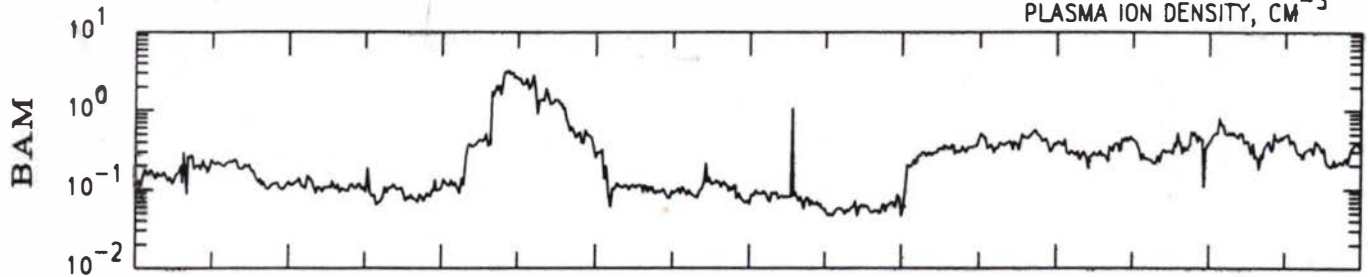


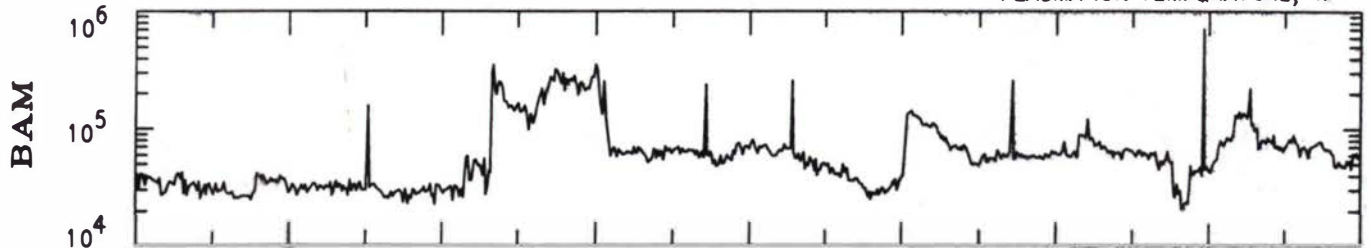
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

99 335 DEC 1 00:00:00.000 - 99 351 DEC 17 00:00:00.000

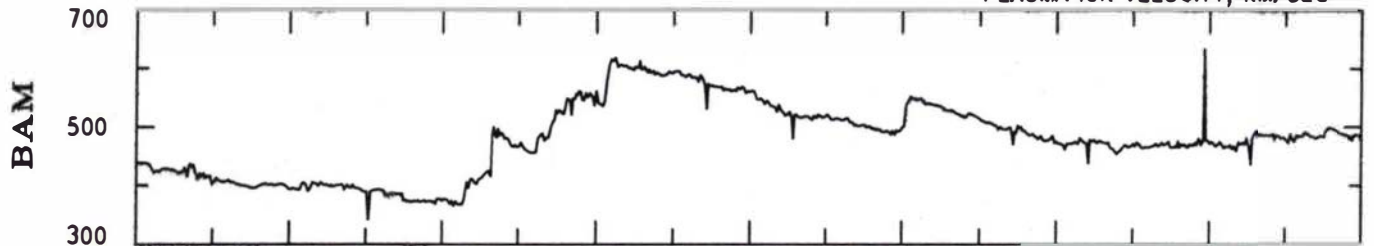
PLASMA ION DENSITY, CM^{-3}



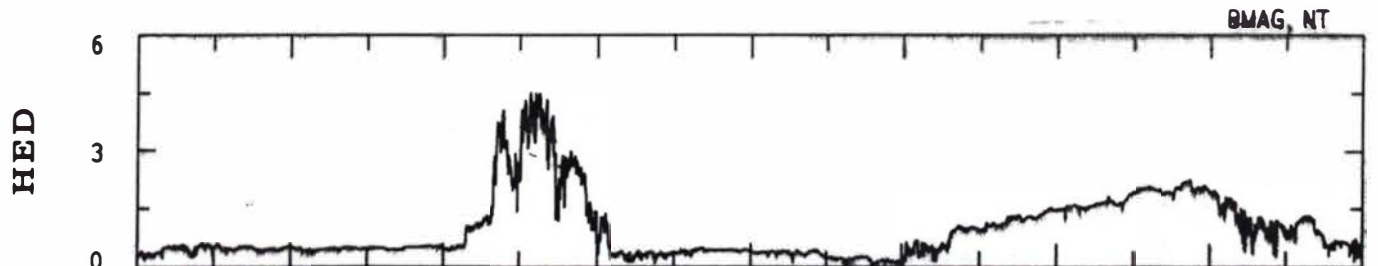
PLASMA ION TEMPERATURE, °K



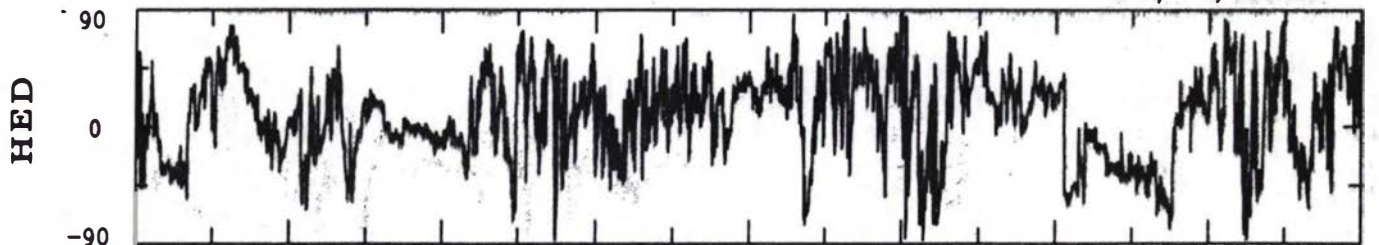
PLASMA ION VELOCITY, KM/SEC



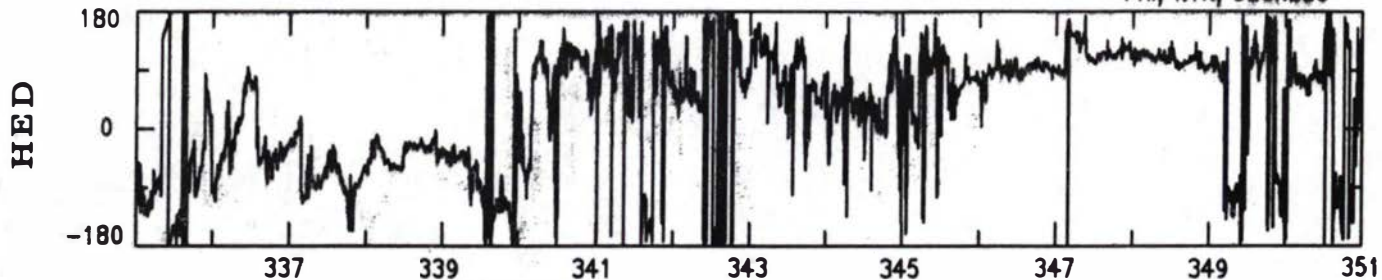
BMAG, NT



THETA, RTN, DEGREES



PHI, RTN, DEGREES



DAY OF YEAR

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

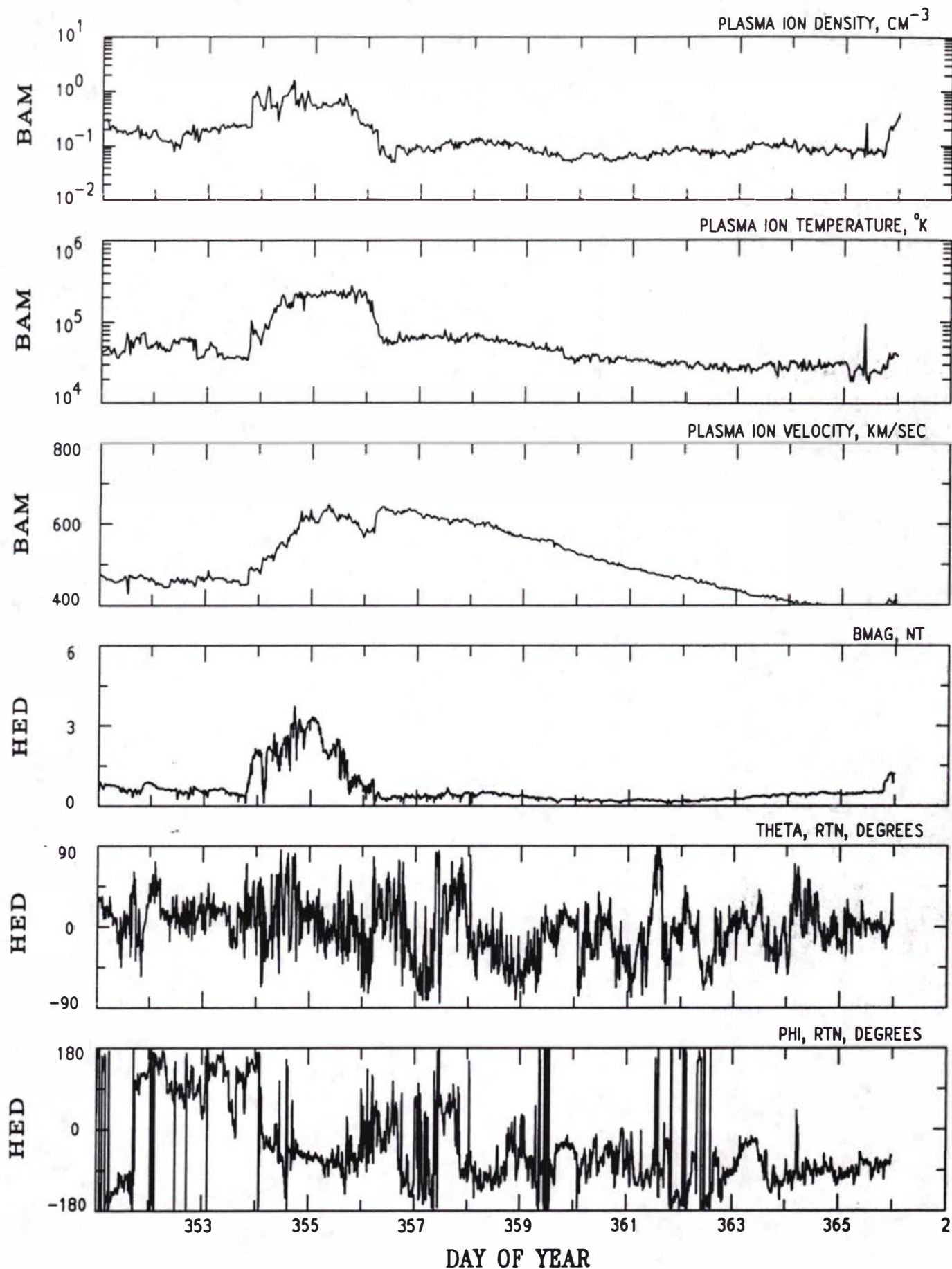
1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

1941. 10. 1. 10. 1. 10. 1.

ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

99 351 DEC 17 00:00:00.000 - 00 002 JAN 2 00:00:00.000



1941 10 14

10 14

10 14

10 14

10 14

10 14

10 14

10 14

10 14

10 14

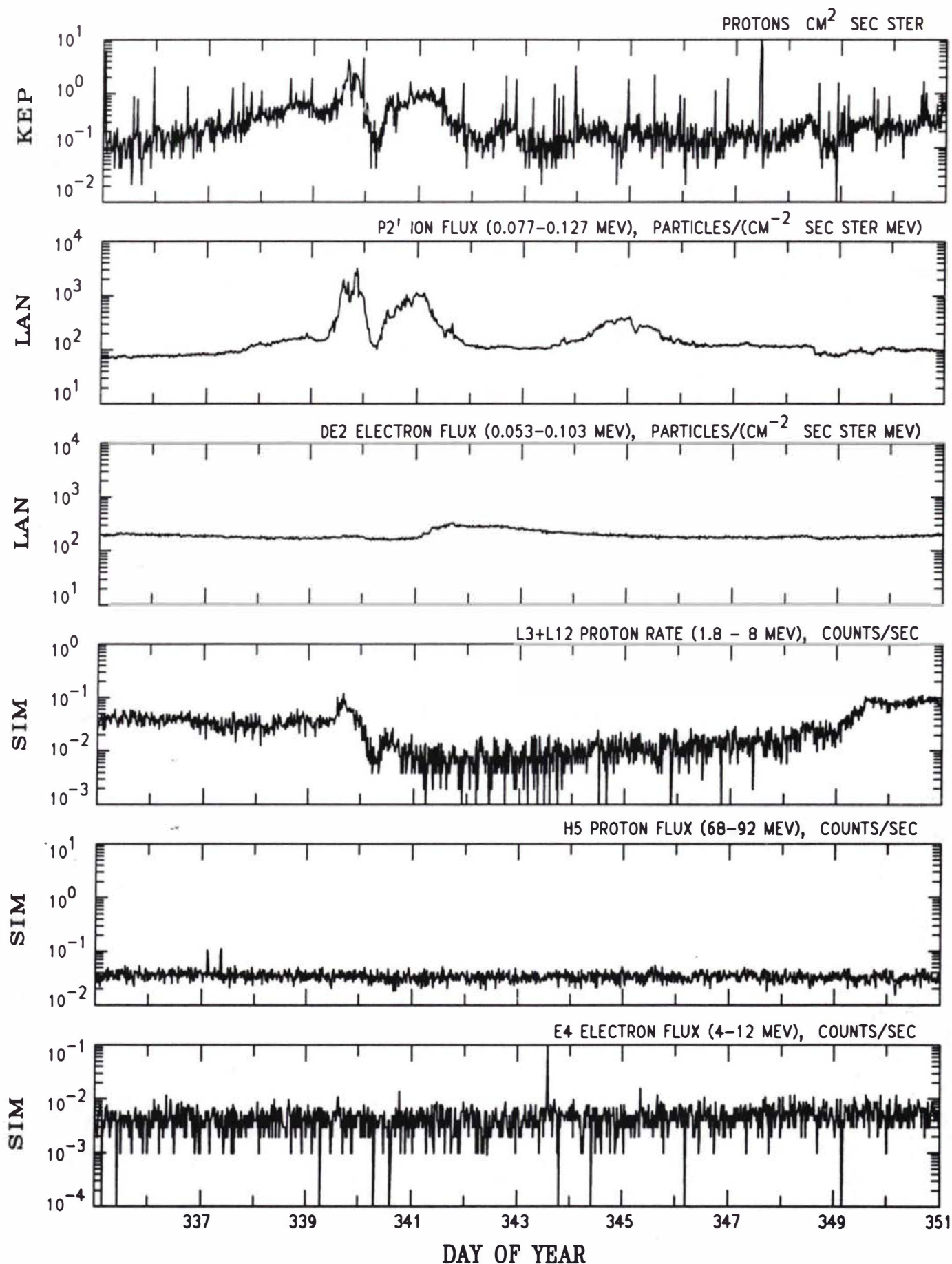
10 14

10 14

10 14

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

99 335 DEC 1 00:00:00.000 - 99 351 DEC 17 00:00:00.000



10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

10/10/10

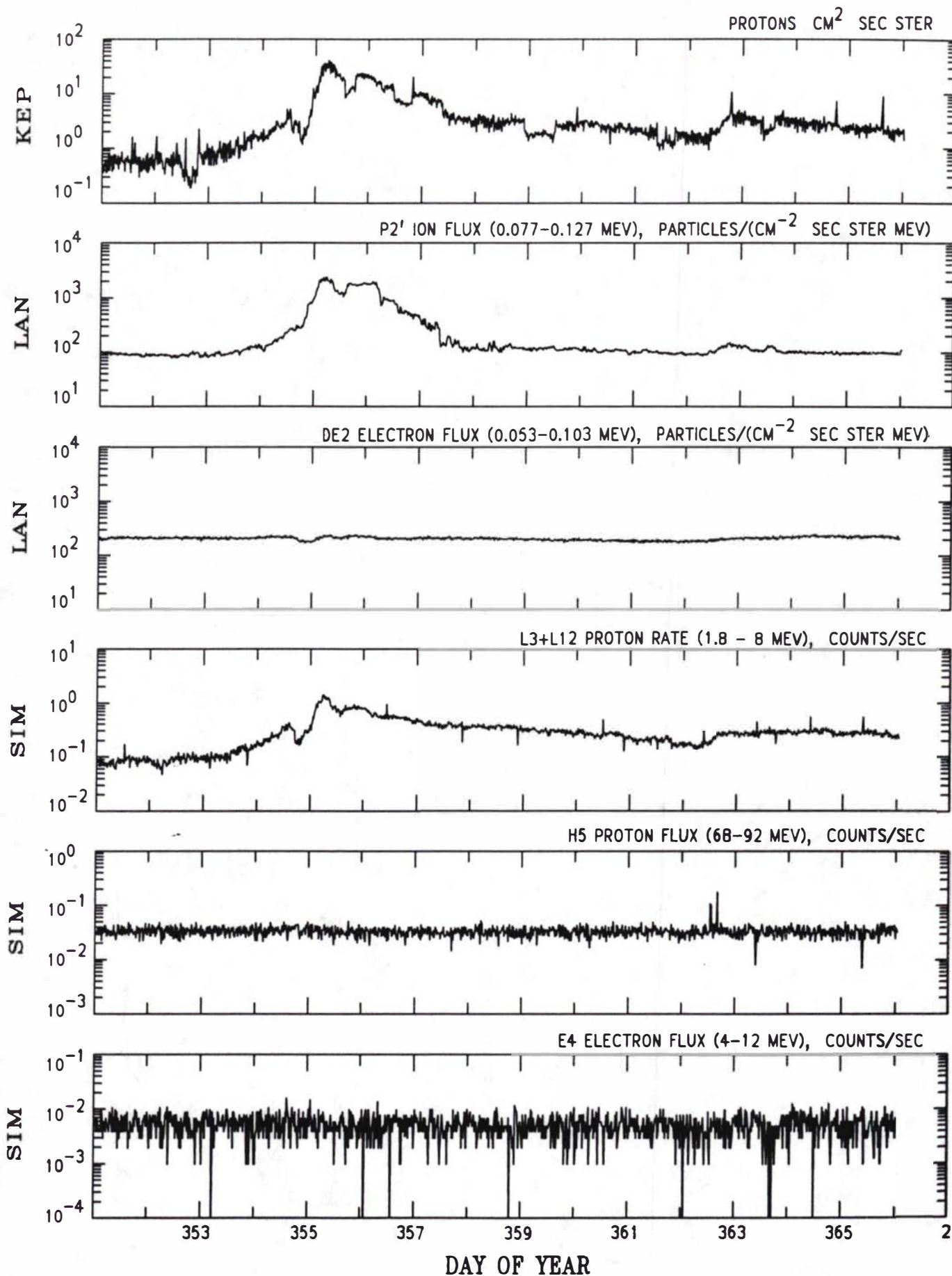
10/10/10

10/10/10

10/10/10

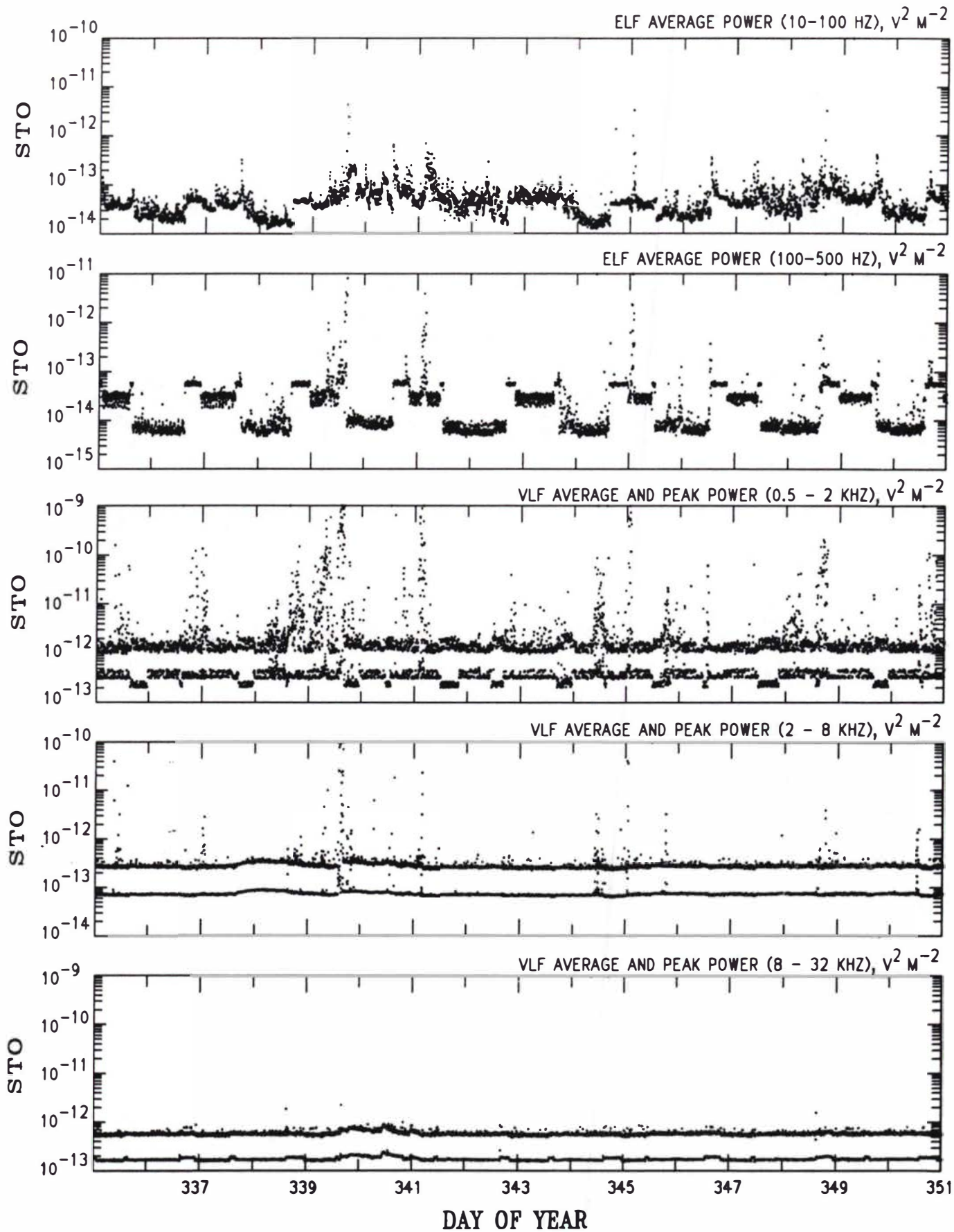
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

99 351 DEC 17 00:00:00.000 - 00 002 JAN 2 00:00:00.000



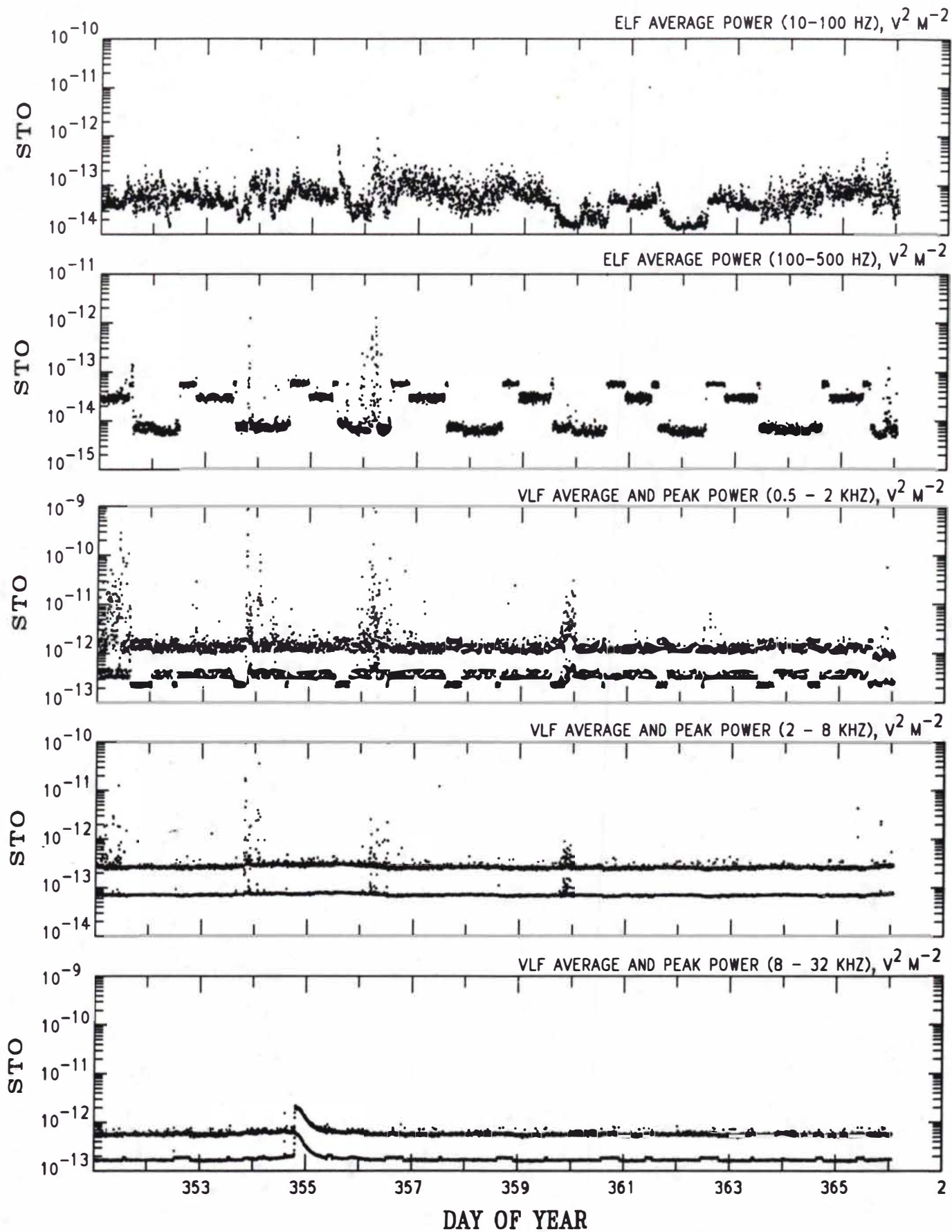
ULYSSES CDR - PLASMA WAVE

99 335 DEC 1 00:00:00.000 - 99 351 DEC 17 00:00:00.000



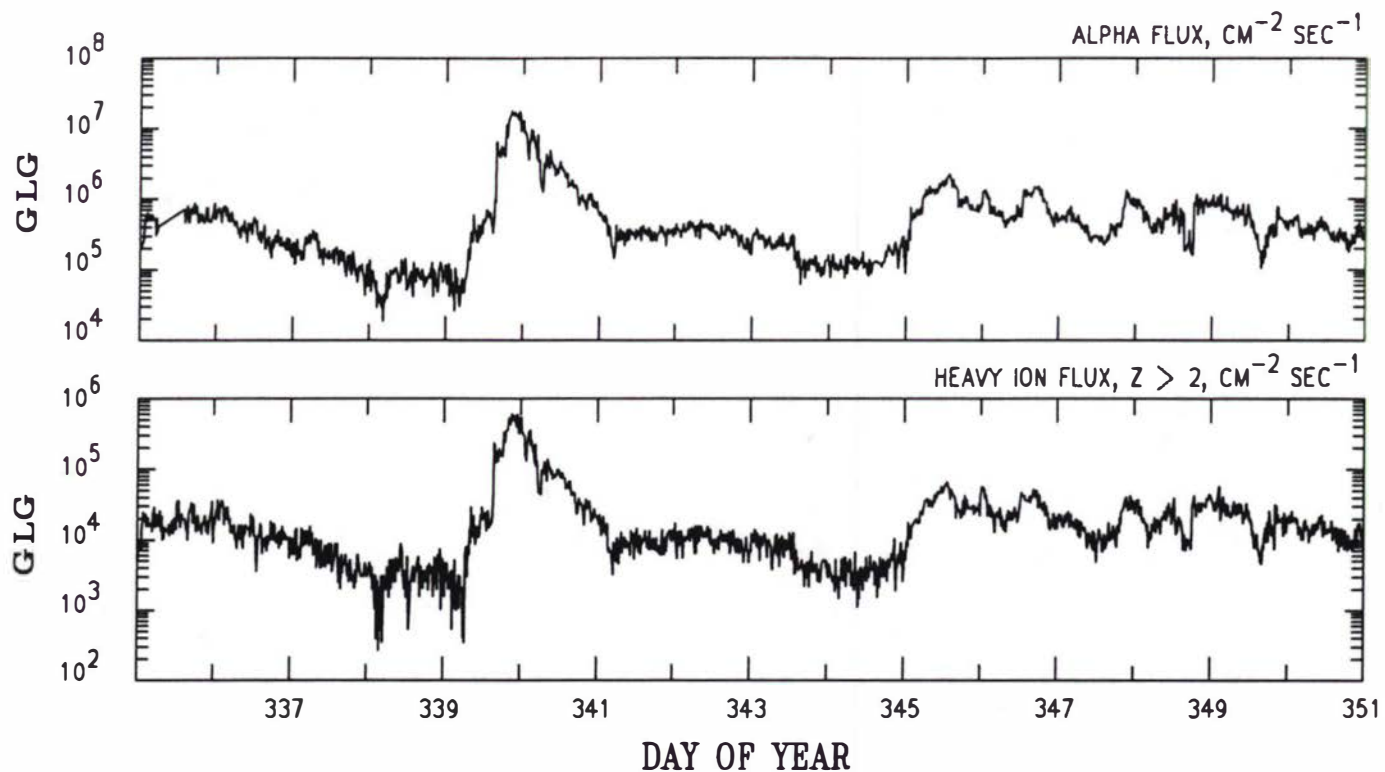
ULYSSES CDR - PLASMA WAVE

99 351 DEC 17 00:00:00.000 - 00 002 JAN 2 00:00:00.000



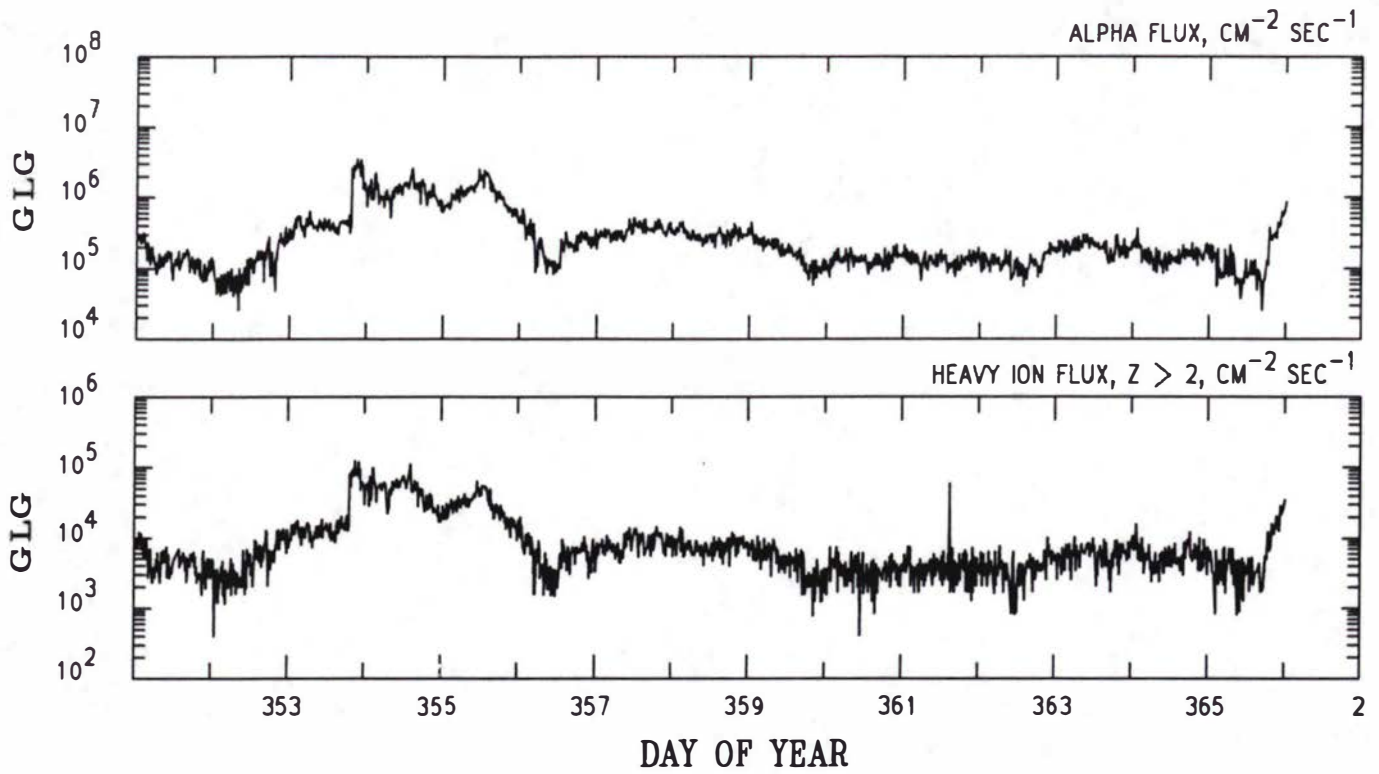
ULYSSES CDR - SOLAR WIND ION COMPOSITION

99 335 DEC 1 00:00:00.000 - 99 351 DEC 17 00:00:00.000



ULYSSES CDR - SOLAR WIND ION COMPOSITION

99 351 DEC 17 00:00:00.000 - 00 002 JAN 2 00:00:00.000



JANA TAB1 19991130 86055

ULYSSES RT

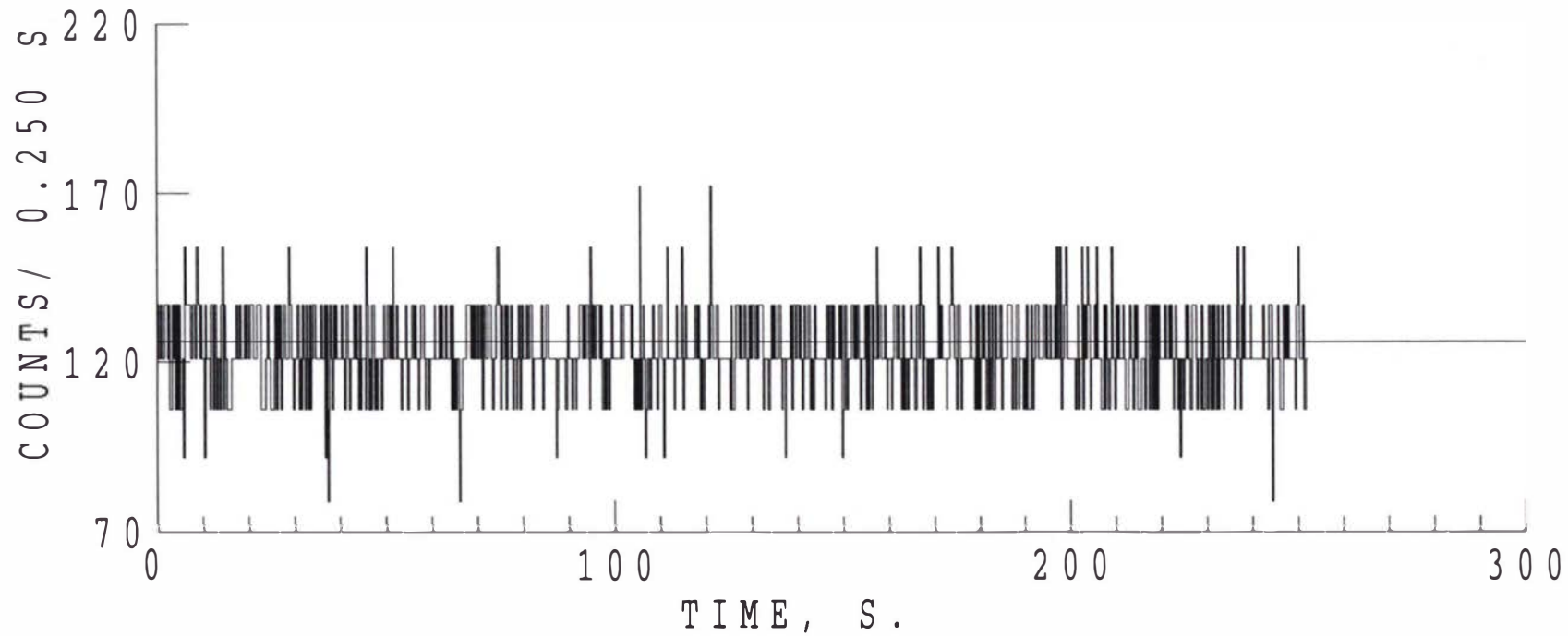
24/08/05

30/11/99 85932.094 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From SAHI@fender.msfc.nasa.gov Fri Dec 3 15:00 PST 1999
From: SAHI@fender.msfc.nasa.gov
Date: Fri, 3 Dec 1999 17:09:07 -0600 (CST)
: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7888

BATSEARCH PROGRAM

BATSE BURST # 7888
EVENT OF 1999 DEC 1 DAY OF YEAR=335
EVENT CROSSING TIME AT BATSE : 41991. S. OR 11:39:51.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 328.000 27.000
BATSE PEAK COUNTING RATE: 3000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 1/12/ 99 IS:
RA= 165.979 DEC= -27.945 DIST= 4.468 AU
BATSE-ULYSSES DISTANCE = 668431123. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 15.96 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2143.65 SECS.
CROSSING TIME AT ULYSSES IS 44135. S. OR 12:15:34 +/- 189.03 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 1/12/ 99 IS:
RA= 306.284 DEC= -20.734 DIST= 1.680 AU
MARS-BATSE DISTANCE = 251370208. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=127.84 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -514.35 SECS.
CROSSING TIME AT MARS IS 41477. S. OR 11:31:16 +/- 107.16 SECONDS

BATSE BURST TRIGGER

NO.: 7888

TIME: TJD=1513 SECONDS=41991

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=69.1 AZIMUTH=278.4 ERROR=3.8 DEGREES

COMMENTS:

GRB. SINGLE PULSE, DUR. 9 S, STARTS AT T-1.5 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7888	991201	11513	41991	3000	328	+27	9

Date: June 2 00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☒ ~~F~~ Jim Schmidling's stat file correction applied?

☒ ~~F~~ Final ephemeris used?

☒ ~~F~~ Final, CDROM data used?

☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution? *No - bad stats*

2. BATSE Data

☒ ~~B~~ BATSE ephemeris for T_0 ?

☒ ~~E~~ Error circle position and radius from public catalog used?

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

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?

☒ ~~A~~ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

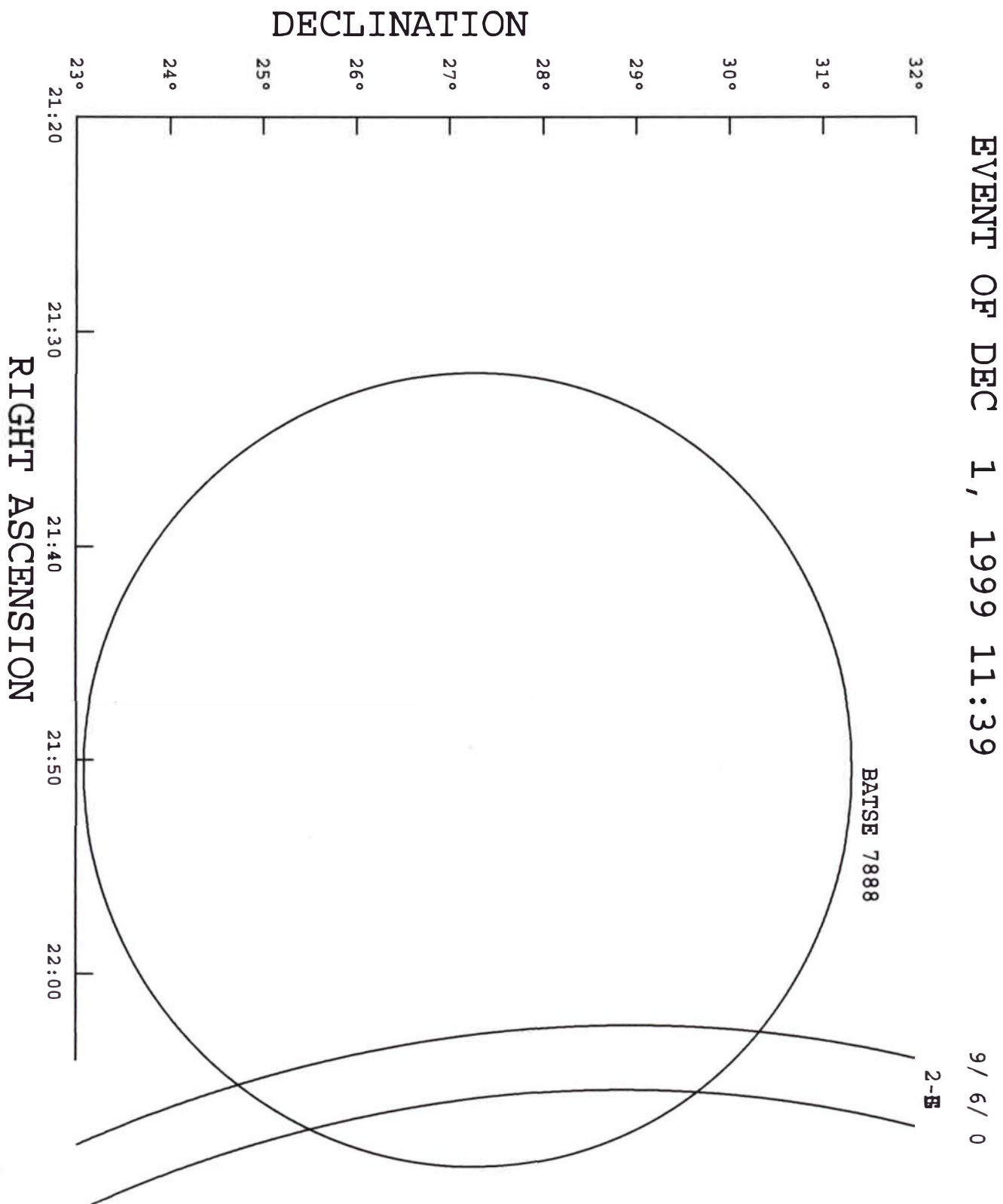
S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES



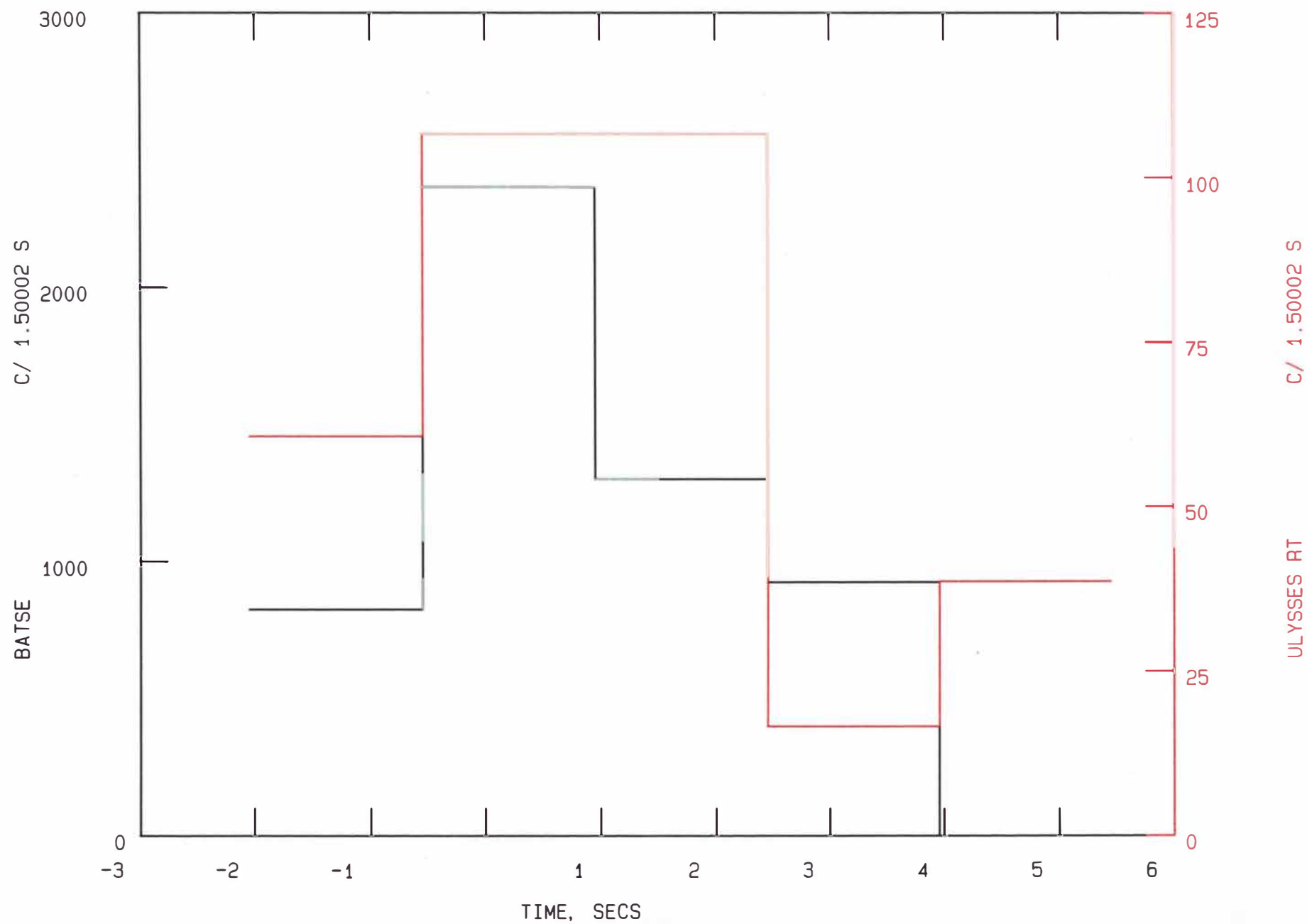
BATSE

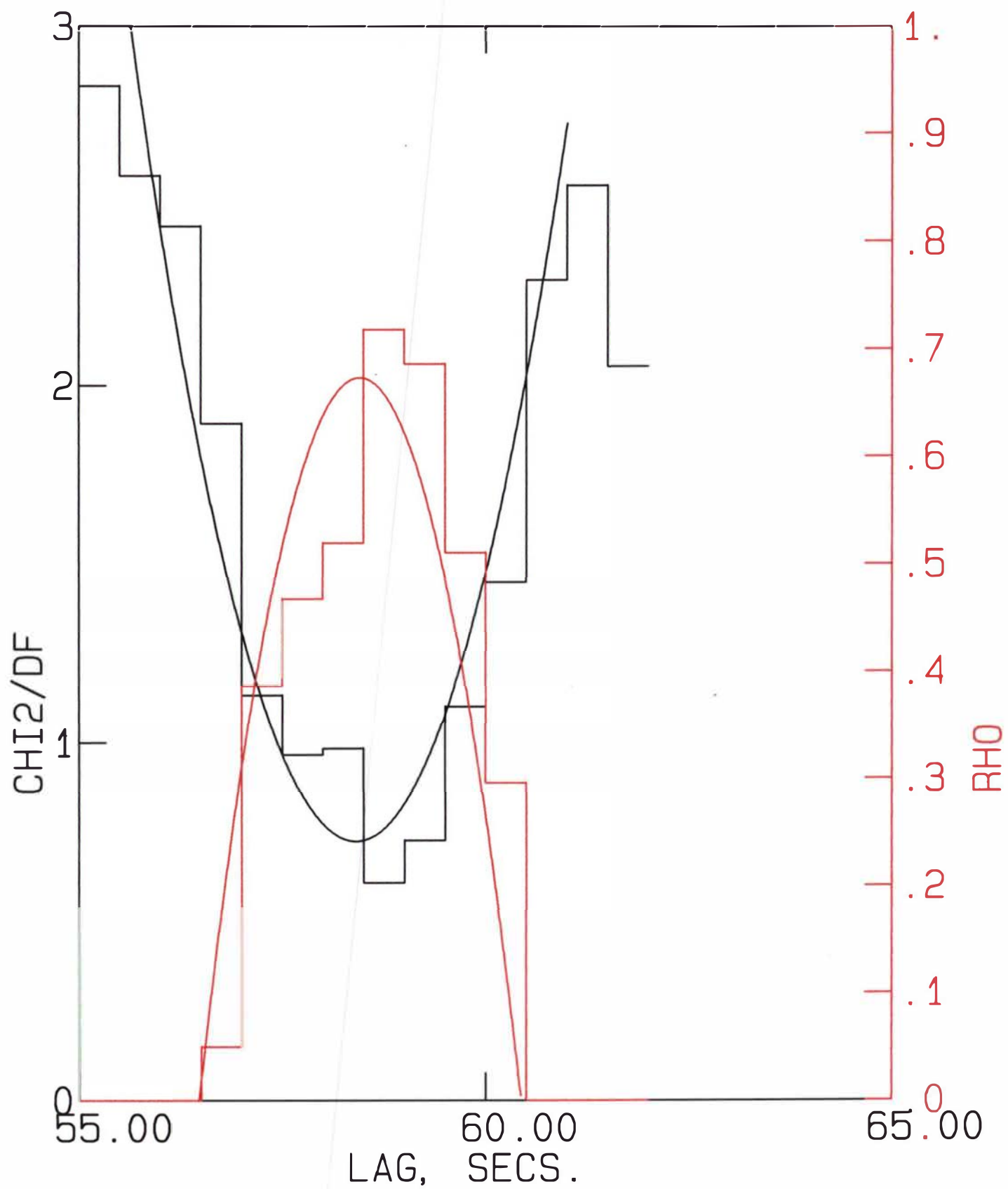
-ULYSSES RT CORRELATION

1/12/99

41991.929

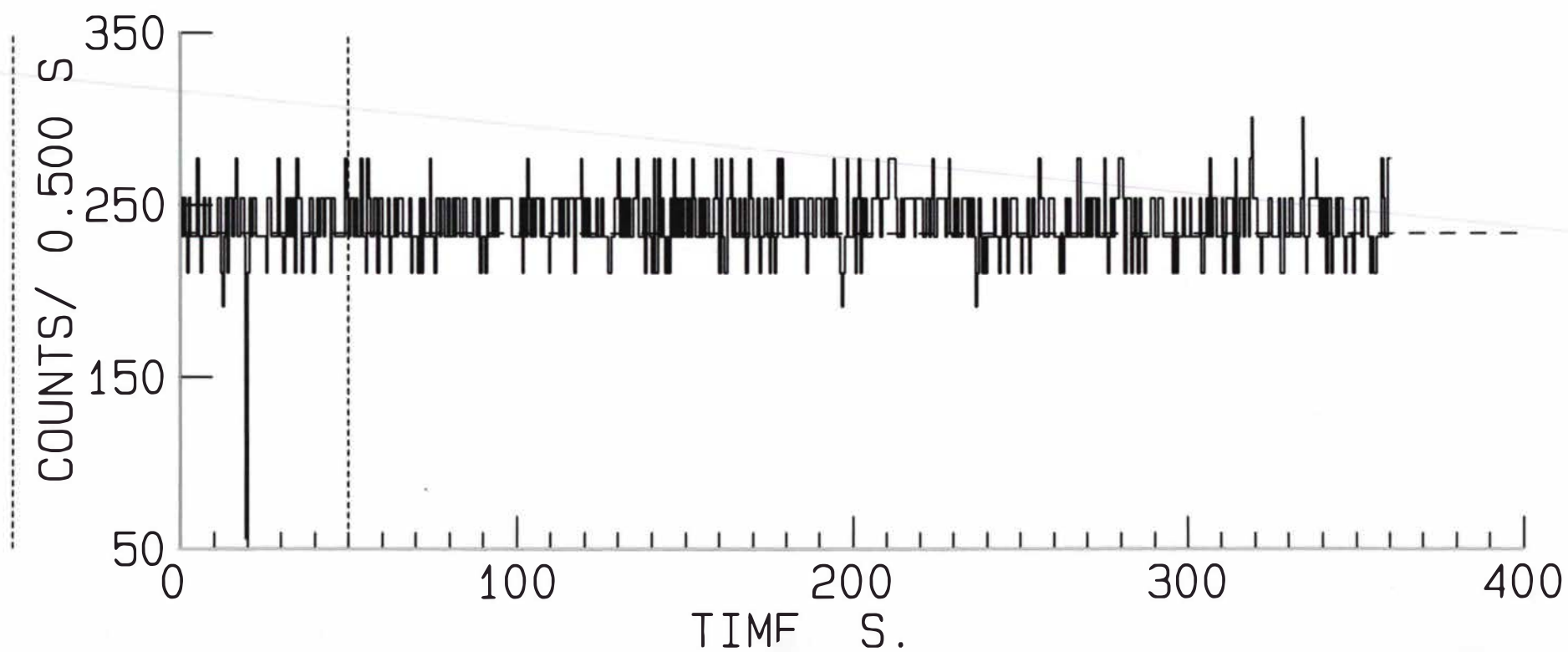
9/ 6/ 0





ULYSSES RT
1/12/99 43956.044 s
22- 150 keV

9 / 6 / 0



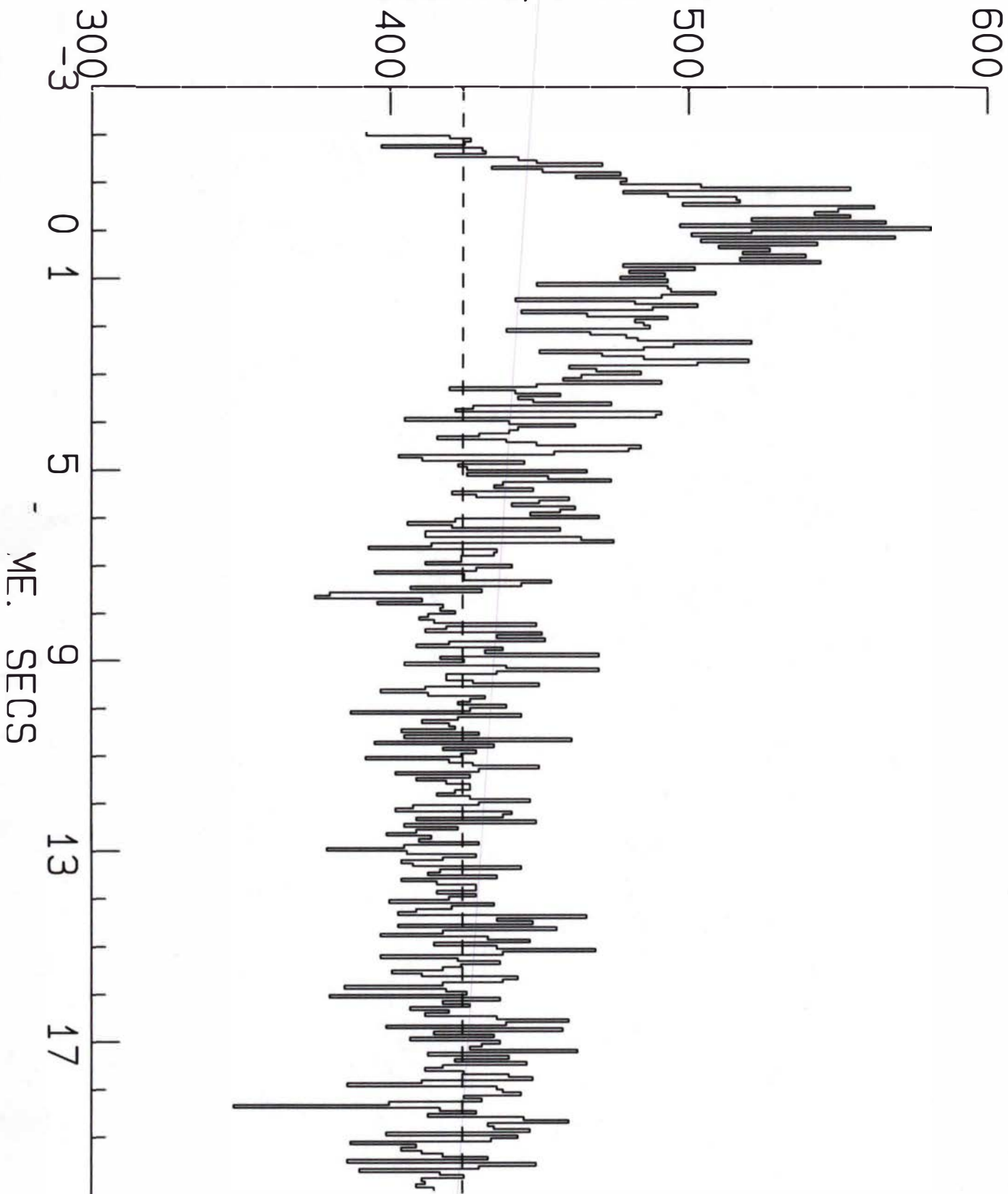
BATSE

01/12/99

41991.929

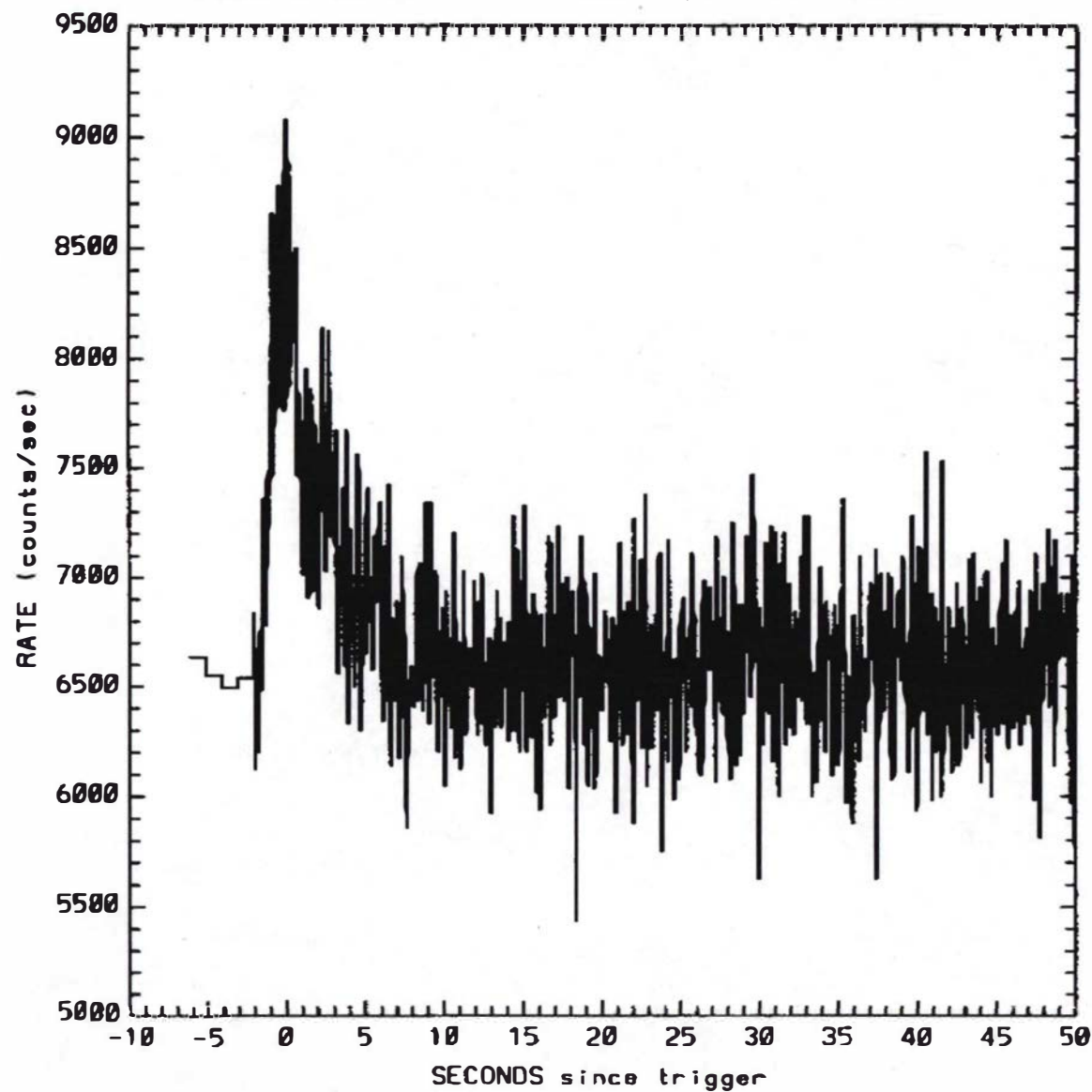
25- 100 keV

COUNTS/0.064 S



28 / 12 / 99

DISCSC Data for K. Hurley, No. 7888



28-DEC-1999 09:38:37

Created by MOPS 80
(Burst Display)
Version 12.26

Trigger # : 7888

Trigger Time:
11513 / 41991.929

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 seconds

Detectors (7..8):
-6--2--

Discriminators:
(1 . 2)

Quality Mask:
BDISP1

From khurley@sunspot.ssl.berkeley.edu Mon Dec 6 10:52 PST 1999

Date: Mon, 6 Dec 1999 11:00:38 -0800

From: khurley@ssl.berkeley.edu (Kevin Hurley)

To: scott@milkyway.gsfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
feroci@saturn.ias.rm.cnr.it, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, bonnard@milkyway.gsfc.nasa.gov,
jterrell@lanl.gov, woods@eagles.msfc.nasa.gov, yosimori@rikkyo.ac.jp,
kraken@origin.gsfc.nasa.gov

Subject: GRB991201

ULYSSES GAMMA-RAY BURST NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 01 1999* 17:19	intense, 32 ms long	2240

Was this event detected by anyone else?

*This burst looks like an SGR. The Earth-crossing times for the SGRs are approximately:

0525-66: 63369 s

1806-20: 62184 s

1900+14: 61169 s

27-41: 63273 s

1801-23: 62296 s

CC: ulyssesbursts alias list

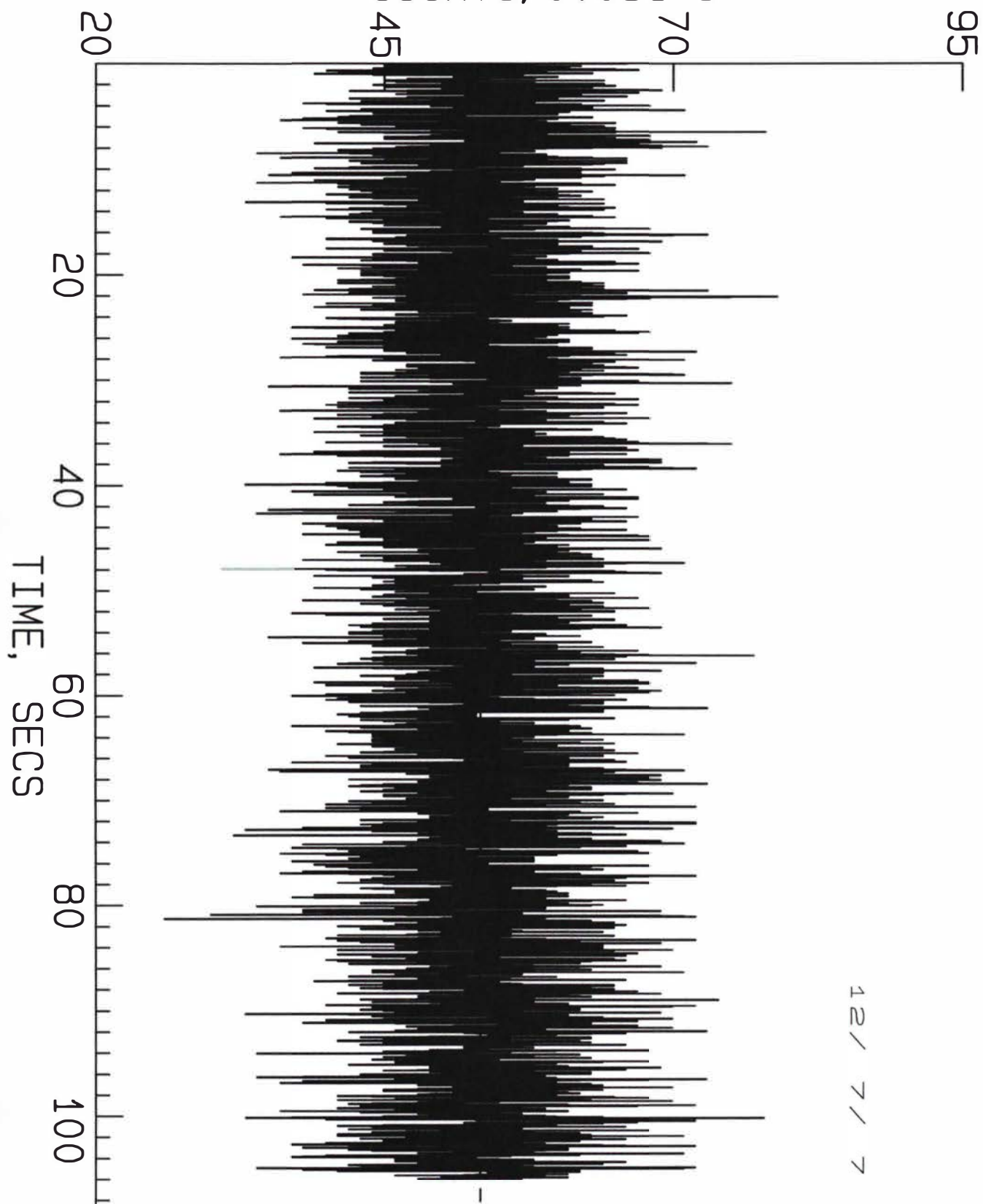
(barthelmy, butterworth, cline, feroci, frontera, henze, kraken, teegarden,

SAX GRBM

01/12/99 82267.381

40- 700 keV

COUNTS/0.031 S



12 / 7 / 7

grbm 19991201 82148

ULYSSES RT

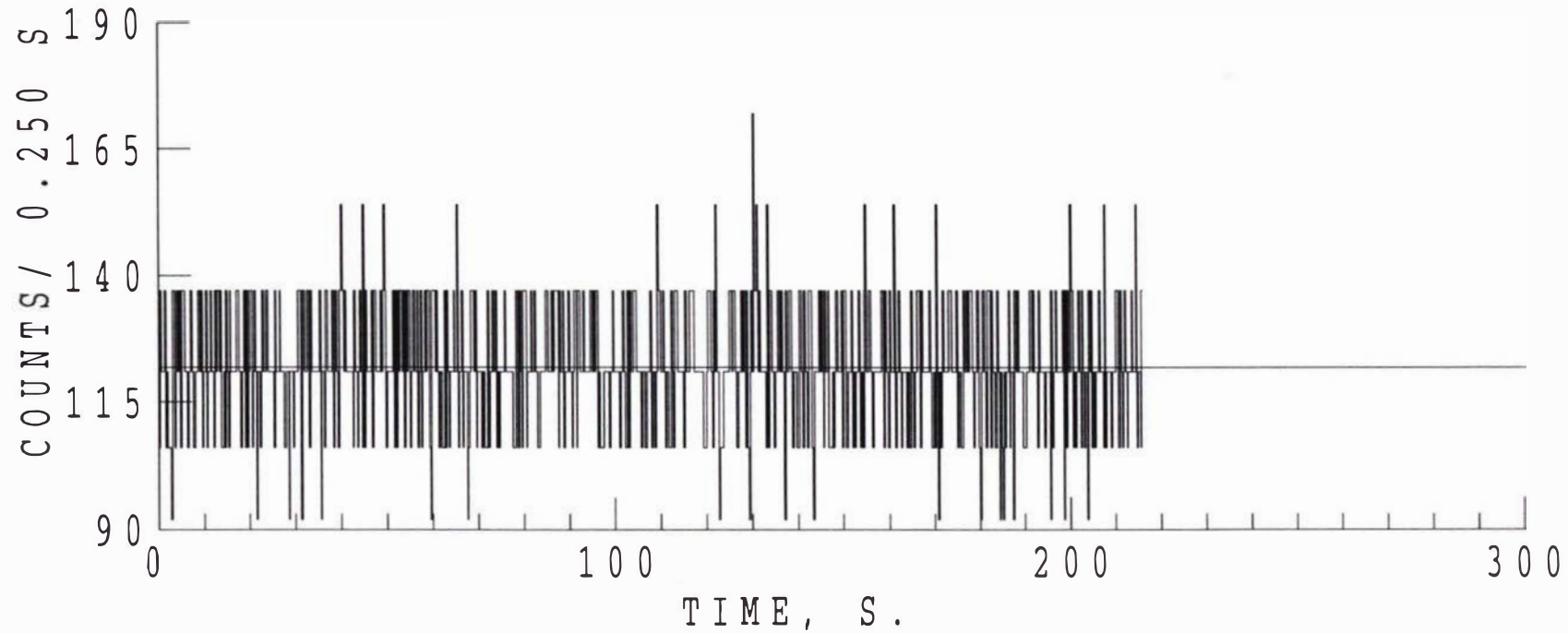
11/07/07

01/12/99 82044.188 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



g r b m 1 9 9 9 1 2 0 1 8 2 4 5 6

ULYSSES RT

1 0 / 0 7 / 0 7

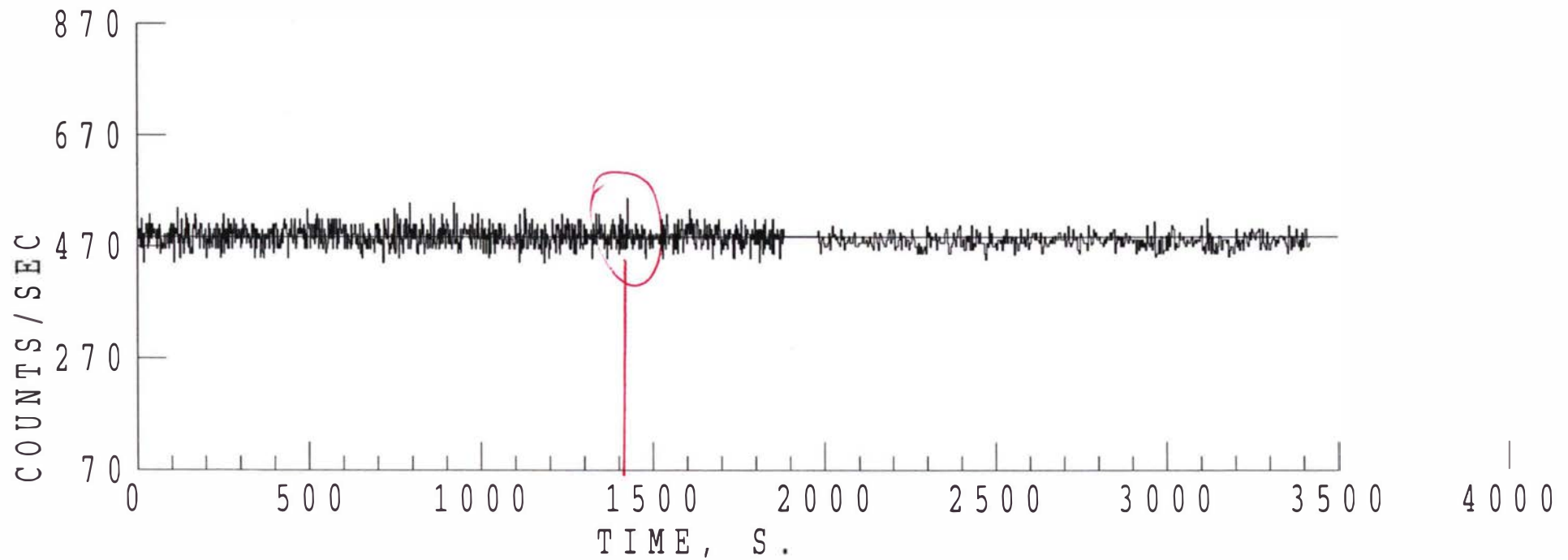
0 1 / 1 2 / 9 9 8 0 7 4 8 . 1 7 2 s

INTERVALS REGROUPED BY 7

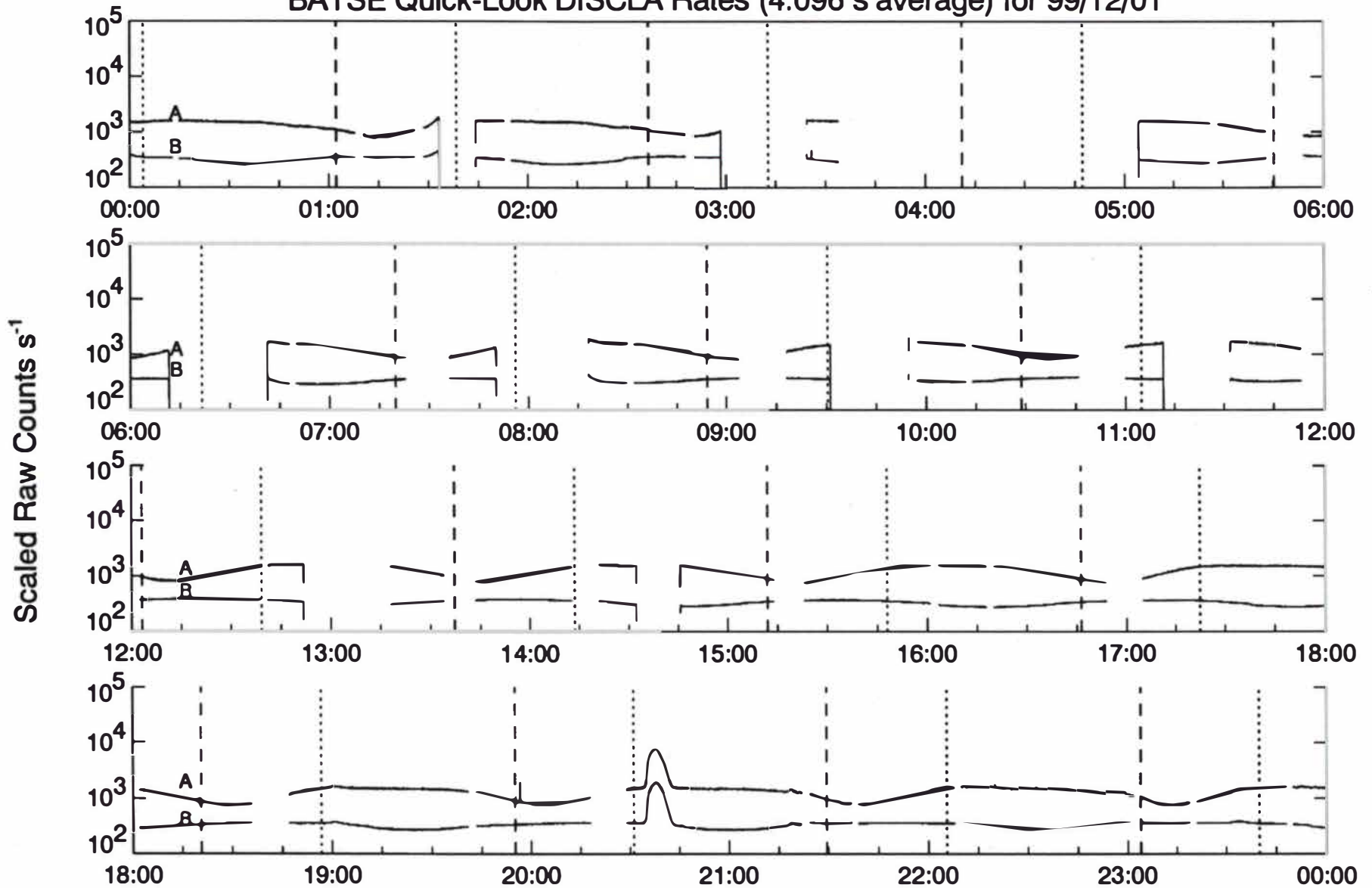
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/01

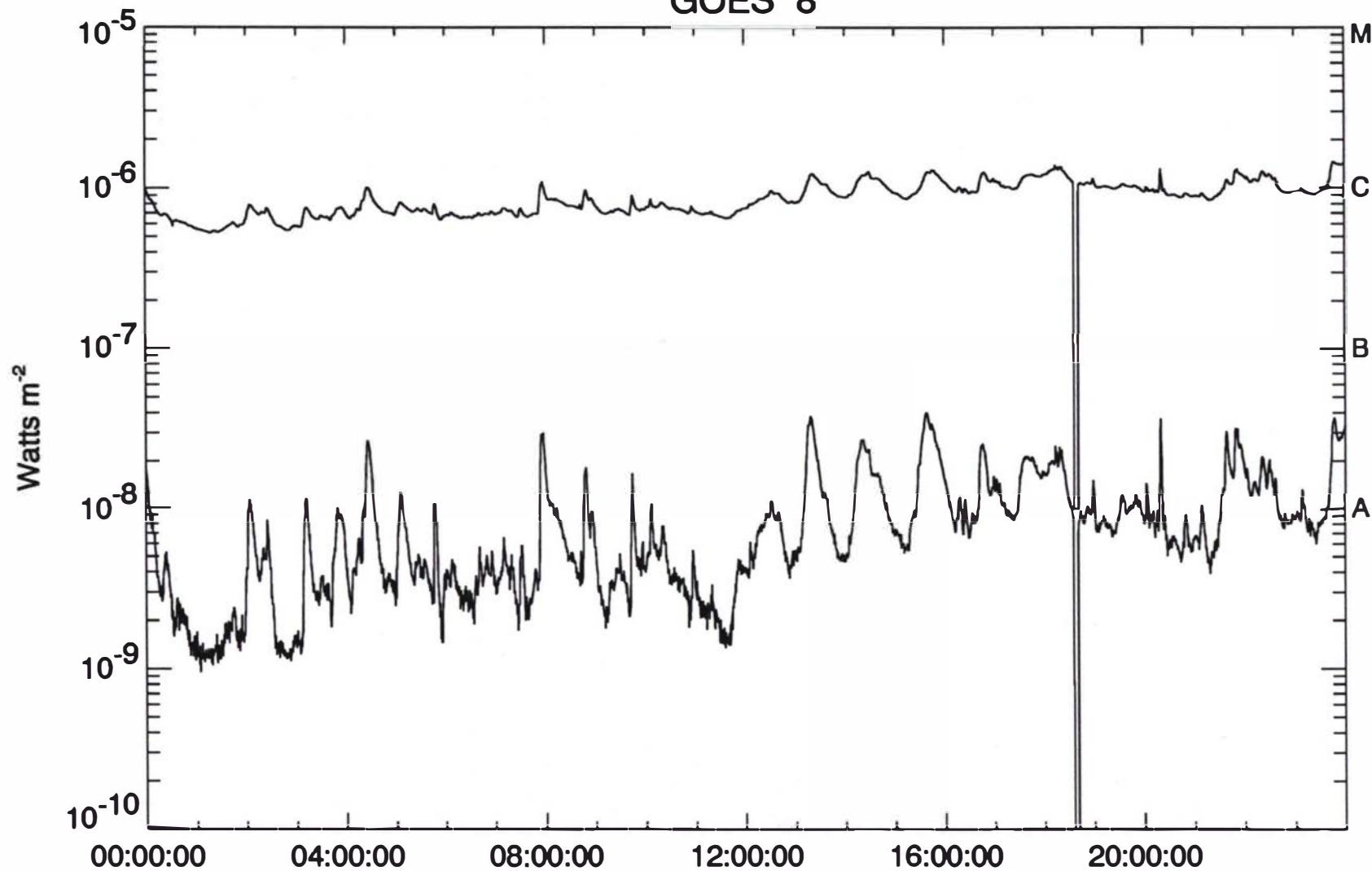


Current Time: 99/12/05, 1009 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 99/12/01, 0000:00

Plot created: 99/12/05, 1008

Channel

1 (1.0 - 8.0 Angstroms)

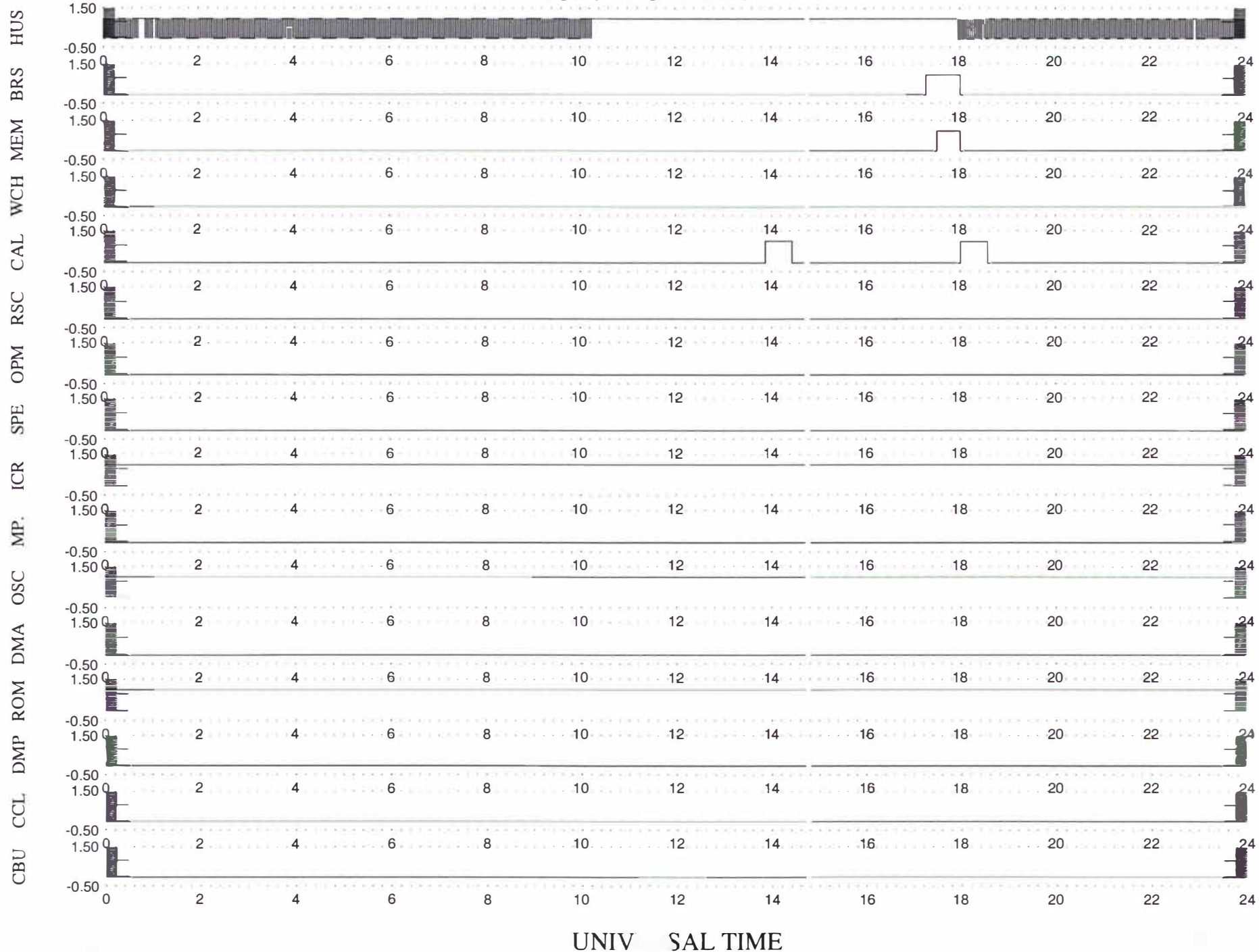
Background not subtracted

2 (0.5 - 4.0 Angstroms)

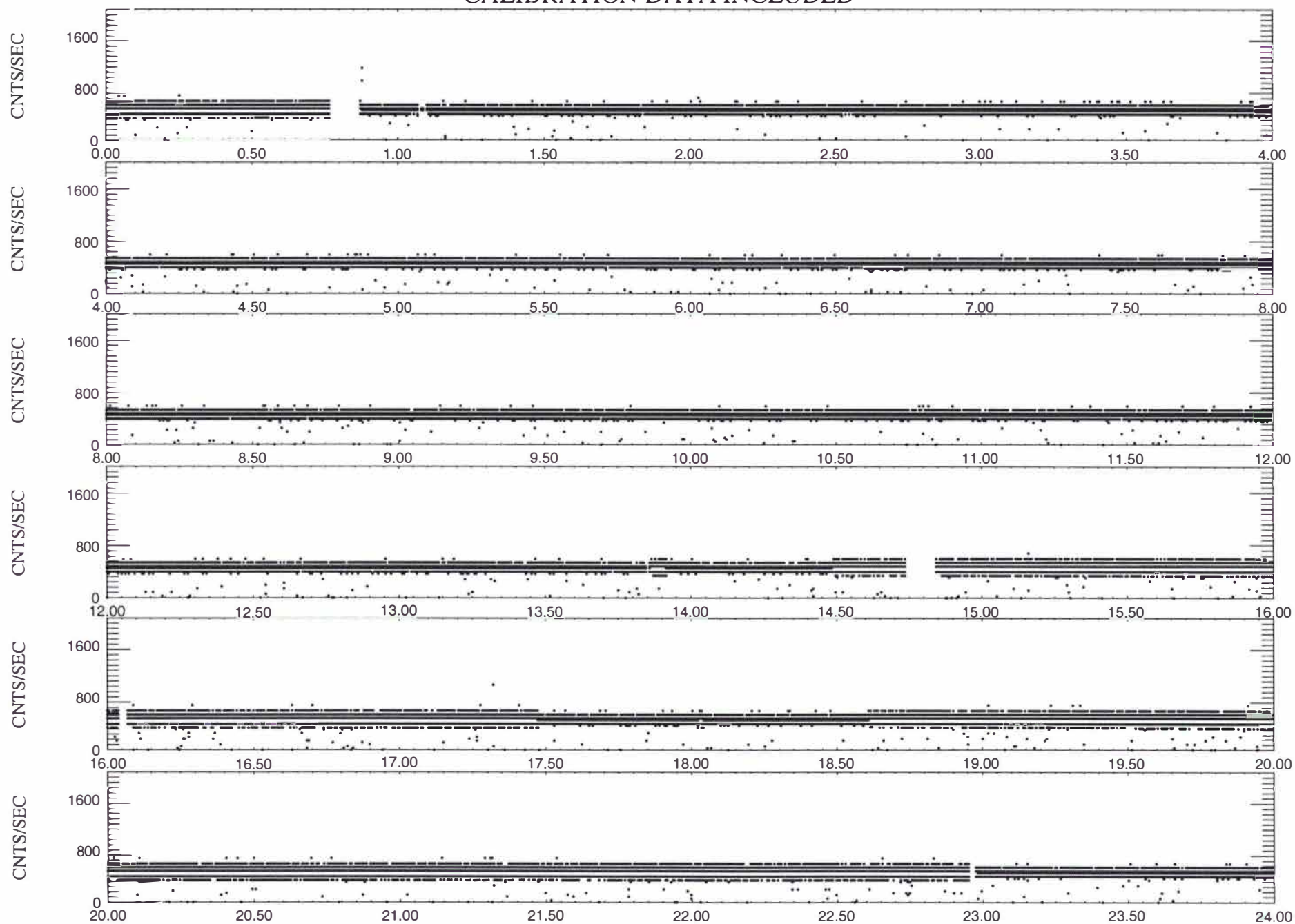
Background not subtracted

Sample average = 10

BURST NUMBER 3

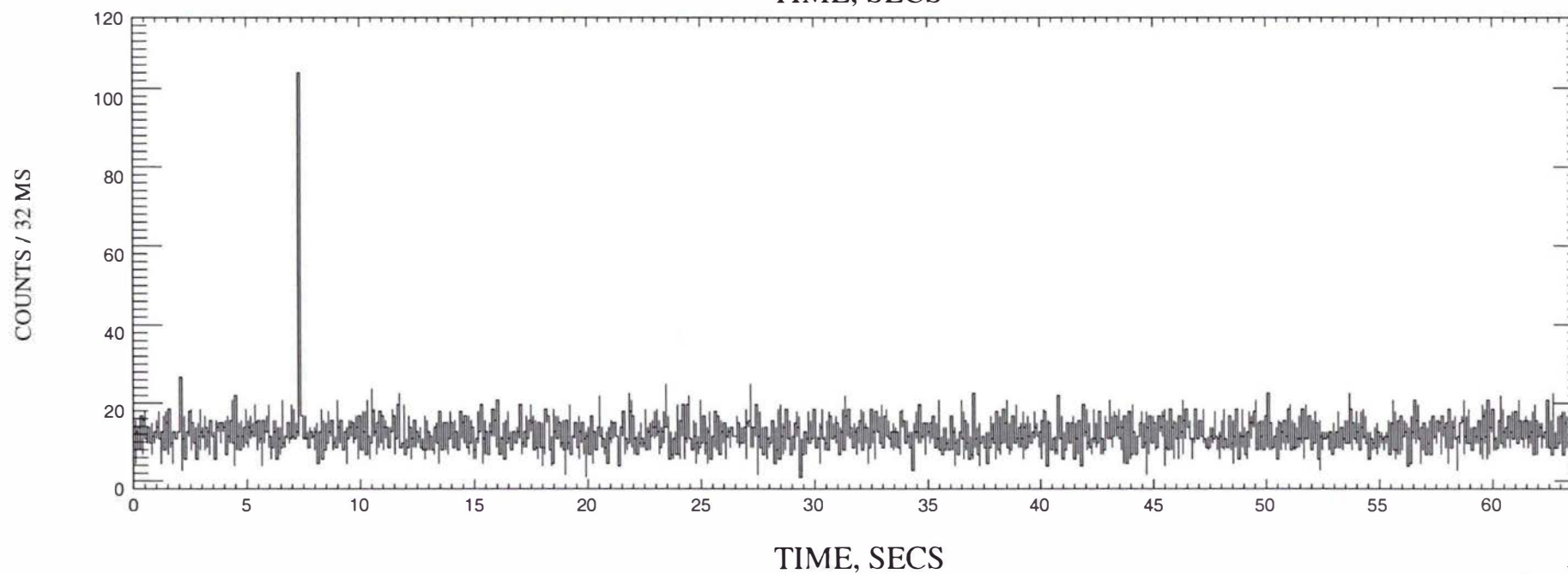
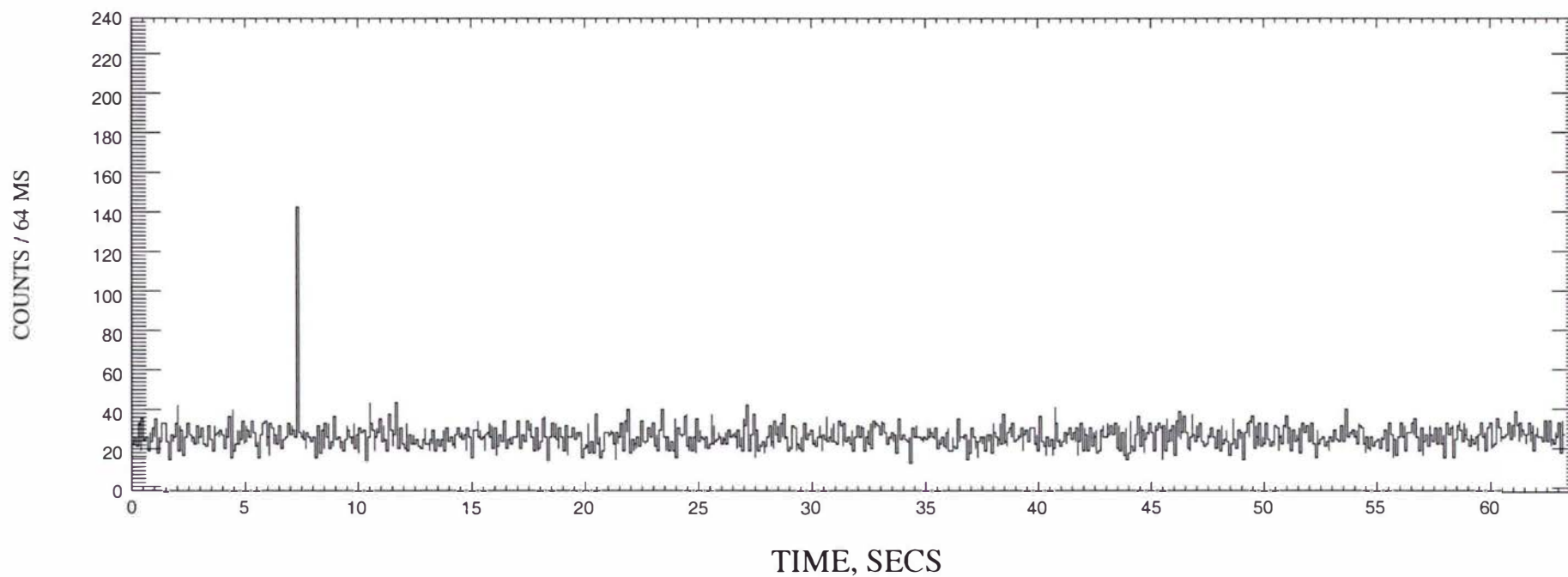


CALIBRATION DATA INCLUDED

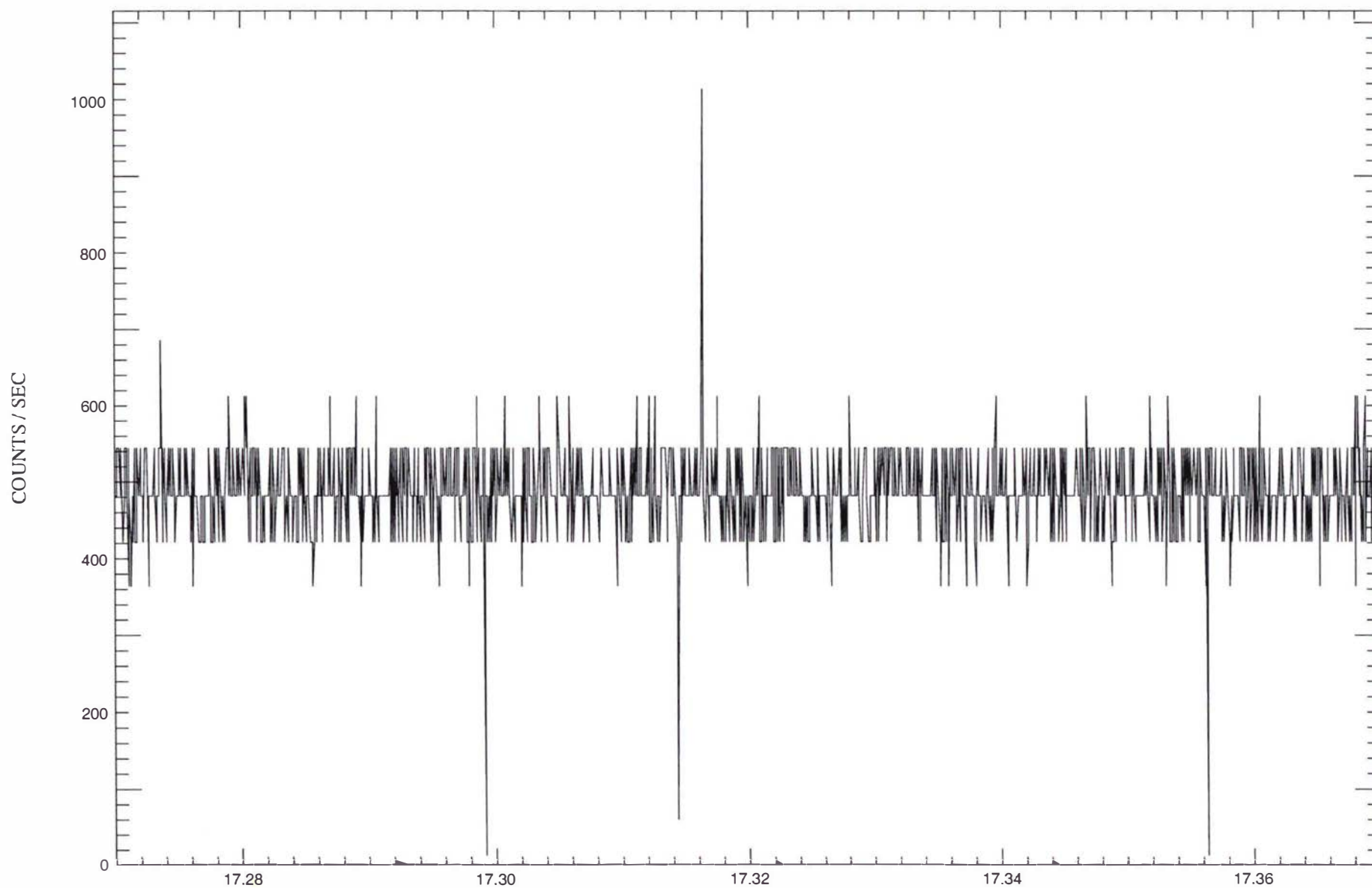


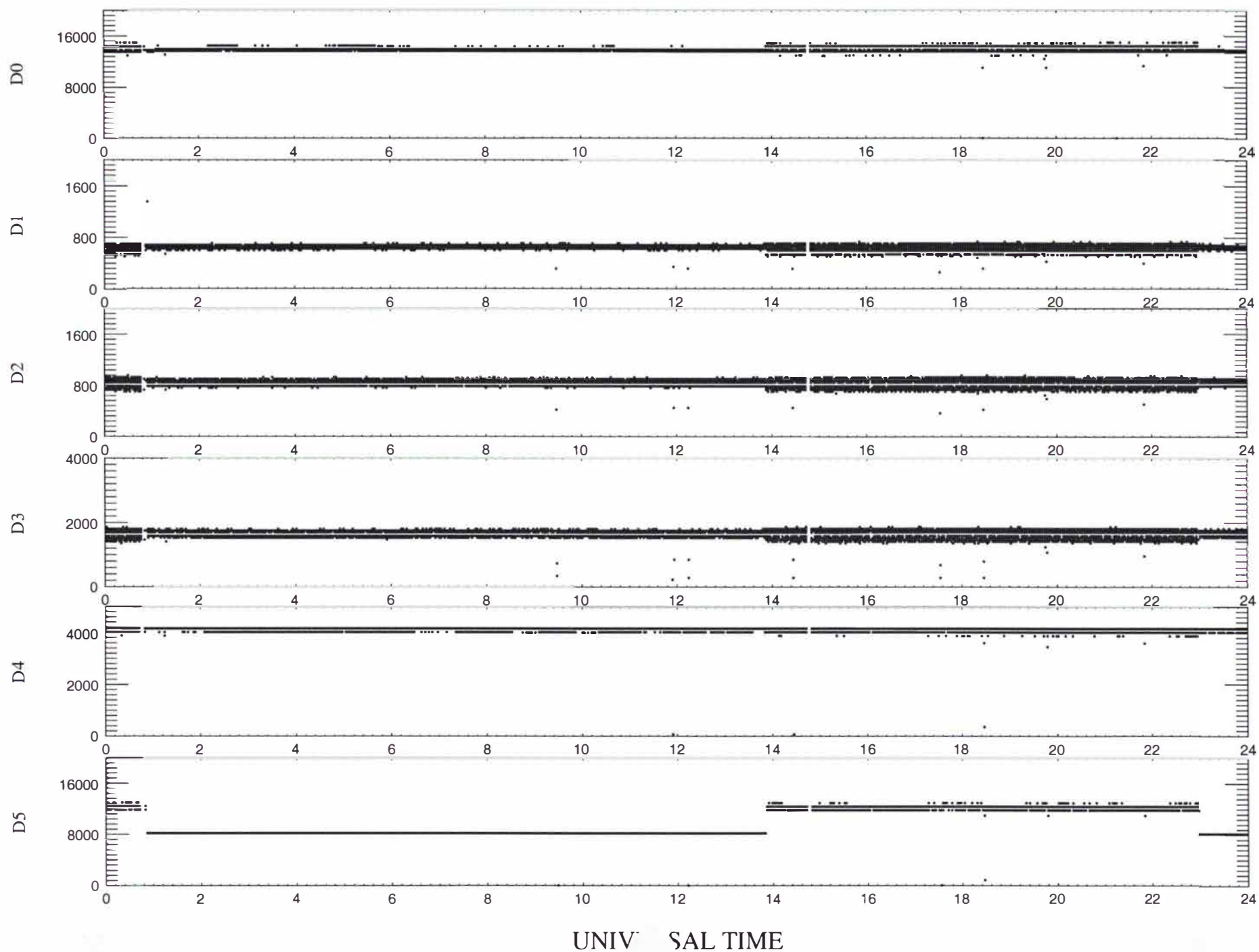
UNIV SAL TIME

Burst Counter 3 at UT=17.316459774441 h=62339.255 s 17:18:59.255



CALIBRATION DATA INCLUDED





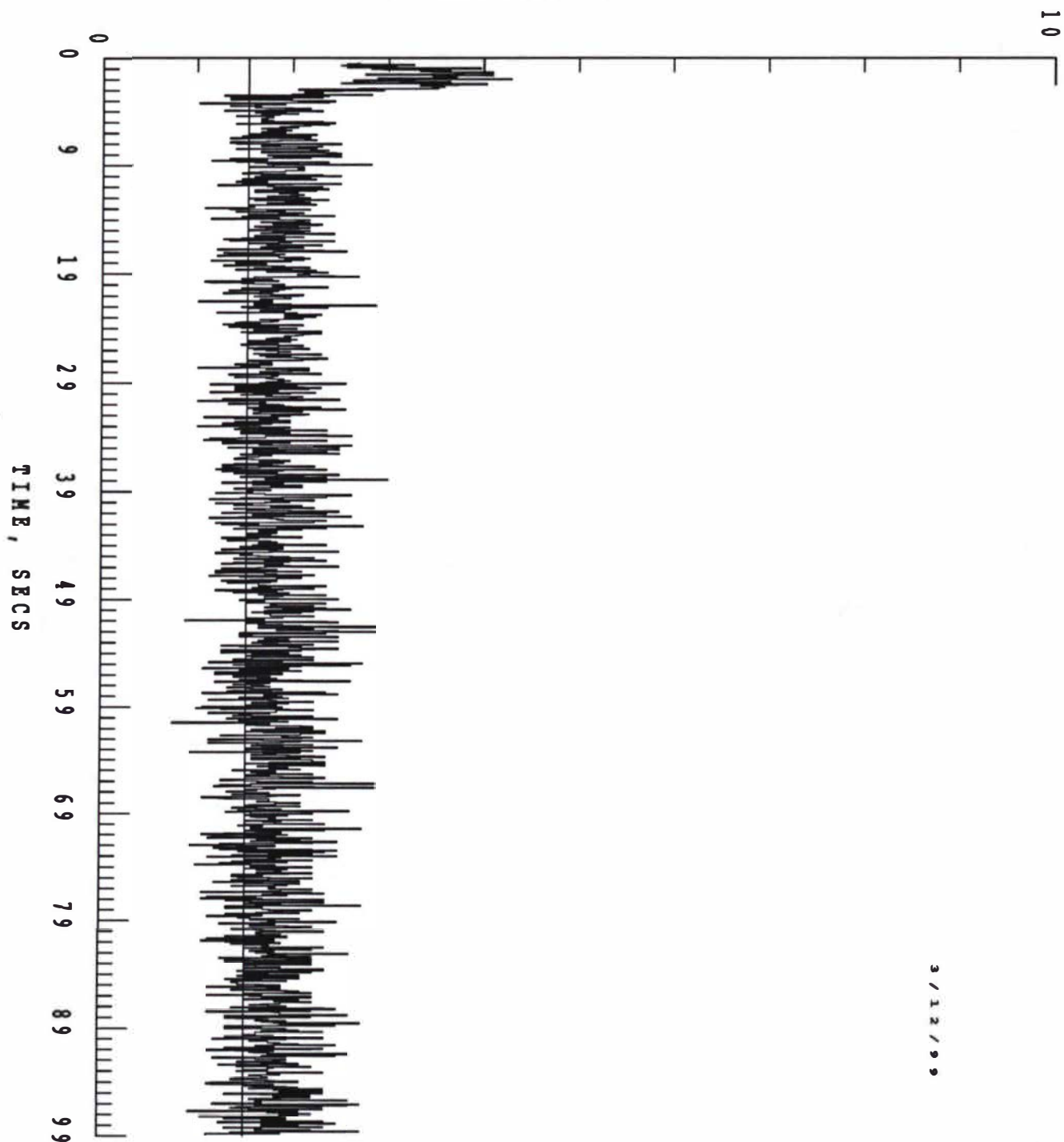
KONUS

02/12/99

72060.746

50 - 200 keV

COUNTS/0.064 S



3 / 12 / 99

KONUS2 19991202 72060

ULYSSES RT

3 / 12 / 99

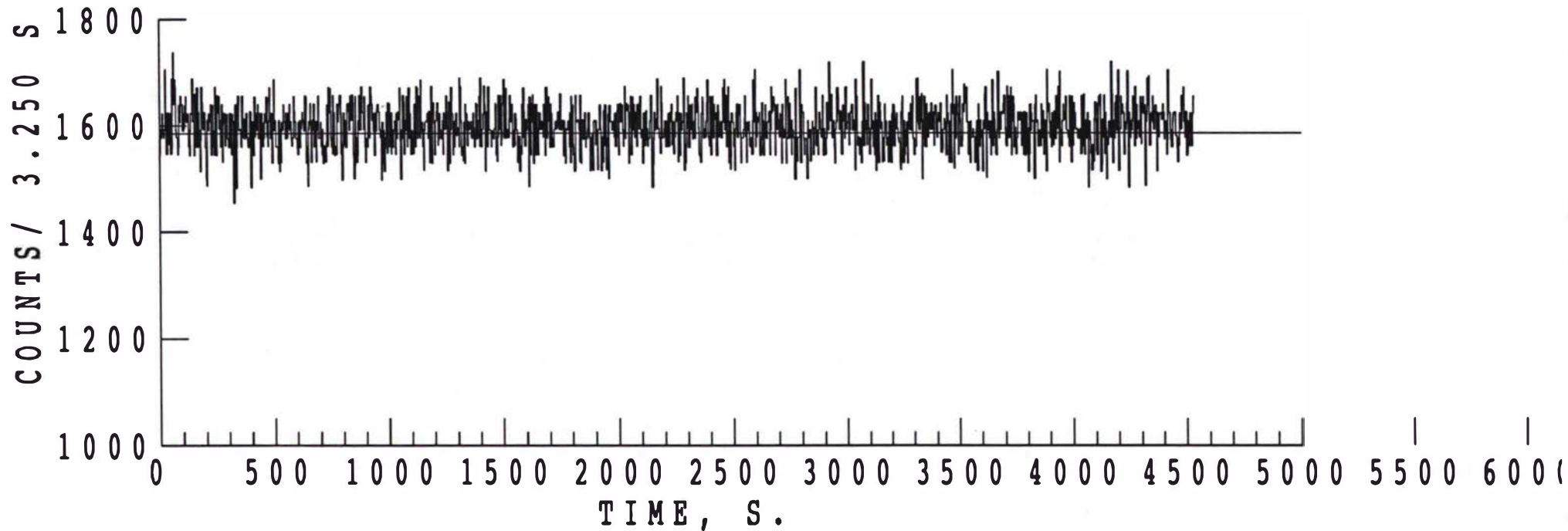
2 / 12 / 99 69804.188 s

0.250 S INTERVALS REGROUPED BY 13

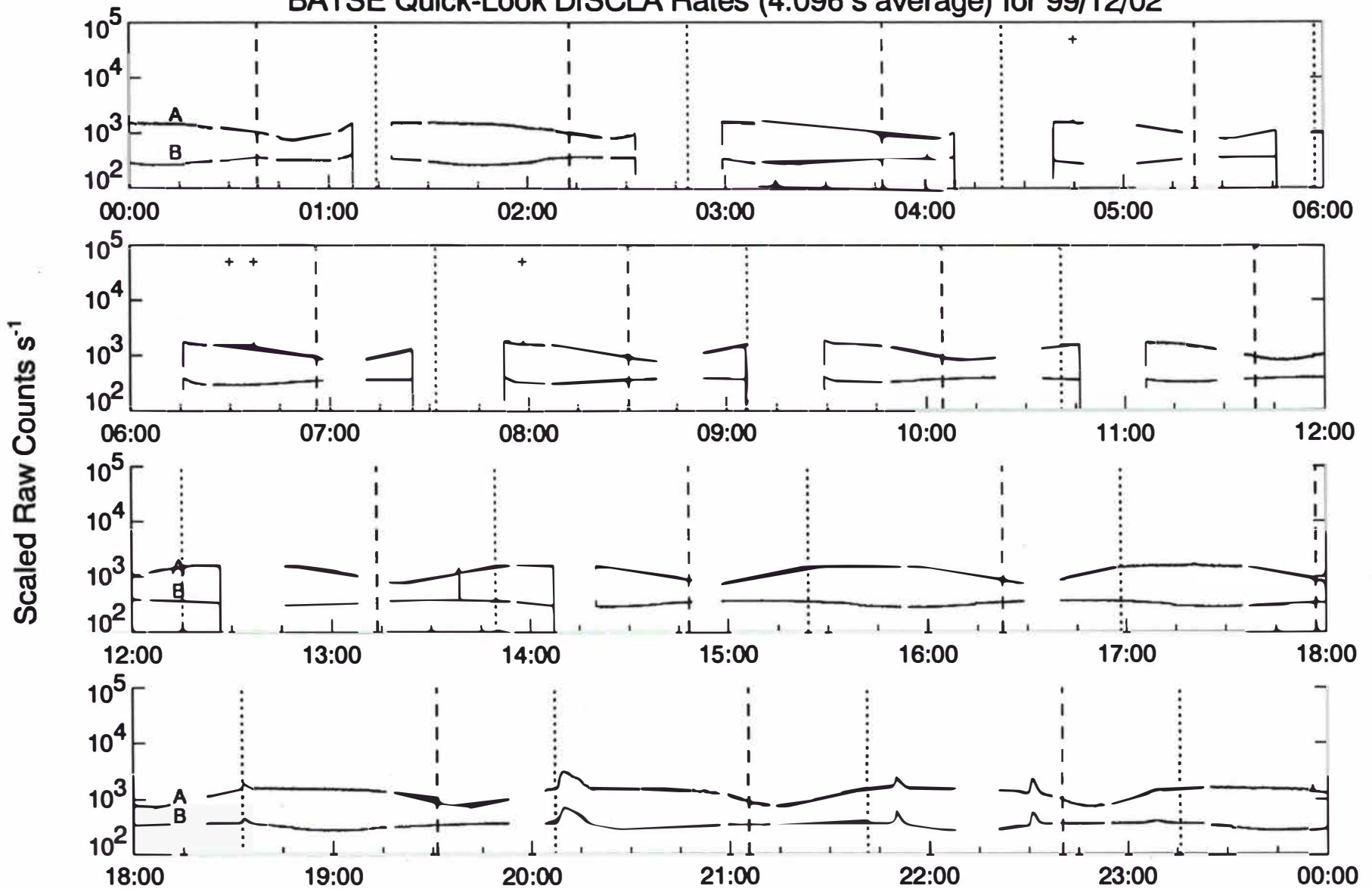
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/02



Current Time: 99/12/06, 1010 EDT

A: Channel 0 Most Sunward LAD

B: Sum Channel 0 Anti-Sunward LADs X .05

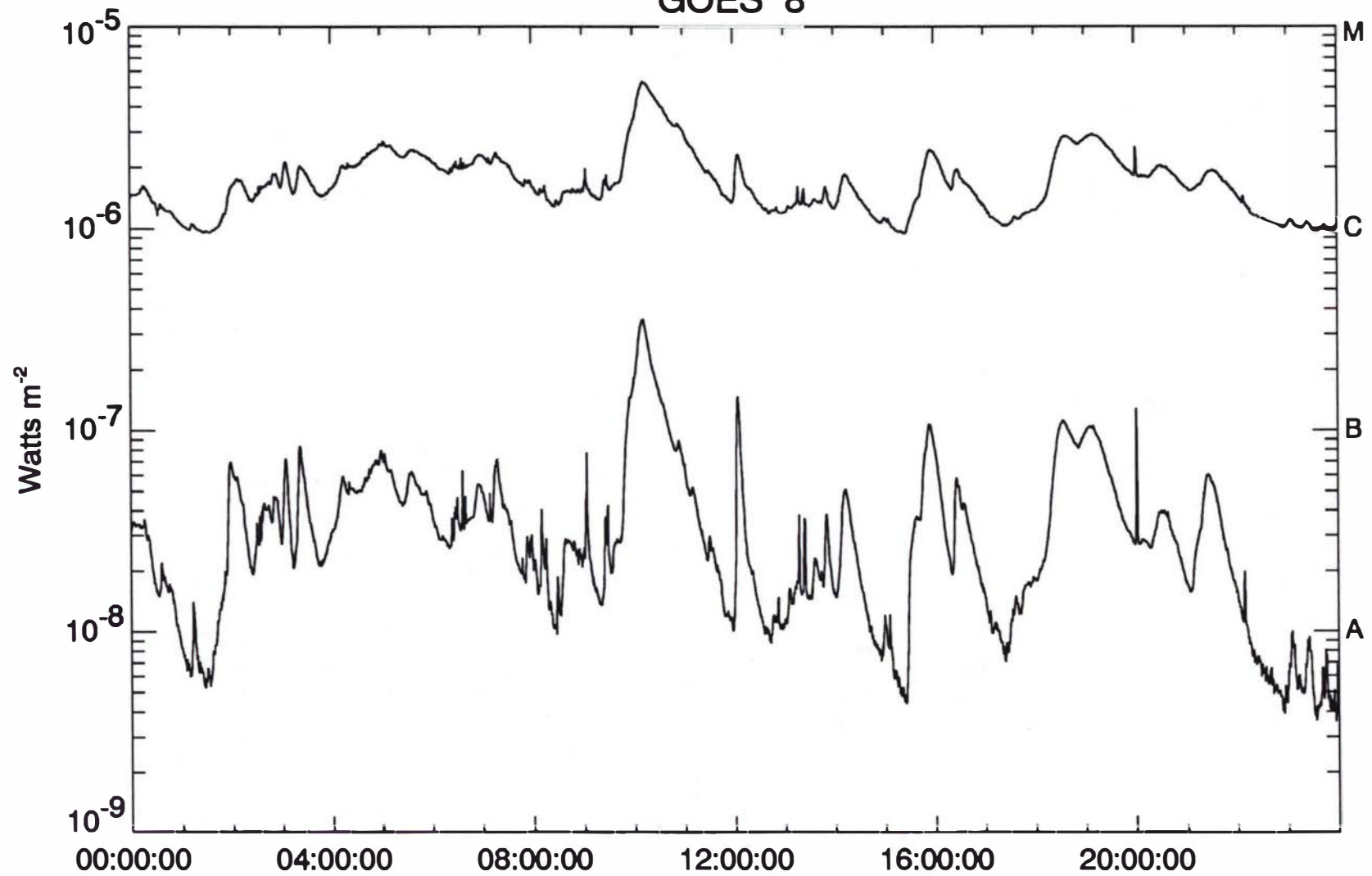
Dotted line: Day entry

Dashed line: Night entry

* Solar Burst Trigger

+ Solar Flare

GOES 8



Data Start: 99/12/02, 0000:00

Plot created: 99/12/06, 1009

Channel 1 (1.0 - 8.0 Angstroms)

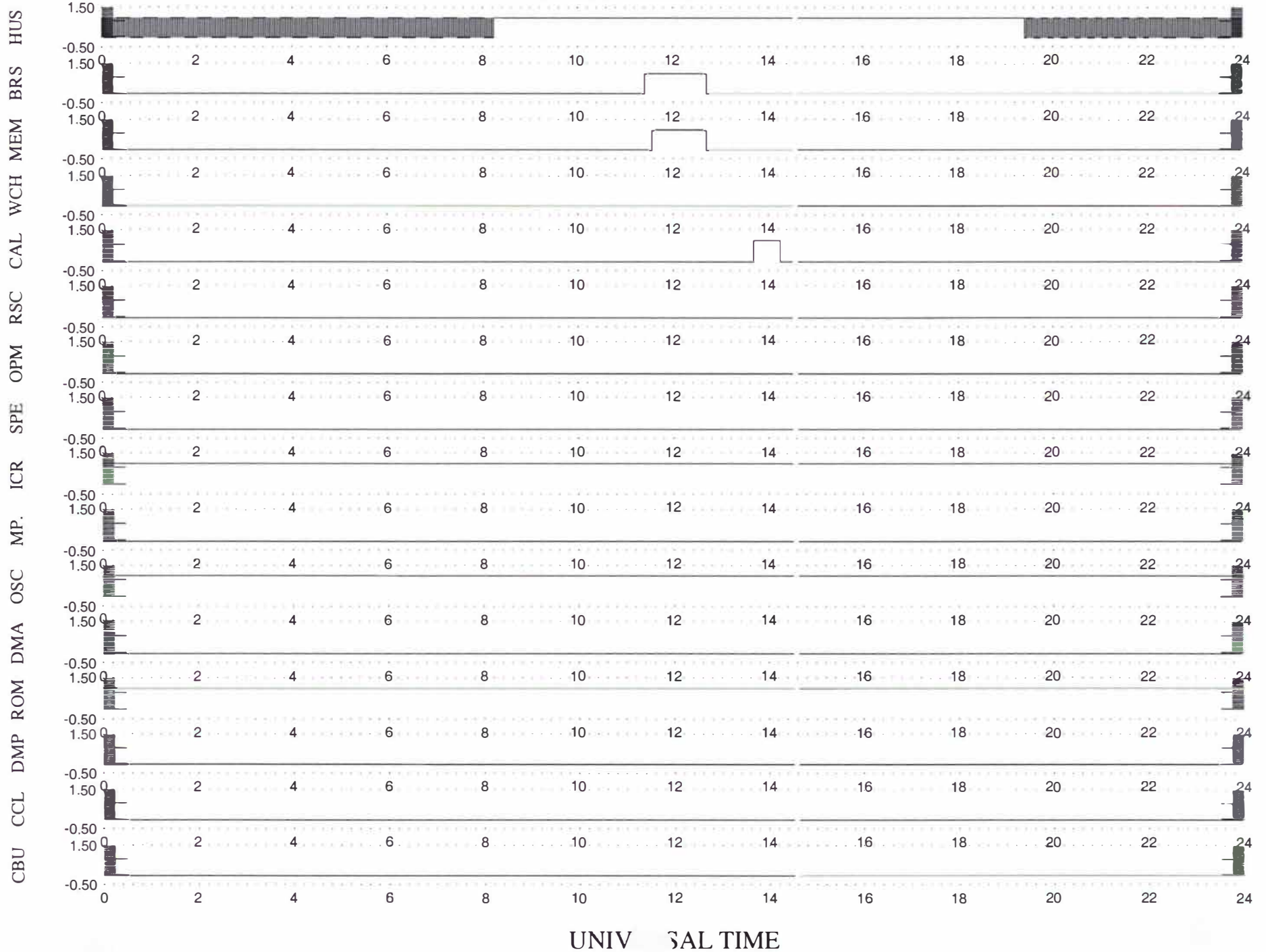
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

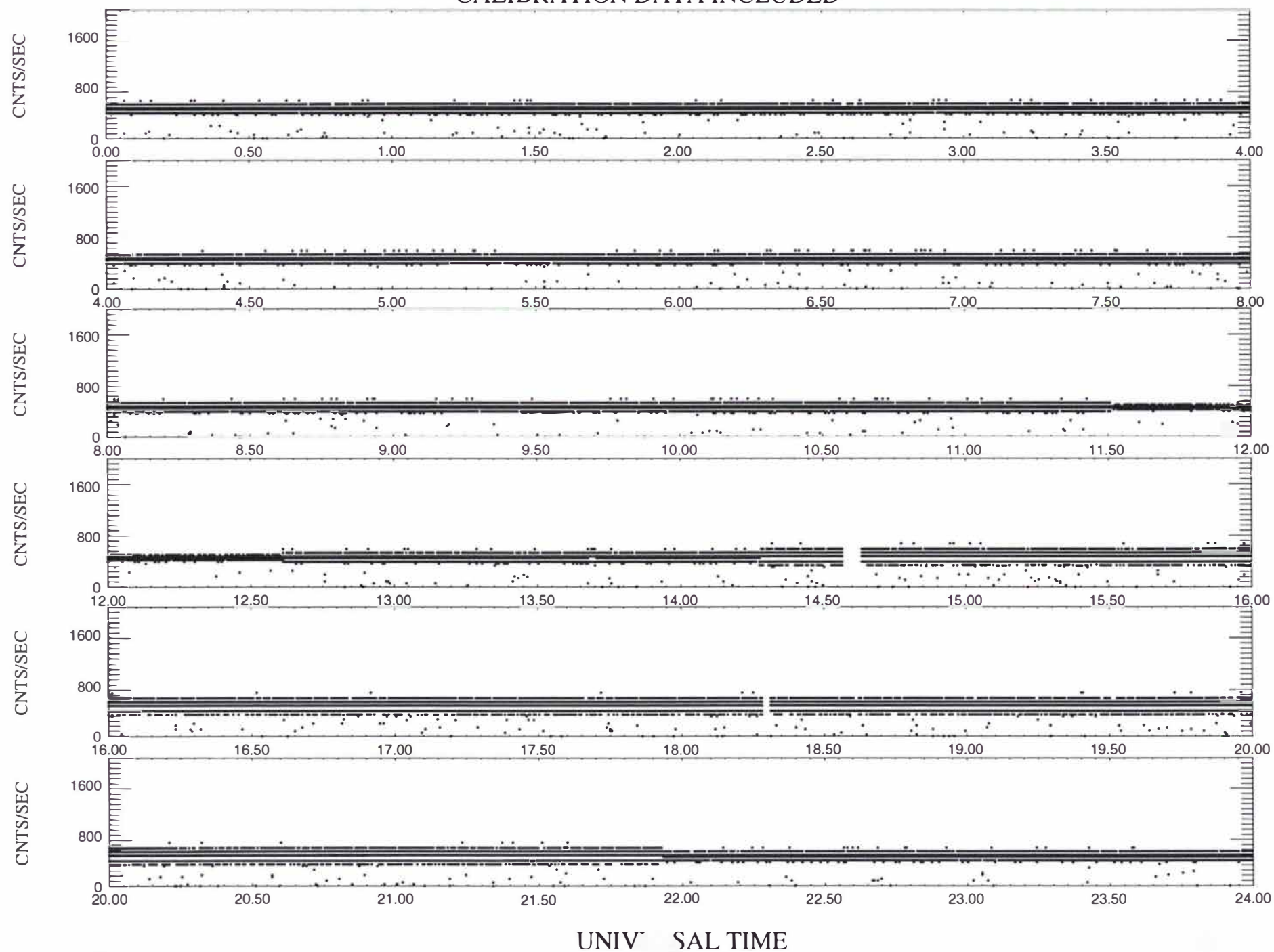
Background not subtracted

Sample average = 10

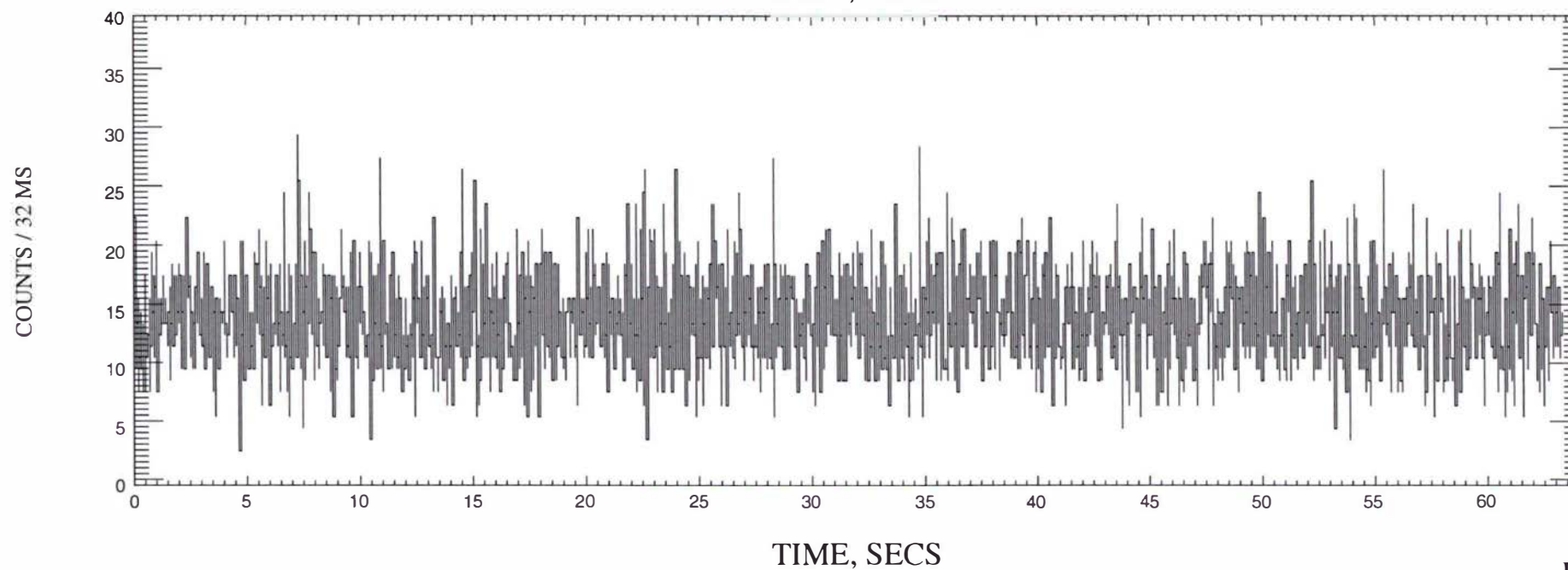
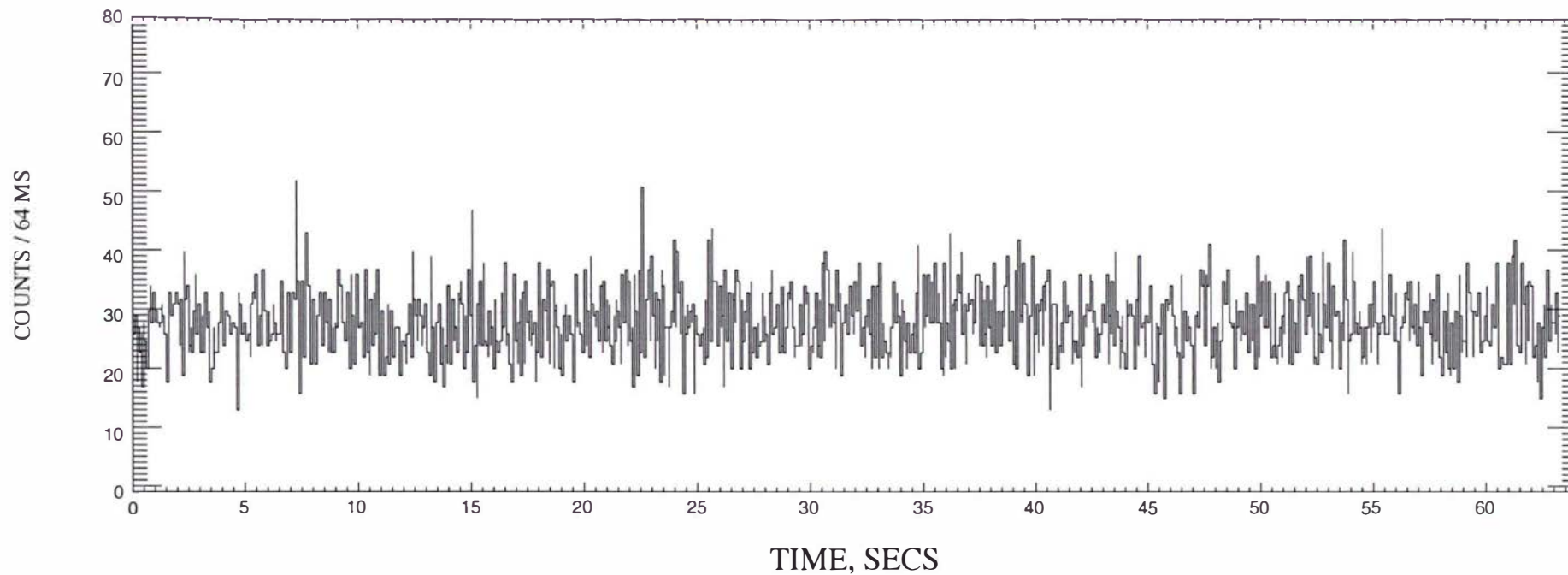
BURST NUMBER 4



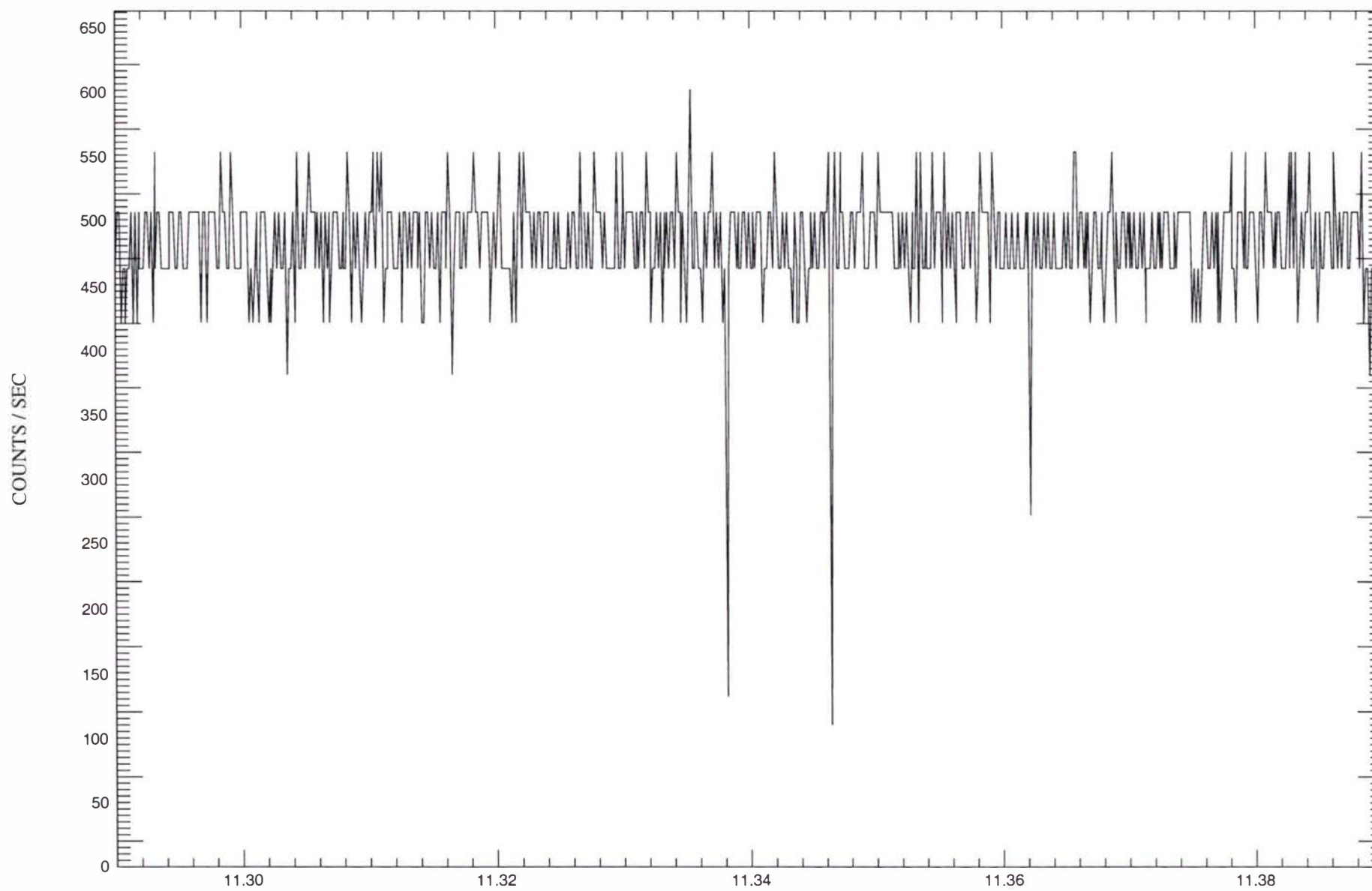
CALIBRATION DATA INCLUDED

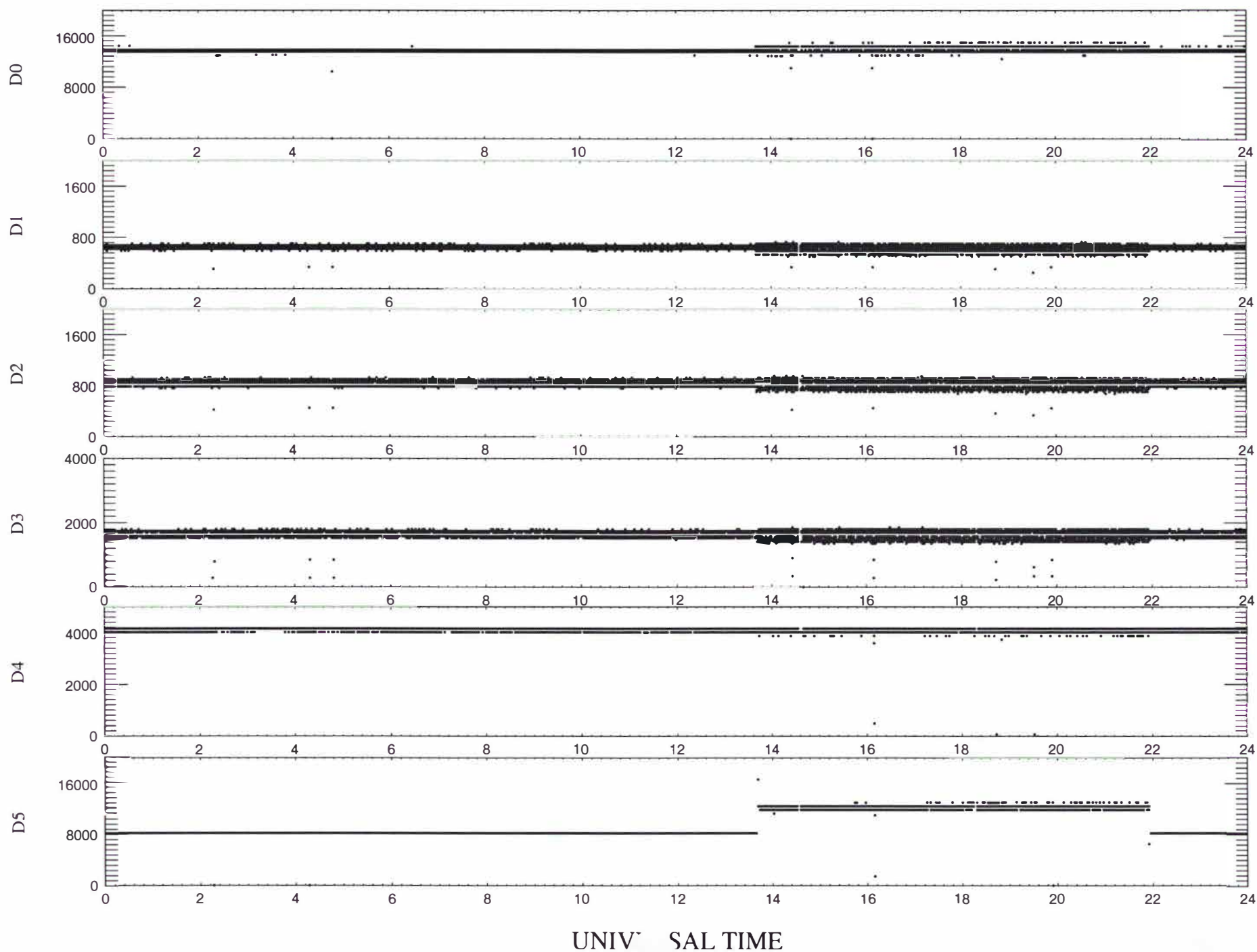


Burst Counter 4 at UT=11.342188593547 h=40831.879 s 11:20:31.879



CALIBRATION DATA INCLUDED





KONUS RI

ULYSSES RT

05 / 06 / 00

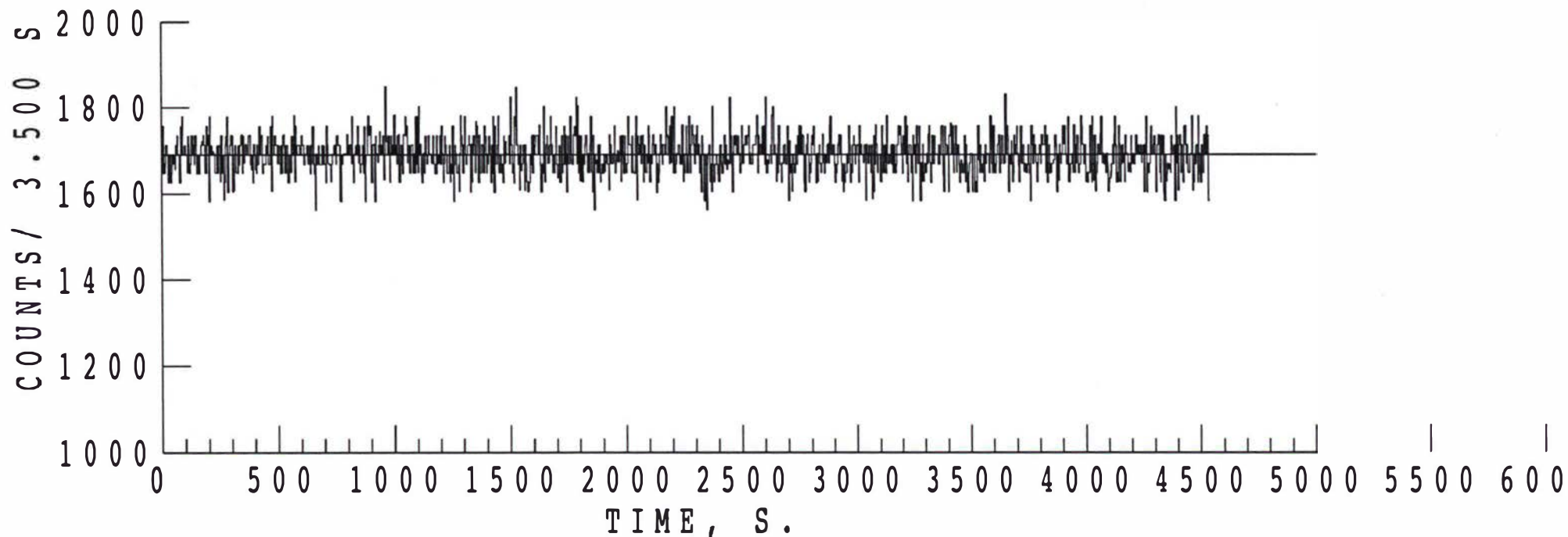
03 / 12 / 99 2808.382 s

0.500 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@fender.msfc.nasa.gov Mon Dec 6 09:29 PST 1999

From: RICHARDSON@fender.msfc.nasa.gov

Date: Mon, 6 Dec 1999 11:38:27 -0600 (CST)

To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7889

TIME: TJD=1515 SECONDS=71471

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=102.6 AZIMUTH=1.7 ERROR=0.1 DEGREES

COMMENTS:

SOLAR FLARE, GOES C6.3, NO OPTICAL.

STRONG EVENT WITH STRUCTURE. PEAK AT APPROX. T+8 SEC. DURATION APPROX. =
80 SEC. SLIGHTLY VISIBLE ABOVE 300KEV.

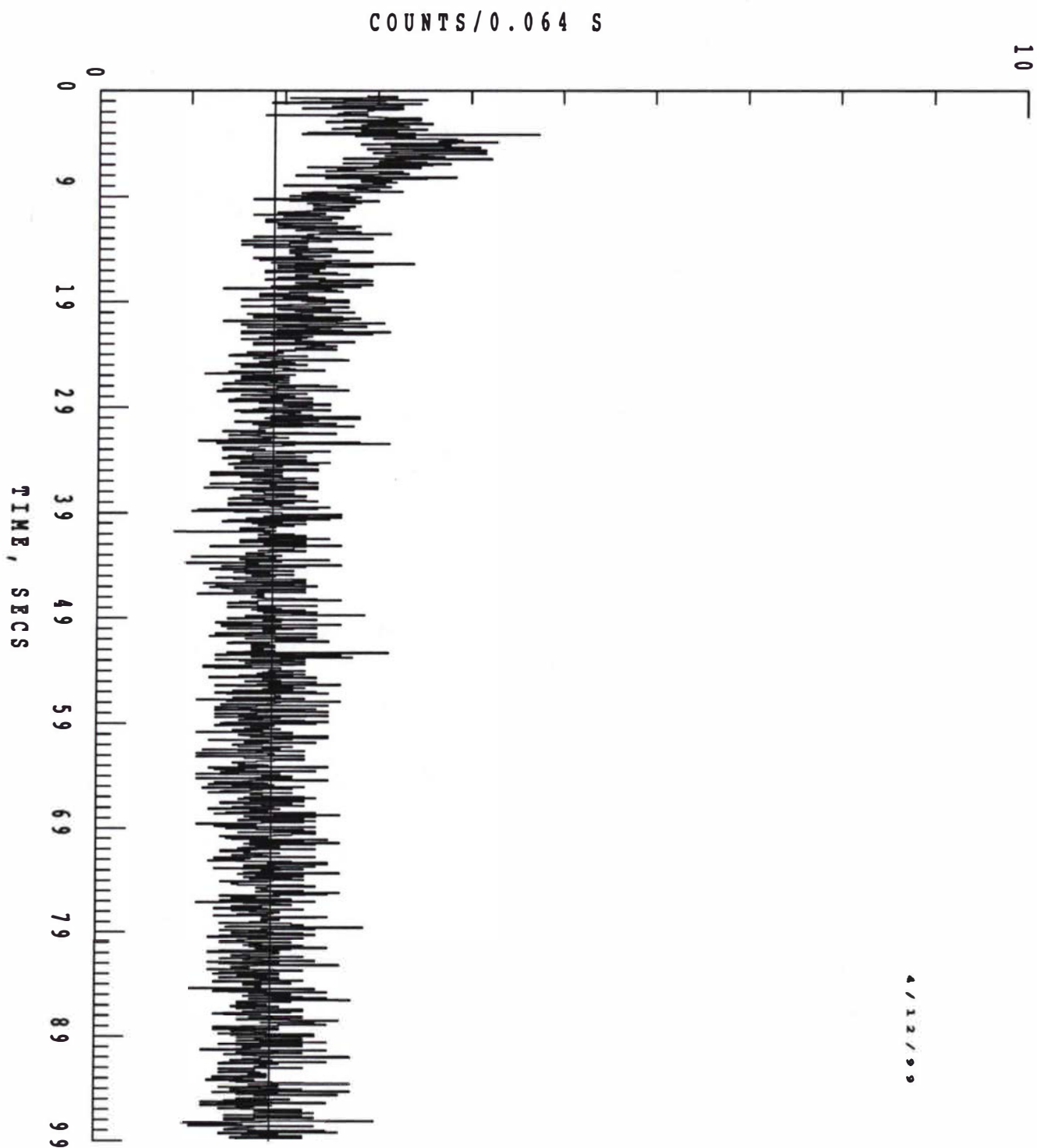
KONUS

03/12/99

71482.143

50 - 200 keV

Prob solar - BATSE 7889



KONUS2 19991203 71482

ULYSSES RT

6 / 12 / 99

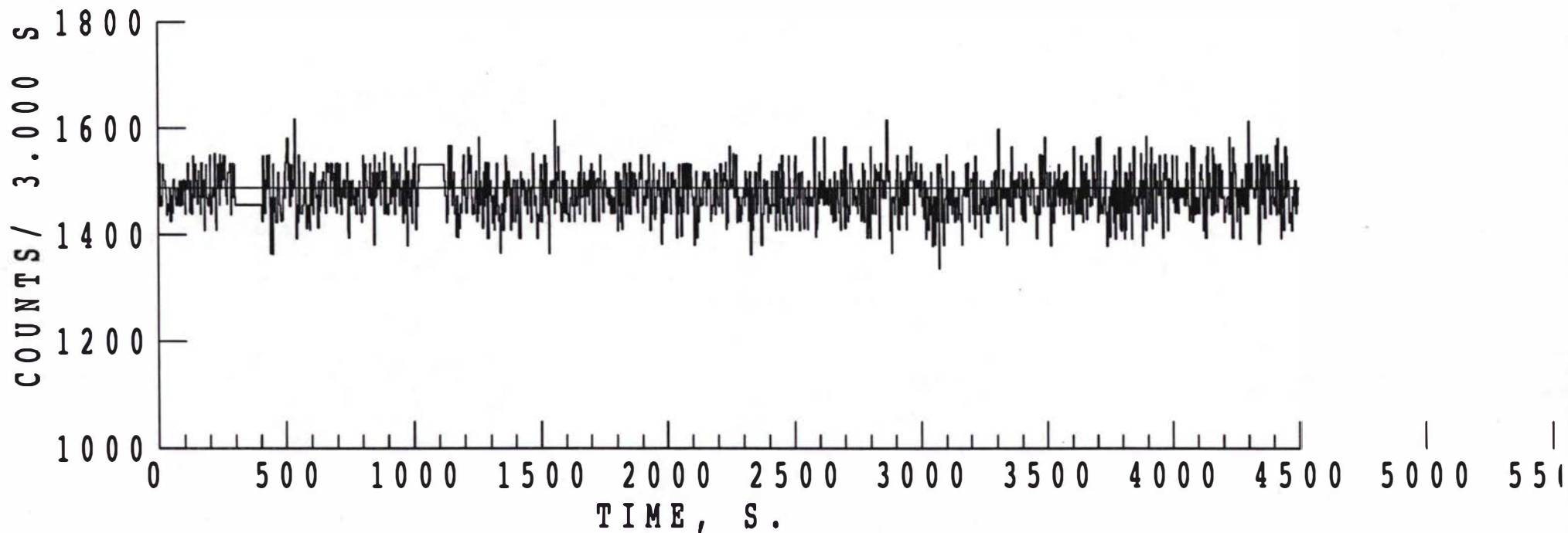
3/12/99 69228.055 s

0.250 S INTERVALS REGROUPED BY 12

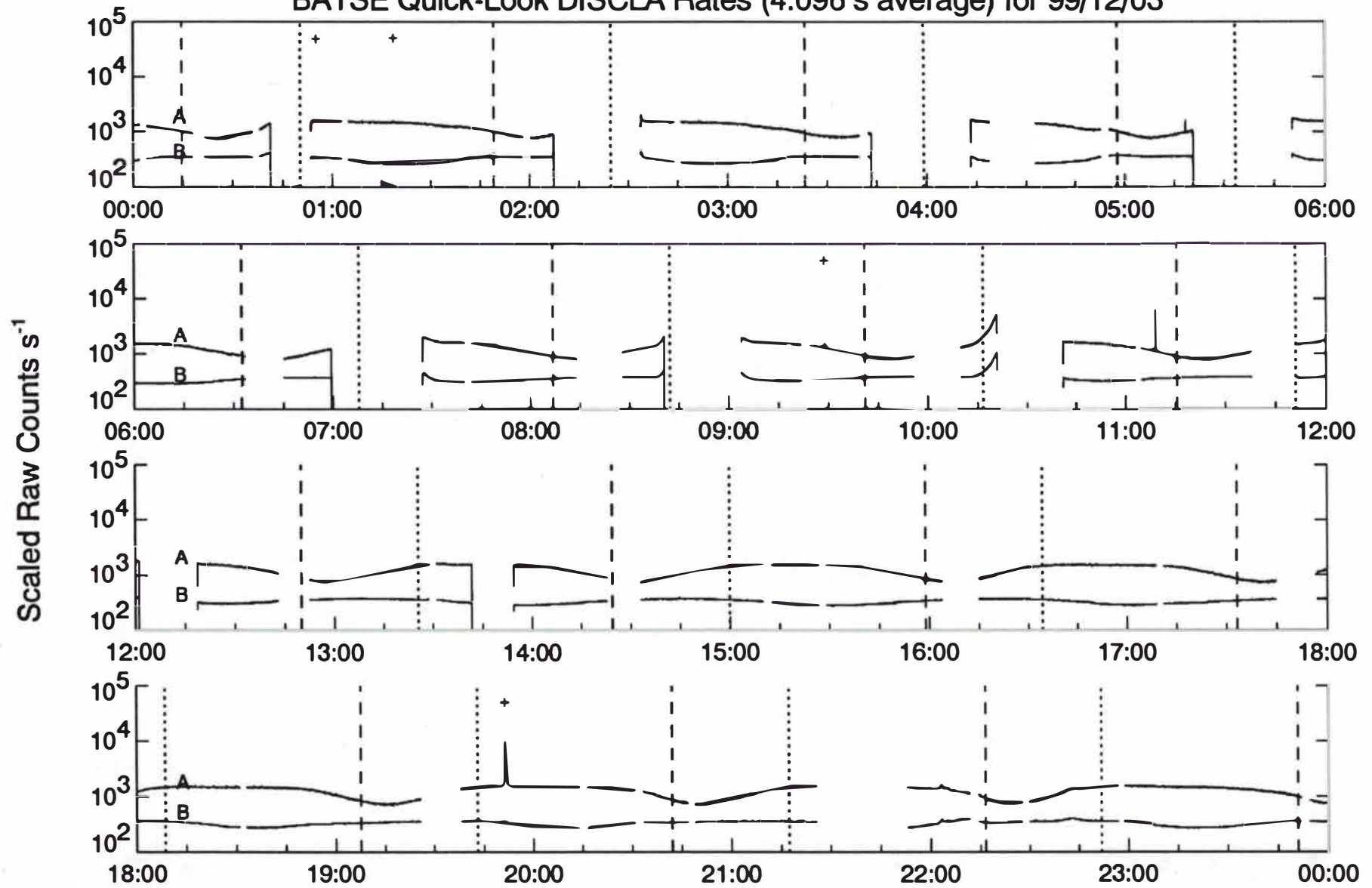
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/03

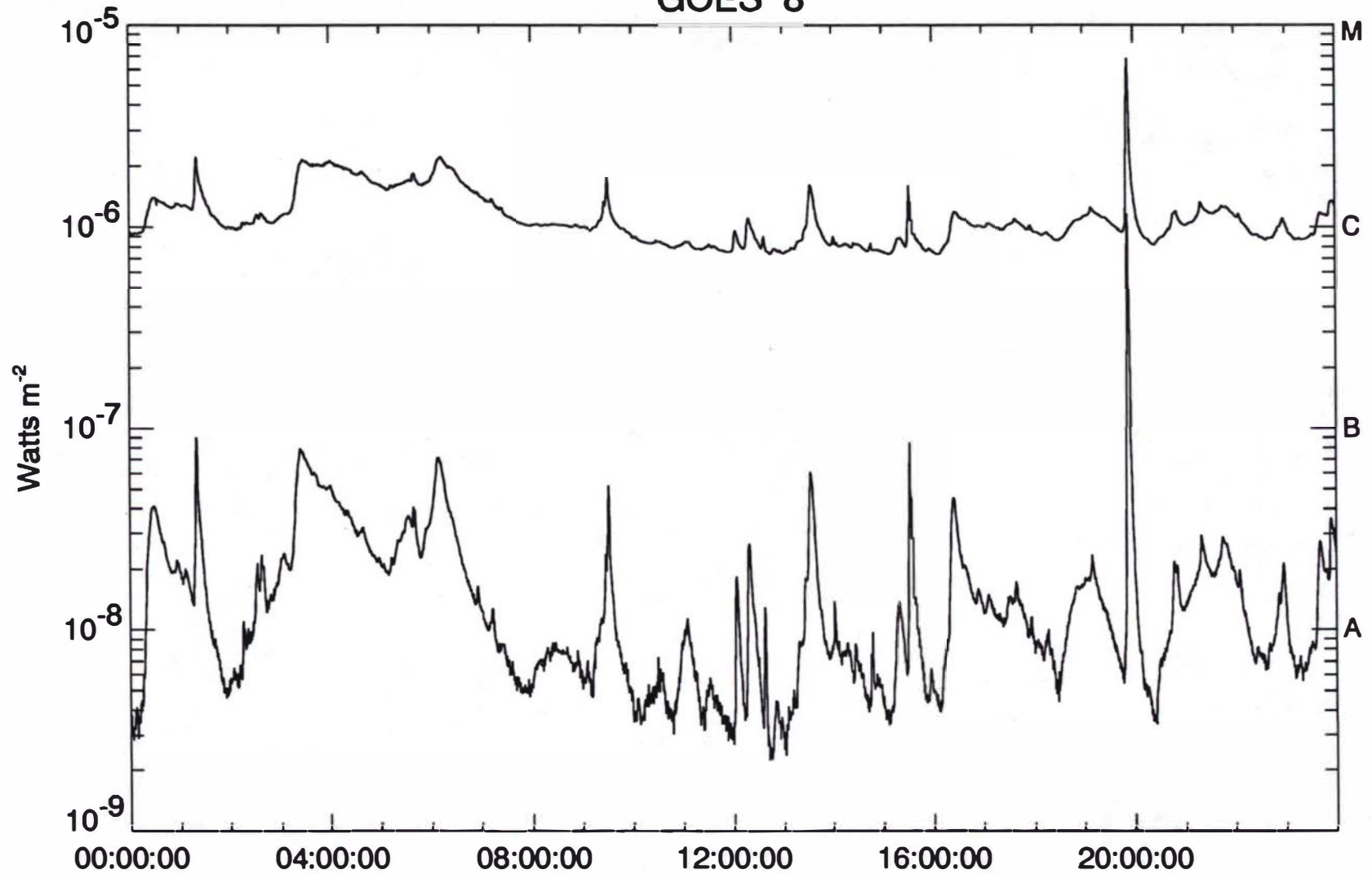


Current Time: 99/12/07, 1009 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/03, 0000:00

Plot created: 99/12/07, 1008

Channel

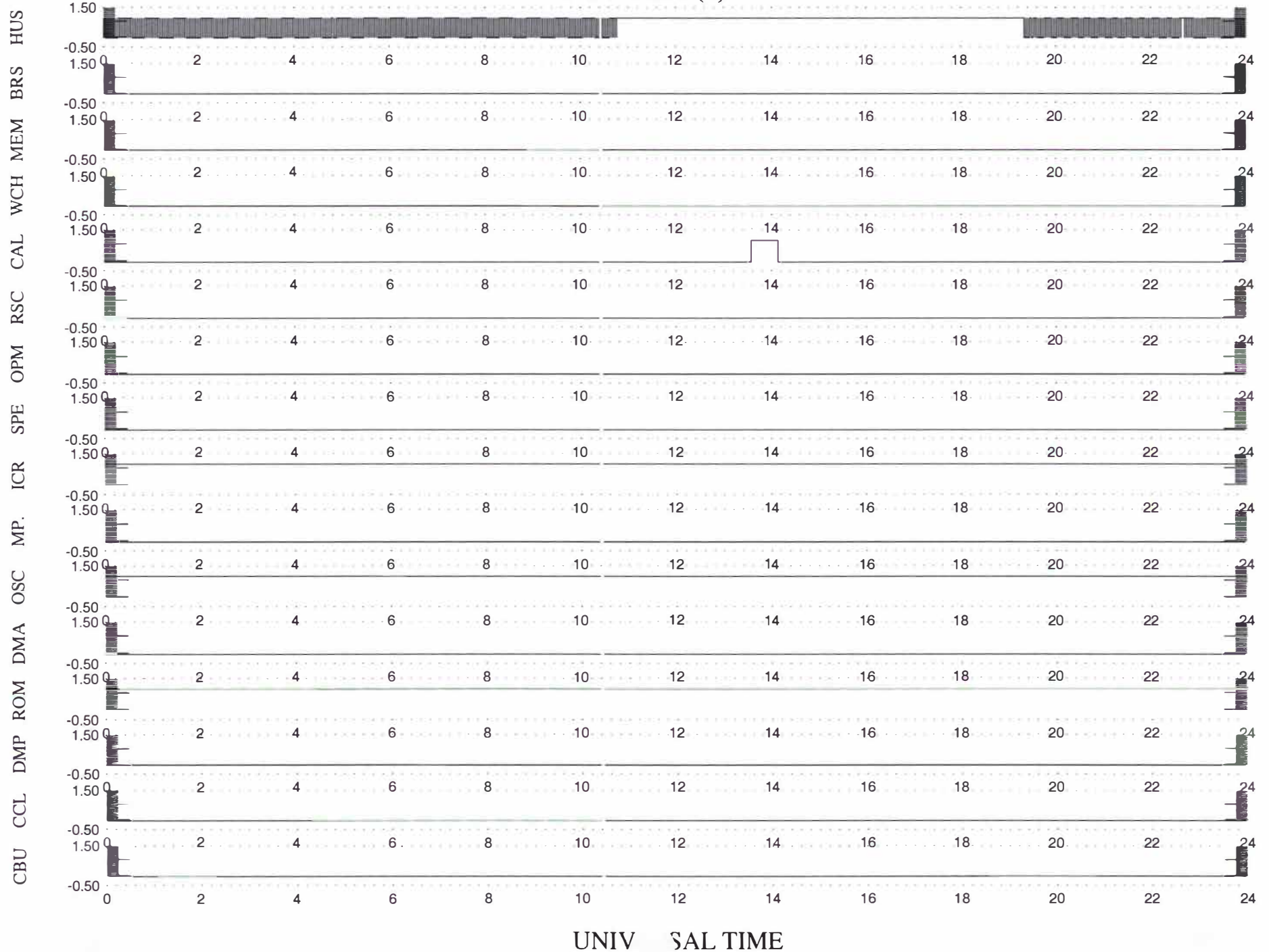
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted

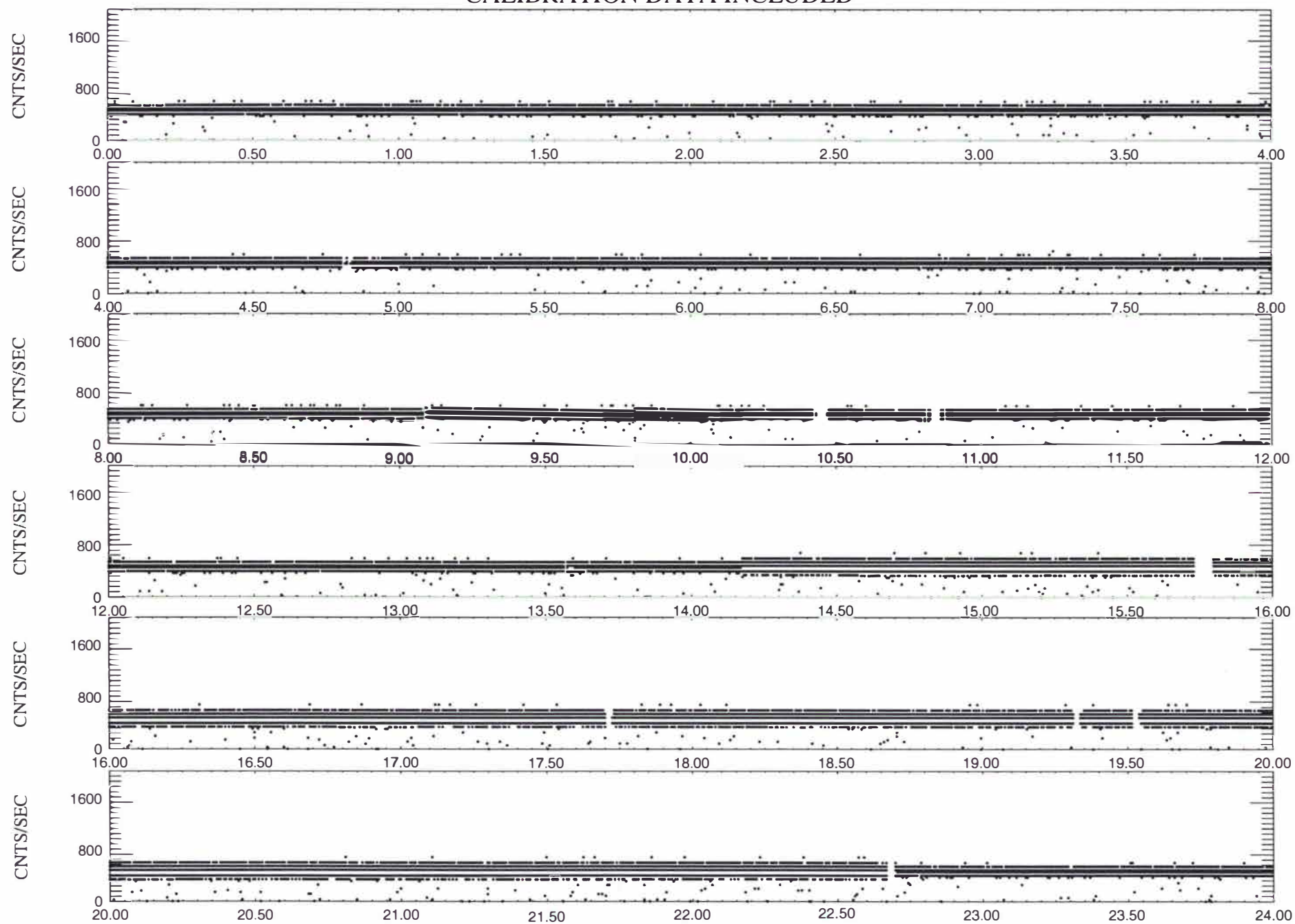
Background not subtracted

Sample average = 10

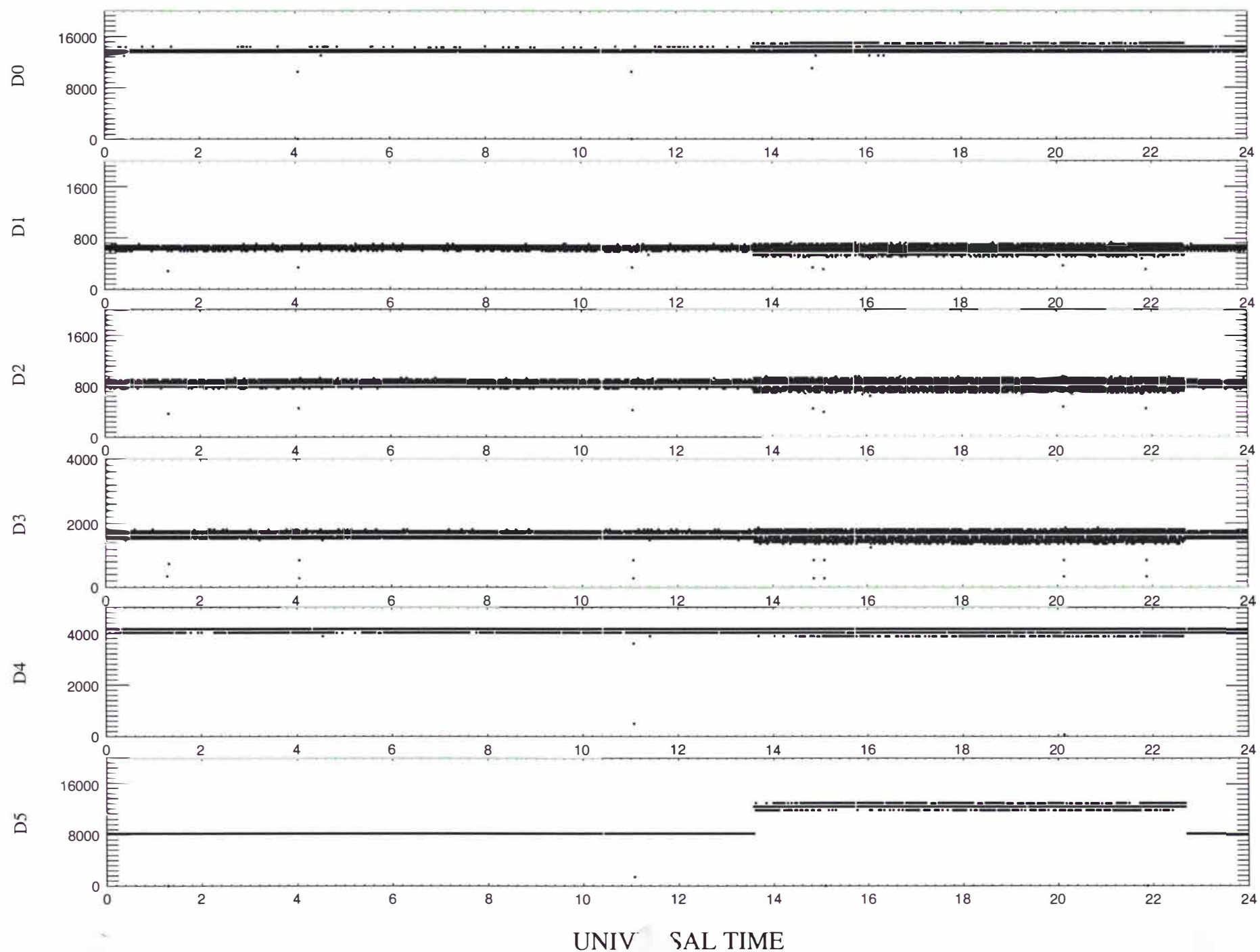
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV SAL TIME





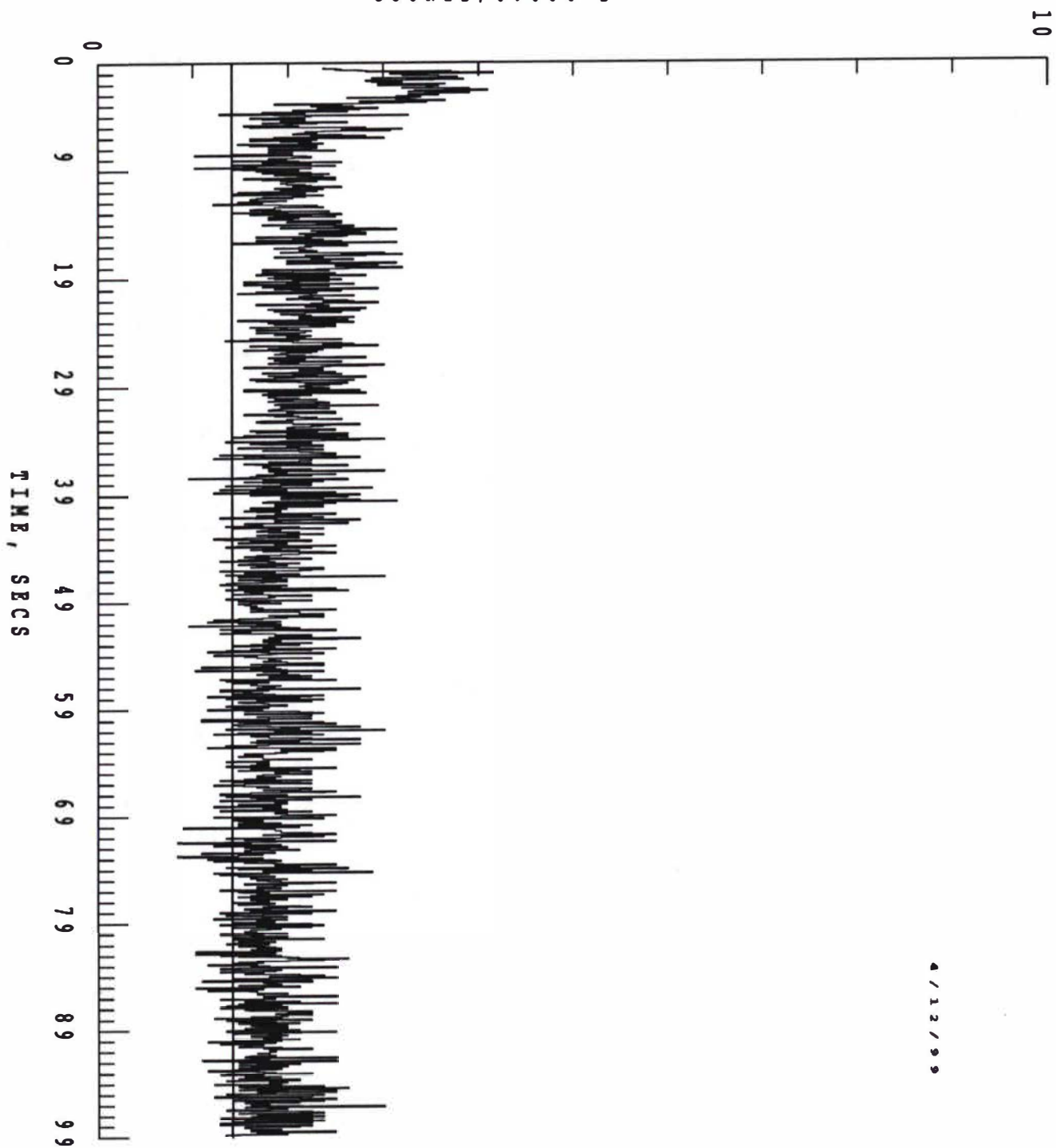
KONUS

04/12/99

36798.664

50 - 200 keV

COUNTS/0.064 S



4 / 12 / 99

KONUS1 19991204 36798

ULYSSES RT

6 / 12 / 99

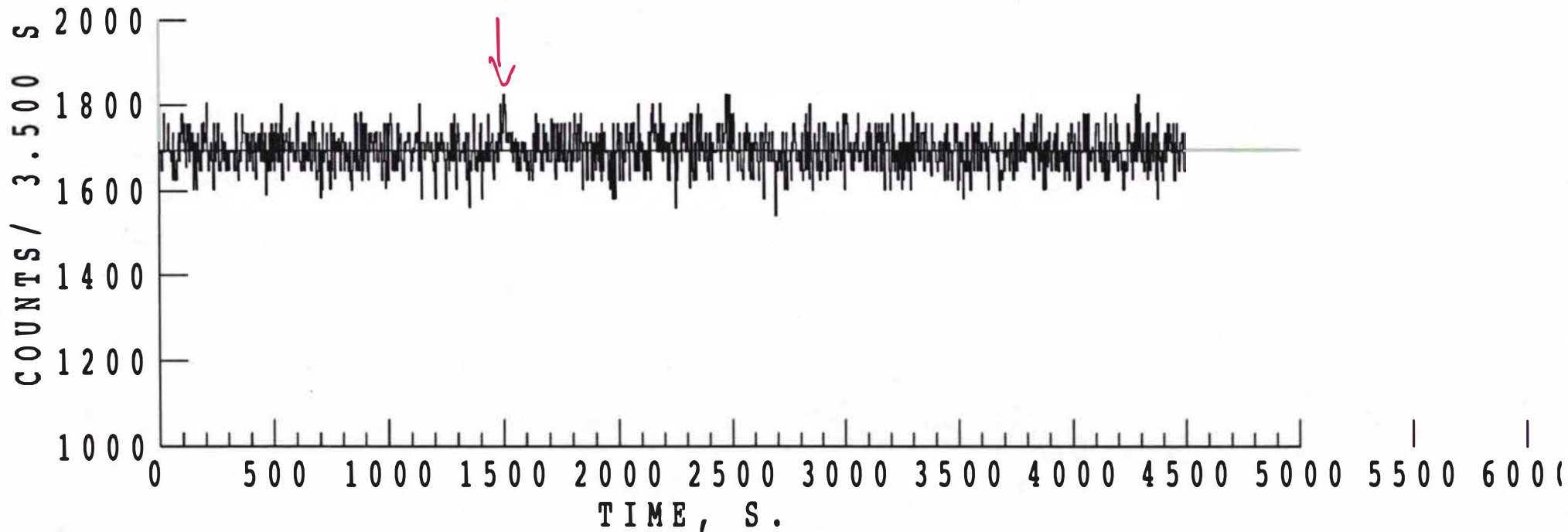
4 / 12 / 99 34560.078 s

0.500 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HENZE@fender.msfc.nasa.gov Mon Dec 6 09:50 PST 1999
Date: Mon, 6 Dec 1999 11:58:54 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@ests2.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheavx.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7890

TIME: TJD=1516 SECONDS=63929

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT OVER EASTERN AUSTRALIA.

From HENZE@fender.msfc.nasa.gov Tue Dec 7 12:13 PST 1999
Date: Tue, 7 Dec 1999 14:21:51 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7891

TIME: TJD=1516 SECONDS=76748

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

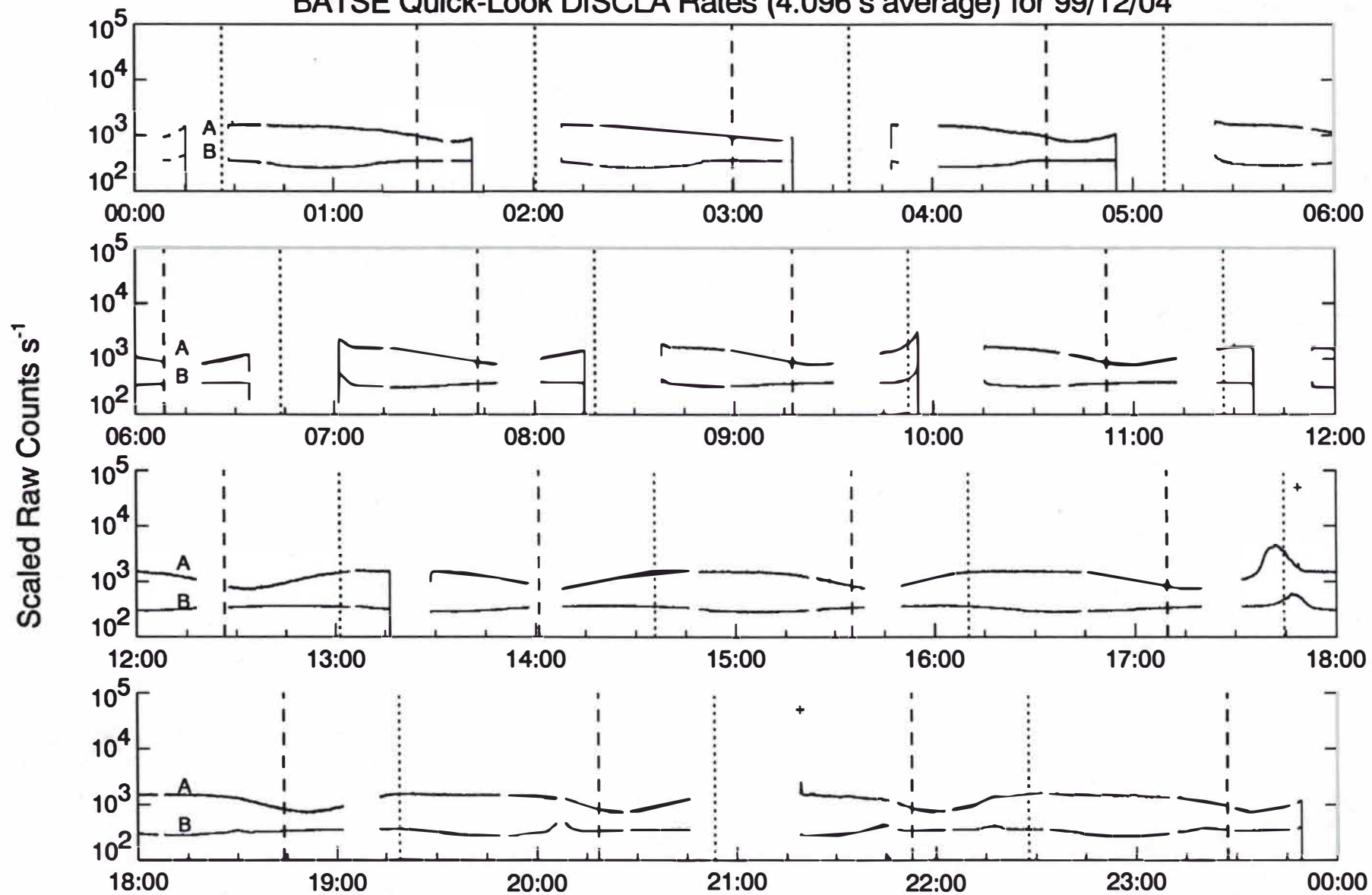
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=101.9 AZIMUTH= 0.1 ERROR= 1.0 DEGREES

COMMENTS:

GOES C4.3, OPTICAL 1F SOLAR FLARE. SINGLE PULSE, DUR. PROBABLY APPROX. 40 S,
PROBABLY STARTS AT APPROX. T-10 S. EXTENDED EMISSION FROM APPROX. T+150 S TO
T+300 S. NOT VISIBLE ABOVE 100 KEV.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/04

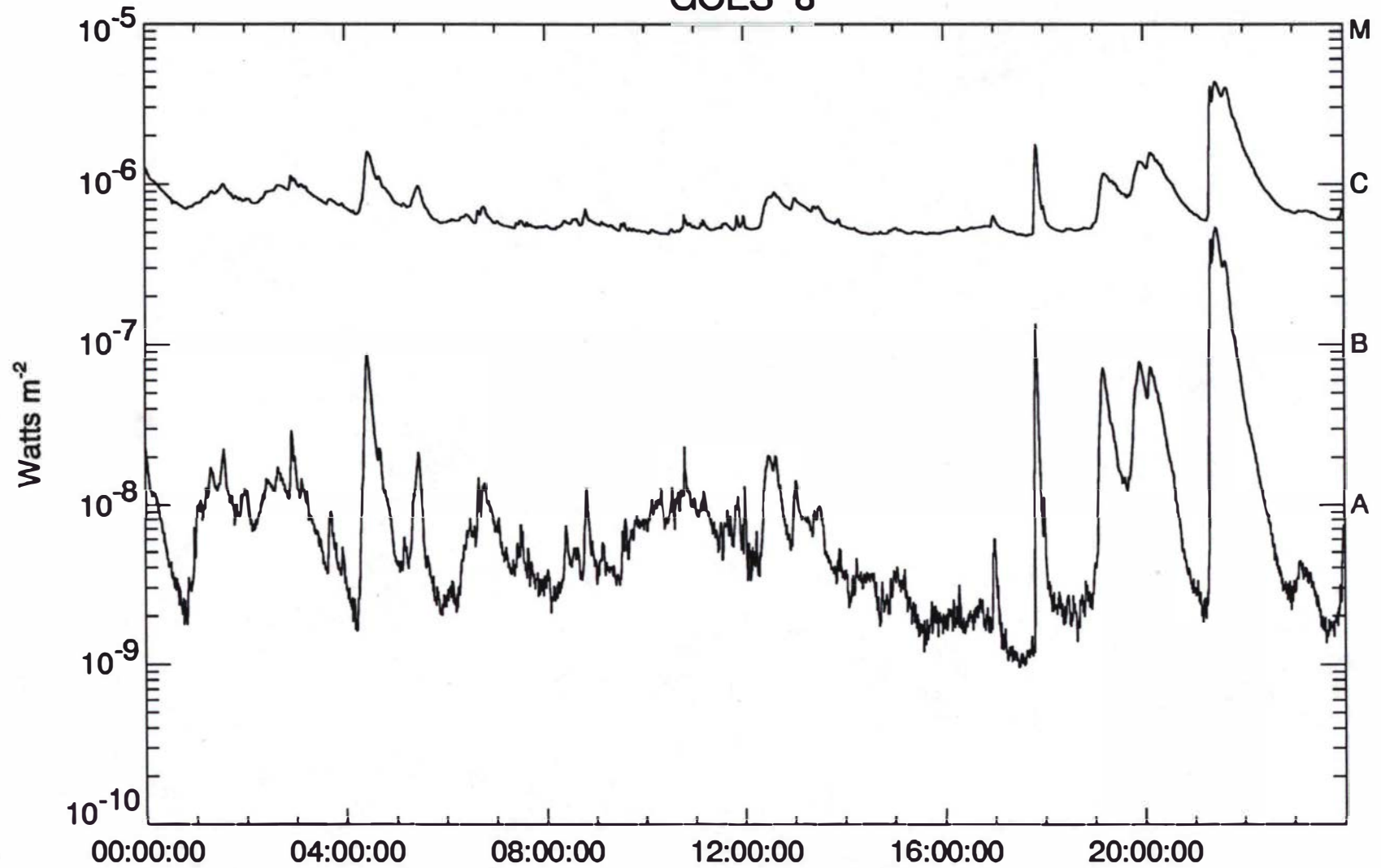


Current Time: 99/12/08, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/04, 0000:00

Plot created: 99/12/08, 1008

Channel

1 (1.0 - 8.0 Angstroms)

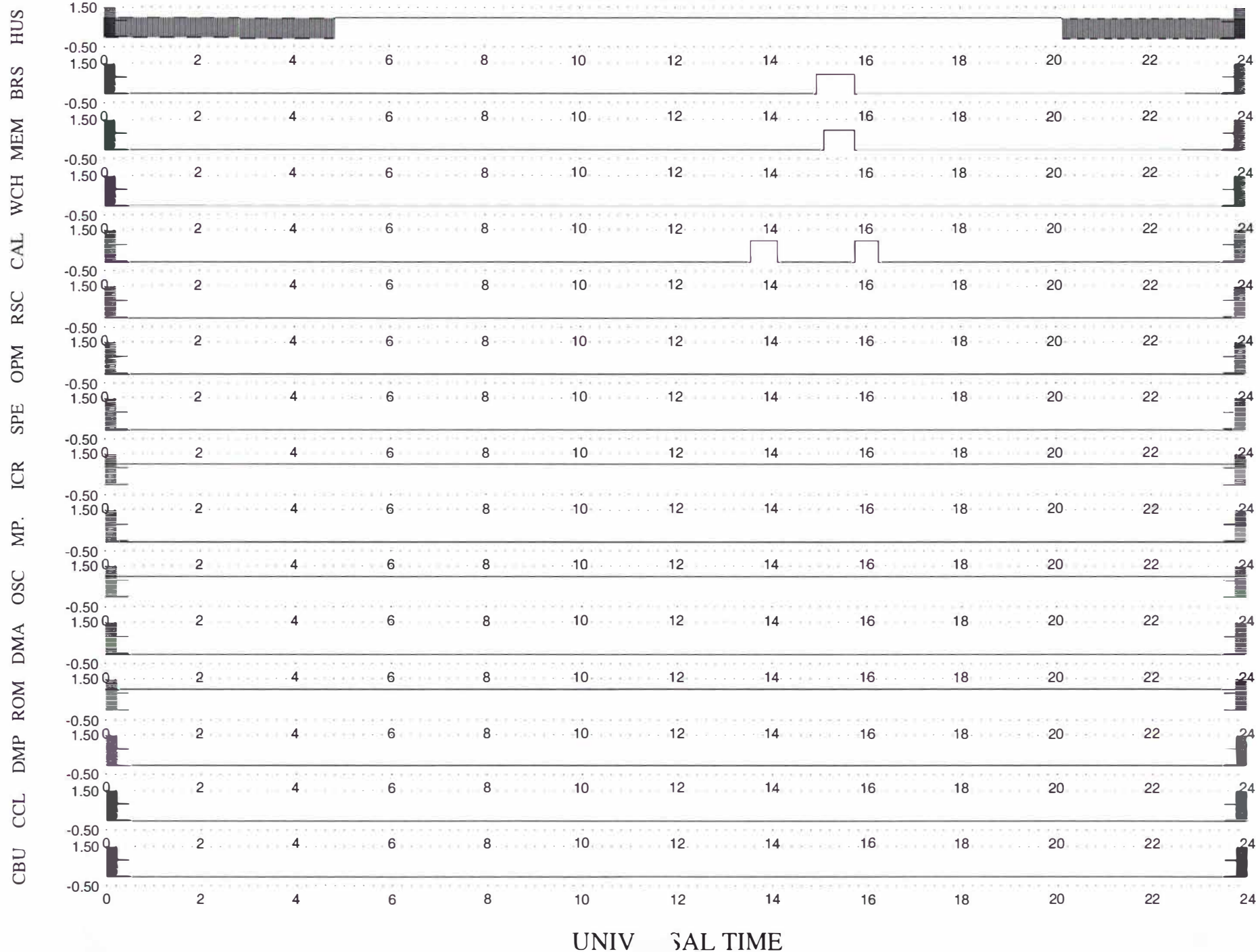
Background not subtracted

2 (0.5 - 4.0 Angstroms)

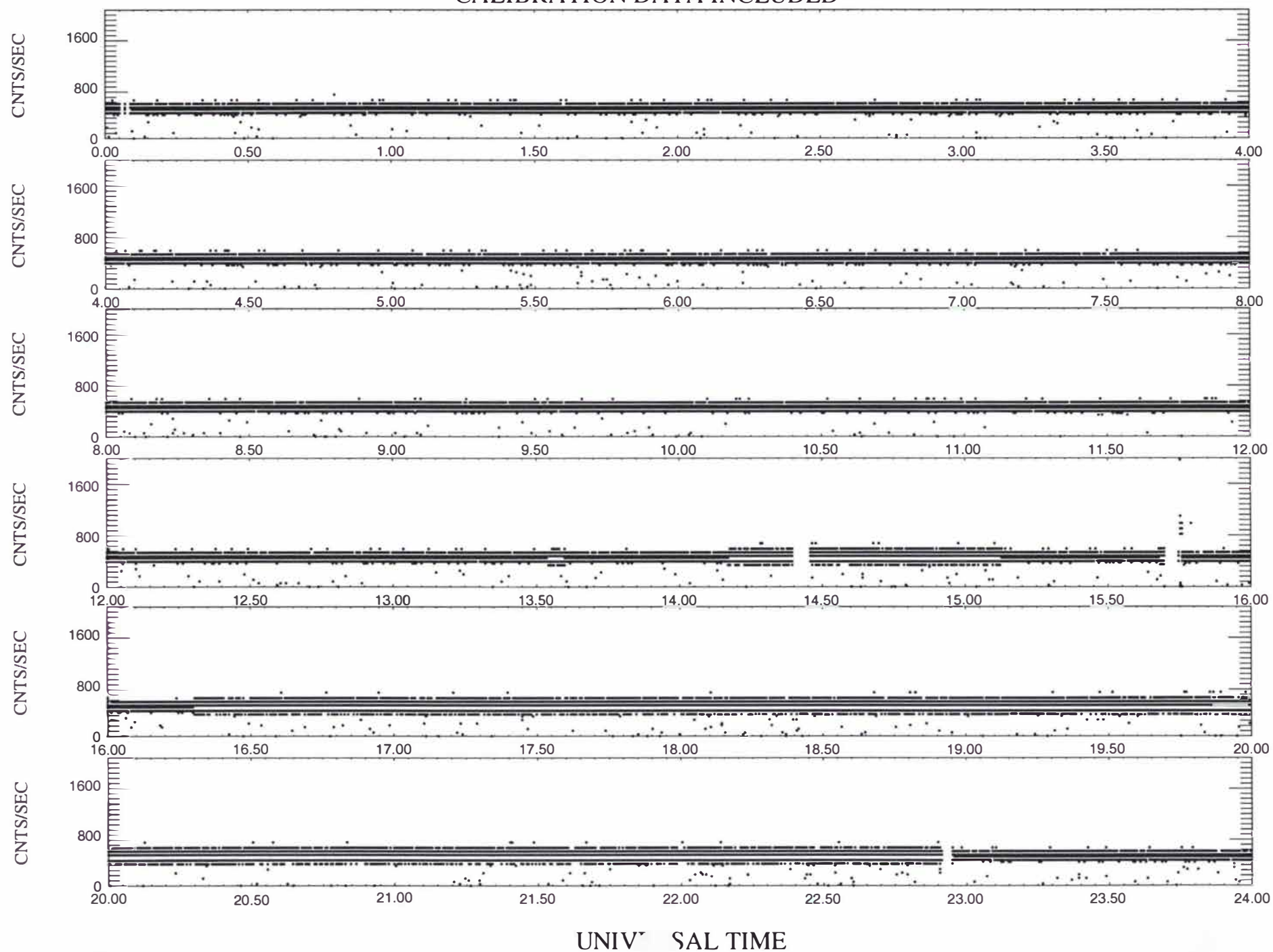
Background not subtracted

Sample average = 10

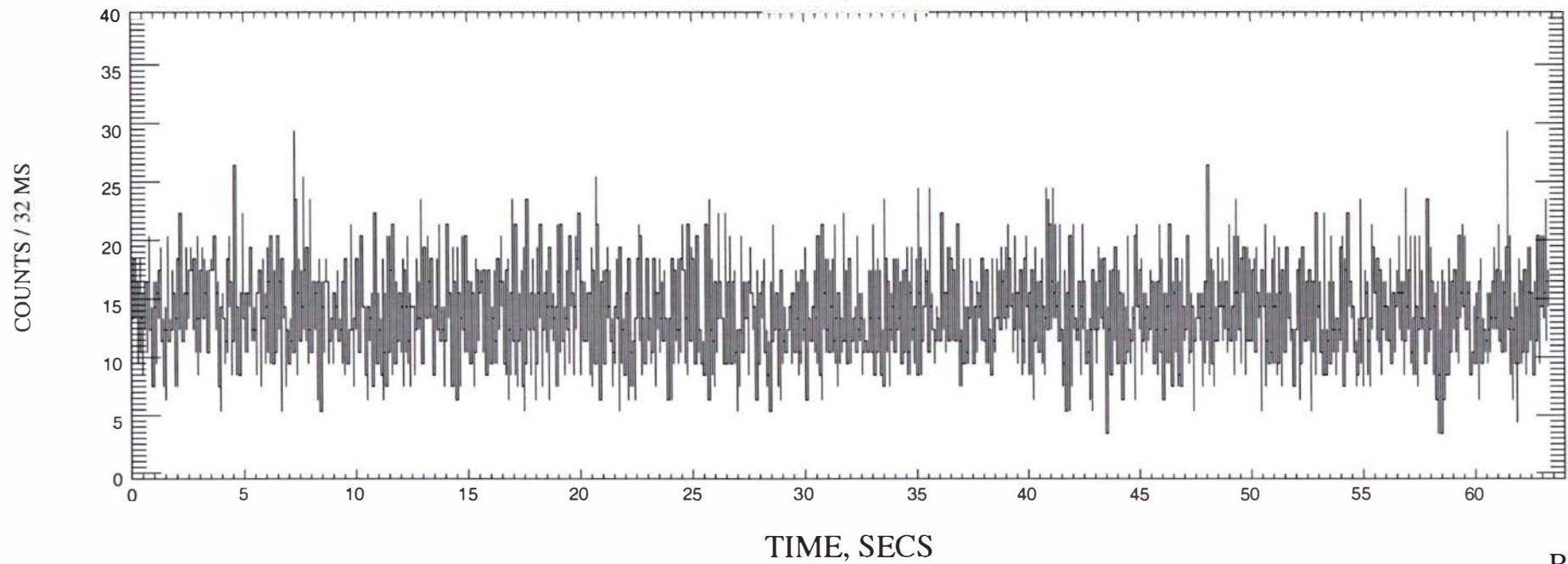
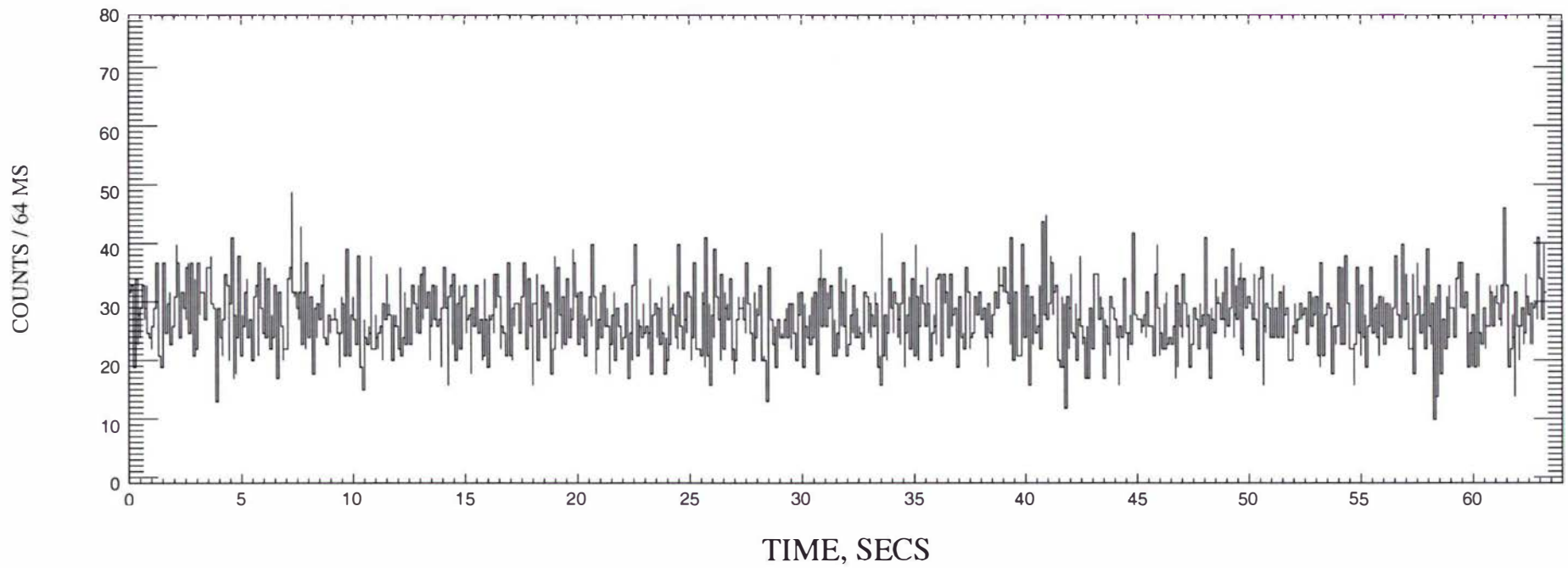
BURST NUMBER 5



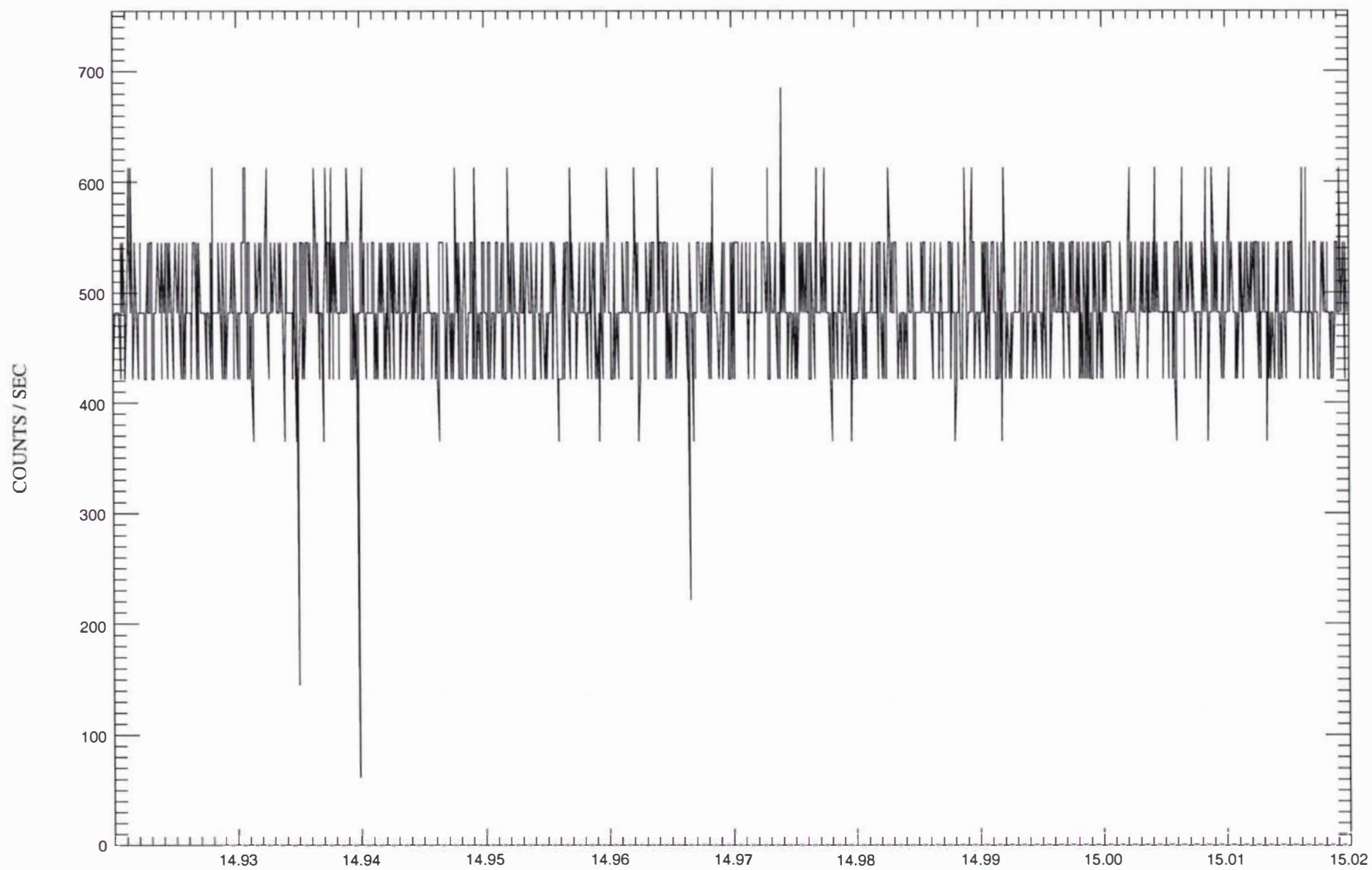
CALIBRATION DATA INCLUDED

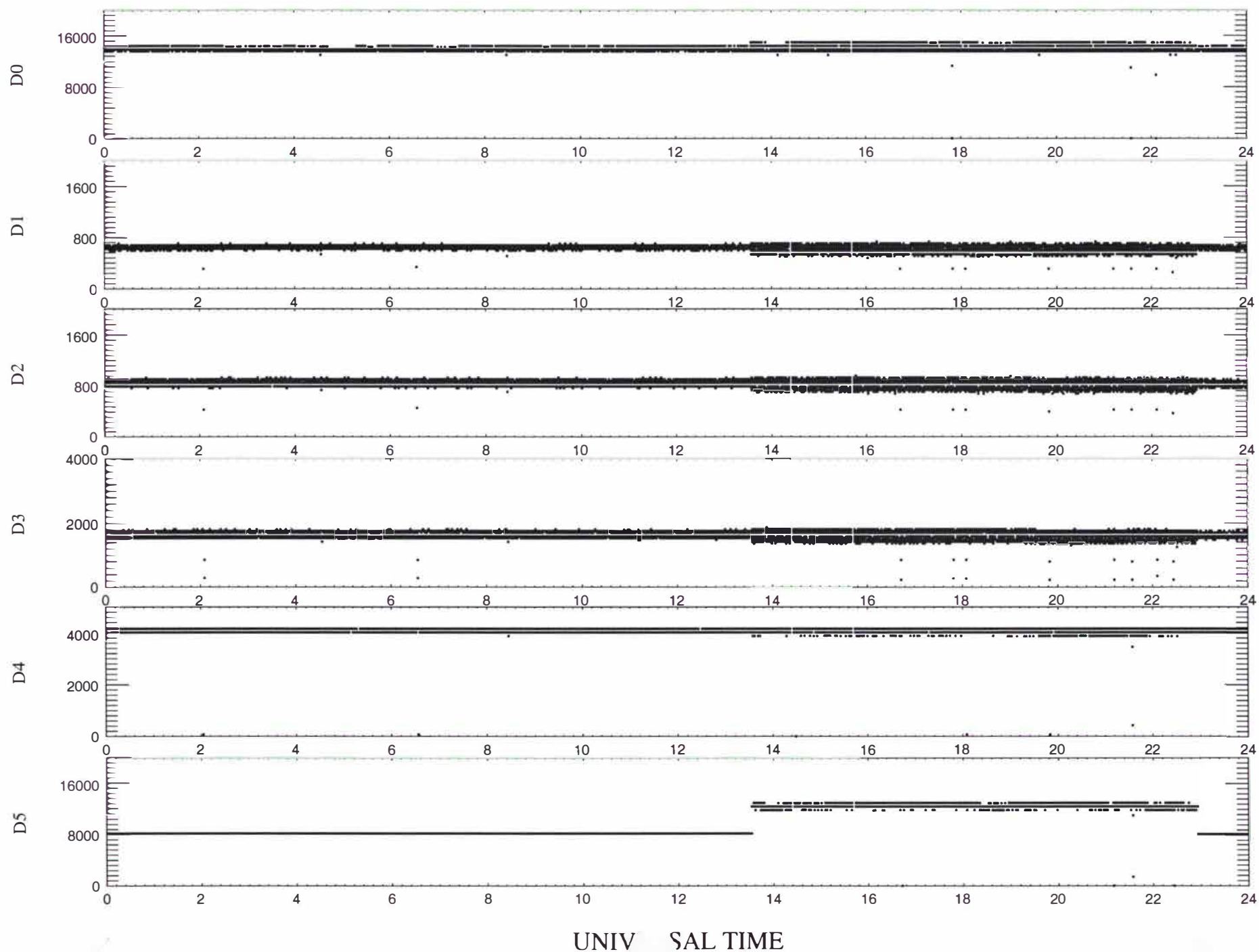


Burst Counter 5 at UT=14.974067132738 h=53906.642 s 14:58:26.642



CALIBRATION DATA INCLUDED





GRBM 19991205 60980

ULYSSES RT

10/07/07

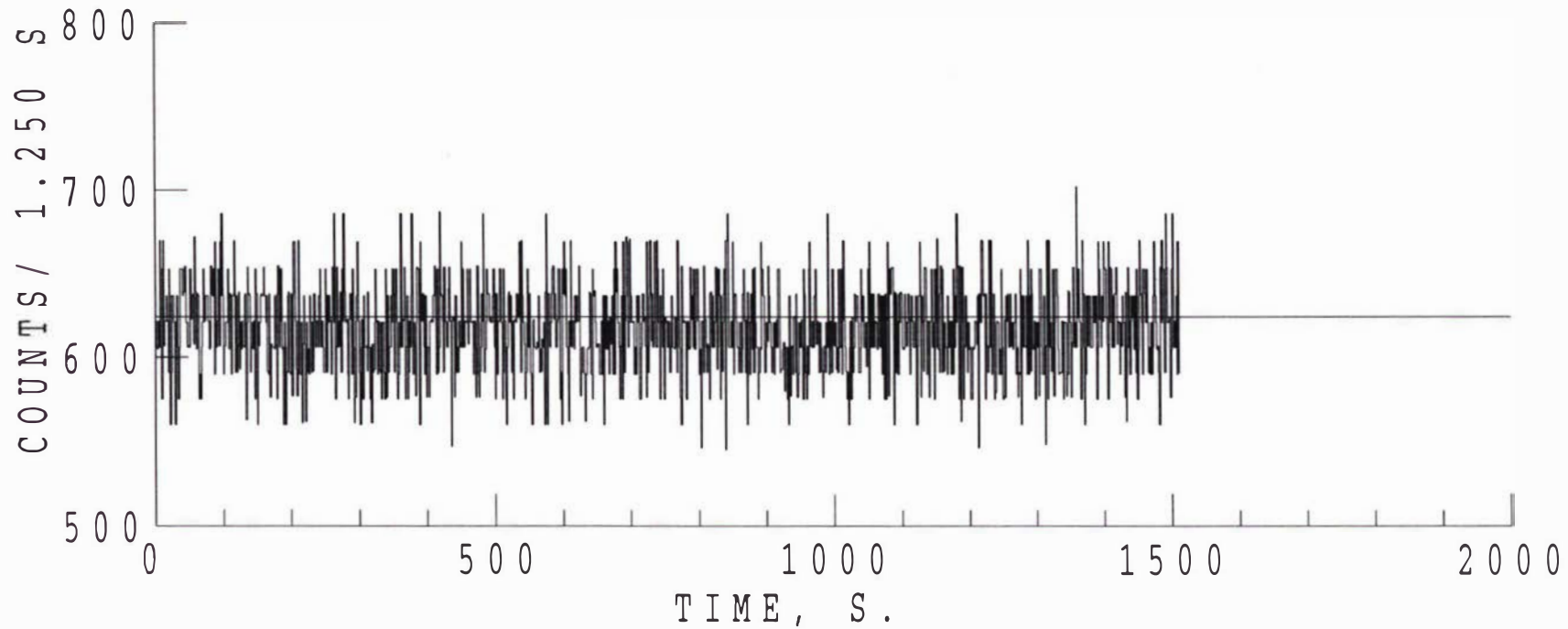
05/12/99 60228.215 s

0.250 S INTERVALS REGROUPED BY 5

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

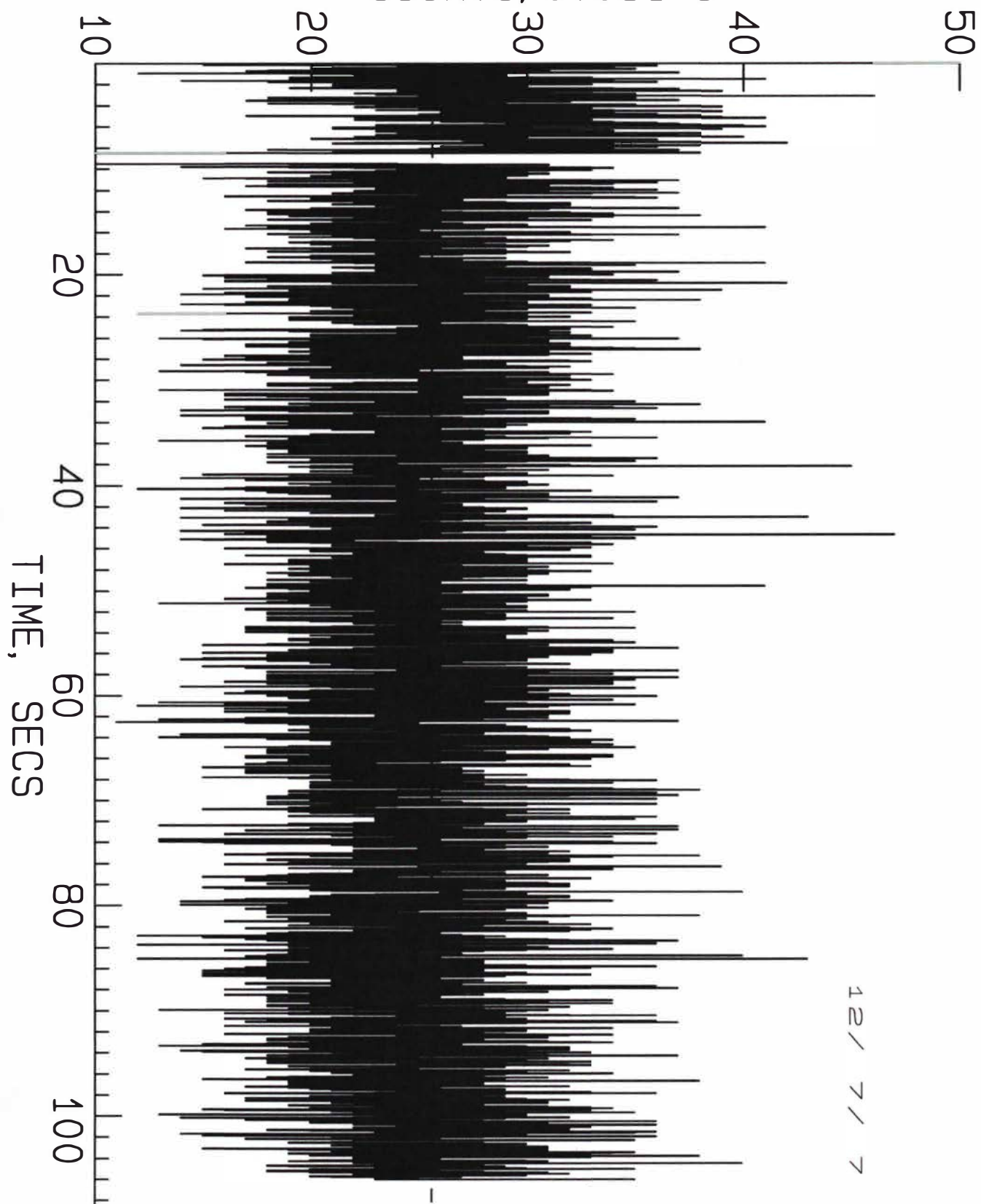


SAX GRBM

05/12/99 80684.142

40- 700 keV

COUNTS/0.031 S



12 / 7 / 7

grbm 19991205 81240

ULYSSES RT

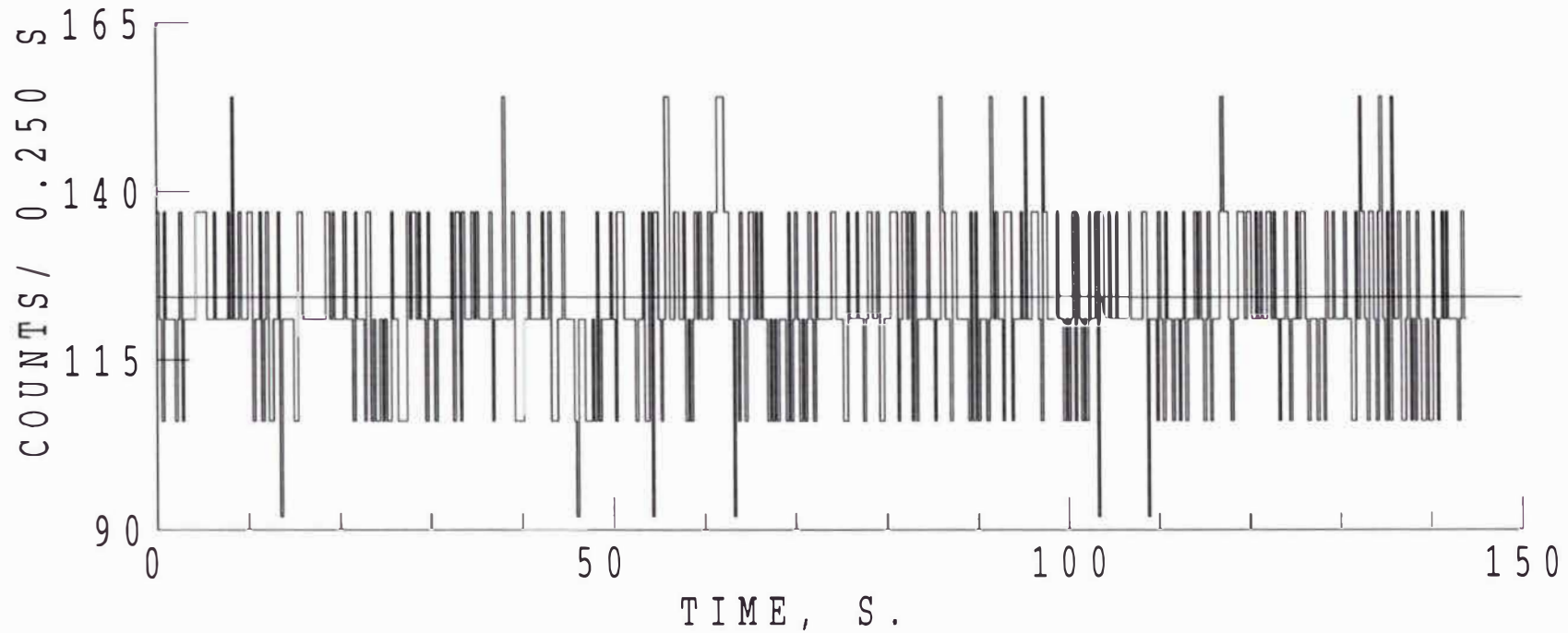
11/07/07

05/12/99 81180.180 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



GRBM 19991205 81186

ULYSSES RT

10/07/07

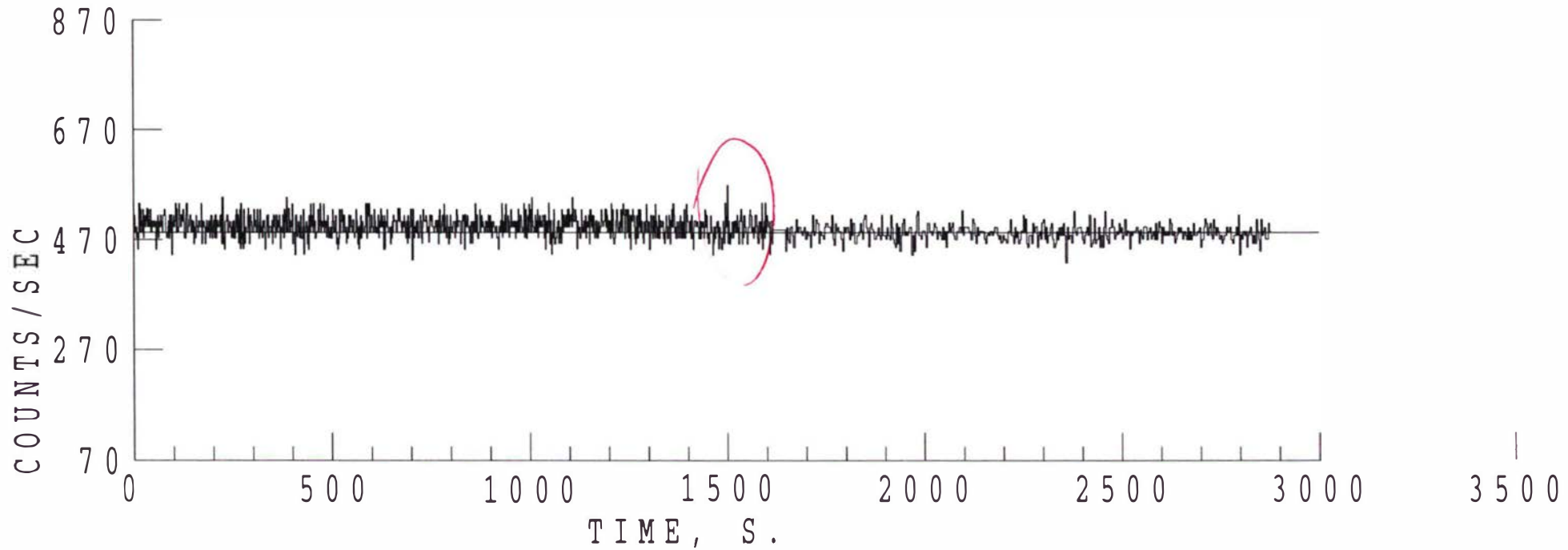
05/12/99 79740.172 s

INTERVALS REGROUPED BY 6

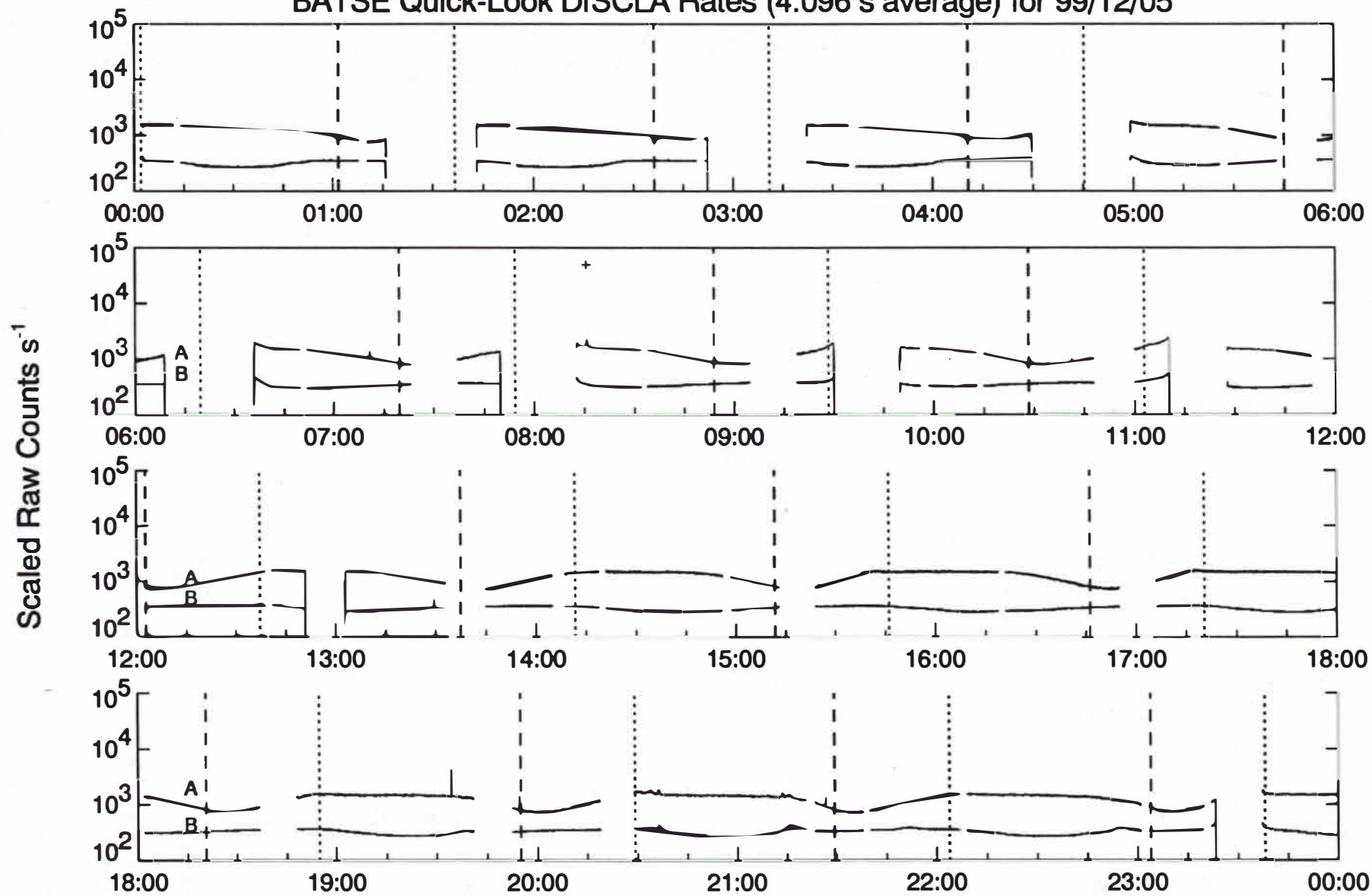
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/05

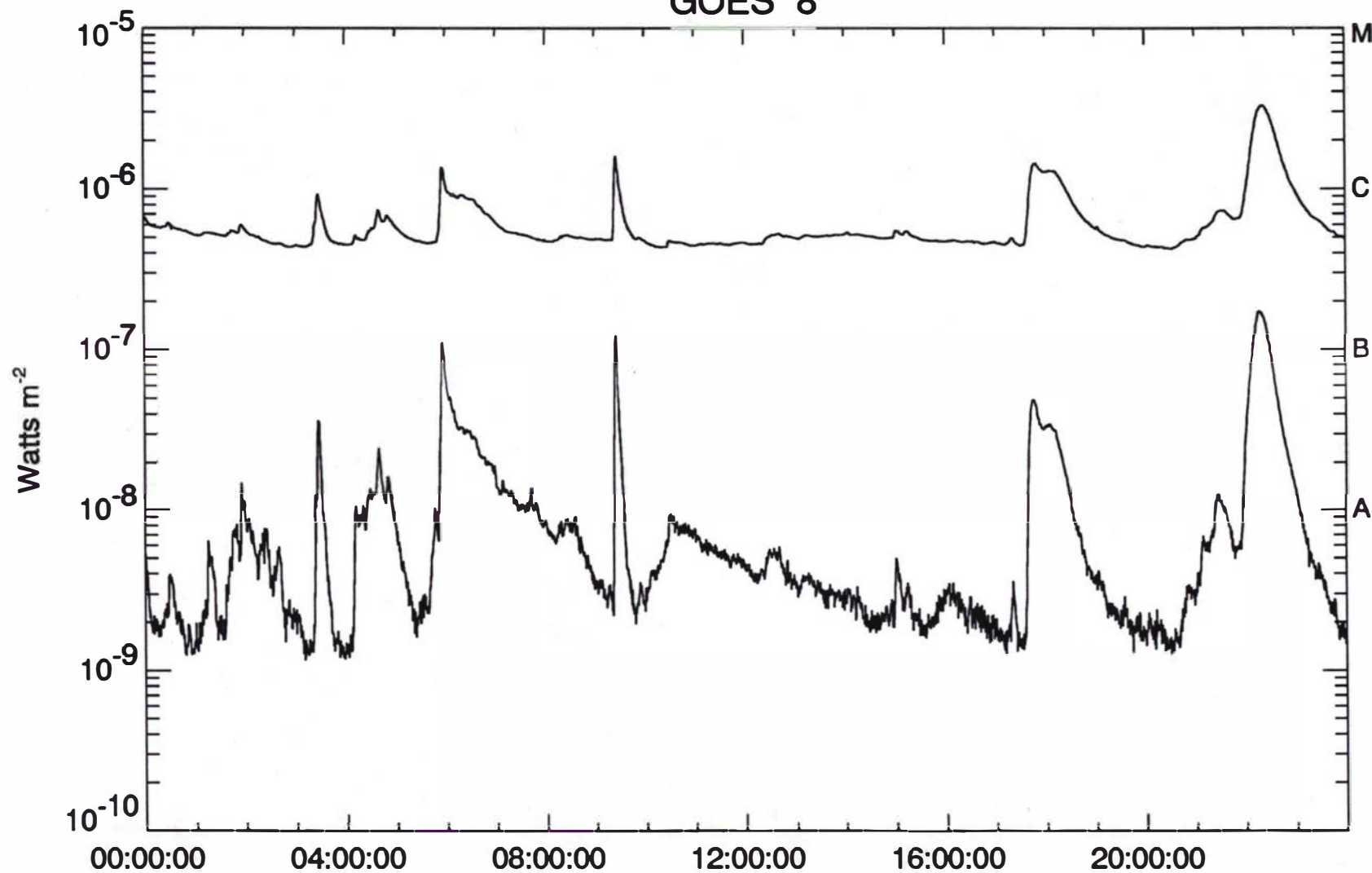


Current Time: 99/12/09, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/05, 0000:00

Plot created: 99/12/09, 1008

Channel

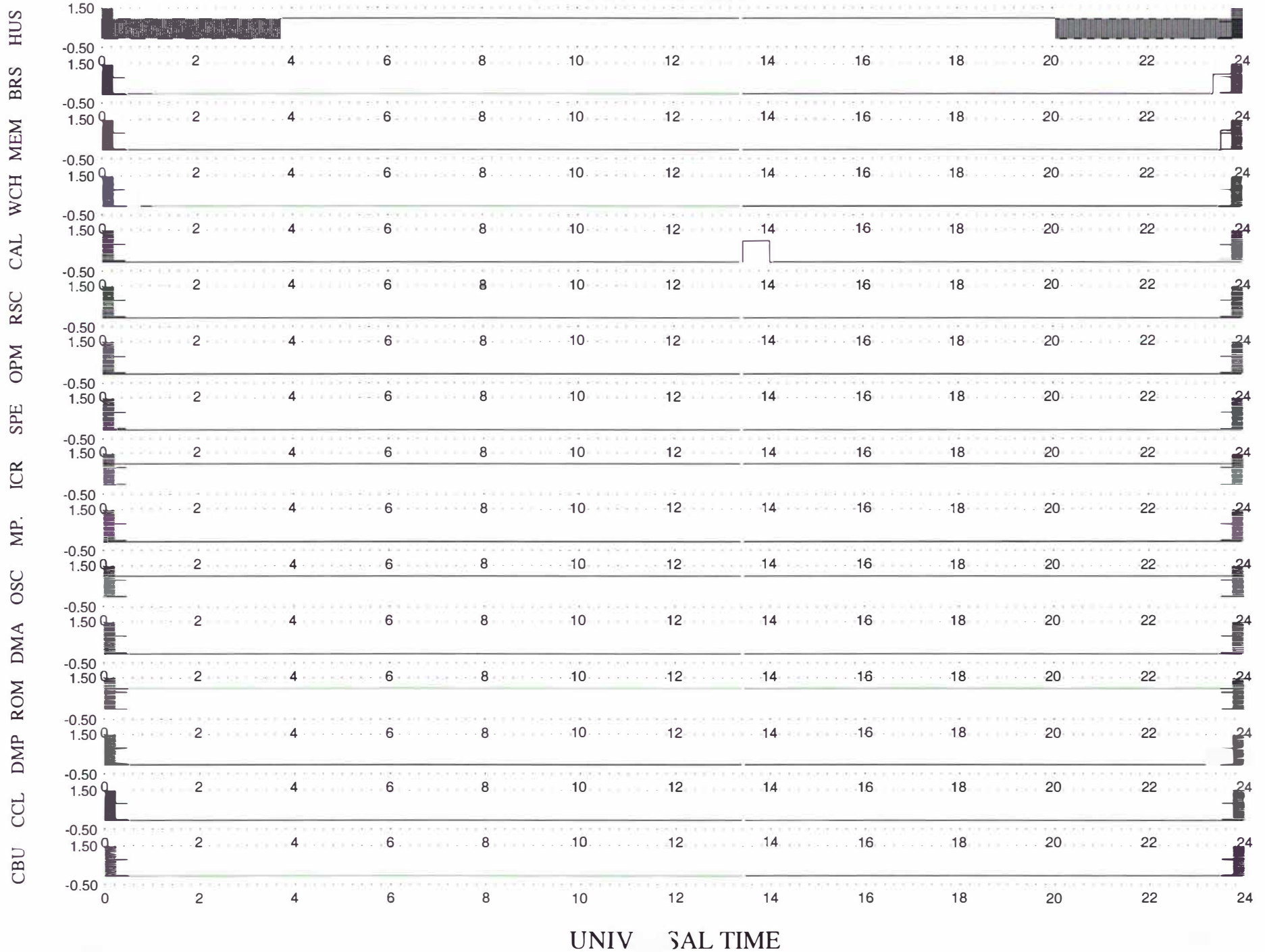
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted

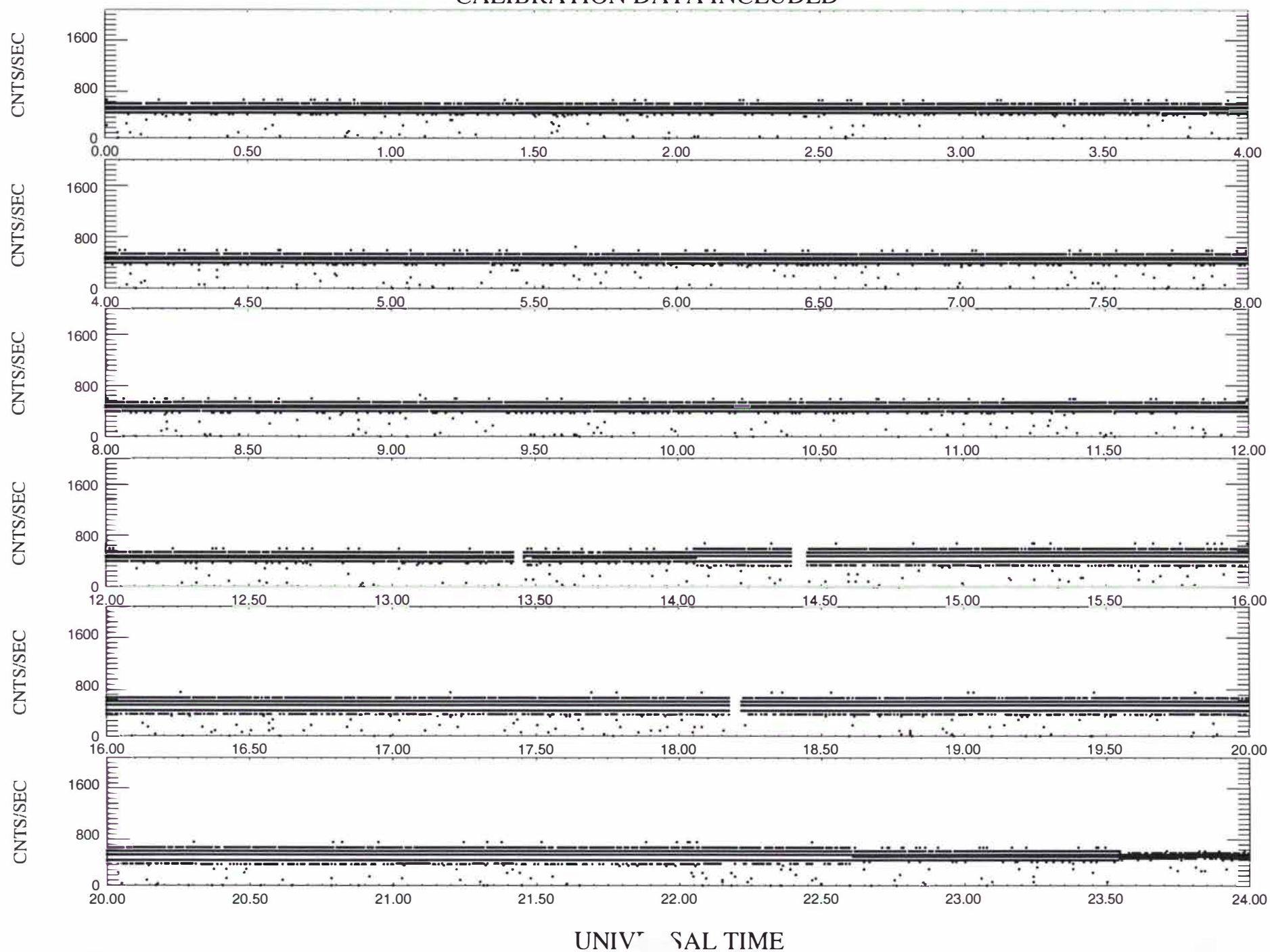
Background not subtracted

Sample average = 10

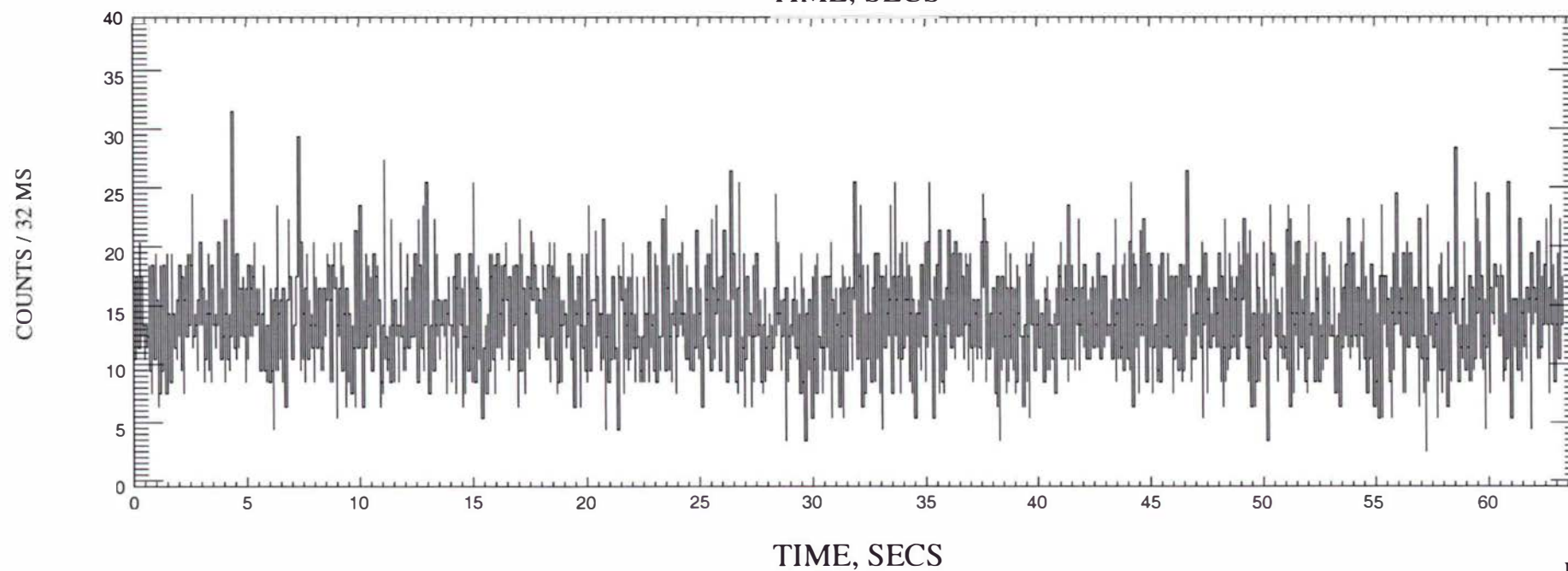
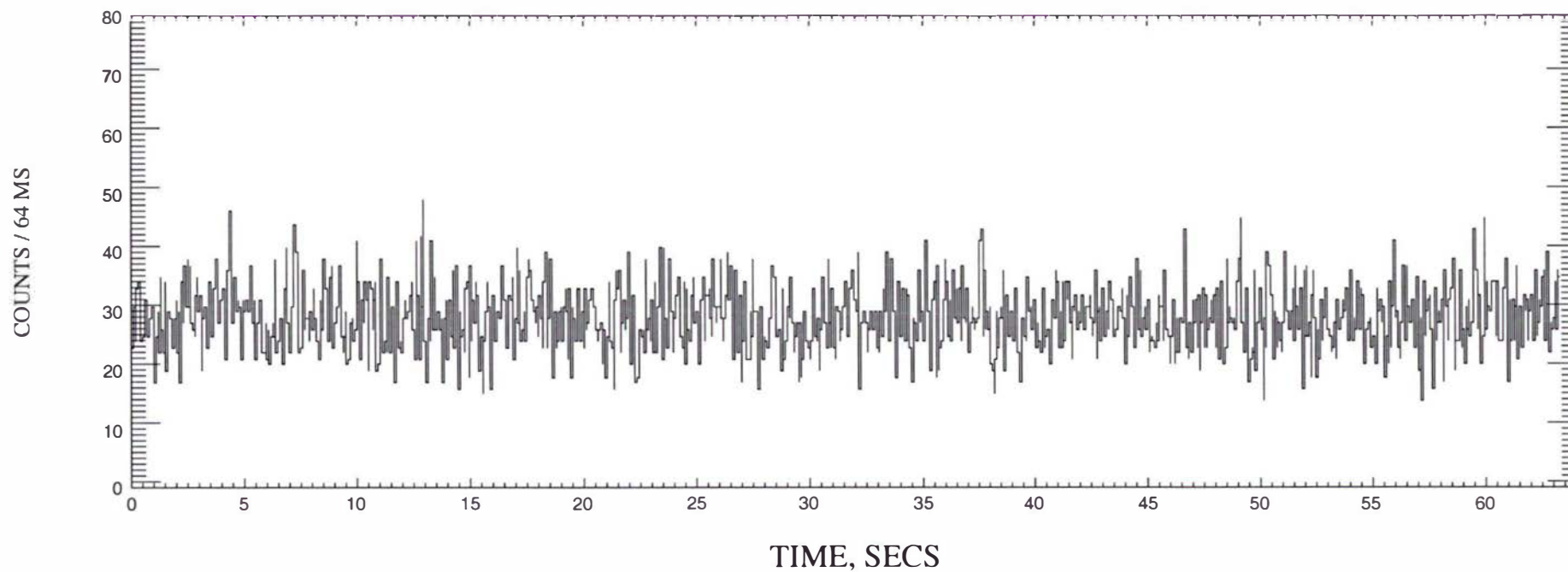
BURST NUMBER 6



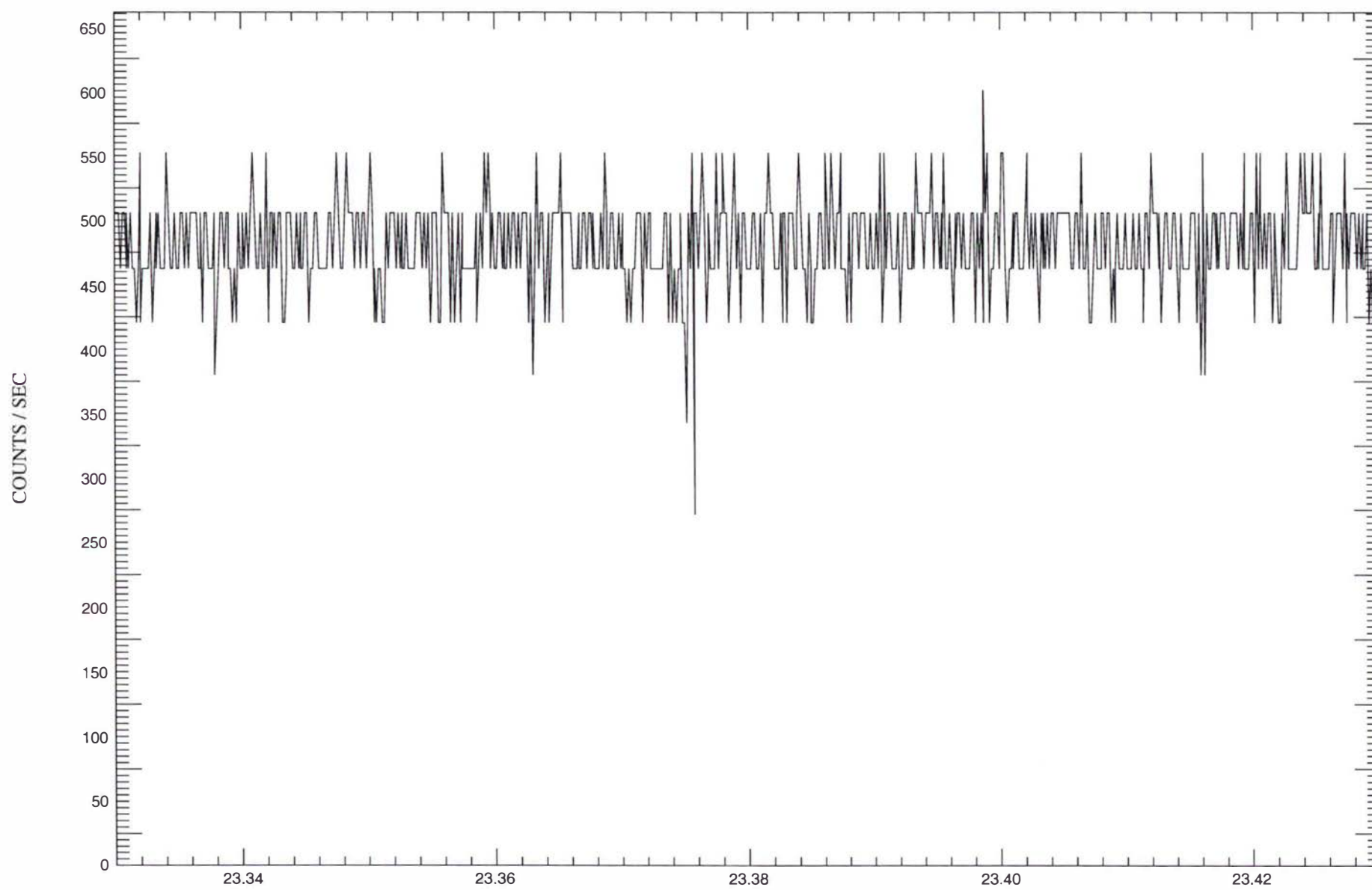
CALIBRATION DATA INCLUDED

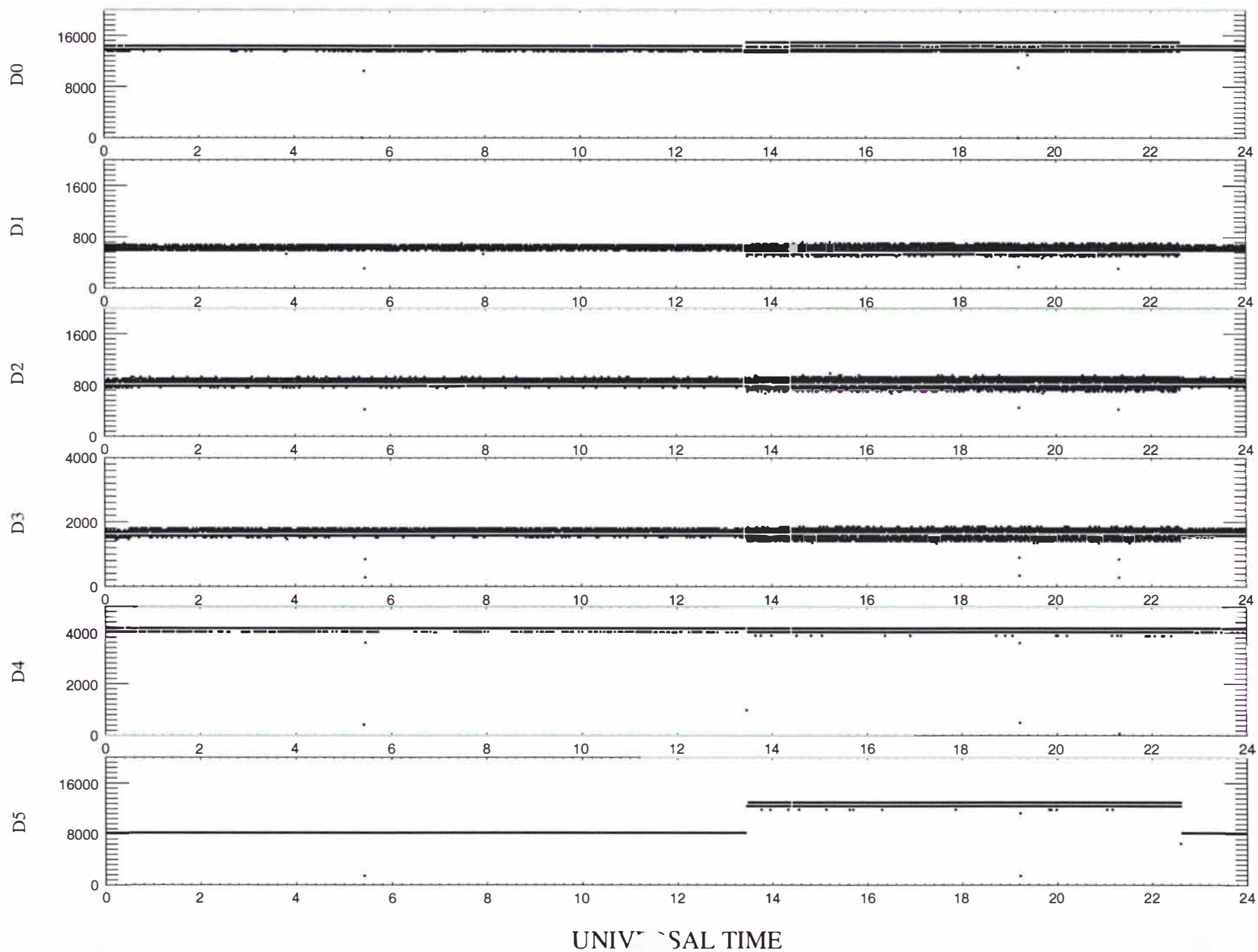


Burst Counter 6 at UT=23.379049538506 h=84164.578 s 23:22:44.578



CALIBRATION DATA INCLUDED



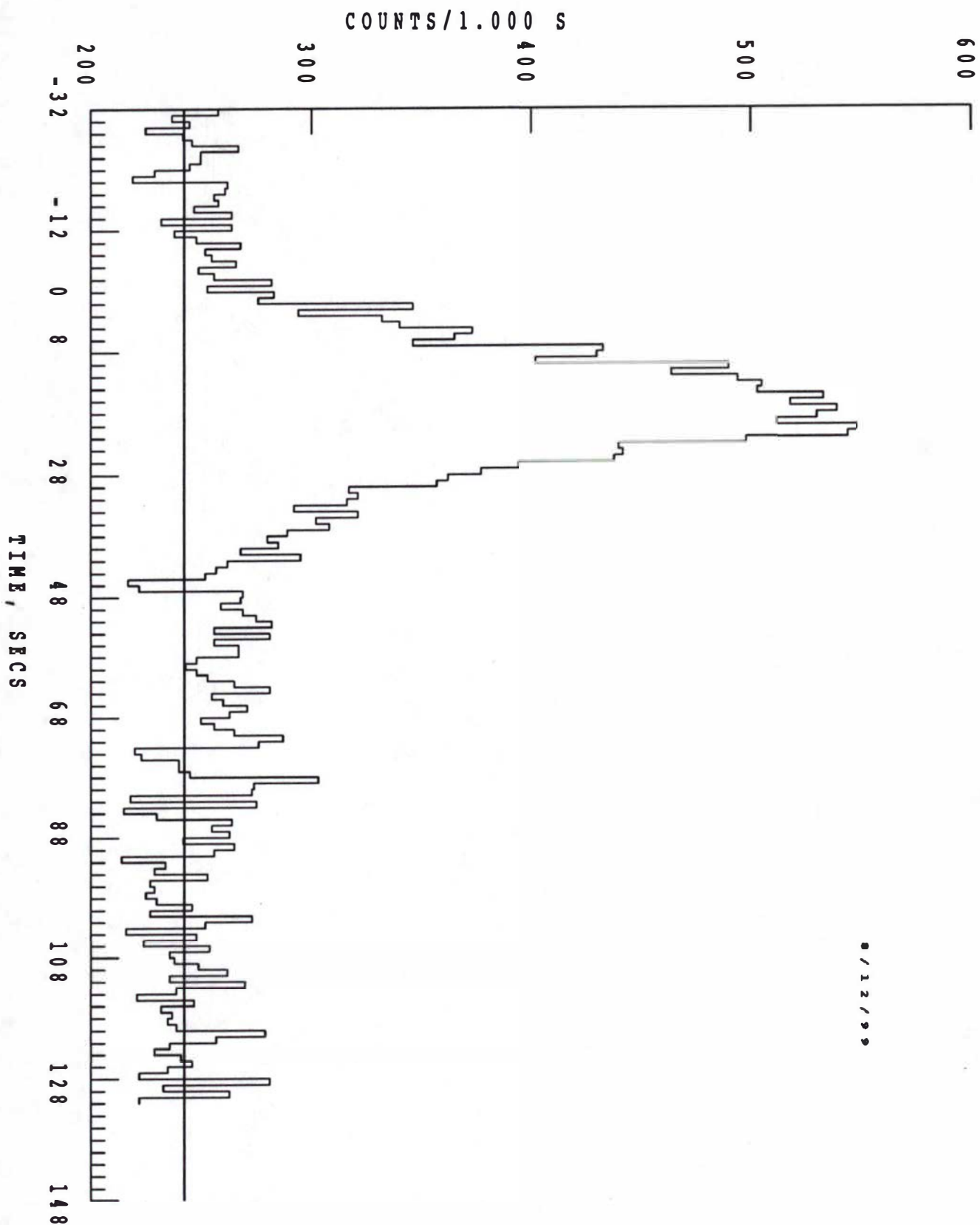


NEAR

06/12/99

31431.052

100-1000 keV



KNEAR GRS 19991206 31431

ULYSSES RT

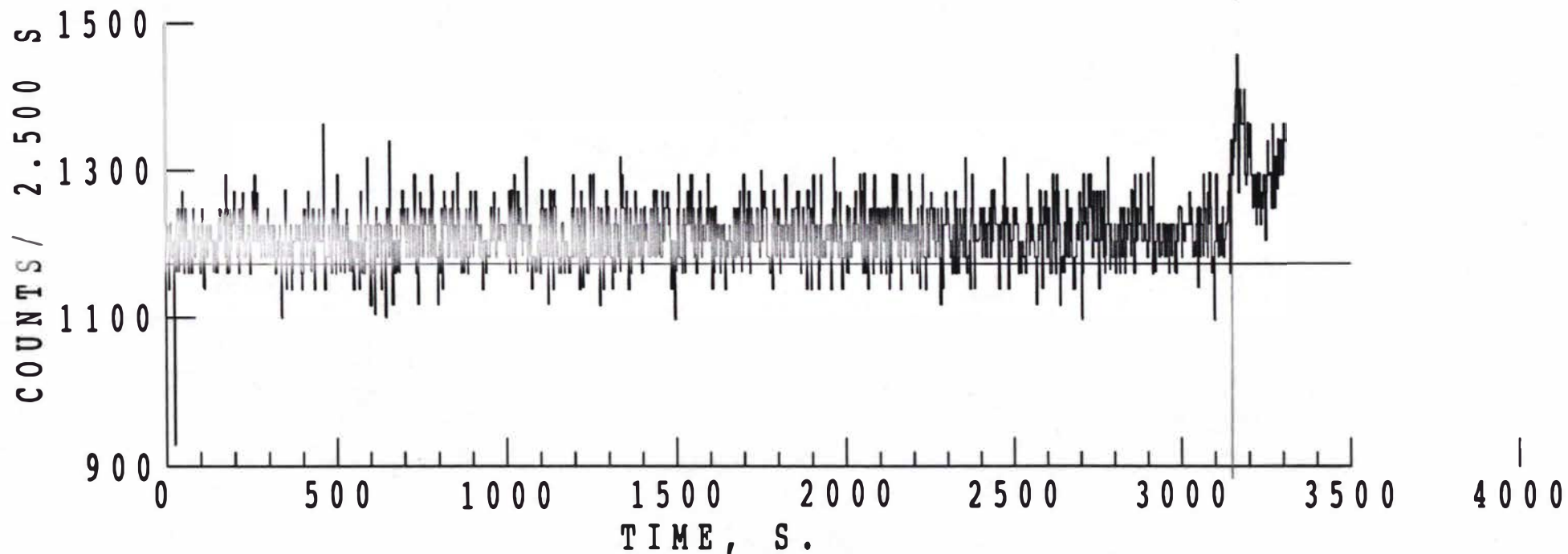
8 / 12 / 99

6/12/99 29772.279 s

0.500 S INTERVALS REGROUPED BY 5

0- 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

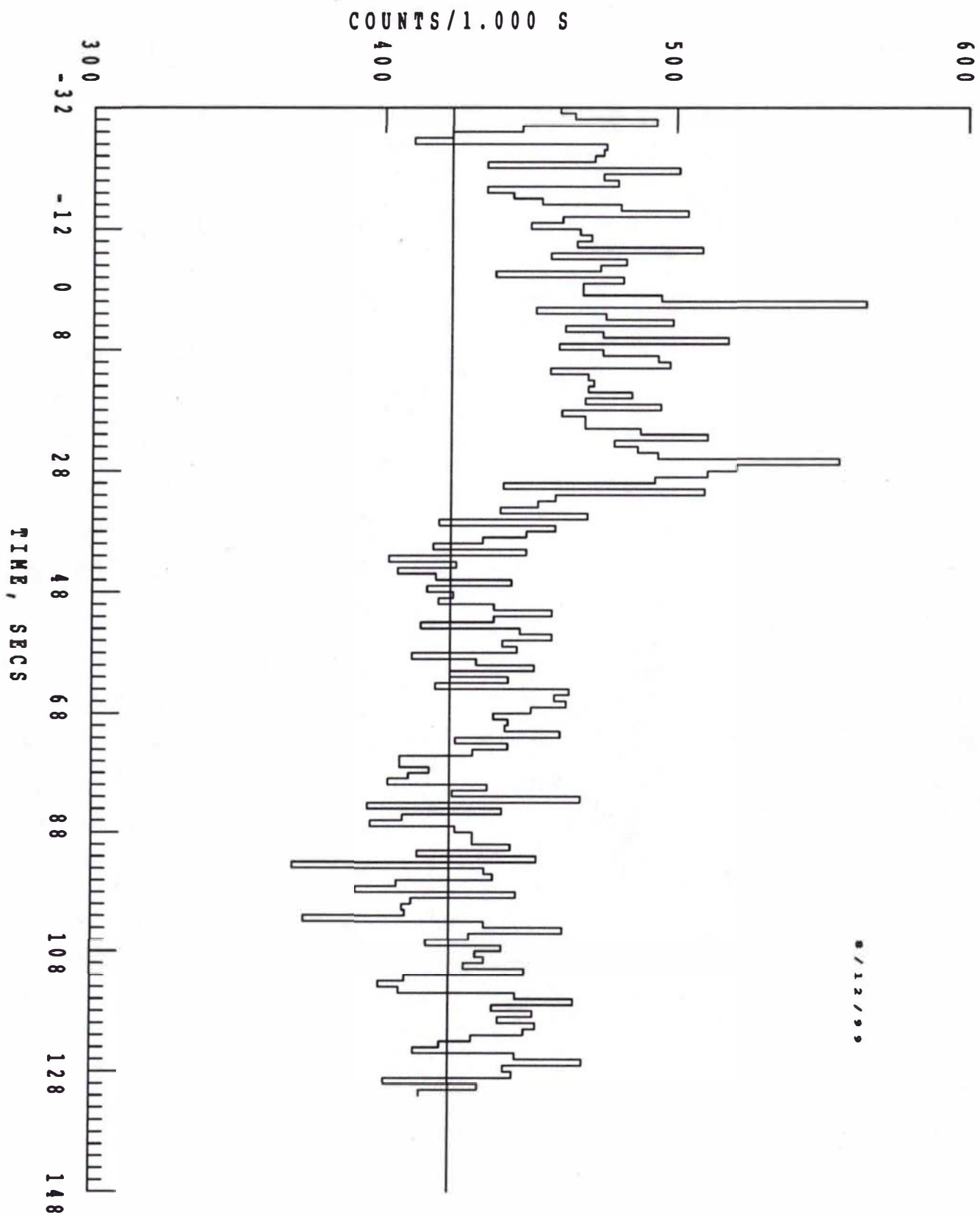


NEAR

06/12/99

33841.051

100-1000 keV



KNEAR GRS 19991206 33841

ULYSSES RT

8 / 12 / 99

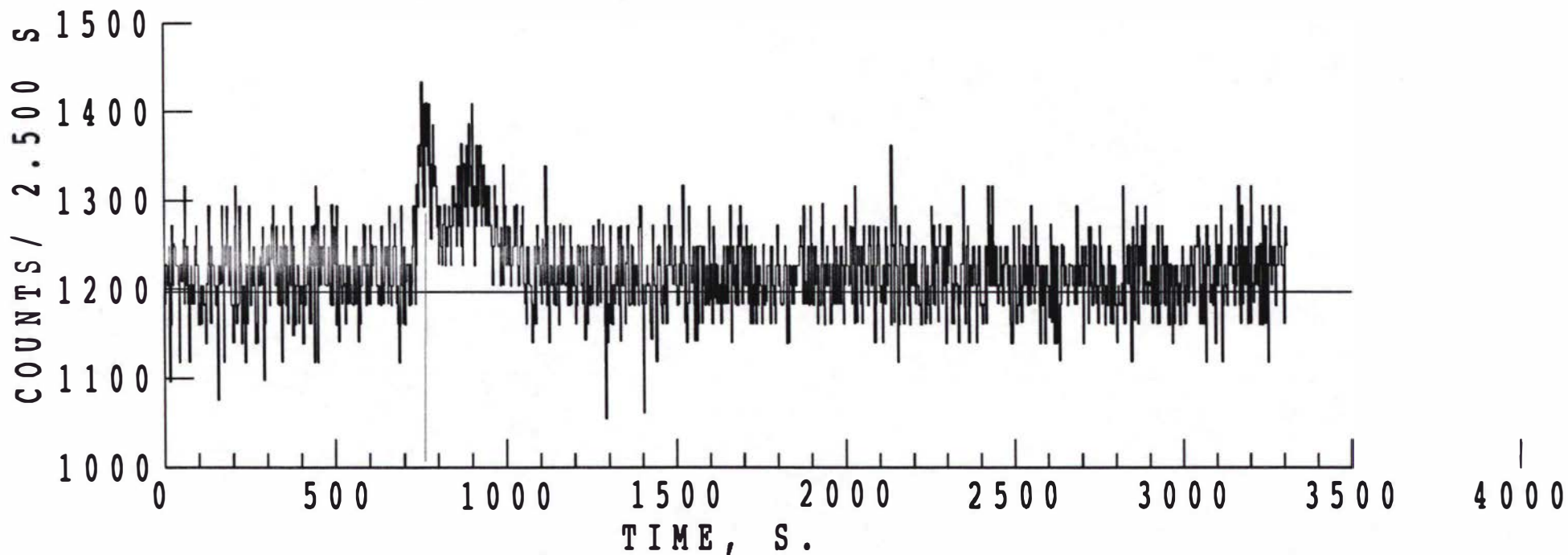
6 / 12 / 99 32184.307 s

0.500 S INTERVALS REGROUPED BY 5

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

| This is the earlier event



Date: June 12 '00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data *N/A*

- ☐ BATSE ephemeris for T_0 ?
- ☐ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data

- ☒ Final, correct time used? (Files postmarked vwx@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? *N/A*
- ☐ 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

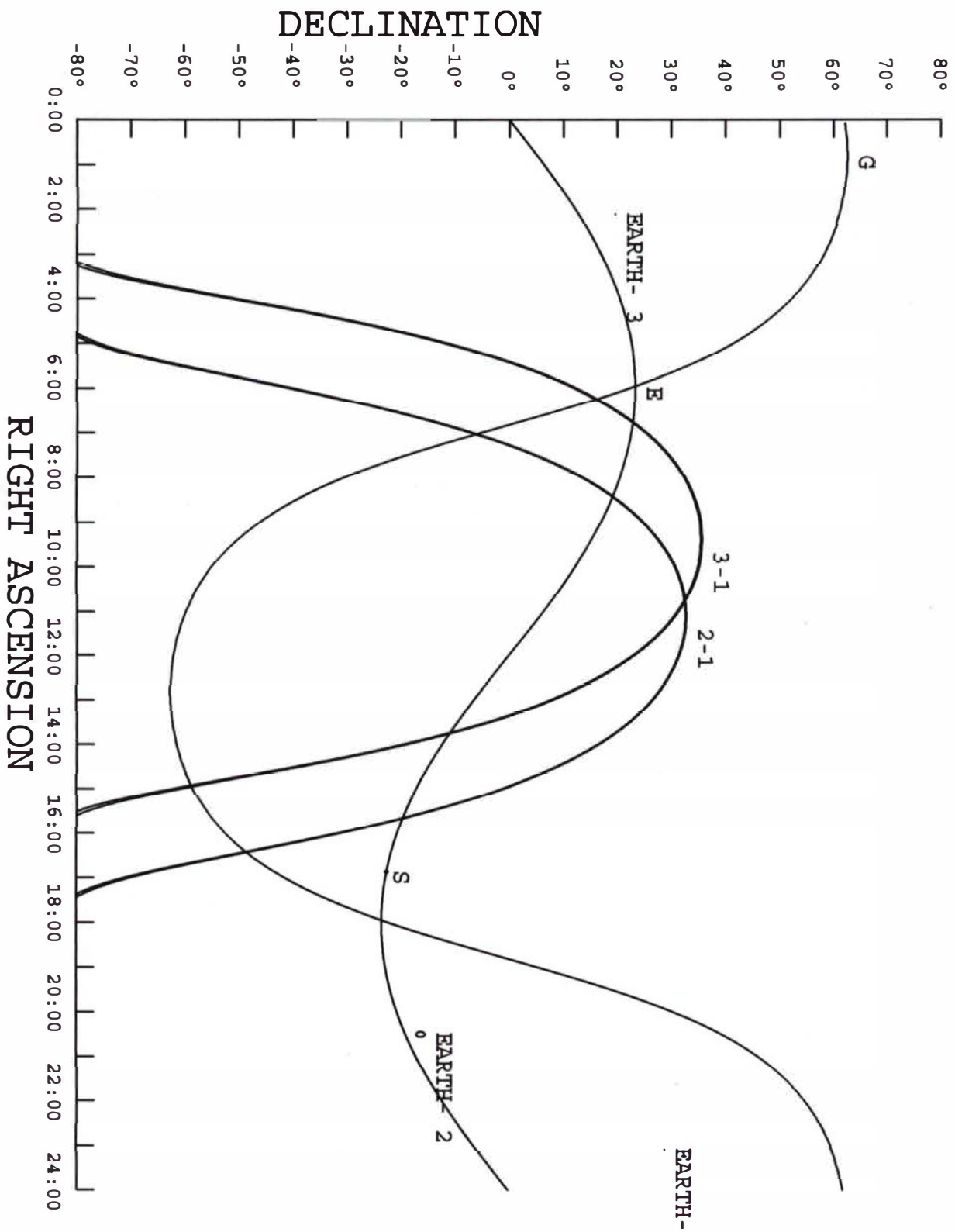
1 ULYSSES

2 KONUS2

3 NEAR

EVENT OF DEC 6, 1999 21:16

12/ 6/ 0



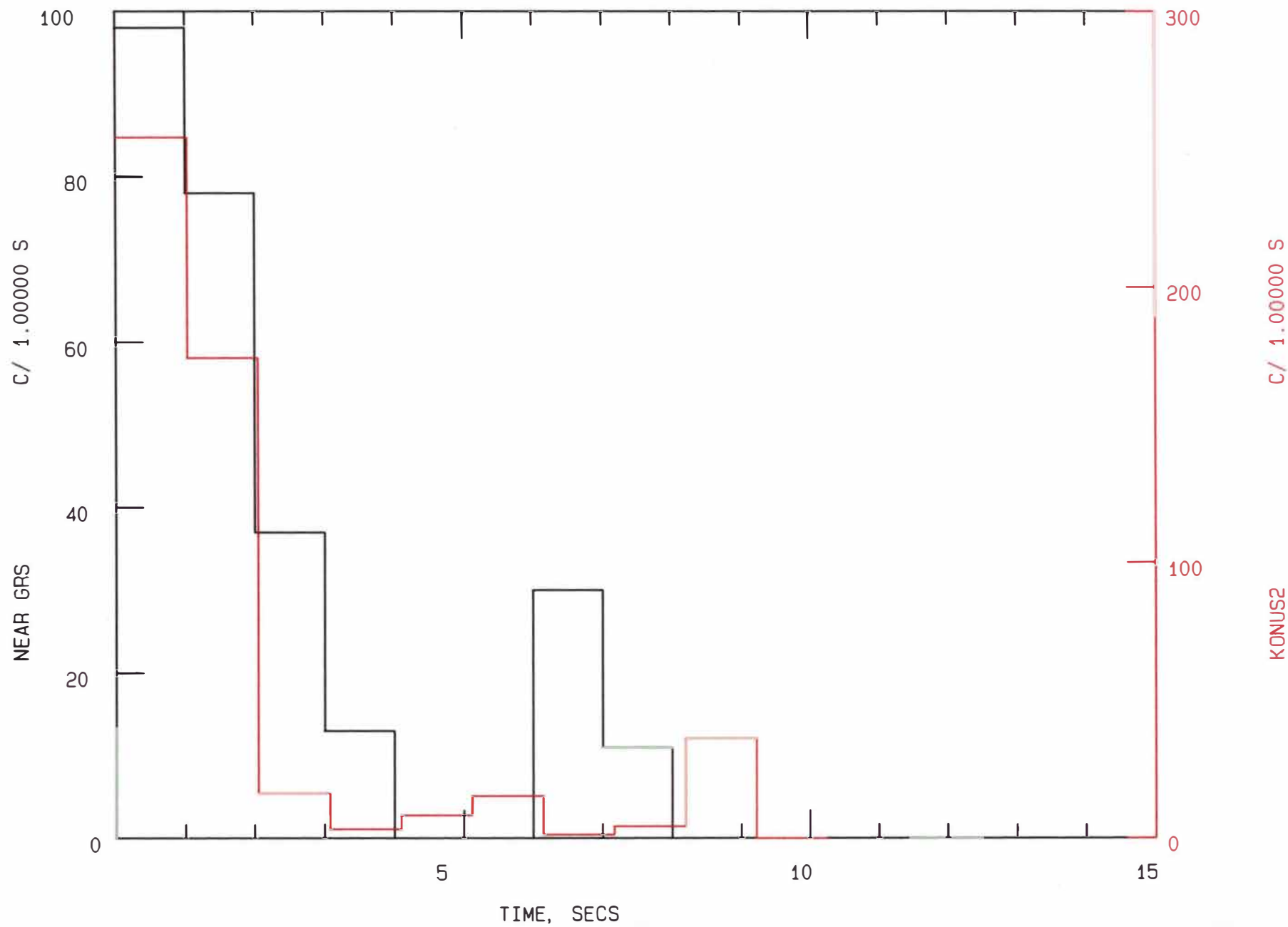
NEAR GRS -KONUS2

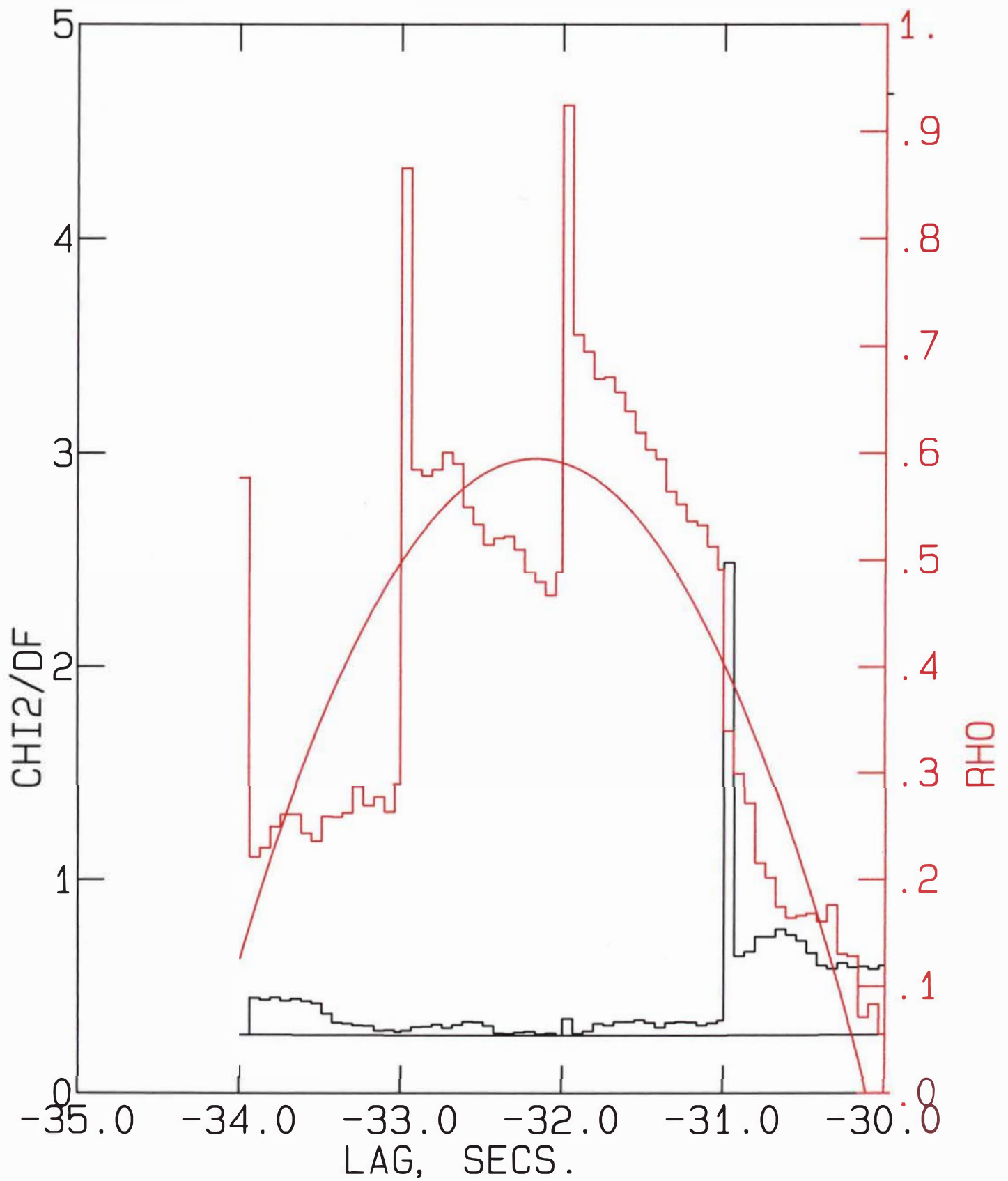
CORRELATION

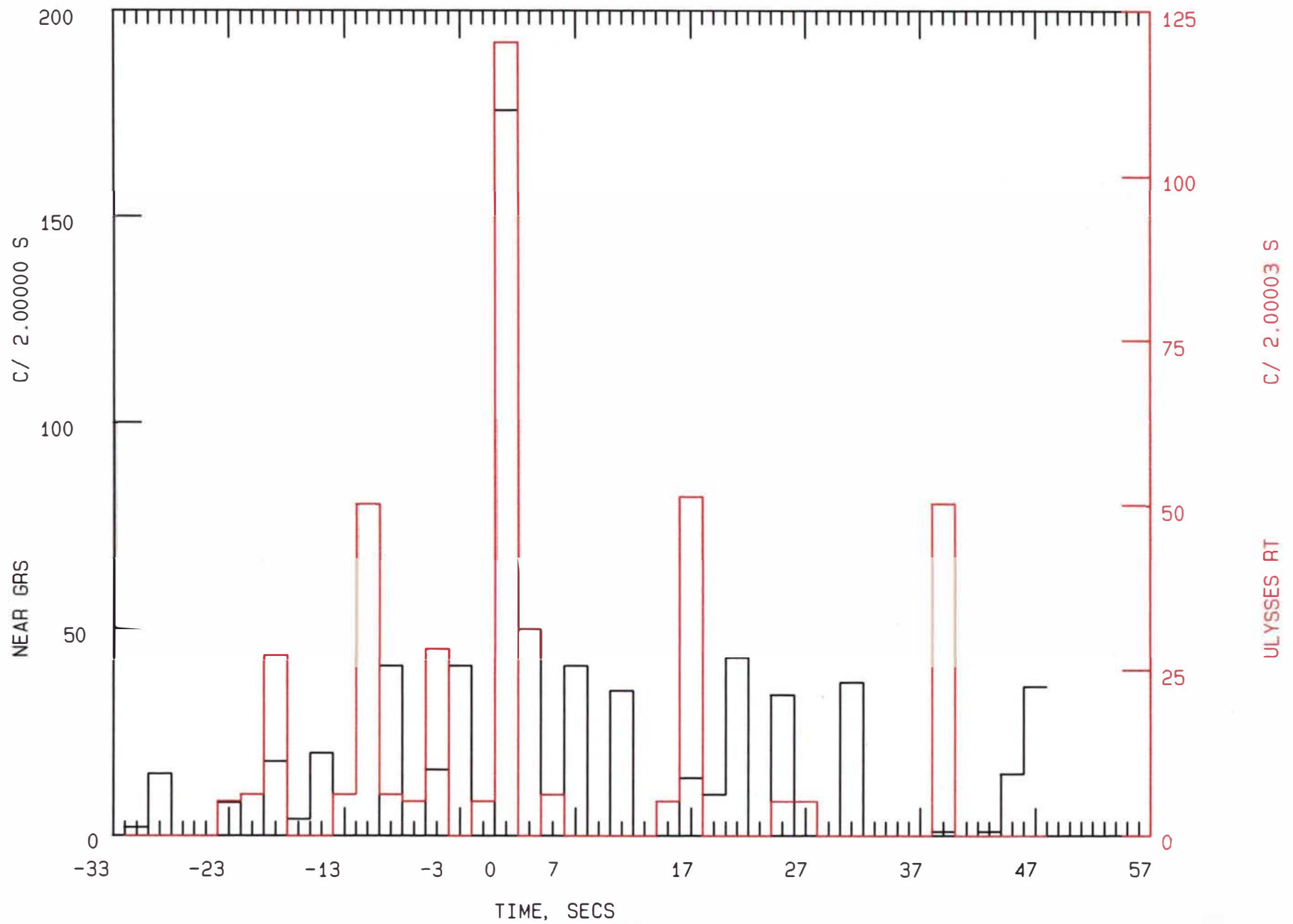
06/12/99

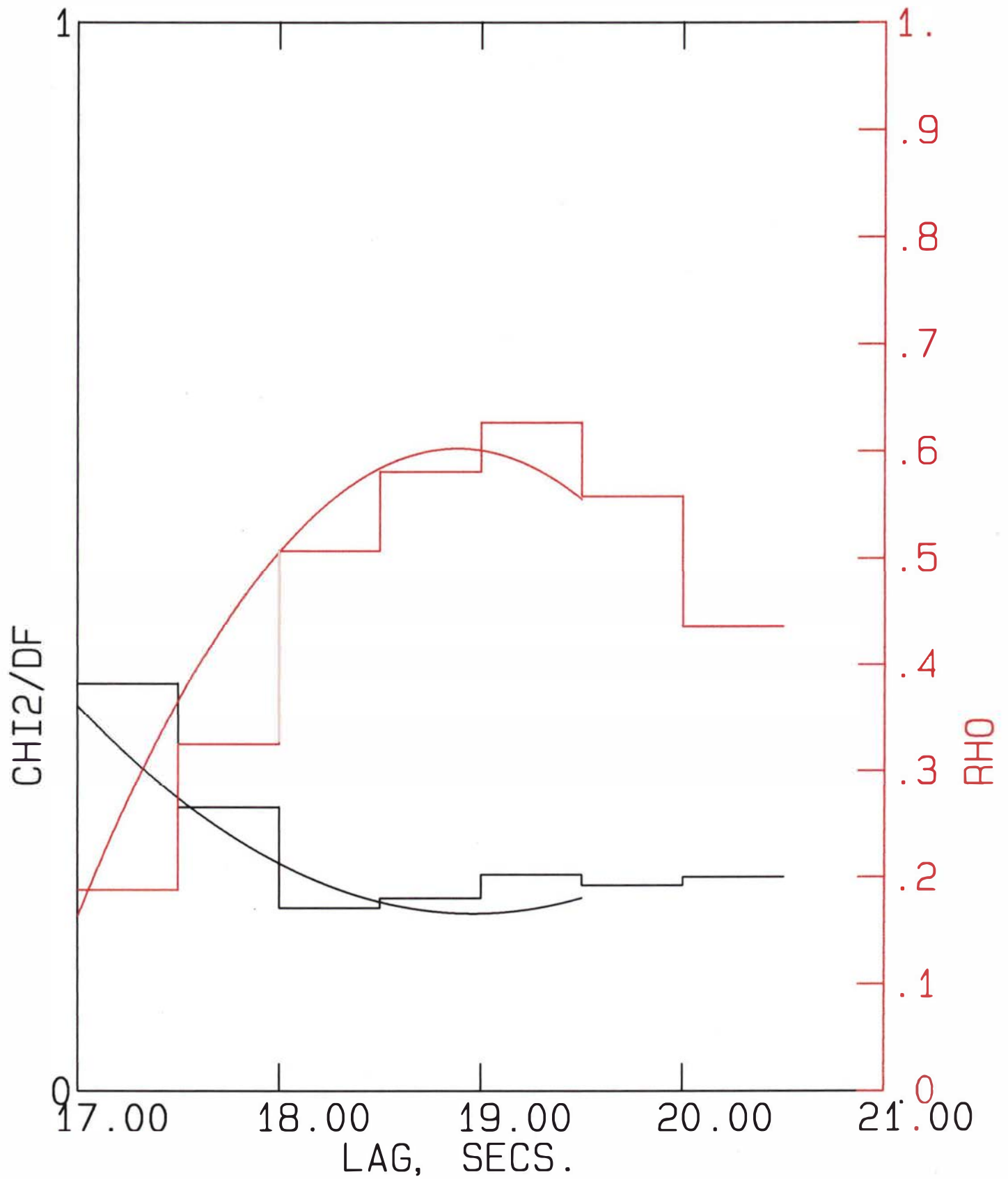
77368.165

12/ 6/ 0









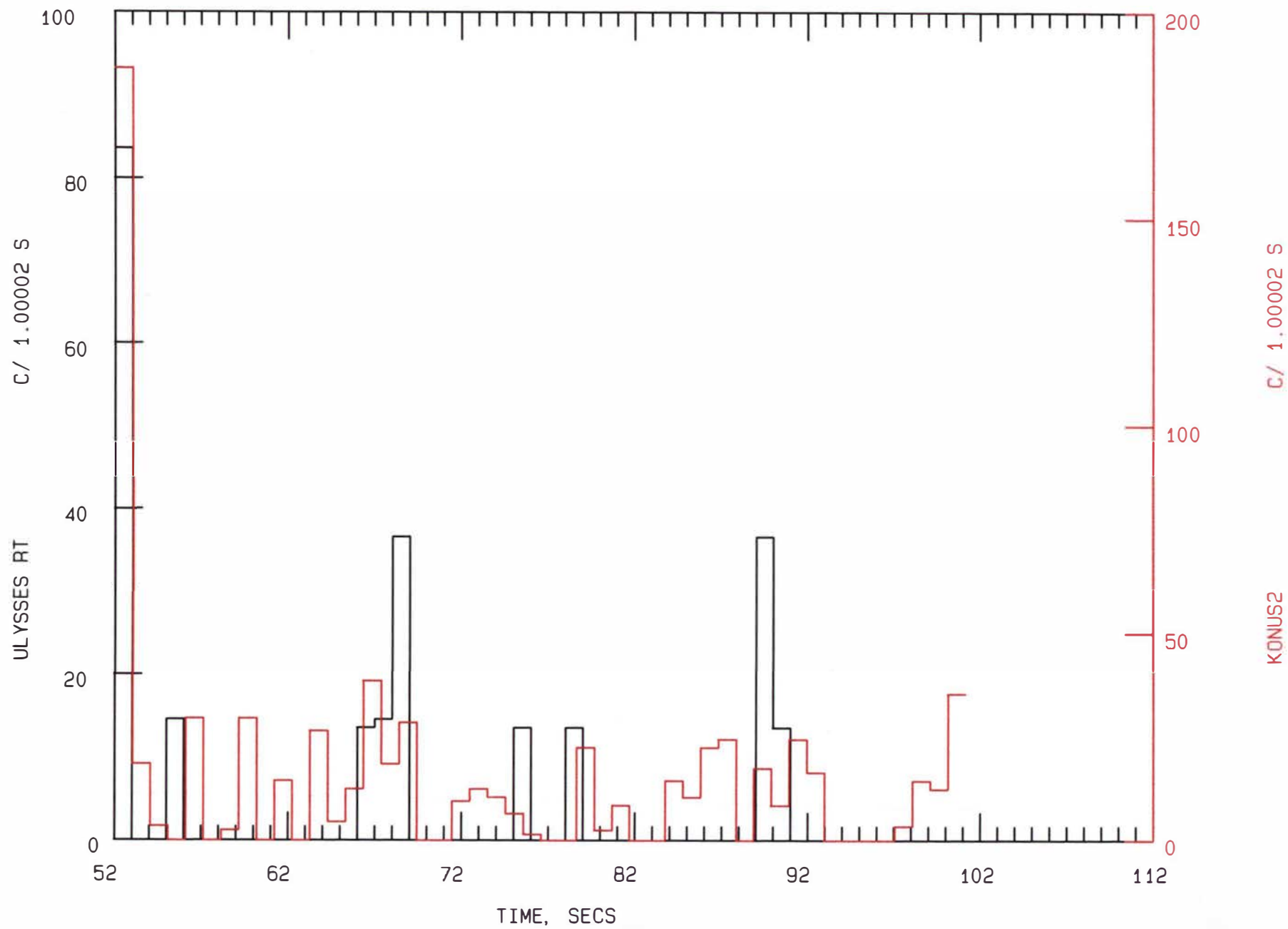
ULYSSES RT-KONUS2

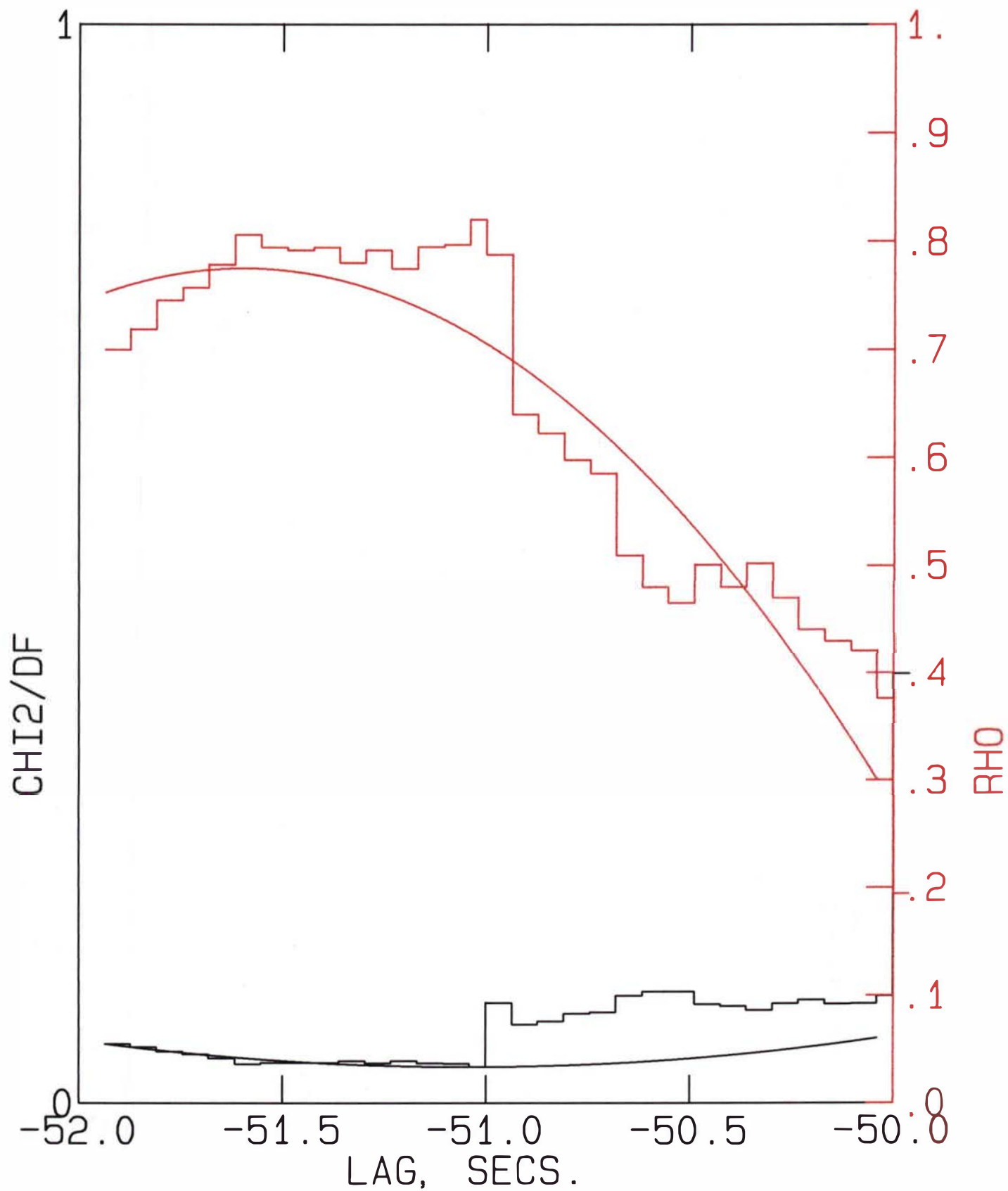
CORRELATION

6/12/99

76591.264

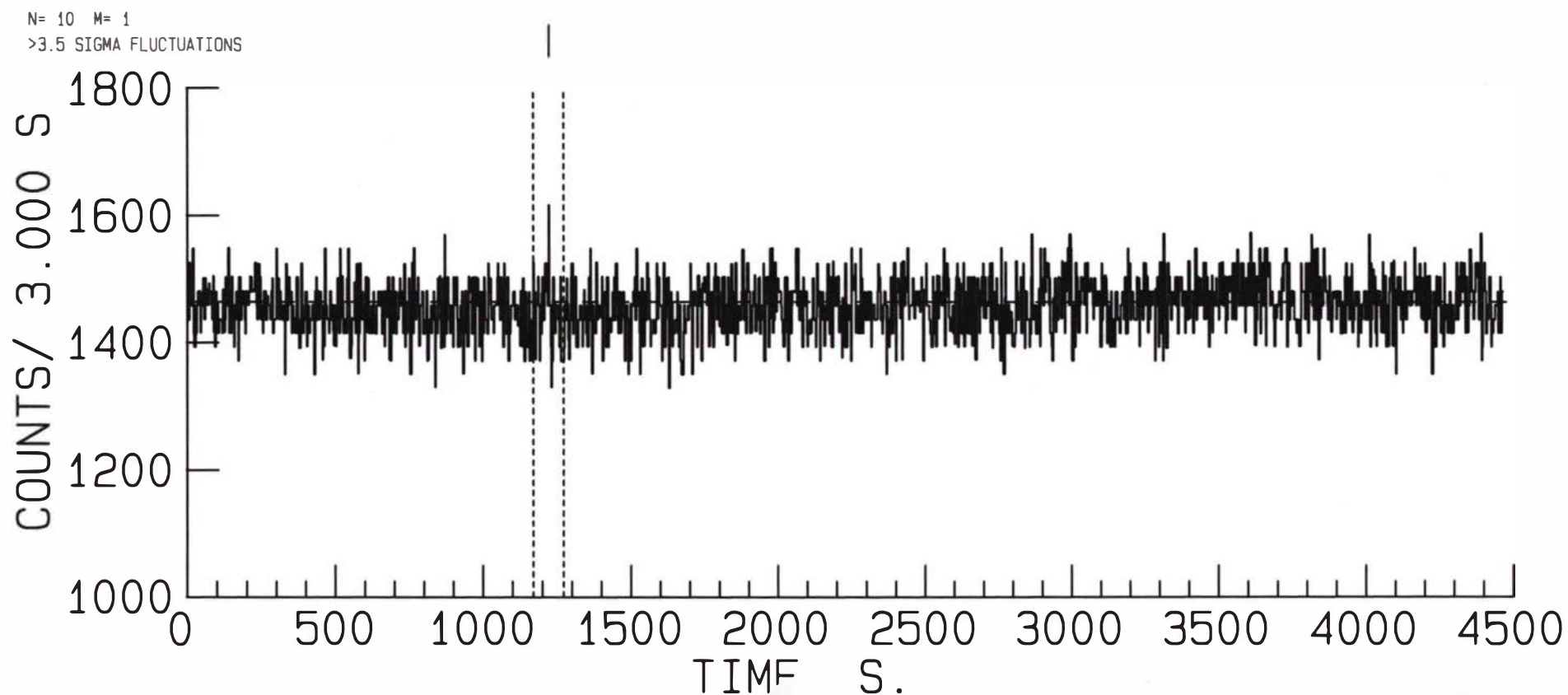
12/ 6/ 0





ULYSSES RT
6/12/99 75420.247 s
0.500 S INTERVALS REGROUPED BY 6
22- 150 keV

12 / 6 / 0



KONUS

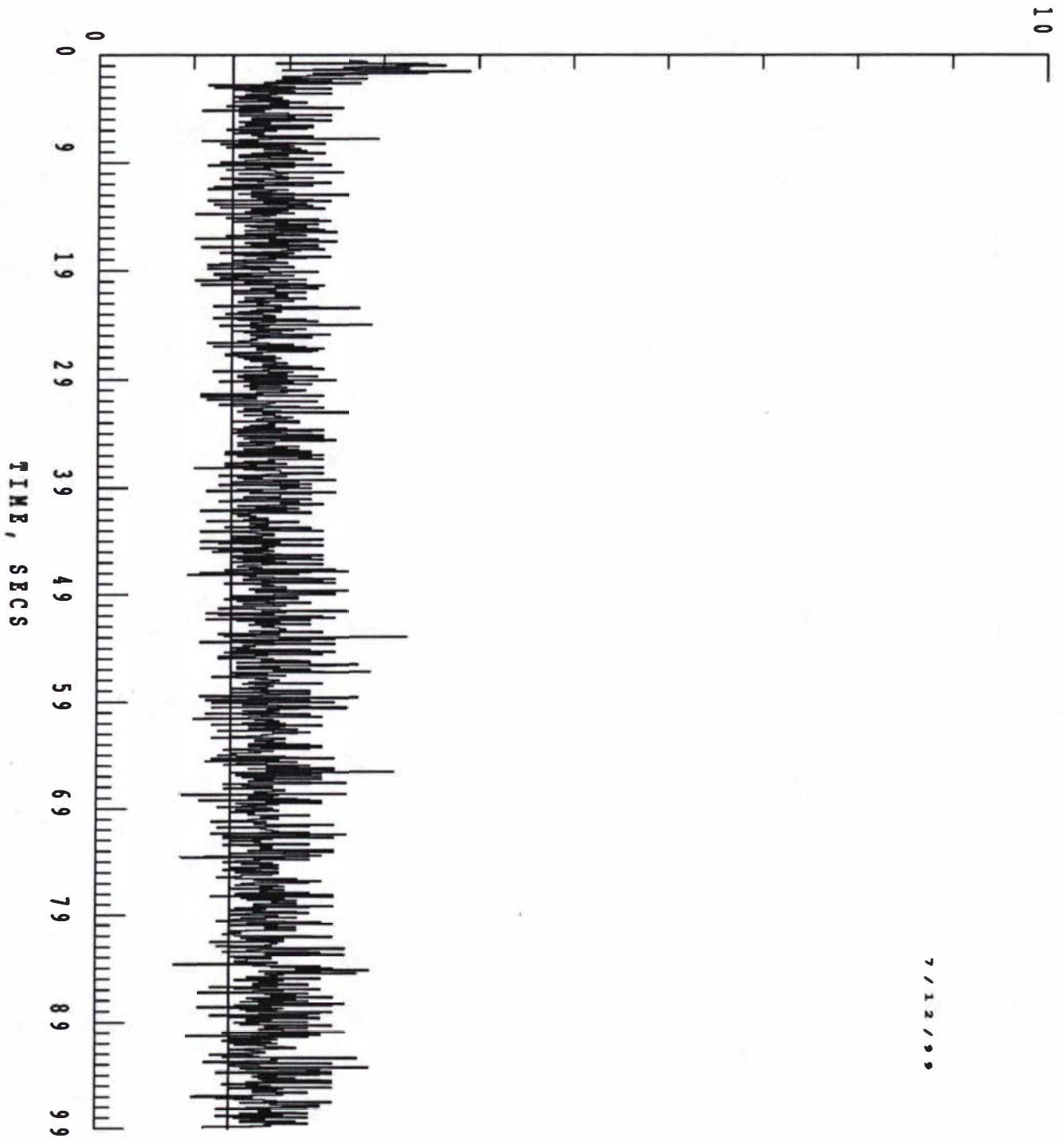
06/12/99

77667.768

50 - 200 keV

21:34:27

COUNTS/0.064 S



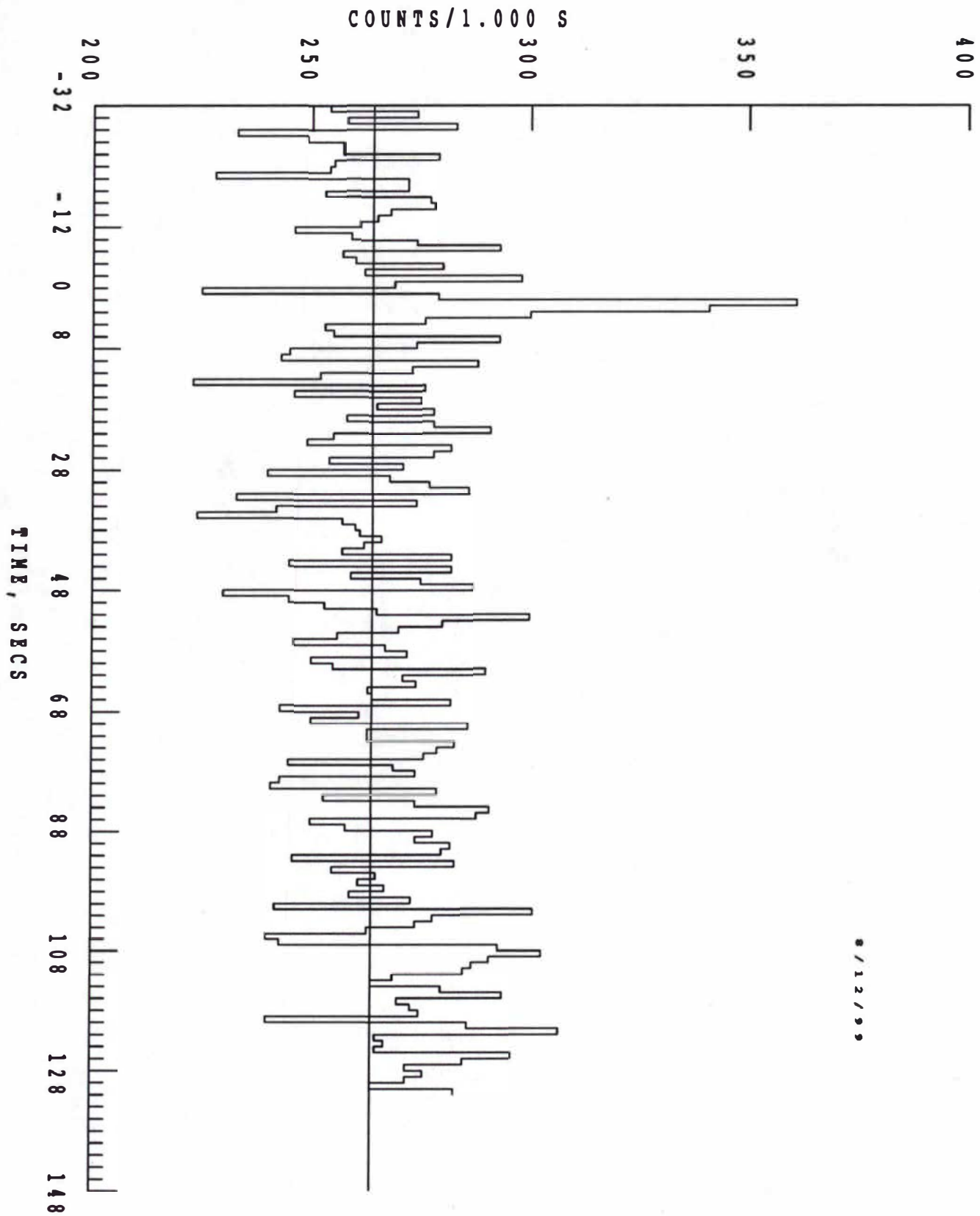
7/12/99

NEAR

06/12/99

77368.165

100-1000 keV



8/12/99

From HENZE@fender.msfc.nasa.gov Tue Dec 14 15:59 PST 1999
Date: Tue, 14 Dec 1999 18:06:36 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Lost BATSE triggers and data

Lost Data on TJDs 11518-11521
Lost Triggers 7892-7897

TJD 11518 = 6 December 1999
TJD 11521 = 9 December 1999

CGRO Gyro 3 failed on TJD 11518. The spacecraft was placed in a Solar Reference Pointing Mode when, for at least part of the time, the +X-axis pointed at the Sun. During the interval when the spacecraft was in the Solar Reference Pointing Mode, the normal data (i.e., production or 32-kilobit data) from TJD/SoD 11518/55813 through the end of TJD 11521 were irretrievably lost. Some limited BATSE "gap" data (i.e., OBC or 1-kilobit data) were received for TJD 11518, SoD 75566-76318. No data at all were received on TJDs 11519-11521.

The spacecraft was returned to normal operations and pointing under the control of two gyros near the end of TJD 11521.

The normal data resumed at TJD/SoD = 11522/00089.

BATSE trigger numbers 7892-7897 occurred during the time when no data were being received. Therefore, the data for trigger numbers 7892-7897 were irretrievably lost except for the max rates and TRIGB value in the housekeeping data for trigger number 7897 which occurred at an unknown time.

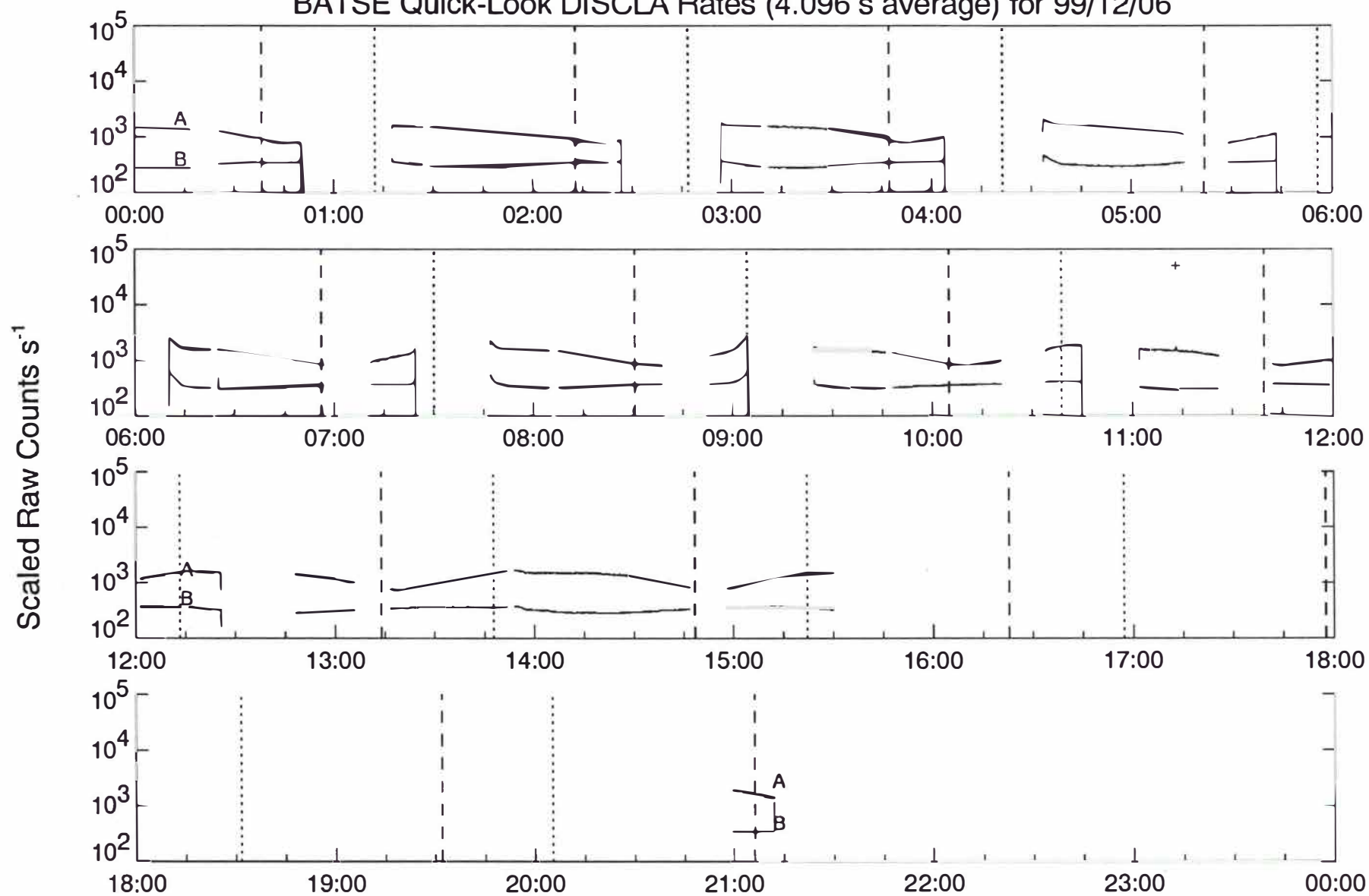
Limited data for trigger number 7897:

TRIGB = 11.25 sigma

Max Rates:

Det.	Chan. 1	Burst Chan. (2+3)
0	37	97
1	24	78
2	33	59
3	54	95
4	47	109
5	29	72
6	36	81
7	57	77

BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/06

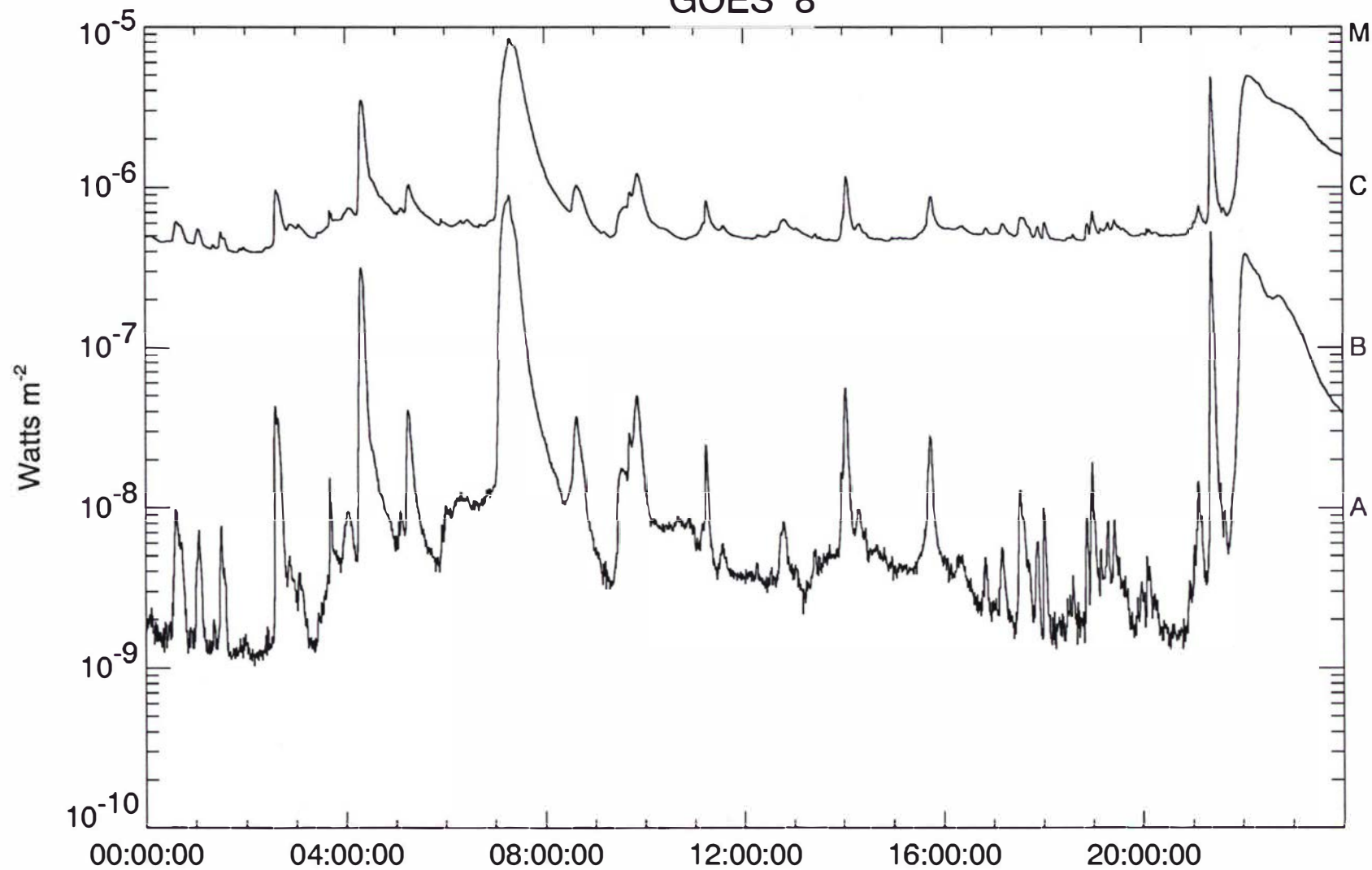


Current Time: 99/12/10, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/06, 0000:00

Plot created: 99/12/10, 1008

Channel 1 (1.0 - 8.0 Angstroms)

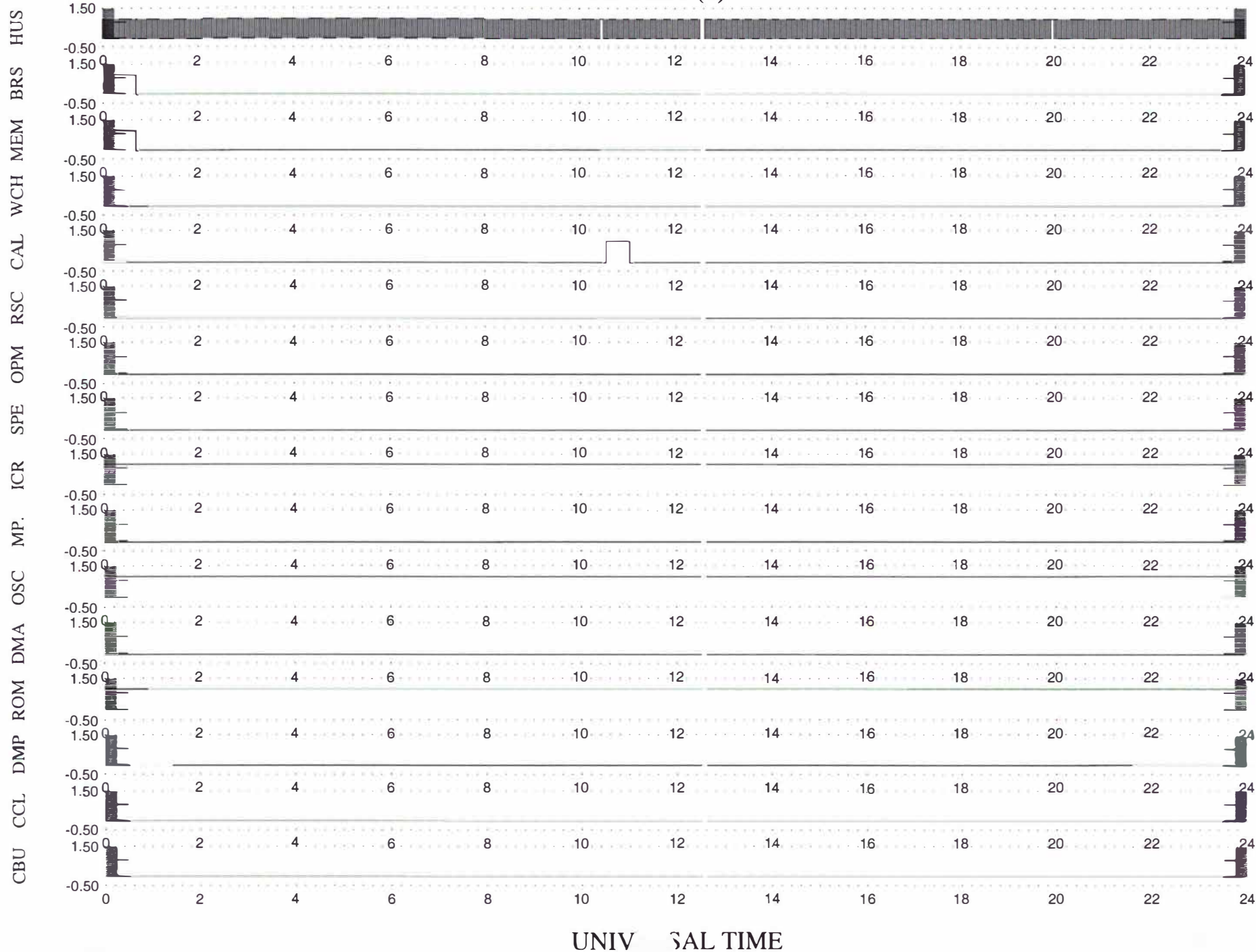
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

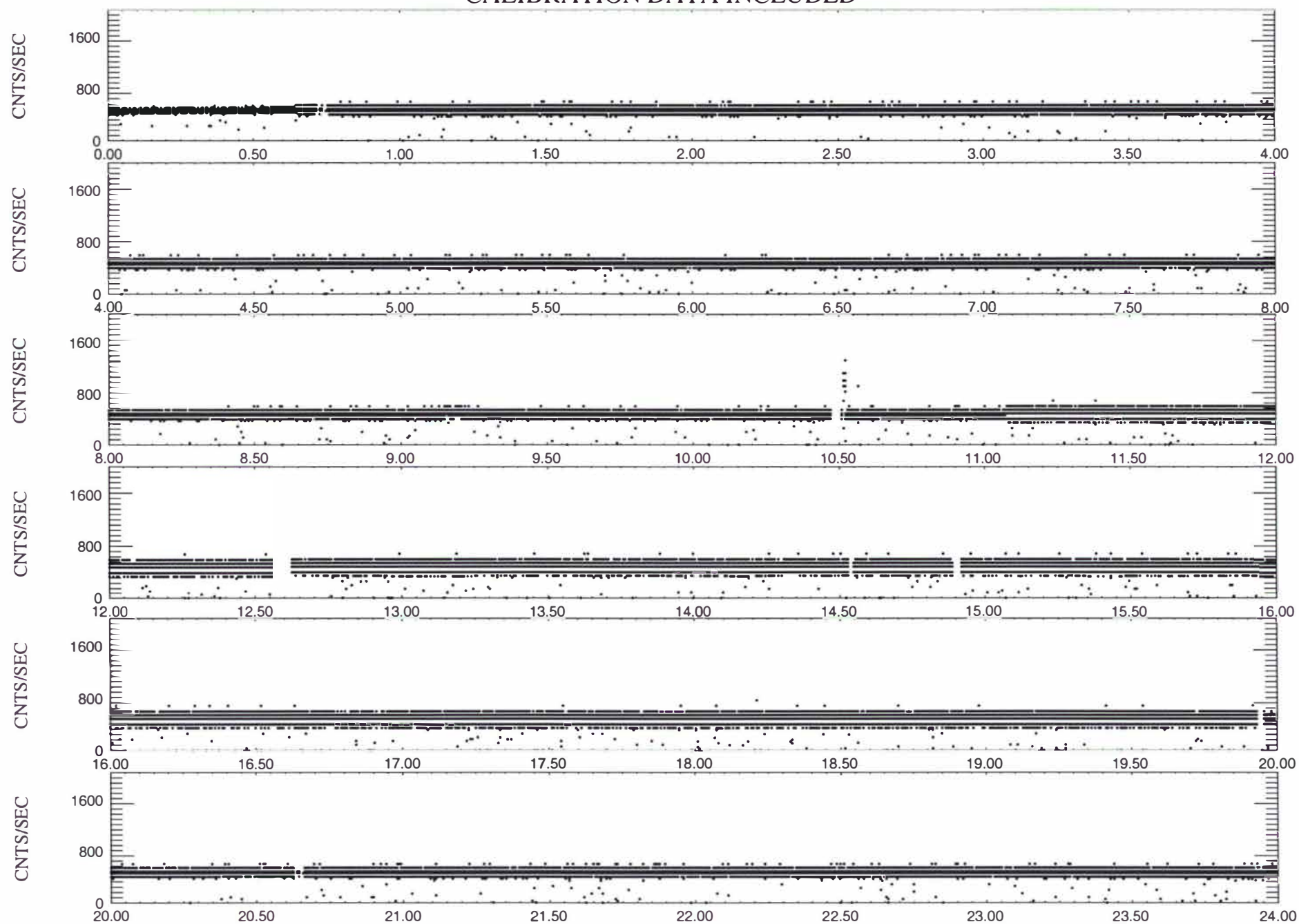
Background not subtracted

Sample average = 10

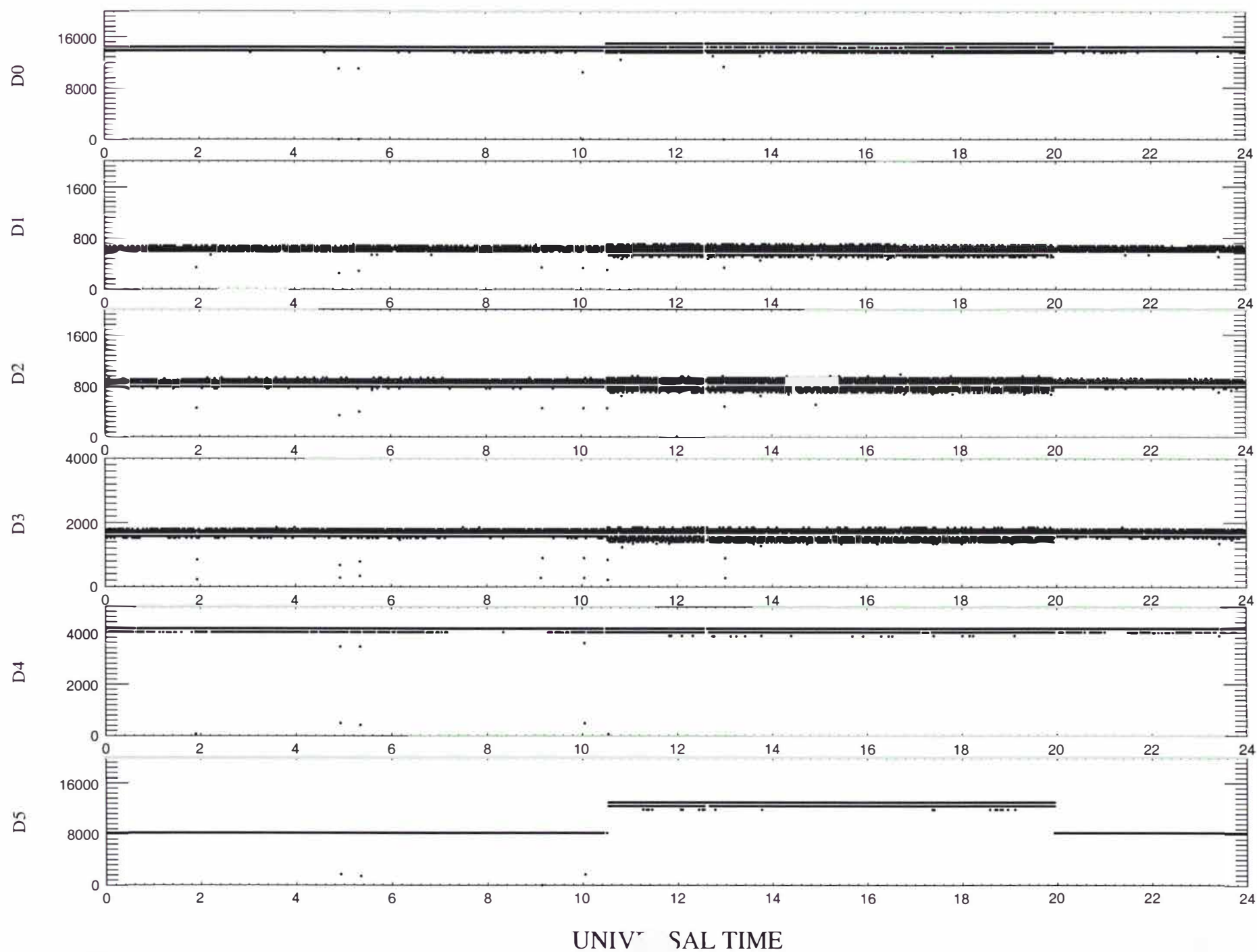
NO BURST (6)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From HENZE@fender.msfc.nasa.gov Tue Dec 14 15:59 PST 1999
Date: Tue, 14 Dec 1999 18:06:36 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Lost BATSE triggers and data

Lost Data on TJDs 11518-11521
Lost Triggers 7892-7897

TJD 11518 = 6 December 1999
TJD 11521 = 9 December 1999

CGRO Gyro 3 failed on TJD 11518. The spacecraft was placed in a Solar Reference Pointing Mode when, for at least part of the time, the +X-axis pointed at the Sun. During the interval when the spacecraft was in the Solar Reference Pointing Mode, the normal data (i.e., production or 32-kilobit data) from TJD/SoD 11518/55813 through the end of TJD 11521 were irretrievably lost. Some limited BATSE "gap" data (i.e., OBC or 1-kilobit data) were received for TJD 11518, SoD 75566-76318. No data at all were received on TJDs 11519-11521.

The spacecraft was returned to normal operations and pointing under the control of two gyros near the end of TJD 11521.

The normal data resumed at TJD/SoD = 11522/00089.

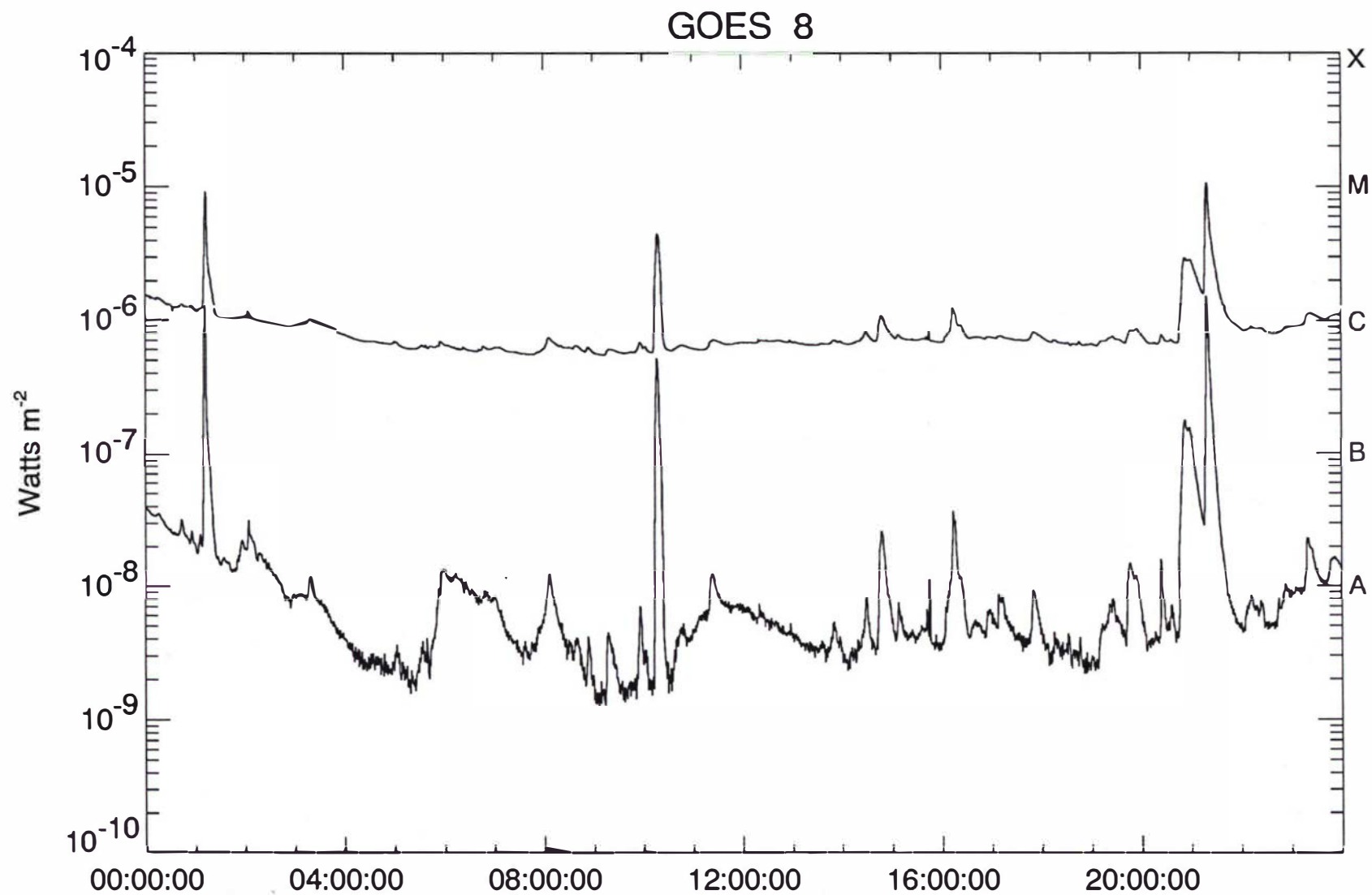
BATSE trigger numbers 7892-7897 occurred during the time when no data were being received. Therefore, the data for trigger numbers 7892-7897 were irretrievably lost except for the max rates and TRIGB value in the housekeeping data for trigger number 7897 which occurred at an unknown time.

Limited data for trigger number 7897:

TRIGB = 11.25 sigma

Max Rates:

Det.	Chan. 1	Burst Chan. (2+3)
0	37	97
1	24	78
2	33	59
3	54	95
4	47	109
5	29	72
6	36	81
7	57	77



Data Start: 99/12/07, 0000:00

Plot created: 99/12/11, 1008

Channel 1 (1.0 - 8.0 Angstroms)

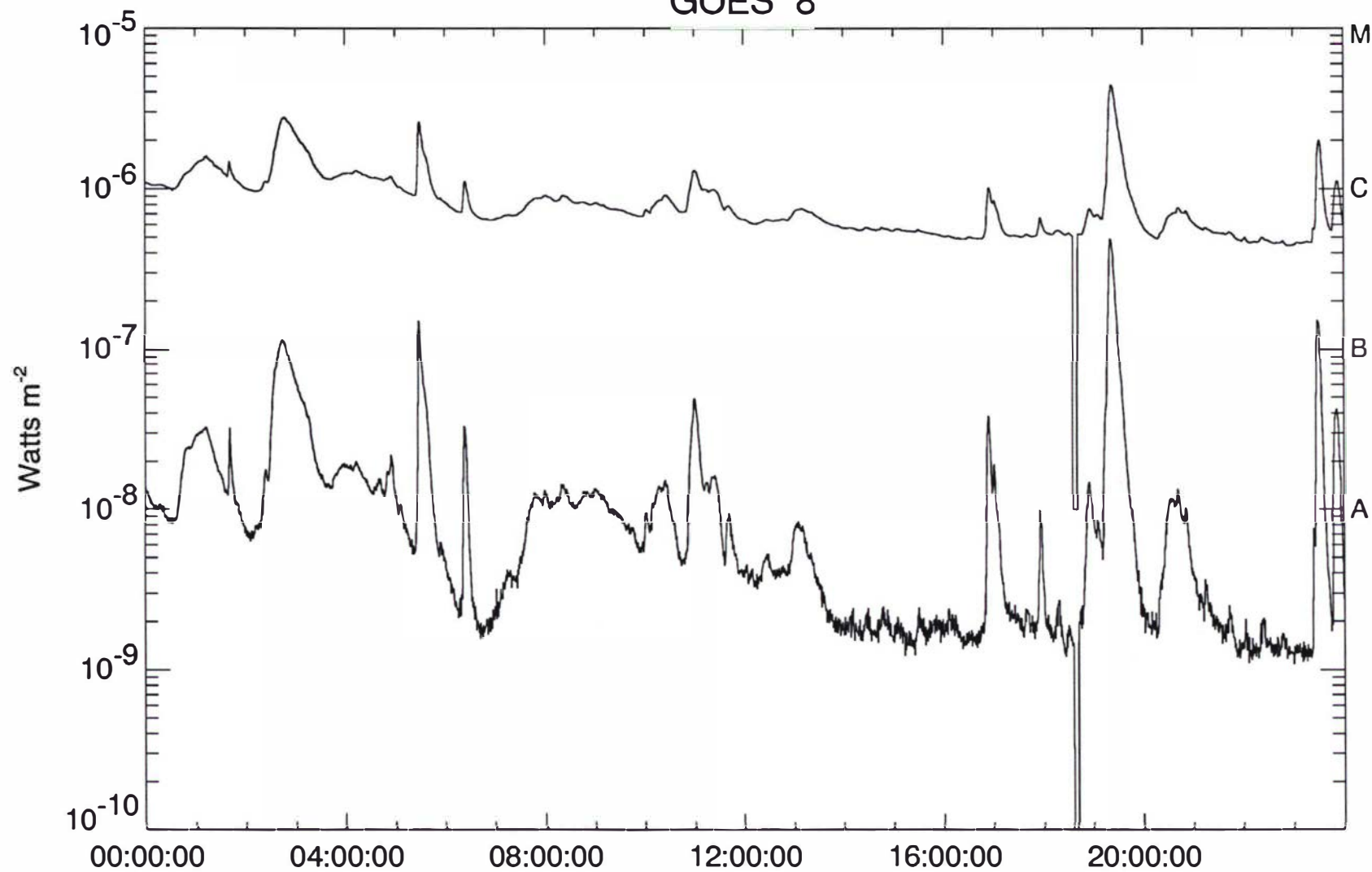
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

GOES 8



Data Start: 99/12/08, 0000:00

Plot created: 99/12/12, 1008

Channel 1 (1.0 - 8.0 Angstroms)

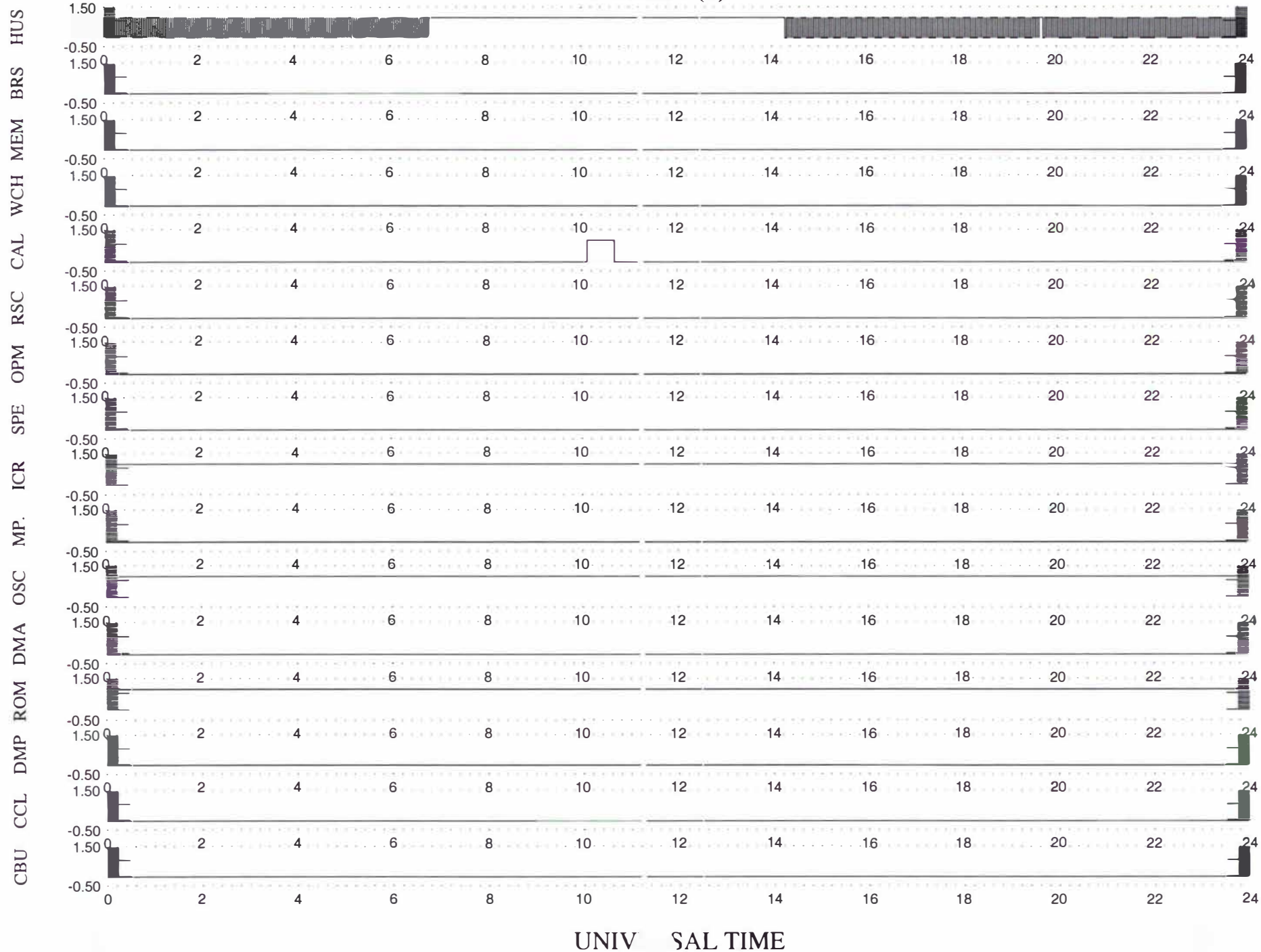
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

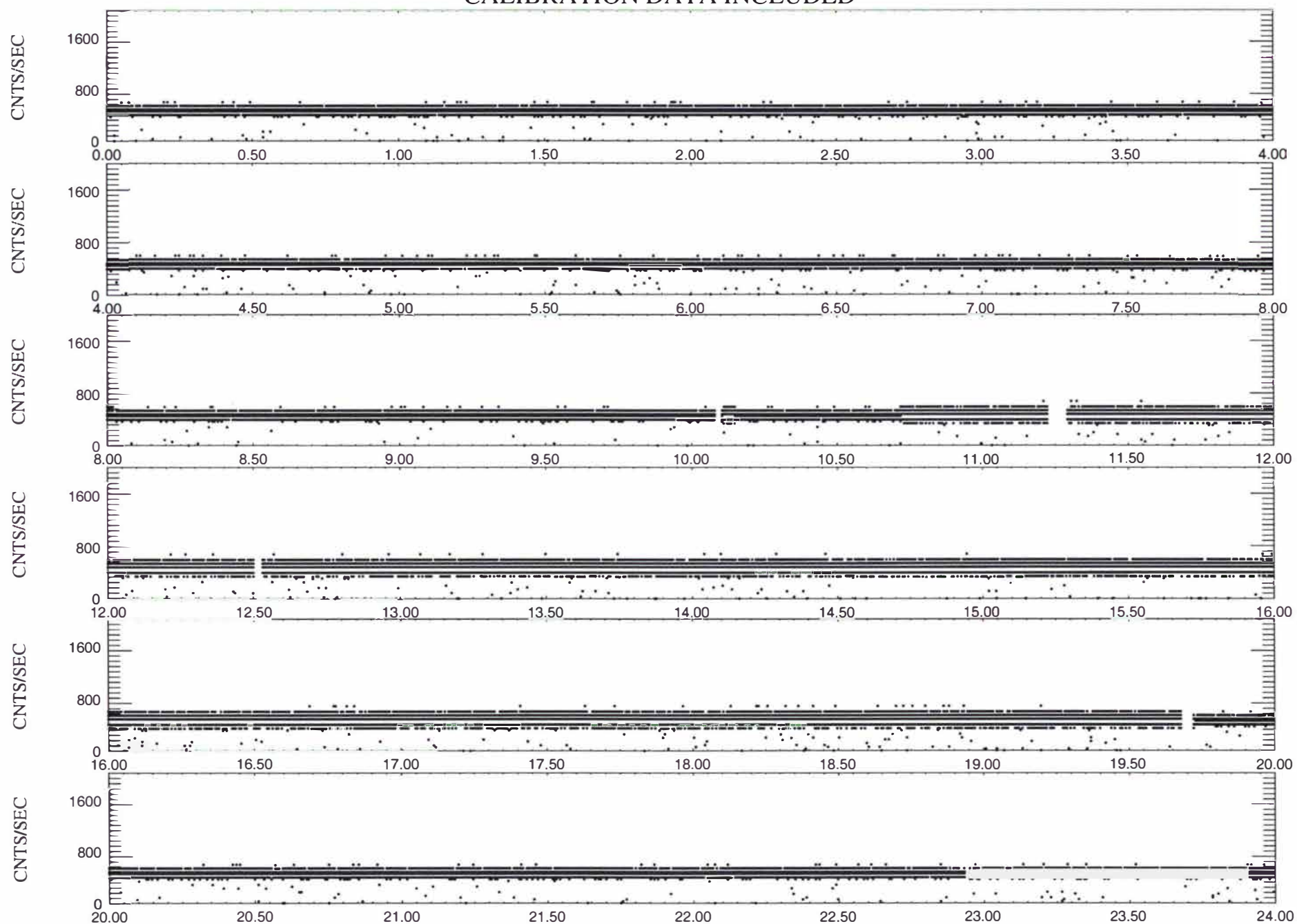
Background not subtracted

Sample average = 10

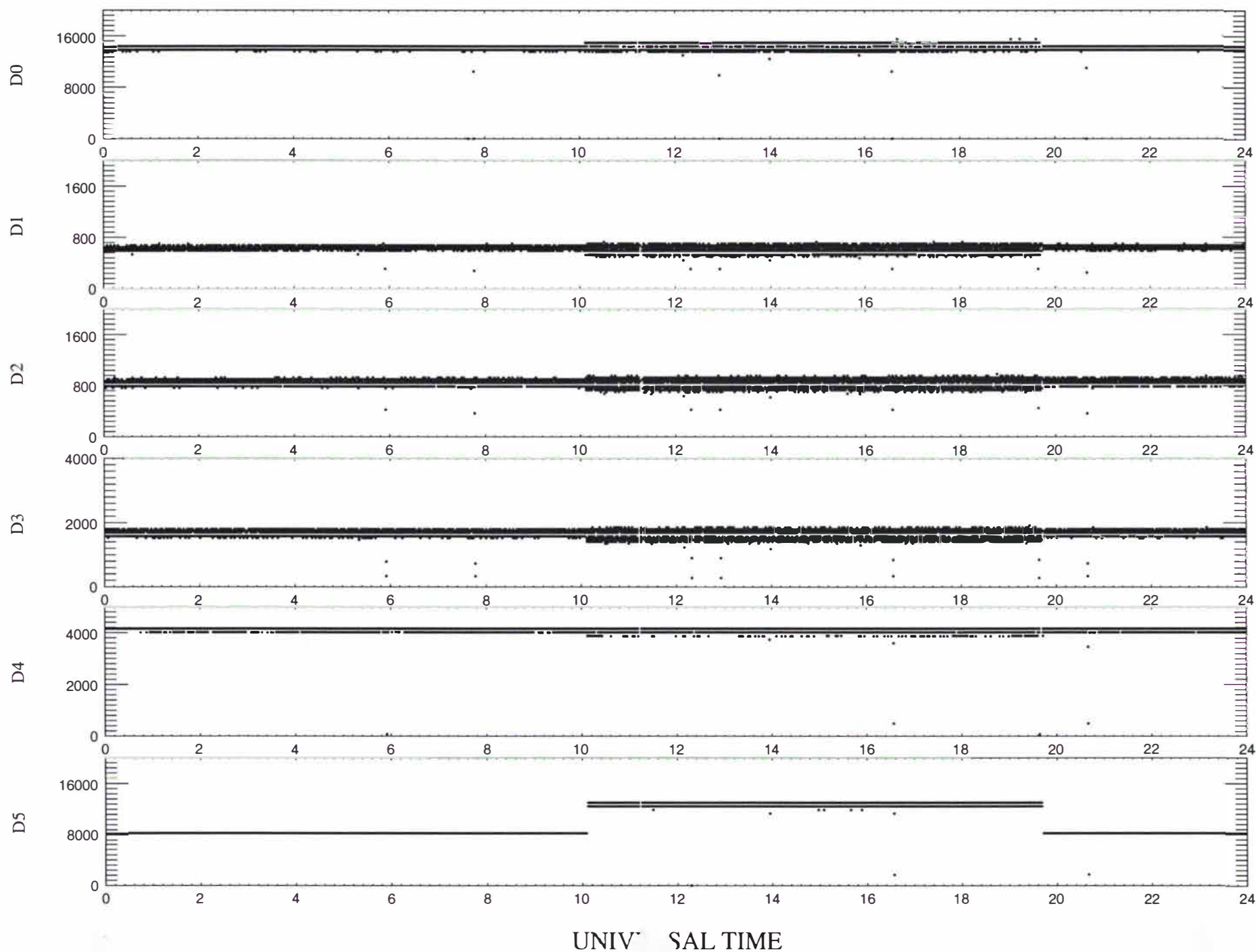
NO BURST (6)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From HENZE@fender.msfc.nasa.gov Tue Dec 14 15:59 PST 1999
Date: Tue, 14 Dec 1999 18:06:36 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Lost BATSE triggers and data

Lost Data on TJDs 11518-11521
Lost Triggers 7892-7897

TJD 11518 = 6 December 1999
TJD 11521 = 9 December 1999

CGRO Gyro 3 failed on TJD 11518. The spacecraft was placed in a Solar Reference Pointing Mode when, for at least part of the time, the +X-axis pointed at the Sun. During the interval when the spacecraft was in the Solar Reference Pointing Mode, the normal data (i.e., production or 32-kilobit data) from TJD/SoD 11518/55813 through the end of TJD 11521 were irretrievably lost. Some limited BATSE "gap" data (i.e., OBC or 1-kilobit data) were received for TJD 11518, SoD 75566-76318. No data at all were received on TJDs 11519-11521.

The spacecraft was returned to normal operations and pointing under the control of two gyros near the end of TJD 11521.

The normal data resumed at TJD/SoD = 11522/00089.

BATSE trigger numbers 7892-7897 occurred during the time when no data were being received. Therefore, the data for trigger numbers 7892-7897 were irretrievably lost except for the max rates and TRIGB value in the housekeeping data for trigger number 7897 which occurred at an unknown time.

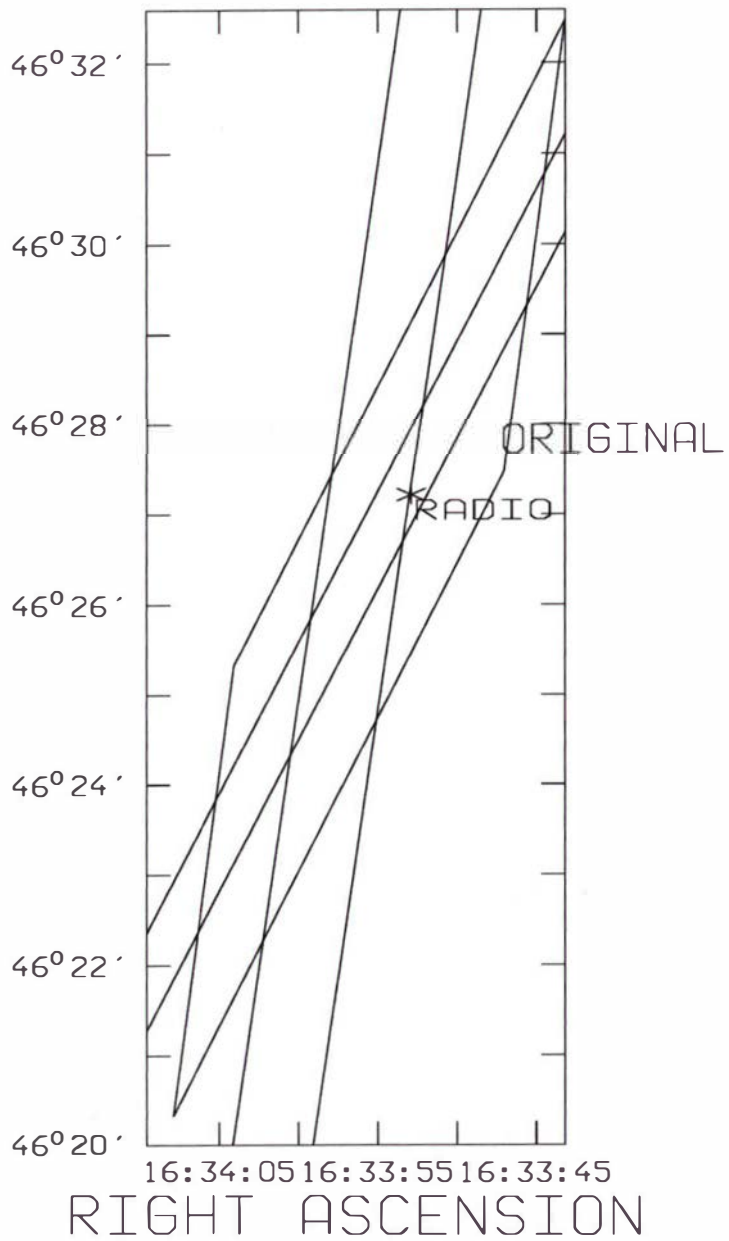
Limited data for trigger number 7897:

TRIGB = 11.25 sigma

Max Rates:

Det.	Chan. 1	Burst Chan. (2+3)
0	37	97
1	24	78
2	33	59
3	54	95
4	47	109
5	29	72
6	36	81
7	57	77

DECLINATION



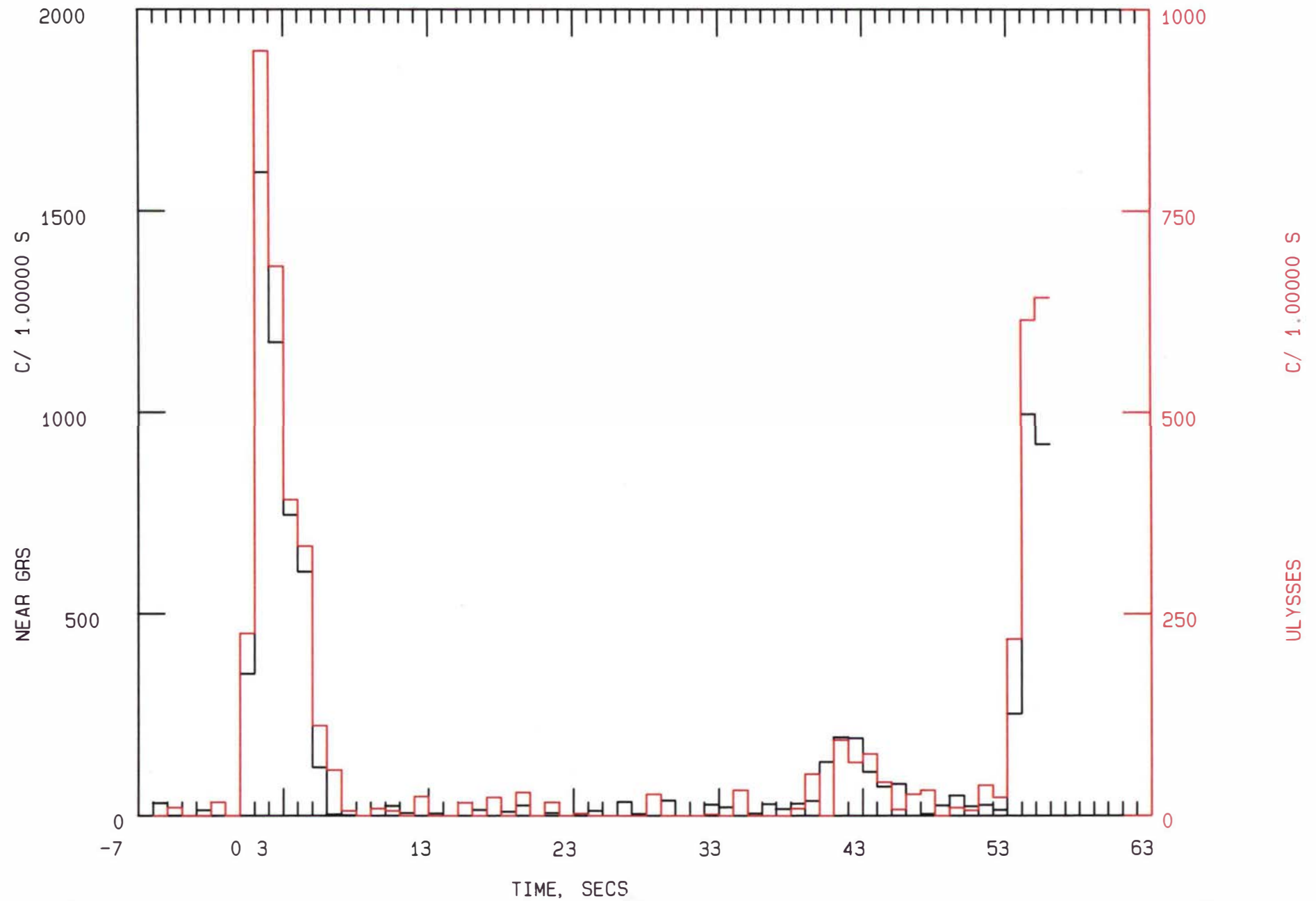
NEAR GRS -ULYSSES

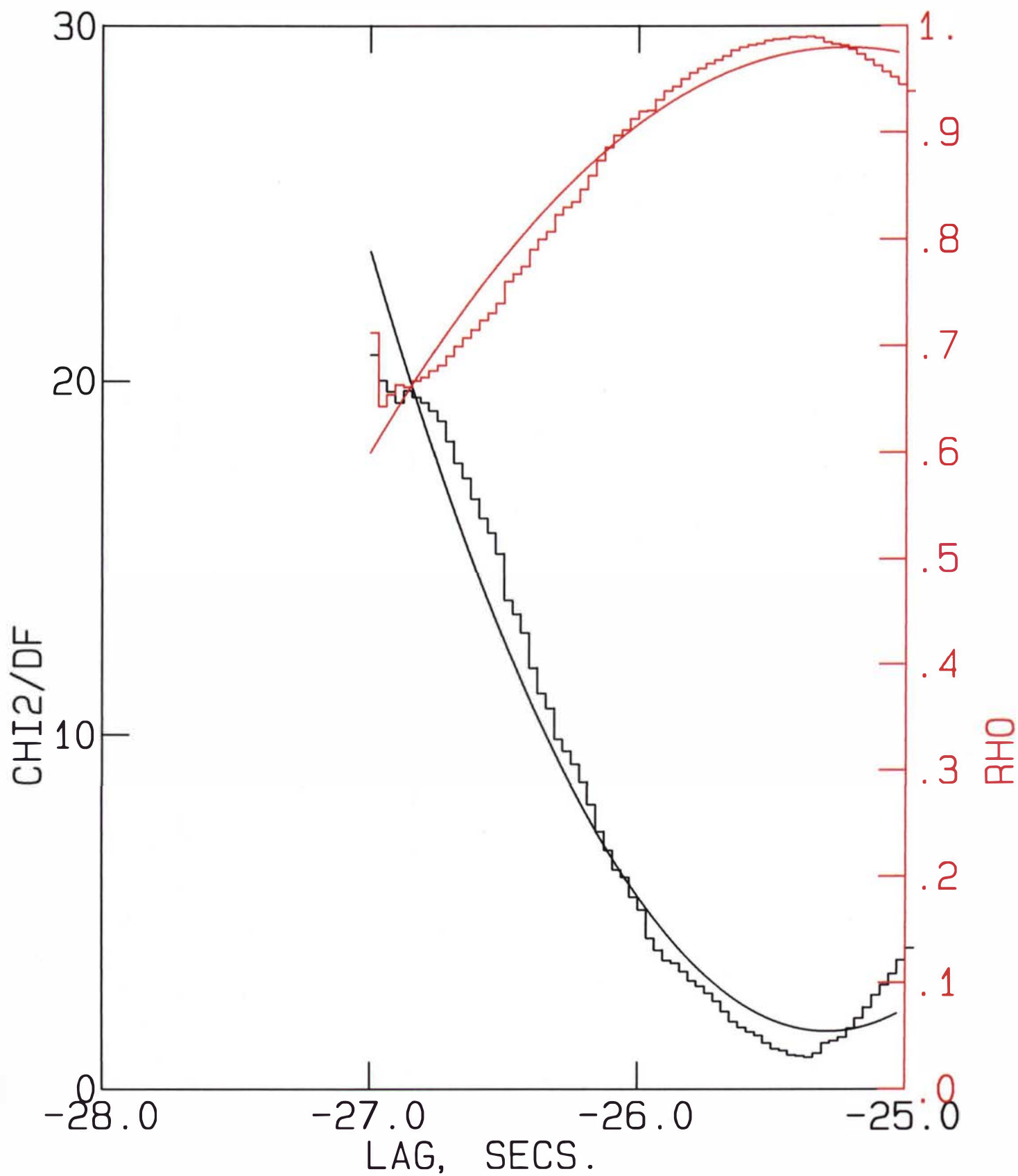
CORRELATION

08/12/99

16354.120

7/ 3/ 0





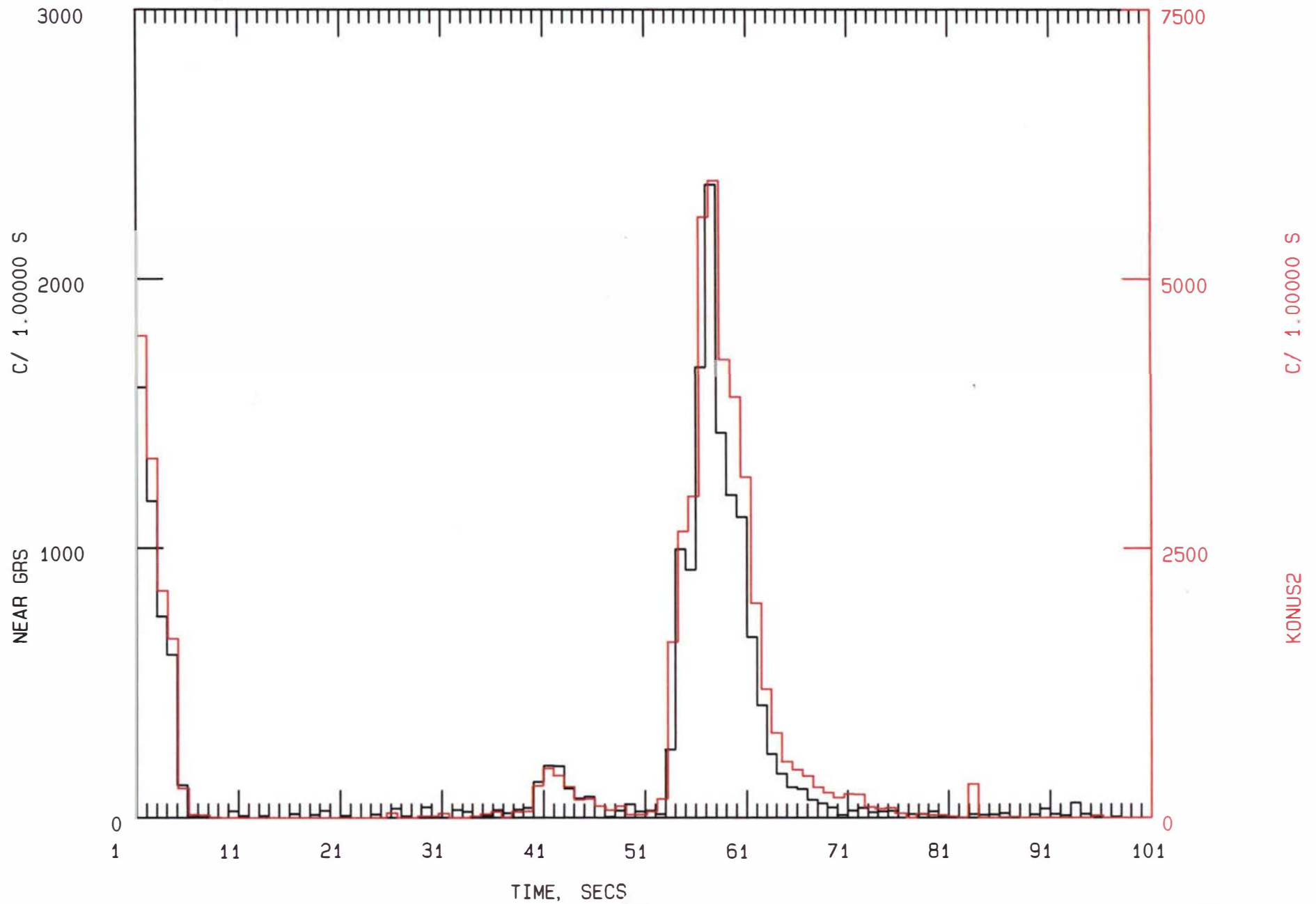
NEAR GRS -KONUS2

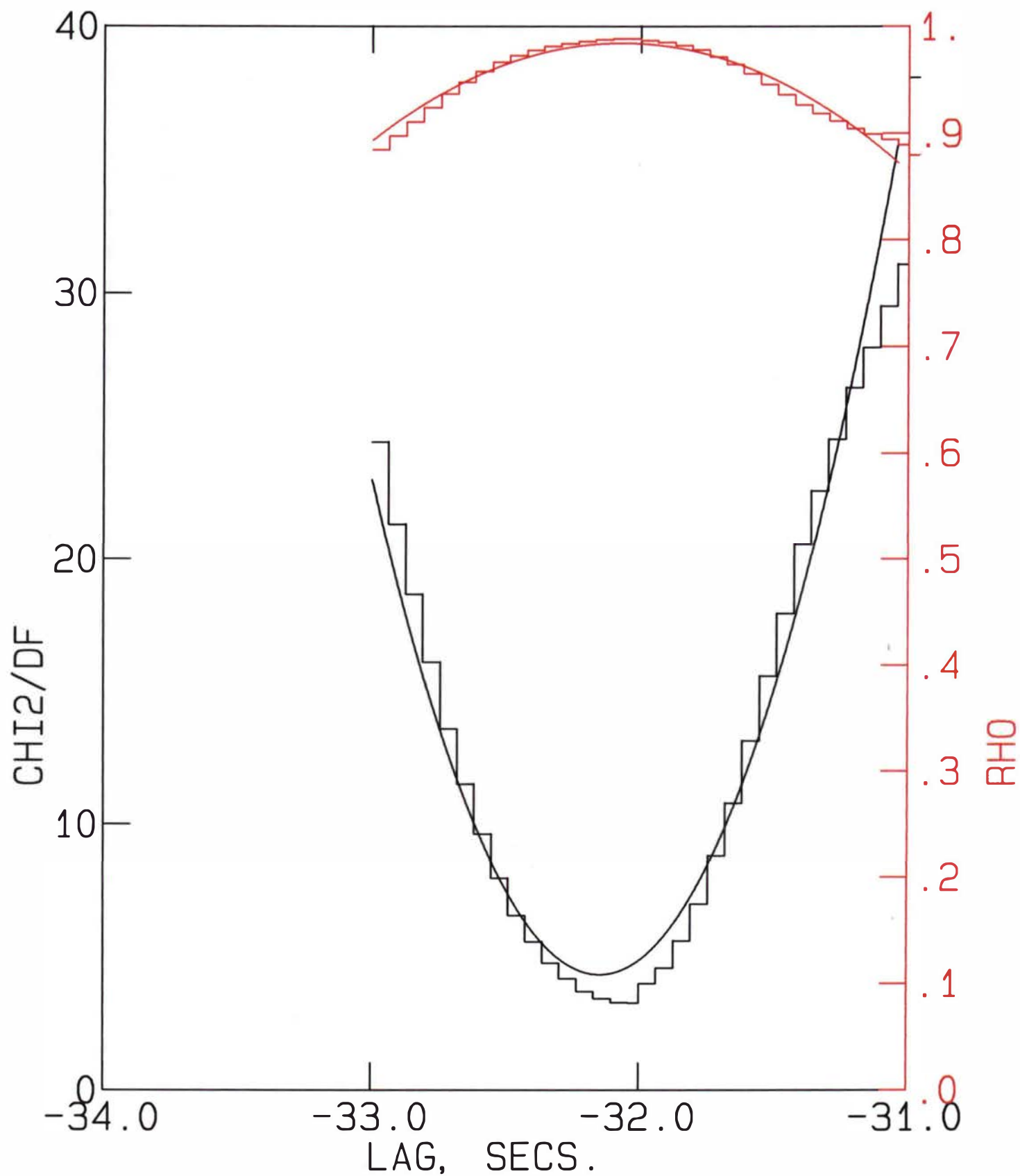
CORRELATION

08/12/99

16354.120

7/ 3/ 0





ULYSSES

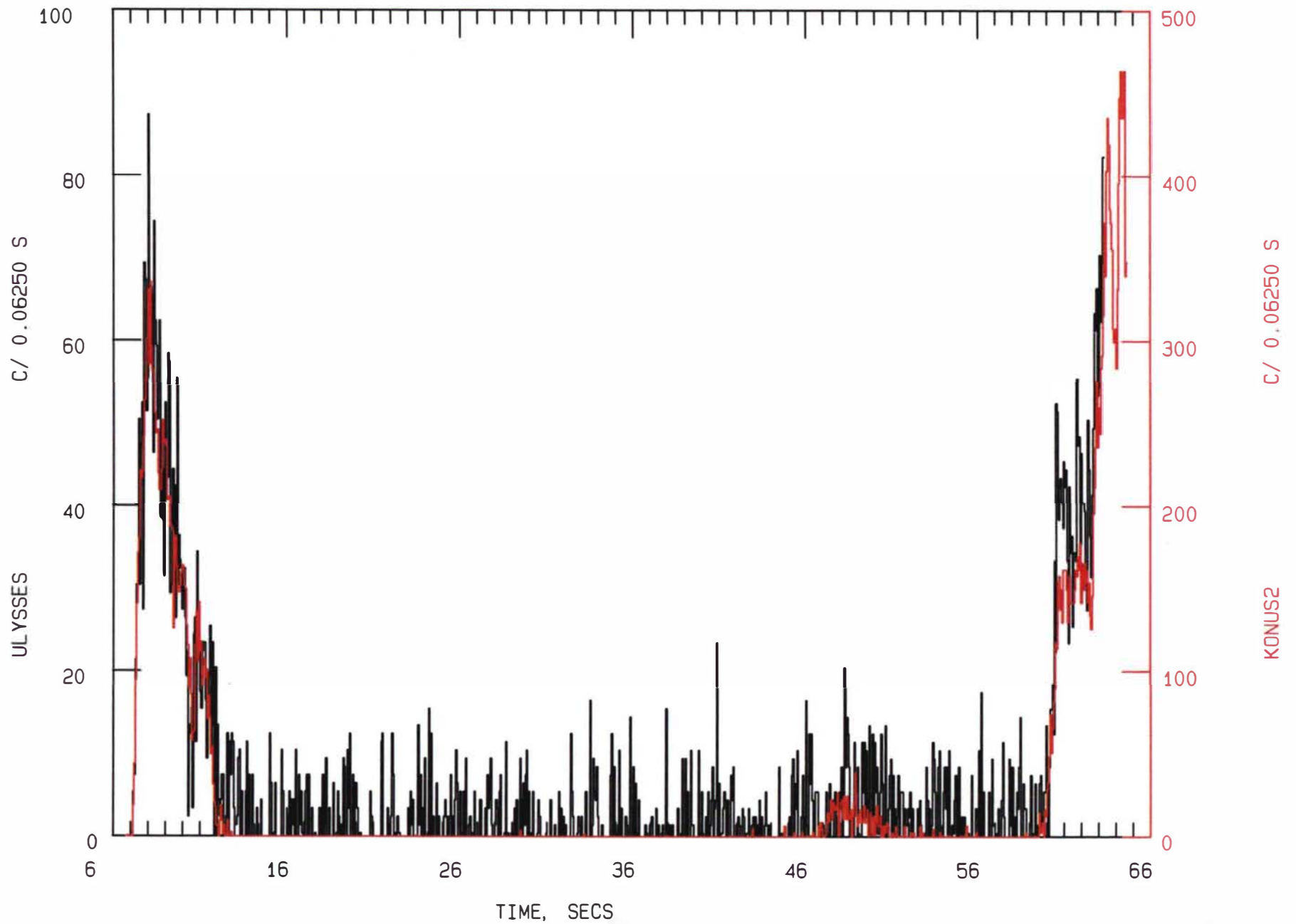
-KONUS2

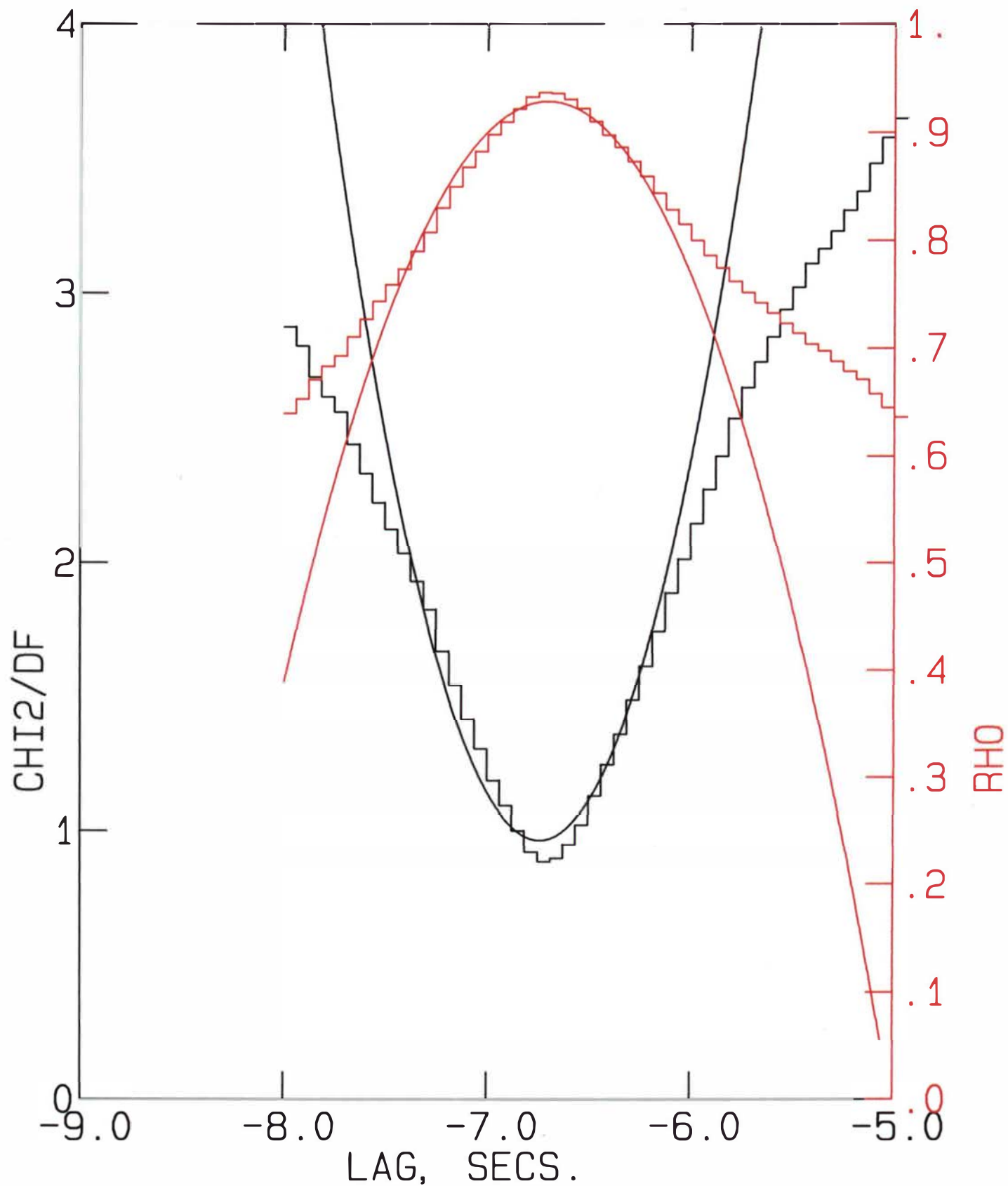
CORRELATION

08/12/99

17202.900

7/ 3/ 0





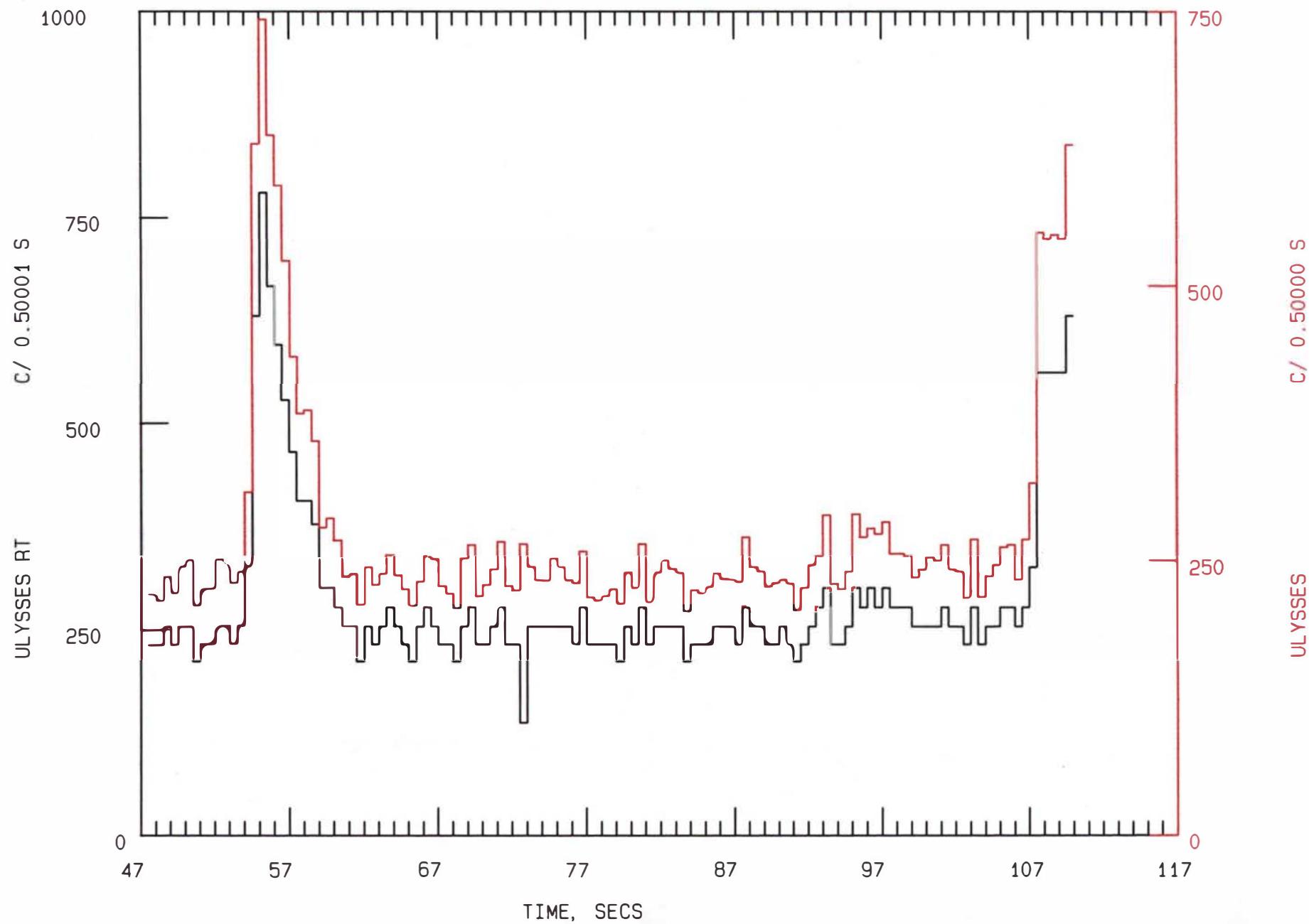
ULYSSES RT-ULYSSES

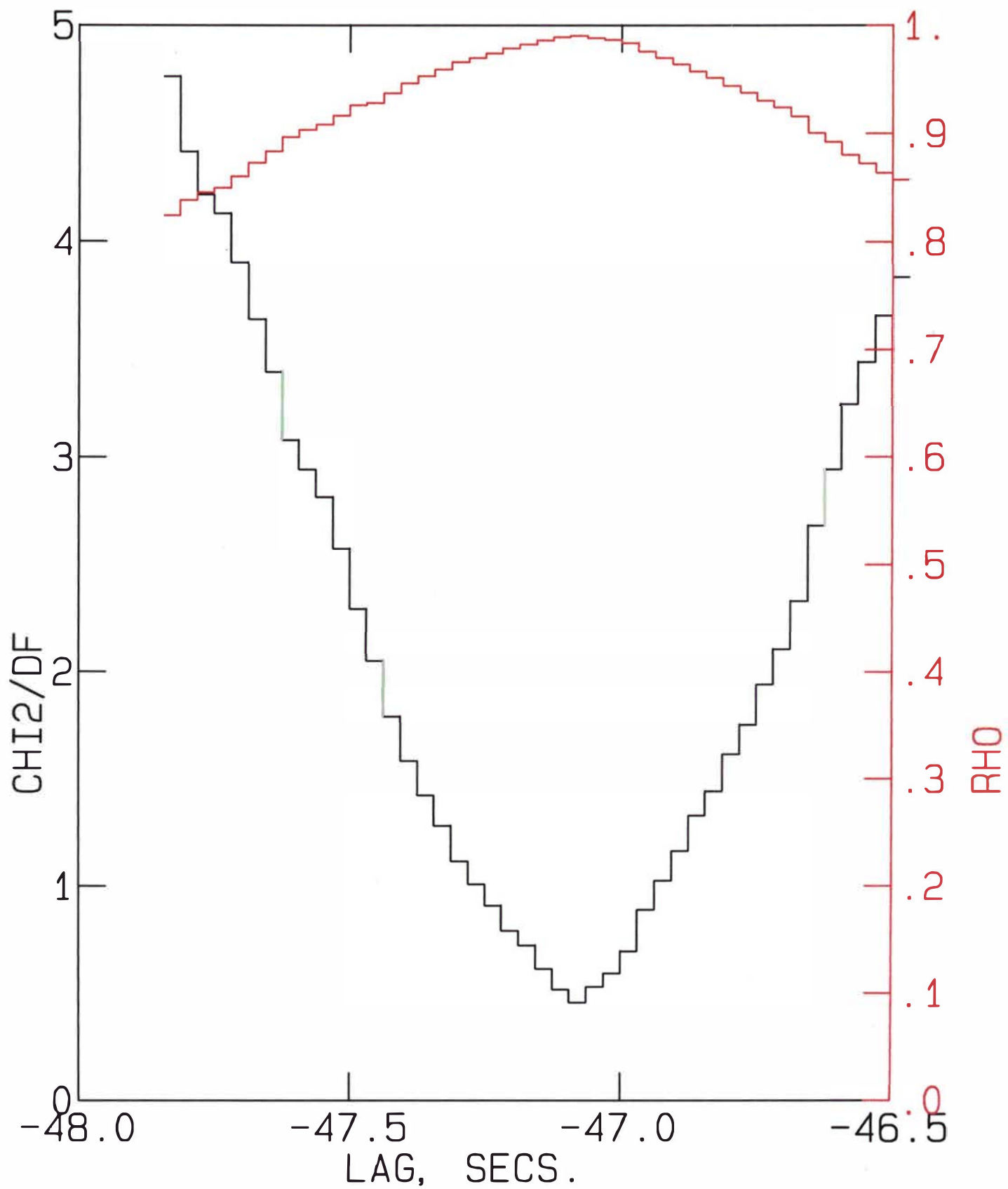
CORRELATION

8/12/99

17148.416

14/ 6/ 0

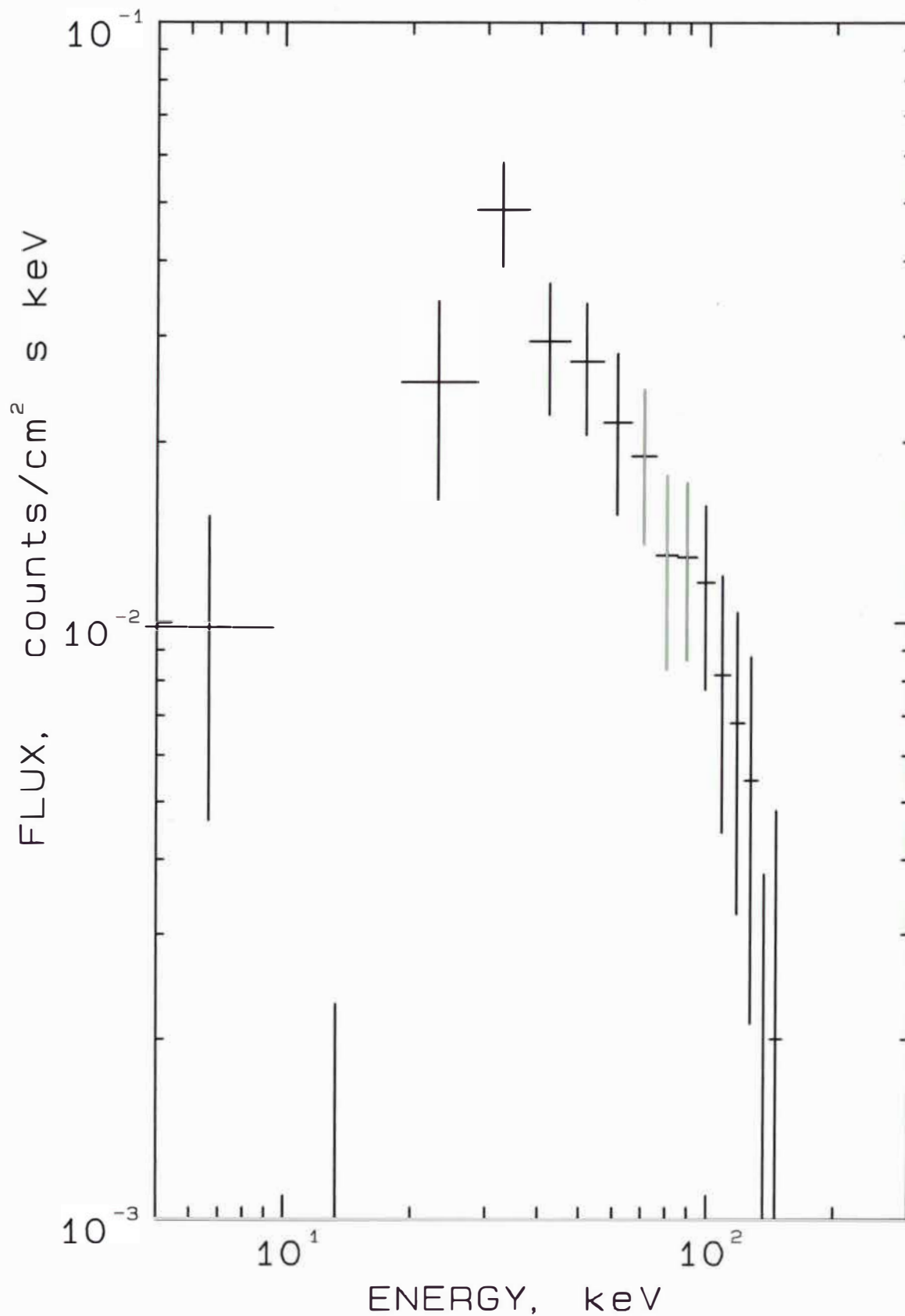




ULYSSES 08/12/99 17202.884

14/ 6/ 0

SPECTRUM INTEGRATED OVER 335.0 SECONDS, INTERVALS 2 TO 50



ULYSSES 08/12/99 17202.884 BURST SPECTRAL COUNT RATES

4- 18 keV

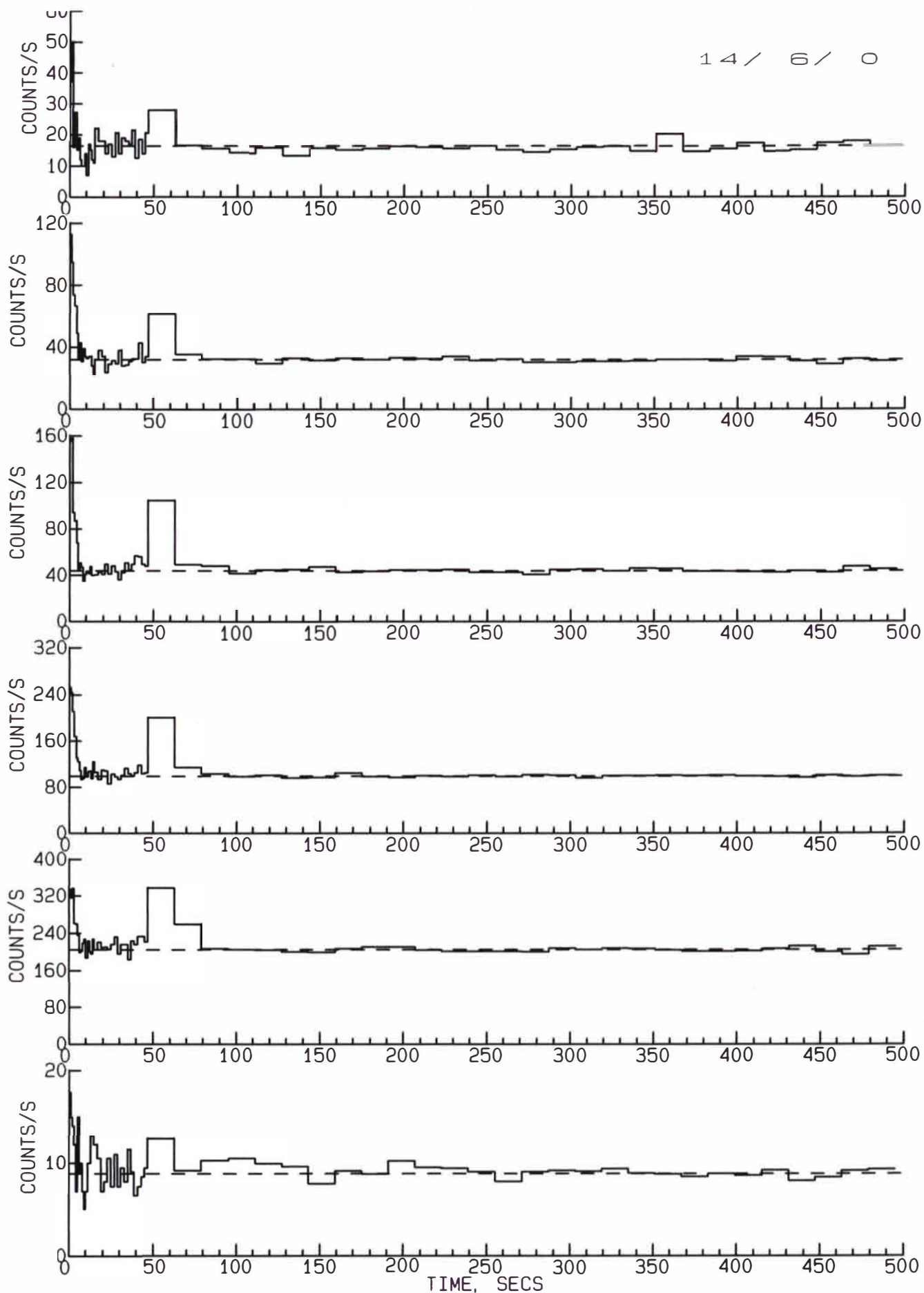
18- 47 keV

47- 75 keV

75-103 keV

103-131 keV

131-150 keV

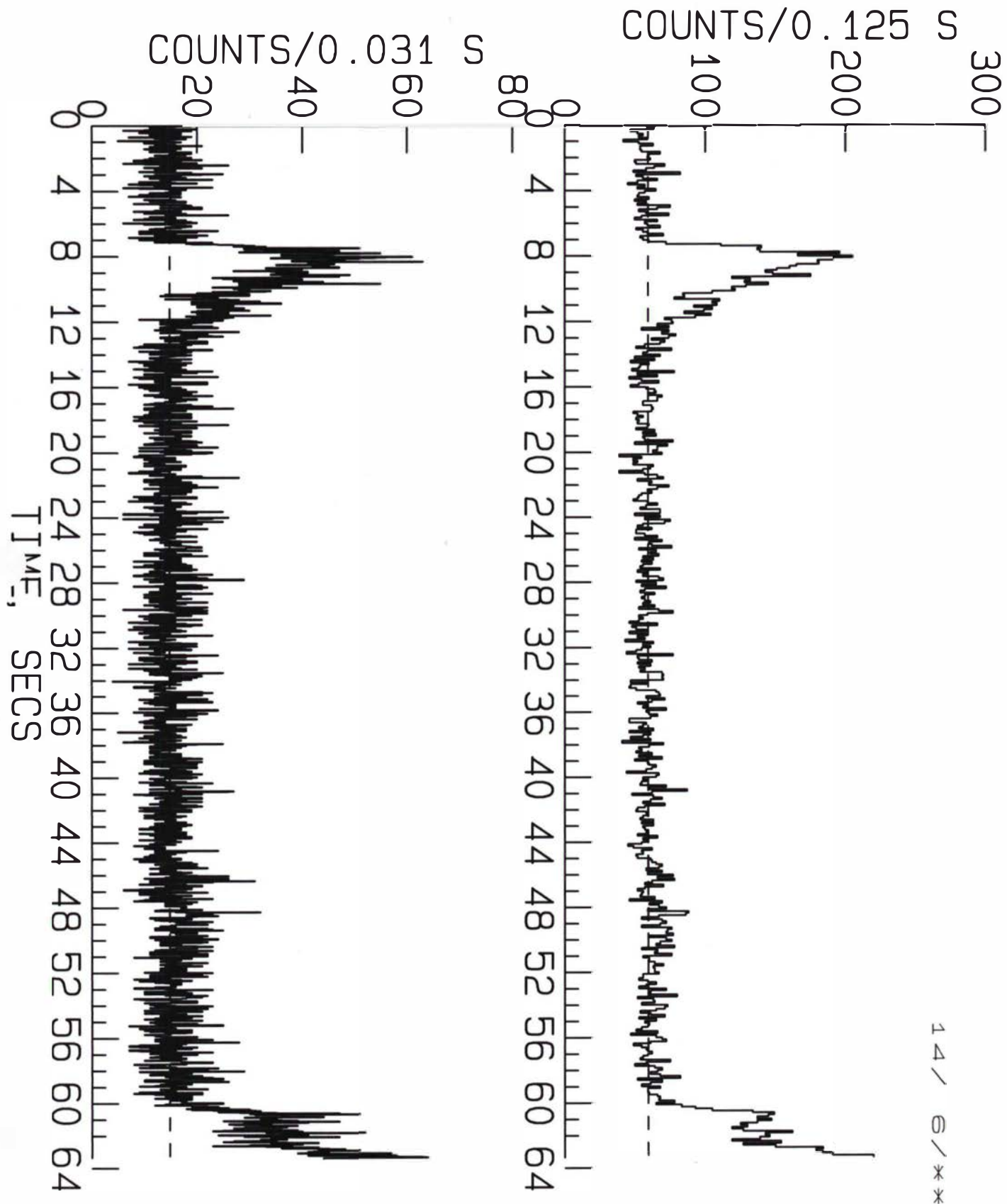


ULYSSES

08/12/99

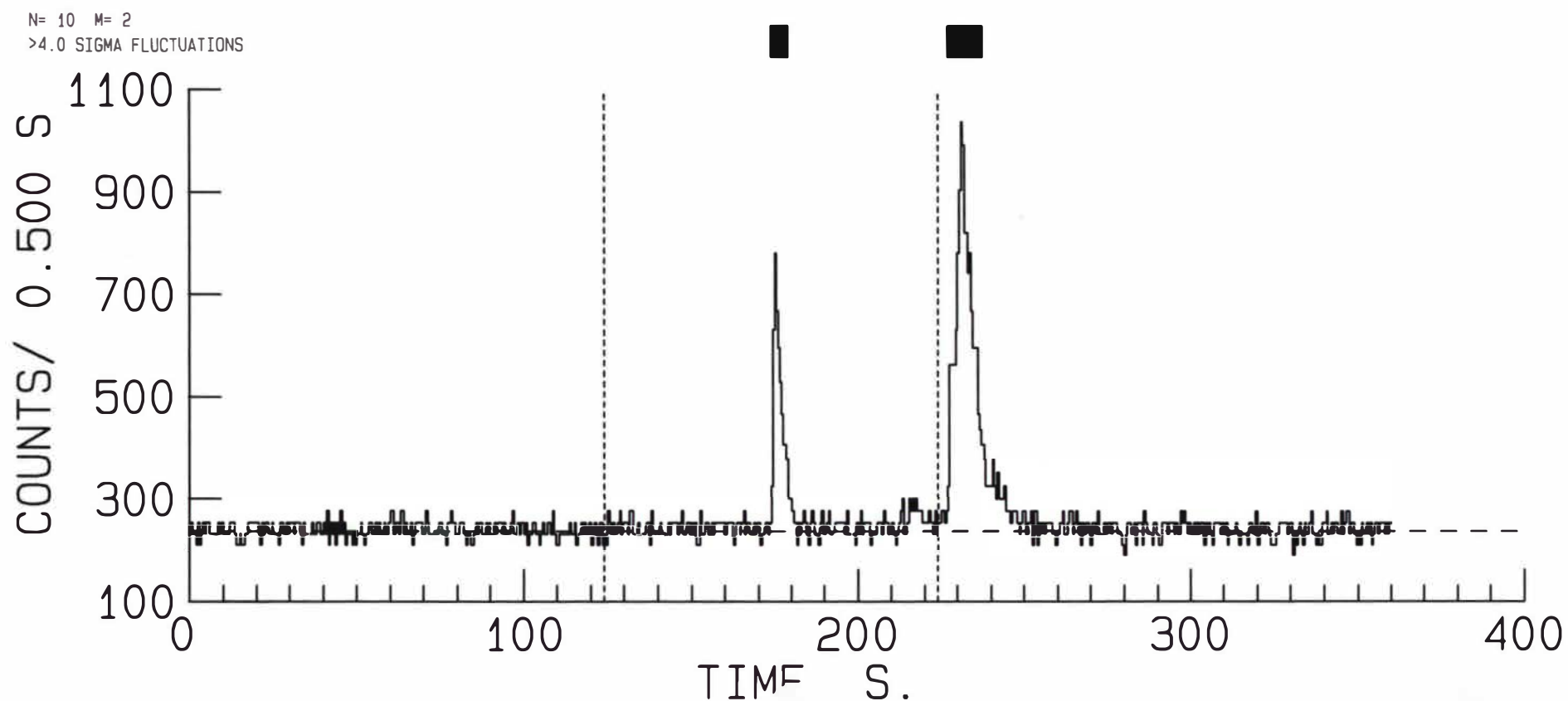
Ttrig=17202.900

22- 150 keV



ULYSSES RT
8/12/99 17028.407 s
22- 150 keV

14 / 6 / 0



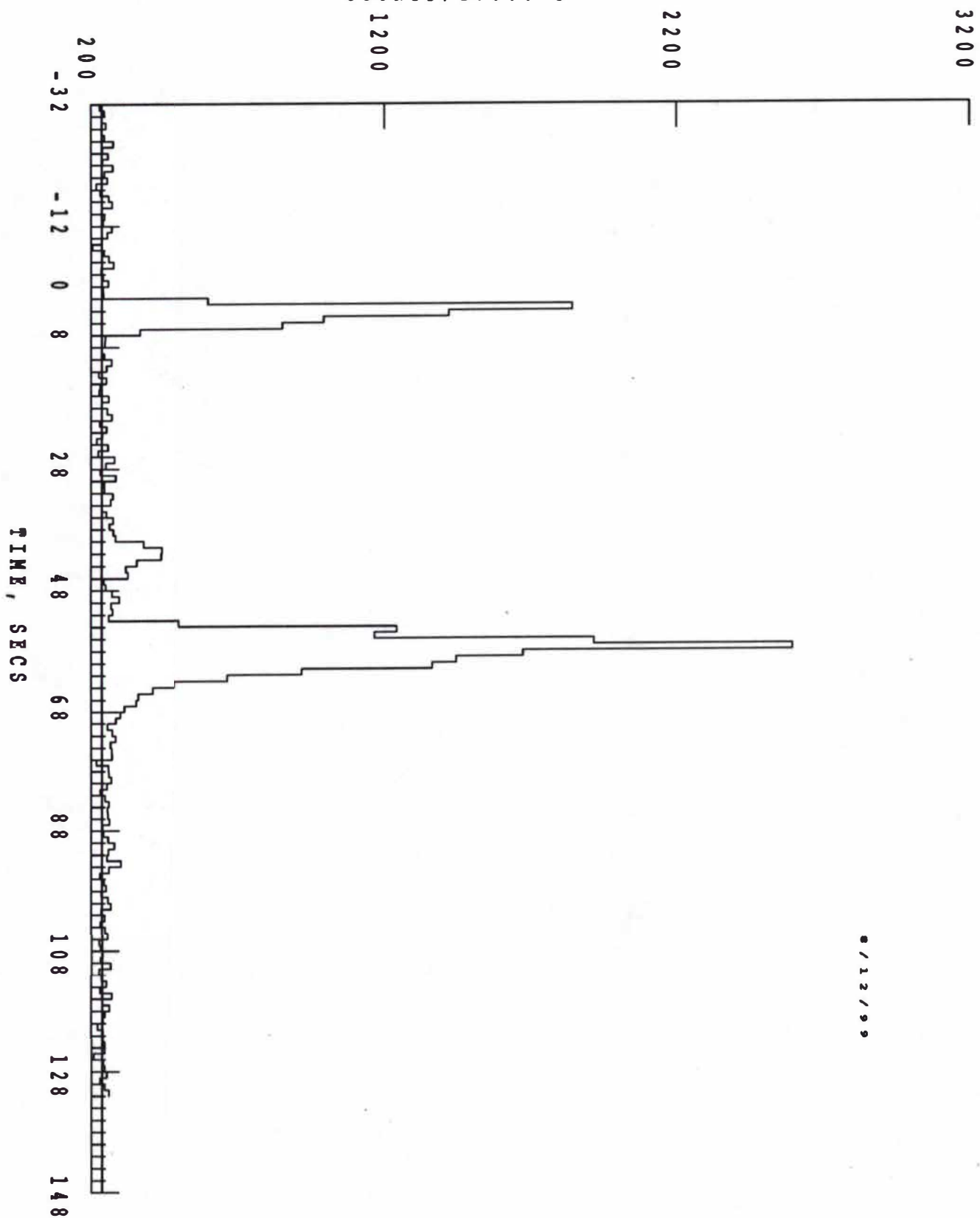
NEAR

08/12/99

16354.120

100-1000 keV

COUNTS/1.000 S



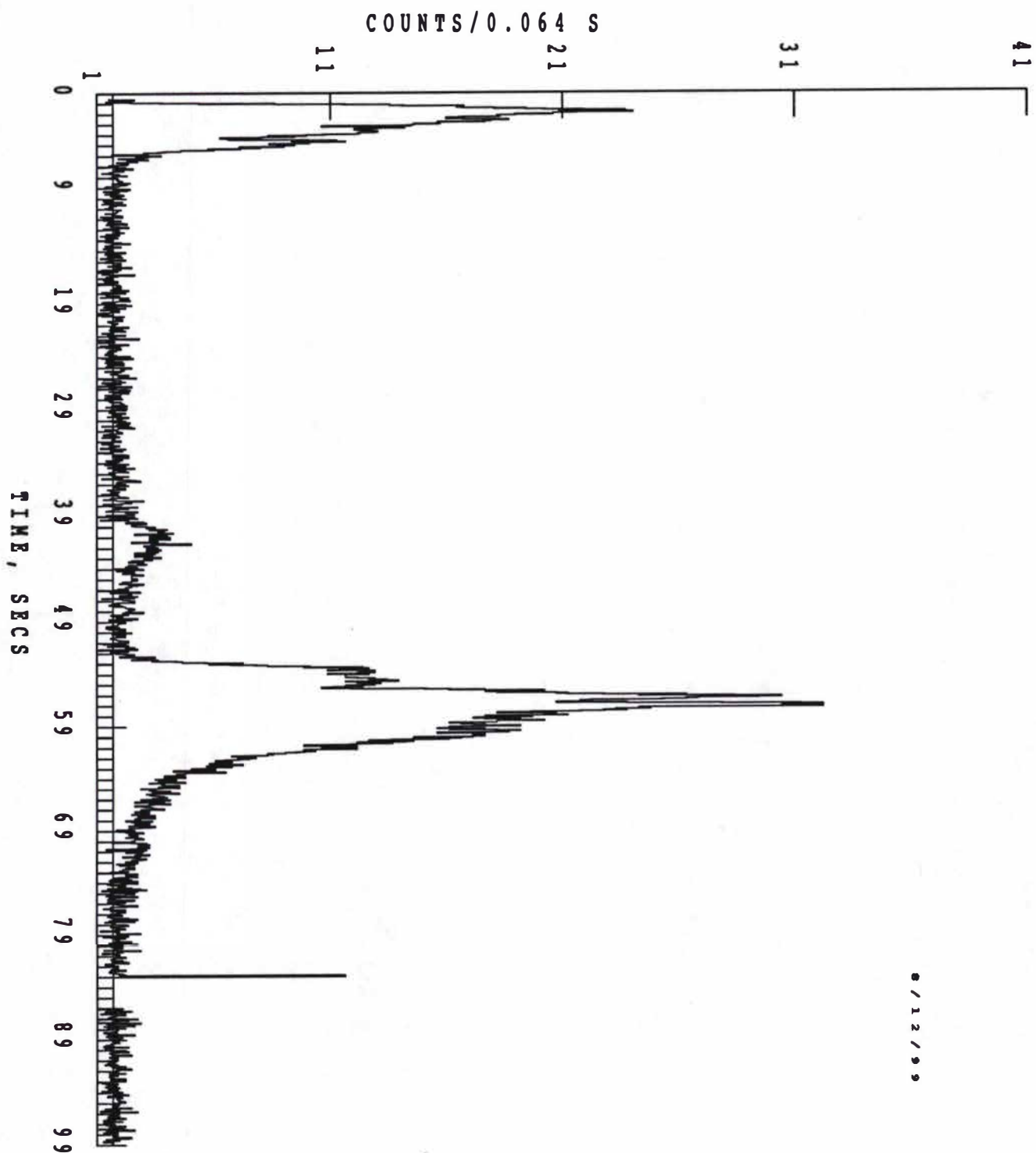
8 / 12 / 99

KONUS

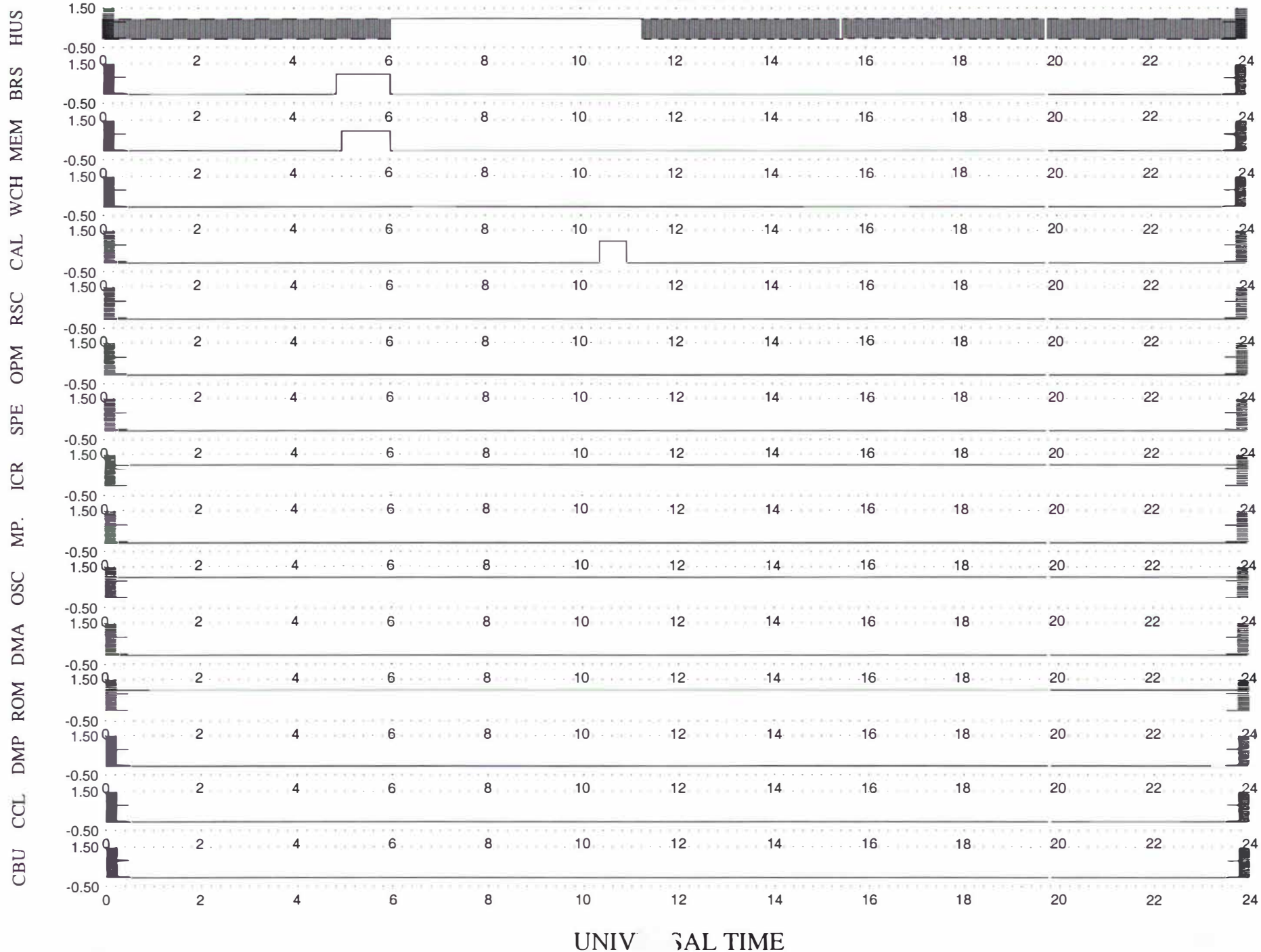
08/12/99

16613.263

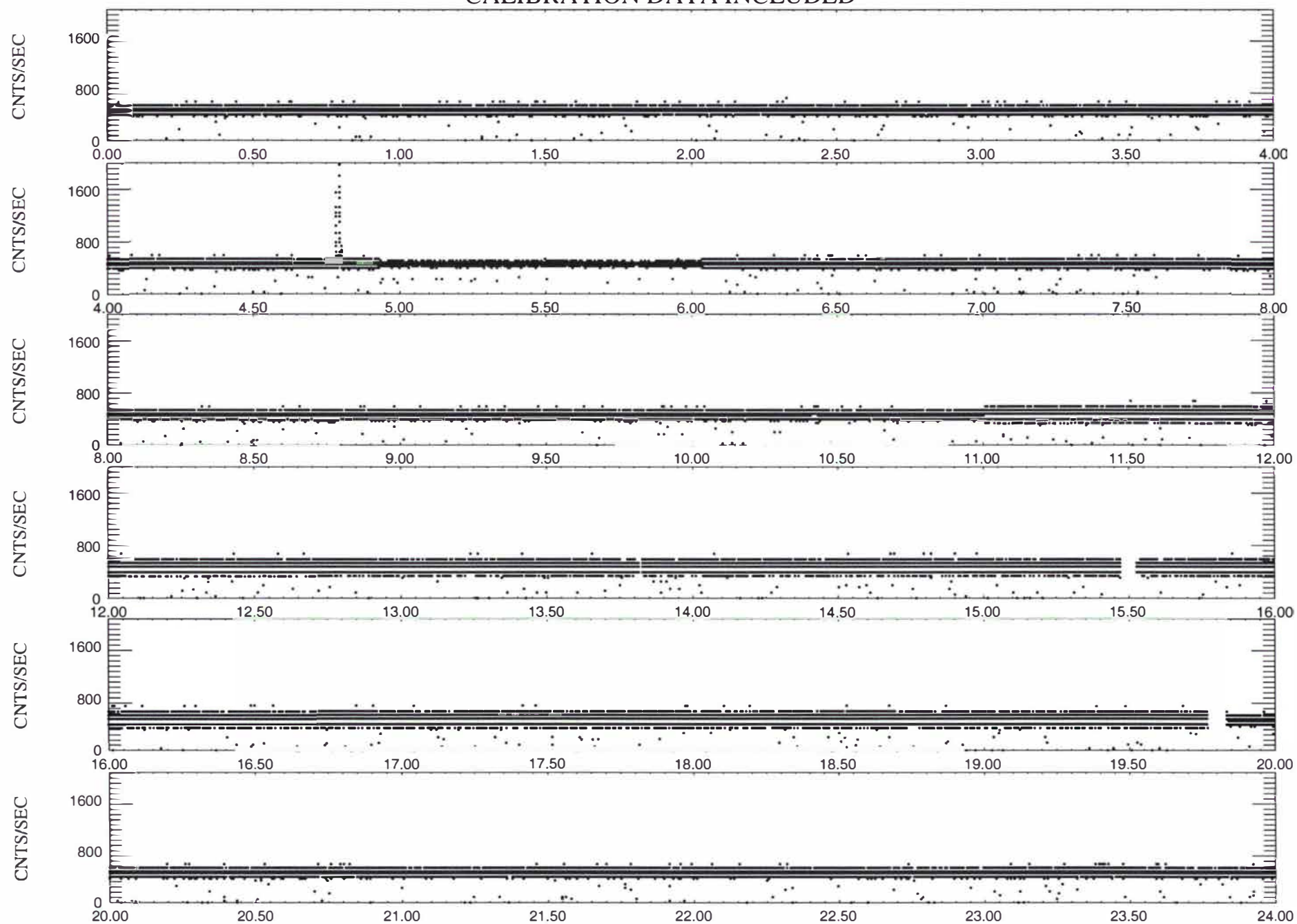
50- 200 keV



BURST NUMBER 7

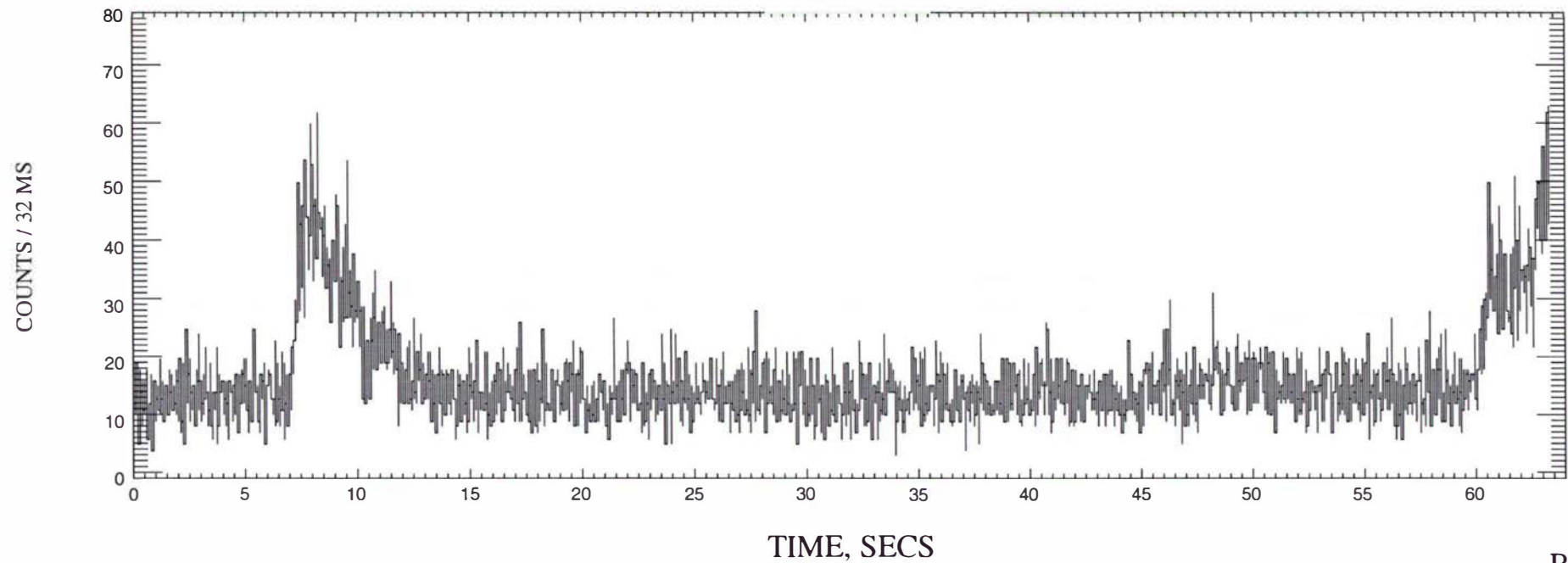
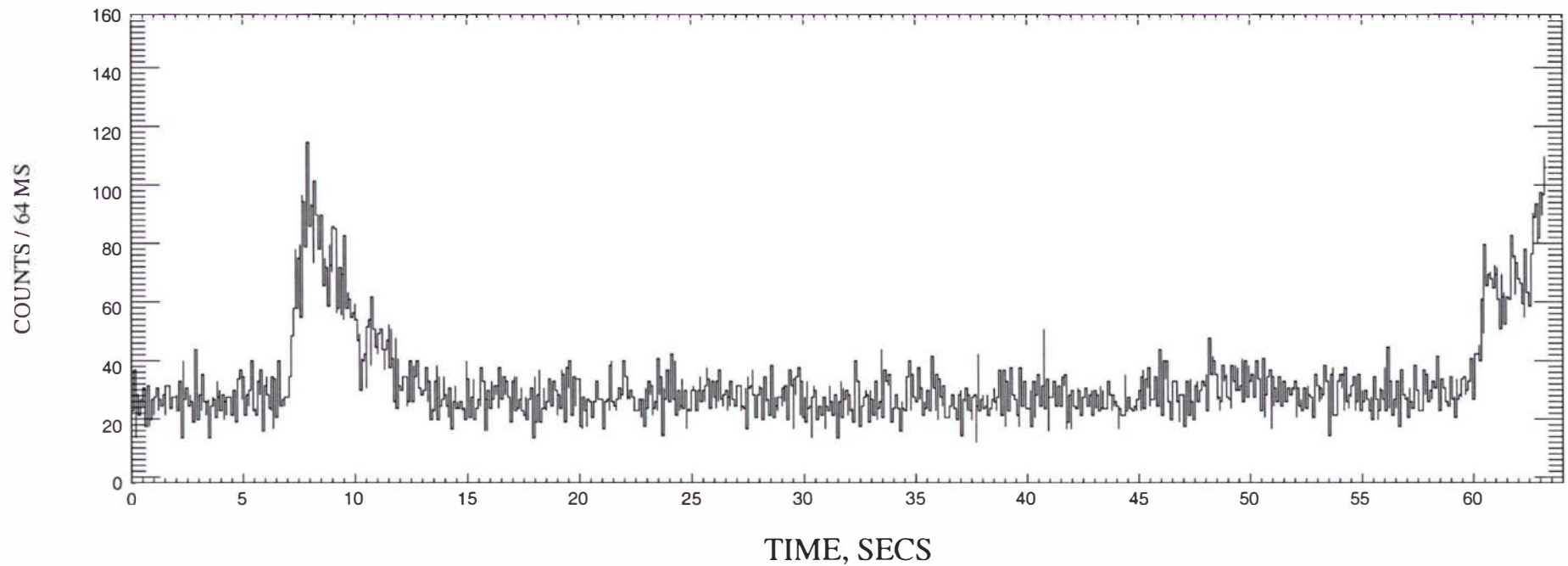


CALIBRATION DATA INCLUDED

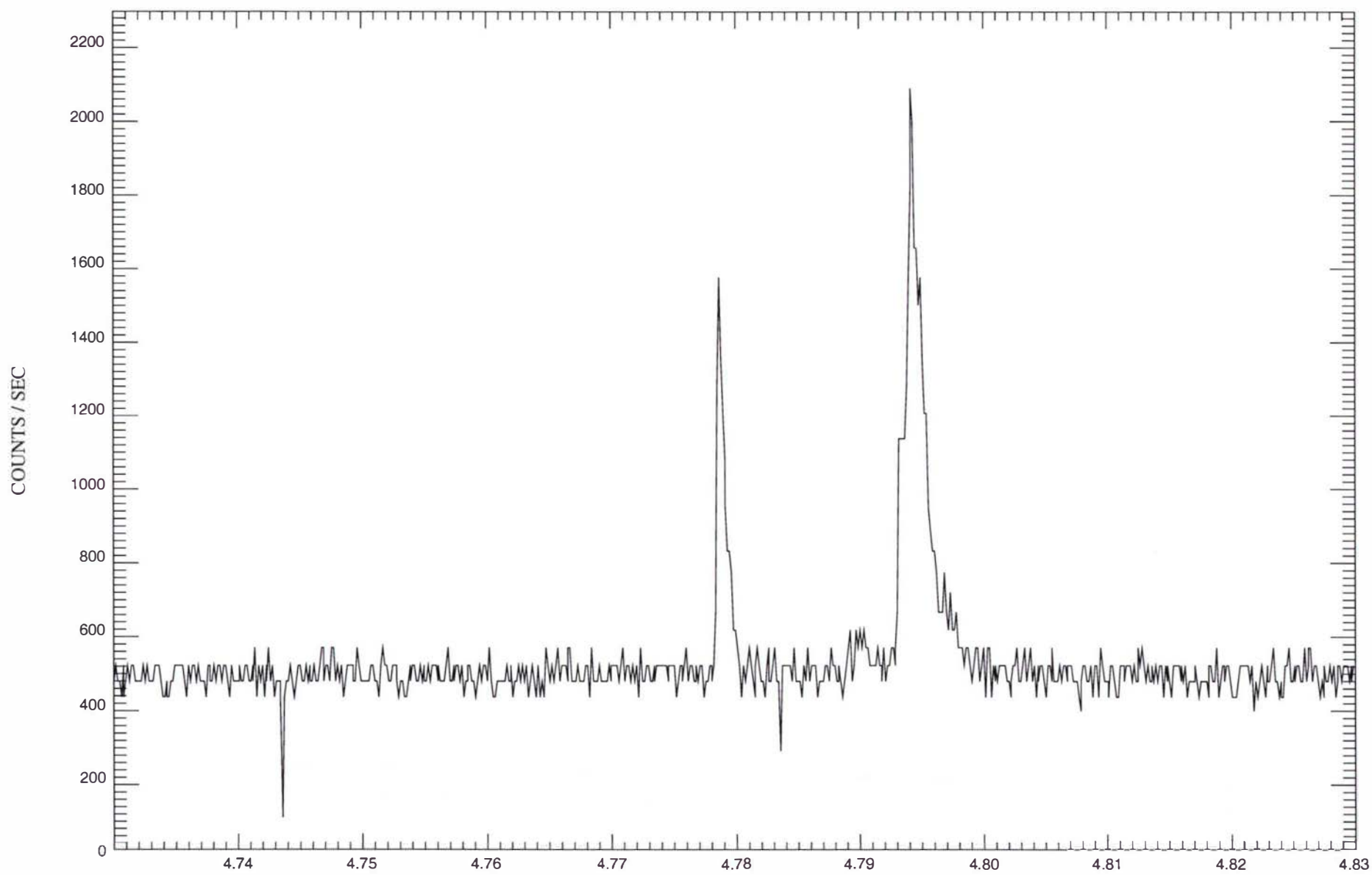


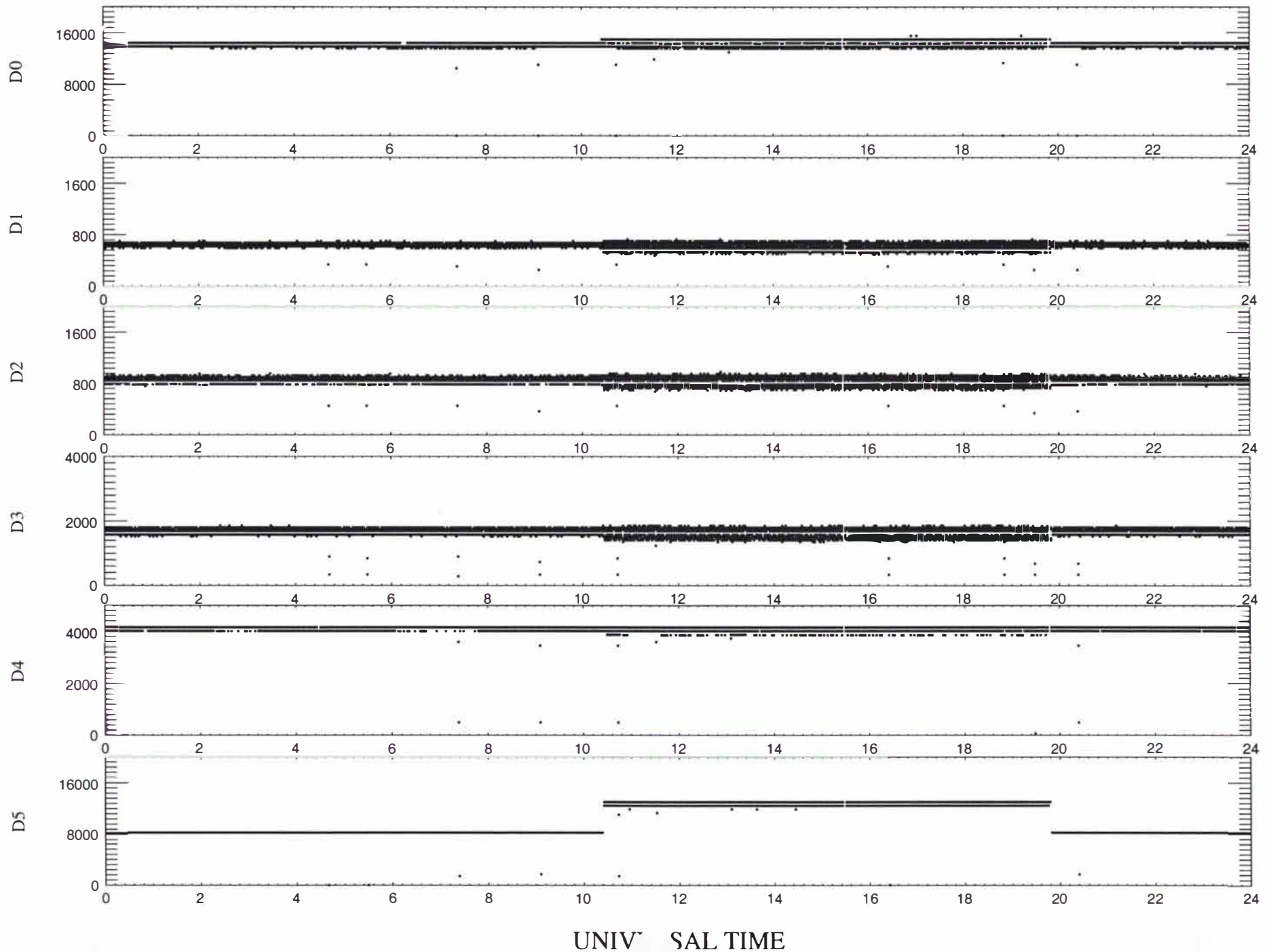
UNIV SAL TIME

Burst Counter 7 at UT= 4.778578847249 h=17202.884 s 04:46:42.884



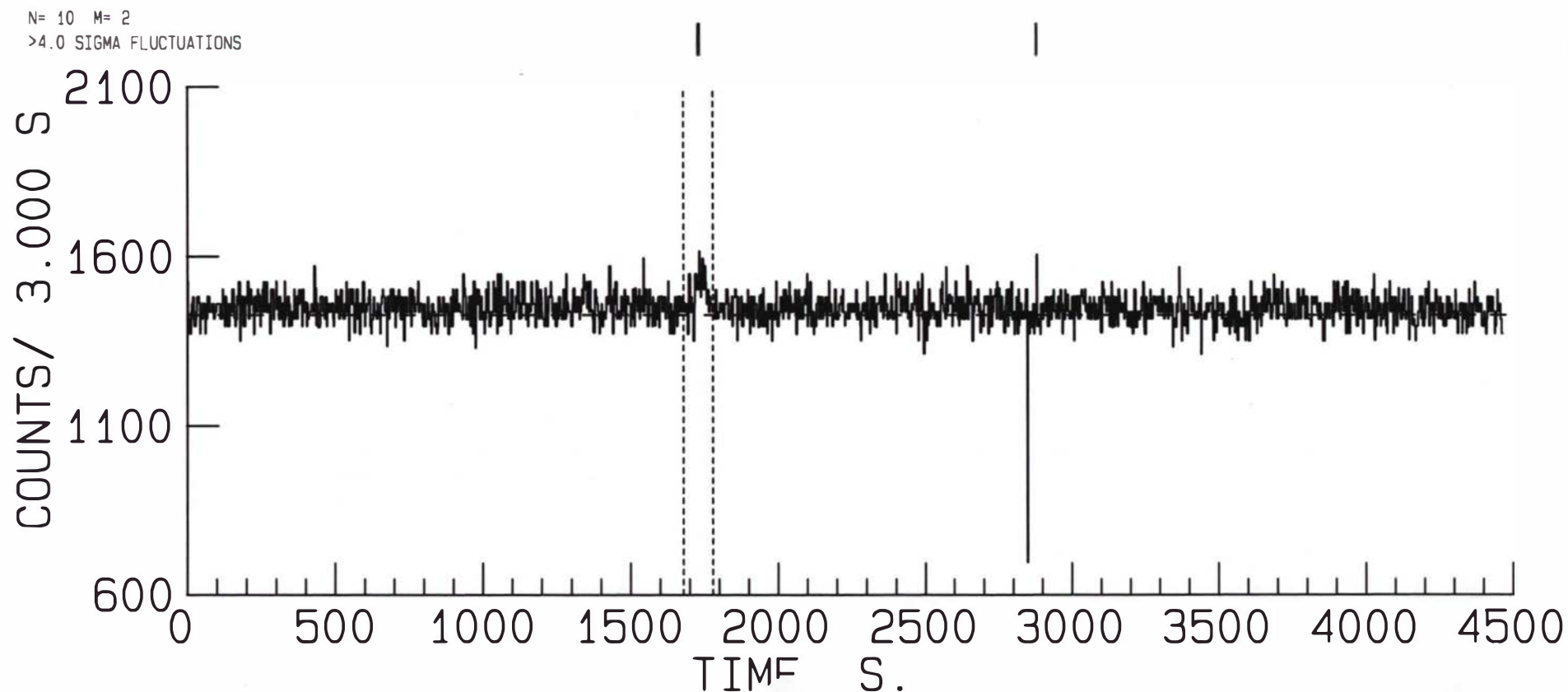
CALIBRATION DATA INCLUDED





ULYSSES RT
9/12/99 684.116 s
0.500 S INTERVALS REGROUPED BY 6
22- 151 keV

6 / 6 / 0



Date: 11 Jul 07

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☒ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

- ☐ Was CHECKMO run to eliminate data gaps?
- ☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~1320 s prior to the time requested, in the line "no HEND data...")
- ☐ Was Mars-blocking used?
- ☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)
- ☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).
- ☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

- ☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?
- ☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?
- ☐ Updated ephemeris used for bursts prior to September 30, 2003?

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

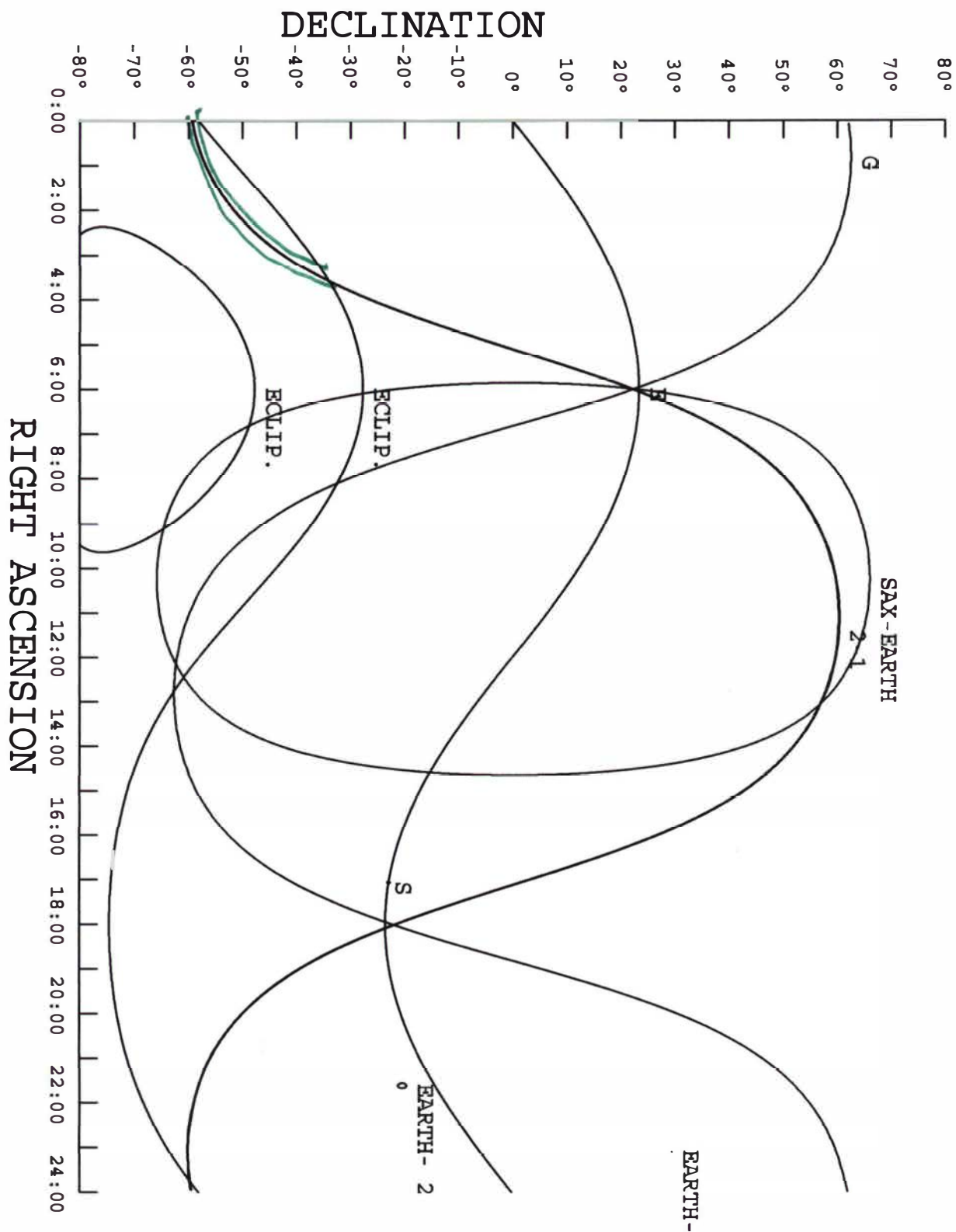
G=GALACTIC EQUATOR

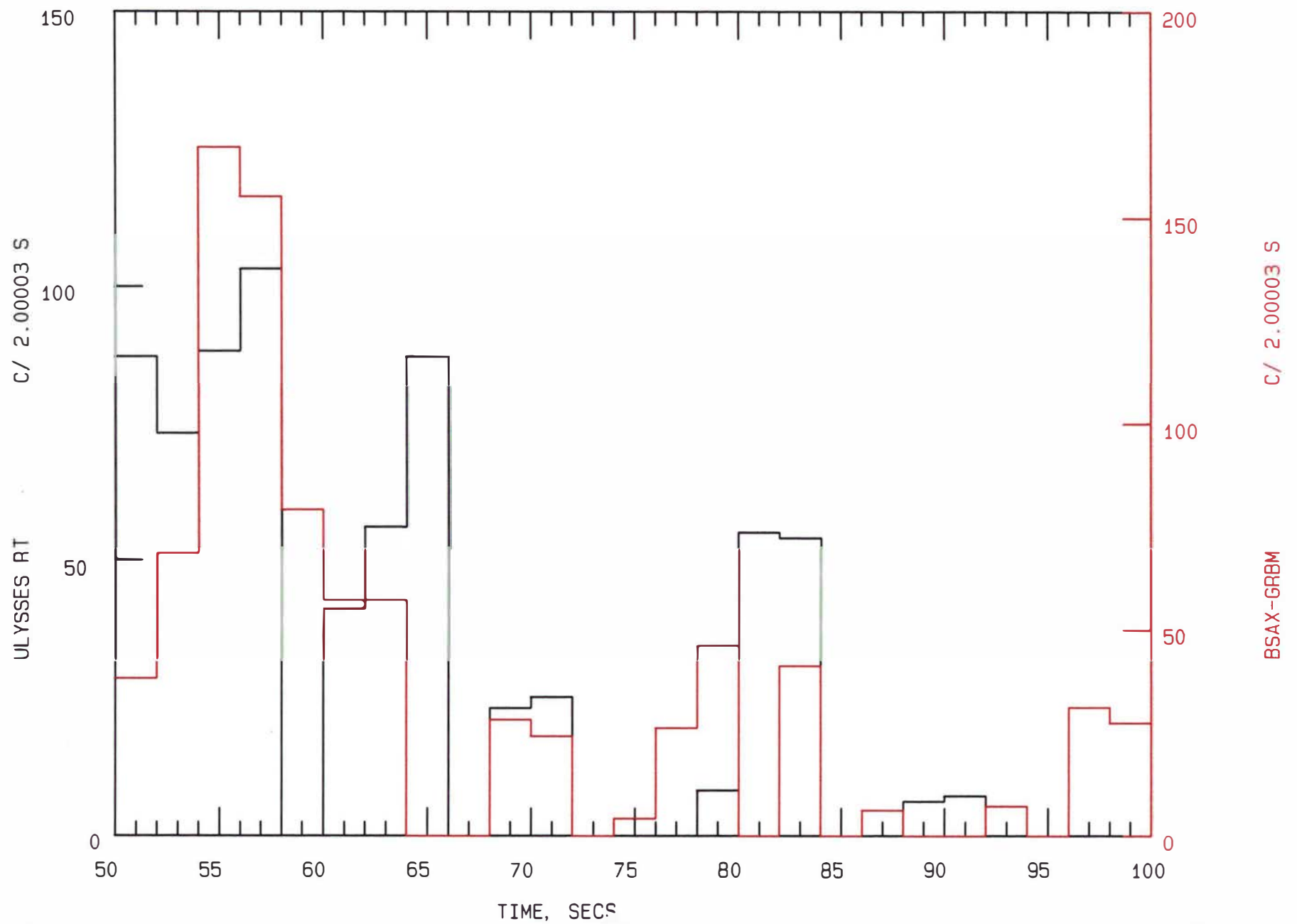
1 ULYSSES

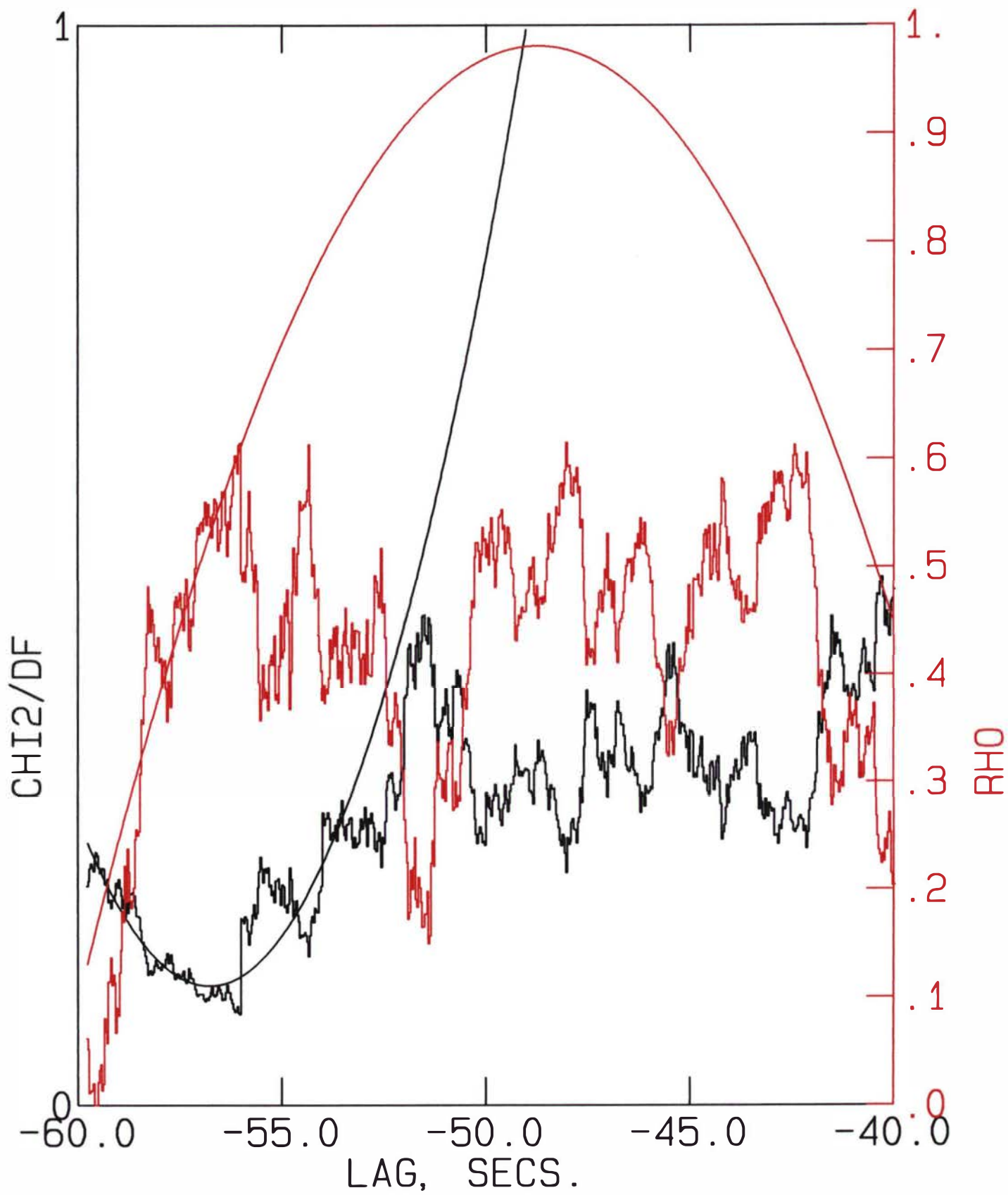
2 KONUS

EVENT OF DEC 9, 1999 15:26

11/ 7/ 7







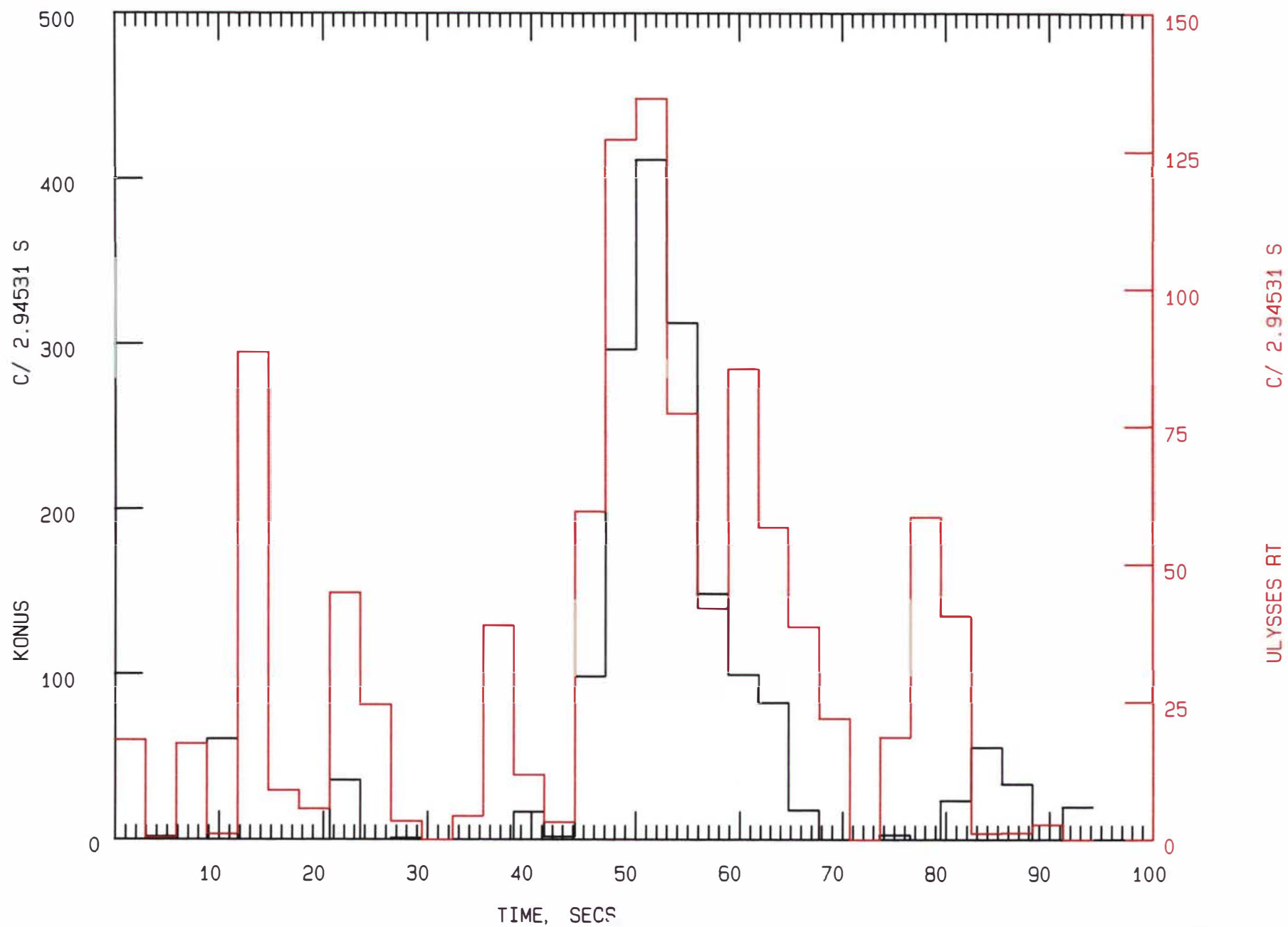
KONUS

-ULYSSES RT CORRELATION

09/12/99

55597.098

11/ 7/ 7

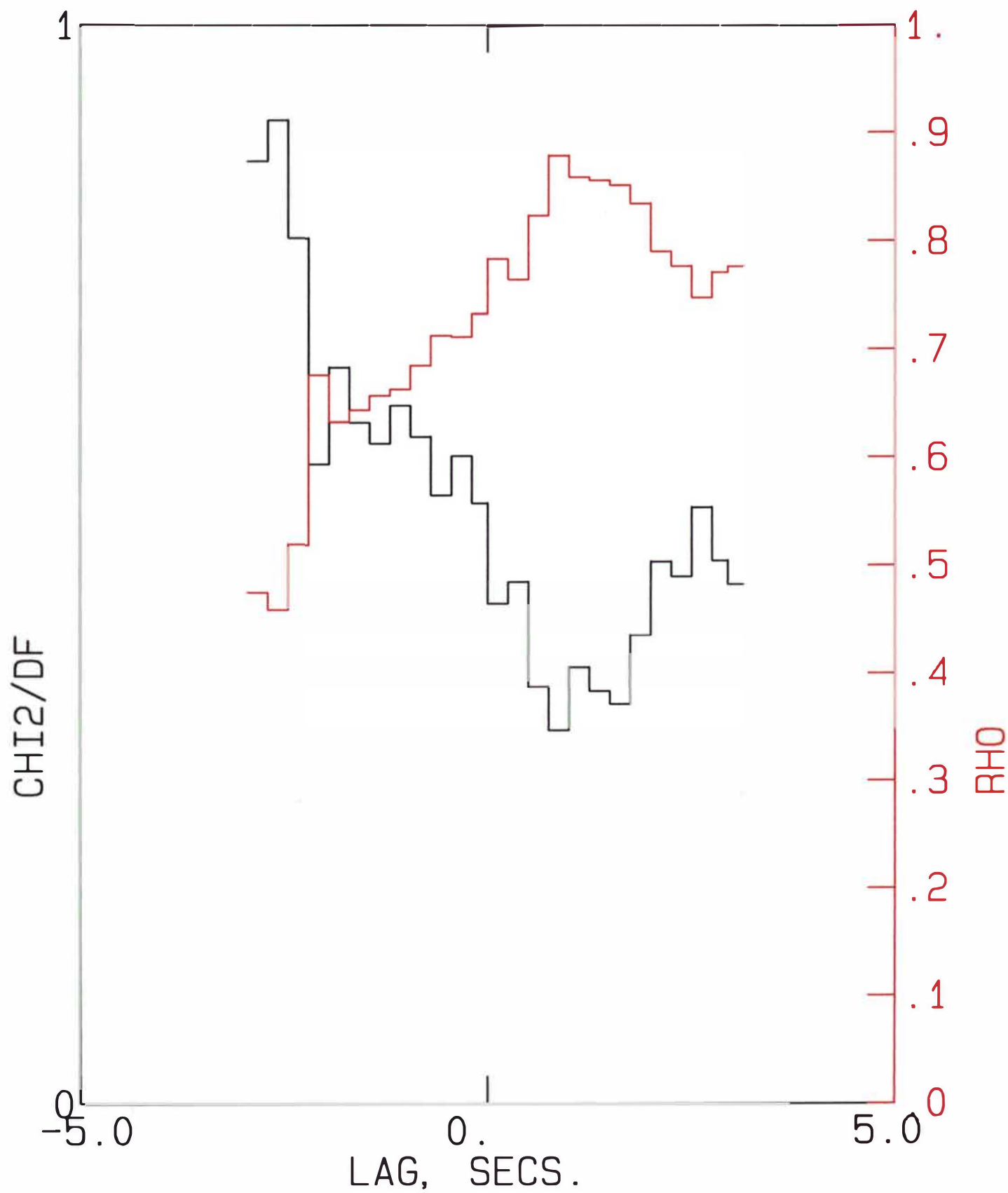


KONUS

-ULYSSES RT CORRELATION

09/12/99

55597.098



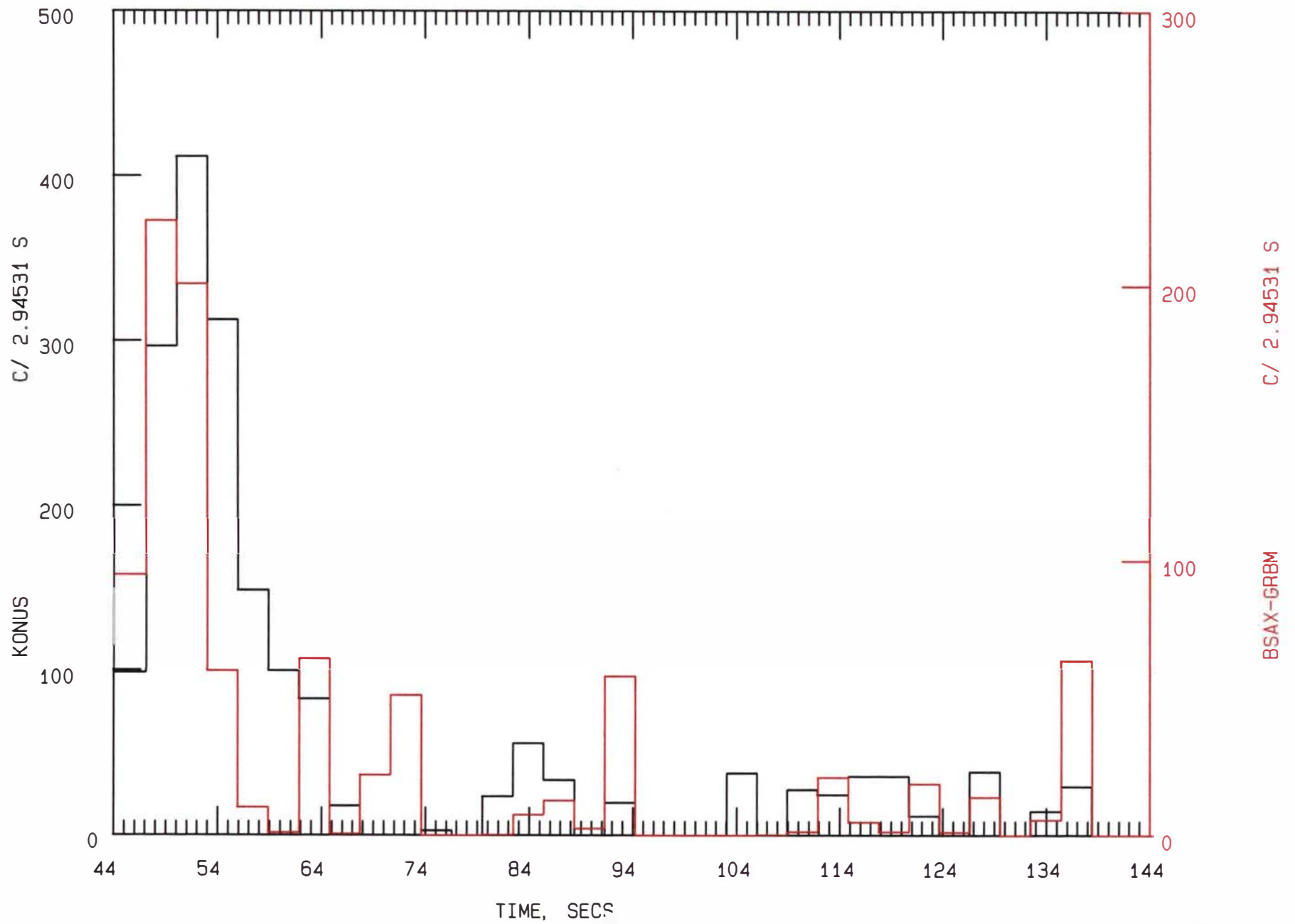
KONUS

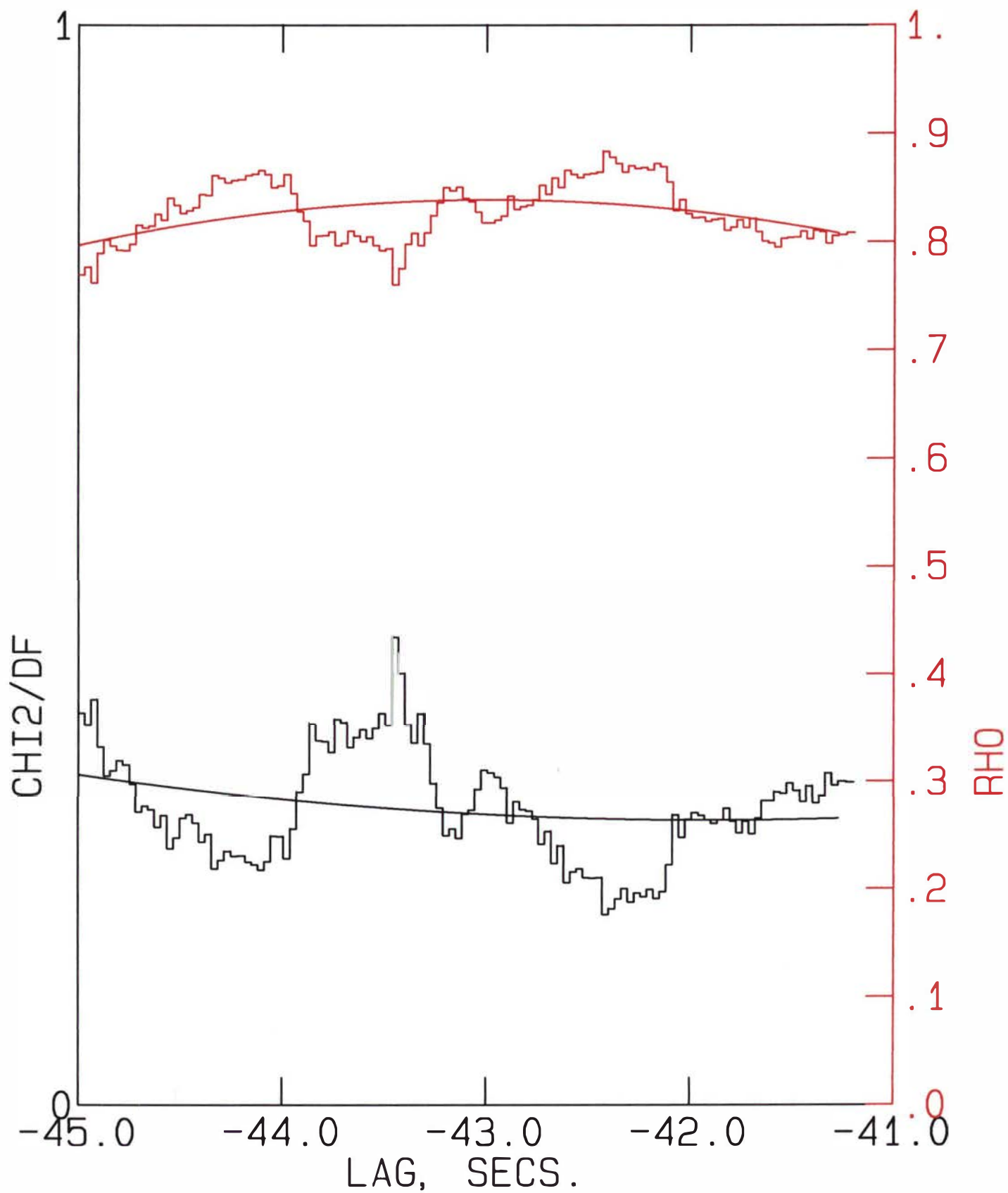
-BSAX-GRBM CORRELATION

09/12/99

55597.098

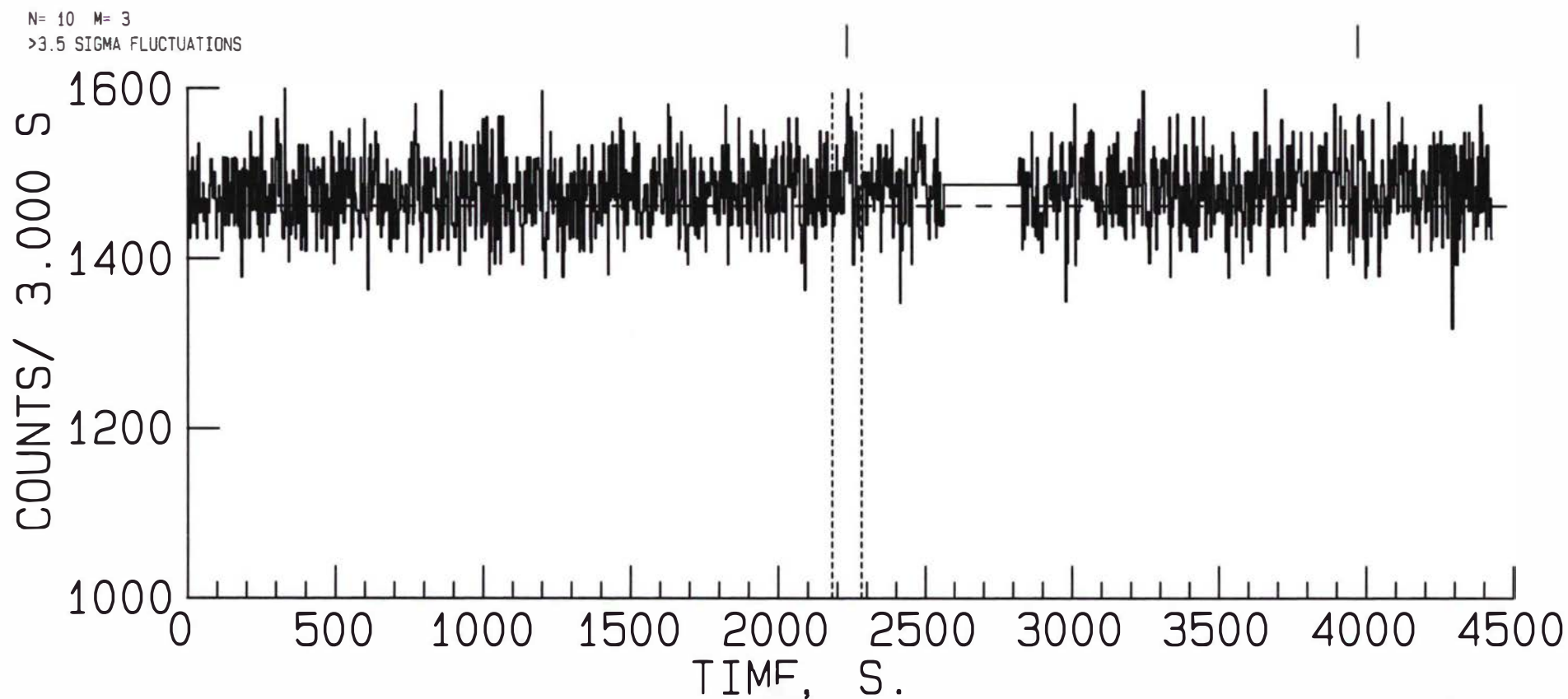
11/ 7/ 7





ULYSSES RT
9/12/99 53424.152 s
0.250 S INTERVALS REGROUPED BY 12
22- 151 keV

11 / 7 / 7



KONUS

09/12/99 55597.098

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.945 S

4400

3400

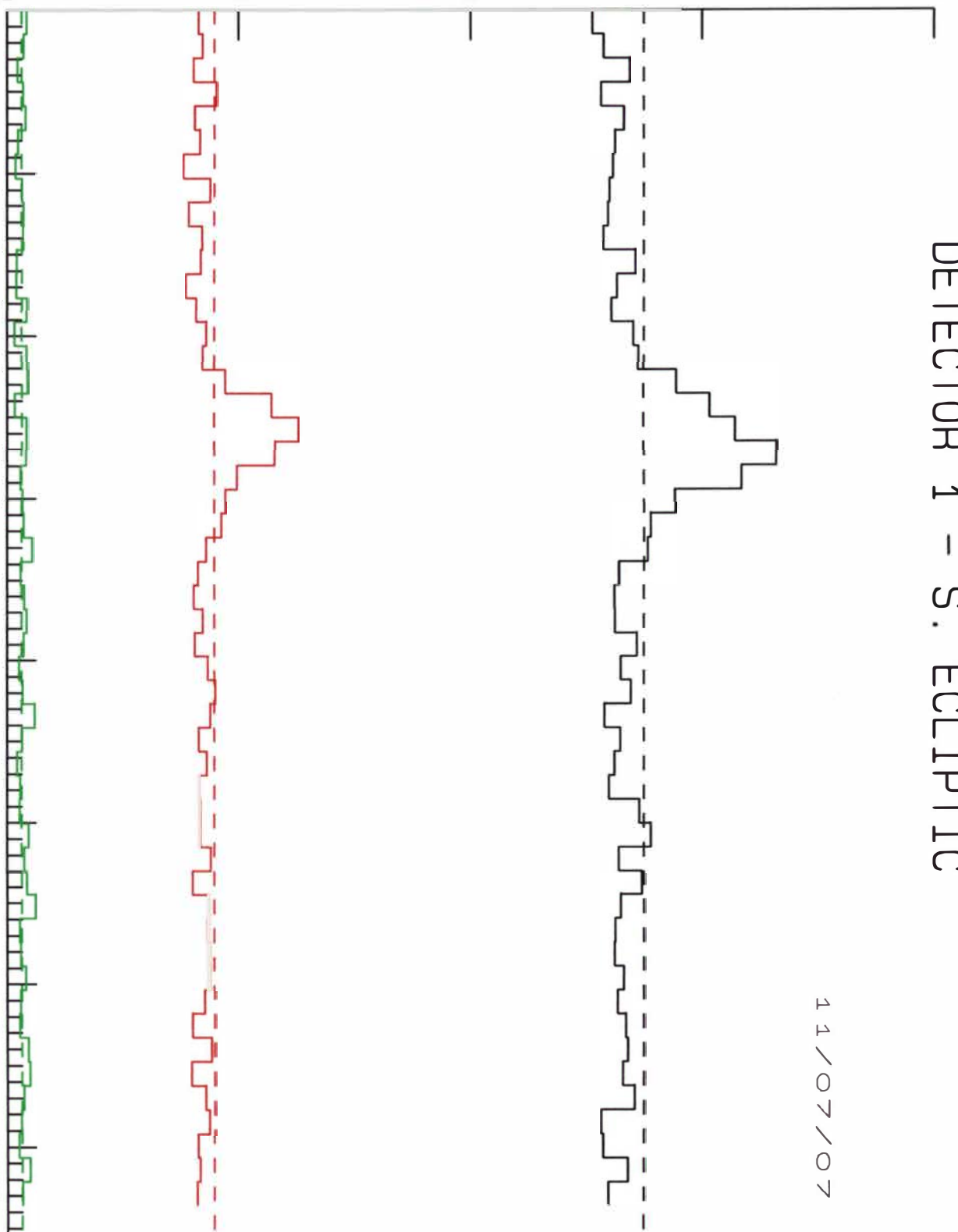
2400

1400

DETECTOR 1 - S. ECLIPPTIC

11/07/07

0 20 40 60 80 100 120 140
TIME, SECS



KONUS

09/12/99 55597.098

10- 50 keV

50- 200 keV 200- 750 keV

COUNTS/2.945 S

4300

DETECTOR 2 - N. ECLIPHTIC

3300

2300

1300

11/07/07

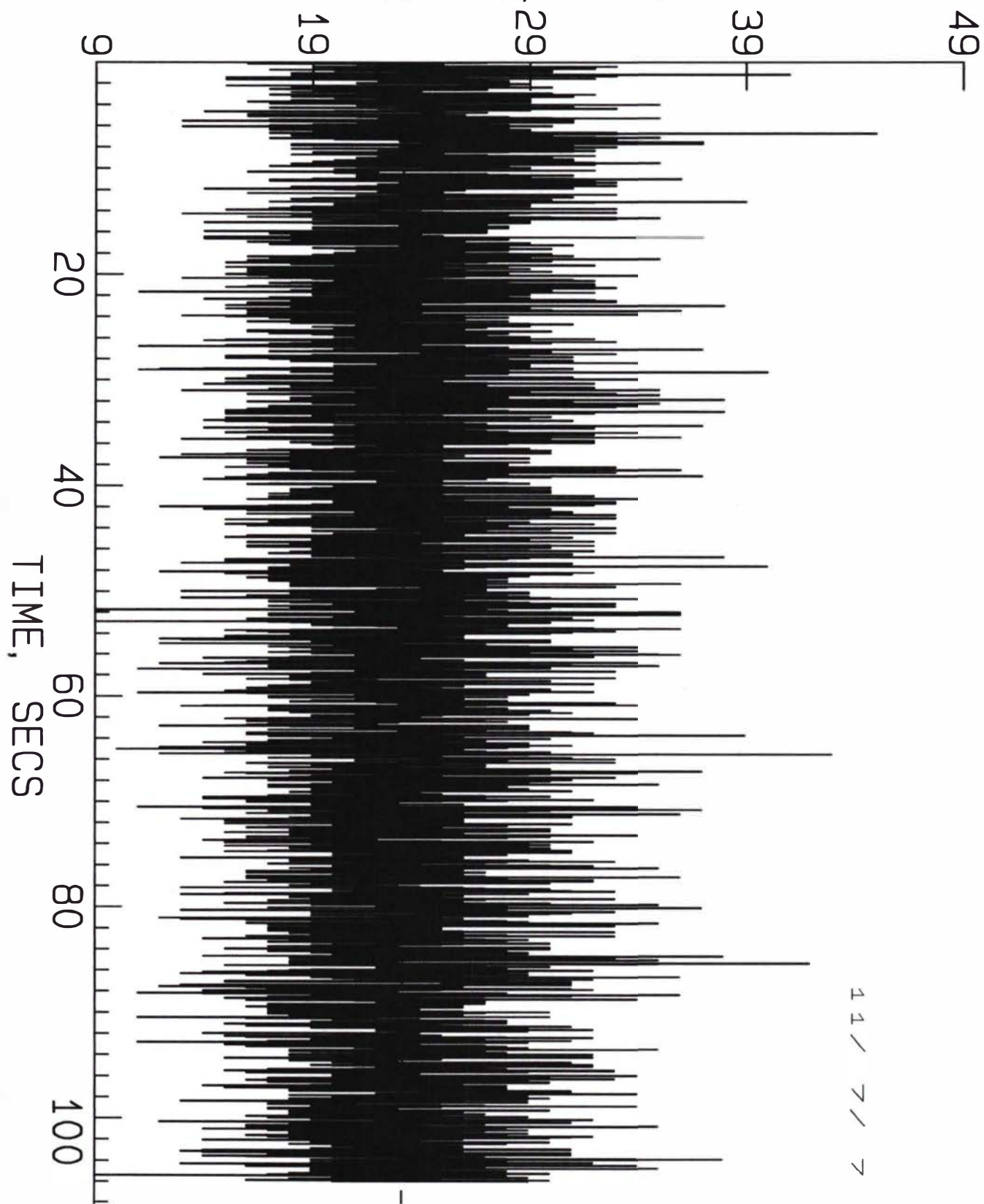
300
0
20
40
60
80
100
120
140
TIME, SECS

SAX GRBM

09/12/99 55639.060

40- 700 keV

COUNTS/0.031 S



11 / 7 / 7

From HENZE@fender.msfc.nasa.gov Tue Dec 14 15:59 PST 1999
Date: Tue, 14 Dec 1999 18:06:36 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Lost BATSE triggers and data

Lost Data on TJDs 11518-11521
Lost Triggers 7892-7897

TJD 11518 = 6 December 1999
TJD 11521 = 9 December 1999

CGRO Gyro 3 failed on TJD 11518. The spacecraft was placed in a Solar Reference Pointing Mode when, for at least part of the time, the +X-axis pointed at the Sun. During the interval when the spacecraft was in the Solar Reference Pointing Mode, the normal data (i.e., production or 32-kilobit data) from TJD/SoD 11518/55813 through the end of TJD 11521 were irretrievably lost. Some limited BATSE "gap" data (i.e., OBC or 1-kilobit data) were received for TJD 11518, SoD 75566-76318. No data at all were received on TJDs 11519-11521.

The spacecraft was returned to normal operations and pointing under the control of two gyros near the end of TJD 11521.
The normal data resumed at TJD/SoD = 11522/00089.

BATSE trigger numbers 7892-7897 occurred during the time when no data were being received. Therefore, the data for trigger numbers 7892-7897 were irretrievably lost except for the max rates and TRIGB value in the housekeeping data for trigger number 7897 which occurred at an unknown time.

Limited data for trigger number 7897:

TRIGB = 11.25 sigma

Max Rates:

Det.	Chan. 1	Burst Chan. (2+3)
0	37	97
1	24	78
2	33	59
3	54	95
4	47	109
5	29	72
6	36	81
7	57	77

GRBM 19991209 70486

ULYSSES RT

10/07/07

09/12/99 69804.070 s

0.250 S INTERVALS REGROUPED BY 4

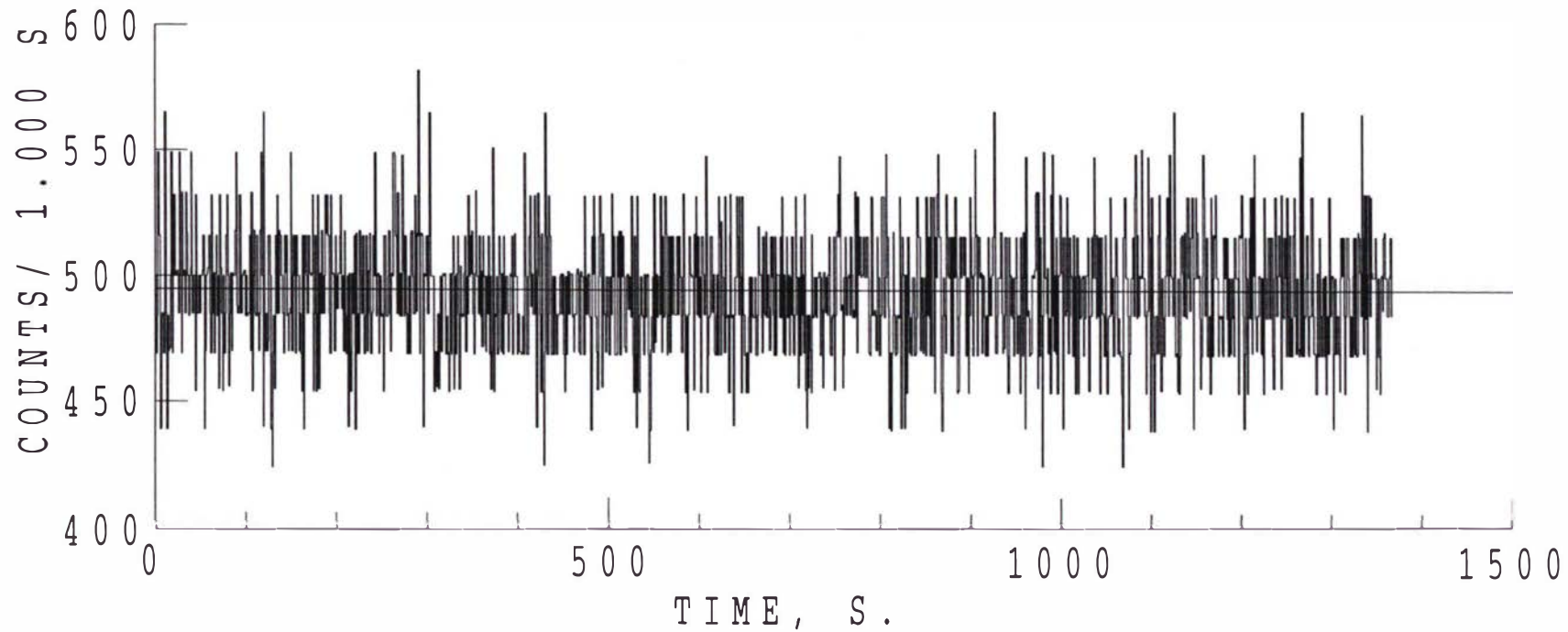
0 - 0 keV

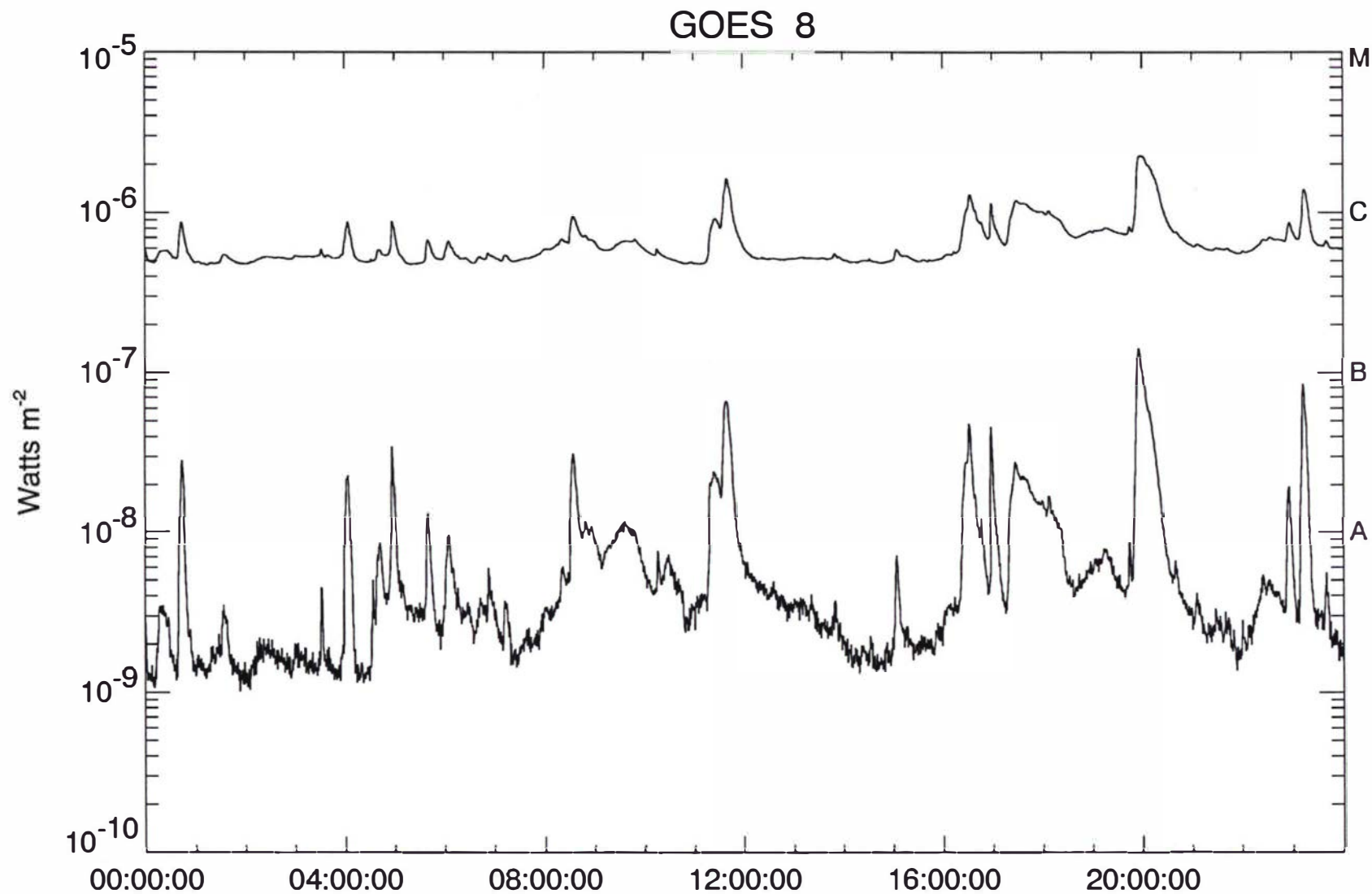
N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS





Data Start: 99/12/09, 0000:00

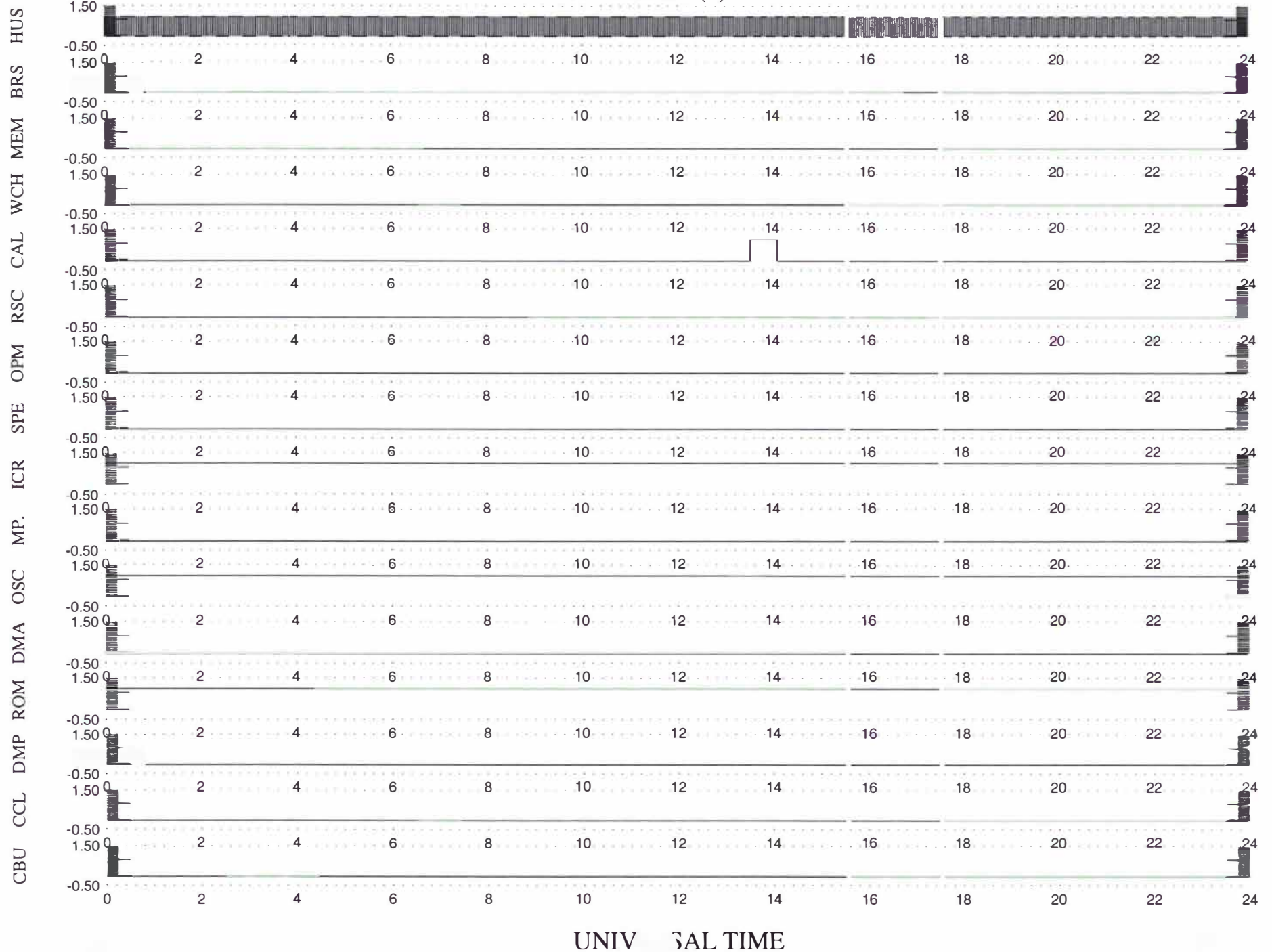
Plot created: 99/12/13, 1008

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

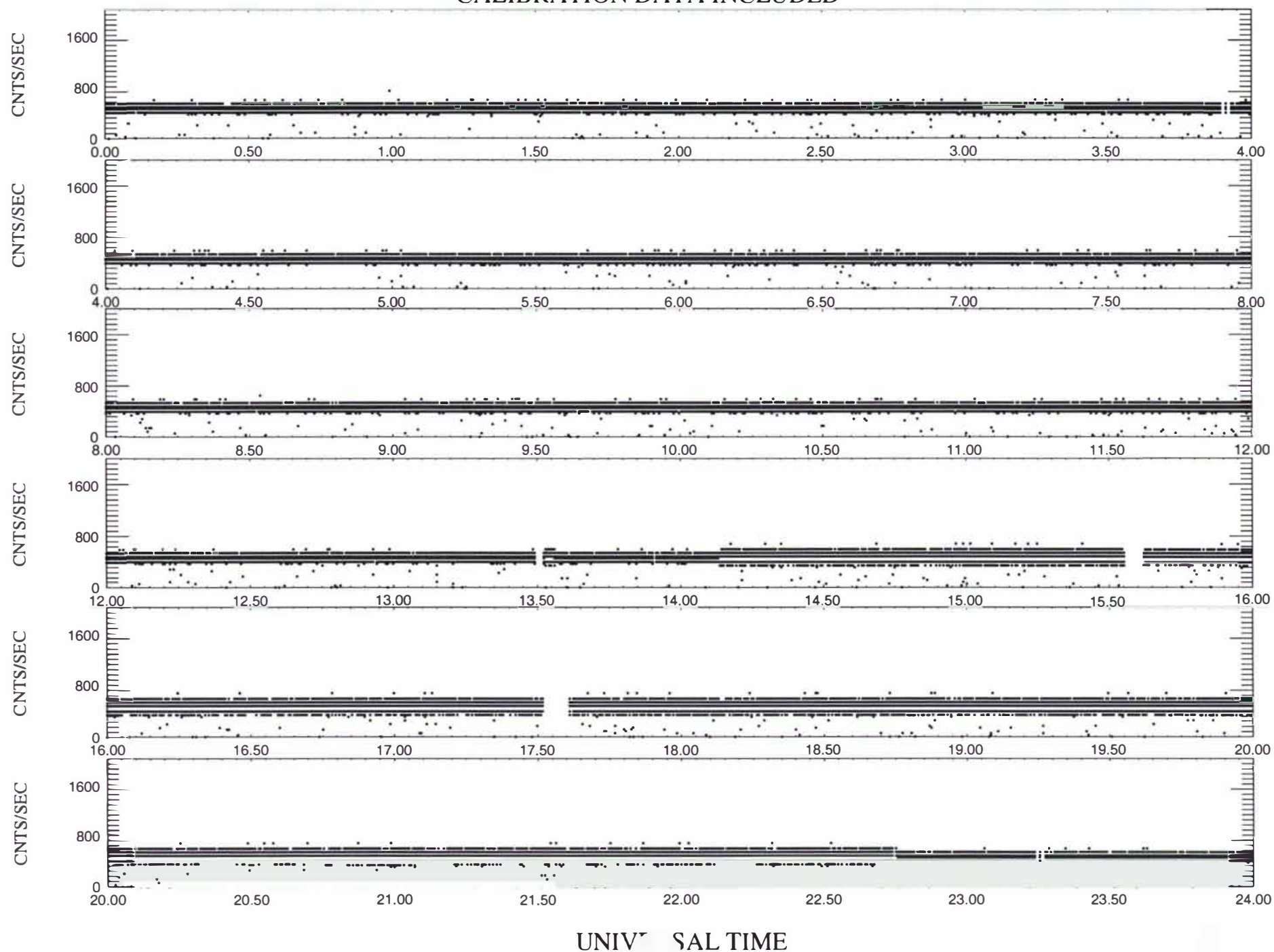
2 (0.5 - 4.0 Angstroms) Background not subtracted

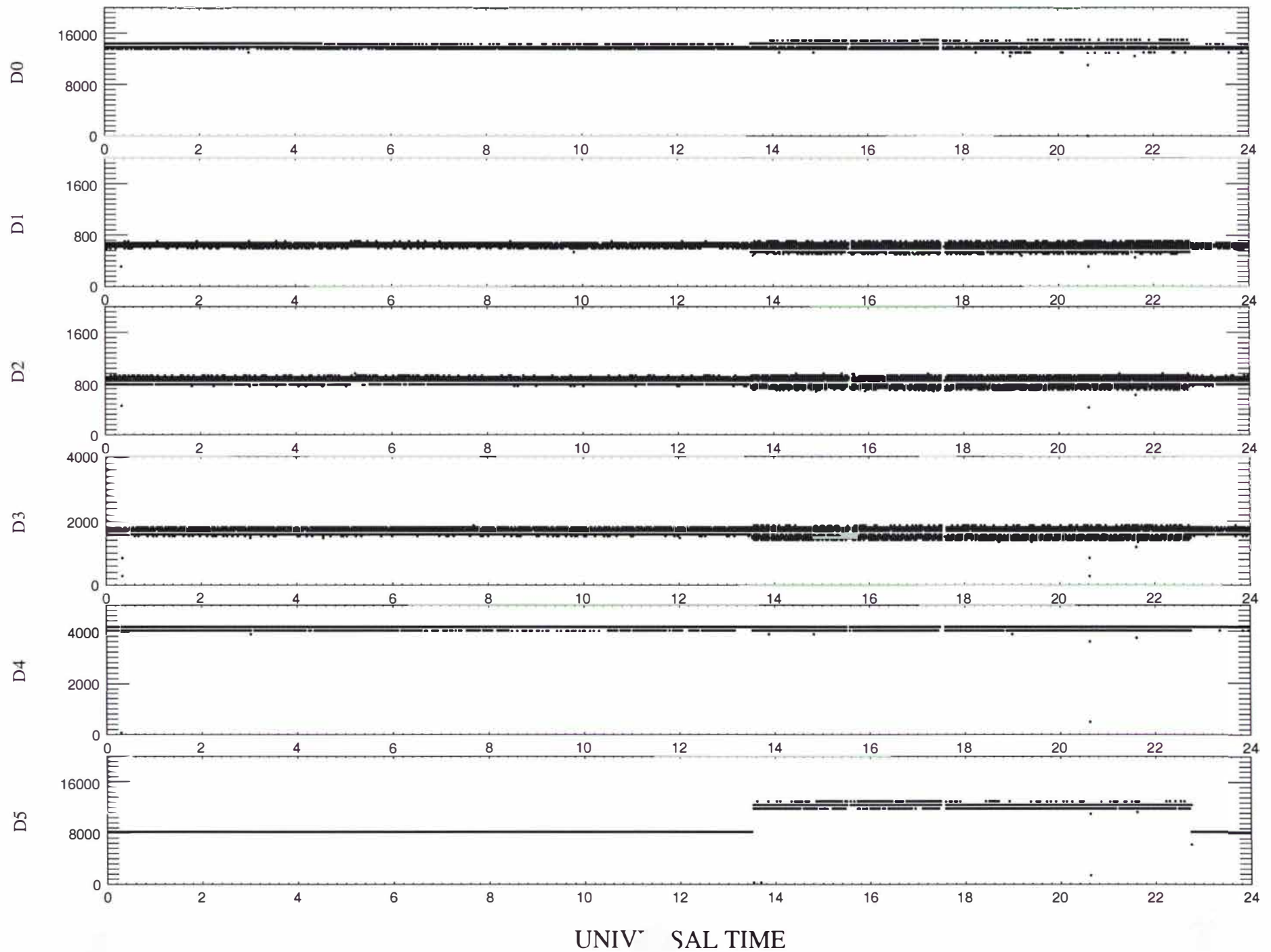
Sample average = 10

NO BURST (7)



CALIBRATION DATA INCLUDED





From RICHARDSON@fender.msfc.nasa.gov Mon Dec 13 11:02 PST 1999
From: RICHARDSON@fender.msfc.nasa.gov
Date: Mon, 13 Dec 1999 13:03:21 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7898

BATSEARCH PROGRAM

BATSE BURST # 7898
EVENT OF 1999 DEC 10 DAY OF YEAR=344
EVENT CROSSING TIME AT BATSE : 850. S. OR 00:14:10.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 297.000 -45.000
BATSE PEAK COUNTING RATE: 28000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 10/12/ 99 IS:
RA= 166.039 DEC= -29.746 DIST= 4.316 AU
BATSE-ULYSSES DISTANCE = 645618242. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 87.04 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 111.18 SECS.
CROSSING TIME AT ULYSSES IS 961. S. OR 00:16:01 +/- 425.08 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 10/12/ 99 IS:
RA= 313.378 DEC= -18.877 DIST= 1.728 AU
MARS-BATSE DISTANCE = 258564784. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=150.54 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 750.96 SECS.
CROSSING TIME AT MARS IS 99. S. OR 00:01:39 +/- 62.24 SECONDS

BATSE BURST TRIGGER

NO.: 7898

TIME: TJD=1522 SECONDS=850

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=29.7 AZIMUTH=165.2 ERROR=0.7 DEGREES

COMMENTS:

GRB. SINGLE PULSE. DURATION APPROX. = 4 SEC. VISIBLE ABOVE 300KEV.
LOCATION CONSISTENT WITH THAT OF TRIGGER NUMBER 7899.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7898	991210	11522	00850	28000	297	-45	4

Date: ~~Dec 20 2000~~ Aug 2 '00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

- ☒ BATSE ephemeris for T_0 ?
- ☒ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data *N/A*

- ☐ Final, correct time used? (Files postmarked vwx@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

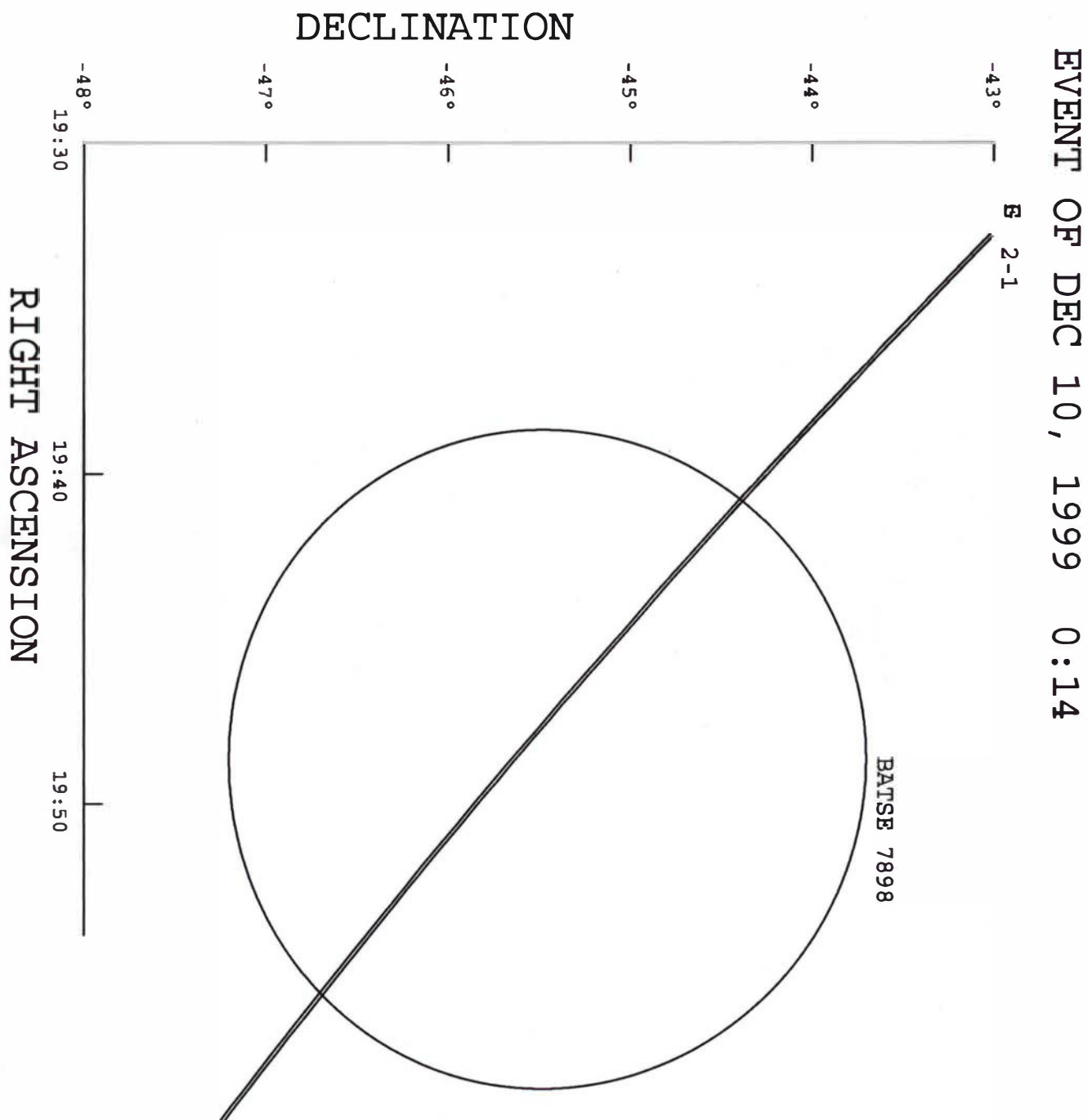
S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES



ULYSSES

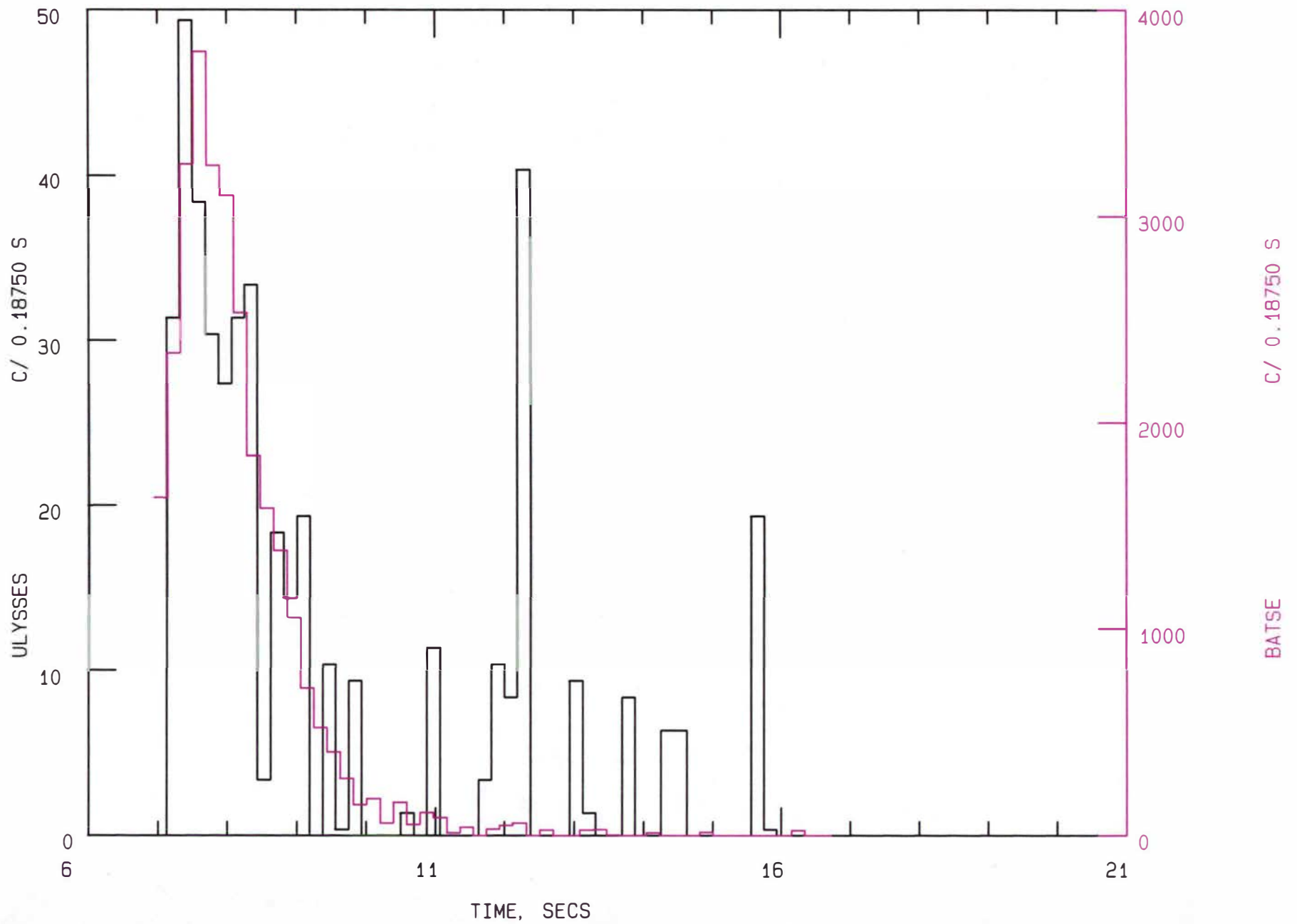
-BATSE

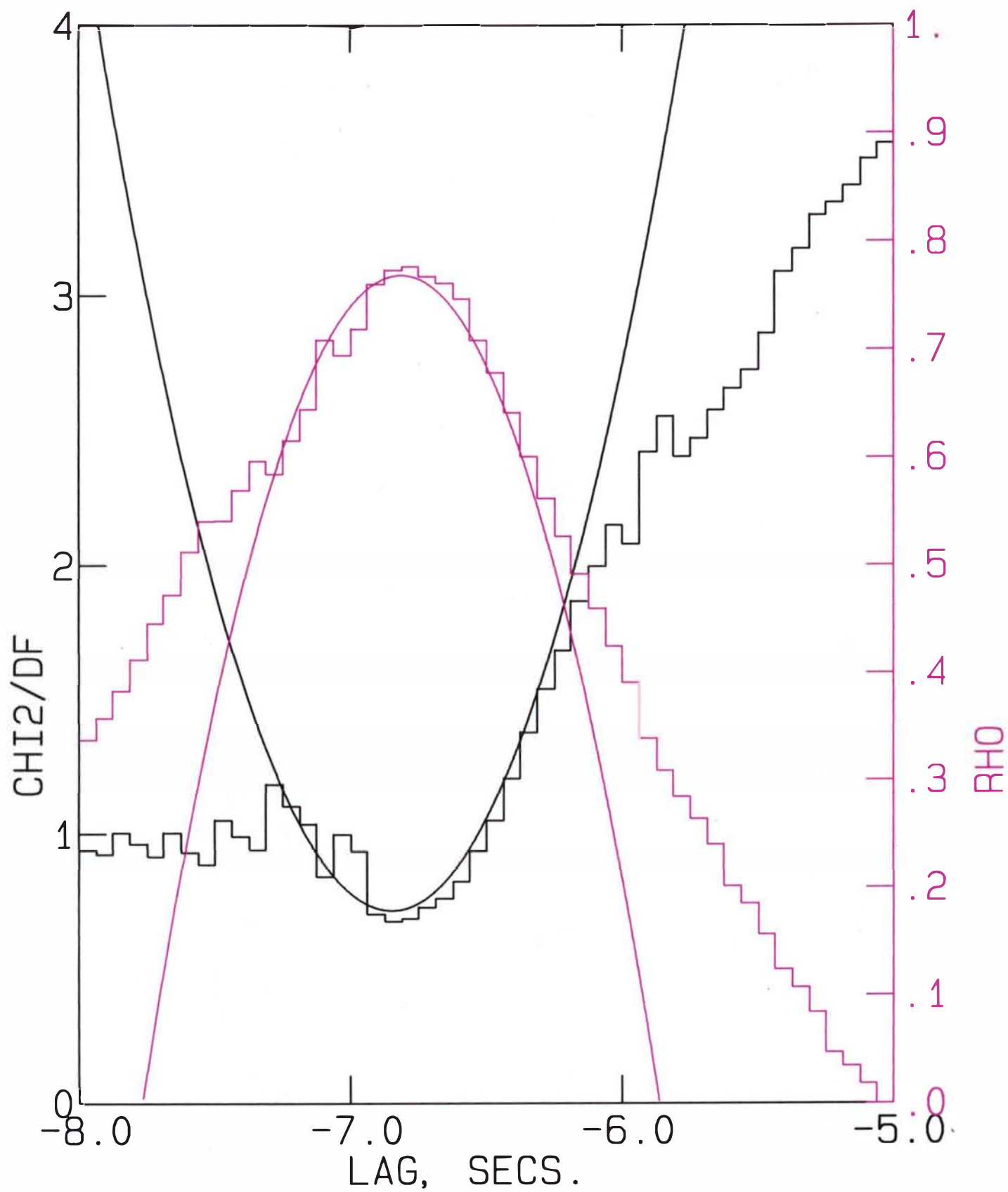
CORRELATION

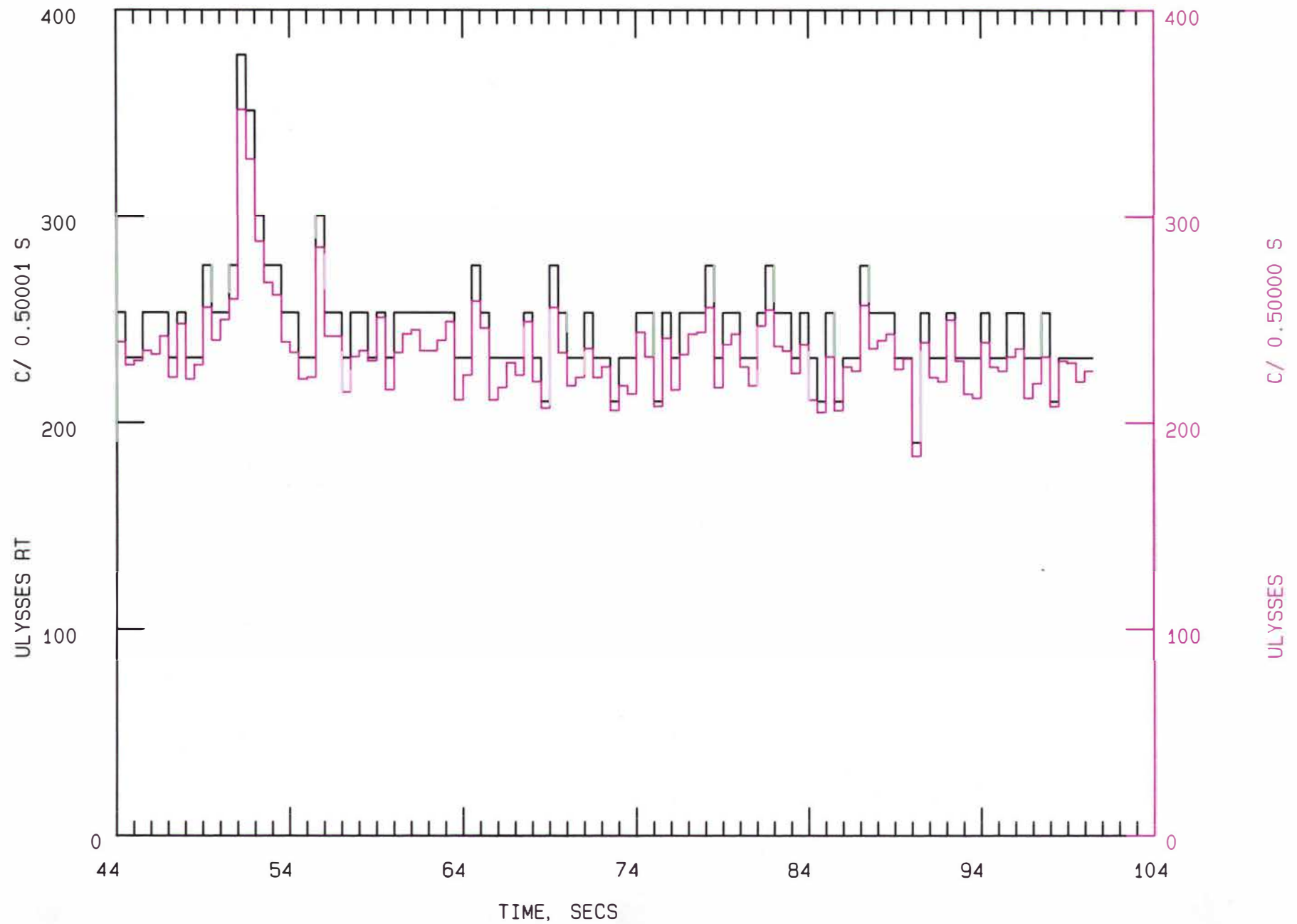
10/12/99

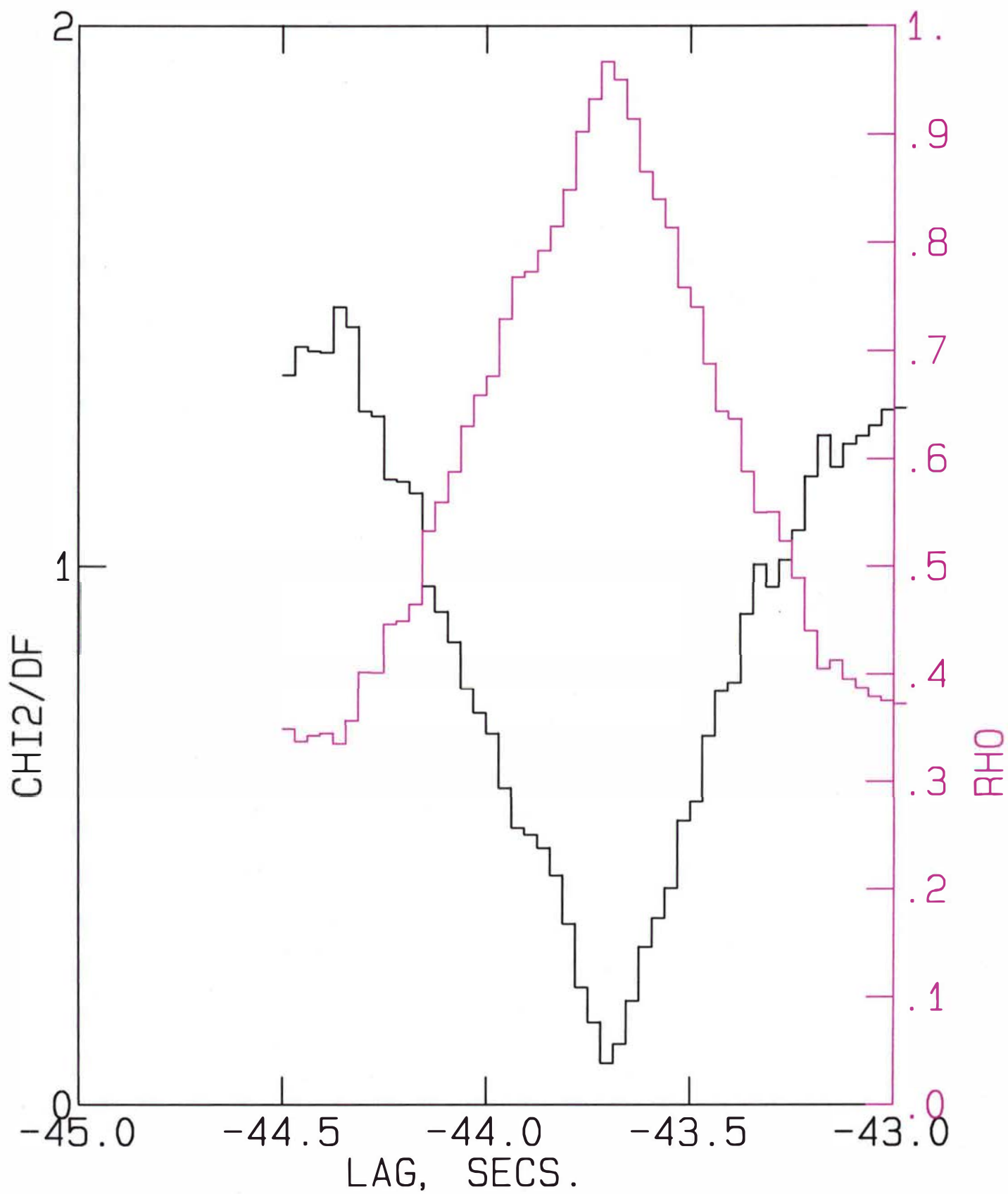
934.635

1/ 8/ 0







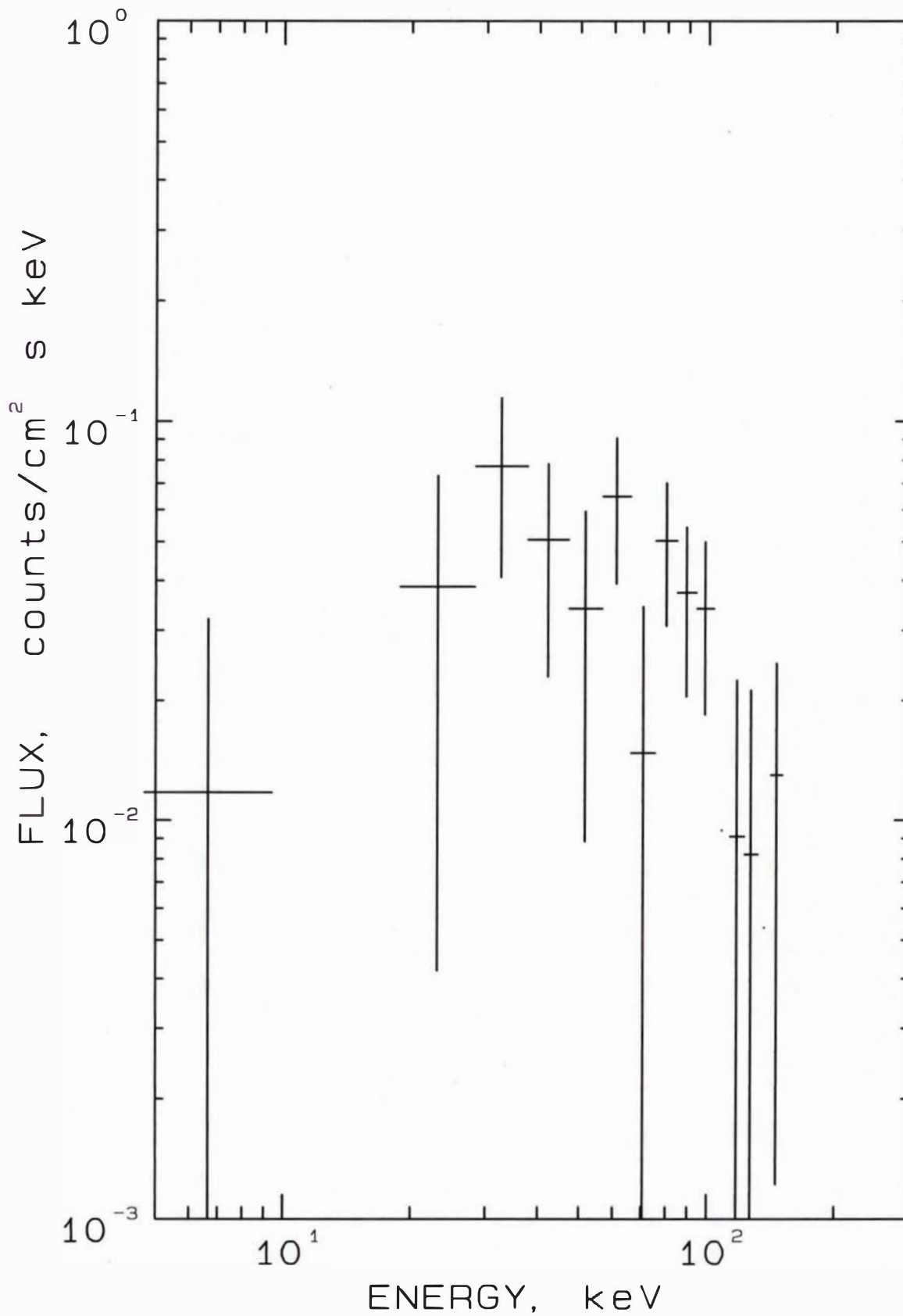


ULYSSES 10/12/99

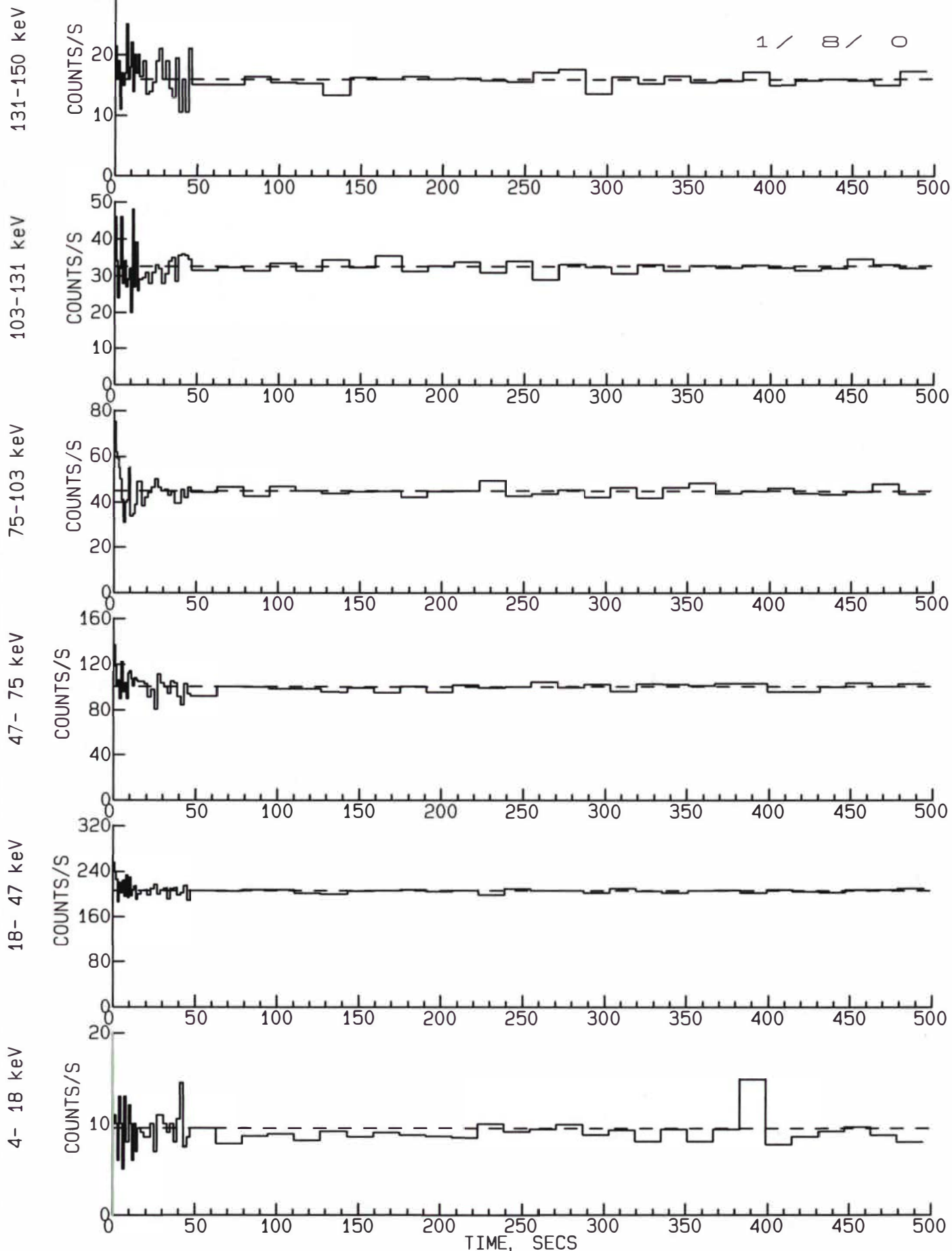
934.599

1/ 8/ 0

SPECTRUM INTEGRATED OVER 3.9 SECONDS, INTERVALS 2 TO 5



ULYSSES 10/12/99 BURST SPECTRAL COUNT RATES

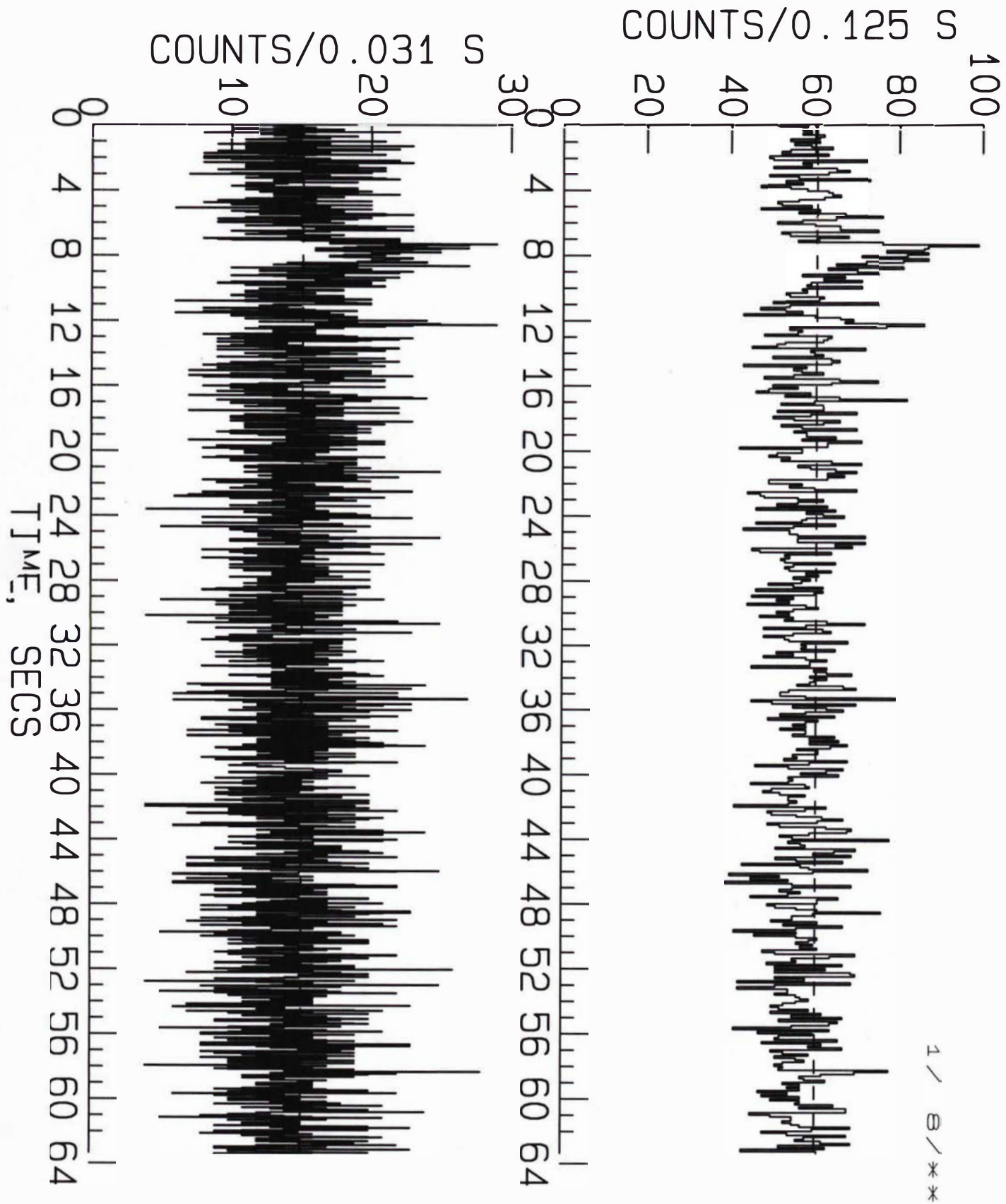


ULYSSES

10/12/99

Ttrig= 934.635

22- 150 keV

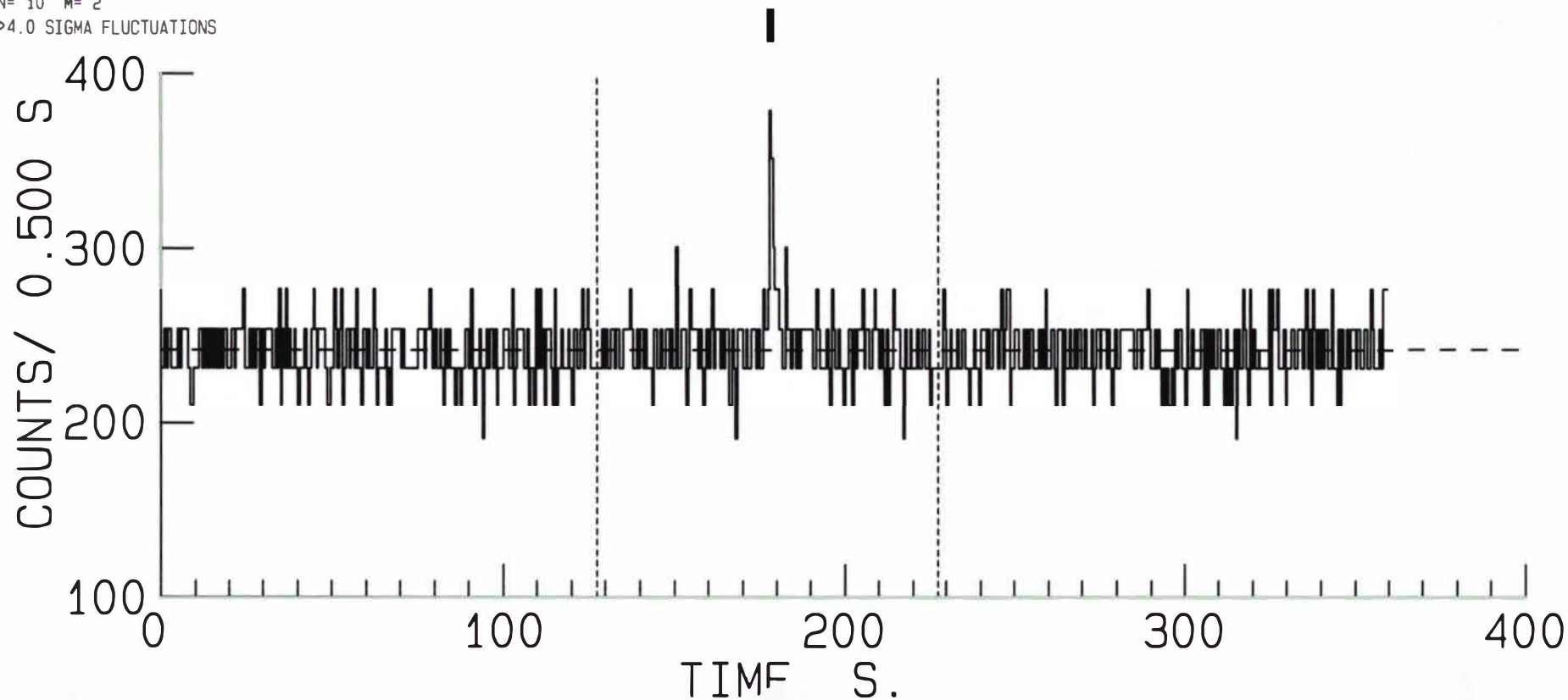


1 / 8 / **

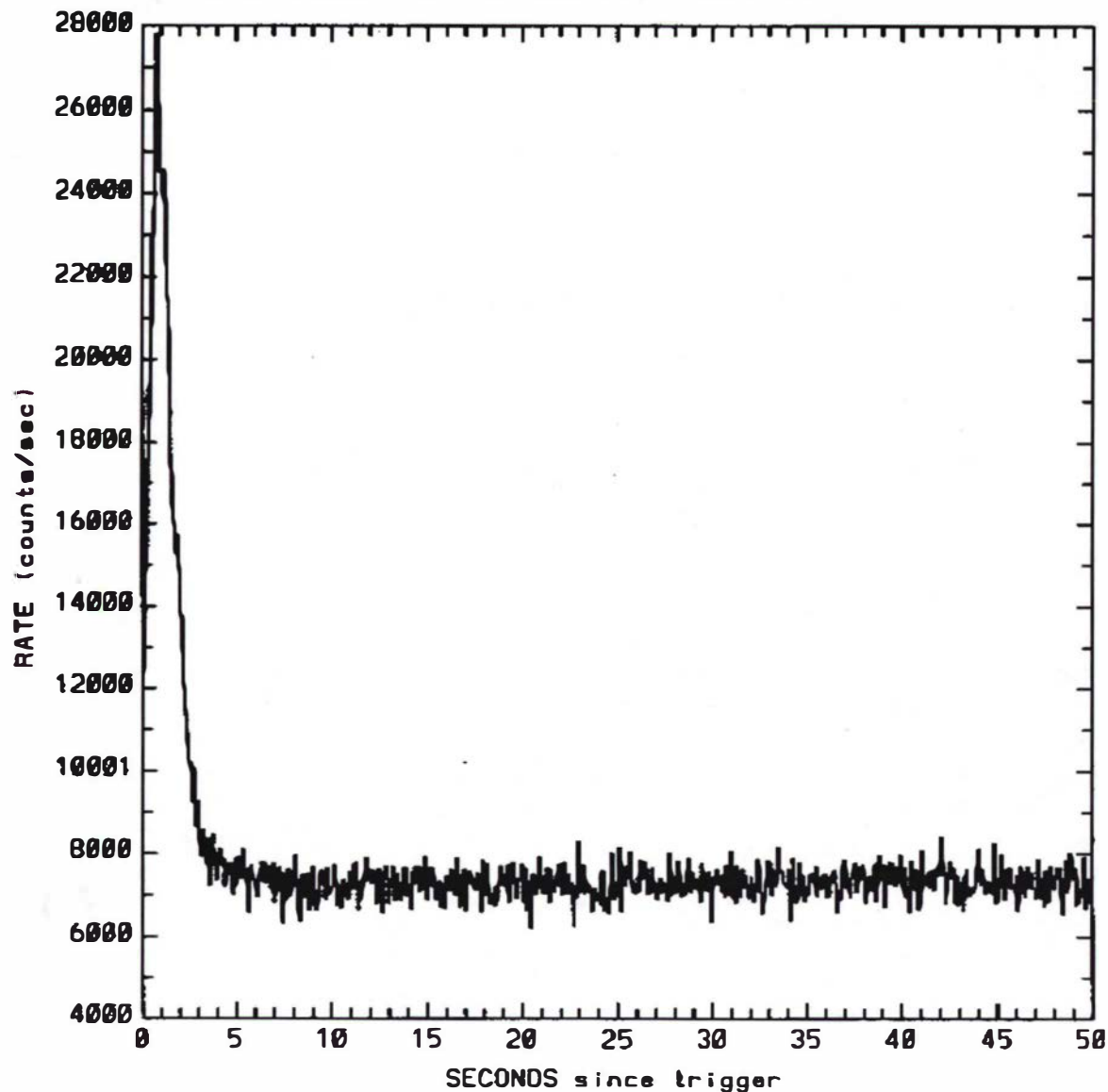
ULYSSES RT
10/12/99 756.495 s
22- 150 keV

1 / 8 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



MER Data for K. Hurley. No. 7898



22-JUN-2000 00:26:29

Created by MOPS BD
(Burst Display)
Version 12.26

Trigger # . 7898

Trigger Time:
11522 / 050.105

Burst Data Type:
MER

Deadtime
Corrected: N

Background Data
Type: CONT

Minimum Integ. Time:
0.064 second(s)

Detectors [7..0].
-6-4----

Channels.
[0 . 6]

Quality Mask.
BDISP1



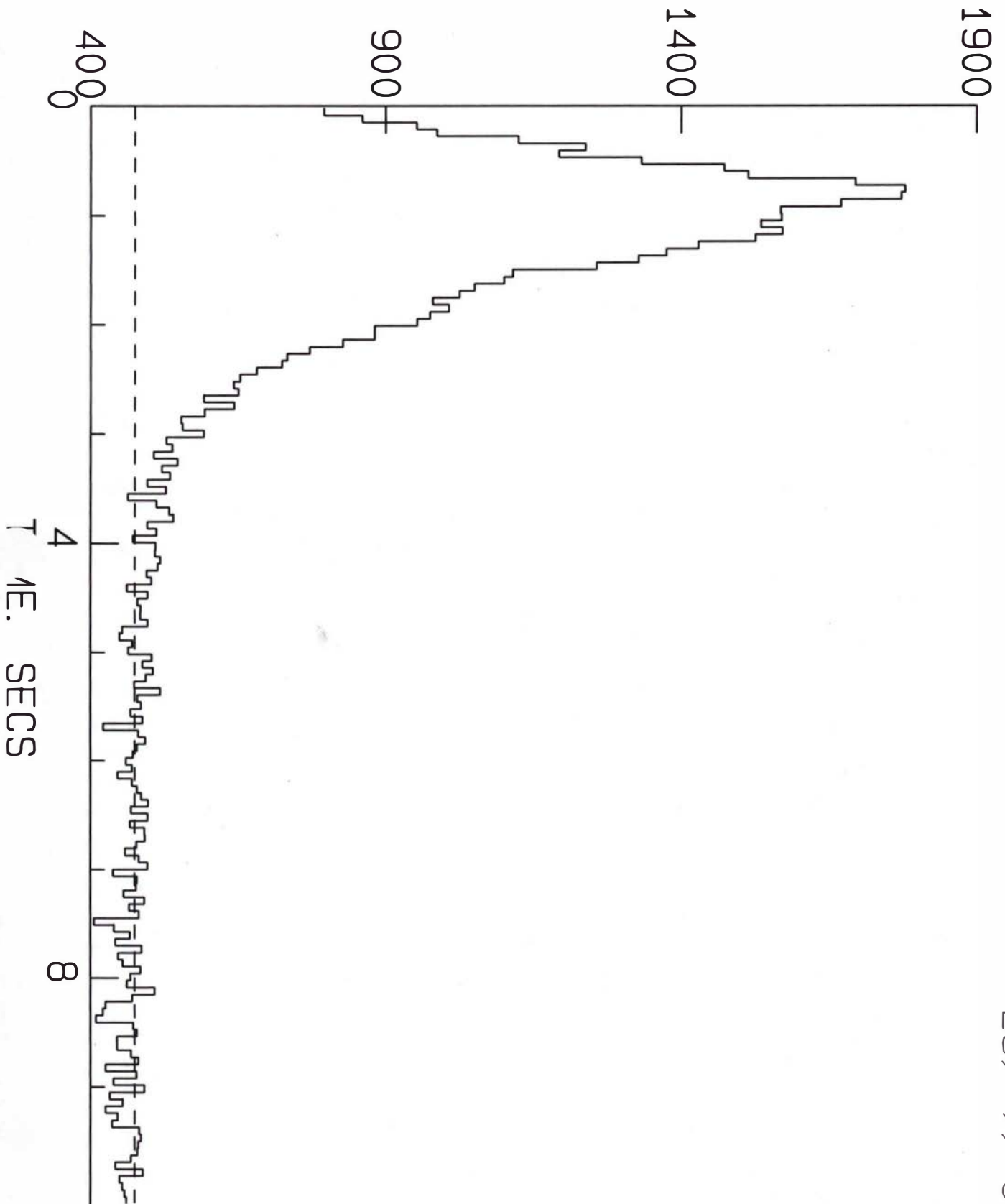
BATSE

10/12/99

850.105

25- 100 keV

COUNTS/0.064 S



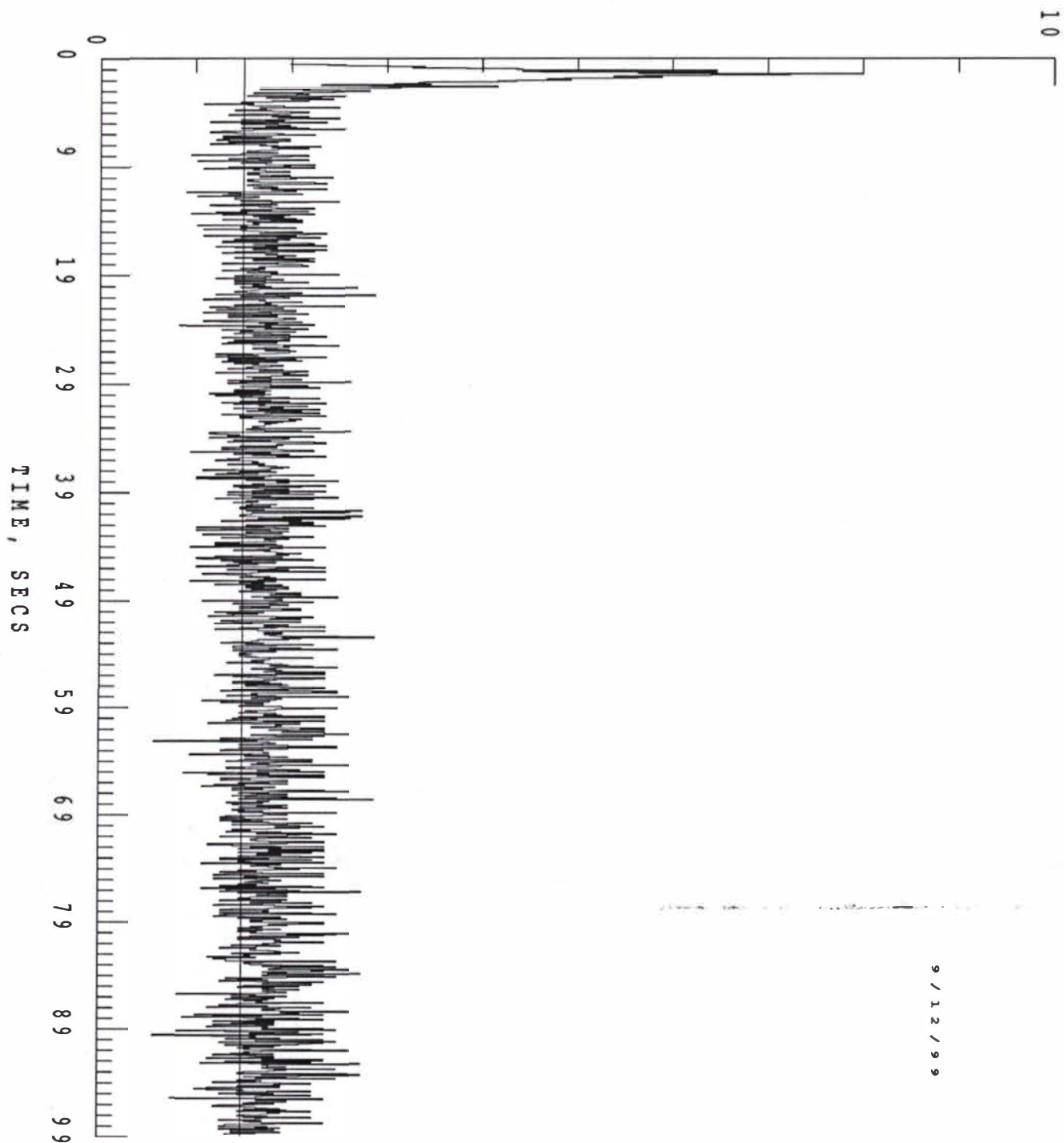
KONUS

10/12/99

851.684

50 - 200 keV

COUNTS/0.064 S



9 / 12 / 99

From RICHARDSON@fender.msfc.nasa.gov Mon Dec 13 11:02 PST 1999
From: RICHARDSON@fender.msfc.nasa.gov
Date: Mon, 13 Dec 1999 13:04:45 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7899

BATSEARCH PROGRAM

BATSE BURST # 7899
EVENT OF 1999 DEC 10 DAY OF YEAR=344
EVENT CROSSING TIME AT BATSE : 37684. S. OR 10:28:04.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 303.000 -46.000
BATSE PEAK COUNTING RATE: 6500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 10/12/ 99 IS:
RA= 166.033 DEC= -29.837 DIST= 4.308 AU
BATSE-ULYSSES DISTANCE = 644471249. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 85.26 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 177.49 SECS.
CROSSING TIME AT ULYSSES IS 37861. S. OR 10:31:01 +/- 424.65 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 10/12/ 99 IS:
RA= 313.378 DEC= -18.877 DIST= 1.728 AU
MARS-BATSE DISTANCE = 258564784. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=151.56 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -758.36 SECS.
CROSSING TIME AT MARS IS 36926. S. OR 10:15:25 +/- 59.81 SECONDS

BATSE BURST TRIGGER

NO.: 7899

TIME: TJD=1522 SECONDS=37684

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=33.3 AZIMUTH=168.0 ERROR=9.9 DEGREES

COMMENTS:

GRB. SHORT WEAK SINGLE SPIKE. DURATION APPROX. = 0.05 SEC.
NOT VISIBLE ABOVE 300KEV.

LOCATION CONSISTENT WITH THAT OF TRIGGER NUMBER 7898.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7899	991210	11522	37684	6500	303	-46	.05

BATSE BURST# 7899

ULYSSES RT

28 / 04 / 00

10 / 12 / 99 37440.363 s

0.500 S INTERVALS REGROUPED BY 2

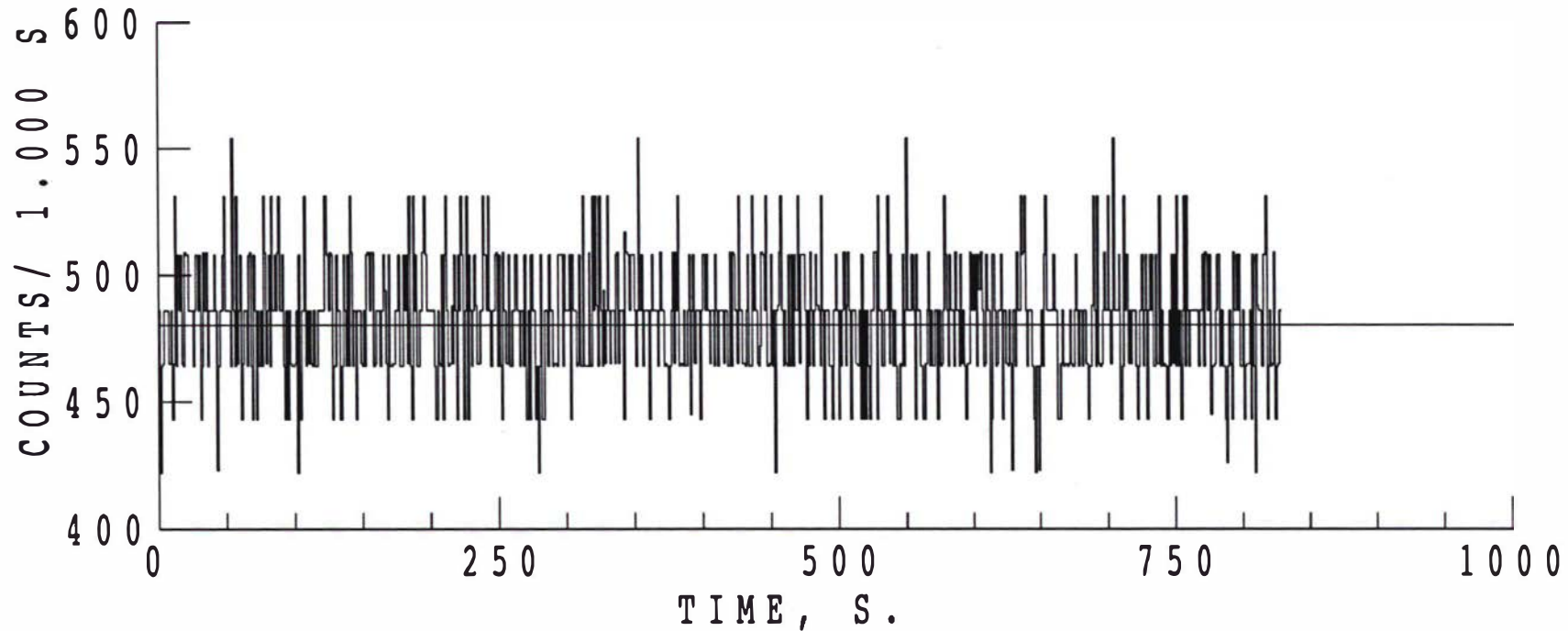
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From WOODSP@fender.msfc.nasa.gov Tue Dec 14 14:09 PST 1999
From: WOODSP@fender.msfc.nasa.gov
Date: Tue, 14 Dec 1999 16:15:49 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7900

BATSEARCH PROGRAM

BATSE BURST # 7900
EVENT OF 1999 DEC 10 DAY OF YEAR=344
EVENT CROSSING TIME AT BATSE : 54009. S. OR 15:00:09.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 294.000 -76.000
BATSE PEAK COUNTING RATE: 5200 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 10/12/ 99 IS:
RA= 166.031 DEC= -29.877 DIST= 4.305 AU
BATSE-ULYSSES DISTANCE = 643968909. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=110.75 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -761.01 SECS.
CROSSING TIME AT ULYSSES IS 53248. S. OR 14:47:27 +/- 387.19 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 10/12/ 99 IS:
RA= 313.378 DEC= -18.877 DIST= 1.728 AU
MARS-BATSE DISTANCE = 258564784. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=122.00 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -457.00 SECS.
CROSSING TIME AT MARS IS 53552. S. OR 14:52:31 +/- 120.05 SECONDS

BATSE BURST TRIGGER

NO.: 7900

TIME: TJD=1522 SECONDS=54009

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=50.0 AZIMUTH=128.8 ERROR=4.0 DEGREES

COMMENTS:

GRB LASTING ABOUT 120 SEC. FOUR DISTINCT PULSES. VISIBLE ABOVE
300 KEV. CYG X-1 SET AT T+24 SEC IN MODS 2 AND 6.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7900	991210	11522	54009	5200	294	-76	120

Date: Aug 2 '00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

- ☒ BATSE ephemeris for T_0 ?
- ☒ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data *N/A*

- ☐ Final, correct time used? (Files postmarked vw@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

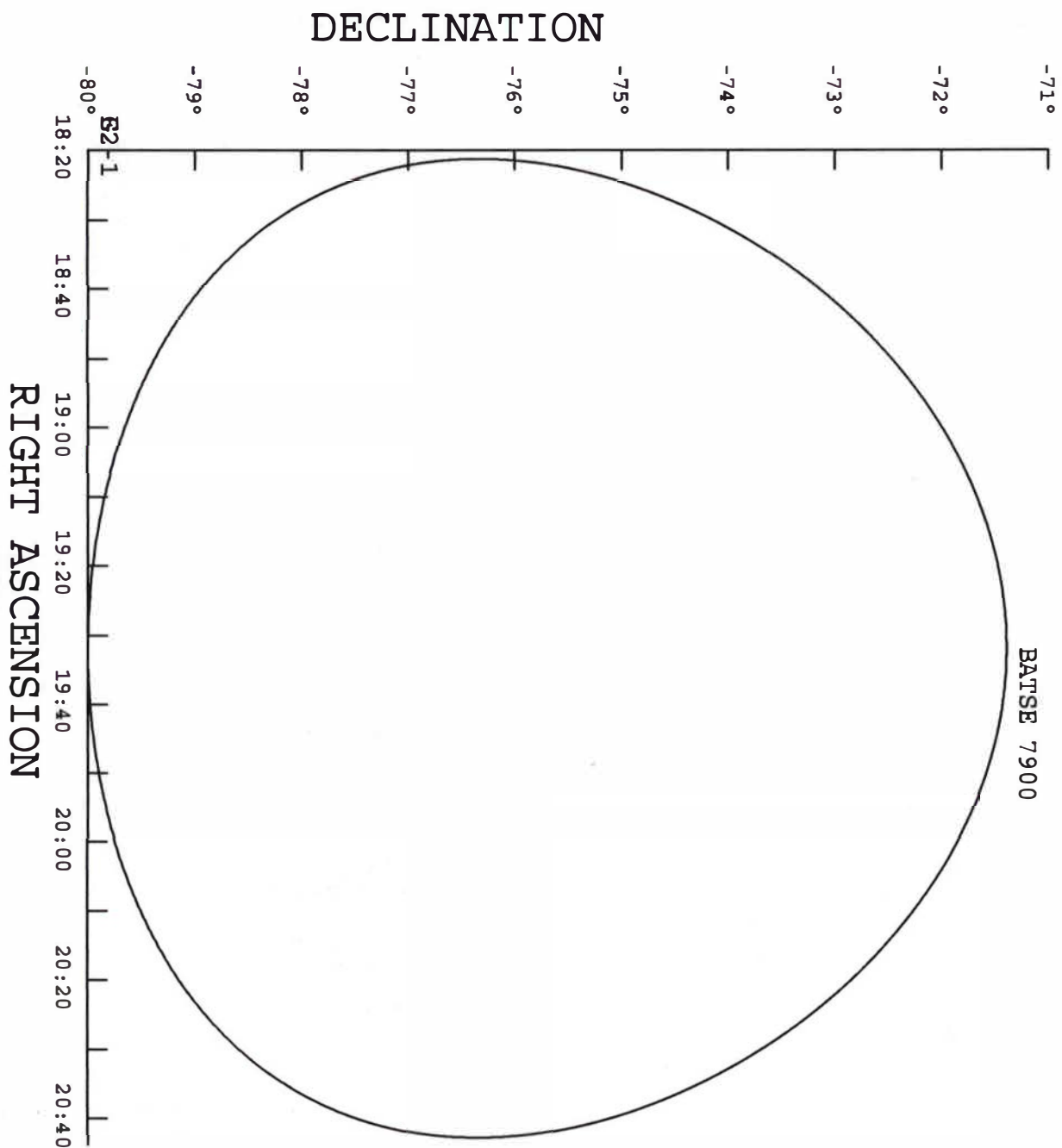
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

EVENT OF DEC 10, 1999 15:00

1 / 8 / 0



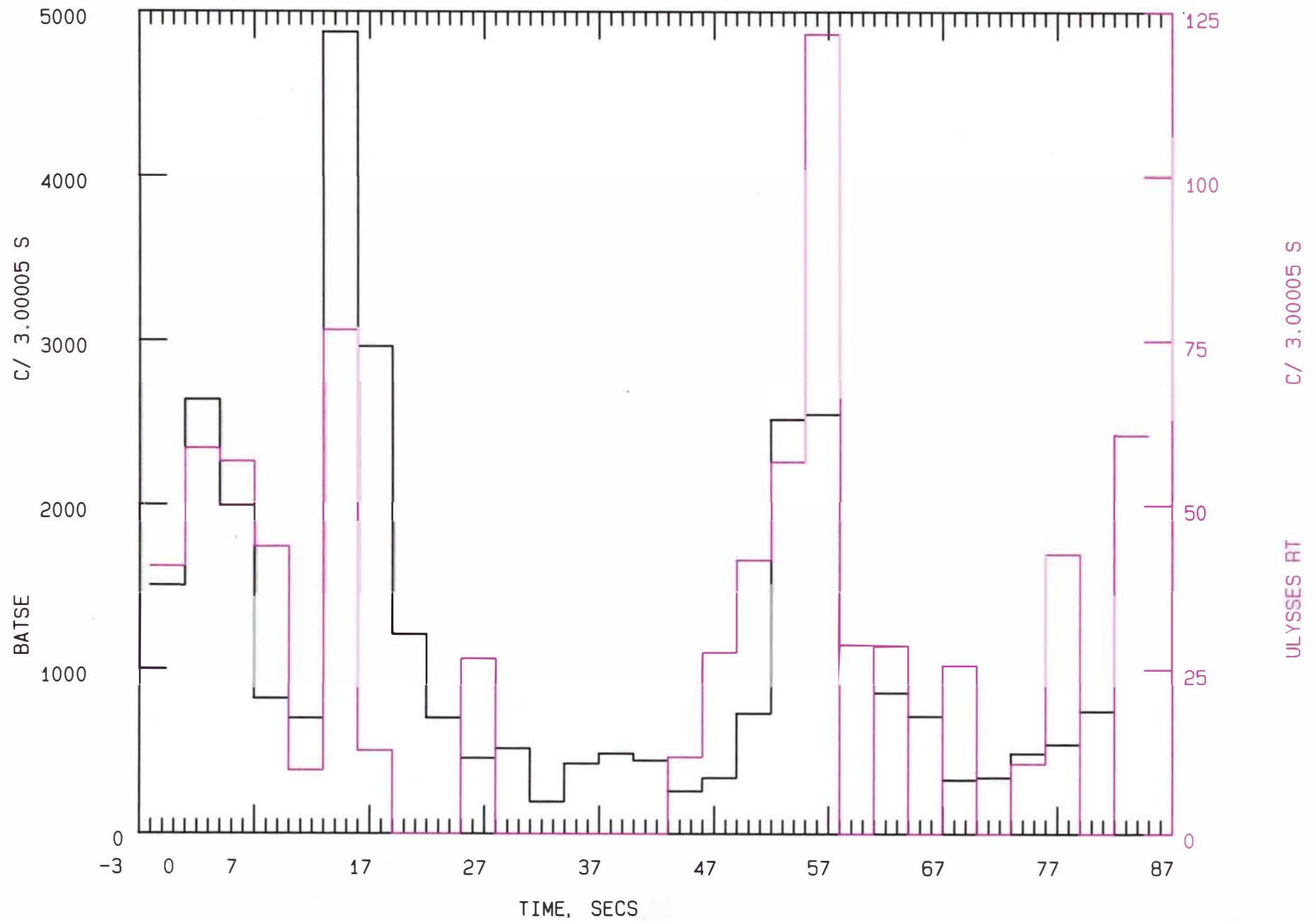
BATSE

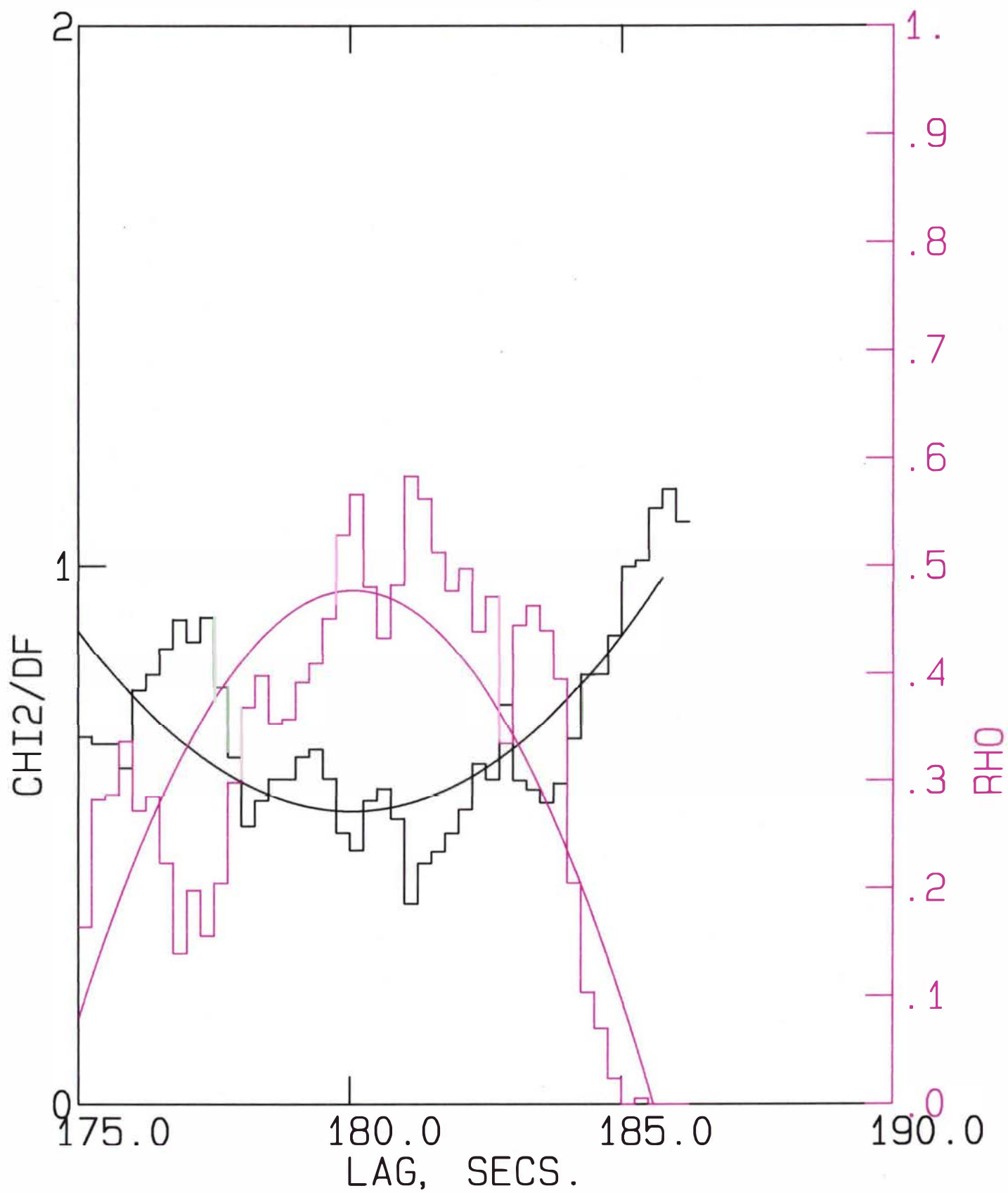
-ULYSSES RT CORRELATION

10/12/99

54009.081

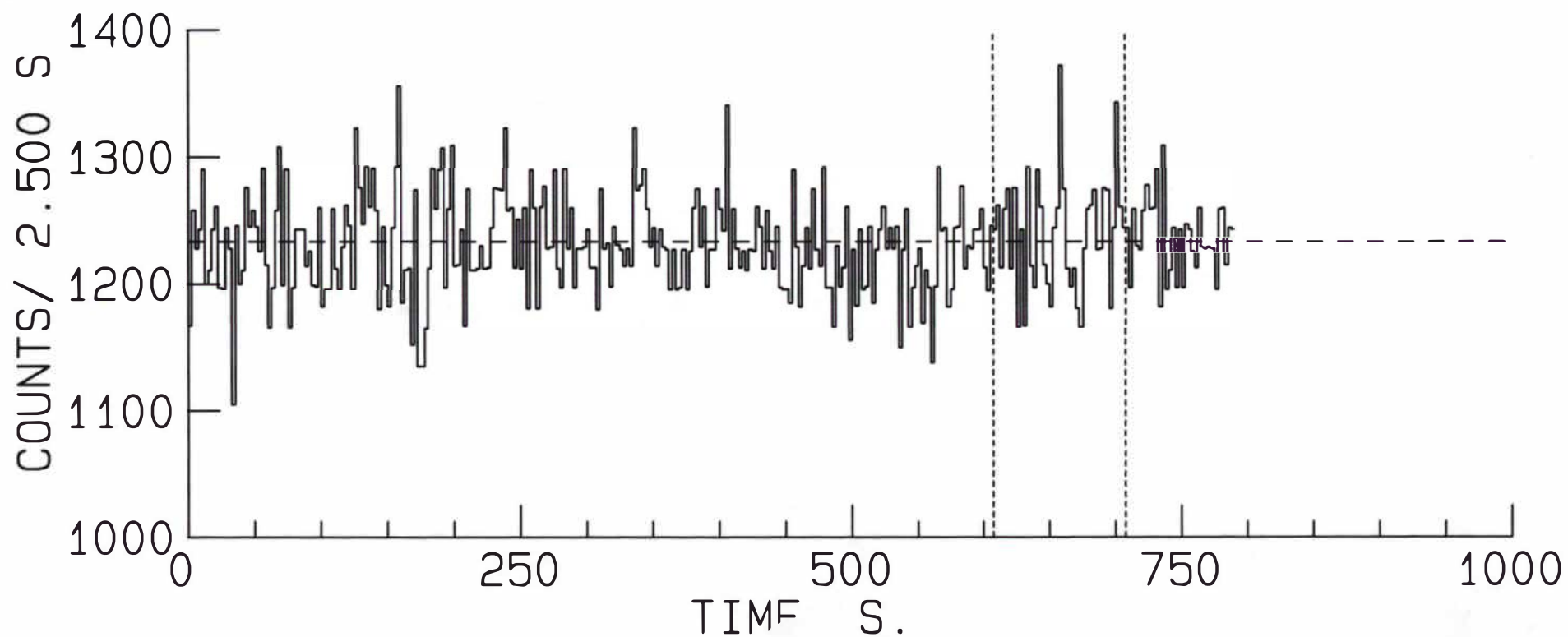
1/ 8/ 0



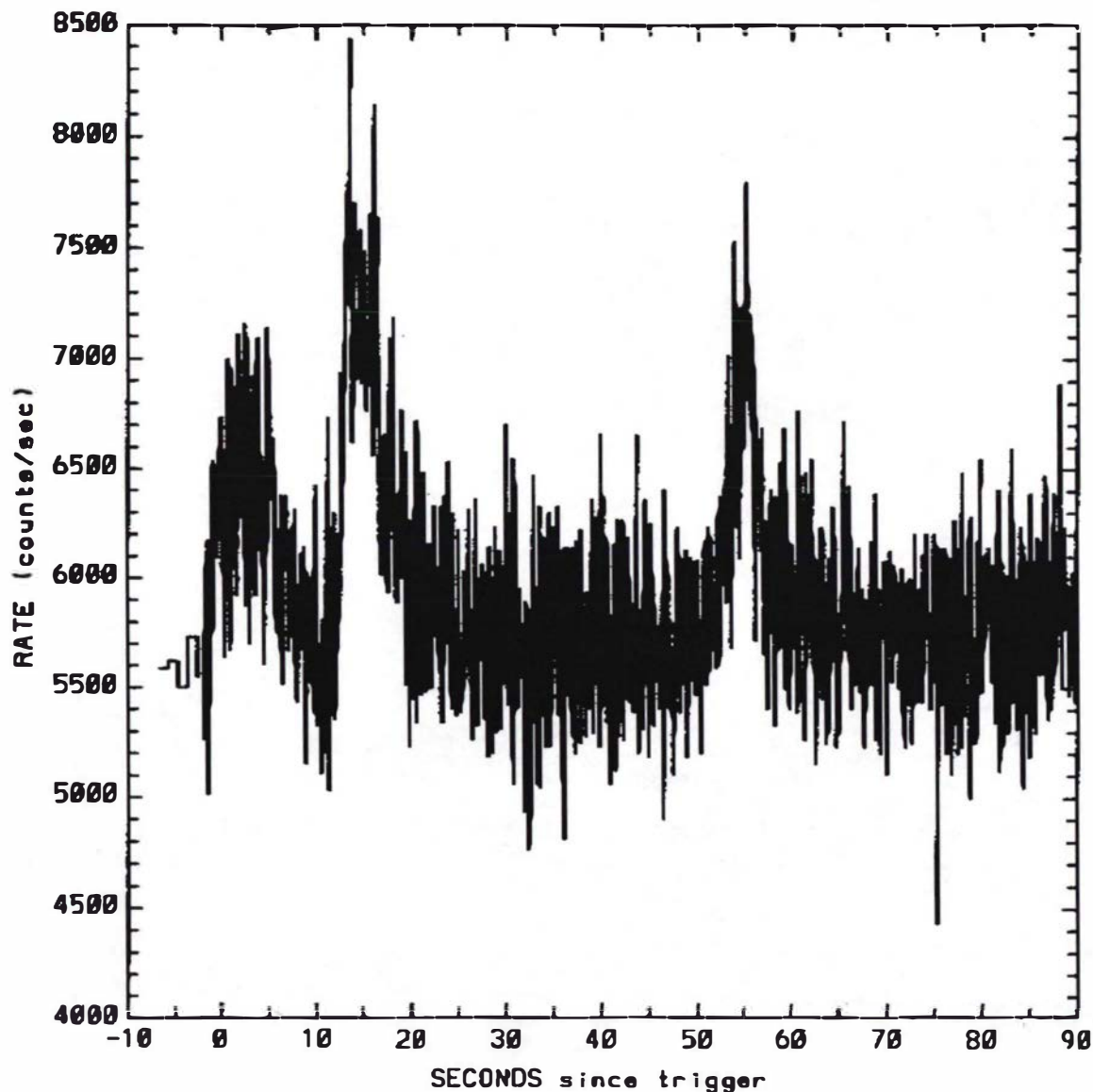


ULYSSES RT
10/12/99 52848.022 s
0.250 S INTERVALS REGROUPED BY 10
22- 150 keV

1 / 8 / 0



DISCSC Data for K. Hurley, No. 7900



22-JUN-2000 08:27:48

Created by MOPS 8D
(Burst Display)
Version 12.26

Trigger * . 7900

Trigger Time:
11522 / 54079.001

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 seconds

Detectors [7..8]:
---4---8

Discriminators:
[1 . 2]

Quality Mask:
BDISP1

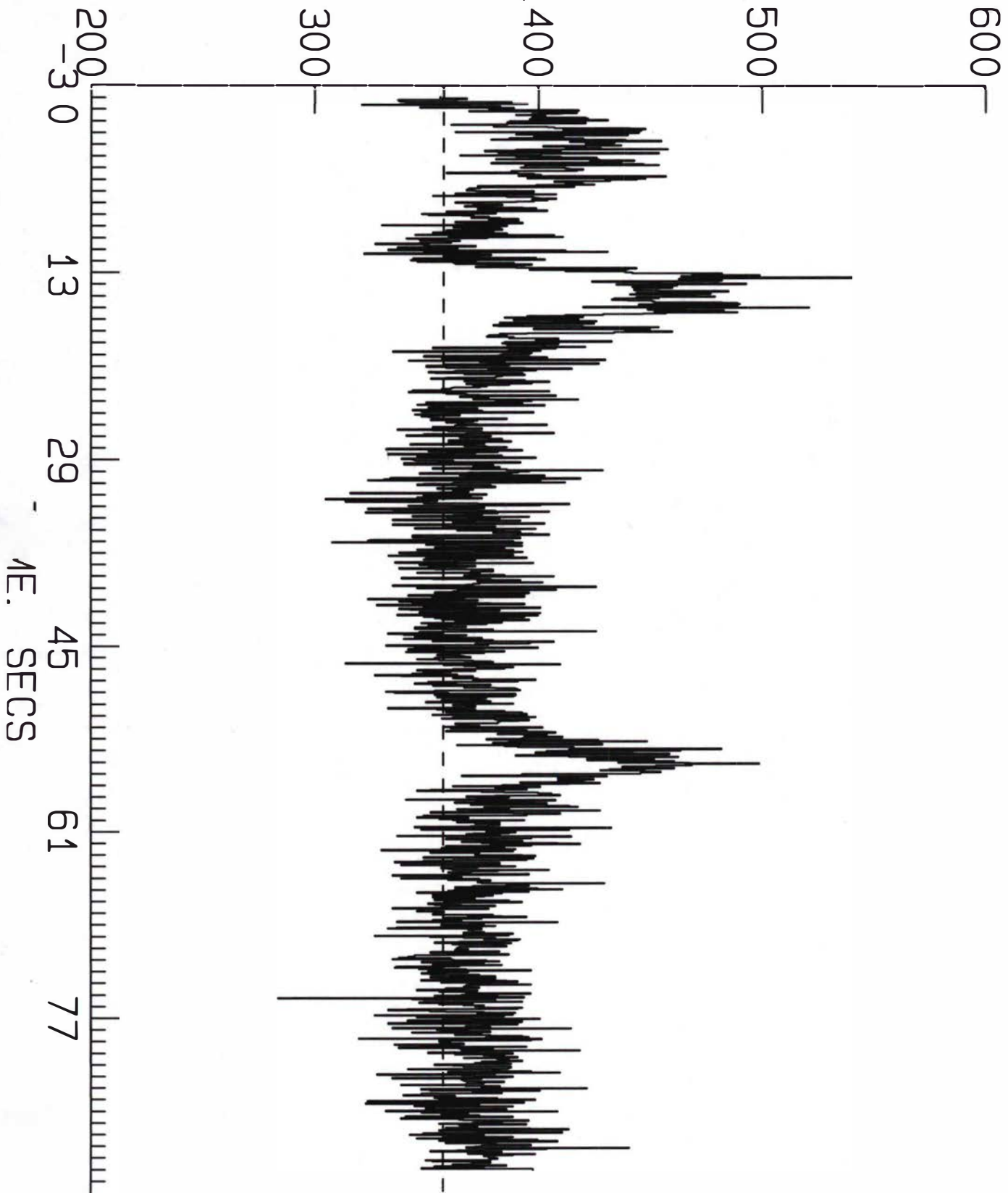
BATSE

10/12/99

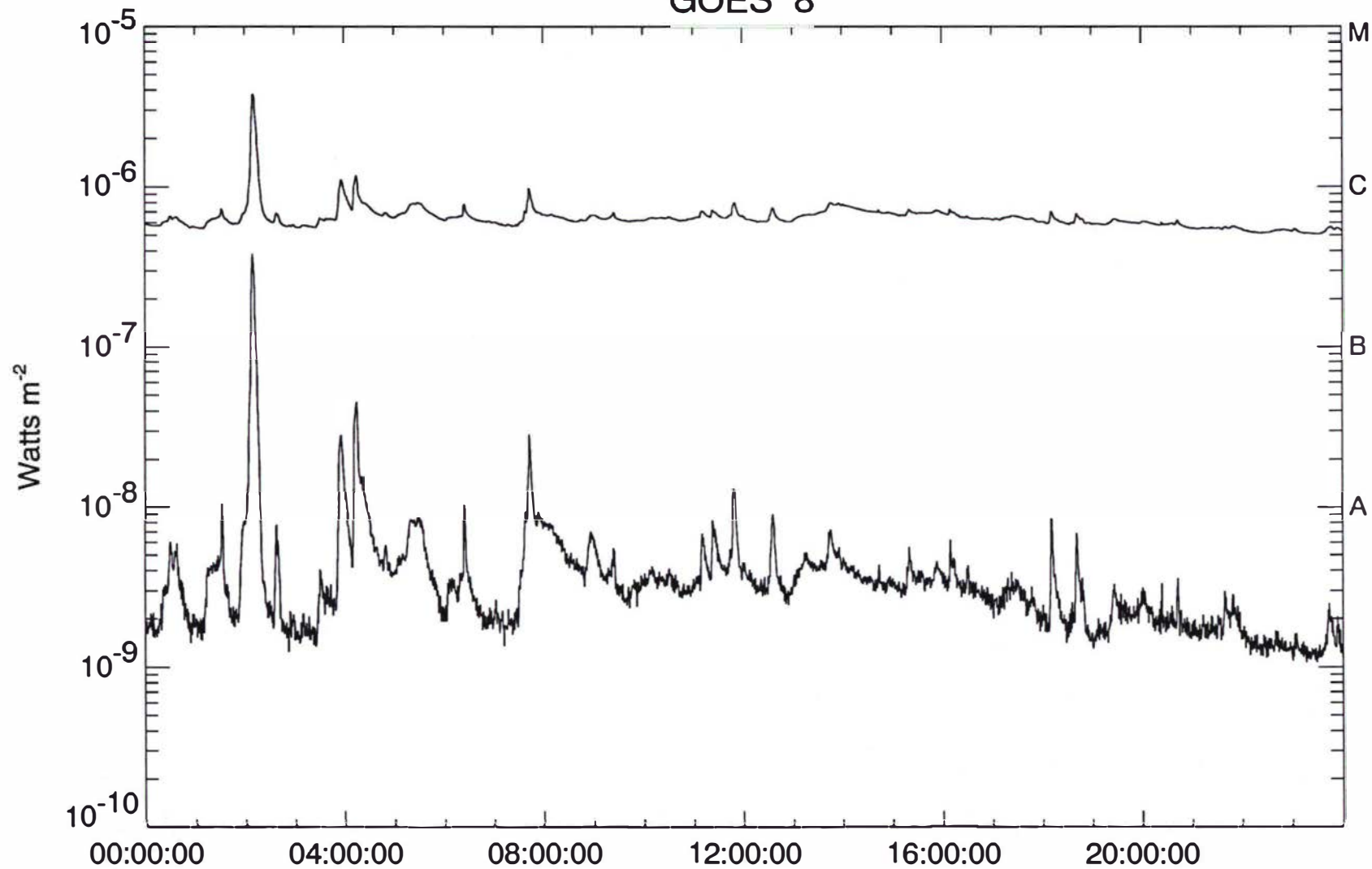
54009.081

25- 100 keV

COUNTS/0.064 S



GOES 8



Data Start: 99/12/10, 0000:00

Plot created: 99/12/14, 1008

Channel

1 (1.0 - 8.0 Angstroms)

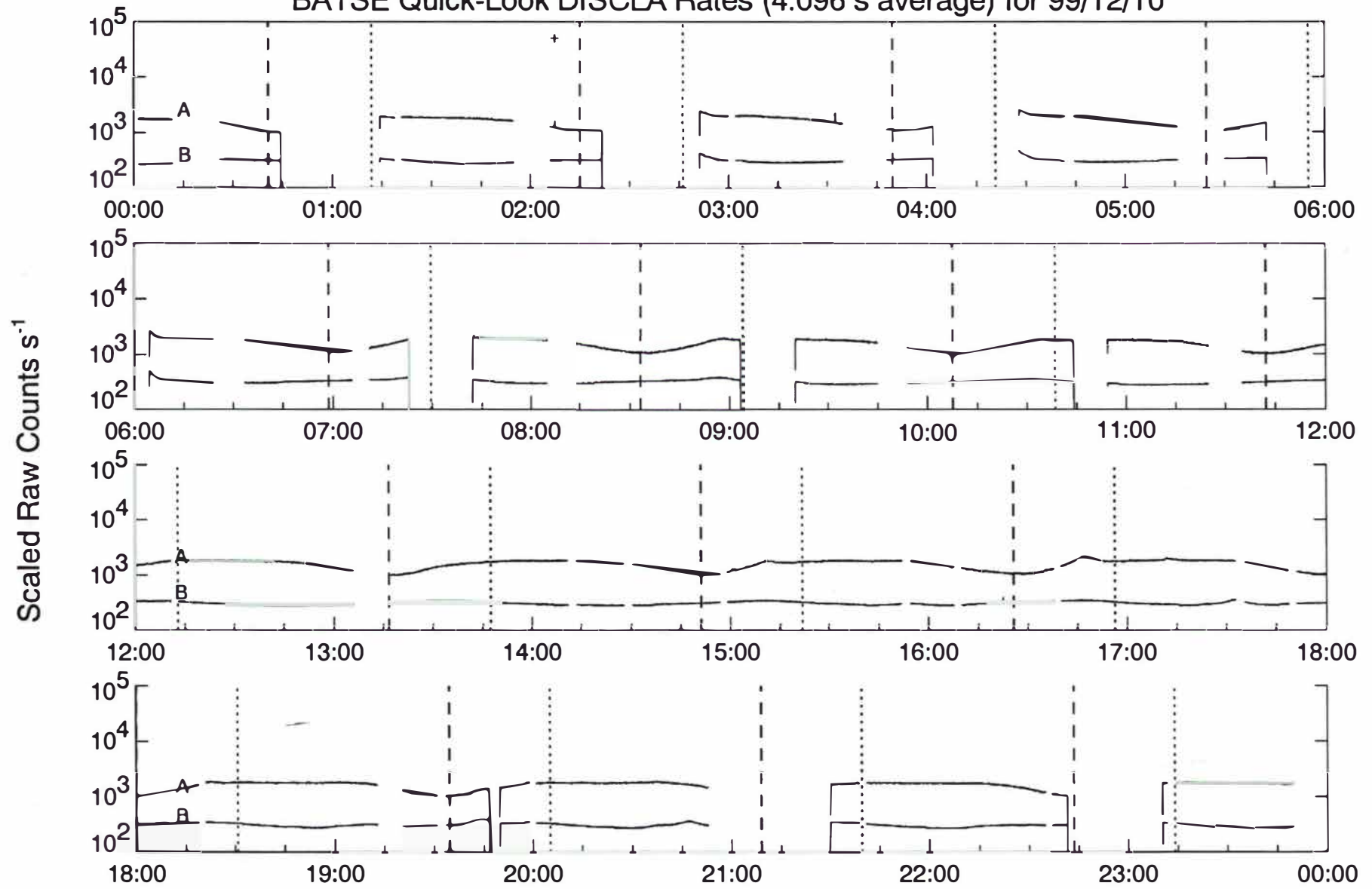
Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/10

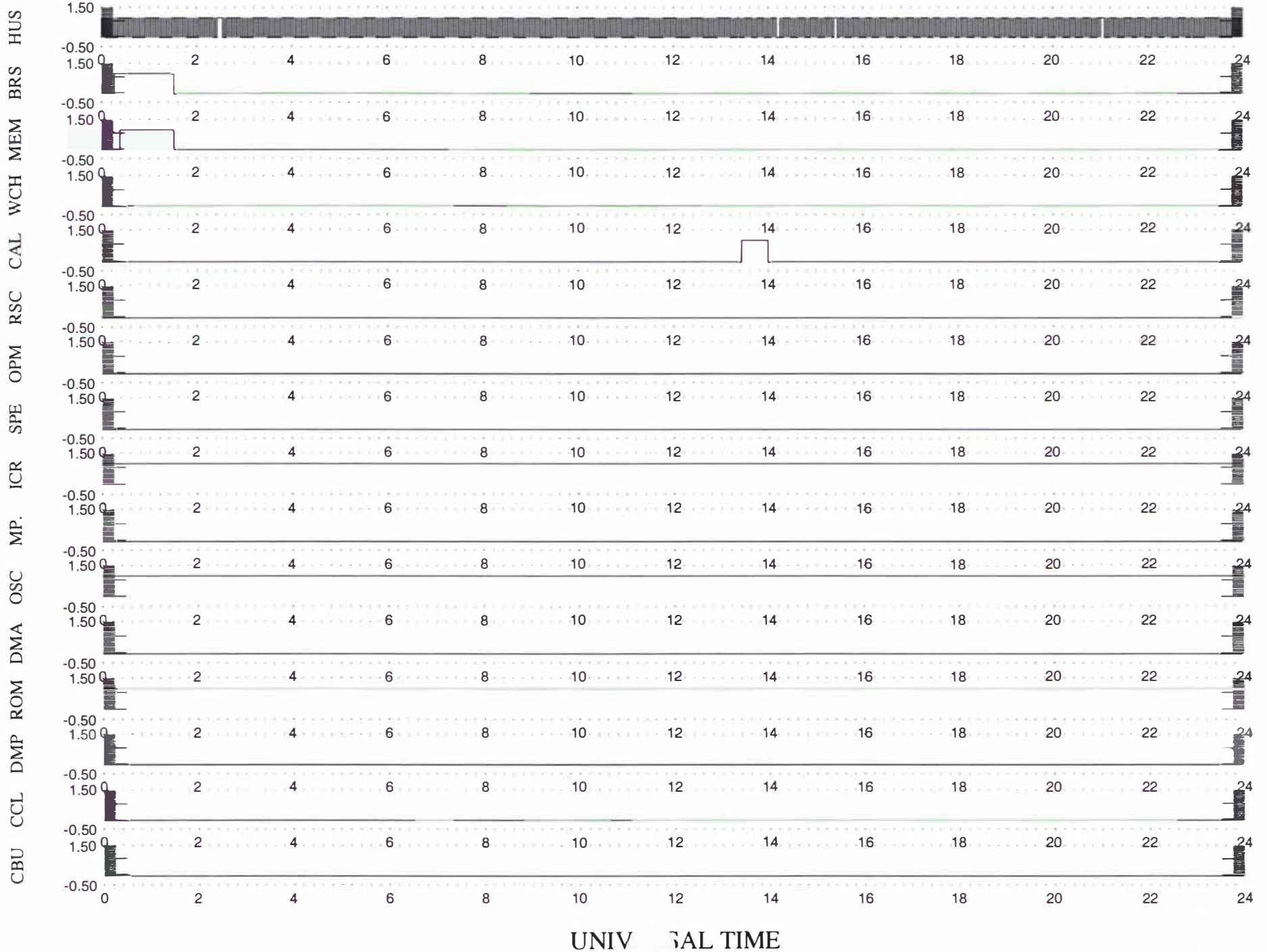


Current Time: 99/12/14, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

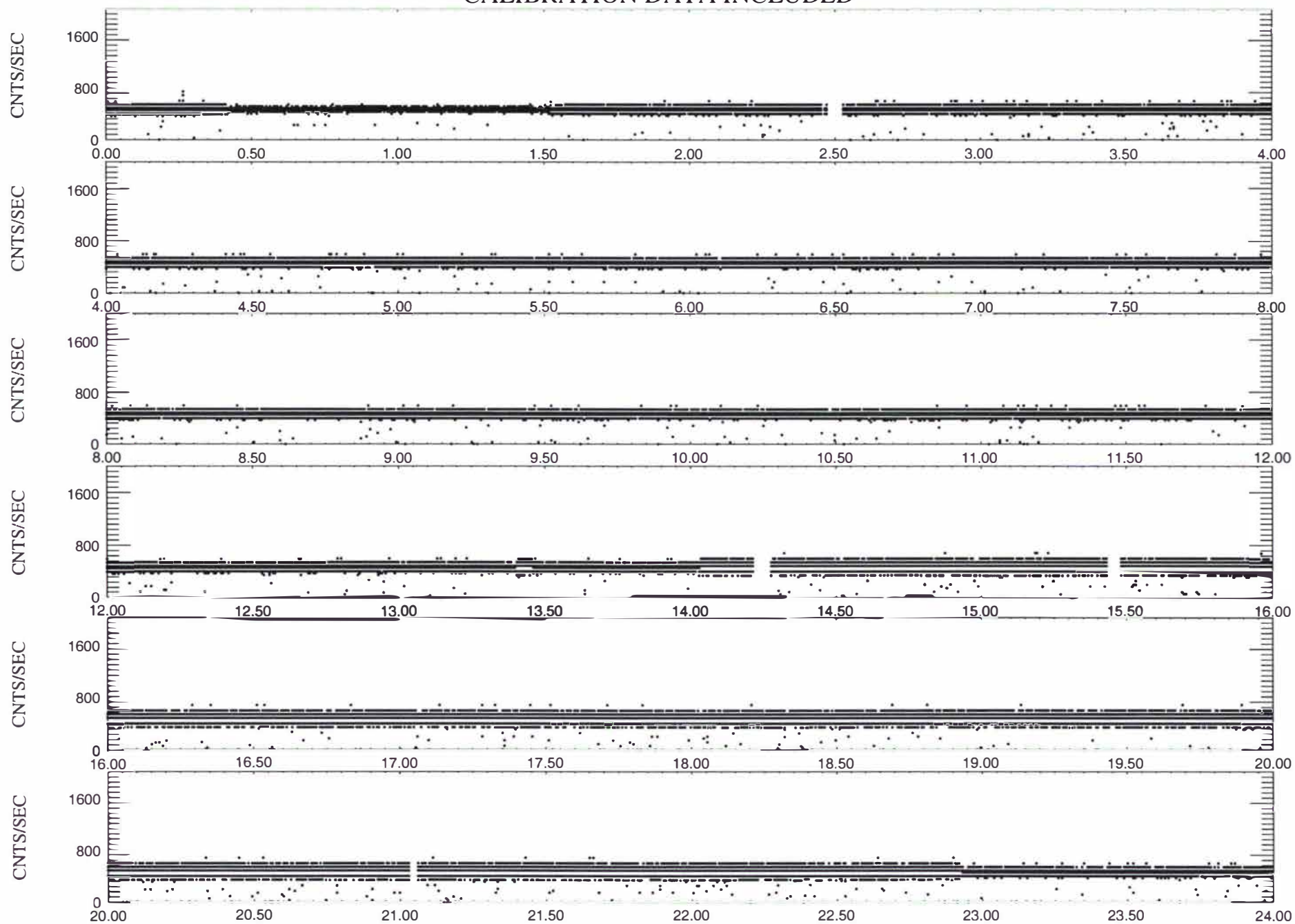
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

BURST NUMBER 8

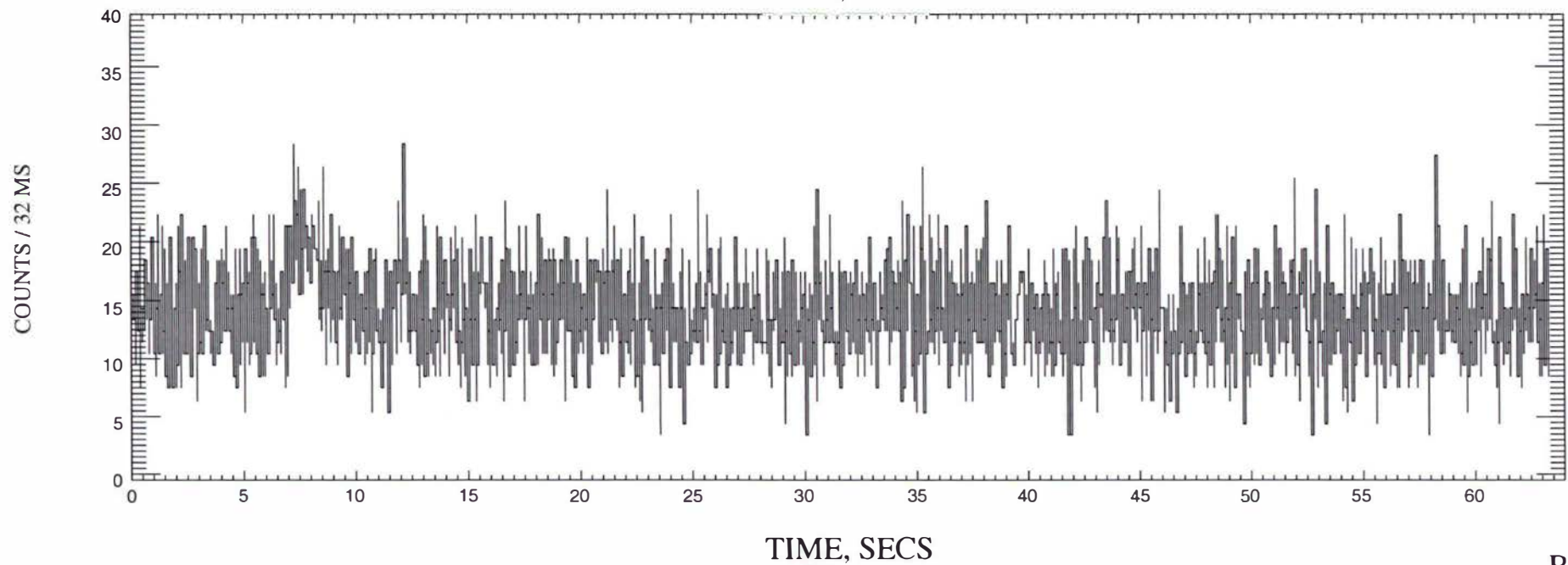
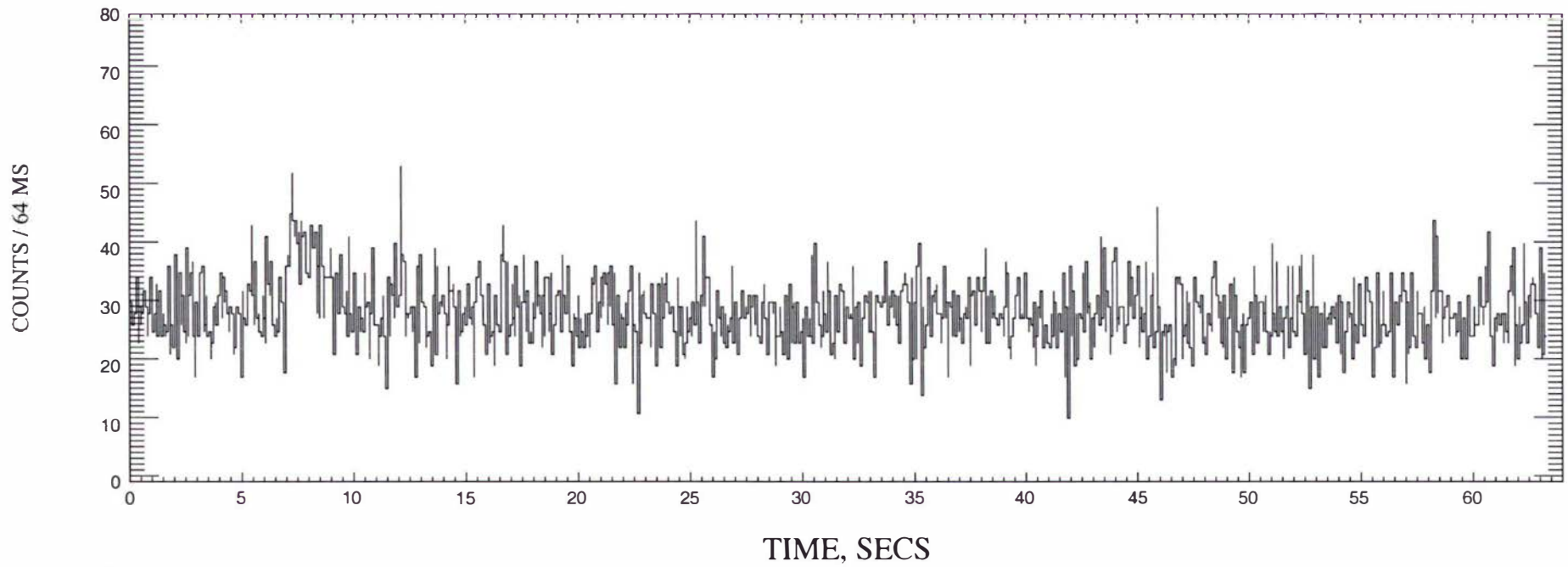


CALIBRATION DATA INCLUDED

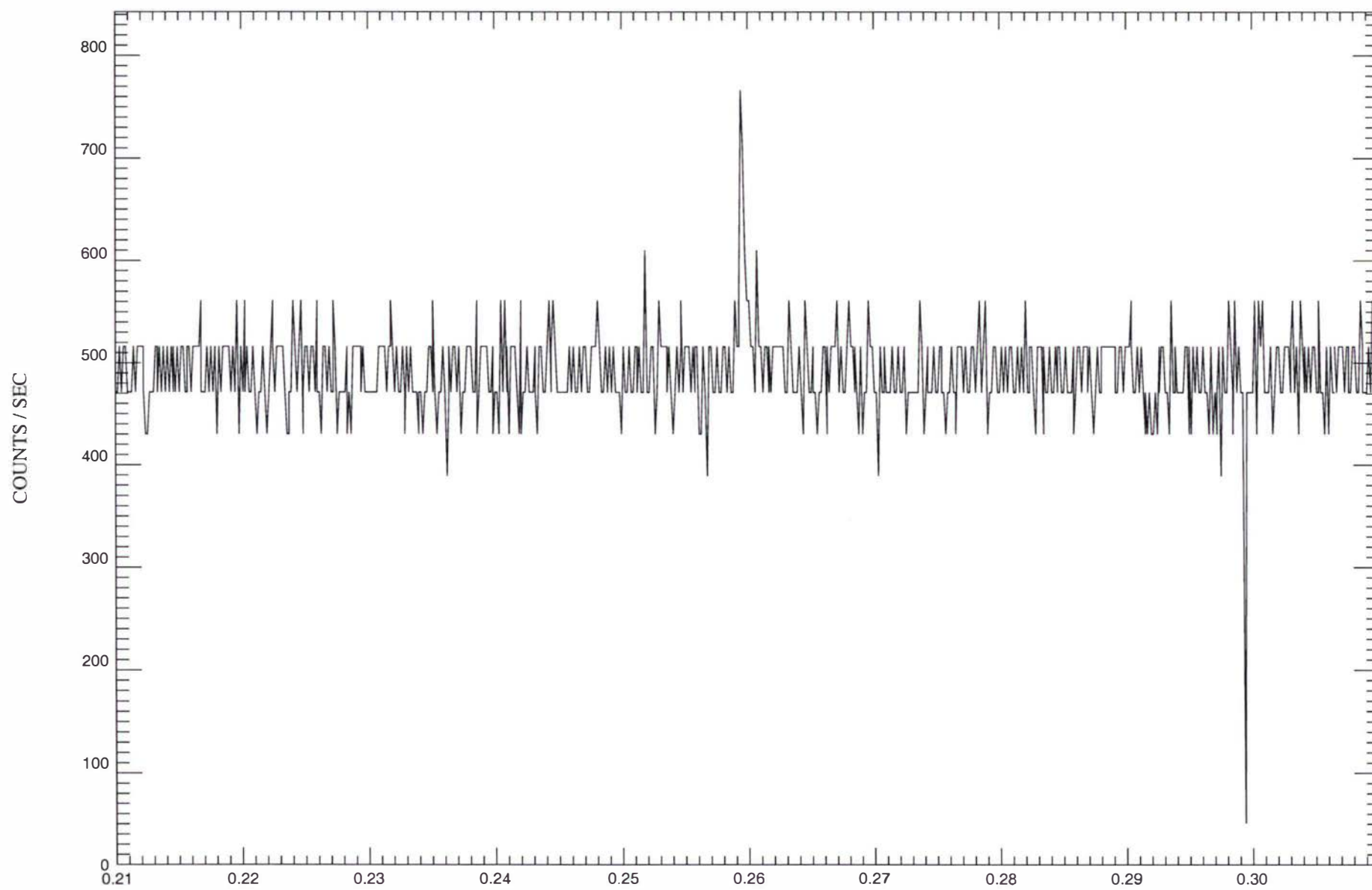


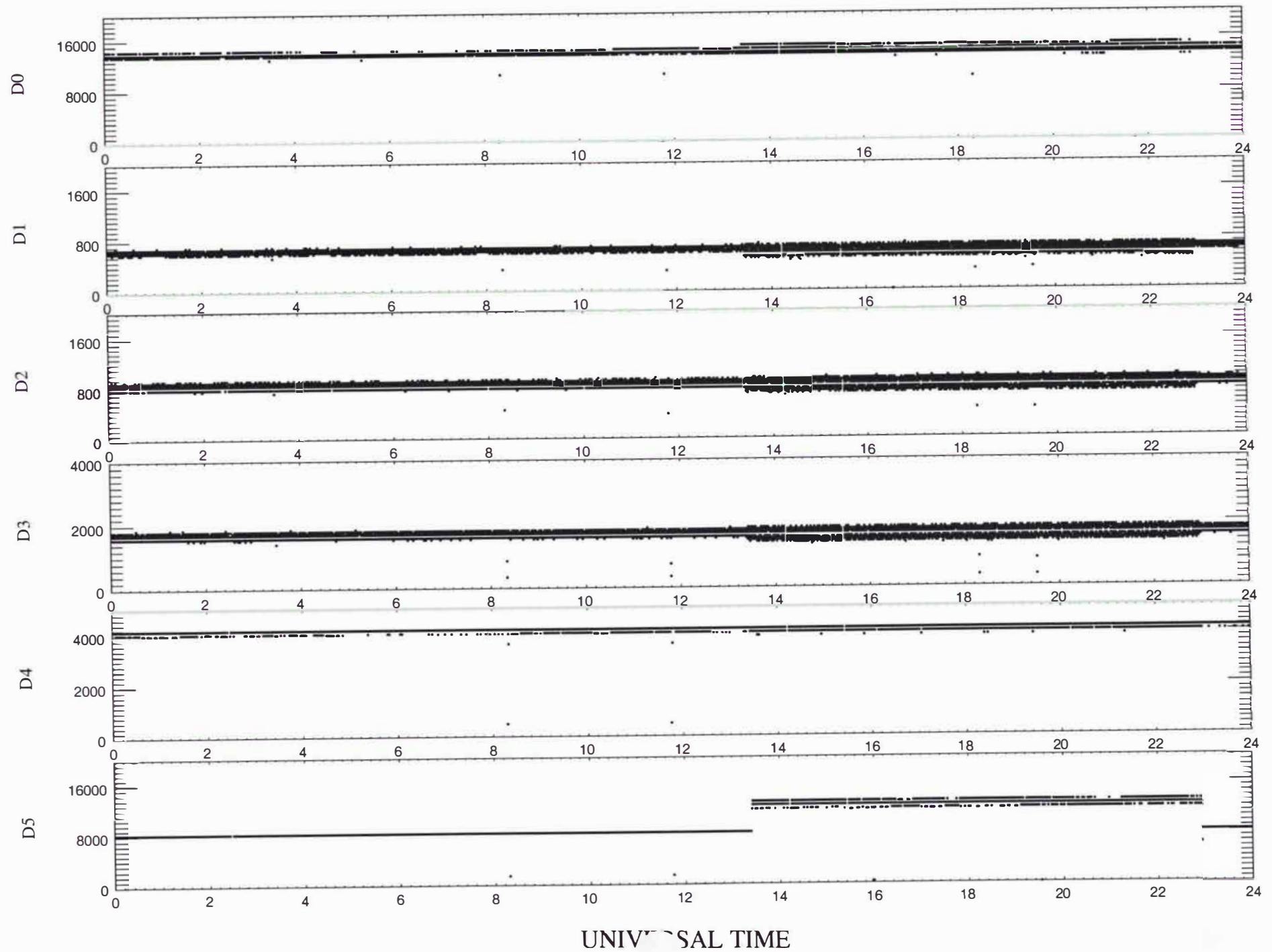
UNIV SAL TIME

Burst Counter 8 at UT= 0.259610917833 h= 934.599 s 00:15:34.599



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Thu Dec 16 12:17 PST 1999
From: HENZE@fender.msfc.nasa.gov
Date: Thu, 16 Dec 1999 14:26:38 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7901

BATSEARCH PROGRAM

BATSE BURST # 7901
EVENT OF 1999 DEC 11 DAY OF YEAR=345
EVENT CROSSING TIME AT BATSE : 16481. S. OR 04:34:41.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 215.000 12.000
BATSE PEAK COUNTING RATE: 30000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 11/12/ 99 IS:
RA= 166.023 DEC= -29.998 DIST= 4.294 AU
BATSE-ULYSSES DISTANCE = 642439062. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=116.88 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -968.74 SECS.
CROSSING TIME AT ULYSSES IS 15512. S. OR 04:18:32 +/- 367.15 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 11/12/ 99 IS:
RA= 314.159 DEC= -18.654 DIST= 1.734 AU
MARS-BATSE DISTANCE = 259366000. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 77.64 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 185.16 SECS.
CROSSING TIME AT MARS IS 16666. S. OR 04:37:46 +/- 149.54 SECONDS

BATSE BURST TRIGGER

NO.: 7901

TIME: TJD=1523 SECONDS=16481

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 63.9 AZIMUTH= 0.4 ERROR= 6.1 DEGREES

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7901	991211	11523	16481	30000	215	+12	.3

Date: Aug 2 '00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data *N/A*

- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☒ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. BATSE Data

- ☒ BATSE ephemeris for T_0 ?
- ☒ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data

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

☒ BATSE >100 keV data used for NEAR correlation?

☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

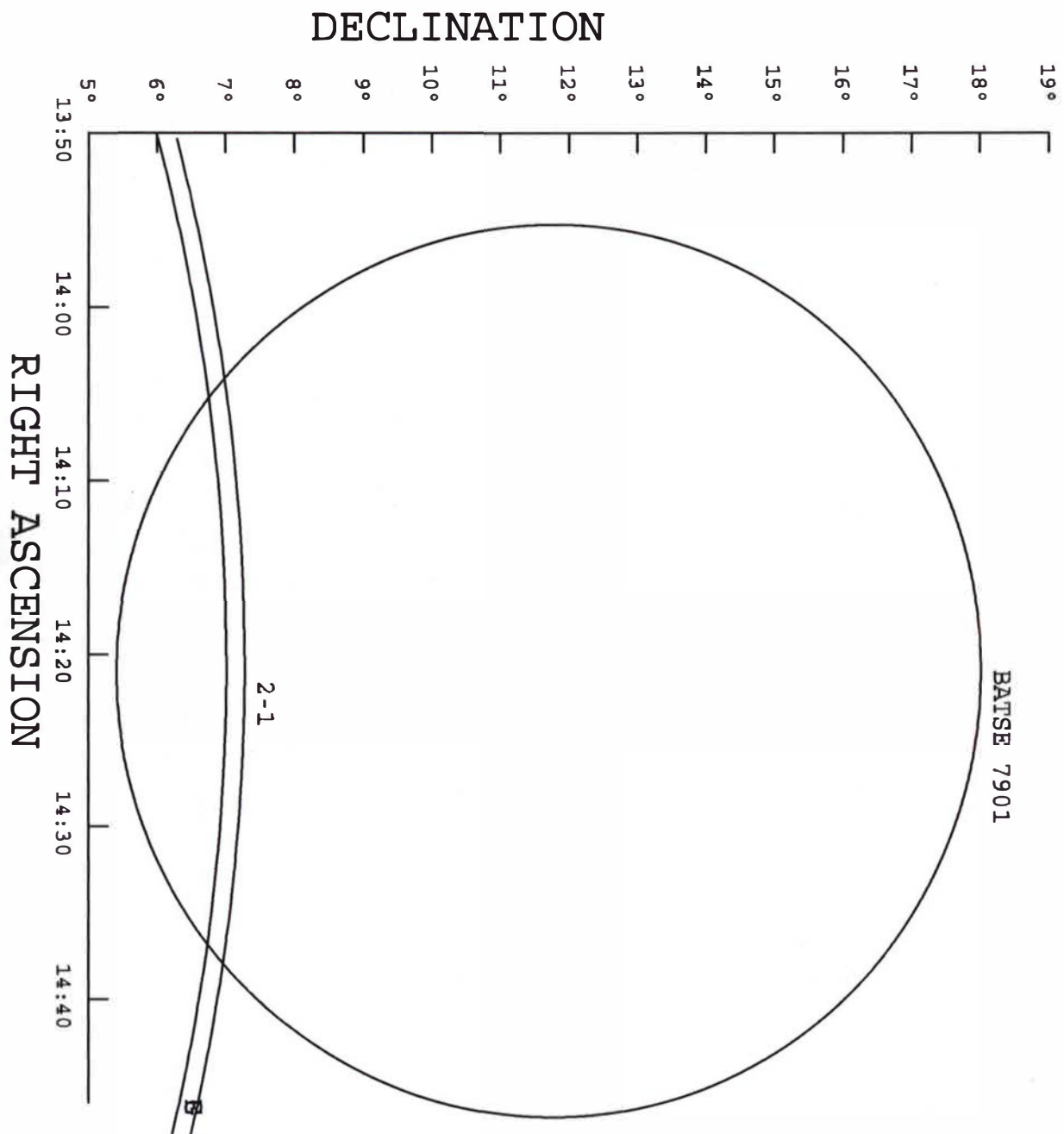
G=GALACTIC EQUATOR

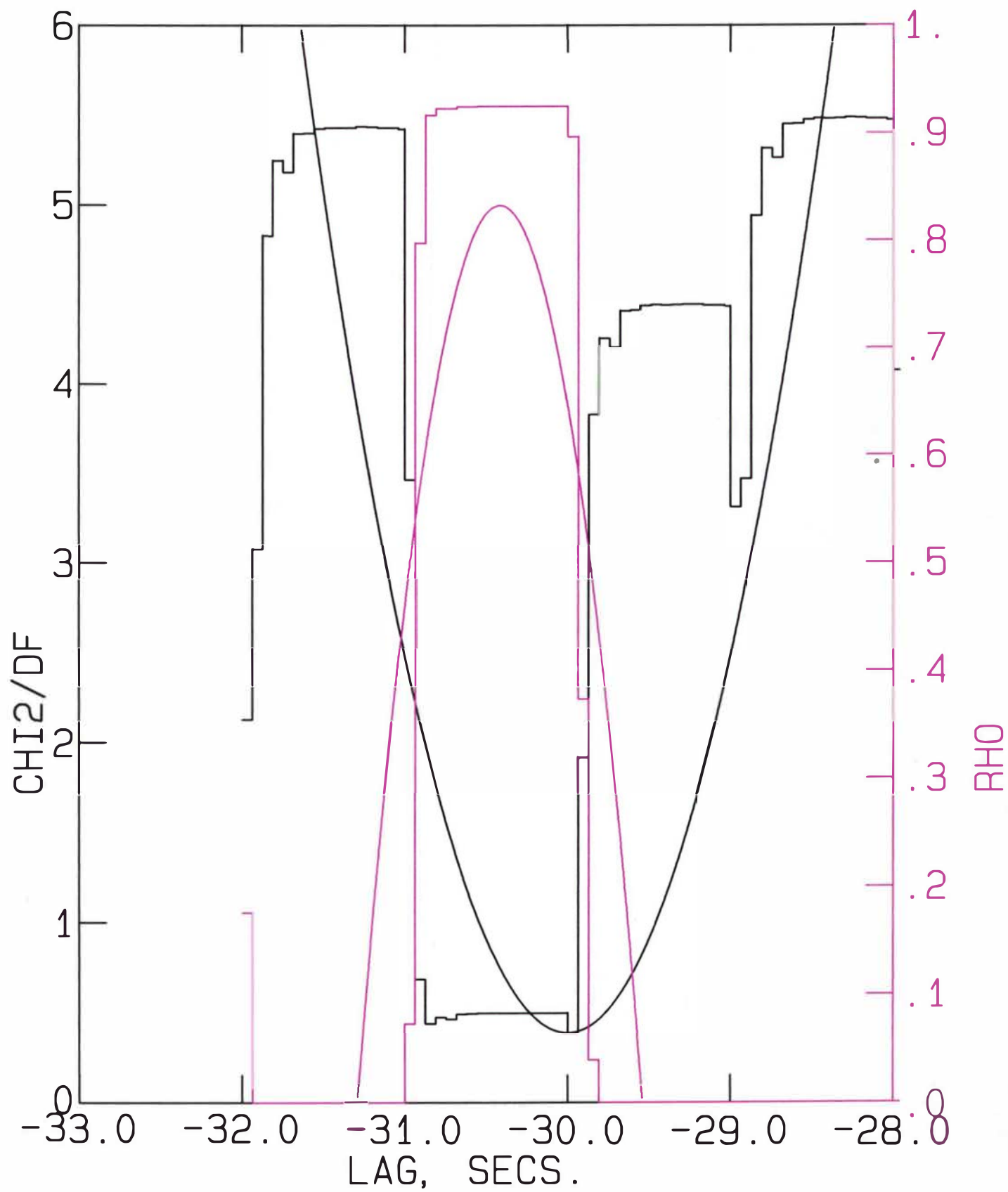
1 BATSE

2 NEAR

EVENT OF DEC 11, 1999 4:34

1/ 8/ 0





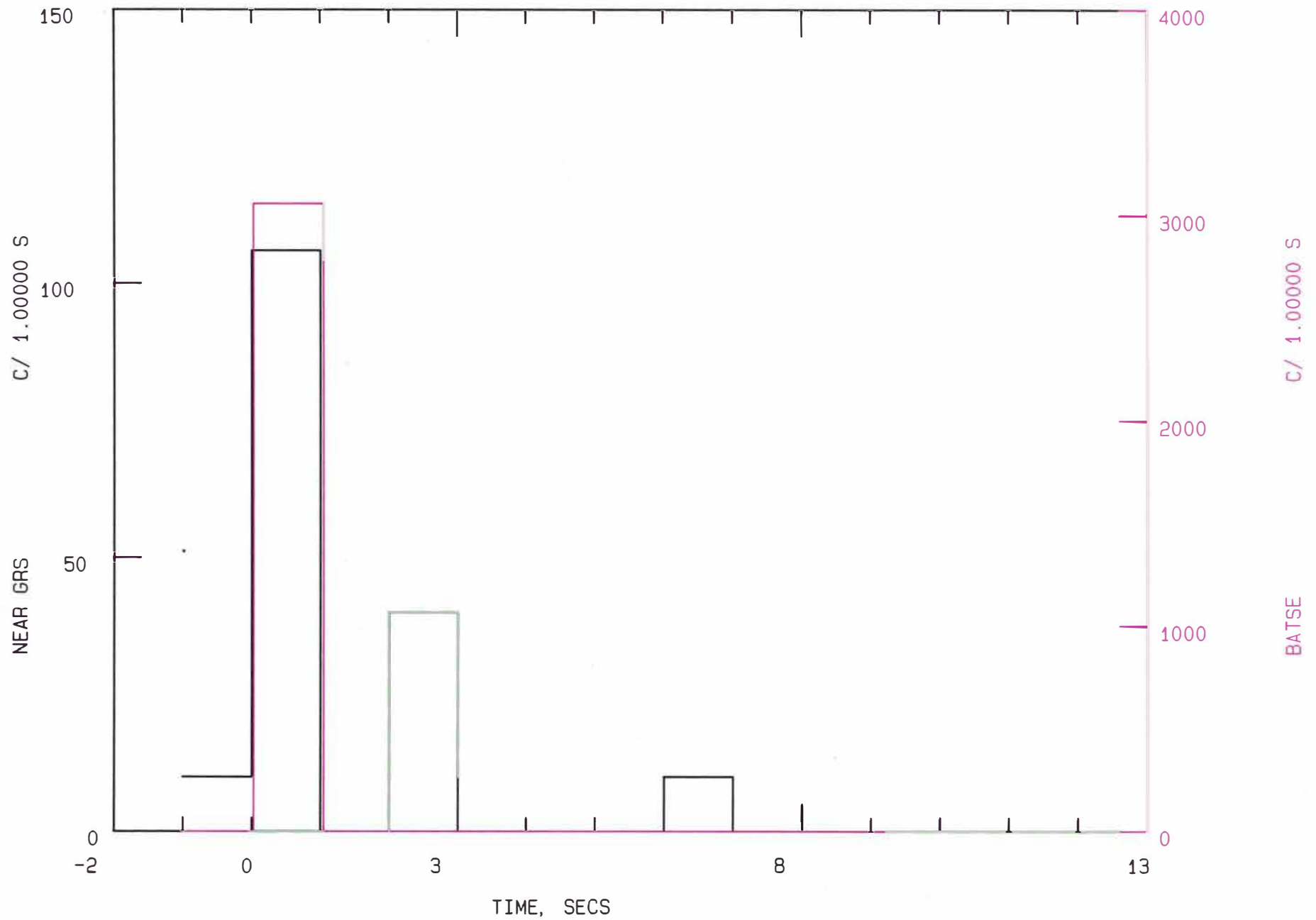
NEAR GRS -BATSE

CORRELATION

11/12/99

15657.028

1/ 8/ 0



BATSE BURST# 7901

ULYSSES RT

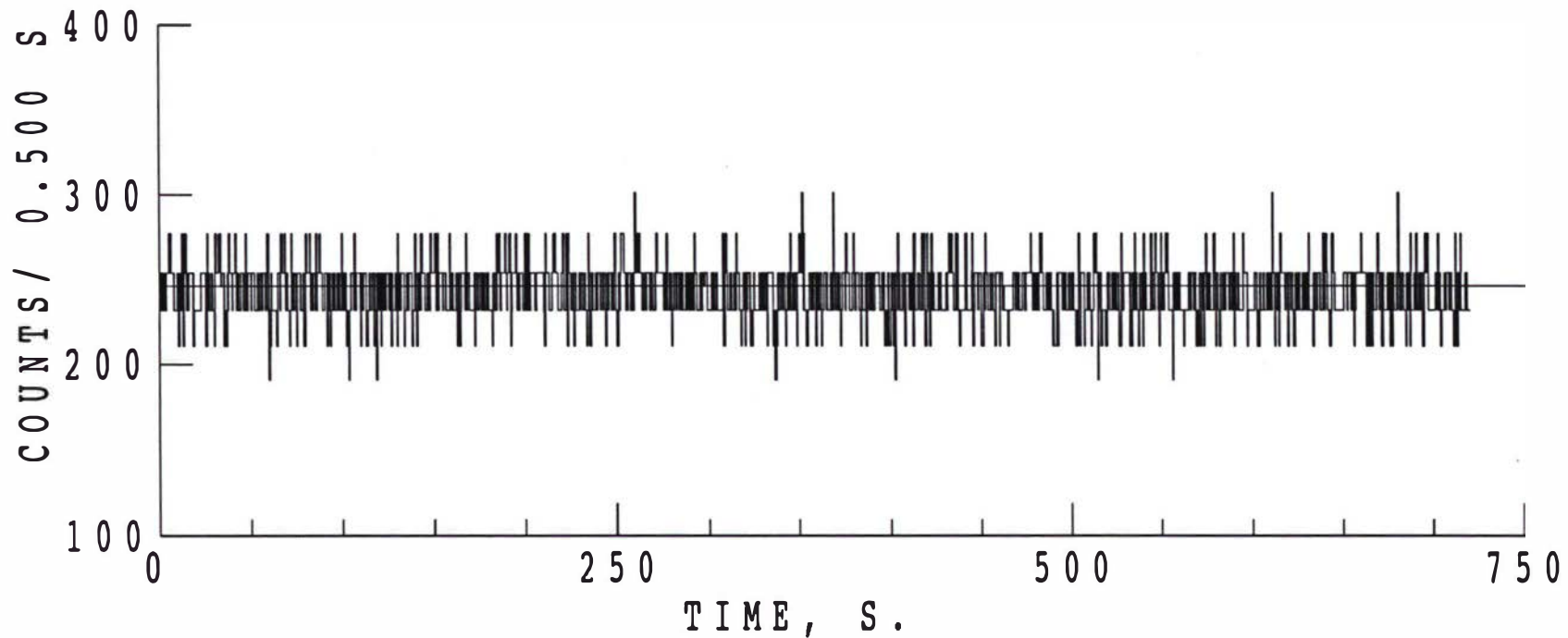
28 / 04 / 00

11 / 12 / 99 15156.048 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

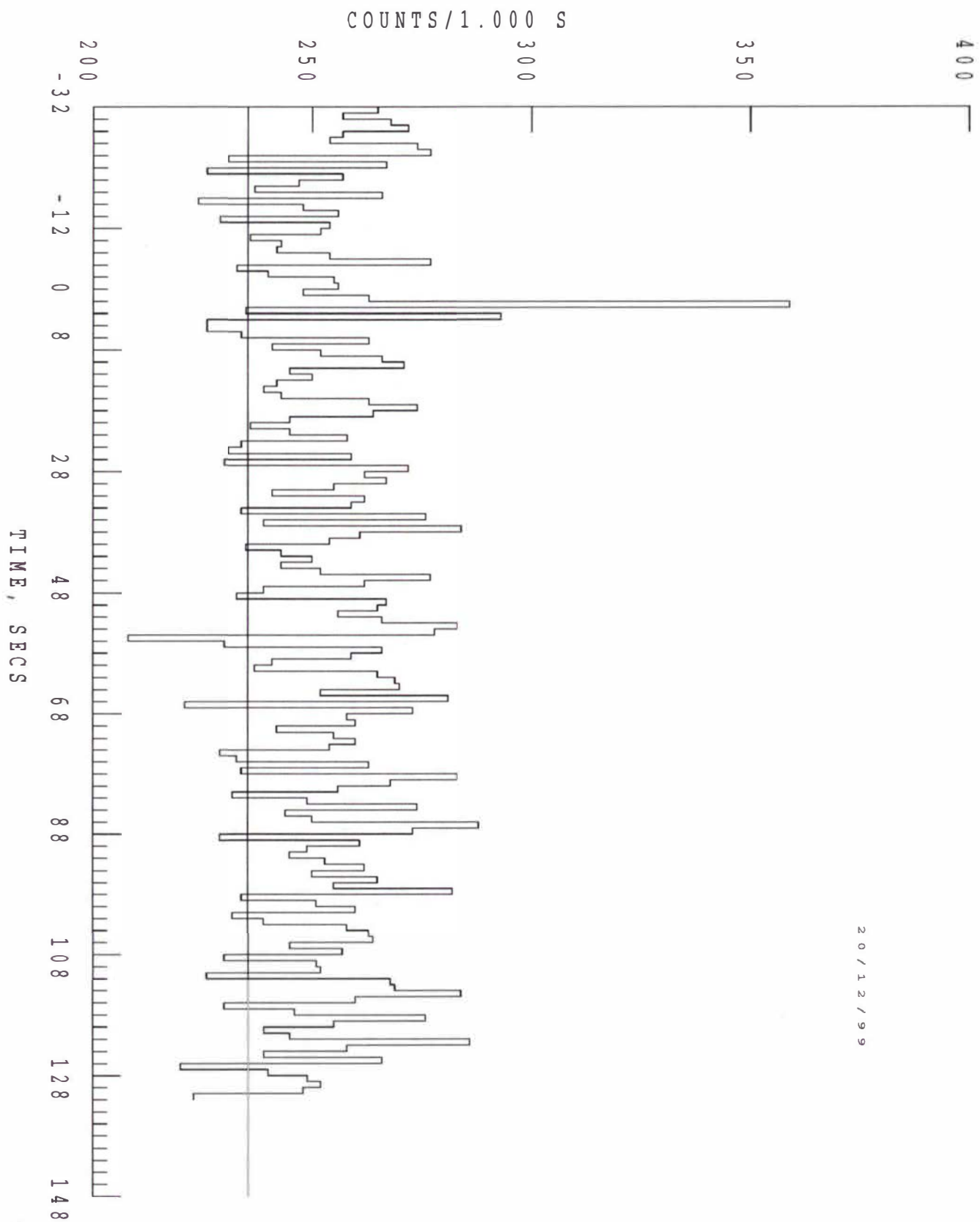


NEAR

11/12/99

15657.028

100-1000 keV



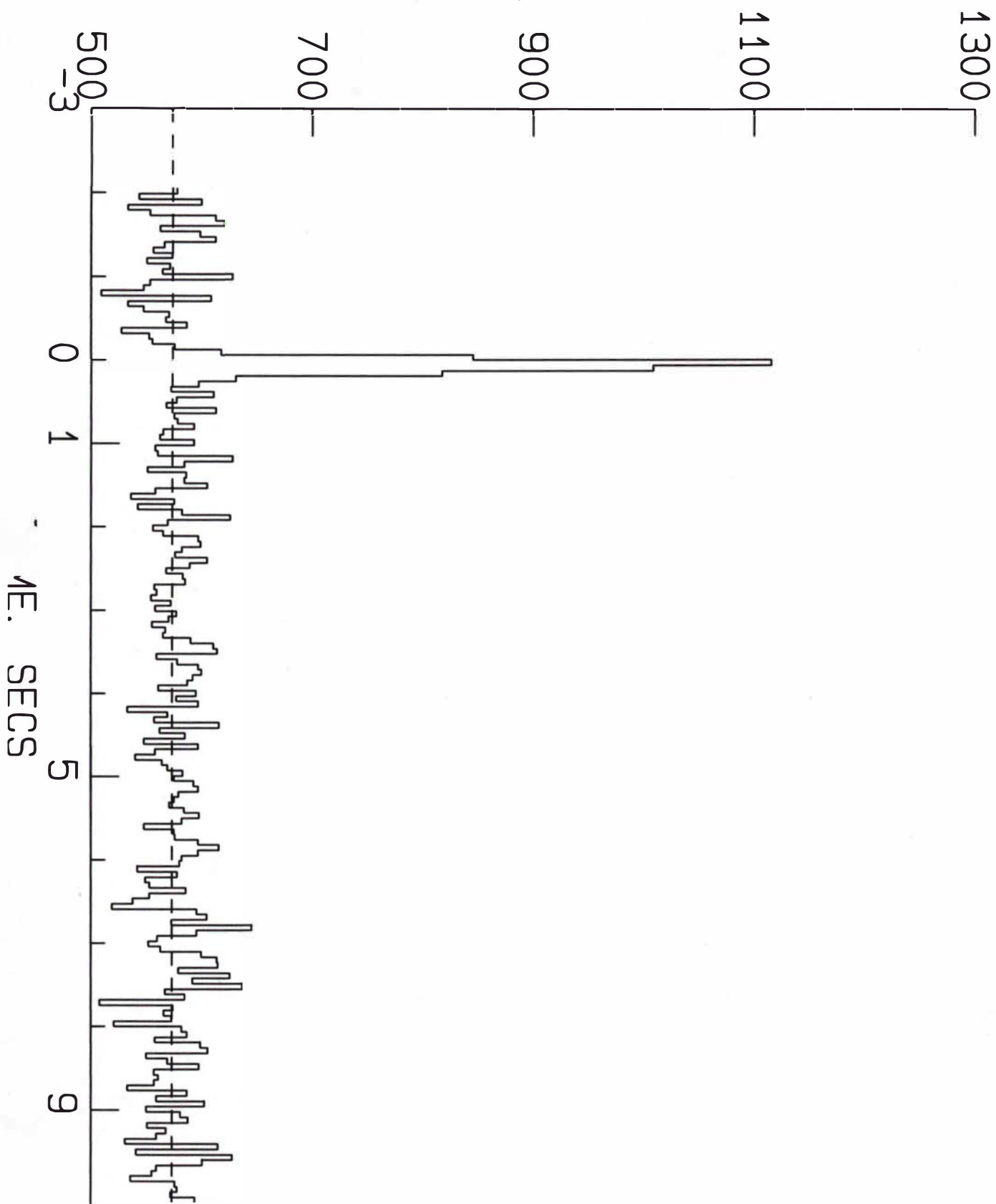
BATSE

11/12/99

16481.529

25- 100 keV

COUNTS/0.064 S



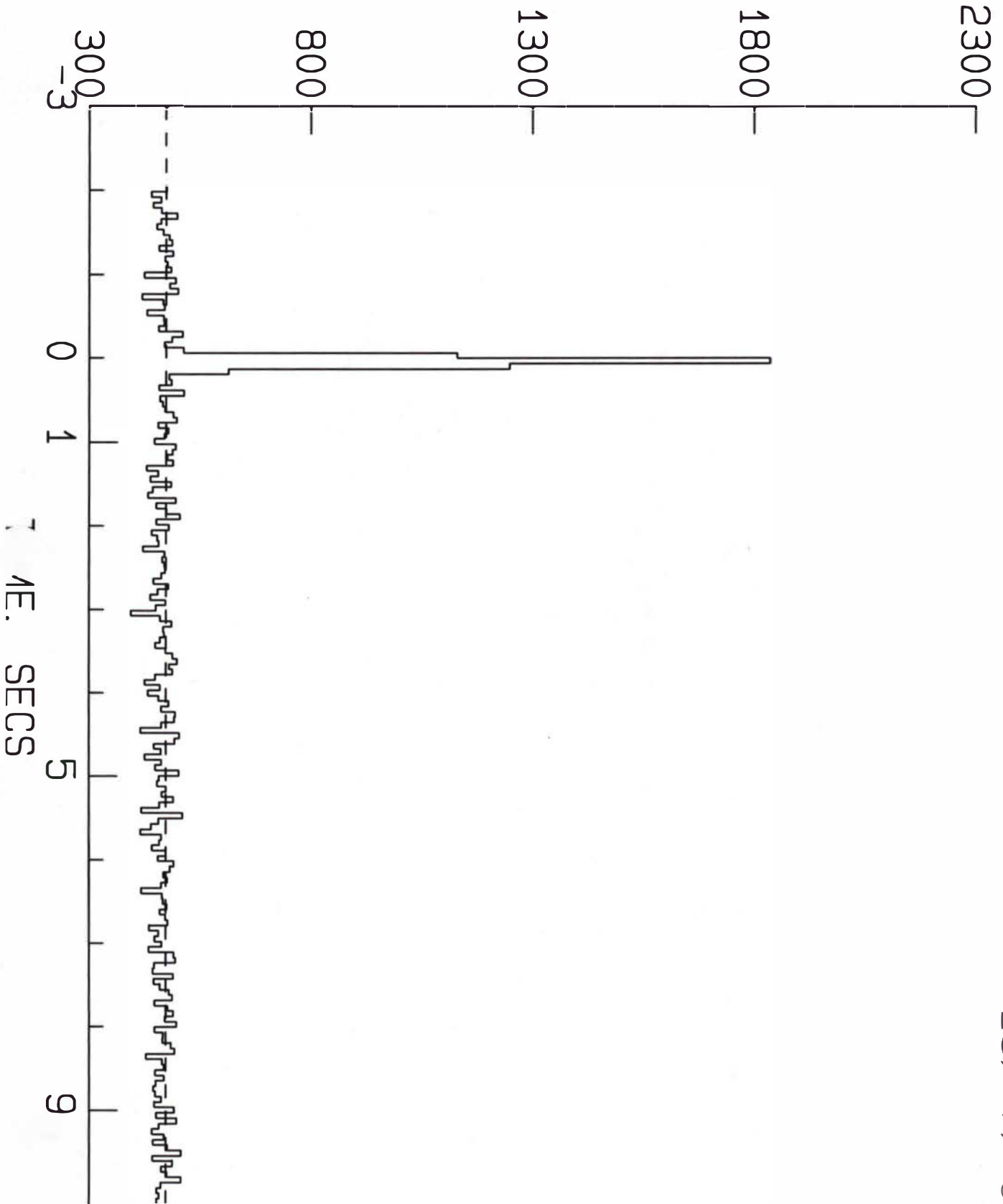
BATSE

11/12/99

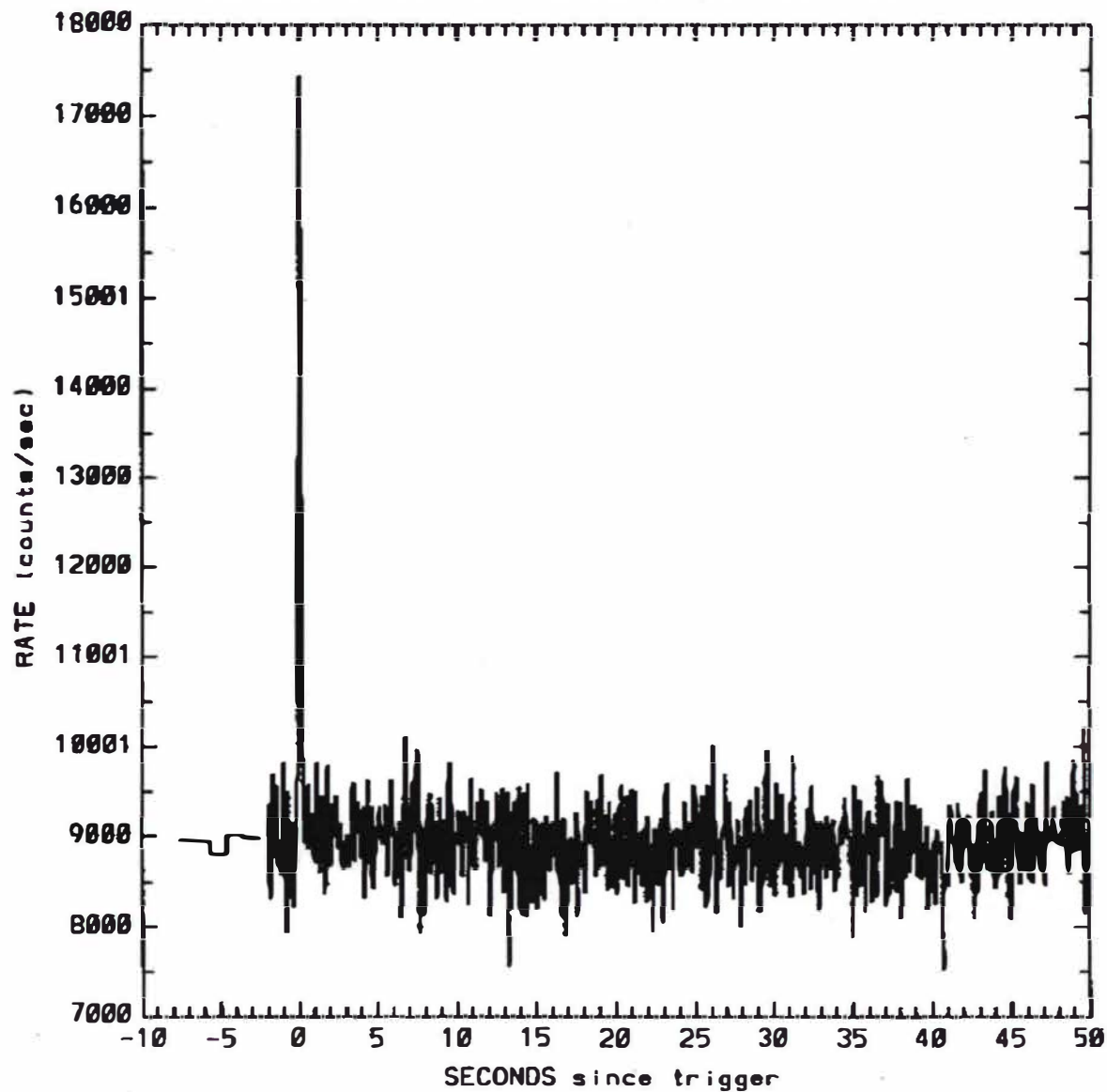
16481.529

100-1000 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 7901



22-JAN-2000 08:29:09

Created by NOPS 00
(Burst Display)
Version t2.26

Trigger # : 7901

Trigger Time:
11523 / 16401.529

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

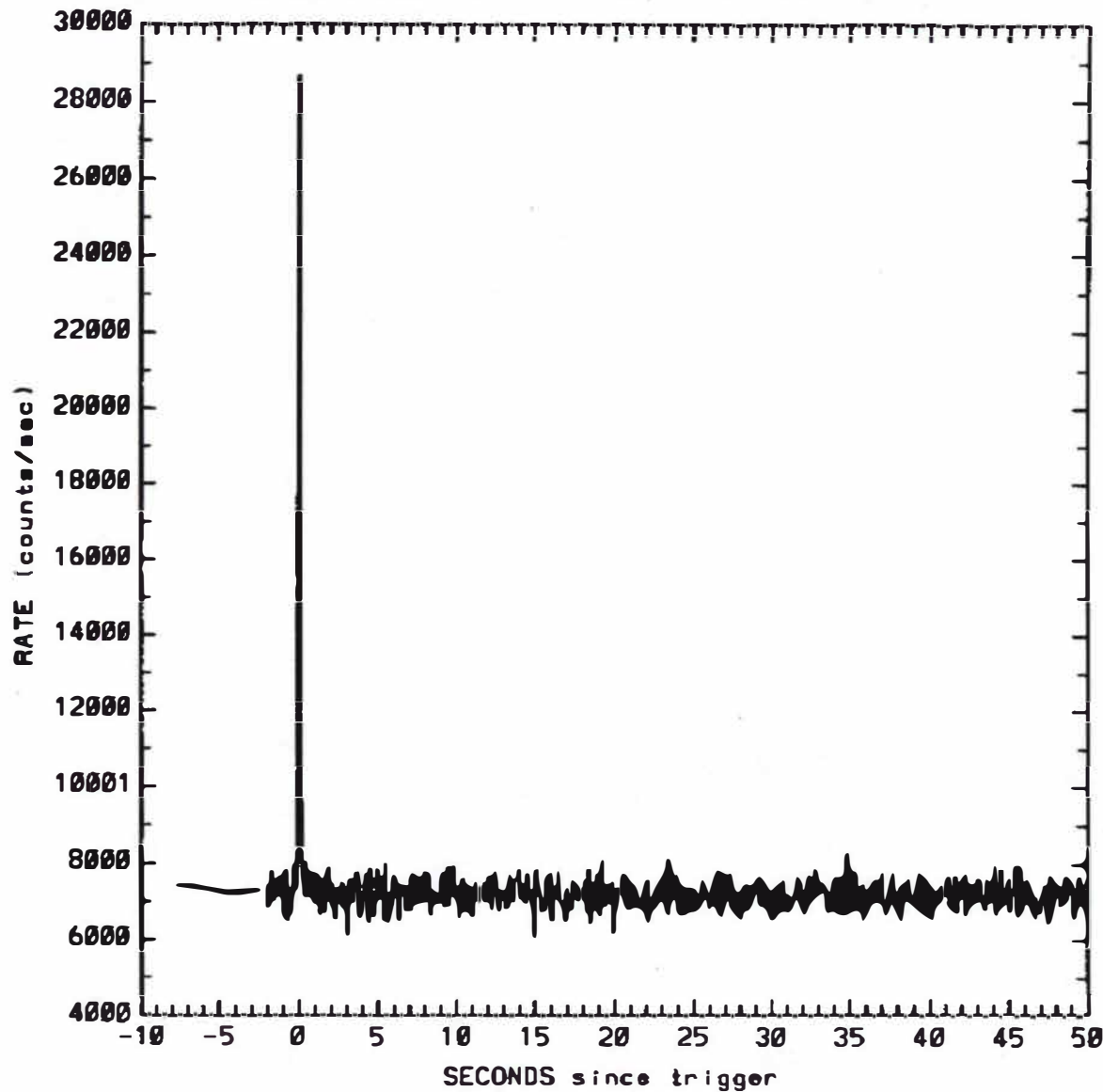
Minimum Integ. Time:
0.064 seconds

Detectors (7..8):
-----216

Discriminators:
(1 - 2)

Quality Mask:
80ISP1

DISCSC Data for K. Hurley, No. 7901



22-JUN-2000 09:31:14

Created by MOPS 80
(Burst Display)
Version 12.26

Trigger = 7901

Trigger Time:
11523 / 16481.529Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8]:
-----216Discriminators:
[3..4]Quality Mask:
B0ISP1

From HENZE@fender.msfc.nasa.gov Thu Dec 16 12:19 PST 1999
From: HENZE@fender.msfc.nasa.gov
Date: Thu, 16 Dec 1999 14:28:37 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7902

BATSEARCH PROGRAM

BATSE BURST # 7902
EVENT OF 1999 DEC 11 DAY OF YEAR=345
EVENT CROSSING TIME AT BATSE : 51246. S. OR 14:14:06.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 17.000 16.000
BATSE PEAK COUNTING RATE: 2700 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 11/12/ 99 IS:
RA= 166.015 DEC= -30.084 DIST= 4.287 AU
BATSE-ULYSSES DISTANCE = 641358339. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 31.65 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1821.12 SECS.
CROSSING TIME AT ULYSSES IS 53067. S. OR 14:44:27 +/- 272.56 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 11/12/ 99 IS:
RA= 314.159 DEC= -18.654 DIST= 1.734 AU
MARS-BATSE DISTANCE = 259366000. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=109.12 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -283.39 SECS.
CROSSING TIME AT MARS IS 50963. S. OR 14:09:22 +/- 137.61 SECONDS

BATSE BURST TRIGGER

NO.: 7902

TIME: TJD=1523 SECONDS=51246

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=114.3 AZIMUTH=216.4 ERROR= 3.2 DEGREES

COMMENTS:

DOUBLE PEAKED PULSE, DUR. APPROX. 9 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7902	991211	11523	51246	2700	017	+16	9

BATSE BURST# 7902

ULYSSES RT

28 / 04 / 00

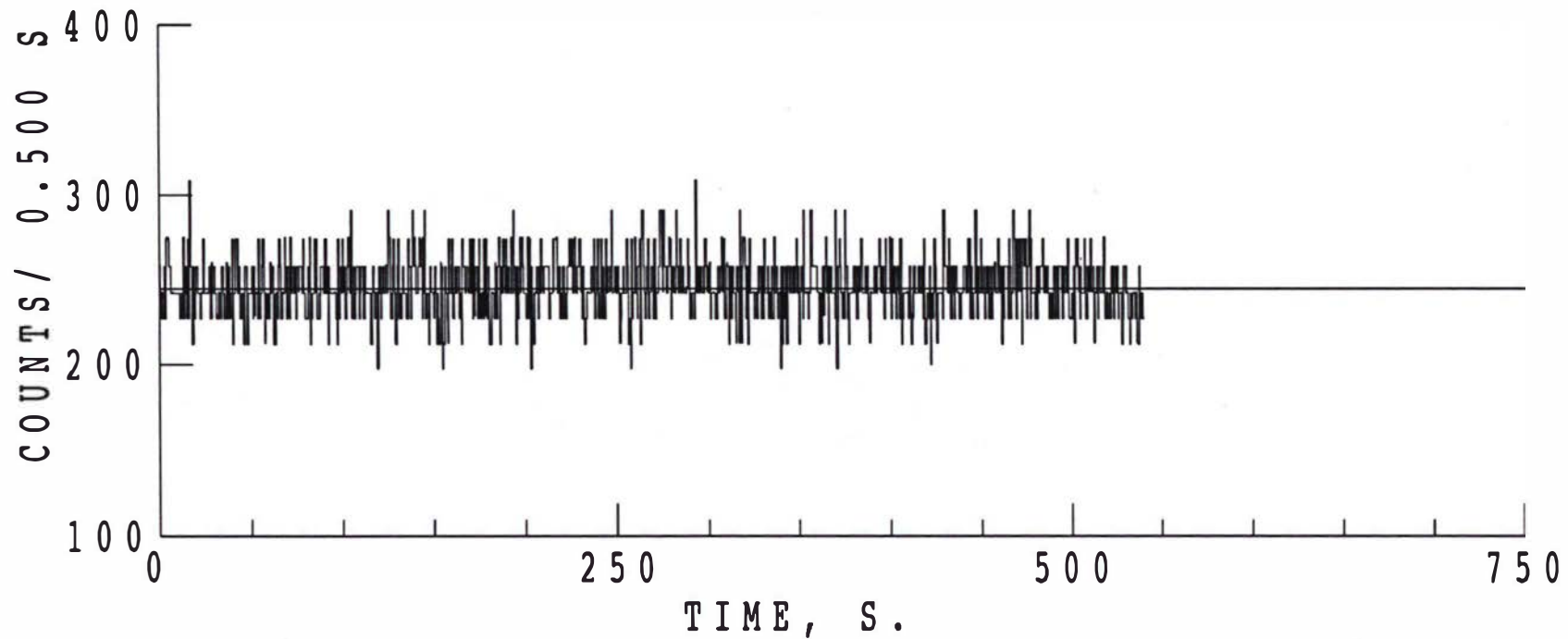
11/12/99 52812.184 s

0.250 S INTERVALS REGROUPED BY 2

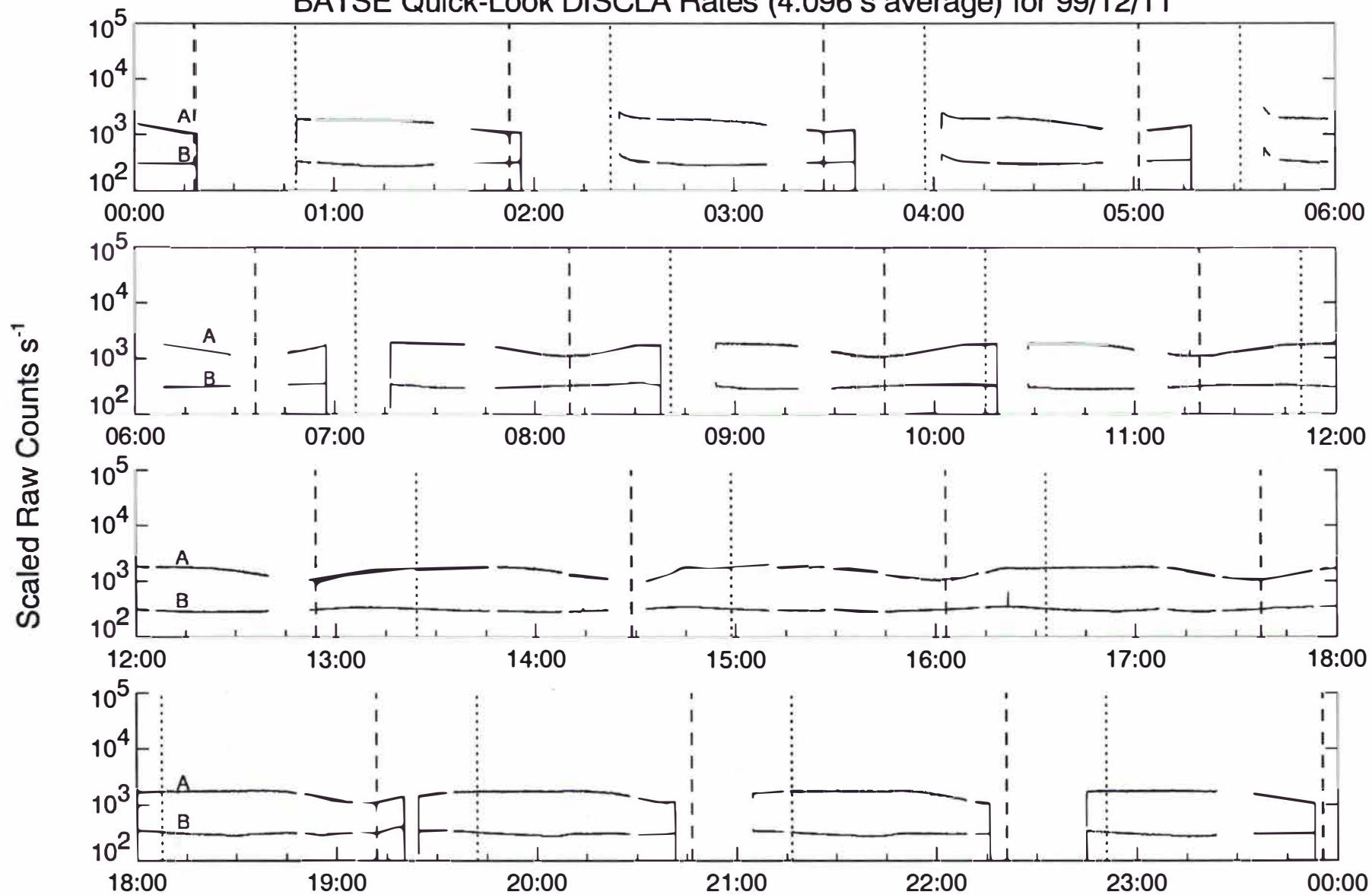
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



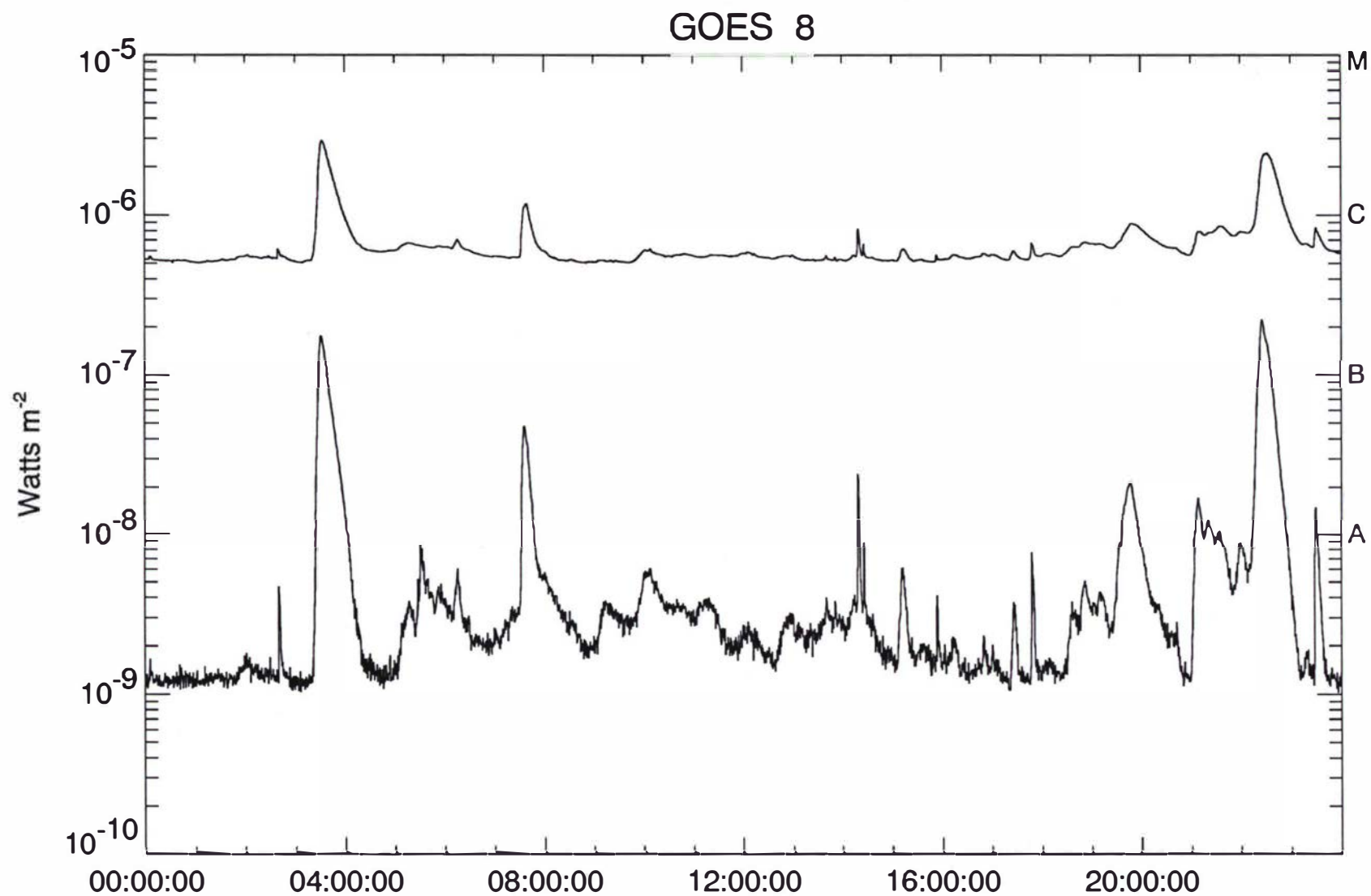
BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/11



Current Time: 99/12/15, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 99/12/11, 0000:00

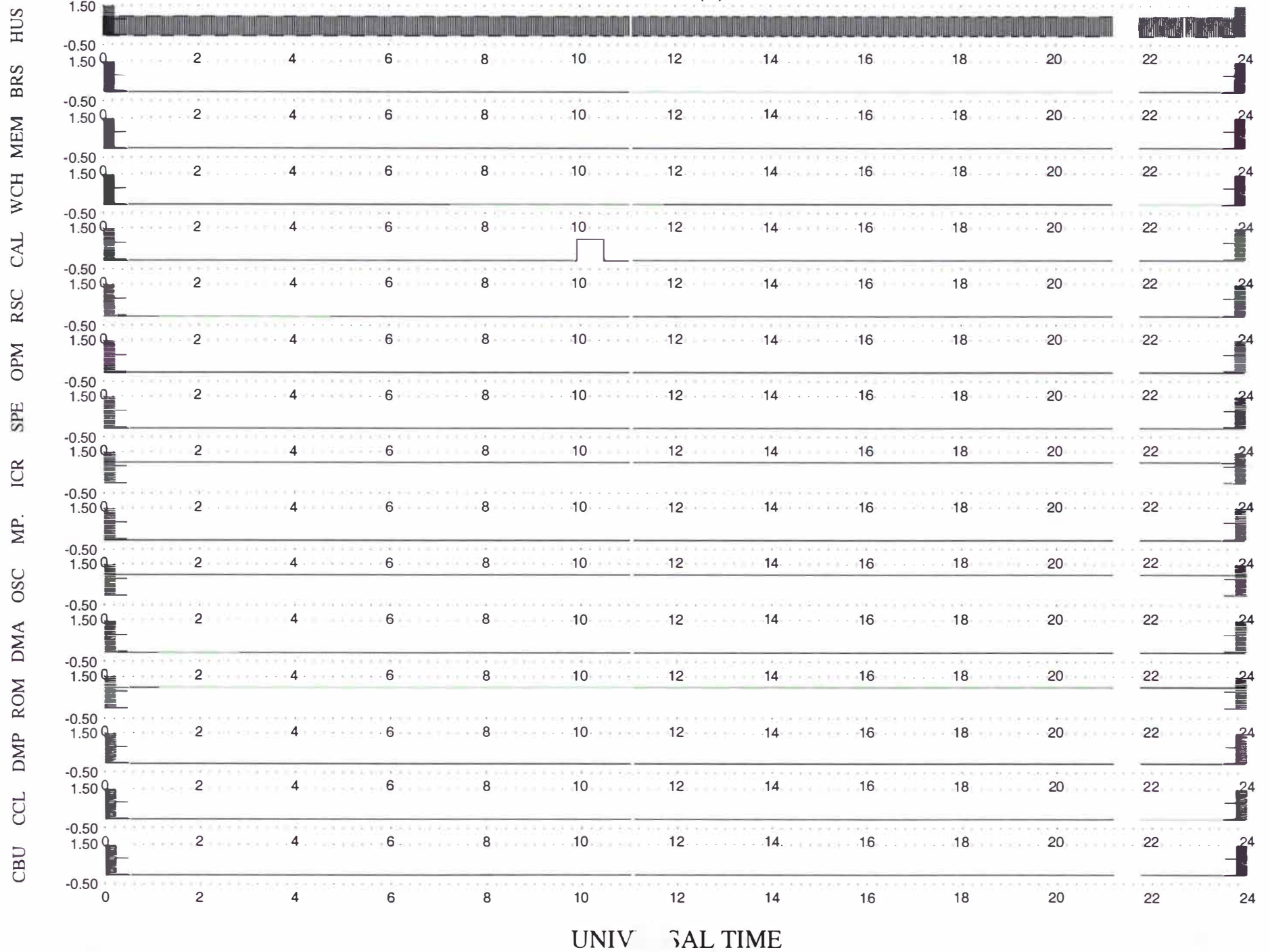
Plot created: 99/12/15, 1008

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

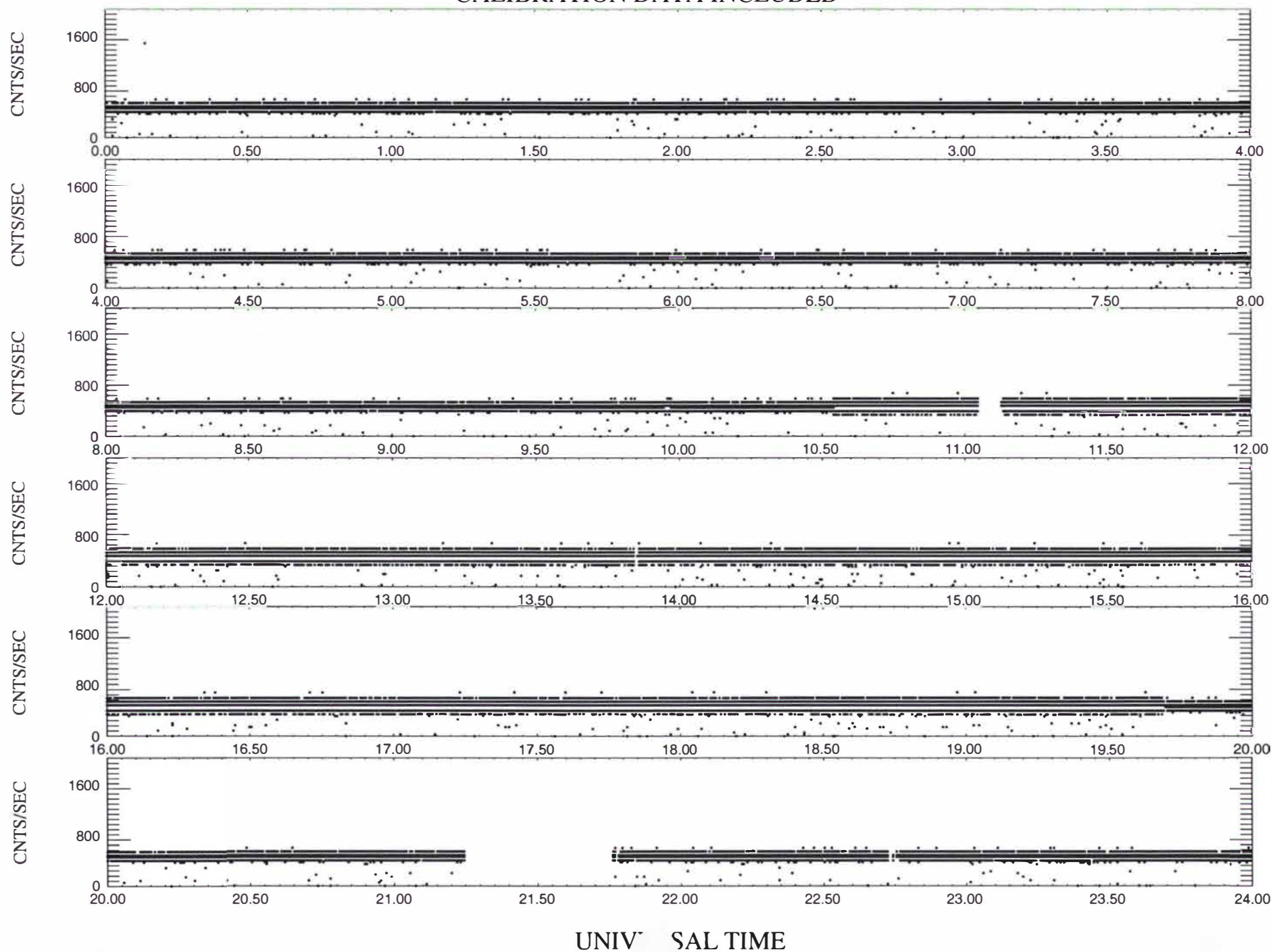
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

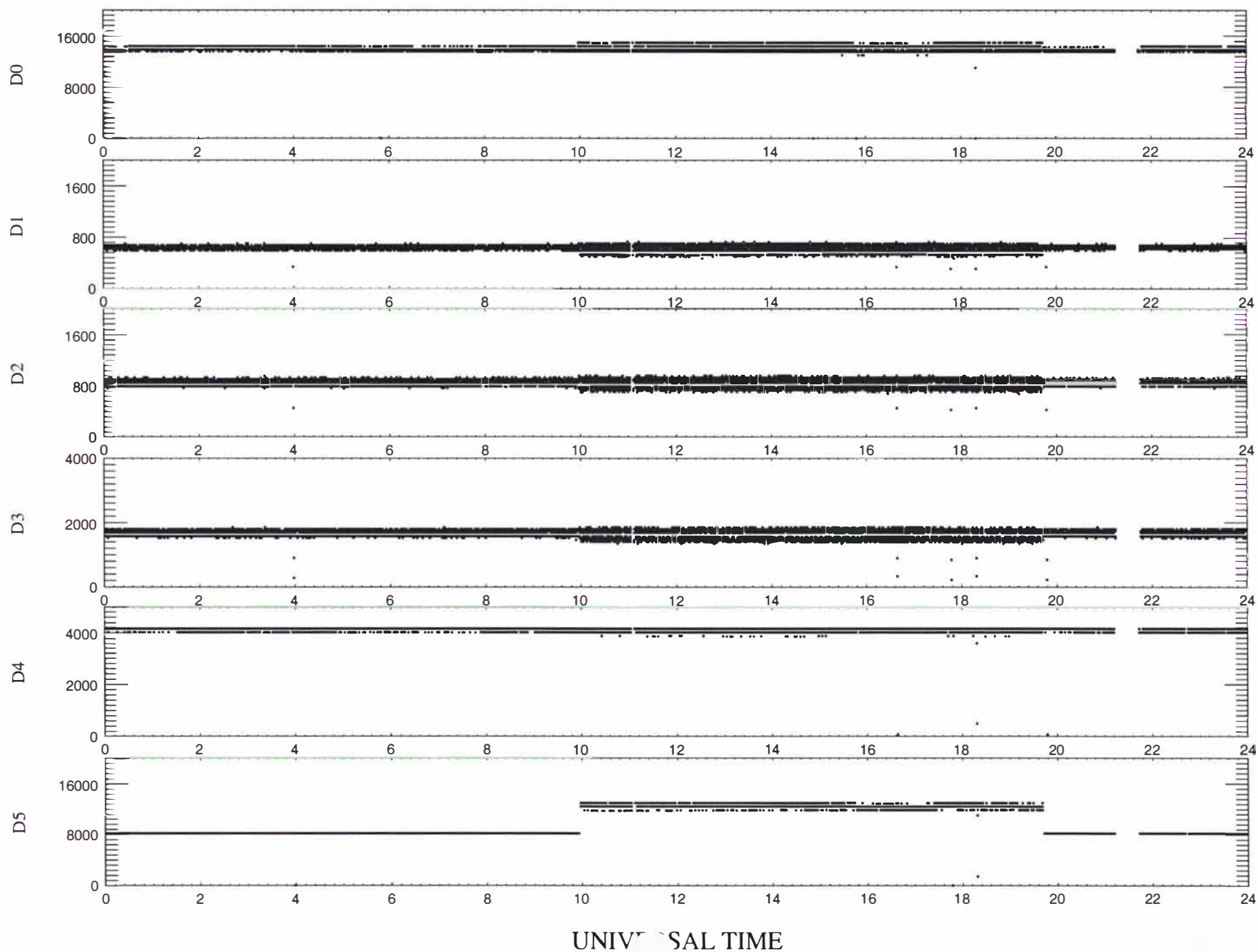
Sample average = 10

NO BURST (8)



CALIBRATION DATA INCLUDED





GRBM 19991212 25977

ULYSSES RT

10/07/07

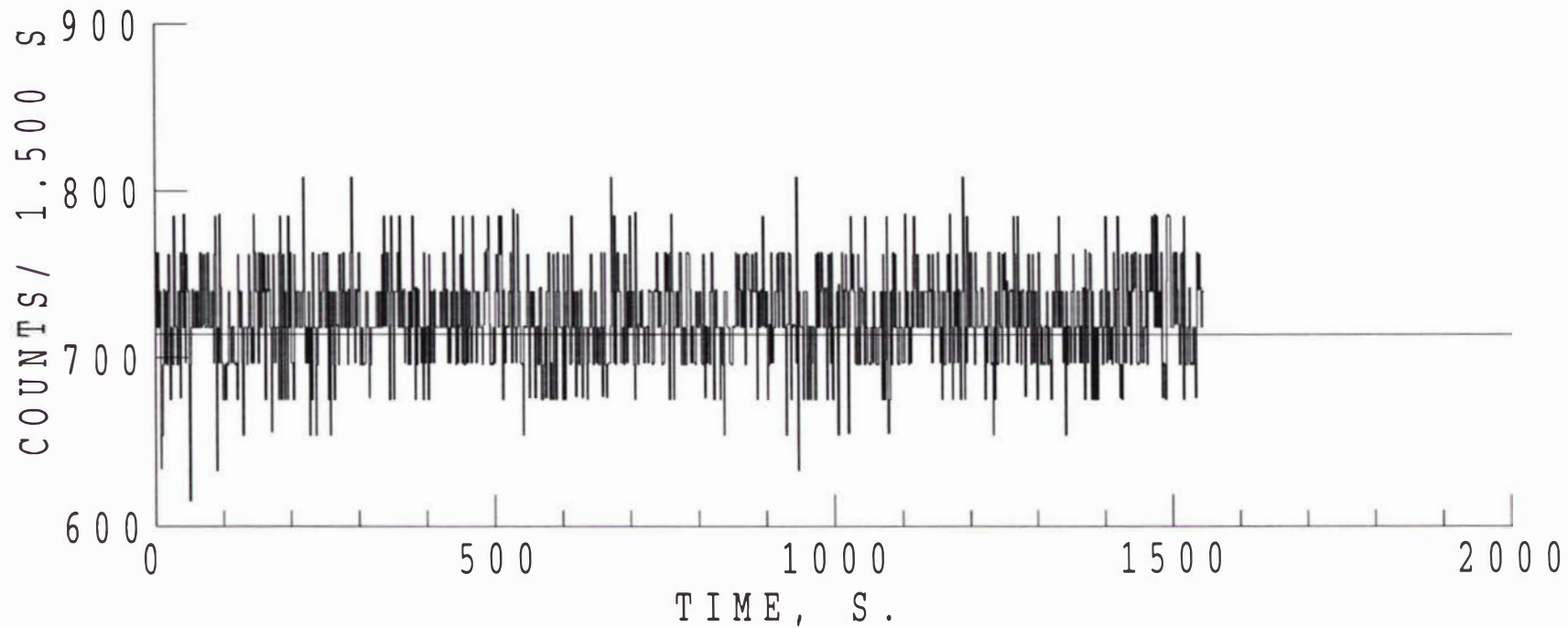
12/12/99 25200.035 s

0.500 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



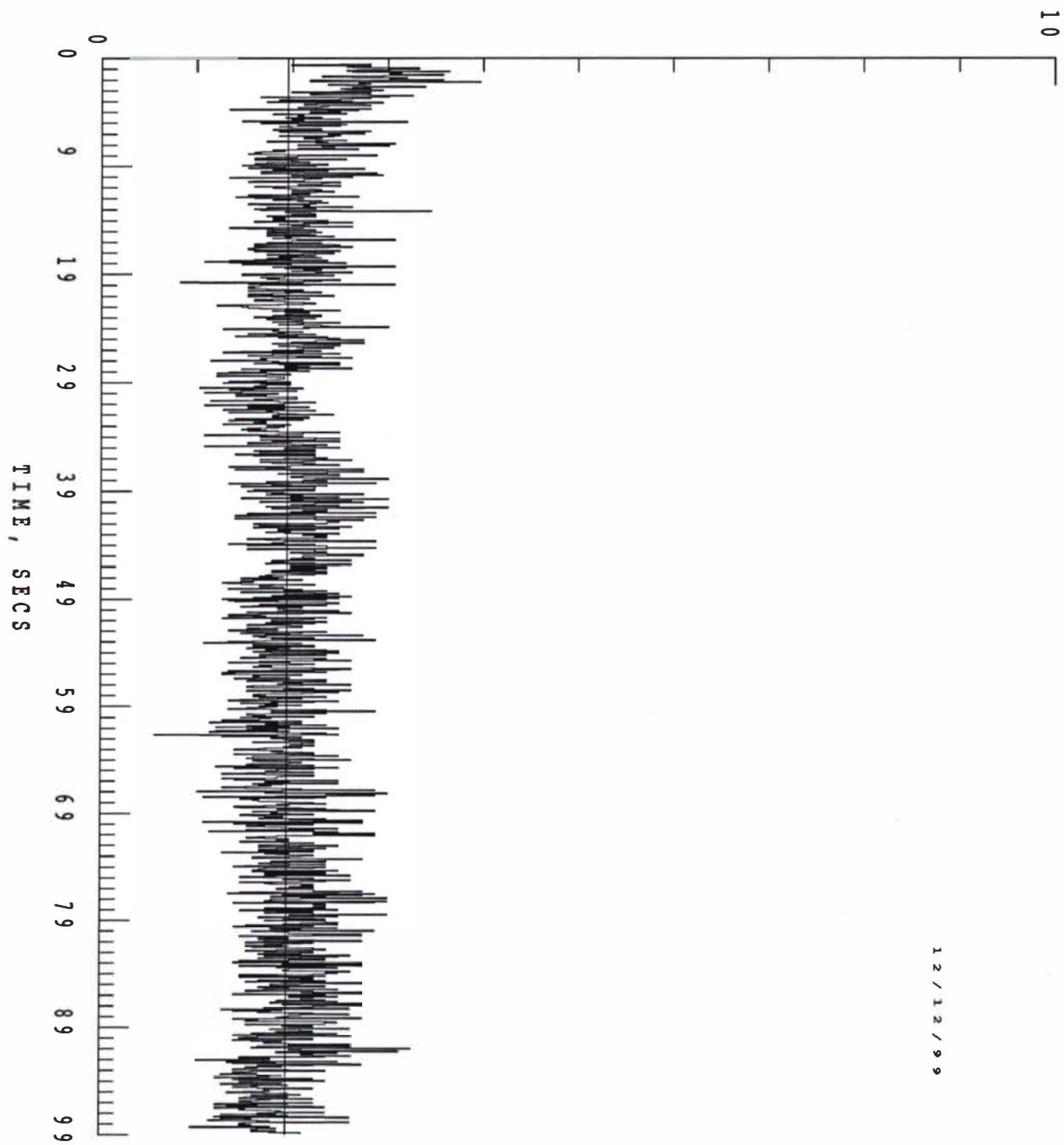
KONUS

12/12/99

57921.944

50 - 200 keV

COUNTS/0.064 S



12/12/99

KONUS1 19991212 57921

ULYSSES RT

14 / 12 / 99

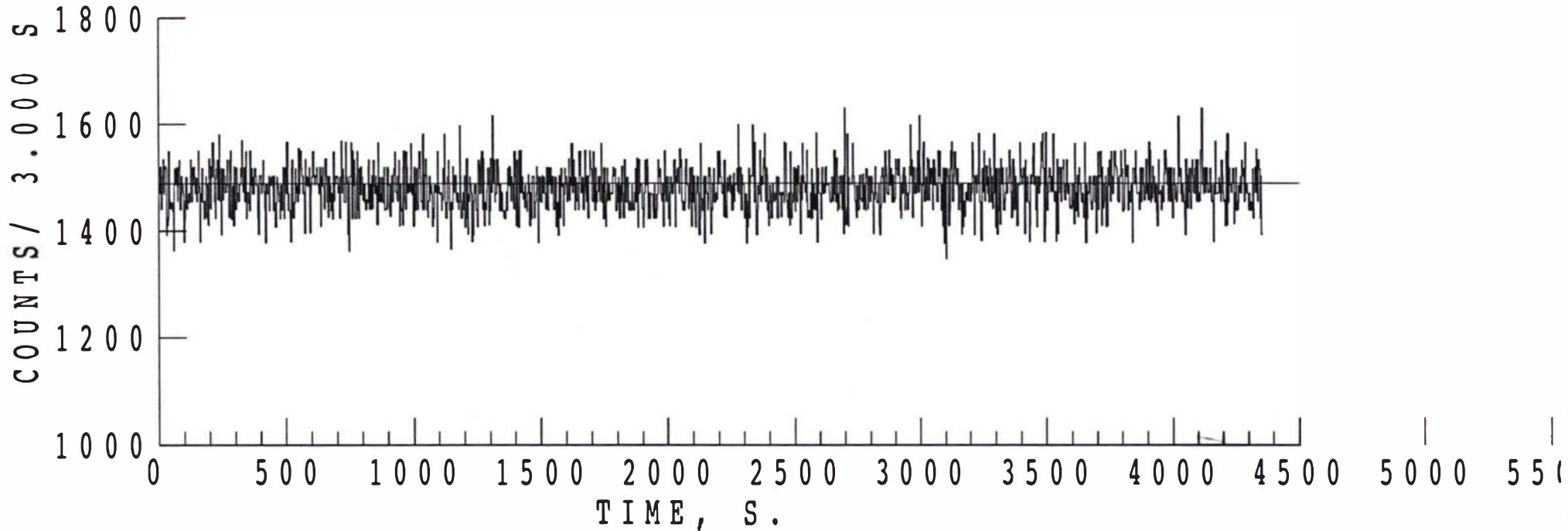
12/12/99 55728.098 s

0.250 S INTERVALS REGROUPED BY 12

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS1 19991212 66107

ULYSSES RT

14 / 12 / 99

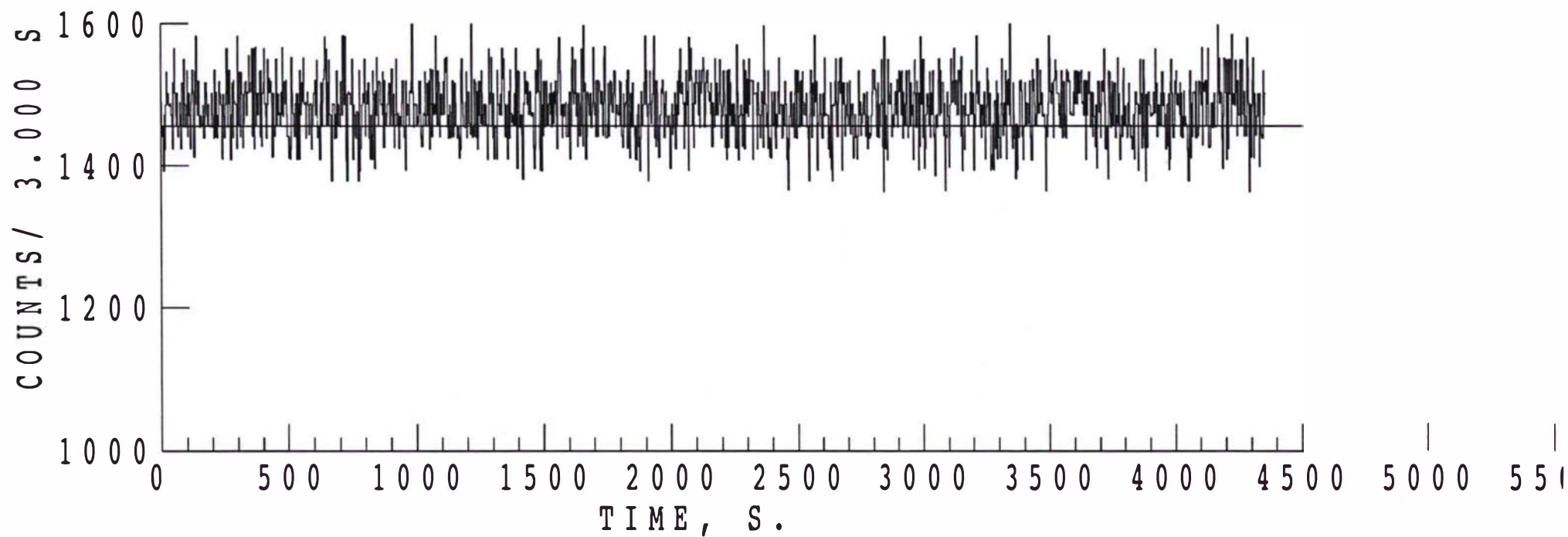
12 / 12 / 99 63936.184 s

0.250 S INTERVALS REGROUPED BY 12

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



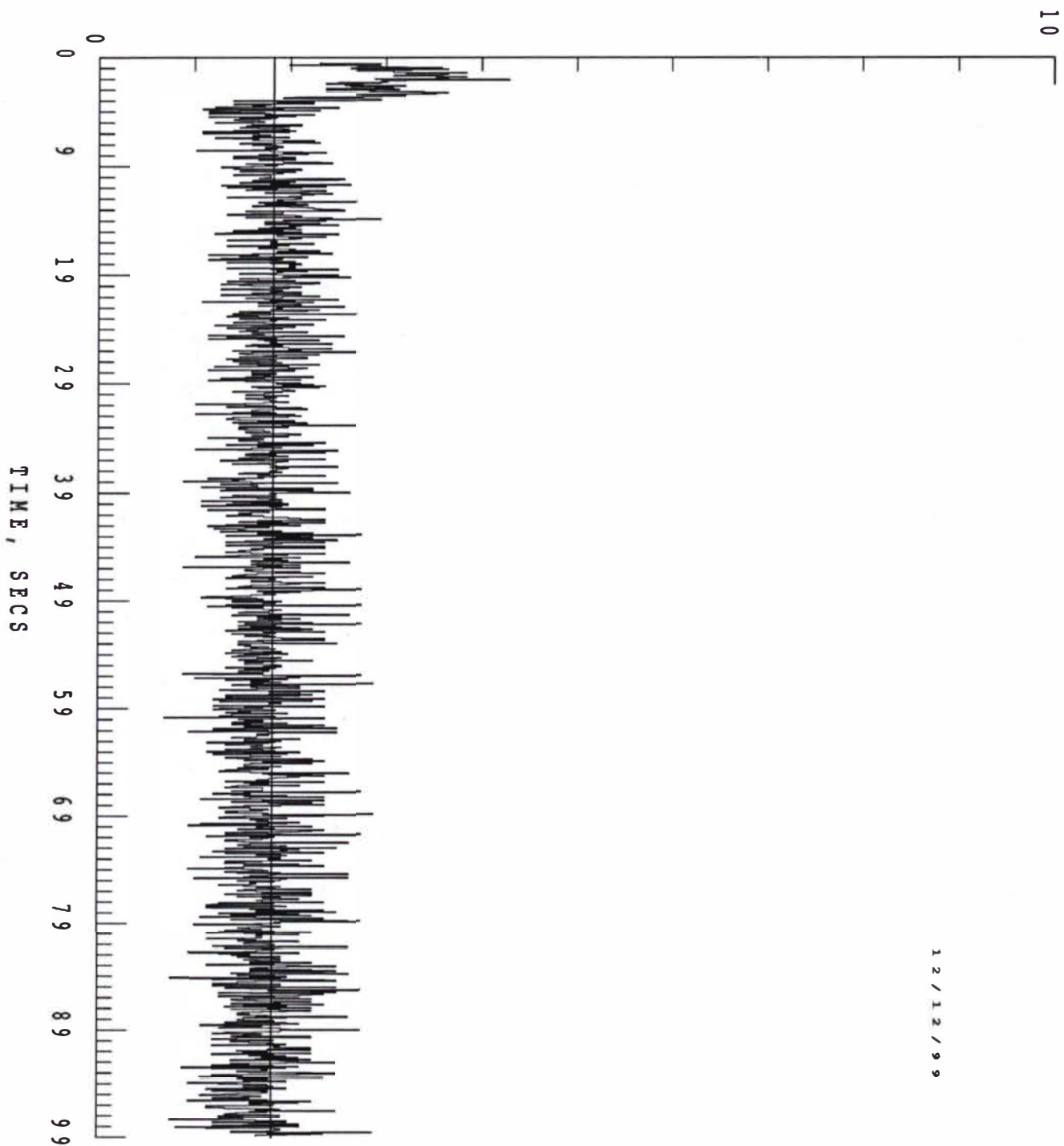
KONUS

12/12/99

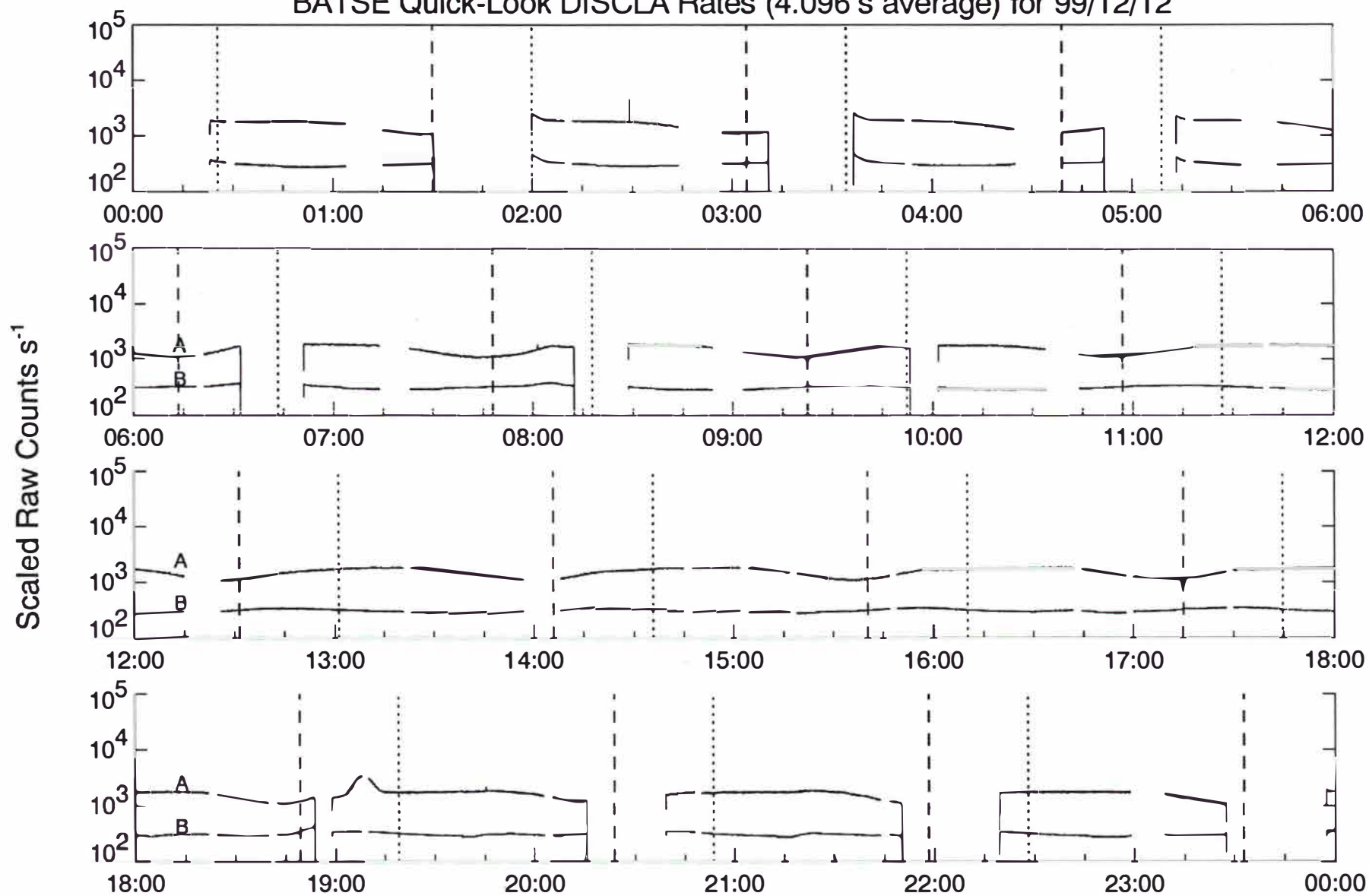
66107.469

50 - 200 keV

COUNTS/0.064 S



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/12

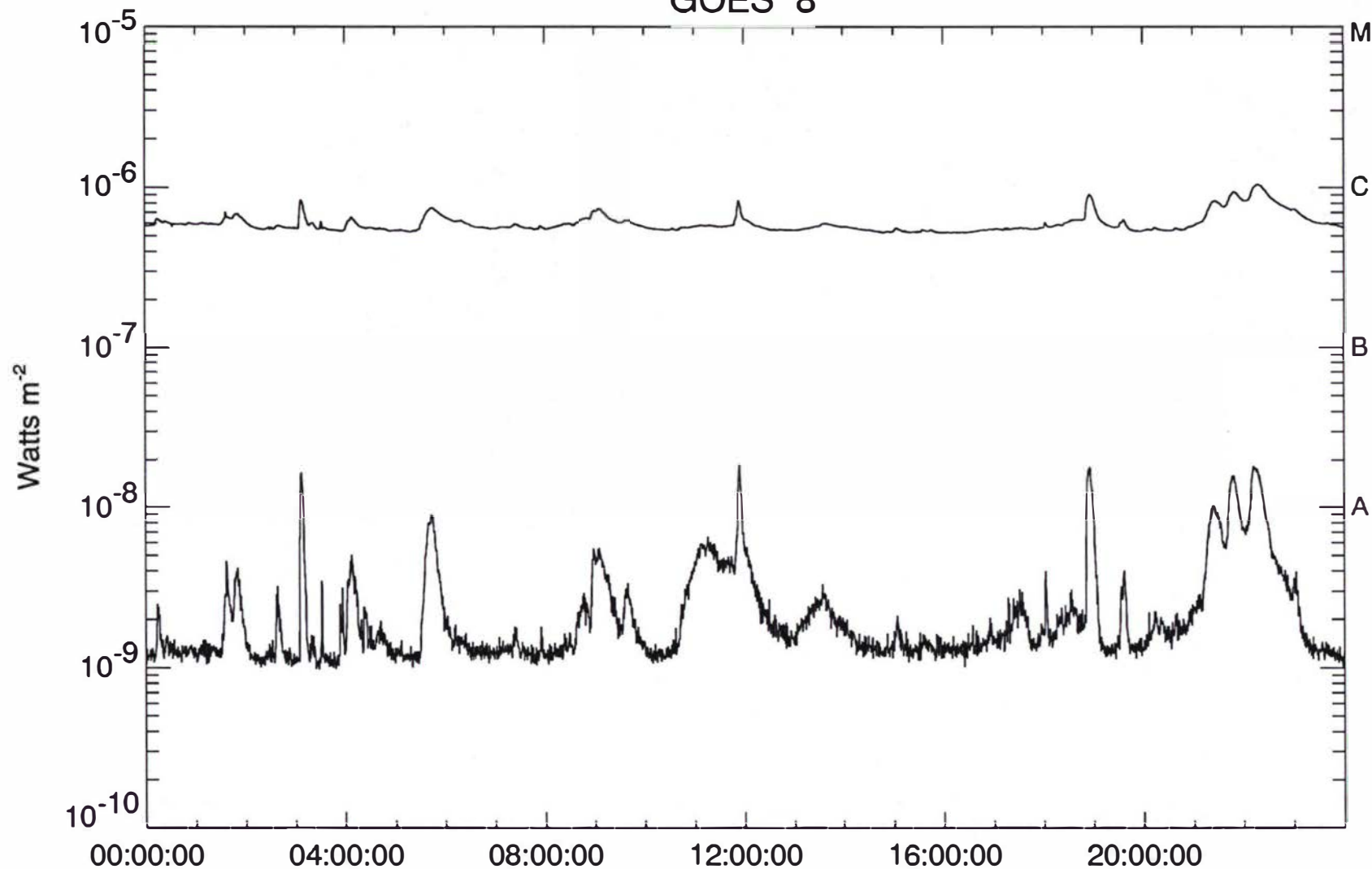


Current Time: 99/12/16, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/12, 0000:00

Plot created: 99/12/16, 1007

Channel

1 (1.0 - 8.0 Angstroms)

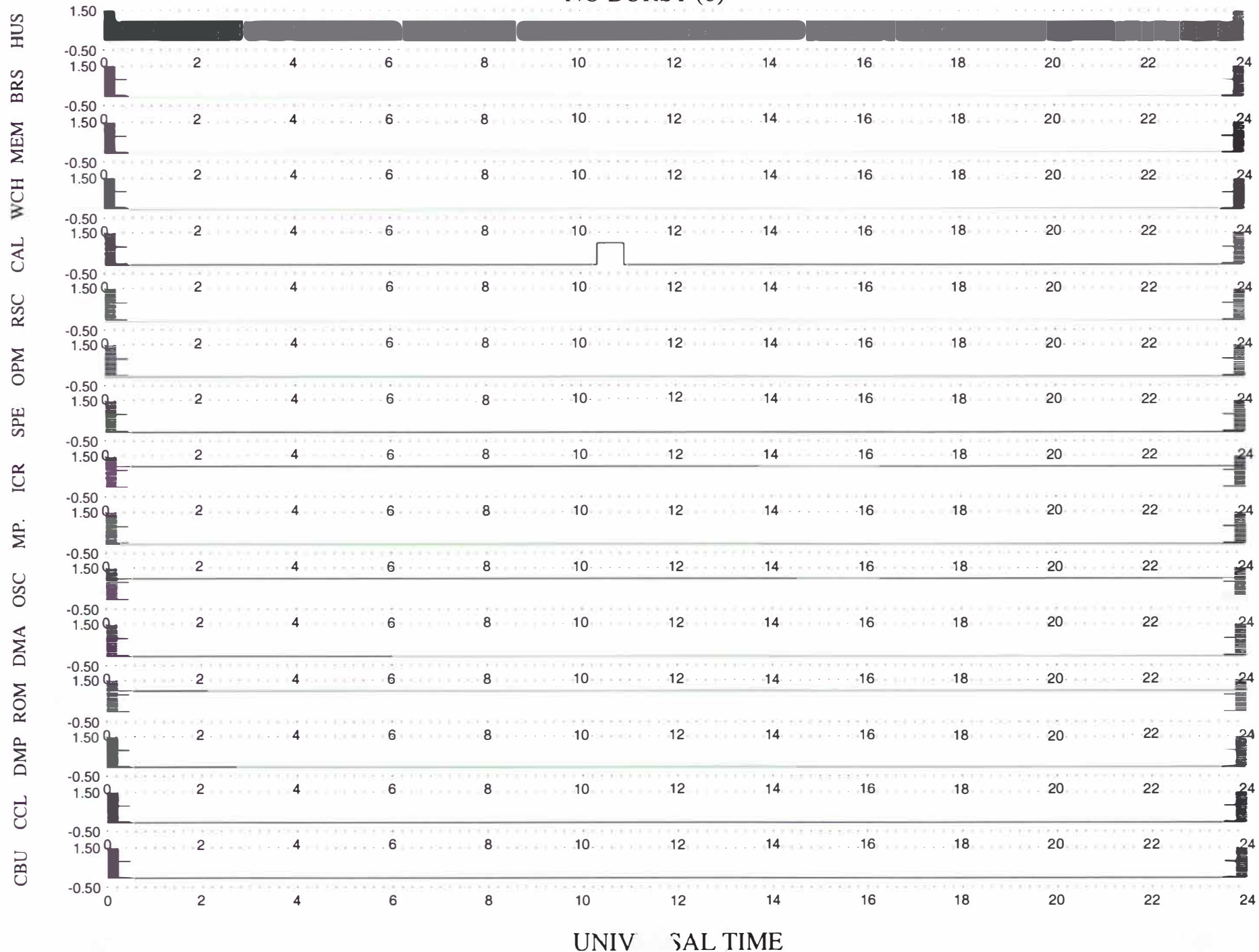
Background not subtracted

2 (0.5 - 4.0 Angstroms)

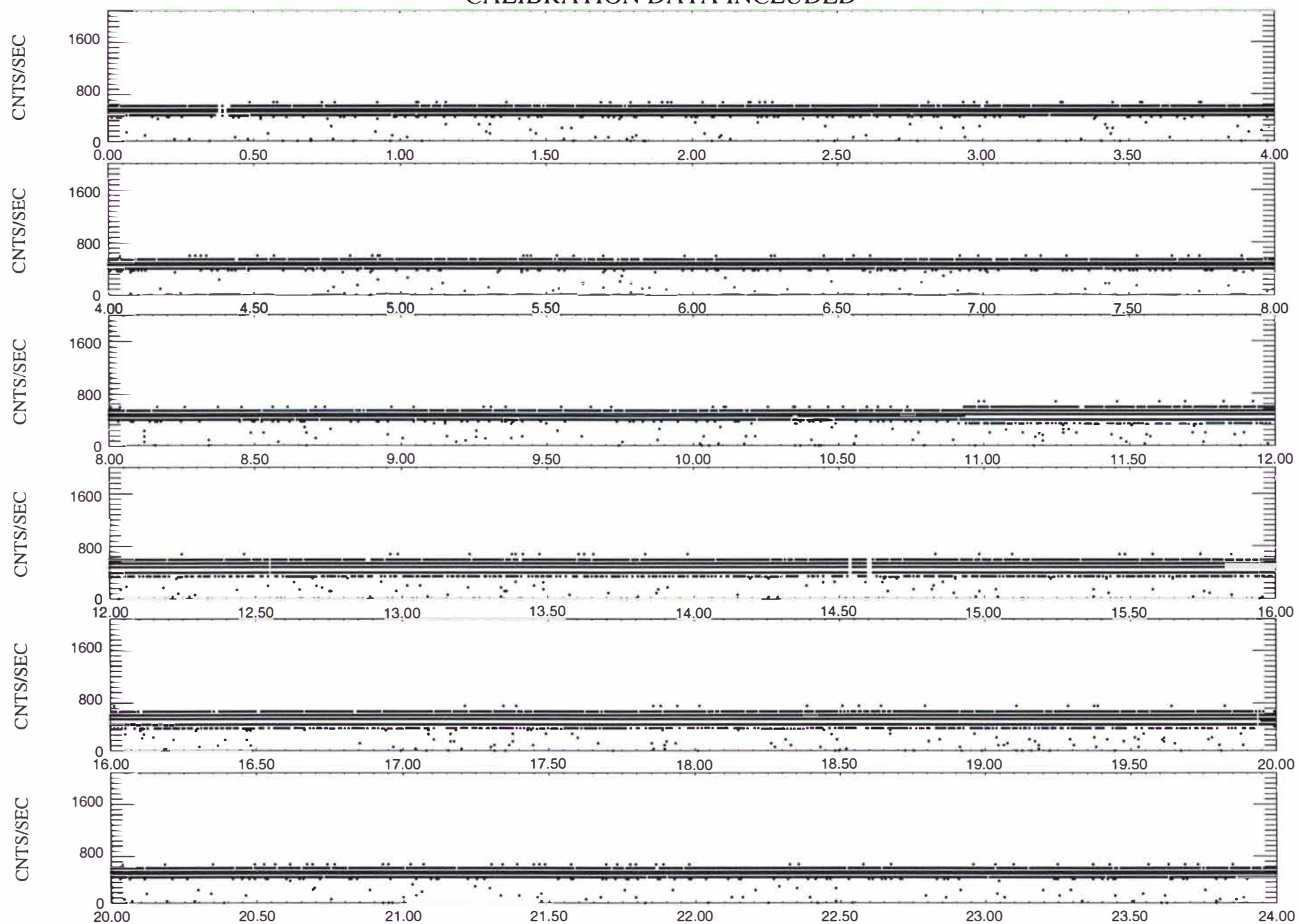
Background not subtracted

Sample average = 10

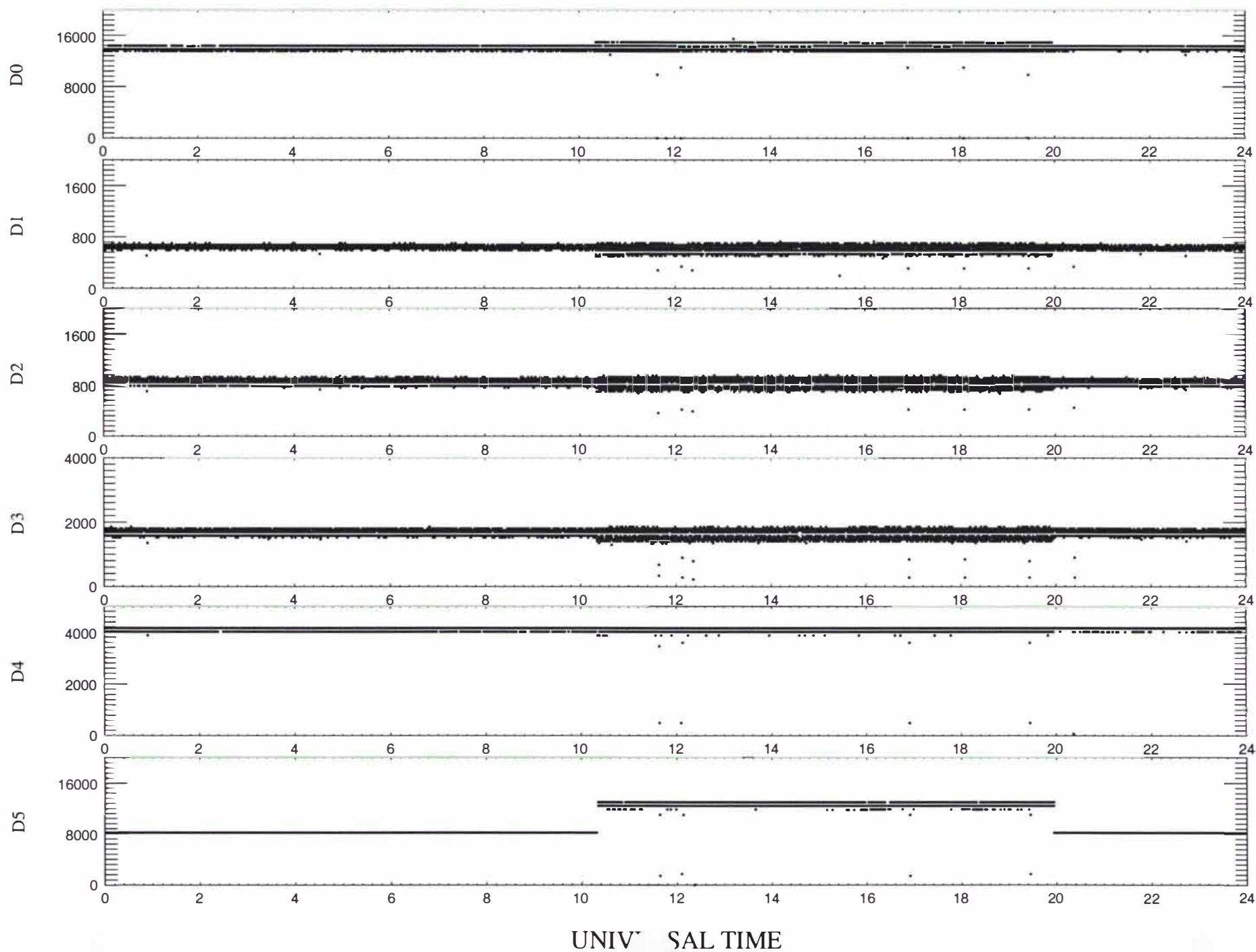
NO BURST (8)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From SAHI@fender.msfc.nasa.gov Thu Dec 16 12:02 PST 1999
From: SAHI@fender.msfc.nasa.gov
Date: Thu, 16 Dec 1999 14:12:27 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7903

BATSEARCH PROGRAM

BATSE BURST # 7903
EVENT OF 1999 DEC 13 DAY OF YEAR=347
EVENT CROSSING TIME AT BATSE : 46710. S. OR 12:58:30.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 108.000 43.000
BATSE PEAK COUNTING RATE: 7000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 13/12/ 99 IS:
RA= 165.972 DEC= -30.501 DIST= 4.252 AU
BATSE-ULYSSES DISTANCE = 636113802. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 89.31 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 25.39 SECS.
CROSSING TIME AT ULYSSES IS 46735. S. OR 12:58:55 +/- 418.75 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 13/12/ 99 IS:
RA= 315.715 DEC= -18.198 DIST= 1.744 AU
MARS-BATSE DISTANCE = 260969200. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 34.10 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 720.82 SECS.
CROSSING TIME AT MARS IS 47431. S. OR 13:10:30 +/- 95.68 SECONDS

BATSE BURST TRIGGER

NO.: 7903

TIME: TJD=1525 SECONDS=46710

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=157.7 AZIMUTH=342.4 ERROR=3.3 DEGREES

COMMENTS:

GRB. SINGLE PULSE, DUR. 11 S, RISE IS FASTER THAN FALL. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7903	991213	11525	46710	7000	108	+43	11

From kehoe@sdss1.physics.lsa.umich.edu Tue Dec 14 13:16 PST 1999
Date: Tue, 14 Dec 1999 16:24:39 -0500 (EST)
From: Bob Kehoe <kehoe@sdss1.physics.lsa.umich.edu>
To: Kevin Hurley <khurley@ssl.berkeley.edu>
Cc: rlkehoe@umich.edu
Subject: IPN on 991213?
Mime-Version: 1.0

hi kevin,

sorry to bug you, but is there any chance that GRB991213 has a
Ulysses detection enabling an IPN arc? it's relatively bright in
gamma-rays and we are working on a prompt analysis to see if there's
anything obvious in the images.

thanks,

bob kehoe

BATSE BURST# 7903

ULYSSES RT

16 / 12 / 99

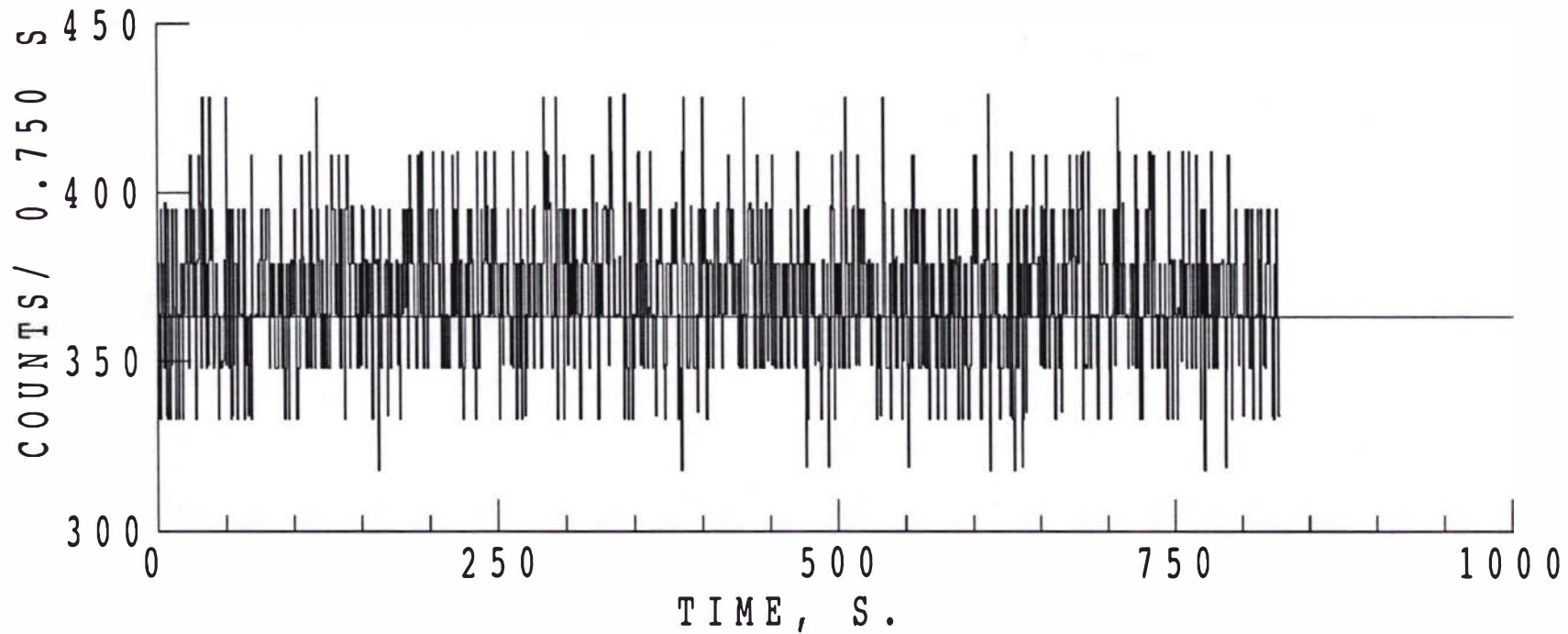
13 / 12 / 99 46332.137 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

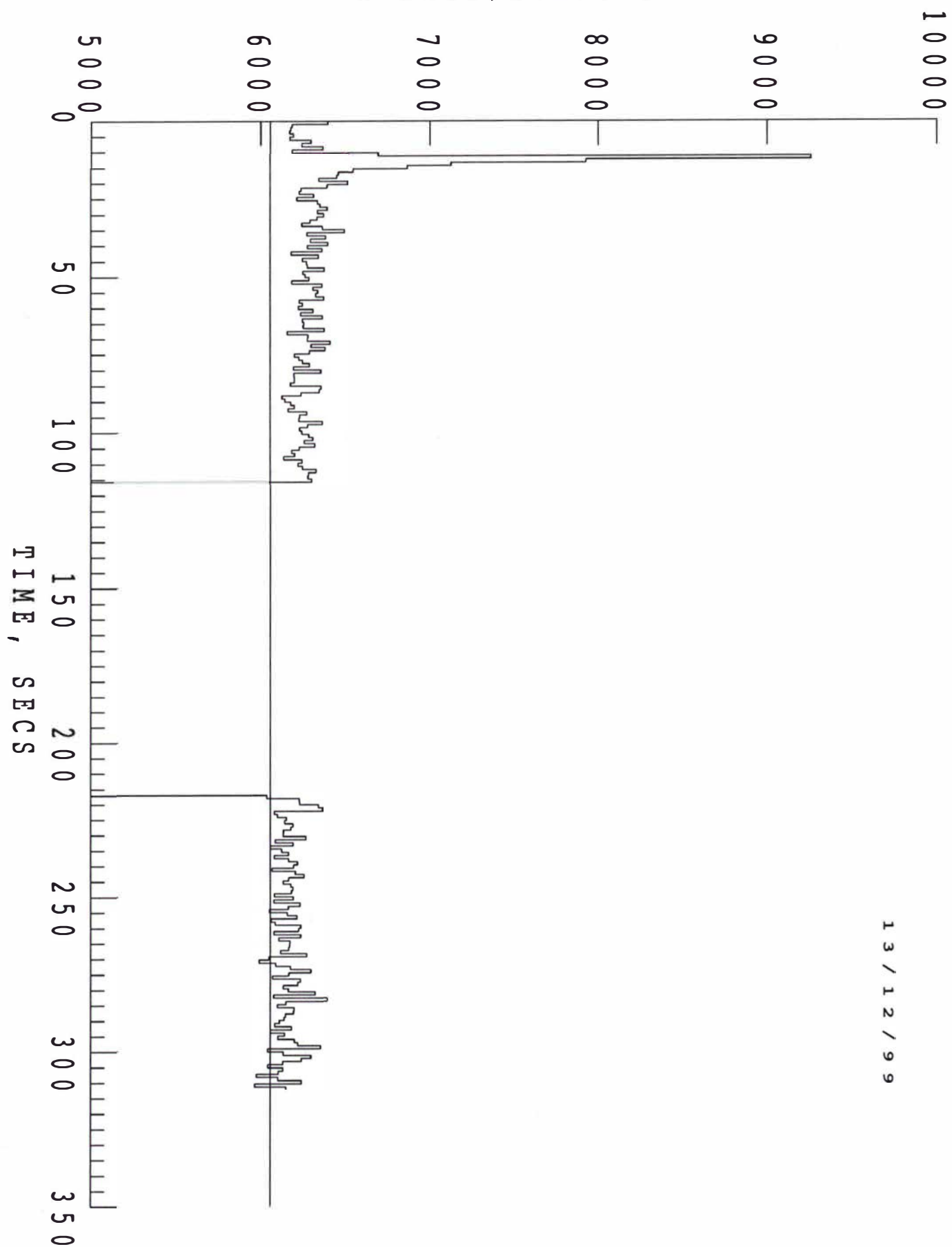
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BACODINE 7903 13/12/99 46699.257

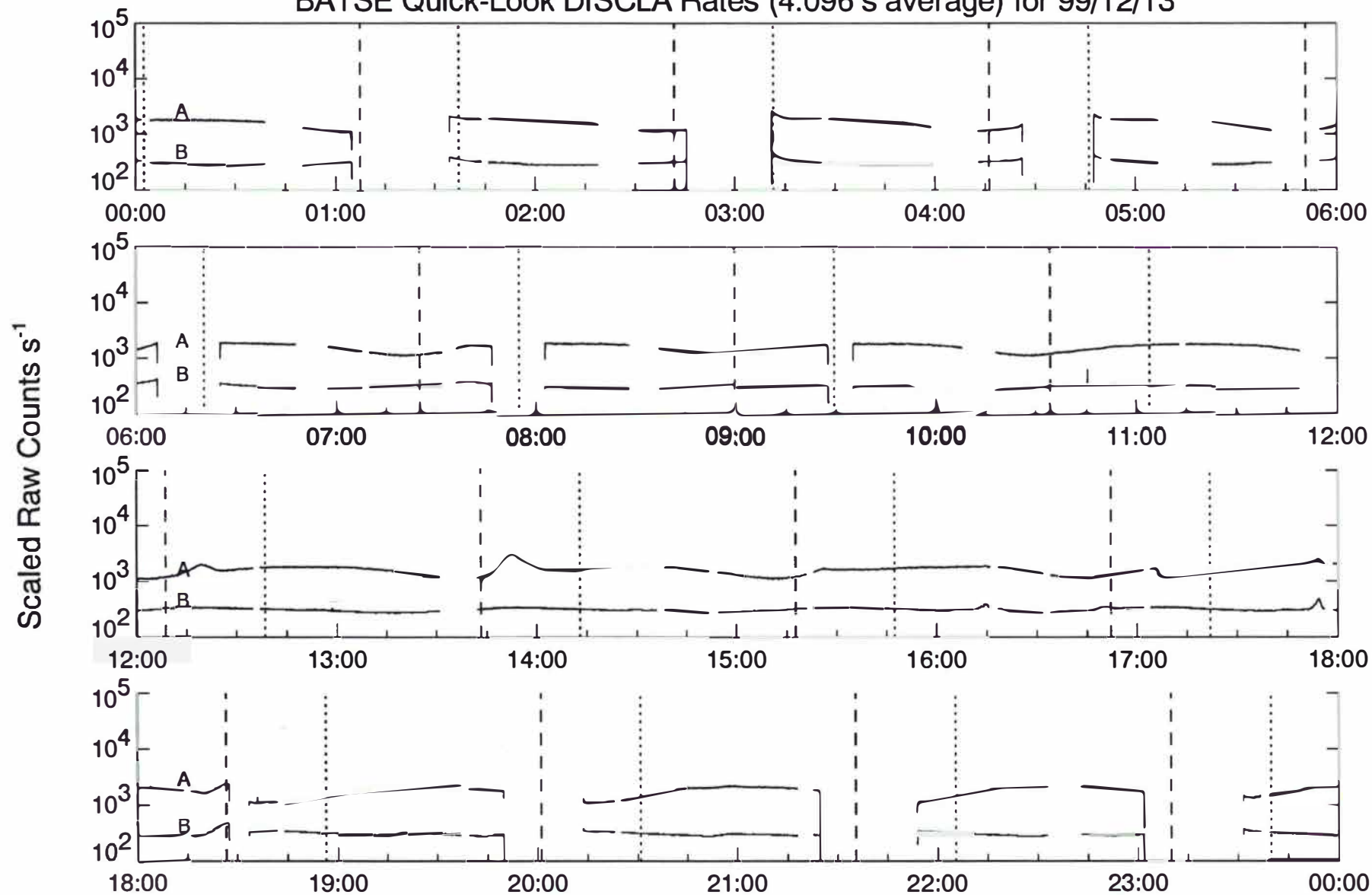
25 - 100 keV

COUNTS/1.024 S



13 / 12 / 99

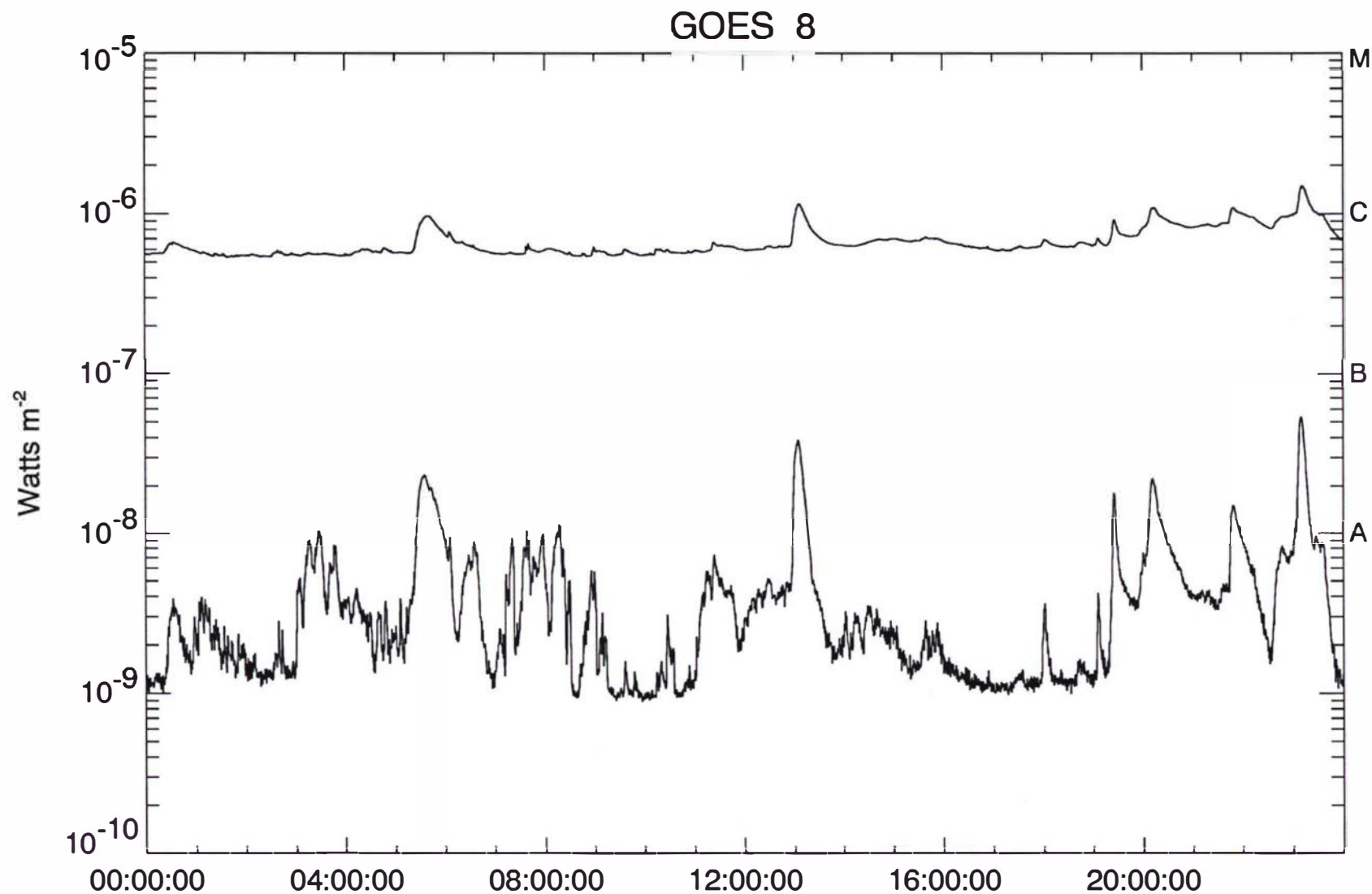
BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/13



Current Time: 99/12/17, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 99/12/13, 0000:00

Plot created: 99/12/17, 1007

Channel

1 (1.0 - 8.0 Angstroms)

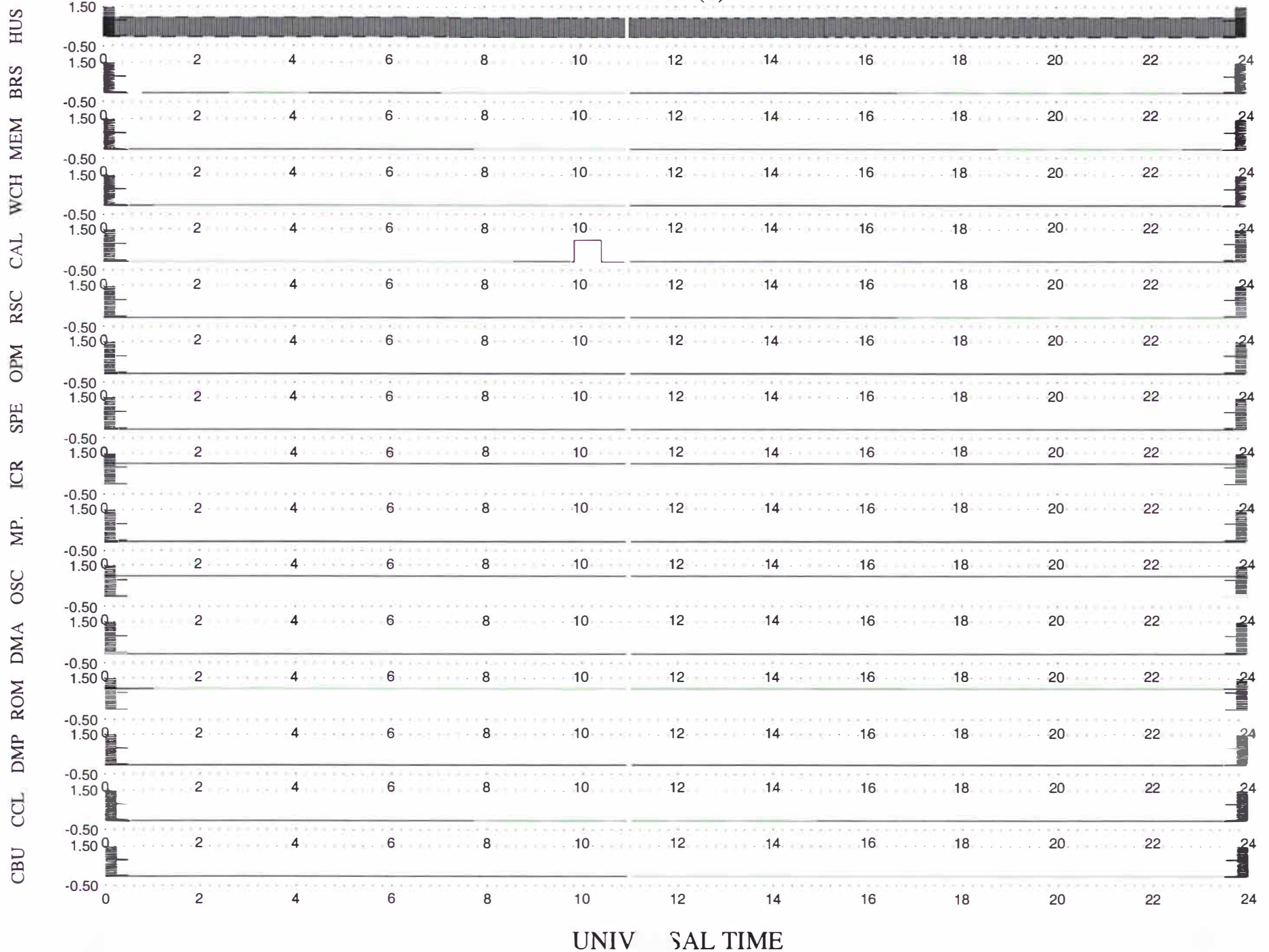
Background not subtracted

2 (0.5 - 4.0 Angstroms)

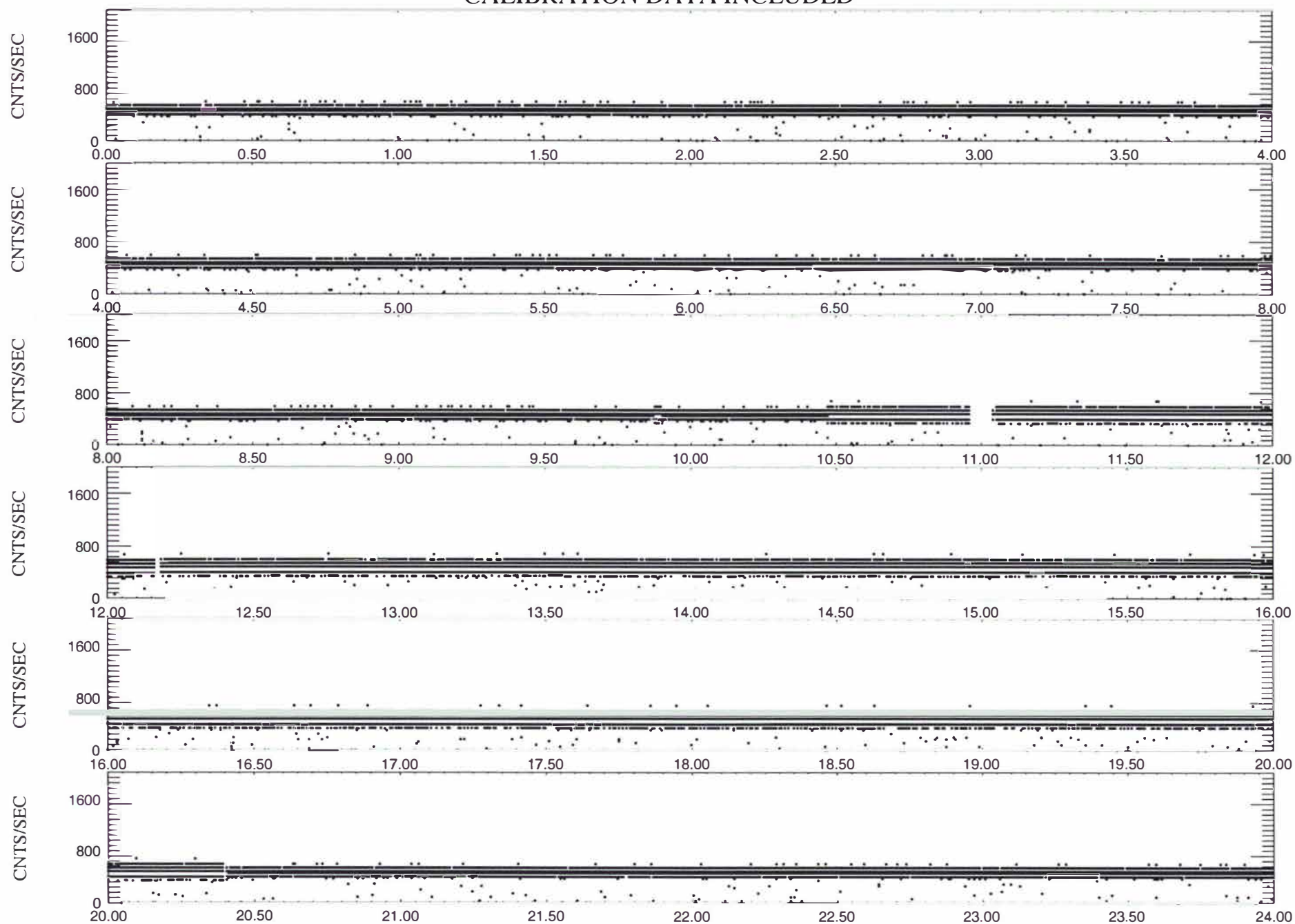
Background not subtracted

Sample average = 10

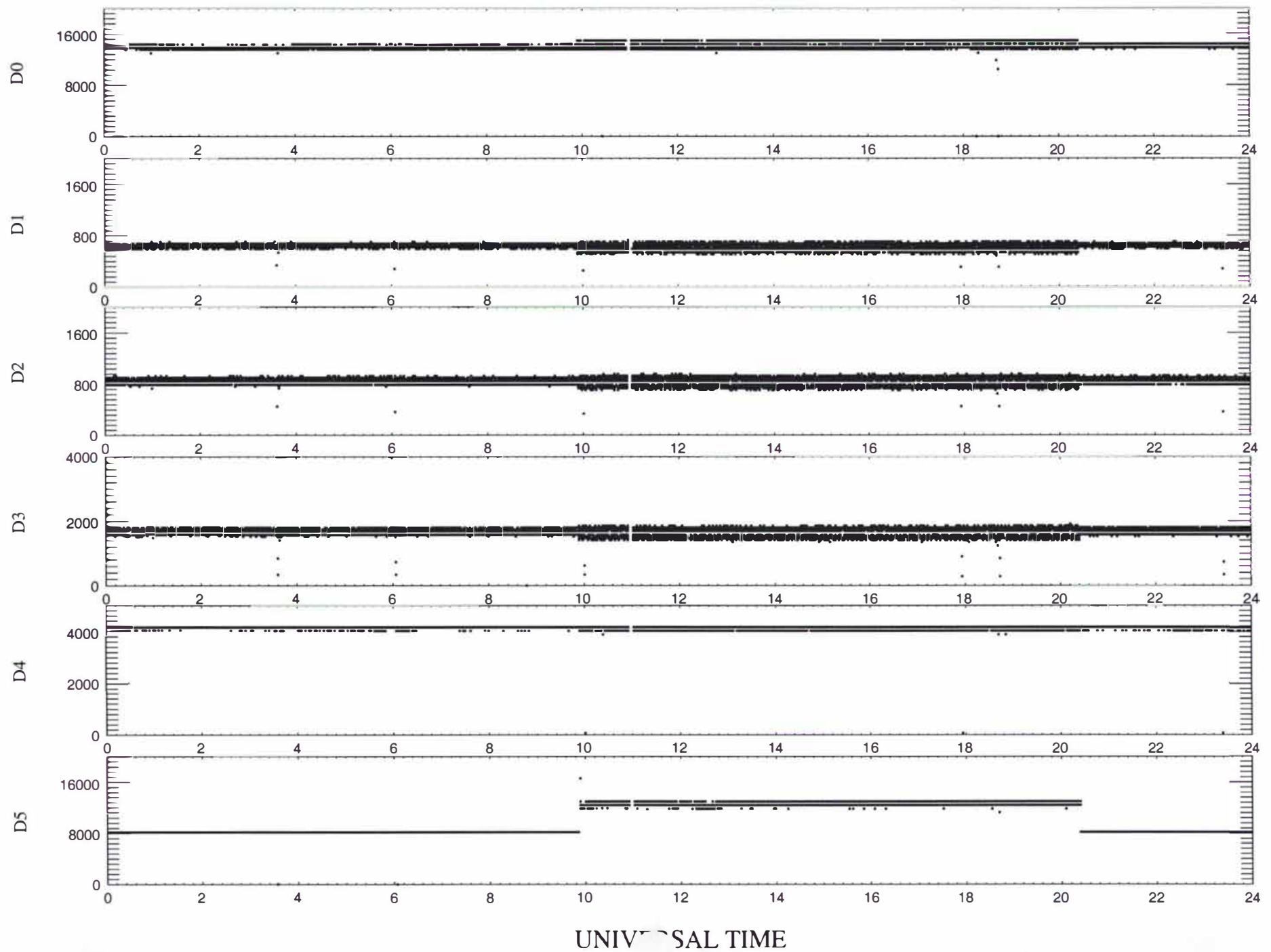
NO BURST (8)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From HENZE@joplin.msfc.nasa.gov Fri Dec 17 12:00 PST 1999
From: HENZE@joplin.msfc.nasa.gov
Date: Fri, 17 Dec 1999 14:09:51 -0600
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7904

BATSEARCH PROGRAM

BATSE BURST # 7904
EVENT OF 1999 DEC 14 DAY OF YEAR=348
EVENT CROSSING TIME AT BATSE : 85982. S. OR 23:53:02.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 189.000 60.000
BATSE PEAK COUNTING RATE: 19000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/12/ 99 IS:
RA= 165.928 DEC= -30.814 DIST= 4.226 AU
BATSE-ULYSSES DISTANCE = 632199160. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 87.22 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 102.39 SECS.
CROSSING TIME AT ULYSSES IS 86084. S. OR 23:54:44 +/- 417.24 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/12/ 99 IS:
RA= 316.491 DEC= -17.966 DIST= 1.750 AU
MARS-BATSE DISTANCE = 261771200. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 56.18 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 486.02 SECS.
CROSSING TIME AT MARS IS 86468. S. OR 24:01:08 +/- 133.32 SECONDS

BATSE BURST TRIGGER

NO.: 7904

TIME: TJD=1526 SECONDS=85982

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=110.8 AZIMUTH=330.4 ERROR= 3.6 DEGREES

COMMENTS:

SHORT SINGLE PULSE WITH SUBSTRUCTURE, DUR. APPROX. 0.17 S, STARTS AT APPROX.
T-0.1 S, MAX AT APPROX. T-0.01 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7904	991214	11526	85982	19000	189	+60	.2

BATSE BURST# 7904

ULYSSES RT

28 / 04 / 00

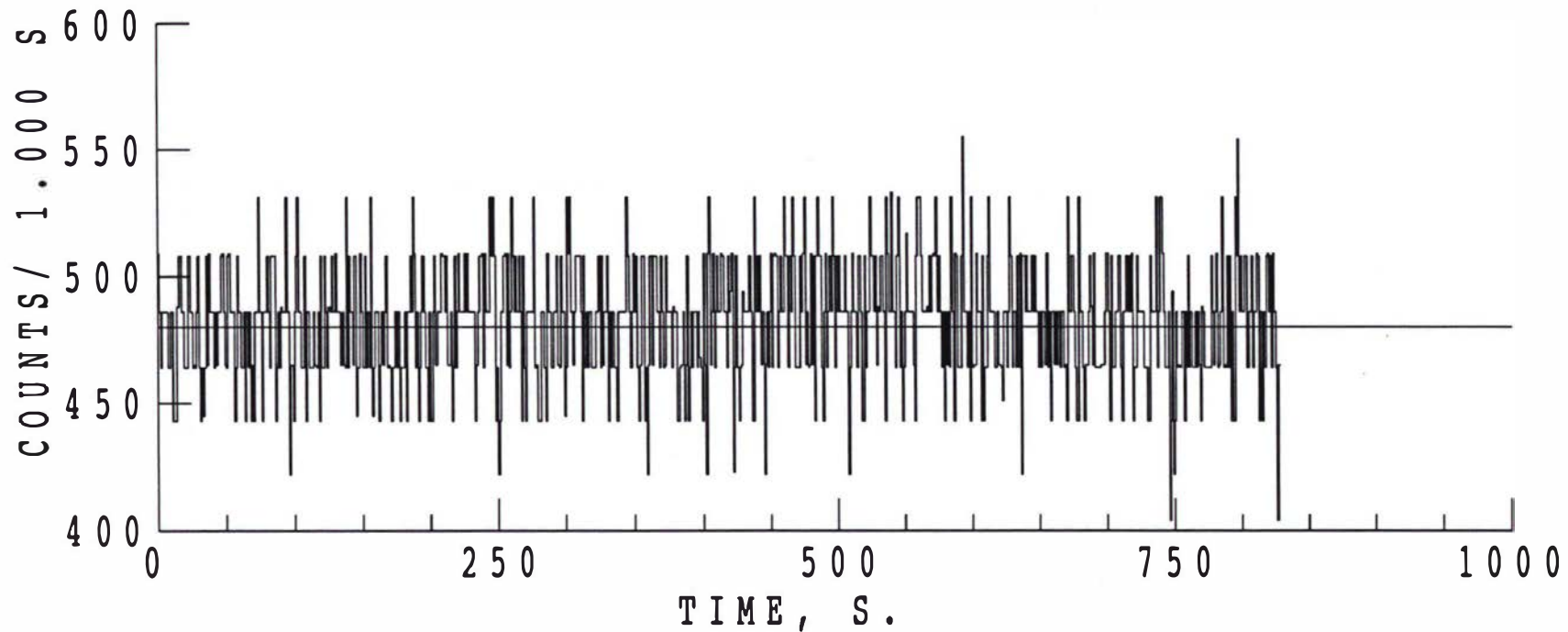
14 / 12 / 99 85680.422 s

0.500 S INTERVALS REGROUPED BY 2

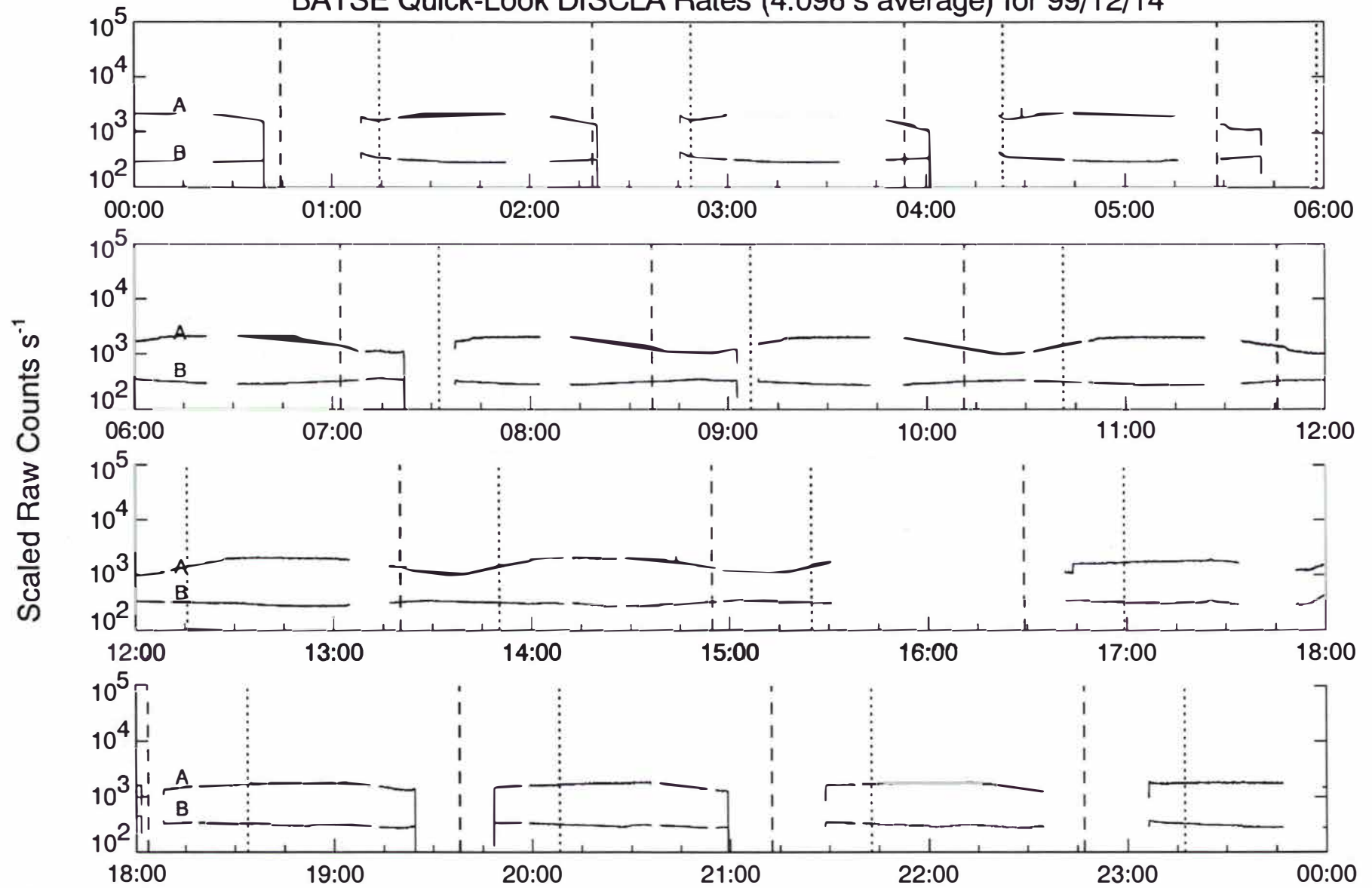
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/14

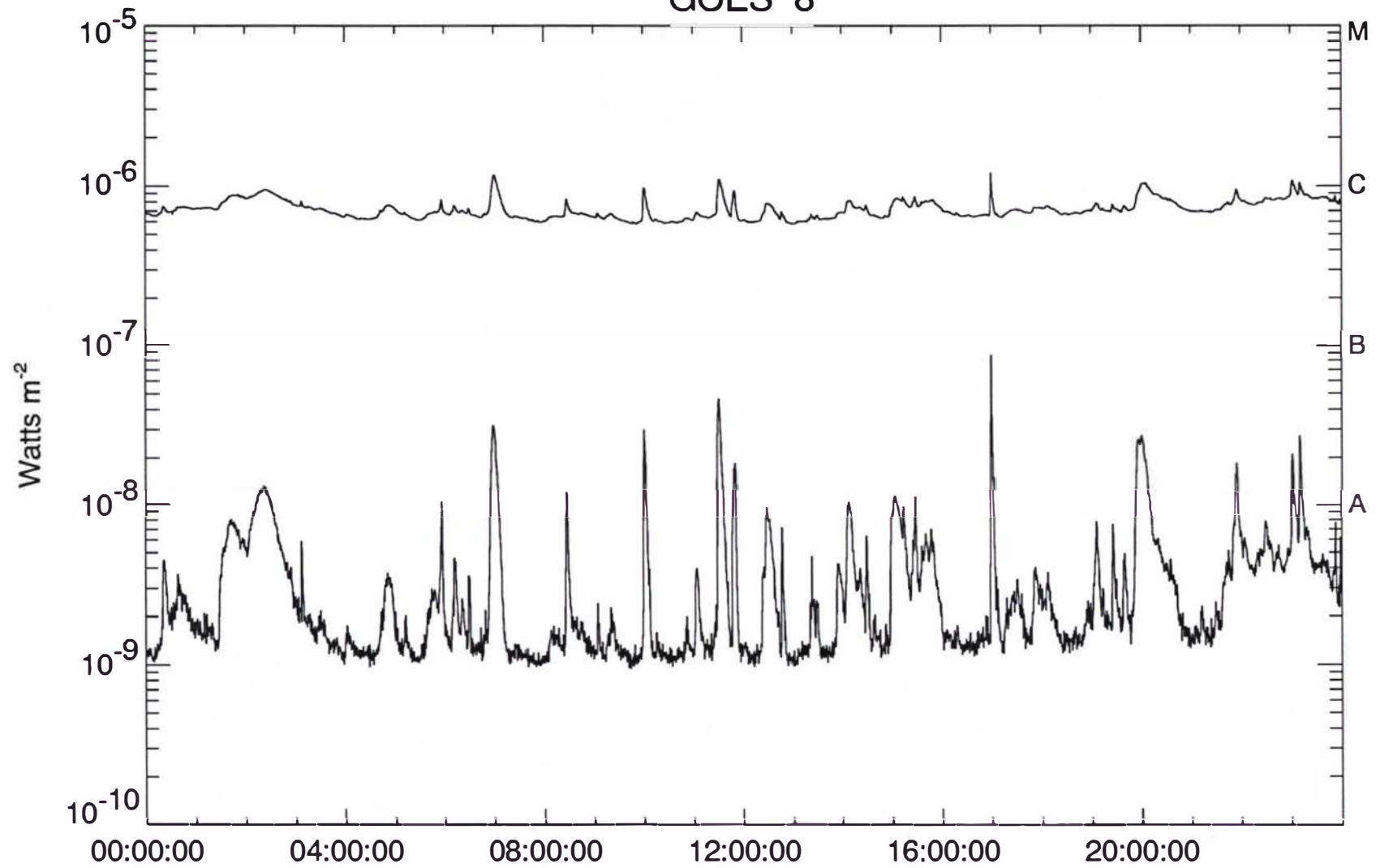


Current Time: 99/12/18, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/14, 0000:00

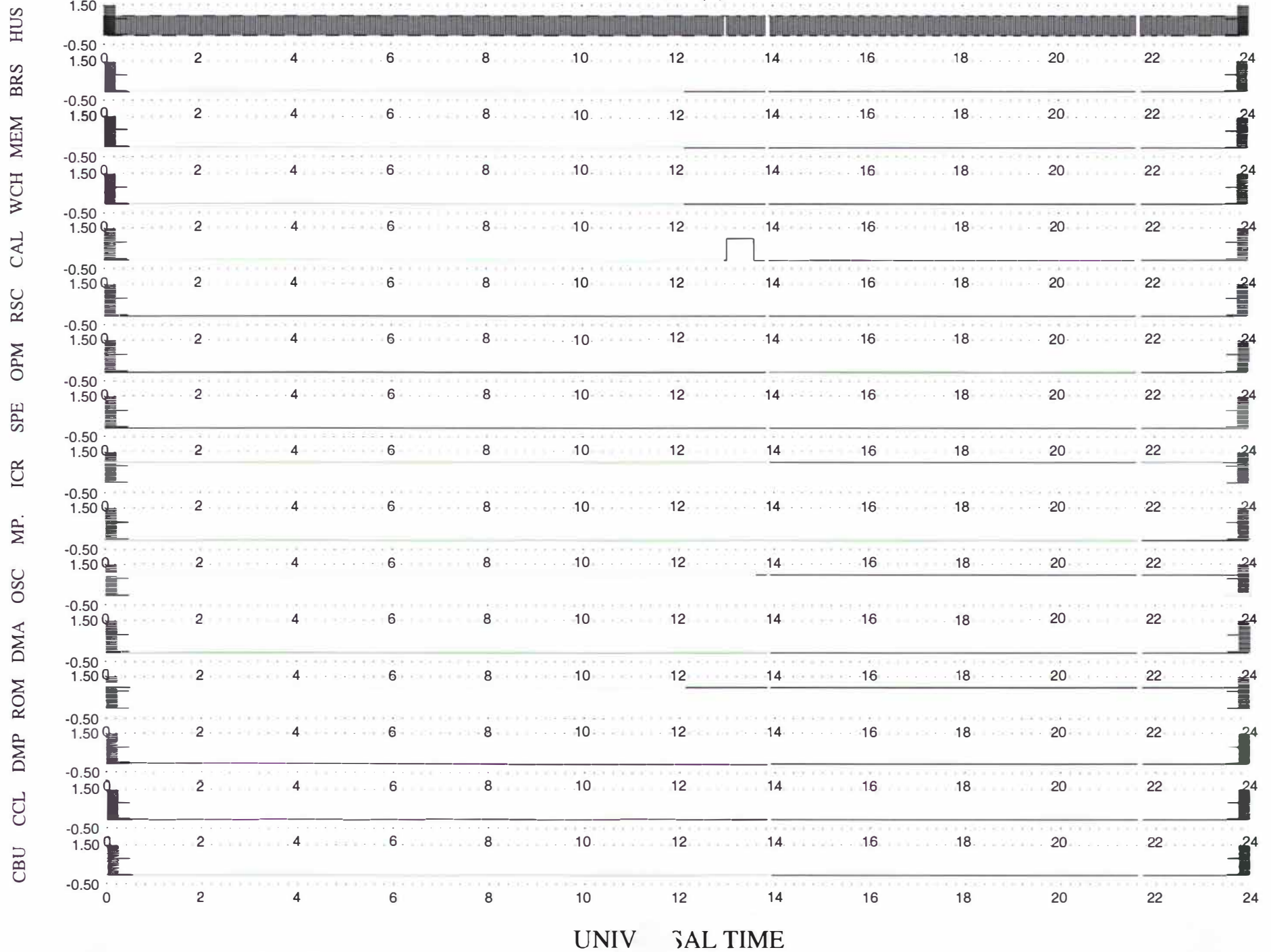
Plot created: 99/12/18, 1008

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

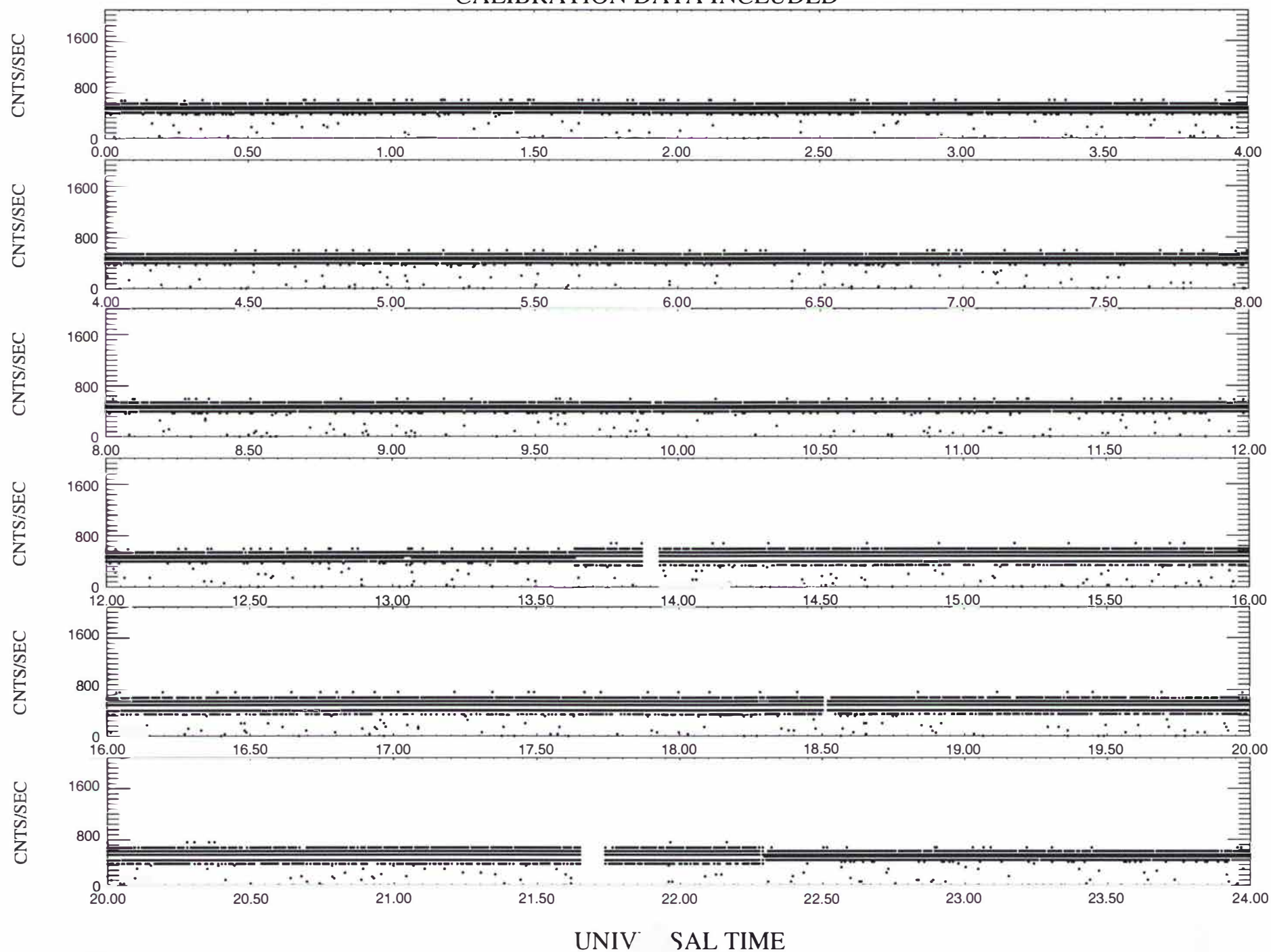
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

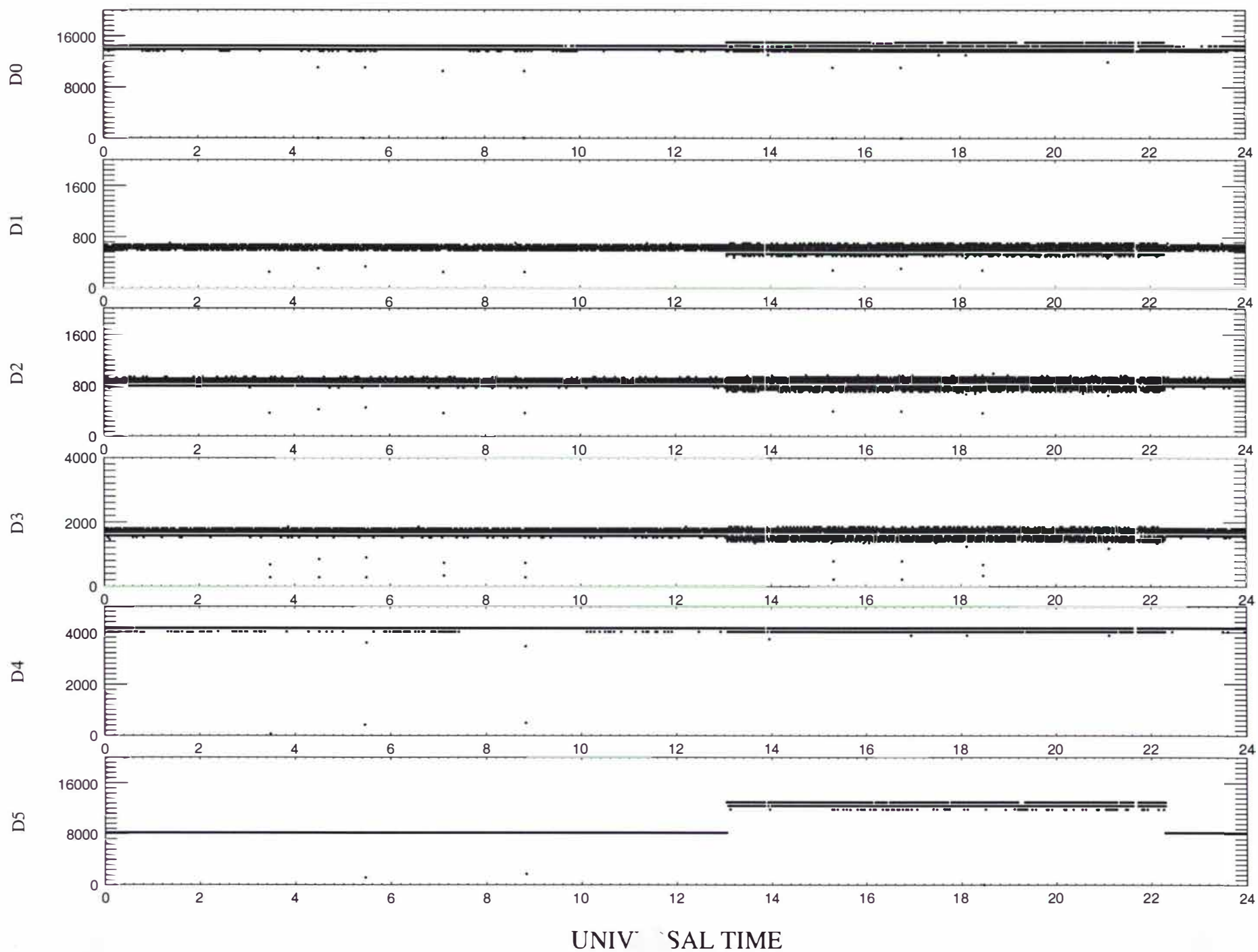
Sample average = 10

NO BURST (8)



CALIBRATION DATA INCLUDED





KONUS RI

ULYSSES RT

05 / 06 / 00

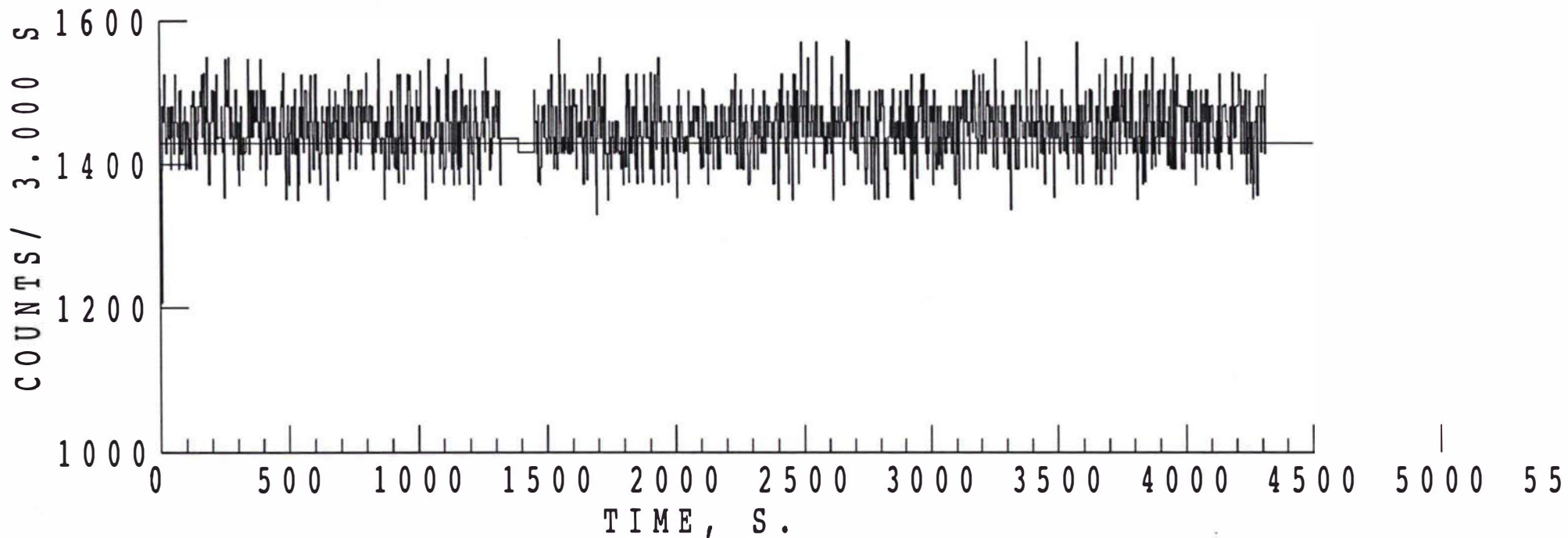
15 / 12 / 99 3816.468 s

0.500 S INTERVALS REGROUPED BY 6

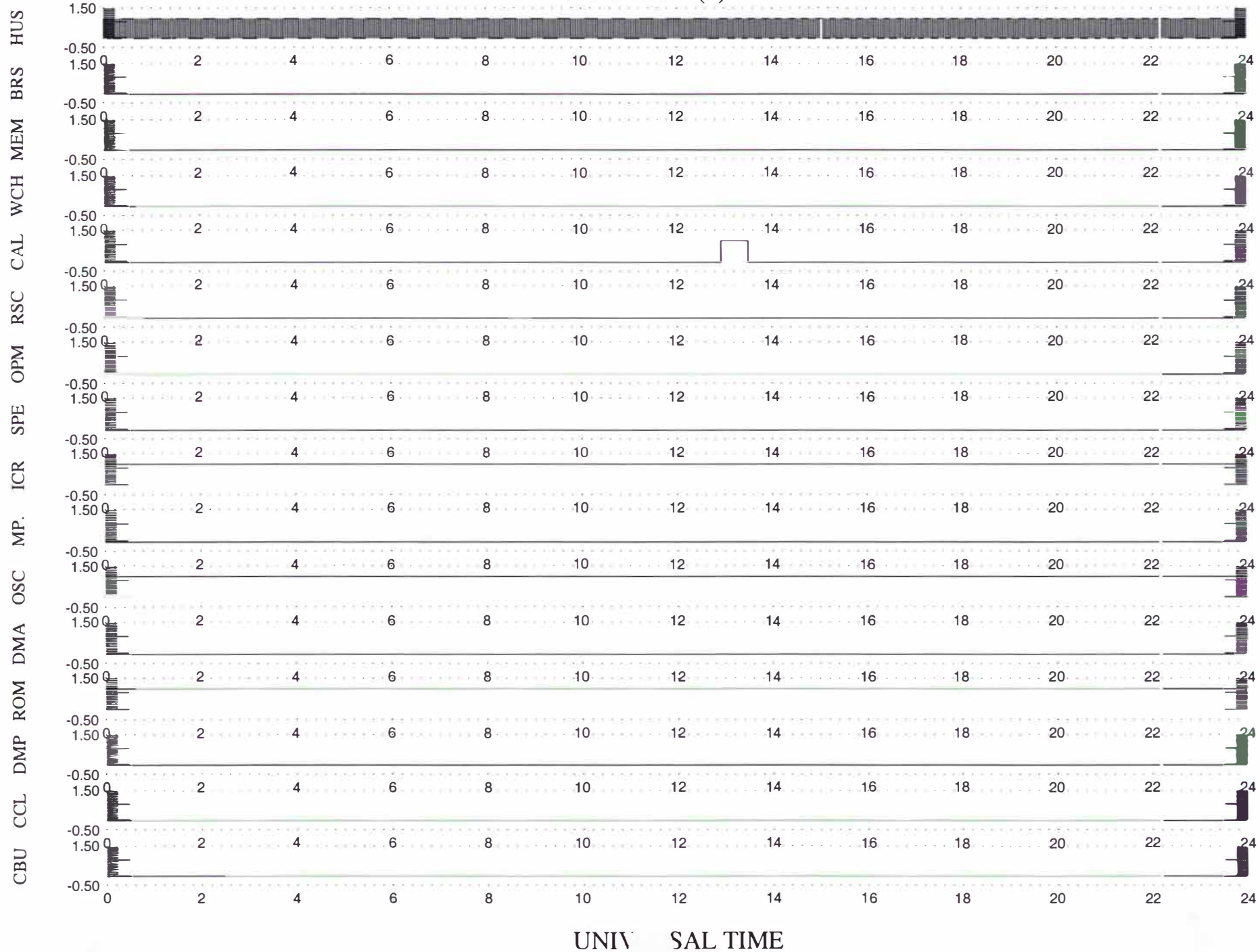
0 - 0 keV

W= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

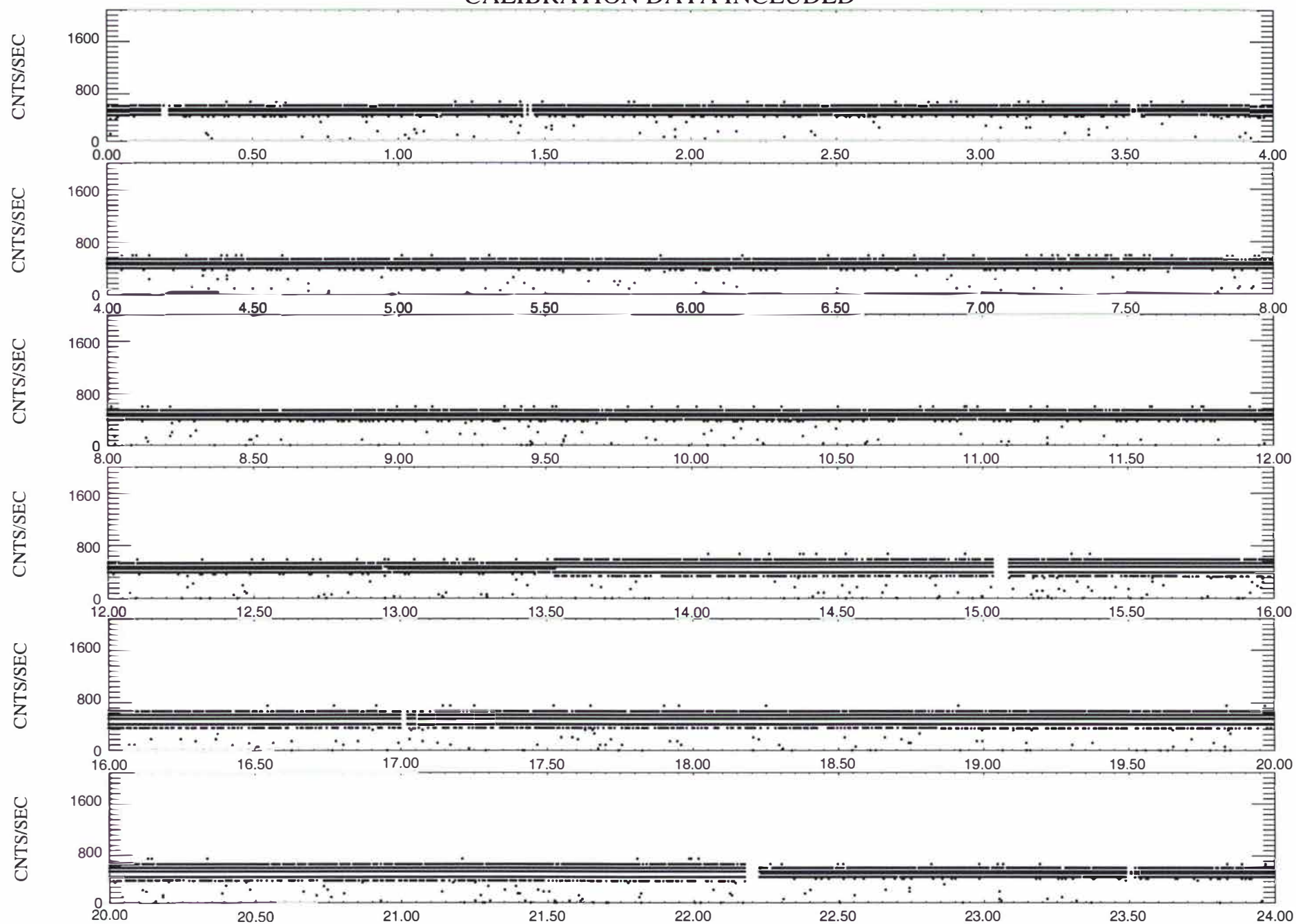
W= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



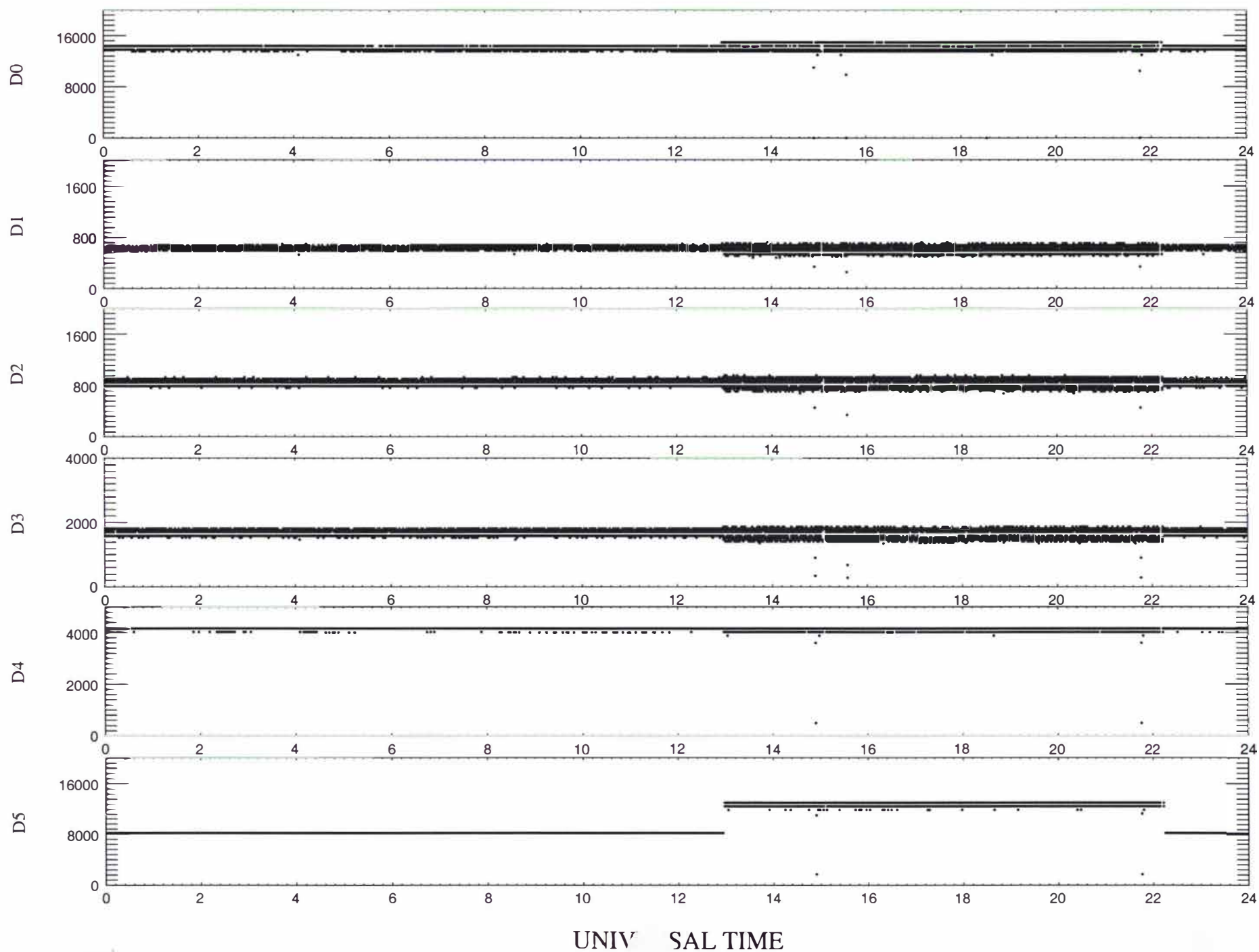
NO BURST (8)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



SAX GRBM
HUS DATA

ULYSSES RT

19 / 07 / 05

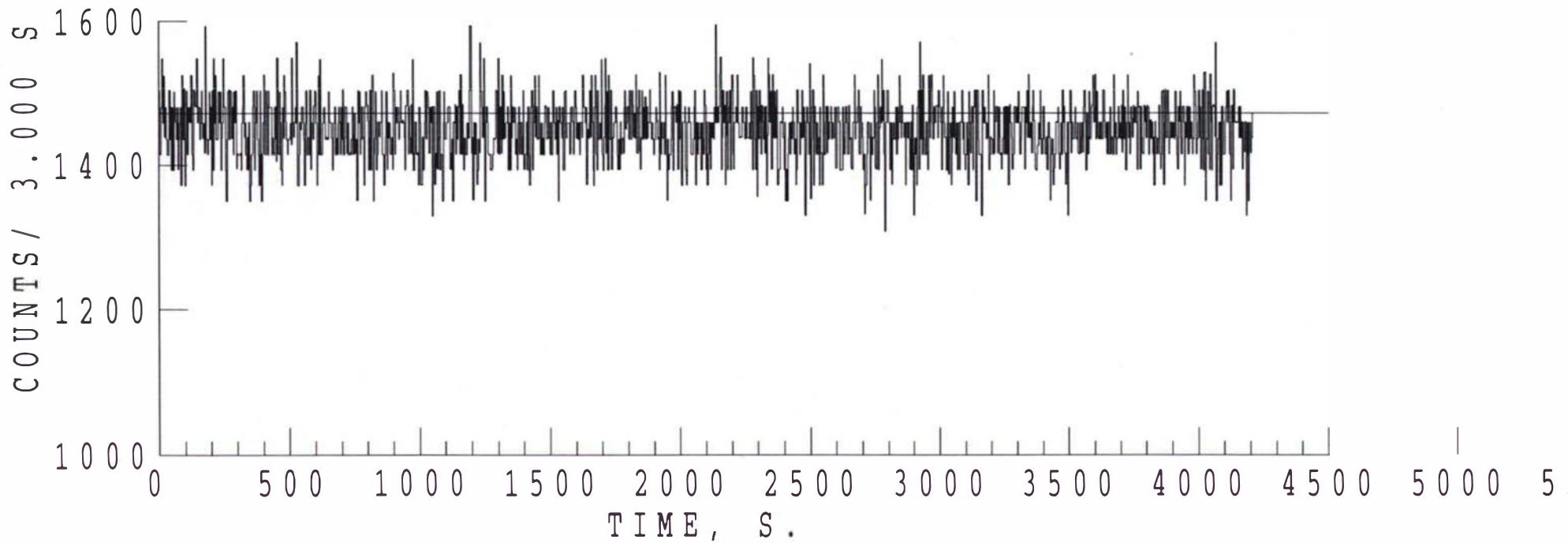
16 / 12 / 99 792.323 s

0.500 S INTERVALS REGROUPED BY 6

0 - 0 keV

N= 10 N= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 N= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@fender.msfc.nasa.gov Fri Dec 17 12:06 PST 1999

From: RICHARDSON@fender.msfc.nasa.gov

Date: Fri, 17 Dec 1999 14:15:25 -0600 (CST)

To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7905

TIME: TJD=1528 SECONDS=27409

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=9.4 AZIMUTH=8.9 ERROR=0.4 DEGREES

COMMENTS:

SOLAR FLARE, NO GOES, NO OPTICAL.

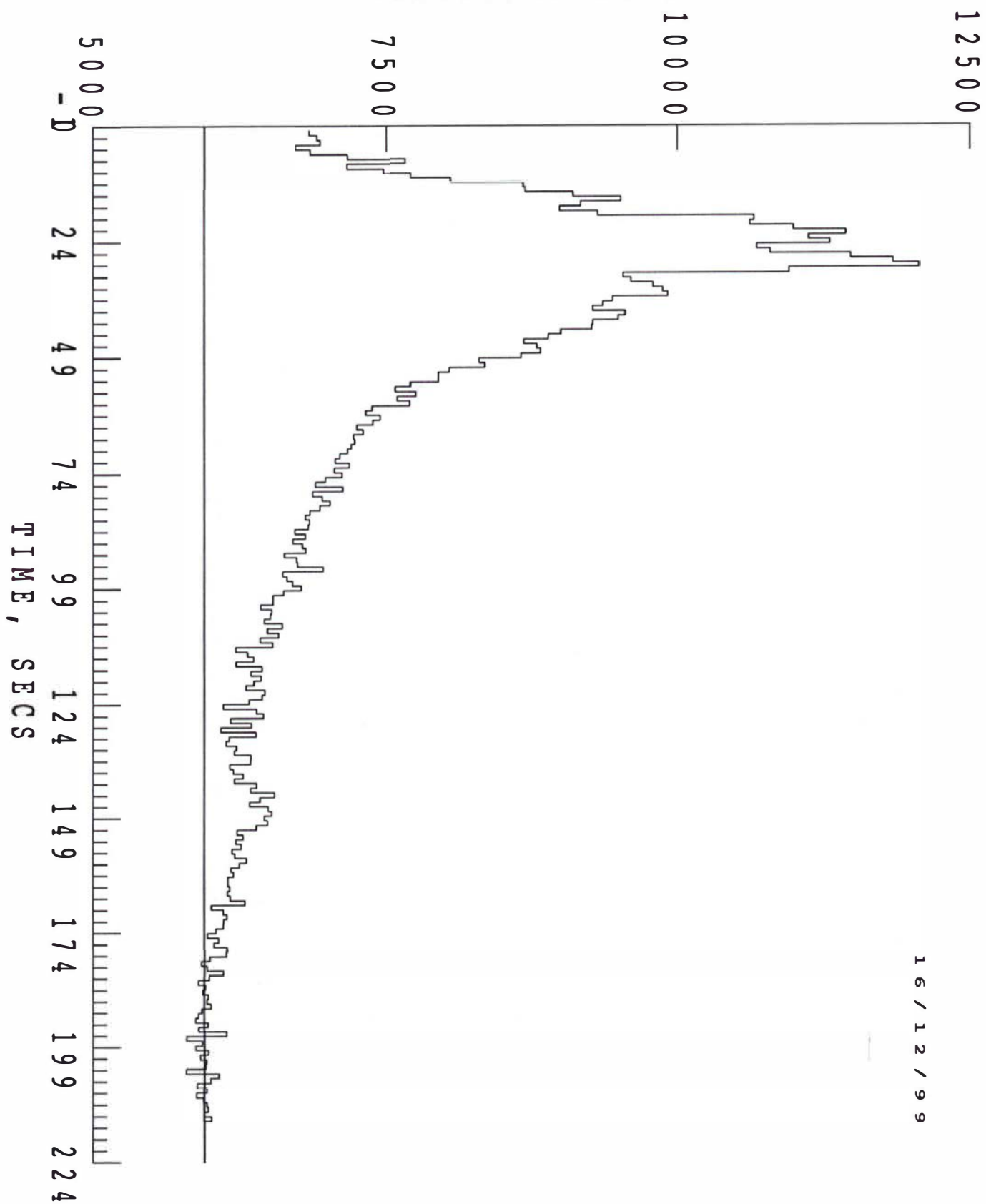
SINGLE PULSE WITH EXTENDED EMISSION. PEAK AT APPROX. T+18 SEC.

TOTAL DURATION APPROX. = 300 SEC. NOT VISIBLE ABOVE 300KEV.

BACODINE 7905 16/12/99 27397.881

25 - 100 keV

COUNTS/1.024 S



BACODINE# 7905

ULYSSES RT

21 / 12 / 99

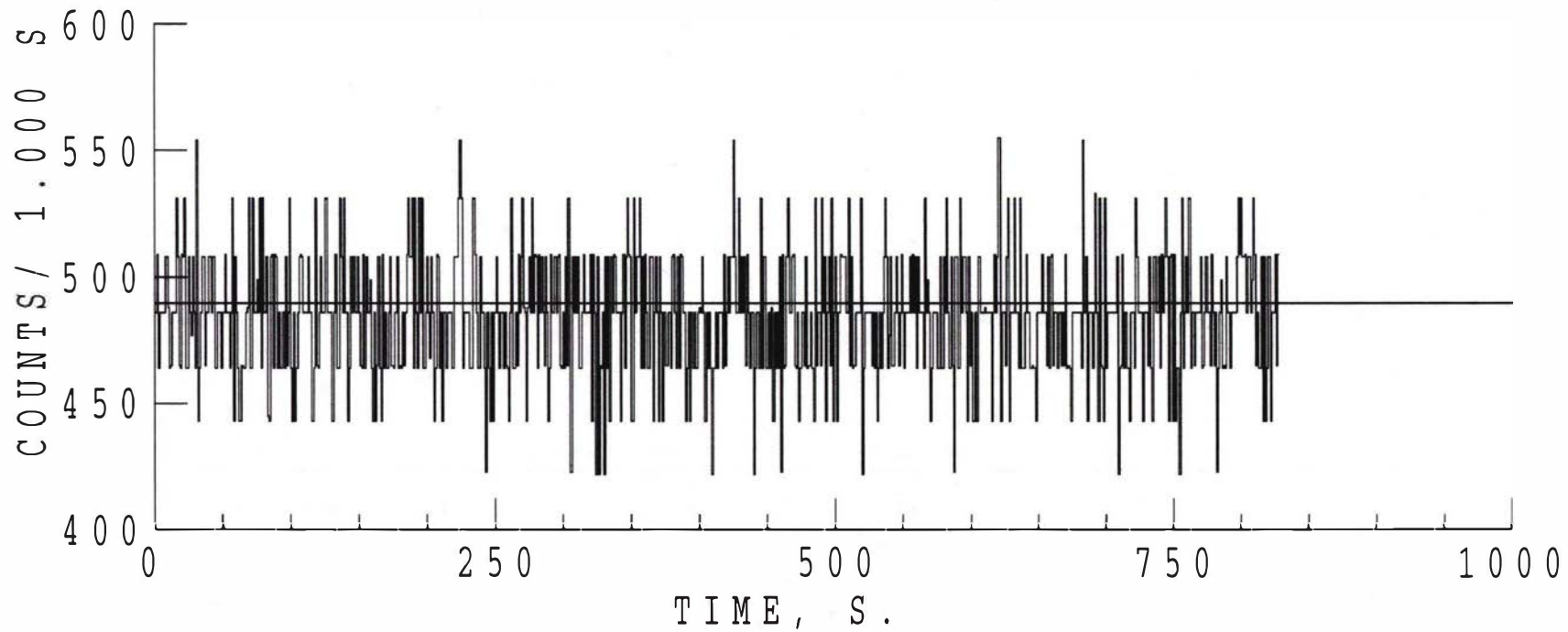
16 / 12 / 99 26784.086 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



Date: June 12 '00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

- ☒ BATSE ephemeris for T_0 ?
- ☒ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data

- ☒ Final, correct time used? (Files postmarked vwx@bocc1, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times)
- ☒ BATSE >100 keV data used for NEAR correlation?

- ☒ ACCESS database updated?

*Extreme spectral variability causes problems. Best results obtained when only a small portion of the Ulysses time history is used.
High χ^2 for all comparisons*

From RICHARDSON@fender.msfc.nasa.gov Fri Dec 17 09:20 PST 1999
From: RICHARDSON@fender.msfc.nasa.gov
Date: Fri, 17 Dec 1999 11:30:11 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7906

BATSEARCH PROGRAM

BATSE BURST # 7906
EVENT OF 1999 DEC 16 DAY OF YEAR=350
EVENT CROSSING TIME AT BATSE : 58021. S. OR 16:07:01.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 78.000 11.000
BATSE PEAK COUNTING RATE: 296000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 16/12/ 99 IS:
RA= 165.864 DEC= -31.174 DIST= 4.196 AU
BATSE-ULYSSES DISTANCE = 627688159. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 86.13 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 141.28 SECS.
CROSSING TIME AT ULYSSES IS 58162. S. OR 16:09:22 +/- 414.82 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 16/12/ 99 IS:
RA= 318.037 DEC= -17.492 DIST= 1.761 AU
MARS-BATSE DISTANCE = 263376016. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 58.34 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 461.18 SECS.
CROSSING TIME AT MARS IS 58482. S. OR 16:14:42 +/- 136.82 SECONDS

BATSE BURST TRIGGER

NO.: 7906

TIME: TJD=1528 SECONDS=58021

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

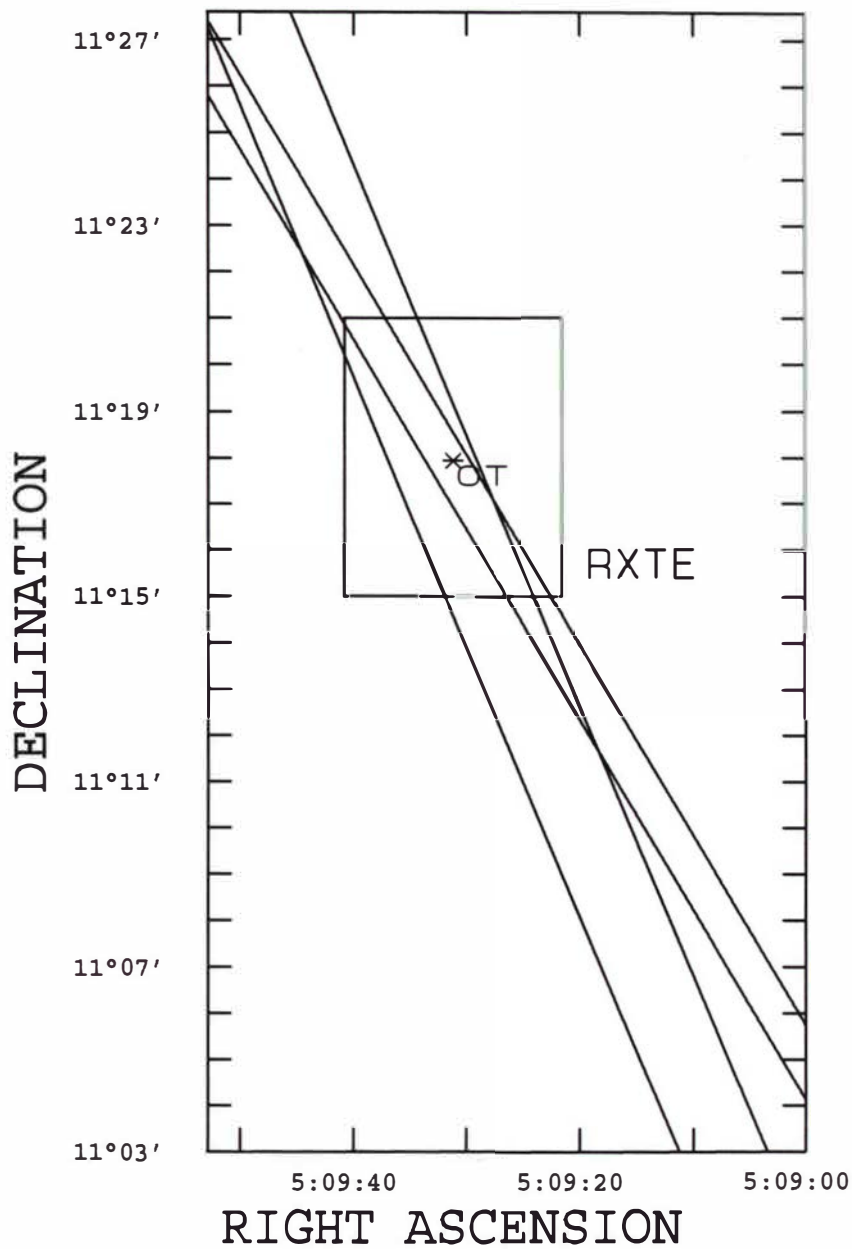
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=157.8 AZIMUTH=164.2 ERROR=1.0 DEGREES

COMMENTS:

GRB. VERY STRONG EVENT. TRIGGERED ON WEAK PULSE AT T WITH DURATION APPROX.
=3 SEC. STRONG EMISSION WITH LOTS OF STRUCTURE BEGINS AT APPROX. T+16 SEC.
AND HAS EXTENDED EMISSION. TOTAL DURATION APPROX. = 55 SEC.
VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7906	991216	11528	58021	296000	078	+11	55



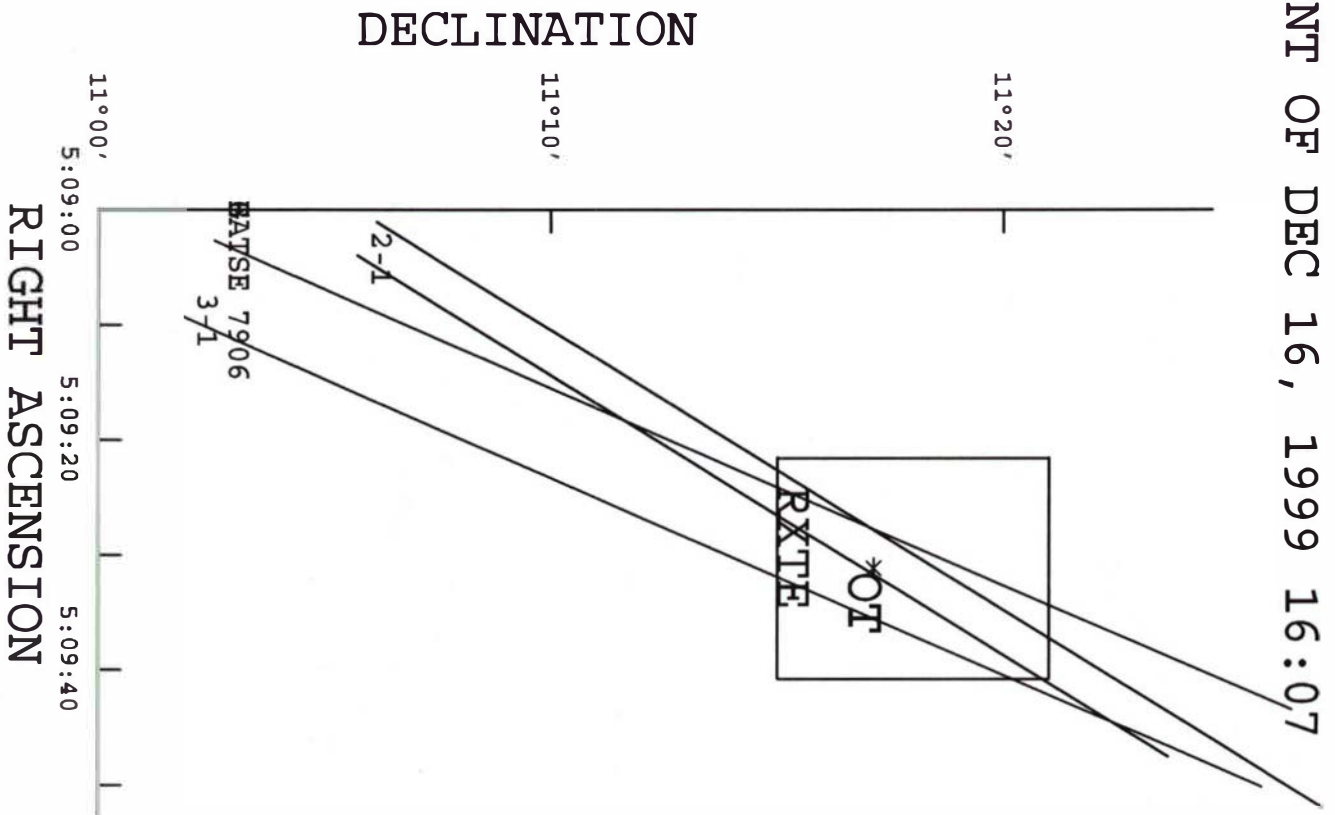
Using part of Uly time list,
uncertainty ± 250 ms

Dec 16

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 3 NEAR

EVENT OF DEC 16, 1999 16:07

12/ 6/ 0



ULYSSES

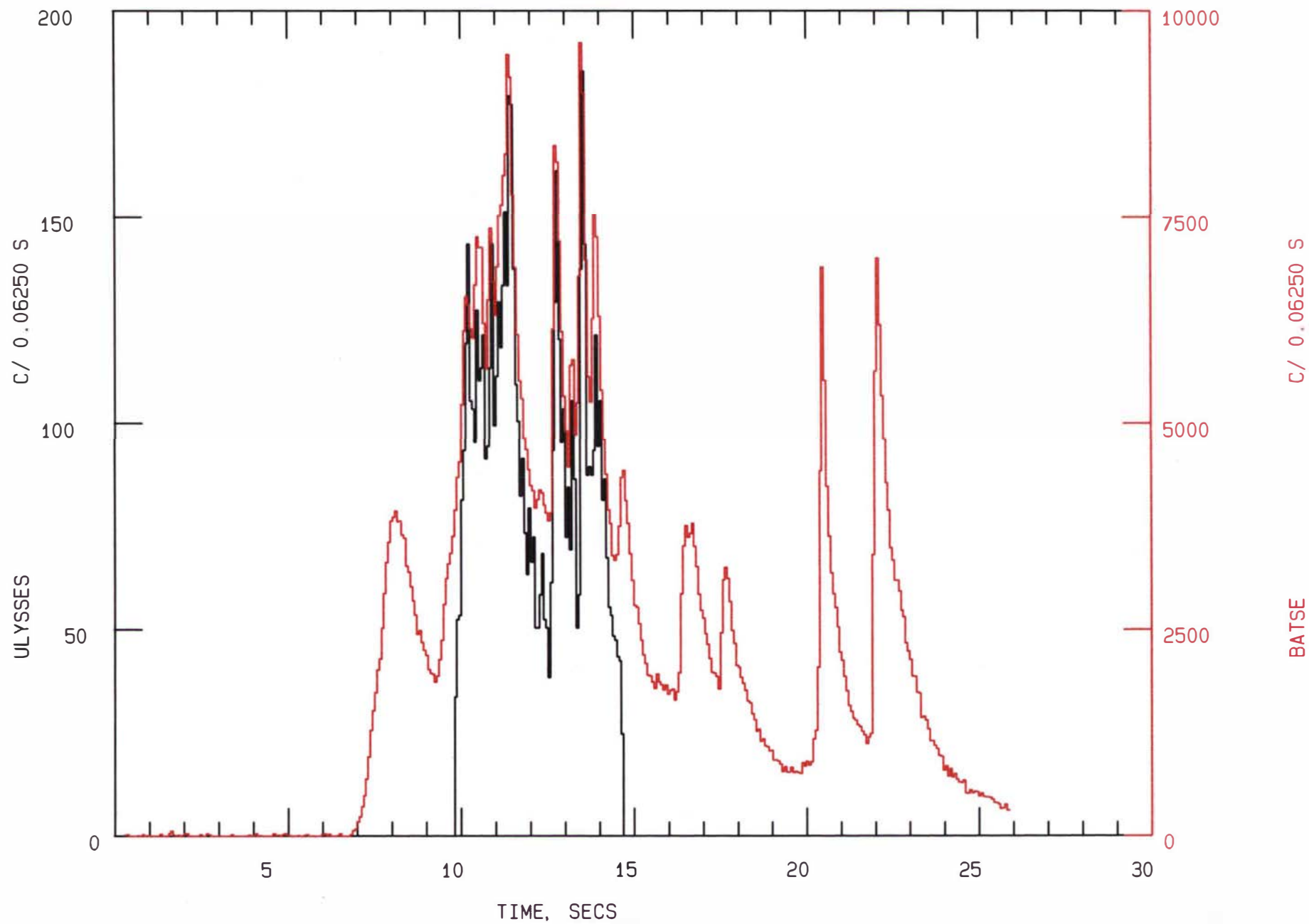
-BATSE

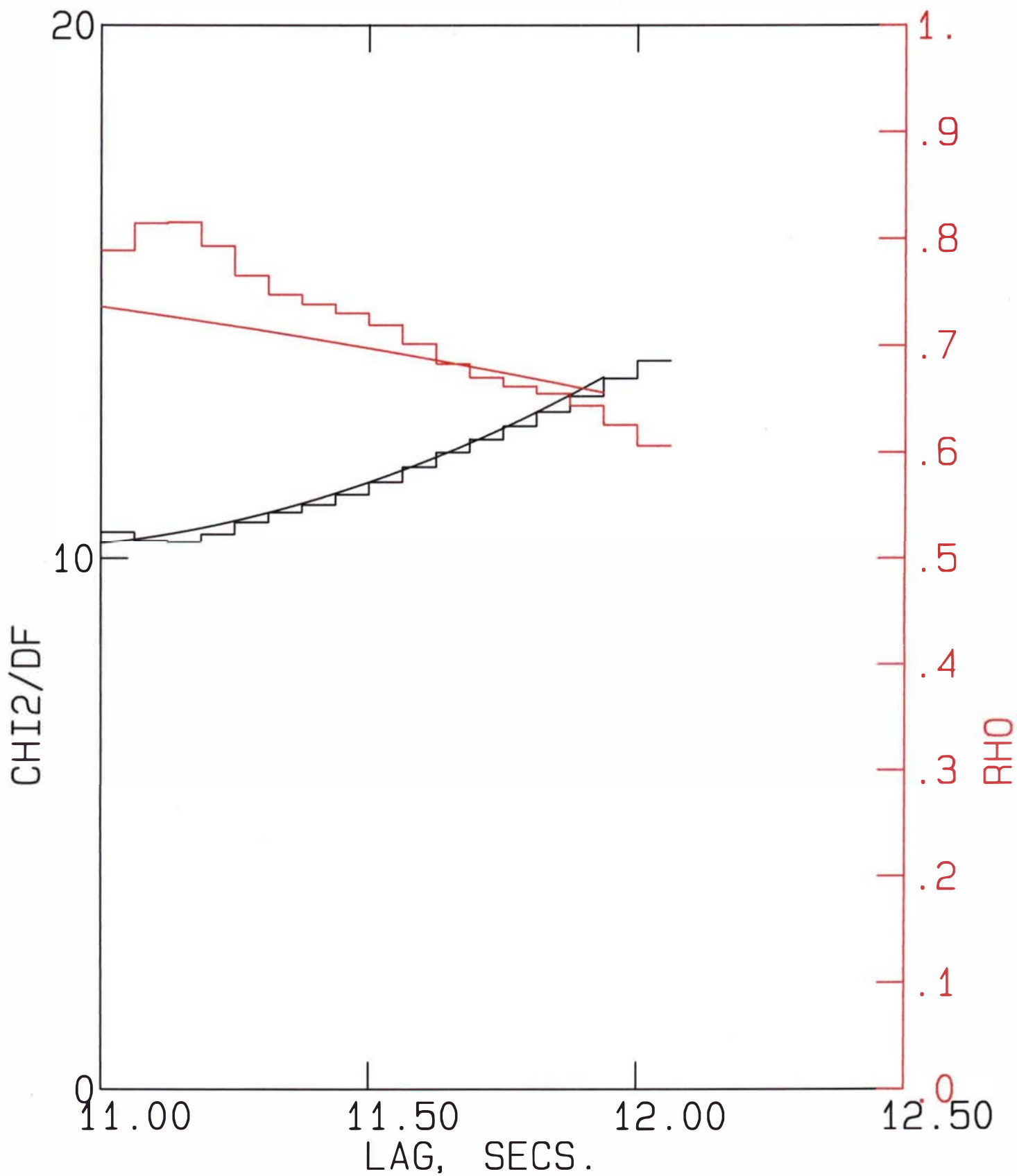
CORRELATION

16/12/99

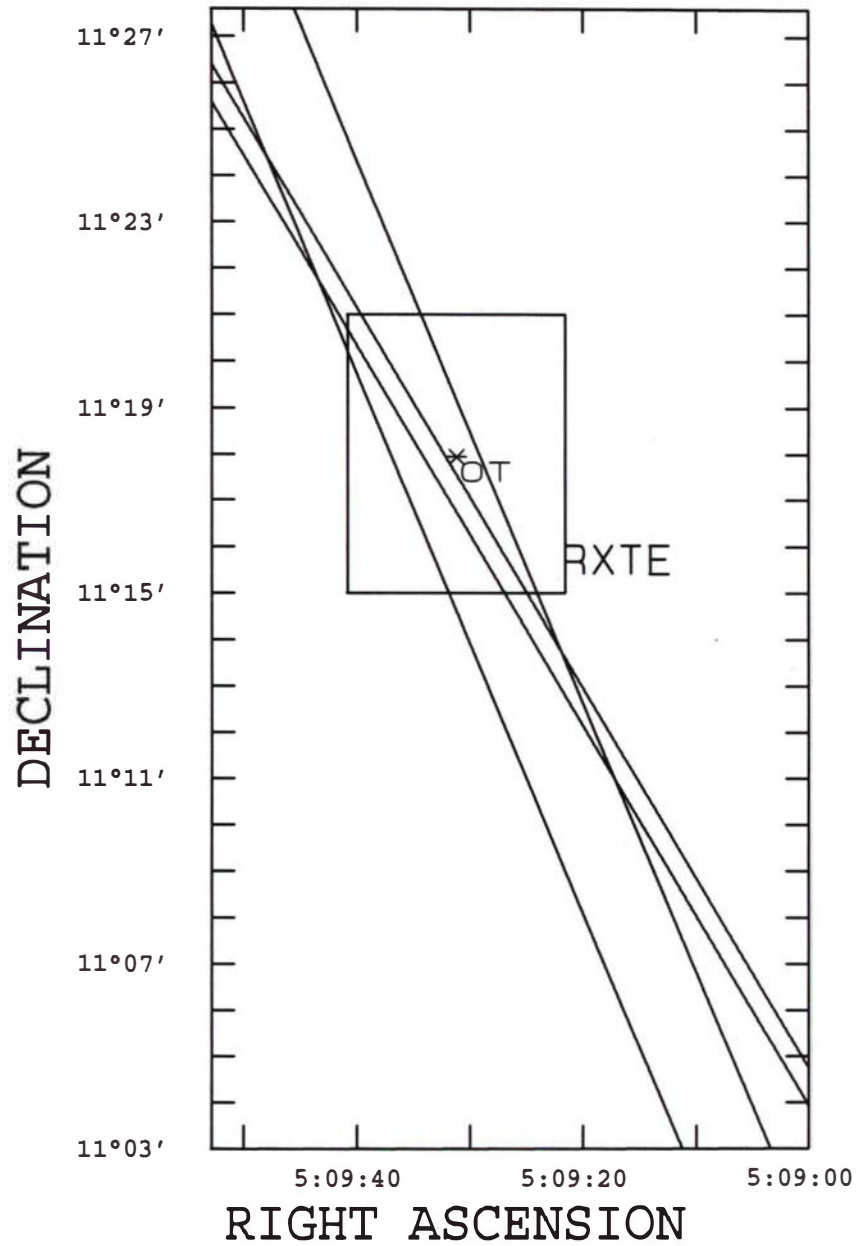
58224.403

12/ 6/ 0





Using all of fly time history,
uncertainty ± 125 ms

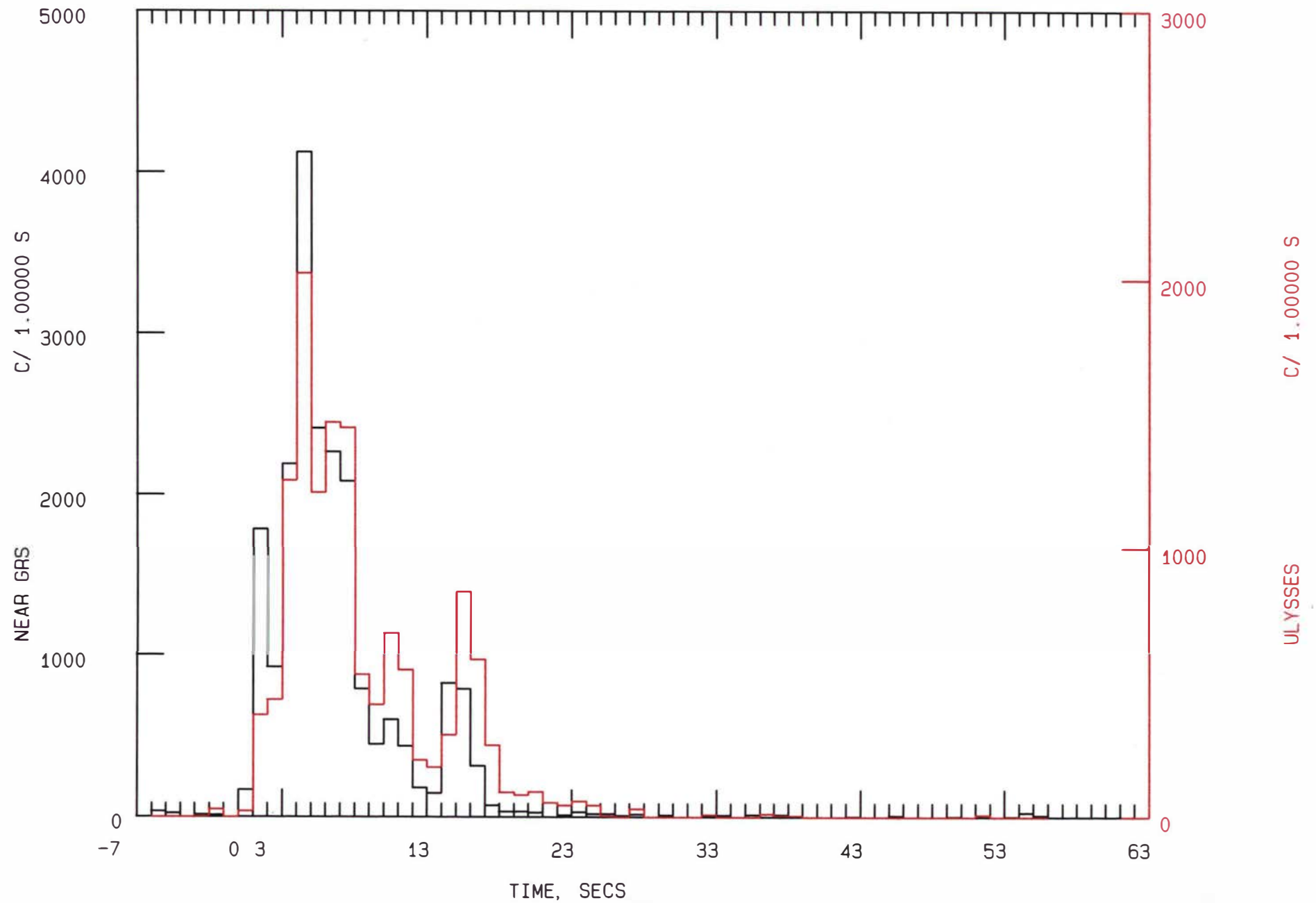


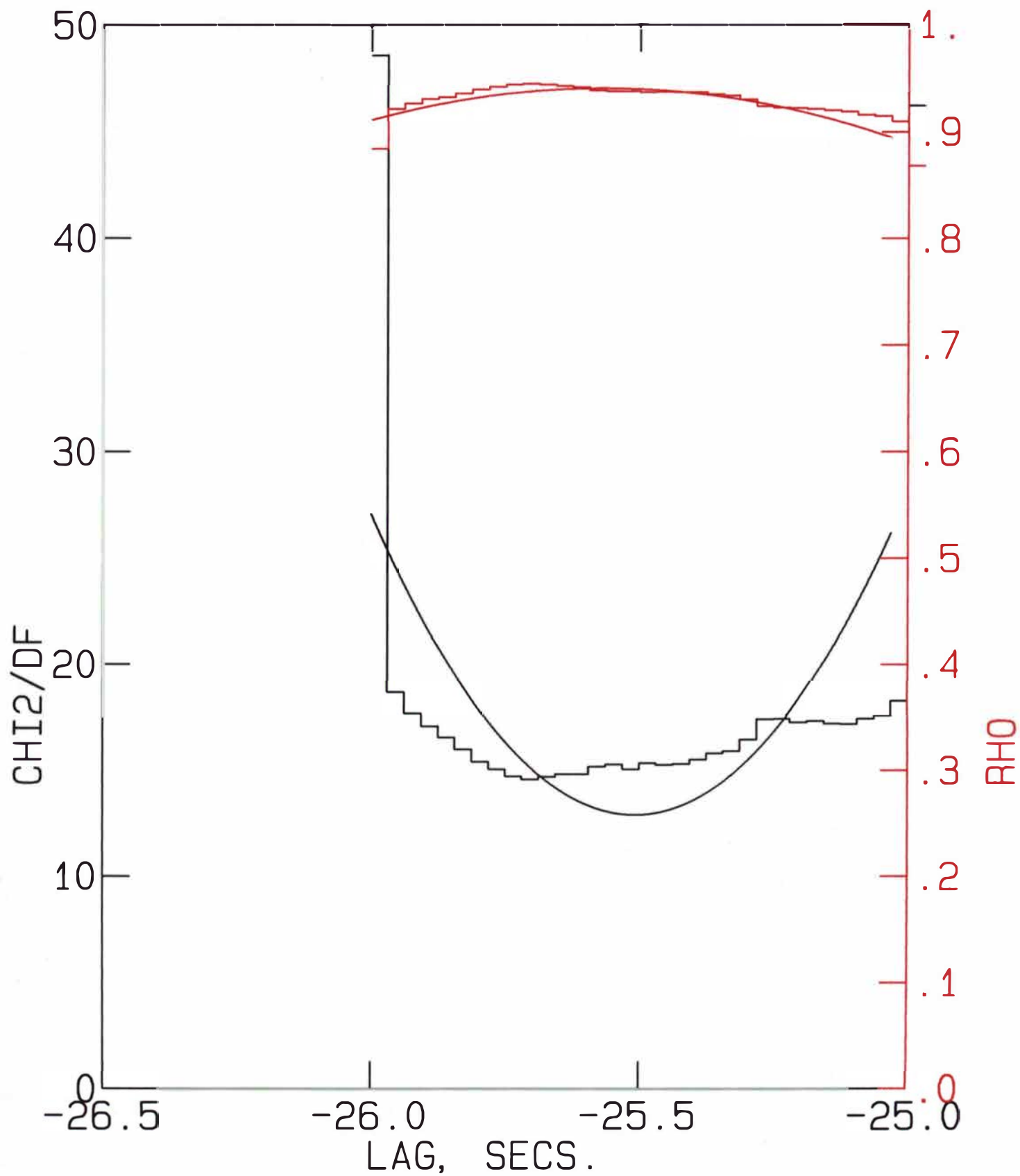
NEAR GRS -ULYSSES

CORRELATION

16/12/99 58774.863

12/ 6/ 0





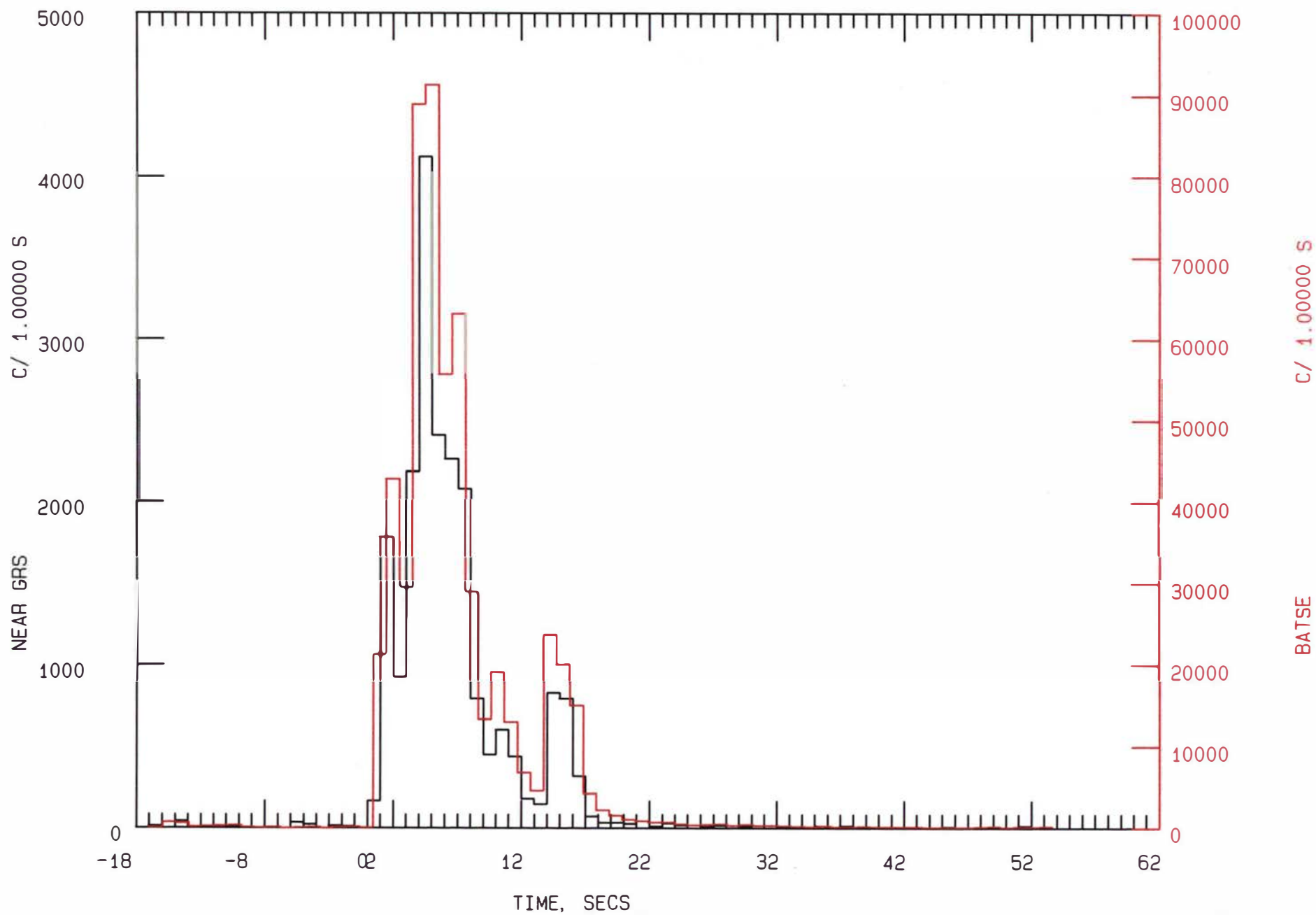
NEAR GRS -BATSE

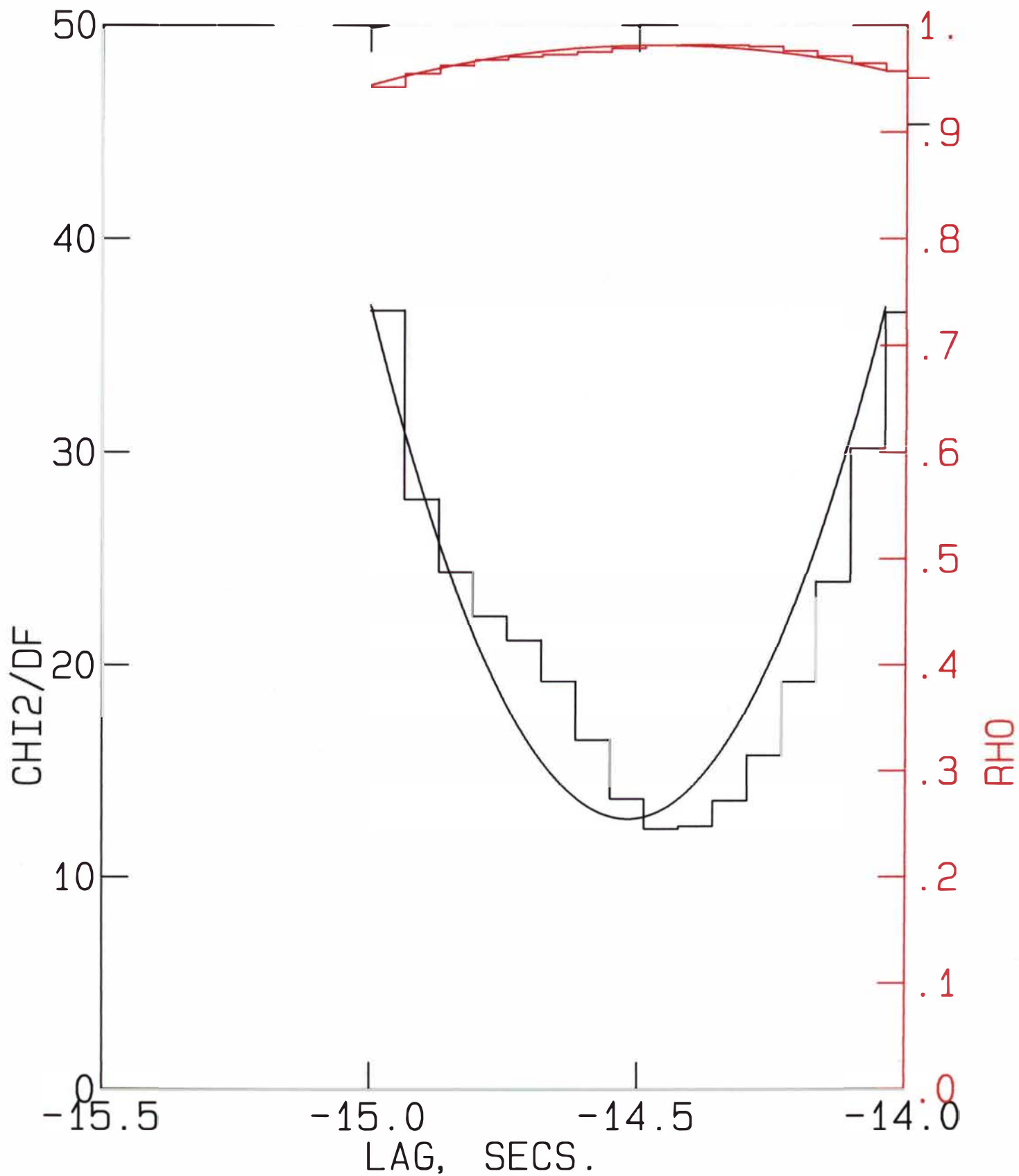
CORRELATION

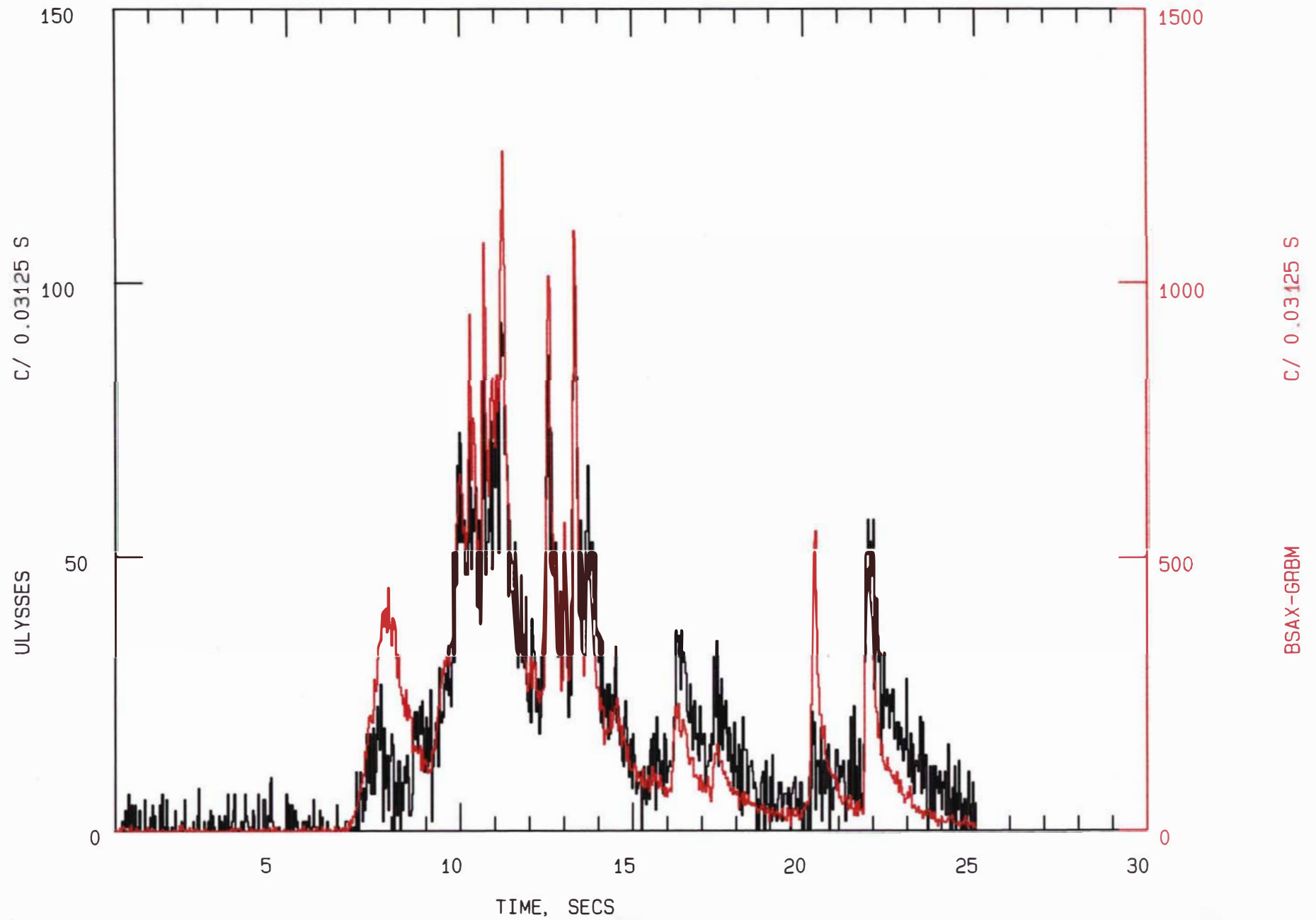
16/12/99

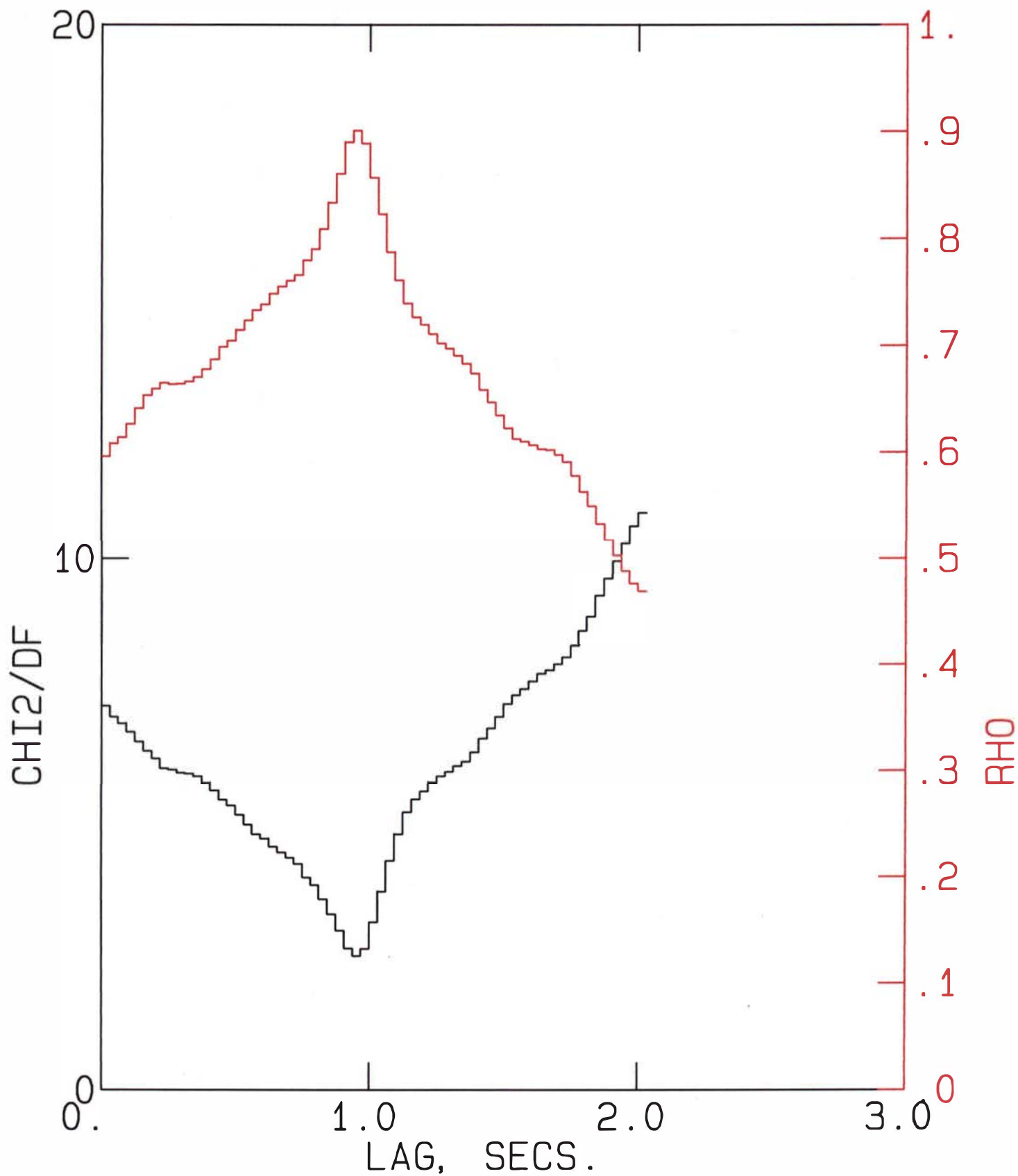
58774.863

12/ 6/ 0









ULYSSES

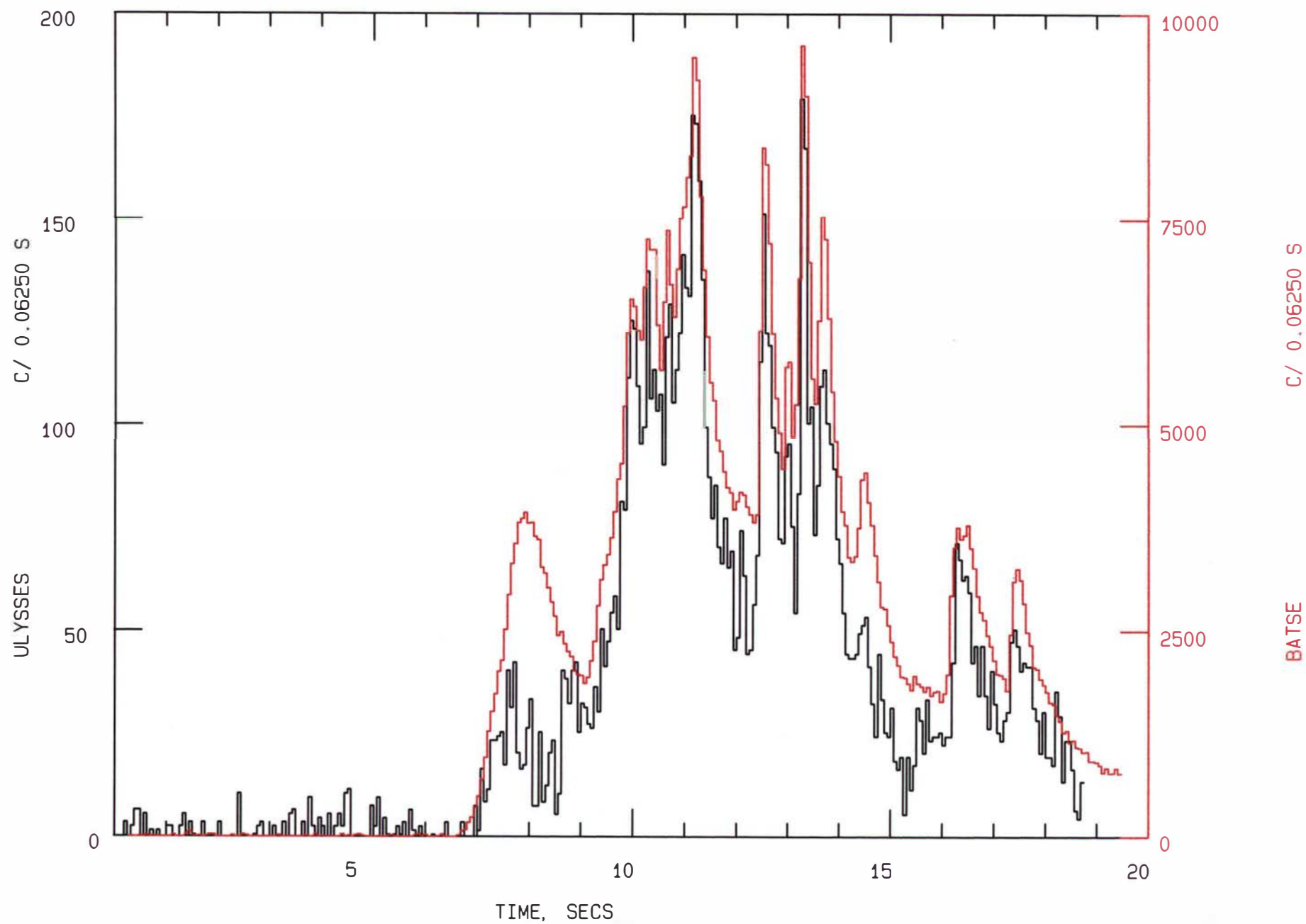
-BATSE

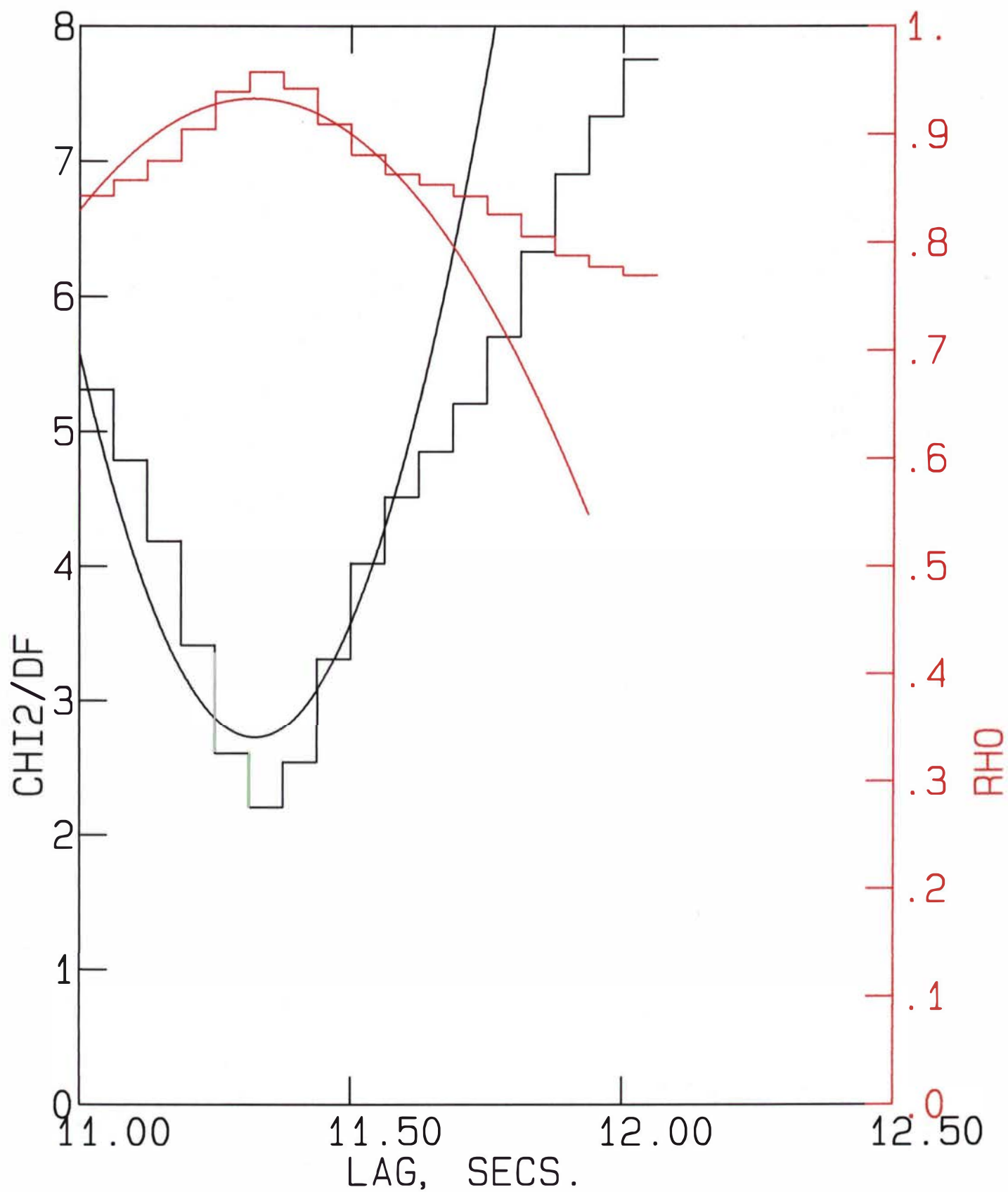
CORRELATION

16/12/99

58224.403

12/ 6/ 0





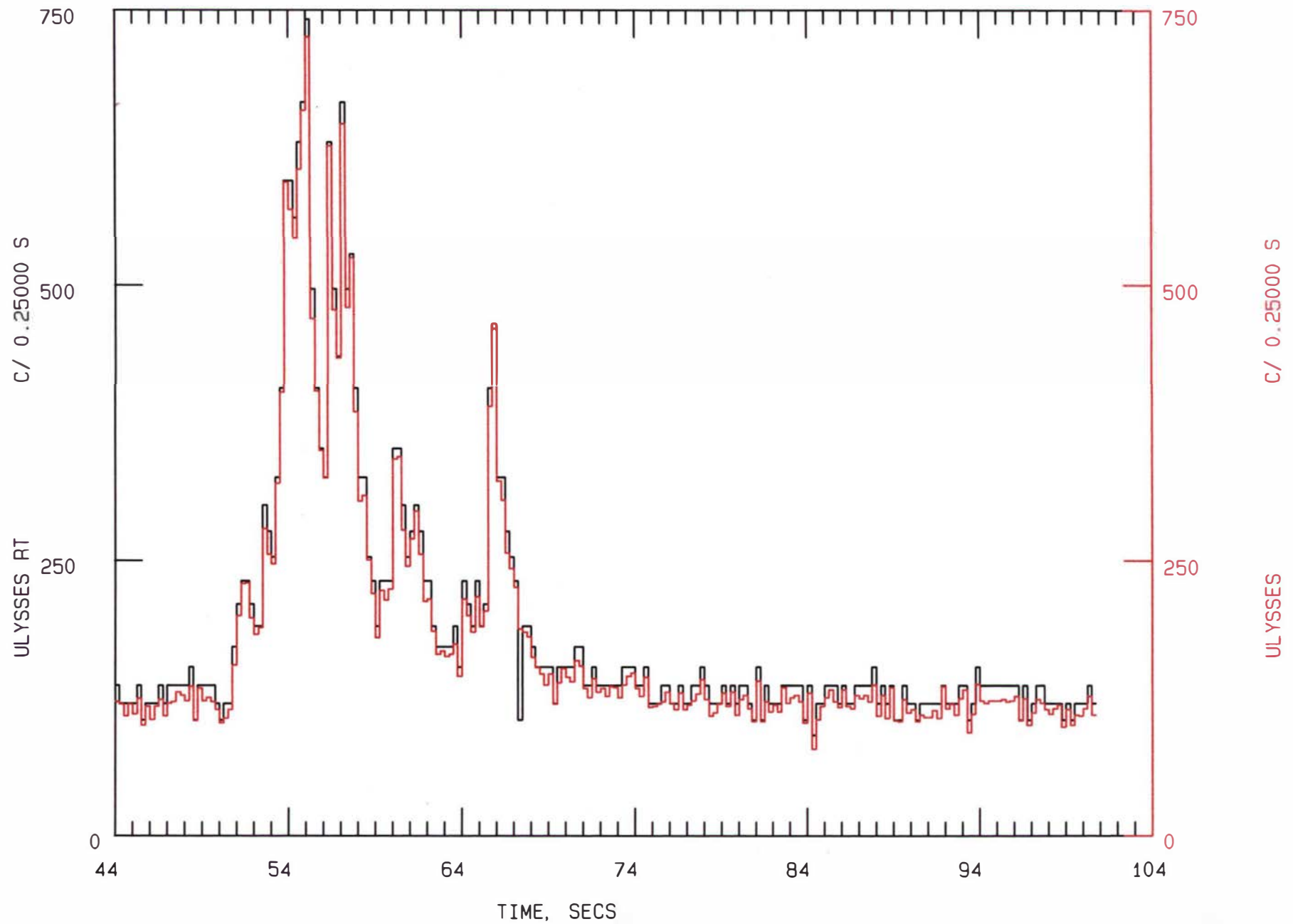
ULYSSES RT-ULYSSES

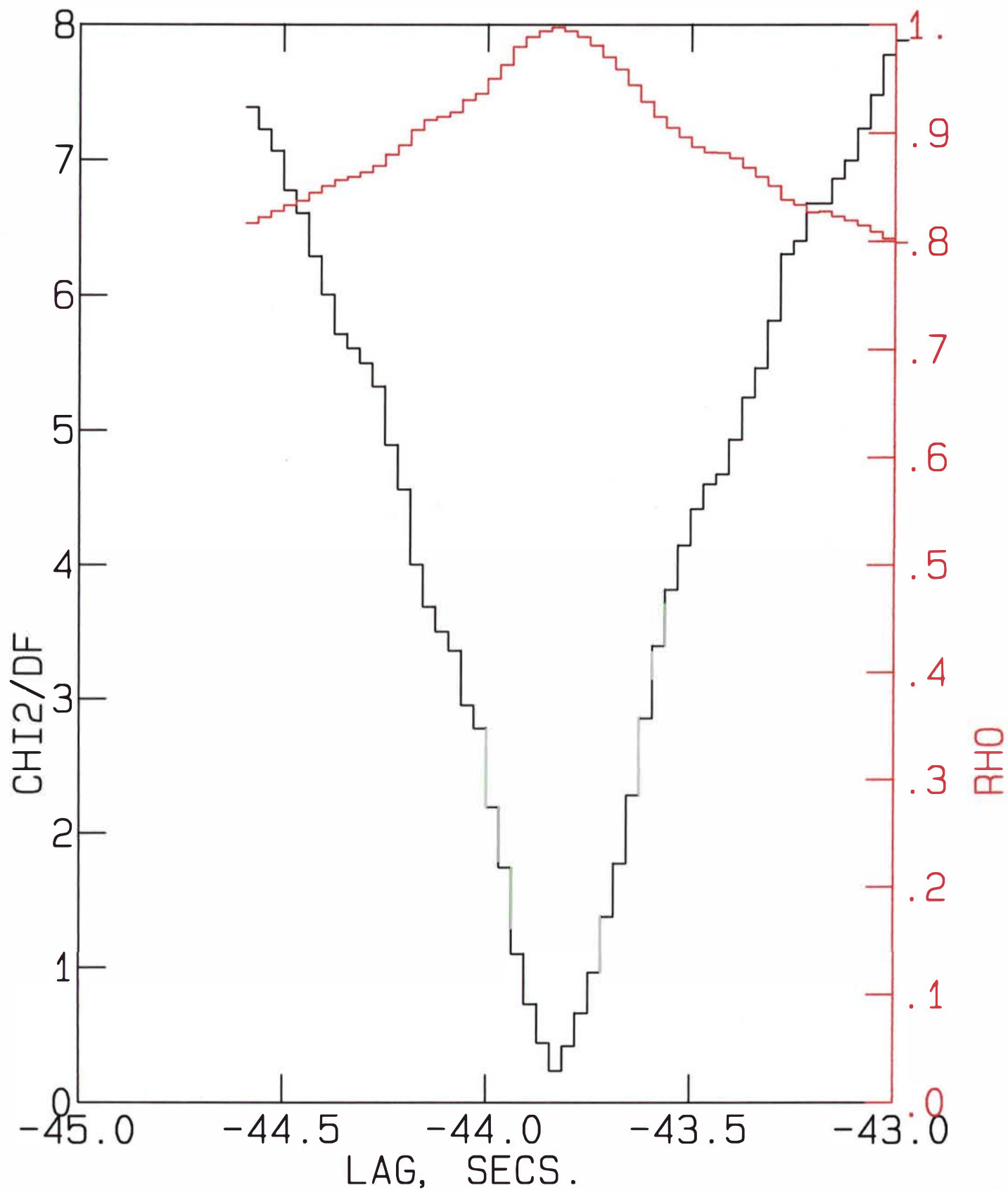
CORRELATION

16/12/99

58173.169

12/ 6/ 0

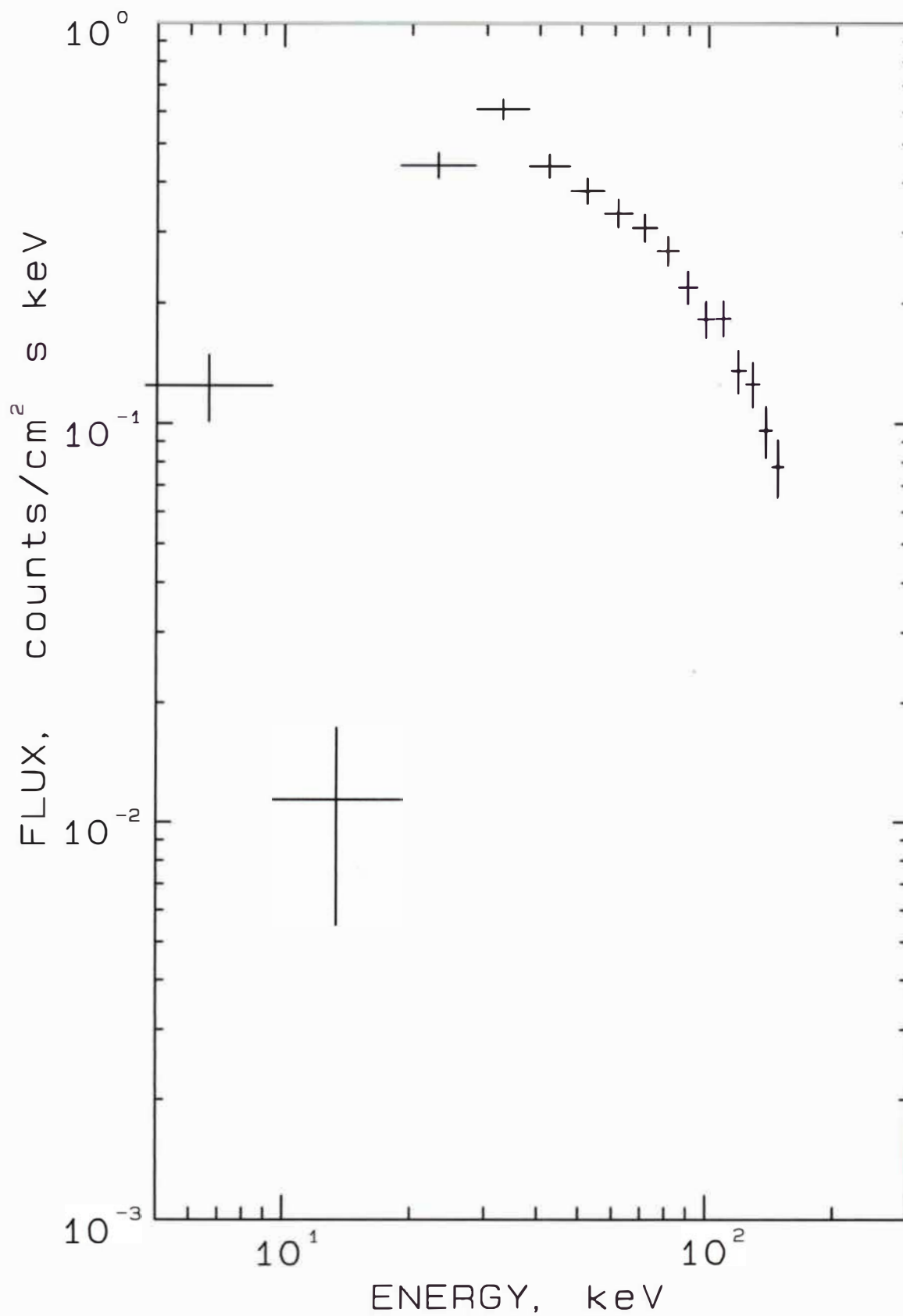




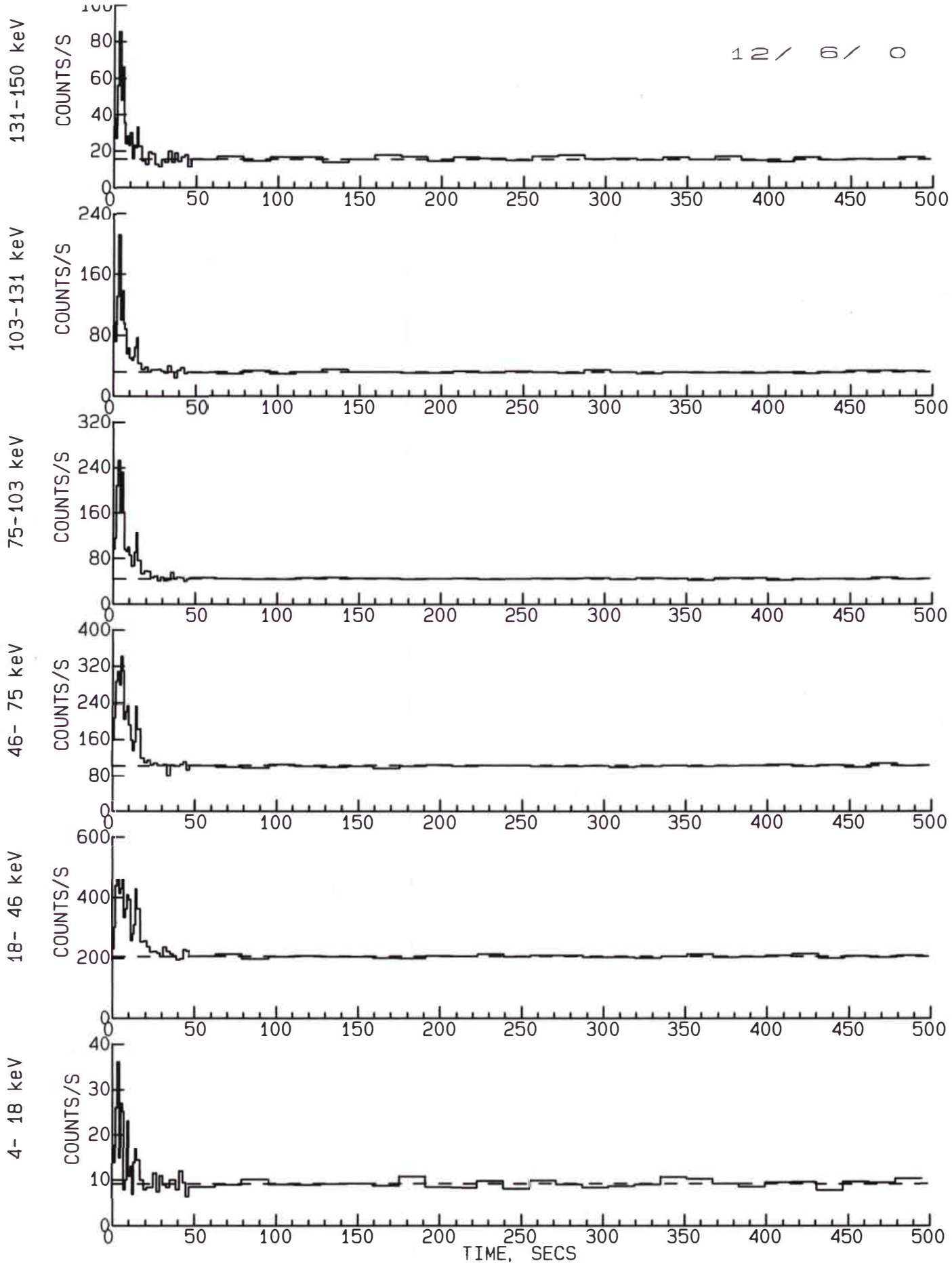
ULYSSES 16/12/99 58224.387

12/ 6/ 0

SPECTRUM INTEGRATED OVER 23.0 SECONDS, INTERVALS 2 TO 20



ULYSSES 16/12/99 58224.387 BURST SPECTRAL COUNT RATES

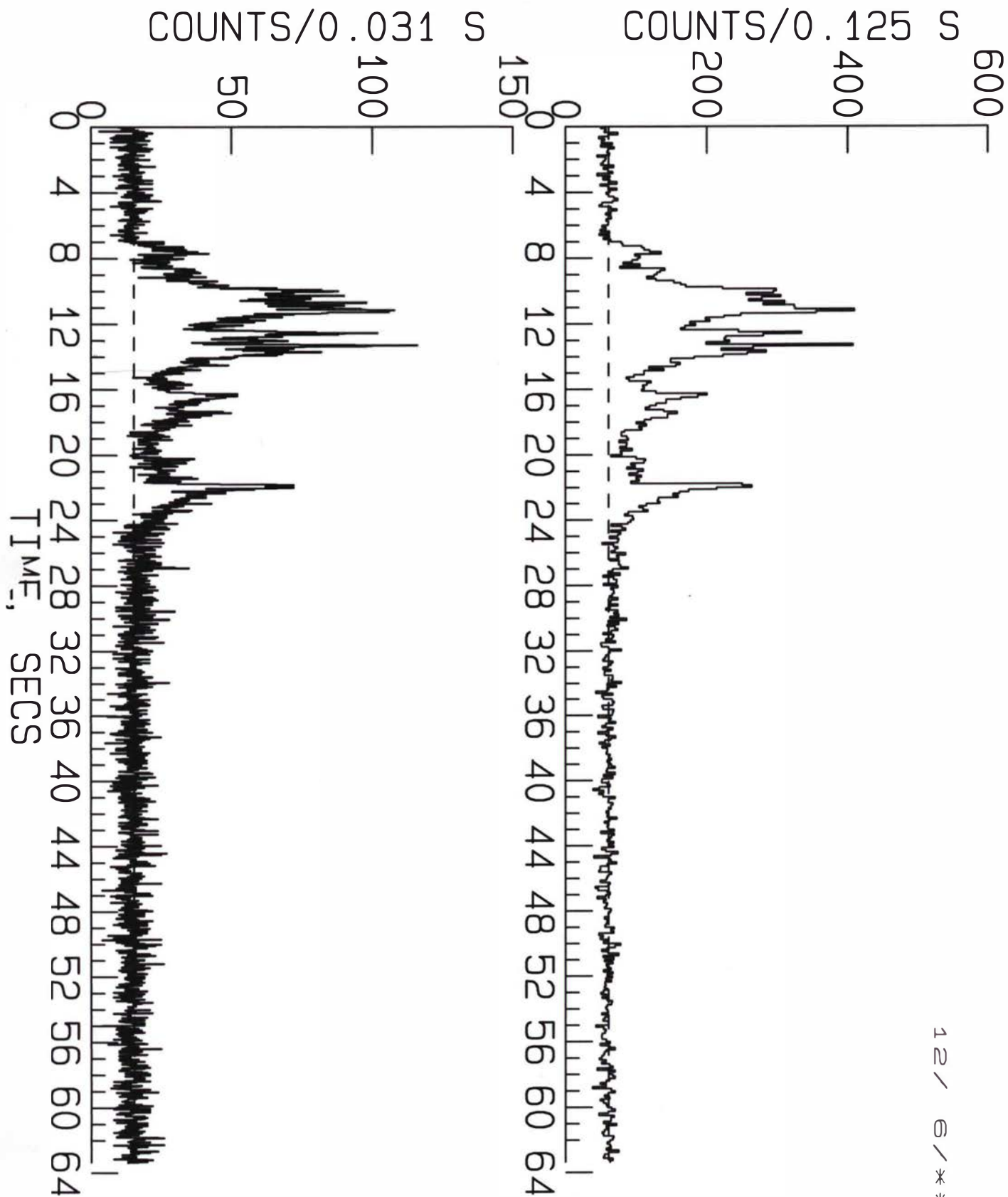


ULYSSES

16/12/99

Ttrig=58224.403

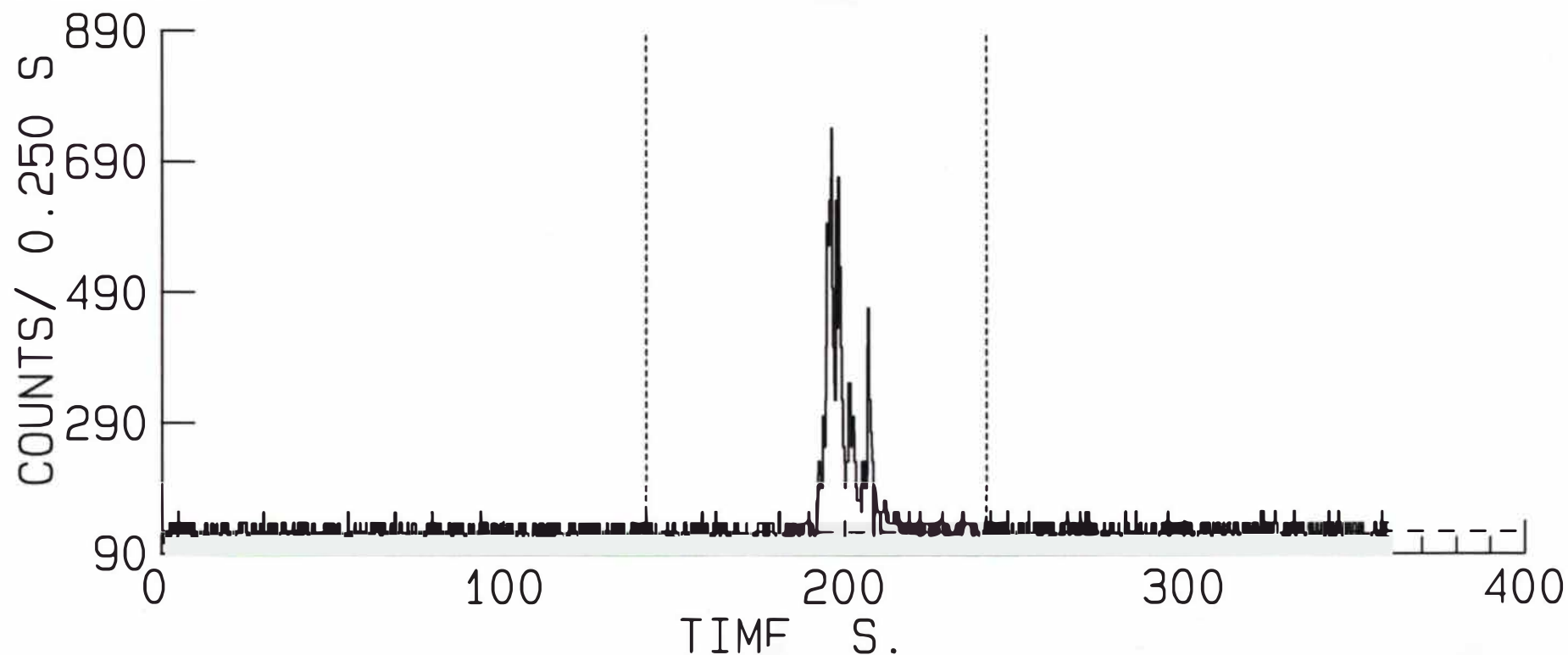
22- 150 keV



ULYSSES RT
16/12/99 58032.160 s
22- 150 keV

12 / 6 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE

16/12/99

58021.369

100-1000 keV
COUNTS/0.064 S

10100

7600

5100

2600

100

-3 0

13

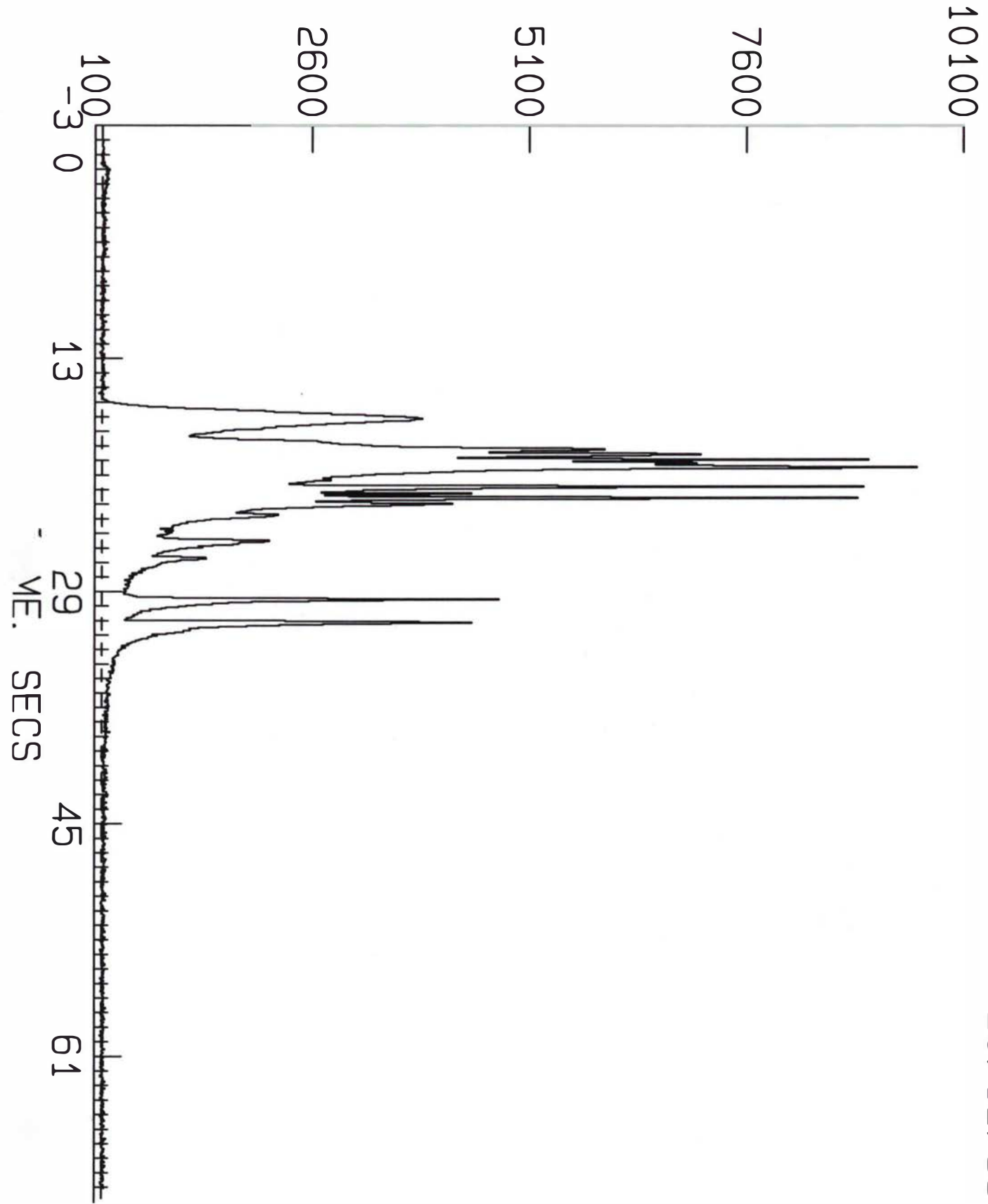
29

ME. SECS

45

61

20/12/99

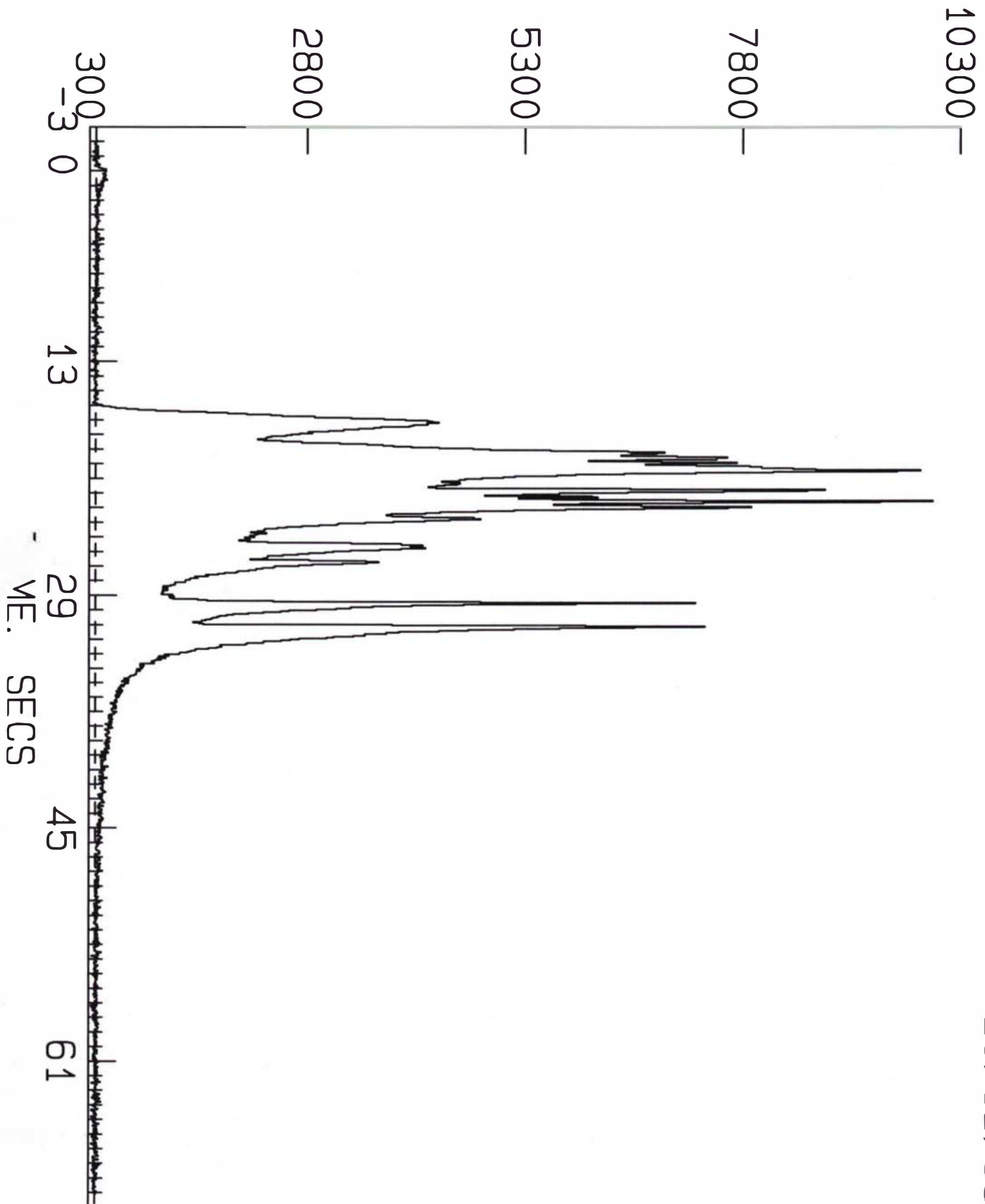


BATSE

16/12/99

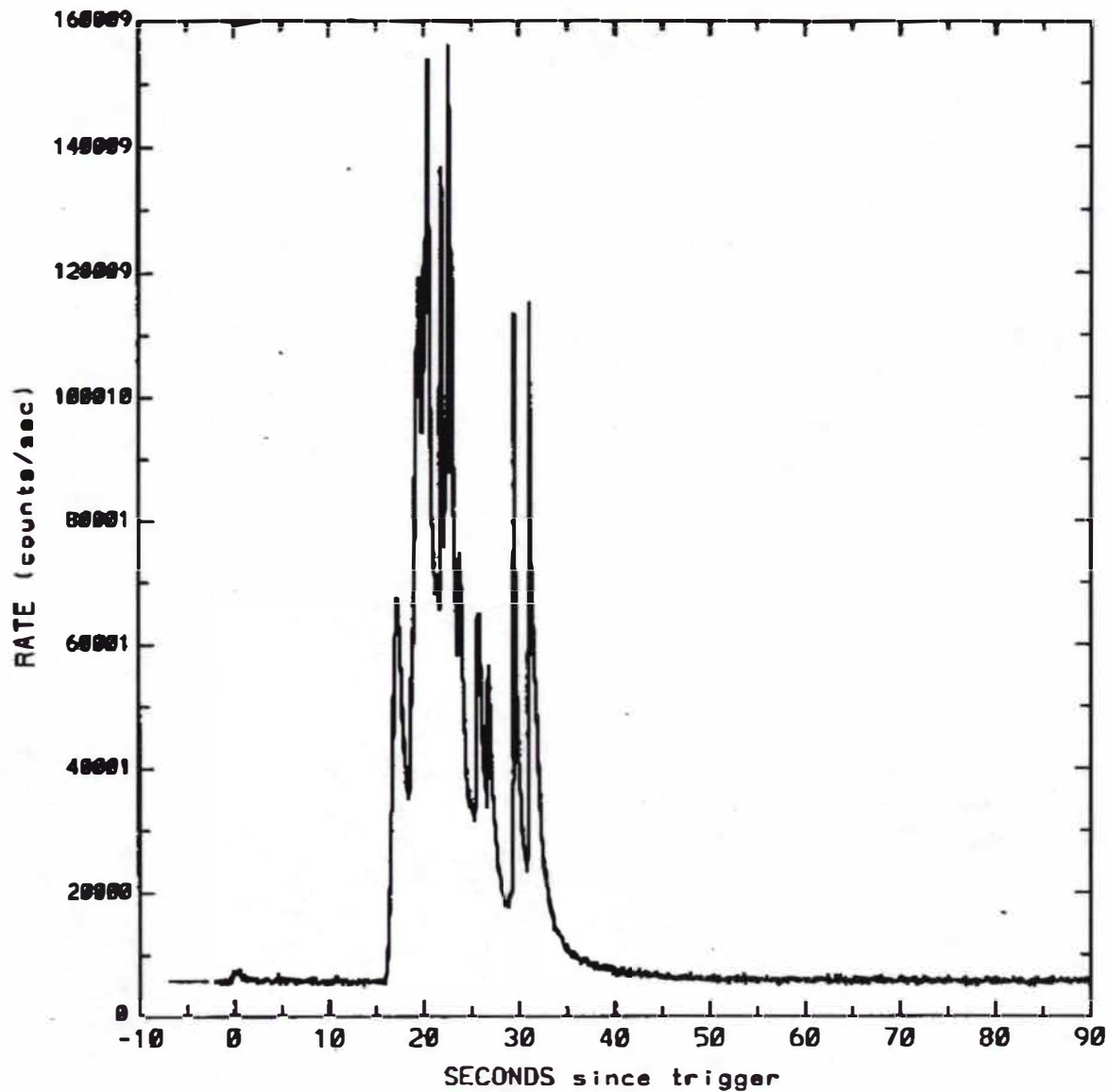
58021.369

25- 100 keV
COUNTS/0.064 S



20/12/99

DISCSC Data for K. Hurley. No. 7906



28-DEC-1999 09:39:58

Created by MDPS BD
(Burst Display)
Version 12.26

Trigger # : 7906

Trigger Time:
11528 / 58821.369

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

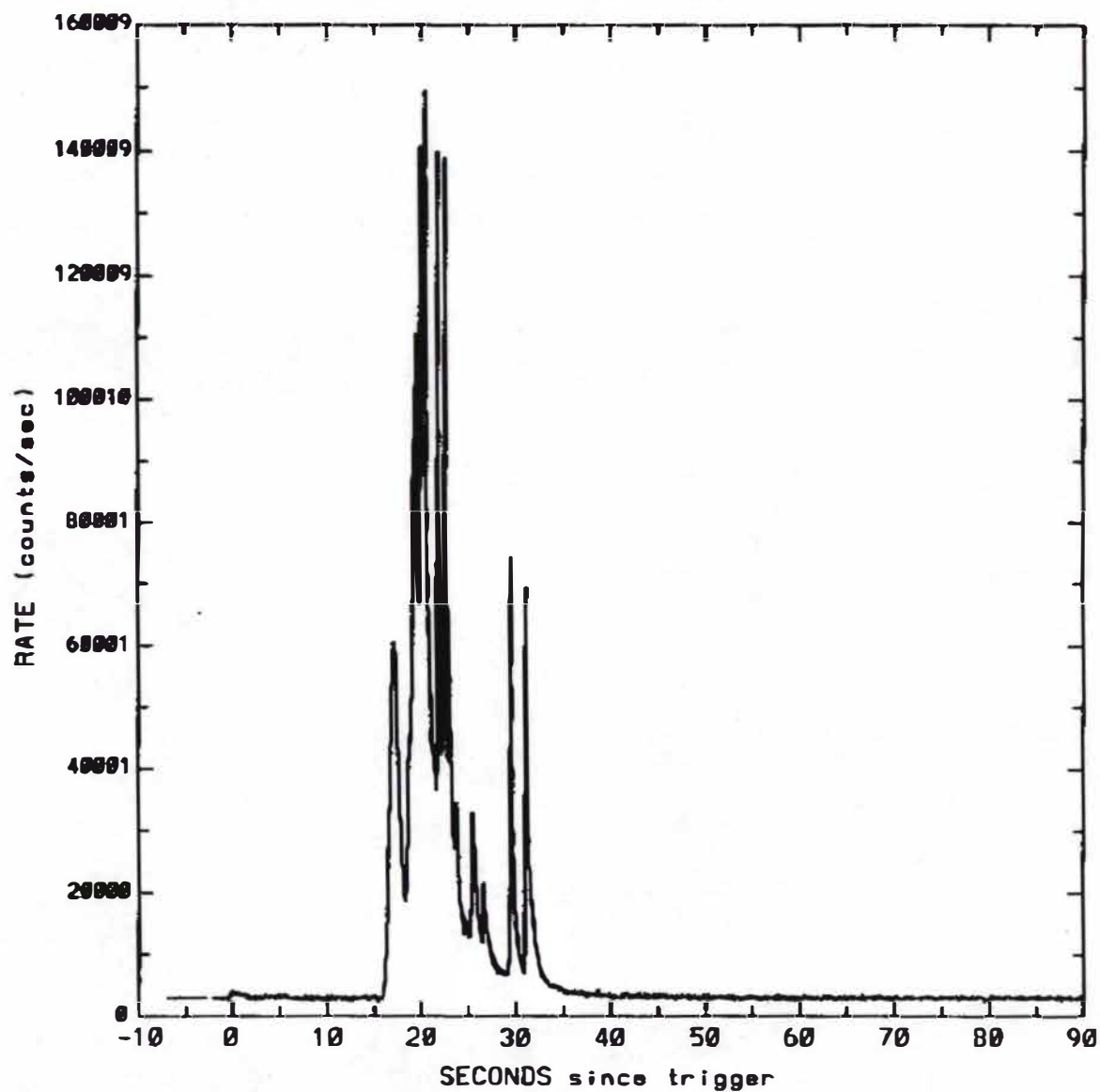
Minimum Integ. Time:
0.064 seconds

Detectors [7..8].
7-5-----

Discriminators:
1 1 . 2 1

Quality Mask:
BDISP1

DISCSC Data for K. Hurley, No. 7906



28-DEC-1999 09:48:59

Created by MOPS 80
 (Burst Display)
 Version 12.26

Trigger # : 7906

Trigger Time:
 11528 / 58821.369

Burst Data Type:
 DISCSC

Deadtime
 Corrected: N

Background Data
 Type: PREB + DISCLA

Minimum Integ. Time:
 0.064 seconds

Detectors [7..8]:
 7-5-----

Discriminators:
 [3 : 4]

Quality Mask:
 801SP1

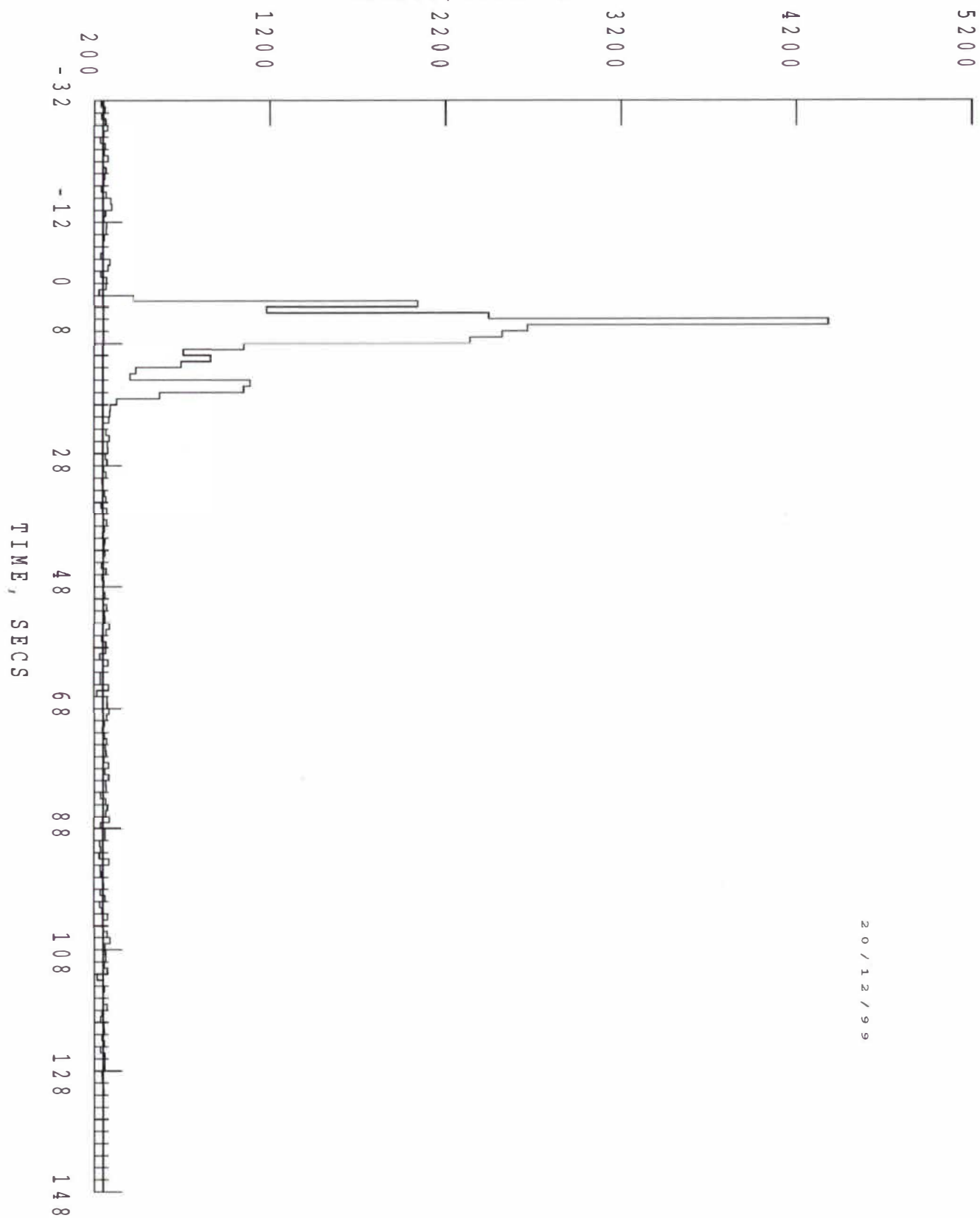
NEAR

16/12/99

58774.863

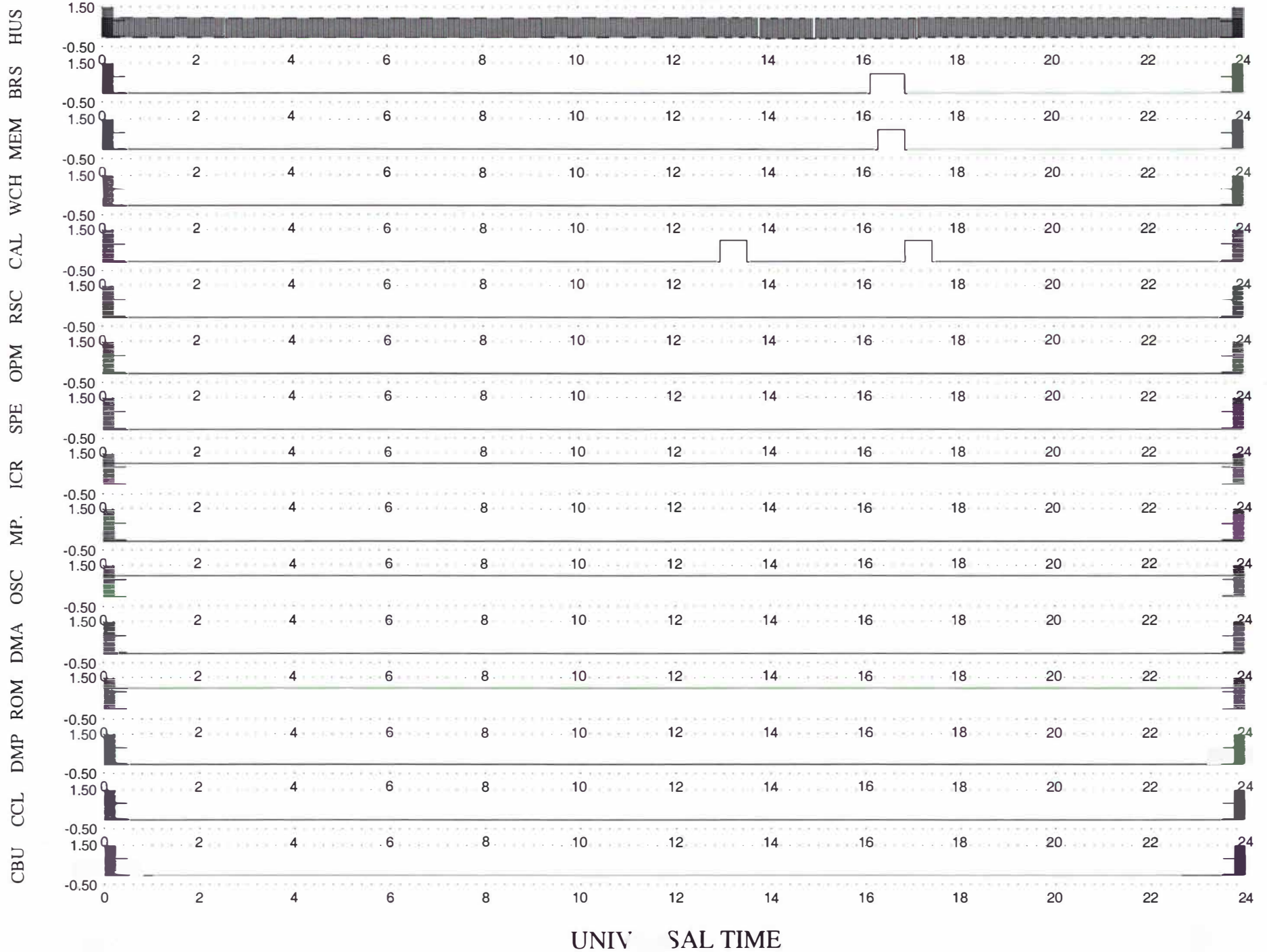
100-1000 keV

COUNTS/1.000 S

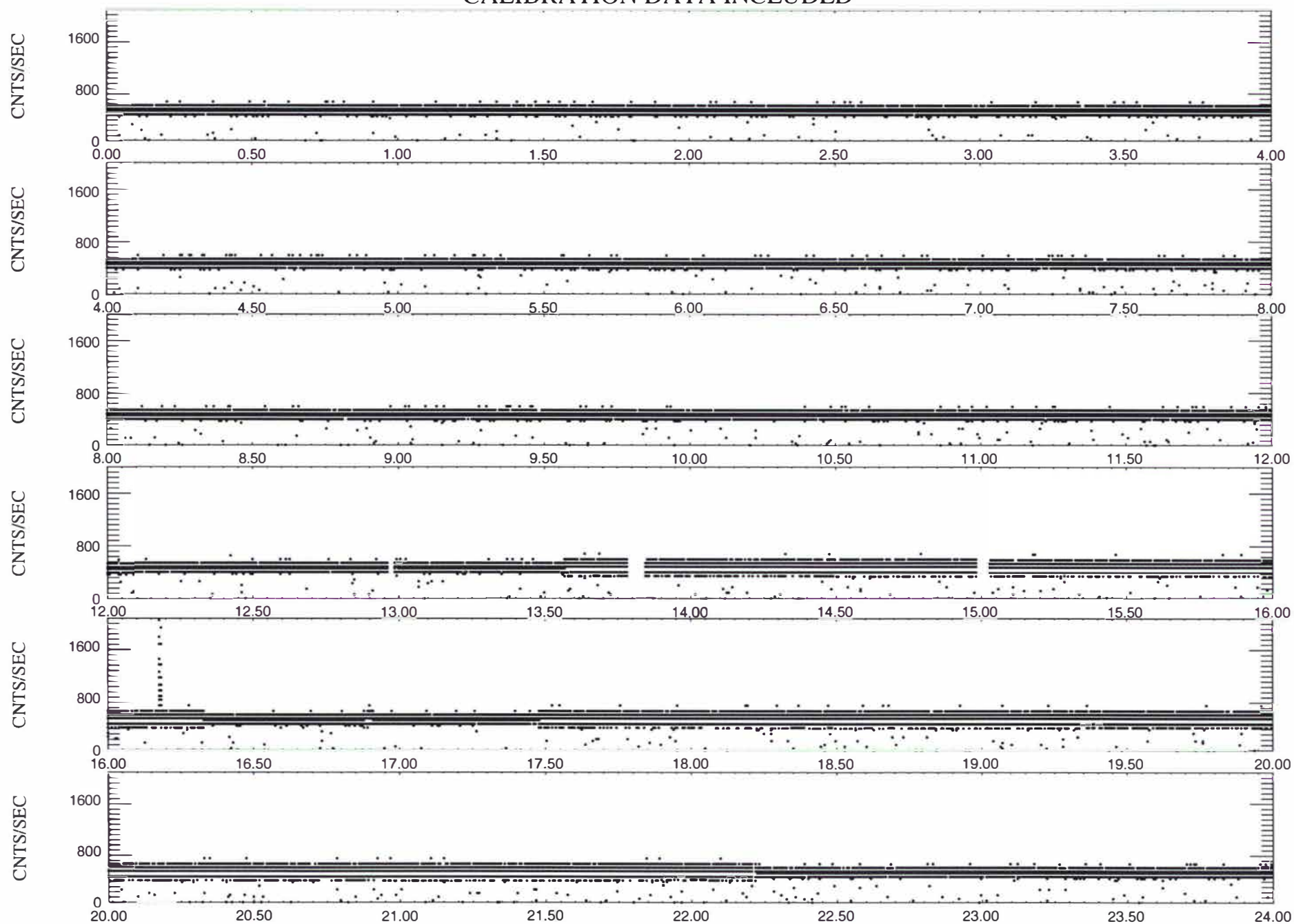


20/12/99

BURST NUMBER 9

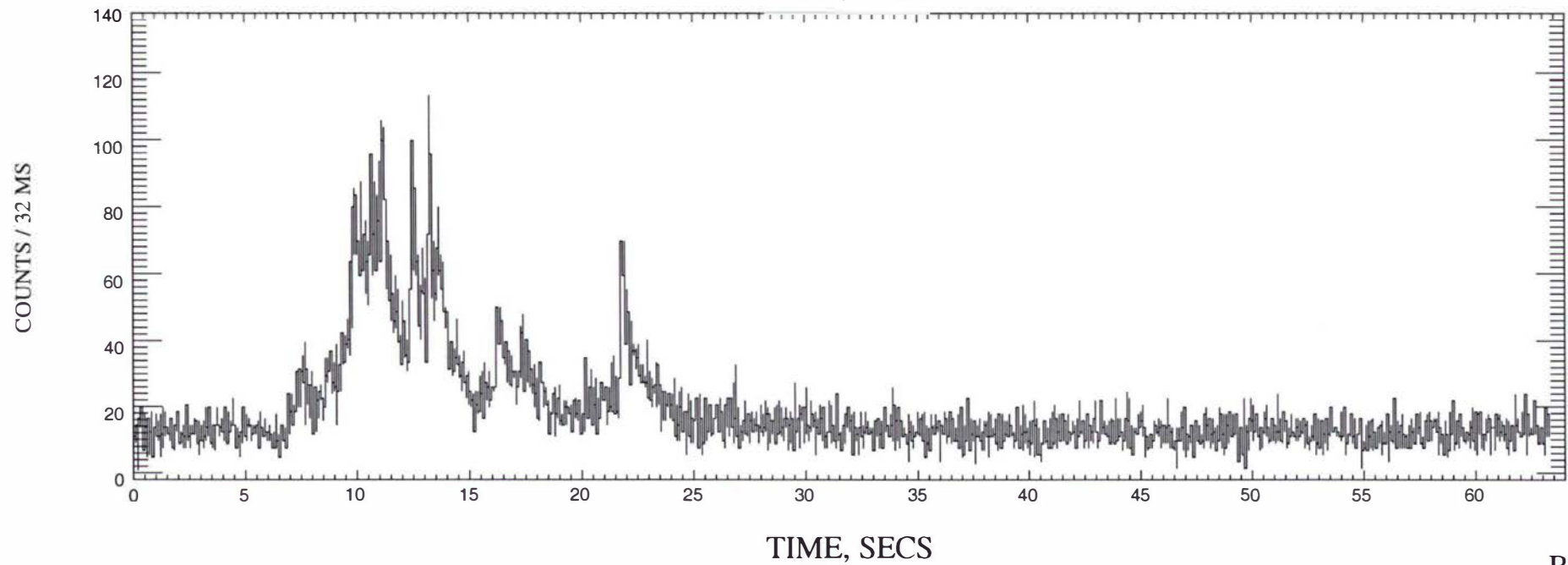
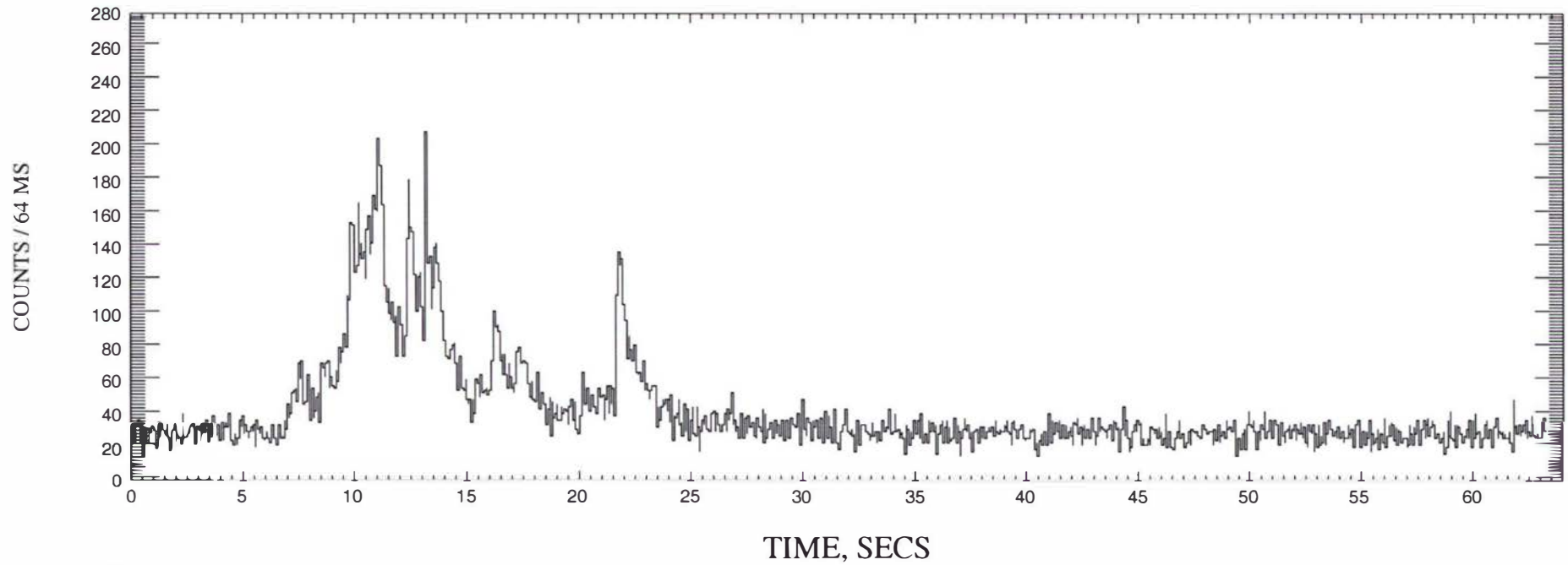


CALIBRATION DATA INCLUDED

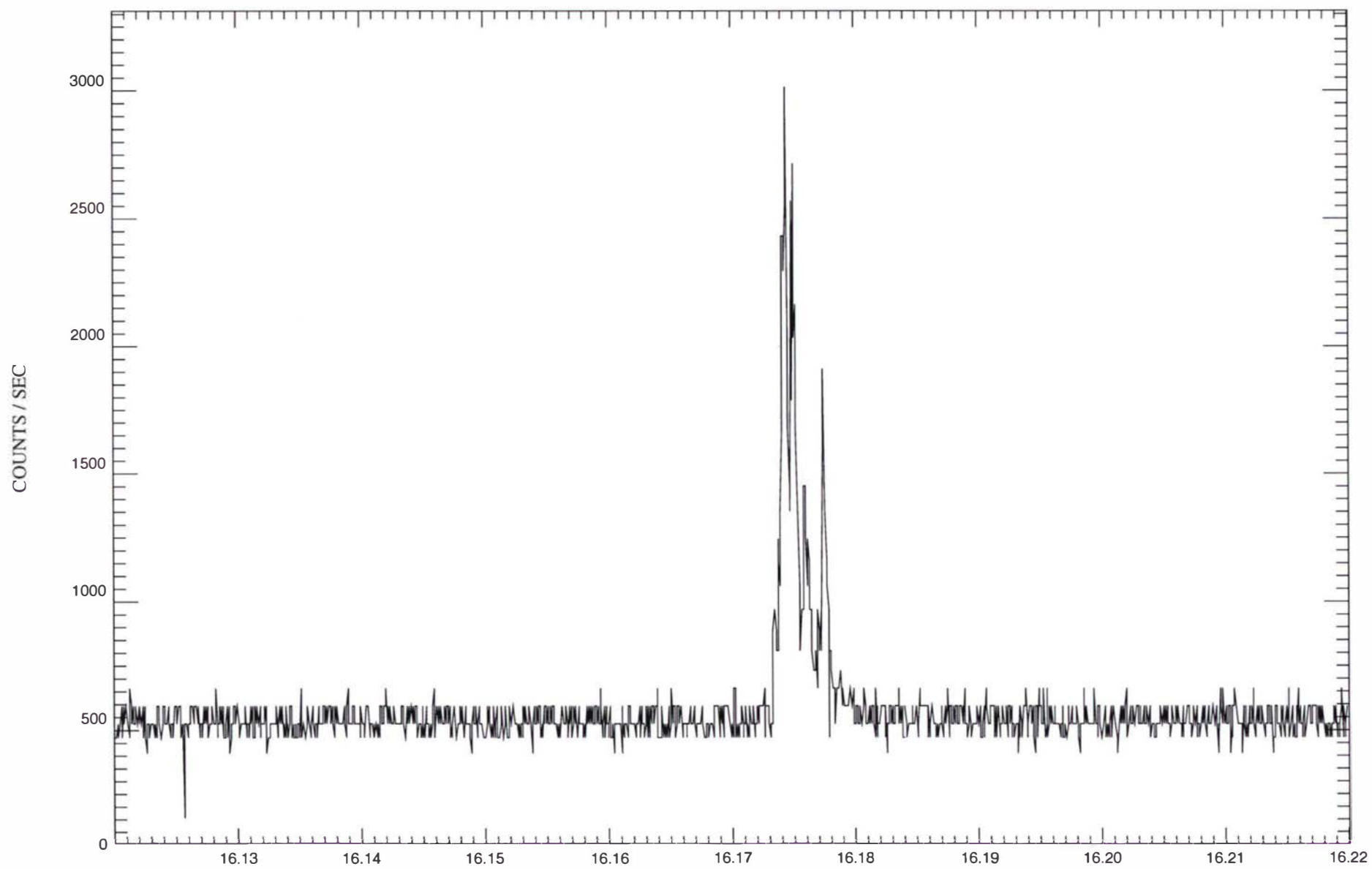


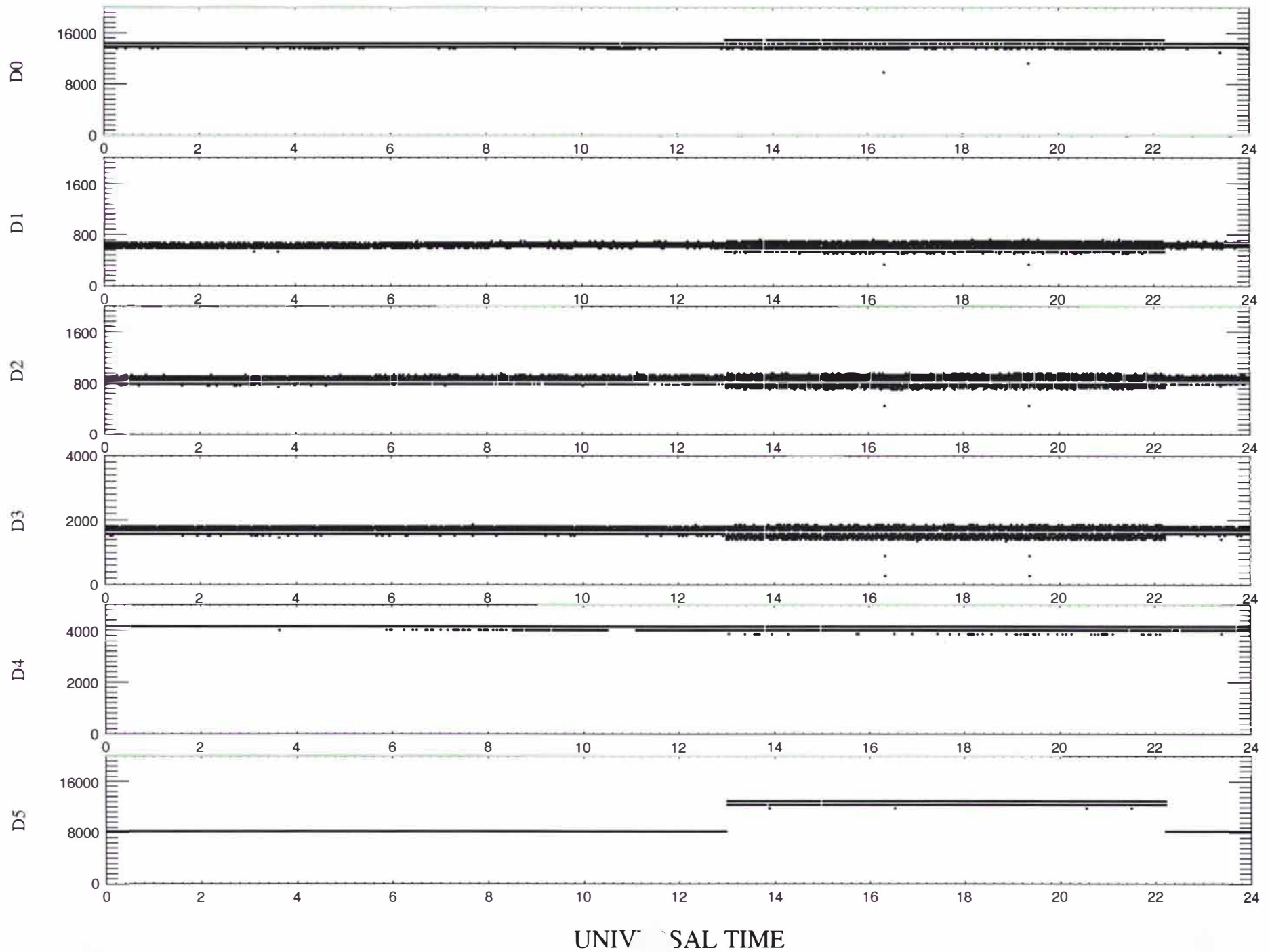
UNIV ^ SAL TIME

Burst Counter 9 at UT=16.173440818787 h=58224.387 s 16:10:24.387



CALIBRATION DATA INCLUDED





SAX

ULYSSES RT

21 / 12 / 99

17 / 12 / 99 16668.367 s

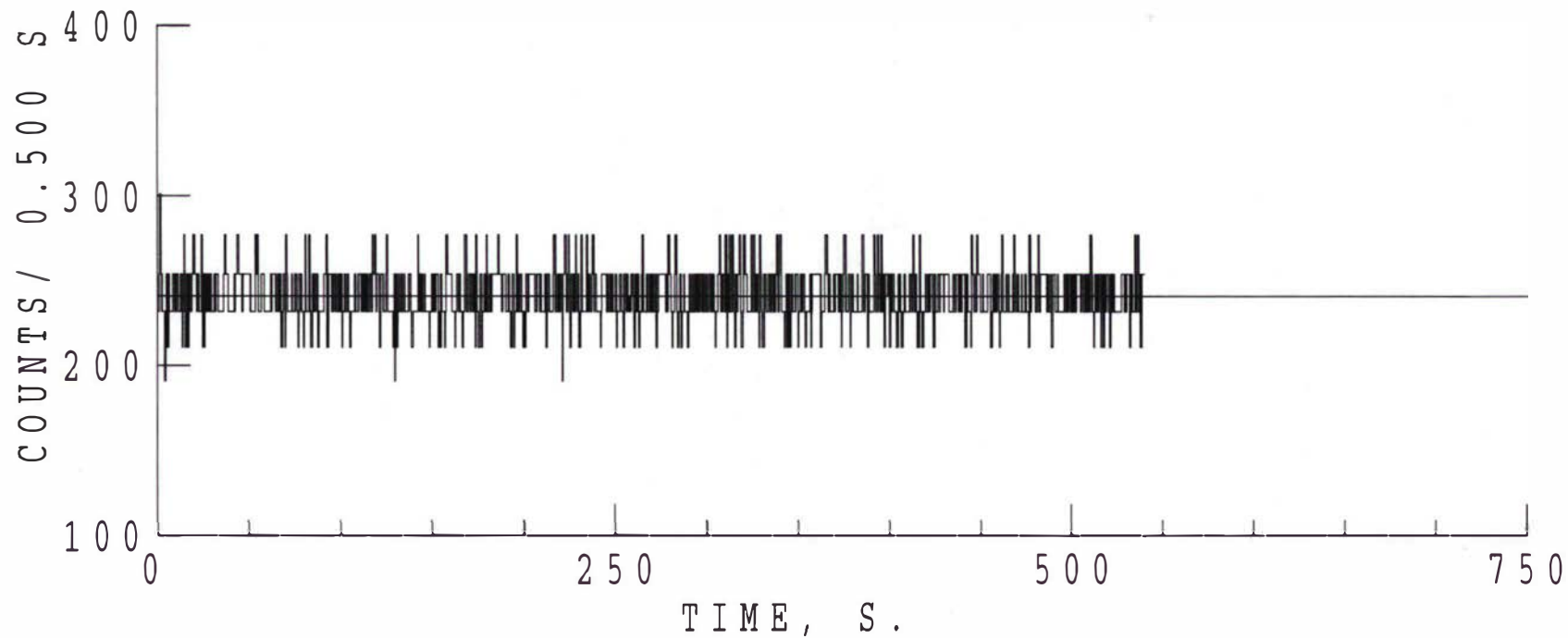
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@fender.msfc.nasa.gov Mon Dec 20 09:43 PST 1999

From: RICHARDSON@fender.msfc.nasa.gov

Date: Mon, 20 Dec 1999 11:52:54 -0600 (CST)

To: burst@comptel.sr.unh.edu, grobad@ests2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7907

TIME: TJD=1529 SECONDS=20188

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=9.2 AZIMUTH=0.5 ERROR=0.2 DEGREES

COMMENTS:

SOLAR FLARE, GOES C6.8, OPTICAL 1N.

SINGLE PULSE WITH STRUCTURE. DURATION APPROX. = 120 SEC.

NOT VISIBLE ABOVE 100KEV.

From RICHARDSON@fender.msfc.nasa.gov Mon Dec 20 09:46 PST 1999

From: RICHARDSON@fender.msfc.nasa.gov

Date: Mon, 20 Dec 1999 11:55:41 -0600 (CST)

To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7908

TIME: TJD=1529 SECONDS=34411

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=9.7 AZIMUTH=3.7 ERROR=0.1 DEGREES

COMMENTS:

SOLAR FLARE, GOES C4.9, OPRICAL 1F.

MULTIPLE PULSES WITH STRUCTURE. PEAK AT APPROX. T+8 SEC. DURATION APPROX.
= 80 SEC. NOT VISIBLE ABOVE 300KEV.

JANA TAB2 19991217 38006

ULYSSES RT

05/08/05

17/12/99 37584.078 s

0.500 S INTERVALS REGROUPED BY 2

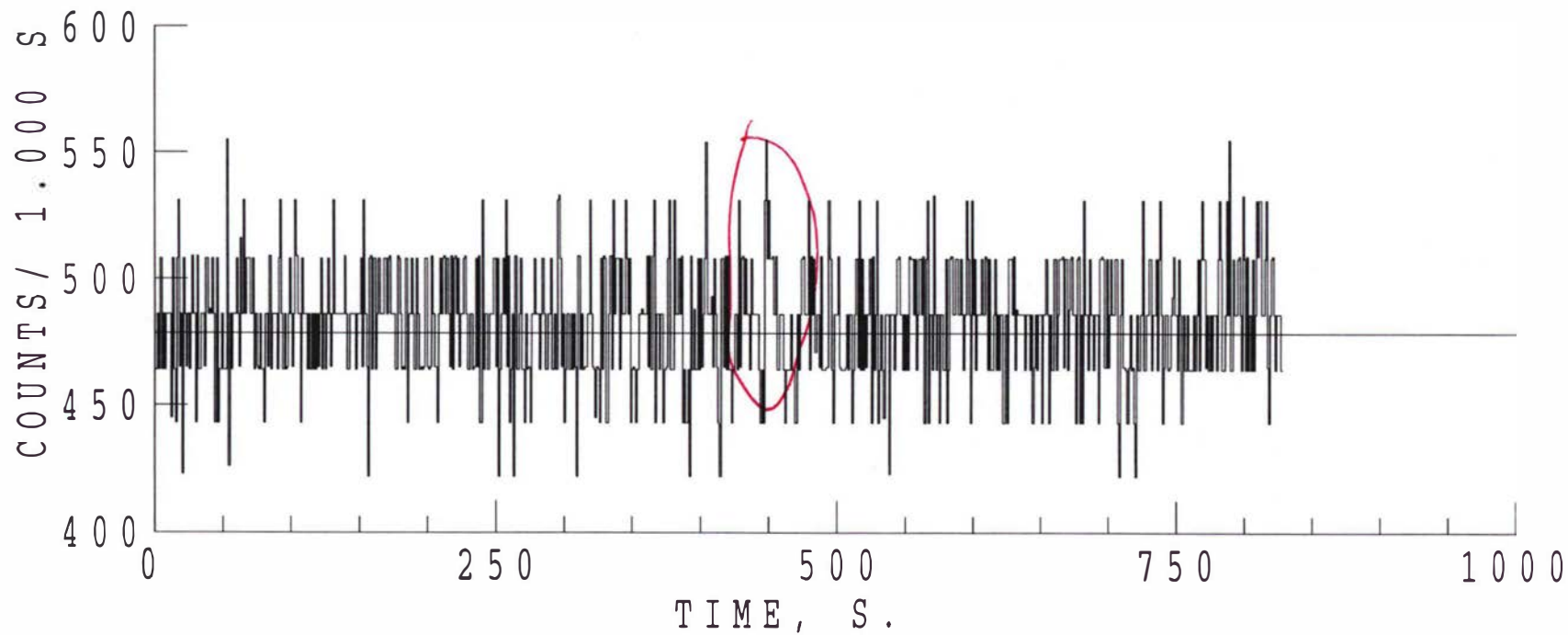
0 - 0 keV

N= 10 M= 10

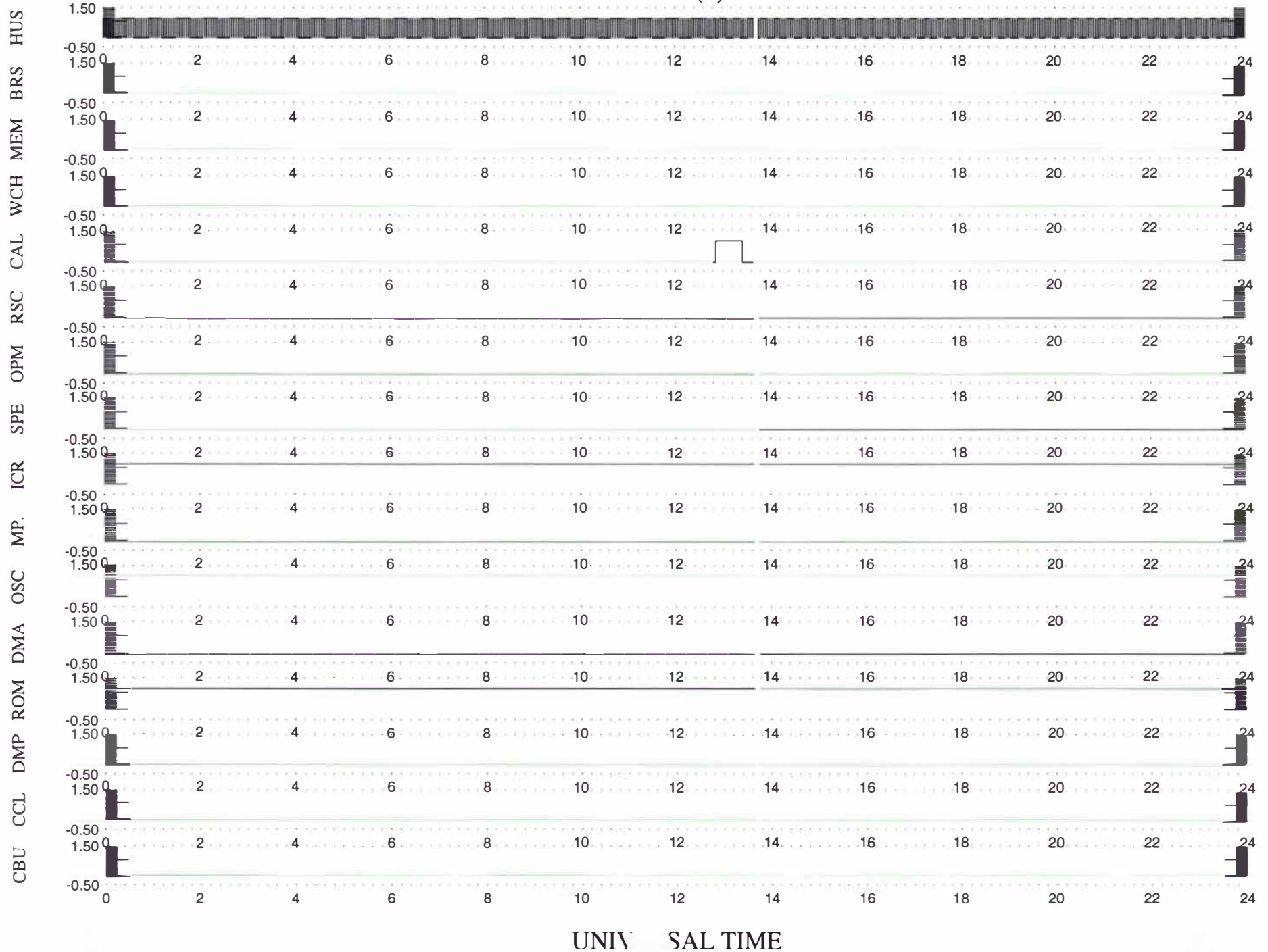
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

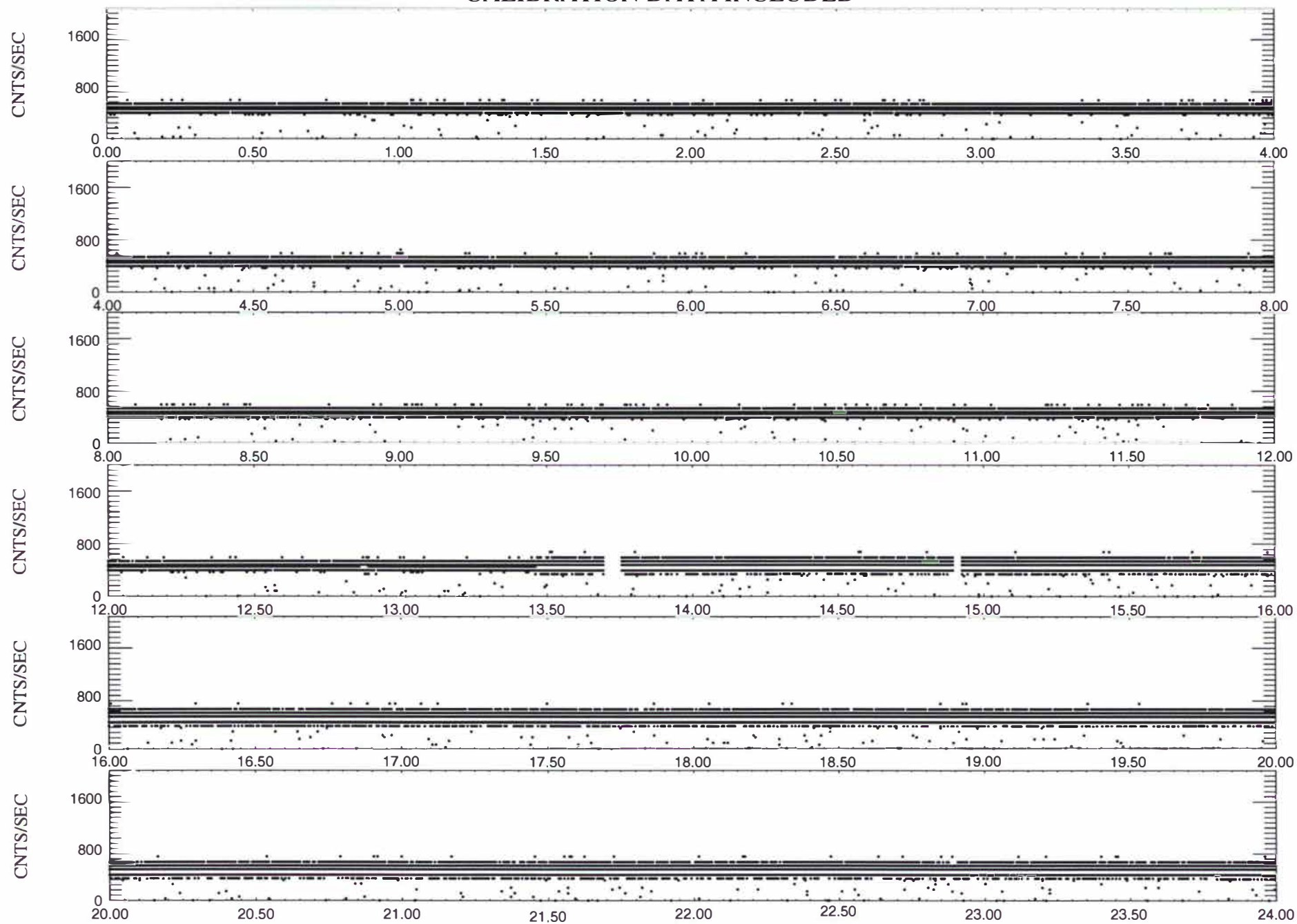
>4.0 SIGMA FLUCTUATIONS



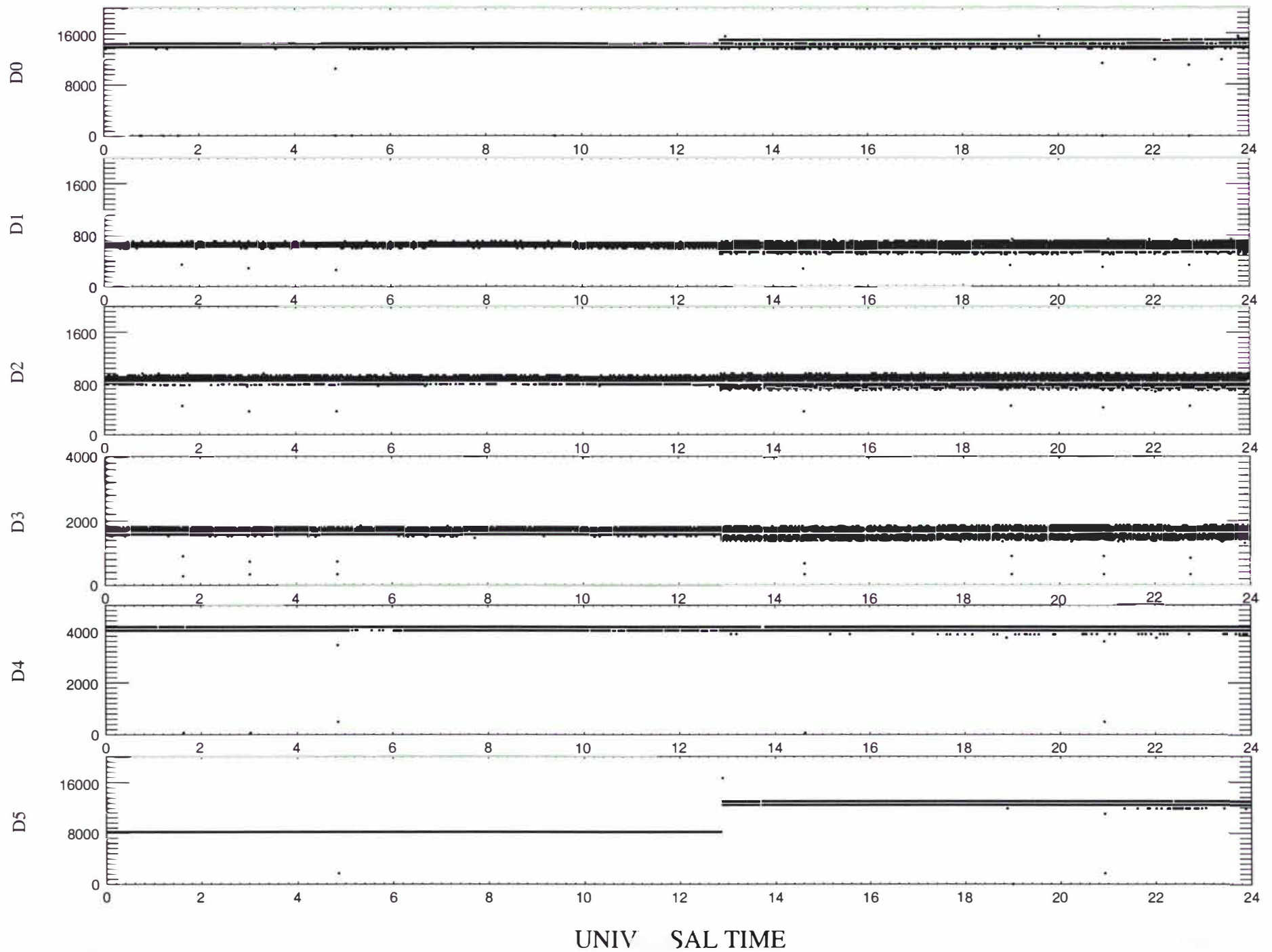
NO BURST (9)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From PETERSON@fender.msfc.nasa.gov Fri Jan 7 06:37 PST 2000

From: PETERSON@fender.msfc.nasa.gov

Date: Fri, 7 Jan 2000 8:37:07 -0600 (CST)

: burst@comptel.sr.unh.edu, grobad@ests2.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7909

TIME: TJD=1530 SECONDS= 5303

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=10.0 AZIMUTH=5.0 ERROR=0.33 DEGREES

COMMENTS:

GOES C9.4, OPTICAL 1F. COMPLEX, DUR. APPROX. 520S, STARTS AT APPROX. T-170S.
VISIBLE ABOVE 100KEV. CRAB SET AT APPROX. T+200S.

From PETERSON@fender.msfc.nasa.gov Fri Jan 7 06:41 PST 2000

From: PETERSON@fender.msfc.nasa.gov

Date: Fri, 7 Jan 2000 8:42:18 -0600 (CST)

\: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7910

TIME: TJD=1530 SECONDS=16083

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=9.4 AZIMUTH=2.2 ERROR=0.322 DEGREES

COMMENTS:

GOES C5.3, OPTICAL SF. MULTIPLE PULSES, DUR. APPROX. 450S, STARTS AT APPROX.
T-80S, MAX AT APPROX. T+5S. NOT VISIBLE ABOVE 100KEV. CYG X-1 RISE AT
APPROX. T+70S.

From HENZE@fender.msfc.nasa.gov Wed Dec 22 12:19 PST 1999
Date: Wed, 22 Dec 1999 14:28:54 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@ests2.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7911

TIME: TJD=1530 SECONDS=69064

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=7.4 AZIMUTH=354.2 ERROR= 0.4 DEGREES

COMMENTS:

GOES M1.5, OPTICAL 1N SOLAR FLARE. DUR. APPROX. 110 S, STARTS AT APPROX.
T-20 S, MAXES AT APPROX. T+48 S, T+52 S. VISIBLE ABOVE 300 KEV.

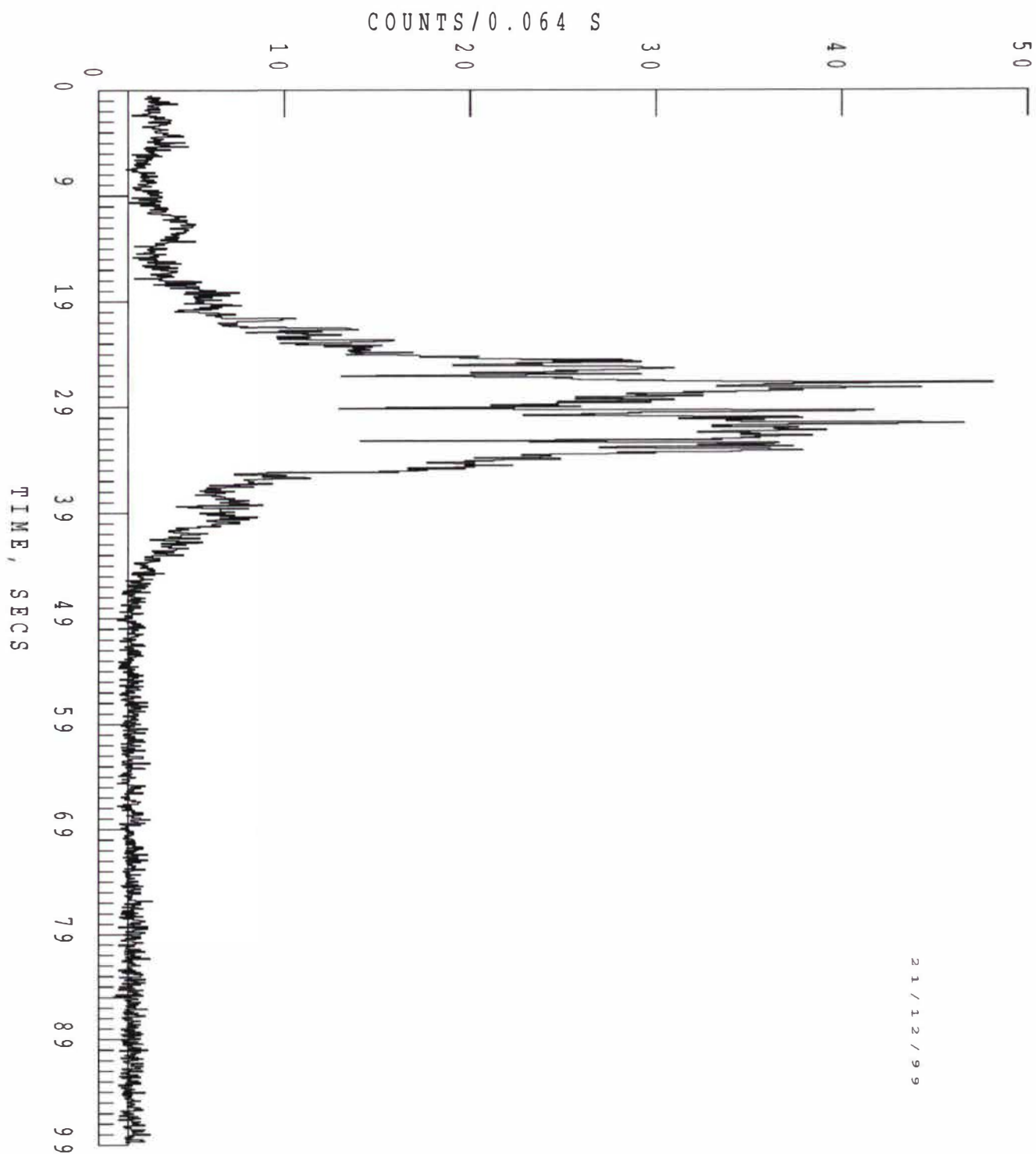
KONUS

18/12/99

69087.126

50 - 200 keV

Solar - BATSE 4830 7911



KONUS1 19991218 69087

ULYSSES RT

21 / 12 / 99

18/12/99 66960.016 s

INTERVALS REGROUPED BY 10

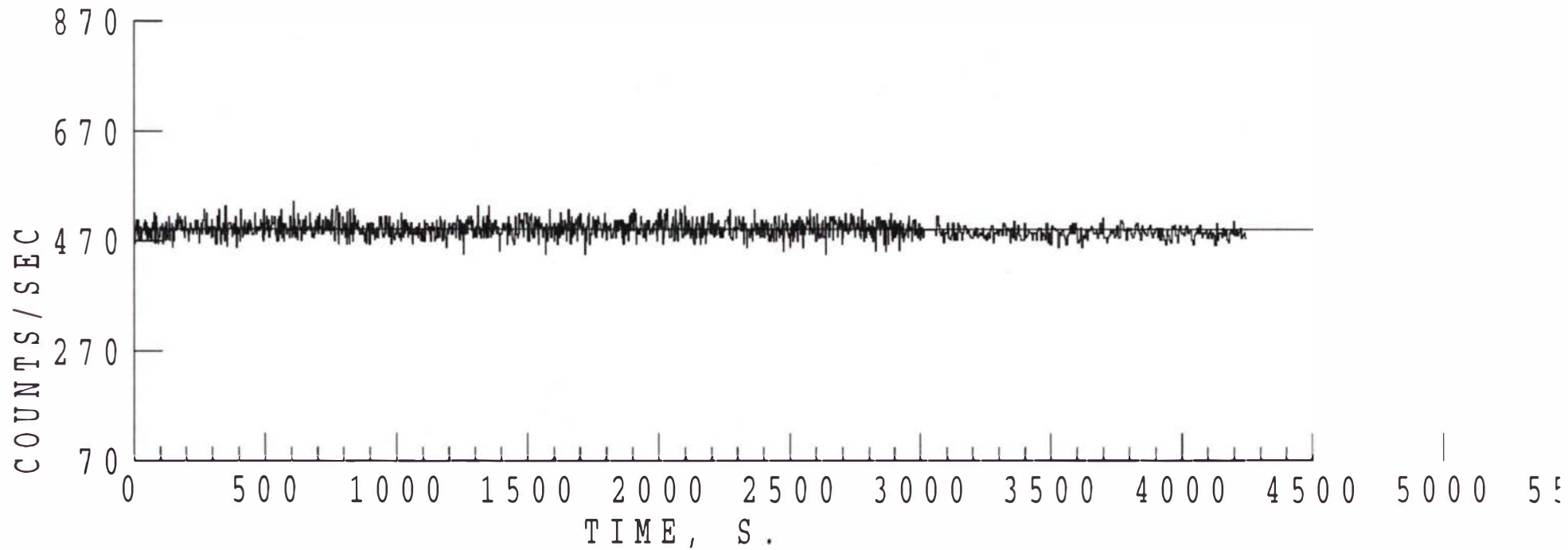
0 - 0 keV

N= 10 M= 10

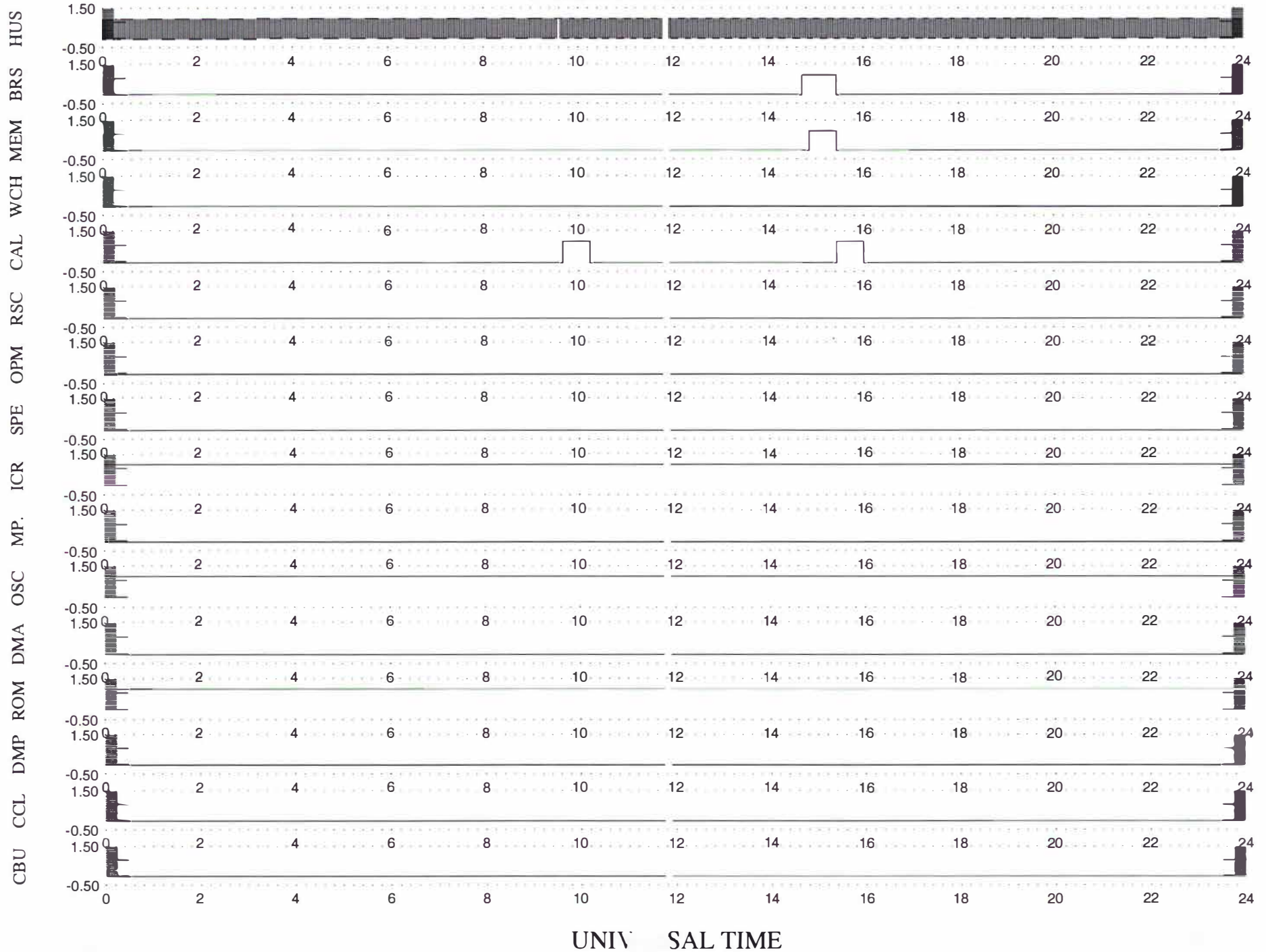
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

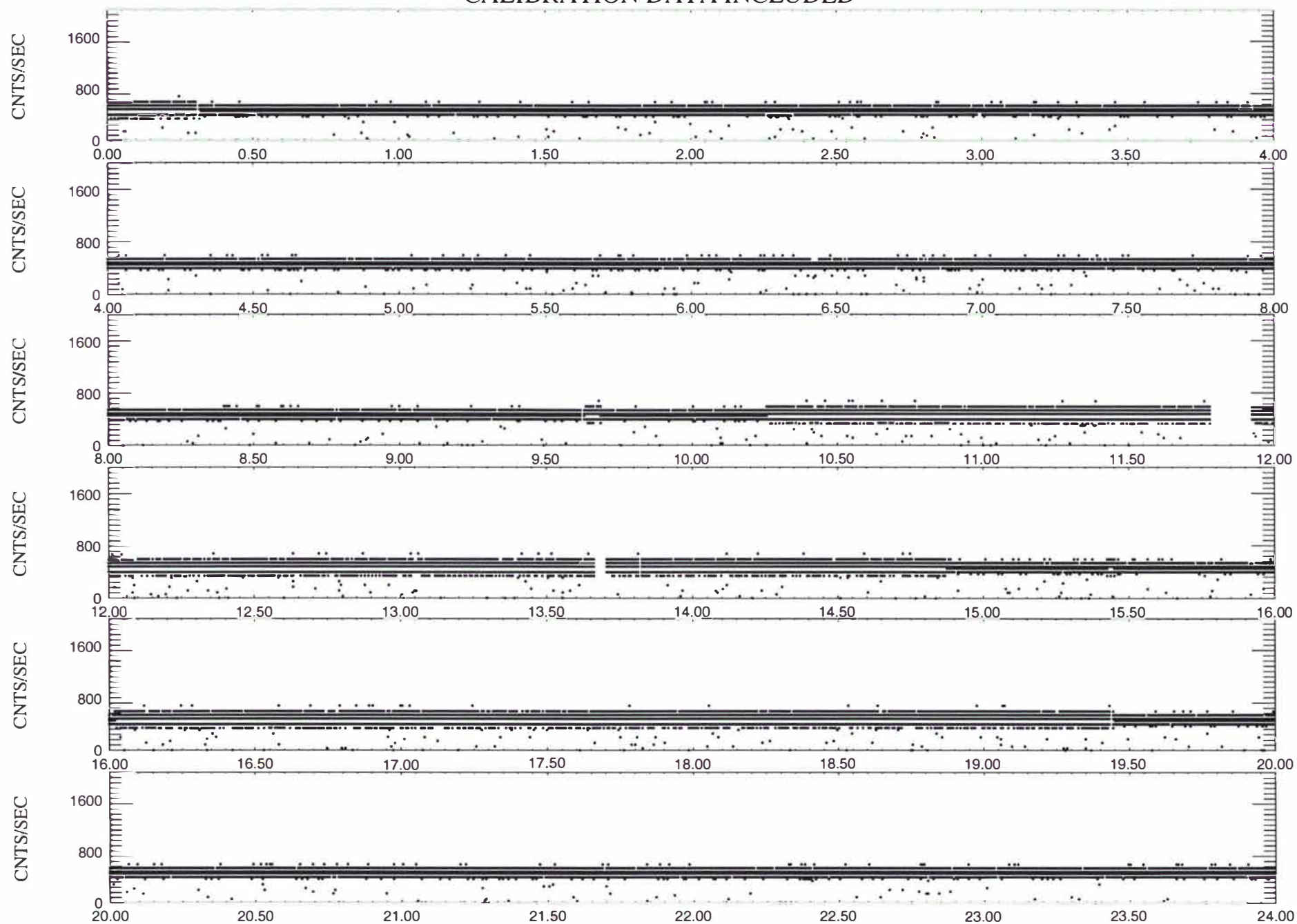
>4.0 SIGMA FLUCTUATIONS



BURST NUMBER 10

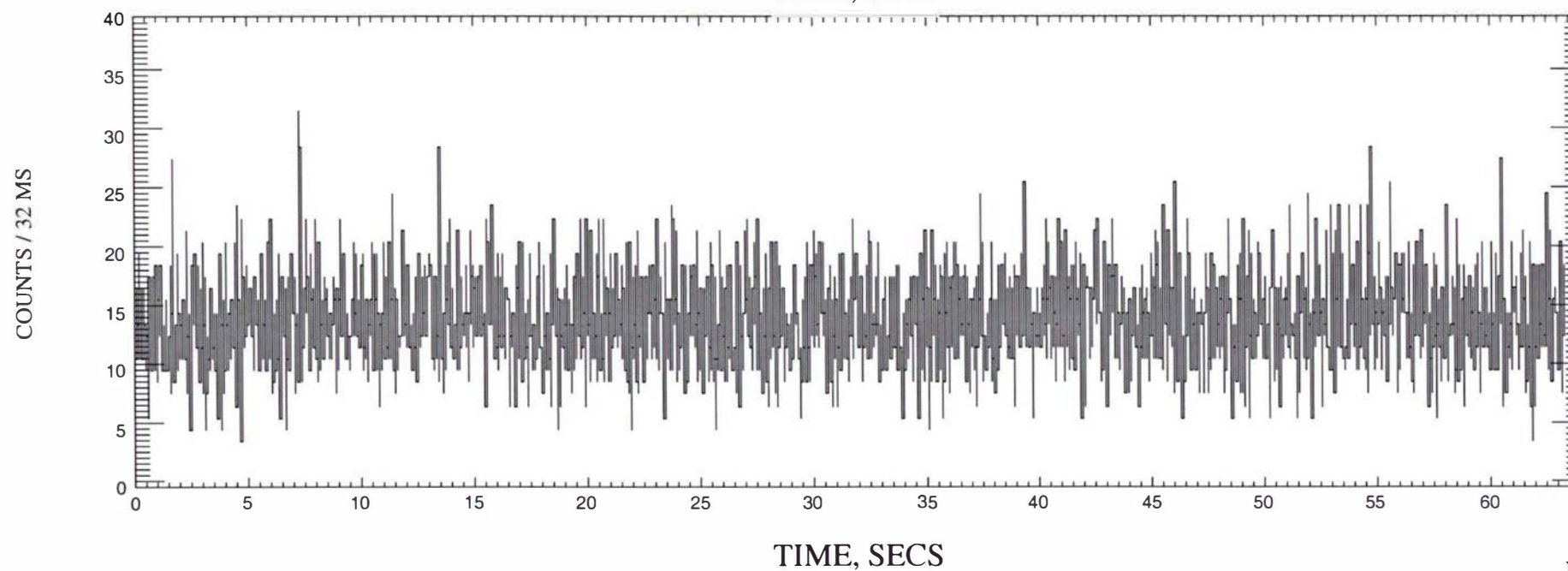
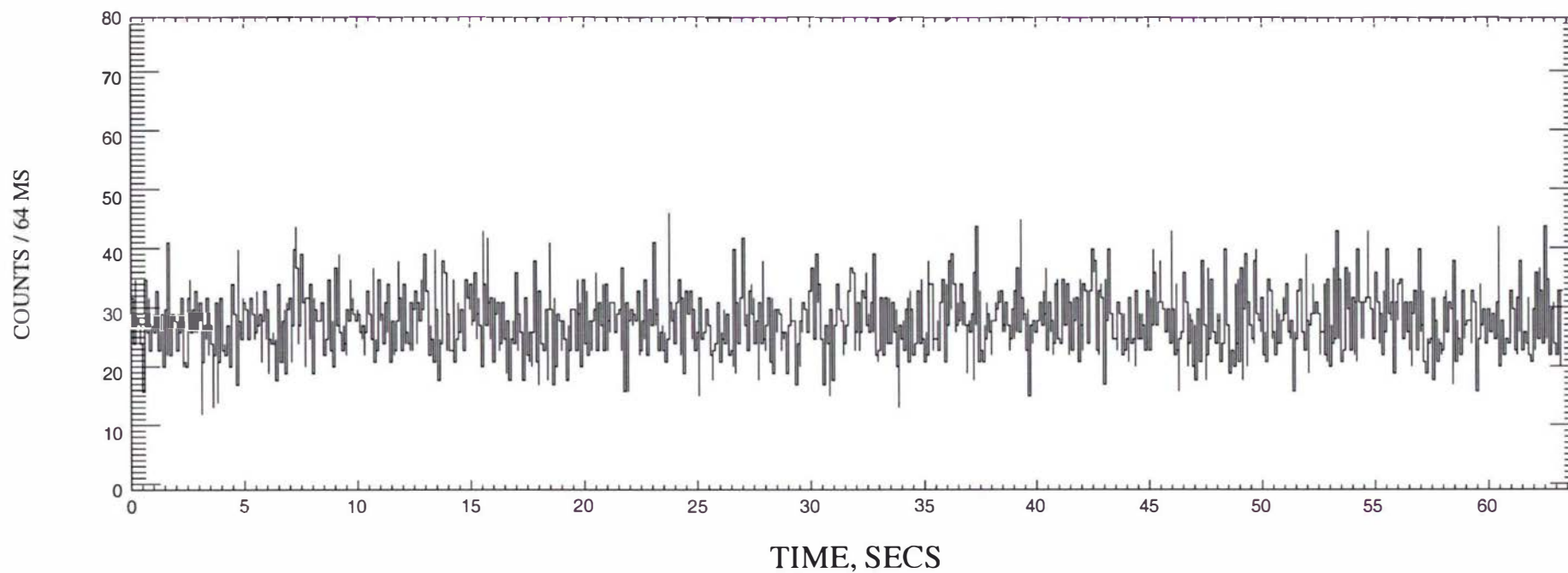


CALIBRATION DATA INCLUDED

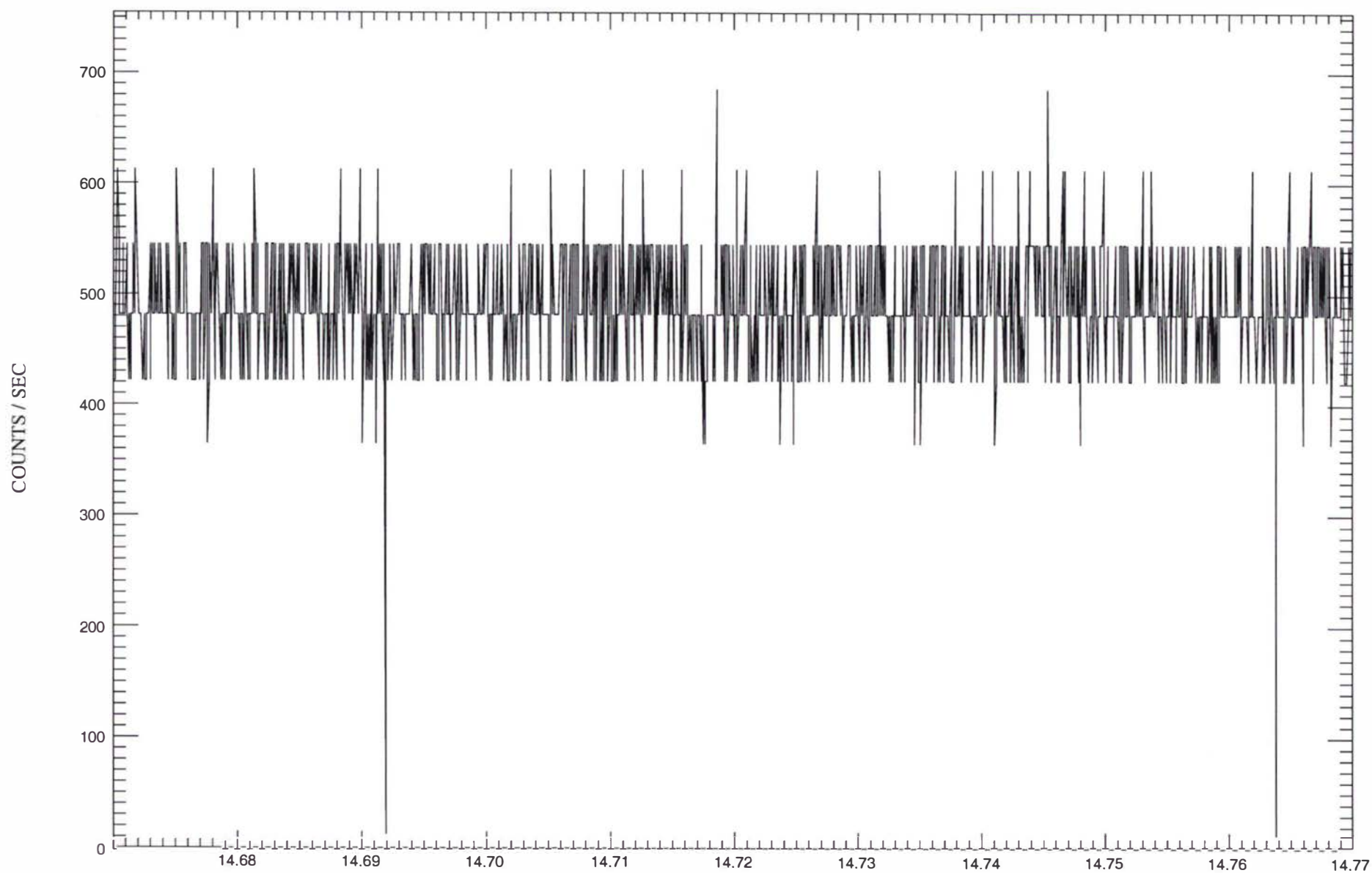


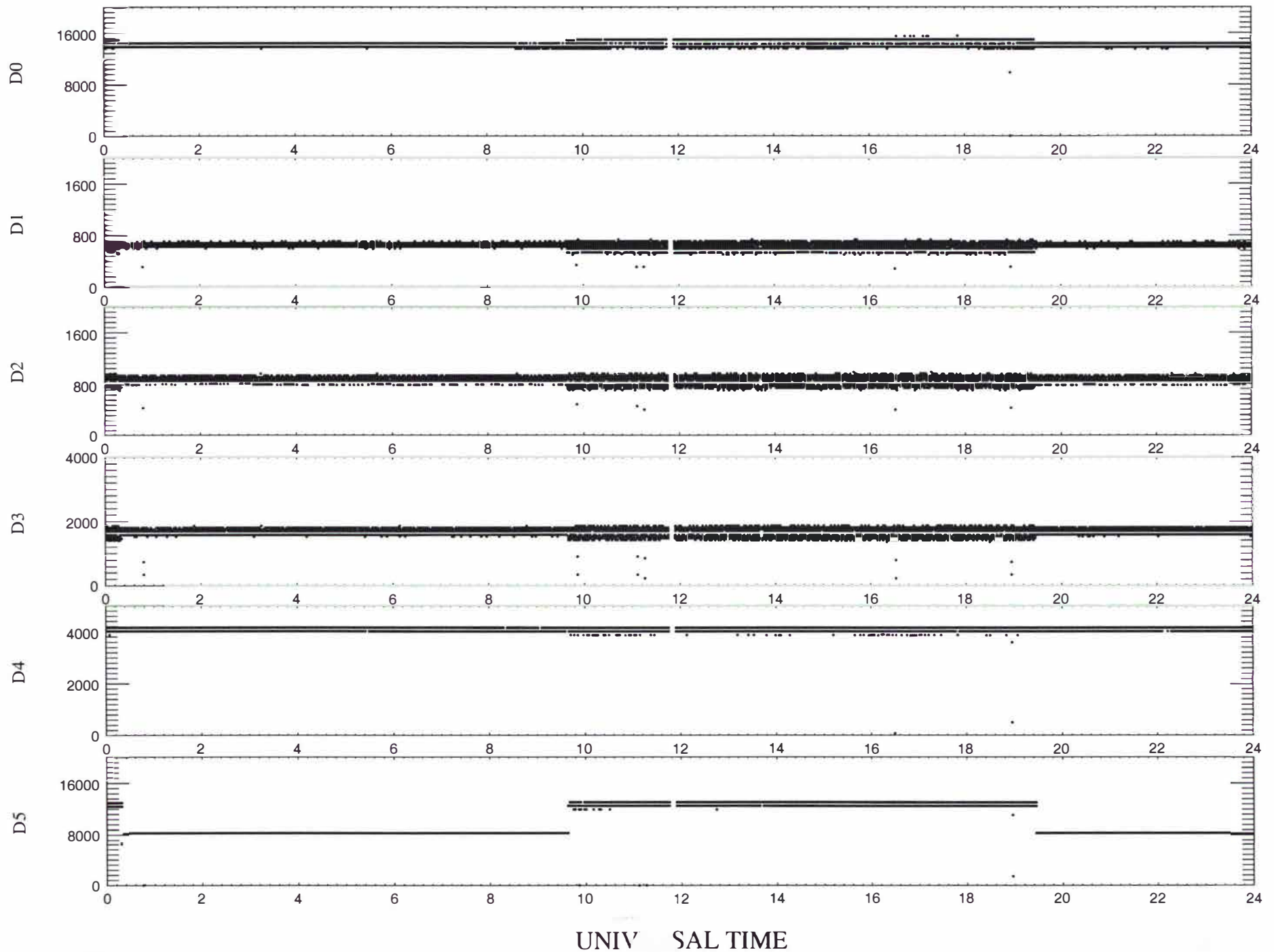
UNIV SAL TIME

Burst Counter 10 at UT=14.718782382541 h=52987.617 s 14:43:07.617



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Wed Dec 22 12:26 PST 1999
From: HENZE@fender.msfc.nasa.gov
Date: Wed, 22 Dec 1999 14:35:49 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7912

BATSEARCH PROGRAM

BATSE BURST # 7912
EVENT OF 1999 DEC 19 DAY OF YEAR=353
EVENT CROSSING TIME AT BATSE : 66621. S. OR 18:30:21.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 303.000 9.000
BATSE PEAK COUNTING RATE: 10100 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 19/12/ 99 IS:
RA= 165.711 DEC= -31.842 DIST= 4.140 AU
BATSE-ULYSSES DISTANCE = 619369161. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 45.65 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1444.24 SECS.
CROSSING TIME AT ULYSSES IS 68065. S. OR 18:54:25 +/- 328.42 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 19/12/ 99 IS:
RA= 320.344 DEC= -16.759 DIST= 1.777 AU
MARS-BATSE DISTANCE = 265785744. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=149.05 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -760.34 SECS.
CROSSING TIME AT MARS IS 65861. S. OR 18:17:40 +/- 67.61 SECONDS

BATSE BURST TRIGGER

NO.: 7912

TIME: TJD=1531 SECONDS=66621

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 45.3 AZIMUTH=256.4 ERROR= 3.5 DEGREES

COMMENTS:

DOUBLE SPIKE, DUR. APPROX. 1.8 S, MAXES AT APPROX. T, T+1.1 S.
WEAKLY VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7912	991219	11531	66621	10100	303	+09	1.8

BATSE BURST# 7912

ULYSSES RT

22 / 12 / 99

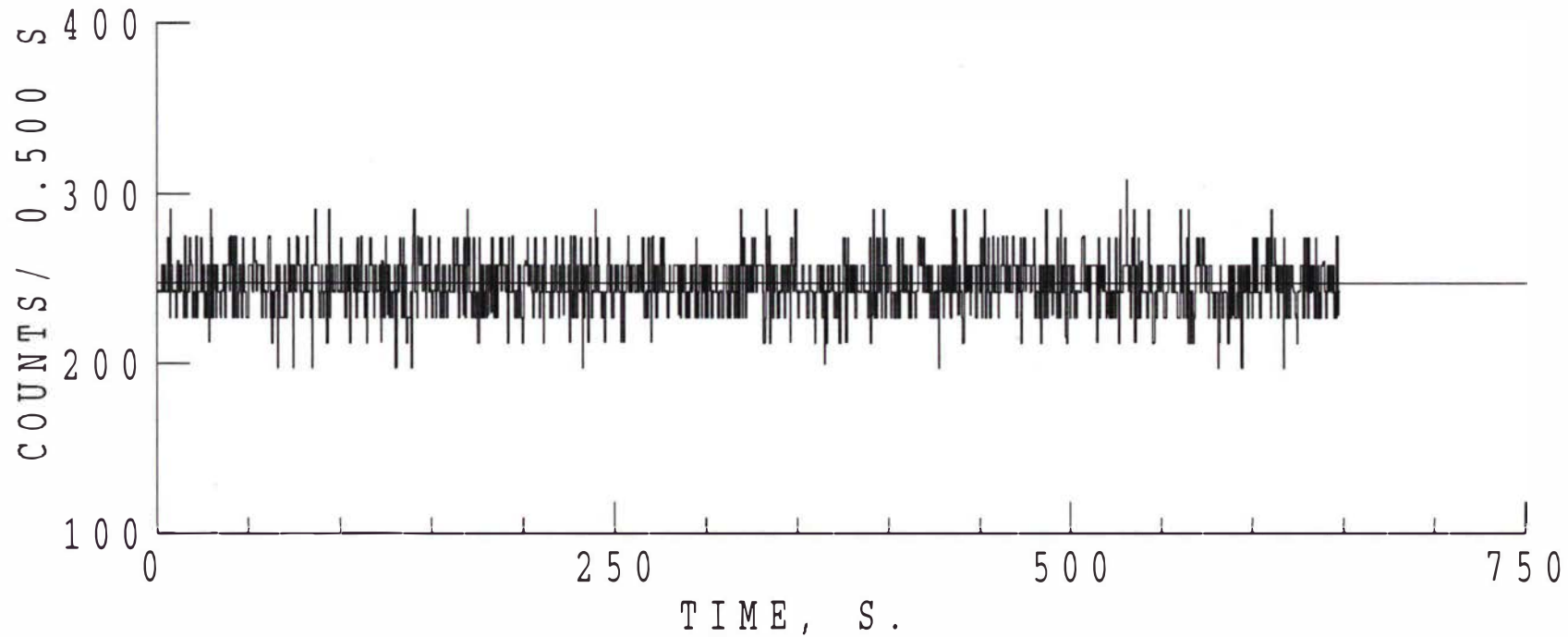
19 / 12 / 99 67752.156 s

0.250 S INTERVALS REGROUPED BY 2

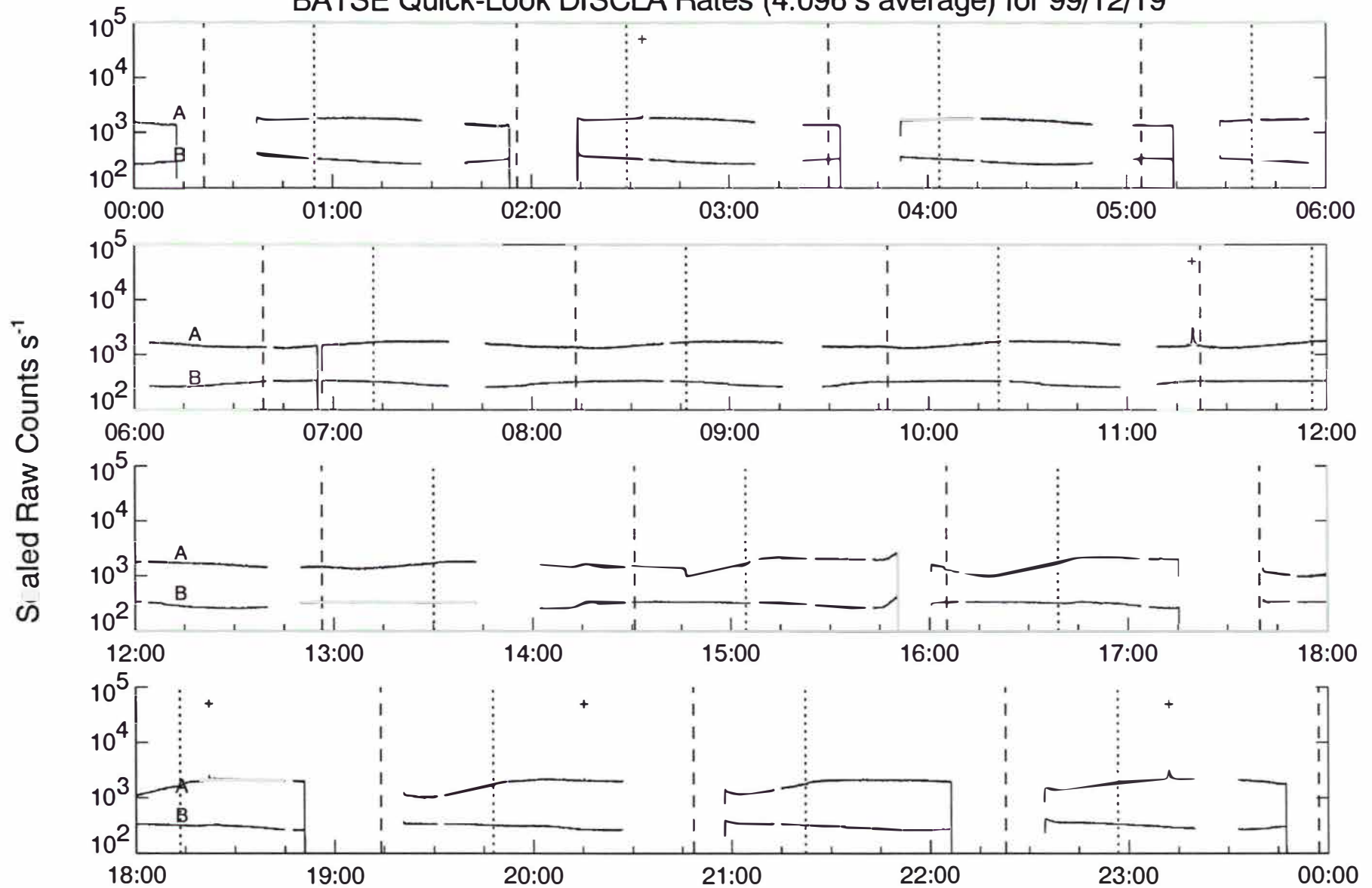
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



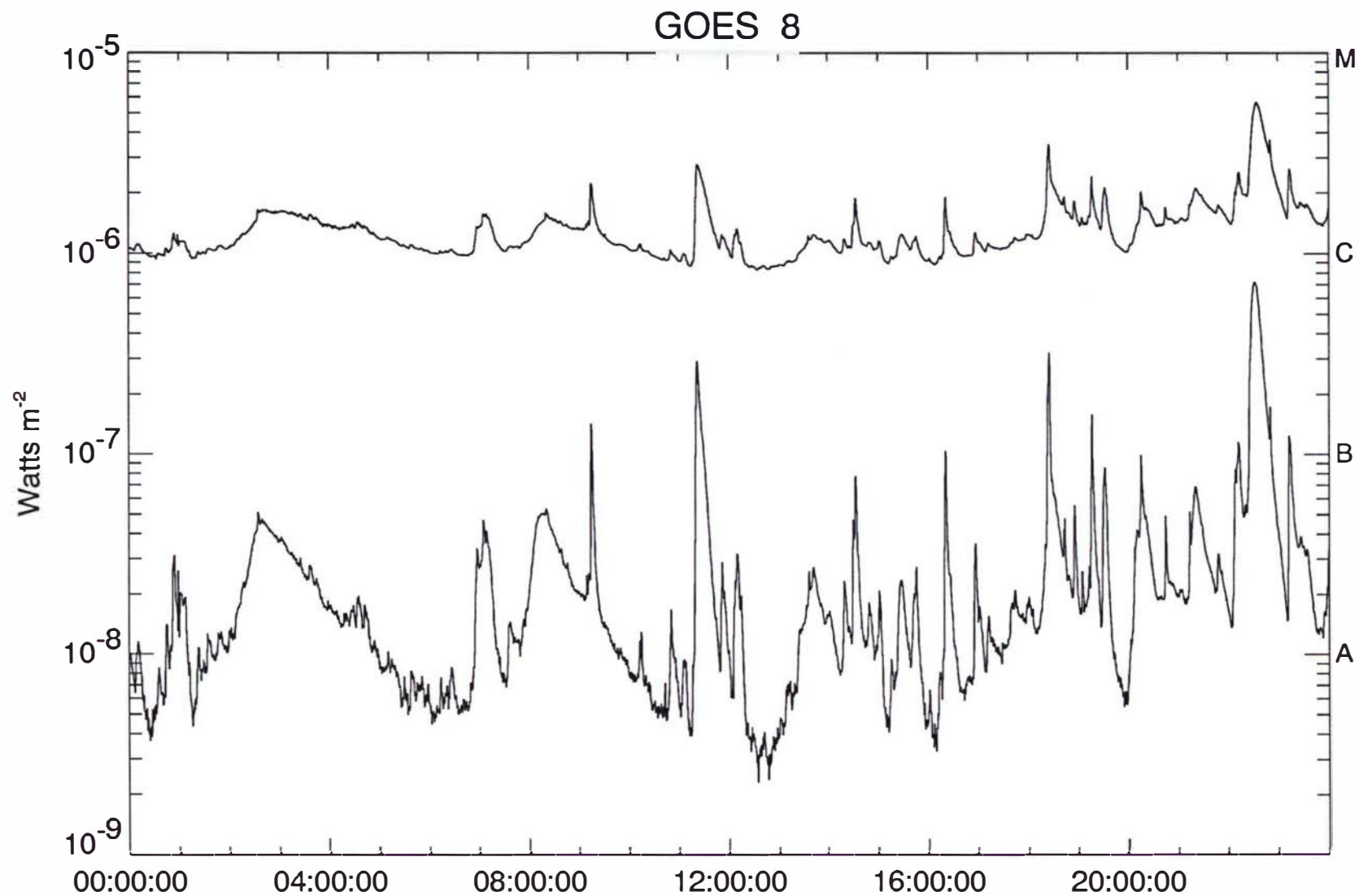
BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/19



Current Time: 99/12/23, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 99/12/19, 0000:00

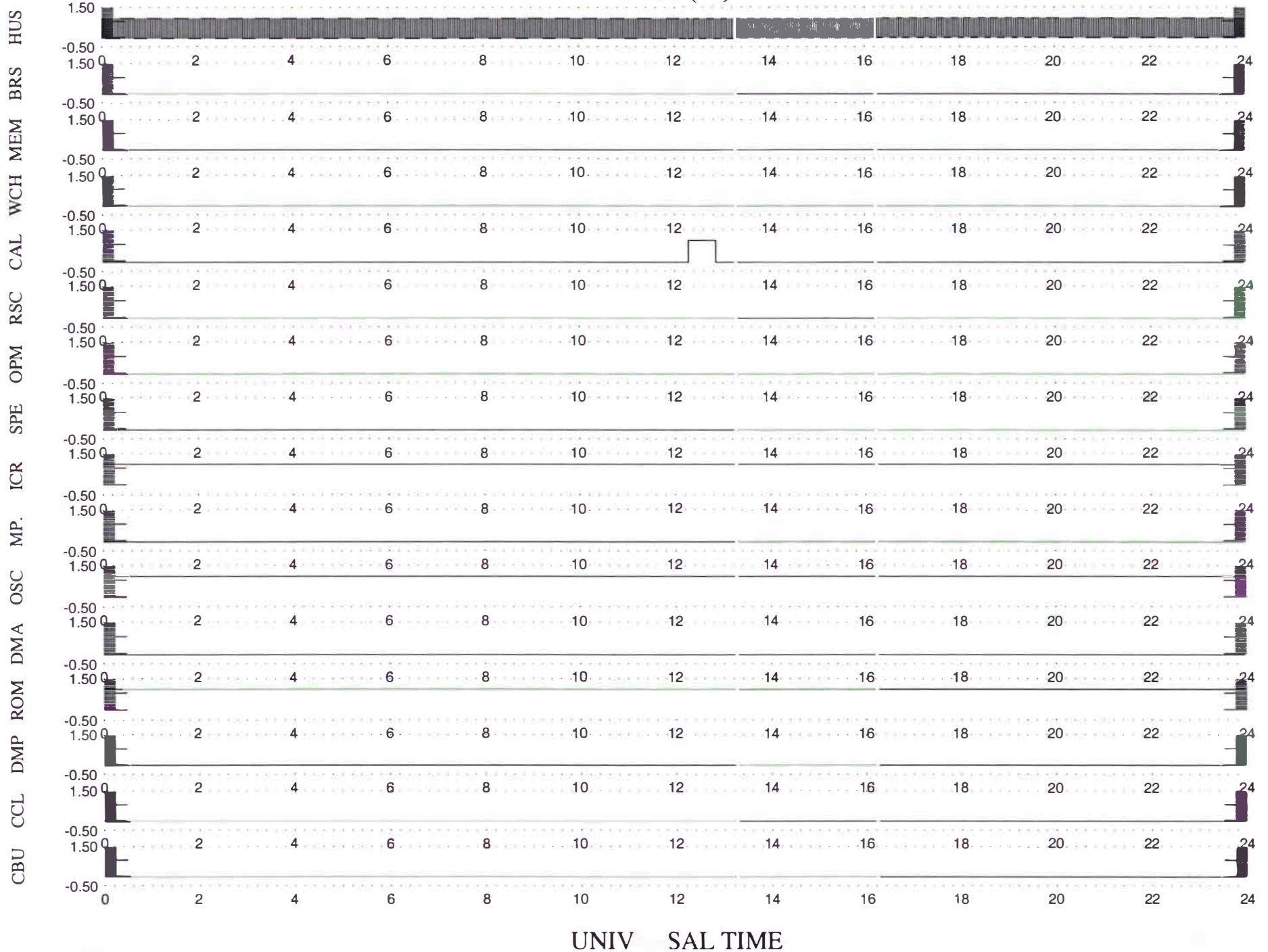
Plot created: 99/12/23, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

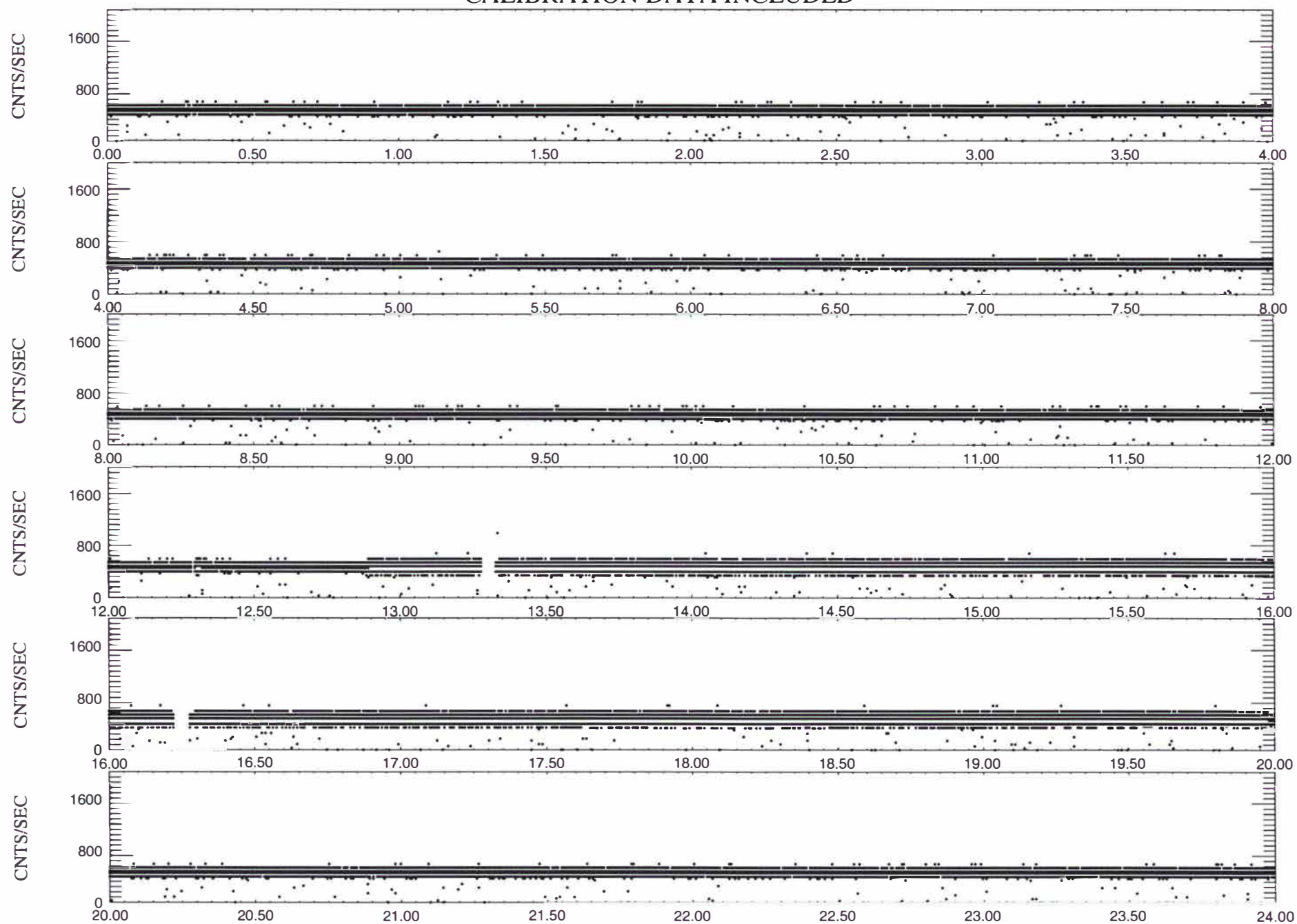
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

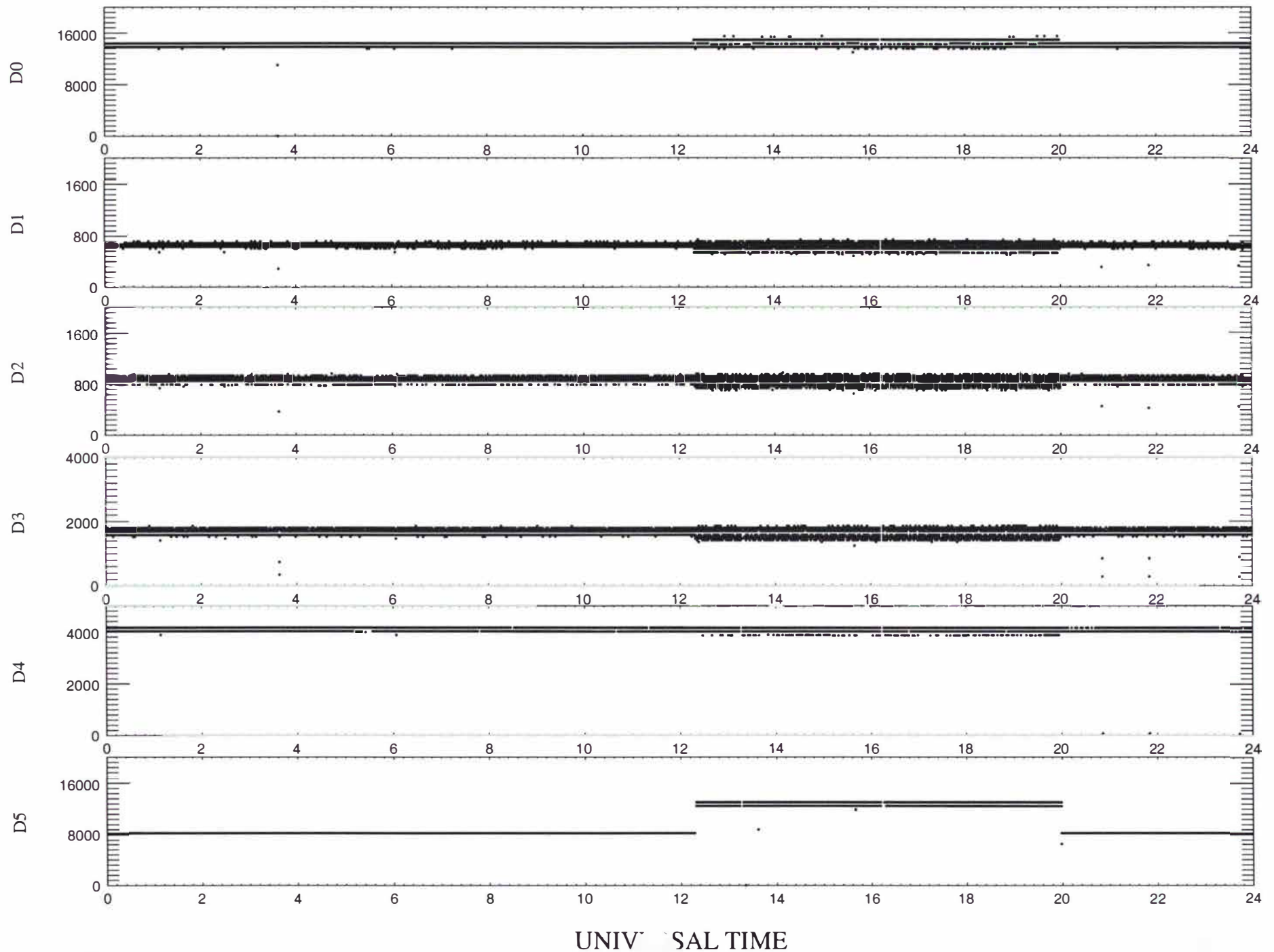
NO BURST (10)



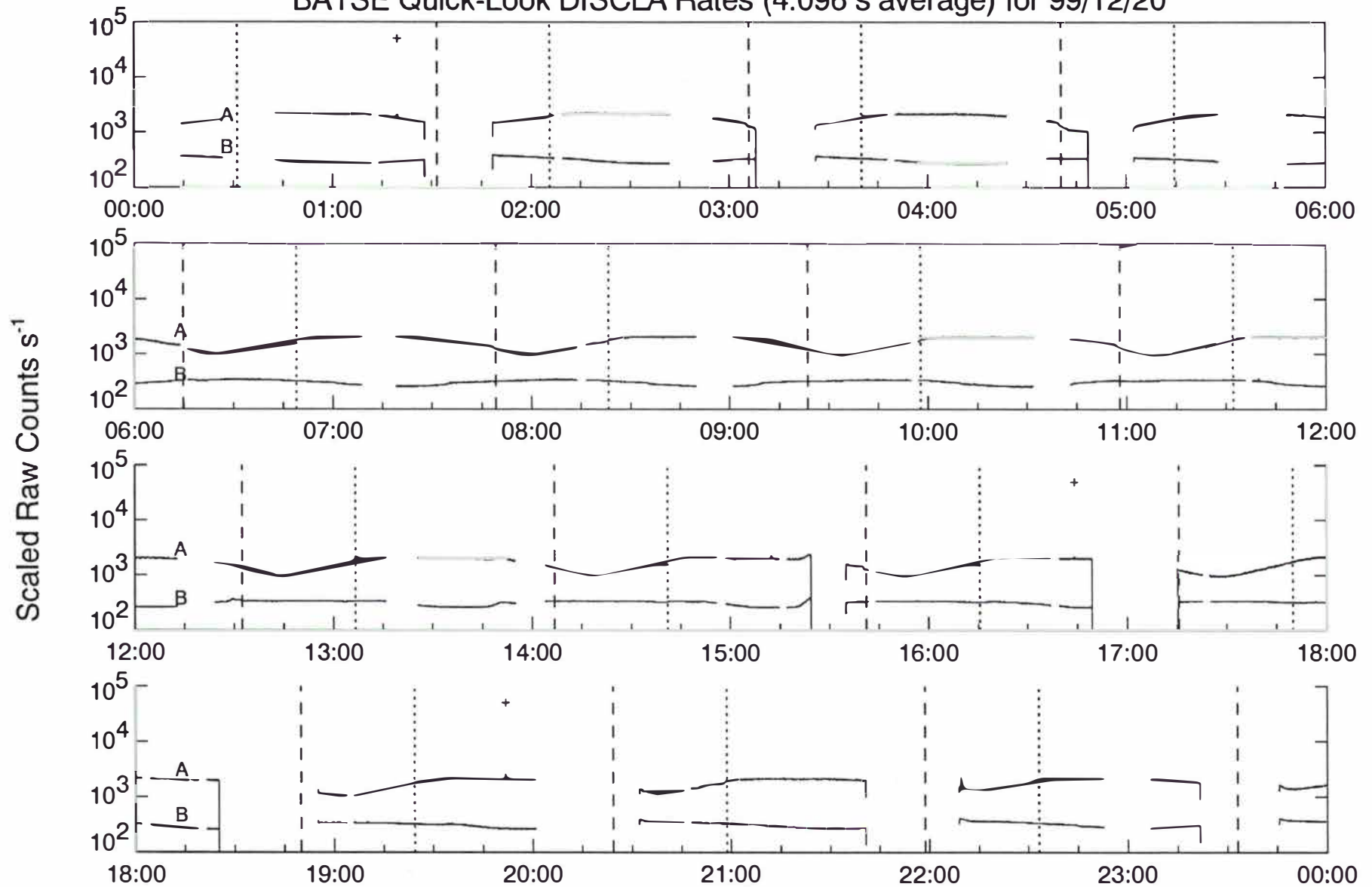
CALIBRATION DATA INCLUDED



UNIV^SAL TIME



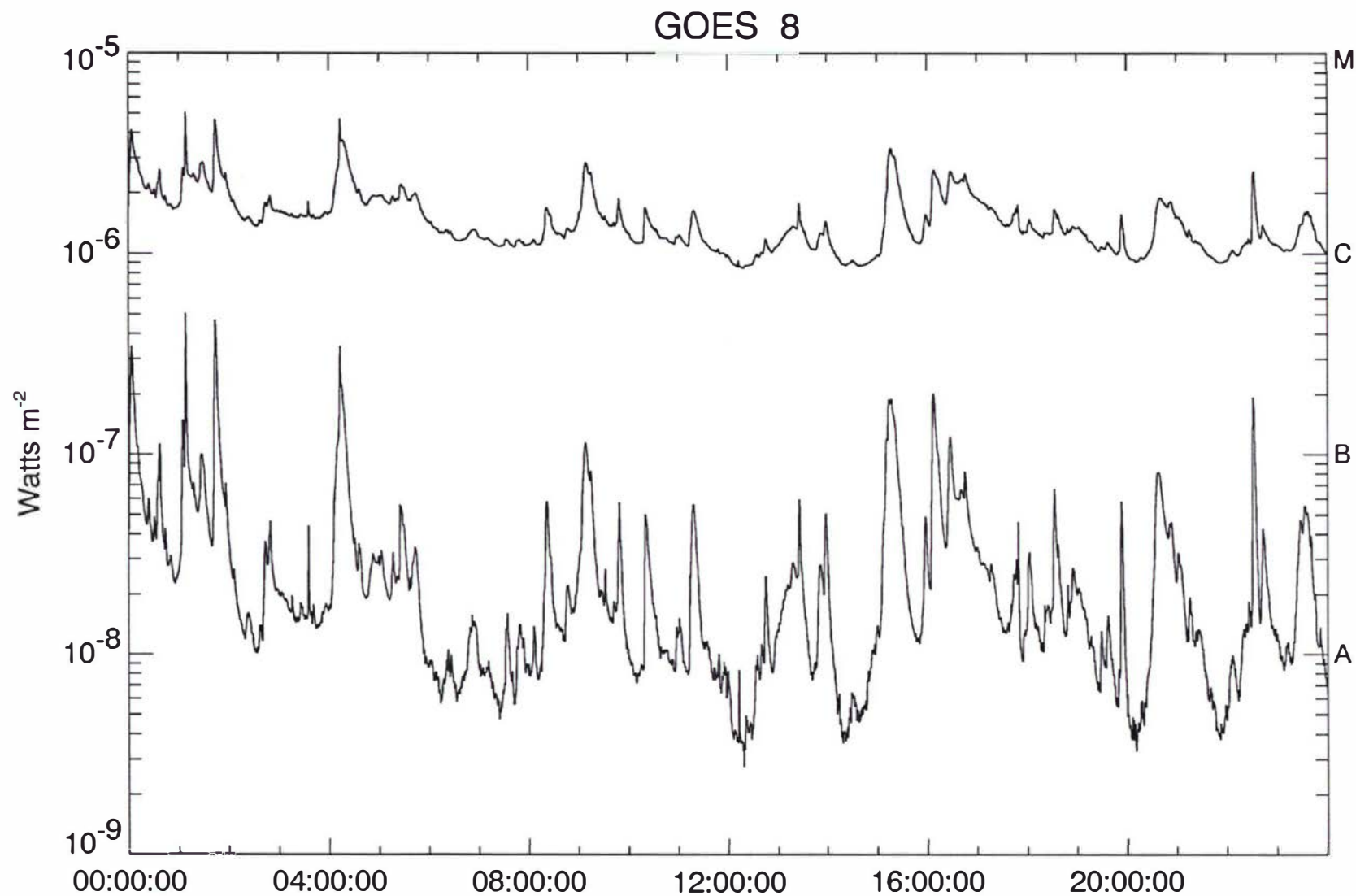
BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/20



Current Time: 99/12/24, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 99/12/20, 0000:00

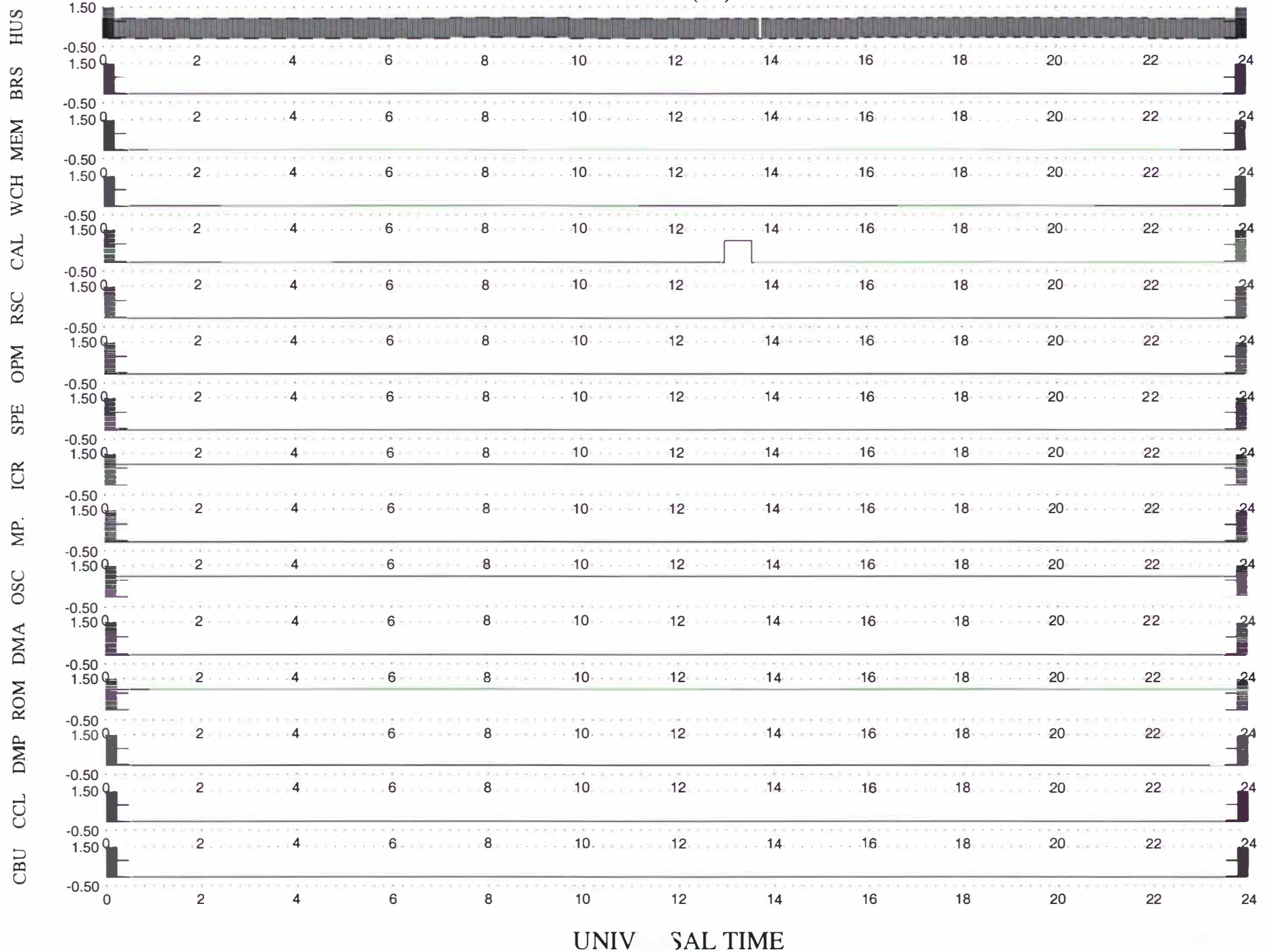
Plot created: 99/12/24, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

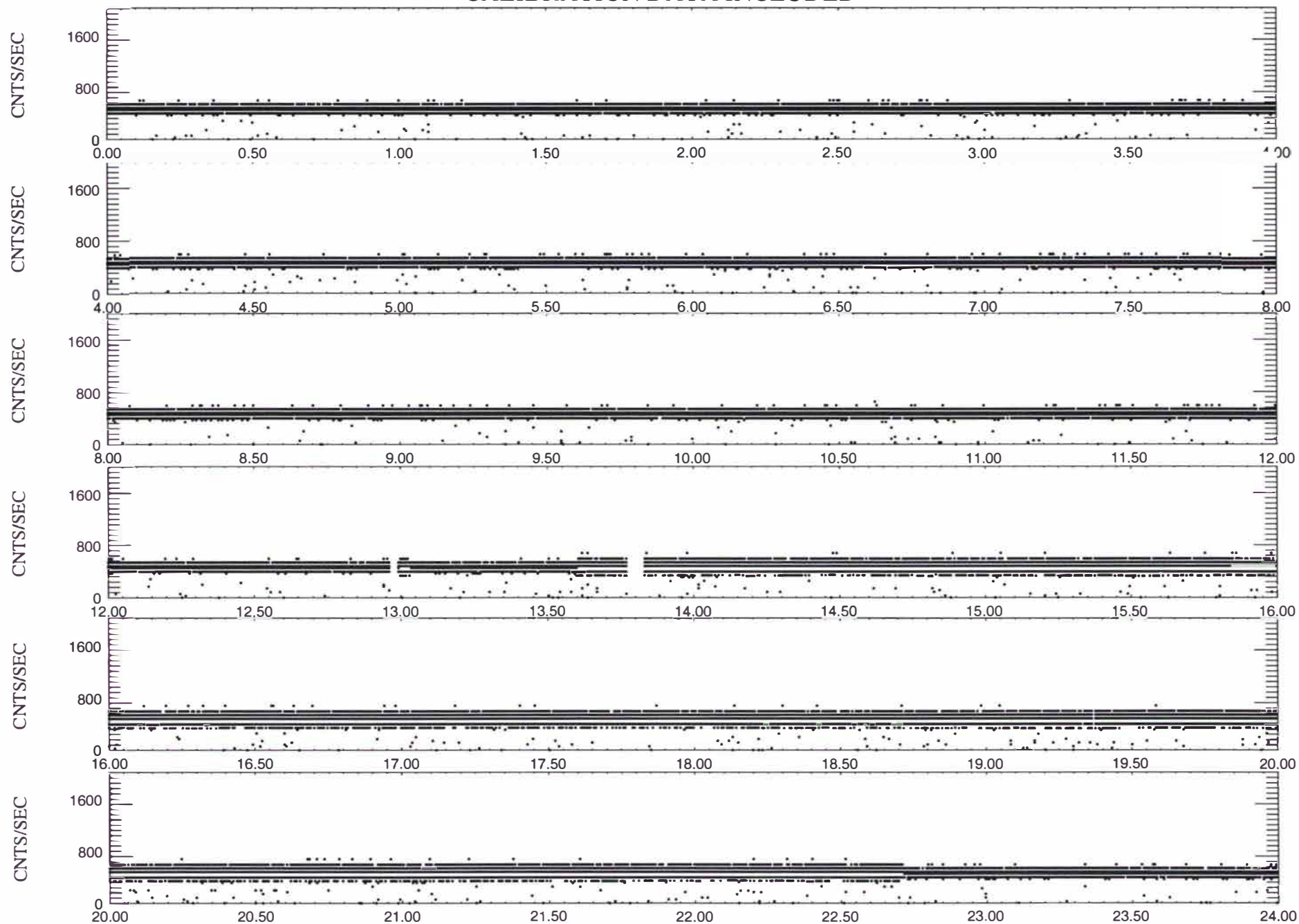
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

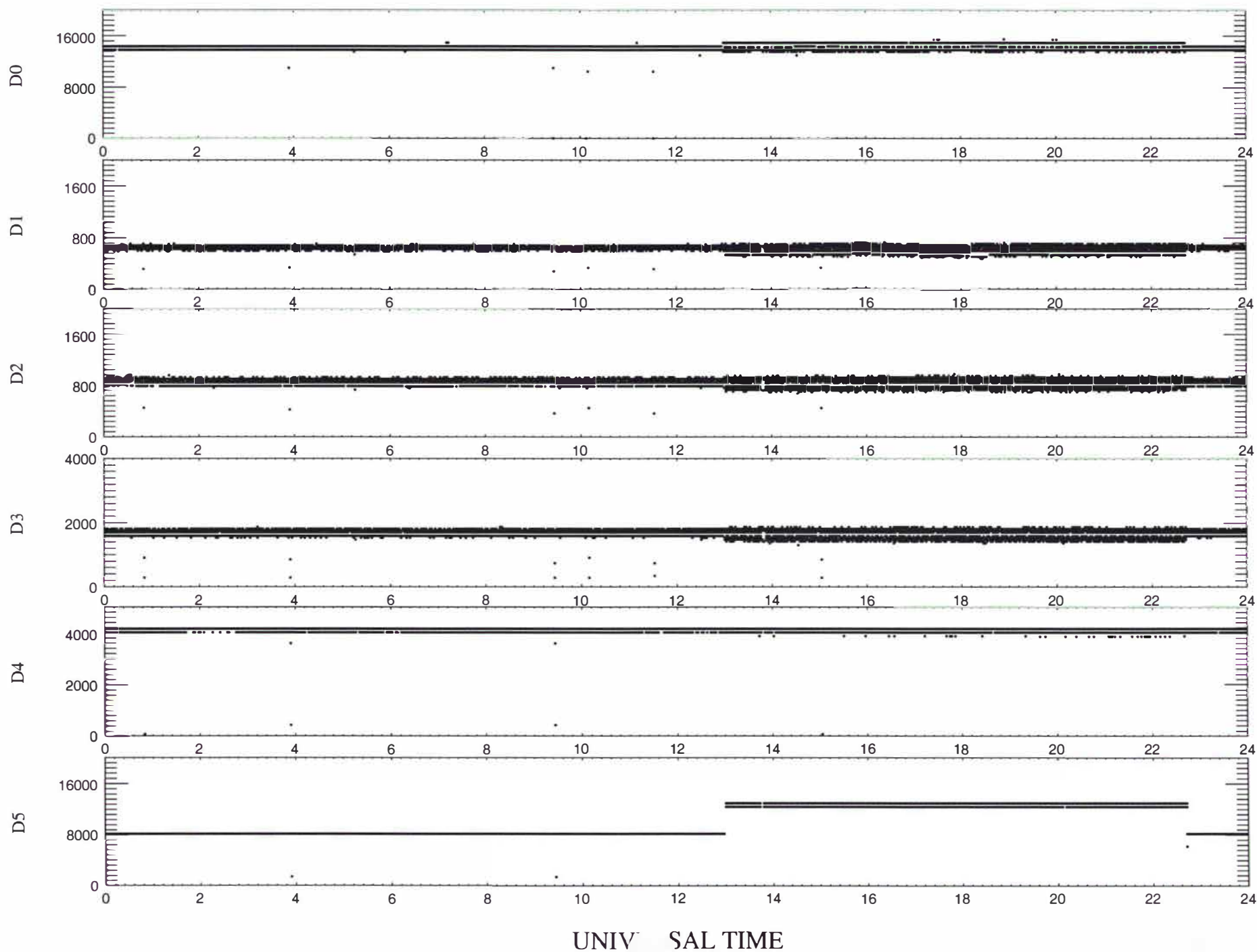
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



Date: June 14 2000

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? *Not always - poor stats*

2. BATSE Data *N/A*

- ☐ BATSE ephemeris for T_0 ?
- ☐ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data

- ☒ Final, correct time used? (Files postmarked vw@bocc1, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times)
- ☐ BATSE >100 keV data used for NEAR correlation? *N/A*

- ☒ 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

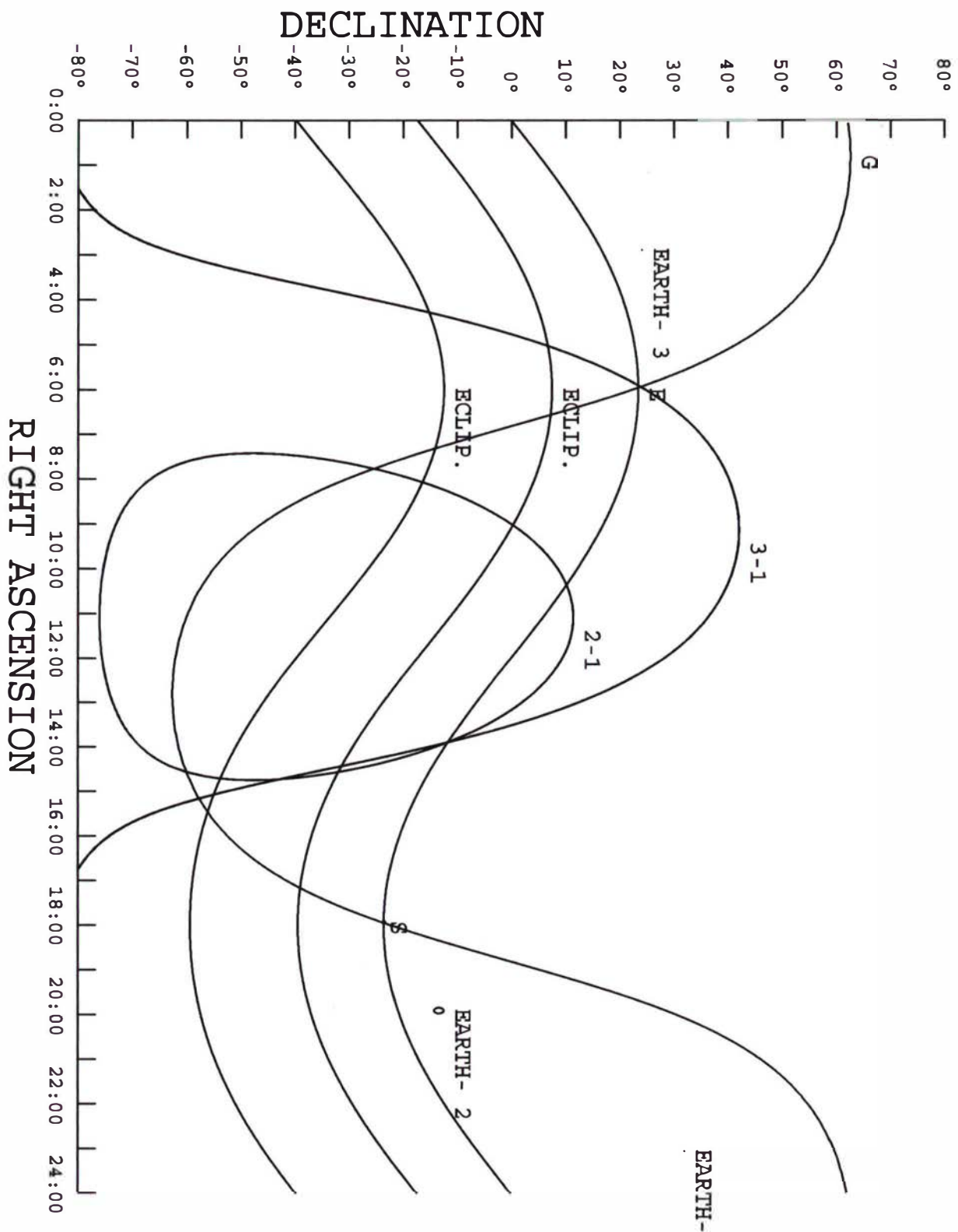
1 ULYSSES

2 KONUS1

3 NEAR

EVENT OF DEC 21, 1999 10:11

11/ 7/ 7



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

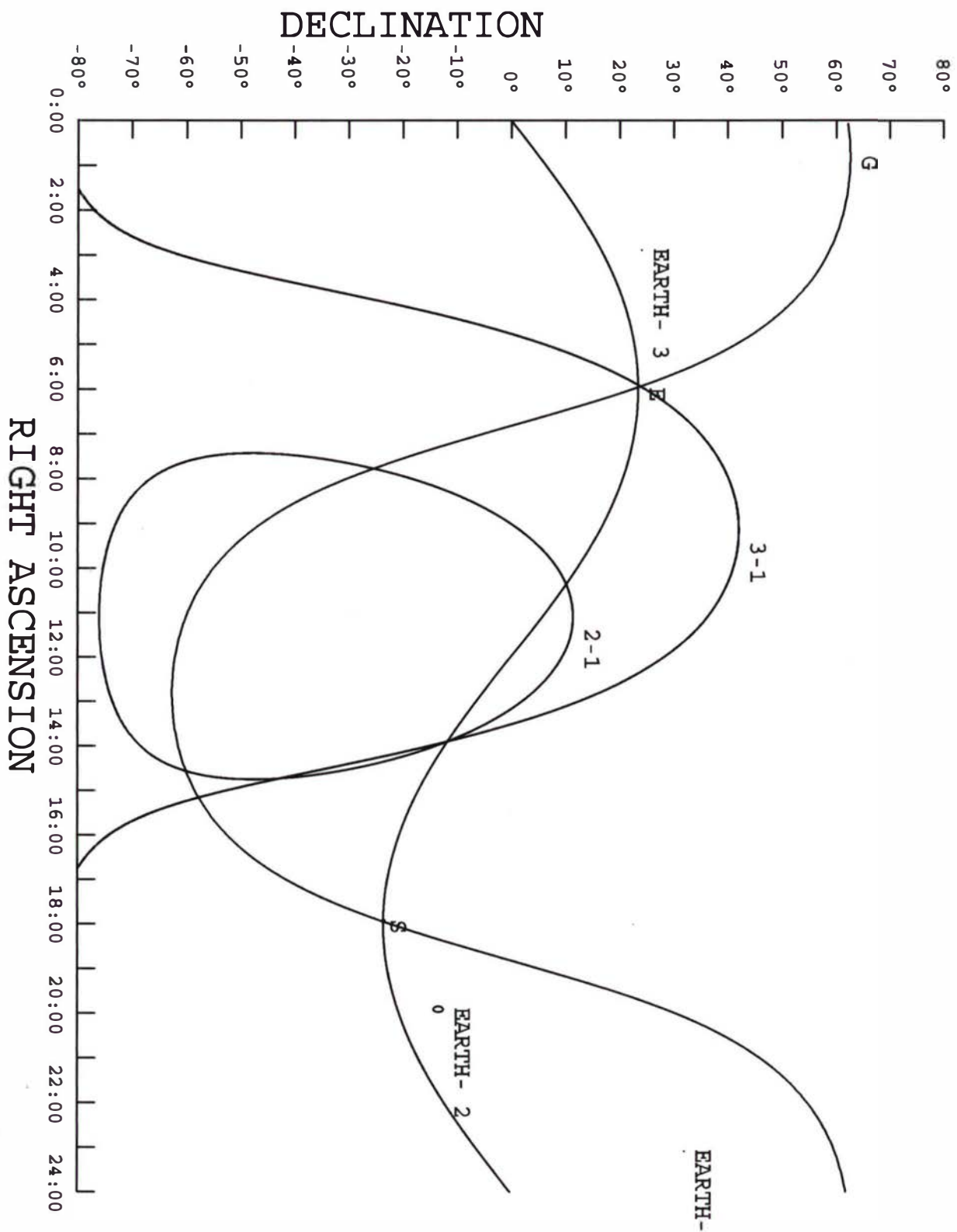
1 ULYSSES

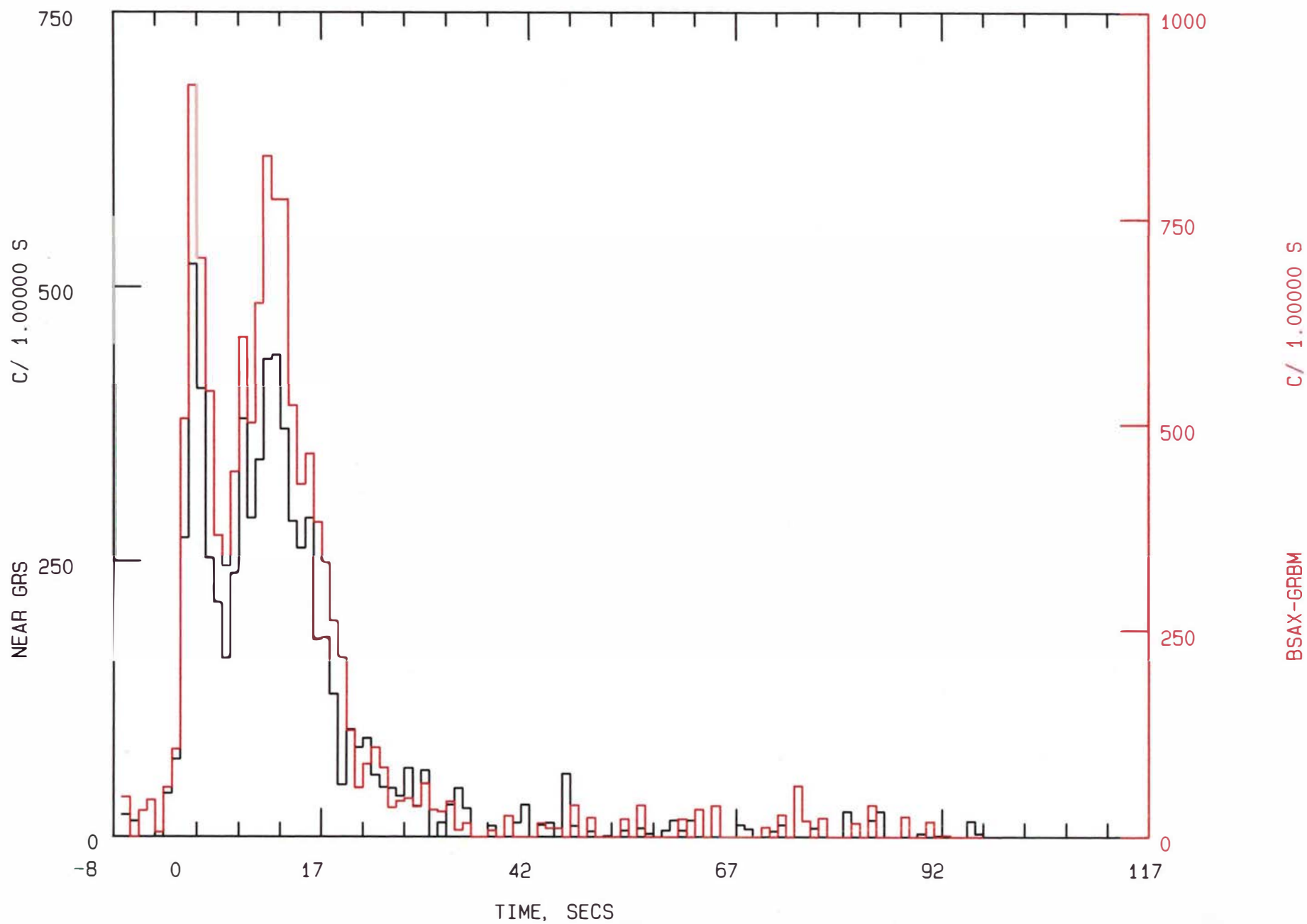
2 KONUS1

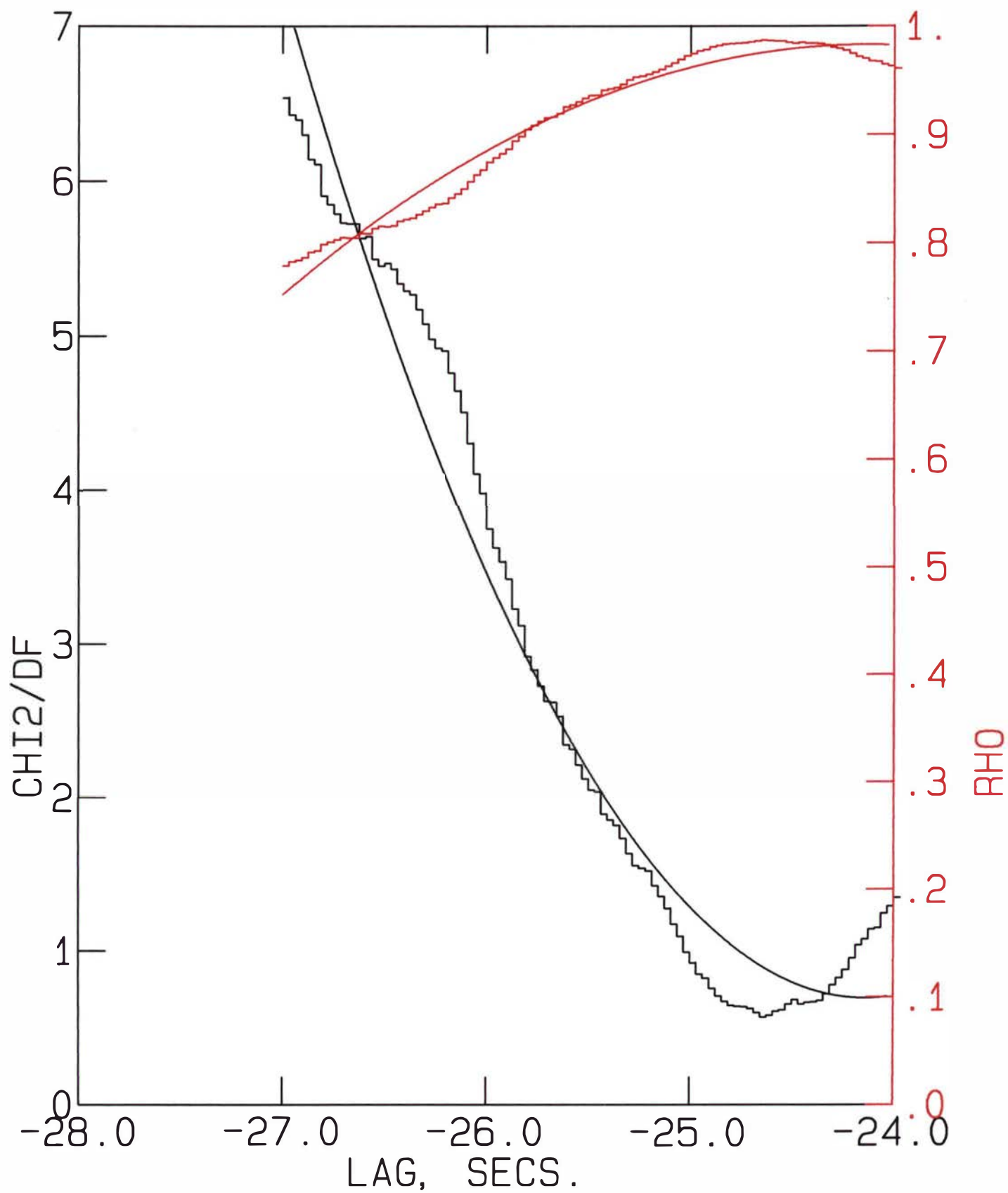
3 NEAR

EVENT OF DEC 21, 1999 10:11

14 / 6 / 0





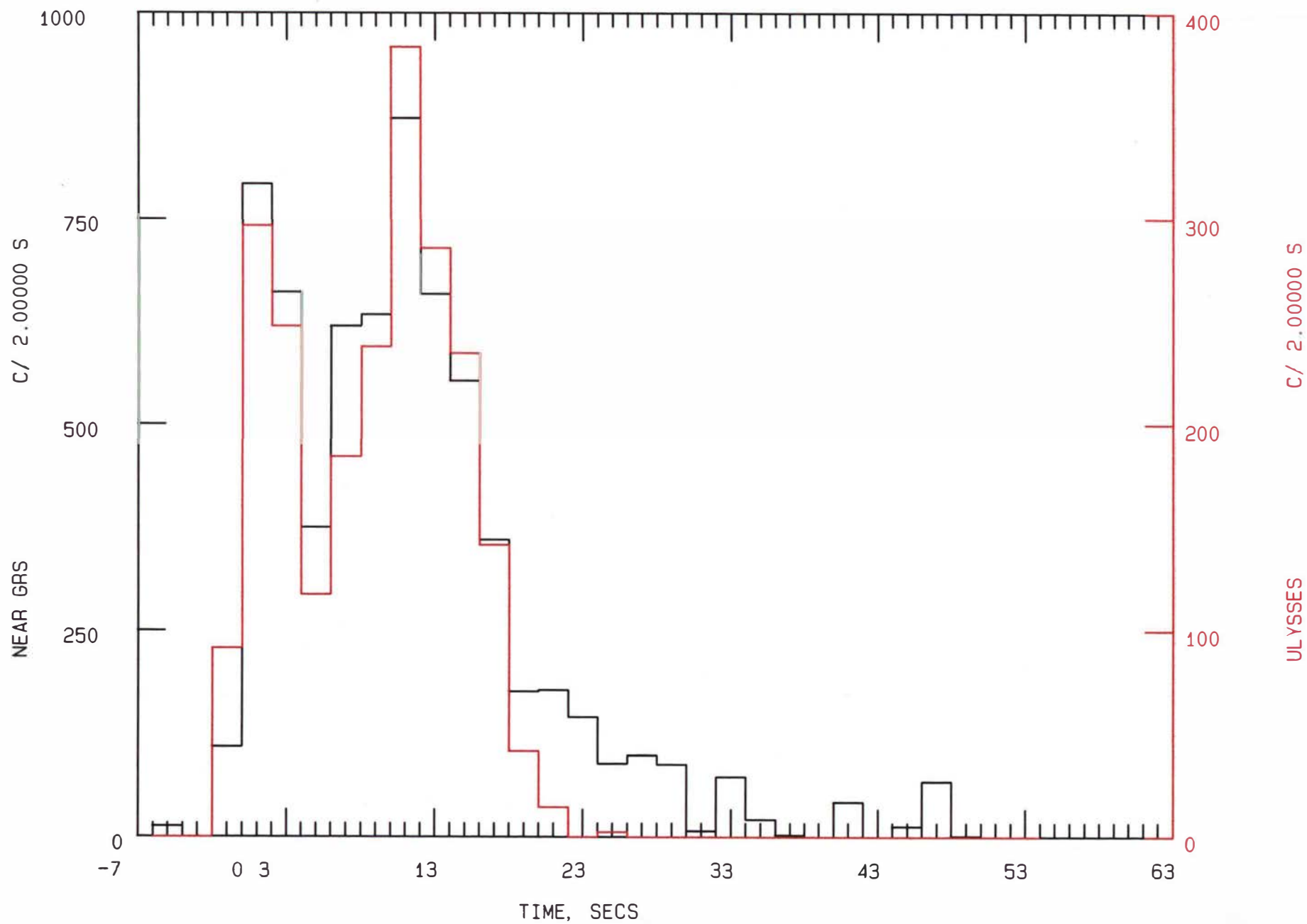


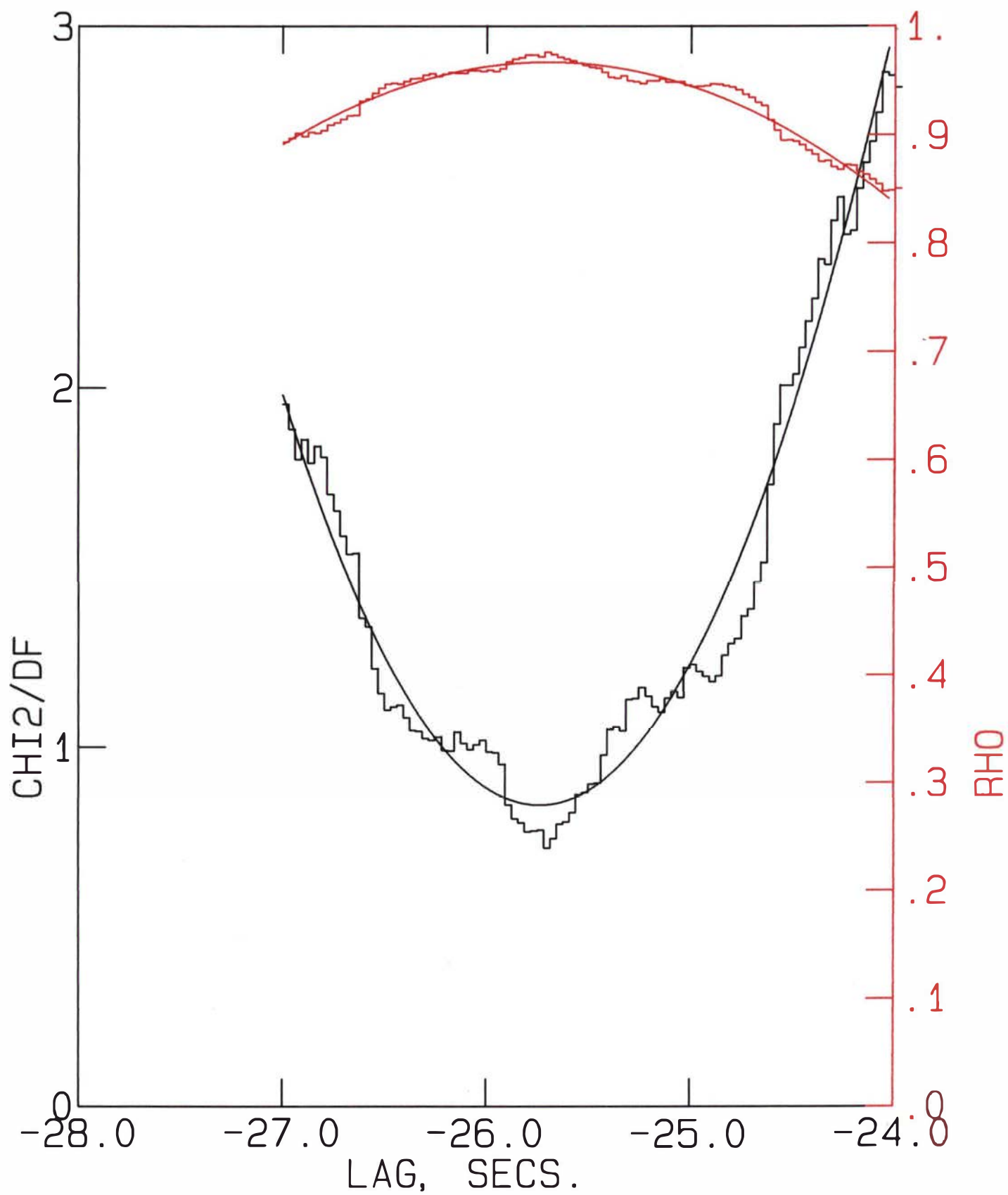
NEAR GRS -ULYSSES

CORRELATION

21/12/99 37312.717

14/ 6/ 0





ULYSSES

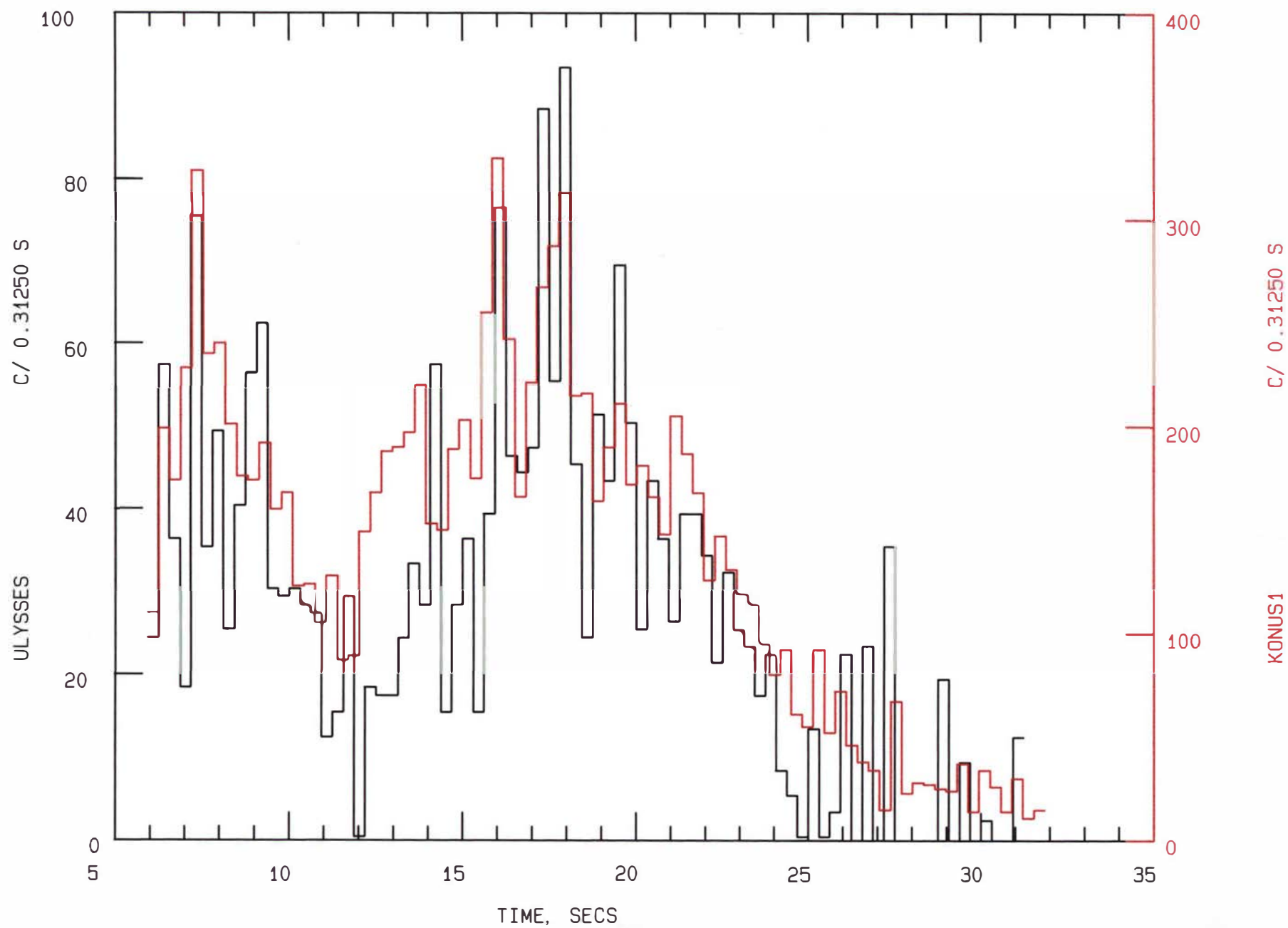
-KONUS1

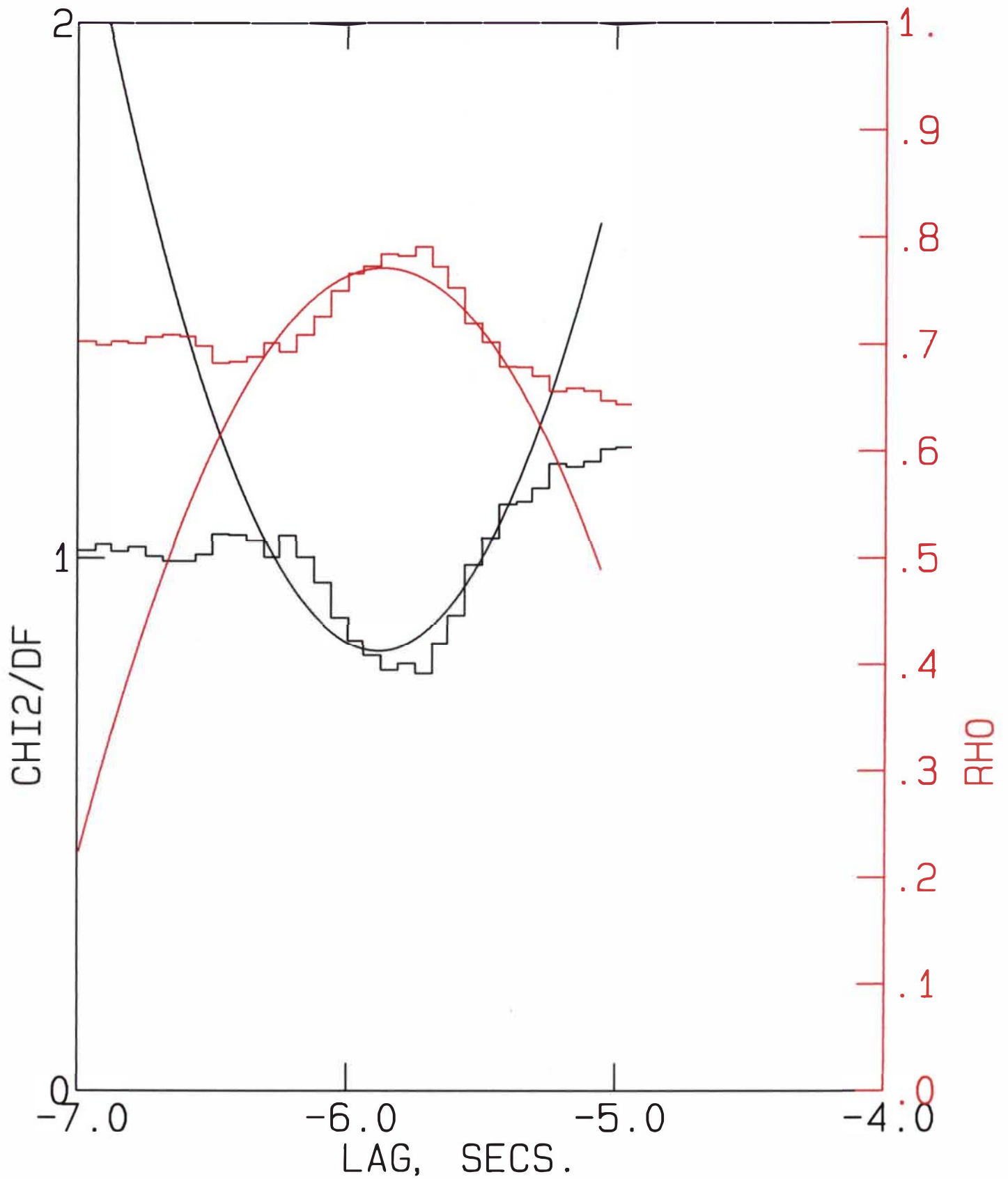
CORRELATION

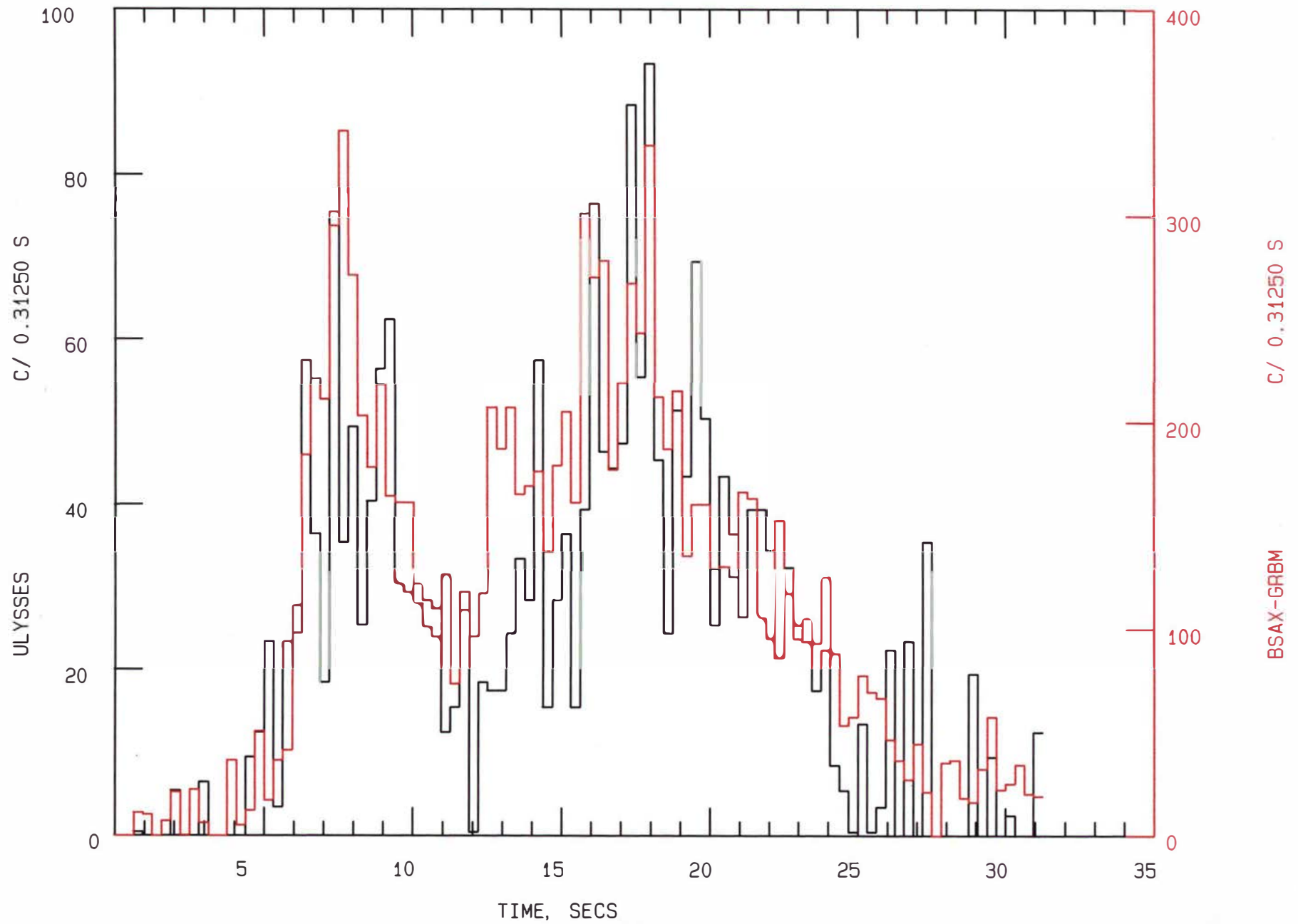
21/12/99

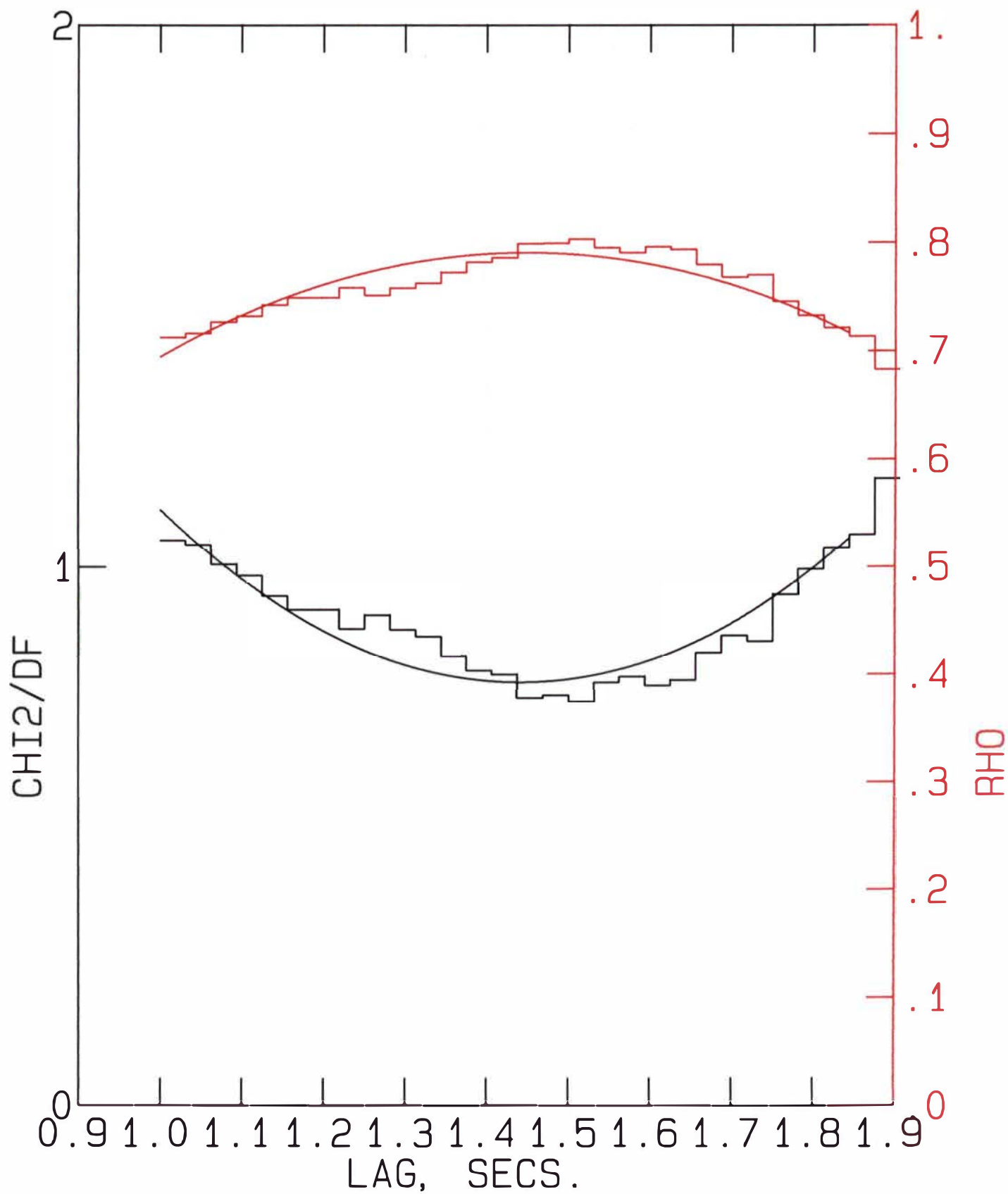
36710.886

14/ 6/ 0









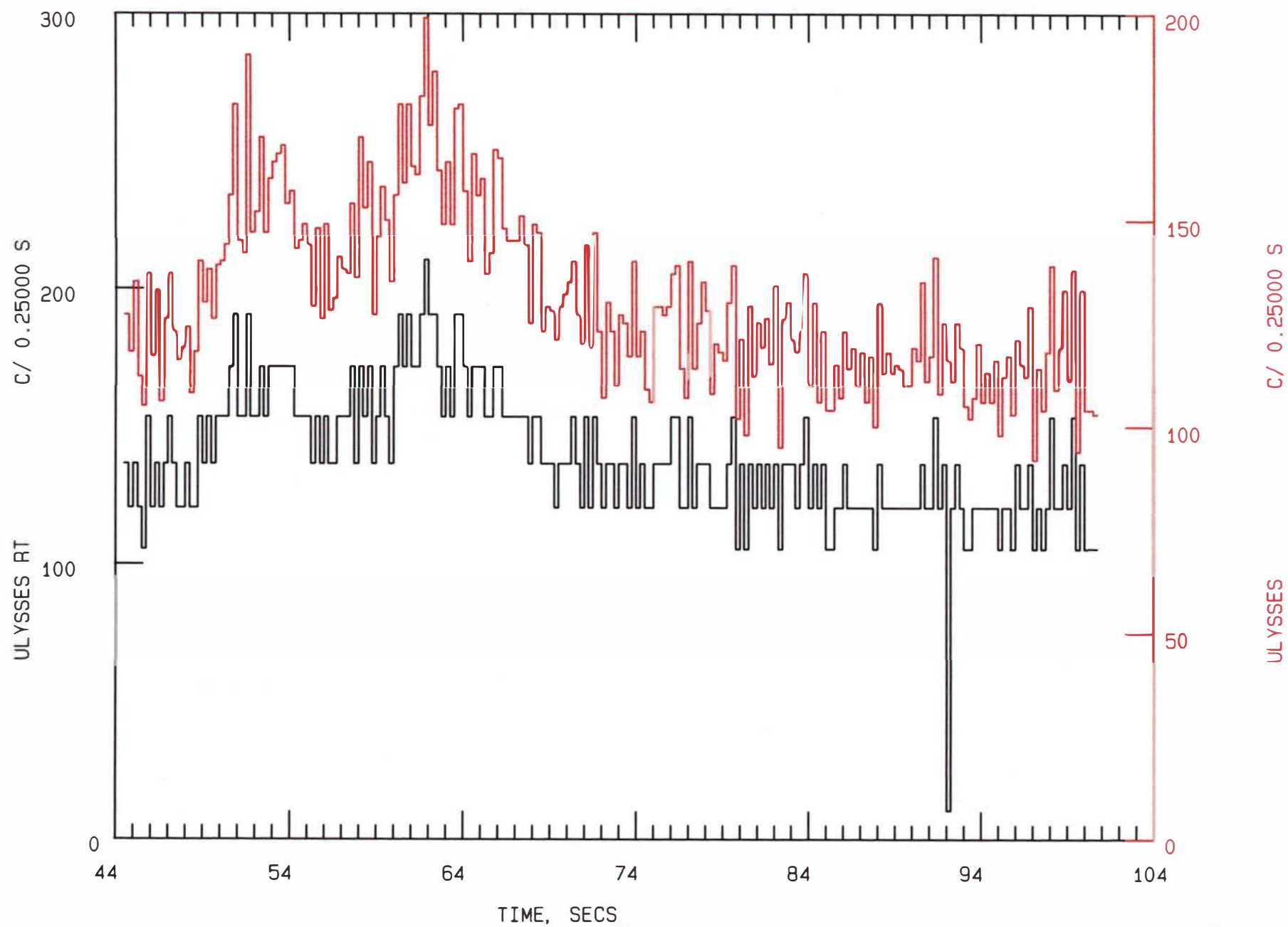
ULYSSES RT-ULYSSES

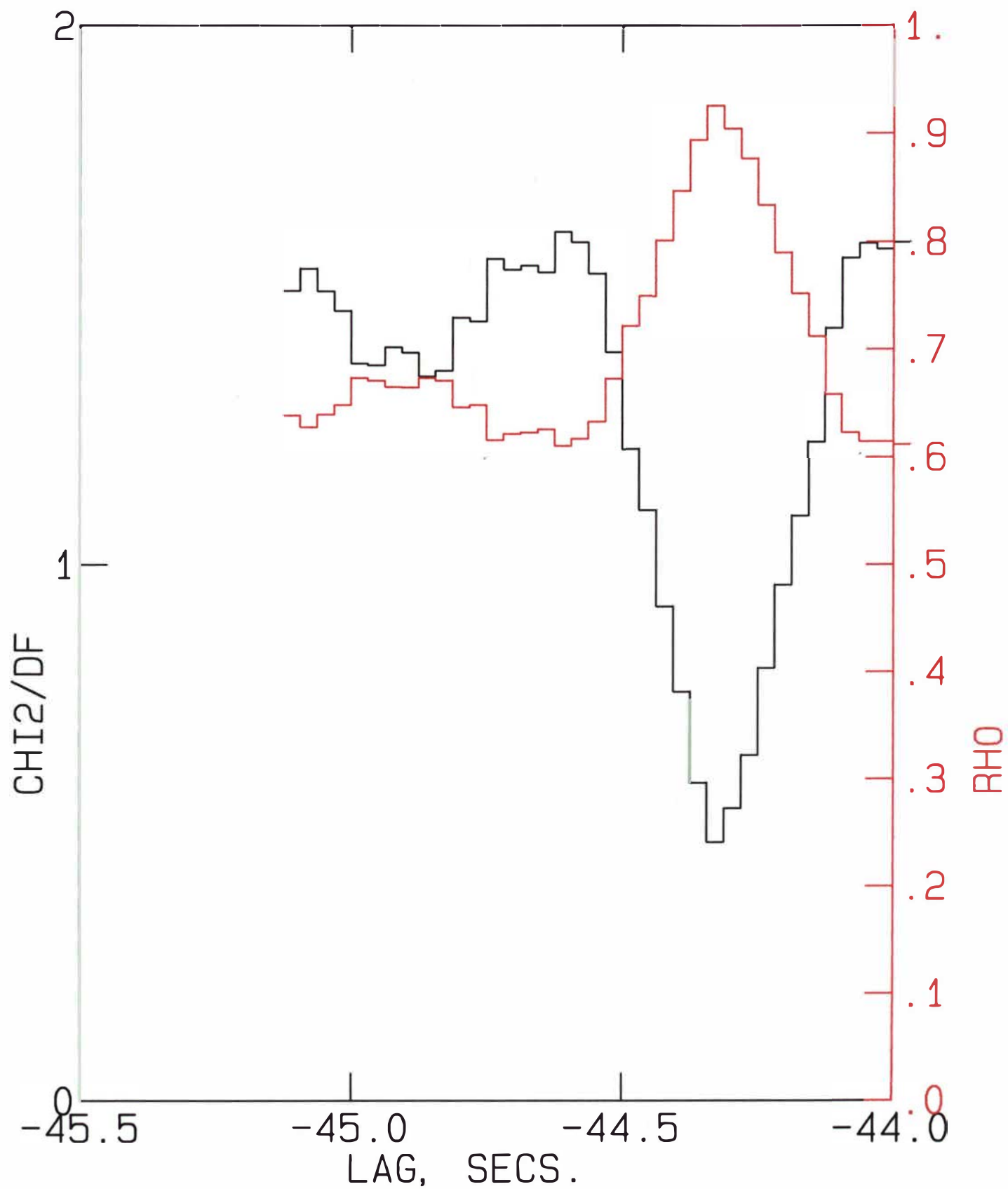
CORRELATION

21/12/99

36659.136

14/ 6/ 0

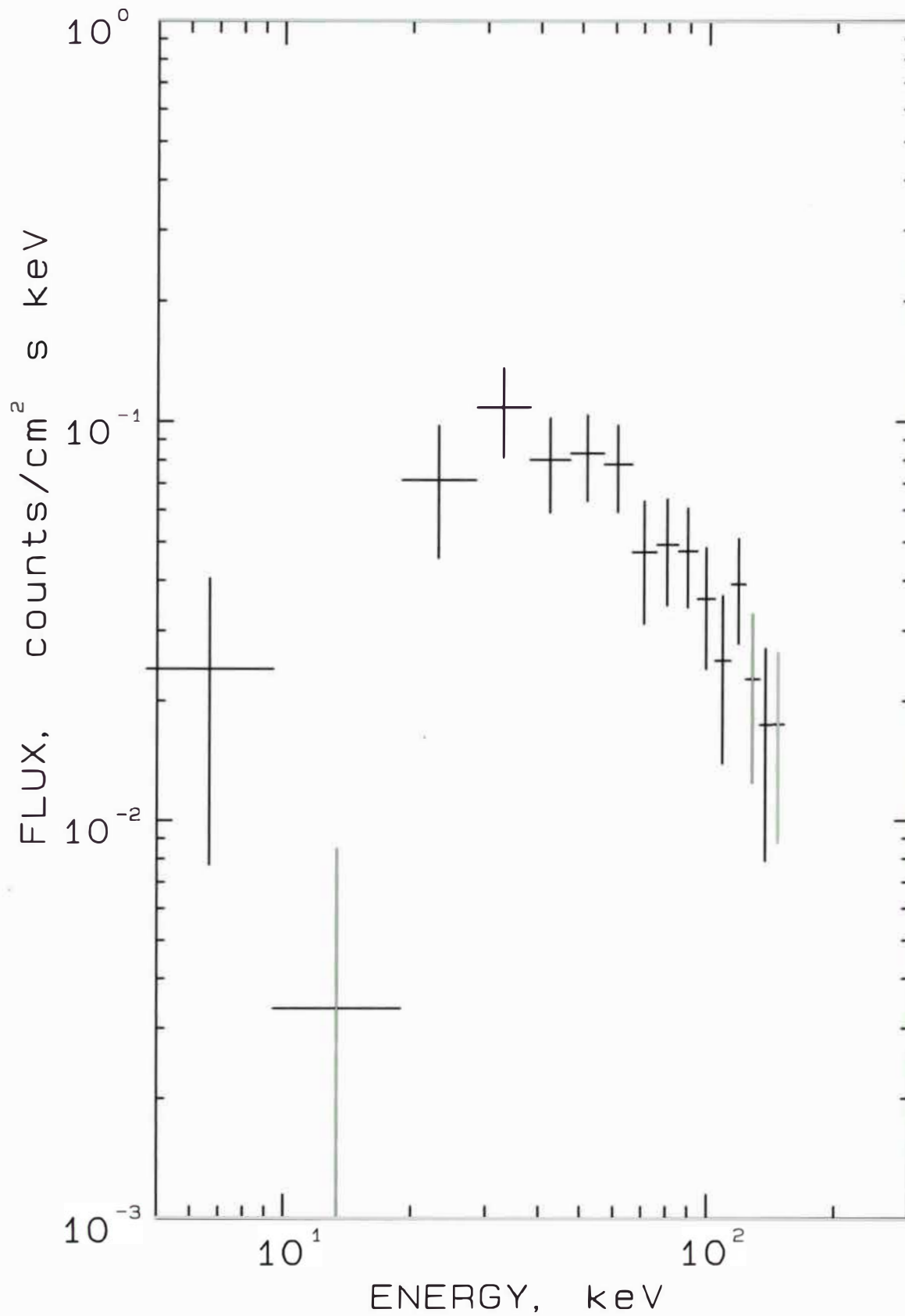




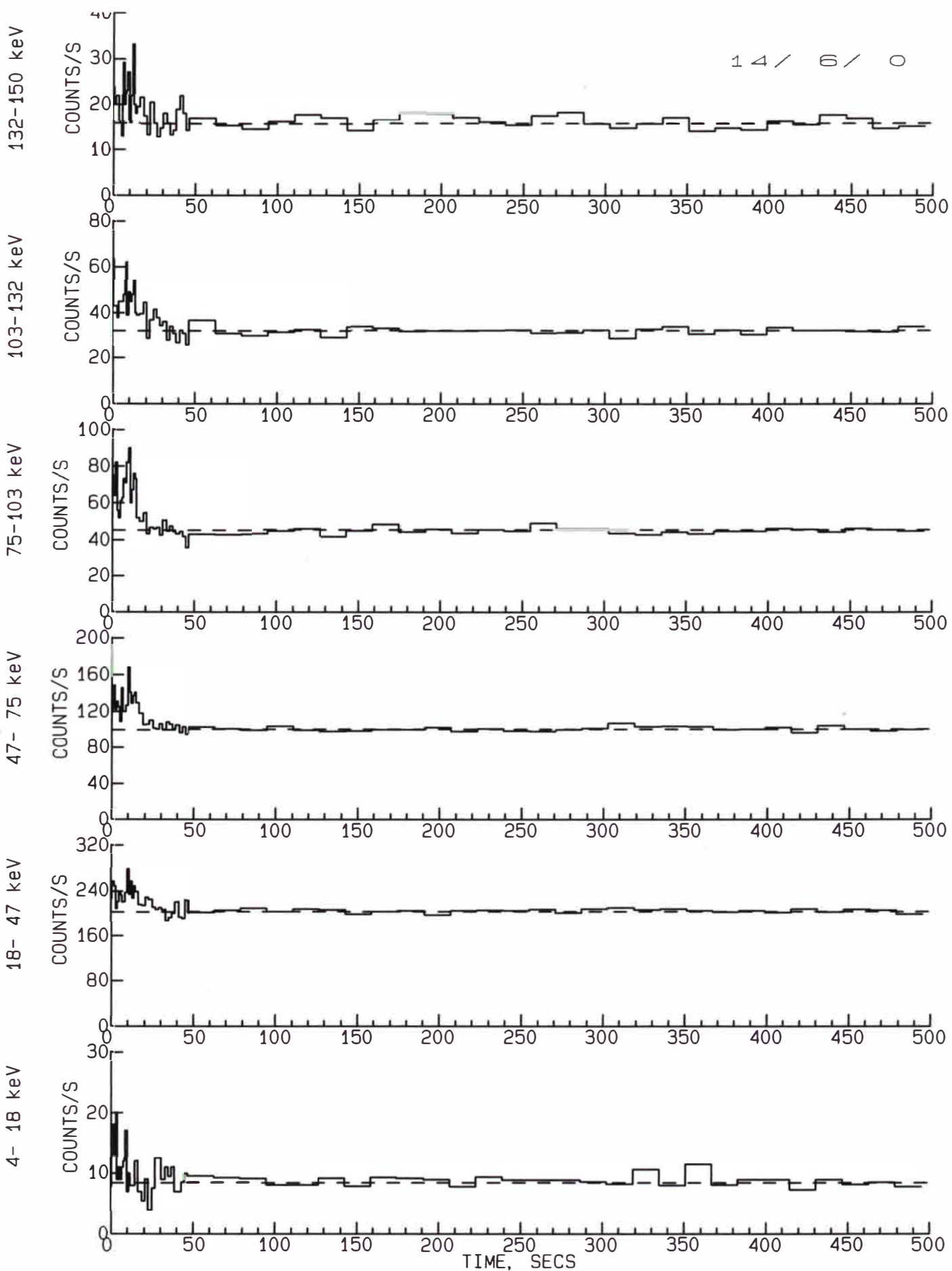
ULYSSES 21/12/99 36710.856

14/ 6/ 0

SPECTRUM INTEGRATED OVER 22.8 SECONDS, INTERVALS 2 TO 20



ULYSSES 21/12/99 36710.856 BURST SPECTRAL COUNT RATES

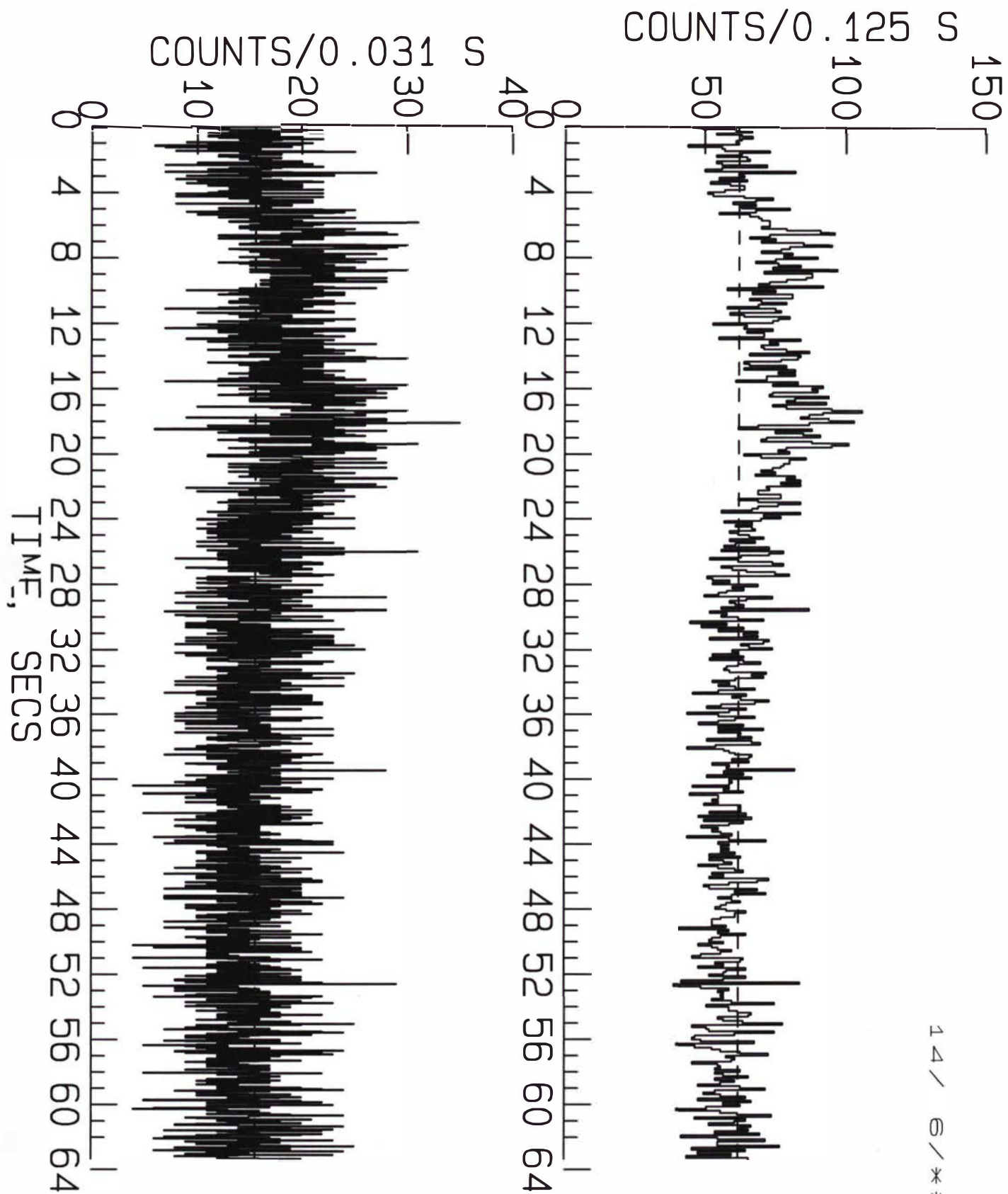


ULYSSES

21/12/99

Ttrig=36710.886

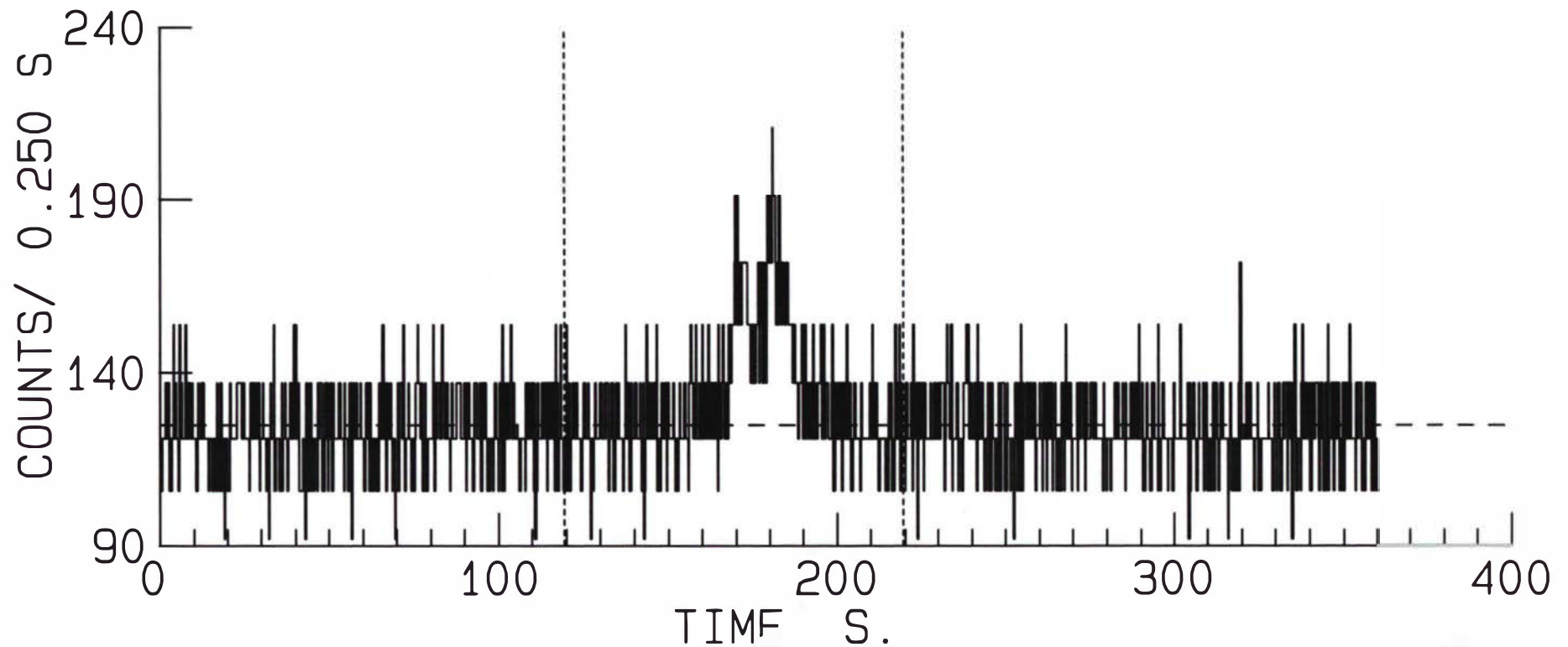
22- 151 keV



ULYSSES RT
21/12/99 36540.110 s
22- 151 keV

14 / 6 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



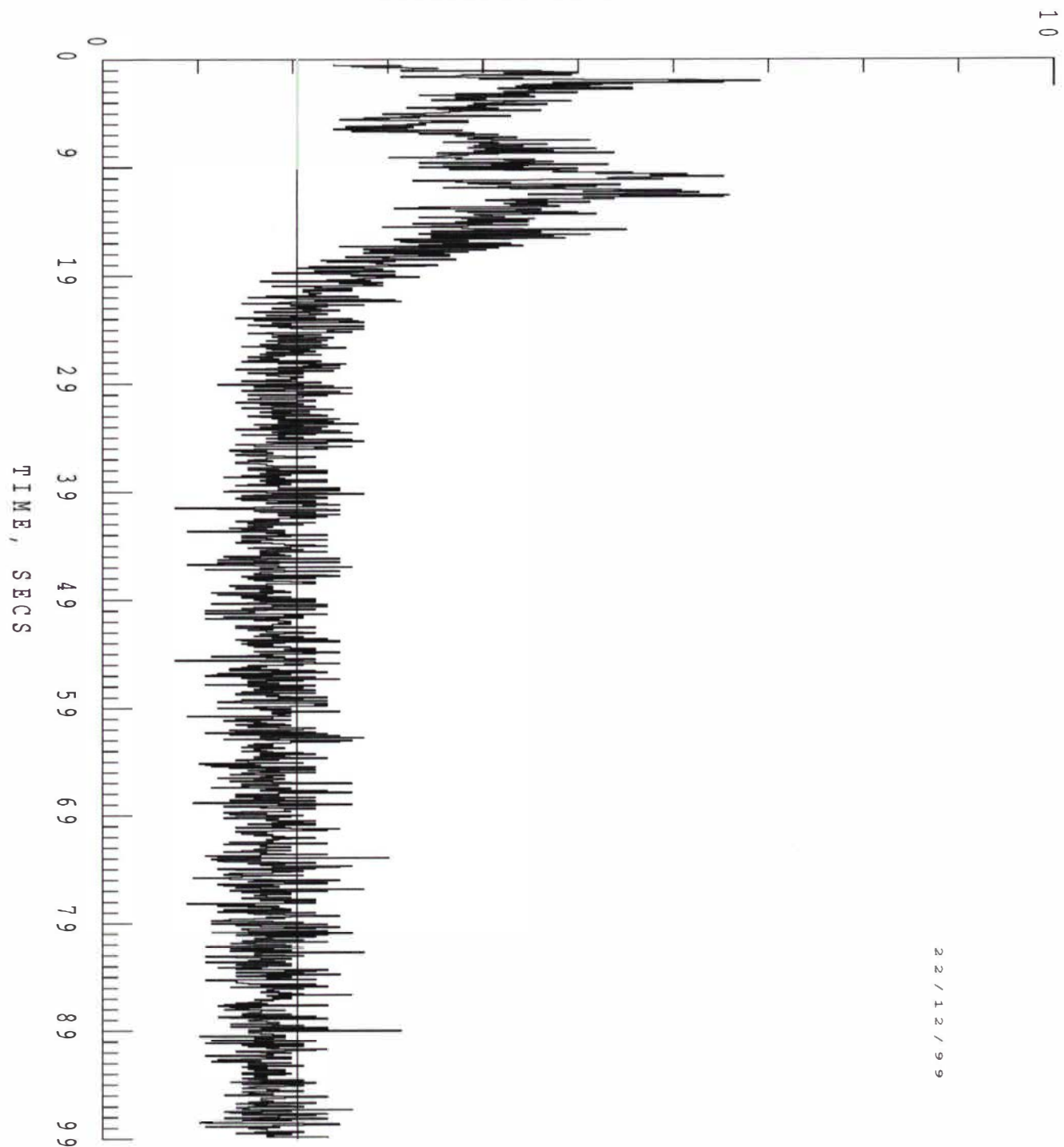
KONUS

21/12/99

38196.426

50 - 200 keV

COUNTS/0.064 S

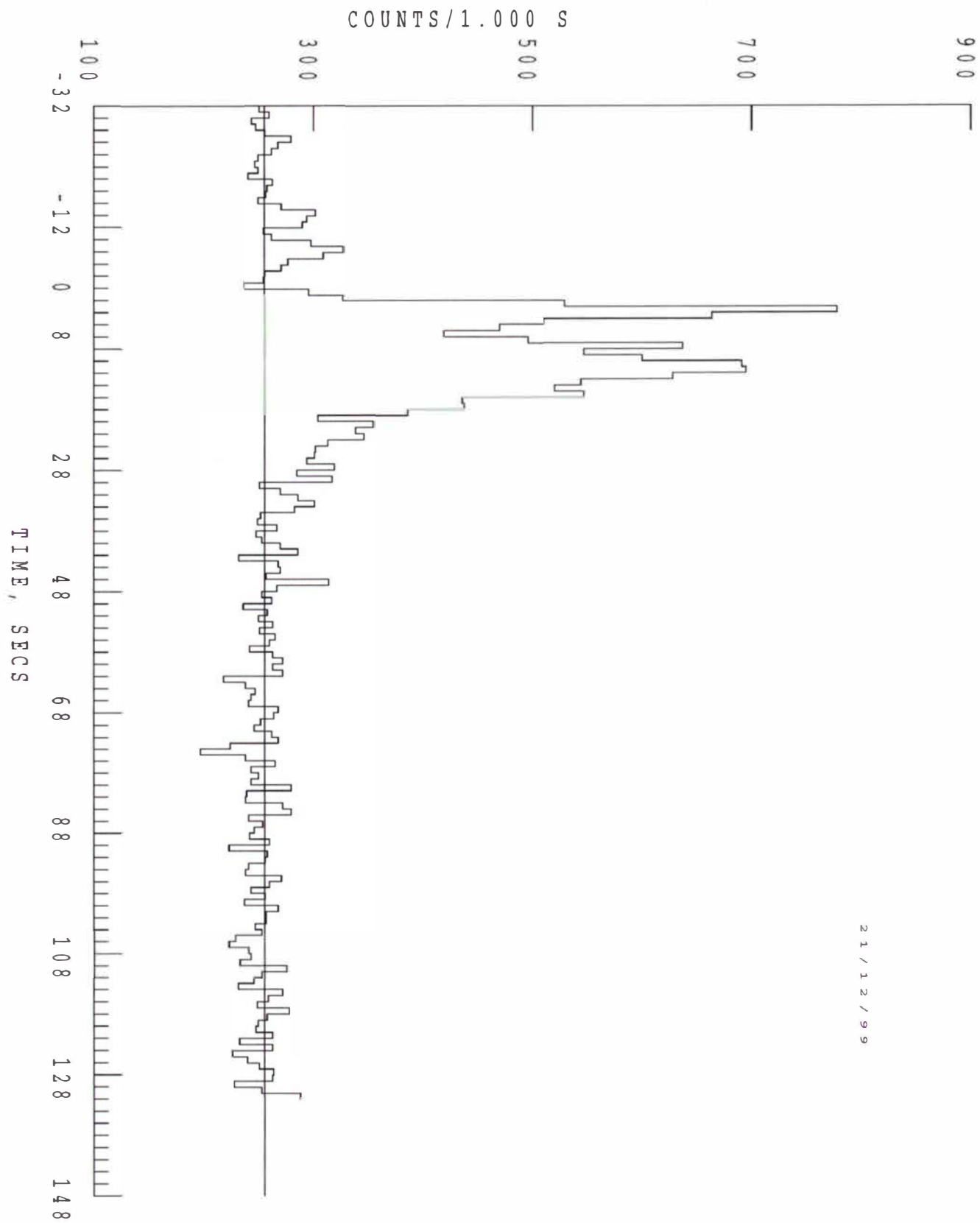


NEAR

21/12/99

37312.717

100-1000 keV

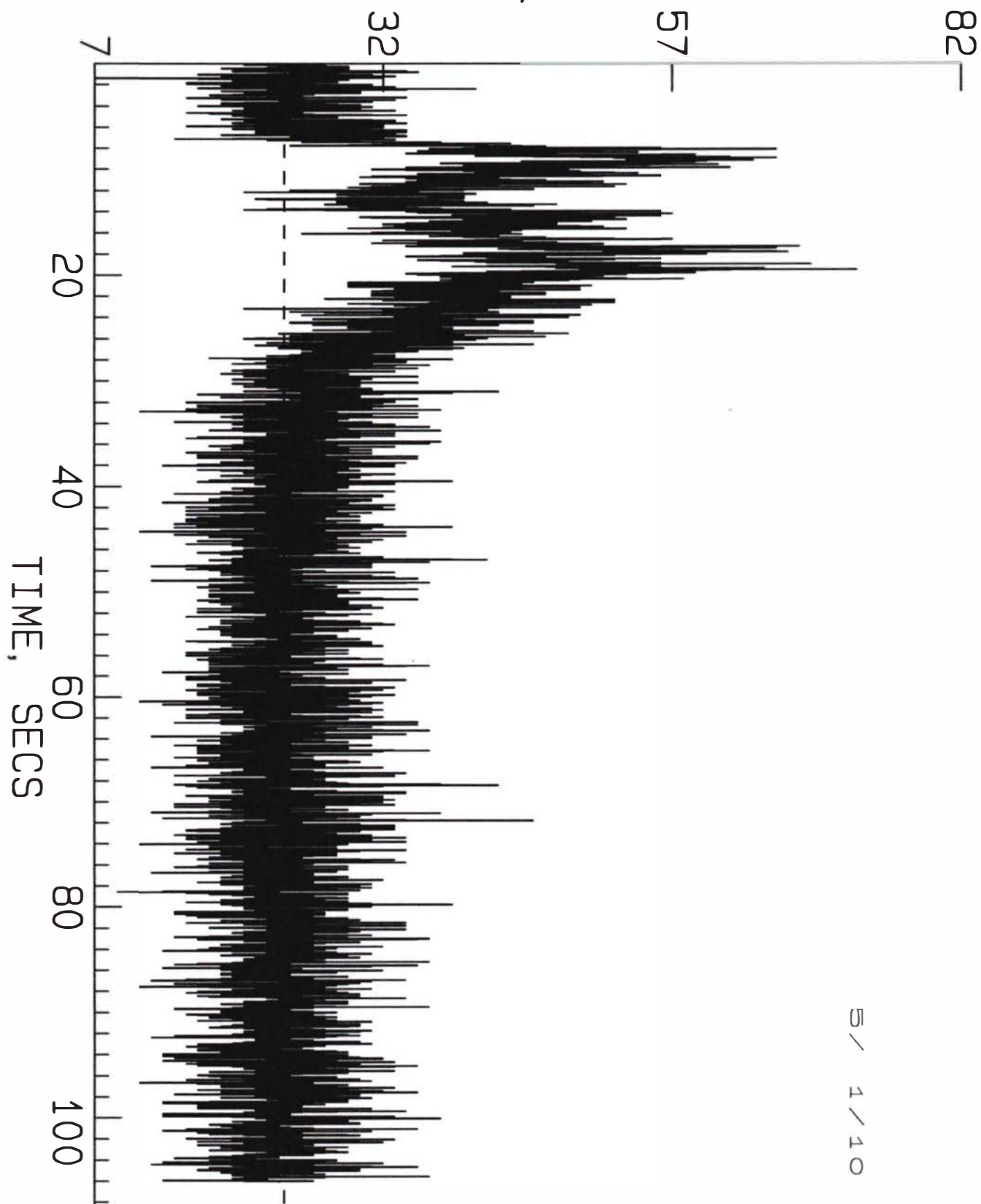


SAX GRBM

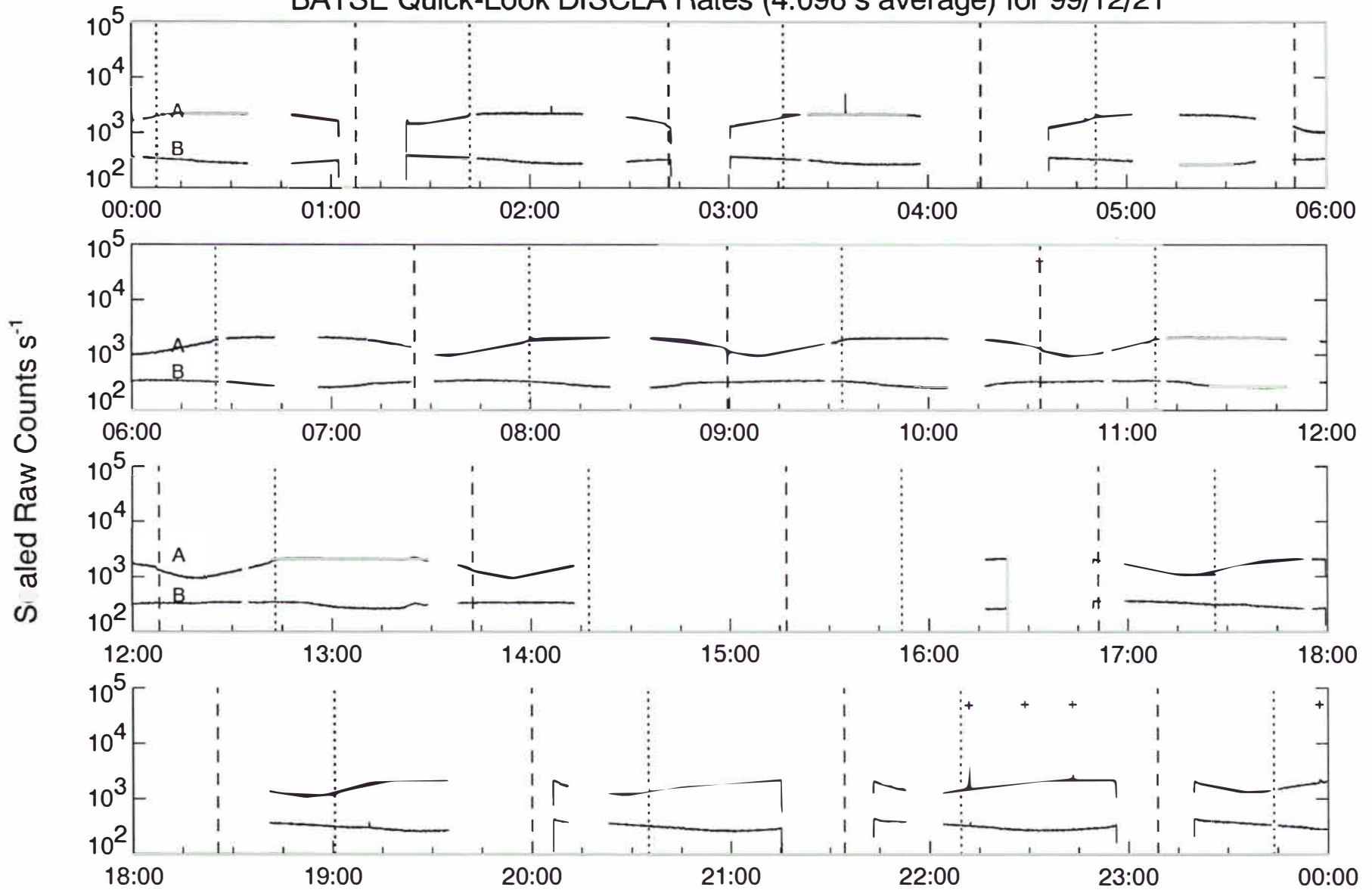
21/12/99 38188.265

40- 700 keV

COUNTS/0.031 S



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/21



Current Time: 99/12/25, 1008 EDT

A: Channel 0 Most Sunward LAD

B: Sum Channel 0 Anti-Sunward LADs X .05

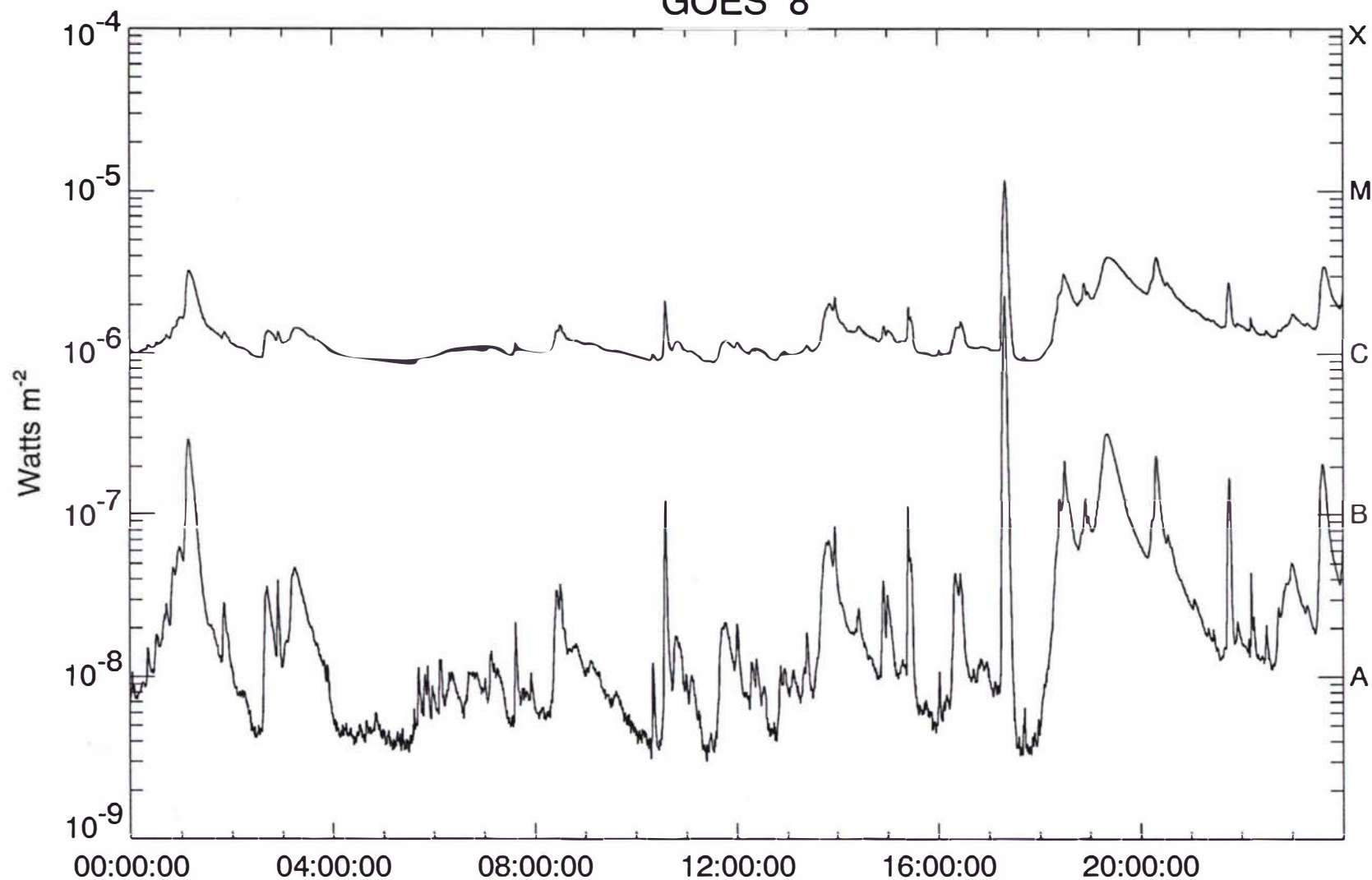
Dotted line: Day entry

Dashed line: Night entry

* Solar Burst Trigger

+ Solar Flare

GOES 8

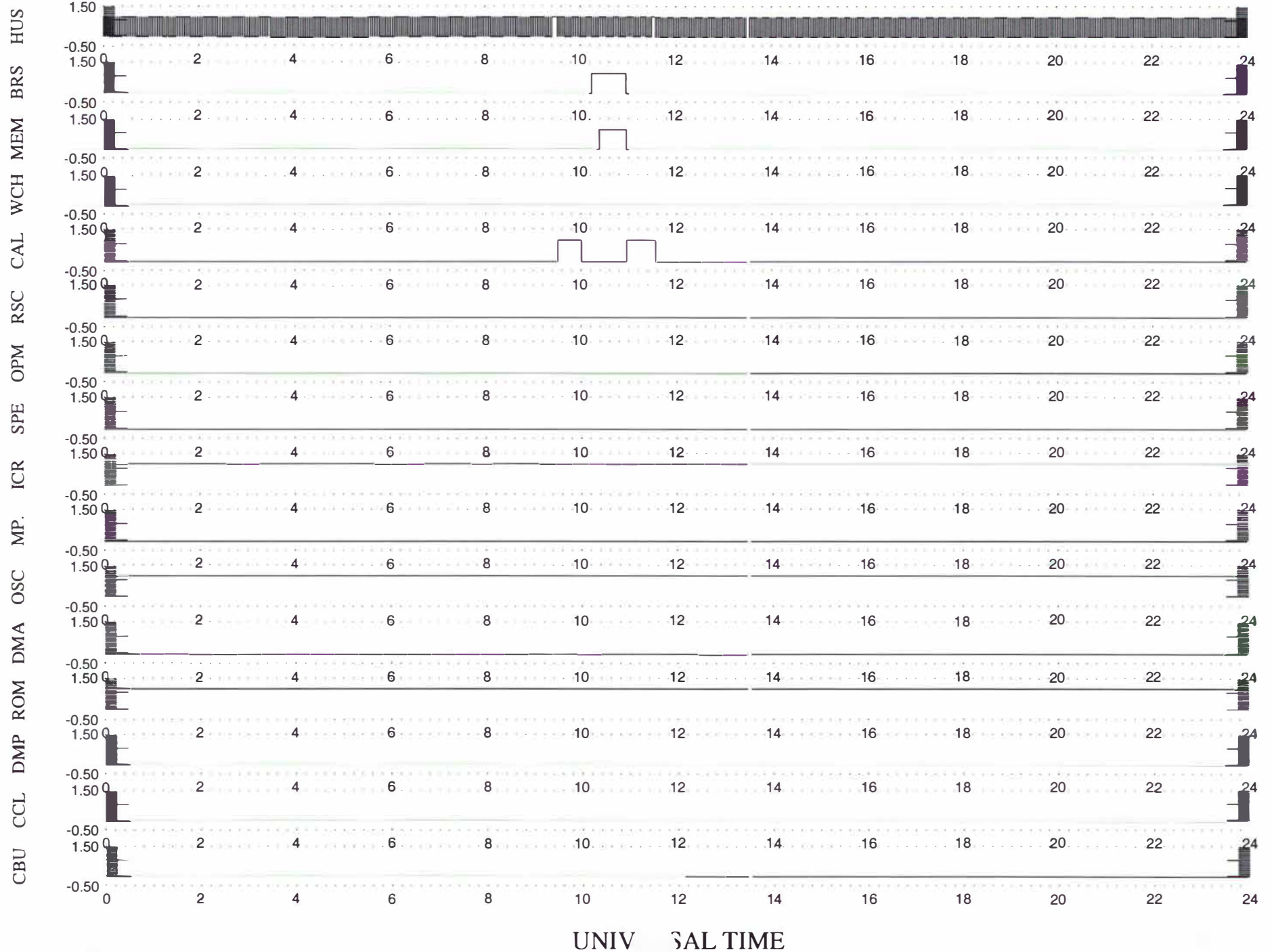


Data Start: 99/12/21, 0000:00

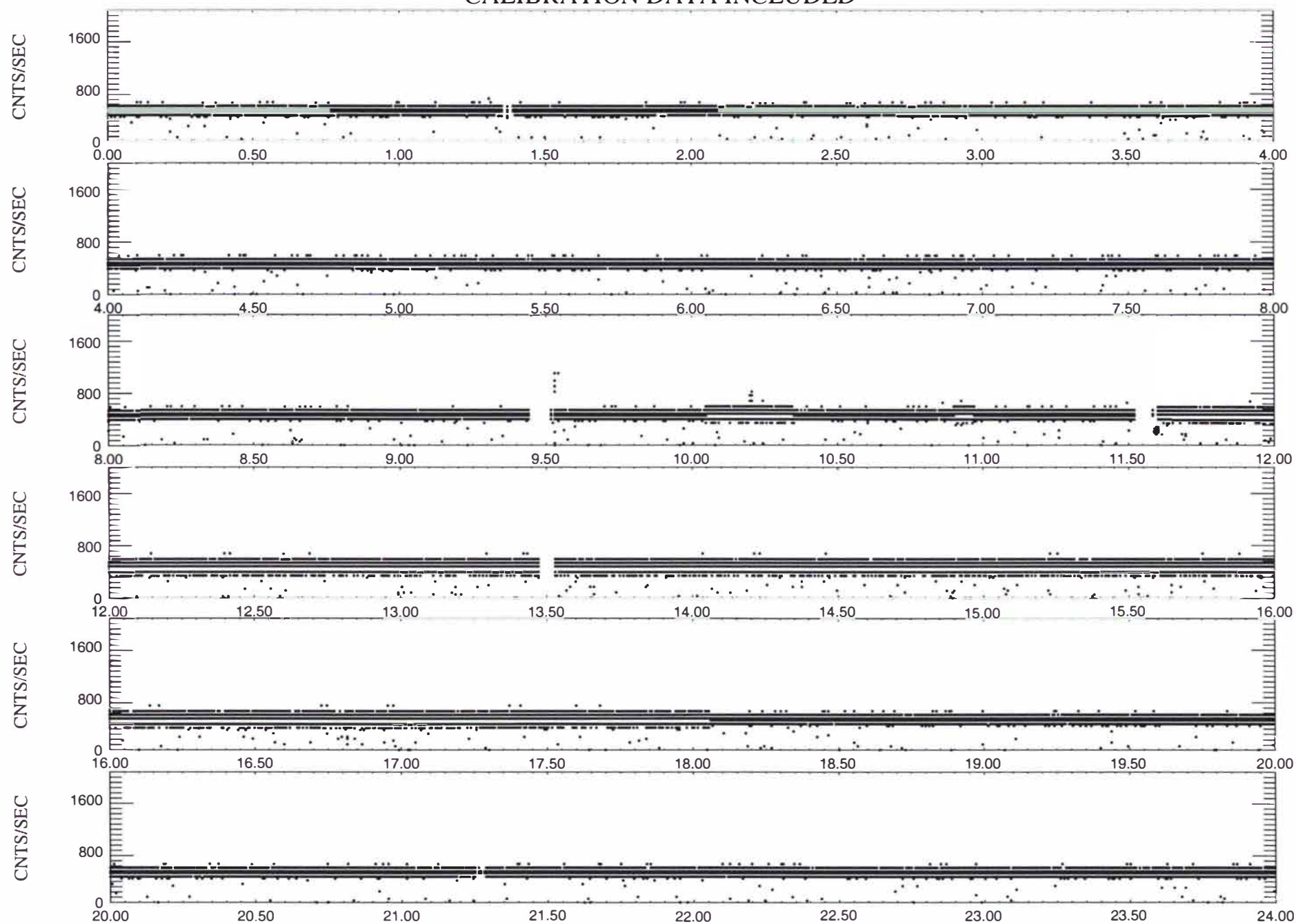
Plot created: 99/12/25, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
 Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted
 Sample average = 10

BURST NUMBER 11

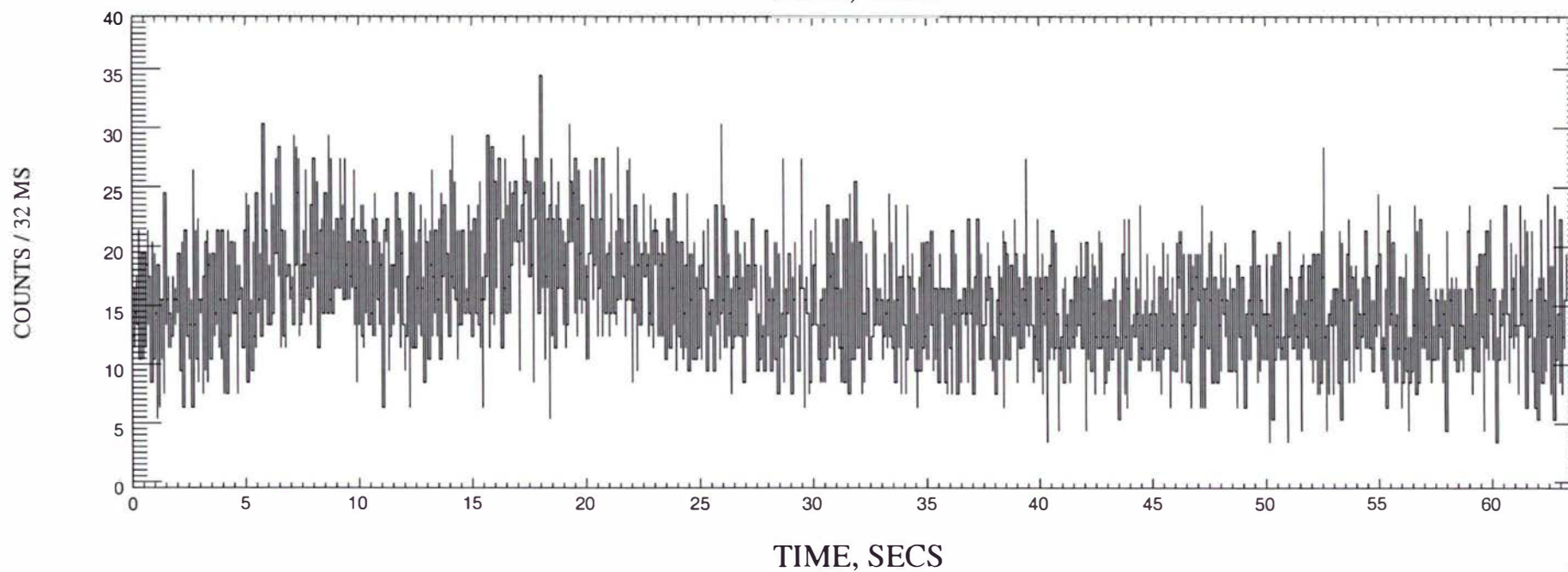
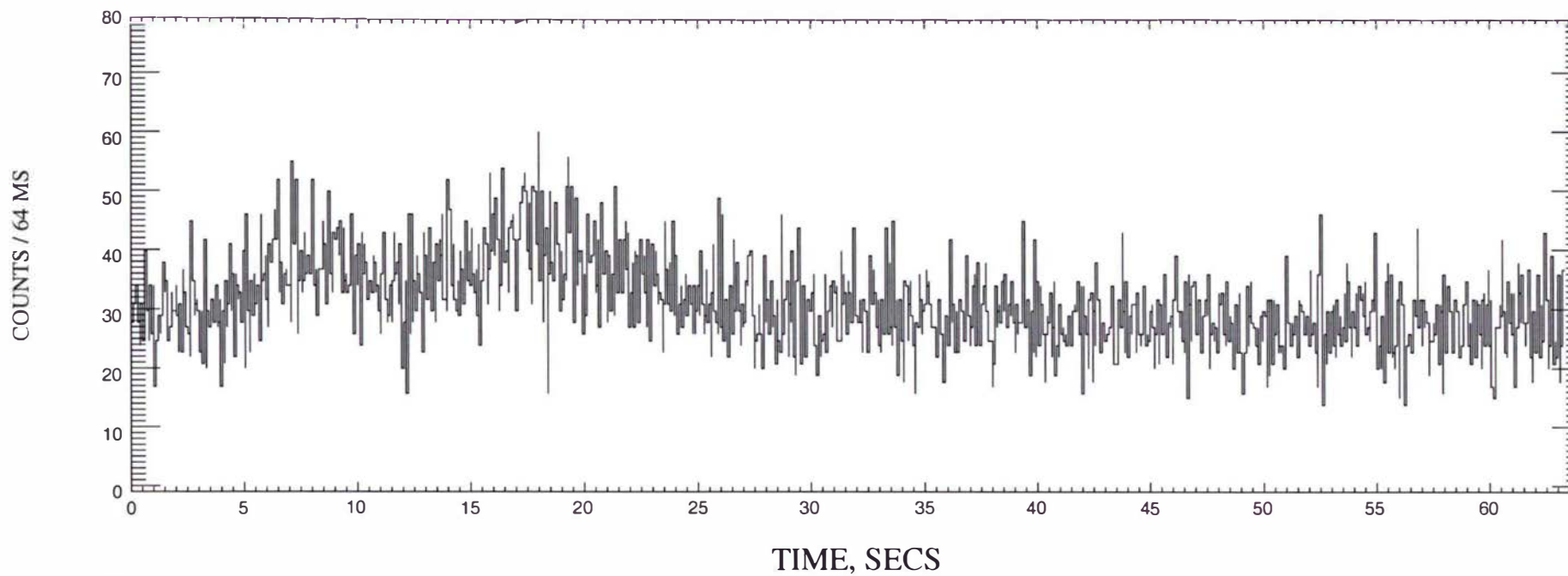


CALIBRATION DATA INCLUDED

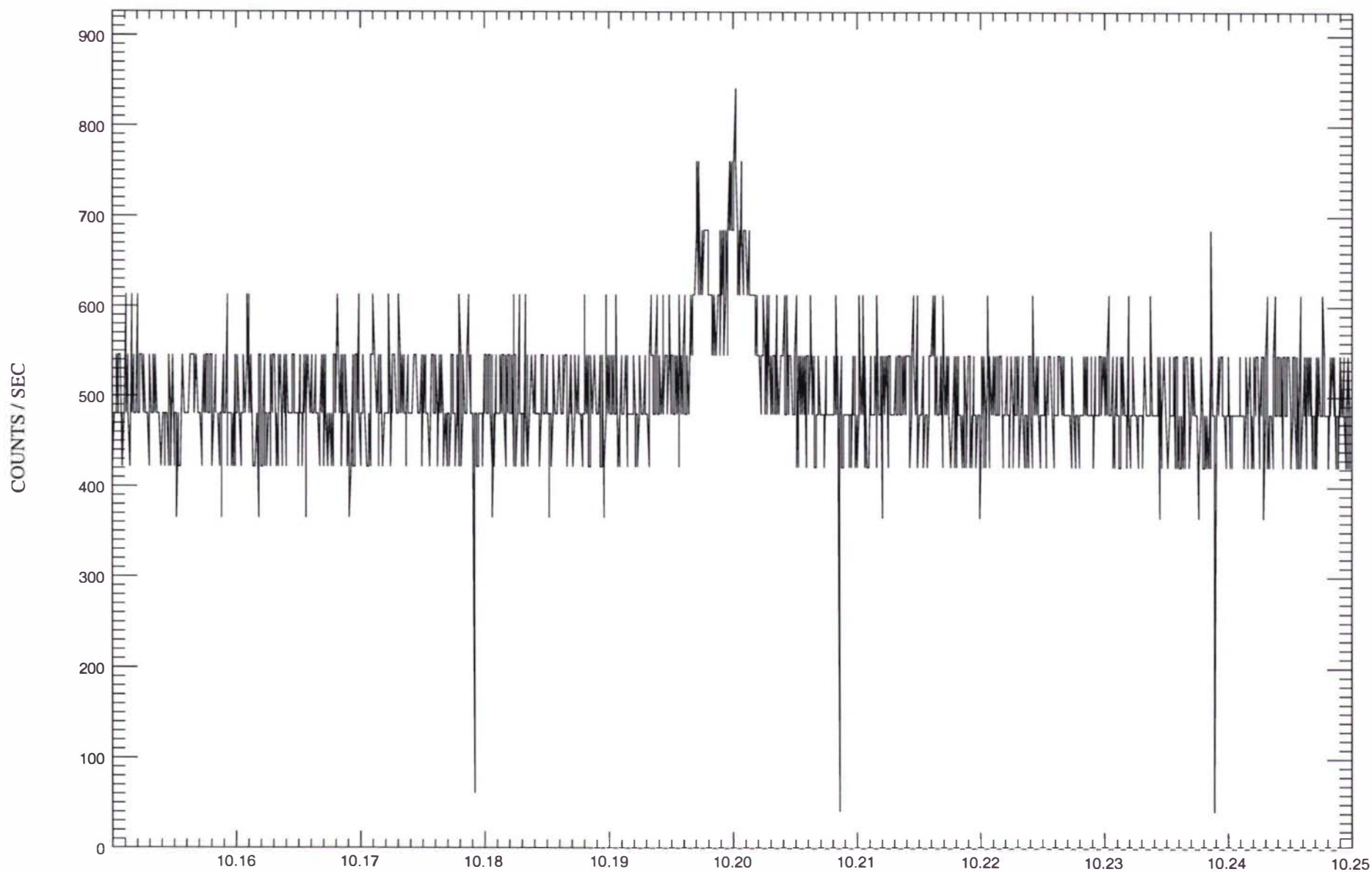


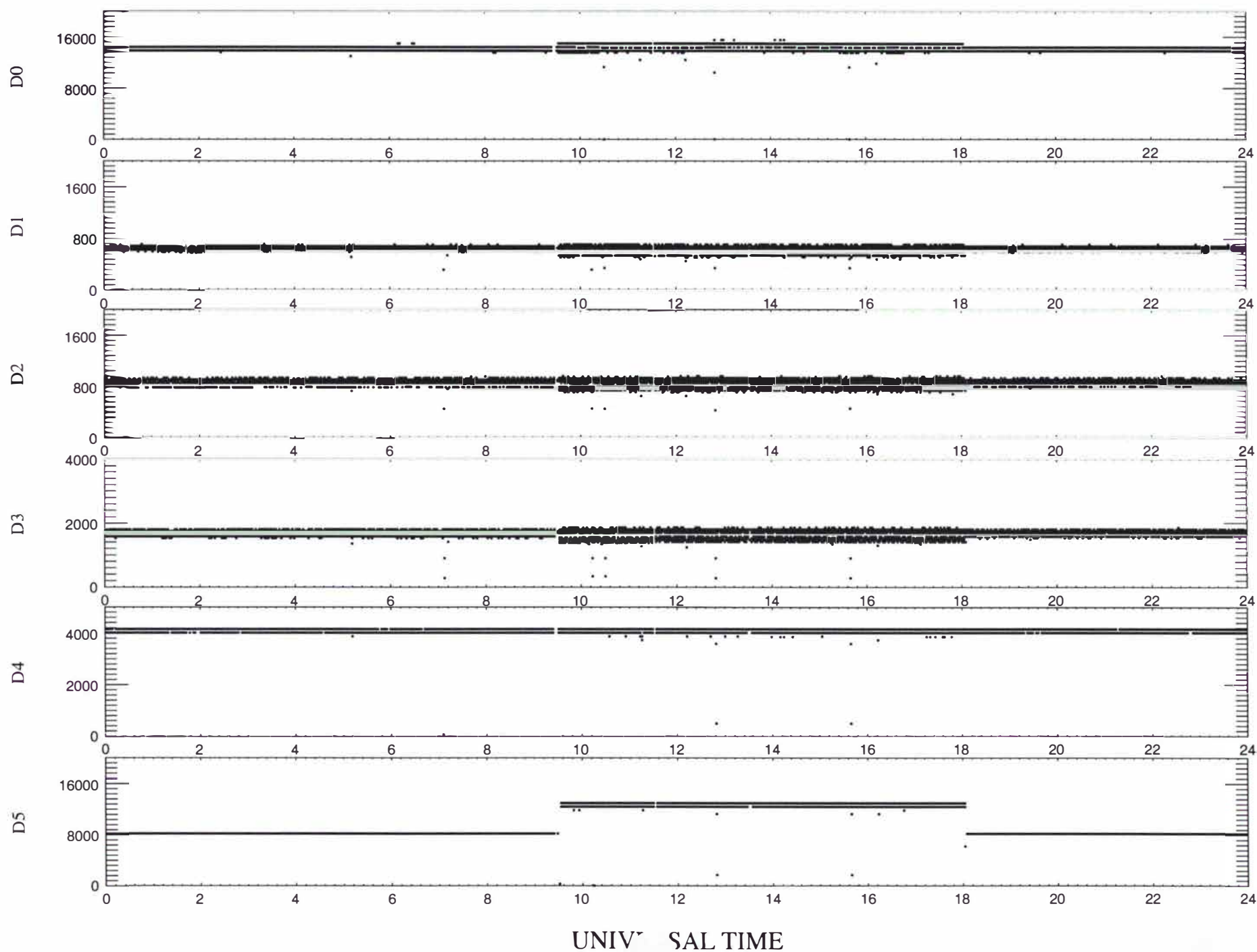
UNIV SAL TIME

Burst Counter 11 at UT=10.197459911770 h=36710.856 s 10:11:50.856



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Thu Dec 30 10:41 PST 1999
Date: Thu, 30 Dec 1999 12:42:50 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7913

TIME: TJD=1534 SECONDS=39196

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=155.6 AZIMUTH=313.0 ERROR= 0.4 DEGREES

COMMENTS:

GOES C6.3, NO OPTICAL IDENT. SINGLE EPISODE WITH STRUCTURE, DUR. APPROX.
125 S, STARTS AT APPROX. T-15 S, MAX AT APPROX. T+57 S.
NOT VISIBLE ABOVE 300 KEV.

KONUS

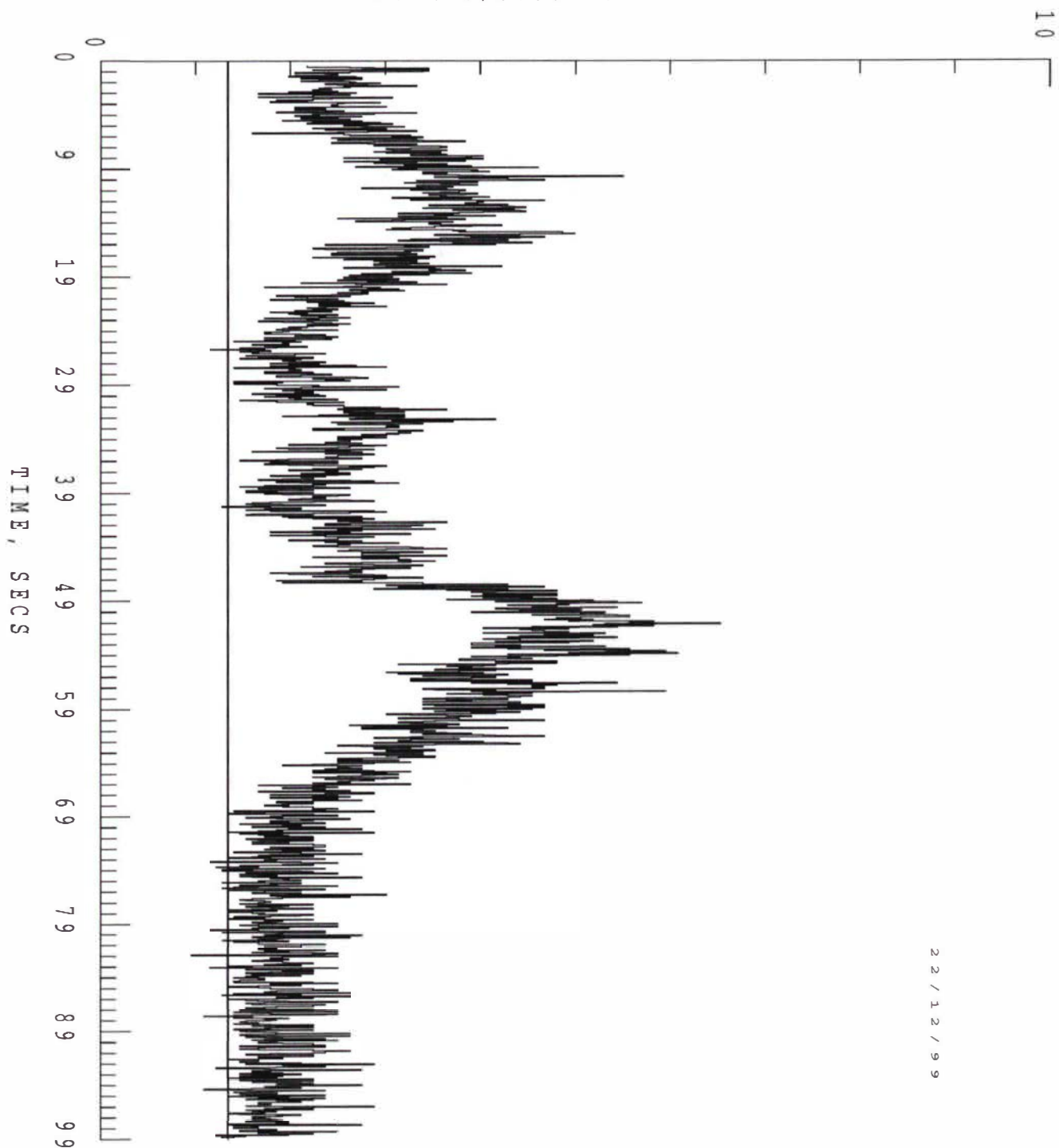
22/12/99

39200.862

50 - 200 keV

Solar - BATSE 7913

COUNTS/0.064 S



22/12/99

From HENZE@fender.msfc.nasa.gov Thu Dec 30 10:49 PST 1999
Date: Thu, 30 Dec 1999 12:51:01 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7914

TIME: TJD=1534 SECONDS=68084

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=157.6 AZIMUTH=317.0 ERROR= 0.3 DEGREES

COMMENTS:

GOES M5.3, OPTICAL 1B FLARE. MULTIPLE PULSES, TOTAL DUR. APPROX. 700 S.
TRIGGER PULSE DUR. APPROX. 80 S, STARTS APPROX. T-10 S, MAX AT APPROX. T+22 S.
STRONGEST PULSE HAS MAX AT APPROX. T+450 S AND IS VISIBLE ABOVE 300 KEV.

KONUS

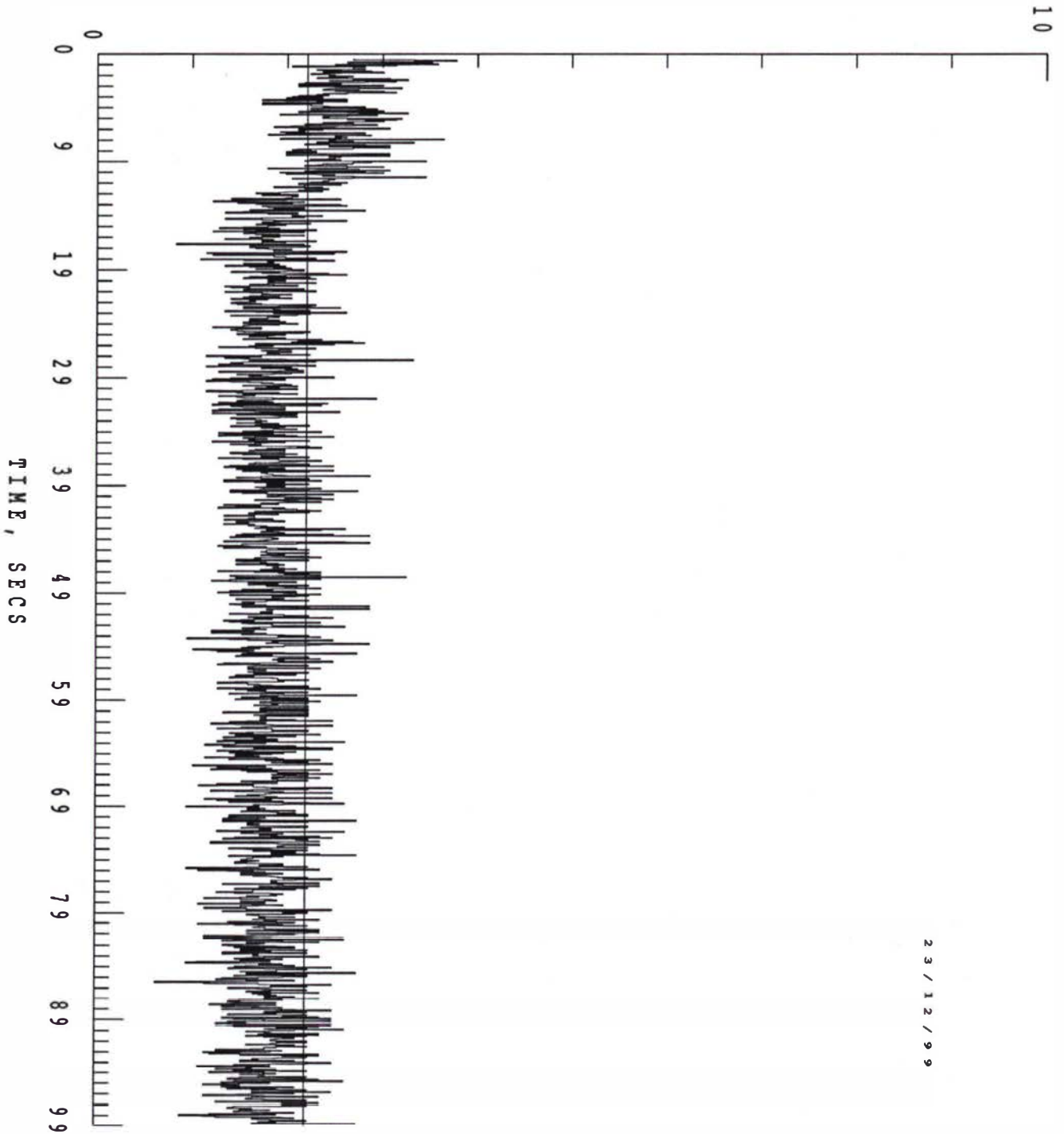
22/12/99

68108.709

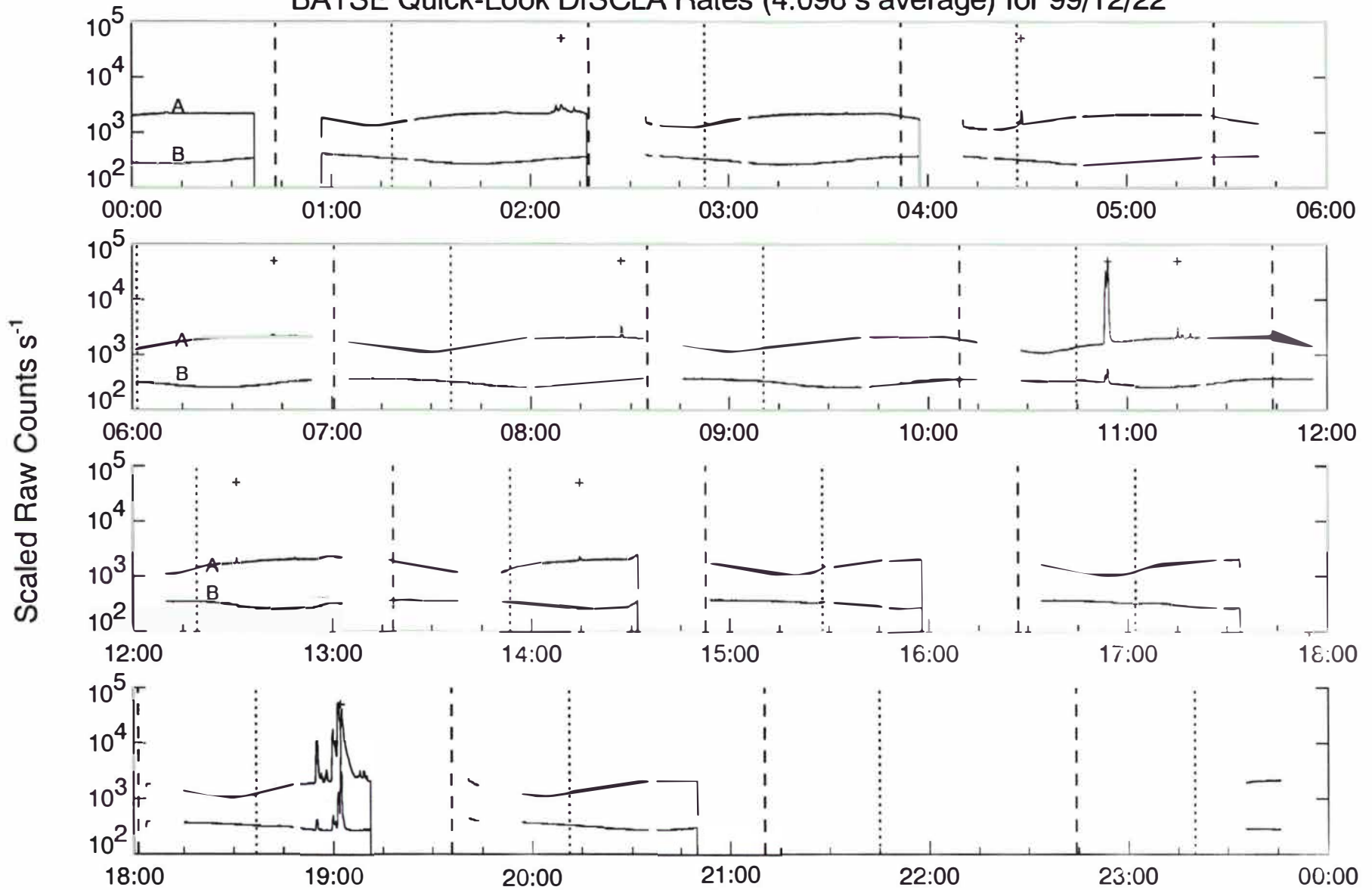
50 - 200 keV

Solar - BATSE 7914

COUNTS/0.064 S



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/22

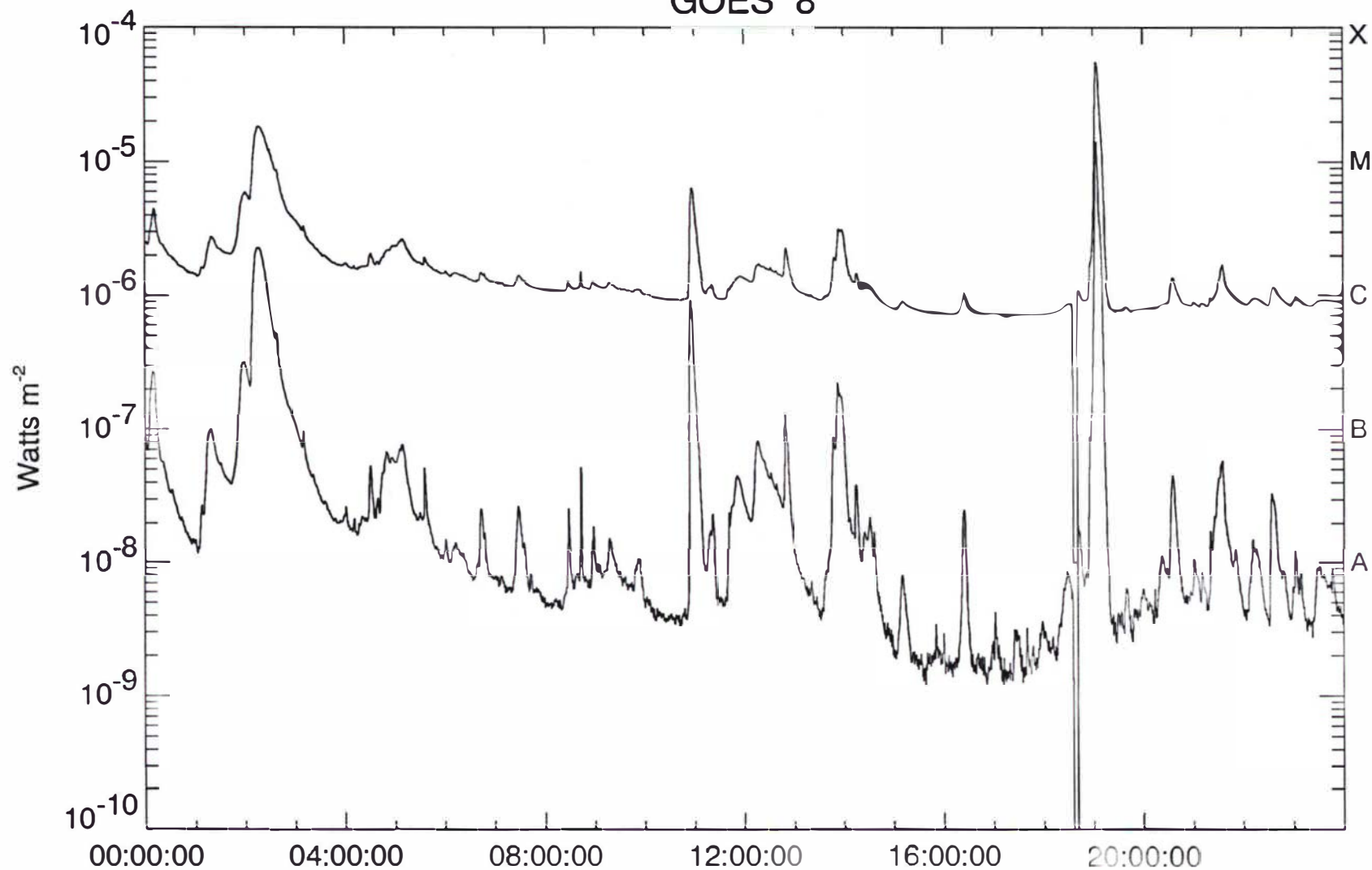


Current Time: 99/12/26, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8

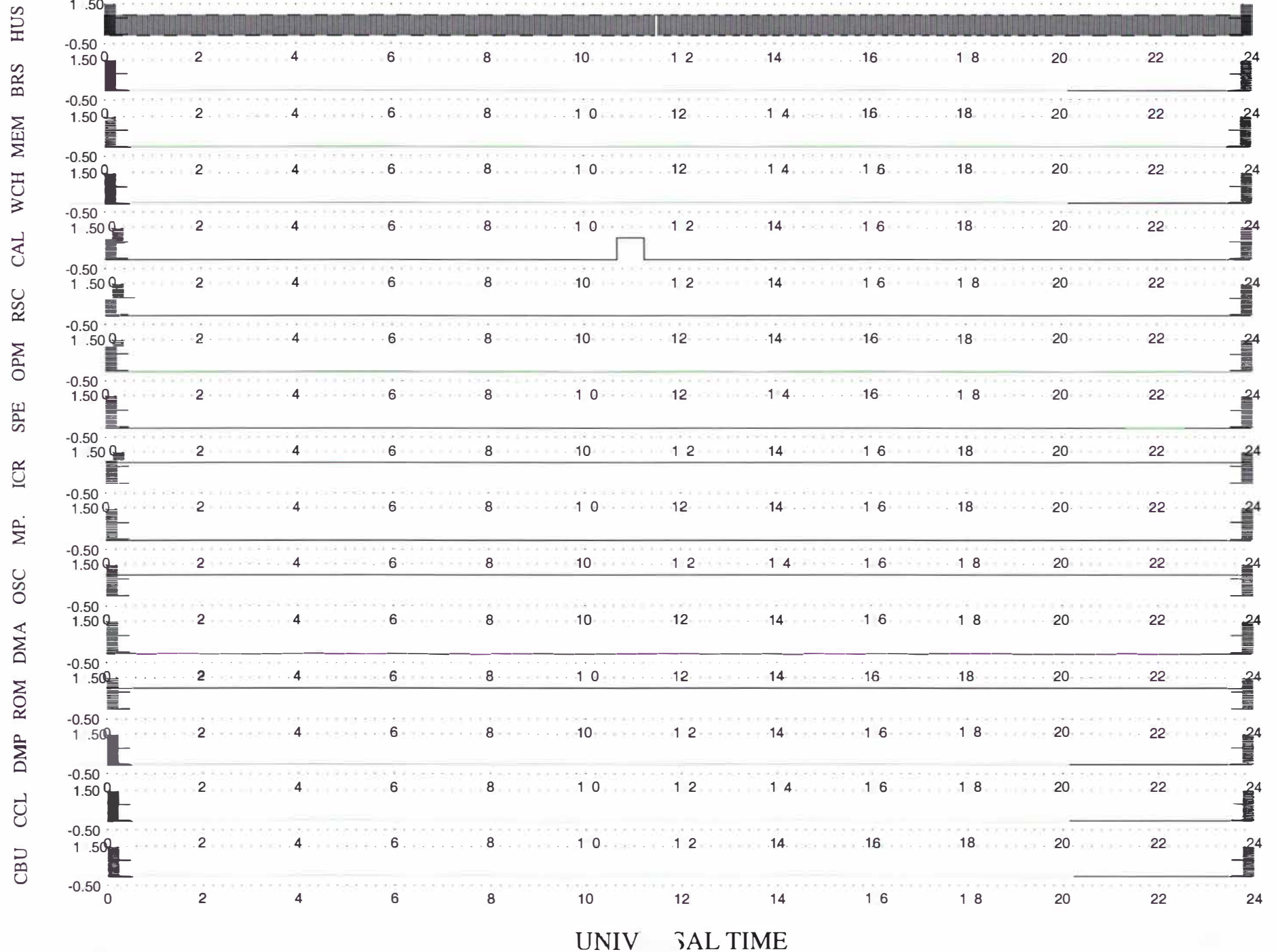


Data Start: 99/12/22, 0000:00

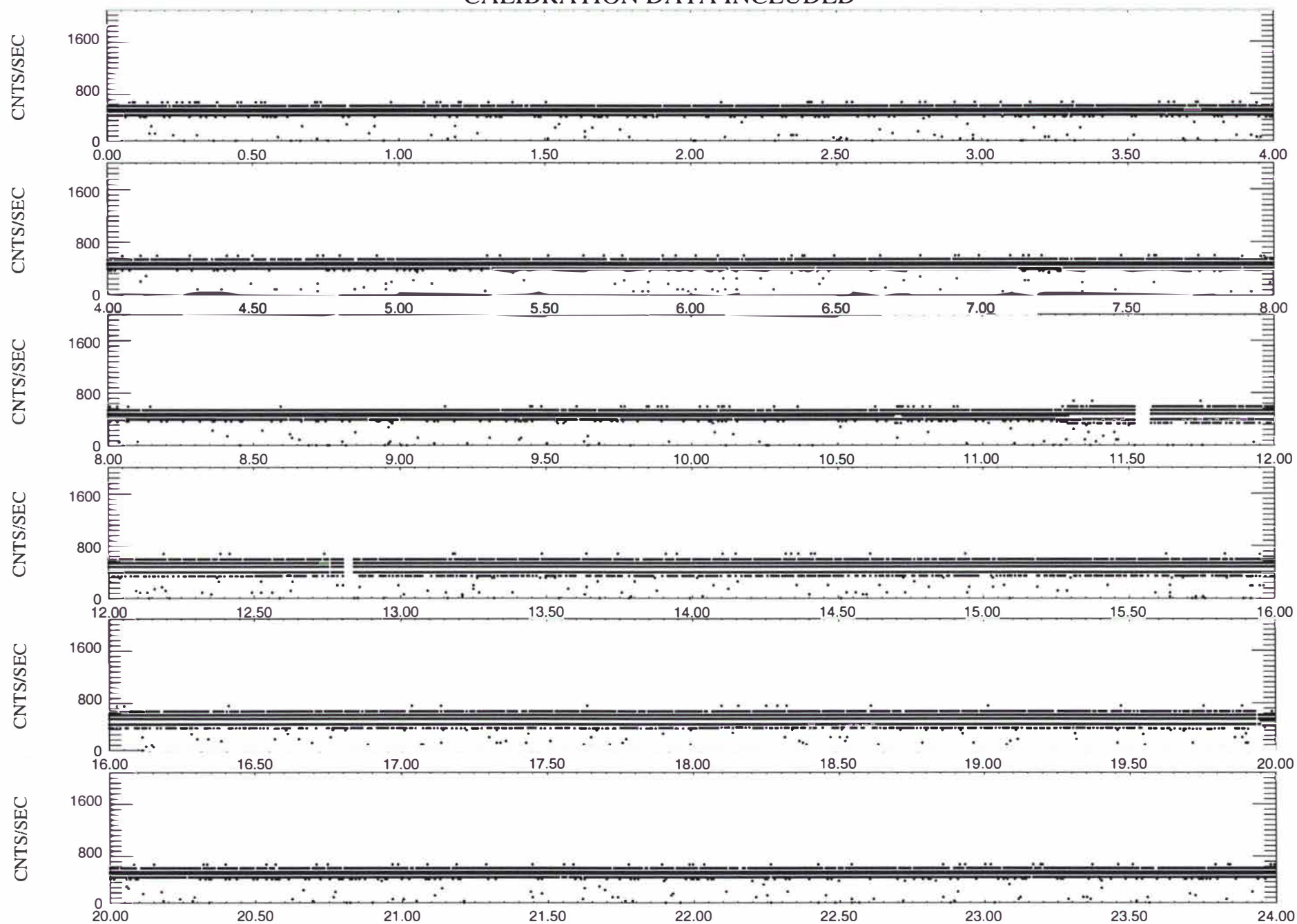
Plot created: 99/12/26, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
 Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted
 Sample average = 10

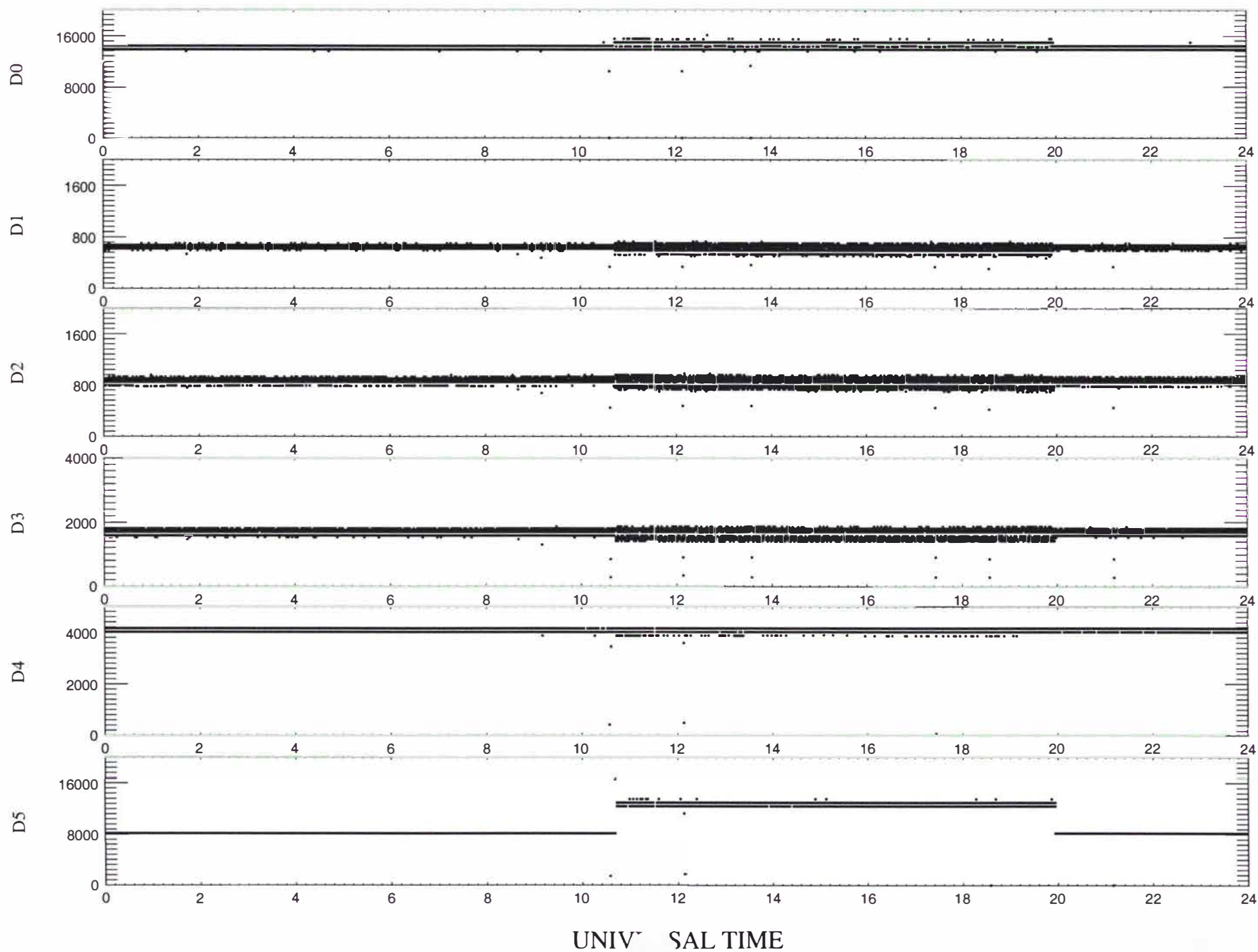
NO BURST (11)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From WOODSP@fender.msfc.nasa.gov Tue Dec 28 09:04 PST 1999

From: WOODSP@fender.msfc.nasa.gov

Date: Tue, 28 Dec 1999 11:05:37 -0600 (CST)

To: burst@comptel.sr.unh.edu, grobad@ests2.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheavx.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7915

TIME: TJD=1535 SECONDS=11684

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=152.9 AZIMUTH=316.1 ERROR=1 DEGREES

COMMENTS:

SOLAR FLARE LASTING 150 SEC WITH TWO PULSES. MARGINALLY VISIBLE
ABOVE 100 KEV. C1.6, OPTICAL SN.

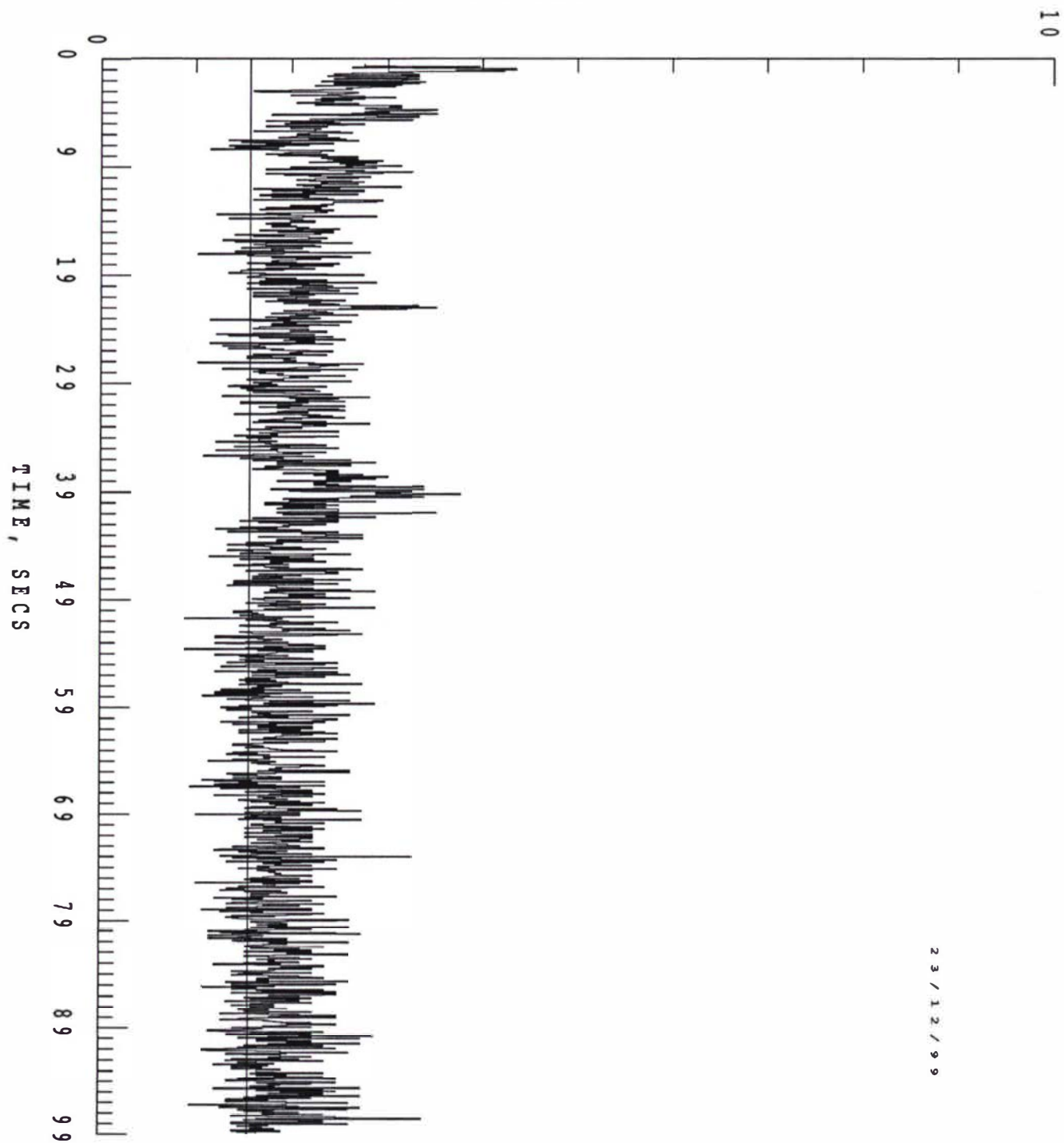
KONUS

23/12/99

36449.303

50 - 200 keV

COUNTS/0.064 S



23/12/99

KONUS2 19991223 36449

ULYSSES RT

27 / 12 / 99

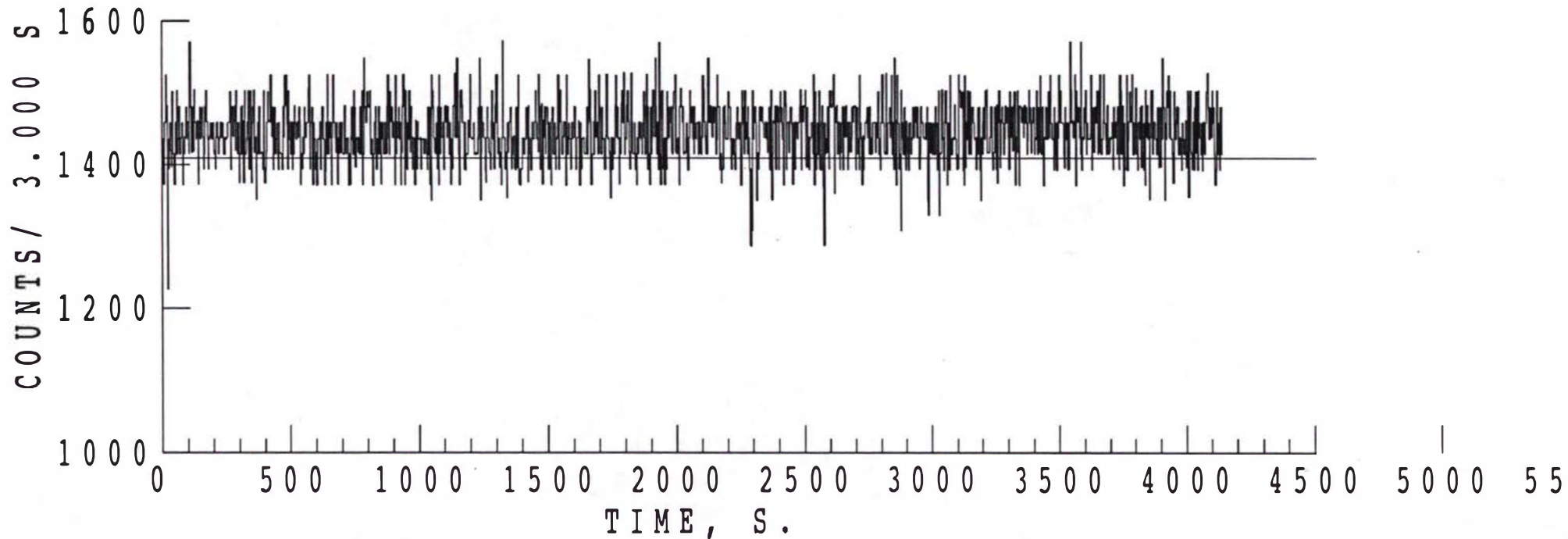
23 / 12 / 99 34380.355 s

0.500 S INTERVALS REGROUPED BY 6

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HENZE@fender.msfc.nasa.gov Thu Dec 30 12:19 PST 1999
Date: Thu, 30 Dec 1999 14:20:15 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@ests2.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheavx.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7916

TIME: TJD=1535 SECONDS=39979

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=153.5 AZIMUTH=315.0 ERROR= 1.3 DEGREES

COMMENTS:

GOES C2.8, NO OPTICAL IDENT. MULTIPLE PULSES. TRIGGER EPISODE DUR. APPROX.
85 S, STARTS AT APPROX. T-25 S, MAX AT APPROX. T+14 S. WEAK PRECURSOR AT
APPROX. T-100 S; WEAK SUCCESSOR AT APPROX. T+148 S. NOT VISIBLE ABOVE 300 KEV.

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

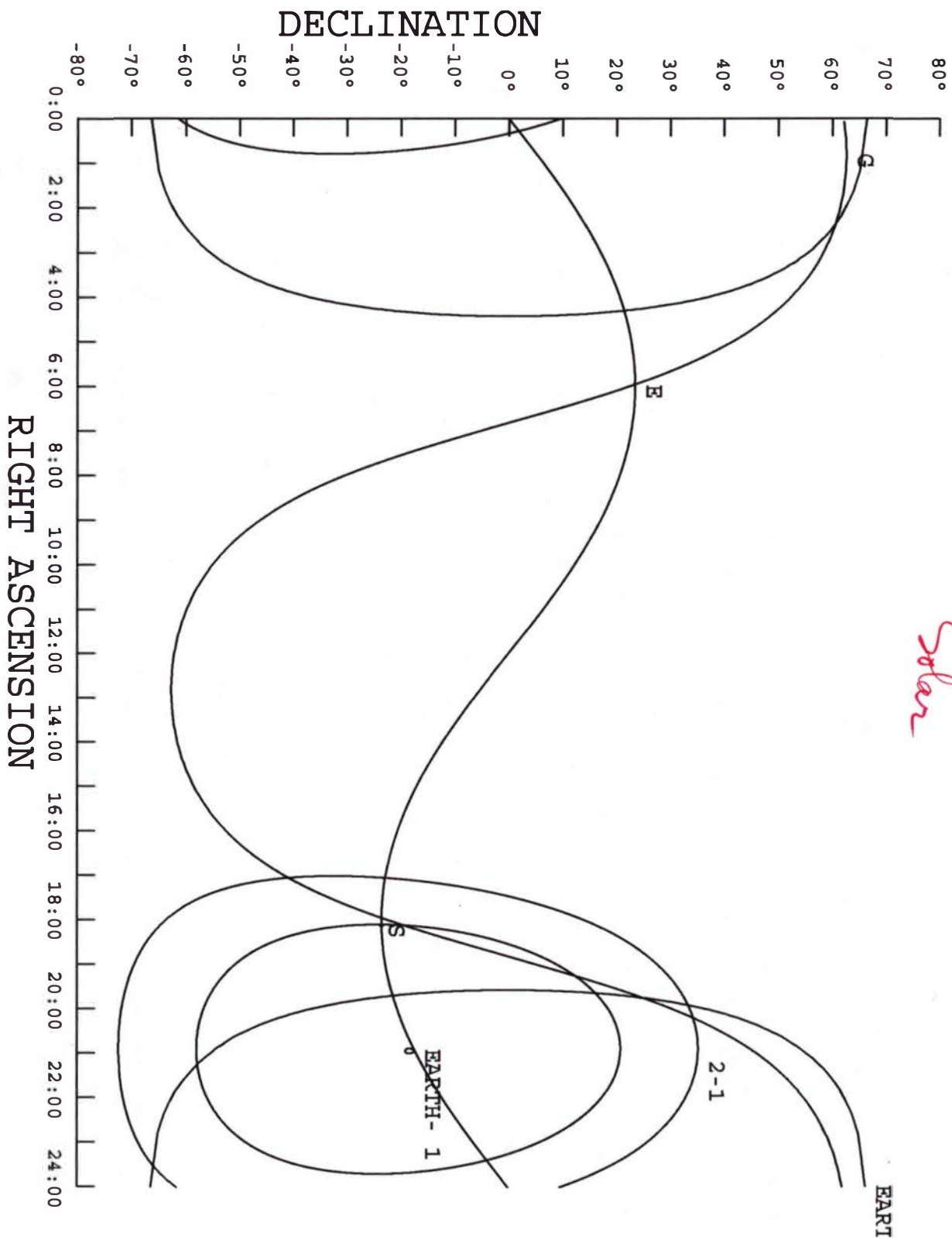
1 KONUS2

2 SAX

EVENT OF DEC 23, 1999 19:33

25 / 1 / 0

Solar



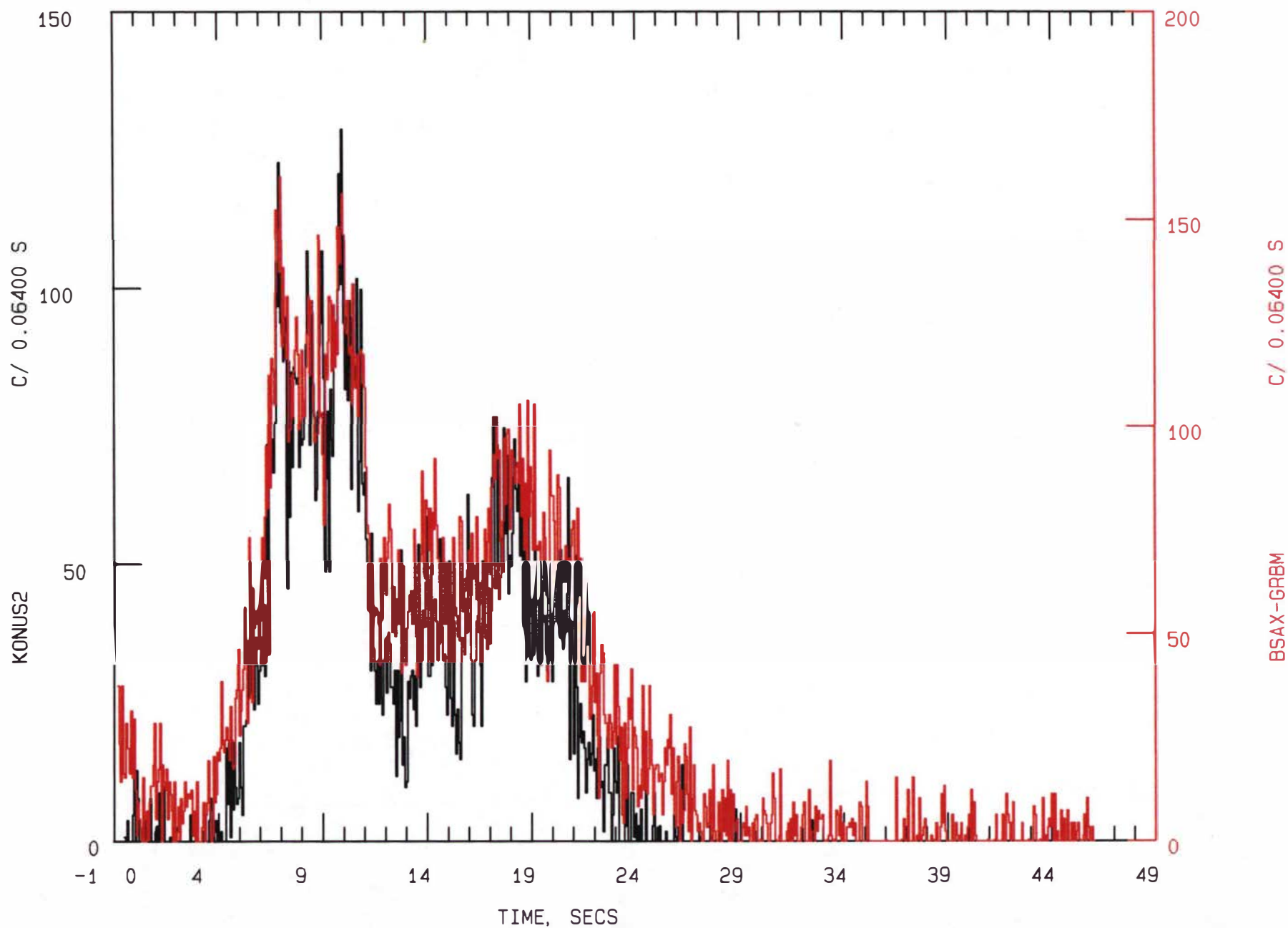
KONUS2

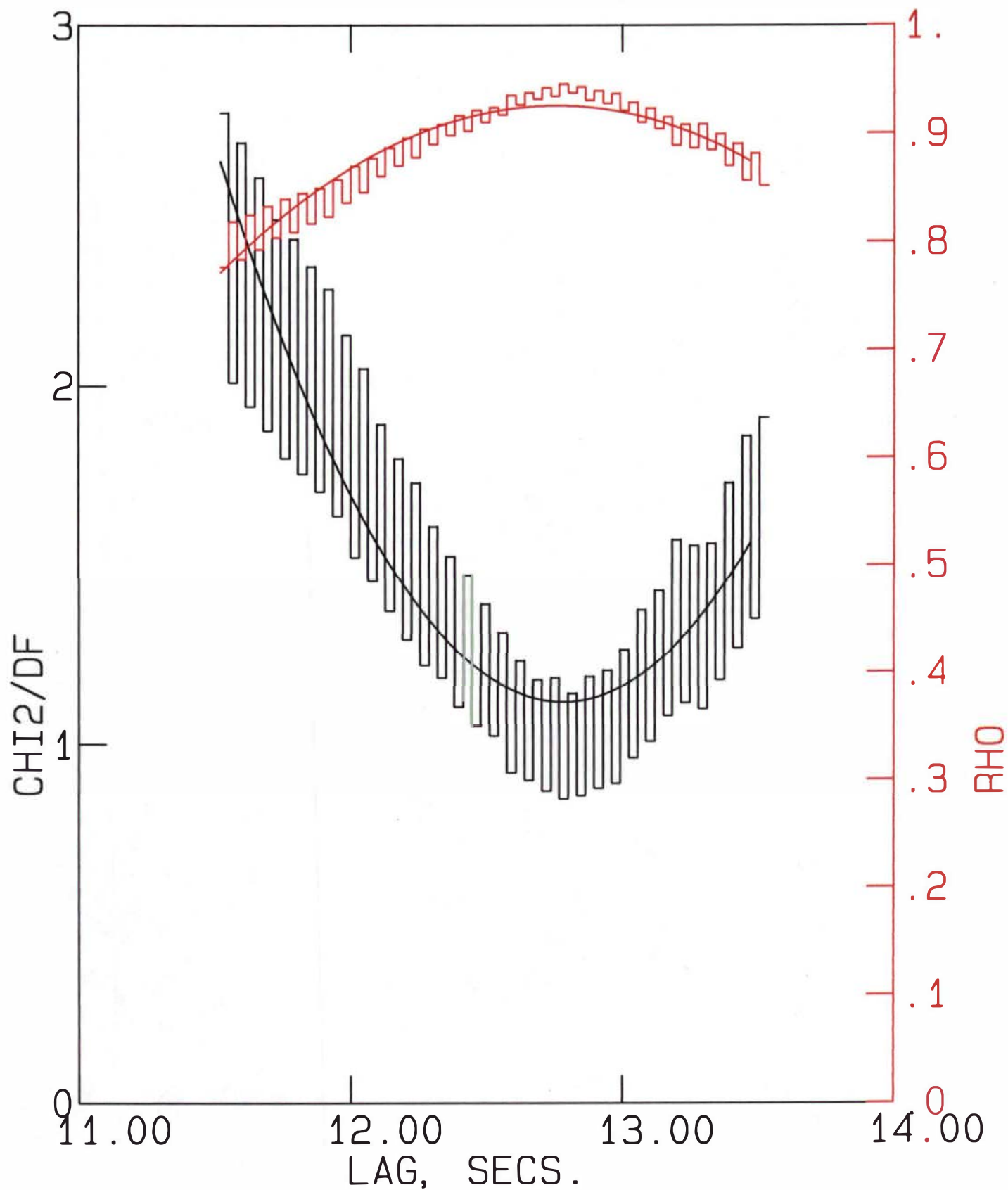
-BSAX-GRBM CORRELATION

23/12/99

70395.920

25/ 1/ 0



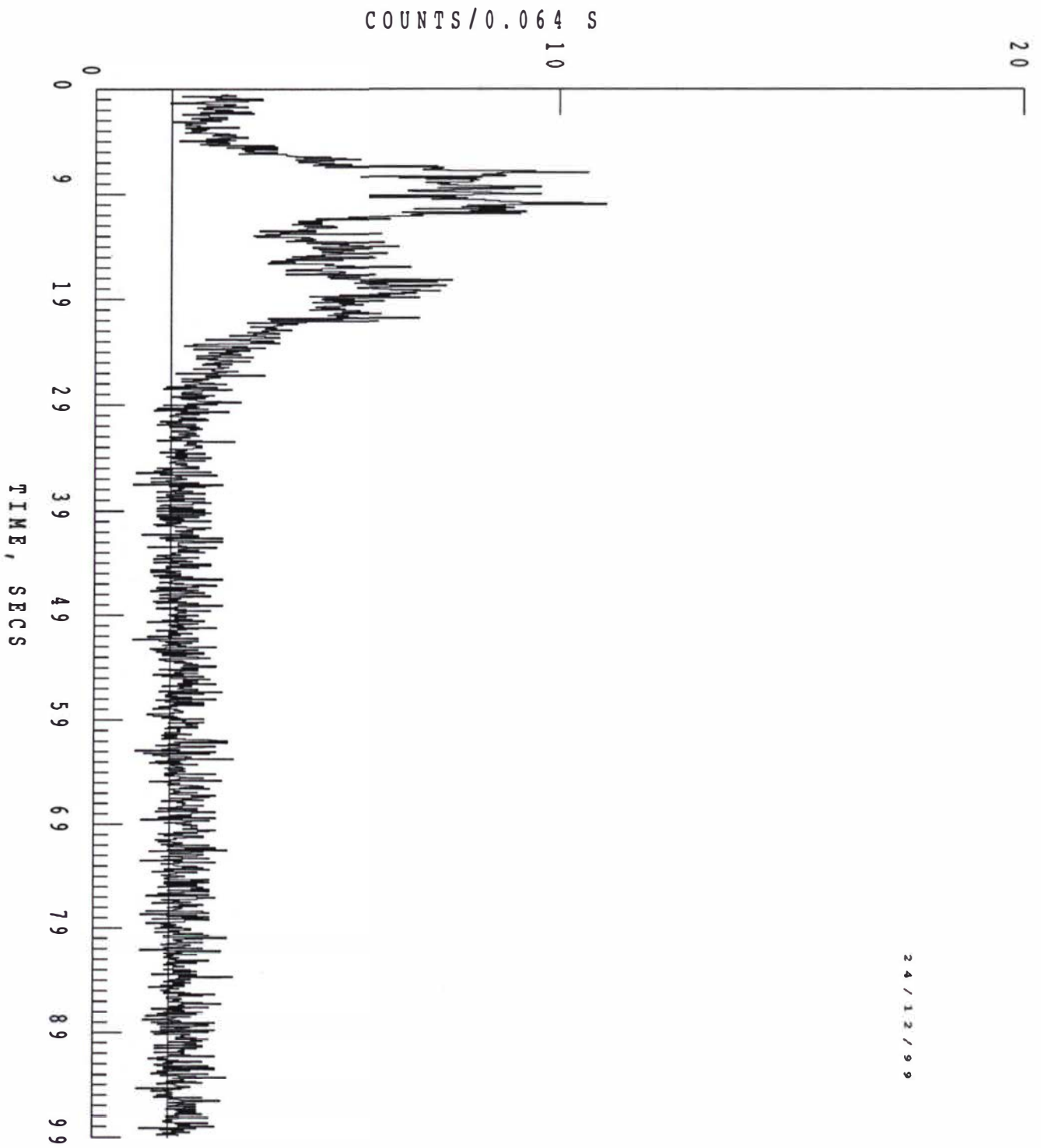


KONUS

23/12/99

70395.920

50 - 200 keV



24 / 12 / 99

From root@frascati.sdc.asi.it Thu Dec 23 13:40 PST 1999
From: root@frascati.sdc.asi.it
Date: Fri, 24 Dec 1999 00:17:35 +0100
: khurley@ssl.berkeley.edu

B_TRIG: 23 Dec 1999 19:33:09:64435 70389_s

From root@frascati.sdc.asi.it Sun Dec 26 08:41 PST 1999
From: root@frascati.sdc.asi.it
Date: Sun, 26 Dec 1999 19:19:31 +0100
To: khurley@ssl.berkeley.edu

B_TRIG: 26 Dec 1999 15:00:05:17394

Also obs by RXTE. Prob. solar

KONUS2 19991223 70395

ULYSSES RT

28 / 12 / 99

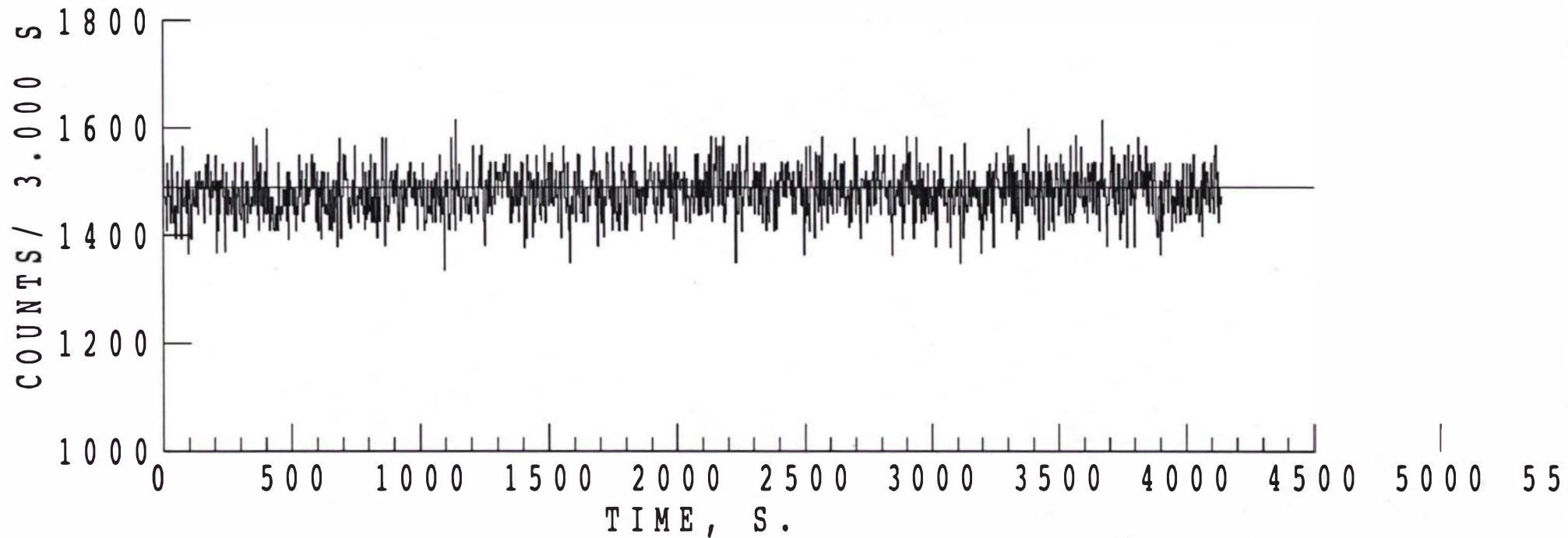
23 / 12 / 99 68328.211 s

0.250 S INTERVALS REGROUPED BY 12

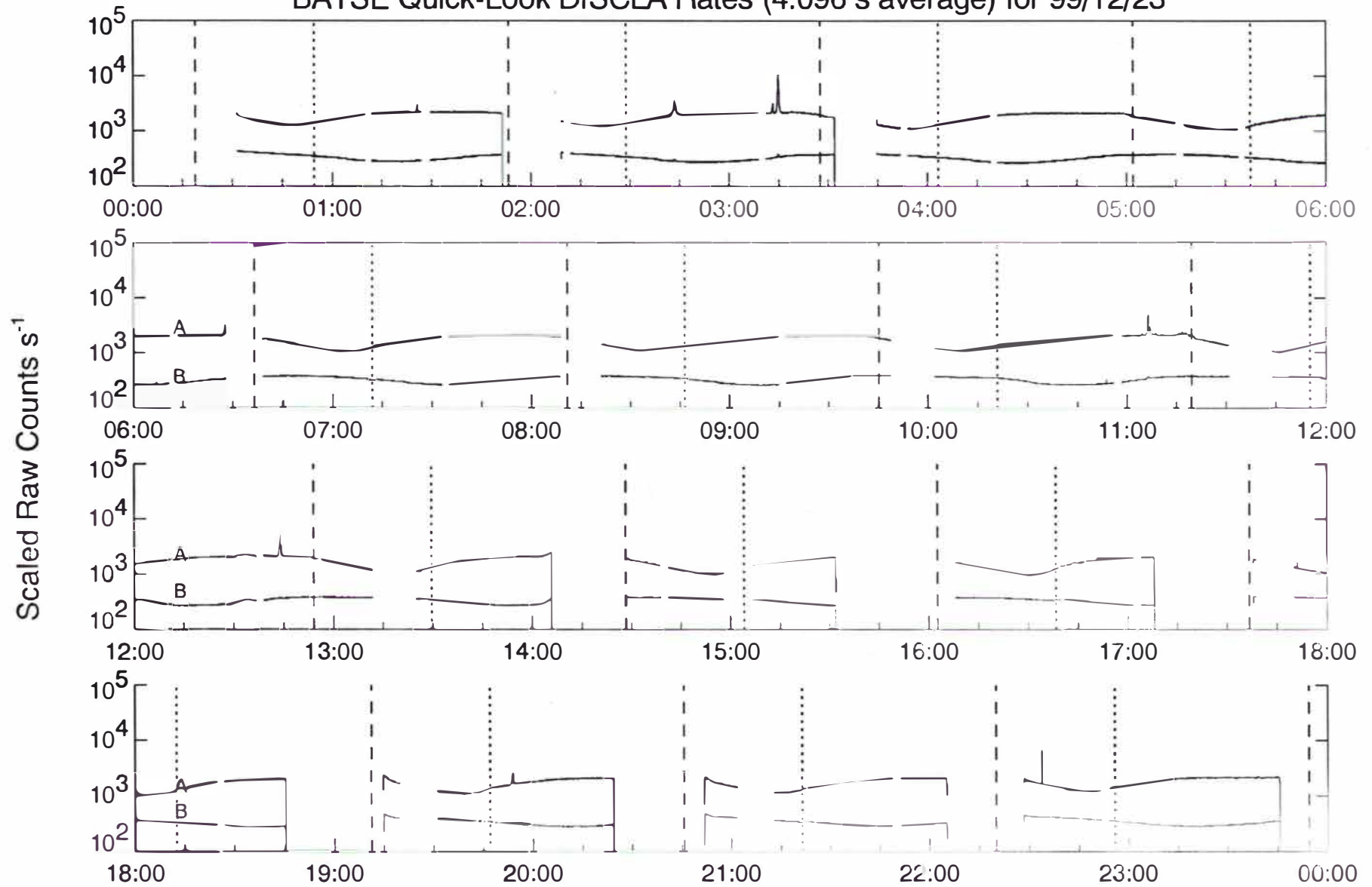
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/23

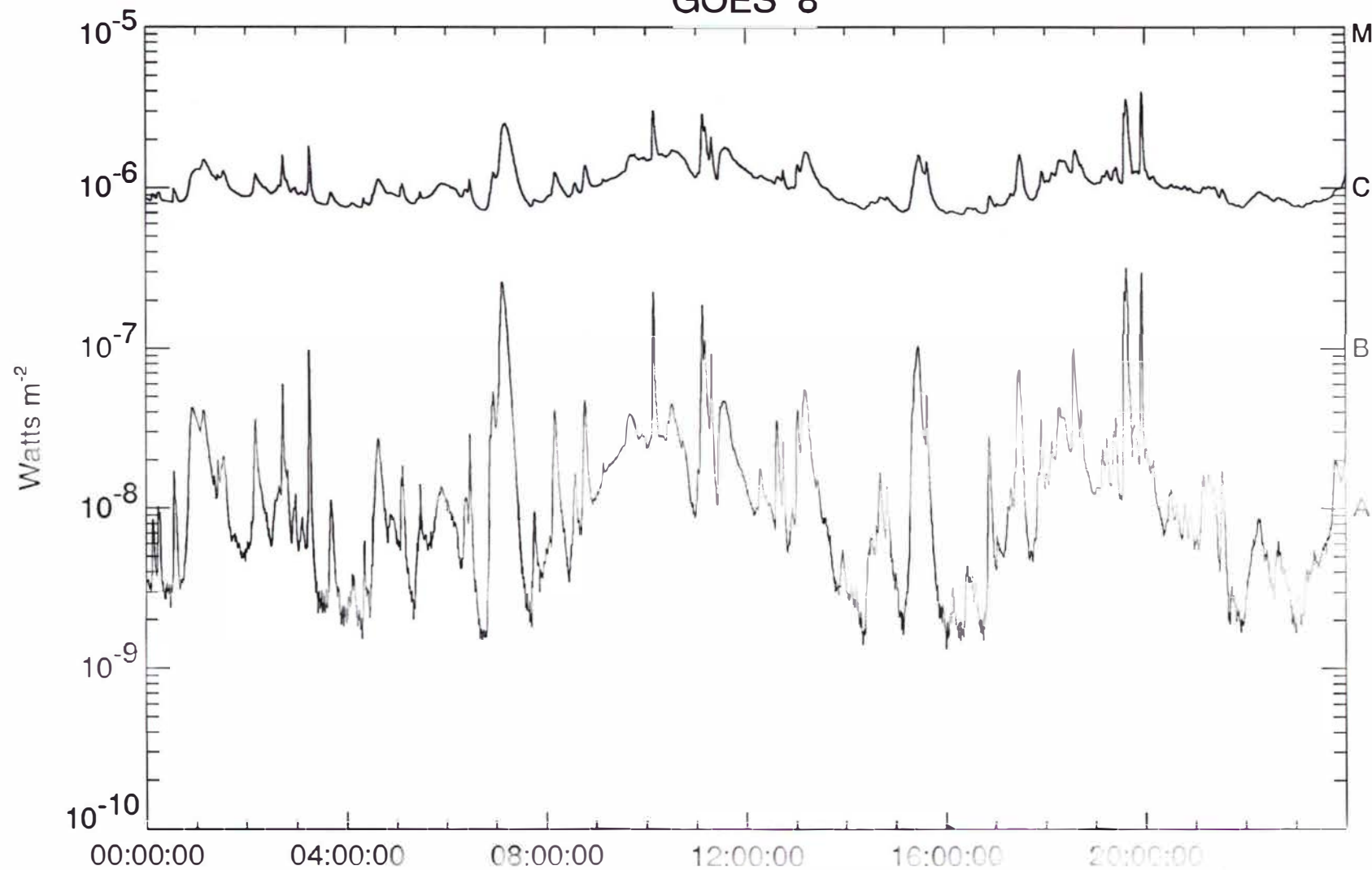


Current Time: 99/12/27, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/23, 0000:00

Plot created: 99/12/27, 1007

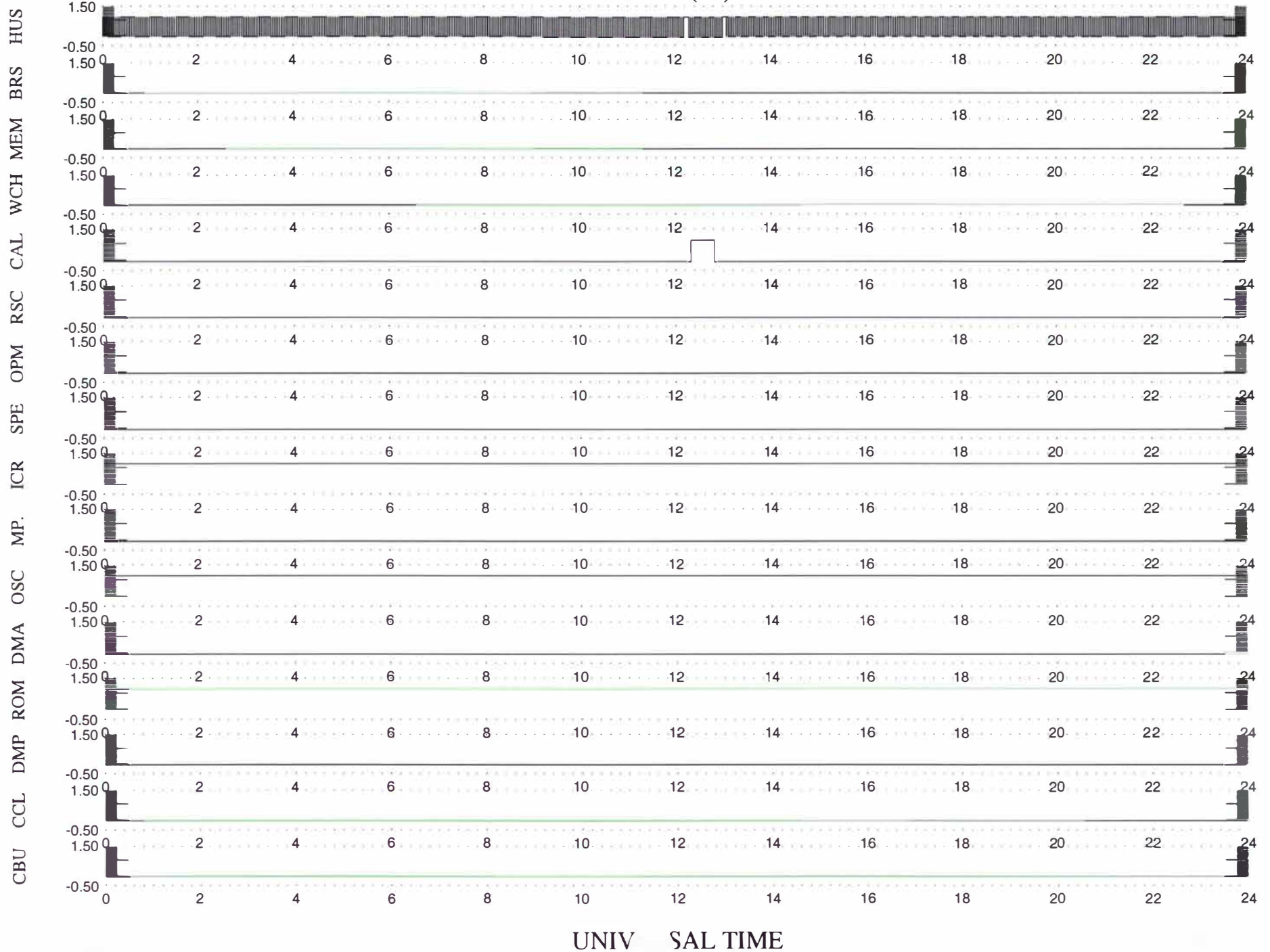
Channel 1 (1.0 - 8.0 Angstroms)

Channel 2 (0.5 - 4.0 Angstroms)

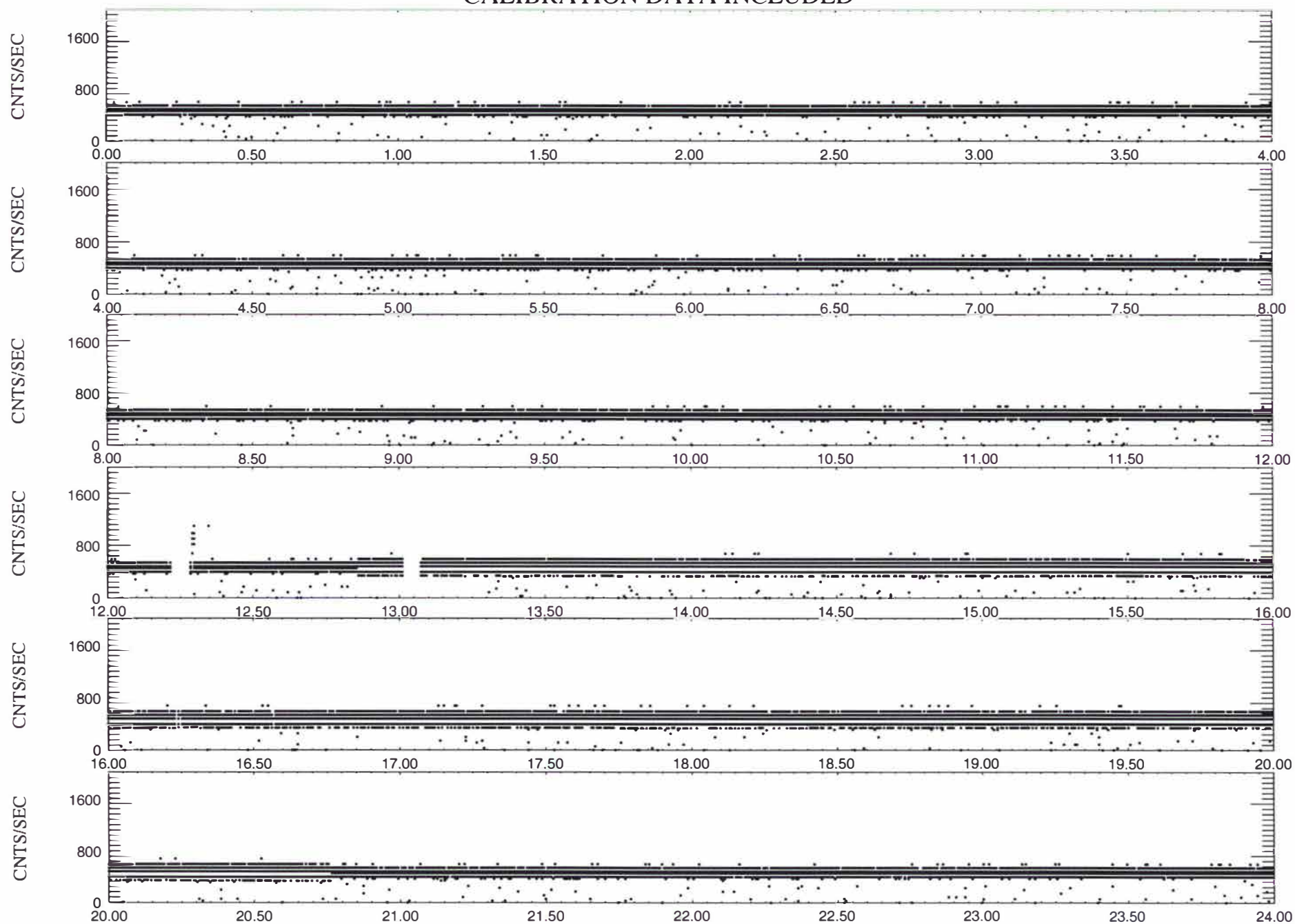
Background not subtracted

Sample average = 10

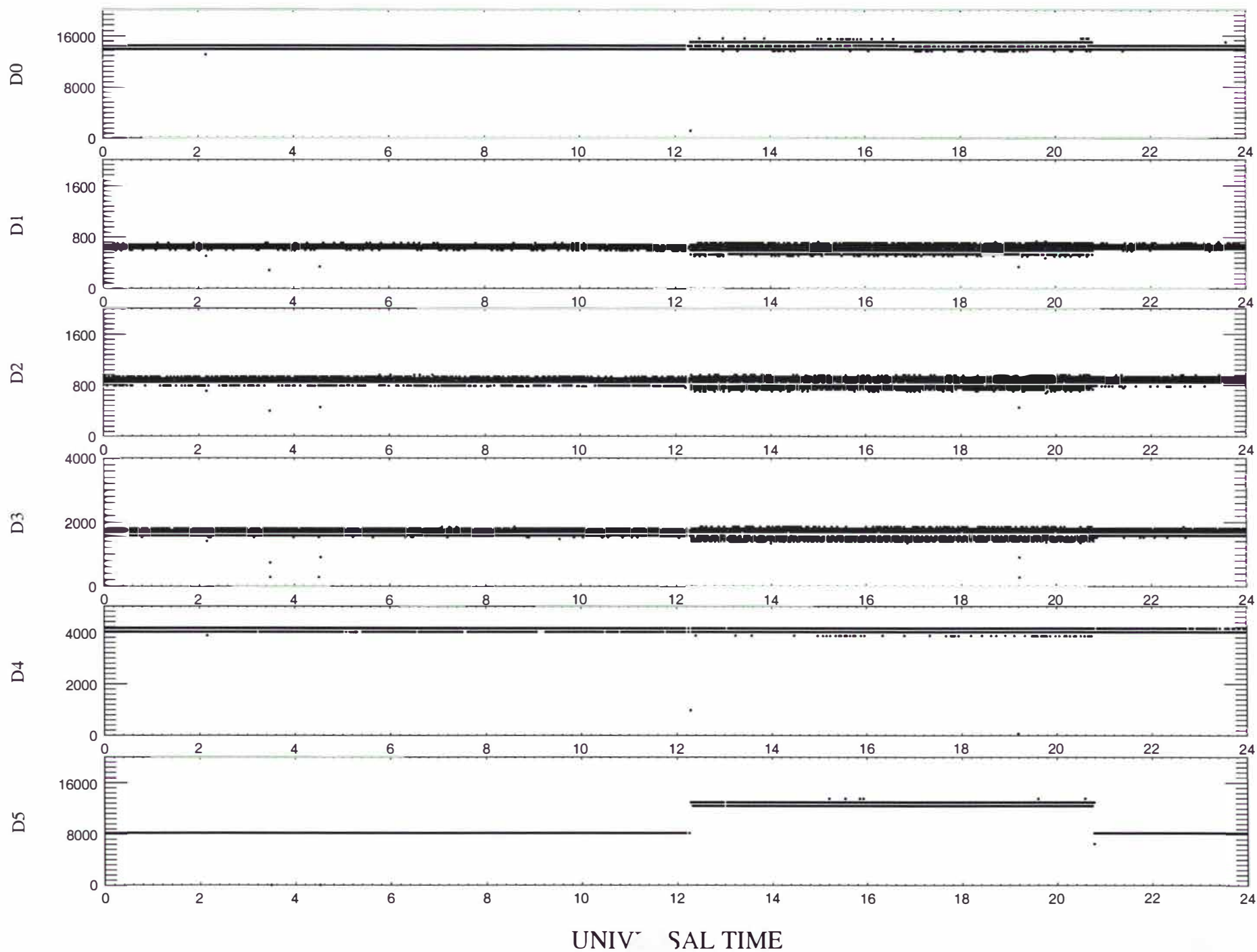
NO BURST (11)



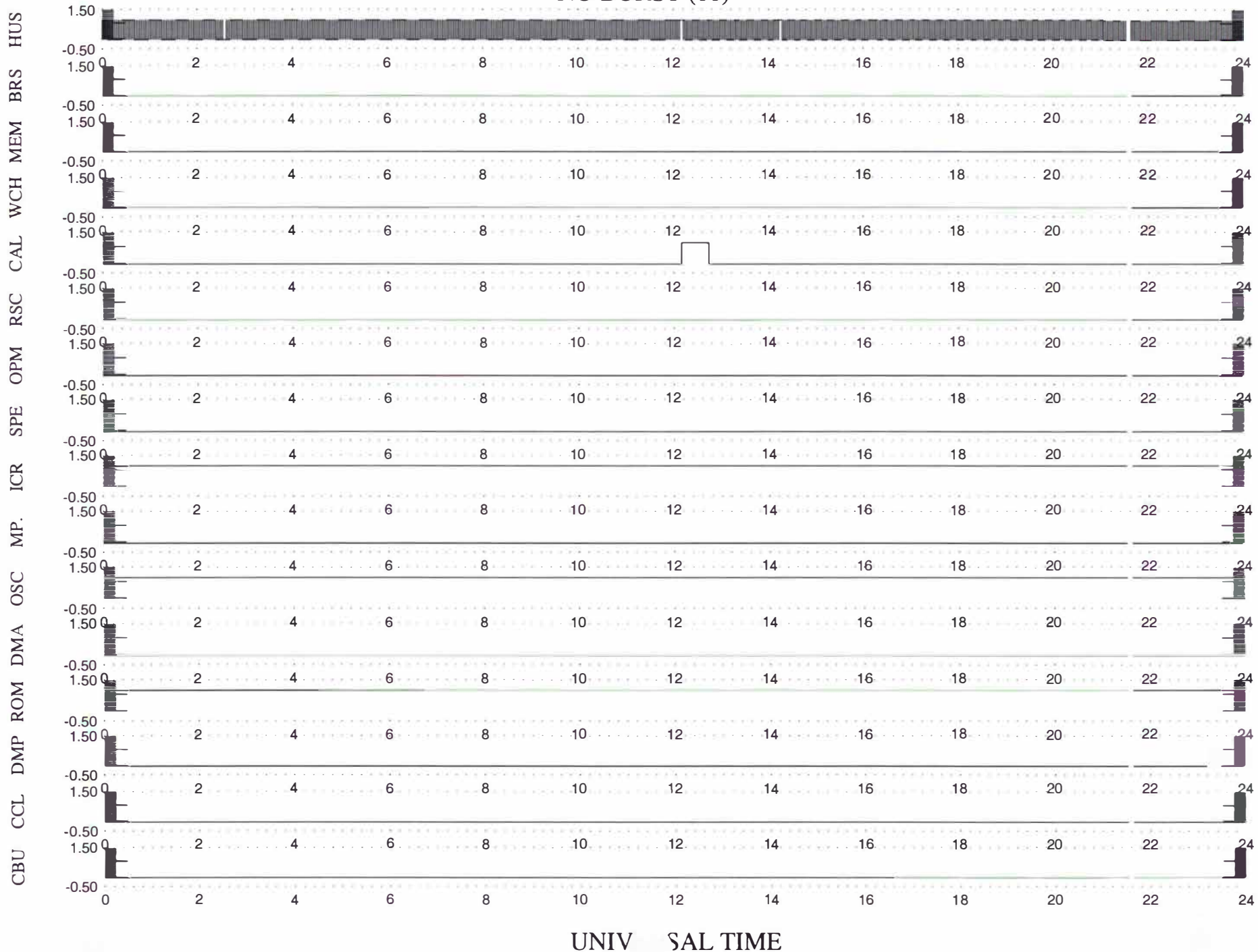
CALIBRATION DATA INCLUDED



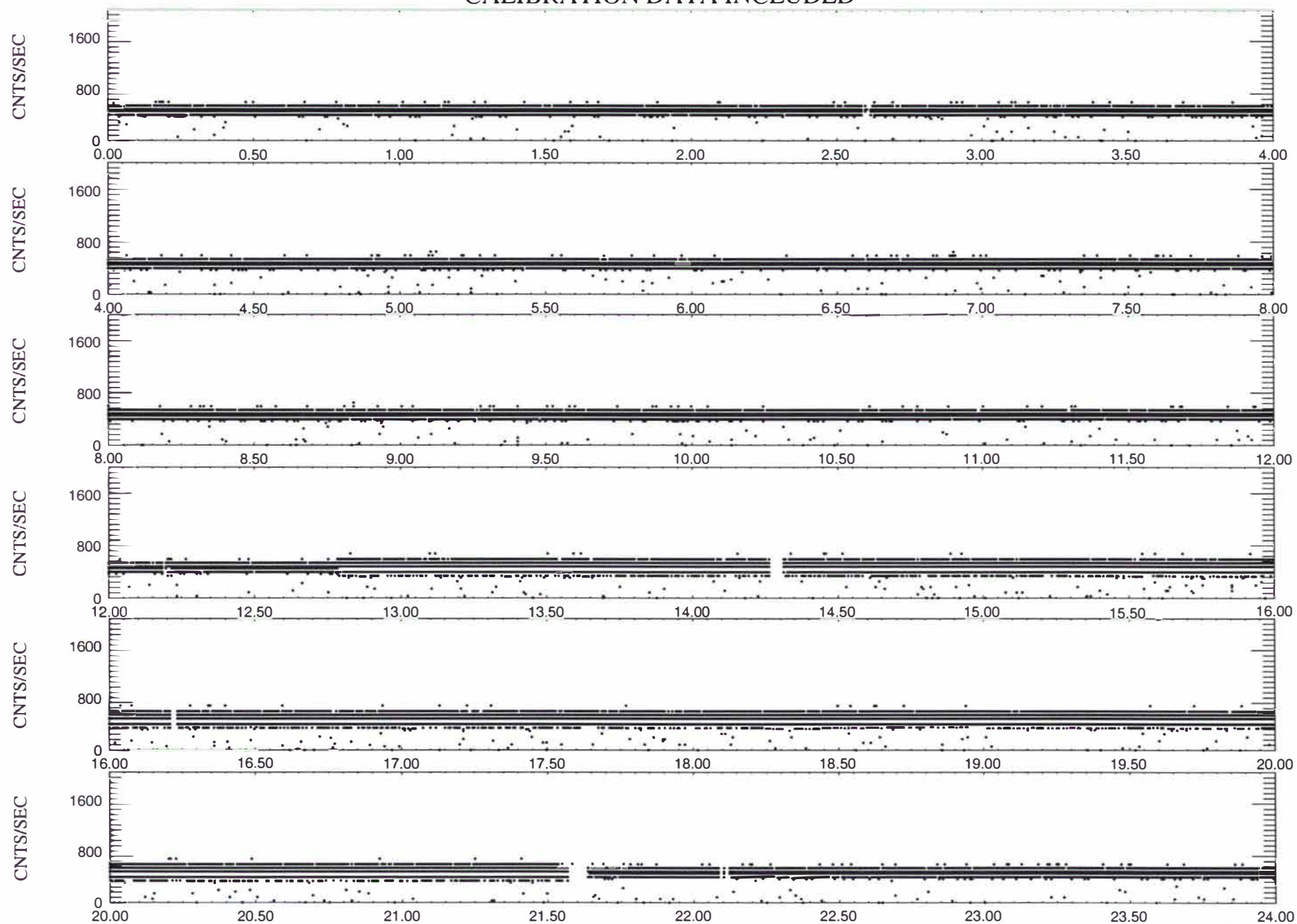
UNIV SAL TIME



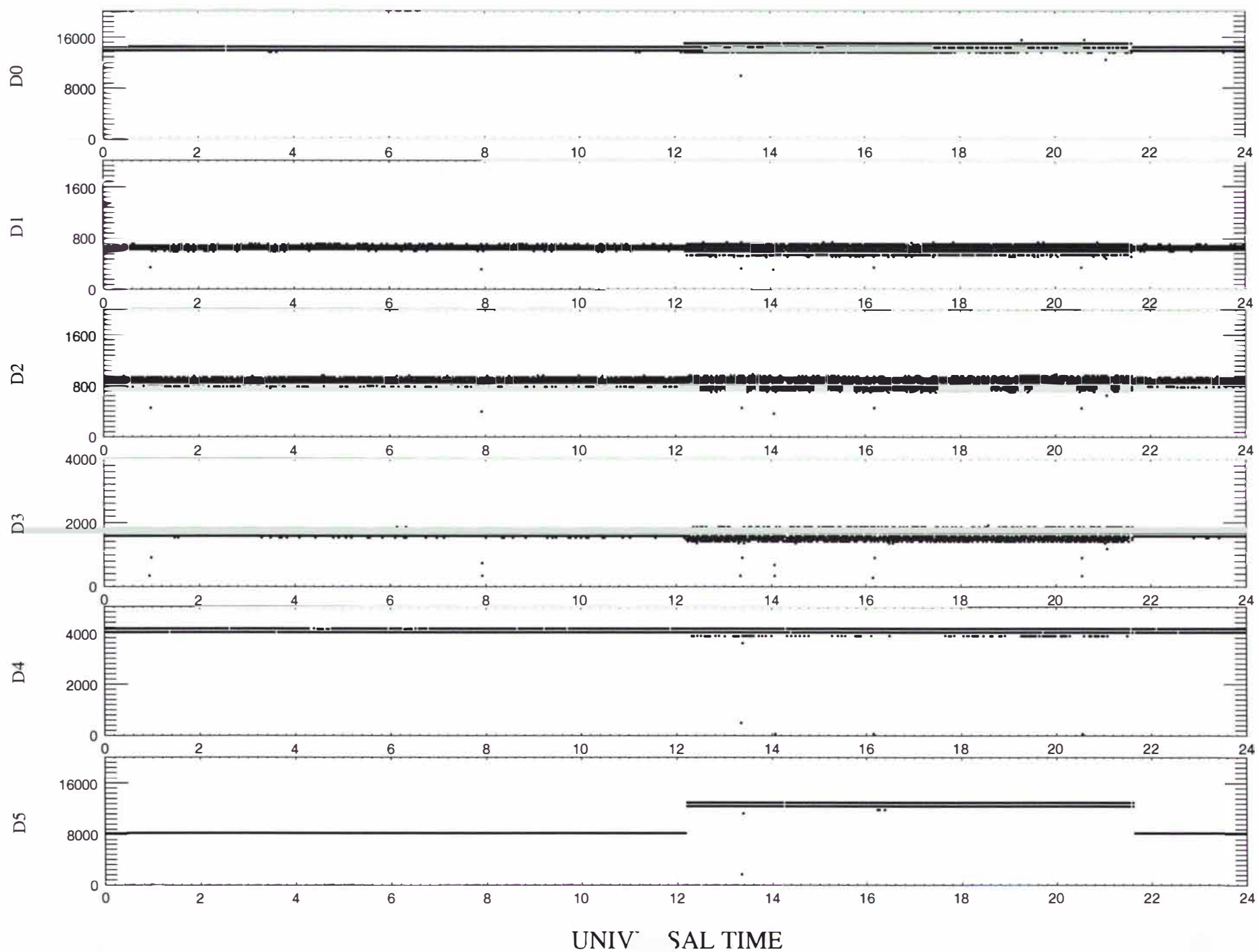
NO BURST (11)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From HENZE@fender.msfc.nasa.gov Thu Dec 30 12:23 PST 1999
Date: Thu, 30 Dec 1999 14:24:21 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7917

TIME: TJD=1537 SECONDS=41182

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

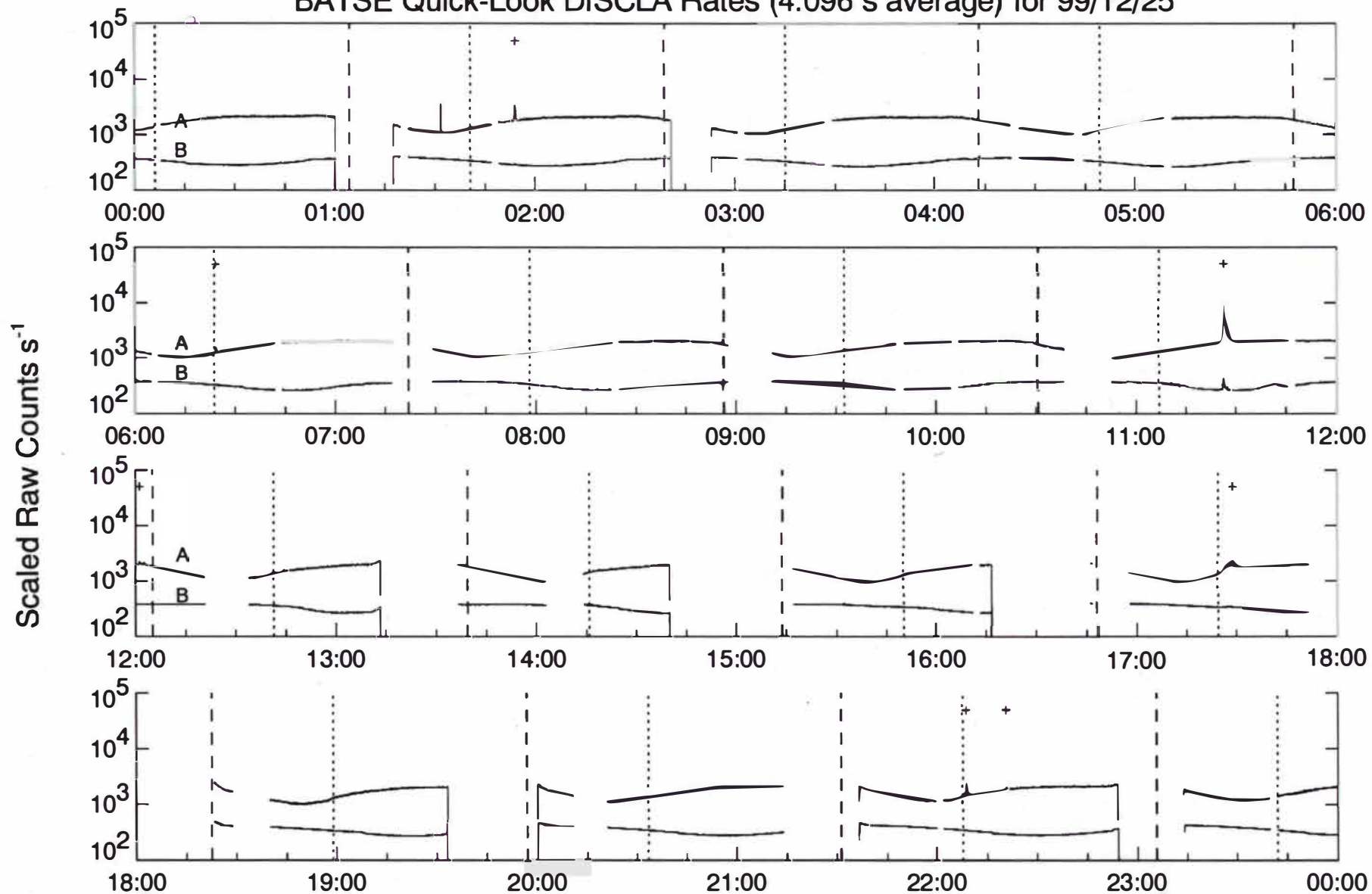
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=152.1 AZIMUTH=304.3 ERROR= 0.4 DEGREES

COMMENTS:

GOES C6.2, NO OPTICAL IDENT. SINGLE MULTYPEAKED EPISODE, TOTAL DUR. APPROX.
175 S, STARTS AT APPROX. T-15 S, MAX AT APPROX. T+20 S. NOT VISIBLE ABOVE
300 KEV.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/25



Current Time: 99/12/29, 1007 EDT

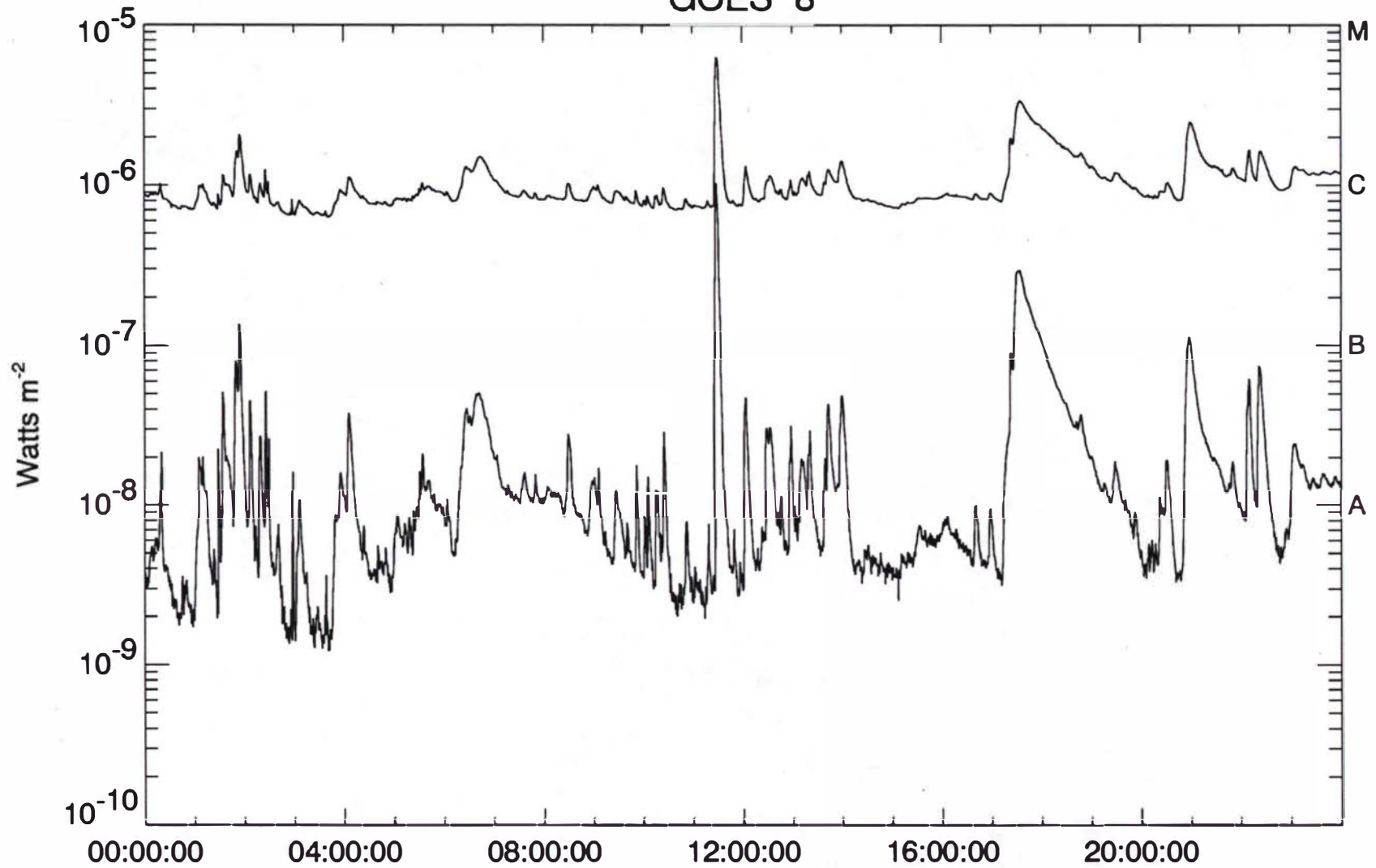
A: Channel 0 Most Sunward LAD

B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/25, 0000:00

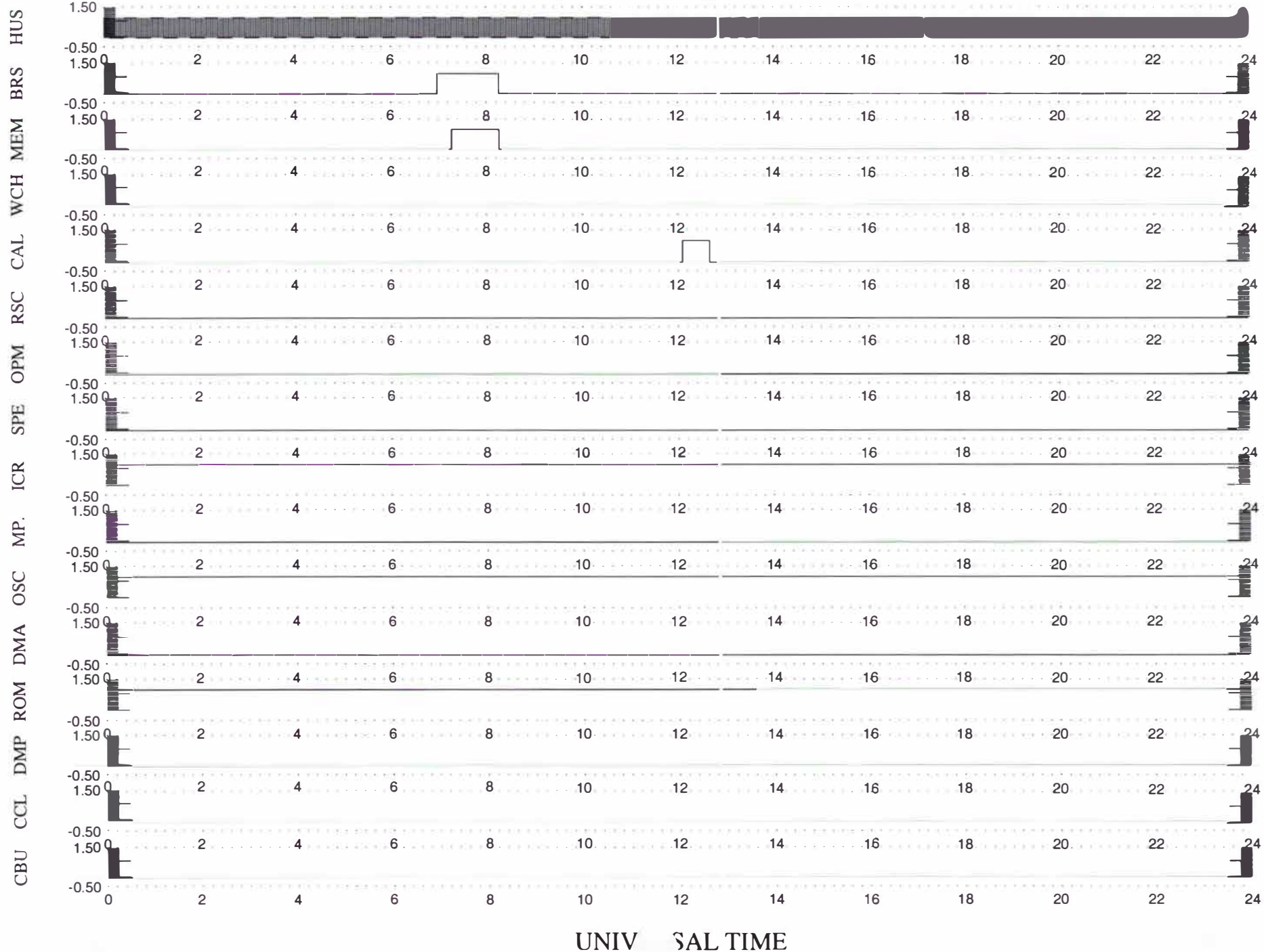
Plot created: 99/12/29, 1007

Channel

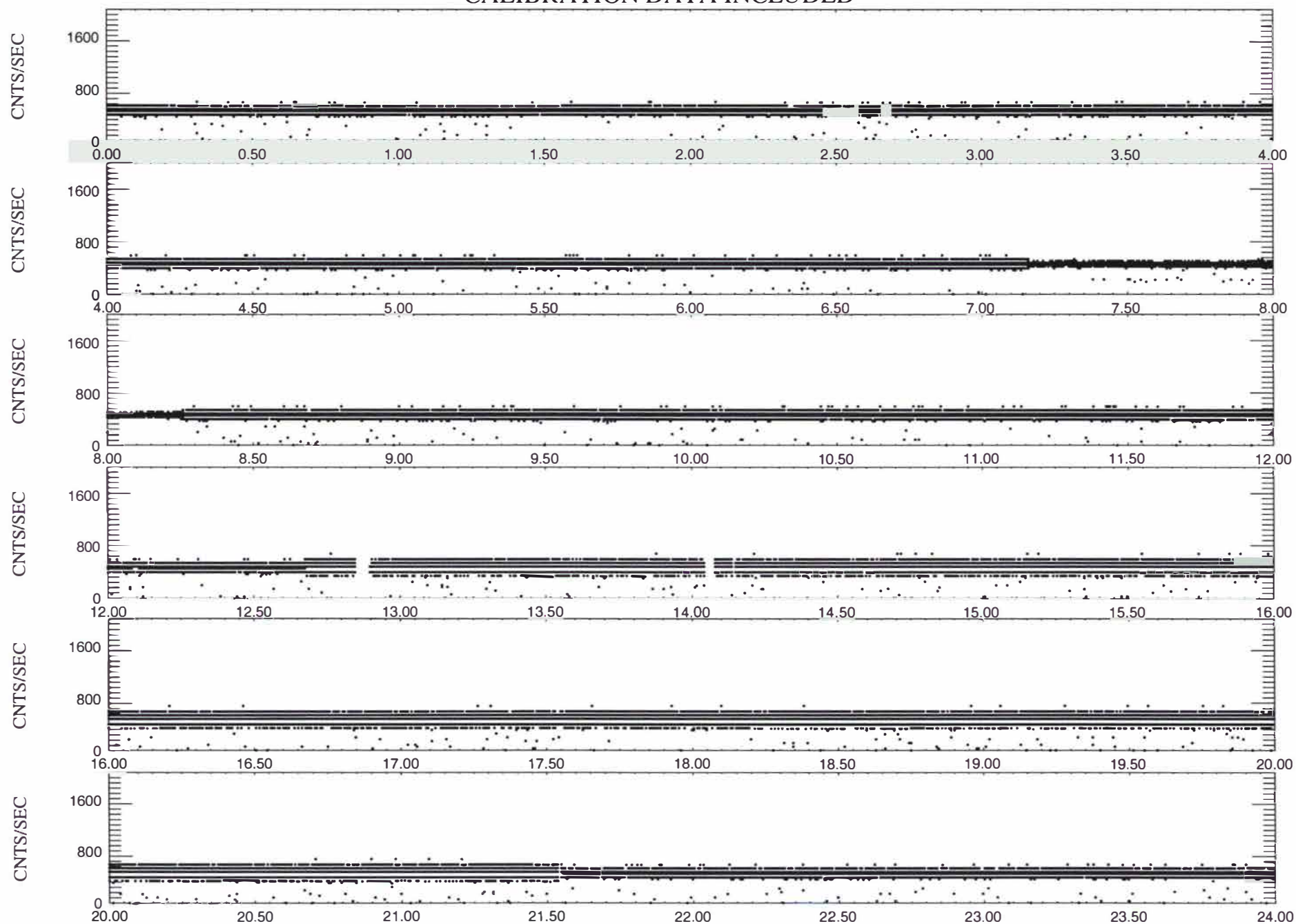
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

BURST NUMBER 12

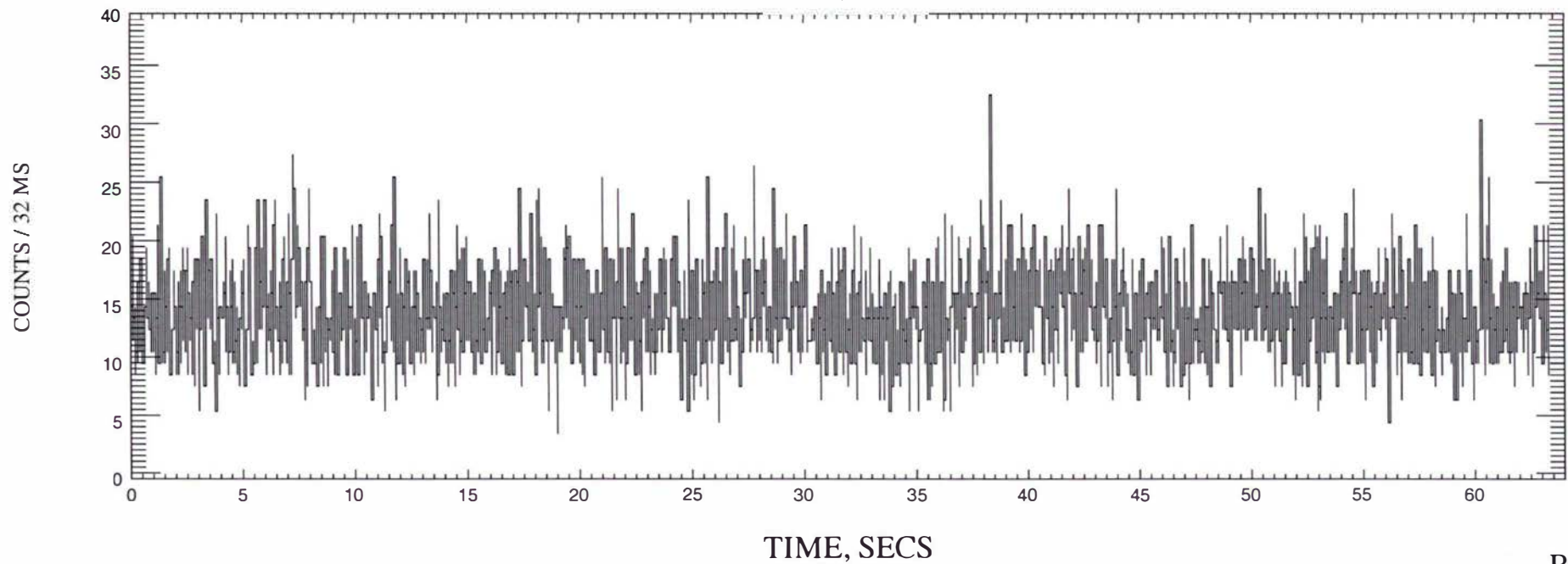
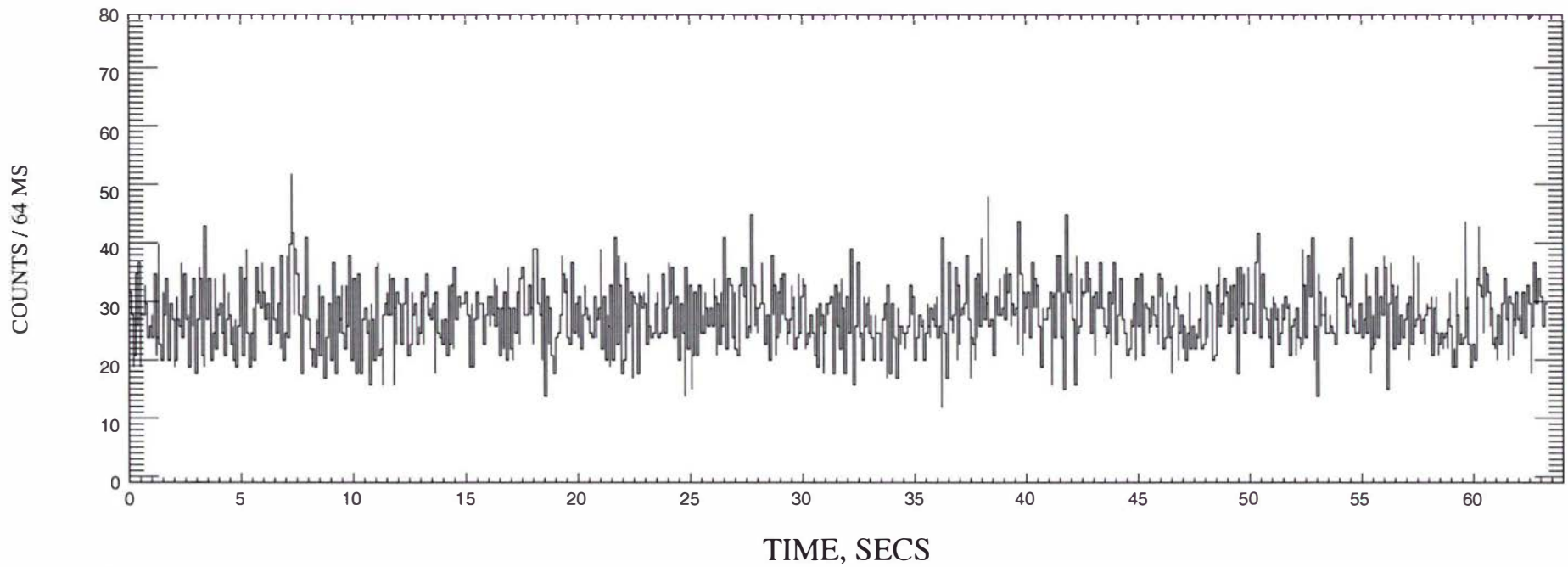


CALIBRATION DATA INCLUDED

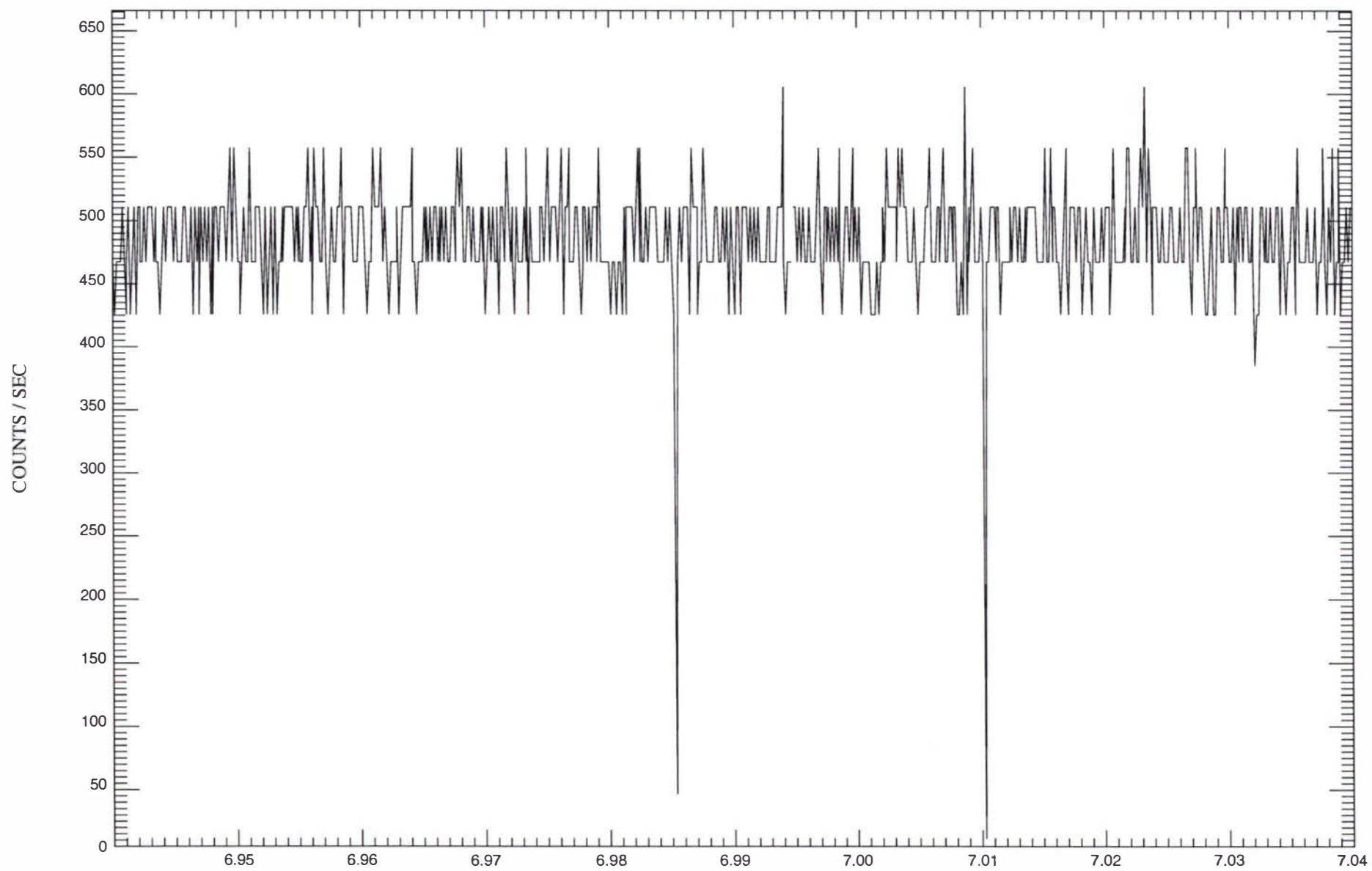


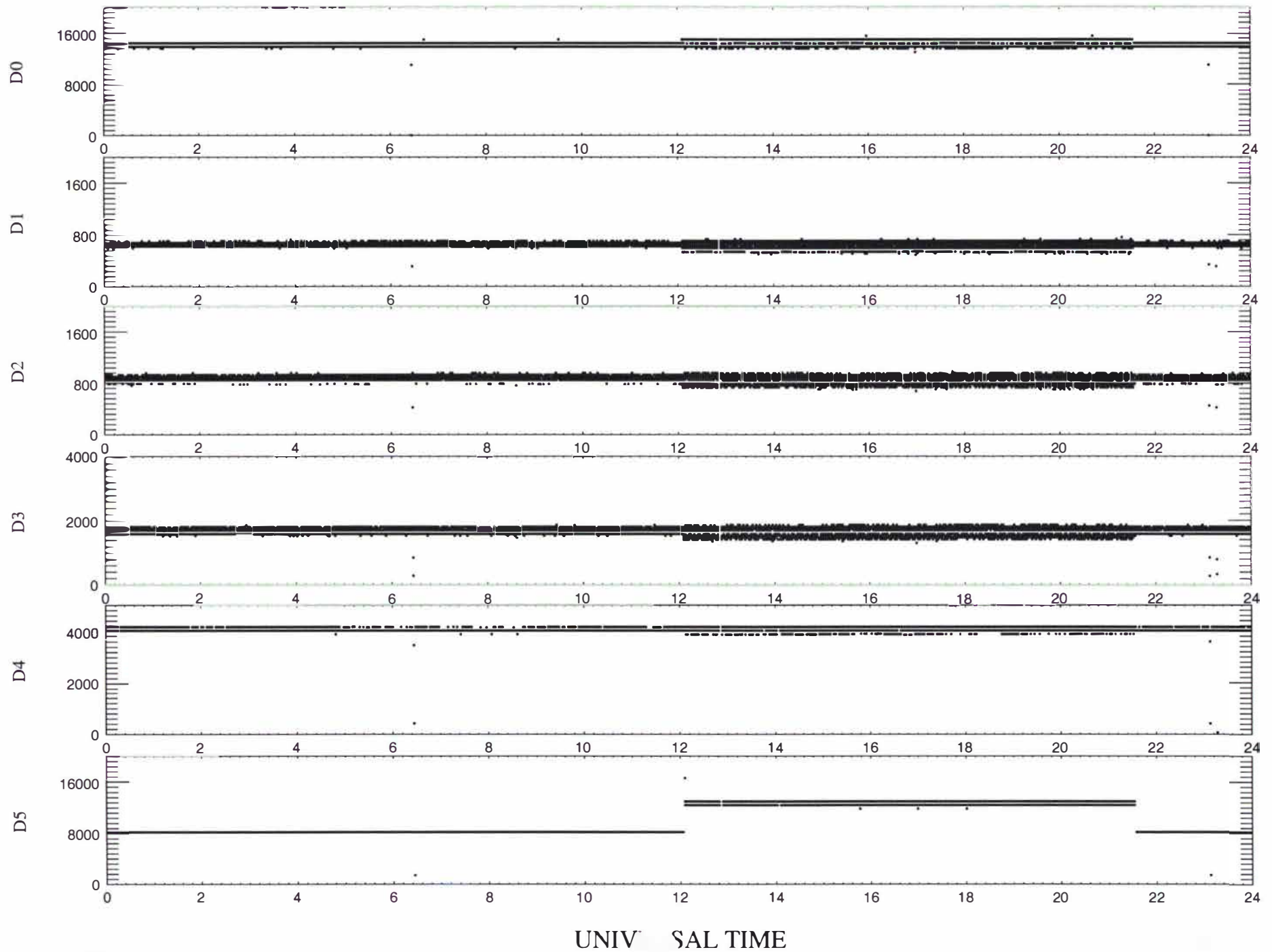
UNIV SAL TIME

Burst Counter 12 at UT= 6.994068582323 h=25178.647 s 06:59:38.647



CALIBRATION DATA INCLUDED





From WOODSP@fender.msfc.nasa.gov Thu Dec 30 07:26 PST 1999
From: WOODSP@fender.msfc.nasa.gov
Date: Thu, 30 Dec 1999 9:28:17 -0600 (CST)
>: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7918

BATSEARCH PROGRAM

BATSE BURST # 7918
EVENT OF 1999 DEC 26 DAY OF YEAR=360
EVENT CROSSING TIME AT BATSE : 27825. S. OR 07:43:45.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 276.000 -13.000
BATSE PEAK COUNTING RATE: 2900 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 26/12/ 99 IS:
RA= 165.221 DEC= -33.252 DIST= 4.024 AU
BATSE-ULYSSES DISTANCE = 601965743. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 80.46 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 332.79 SECS.
CROSSING TIME AT ULYSSES IS 28158. S. OR 07:49:17 +/- 398.84 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 26/12/ 99 IS:
RA= 325.663 DEC= -14.957 DIST= 1.814 AU
MARS-BATSE DISTANCE = 271425536. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=131.87 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -604.24 SECS.
CROSSING TIME AT MARS IS 27221. S. OR 07:33:40 +/- 107.88 SECONDS

BATSE BURST TRIGGER

NO.: 7918

TIME: TJD=1538 SECONDS=27825

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

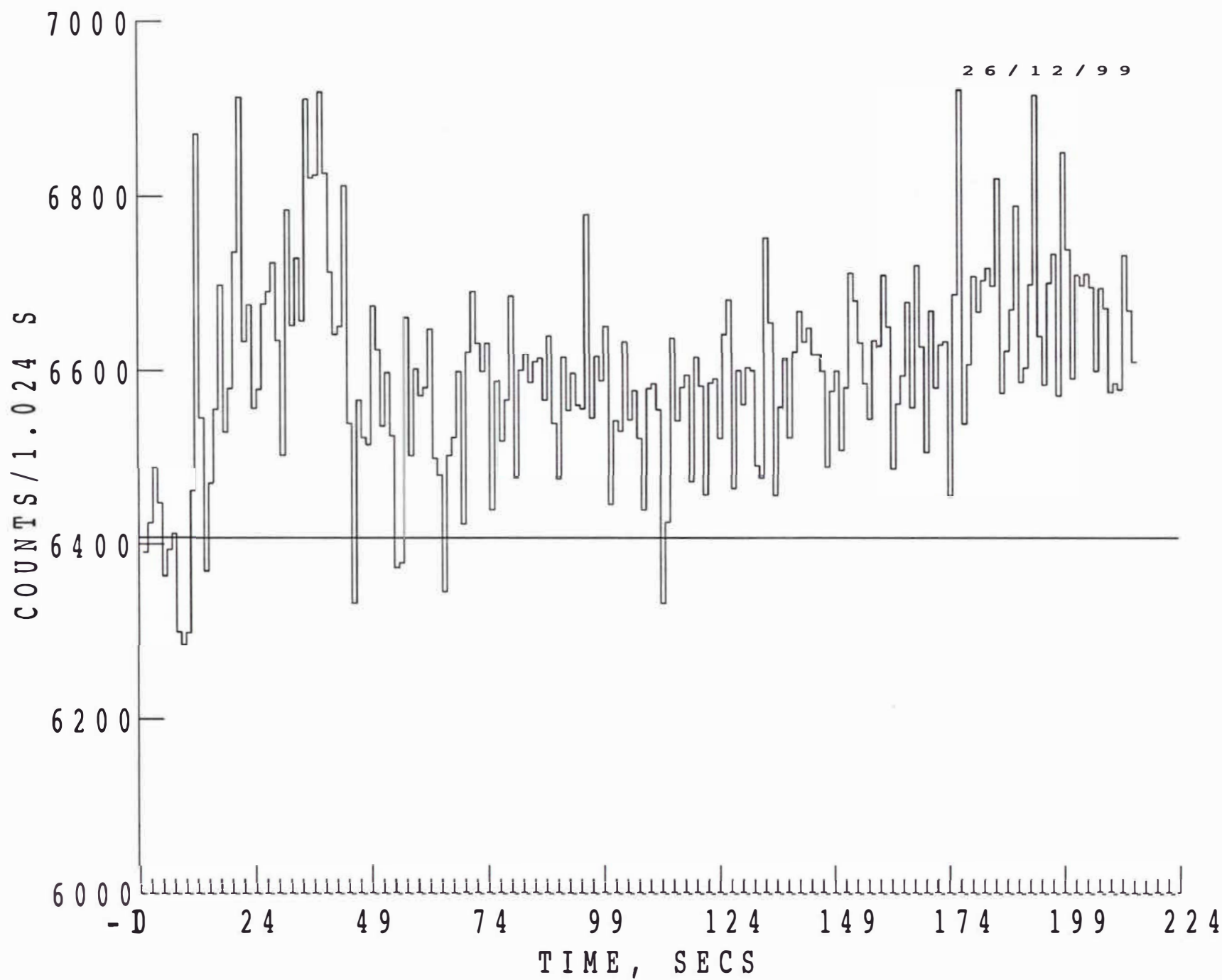
LOCATION: ZENITH=161.8 AZIMUTH=290.8 ERROR=5 DEGREES

COMMENTS:

GRB LASTING ABOUT 40 SEC. MULTI-PEAKED SINGLE PULSE. NOT
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7918	991226	11538	27825	2900	276	-13	40

BACODINE 7918 26/12/99 27813.625
25- 100 keV



BATSE BURST# 7918

ULYSSES RT

30 / 12 / 99

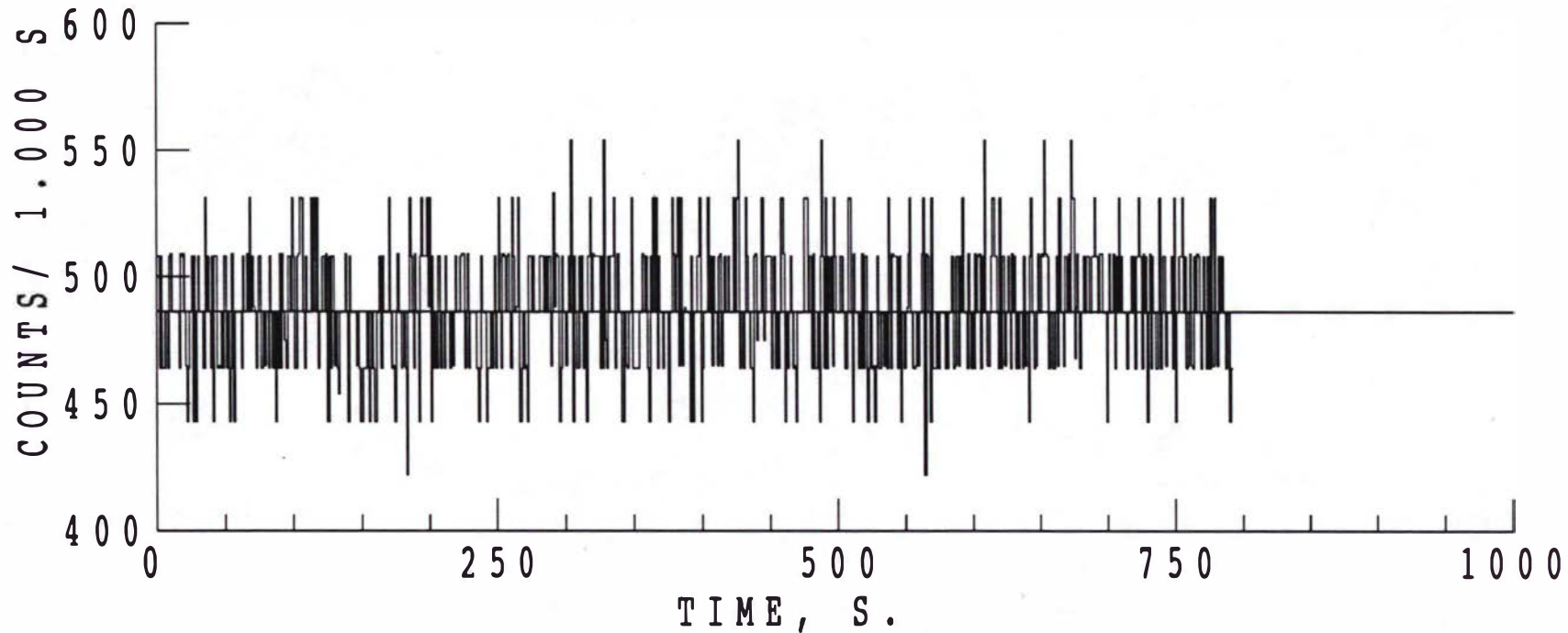
26 / 12 / 99 27756.443 s

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



Date: June 14 2000

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 N/A

- ☐ BATSE ephemeris for T_0 ?
- ☐ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data

- ☒ Final, correct time used? (Files postmarked vwx@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? N/A

- ☒ 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

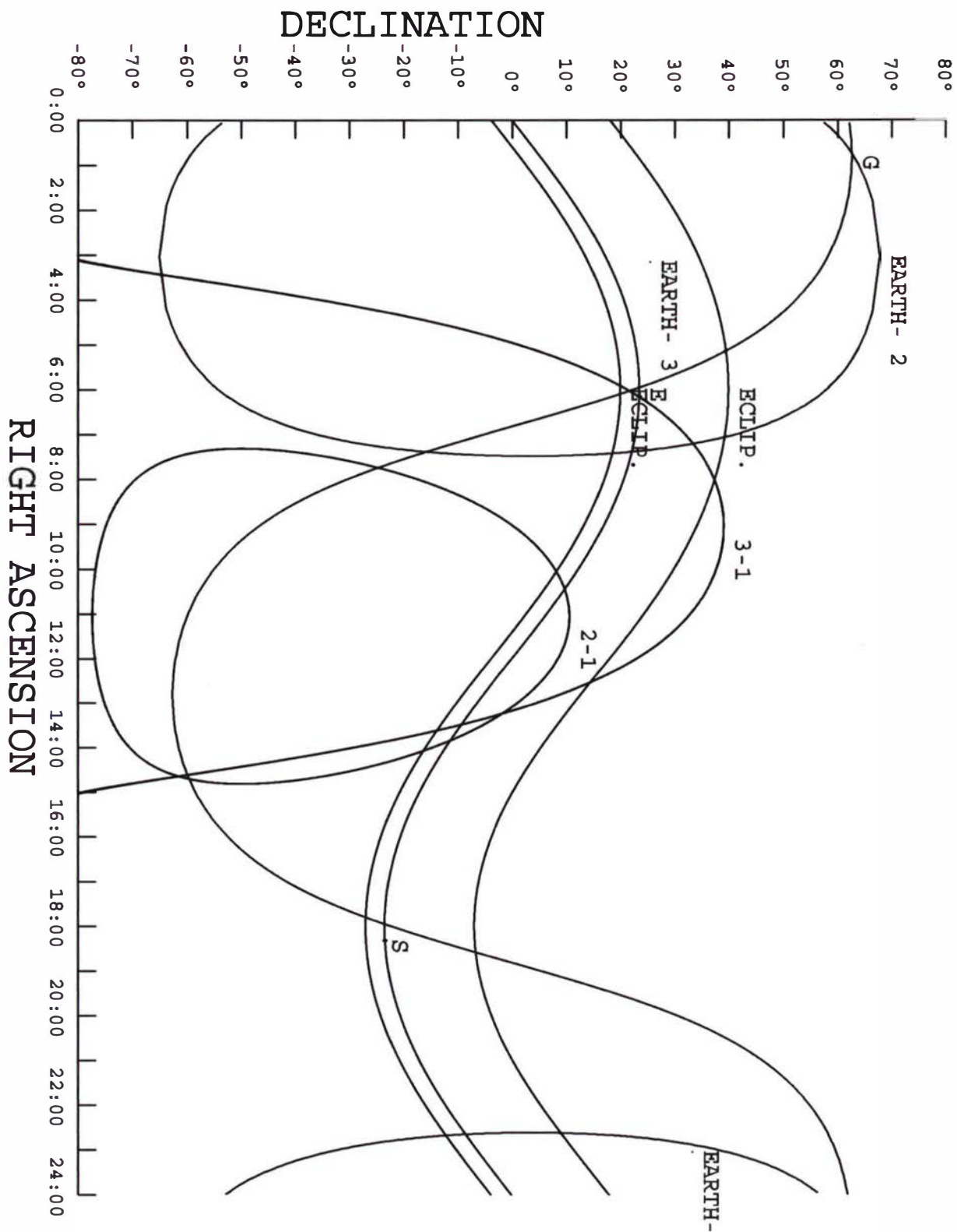
1 ULYSSES

2 SAX

3 NEAR

EVENT OF DEC 26, 1999 14:35

11/ 7/ 7



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

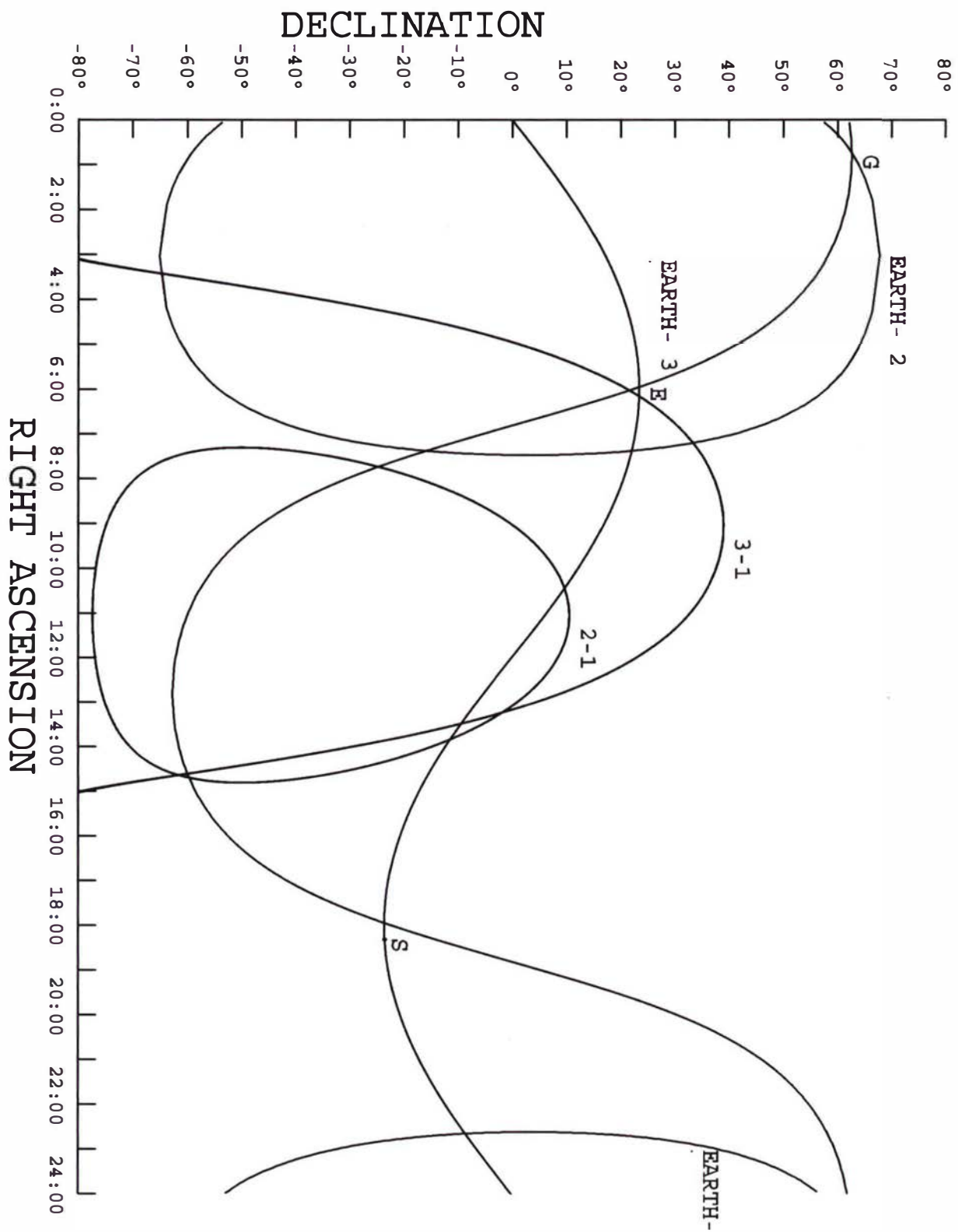
1 ULYSSES

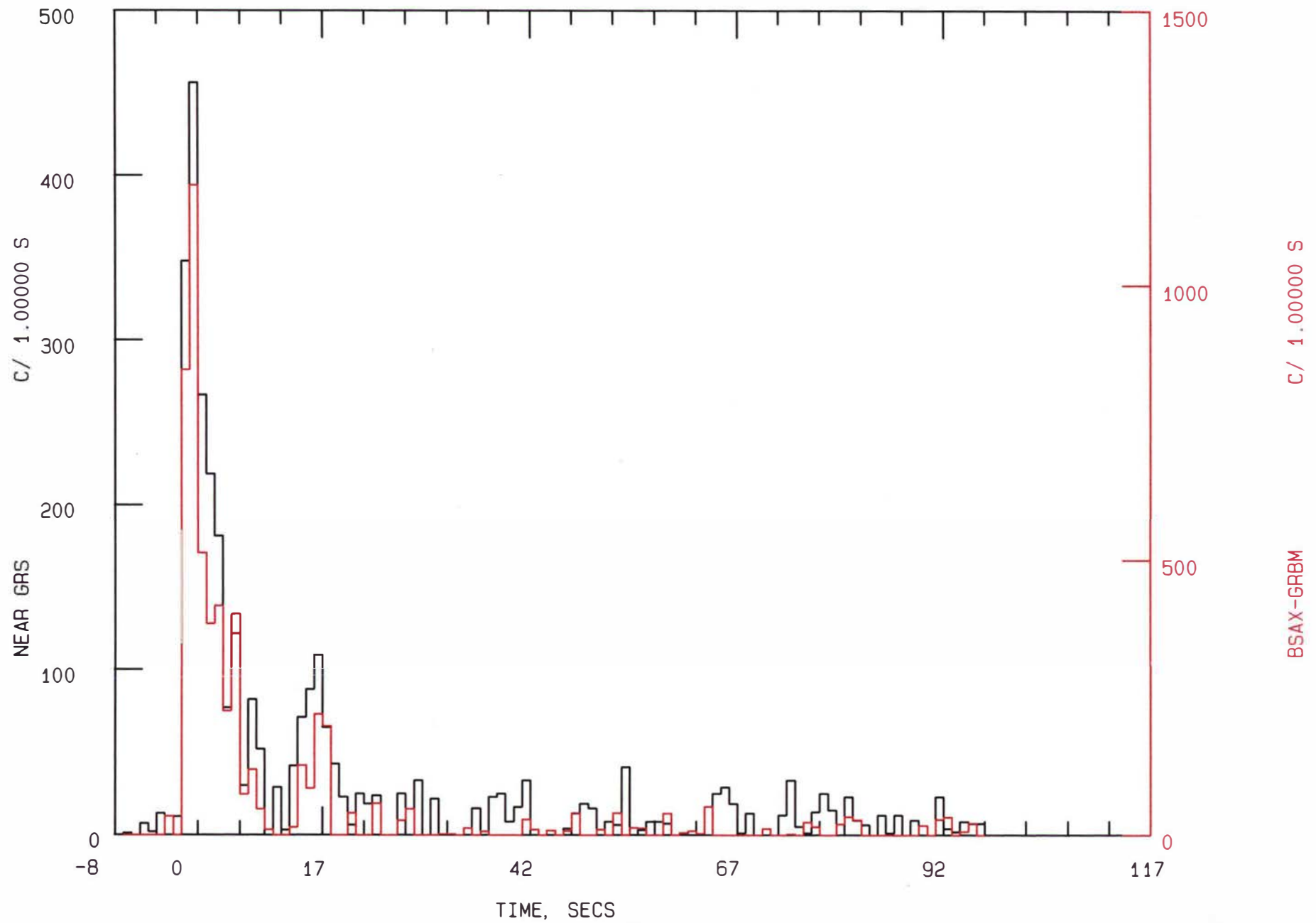
2 SAX

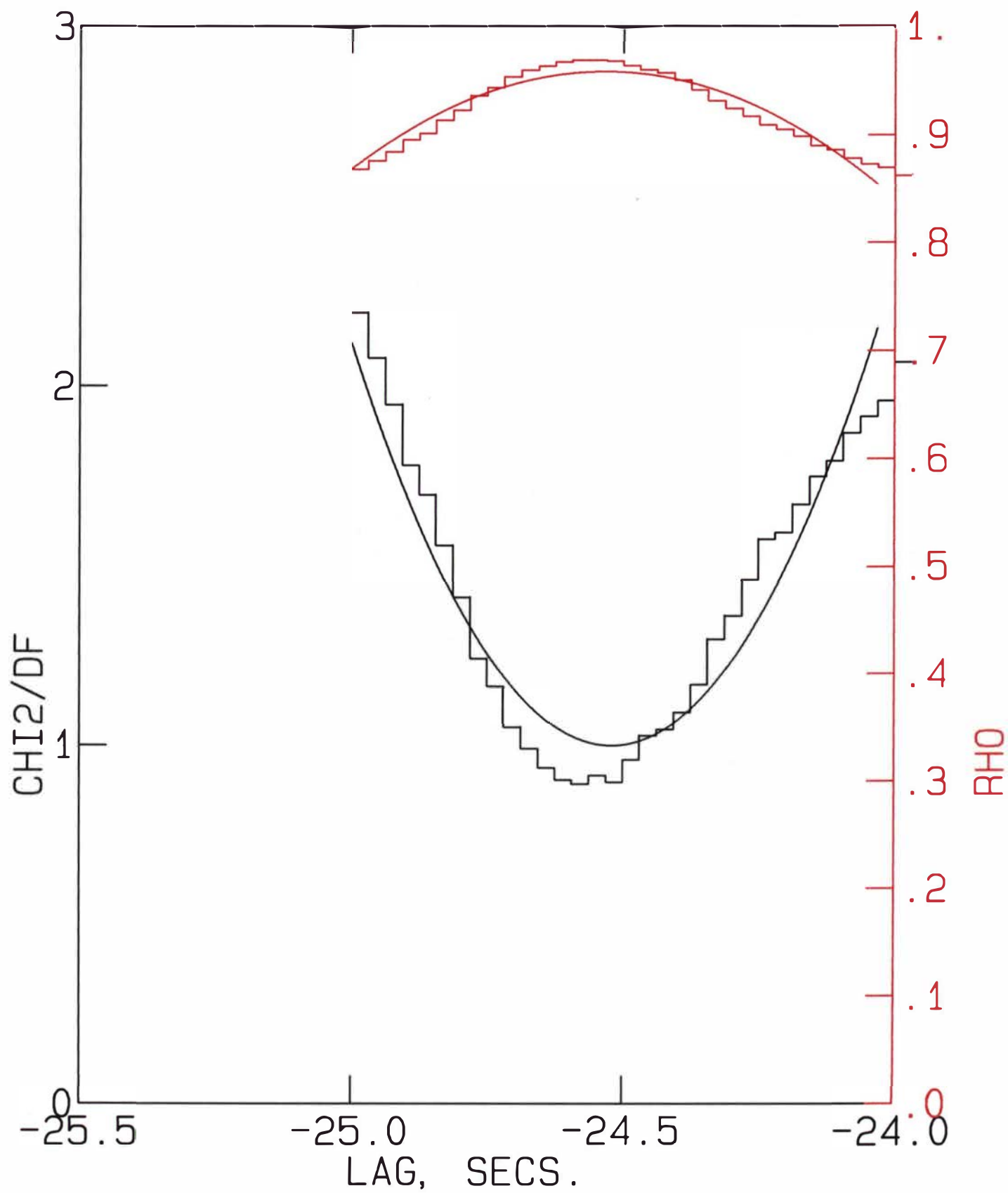
3 NEAR

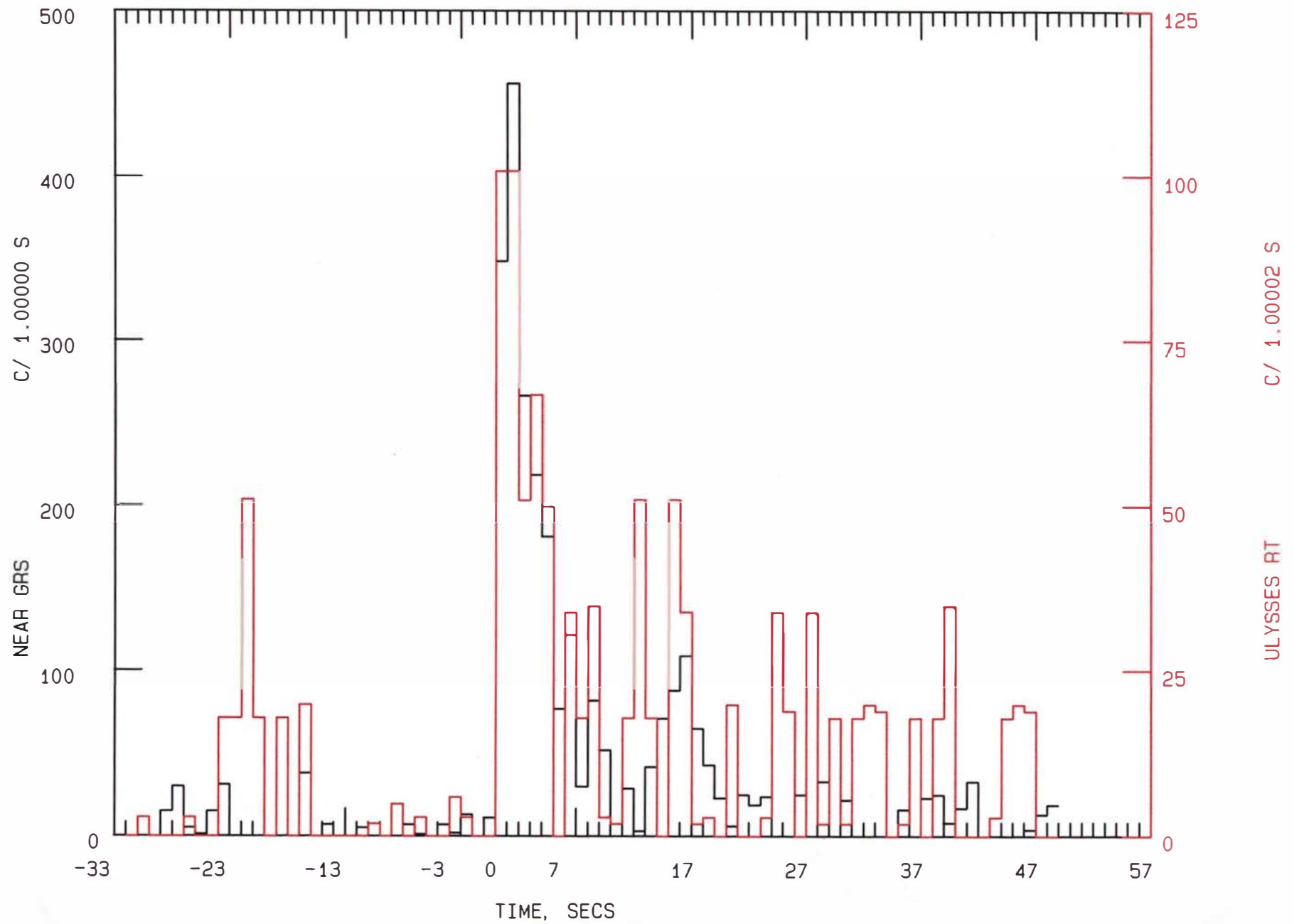
EVENT OF DEC 26, 1999 14:35

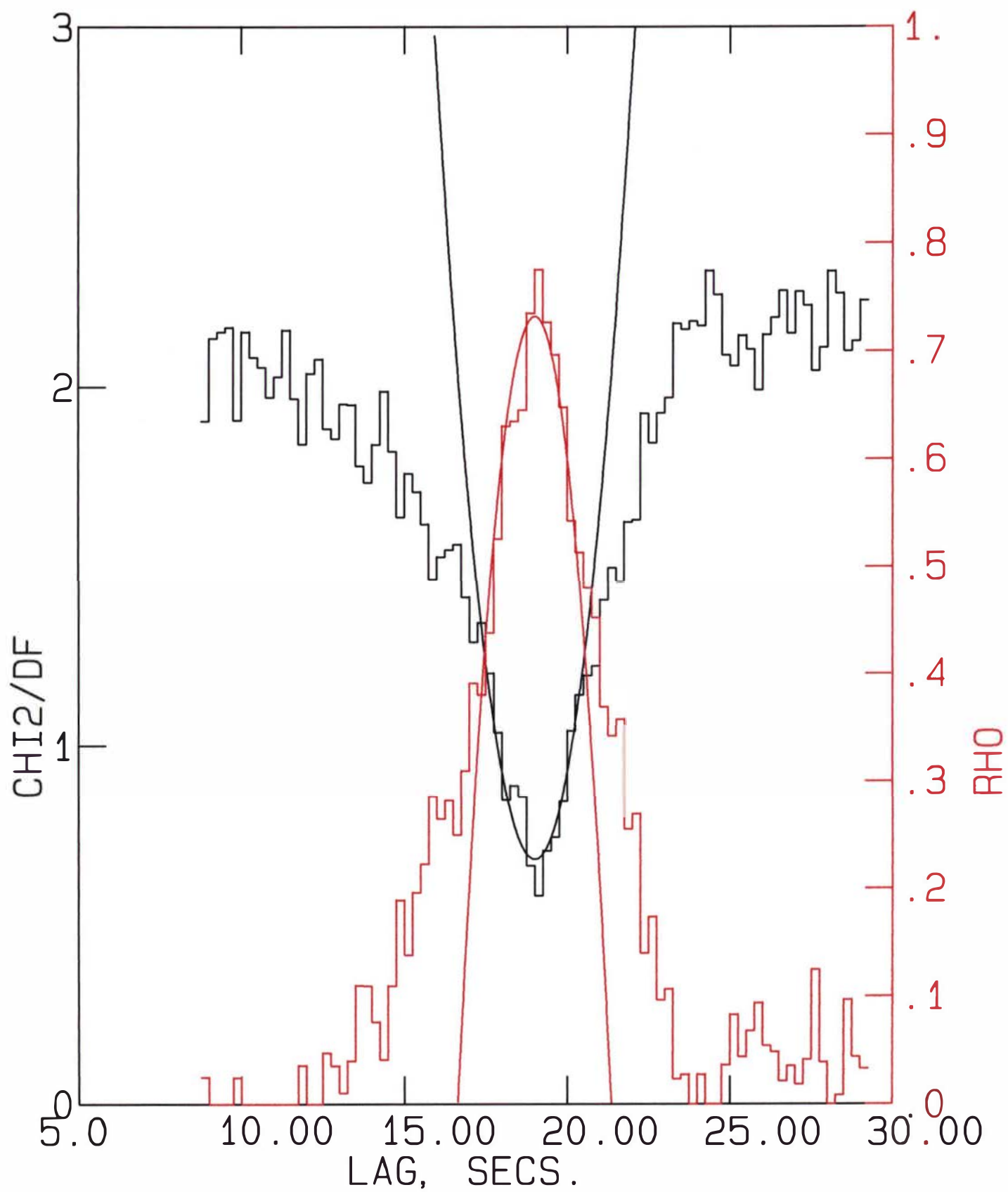
15 / 6 / 0

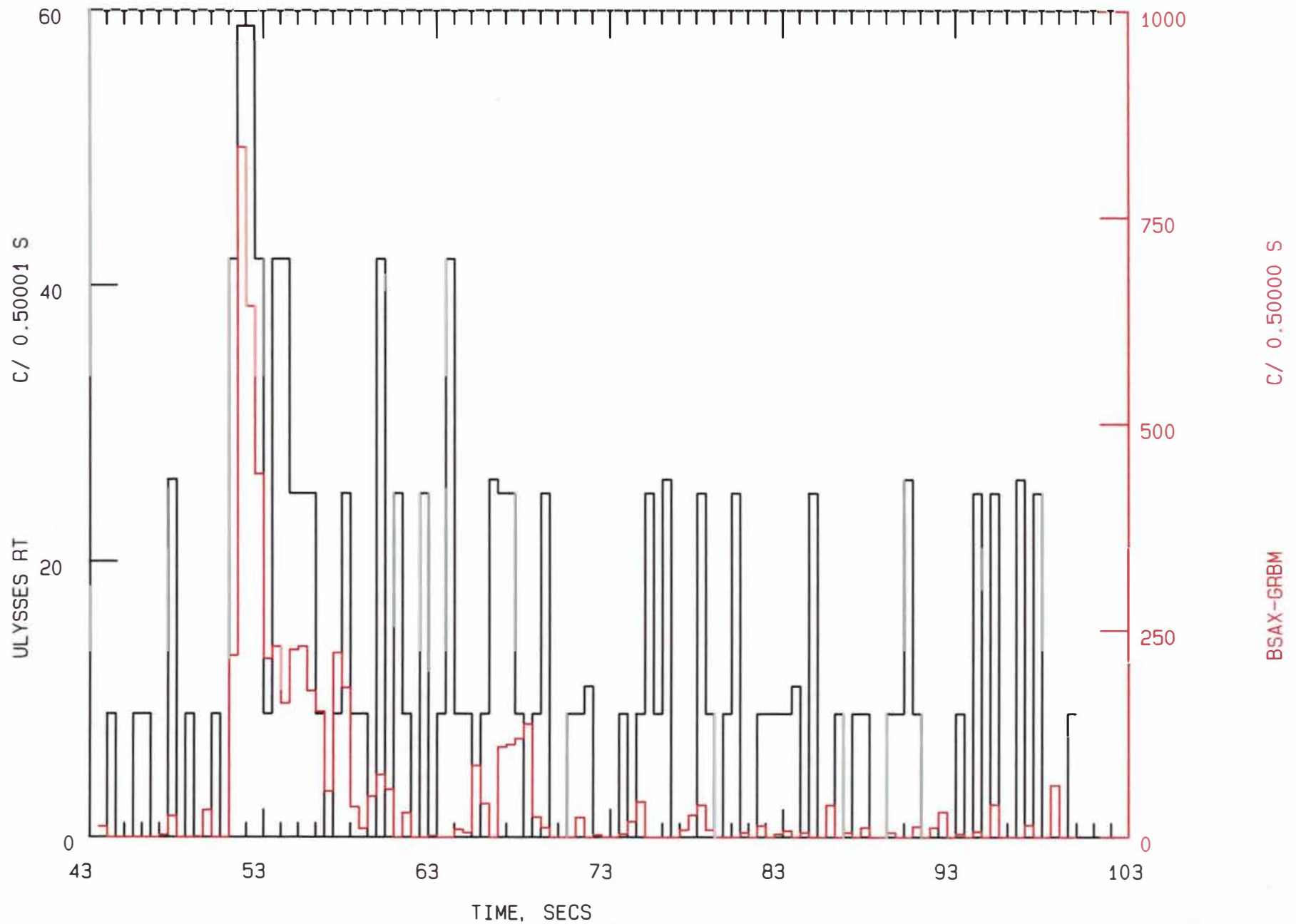


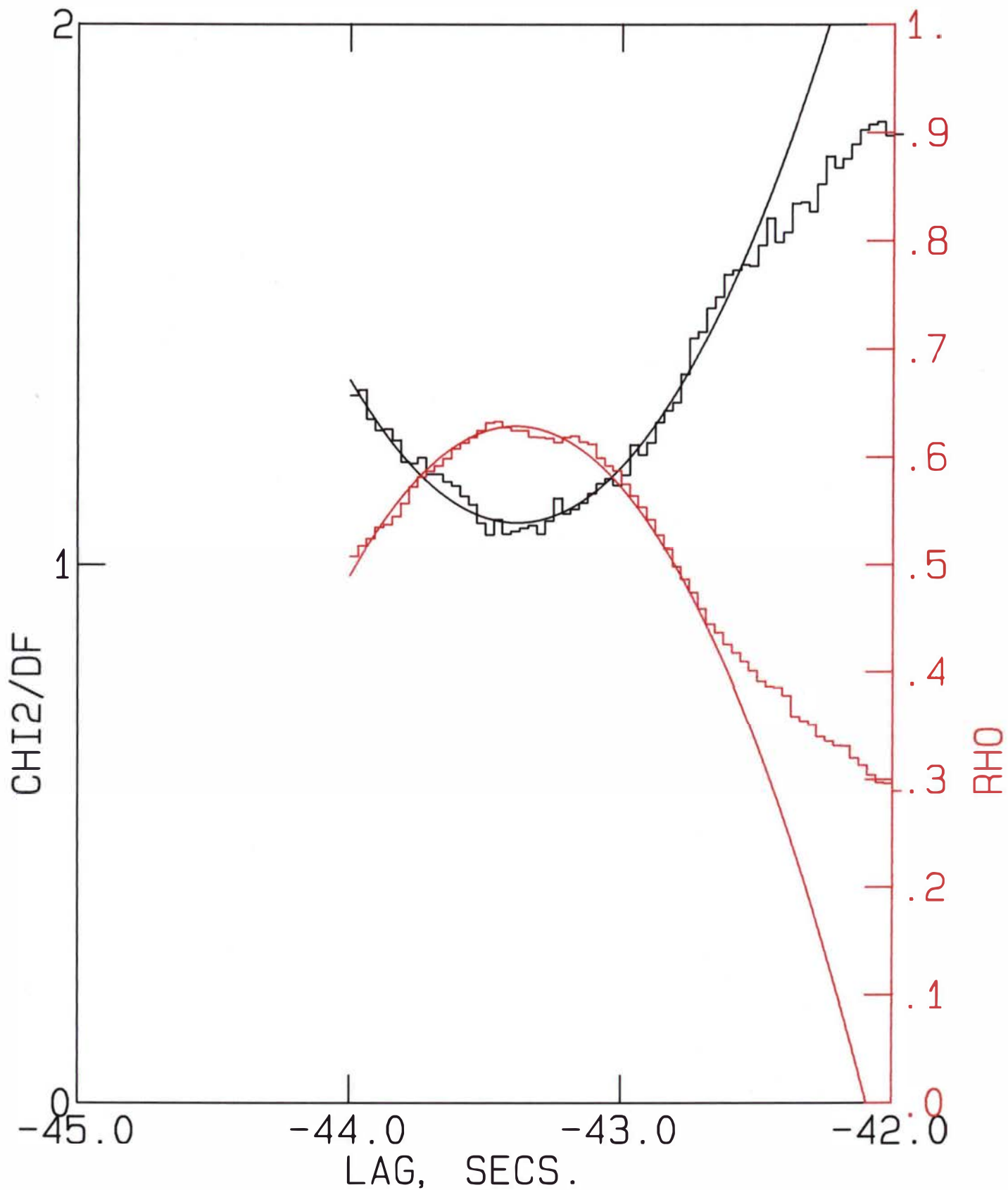






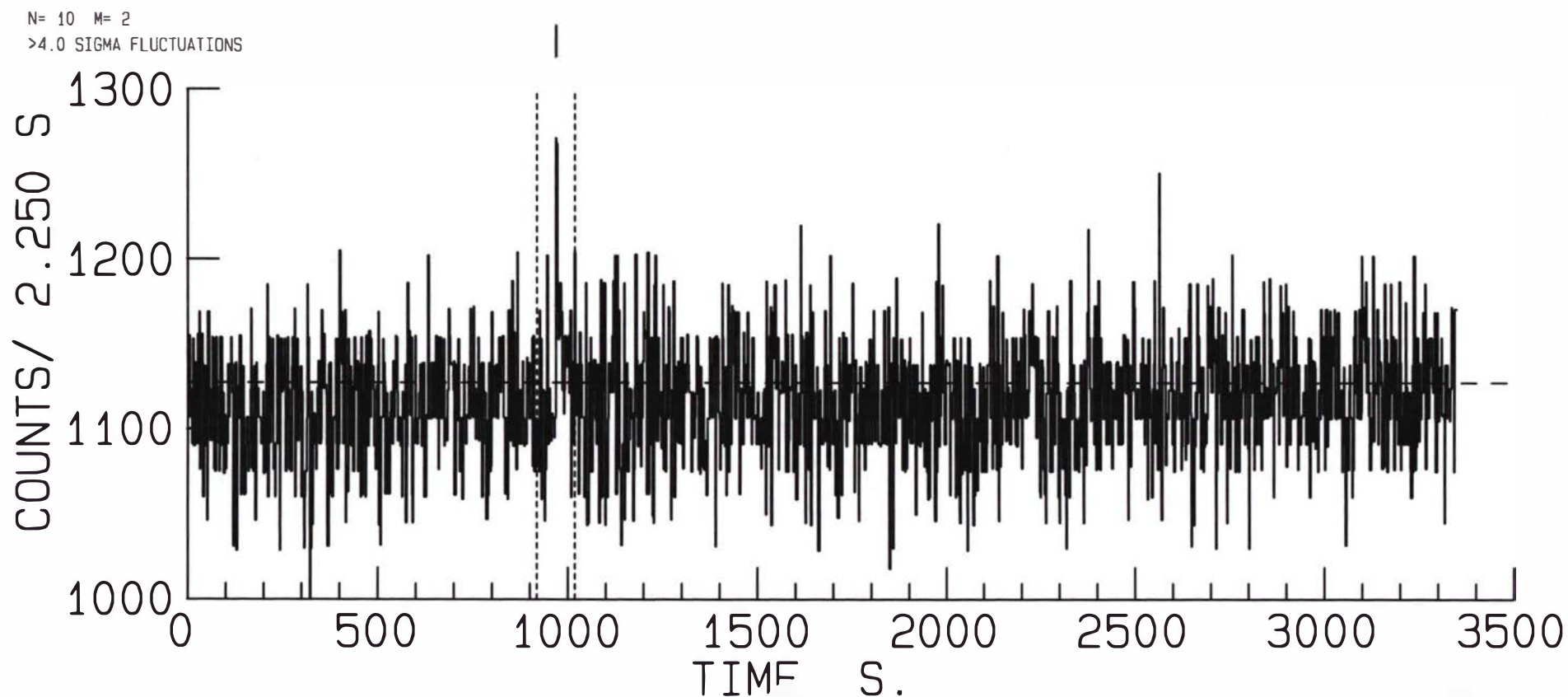






ULYSSES RT
26/12/99 51588.189 s
0.250 S INTERVALS REGROUPED BY 9
22- 150 keV

14 / 6 / 0

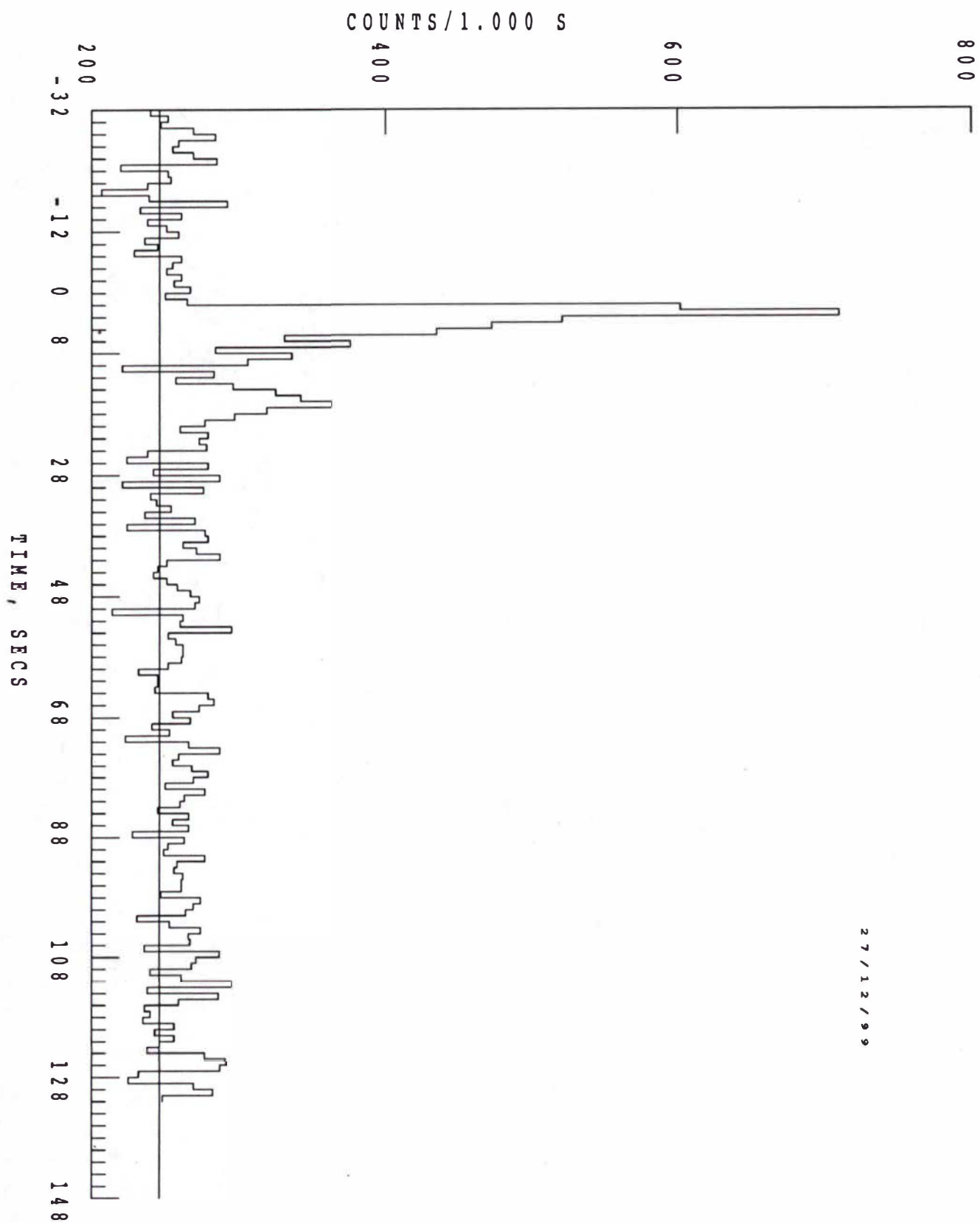


NEAR

26/12/99

53256.558

100-1000 keV



27/12/99

Date: 11 Jul '07

BURST TRIANGULATION CHECKLIST

1. Ulysses Data *N/A*

- ☐ Jim Schmidling's stat file correction applied?
- ☐ Final ephemeris used?
- ☐ Final, CDROM data used?
- ☐ Is the order of the data in CORREL such that a vernier is done on the data with the best time resolution?

2. For Konus events

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

2. For Odyssey events

- ☐ Was CHECKMO run to eliminate data gaps?
- ☐ Did the Odyssey ephemeris correspond to the event time? (When there is data in the database, the ephemeris is for the start of record, usually ~ 1320 s prior to the request time; when there is no data in the database, the ephemeris is for the request time in the e-mail, so the request time in mosearch should be equal to the GRB time. Note that the time in the return e-mail will be ~ 1320 s prior to the time requested, in the line "no HEND data...")
- ☐ Was Mars-blocking used?
- ☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)
- ☐ GRS database searched for triggered data? Database data between August 2005 and January 2006 should be re-extracted, due to timing errors. (E-mailed data should be OK).
- ☐ GRS and HEND data cross-correlated to check timing?

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

- ☐ INTEGRAL SPI-ACS website checked for bursts that weren't transmitted automatically?
- ☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?
- ☐ Updated ephemeris used for bursts prior to September 30, 2003?

☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

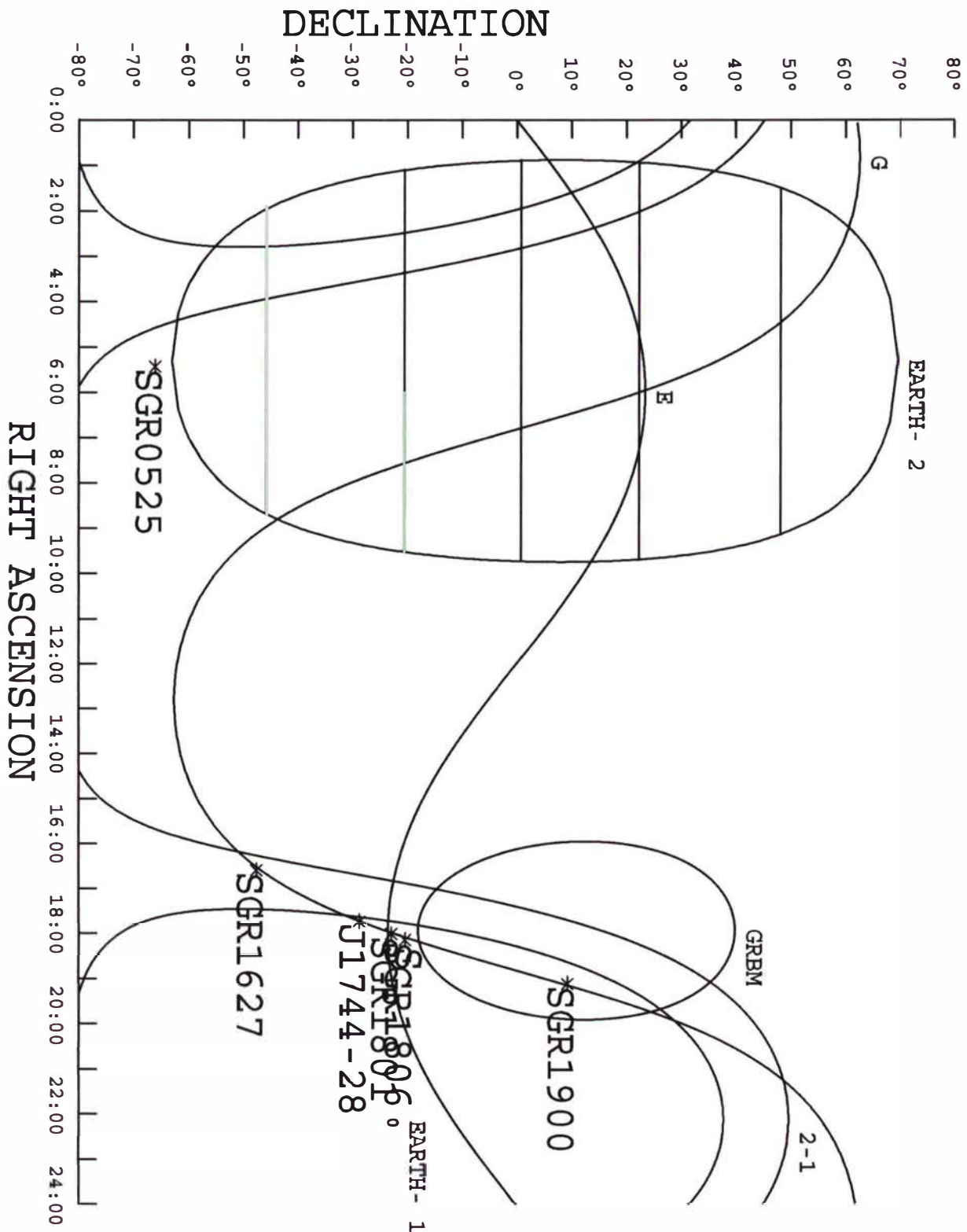
G=GALACTIC EQUATOR

1 KONUS2

2 SAX

EVENT OF DEC 26, 1999 23:08

11 / 7 / 7



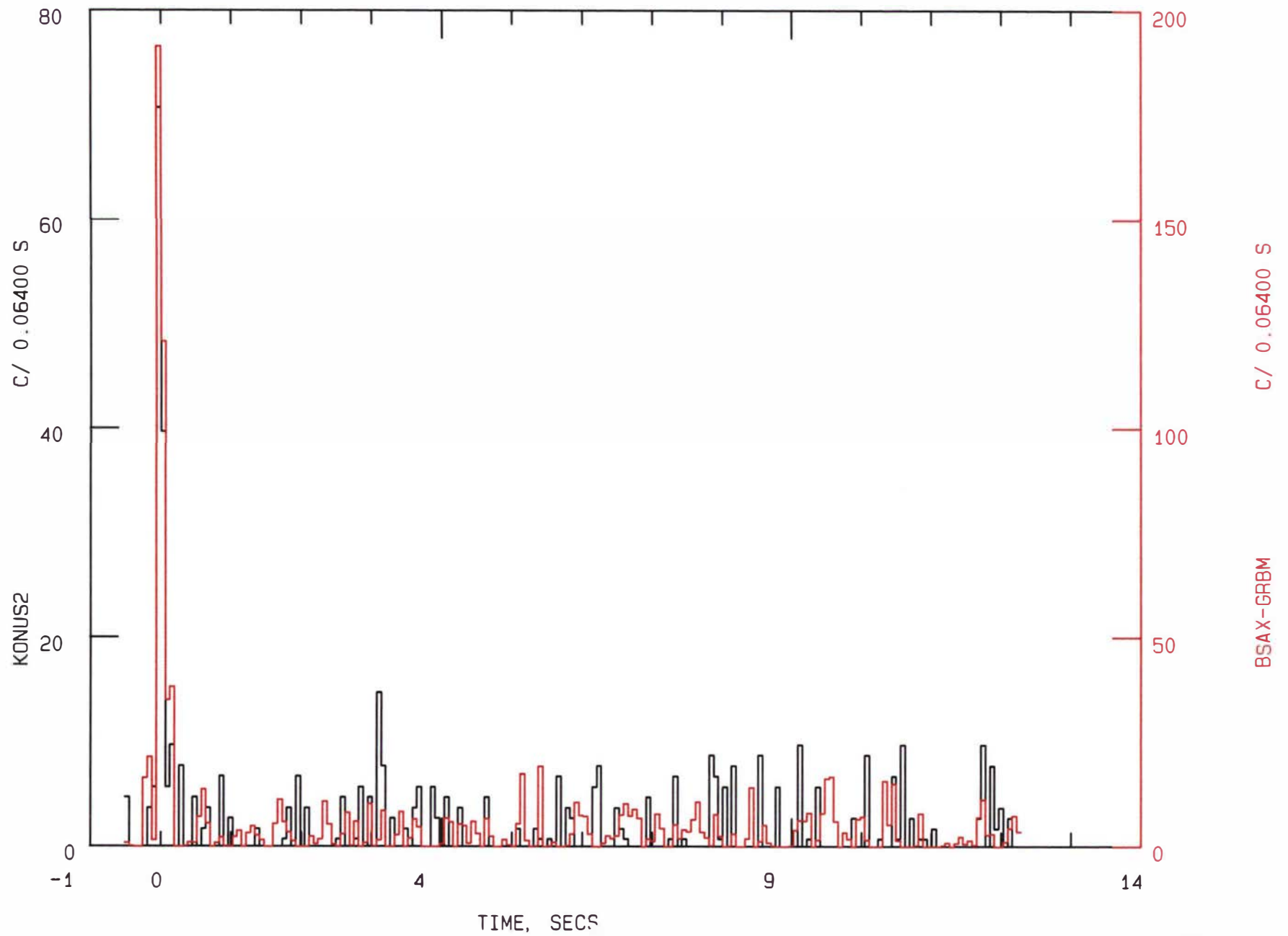
KONUS2

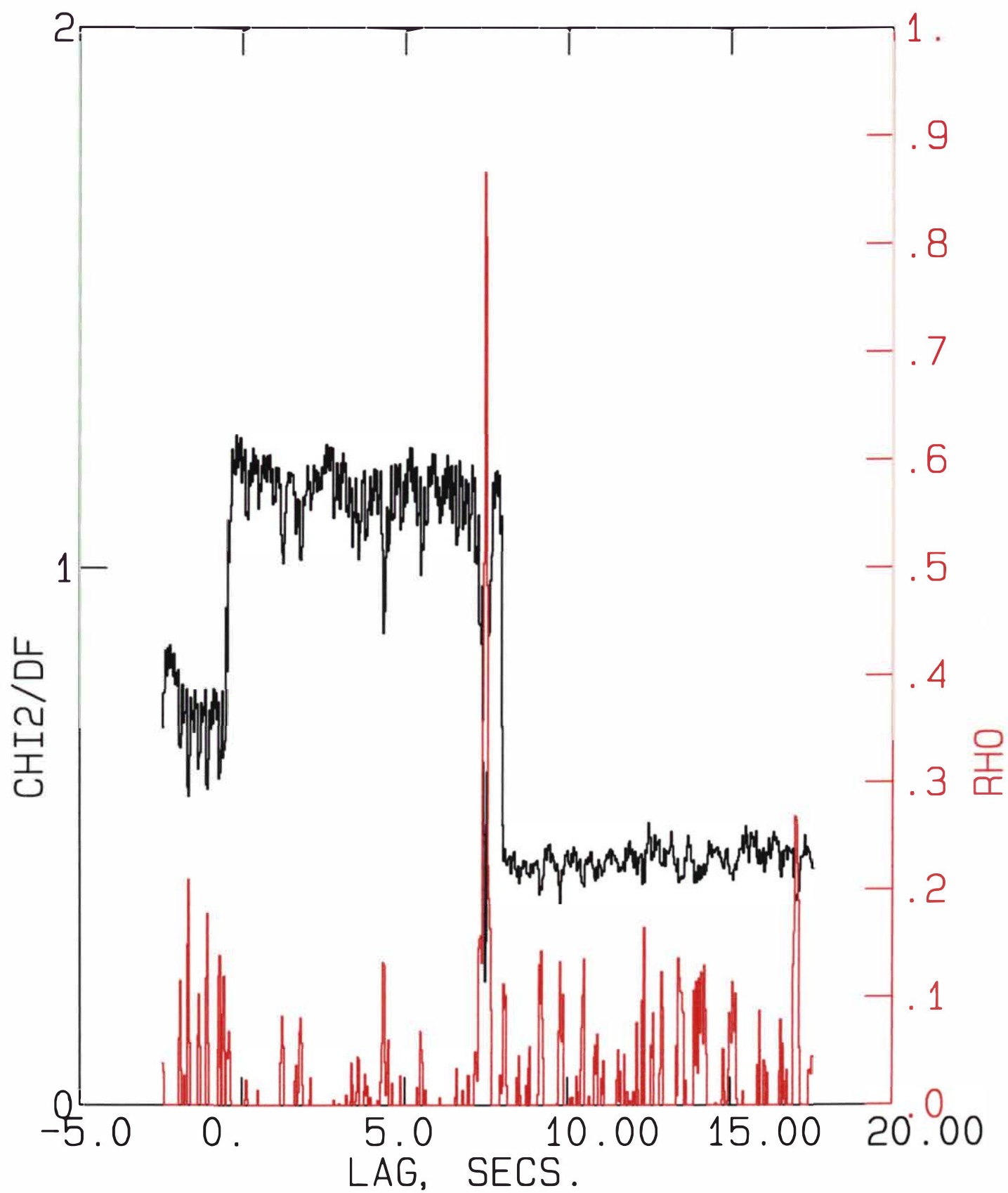
-BSAX-GRBM CORRELATION

26/12/99

83339.767

11/ 7/ 7

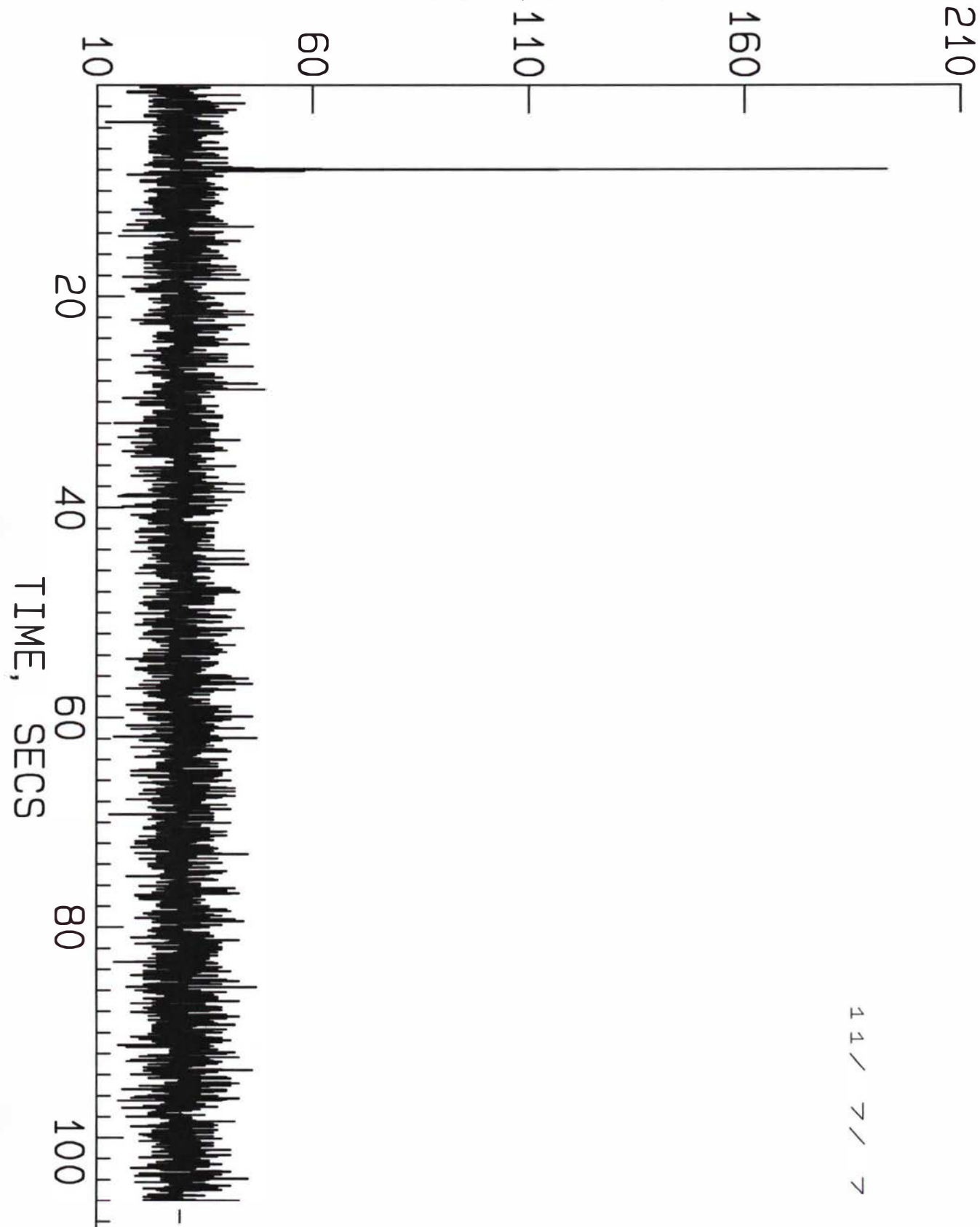




SAX GRBM

26/12/99 83331.258
40- 700 keV

COUNTS/0.031 S



11 / 7 / 7

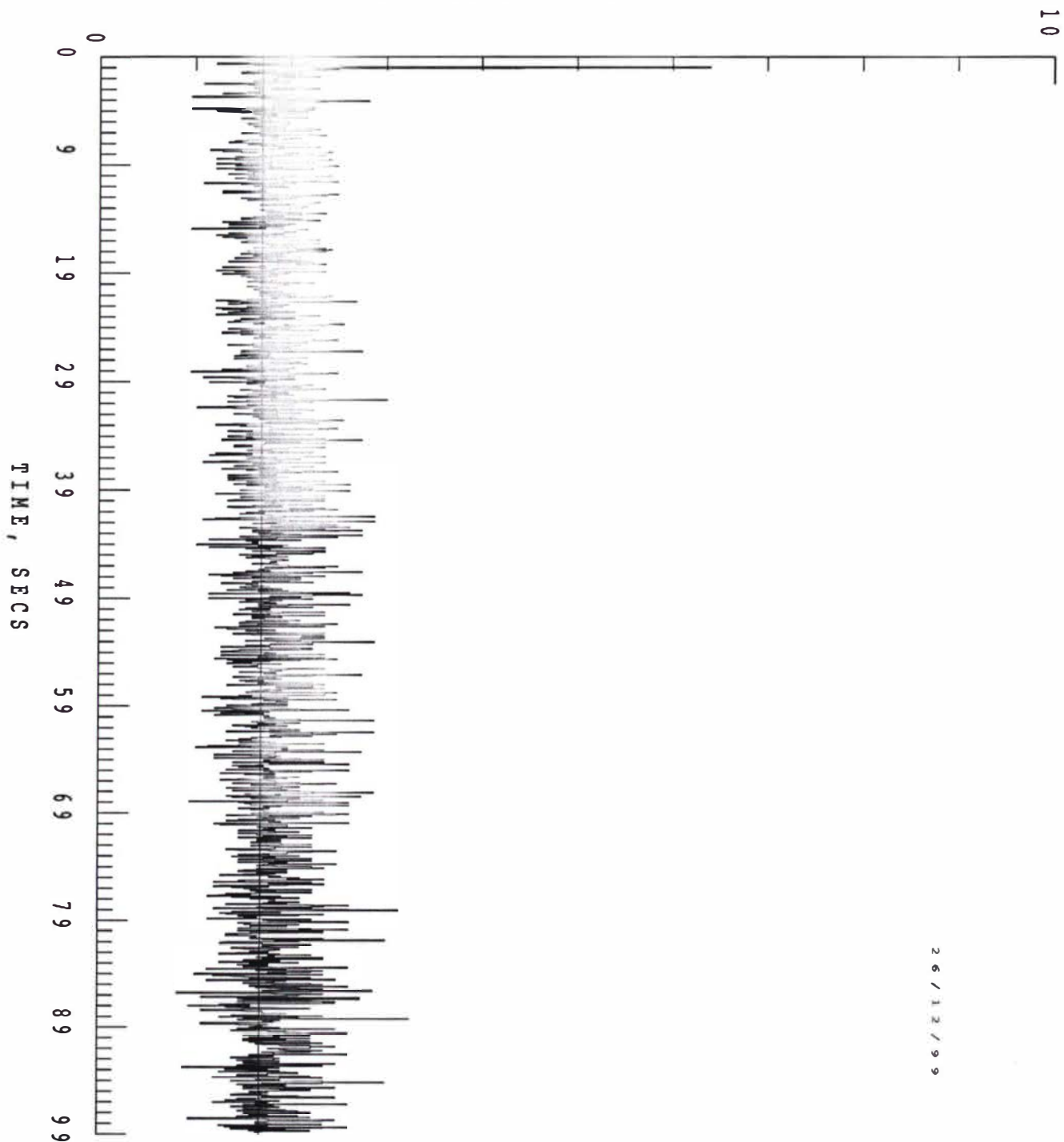
KONUS

26/12/99

83339.767

50 - 200 keV

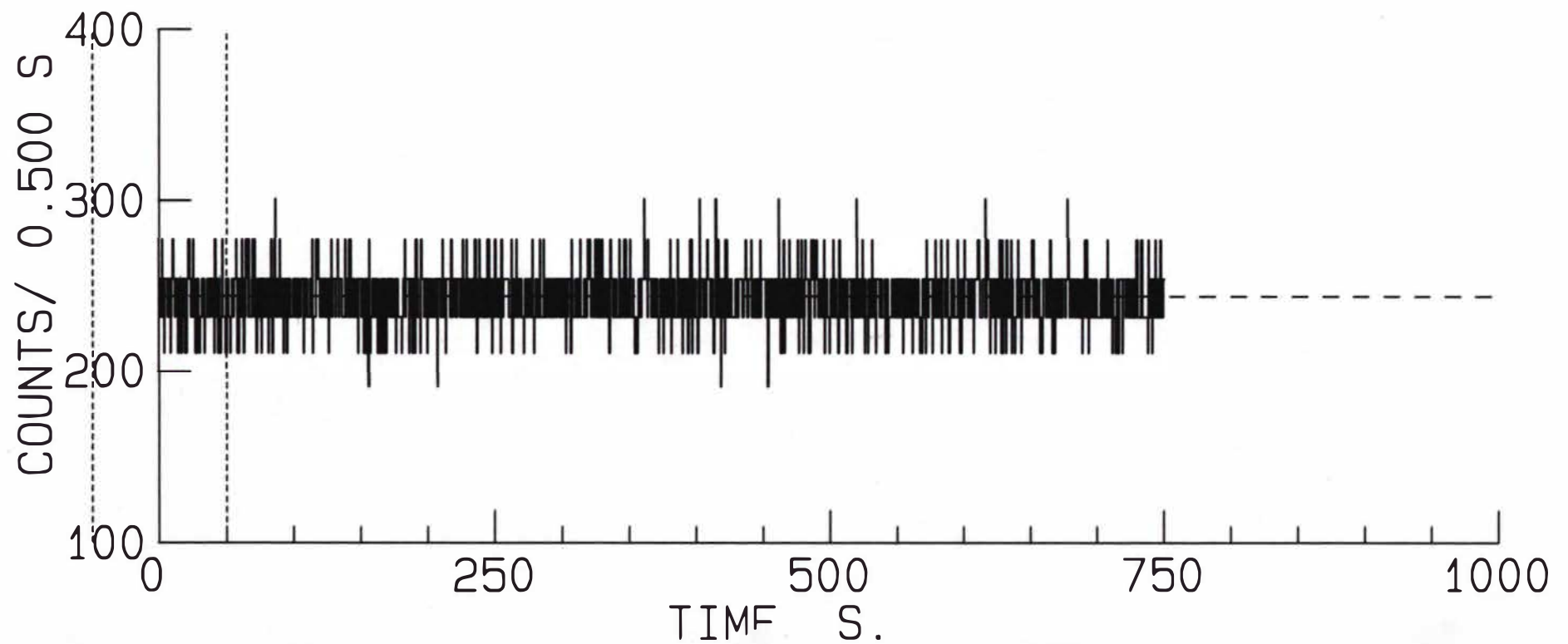
COUNTS/0.064 S



26/12/99

ULYSSES RT
26/12/99 81288.016 s
22- 150 keV

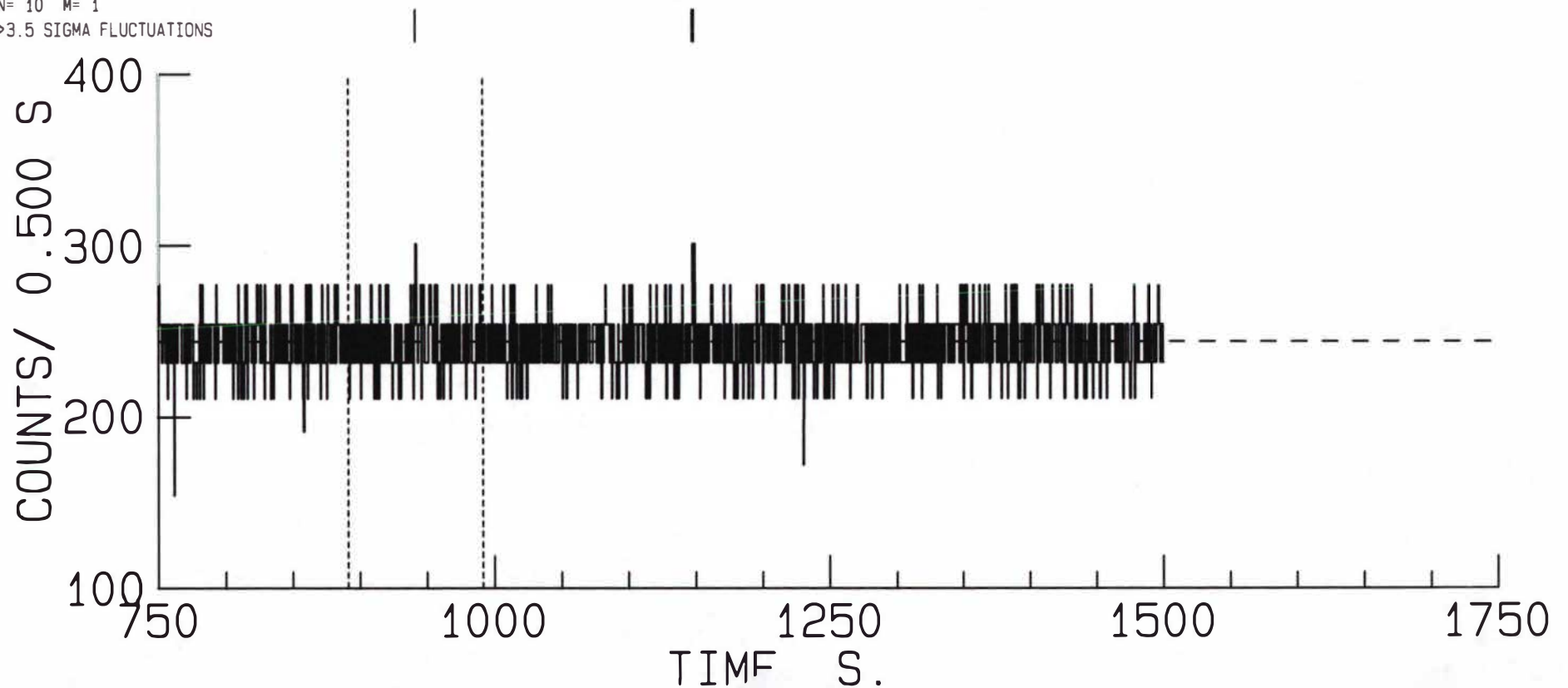
28/12/99



ULYSSES RT
26/12/99 81288.016 s
22- 150 keV

28/12/99

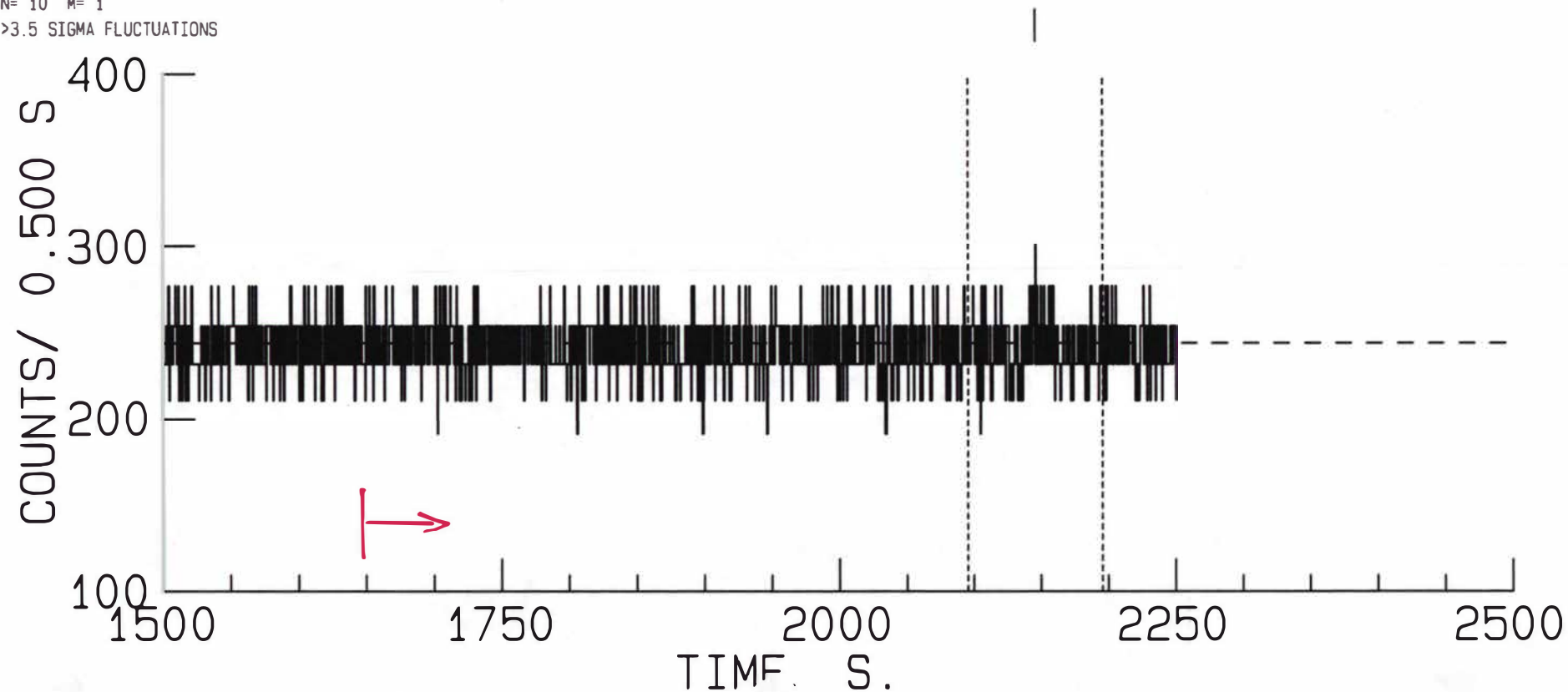
N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS



ULYSSES RT
26/12/99 81288.016 s
22- 150 keV

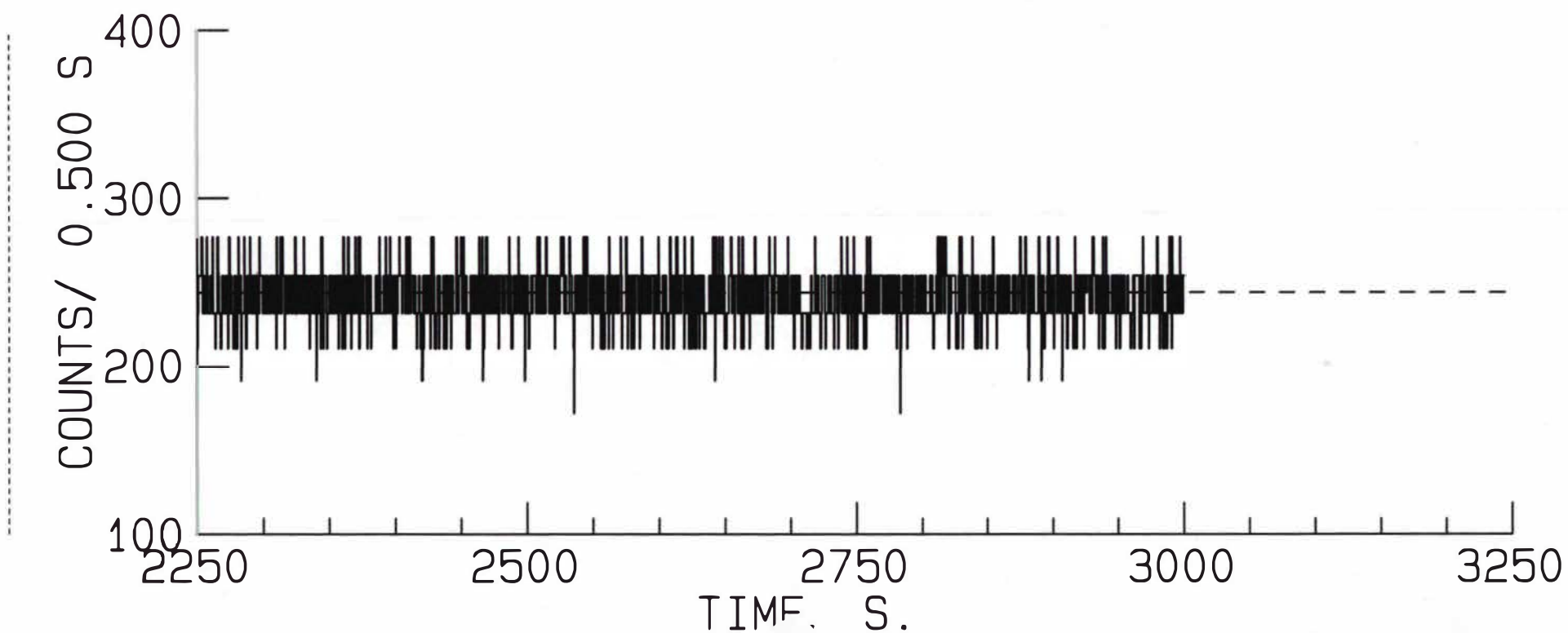
28/12/99

N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS



ULYSSES RT
26/12/99 81288.016 s
22- 150 keV

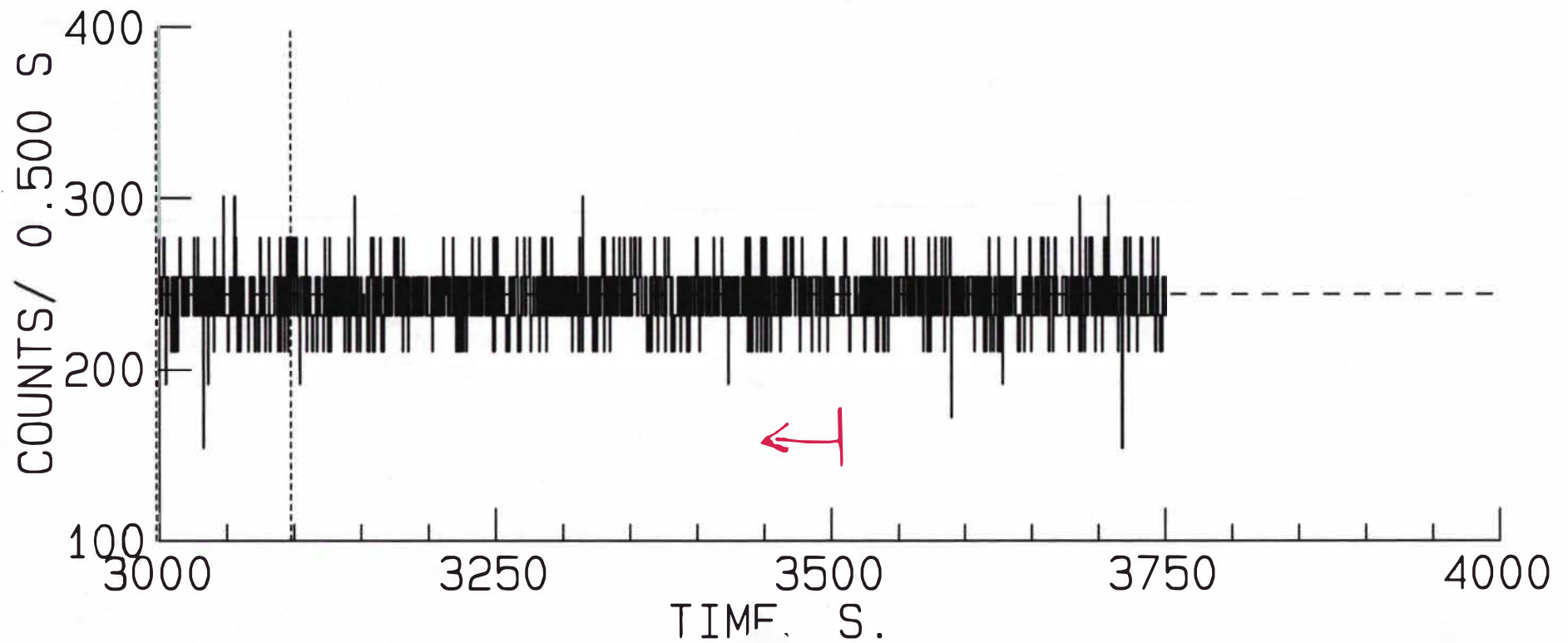
28/12/99



ULYSSES RT
26/12/99 81288.016 s
22- 150 keV

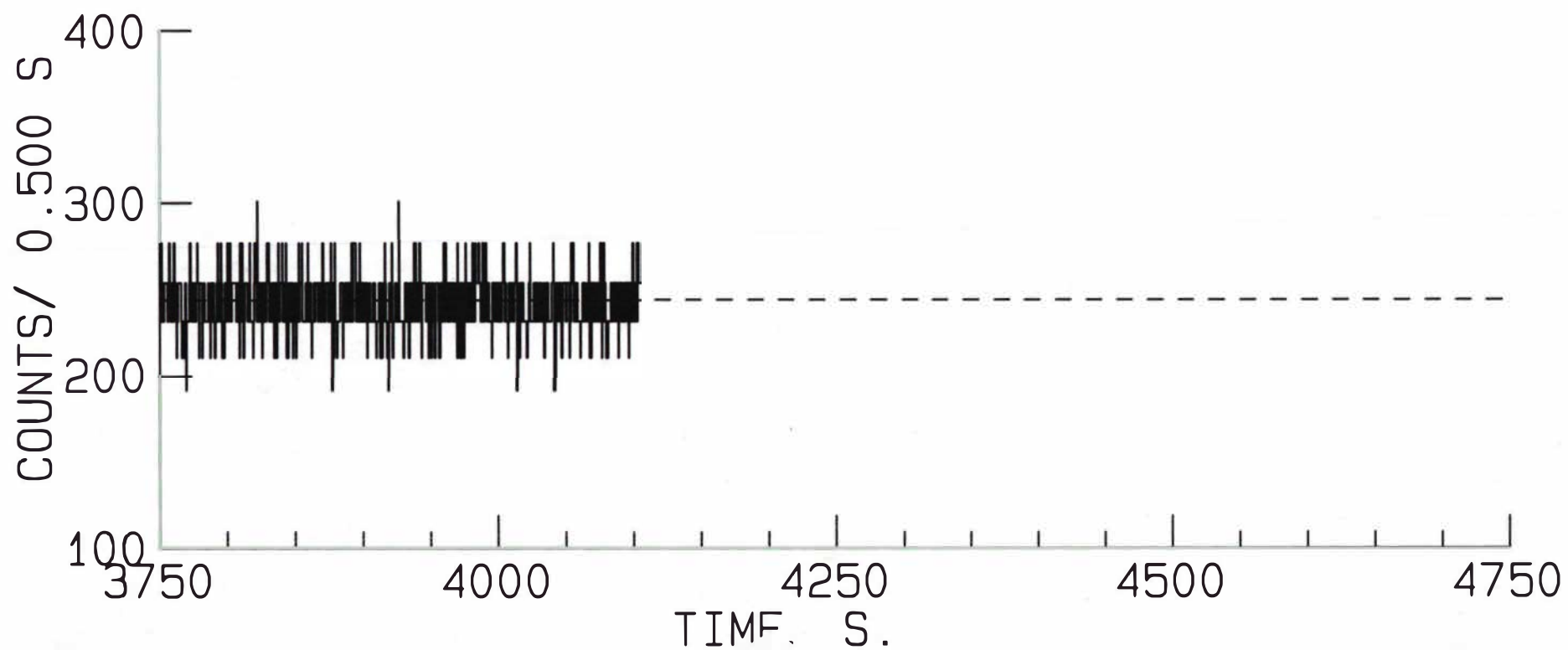
28/12/99

N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS |

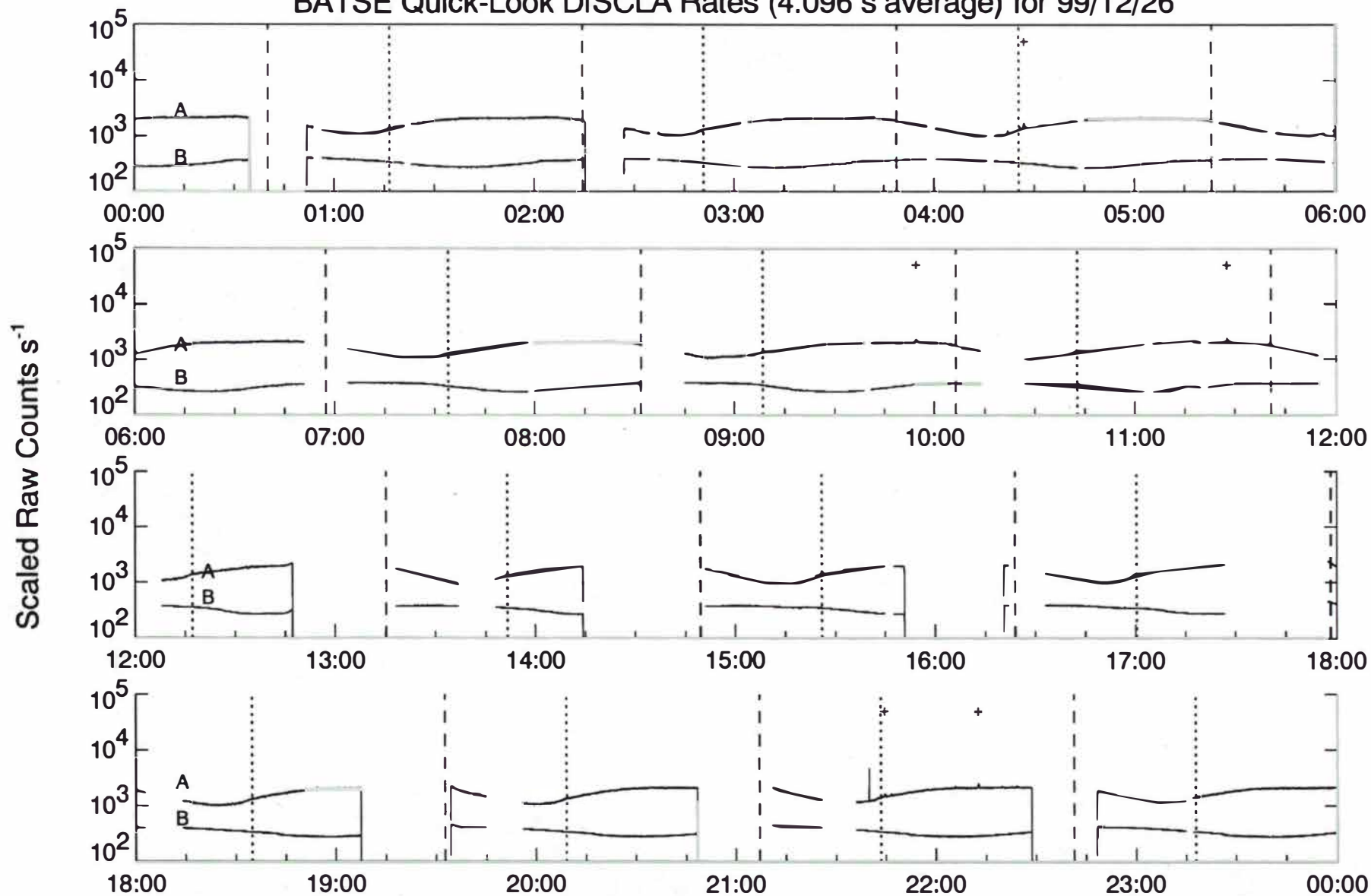


ULYSSES RT
26/12/99 81288.016 s
22- 150 keV

28/12/99



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/26

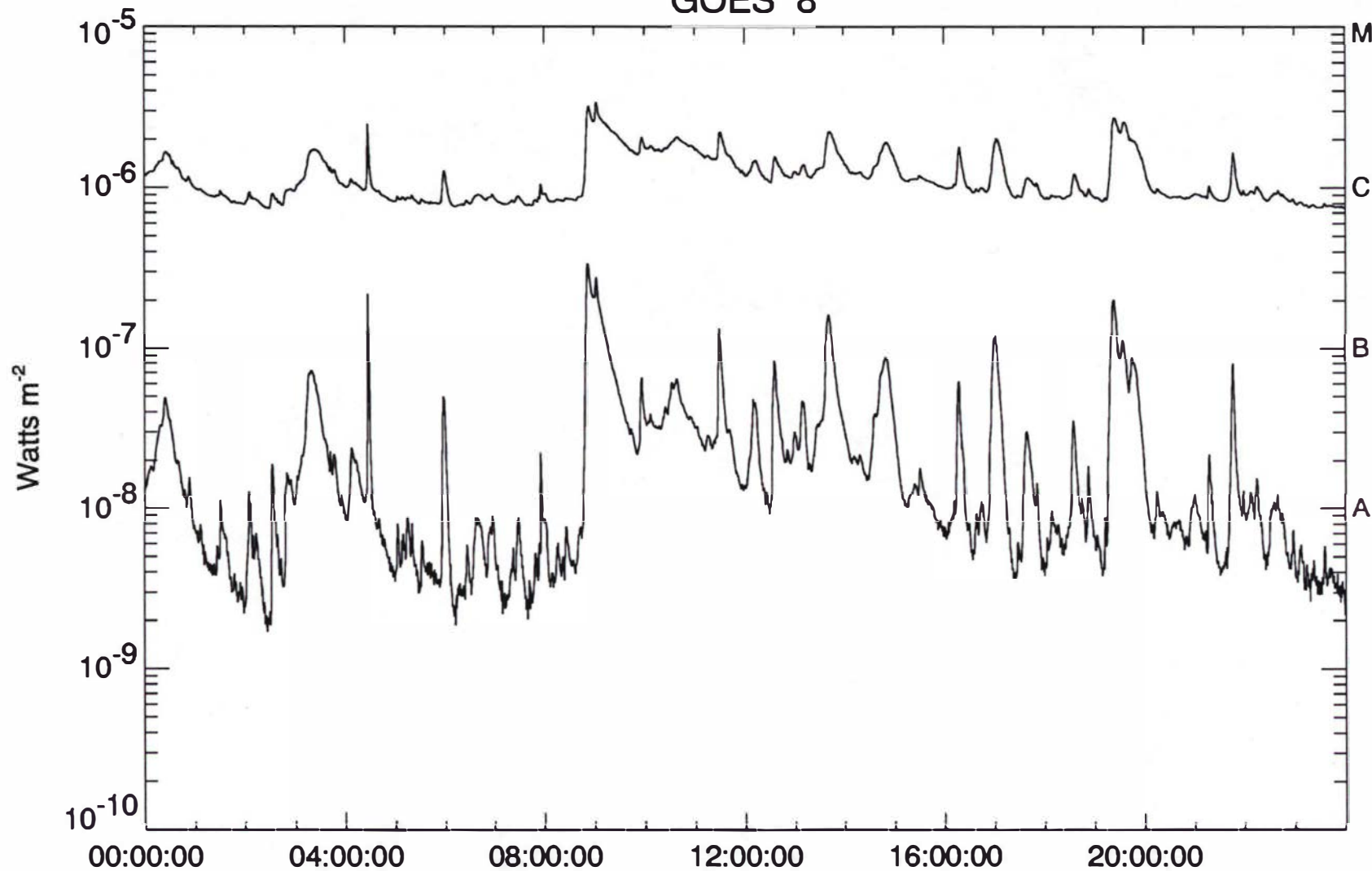


Current Time: 99/12/30, 1007 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 99/12/26, 0000:00

Plot created: 99/12/30, 1007

Channel

1 (1.0 - 8.0 Angstroms)

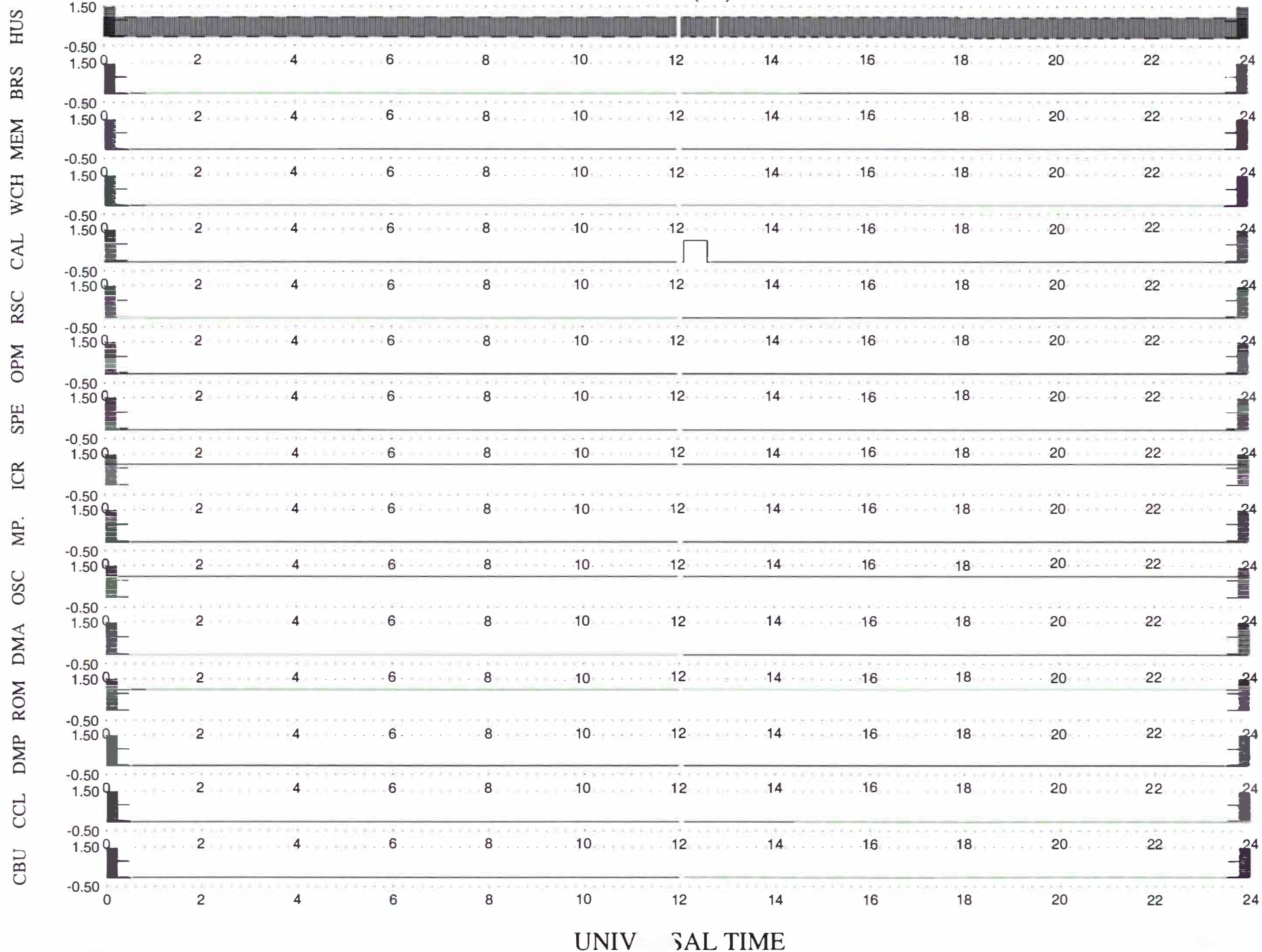
Background not subtracted

2 (0.5 - 4.0 Angstroms)

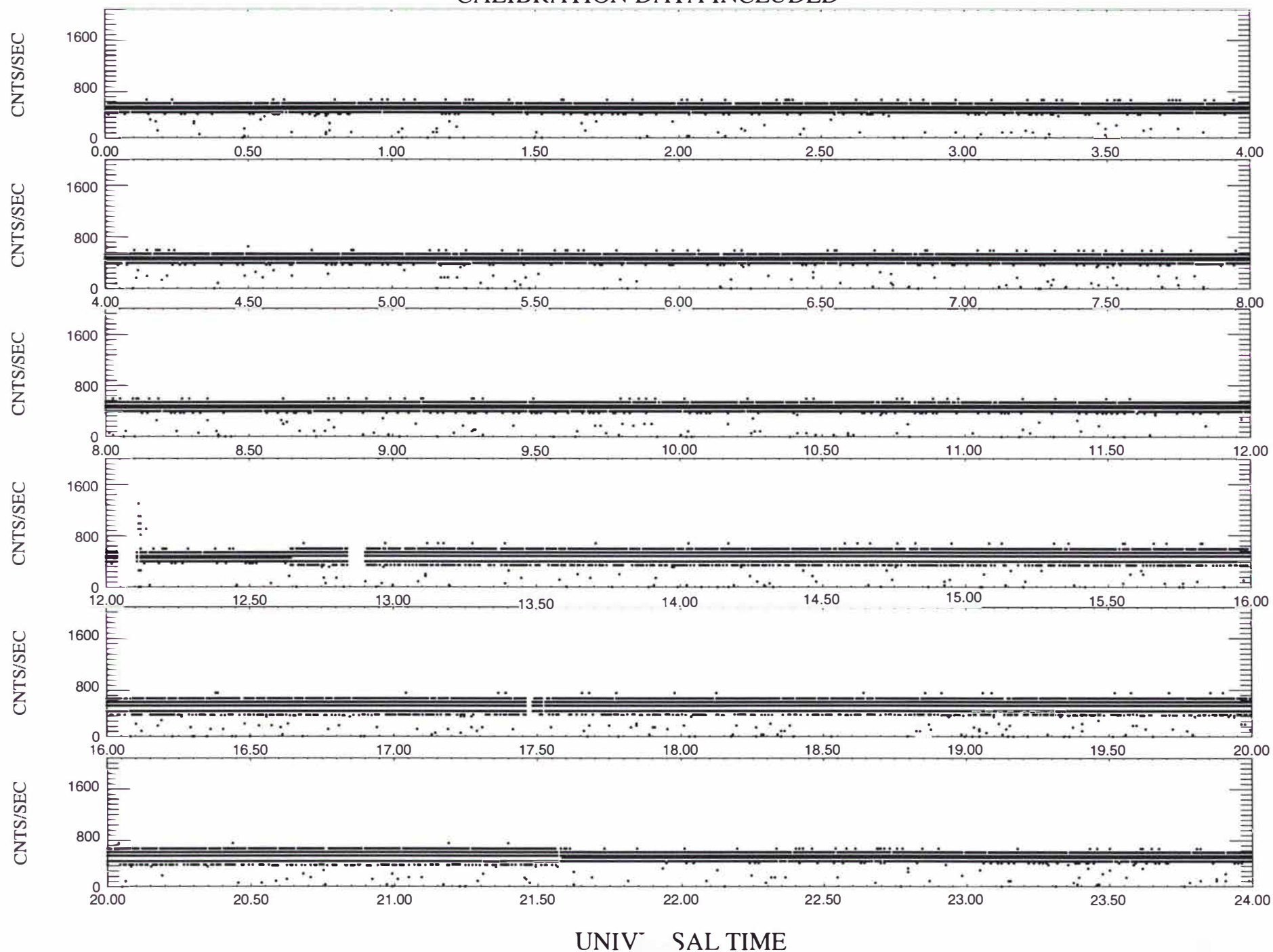
Background not subtracted

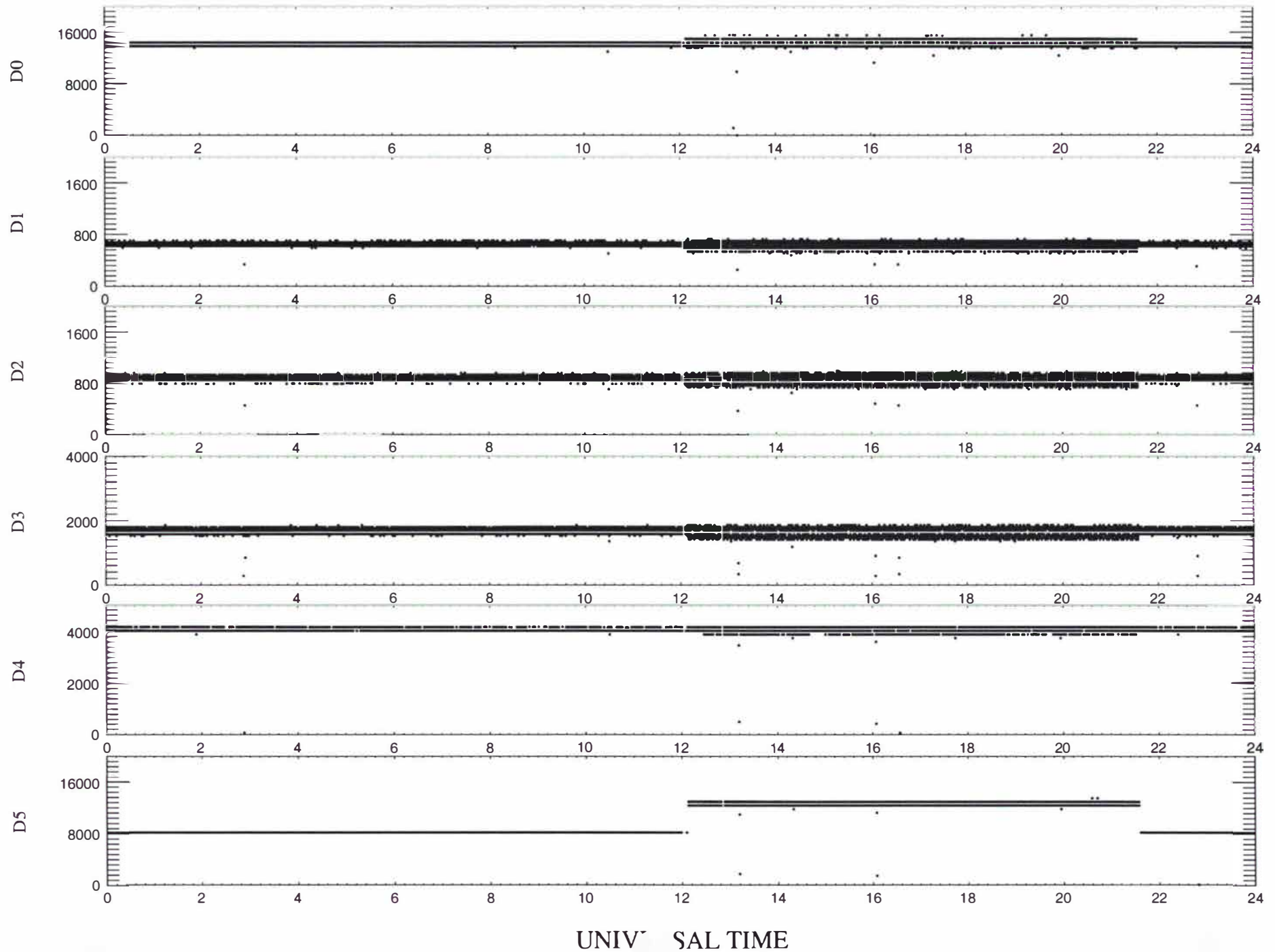
Sample average = 10

NO BURST (12)



CALIBRATION DATA INCLUDED





From RICHARDSON@fender.msfc.nasa.gov Thu Dec 30 10:01 PST 1999

From: RICHARDSON@fender.msfc.nasa.gov

Date: Thu, 30 Dec 1999 12:02:54 -0600 (CST)

To: burst@comptel.sr.unh.edu, grobad@ests2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7919

TIME: TJD=1539 SECONDS=6493

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=137.1 AZIMUTH=310.5 ERROR=1.6 DEGREES

COMMENTS:

SOLAR FLARE, GOES M1.0, OPTICAL 1N.

LOTS OF STRUCTURE, EVENT CONTINUES INTO SAA. DURATION AT LEAST 120 SEC.

MARGINALLY VISIBLE ABOVE 100KEV.

KONUS

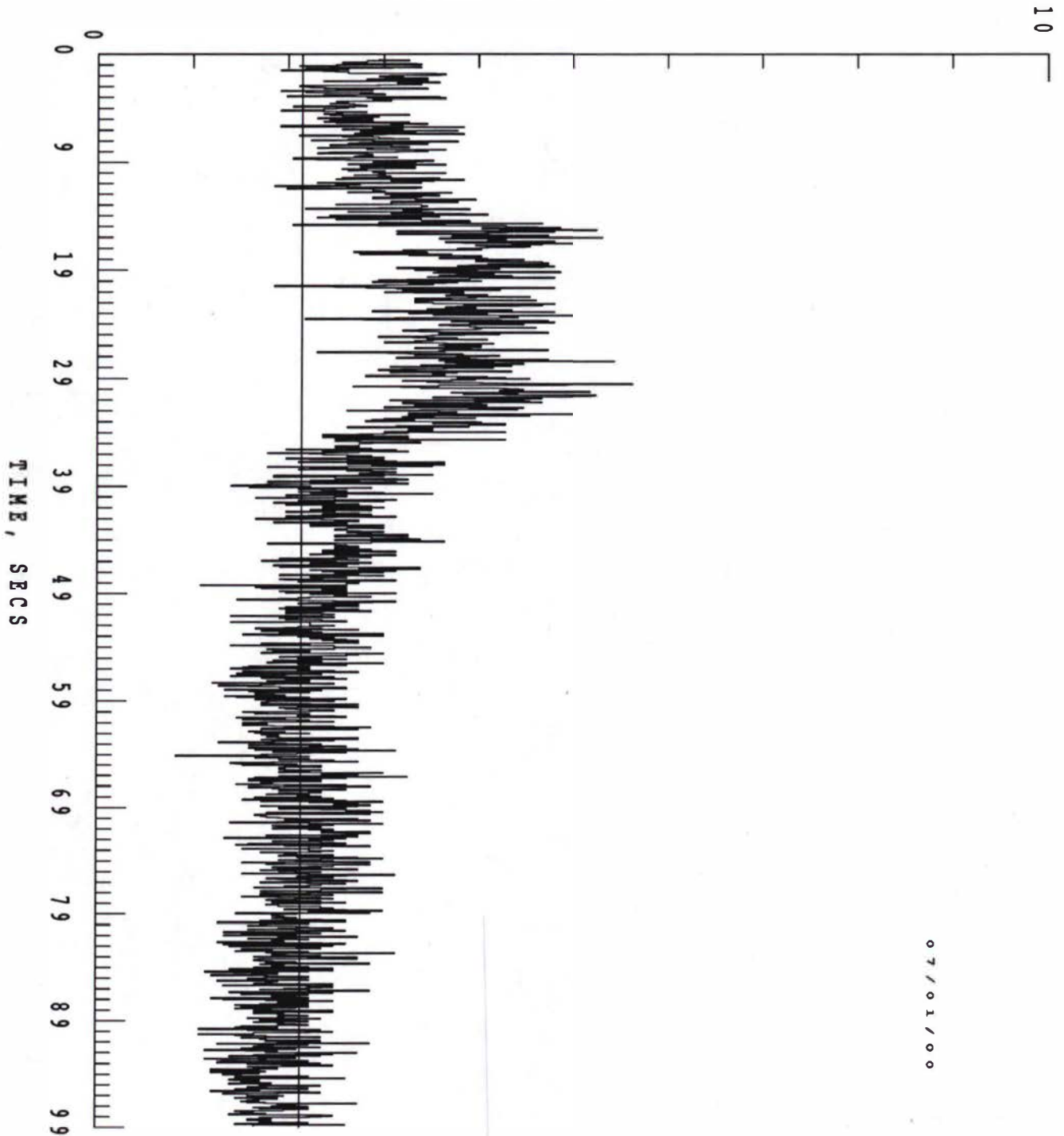
27/12/99

6585.858

50 - 200 keV

Solar - BATSE 7919

COUNTS/0.064 S



KONUS1 19991227 06585

ULYSSES RT

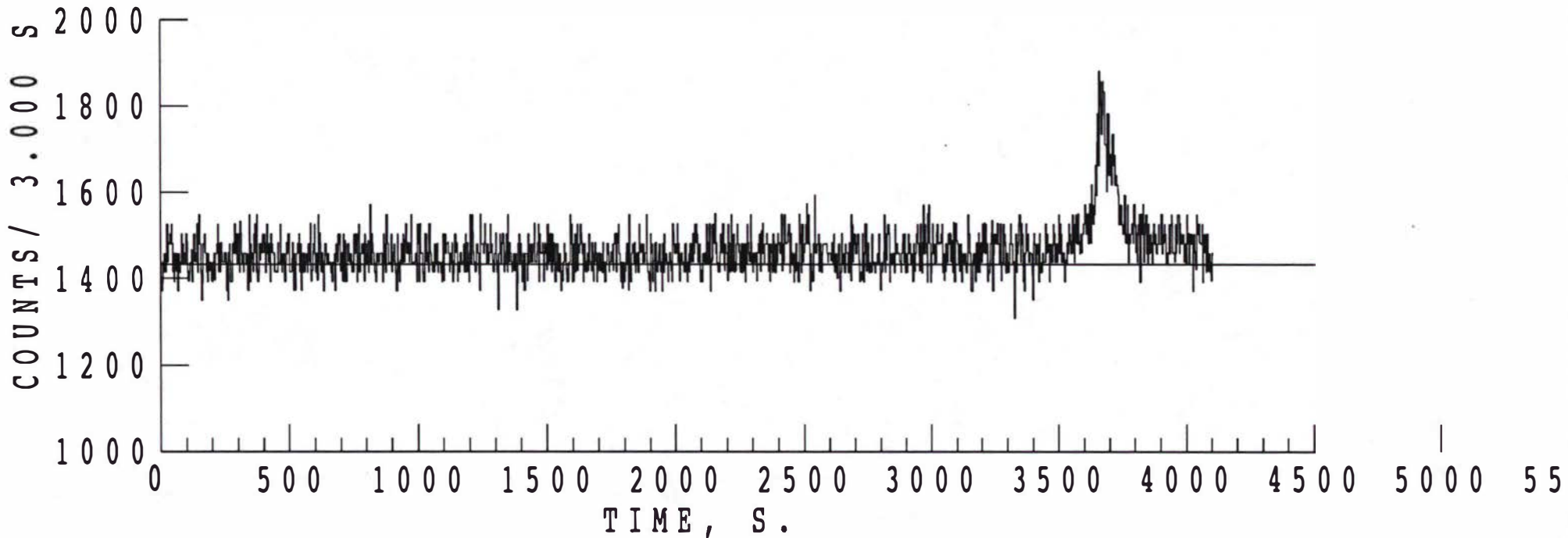
28 / 12 / 99

27 / 12 / 99 4536.129 s

0.500 S INTERVALS REGROUPED BY 6

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@fender.msfc.nasa.gov Thu Dec 30 10:04 PST 1999

From: RICHARDSON@fender.msfc.nasa.gov

Date: Thu, 30 Dec 1999 12:05:54 -0600 (CST)

\: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7920

TIME: TJD=1539 SECONDS=43201

TYPE: FLARE

SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=132.4 AZIMUTH=309.5 ERROR=0.5 DEGREES

COMMENTS:

SOLAR FLARE, GOES M2.0, OPTICAL SN.

SEVERAL PULSES WITH LOTS OF STRUCTURE. EMISSION BEGINS AT APPROX. T-150 SEC.

PEAK IS AT APPRO. T+15 SEC. TOTAL DURATION APPROX. = 630 SEC.

NOT VISIBLE ABOVE 300KEV.

KONUS RI

ULYSSES RT

05 / 06 / 00

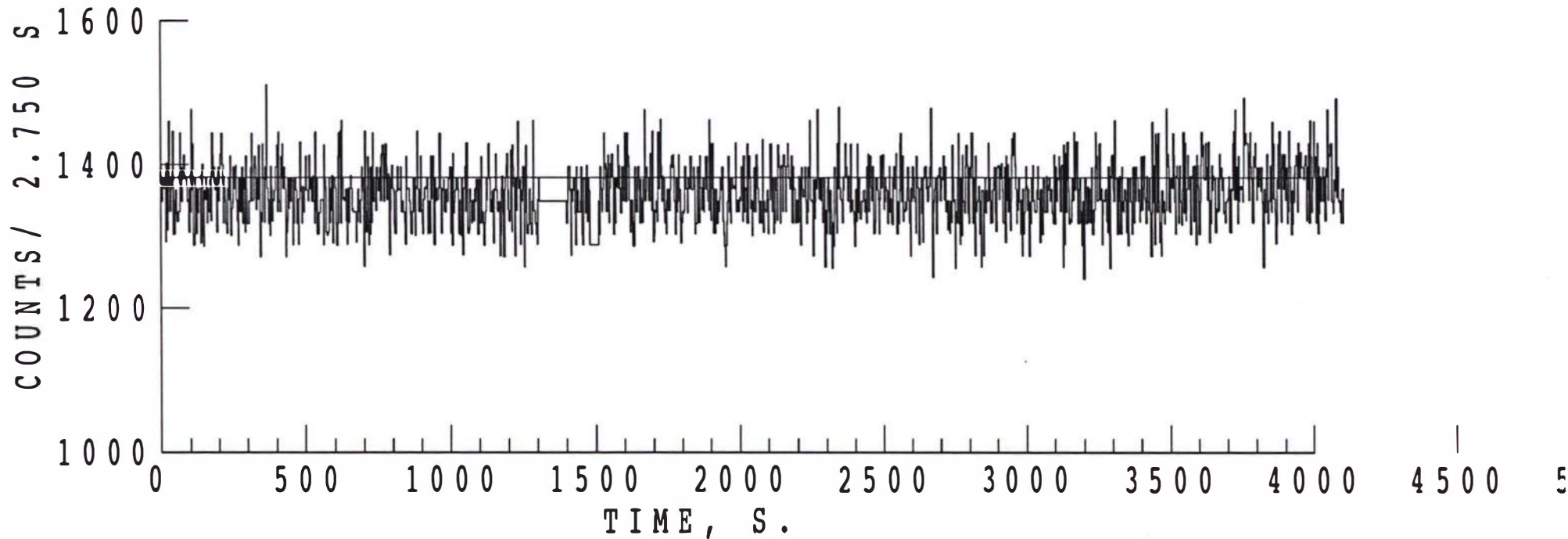
27 / 12 / 99 54036.145 s

0.250 S INTERVALS REGROUPED BY 11

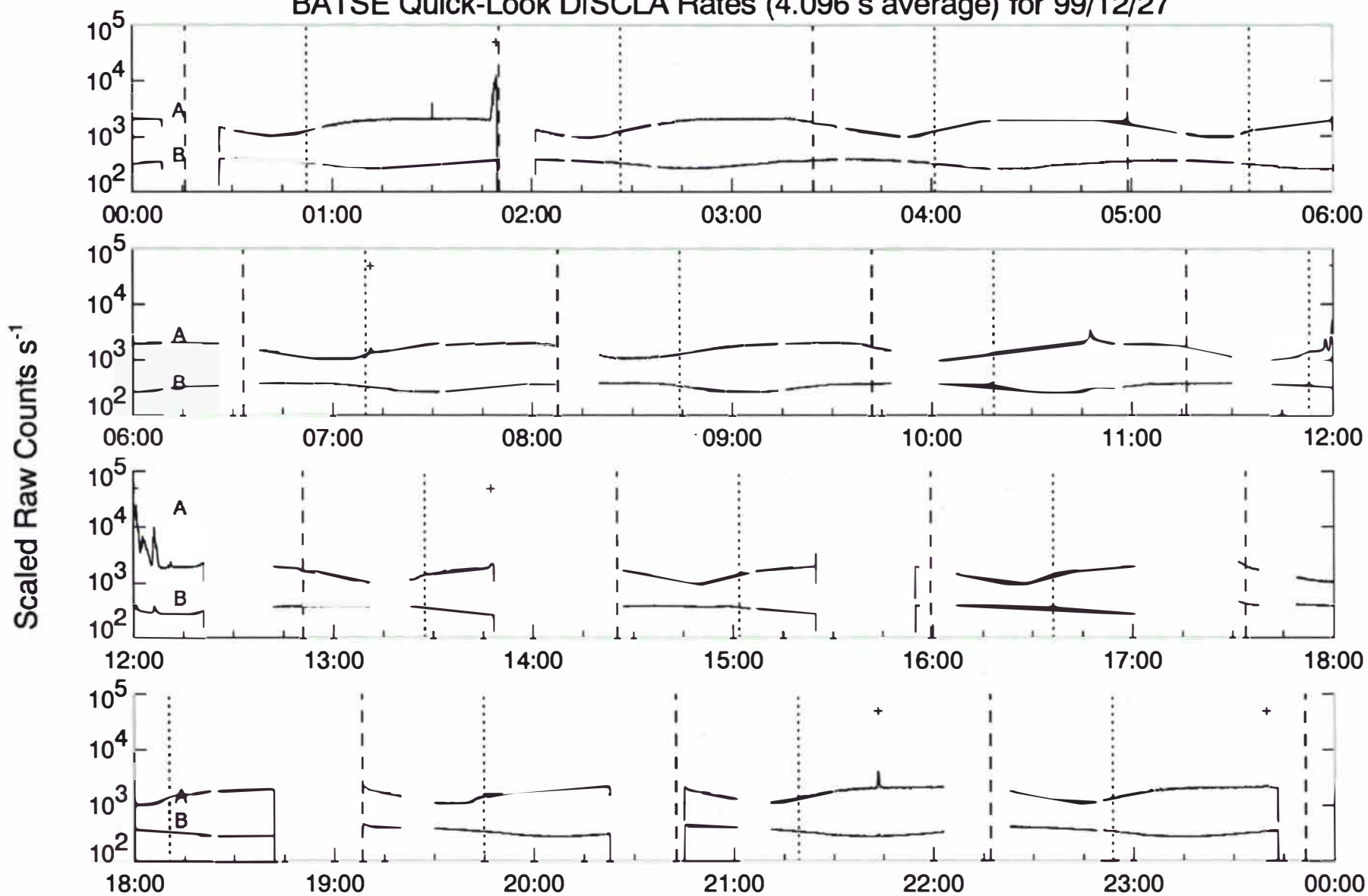
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/27



Current Time: 99/12/31, 1007 EDT

A: Channel 0 Most Sunward LAD

B: Sum Channel 0 Anti-Sunward LADs X .05

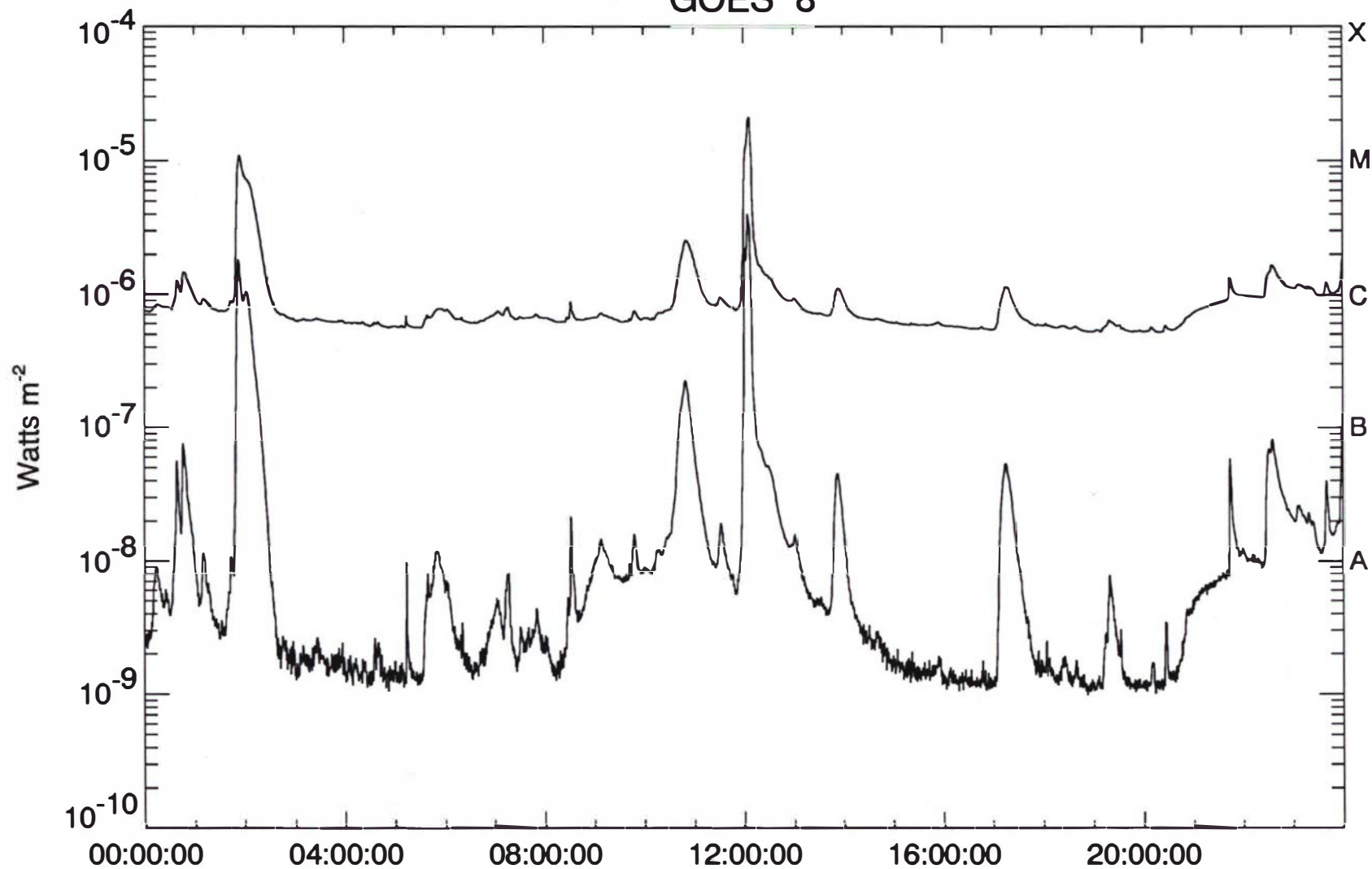
Dotted line: Day entry

Dashed line: Night entry

* Solar Burst Trigger

+ Solar Flare

GOES 8



Data Start: 99/12/27, 0000:00

Plot created: 99/12/31, 1007

Channel

1 (1.0 - 8.0 Angstroms)

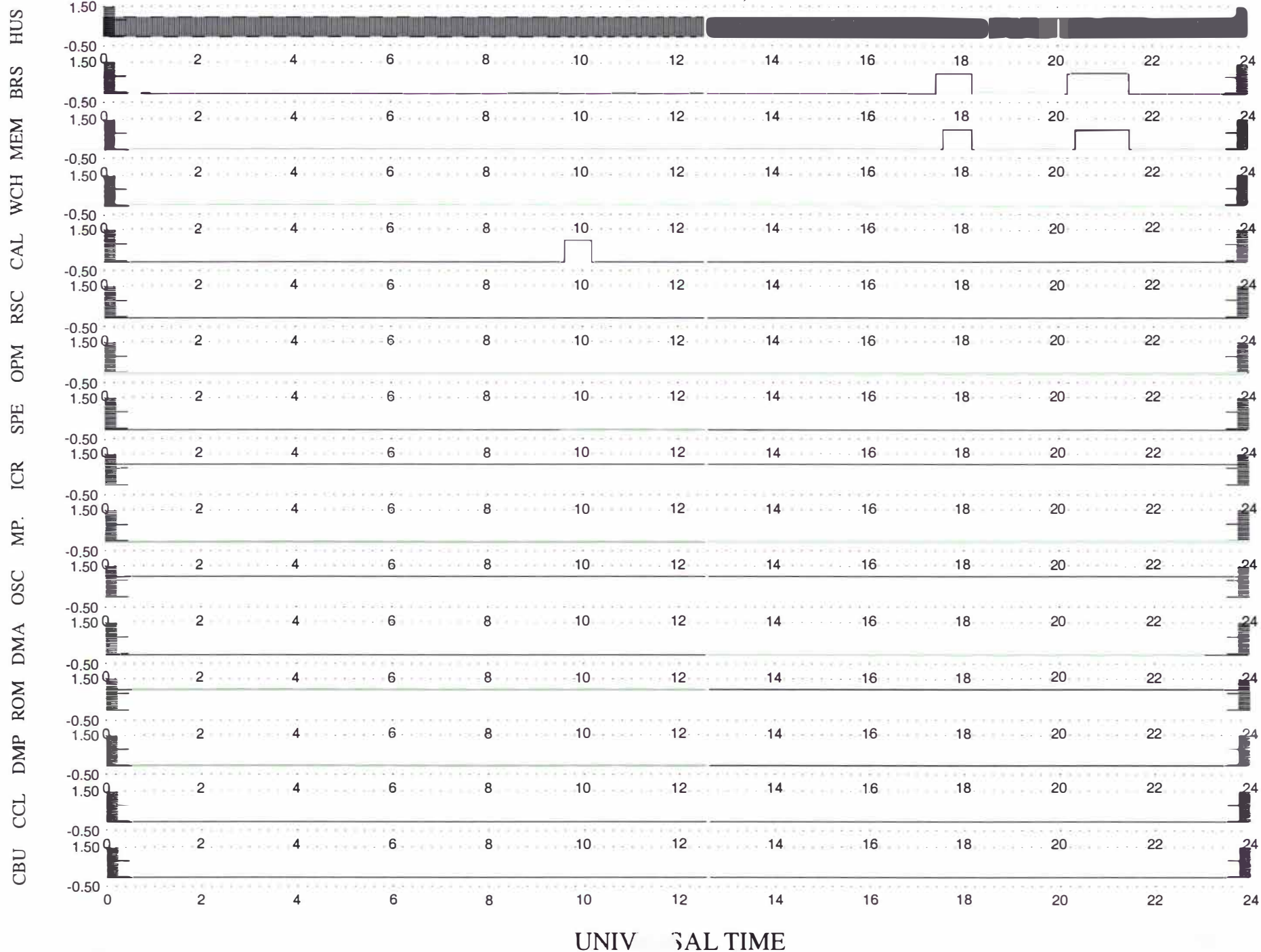
Background not subtracted

2 (0.5 - 4.0 Angstroms)

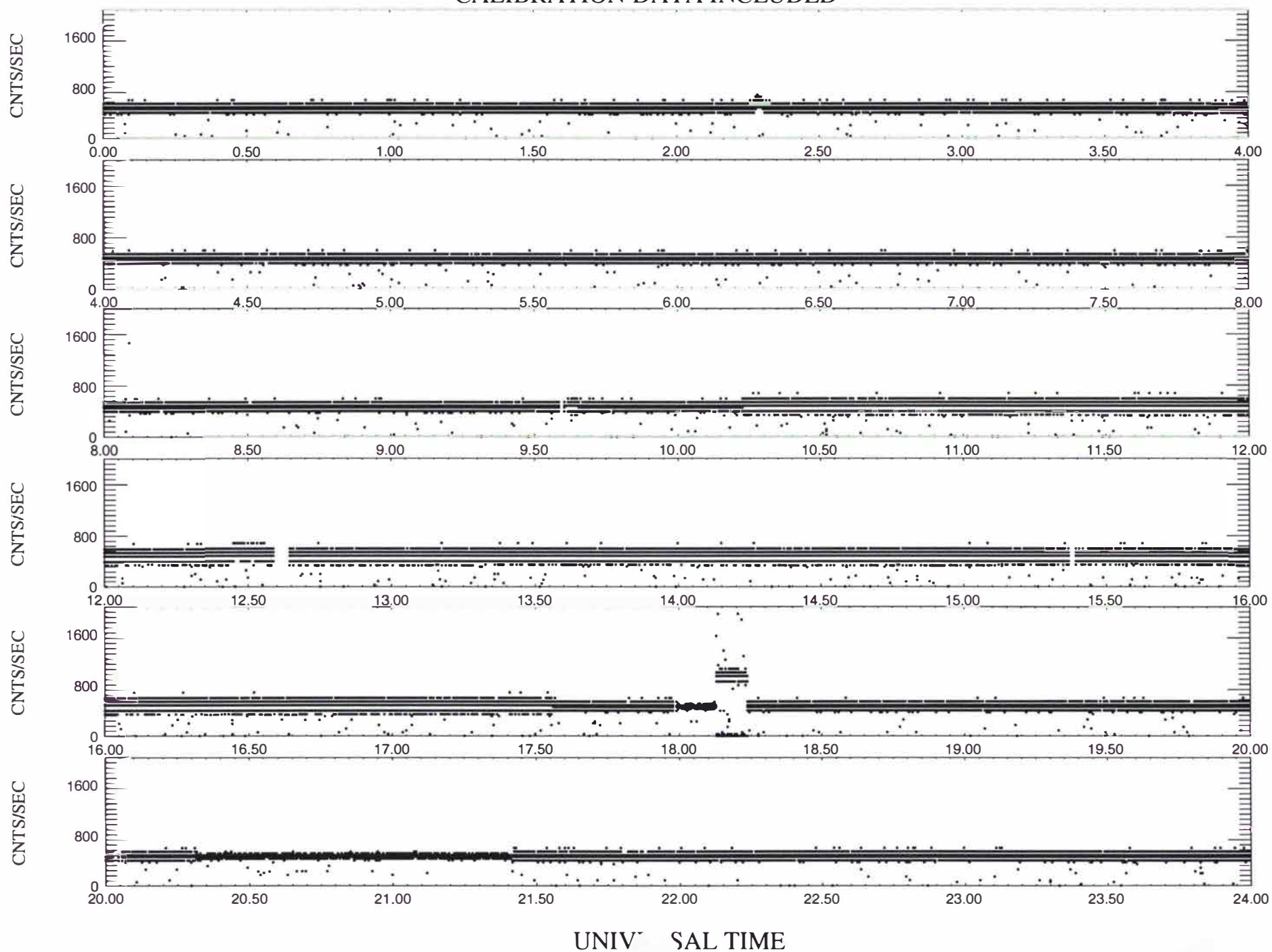
Background not subtracted

Sample average = 10

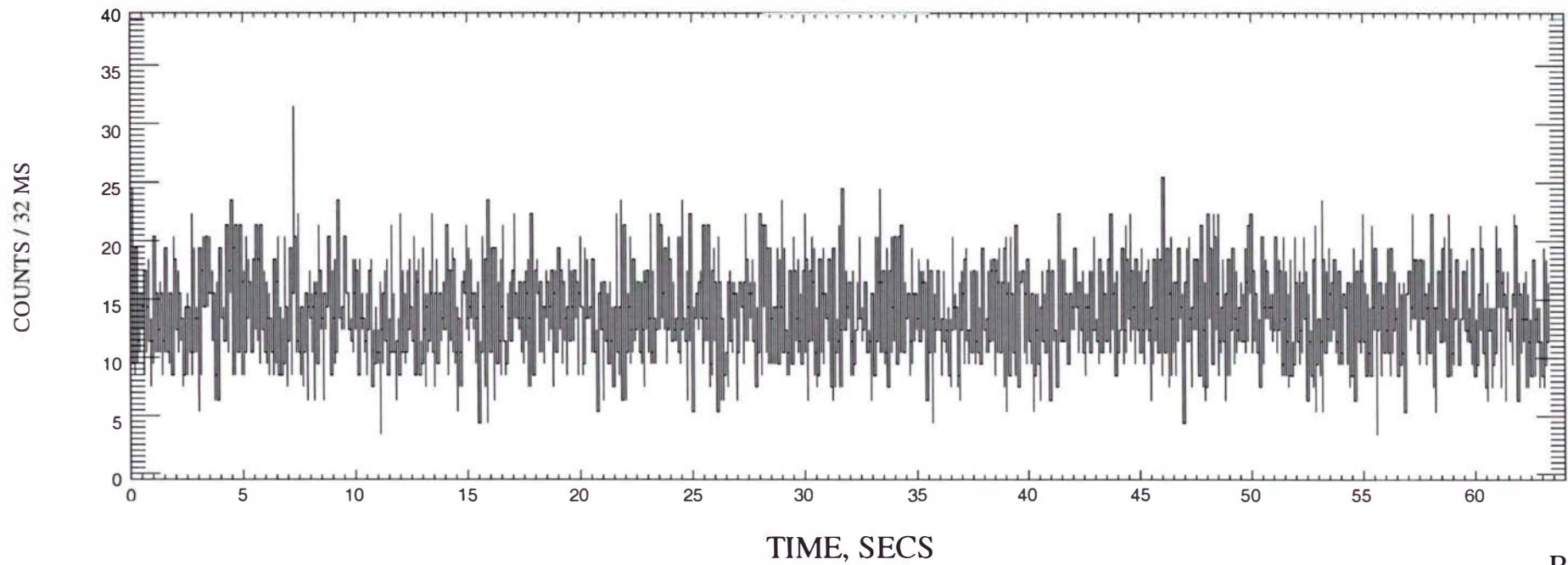
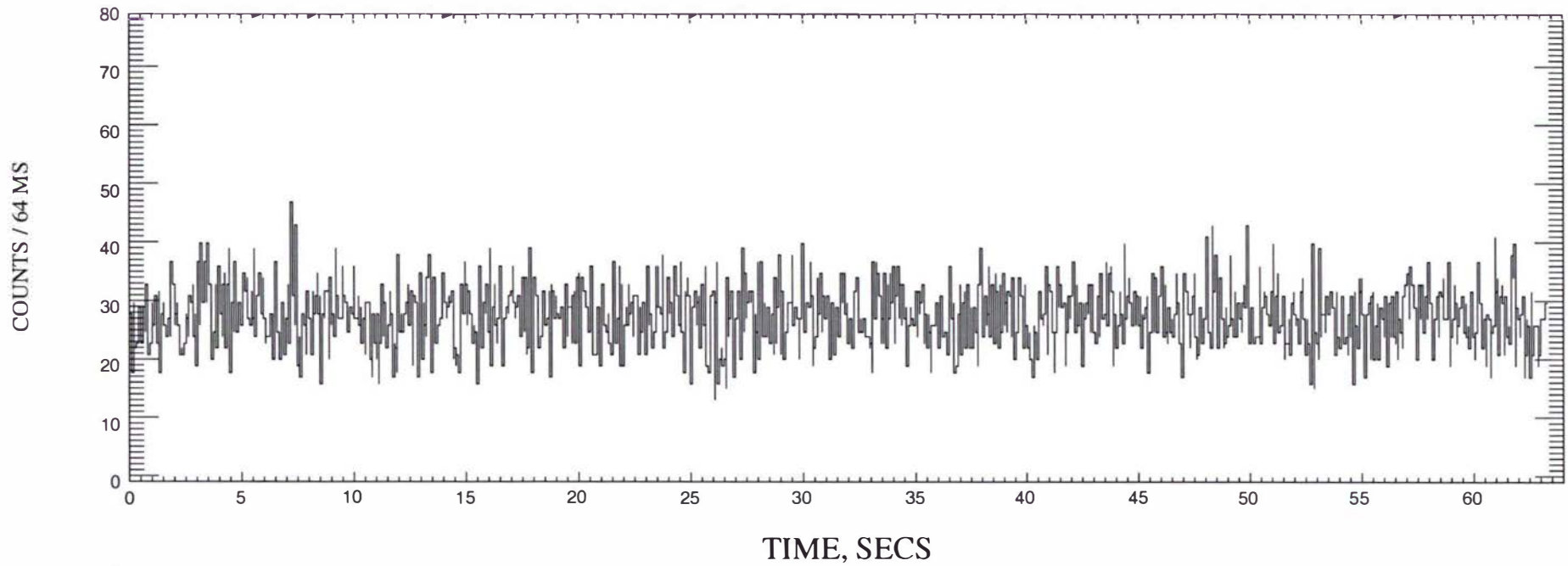
BURST NUMBER 13, 14



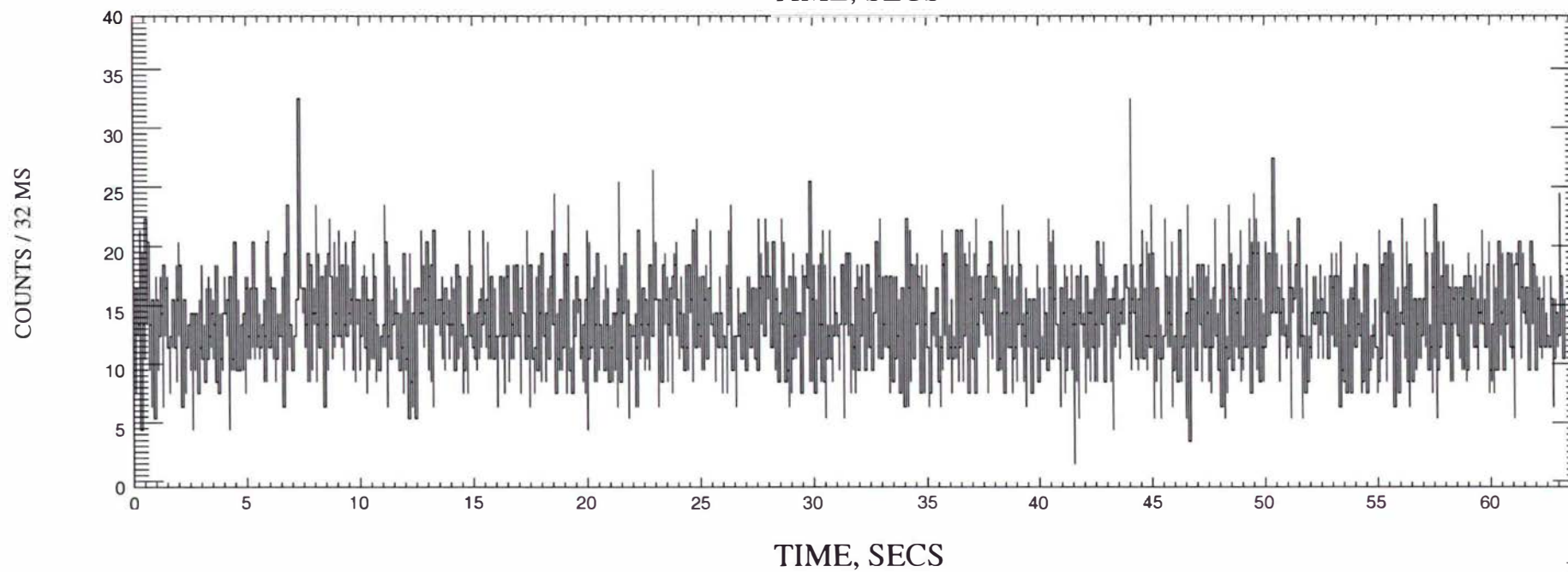
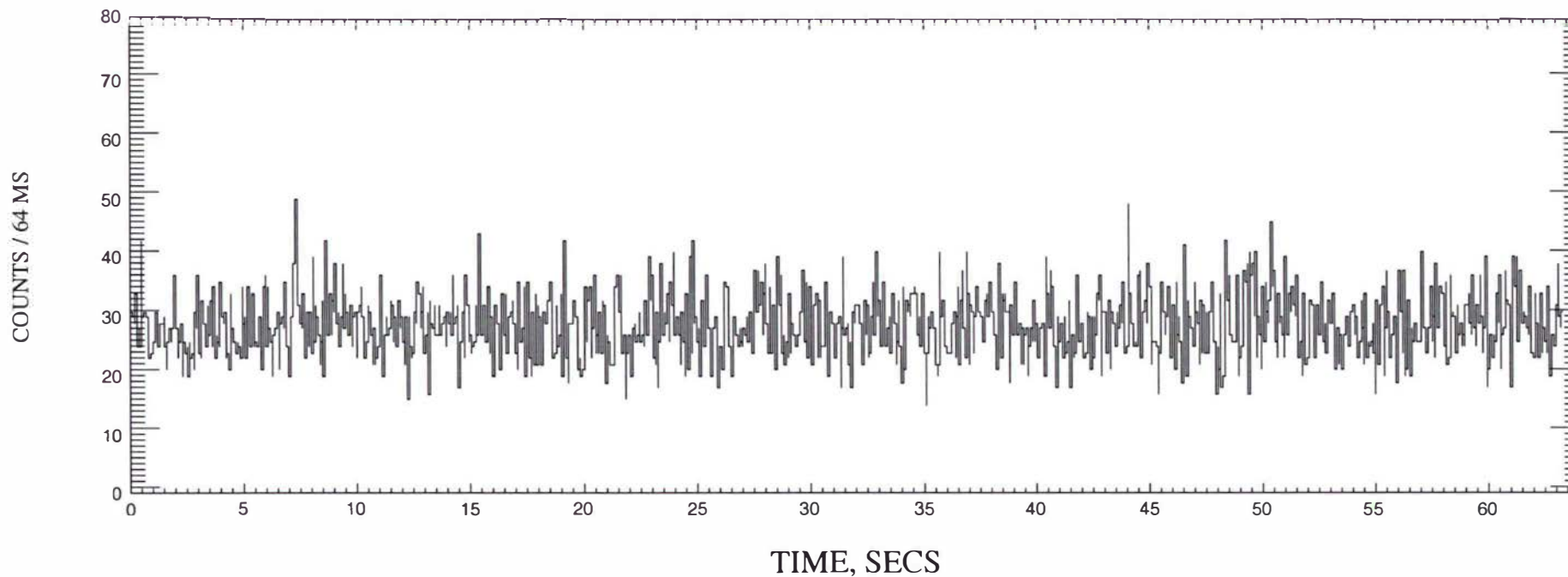
CALIBRATION DATA INCLUDED



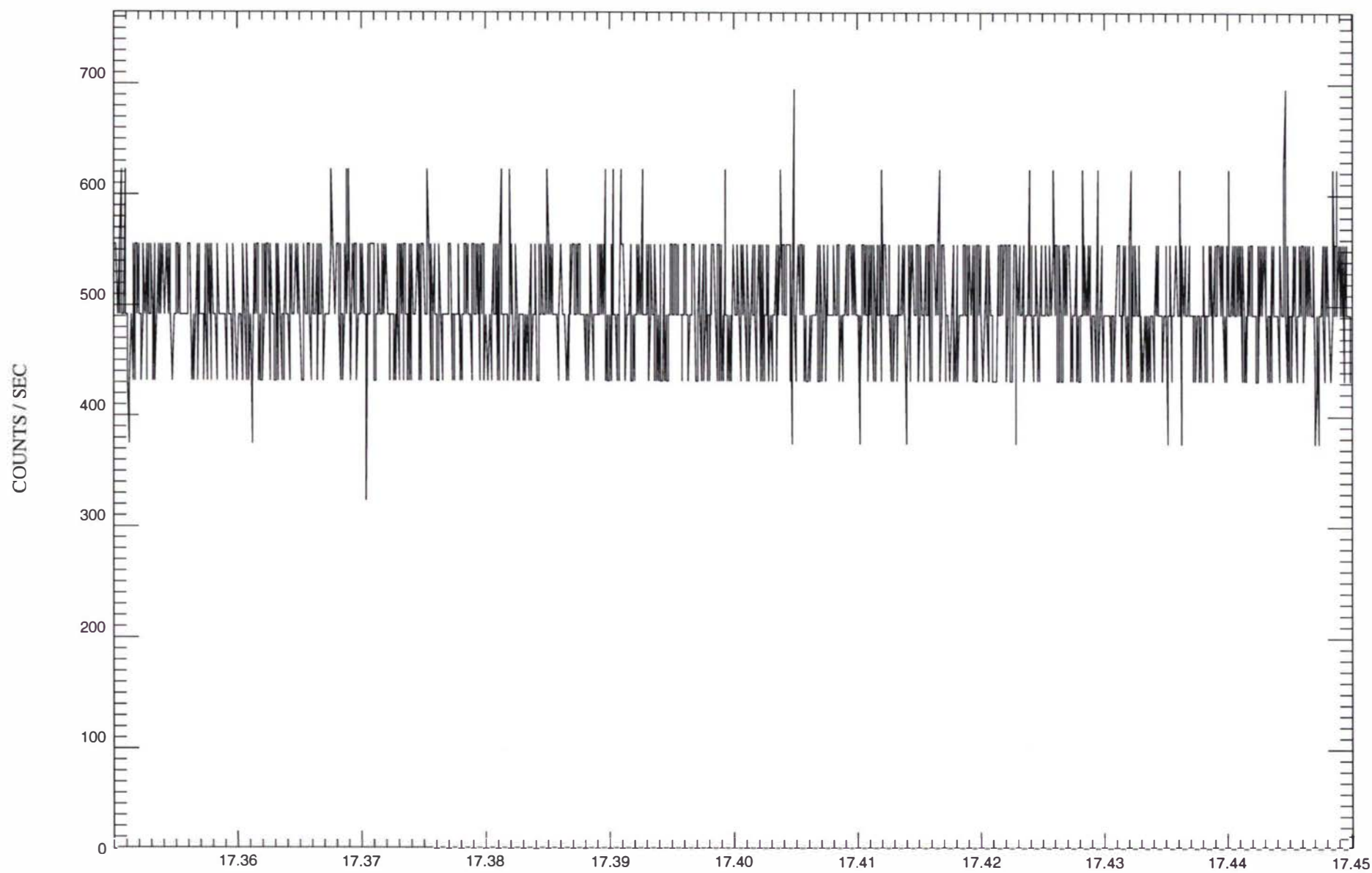
Burst Counter 13 at UT=17.404923549228 h=62657.725 s 17:24:17.725



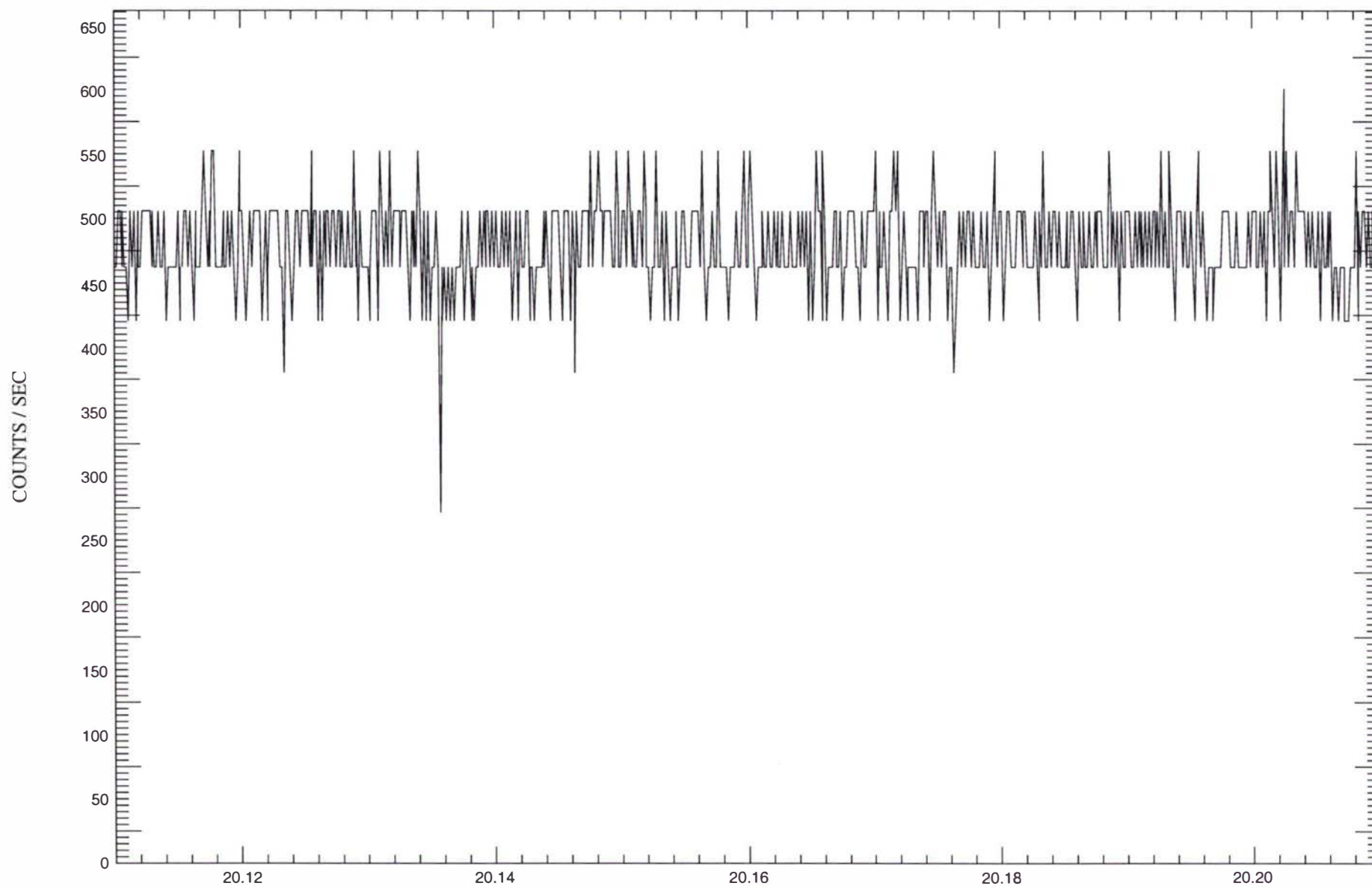
Burst Counter 14 at UT=20.159917564392 h=72575.703 s 20:09:35.703

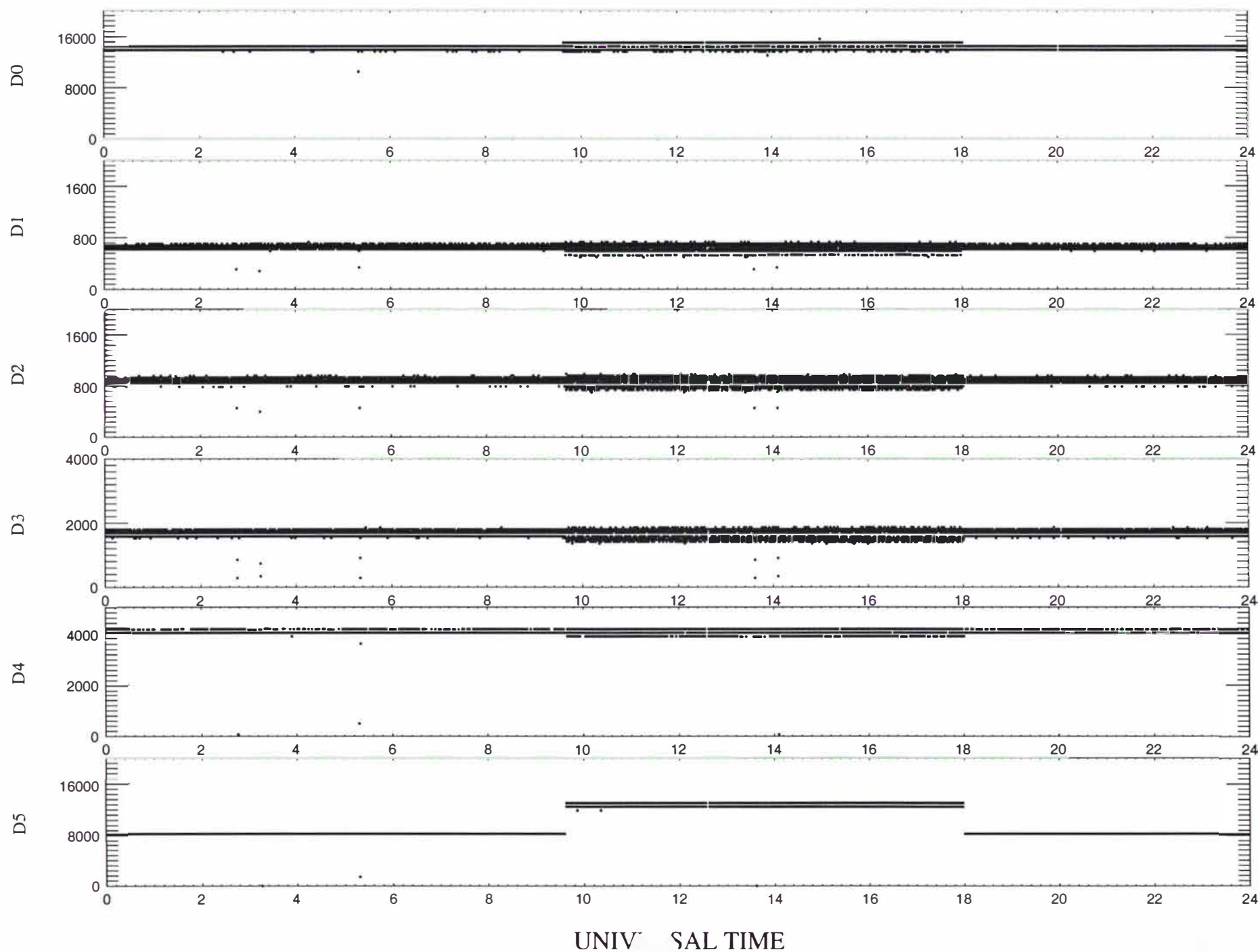


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Thu Dec 30 12:30 PST 1999
Date: Thu, 30 Dec 1999 14:31:27 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7921

TIME: TJD=1540 SECONDS= 2532

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=151.9 AZIMUTH=302.4 ERROR= 0.3 DEGREES

COMMENTS:

GOES M4.5, OPTICAL 2B FLARE. STRONG SINGLE PULSE WITH SUBSTRUCTURE, DUR.
APPROX. 650 S, STARTS AT APPROX. T-20 S, MAX AT APPROX. T+120 S.
VISIBLE ABOVE 300 KEV.

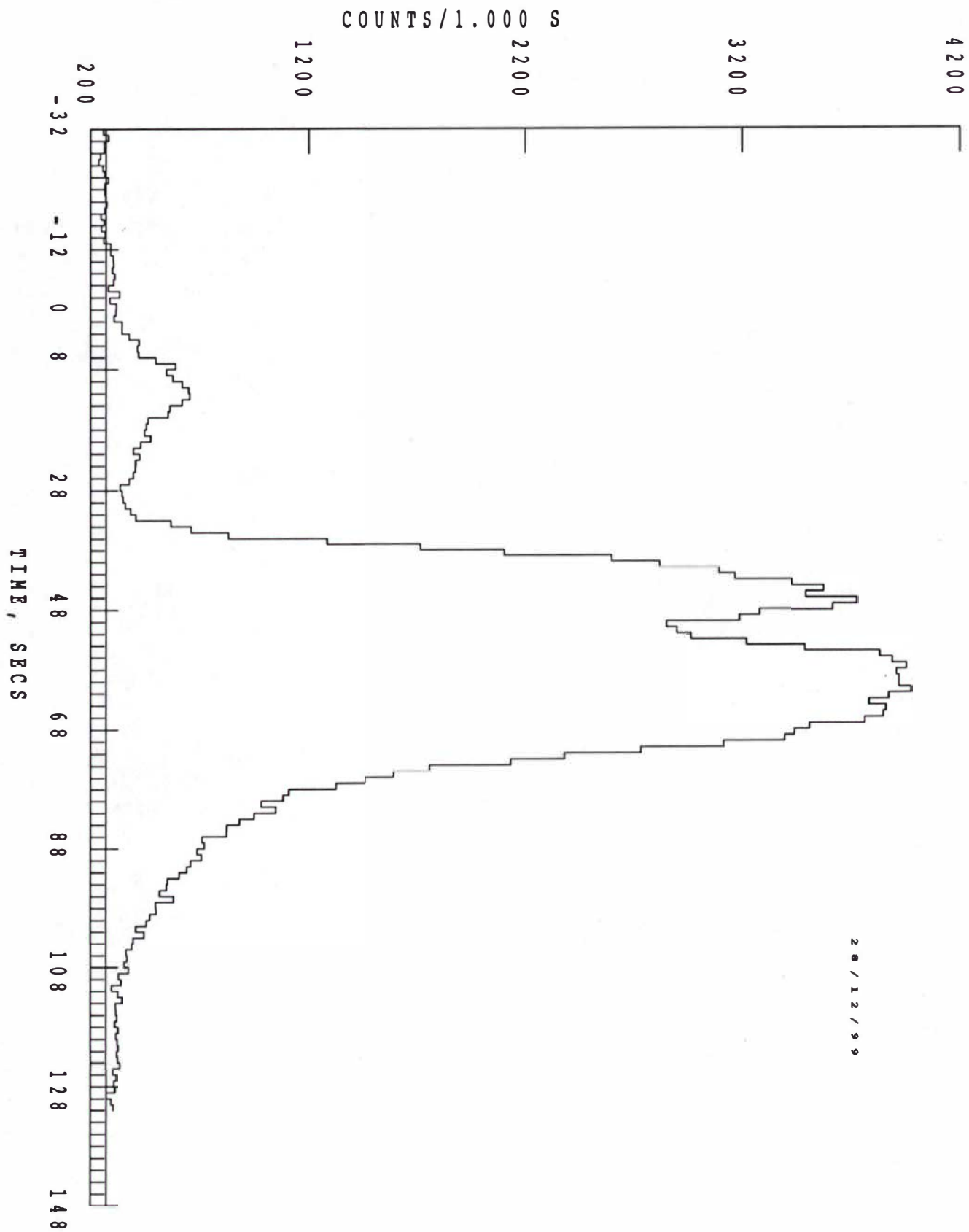
NEAR

28/12/99

2761.514

100-1000 keV

Solar BATSE 7921



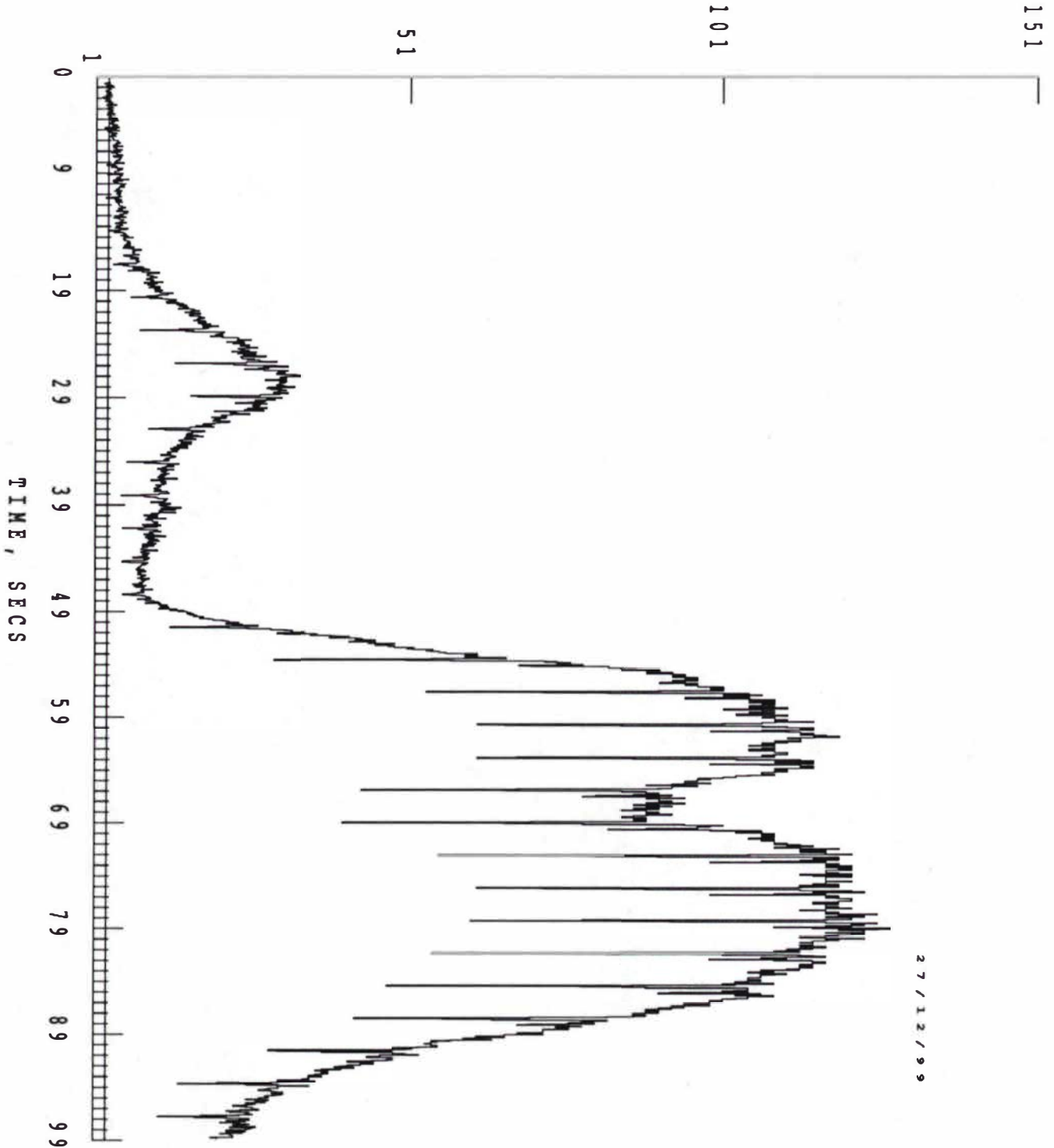
KONUS

28/12/99

2572.087

50- 200 keV

COUNTS/0.064 S



KNEAR GRS 19991228 02761

ULYSSES RT

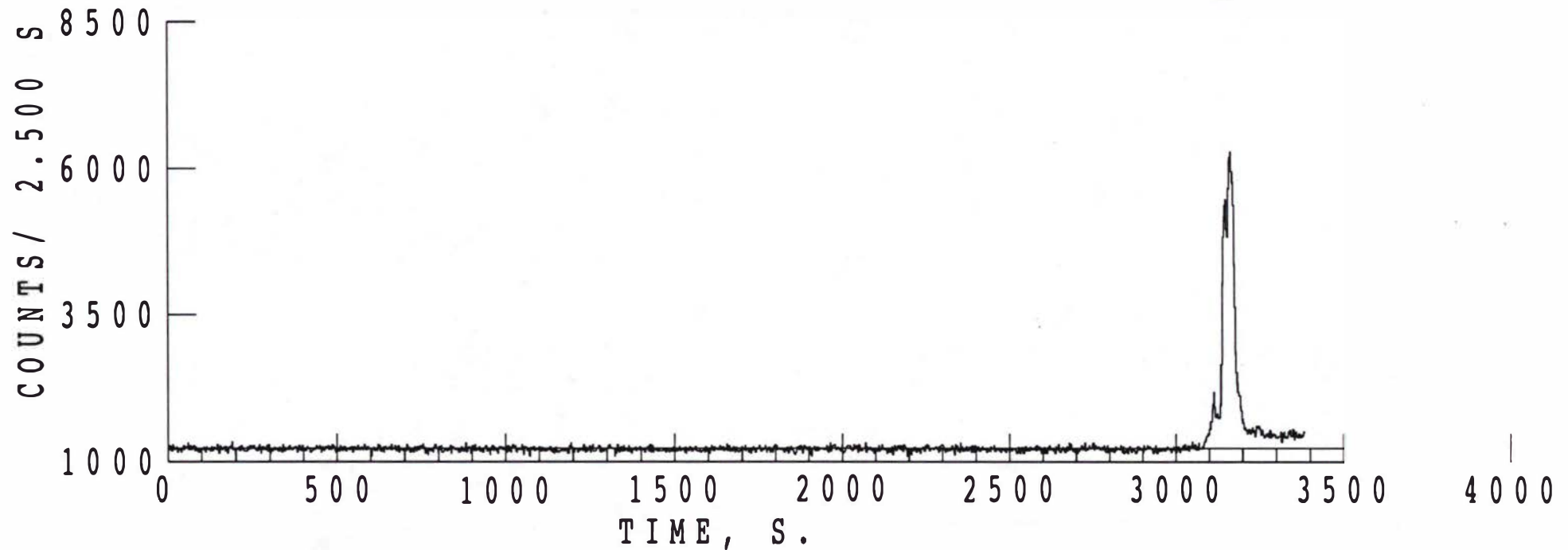
29 / 12 / 99

28 / 12 / 99 1080.483 s

0.500 S INTERVALS REGROUPED BY 5

0 - 0 keV

W= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HENZE@fender.msfc.nasa.gov Thu Dec 30 13:19 PST 1999
From: HENZE@fender.msfc.nasa.gov
Date: Thu, 30 Dec 1999 15:20:54 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7922

BATSEARCH PROGRAM

BATSE BURST # 7922
EVENT OF 1999 DEC 28 DAY OF YEAR=362
EVENT CROSSING TIME AT BATSE : 16082. S. OR 04:28:02.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 22.000 -13.000
BATSE PEAK COUNTING RATE: 11000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 28/12/ 99 IS:
RA= 165.037 DEC= -33.651 DIST= 3.991 AU
BATSE-ULYSSES DISTANCE = 597067002. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 58.44 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1042.47 SECS.
CROSSING TIME AT ULYSSES IS 17124. S. OR 04:45:24 +/- 360.45 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 28/12/ 99 IS:
RA= 327.167 DEC= -14.420 DIST= 1.825 AU
MARS-BATSE DISTANCE = 273042336. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=126.84 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -546.03 SECS.
CROSSING TIME AT MARS IS 15536. S. OR 04:18:55 +/- 118.26 SECONDS

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7922	991228	11540	16082	11000	022	-13	.5

From HENZE@fender.msfc.nasa.gov Thu Dec 30 12:35 PST 1999
Date: Thu, 30 Dec 1999 14:36:27 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

; burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7922

TIME: TJD=1540 SECONDS=16082

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

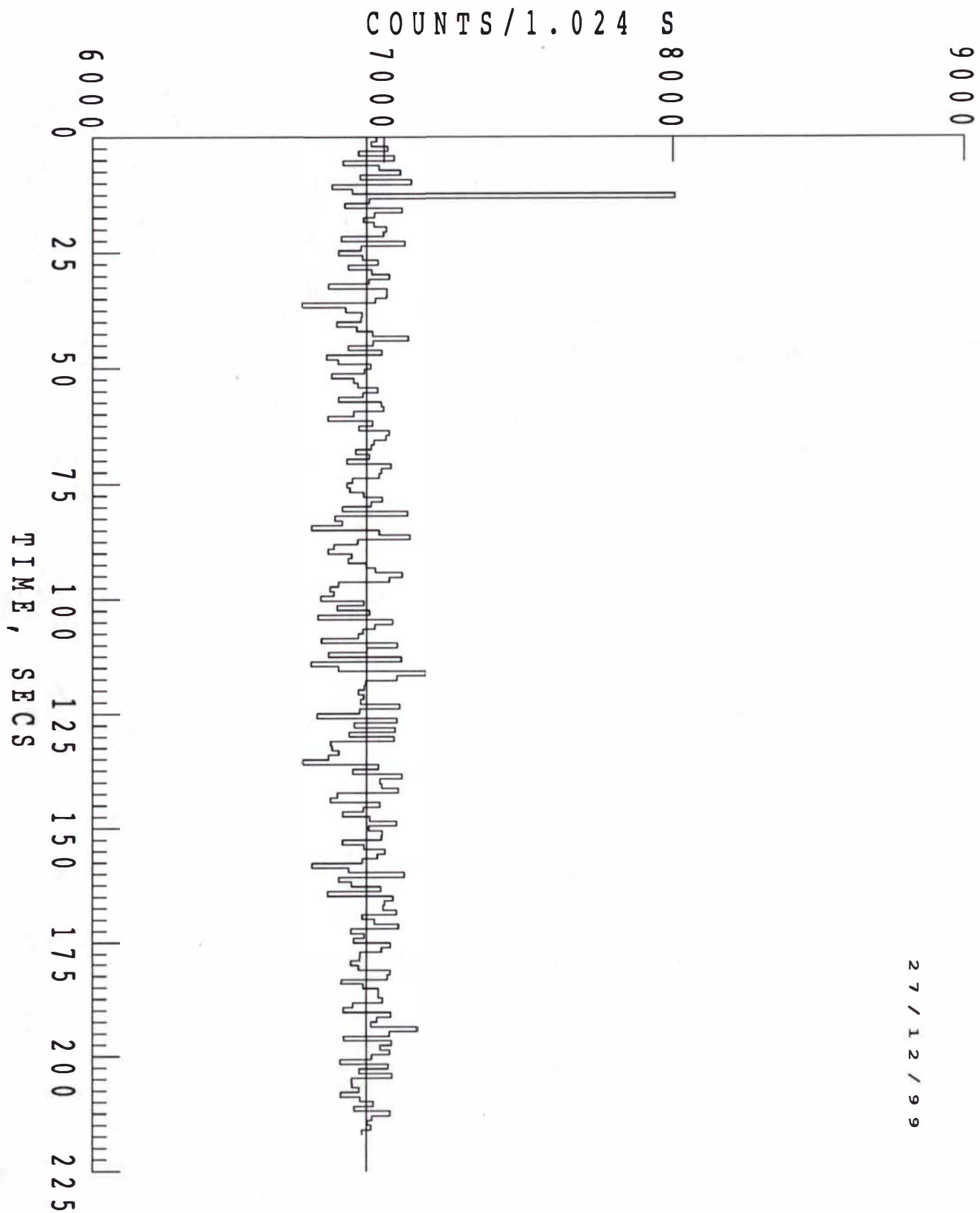
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 59.4 AZIMUTH=290.3 ERROR= 5.2 DEGREES

COMMENTS:

SINGLE SPIKE WITH SUBSTRUCTURE, DUR. APPROX. 0.5 S. NOT VISIBLE ABOVE 300 KEV.

BACODINE 7922 28/12/99 16070.393
25 - 100 keV



BATSE BURST# 7922

ULYSSES RT

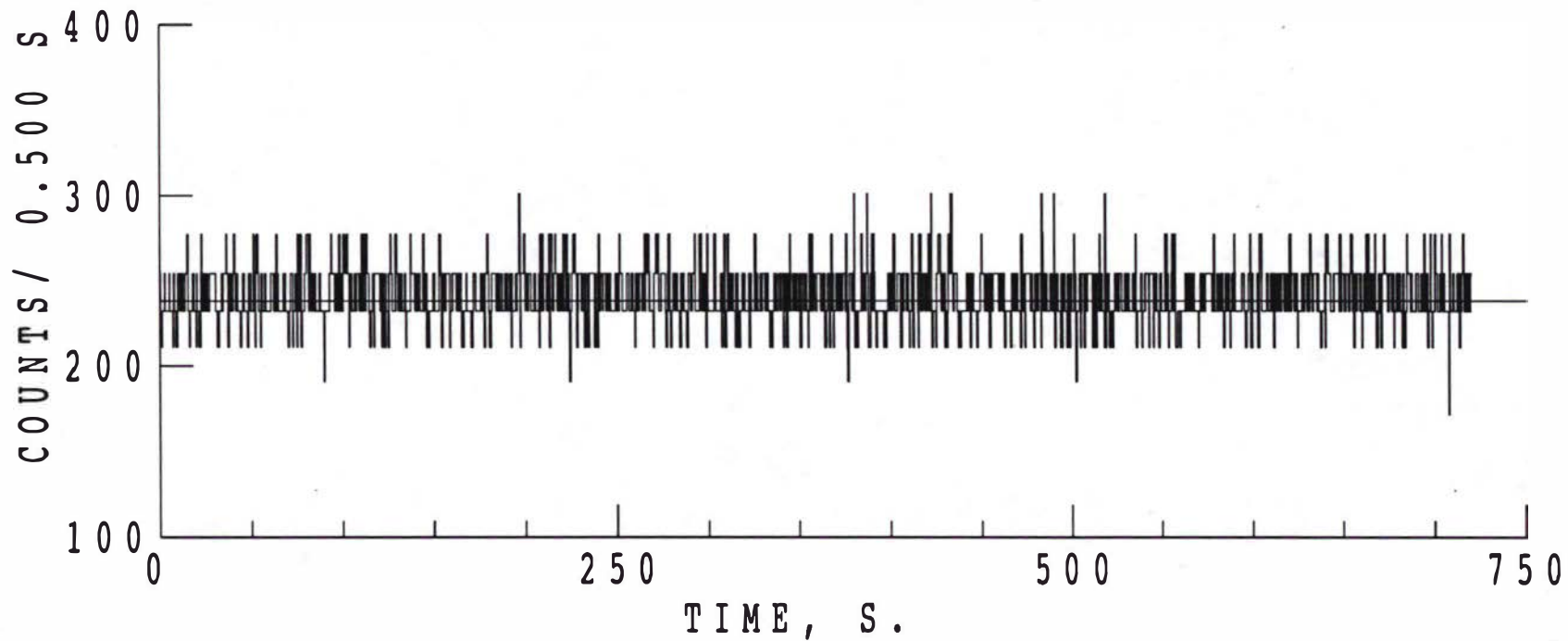
30 / 12 / 99

28 / 12 / 99 16776.146 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@fender.msfc.nasa.gov Thu Dec 30 10:19 PST 1999
From: RICHARDSON@fender.msfc.nasa.gov
Date: Thu, 30 Dec 1999 12:20:37 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7923

BATSEARCH PROGRAM

BATSE BURST # 7923
EVENT OF 1999 DEC 28 DAY OF YEAR=362
EVENT CROSSING TIME AT BATSE : 41990. S. OR 11:39:50.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 168.000 34.000
BATSE PEAK COUNTING RATE: 7250 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 28/12/ 99 IS:
RA= 165.006 DEC= -33.715 DIST= 3.986 AU
BATSE-ULYSSES DISTANCE = 596288061. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=112.23 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -752.39 SECS.
CROSSING TIME AT ULYSSES IS 41238. S. OR 11:27:17 +/- 358.24 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 28/12/ 99 IS:
RA= 327.167 DEC= -14.420 DIST= 1.825 AU
MARS-BATSE DISTANCE = 273042336. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 27.17 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 810.30 SECS.
CROSSING TIME AT MARS IS 42800. S. OR 11:53:20 +/- 84.50 SECONDS

BATSE BURST TRIGGER

NO.: 7923

TIME: TJD=1540 SECONDS=41990

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=85.7 AZIMUTH=121.9 ERROR=5.7 DEGREES

COMMENTS:

GRB. MULTIPLE PULSES. DURATION APPROX. = 20SEC. NOT VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7923	991228	11540	41990	7250	168	+34	20

Date: June 8 00

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 ?
- ☒ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data *N/A*

- ☐ Final, correct time used? (Files postmarked vwx@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?

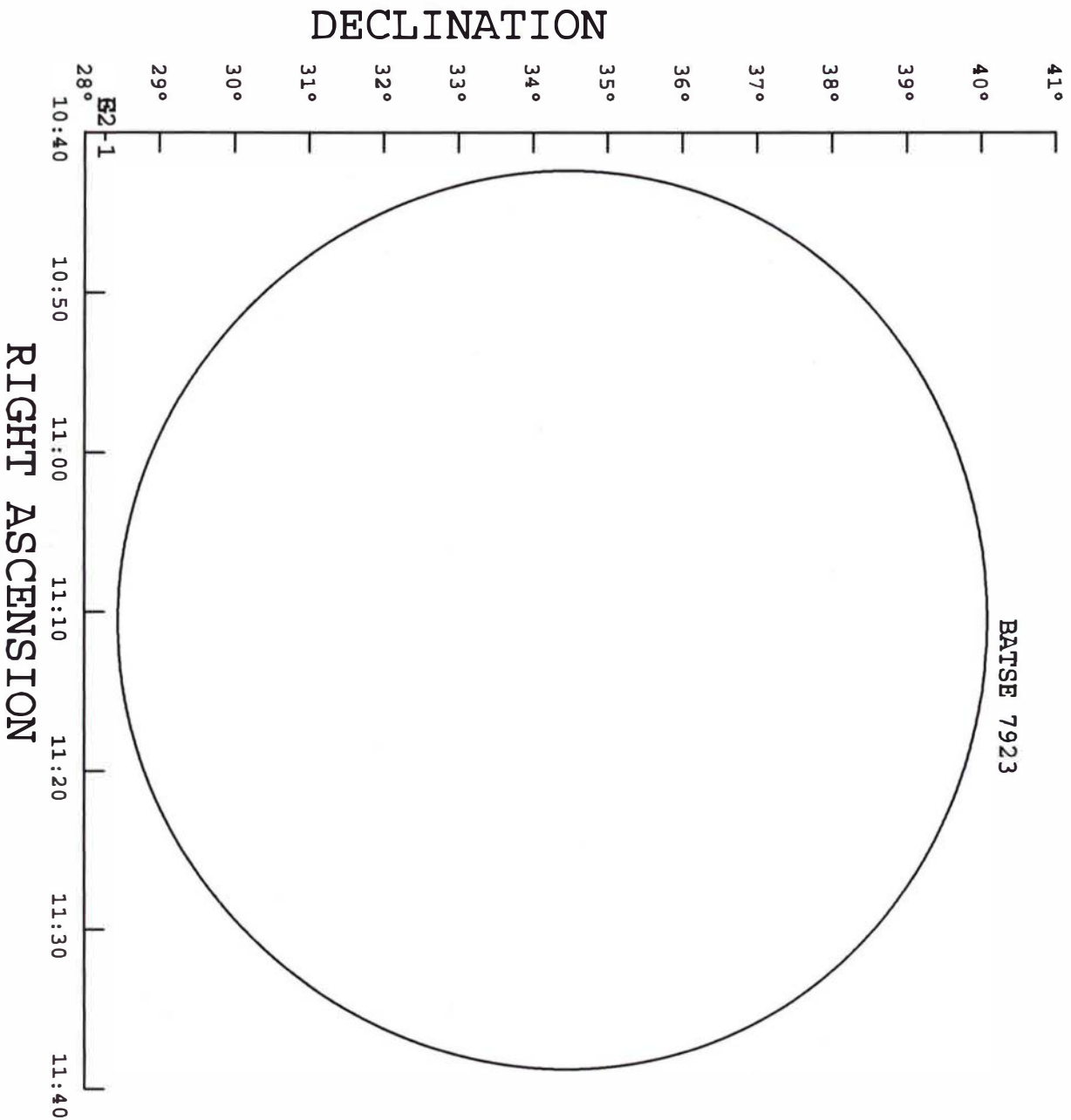
- ☐ ACCESS database updated?

NO Yes

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 DEC 28, 1999 11:39

8 / 6 / 0



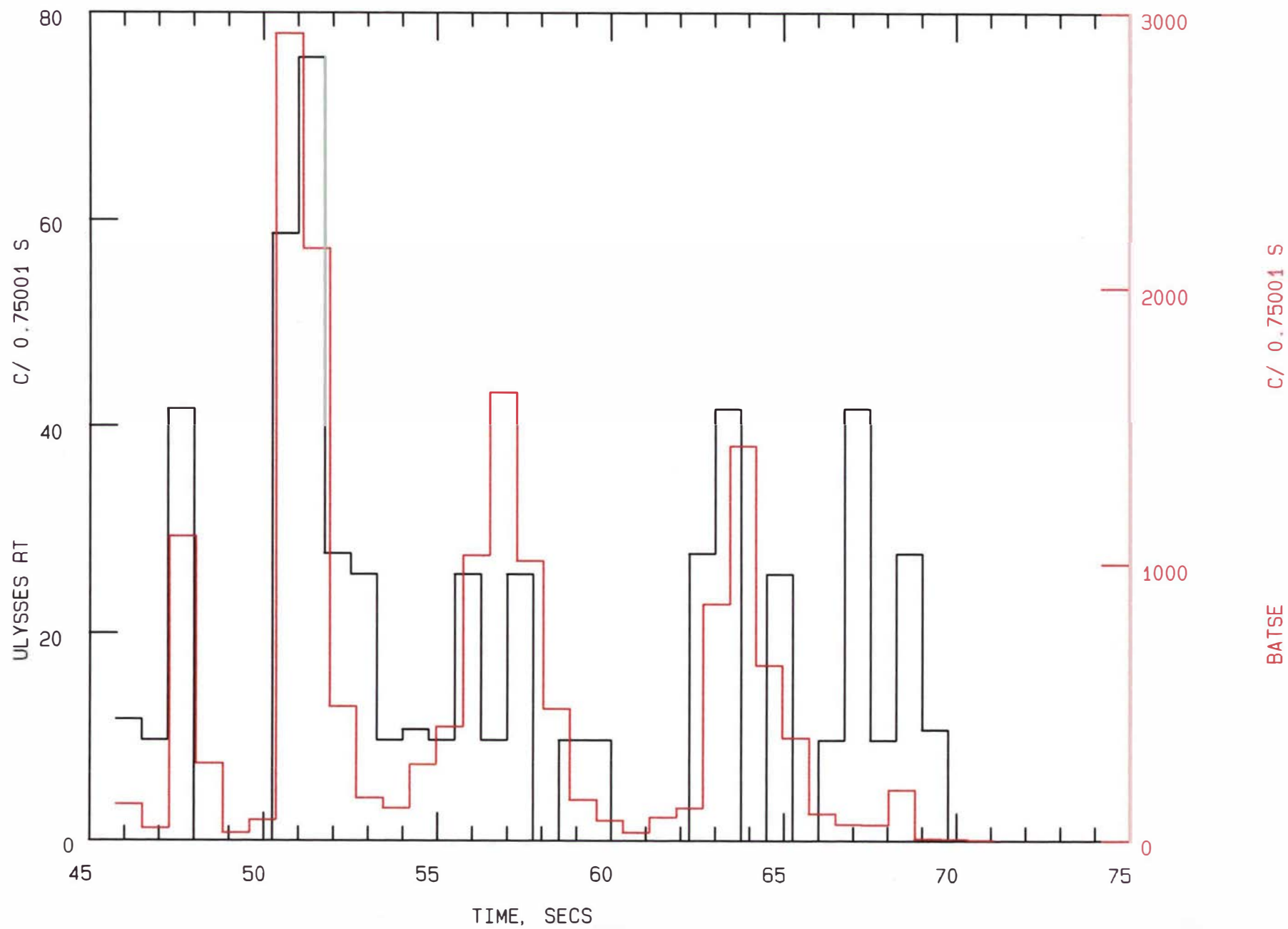
ULYSSES RT-BATSE

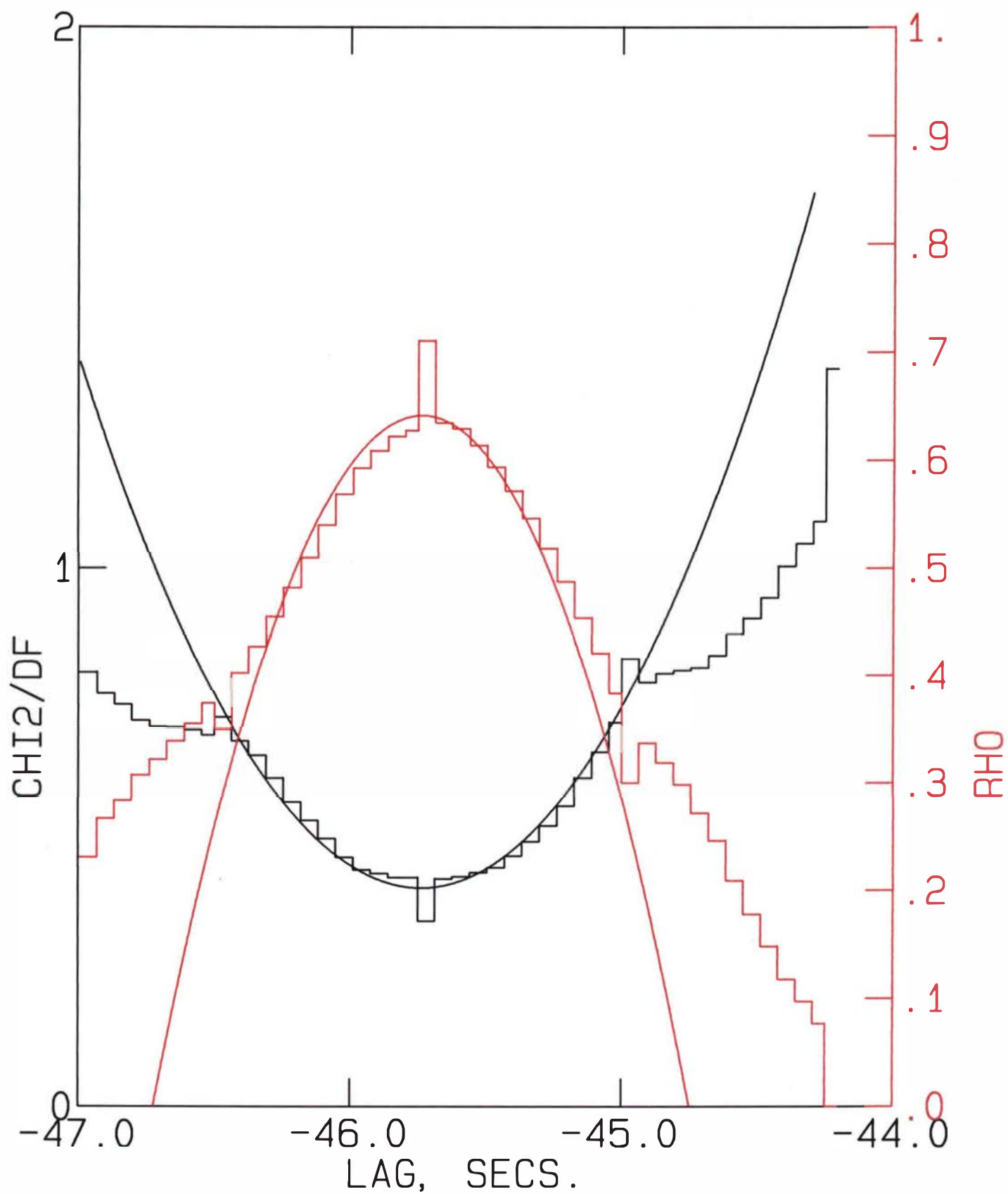
CORRELATION

28/12/99

40939.149

8/ 6/ 0

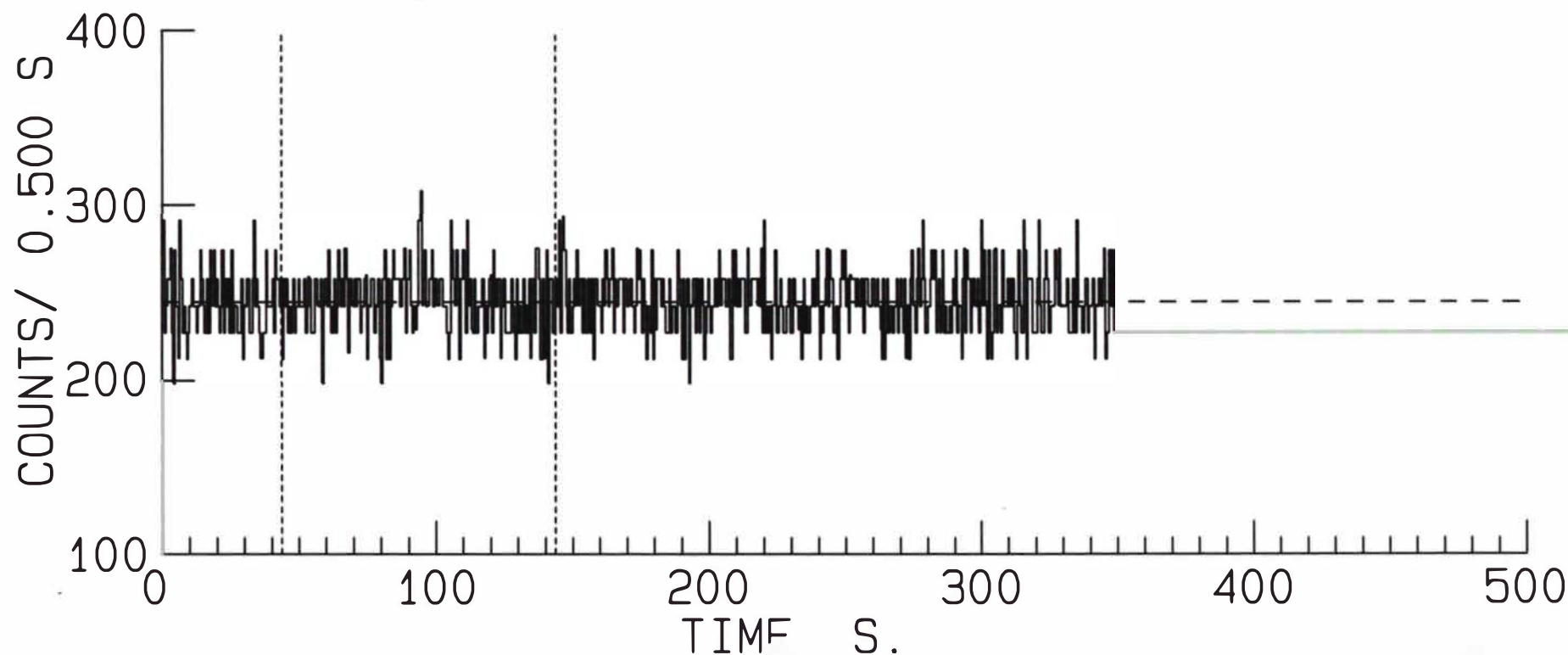




ULYSSES RT
28/12/99 40896.146 s
0.250 S INTERVALS REGROUPED BY 2
22- 152 keV

8 / 6 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



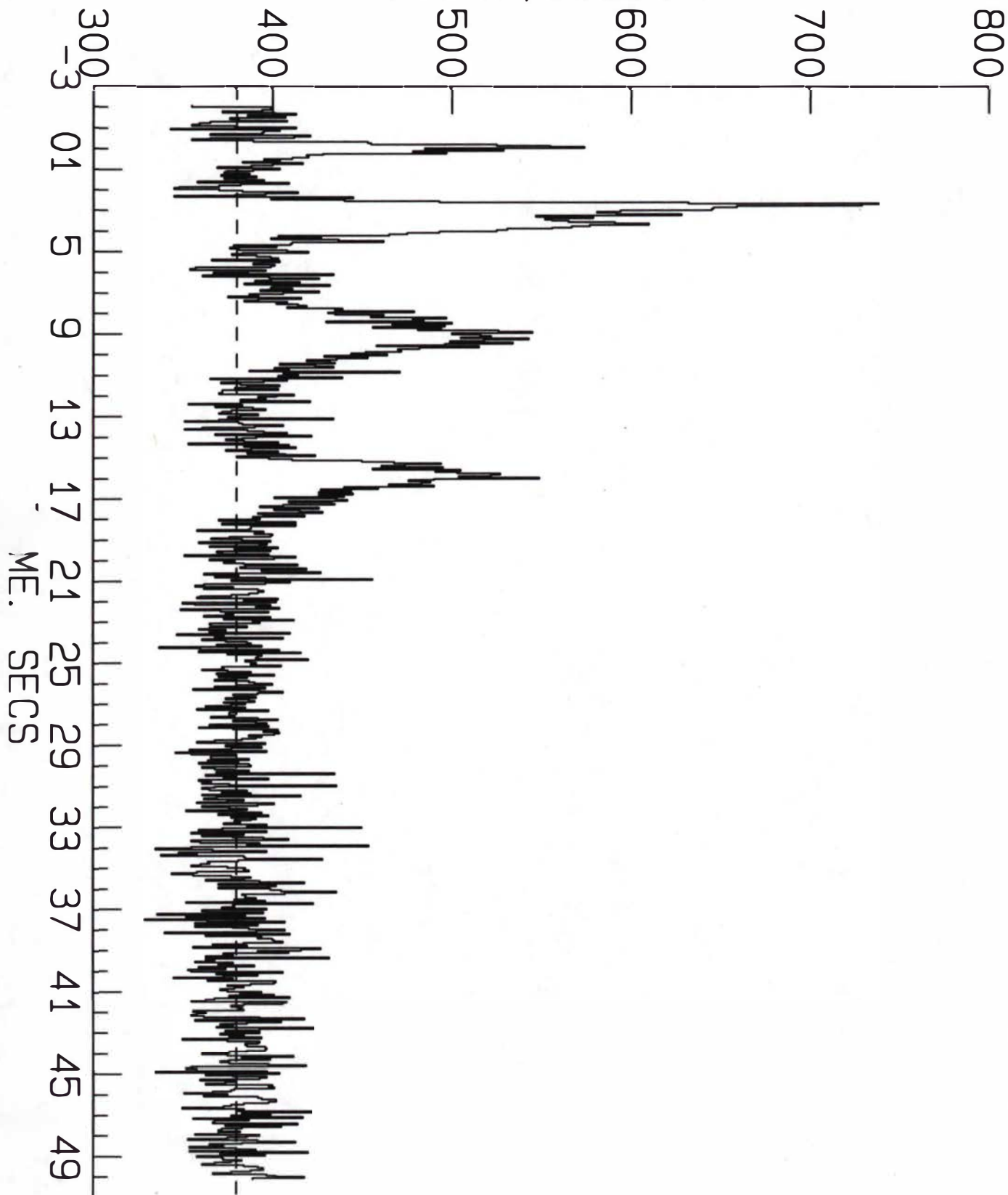
BATSE

28/12/99

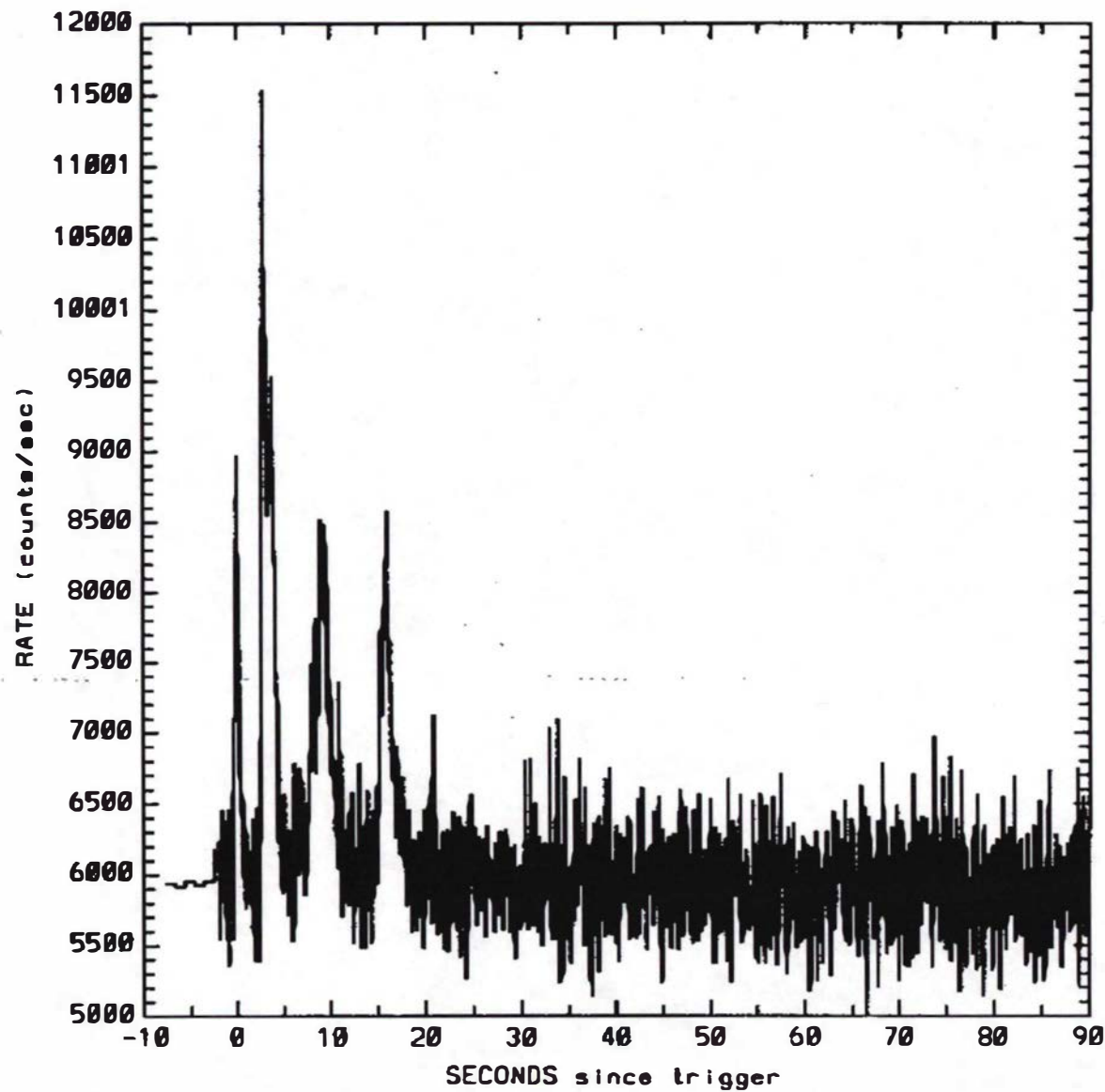
41990.393

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 7923



7-JAN-2000 12:17:12

Created by MOPS 80
(Burst Display)
Version 12.26

Trigger # . 7923

Trigger Time:
11540 / 41990.393

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

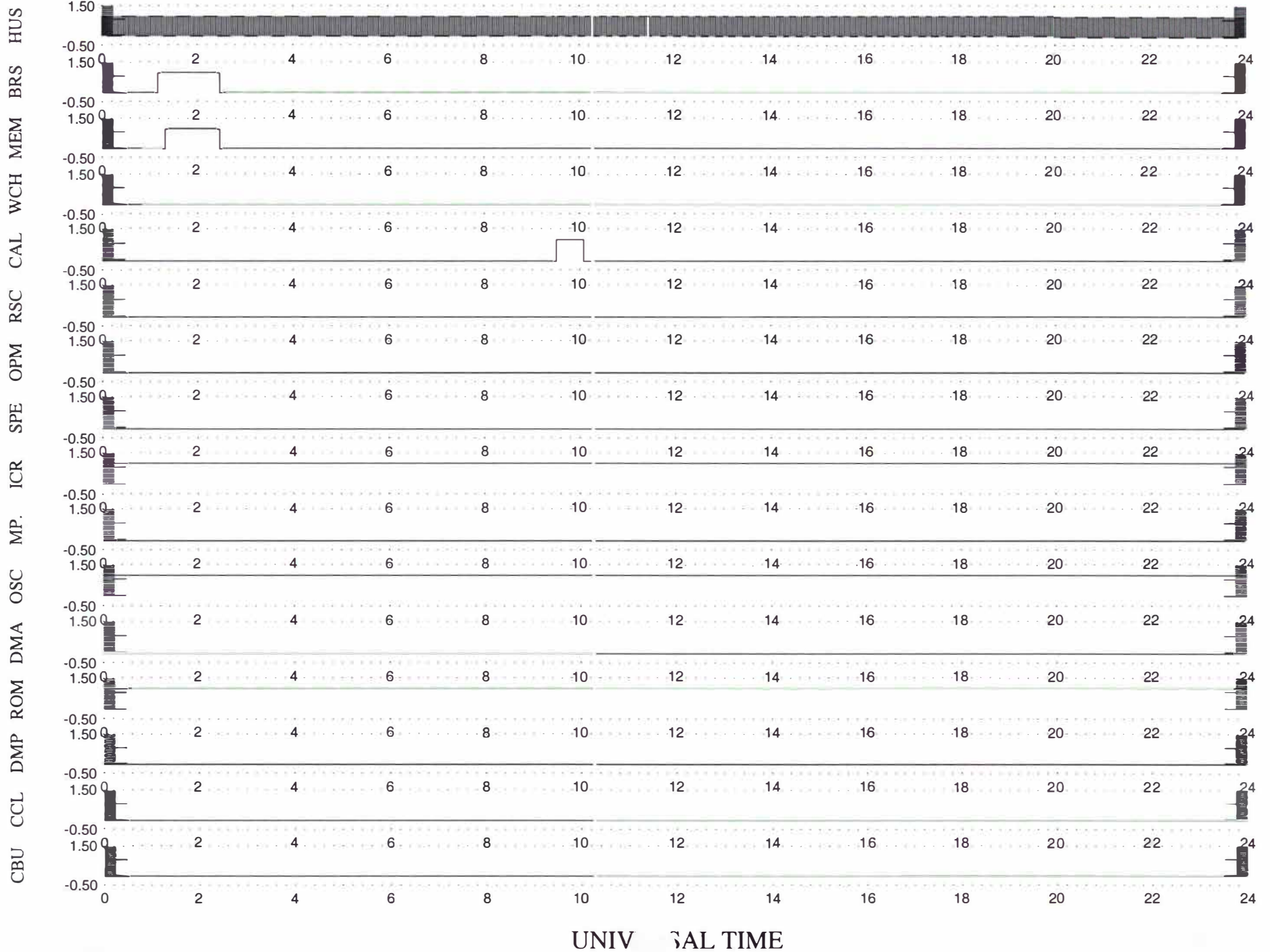
Minimum Integ. Time:
0.064 seconds

Detectors (7..0):
--54----

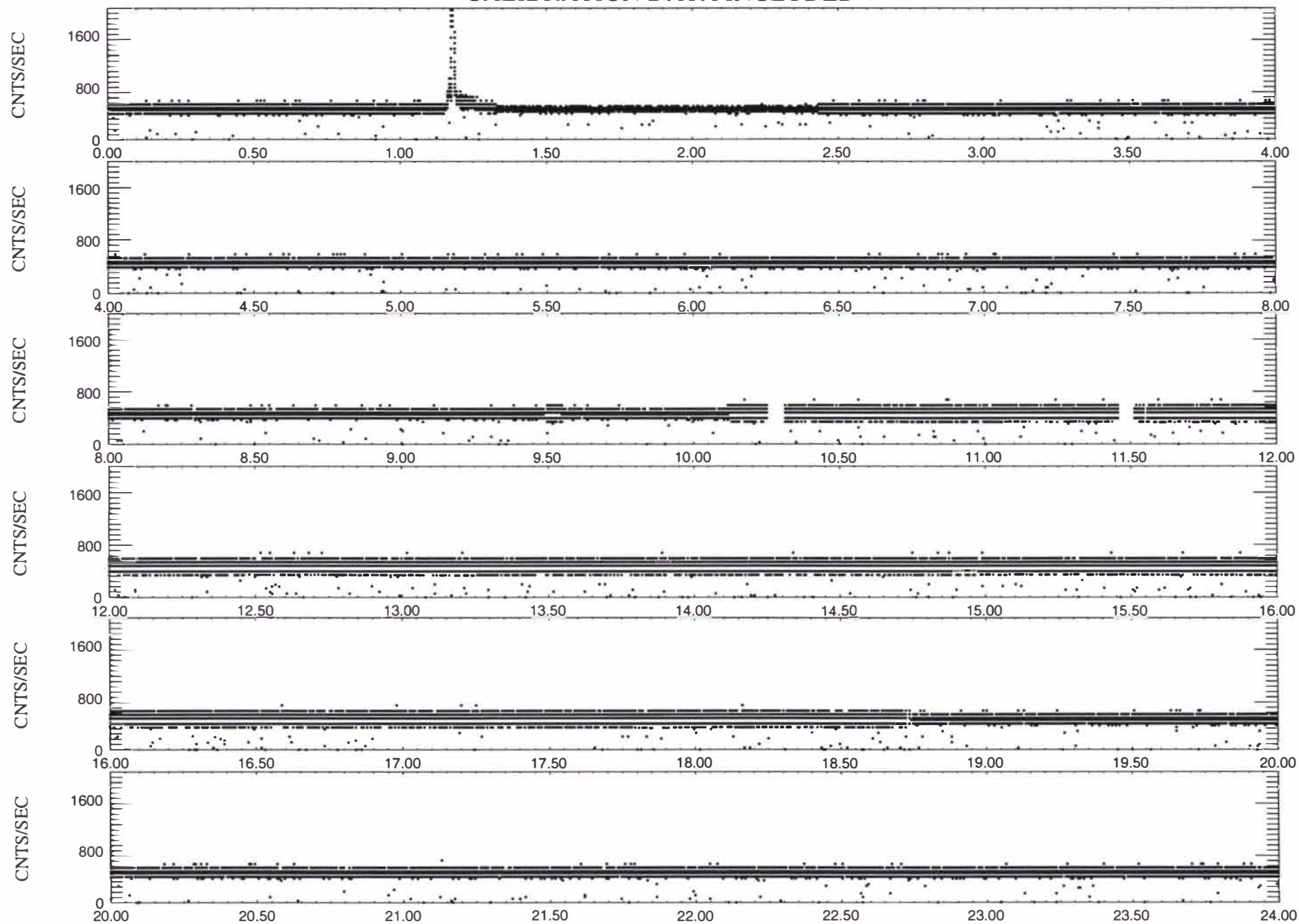
Discriminators:
(1 , 2)

Quality Mask:
BDISP1

BURST NUMBER 15

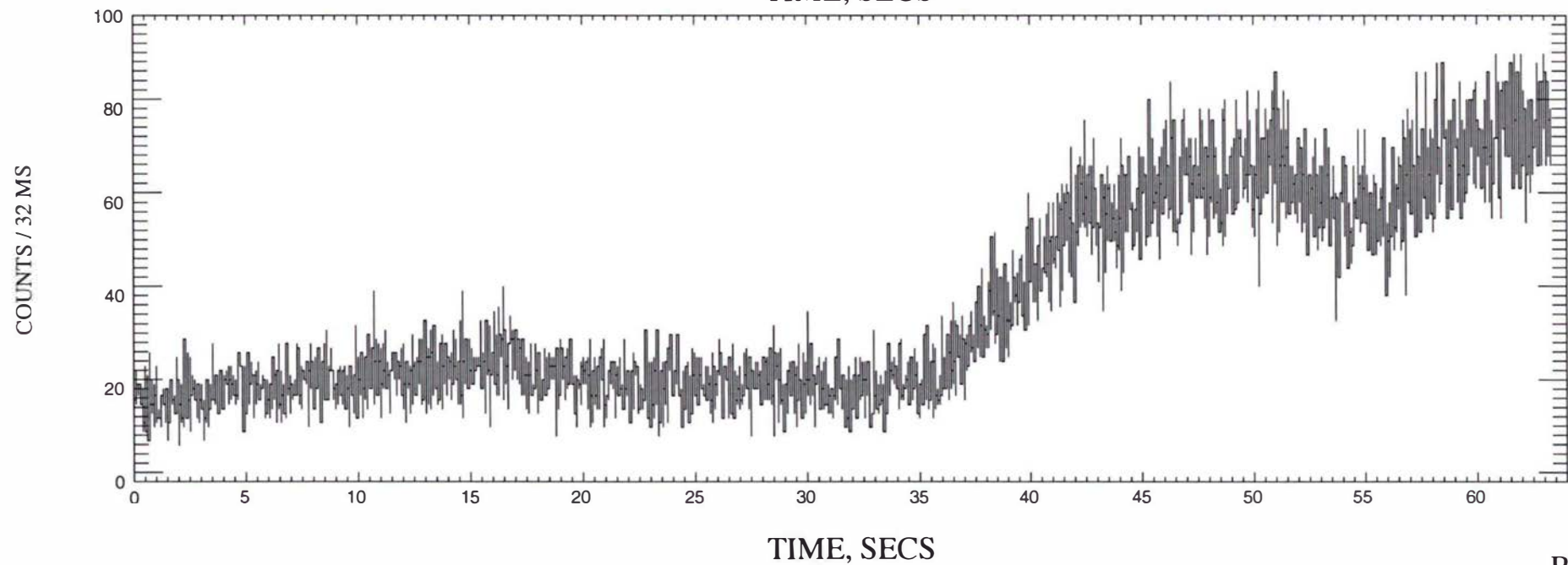
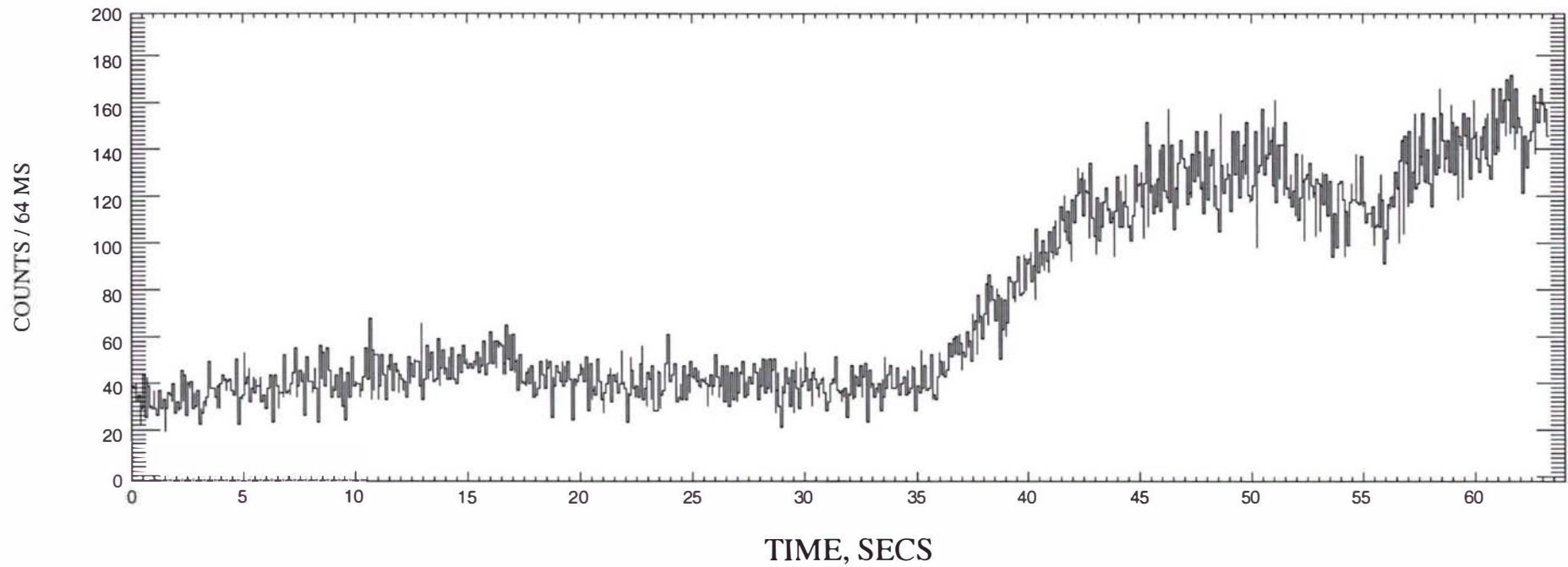


CALIBRATION DATA INCLUDED

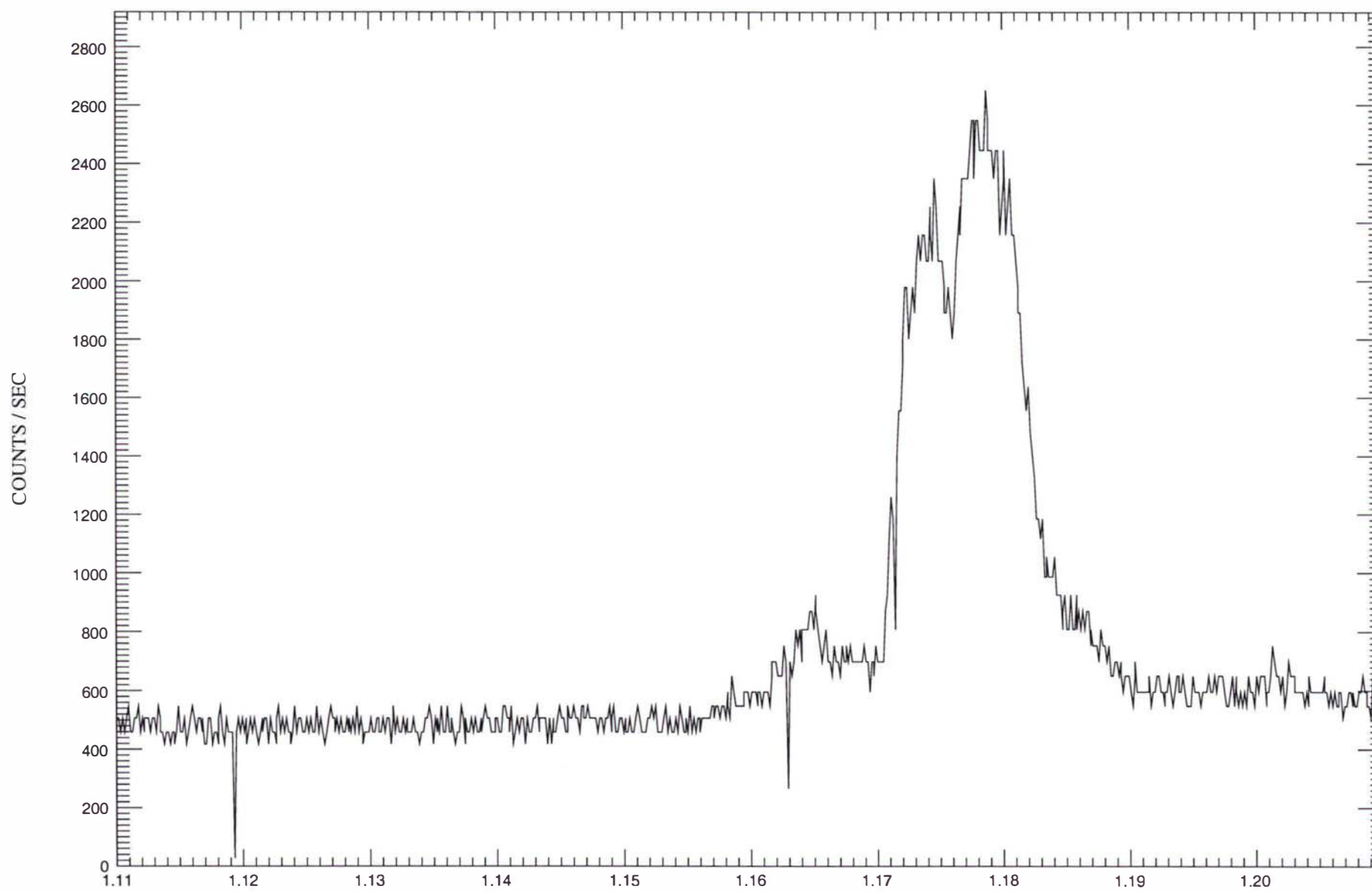


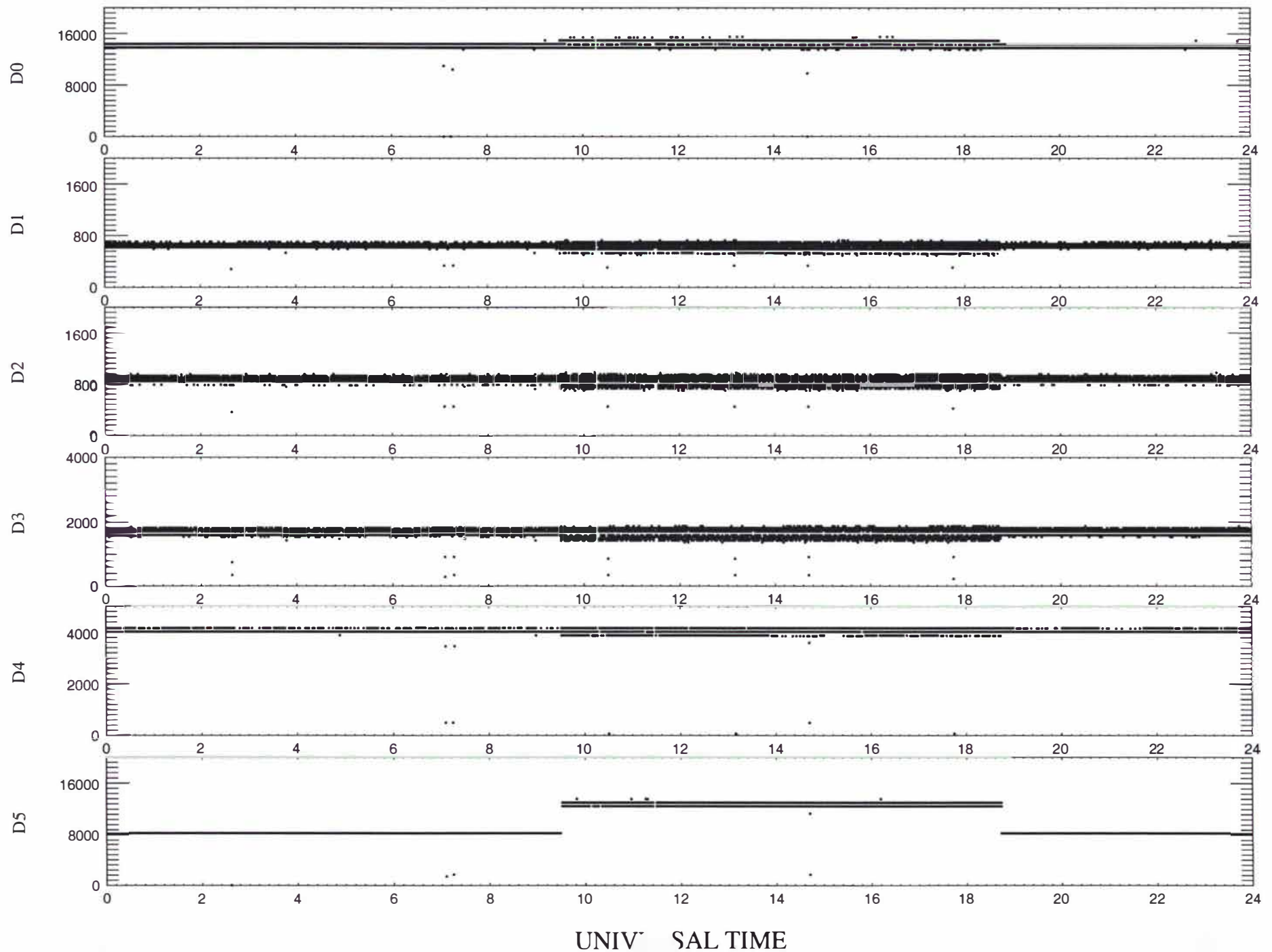
UNIV SAL TIME

Burst Counter 15 at UT= 1.162740135193 h= 4185.864 s 01:09:45.864



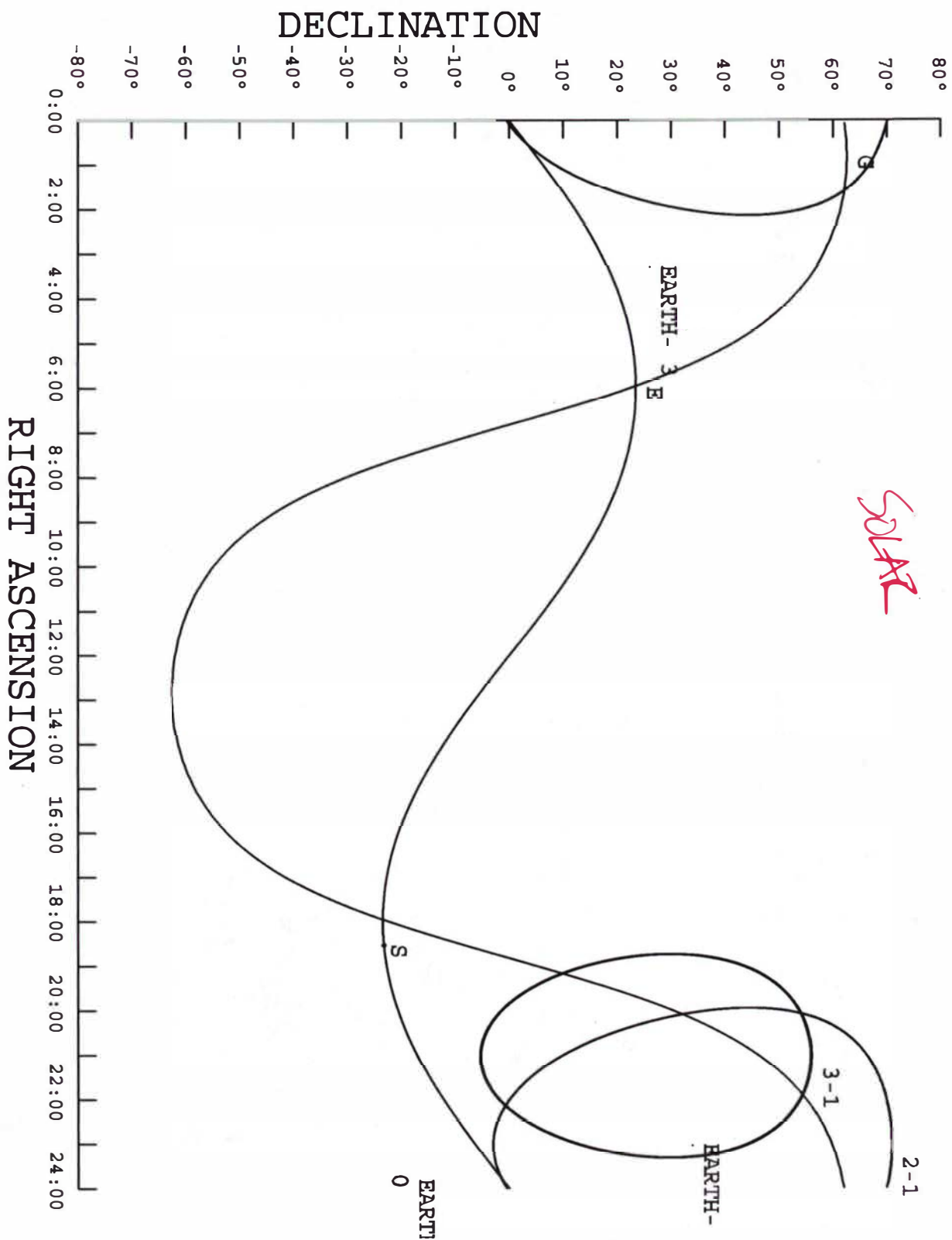
CALIBRATION DATA INCLUDED

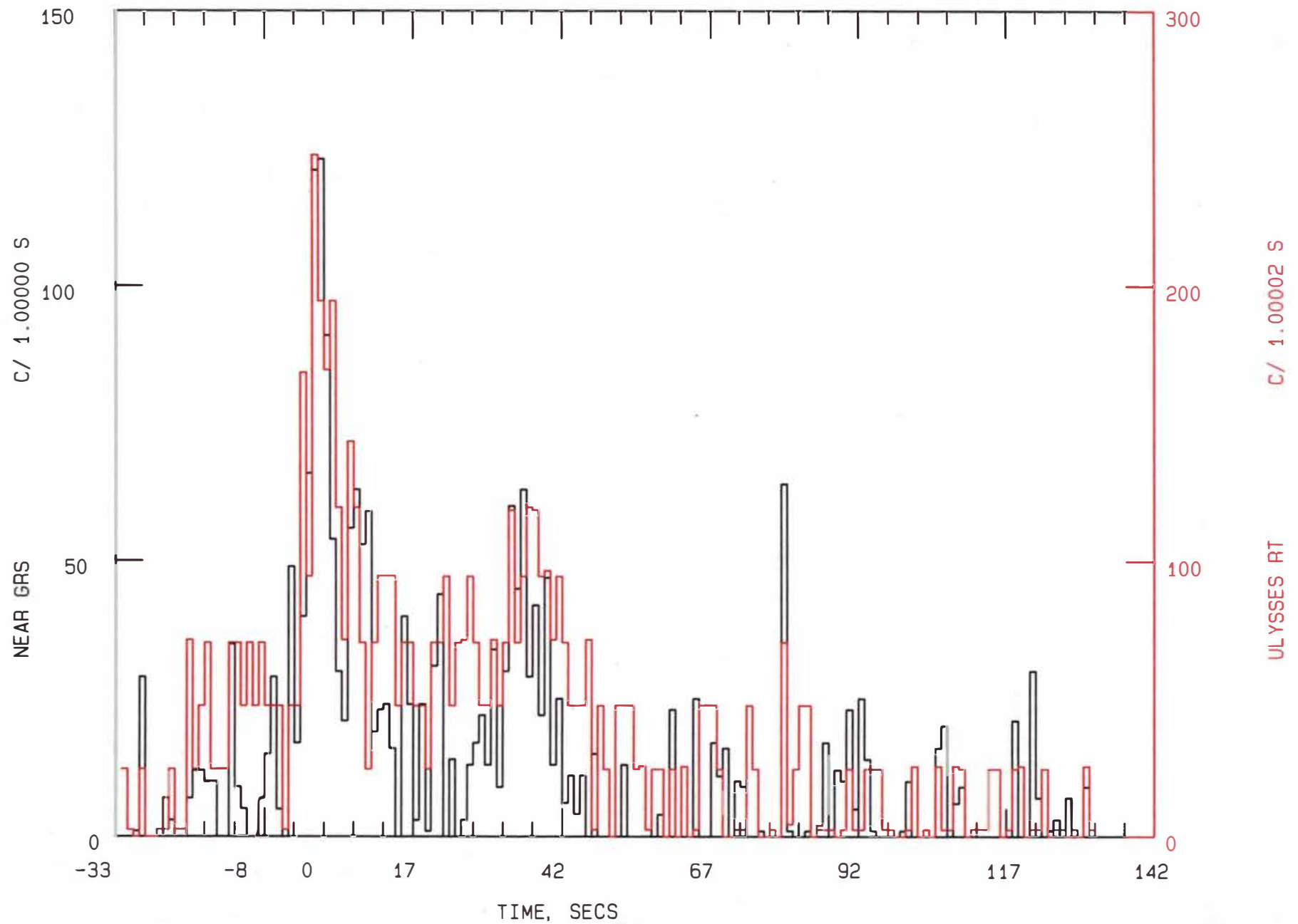


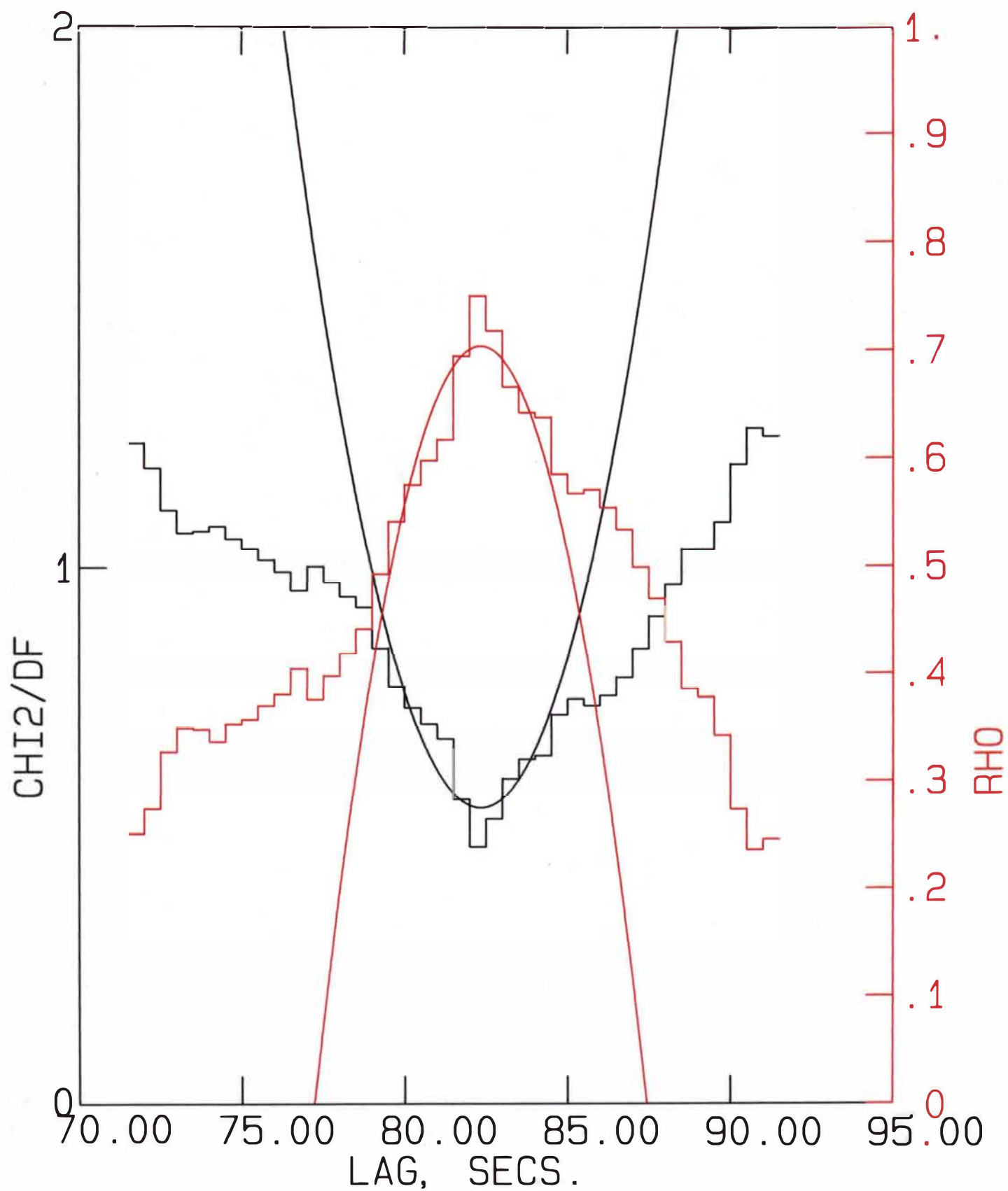


G=GALACTIC EQUATOR

3 NEAR







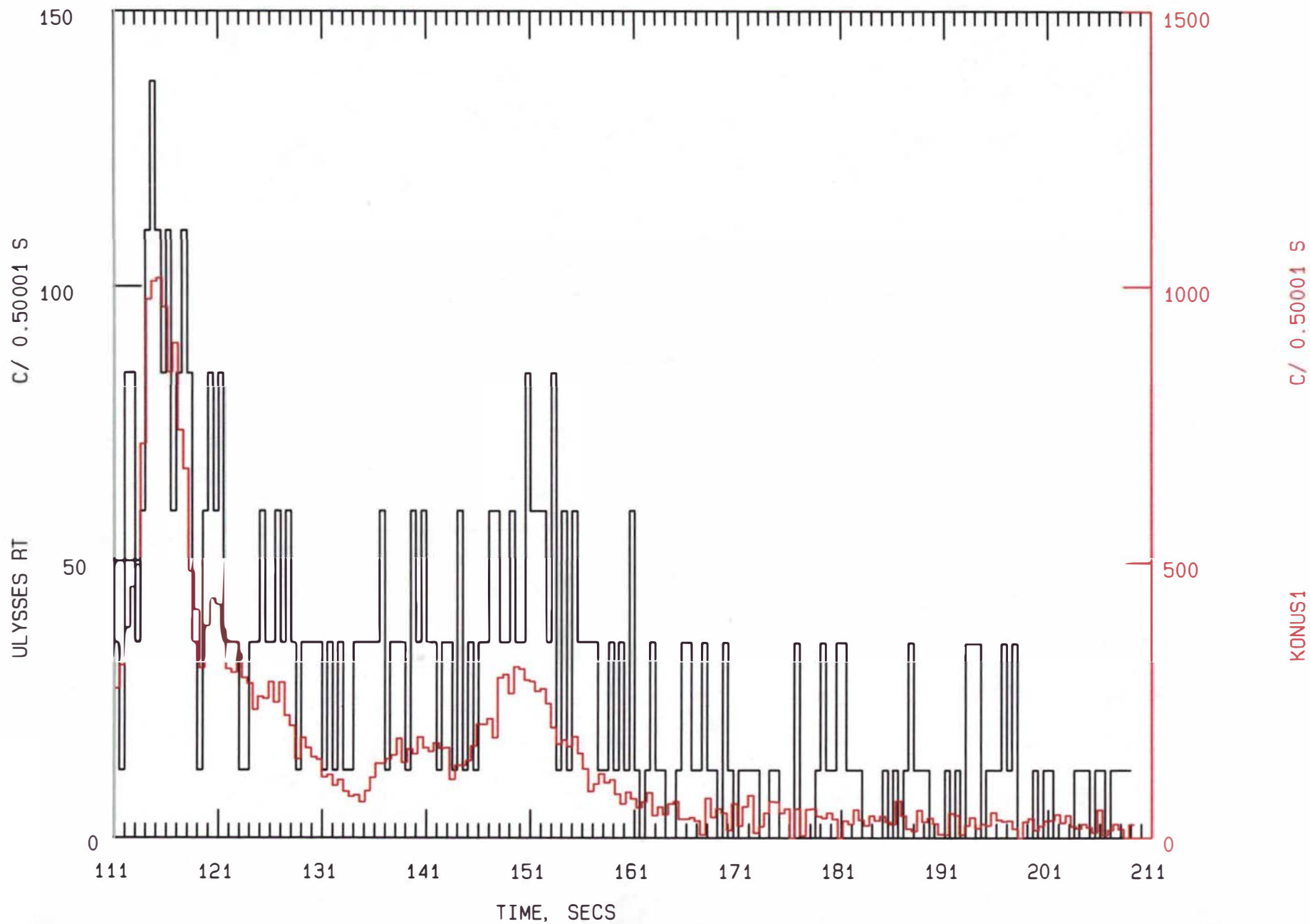
ULYSSES RT-KONUS1

CORRELATION

29/12/99

35400.232

30/12/99



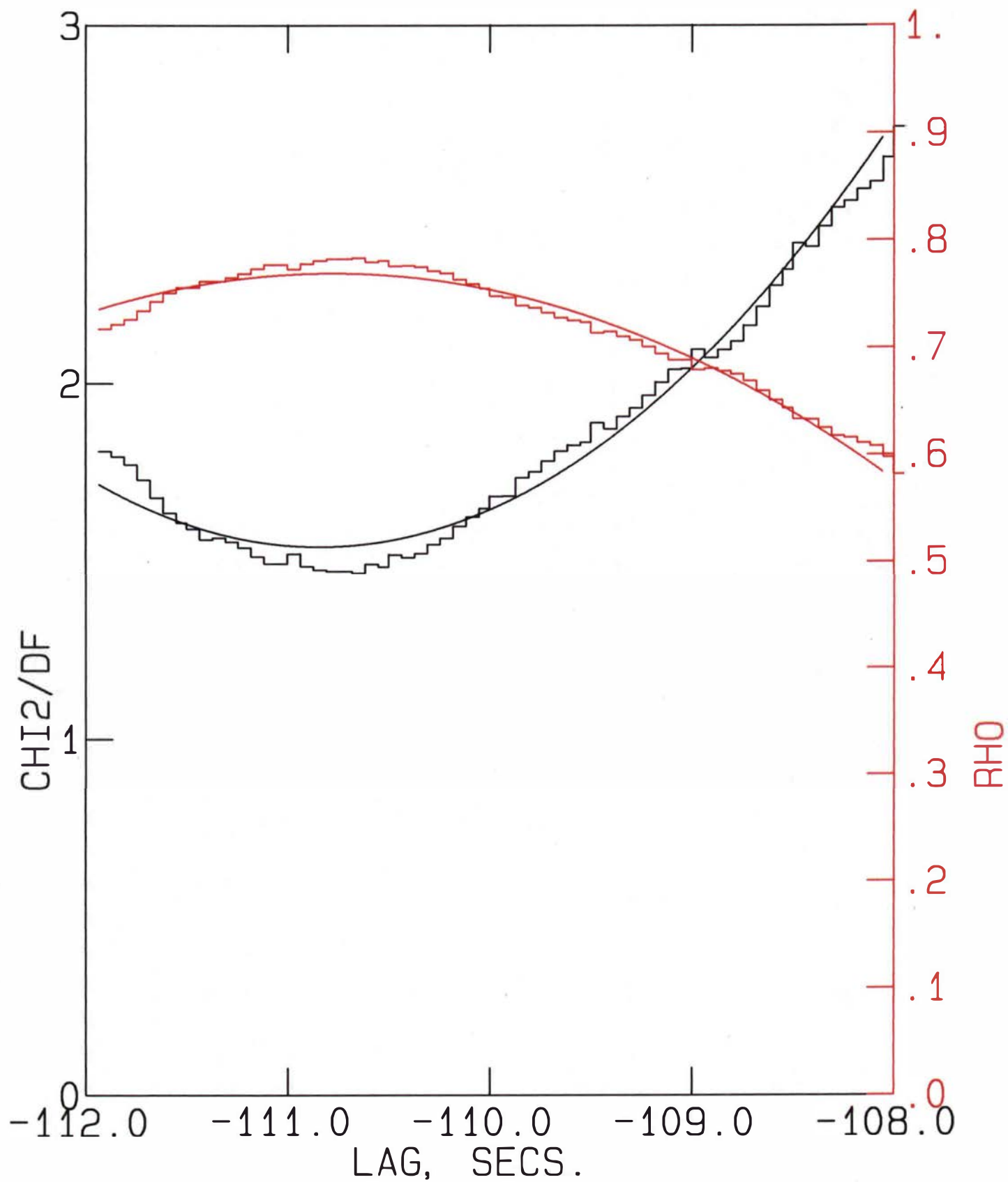
30/12/99

ULYSSES RT-KONUS1

CORRELATION

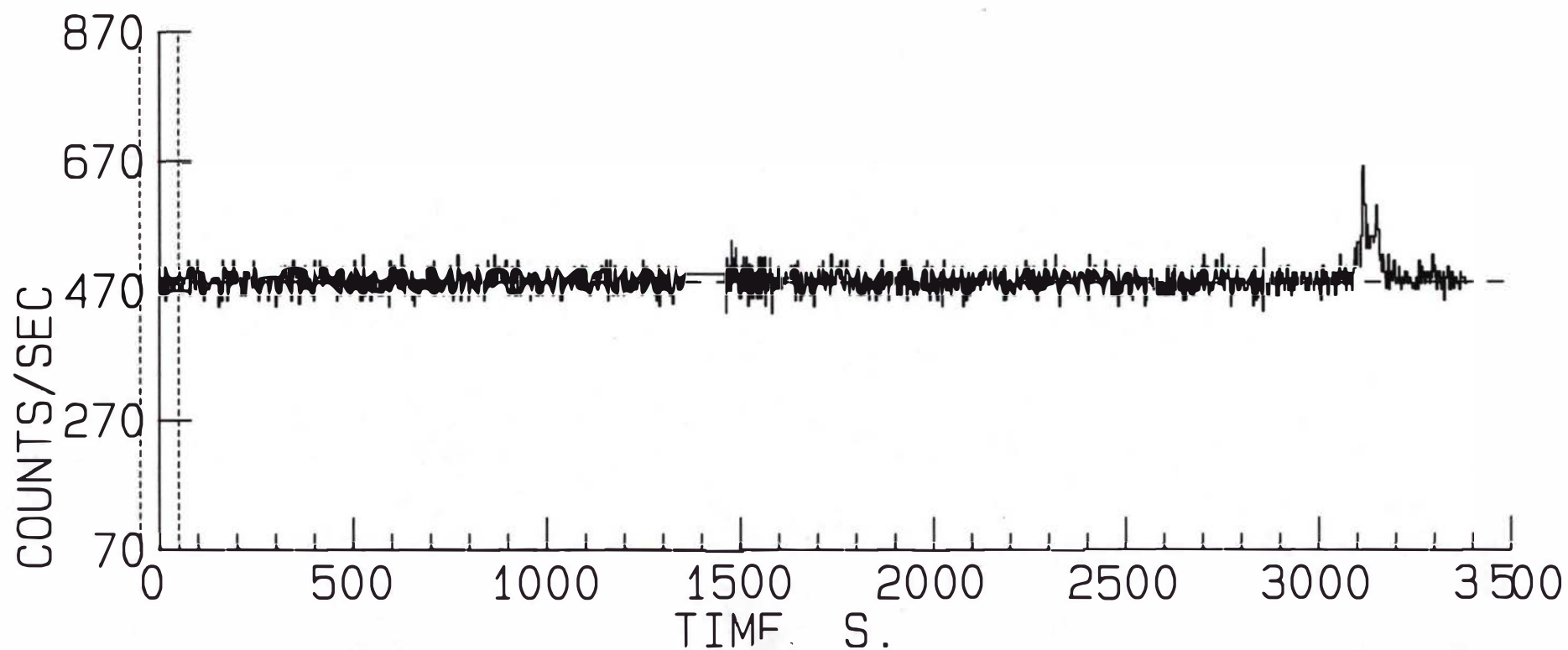
29/12/99

35400.232



ULYSSES RT
29/12/99 32400.197 s
INTERVALS REGROUPED BY 5
22- 150 keV

30/12/99

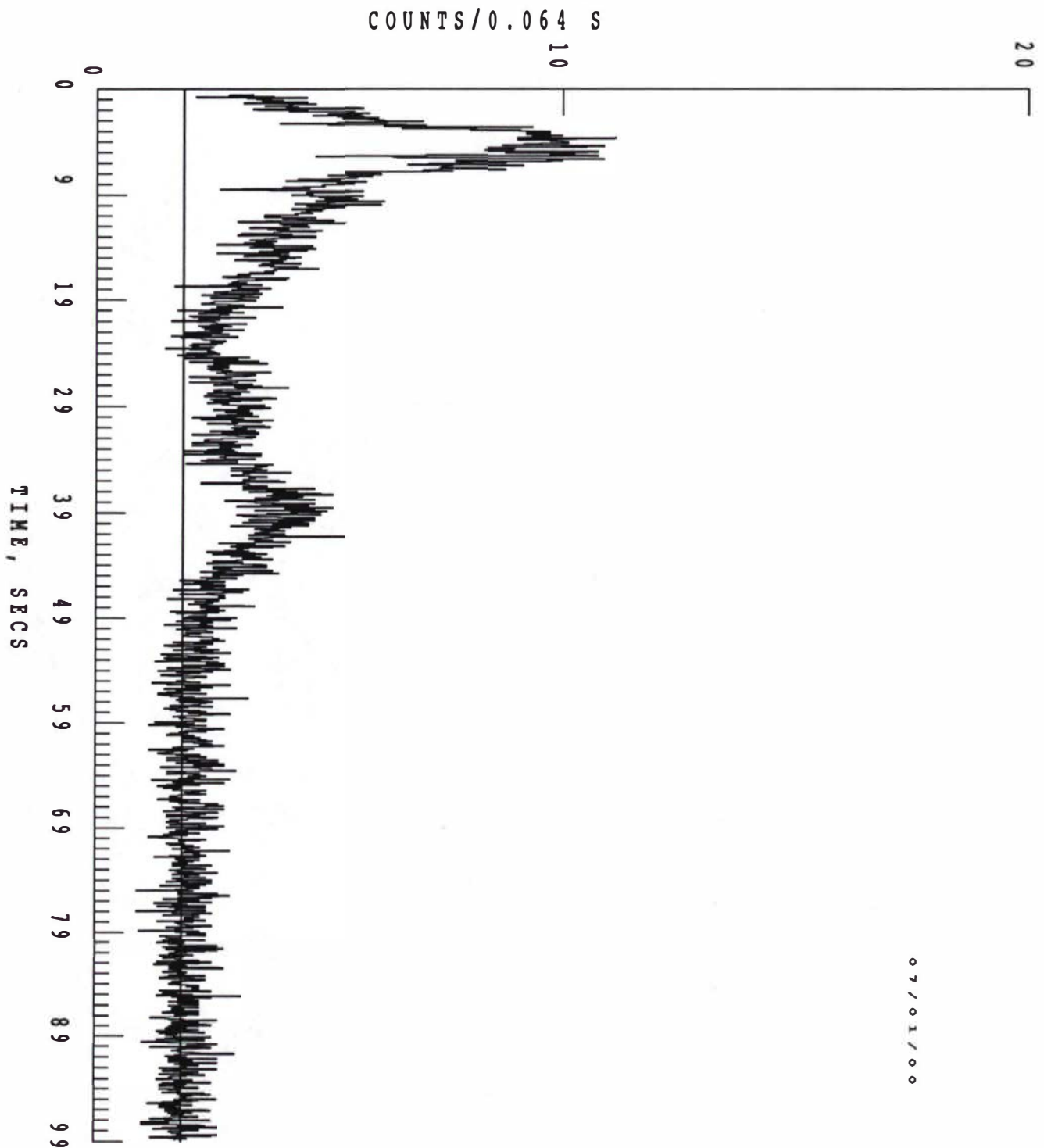


KONUS

29/12/99

33921.917

50- 200 keV

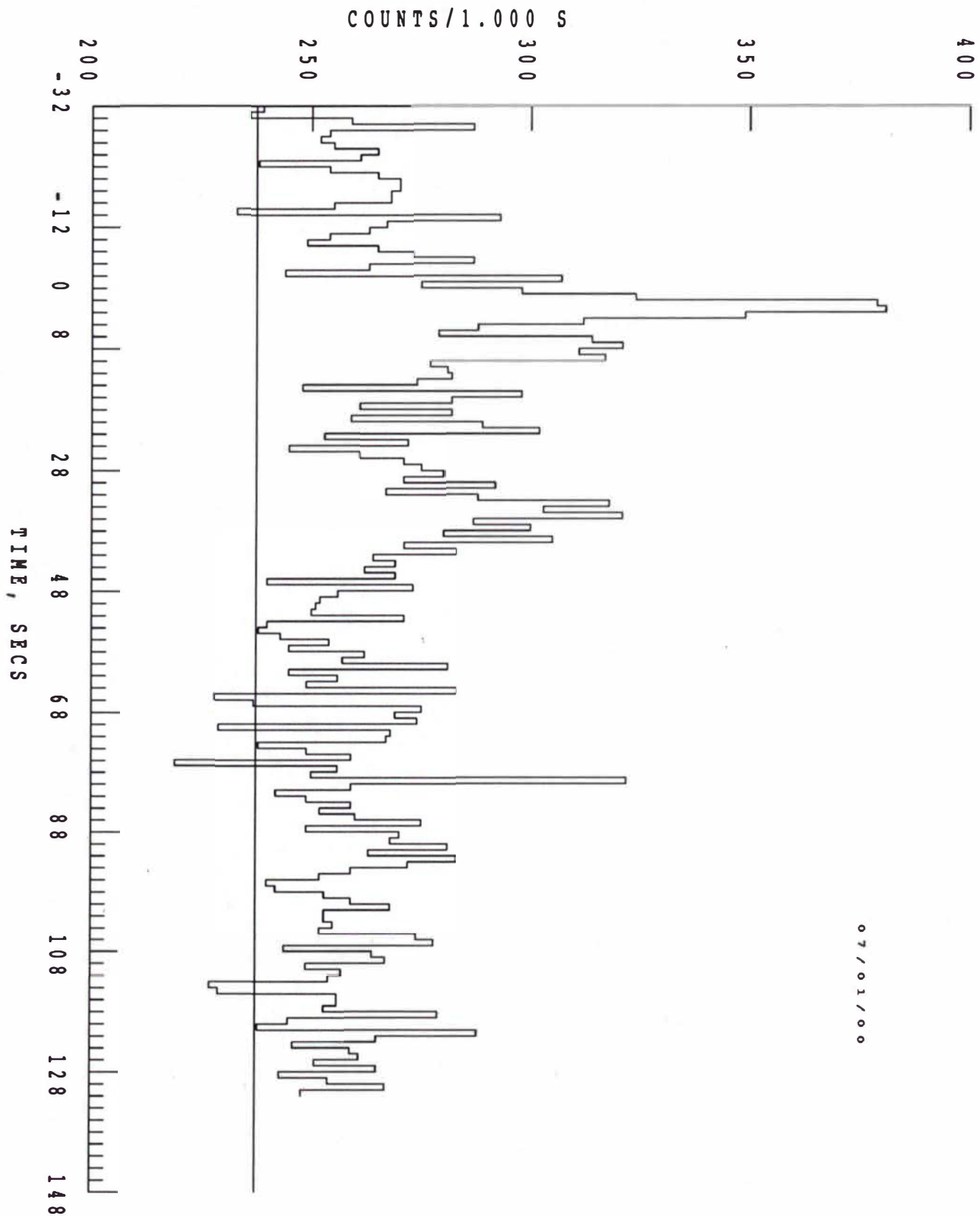


NEAR

29/12/99

34100.472

100-1000 keV



KONUS1 19991229 33921

ULYSSES RT

30 / 12 / 99

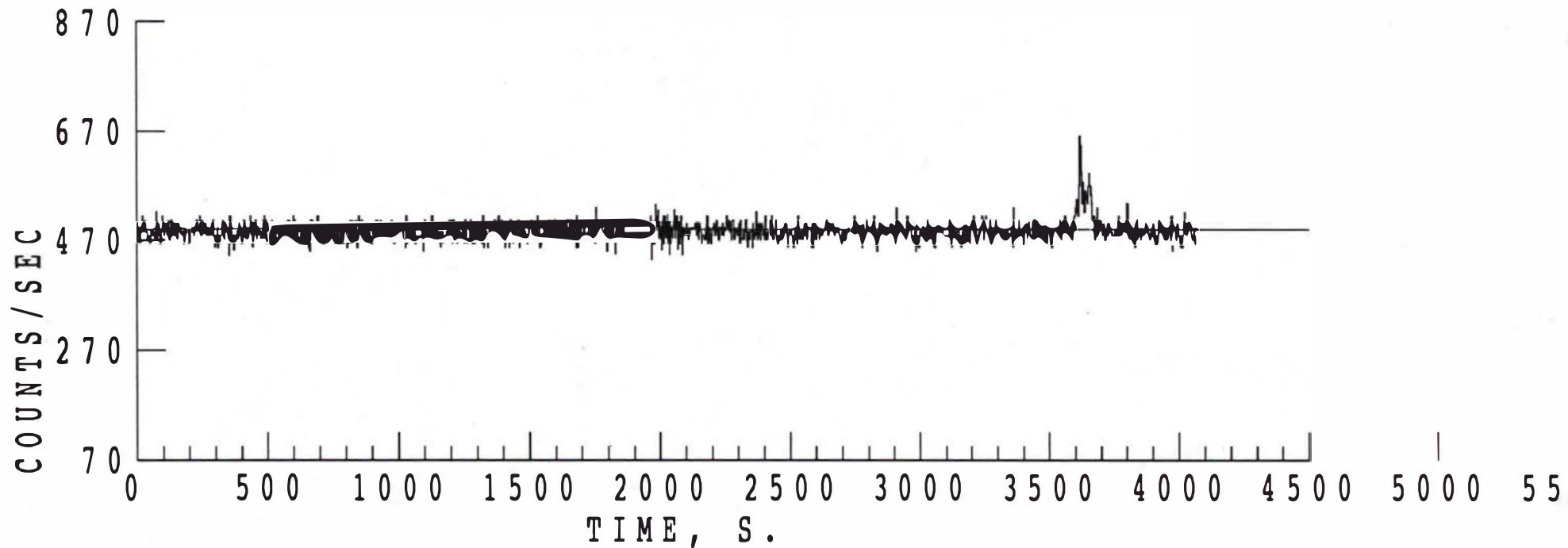
29 / 12 / 99 31896.191 s

INTERVALS REGROUPED BY 6

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@fender.msfc.nasa.gov Tue Jan 4 15:08 PST 2000

From: RICHARDSON@fender.msfc.nasa.gov

Date: Tue, 4 Jan 2000 17:09:37 -0600 (CST)

\: burst@comptel.sr.unh.edu, grobad@ests2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheavx.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSEARCH PROGRAM

BATSE BURST # 7924

EVENT OF 1999 DEC 29 DAY OF YEAR=363

EVENT CROSSING TIME AT BATSE : 43721. S. OR 12:08:41.0

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

BURST ARRIVAL DIRECTION: 312.000 8.000

BATSE PEAK COUNTING RATE: 1800 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND

INTERPOLATED POSITION OF ULYSSES ON 29/12/ 99 IS:

RA= 164.895 DEC= -33.933 DIST= 3.968 AU

BATSE-ULYSSES DISTANCE = 593621600. KM.

ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 39.86 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1519.89 SECS.

CROSSING TIME AT ULYSSES IS 45241. S. OR 12:34:00 +/- 293.43 SECONDS

VENT CROSSING TIME AT MARS WILL BE FOUND

POSITION OF MARS ON 29/12/ 99 IS:

RA= 327.916 DEC= -14.149 DIST= 1.831 AU

MARS-BATSE DISTANCE = 273851648. KM.

ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=152.80 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= -812.44 SECS.

CROSSING TIME AT MARS IS 42909. S. OR 11:55:08 +/- 60.16 SECONDS

BATSE BURST TRIGGER

NO.: 7924

TIME: TJD=1541 SECONDS=43721

TYPE: BURST

SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

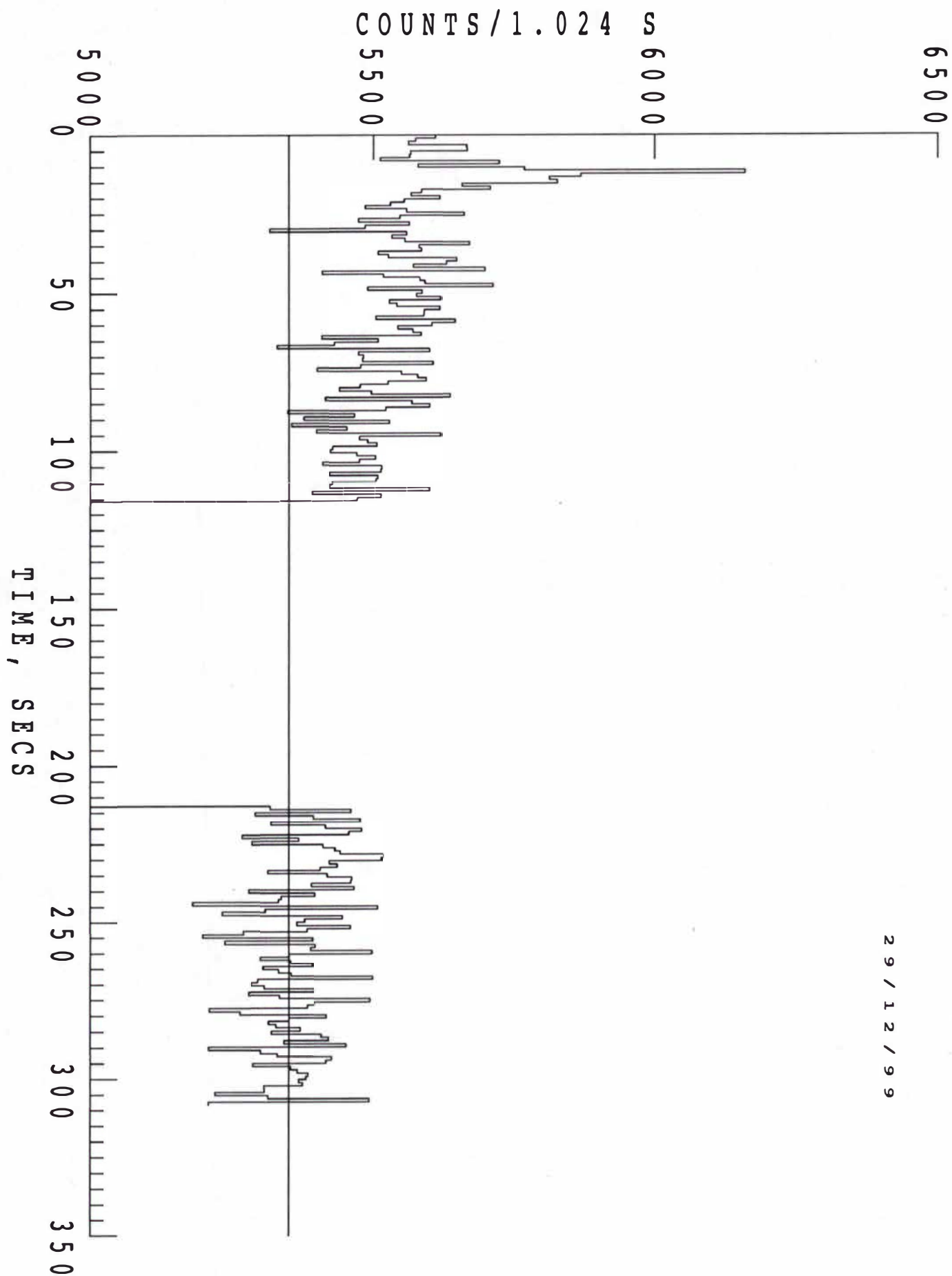
LOCATION: ZENITH=36.8 AZIMUTH=274.8 ERROR=8.9 DEGREES

COMMENTS:

GRB. WEAK SINGLE PULSE. DURATION APPROX. 13 SEC. NOT VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7924	991229	11541	43721	1800	312	+08	13

BACODINE 7924 29/12/99 43709.177
25- 100 keV



BATSE BURST# 7924

ULYSSES RT

06/01/00

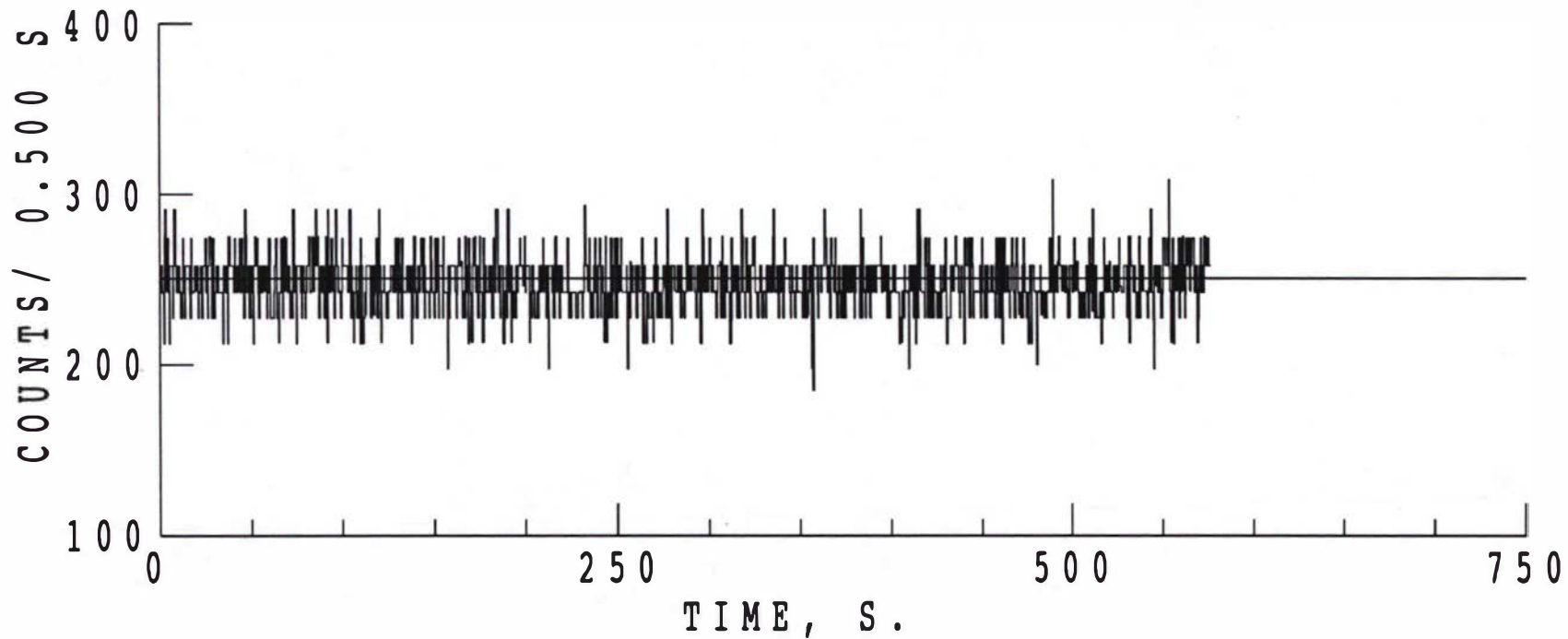
29/12/99 44964.078 s

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 HENZE@fender.msfc.nasa.gov Tue Jan 4 15:23 PST 2000
From: HENZE@fender.msfc.nasa.gov
Date: Tue, 4 Jan 2000 17:25:06 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 7925

BATSEARCH PROGRAM

BATSE BURST # 7925
EVENT OF 1999 DEC 29 DAY OF YEAR=363
EVENT CROSSING TIME AT BATSE : 54683. S. OR 15:11:23.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 333.000 34.000
BATSE PEAK COUNTING RATE: 28000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 29/12/ 99 IS:
RA= 164.881 DEC= -33.960 DIST= 3.966 AU
BATSE-ULYSSES DISTANCE = 593295315. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 9.85 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1949.87 SECS.
CROSSING TIME AT ULYSSES IS 56633. S. OR 15:43:52 +/- 138.37 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 29/12/ 99 IS:
RA= 327.916 DEC= -14.149 DIST= 1.831 AU
MARS-BATSE DISTANCE = 273851648. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=131.61 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -606.58 SECS.
CROSSING TIME AT MARS IS 54076. S. OR 15:01:16 +/- 109.37 SECONDS

BATSE BURST TRIGGER

NO.: 7925

TIME: TJD=1541 SECONDS=54683

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 67.1 AZIMUTH=261.2 ERROR= 2.4 DEGREES

COMMENTS:

MULTIPEAKED, TOTAL DUR. APPROX. 170 S. STARTS AT APPROX. T-5 S, MAX AT APPROX. T+9 S. STRONG SECONDARY PULSE HAS MAX AT APPROX. T+87 S. VISIBLE ABOVE 300 KEV

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7925	991229	11541	54683	28000	333	+34	170

Date: June 12 00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☒ ~~Final~~ Jim Schmidling's stat file correction applied?
- ☒ ~~Final~~ Final ephemeris used?
- ☒ ~~Final~~ Final, CDROM data used?
- ☒ ~~Is~~ 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~~ BATSE ephemeris for T_0 ?
- ☒ ~~Error~~ Error circle position and radius from public catalog used?
- ☐ If MER data were used, is a 30 ms systematic error included?

3. NEAR Data

- ☒ ~~Final~~ Final, correct time used? (Files postmarked vwx@bocc1, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times)
- ☒ ~~BATSE~~ BATSE >100 keV data used for NEAR correlation?
- ☒ ~~ACCESS~~ 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

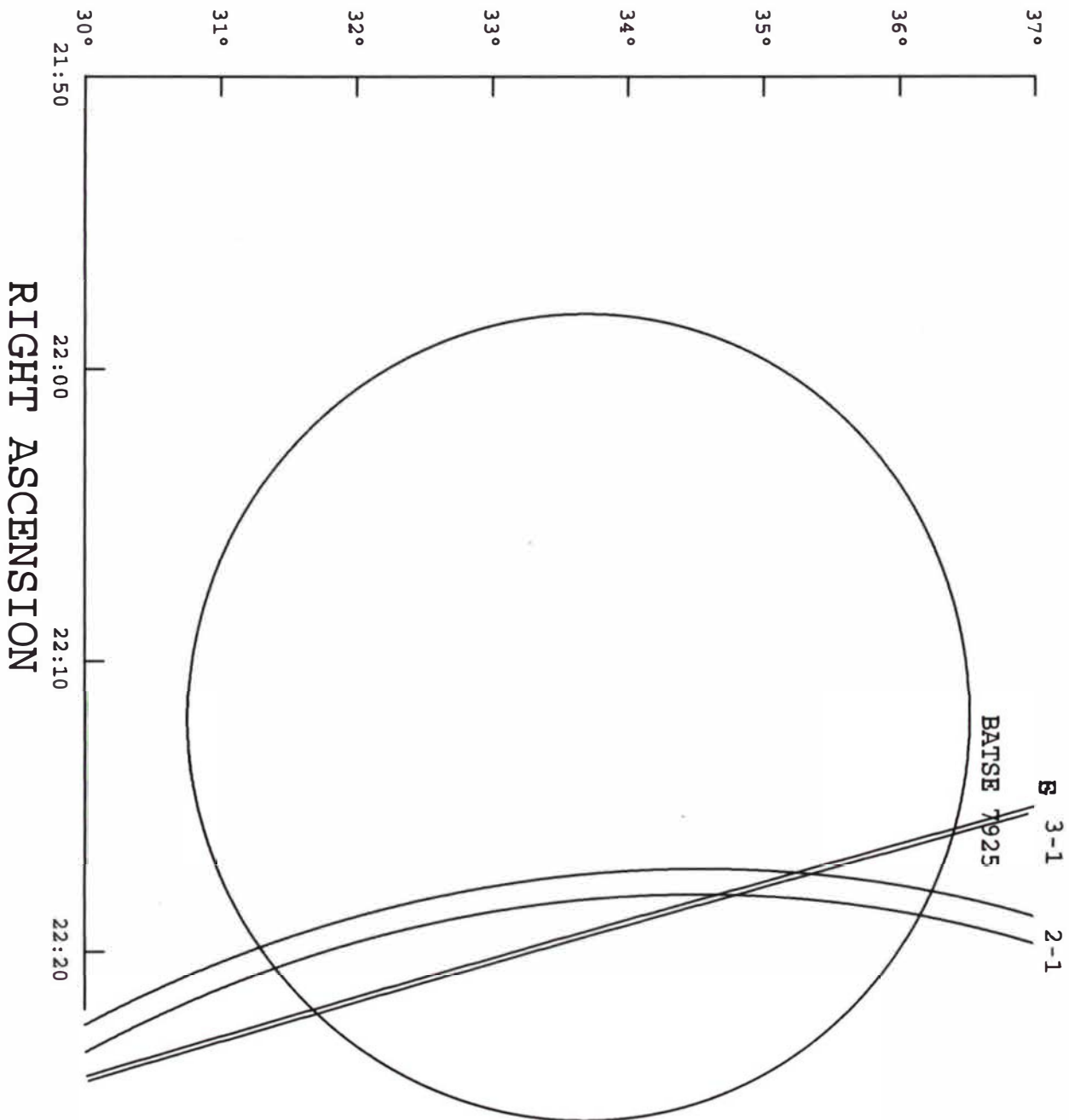
2 ULYSSES

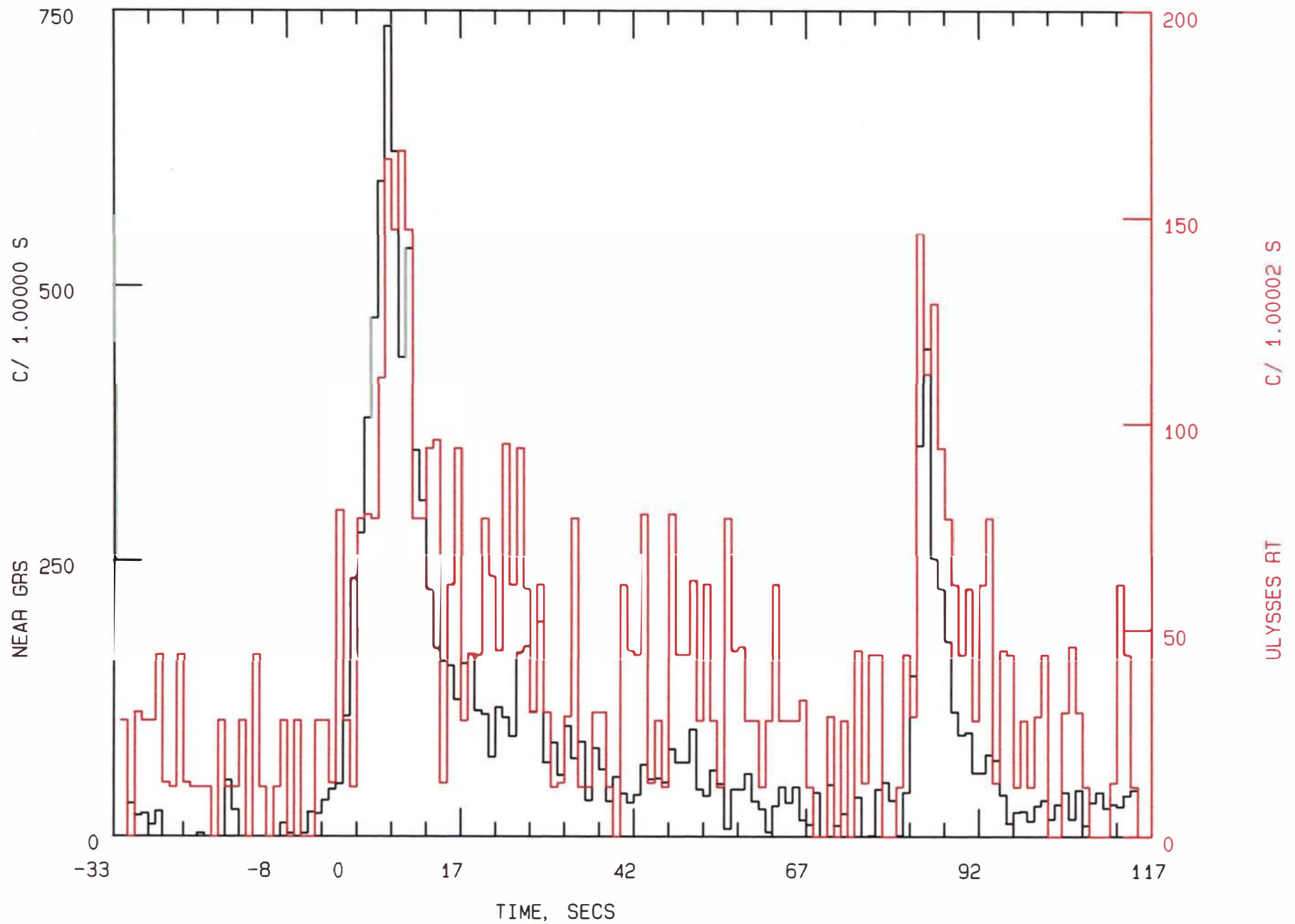
3 NEAR

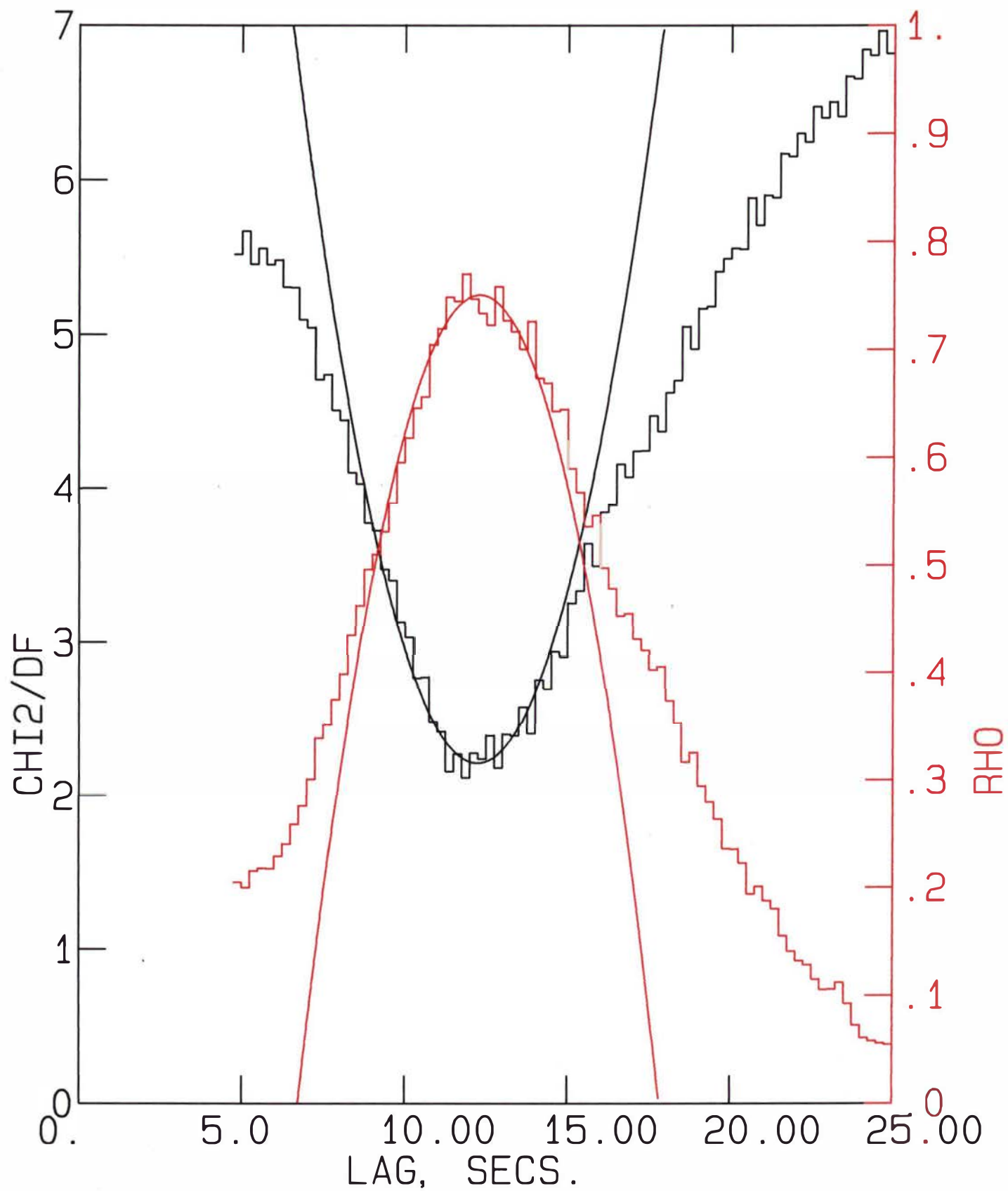
DECLINATION

EVENT OF DEC 29, 1999 15:11

12/ 6/ 0







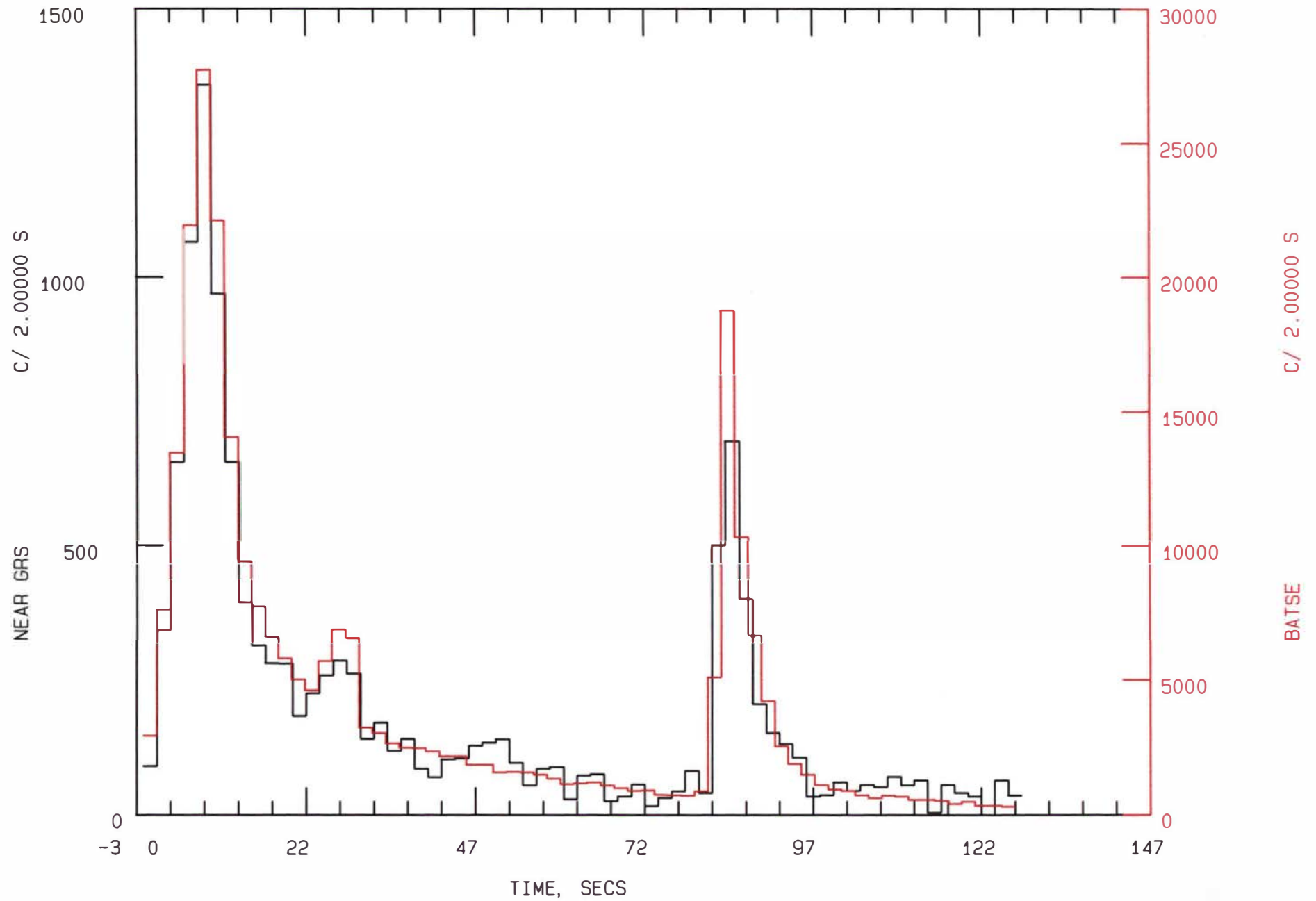
NEAR GRS -BATSE

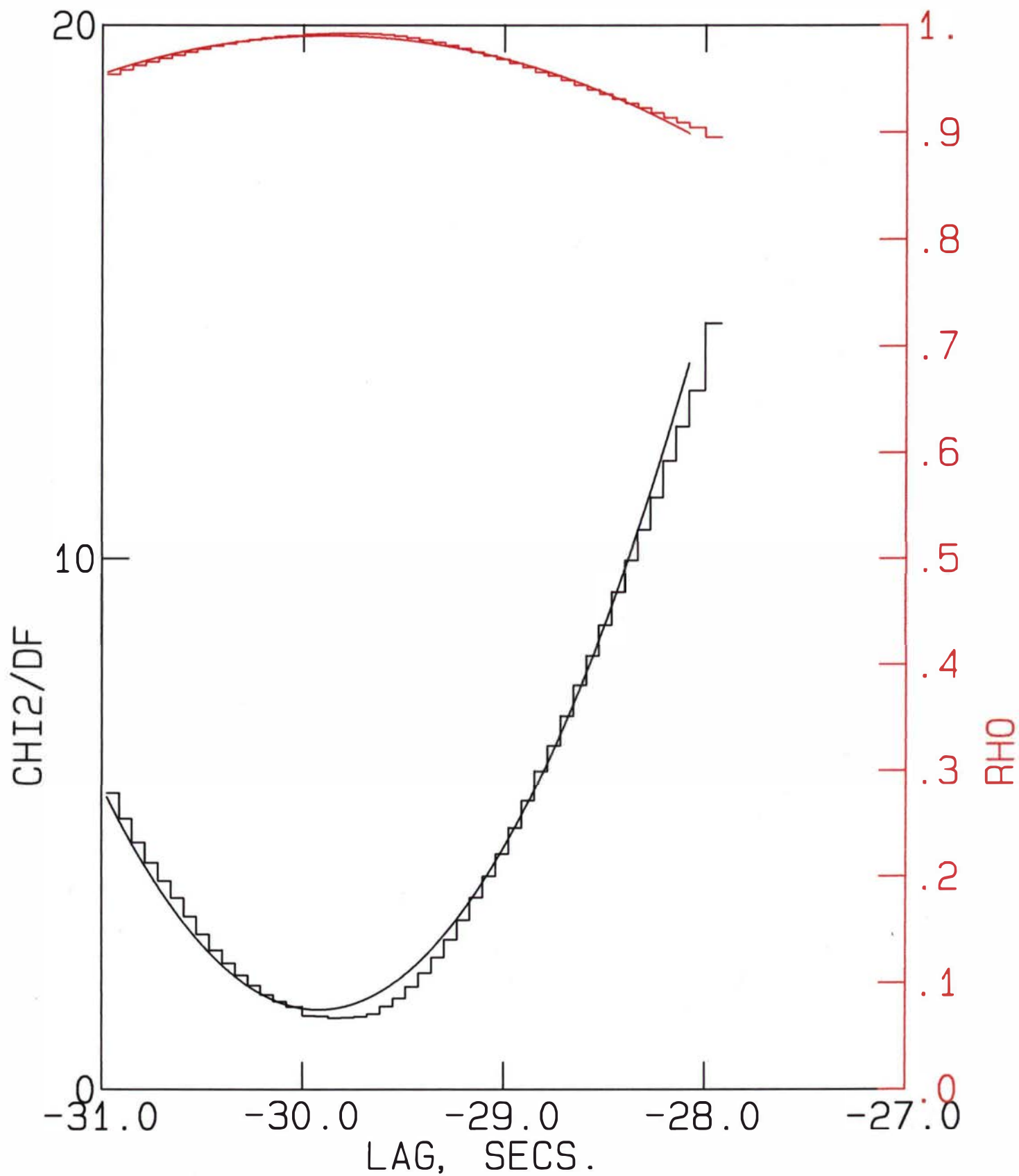
CORRELATION

29/12/99

55093.465

12/ 6/ 0





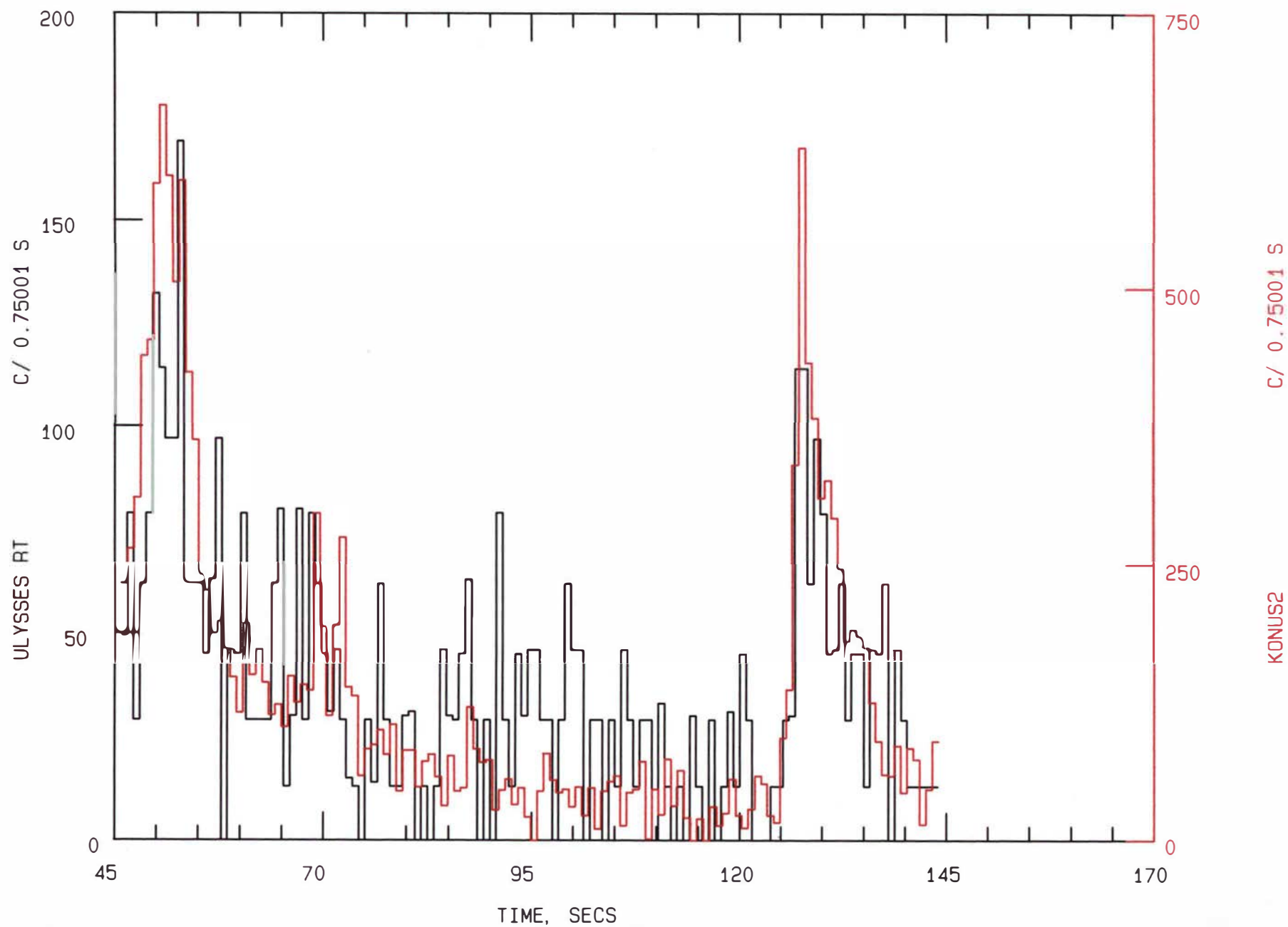
ULYSSES RT-KONUS2

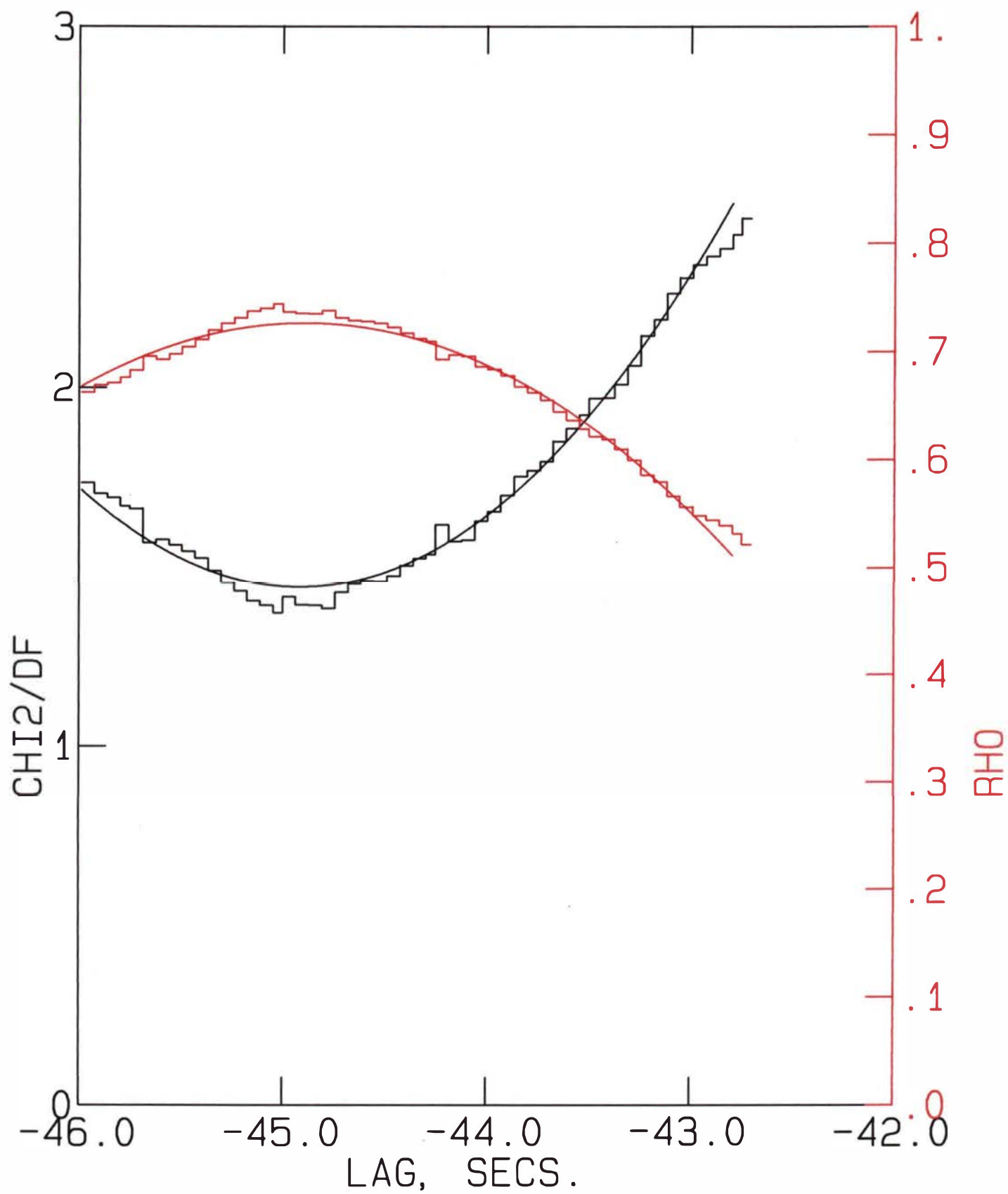
CORRELATION

29/12/99

56604.198

12/ 6/ 0





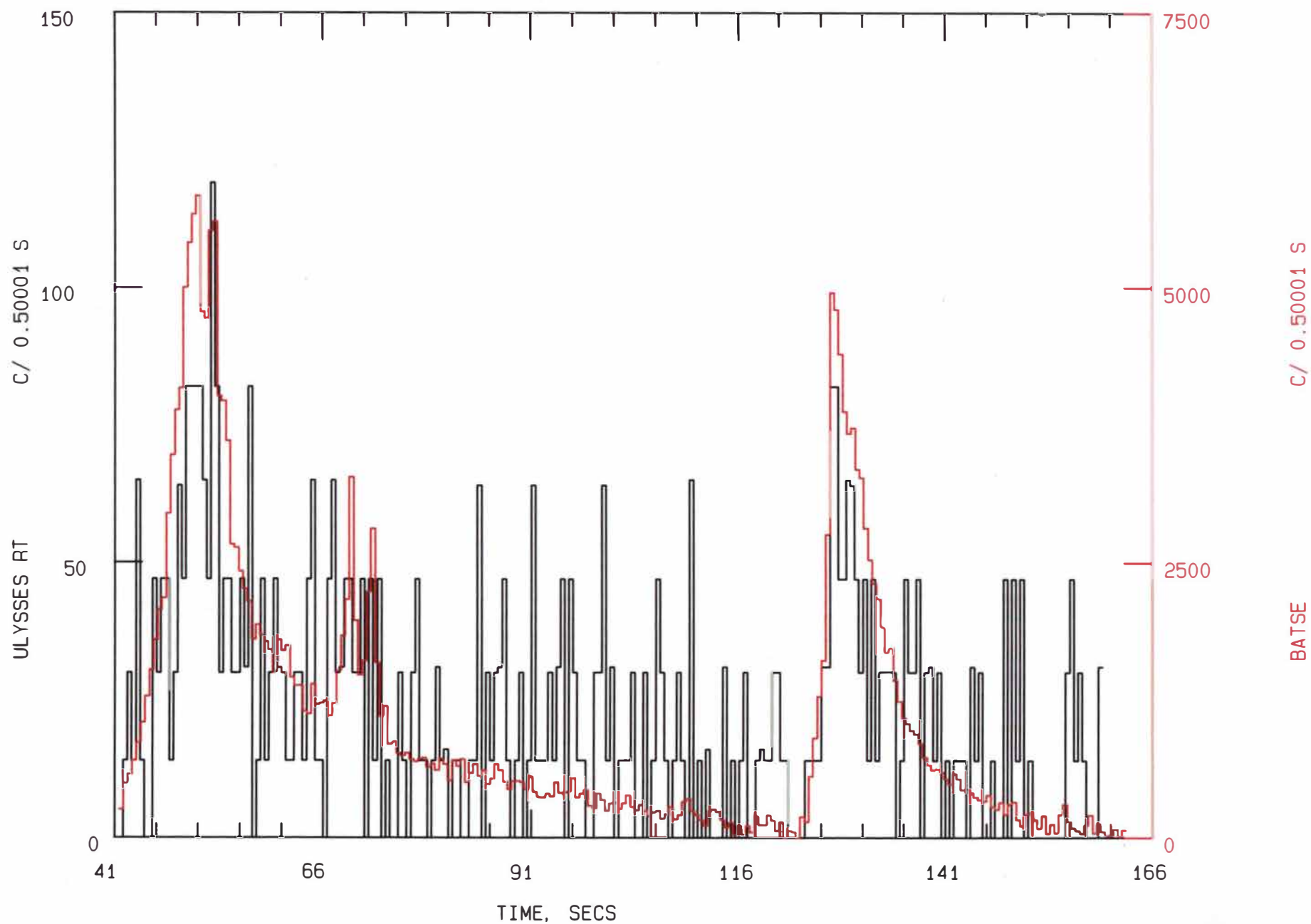
ULYSSES RT-BATSE

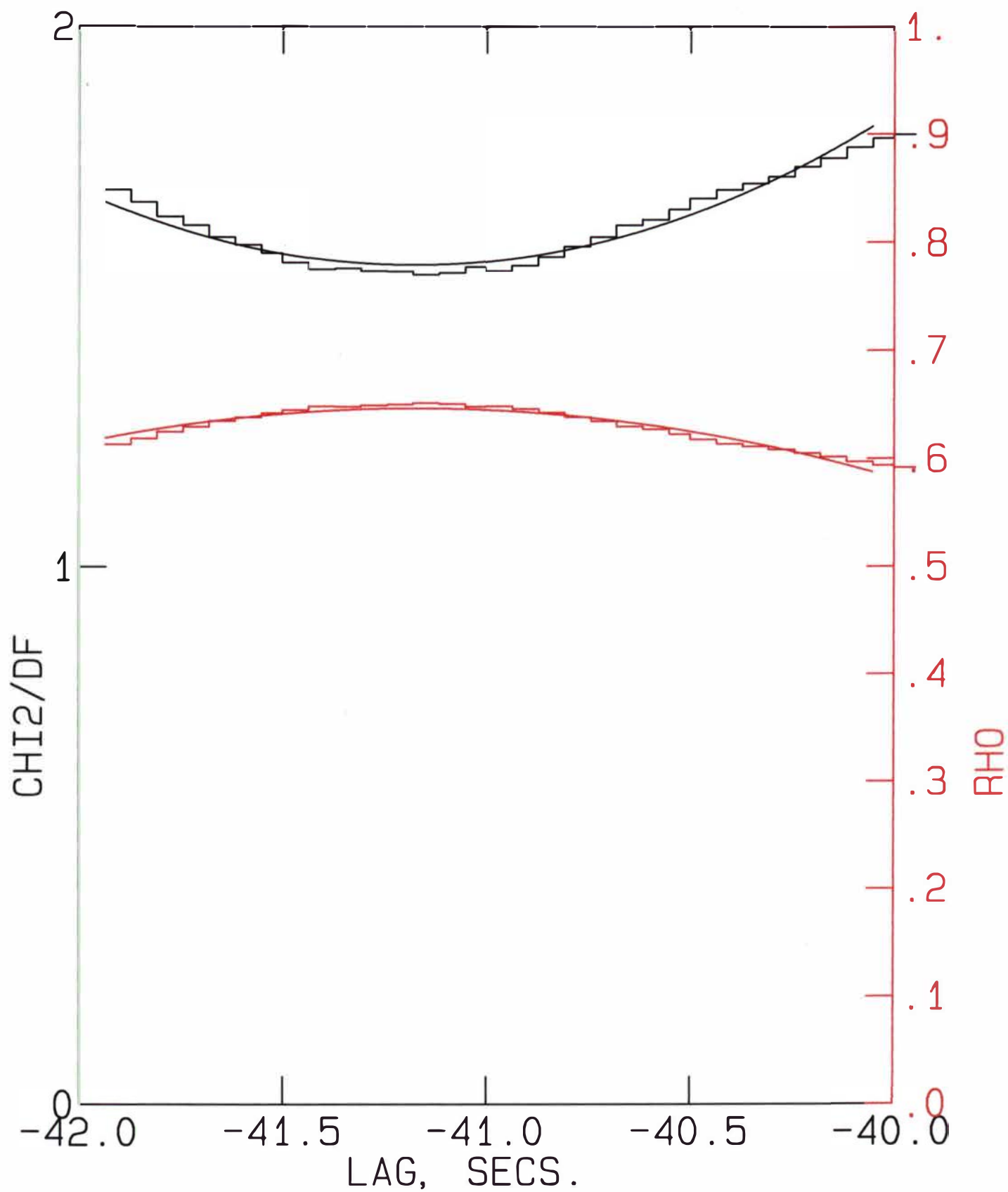
CORRELATION

29/12/99

56604.198

12/ 6/ 0

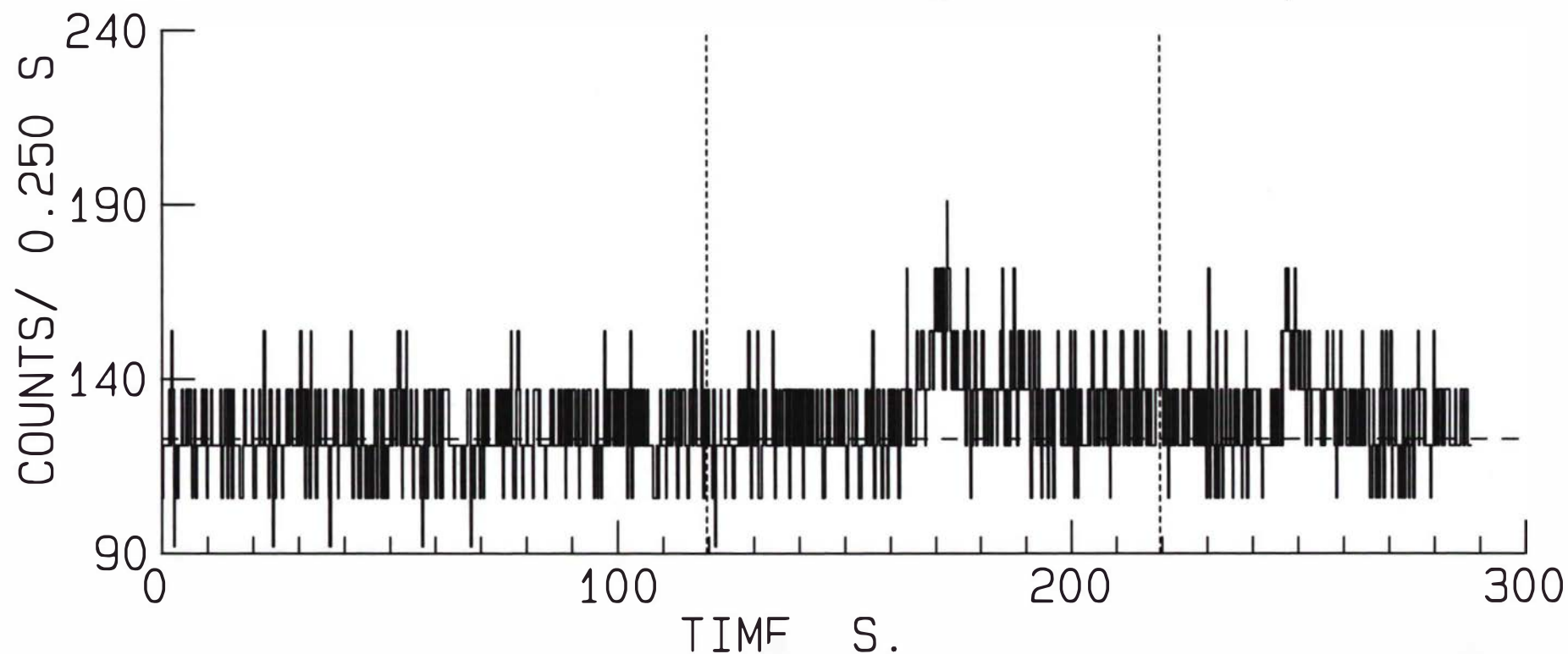




ULYSSES RT
29/12/99 56484.198 s
22- 151 keV

12 / 6 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



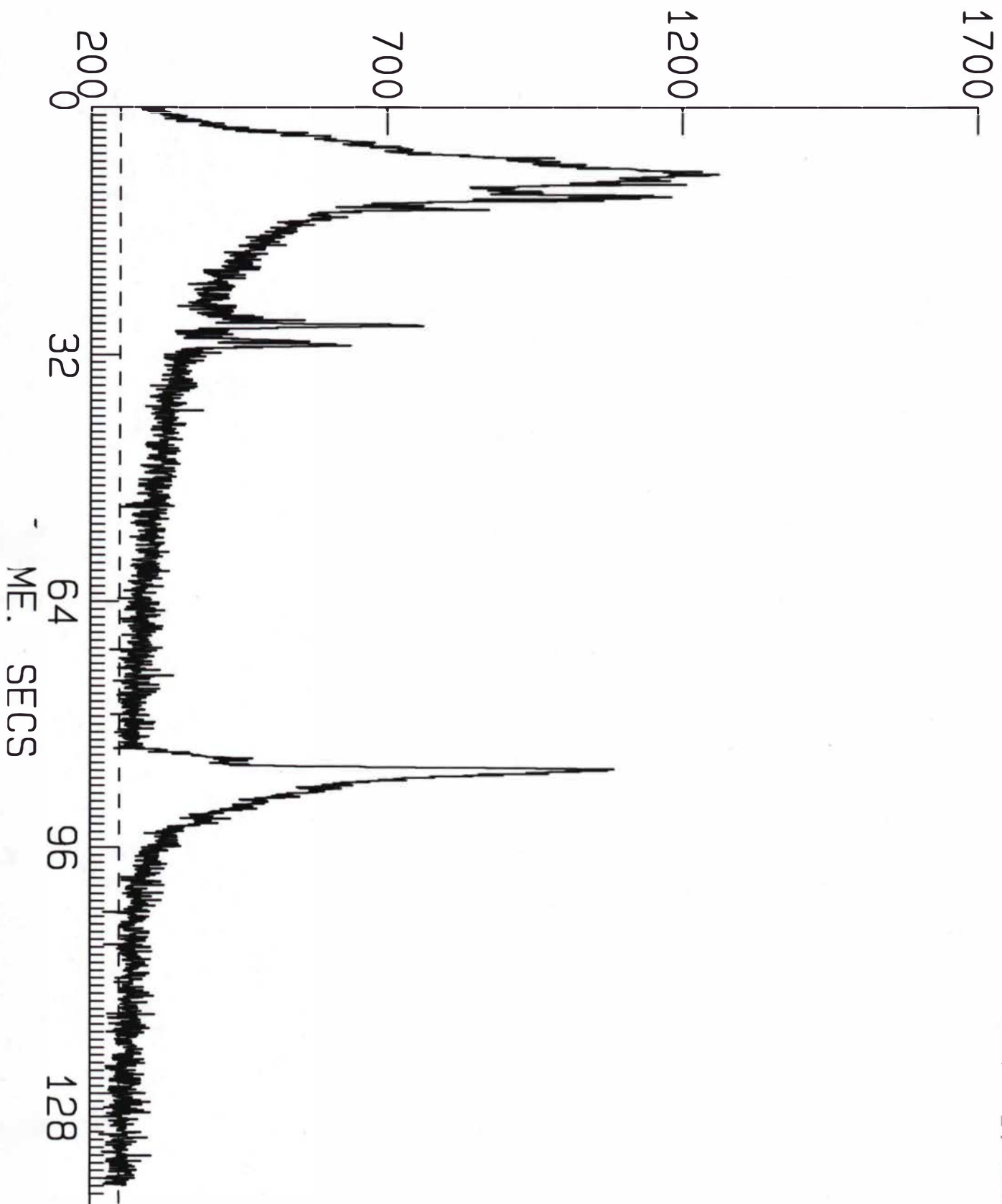
BATSE

29/12/99

54683.385

100-1000 keV

COUNTS/0.064 S



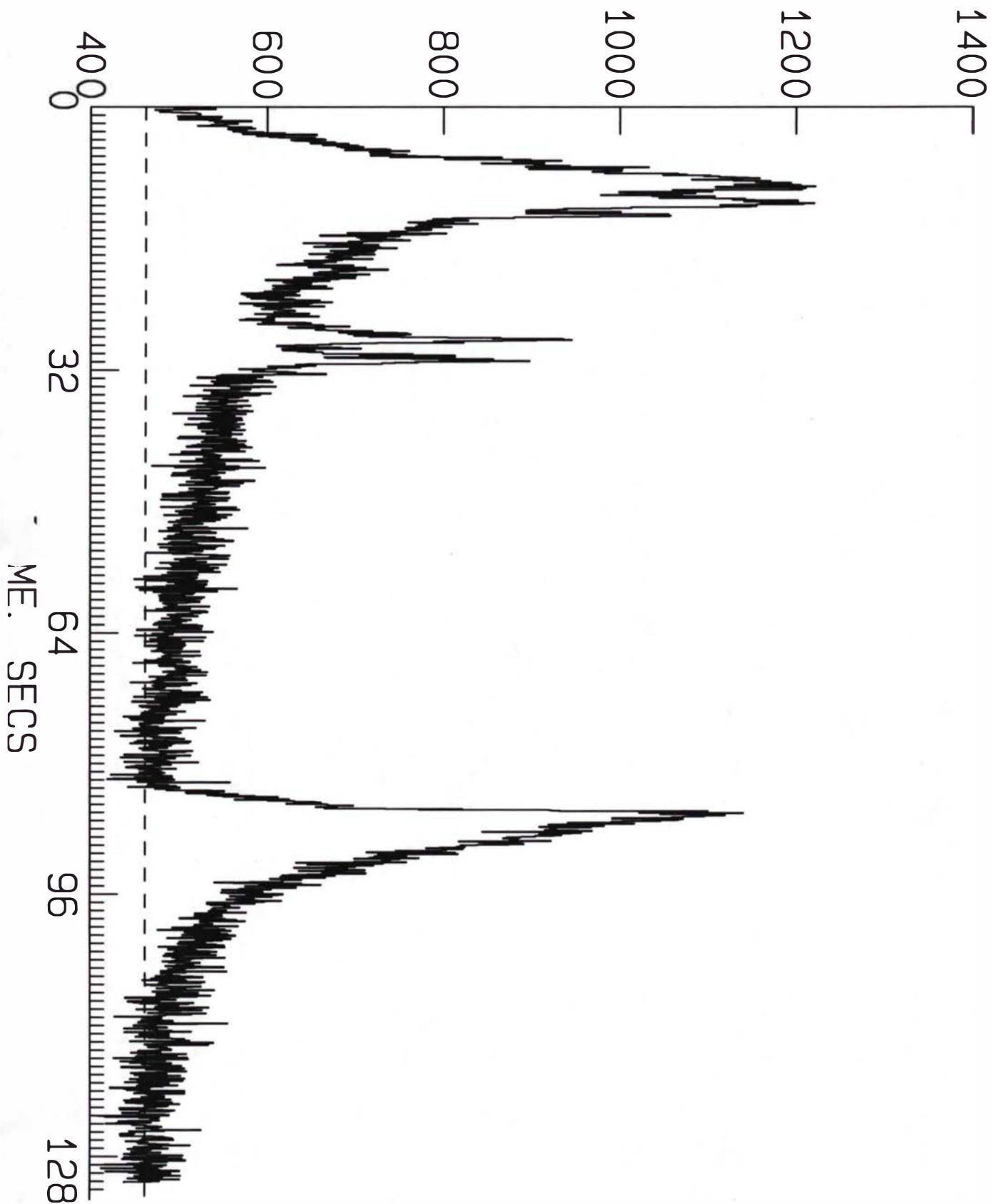
BATSE

29/12/99

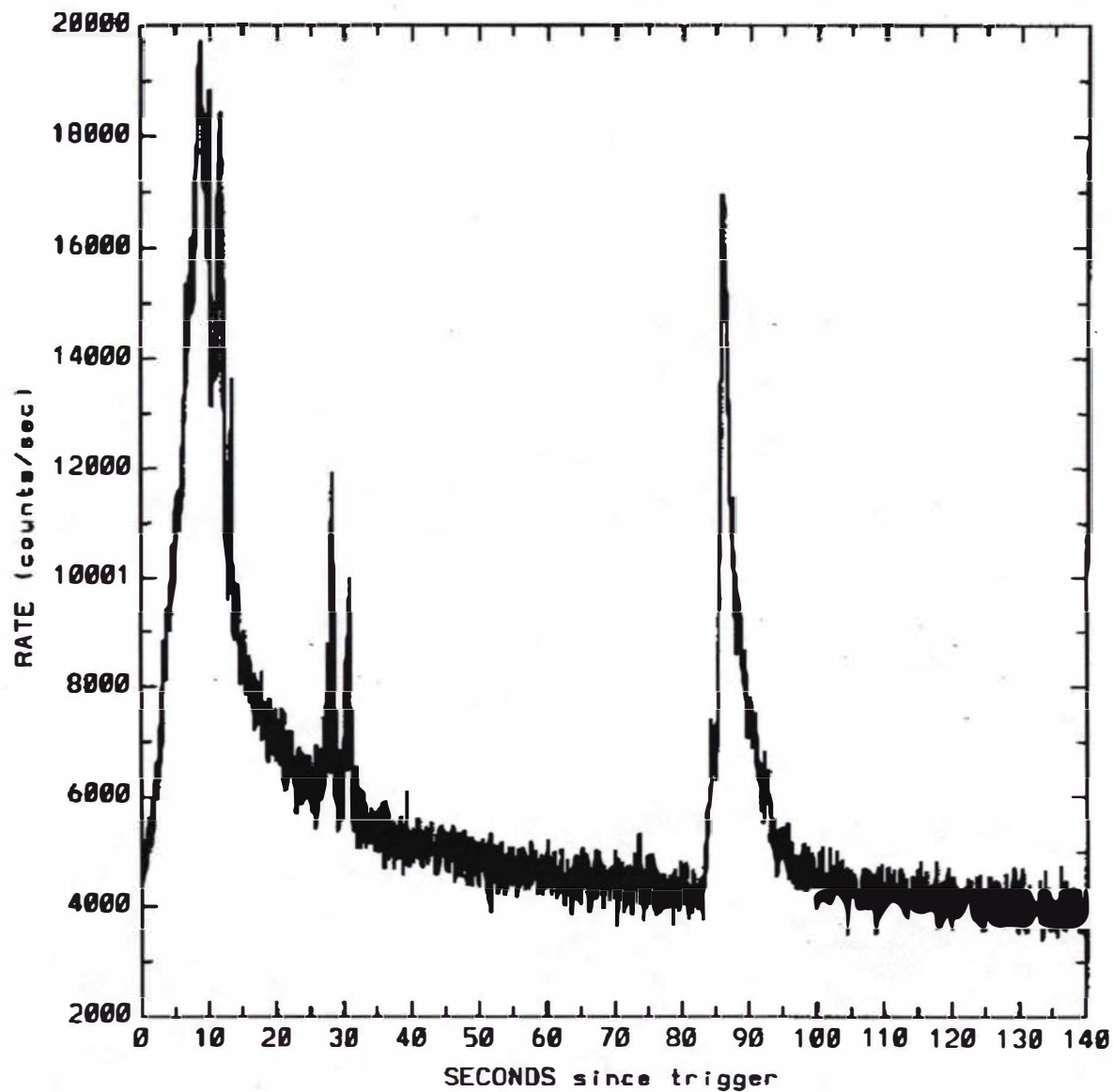
54683.385

25- 100 keV

COUNTS/0.064 S



MER Data for K. Hurley, No. 7925



7-JAN-2000 12:14:27

Created by MDPS BD
(Burst Display)
Version t2.26

Trigger # . 7925

Trigger Time:
11541 / 54683.385

Burst Data Type:
MER

Deadtime
Corrected: N

Background Data
Type: CONT

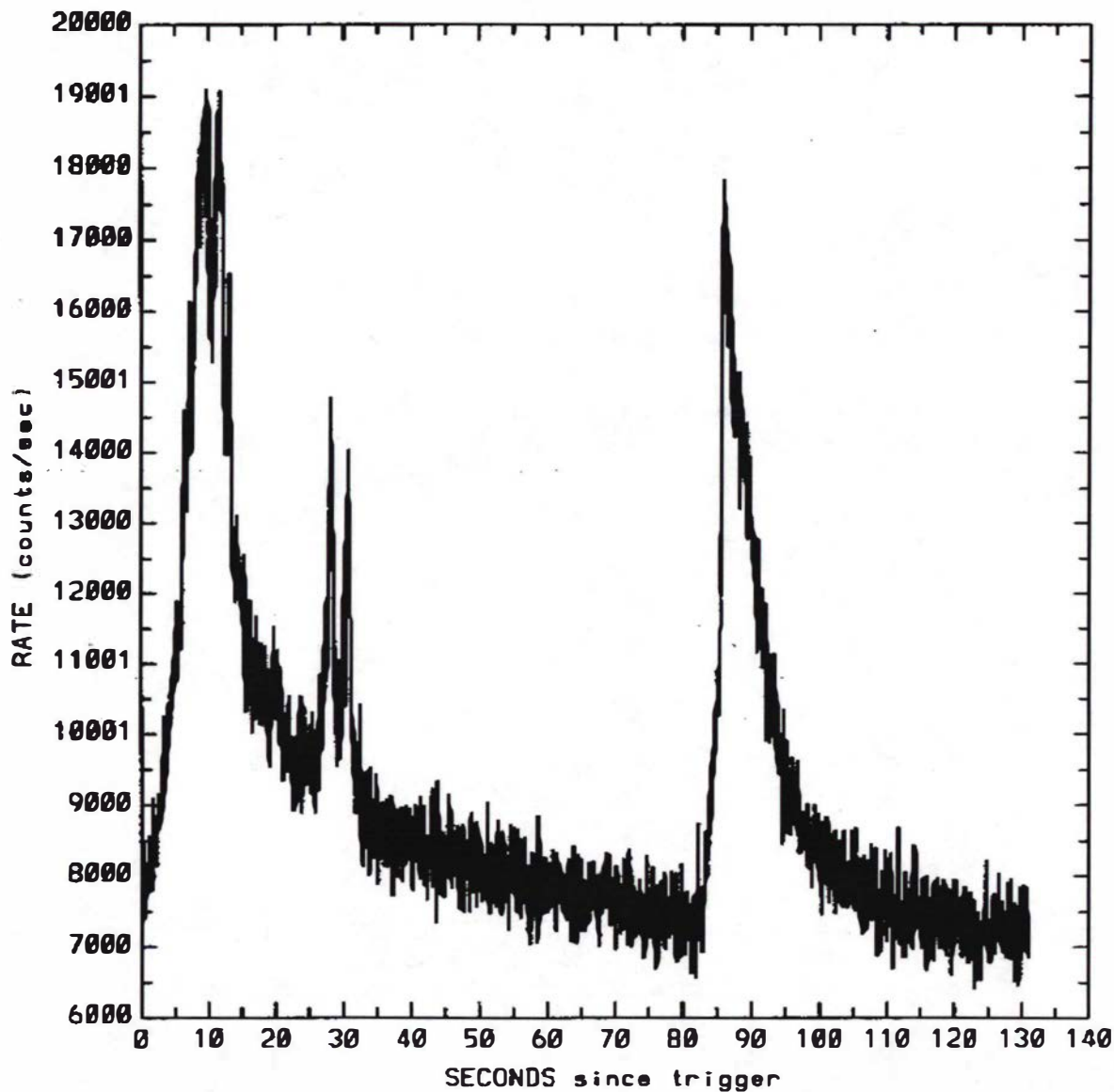
Minimum Integ. Time:
0.064 second(s)

Detectors [7..8]:
-6---2--

Channels:
(7 .15)

Quality Mask:
80ISP1

MER Data for K. Hurley, No. 7925



7-JAN-2000 12:18:21

Created by MOPS BD
(Burst Display)
Version 12.26

Trigger = 7925

Trigger Time:
11541 / 54683.385

Burst Data Type:
MER

Deadtime
Corrected: N
Background Data
Type: COUNT
Minimum Integ. Time:
0.064 seconds

Detectors [7..8]:
-6---2--

Channels:
(0 - 6)

Quality Mask:
BDISP1

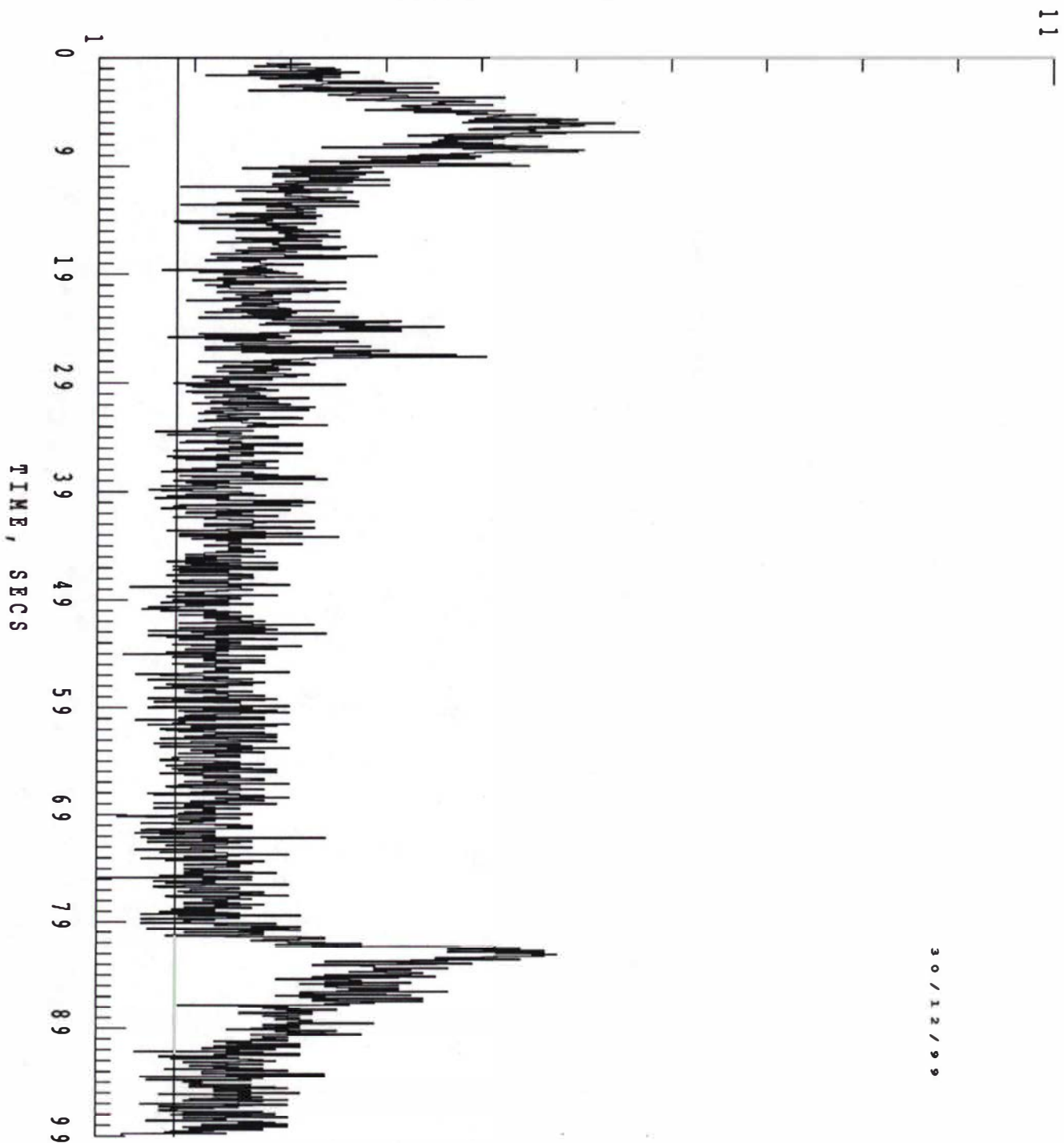
KONUS

29/12/99

54688.060

50 - 200 keV

COUNTS/0.064 S



30/12/99

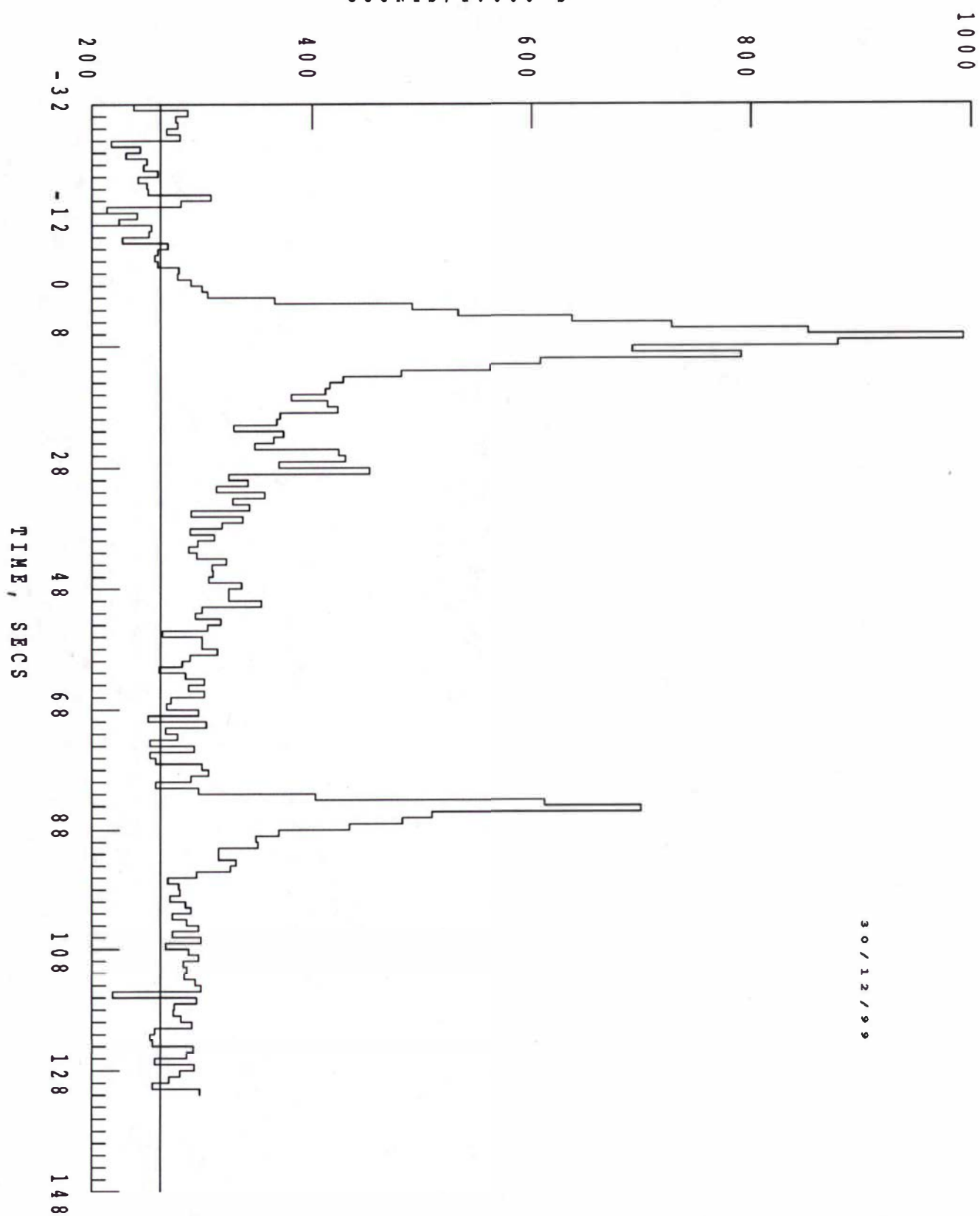
NEAR

29/12/99

55093.465

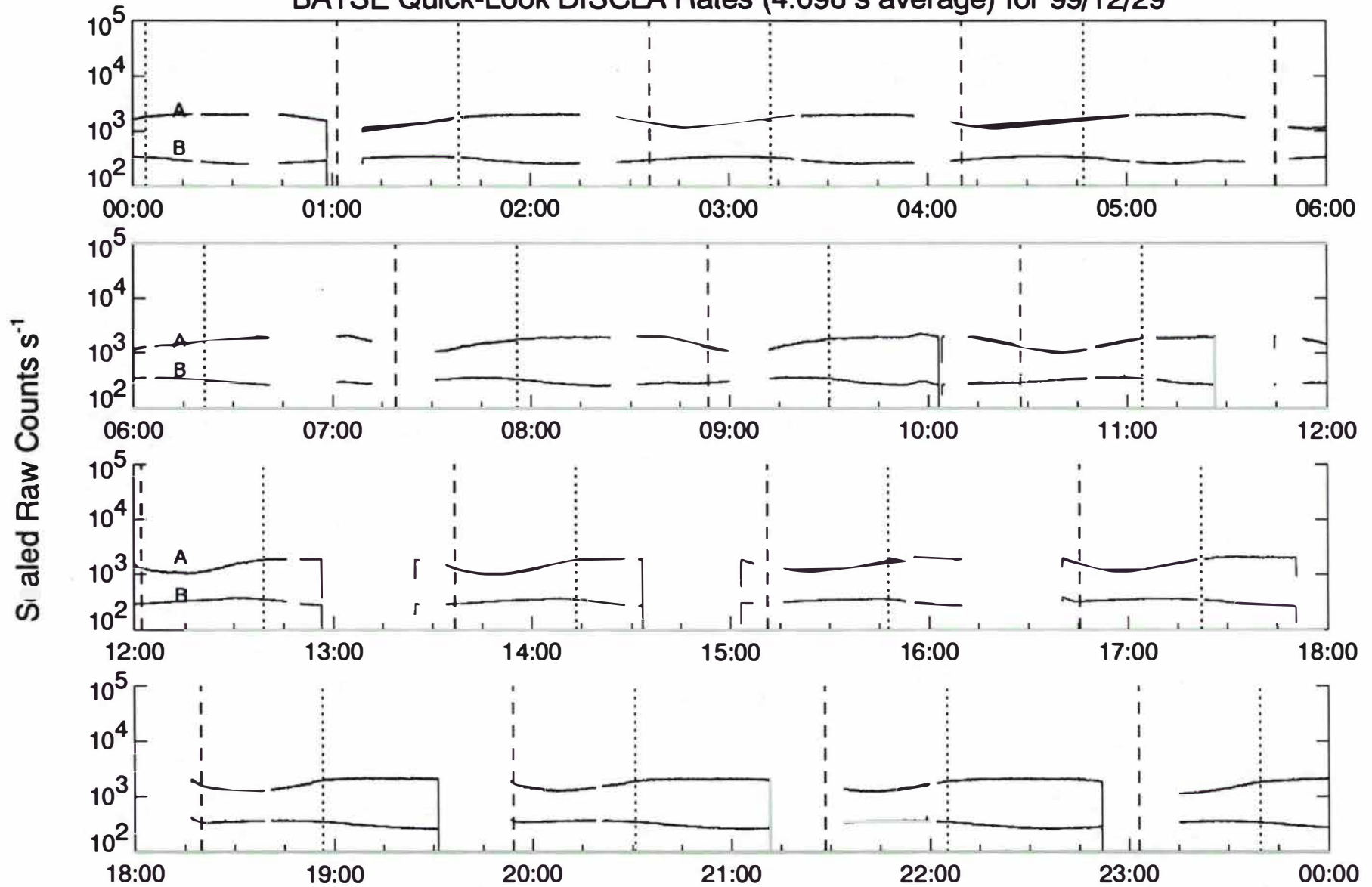
100-1000 keV

COUNTS/1.000 S



30/12/99

BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/29

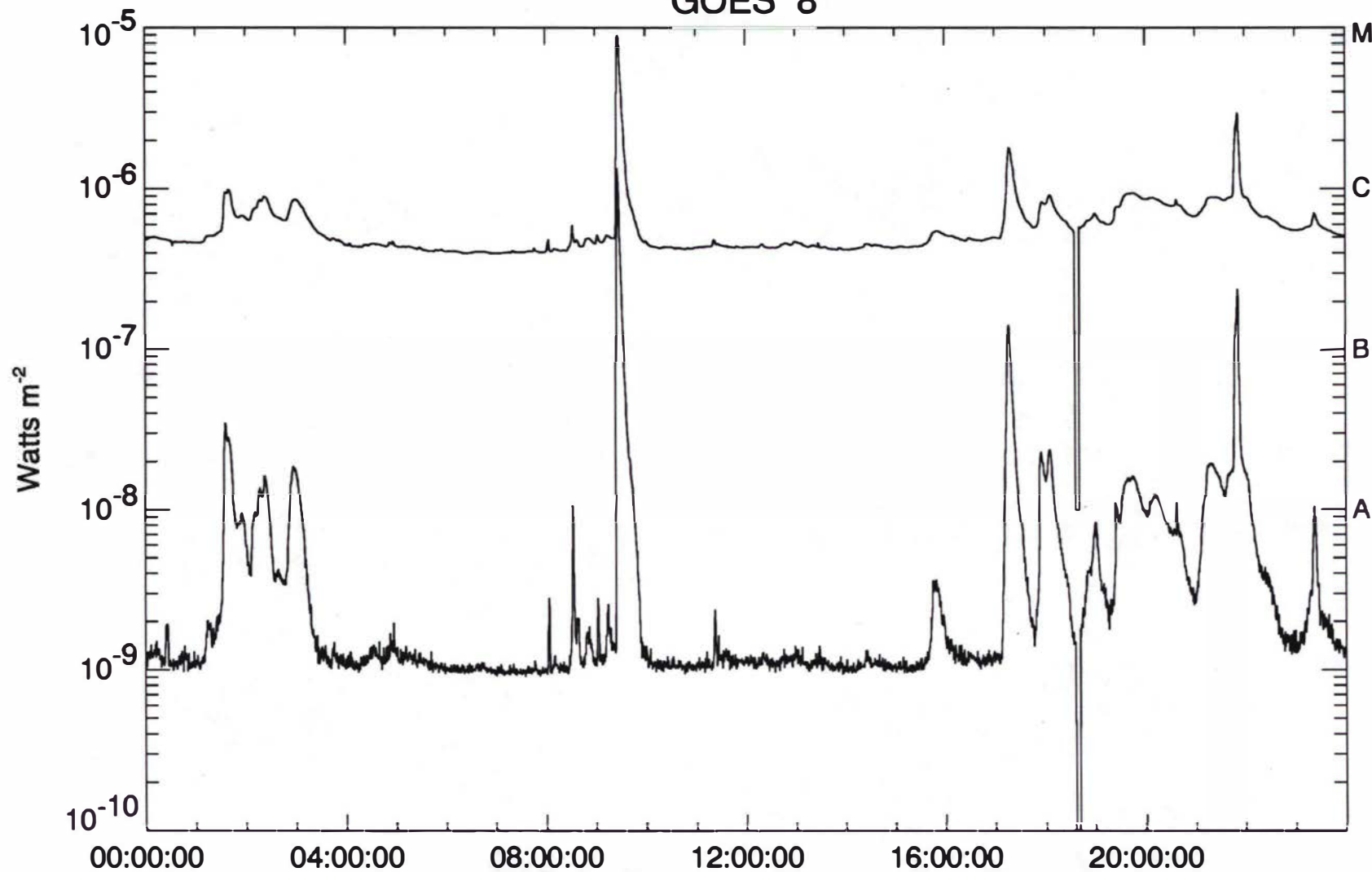


Current Time: 00/01/05, 1816 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 99/12/29, 0000:00

Plot created: 00/01/05, 1815

Channel

1 (1.0 - 8.0 Angstroms)

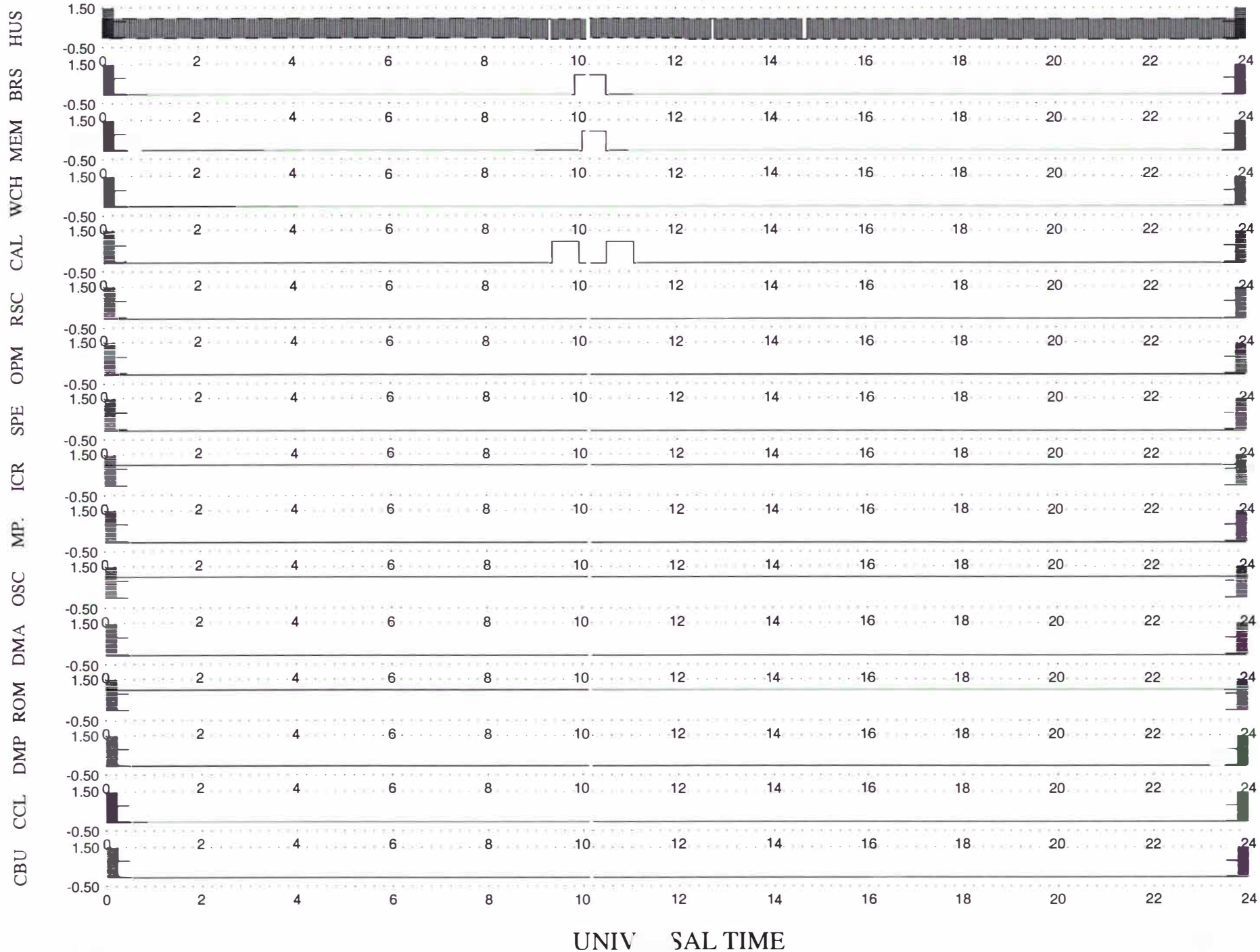
Background not subtracted

2 (0.5 - 4.0 Angstroms)

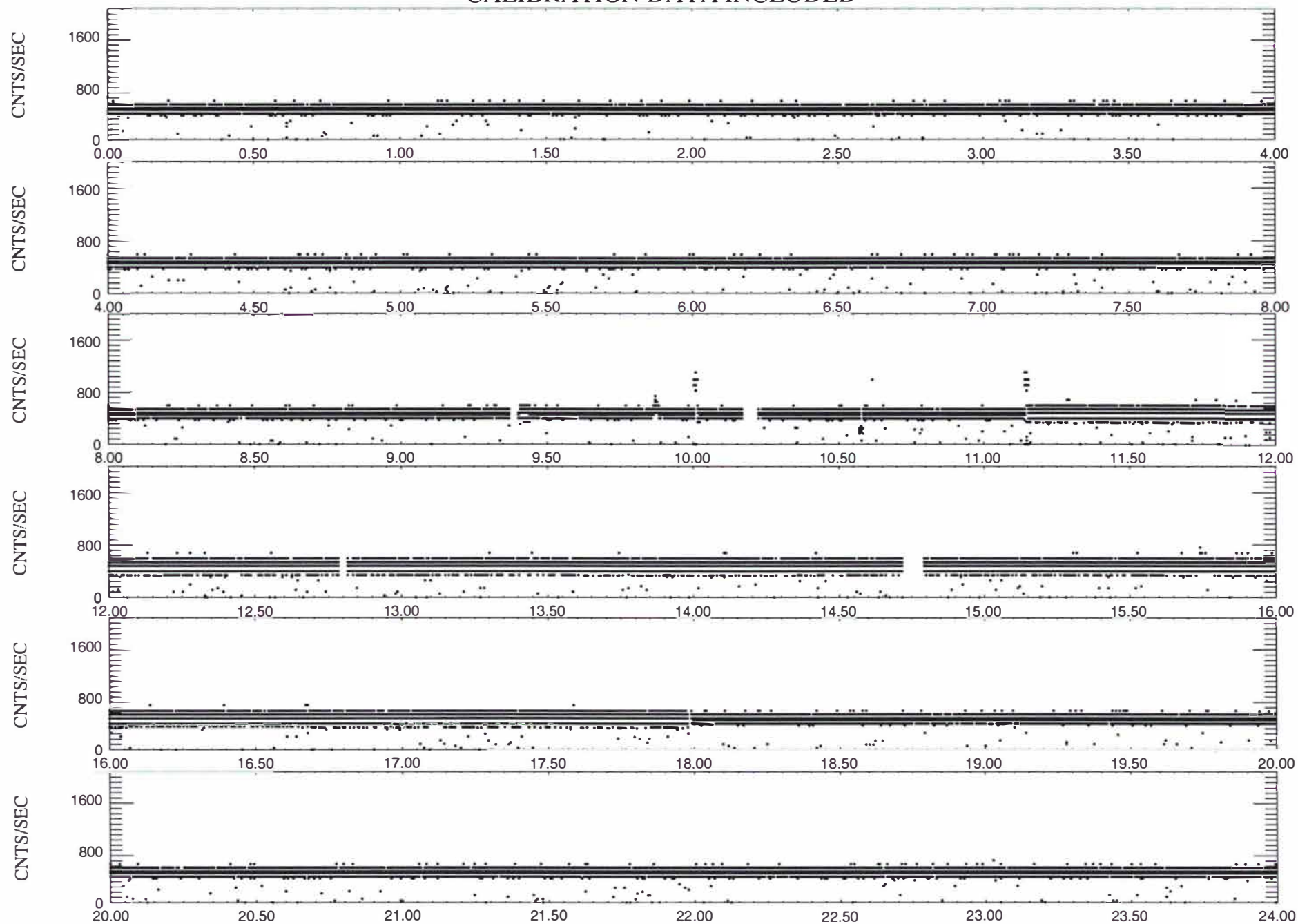
Background not subtracted

Sample average = 10

BURST NUMBER 0

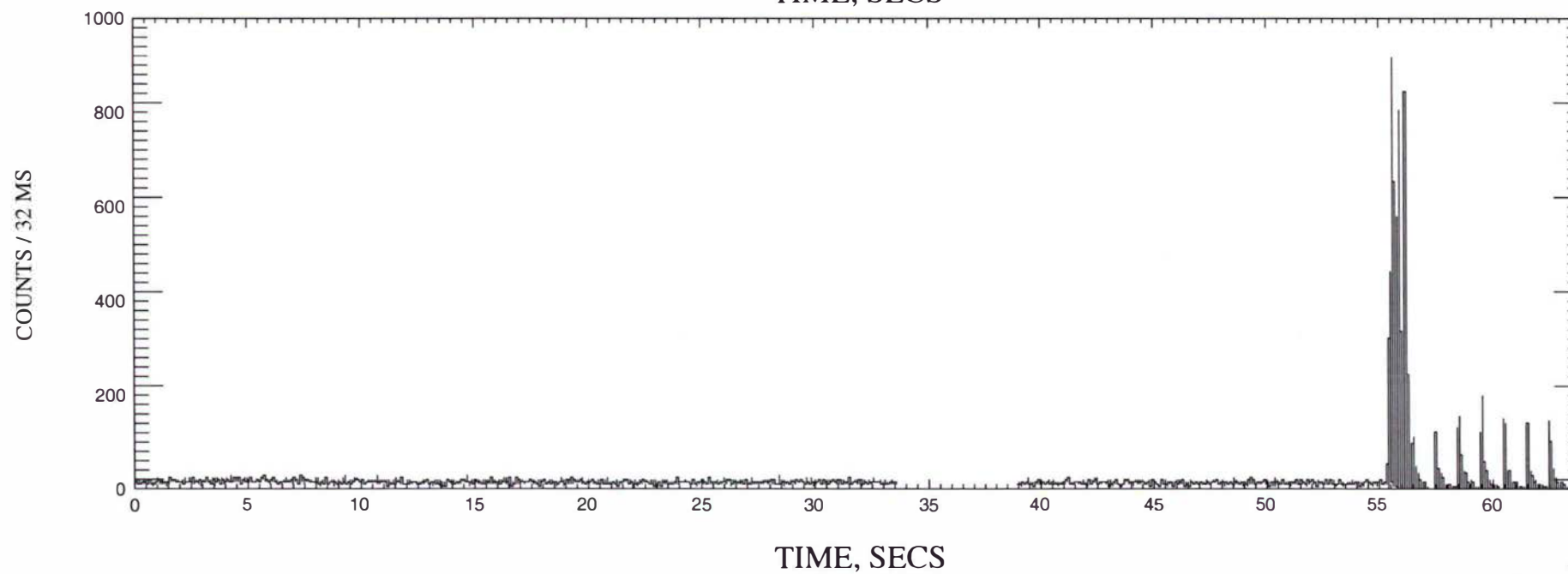
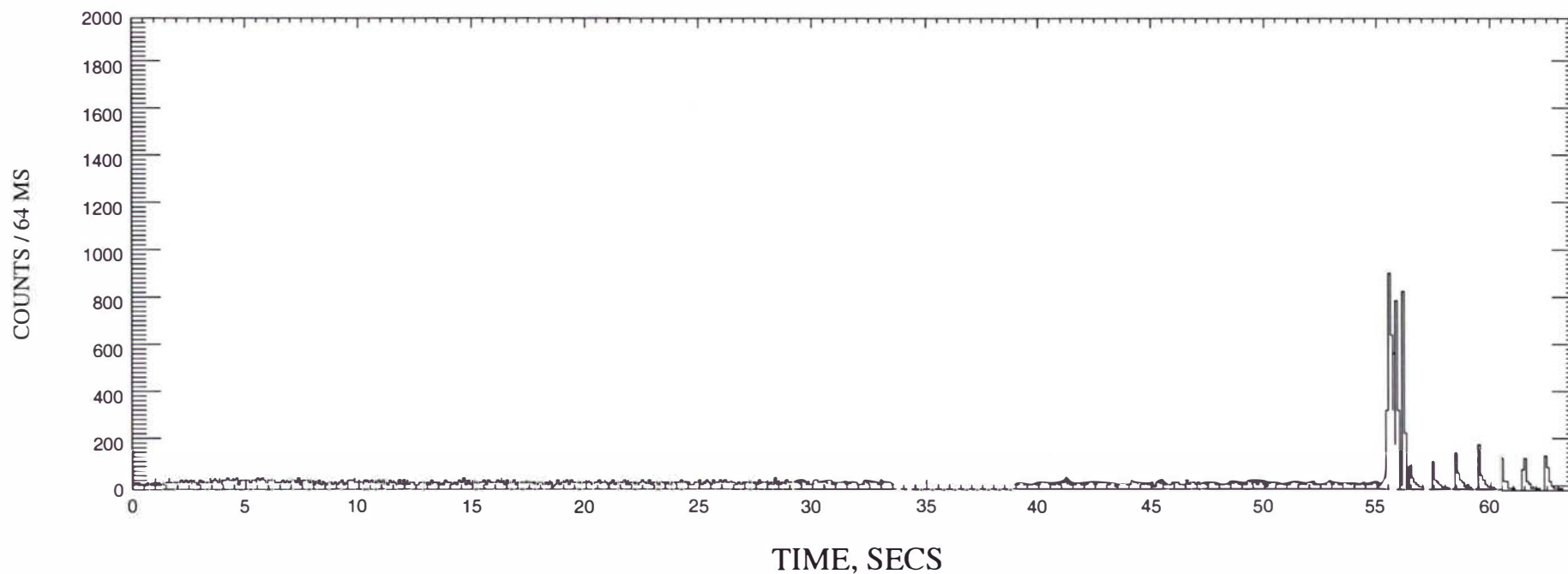


CALIBRATION DATA INCLUDED

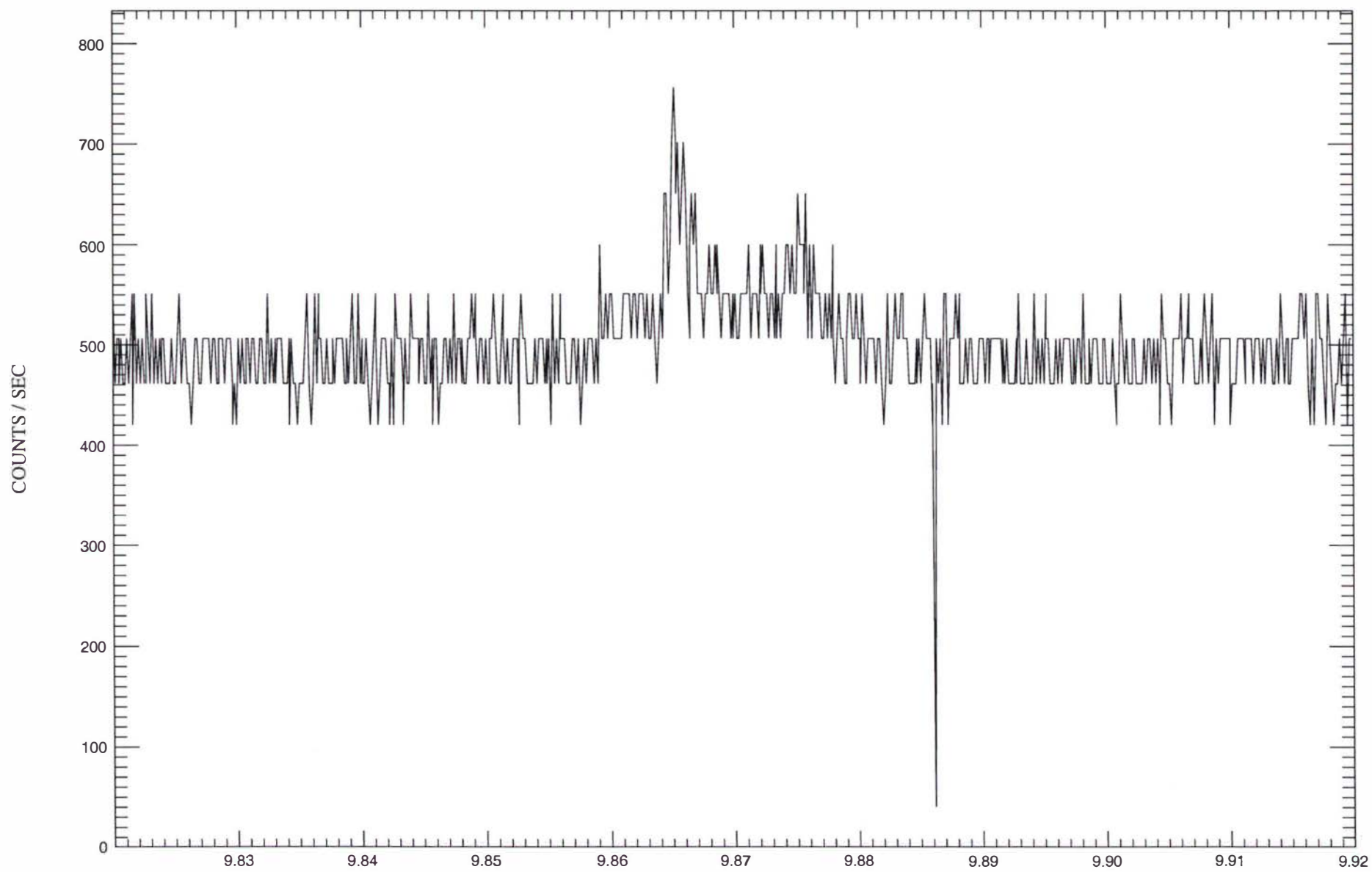


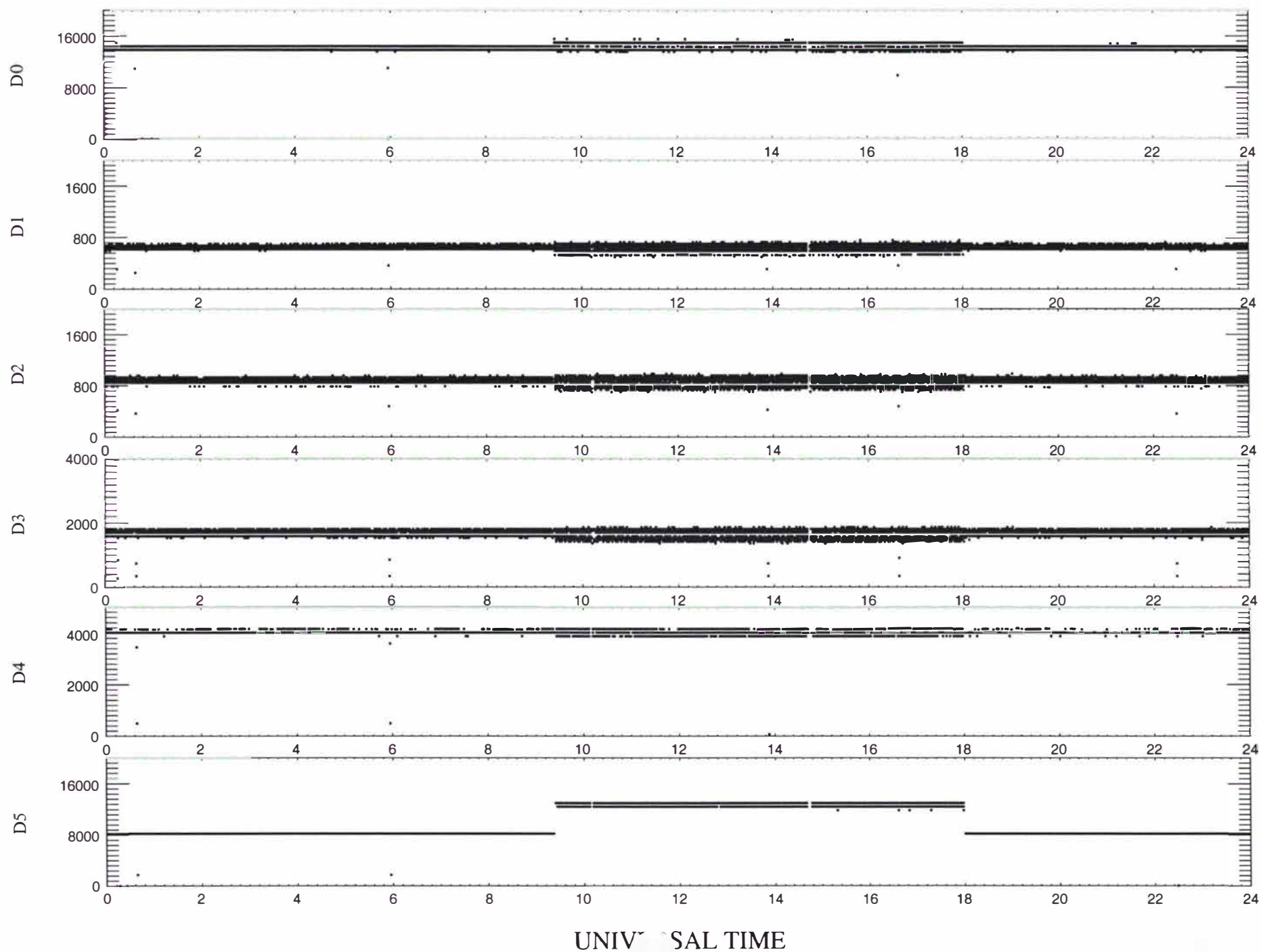
UNIV SAL TIME

Burst Counter 0 at UT= 9.866104075114 h=35517.975 s 09:51:57.975



CALIBRATION DATA INCLUDED





From RICHARDSON@fender.msfc.nasa.gov Tue Jan 4 15:30 PST 2000

From: RICHARDSON@fender.msfc.nasa.gov

Date: Tue, 4 Jan 2000 17:31:18 -0600 (CST)

\: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7926

TIME: TJD=1542 SECONDS=22184

TYPE: SGR SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=21.2 AZIMUTH=1.5 ERROR=4.7 DEGREES

COMMENTS:

PROBABLE SGR 1806-20. SINGLE SPIKE. DURATION APPROX. = 0.5 SEC.
NOT VISIBLE ABOVE 100 KEV. TWO POSSIBLY RELATED SPIKES AT APPROX.
T+140 SEC. AND T+270 SEC.

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

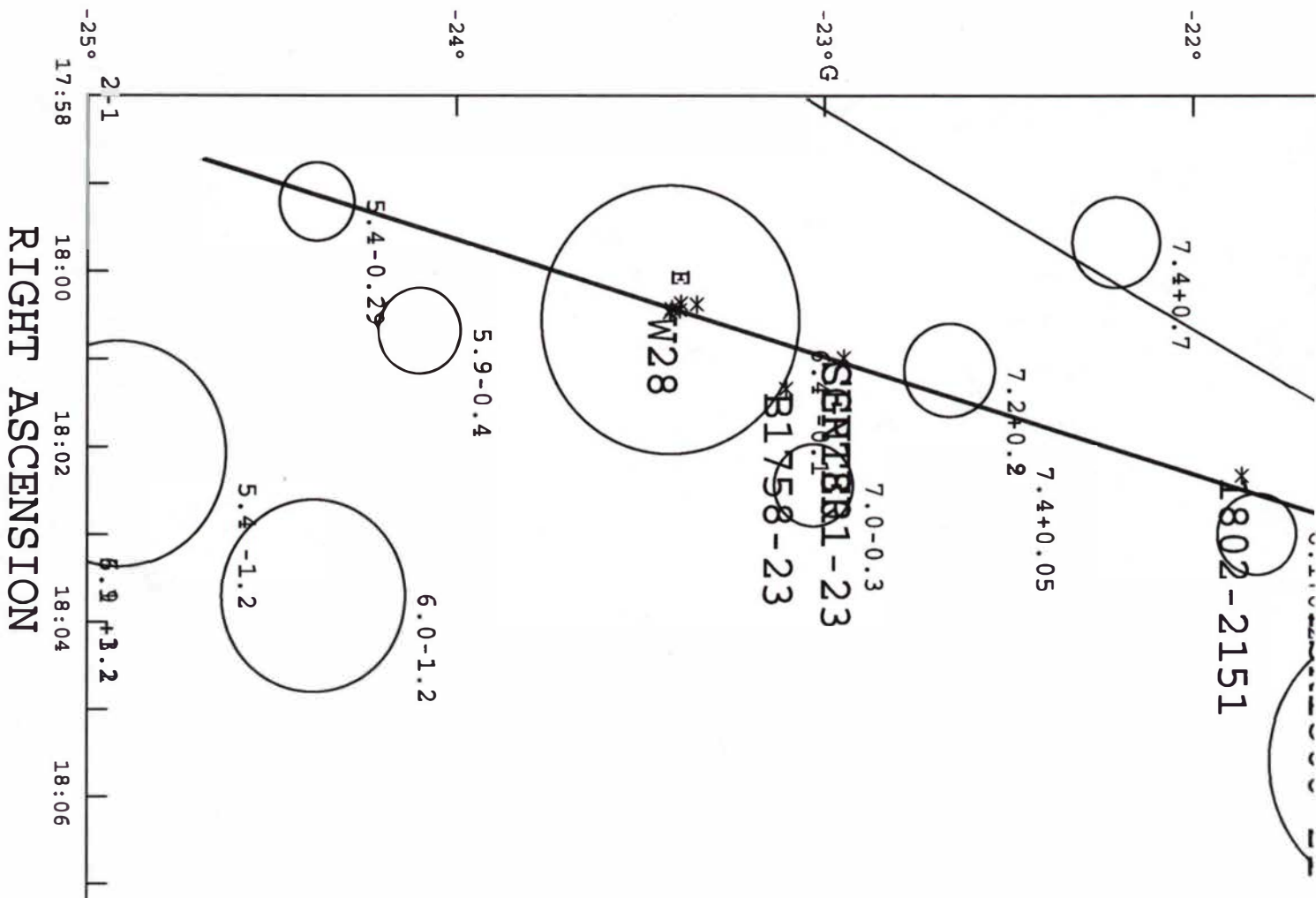
E=ECLIPTIC

G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

DECLINATION



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

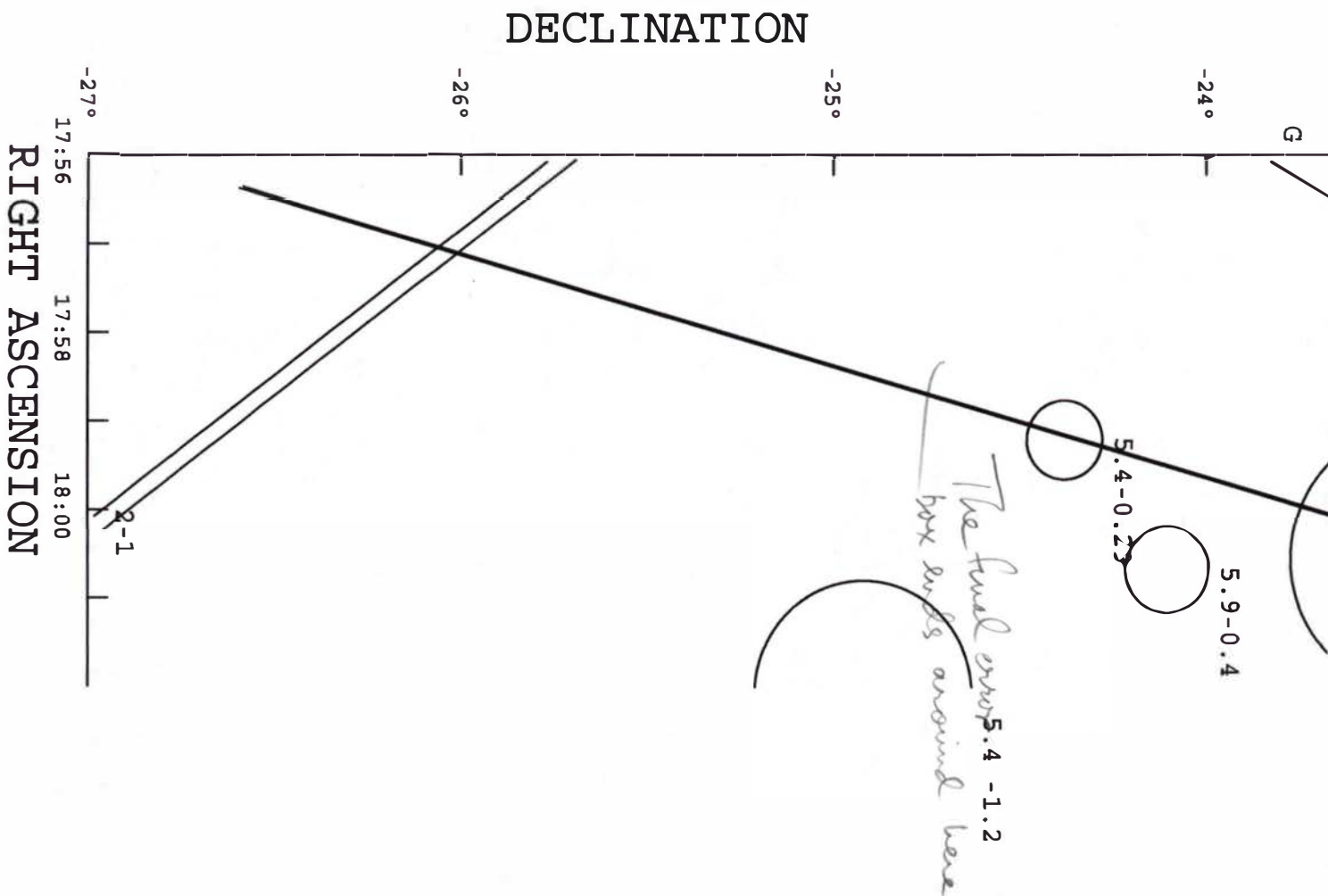
S=SUN

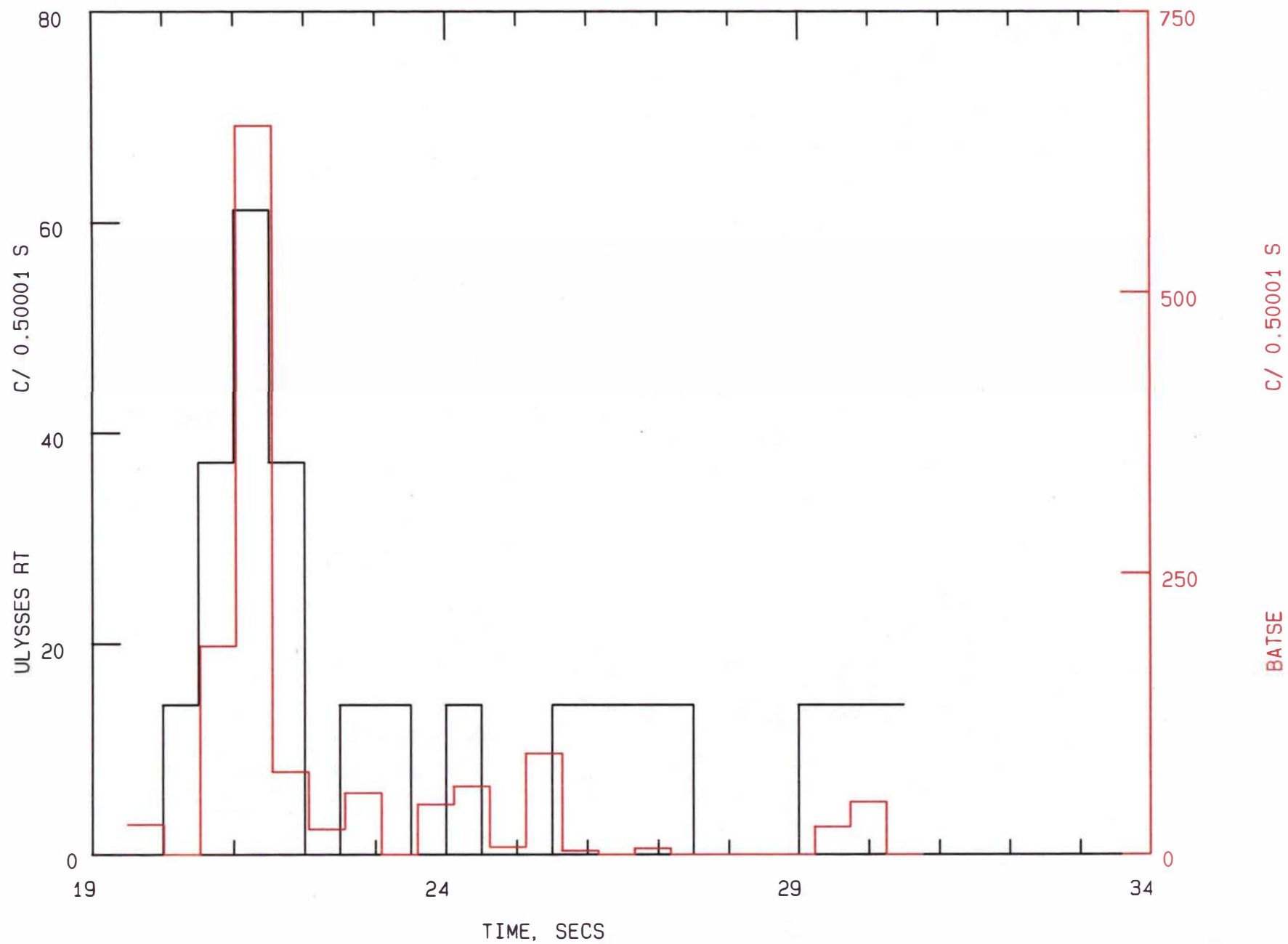
E=ECLIPTIC

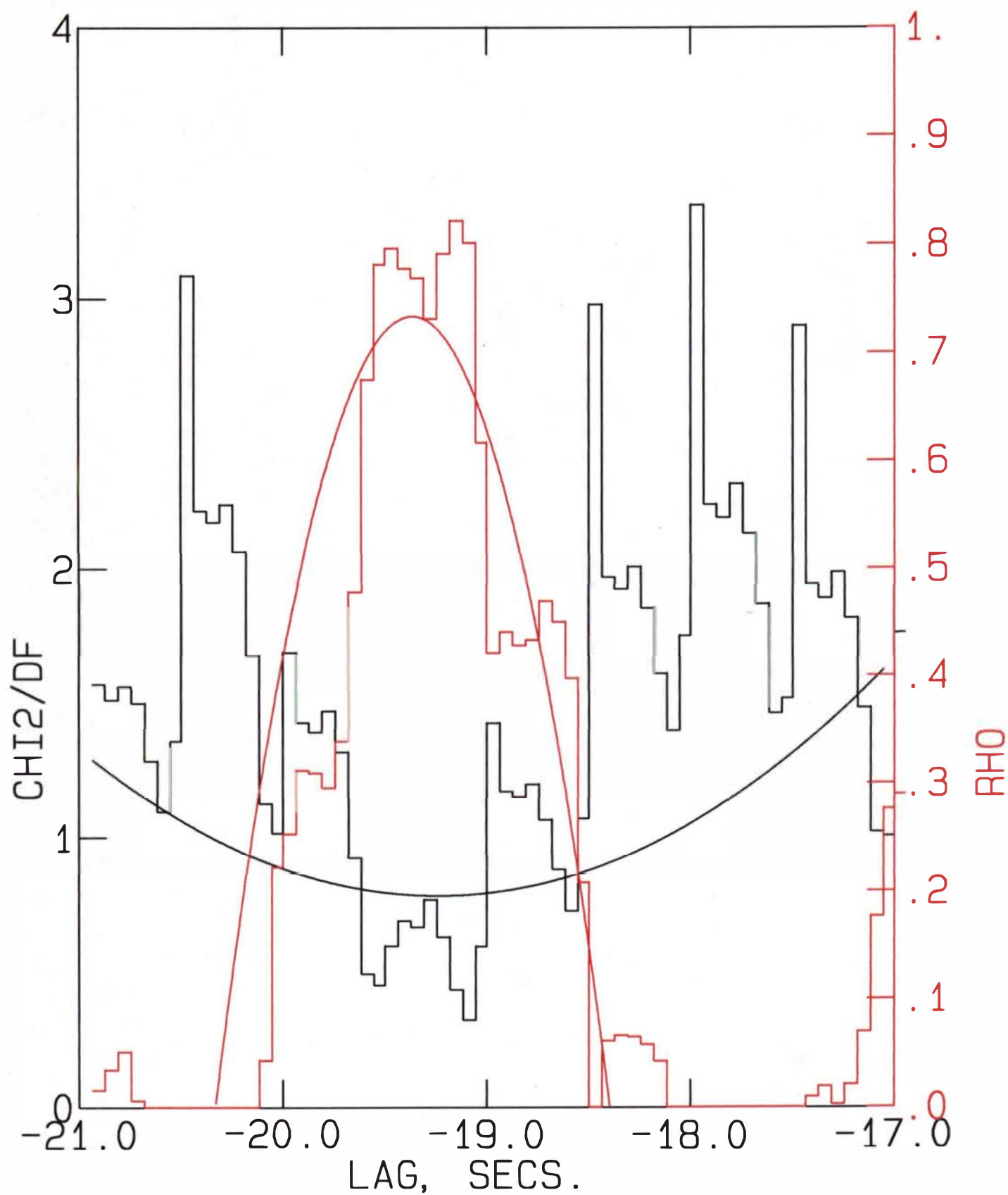
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES



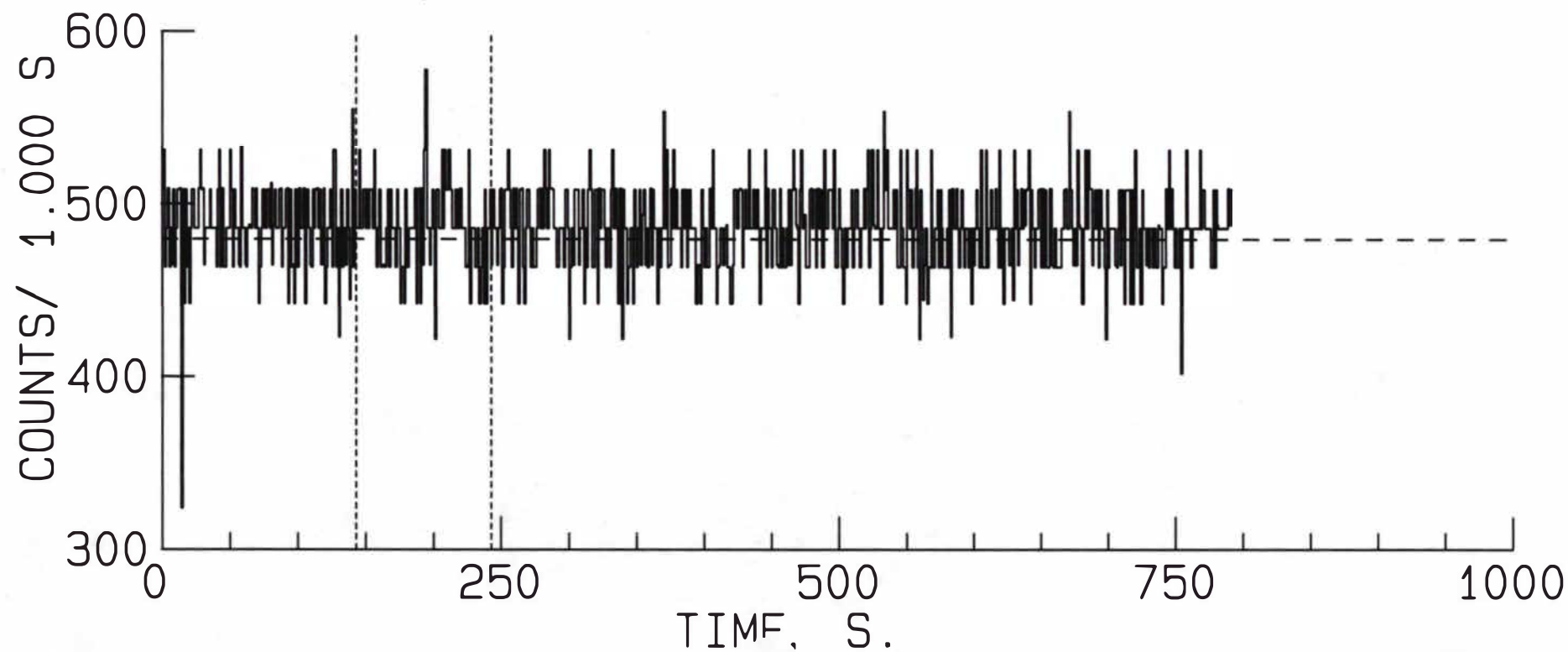




ULYSSES RT
30/12/99 21852.478 s
0.500 S INTERVALS REGROUPED BY 2
22- 150 keV

26 / 1 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



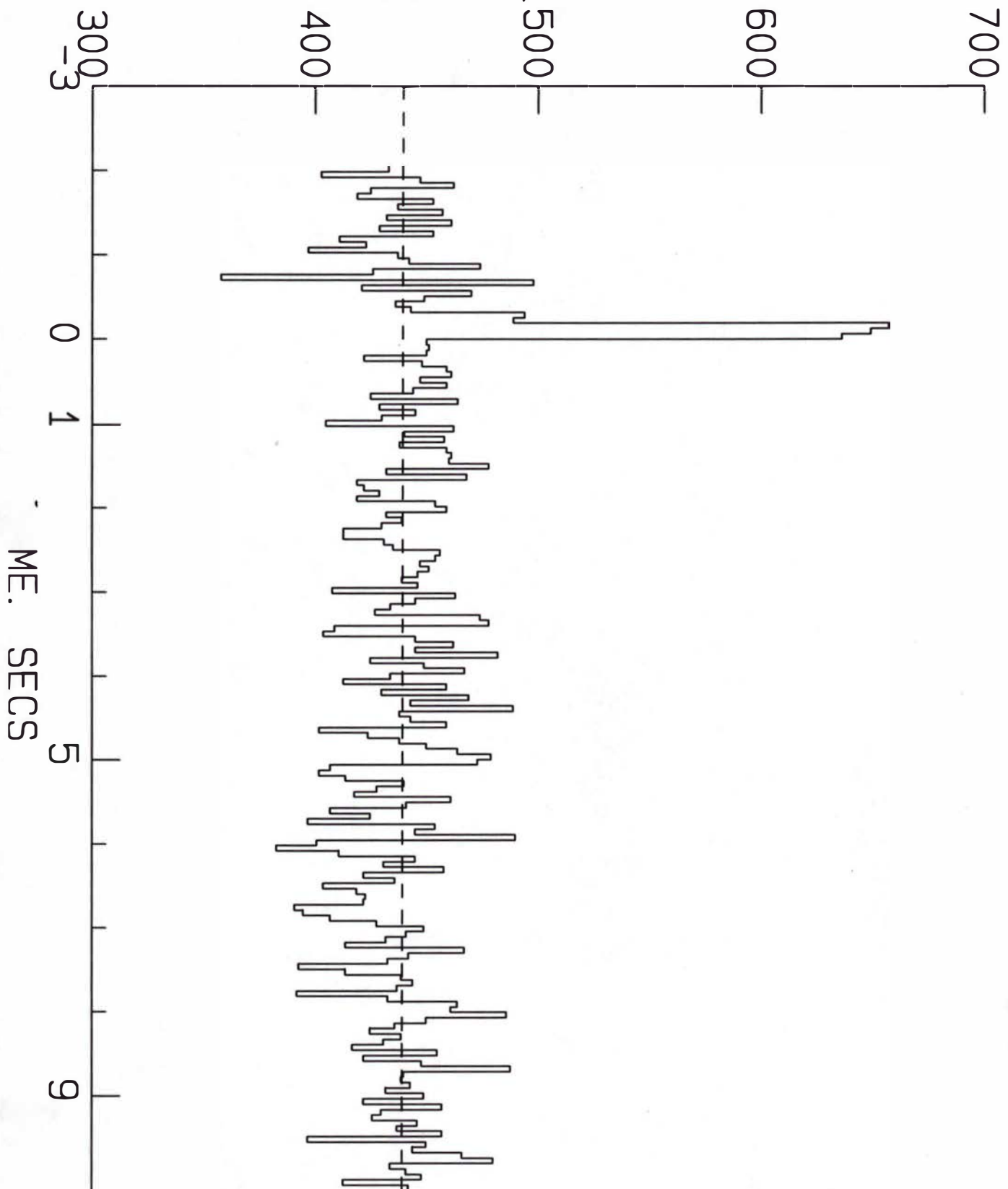
BATSE

30/12/99

22184.697

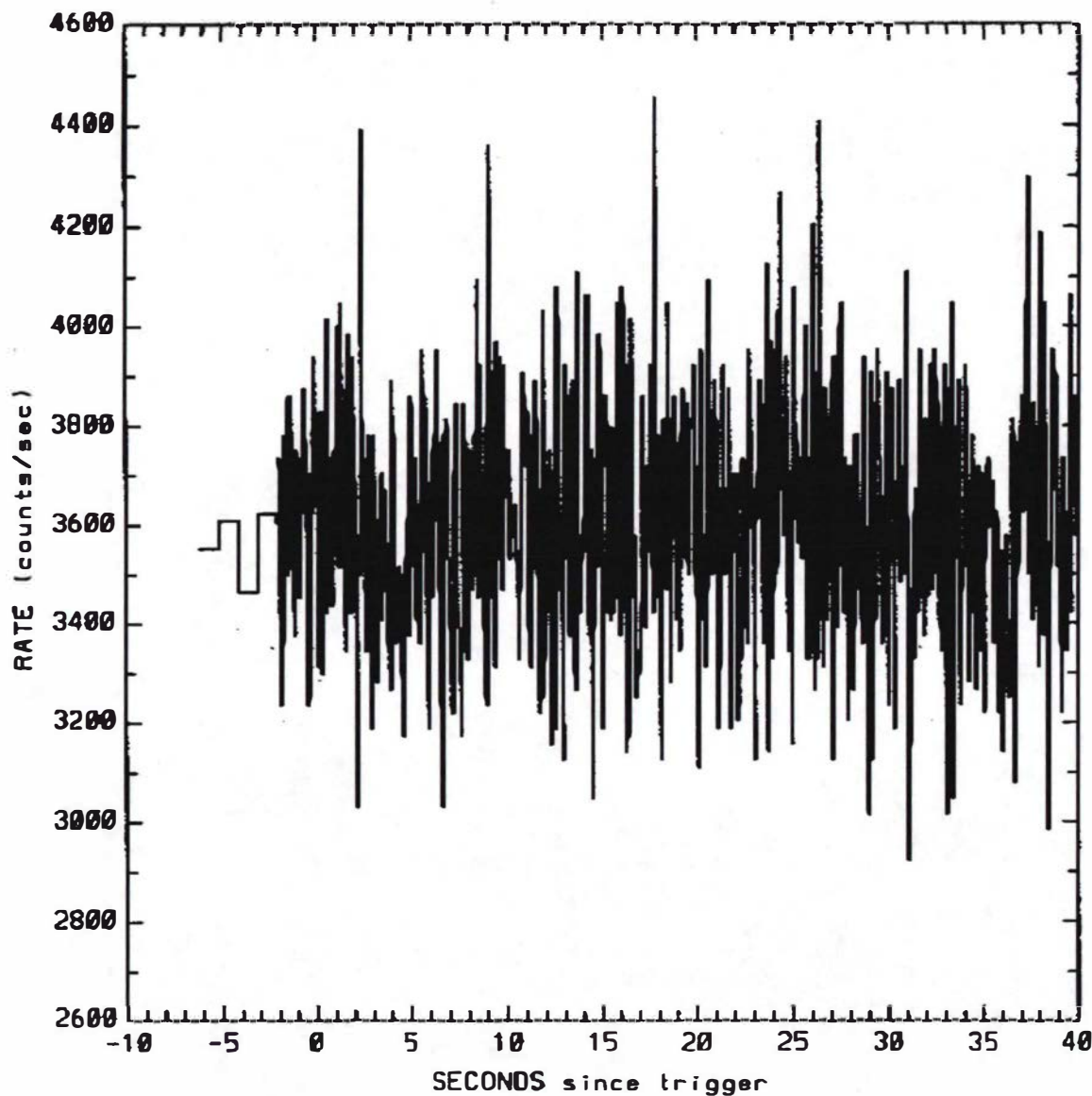
25- 100 keV

COUNTS/0.064 S



26 / 1 / **

DISCSC Data for K. Hurley, No. 7926



7-JAN-2000 12:05:02

Created by NOPS BD
(Burst Display)
Version 12.26

Trigger = 7926

Trigger Time:
11542 / 22184.697

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

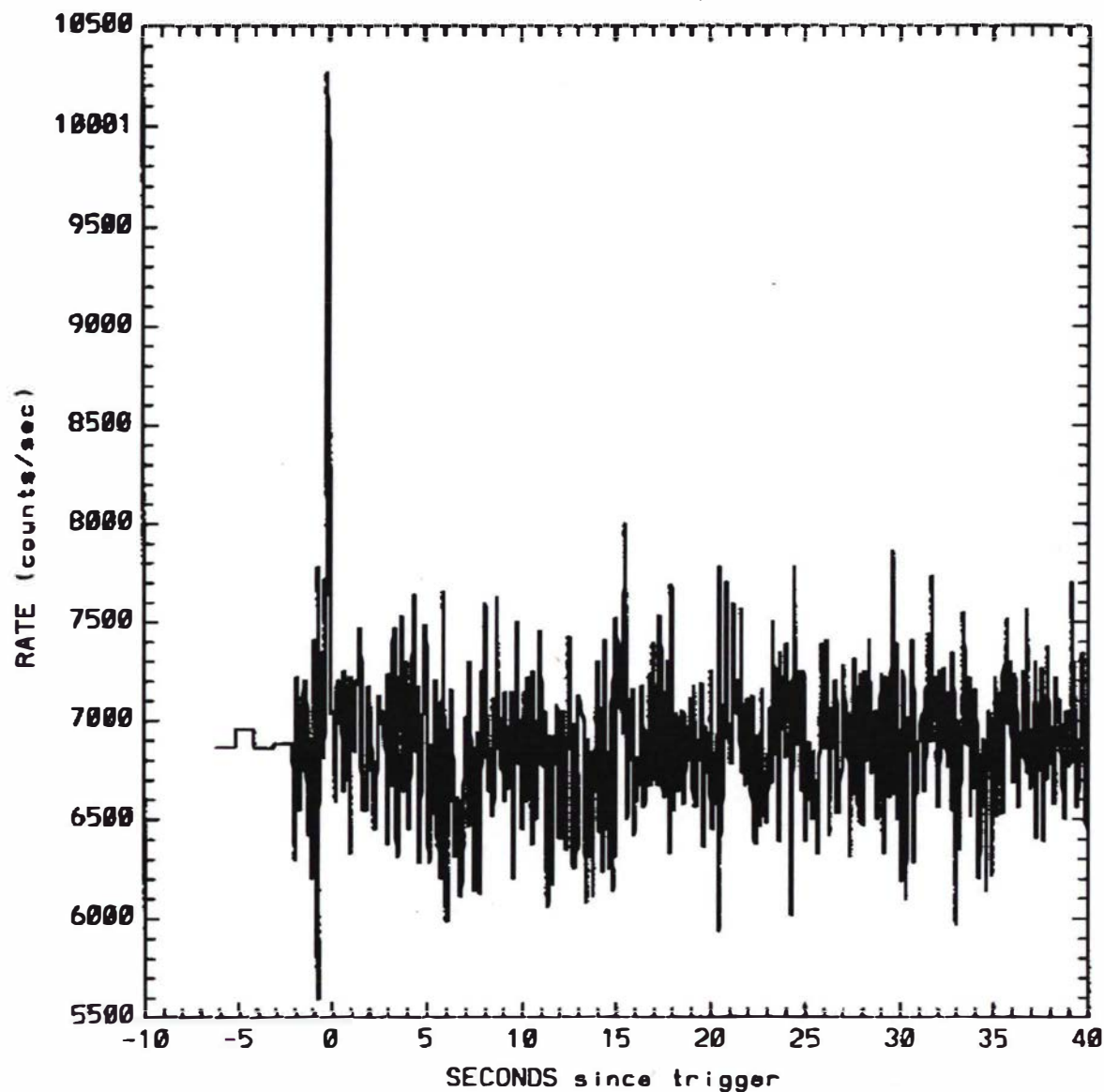
Minimum Integ. Time:
0.064 seconds

Detectors [7..0].
-----2-0

Discriminators:
(3 . 4)

Quality Mask:
BDISP1

DISCSC Data for K. Hurley, No. 7926



7-JAN-2000 12:04.43

Created by MDPS BD
(Burst Display)
Version 12.26

Trigger = 7926

Trigger Time:
11542 / 22184.697

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 seconds

Detectors [7..8].
-----2-8

Discriminators:
[1 , 2]

Quality Mask:
BDISP1

From RICHARDSON@fender.msfc.nasa.gov Tue Jan 4 15:14 PST 2000

From: RICHARDSON@fender.msfc.nasa.gov

Date: Tue, 4 Jan 2000 17:15:45 -0600 (CST)

: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7927

TIME: TJD=1542 SECONDS=47262

TYPE: FLARE

SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=29.1 AZIMUTH=2.6 ERROR=9.8 DEGREES

COMMENTS:

SOLAR FLARE, GOES B8.4, NO OPTICAL

SINGLE PULSE. RISE FASTER THAN DECAY. DURATION AT LEAST 35 SEC. DURATION
UNCERTAINTY DUE TO A DATA GAP. NOT VISIBLE ABOVE 300KEV.

From RICHARDSON@fender.msfc.nasa.gov Tue Jan 4 15:17 PST 2000

From: RICHARDSON@fender.msfc.nasa.gov

Date: Tue, 4 Jan 2000 17:18:31 -0600 (CST)

: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dgruber@ucsd.edu, jmatteson@ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, hpark@llnl.gov, s-matz@nwu.edu

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7928

TIME: TJD=1542 SECONDS=58553

TYPE: SGR SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

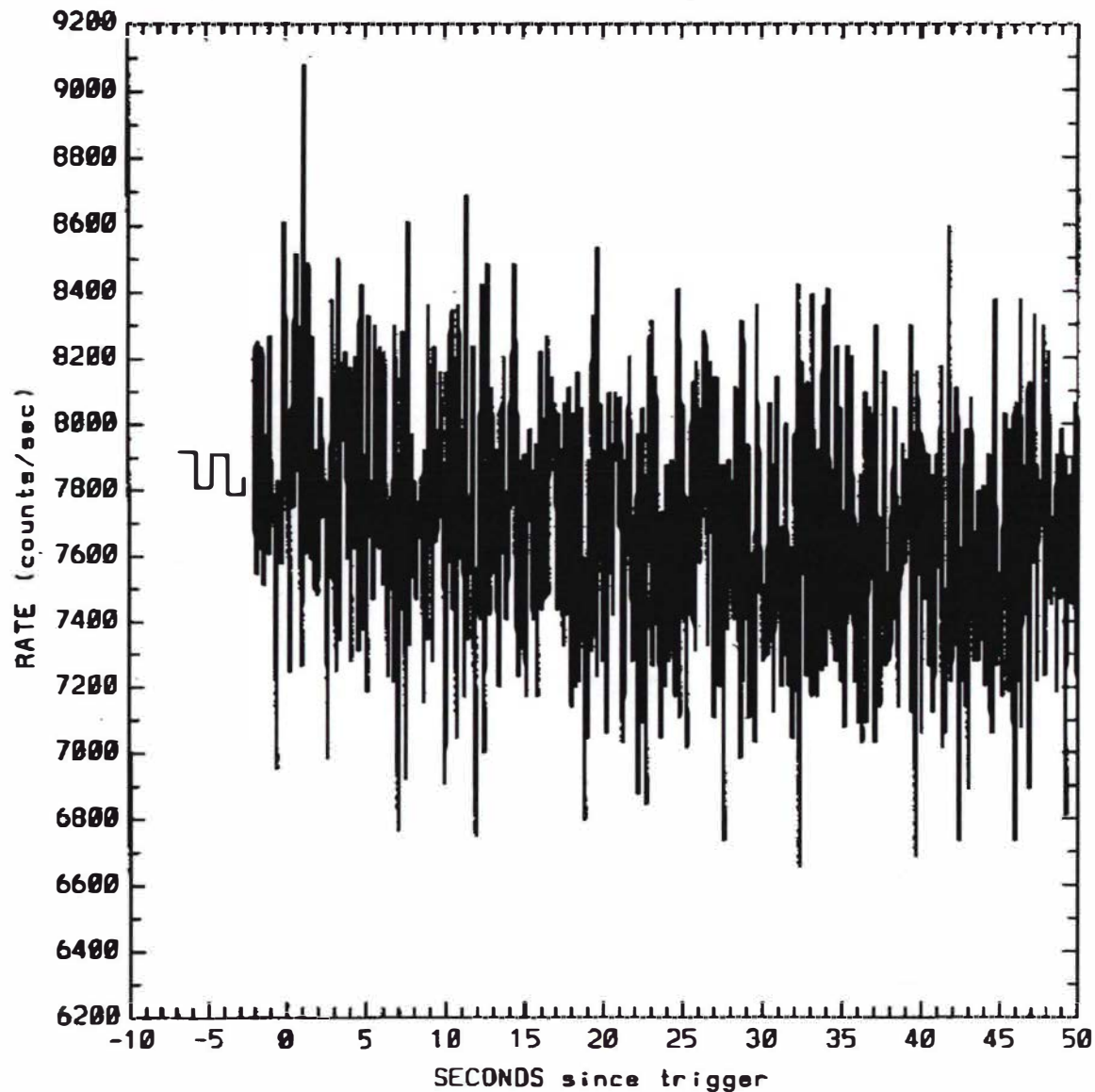
LOCATION: ZENITH=24.8 AZIMUTH=9.3 ERROR=5.2 DEGREES

COMMENTS:

SGR 1806-20. SINGLE PULSE WITH NO VISIBLE SUBSTRUCTURE.

DURATION APPROX. = 0.05 SEC. MARGINALLY VISIBLE ABOVE 100KEV.

DISCSC Data for K. Hurley, No. 7928



7-JAN-2000 12:02:20

Created by MOPS 80
(Burst Display)
Version t2.26

Trigger # . 7928

Trigger Time:
11542 / 58553.721

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

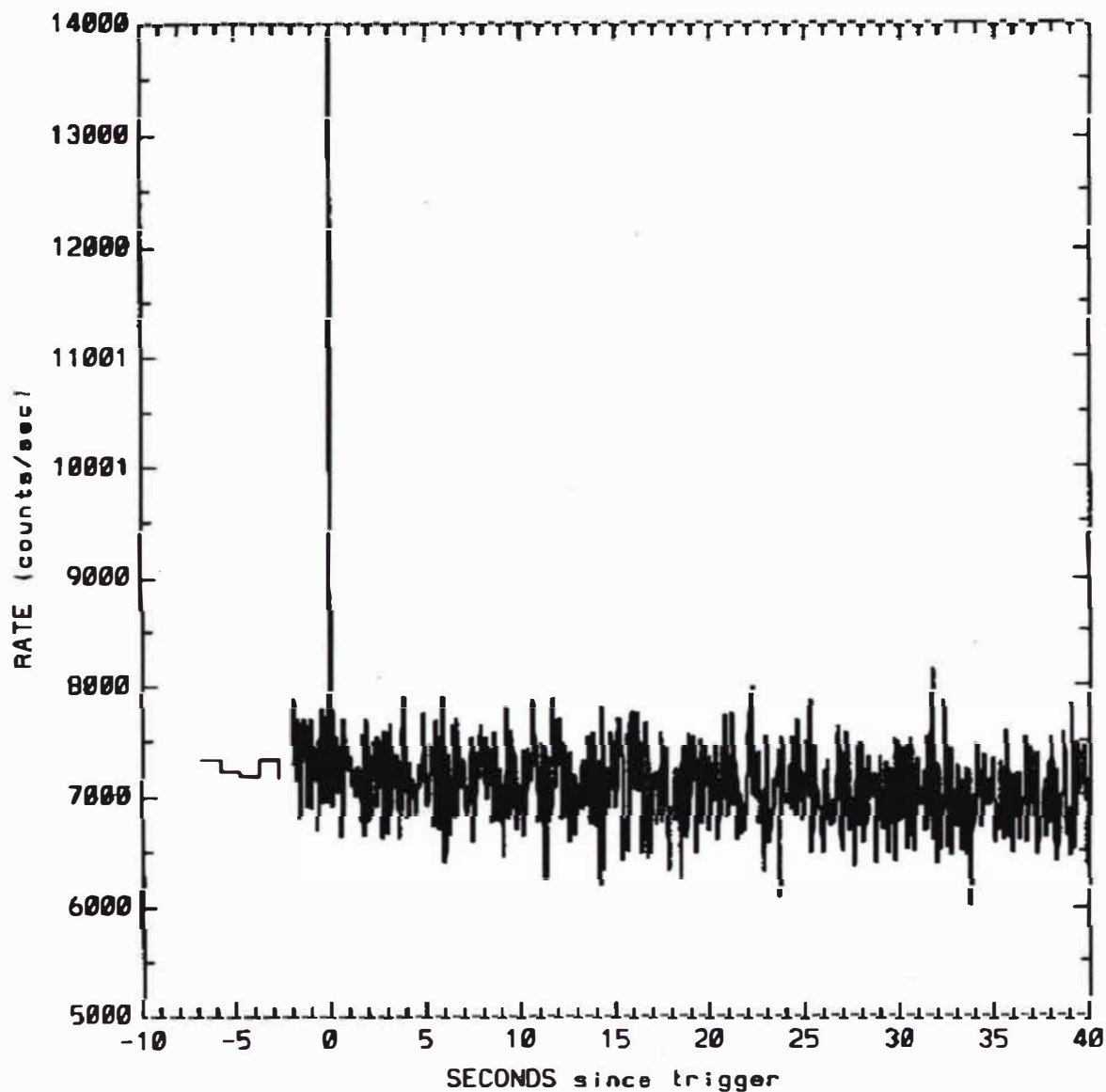
Minimum Integ. Time:
0.064 seconds

Detectors (7..0):
-----2-8

Discriminators:
(3 , 4)

Quality Mask:
BDISP1

DISCSC Data for K. Hurley, No. 7928



7-JAN-2000 12:00:40

Created by NOPS BD
(Burst Display)
Version 12.26

Trigger # . 7928

Trigger Time:
11542 / 58553.721

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.864 second(s)

Detectors (7..0):
-----2-0

Discriminators:
1 1 . 2)

Quality Mask:
BDISP1

BATSE 7928

06/01/00

ULYSSES RT

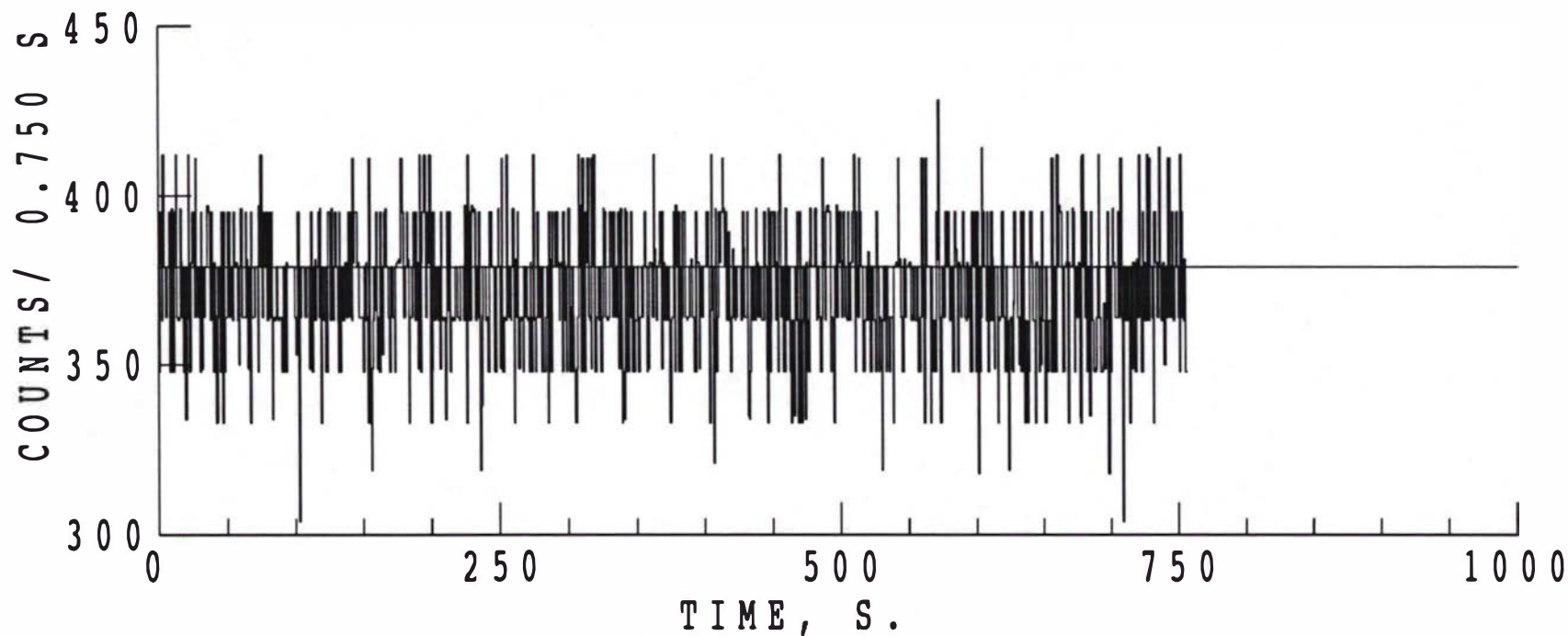
30/12/99 58248.109 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

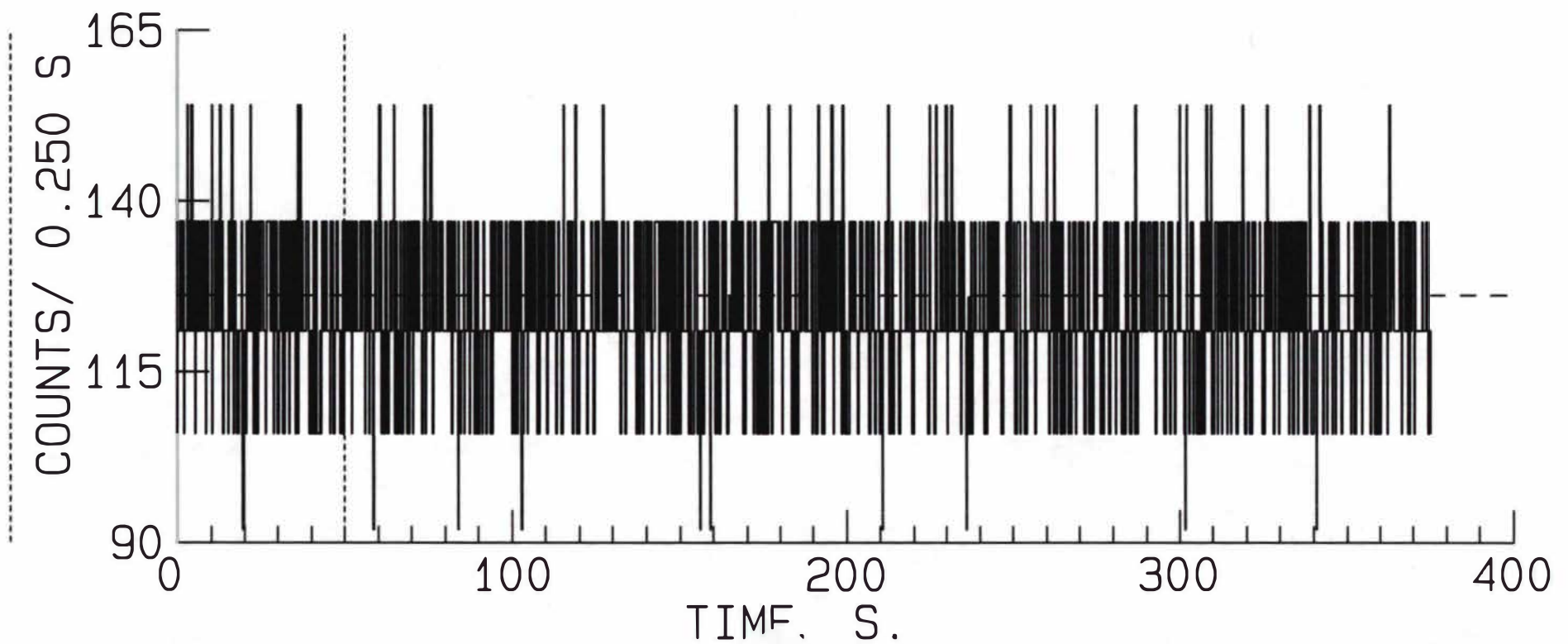
N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



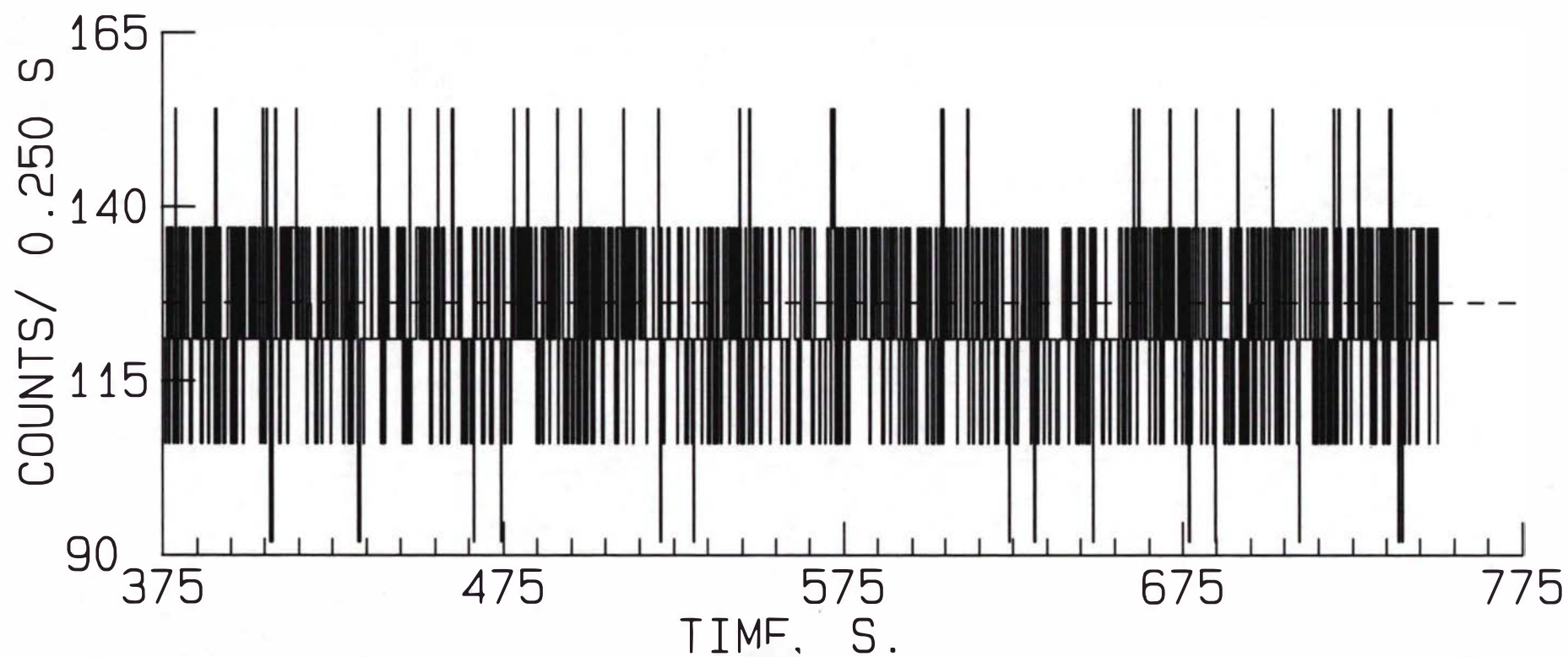
ULYSSES RT
30/12/99 58248.108 s
22- 150 keV

6 / 1 / **



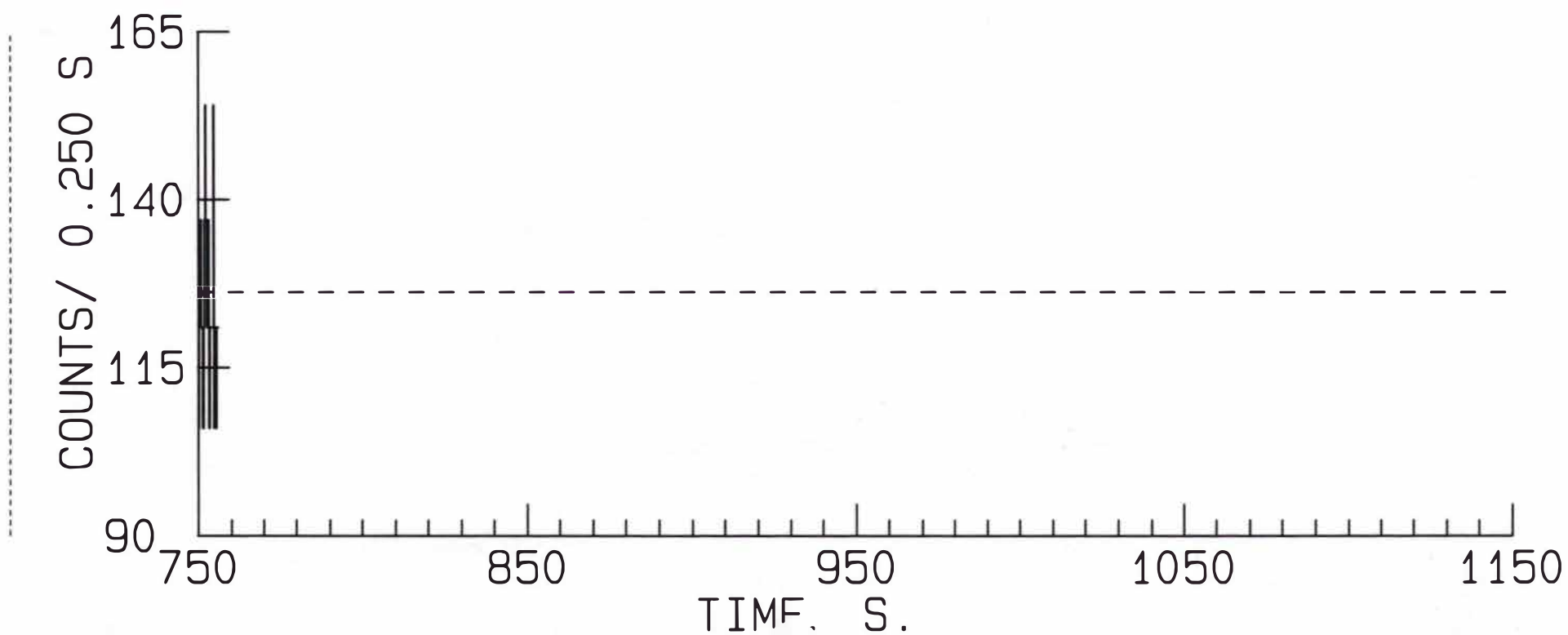
ULYSSES RT
30/12/99 58248.108 s
22- 150 keV

6 / 1 / **

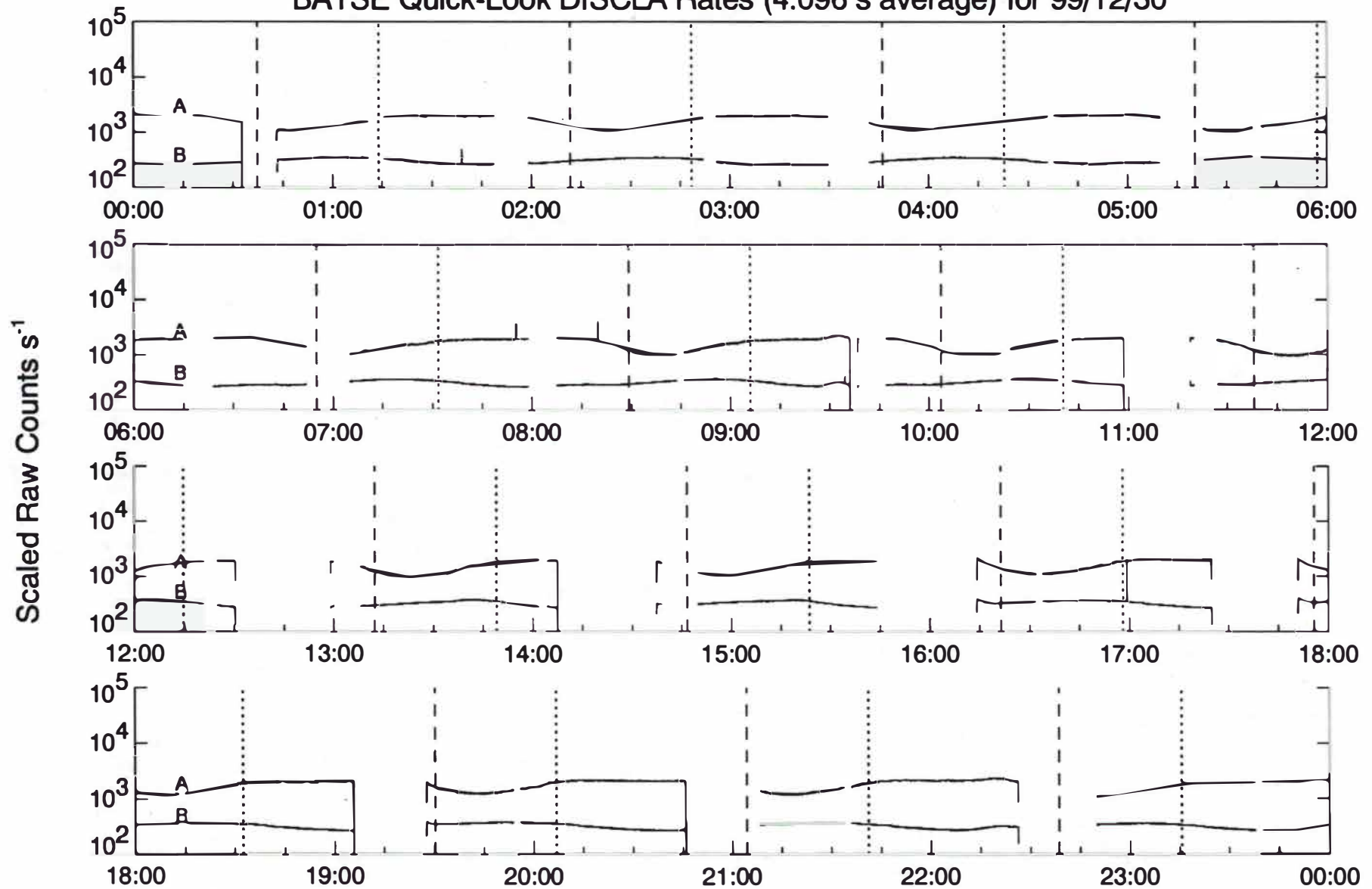


ULYSSES RT
30/12/99 58248.108 s
22- 150 keV

6 / 1 / **



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/30

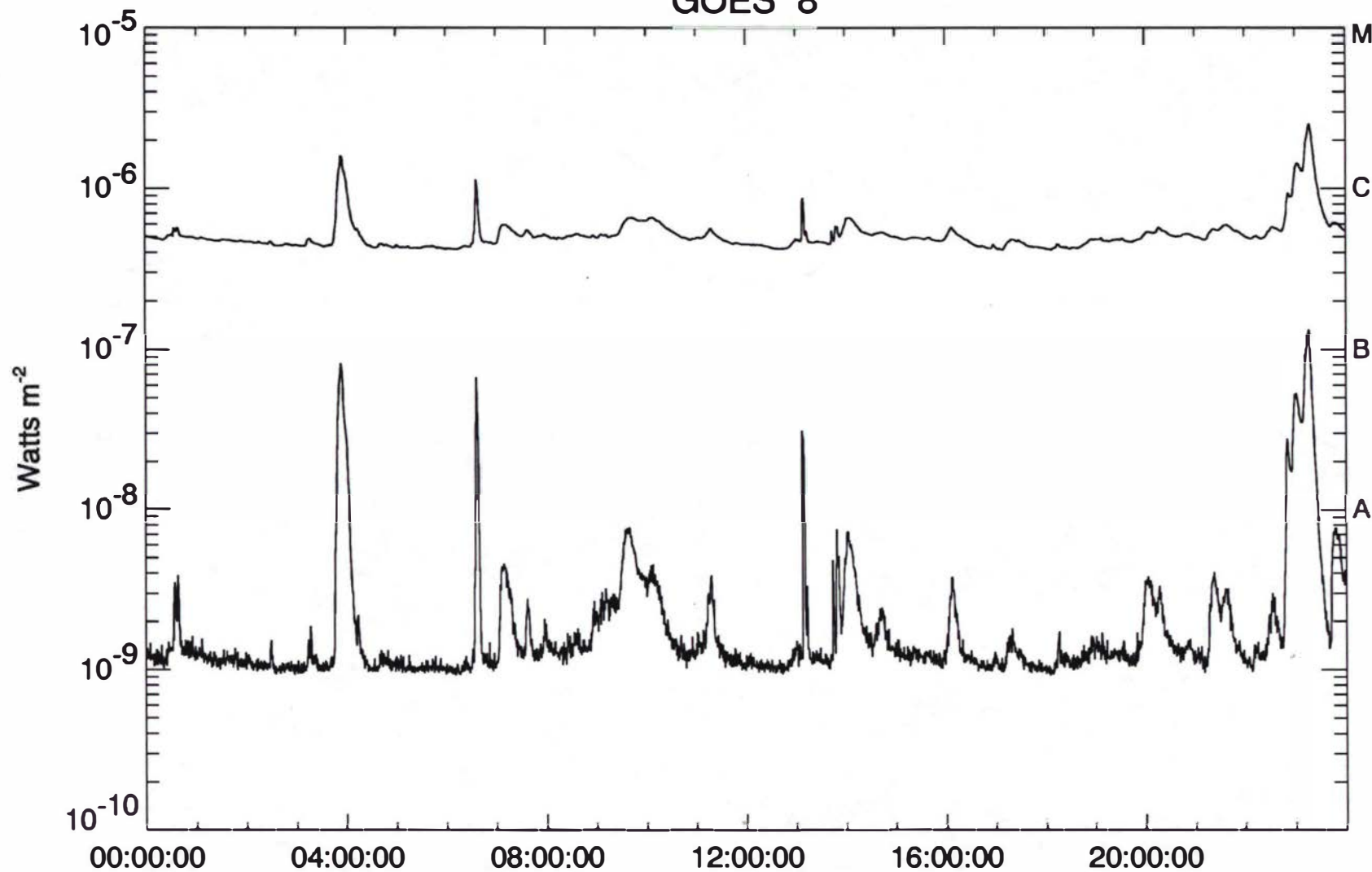


Current Time: 00/01/05, 1906 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 99/12/30, 0000:00

Plot created: 00/01/05, 1905

Channel

1 (1.0 - 8.0 Angstroms)

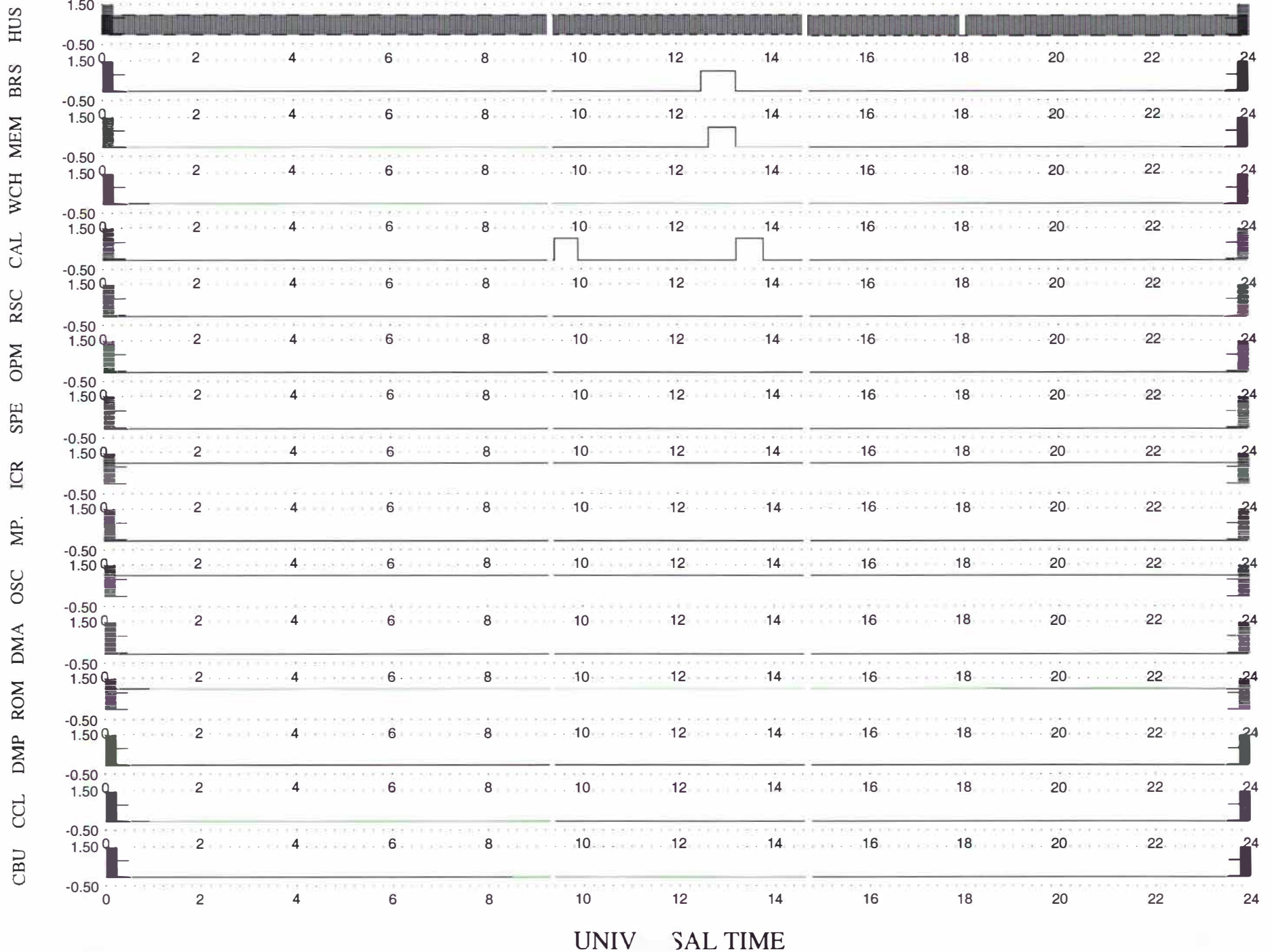
Background not subtracted

2 (0.5 - 4.0 Angstroms)

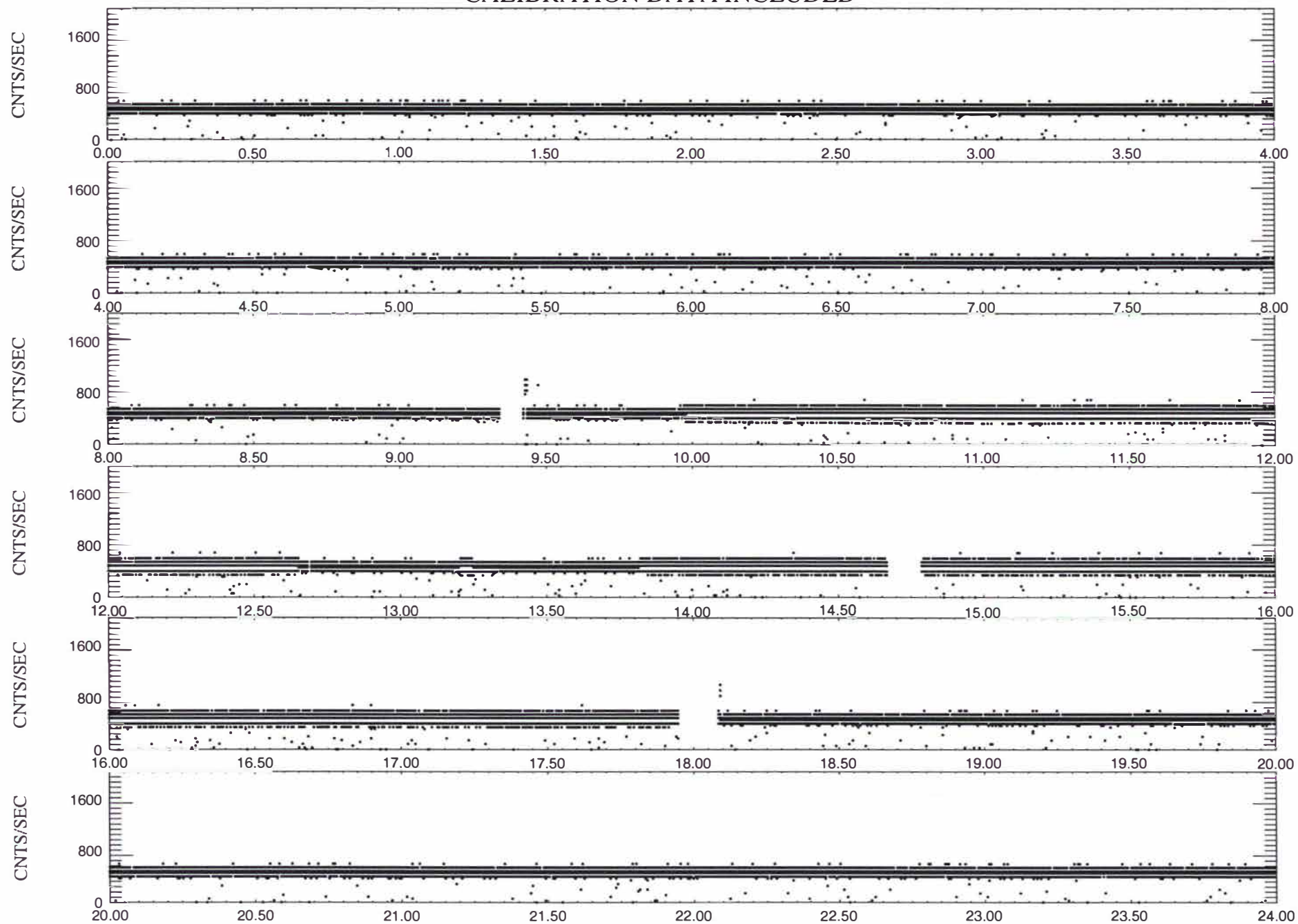
Background not subtracted

Sample average = 10

BURST NUMBER 1

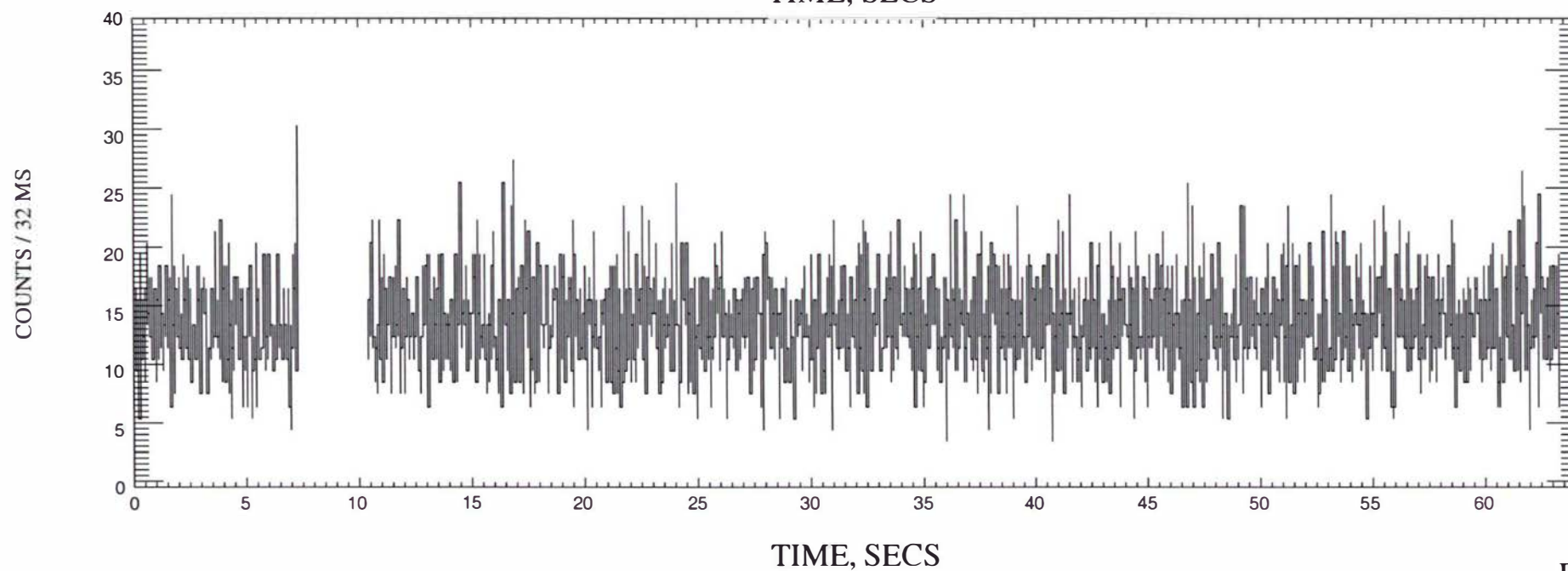
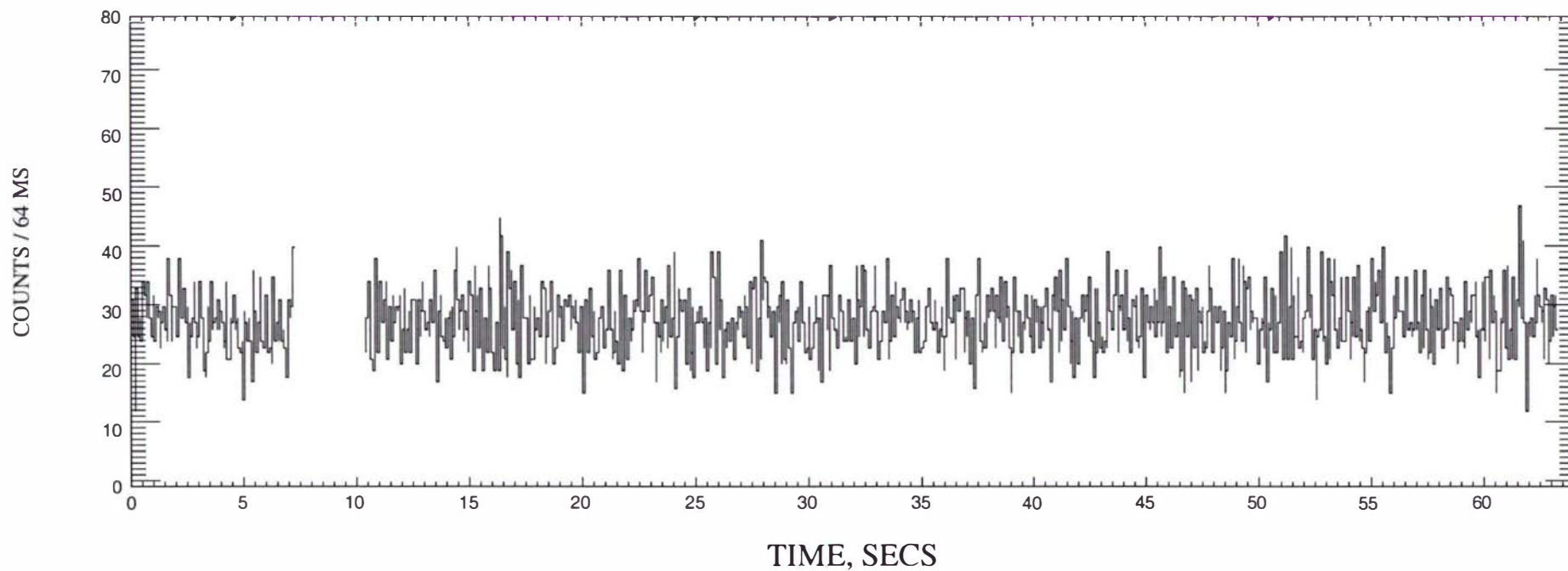


CALIBRATION DATA INCLUDED

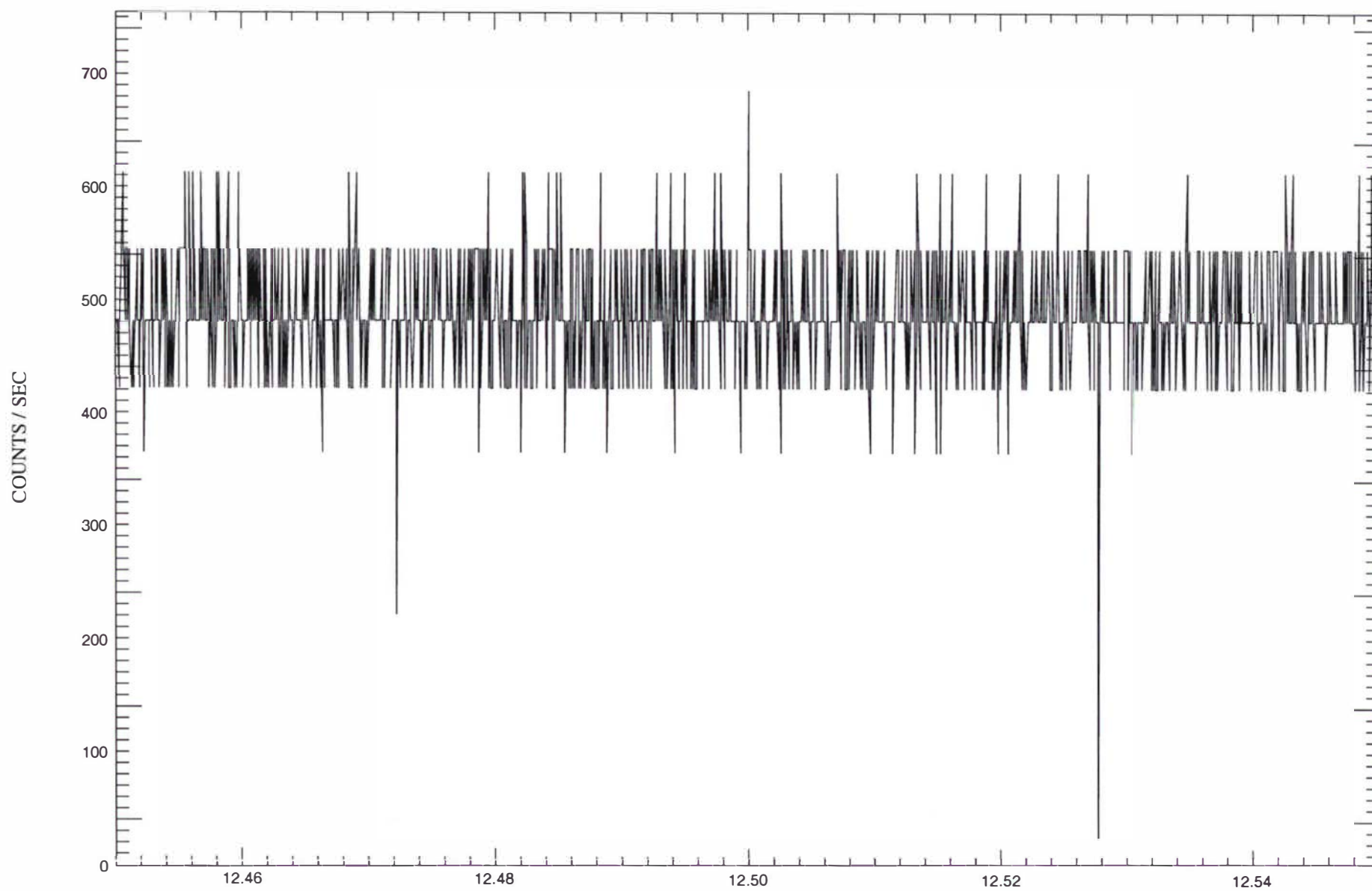


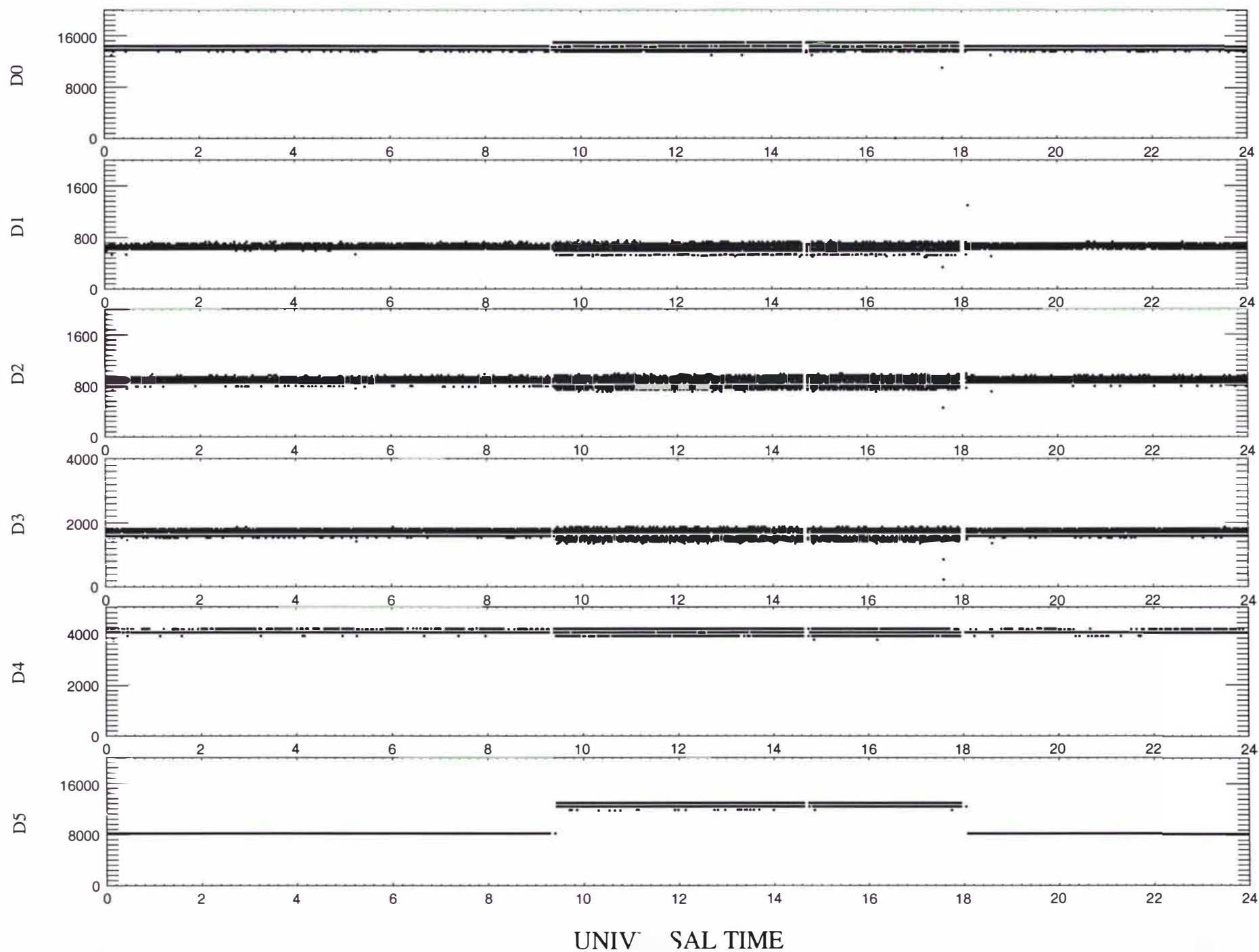
UNIV SAL TIME

Burst Counter 1 at UT=12.500197431776 h=45000.711 s 12:30:00.711



CALIBRATION DATA INCLUDED





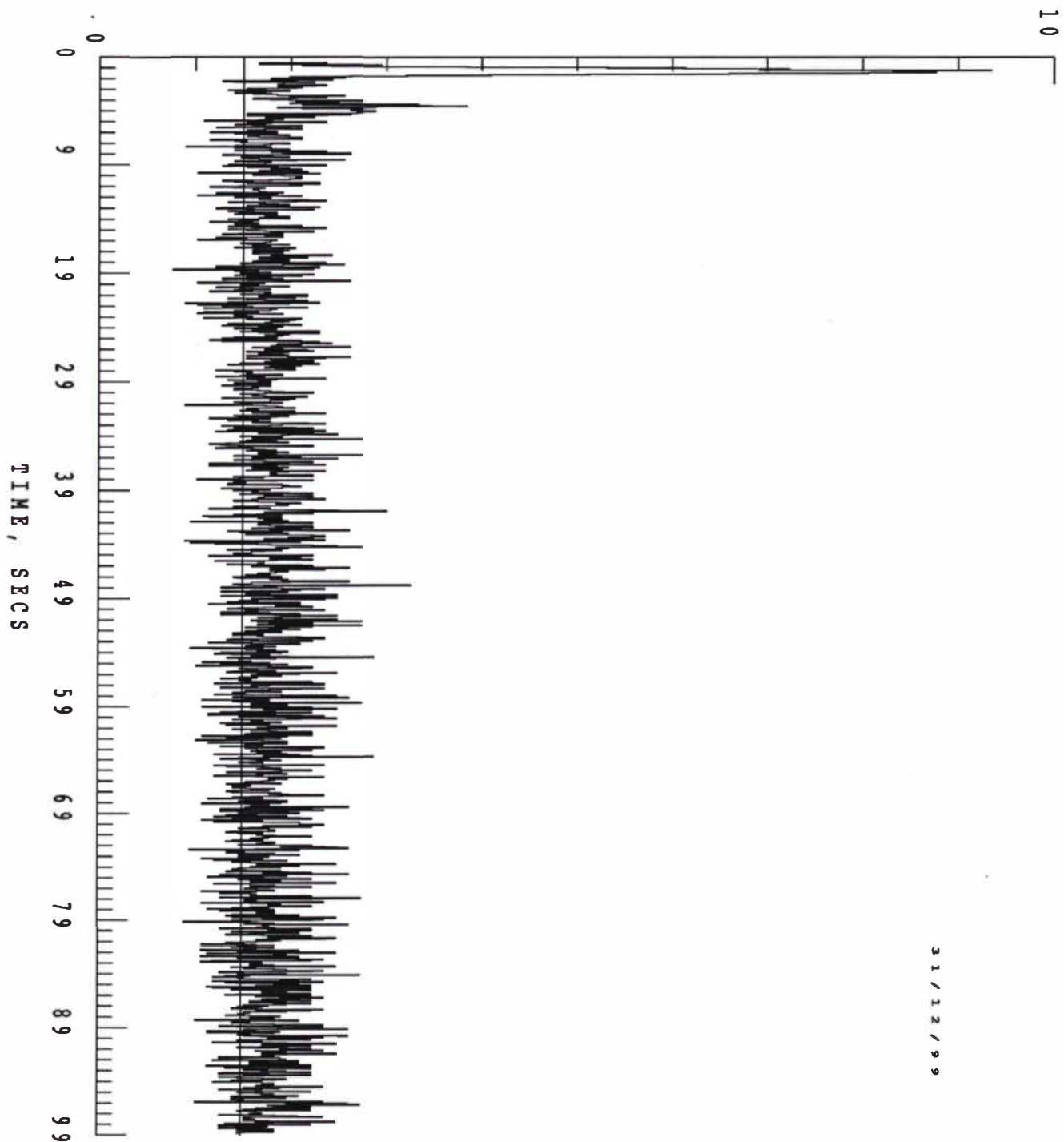
KONUS

31/12/99

18537.343

50- 200 keV

COUNTS/0.064 S



KONUS

ULYSSES RT

07/01/00

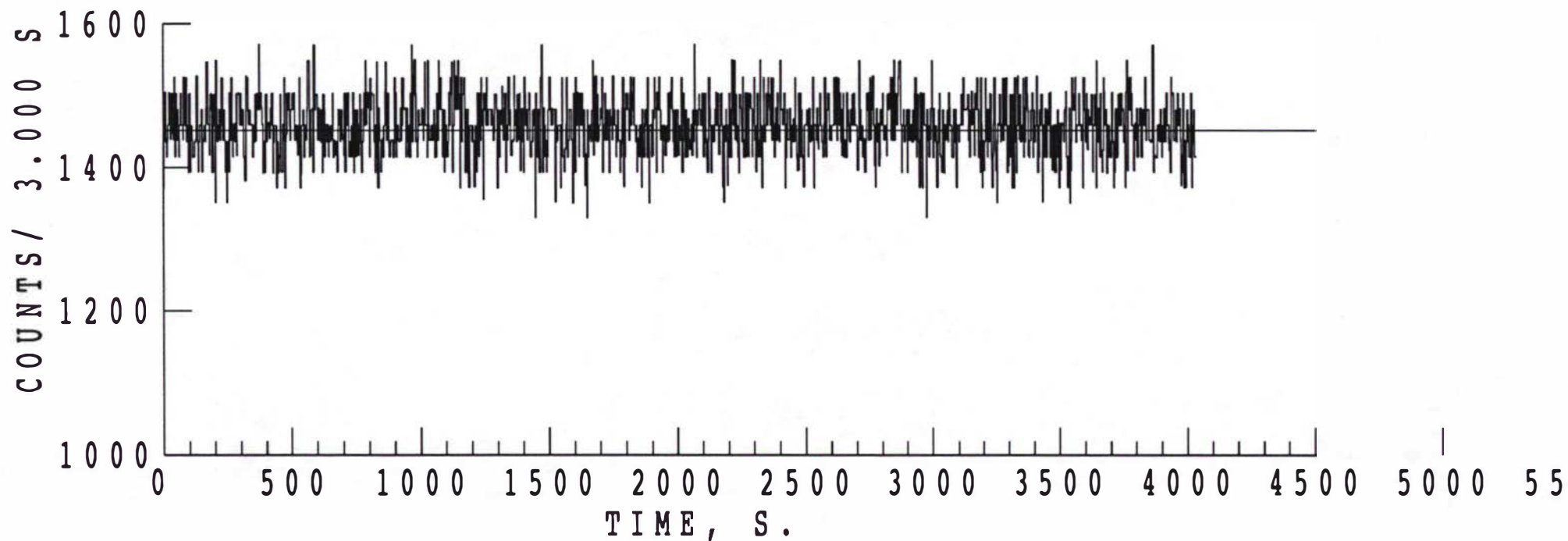
31/12/99 16524.314 s

0.500 S INTERVALS REGROUPED BY 6

0 - 0 keV

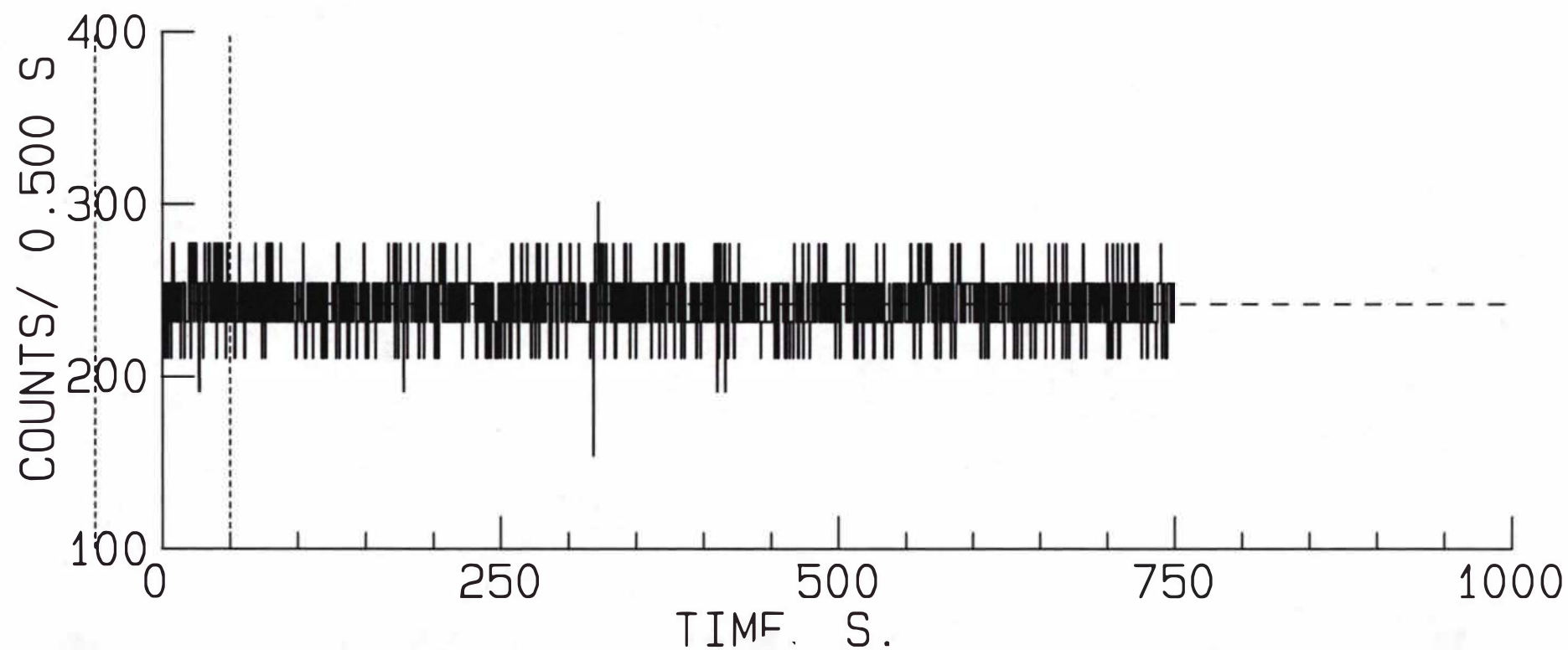
N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



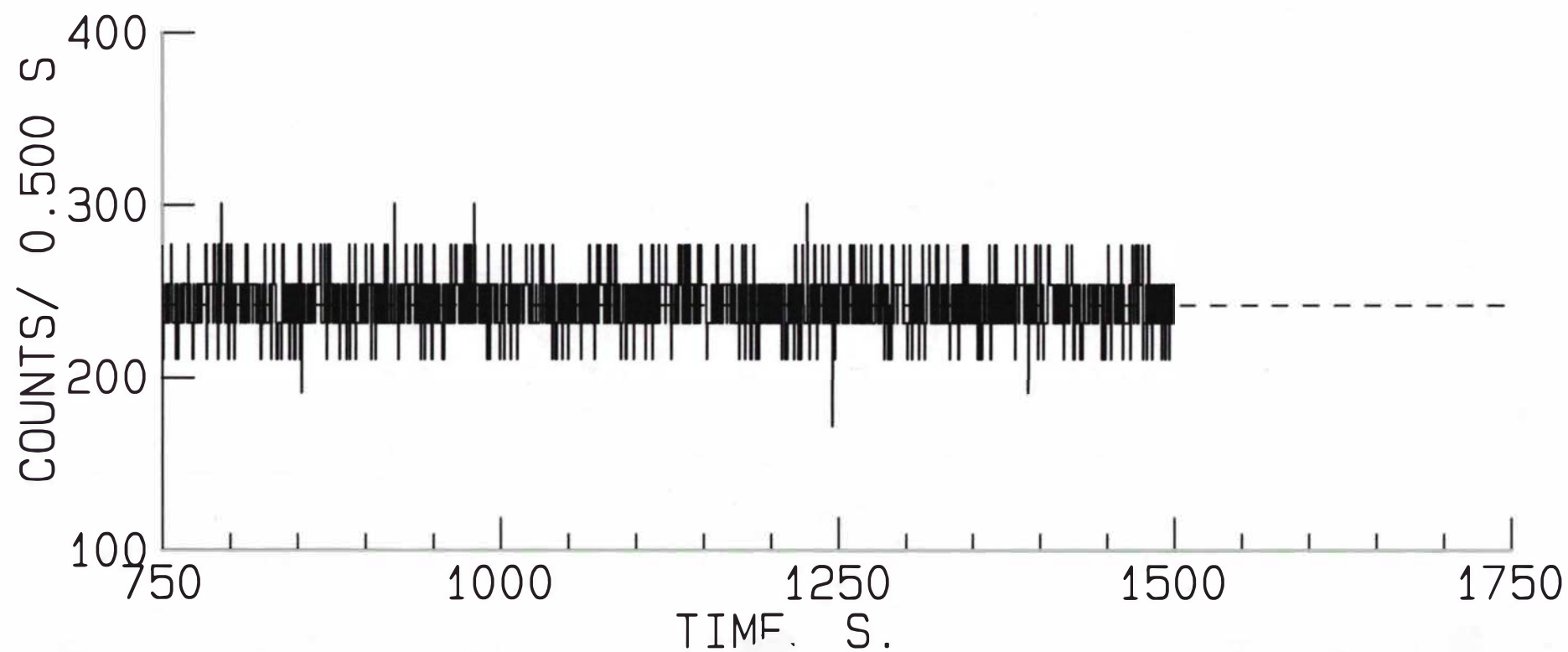
ULYSSES RT
31/12/99 16524.314 s
22- 150 keV

7 / 1 / 0



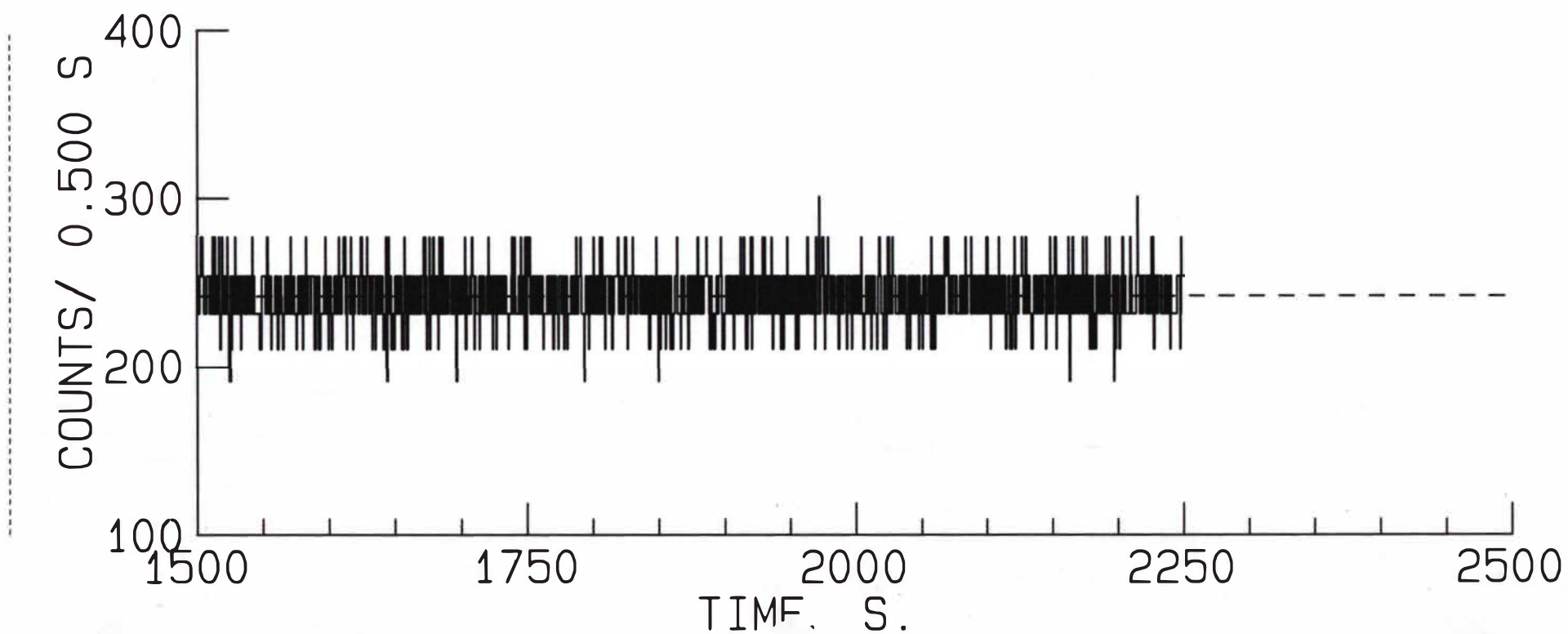
ULYSSES RT
31/12/99 16524.314 s
22- 150 keV

7 / 1 / 0



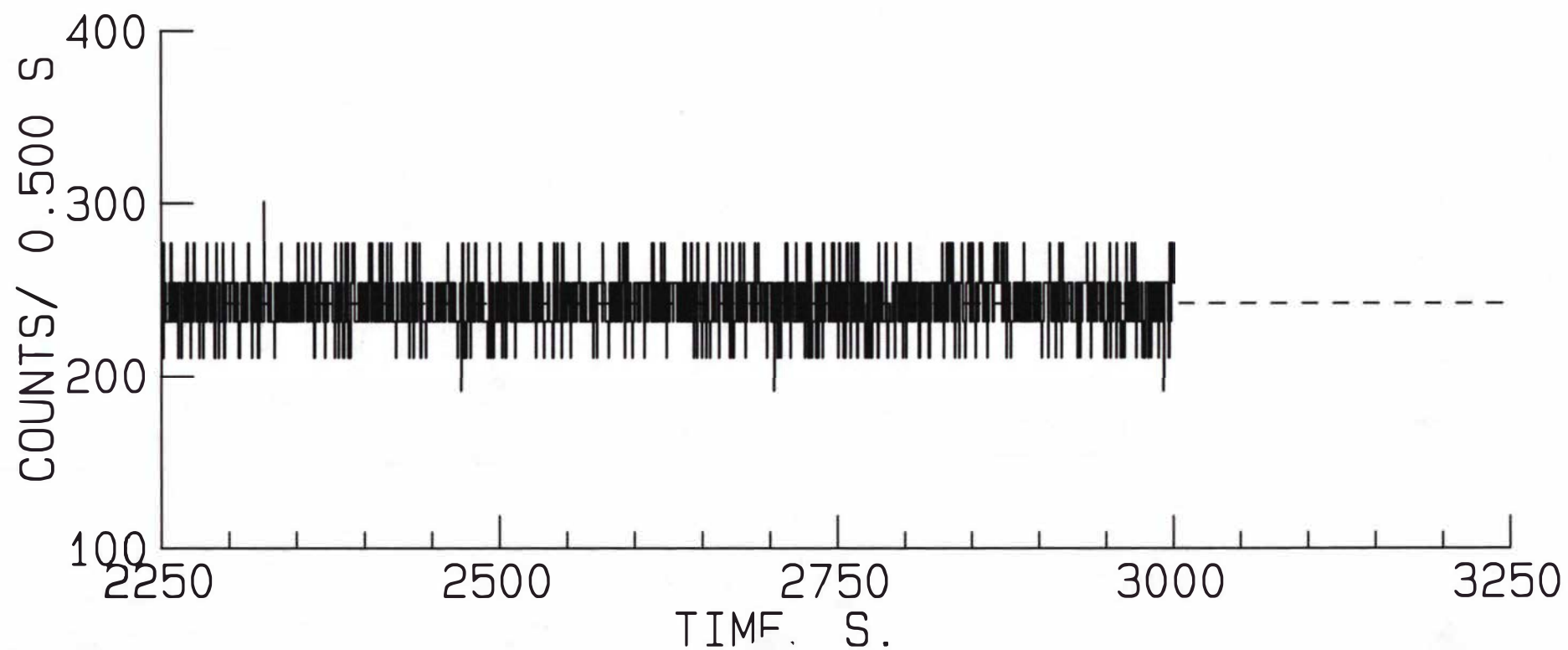
ULYSSES RT
31/12/99 16524.314 s
22- 150 keV

7 / 1 / 0



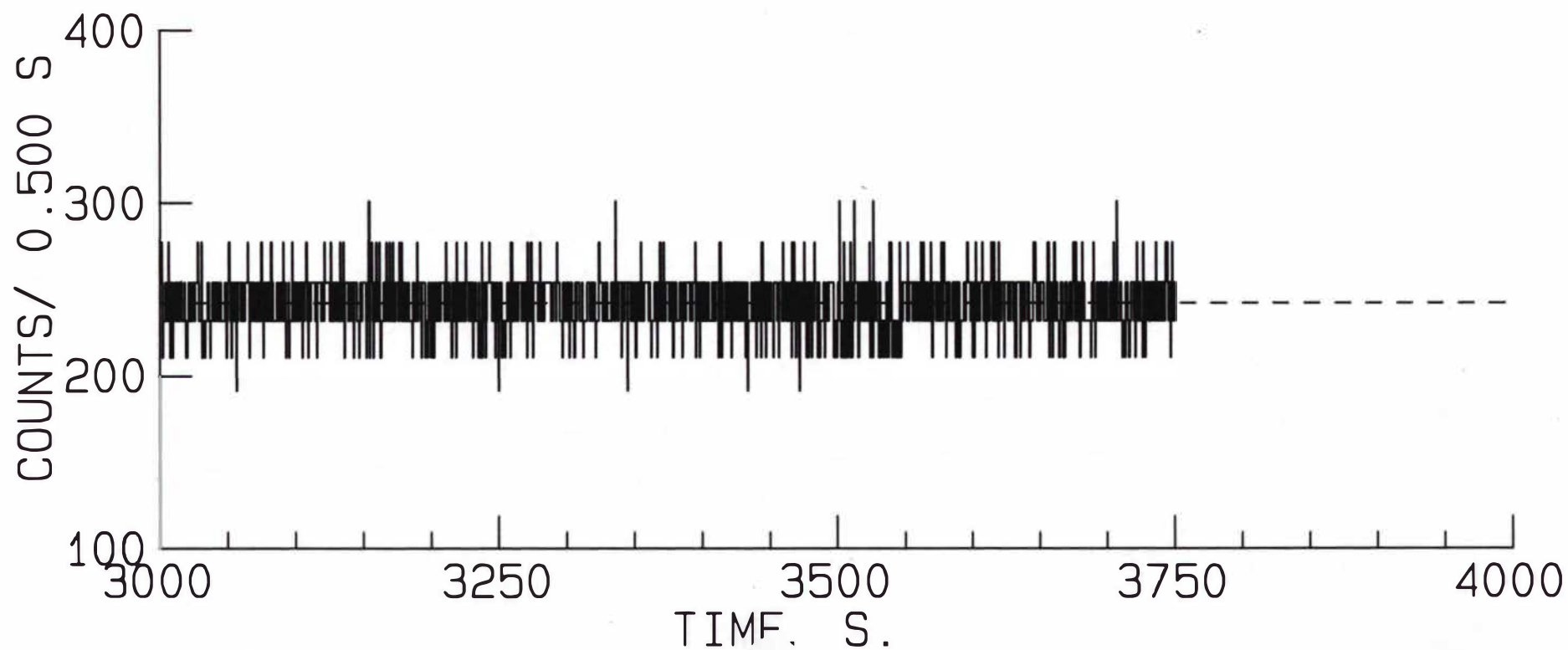
ULYSSES RT
31/12/99 16524.314 s
22- 150 keV

7 / 1 / 0



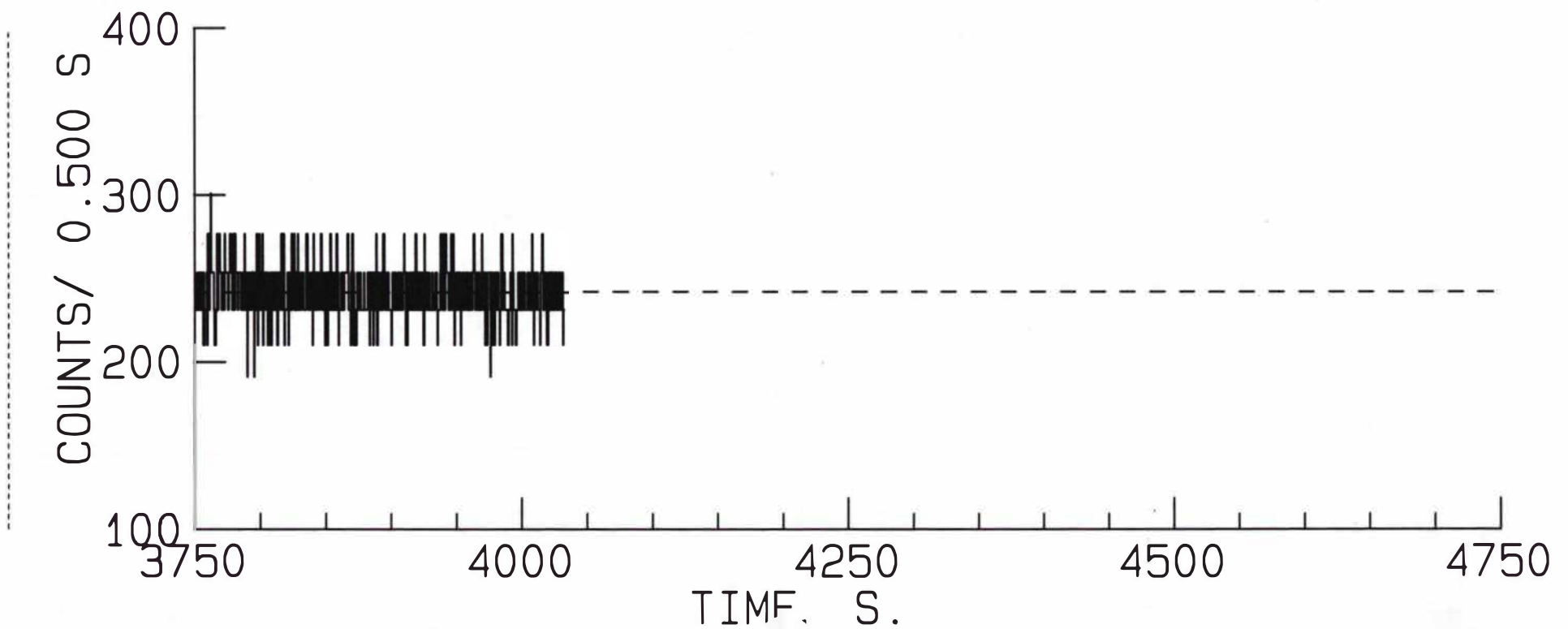
ULYSSES RT
31/12/99 16524.314 s
22- 150 keV

7 / 1 / 0

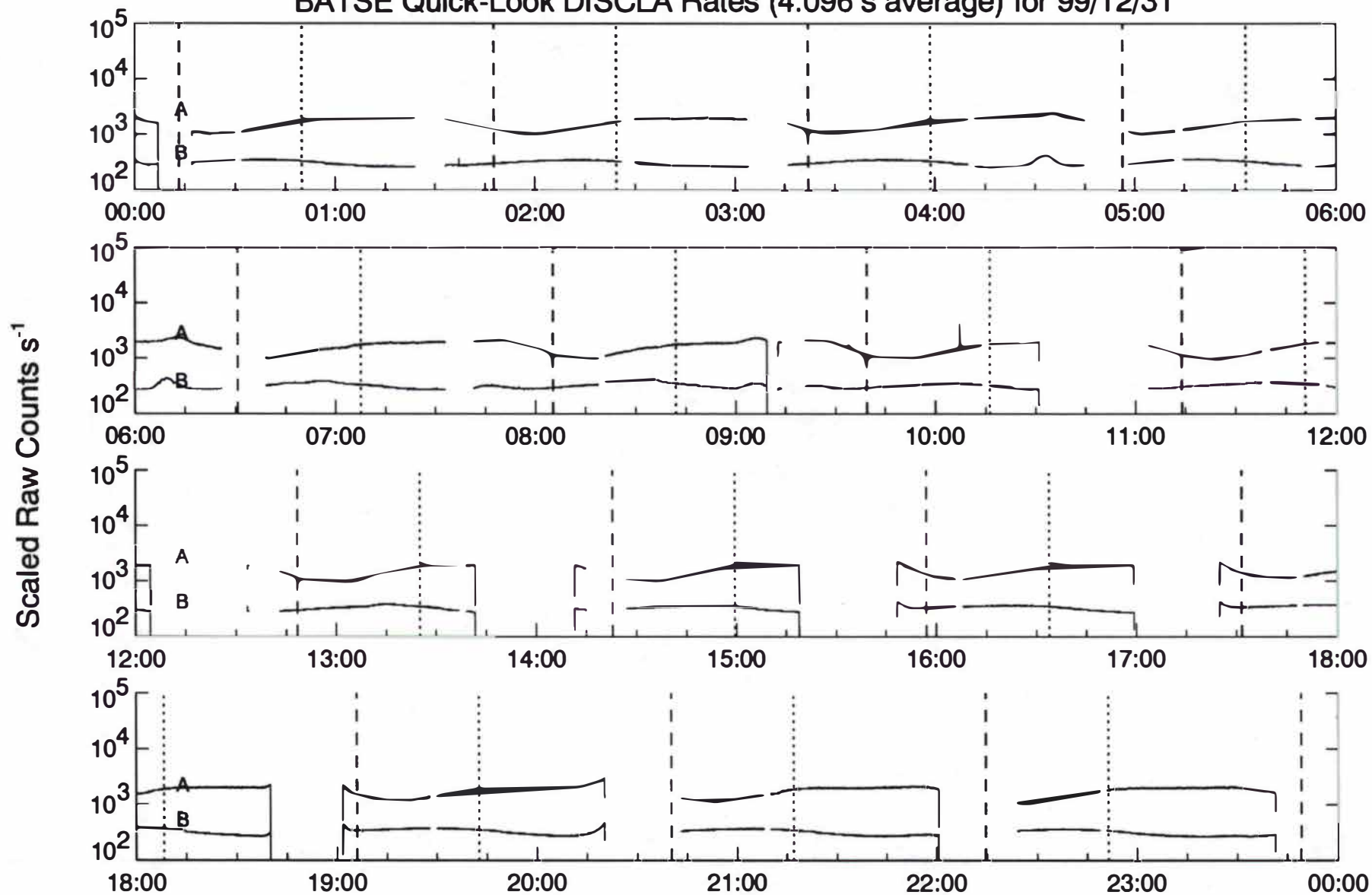


ULYSSES RT
31/12/99 16524.314 s
22- 150 keV

7 / 1 / 0



BATSE Quick-Look DISCLA Rates (4.096 s average) for 99/12/31



Current Time: 00/01/05, 1916 EDT

A: Channel 0 Most Sunward LAD

B: Sum Channel 0 Anti-Sunward LADs X .05

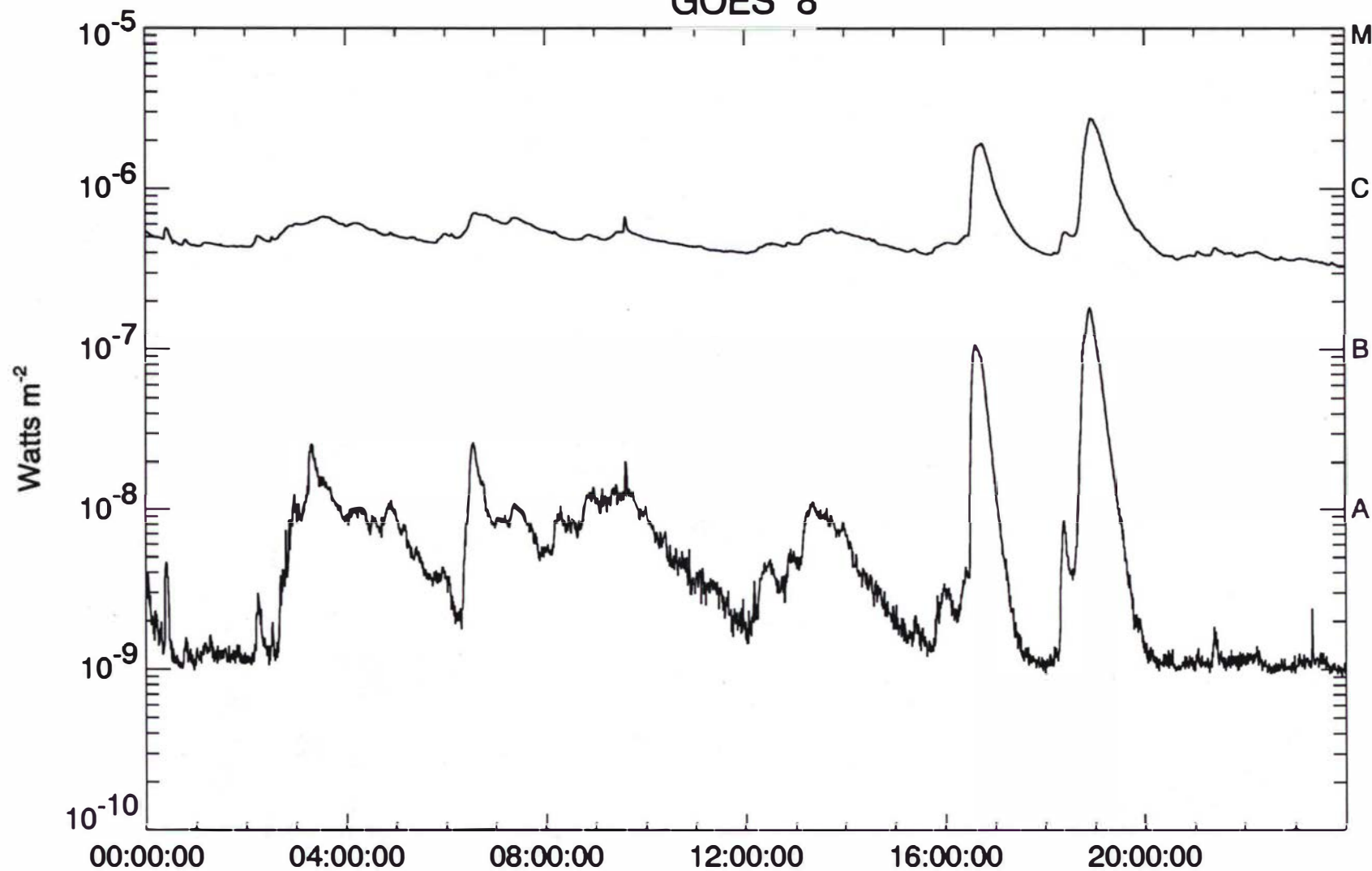
Dotted line: Day entry

Dashed line: Night entry

* Solar Burst Trigger

+ Solar Flare

GOES 8



Data Start: 99/12/31, 0000:00

Plot created: 00/01/05, 1916

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

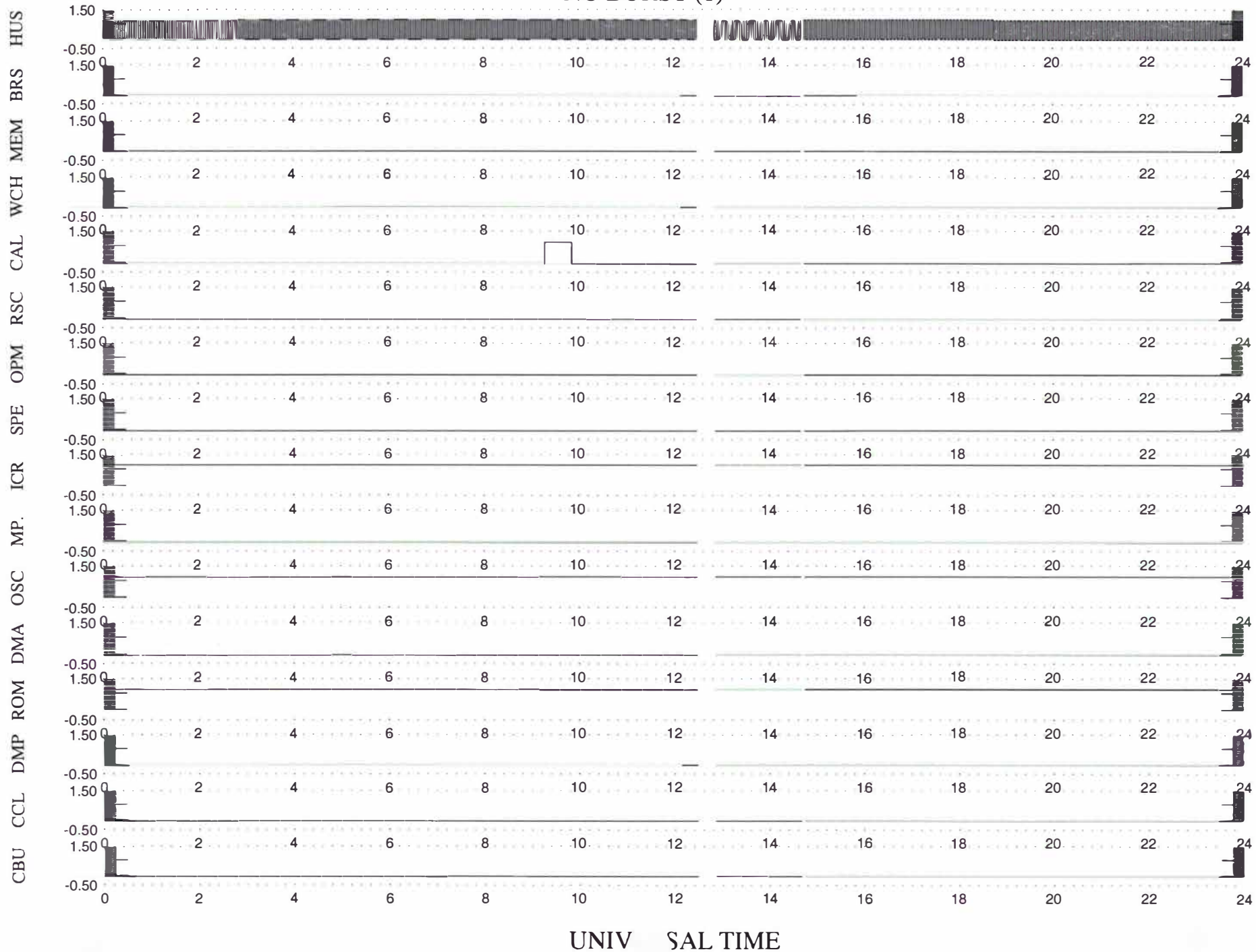
THE 21

THE 21

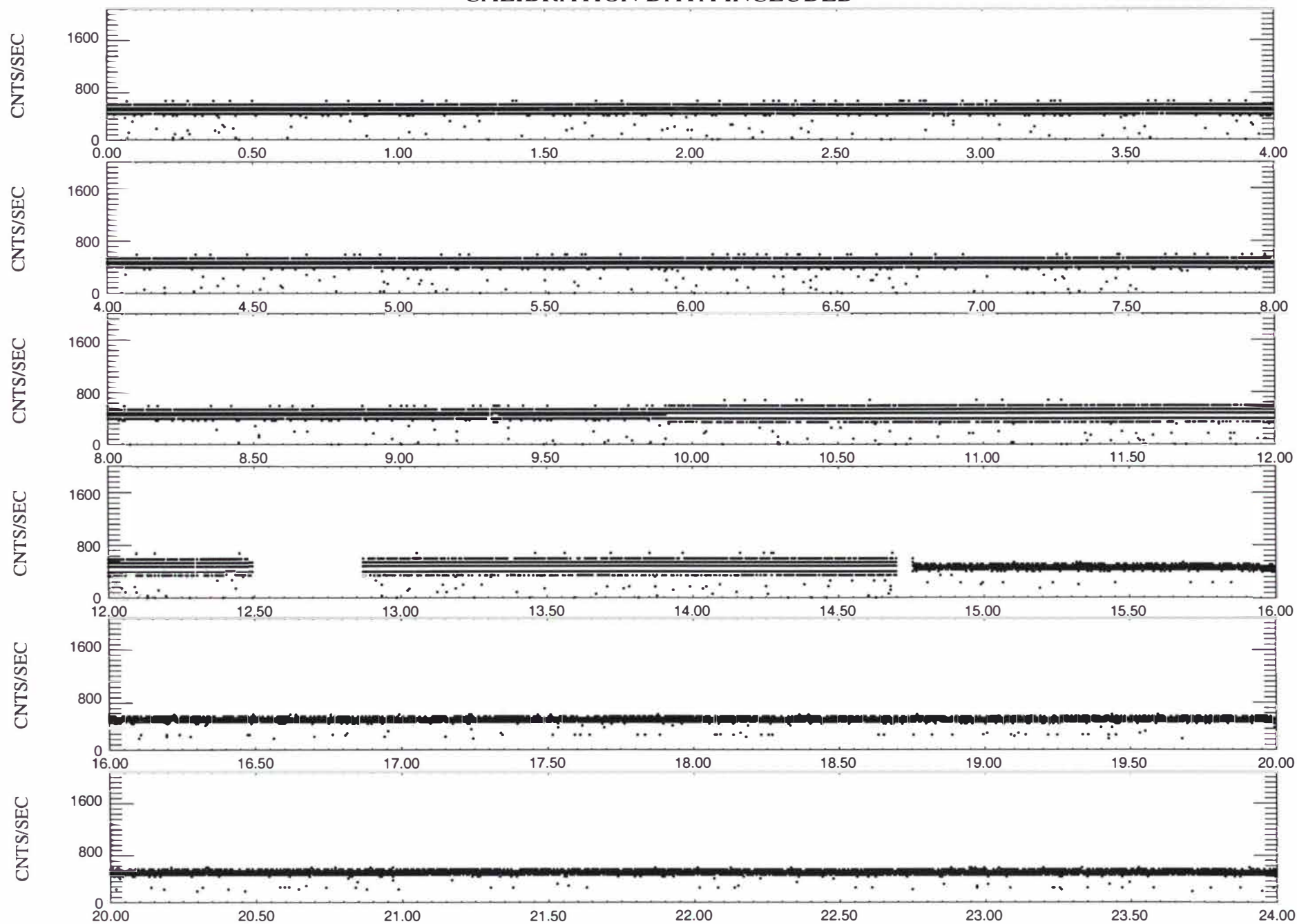
THE 21

THE 21

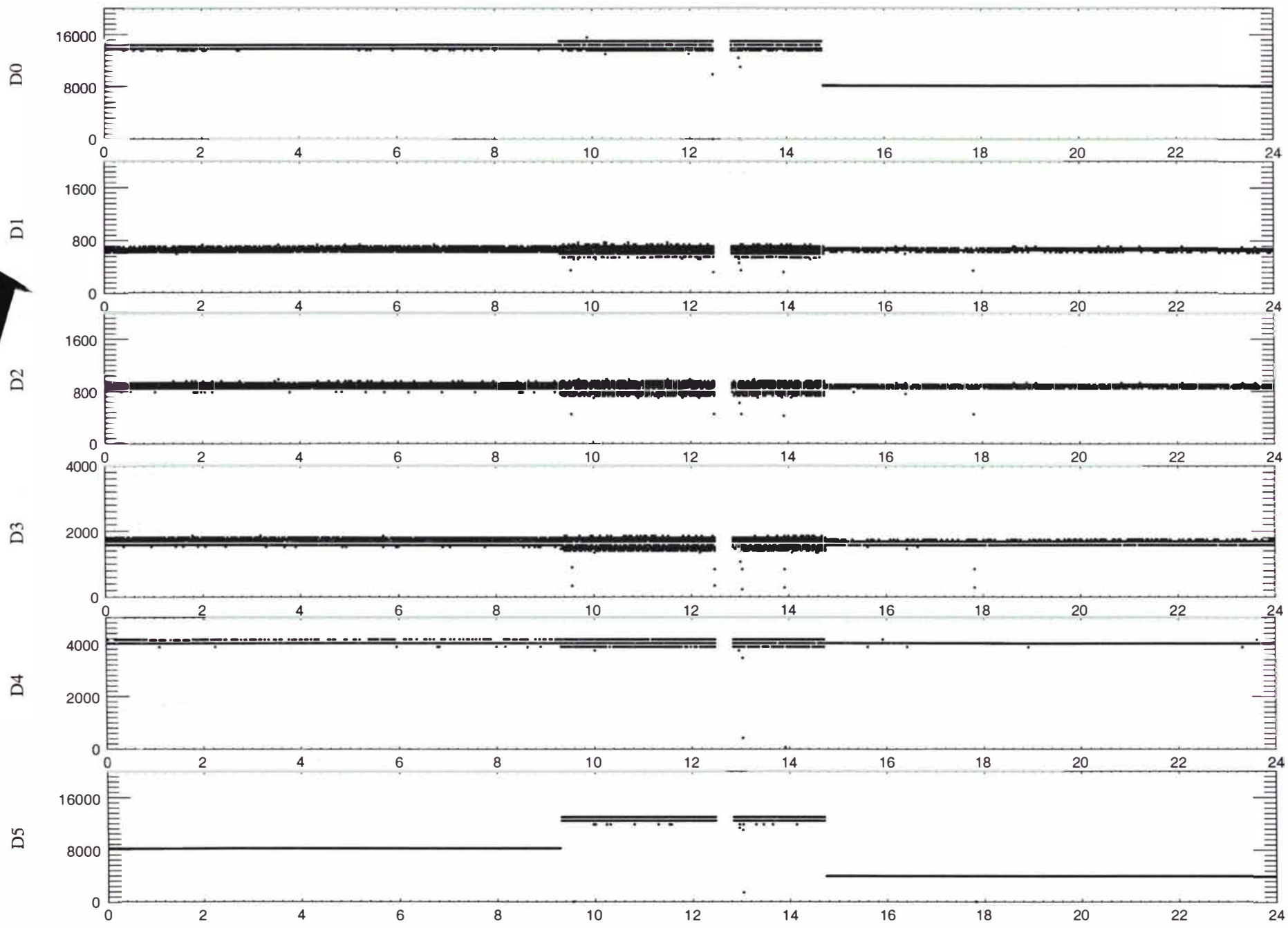
NO BURST (1)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



UNIVERSAL TIME