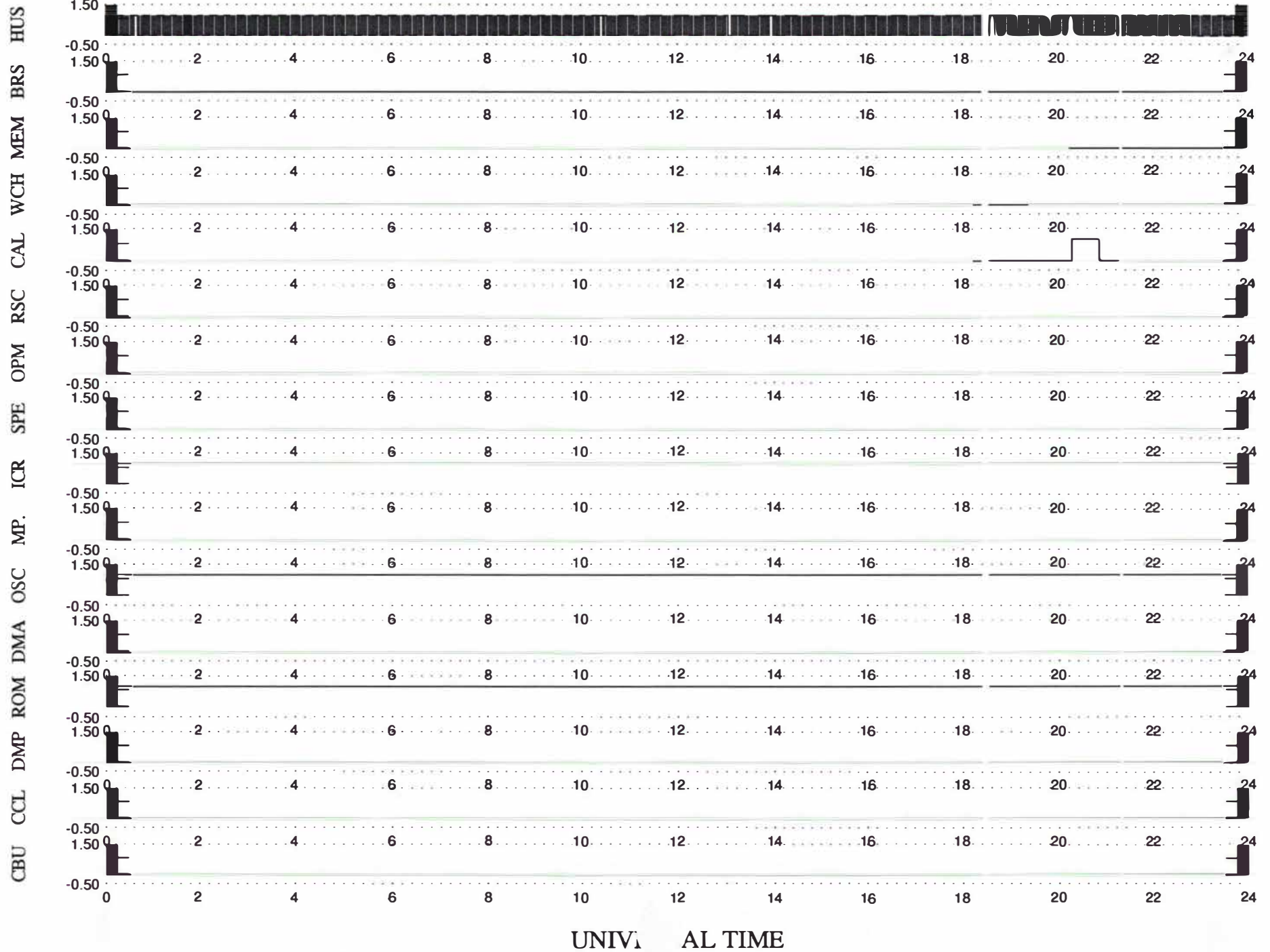


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

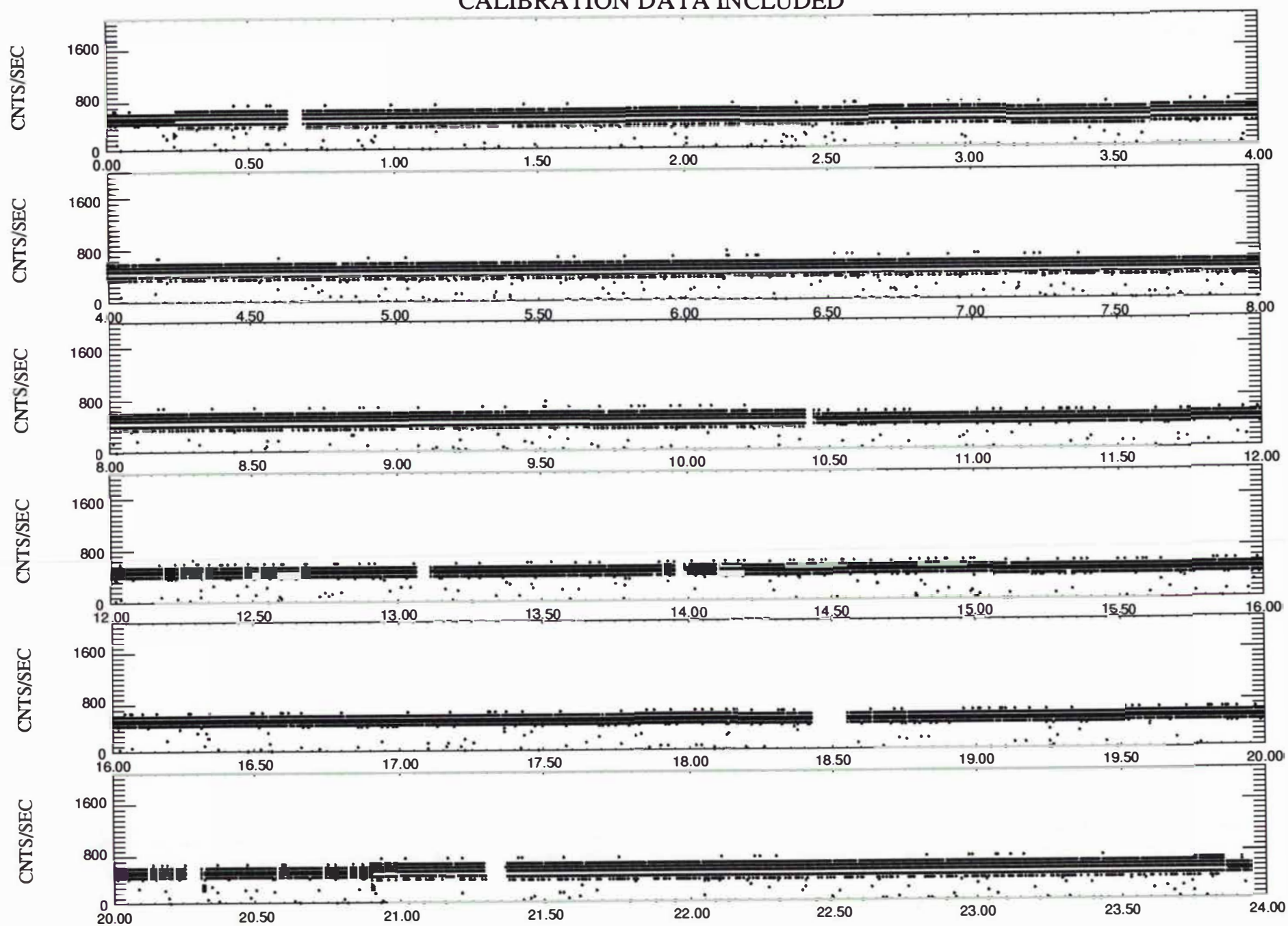
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

NO BURST (4)

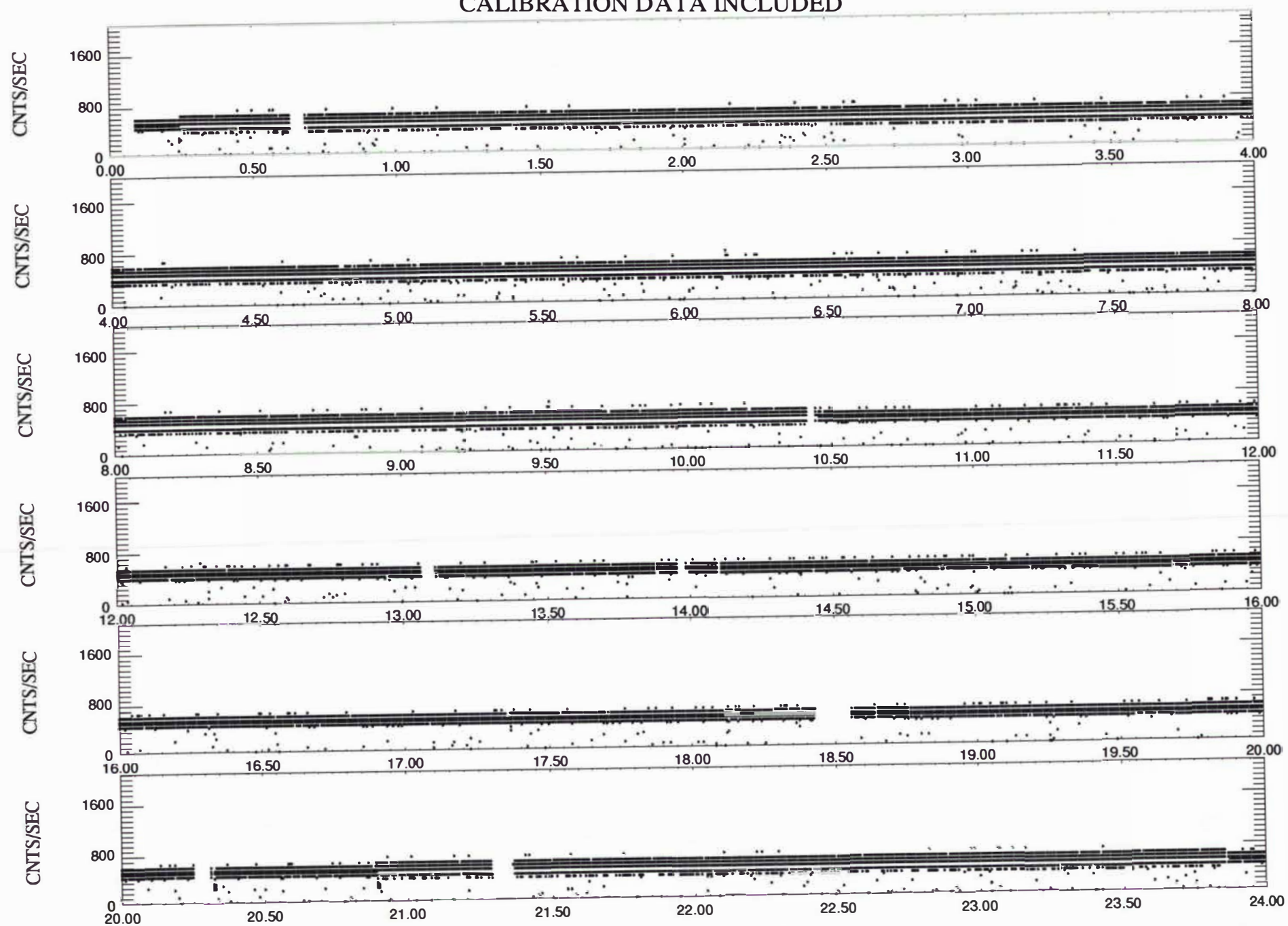


CALIBRATION DATA INCLUDED



UNIV AL TIME

CALIBRATION DATA INCLUDED



UNIV AL TIME

BATSEARCH PROGRAM

BATSE BURST # 2392
EVENT OF 1993 JUN 13 DAY OF YEAR=164
EVENT CROSSING TIME AT BATSE : 80163. S. OR 22:16:03.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 318.000 -31.000
BATSE PEAK COUNTING RATE: 2500 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 13/ 6/ 93 IS:
RA= 143.437 DEC= -10.971 DIST= 4.881 AU
BATSE-ULYSSES DISTANCE = 730212560. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 42.29 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1801.71 SECS.
CROSSING TIME AT ULYSSES IS 81965. S. OR 22:46:04 +/- 361.93 SECONDS

From KOSHUT@ssl.msfc.nasa.gov Mon Jun 14 12:36:02 1993
Date: Mon, 14 Jun 1993 14:36:30 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: KOSHUT@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2392	930613	9151	80163	2500	318	-31

NO

From KOSHUT@ssl.msfc.nasa.gov Tue Jun 15 07:12:02 1993
Date: Tue, 15 Jun 1993 9:12:25 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02392

TIME: TJD=9151 SECONDS=80163

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=54. AZIMUTH=123. ERROR= DEGREES

COMMENTS:

BURST OF ~ 15 SECONDS DURATION, WITH PEAK RATE ~ 2500 C/S OBSERVED
AT THE TRIGGER TIME. NO EMISSION OBSERVED ABOVE 300 KEV.

15 / 6 / 93

ULYSSES RT

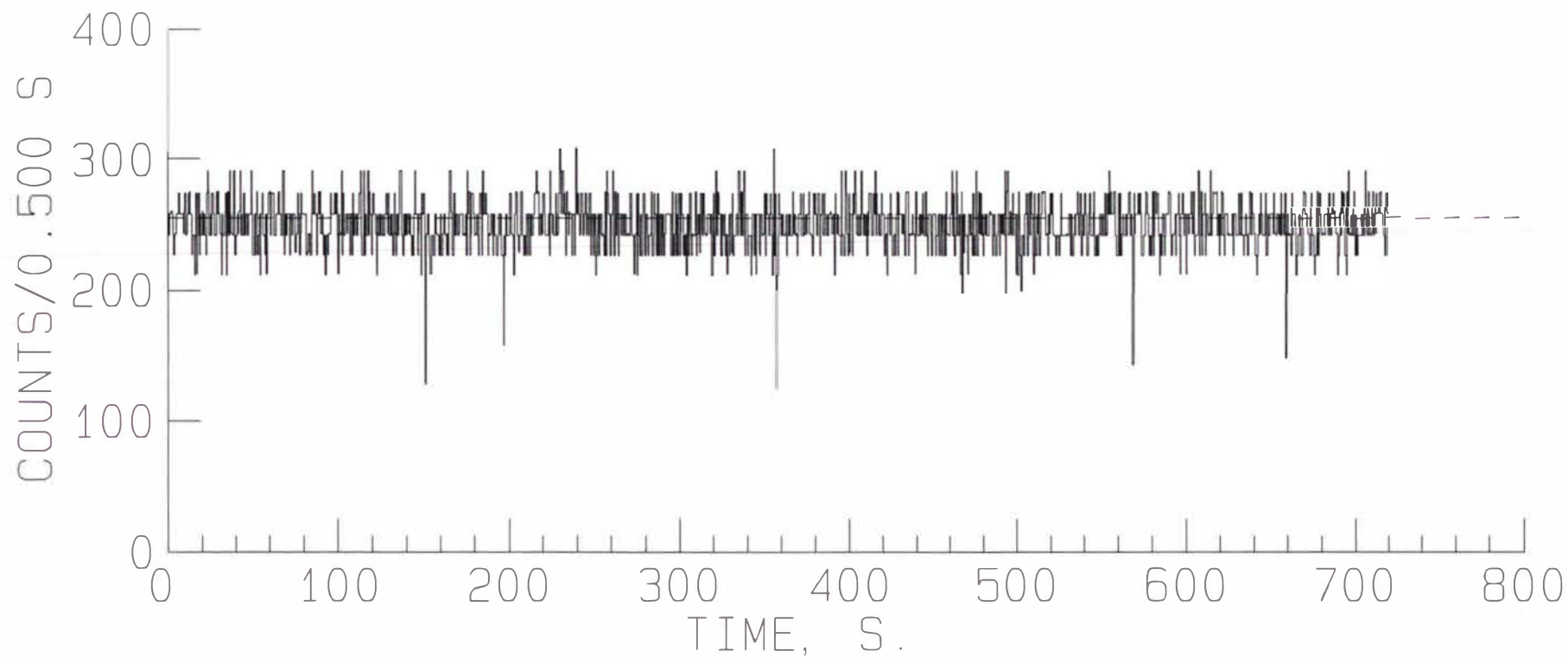
13 / 6 / 93 81612.062 s

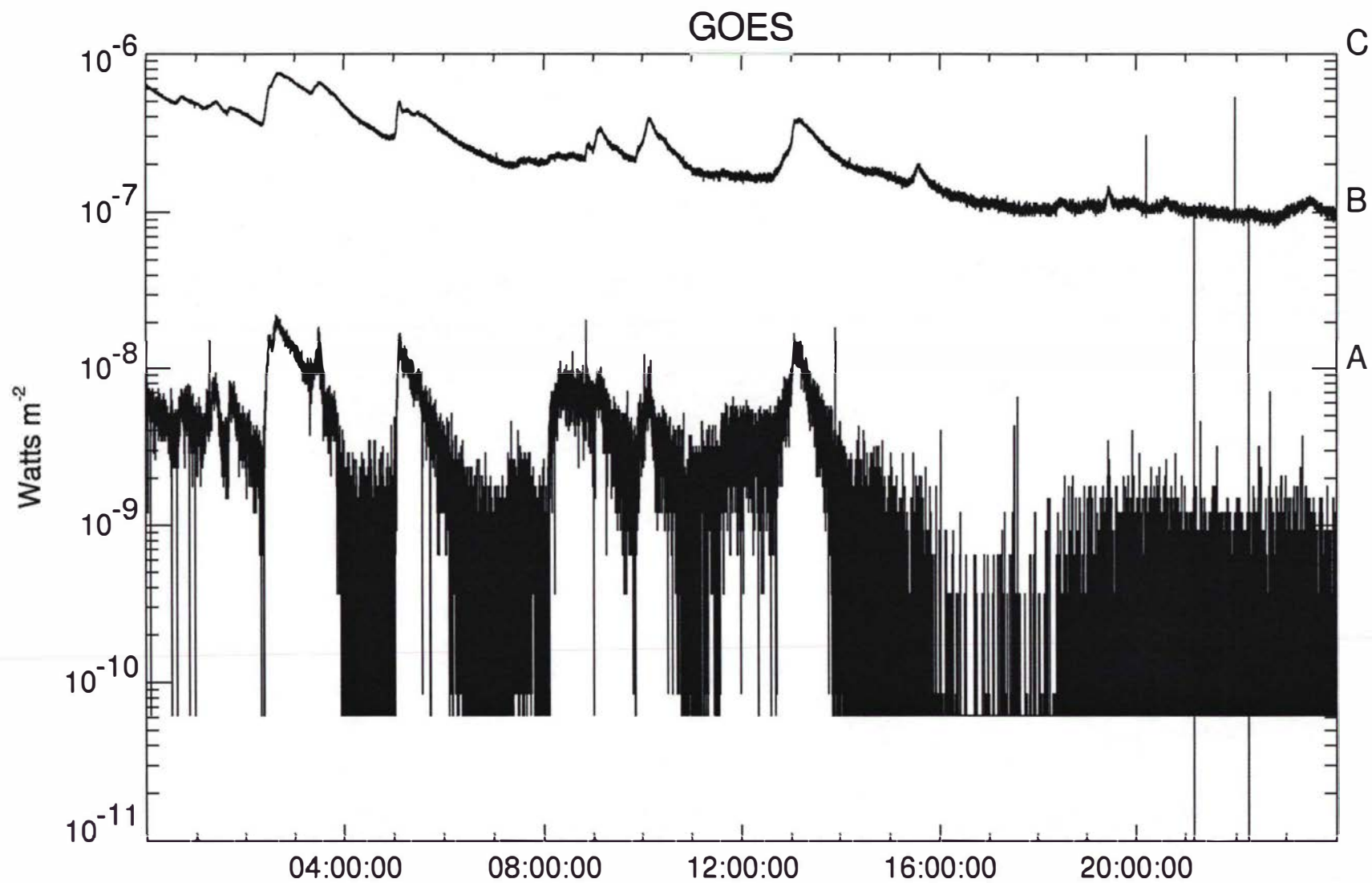
0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS





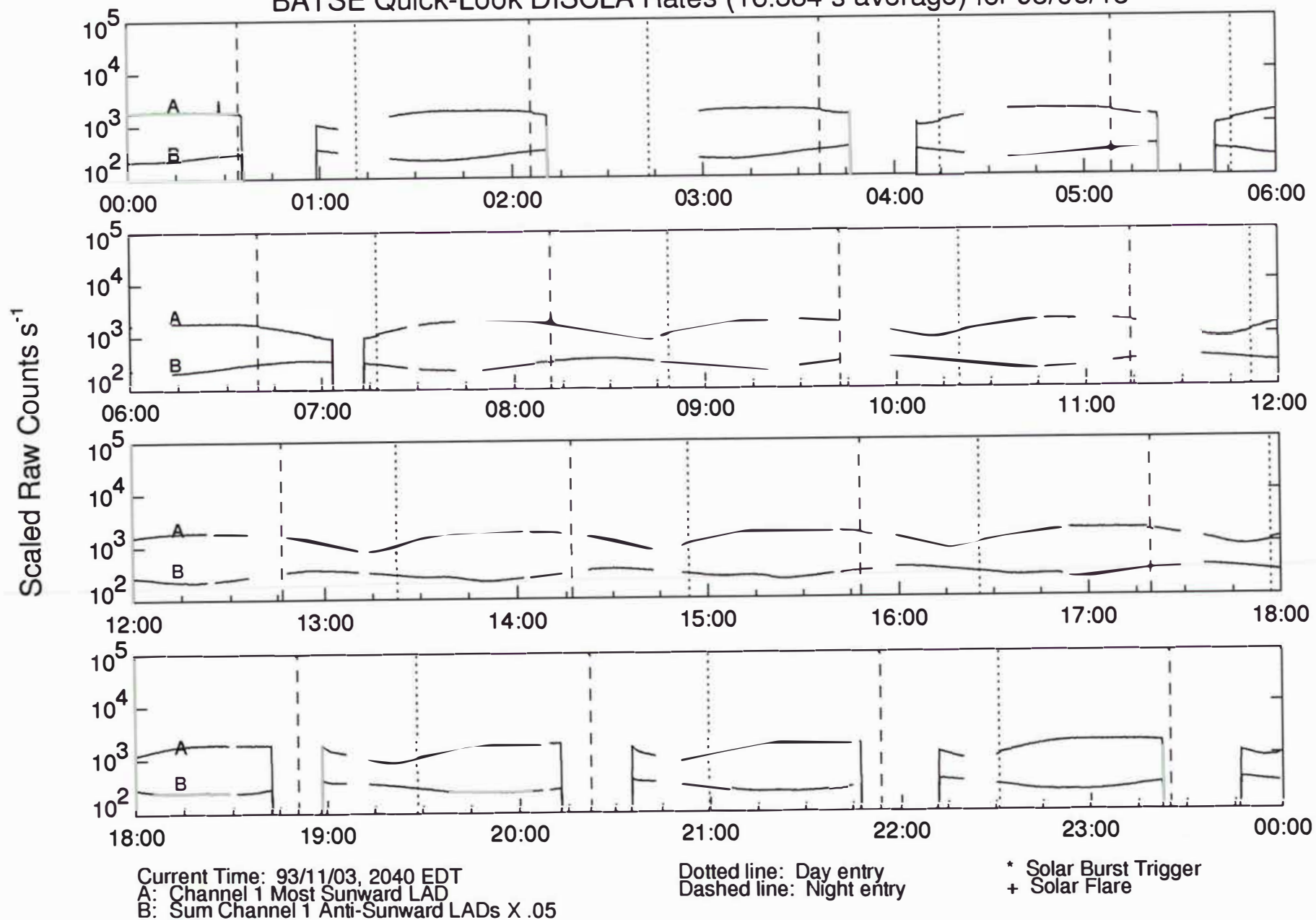
Data Start: 93/06/13, 0000:00

Plot created: 93/10/28, 0202

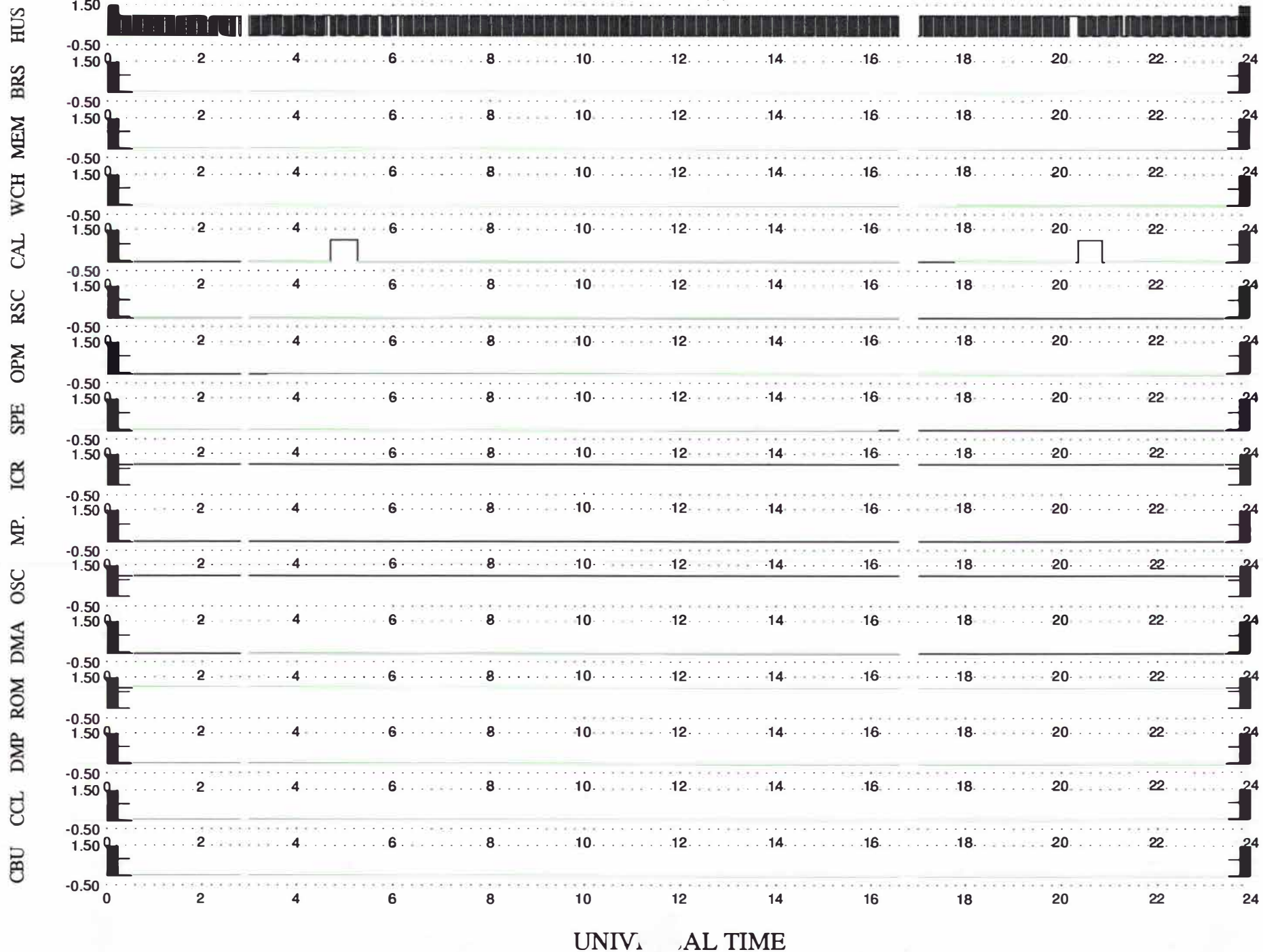
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

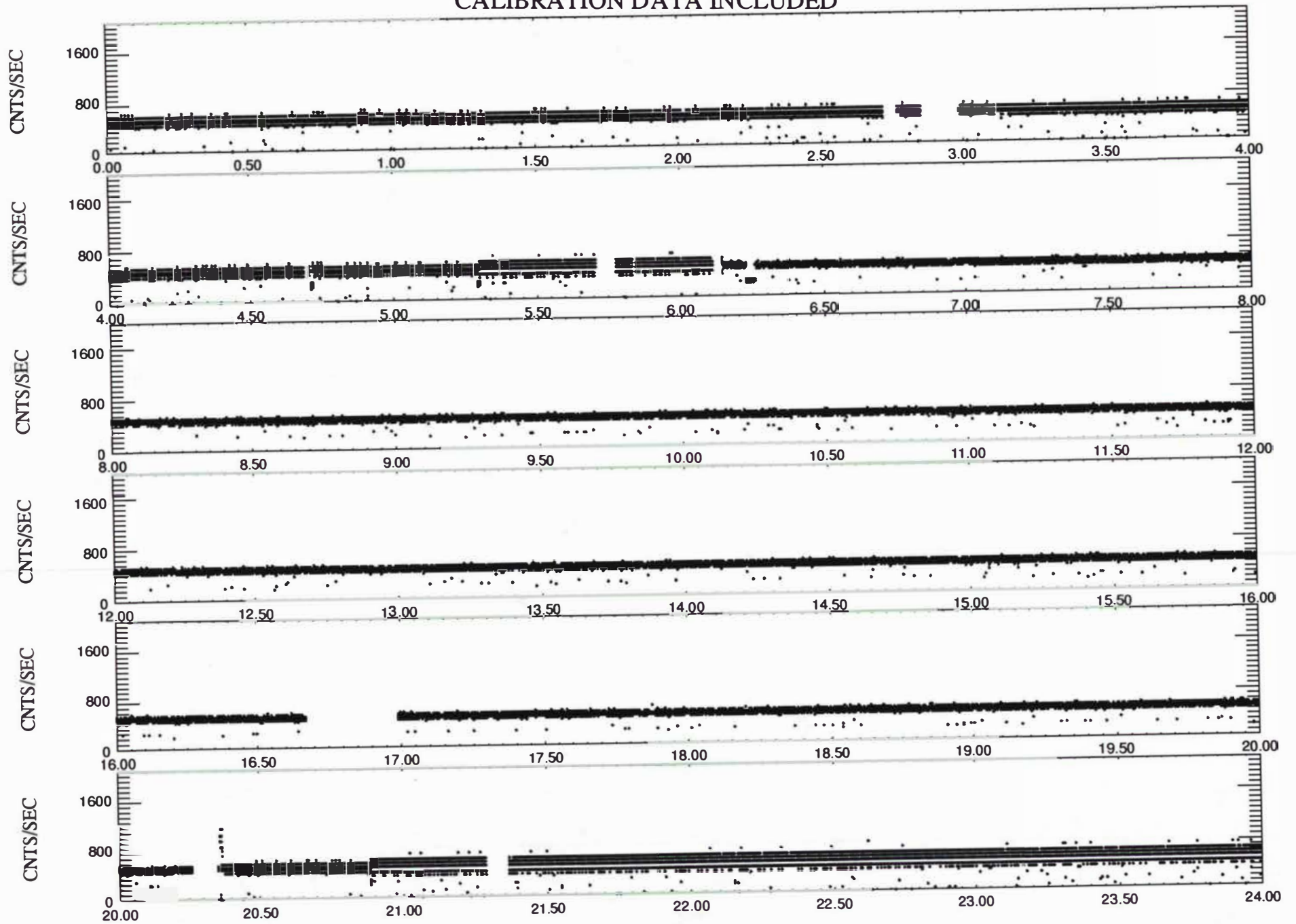
BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/13



NO BURST (4)

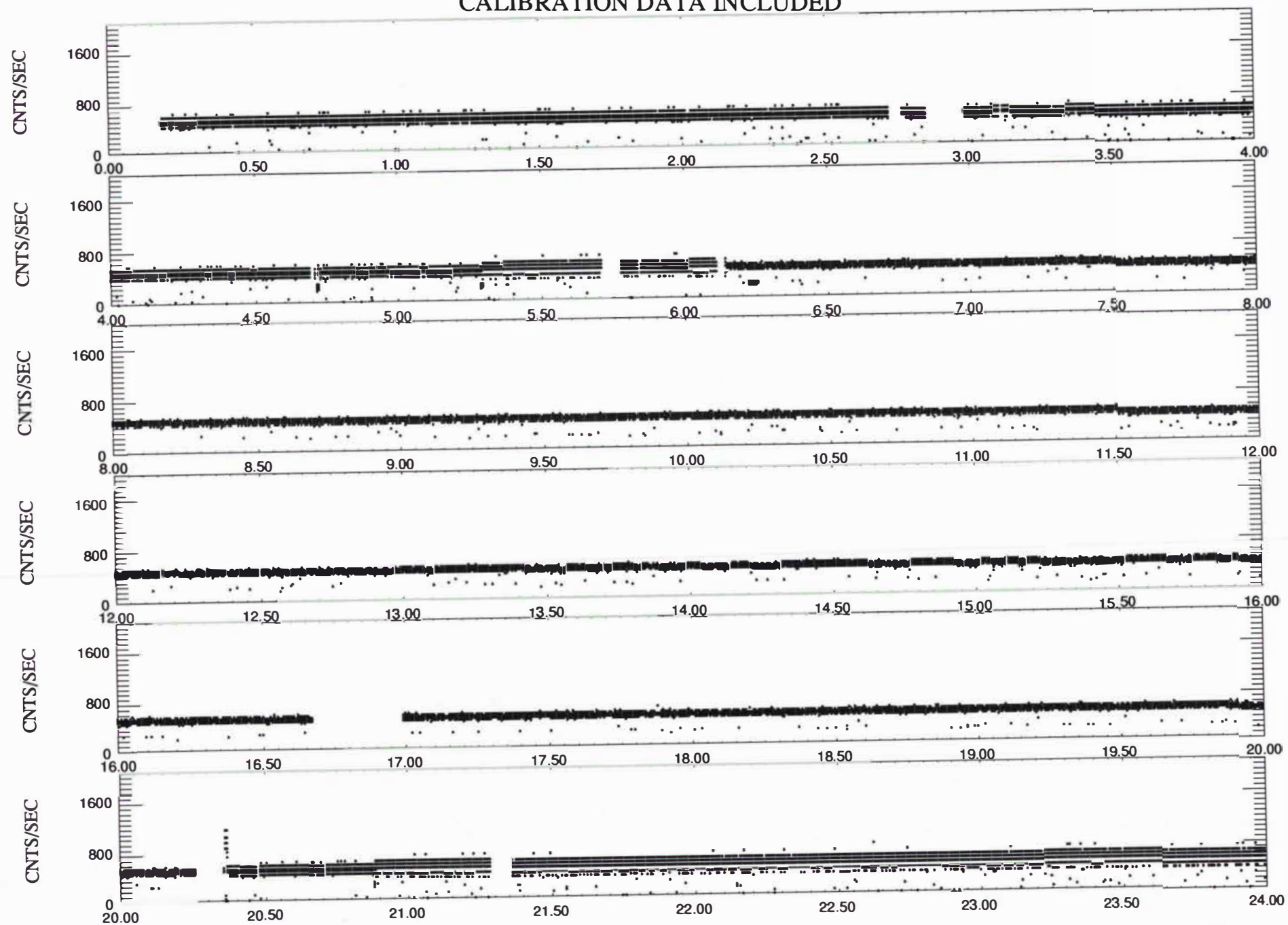


CALIBRATION DATA INCLUDED



UNIV AL TIME

CALIBRATION DATA INCLUDED



UNIV CAL TIME

 BATSEARCH PROGRAM

BATSE BURST # 2393
 EVENT OF 1993 JUN 14 DAY OF YEAR=165
 EVENT CROSSING TIME AT BATSE : 13230. S. OR 03:40:30.0
 COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 170.000 29.000
 BATSE PEAK COUNTING RATE: 23000 C/S
 EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 POSITION OF ULYSSES ON 14/ 6/ 93 IS:
 RA= 143.511 DEC= -10.984 DIST= 4.892 AU
 BATSE-ULYSSES DISTANCE = 731843200. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=132.54 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1650.44 SECS.
 CROSSING TIME AT ULYSSES IS 11580. S. OR 03:12:59 +/- 337.22 SECONDS

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 15 14:30:07 1993
 Date: Tue, 15 Jun 1993 16:30:46 -0500 (CDT)
 From: MEEGAN@ssl.msfc.nasa.gov
 To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
 Cc: MEEGAN@ssl.msfc.nasa.gov
 Subject: BATSE burst
 Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2393	930614	9152	13230	23000	170	+29

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 15 14:18:05 1993
 Date: Tue, 15 Jun 1993 16:18:25 -0500 (CDT)
 From: MEEGAN@ssl.msfc.nasa.gov
 To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
 "LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
 "15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
 "CASS09::GRUBER"@ssl.msfc.nasa.gov,
 "CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
 HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
 Subject: Burst Trigger Message
 Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02393

TIME: TJD=9152 SECONDS=13230

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=133. AZIMUTH=266. ERROR= DEGREES

COMMENTS:

INTENSE BURST LASTING ABOUT 8 SECONDS. TWO PEAKS; THE FIRST IS
 HARDER AND IS SEEN ABOVE 300 KEV.

Helio corr removed

Date: *Jan 3 '98*

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. PVO Data

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

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

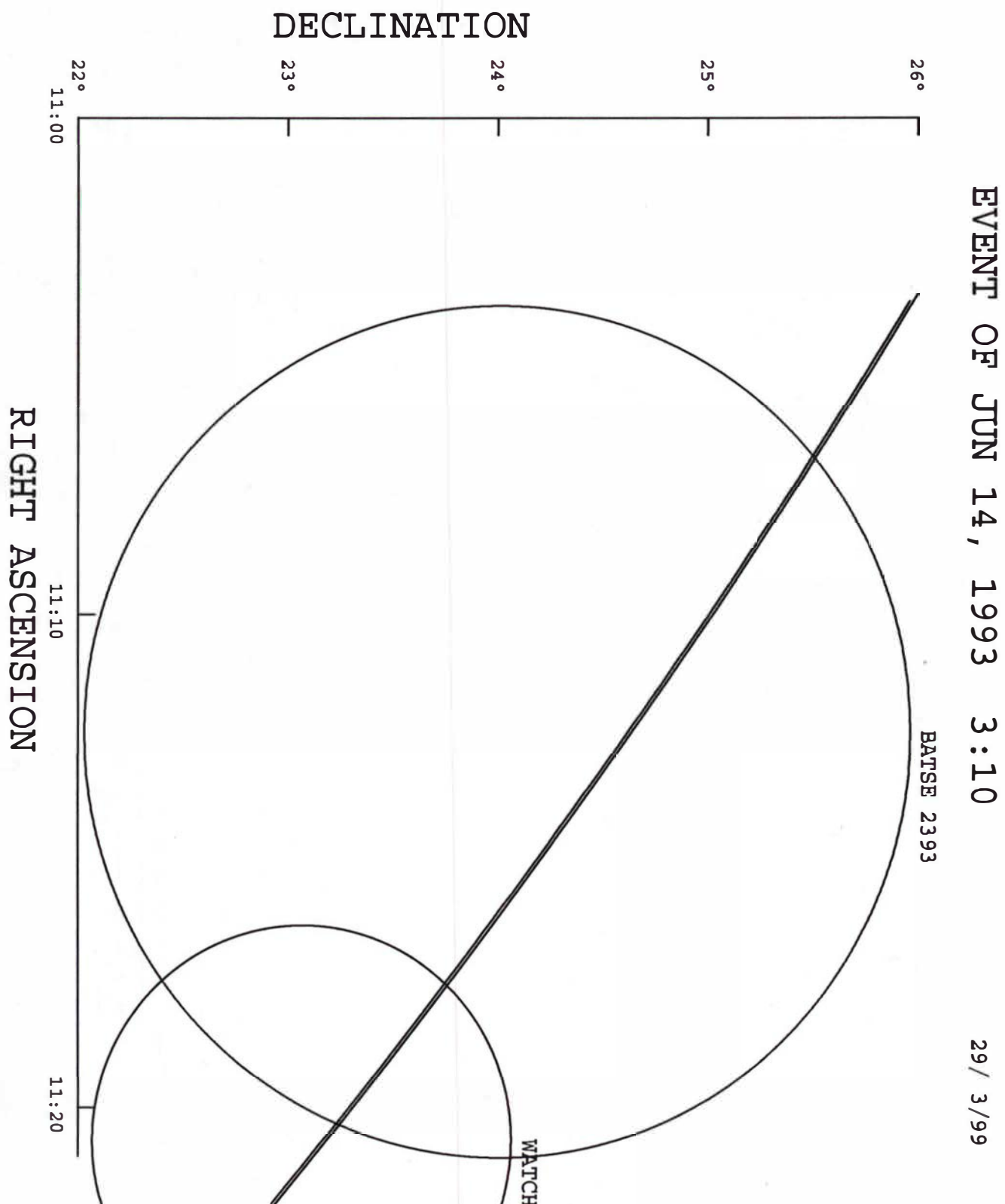
S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE



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

Version 1.0 Aug. 9. 1993.

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

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

#	date	UT-time	sd	l(s)	m(s)	m/l	position(J2000)	t	comments	#Wm
---	------	---------	----	------	------	-----	-----------------	---	----------	-----

comments:

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

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

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

l(s): Duration in 6-10 keV band (Low NaI channel)

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

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

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

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

m: 1 motor rotation in 4 ms steps

r: raw memory (4 ms steps)

#Wm: Telemetry session and WATCH unit identifier

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

theta and phi: Source position in WATCH instrument coordinates.

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

Version 2.0 Aug. 9. 1993.

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

From jlaros@LPL.Arizona.EDU Mon Apr 3 10:14 PDT 1995
Date: Mon, 3 Apr 1995 10:17:16 +0700
From: jlaros@LPL.Arizona.EDU (John Laros)
To: khurley@sunspot.ssl.berkeley.edu
Subject: MO data

Kevin,

I have been looking at BATSE #2393 (930614, first event). I would have expected a clear detection, but the only possible thing I see is a very soft, weak (2.4-sigma) bump. Do you have any recent info on this one? I think I have all the standard stuff that was available a year ago.

John

can be narrowed.

* 4 20 JAN 93 20 23:31:40 84700 2 BATSE #2138. GRS sensitivity was compromised by the abnormally long 60 s bins. Even so, a fairly convincing response is seen in two consecutive bins at about 23:35. It should be possible to refine the time using "centroiding". Unfortunately, MO was not very far away yet. A moderately significant hard-to-soft spectral evolution is seen.

5 22 JAN 93 22 12:21:18 44478 2 BATSE #2142. No GRS response was seen near the predicted time of 12:18:34.

* 6 27 JAN 93 27 16:14:25 58465 2 BATSE #2149. A weak GRS enhancement in band1 (120-240 keV) is seen in consecutive bins at the predicted time. Sensitivity was again compromised by 60 s binning, but this was a long event. I think the response is real (though perhaps useless for time-of-arrival).

7 10 MAR 93 69 07:19:20 26360 2 BATSE #2232. No GRS response near the predicted time. However, two crucial bins are missing, probably due to poor data quality. They cannot be recovered.

8 28 APR 93 118 01:07:12 4032 2 BATSE #2320. No GRS response near the predicted time.

9 31 MAY 93 151 15:53:38 57218 2 BATSE #2362. No GRS response near the predicted time.

10 6 JUN 93 157 07:18:48 26328 2 BATSE #2375. No GRS response near the predicted time.

*11 12 JUN 93 163 00:44:17 2657 2 BATSE #2387. Clear response in 1 or 2 bins at 00:43:37.

*12 12 JUN 93 163 08:53:57 32037 2 BATSE #2389. Clear response in one bin at 09:07:48.

13 14 JUN 93 165 03:40:30 13230 2 BATSE #2393. No response near the predicted time. This is surprising, because the event was intense and the spacecraft apparently was not blocking the detector.

14 14 JUN 93 165 16:34:37 59677 2 BATSE #2394. No response near the predicted time, although there was a data gap that ended at 16:39:34. This was a weak event that probably should not have been seen by GRS.

*15 28 JUN 93 179 03:20:36 12036 1 Ulysses only. Definite response at 03:35:09.0. Note that the fractional second on the printout is incorrect.

16 6 JUL 93 187 05:13:30 18810 2 BATSE #2431. The one-and-only known triggered event. David Palmer has done some arrival time analysis. Have I sent you any data on this event? Do you want any? (Trigger data and mapping data are mutually exclusive.)

17 6 JUL 93 187 08:09:10 29350 2 BATSE #2432. No response near the predicted time.

18 8 JUL 93 189 05:12:38 18758 2 BATSE #2433. No response near the predicted time.

19 11 JUL 93 192 03:32:01 12721 2 BATSE #2441. No response near the predicted time.

20 14 JUL 93 195 16:12:53 58373 2 BATSE #2446. No response near the predicted time.

*21 20 JUL 93 201 14:35:09 52509 2 BATSE #2450. Definite response, probably in two bins, at about 14:49.

From root Wed Jan 26 09:21 1994
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AB01596; Wed, 26 Jan 94 09:21:57
Received: from lpl.arizona.edu (hindmost.LPL.Arizona.EDU) by sunspot.ssl.berkeley.edu (5.0/SM)
id AA26699; Wed, 26 Jan 1994 08:26:17 +0800
Received: from peewee.lpl.arizona.edu by lpl.arizona.edu (4.1/hindmost-MX-1.4)
id AA04397; Wed, 26 Jan 94 09:28:59 MST
Received: by peewee.lpl.arizona.edu (5.0/SMI-SVR4)
id AA02684; Wed, 26 Jan 94 09:32:09 MST
Date: Wed, 26 Jan 94 09:32:09 MST
From: jlaros@peewee.lpl.arizona.edu (John Laros)
Message-Id: <9401261632.AA02684@peewee.lpl.arizona.edu>
To: khurley@sunspot.ssl.berkeley.edu
Subject: MO bursts
Content-Type: X-sun-attachment
Content-Length: 5685
Status: R

X-Sun-Data-Type: text
X-Sun-Data-Description: text
X-Sun-Data-Name: text
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 16

Kevin,

Here it comes: MO time history and ephemeris data on all 27 of the Ulysses events for which there was GRS coverage. It looks like about 10 bursts were actually detected by GRS. Please note that the time history files have a line at the end, labelled "Ensemble values", that was not in the sample I sent you. These are empirically determined means and sigmas for the data set. For reasons that have not yet been determined, the empirical sigmas are larger than the theoretical ones at the lower energies.

If there were any intense non-Ulysses bursts during the MO lifetime, such as WATCH events, would you please send me the information on them?

Thanks,

John

X-Sun-Data-Type: default
X-Sun-Data-Description: default
X-Sun-Data-Name: ulysses.lst
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 106

MO/GRS Burst Coverage of Ulysses Events

(* indicates probable GRS detection of the burst)

	DATE	DOY	TIME	T,SEC	NSAT (1=Ulysses, 2=GRO)	
1	4 OCT 92	278	13:38:27	49107	1	Ulysses/PVO/WATCH. MO was only 10 lt-sec away, and the sensitivity was seriously degraded by high background rates. If the WATCH time of 14:00:21 is accurate, then there is no GRS detection. However, there may be some GRS candidates within a few minutes of 14:00.
2	22 OCT 92	296	15:20:59	55259	2	BATSE #1997. There was no significant GRS response near 15:21. A leakage current glitch (a low bin followed by a high bin) is seen at 15:24.
3	13 DEC 92	348	14:56:42	53802	1	Ulysses only. There is no clear GRS response. This event merits further consideration only if the time window at MO

28/ 3/94

MO-RT

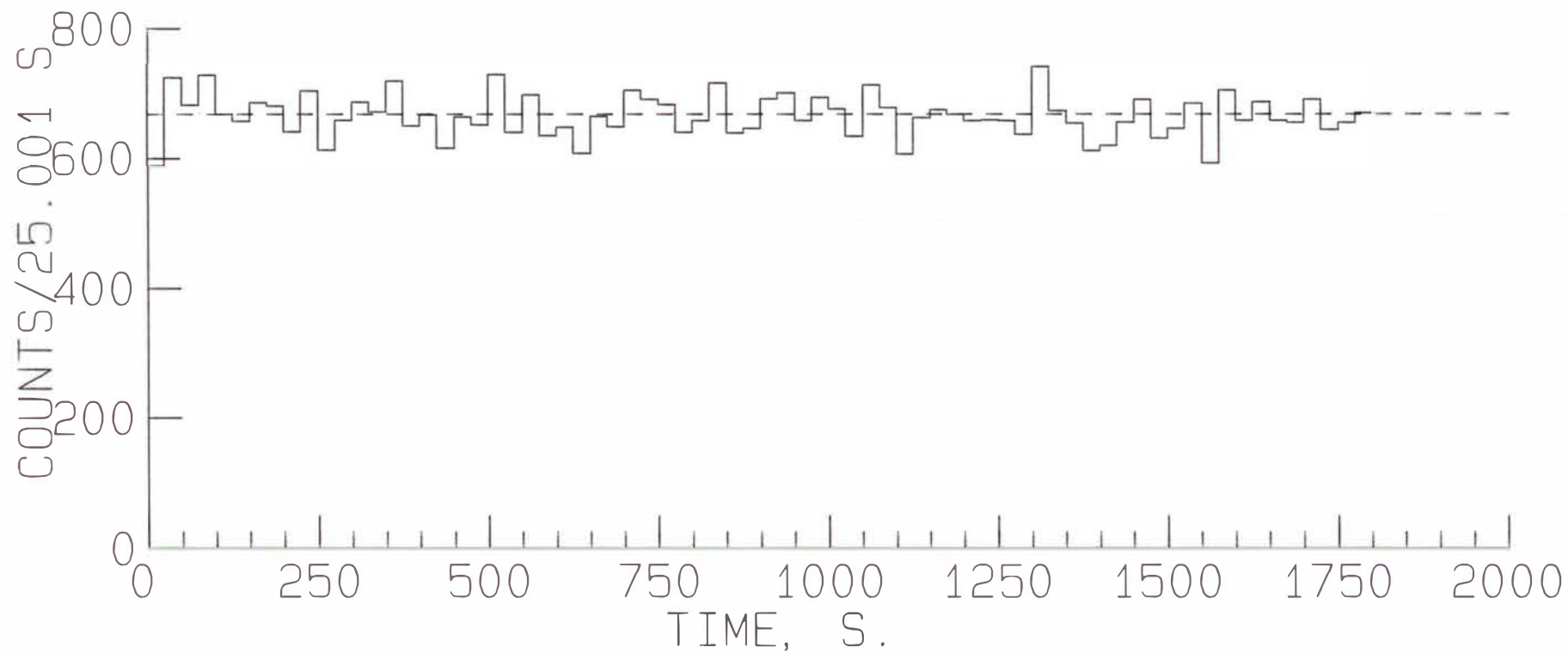
14/ 6/93

11472.641 s.

25.001 S. INTERVALS REGROUPED BY 1

120- 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS



MO-RT 14/ 6/93

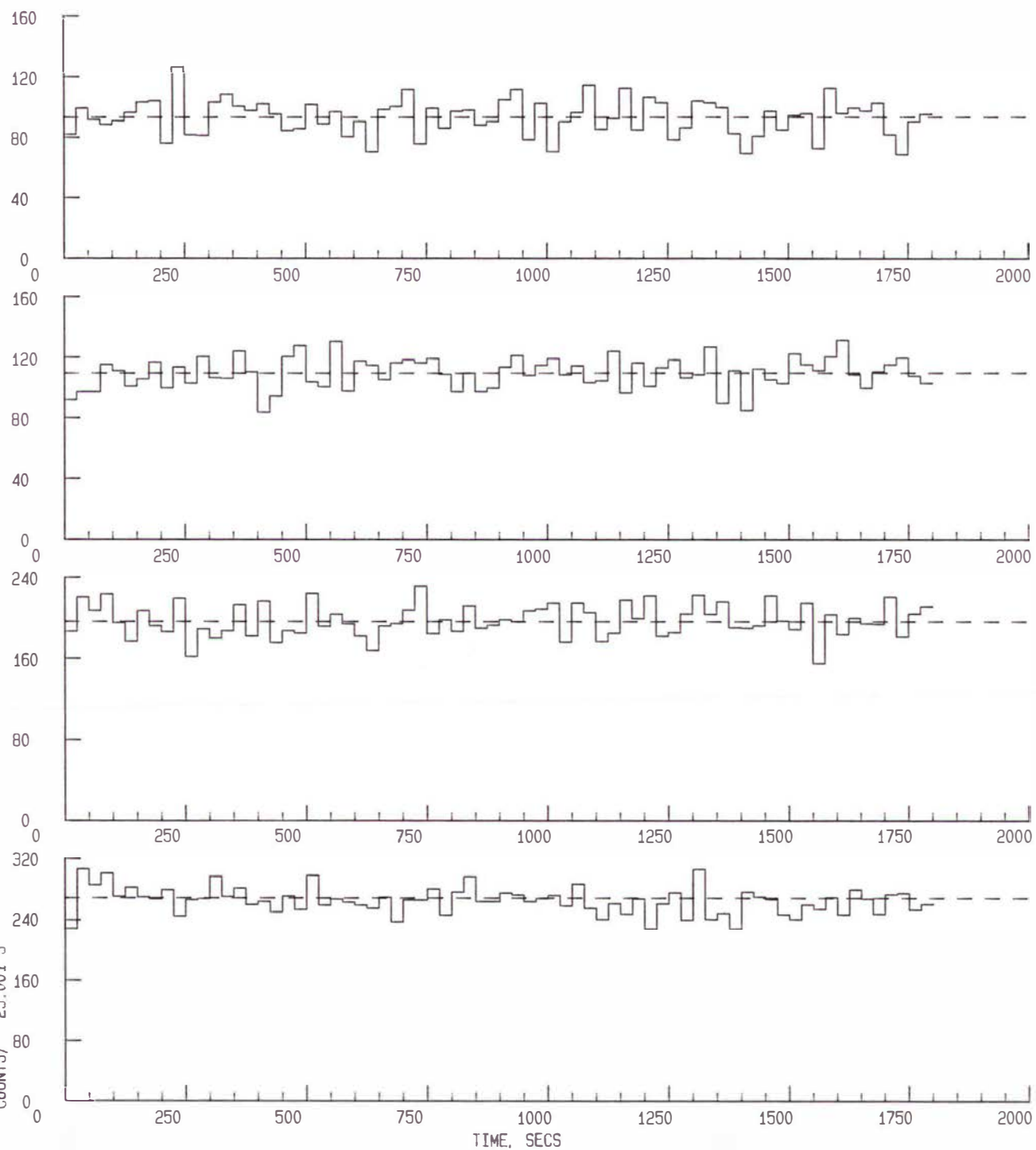
120-240 keV

COUNTS/ 25.001 S

240-360 keV

360-480 keV

480-600 keV



From scott@xtelab.gsfc.nasa.gov Wed Jun 30 07:50:52 1993
Date: Wed, 30 Jun 93 10:52:00 EDT
From: scott@xtelab.gsfc.nasa.gov (Scott Barthelmy)
To: khurley@sunspot.ssl.berkeley.edu
Content-Length: 1201

[My apologies if you are receiving this a 2nd time. The e-mail exploder failed some where in the middle of the distribution list. SDB]

To whom is may concern:

As part of the Target of Opportunity program I (and Brad Scahefer & David Palmer) have on the Case Schmidt at Kitt Peak, we obtained two exposures on the 930614 Gamma Ray Burst. They were made 4.1 days after the burst. The two plates cover a 5.2 by 5.2 degree region well centered on the WATCH position and have a limiting manitude of 19.5.

I am writing this e-mail in an effort to learn of other followup observations. If there is sufficient observations and interest, we would be interested in collaberating to form a larger paper. Even if you do not have any observations which you would want to contribute to this, I would be very interested in learning of people you know of that have followup observations who may or may not be on this e-mail distribution list.

I can be reached at:

scott@xtelab.gsfc.nasa.gov	(internet)
lhevax::barthelmy	(span; lhevax == 15407)
301-286-3106	(voice)
301-286-9240	(fax)

Regards,
Scott Barthelmy
NASA-Goddard
Code 661
Greenbelt, MD 20771

From SCHAEFER@BATSEL.GSFC.NASA.GOV Tue Jun 22 07:19:53 1993
Date: Tue, 22 Jun 1993 10:21:54 -0400 (EDT)
From: SCHAEFER@BATSEL.GSFC.NASA.GOV
Subject: Two good plates
To: khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu"
Content-Length: 451

Hi;

I got two good deep Schmidt plates the entirely covered the IPN/WATCH error arc. I did not find any 'new star'. Have you heard from any other observers?

I put in the mail to you a 9-track magnetic tape which has FITS format images of all my final products for the IR and optical runs at CTIO in February 1993. The headers shoudl give you most of the information you need, but give me a call if you cannot locate the fields.
Cheers,
Brad

From root Fri Jun 18 01:20 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA12228; Fri, 18 Jun 93 01:20:10
Received: from danpost.uni-c.dk by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA13137; Fri, 18 Jun 93 01:21:48 PDT
Received: from uhuru.dsri.dk by danpost.uni-c.dk (5.65c+/1.34)
id AA17564; Fri, 18 Jun 1993 10:22:37 +0200
Received: by uhuru.dsri.dk (4.1/SMI-4.1)
id AA08003; Fri, 18 Jun 93 10:21:28 +0200
Date: Fri, 18 Jun 93 10:21:28 +0200
From: Niels Lund <nl@dsri.dk>
Message-Id: <9306180821.AA08003@uhuru.dsri.dk>
To: khurley@ssl.Berkeley.EDU
Status: R

Dear Kevin:

It was really nice to see the timing arc for GRB 930614.
I received an e-mail from Brad Schaefer, he is at Kitt
Peak observing. He would like to be informed about any
new developments on this burst. I asked him to contact
you directly.

I would like to send your graph (timing arc plus WATCH
and BATSE positions) to the people at ESOC and ESTEC
assisting us with the EURECA attitude solution. If I
put proper words of "preliminary" and "not for publi-
cation" along, do you agree?

niels

From palmer@tgrs.gsfc.nasa.gov Sat Jun 19 09:55:43 1993
Date: Sat, 19 Jun 1993 12:59:51 -0400
To: khurley@sunspot.ssl.berkeley.edu
From: palmer@tgrs.gsfc.nasa.gov
Subject: GRB 930614 light curves
Cc: cline@tgrs.gsfc.nasa.gov
Content-Length: 655

Something to be aware of when doing timing with multiple instruments:

Burst 930614 has a very hard peak just after the BATSE trigger, and then a softer peak a few seconds later.

In the $10 < E < 100$ keV energy range, it looks like a slowly-rising hump with a peak at $T+3$ seconds, a FWHM of 2 seconds, and shoulders at about the 25% level, dropping to near zero at $\sim T+7$.

For $100 < E < 1000$ keV, it looks like a 1.5s FWHM spike peaked at $T+0.5$, a 1s FWHM spike centered at 2.5 seconds, and a tail that's gone by $T+5$ s.

Therefore, if you try to match light curves from high- and low- energy instruments, you could get a 3 second error.

David

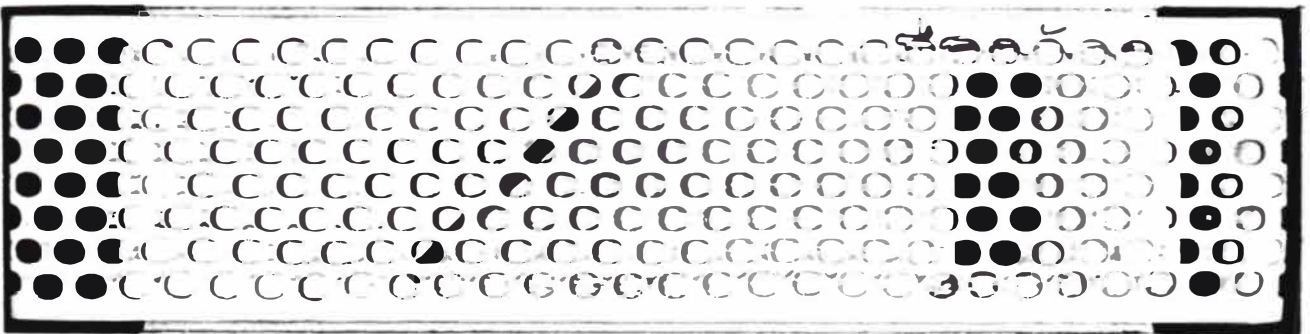
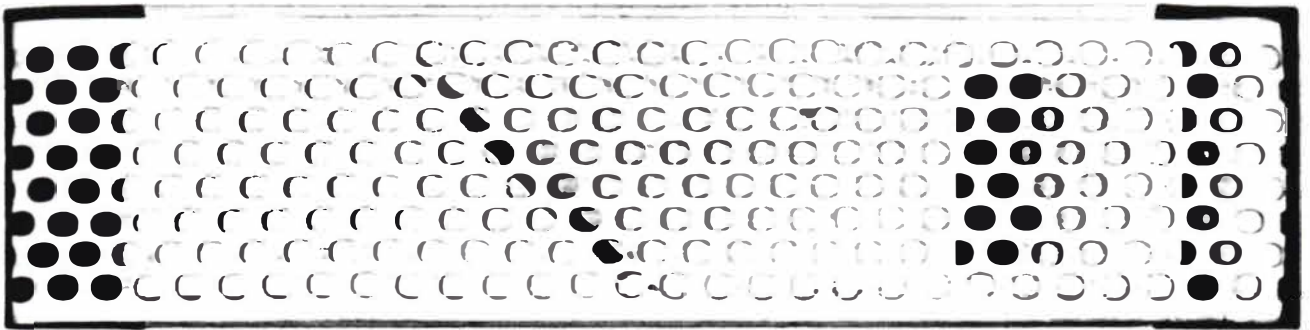
From khurley@space6.ssl.berkeley.edu Fri Jun 18 09:34:49 1993
Date: Fri, 18 Jun 93 09:32:51
From: khurley@space6.ssl.berkeley.edu
Content-Length: 190

We had a GRB on June 14 which is well placed for Lick observations:
RA=11 h 20 m 40 s, dec=23 d 04 m (2000), with an uncertainty of about 0.5
degrees. Can you get double astrograph plates?

From root Fri Jun 18 12:06 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA12348; Fri, 18 Jun 93 12:06:02
Received: from cats.UCSC.EDU by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA20865; Fri, 18 Jun 93 12:07:44 PDT
Received: from ucscloc.UCSC.EDU by cats.UCSC.EDU with SMTP
id AA15774; Fri, 18 Jun 93 12:08:33 -0700
Received: by ucscloc (5.51/4.7)
id AA06733; Fri, 18 Jun 93 12:10:25 PDT
Date: Fri, 18 Jun 93 12:10:25 PDT
From: tony@ucscloc.ucsc.edu (Tony Misch)
Message-Id: <9306181910.AA06733@ucscloc>
To: khurley@space6.ssl.berkeley.edu
Subject: GRB plates
Status: R

Kevin, I'm busy the whole first half of the night both tonight and
tomorrow, and then will be gone from Sunday 'till Tue or Wed.
I will try to get the plates when I return, if you think it still
worthwhile, but the field is very far West (will be 3 hours over
at twilight) and the chances of a decent pair--particularly of a
decent red plate--are slim.

-Tony



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

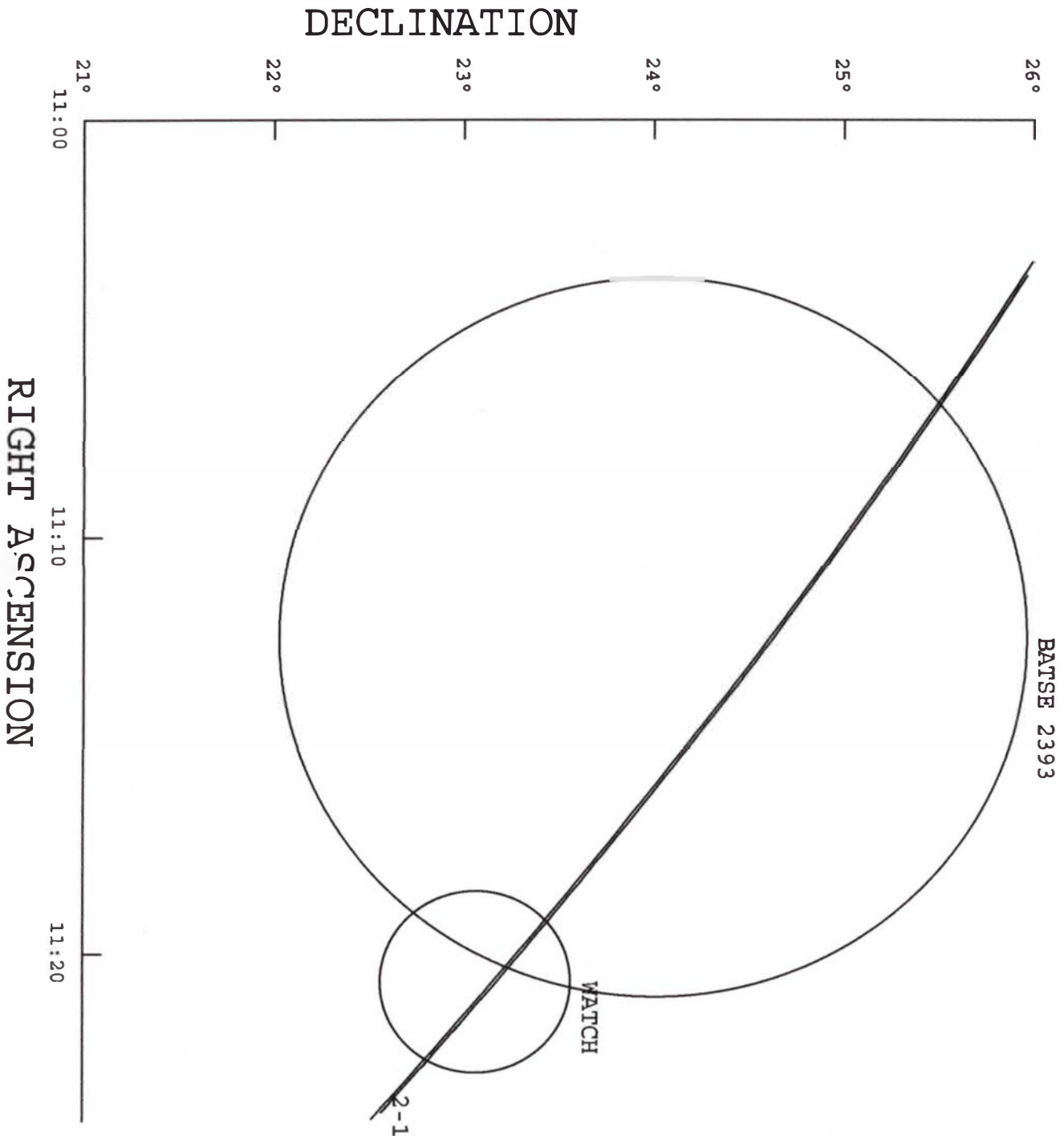
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF JUN 14, 1993 3:10

3 / 1/98



BATSE

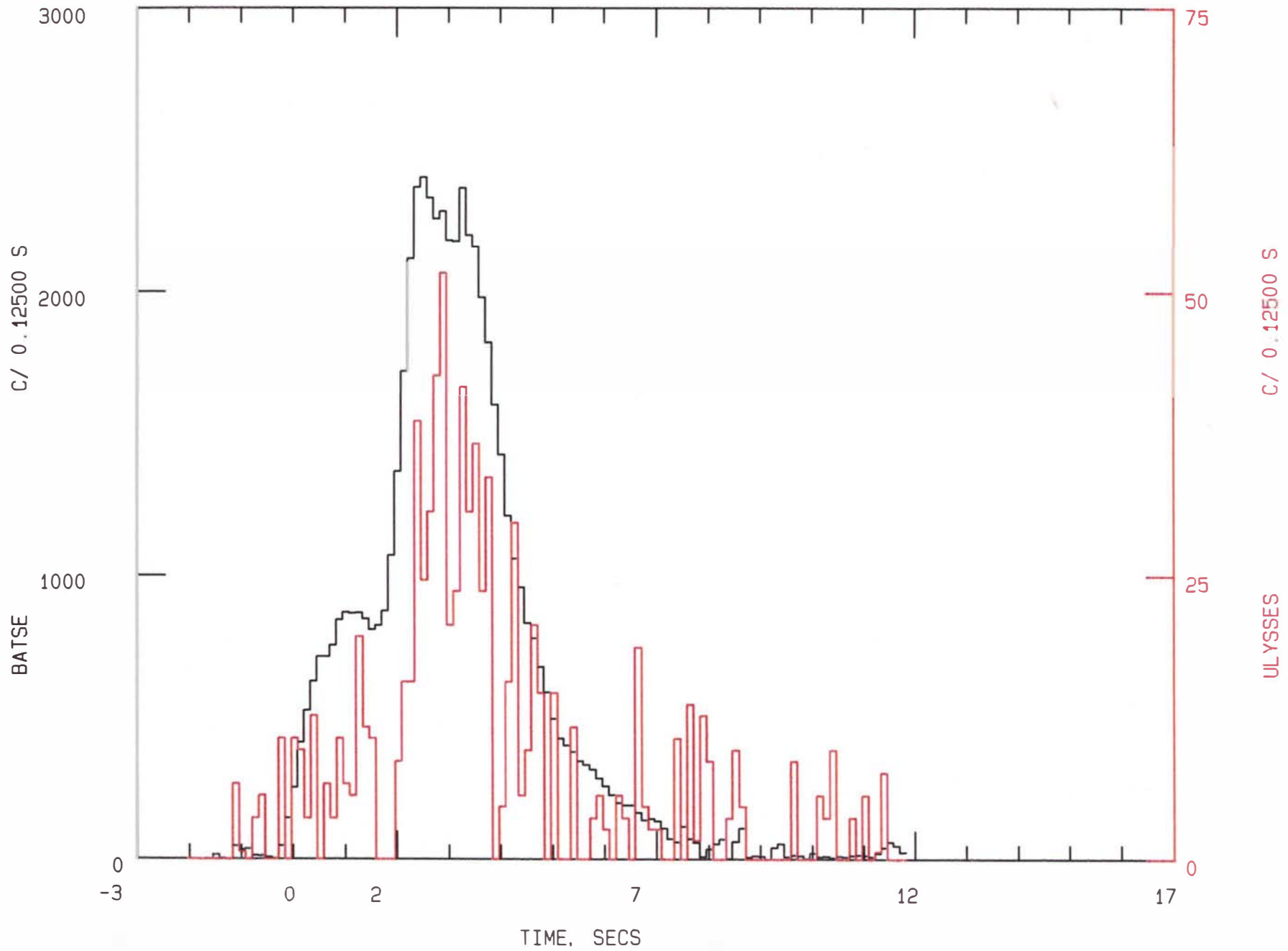
-ULYSSES

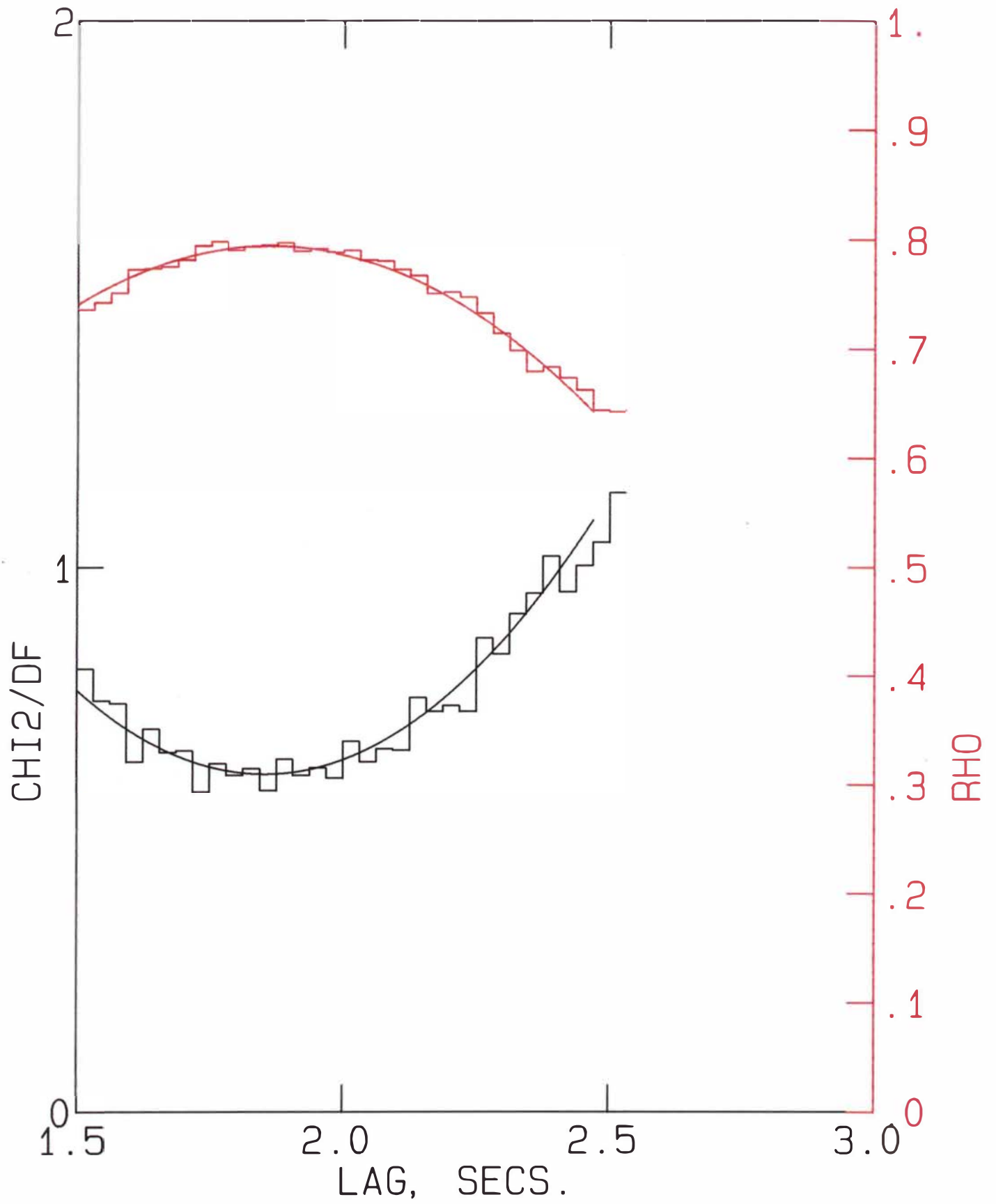
CORRELATION

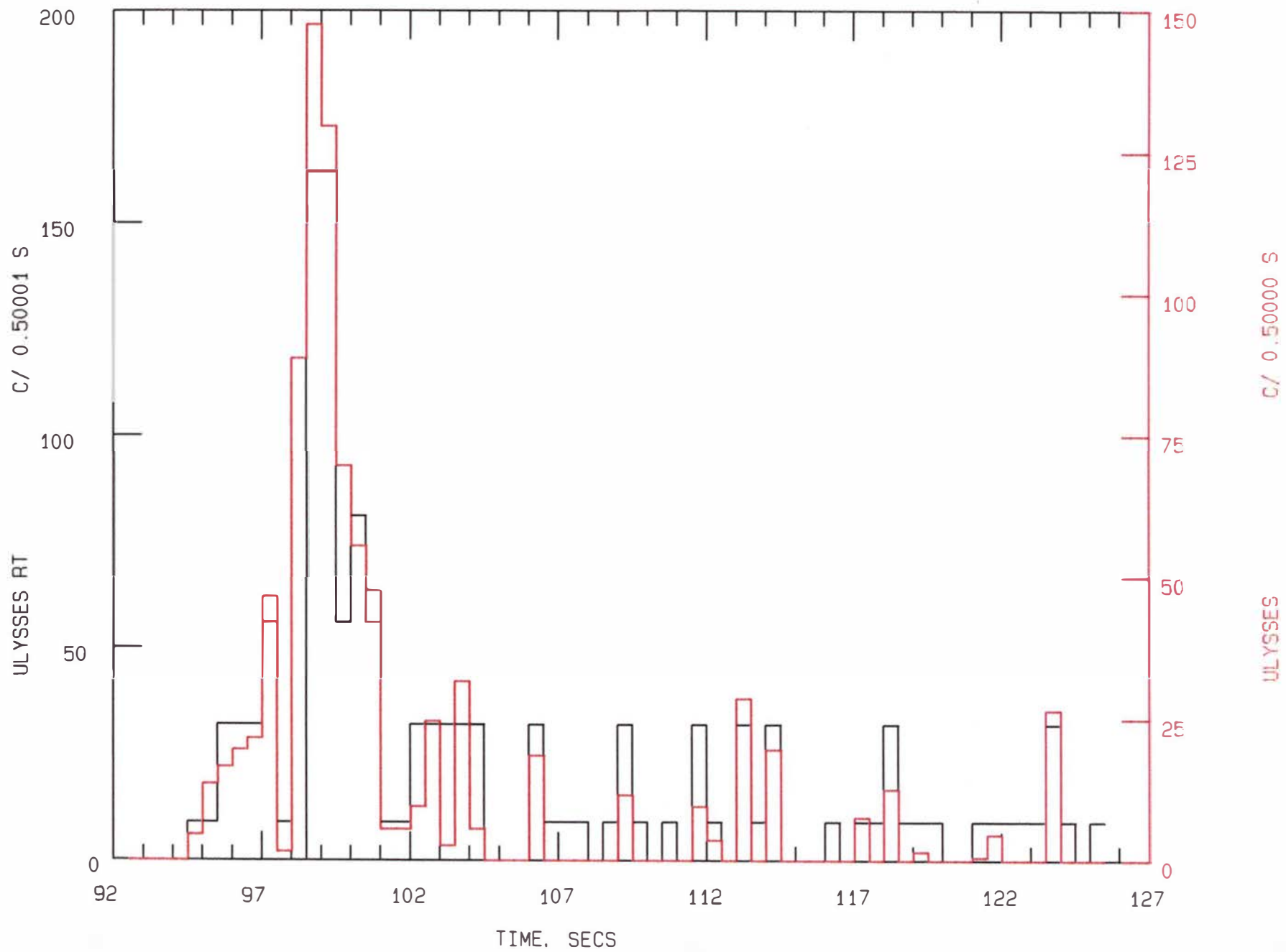
14/ 6/93

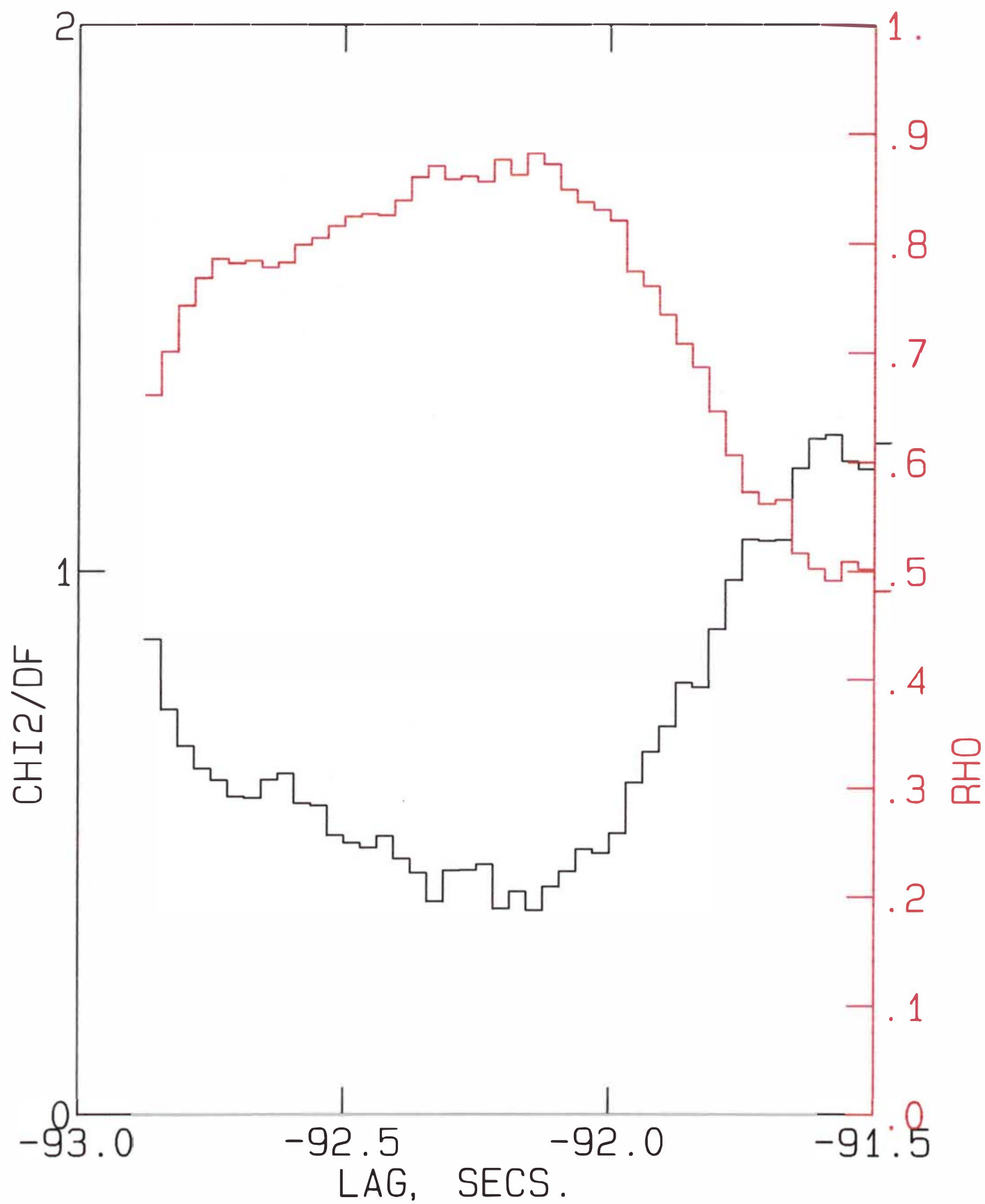
13230.721

3/ 1/98







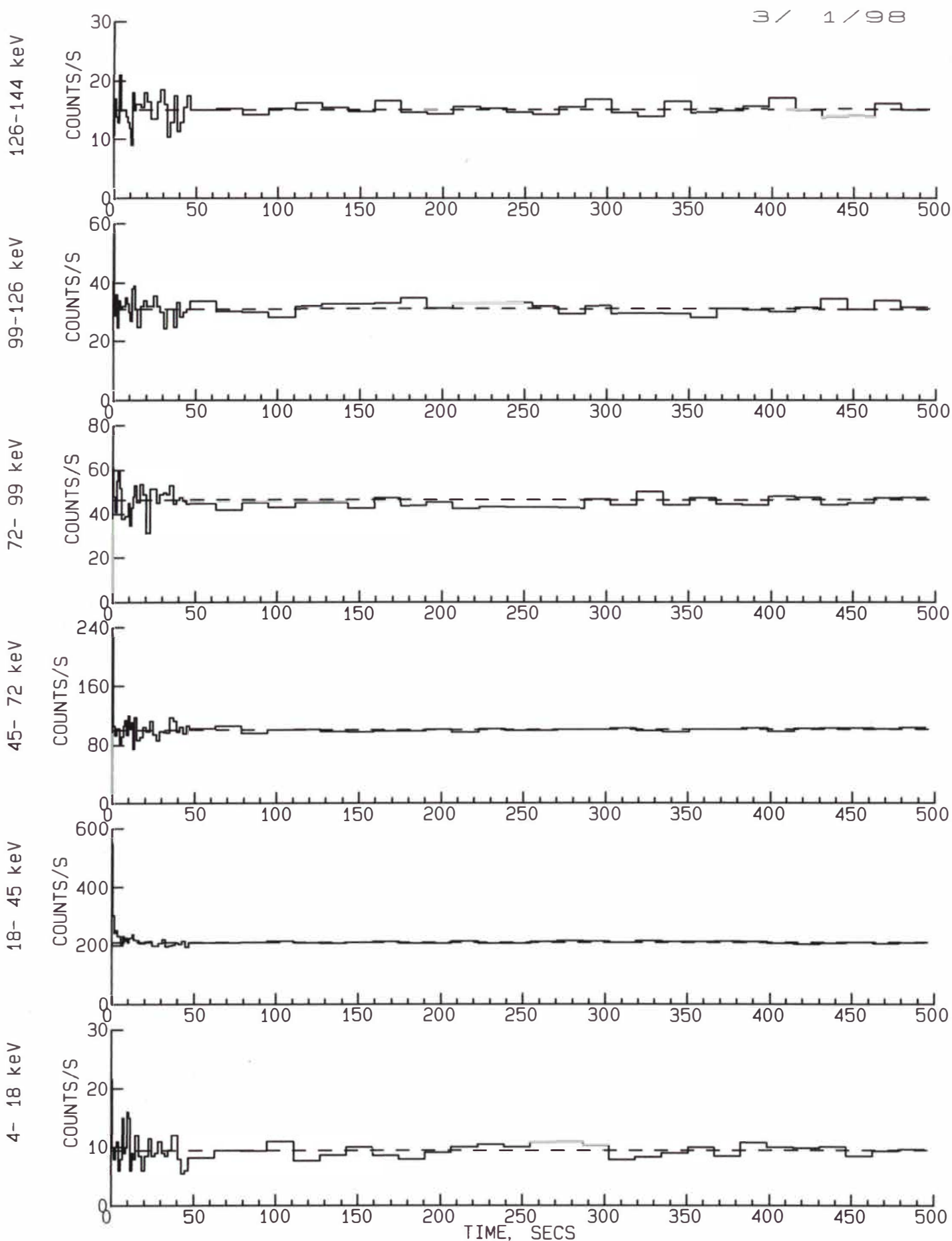


3/ 1/98

A log-log plot showing the X-ray flux (in counts/cm² s keV) versus energy (in keV) for the source 4C+71.0. The y-axis ranges from 10⁻⁴ to 10⁻¹, and the x-axis ranges from 10⁰ to 10². The plot displays several data points with error bars, representing different energy bins. The flux generally decreases as energy increases, with a notable dip around 10 keV and a sharp increase around 100 keV.

Energy (keV)	Flux (counts/cm ² s keV)
~5	~0.005
~10	~0.003
~20	~0.08
~30	~0.08
~50	~0.05
~70	~0.02
~80	~0.025
~100	~0.005
~110	~0.008
~120	~0.006
~130	~0.004
~140	~0.003
~150	~0.0012

ULYSSES 14/06/93 11442.559 BURST SPECTRAL COUNT RATES



ULYSSES

14/06/93

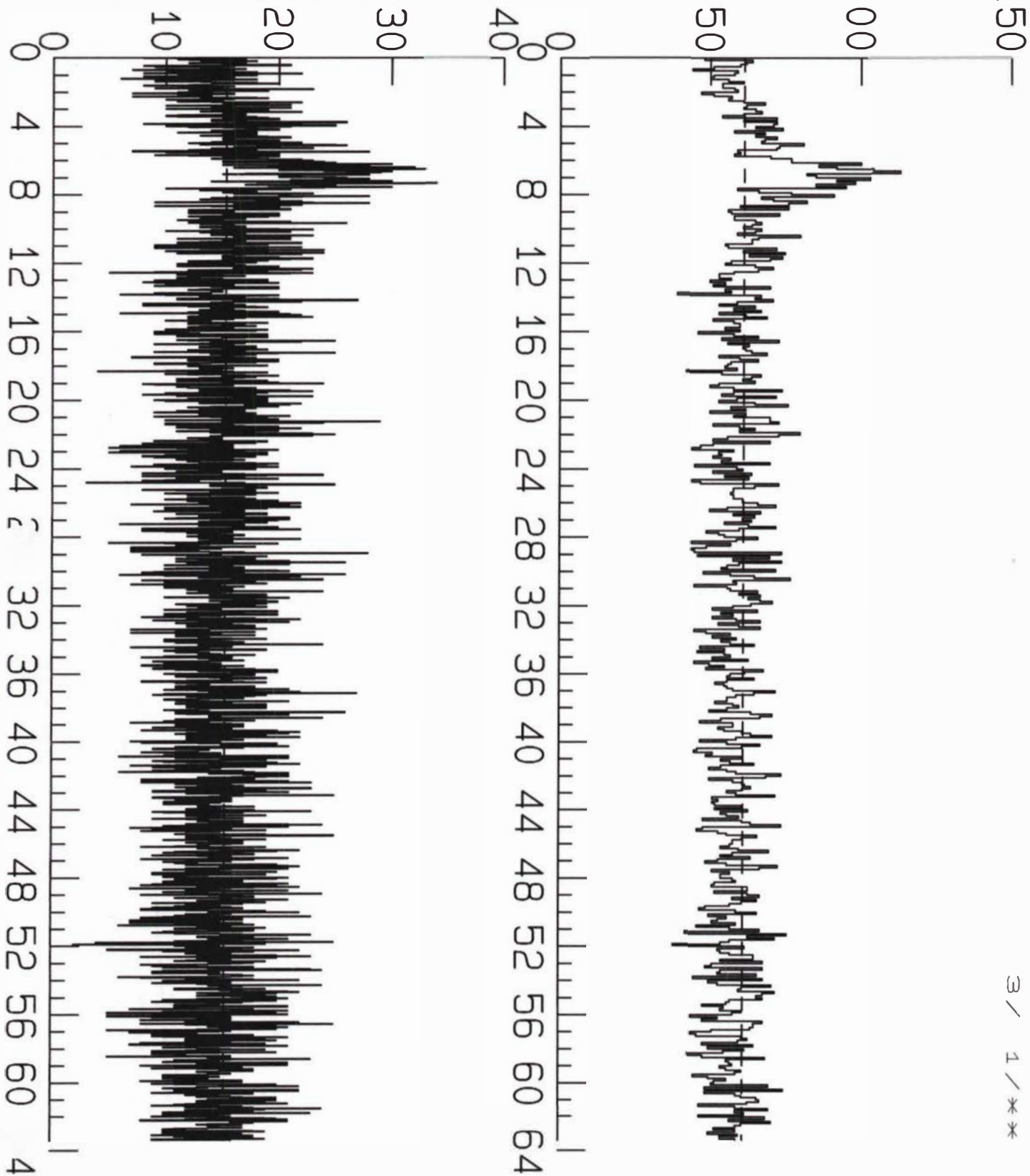
Ttrig=11442.330

21- 144 keV

3 / 1 / **

COUNTS/0.031 S

COUNTS/0.125 S



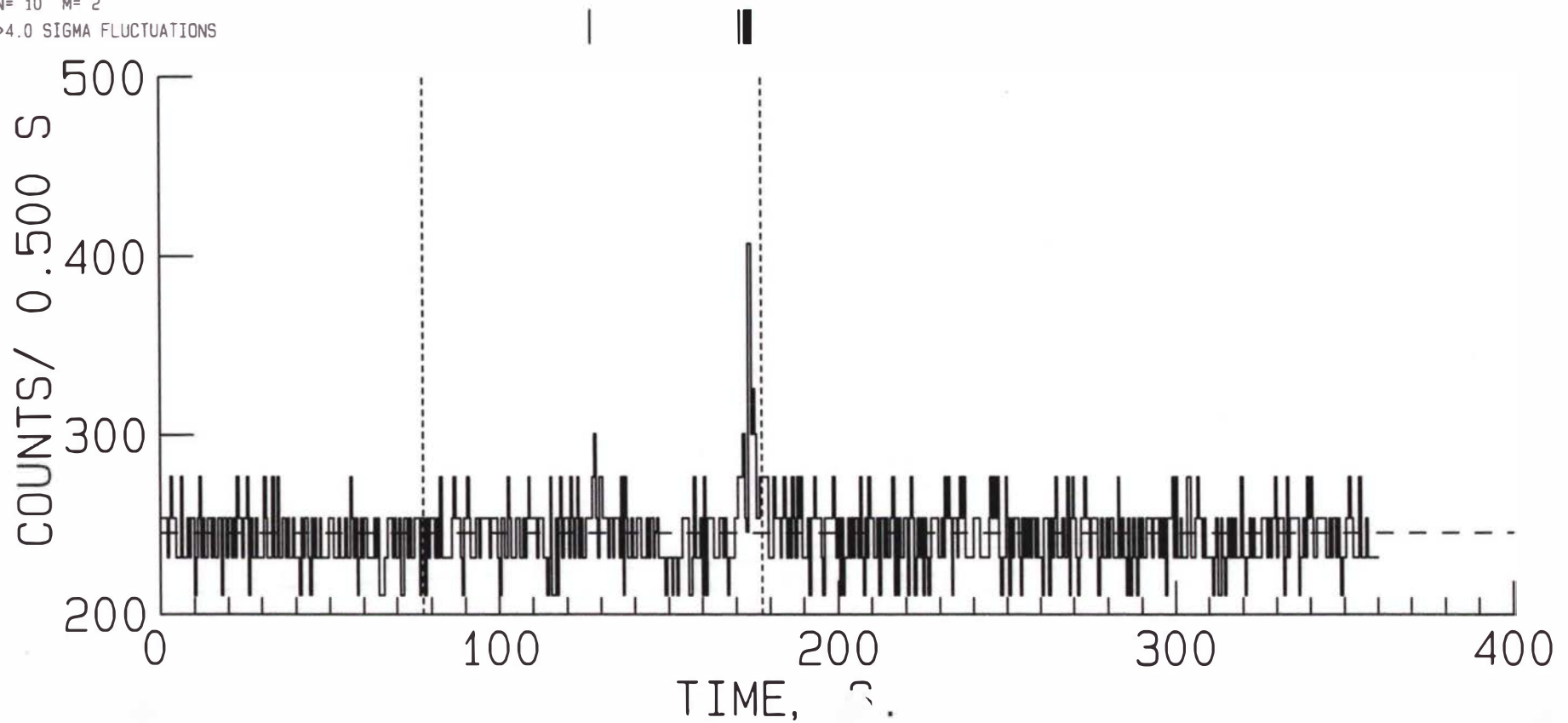
ULYSSES RT

3 / 1 / 98

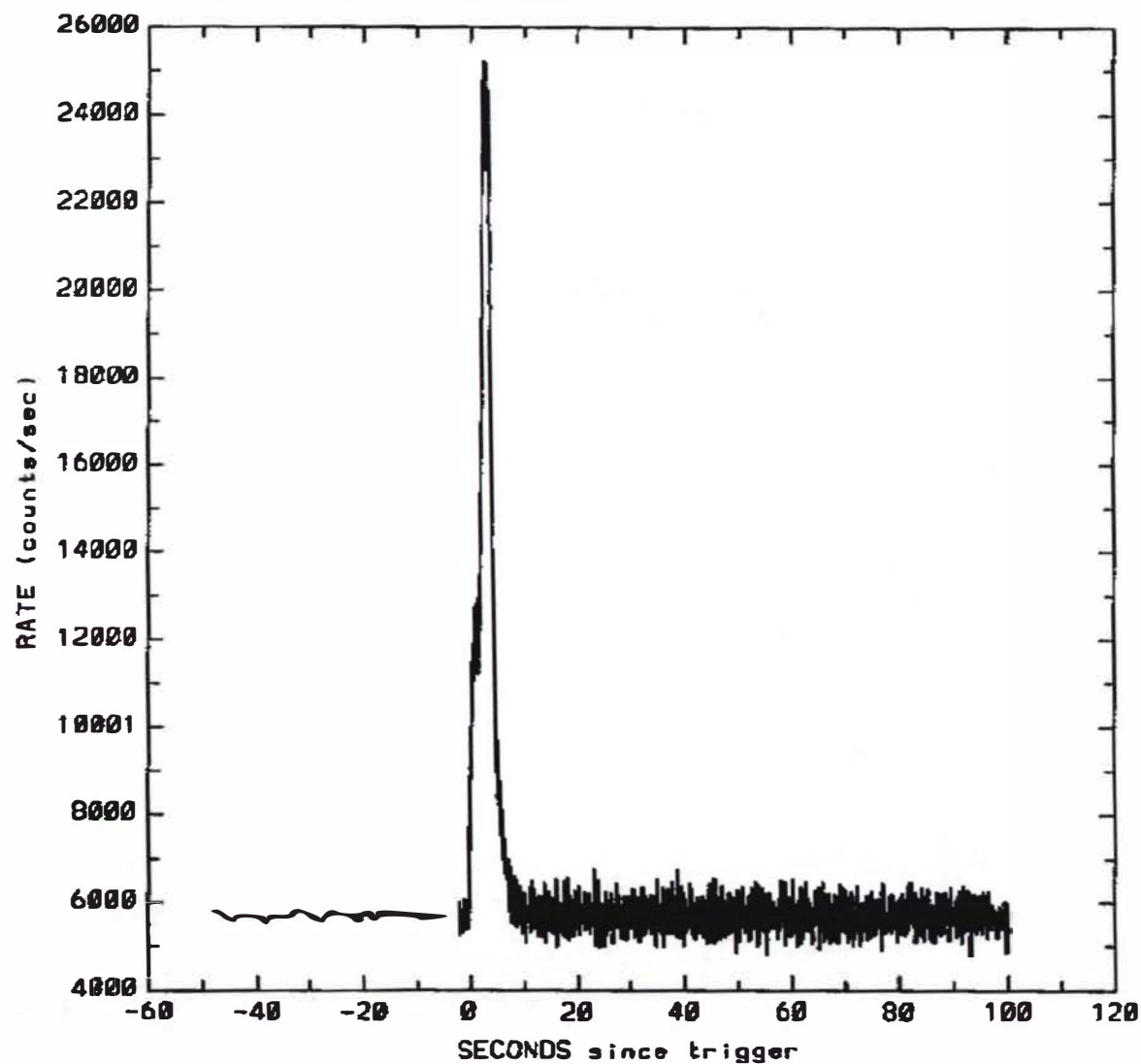
14/ 6/93 11268.066 s

21- 144 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



DATA FOR K. HURLEY



17-JUN-1993 12:03.81

Created by MOPS BD
(Burst Display)
Version 2.19

Trigger # : 2393

Trigger Time:
9152 / 13230.594Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8]:
10001000Discriminators:
1 1. 2)Quality Mask:
BDISP1

From root Thu Jun 17 13:13 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA11783; Thu, 17 Jun 93 13:11:09
Received: from danpost.uni-c.dk by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA06095; Thu, 17 Jun 93 13:12:53 PDT
Received: from uhuru.dsri.dk by danpost.uni-c.dk (5.65c+/1.34)
id AA03270; Thu, 17 Jun 1993 22:09:58 +0200
Received: by uhuru.dsri.dk (4.1/SMI-4.1)
id AA04335; Thu, 17 Jun 93 22:08:51 +0200
Date: Thu, 17 Jun 93 22:08:51 +0200
From: Niels Lund <nl@dsri.dk>
Message-Id: <9306172008.AA04335@uhuru.dsri.dk>
To: ASTMPH@earn.cvut.cs, BMCBREEN@irlearn.ucd.ie, FISHMAN@batse.span.nasa.gov,
JCG@DGAMPE5D.BITNET, LINNOCEN@vmprofs.estec.esa.nl,
PACIESAS@ssl.msfc.nasa.gov, PMAHR@ESOC.BITNET,
SCHAEFER@tgrs.gsfc.nasa.gov, SKELLOCK@ESOC.BITNET, alvaro@cc.csic.es,
boer@cesrzd.dnet.nasa.gov, gershberg@crao.crimea.ua@relay.ussr.eu.net,
holger@astro.ku.dk, ilapshov@ESOC1.BITNET, khurley@ssl.Berkeley.EDU,
kouveliotou@batse.span.nasa.gov, larsson@astro.su.se,
moskal@sai.msk.su, murakami@astro.isas.ac.jp, nl@dsri.dk,
oterekho@ESOC1.BITNET, rsunyaev@ESOC1.BITNET, sb@dsri.dk
Subject: WATCH parting shot
Status: R

Dear friends

On the very last day of its operational life WATCH EURECA detected a nice and strong gamma ray burst. The position of the burst has been a little uncertain until now because EURECA has been in a special attitude mode lately, in preparation for the retrieval by the Shuttle next week. Thanks to assistance from ESOC the uncertainty has now been eliminated.

These are the burst parameters:

GRB 930614 detected at 03:40:32.9 UT, single peak, duration 10s
The position: RA: 11h 20m 40s, dec: 23d 04m. (J2000). 170.167
The position uncertainty is: +- 0.5 degrees.

23.067

With best regards

Niels Lund.

BATSEARCH PROGRAM

BATSE BURST # 2394
EVENT OF 1993 JUN 14 DAY OF YEAR=165
EVENT CROSSING TIME AT BATSE : 59677. S. OR 16:34:37.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 40.000 -40.000
BATSE PEAK COUNTING RATE: 4000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 14/ 6/ 93 IS:
RA= 143.511 DEC= -10.984 DIST= 4.892 AU
BATSE-ULYSSES DISTANCE = 731843200. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 86.95 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 129.92 SECS.
CROSSING TIME AT ULYSSES IS 59807. S. OR 16:36:46 +/- 475.20 SECONDS

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 15 14:32:01 1993
Date: Tue, 15 Jun 1993 16:32:40 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: MEEGAN@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2394	930614	9152	59677	4000	040	-40

~~RI~~ No - too weak

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 15 14:22:00 1993
Date: Tue, 15 Jun 1993 16:22:25 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: igse@unhrrc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02394

TIME: TJD=9152 SECONDS=59677

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

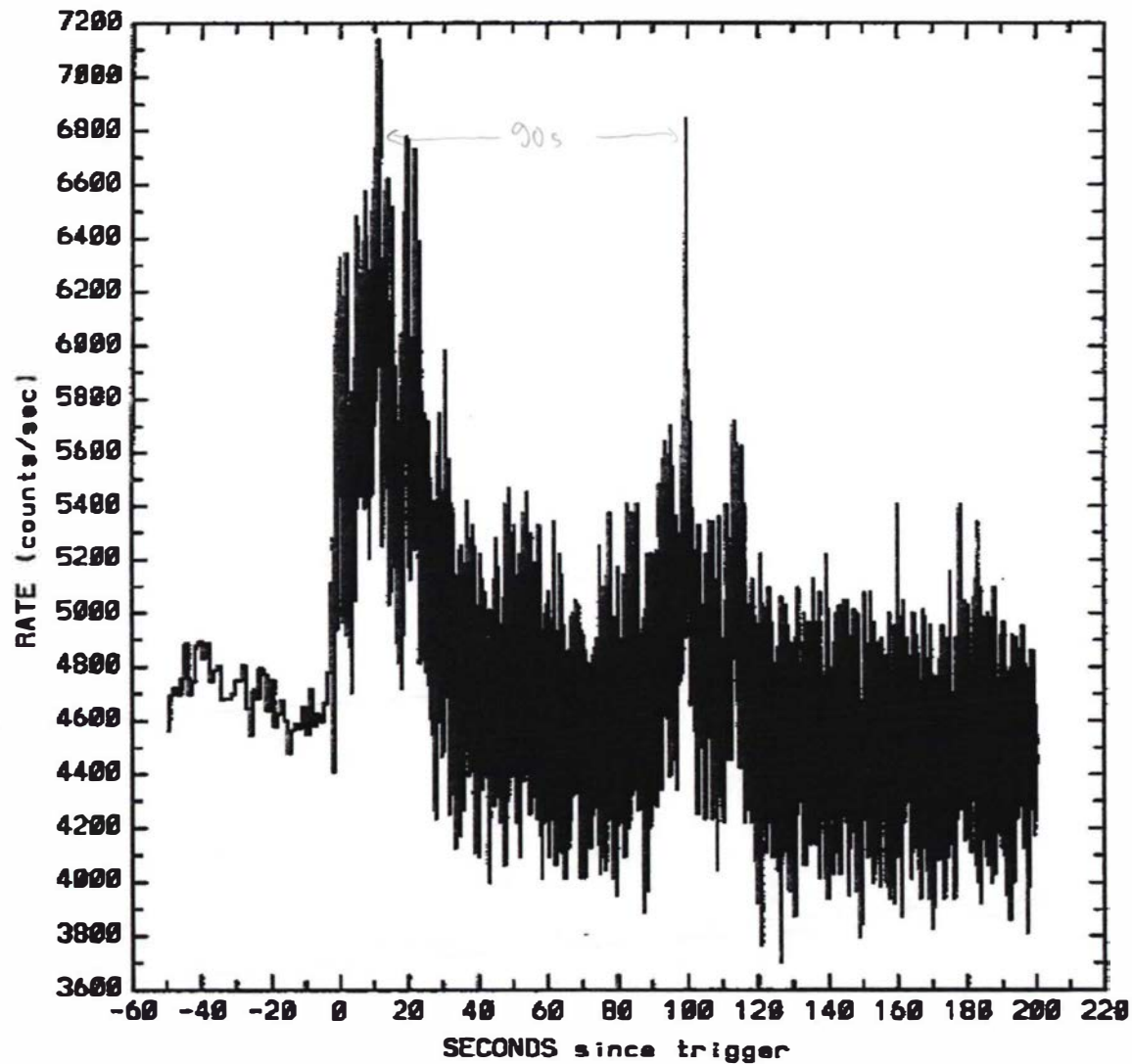
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 35. AZIMUTH= 25. ERROR= DEGREES

COMMENTS:

SPIKEY EVENT LASTING 120 S. MARGINAL ABOVE 300 KEV.

DATA FOR K. HURLEY



3-SEP-1993 13:32:29

Created by MOPS 8D
(Burst Display)
Version 2.28

Trigger # : 2394

Trigger Time:
9152 / 59677.058Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8],
00000101Discriminators:
[1, 2]Quality Mask:
0010P1

ULYSSES RT

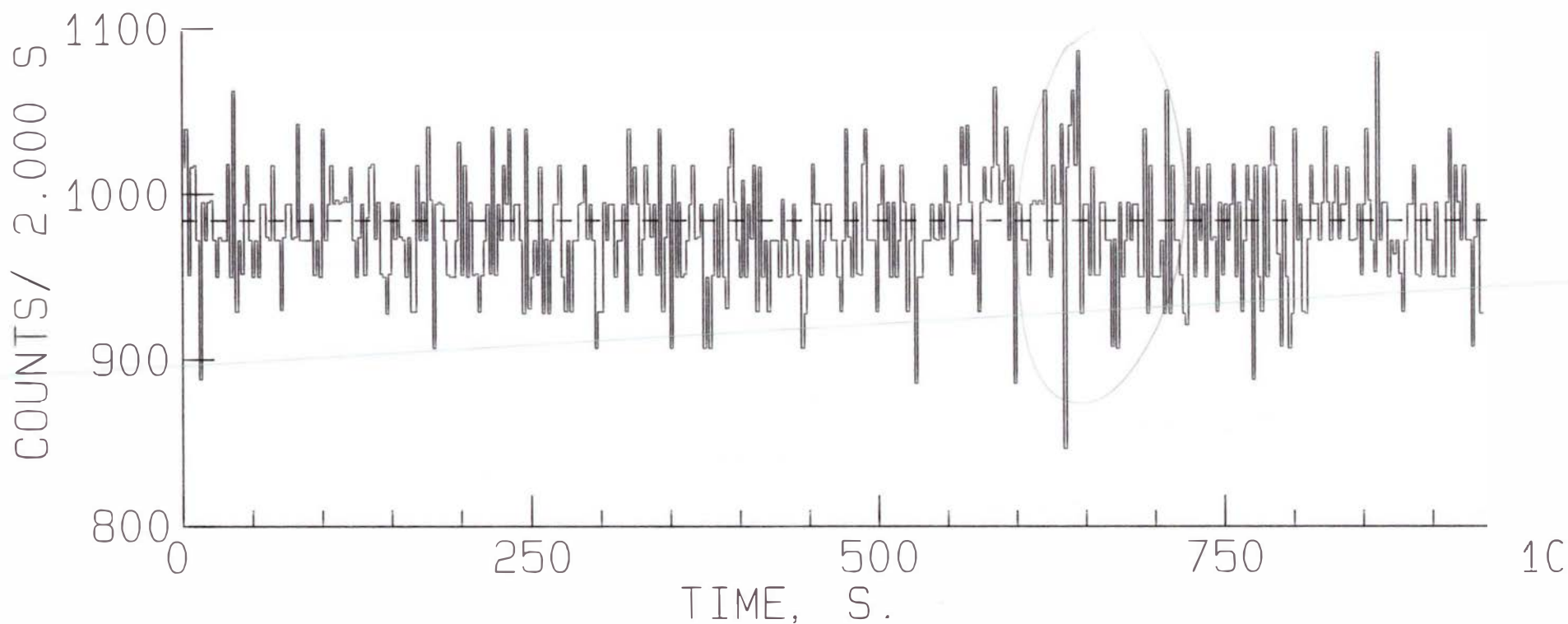
28/ 6/95

14/ 6/93 59328.277 s

.500 S INTERVALS REGROUPED BY 4

21- 144 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



can be narrowed.

* 4 20 JAN 93 20 23:31:40 84700 2 BATSE #2138. GRS sensitivity was compromised by the abnormally long 60 s bins. Even so, a fairly convincing response is seen in two consecutive bins at about 23:35. It should be possible to refine the time using "centroiding". Unfortunately, MO was not very far away yet. A moderately significant hard-to-soft spectral evolution is seen.

5 22 JAN 93 22 12:21:18 44478 2 BATSE #2142. No GRS response was seen near the predicted time of 12:18:34.

* 6 27 JAN 93 27 16:14:25 58465 2 BATSE #2149. A weak GRS enhancement in band1 (120-240 keV) is seen in consecutive bins at the predicted time. Sensitivity was again compromised by 60 s binning, but this was a long event. I think the response is real (though perhaps useless for time-of-arrival).

7 10 MAR 93 69 07:19:20 26360 2 BATSE #2232. No GRS response near the predicted time. However, two crucial bins are missing, probably due to poor data quality. They cannot be recovered.

8 28 APR 93 118 01:07:12 4032 2 BATSE #2320. No GRS response near the predicted time.

9 31 MAY 93 151 15:53:38 57218 2 BATSE #2362. No GRS response near the predicted time.

10 6 JUN 93 157 07:18:48 26328 2 BATSE #2375. No GRS response near the predicted time.

*11 12 JUN 93 163 00:44:17 2657 2 BATSE #2387. Clear response in 1 or 2 bins at 00:43:37.

*12 12 JUN 93 163 08:53:57 32037 2 BATSE #2389. Clear response in one bin at 09:07:48.

13 14 JUN 93 165 03:40:30 13230 2 BATSE #2393. No response near the predicted time. This is surprising, because the event was intense and the spacecraft apparently was not blocking the detector.

14 14 JUN 93 165 16:34:37 59677 2 BATSE #2394. No response near the predicted time, although there was a data gap that ended at 16:39:34. This was a weak event that probably should not have been seen by GRS.

*15 28 JUN 93 179 03:20:36 12036 1 Ulysses only. Definite response at 03:35:09.0. Note that the fractional second on the printout is incorrect.

16 6 JUL 93 187 05:13:30 18810 2 BATSE #2431. The one-and-only known triggered event. David Palmer has done some arrival time analysis. Have I sent you any data on this event? Do you want any? (Trigger data and mapping data are mutually exclusive.)

17 6 JUL 93 187 08:09:10 29350 2 BATSE #2432. No response near the predicted time.

18 8 JUL 93 189 05:12:38 18758 2 BATSE #2433. No response near the predicted time.

19 11 JUL 93 192 03:32:01 12721 2 BATSE #2441. No response near the predicted time.

20 14 JUL 93 195 16:12:53 58373 2 BATSE #2446. No response near the predicted time.

*21 20 JUL 93 201 14:35:09 52509 2 BATSE #2450. Definite response, probably in two bins, at about 14:49.

From root Wed Jan 26 09:21 1994
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AB01596; Wed, 26 Jan 94 09:21:57
Received: from lpl.arizona.edu (hindmost.LPL.Arizona.EDU) by sunspot.ssl.berkeley.edu (5.0/SMI)
id AA26699; Wed, 26 Jan 1994 08:26:17 +0800
Received: from peewee.lpl.arizona.edu by lpl.arizona.edu (4.1/hindmost-MX-1.4)
id AA04397; Wed, 26 Jan 94 09:28:59 MST
Received: by peewee.lpl.arizona.edu (5.0/SMI-SVR4)
id AA02684; Wed, 26 Jan 94 09:32:09 MST
Date: Wed, 26 Jan 94 09:32:09 MST
From: jlaros@peewee.lpl.arizona.edu (John Laros)
Message-Id: <9401261632.AA02684@peewee.lpl.arizona.edu>
To: khurley@sunspot.ssl.berkeley.edu
Subject: MO bursts
Content-Type: X-sun-attachment
Content-Length: 5685
Status: R

X-Sun-Data-Type: text
X-Sun-Data-Description: text
X-Sun-Data-Name: text
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 16

Kevin,

Here it comes: MO time history and ephemeris data on all 27 of the Ulysses events for which there was GRS coverage. It looks like about 10 bursts were actually detected by GRS. Please note that the time history files have a line at the end, labelled "Ensemble values", that was not in the sample I sent you. These are empirically determined means and sigmas for the data set. For reasons that have not yet been determined, the empirical sigmas are larger than the theoretical ones at the lower energies.

If there were any intense non-Ulysses bursts during the MO lifetime, such as WATCH events, would you please send me the information on them?

Thanks,

John

X-Sun-Data-Type: default
X-Sun-Data-Description: default
X-Sun-Data-Name: ulysses.lst
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 106

MO/GRS Burst Coverage of Ulysses Events

(* indicates probable GRS detection of the burst)

	DATE	DOY	TIME	T,SEC	NSAT (1=Ulysses, 2=GRO)	
1	4 OCT 92	278	13:38:27	49107	1	Ulysses/PVO/WATCH. MO was only 10 lt-sec away, and the sensitivity was seriously degraded by high background rates. If the WATCH time of 14:00:21 is accurate, then there is no GRS detection. However, there may be some GRS candidates within a few minutes of 14:00.
2	22 OCT 92	296	15:20:59	55259	2	BATSE #1997. There was no significant GRS response near 15:21. A leakage current glitch (a low bin followed by a high bin) is seen at 15:24.
3	13 DEC 92	348	14:56:42	53802	1	Ulysses only. There is no clear GRS response. This event merits further consideration only if the time window at MO

From root Tue Jun 29 11:25 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02041; Tue, 29 Jun 93 11:25:16
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA01867; Tue, 29 Jun 93 11:26:35 PDT
Received: Tue, 29 Jun 93 11:15:22 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306291815.AA02843@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-mail11d v1.7); Tue, 29 Jun 93 11:28:04 PDT
Date: Tue, 29 Jun 93 11:28:04 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

MO/GRS had a leakage current spike at 56894. This is probably just a coincidence, but it is somewhat suspicious that the same thing happened on 921022. I will look for other such coincidences as time goes on.

Incidentally, I see a rather long event that did not cause a trigger on June 20 at about 15:00. Is it solar? There is a definite solar observation on June 24 at about 08:00, but again no trigger.

John

P.S. In the first paragraph, I was referring to the 23 June oddball event. MO position on June 14 was 270229687, 148.79, 12.62.

From root Tue Jun 29 11:28 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02047; Tue, 29 Jun 93 11:28:32
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA01888; Tue, 29 Jun 93 11:29:53 PDT
Received: Tue, 29 Jun 93 11:29:41 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306291829.AA03171@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-mail11d v1.7); Tue, 29 Jun 93 11:31:22 PDT
Date: Tue, 29 Jun 93 11:31:22 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

Wait a minute! I looked at the wrong day. Apparently, there we had no data on June 22. I'll look into this. Sorry.

John

28/ 3/94

MO-RT

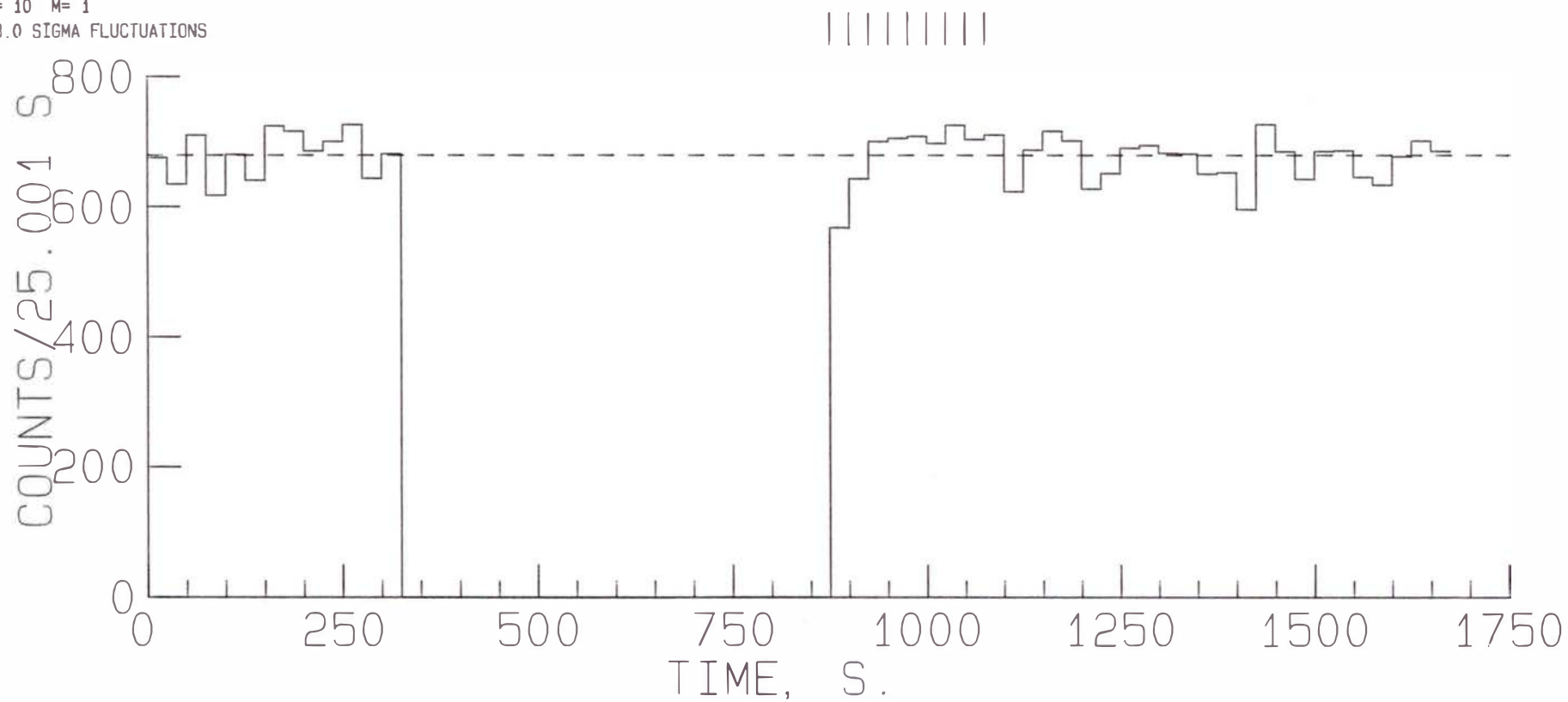
14/ 6/93

59123.874 s.

25.001 S. INTERVALS REGROUPED BY 1

120- 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS



28/ 3/94

MO-RT 14/ 6/93

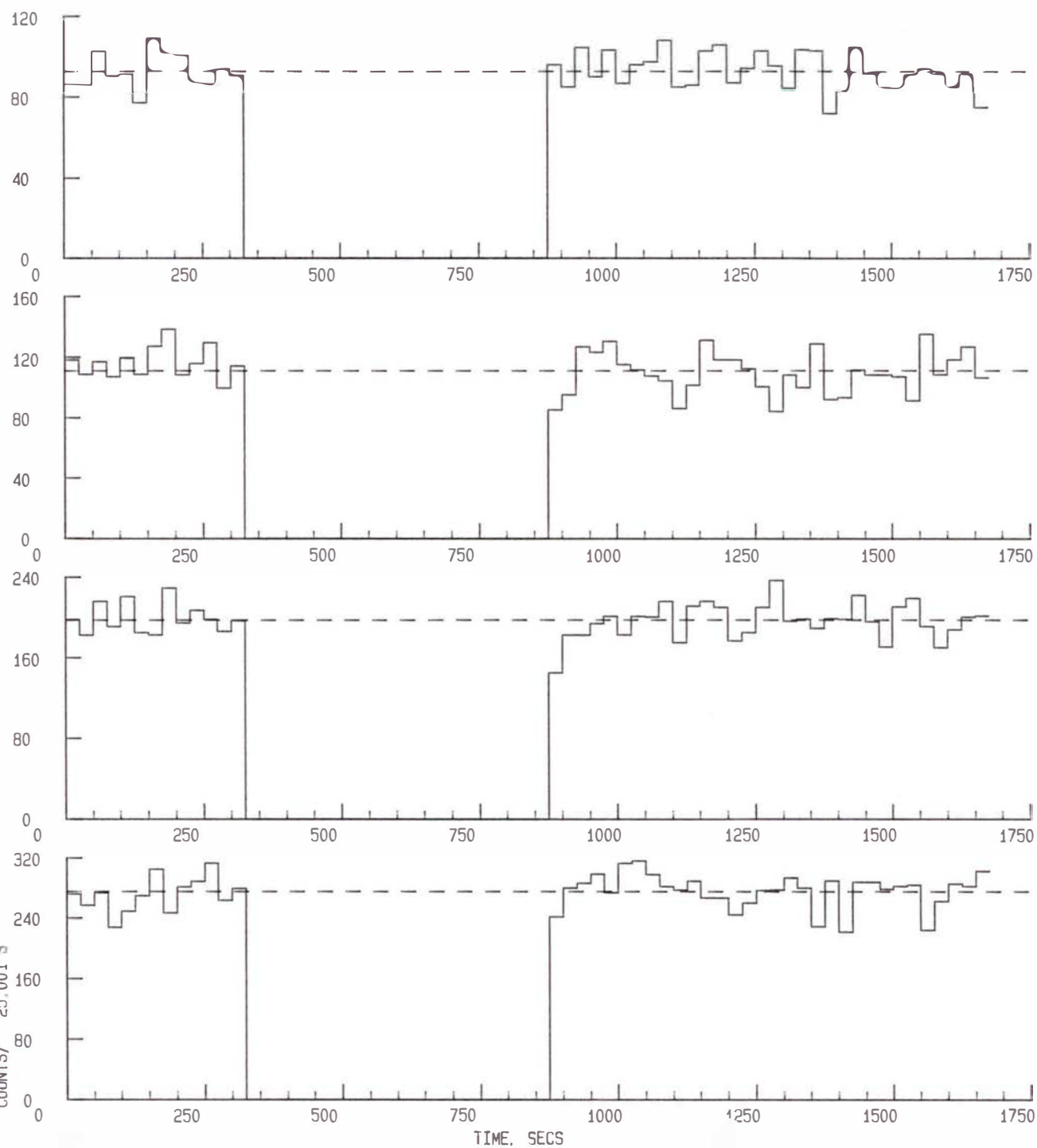
120-240 keV

COUNTS/ 25,001 S

240-360 keV

360-480 keV

480-600 keV

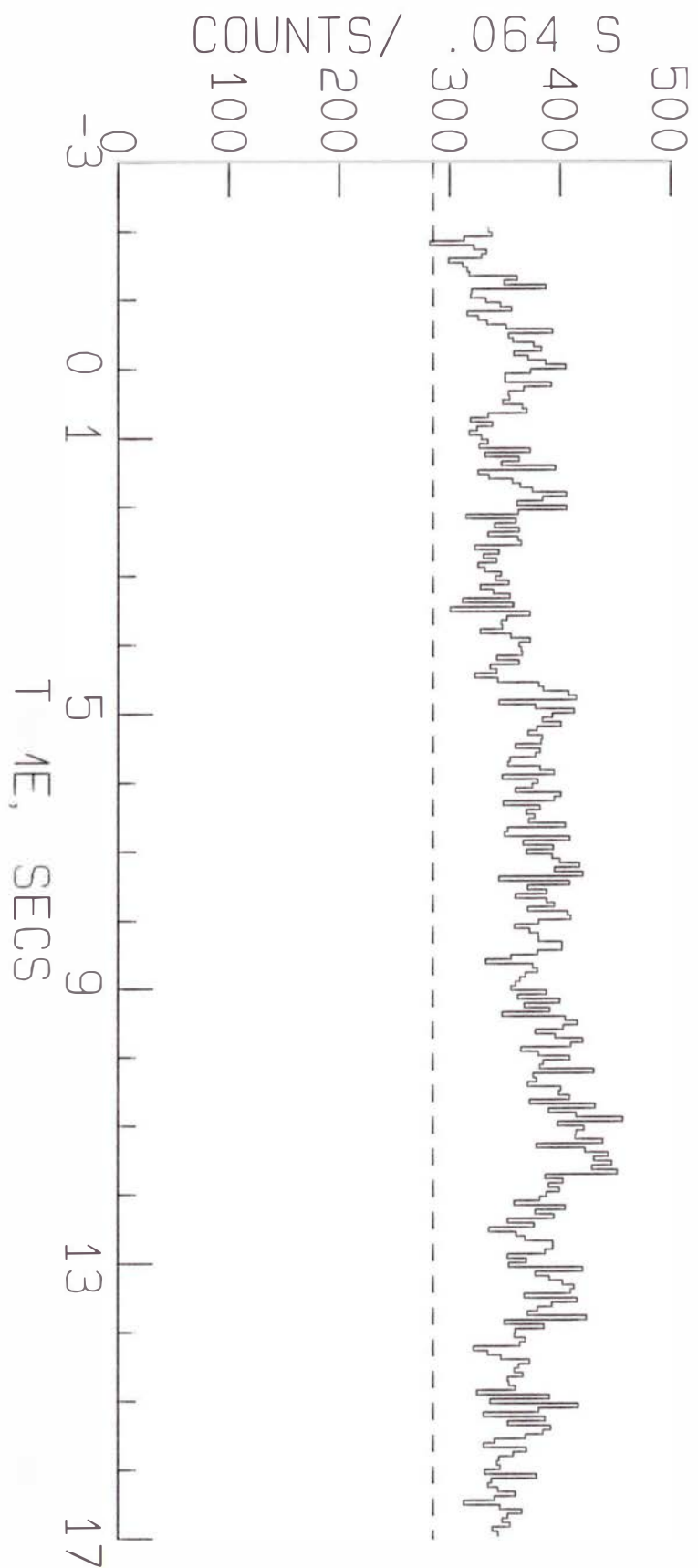


BATSE

14/06/93

59677.058

25- 100 keV

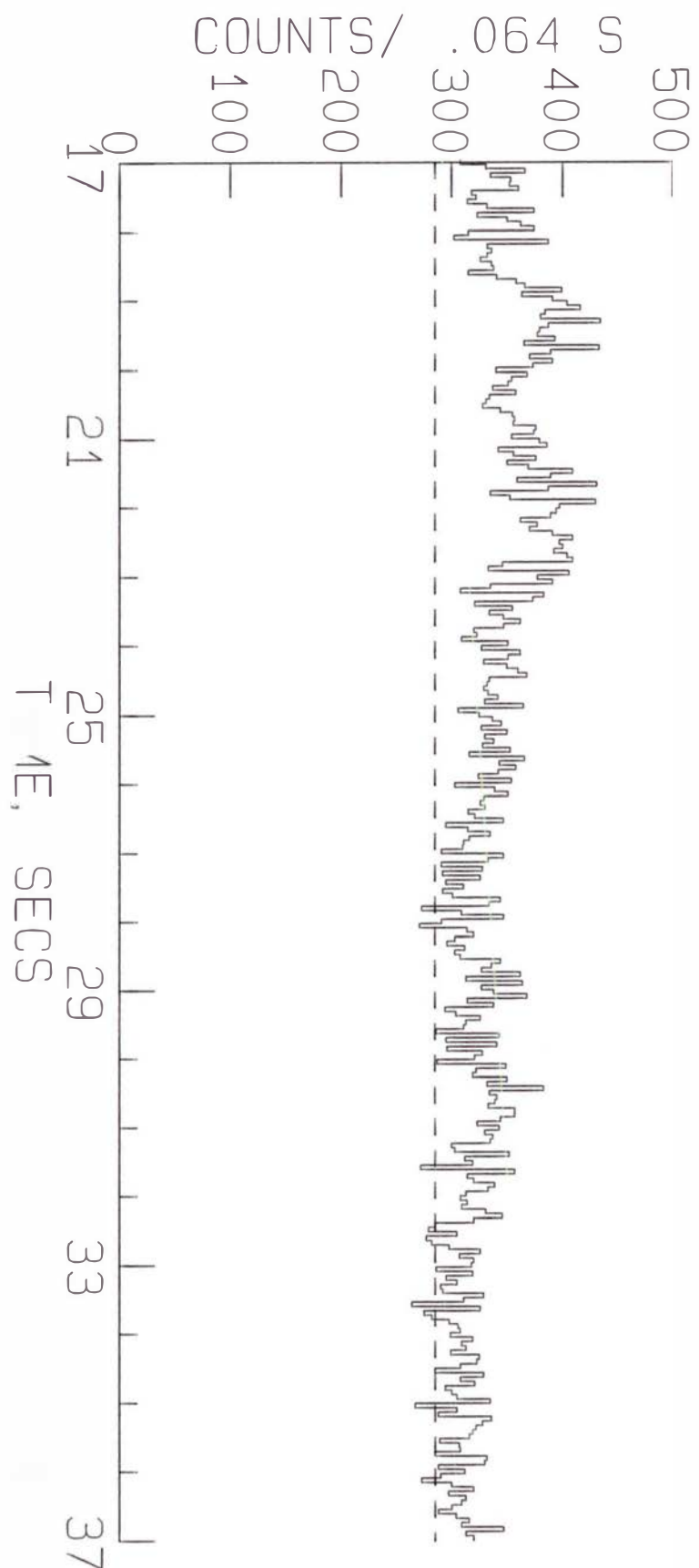


BATSE

14/06/93

59677.058

25- 100 keV

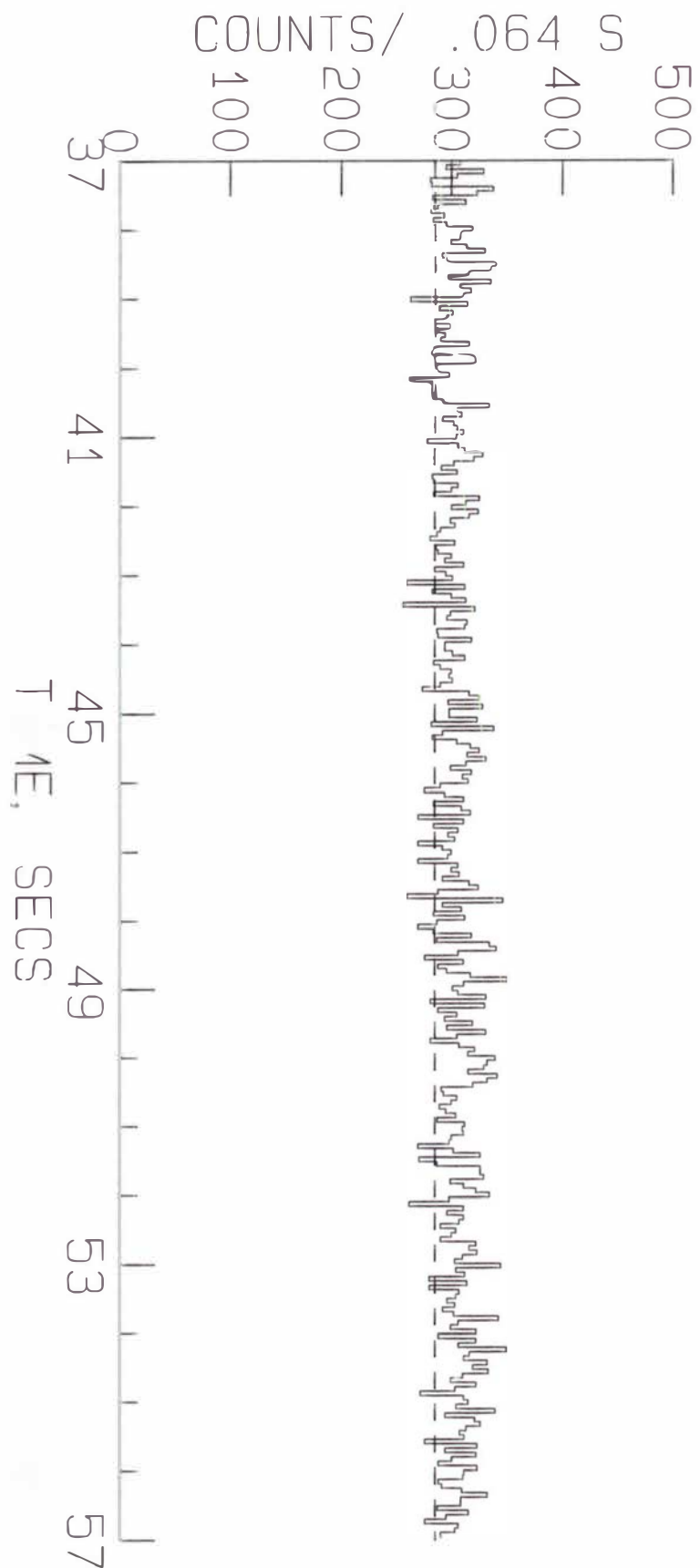


BATSE

14/06/93

59677.058

25- 100 keV

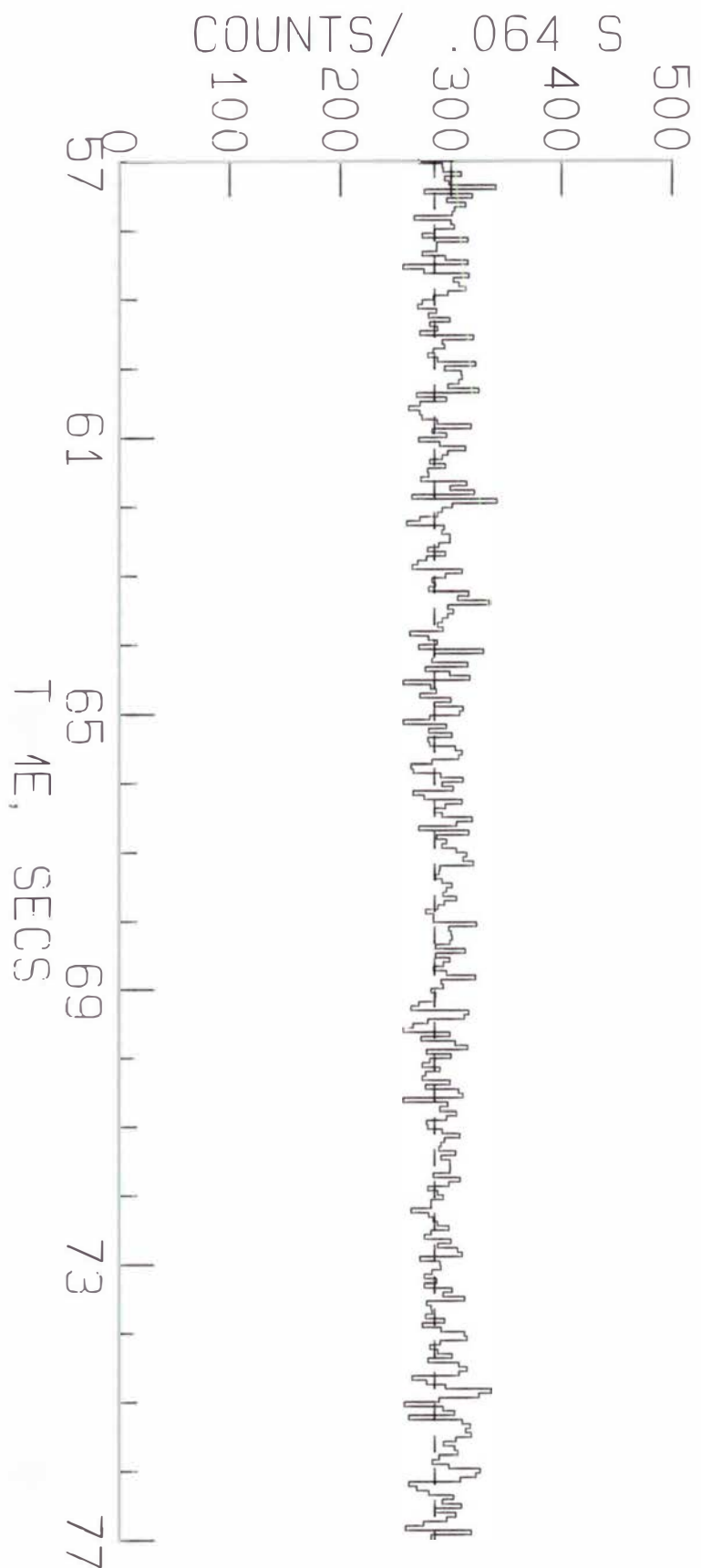


BATSE

14/06/93

59677.058

25- 100 keV

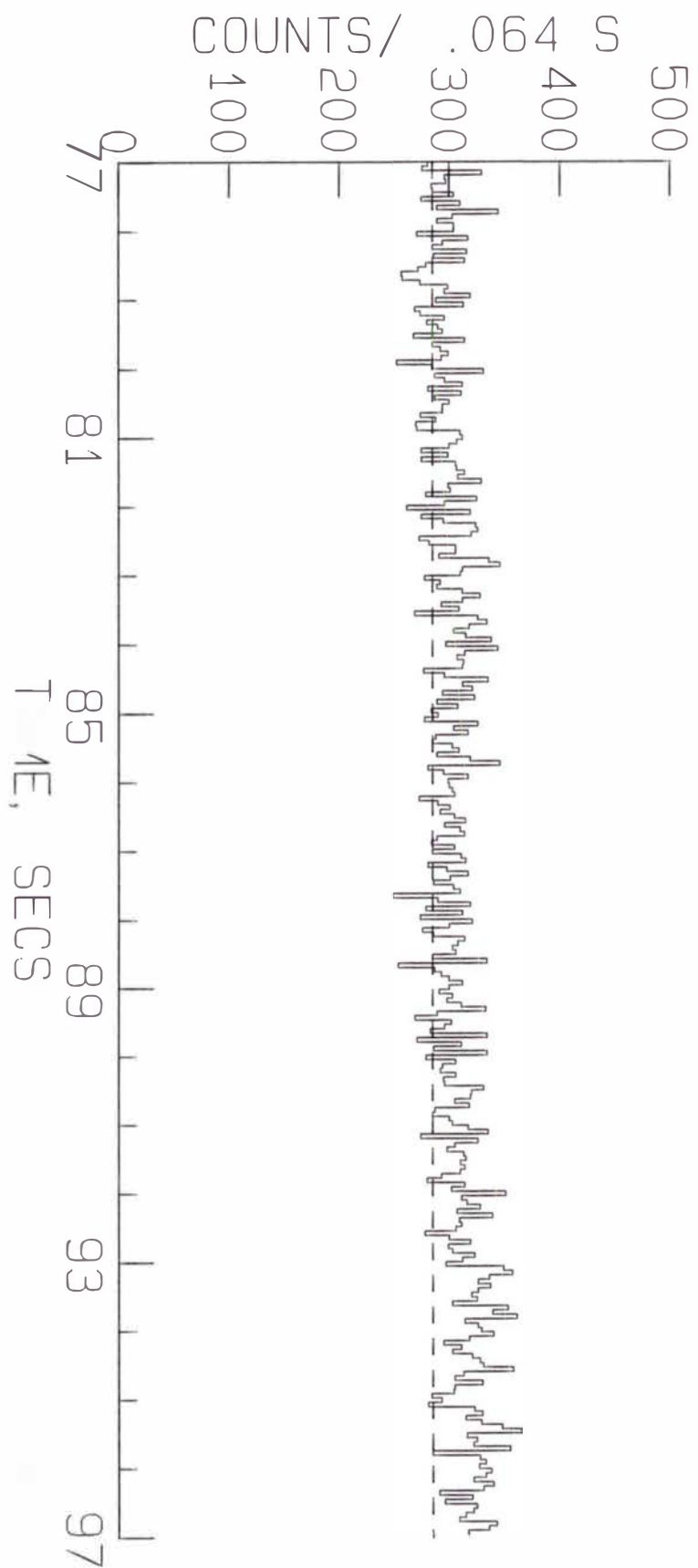


BATSE

14/06/93

59677.058

25- 100 keV

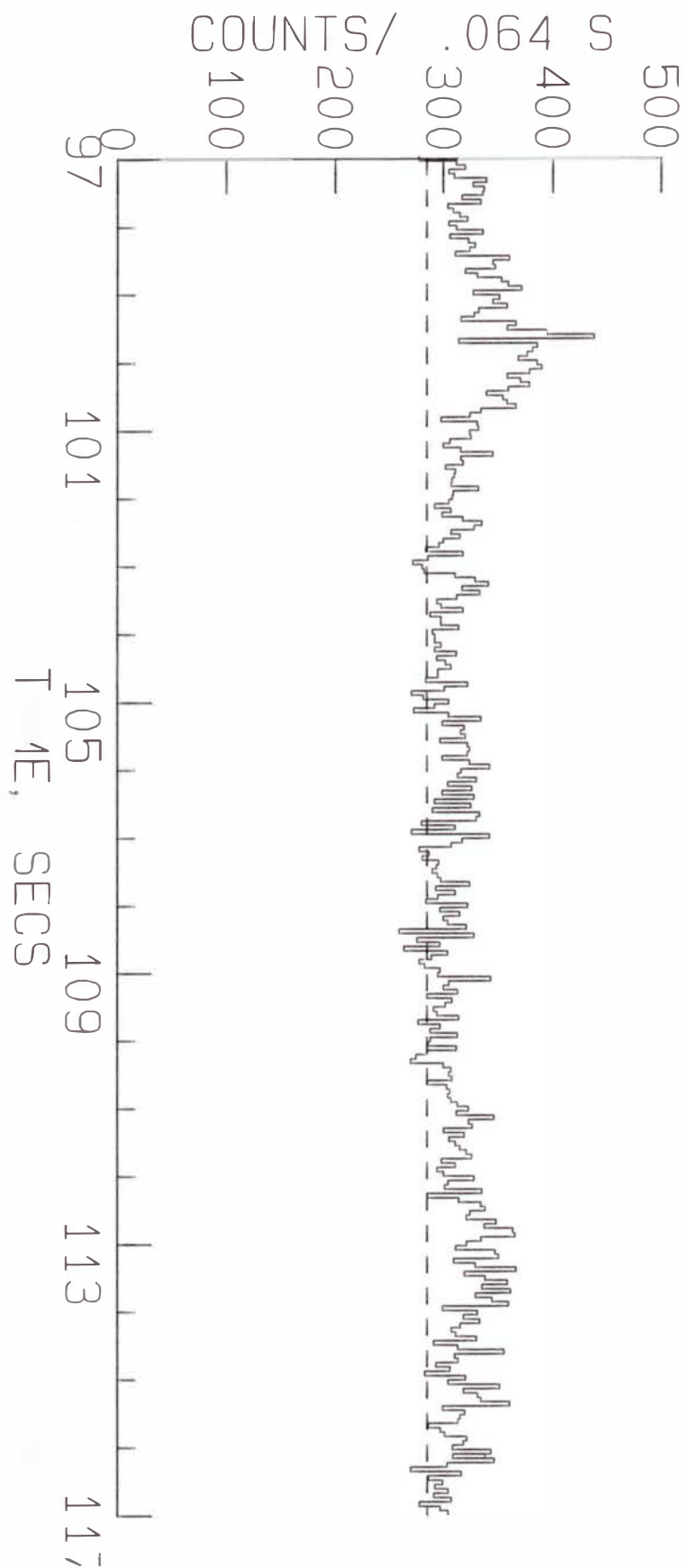


BATSE

14/06/93

59677.058

25- 100 keV

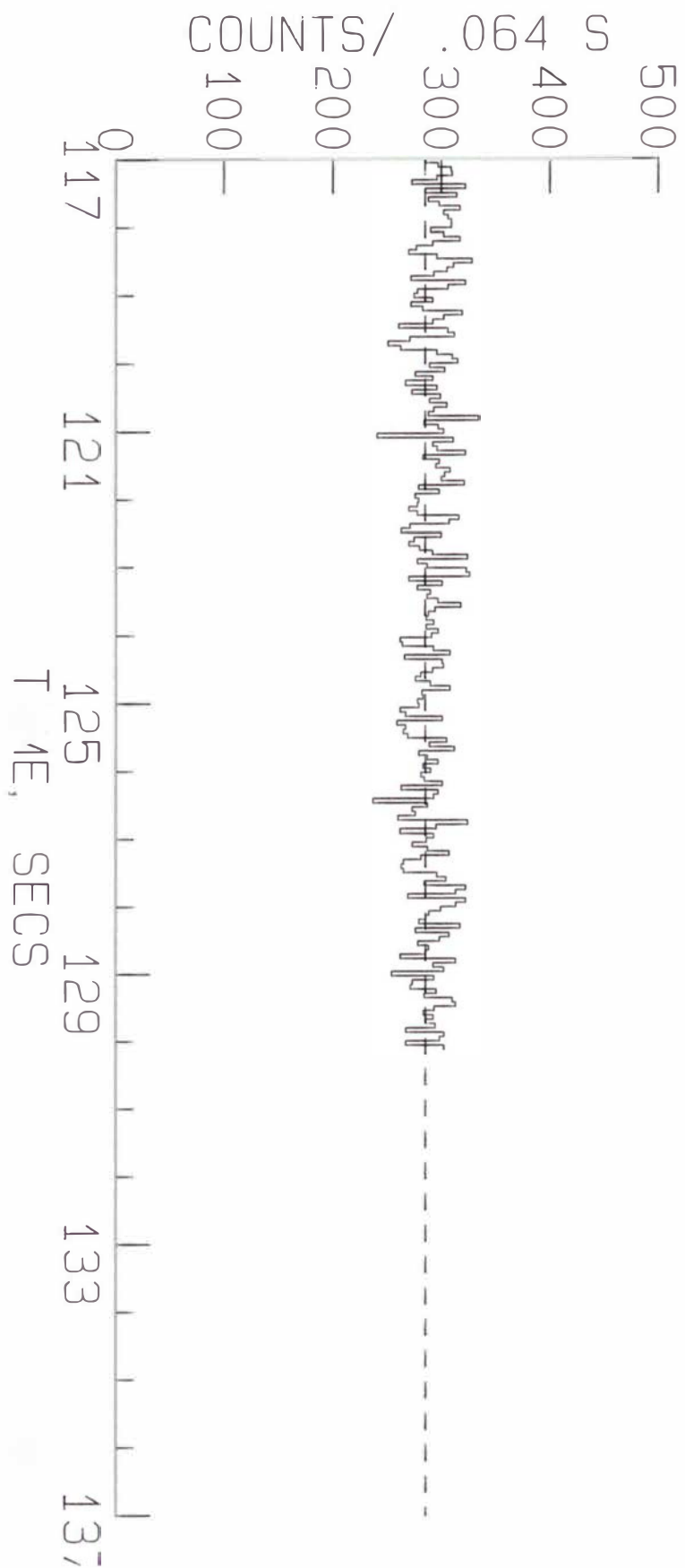


BATSE

14/06/93

59677.058

25- 100 keV



BATSEARCH PROGRAM

n/o

BATSE BURST # 2395
EVENT OF 1993 JUN 14 DAY OF YEAR=165
EVENT CROSSING TIME AT BATSE : 78654. S. OR 21:50:54.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 46.000 -74.000
BATSE PEAK COUNTING RATE: 2500 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 14/ 6/ 93 IS:
RA= 143.511 DEC= -10.984 DIST= 4.892 AU
BATSE-ULYSSES DISTANCE = 731843200. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 98.50 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -360.76 SECS.
CROSSING TIME AT ULYSSES IS 78293. S. OR 21:44:53 +/- 463.69 SECONDS

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 15 14:33:31 1993
Date: Tue, 15 Jun 1993 16:34:10 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: MEEGAN@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2395	930614	9152	78654	2500	046	-74

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 15 14:27:48 1993
Date: Tue, 15 Jun 1993 16:27:58 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02395

TIME: TJD=9152 SECONDS=78654

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 7. AZIMUTH=286. ERROR= DEGREES

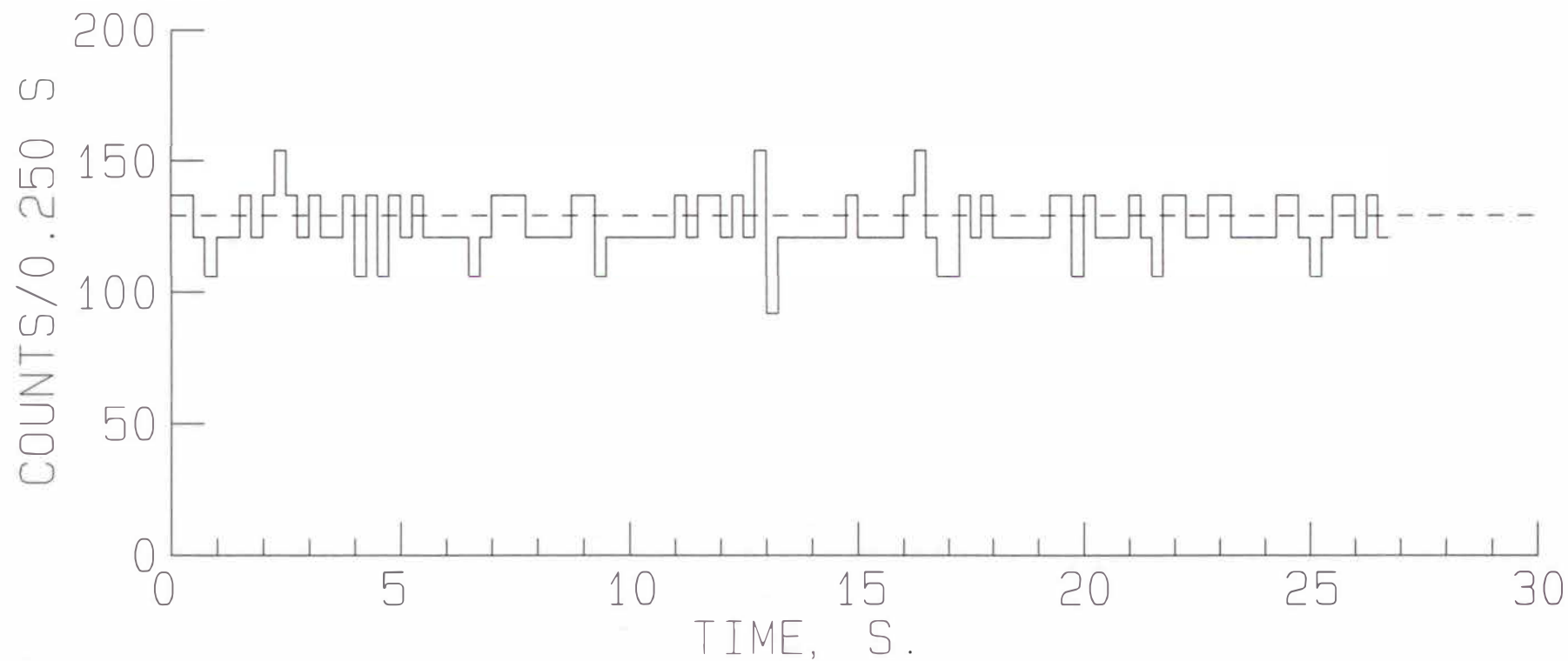
COMMENTS:

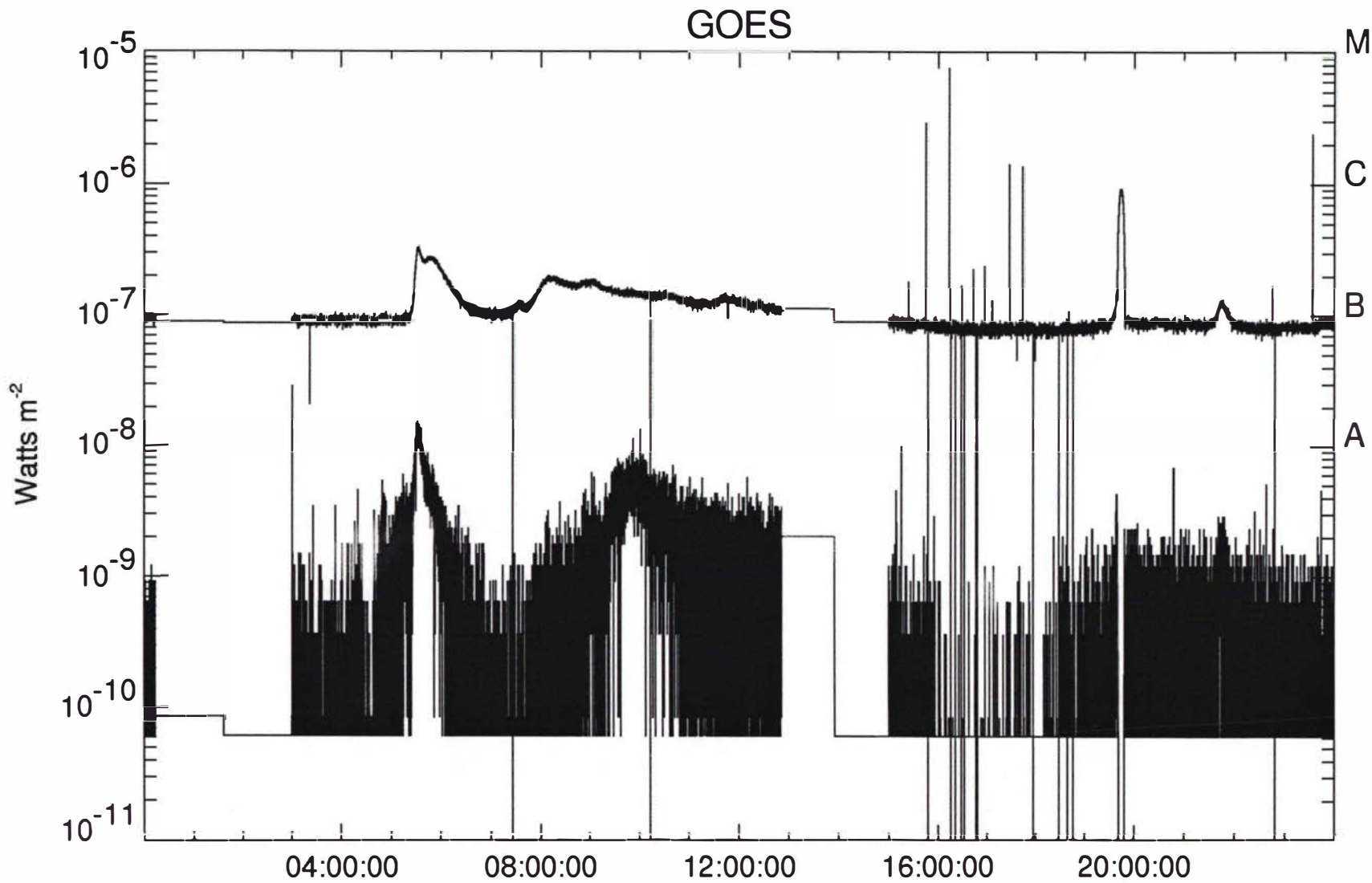
VERY WEAK EVENT LASTING ABOUT 0.1 S. NOT SEEN ABOVE 300 KEV.

13/ 8/93

ULYSSES RT
14/ 6/93 78741.328 s
0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



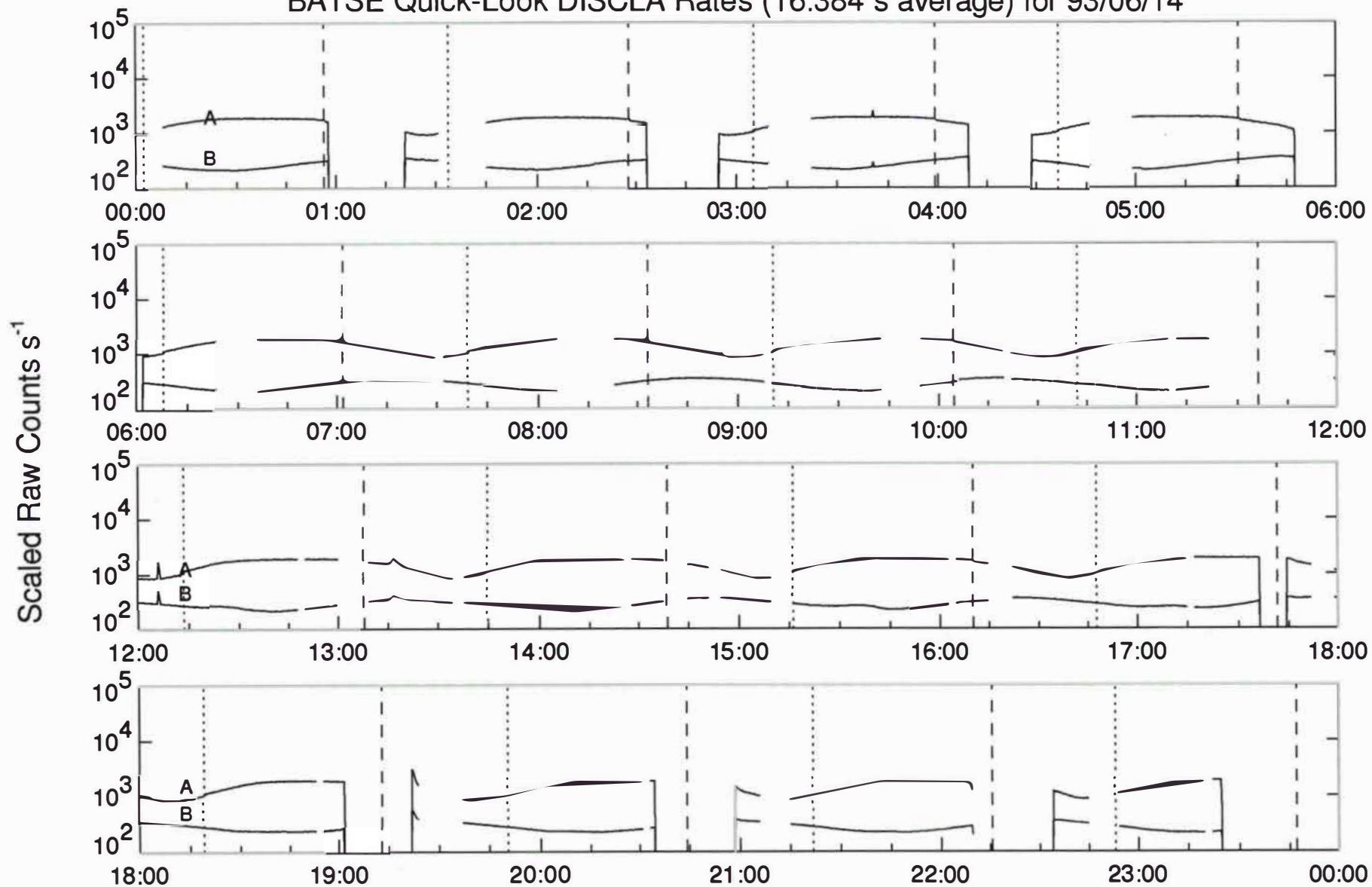


Data Start: 93/06/14, 0000:02

Plot created: 93/10/28, 0202

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

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/14

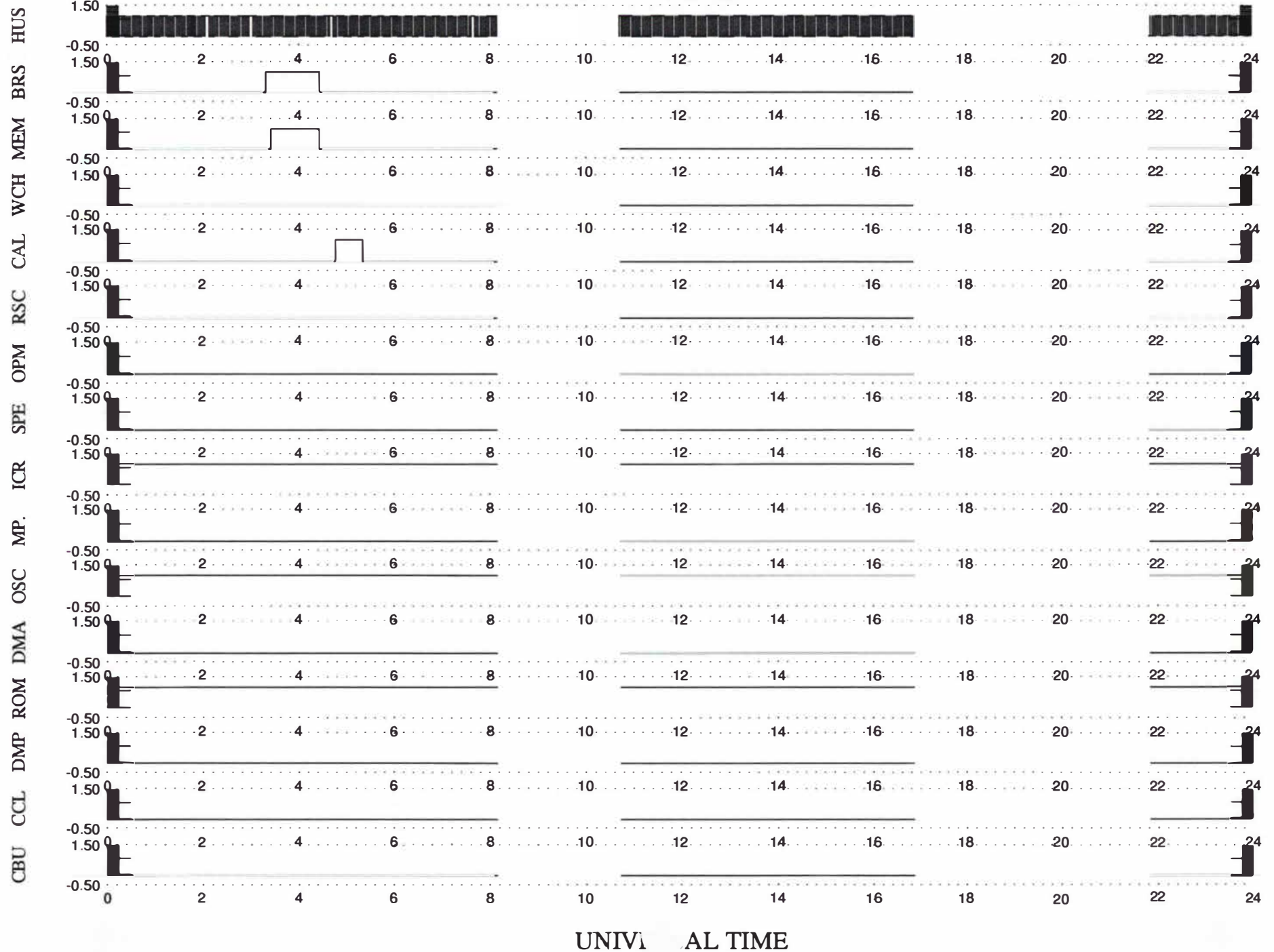


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

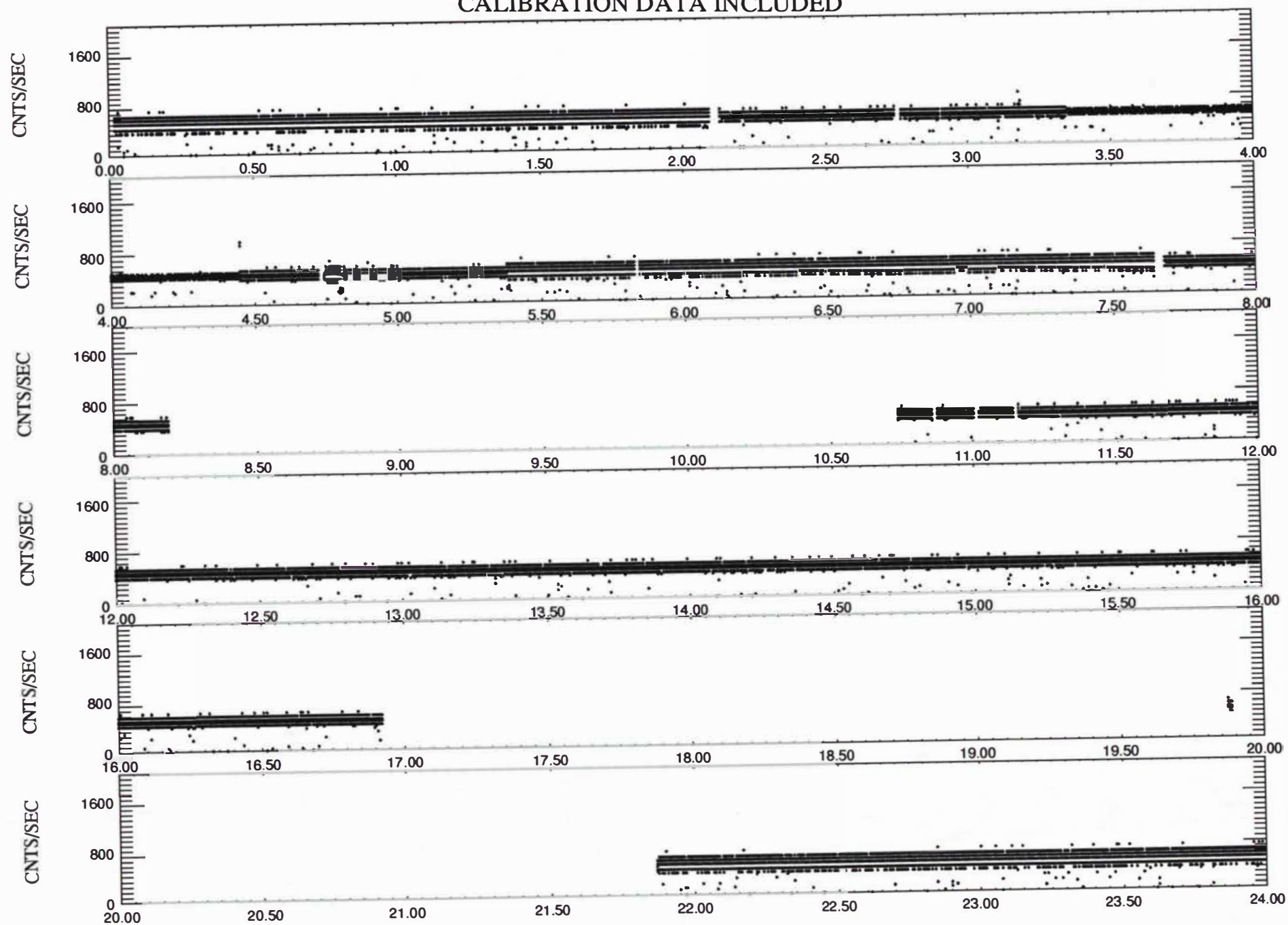
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

BURST NUMBER 5

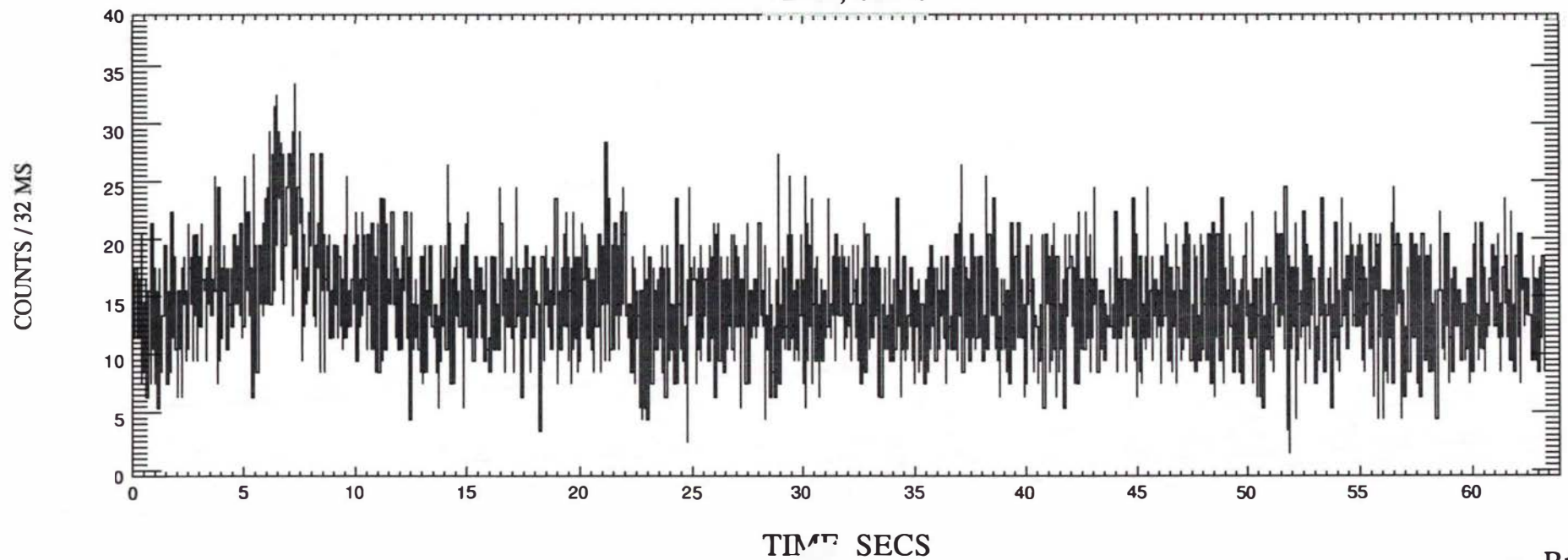
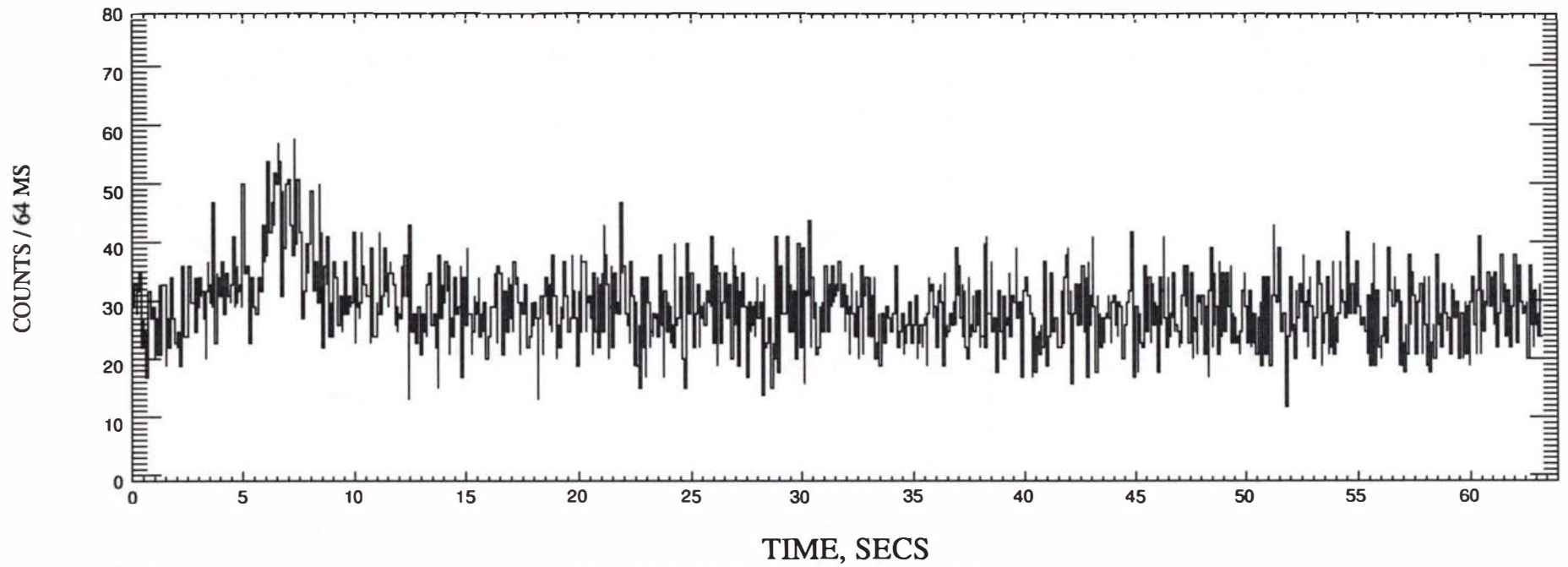


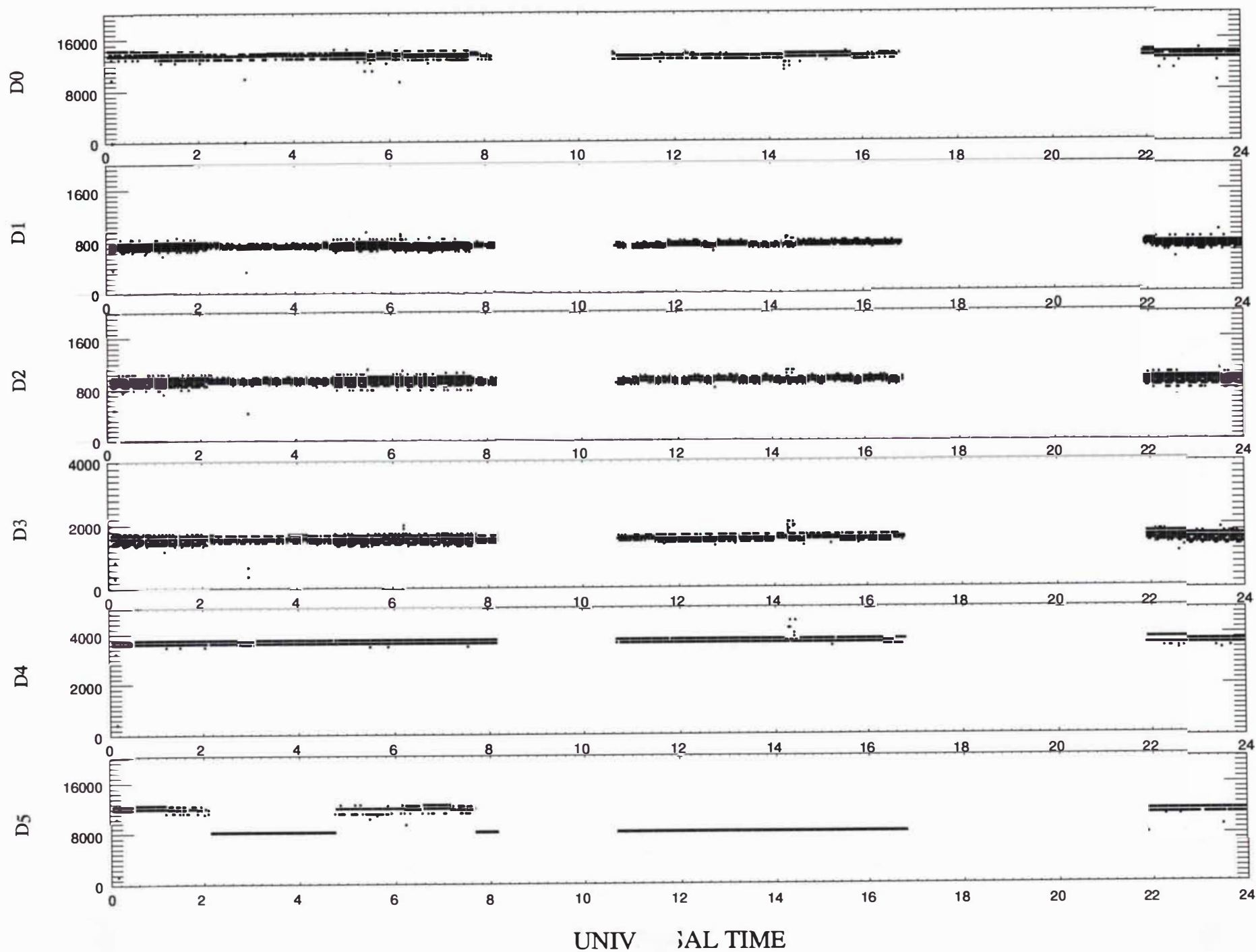
CALIBRATION DATA INCLUDED

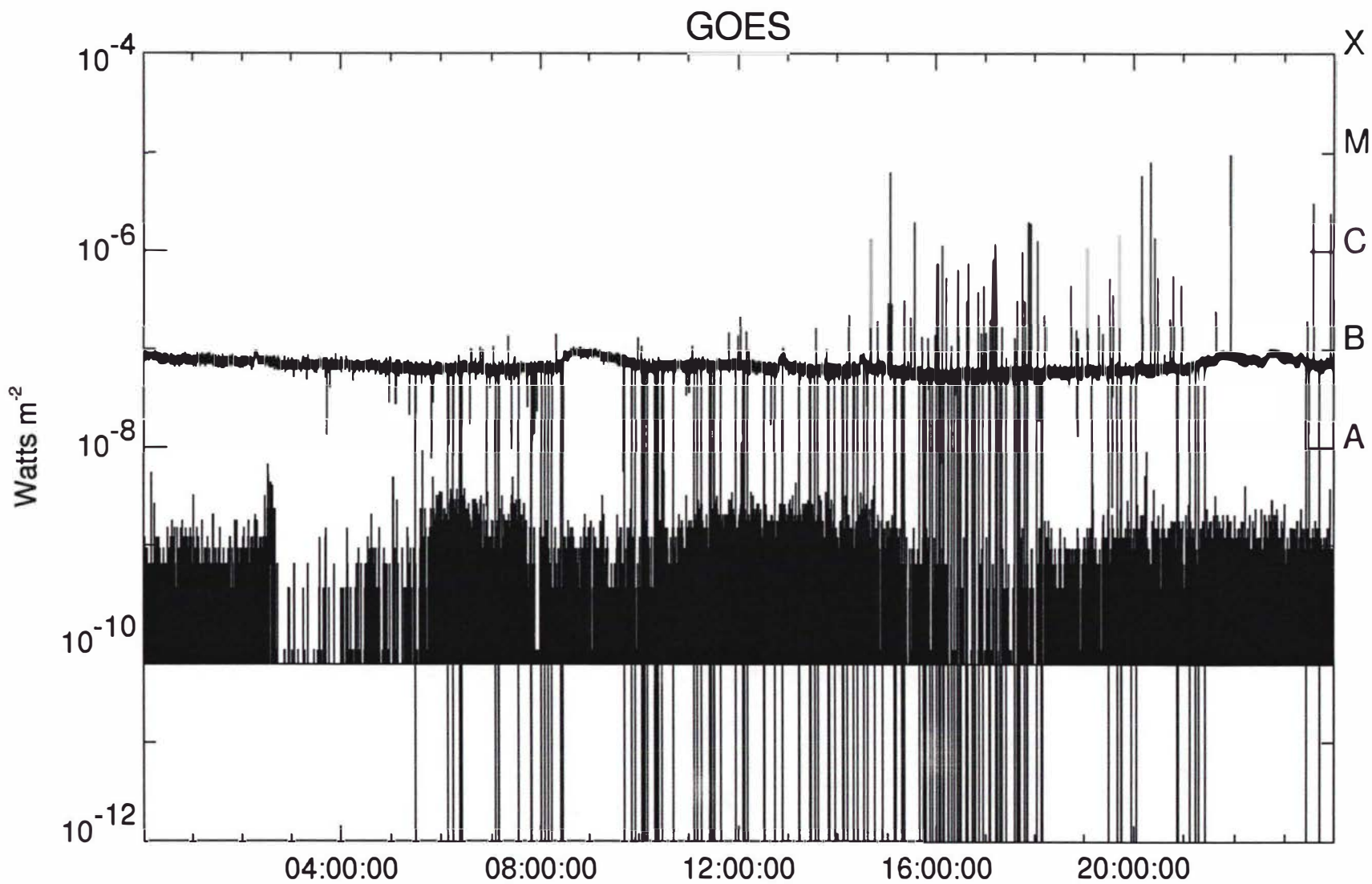


UNIV. AL TIME

Burst Counter 5 at UT= 3.178487451341 h=11442.555 s 03:10:42.555







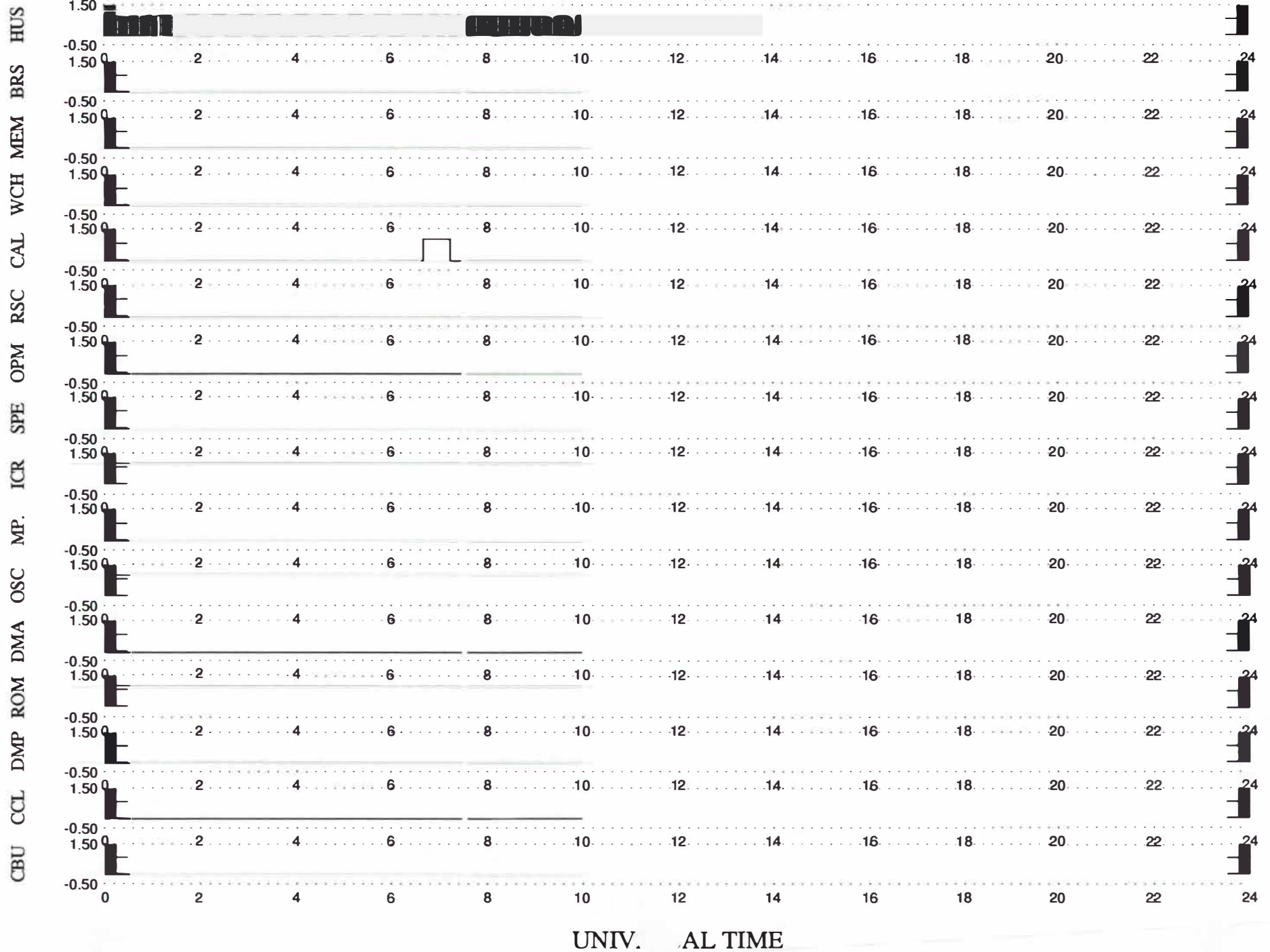
Data Start: 93/06/15, 0000:02

Plot created: 93/10/28, 0202

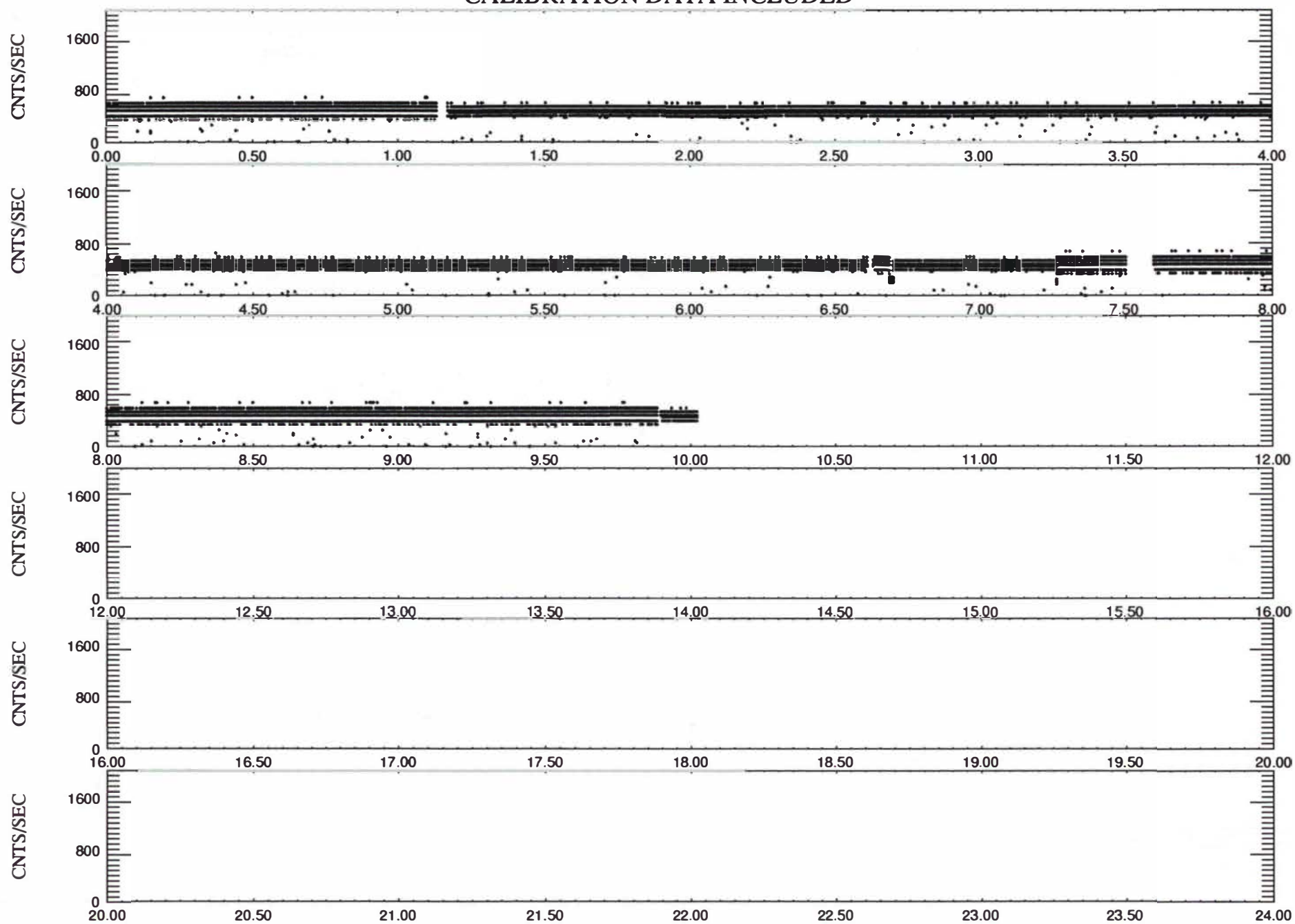
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

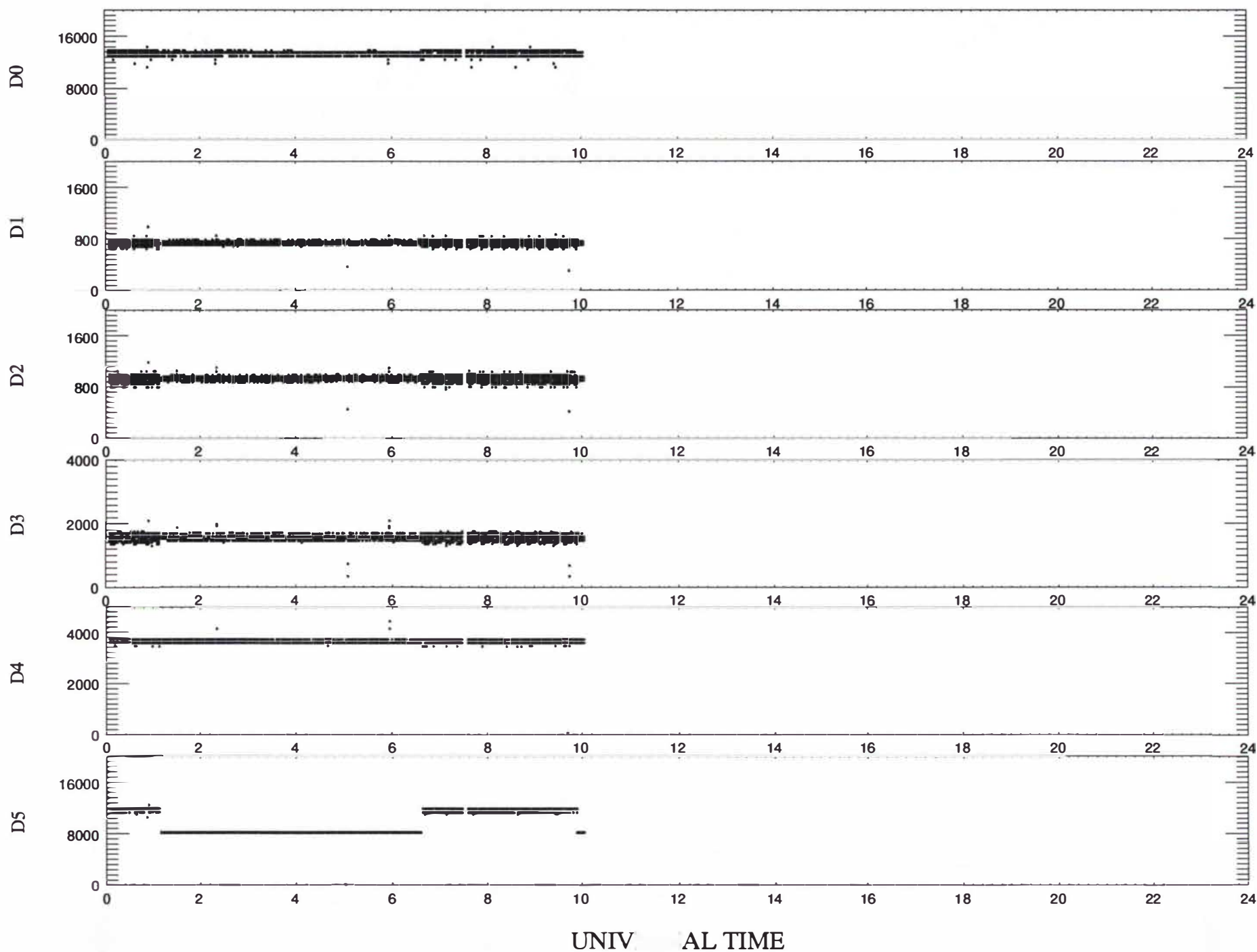
NO BURST (5)



CALIBRATION DATA INCLUDED



UNIV. AL TIME

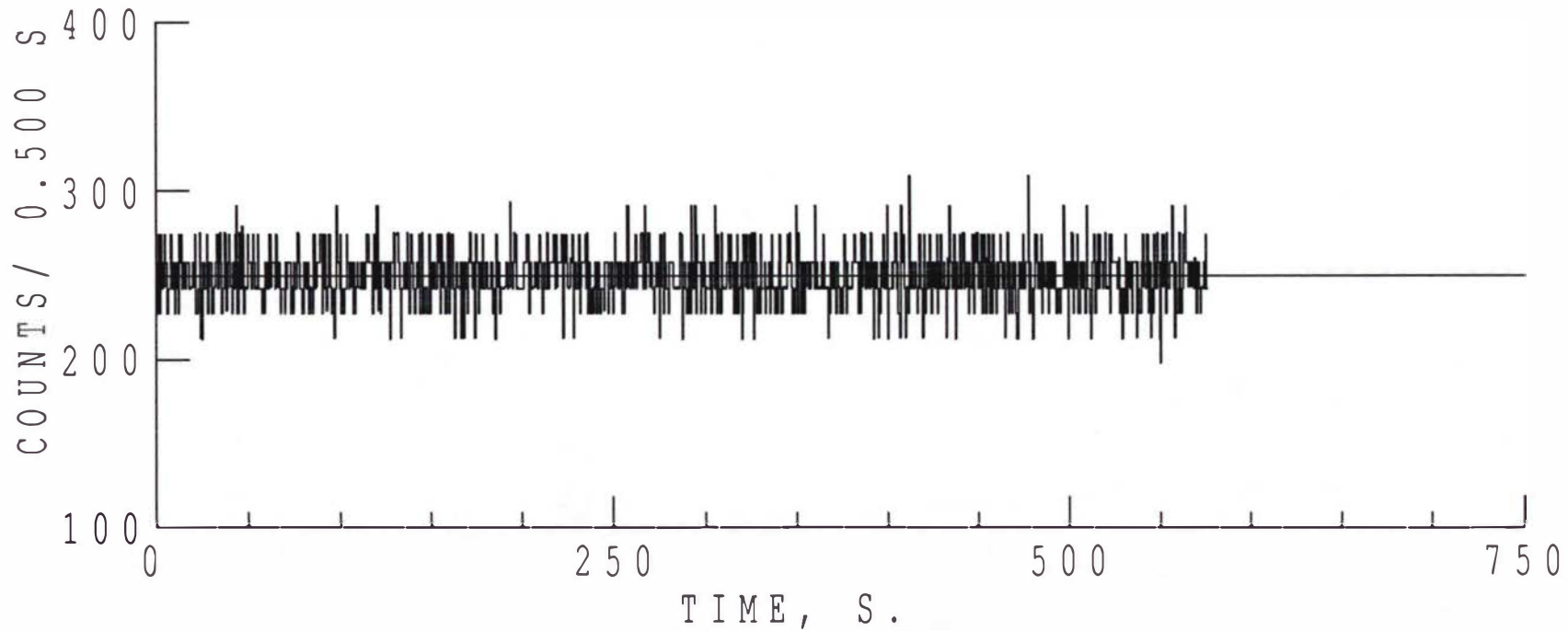


Kommers
UNTRIGGERED

ULYSSES RT
16/ 6/93 21564.105 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 MEEGAN@ssl.msfc.nasa.gov Thu Jun 17 14:02:46 1993
Date: Thu, 17 Jun 1993 15:57:19 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02396

TIME: TJD=9154 SECONDS=16960

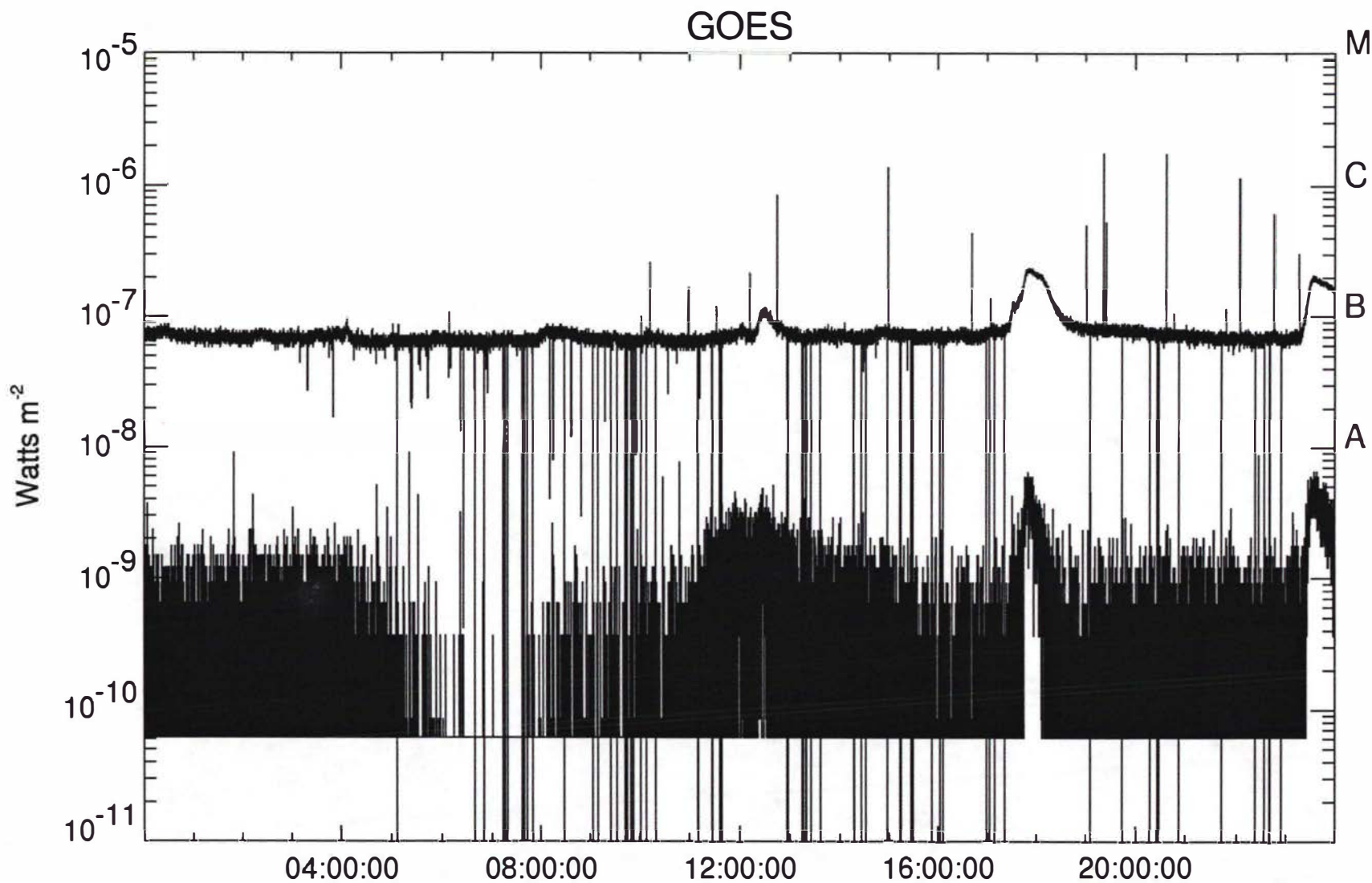
TYPE: OTHER SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SPURIOUS TRIGGER CAUSED BY HV TURN-ON.



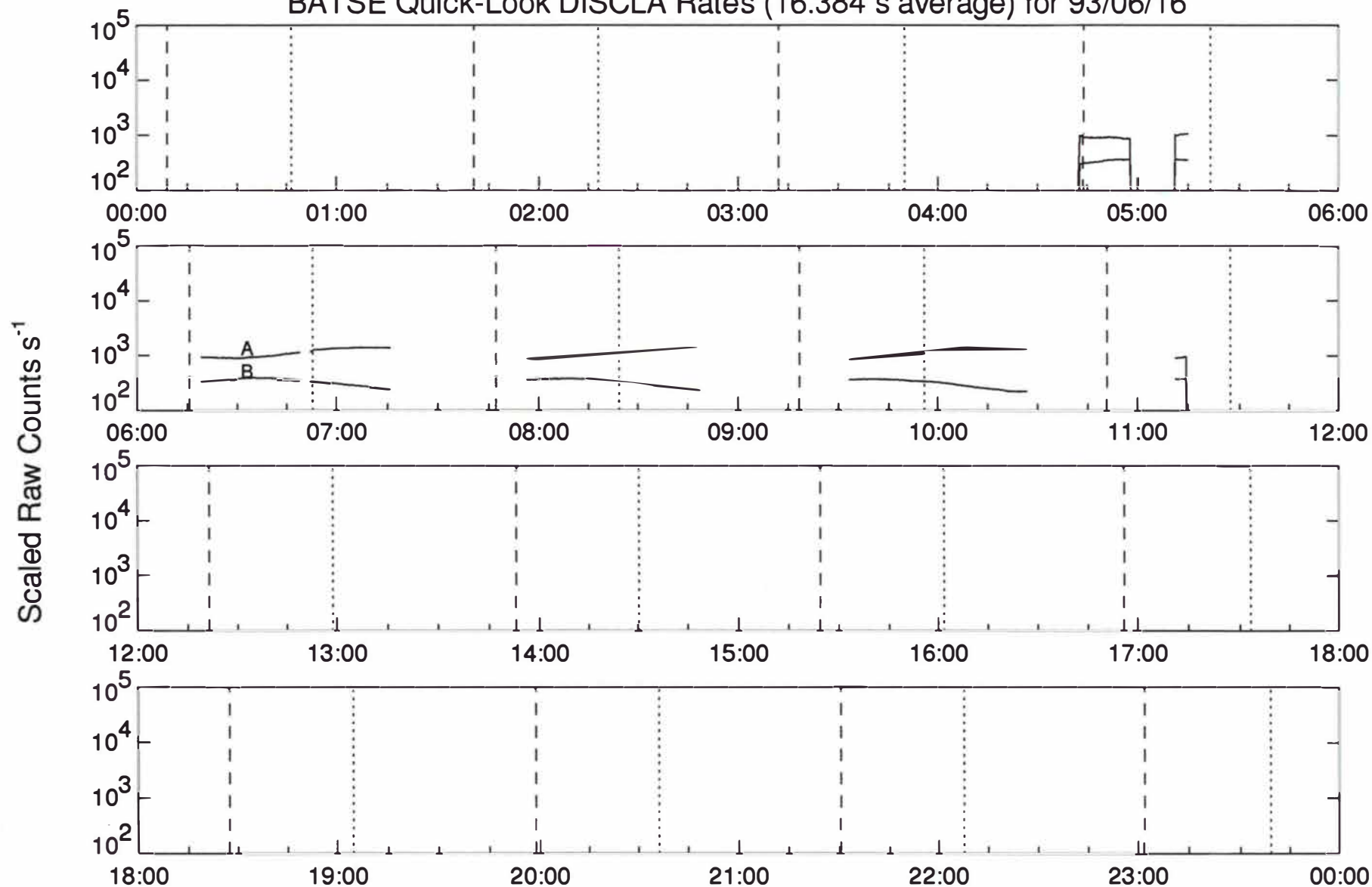
Data Start: 93/06/16, 0000:02

Plot created: 93/10/28, 0202

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/16

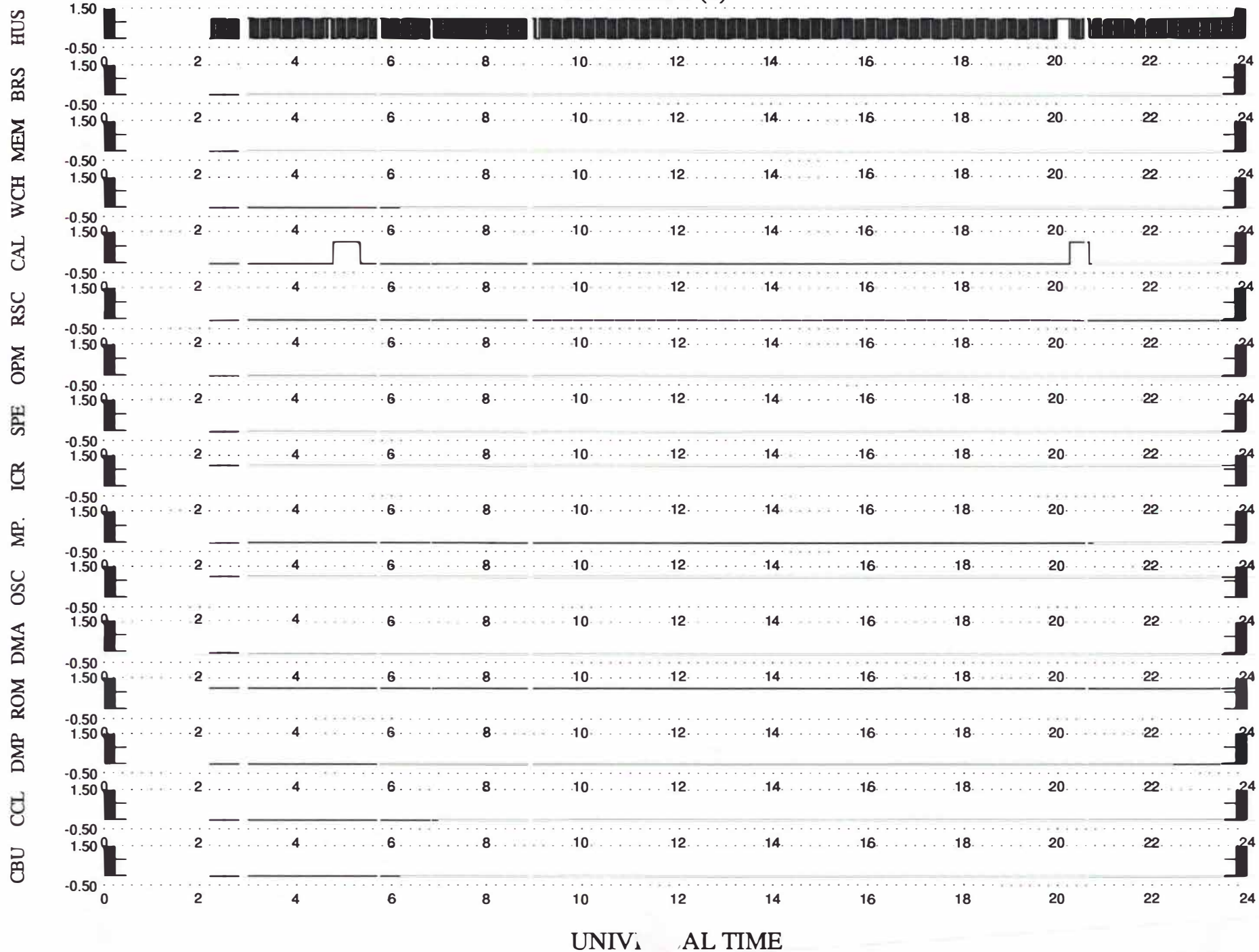


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

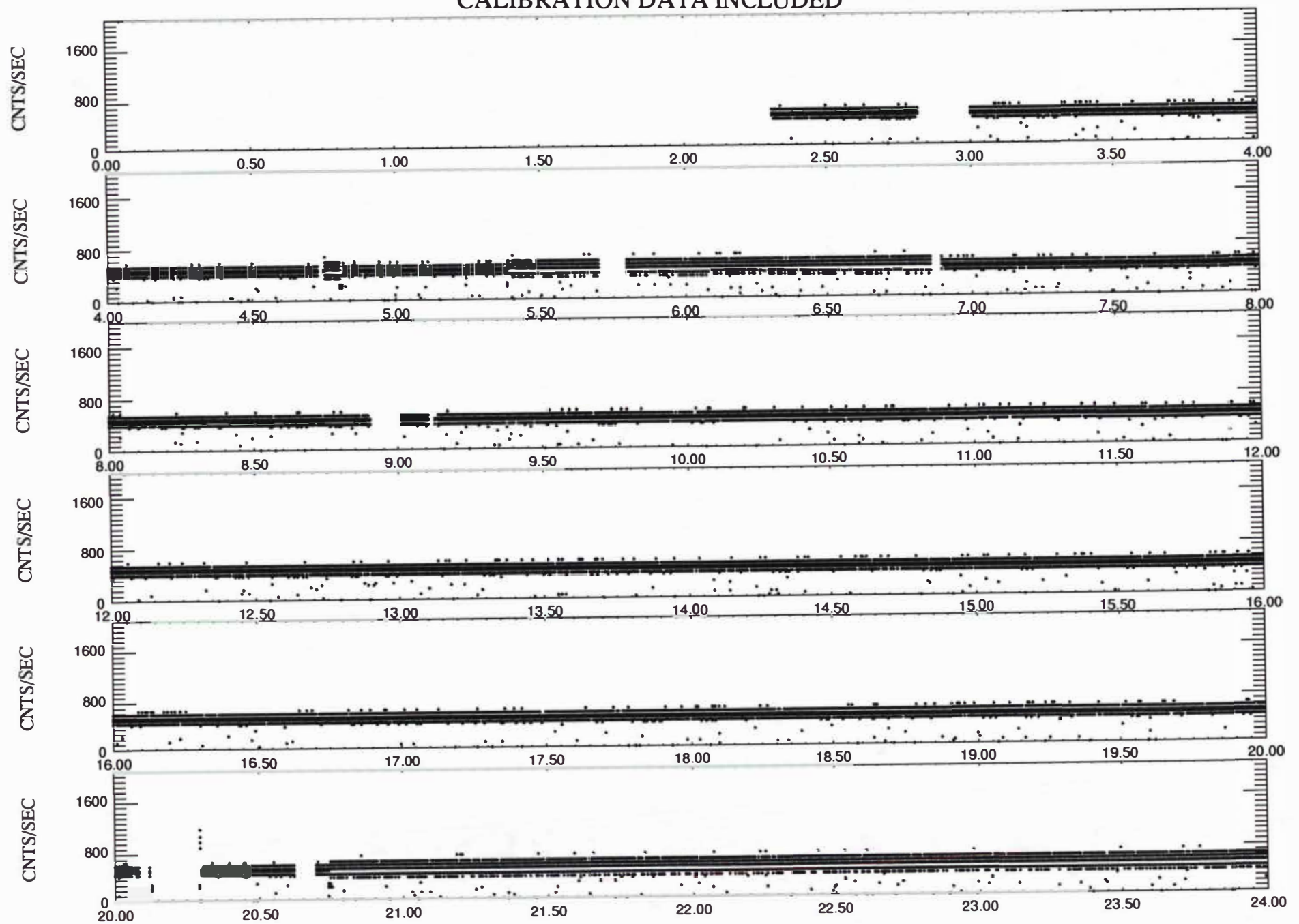
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

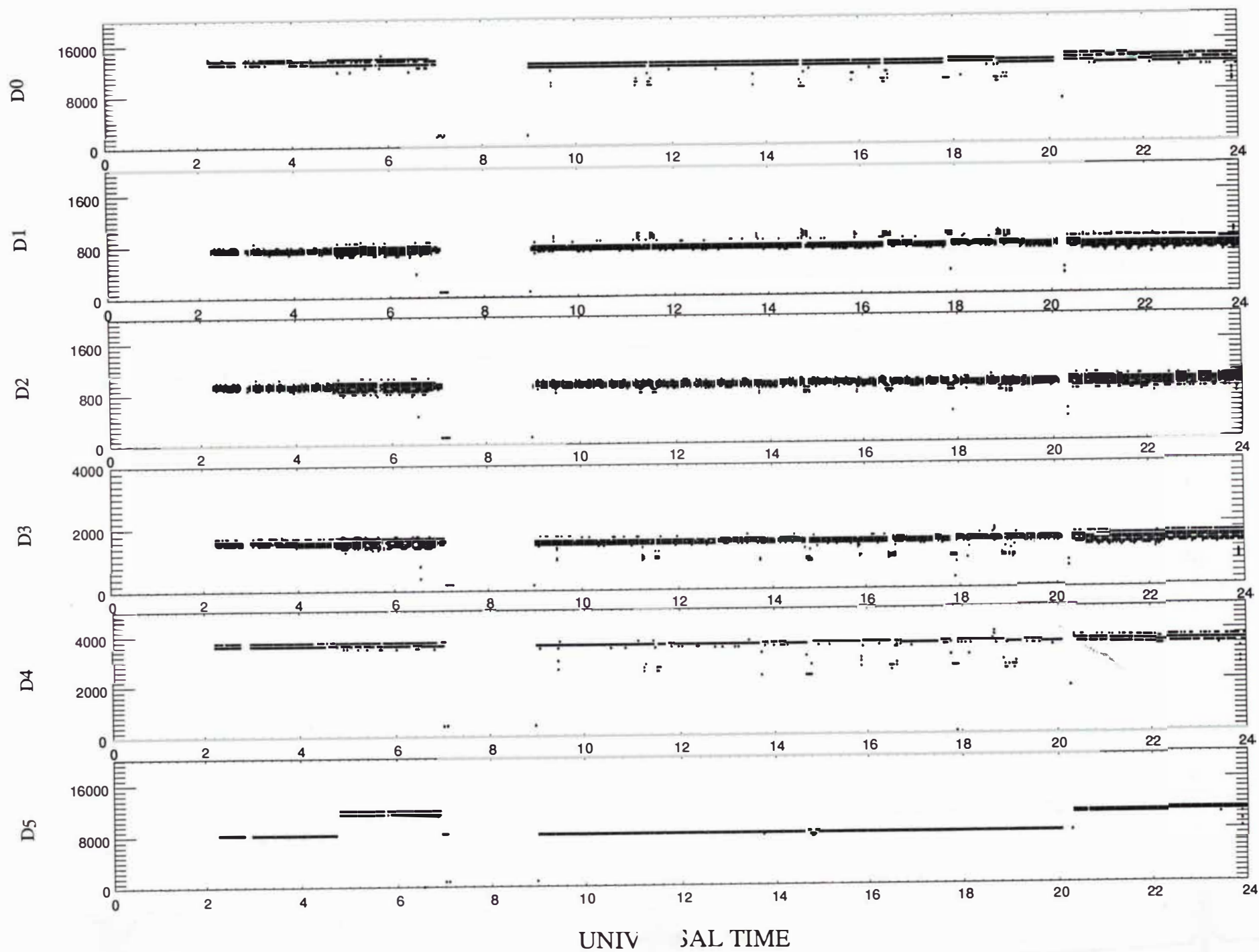
NO BURST (5)



CALIBRATION DATA INCLUDED



UNIV. AL TIME

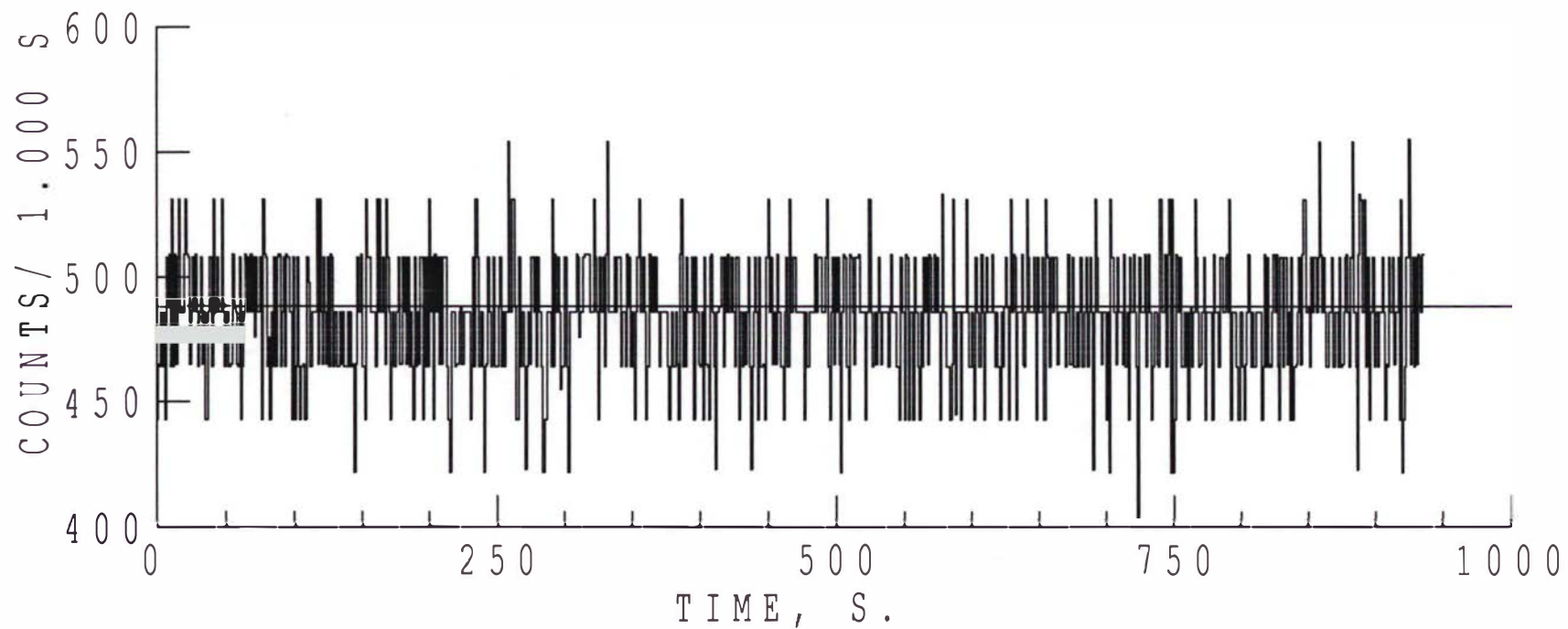


Kommas
UNTRIGGERED

ULYSSES RT
17/ 6/93 19908.160 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 BRAINERD@ssl.msfc.nasa.gov Fri Jun 18 12:53:13 1993
Date: Fri, 18 Jun 1993 13:45:38 -0500 (CDT)
From: "Jim Brainerd, (205) 544-4970" <BRAINERD@ssl.msfc.nasa.gov>
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Cc: BRAINERD@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02397

TIME: TJD=9155 SECONDS=00959

TYPE: OTHER SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SPURIOUS TRIGGER FROM HIGH VOLTAGE TURN-ON.

From BRAINERD@ssl.msfc.nasa.gov Fri Jun 18 12:59:41 1993
Date: Fri, 18 Jun 1993 13:49:12 -0500 (CDT)
From: "Jim Brainerd, (205) 544-4970" <BRAINERD@ssl.msfc.nasa.gov>
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Cc: BRAINERD@ssl.msfc.nasa.gov
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02398

TIME: TJD=9155 SECONDS=40519

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

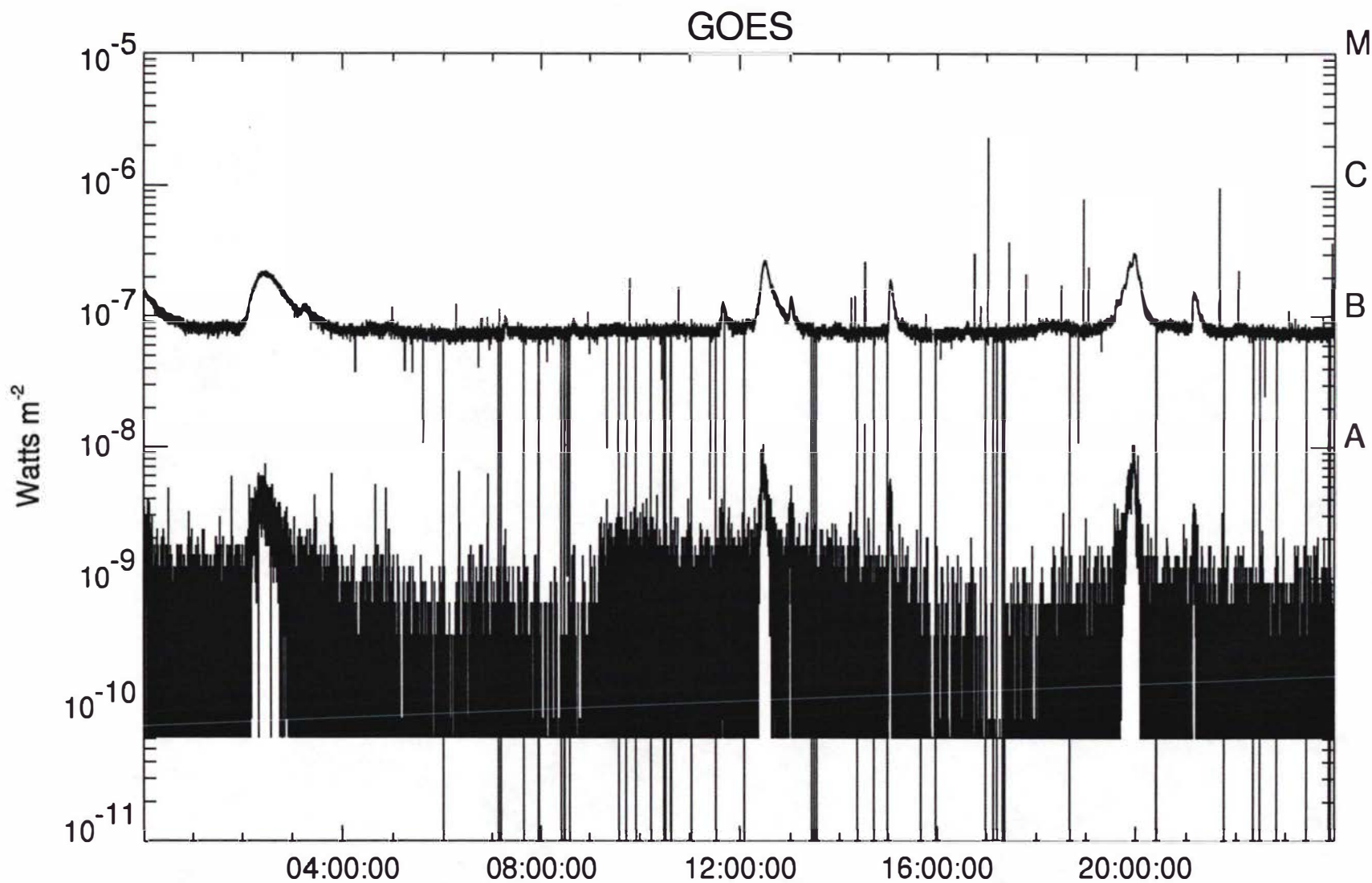
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

PARTICLE EVENT



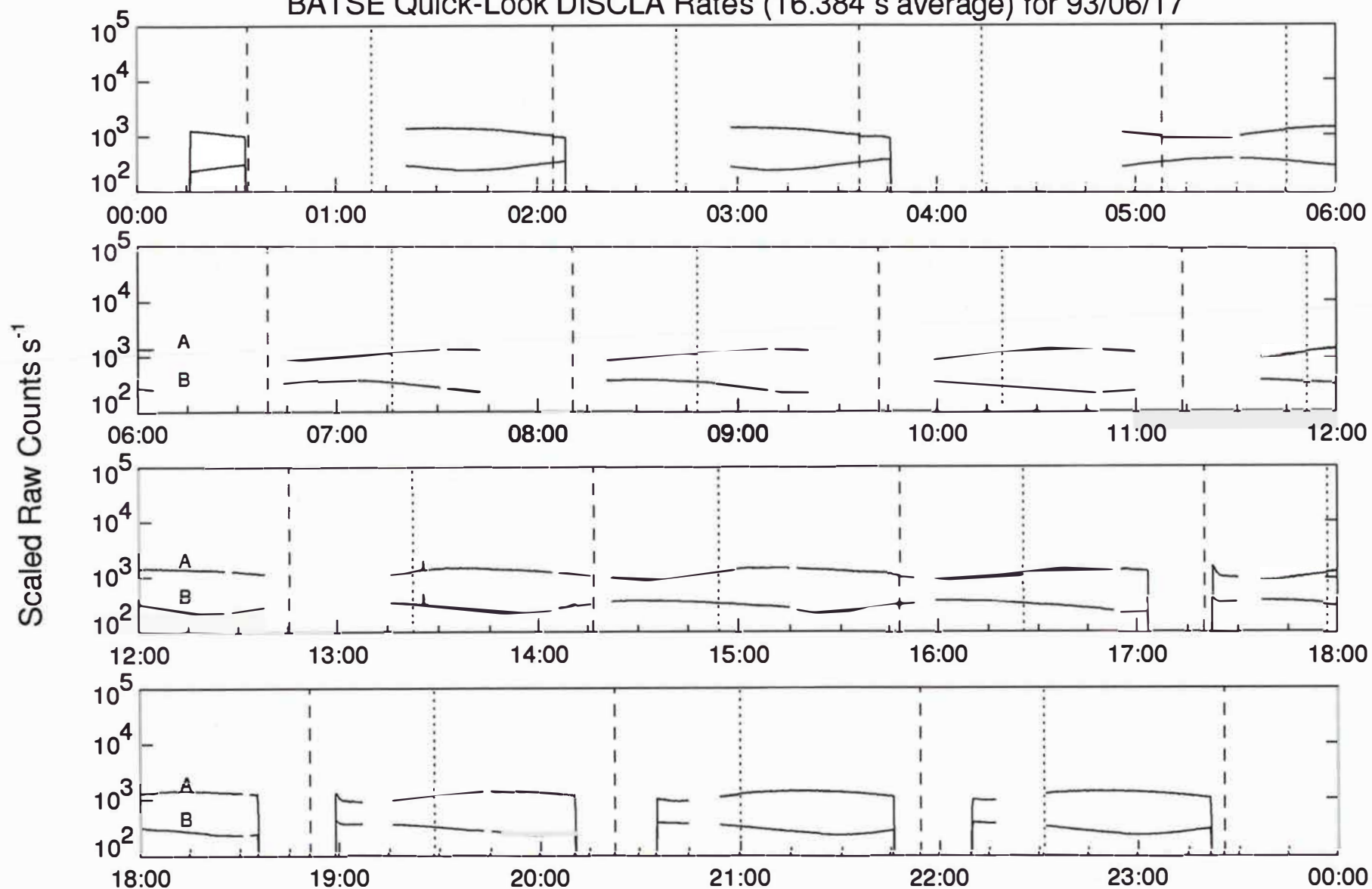
Data Start: 93/06/17, 0000:01

Plot created: 93/10/28, 0202

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/17

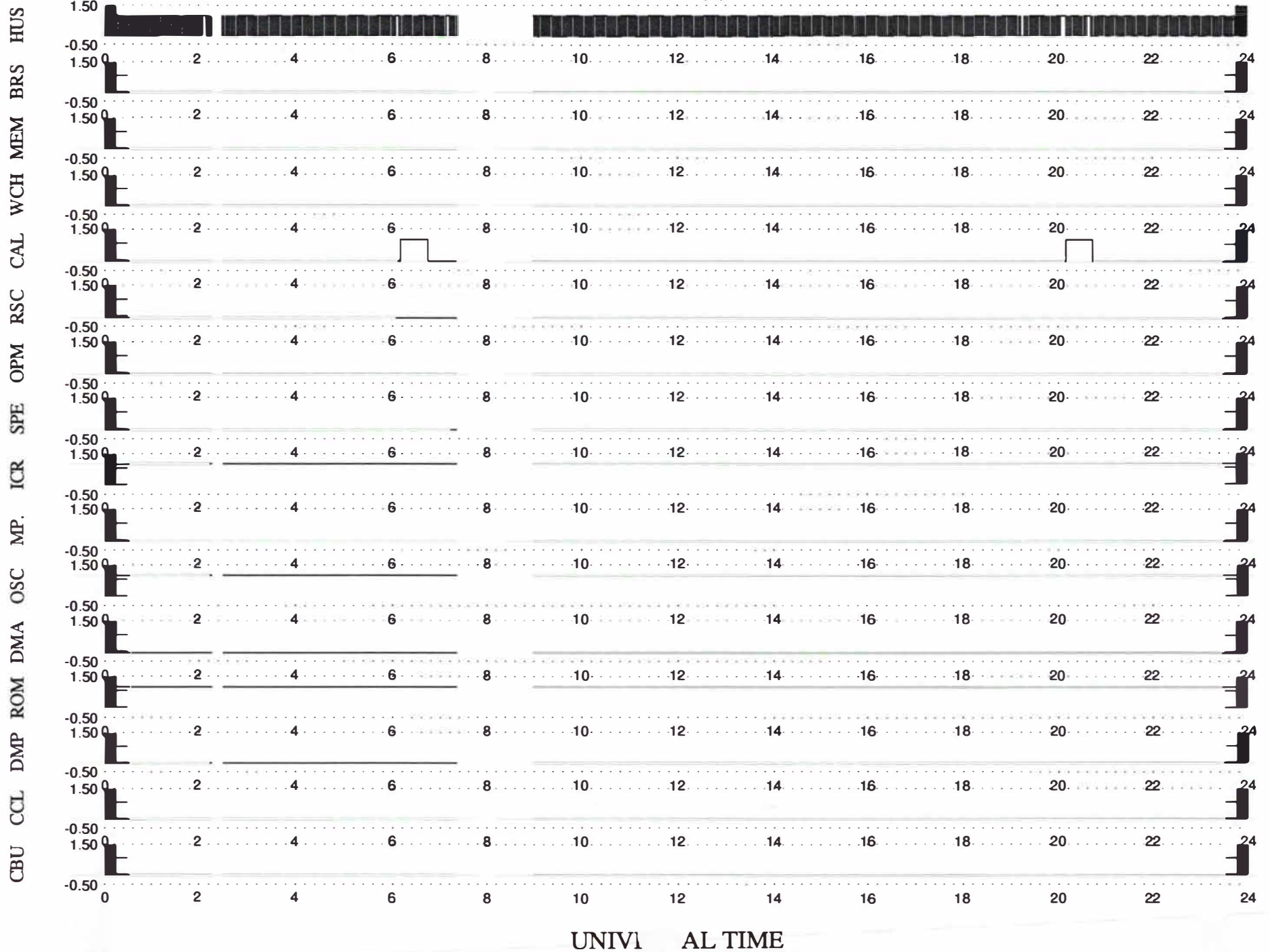


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

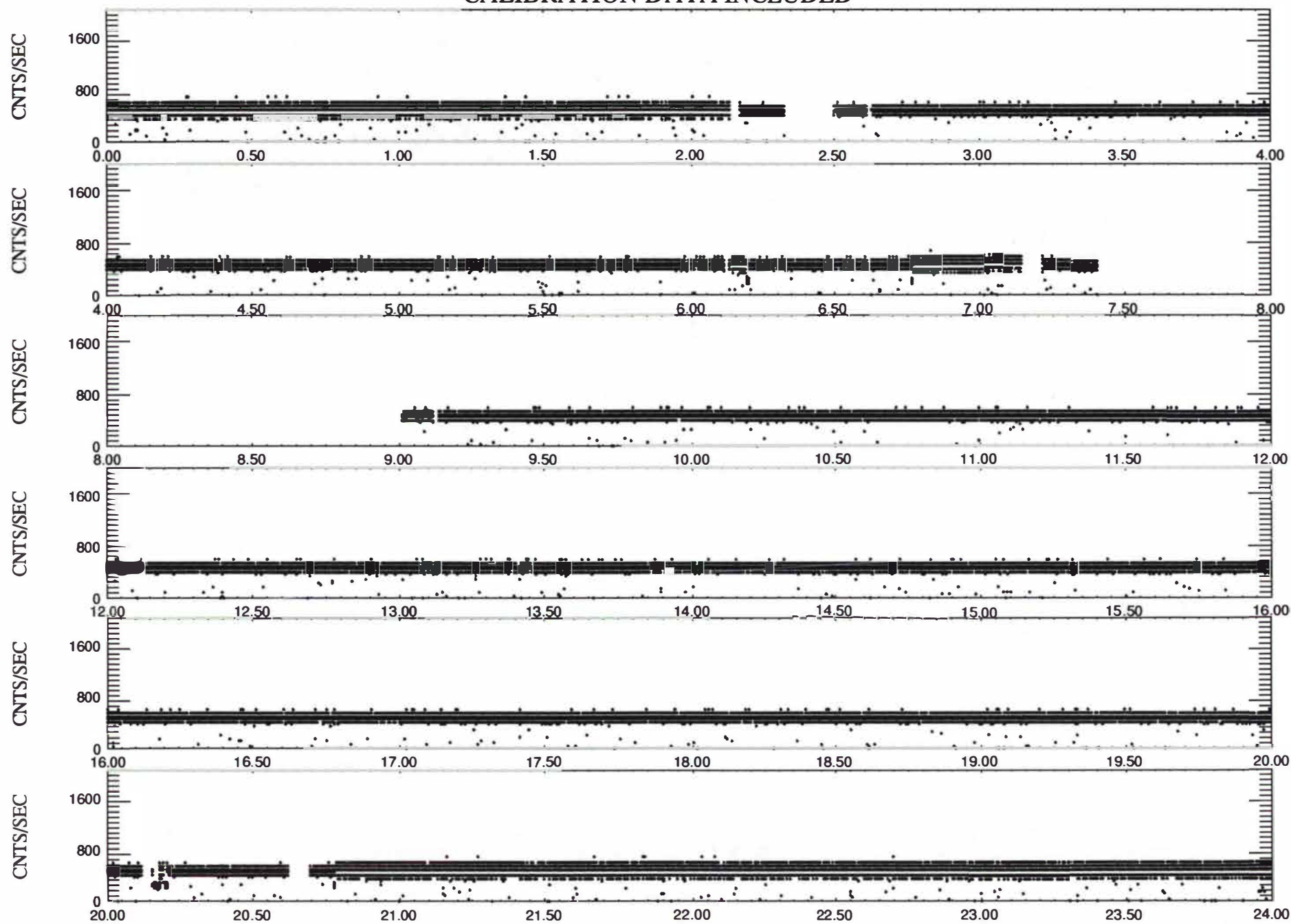
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

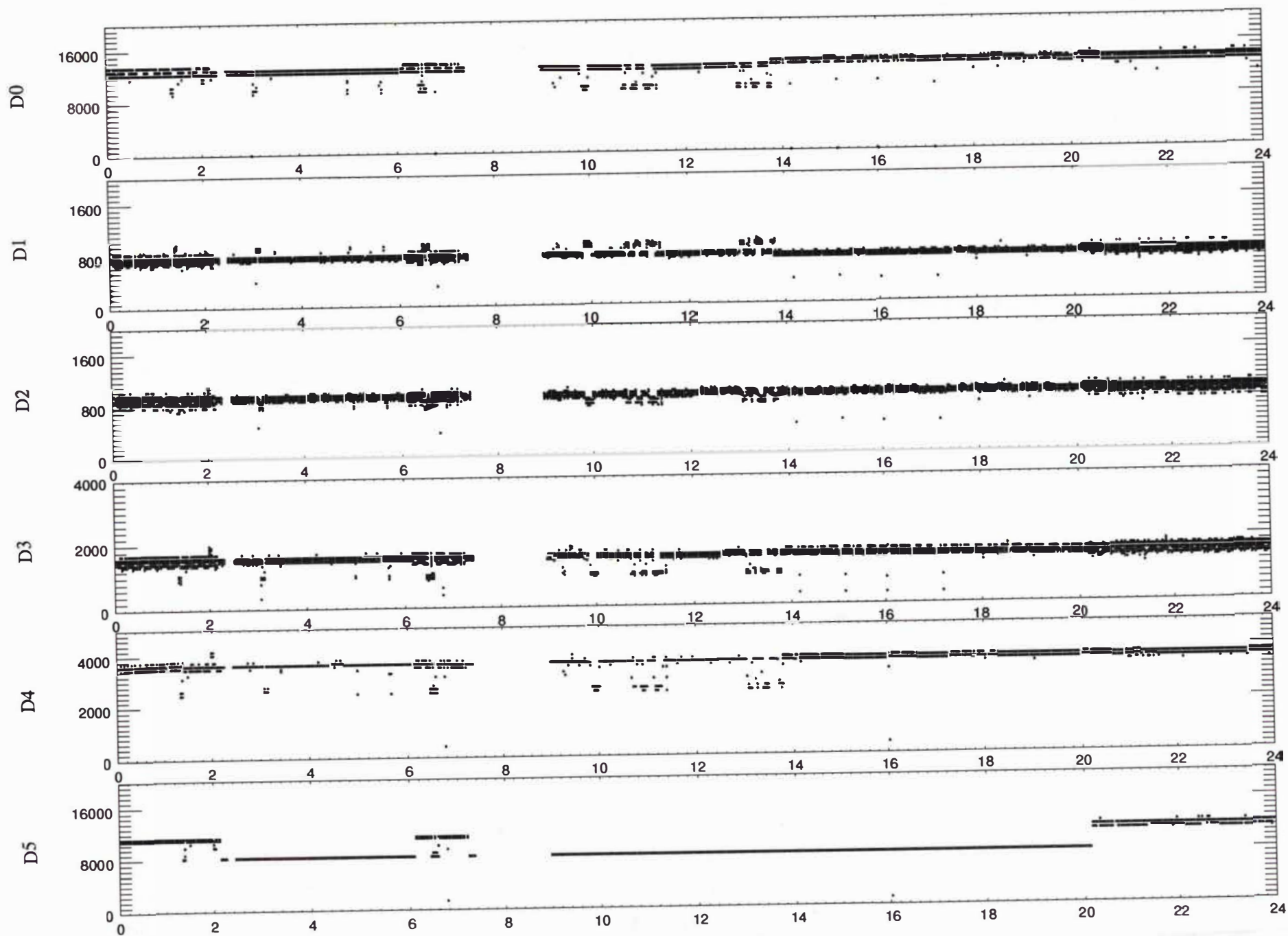
NO BURST (5)



CALIBRATION DATA INCLUDED



UNIV. AL TIME



UNIV. AL TIME

From MALLOZZI@ssl.msfc.nasa.gov Mon Jun 21 07:11:02 1993
Date: Mon, 21 Jun 1993 9:11:48 -0500 (CDT)
From: "ROBERT S. MALLOZZI 205-544-6257" <MALLOZZI@ssl.msfc.nasa.gov>
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02399

TIME: TJD=9156 SECONDS=81338

TYPE: HV ON SOLAR FLARE TRIGGER SIGNAL:N

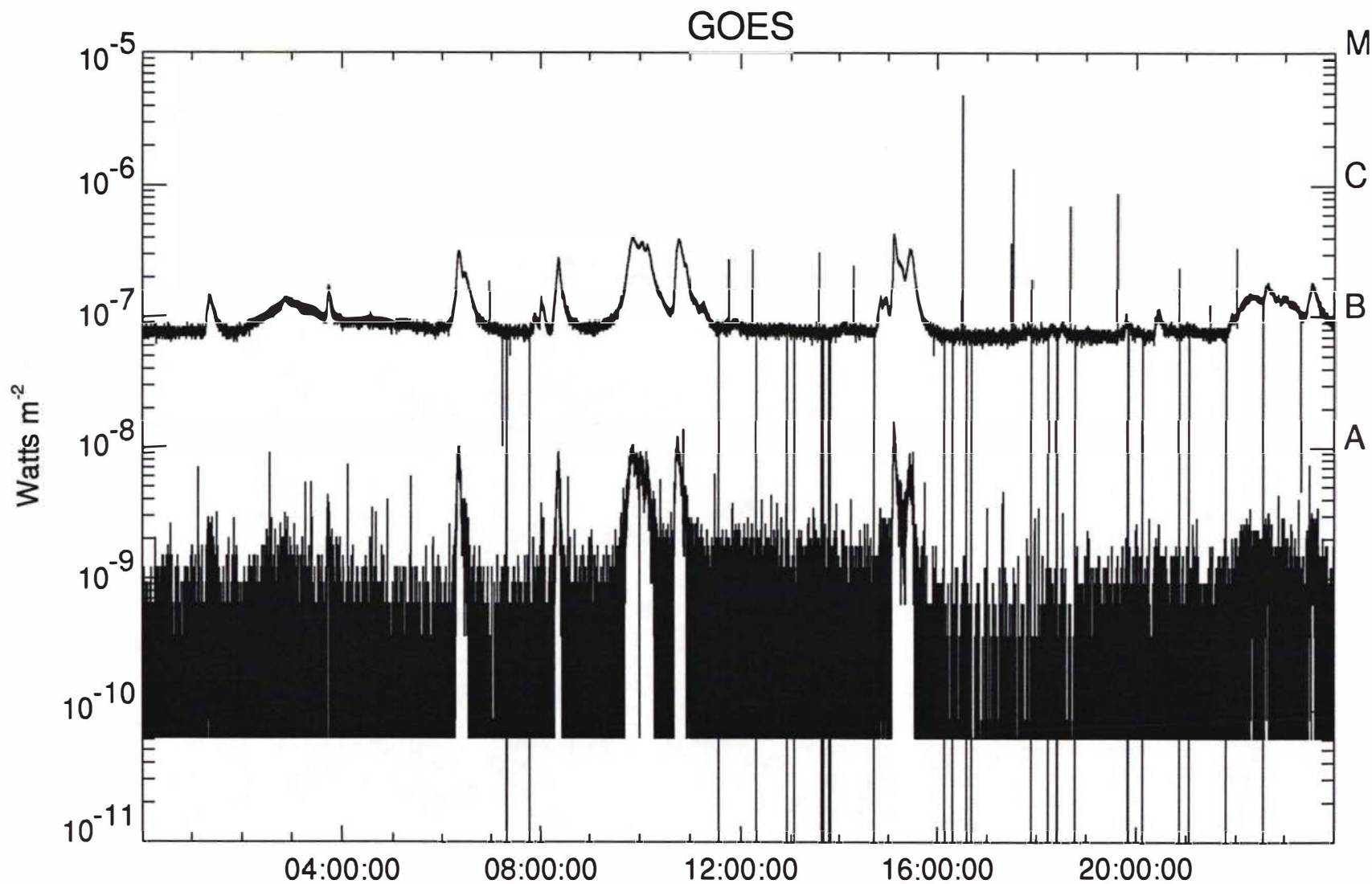
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

FALSE TRIGGER AT HIGH VOLTAGE TURN-ON.



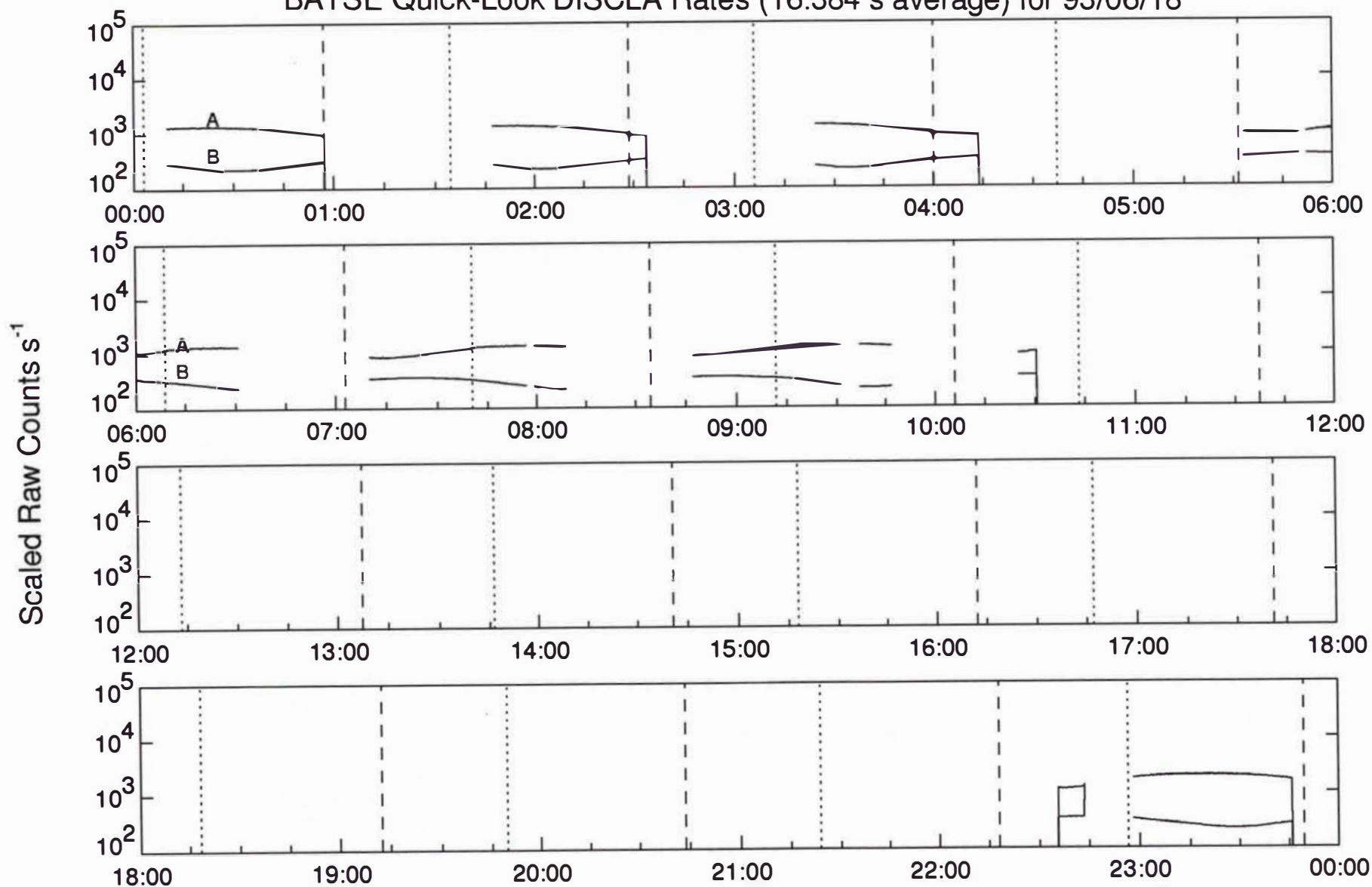
Data Start: 93/06/18, 0000:01

Plot created: 93/10/28, 0202

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/18

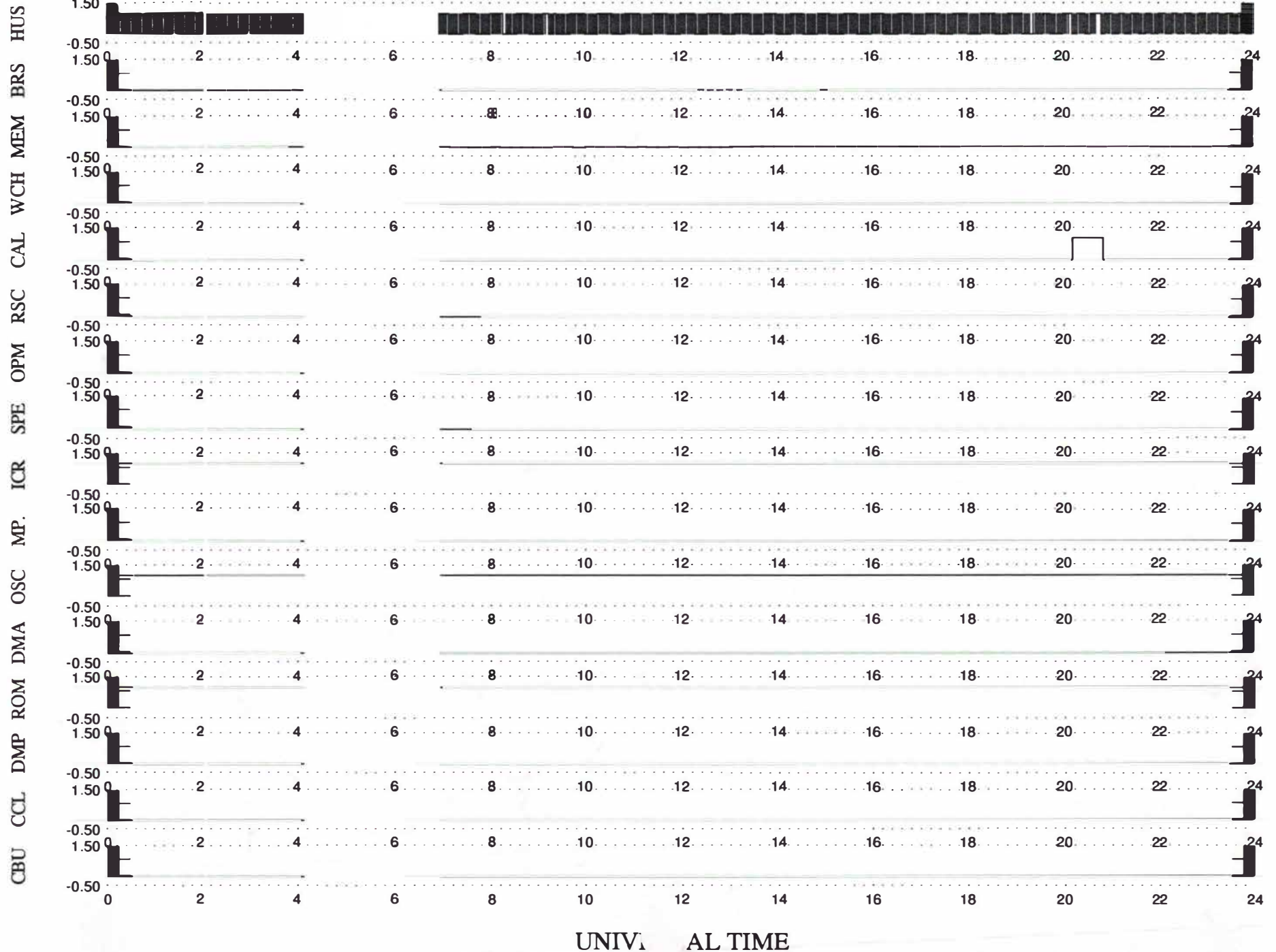


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

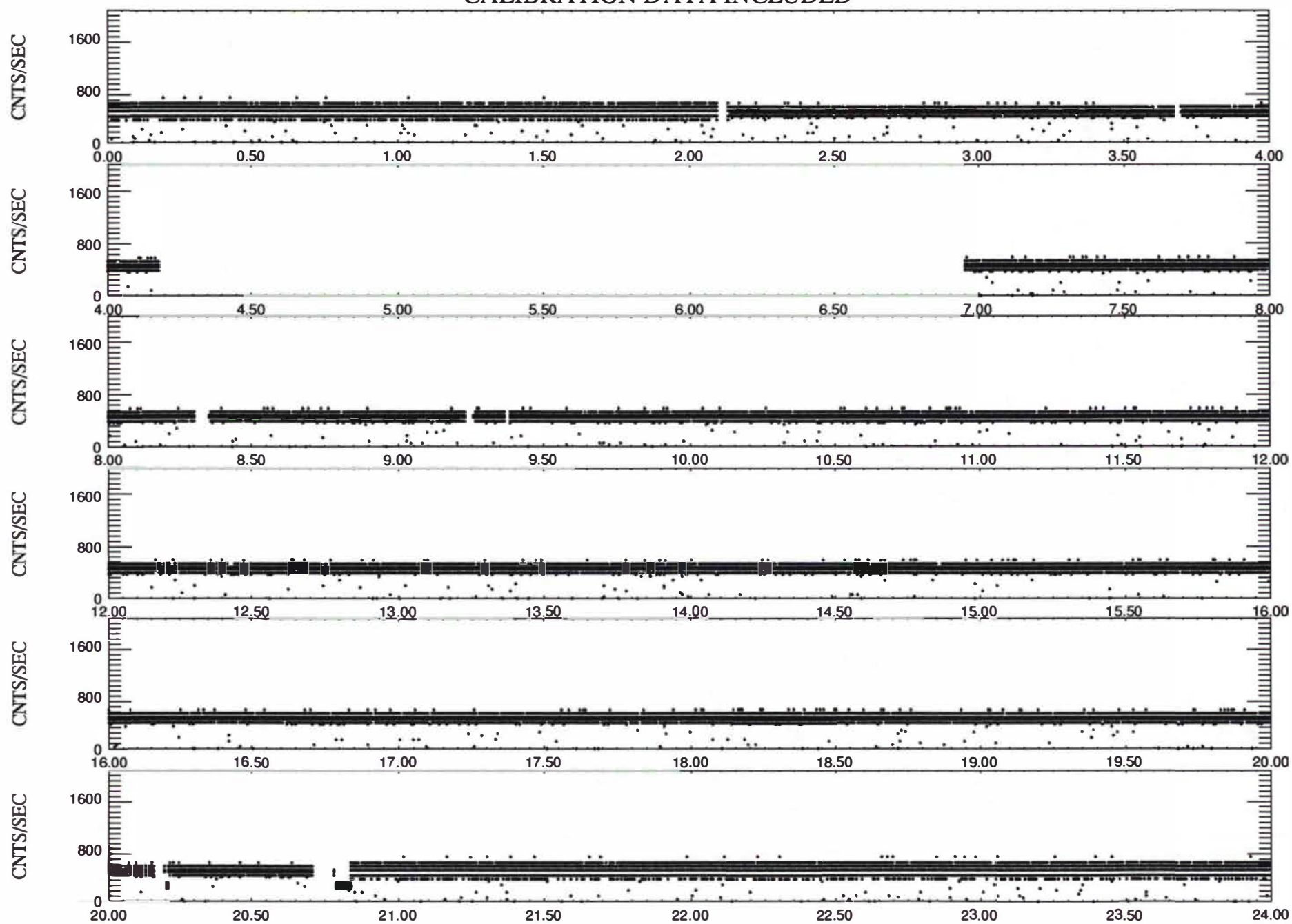
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

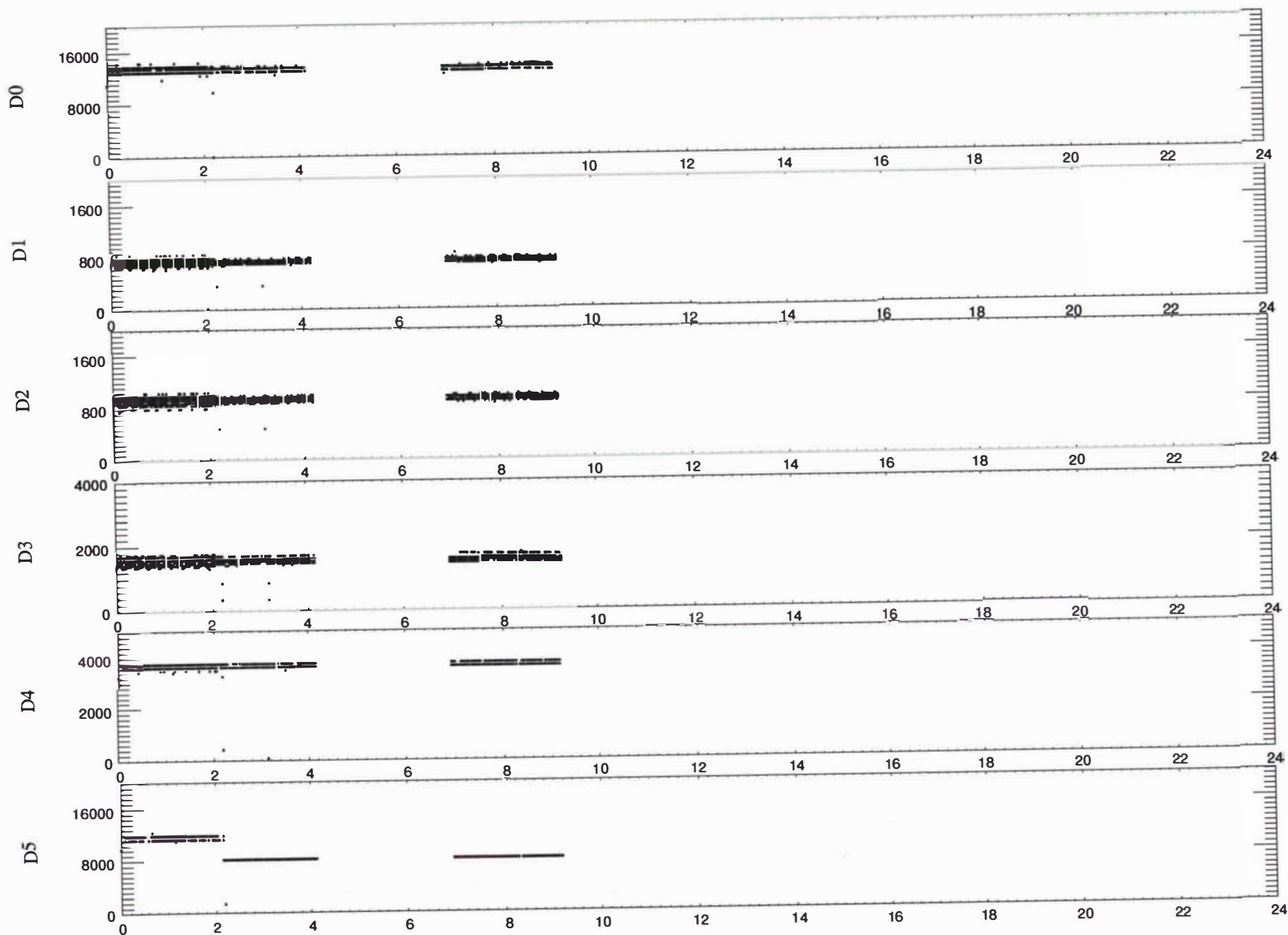
NO BURST (5)



CALIBRATION DATA INCLUDED



UNIV. AL TIME



From MEEGAN@ssl.msfc.nasa.gov Mon Jun 21 13:00:49 1993
Date: Mon, 21 Jun 1993 15:01:18 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02400

TIME: TJD=9157 SECONDS=54764

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON PRECIPITATION EVENT.

BATSEARCH PROGRAM

BATSE BURST # 2401
EVENT OF 1993 JUN 19 DAY OF YEAR=170
EVENT CROSSING TIME AT BATSE : 69057. S. OR 19:10:57.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 208.000 -87.000
BATSE PEAK COUNTING RATE: 1600 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 19/ 6/ 93 IS:
RA= 143.918 DEC= -11.073 DIST= 4.945 AU
BATSE-ULYSSES DISTANCE = 739757040. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=102.37 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -528.66 SECS.
CROSSING TIME AT ULYSSES IS 68528. S. OR 19:02:08 +/- 460.43 SECONDS

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 21 12:15:18 1993
Date: Mon, 21 Jun 1993 14:16:16 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2401	930619	9157	69057	1600	208	-87

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 21 11:13:36 1993
Date: Mon, 21 Jun 1993 13:14:15 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02401

TIME: TJD=9157 SECONDS=69057

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=057.5 AZIMUTH=124.2 ERROR= DEGREES

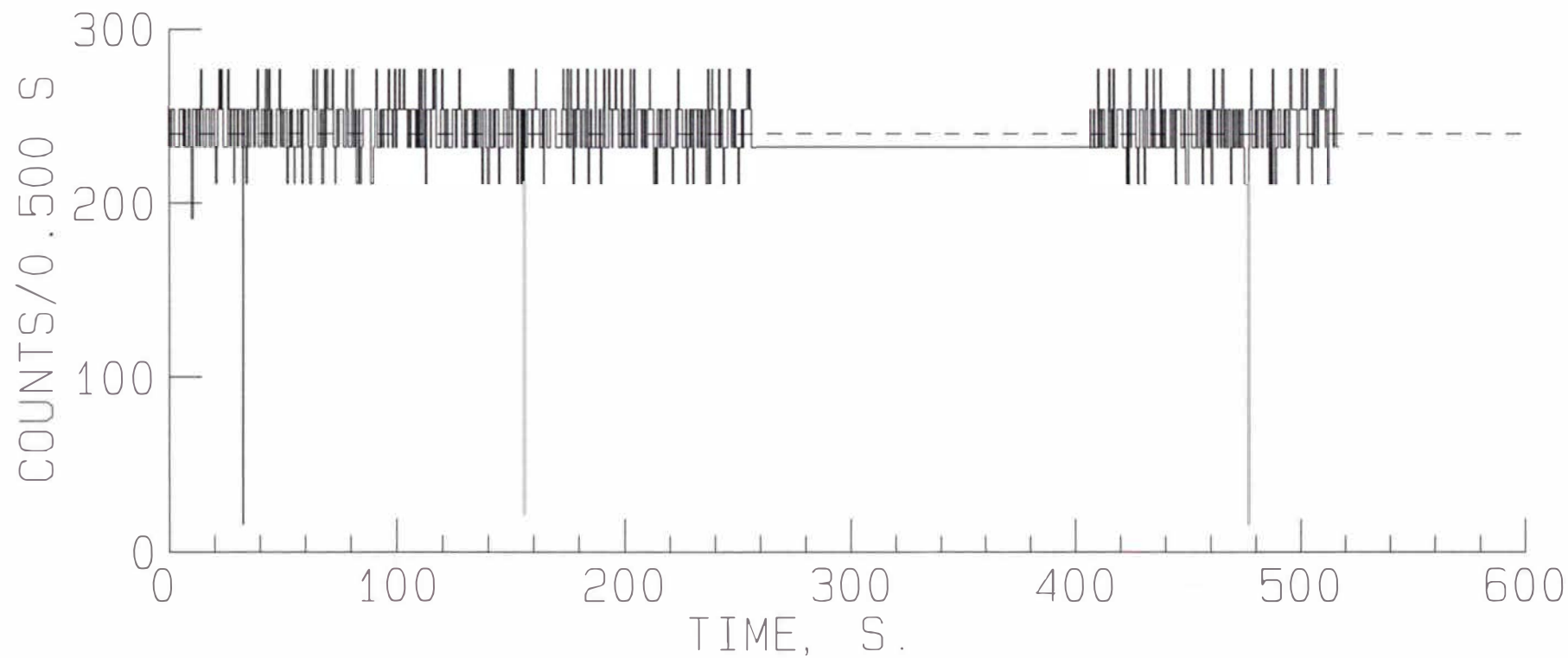
COMMENTS:

BURST, WEAK SINGLE PEAK, LASTING ~3S. NOT VISIBLE ABOVE 300KEV.

30 / 8 / 93

ULYSSES RT
19 / 6 / 93 68076.070 s
0 - 0 keV

N = 10 M = 2
>4.0 SIGMA FLUCTUATIONS



From SHARIFF@ssl.msfc.nasa.gov Mon Jun 21 12:10:55 1993
Date: Mon, 21 Jun 1993 14:11:42 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02402

TIME: TJD=9157 SECONDS=85537

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

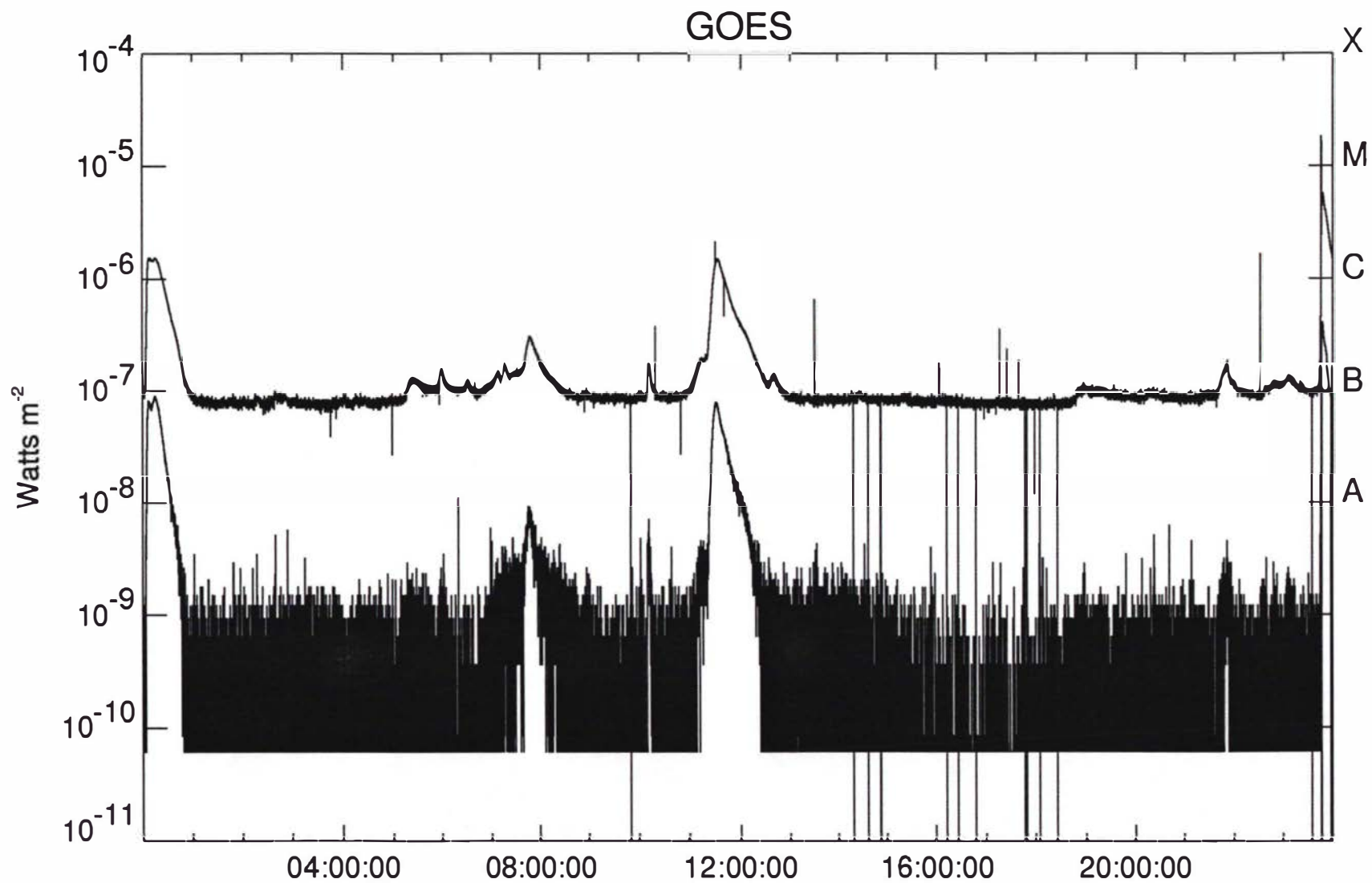
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SOLAR FLARE, CLASSIFIED AS C5.1 ON GOES, SINGLE PEAK WITH SUBSTRUCTURE, LASTING ~
120S. WEAKLY VISIBLE ABOVE 100KEV.



Data Start: 93/06/19, 0000:00

Plot created: 93/10/28, 0202

Channel

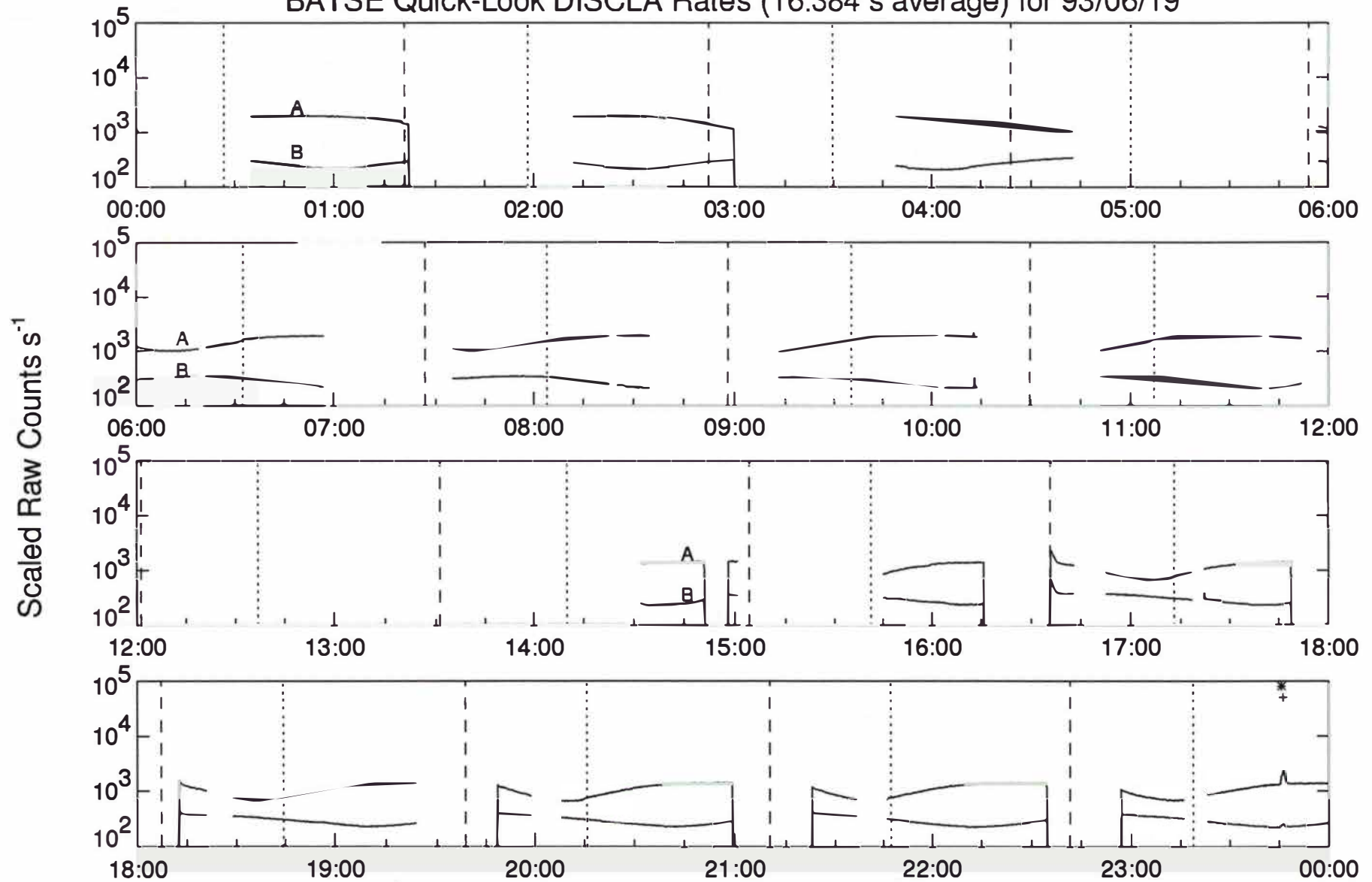
1 (1.0 - 8.0 Angstroms)

Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/19

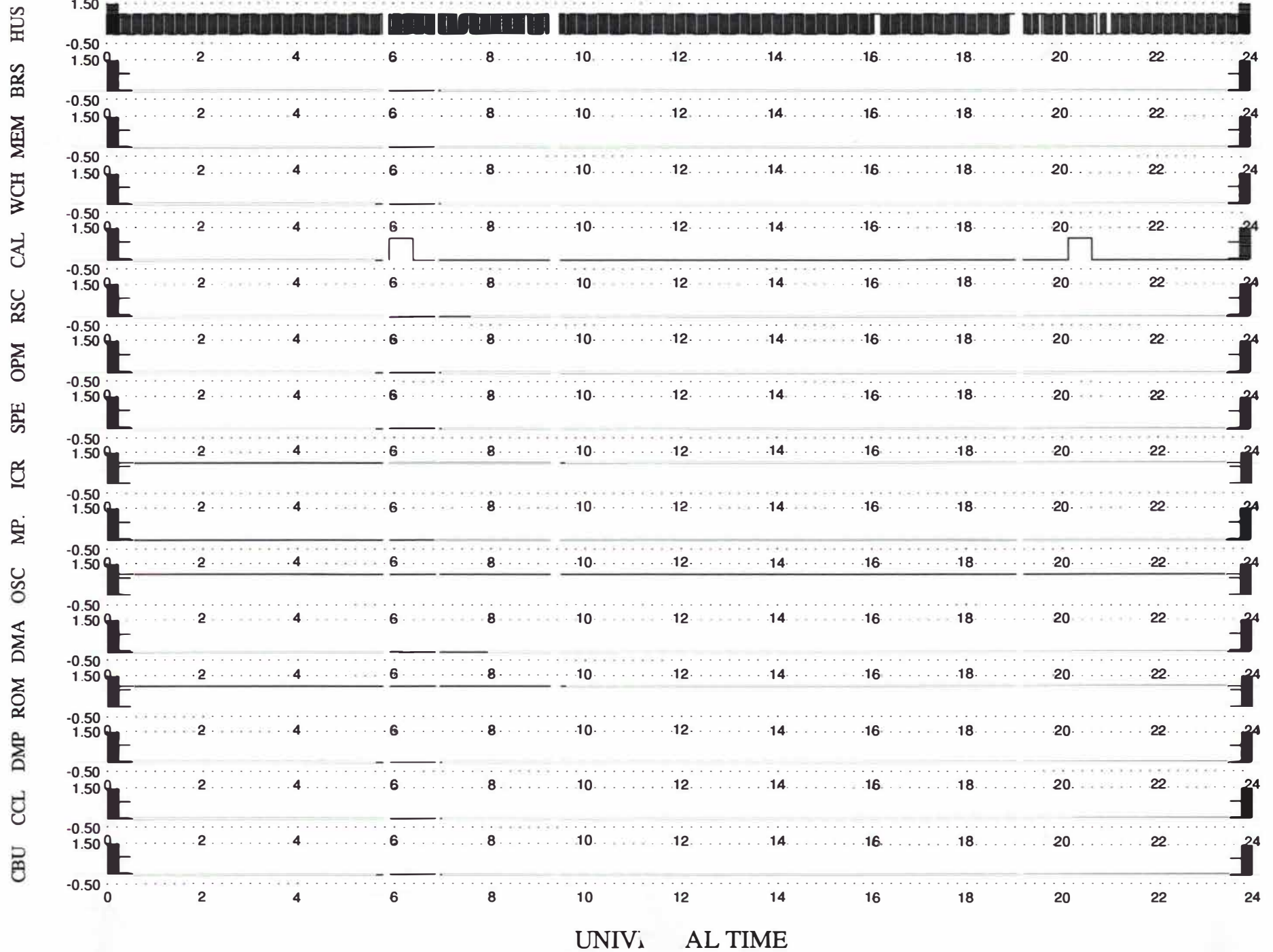


Current Time: 93/11/03, 2040 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

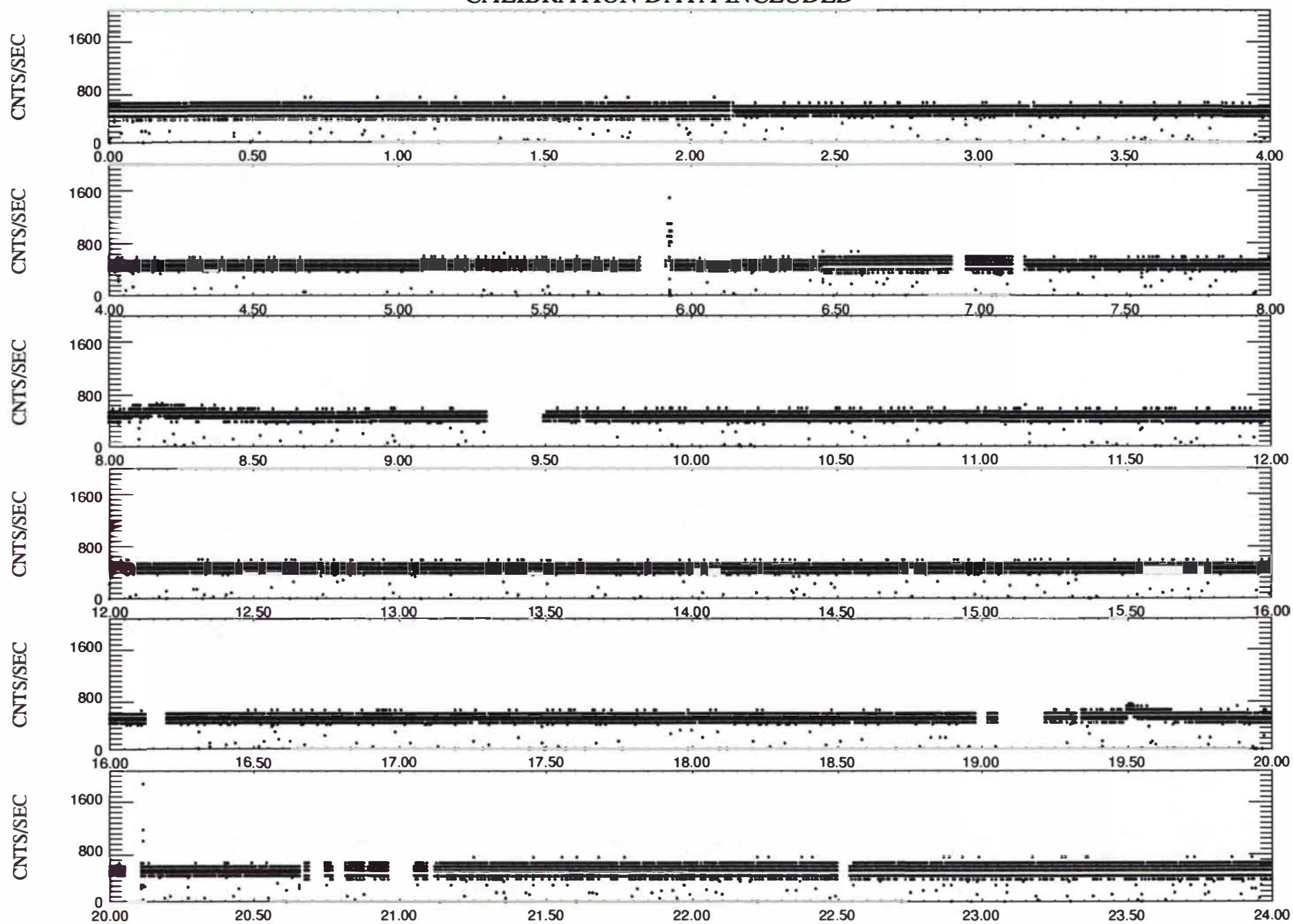
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

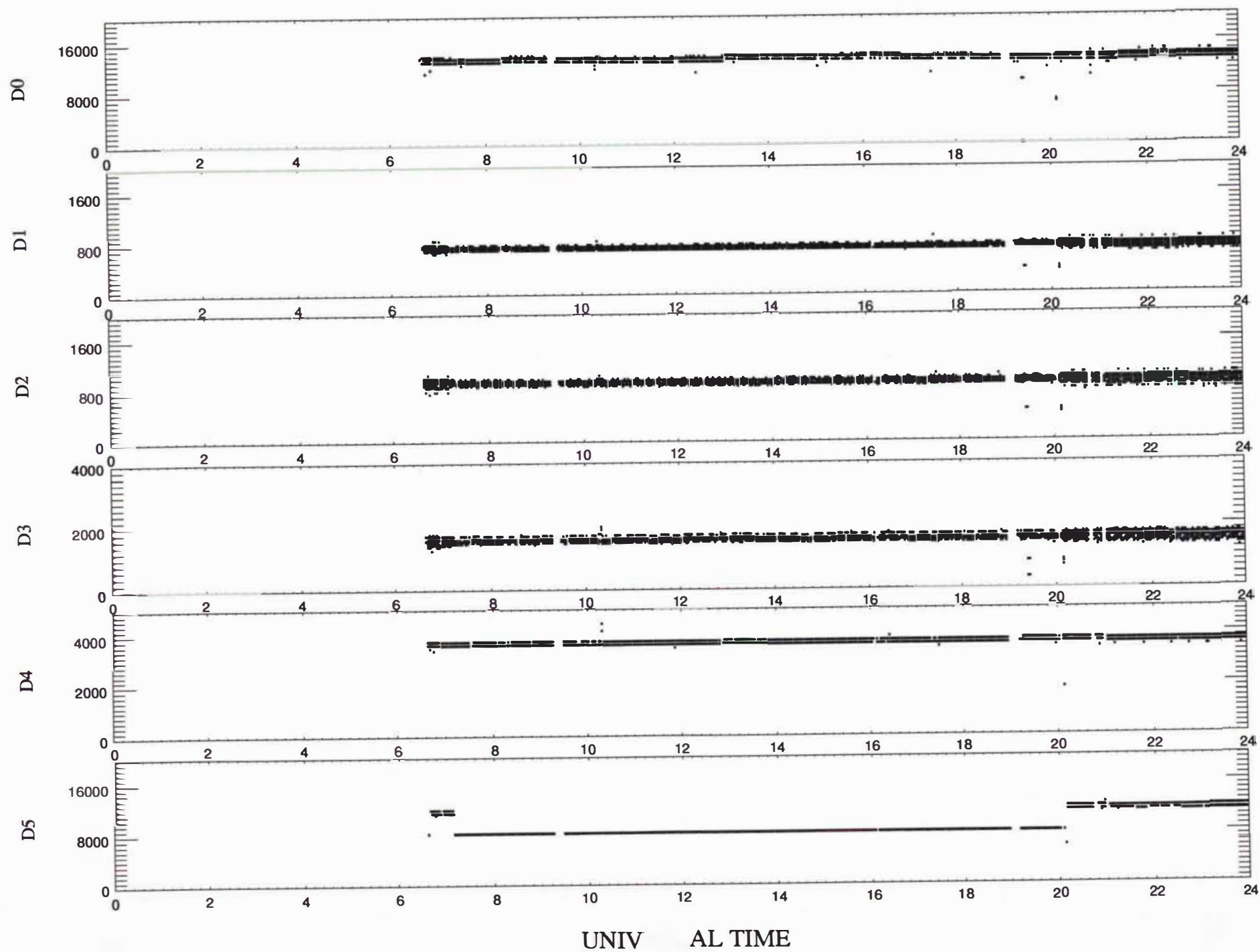
NO BURST (5)

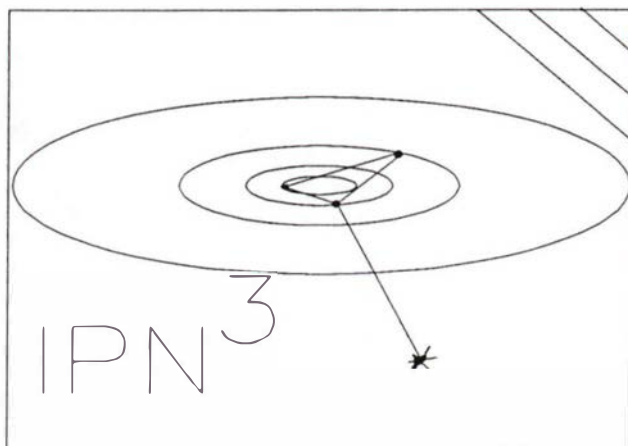


CALIBRATION DATA INCLUDED



UNIV. AL TIME





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

TO: John Laros, Los Alamos

FAX #:

DATE: July 1, 1993

TOTAL NUMBER OF PAGES: 7

Here are the time histories and Ulysses coordinates for June 20 and 24. There were several other triggers on the 24th which I can send if you need them. The coordinates are approximate, but if you want, I can work them out for the exact trigger time.

FAXED
W 7/1

From root Tue Jun 29 11:25 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02041; Tue, 29 Jun 93 11:25:16
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA01867; Tue, 29 Jun 93 11:26:35 PDT
Received: Tue, 29 Jun 93 11:15:22 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306291815.AA02843@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-maill1d v1.7); Tue, 29 Jun 93 11:28:04 PDT
Date: Tue, 29 Jun 93 11:28:04 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

MO/GRS had a leakage current spike at 56894. This is probably just a coincidence, but it is somewhat suspicious that the same thing happened on 921022. I will look for other such coincidences as time goes on.

Incidentally, I see a rather long event that did not cause a trigger on June 20 at about 15:00. Is it solar? There is a definite solar observation on June 24 at about 08:00, but again no trigger.

John

P.S. In the first paragraph, I was referring to the 23 June oddball event. MO position on June 14 was 270229687, 148.79, 12.62.

From root Tue Jun 29 11:28 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02047; Tue, 29 Jun 93 11:28:32
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA01888; Tue, 29 Jun 93 11:29:53 PDT
Received: Tue, 29 Jun 93 11:29:41 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306291829.AA03171@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-maill1d v1.7); Tue, 29 Jun 93 11:31:22 PDT
Date: Tue, 29 Jun 93 11:31:22 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

Wait a minute! I looked at the wrong day. Apparently, there we had no data on June 22. I'll look into this. Sorry.

John

From root Wed Jun 30 14:52 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02528; Wed, 30 Jun 93 14:52:12
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA16722; Wed, 30 Jun 93 14:53:25 PDT
Received: Wed, 30 Jun 93 14:52:01 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306302152.AA19380@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-maill1d v1.7); Wed, 30 Jun 93 14:54:54 PDT
Date: Wed, 30 Jun 93 14:54:54 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

If you give me onsets of the June 20 and 24 solar flares, I can get a sanity check on the MO realtime absolute timing. As far as I know, we don't yet have a solar flare trigger.

MO had coverage, but no trigger at the time of the weird BATSE event on June 22.

John

BATSEARCH PROGRAM

BATSE BURST # 2403
EVENT OF 1993 JUN 20 DAY OF YEAR=171
EVENT CROSSING TIME AT BATSE : 32046. S. OR 08:54:06.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 57.000 -39.000
BATSE PEAK COUNTING RATE: 2200 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 20/ 6/ 93 IS:
RA= 144.006 DEC= -11.095 DIST= 4.955 AU
BATSE-ULYSSES DISTANCE = 741297920. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 99.26 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -397.94 SECS.
CROSSING TIME AT ULYSSES IS 31648. S. OR 08:47:28 +/- 467.66 SECONDS

KJ0

From KOSHUT@ssl.msfc.nasa.gov Tue Jun 22 09:29:45 1993
Date: Tue, 22 Jun 1993 11:30:47 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: KOSHUT@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2403	930620	9158	32046	2200	057	-39

From KOSHUT@ssl.msfc.nasa.gov Tue Jun 22 09:35:01 1993
Date: Tue, 22 Jun 1993 11:35:55 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02403

TIME: TJD=9158 SECONDS=32046

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=108 AZIMUTH=145. ERROR= DEGREES

COMMENTS:

BURST OF ~ 25 SECONDS DURATION, NOT OBSERVED ABOVE 300 KEV.

23/ 6/93

ULYSSES RT

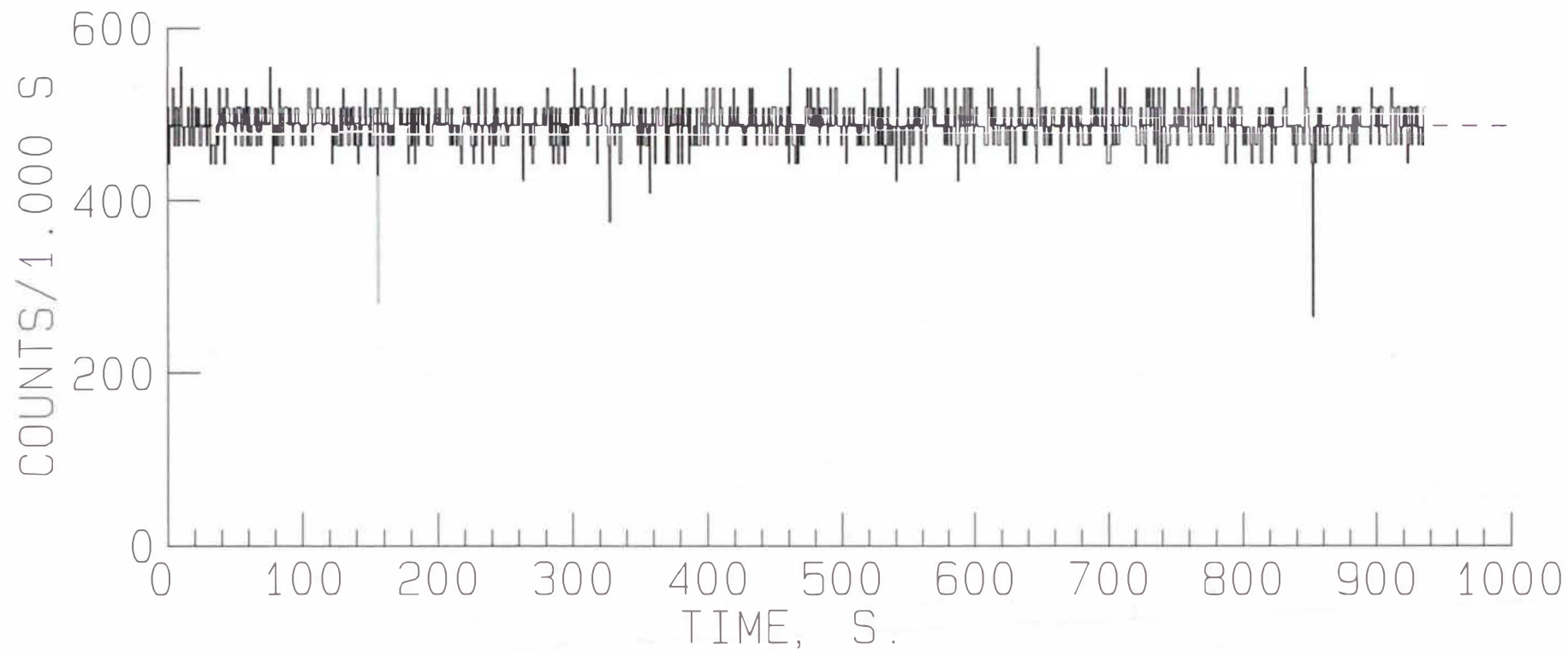
20/ 6/93 31176.332 s

0.500 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From KOSHUT@ssl.msfc.nasa.gov Mon Jun 21 11:18:34 1993
Date: Mon, 21 Jun 1993 13:19:16 -0500 (CDT)
From: KOSHUT@ssl.msfc.nasa.gov
To: igse@unhrcc.unh.edu, jryan@unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02404

TIME: TJD=9158 SECONDS=39222

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT.

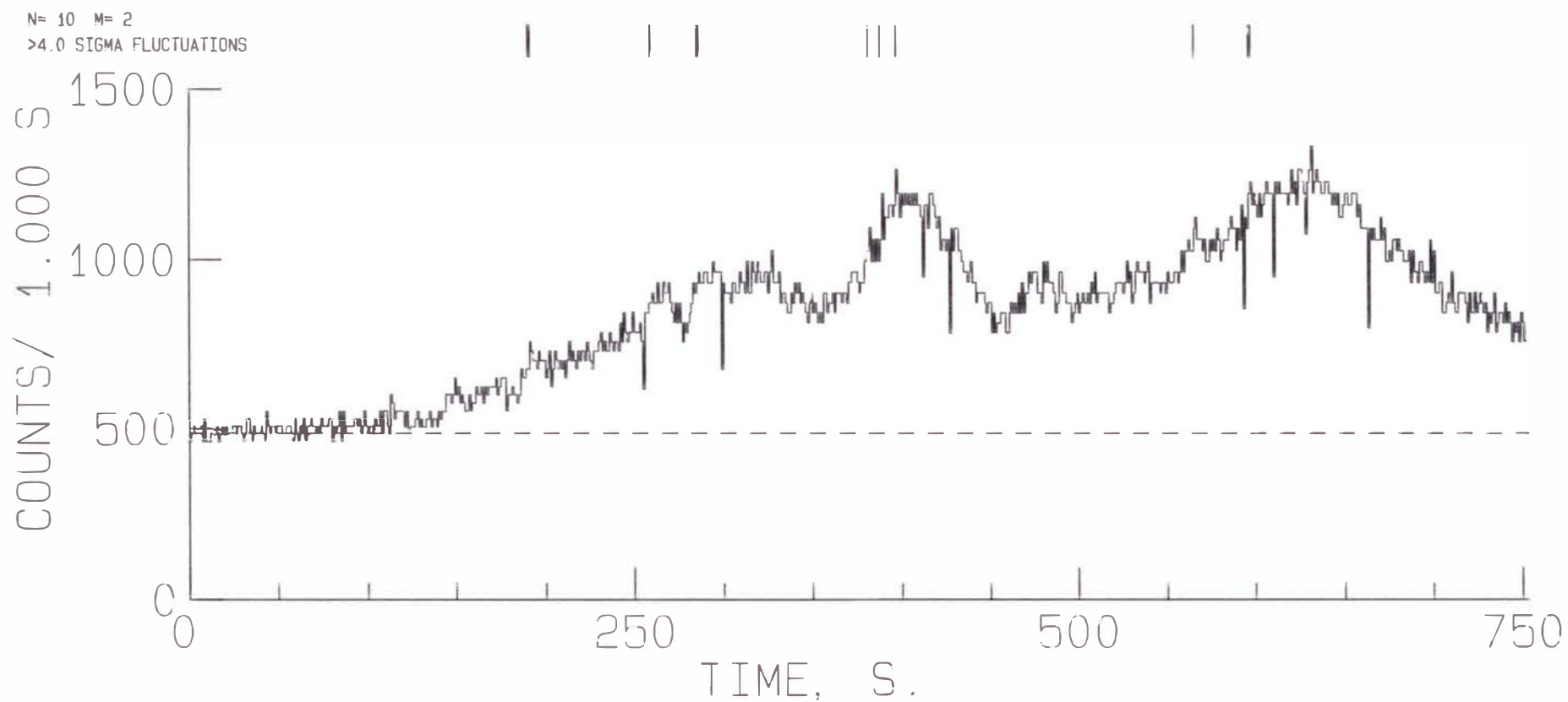
ULYSSES RT

14 / 5 / 94

20 / 6 / 93 54612.191 s

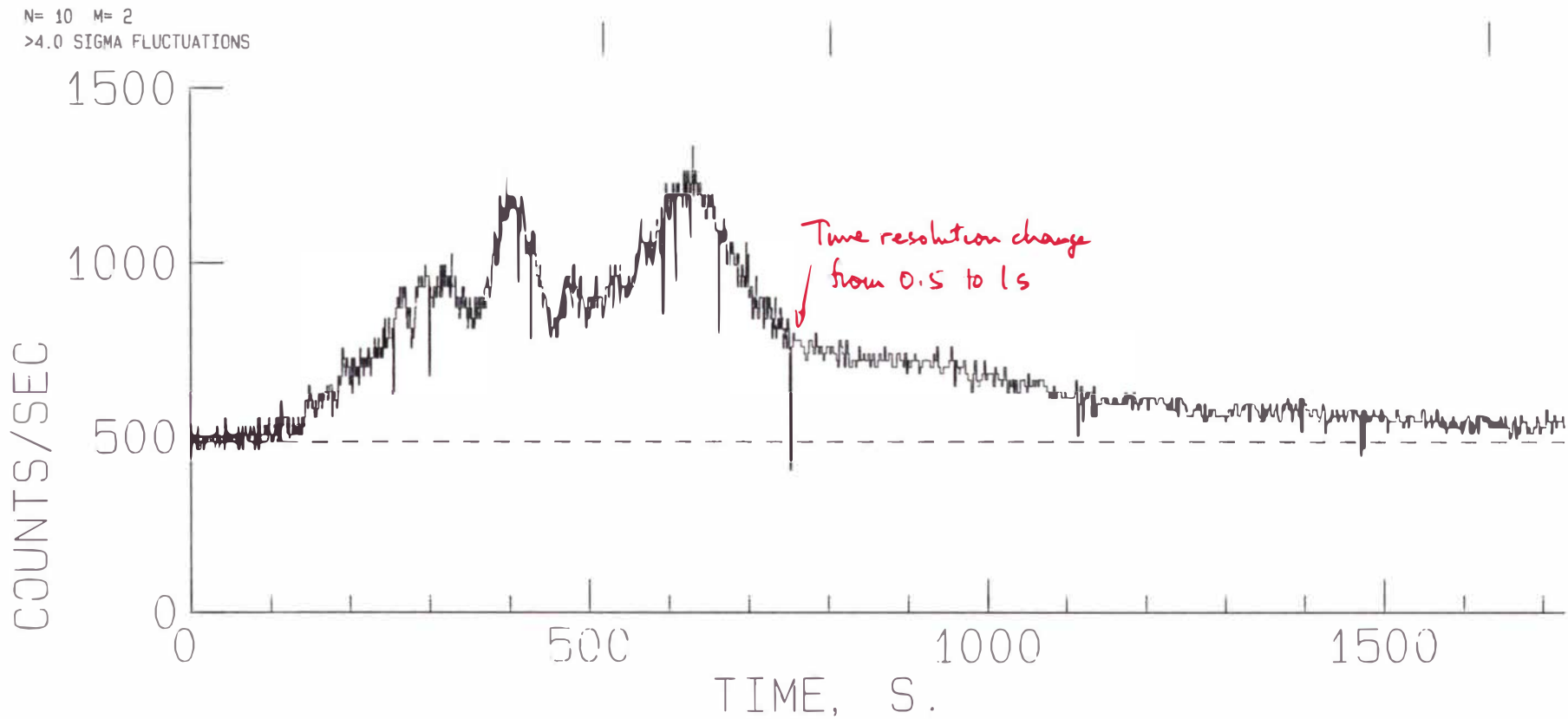
.500 S INTERVALS REGROUPED BY 2

21- 145 keV



ULYSSES RT
20/ 6/93 54612.191 s
INTERVALS REGROUPED BY 2
21- 145 keV

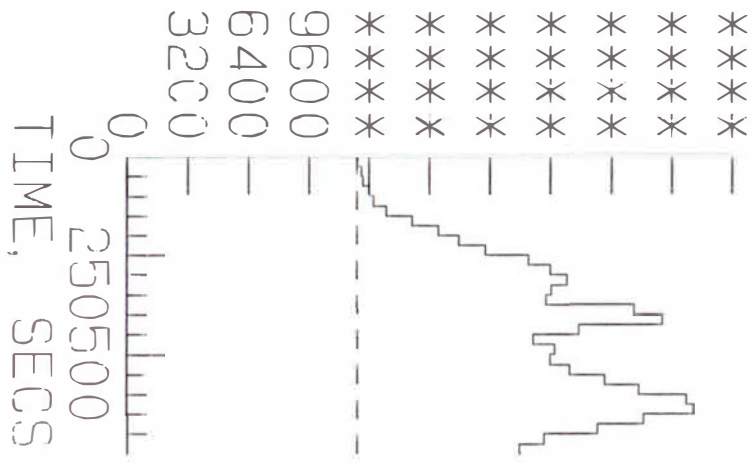
14/ 5/94



ULYSSES RT 20/ 6/93

21- 145 keV 54612.695 S

COUNTS/25.000 S



MO-RT

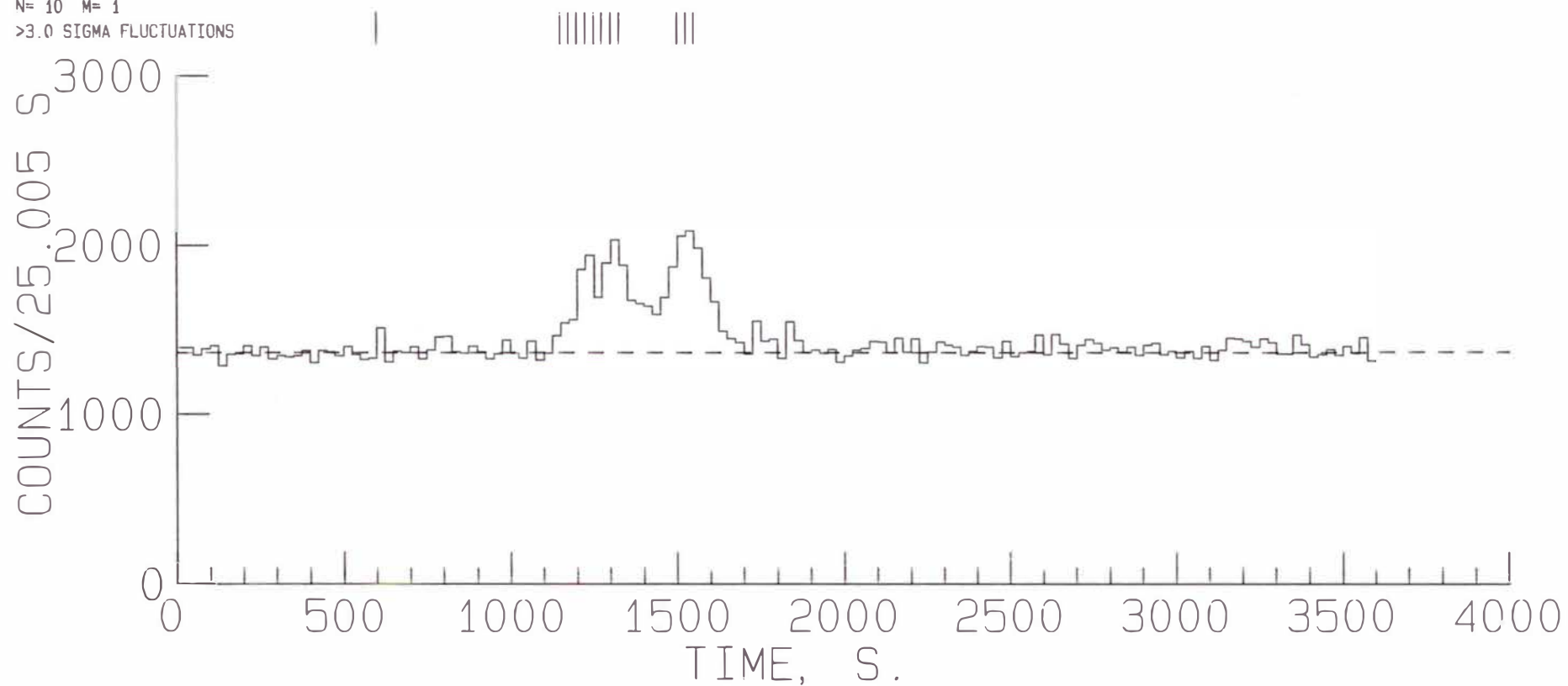
20 / 6 / 93

52216.972 s.

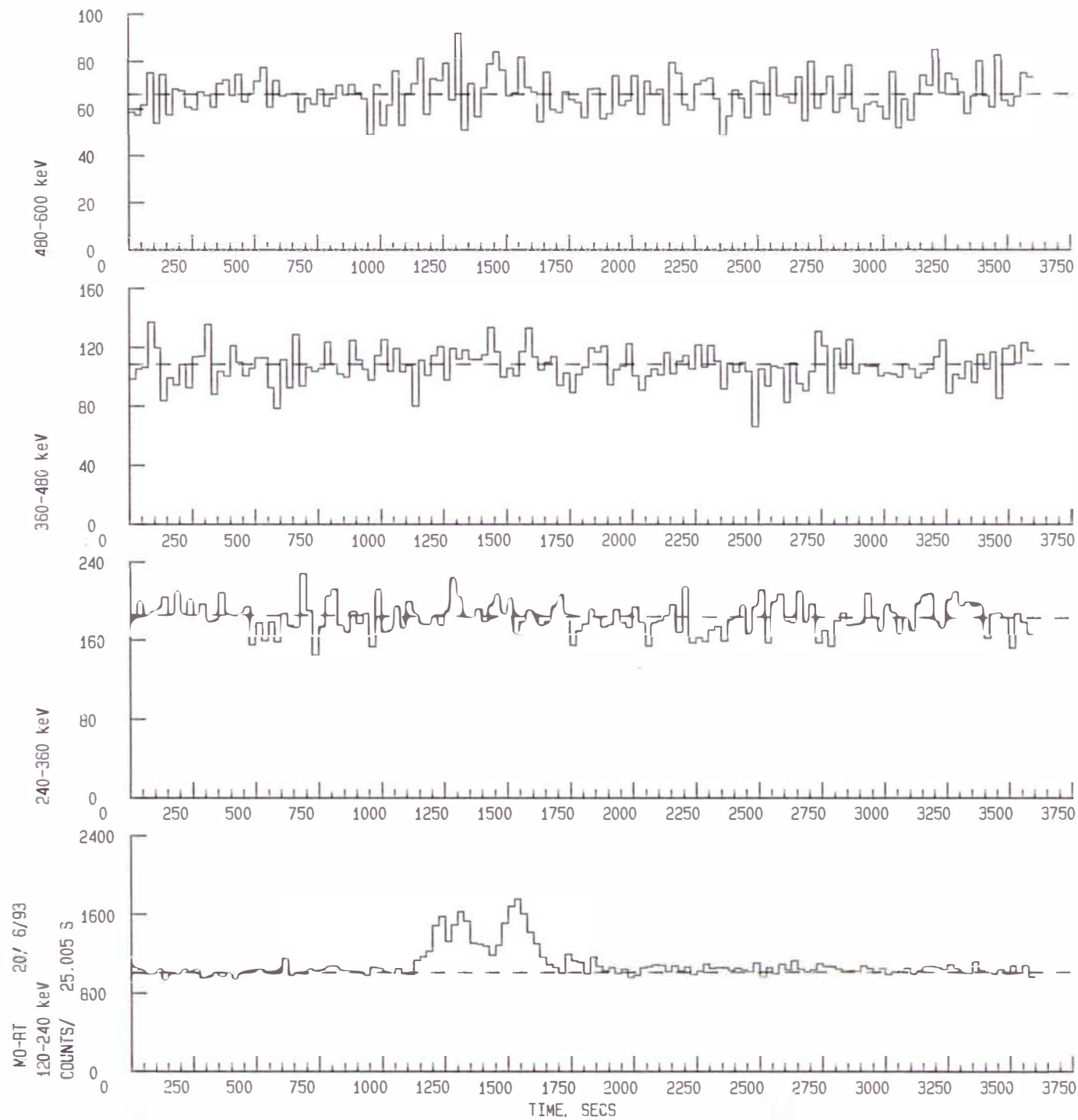
25.005 S. INTERVALS REGROUPED BY 1

120- 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS



14/ 5/94



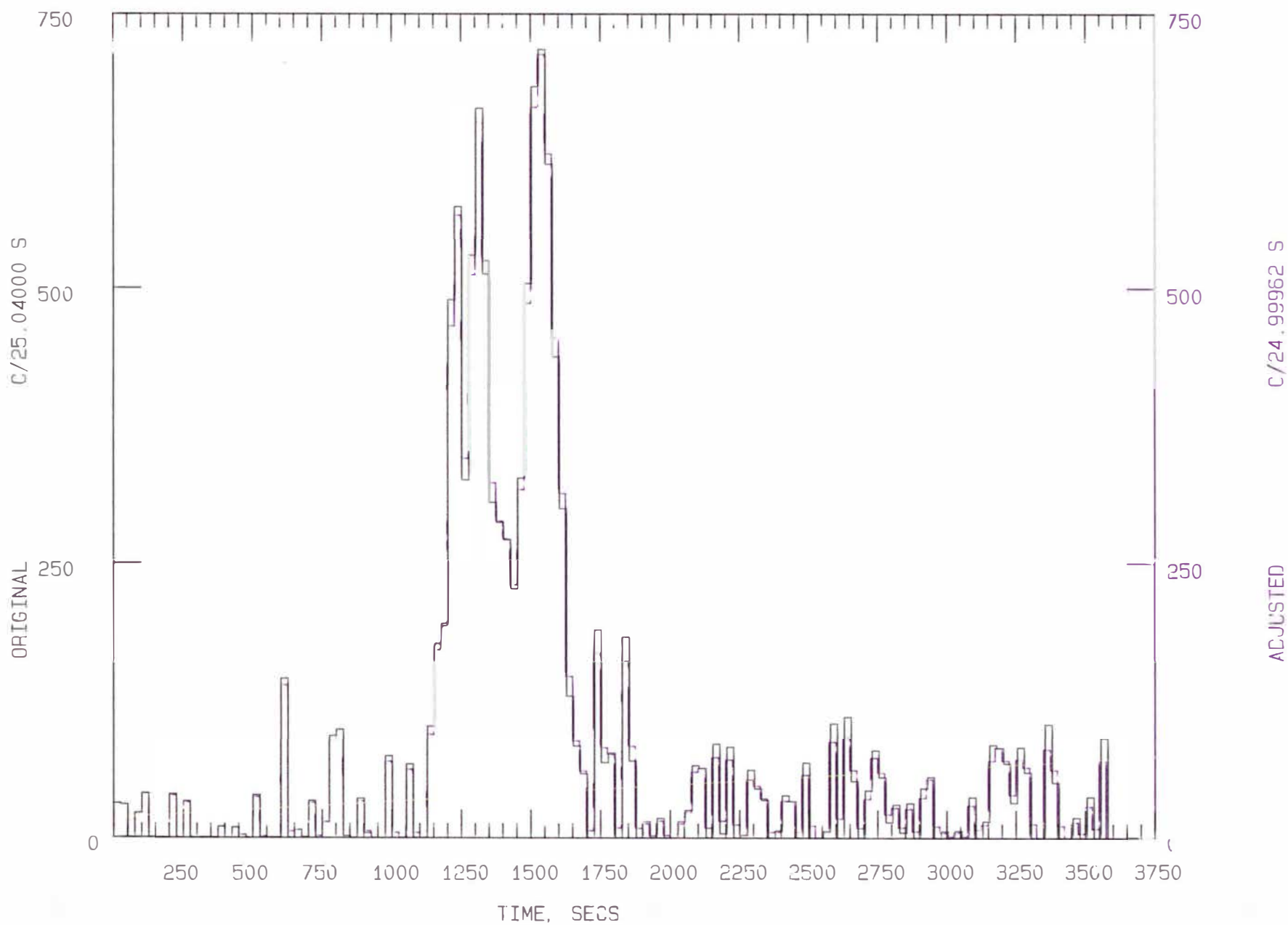
ORIGINAL AND ADJUSTED MO-RT

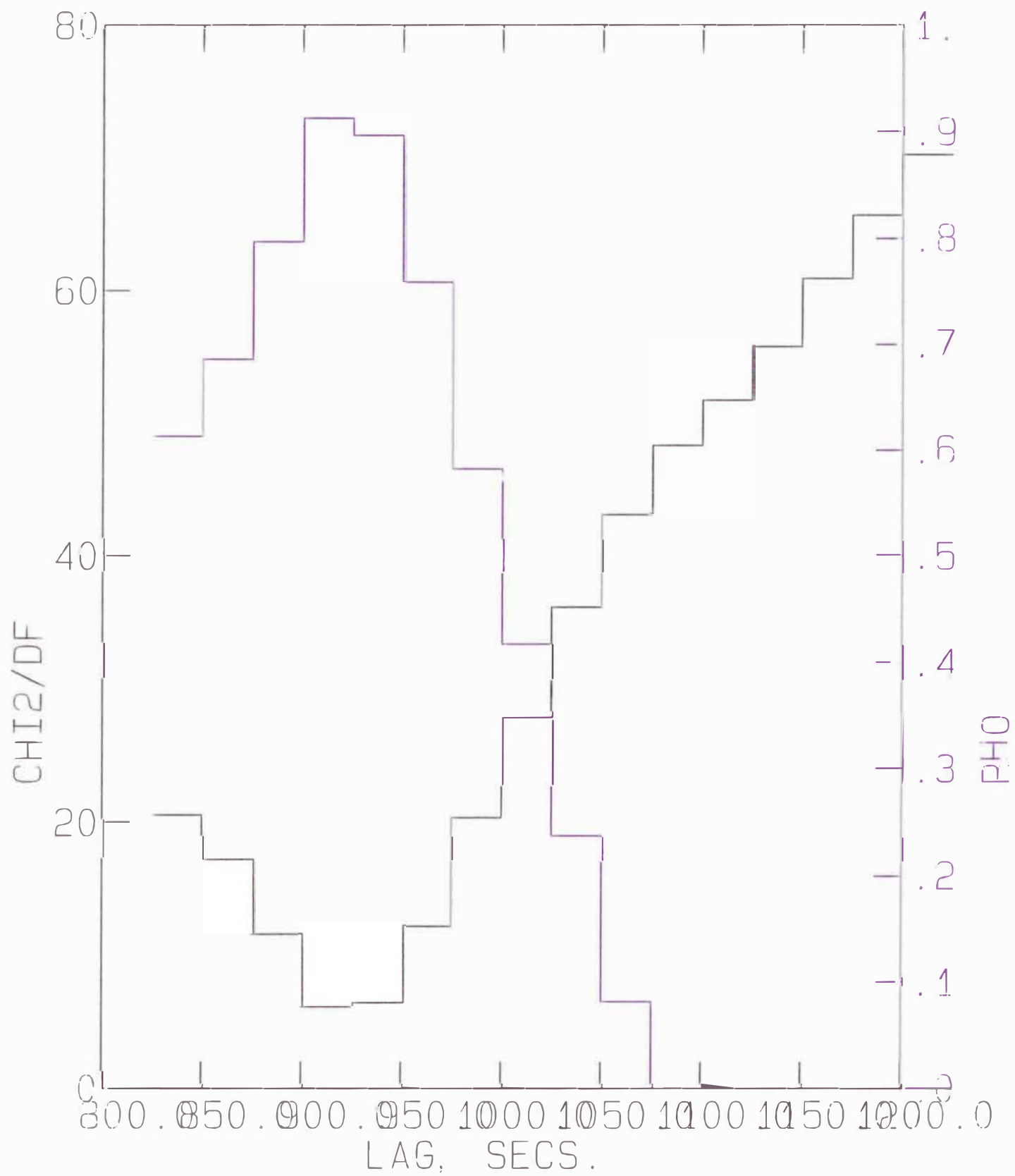
TIME HISTORIES

20/ 6/93

52204.470

14/ 5/94





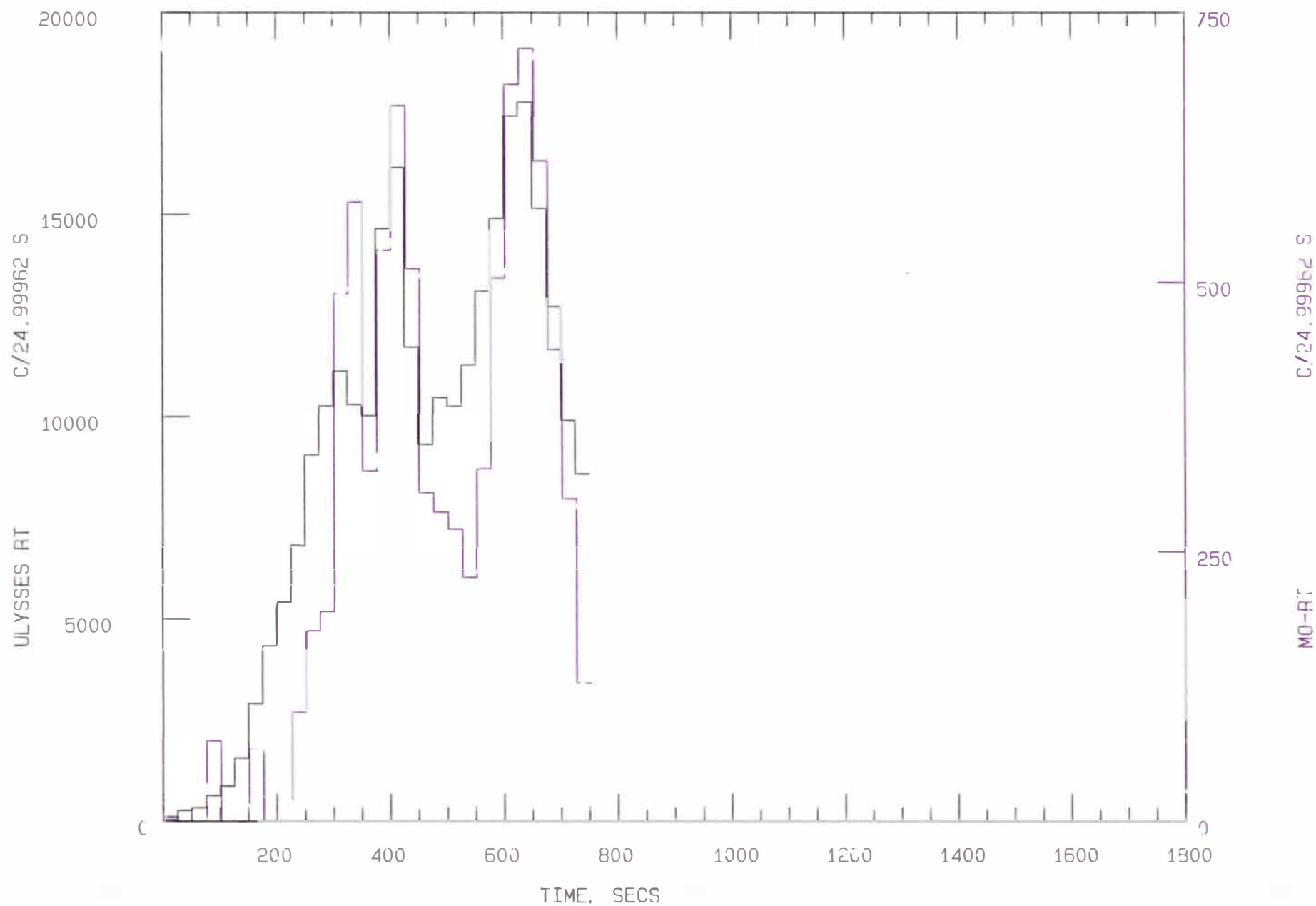
ULYSSES RT-MO-RT

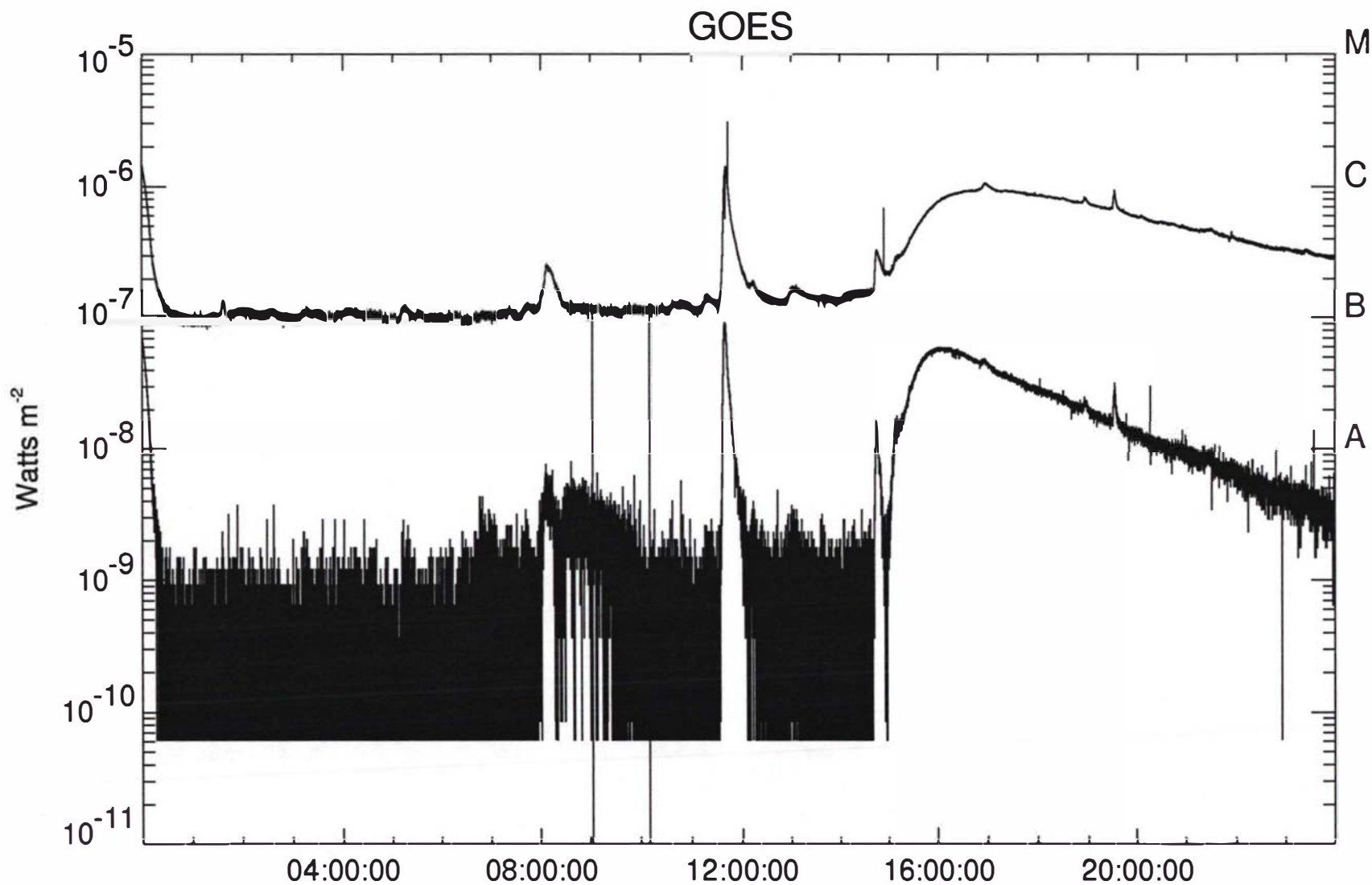
CORRELATION

20/ 6/93

54612.695

14/ 5/94





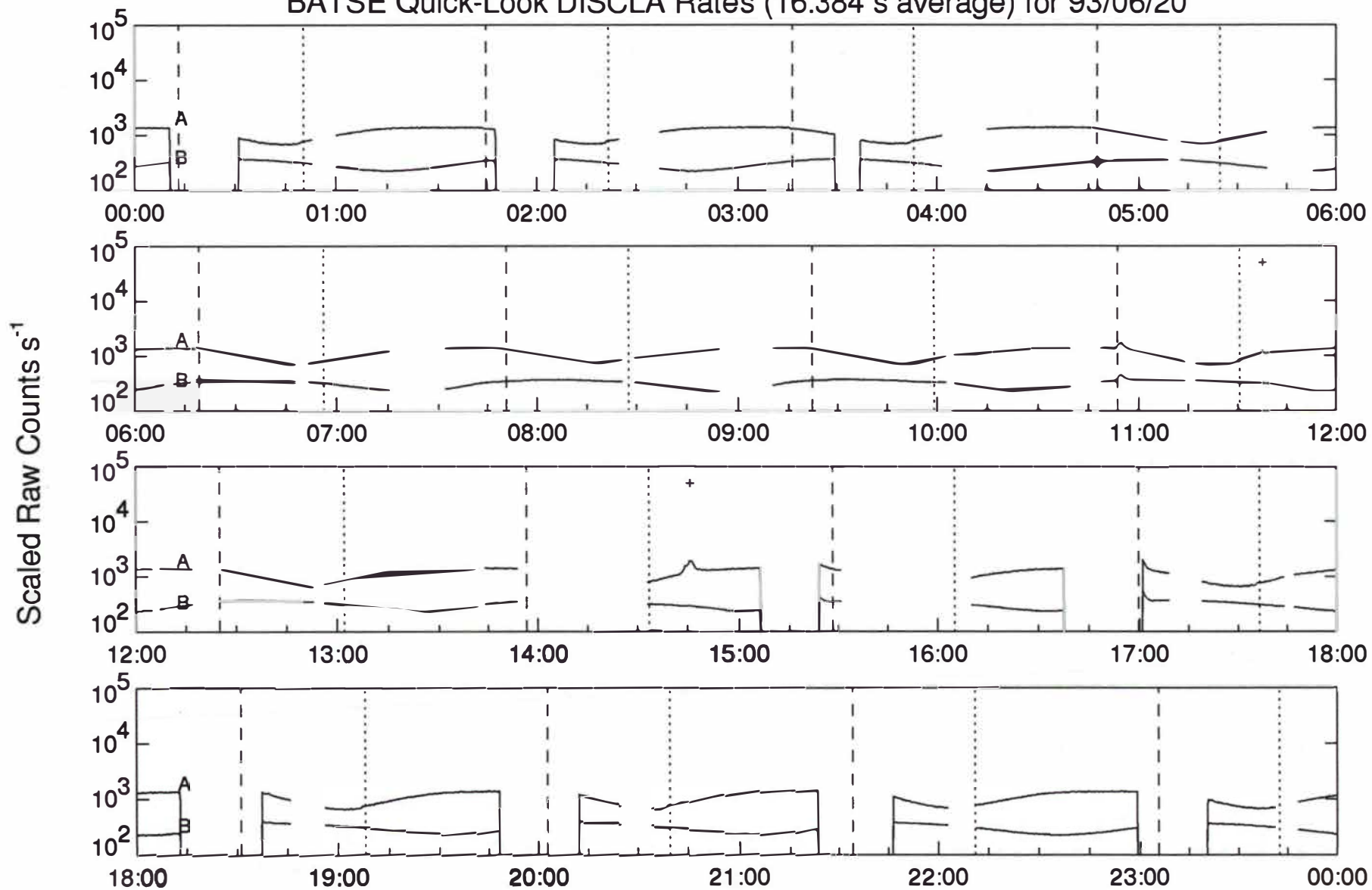
Data Start: 93/06/20, 0000:00

Plot created: 93/10/28, 0202

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/20

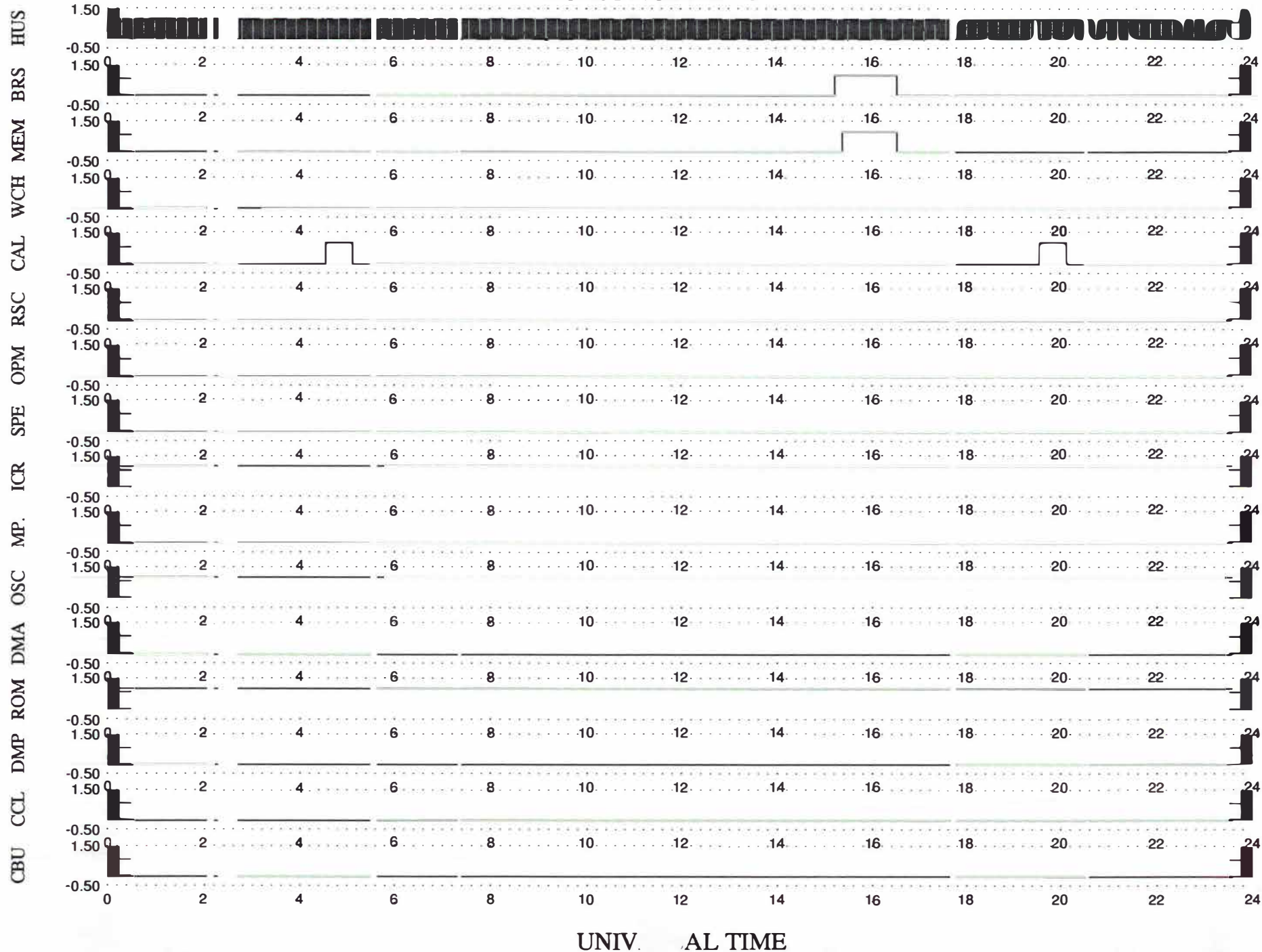


Current Time: 93/11/03, 2041 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

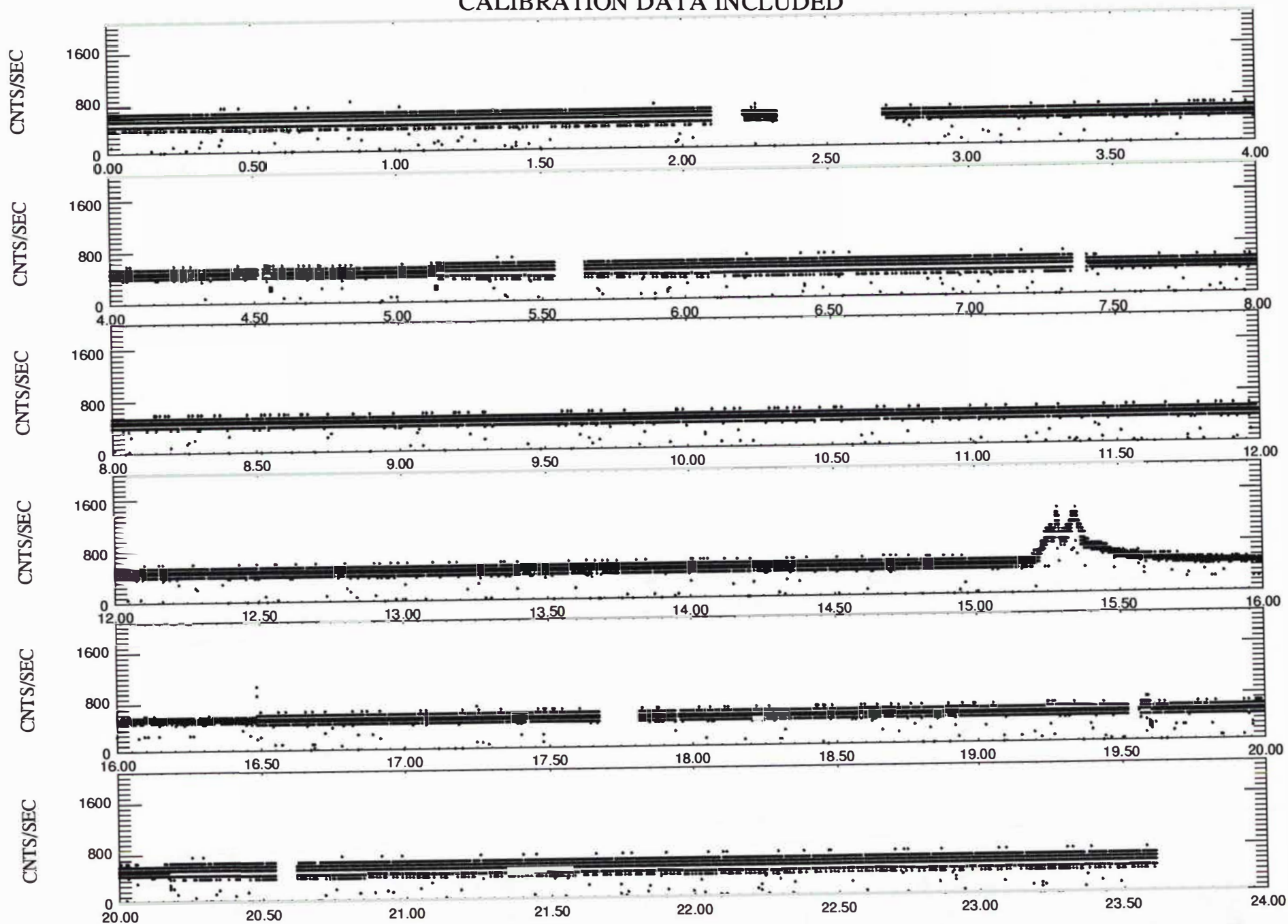
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

BURST NUMBER 6

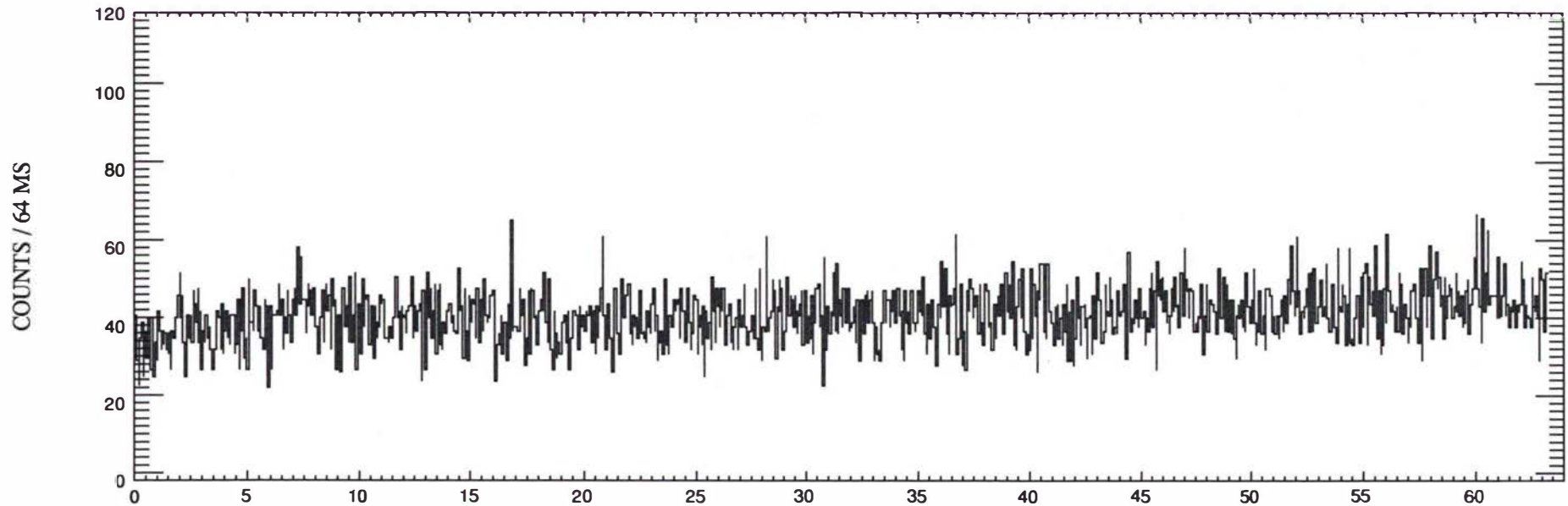


CALIBRATION DATA INCLUDED

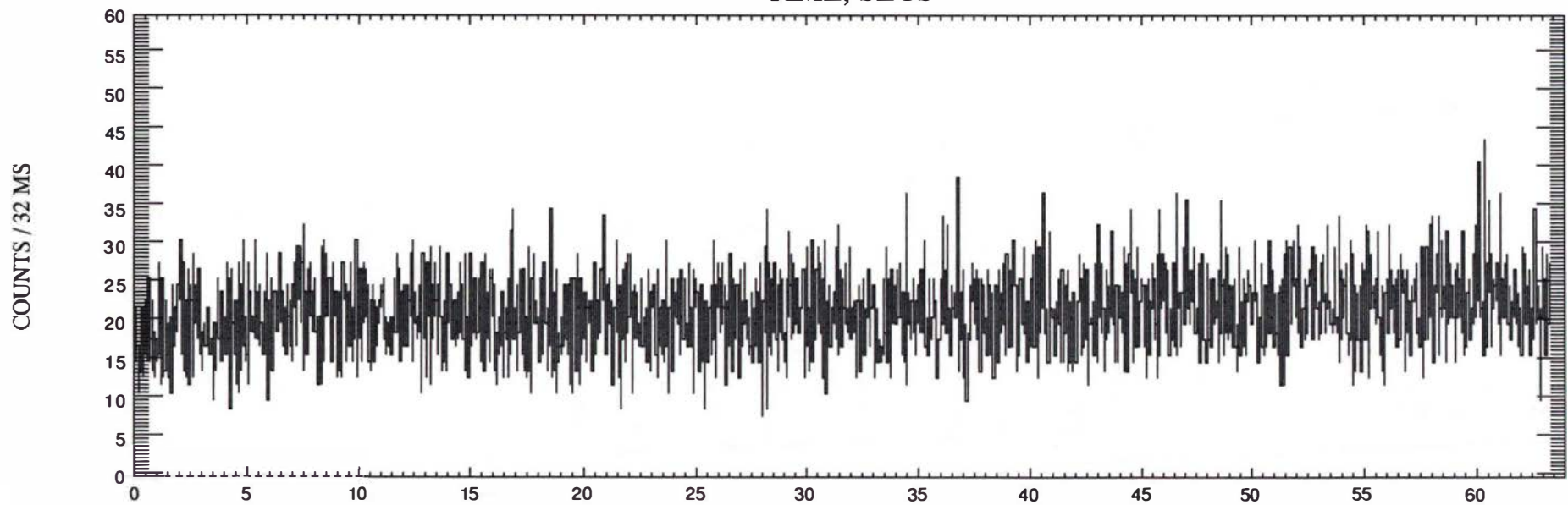


UNIV CAL TIME

Burst Counter 6 at UT=15.223313632541 h=54803.929 s 15:13:23.929

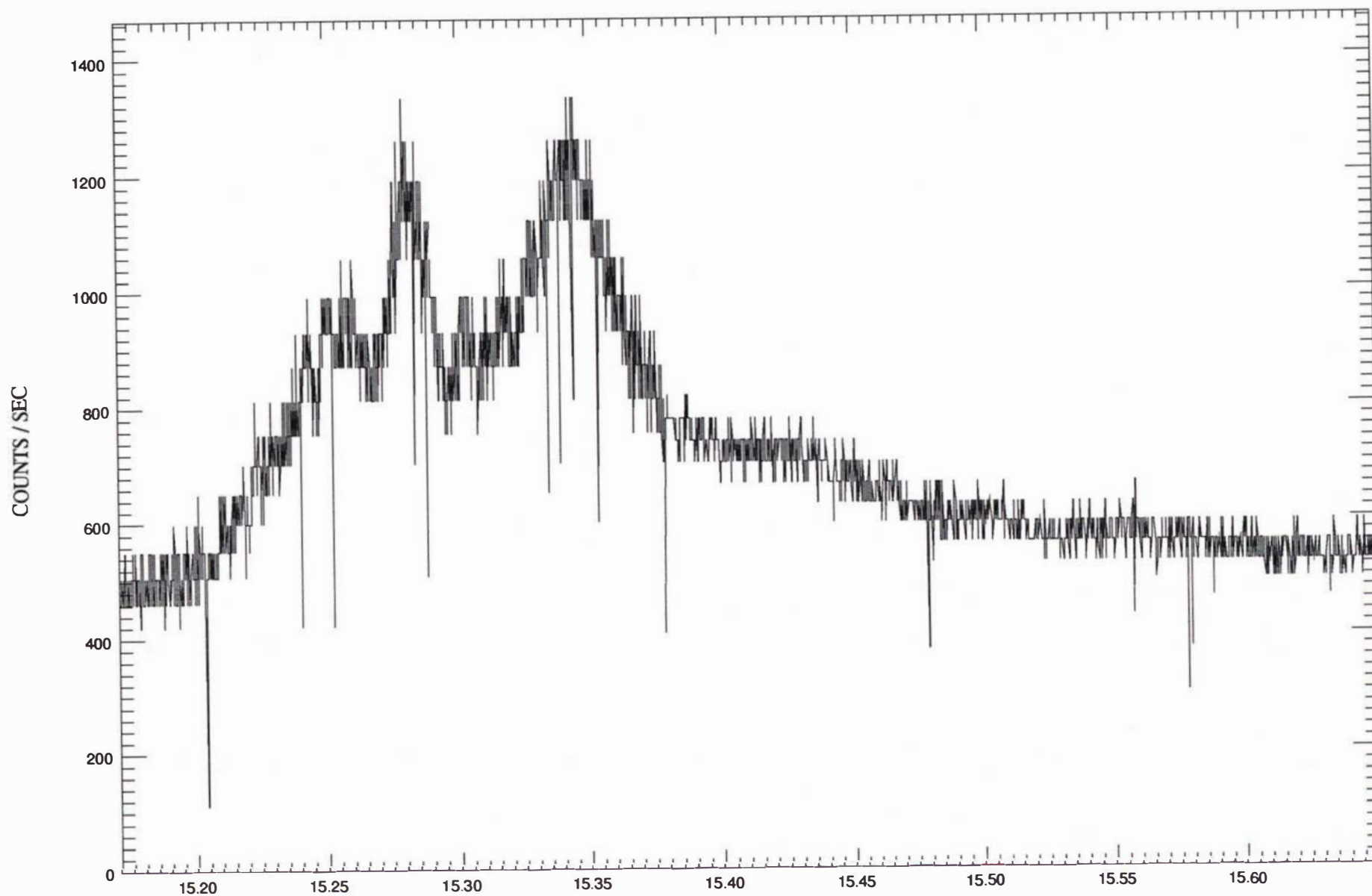


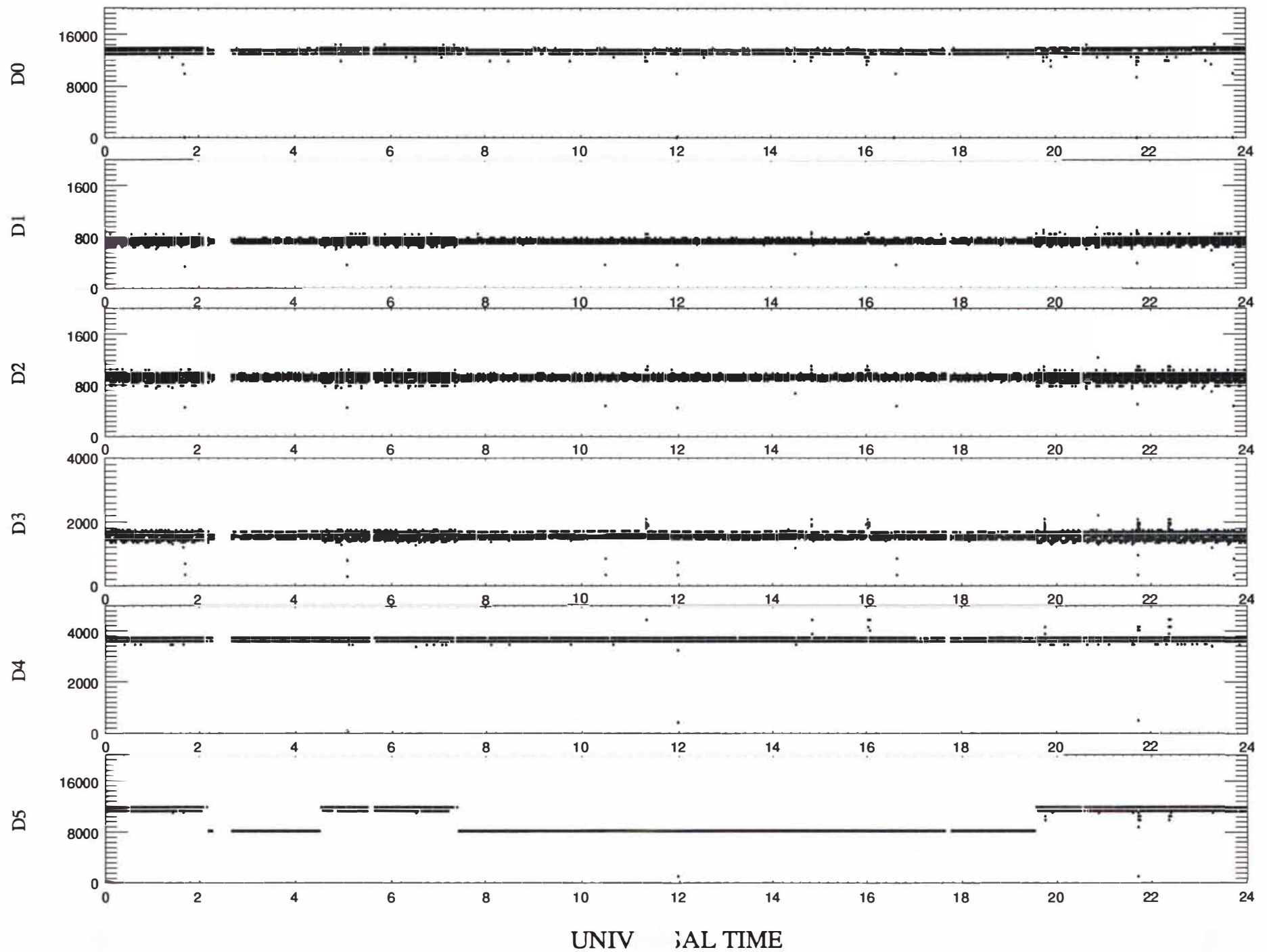
TIME, SECS



TIME, SECS

CALIBRATION DATA INCLUDED





BATSEARCH PROGRAM

BATSE BURST # 2405
EVENT OF 1993 JUN 21 DAY OF YEAR=172
EVENT CROSSING TIME AT BATSE : 6418. S. OR 01:46:58.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 212.000 -48.000
BATSE PEAK COUNTING RATE: 3500 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 21/ 6/ 93 IS:
RA= 144.097 DEC= -11.119 DIST= 4.965 AU
BATSE-ULYSSES DISTANCE = 742808880. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=112.97 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -967.06 SECS.
CROSSING TIME AT ULYSSES IS 5451. S. OR 01:30:50 +/- 431.37 SECONDS

Nb

From BRIGGS@ssl.msfc.nasa.gov Wed Jun 23 12:27:35 1993
Date: Wed, 23 Jun 1993 14:28:37 -0500 (CDT)
From: BRIGGS@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: BRIGGS@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2405	930621	9159	06418	3500	212	-48

From BRIGGS@ssl.msfc.nasa.gov Wed Jun 23 11:33:16 1993
Date: Wed, 23 Jun 1993 13:34:13 -0500 (CDT)
From: "Michael S. Briggs, 205-544-7716, Code ES-64, MSFC" <BRIGGS@ssl.msfc.nasa.gov>
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1339

BATSE BURST TRIGGER

NO.: 02405

TIME: TJD=9159 SECONDS=6418.

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=39.3 AZIMUTH=77.3 ERROR= DEGREES

COMMENTS:

TOTAL DURATION ABOUT 90 S. SEVERAL PEAKS INCLUDING SOME FAIRLY NARROW SPIKES.
NOT SEEN ABOVE 300 KEV.

24 / 6 / 93

ULYSSES RT

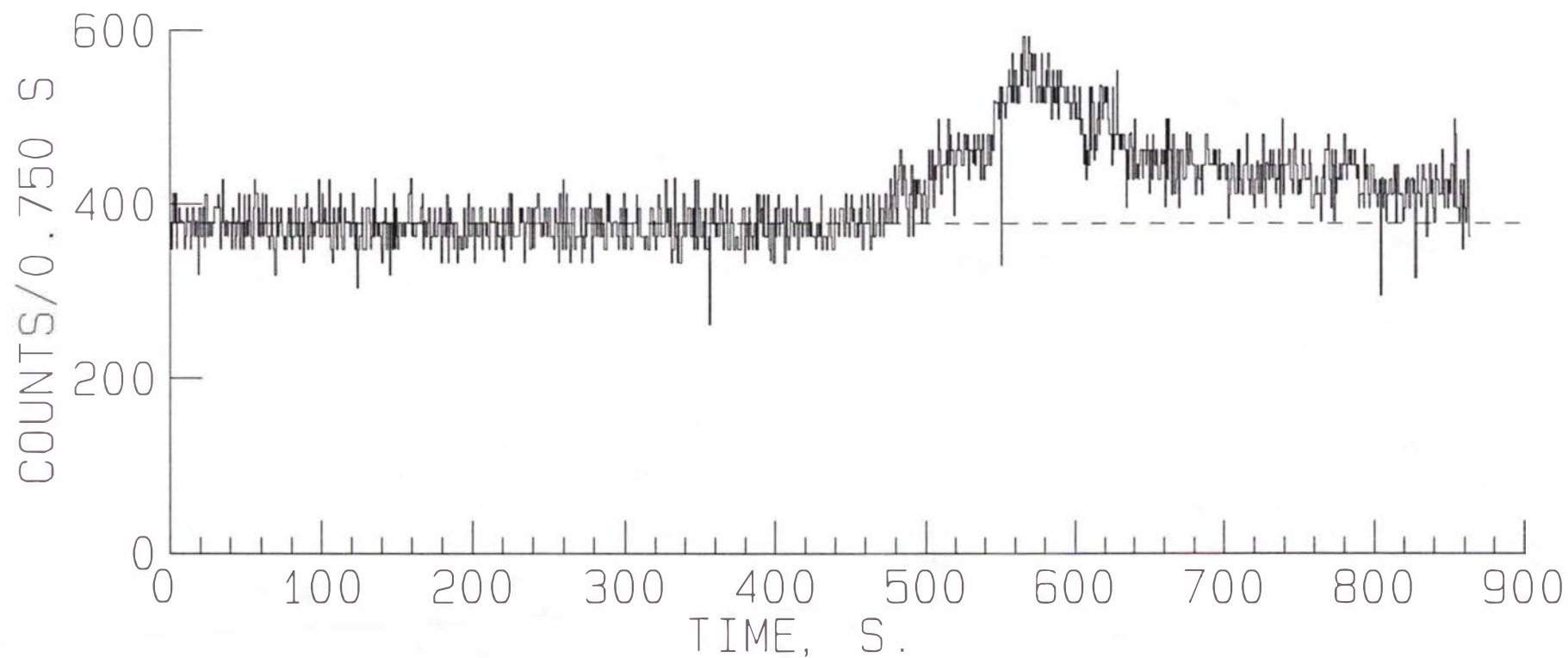
21 / 6 / 93 5004.012 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From BRIGGS@ssl.msfc.nasa.gov Wed Jun 23 12:20:15 1993
Date: Wed, 23 Jun 1993 14:21:09 -0500 (CDT)
From: "Michael S. Briggs, 205-544-7716, Code ES-64, MSFC" <BRIGGS@ssl.msfc.nasa.gov>
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02406

TIME: TJD=9159 SECONDS=40742

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE PRECIPITATION EVENT.

BATSEARCH PROGRAM

BATSE BURST # 2407
EVENT OF 1993 JUN 21 DAY OF YEAR=172
EVENT CROSSING TIME AT BATSE : 60734. S. OR 16:52:14.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 306.000 60.000
BATSE PEAK COUNTING RATE: 7000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 21/ 6/ 93 IS:
RA= 144.097 DEC= -11.119 DIST= 4.965 AU
BATSE-ULYSSES DISTANCE = 742808880. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 50.70 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1569.30 SECS.
CROSSING TIME AT ULYSSES IS 62303. S. OR 17:18:23 +/- 406.73 SECONDS

NO

From BRIGGS@ssl.msfc.nasa.gov Wed Jun 23 12:29:43 1993
Date: Wed, 23 Jun 1993 14:30:47 -0500 (CDT)
From: BRIGGS@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: BRIGGS@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2407	930621	9159	60734	7000	306	+60

From BRIGGS@ssl.msfc.nasa.gov Wed Jun 23 12:25:05 1993
Date: Wed, 23 Jun 1993 14:25:50 -0500 (CDT)
From: "Michael S. Briggs, 205-544-7716, Code ES-64, MSFC" <BRIGGS@ssl.msfc.nasa.gov>
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02407

TIME: TJD=9159 SECONDS=60734

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=98.2 AZIMUTH=285.3 ERROR= DEGREES

COMMENTS:

DURATION ABOUT 0.7 SEC. SEVERAL PEAKS. BARELY VISIBLE ABOVE 300 KEV.

24 / 6 / 93

ULYSSES RT

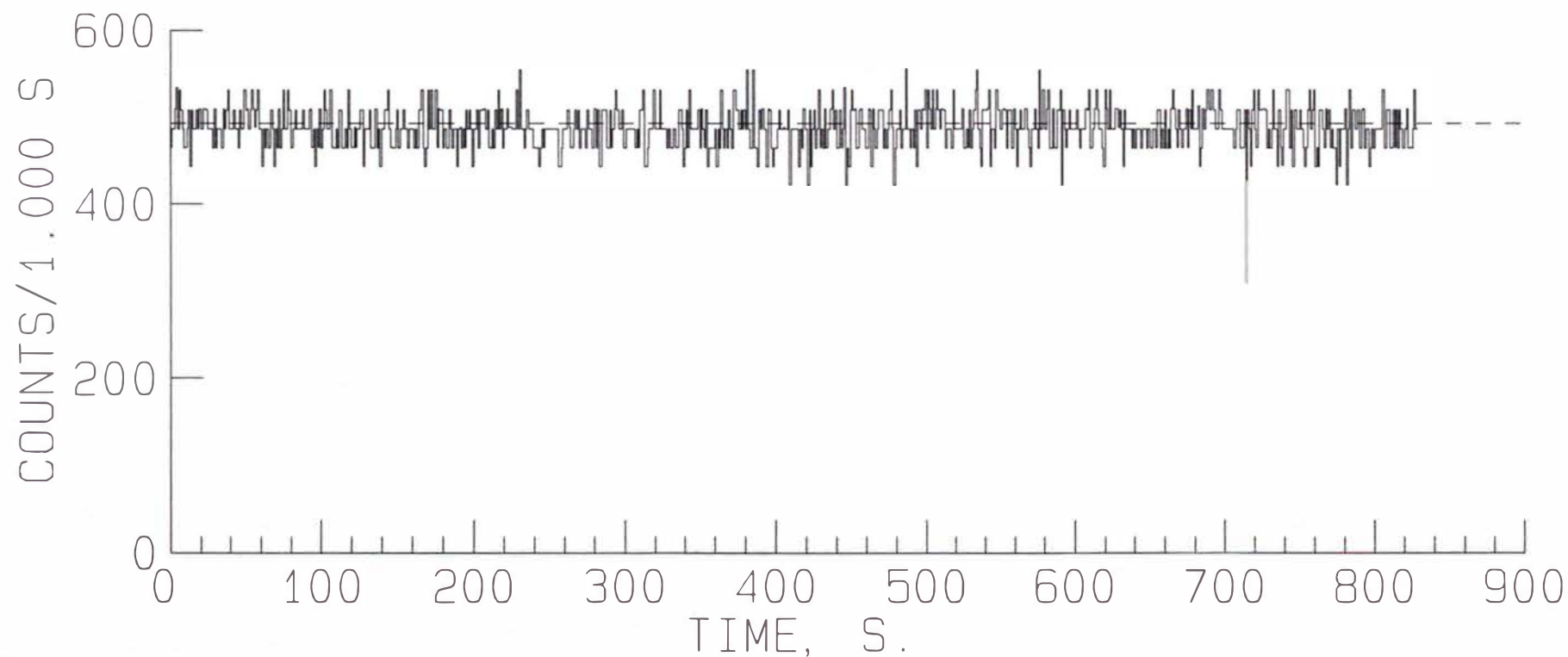
21 / 6 / 93 61884.133 s

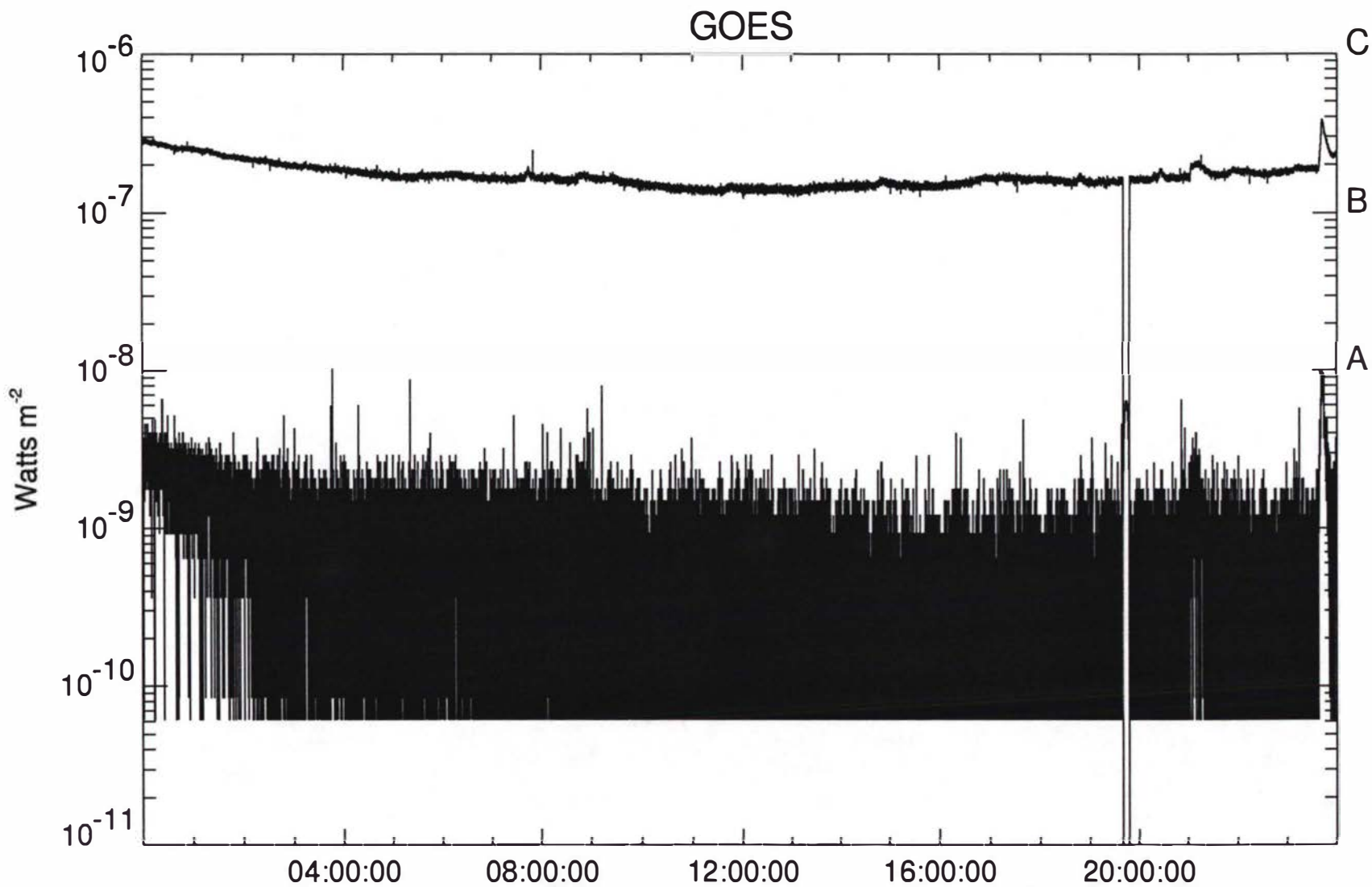
0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS





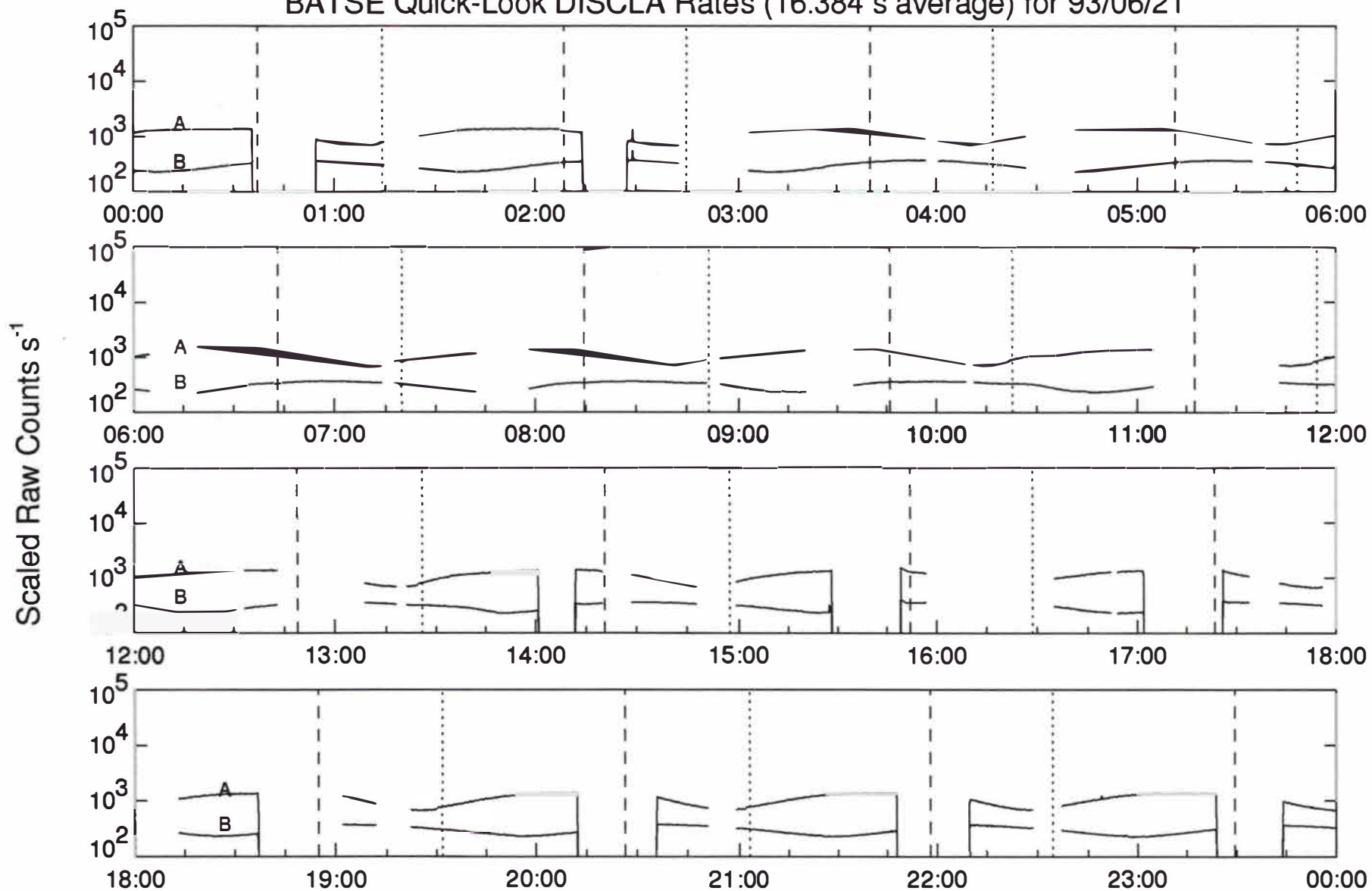
Data Start: 93/06/21, 0000:00

Plot created: 93/10/28, 0203

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/21



Current Time: 93/11/03, 2041 EDT

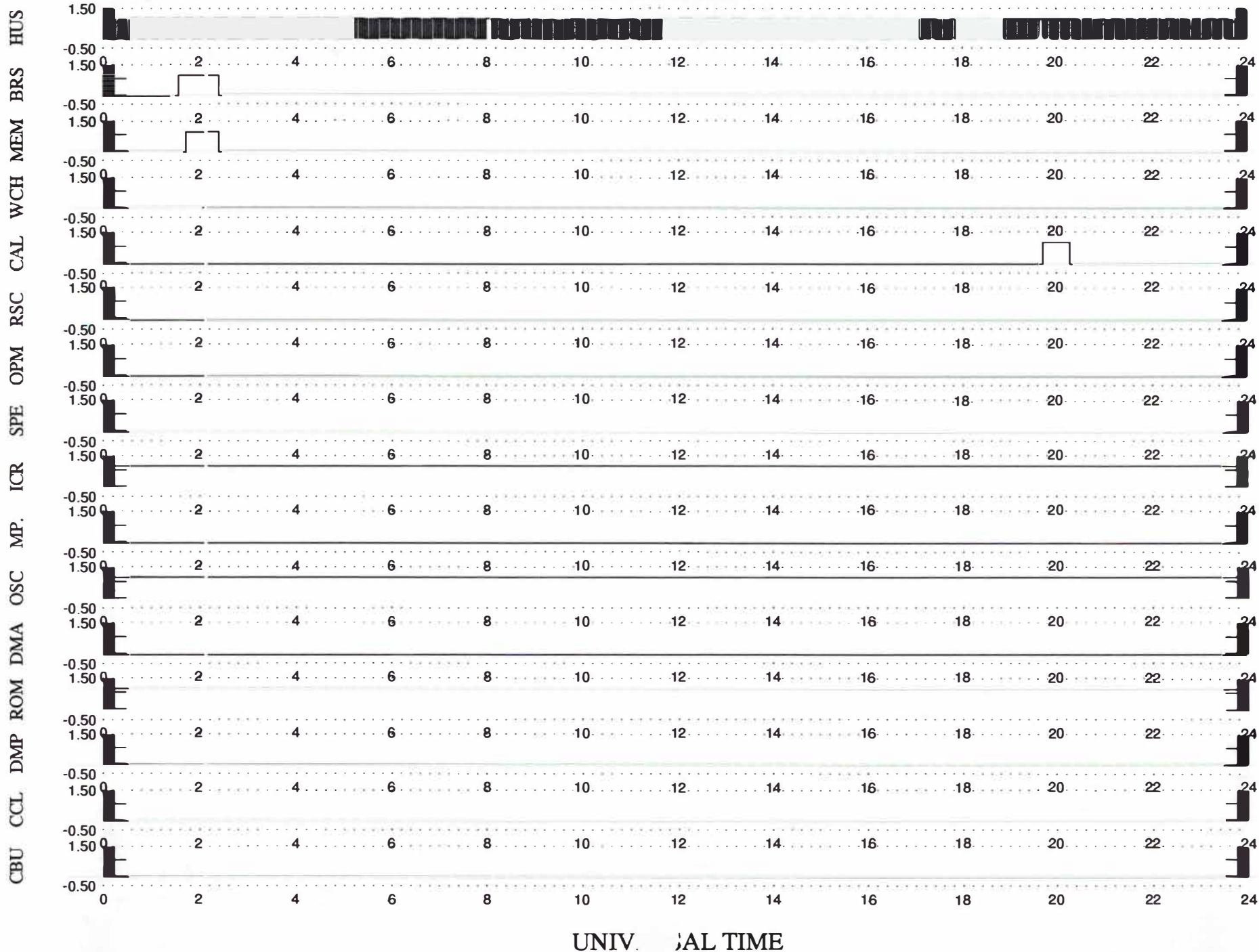
A: Channel 1 Most Sunward LAD

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

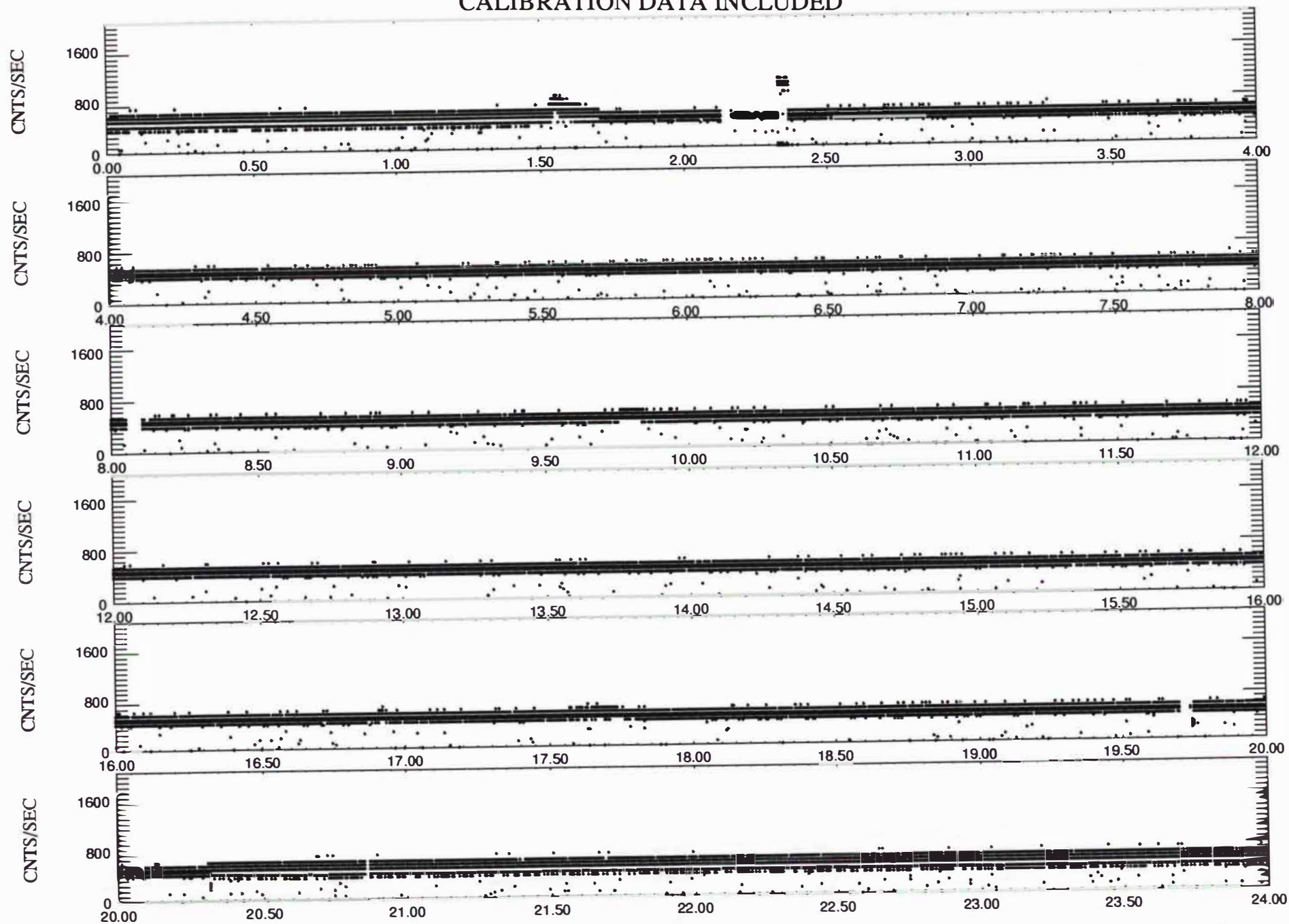
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

BURST NUMBER 7

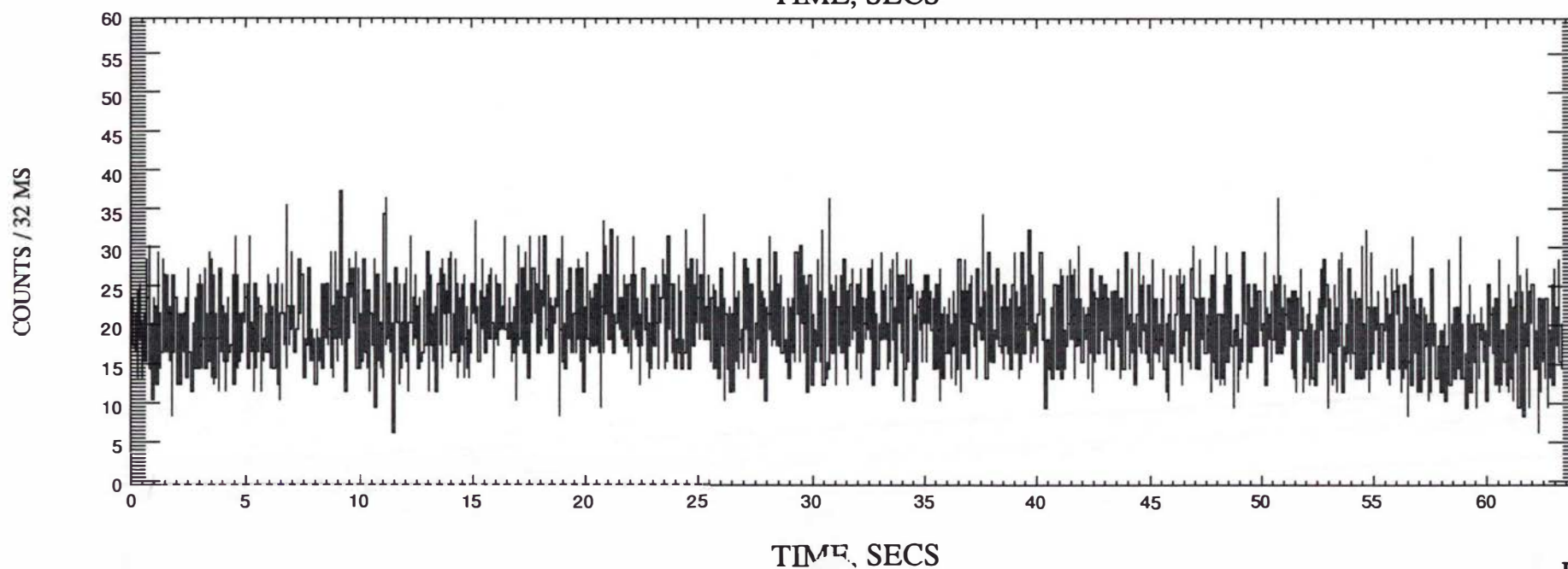
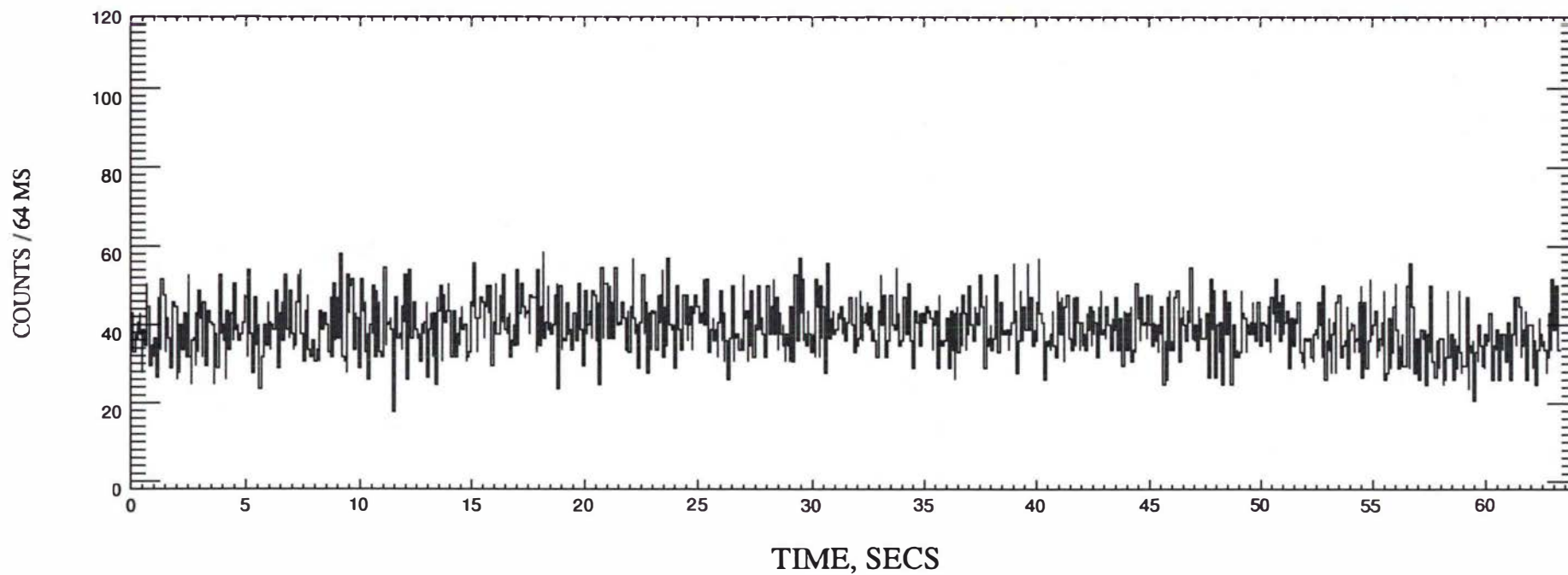


CALIBRATION DATA INCLUDED

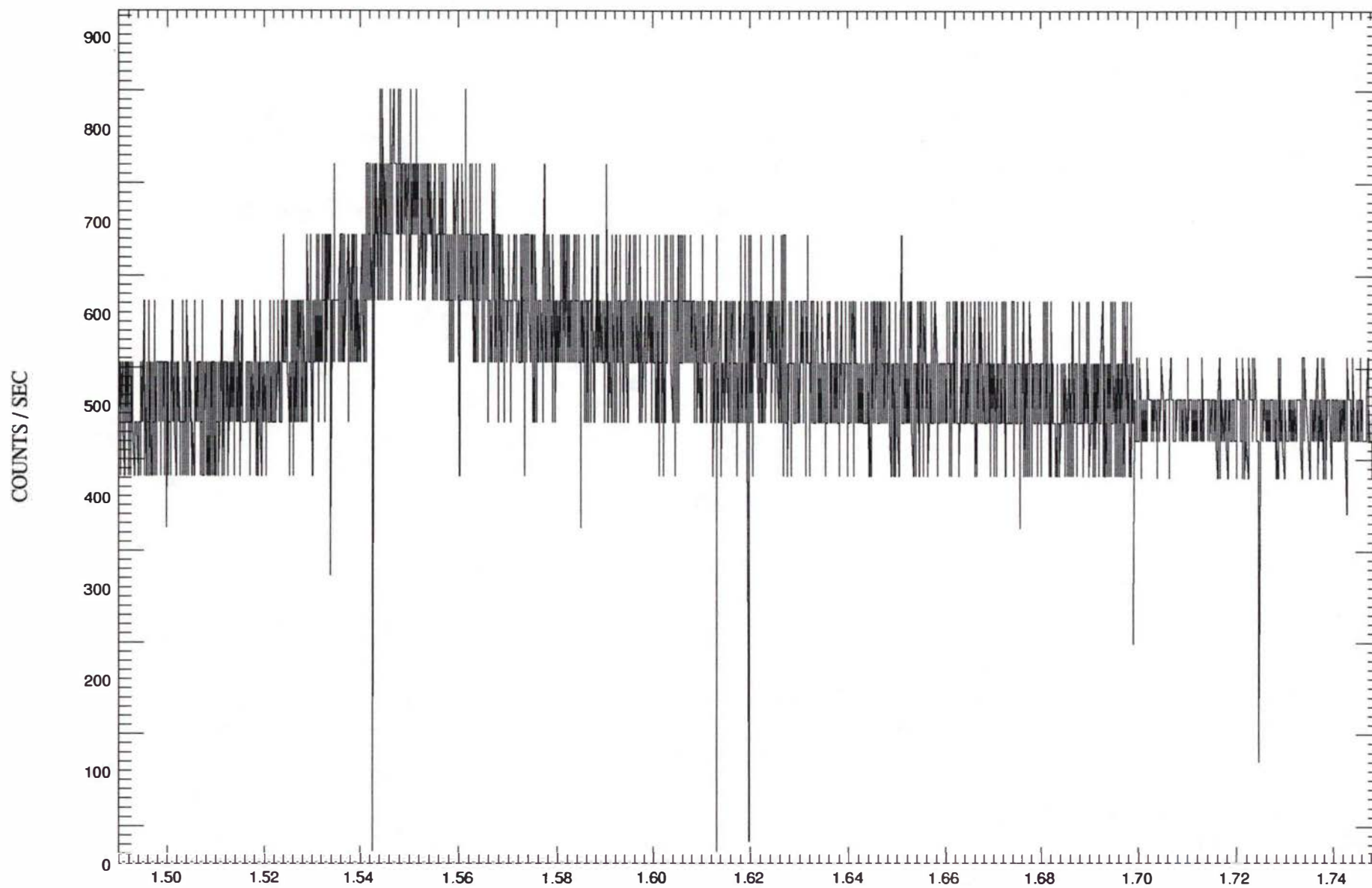


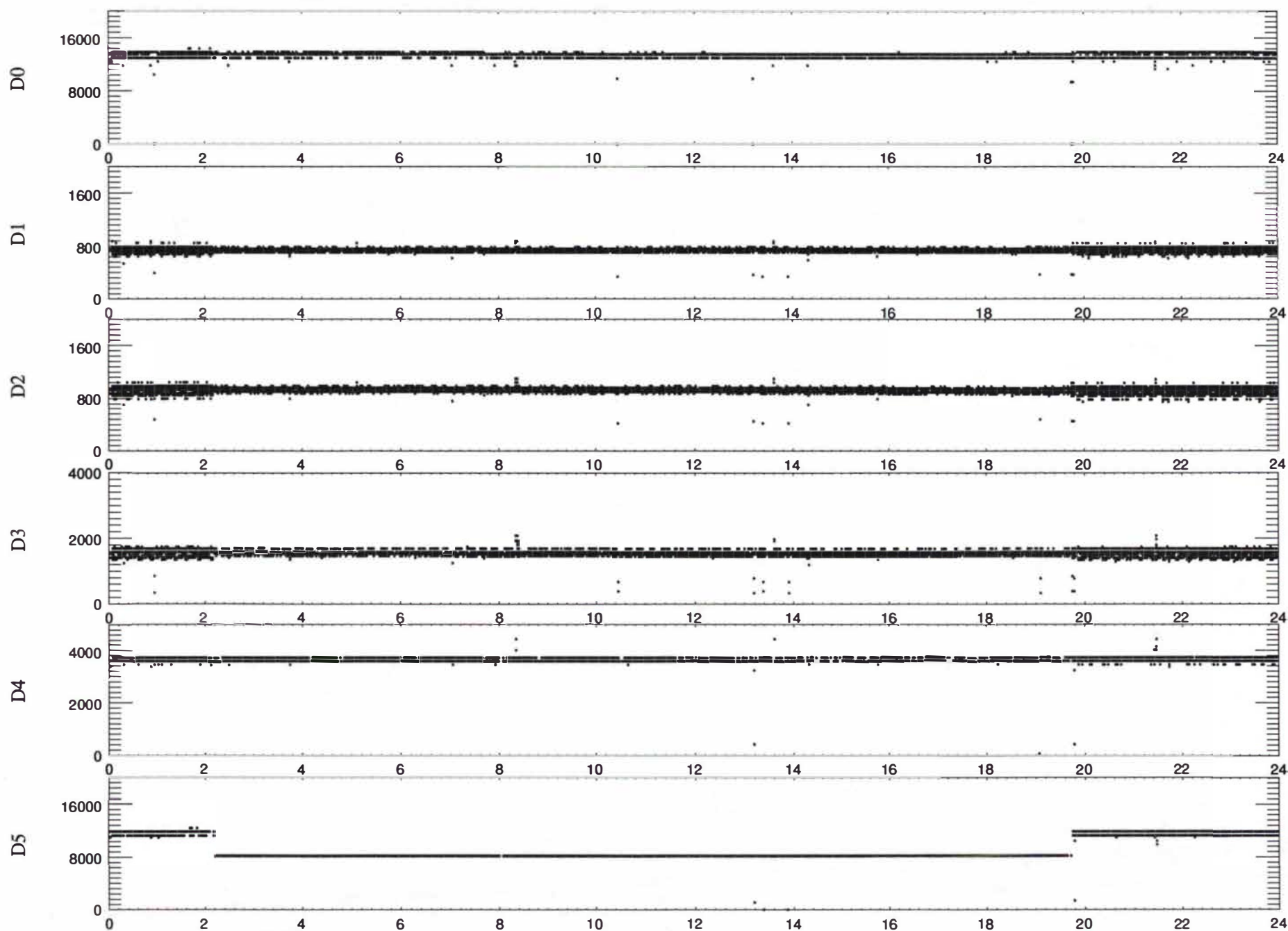
UNIV AL TIME

Burst Counter 7 at UT= 1.544412799411 h= 5559.886 s 01:32:39.886



CALIBRATION DATA INCLUDED





UNIV 3AL TIME

From root Wed Jun 30 14:52 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02528; Wed, 30 Jun 93 14:52:12
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA16722; Wed, 30 Jun 93 14:53:25 PDT
Received: Wed, 30 Jun 93 14:52:01 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306302152.AA19380@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-maillld v1.7); Wed, 30 Jun 93 14:54:54 PDT
Date: Wed, 30 Jun 93 14:54:54 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

If you give me onsets of the June 20 and 24 solar flares, I can get a sanity check on the MO realtime absolute timing. As far as I know, we don't yet have a solar flare trigger.

MO had coverage, but no trigger at the time of the weird BATSE event on June 22.

John

BATSEARCH PROGRAM

BATSE BURST # 2408
EVENT OF 1993 JUN 22 DAY OF YEAR=173
EVENT CROSSING TIME AT BATSE : 12495. S. OR 03:28:15.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 139.000 -5.000
BATSE PEAK COUNTING RATE: 3200 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 22/ 6/ 93 IS:
RA= 144.190 DEC= -11.144 DIST= 4.975 AU
BATSE-ULYSSES DISTANCE = 744304880. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=171.99 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2458.52 SECS.
CROSSING TIME AT ULYSSES IS 10036. S. OR 02:47:16 +/- 72.71 SECONDS

From MALLOZZI@ssl.msfc.nasa.gov Wed Jun 23 17:03:14 1993
Date: Wed, 23 Jun 1993 19:04:22 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2408	930622	9160	12495	3200	139	-05

From MALLOZZI@ssl.msfc.nasa.gov Wed Jun 23 16:48:48 1993
Date: Wed, 23 Jun 1993 18:49:50 -0500 (CDT)
From: "ROBERT S. MALLOZZI 205-544-6257" <MALLOZZI@ssl.msfc.nasa.gov>
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02408

TIME: TJD=9160 SECONDS=12495

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=112.1 AZIMUTH=057.7 ERROR= DEGREES

COMMENTS:

WEAK BURST OF DURATION APPROX. 3 SEC.
SLIGHT EMISSION OBSERVED ABOVE 100 KEV.

From jlaros@LPL.Arizona.EDU Mon Apr 3 11:20 PDT 1995

Date: Mon, 3 Apr 1995 11:23:37 +0700

From: jlaros@LPL.Arizona.EDU (John Laros)

khurley@sunspot.ssl.berkeley.edu

Subject: MO data

Kevin,

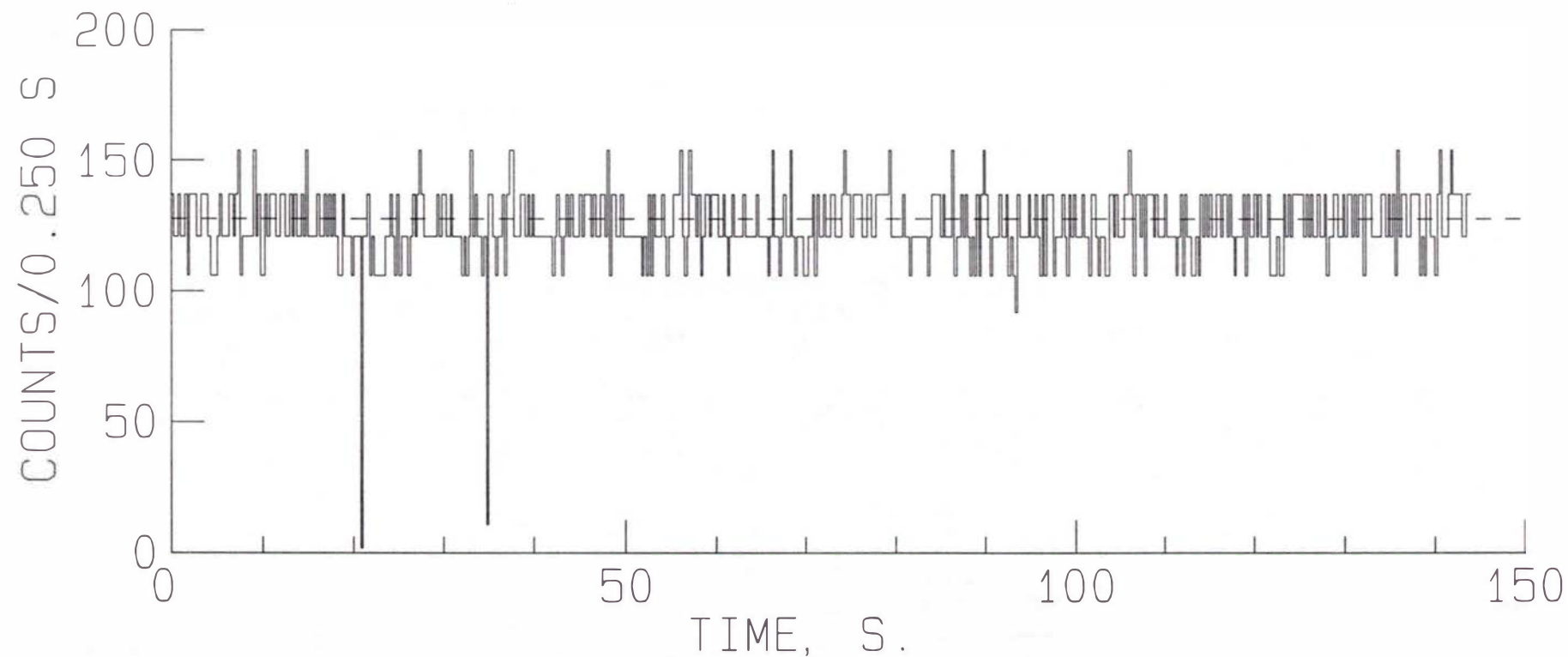
Here's another "good" one--BATSE #2408 on 930622 at 03:13. I see something almost believable about a minute late. What do you know about this one?

John

24/ 6/93

ULYSSES RT
22/ 6/93 9972.167 s
0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSEARCH PROGRAM

BATSE BURST # 2409
EVENT OF 1993 JUN 22 DAY OF YEAR=173
EVENT CROSSING TIME AT BATSE : 17549. S. OR 04:52:29.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 169.000 47.000
BATSE PEAK COUNTING RATE: 1600 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 22/ 6/ 93 IS:
RA= 144.190 DEC= -11.144 DIST= 4.975 AU
BATSE-ULYSSES DISTANCE = 744304880. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=117.78 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1157.02 SECS.
CROSSING TIME AT ULYSSES IS 16392. S. OR 04:33:11 +/- 413.80 SECONDS

NO

From MALLOZZI@ssl.msfc.nasa.gov Wed Jun 23 17:04:45 1993
Date: Wed, 23 Jun 1993 19:05:52 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2409	930622	9160	17549	1600	169	+47

From MALLOZZI@ssl.msfc.nasa.gov Wed Jun 23 16:54:51 1993
Date: Wed, 23 Jun 1993 18:55:54 -0500 (CDT)
From: "ROBERT S. MALLOZZI 205-544-6257" <MALLOZZI@ssl.msfc.nasa.gov>
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02409

TIME: TJD=9160 SECONDS=17549

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=111.2 AZIMUTH=354.6 ERROR= DEGREES

COMMENTS:

SINGLE MAIN PEAK WITH TWO SUB-PULSES.

DURATION APPROX. 4 SEC WITH EMISSION OBSERVED ABOVE 300 KEV.

CATSEARCH PROGRAM

BATSE BURST # 2409
EVENT OF 1993 JUN 22 DAY OF YEAR=173
EVENT CROSSING TIME AT BATSE : 17549. S. OR 04:52:29.1
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 249.000 80.850
BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 22/ 6/ 93 IS:
RA= 144.190 DEC= -11.144 DIST= 4.975 AU
BATSE-ULYSSES DISTANCE = 744307872. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 76.66 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 572.77 SECS.
CROSSING TIME AT ULYSSES IS 18122. S. OR 05:02:01.9 +/- 478.11 SECONDS

9 / 11 / 95

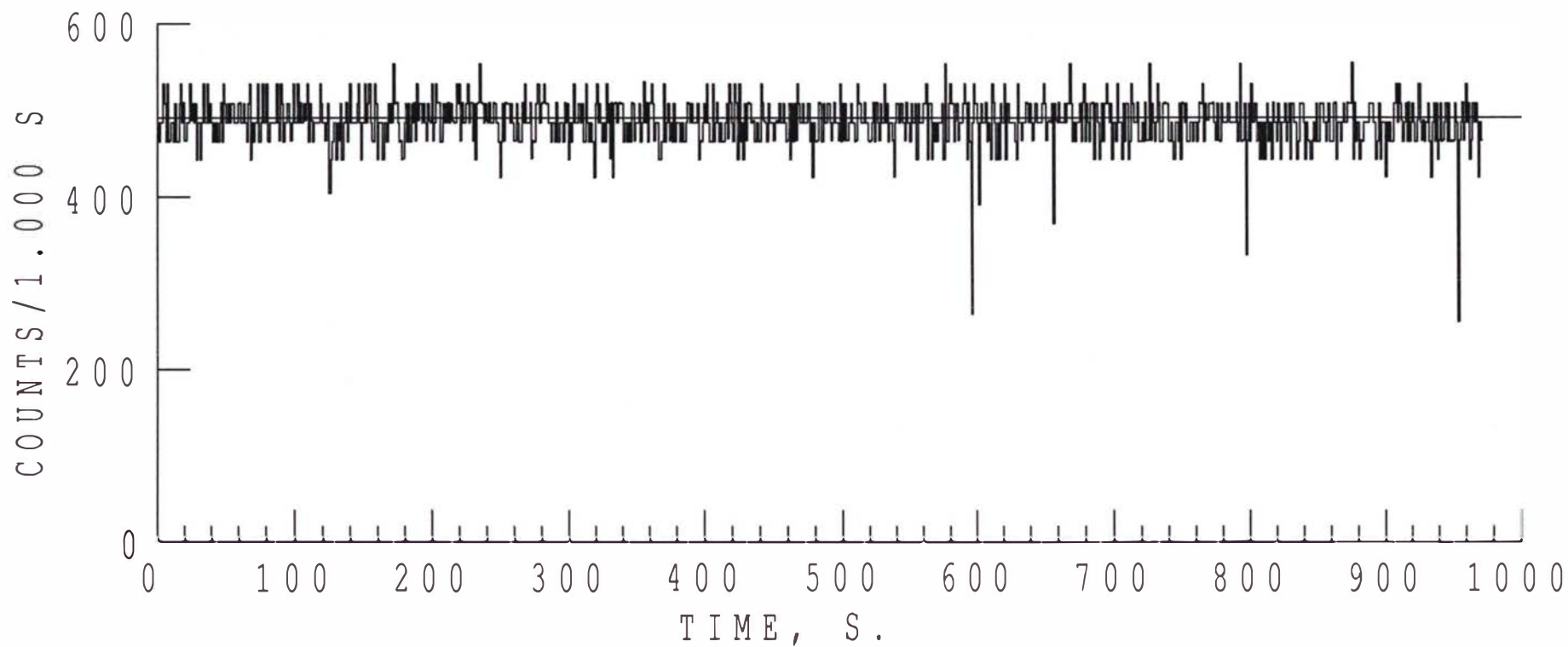
ULYSSES RT

22 / 6 / 93 17640.285 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From MALLOZZI@ssl.msfc.nasa.gov Thu Jun 24 16:07:51 1993
Date: Thu, 24 Jun 1993 18:07:28 -0500 (CDT)
From: "ROBERT S. MALLOZZI 205-544-6257" <MALLOZZI@ssl.msfc.nasa.gov>
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02410

TIME: TJD=9160 SECONDS=36492

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

BATSEARCH PROGRAM

BATSE BURST # 2411
EVENT OF 1993 JUN 22 DAY OF YEAR=173
EVENT CROSSING TIME AT BATSE : 56711. S. OR 15:45:11.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 120.000 -47.000
BATSE PEAK COUNTING RATE: 10000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 22/ 6/ 93 IS:
RA= 144.190 DEC= -11.144 DIST= 4.975 AU
BATSE-ULYSSES DISTANCE = 744304880. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=138.74 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1866.36 SECS.
CROSSING TIME AT ULYSSES IS 54845. S. OR 15:14:04 +/- 305.91 SECONDS

NO

Taken out of 3B catalog

From MALLOZZI@ssl.msfc.nasa.gov Wed Jun 23 17:05:36 1993
Date: Wed, 23 Jun 1993 19:06:43 -0500 (CDT)
From: MALLOZZI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: MALLOZZI@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2411	930622	9160	56711	10000	120	-47

From MALLOZZI@ssl.msfc.nasa.gov Wed Jun 23 17:01:20 1993
Date: Wed, 23 Jun 1993 19:02:22 -0500 (CDT)
From: "ROBERT S. MALLOZZI 205-544-6257" <MALLOZZI@ssl.msfc.nasa.gov>
To: burst@compTEL.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1377

BATSE BURST TRIGGER

NO.: 02411

TIME: TJD=9160 SECONDS=56711

TYPE: BURST? SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=093.7 AZIMUTH=100.6 ERROR= DEGREES

COMMENTS:

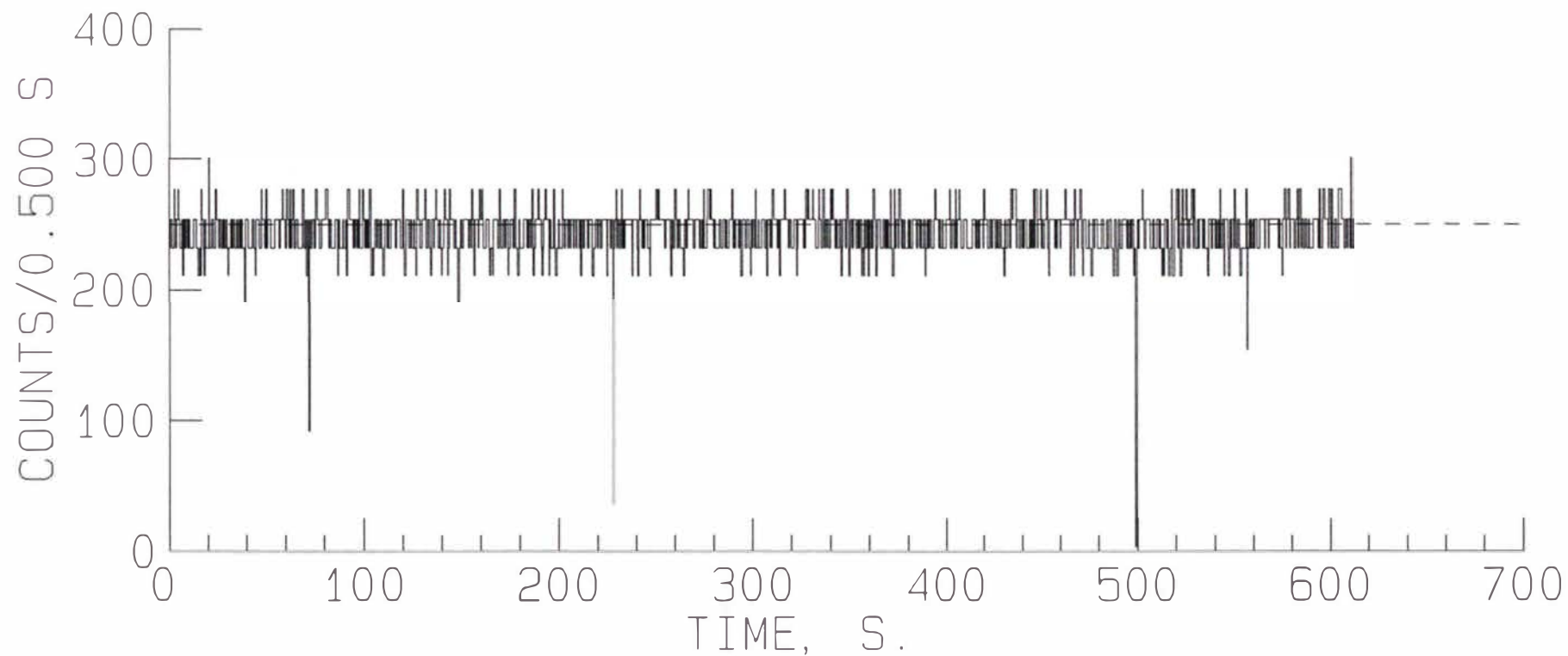
EXTREMELY HARD AND SHORT EVENT. MOST COUNTS OBSERVED ABOVE 300 KEV.
TOTAL DURATION APPROX 3 MS. PRELIMINARY LOCATION SUGGESTS THAT
THIS MAY BE A BURST...

0035 = 30 counts (BATSE)

24 / 6 / 93

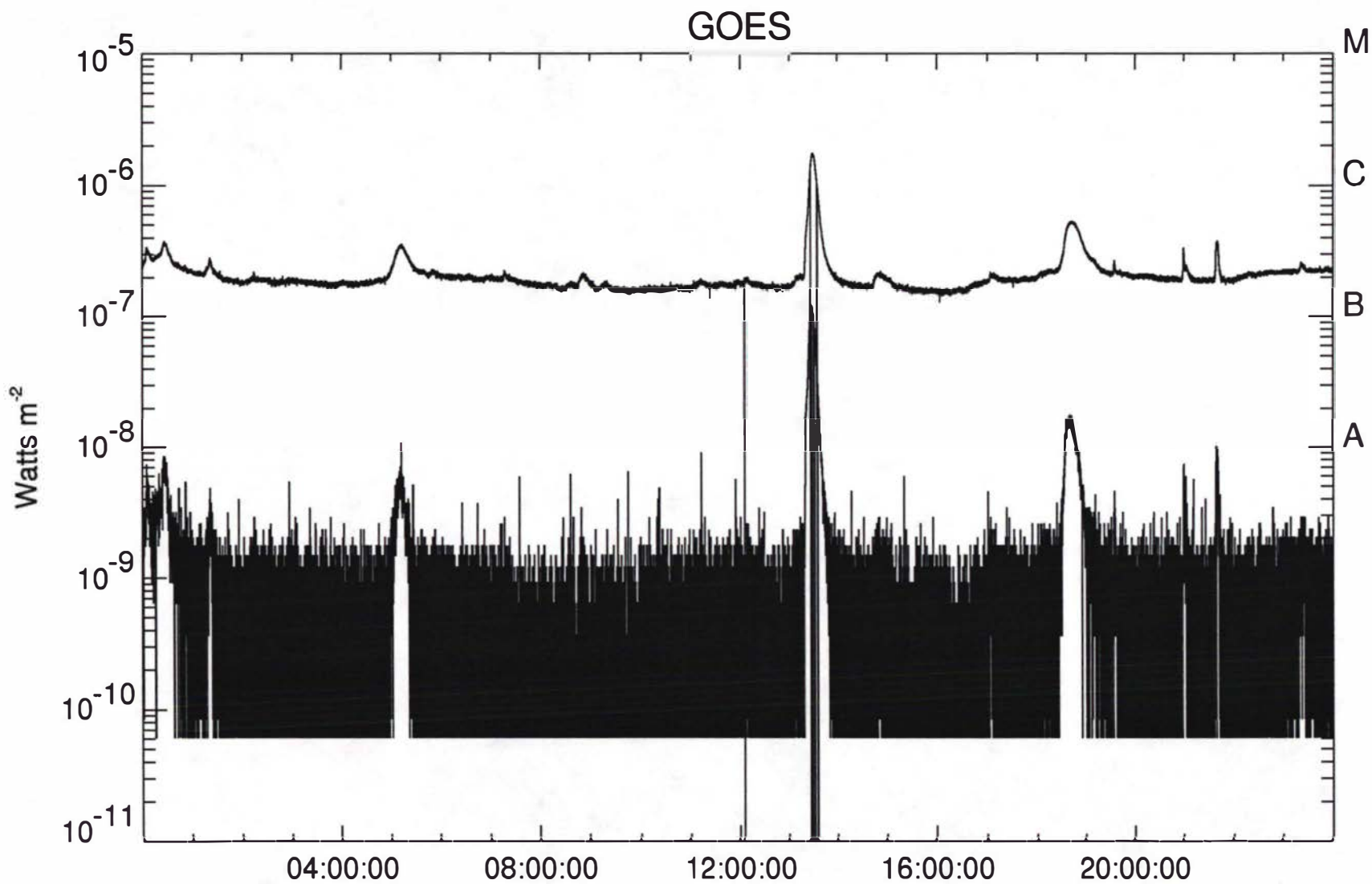
ULYSSES RT
22 / 6 / 93 54540.359 s
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



CROSSING TIME PROGRAM

EVENT CROSSING TIME AT EARTH : 56711. S. OR 15:45:11.0
COORDINATES ARE .000 .000 0. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 120.000 -47.000
EVENT CROSSING TIME AT MO WILL BE FOUND
COORDINATES ARE 141.110 15.040 250335838. (RA, DEC, DIST.)
COORDINATES OF THIS OBJECT ARE:
DISTANCE FROM EARTH= 250335838. KM., OR .0000 A.U.
RA=141.110 DEGREES, OR 0.H 0.M .0S
DEC= 15.040 DEGREES, OR 0.D 0.M .0S
DISTANCE BETWEEN OBJECTS 1 AND 2 = 250335838.
ANGLE WHICH 1ST OBJECT-2ND OBJECT VECTOR
MAKES WITH GRB ARRIVAL DIRECTION=115.13
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -354.60 SECS.
CROSSING TIME AT MO IS 56356. S. OR 15:39:16.4



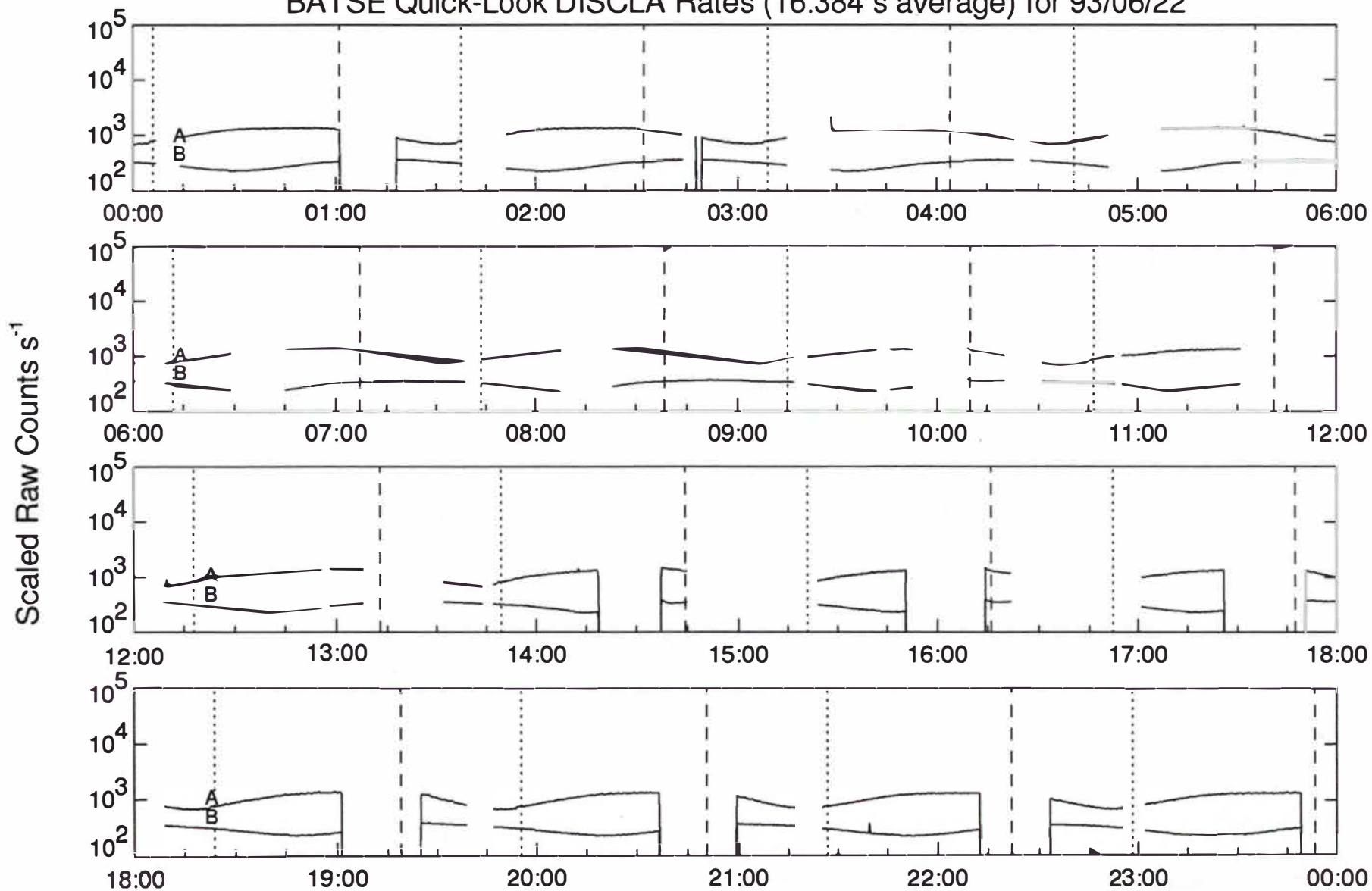
Data Start: 93/06/22, 0000:02

Plot created: 93/10/28, 0203

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/22

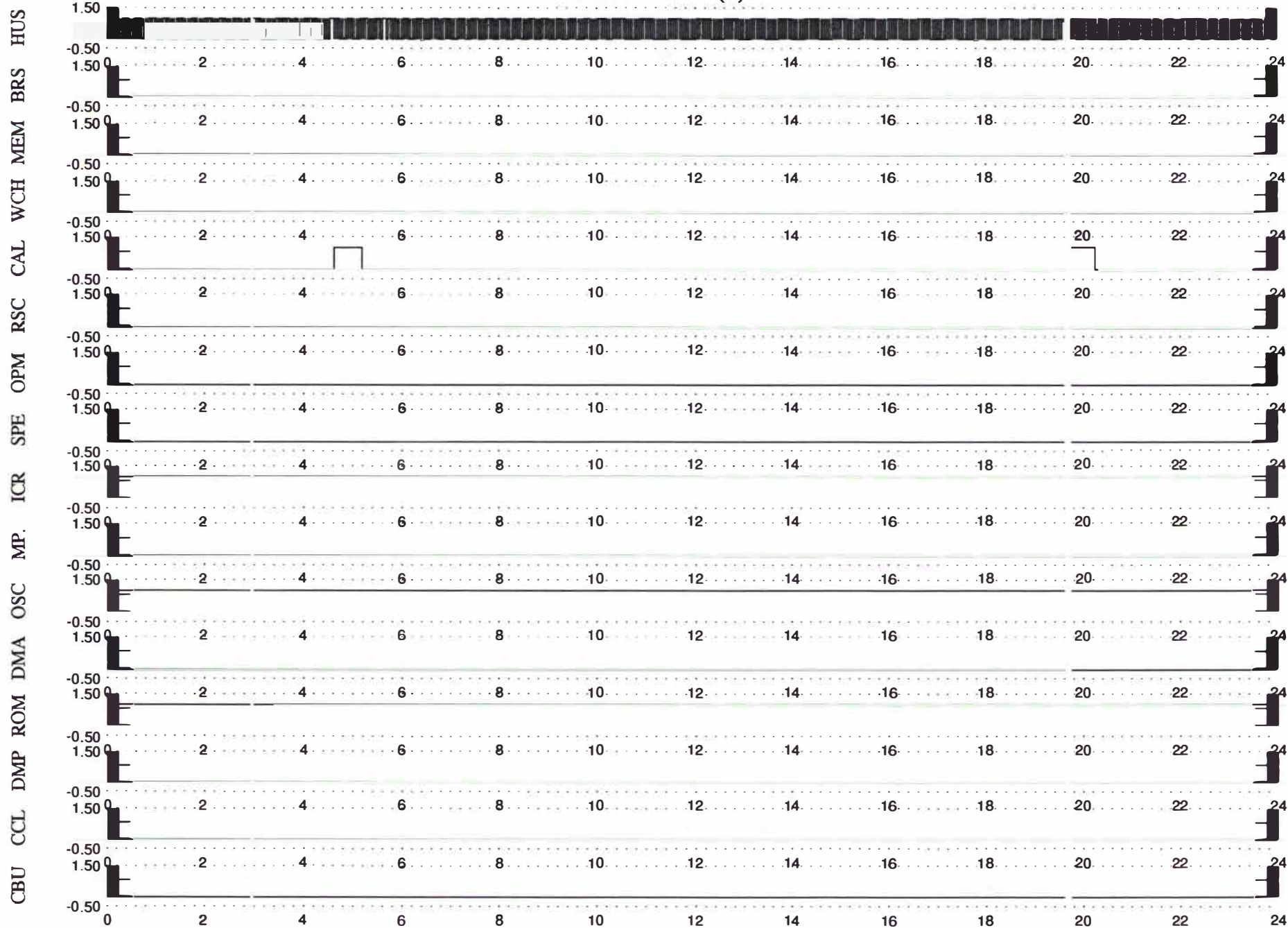


Current Time: 93/11/03, 2041 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

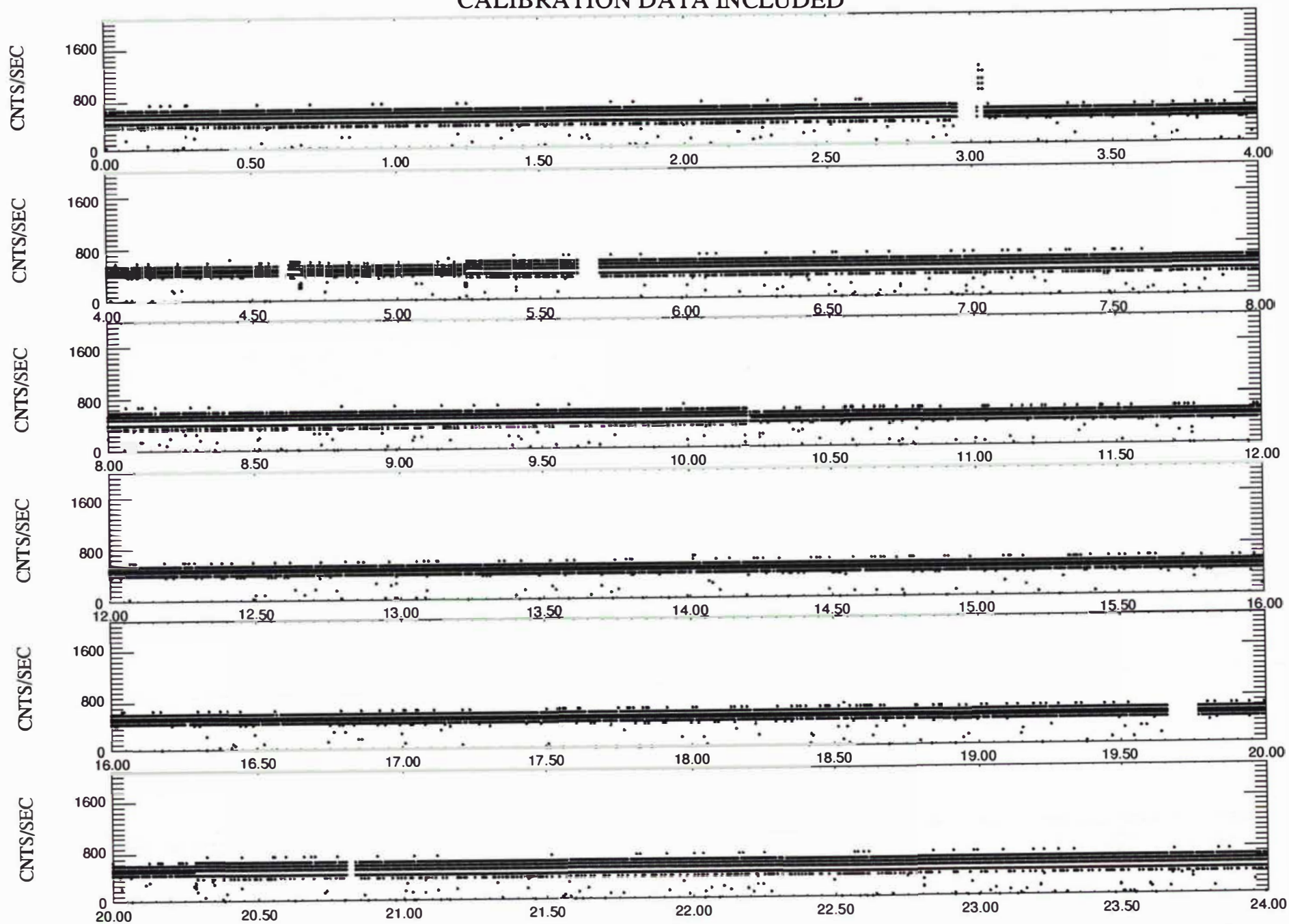
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

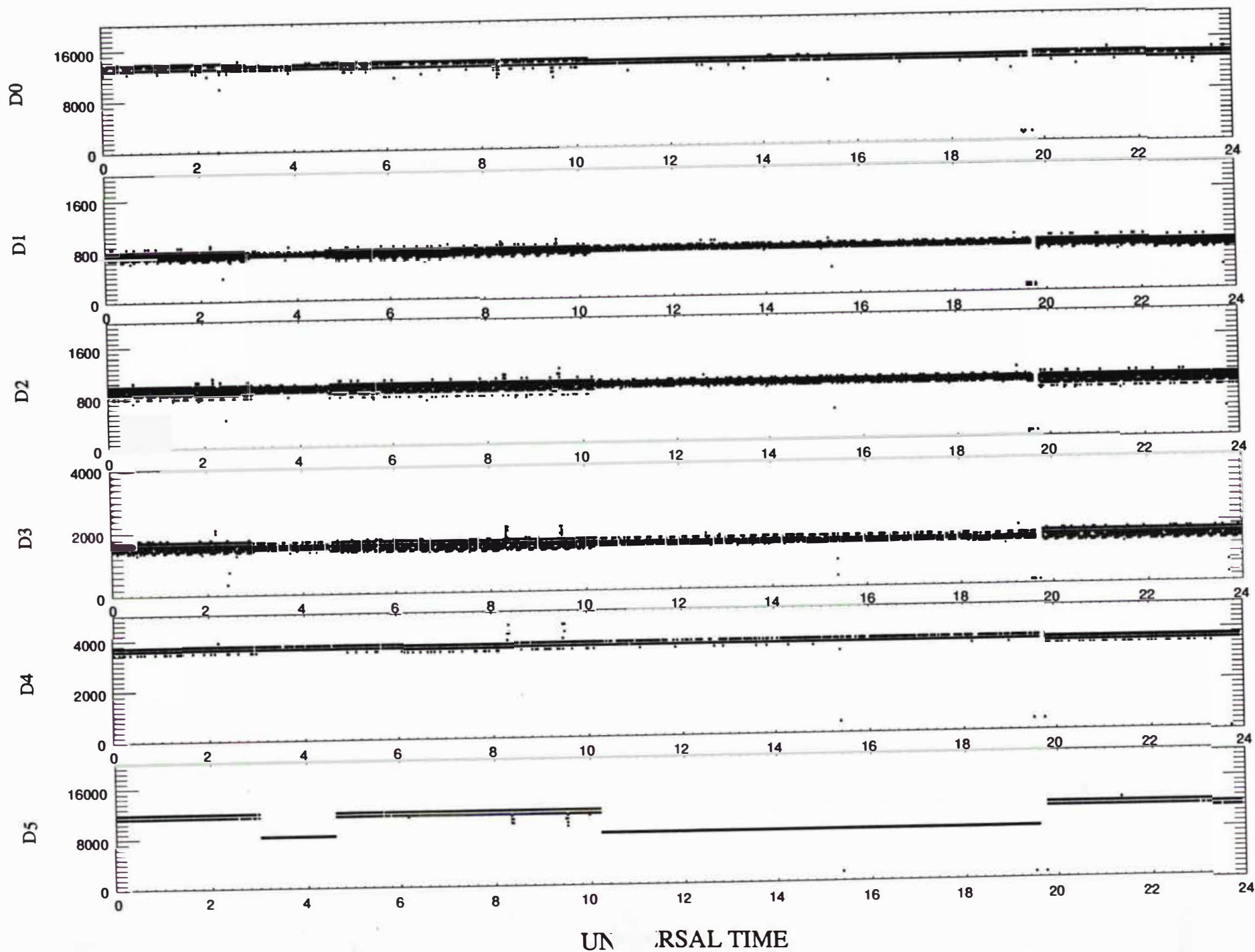
UNIVERSAL TIME



CALIBRATION DATA INCLUDED



UNIV. TIME



BATSEARCH PROGRAM

BATSE BURST # 2412
EVENT OF 1993 JUN 23 DAY OF YEAR=174
EVENT CROSSING TIME AT BATSE : 11374. S. OR 03:09:34.0
COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 225.000 42.000
BATSE PEAK COUNTING RATE: 2000 C/S
EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
POSITION OF ULYSSES ON 23/ 6/ 93 IS:
RA= 144.284 DEC= -11.171 DIST= 4.985 AU
BATSE-ULYSSES DISTANCE = 745770960. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 89.31 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 29.90 SECS.
CROSSING TIME AT ULYSSES IS 11404. S. OR 03:10:03 +/- 482.31 SECONDS

N()

From SHARIFF@ssl.msfc.nasa.gov Fri Jun 25 10:16:37 1993
Date: Fri, 25 Jun 1993 12:12:10 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov
Cc: SHARIFF@ssl.msfc.nasa.gov
Subject: BATSE burst
Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2412	930623	9161	11374	2000	225	+42

From SHARIFF@ssl.msfc.nasa.gov Fri Jun 25 10:10:01 1993
Date: Fri, 25 Jun 1993 12:09:51 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02412

TIME: TJD=9161 SECONDS=11374

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=078.5 AZIMUTH=332.5 ERROR= DEGREES

COMMENTS:

BURST, SINGLE SPIKE, VERY WEAK, LASTING ~3S. NOT VISIBLE ABOVE 300KEV.

CATSEARCH PROGRAM

BATSE BURST # 2412

EVENT OF 1993 JUN 23 DAY OF YEAR=174

EVENT CROSSING TIME AT BATSE : 11374. S. OR 03:09:34.2

COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)

BURST ARRIVAL DIRECTION: 260.950 46.340

BATSE PEAK COUNTING RATE: 0000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND

POSITION OF ULYSSES ON 23/ 6/ 93 IS:

RA= 144.284 DEC= -11.171 DIST= 4.985 AU

BATSE-ULYSSES DISTANCE = 745781432. KM.

ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 63.63 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1104.83 SECS.

CROSSING TIME AT ULYSSES IS 12479. S. OR 03:27:59.0 +/- 453.74 SECONDS

9 / 11 / 95

ULYSSES RT

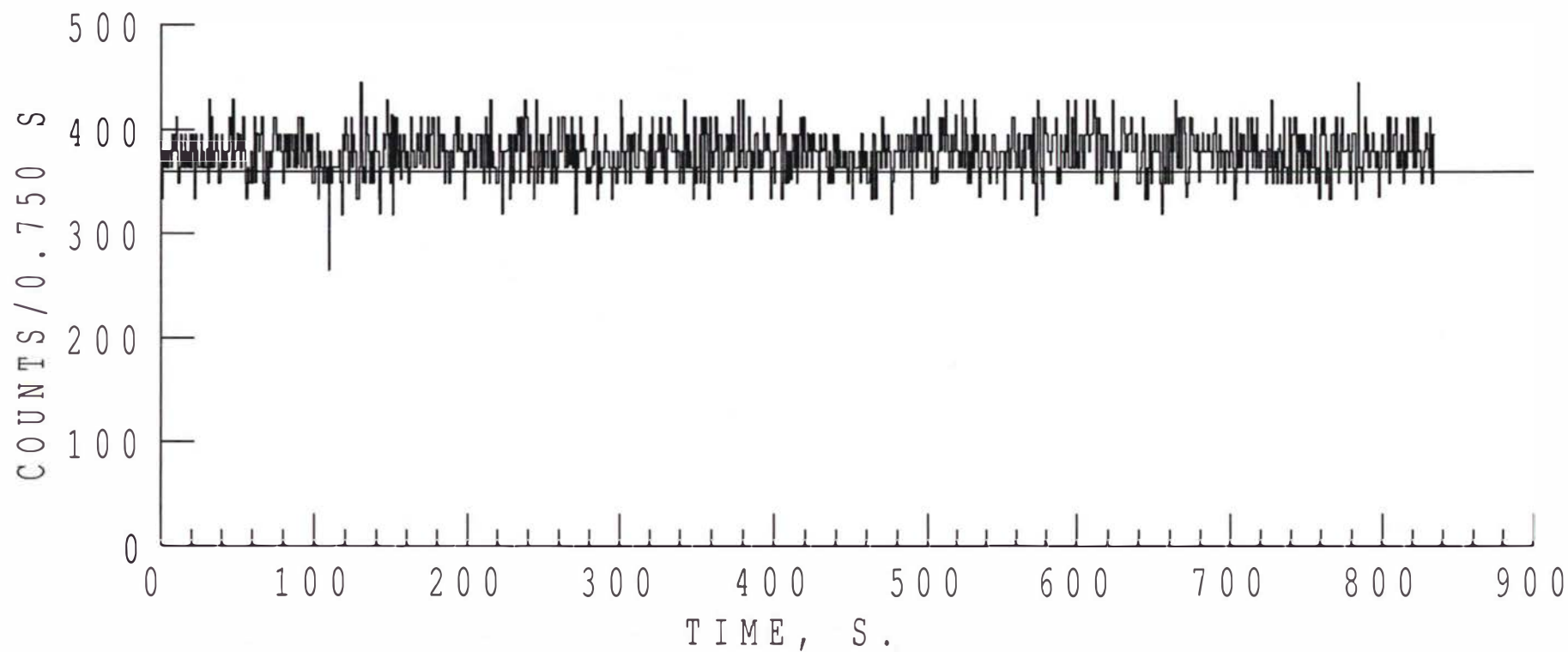
23 / 6 / 93 12024.032 s

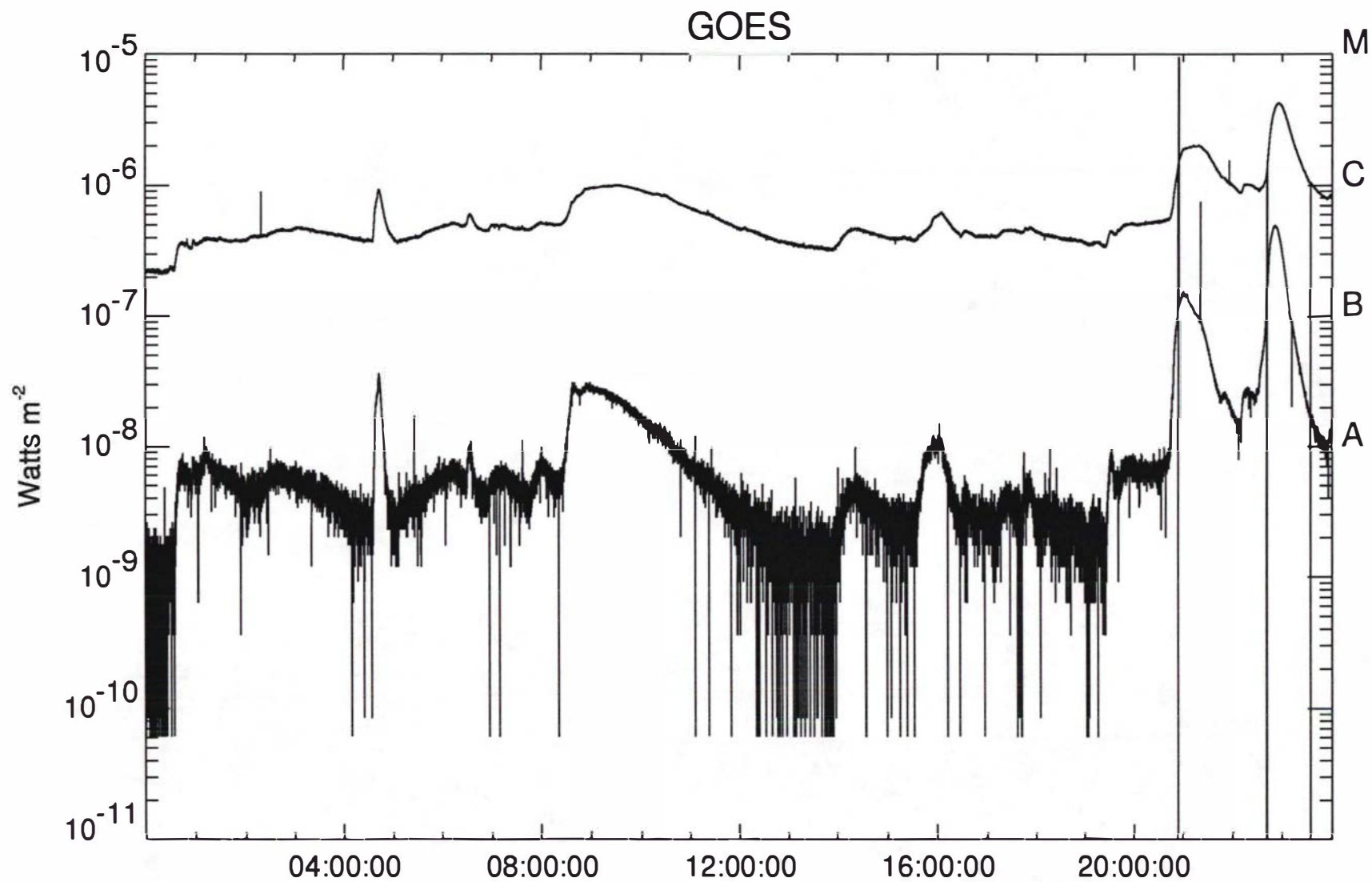
0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

W= 10 M= 2

>4.0 SIGMA FLUCTUATIONS





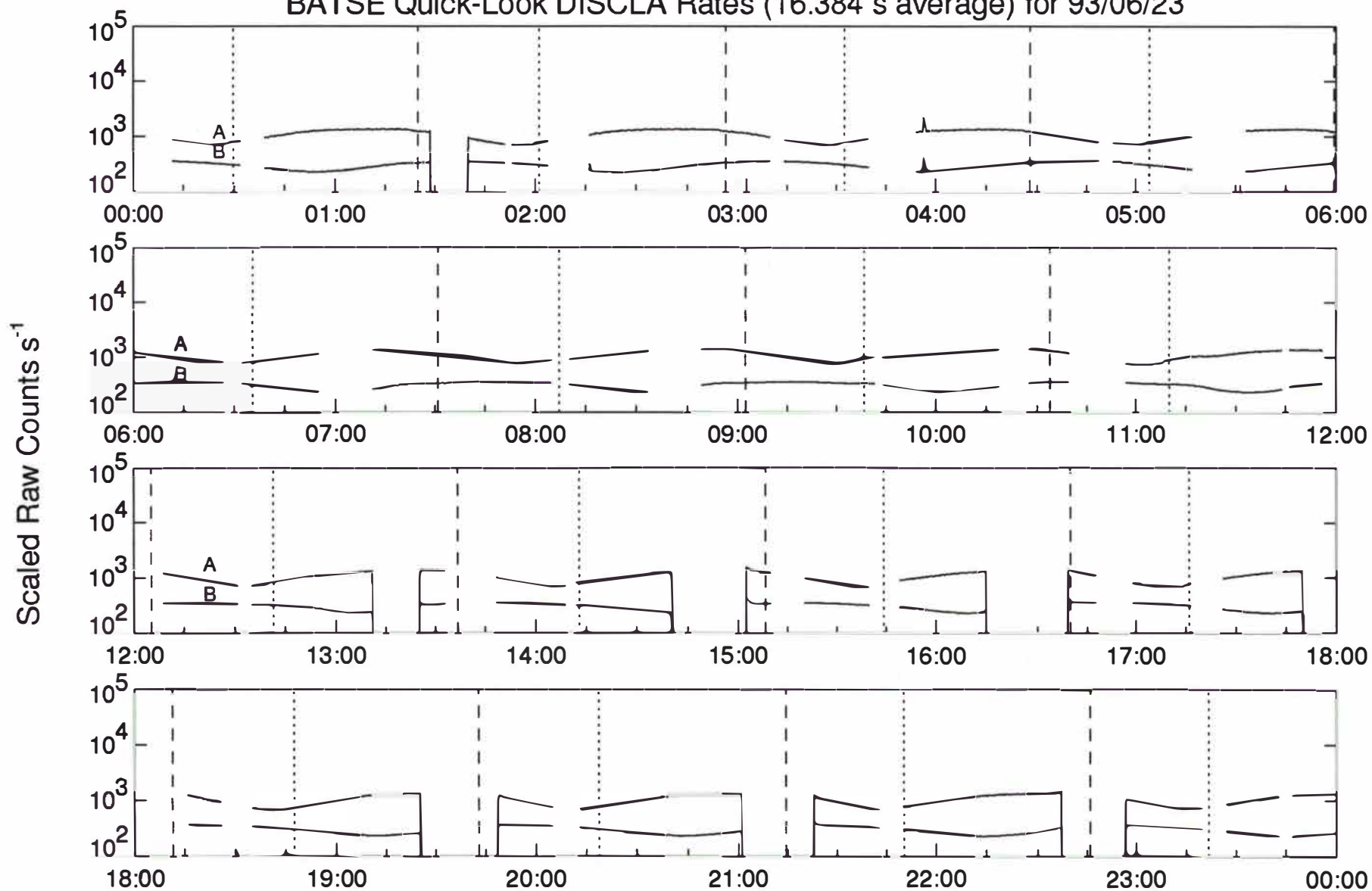
Data Start: 93/06/23, 0000:02

Plot created: 93/10/28, 0203

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/23

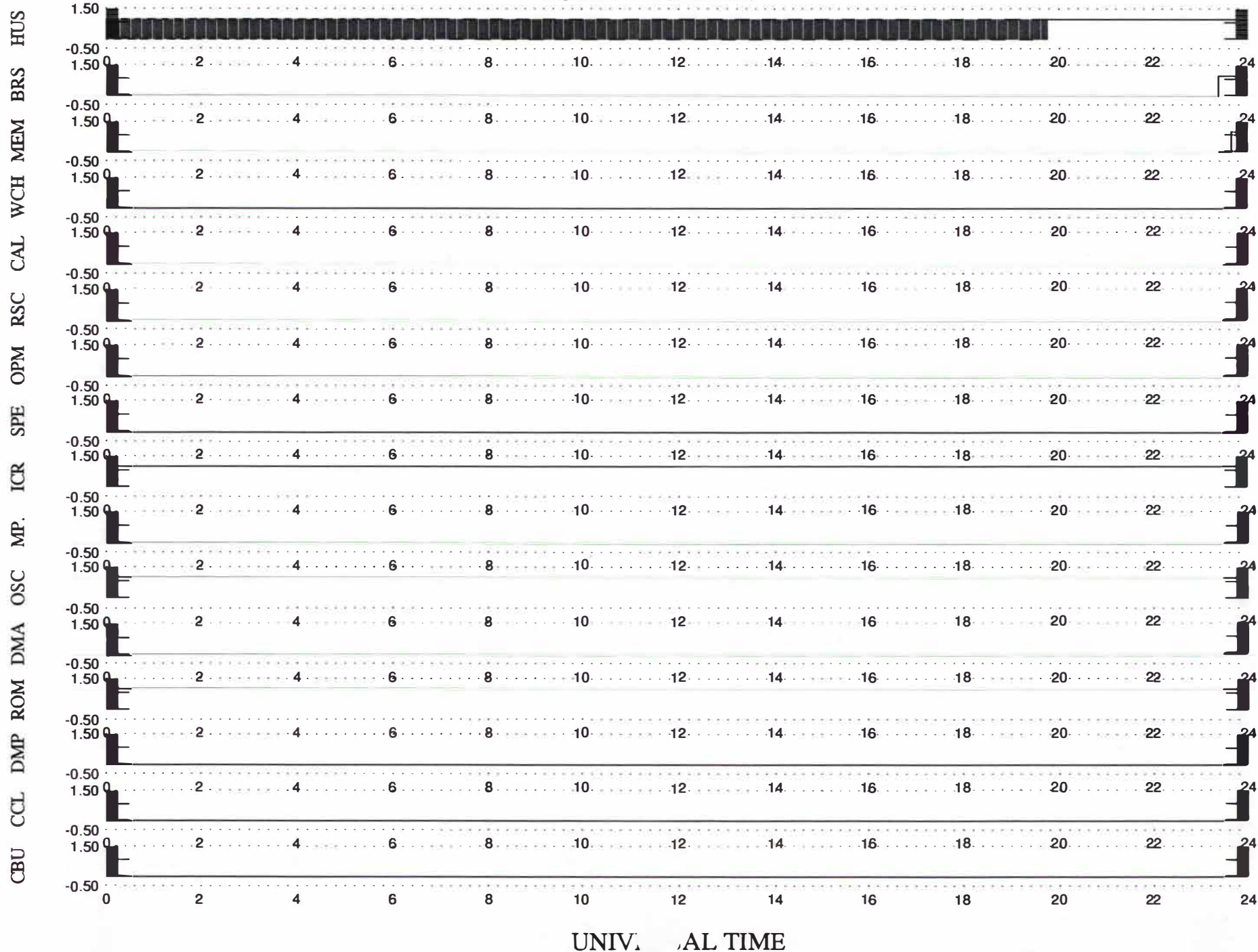


Current Time: 93/11/03, 2041 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

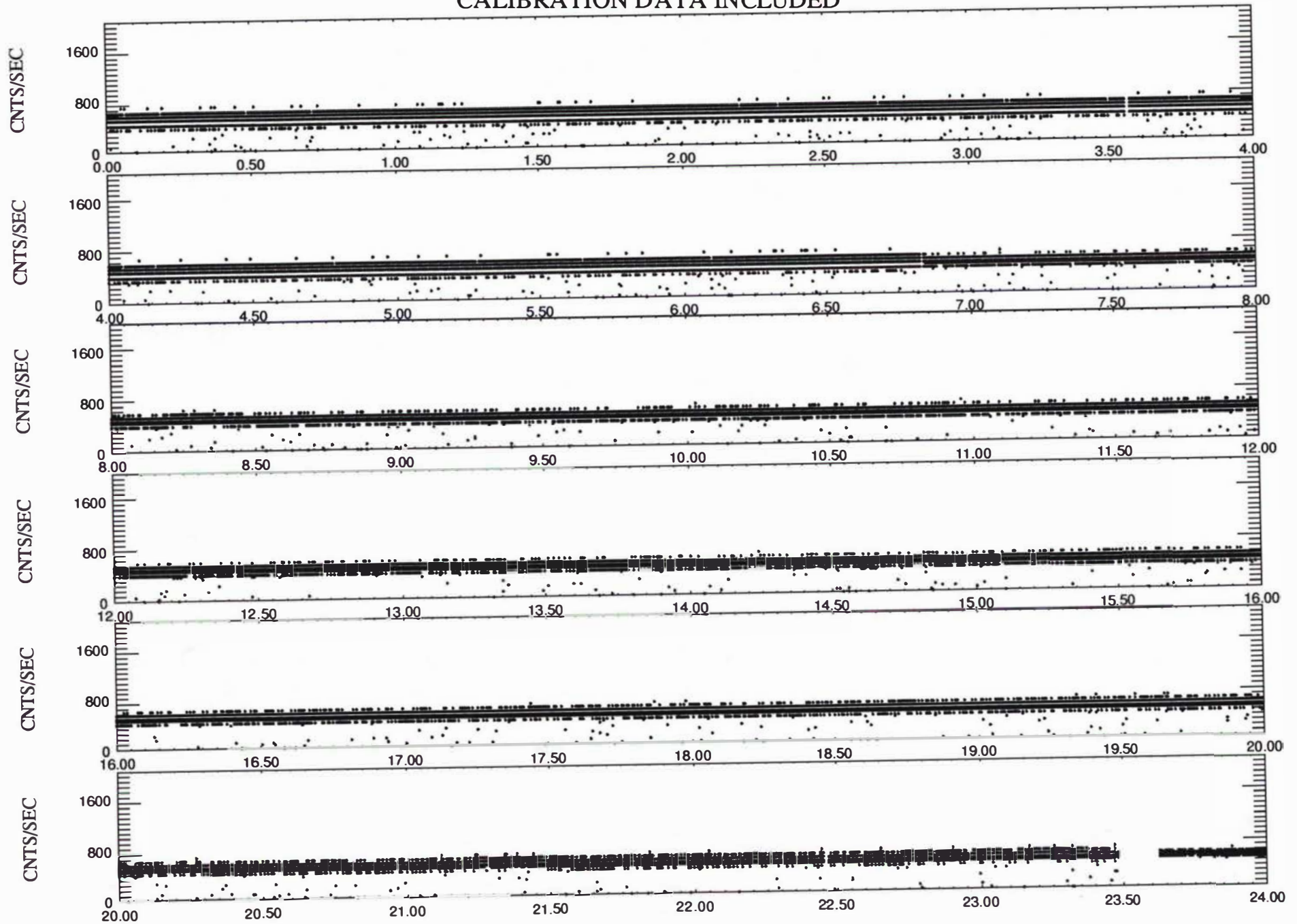
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

BURST NUMBER 8

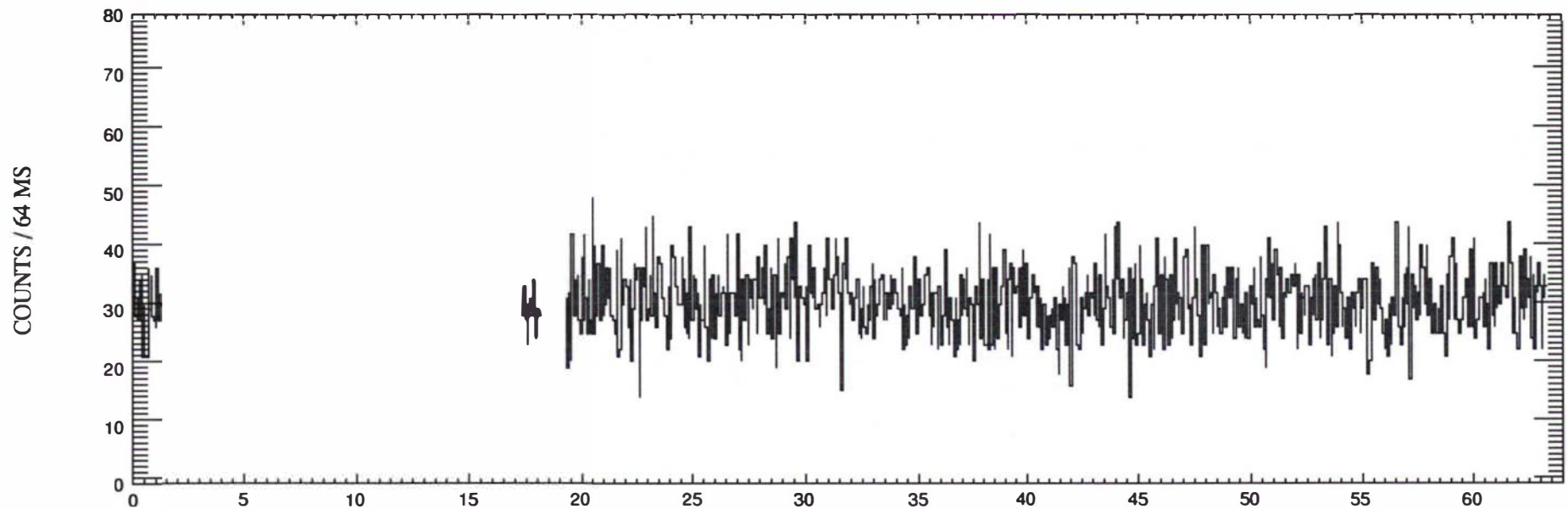


CALIBRATION DATA INCLUDED

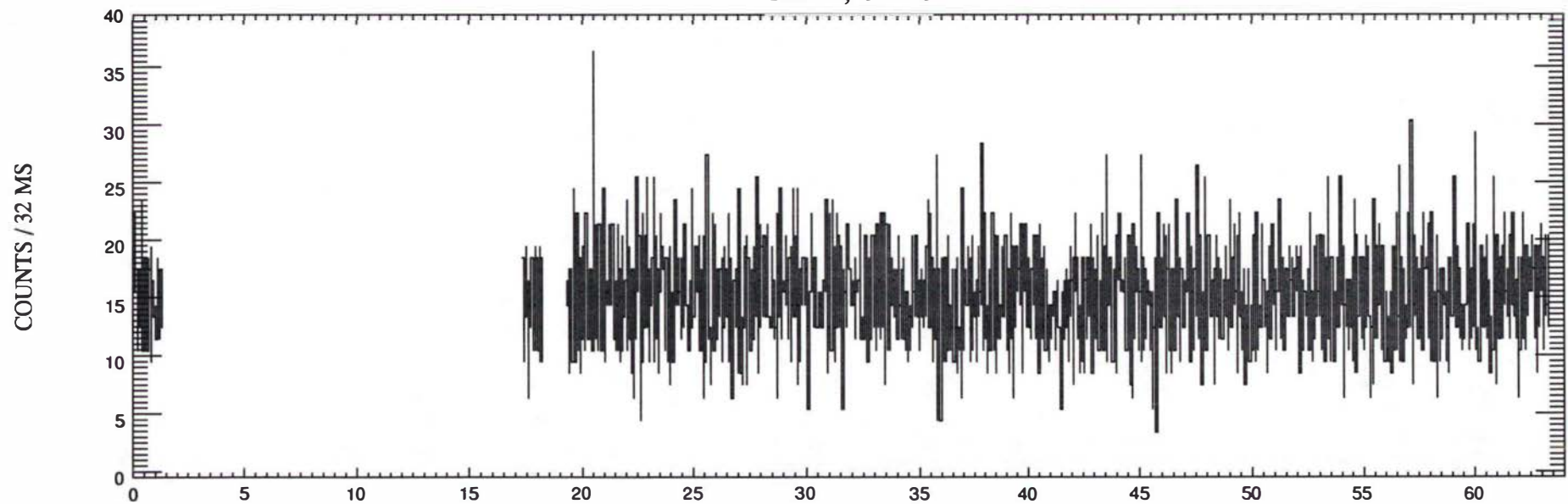


UNIV AL TIME

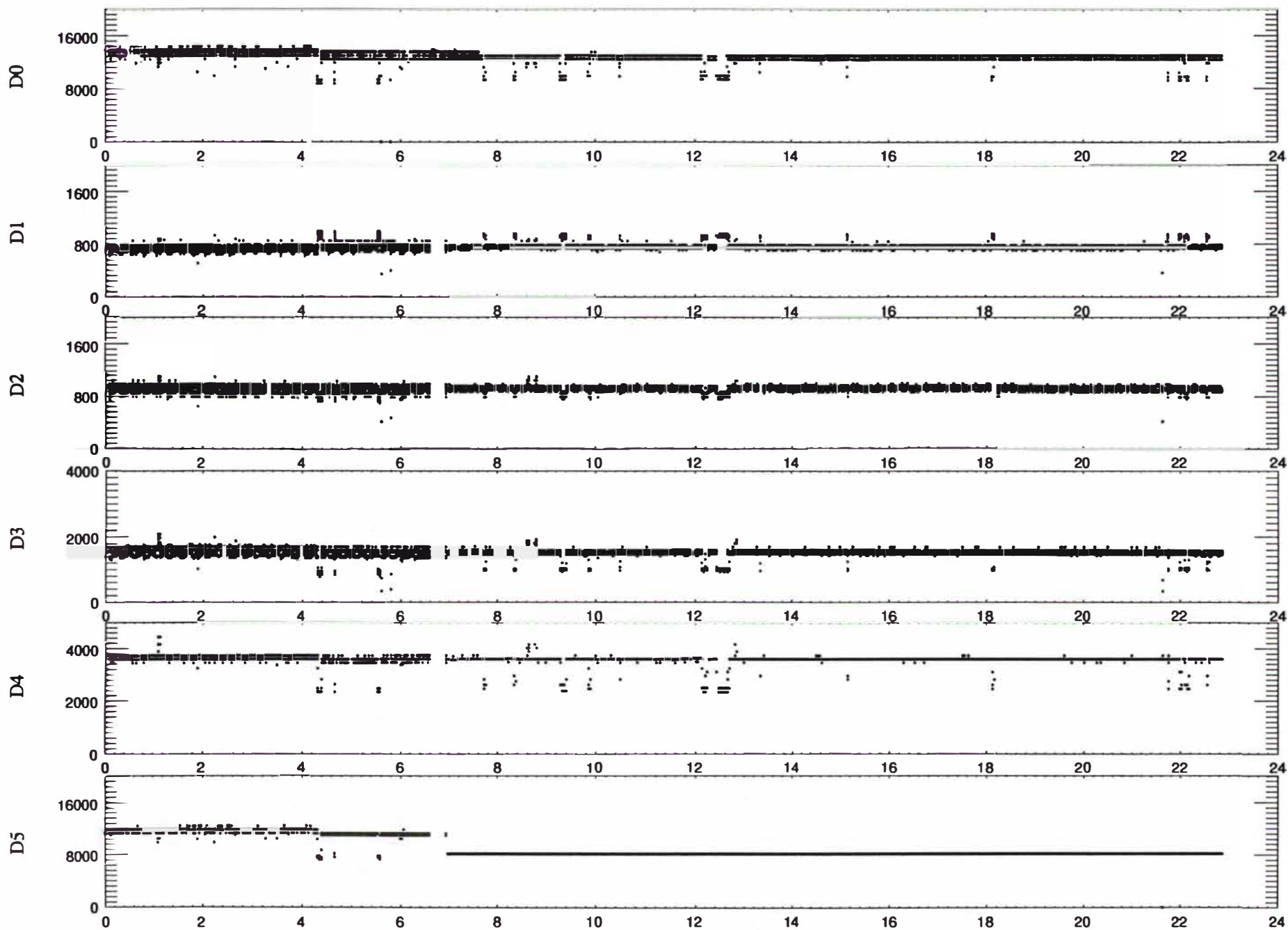
Burst Counter 8 at UT=23.315521672567 h=83935.878 s 23:18:55.878



TIME, SECS



TIME, SECS



UNIV SAL TIME



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

TO: John Laros, Los Alamos

FAX #:

DATE: July 1, 1993

TOTAL NUMBER OF PAGES:7

Here are the time histories and Ulysses coordinates for June 20 and 24.
There were several other triggers on the 24th which I can send if you
need them. The coordinates are approximate, but if you want, I can work
them out for the exact trigger time.

FAXED
7/1

From root Wed Jun 30 14:52 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02528; Wed, 30 Jun 93 14:52:12
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA16722; Wed, 30 Jun 93 14:53:25 PDT
Received: Wed, 30 Jun 93 14:52:01 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306302152.AA19380@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-mail11d v1.7); Wed, 30 Jun 93 14:54:54 PDT
Date: Wed, 30 Jun 93 14:54:54 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

If you give me onsets of the June 20 and 24 solar flares, I can get a sanity check on the MO realtime absolute timing. As far as I know, we don't yet have a solar flare trigger.

MO had coverage, but no trigger at the time of the weird BATSE event on June 22.

John

From root Tue Jun 29 11:25 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02041; Tue, 29 Jun 93 11:25:16
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA01867; Tue, 29 Jun 93 11:26:35 PDT
Received: Tue, 29 Jun 93 11:15:22 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306291815.AA02843@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-mail11d v1.7); Tue, 29 Jun 93 11:28:04 PDT
Date: Tue, 29 Jun 93 11:28:04 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

MO/GRS had a leakage current spike at 56894. This is probably just a coincidence, but it is somewhat suspicious that the same thing happened on 921022. I will look for other such coincidences as time goes on.

Incidentally, I see a rather long event that did not cause a trigger on June 20 at about 15:00. Is it solar? There is a definite solar observation on June 24 at about 08:00, but again no trigger.

John

P.S. In the first paragraph, I was referring to the 23 June oddball event. MO position on June 14 was 270229687, 148.79, 12.62.

From root Tue Jun 29 11:28 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA02047; Tue, 29 Jun 93 11:28:32
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA01888; Tue, 29 Jun 93 11:29:53 PDT
Received: Tue, 29 Jun 93 11:29:41 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9306291829.AA03171@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-mail11d v1.7); Tue, 29 Jun 93 11:31:22 PDT
Date: Tue, 29 Jun 93 11:31:22 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

Wait a minute! I looked at the wrong day. Apparently, there we had no data on June 22. I'll look into this. Sorry.

John

From MEEGAN@ssl.msfc.nasa.gov Fri Jun 25 14:46:49 1993
Date: Fri, 25 Jun 1993 16:46:47 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: burst@compel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02413

TIME: TJD=9162 SECONDS=26741

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

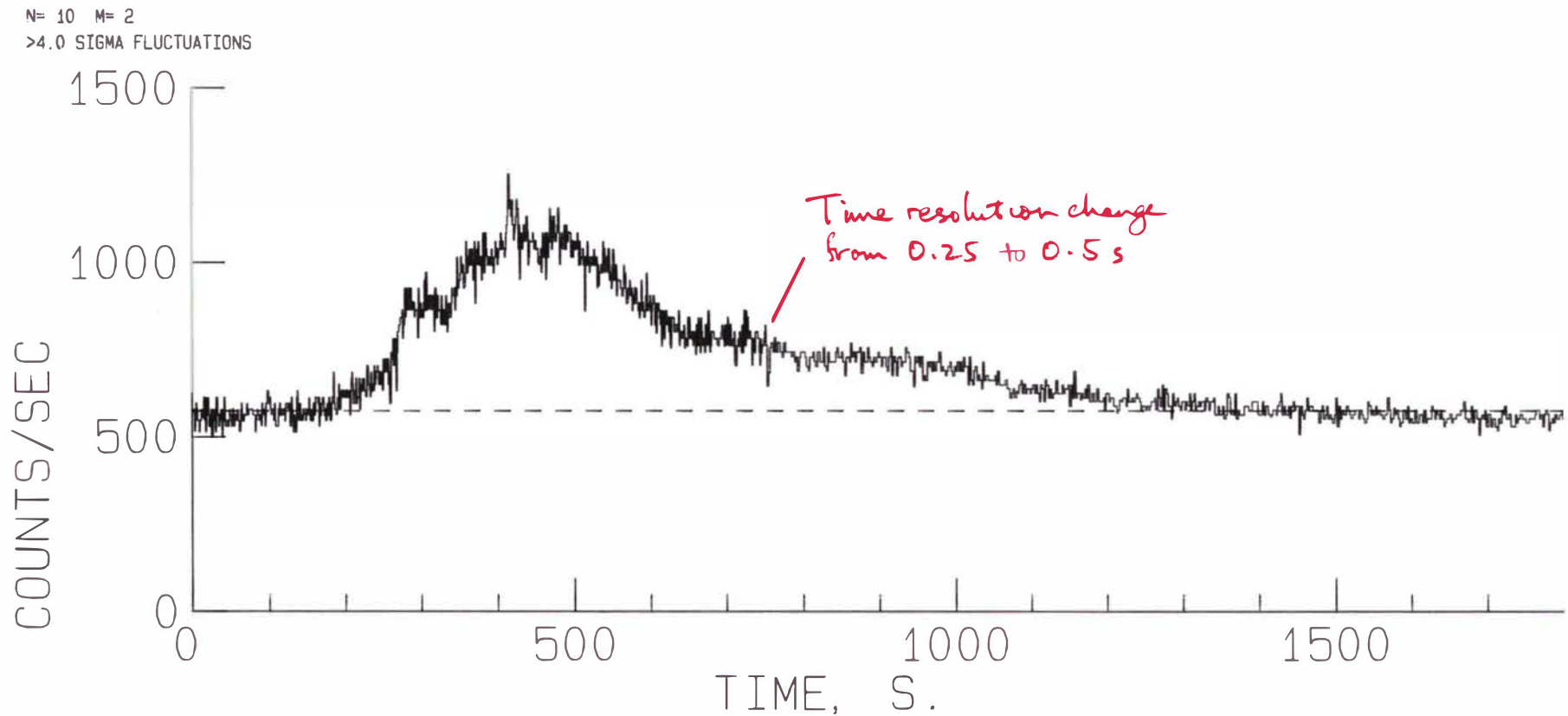
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES M9.7 FLARE. INTENSE; ABOUT 30 MINUTES LONG. SEEN ABOVE 300 KEV.

ULYSSES RT
24/ 6/93 28440.115 s
INTERVALS REGROUPED BY 4
21- 143 keV

14/ 5/94



ULYSSES RT

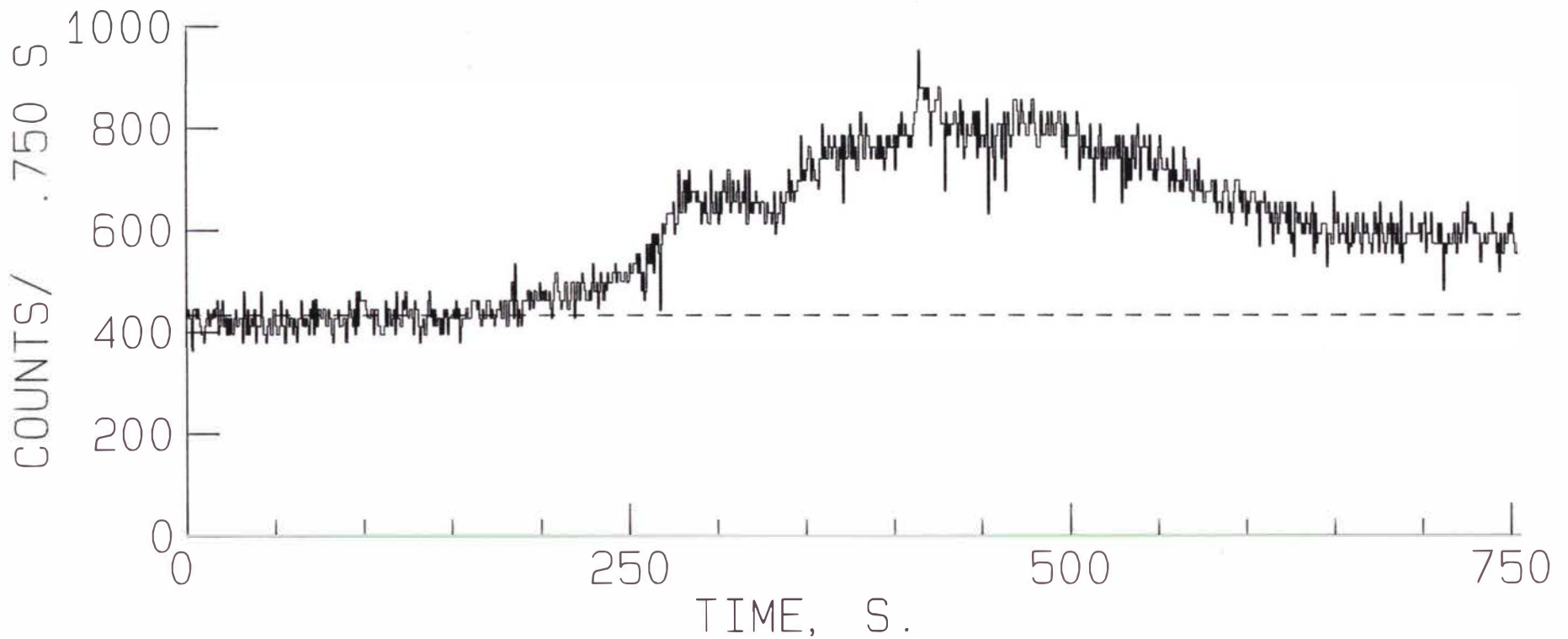
14/ 5/94

24/ 6/93 28440.115 s

.250 S INTERVALS REGROUPED BY 3

21- 143 keV

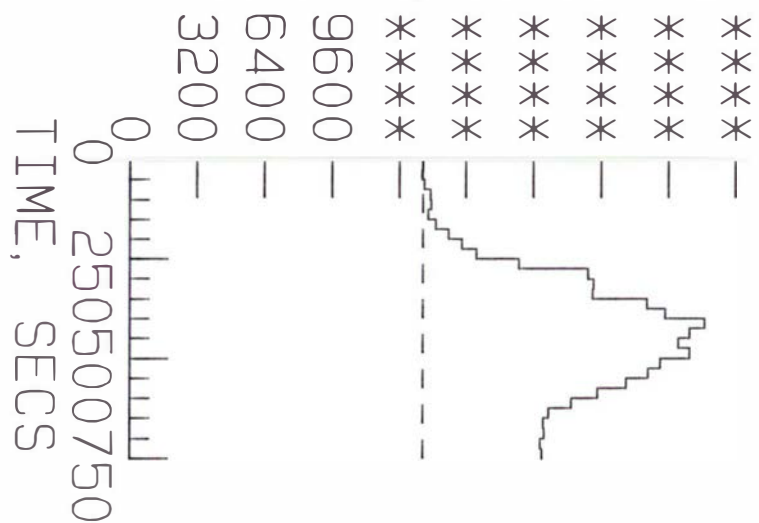
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



ULYSSES RT 24/ 6/93

21- 143 keV 28440.367 S

COUNTS/25.000 S



M0-RT

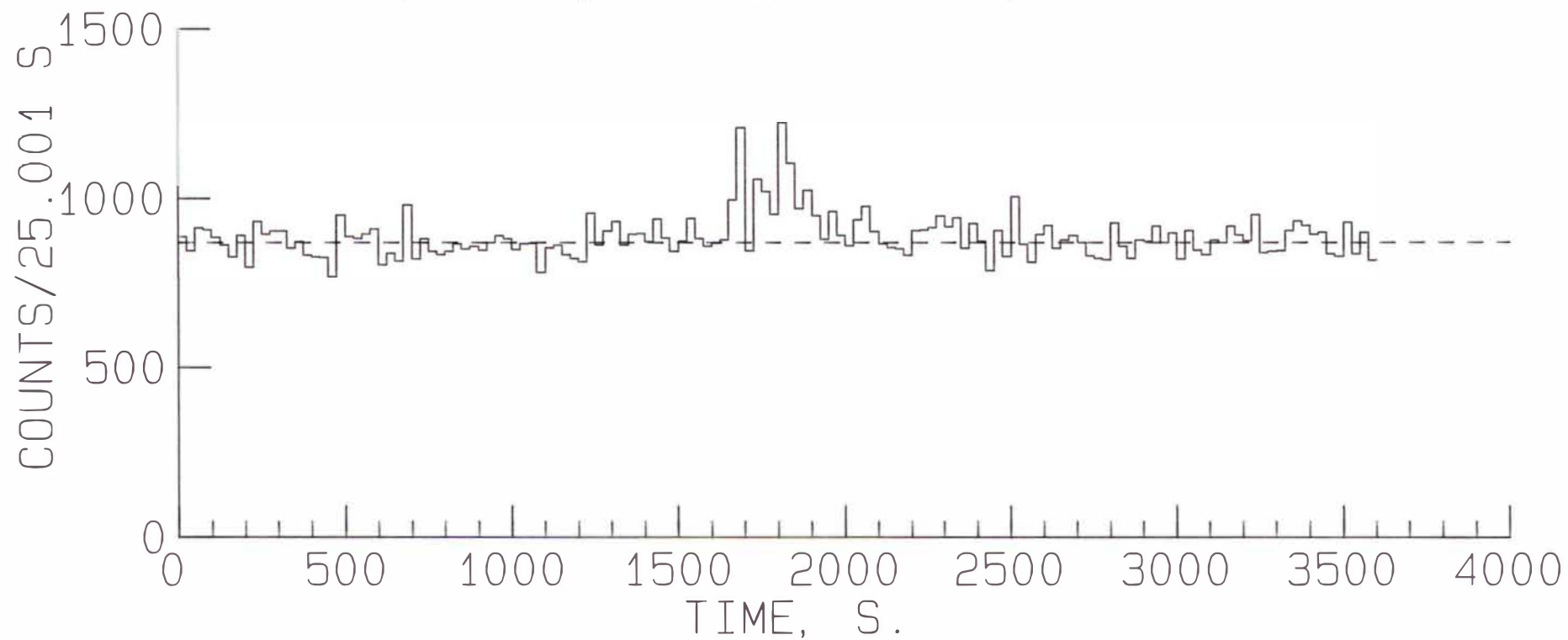
24 / 6 / 93

25575.333 s.

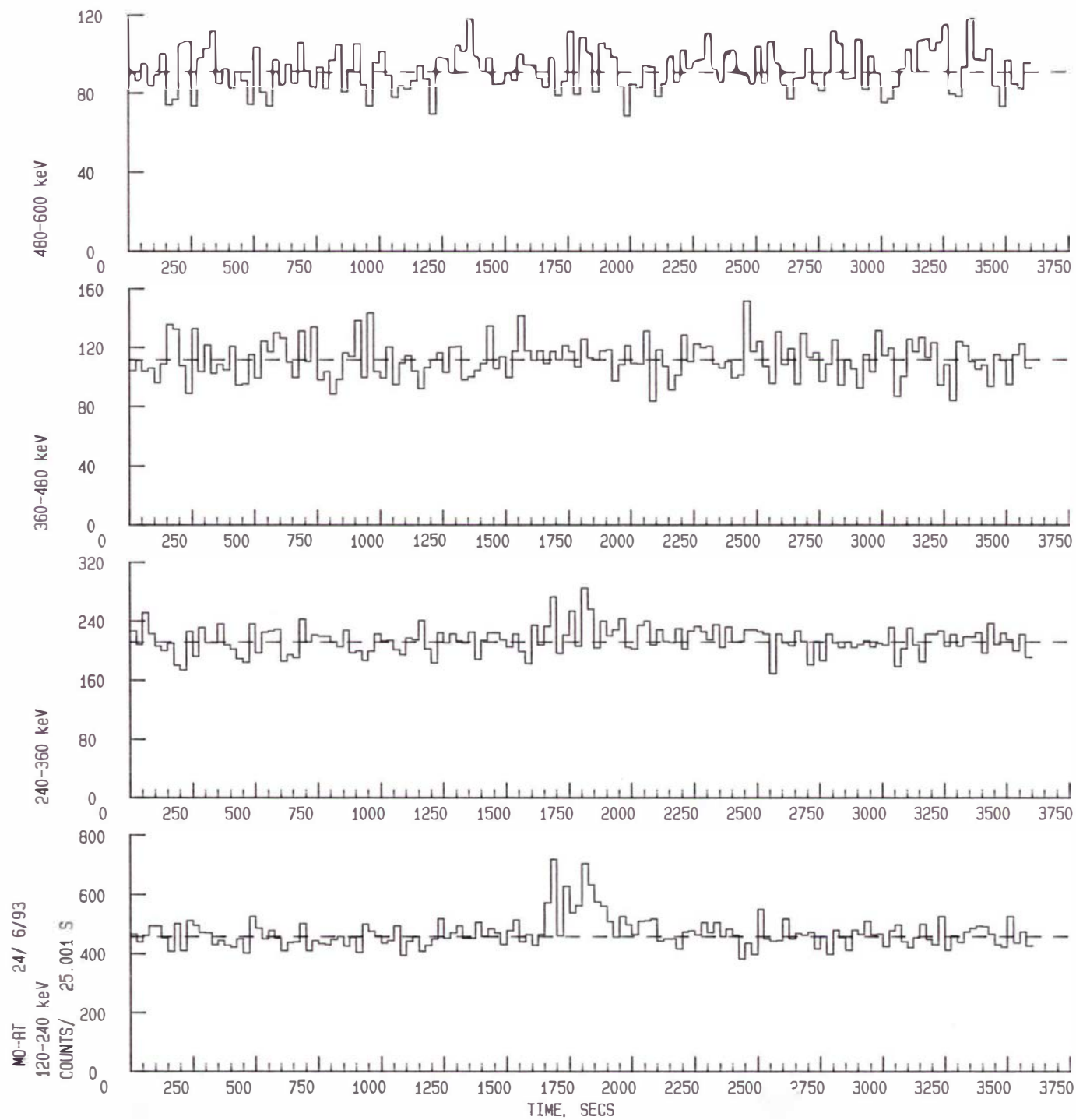
25.001 S. INTERVALS REGROUPED BY 1

120 - 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS



14/ 5/94



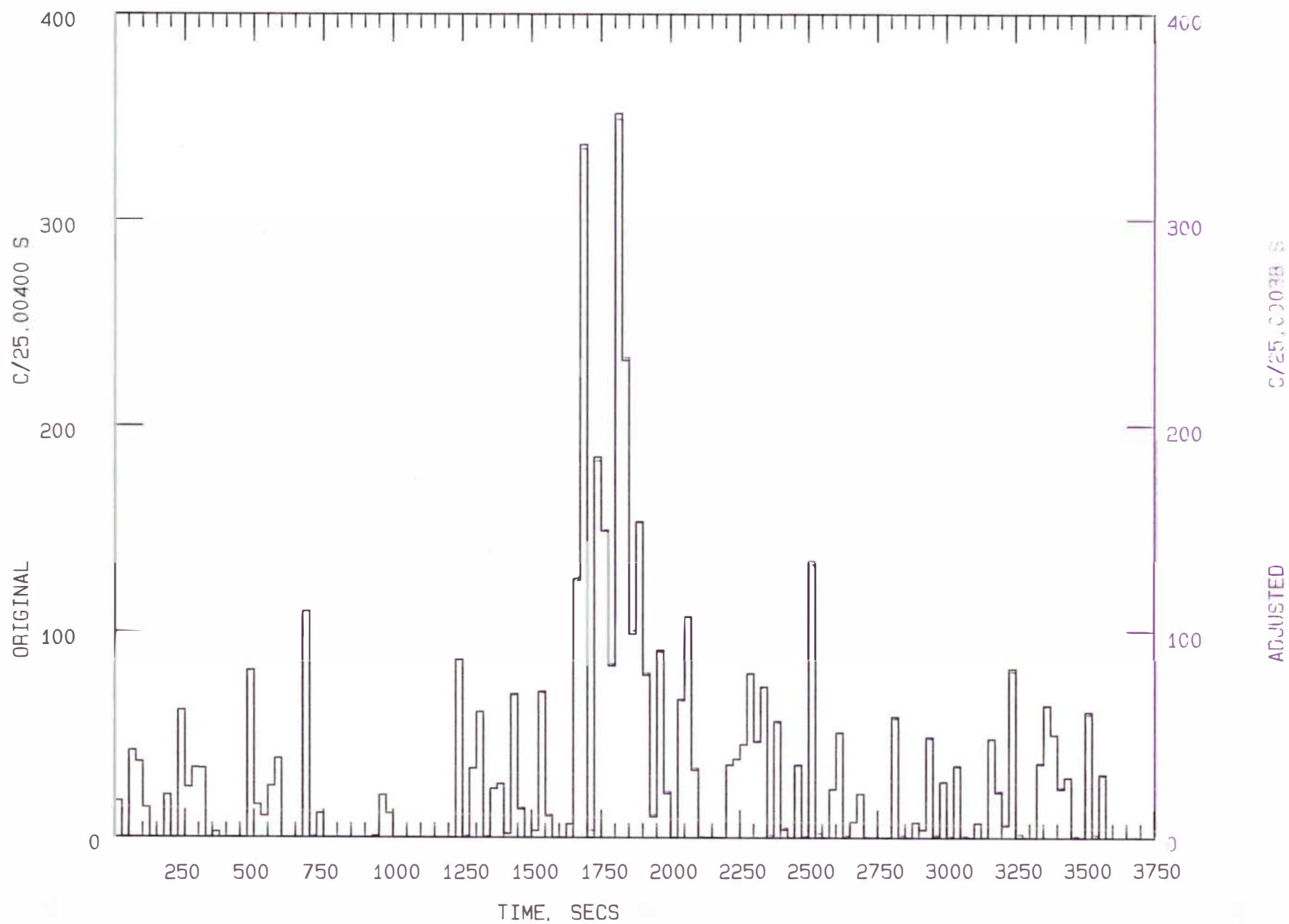
ORIGINAL AND ADJUSTED MO-RT

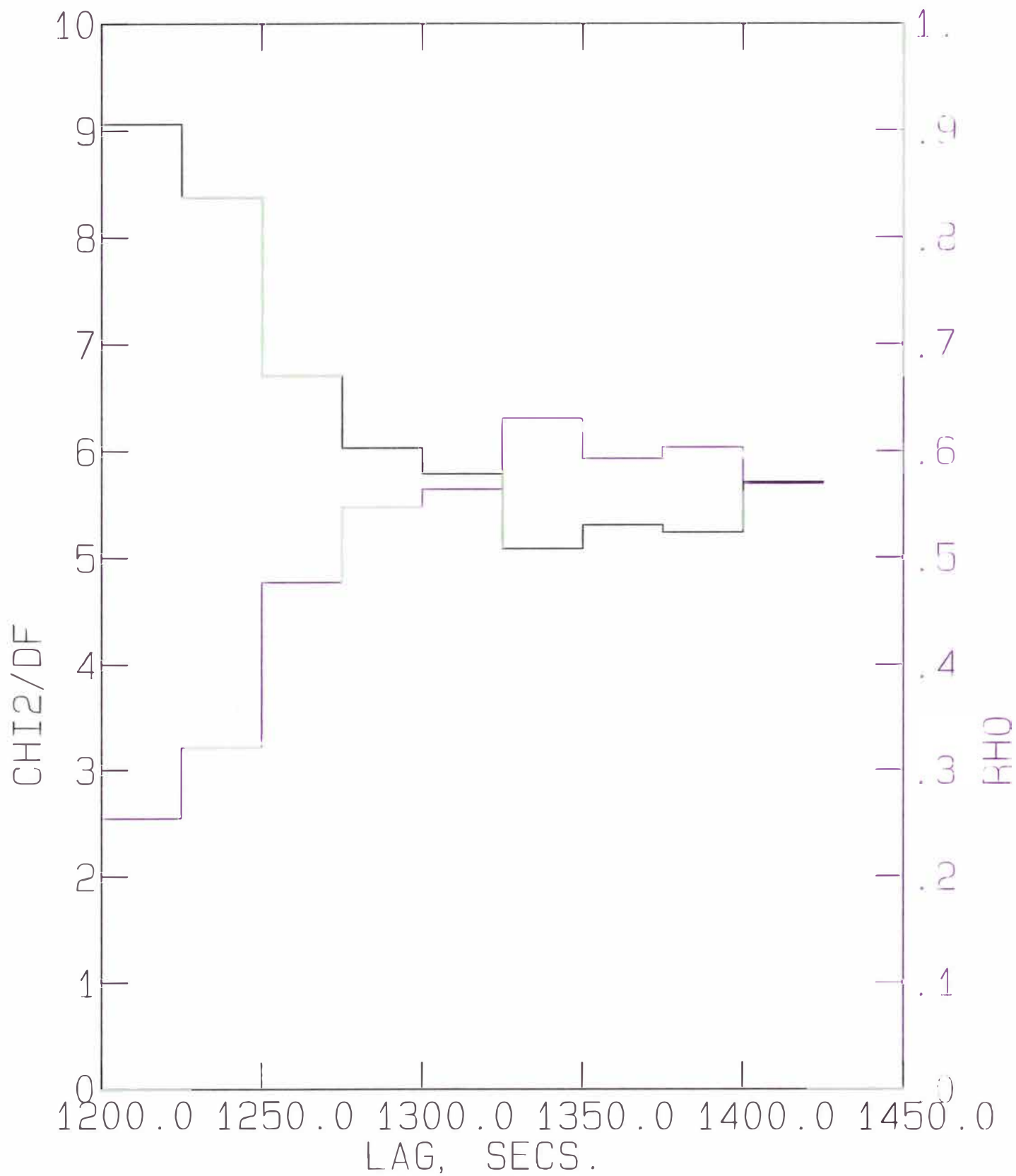
TIME HISTORIES

24/ 6/93

25562.831

14/ 5/94





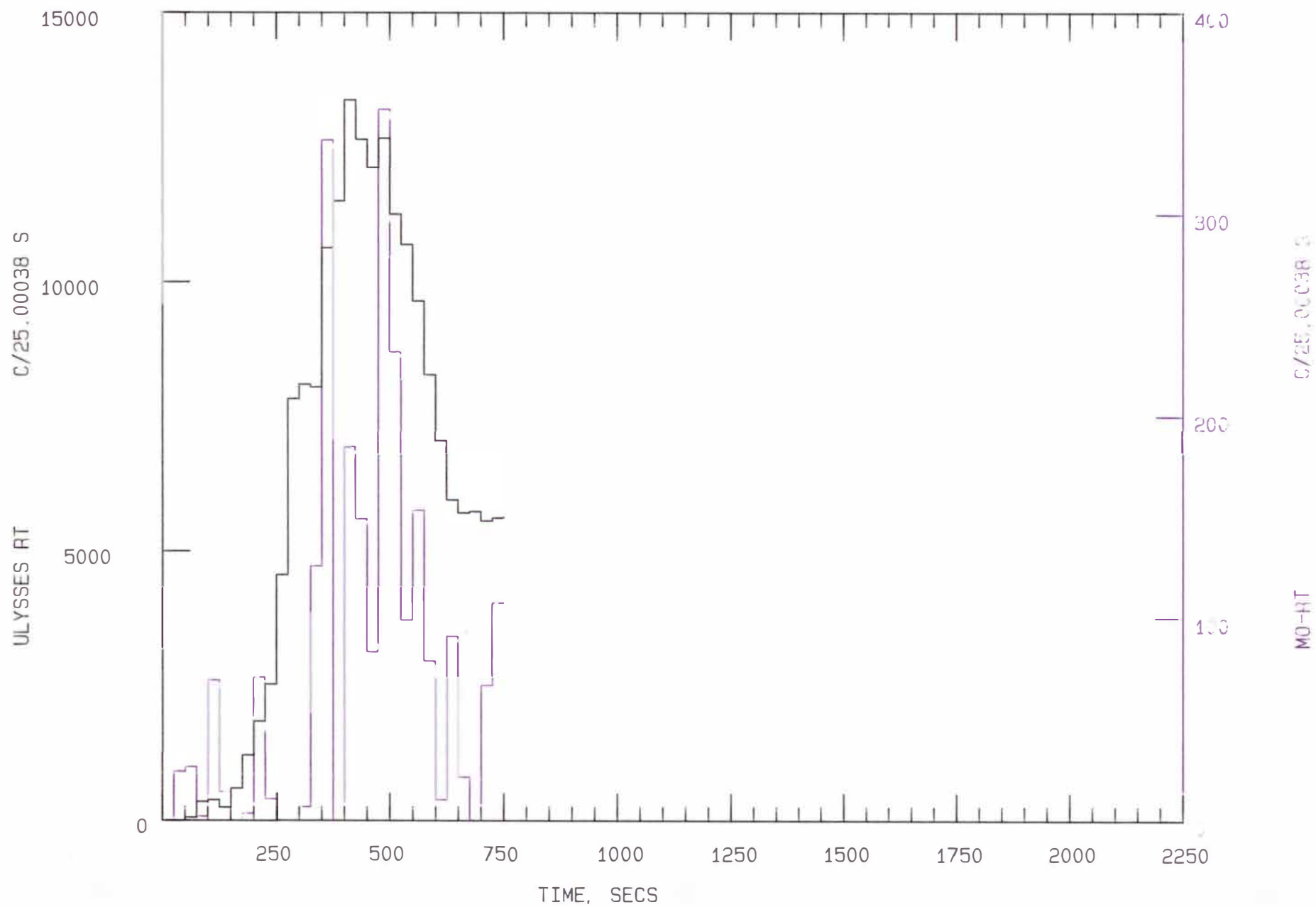
ULYSSES RT-MO-RT

CORRELATION

24/ 6/93

28440.367

14/ 5/94



From MEEGAN@ssl.msfc.nasa.gov Fri Jun 25 14:50:01 1993
Date: Fri, 25 Jun 1993 16:50:05 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: burst@compel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02414

TIME: TJD=9162 SECONDS=65466

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

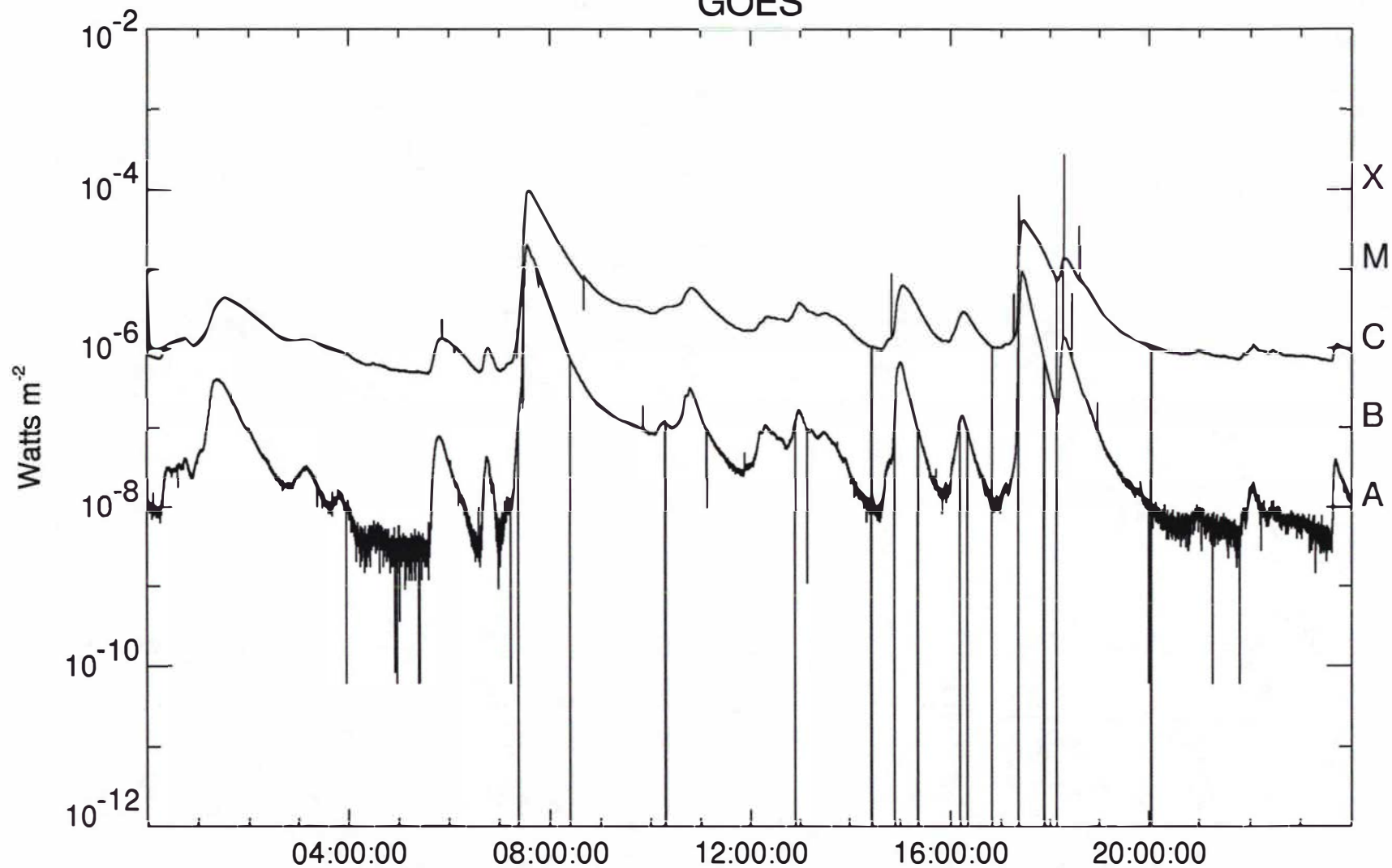
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES M1.3 FLARE. SMOOTH PULSE LASTING ABOUT 200 S. NOT SEEN ABOVE 300 KEV.

GOES



Data Start: 93/06/24, 0000:02

Plot created: 93/10/28, 0203

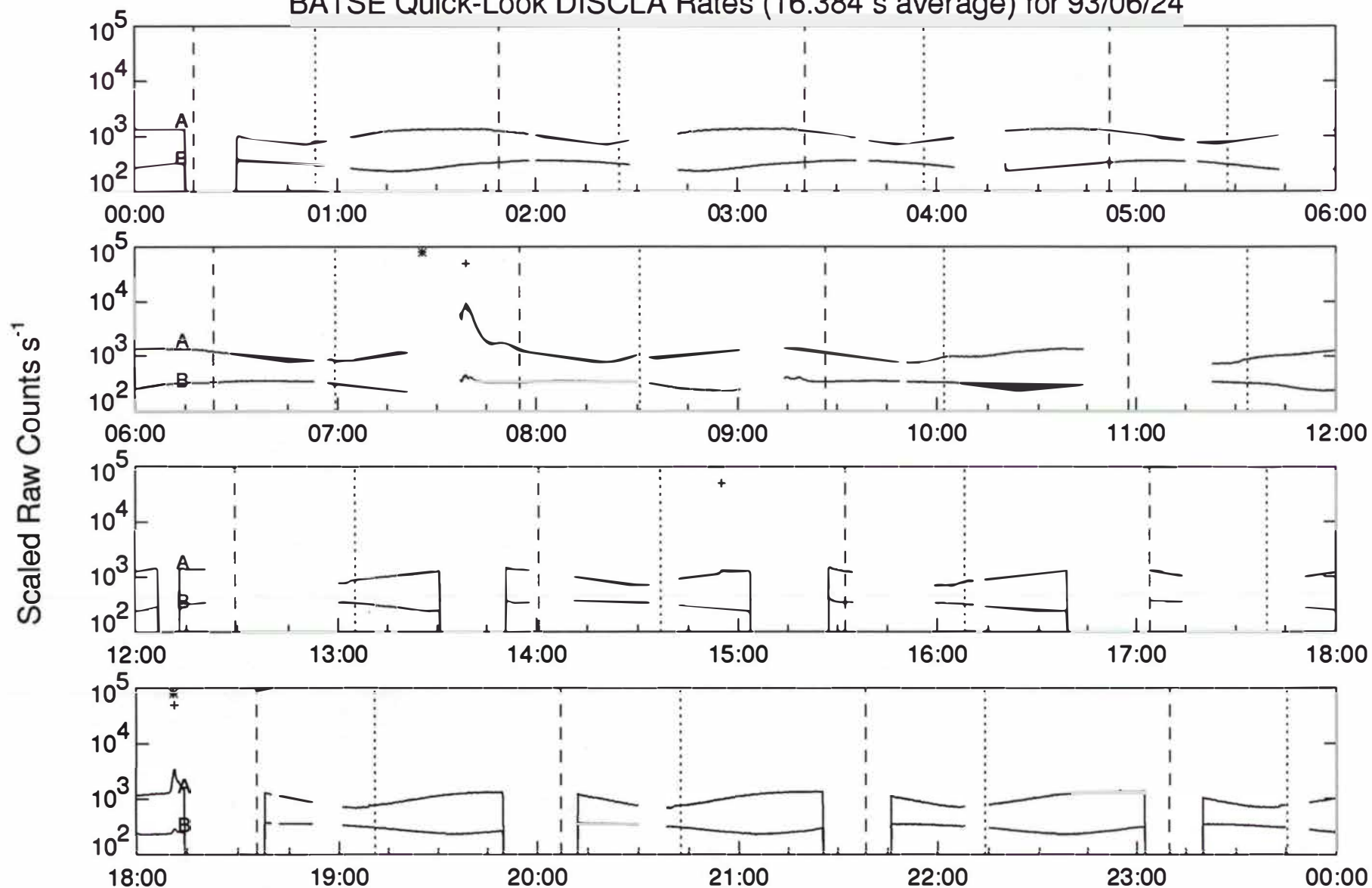
Channel 1 (1.0 - 8.0 Angstroms)

Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/24

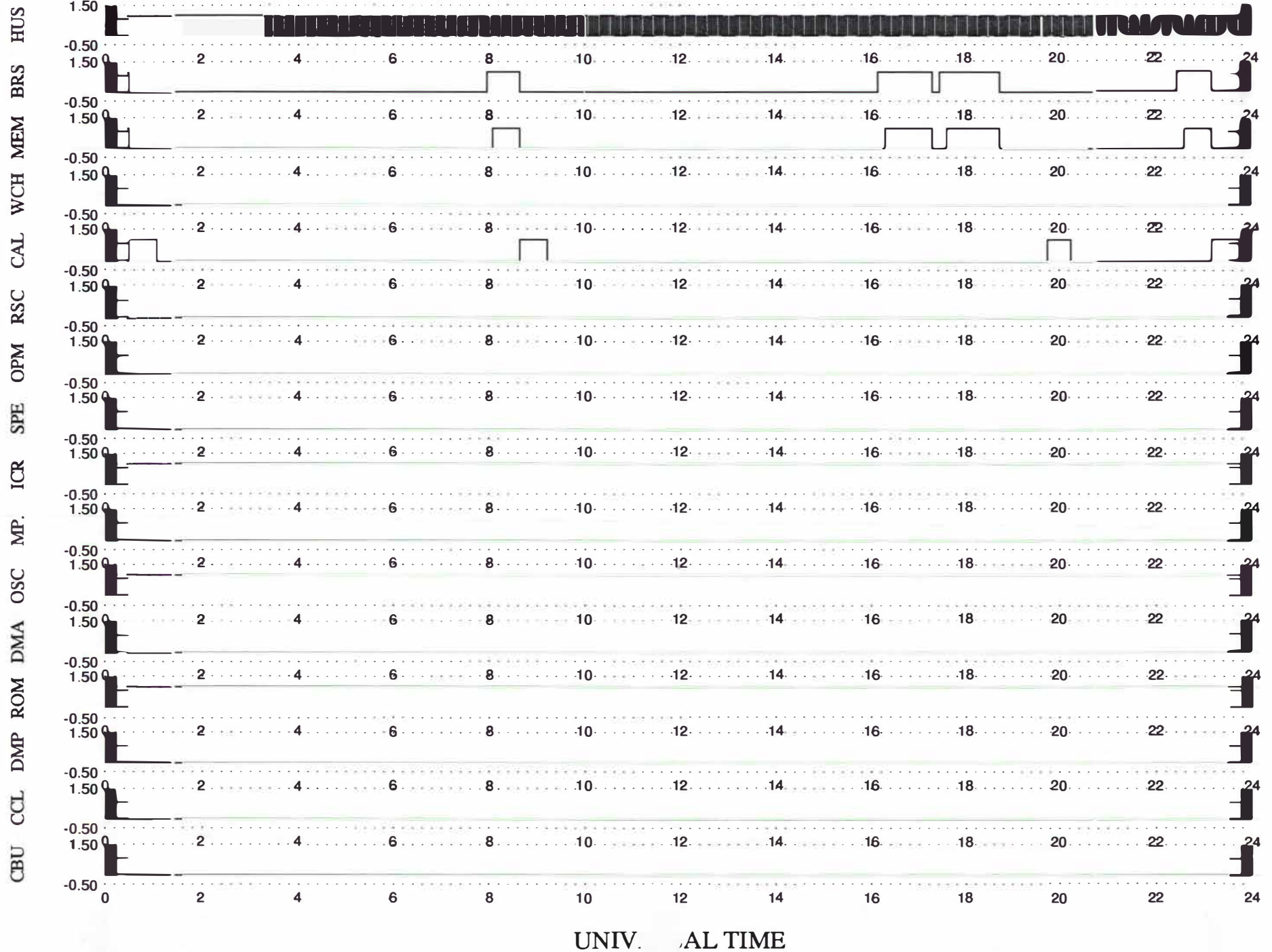


Current Time: 93/11/03, 2041 EDT
A: Channel 1 Most Sunward LAD
B: Sum Channel 1 Anti-Sunward LADs X .05

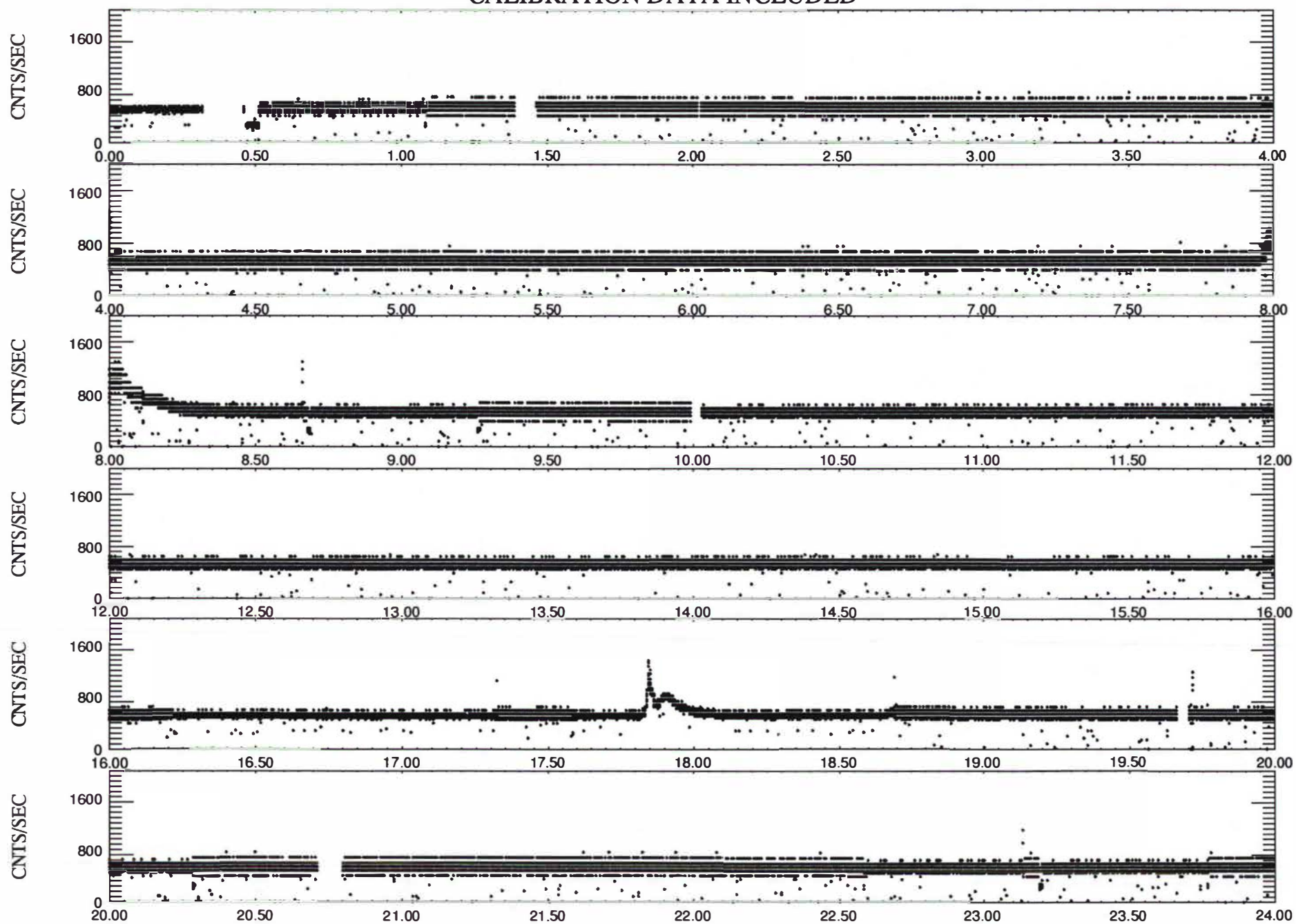
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

BURST NUMBER 9 - 12

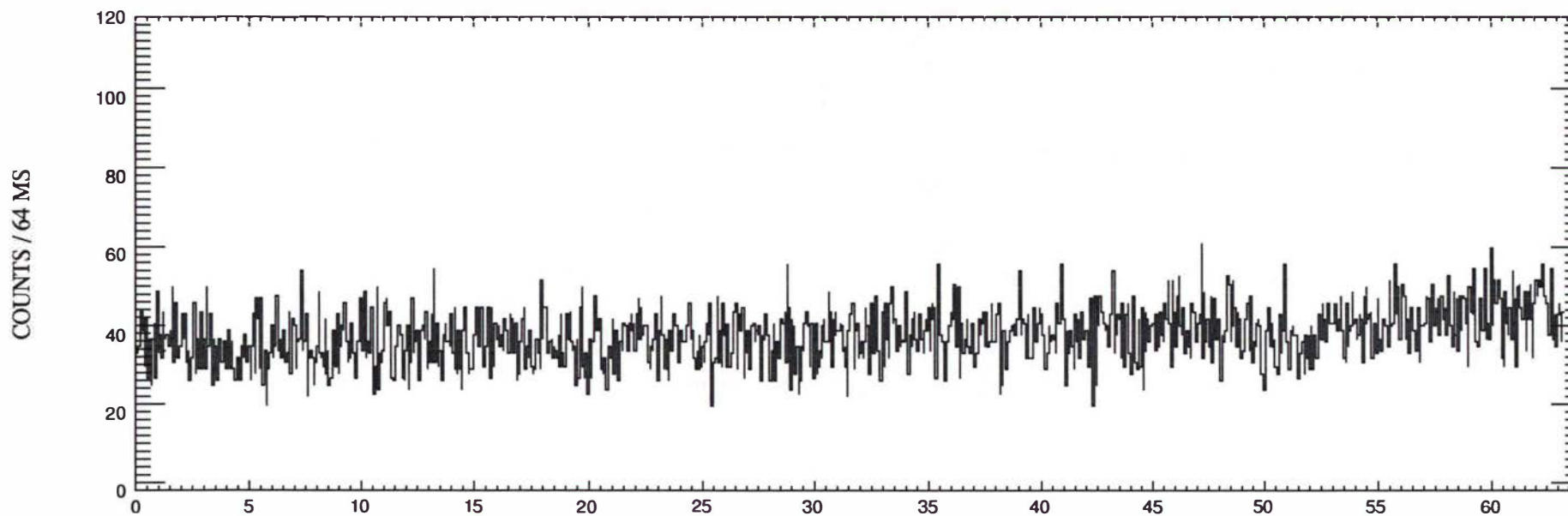


CALIBRATION DATA INCLUDED

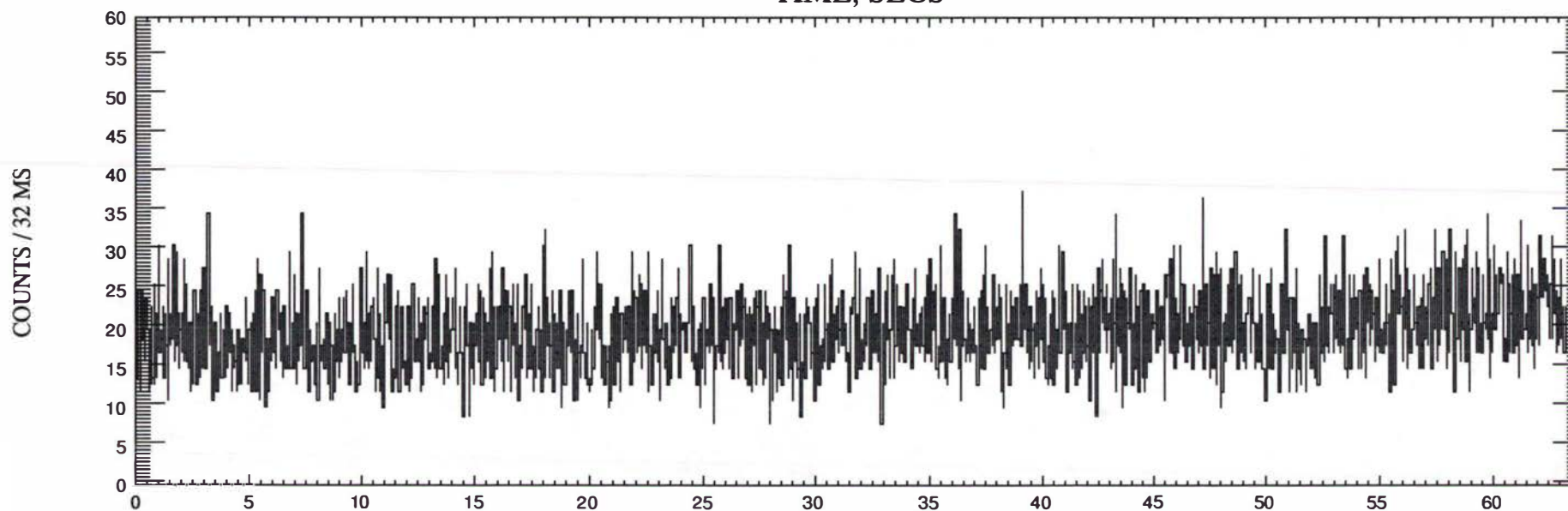


UNIV AL TIME

Burst Counter 9 at UT= 7.959752616882 h=28655.109 s 07:57:35.109

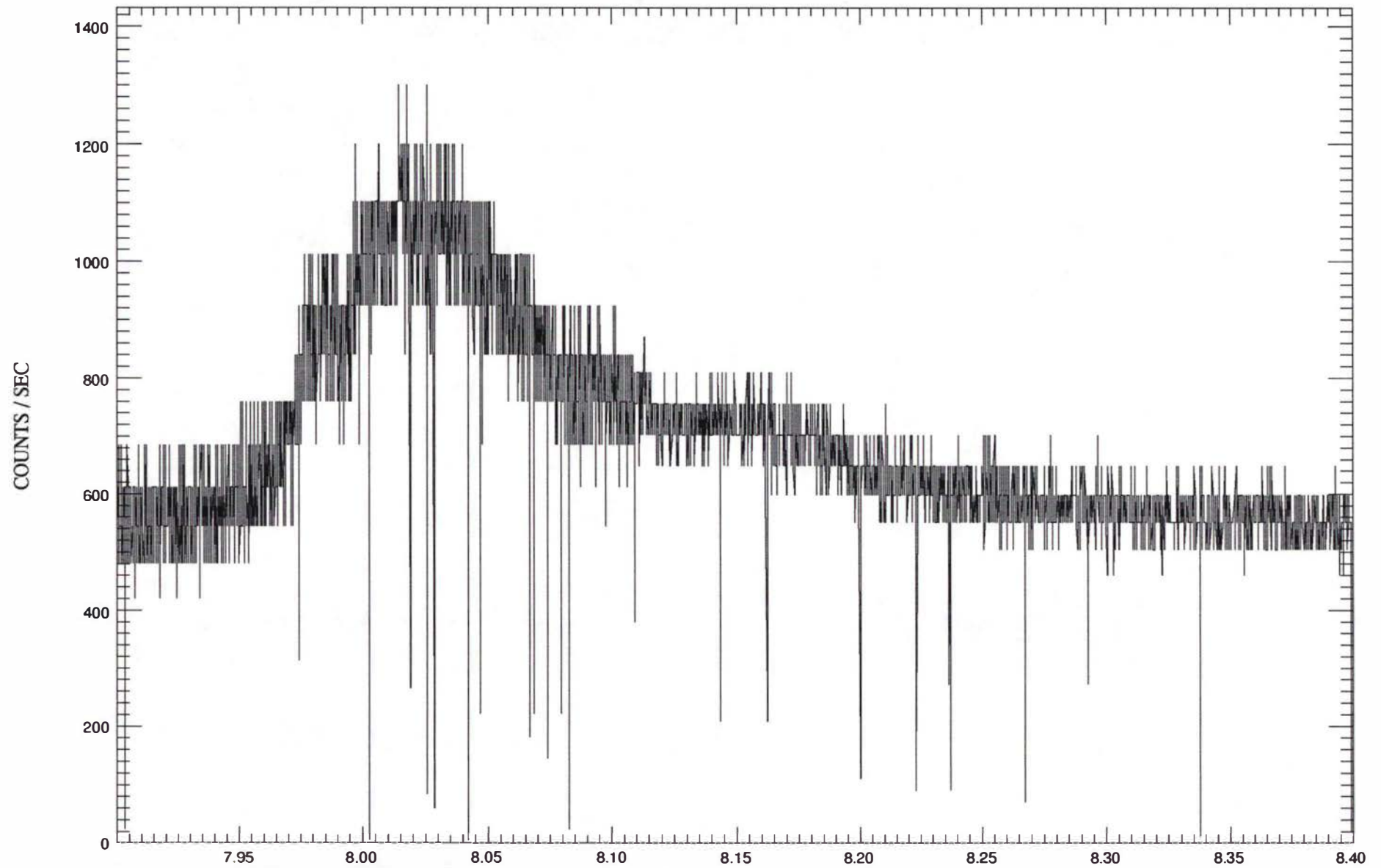


TIME, SECS

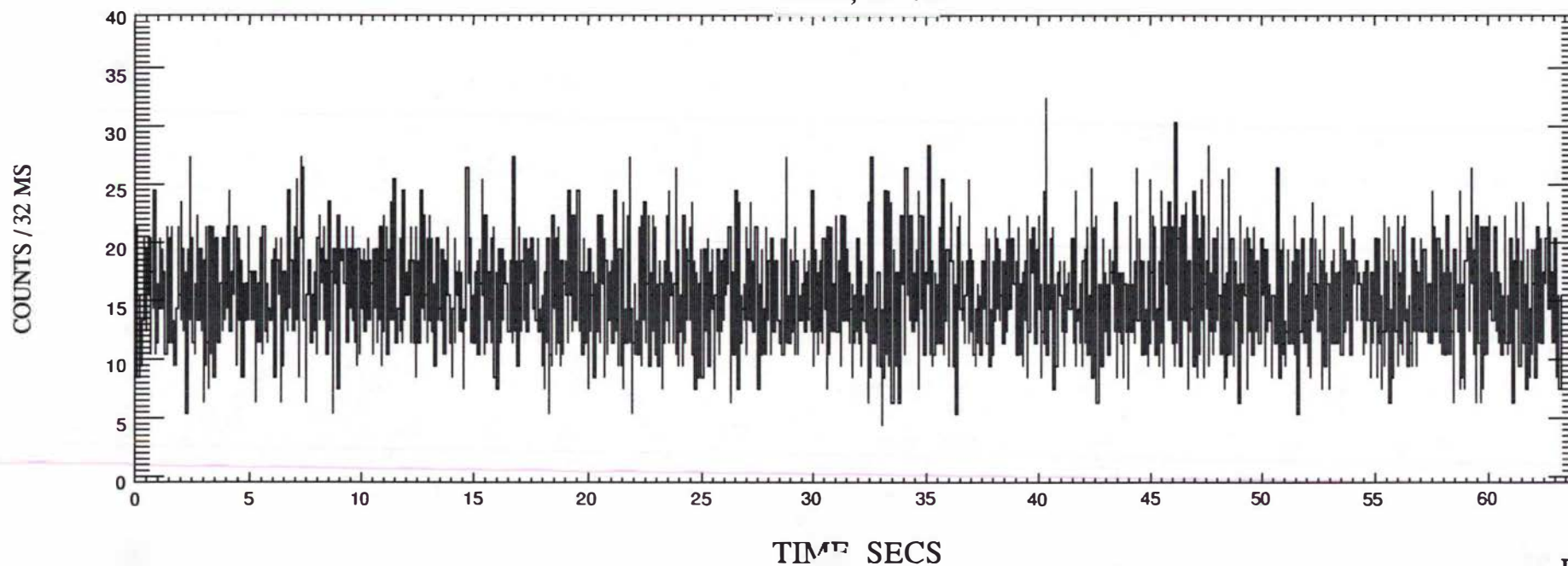
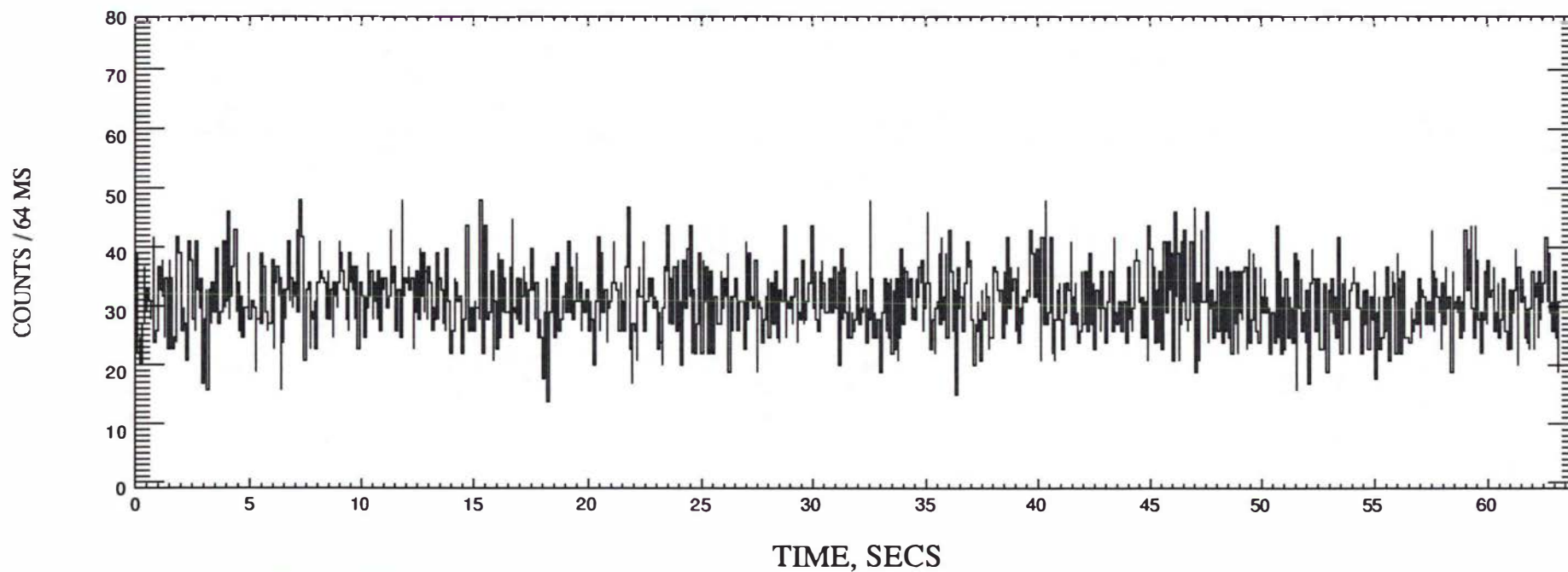


TIME, SECS

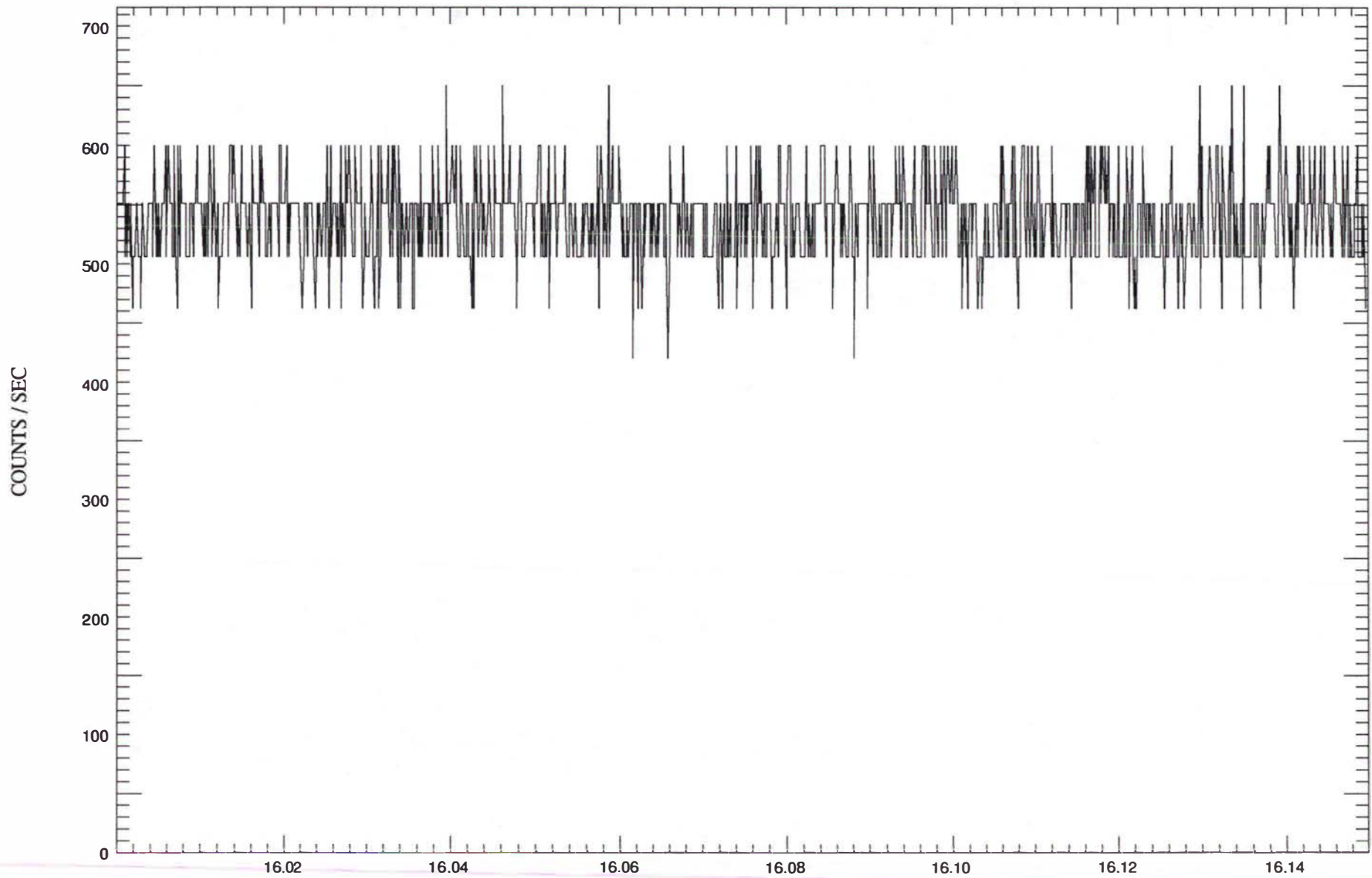
CALIBRATION DATA INCLUDED



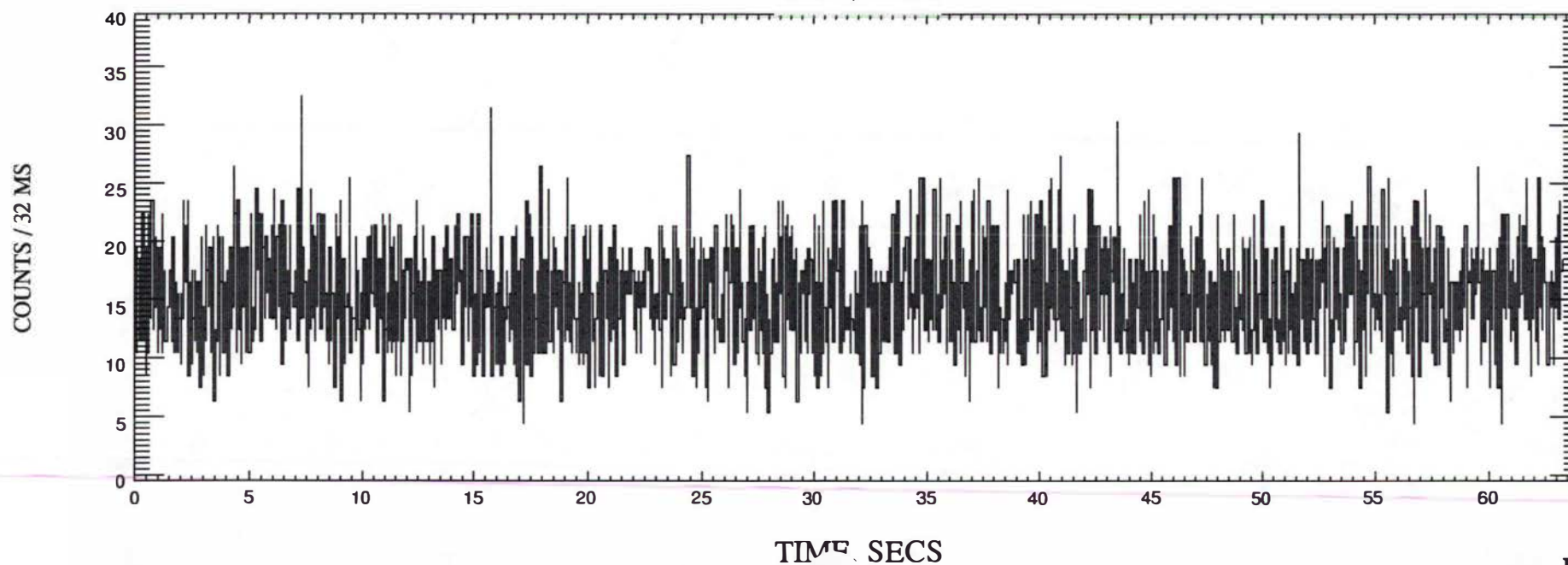
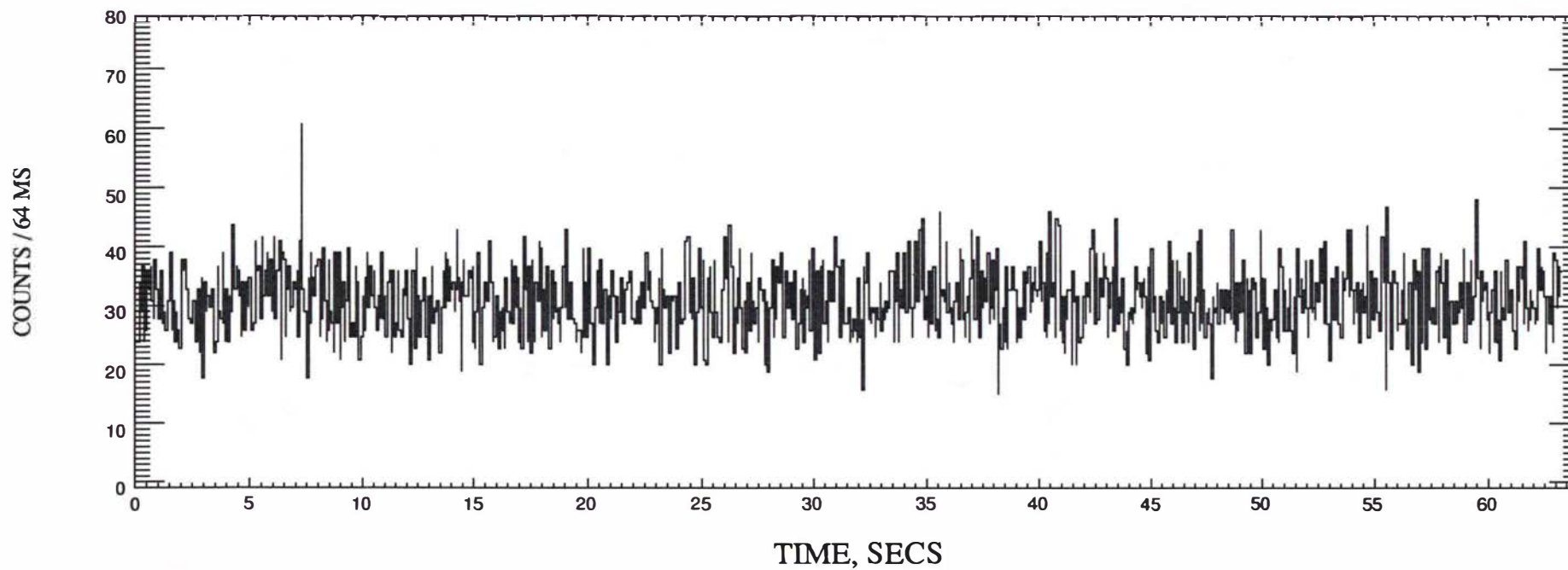
Burst Counter 10 at UT=16.058904796176 h=57812.057 s 16:03:32.057



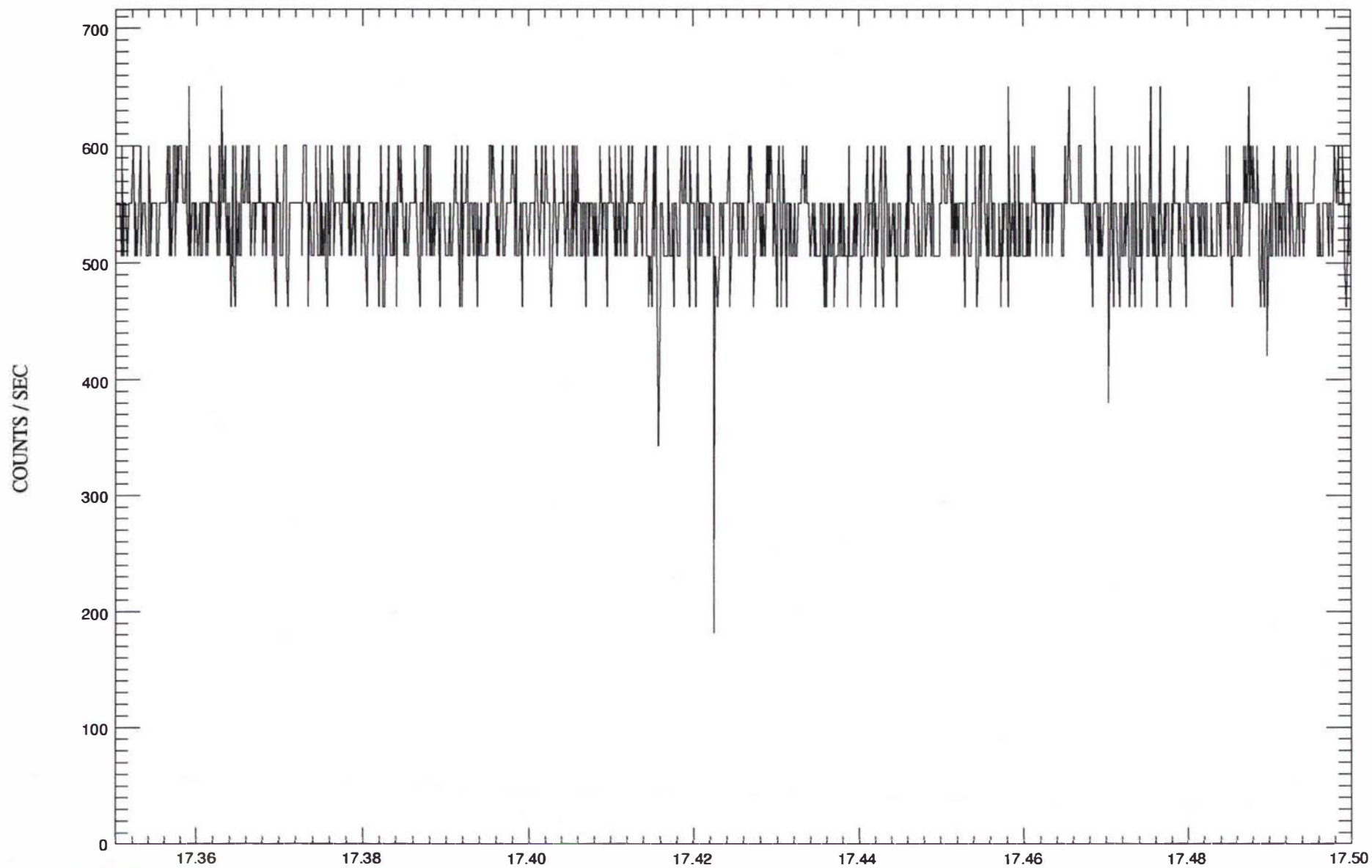
CALIBRATION DATA INCLUDED



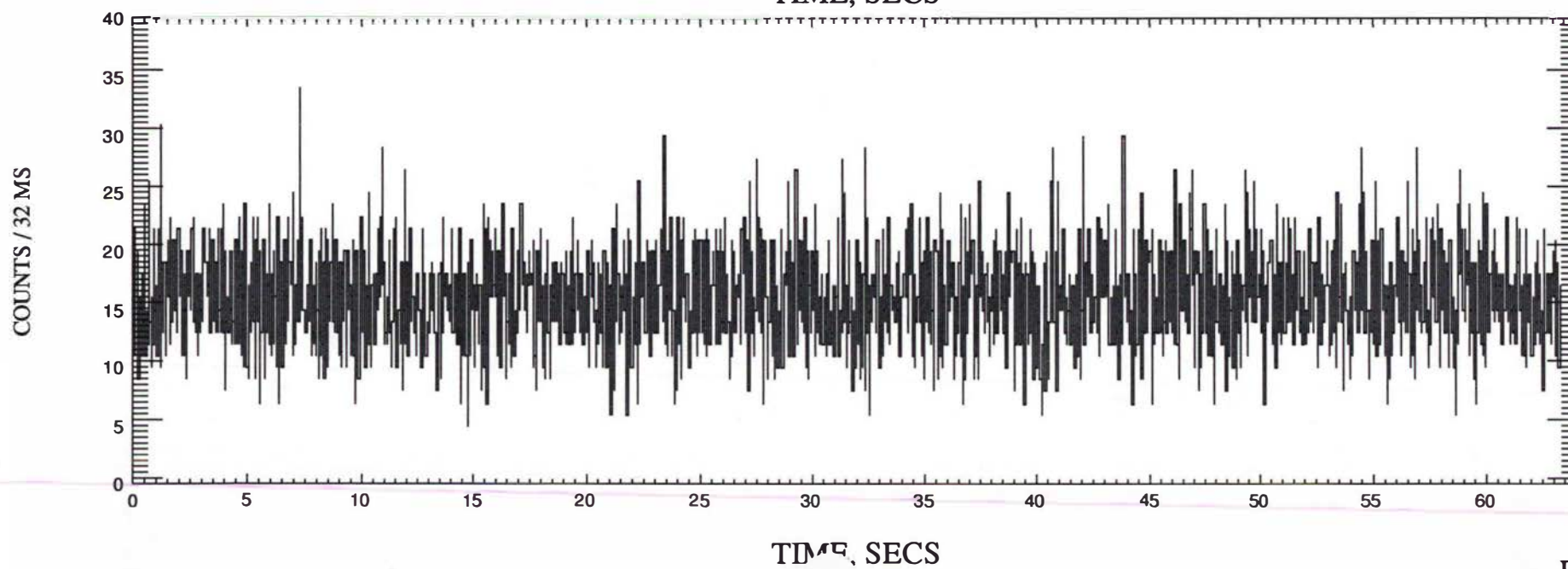
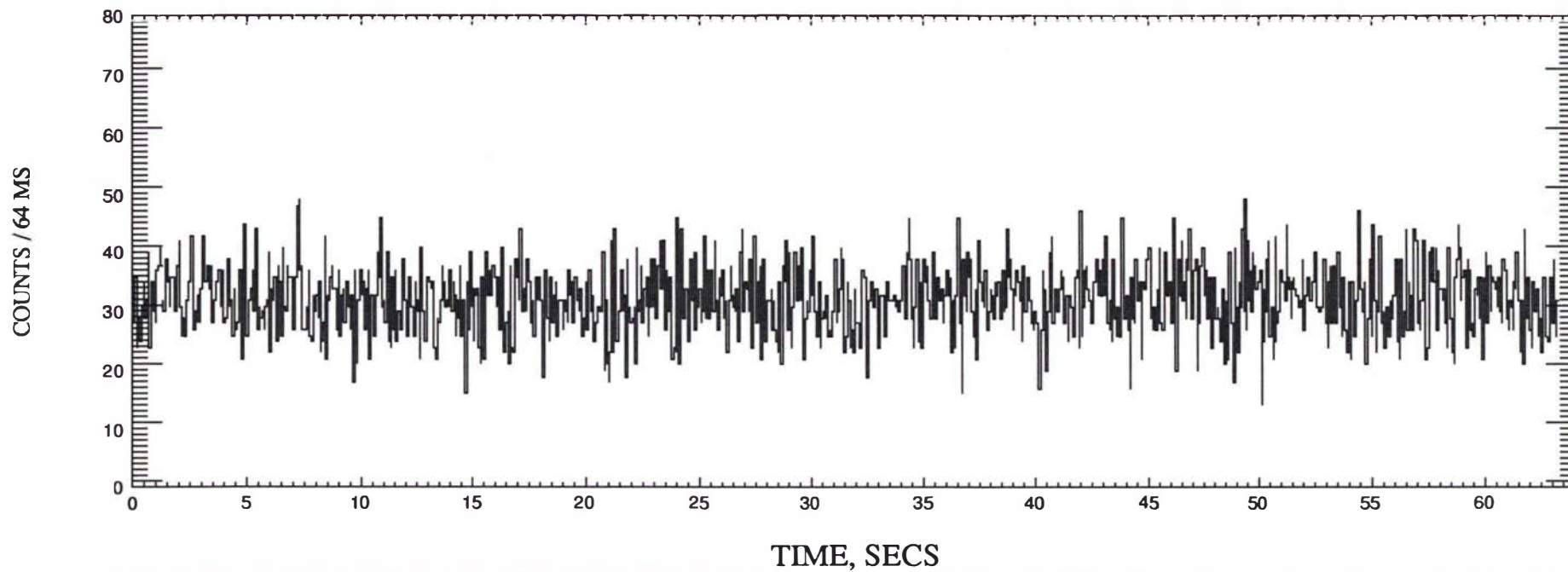
Burst Counter 11 at UT=17.433748745388 h=62761.495 s 17:26:01.495



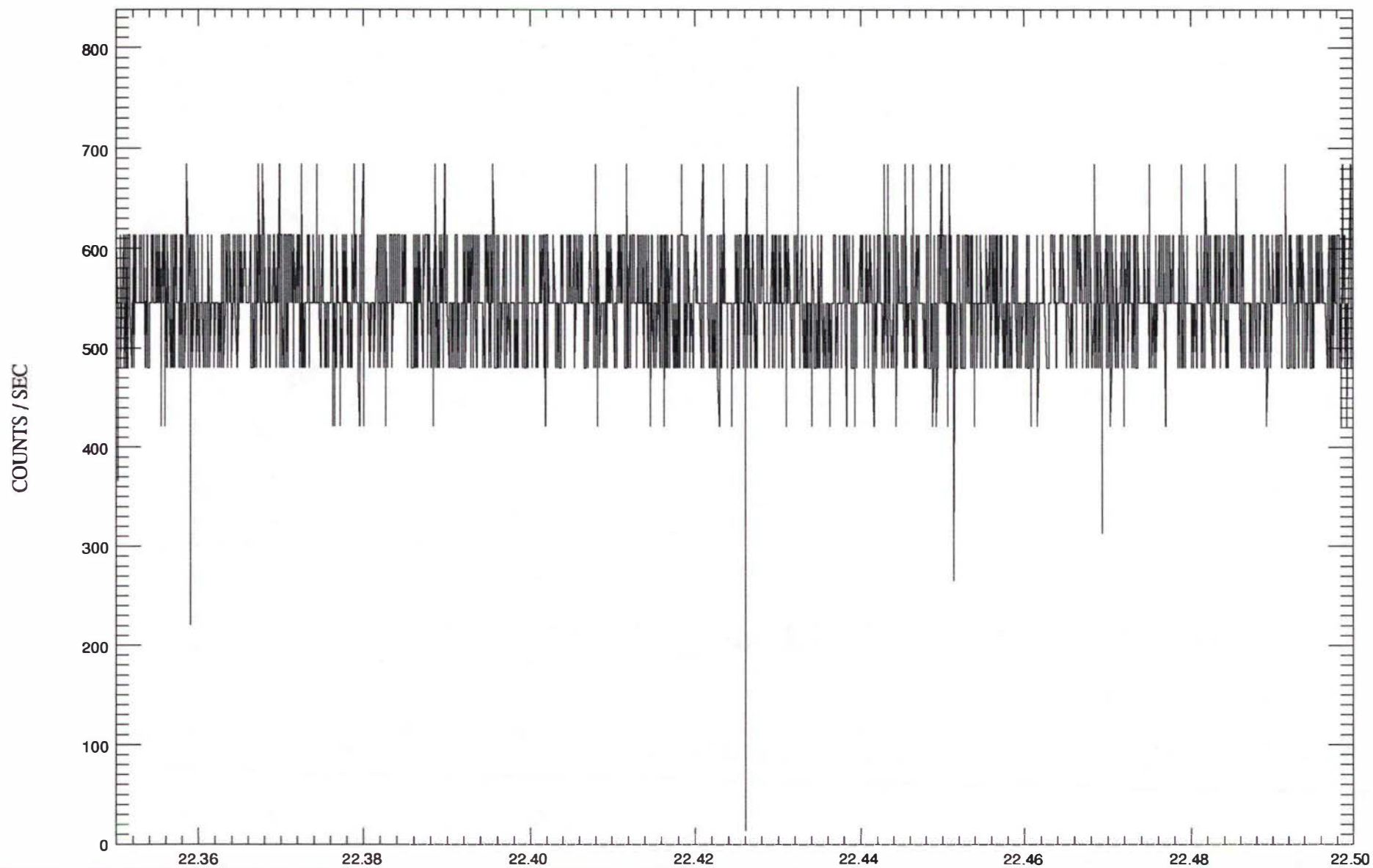
CALIBRATION DATA INCLUDED

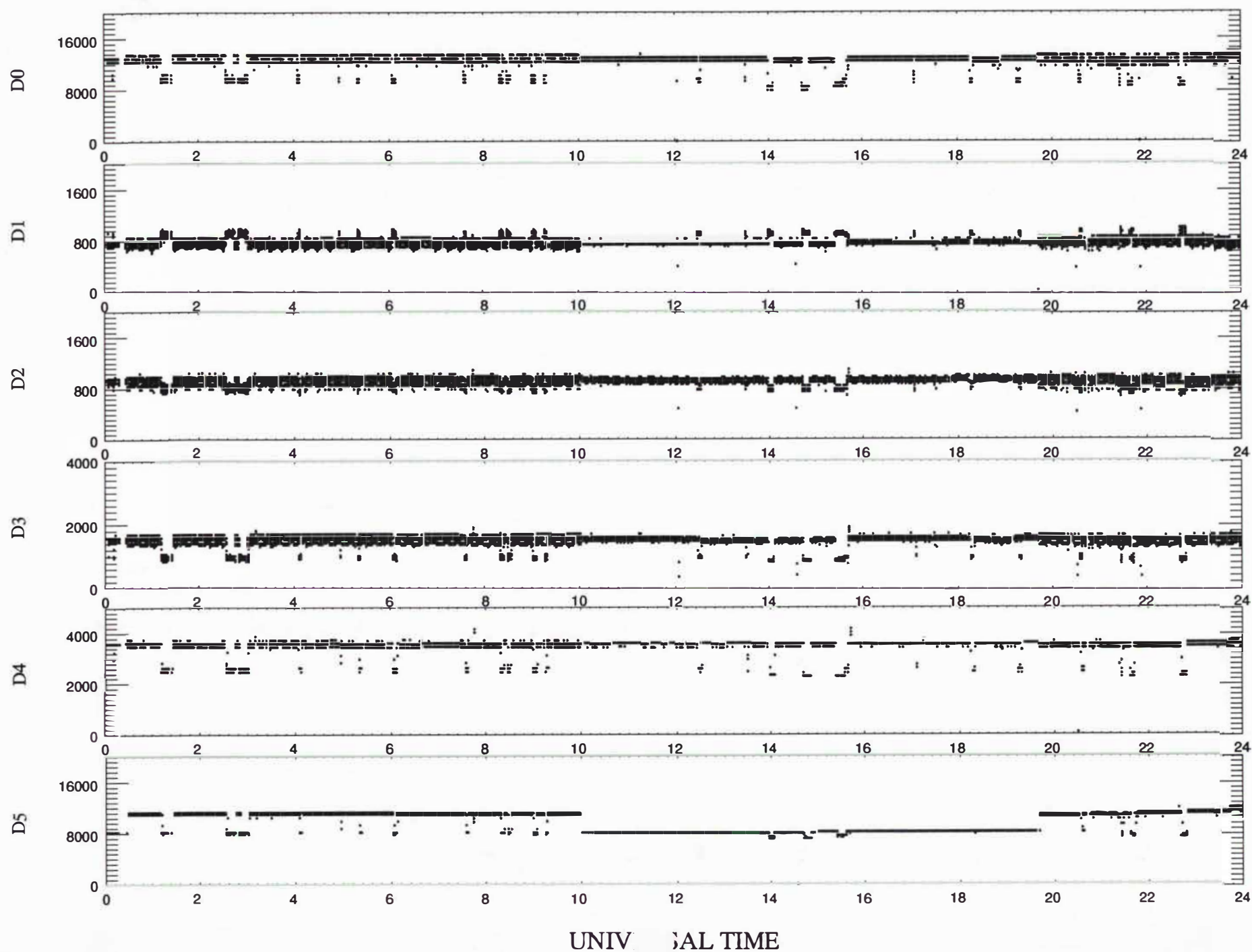


Burst Counter 12 at UT=22.432615102132 h=80757.414 s 22:25:57.414



CALIBRATION DATA INCLUDED





From HAGEDON@ssl.msfc.nasa.gov Mon Jun 28 14:55:17 1993
Date: Mon, 28 Jun 1993 16:55:24 -0500 (CDT)
From: HAGEDON@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02415

TIME: TJD=9163 SECONDS=11223

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

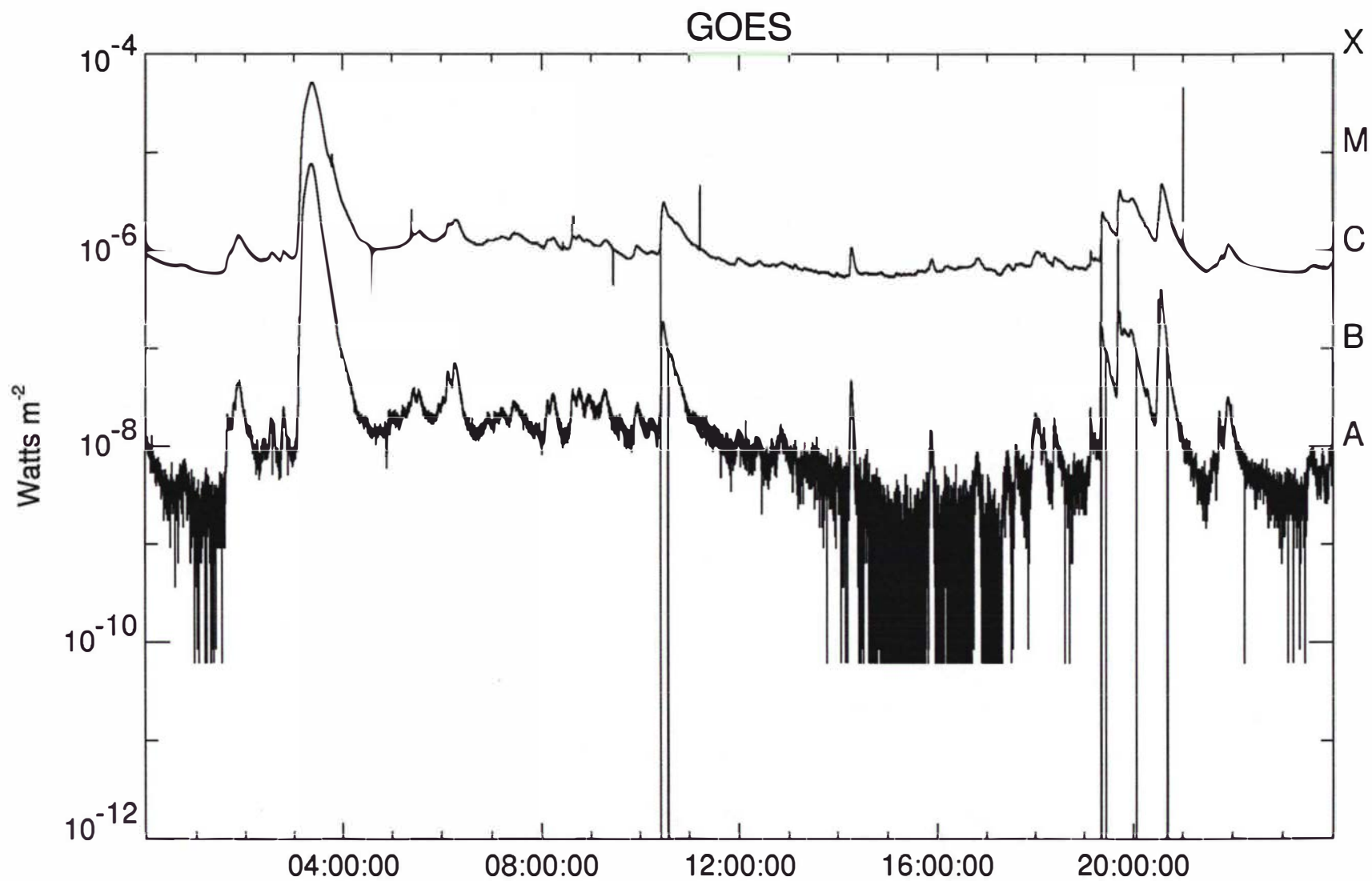
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES M5.1 SOLAR FLARE. BEGINS DURING GAP. DUR. >1100 SEC. MULTI-PEAKED.
PEAK AT ~T+680S IS VISIBLE ABOVE 300KEV.



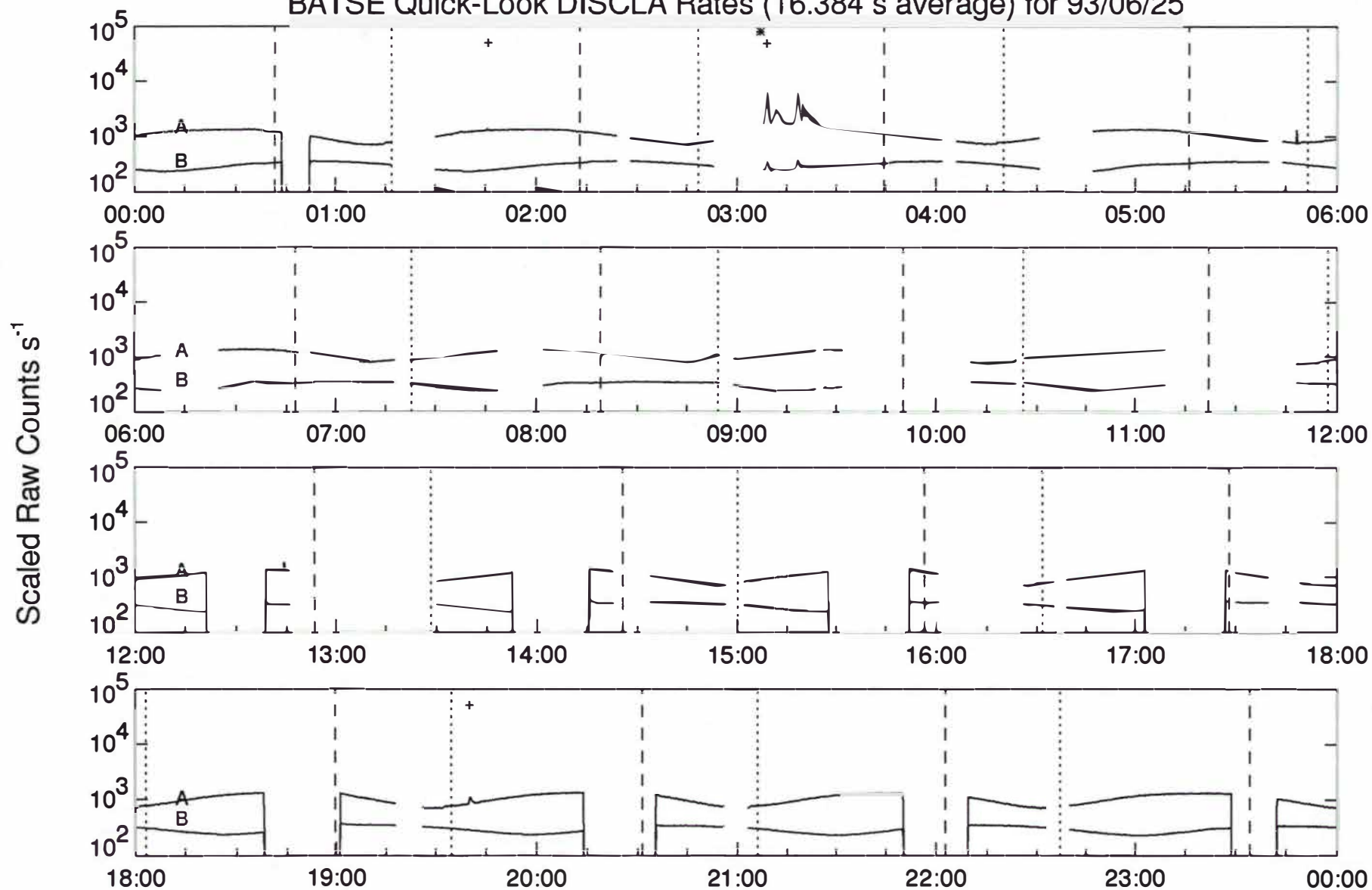
Data Start: 93/06/25, 0000:01

Plot created: 93/10/28, 0203

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/25

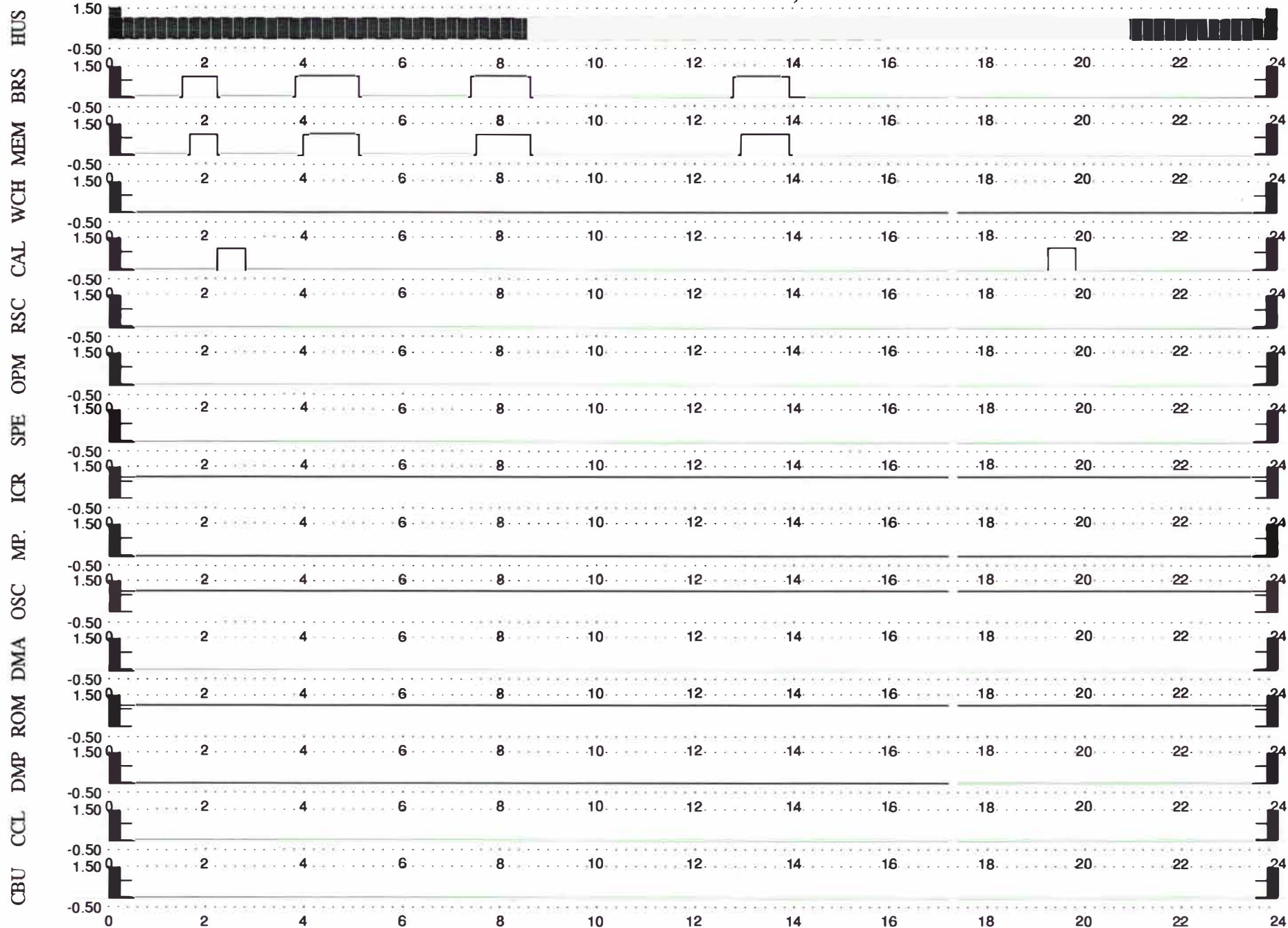


Current Time: 93/11/03, 2041 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

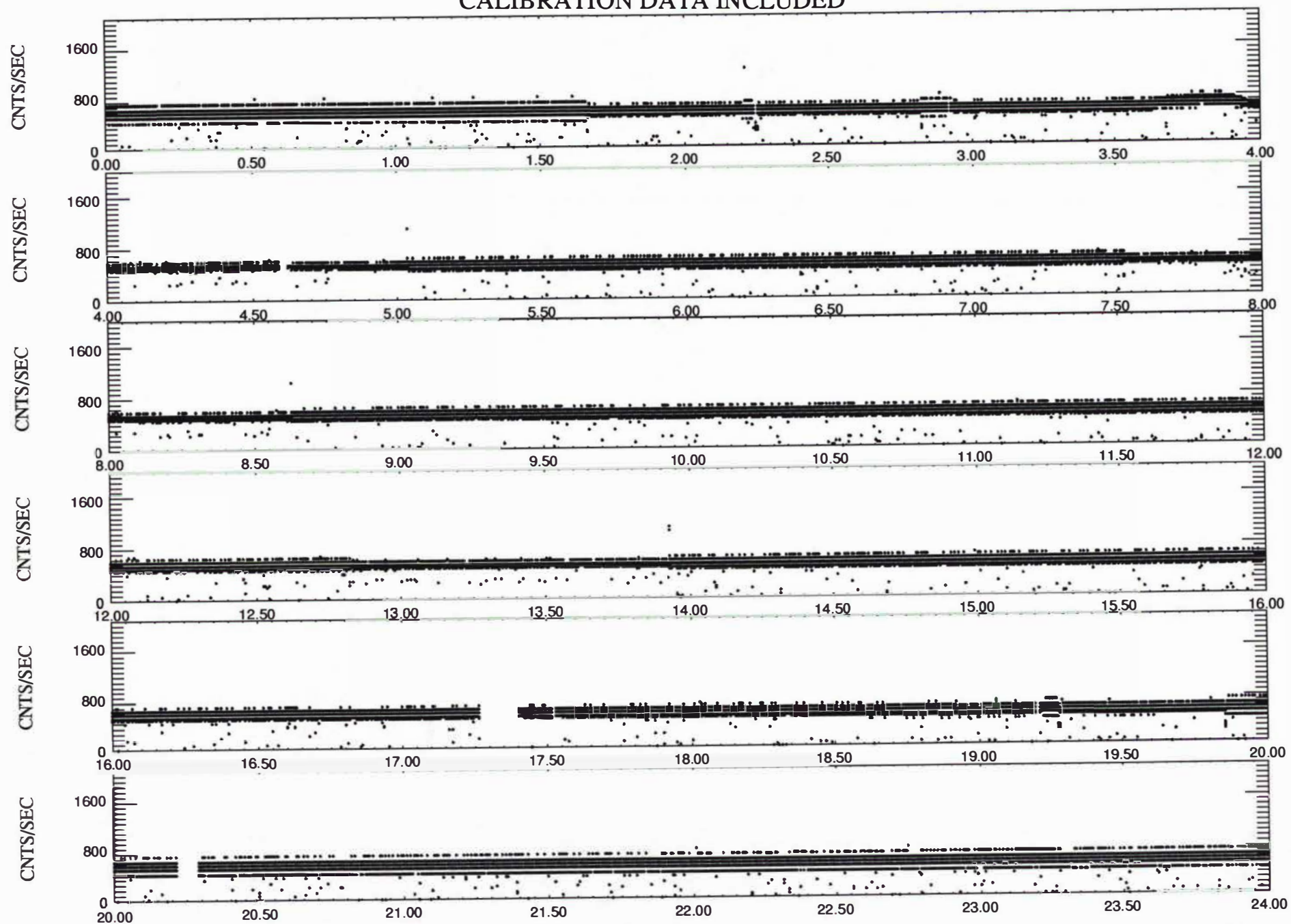
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

BURST NUMBER 13 - 15,0

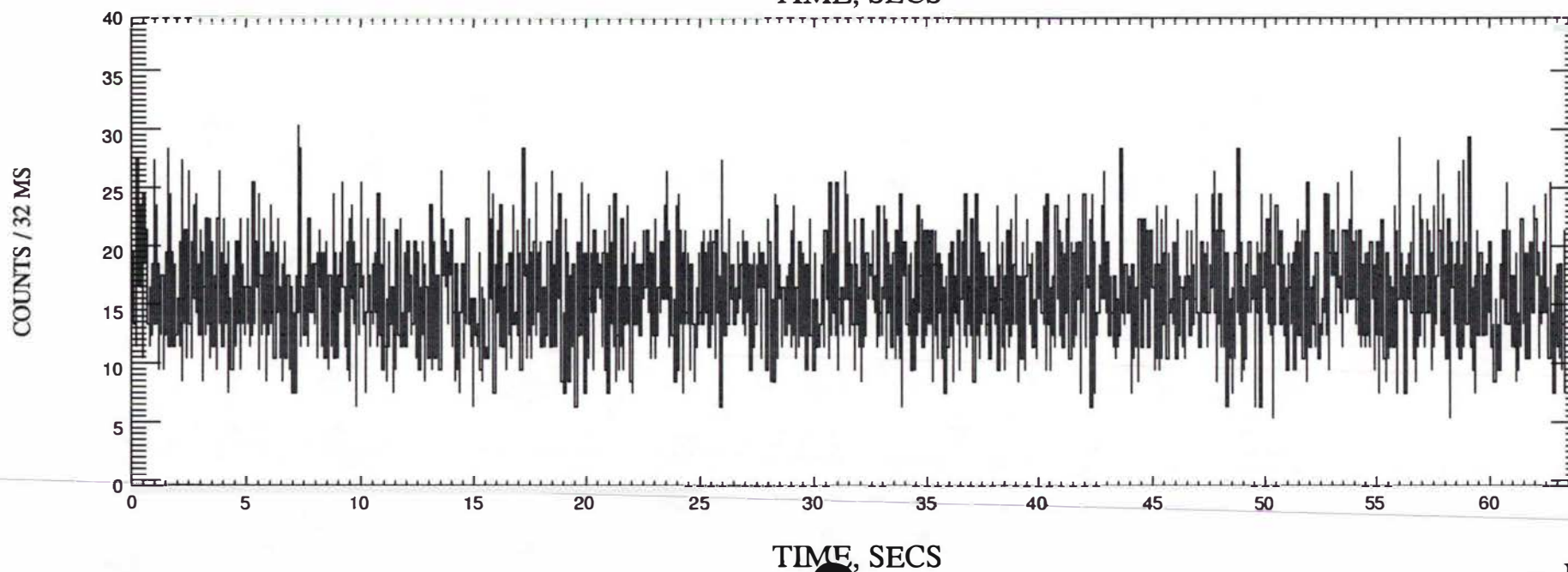
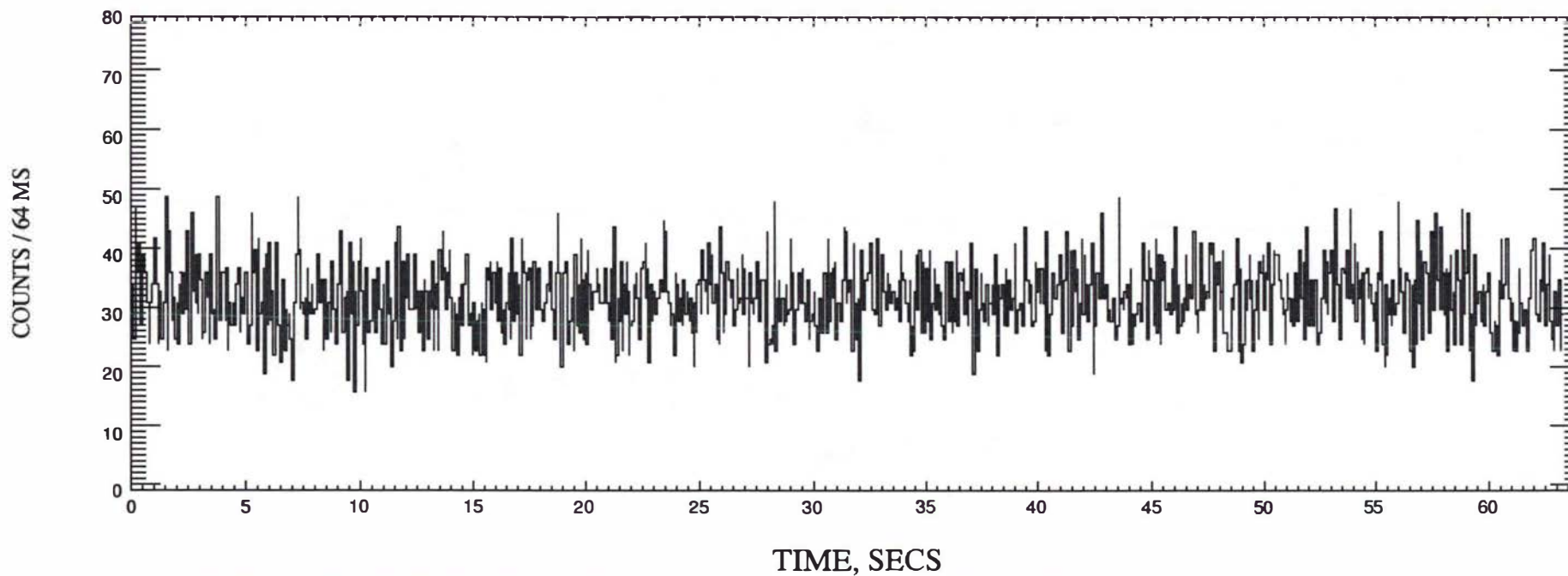


CALIBRATION DATA INCLUDED

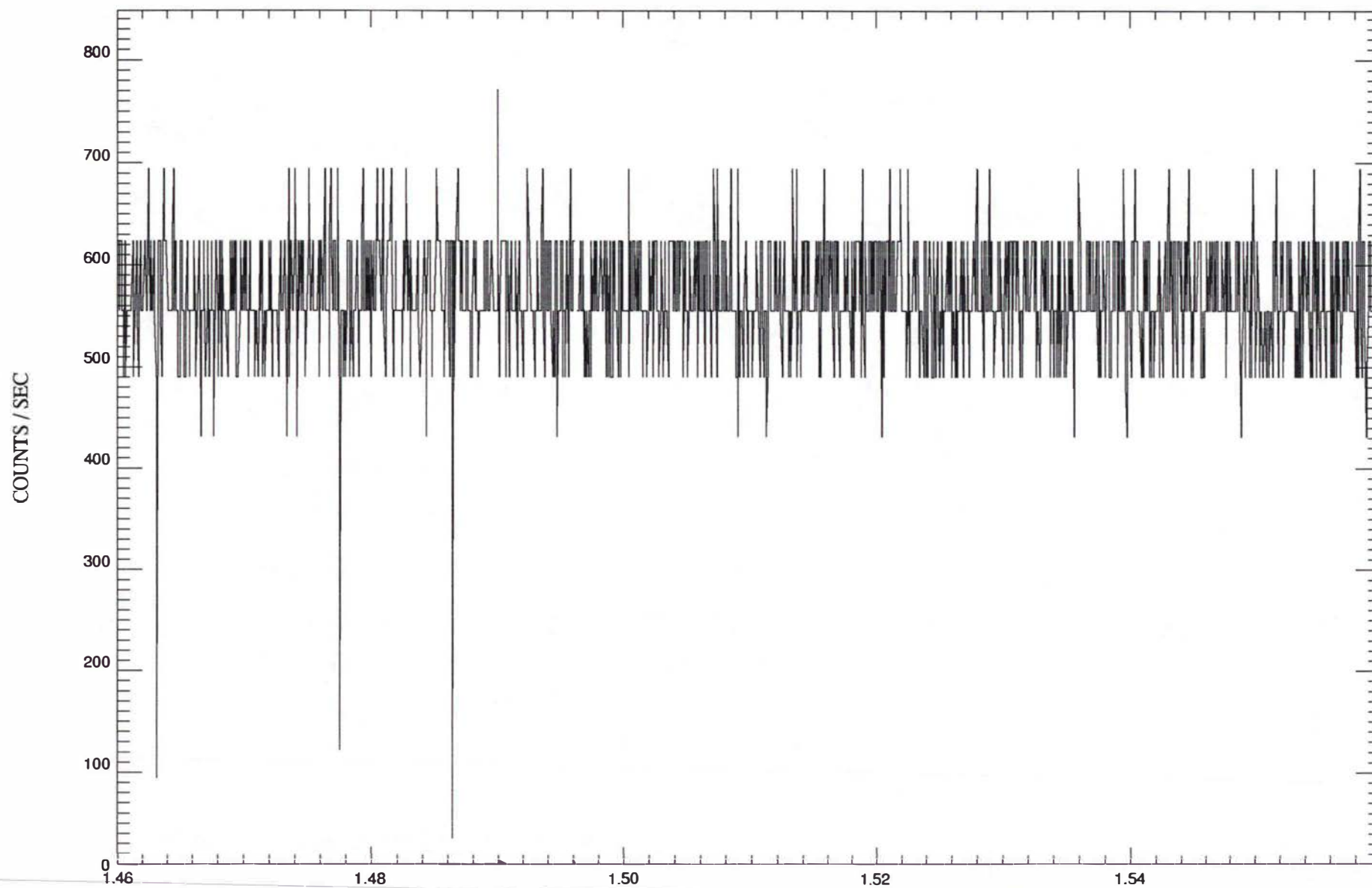


UNIV AL TIME

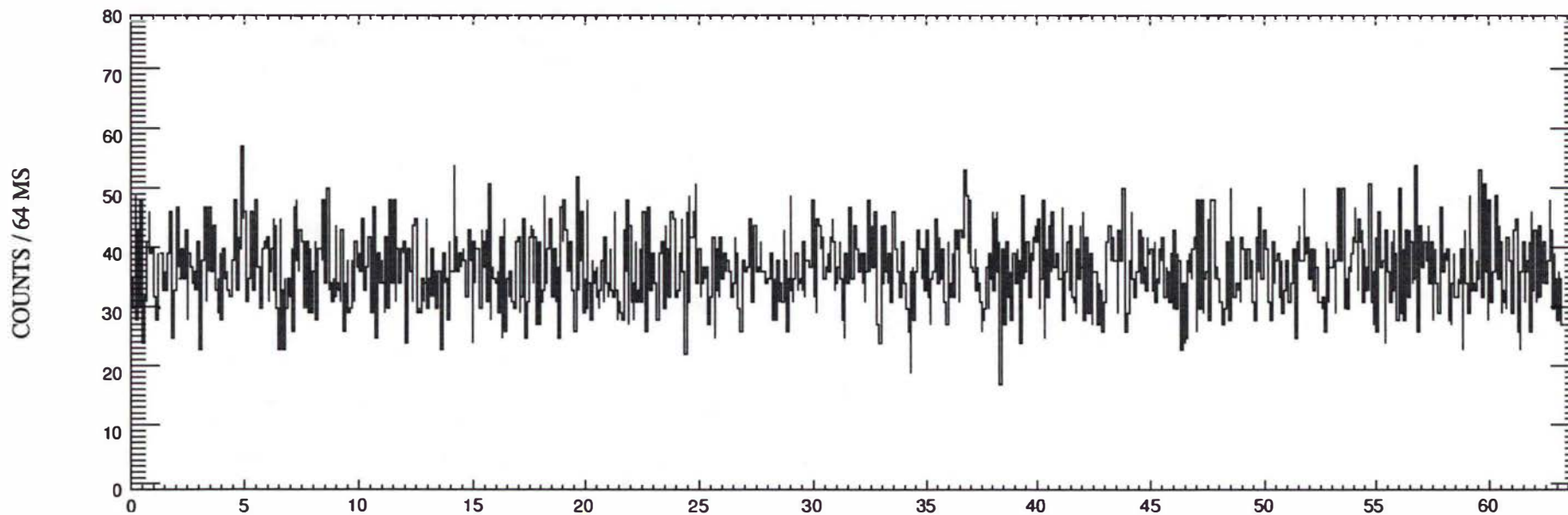
Burst Counter 13 at UT= 1.509155290392 h= 5432.959 s 01:30:32.959



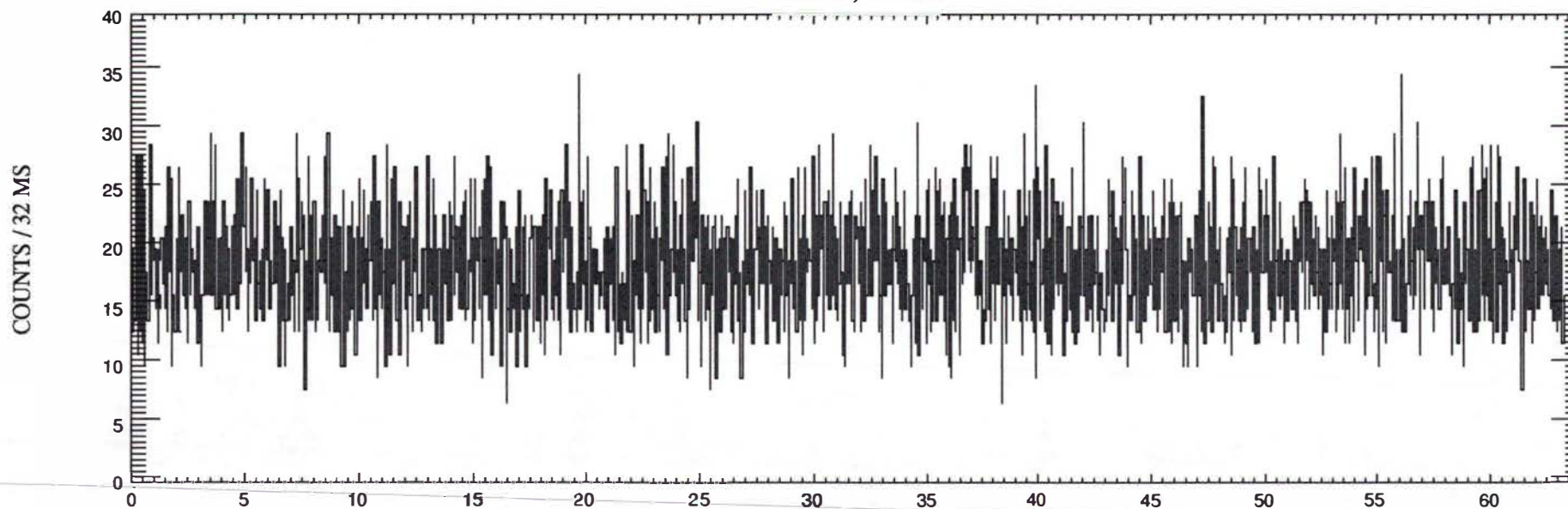
CALIBRATION DATA INCLUDED



Burst Counter 14 at UT= 3.780161488851 h=13608.581 s 03:46:48.581

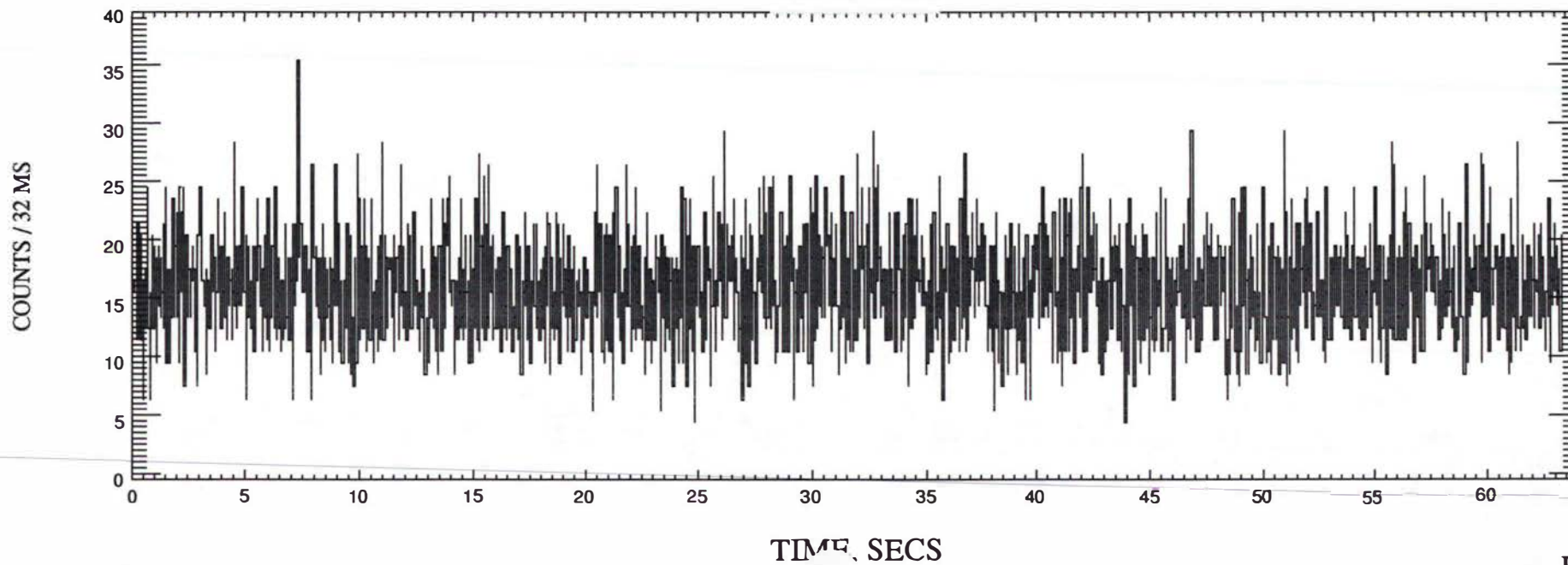
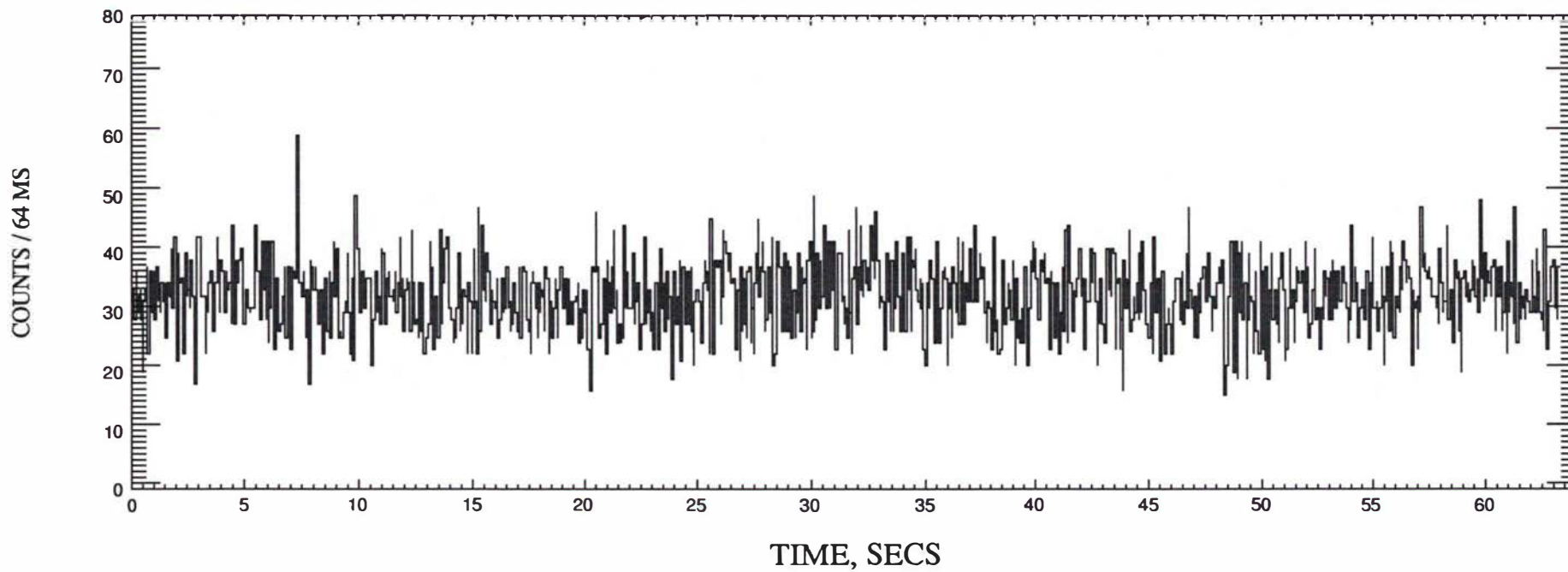


TIME, SECS

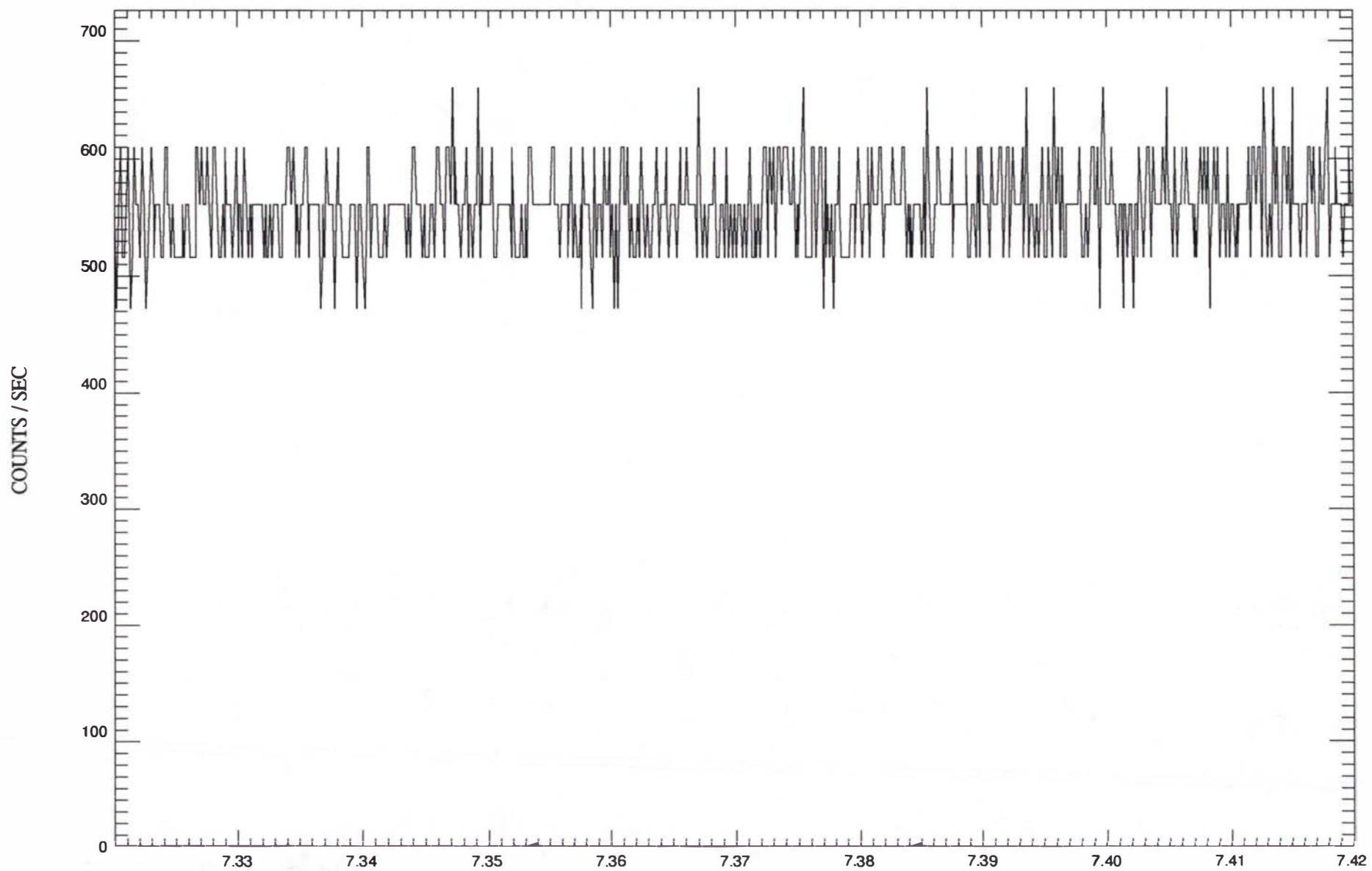


TIME, SECS

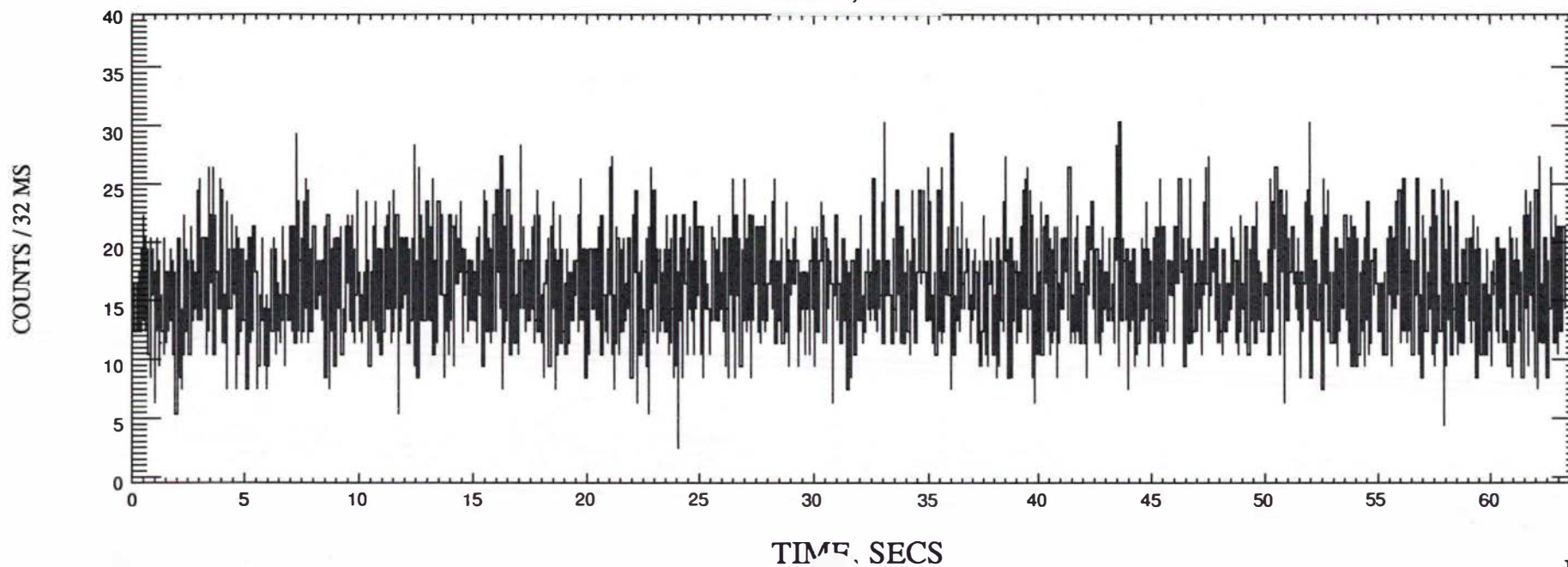
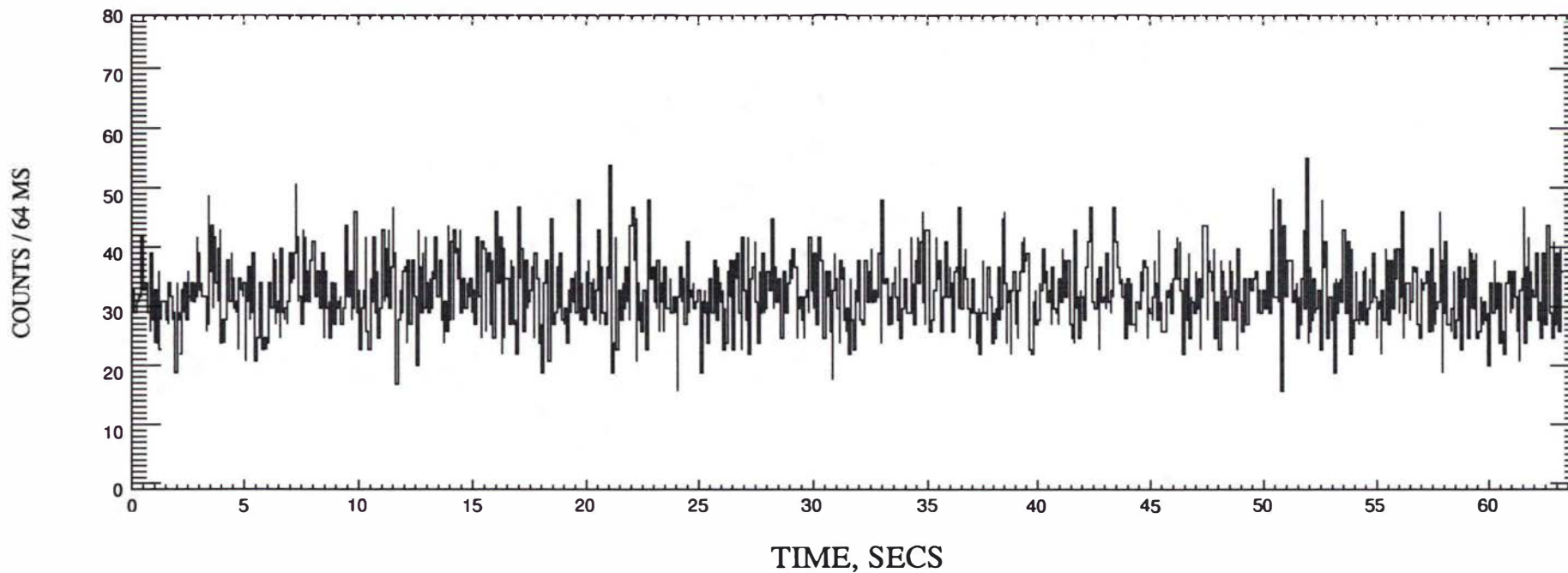
Burst Counter 15 at UT= 7.367230182224 h=26522.029 s 07:22:02.029



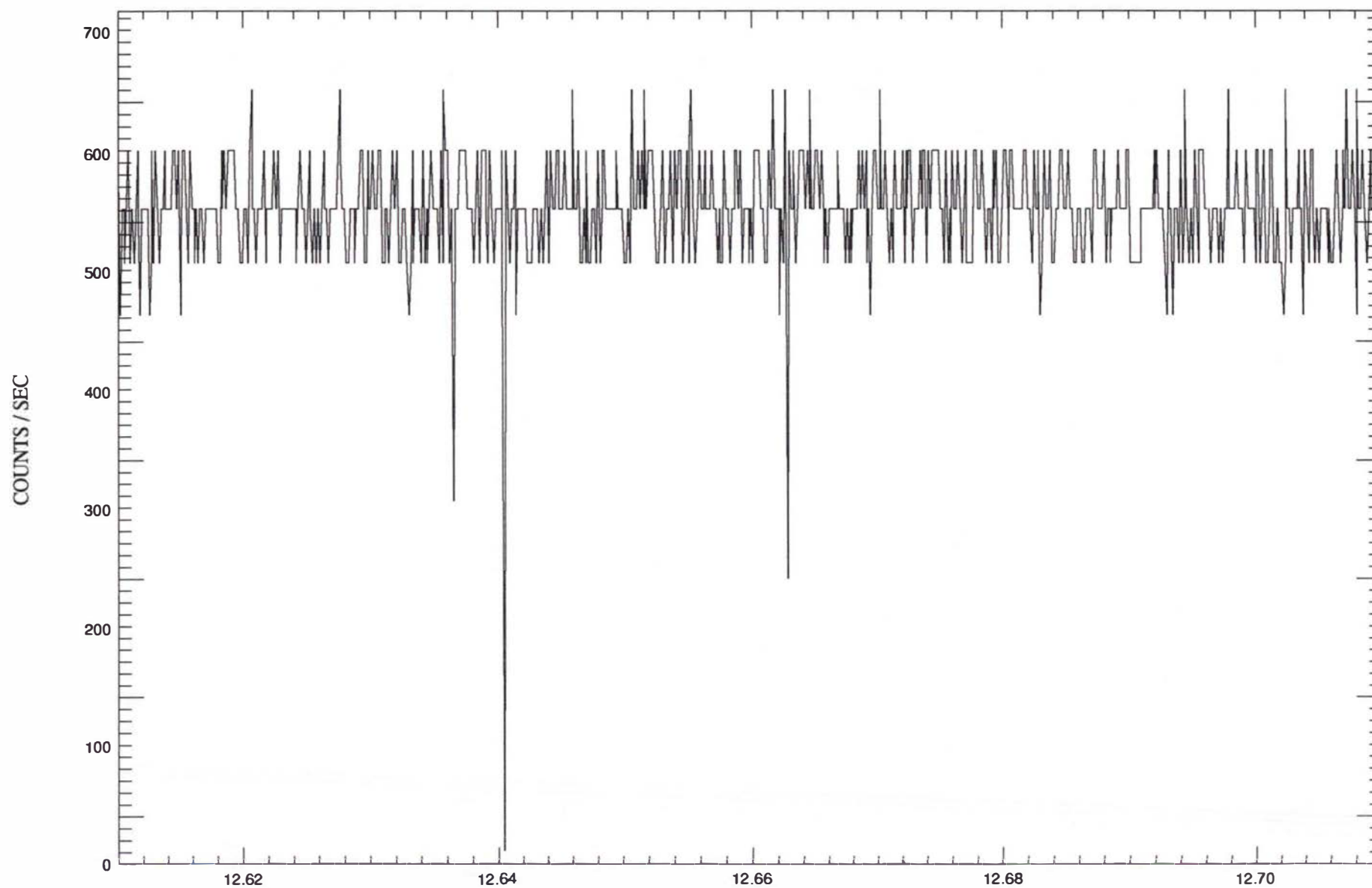
CALIBRATION DATA INCLUDED

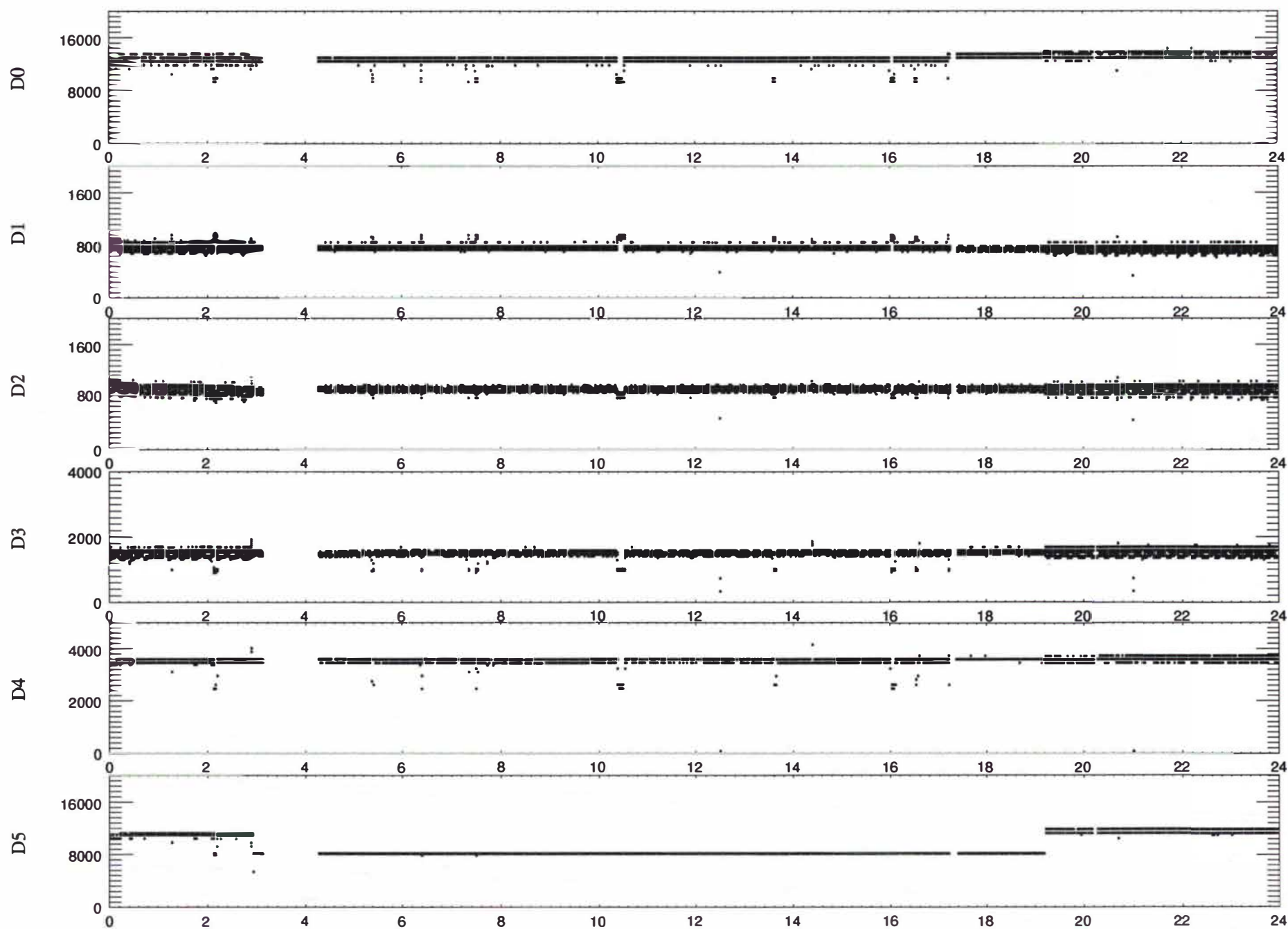


Burst Counter 0 at UT=12.662799593608 h=45586.079 s 12:39:46.079



CALIBRATION DATA INCLUDED





UNIV. AL TIME

Date: Jun 17 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 vwxx@boccl, 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?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

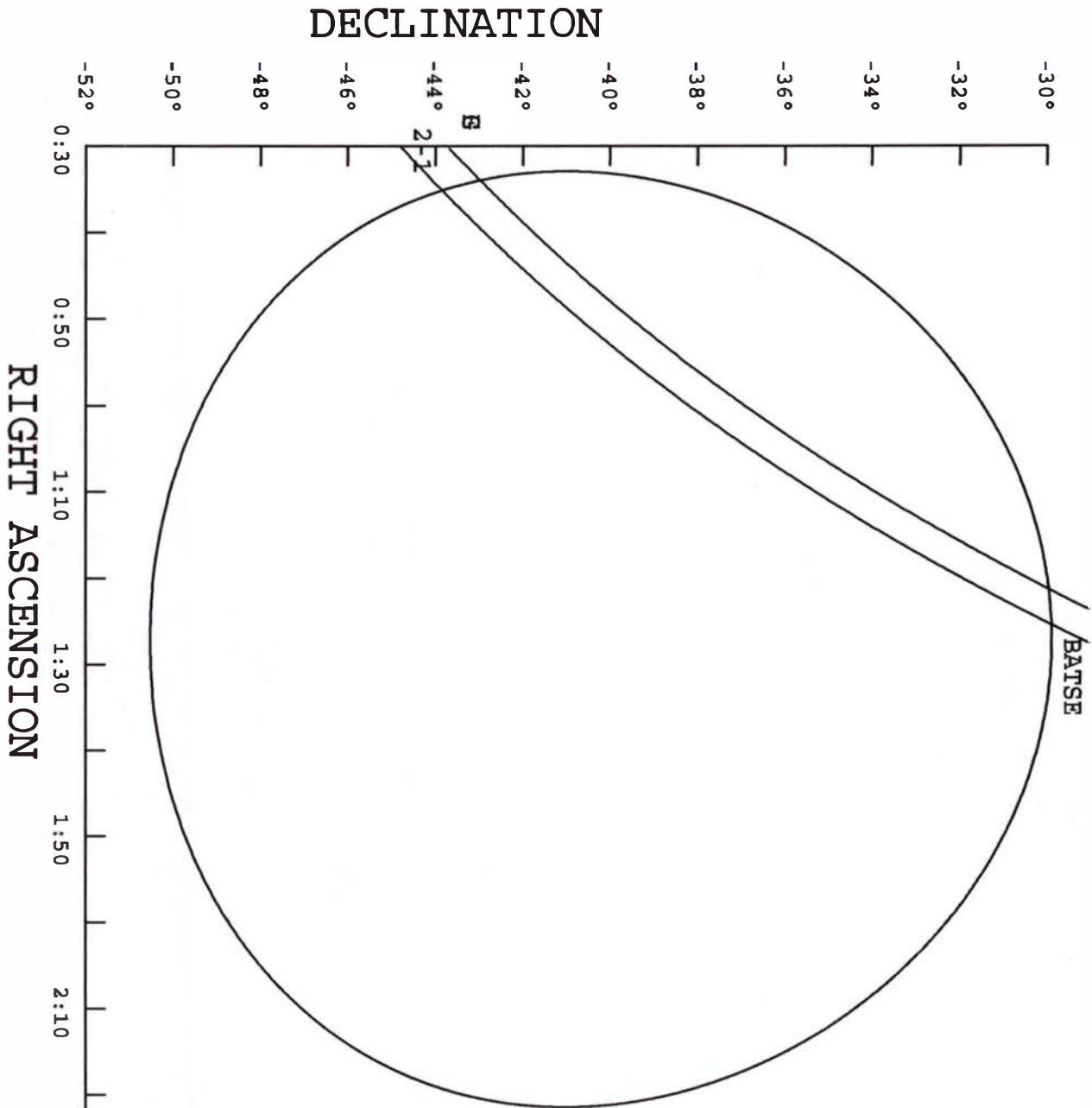
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

EVENT OF JUN 26, 1993 1:57

17 / 6 / 3



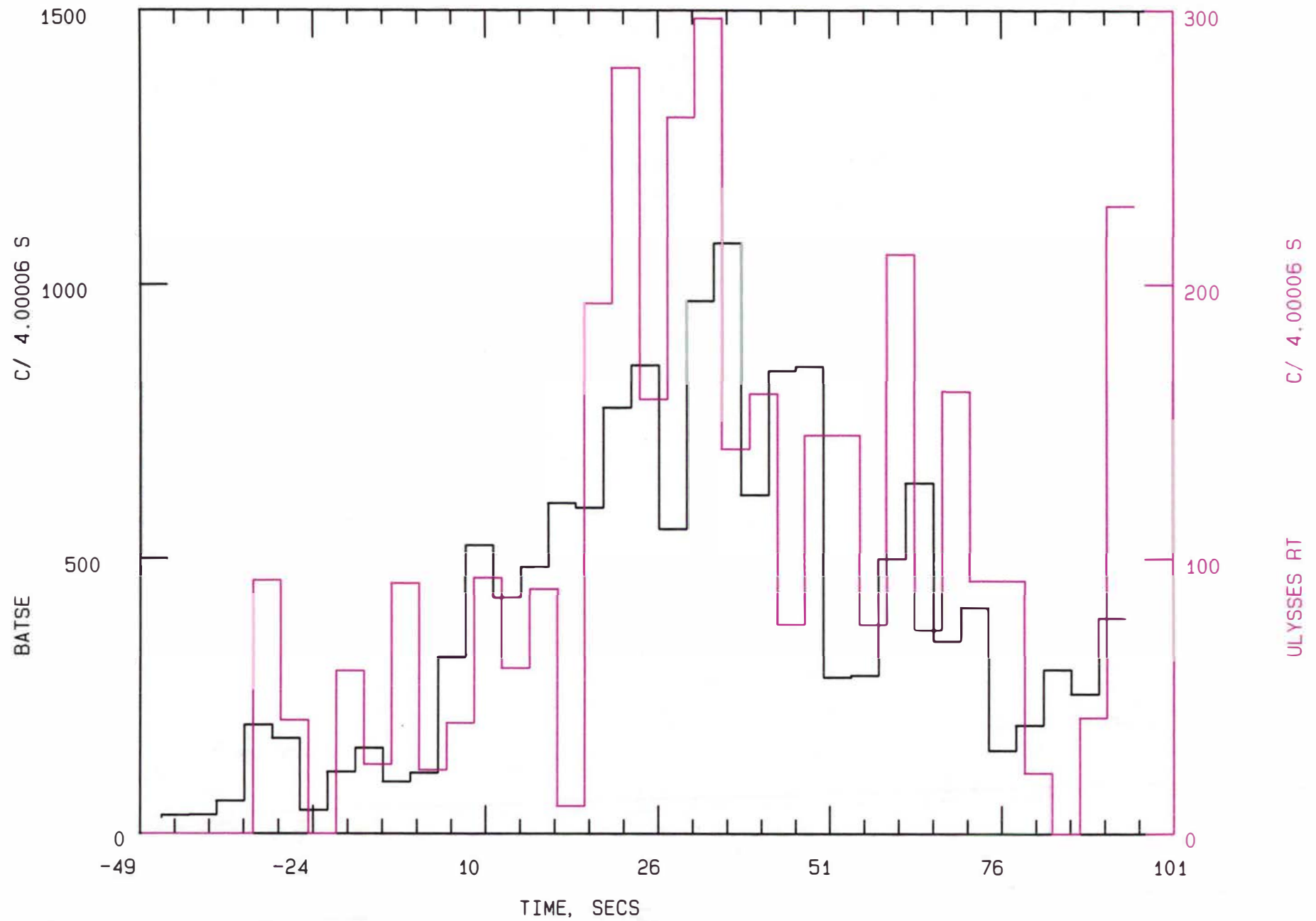
BATSE

-ULYSSES RT CORRELATION

26/06/93

7022.722

17/ 6/ 3

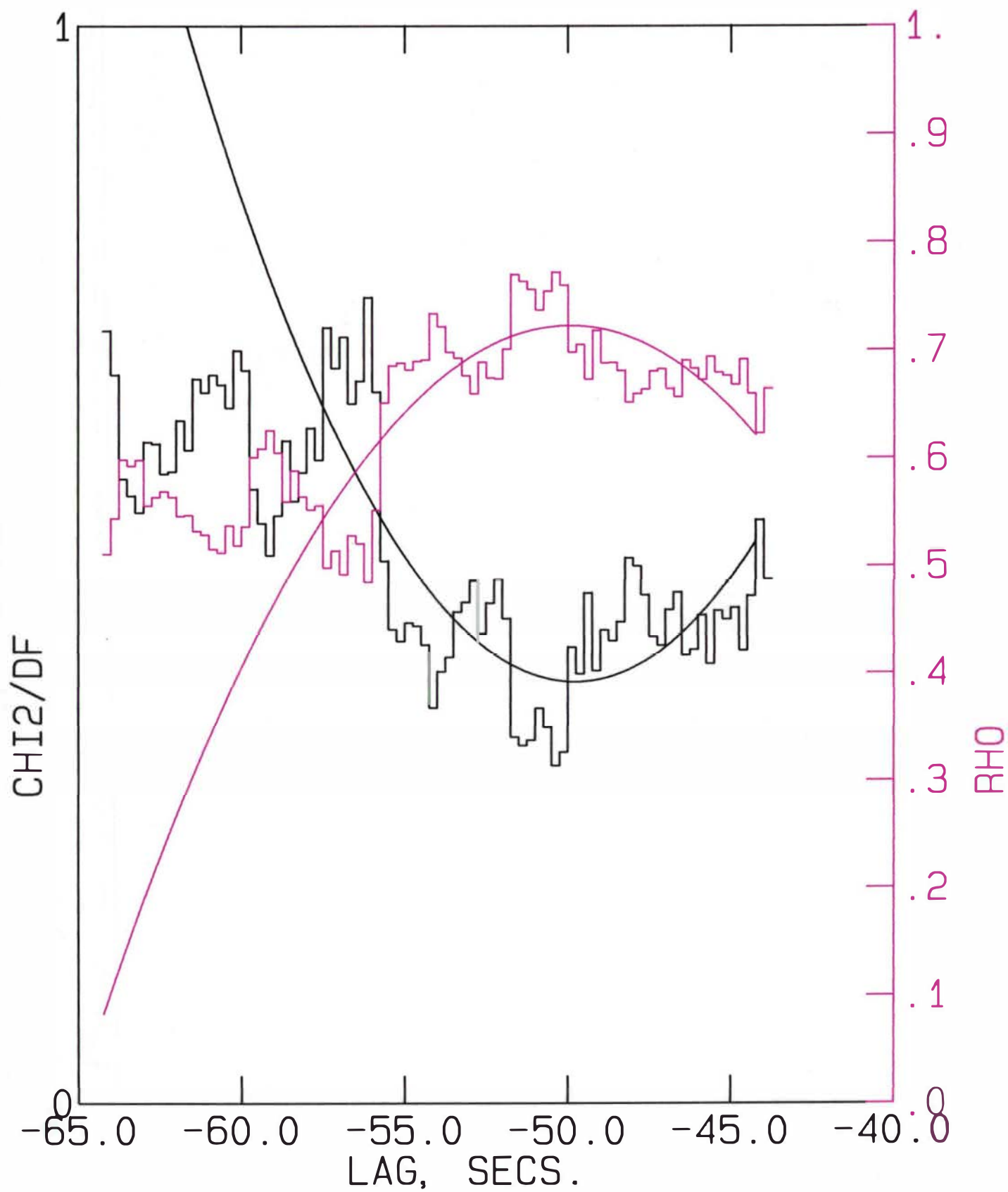


BATSE

-ULYSSES RT CORRELATION

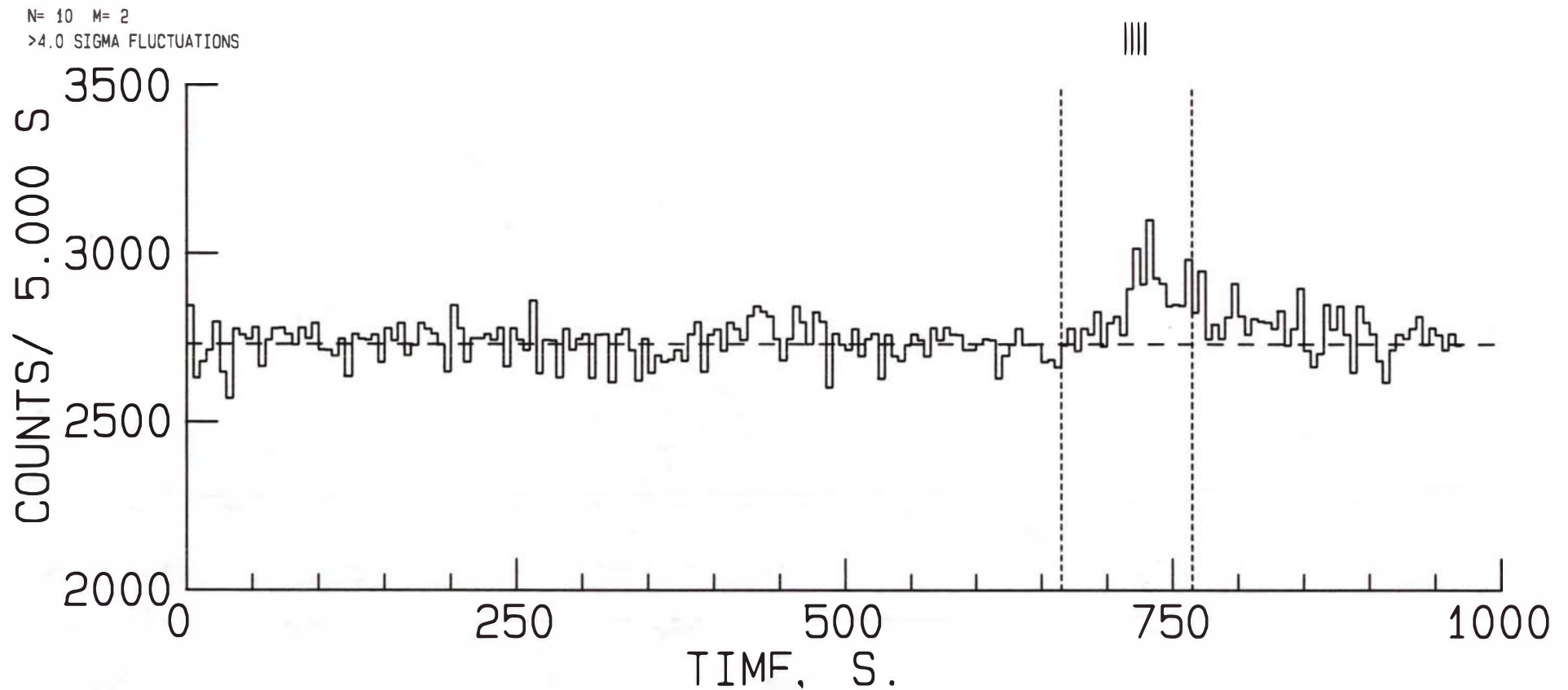
26/06/93

7022.722



ULYSSES RT
26/ 6/93 7272.204 s
0.250 S INTERVALS REGROUPED BY 20
21- 143 keV

17 / 6 / 3

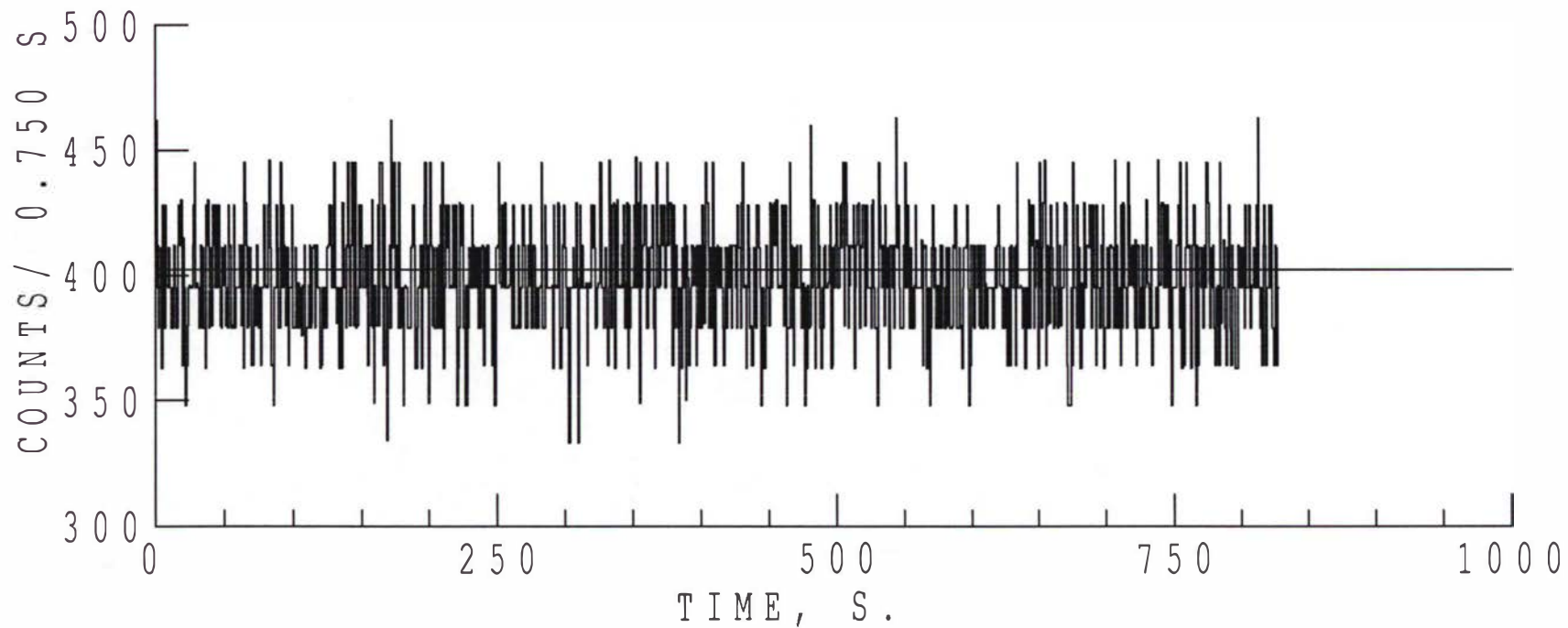


Komms
UNTRIGGERED

ULYSSES RT
26 / 6 / 93 83160.125 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 SHARIFF@ssl.msfc.nasa.gov Mon Jun 28 12:23:16 1993
Date: Mon, 28 Jun 1993 14:23:31 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02416

TIME: TJD=9164 SECONDS=06210

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SOLAR FLARE, CLASSIFIED AS M1.1 ON GOES, LASTING ~ 70S. VISIBLE ABOVE 100 KEV,B
UT NOT VISIBLE ABOVE 300 KEV.

From SHARIFF@ssl.msfc.nasa.gov Mon Jun 28 12:27:03 1993
Date: Mon, 28 Jun 1993 14:27:18 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02417

TIME: TJD=9164 SECONDS=29426

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

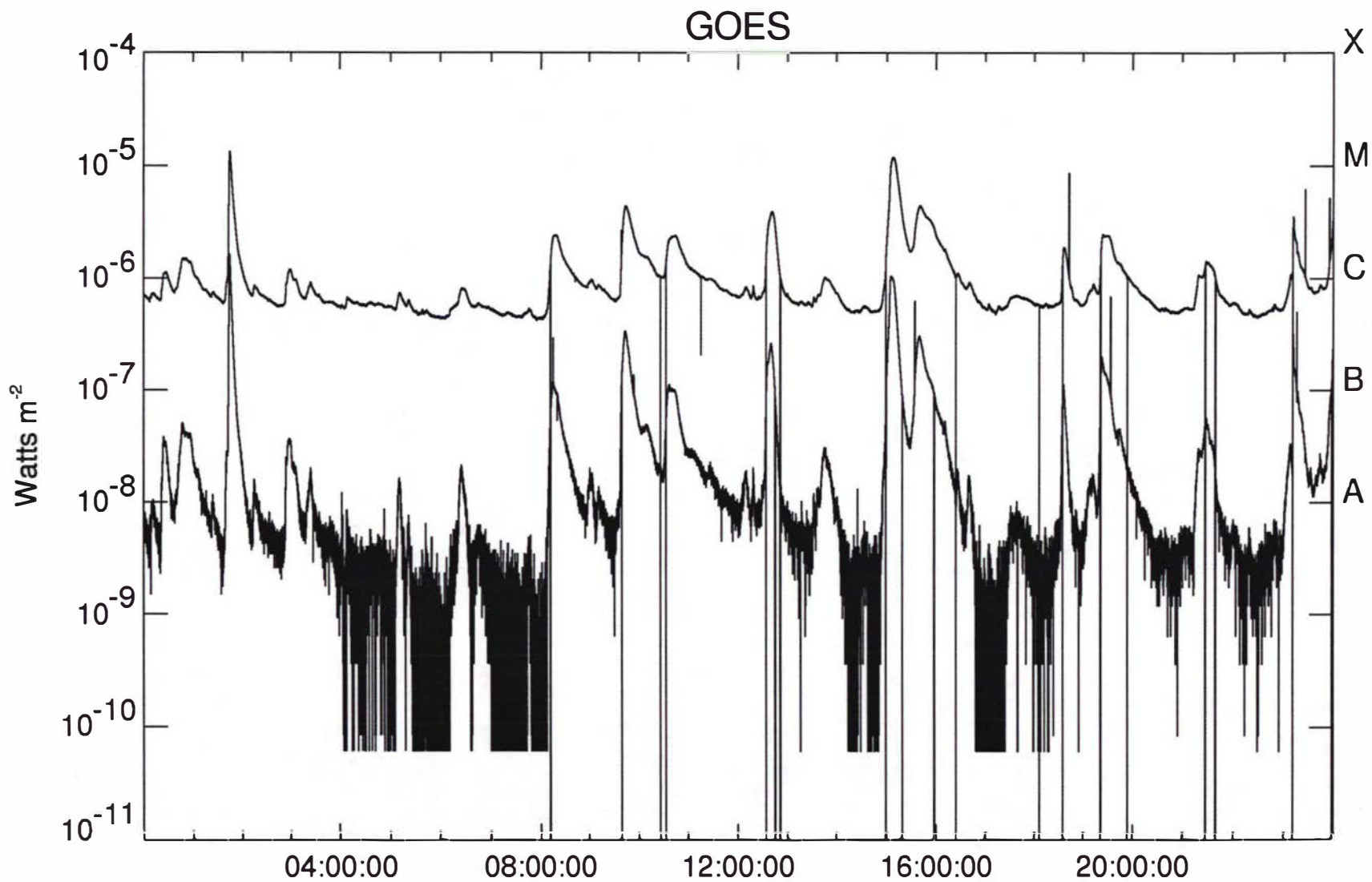
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SOLAR FLARE, CLASSIFIED AS C2.2 ON GOES, LASTING ~140S. VISIBLE ABOVE 100KEV,BUT
NOT VISIBLE ABOVE 300KEV.



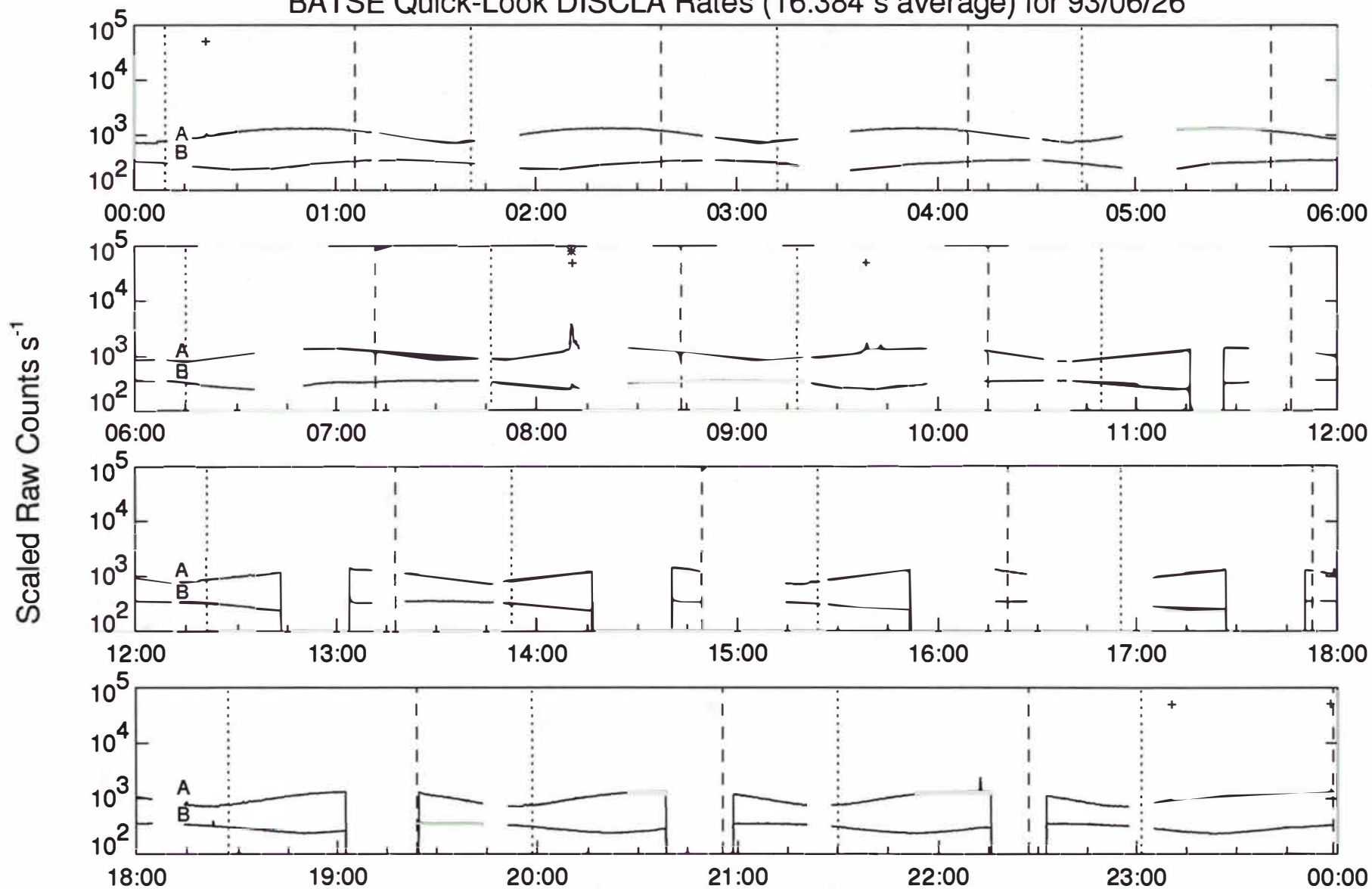
Data Start: 93/06/26, 0000:01

Plot created: 93/10/28, 0203

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/26

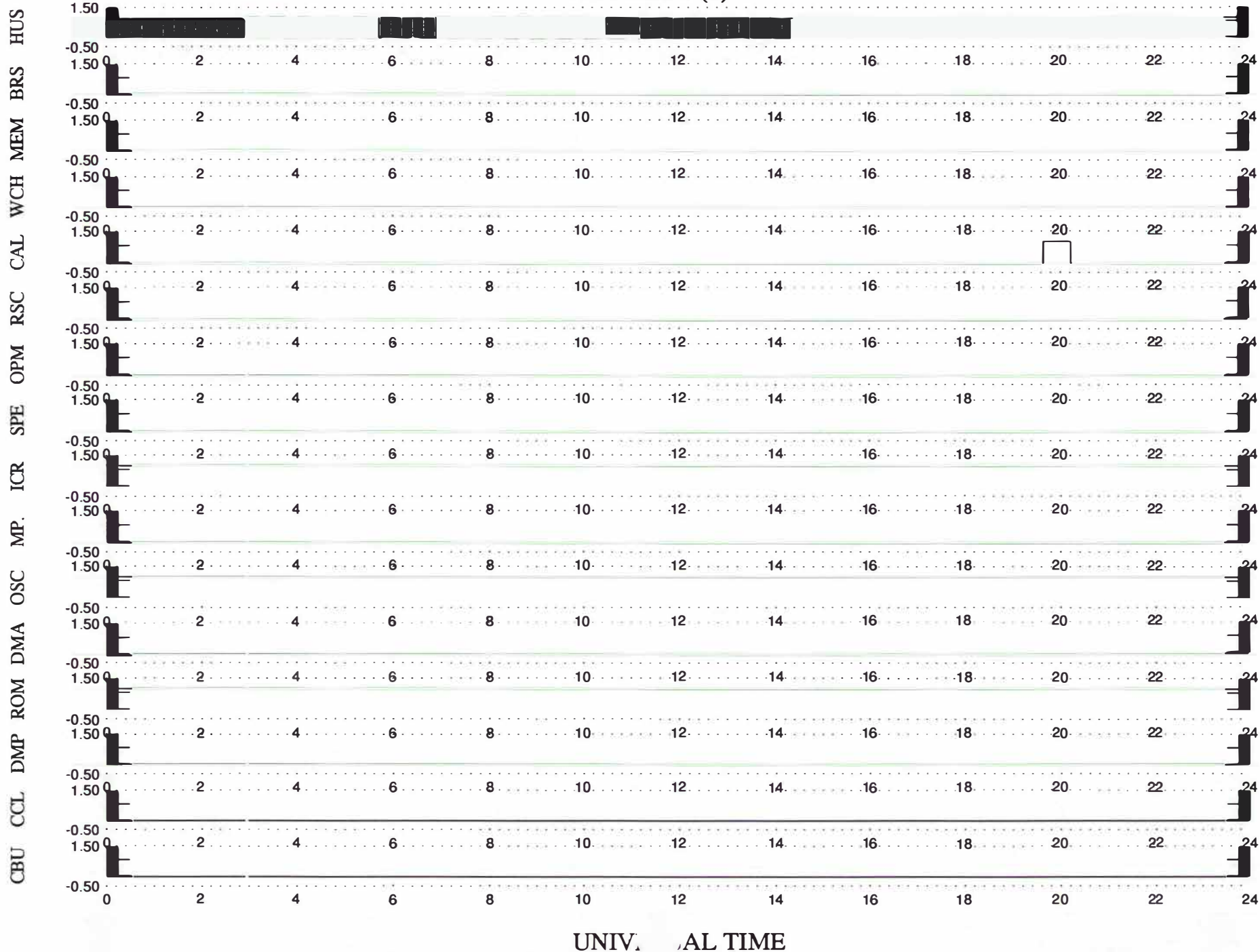


Current Time: 93/11/03, 2041 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

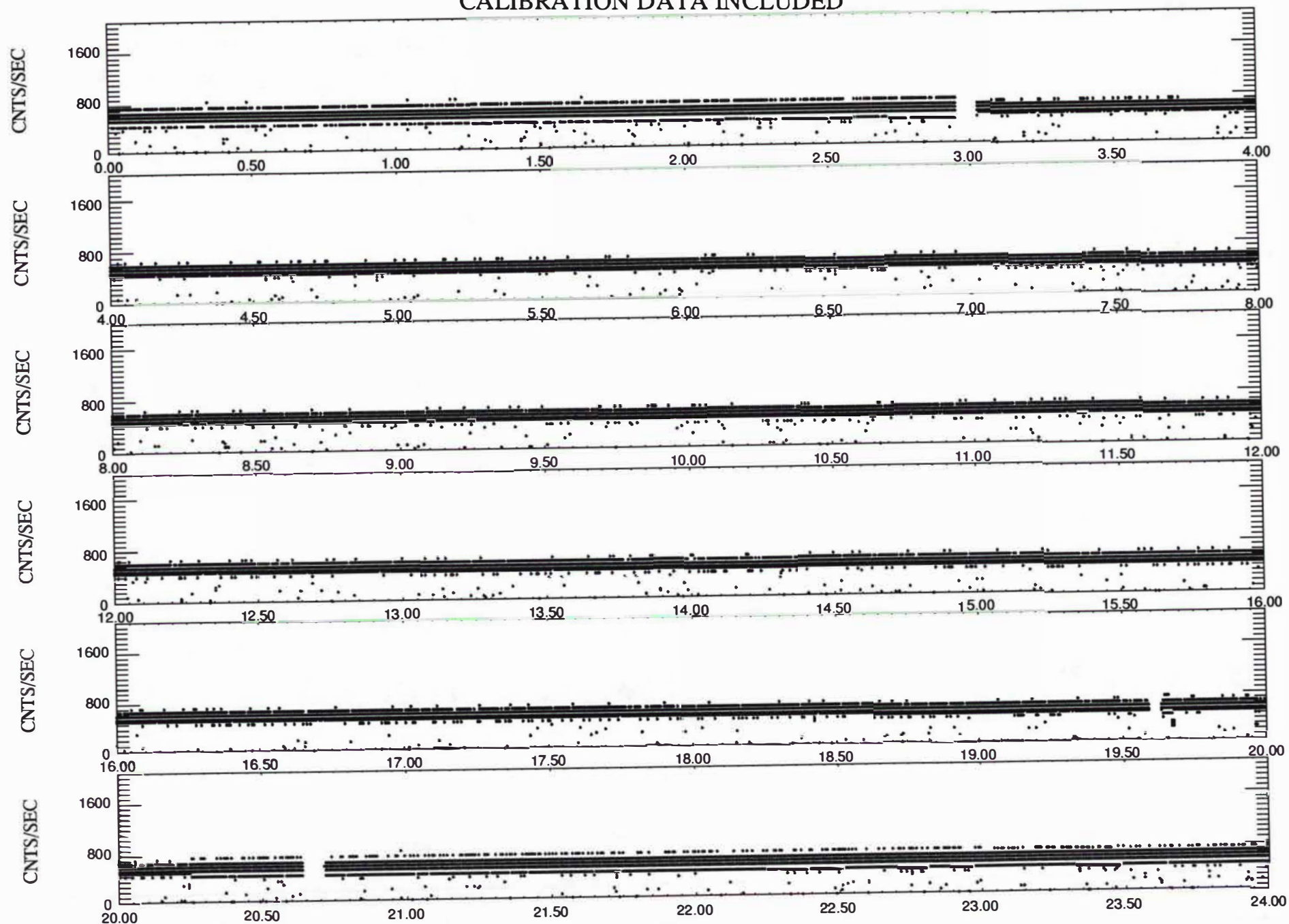
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

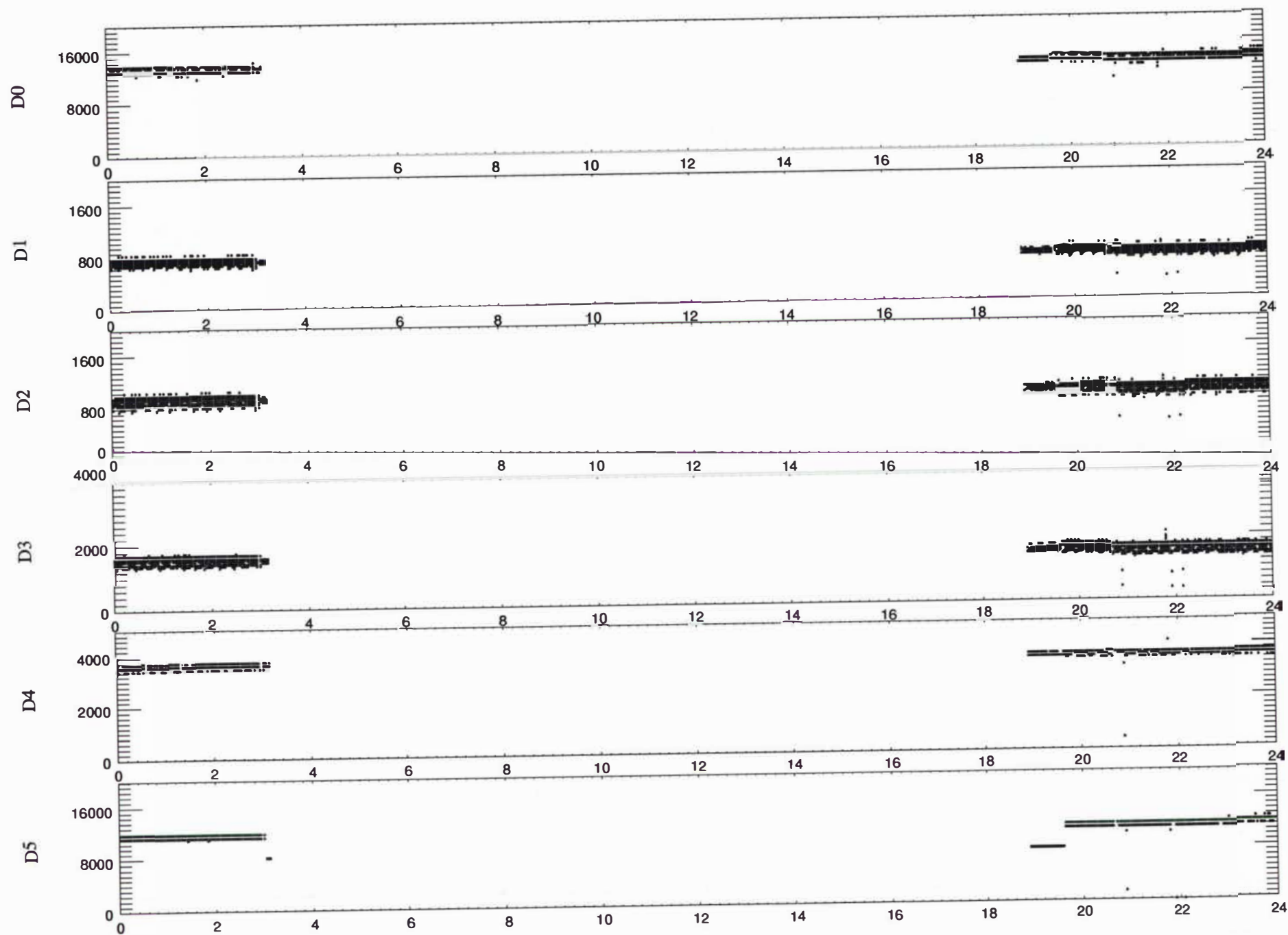
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIV! AL TIME



UNIV. CAL TIME

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 29 07:15:56 1993
Date: Tue, 29 Jun 1993 9:16:05 -0500 (CDT)
From: MEEGAN@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02418

TIME: TJD=9165 SECONDS=02179

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES C3.2 FLARE. WEAK, 30 S LONG. NOT SEEN ABOVE 300 KEV.

 BATSEARCH PROGRAM

BATSE BURST # 2419
 EVENT OF 1993 JUN 27 DAY OF YEAR=178
 EVENT CROSSING TIME AT BATSE : 5384. S. OR 01:29:44.0
 COORDINATES ARE .000 .000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 160.000 -58.000
 BATSE PEAK COUNTING RATE: 2300 C/S
 EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 POSITION OF ULYSSES ON 27/ 6/ 93 IS:
 RA= 144.684 DEC= -11.292 DIST= 5.023 AU
 BATSE-ULYSSES DISTANCE = 751470720. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=131.86 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1672.57 SECS.
 CROSSING TIME AT ULYSSES IS 3711. S. OR 01:01:51 +/- 348.74 SECONDS

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 29 07:09:56 1993
 Date: Tue, 29 Jun 1993 9:11:22 -0500 (CDT)
 From: MEEGAN@ssl.msfc.nasa.gov
 To: khurley@sunspot.ssl.berkeley.edu, "BATSE::KOUVELIOTOU"@ssl.msfc.nasa.gov,
 COLE@ssl.msfc.nasa.gov
 Cc: MEEGAN@ssl.msfc.nasa.gov
 Subject: BATSE burst
 Content-Length: 108

BATSE #	Date	TJD	sec	Max ct/s	RA	Dec
2419	930627	9165	05384	2300	160	-58

From MEEGAN@ssl.msfc.nasa.gov Tue Jun 29 07:20:40 1993
 Date: Tue, 29 Jun 1993 9:20:29 -0500 (CDT)
 From: MEEGAN@ssl.msfc.nasa.gov
 To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
 "LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
 "15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
 "CASS09::GRUBER"@ssl.msfc.nasa.gov,
 "CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
 HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
 Subject: Burst Trigger Message
 Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02419

TIME: TJD=9165 SECONDS=05384

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 70. AZIMUTH= 93. ERROR= DEGREES

COMMENTS:

WEAK BURST CONSISTING OF 3 DISTINCT PULSES IN 80 SECONDS. MARGINAL
 DETECTION ABOVE 300 KEV.

30 / 6 / 93

ULYSSES RT

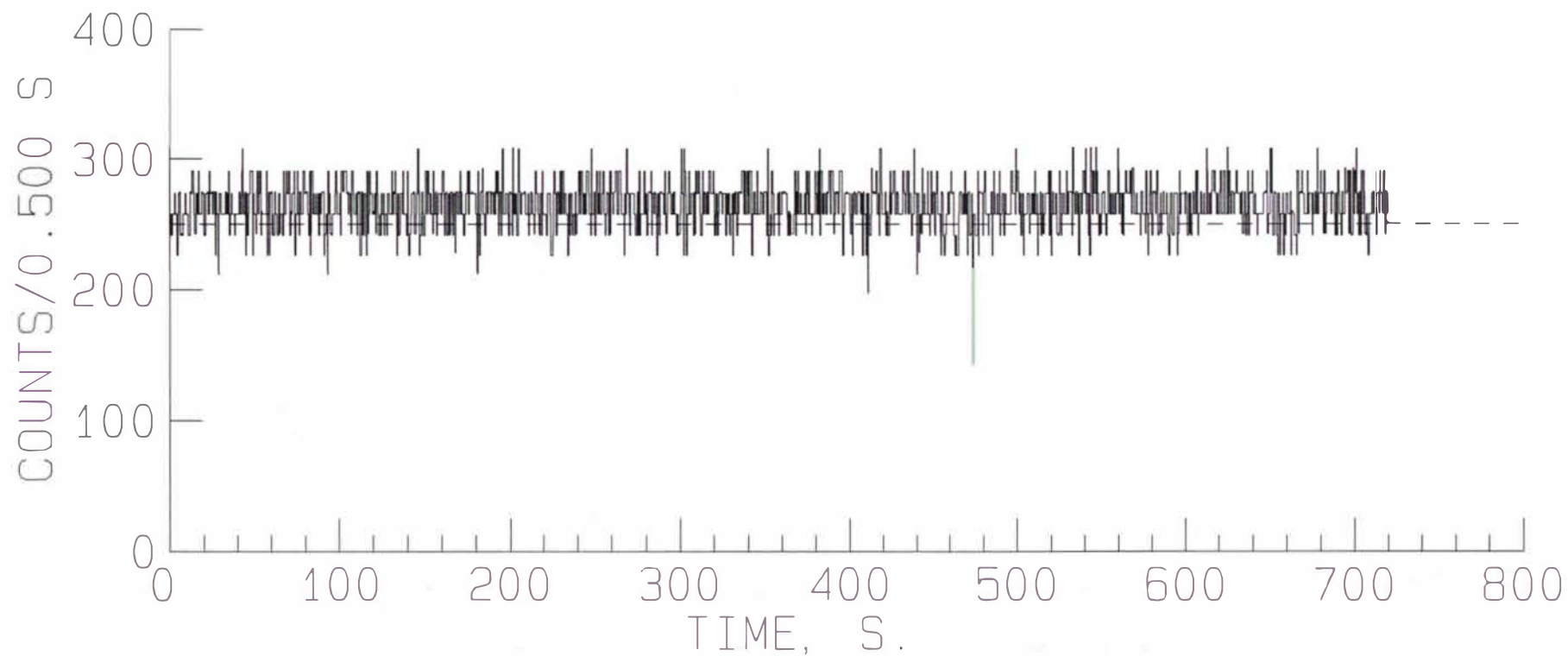
27 / 6 / 93 3348.226 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From SHARIFF@ssl.msfc.nasa.gov Tue Jun 29 07:42:17 1993
Date: Tue, 29 Jun 1993 9:41:56 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1215

BATSE BURST TRIGGER

NO.: 02420

TIME: TJD=9165 SECONDS=16197

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SOLAR FLARE, GOES C9.8, LASTING ~220S. NOT VISIBLE ABOVE 300KEV.

From SHARIFF@ssl.msfc.nasa.gov Tue Jun 29 07:46:39 1993
Date: Tue, 29 Jun 1993 9:46:41 -0500 (CDT)
From: SHARIFF@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1216

BATSE BURST TRIGGER

NO.: 02421

TIME: TJD=9165 SECONDS=40708

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

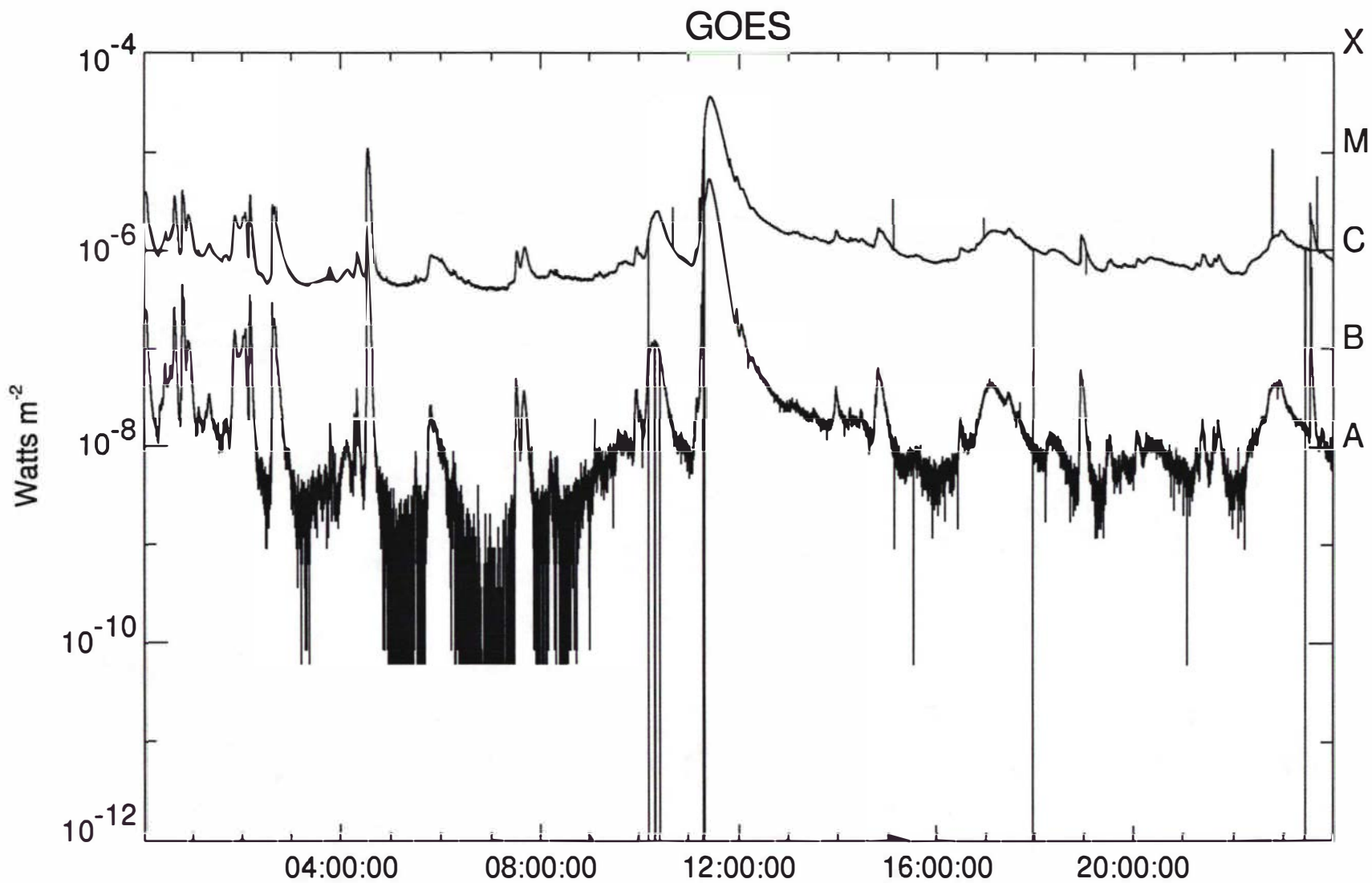
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SOLAR FLARE, GOES M3.6, LASTING ~500S. MARGINALLY VISIBLE ABOVE 100KEV.



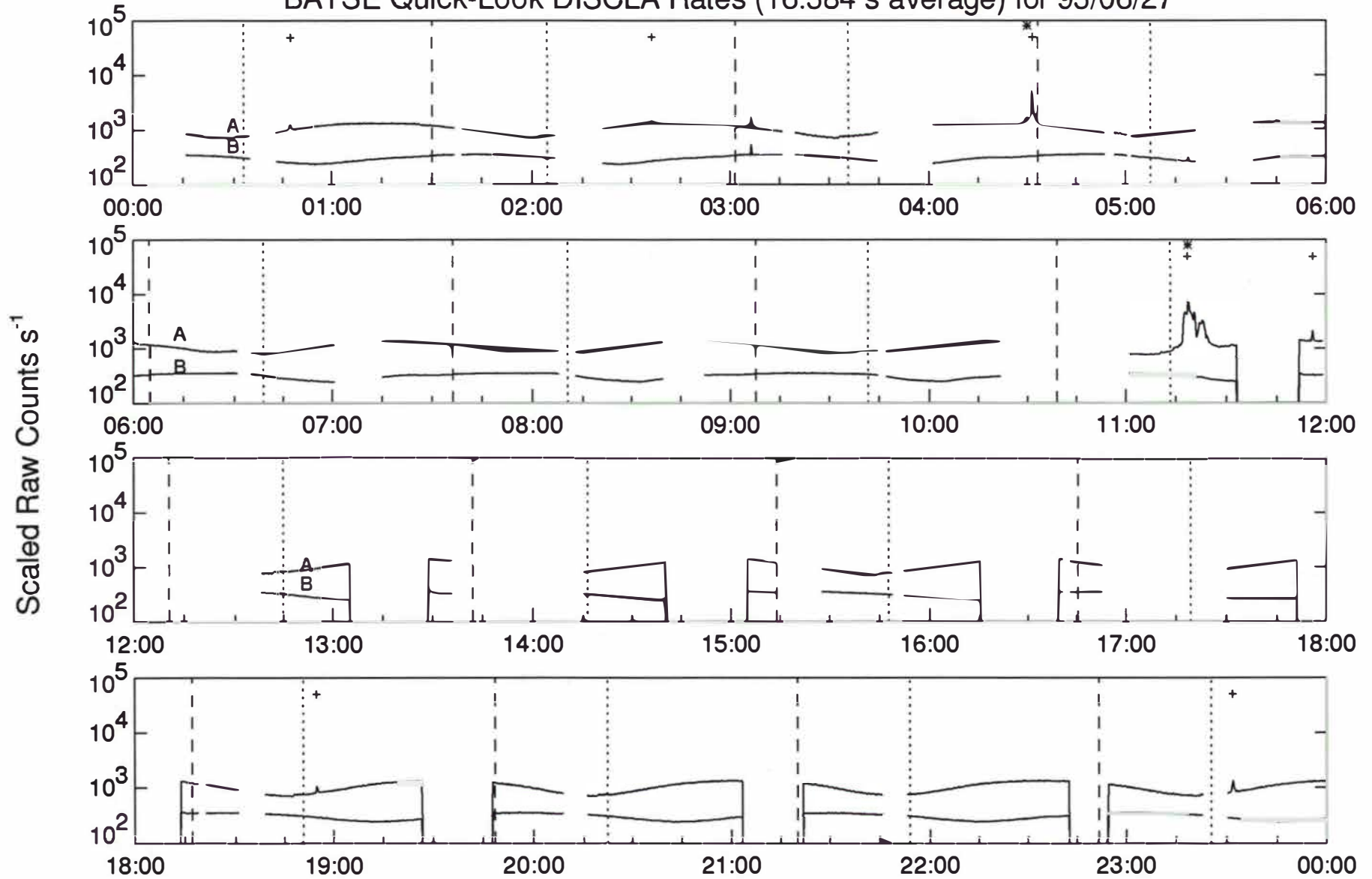
Data Start: 93/06/27, 0000:01

Plot created: 93/10/28, 0204

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/27



Current Time: 93/11/03, 2041 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

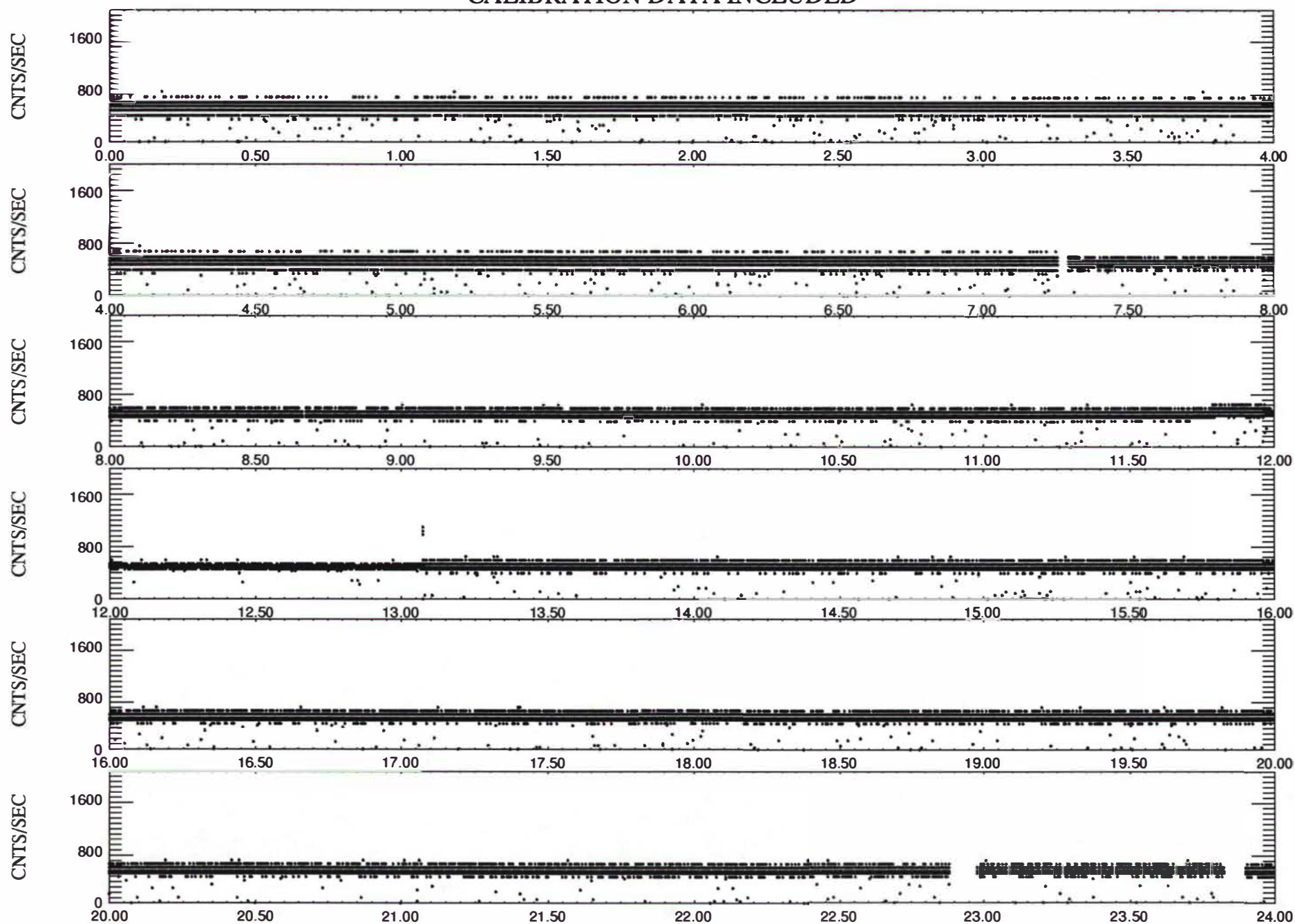
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

BURST NUMBER 1

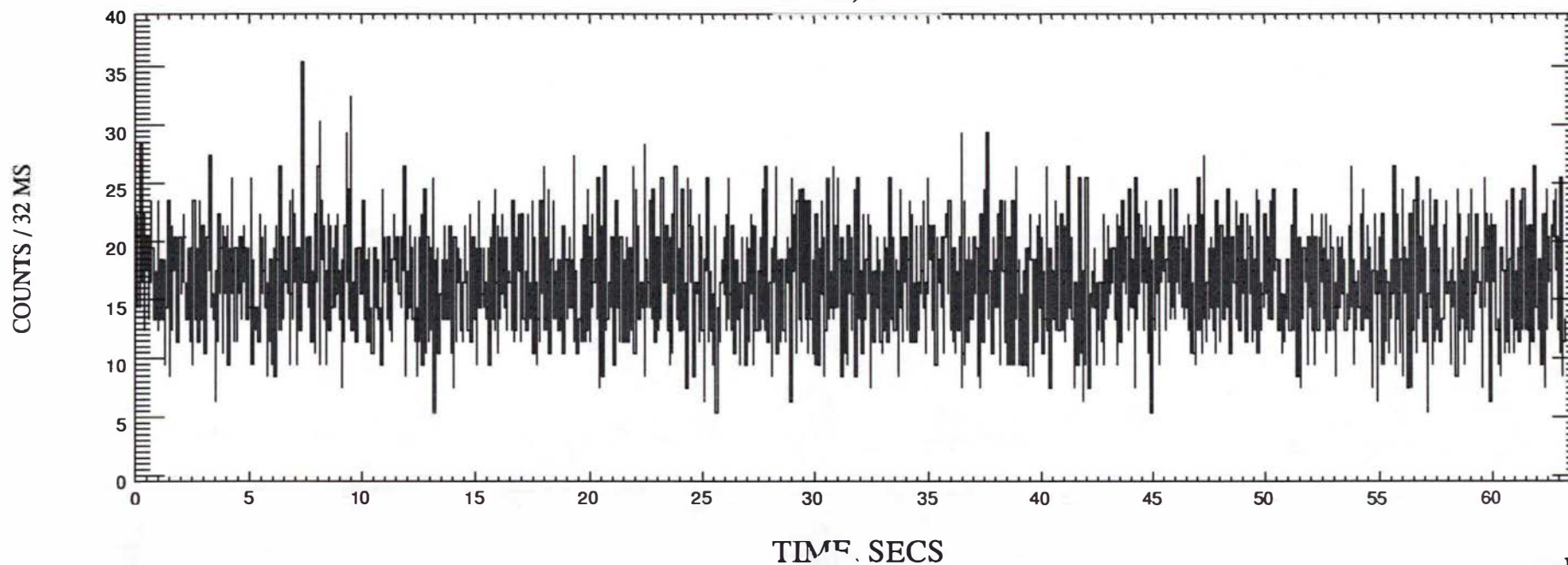
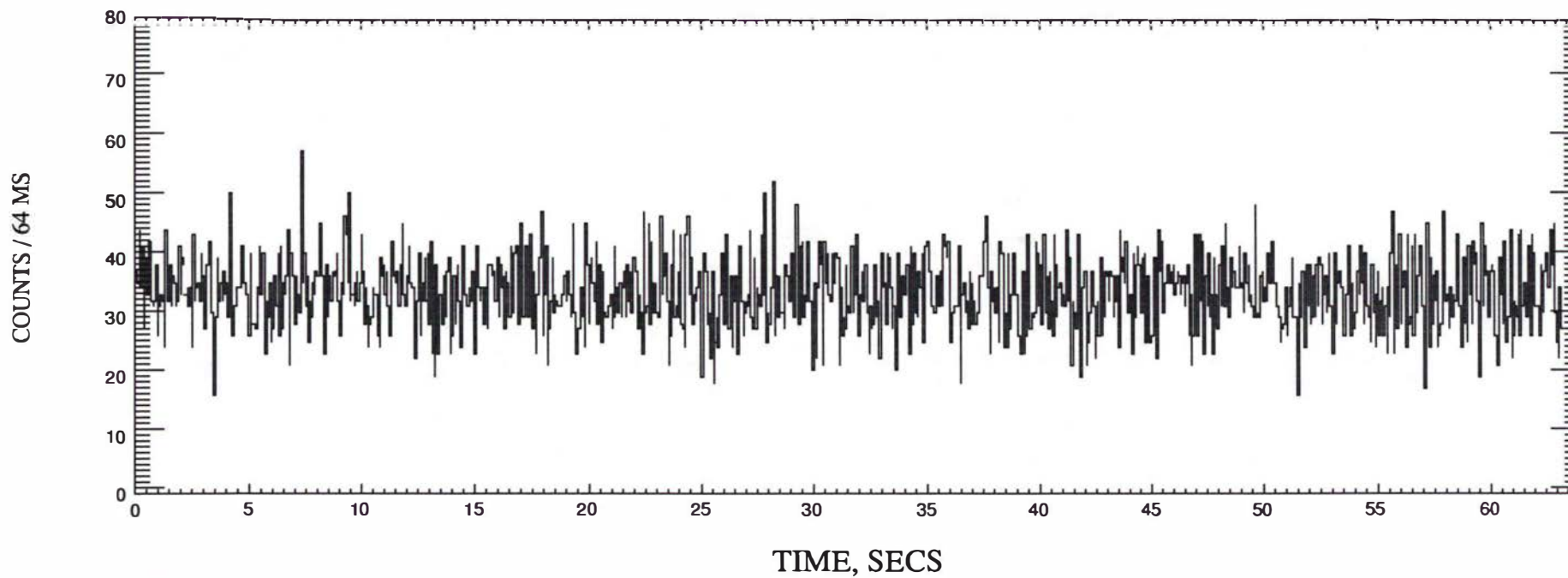


CALIBRATION DATA INCLUDED

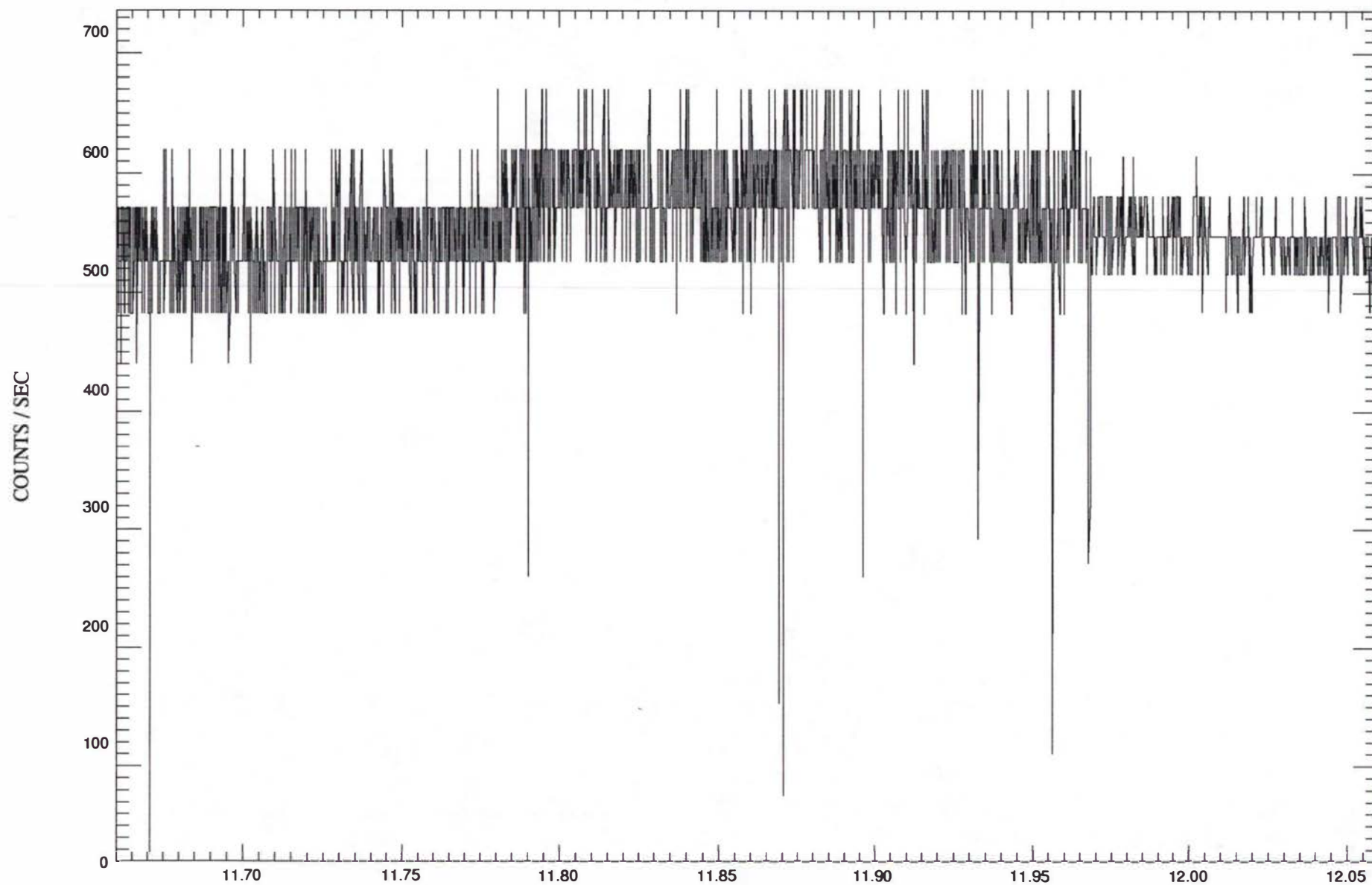


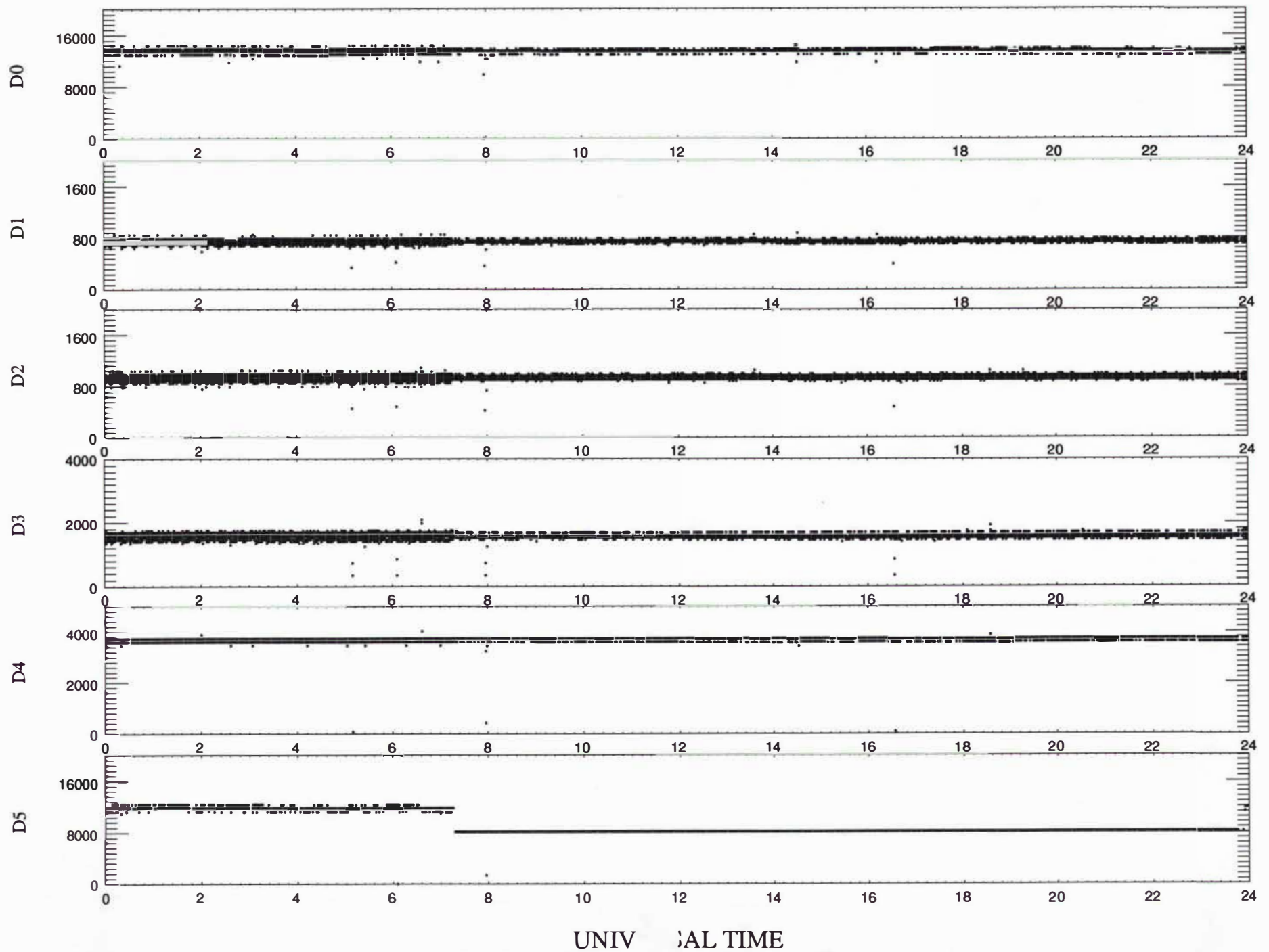
UNIV AL TIME

Burst Counter 1 at UT=11.808201442295 h=42509.525 s 11:48:29.525



CALIBRATION DATA INCLUDED

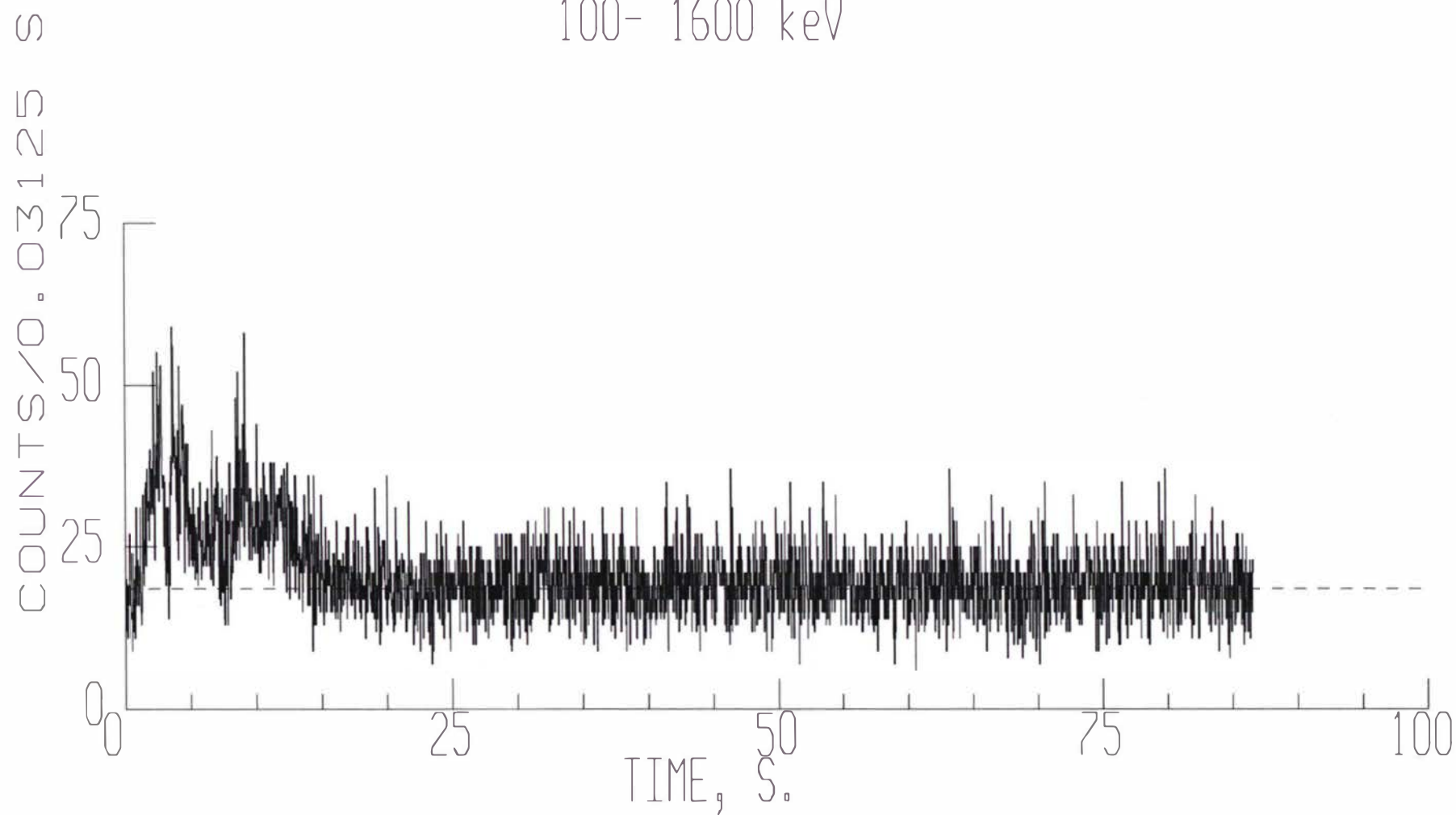




PHEBUS

28/ 6/93 12862.426 s

100- 1600 keV



From HAGEDON@ssl.msfc.nasa.gov Wed Jun 30 09:23:06 1993
Date: Wed, 30 Jun 1993 11:24:11 -0500 (CDT)
From: HAGEDON@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, GROBAD@ESTEC.BITNET,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov, "LHEAVX::KWOK"@ssl.msfc.nasa.gov,
"15733::SCHAEFER"@ssl.msfc.nasa.gov, "CASS09::BAND"@ssl.msfc.nasa.gov,
"CASS09::GRUBER"@ssl.msfc.nasa.gov,
"CASS09::MATTESON"@ssl.msfc.nasa.gov, PACIESAS@ssl.msfc.nasa.gov,
HORACK@ssl.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message
Content-Length: 1296

BATSE BURST TRIGGER

NO.: 02422

TIME: TJD=9166 SECONDS=20937

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

GOES C2.1 SOLAR FLARE. TRIGGERED DURING GAP. DUR.>50S.
MARGINALLY VISIBLE ABOVE 100KEV.

can be narrowed.

* 4 20 JAN 93 20 23:31:40 84700 2 BATSE #2138. GRS sensitivity was compromised by the abnormally long 60 s bins. Even so, a fairly convincing response is seen in two consecutive bins at about 23:35. It should be possible to refine the time using "centroiding". Unfortunately, MO was not very far away yet. A moderately significant hard-to-soft spectral evolution is seen.

5 22 JAN 93 22 12:21:18 44478 2 BATSE #2142. No GRS response was seen near the predicted time of 12:18:34.

* 6 27 JAN 93 27 16:14:25 58465 2 BATSE #2149. A weak GRS enhancement in band1 (120-240 keV) is seen in consecutive bins at the predicted time. Sensitivity was again compromised by 60 s binning, but this was a long event. I think the response is real (though perhaps useless for time-of-arrival).

7 10 MAR 93 69 07:19:20 26360 2 BATSE #2232. No GRS response near the predicted time. However, two crucial bins are missing, probably due to poor data quality. They cannot be recovered.

8 28 APR 93 118 01:07:12 4032 2 BATSE #2320. No GRS response near the predicted time.

9 31 MAY 93 151 15:53:38 57218 2 BATSE #2362. No GRS response near the predicted time.

10 6 JUN 93 157 07:18:48 26328 2 BATSE #2375. No GRS response near the predicted time.

*11 12 JUN 93 163 00:44:17 2657 2 BATSE #2387. Clear response in 1 or 2 bins at 00:43:37.

*12 12 JUN 93 163 08:53:57 32037 2 BATSE #2389. Clear response in one bin at 09:07:48.

13 14 JUN 93 165 03:40:30 13230 2 BATSE #2393. No response near the predicted time. This is surprising, because the event was intense and the spacecraft apparently was not blocking the detector.

14 14 JUN 93 165 16:34:37 59677 2 BATSE #2394. No response near the predicted time, although there was a data gap that ended at 16:39:34. This was a weak event that probably should not have been seen by GRS.

*15 28 JUN 93 179 03:20:36 12036 1 Ulysses only. Definite response at 03:35:09.0. Note that the fractional second on the printout is incorrect.

16 6 JUL 93 187 05:13:30 18810 2 BATSE #2431. The one-and-only known triggered event. David Palmer has done some arrival time analysis. Have I sent you any data on this event? Do you want any? (Trigger data and mapping data are mutually exclusive.)

17 6 JUL 93 187 08:09:10 29350 2 BATSE #2432. No response near the predicted time.

18 8 JUL 93 189 05:12:38 18758 2 BATSE #2433. No response near the predicted time.

19 11 JUL 93 192 03:32:01 12721 2 BATSE #2441. No response near the predicted time.

20 14 JUL 93 195 16:12:53 58373 2 BATSE #2446. No response near the predicted time.

*21 20 JUL 93 201 14:35:09 52509 2 BATSE #2450. Definite response, probably in two bins, at about 14:49.

From root Wed Jan 26 09:21 1994
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AB01596; Wed, 26 Jan 94 09:21:57
Received: from lpl.arizona.edu (hindmost.LPL.Arizona.EDU) by sunspot.ssl.berkeley.edu (5.0/SM)
id AA26699; Wed, 26 Jan 1994 08:26:17 +0800
Received: from peewee.lpl.arizona.edu by lpl.arizona.edu (4.1/hindmost-MX-1.4)
id AA04397; Wed, 26 Jan 94 09:28:59 MST
Received: by peewee.lpl.arizona.edu (5.0/SMI-SVR4)
id AA02684; Wed, 26 Jan 94 09:32:09 MST
Date: Wed, 26 Jan 94 09:32:09 MST
From: jlaros@peewee.lpl.arizona.edu (John Laros)
Message-Id: <9401261632.AA02684@peewee.lpl.arizona.edu>
To: khurley@sunspot.ssl.berkeley.edu
Subject: MO bursts
Content-Type: X-sun-attachment
Content-Length: 5685
Status: R

X-Sun-Data-Type: text
X-Sun-Data-Description: text
X-Sun-Data-Name: text
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 16

Kevin,

Here it comes: MO time history and ephemeris data on all 27 of the Ulysses events for which there was GRS coverage. It looks like about 10 bursts were actually detected by GRS. Please note that the time history files have a line at the end, labelled "Ensemble values", that was not in the sample I sent you. These are empirically determined means and sigmas for the data set. For reasons that have not yet been determined, the empirical sigmas are larger than the theoretical ones at the lower energies.

If there were any intense non-Ulysses bursts during the MO lifetime, such as WATCH events, would you please send me the information on them?

Thanks,

John

X-Sun-Data-Type: default
X-Sun-Data-Description: default
X-Sun-Data-Name: ulysses.lst
X-Sun-Charset: us-ascii
X-Sun-Content-Lines: 106

MO/GRS Burst Coverage of Ulysses Events

(* indicates probable GRS detection of the burst)

	DATE	DOY	TIME	T,SEC	NSAT (1=Ulysses, 2=GRO)	
1	4 OCT 92	278	13:38:27	49107	1	Ulysses/PVO/WATCH. MO was only 10 lt-sec away, and the sensitivity was seriously degraded by high background rates. If the WATCH time of 14:00:21 is accurate, then there is no GRS detection. However, there may be some GRS candidates within a few minutes of 14:00.
2	22 OCT 92	296	15:20:59	55259	2	BATSE #1997. There was no significant GRS response near 15:21. A leakage current glitch (a low bin followed by a high bin) is seen at 15:24.
3	13 DEC 92	348	14:56:42	53802	1	Ulysses only. There is no clear GRS response. This event merits further consideration only if the time window at MO

From root Thu Jul 1 14:16 1993
Received: by space6.ssl.berkeley.edu (AIX 2.1 2/4.03)
id AA03355; Thu, 1 Jul 93 14:16:39
Received: from mx.nsi.nasa.gov by sunspot.ssl.berkeley.edu (4.1/1.30.1)
id AA29239; Thu, 1 Jul 93 14:17:59 PDT
Received: Thu, 1 Jul 93 14:12:42 PDT from ESSDP2.dnet by mx.nsi.nasa.gov (4.1/1.2)
Message-Id: <9307012112.AA02540@mx.nsi.nasa.gov>
Received: from ESSDP2.dnet by AMES.dnet with MAIL-11
(utk-maill1ld v1.7); Thu, 1 Jul 93 14:19:26 PDT
Date: Thu, 1 Jul 93 14:19:26 PDT
From: 081877@essdp2.span.nasa.gov
X-To: AMES::"khurley@space6.ssl.berkeley.edu"
Subject: RE:
To: khurley@space6.ssl.berkeley.edu
Status: R

Kevin,

MO triggered on June 28 at 11534 s. Its ephemeris was 288353141, 156.31, 9.96. Can you describe the event to me? All I see is a fairly sharp rise followed by not much. Does this make any sense?

John

From jlaros@LPL.Arizona.EDU Tue May 30 11:11 PDT 1995
Date: Tue, 30 May 1995 11:14:55 +0700
From: jlaros@LPL.Arizona.EDU (John Laros)
To: khurley@sunspot.ssl.berkeley.edu
Subject: GB930628

Kevin,

I'm afraid DMSP didn't see it. The possible response I saw consisted of two peaks about 30 s apart. That just doesn't match Ulysses. The DMSP effective coverage was reduced by a data gap and a radiation belt passage.

John

No helio or clock corr applied

Date: *Dec 2 '98*

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☐ Jim Schmidling's stat file correction applied? *No*
- ☐ Final ephemeris used?
- ☐ Final, CDROM data used?
- ☐ Were data checked by Joe Springer for 0.5 s errors?
- ☐ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. BATSE Data

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

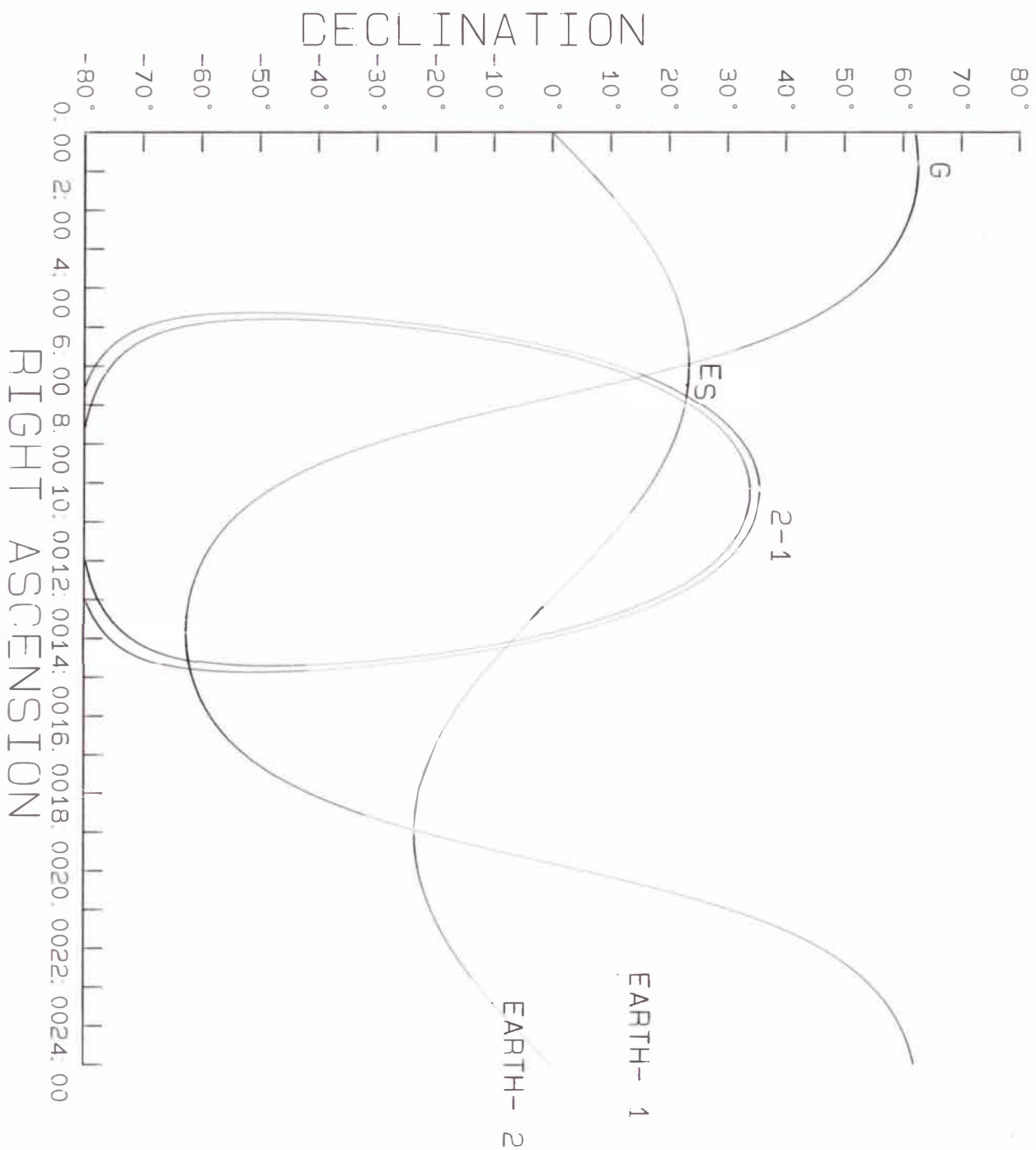
3. PVO Data

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

EVENT OF JUN 28, 1993 3:19

7/ 4/94

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



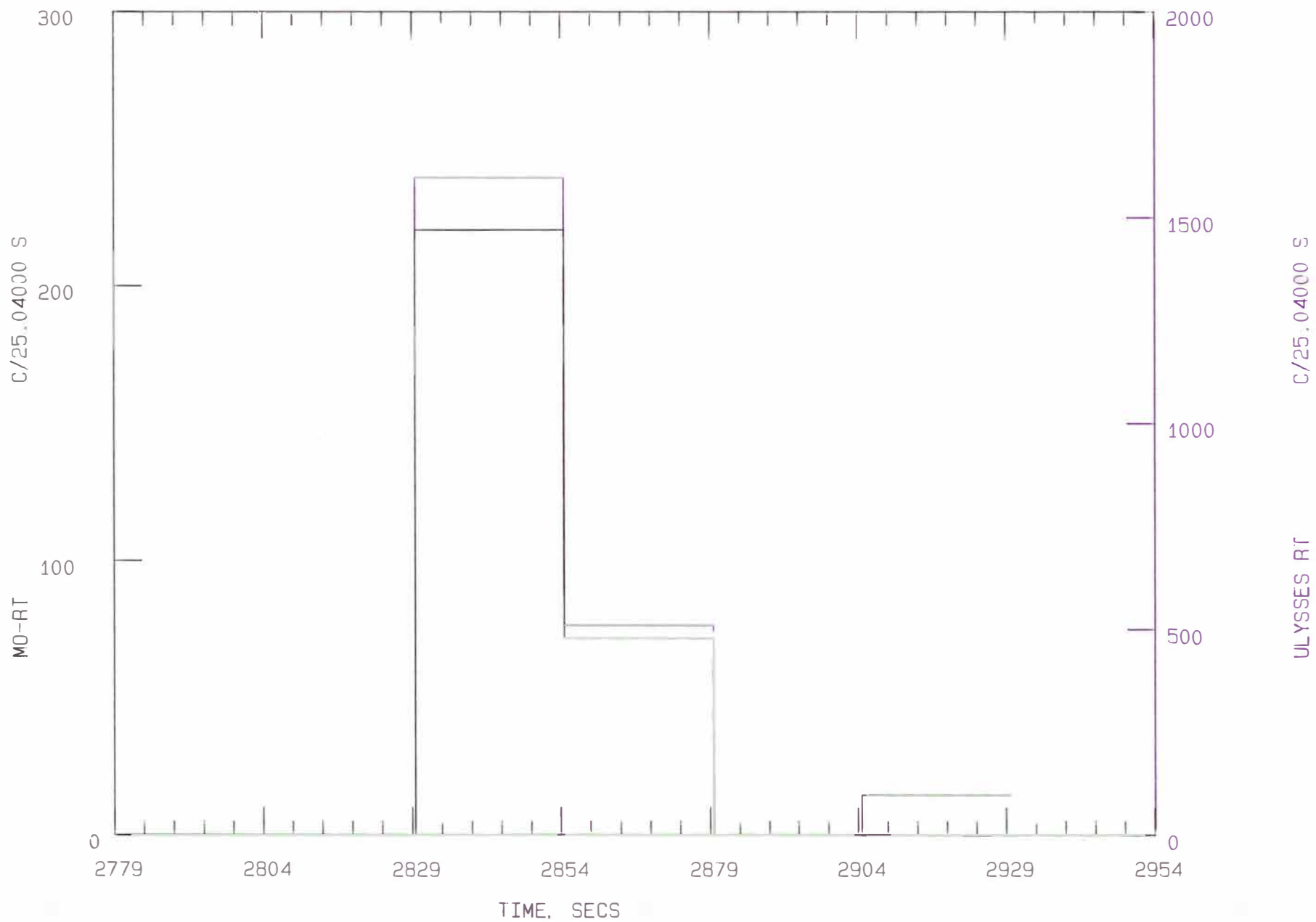
MO-RT

-ULYSSES RT CORRELATION

28/ 6/93

10071.406

7/ 4/94



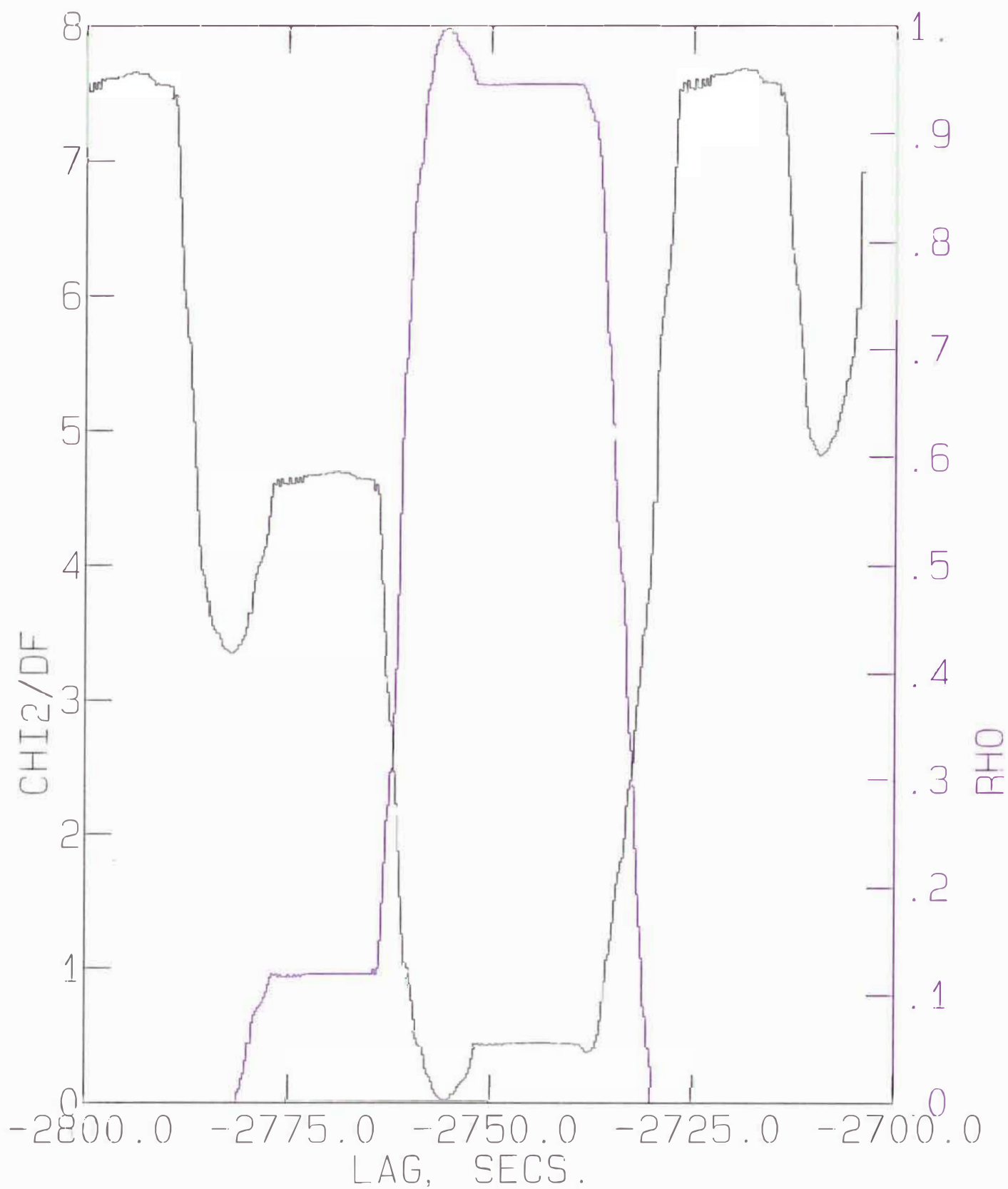
MO-RT

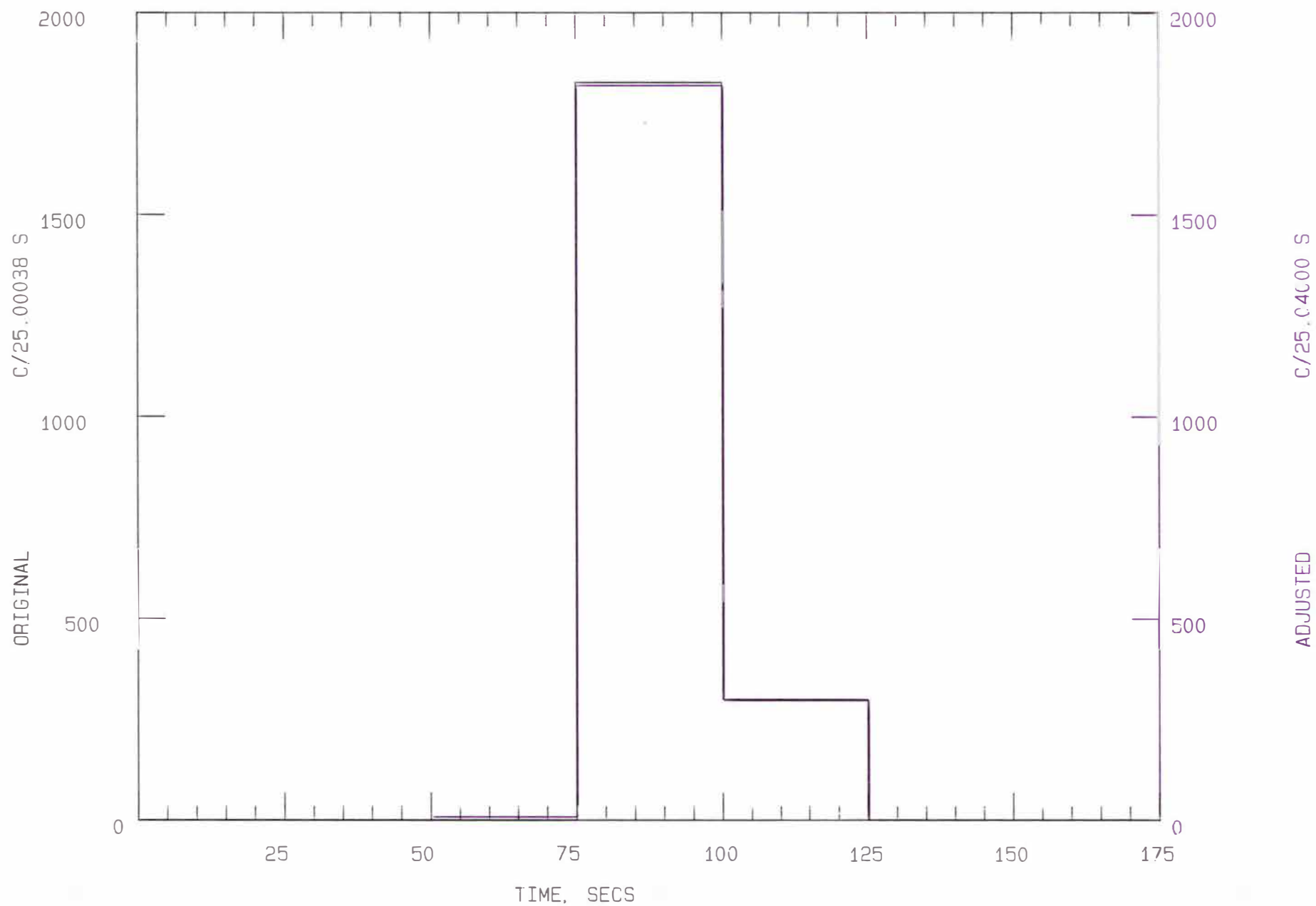
-ULYSSES RT CORRELATION

28/ 6/93

10071.406

7/ 4/94

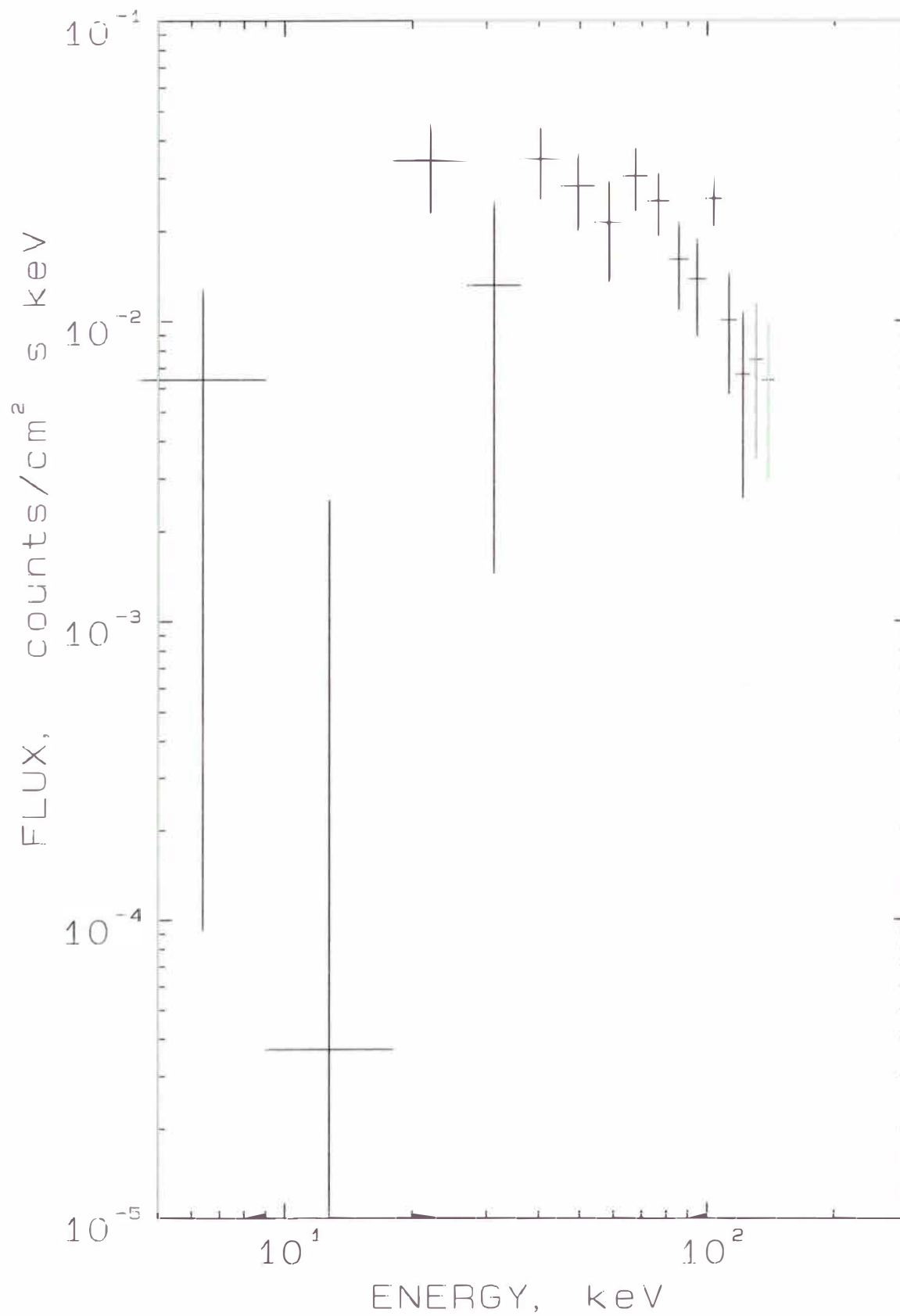




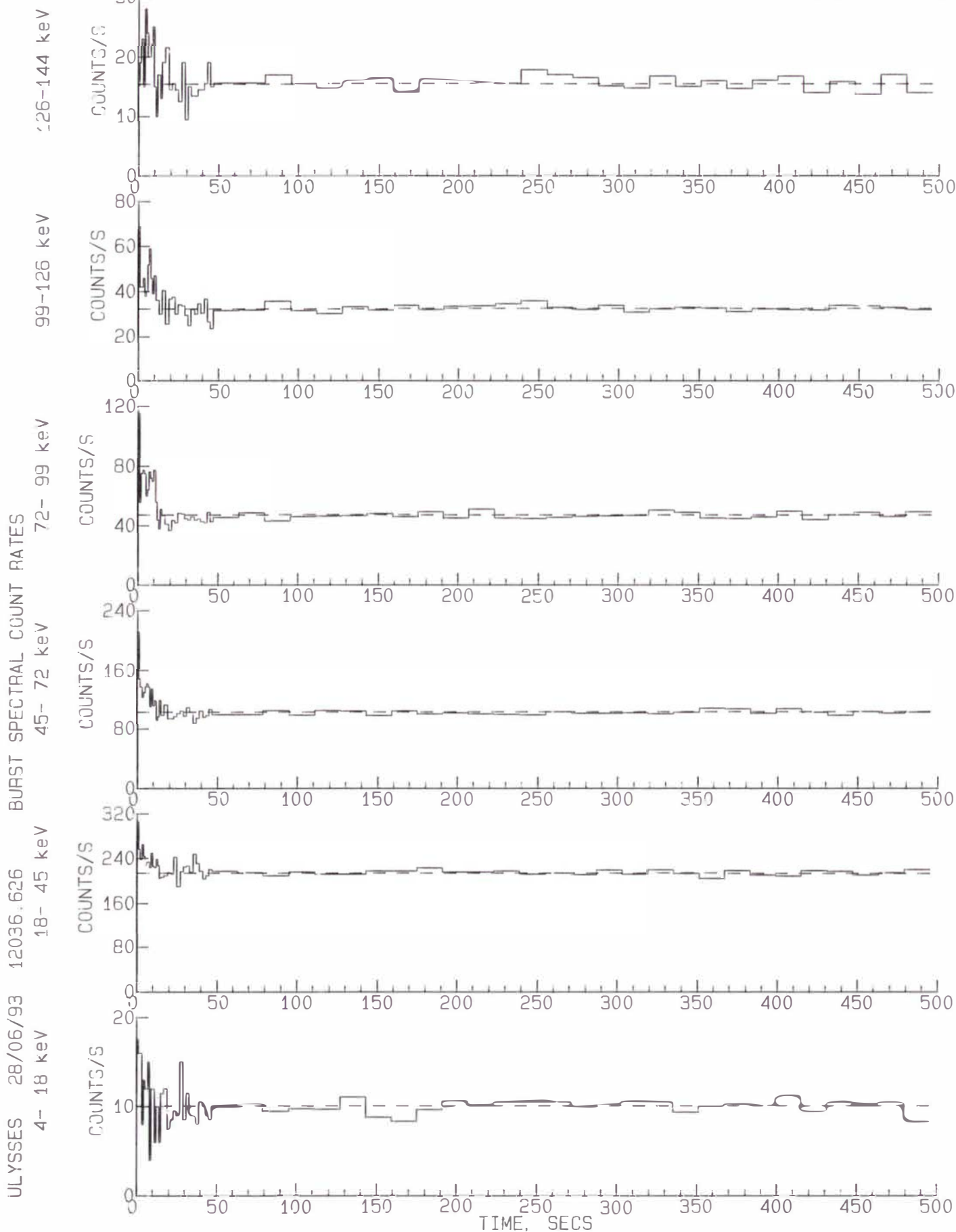
ULYSSES 28/06/93 12036.626

7/ 4/94

SPECTRUM INTEGRATED OVER 25.0 SECONDS, INTERVALS 2 TO 22



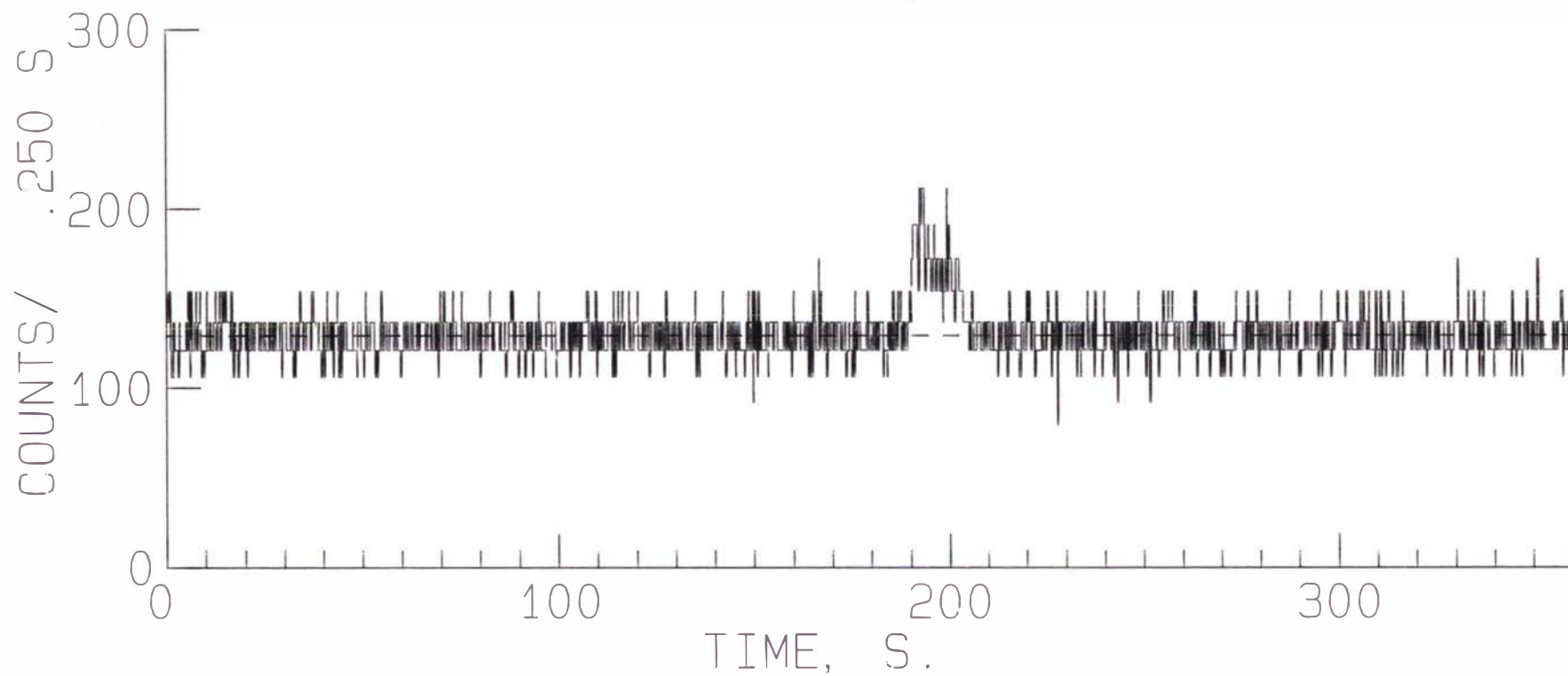
7 / 4 / 94



ULYSSES RT
28/ 6/93 11844.133 s
21- 144 keV

7/ 4/94

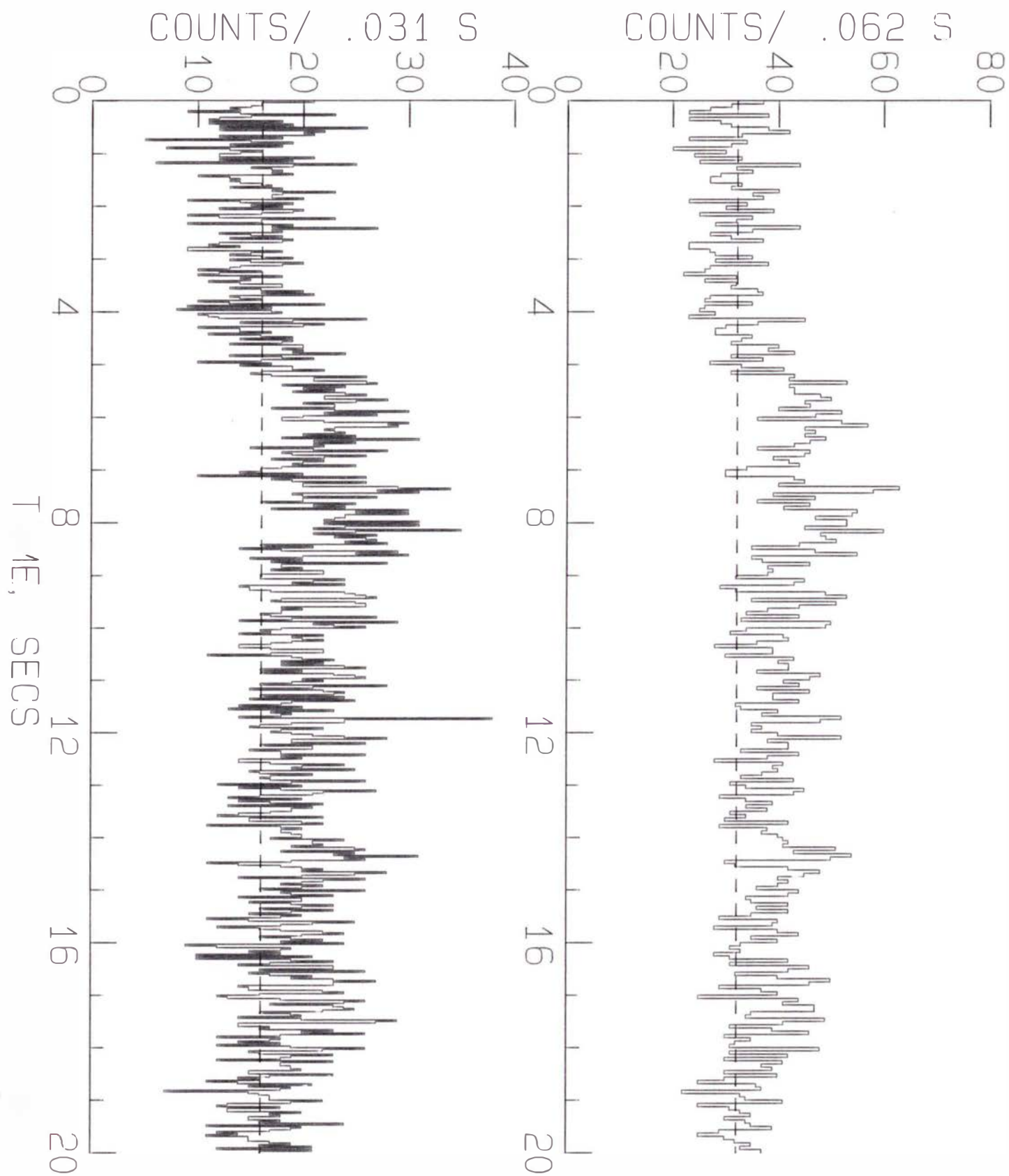
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



ULYSSES

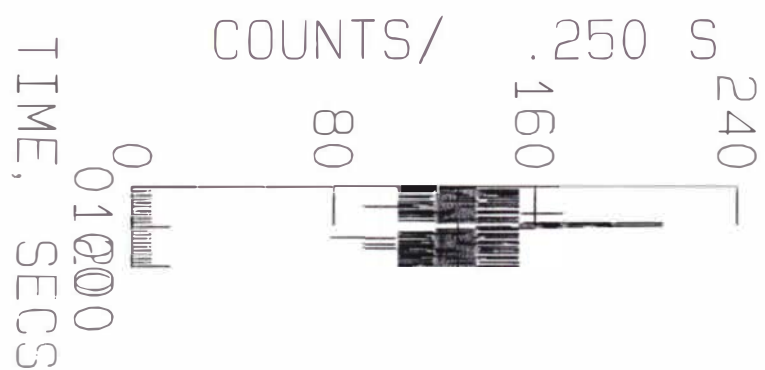
28/06/93

Ttrig=12036.635



ULYSSES RT 28/ 6/93

21- 144 keV 11944.134 S



28/ 3/94

MO-RT

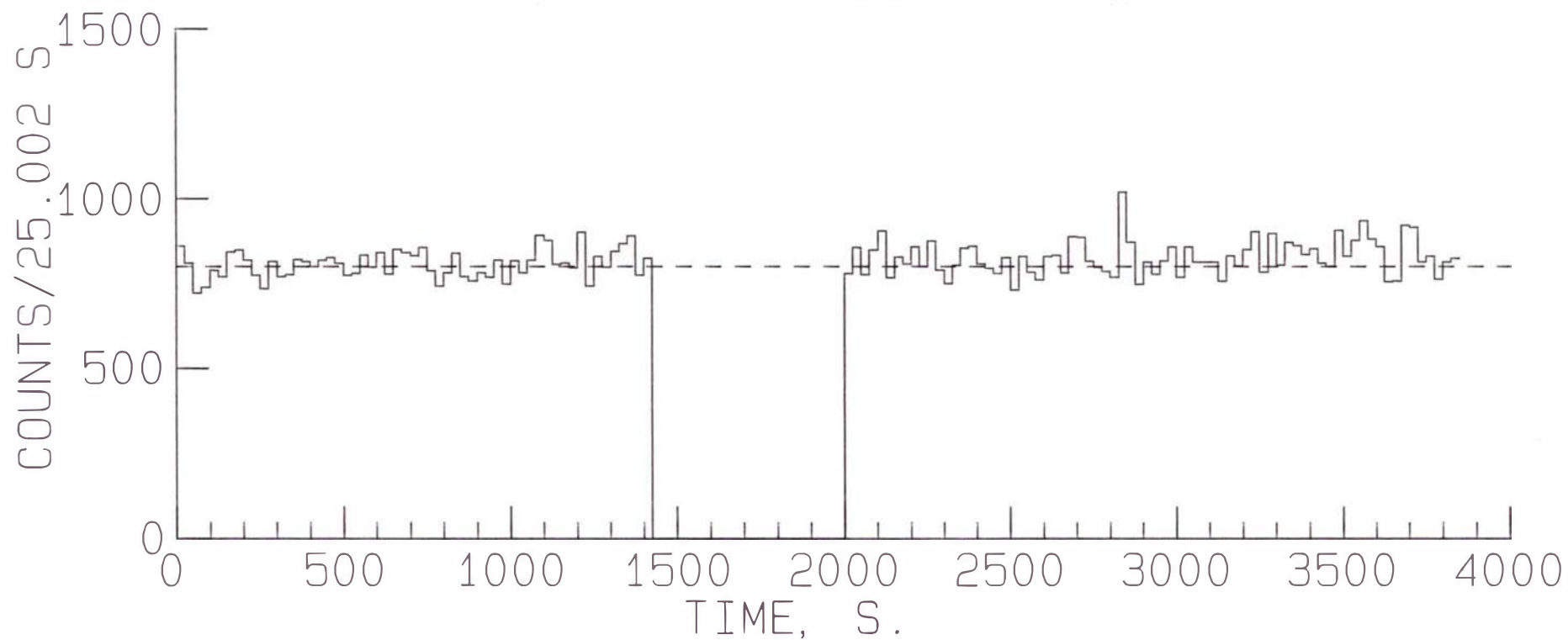
28/ 6/93

10083.908 s.

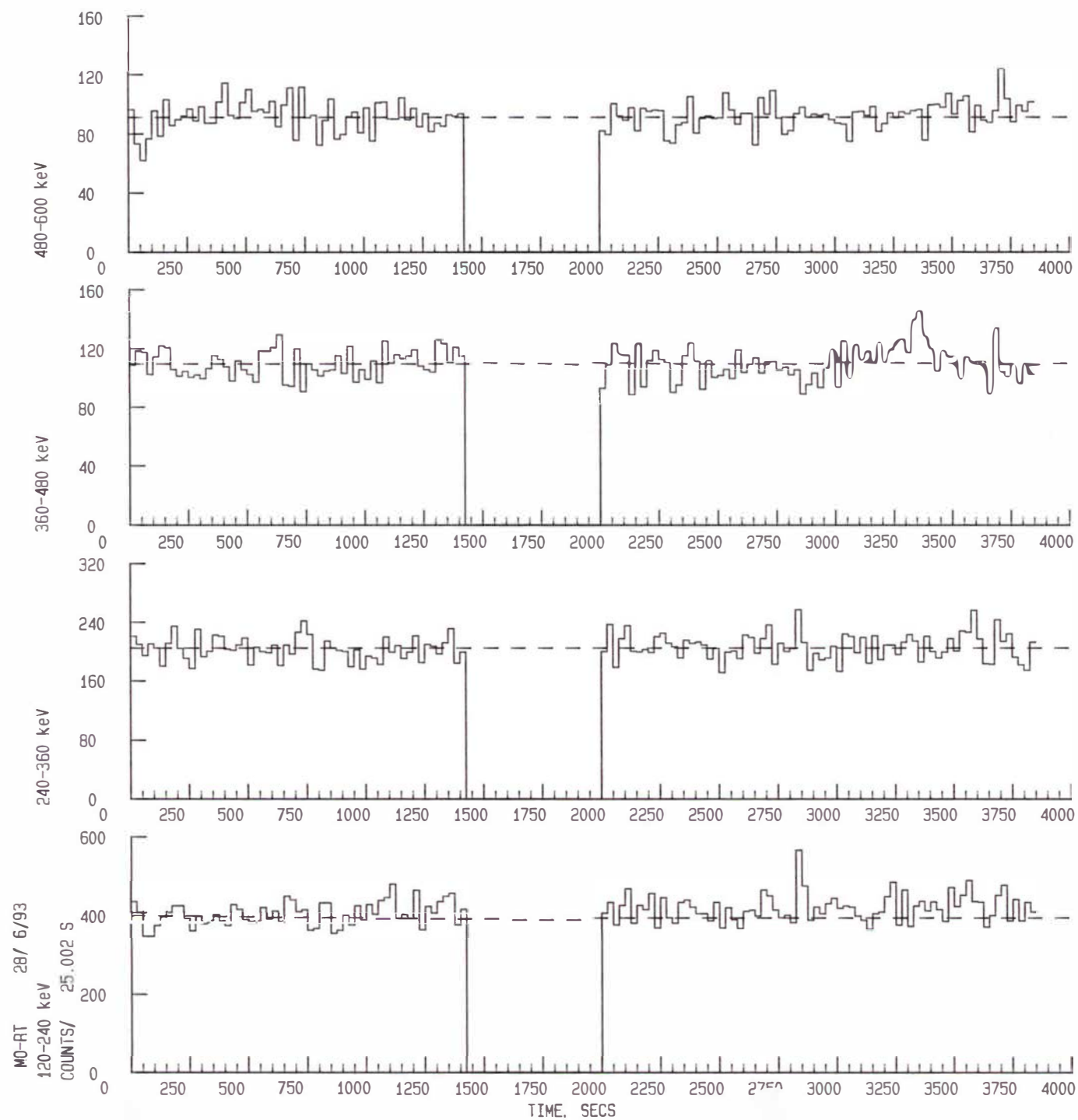
25.002 S. INTERVALS REGROUPED BY 1

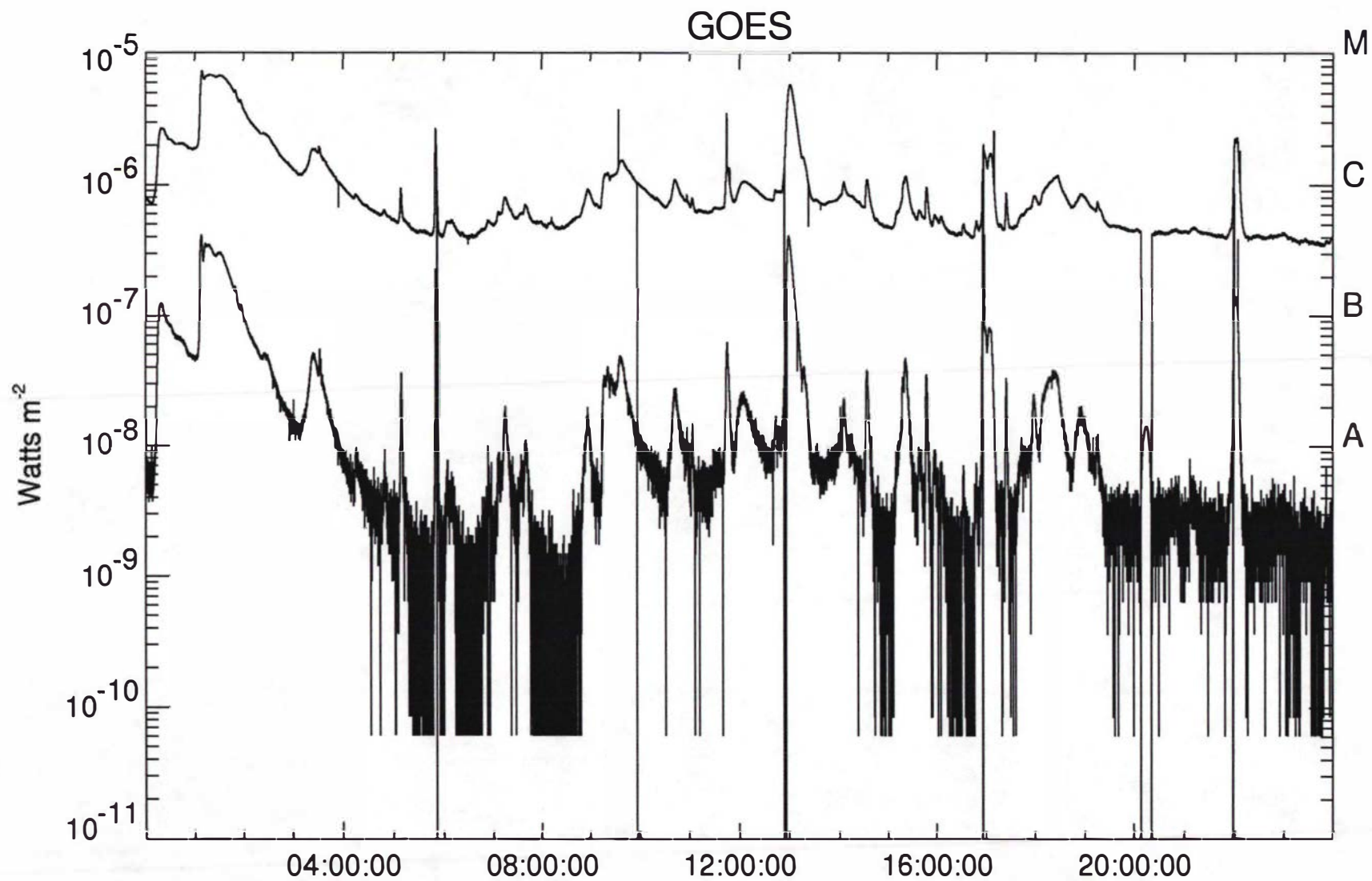
120- 600 keV

N= 10 M= 1
>3.0 SIGMA FLUCTUATIONS



28/ 3/94





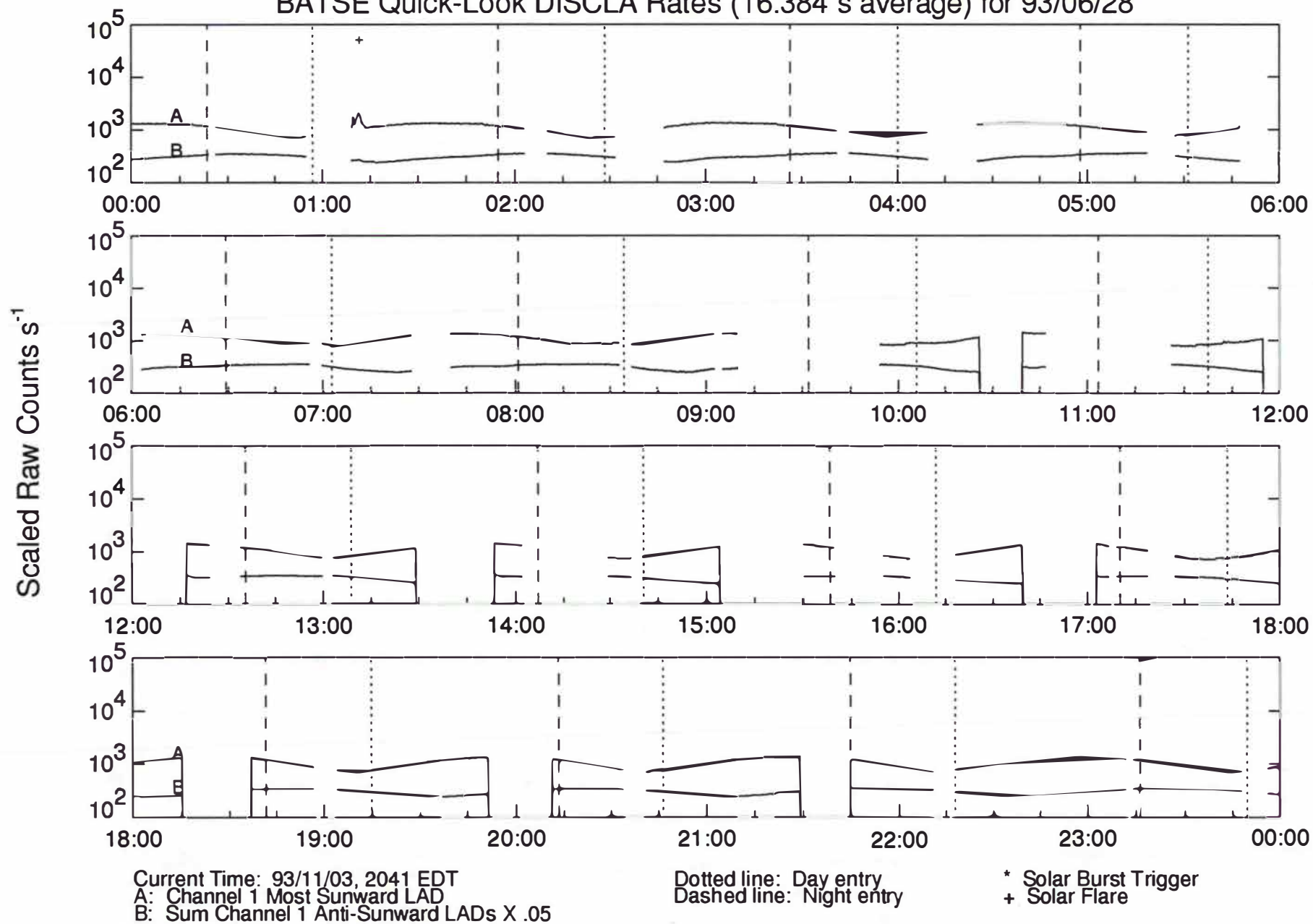
Data Start: 93/06/28, 0000:00

Plot created: 93/10/28, 0204

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

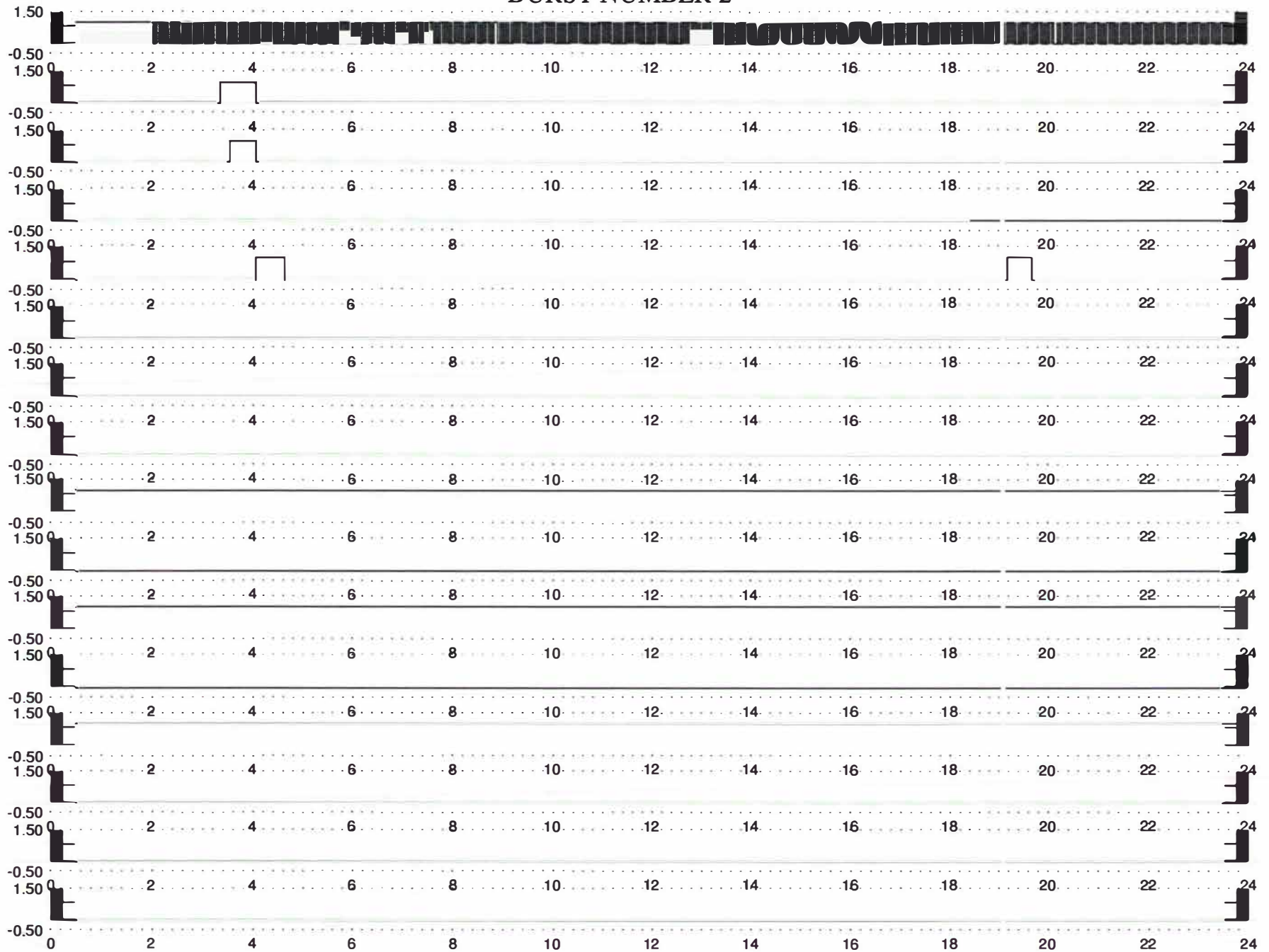
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/28



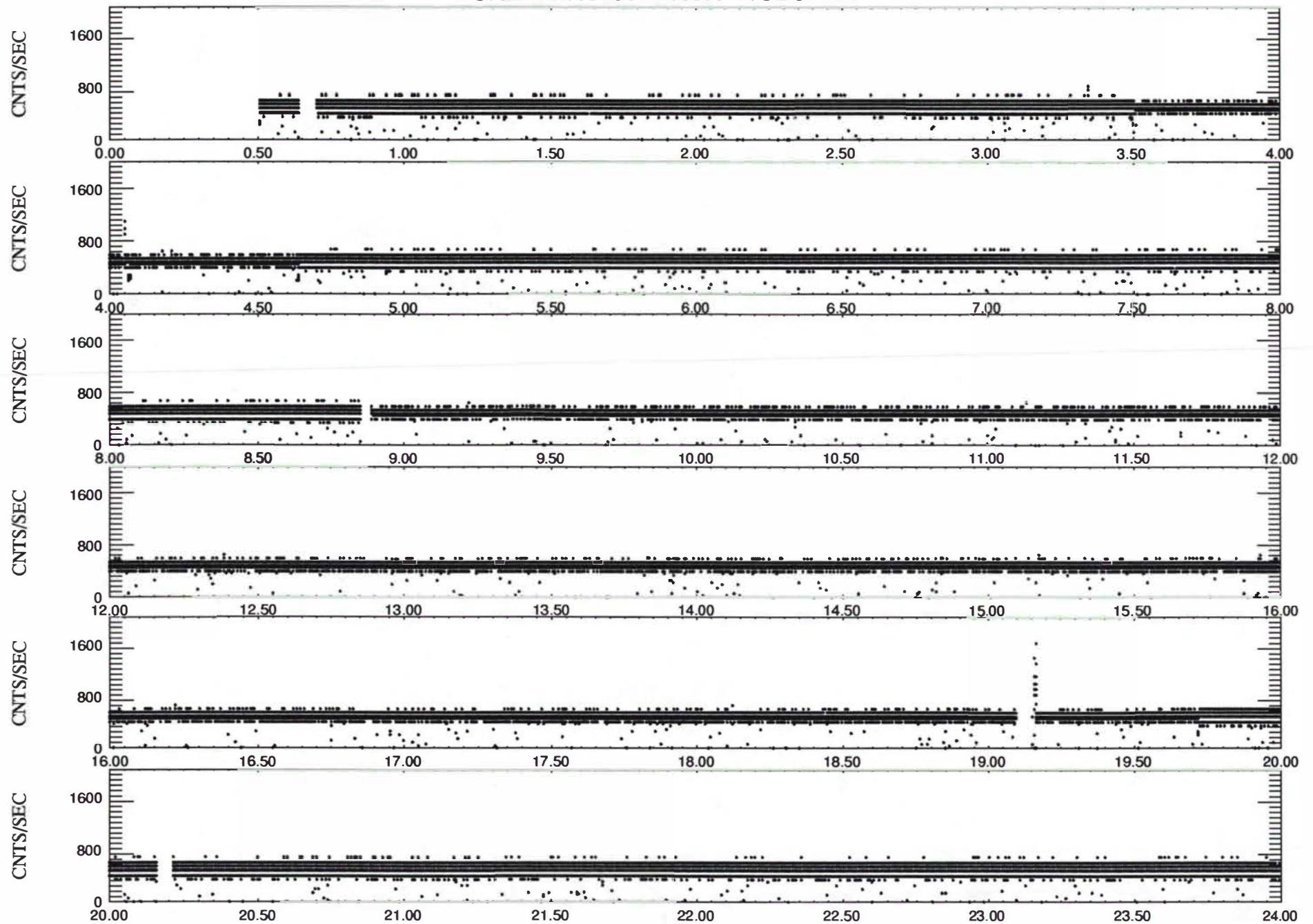
BURST NUMBER 2

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



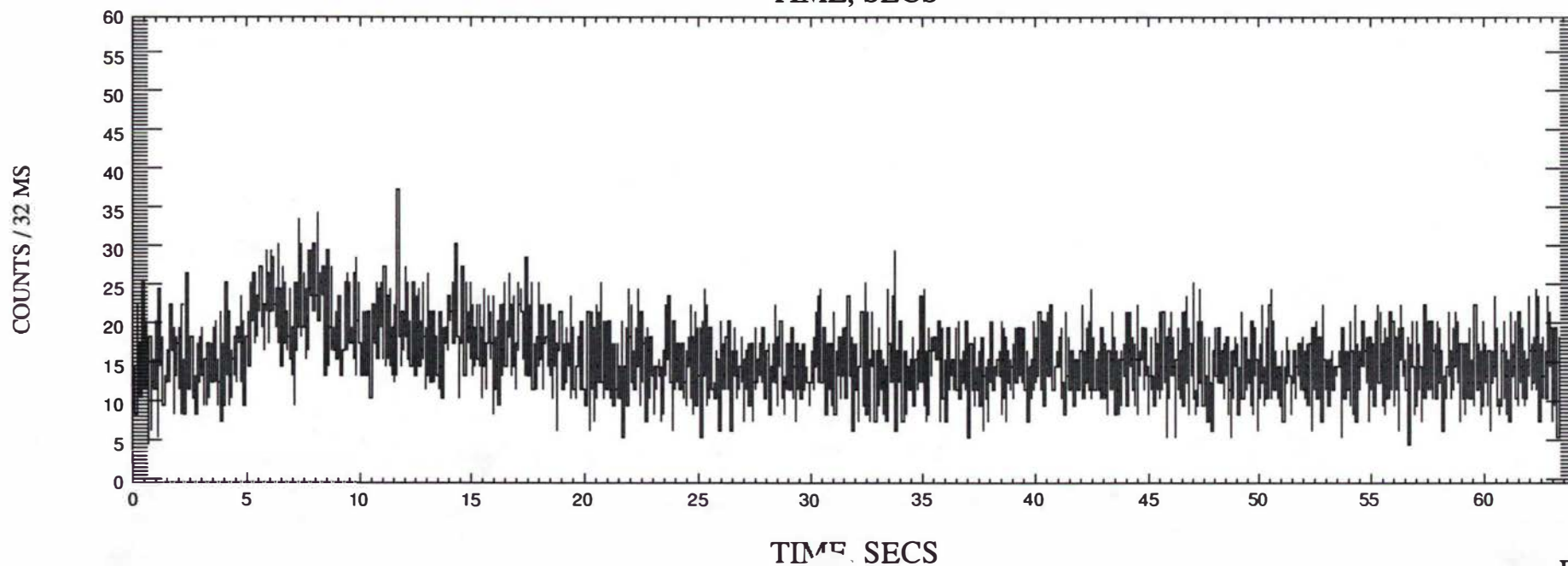
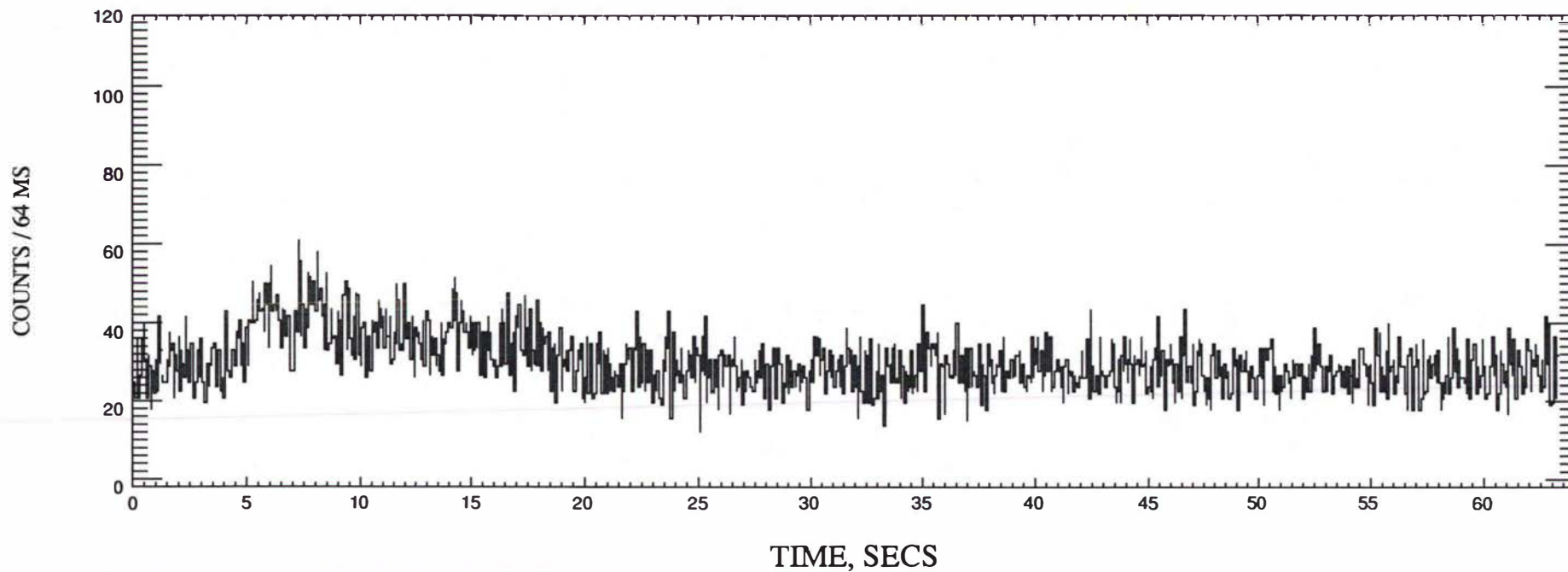
UNIV. AL TIME

CALIBRATION DATA INCLUDED

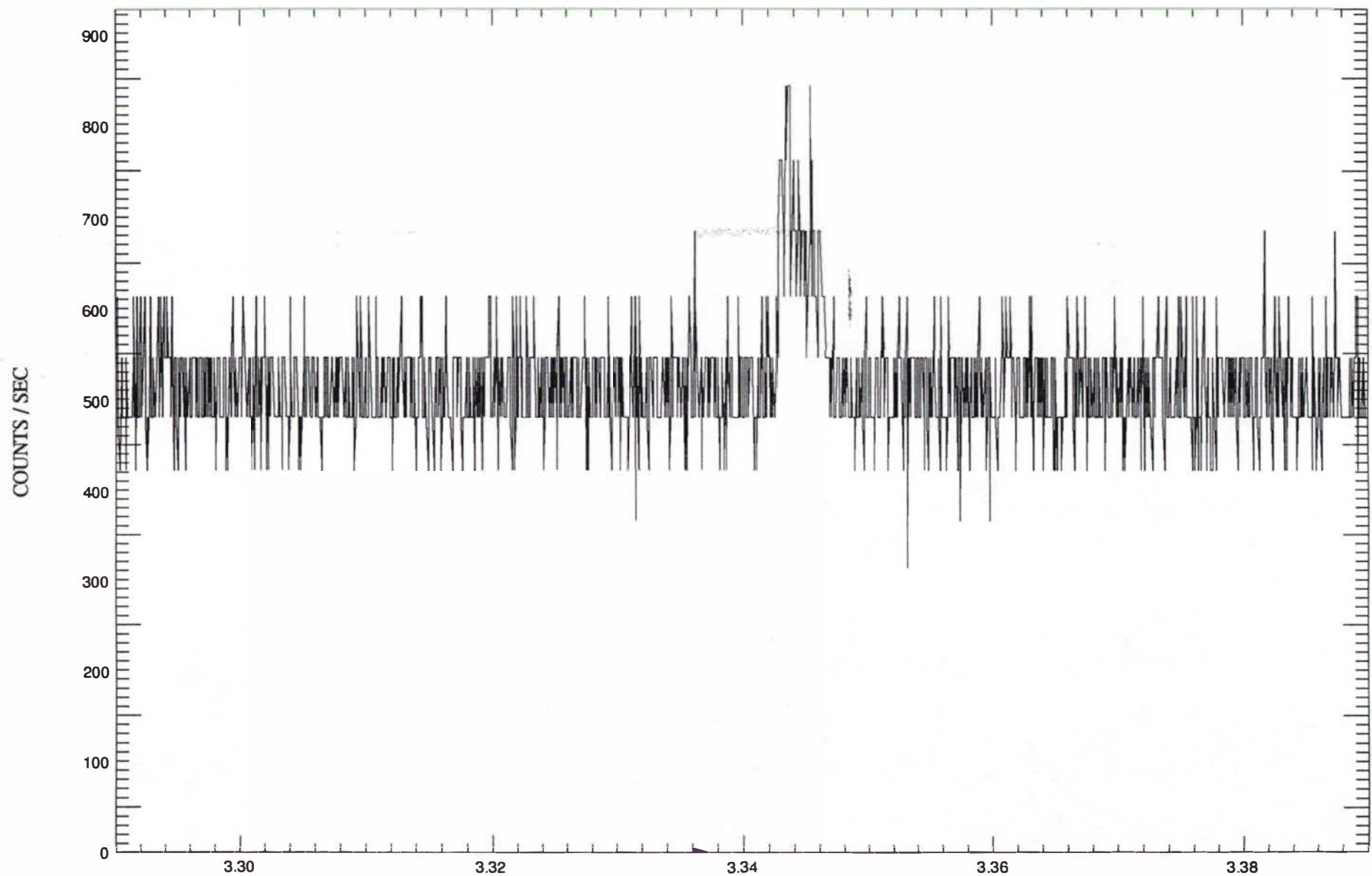


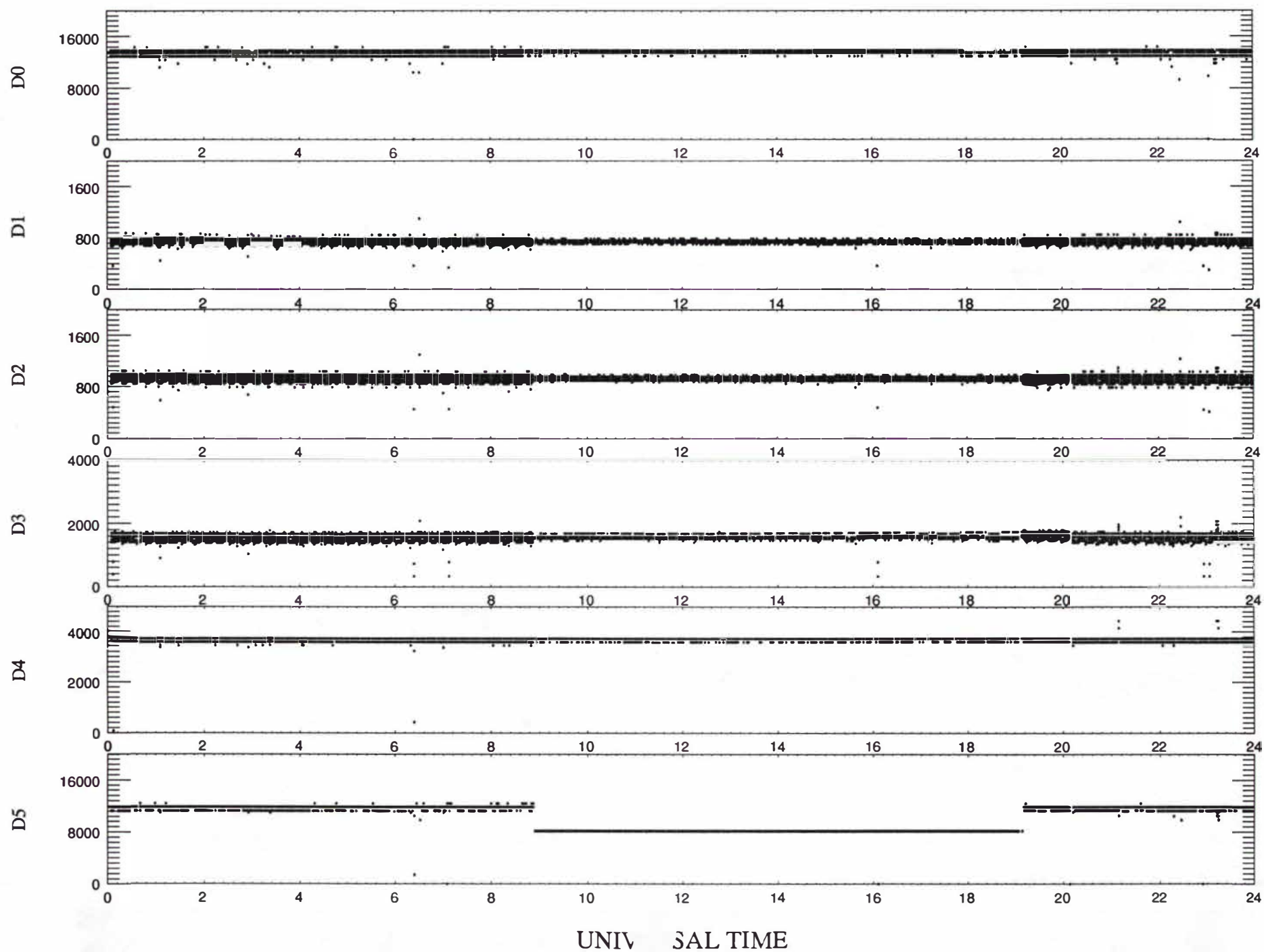
UNIV AL TIME

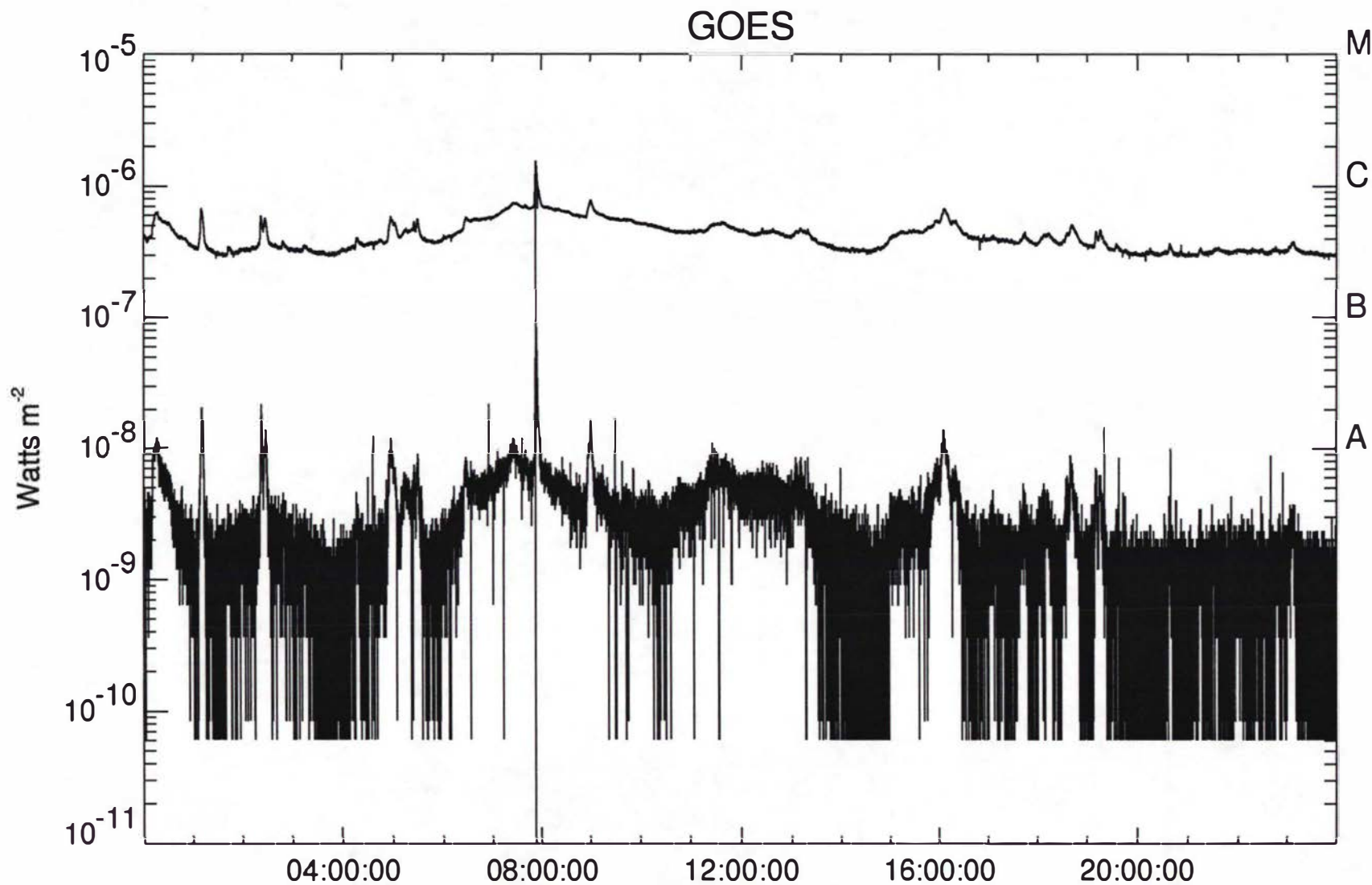
Burst Counter 2 at UT= 3.343507177565 h=12036.626 s 03:20:36.626



CALIBRATION DATA INCLUDED







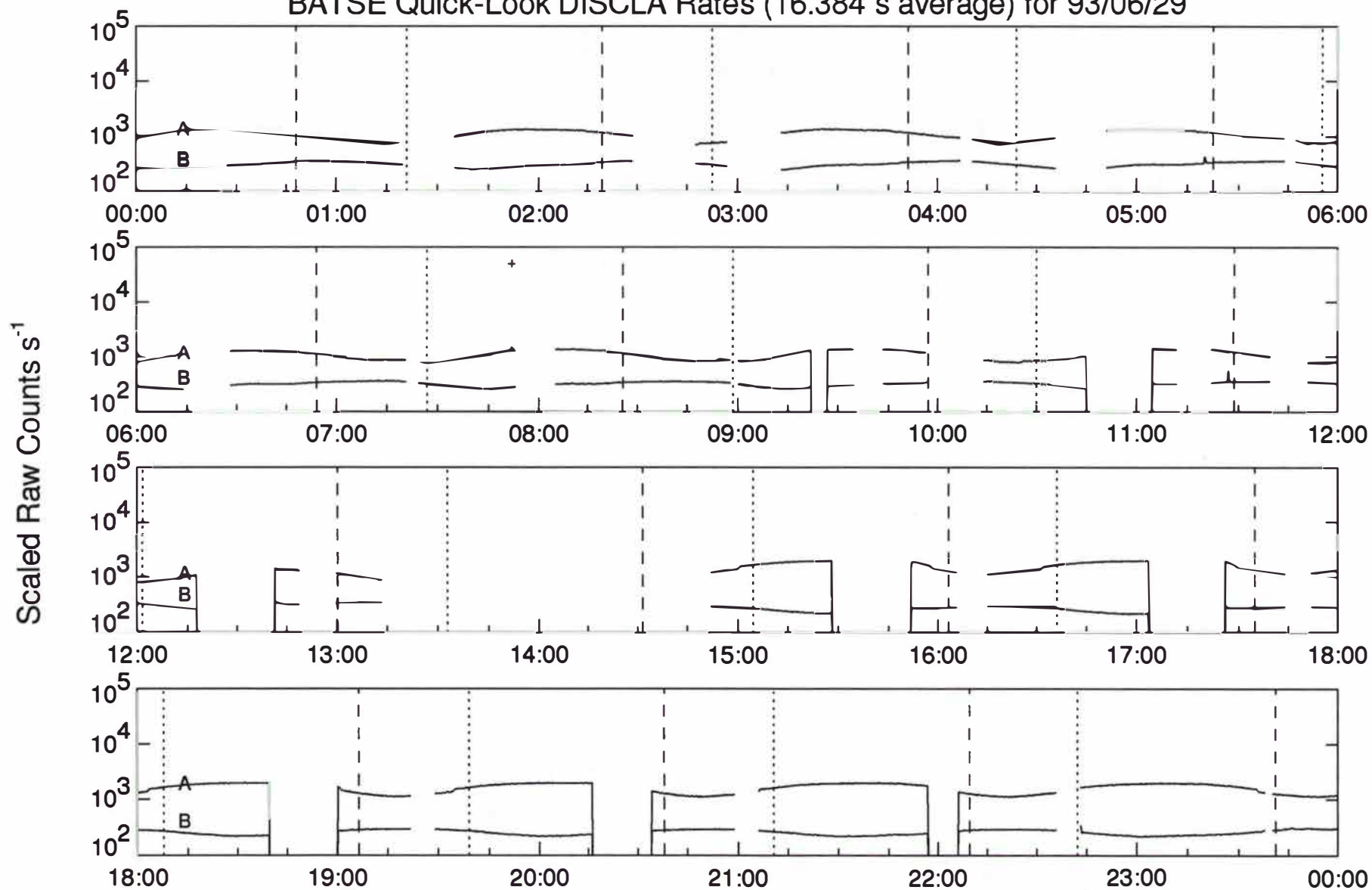
Data Start: 93/06/29, 0000:00

Plot created: 93/10/28, 0204

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/29



Current Time: 93/11/03, 2041 EDT
 A: Channel 1 Most Sunward LAD
 B: Sum Channel 1 Anti-Sunward LADs X .05

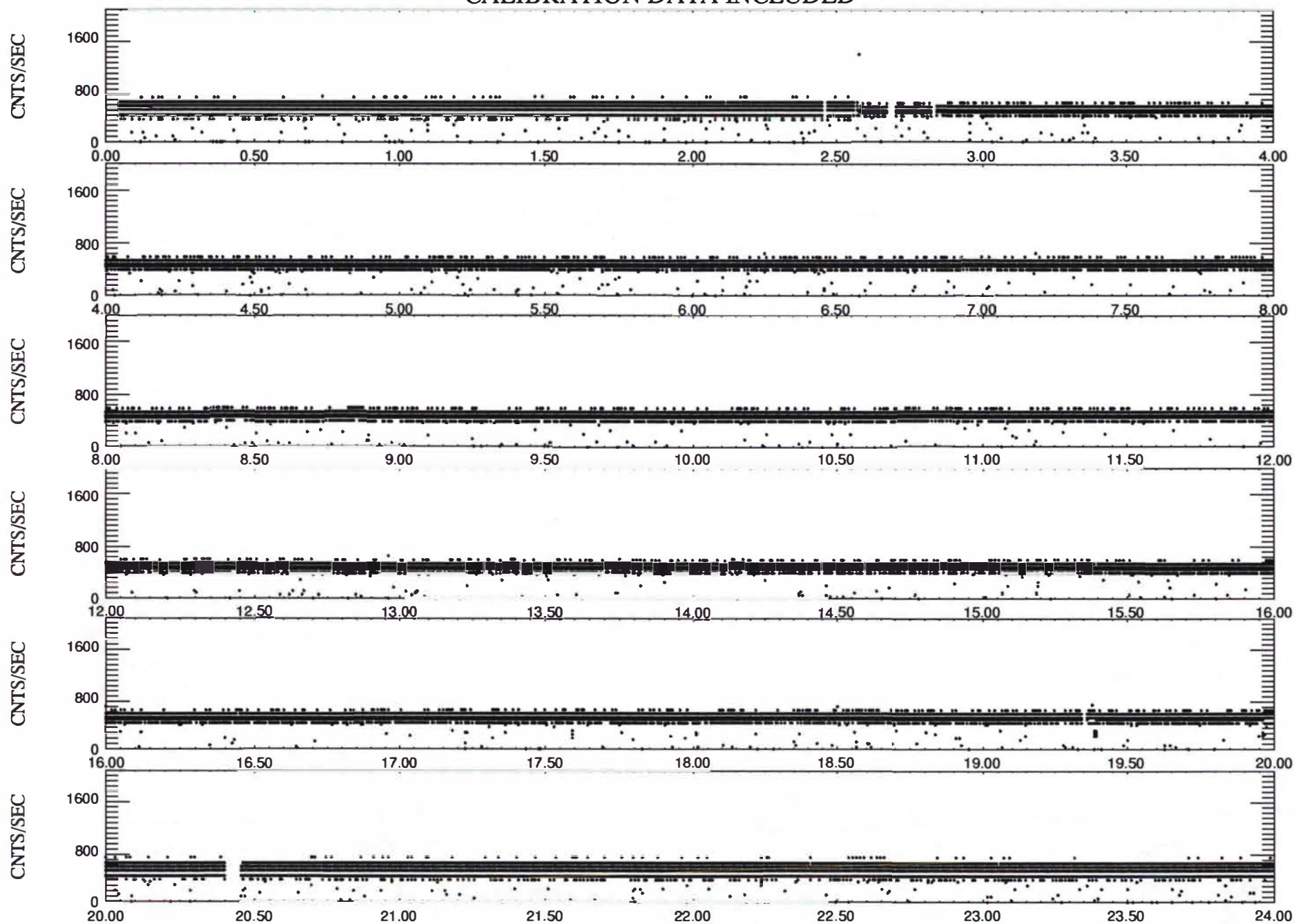
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

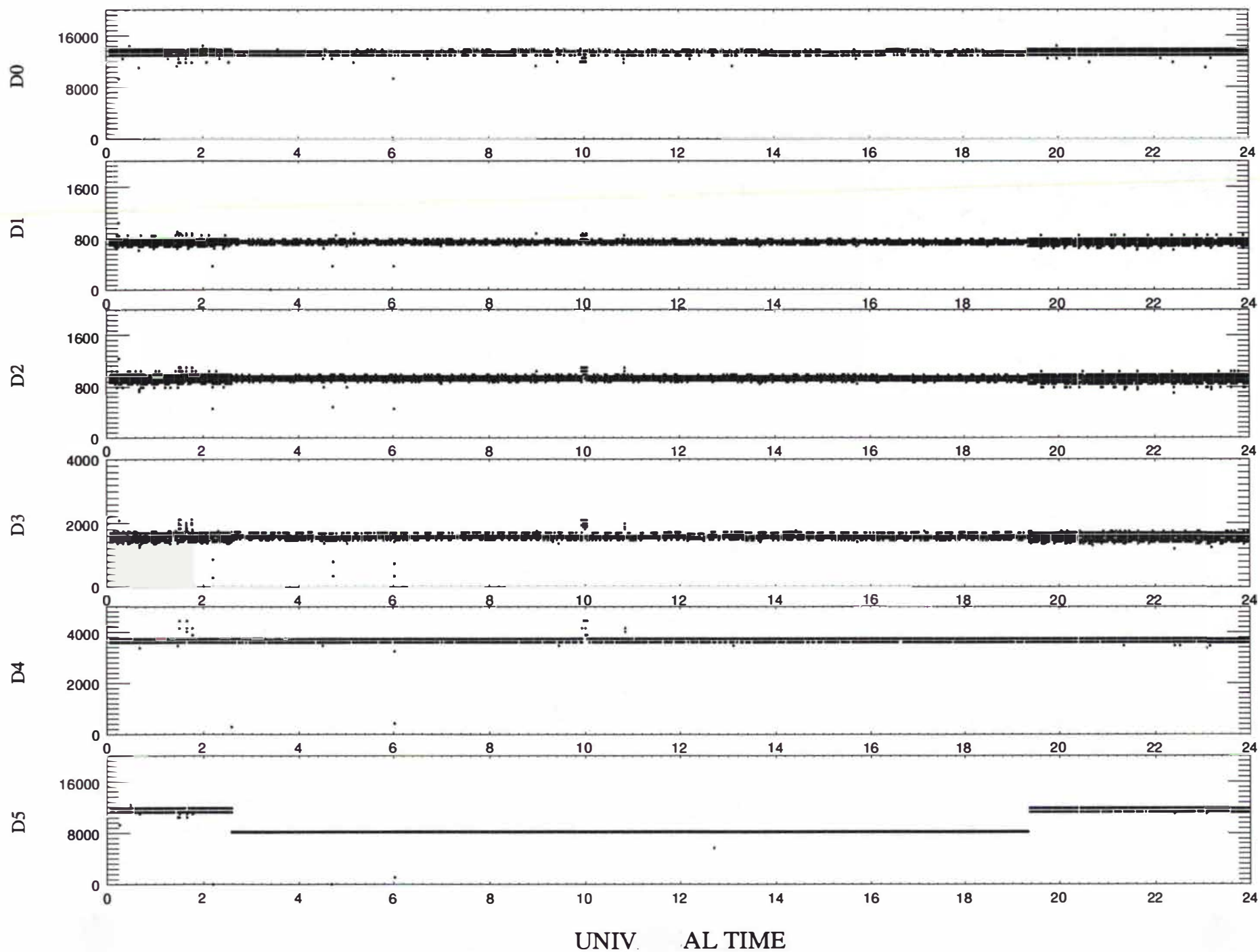
UNIV. AL TIME



CALIBRATION DATA INCLUDED



UNIV AL TIME

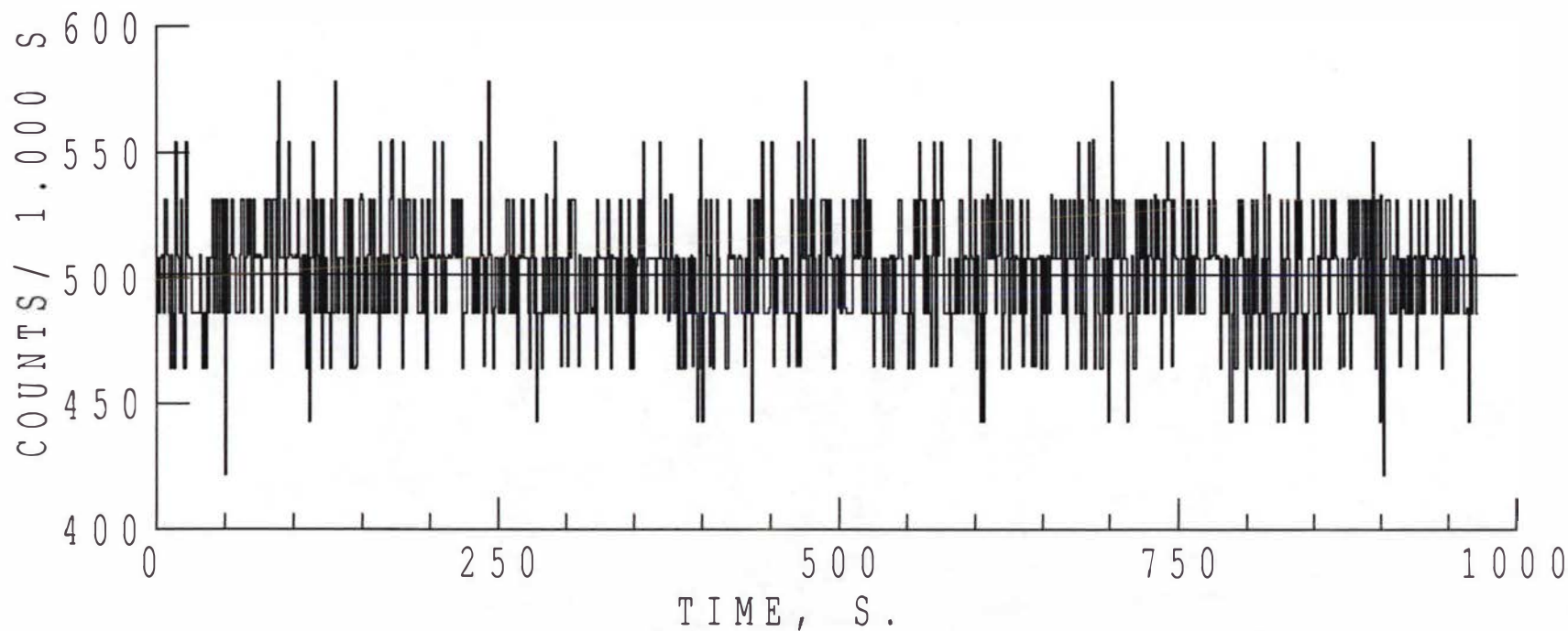


Komberg
UNTRIGGERED

ULYSSES RT
30 / 6 / 93 60732.023 s
0.500 S INTERVALS REGROUPED BY 2
0 - 0 keV

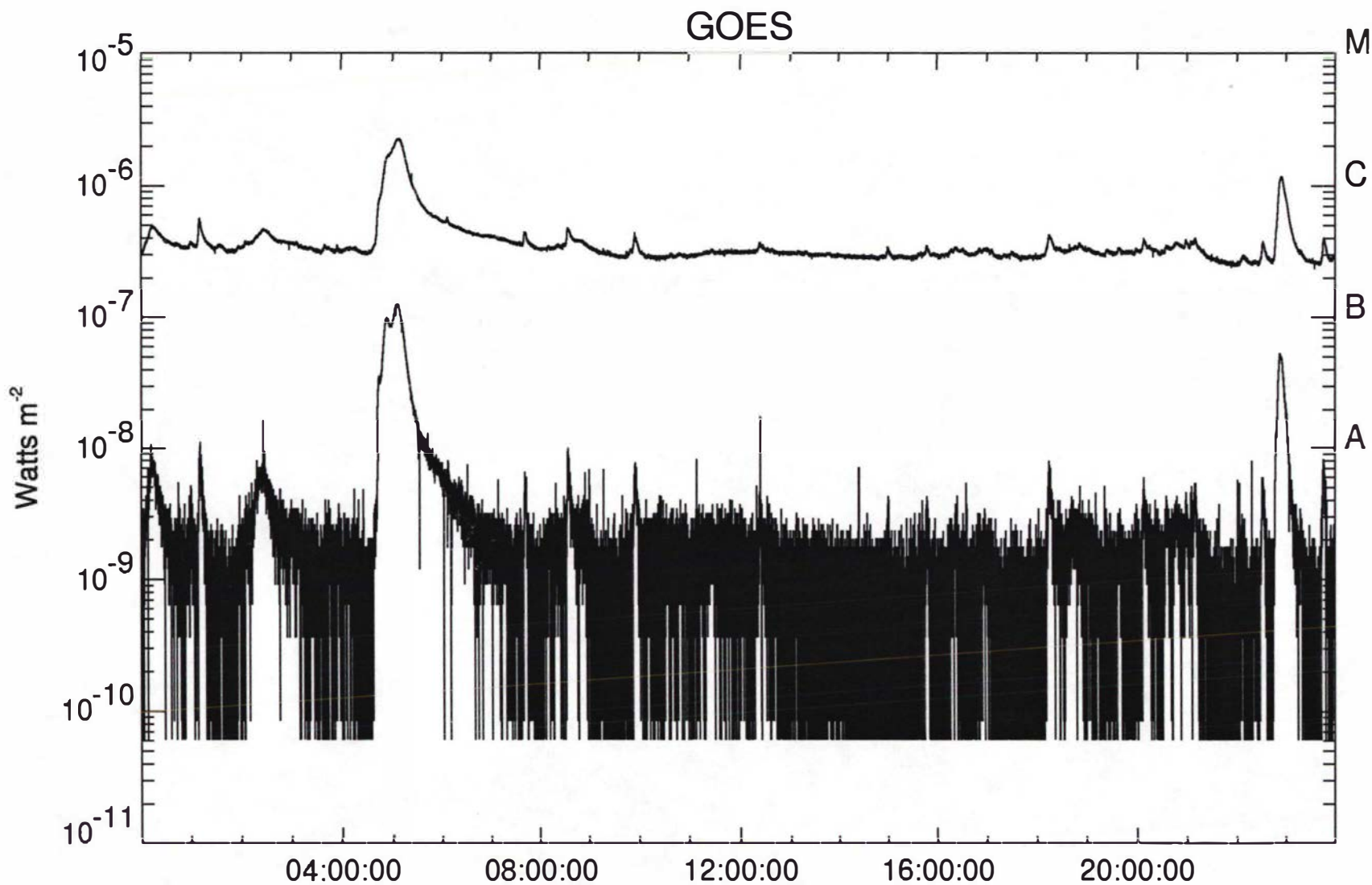
N = 10 M = 10
>4.0 SIGMA FLUCTUATIONS

N = 10 M = 2
>4.0 SIGMA FLUCTUATIONS



17/2/6





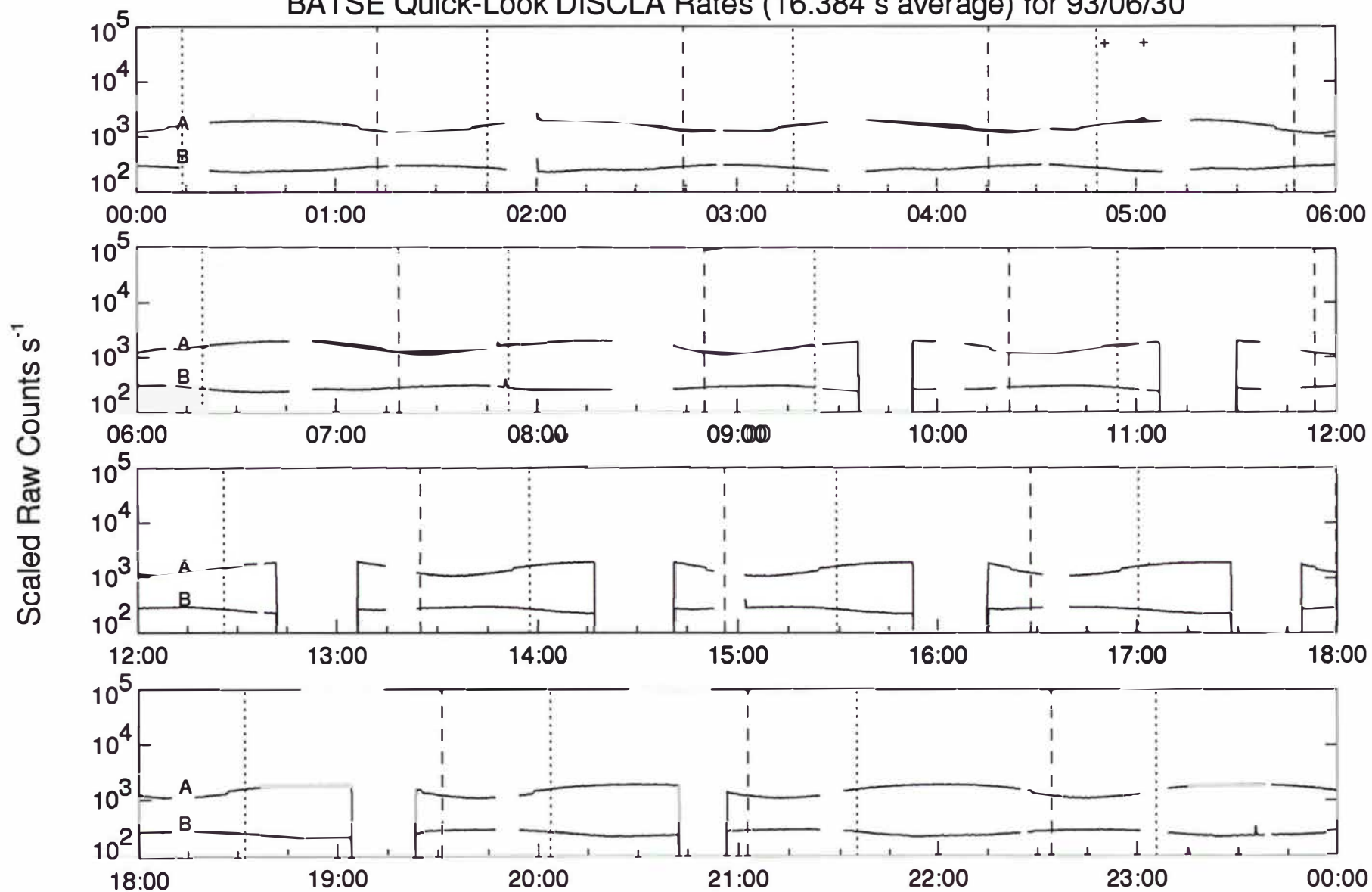
Data Start: 93/06/30, 0000:02

Plot created: 93/10/28, 0204

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (16.384 s average) for 93/06/30



Current Time: 93/11/03, 2041 EDT
A: Channel 1 Most Sunward LAD
B: Sum Channel 1 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

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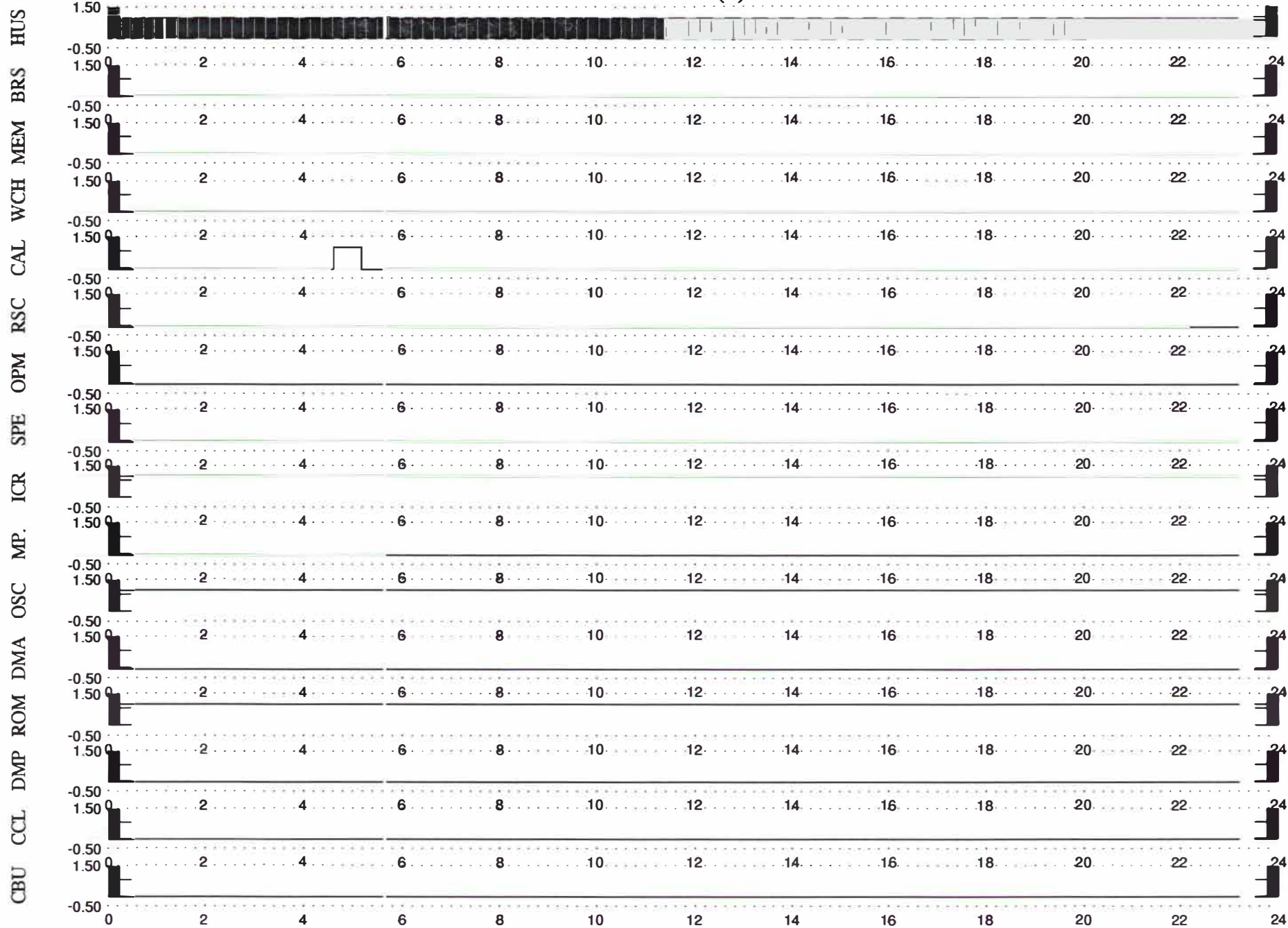
57

58

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60

UNIV 3AL TIME



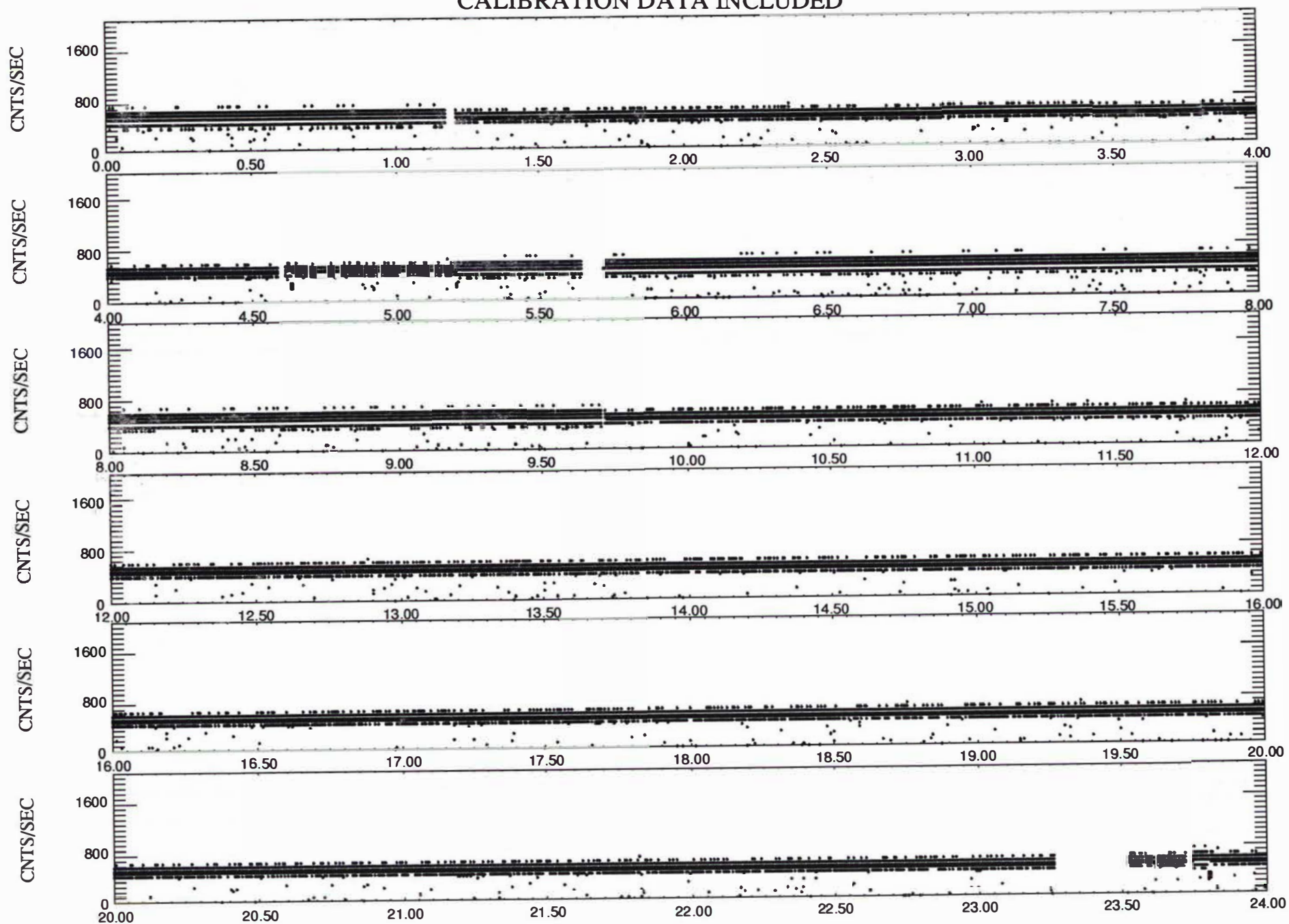
CONTENTS

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REPORTS	10
SYMPOSIUM	15
EDITORIAL	20
BOOK REVIEW	25
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OBITUARY	35
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The following is a list of the contents of the Journal for the week ending May 19, 1922. The Journal is published weekly, except on Sundays and public holidays. The contents are arranged in the following order: Original Articles, Reports, Symposium, Editorial, Book Review, Notes, Obituary, Deaths, and Index. The Journal is published by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. The subscription price is \$5.00 per annum in advance. Single copies are sold at 15 cents. The Journal is sent free of charge to members of the American Medical Association.

The Journal is a valuable source of information for the medical profession. It contains the latest news and developments in the field of medicine. The Journal is a must-read for all medical professionals. The Journal is published by the American Medical Association, 535 North Dearborn Street, Chicago, Ill. The subscription price is \$5.00 per annum in advance. Single copies are sold at 15 cents. The Journal is sent free of charge to members of the American Medical Association.

CALIBRATION DATA INCLUDED



UNIV CAL TIME

