

From: springer@mail1.jpl.nasa.gov Wed Feb 17 07:22 PST 1999
From: "Joe Springer" <springer@mail1.jpl.nasa.gov>
To: "SIM Richard Marsden" <rmarsden@estec.esa.nl>,
"BAM Bruce Goldstein" <bgoldstein@jplsp2.jpl.nasa.gov>,
"BAM Dave McComas" <dmccomas@lanl.gov>,
"Edward J Smith" <edward.j.smith@jpl.nasa.gov>,
"GLG George Gloeckler" <gloeckler@umdsp.umd.edu>,
"GLG Johannes Geiss" <geiss@phim.unibe.ch>,
"GRU E Gruen" <gruen@dusty.mpi-hd.mpg.de>,
"GRU Gudrun Linkert" <glinkert@dirty.mpi-hd.mpg.de>,
"HED Andre Balogh" <a.balogh@ic.ac.uk>,
"HED Bob Forsyth" <r.forsyth@ic.ac.uk>,
"HUS Kevin Hurley" <khurley@sunspot.ssl.berkeley.edu>,
"KEP E Keppler" <keppler@linmpi.mpg.de>,
"LAN L Lanzerotti" <ljl@bell-labs.com>,
"SIM Bruce McKibben" <mckibben@odysseus.uchicago.edu>,
"STO Bob Macdowall" <macd@leprjm.gsfc.nasa.gov>
Cc: "STO Roger Hess" <hess@urap.gsfc.nasa.gov>,
"GLG Toni Galvin" <galvin@umdsp.umd.edu>,
"HED Vena Pontiac" <vpontiac@jplsp.jpl.nasa.gov>,
"HUS Roger Williams" <williams@sunspot.ssl.berkeley.edu>,
"LAN Gene Holland" <ULYSSES@kuplas.phsx.ukans.edu>,
"SIM Gene Murphy" <murphy@odysseus.uchicago.edu>

Subject: December/January SEDRs

Date: Wed, 17 Feb 1999 07:20:24 -0800

MIME-Version: 1.0

Content-Transfer-Encoding: 7bit

X-Priority: 3 (Normal)

X-MSMail-Priority: Normal

Importance: Normal

MimeOLE: Produced By Microsoft MimeOLE V5.00.0810.800

For the last several days, final SEDRs for December 1998 and January 1999 were posted on JPLSP. They had passed our usual validation, but had serious flaws which were not obvious to us.

If you downloaded the files, you should discard them. They are essentially useless. Replacements will be created when we get valid replacement ephemeris files from Navigation.

Production of the December CDROM will be delayed until these files have been replaced.

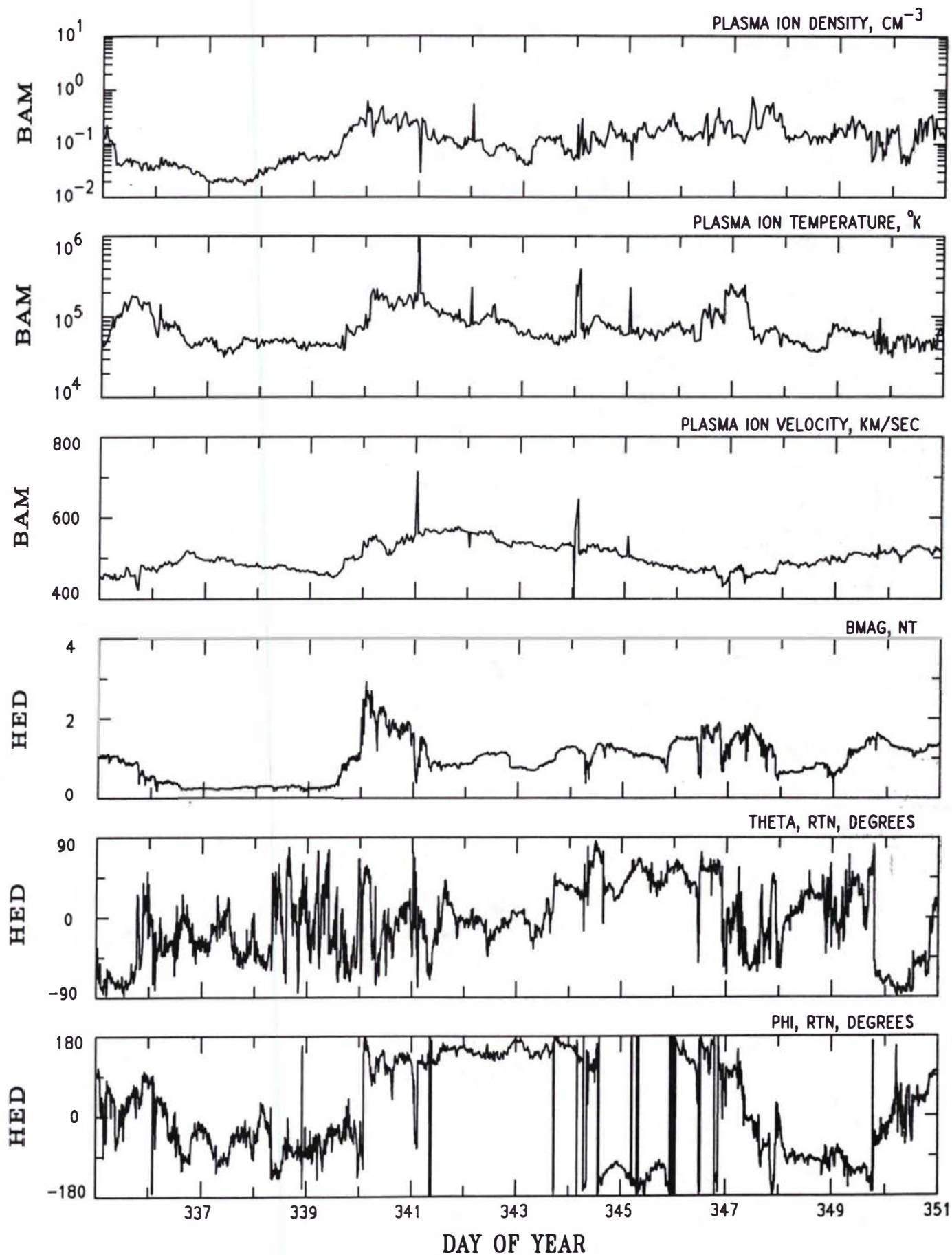
Thanks to Ingrid Schrader for notifying us of the problem.

Regards,

Joe

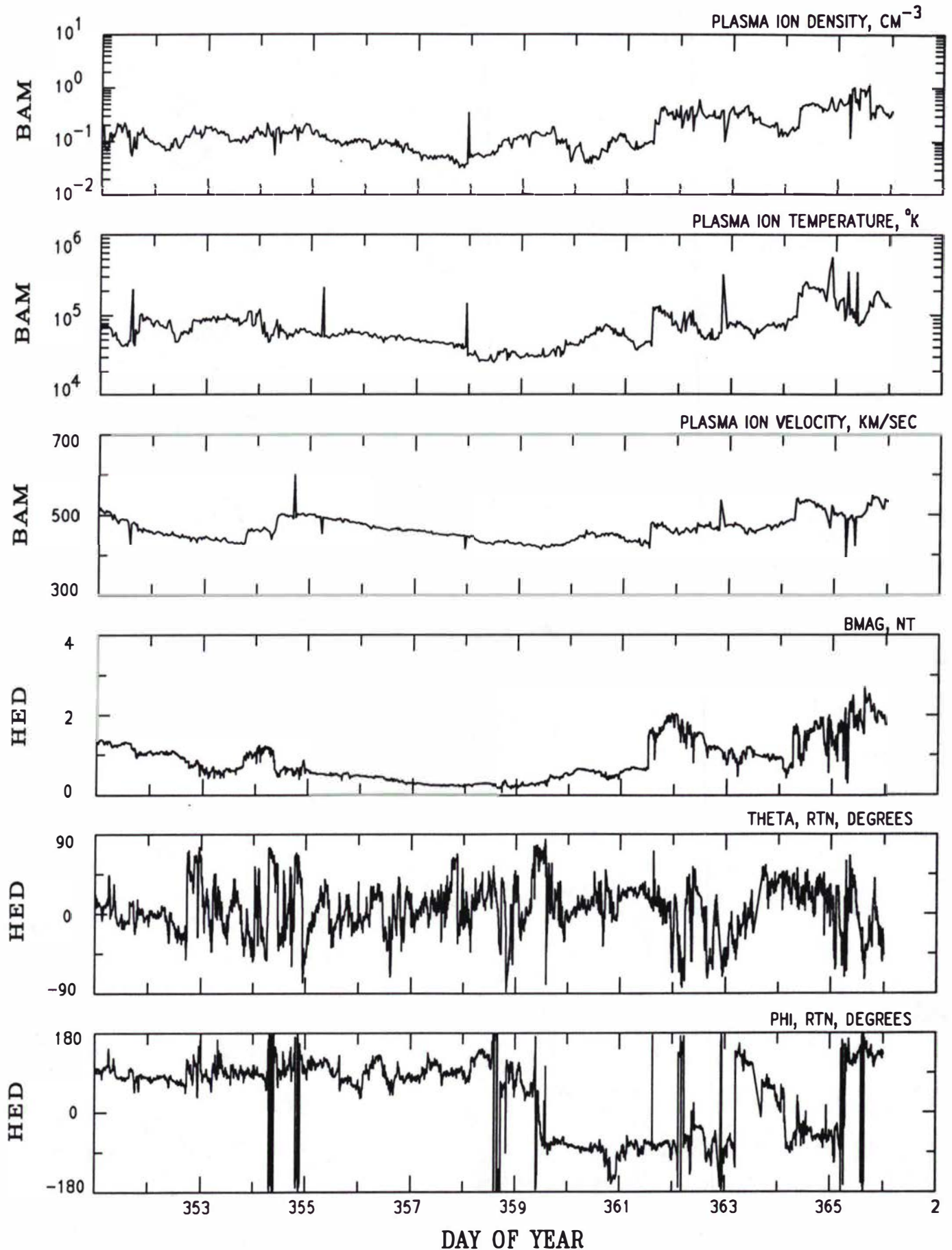
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

98 335 DEC 1 00:00:00.000 - 98 351 DEC 17 00:00:00.000



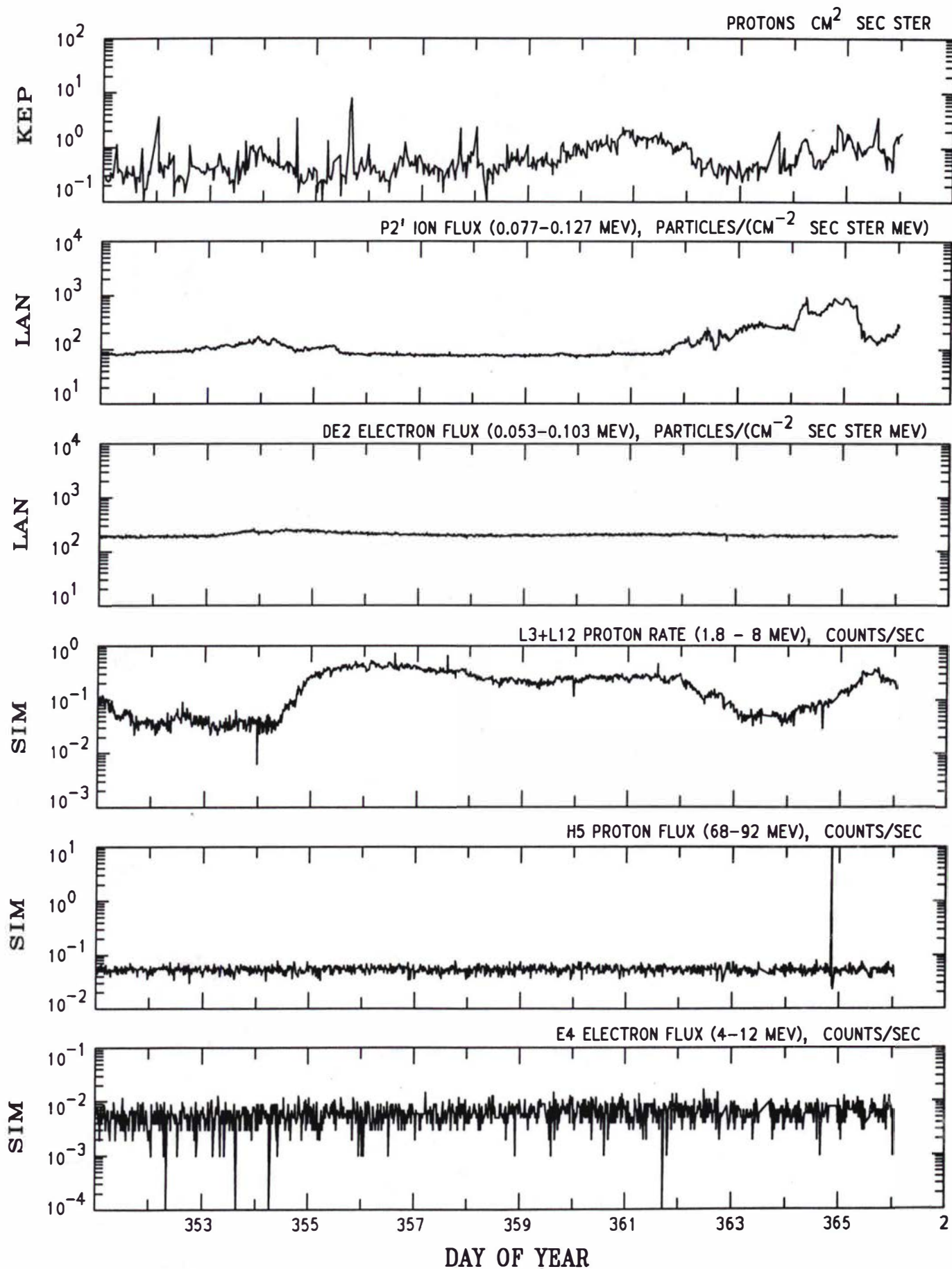
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

98 351 DEC 17 00:00:00.000 - 99 002 JAN 2 00:00:00.000



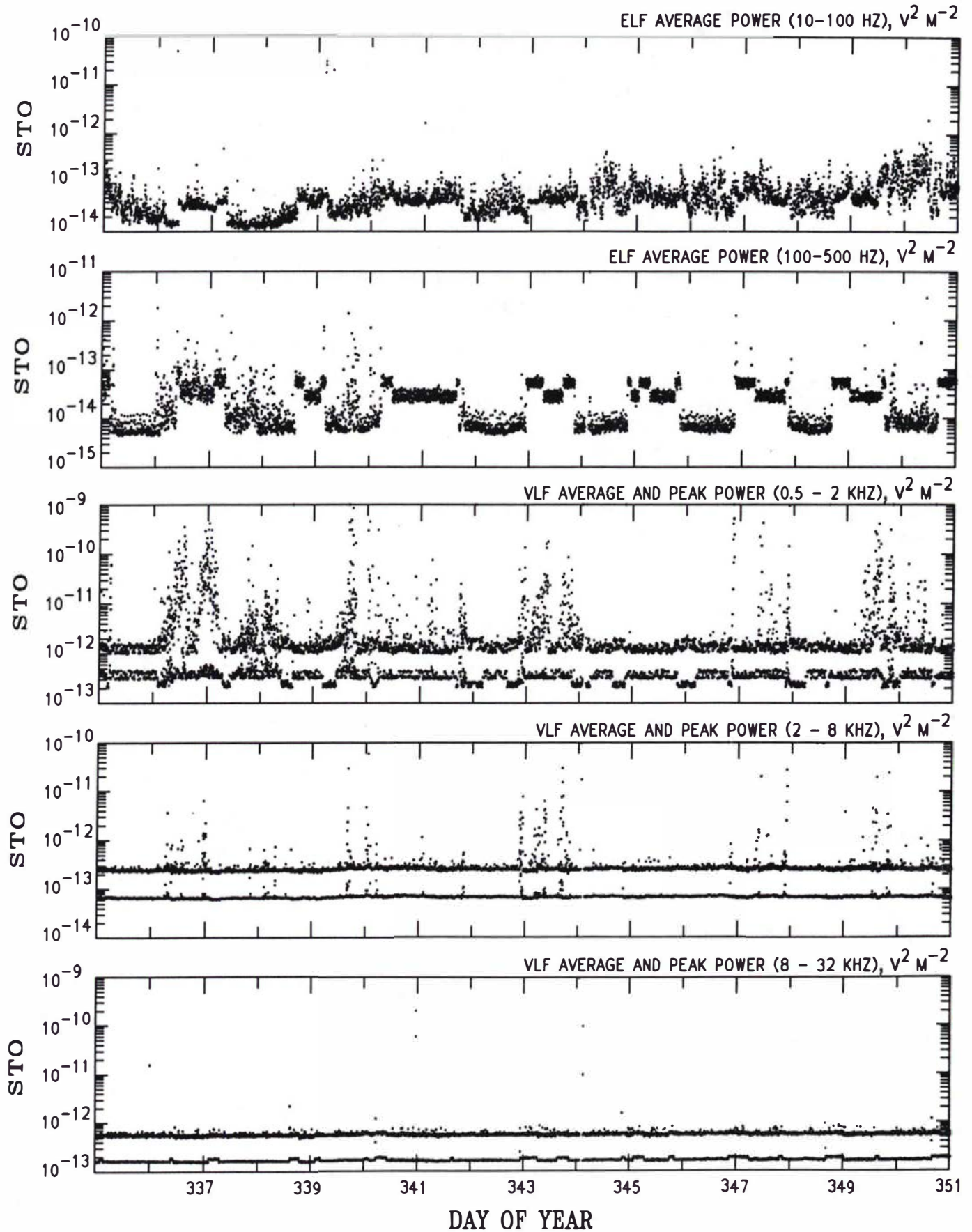
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

98 351 DEC 17 00:00:00.000 - 99 002 JAN 2 00:00:00.000



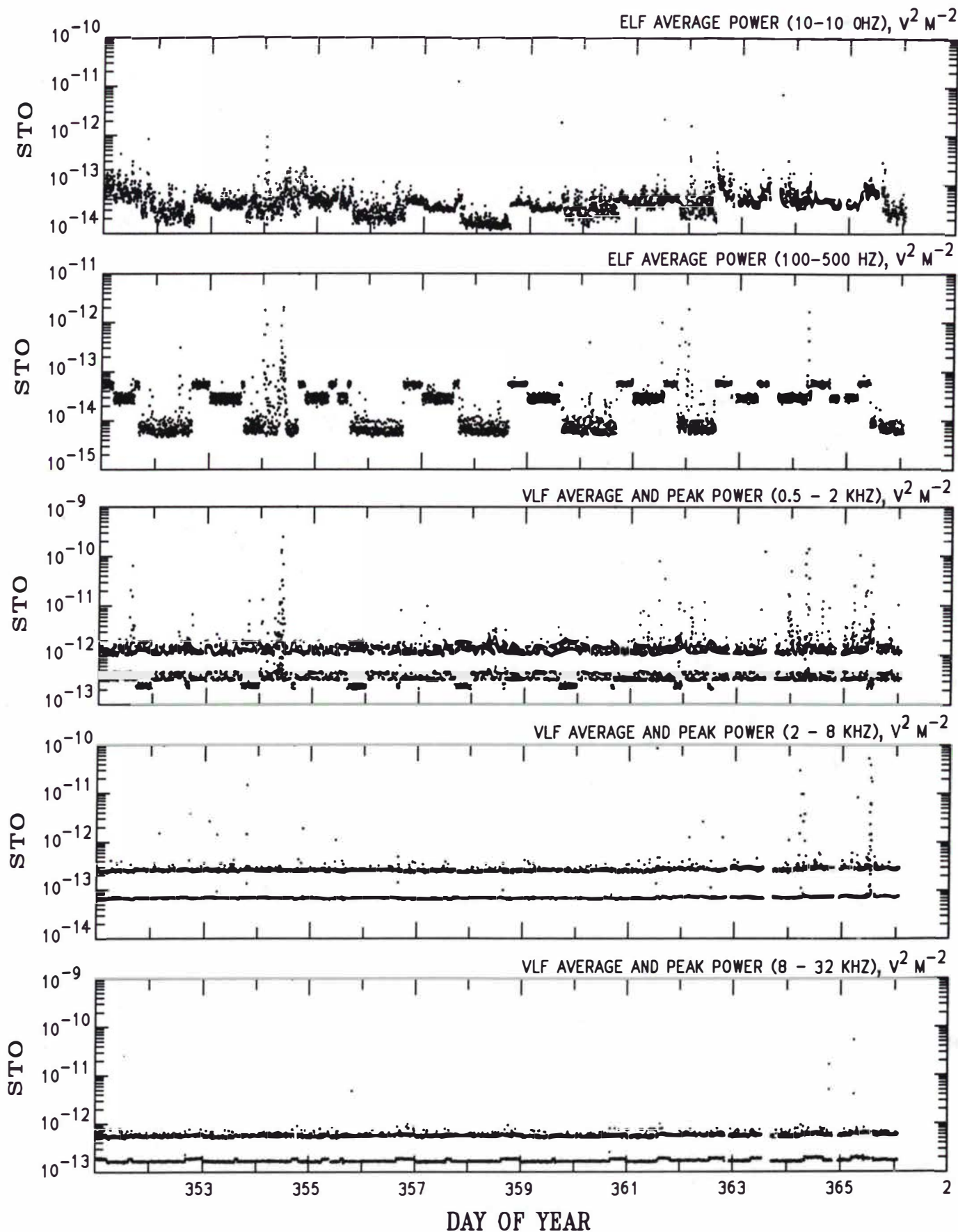
ULYSSES CDR - PLASMA WAVE

98 335 DEC 1 00:00:00.000 - 98 351 DEC 17 00:00:00.000



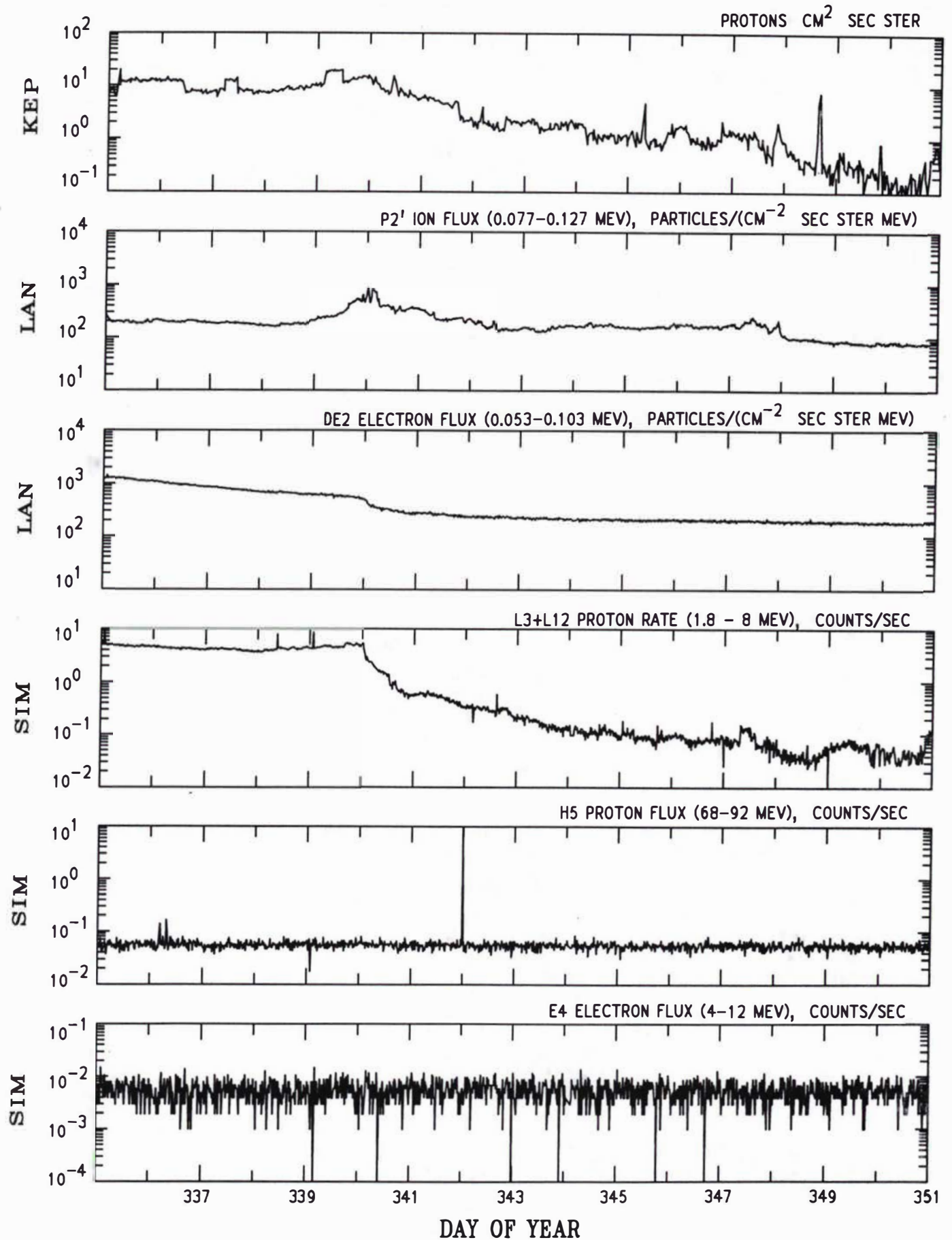
ULYSSES CDR - PLASMA WAVE

98 351 DEC 17 00:00:00.000 - 99 002 JAN 2 00:00:00.000



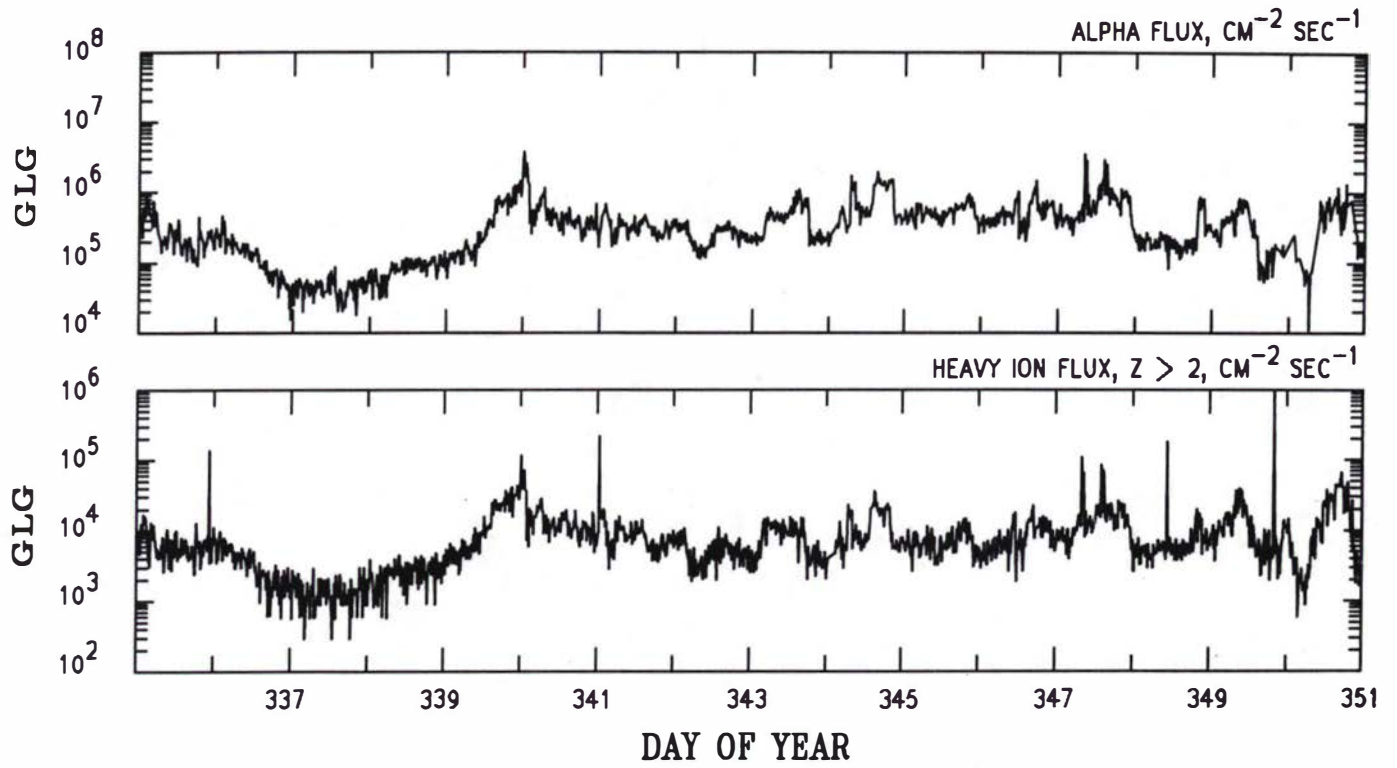
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

98 335 DEC 1 00:00:00.000 - 98 351 DEC 17 00:00:00.000



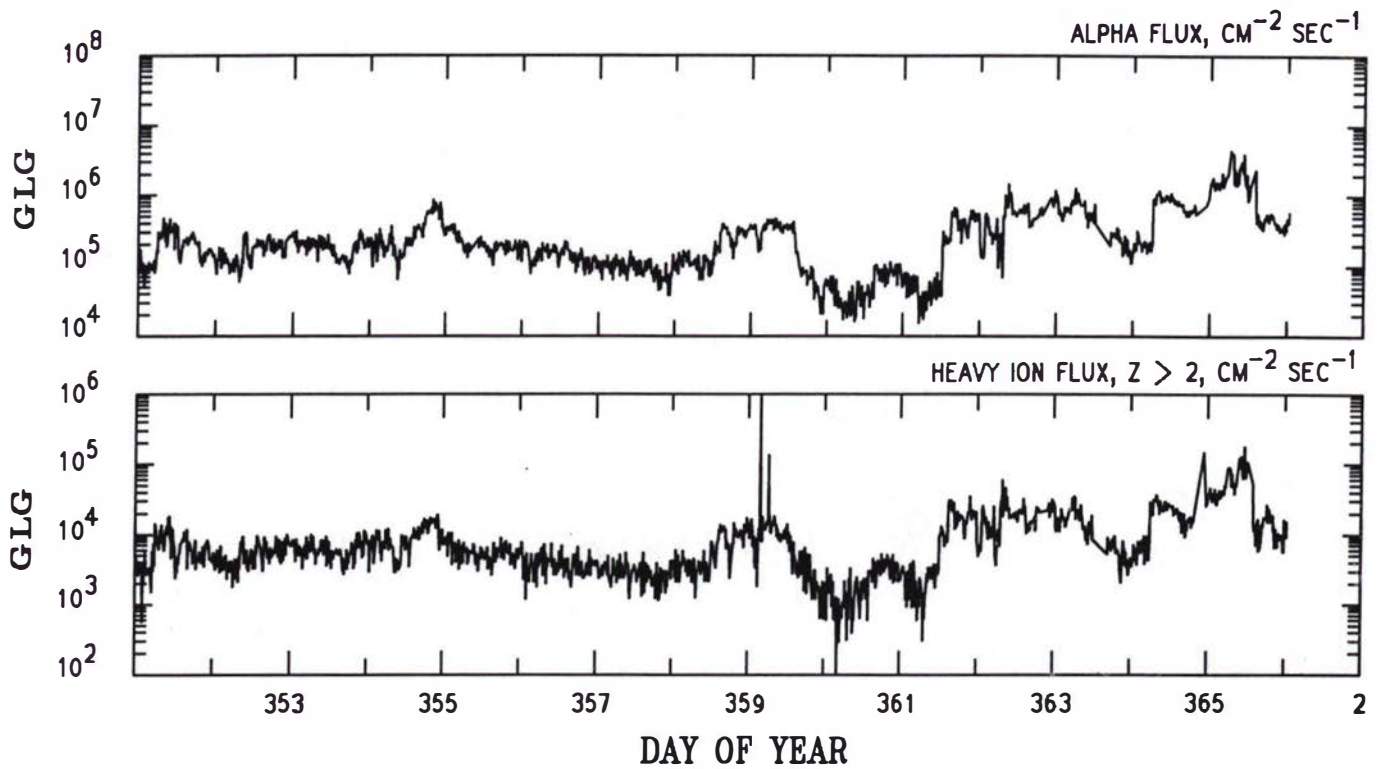
ULYSSES CDR - SOLAR WIND ION COMPOSITION

98 335 DEC 1 00:00:00.000 - 98 351 DEC 17 00:00:00.000



ULYSSES CDR - SOLAR WIND ION COMPOSITION

98 351 DEC 17 00:00:00.000 - 99 002 JAN 2 00:00:00.000



From WOODSP@fender.msfc.nasa.gov Thu Dec 3 09:36:10 1998
Return-Path: <WOODSP@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA00649; Thu, 3 Dec 1998 09:36:09 -0800
From: WOODSP@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA23488; Thu, 3 Dec 1998 09:36:08 -0800
Date: Thu, 3 Dec 1998 11:28:23 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981203112823.2023d837@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7244
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7244
EVENT OF 1998 DEC 1 DAY OF YEAR=335
EVENT CROSSING TIME AT BATSE : 75451. S. OR 20:57:31.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 324.000 -16.000
BATSE PEAK COUNTING RATE: 17000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 1/12/ 98 IS:
RA= 167.087 DEC= -5.466 DIST= 5.333 AU
BATSE-ULYSSES DISTANCE = 797774954. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 31.35 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2272.56 SECS.
CROSSING TIME AT ULYSSES IS 77724. S. OR 21:35:23 +/- 324.89 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 1/12/ 98 IS:
RA= 182.510 DEC= 0.762 DIST= 1.789 AU
MARS-BATSE DISTANCE = 267631984. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 40.91 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 674.71 SECS.
CROSSING TIME AT MARS IS 76126. S. OR 21:08:45 +/- 111.74 SECONDS

BATSE BURST TRIGGER

NO.: 7244

TIME: TJD=1148 SECONDS=75451

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=62.8 AZIMUTH=293.8 ERROR=4.1 DEGREES

COMMENTS:

GRB LASTING ABOUT 0.15 SEC. SINGLE, HARD PULSE WITH SOME
SUBSTRUCTURE. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7244	981201	11148	75451	17000	324	-16	.15

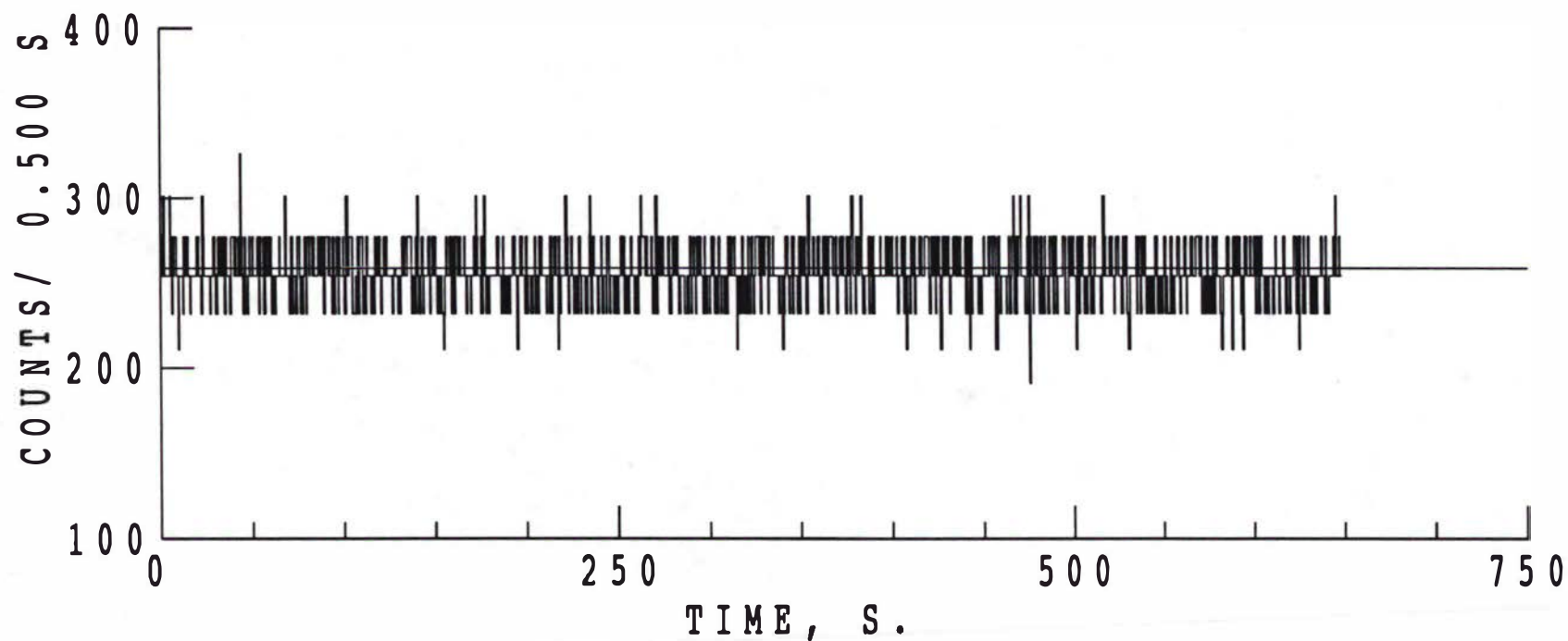
BATSE 724

4 / 6 / 99

ULYSSES RT
1/12/98 77400.297 s
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

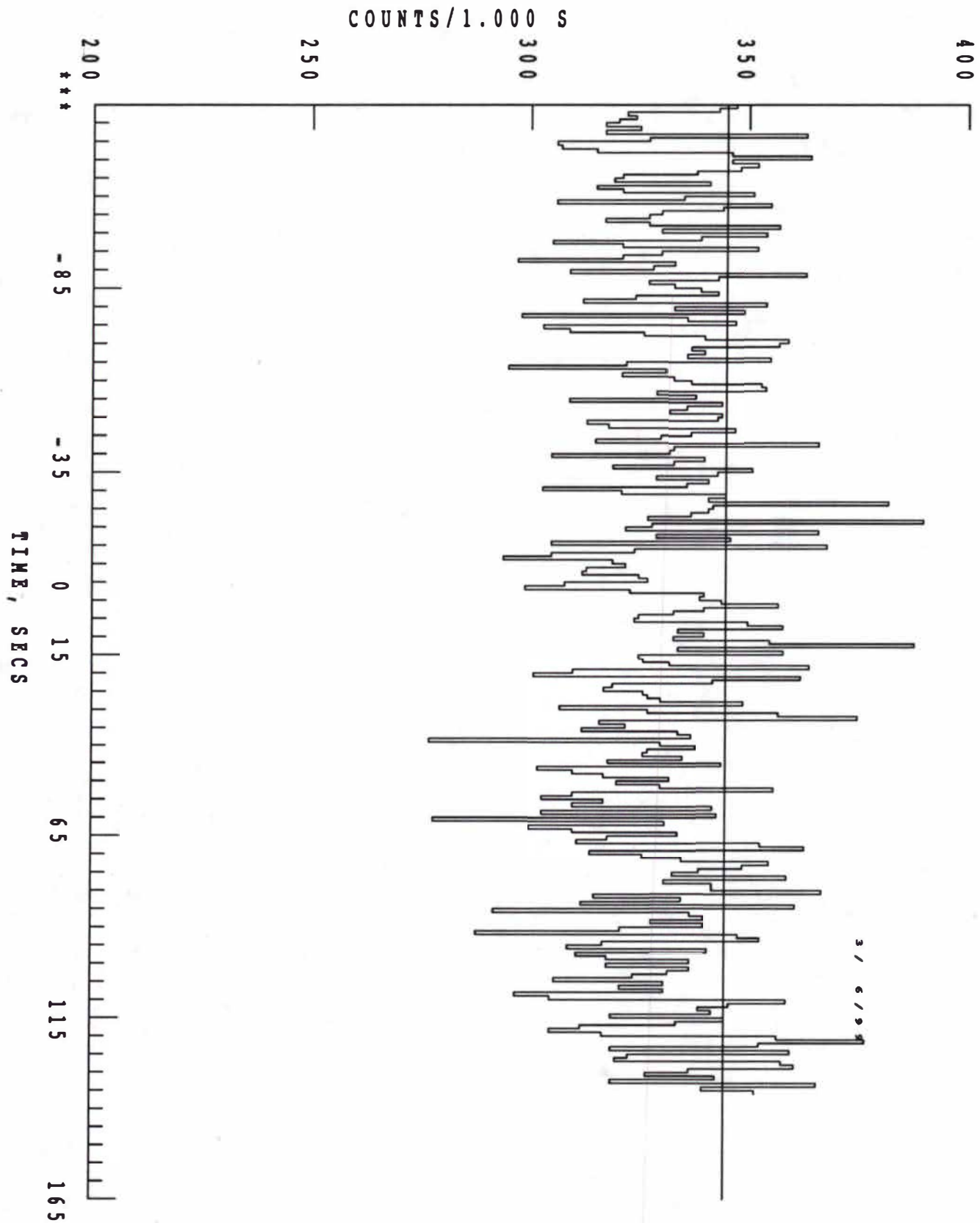


NEAR

01/12/98

74423.937

100-1000 keV



From khurley@sunspot Wed Dec 9 08:10 PST 1998
Date: Wed, 9 Dec 1998 08:08:31 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981201A,B, 981205, 981206

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 1 1998 00:06*	weak, 32 ms long	2650
DEC 1 1998 01:22*	weak, 32 ms long	2650
DEC 5 1998 09:02*	weak, 32 ms long	2650
DEC 6 1998 07:39*	weak, 32 ms long	2650

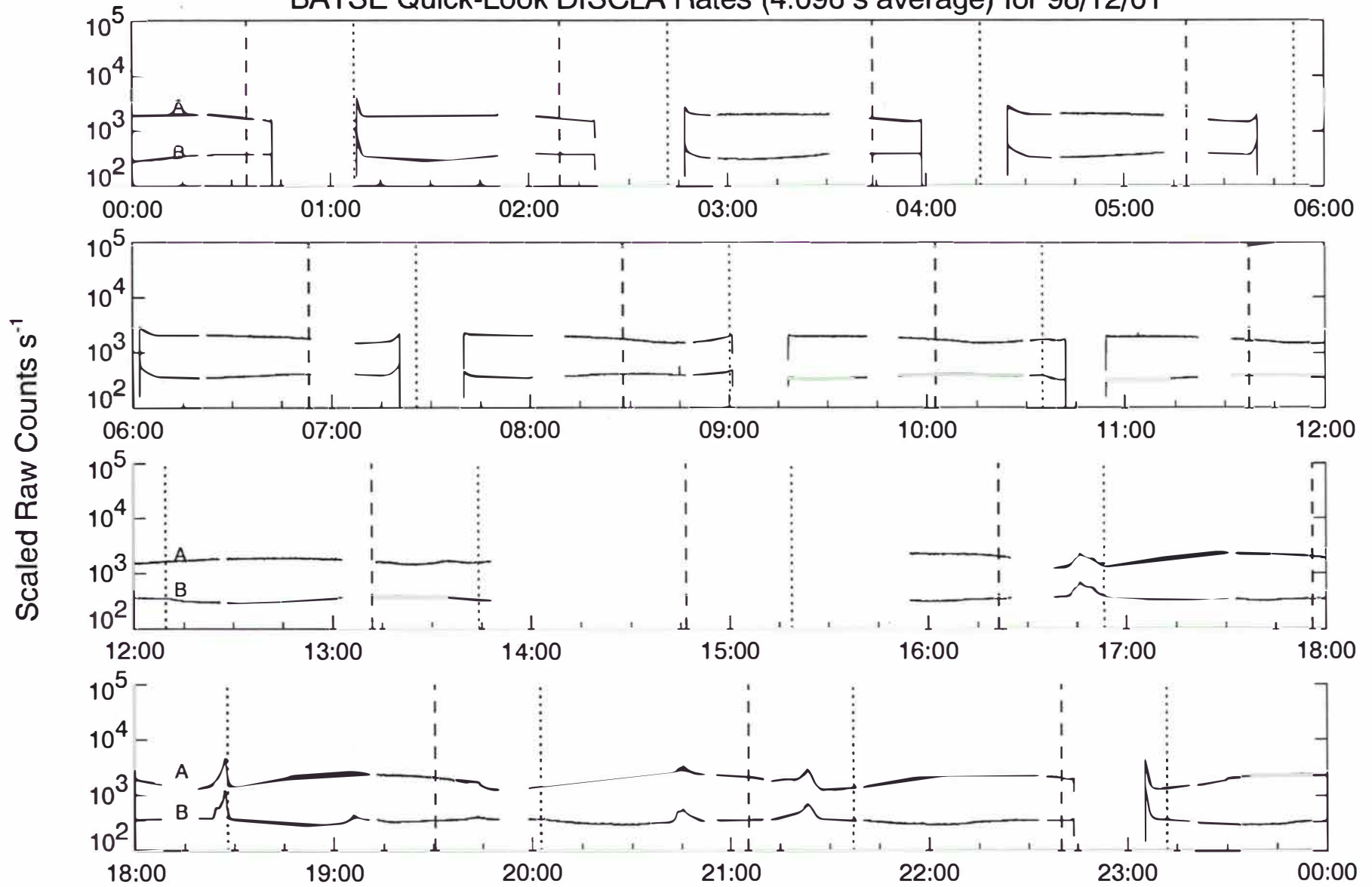
*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1335 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczynski, marar, tee

TGRS:NO

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/01

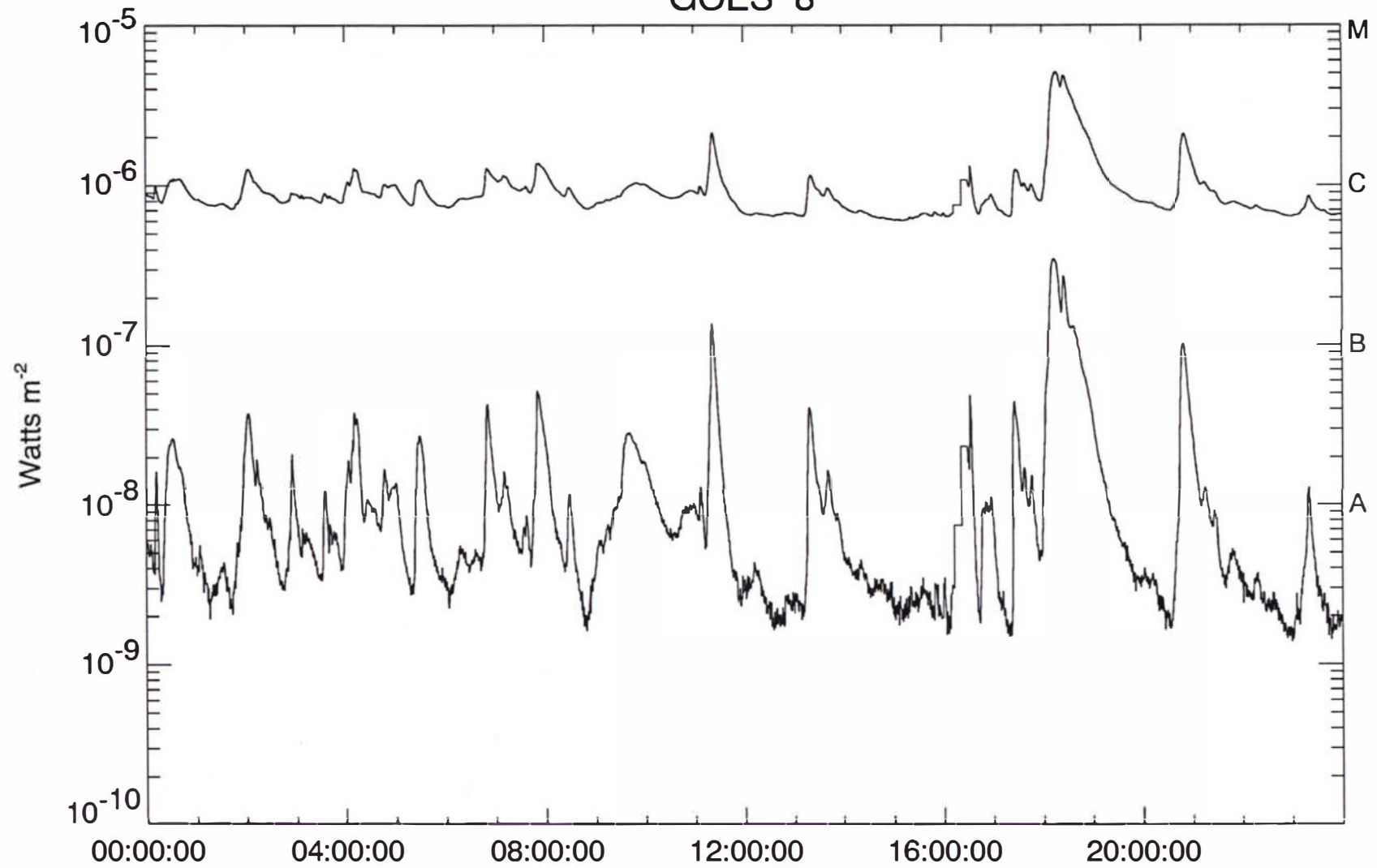


Current Time: 98/12/05, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 98/12/01, 0000:00

Plot created: 98/12/05, 1010

Channel

1 (1.0 - 8.0 Angstroms)

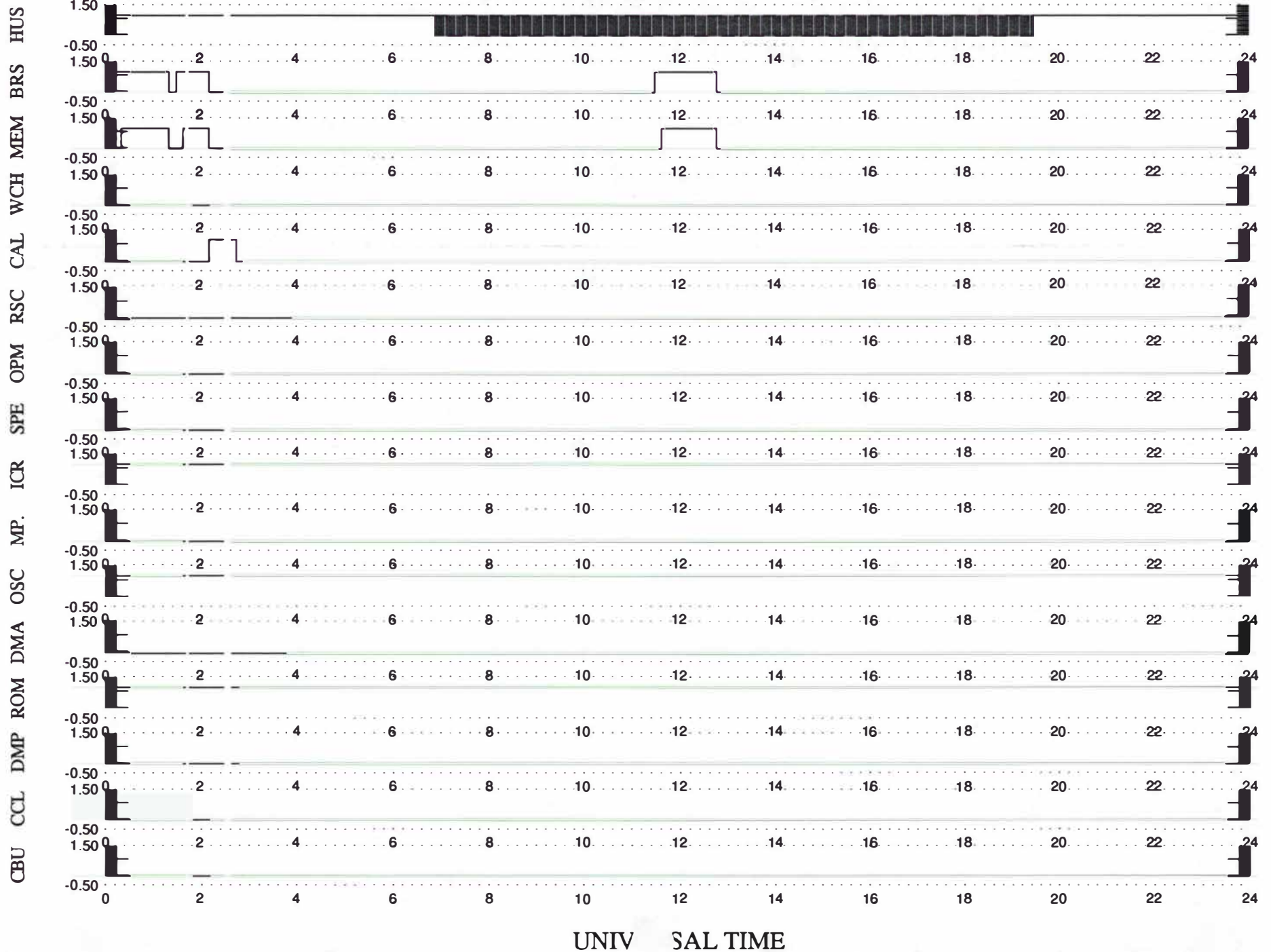
Background not subtracted

2 (0.5 - 4.0 Angstroms)

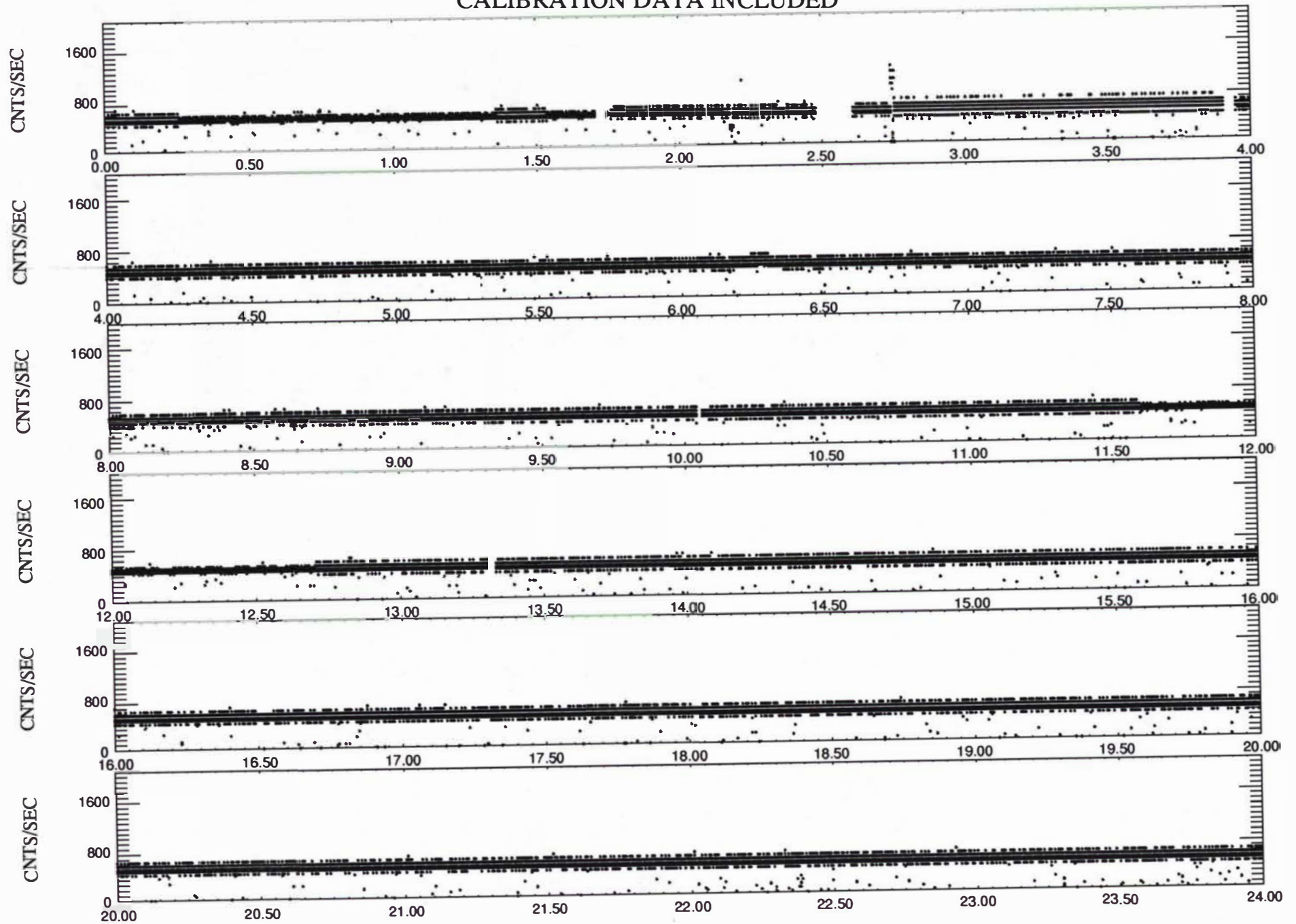
Background not subtracted

Sample average = 10

BURST NUMBER 13 - 15

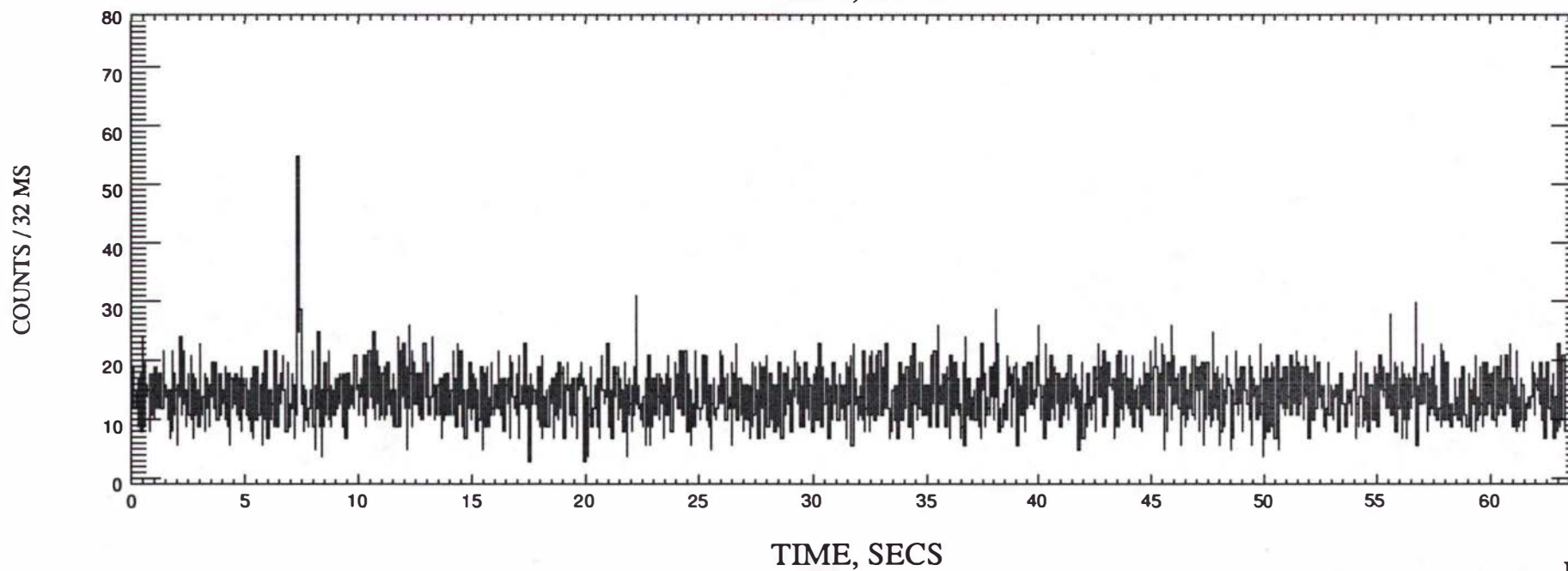
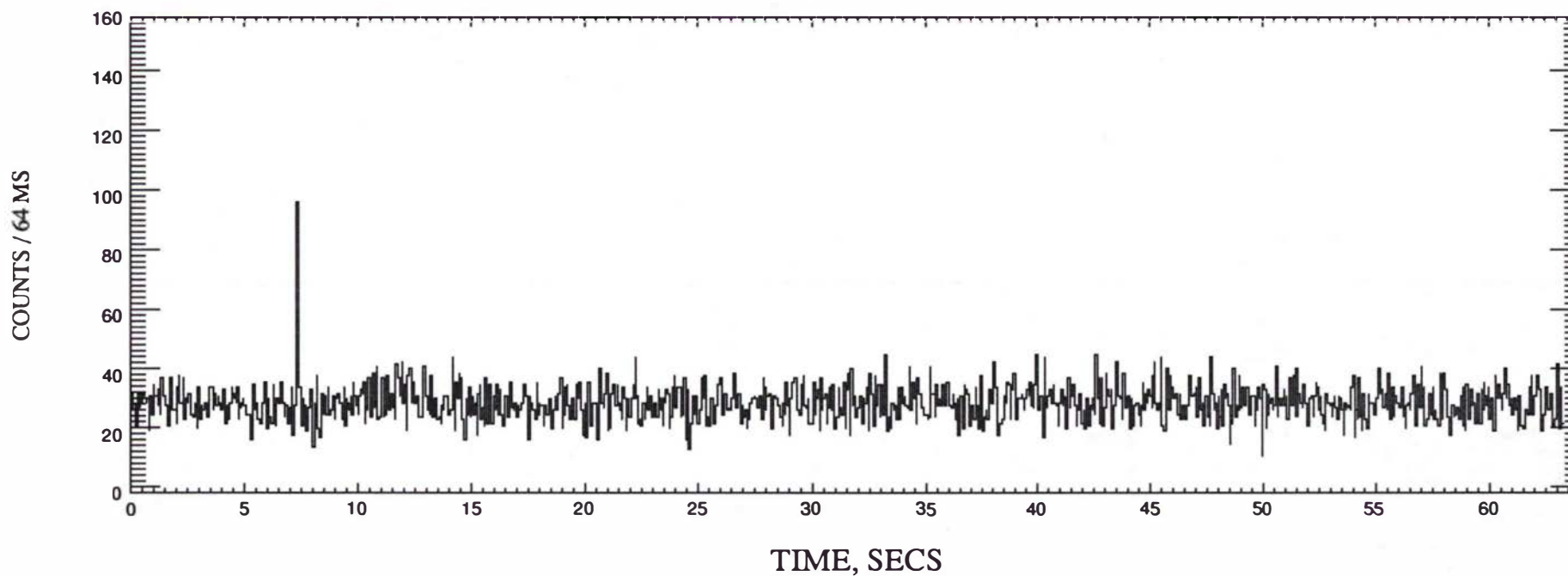


CALIBRATION DATA INCLUDED

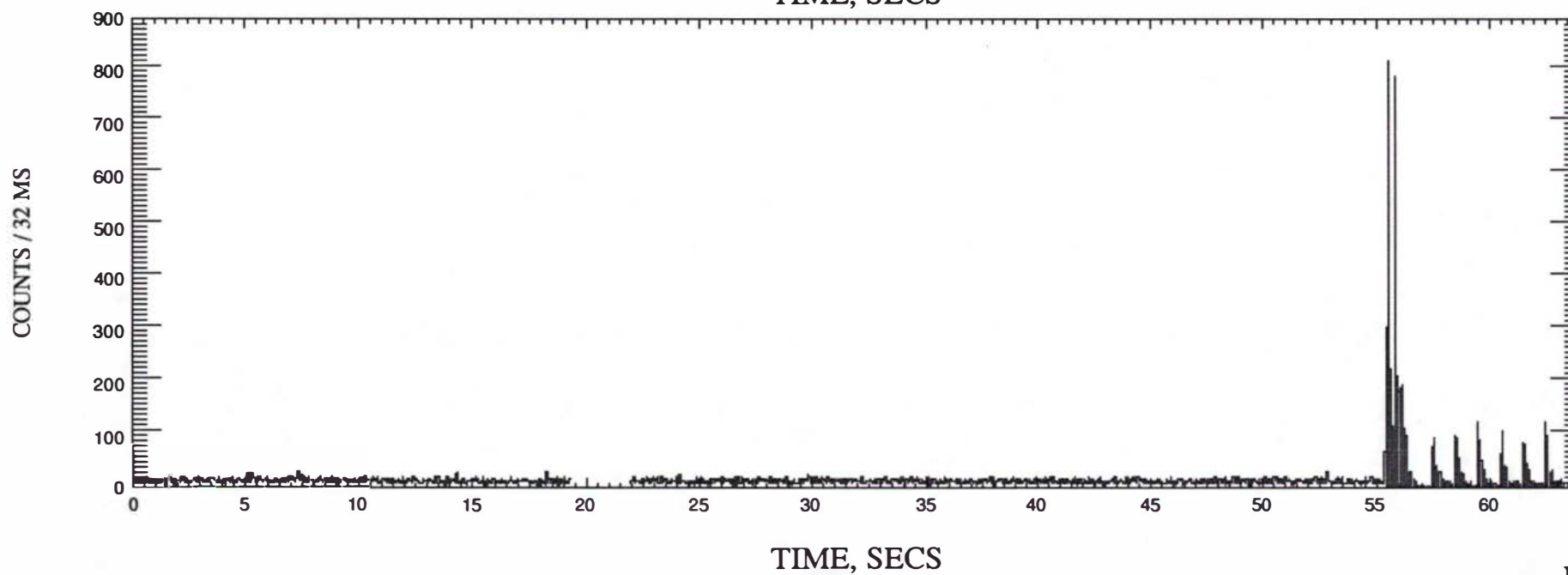
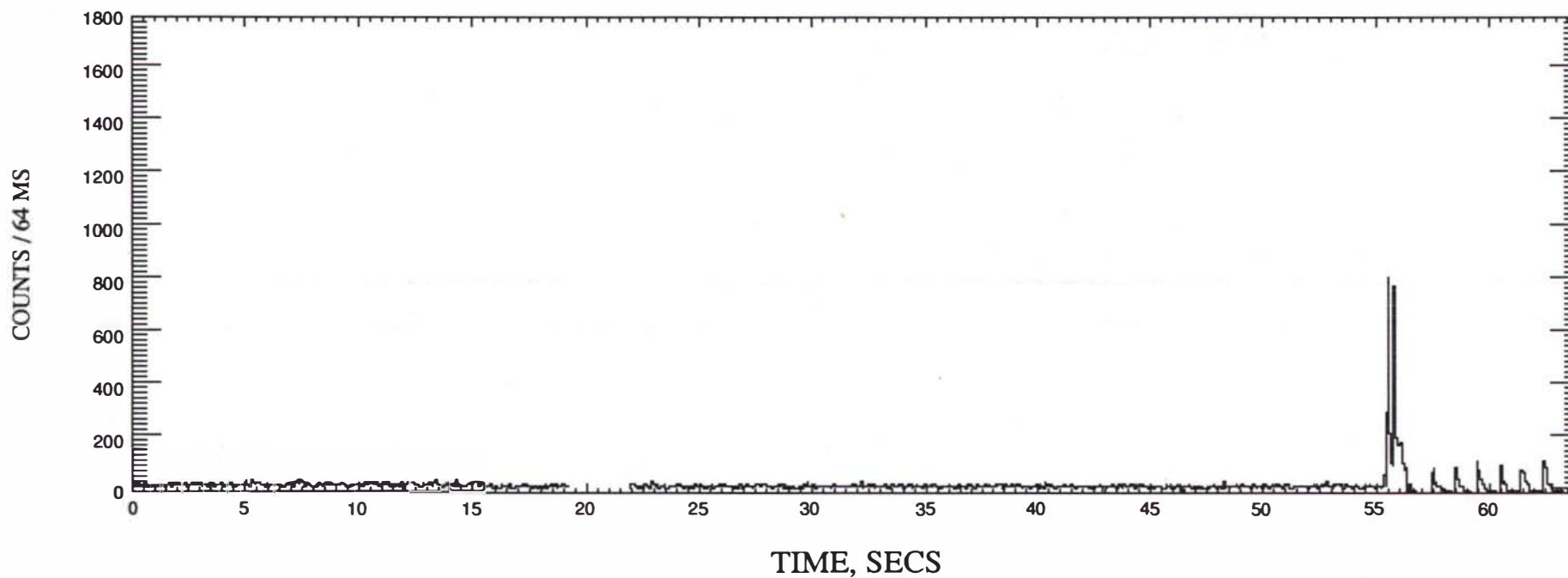


UNIV SAL TIME

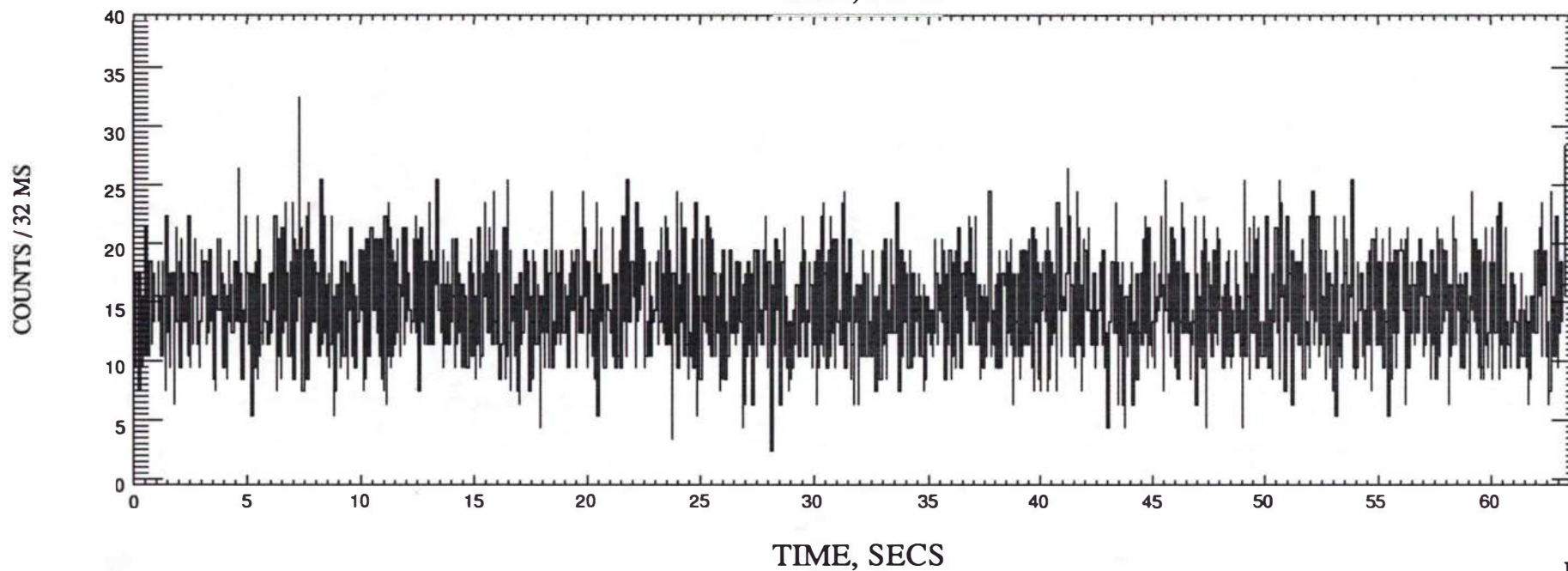
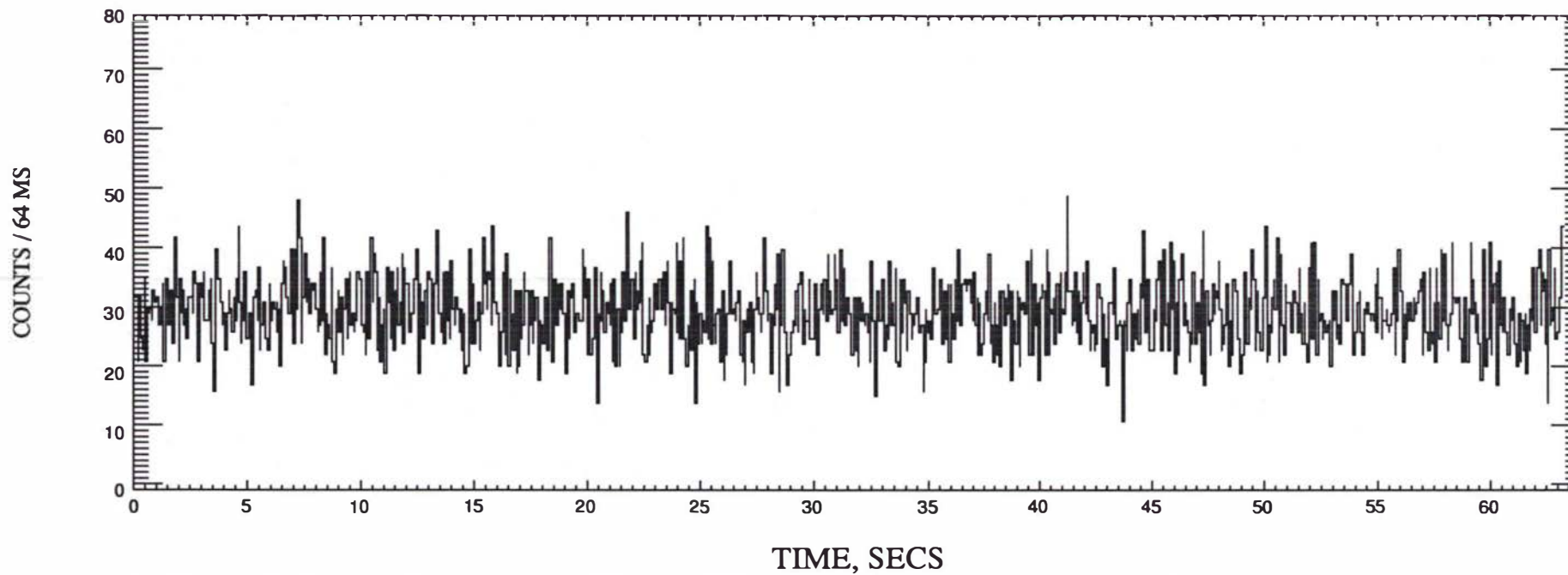
Burst Counter 15 at UT=11.431191609701 h=41152.290 s 11:25:52.290



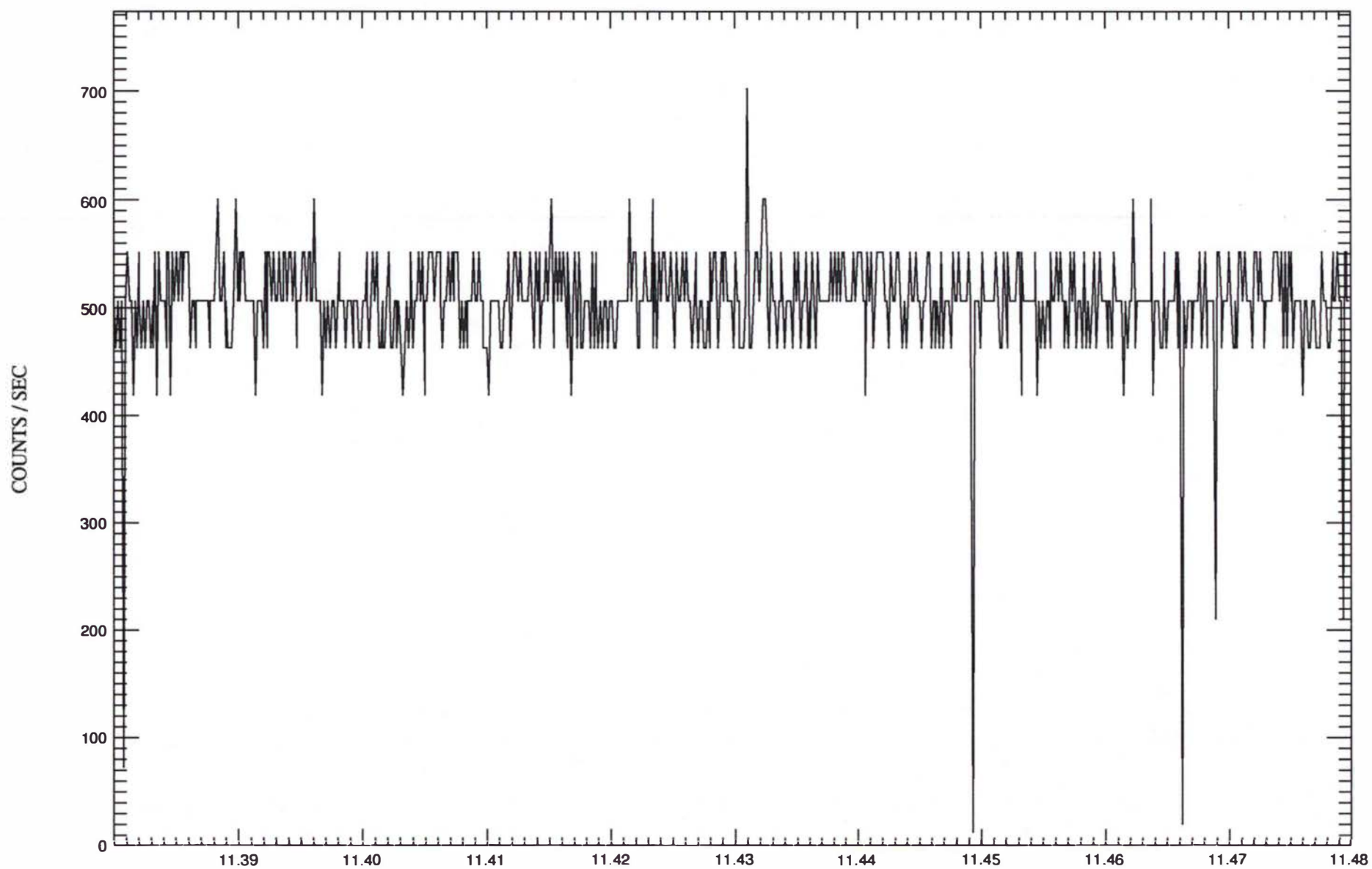
Burst Counter 14 at UT= 1.373657947116 h= 4945.169 s 01:22:25.169



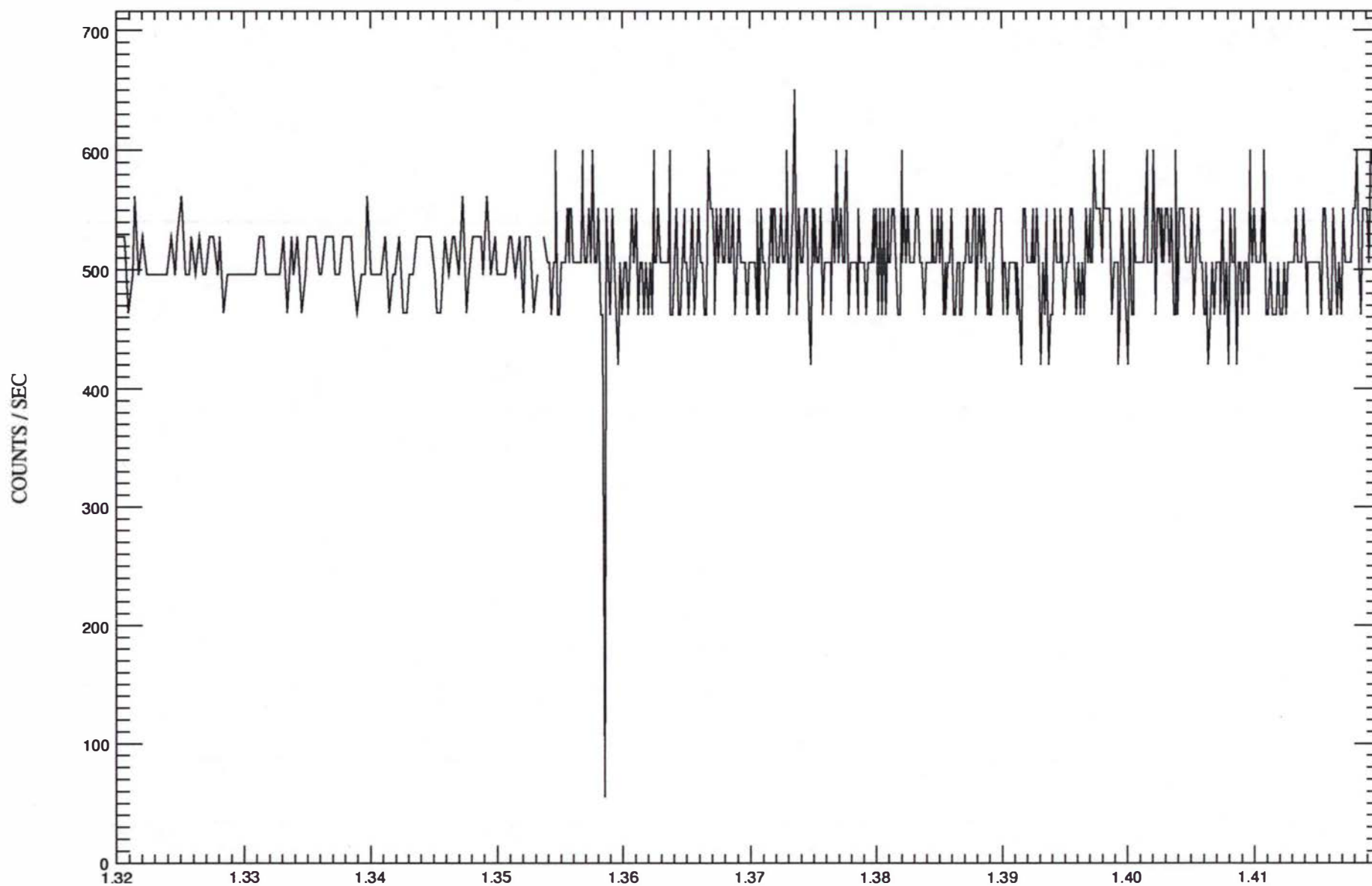
Burst Counter 13 at UT= 0.095174780952 h= 342.629 s 00:05:42.629



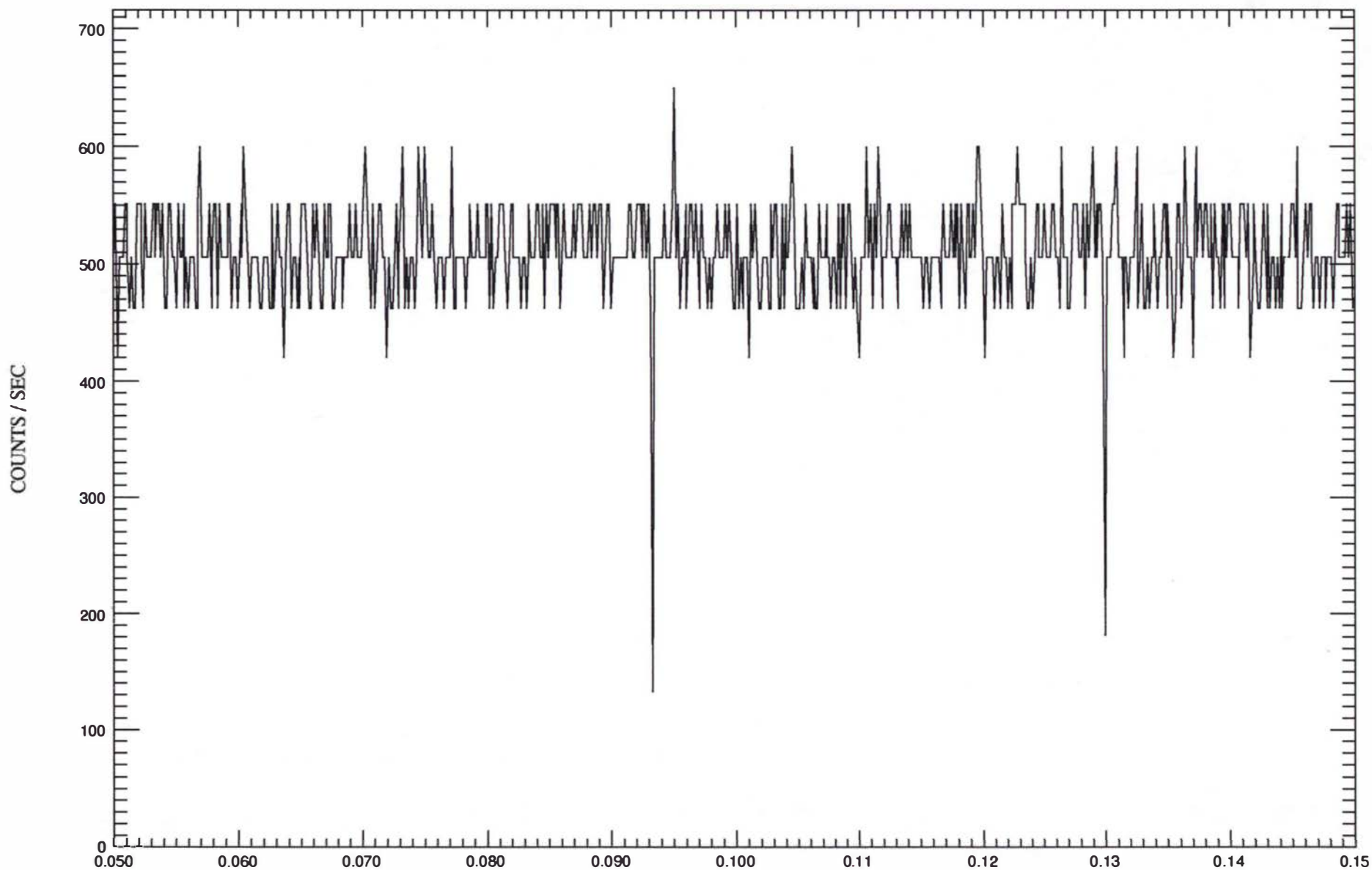
CALIBRATION DATA INCLUDED

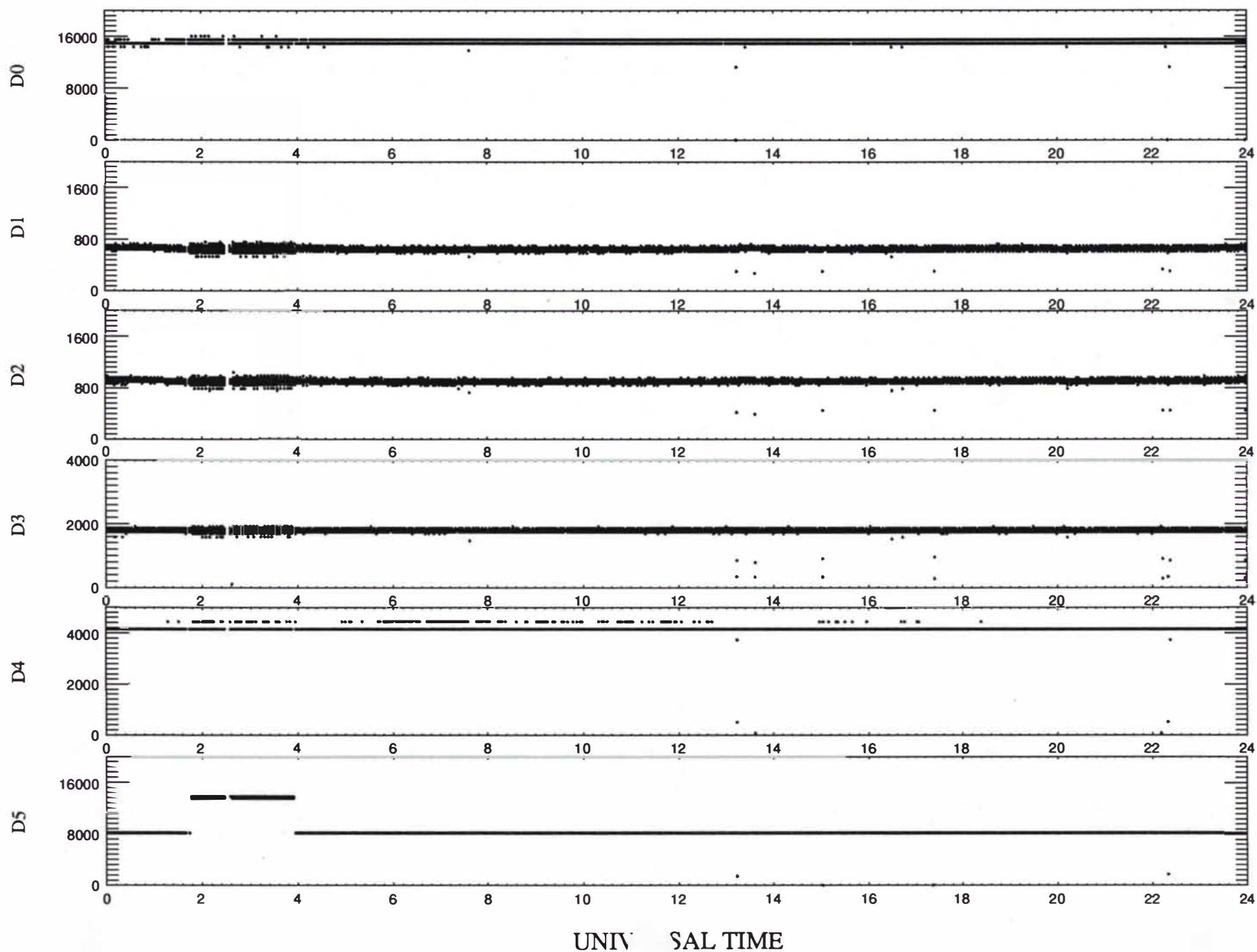


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





From khurley@sunspot Sat Dec 5 09:04 PST 1998
Date: Sat, 5 Dec 1998 08:53:30 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981202

ULYSSES GAMMA-RAY BURST NOT REPORTED BY BATSE:

December 2 1998 2:39 Ulysses time; weak, 32 ms long

The spacecraft was about 2650 light-seconds from Earth. This event may have come from SGR1900+14; if so, the Earth-crossing time would have been ~1350 s earlier.

Was this event detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, henze, kouveliotou, kurczyski, mar

76RS:NO

From HENZE@fender.msfc.nasa.gov Thu Dec 3 12:38:51 1998
Date: Thu, 3 Dec 1998 14:37:41 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7246

TIME: TJD=1149 *Dec 2* SECONDS=80440

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

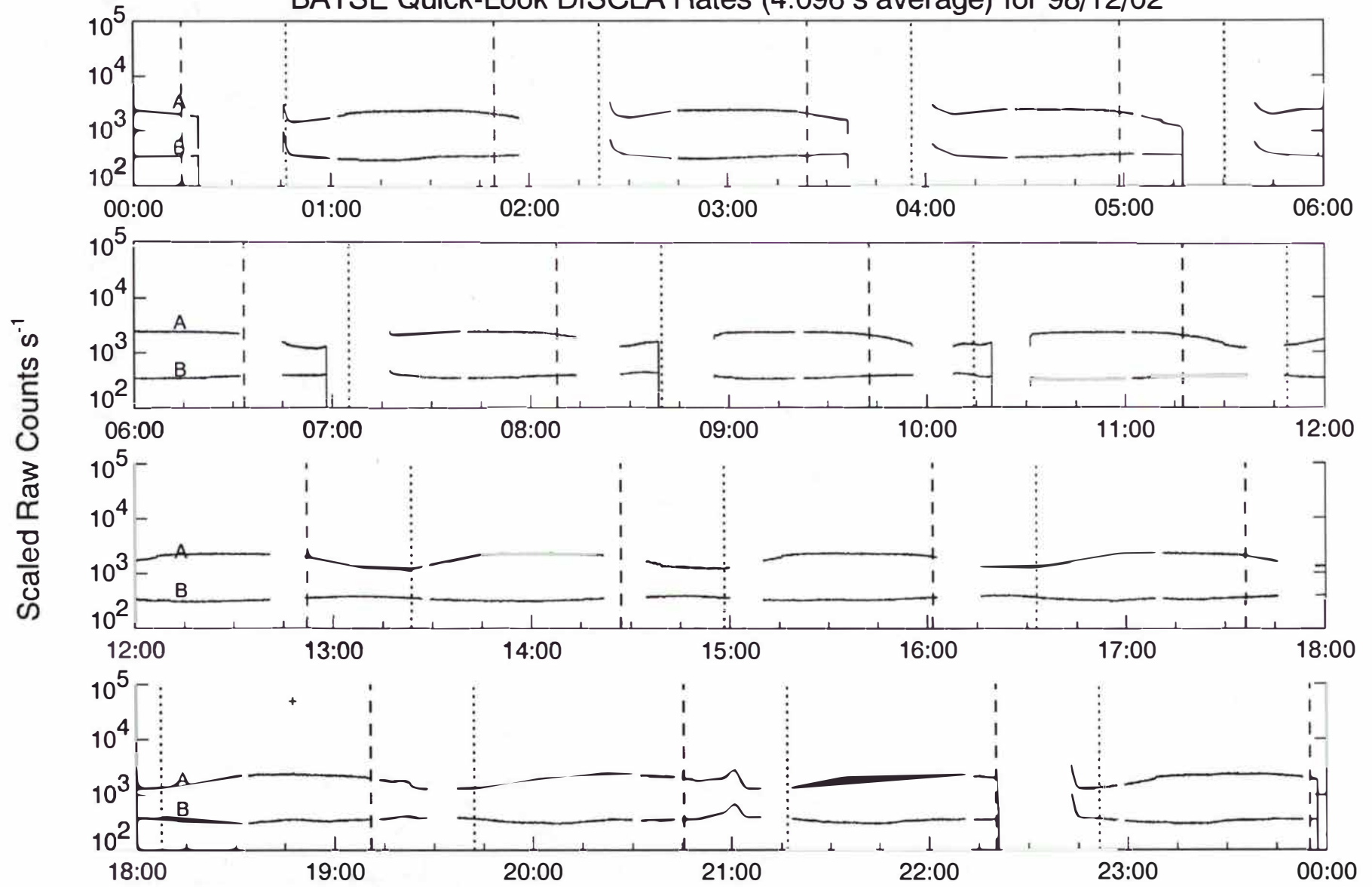
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/02

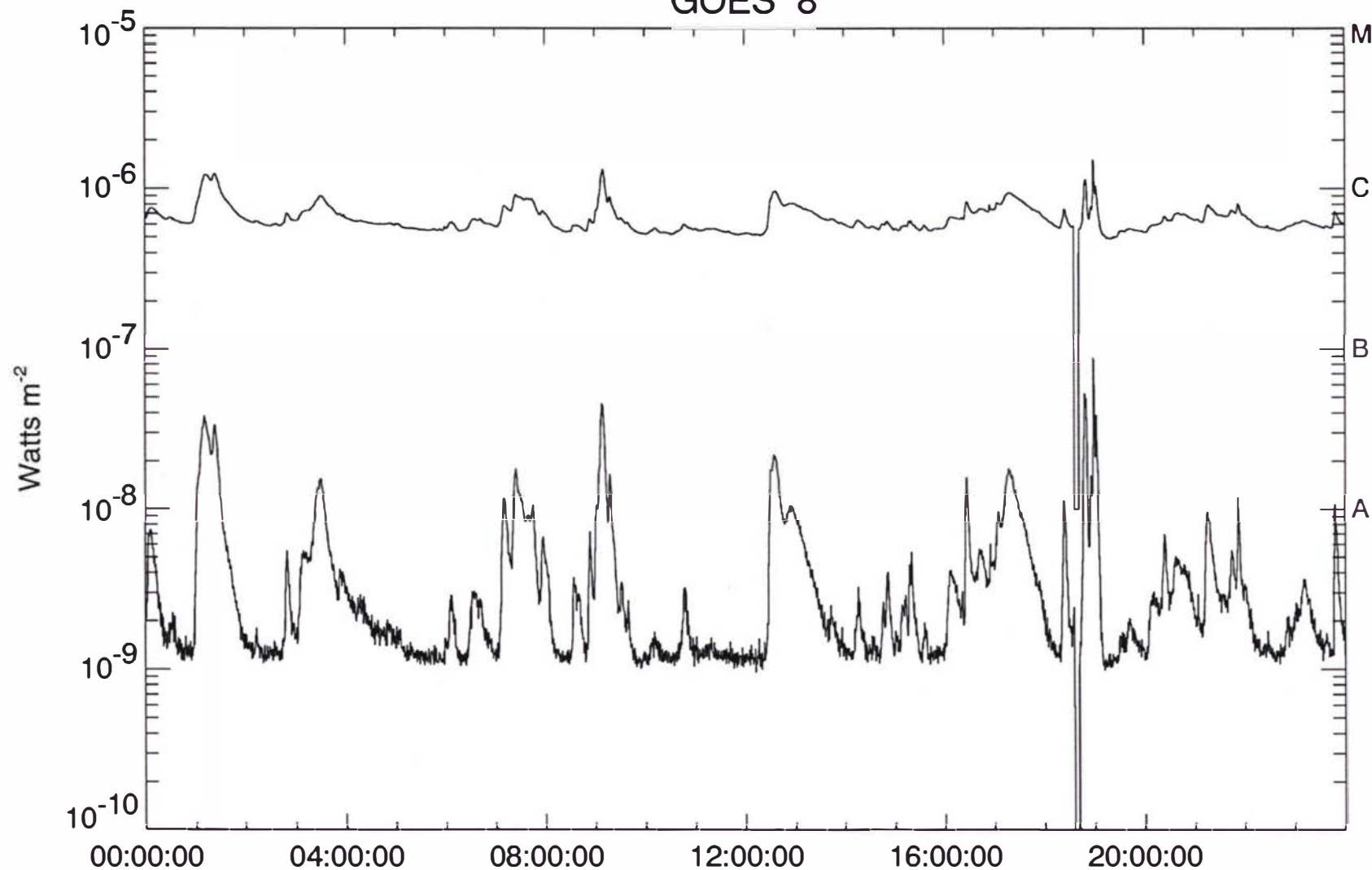


Current Time: 98/12/06, 1034 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 98/12/02, 0000:00

Plot created: 98/12/06, 1019

Channel 1 (1.0 - 8.0 Angstroms)

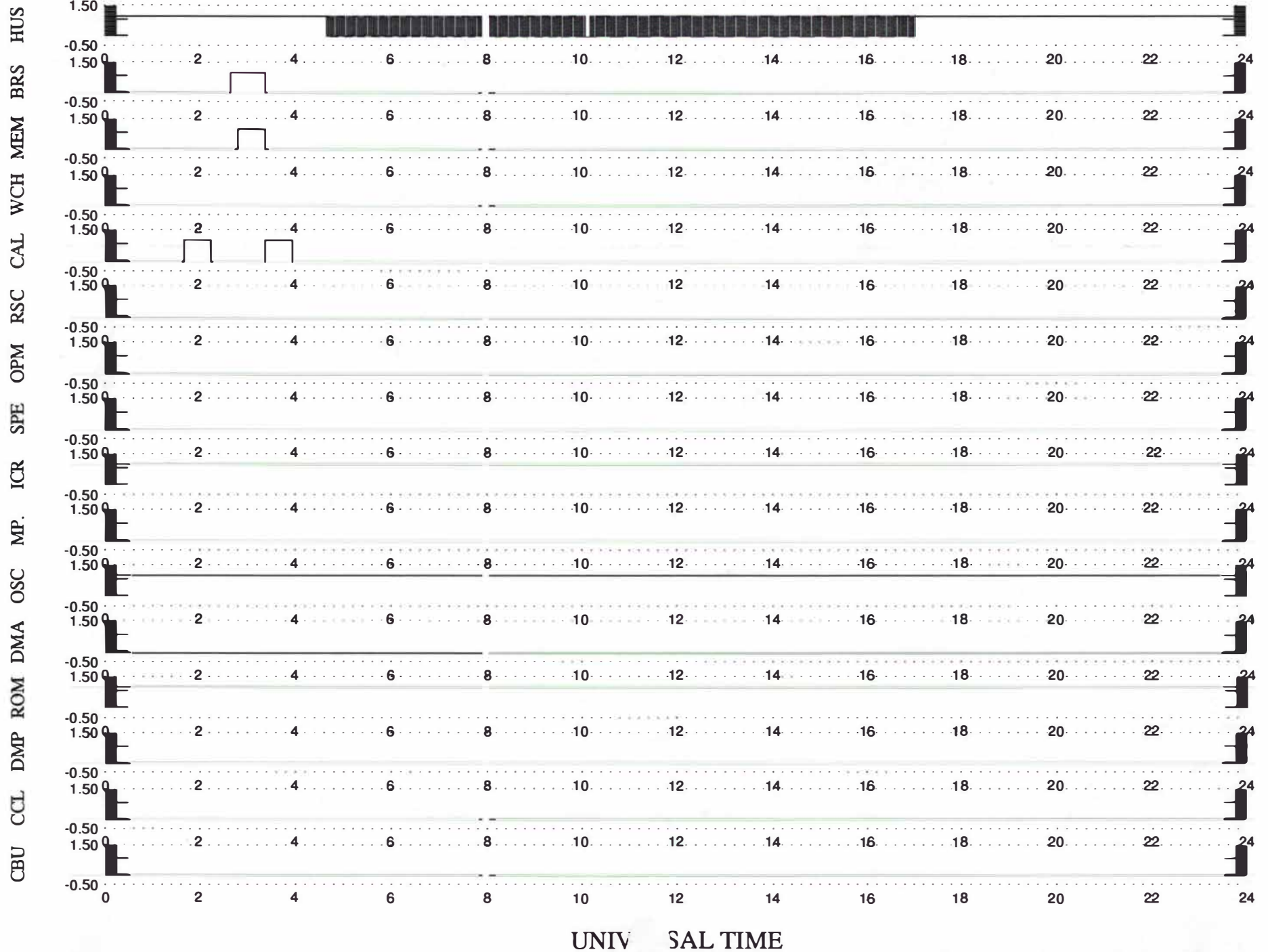
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

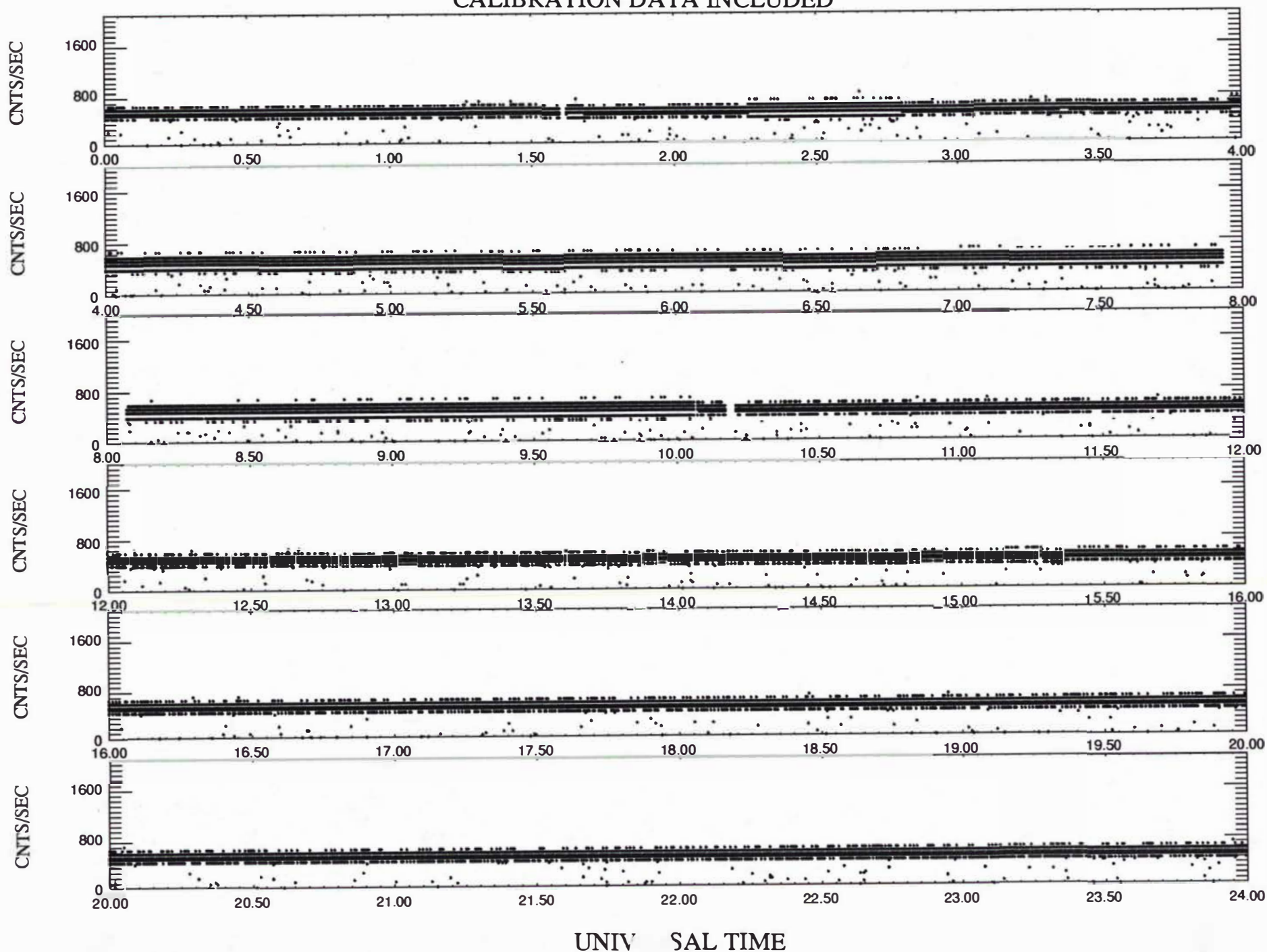
Background not subtracted

Sample average = 10

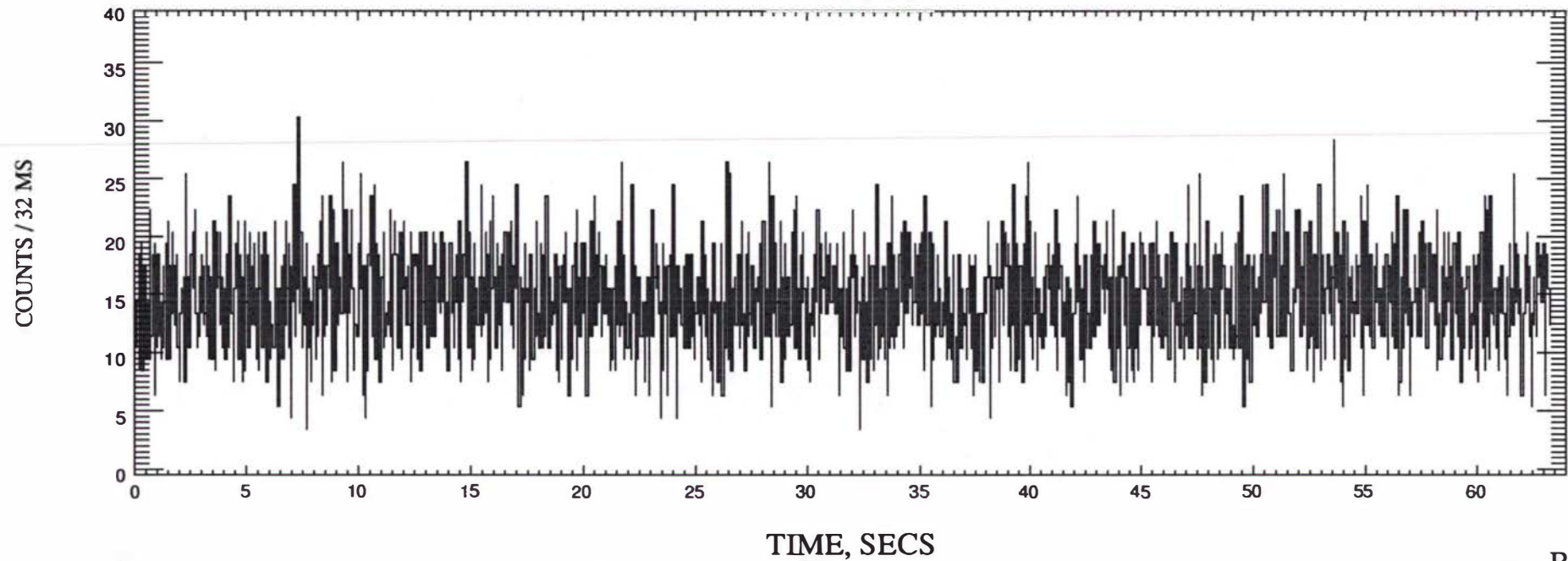
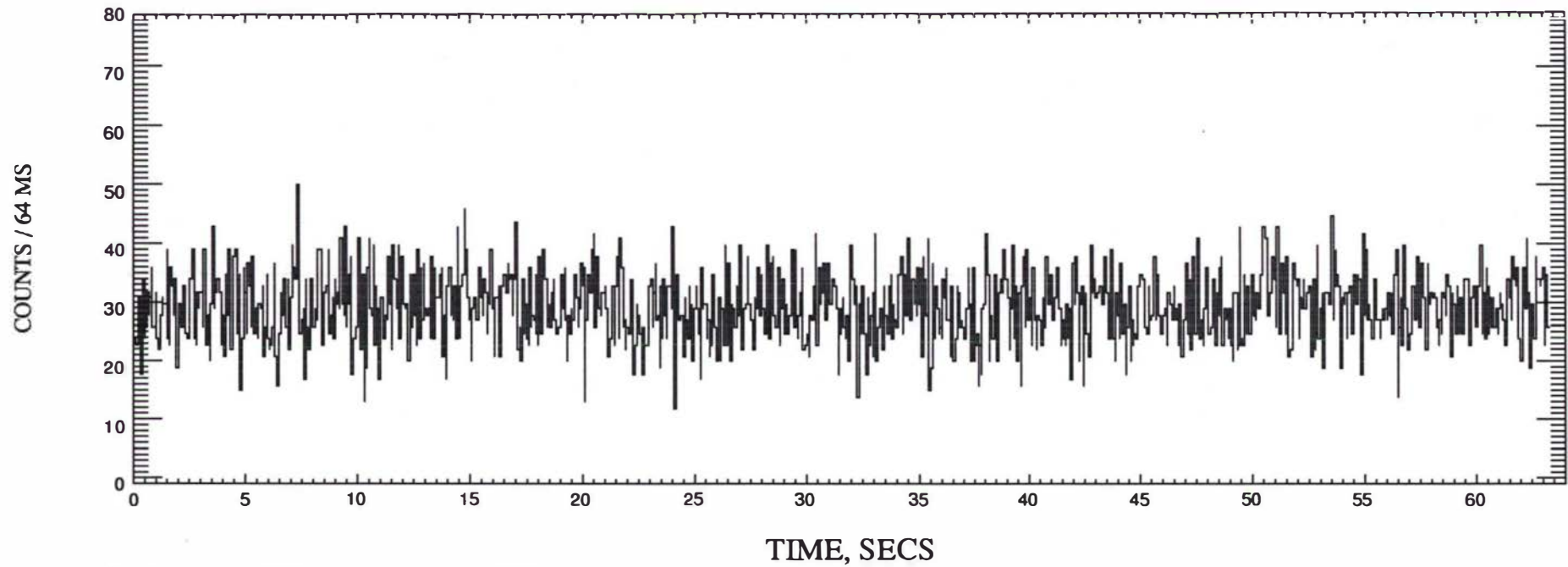
BURST NUMBER 0



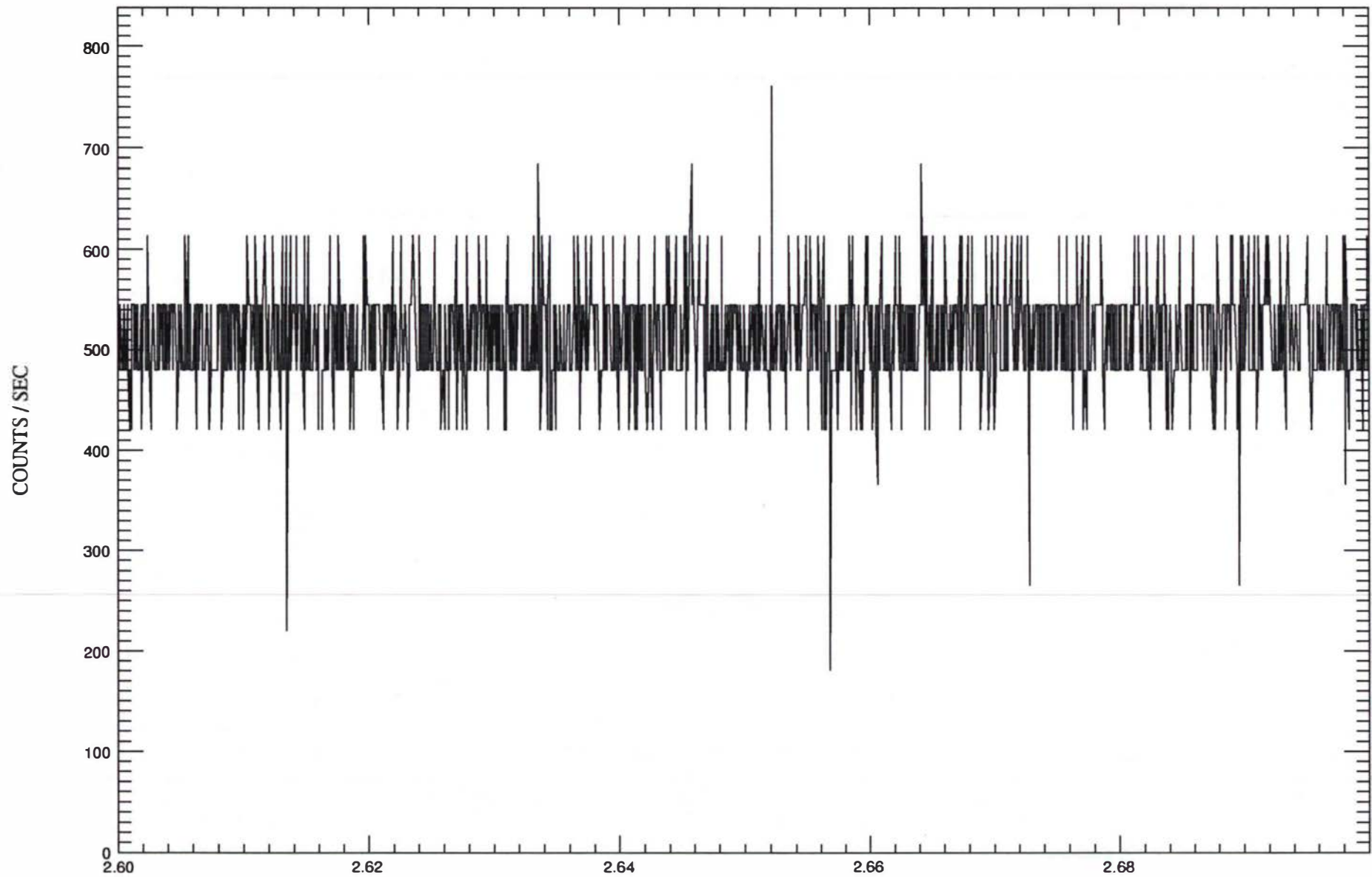
CALIBRATION DATA INCLUDED

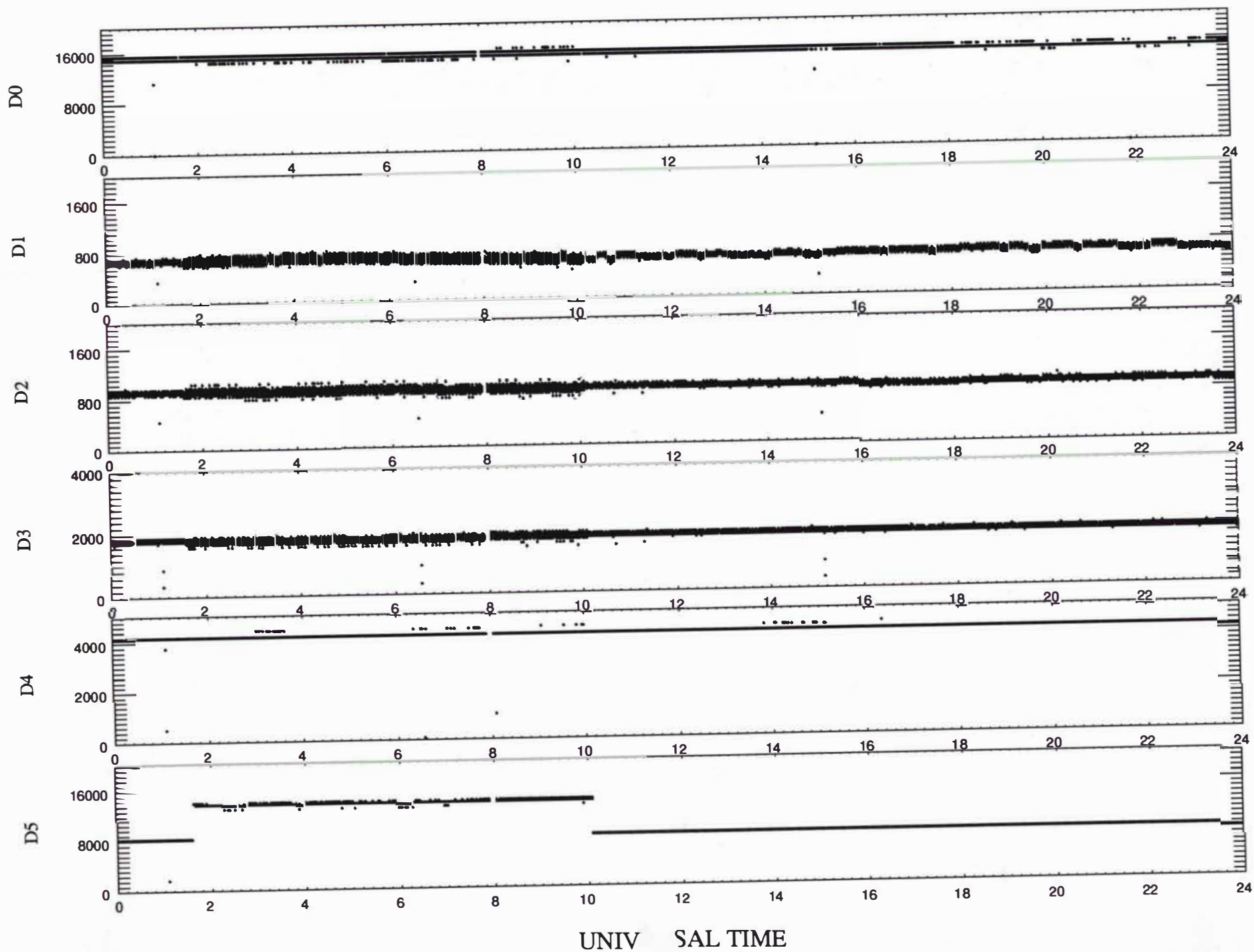


Burst Counter 0 at UT= 2.652287038167 h= 9548.233 s 02:39:08.233



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Fri Dec 4 12:33:35 1998
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA25289; Fri, 4 Dec 1998 12:33:34 -0800
From: HENZE@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA20243; Fri, 4 Dec 1998 12:33:31 -0800
Date: Fri, 4 Dec 1998 14:20:39 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981204142039.20243502@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7247
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7247
EVENT OF 1998 DEC 3 DAY OF YEAR=337
EVENT CROSSING TIME AT BATSE : 3552. S. OR 00:59:12.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 162.000 33.000
BATSE PEAK COUNTING RATE: 14600 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 3/12/ 98 IS:
RA= 167.097 DEC= -5.576 DIST= 5.312 AU
BATSE-ULYSSES DISTANCE = 794604762. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=141.12 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2063.37 SECS.
CROSSING TIME AT ULYSSES IS 1489. S. OR 00:24:48 +/- 307.50 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 3/12/ 98 IS:
RA= 183.533 DEC= 0.334 DIST= 1.771 AU
MARS-BATSE DISTANCE = 264920768. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=141.56 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -692.18 SECS.
CROSSING TIME AT MARS IS 2860. S. OR 00:47:39 +/- 84.86 SECONDS

BATSE BURST TRIGGER

NO.: 7247

TIME: TJD=1150 SECONDS= 3552

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=140.1 AZIMUTH=112.5 ERROR= 0.5 DEGREES

COMMENTS:

SINGLE EPISODE WITH TWO MAIN PEAKS AND EXTENDED TAIL. MAX AT APPROX. T+35 S.
TOTAL DUR. APPROX. 250 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7247	981203	11150	03552	14600	162	+33	250

Date: 2/1/00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. NEAR Data **N/A**

- ☐ Final, correct time used? (Files on website have the correct time)
- ☐ 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

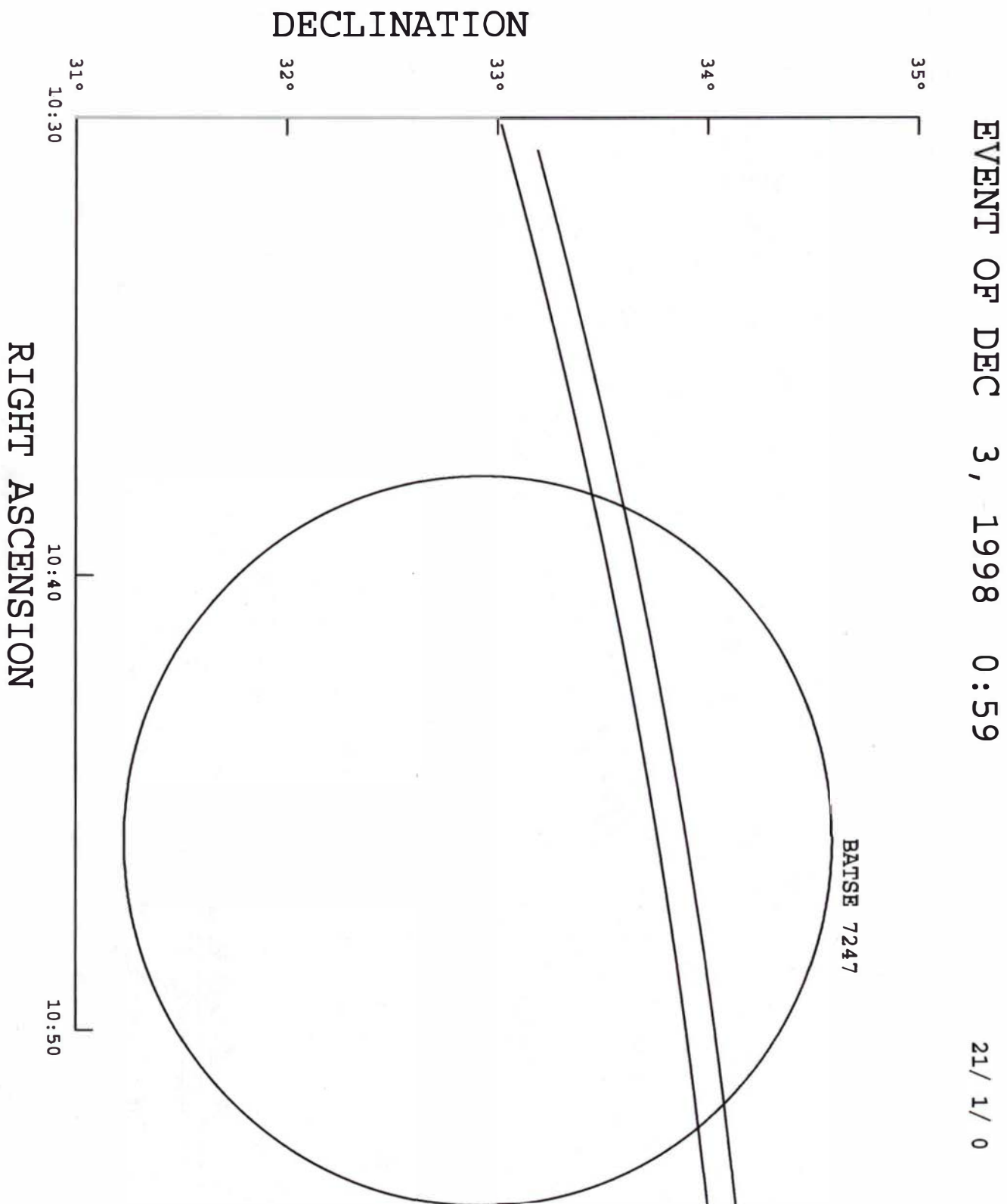
S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES



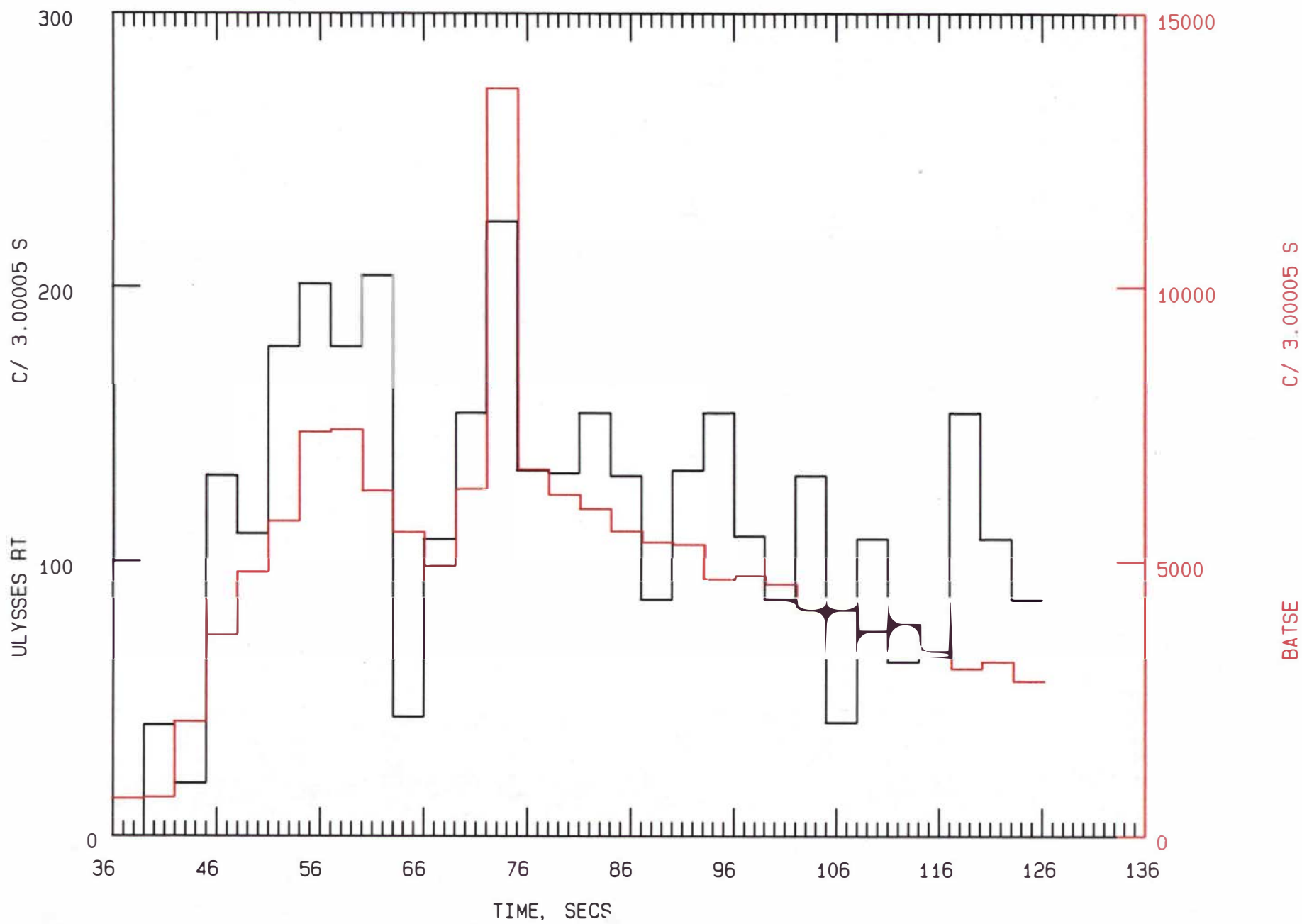
ULYSSES RT-BATSE

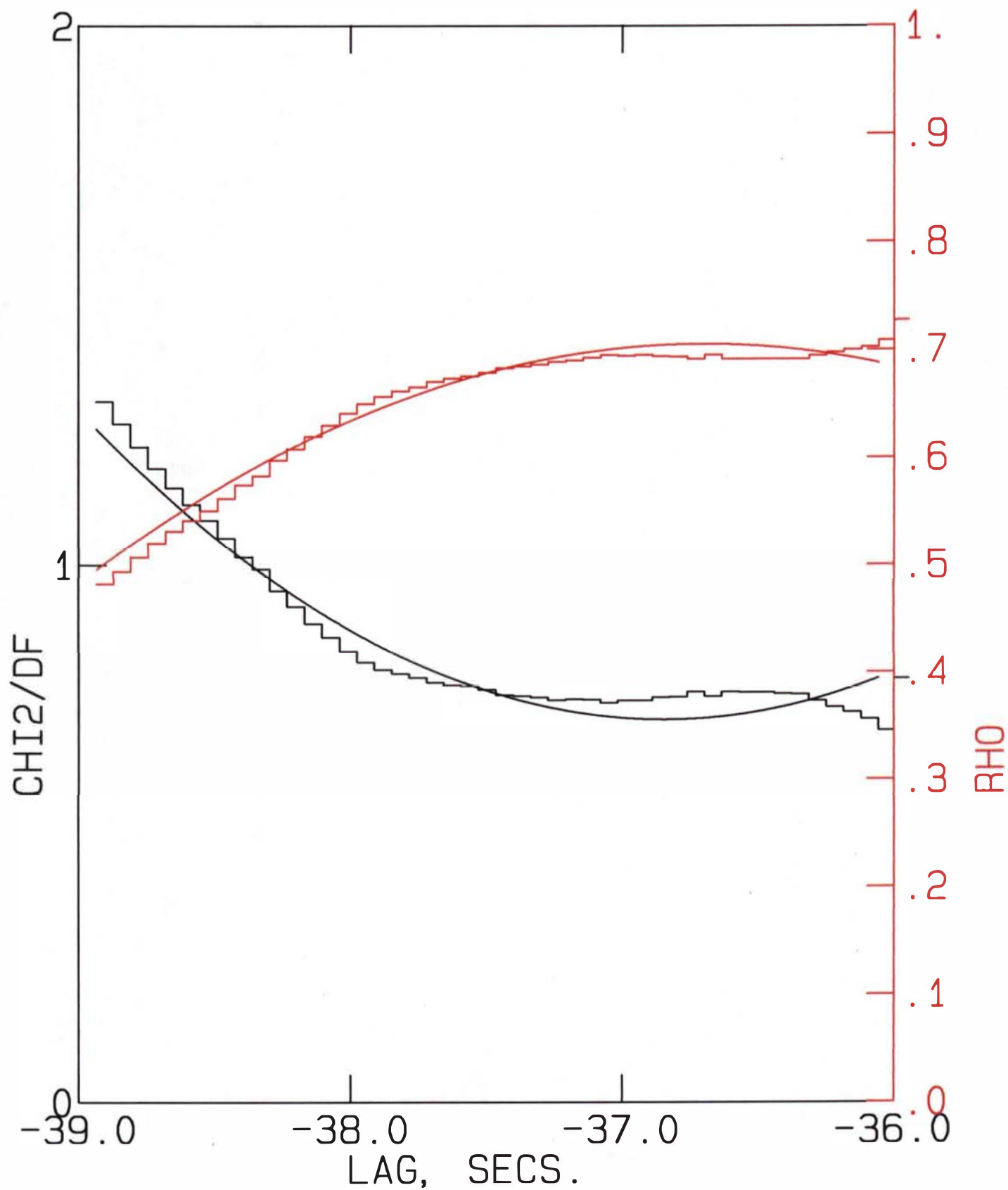
CORRELATION

3/12/98

1478.247

21/ 1/ 0

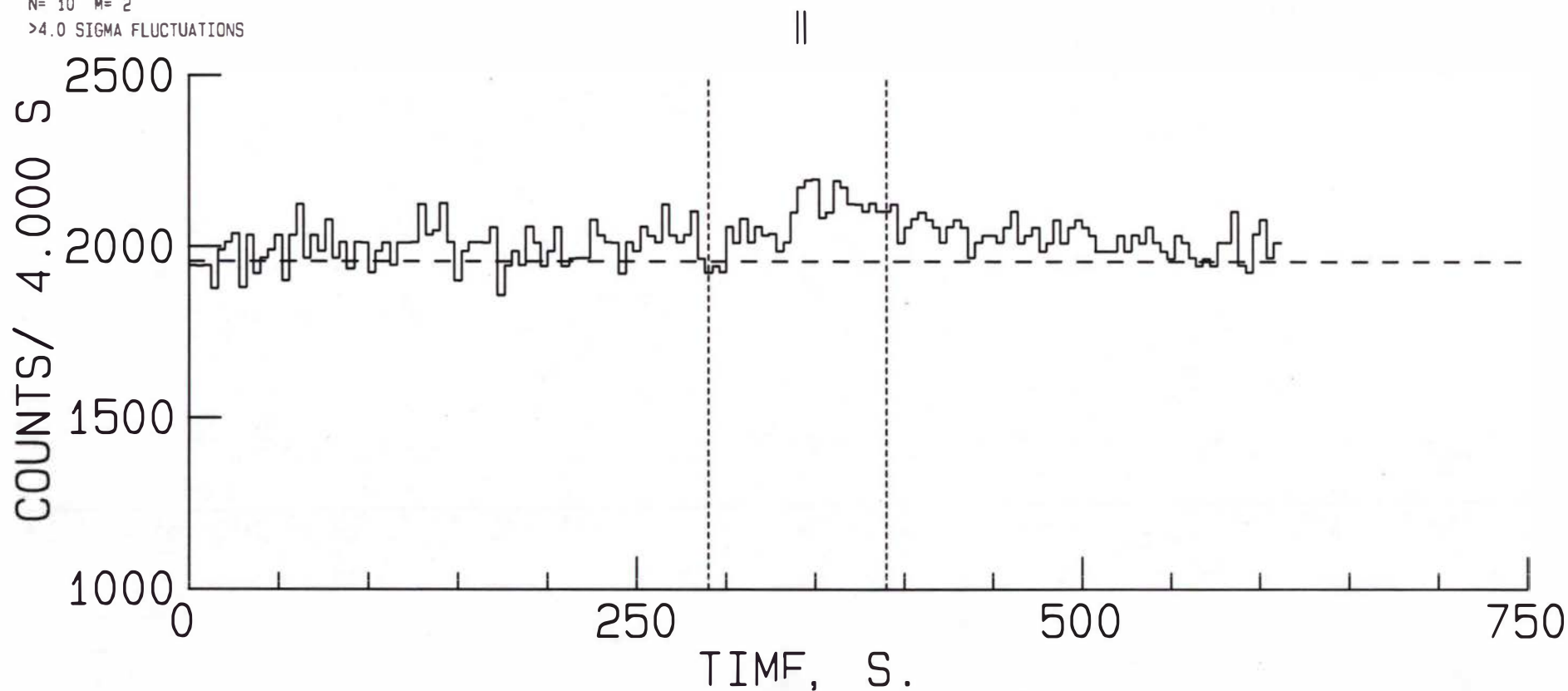




ULYSSES RT
3/12/98 1188.285 s
0.500 S INTERVALS REGROUPED BY 8
22- 150 keV

21 / 1 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE

03/12/98

3552.993

25- 100 keV

COUNTS/0.064 S

900

700

500

300

-30

13

29

T

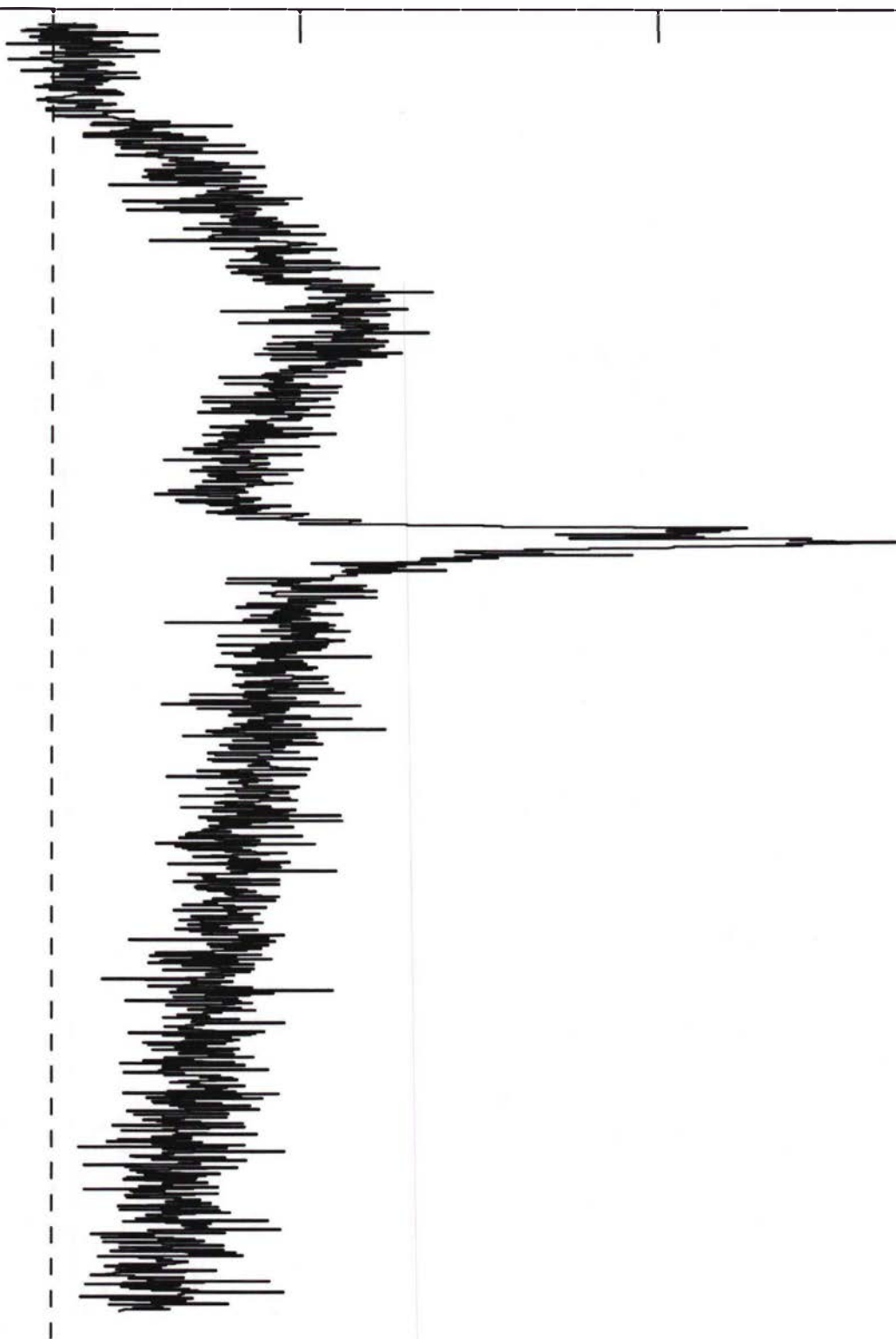
4E.

SECS

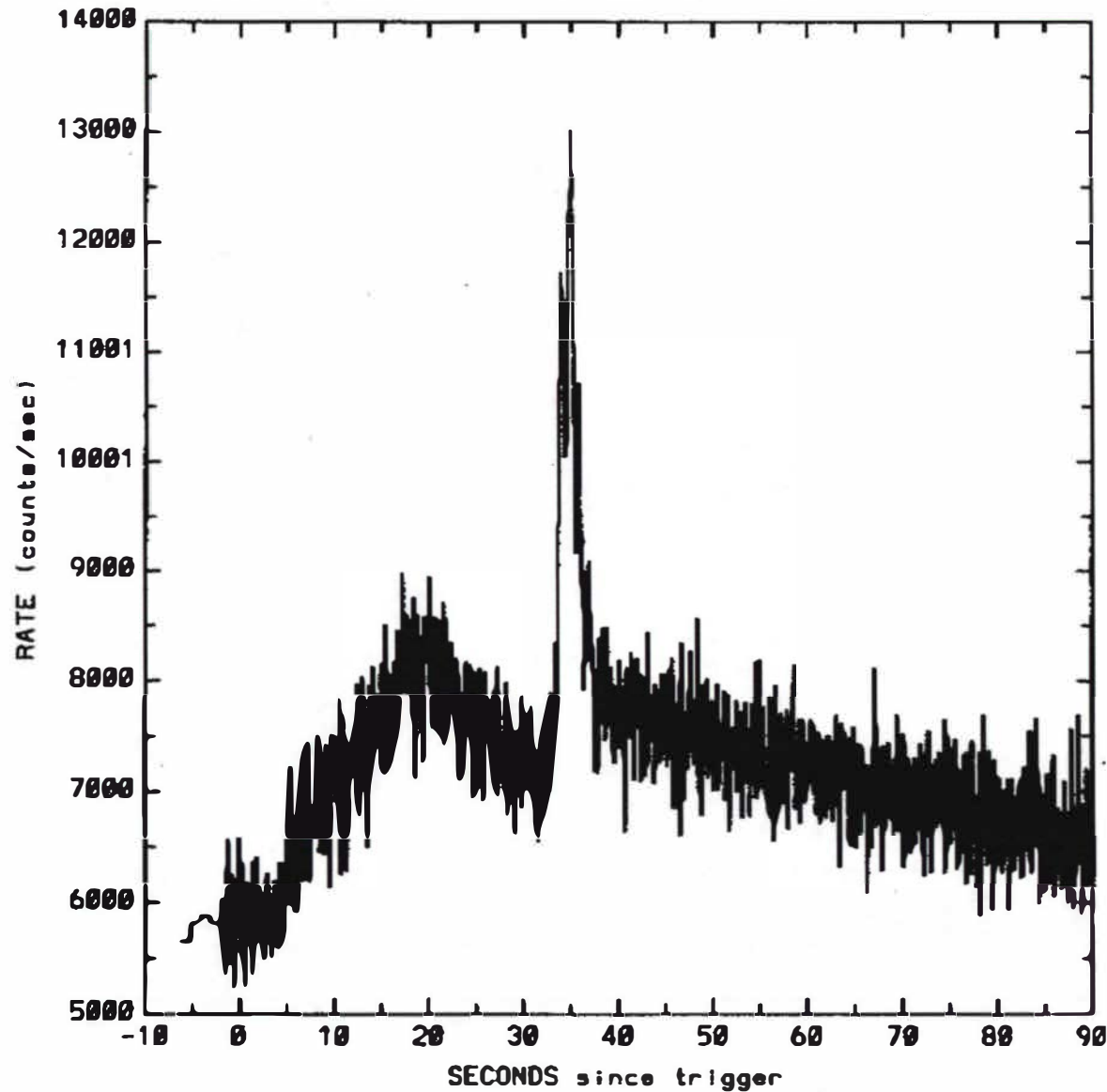
61

77

10/12/98



DISCSC Data for K. Hurley, No. 7247



8-DEC-1998 14.03.09

Created by MOPS 80
(Burst Display)
Version 12.26

Trigger = . 7247

Trigger Time:
11150 / 3552.993Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors (7..0):
--5--1-Discriminators:
(1 . 2)Quality Mask:
BDISP1

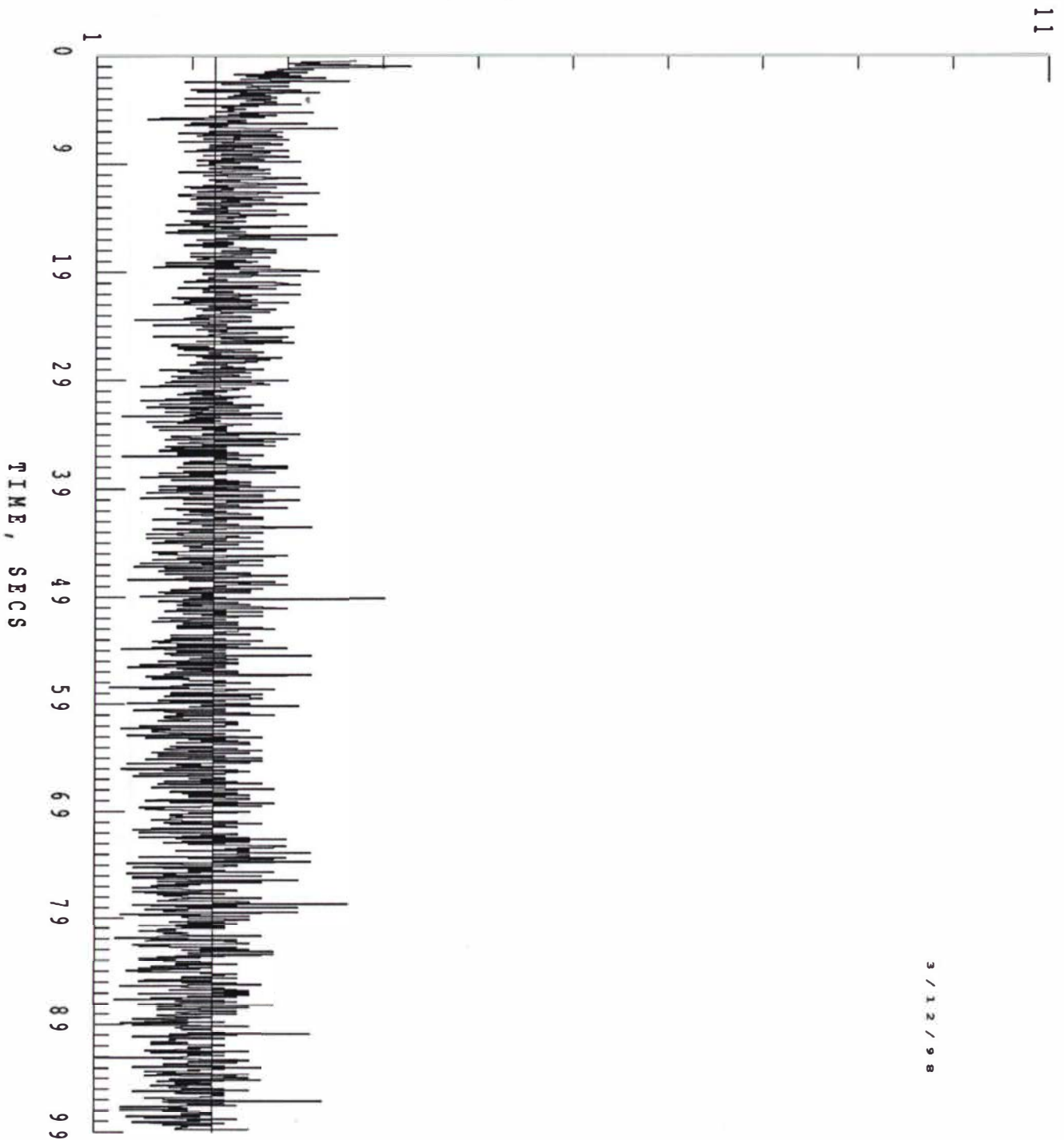
KONUS

03/12/98

3587.139

50 - 200 keV

COUNTS/0.064 S



KONUS GRB19981203_03

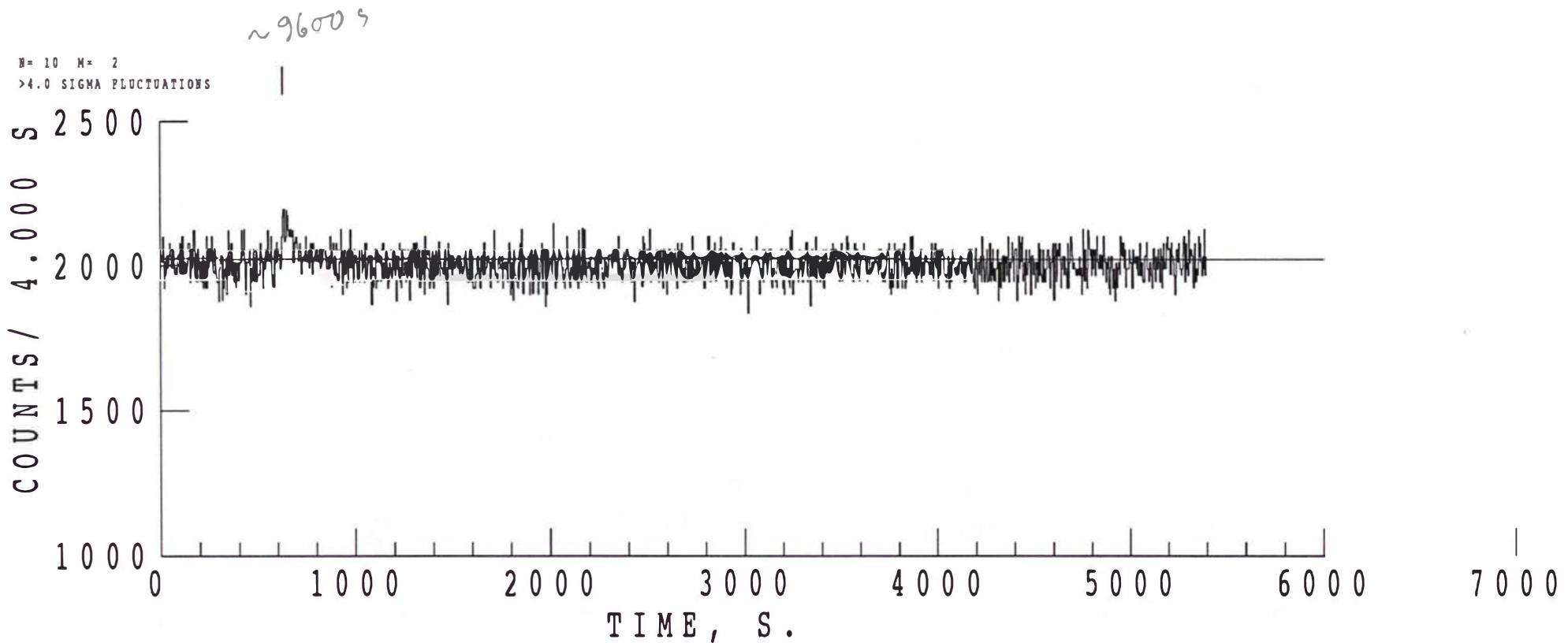
ULYSSES RT

3 / 12 / 98

3 / 12 / 98 900.280 s

0.500 S INTERVALS REGROUPED BY 8

0 - 0 keV



From HENZE@fender.msfc.nasa.gov Mon Dec 7 11:58:41 1998
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA07971; Mon, 7 Dec 1998 11:58:41 -0800
From: HENZE@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA12923; Mon, 7 Dec 1998 11:58:37 -0800
Date: Mon, 7 Dec 1998 13:58:39 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981207135839.2024227a@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7248
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7248
EVENT OF 1998 DEC 3 DAY OF YEAR=337
EVENT CROSSING TIME AT BATSE : 26260. S. OR 07:17:40.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 293.000 -27.000
BATSE PEAK COUNTING RATE: 12000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 3/12/ 98 IS:
RA= 167.099 DEC= -5.601 DIST= 5.307 AU
BATSE-ULYSSES DISTANCE = 793891485. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 61.60 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1259.66 SECS.
CROSSING TIME AT ULYSSES IS 27520. S. OR 07:38:39 +/- 473.54 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 3/12/ 98 IS:
RA= 183.533 DEC= 0.334 DIST= 1.771 AU
MARS-BATSE DISTANCE = 264920768. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 72.57 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 264.74 SECS.
CROSSING TIME AT MARS IS 26525. S. OR 07:22:04 +/- 150.39 SECONDS

BATSE BURST TRIGGER

NO.: 7248

TIME: TJD=1150 SECONDS=26260

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 72.1 AZIMUTH=325.6 ERROR= 0.6 DEGREES

COMMENTS:

MULTIPEAKED; TRIGGERED DURING DATA GAP. DUR. APPROX. 100 S OR POSSIBLY LONGER.
MAX AT APPROX. T+29 S. STARTS AT APPROX. T-15 S OR POSSIBLY EARLIER.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7248	981203	11150	26260	12000	293	-27	100

Date: Feb 16 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

- ☒ 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

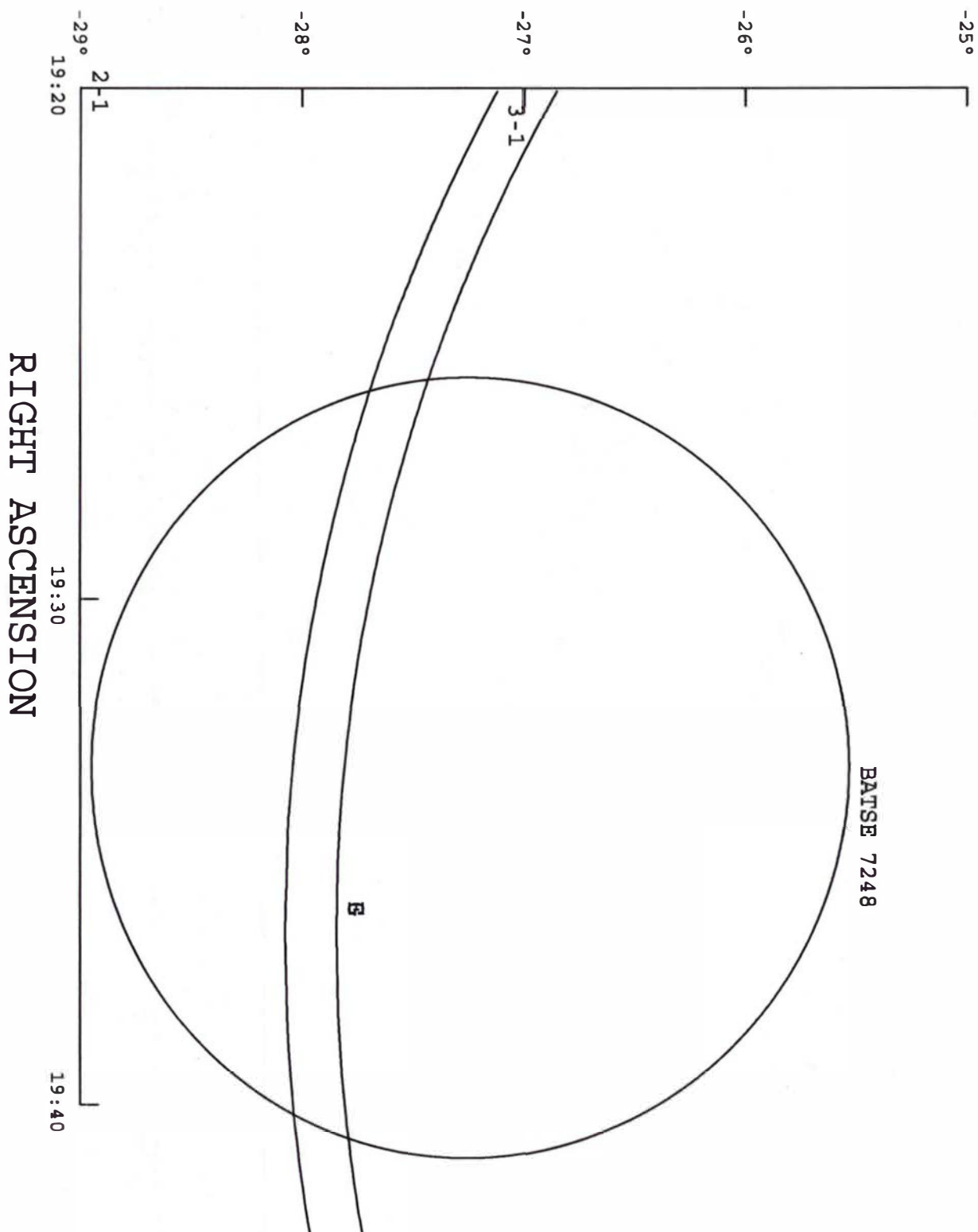
2 ULYSSES

3 NEAR

DECLINATION

EVENT OF DEC 3, 1998 7:17

16/ 2/ 0



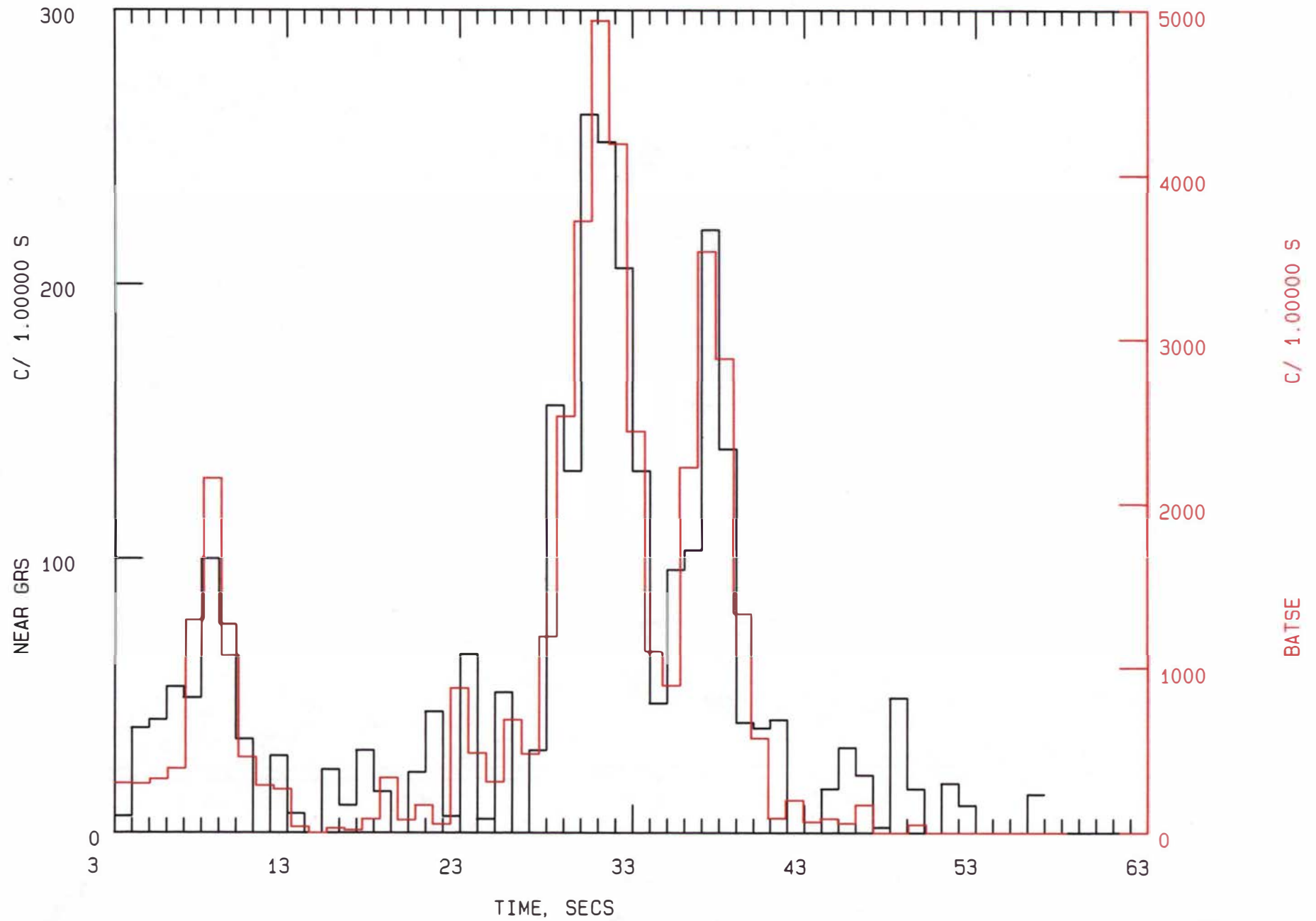
NEAR GRS -BATSE

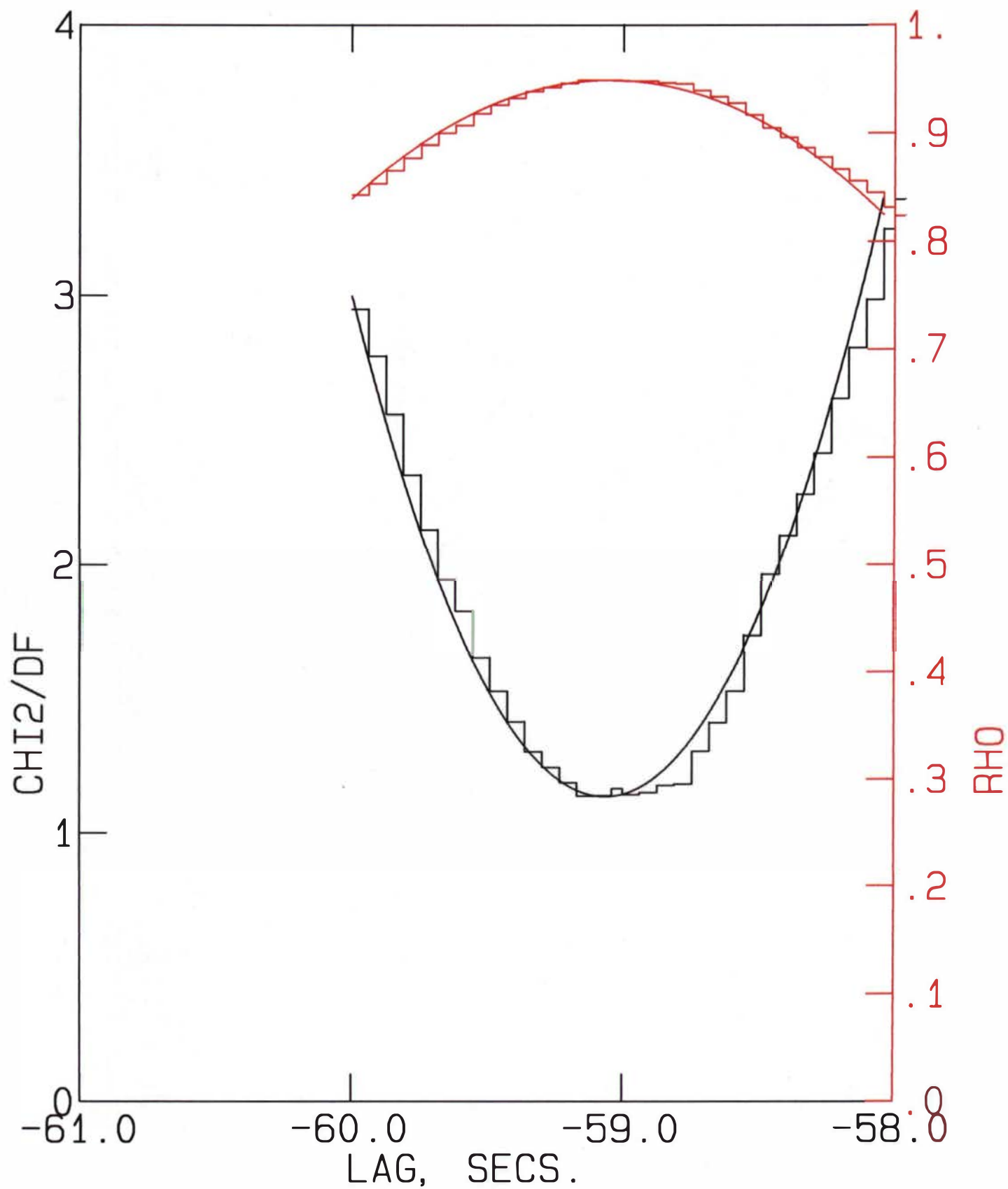
CORRELATION

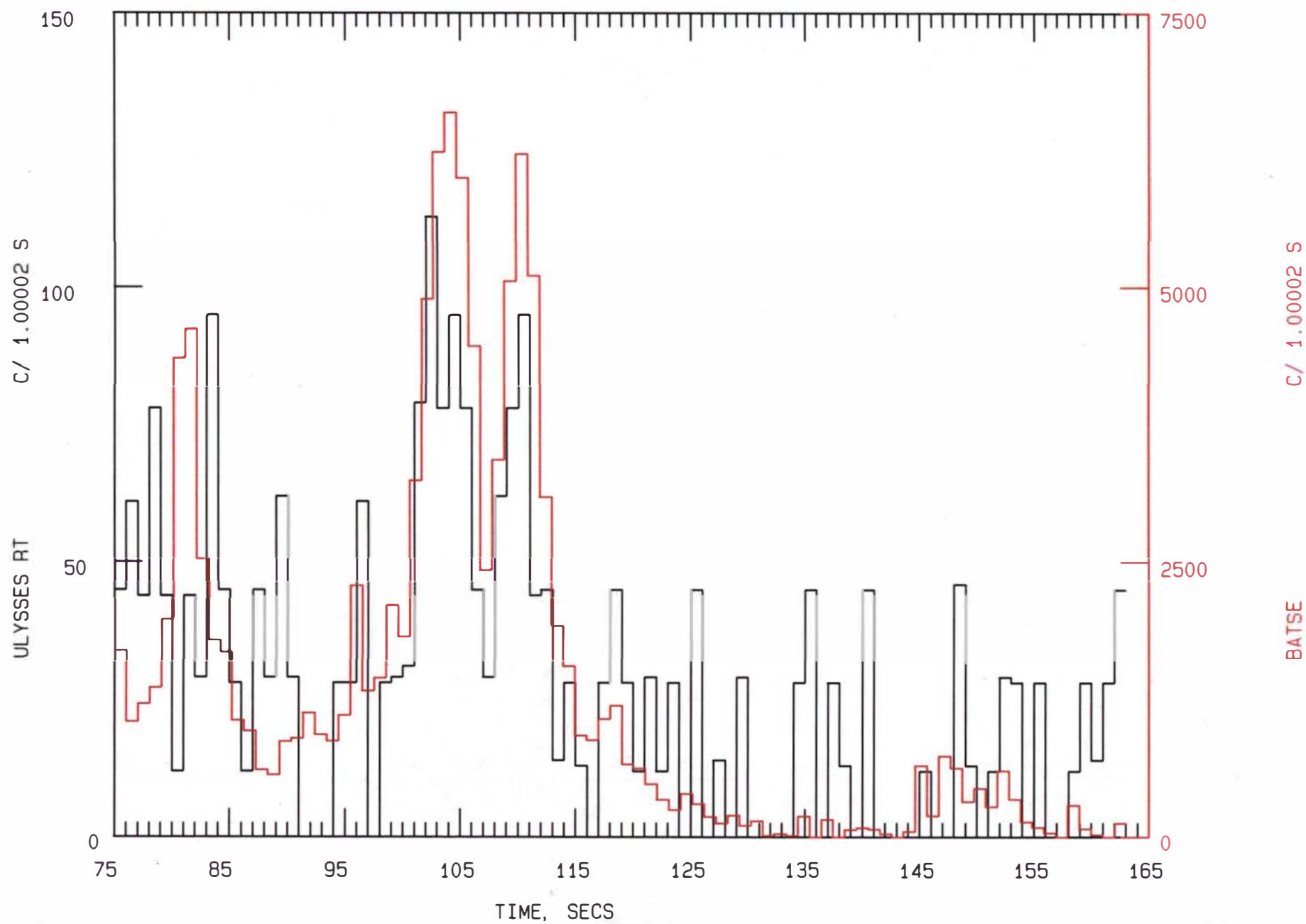
03/12/98

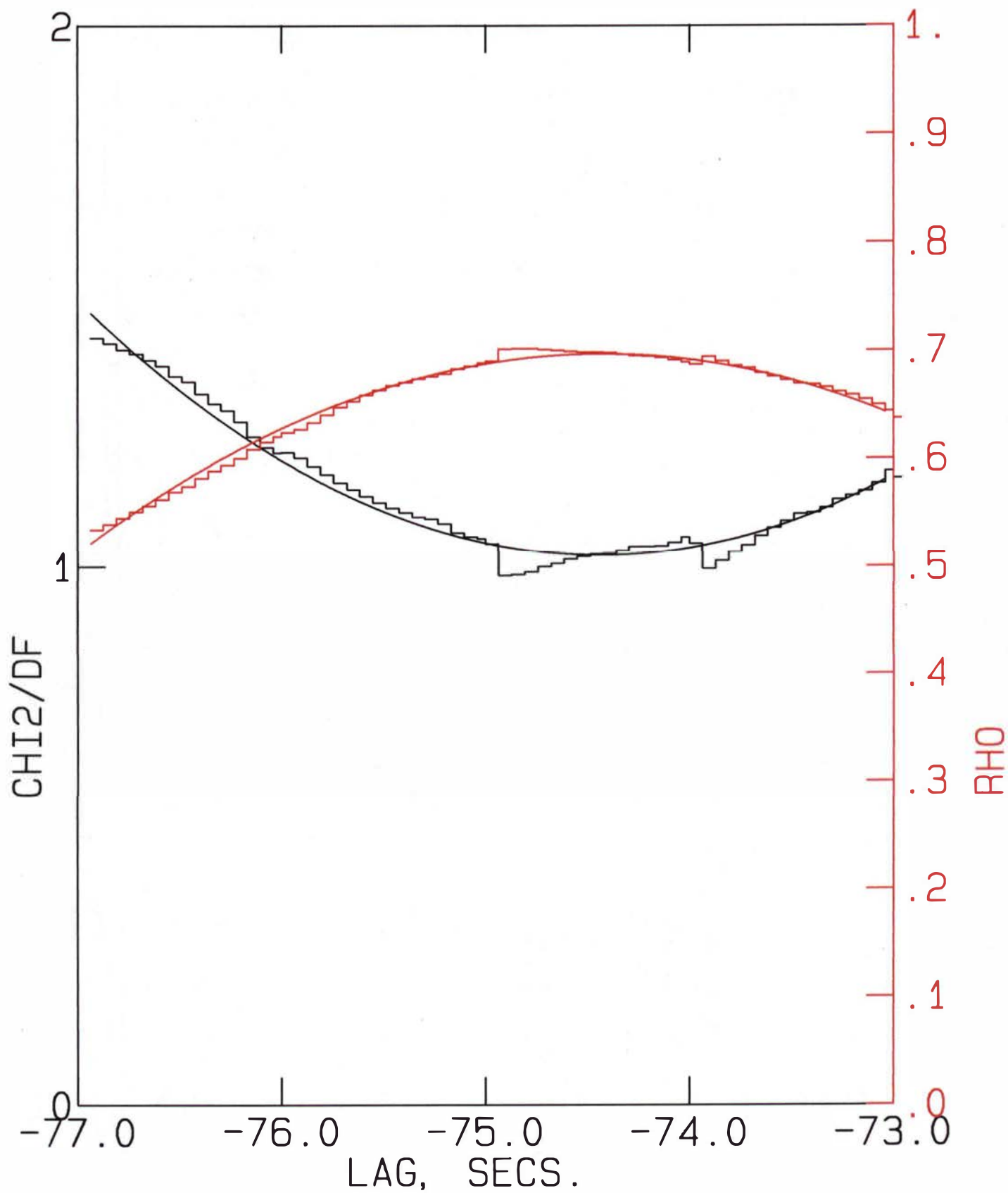
25081.904

16/ 2/ 0



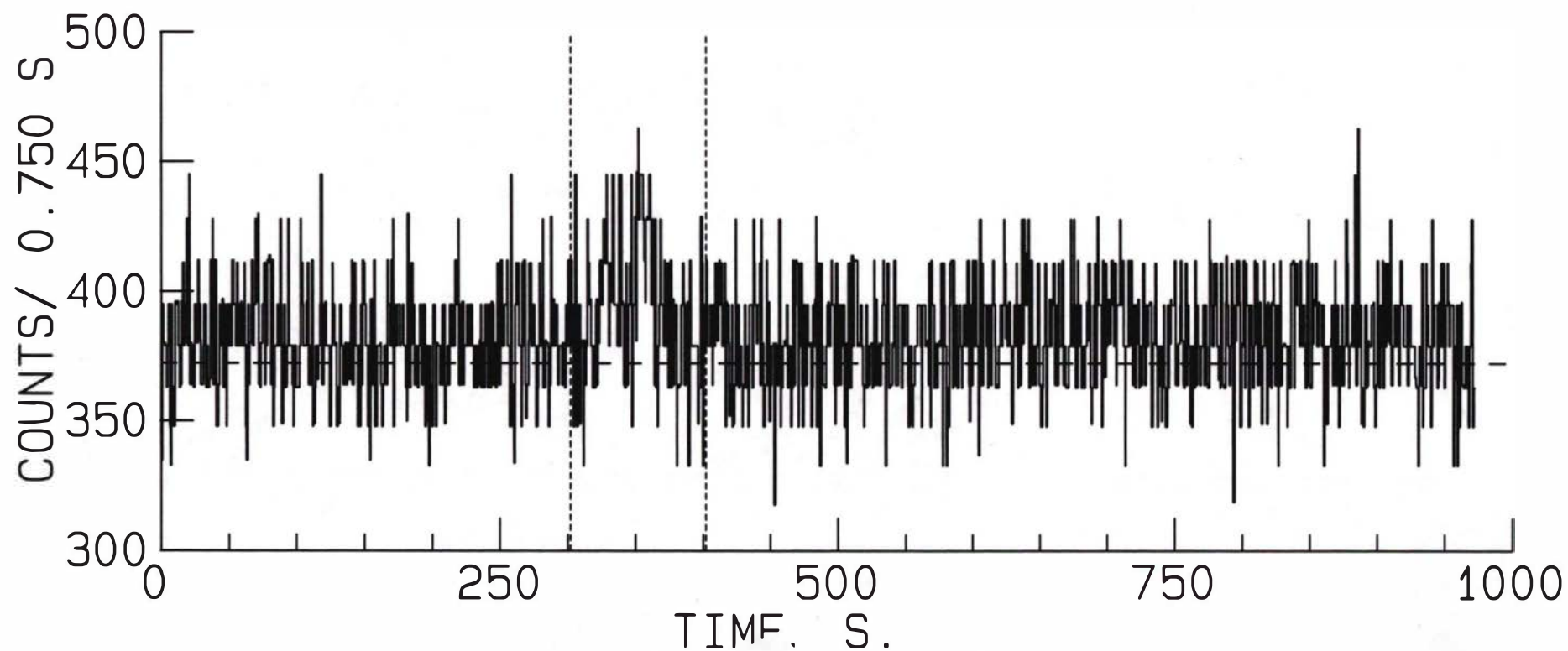






ULYSSES RT
3/12/98 27036.050 s
0.250 S INTERVALS REGROUPED BY 3
22- 150 keV

16 / 2 / 0



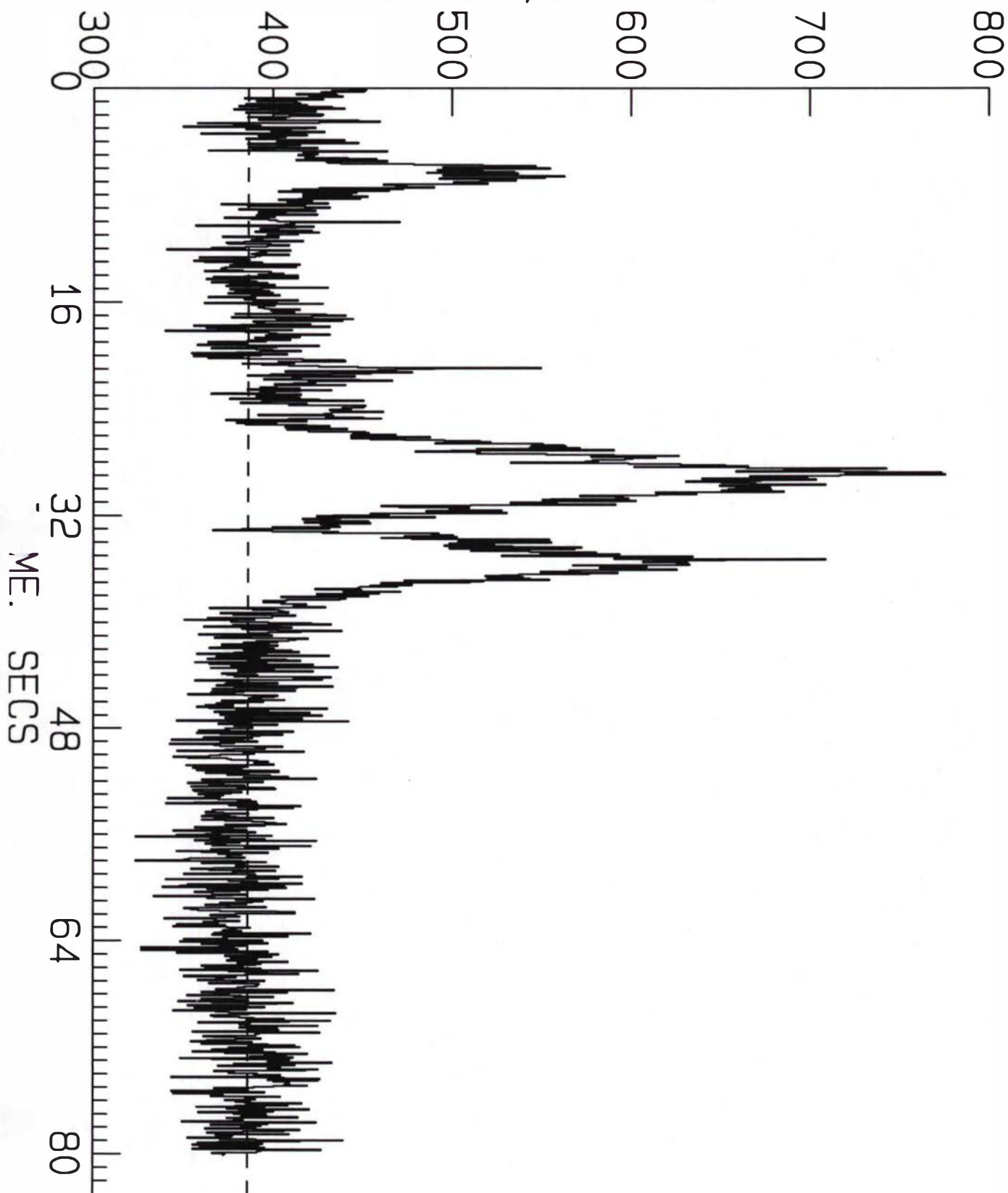
BATSE

03/12/98

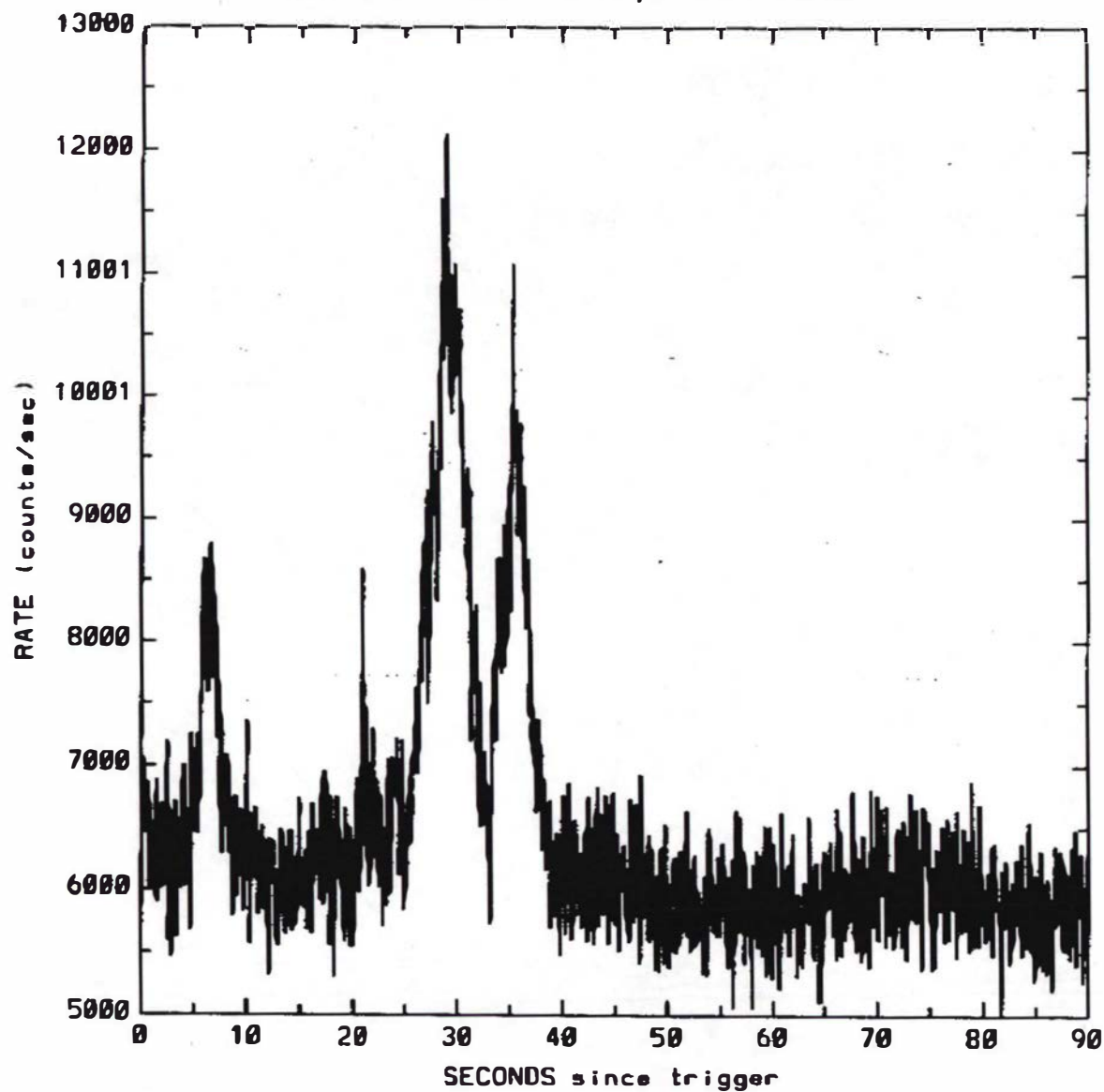
26260.193

100-1000 keV

COUNTS/0.064 S



MER Data for K. Hurley. No. 7248



9-FEB-2000 09:51.44

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

Trigger # : 7248

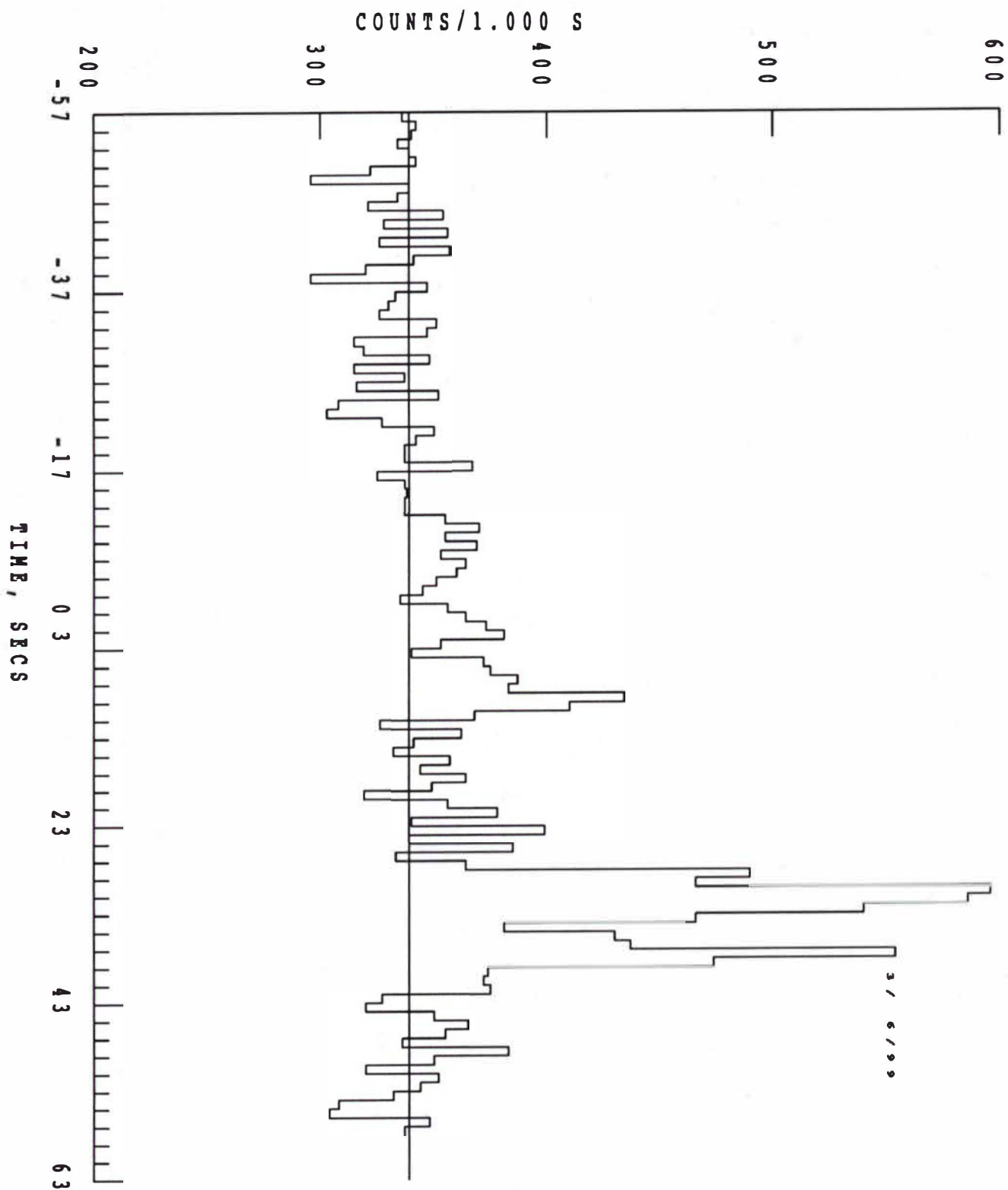
Trigger Time:
11150 / 26260.193Burst Data Type:
MERDeadtime
Corrected: NBackground Data
Type: CONTMinimum Integ. Time:
0.064 secondsDetectors [7..8]:
----32--Channels:
(7 .15)Quality Mask:
BDISP1

NEAR

03/12/98

25081.904

100-1000 keV



BATSE

03/12/98

26260.193

25- 100 keV

COUNTS/0.064 S

1100

900

700

500

16

32

T

IE.

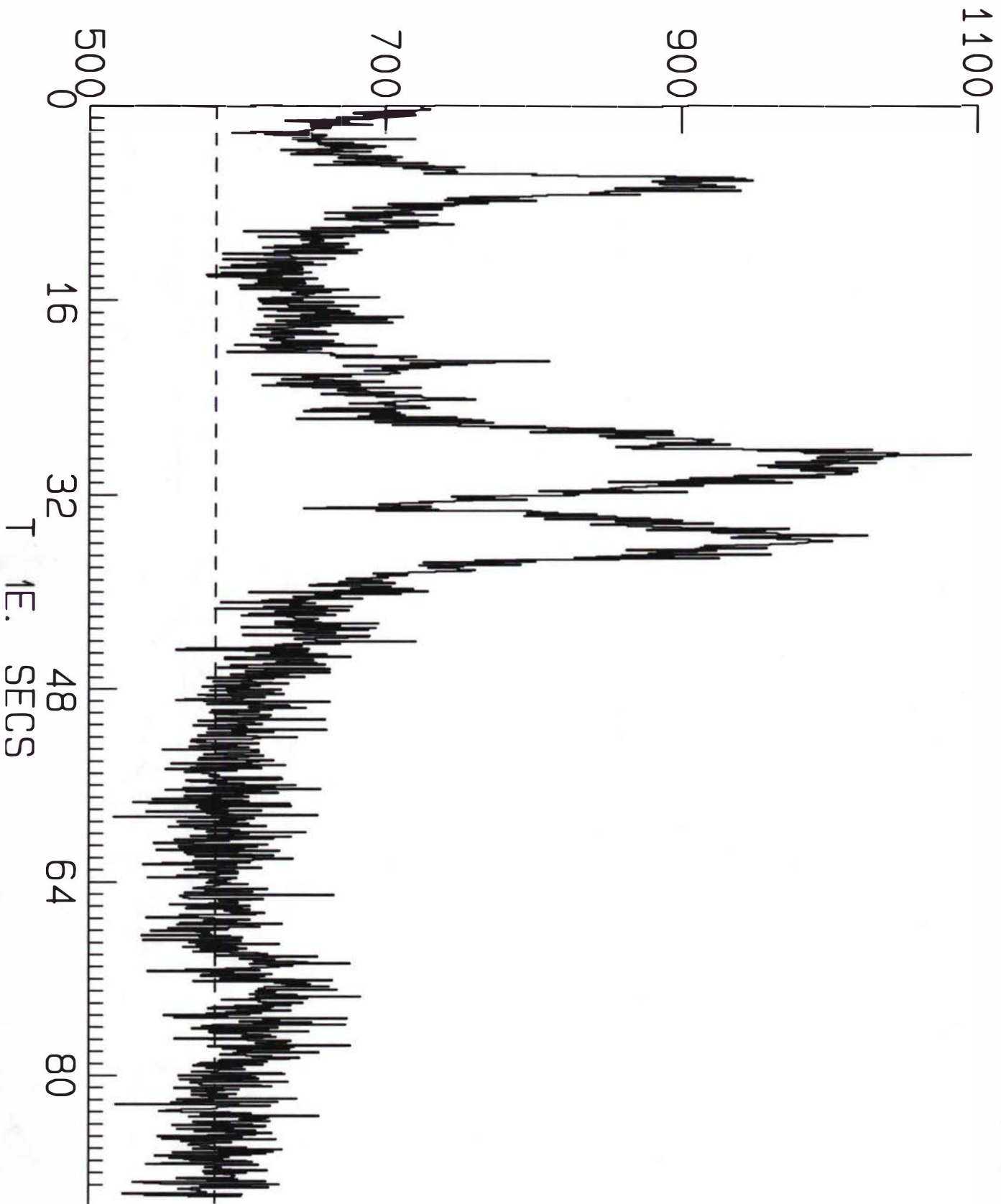
SECS

48

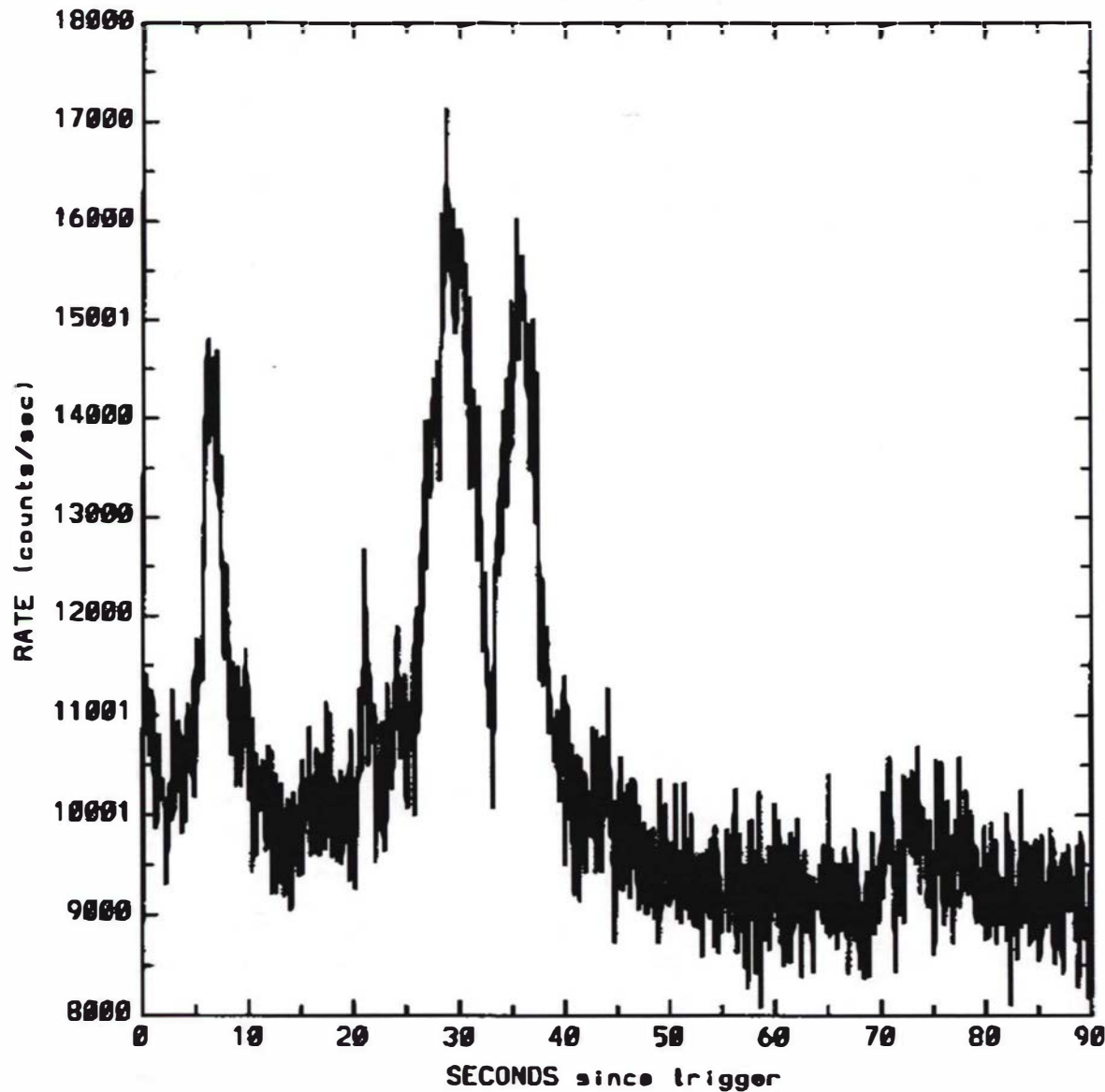
64

80

10/12/98



MER Data for K. Hurley, No. 7248



8-DEC-1998 14:04:58

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

Trigger # : 7248

Trigger Time:
11158 / 26260.193Burst Data Type:
MERDeadtime
Corrected: NBackground Data
Type: CONTMinimum Integ. Time:
0.064 secondsDetectors (7..0).
----32--Channels:
(0 . 6)Quality Mask:
BDISP1

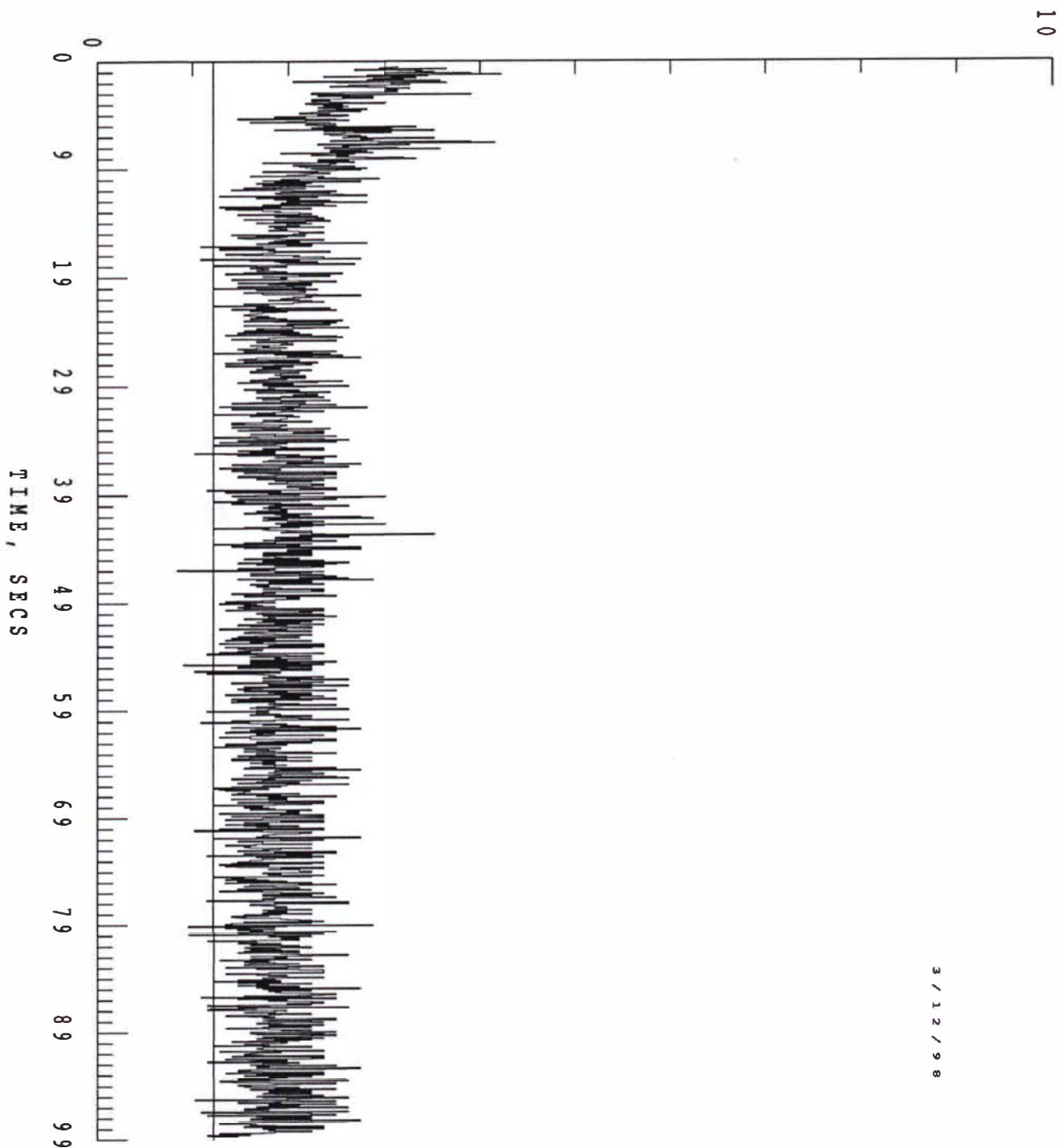
KONUS

03/12/98

26288.514

50 - 200 keV

COUNTS/0.064 S



3 / 12 / 98

From HENZE@fender.msfc.nasa.gov Fri Dec 4 09:35:14 1998
Date: Fri, 4 Dec 1998 11:34:52 -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@lheavwww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7249

TIME: TJD=1150 SECONDS=35838

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

From khurley@sunspot Tue Dec 8 08:51 PST 1998
Date: Tue, 8 Dec 1998 08:50:34 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lhevax.gsfc.nasa.gov, cline@lhevax.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981203, 981204

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 3 1998 18:59*	weak, 32 ms long	2650
DEC 4 1998 23:11*	strong, 64 ms long	2650

*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1335 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczyski, marar, tee

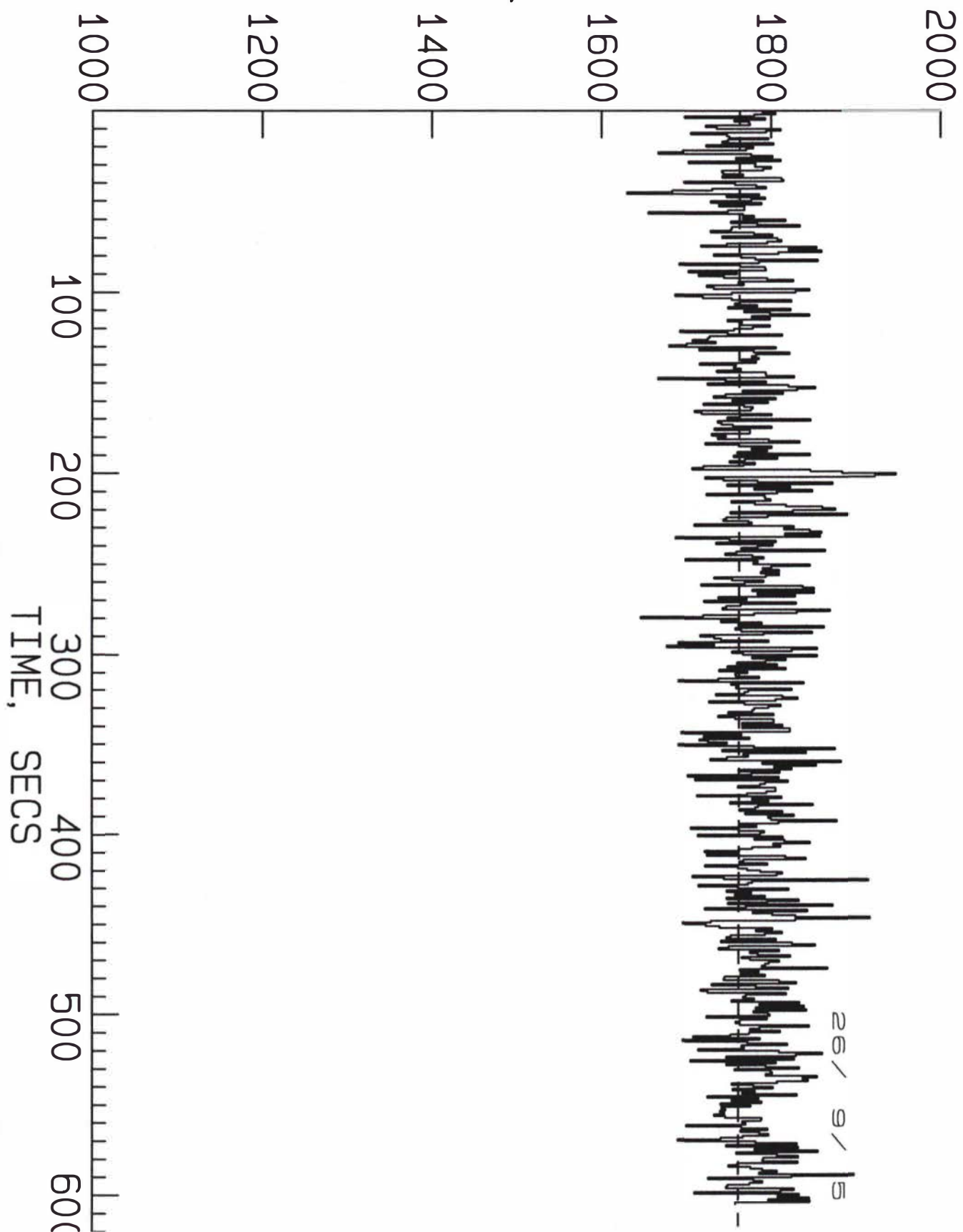
TGRS: NO

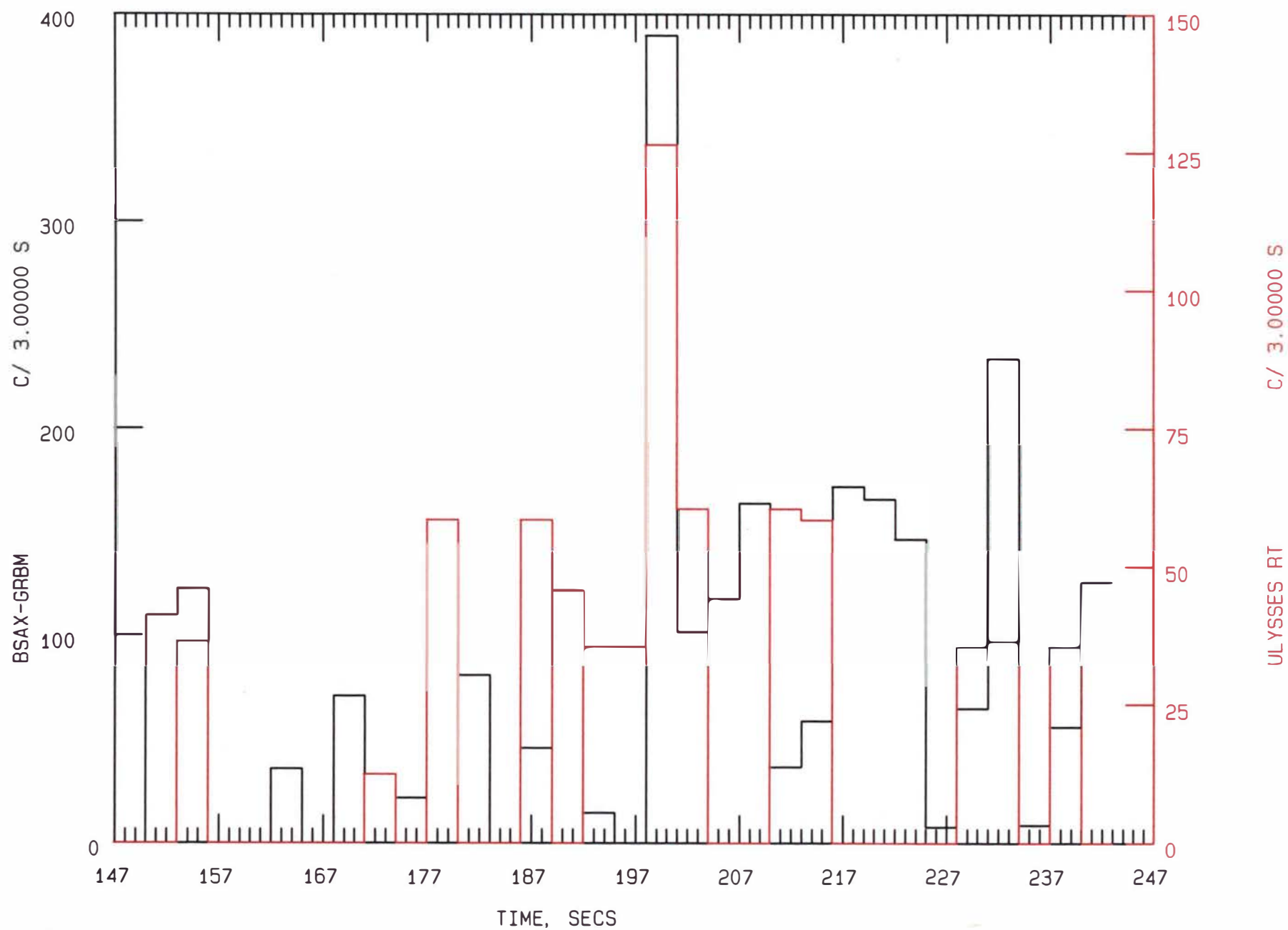
SAX GRBM

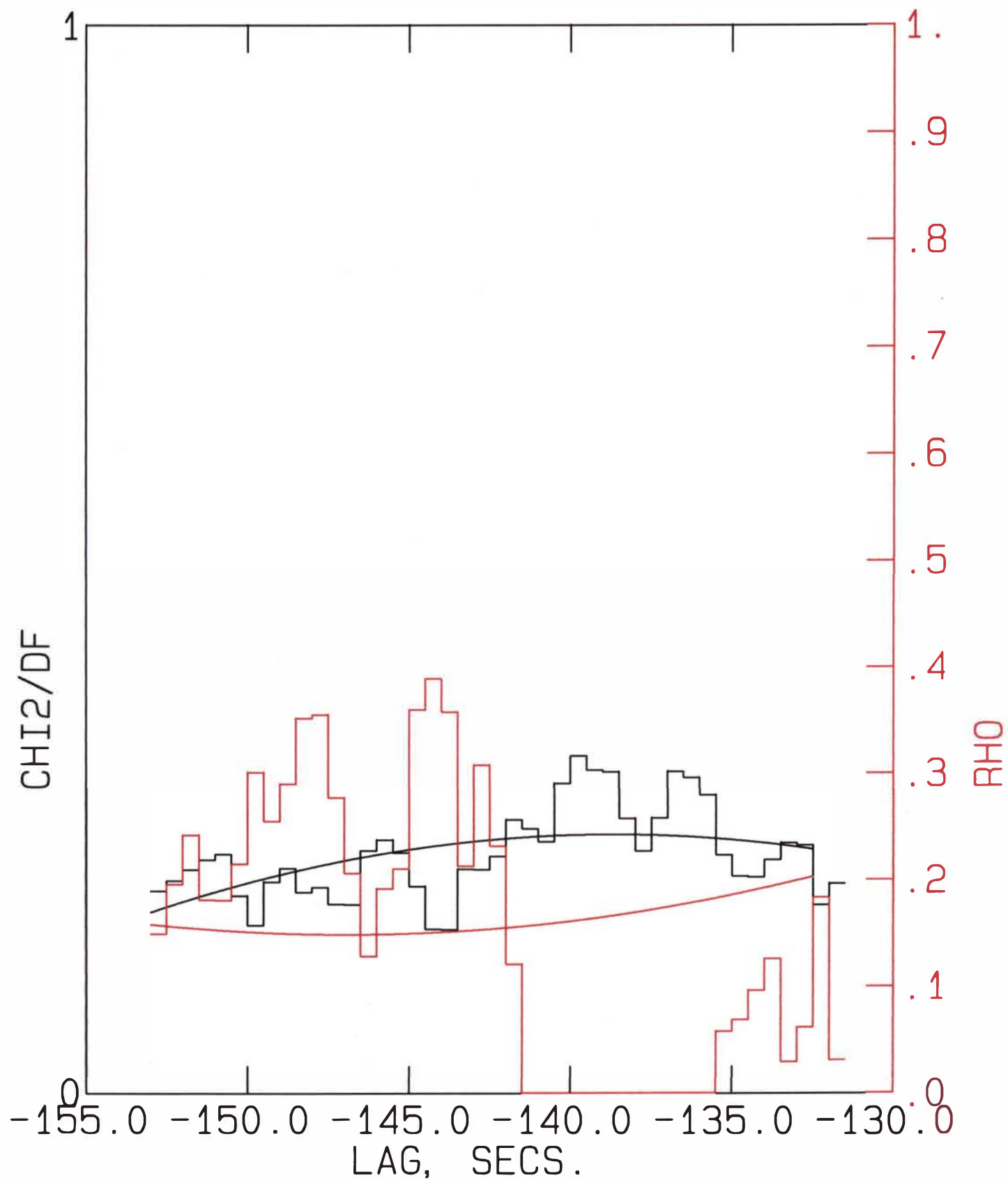
03/12/98 84036.186

40- 700 keV

COUNTS/1.000 S

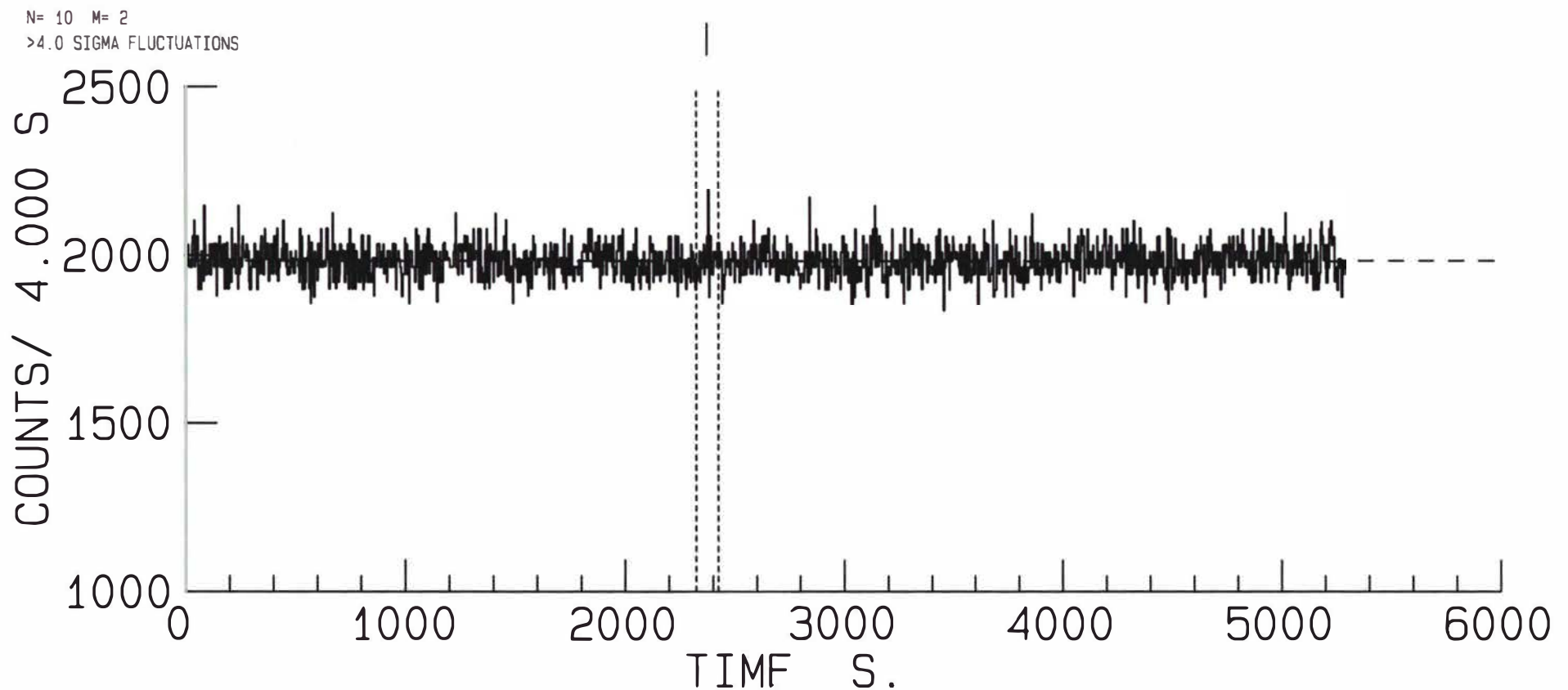




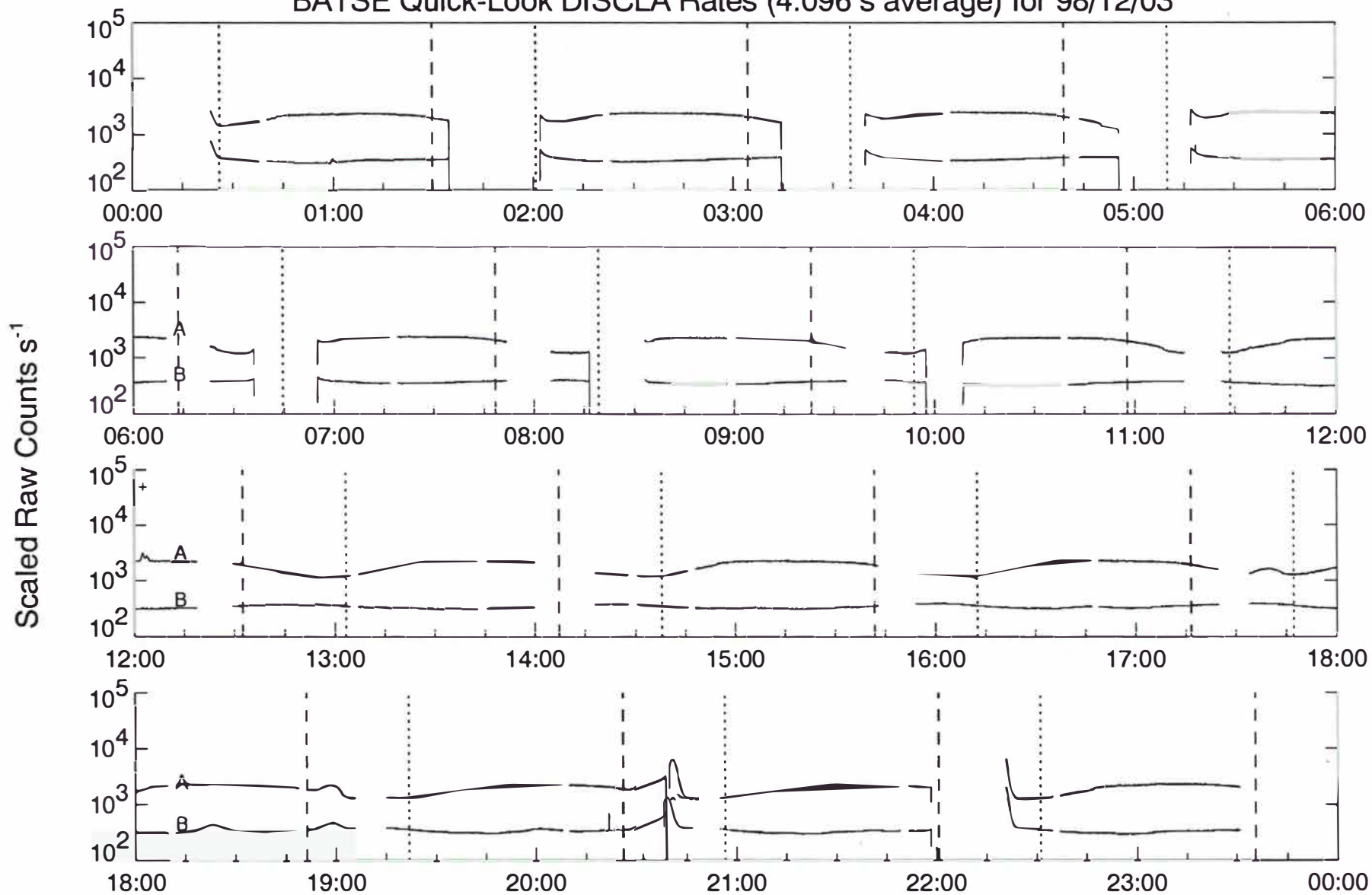


ULYSSES RT
3/12/98 81576.109 s
0.500 S INTERVALS REGROUPED BY 8
22- 150 keV

30 / 1 / 7



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/03

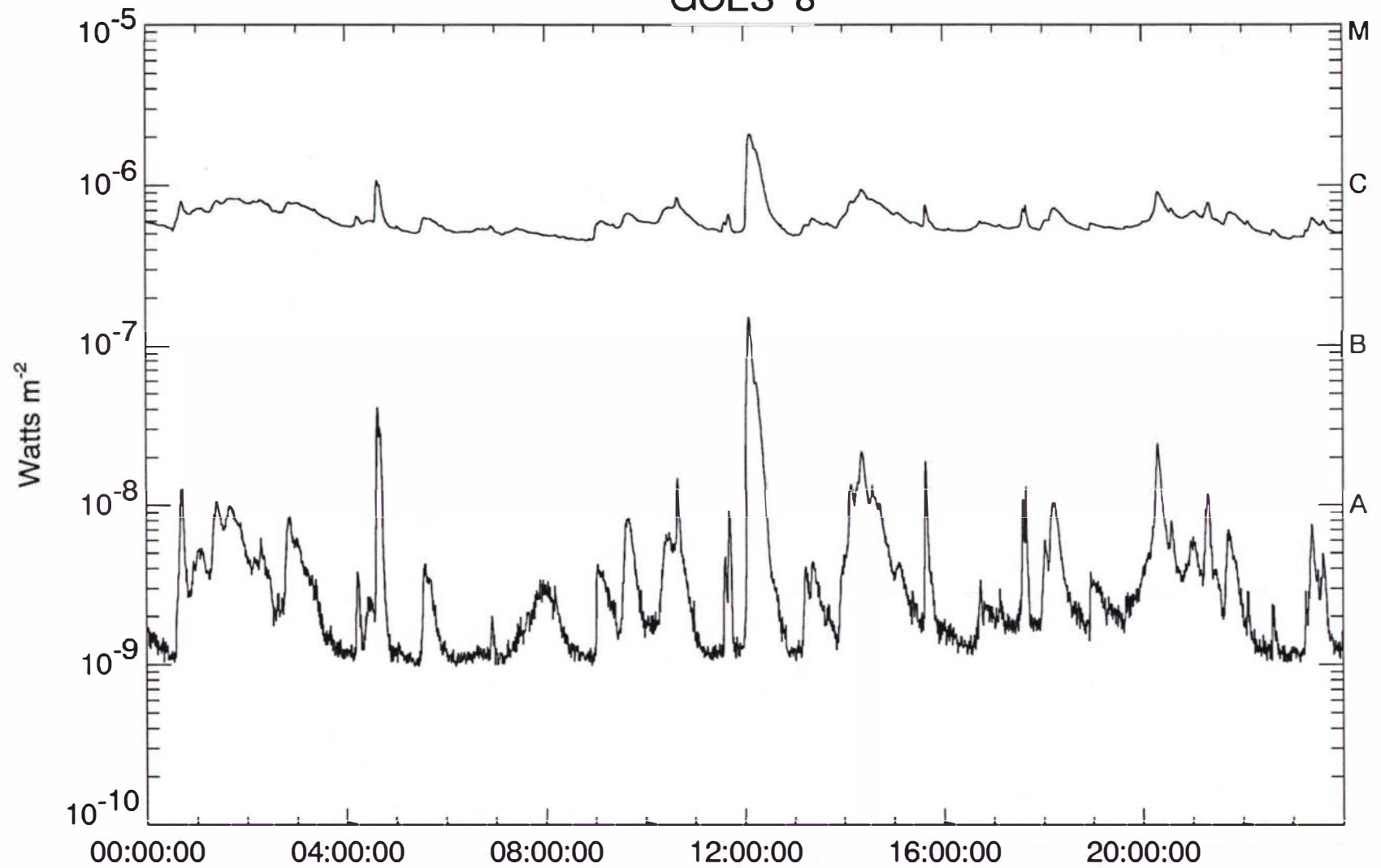


Current Time: 98/12/07, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



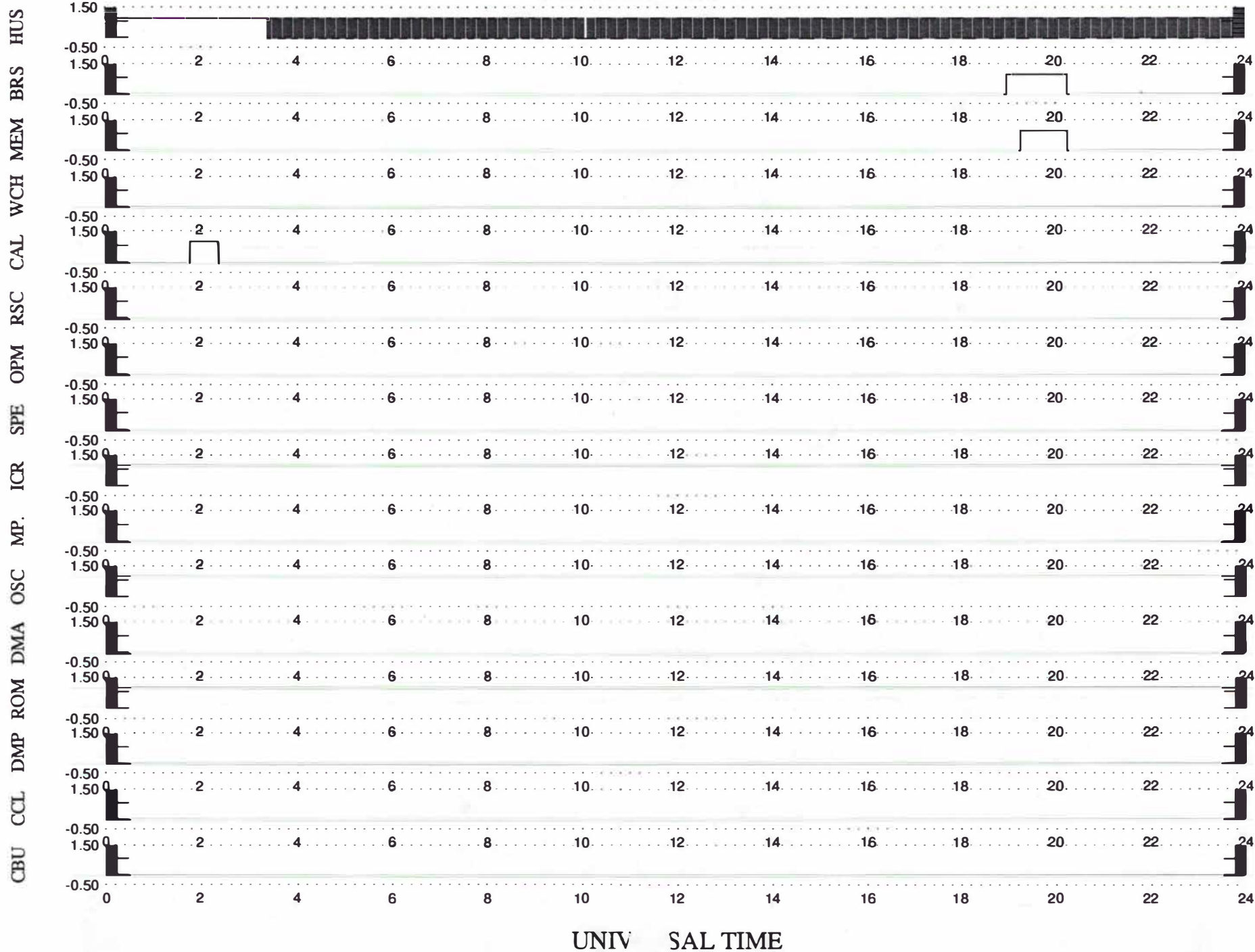
Data Start: 98/12/03, 0000:00

Plot created: 98/12/07, 1010

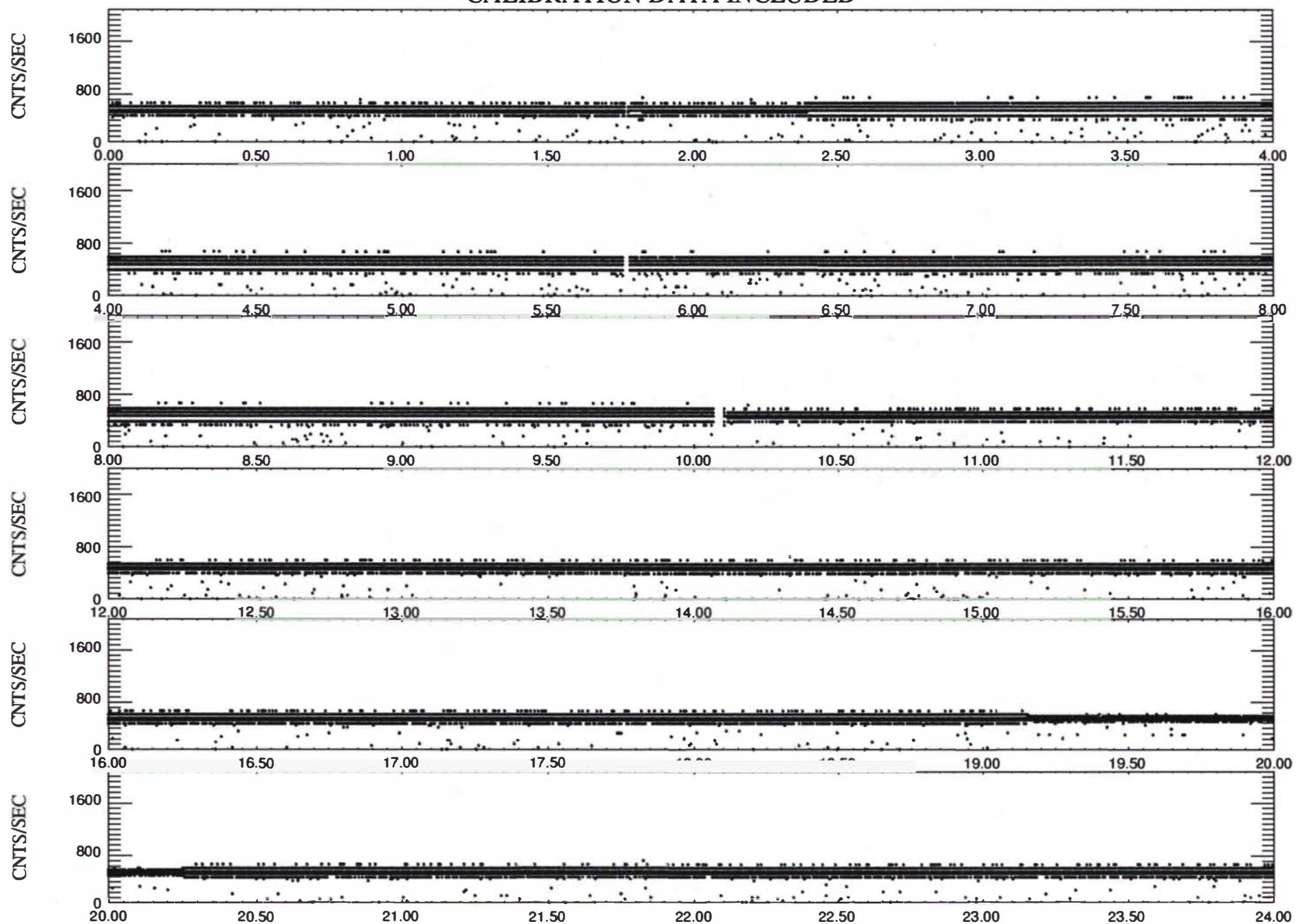
Channel 1 (1.0 - 8.0 Angstroms)
Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

BURST NUMBER 1

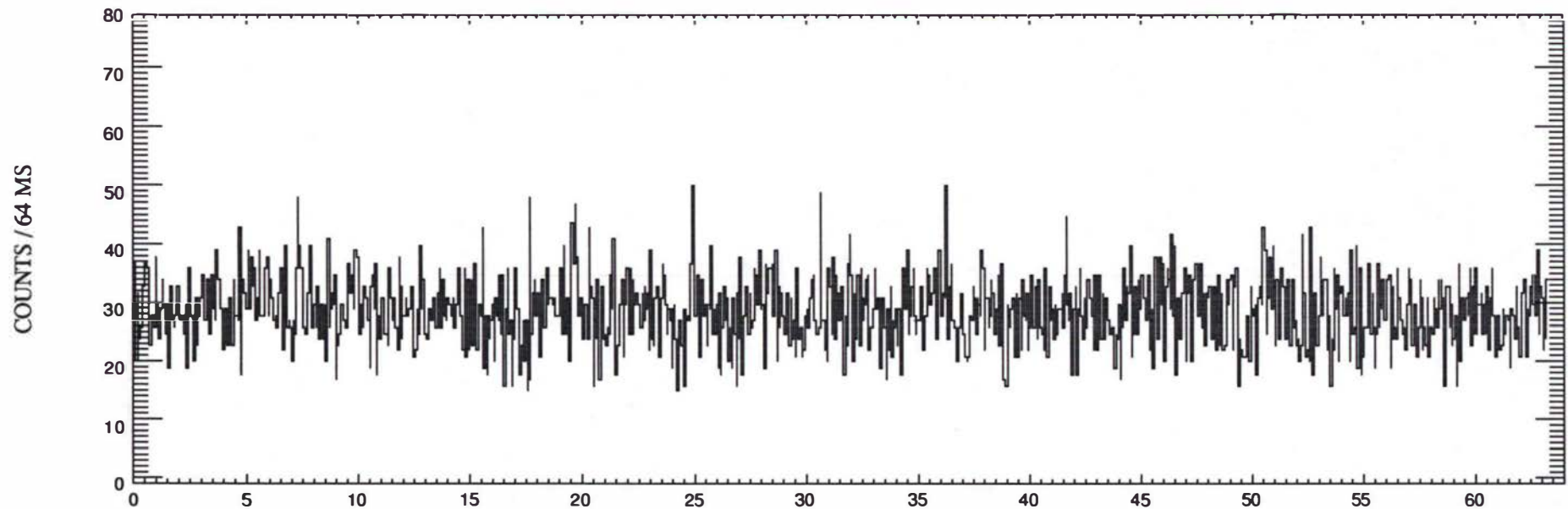


CALIBRATION DATA INCLUDED

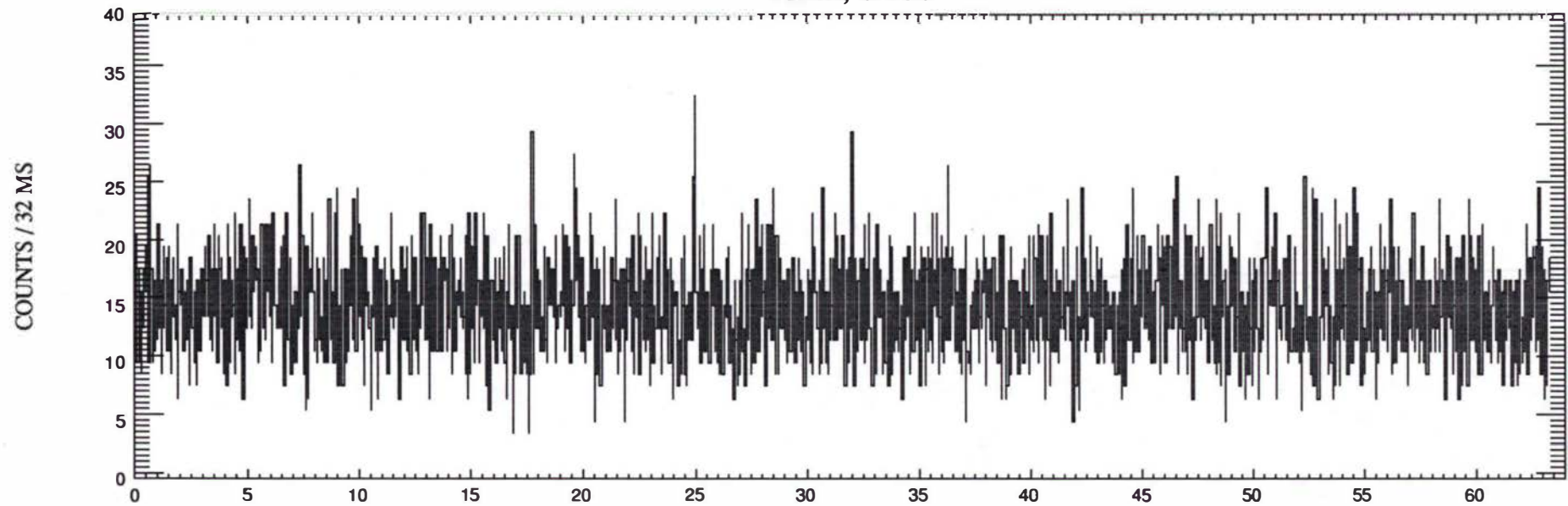


UNIV SAL TIME

Burst Counter 1 at UT=18.989606836107 h=68362.585 s 18:59:22.585

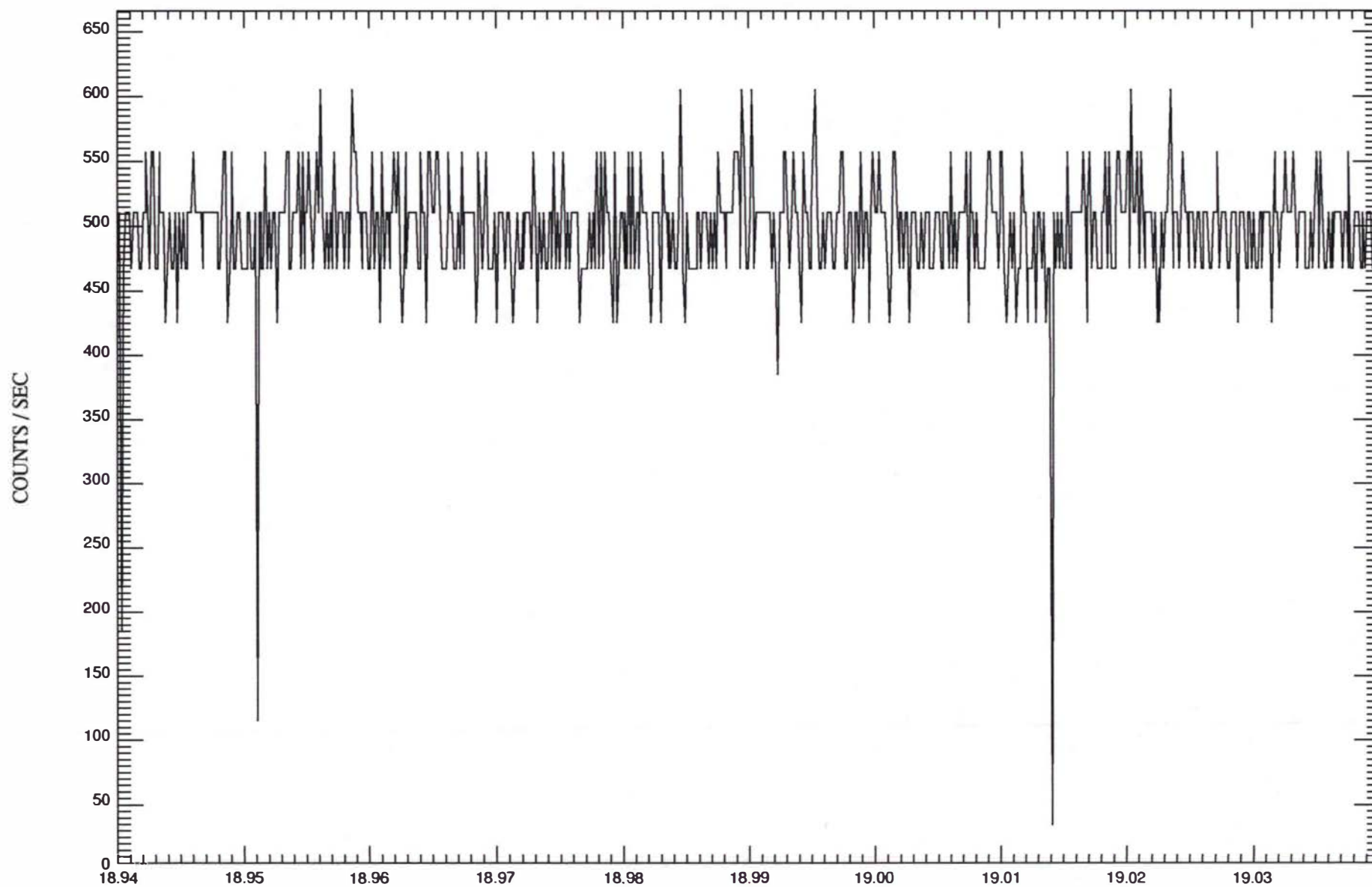


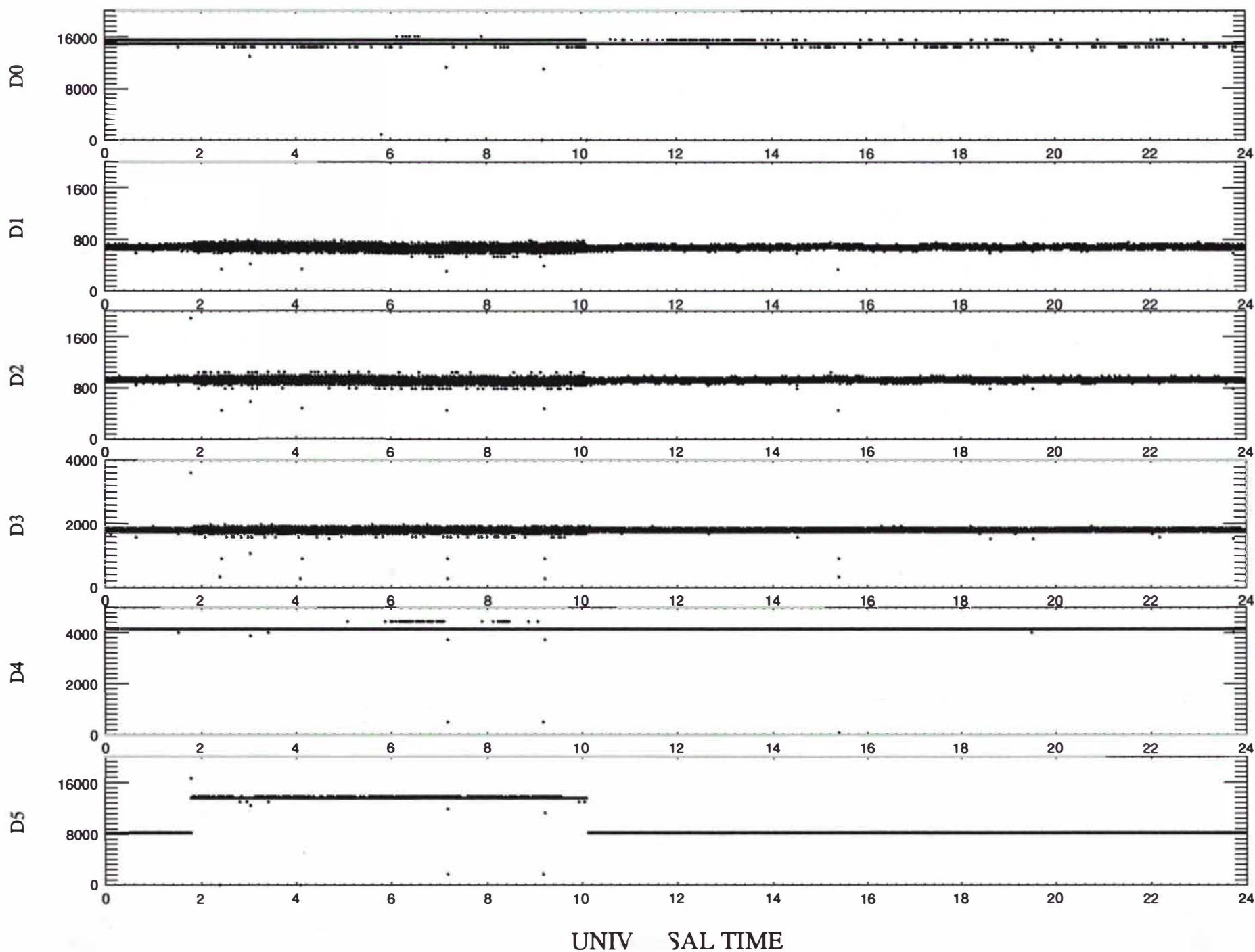
TIME, SECS



TIME, SECS

CALIBRATION DATA INCLUDED





JANA TAB2 19981204 38229

ULYSSES RT

05/08/05

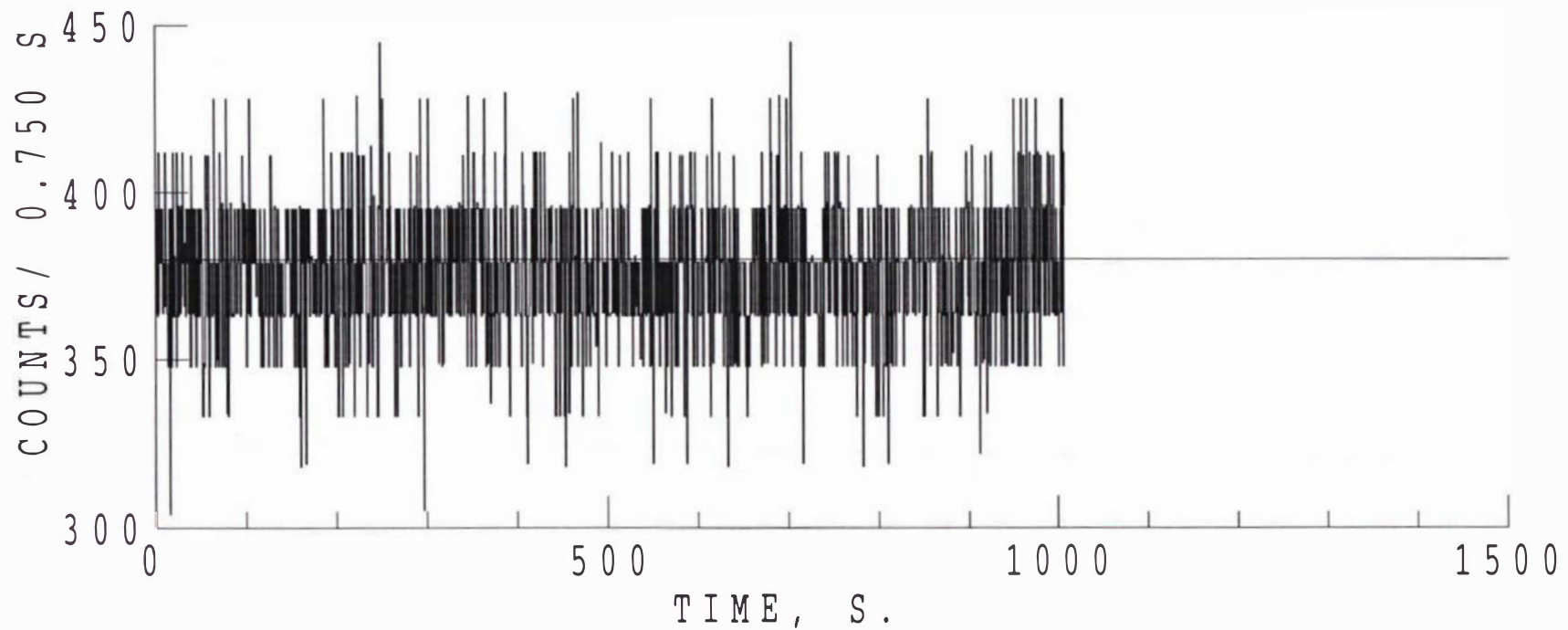
04/12/98 37728.043 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From khurley@sunspot Tue Dec 8 08:51 PST 1998
Date: Tue, 8 Dec 1998 08:50:34 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lhevax.gsfc.nasa.gov, cline@lhevax.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981203, 981204

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 3 1998 18:59*	weak, 32 ms long	2650
DEC 4 1998 23:11*	strong, 64 ms long	2650

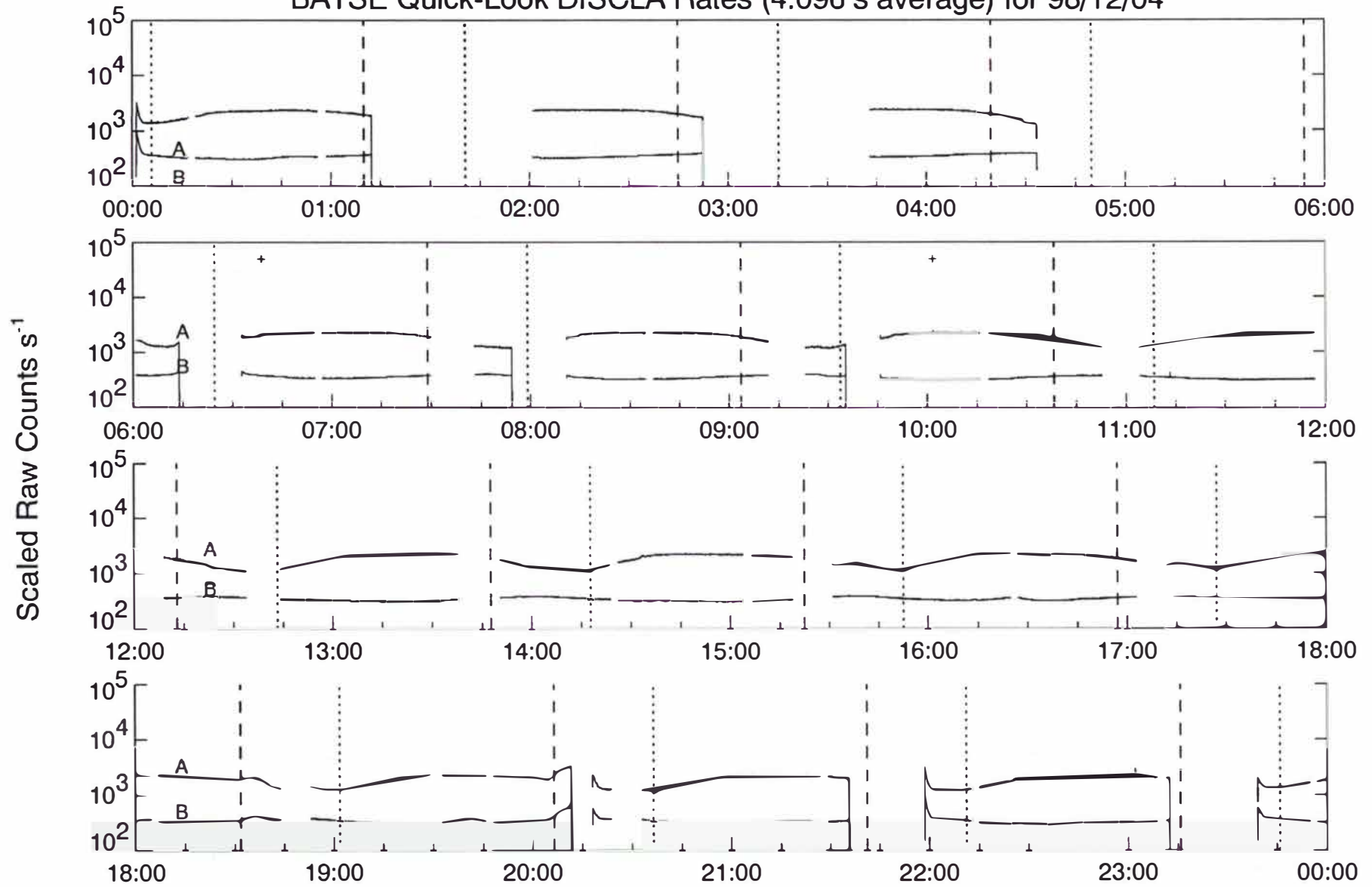
*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1335 s earlier.

Were these events detected by anyone else?

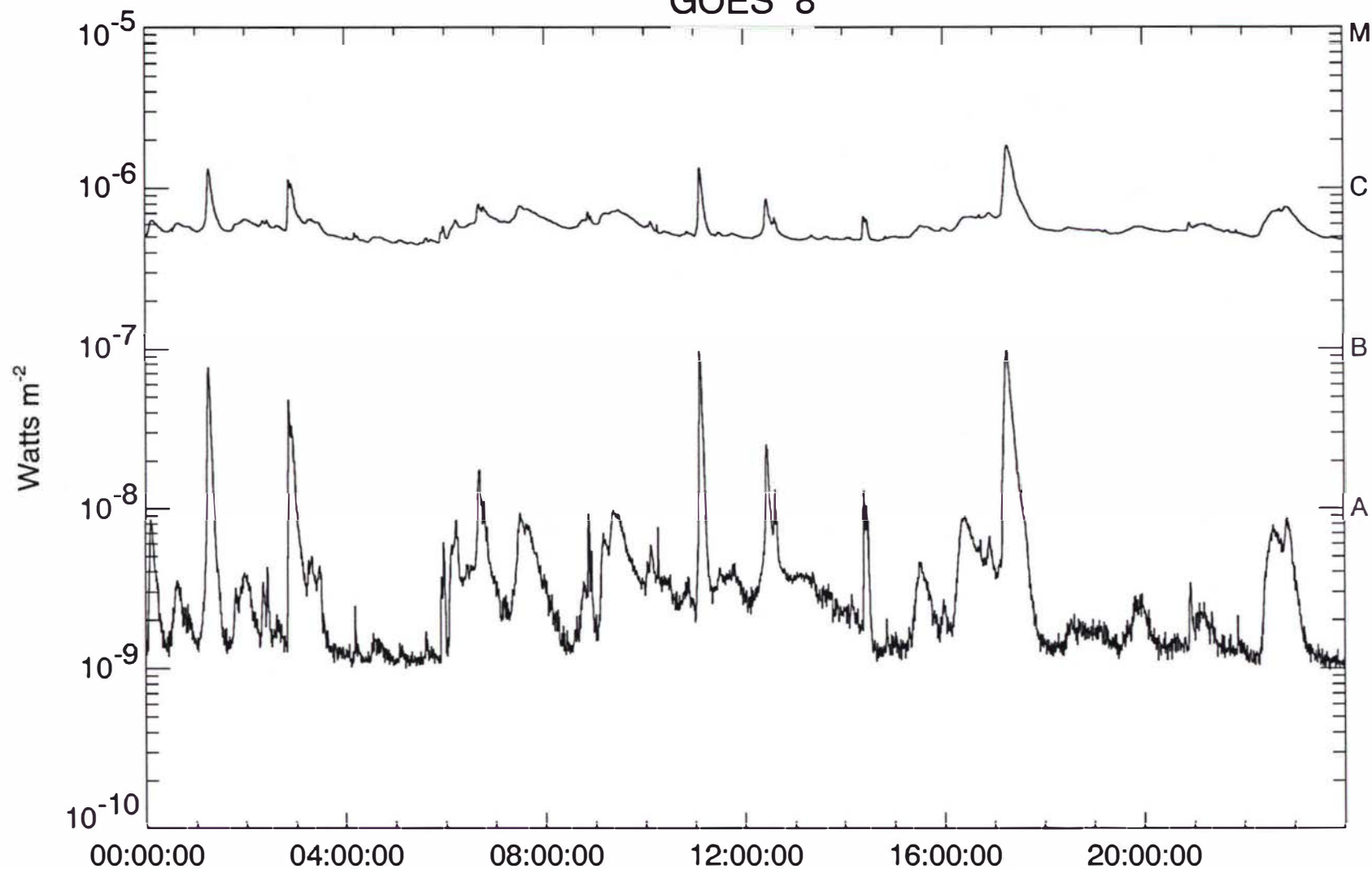
CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczyski, marar, tee

TGRS: no

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/04



GOES 8

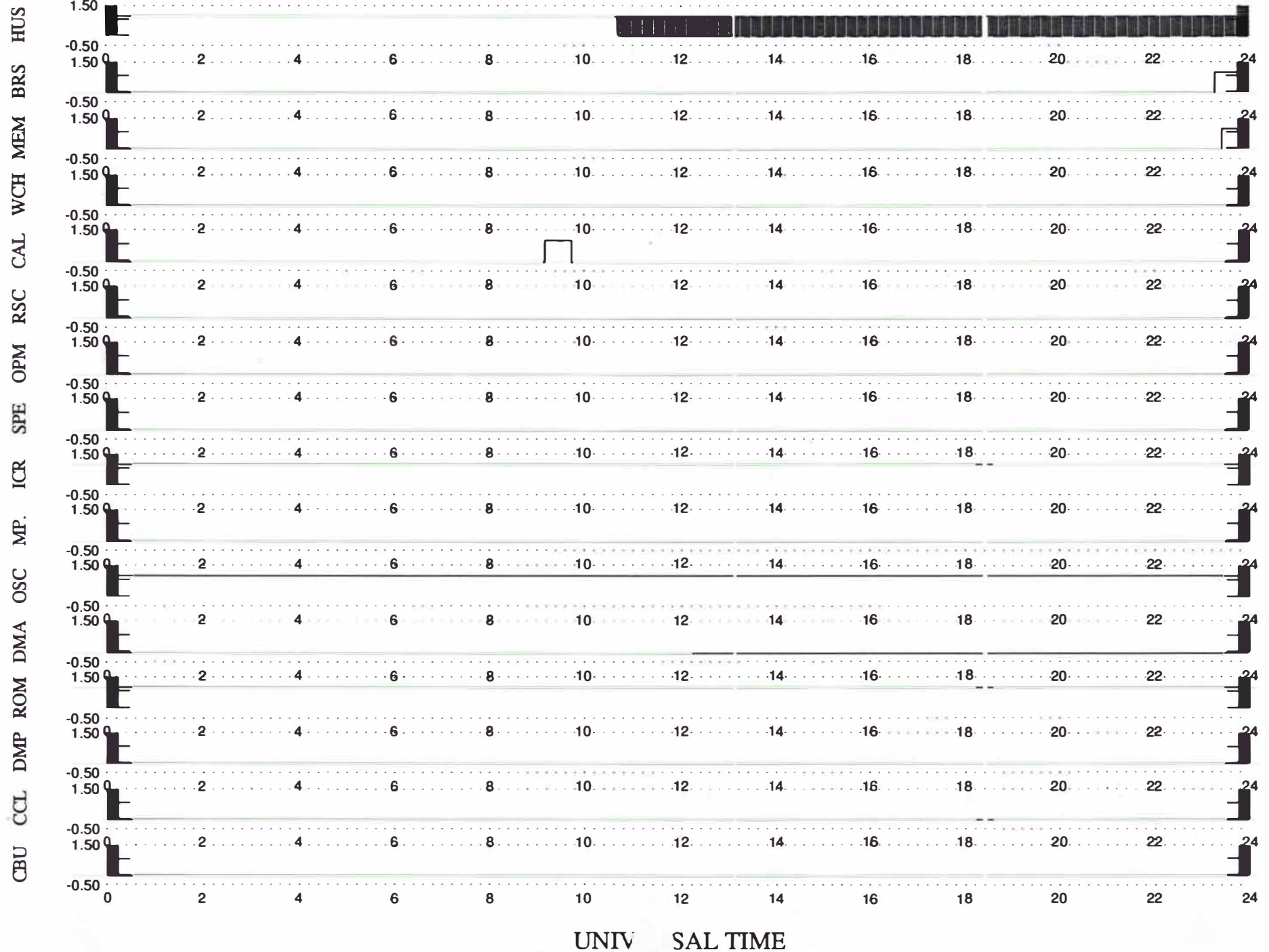


Data Start: 98/12/04, 0000:00

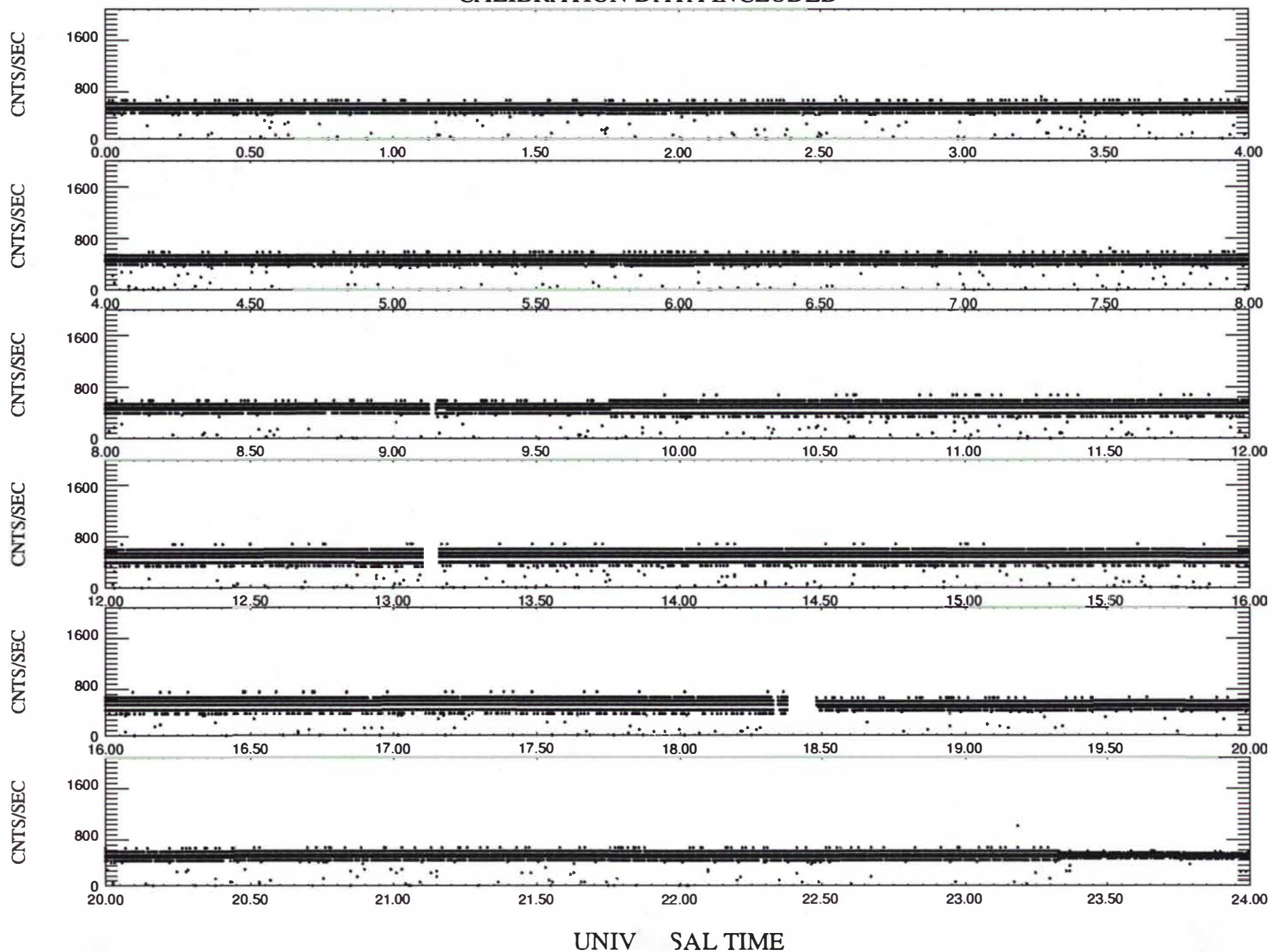
Plot created: 98/12/08, 1010

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

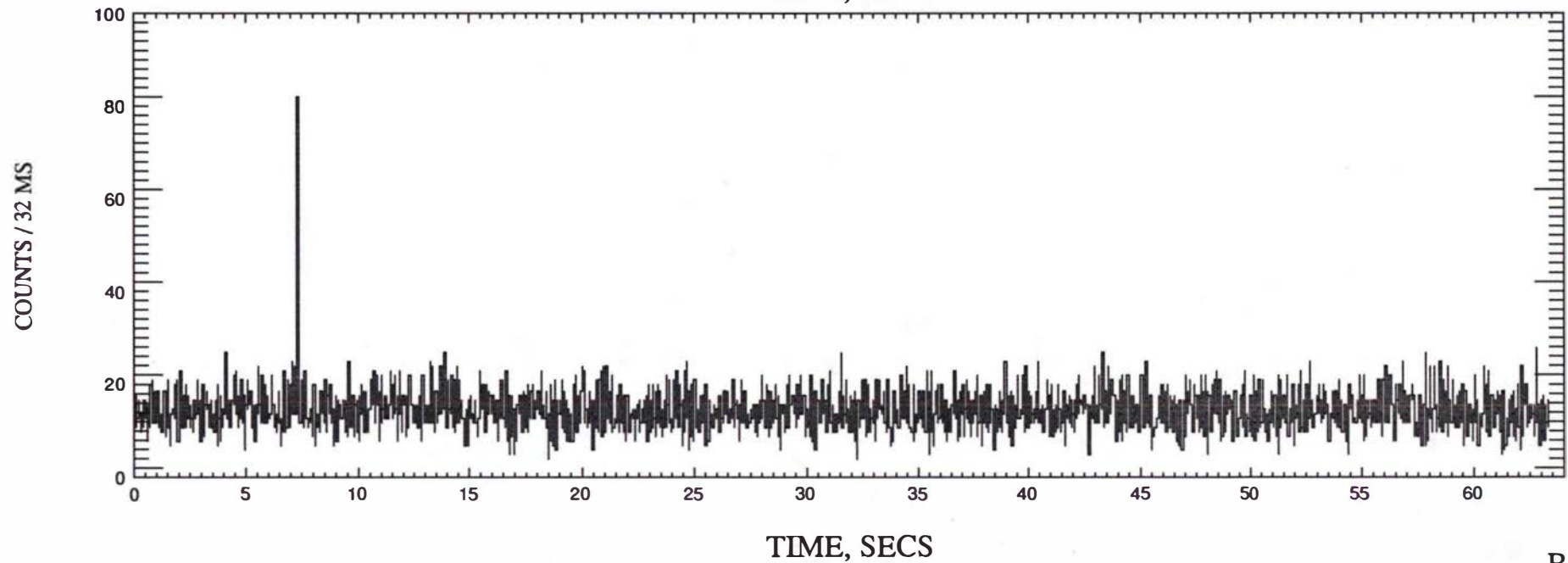
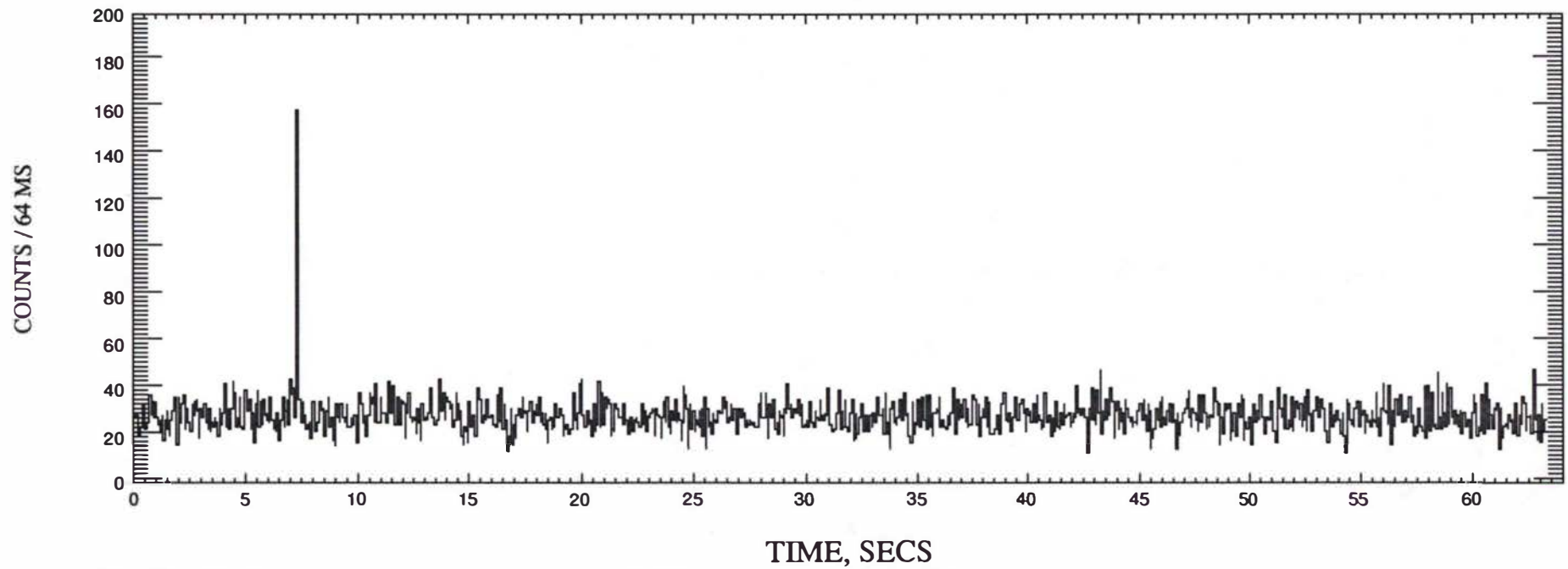
BURST NUMBER 2



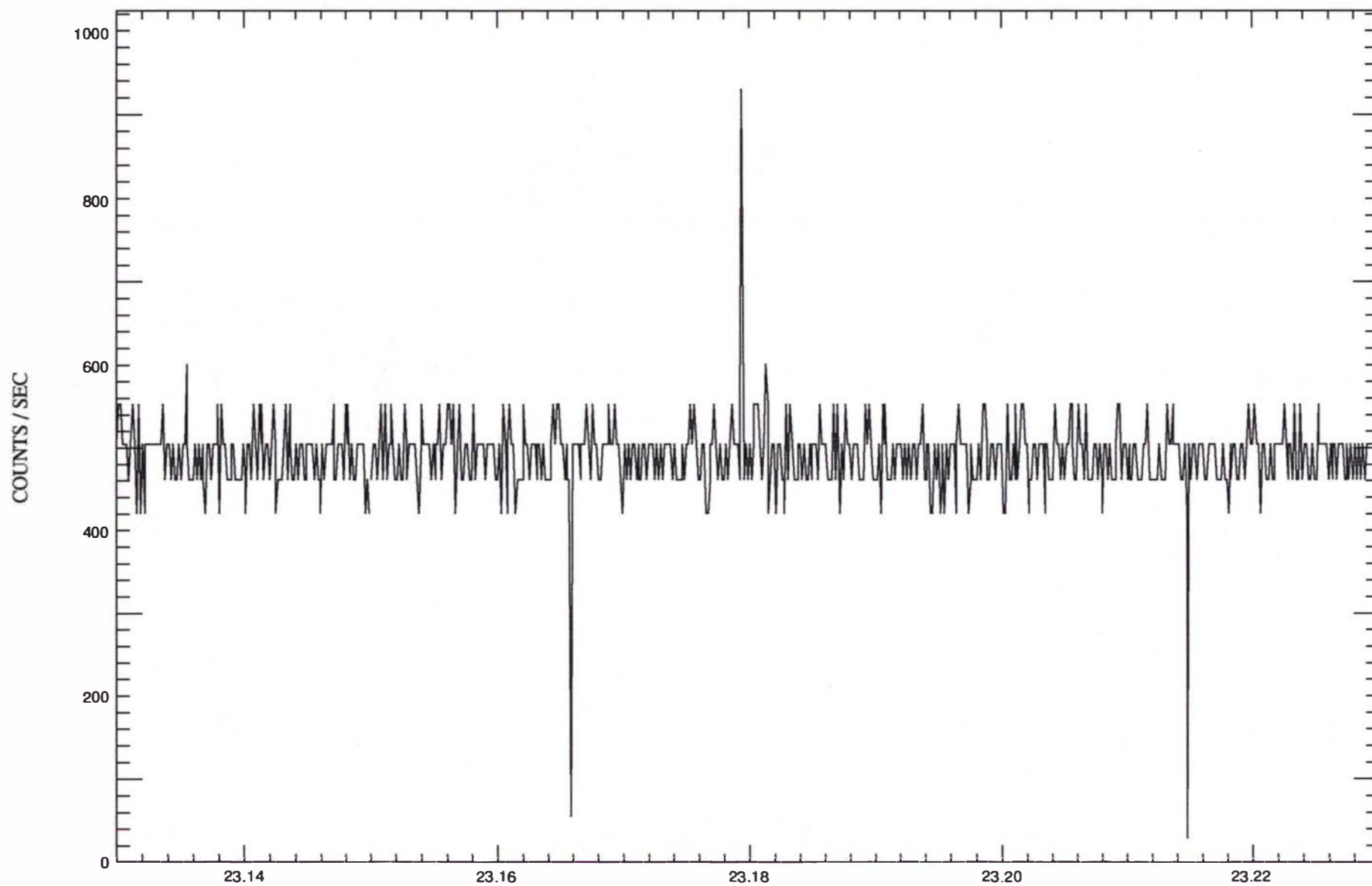
CALIBRATION DATA INCLUDED

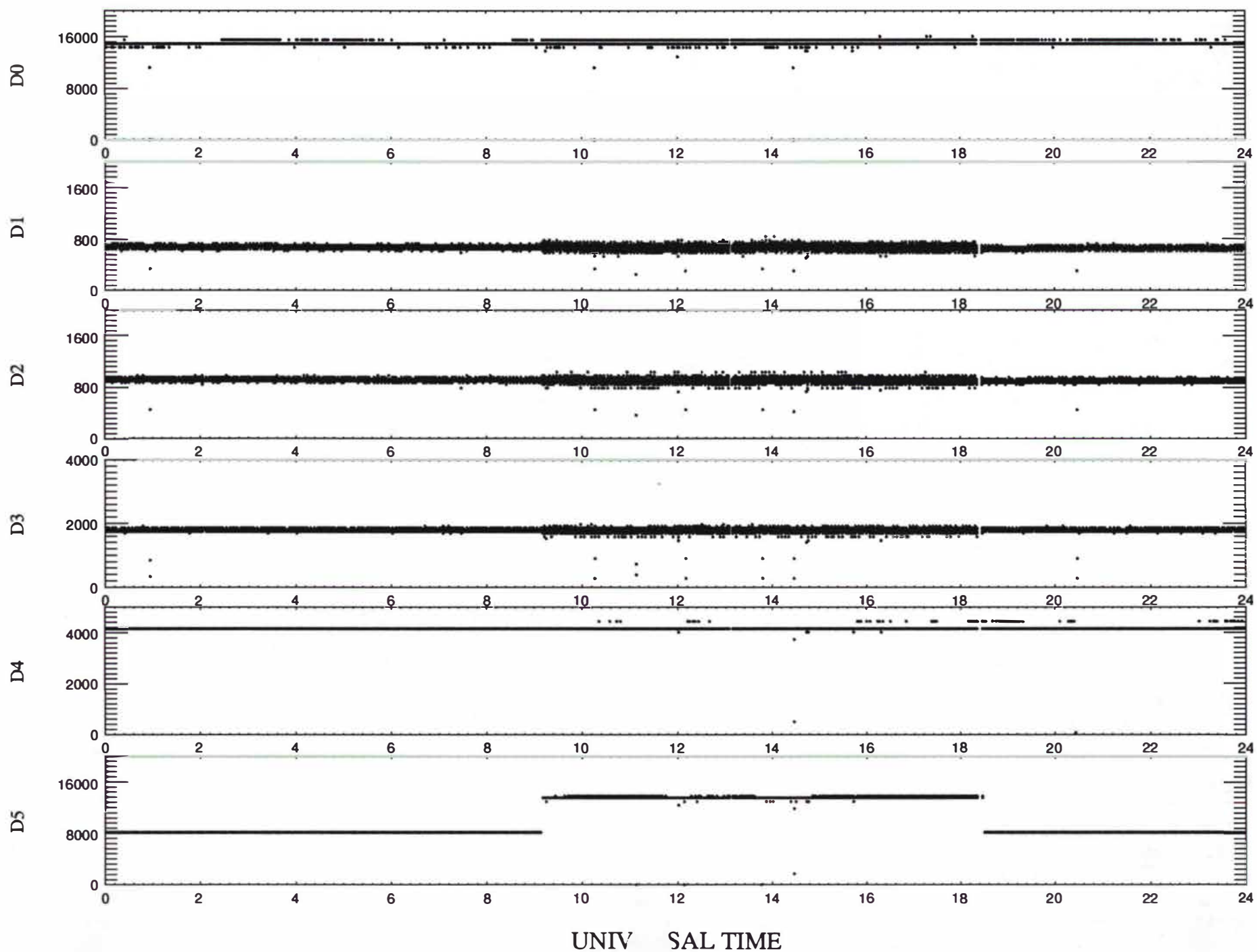


Burst Counter 2 at UT=23.179637442695 h=83446.695 s 23:10:46.695



CALIBRATION DATA INCLUDED





From SAHI@fender.msfc.nasa.gov Mon Dec 7 14:51:07 1998
Return-Path: <SAHI@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA14636; Mon, 7 Dec 1998 14:51:06 -0800
From: SAHI@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA15890; Mon, 7 Dec 1998 14:51:03 -0800
Date: Mon, 7 Dec 1998 16:49:46 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981207164946.20233e75@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7250
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7250
EVENT OF 1998 DEC 5 DAY OF YEAR=339
EVENT CROSSING TIME AT BATSE : 20484. S. OR 05:41:24.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 91.000 44.000
BATSE PEAK COUNTING RATE: 9000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 5/12/ 98 IS:
RA= 167.106 DEC= -5.781 DIST= 5.272 AU
BATSE-ULYSSES DISTANCE = 788618129. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 95.85 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -268.02 SECS.
CROSSING TIME AT ULYSSES IS 20216. S. OR 05:36:55 +/- 500.26 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 5/12/ 98 IS:
RA= 184.550 DEC= -0.092 DIST= 1.753 AU
MARS-BATSE DISTANCE = 262185424. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 87.38 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 39.93 SECS.
CROSSING TIME AT MARS IS 20524. S. OR 05:42:03 +/- 152.28 SECONDS

BATSE BURST TRIGGER

NO.: 7250

TIME: TJD=1152 SECONDS=20484

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=110.3 AZIMUTH=171.3 ERROR=0.8 DEGREES

COMMENTS:

GRB. DOUBLE PULSE WITH SUBSTRUCTURE, DUR. APPROX. 130 S, MAX. AT T+7 S, STARTS
AT T-80 S. WEAKLY VISIBLE ABOVE 300 KEV. CYGX-1 SET AT T+25 S.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7250	981205	11152	20484	9000	091	+44	130

Date: 21/1/00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. NEAR Data **N/A**

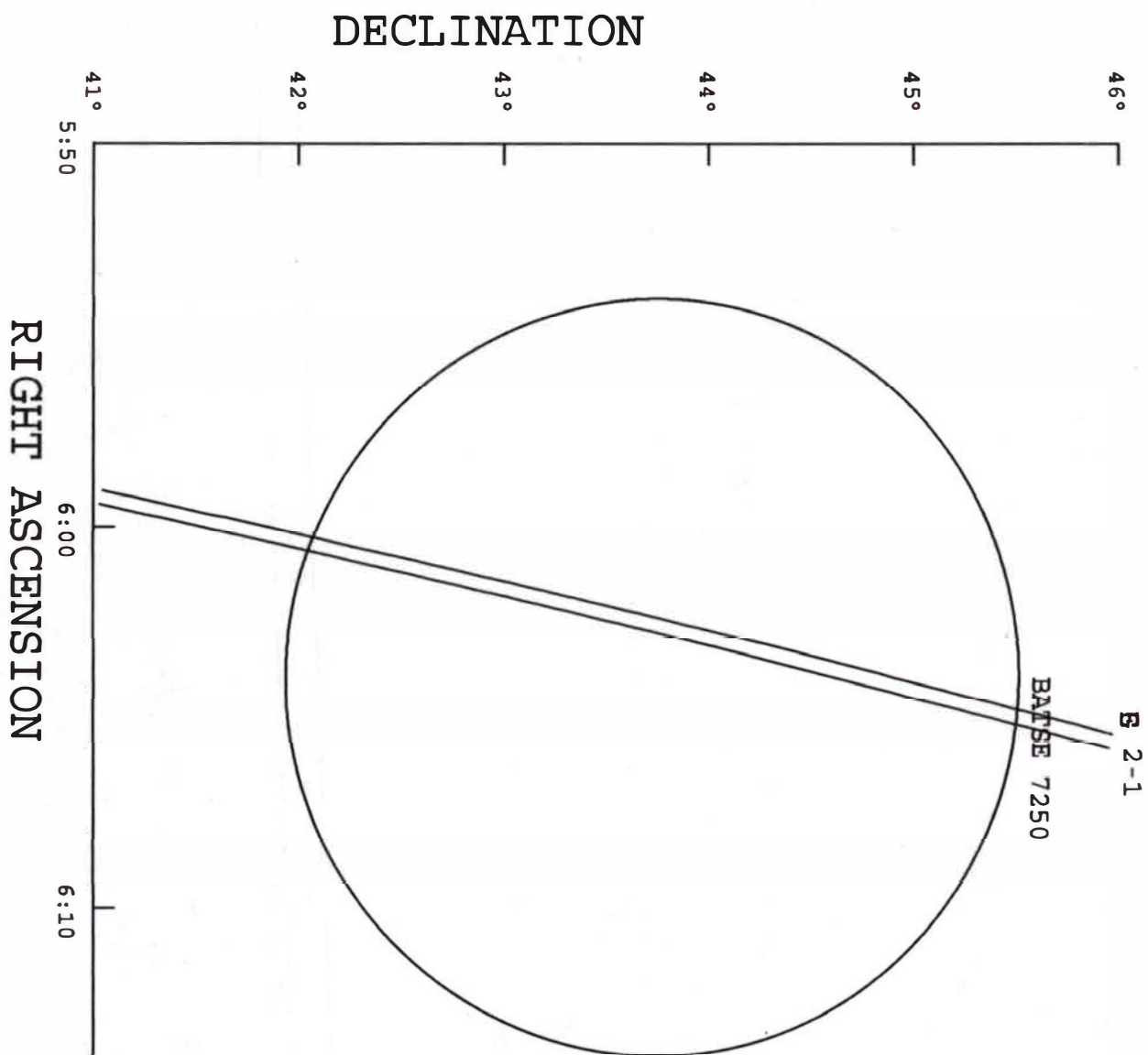
- ☐ Final, correct time used? (Files on website have the correct time)
- ☐ BATSE >100 keV data used for NEAR correlation?

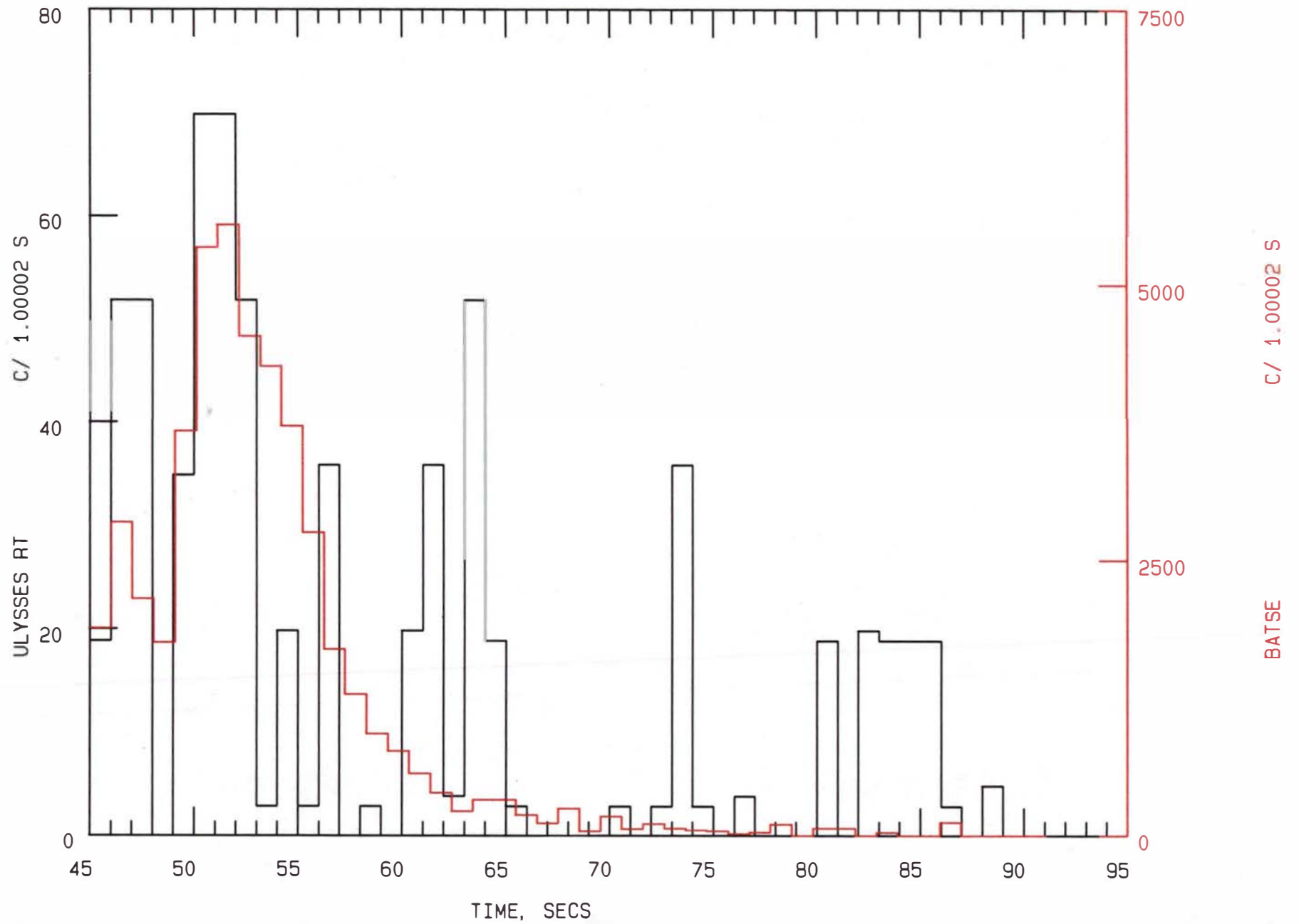
- ☒ ACCESS database updated?

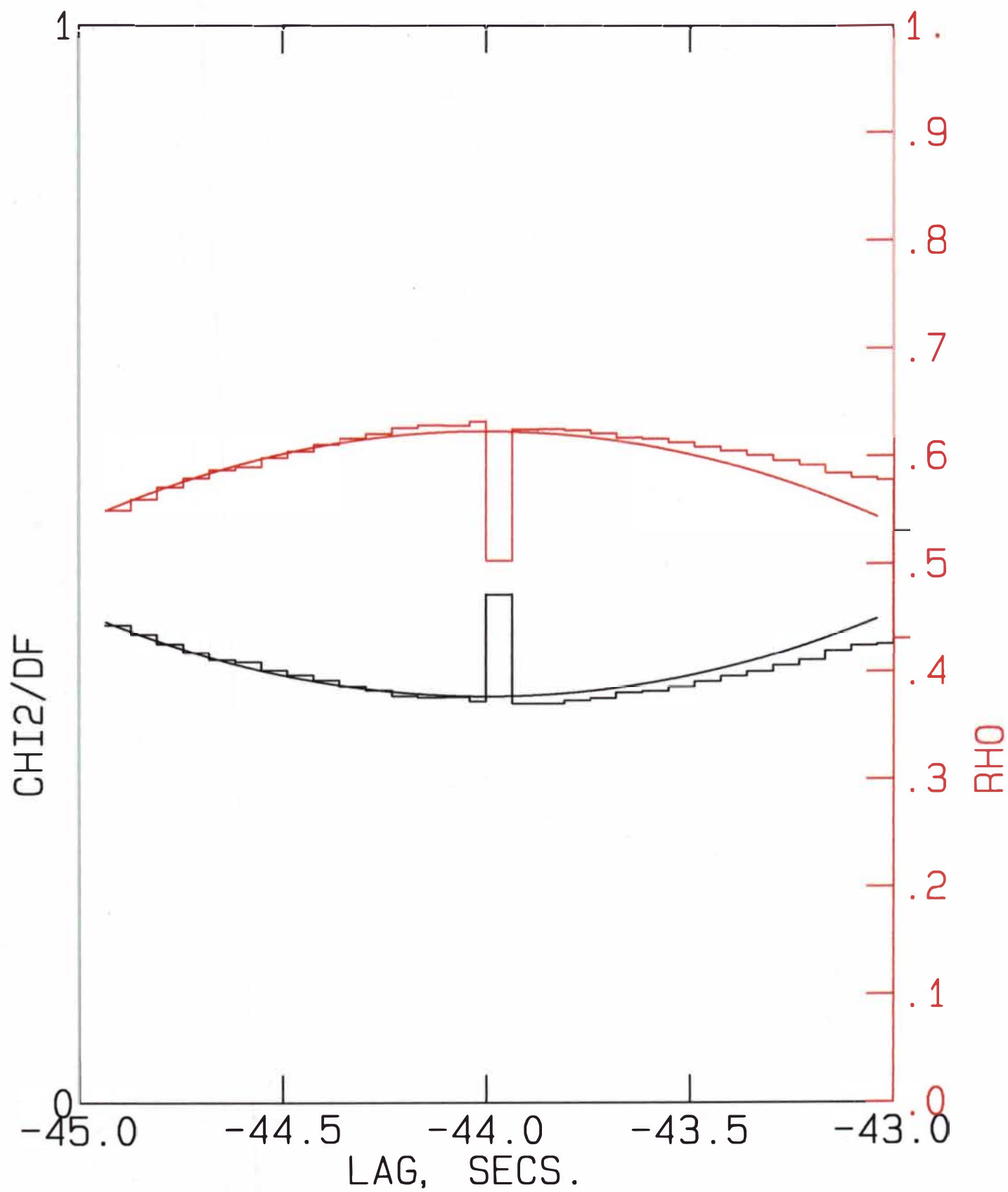
N-M = CORRELATION BETWEEN SATELLITES N AND M
 EARTH-N = EARTH AS SEEN FROM SATELLITE N
 S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
 1 BATSE 2 ULYSSES

EVENT OF DEC 5, 1998 5:41

21/ 1/ 0

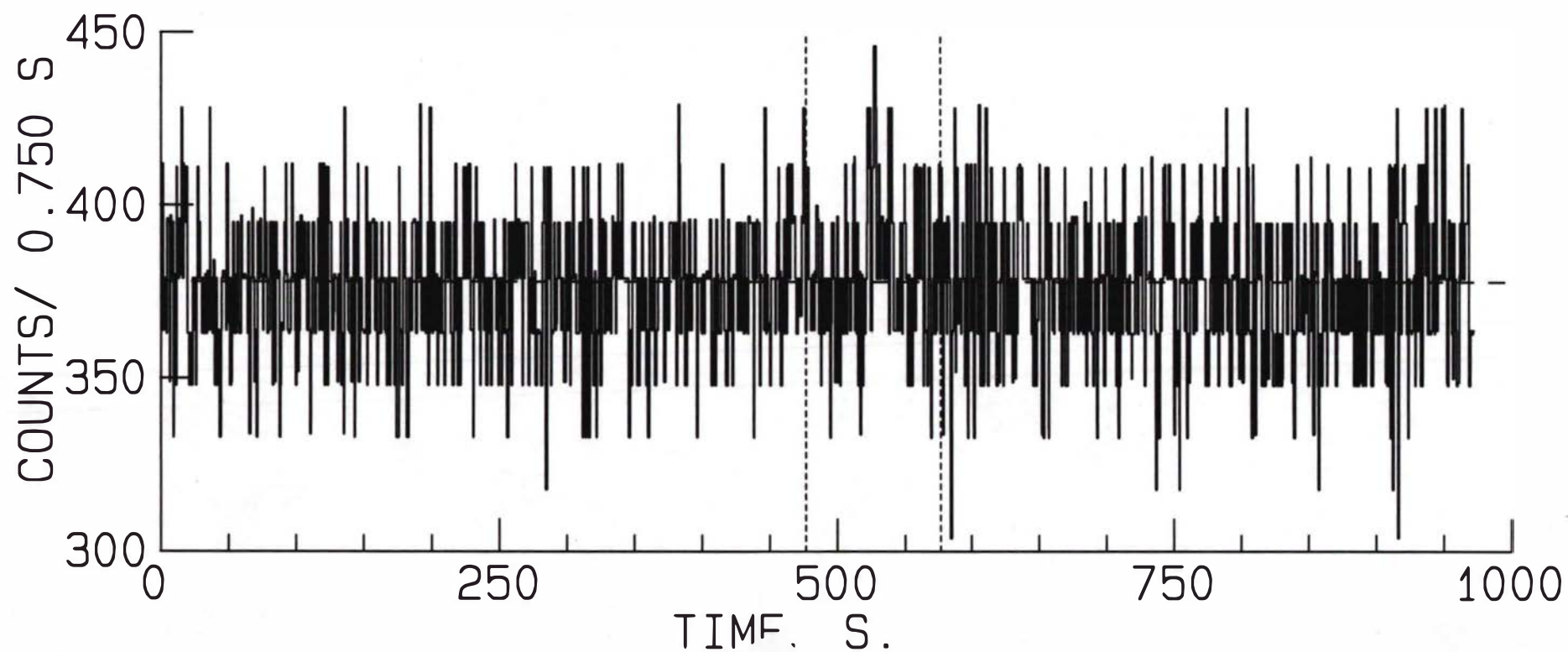




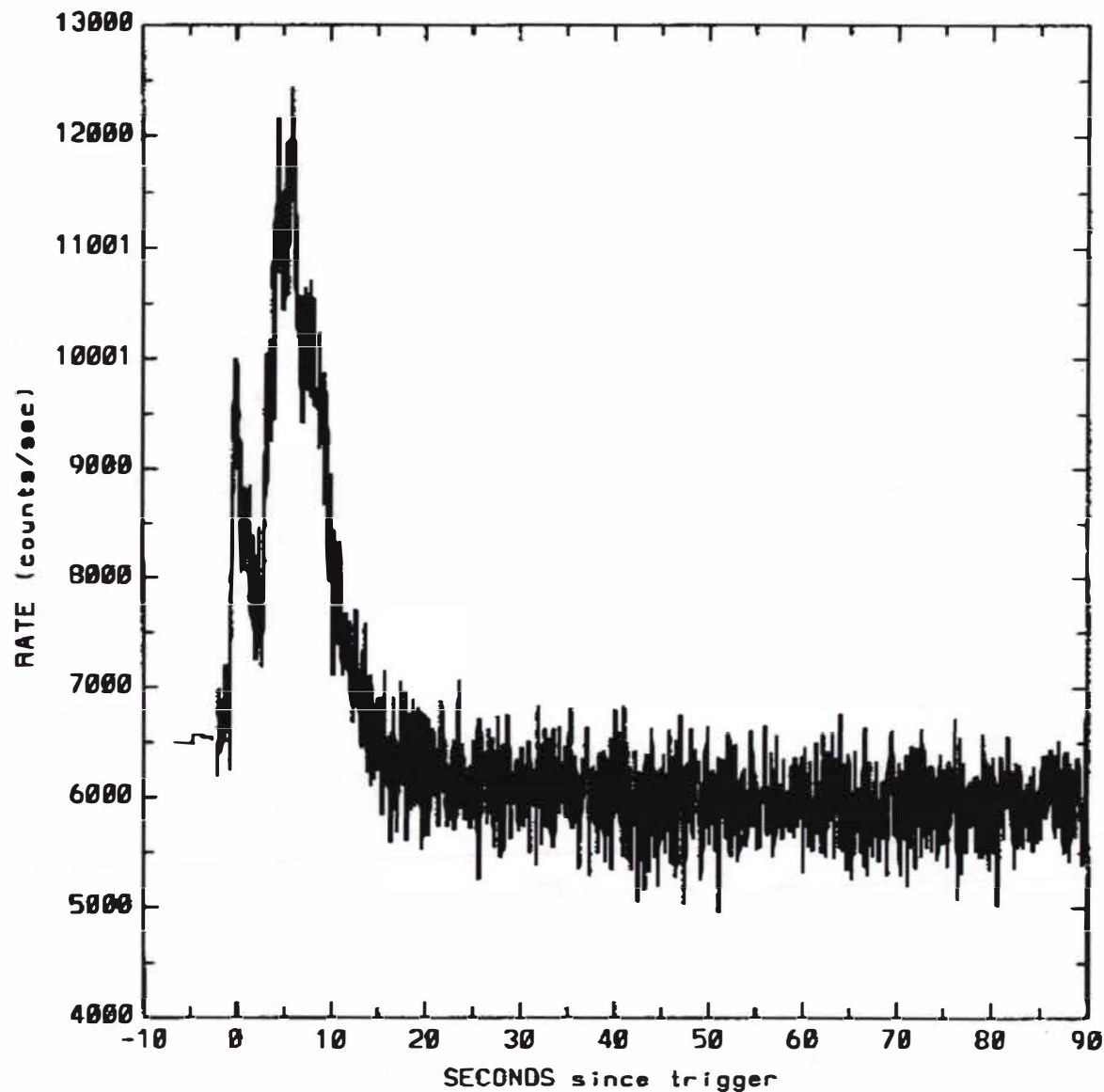


ULYSSES RT
5/12/98 19728.198 s
0.250 S INTERVALS REGROUPED BY 3
22- 150 keV

21 / 1 / 0



DISCSC Data for K. Hurley, No. 7250



14-DEC-1998 09:34:30

Created by MOPS 80
(Burst Display)
Version 12.26

Trigger # : 7250

Trigger Time:
11152 / 20484.321Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors [7..0],
7-5-----Discriminators:
(1 . 2)Quality Mask:
80ISP1

BATSE

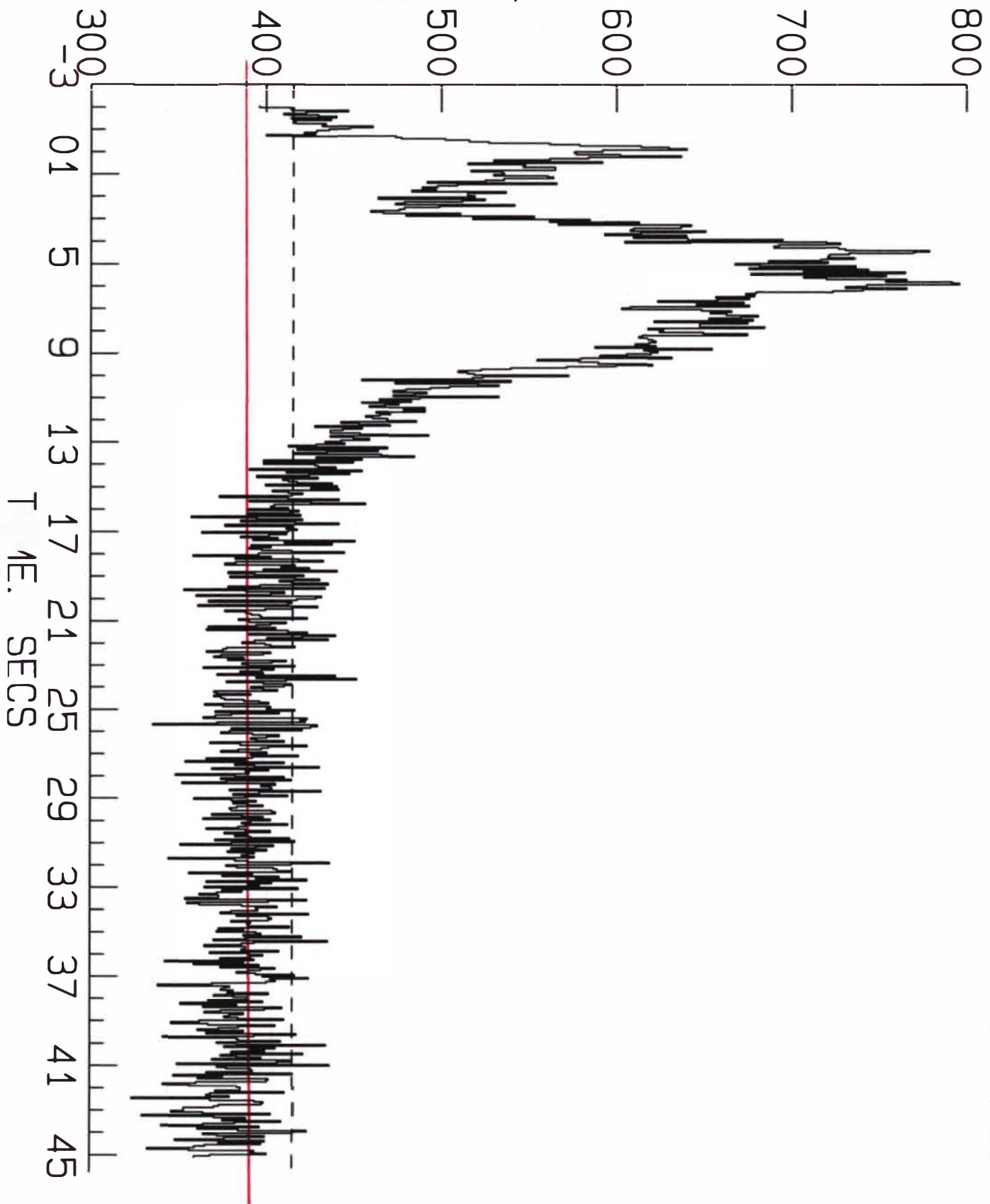
05/12/98

20484.321

25- 100 keV

6061 c/s

COUNTS/0.064 S



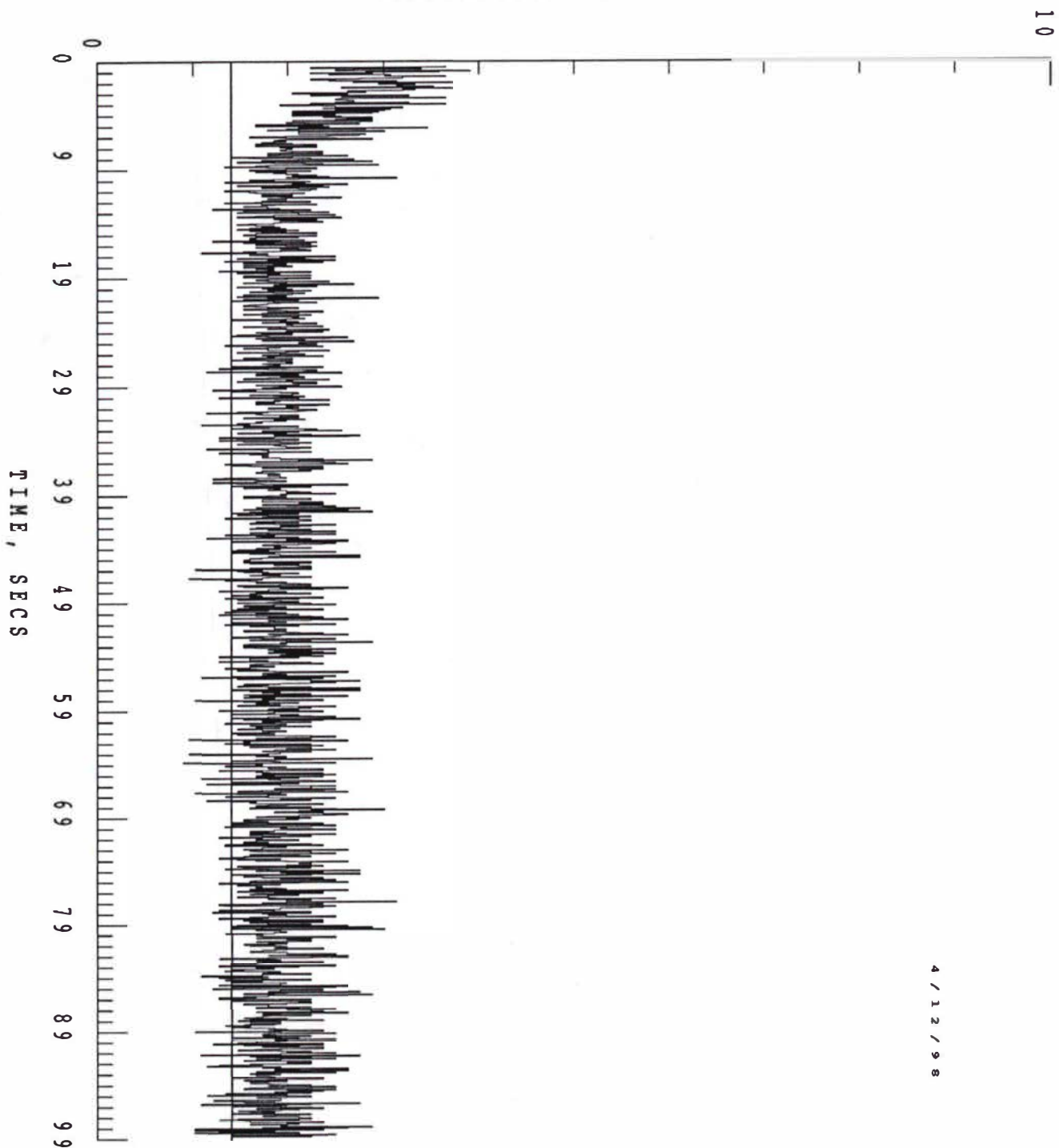
KONUS

05/12/98

20489.882

50 - 200 keV

COUNTS/0.064 S



From khurley@sunspot Wed Dec 9 08:10 PST 1998
Date: Wed, 9 Dec 1998 08:08:31 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981201A,B, 981205, 981206

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 1 1998 00:06*	weak, 32 ms long	2650
DEC 1 1998 01:22*	weak, 32 ms long	2650
DEC 5 1998 09:02*	weak, 32 ms long	2650
DEC 6 1998 07:39*	weak, 32 ms long	2650

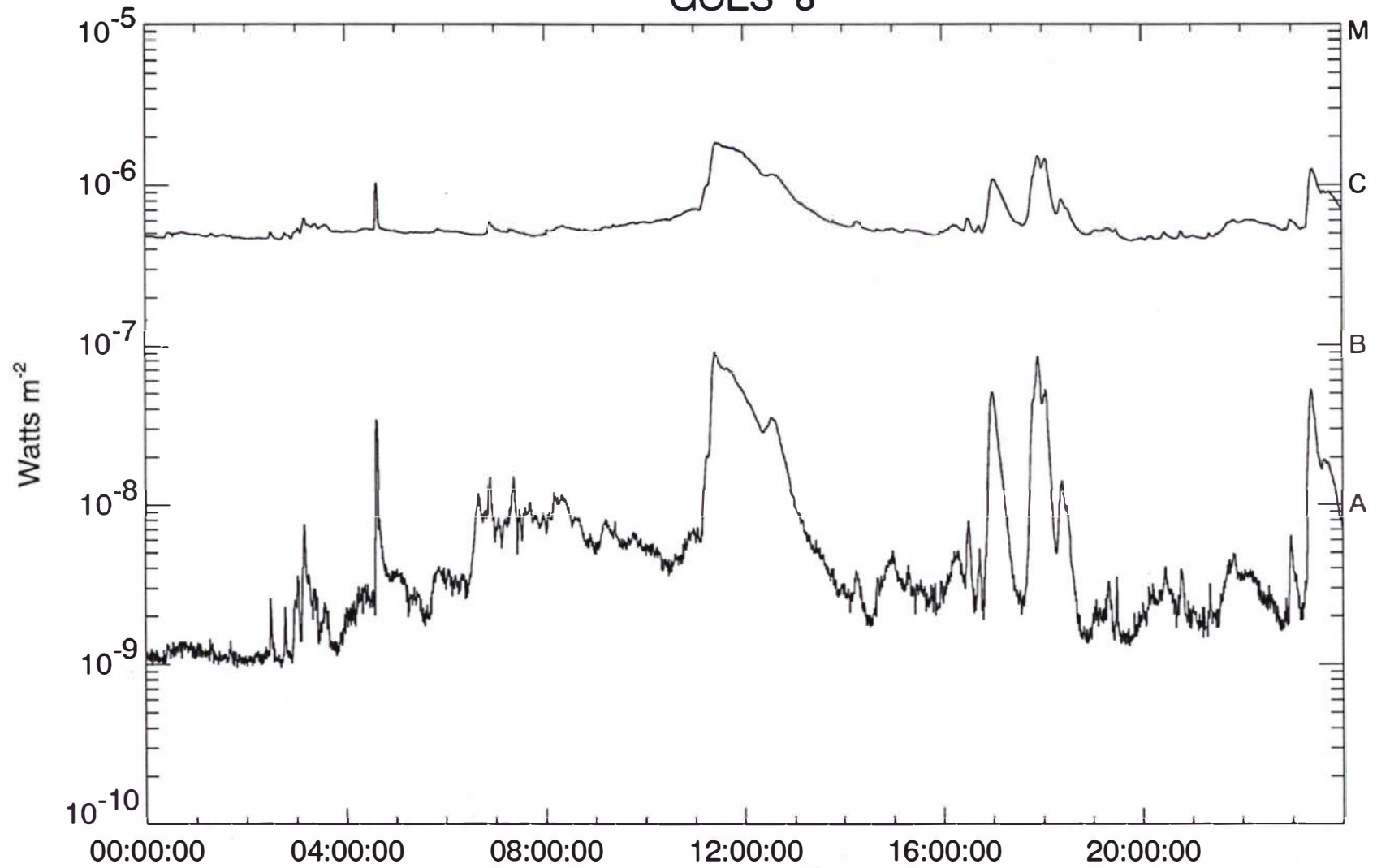
*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1335 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczynski, marar, tee

TGRS: NO

GOES 8



Data Start: 98/12/05, 0000:00

Plot created: 98/12/09, 1010

Channel

1 (1.0 - 8.0 Angstroms)

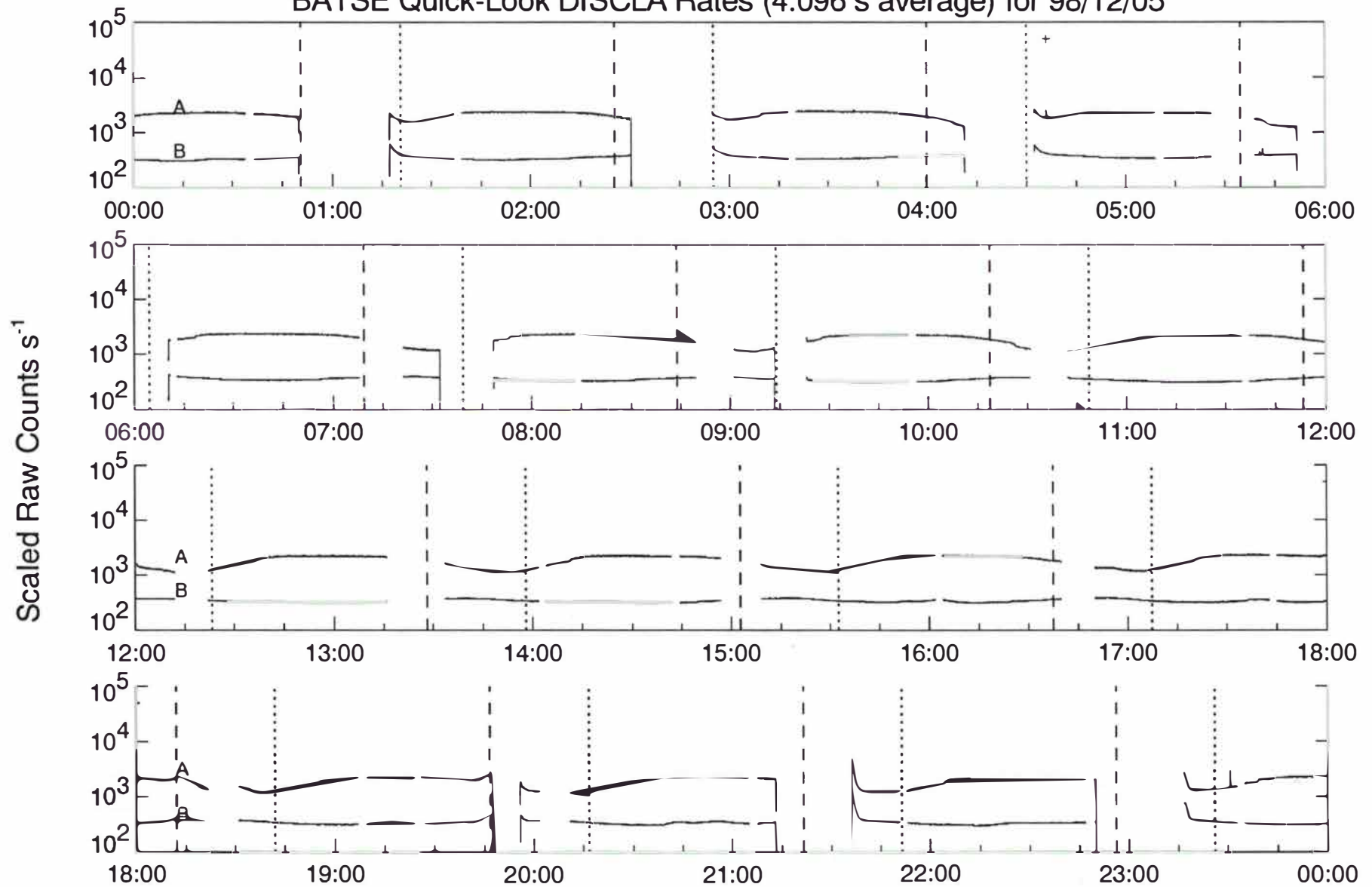
Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/05

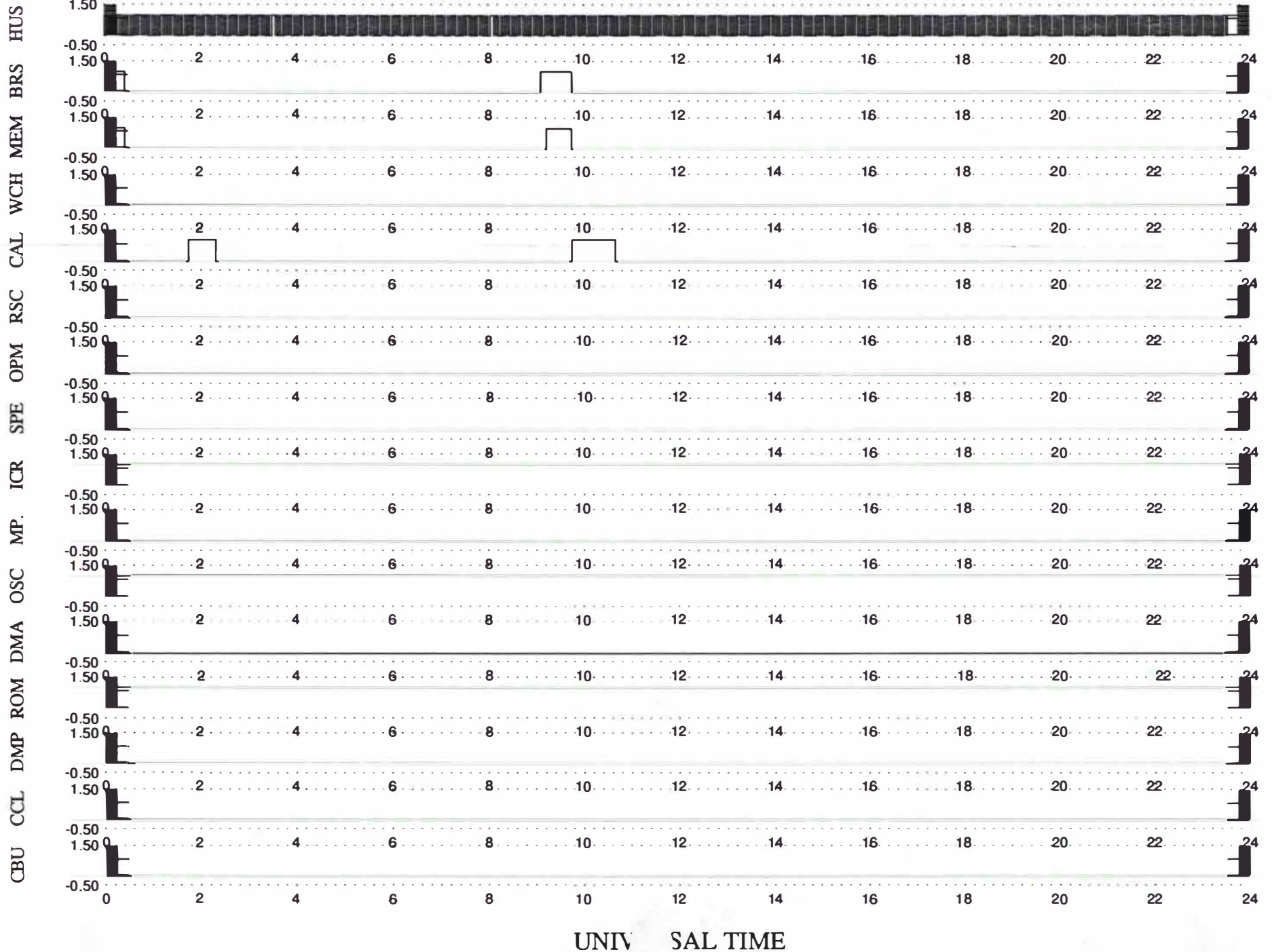


Current Time: 98/12/09, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

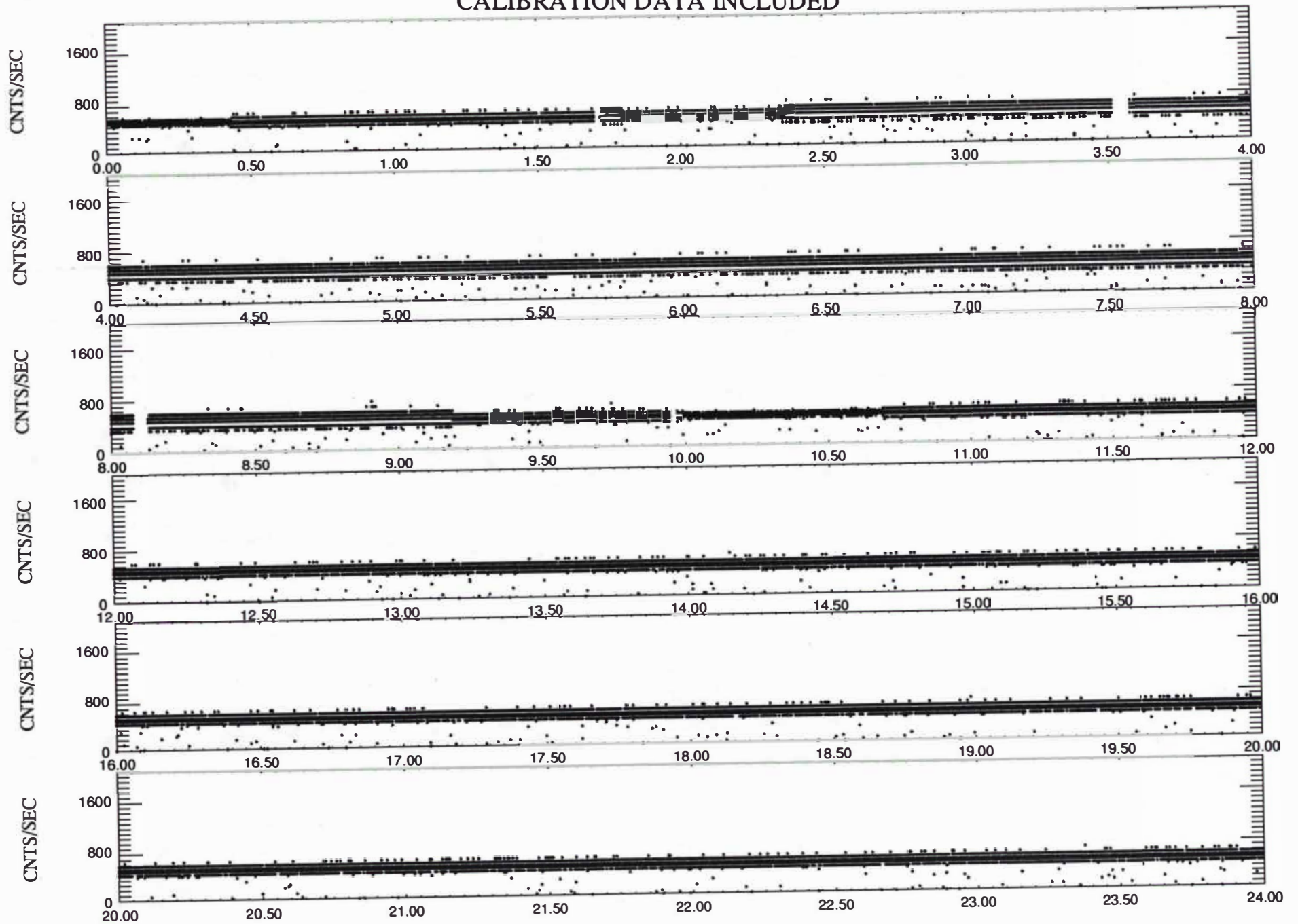
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

BURST NUMBER 3

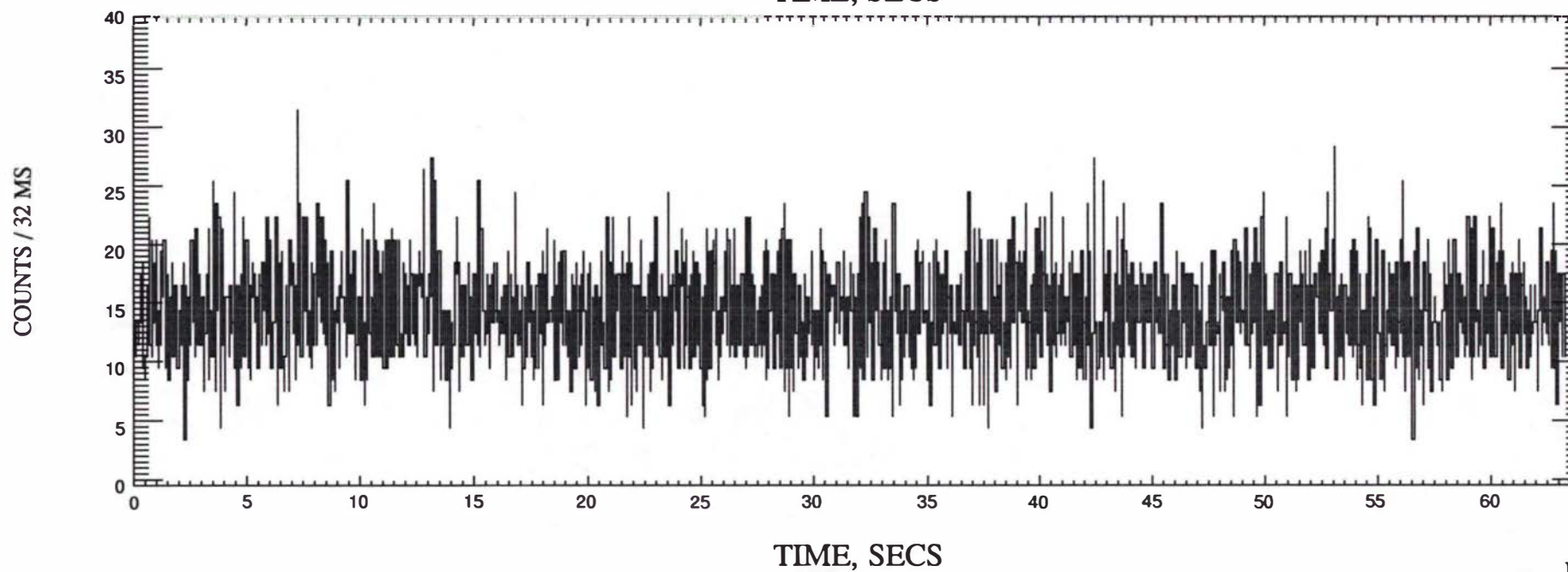
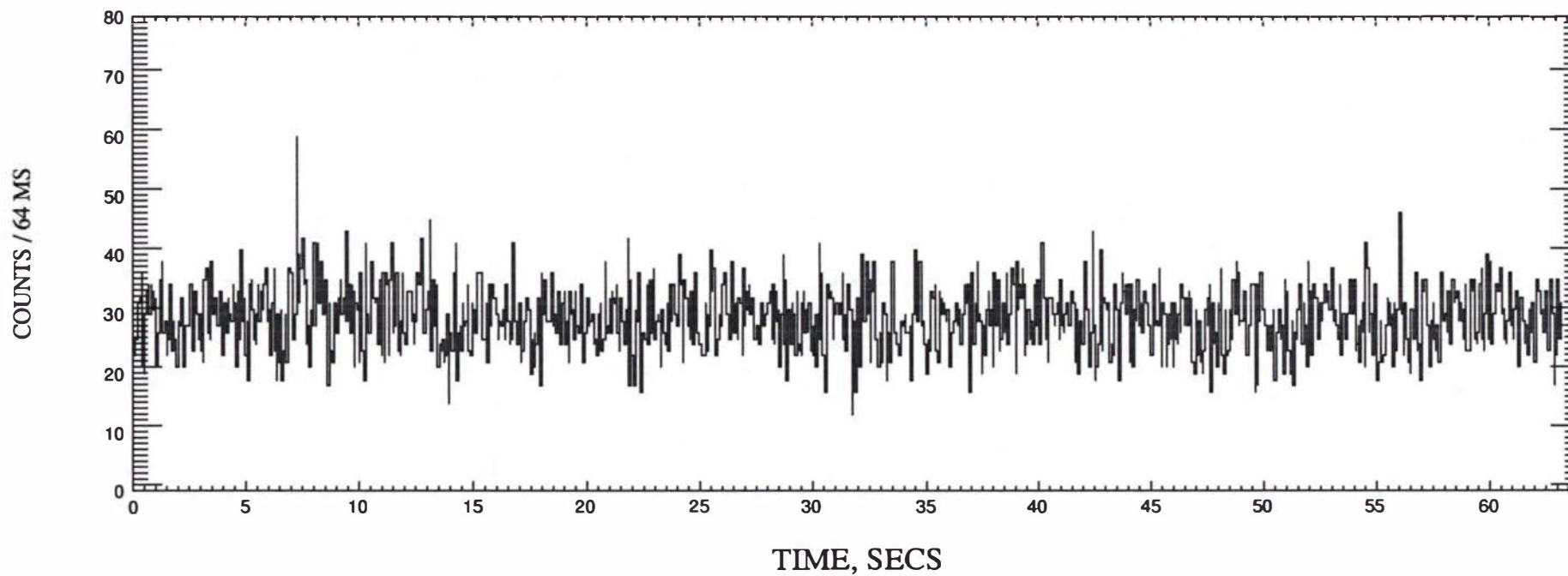


CALIBRATION DATA INCLUDED

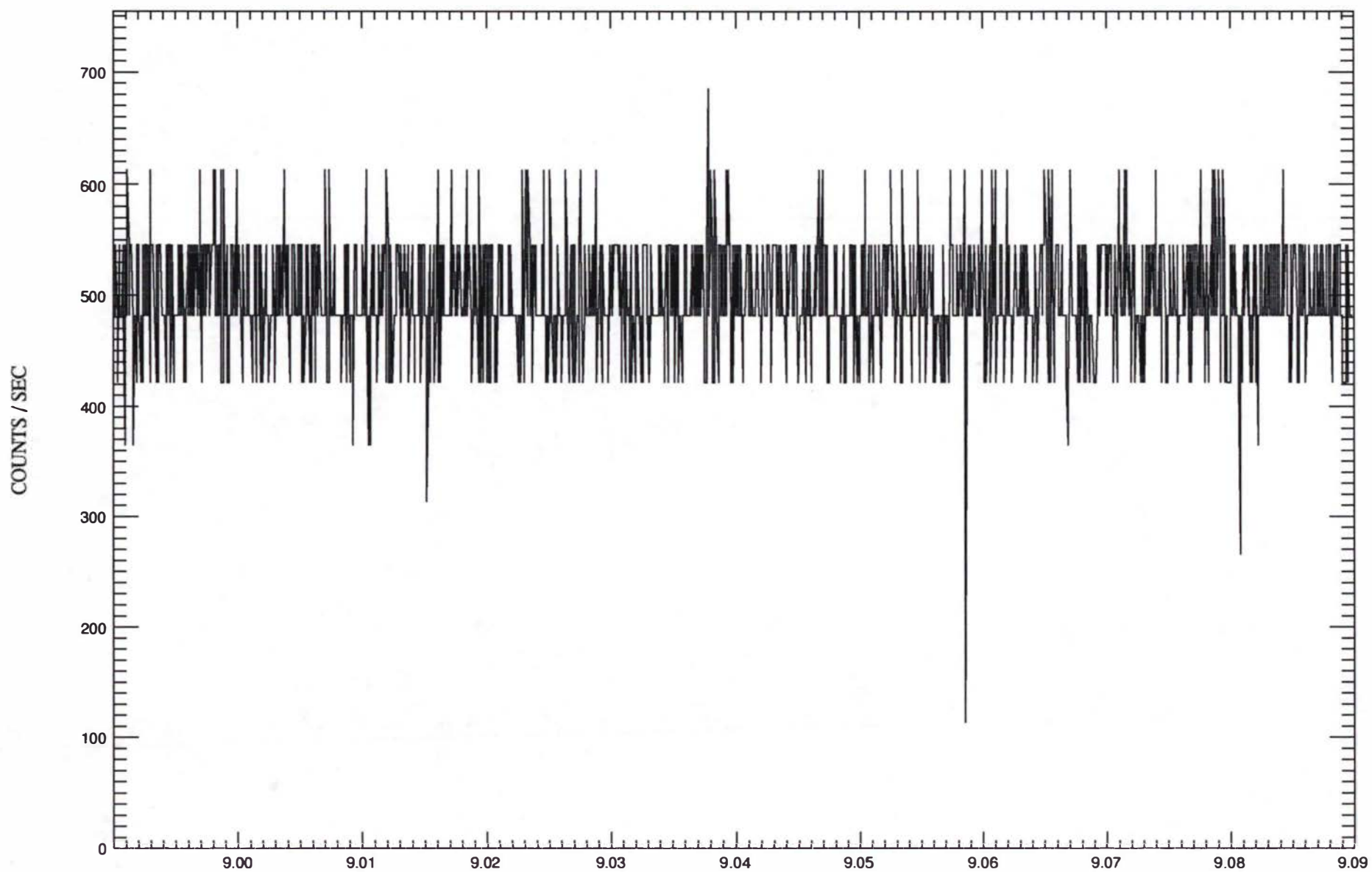


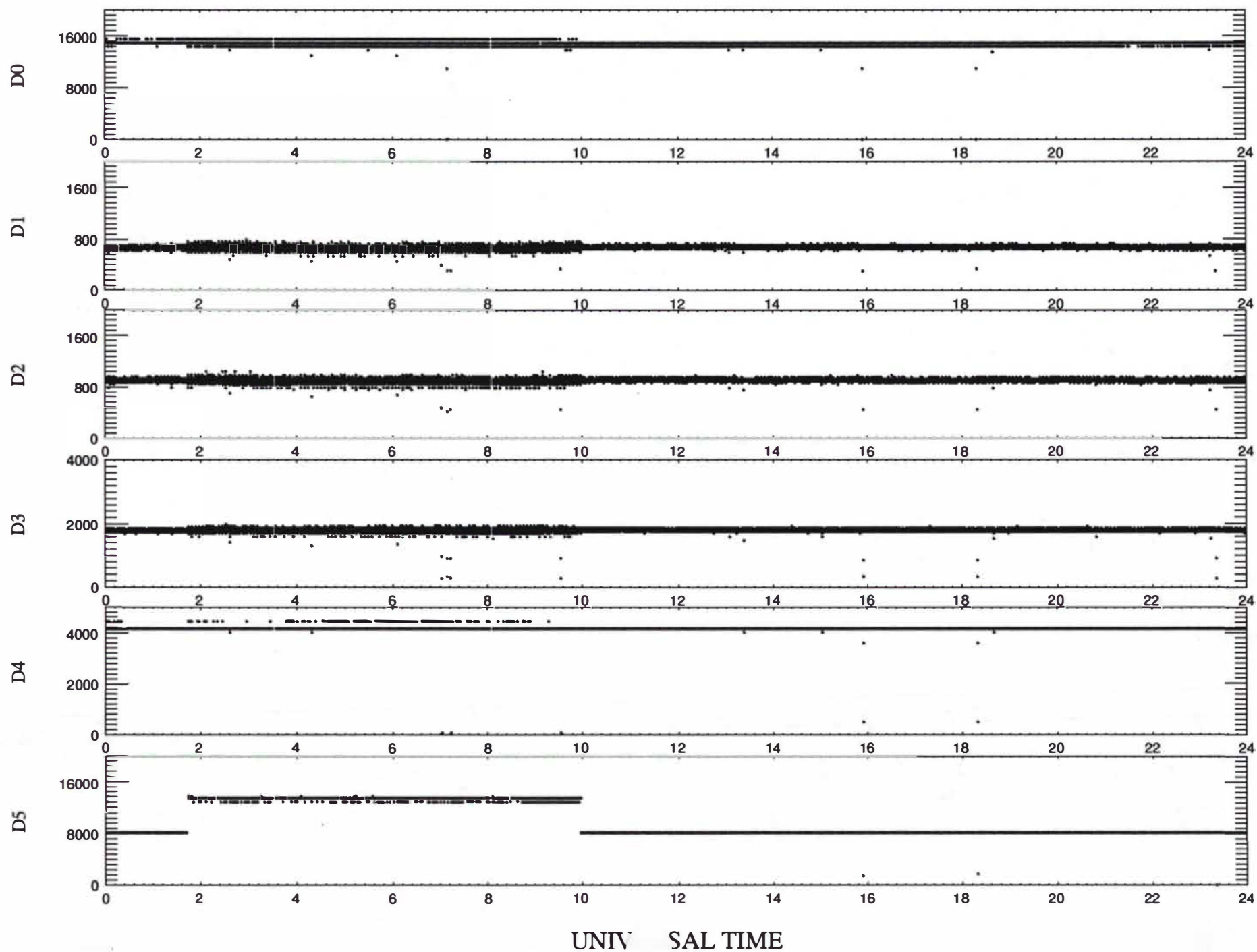
UNIV SAL TIME

Burst Counter 3 at UT= 9.037936507331 h=32536.571 s 09:02:16.571



CALIBRATION DATA INCLUDED





From khurley@sunspot Wed Dec 9 08:10 PST 1998
Date: Wed, 9 Dec 1998 08:08:31 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981201A,B, 981205, 981206

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 1 1998 00:06*	weak, 32 ms long	2650
DEC 1 1998 01:22*	weak, 32 ms long	2650
DEC 5 1998 09:02*	weak, 32 ms long	2650
DEC 6 1998 07:39*	weak, 32 ms long	2650

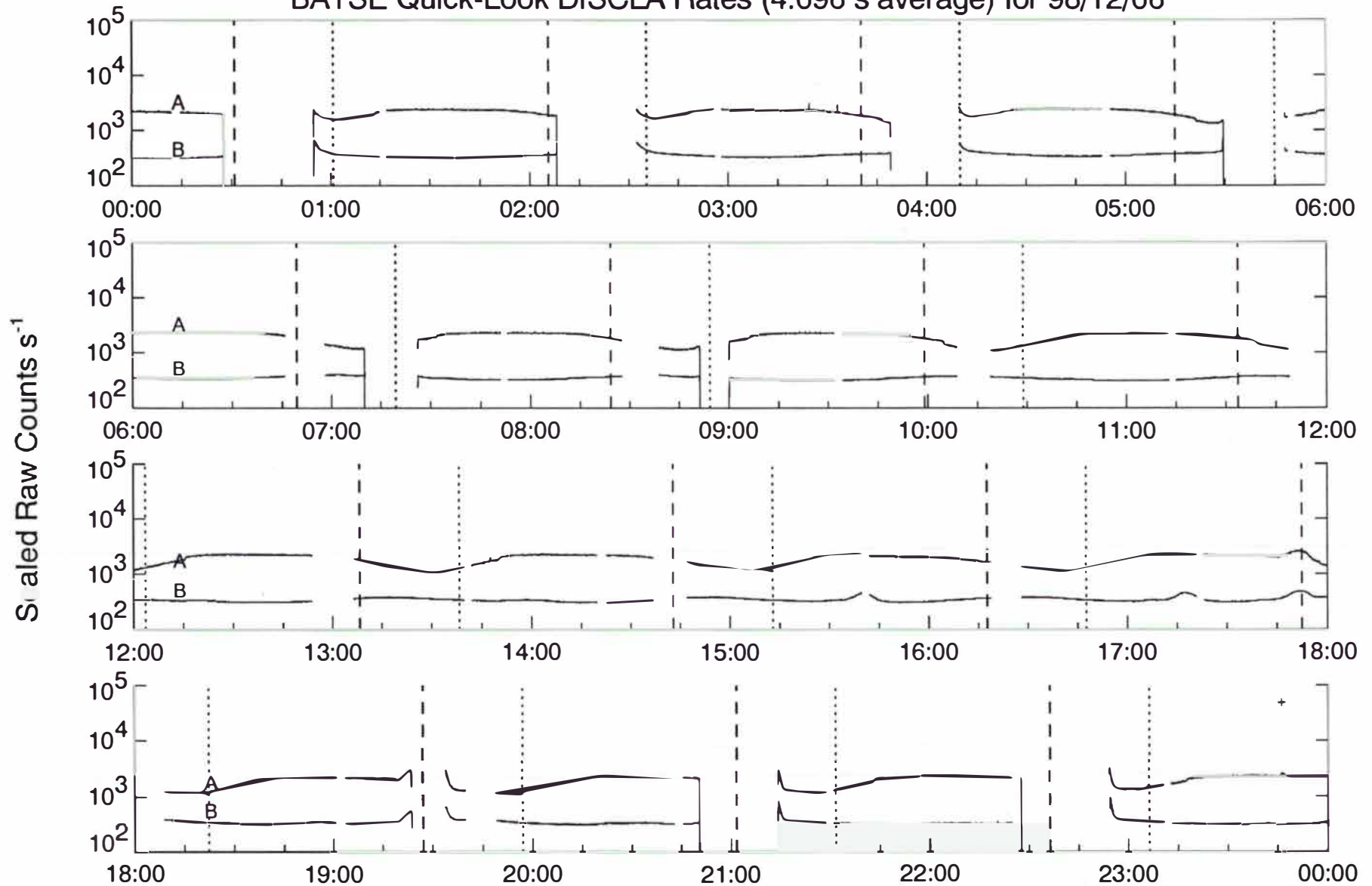
*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1335 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczynski, marar, tee

TGRS: NO

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/06

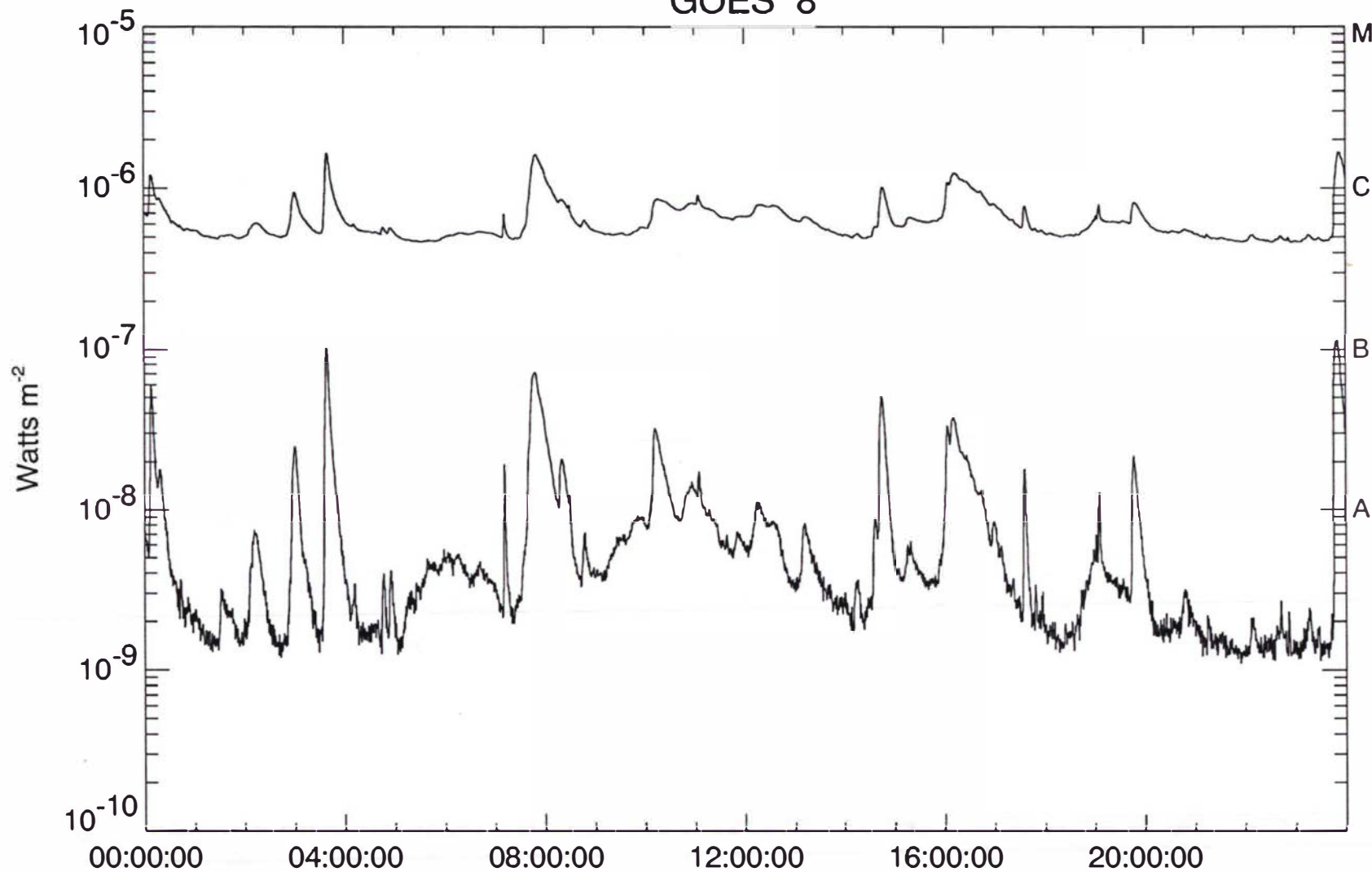


Current Time: 98/12/10, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 98/12/06, 0000:00

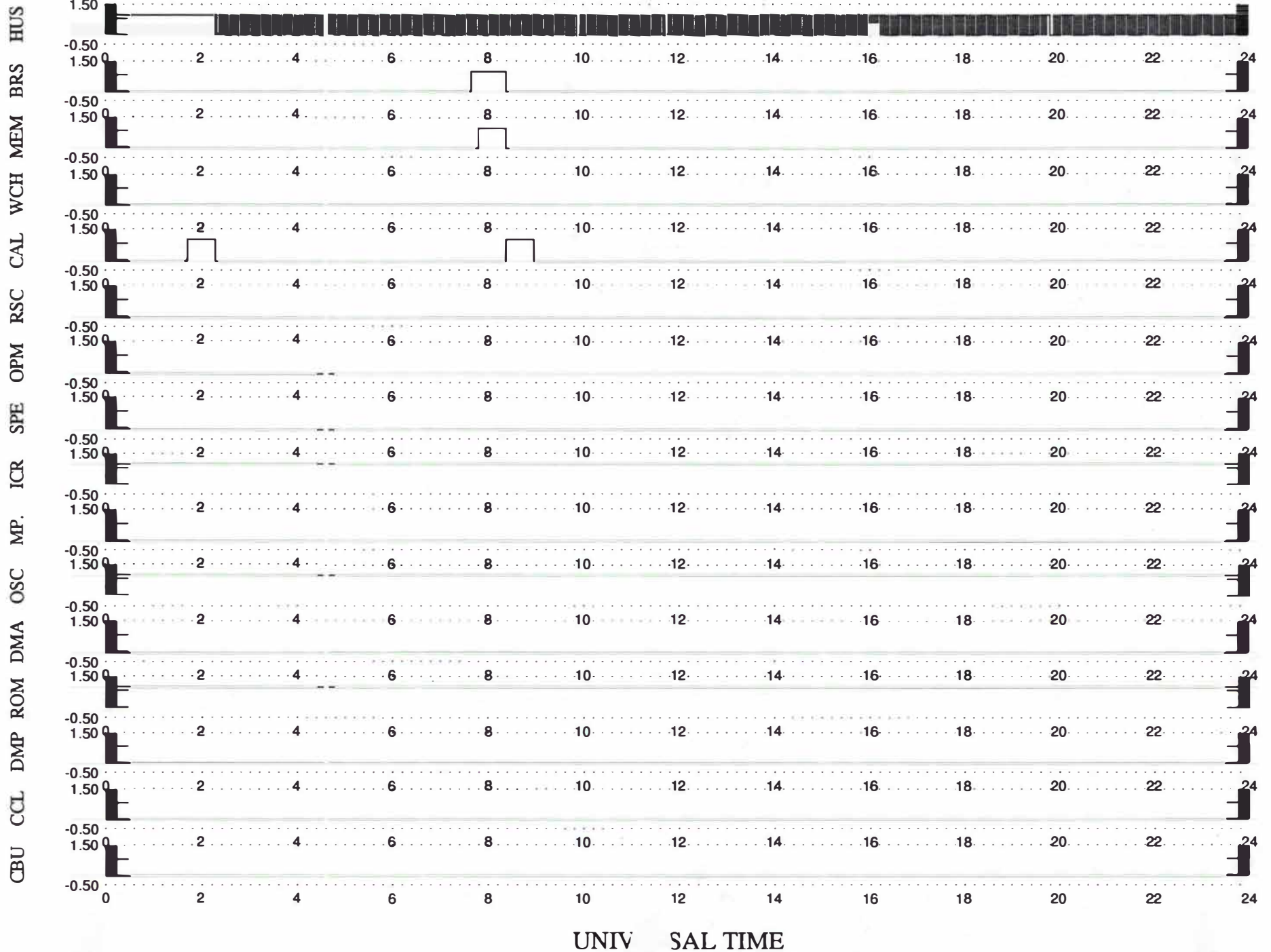
Plot created: 98/12/10, 1010

Channel

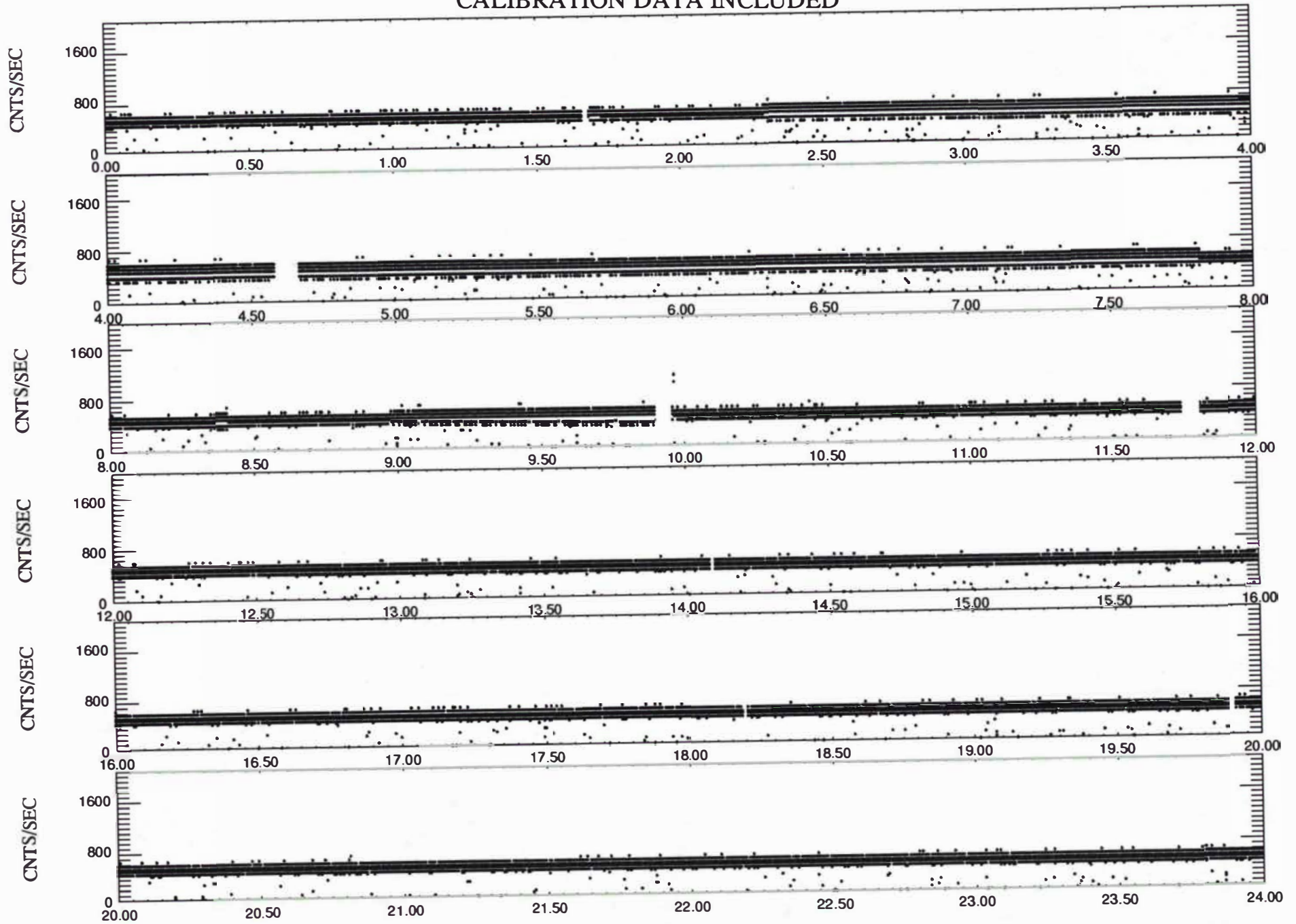
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

BURST NUMBER 4

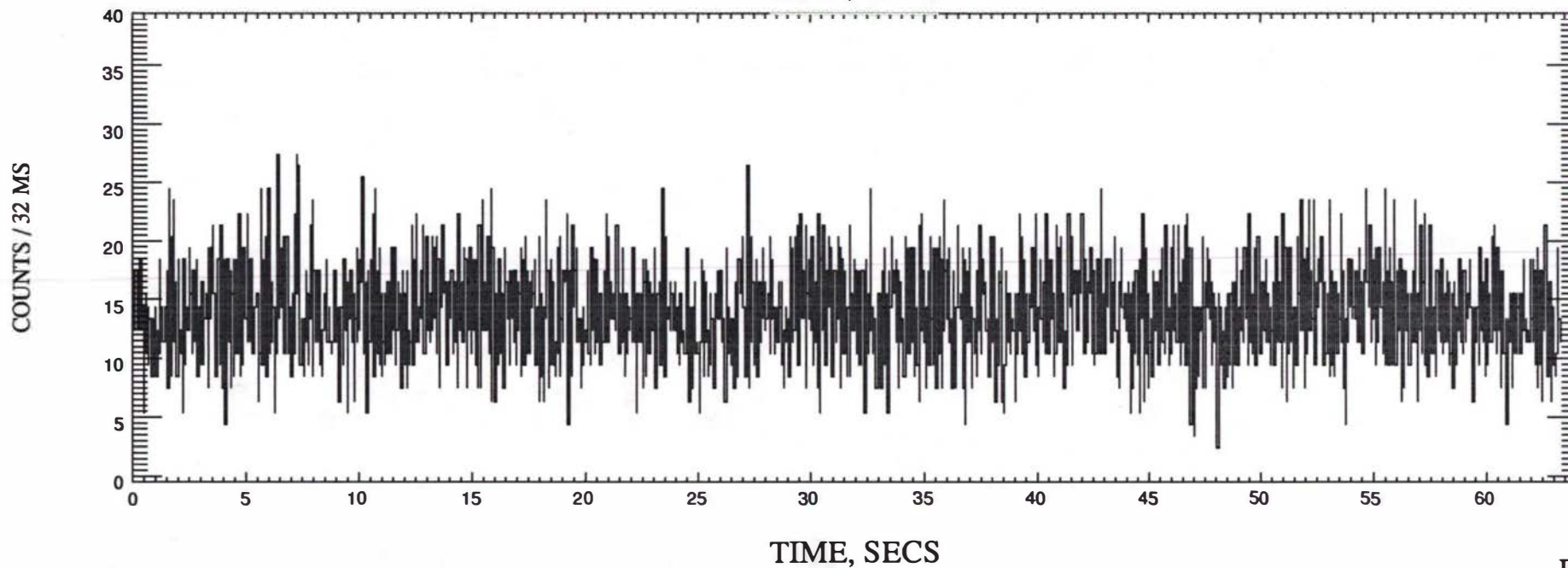
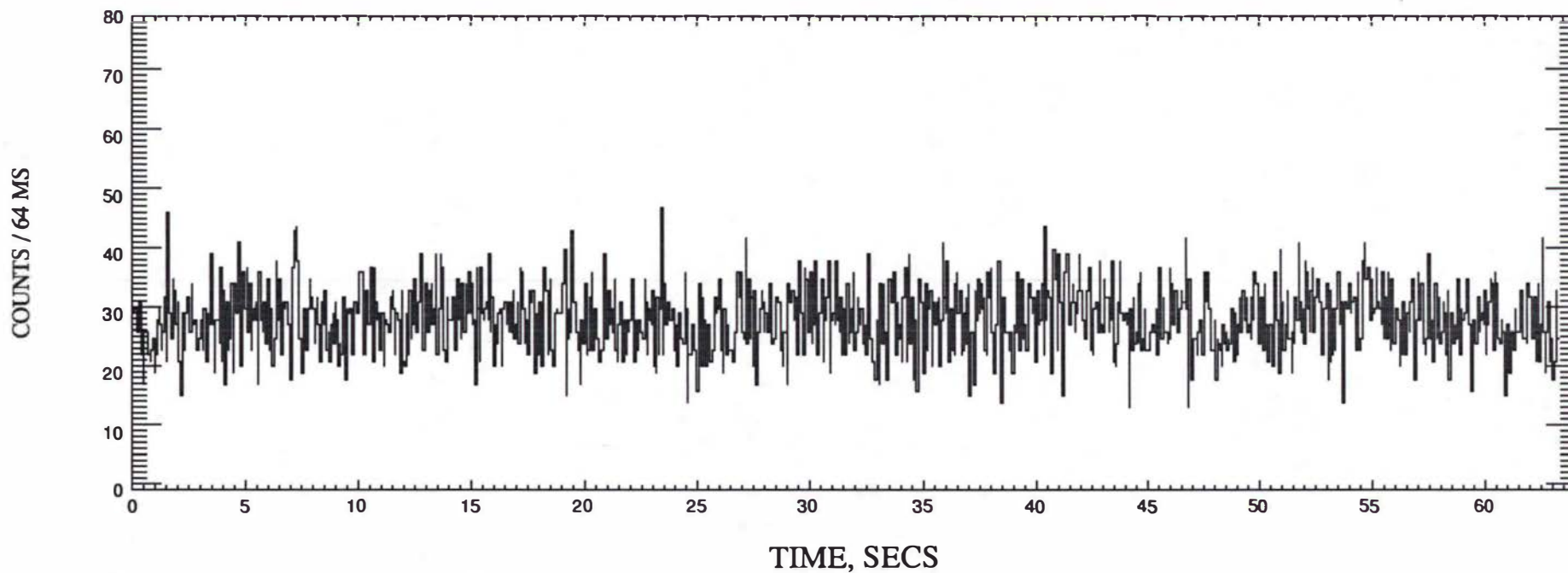


CALIBRATION DATA INCLUDED

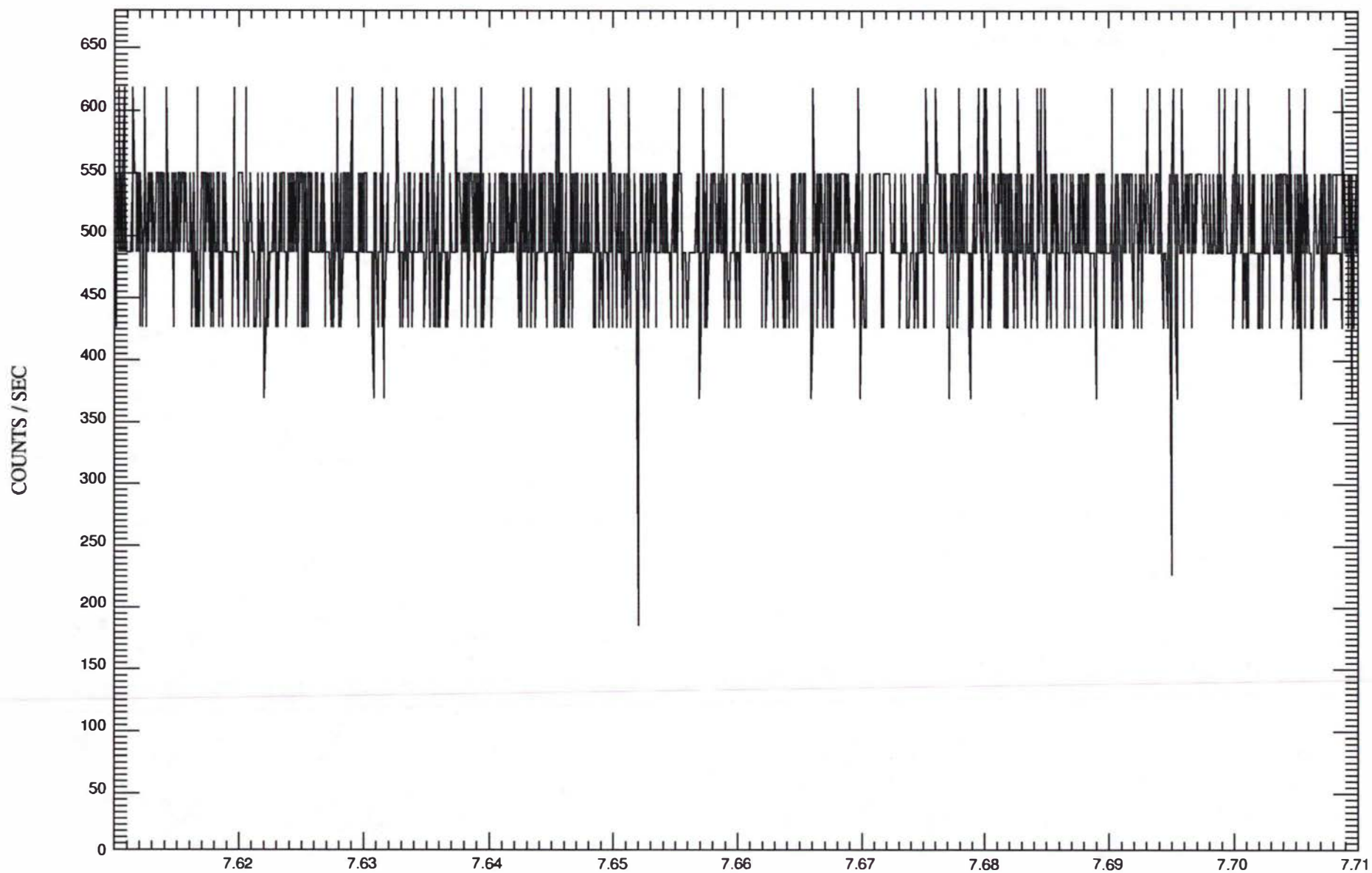


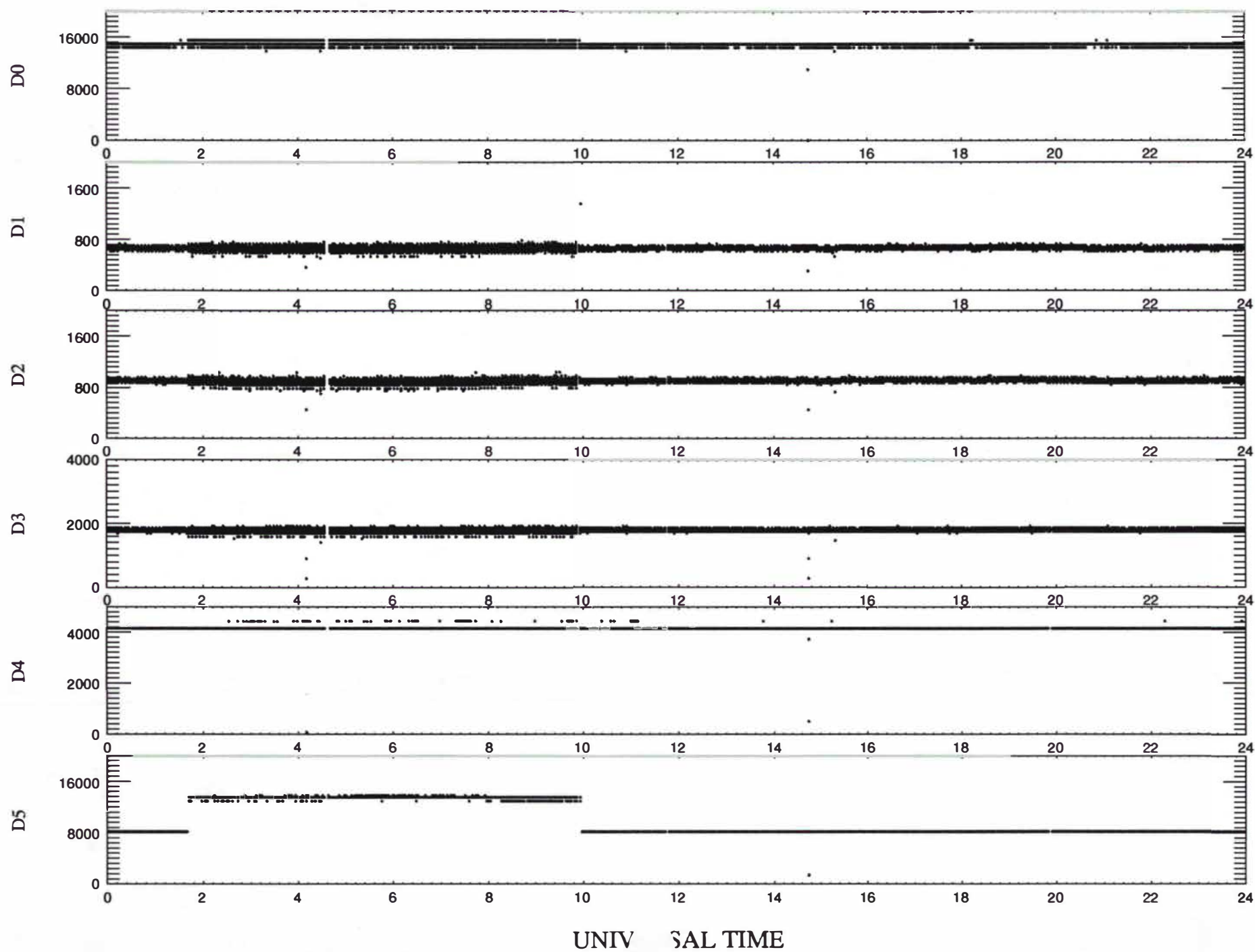
UNIV SAL TIME

Burst Counter 4 at UT= 7.658967759874 h=27572.284 s 07:39:32.284



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Tue Dec 8 11:23:11 1998
Date: Tue, 8 Dec 1998 13:21:21 -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@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7251

TIME: TJD=1154 SECONDS=79508

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

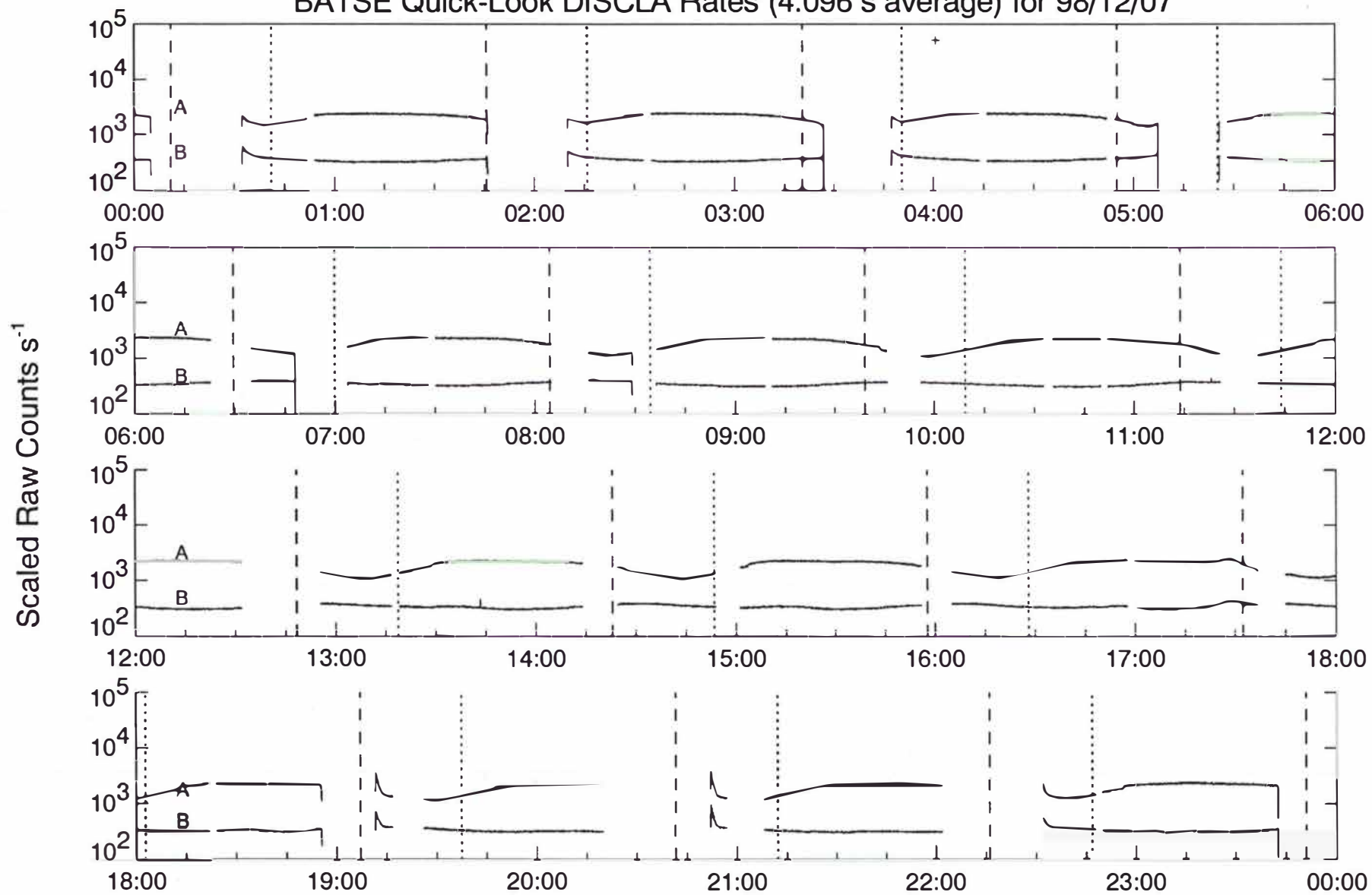
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/07

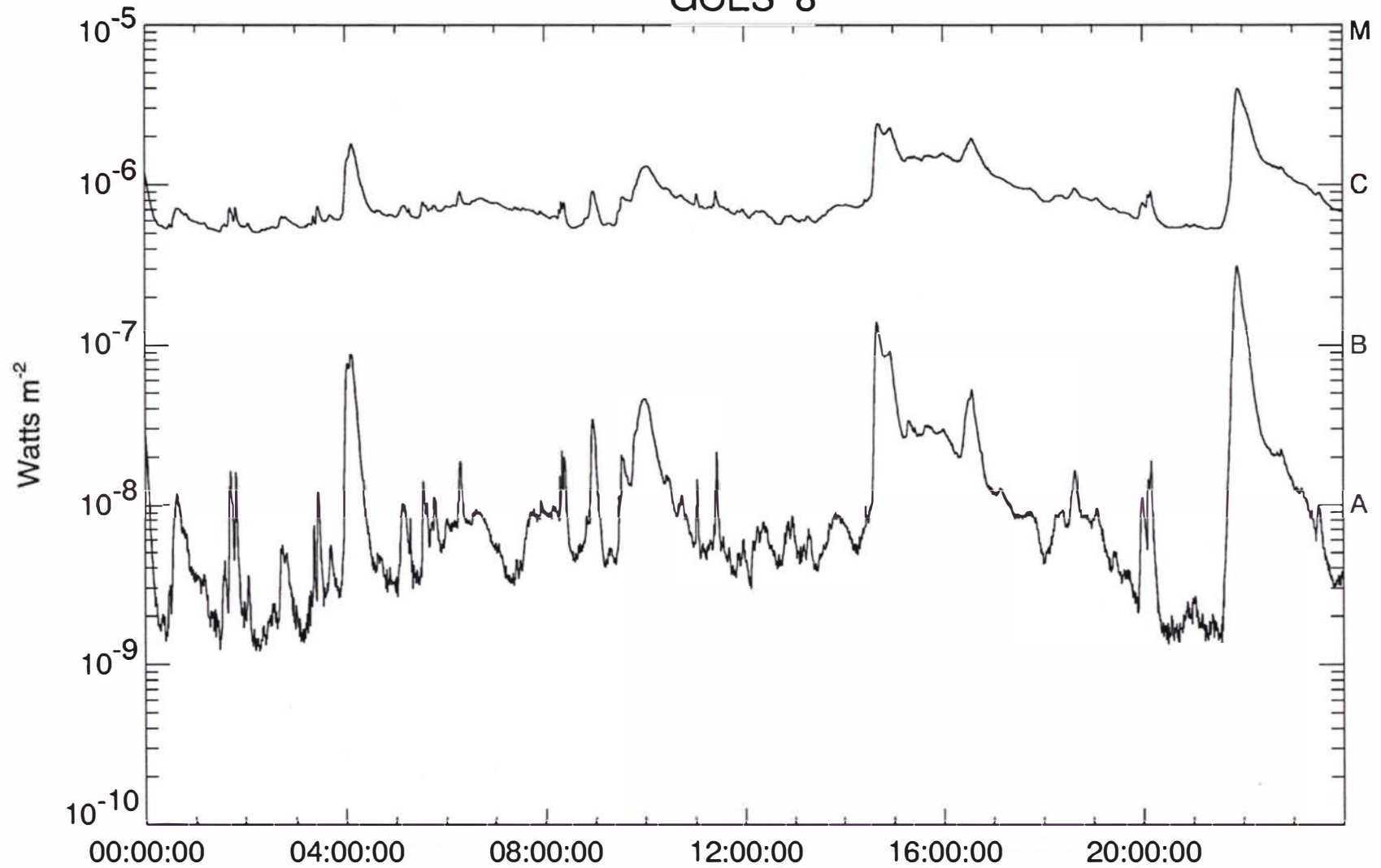


Current Time: 98/12/11, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/07, 0000:00

Plot created: 98/12/11, 1010

Channel

1 (1.0 - 8.0 Angstroms)

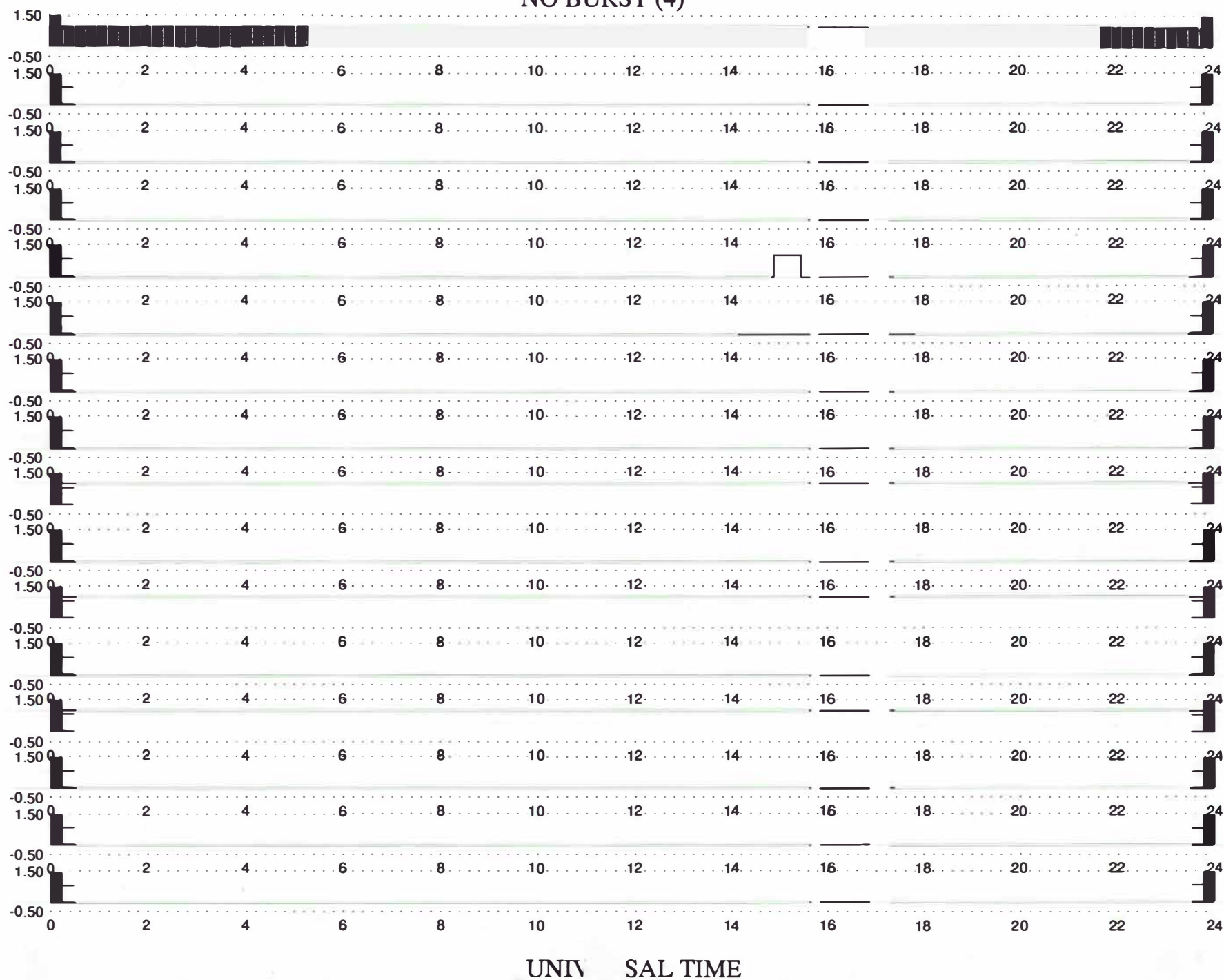
Background not subtracted

2 (0.5 - 4.0 Angstroms)

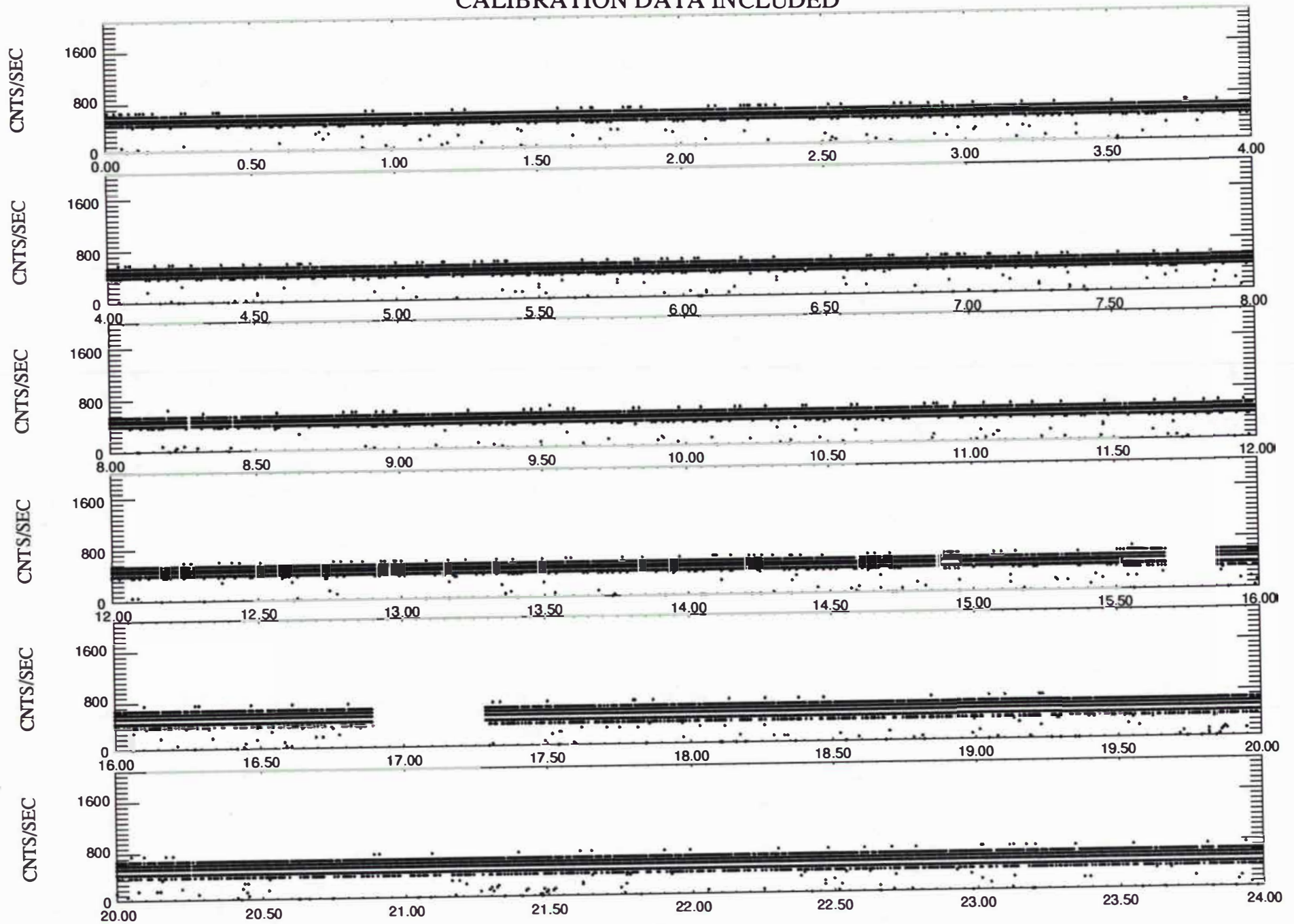
Background not subtracted

Sample average = 10

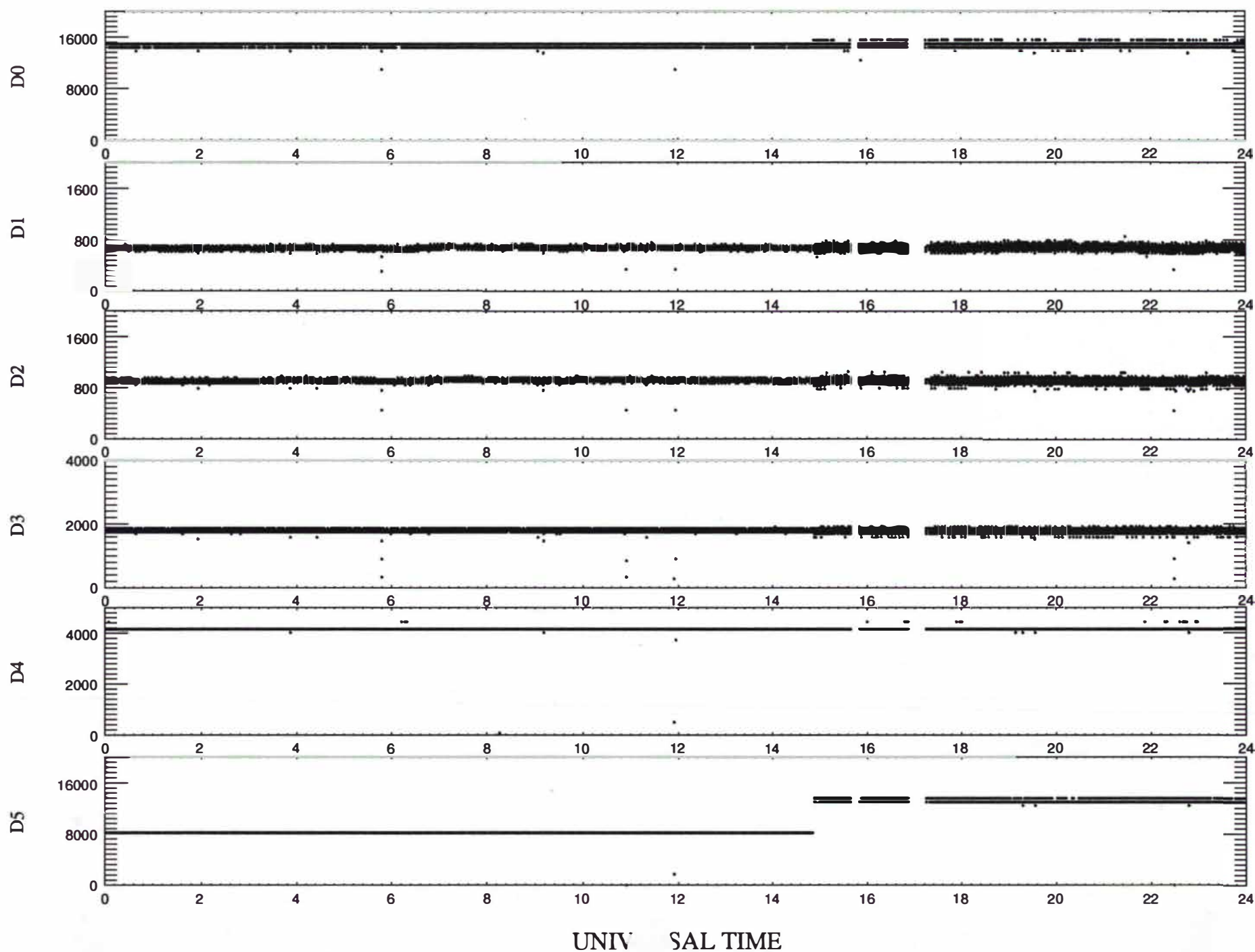
CBU	CCL	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



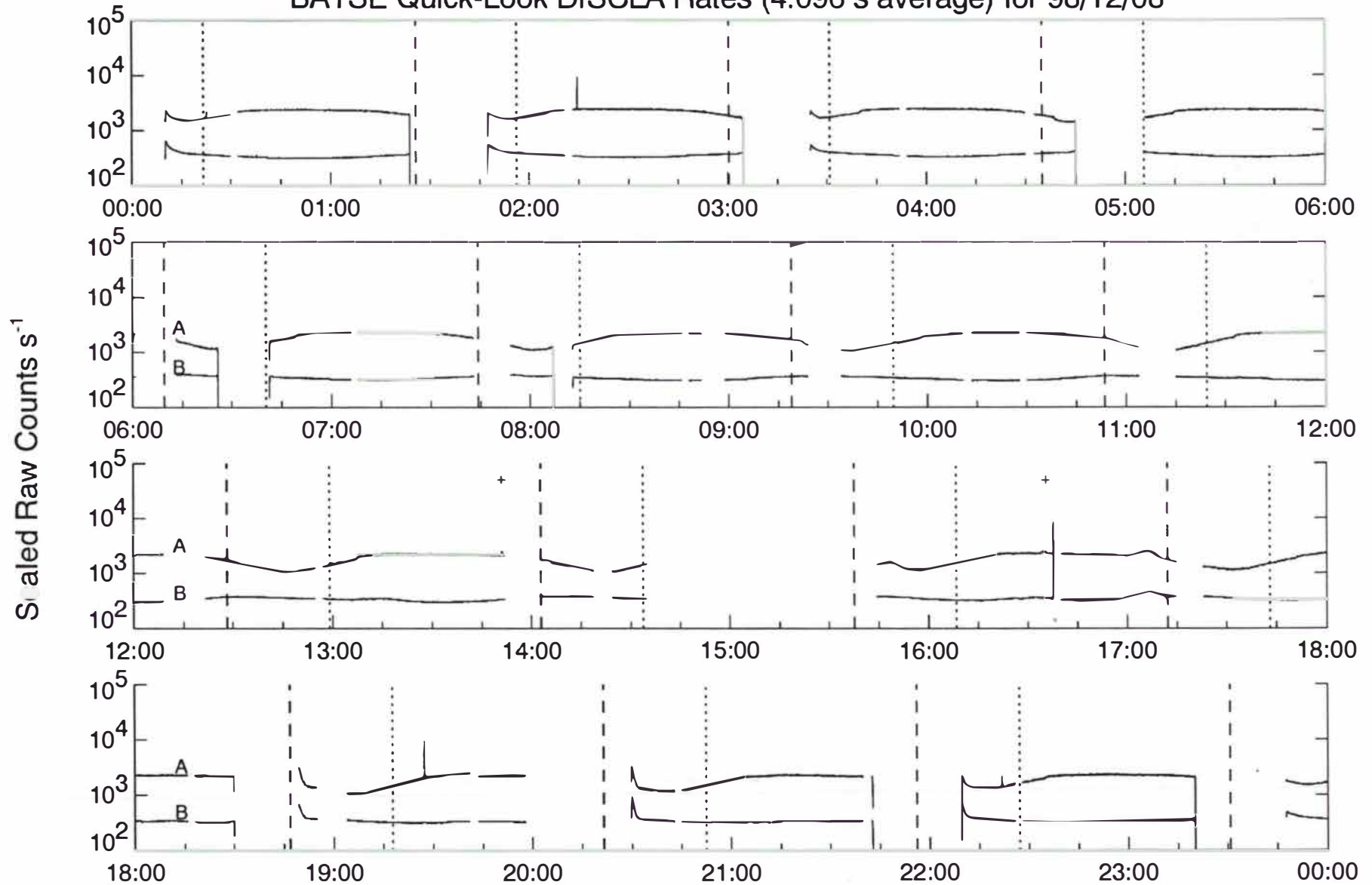
CALIBRATION DATA INCLUDED



UNIV SAL TIME



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/08

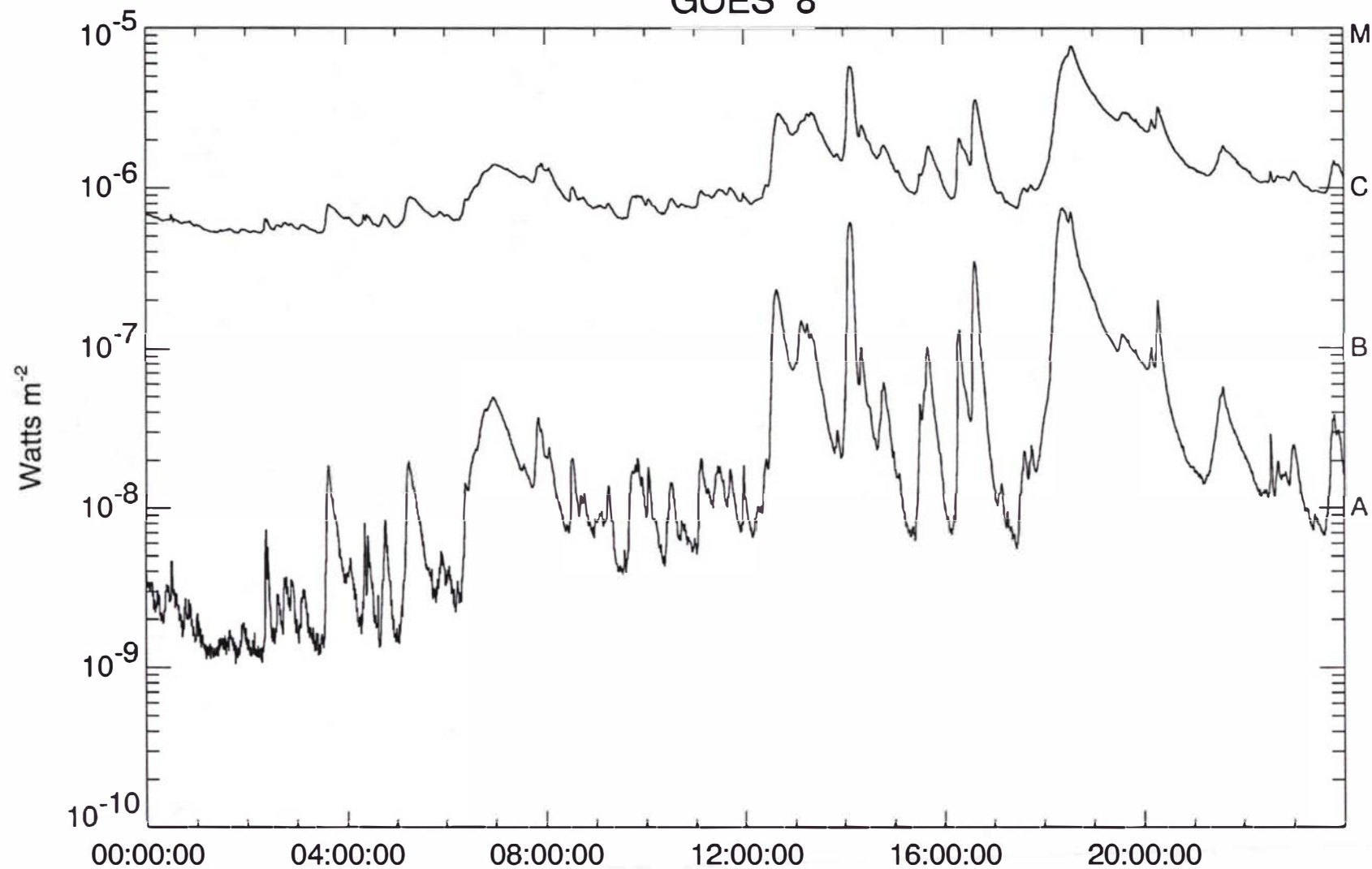


Current Time: 98/12/12, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 98/12/08, 0000:00

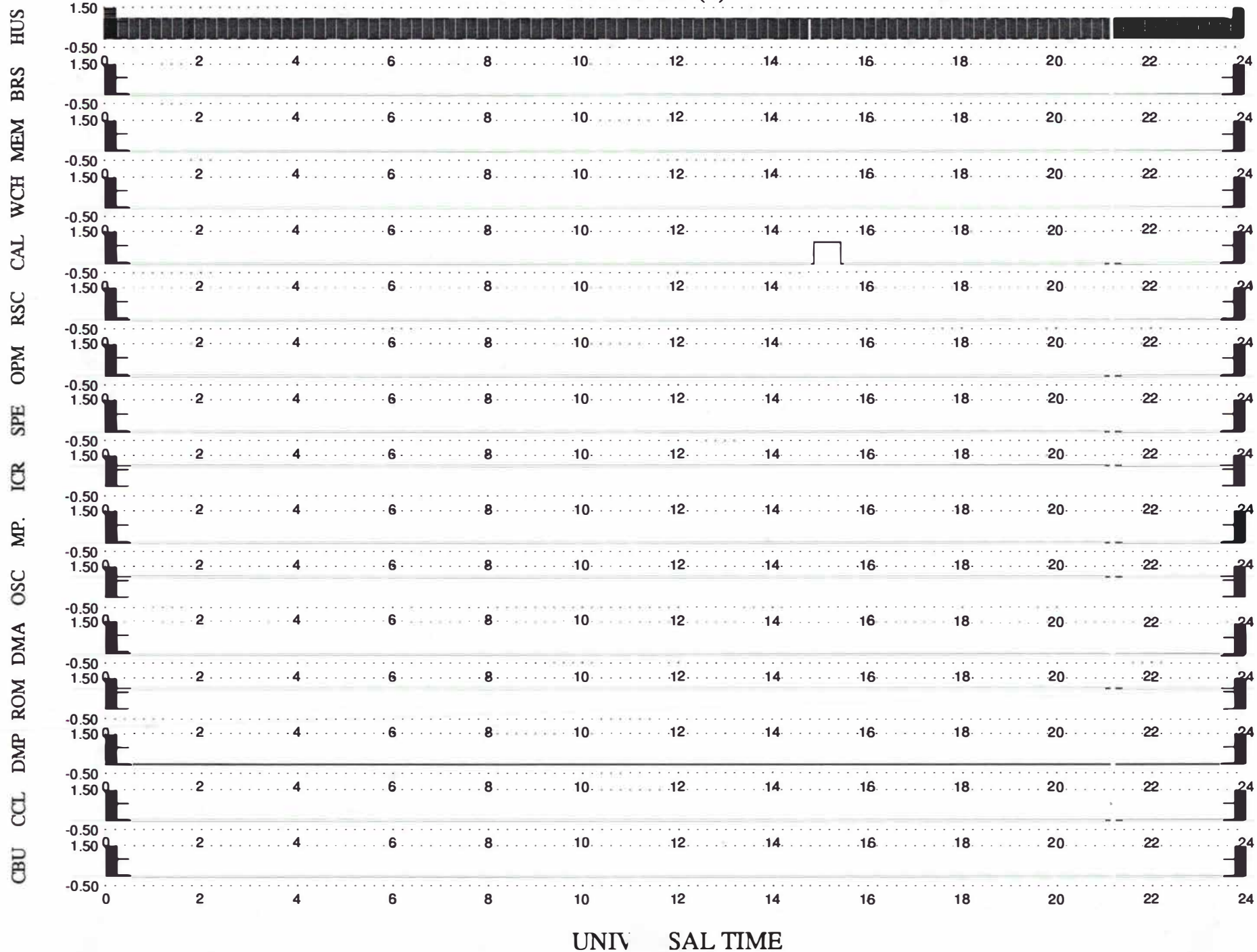
Plot created: 98/12/12, 1010

Channel

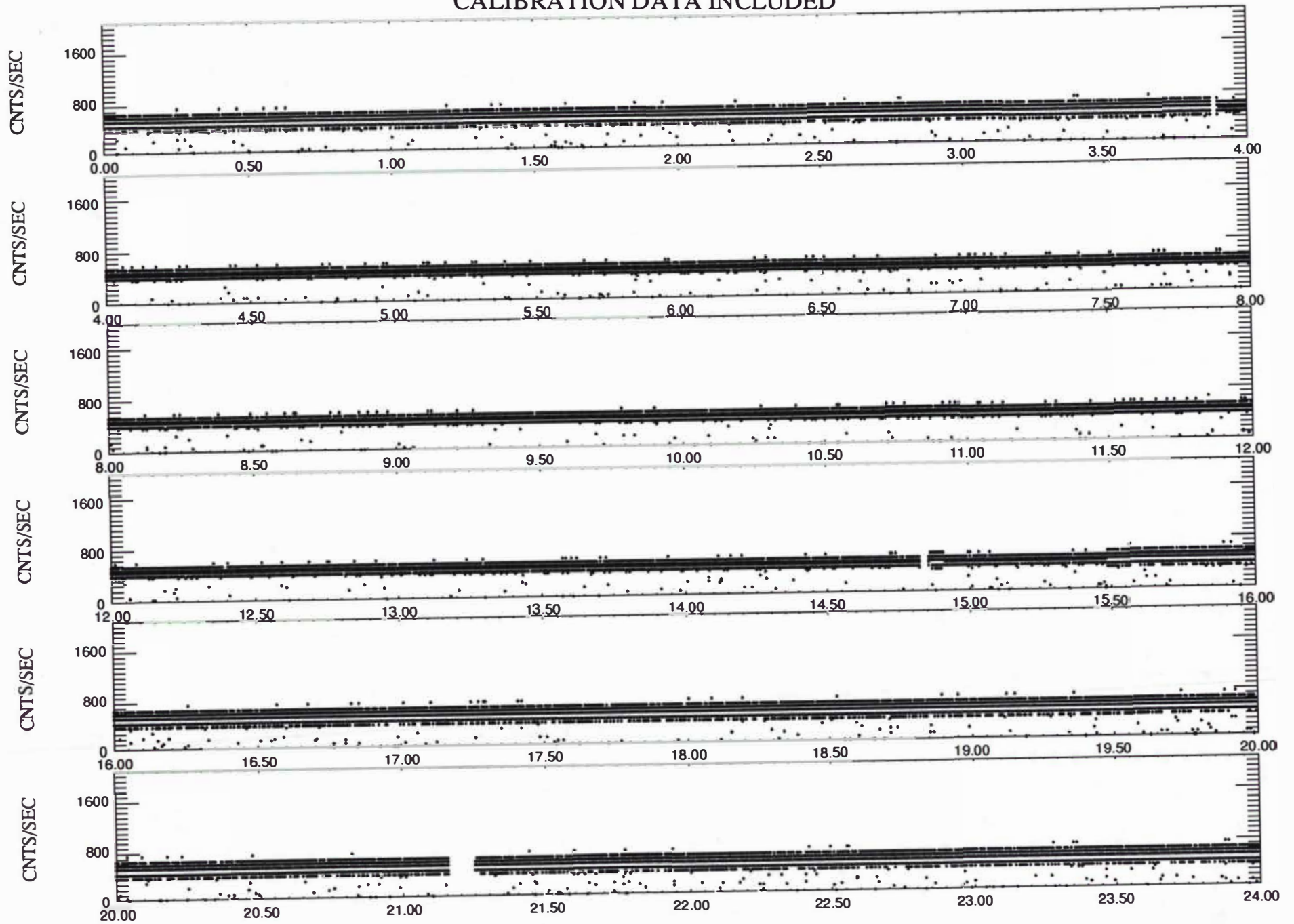
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

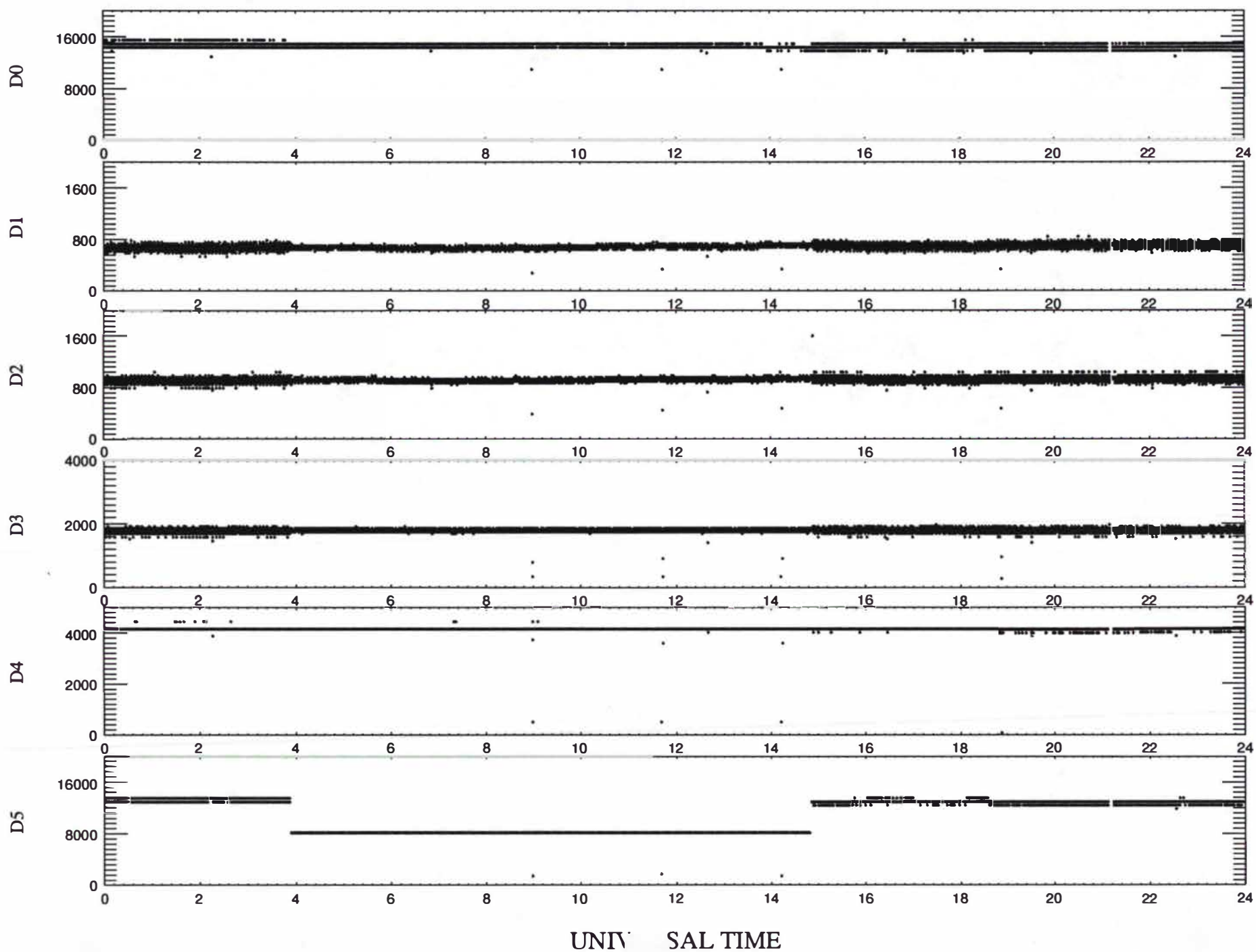
NO BURST (4)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From khurley@sunspot Sat Dec 12 08:44 PST 1998
Date: Sat, 12 Dec 1998 08:49:41 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981209

ULYSSES GAMMA-RAY BURST NOT REPORTED BY BATSE:

December 9 1998 07:34 Ulysses time; weak, 32 ms long

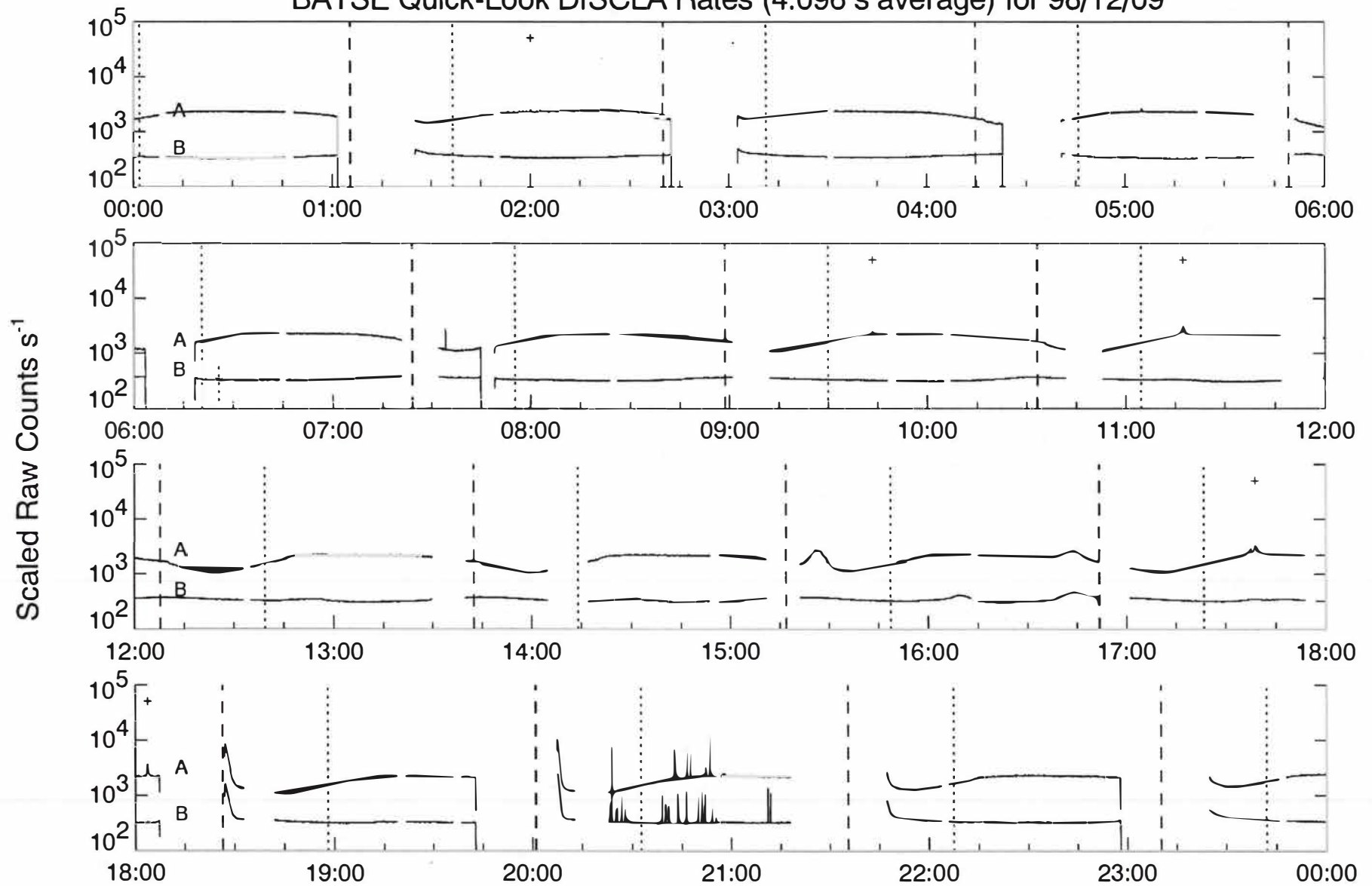
The spacecraft was about 2600 light-seconds from Earth. This event may have come from SGR1900+14; if so, the Earth-crossing time would have been ~1310 s earlier.

Was this event detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, henze, kouveliotou, kurczynski, mar

TGRS: NO

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/09

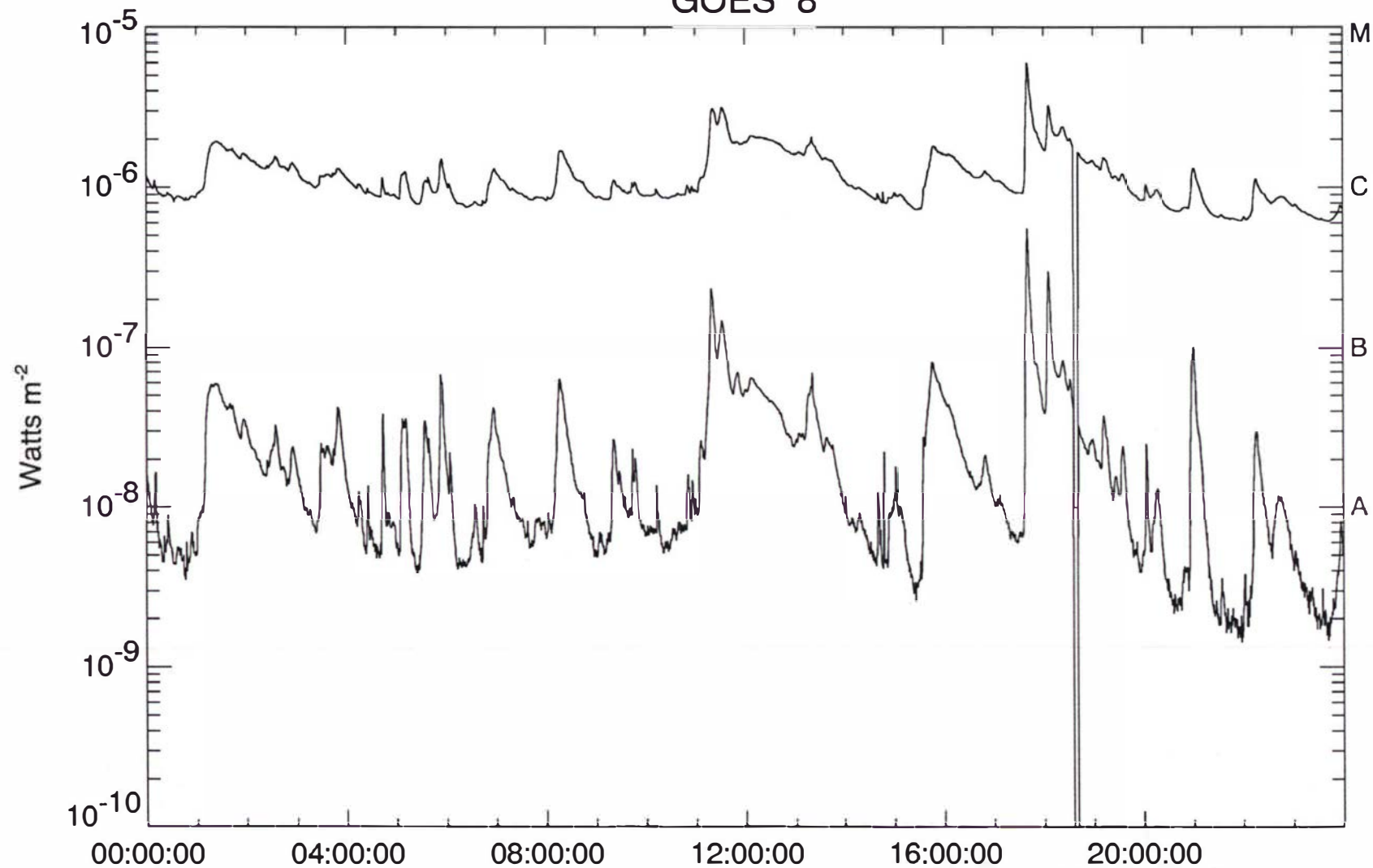


Current Time: 98/12/13, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/09, 0000:00

Plot created: 98/12/13, 1010

Channel

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

Background not subtracted
Background not subtracted
Sample average = 10

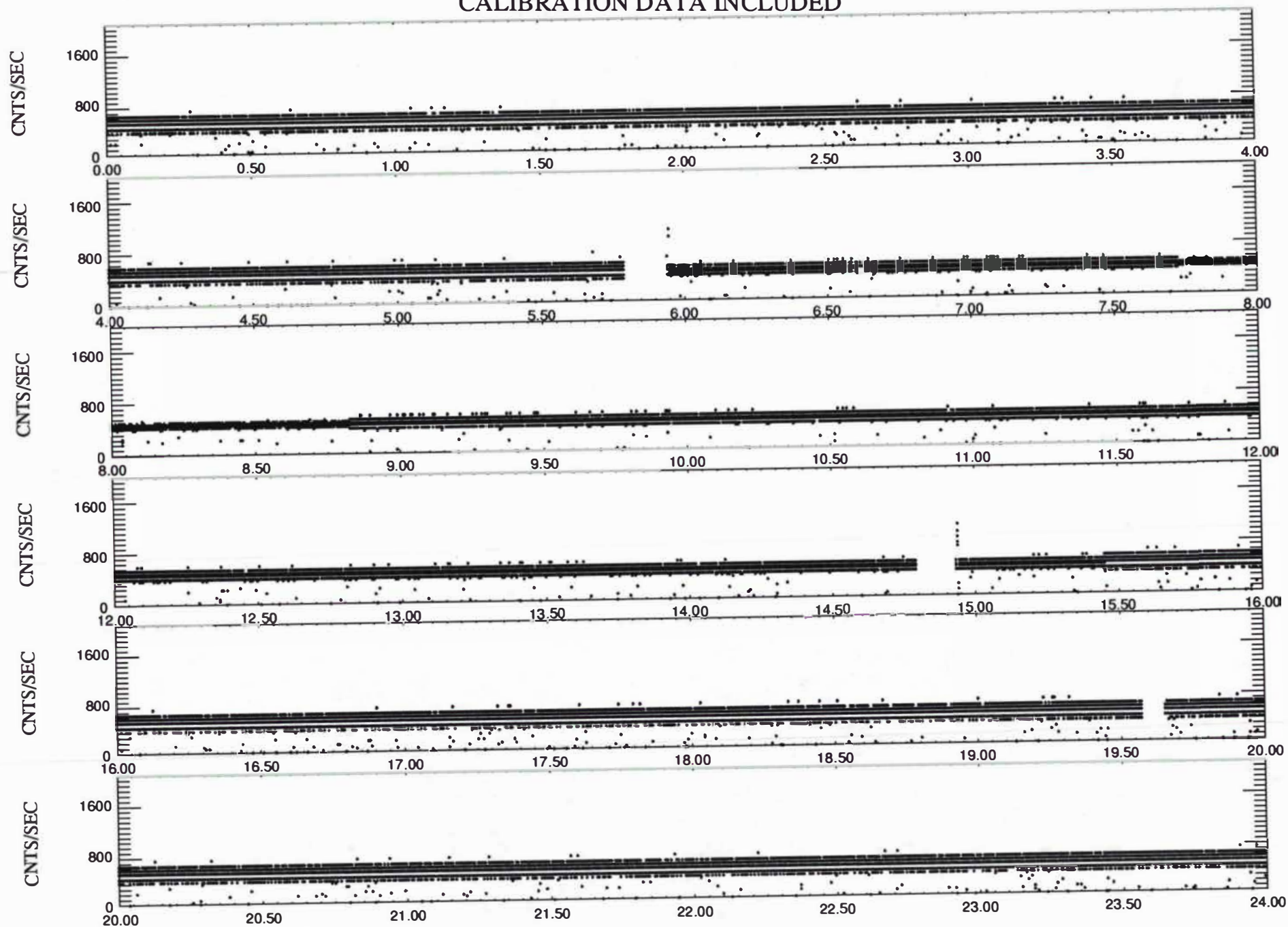
BURST NUMBER 5

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



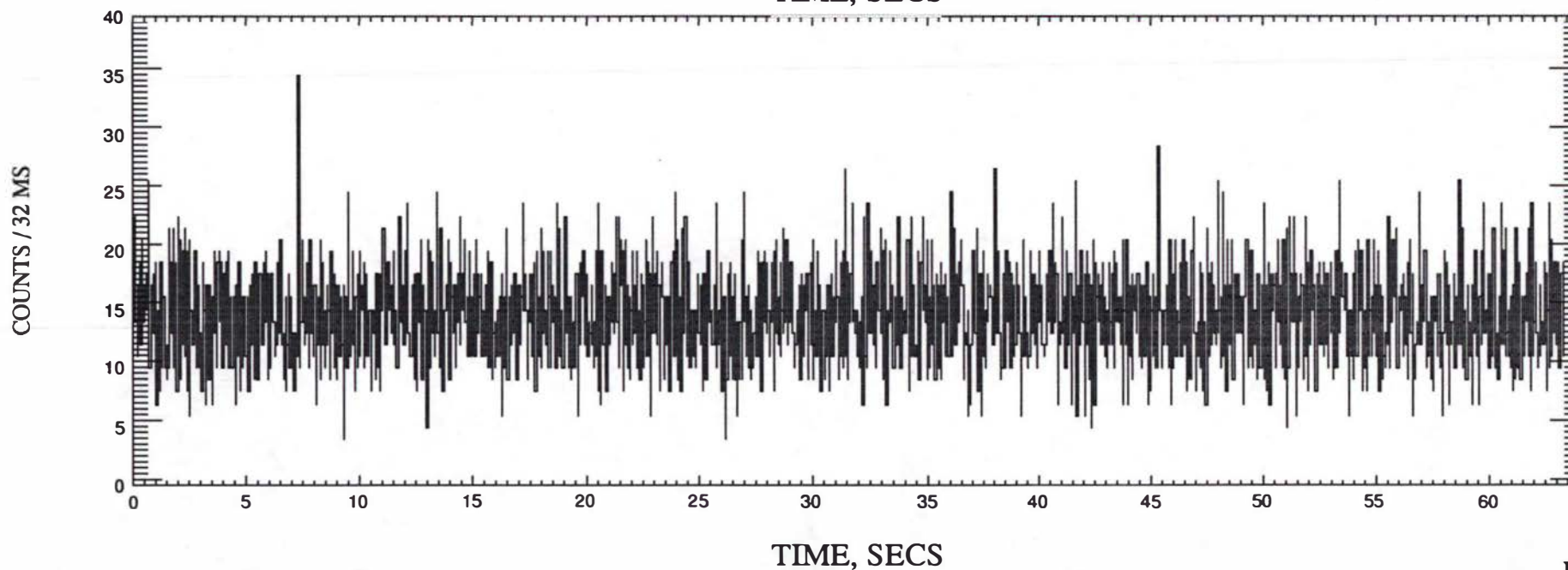
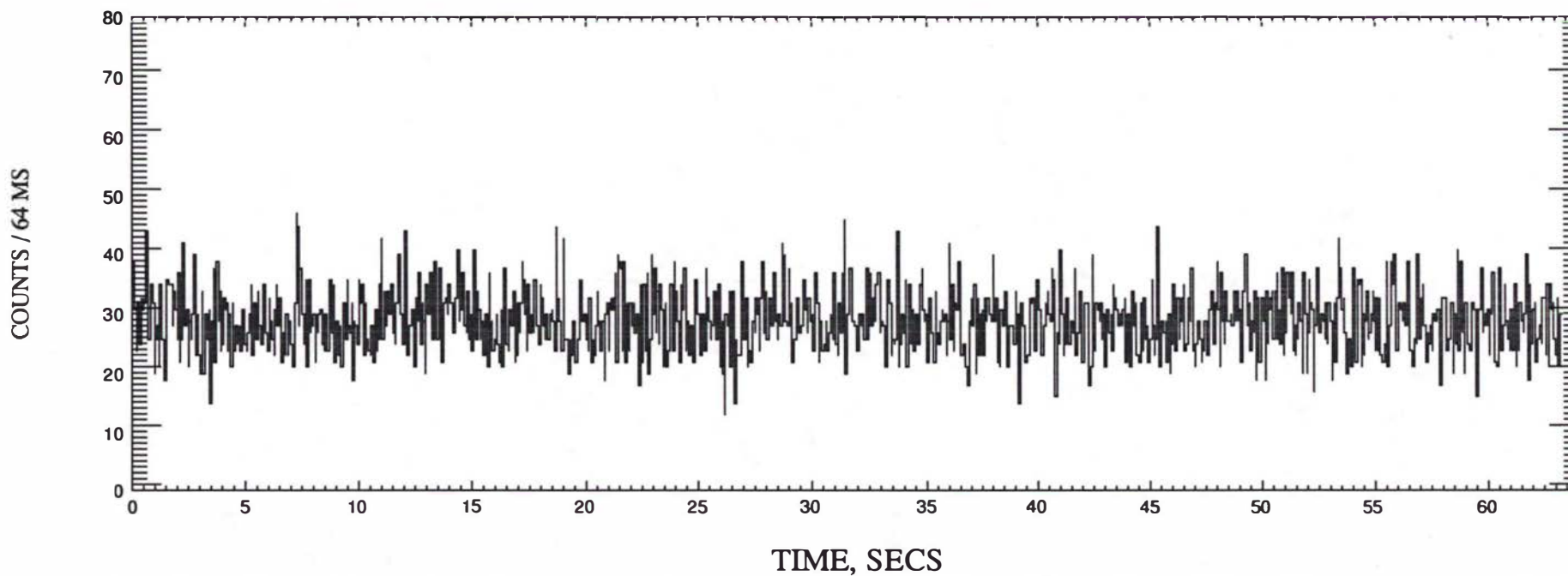
UNIV SAL TIME

CALIBRATION DATA INCLUDED

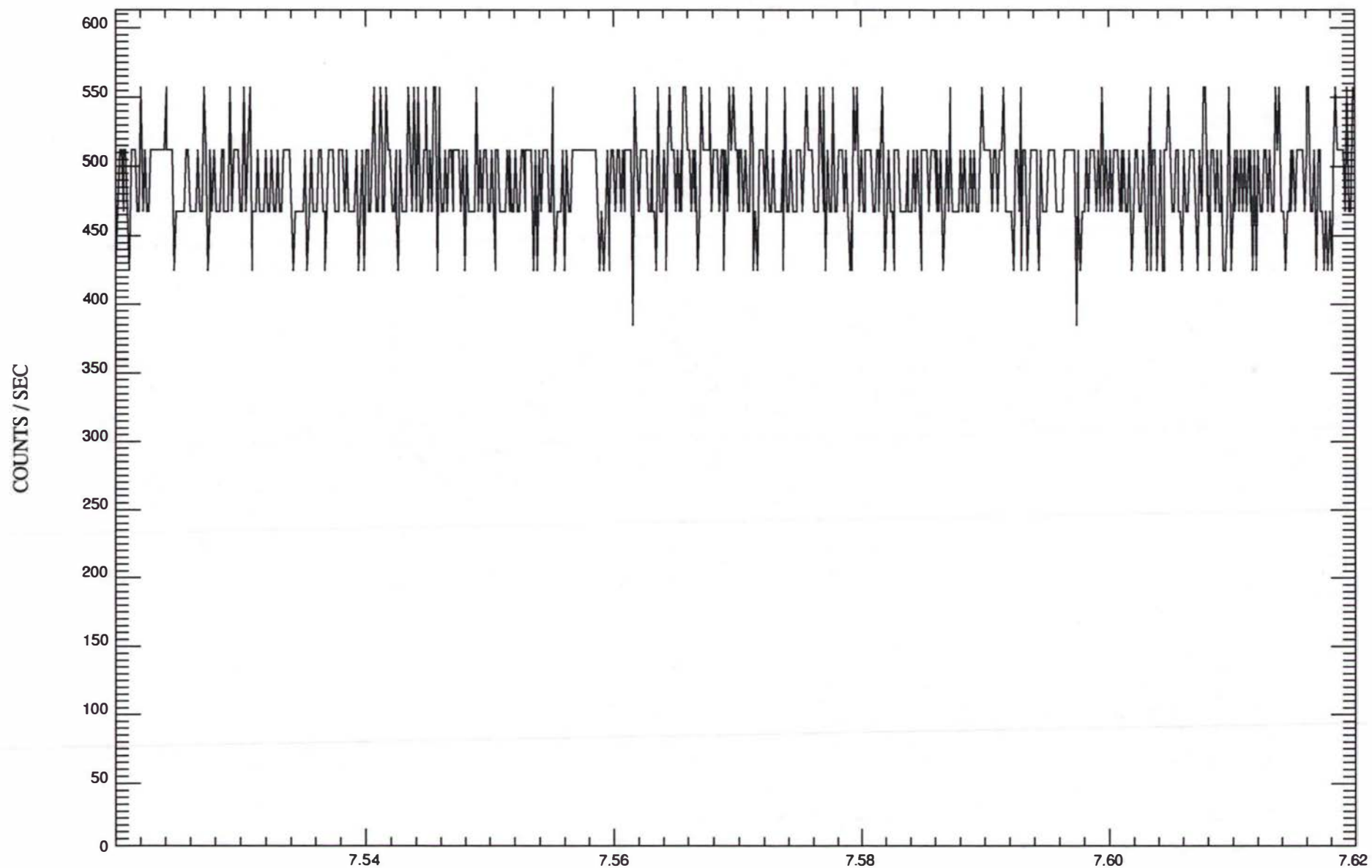


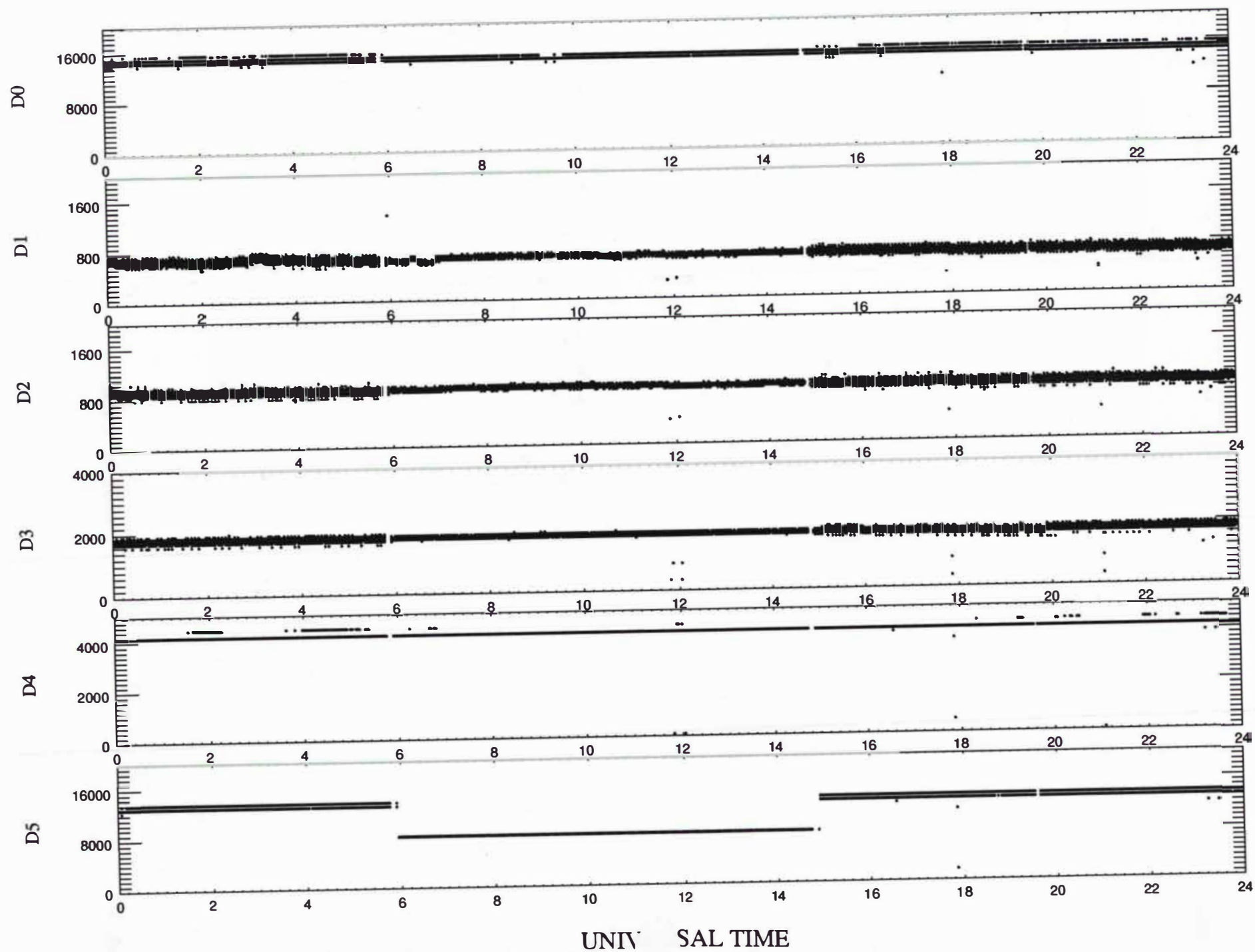
UNIV SAL TIME

Burst Counter 5 at UT= 7.573900655111 h=27266.042 s 07:34:26.042



CALIBRATION DATA INCLUDED





7252 981210 11157 48950 6000 357 -19 .15

From SURASAK@fender.msfc.nasa.gov Sun Dec 13 09:36 PST 1998

Return-Path: <SURASAK@fender.msfc.nasa.gov>

Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR
id JAA18714; Sun, 13 Dec 1998 09:36:46 -0800

From: SURASAK@fender.msfc.nasa.gov

Date: Sun, 13 Dec 1998 11:30:12 -0600 (CST)

To: khurley@sunspot.ssl.berkeley.edu

Message-Id: <981213113012.2024aa6b@fender.msfc.nasa.gov>

Subject: Crossing Windows for BATSE Burst 7252

Content-Type: text

Content-Length: 1135

Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7252

EVENT OF 1998 DEC 10 DAY OF YEAR=344

EVENT CROSSING TIME AT BATSE : 48950. S. OR 13:35:50.0

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

BURST ARRIVAL DIRECTION: 357.000 -19.000

BATSE PEAK COUNTING RATE: 6000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND

INTERPOLATED POSITION OF ULYSSES ON 10/12/ 98 IS:

RA= 167.064 DEC= -6.265 DIST= 5.174 AU

BATSE-ULYSSES DISTANCE = 773994701. KM.

ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 27.10 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2298.41 SECS.

CROSSING TIME AT ULYSSES IS 51248. S. OR 14:14:08 +/- 289.07 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND

POSITION OF MARS ON 10/12/ 98 IS:

RA= 187.069 DEC= -1.142 DIST= 1.706 AU

MARS-BATSE DISTANCE = 255244464. KM.

ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 22.44 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= 786.94 SECS.

CROSSING TIME AT MARS IS 49737. S. OR 13:48:56 +/- 68.37 SECONDS

BATSE BURST TRIGGER

NO.: 7252

TIME: TJD=1157 SECONDS=48950

TYPE: BURST

SOLAR FLARE TRIGGER SIGNAL:

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=45.7 AZIMUTH=258.1 ERROR=4.66 DEGREES

COMMENTS:

1. SINGLE SPIKE. DURATION ABOUT 0.15 S. START AT ABOUT T-0.03 S.
2. POSSIBLE PRECURSOR AT ABOUT T-0.13S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
---------	------	-----	-----	----------	----	-----	---------

BATSE BURST# 7252

ULYSSES RT

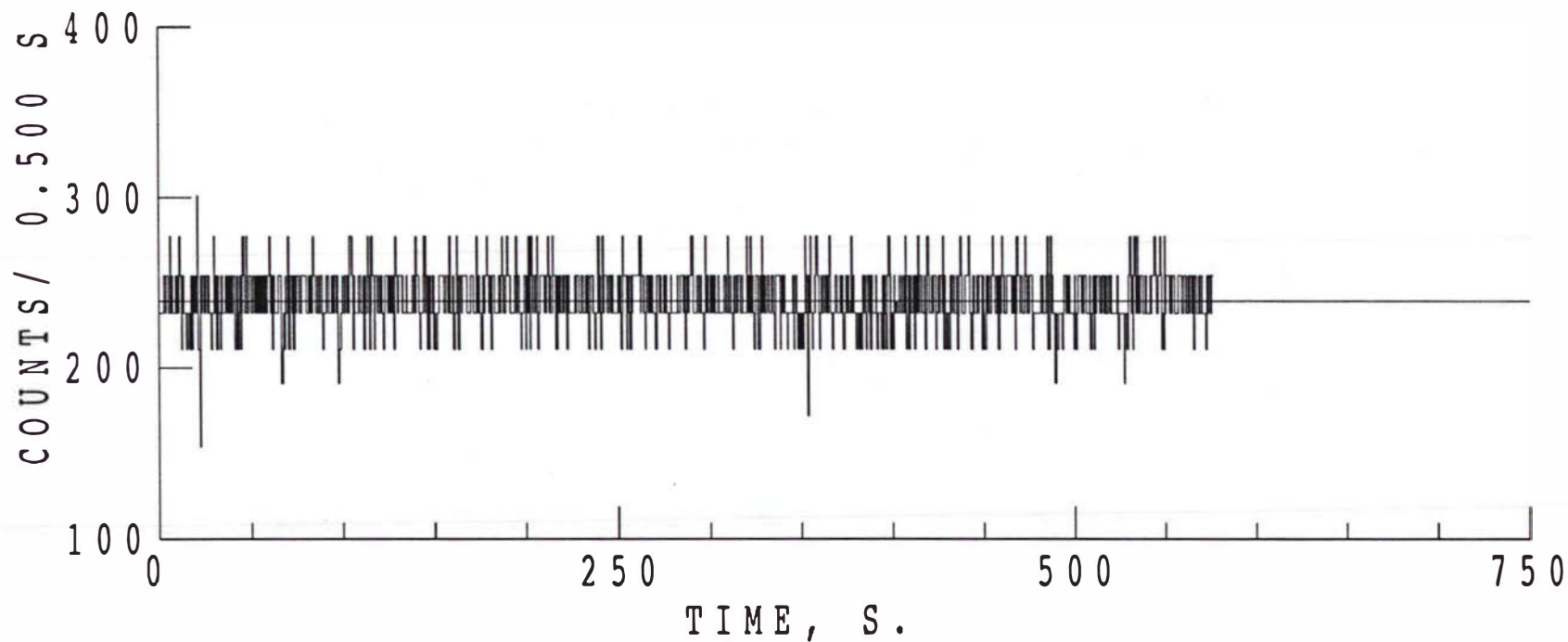
13 / 12 / 98

10 / 12 / 98 50976.426 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

B= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

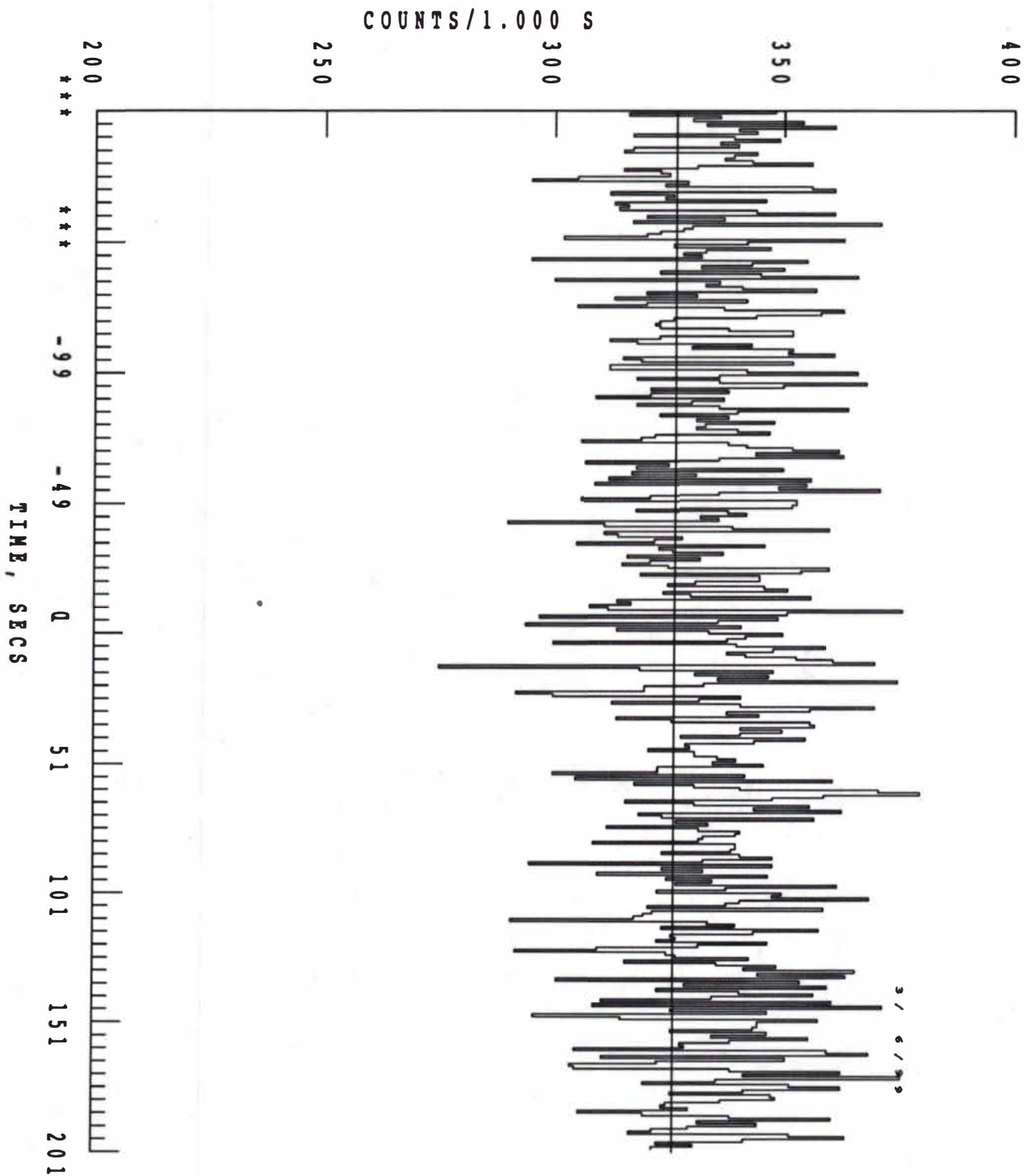


NEAR

10/12/98

48173.709

100-1000 keV



From HENZE@fender.msfc.nasa.gov Fri Dec 11 07:51:34 1998

Date: Fri, 11 Dec 1998 9:50:31 -0600 (CST)

From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

To: 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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7253

TIME: TJD=1157 SECONDS=63850

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

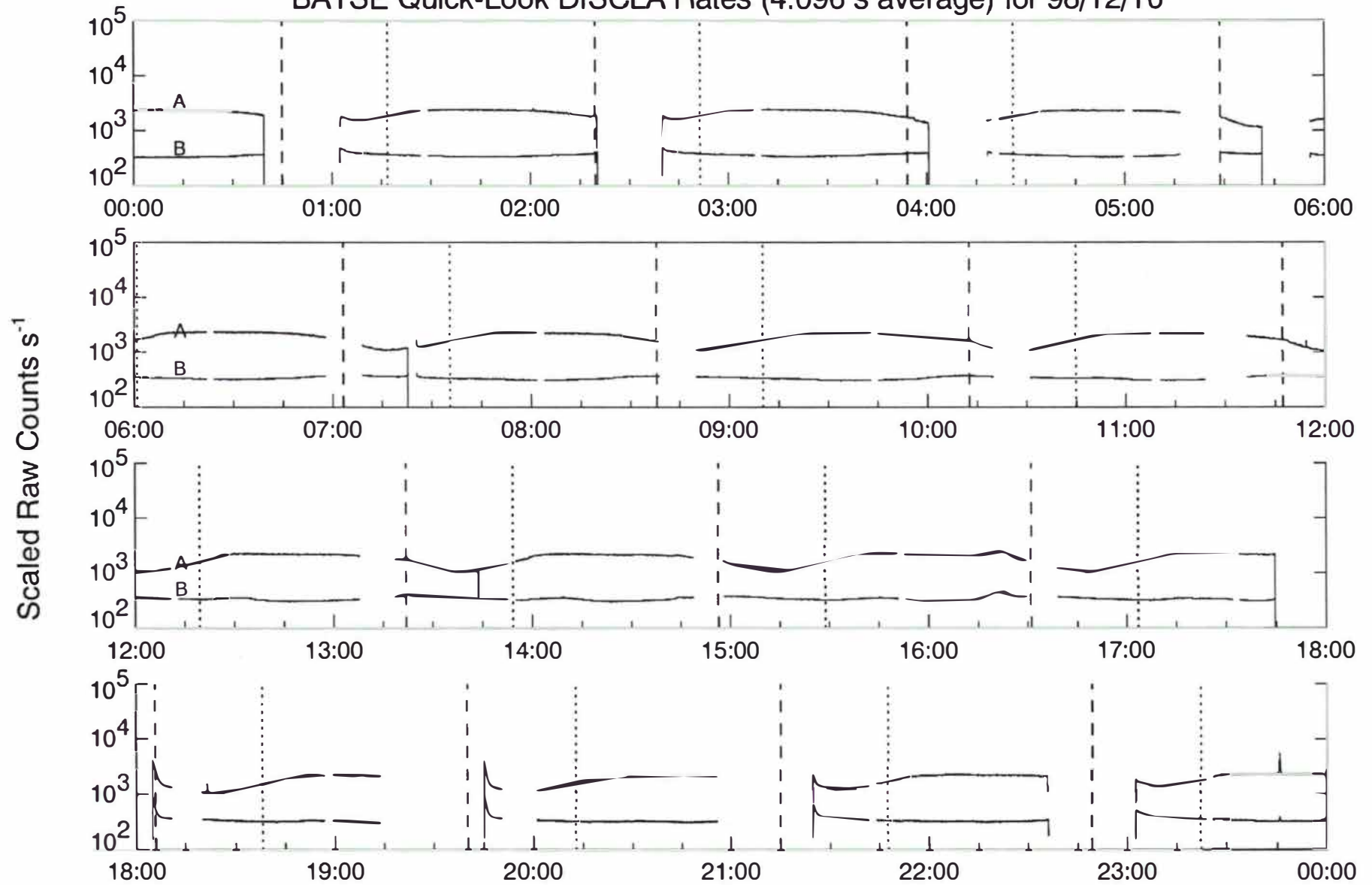
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/10

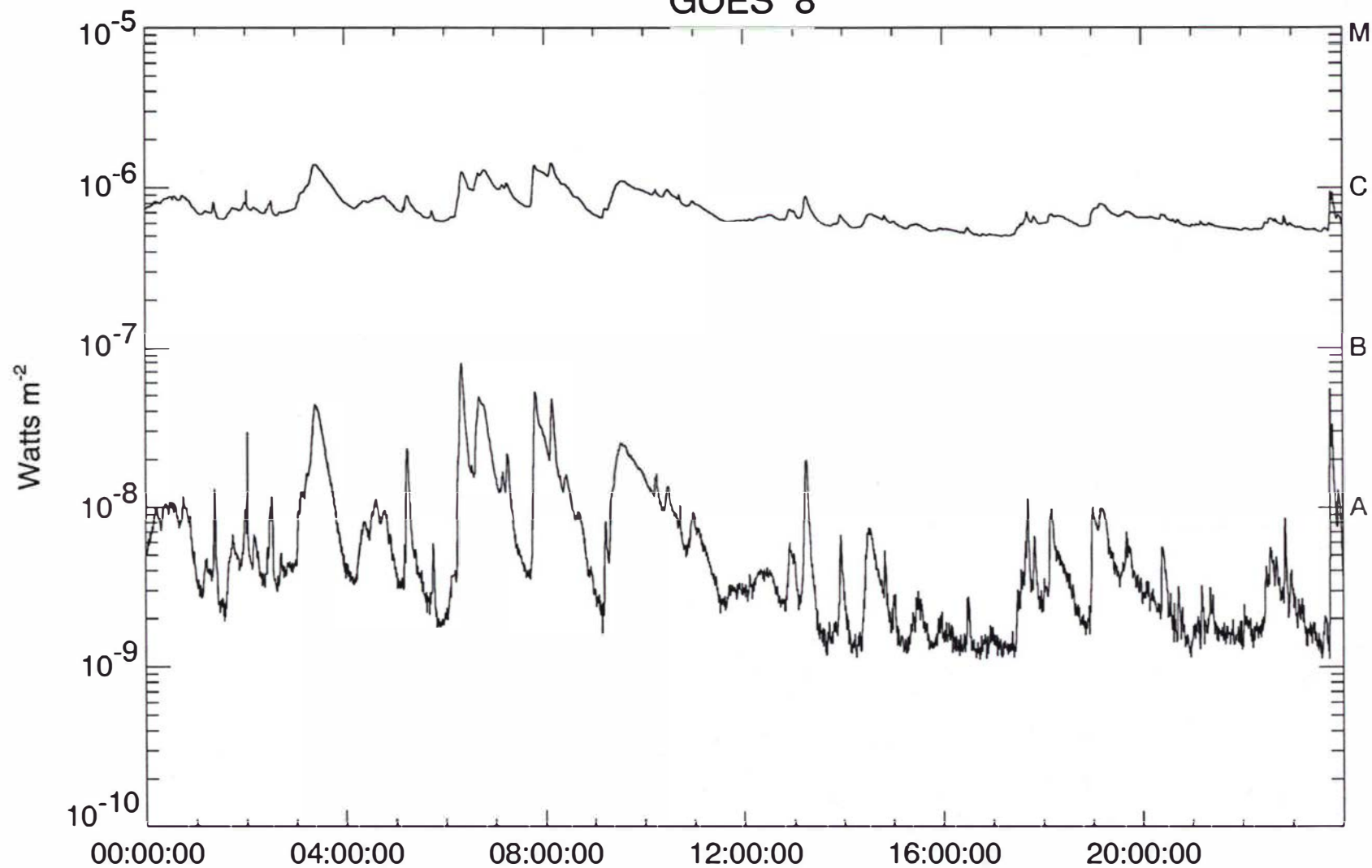


Current Time: 98/12/14, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/10, 0000:00

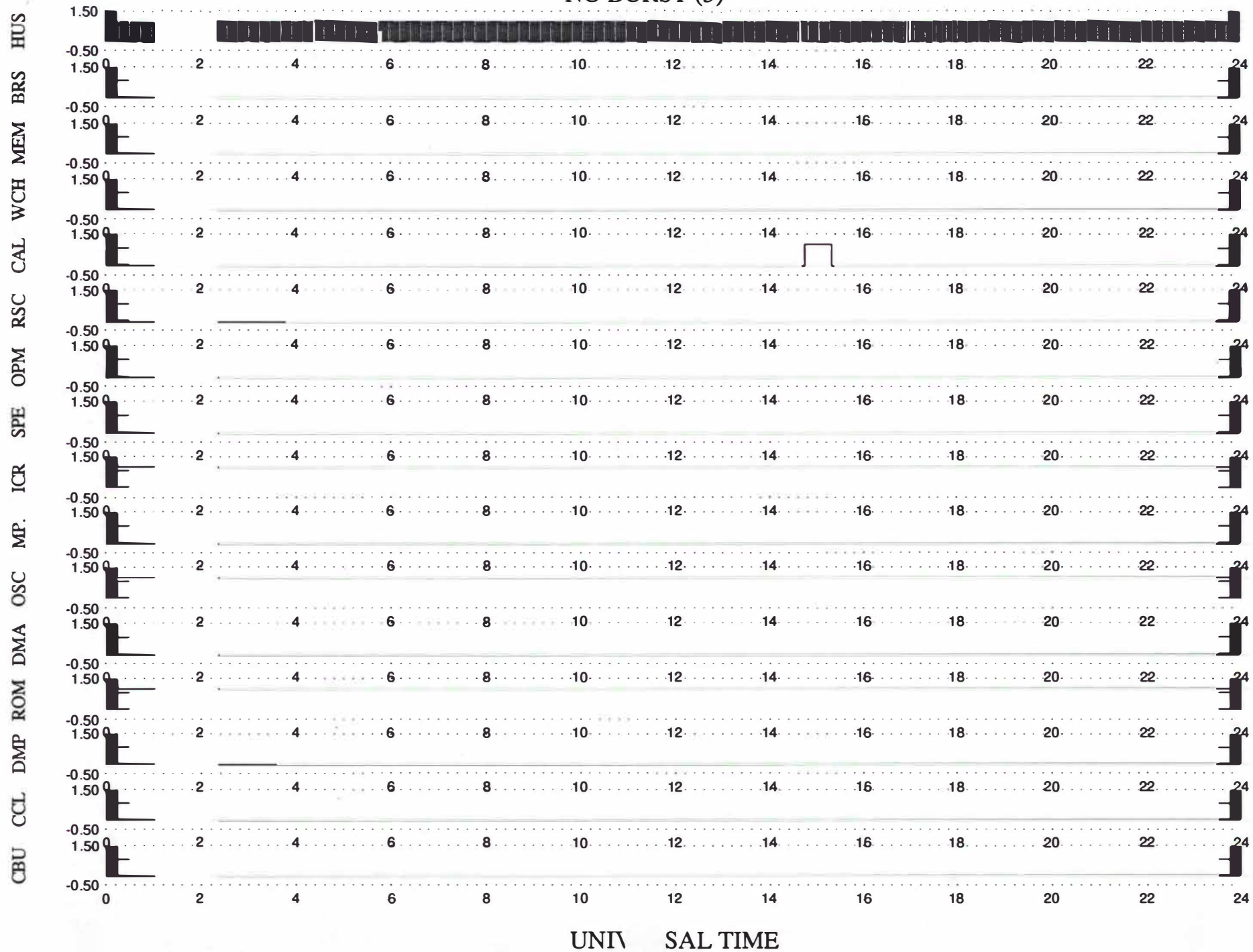
Plot created: 98/12/14, 1010

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

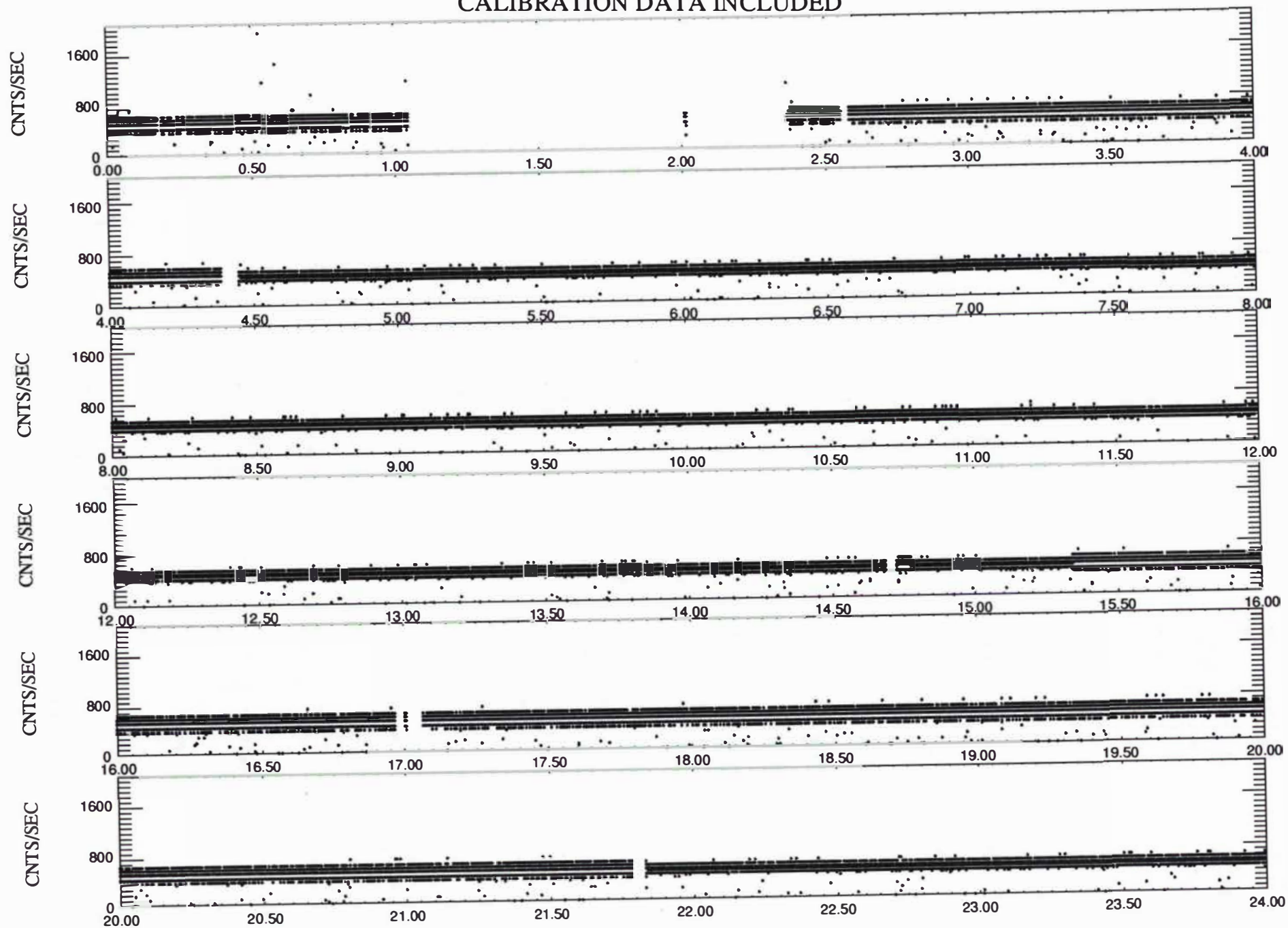
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

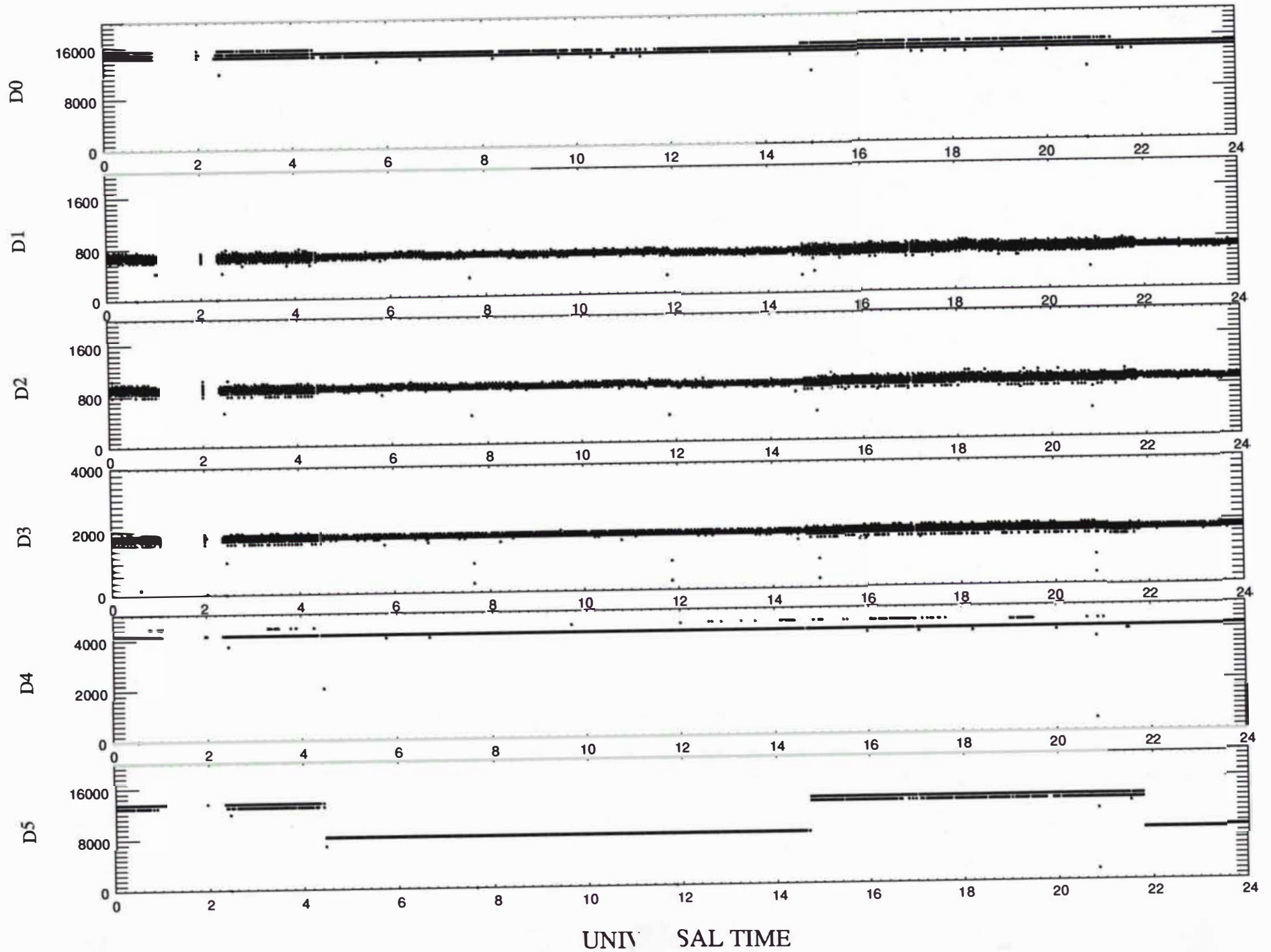
NO BURST (5)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From HENZE@fender.msfc.nasa.gov Mon Dec 14 07:56:39 1998

Date: Mon, 14 Dec 1998 9:56:01 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7254

TIME: TJD=1158 SECONDS=62510

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY.

From HENZE@fender.msfc.nasa.gov Mon Dec 14 12:08:23 1998
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA14734; Mon, 14 Dec 1998 12:08:22 -0800
From: HENZE@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA16588; Mon, 14 Dec 1998 12:08:18 -0800
Date: Mon, 14 Dec 1998 14:08:02 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981214140802.2024cc66@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7255
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7255
EVENT OF 1998 DEC 11 DAY OF YEAR=345
EVENT CROSSING TIME AT BATSE : 73778. S. OR 20:29:38.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 333.000 -10.000
BATSE PEAK COUNTING RATE: 17000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 11/12/ 98 IS:
RA= 167.040 DEC= -6.380 DIST= 5.150 AU
BATSE-ULYSSES DISTANCE = 770445222. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 21.54 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2390.48 SECS.
CROSSING TIME AT ULYSSES IS 76168. S. OR 21:09:28 +/- 250.10 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 11/12/ 98 IS:
RA= 187.568 DEC= -1.350 DIST= 1.697 AU
MARS-BATSE DISTANCE = 253839088. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 36.23 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 682.98 SECS.
CROSSING TIME AT MARS IS 74461. S. OR 20:41:00 +/- 97.26 SECONDS

BATSE BURST TRIGGER

NO.: 7255

TIME: TJD=1158 SECONDS=73778

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 63.9 AZIMUTH=269.8 ERROR= 0.6 DEGREES

COMMENTS:

SINGLE PULSE, DUR. MAIN PORTION APPROX. 12 S, TOTAL DUR. APPROX. 35 S,
MAX AT APPROX. T+8 S. VOISIBLE ABOVE 300 KEV.
HV PROBABLY OFF AT APPROX. T+337 S (FROM PLANNING DATA).

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7255	981211	11158	73778	17000	333	-10	12

Date: Feb 16 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

- ☒ 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

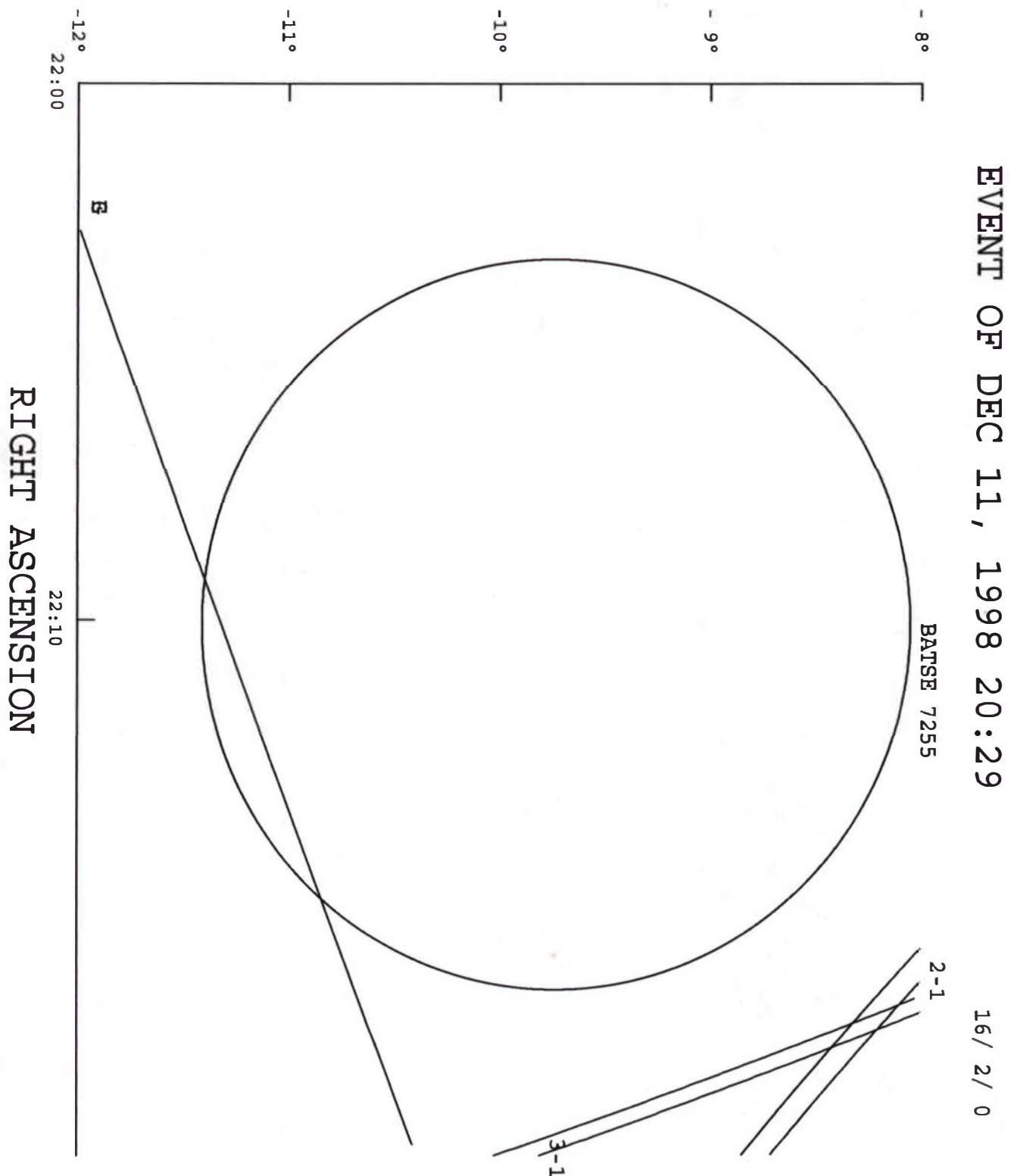
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

3 NEAR

DECLINATION



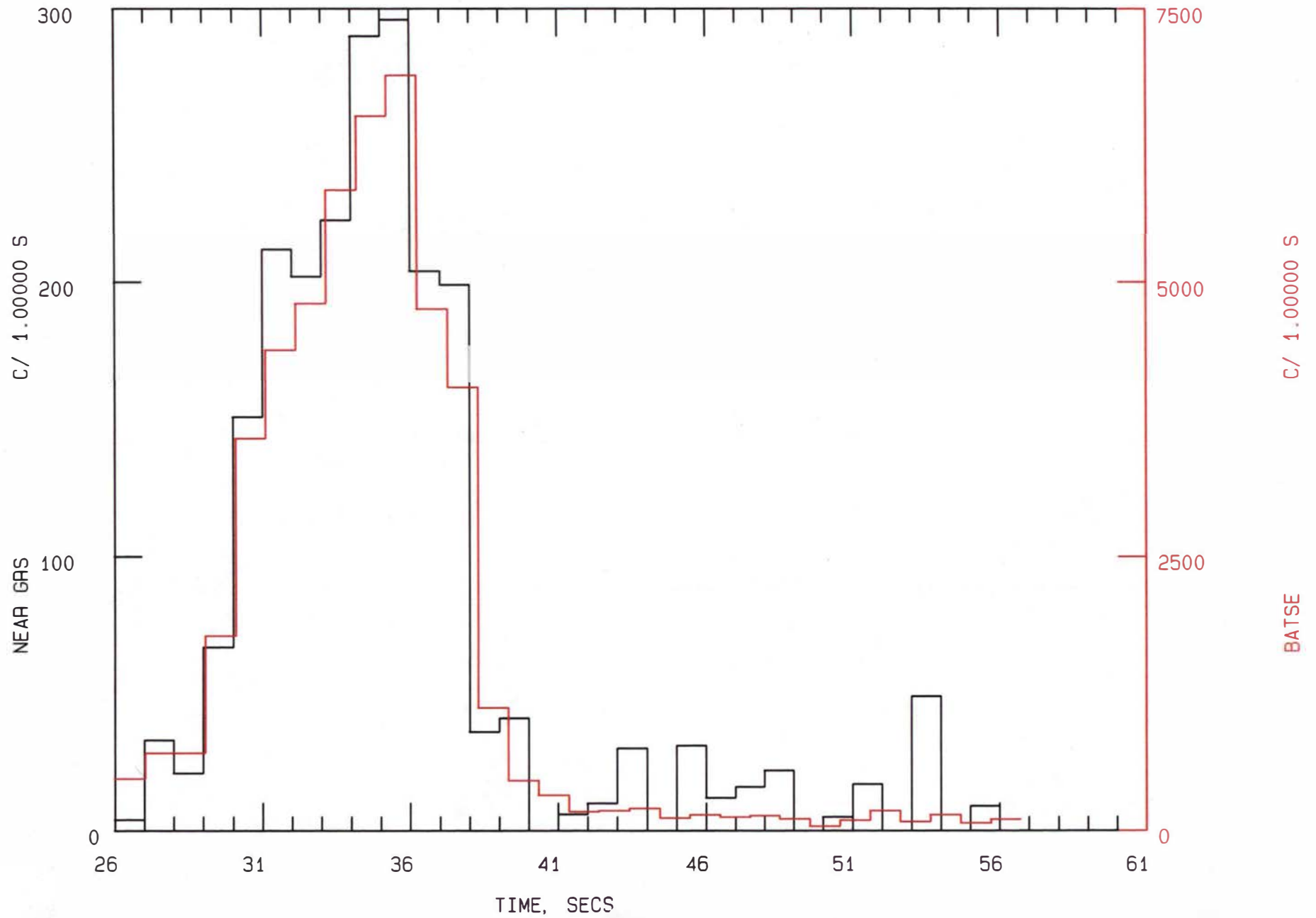
NEAR GRS -BATSE

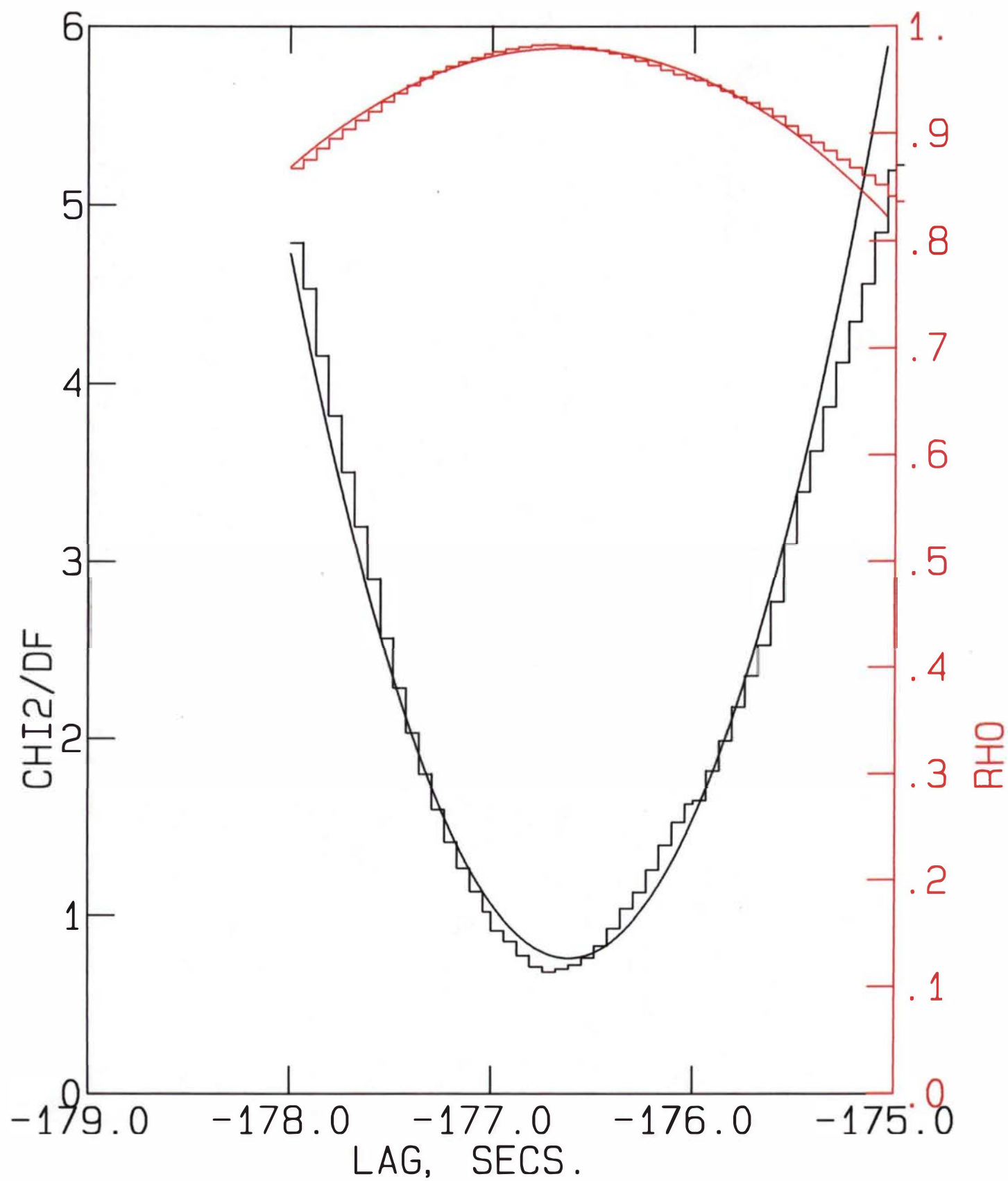
CORRELATION

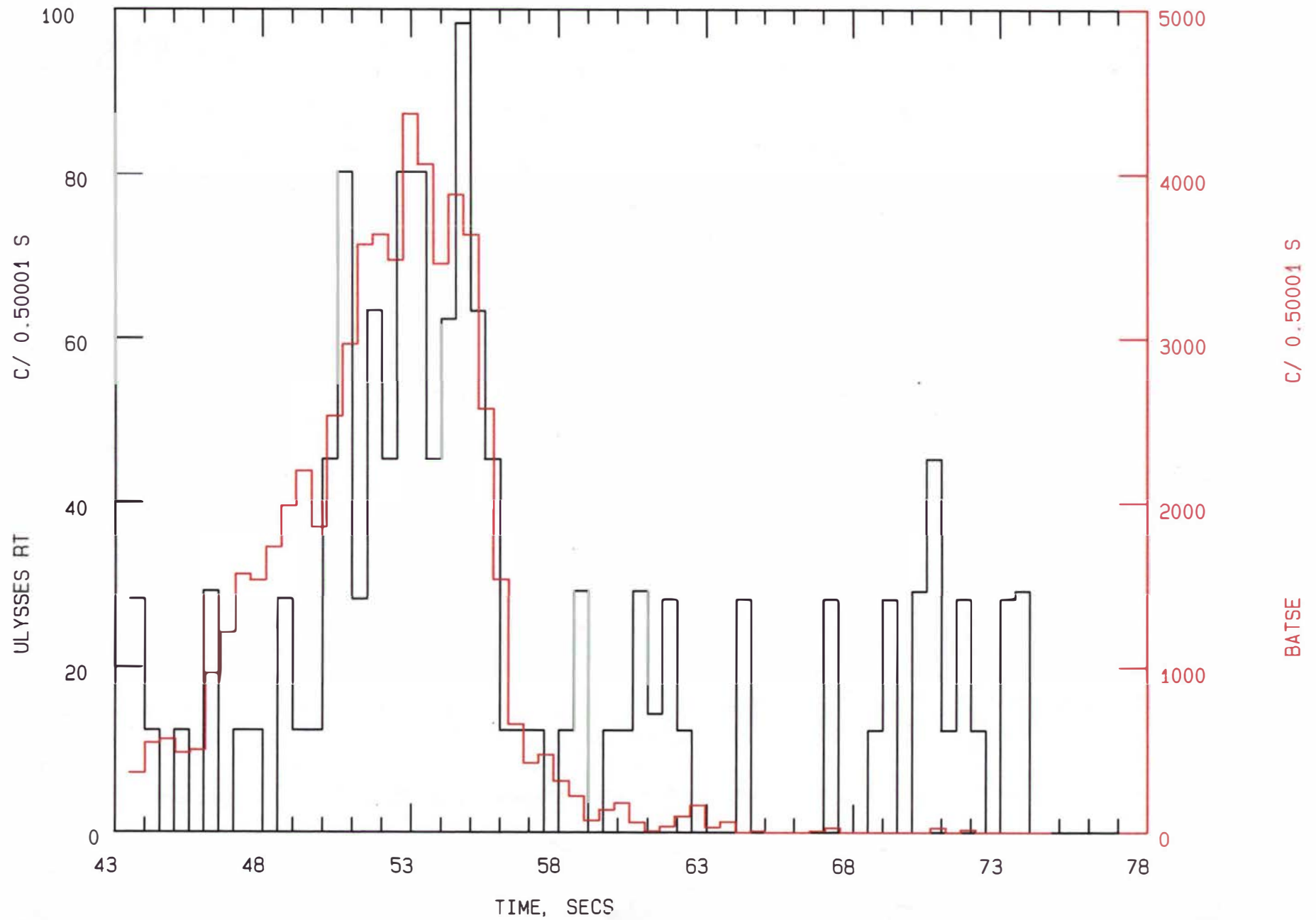
11/12/98

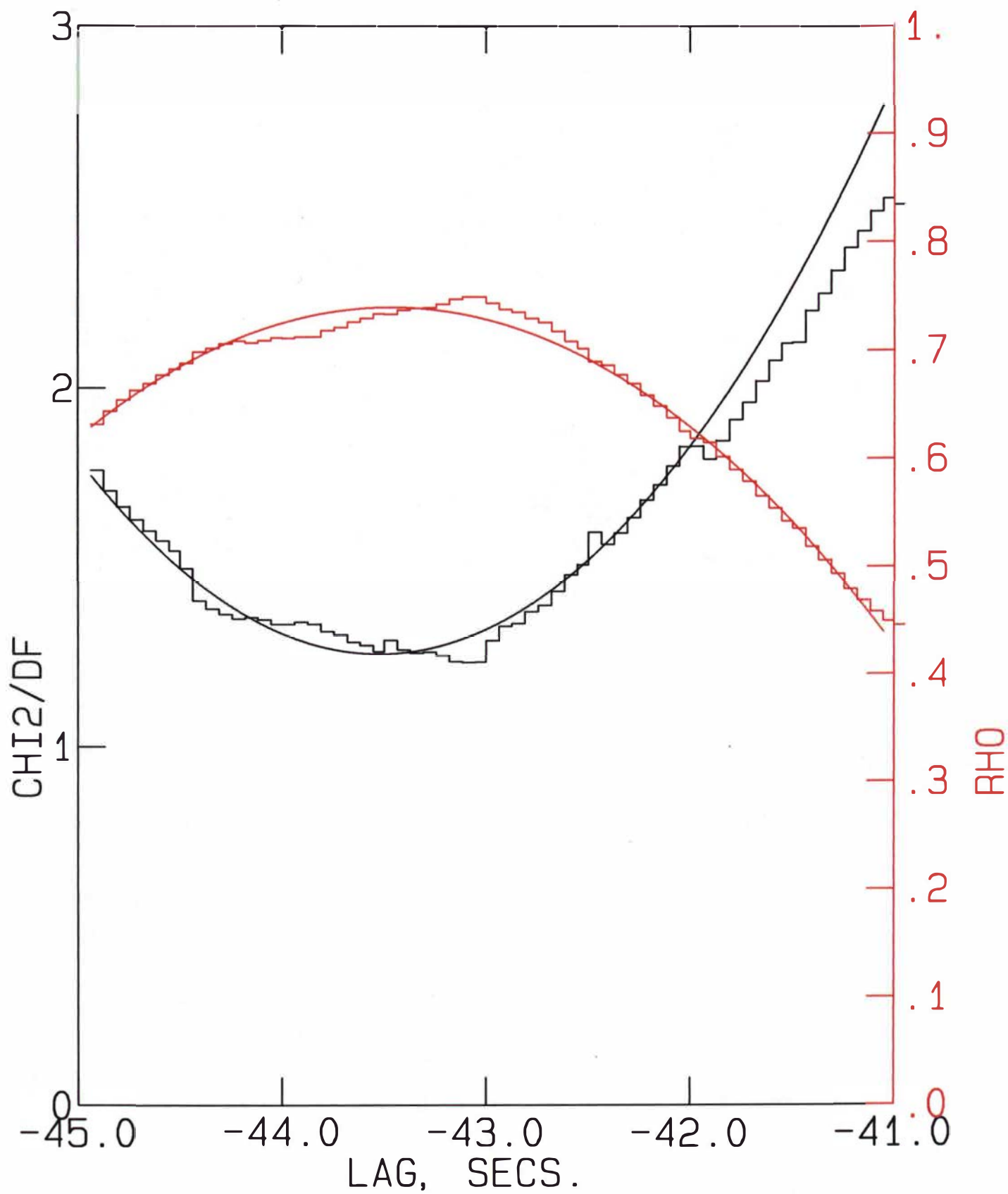
72765.683

16/ 2/ 0





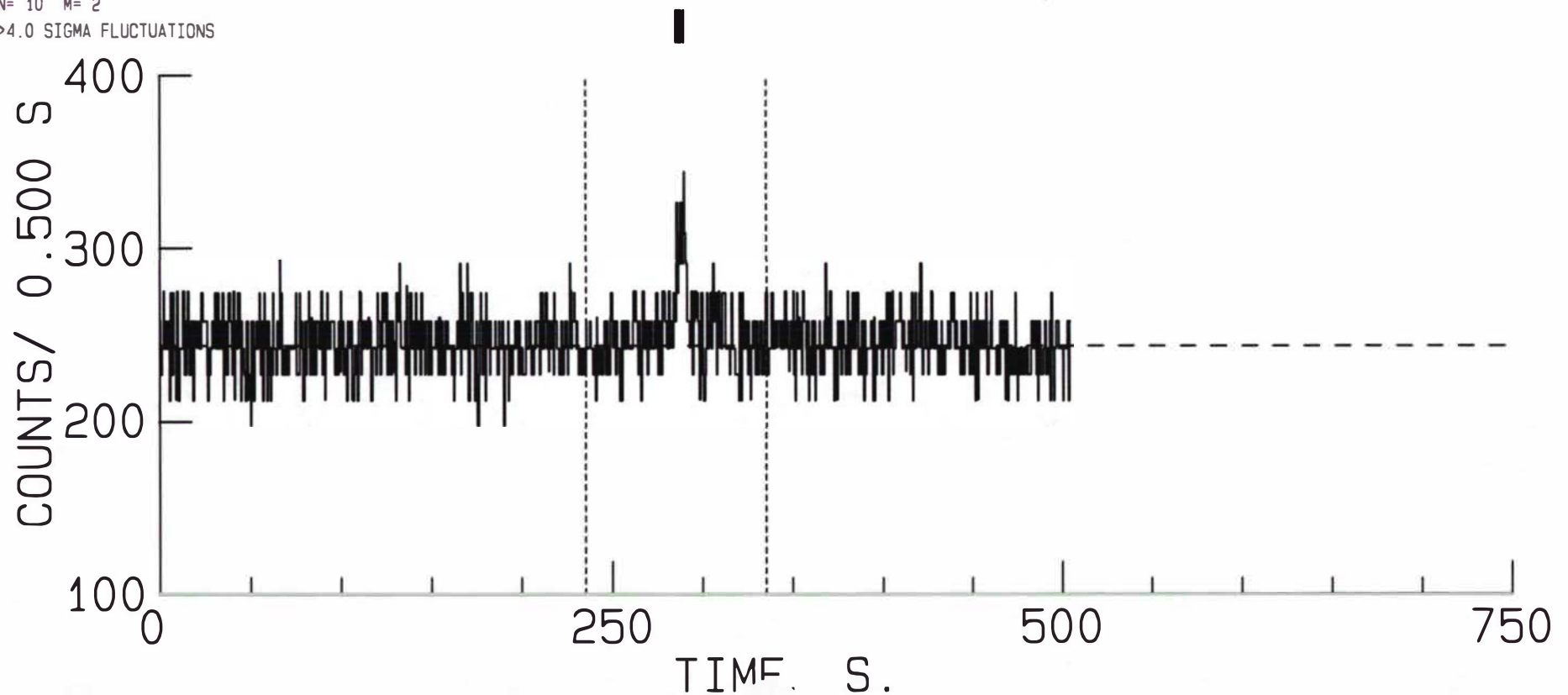




ULYSSES RT
11/12/98 75924.086 s
0.250 S INTERVALS REGROUPED BY 2
22- 150 keV

16 / 2 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



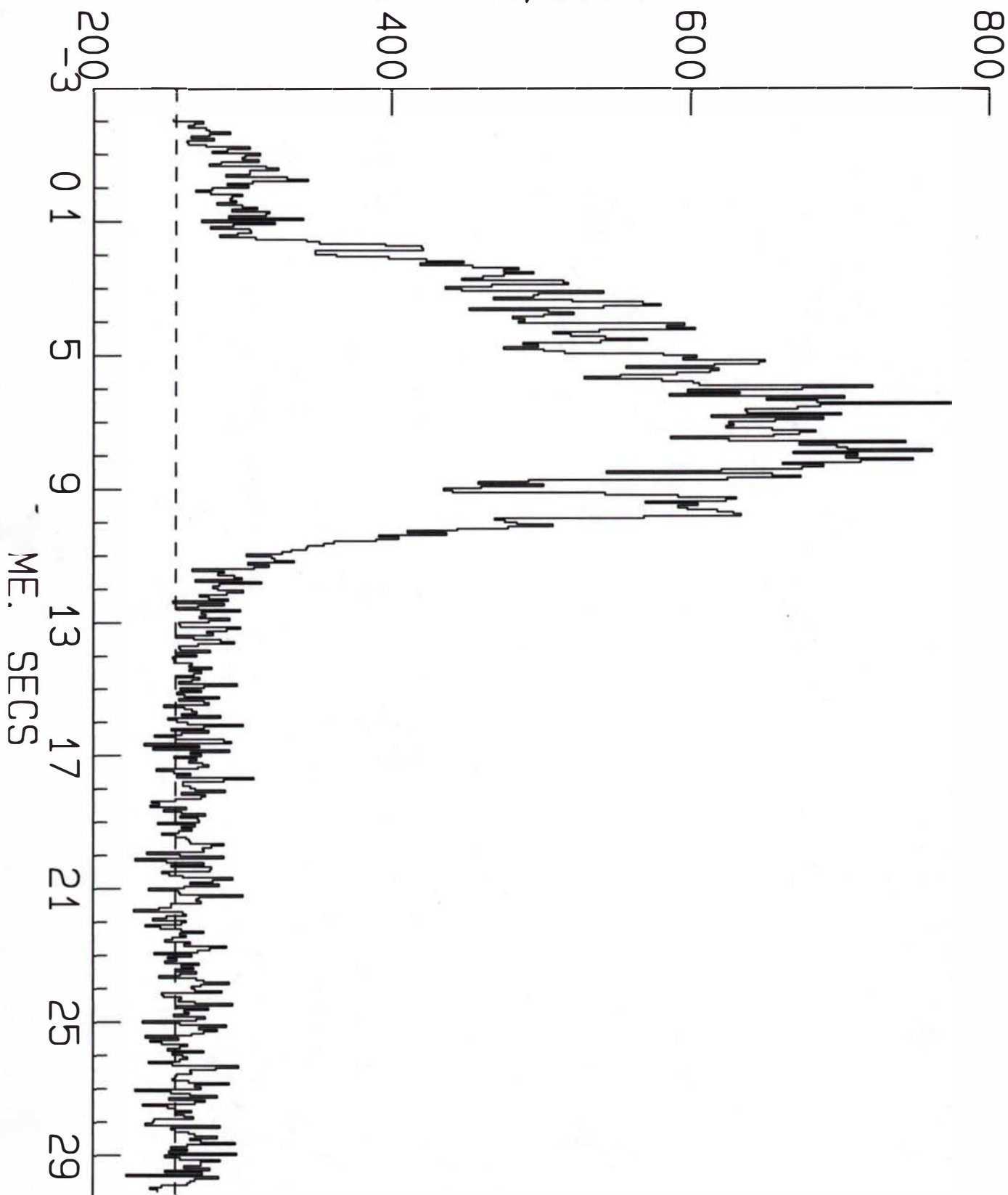
BATSE

11/12/98

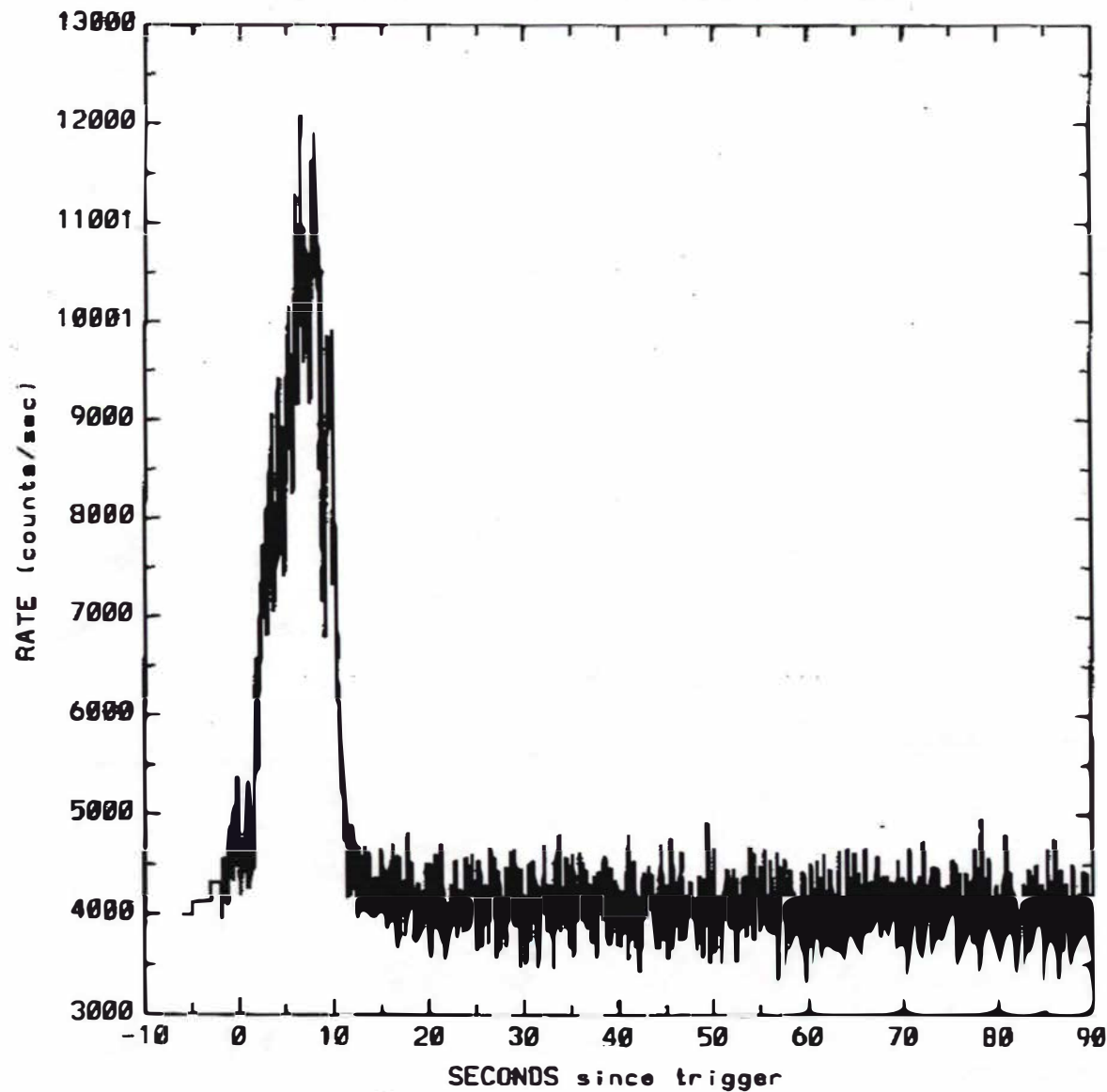
73778.913

100-1000 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 7255



9-FEB-2000 09:54.28

Created by MOPS BD
(Burst Display)
Version 12.26

Trigger # : 7255

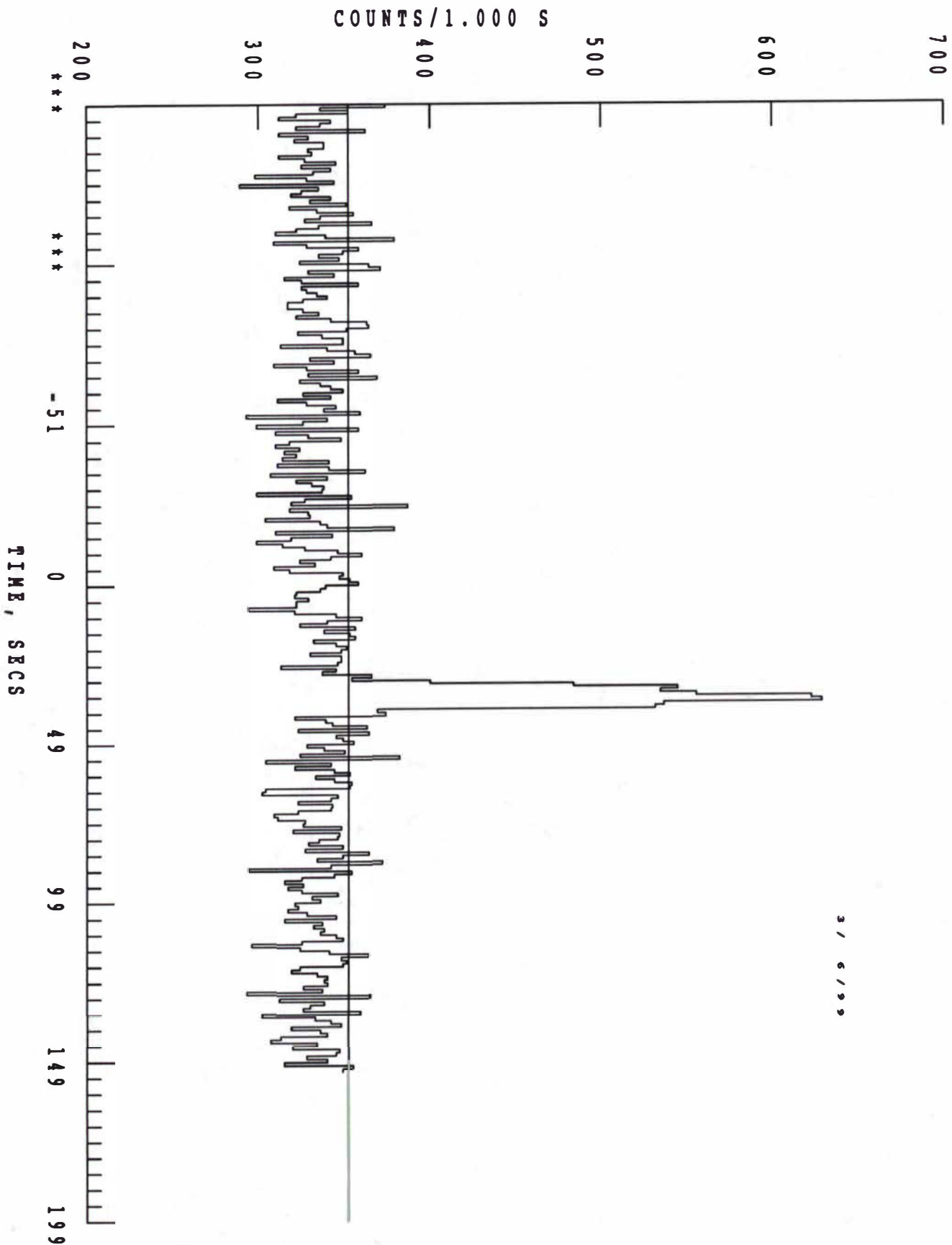
Trigger Time:
11158 / 73778.913Burst Data Type:
DISCSCDeadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 secondsDetectors (7..8),
-6---2--Discriminators:
(3 , 4)Quality Mask:
BDISP1

NEAR

11/12/98

72765.683

100-1000 keV



BATSE

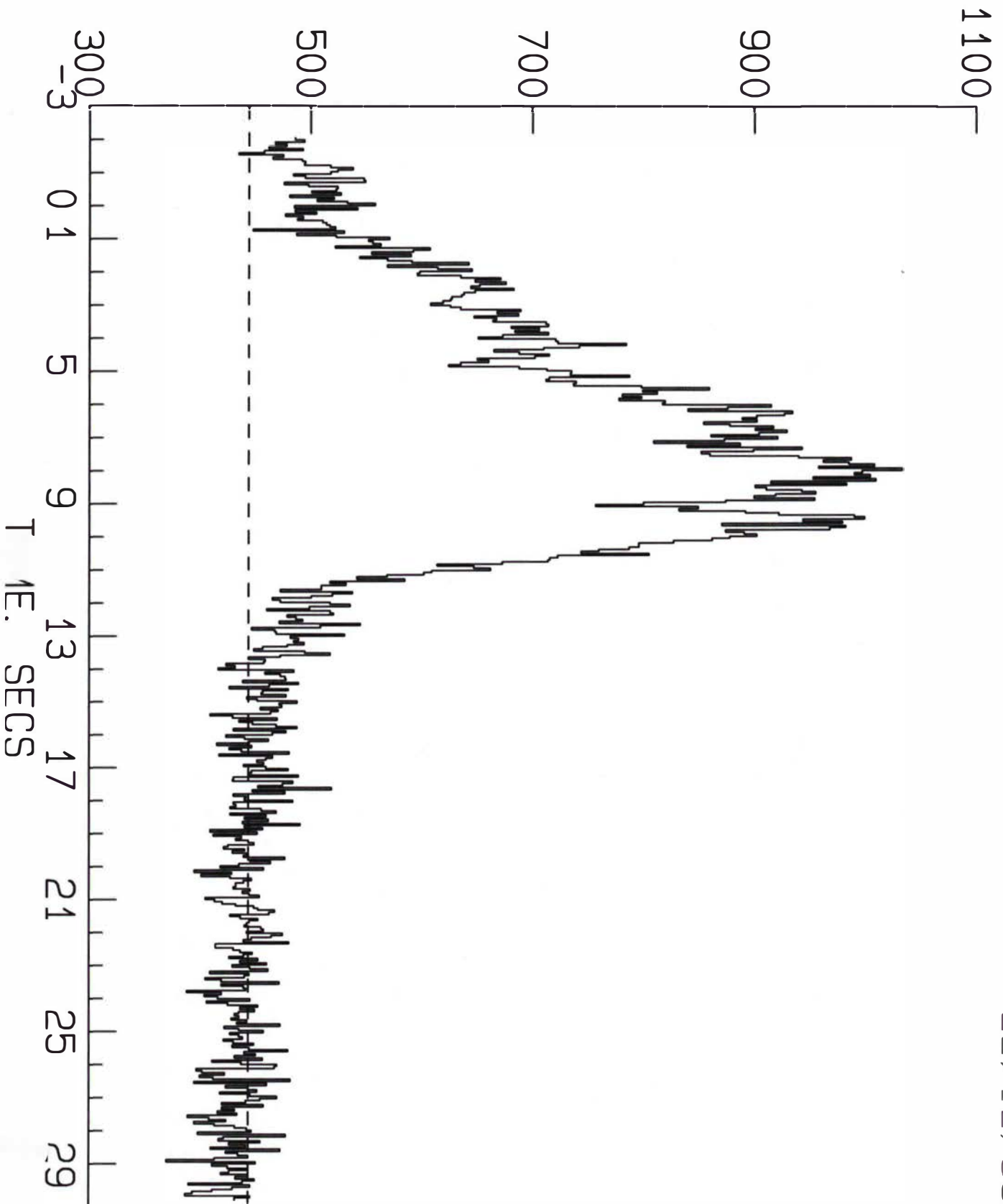
11/12/98

73778.913

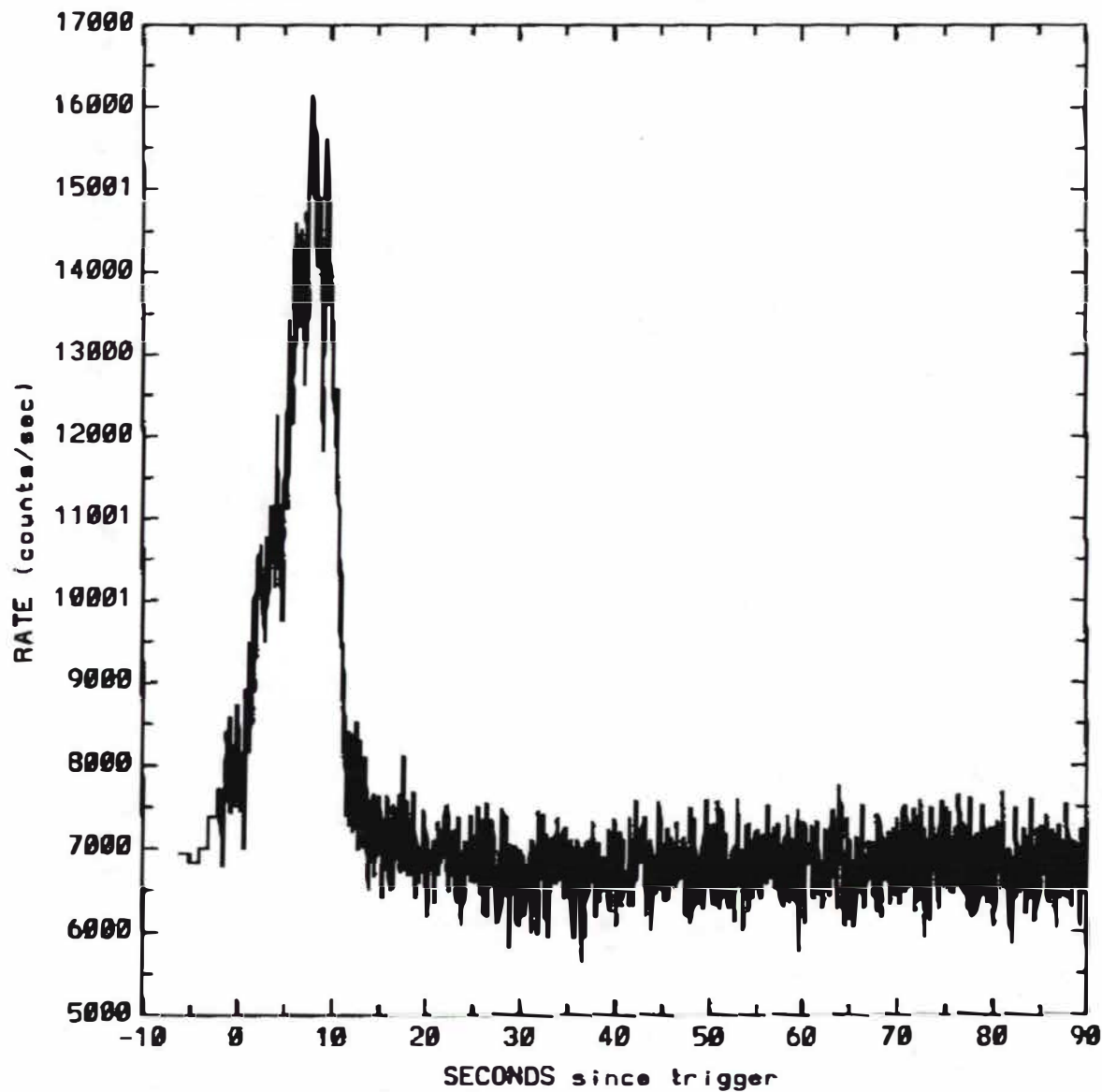
25- 100 keV

COUNTS/0.064 S

22/12/98



DISCSC Data for K. Hurley, No. 7255



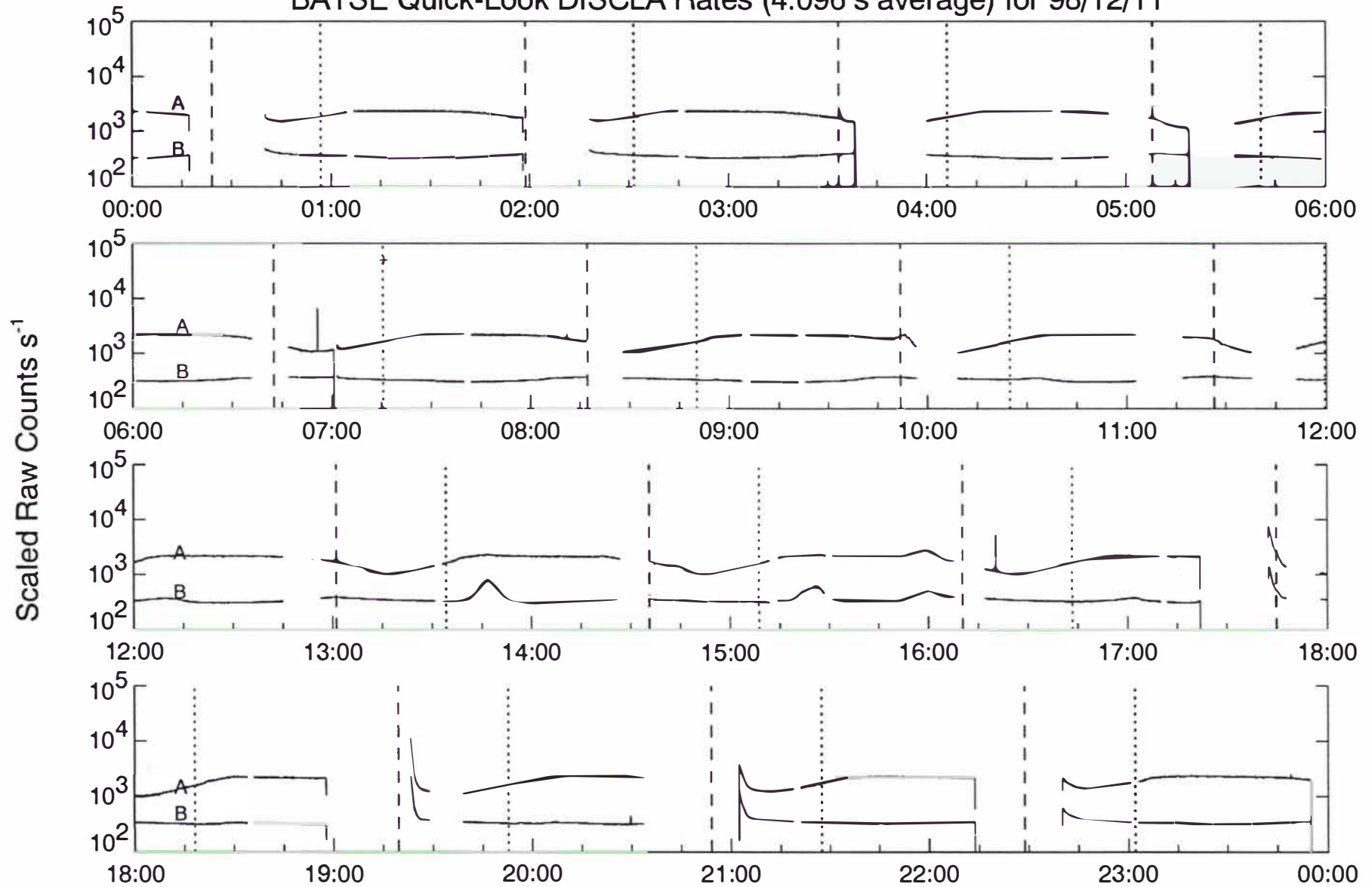
21-DEC-1998 11:43:21

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

Trigger # : 7255

Trigger Time:
11158 / 73778.913Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors (7..0).
-6---2--Discriminators:
1 1 . 2 1Quality Mask:
BDISP1

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/11

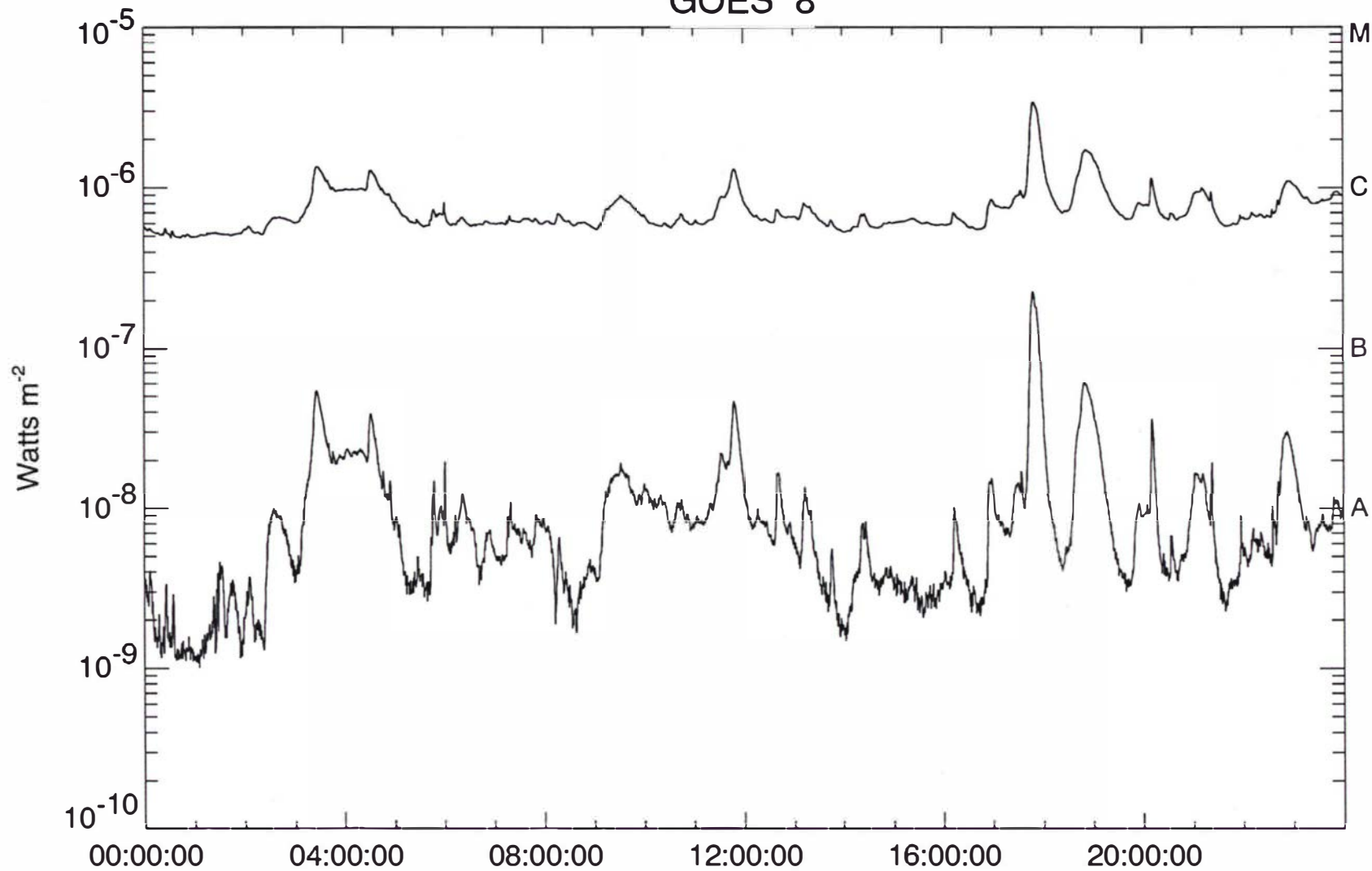


Current Time: 98/12/15, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/11, 0000:00

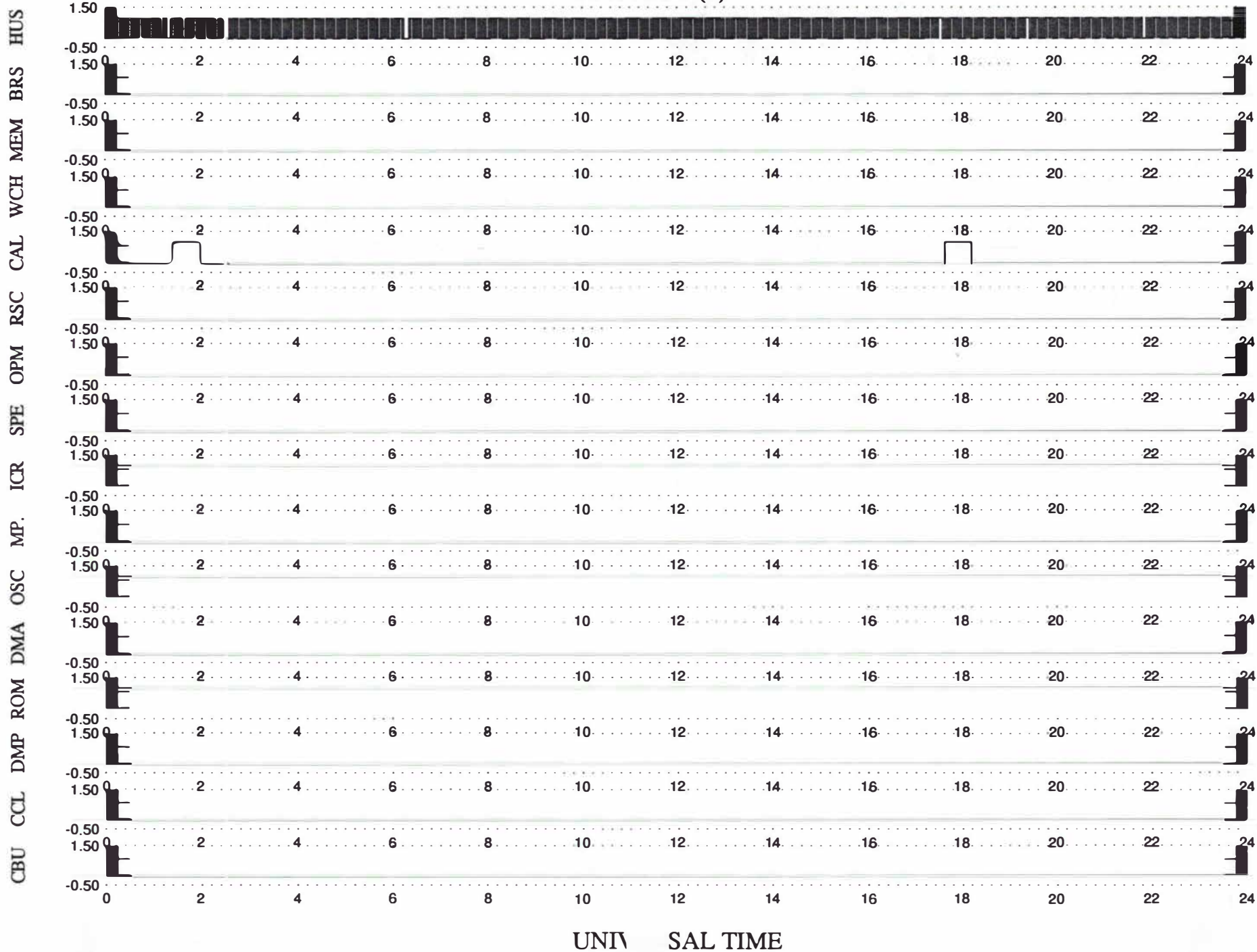
Plot created: 98/12/15, 1010

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

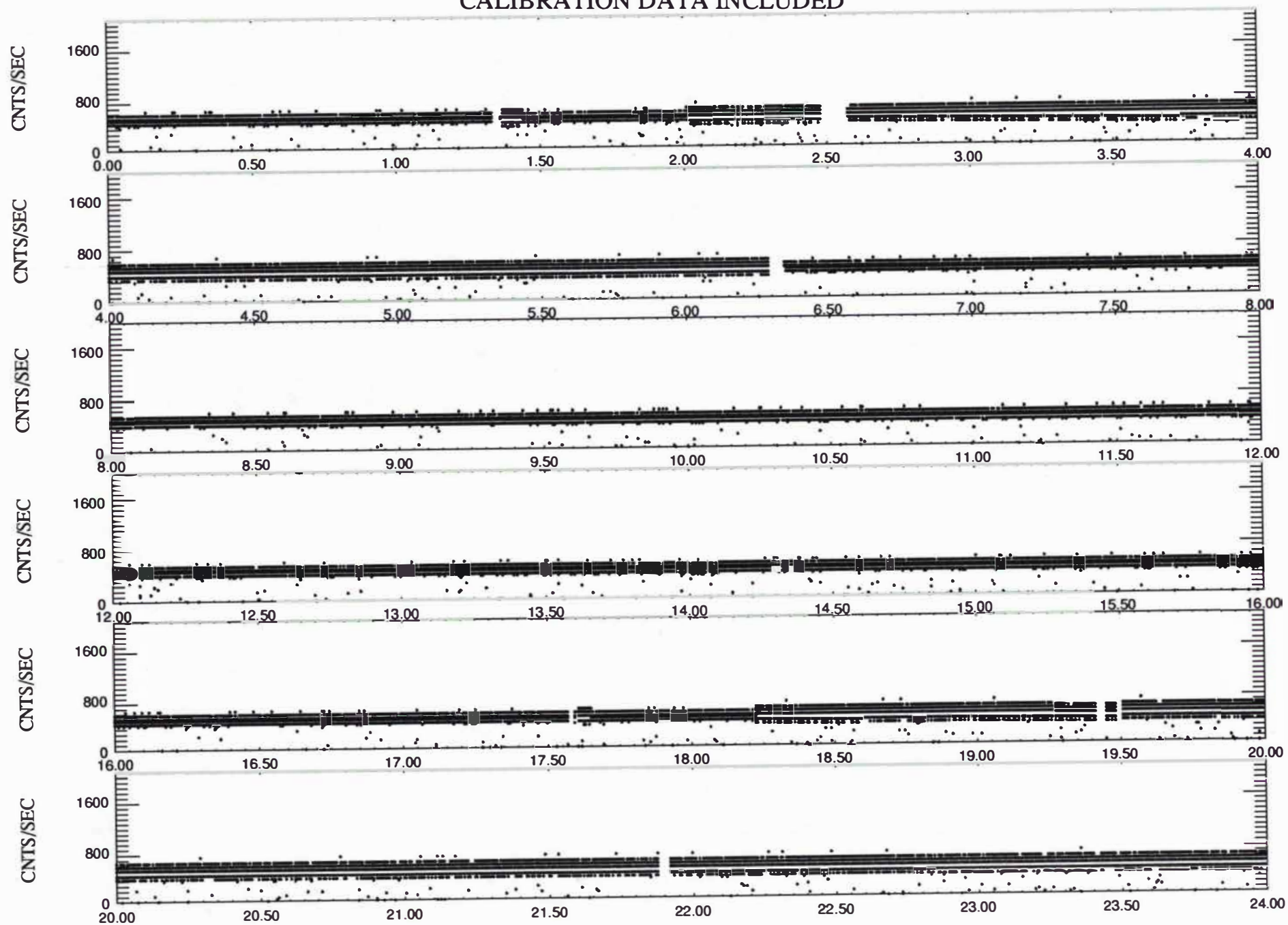
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

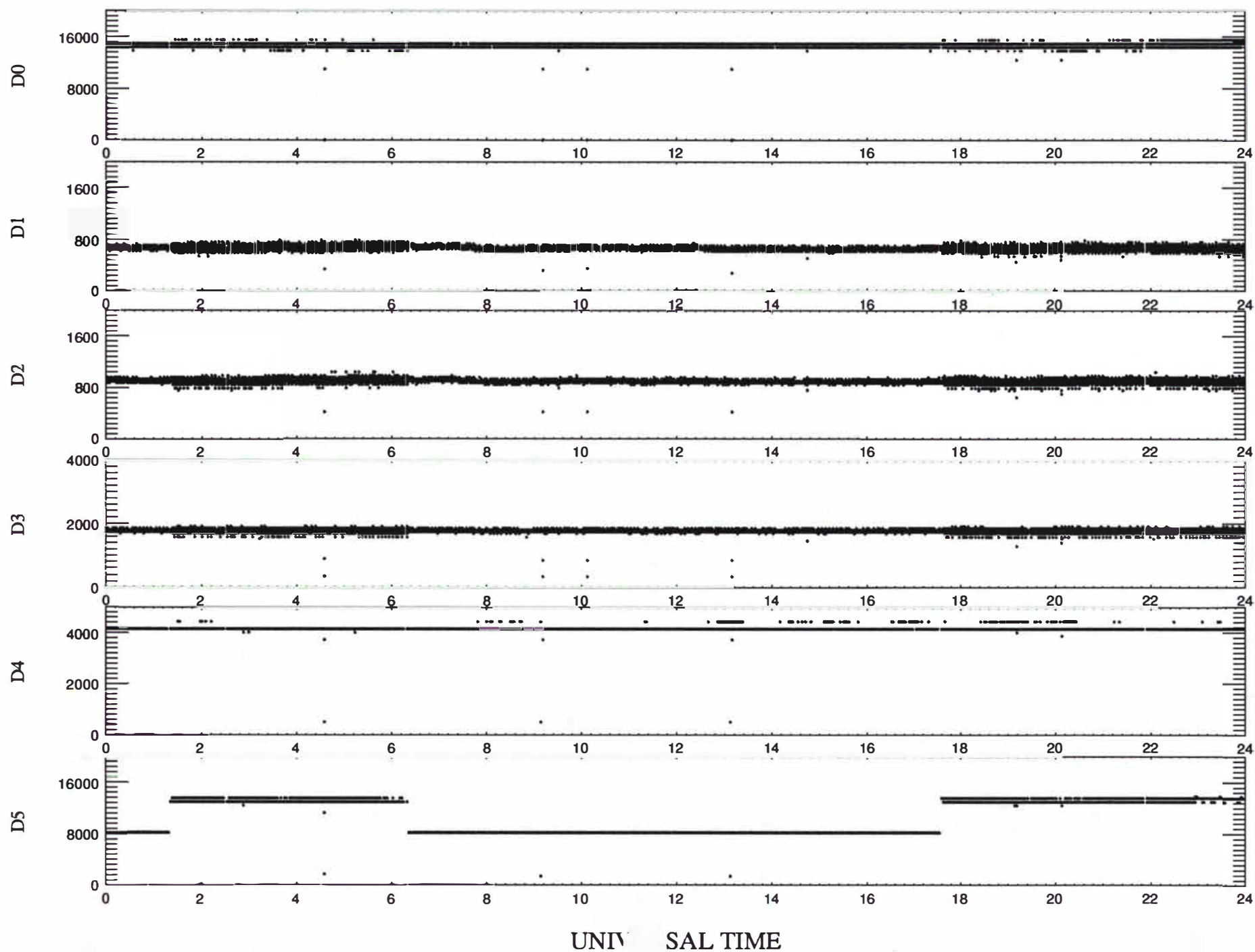
NO BURST (5)



CALIBRATION DATA INCLUDED



UNIT SAL TIME



From HENZE@fender.msfc.nasa.gov Mon Dec 14 08:12:50 1998

Date: Mon, 14 Dec 1998 10:11:46 -0600 (CST)

From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

To: 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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7256

TIME: TJD=1159 SECONDS=61147

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

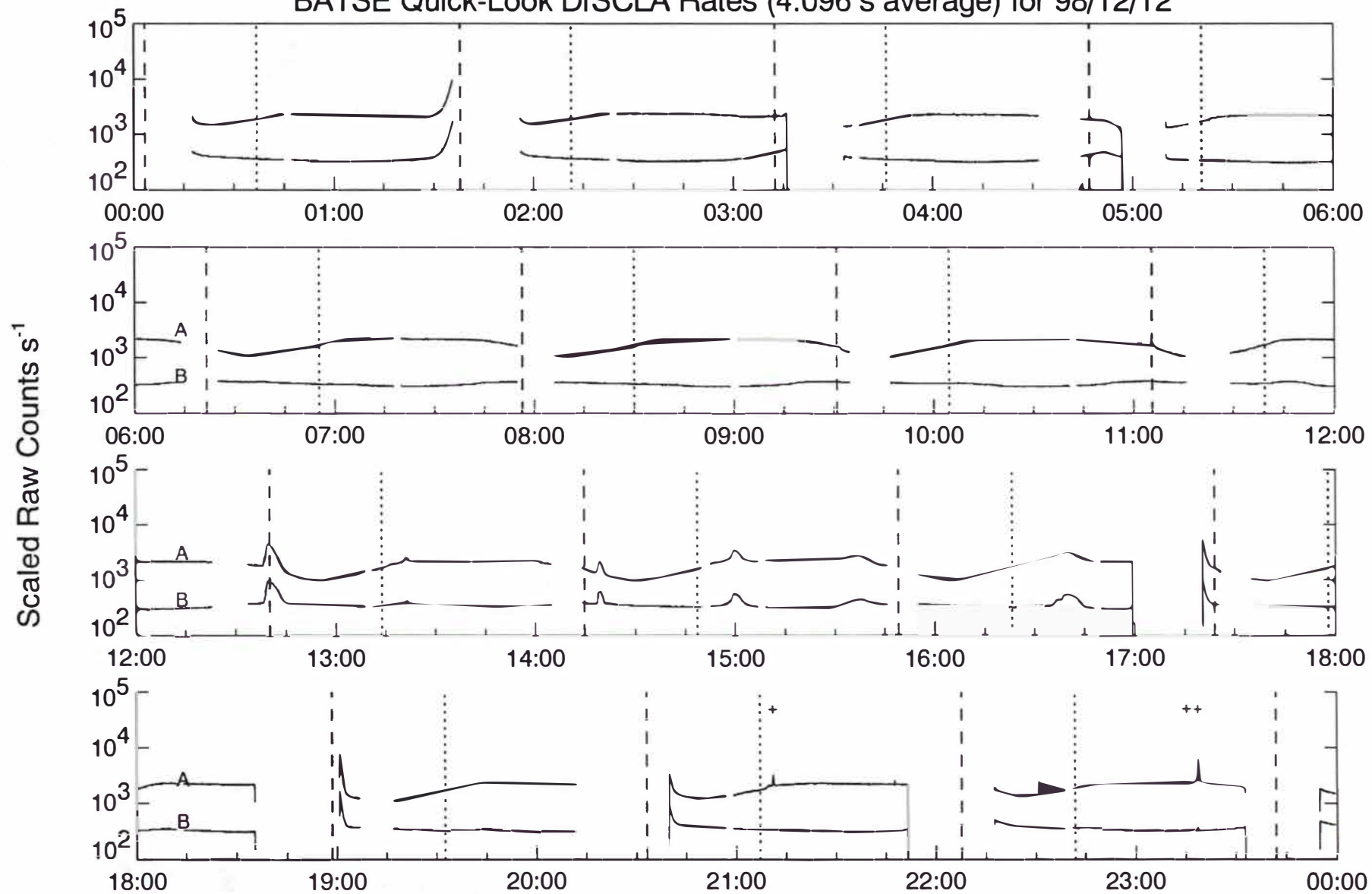
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/12

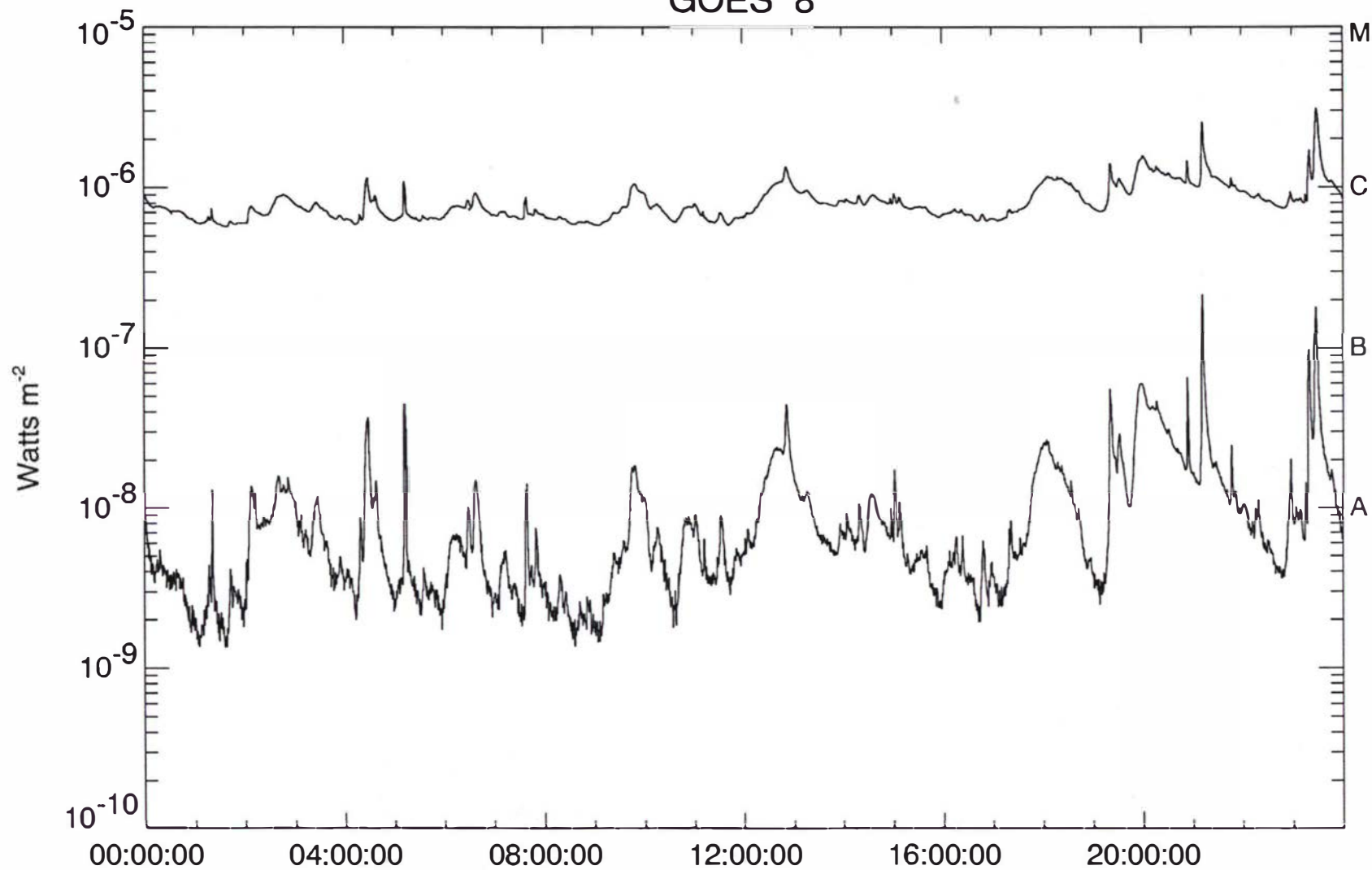


Current Time: 98/12/16, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8

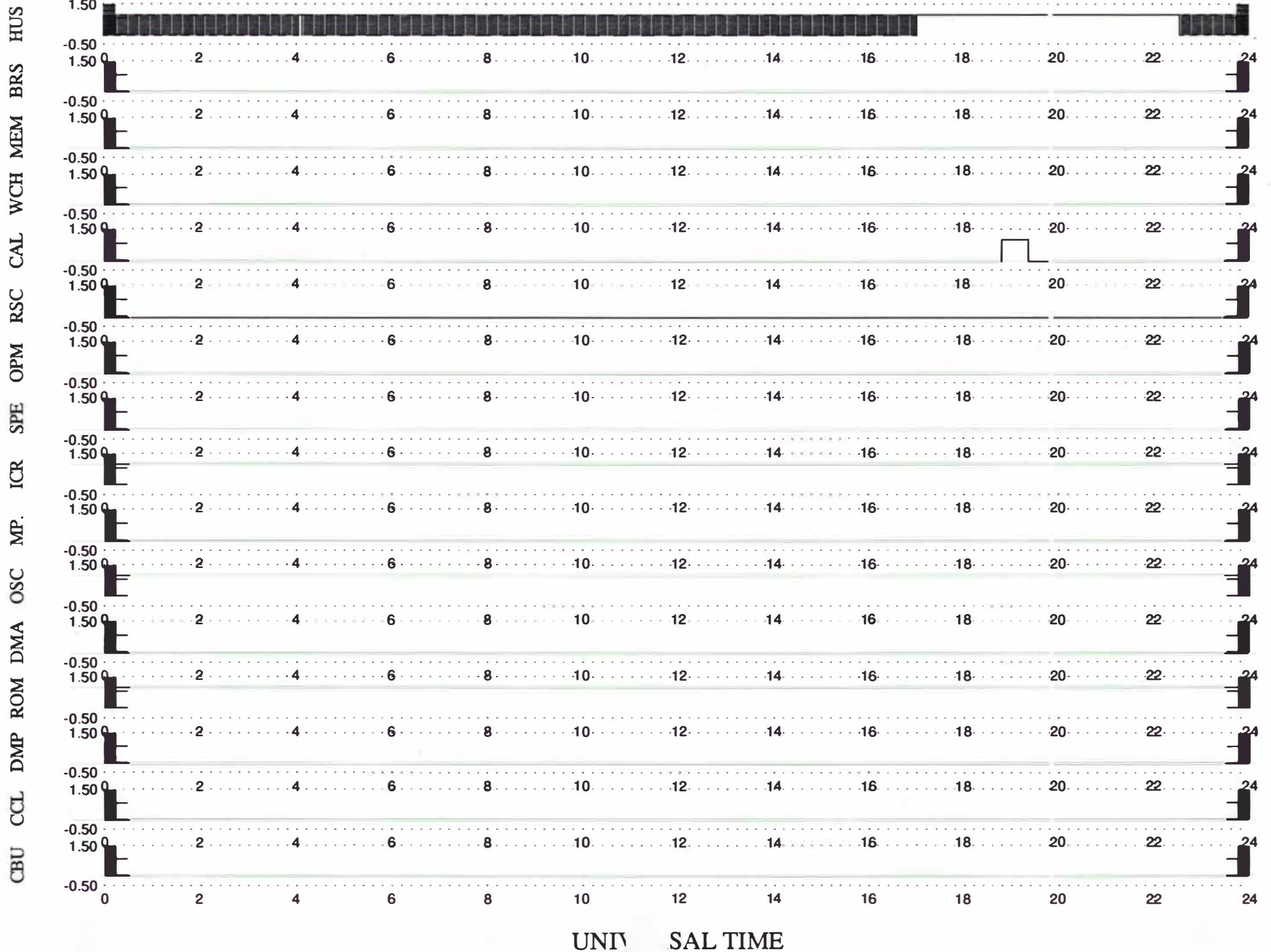


Data Start: 98/12/12, 0000:00

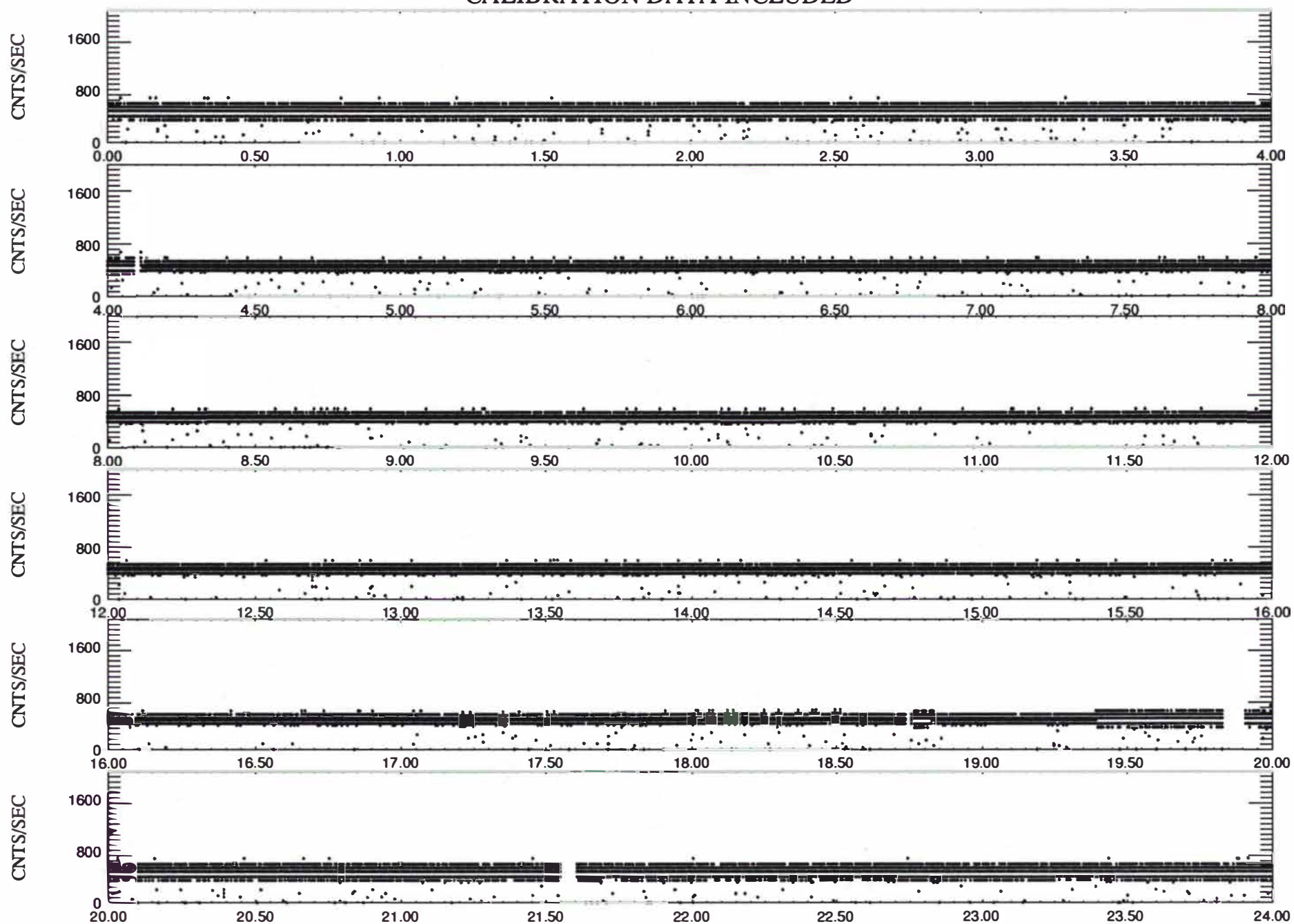
Plot created: 98/12/16, 1010

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

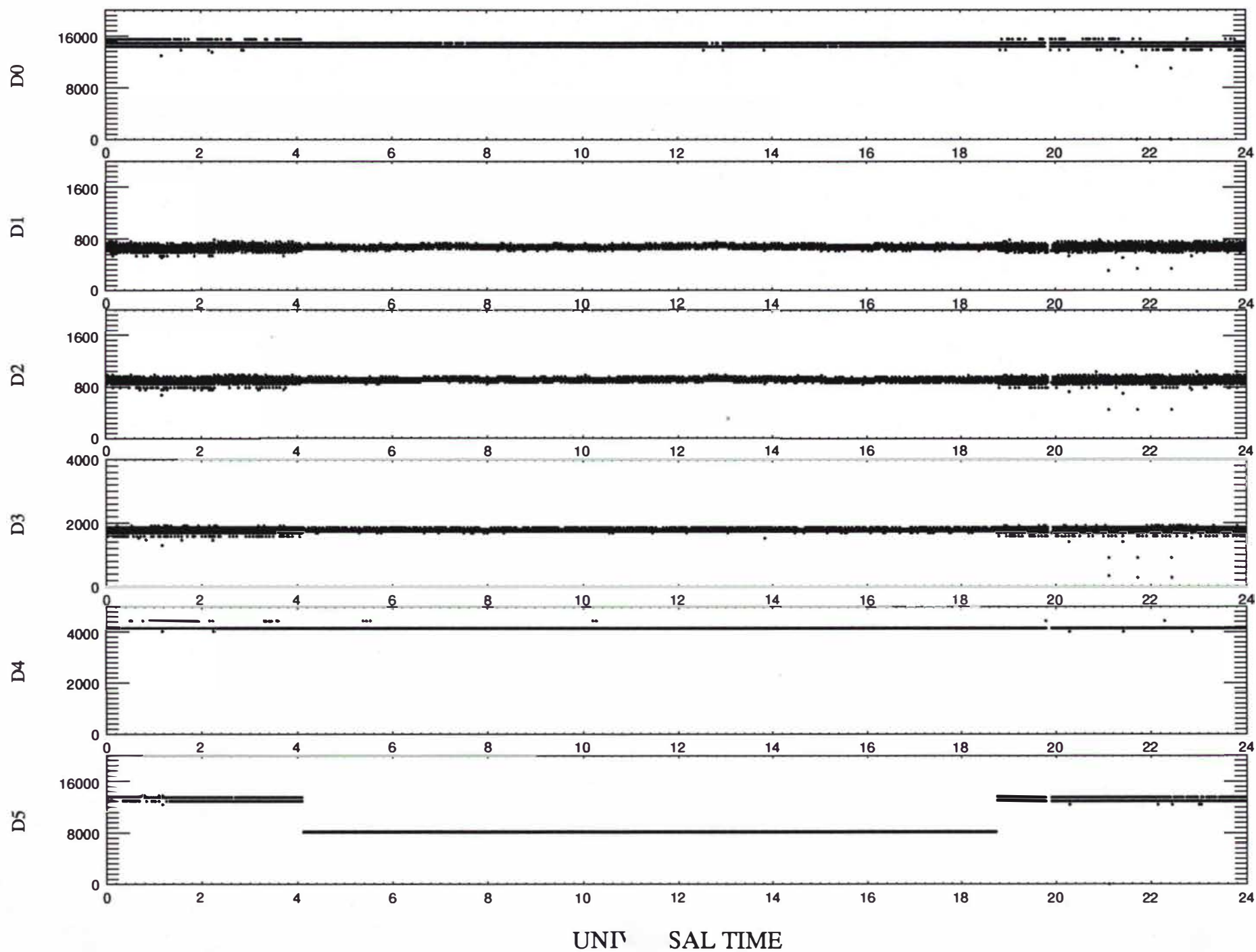
NO BURST (5)



CALIBRATION DATA INCLUDED



UNIT SAL TIME



Date: Dec 18 2012

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

- ☒ 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?

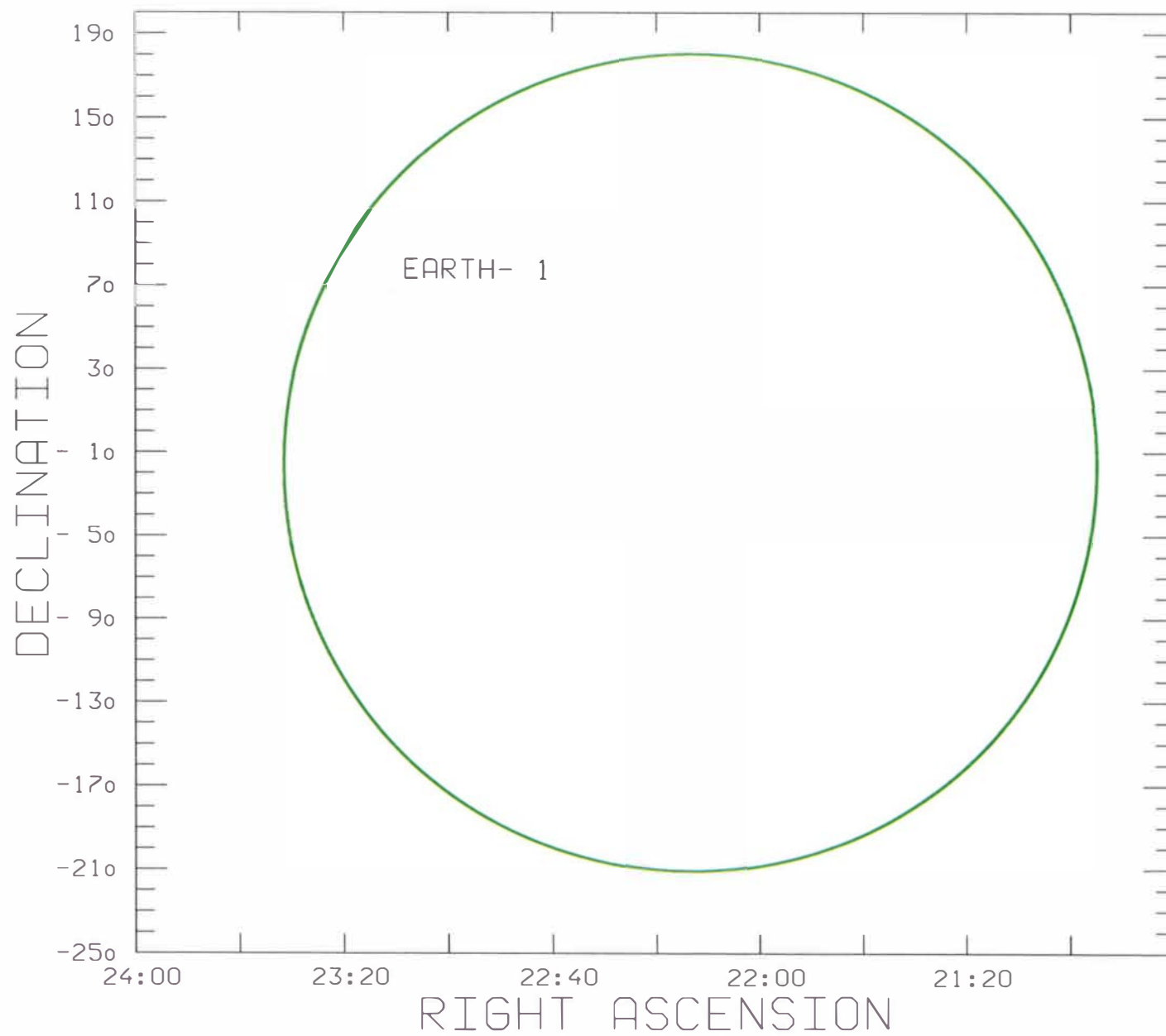
4. For Konus events

- ☐ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

- ☐ $\Sigma 3\Delta t$'s calculated?

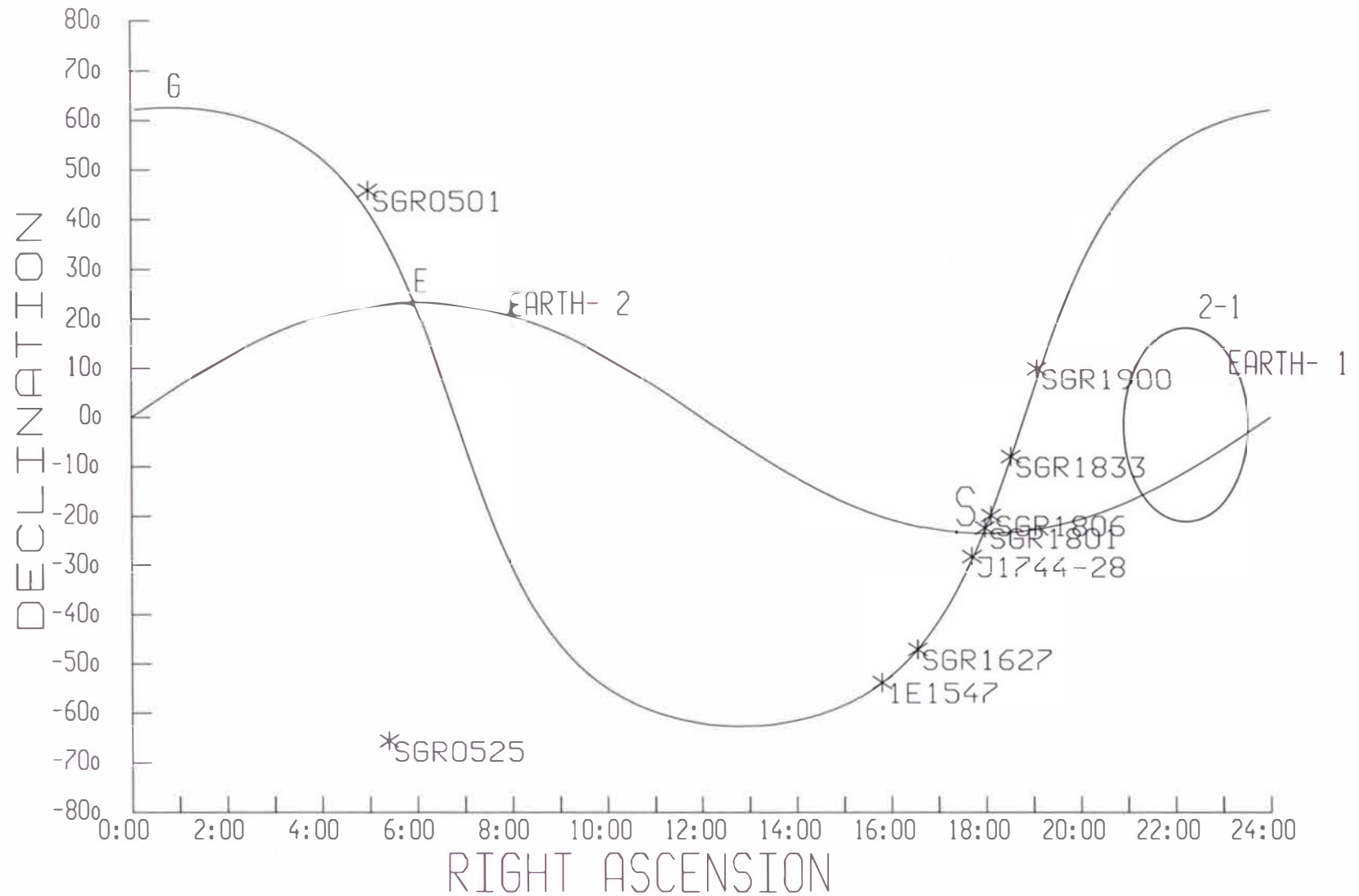
- ☒ ACCESS database updated?



EVENT OF DEC 13, 1998 16:45

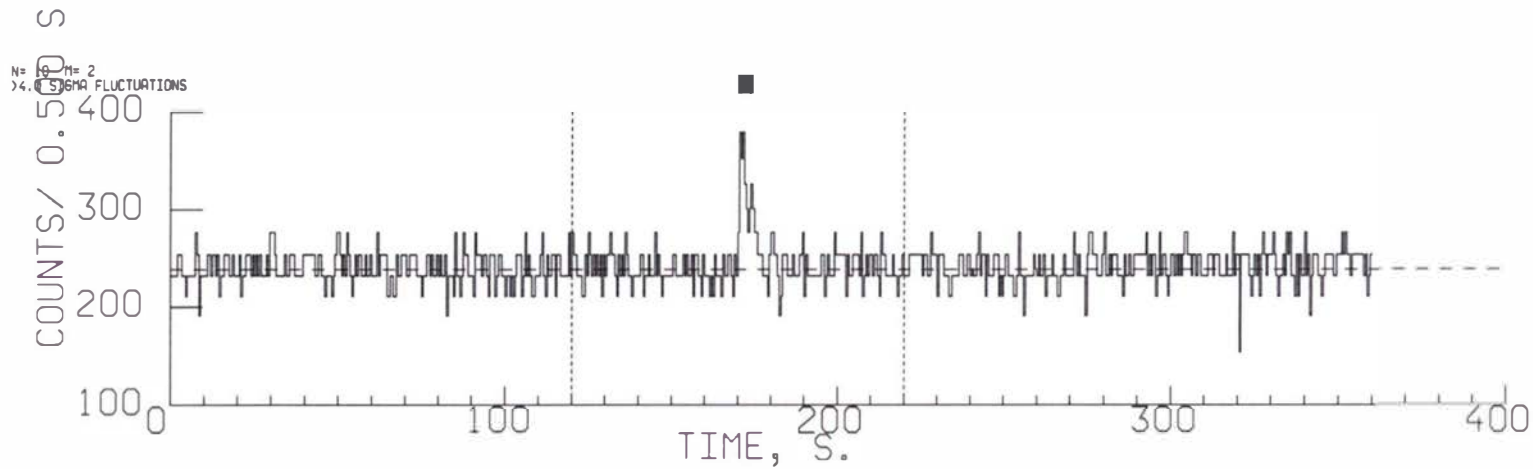
18/12/2012

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 NEAR



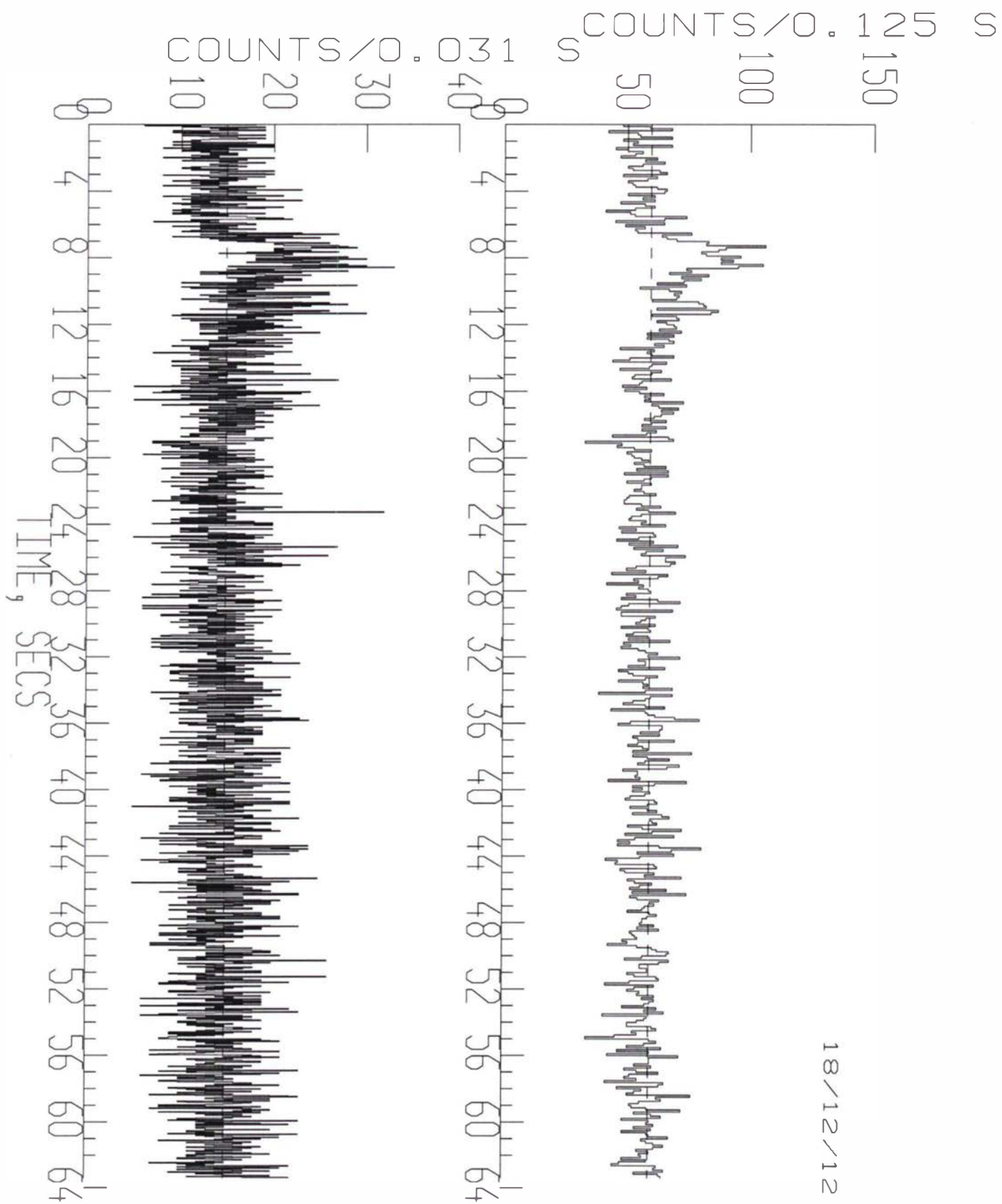
ULYSSES RT
13/12/98 60156.191 s
22- 150 keV

18/12/12

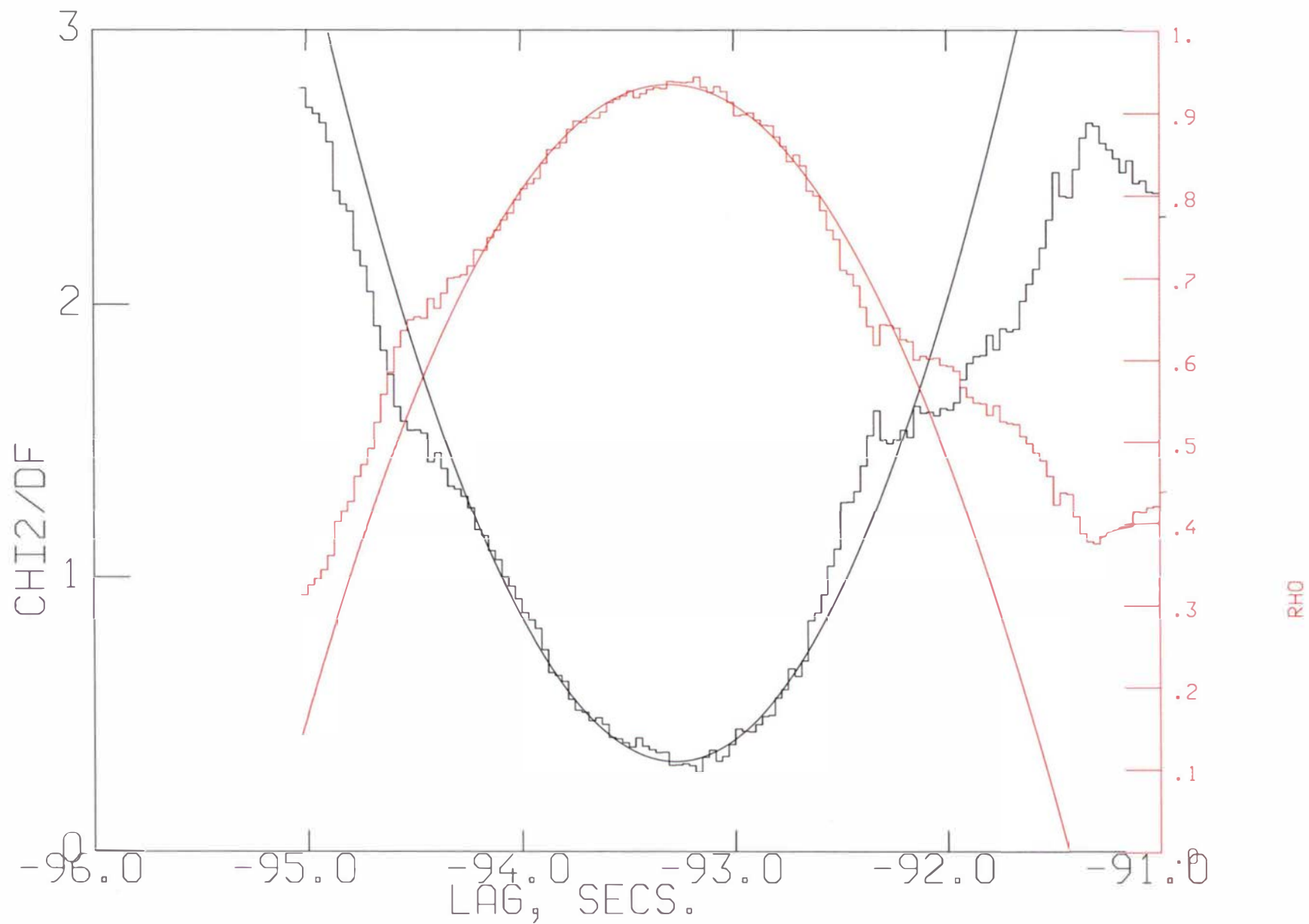


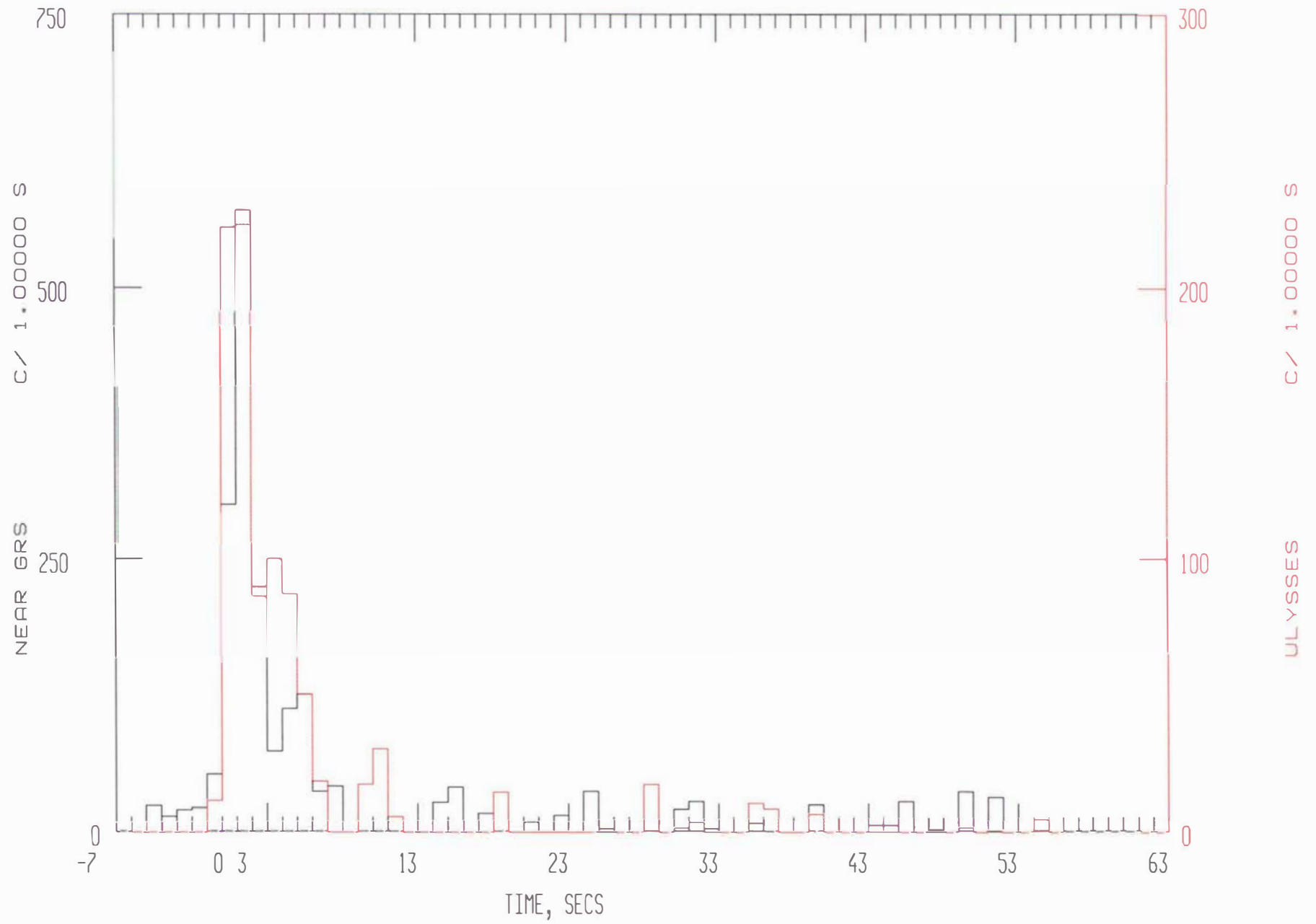
ULYSSES 13/12/98 Ttrig=60327.073

22- 150 keV



18/12/12





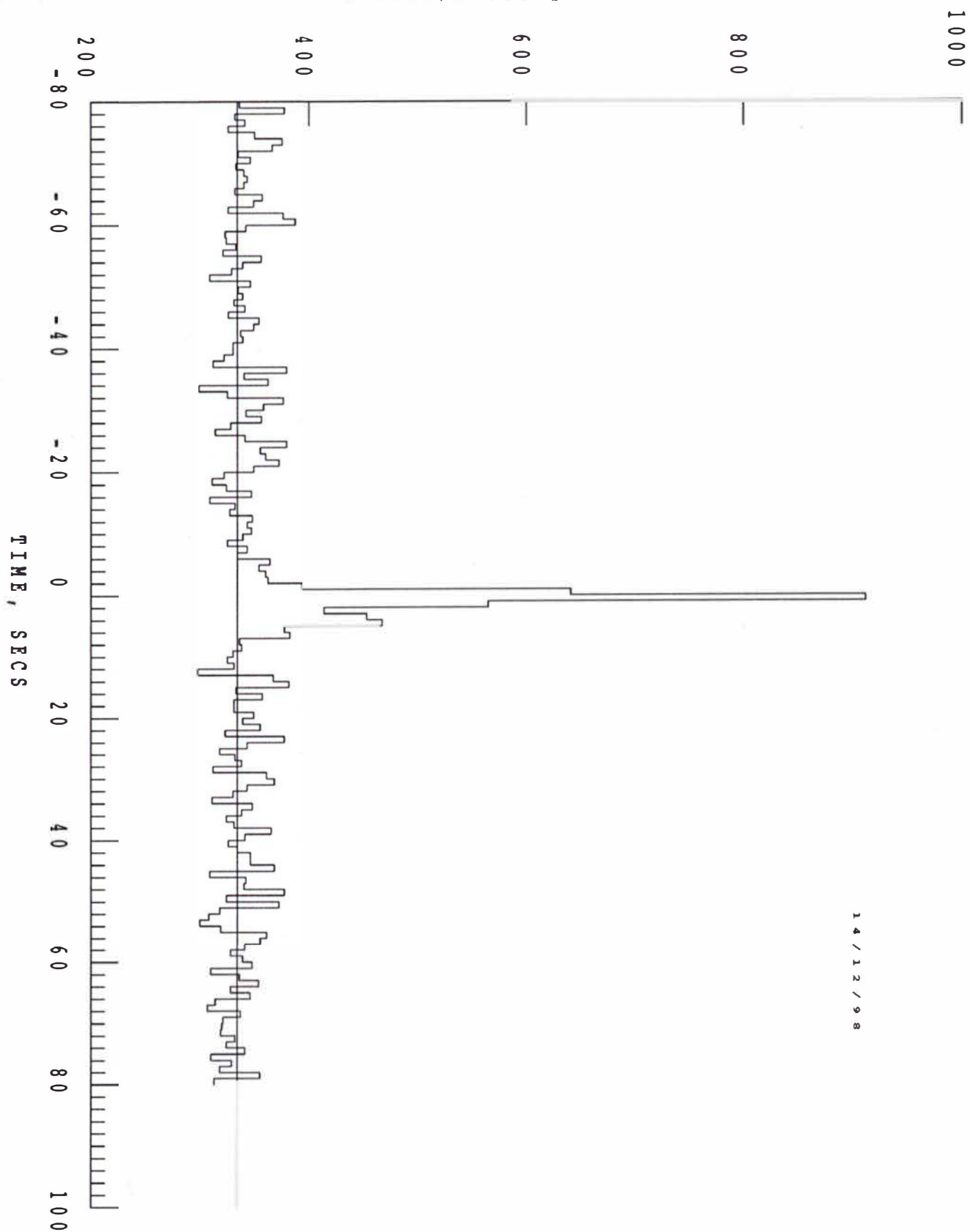
NEAR

13/12/98

57090.817

100-1000 keV

COUNTS/1.000 S



From khurley@sunspot Mon Dec 21 09:32 PST 1998
Date: Mon, 21 Dec 1998 09:37:04 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981213, 981214A,B, 981215A,B

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 13 1998 16:45	moderate, 10 s long	2500
DEC 14 1998 01:45*	moderate, 32 ms long	2500
DEC 14 1998 12:41*	weak, 64 ms long	2500
DEC 15 1998 07:33*	weak, 32 ms long	2500
DEC 15 1998 19:13*	weak, 32 ms long	2500

*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1290 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczynski, marar, tee

TGRS: NO

From MEEGAN@fender.msfc.nasa.gov Tue Dec 15 11:01:24 1998

From: MEEGAN@fender.msfc.nasa.gov

Date: Tue, 15 Dec 1998 12:59:53 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 07257

TIME: TJD=1160 SECONDS=18914

TYPE: FLARE

SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=094.9 AZIMUTH=332.1 ERROR= DEGREES

COMMENTS:

GOES C3.0 FLARE ABOUT 30 S LONG.

From MEEGAN@fender.msfc.nasa.gov Tue Dec 15 11:05:30 1998

From: MEEGAN@fender.msfc.nasa.gov

Date: Tue, 15 Dec 1998 13:04:59 -0600 (CST)

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

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 07258

TIME: TJD=1160 SECONDS=25929

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 95.2 AZIMUTH=326.4 ERROR= DEGREES

COMMENTS:

GOES C5.5 FLARE ABOUT 220 S LONG.

From HENZE@fender.msfc.nasa.gov Mon Dec 14 12:07:44 1998

Date: Mon, 14 Dec 1998 14:04:01 -0600 (CST)

From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

To: 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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7259

TIME: TJD=1160 SECONDS=59783

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY.

From HENZE@fender.msfc.nasa.gov Mon Dec 14 12:08:17 1998
Date: Mon, 14 Dec 1998 14:05:55 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7260

TIME: TJD=1160 SECONDS=71411

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

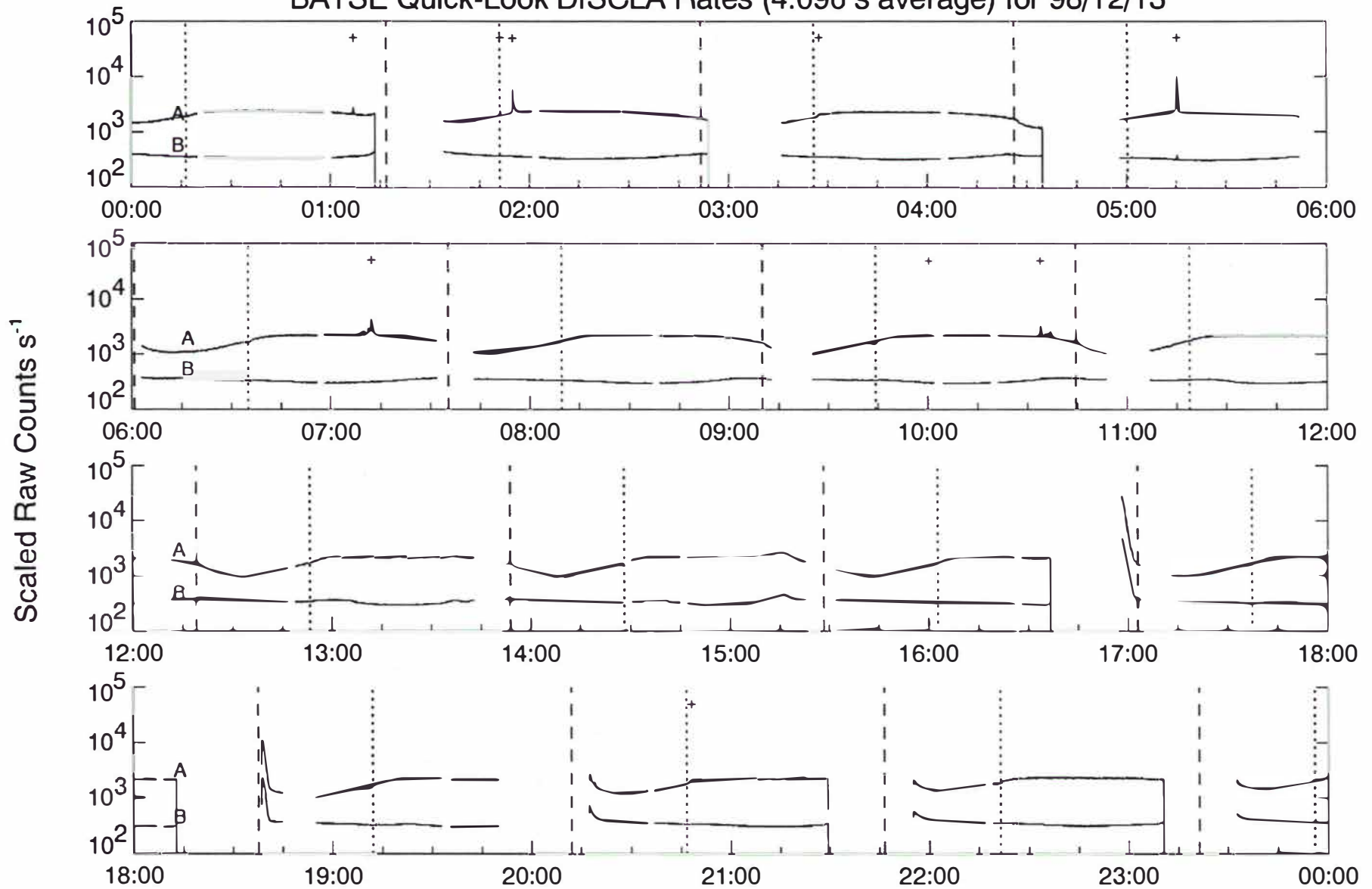
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/13



Current Time: 98/12/17, 1011 EDT

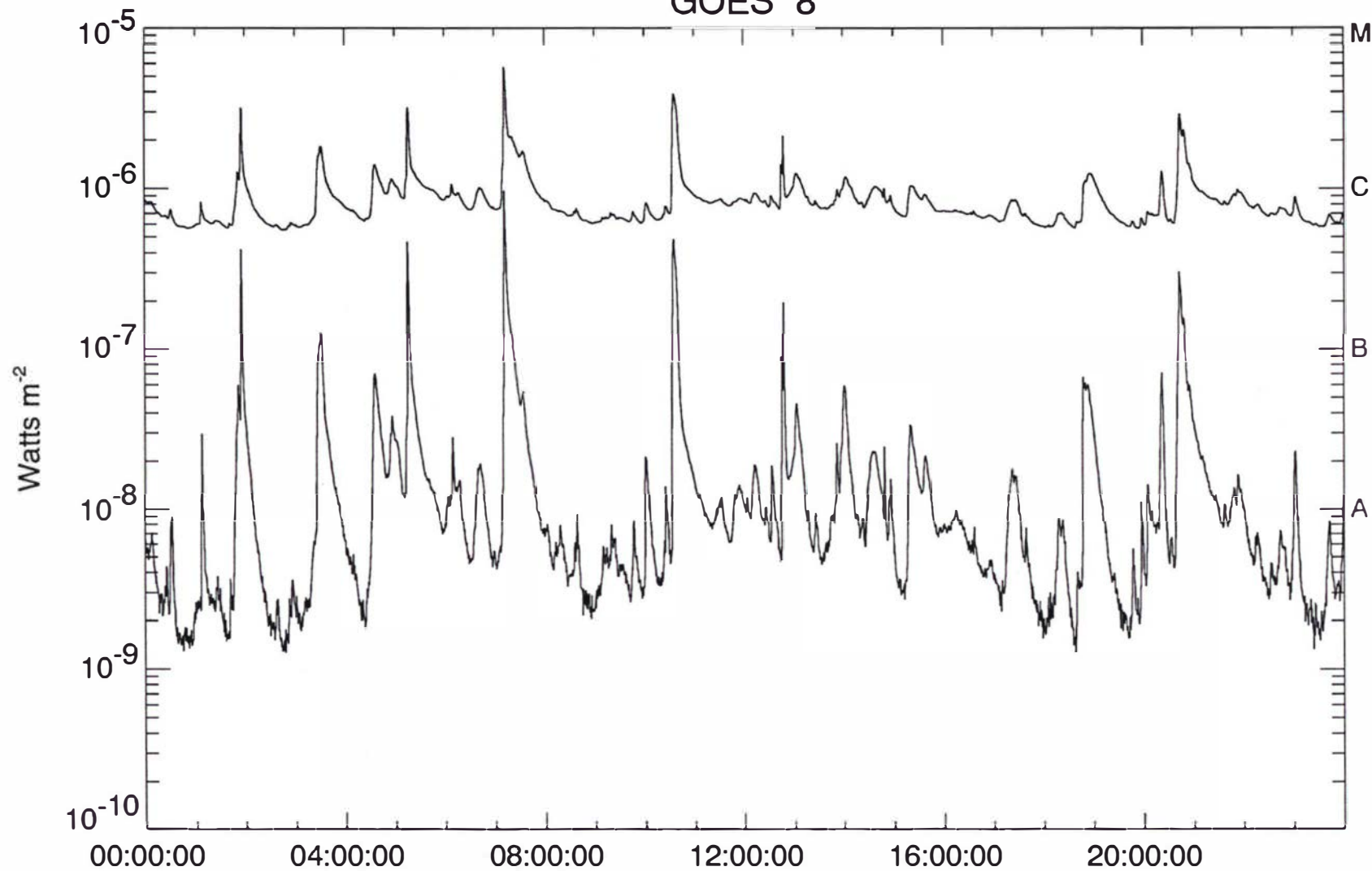
A: Channel 0 Most Sunward LAD

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: 98/12/13, 0000:00

Plot created: 98/12/17, 1010

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

2 (0.5 - 4.0 Angstroms)

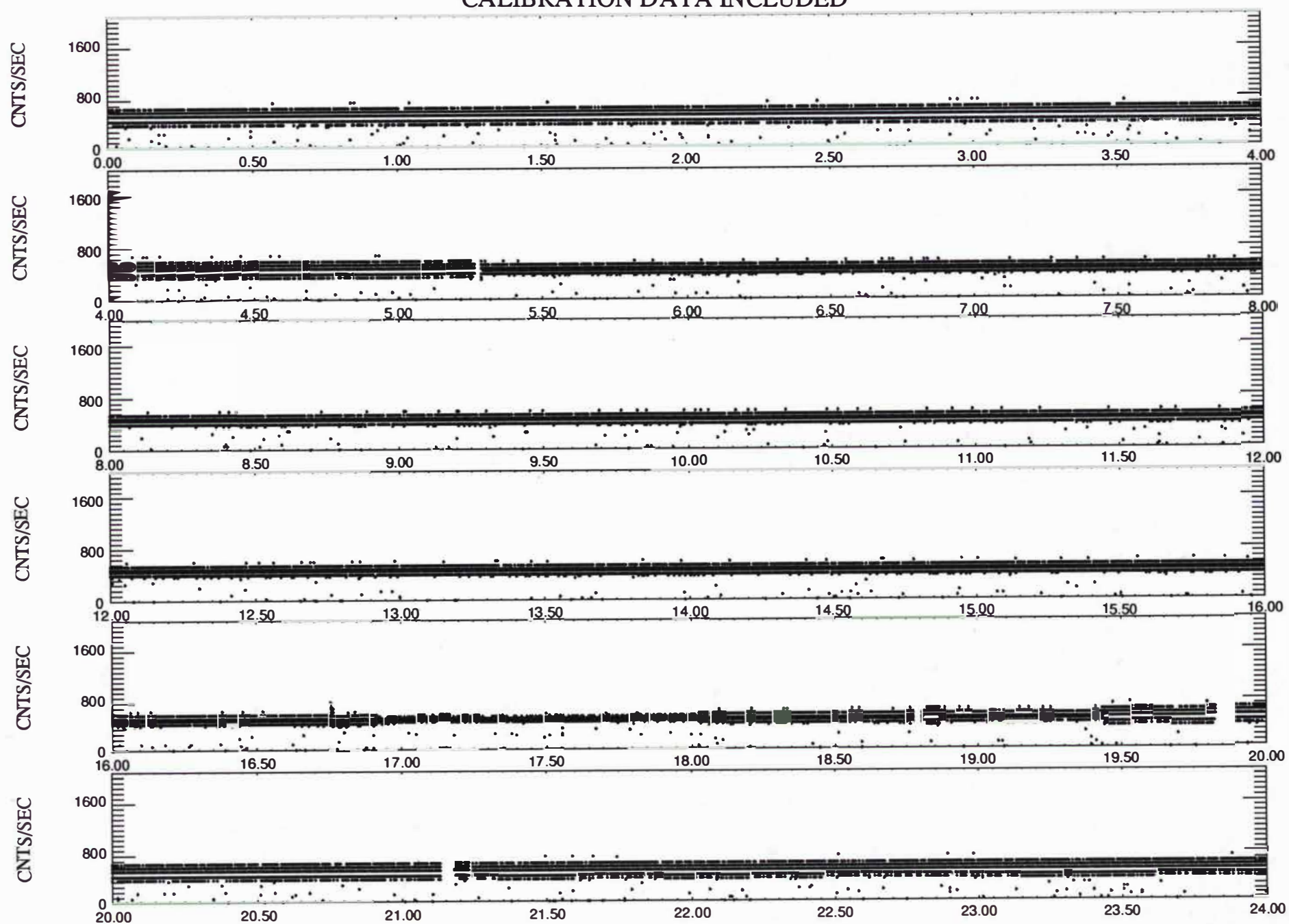
Background not subtracted

Sample average = 10

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

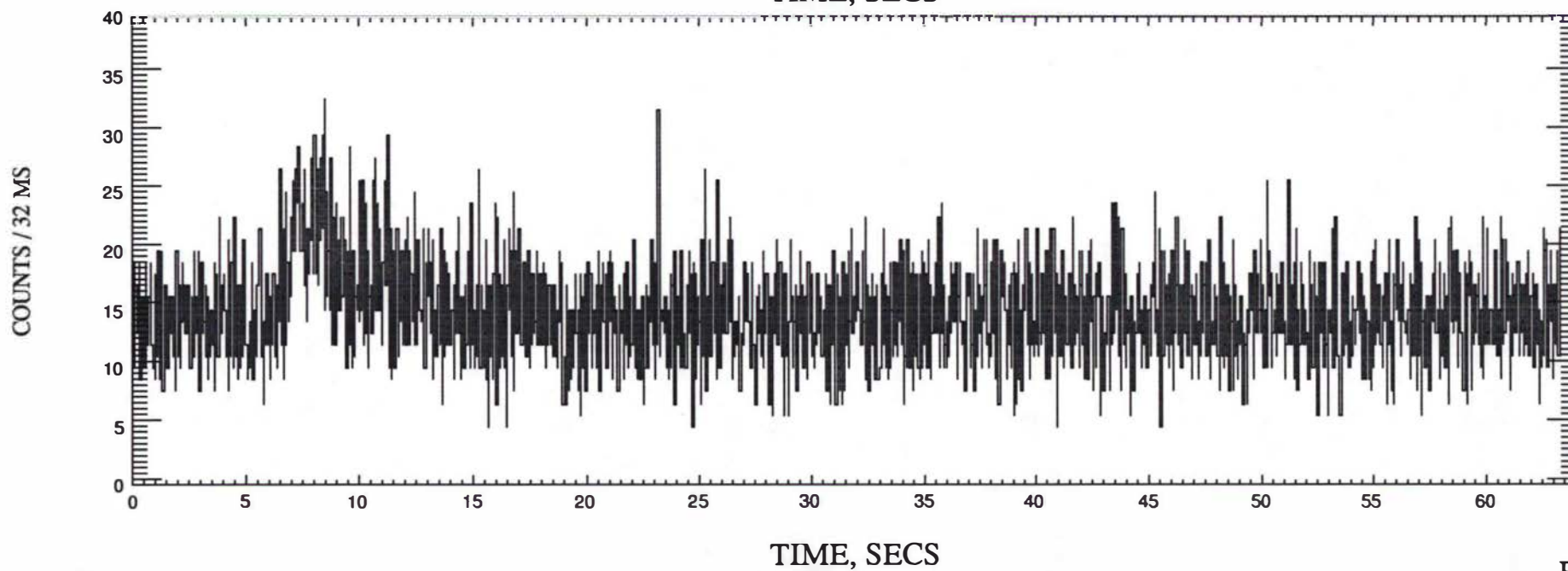
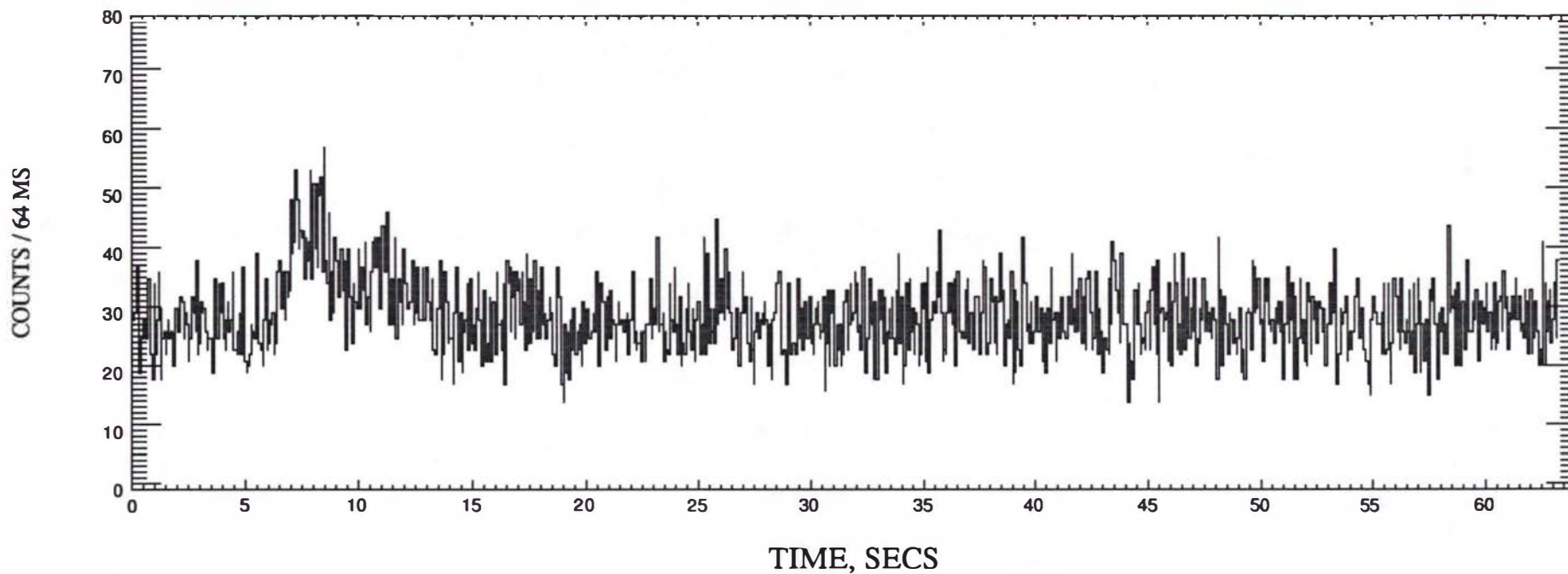


CALIBRATION DATA INCLUDED

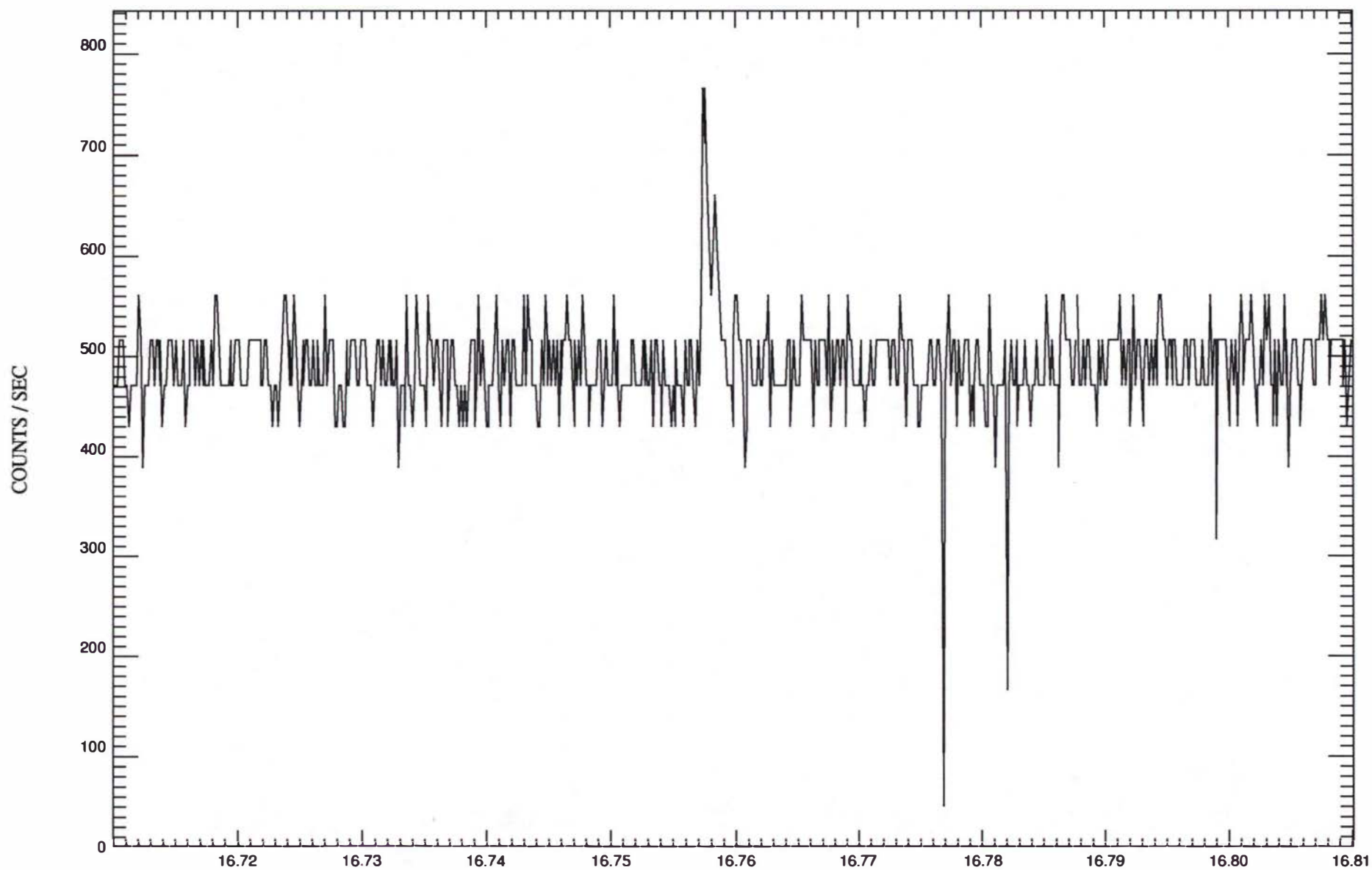


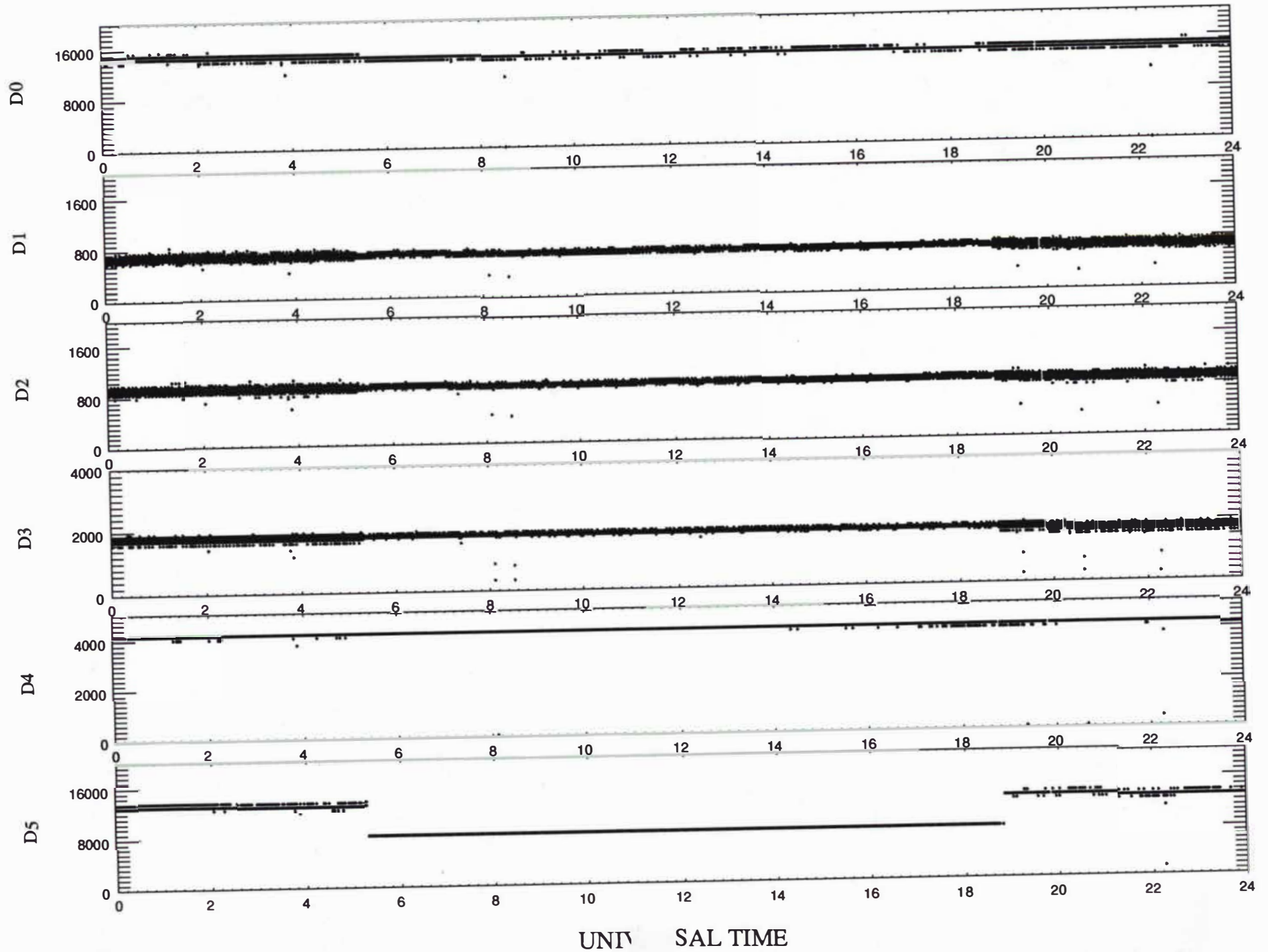
UNIV SAL TIME

Burst Counter 6 at UT=16.757513860067 h=60327.050 s 16:45:27.050



CALIBRATION DATA INCLUDED





From khurley@sunspot Mon Dec 21 09:32 PST 1998
Date: Mon, 21 Dec 1998 09:37:04 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981213, 981214A,B, 981215A,B

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 13 1998 16:45	moderate, 10 s long	2500
DEC 14 1998 01:45*	moderate, 32 ms long	2500
DEC 14 1998 12:41*	weak, 64 ms long	2500
DEC 15 1998 07:33*	weak, 32 ms long	2500
DEC 15 1998 19:13*	weak, 32 ms long	2500

*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1290 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczynski, marar, tee

TGRS: NO

From HENZE@fender.msfc.nasa.gov Tue Dec 15 11:26:03 1998
Date: Tue, 15 Dec 1998 13:25:36 -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@lhea-www.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7261

TIME: TJD=1161 SECONDS=58431

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

From HENZE@fender.msfc.nasa.gov Tue Dec 15 11:27:59 1998
Date: Tue, 15 Dec 1998 13:27:40 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>
To: 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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7262

TIME: TJD=1161 SECONDS=59892

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

PARTICLE EVENT AFTER SAA EXIT.

Date: Dec 14 2012

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?

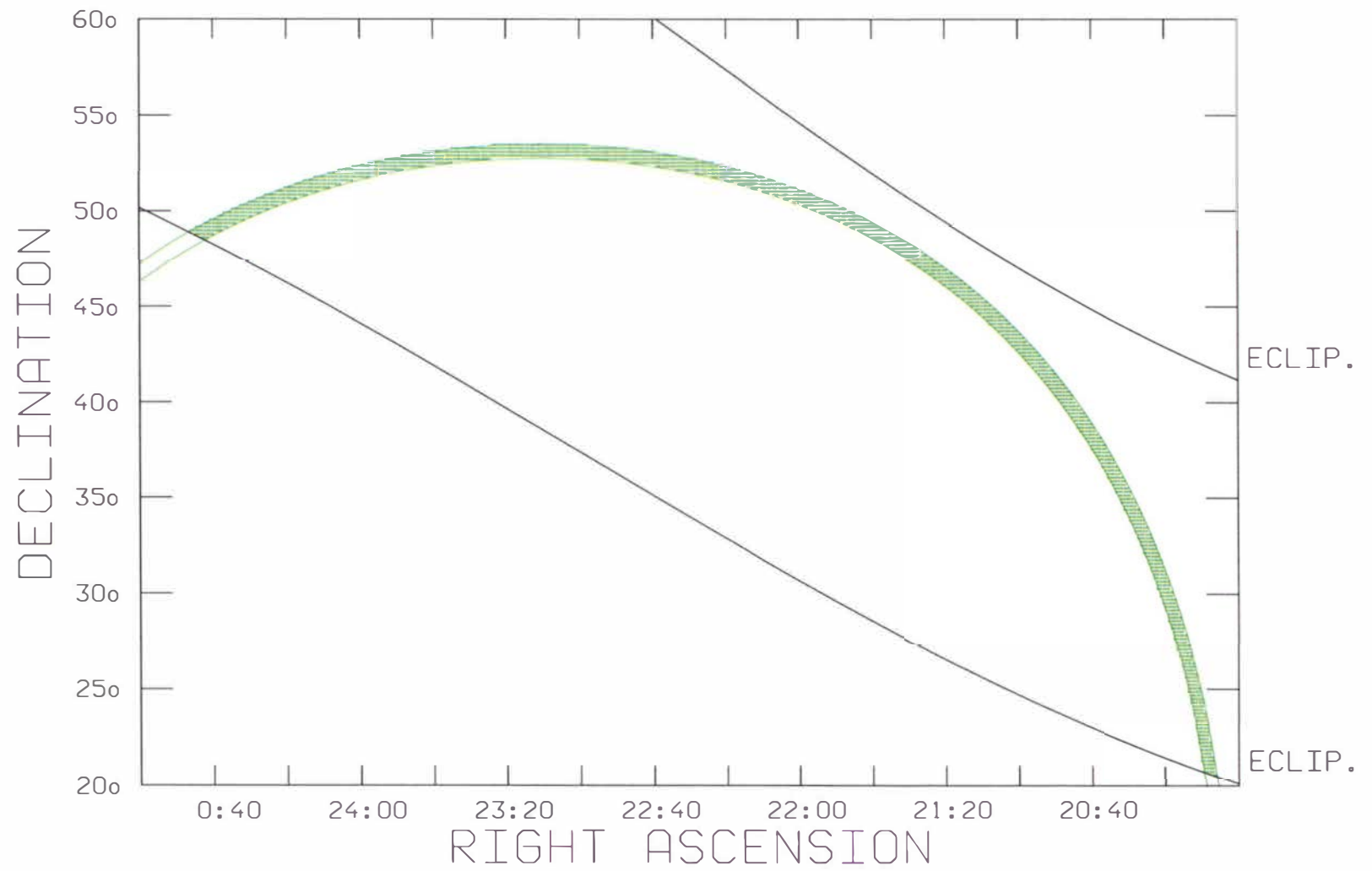
2. For 3 or More Spacecraft events

- ☐ $\Sigma 3\Delta t$'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?

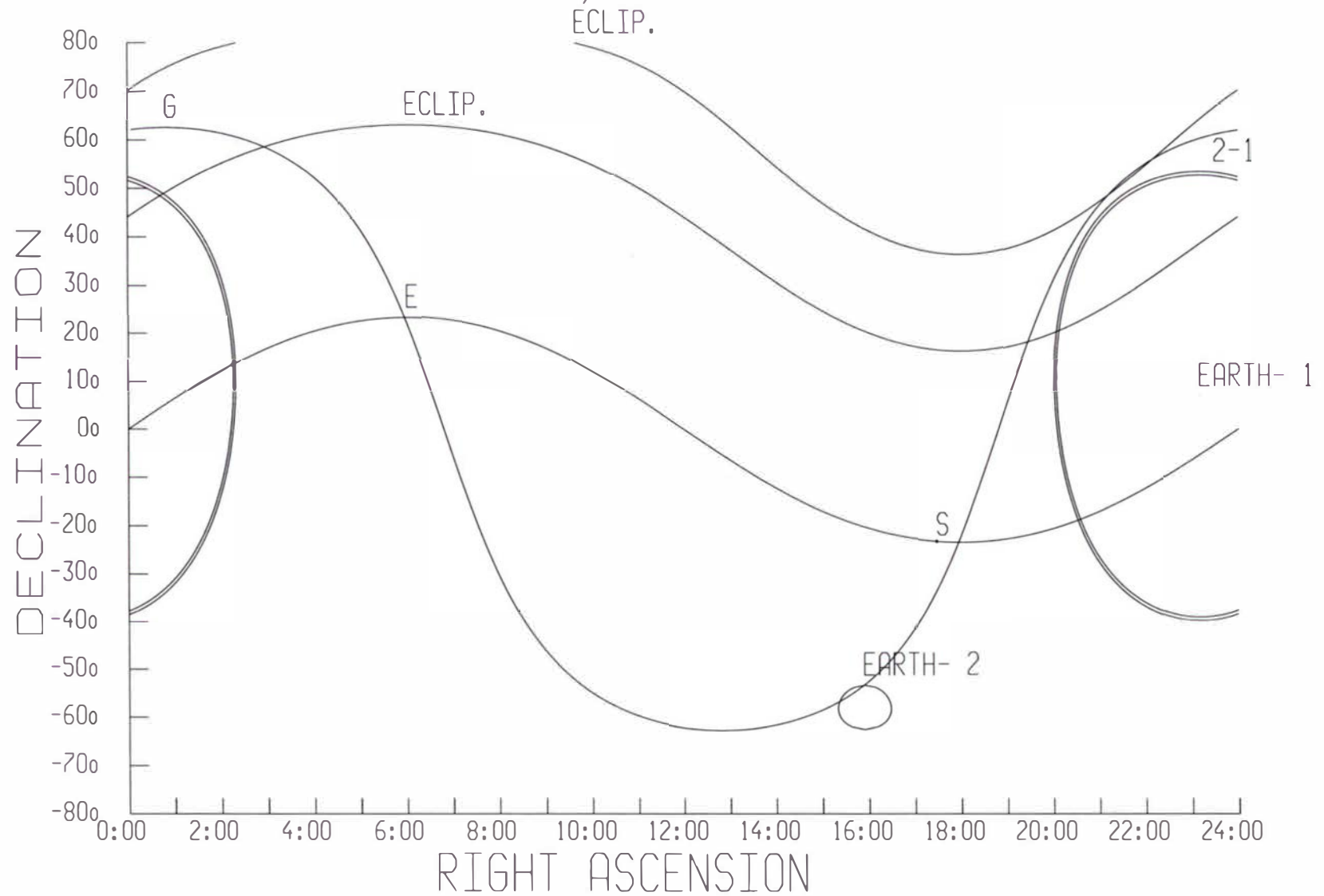
-
- ☒ ACCESS and MBL4 databases updated with identical times?



EVENT OF DEC 14, 1998 22:59

14/12/2012

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



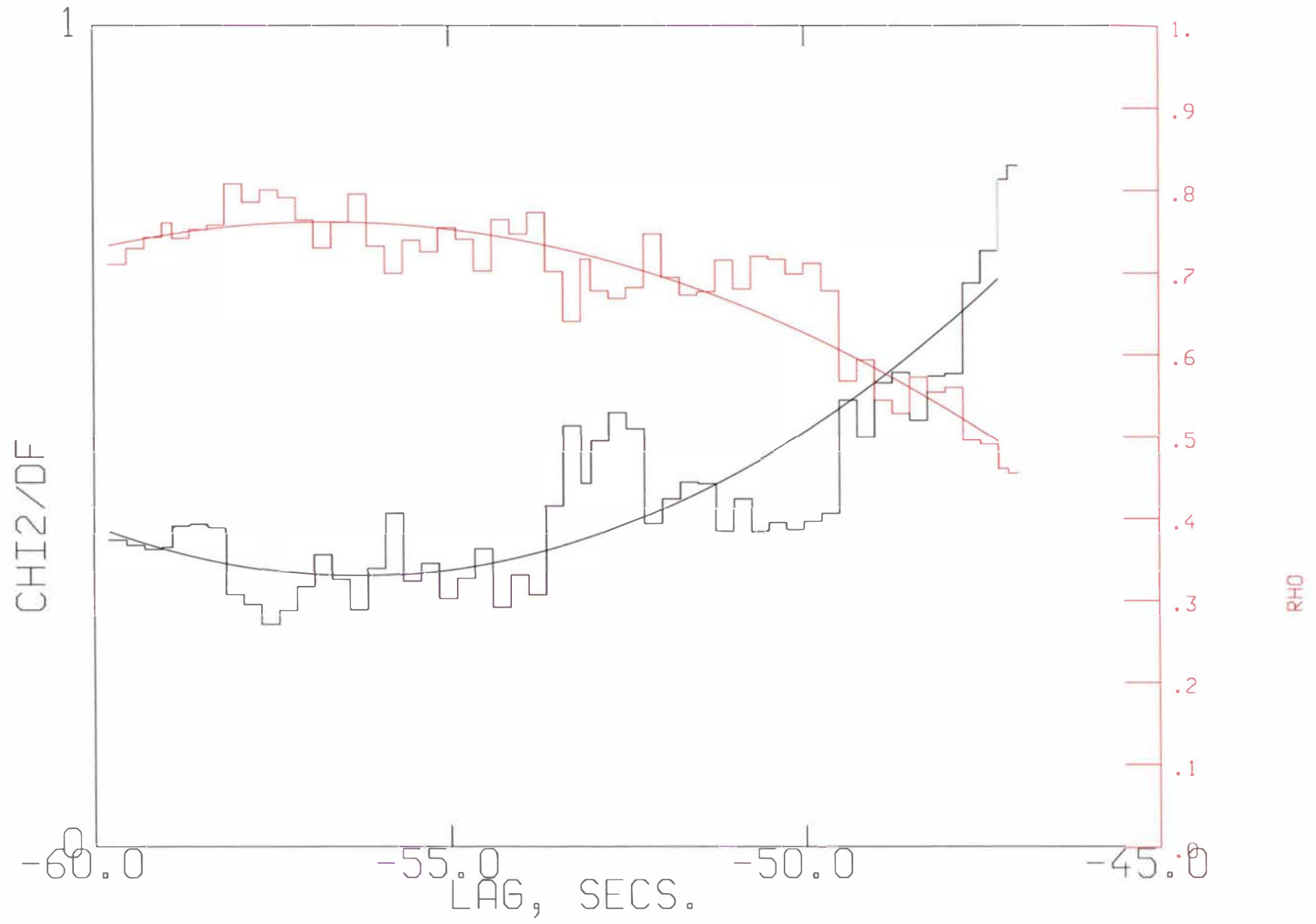
KONUS

-ULYSSES RT CORRELATION

14/12/98

80924.898

14/12/12



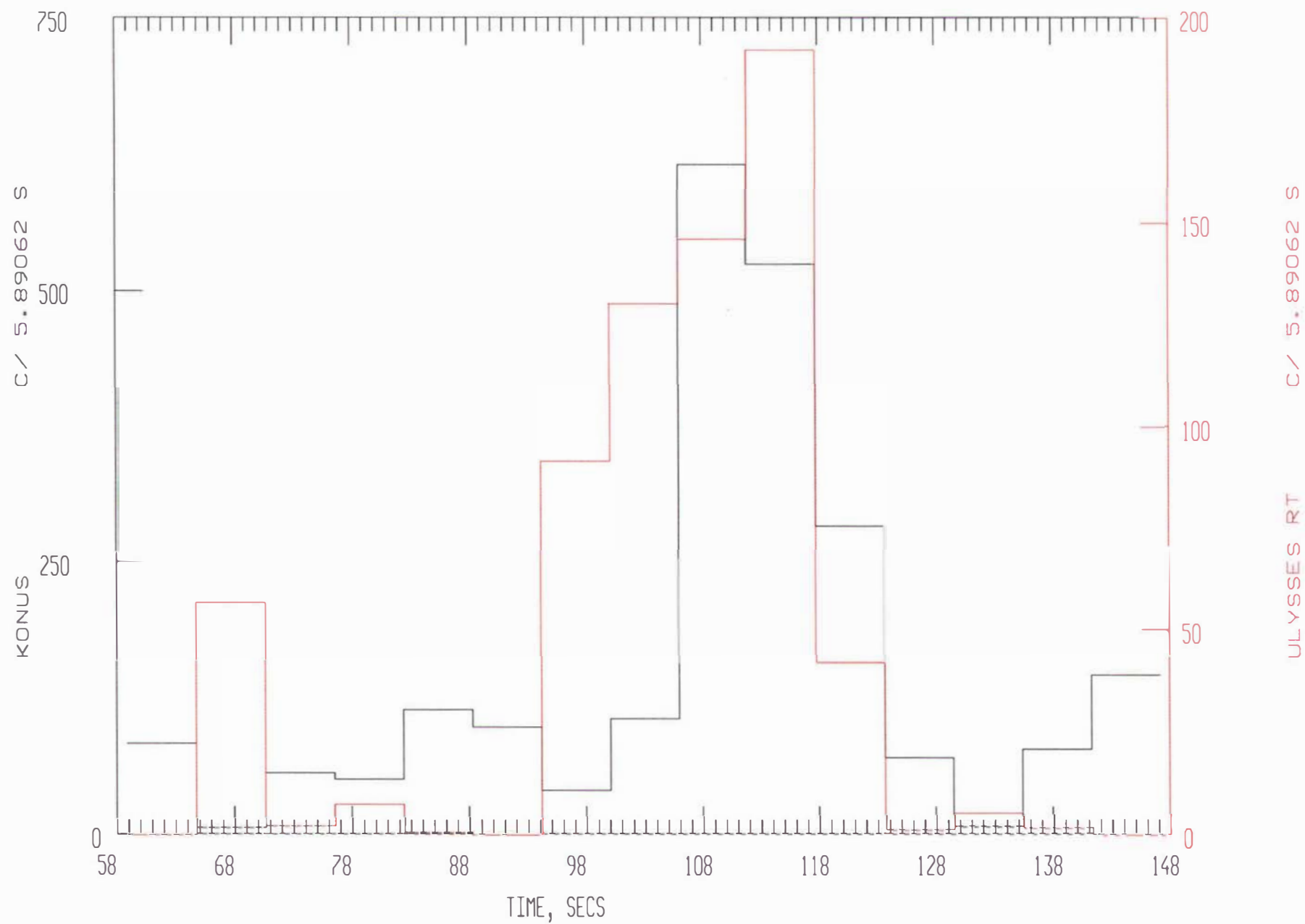
KONUS

-ULYSSES RT CORRELATION

14/12/98

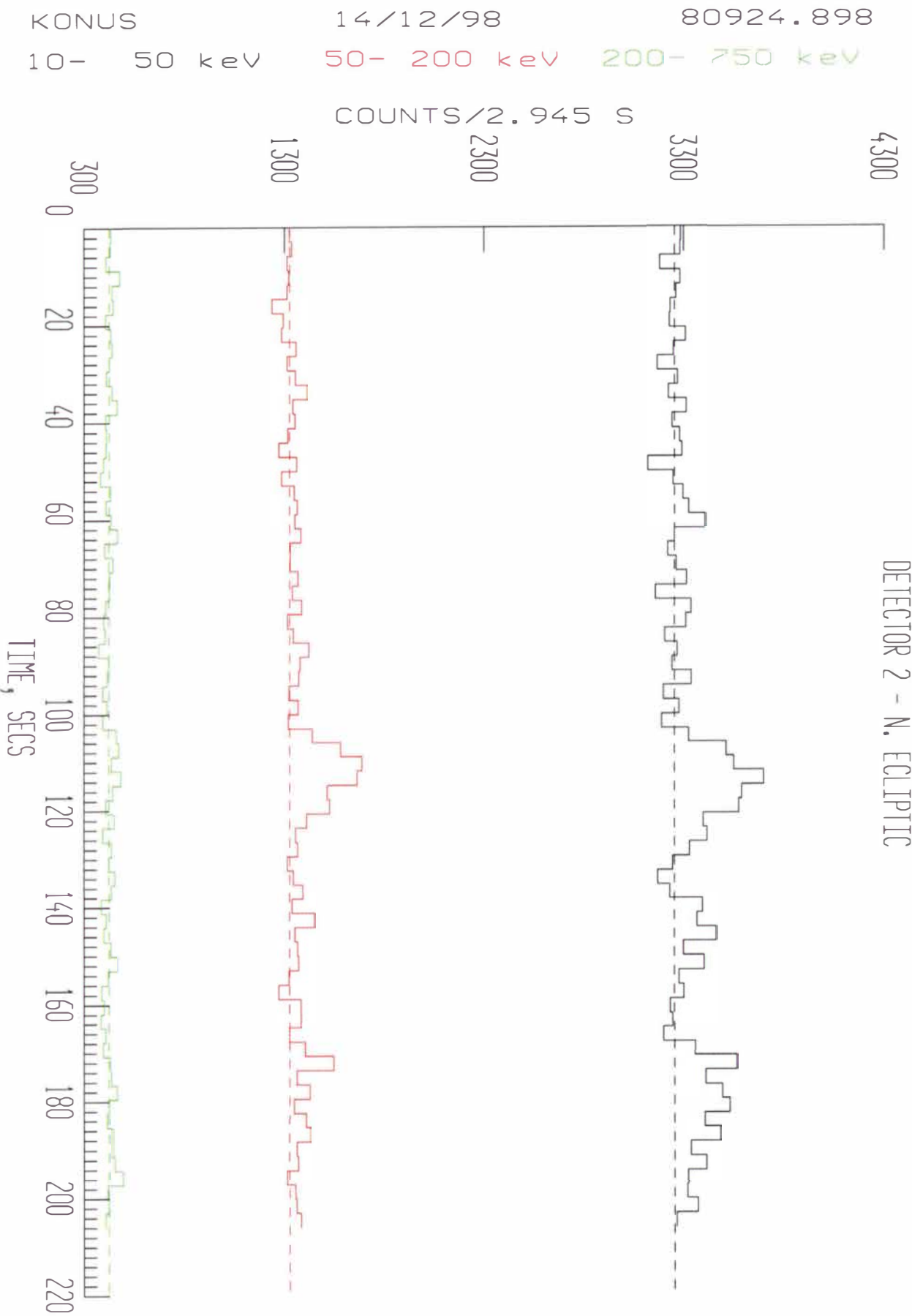
80924.898

14/12/12



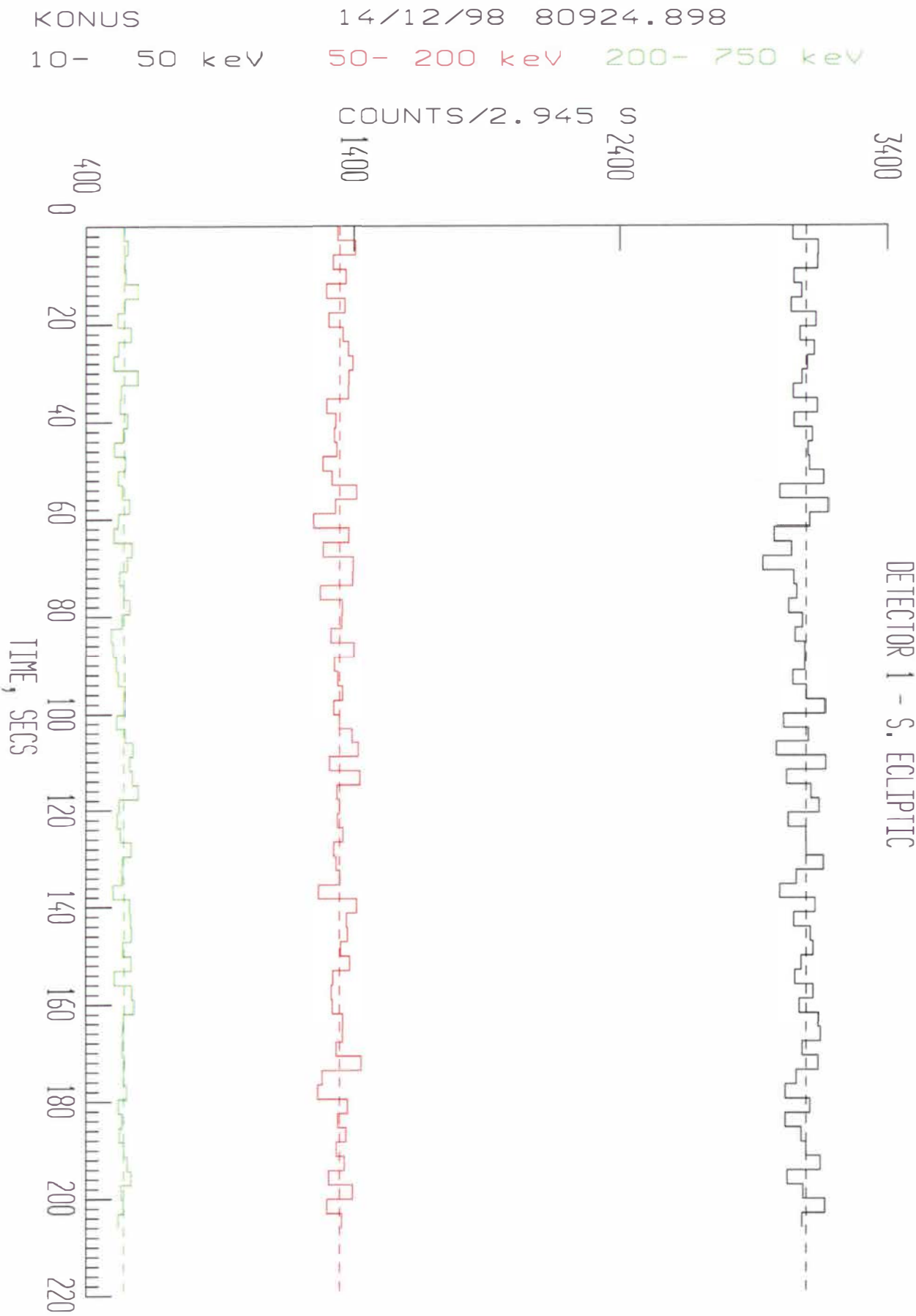
14/12/2012

DETECTOR 2 - N. ECLIPSE



14/12/2012

DETECTOR 1 - S. ECLIPTEIC



KONUS RI

2 / 6 / 99

ULYSSES RT

14 / 12 / 98 78444.008 s

0.250 S INTERVALS REGROUPED BY 14

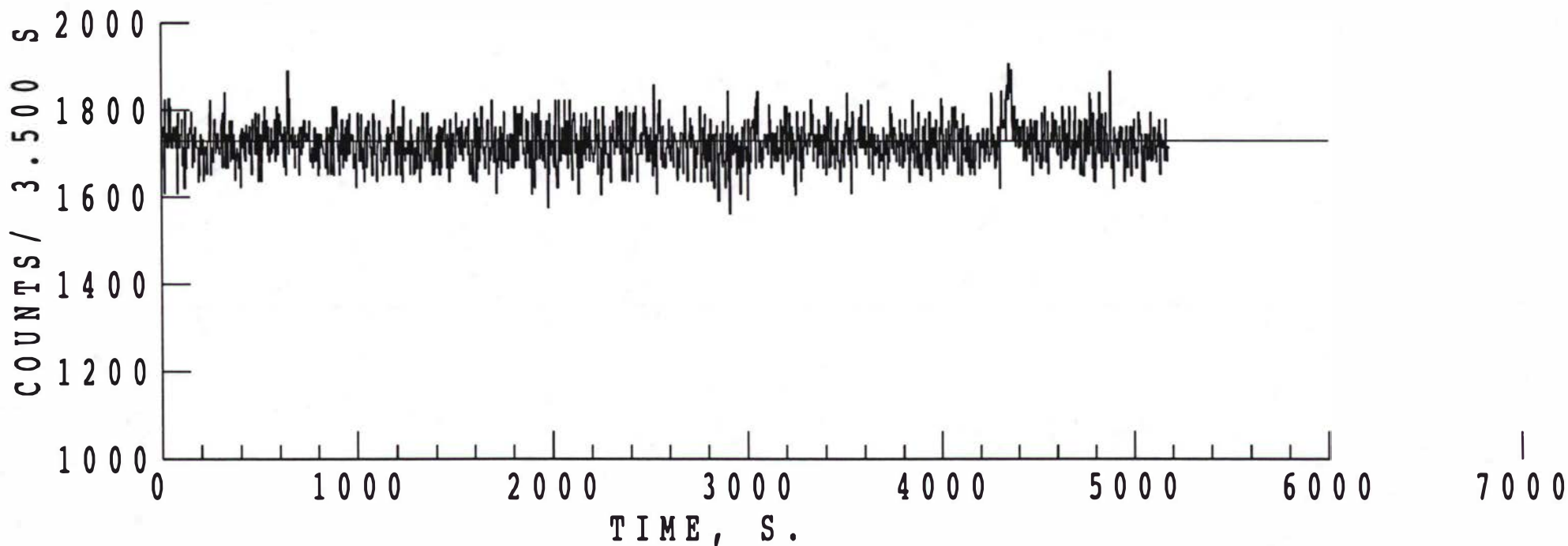
0 - 0 keV

N= 10 M= 10

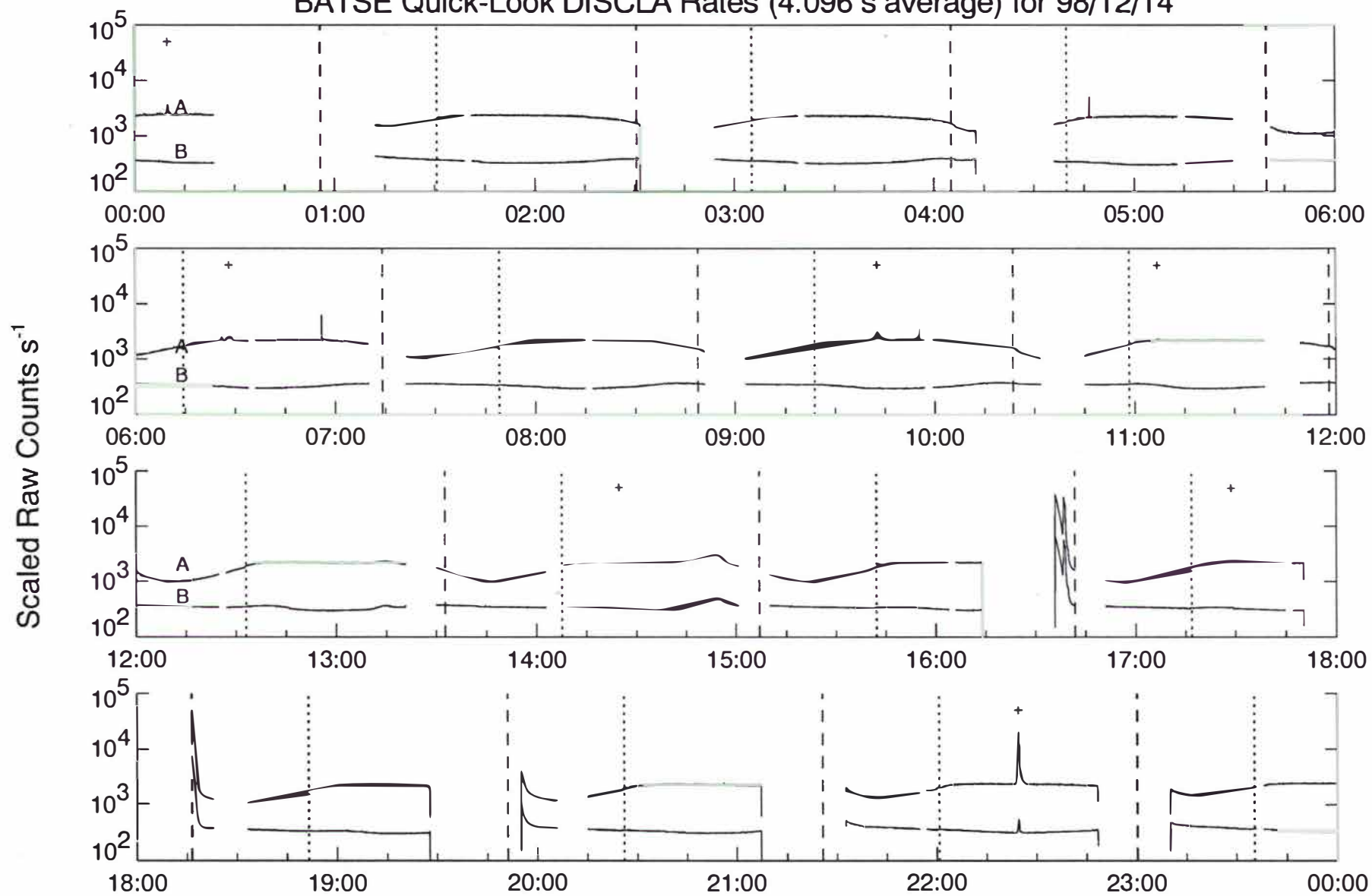
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/14

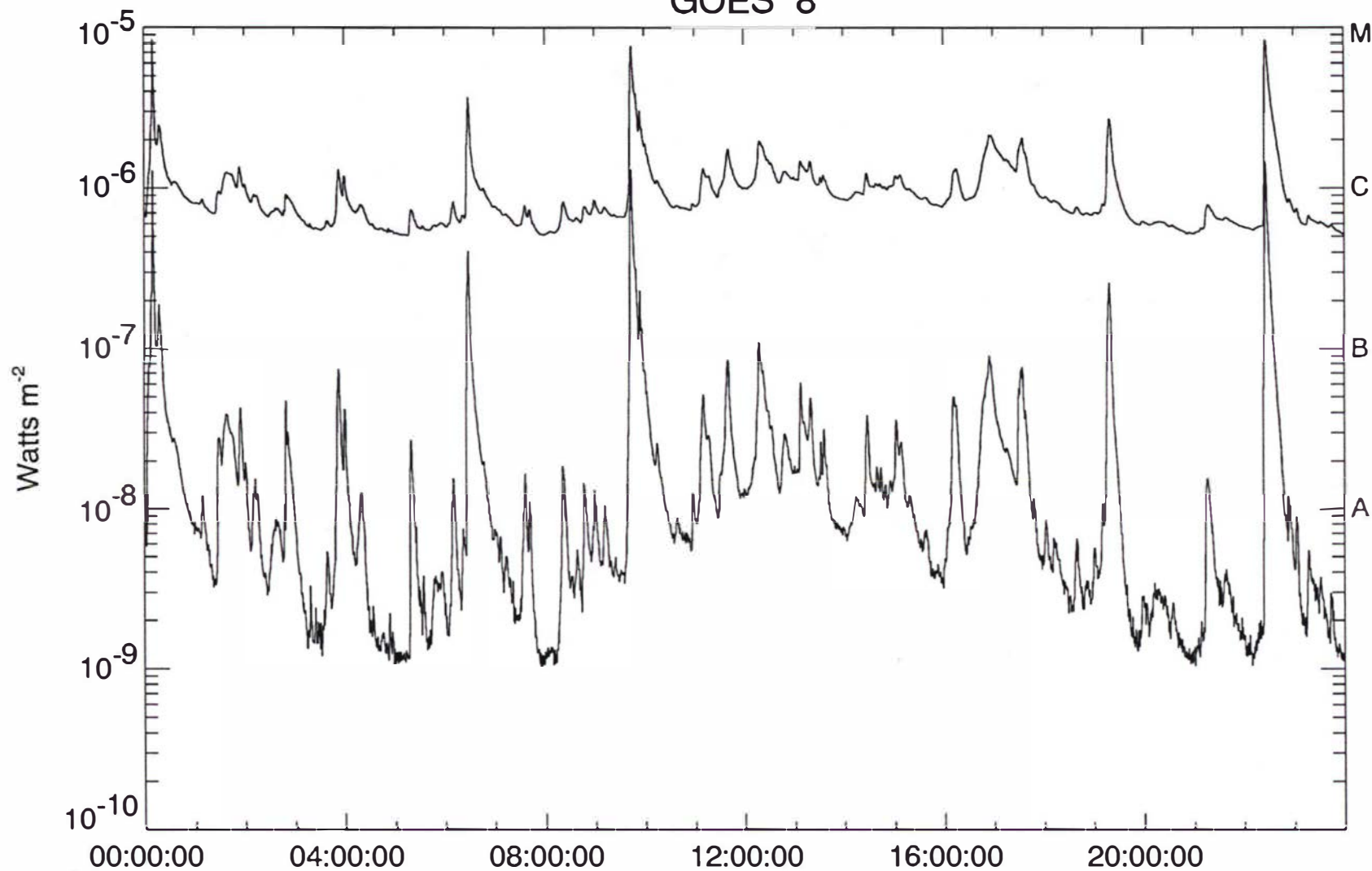


Current Time: 98/12/18, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8

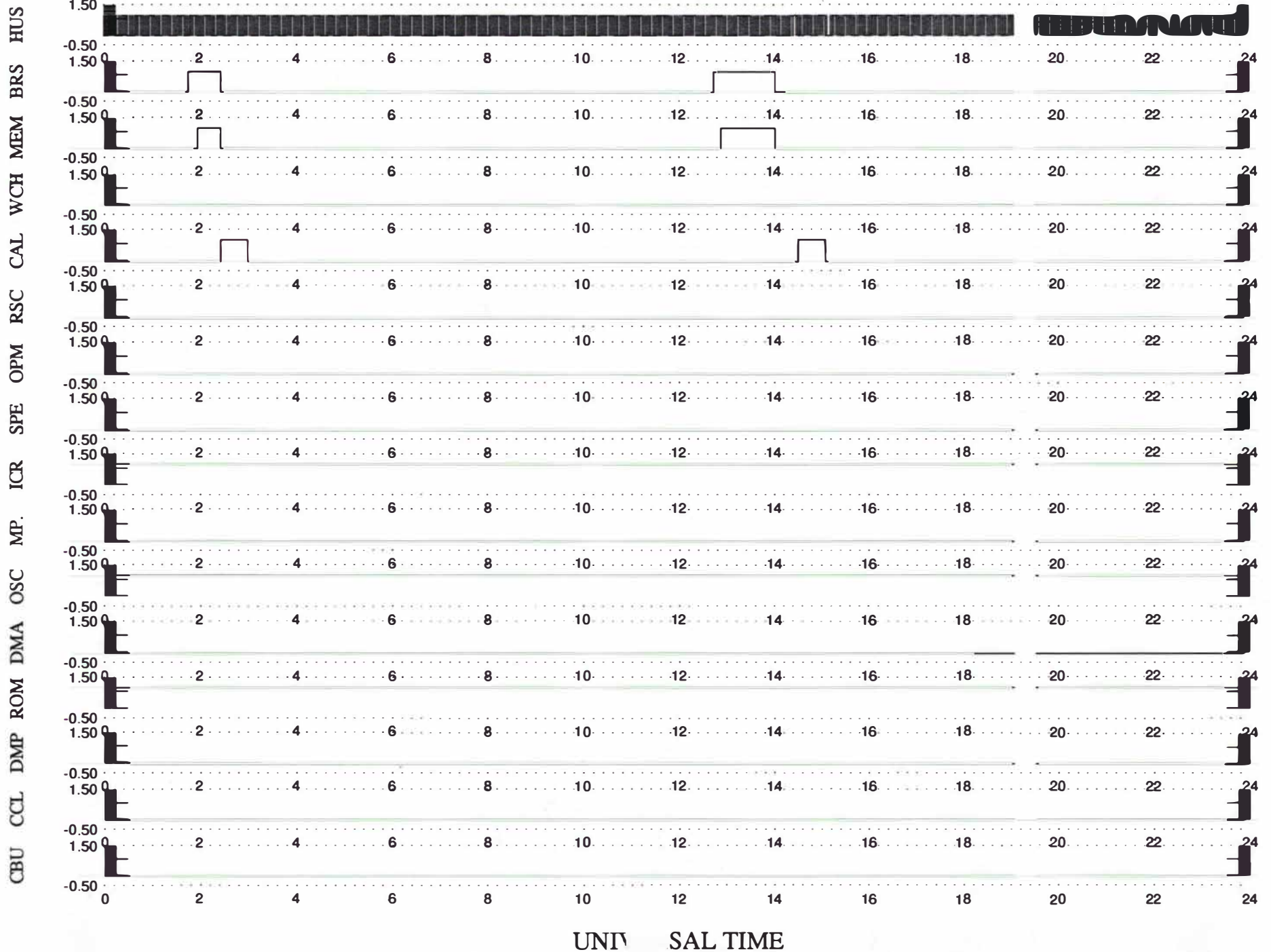


Data Start: 98/12/14, 0000:00

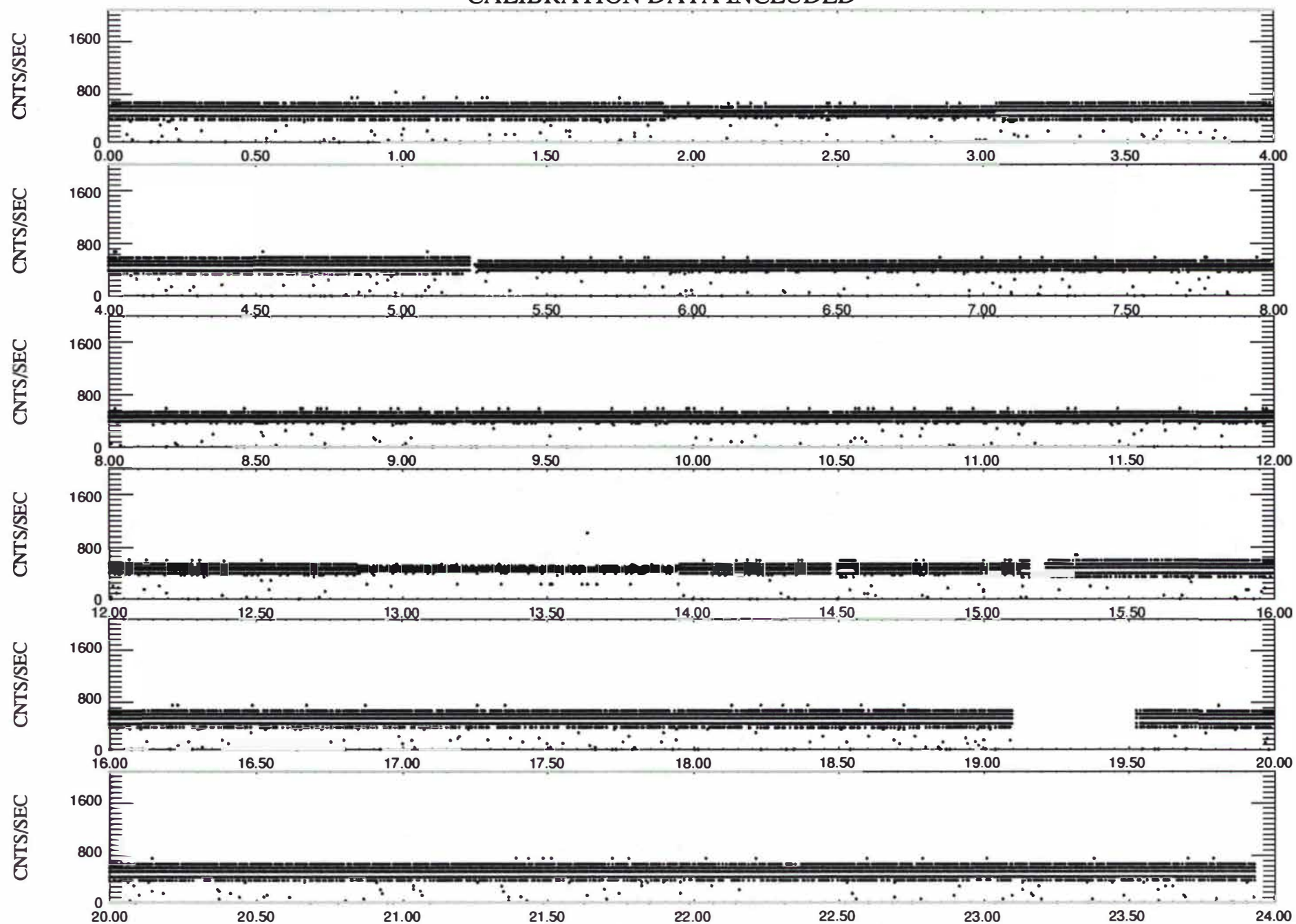
Plot created: 98/12/18, 1010

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 7, 8

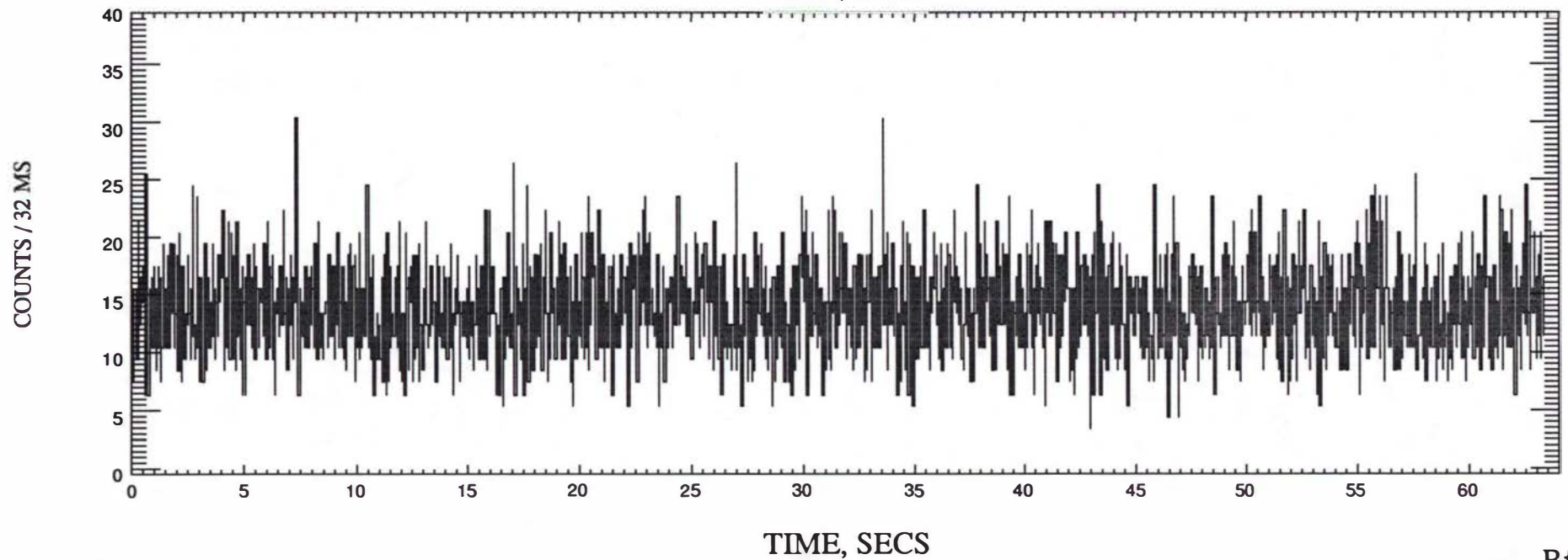
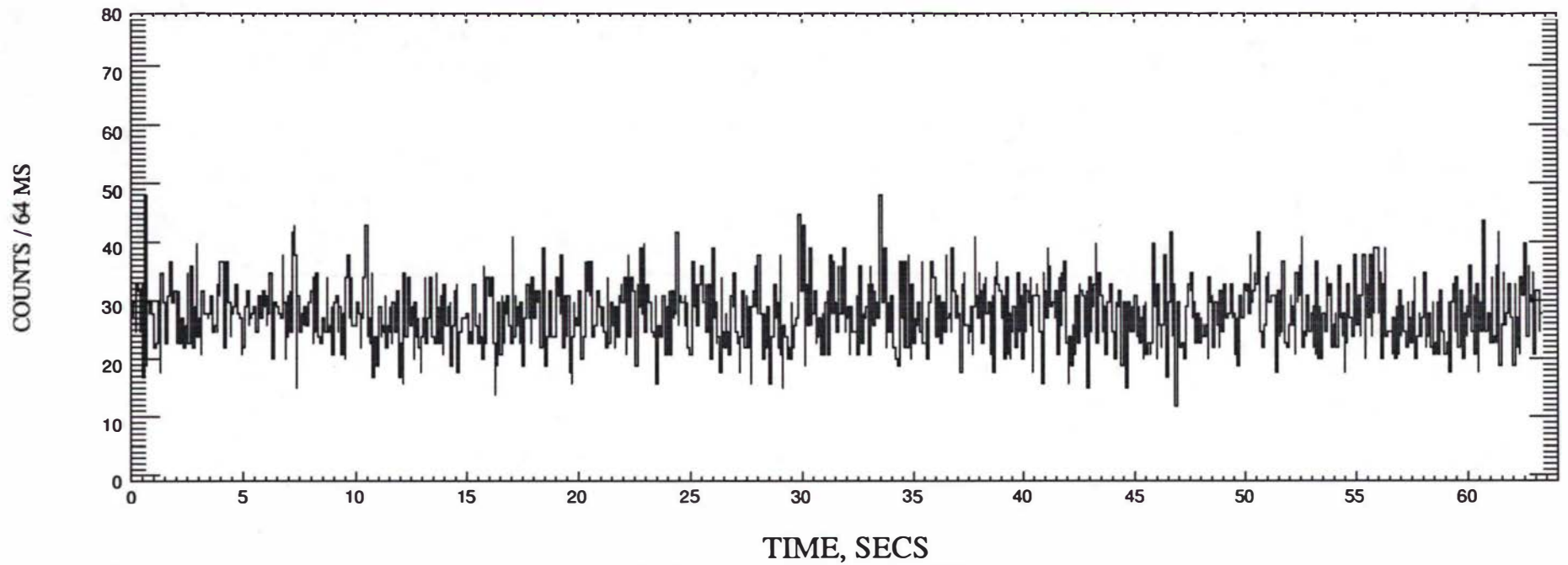


CALIBRATION DATA INCLUDED

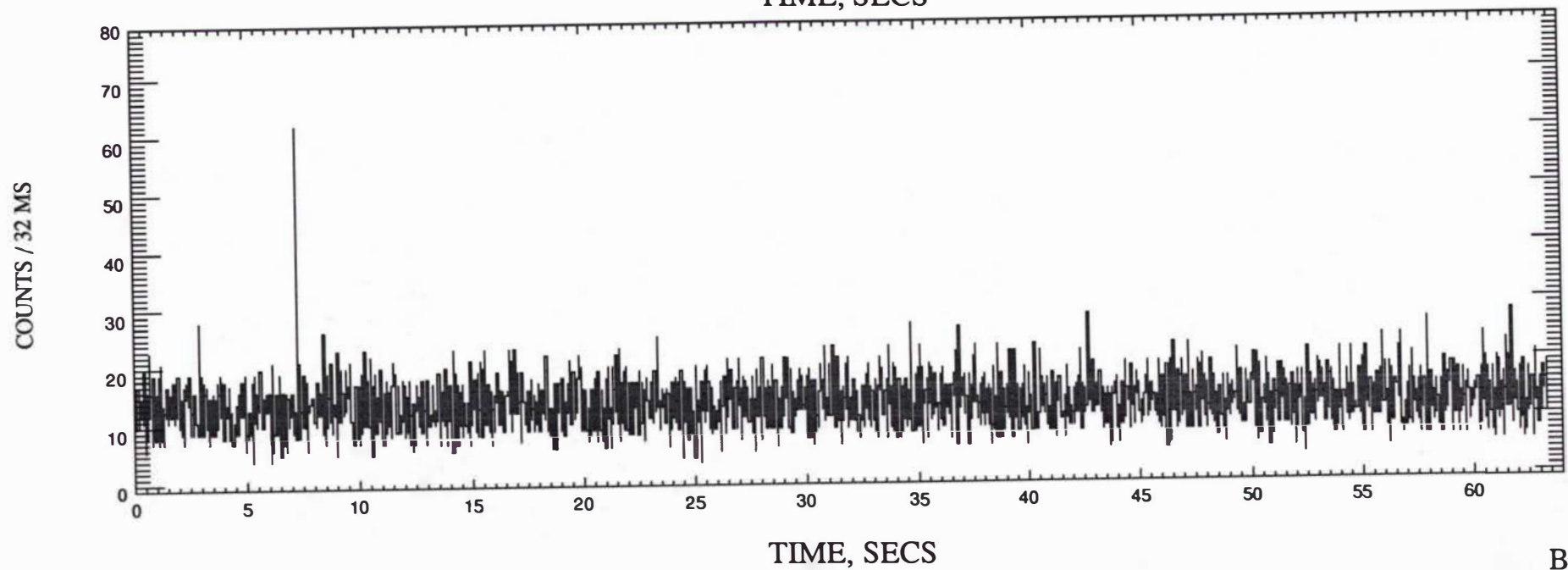
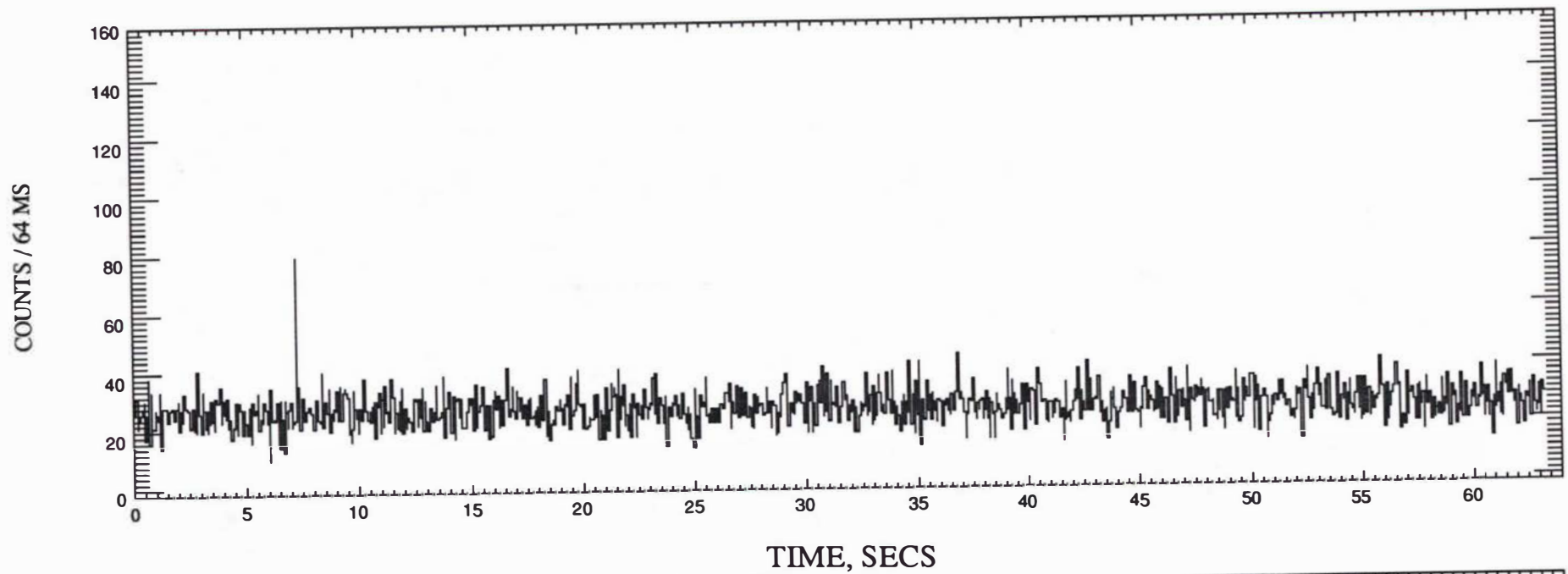


UNIV SAL TIME

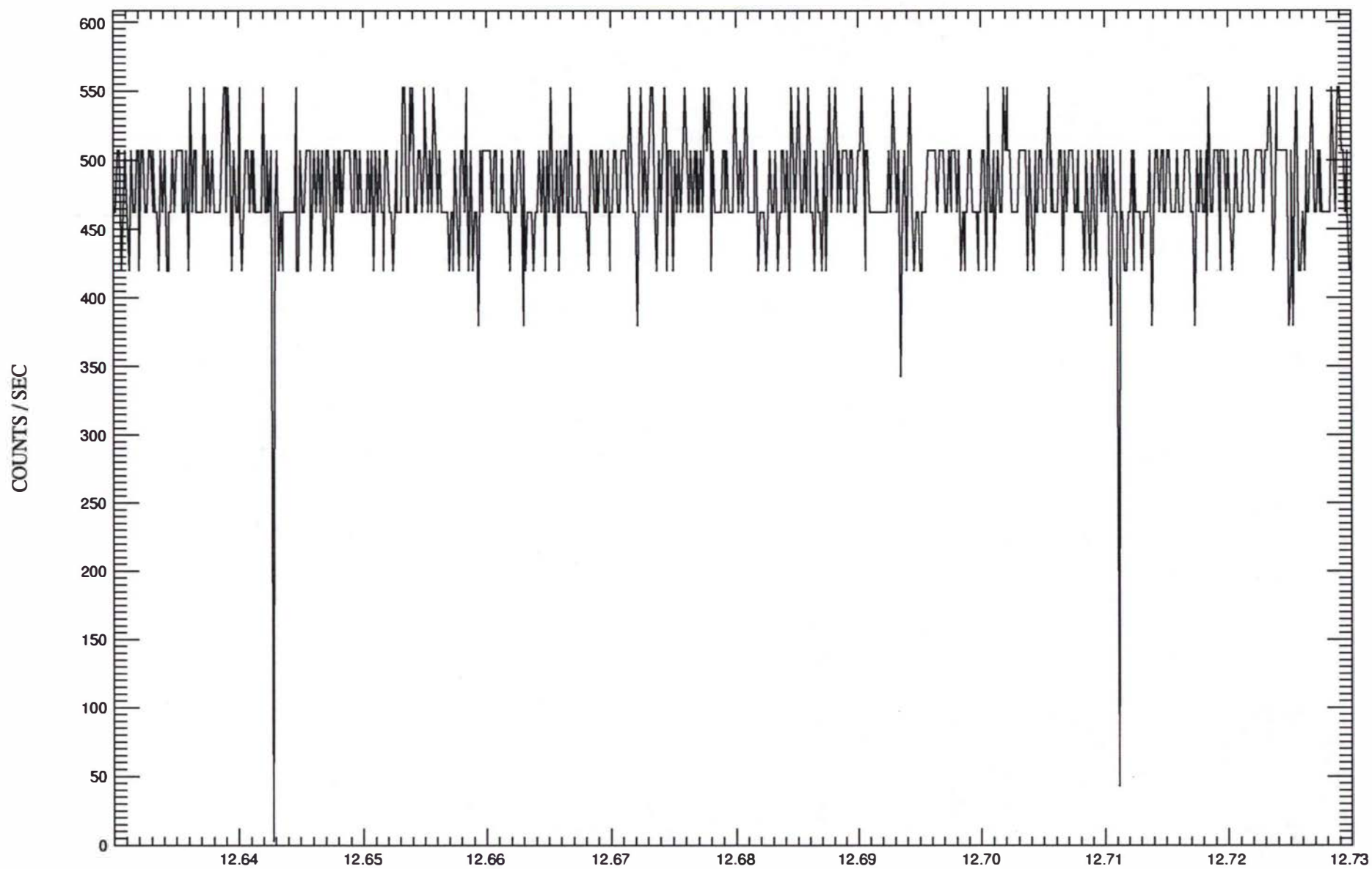
Burst Counter 8 at UT=12.681019007365 h=45651.668 s 12:40:51.668



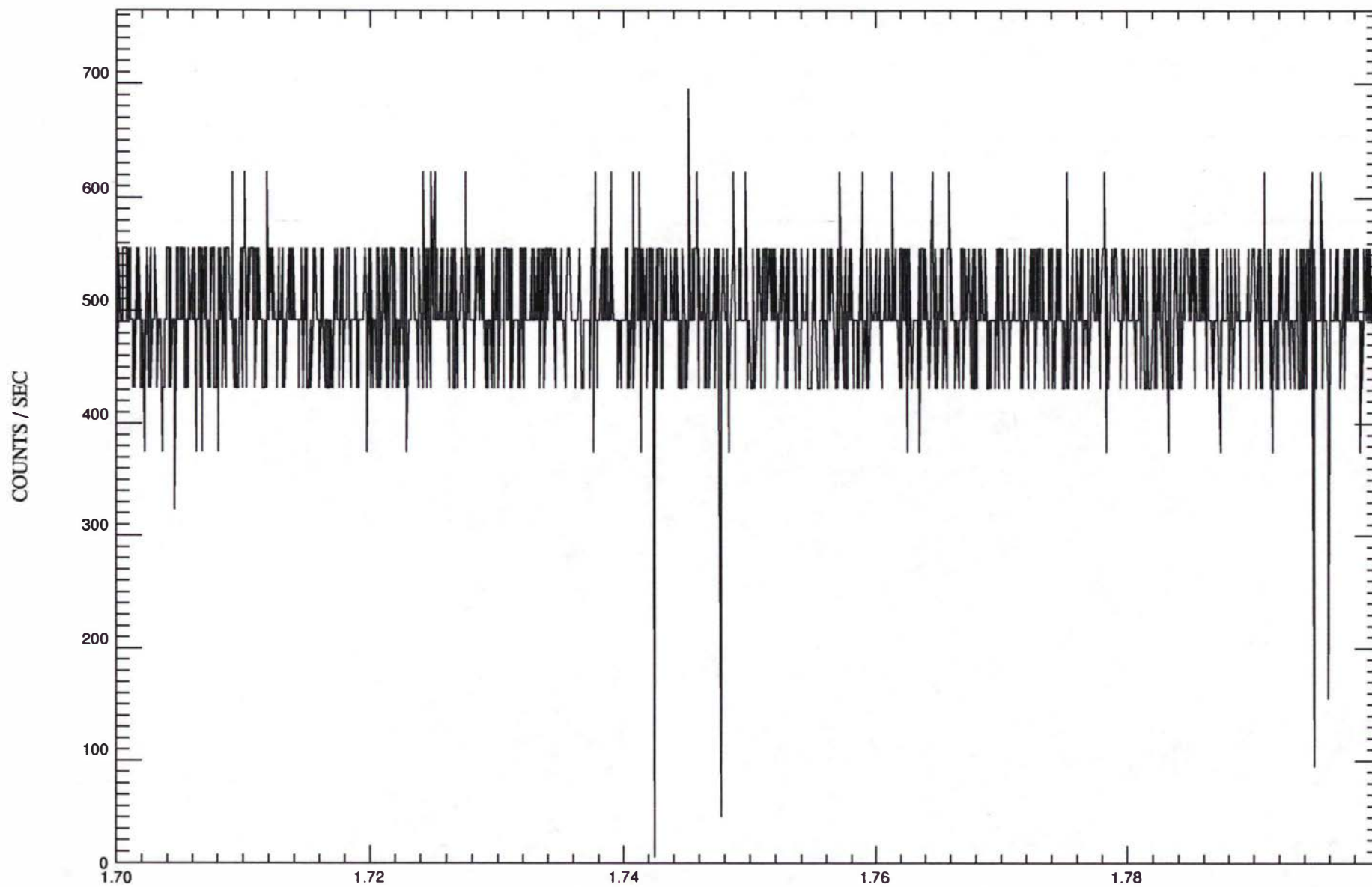
Burst Counter 7 at UT= 1.745342589484 h= 6283.233 s 01:44:43.233

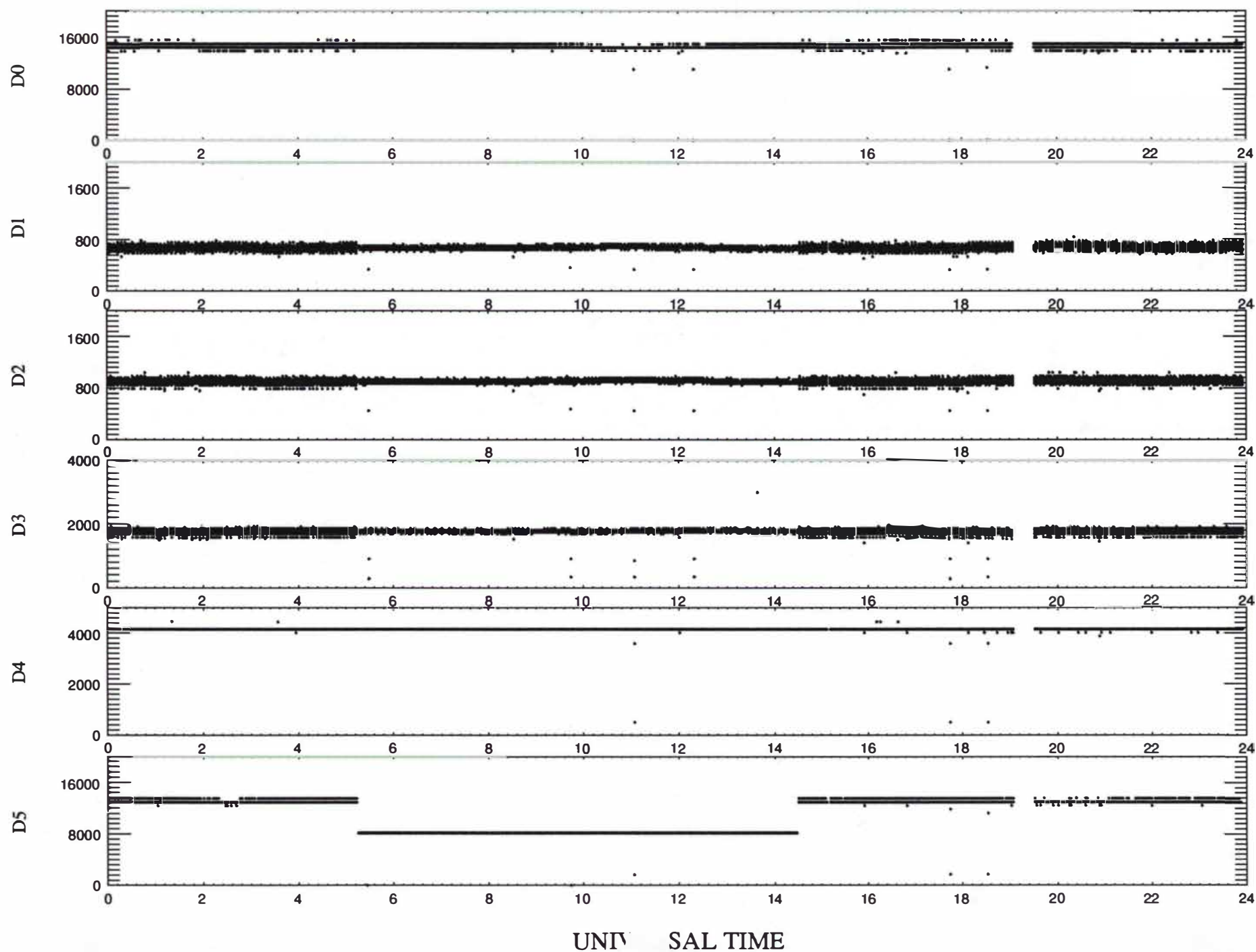


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





From khurley@sunspot Mon Dec 21 09:32 PST 1998
Date: Mon, 21 Dec 1998 09:37:04 -0800
From: khurley@sunspot (Kevin Hurley)
To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
Subject: GRB981213, 981214A,B, 981215A,B

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 13 1998 16:45	moderate, 10 s long	2500
DEC 14 1998 01:45*	moderate, 32 ms long	2500
DEC 14 1998 12:41*	weak, 64 ms long	2500
DEC 15 1998 07:33*	weak, 32 ms long	2500
DEC 15 1998 19:13*	weak, 32 ms long	2500

*suspected to come from SGR1900+14. If so, the Earth-crossing time would have been ~1290 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, frontera, kouveliotou, kurczyski, marar, tee

TGRS: NO

Date: May 10 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

- ☐ 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

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

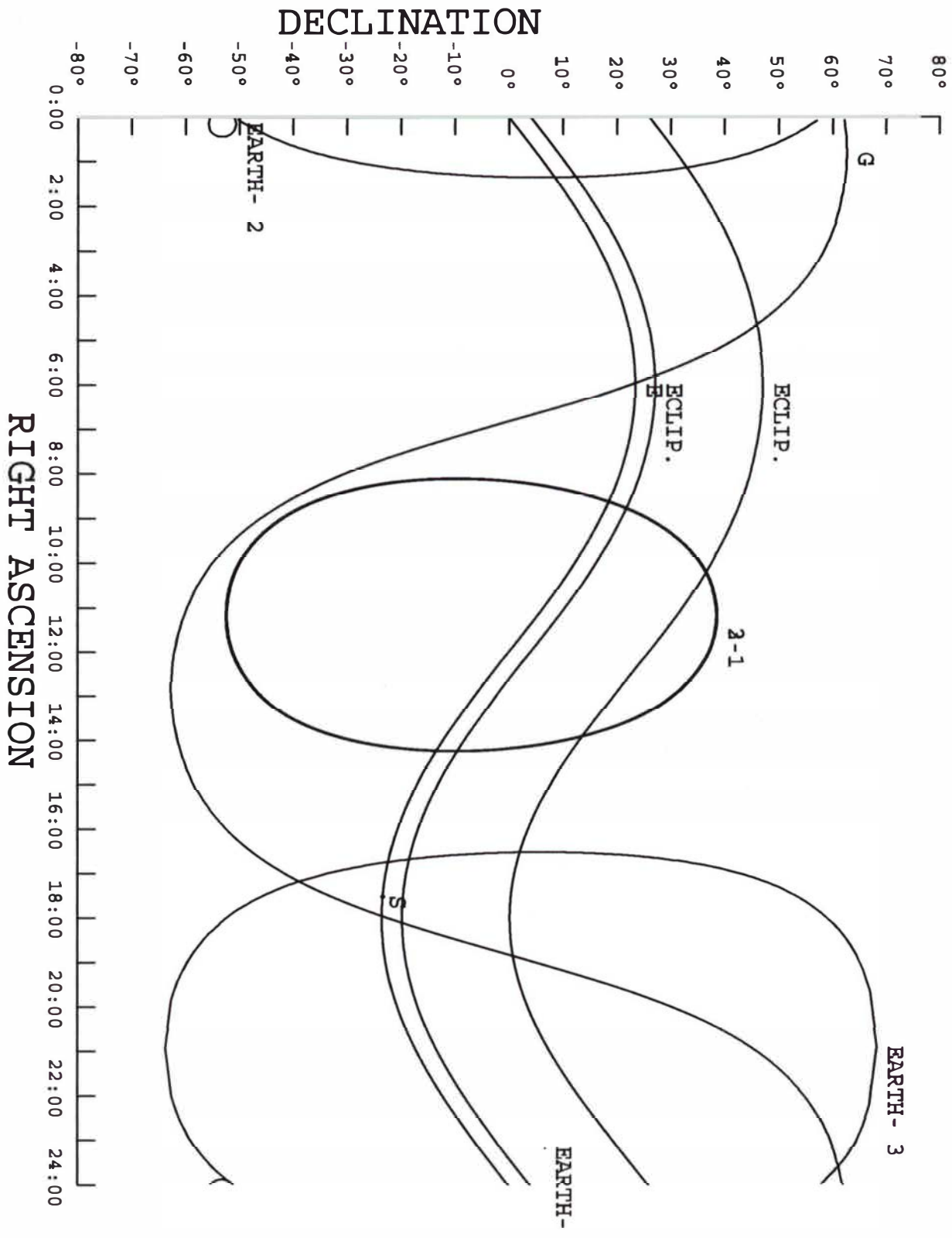
3. For INTEGRAL events

- ☐ 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 3 SAX

EVENT OF DEC 15, 1998 12:13
 10/ 5/ 7



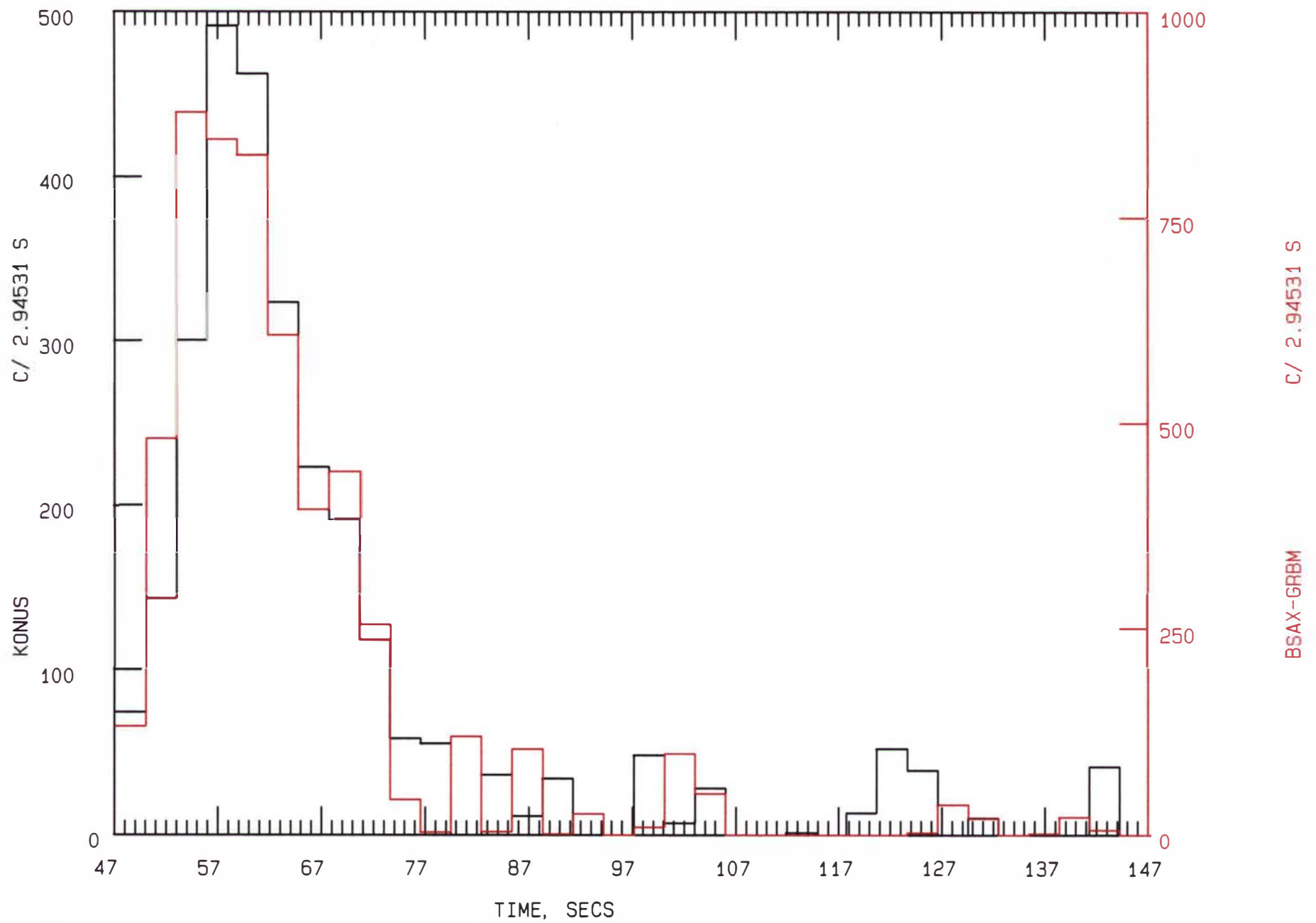
KONUS

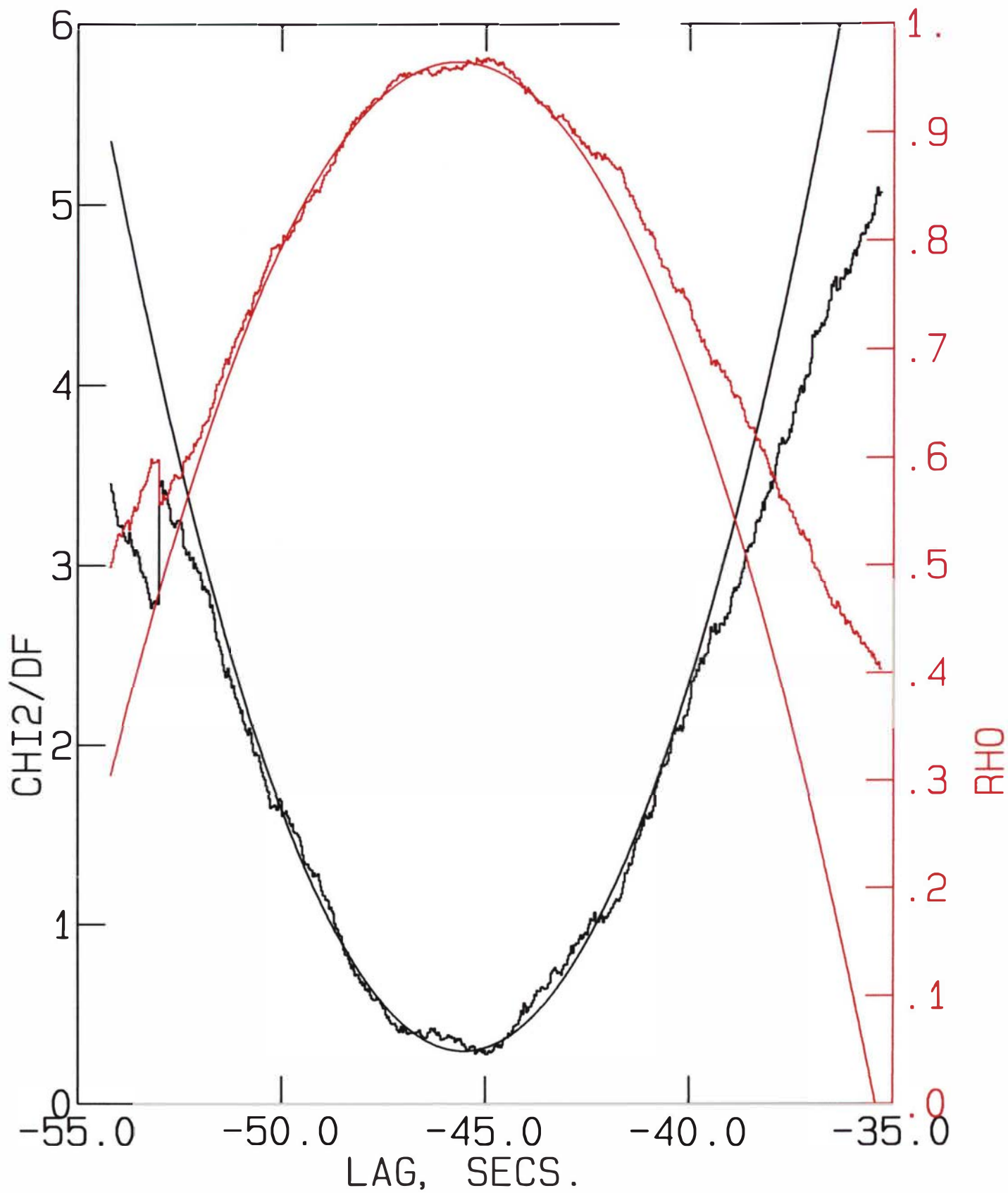
-BSAX-GRBM CORRELATION

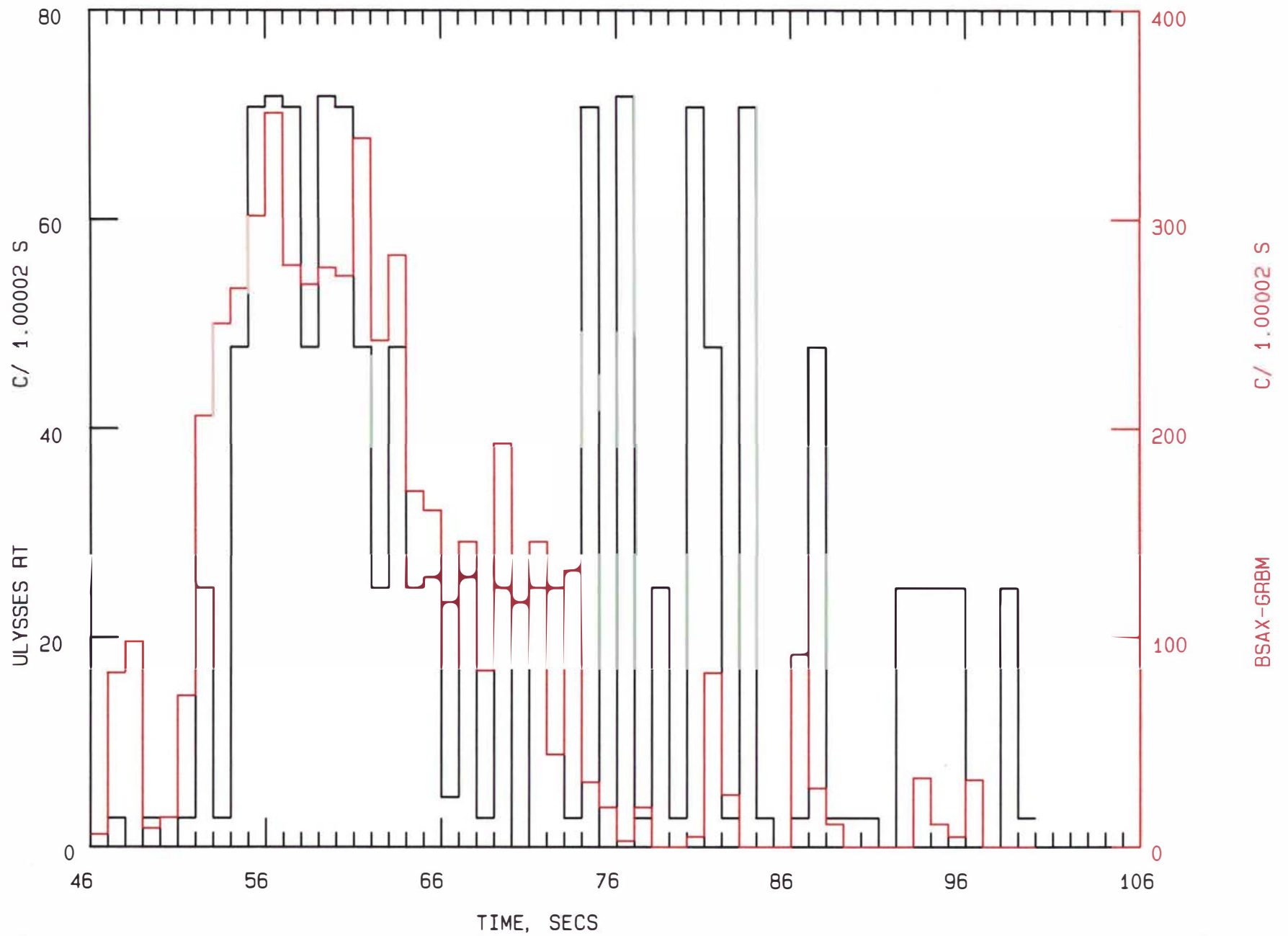
15/12/98

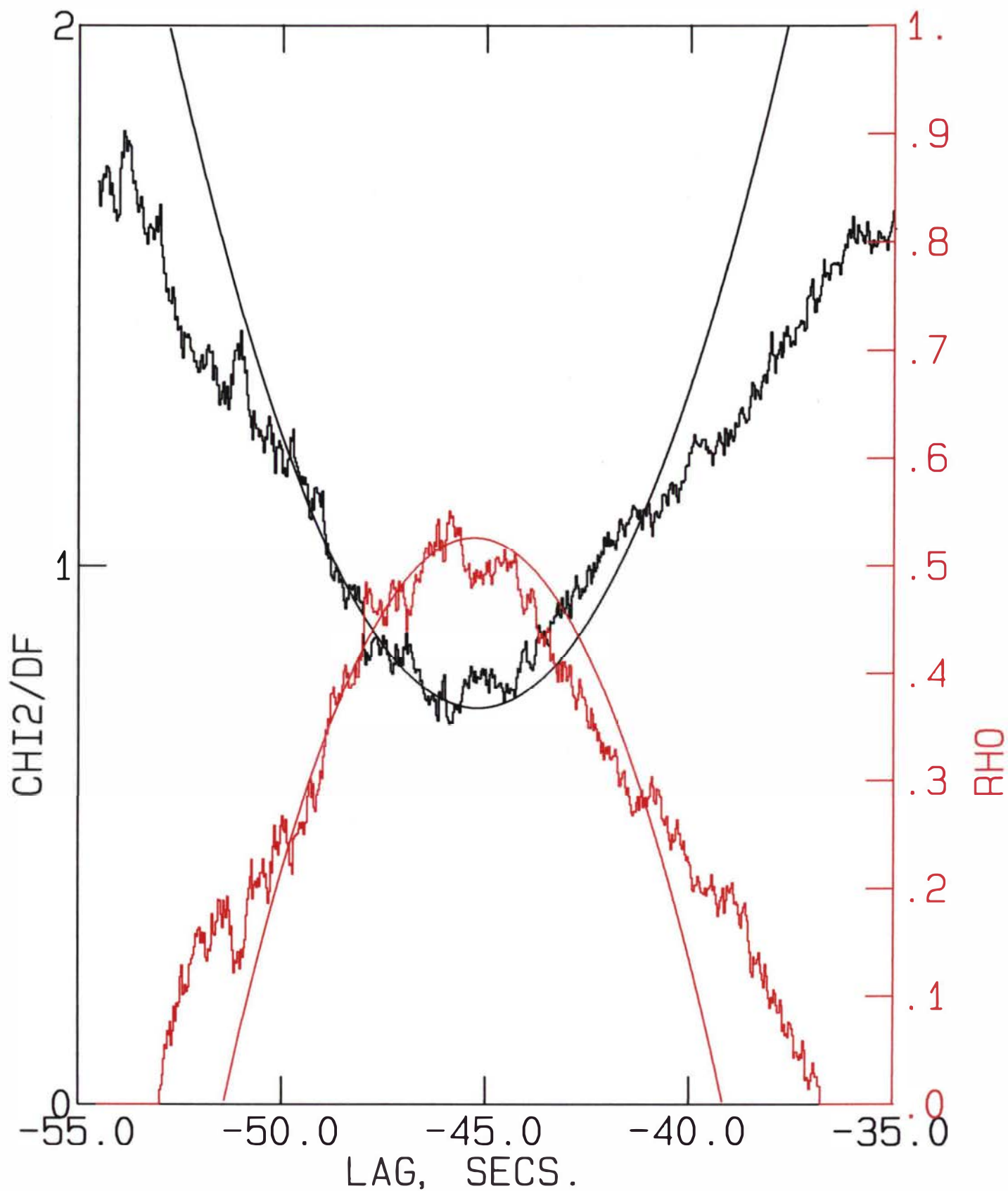
45768.156

10/ 5/ 7









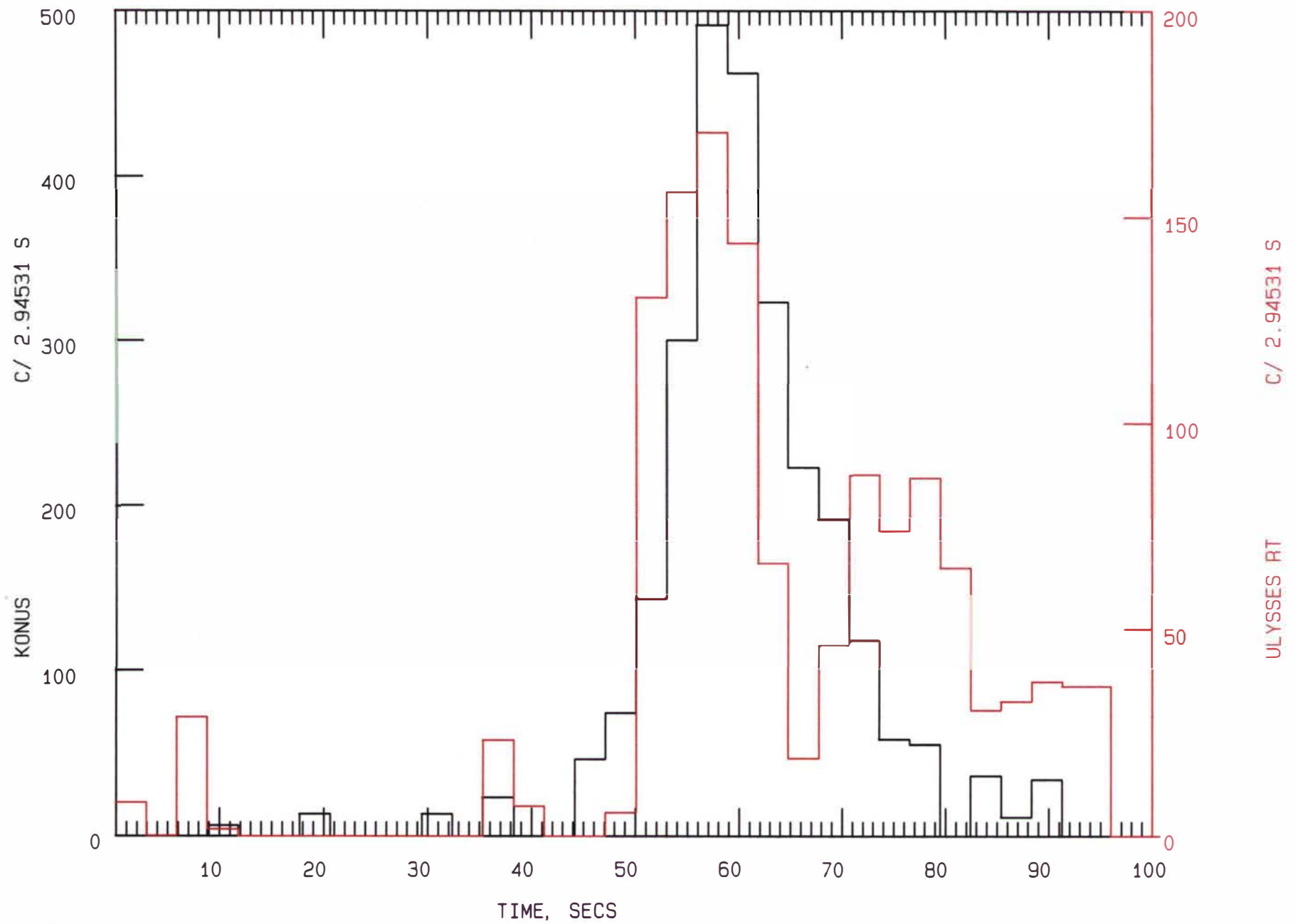
KONUS

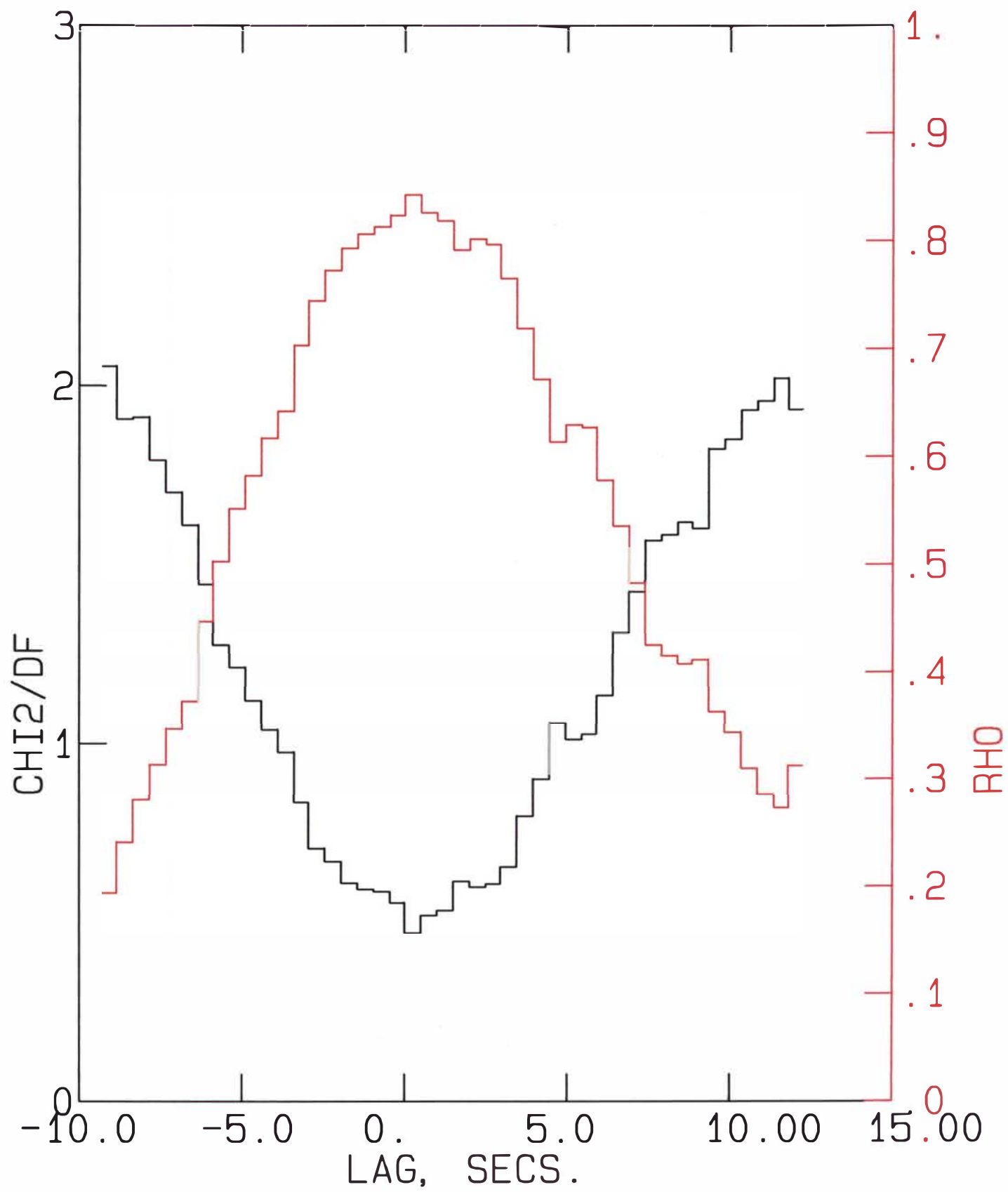
-ULYSSES RT CORRELATION

15/12/98

45768.156

10/ 5/ 7





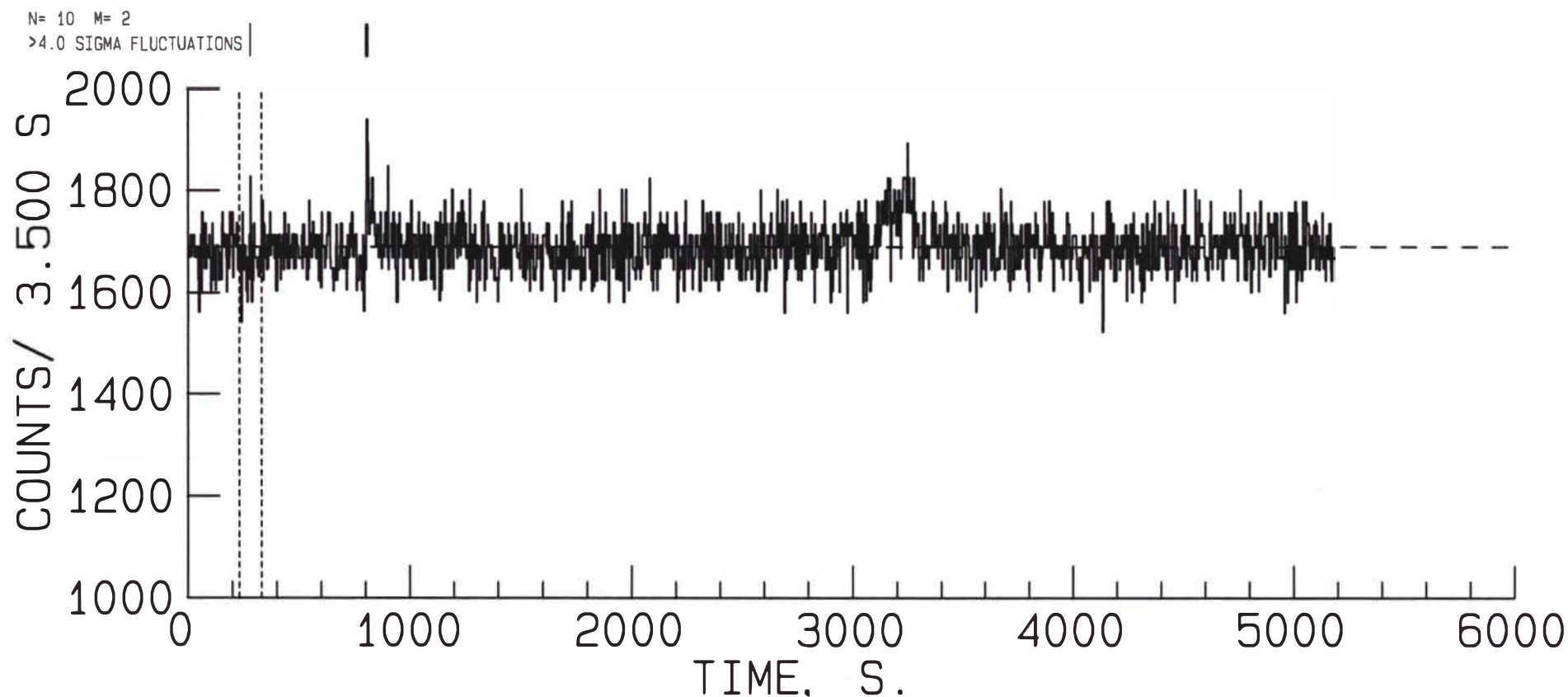
ULYSSES RT

10 / 5 / 7

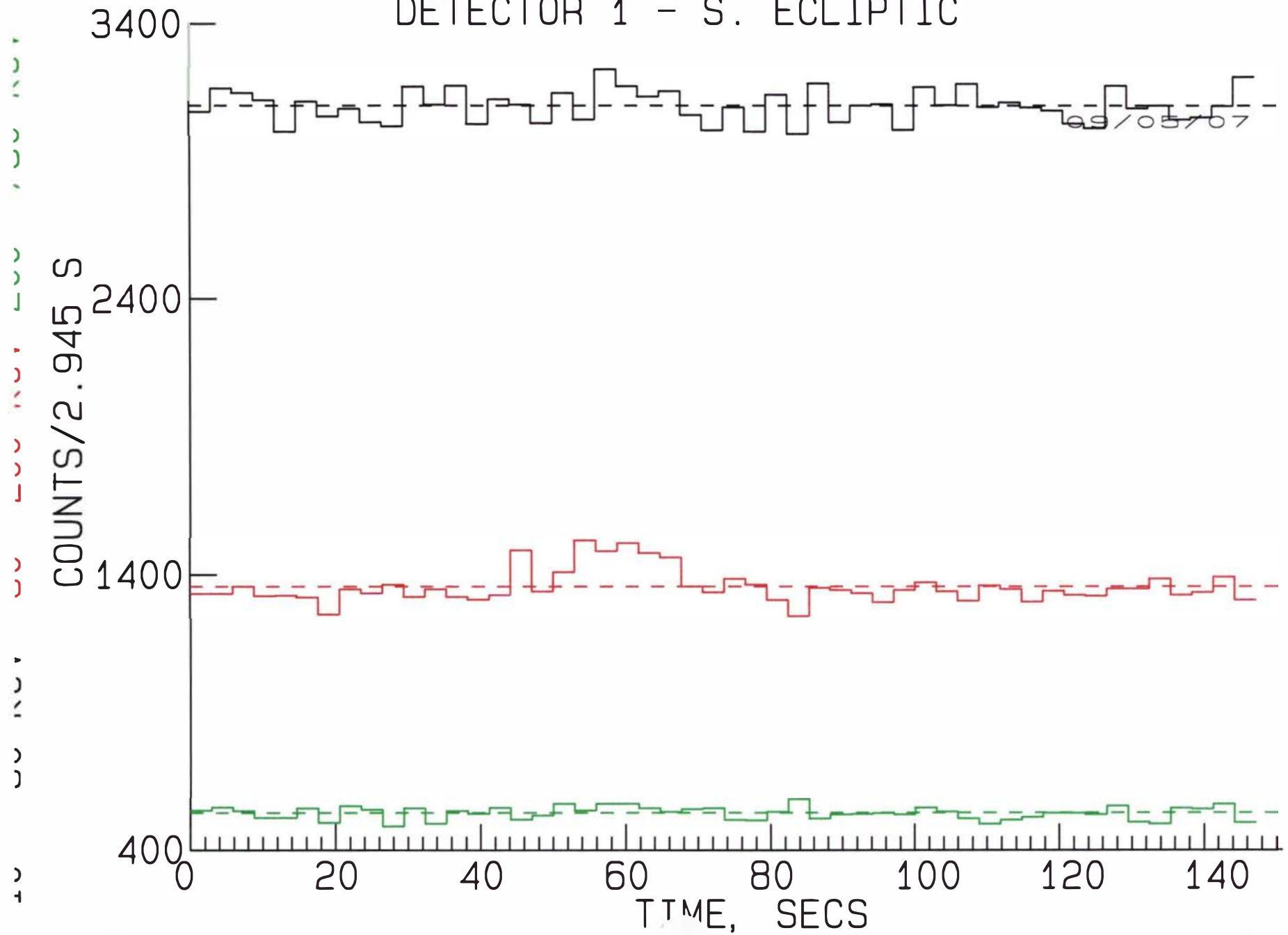
15/12/98 43236.285 s

0.500 S INTERVALS REGROUPED BY 7

22- 150 keV



DETECTOR 1 - S. ECLIPTIC



KONUS

15/12/98 45768.156

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.945 S

4300

3300

2300

1300

300

20

40

60

80

100

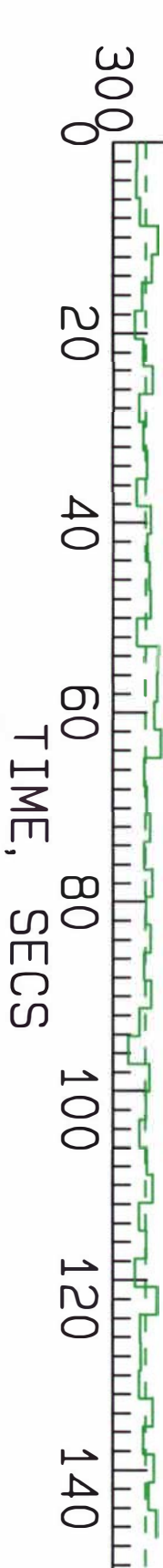
120

140

DETECTOR 2 - N. ECLIPHTIC

09/05/07

TIME, SECS

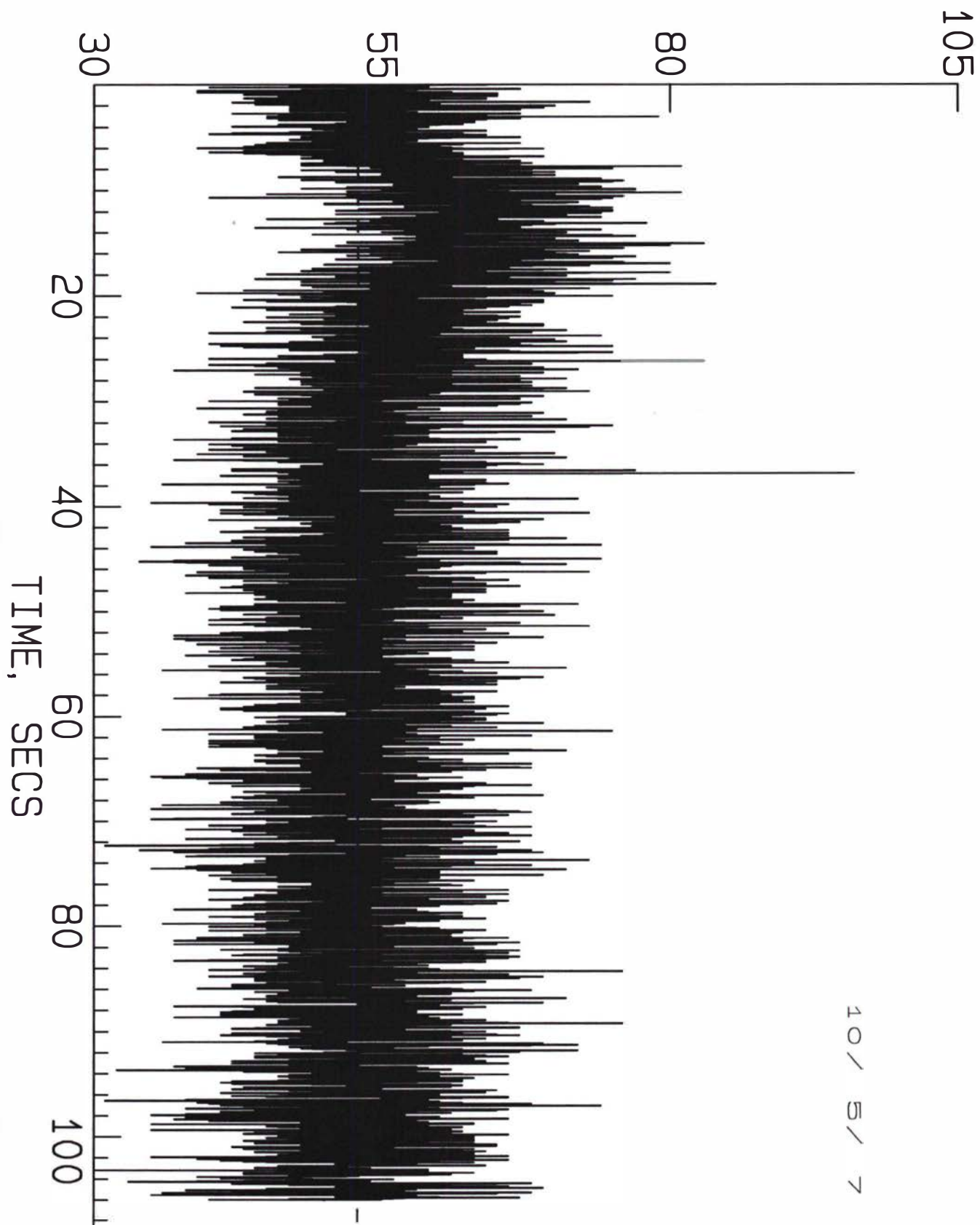


SAX GRBM

15/12/98 45813.835

40- 700 keV

COUNTS/0.031 S



10 / 5 / 7

From WOODSP@fender.msfc.nasa.gov Thu Dec 17 12:54:28 1998
Return-Path: <WOODSP@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA18462; Thu, 17 Dec 1998 12:54:28 -0800
From: WOODSP@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA19637; Thu, 17 Dec 1998 12:54:24 -0800
Date: Thu, 17 Dec 1998 14:48:44 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981217144844.2024f576@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7263
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7263
EVENT OF 1998 DEC 15 DAY OF YEAR=349
EVENT CROSSING TIME AT BATSE : 50964. S. OR 14:09:24.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 195.000 23.000
BATSE PEAK COUNTING RATE: 3400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 15/12/ 98 IS:
RA= 166.940 DEC= -6.705 DIST= 5.081 AU
BATSE-ULYSSES DISTANCE = 760174004. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=139.56 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1929.98 SECS.
CROSSING TIME AT ULYSSES IS 49034. S. OR 13:37:14 +/- 306.22 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 15/12/ 98 IS:
RA= 189.552 DEC= -2.170 DIST= 1.659 AU
MARS-BATSE DISTANCE = 248162880. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=154.28 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -745.74 SECS.
CROSSING TIME AT MARS IS 50218. S. OR 13:56:58 +/- 51.05 SECONDS

BATSE BURST TRIGGER

NO.: 7263

TIME: TJD=1162 SECONDS=50964

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=149.0 AZIMUTH=50.9 ERROR=2.4 DEGREES

COMMENTS:

GRB LASTING ABOUT 15 SEC. SINGLE, HARD PULSE WITH FASTER RISE
THAN DECAY. VISIBLE ABOVE 300 KEV.

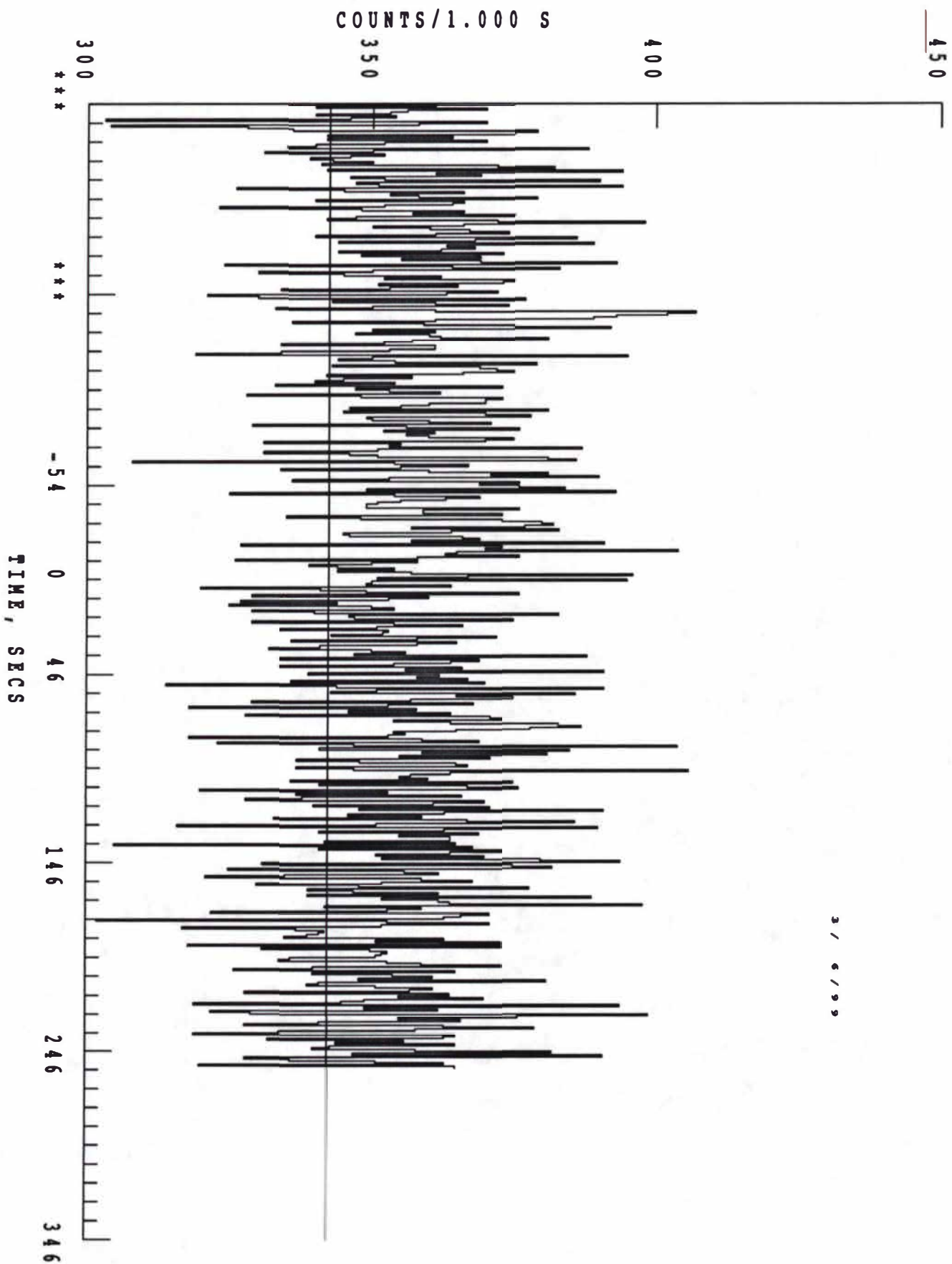
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7263	981215	11162	50964	3400	195	+23	15

NEAR

15/12/98

51419.589

100-1000 keV



BATSE BURST# 7263

ULYSSES RT

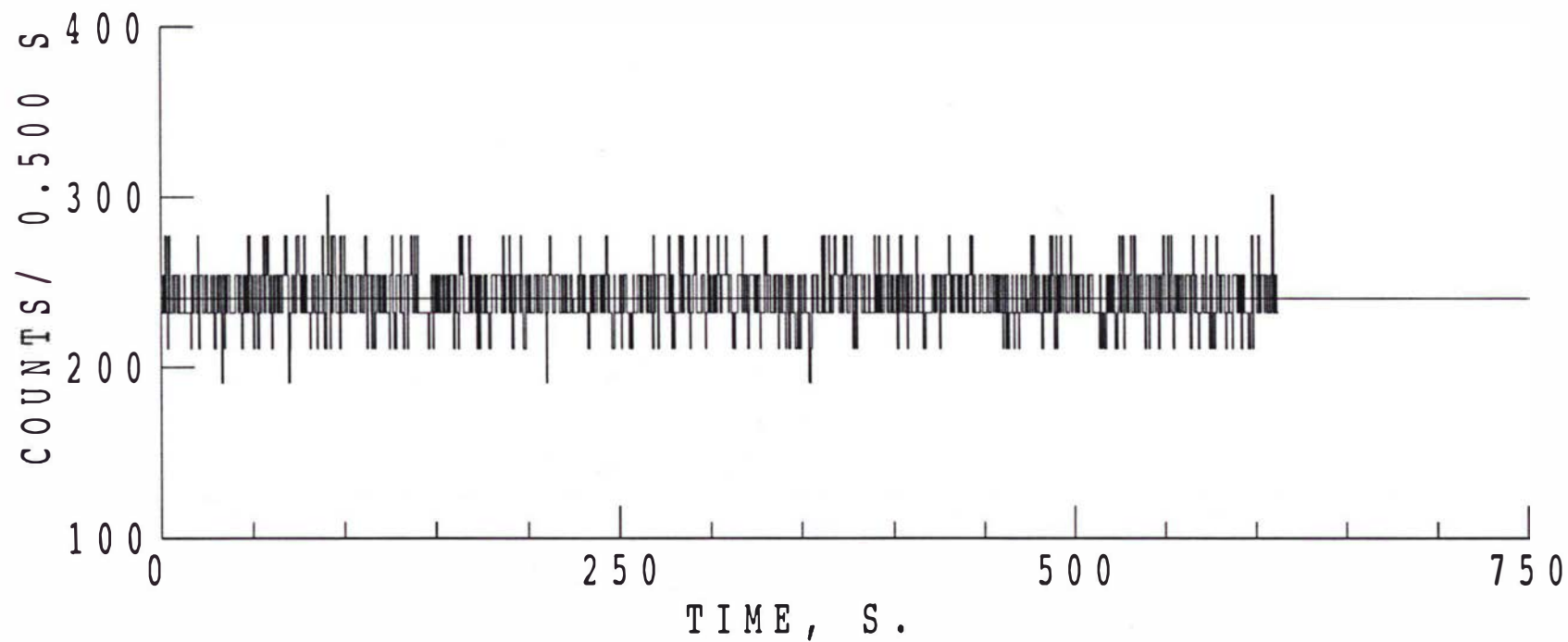
17 / 12 / 98

15 / 12 / 98 48744.344 s

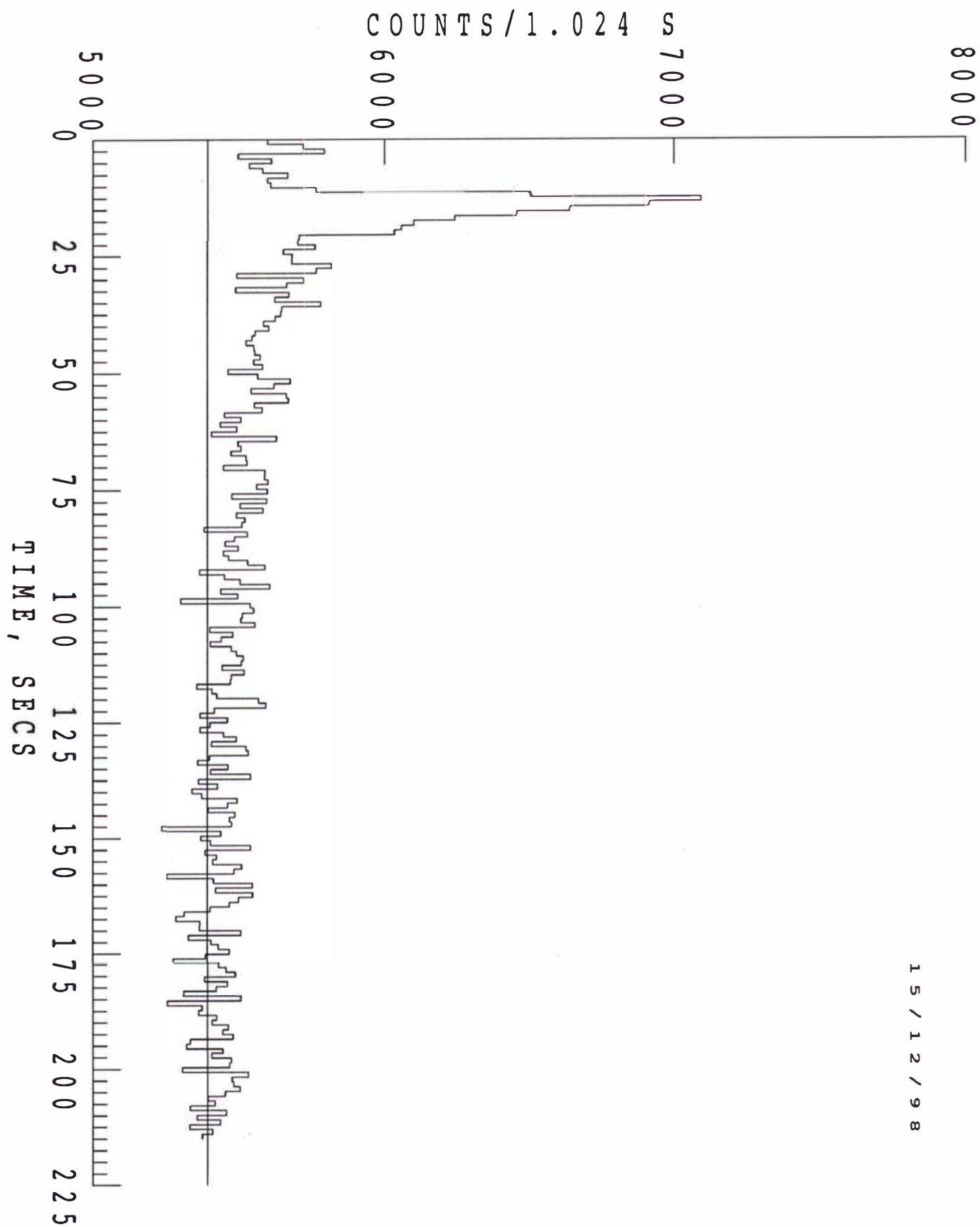
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BACODINE 7263 15/12/98 50952.929
25 - 100 keV



From HENZE@fender.msfc.nasa.gov Wed Dec 16 08:49:39 1998

Date: Wed, 16 Dec 1998 10:48:34 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7264

TIME: TJD=1162 SECONDS=57072

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

HUS DATA

4 / 6 / 99

ULYSSES RT

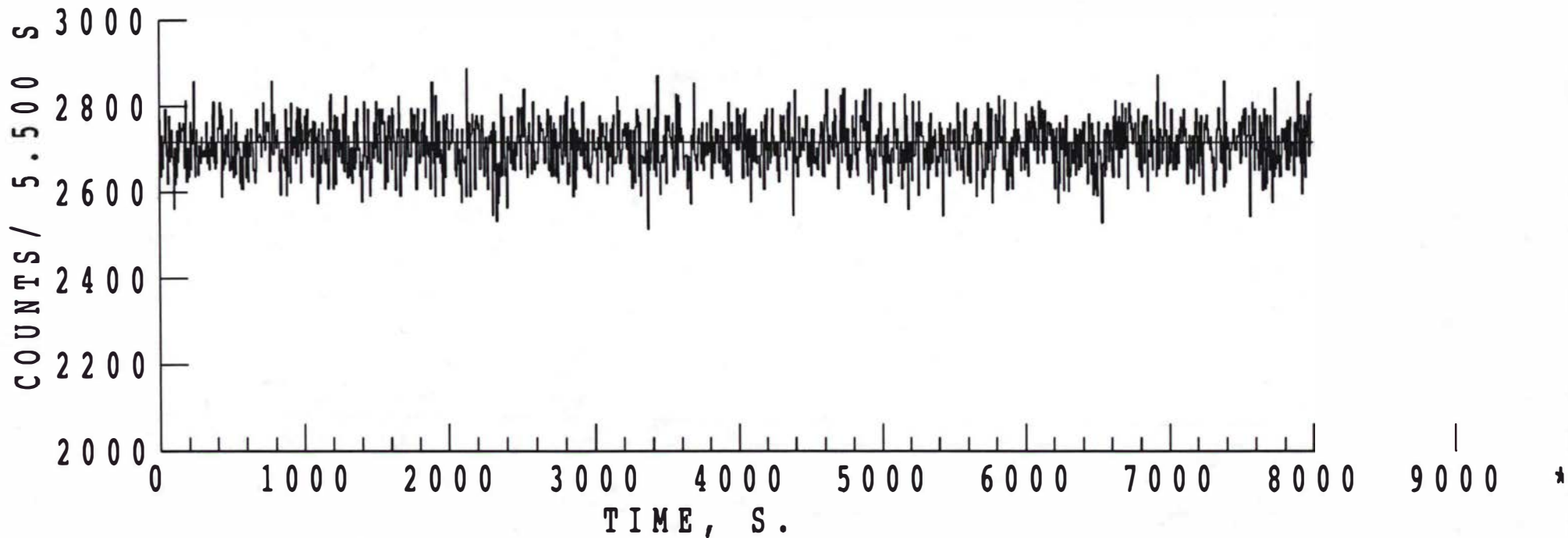
15 / 12 / 98 58680.191 s

0.250 S INTERVALS REGROUPED BY 22

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Date: Oct 4 3:02

BURST TRIANGULATION CHECKLIST

1. Ulysses Data No

- ☐ 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 vw@boccl, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times) No - Redone May 11 '04
- ☐ BATSE >100 keV data used for NEAR correlation? No

☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

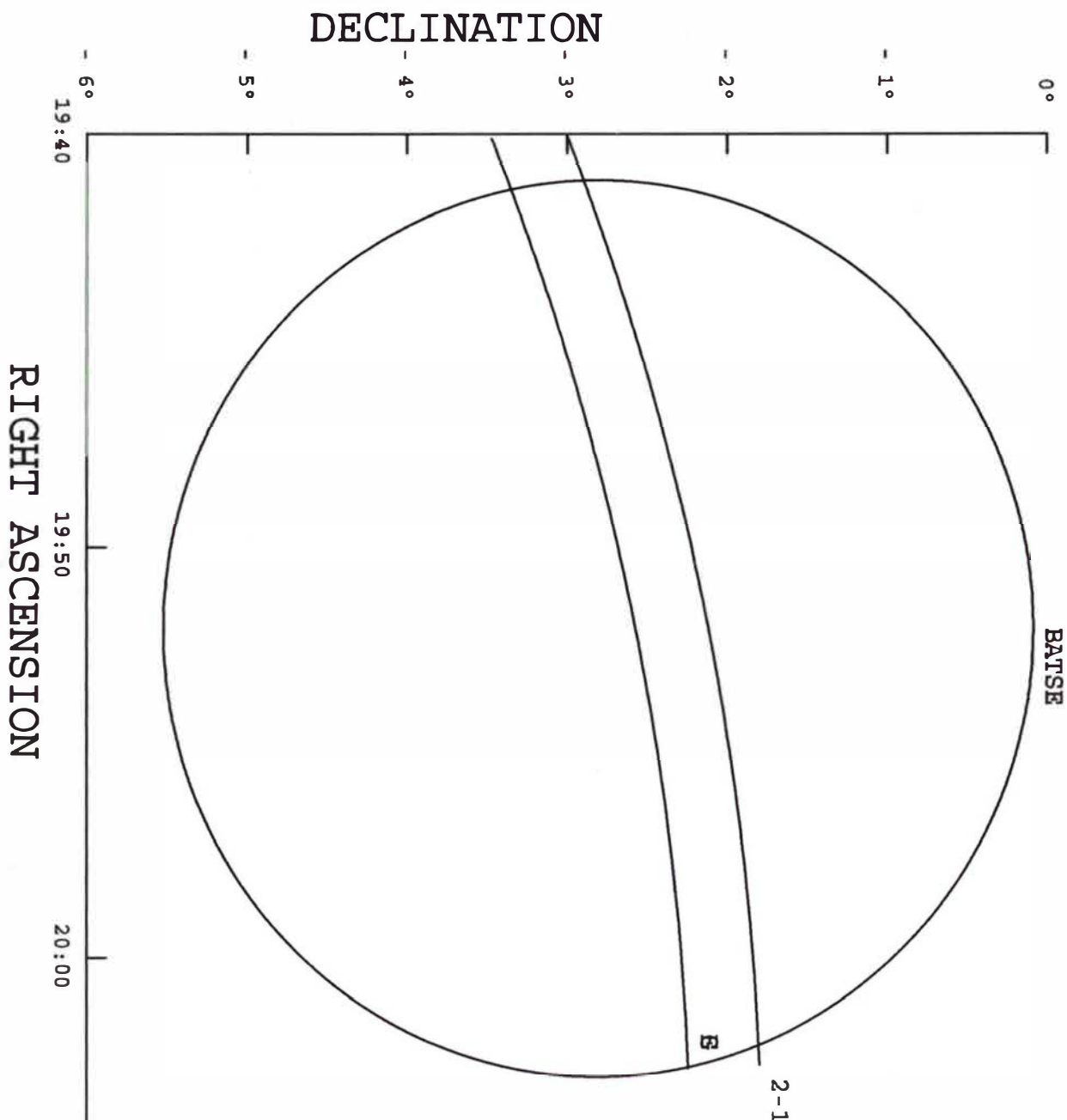
G=GALACTIC EQUATOR

1 BATSE

2 NEAR

EVENT OF DEC 15, 1998 22:25

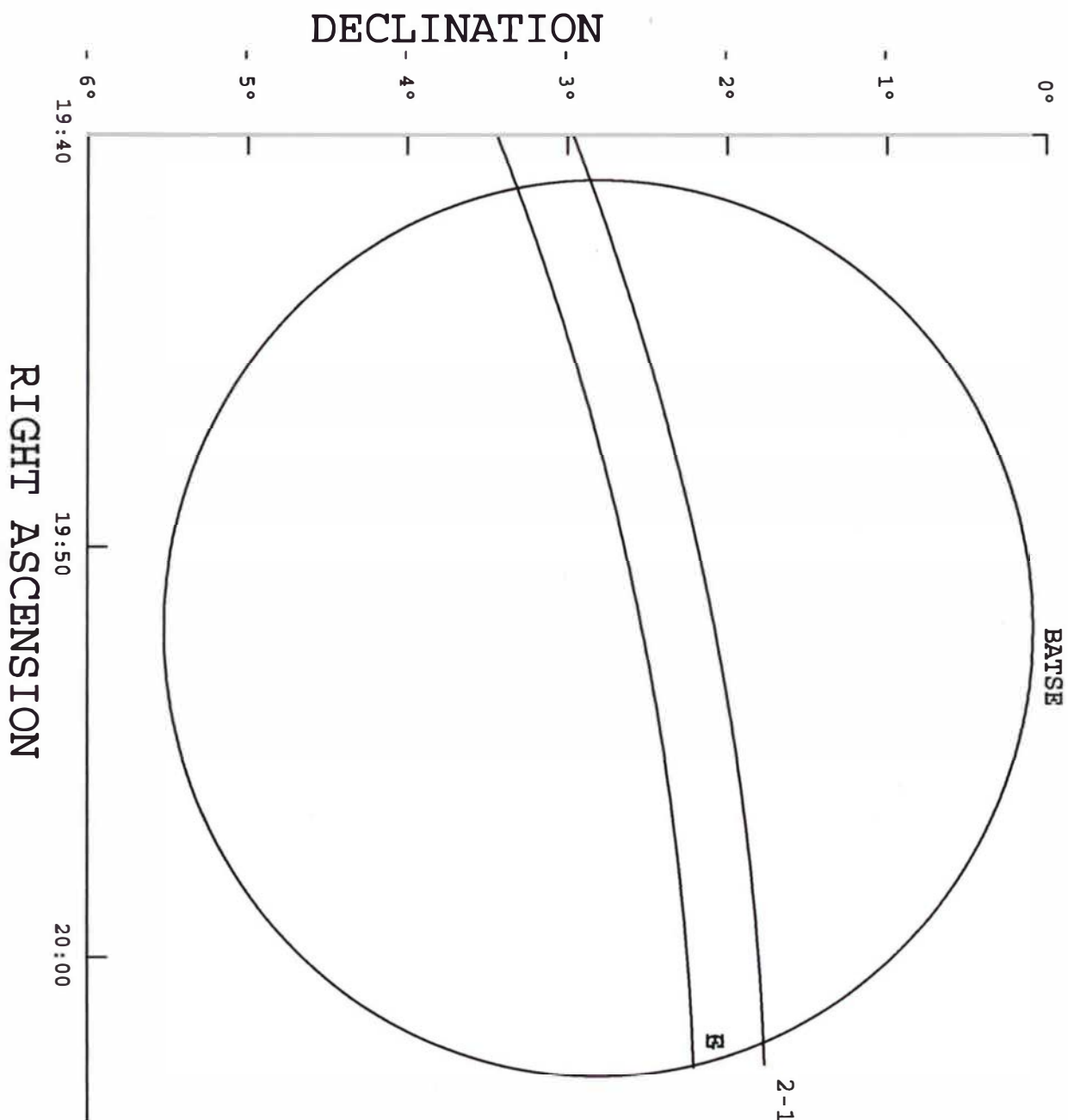
11/ 5/ 4



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

EVENT OF DEC 15, 1998 22:25

4/10/ 2



BATSE

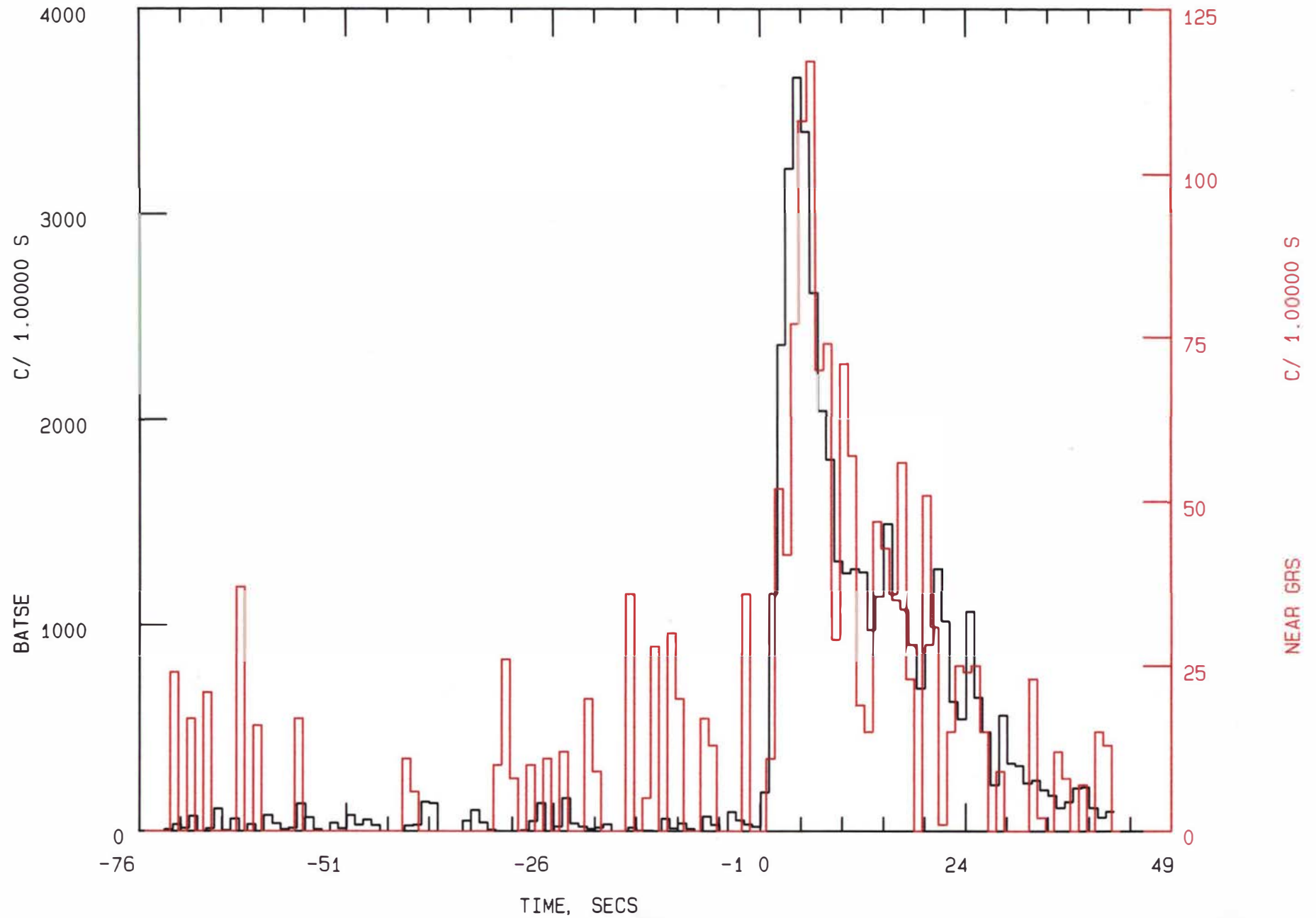
-NEAR GRS

CORRELATION

15/12/98

80708.833

4/10/ 2



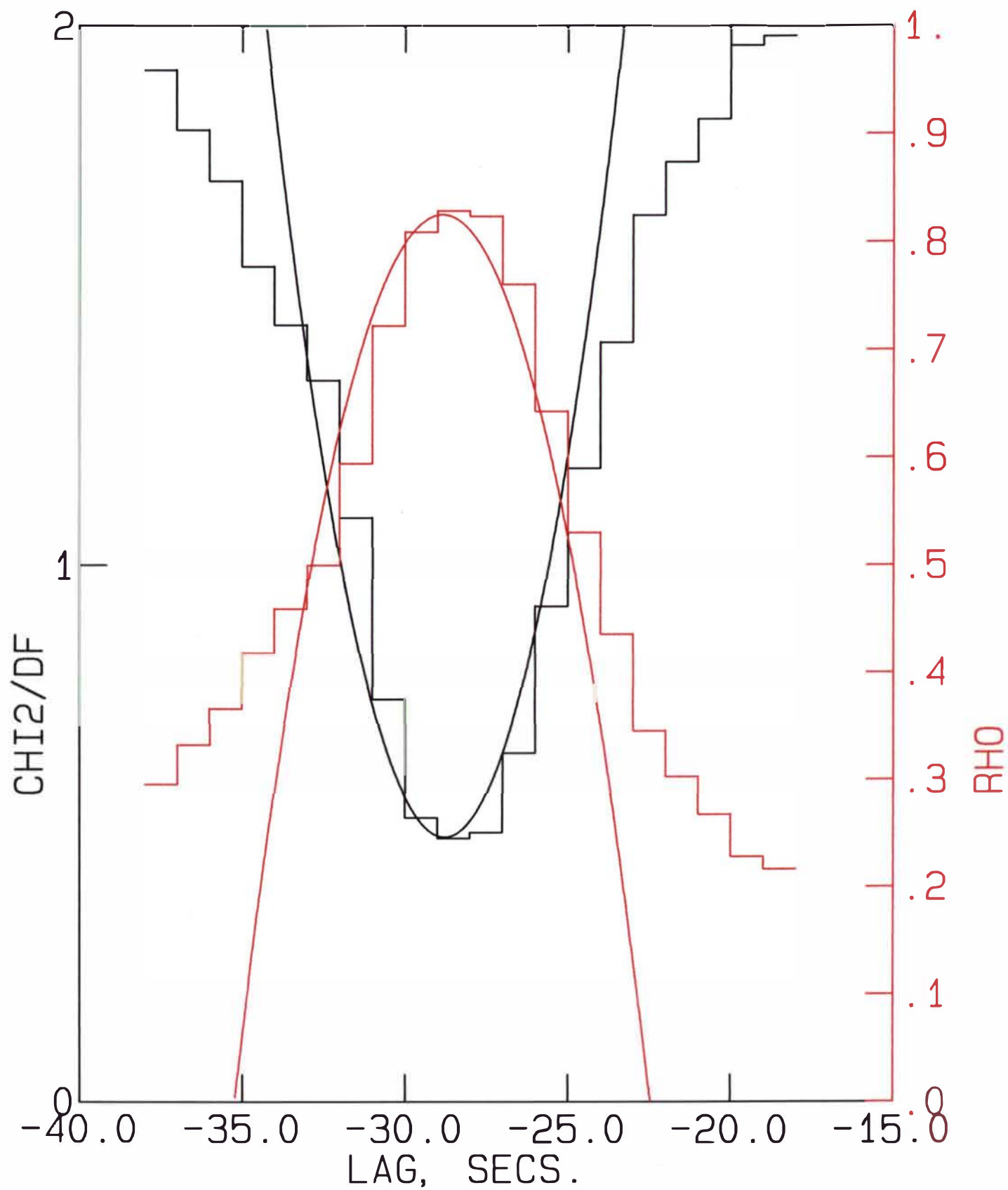
BATSE

-NEAR GRS

CORRELATION

15/12/98

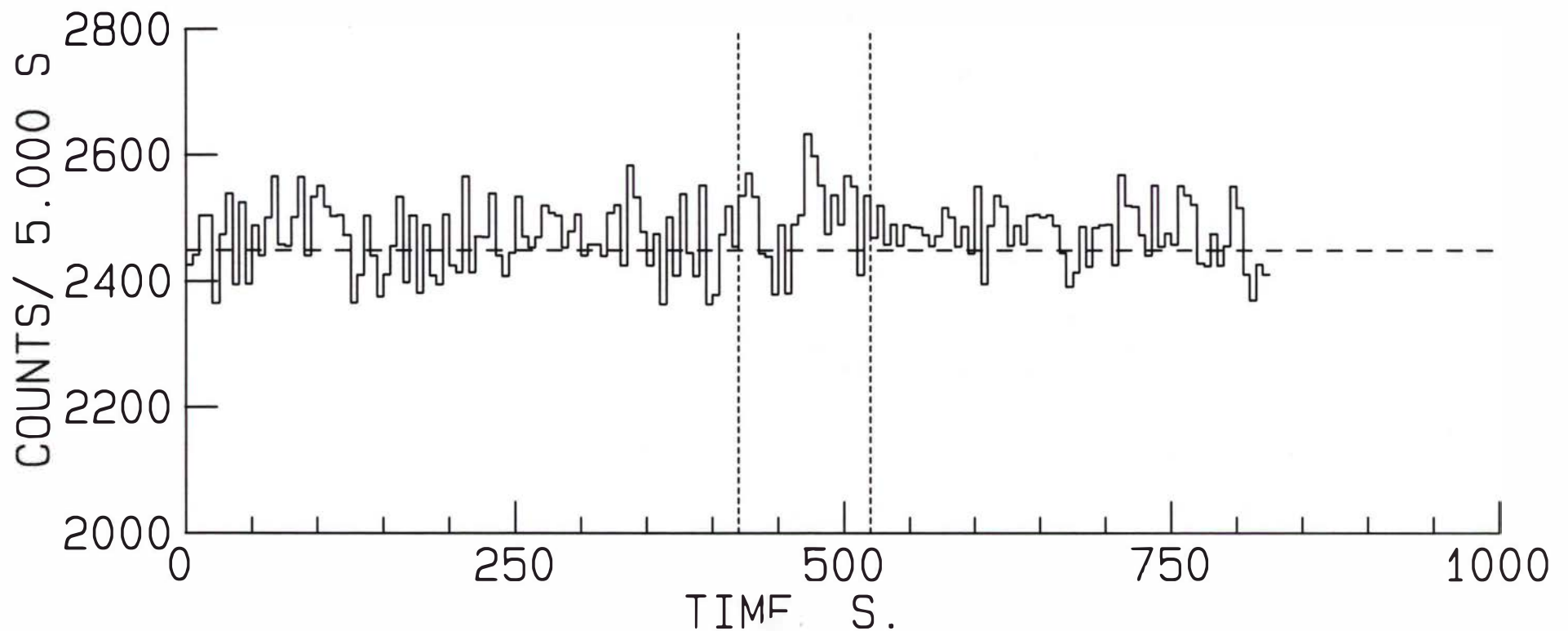
80708.833



ULYSSES RT
15/12/98 81936.180 s
0.250 S INTERVALS REGROUPED BY 20
22- 150 keV

4/10/ 2

Too weak



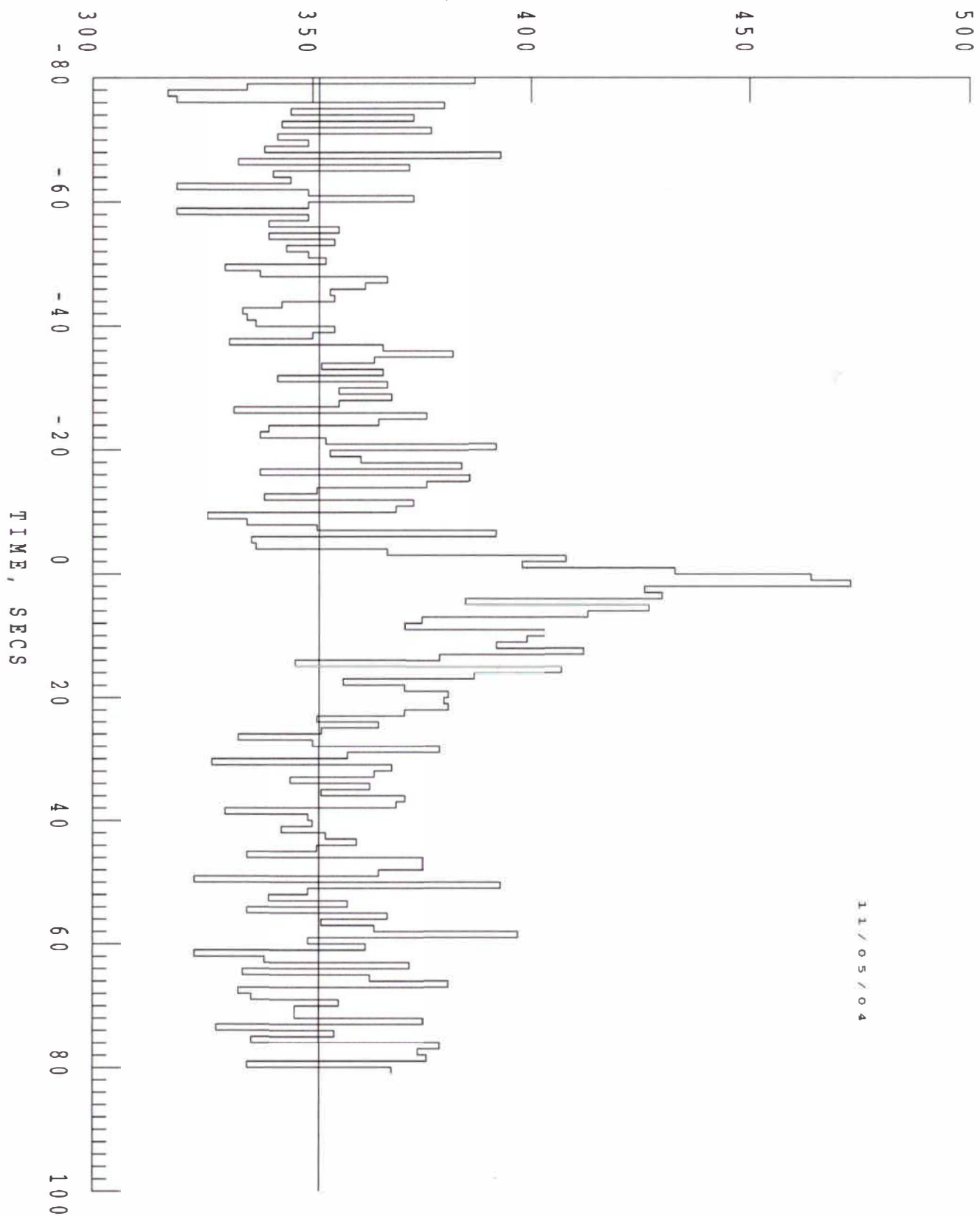
NEAR

15/12/98

79532.585

100-1000 keV

COUNTS/1.000 S



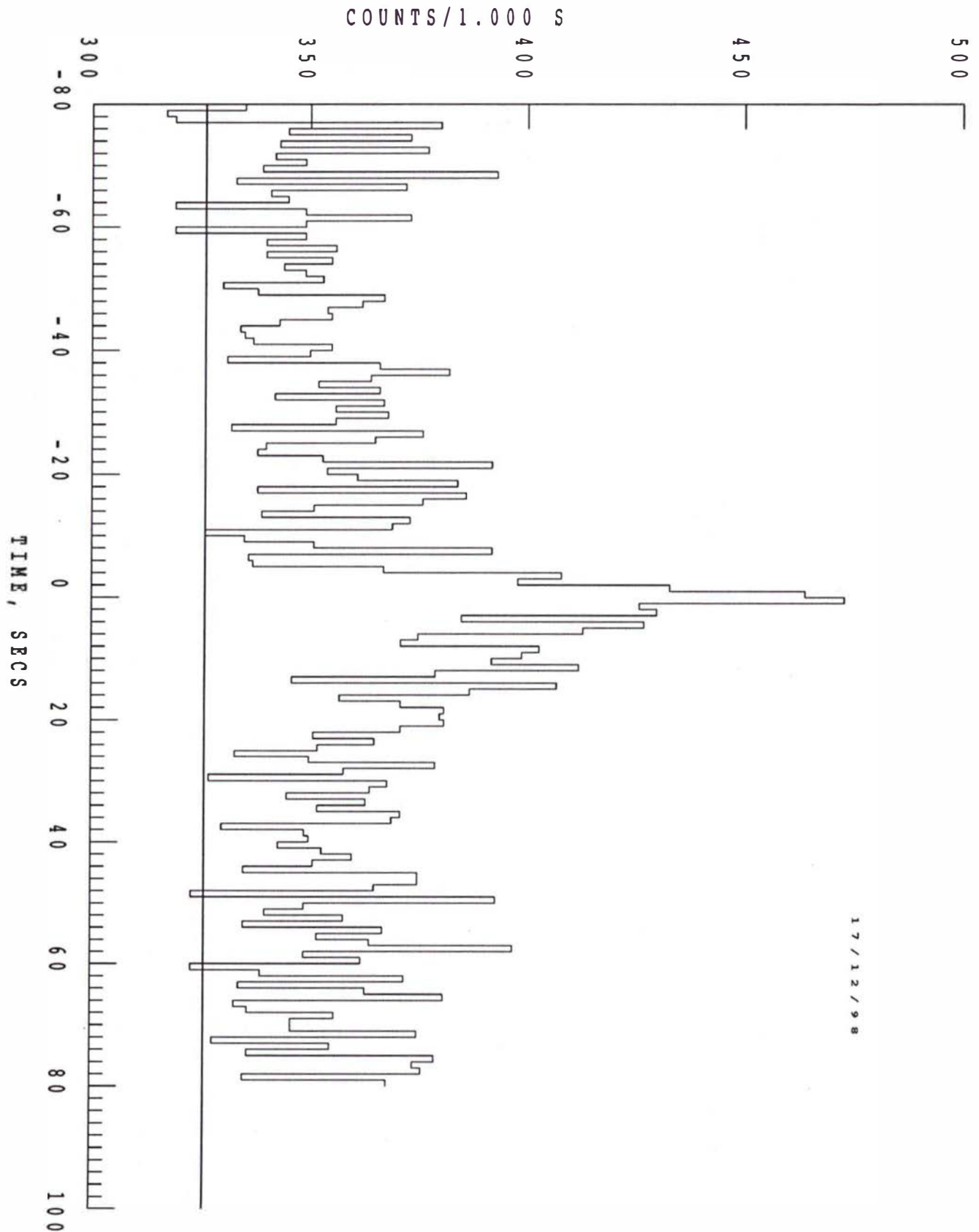
NEAR

15/12/98

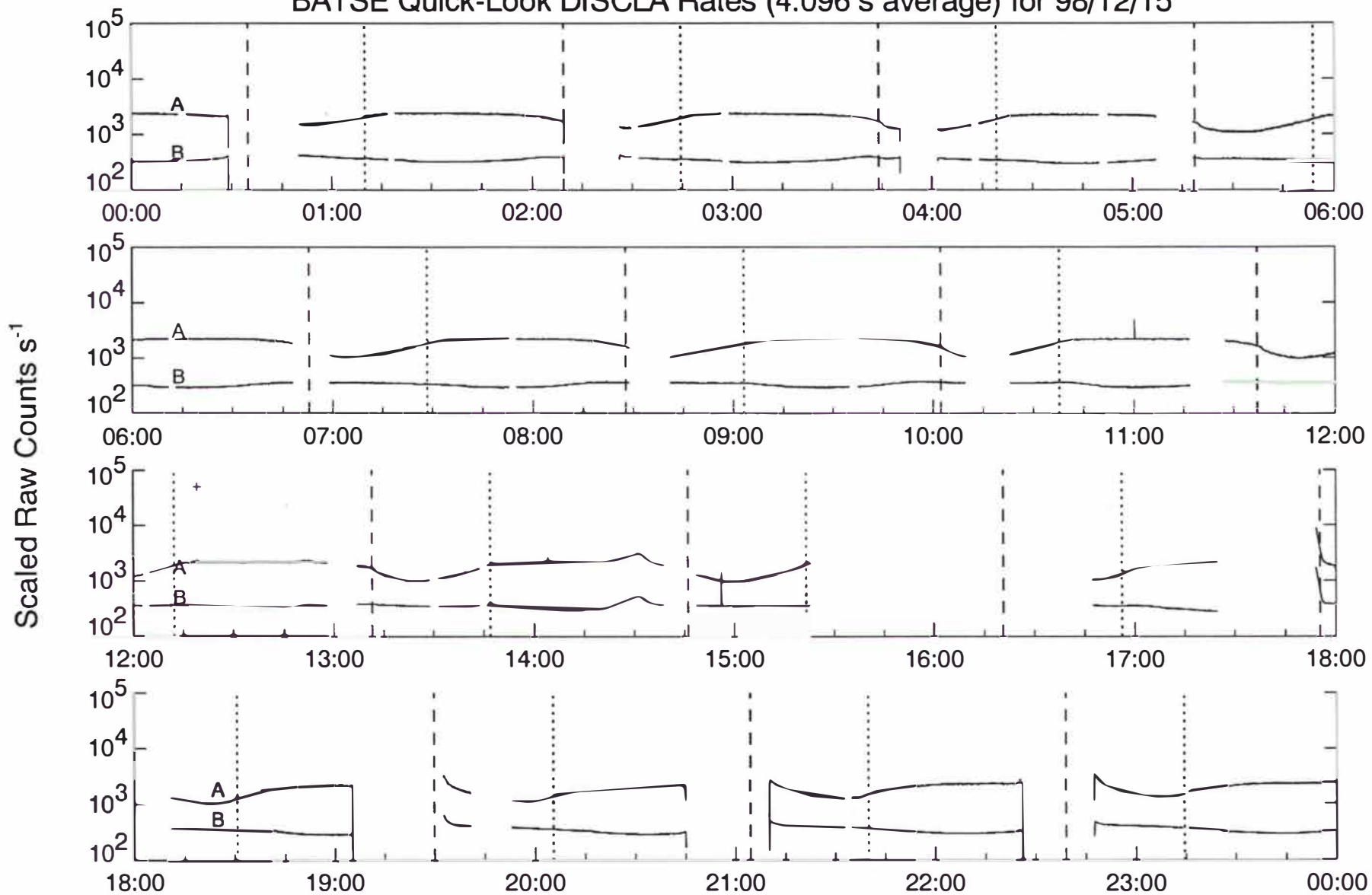
79533.817

100-1000 keV

OLD data



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/15

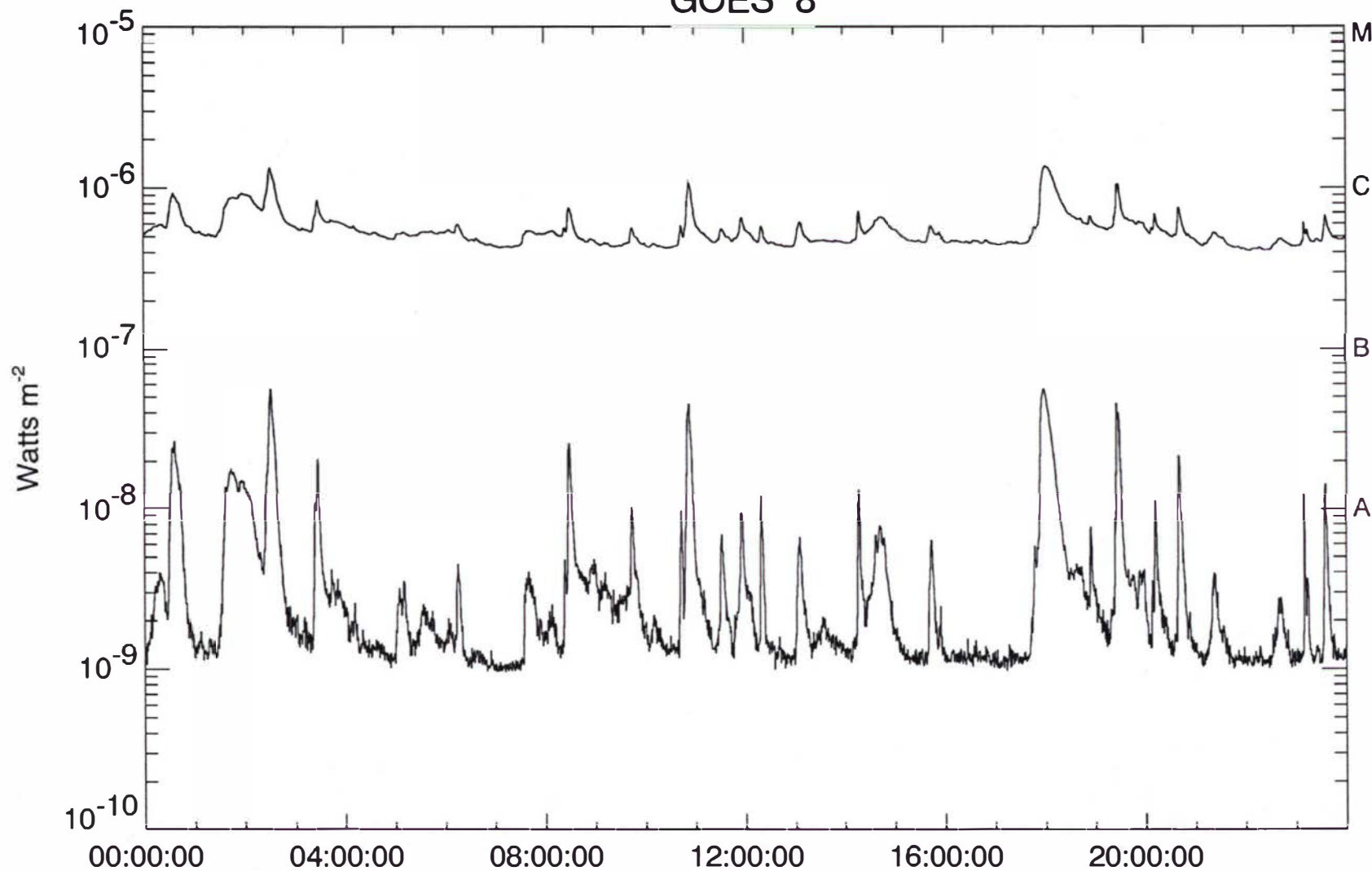


Current Time: 98/12/19, 1013 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/15, 0000:00

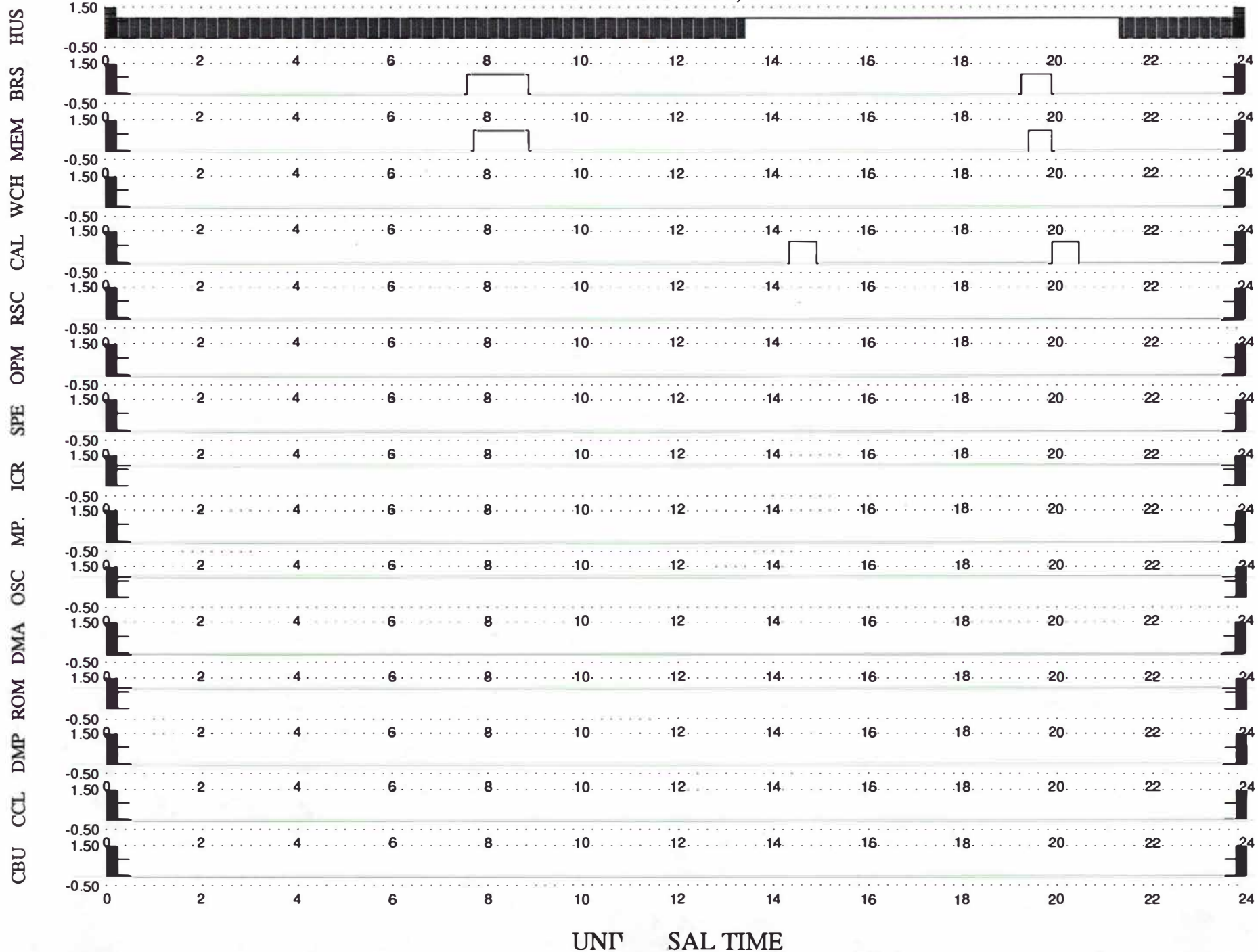
Plot created: 98/12/19, 1010

Channel

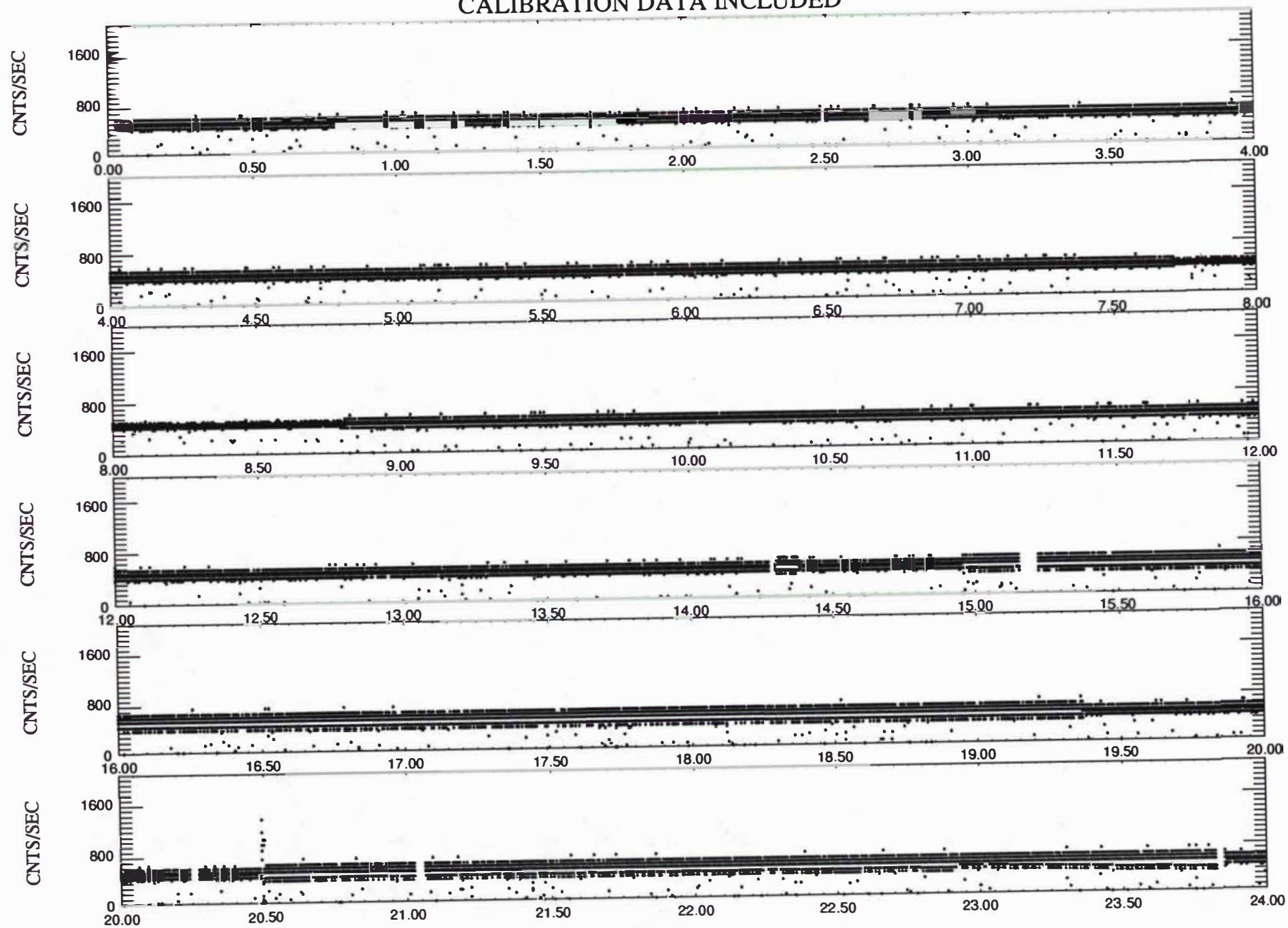
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

BURST NUMBER 9, 10

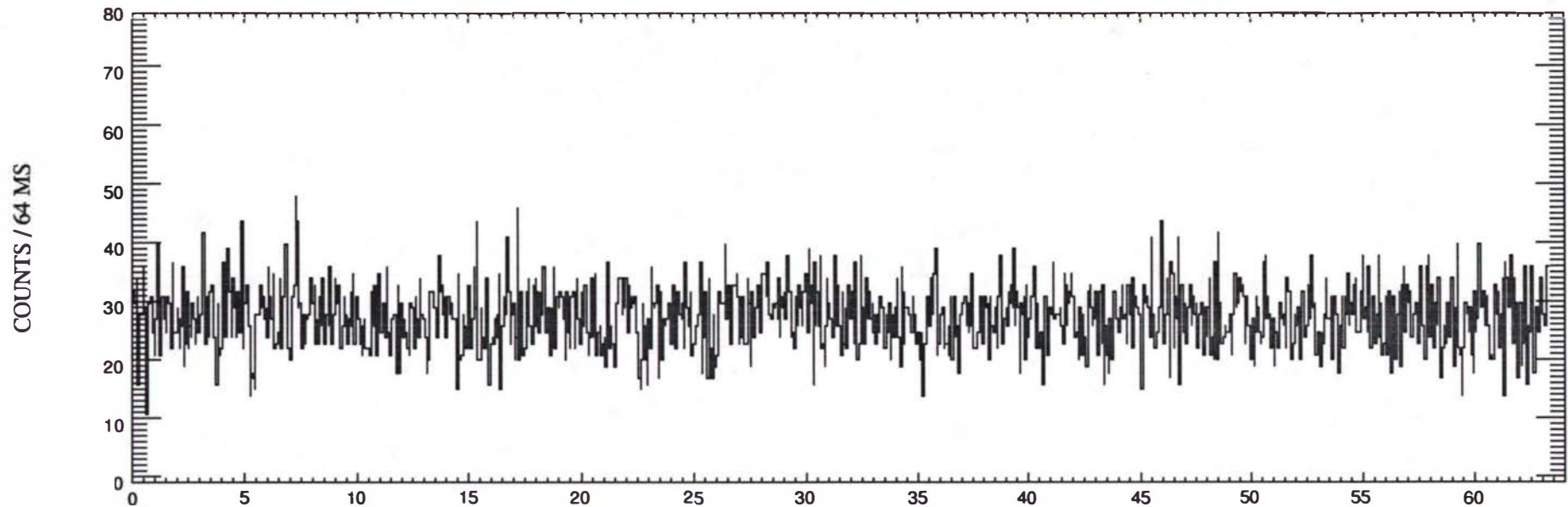


CALIBRATION DATA INCLUDED

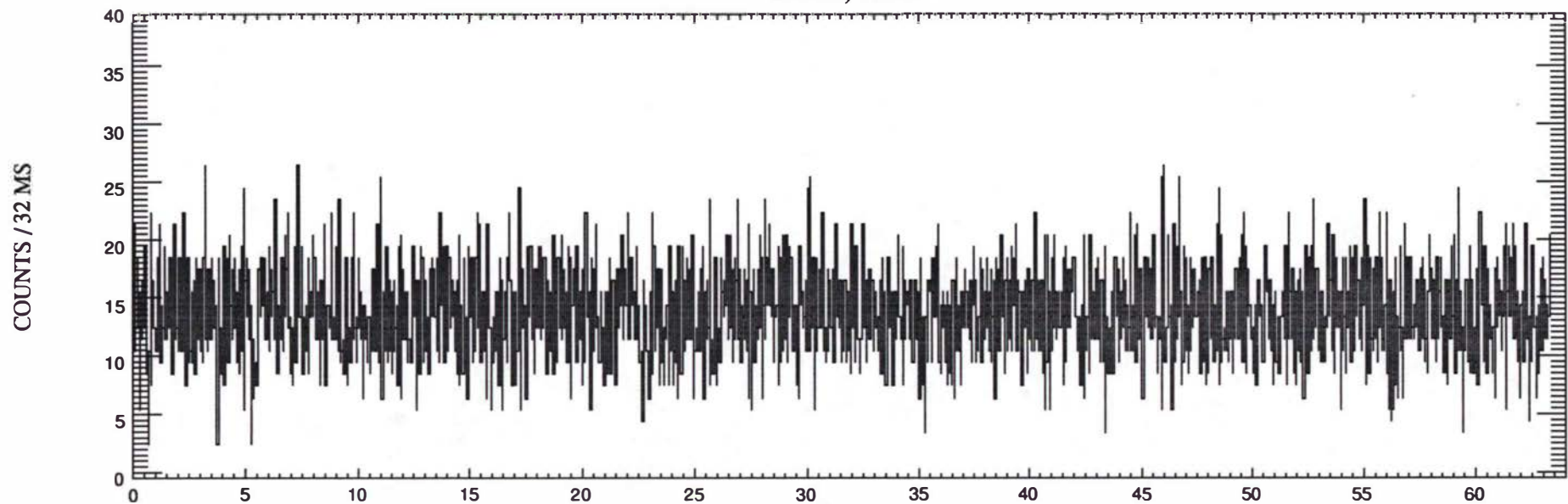


UNIT SAL TIME

Burst Counter 9 at UT= 7.554961013794 h=27197.860 s 07:33:17.860

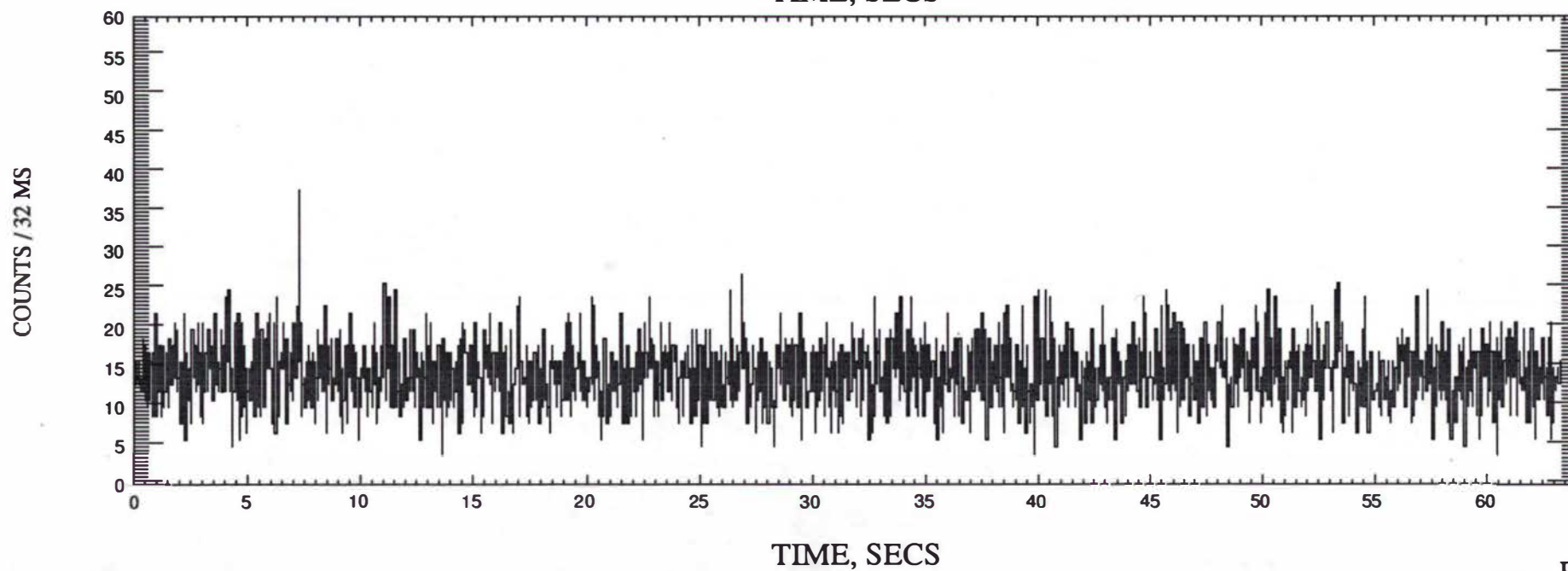
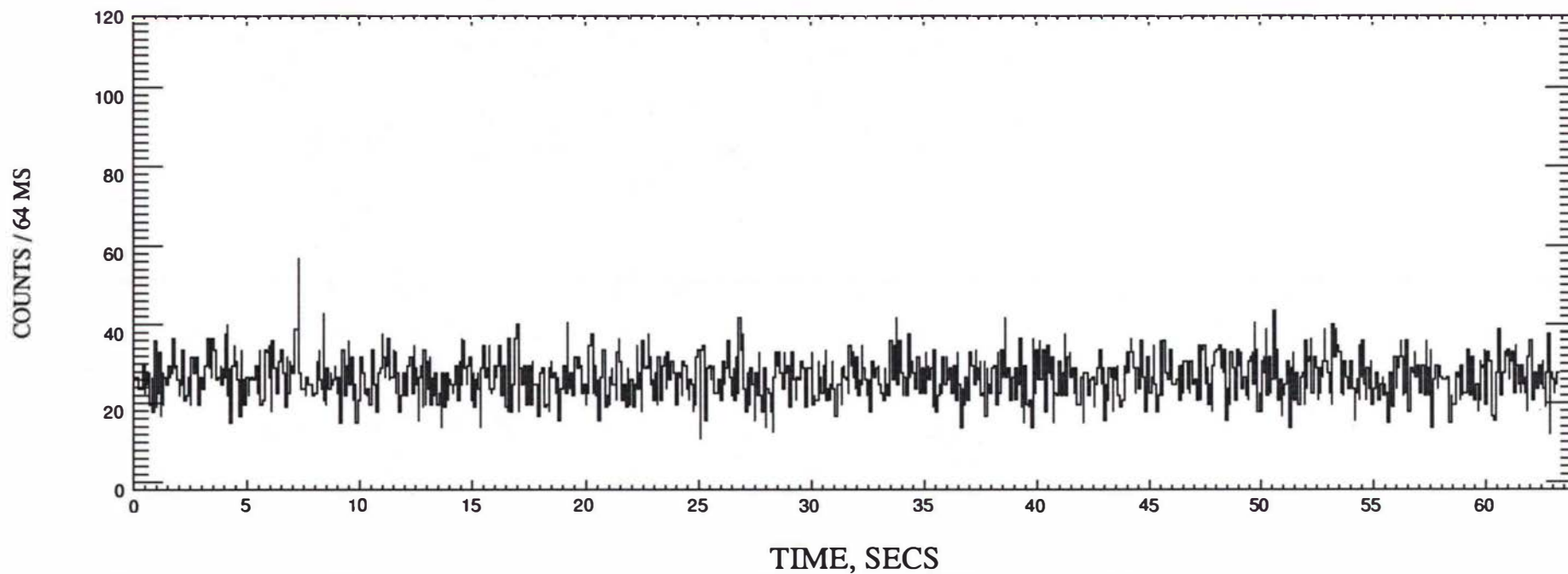


TIME, SECS

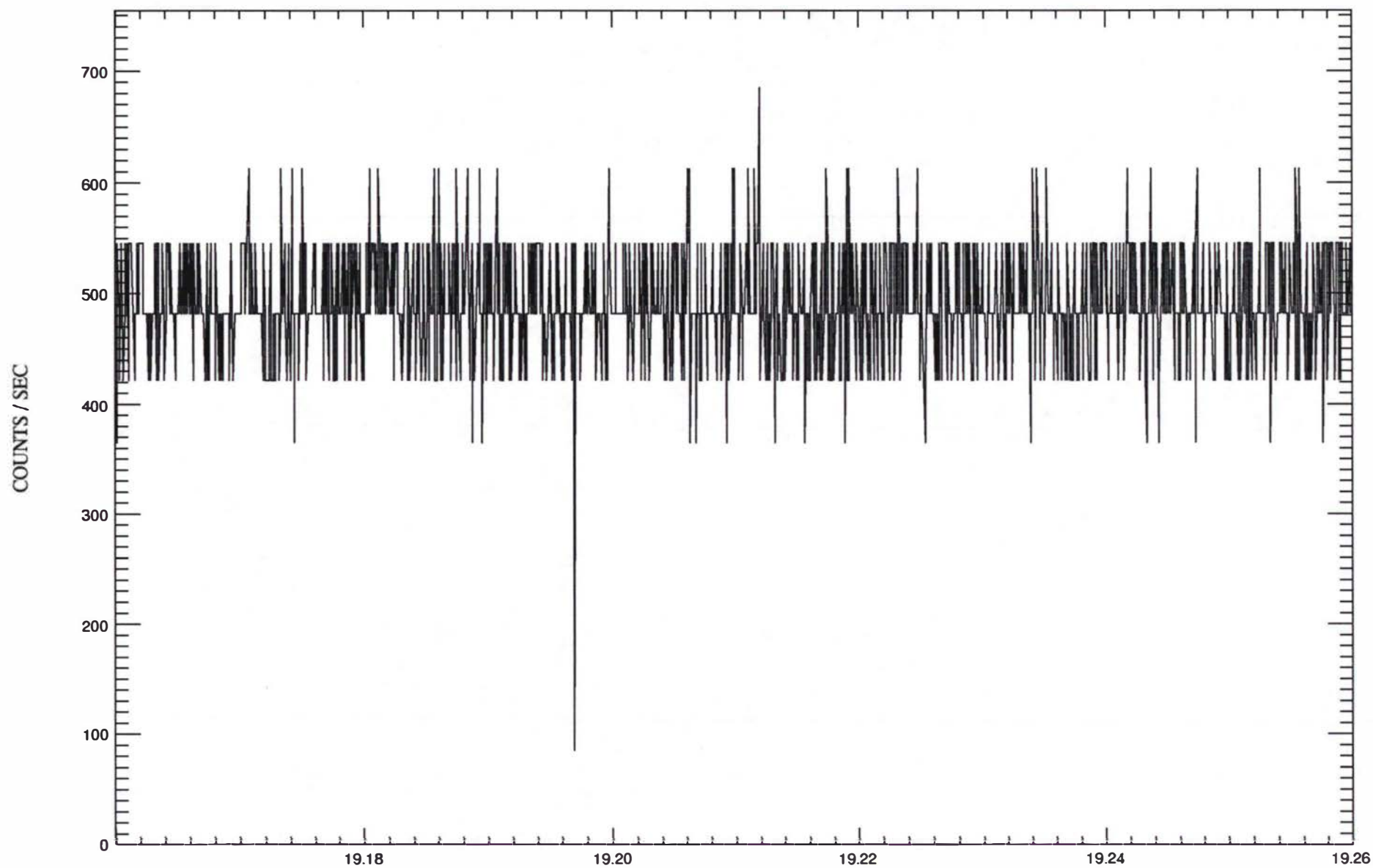


TIME, SECS

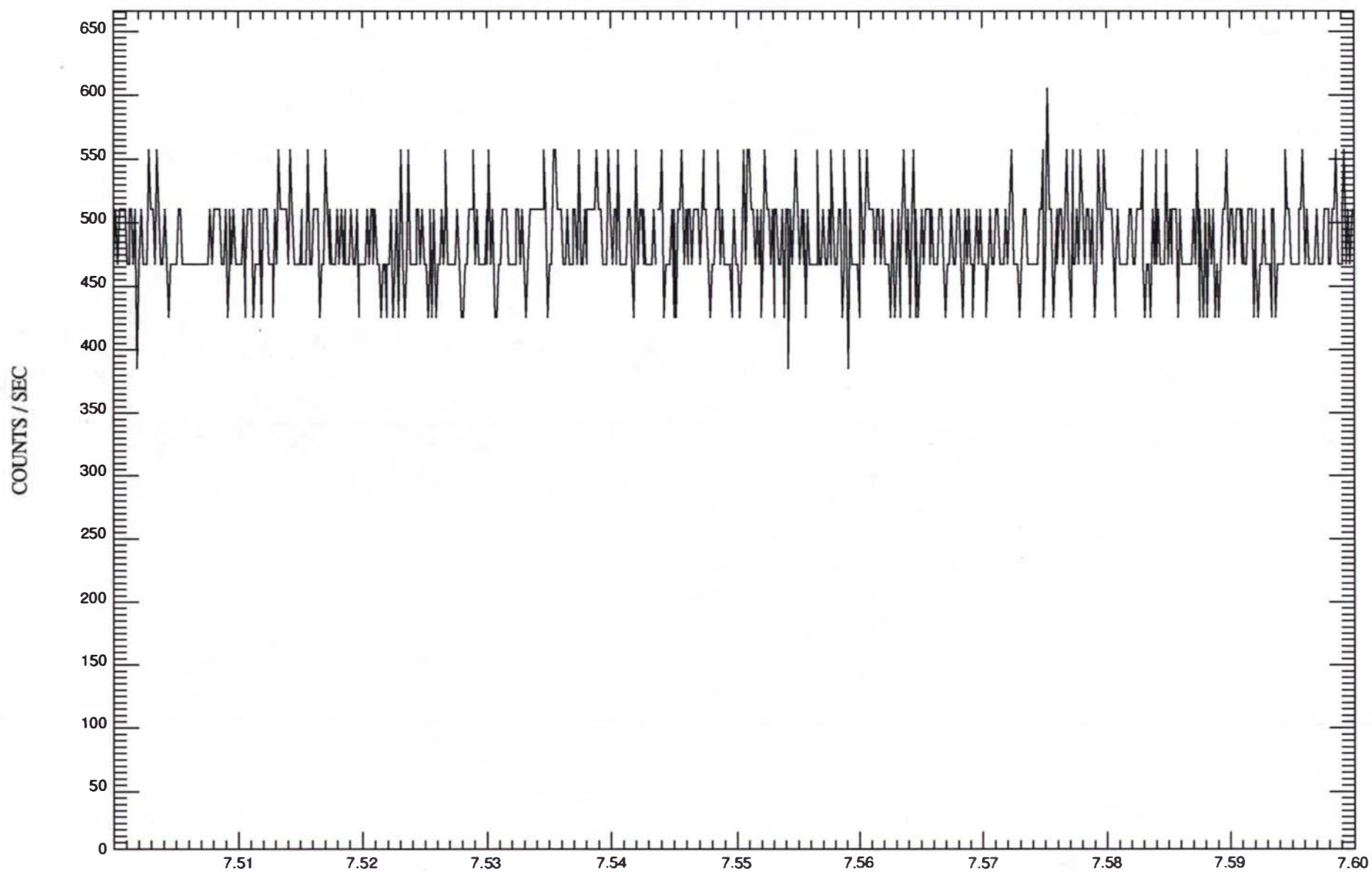
Burst Counter 10 at UT=19.212058741252 h=69163.411 s 19:12:43.411

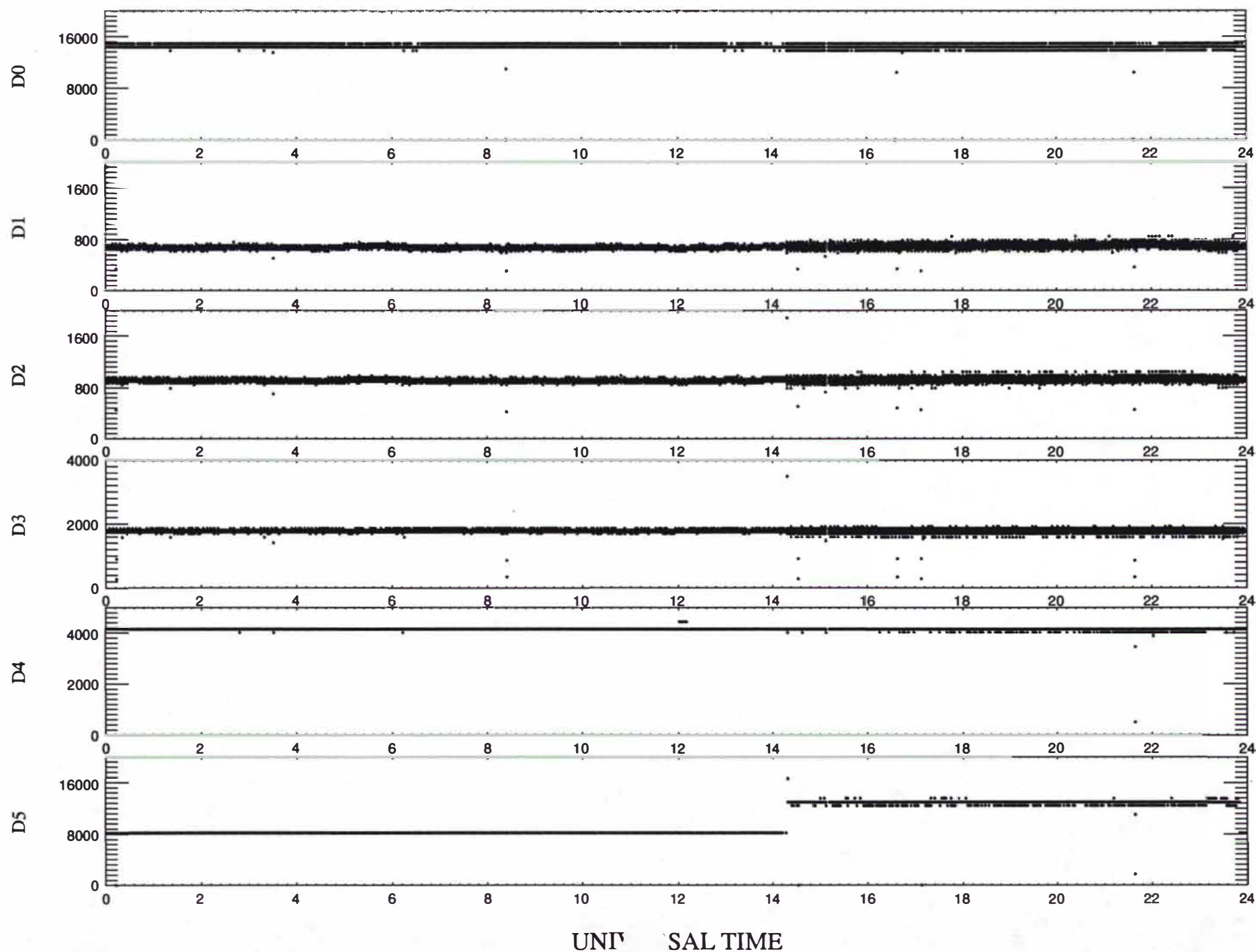


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





From SURASAK@fender.msfc.nasa.gov Thu Dec 17 13:58:42 1998

From: SURASAK@fender.msfc.nasa.gov

Date: Thu, 17 Dec 1998 15:58:12 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7265

TIME: TJD=1163 SECONDS=57104

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

PARTICLE EVENT.

GRBM 19981216 65544

ULYSSES RT

09/05/07

16/12/98 64728.141 s

0.250 S INTERVALS REGROUPED BY 5

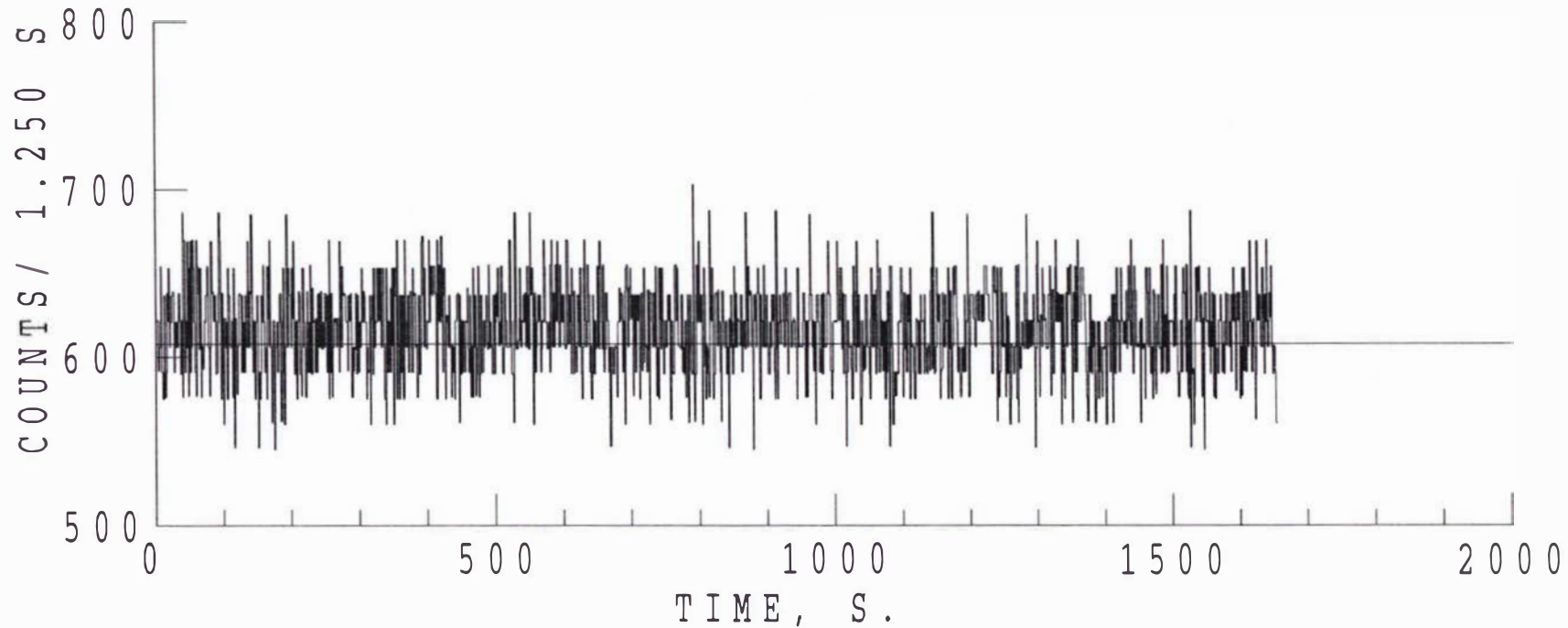
0 - 0 keV

N= 10 M= 10

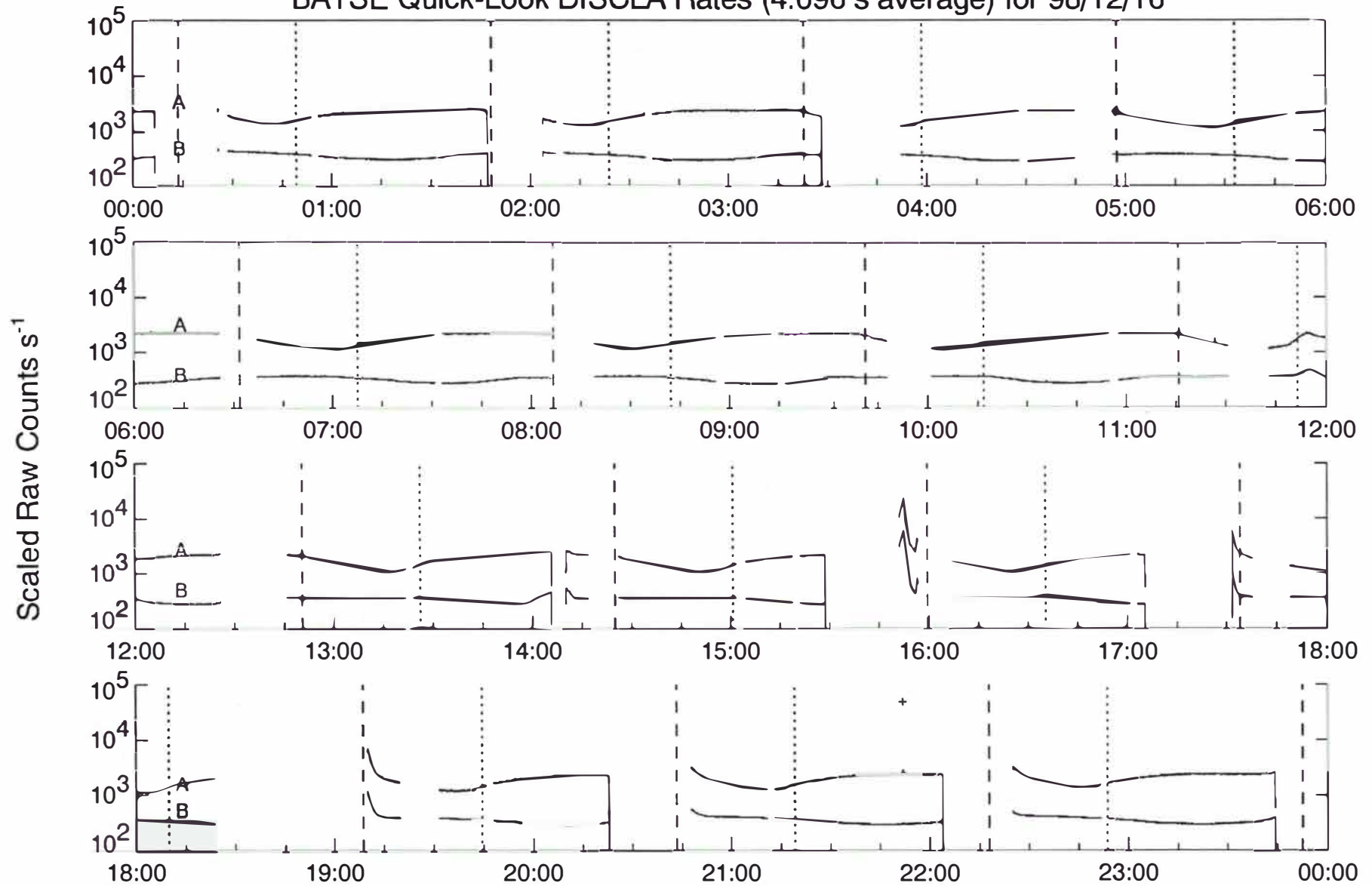
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/16

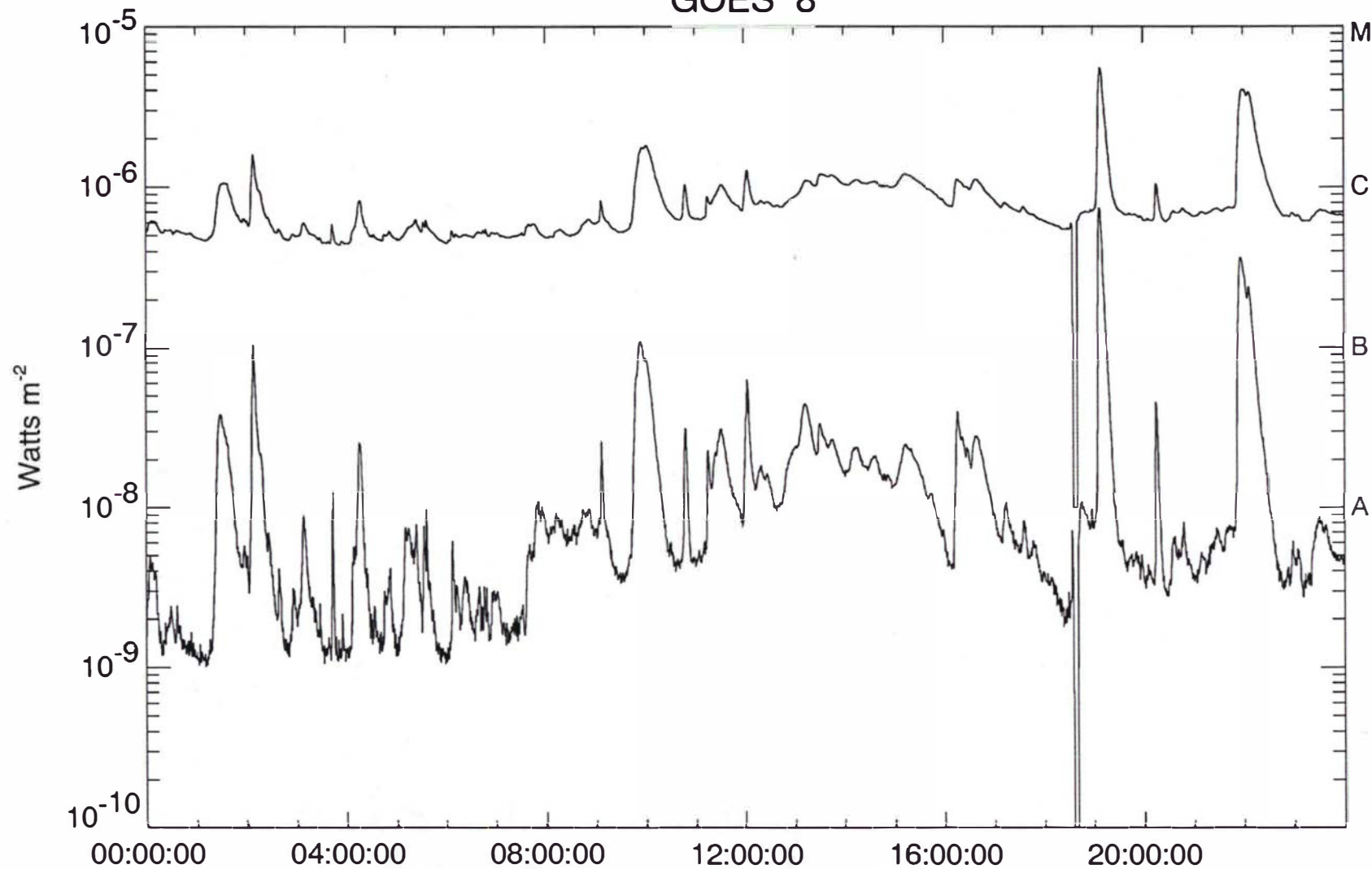


Current Time: 98/12/20, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 98/12/16, 0000:00

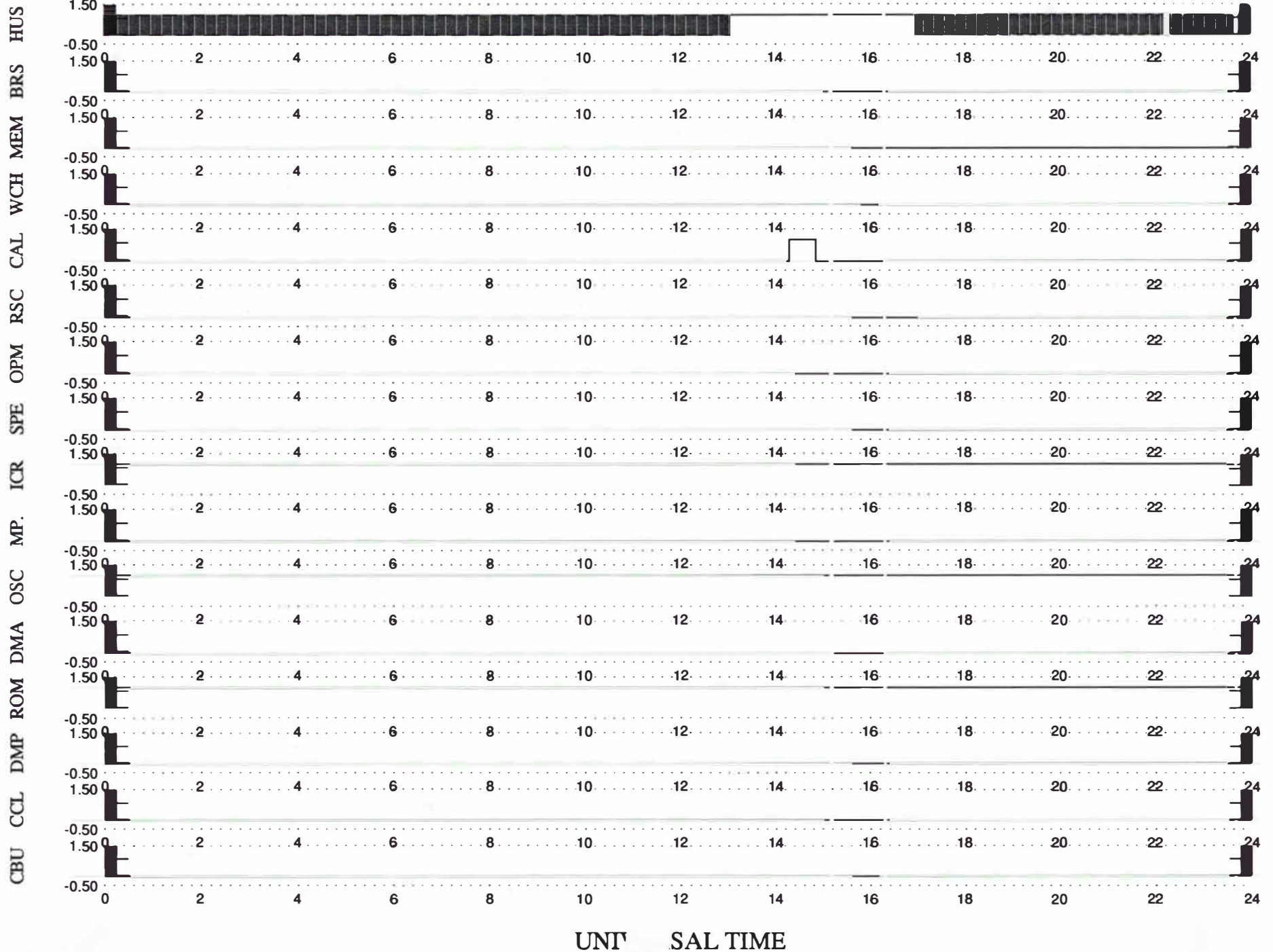
Plot created: 98/12/20, 1010

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

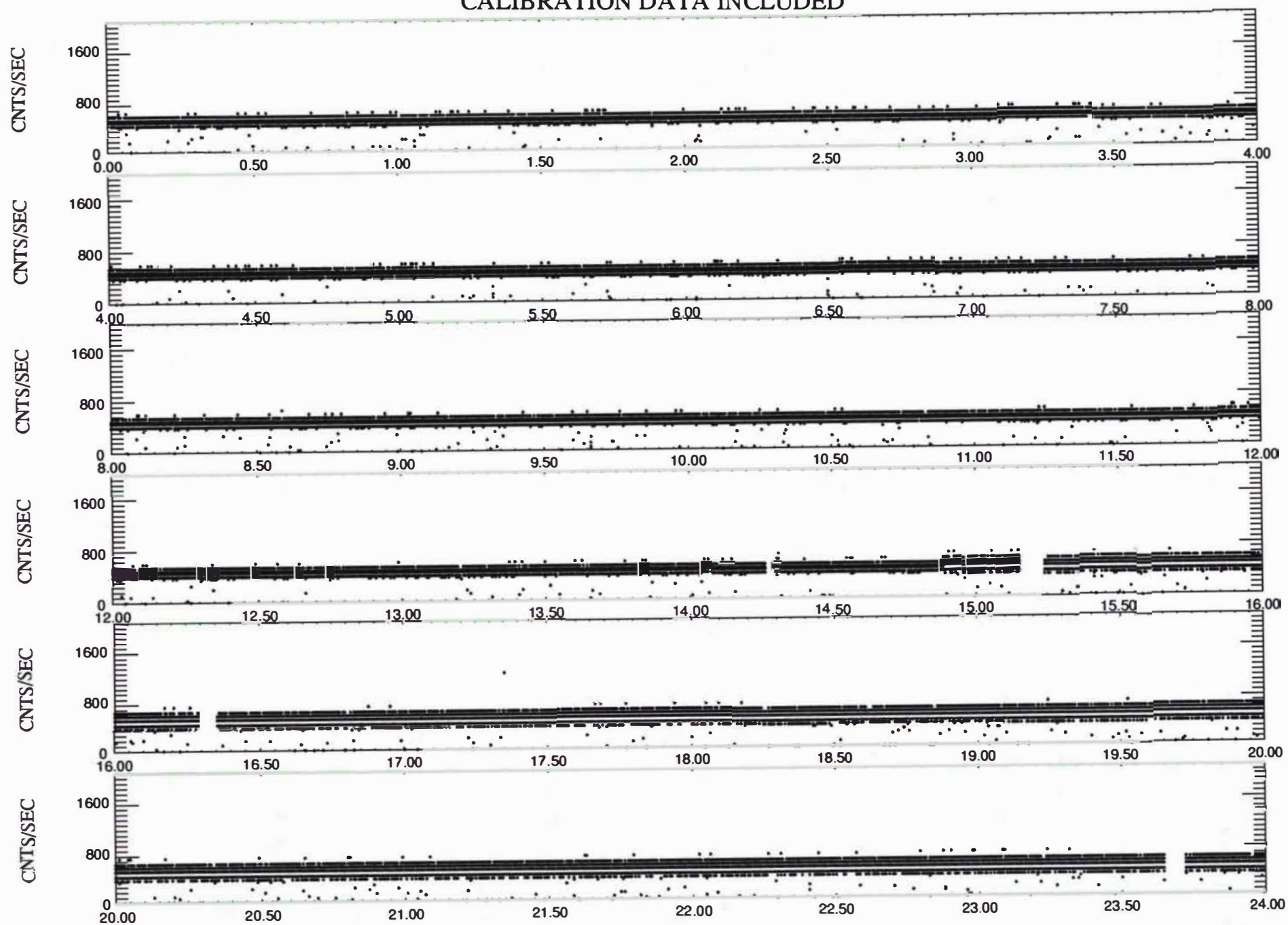
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

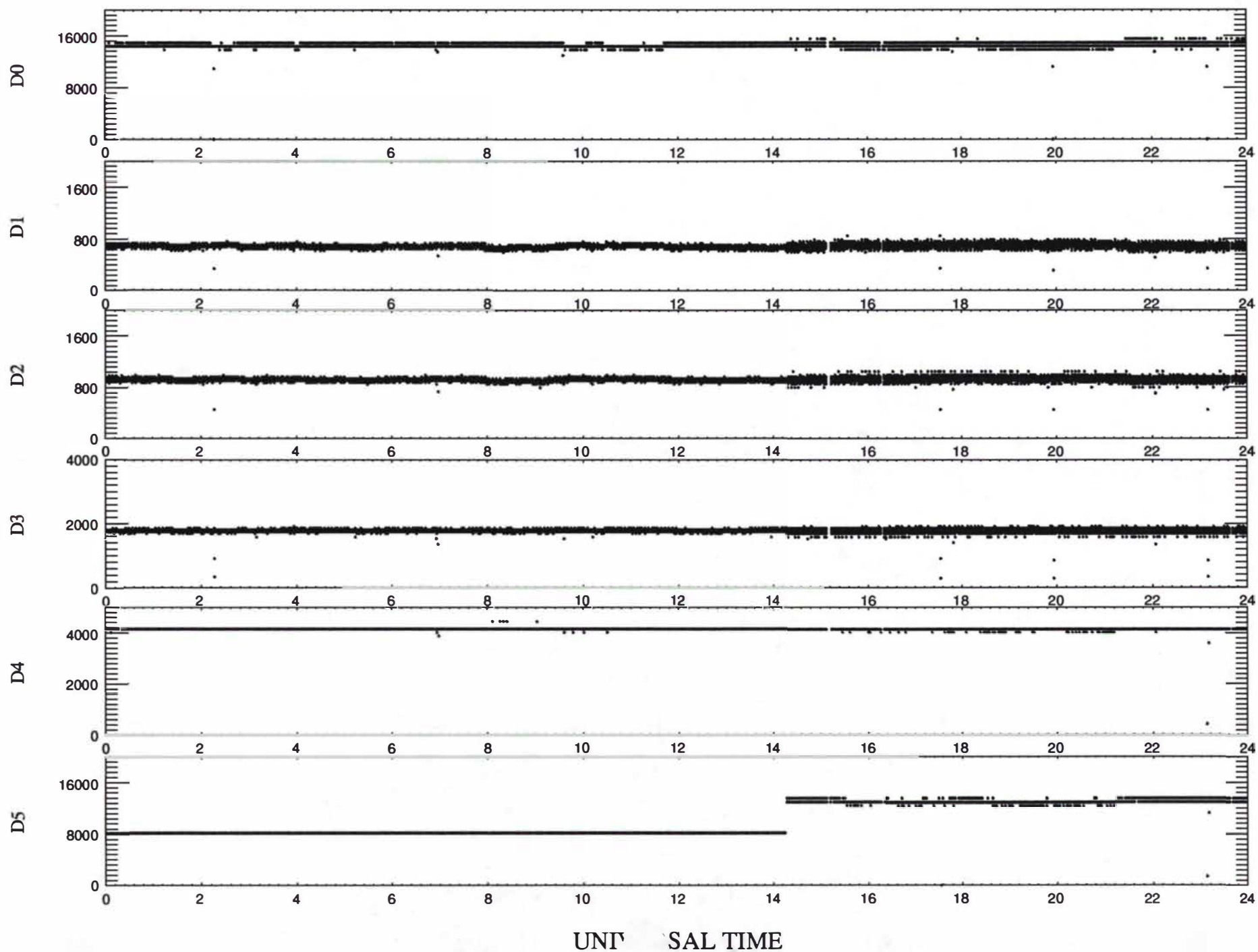
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIT SAL TIME



HUS DATA

4 / 6 / 99

ULYSSES RT

17/12/98 6300.175 s

0.250 S INTERVALS REGROUPED BY 22

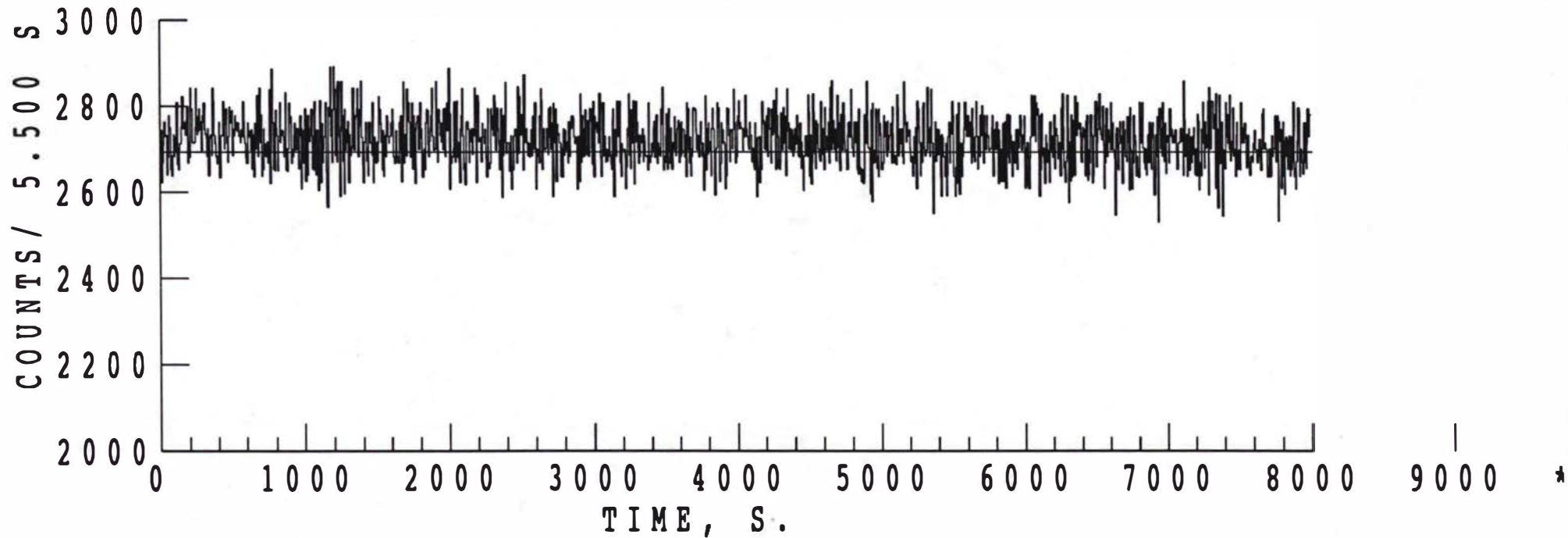
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS





From khurley@sunspot Tue Dec 22 08:10 PST 1998

Date: Tue, 22 Dec 1998 08:13:55 -0800

From: khurley@sunspot (Kevin Hurley)

To: scott@lheamail.gsfc.nasa.gov, khurley@sunspot,
butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in, vnp@isac.ernet.in,
bonnard@lheamail.gsfc.nasa.gov, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, filippo@botes1.tesre.bo.cnr.it,
henze@fender.msfc.nasa.gov, woods@eagles.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov

Subject: GRB981217A,B

ULYSSES GAMMA-RAY BURSTS NOT REPORTED BY BATSE:

ULYSSES DATE & TIME	COMMENTS	ULYSSES DISTANCE FROM EARTH, LIGHT-S
DEC 17 1998 12:58*	moderate, 32 ms long	2500
DEC 17 1998 19:22*	moderate, 32 ms long	2500

*suspected to come from SGR1806-20. If so, the Earth-crossing time would have been ~485 s earlier.

Were these events detected by anyone else?

CC: ulyssesbursts alias list

(barthelmy, butterworth, cline, frontera, kouveliotou, kurczyski, marar, tee

TGRS: NO

From HENZE@fender.msfc.nasa.gov Fri Dec 18 11:06:59 1998
Date: Fri, 18 Dec 1998 13:06:27 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

To: burst@compel.sr.unh.edu, grobad@ests2.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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7266

TIME: TJD=1164 SECONDS=11153

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

From HENZE@fender.msfc.nasa.gov Mon Dec 21 15:05:50 1998

Date: Mon, 21 Dec 1998 17:05:27 -0600 (CST)

From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

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

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7267

TIME: TJD=1164 SECONDS=27775

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 87.1 AZIMUTH=356.5 ERROR= 0.2 DEGREES

COMMENTS:

GOES M3.2, OPTICAL 1N FLARE. SINGLE EPISODE, MAIN PULSE DUR. APPROX. 100 S,
STARTS AT APPROX. T-25 S. TOTAL DUR. PROBABLY APPROX. 180 S.
NOT VISIBLE ABOVE 300 KEV.

Date: Dec 18 2012

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

- ☒ 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?

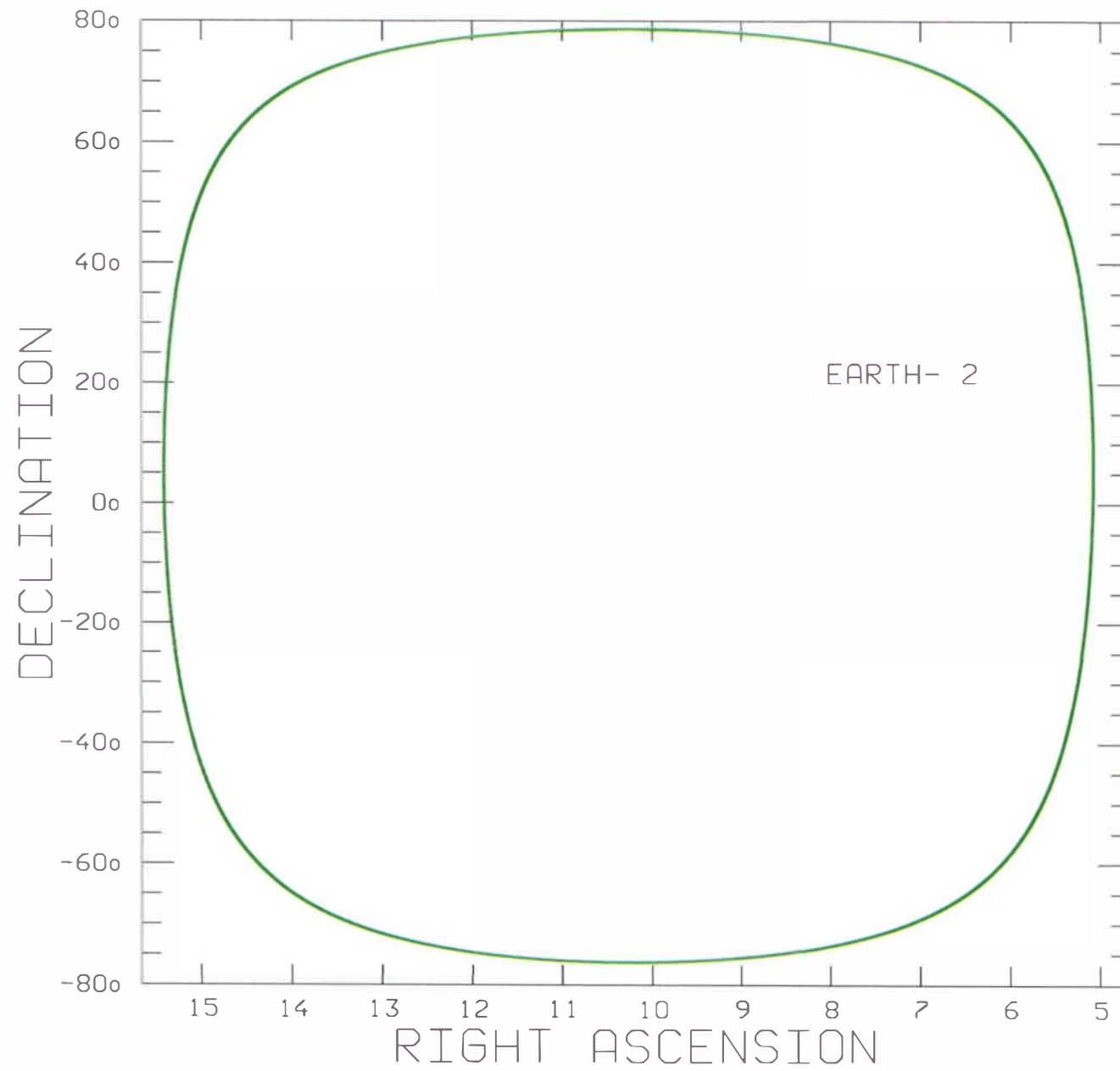
4. For Konus events

- ☐ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

- ☐ $\Sigma 3\Delta t$'s calculated?

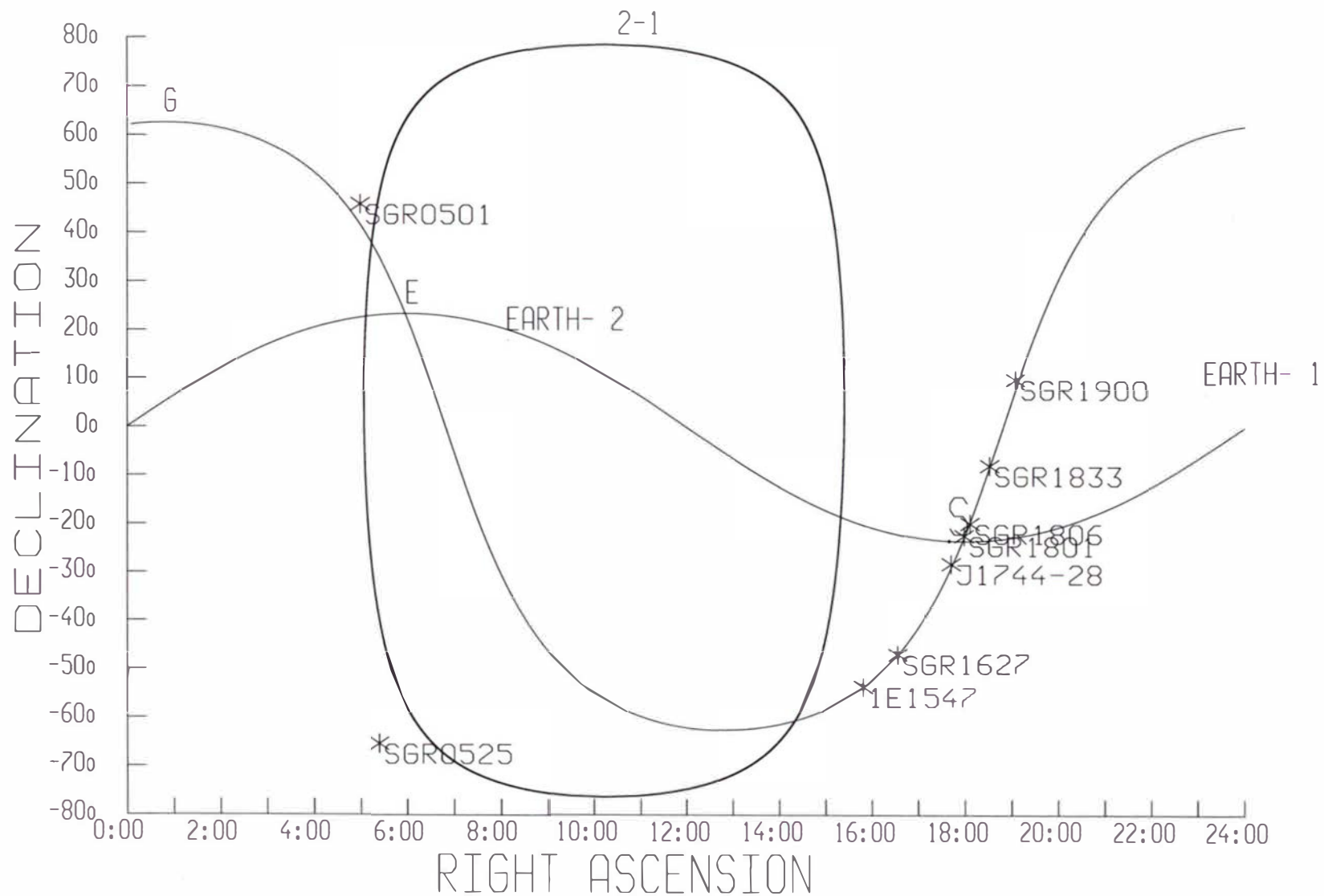
- ☒ ACCESS database updated?

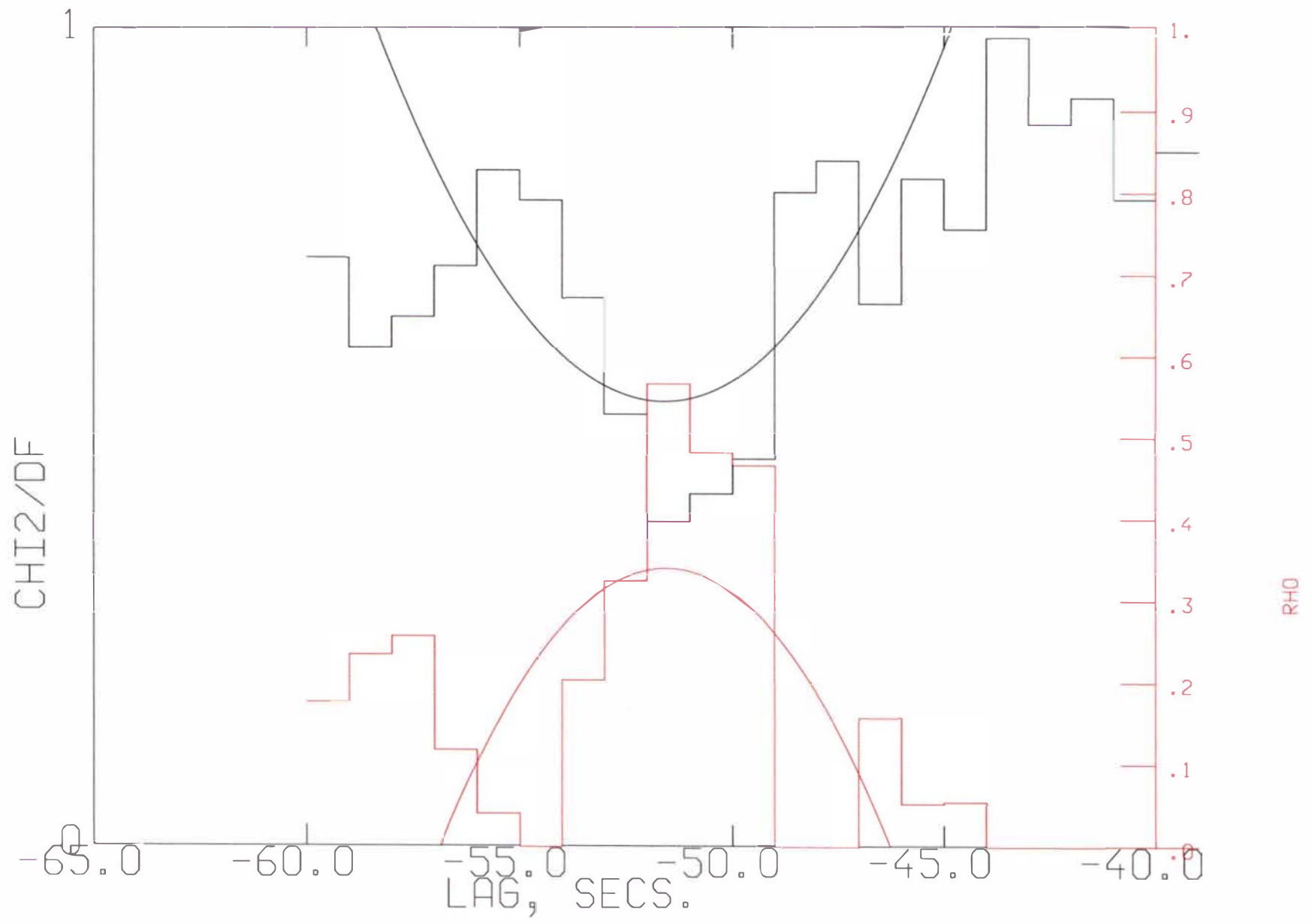


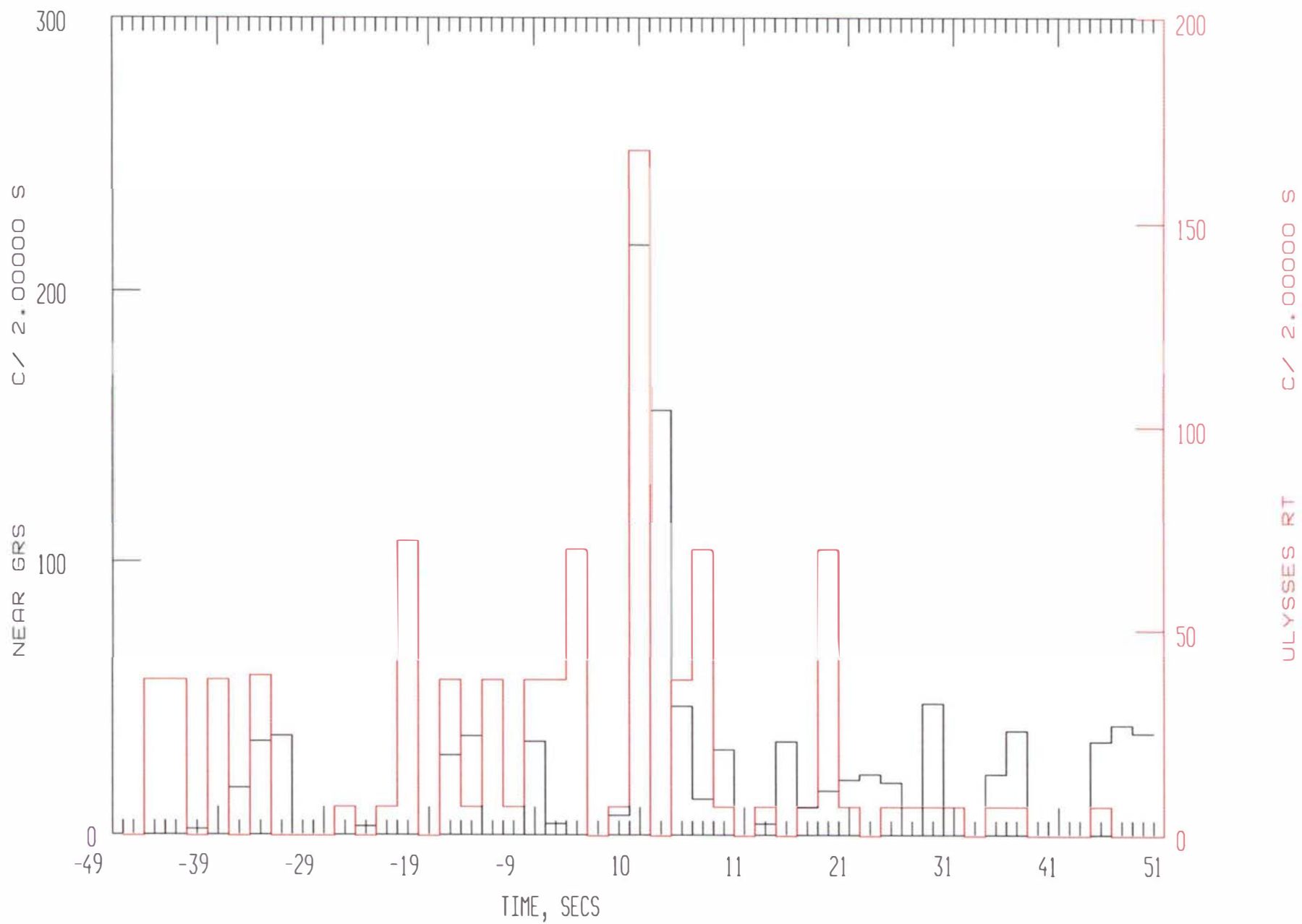
EVENT OF DEC 17, 1998 13:30

18/12/2012

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 NEAR







NEAR 19981217 48526

ULYSSES RT

18 / 12 / 12

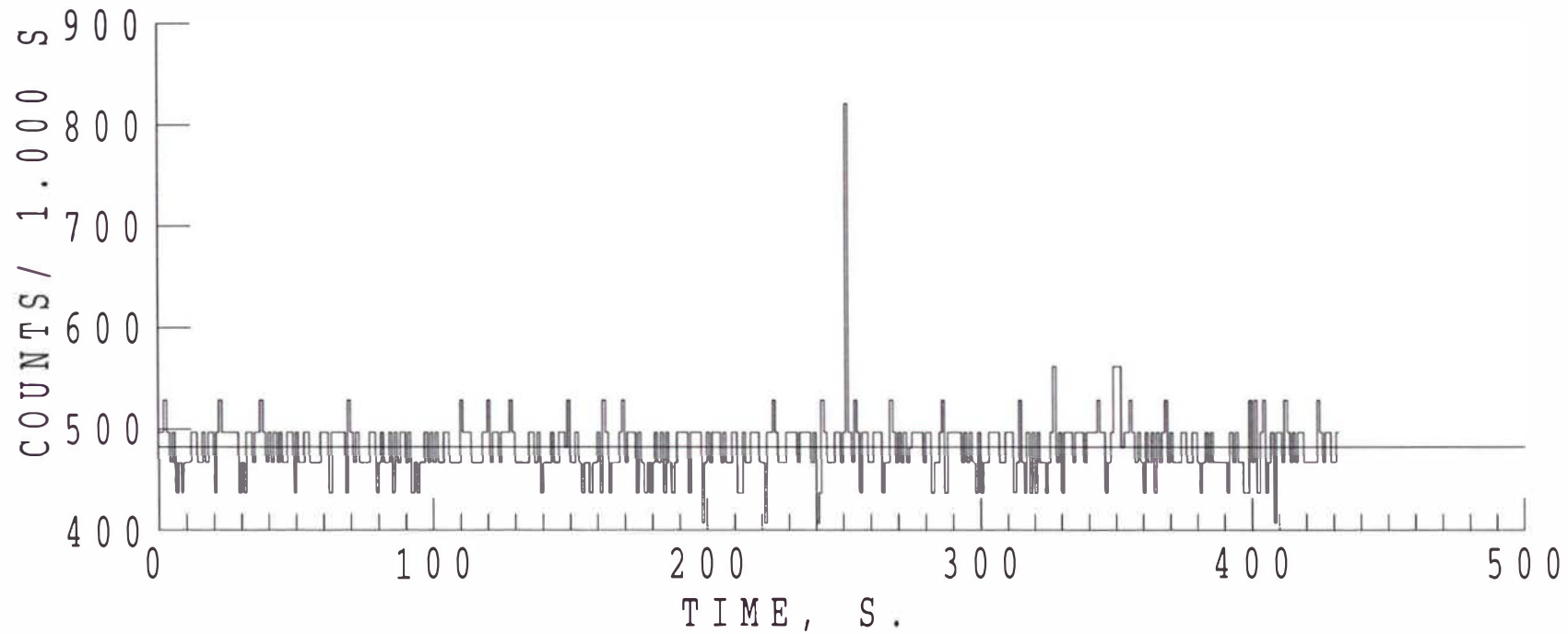
17 / 12 / 98 48312.105 s

0 - 0 keV

SGR2

NEAR GRB

W= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

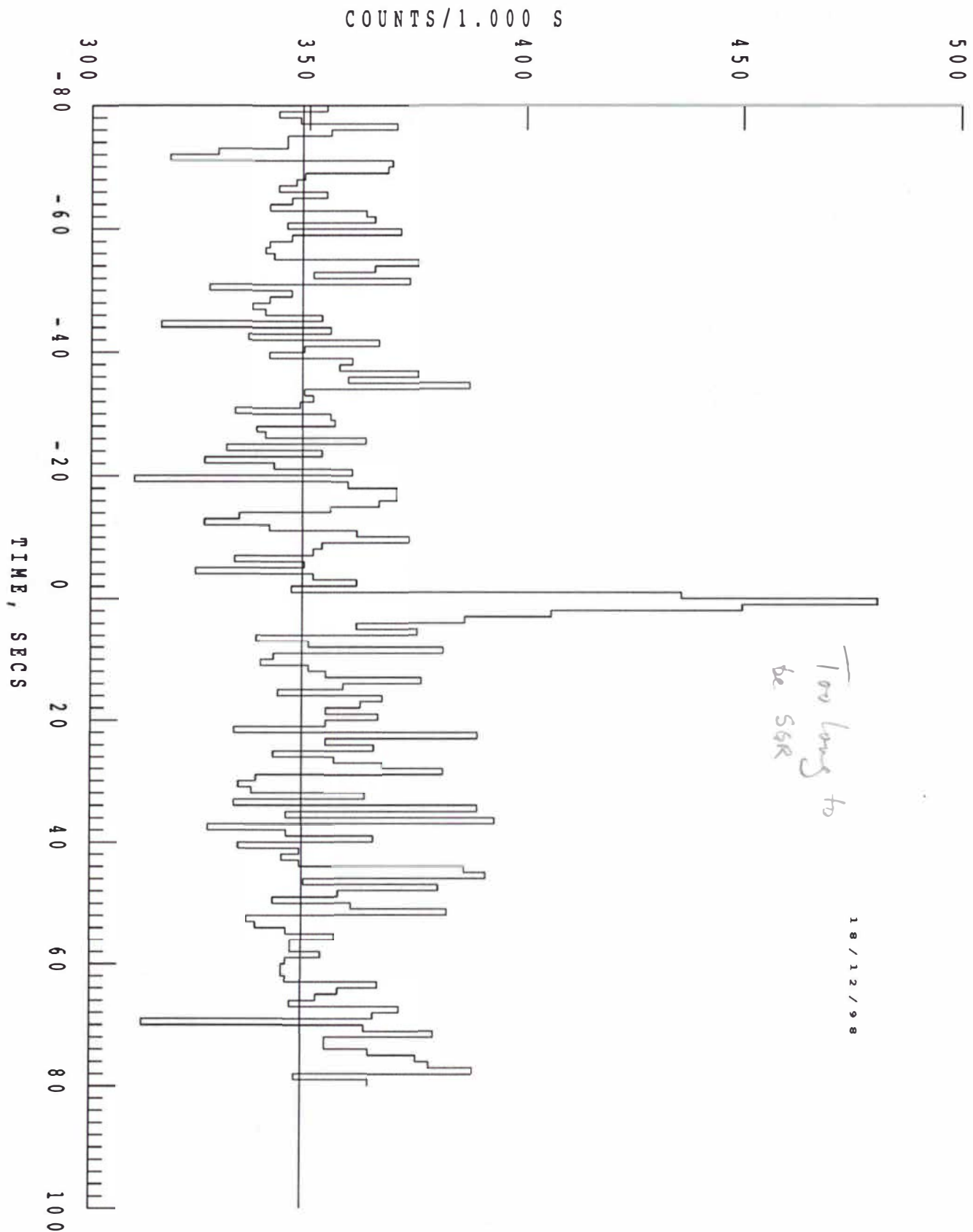


NEAR

17/12/98

49404.816

100-1000 keV



NEAR GRB98351-1

ULYSSES RT

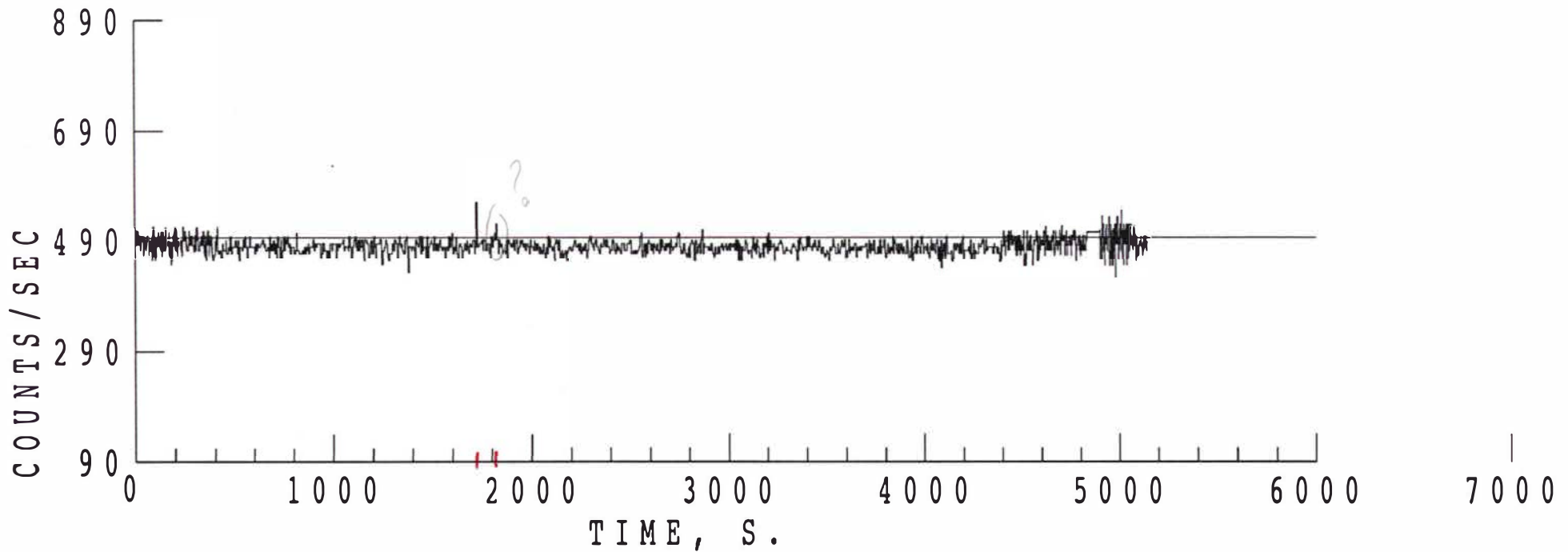
18 / 12 / 98

17 / 12 / 98 46836.090 s

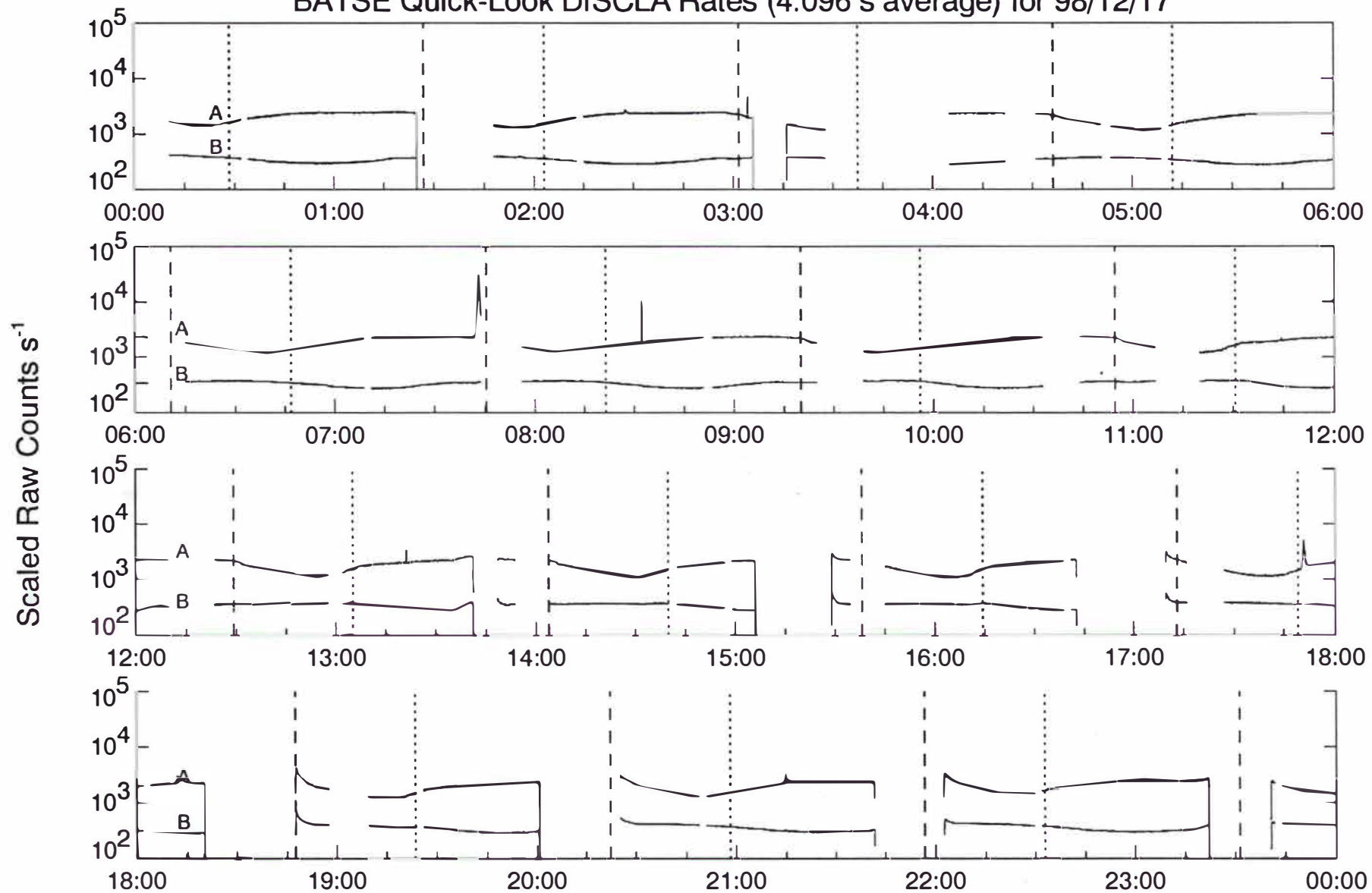
INTERVALS REGROUPED BY 5

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/17

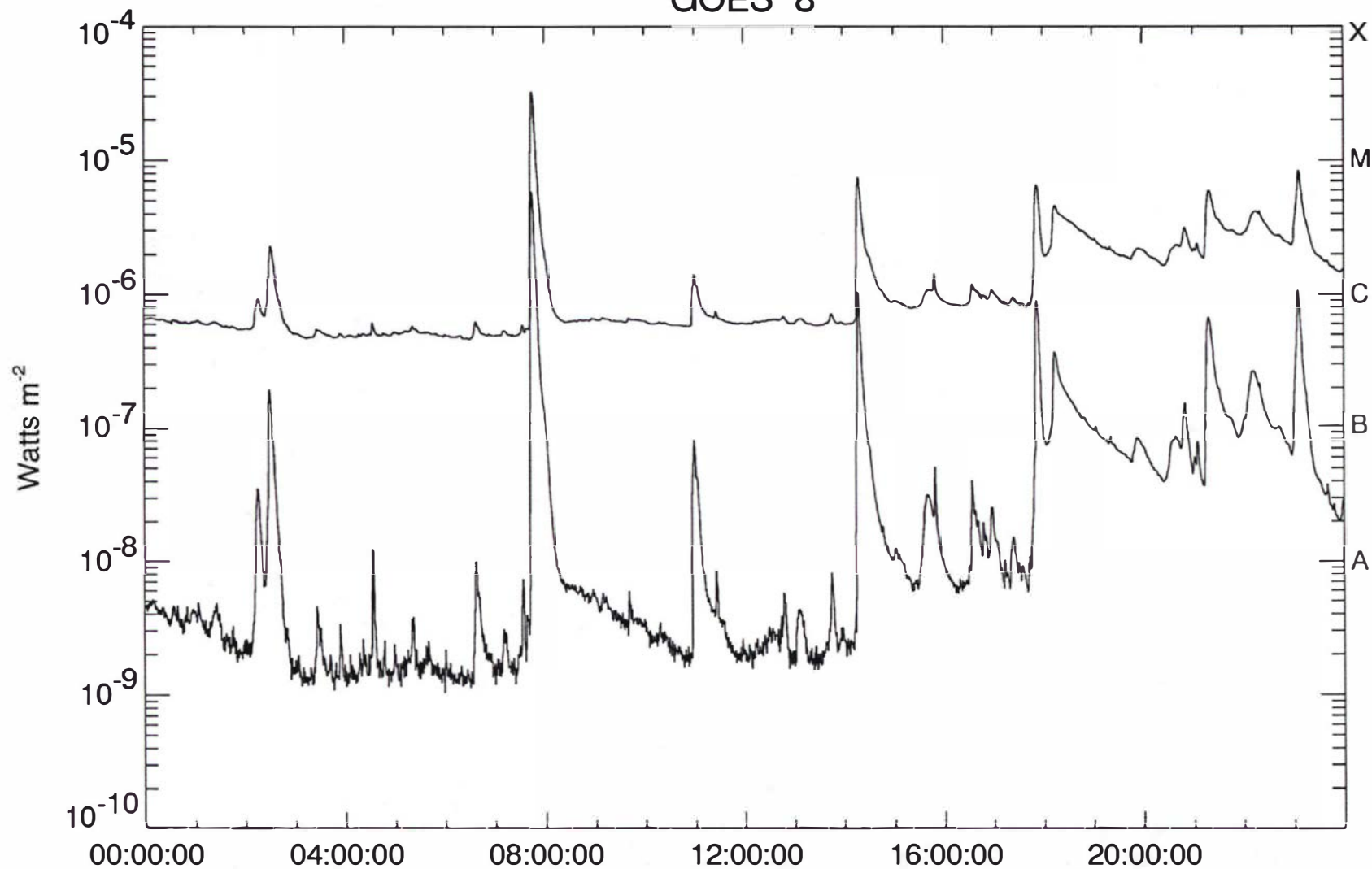


Current Time: 98/12/21, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/17, 0000:00

Plot created: 98/12/21, 1010

Channel

1 (1.0 - 8.0 Angstroms)

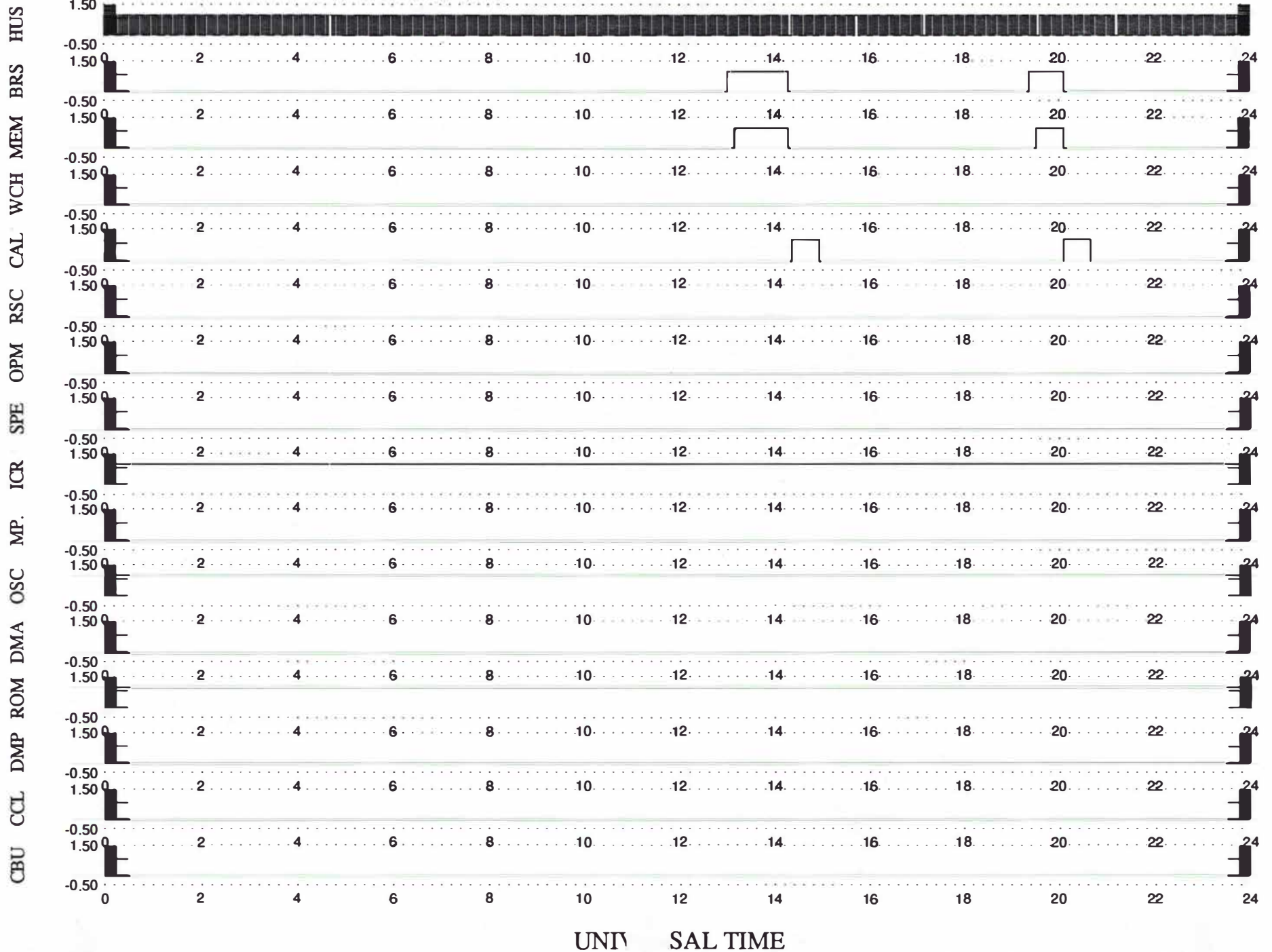
Background not subtracted

2 (0.5 - 4.0 Angstroms)

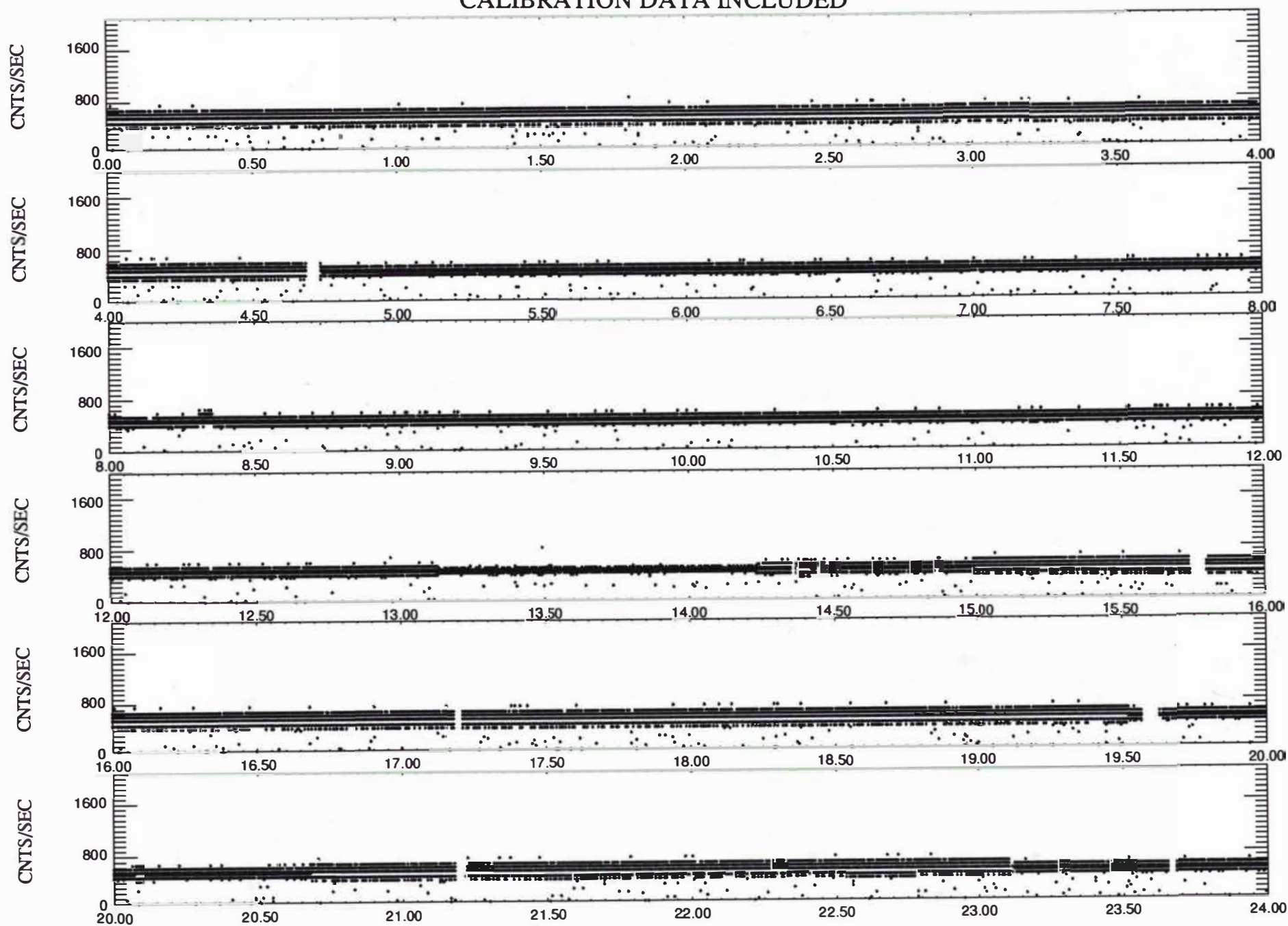
Background not subtracted

Sample average = 10

BURST NUMBER 11, 12

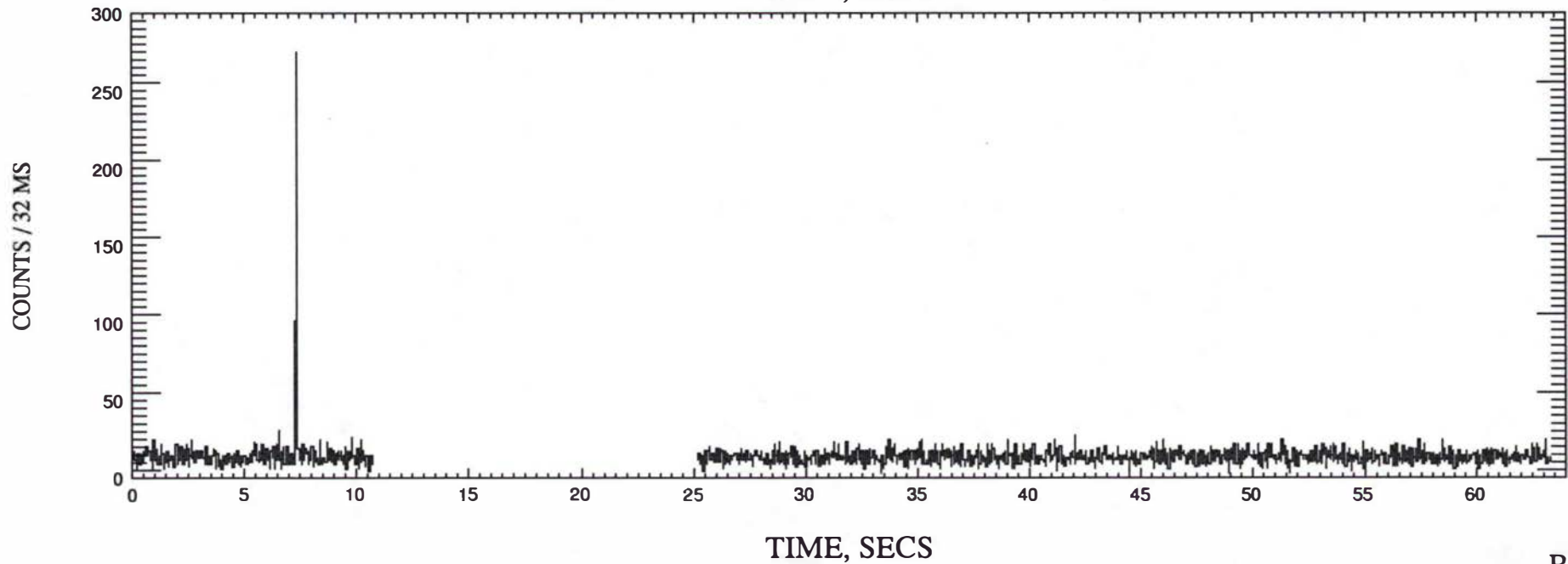
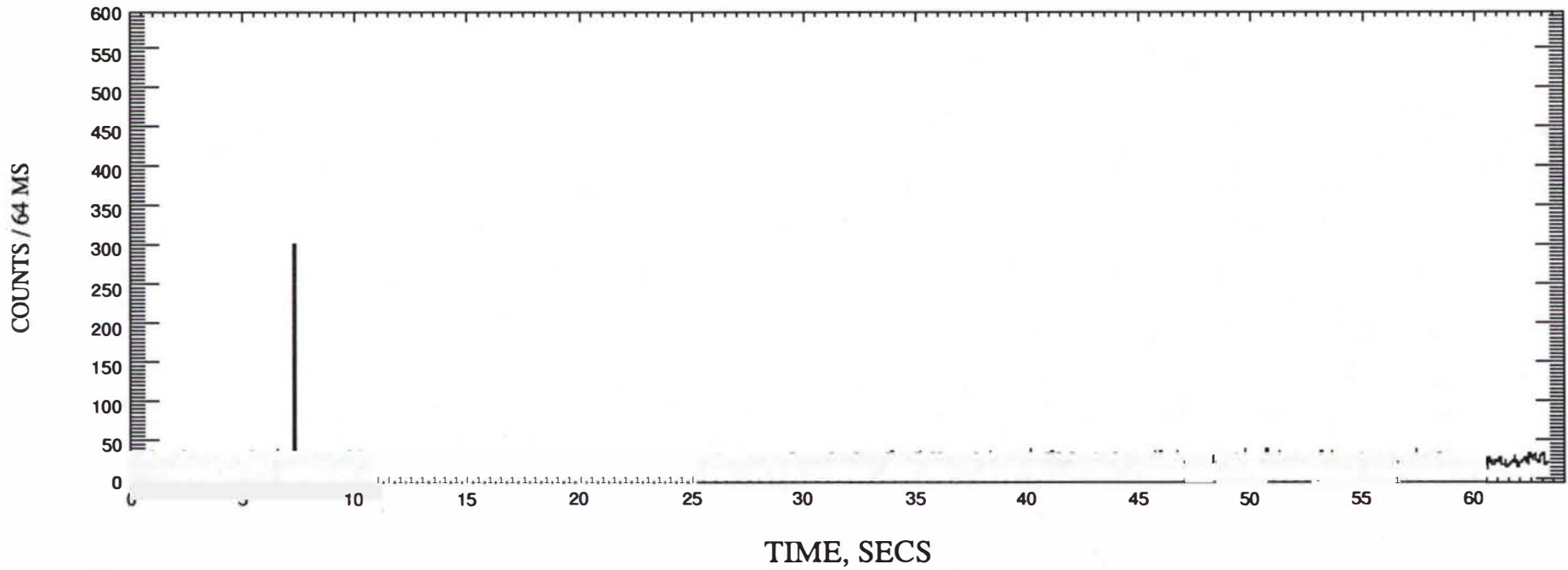


CALIBRATION DATA INCLUDED

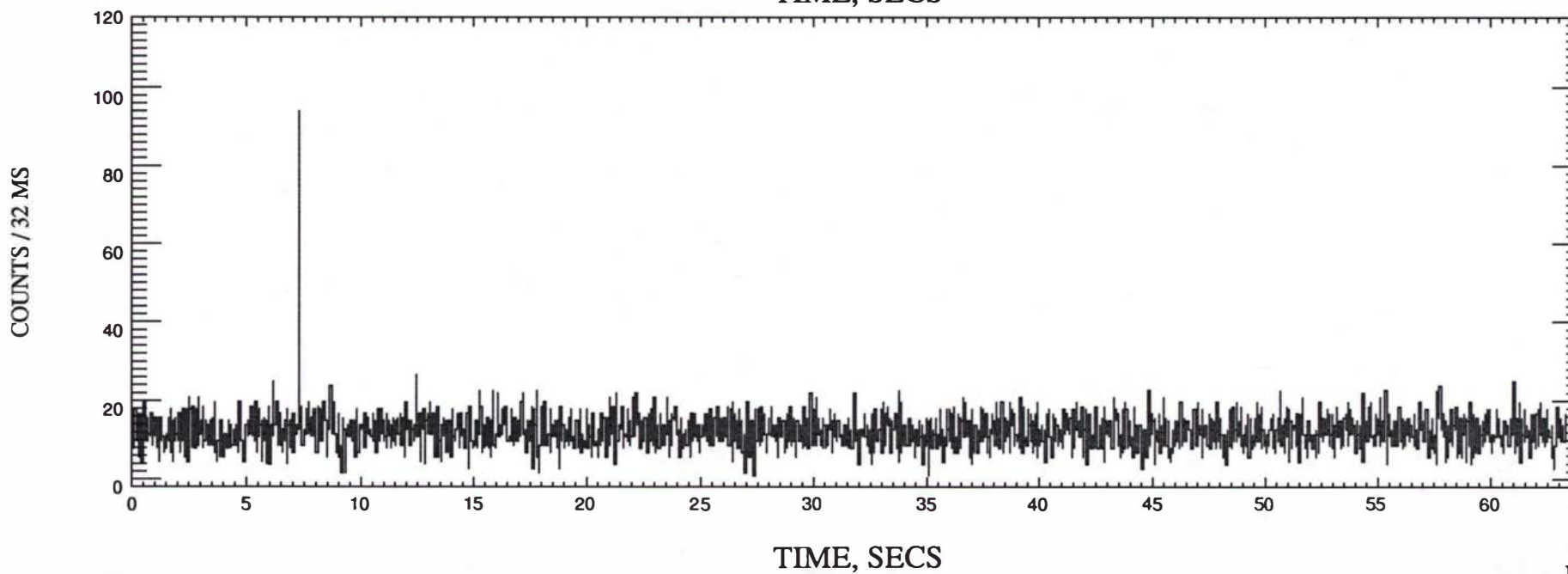
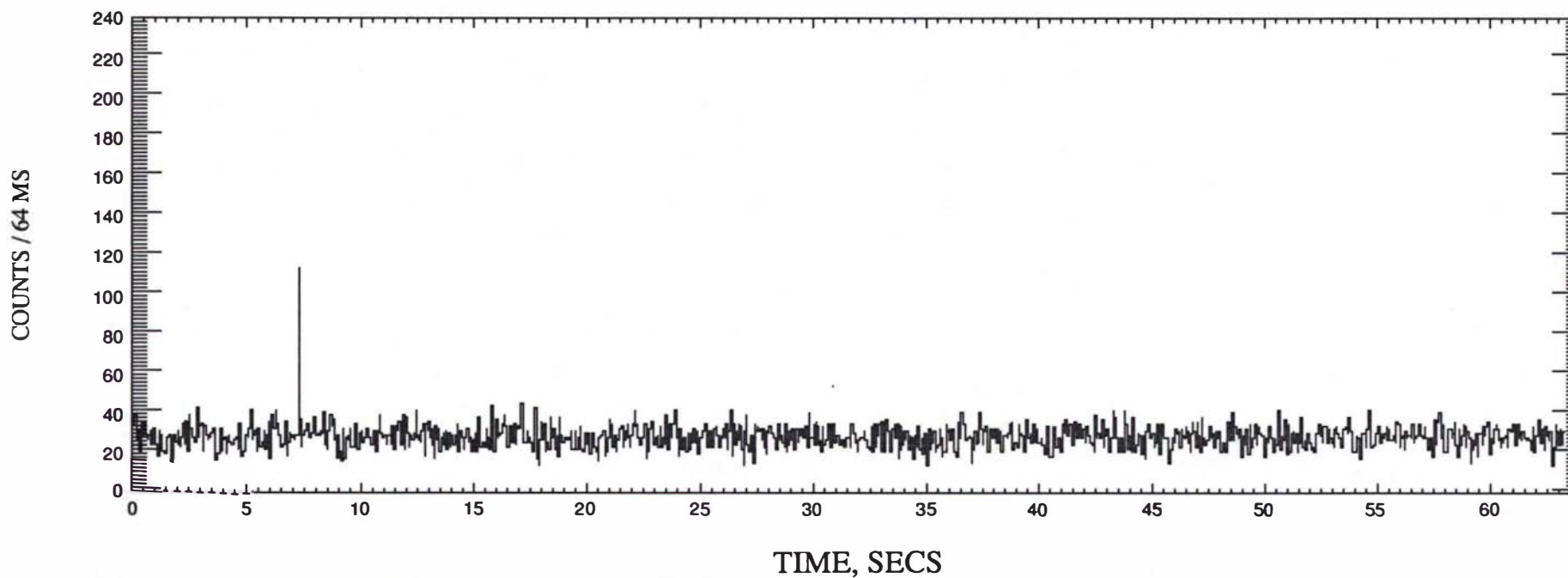


UNT SAL TIME

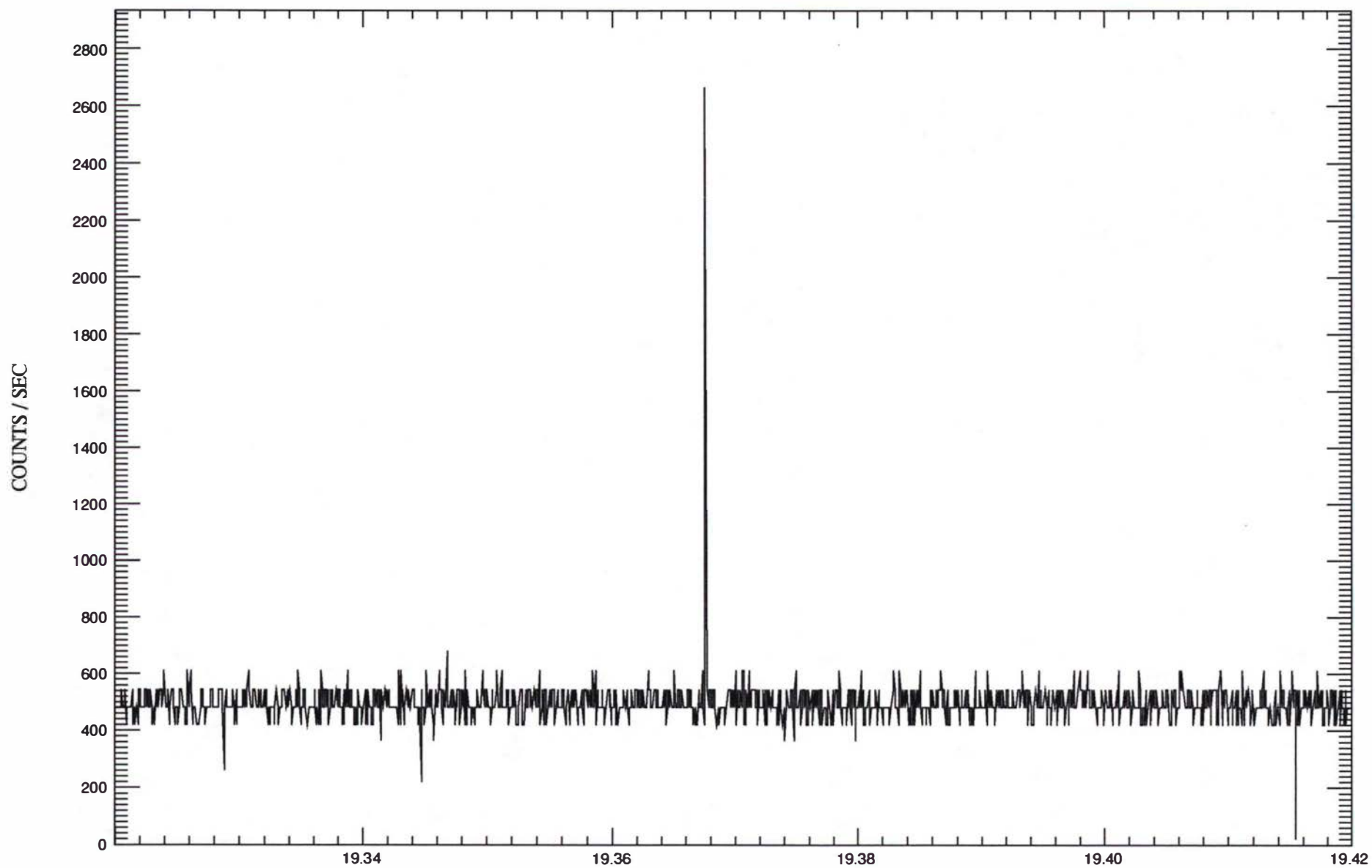
Burst Counter 12 at UT=19.367682766385 h=69723.658 s 19:22:03.658



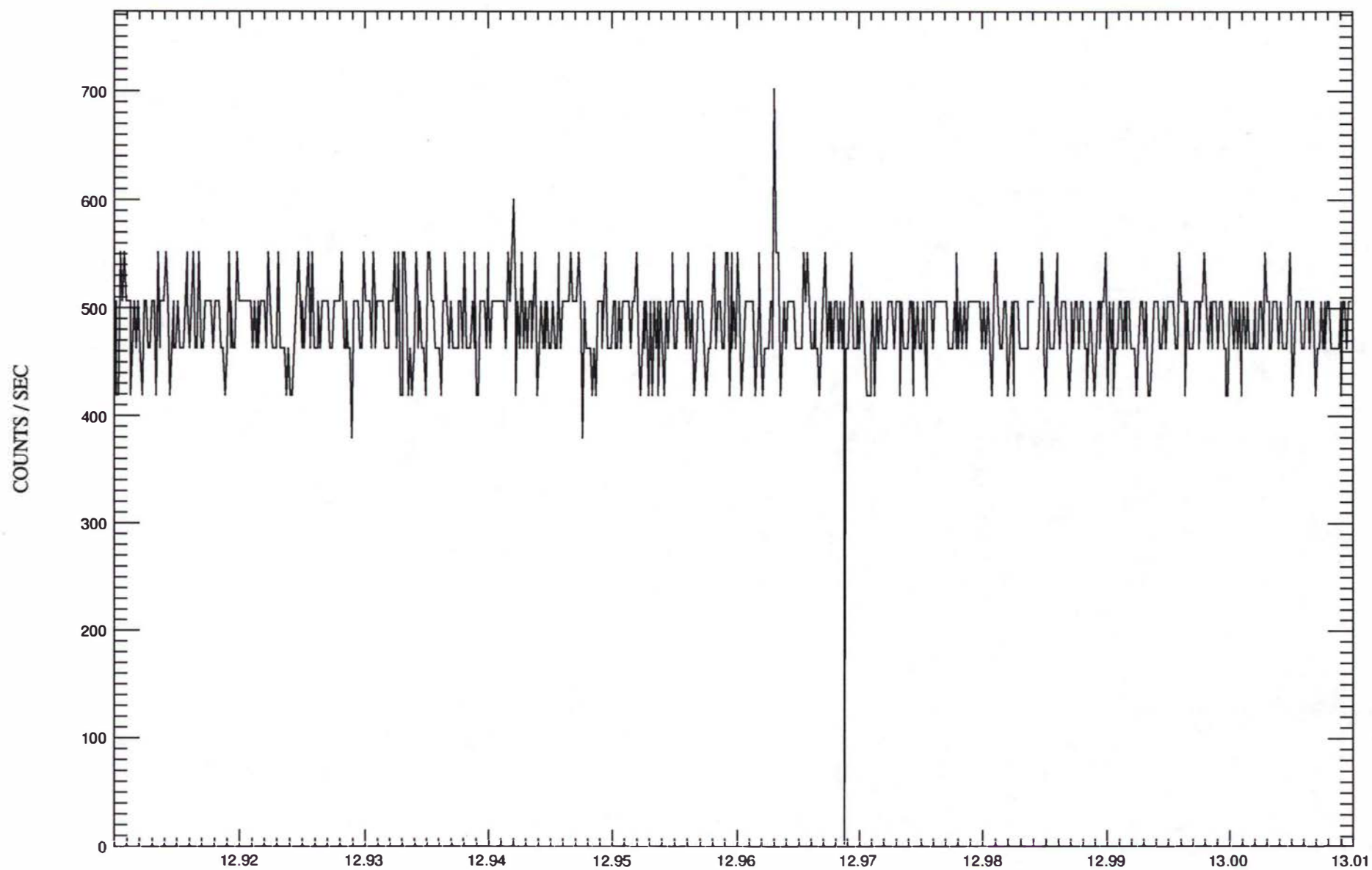
Burst Counter 11 at UT=12.963226754930 h=46667.616 s 12:57:47.616

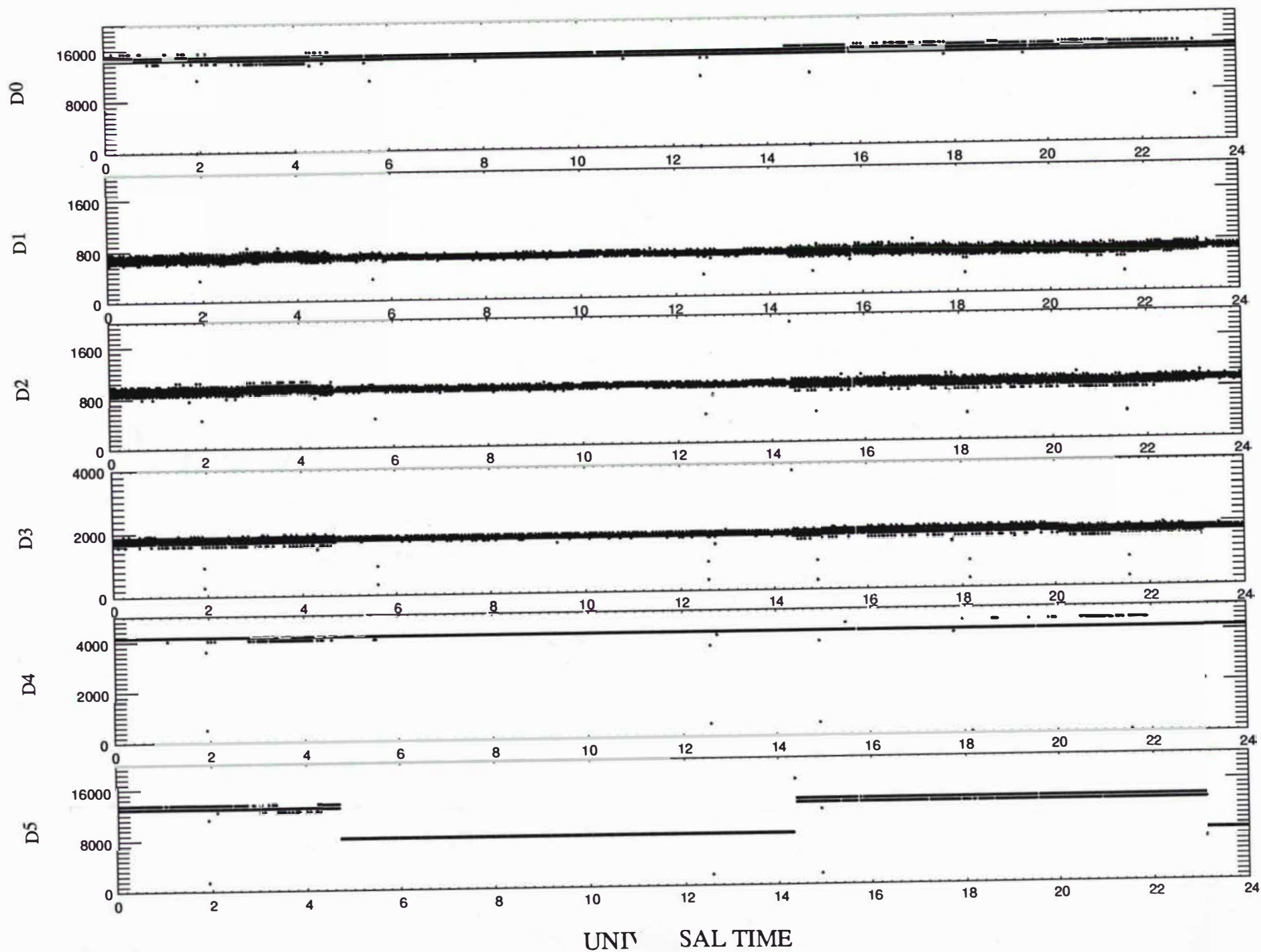


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Mon Dec 21 15:18:22 1998
Date: Mon, 21 Dec 1998 17:18:09 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7269

TIME: TJD=1165 SECONDS=54423

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

PARTICLE EVENT AFTER SAA EXIT.

KONUS RI

2 / 6 / 99

ULYSSES RT

18/12/98 8892.083 s

0.500 S INTERVALS REGROUPED BY 7

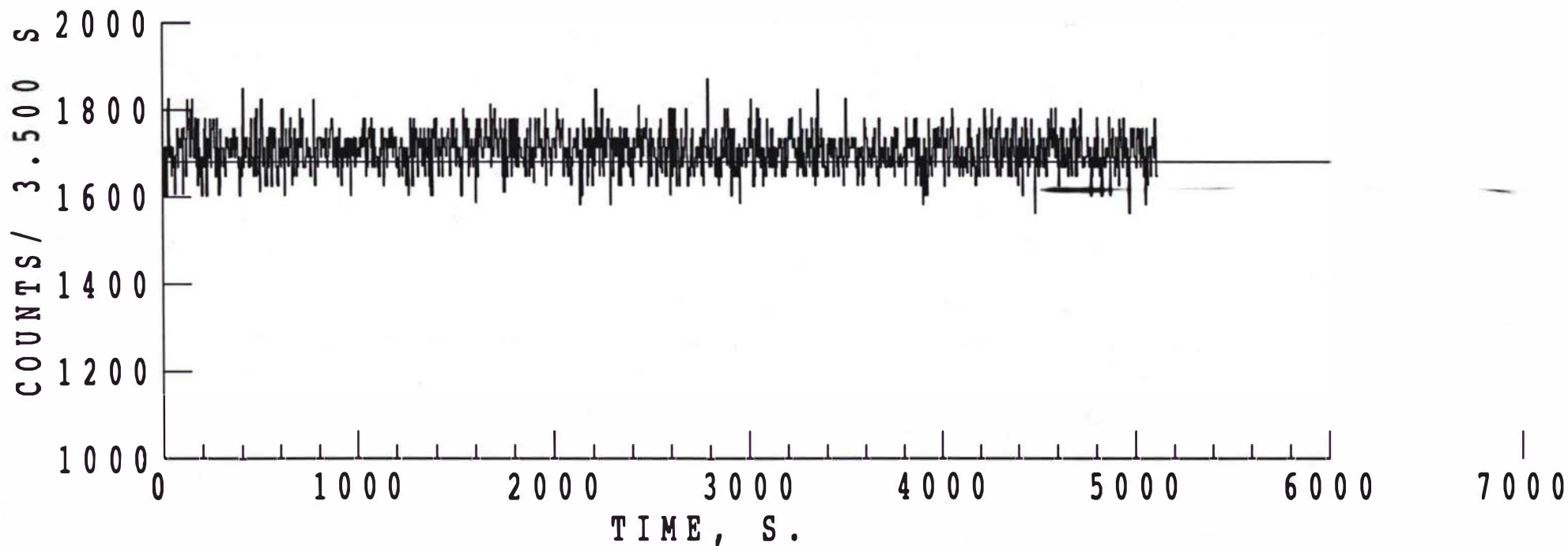
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

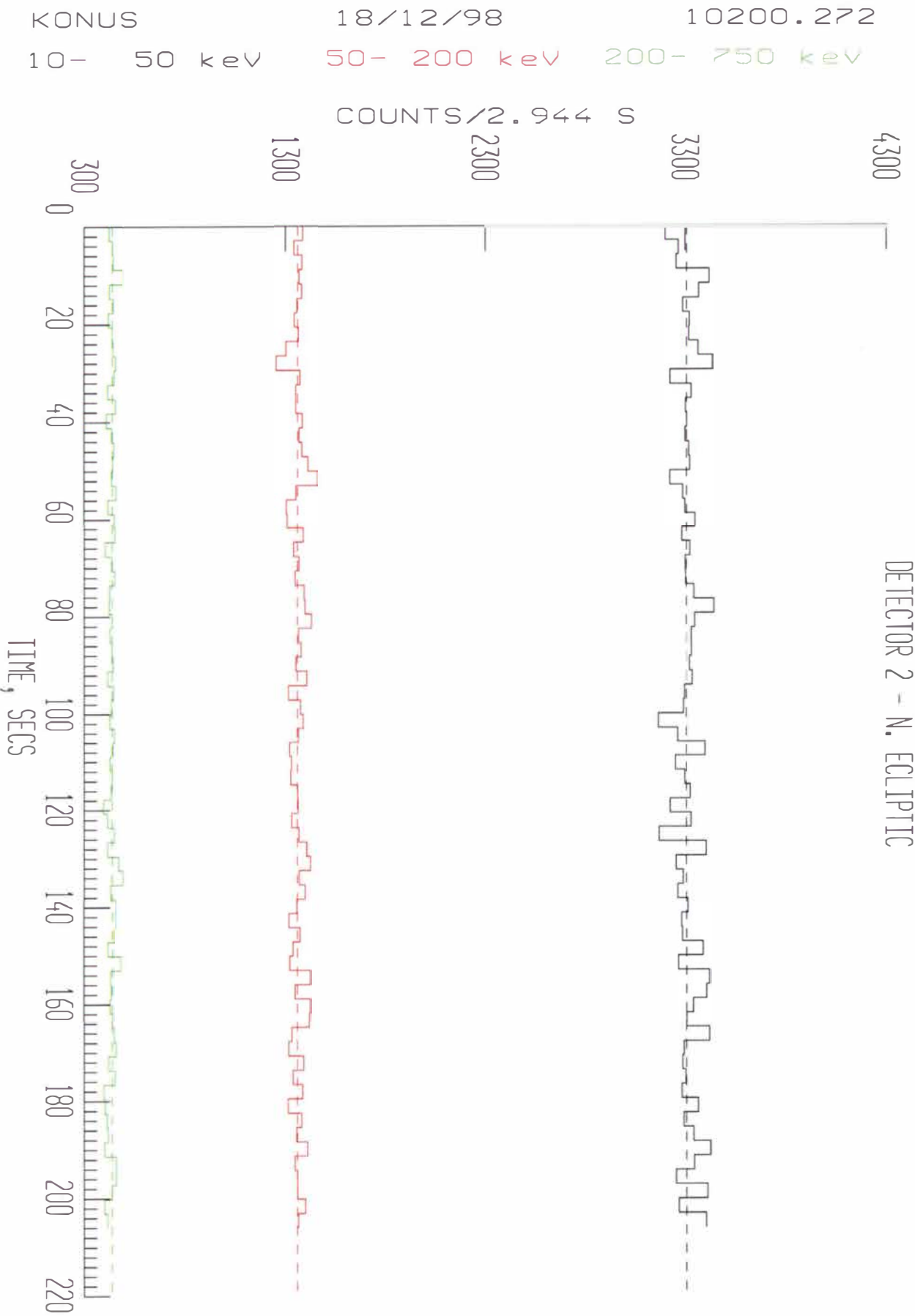
N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



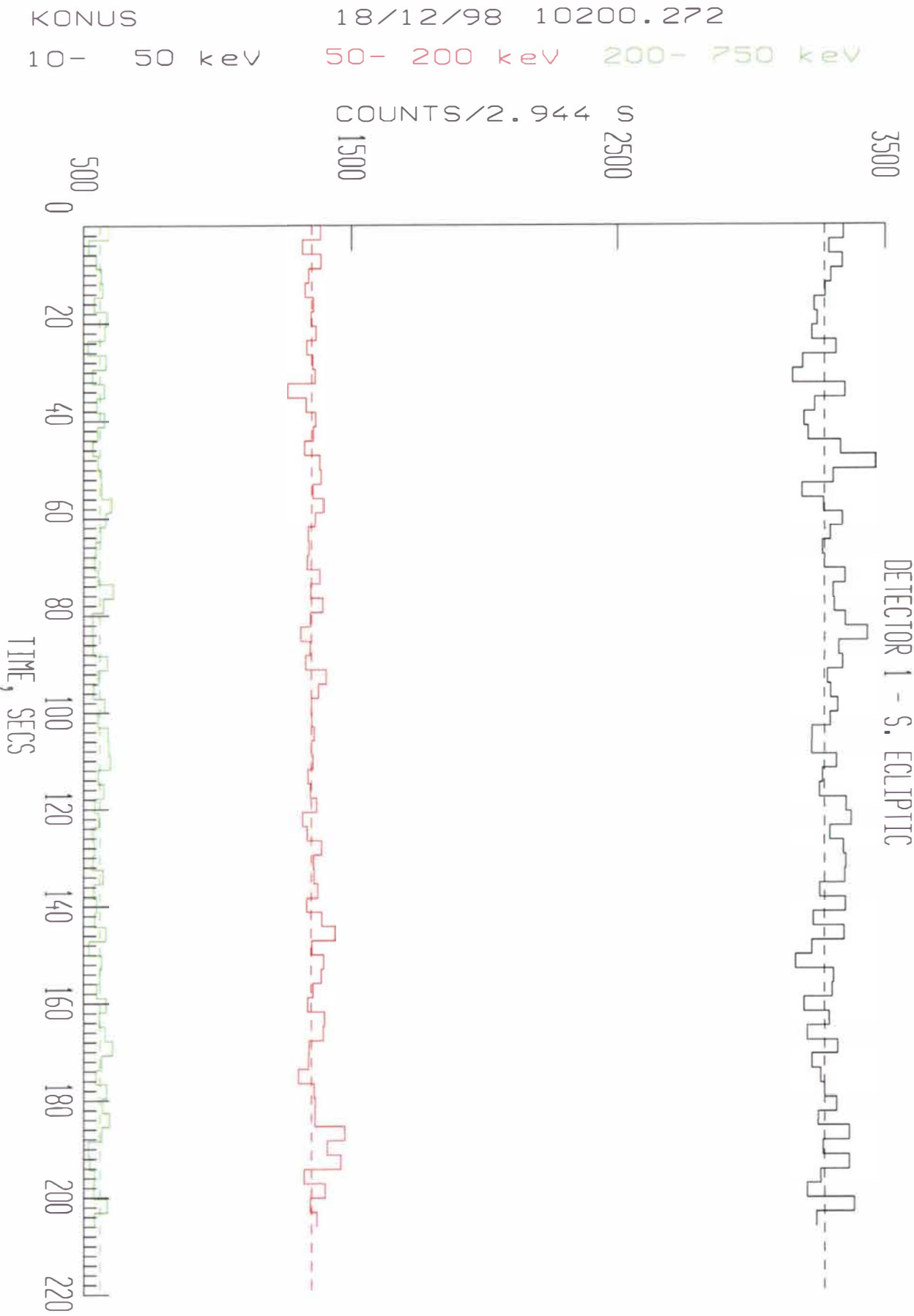
14/12/2012

DETECTOR 2 - N. ECLIPSE



14/12/2012

DETECTOR 1 - S. ECLIPSE



Date: Dec 18 2012

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

- ☒ 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?

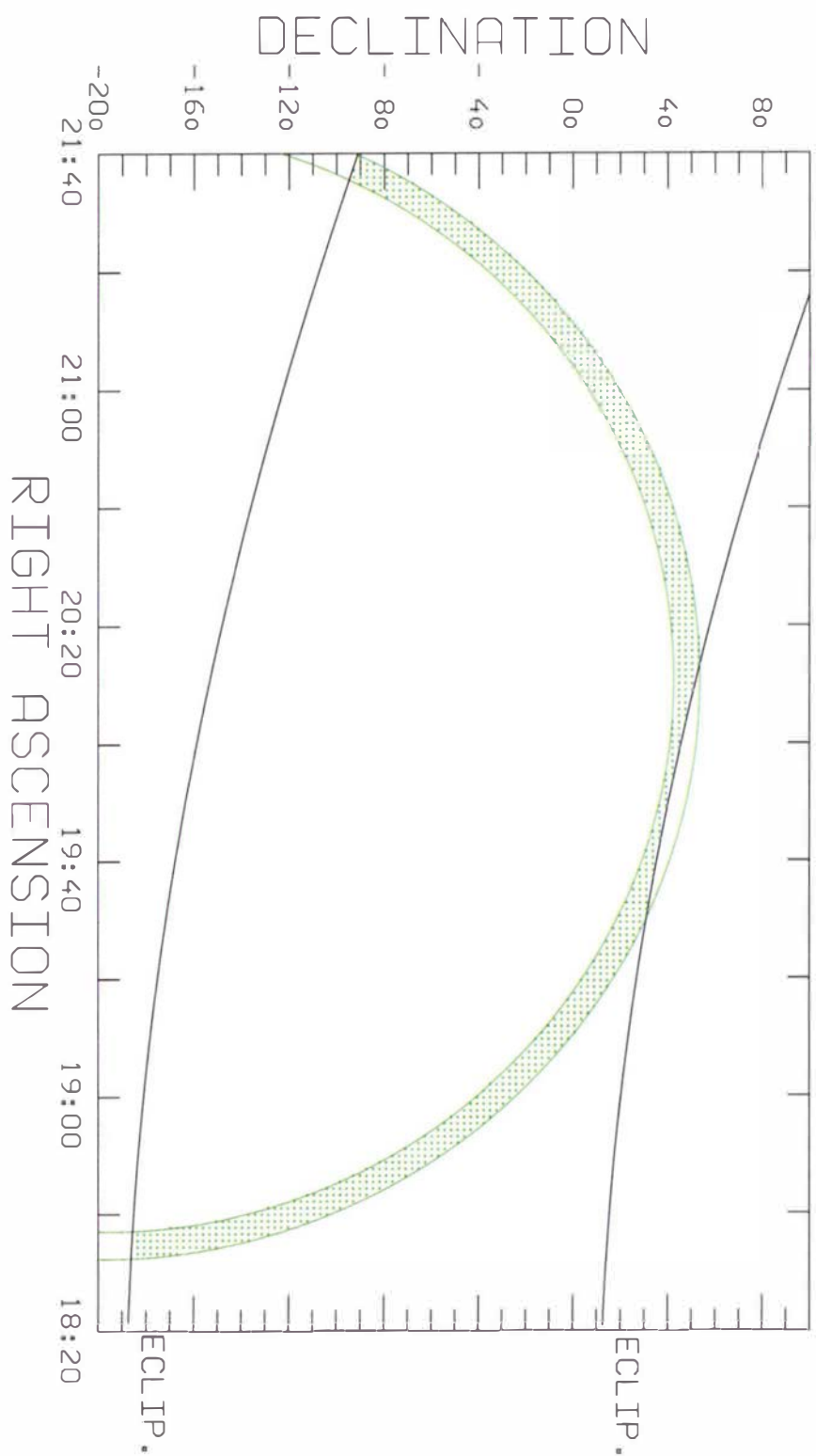
4. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

- ☐ $\Sigma 3\Delta t$'s calculated?

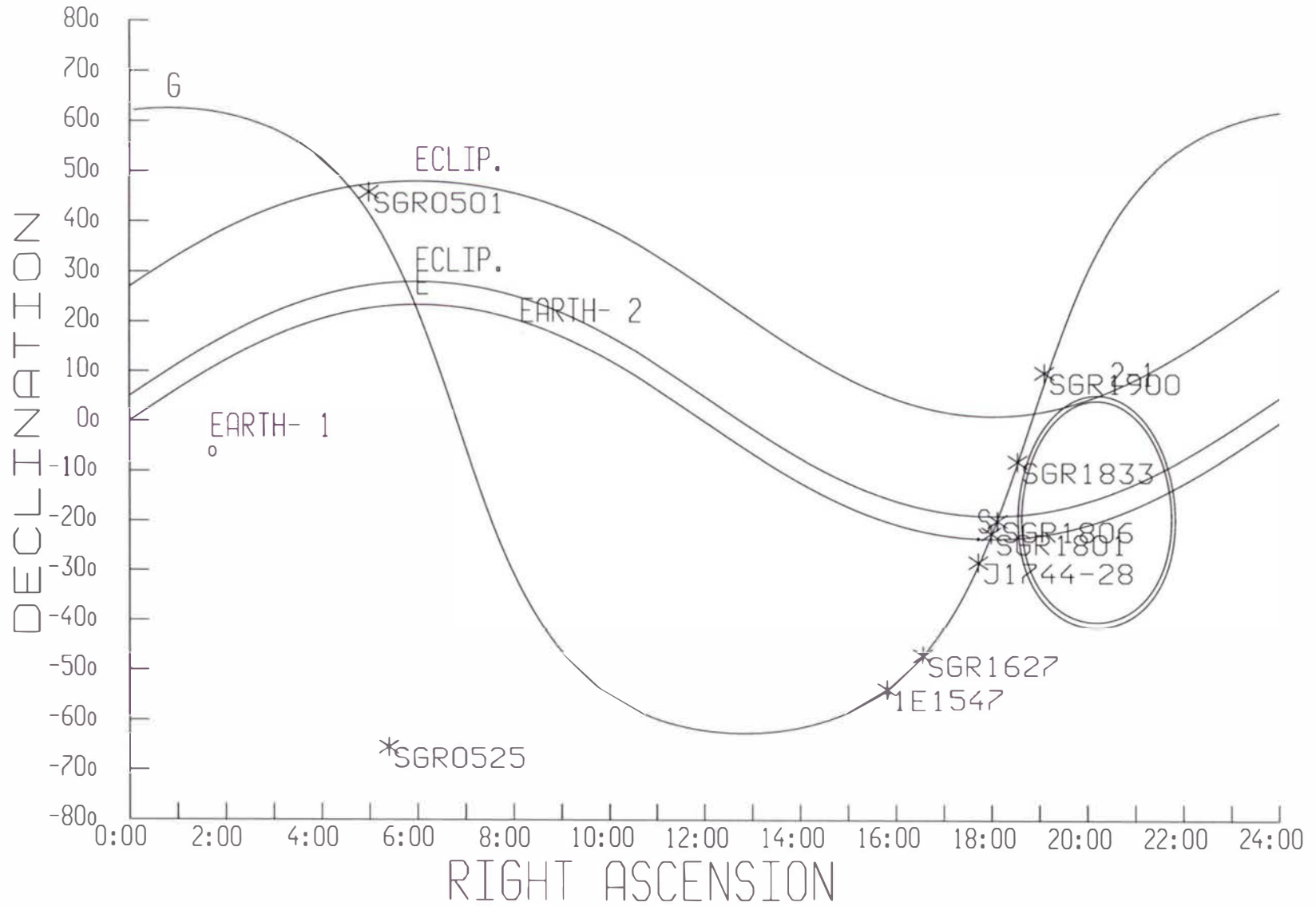
- ☒ ACCESS database updated?



EVENT OF DEC 18, 1998 3:08

18/12/2012

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



KONUS

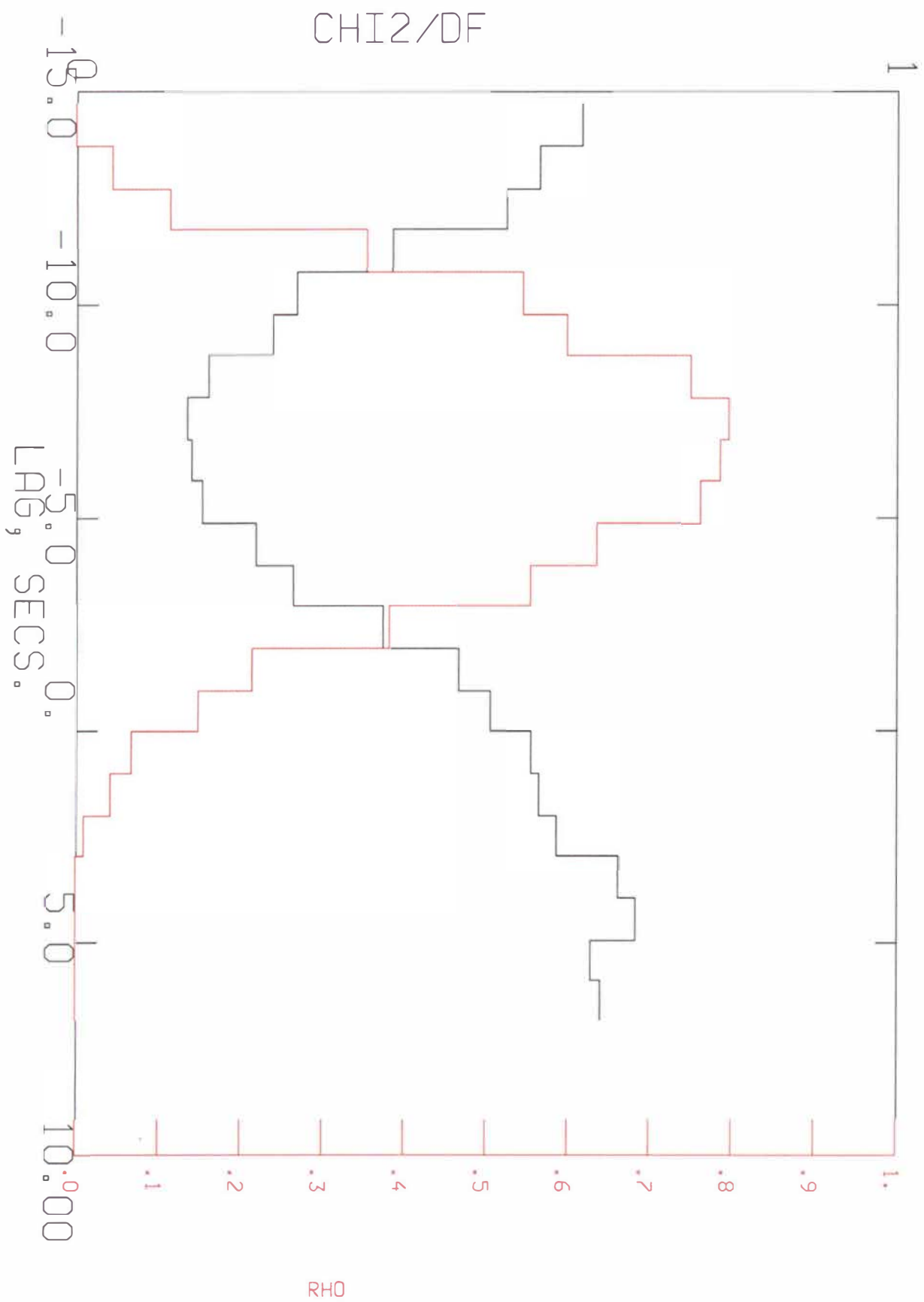
-NEAR GRS

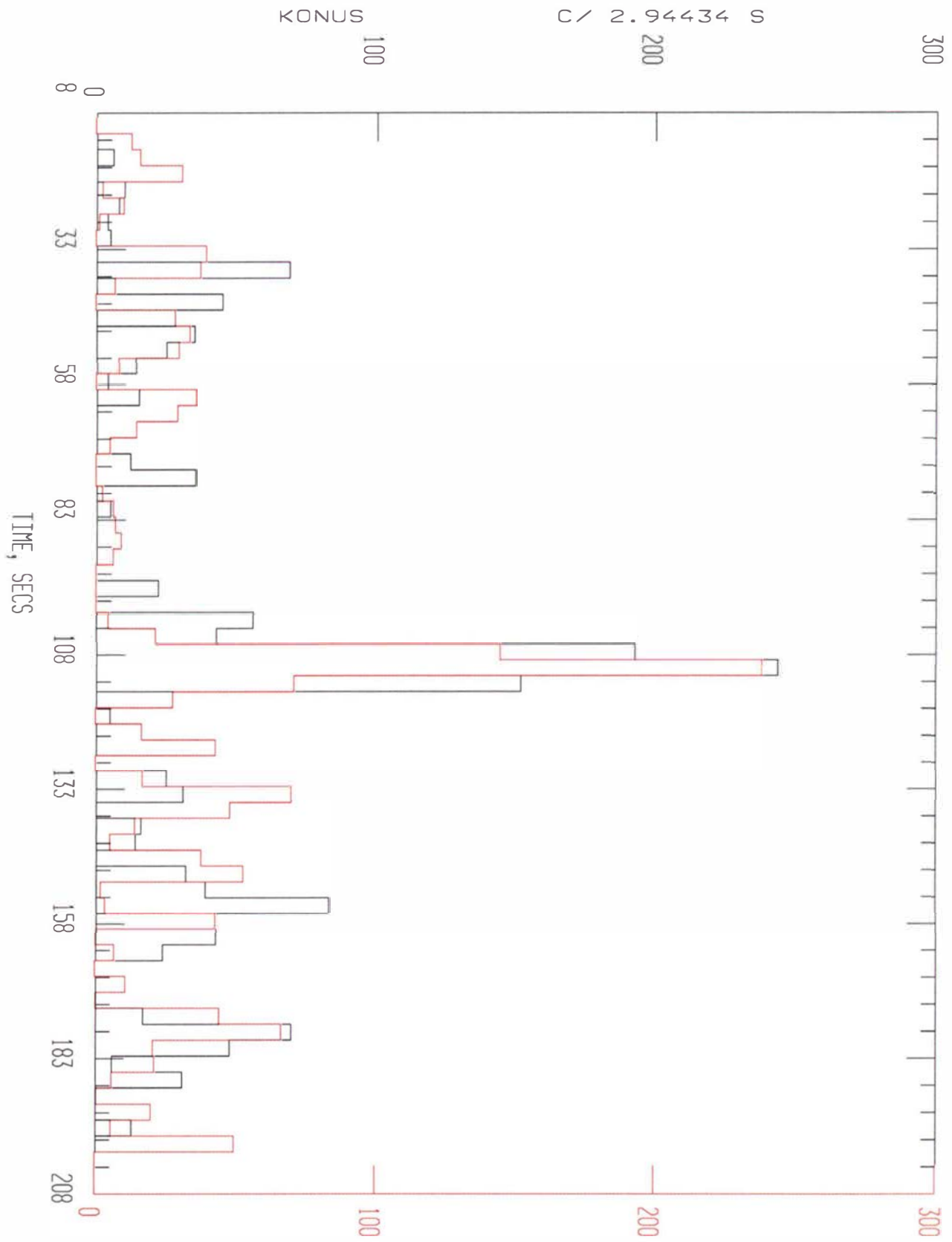
CORRELATION

18/12/98

11339.601

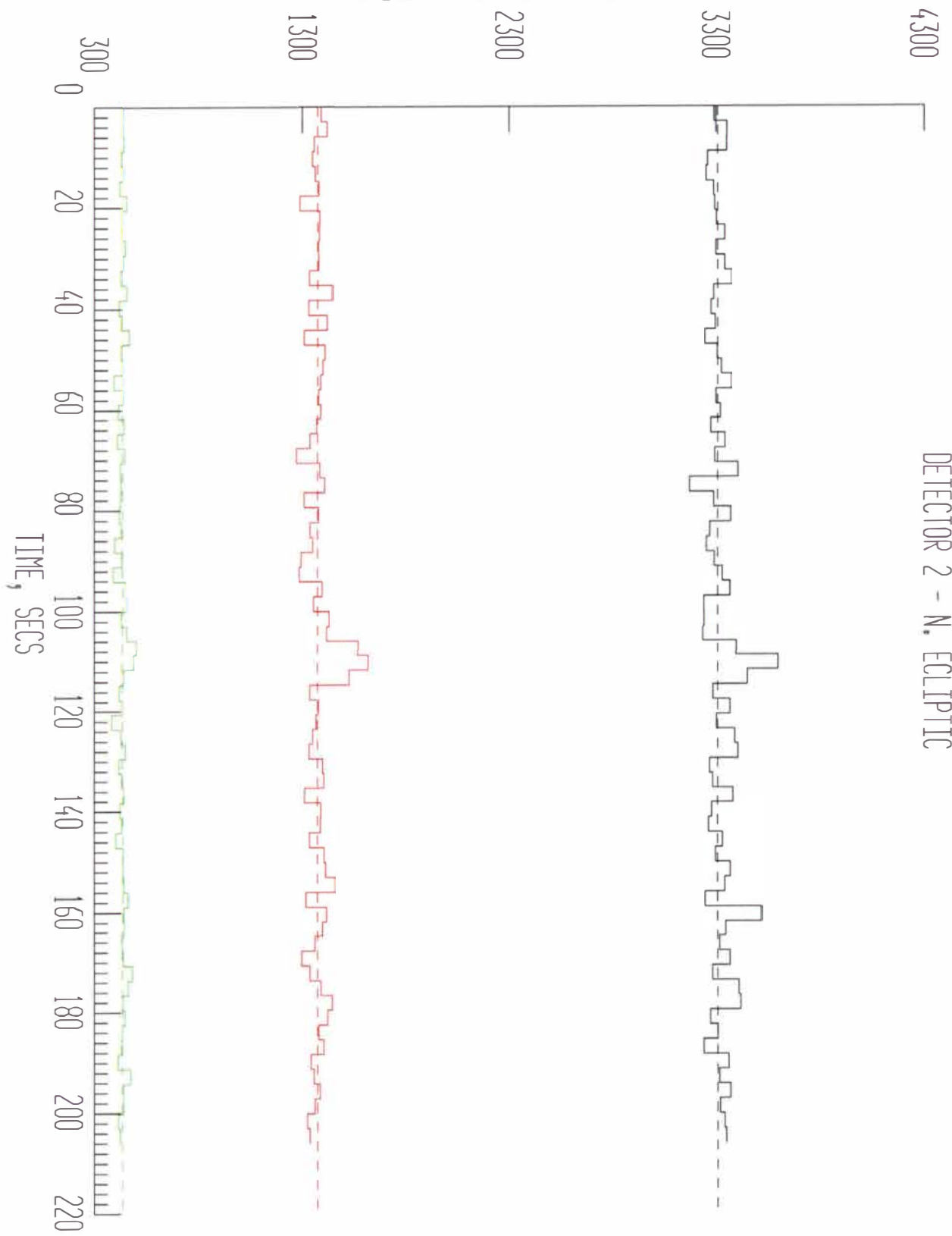
18/12/12





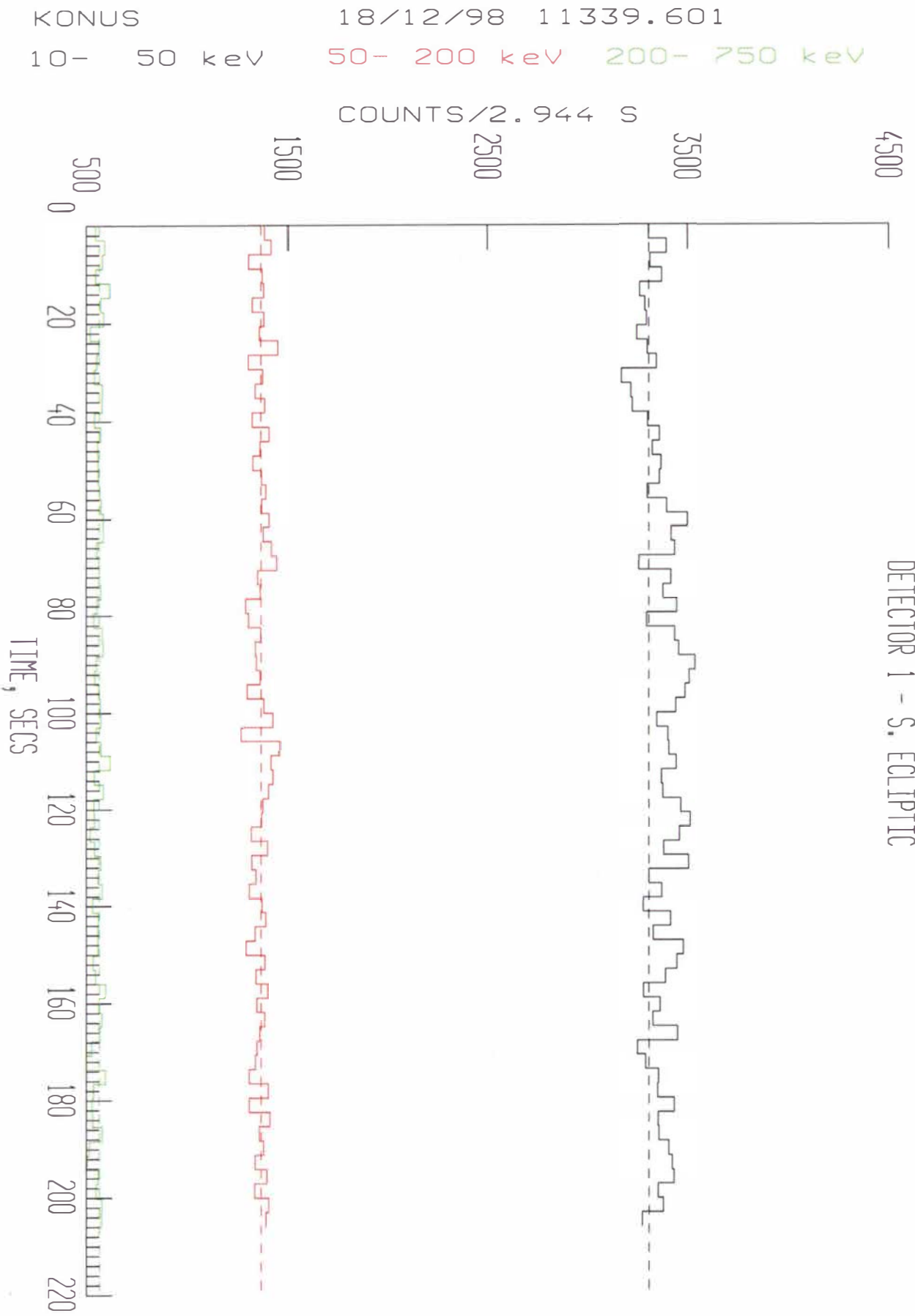
KONUS 18/12/98 11339.601
10- 50 keV 50- 200 keV 200- 750 keV

COUNTS/2.944 S



18/12/2012

DETECTOR 1 - S. ECLIPSE

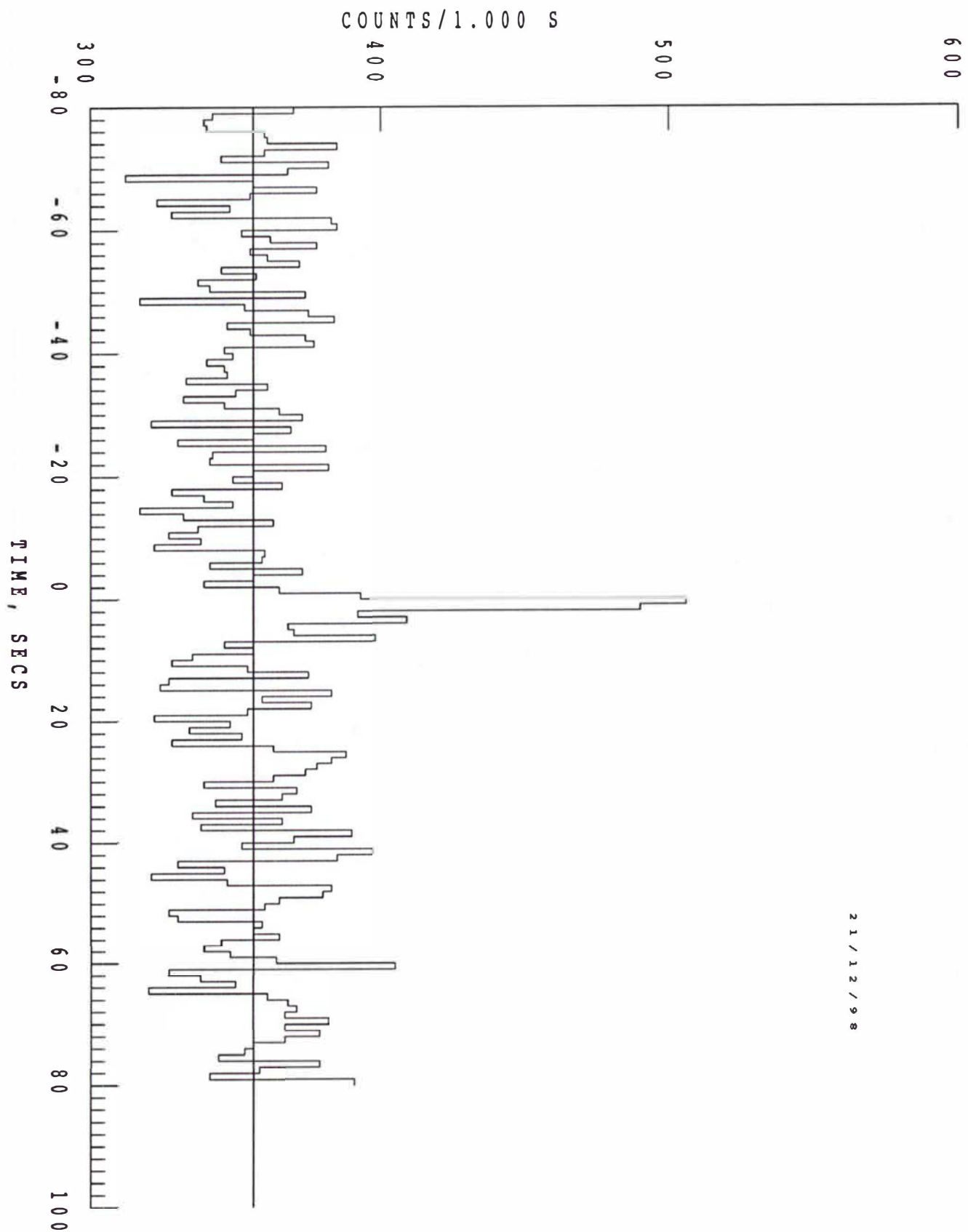


NEAR

18/12/98

10309.816

100-1000 keV



21/12/98

NEAR GRB98352-1

ULYSSES RT

21 / 12 / 98

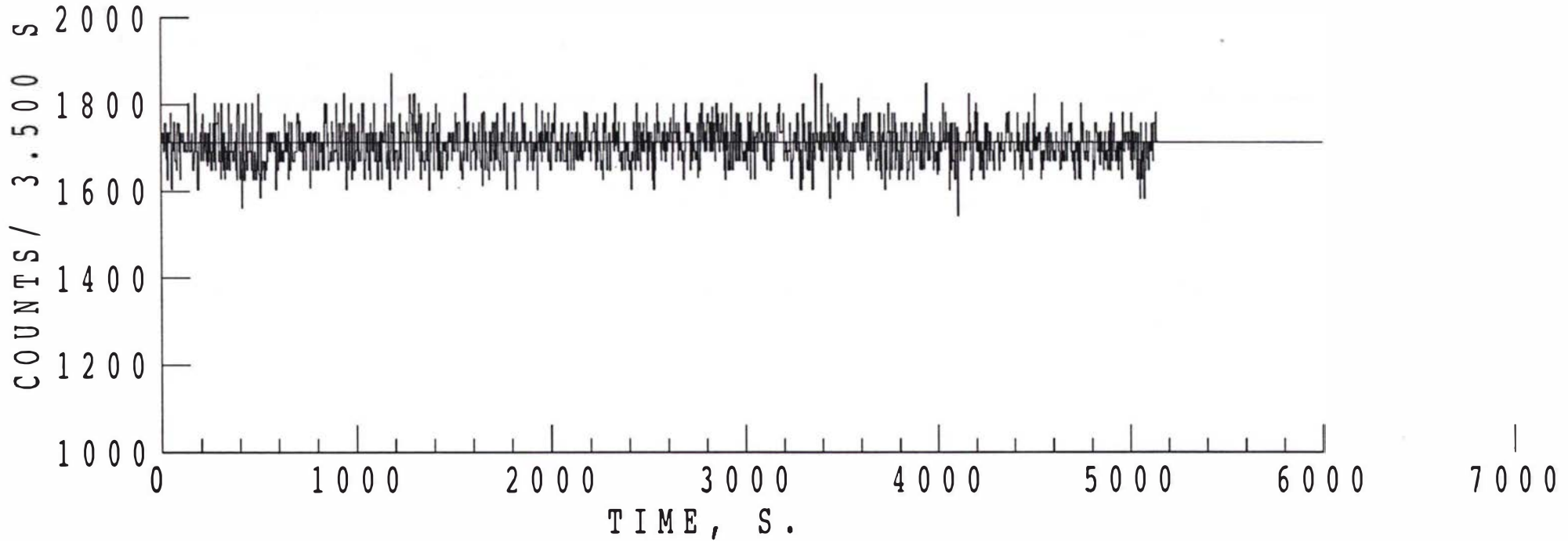
18 / 12 / 98 7740.074 s

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



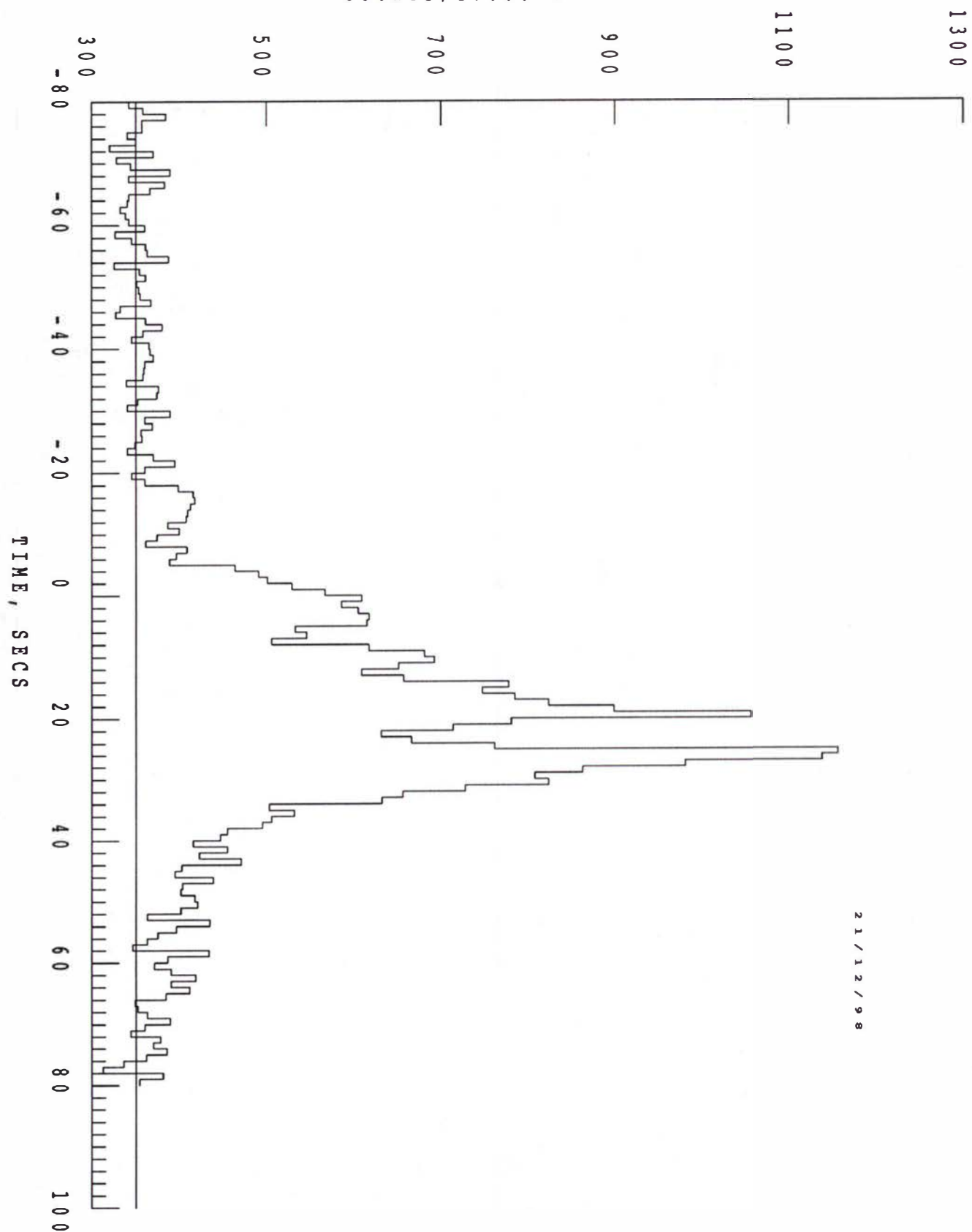
NEAR

18/12/98

62677.816

100-1000 keV

COUNTS/1.000 S



21/12/98

NEAR GRB98352-2

ULYSSES RT

21 / 12 / 98

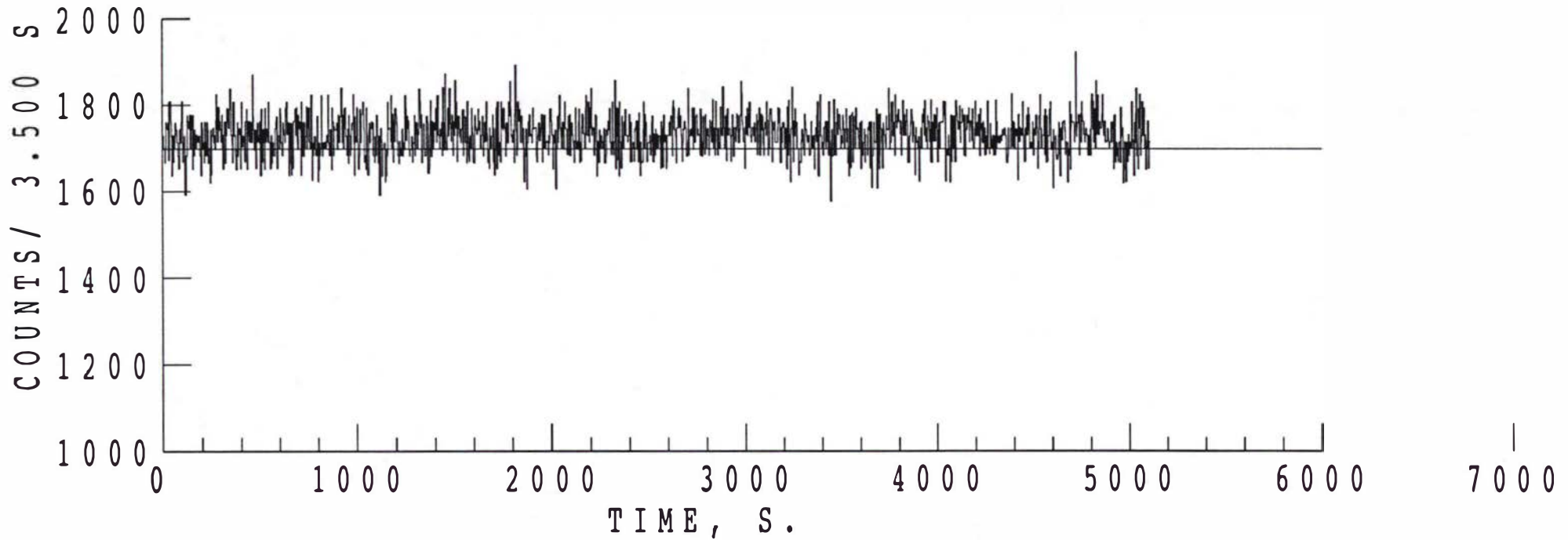
18/12/98 60120.109 s

0.250 S INTERVALS REGROUPED BY 14

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS

ULYSSES RT

11 / 02 / 00

18 / 12 / 98 59726.352 s

0.250 S INTERVALS REGROUPED BY 14

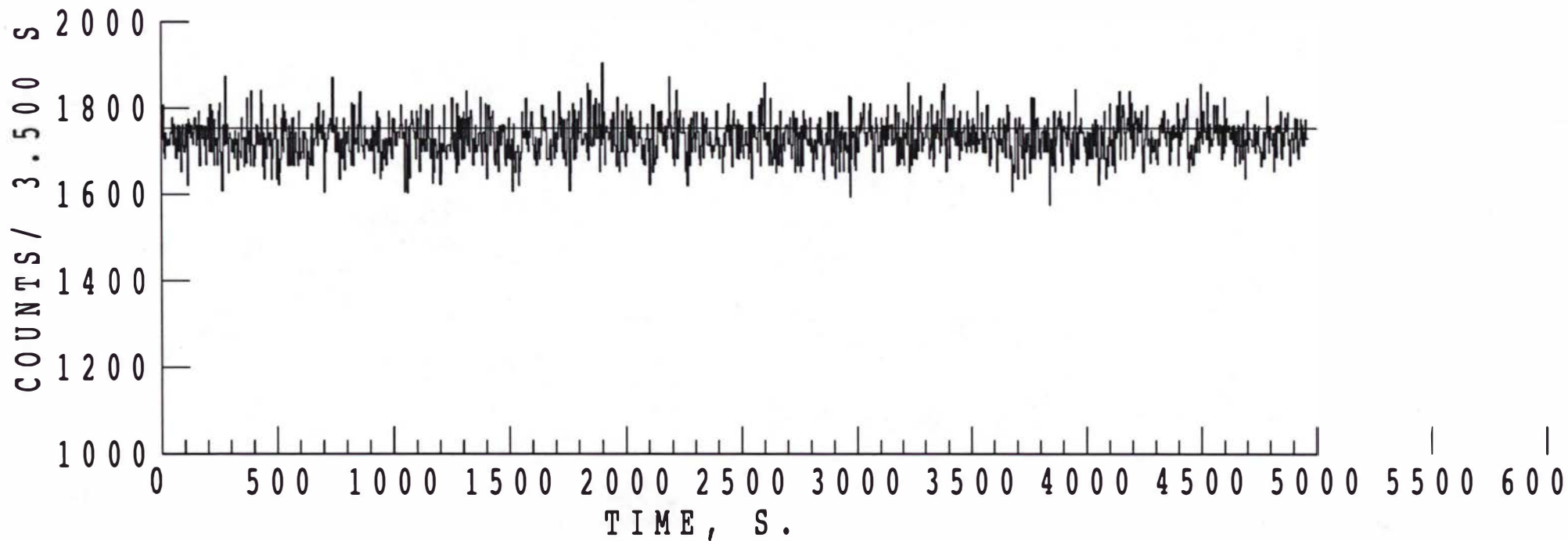
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



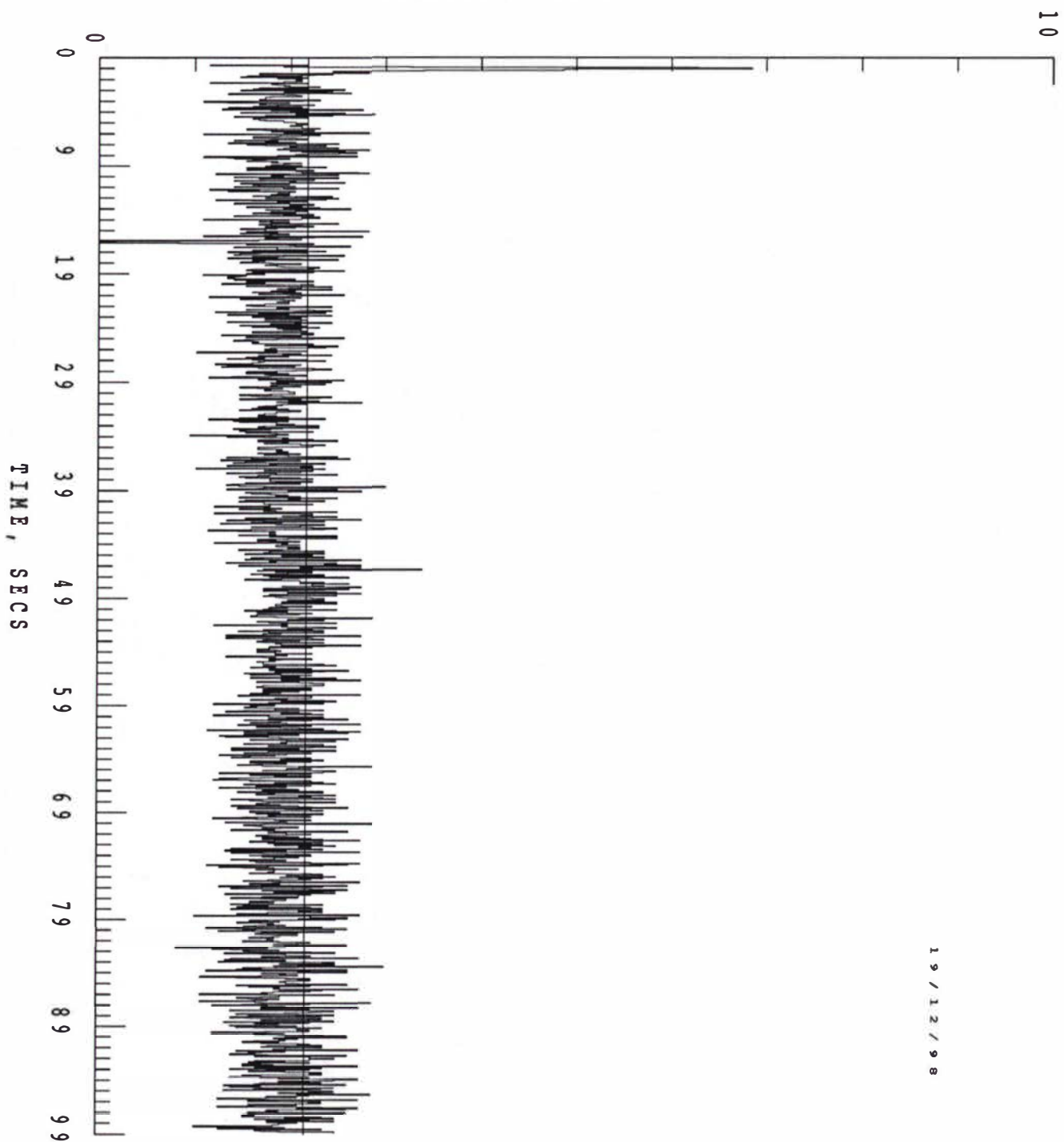
KONUS

18/12/98

62134.933

50 - 200 keV

COUNTS/0.064 S



KONUS 19981218 62134

ULYSSES RT

21 / 12 / 98

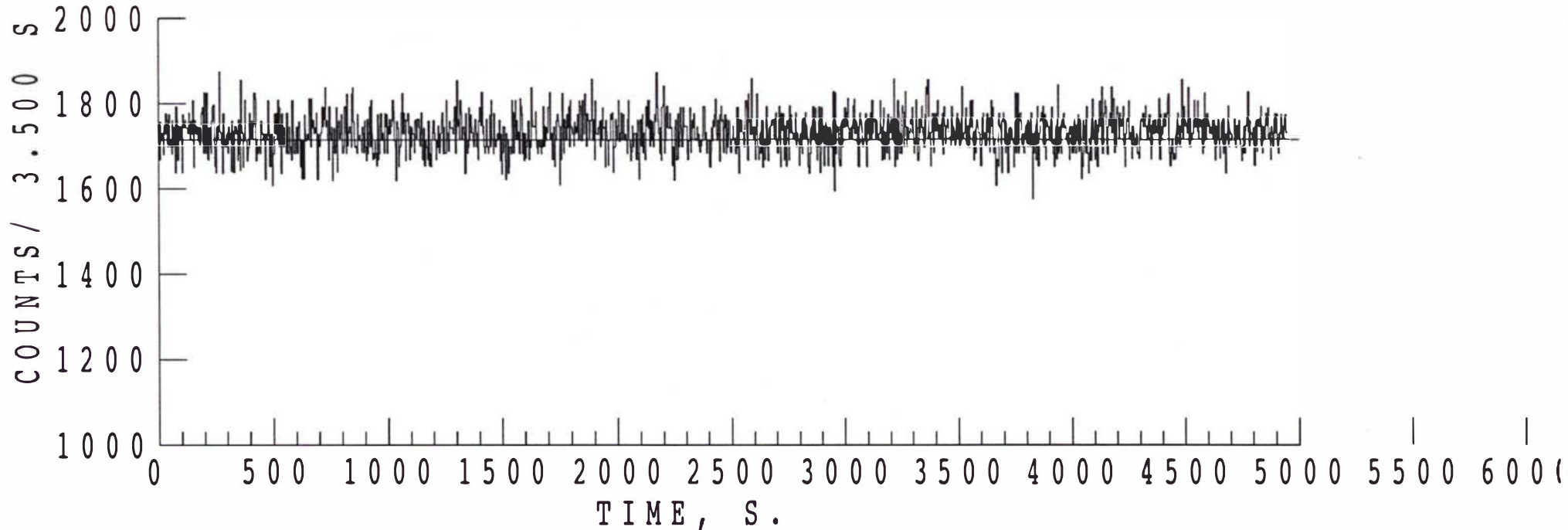
18/12/98 59737.355 s

0.250 S INTERVALS REGROUPED BY 14

0 - 0 keV

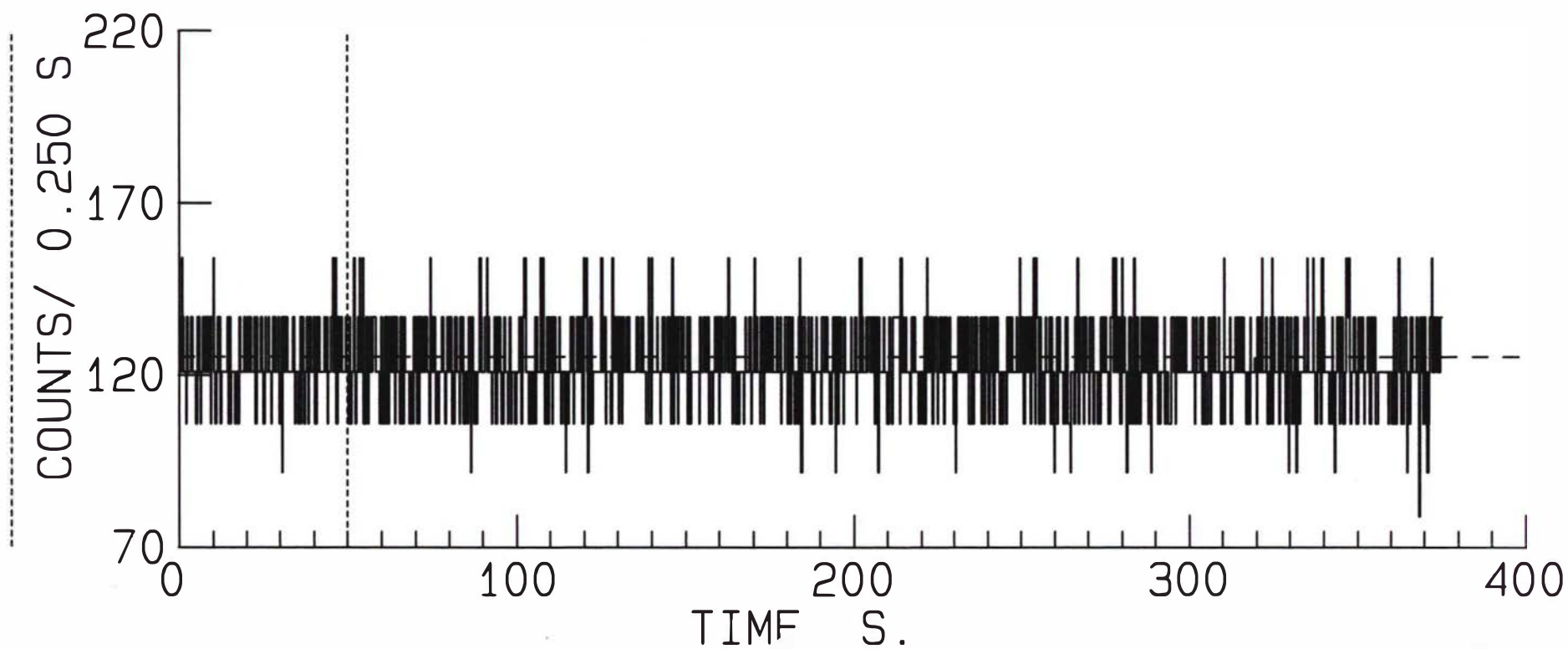
N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



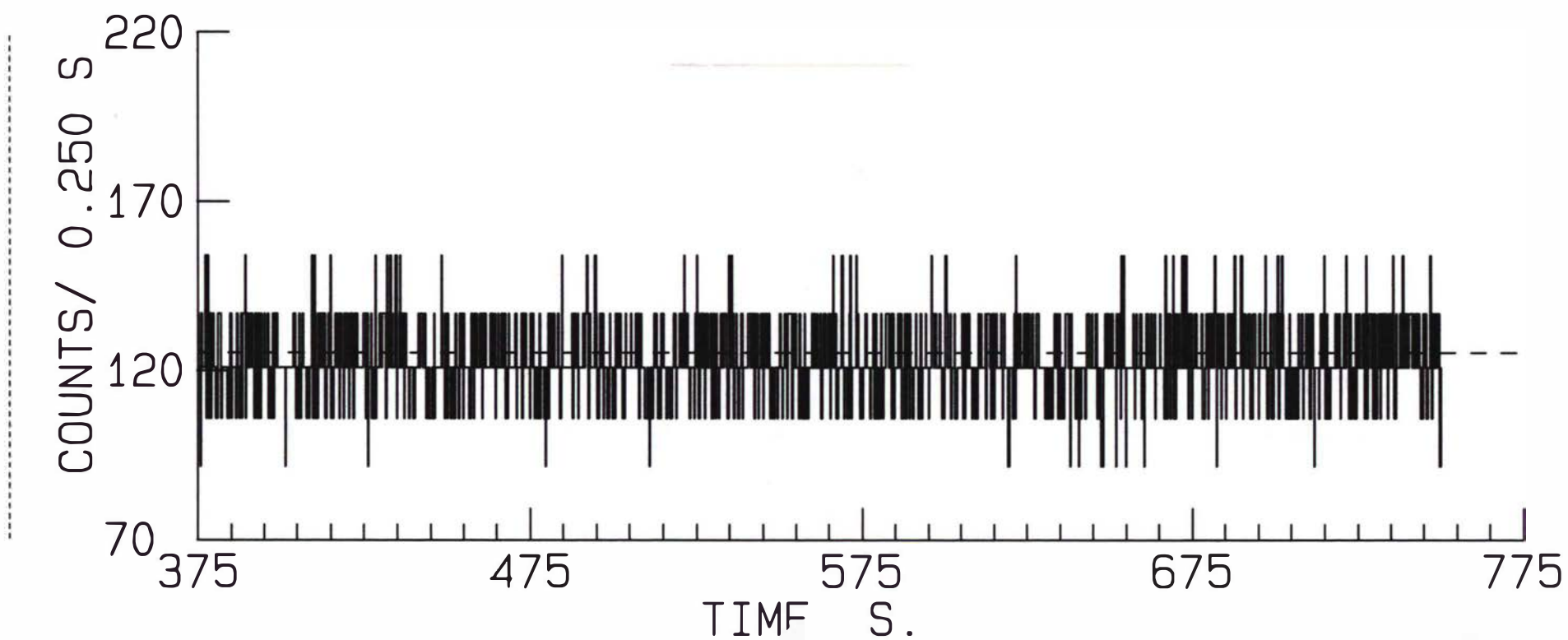
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



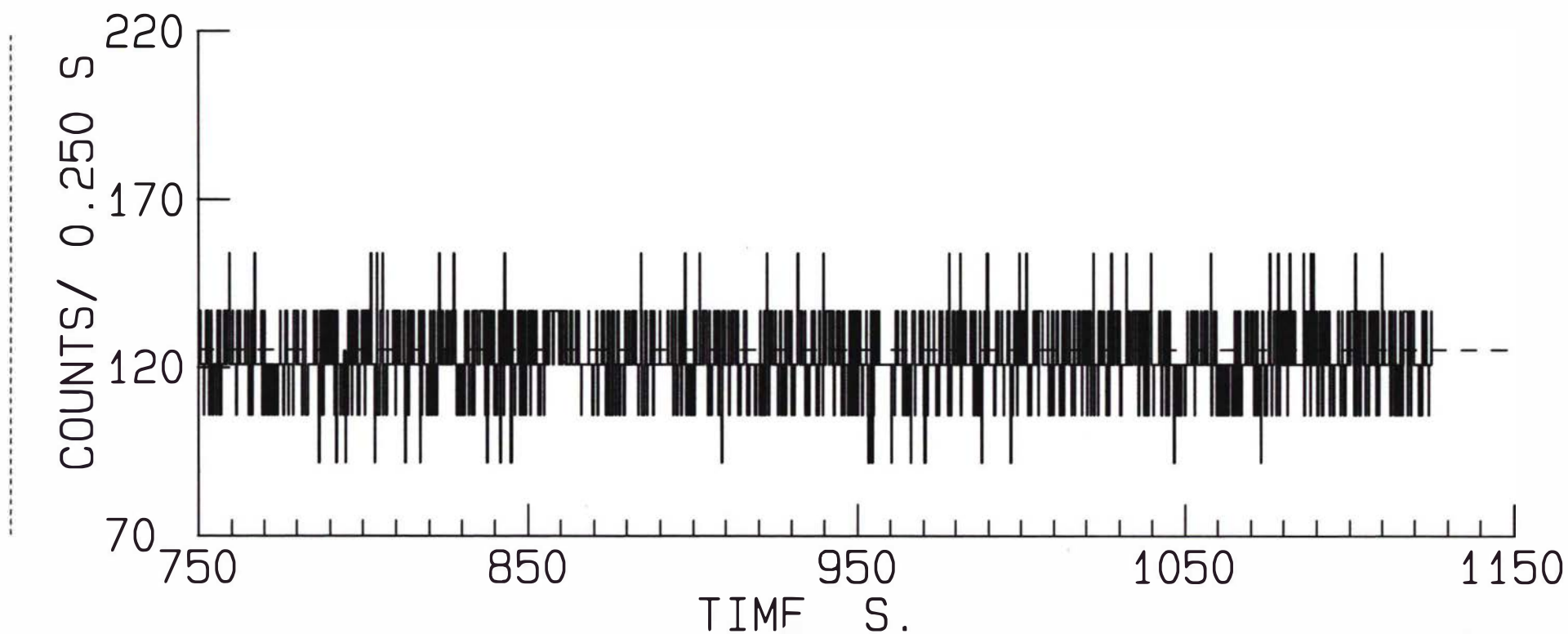
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



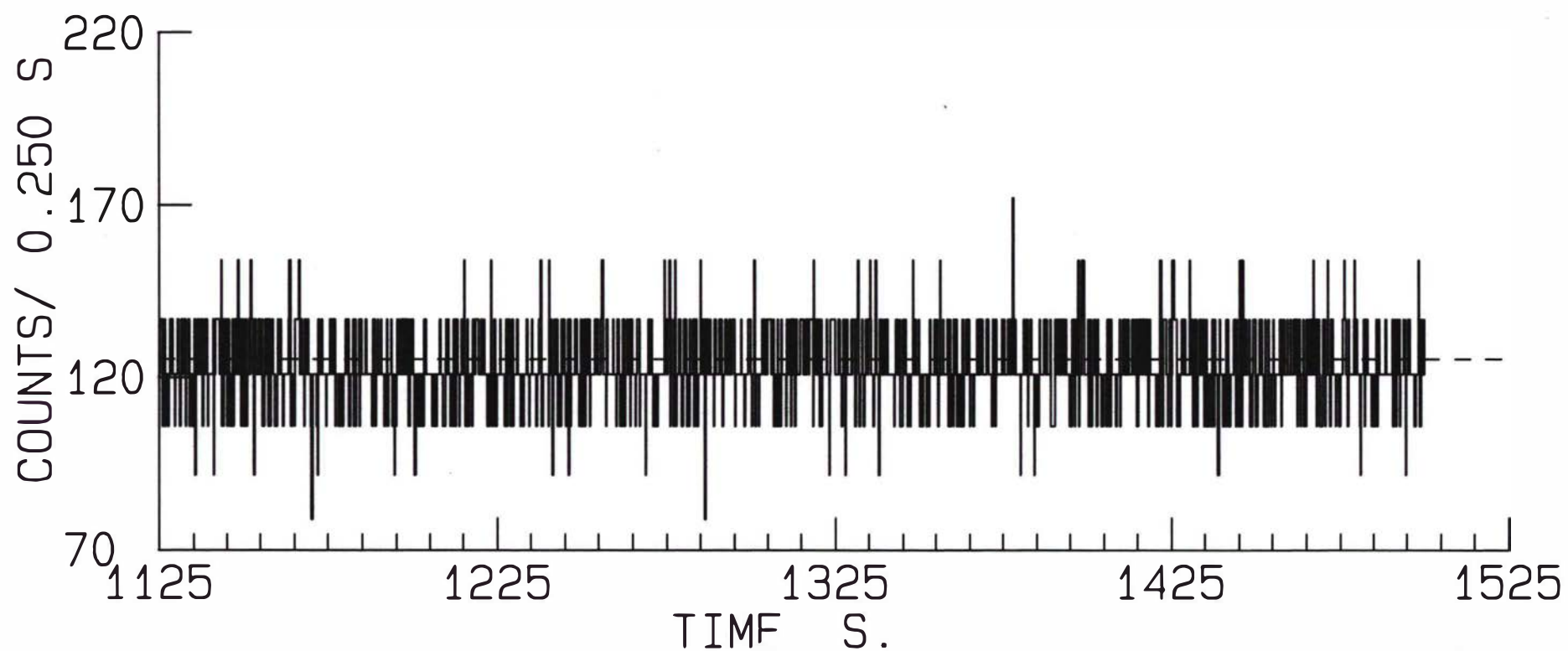
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21/11/8



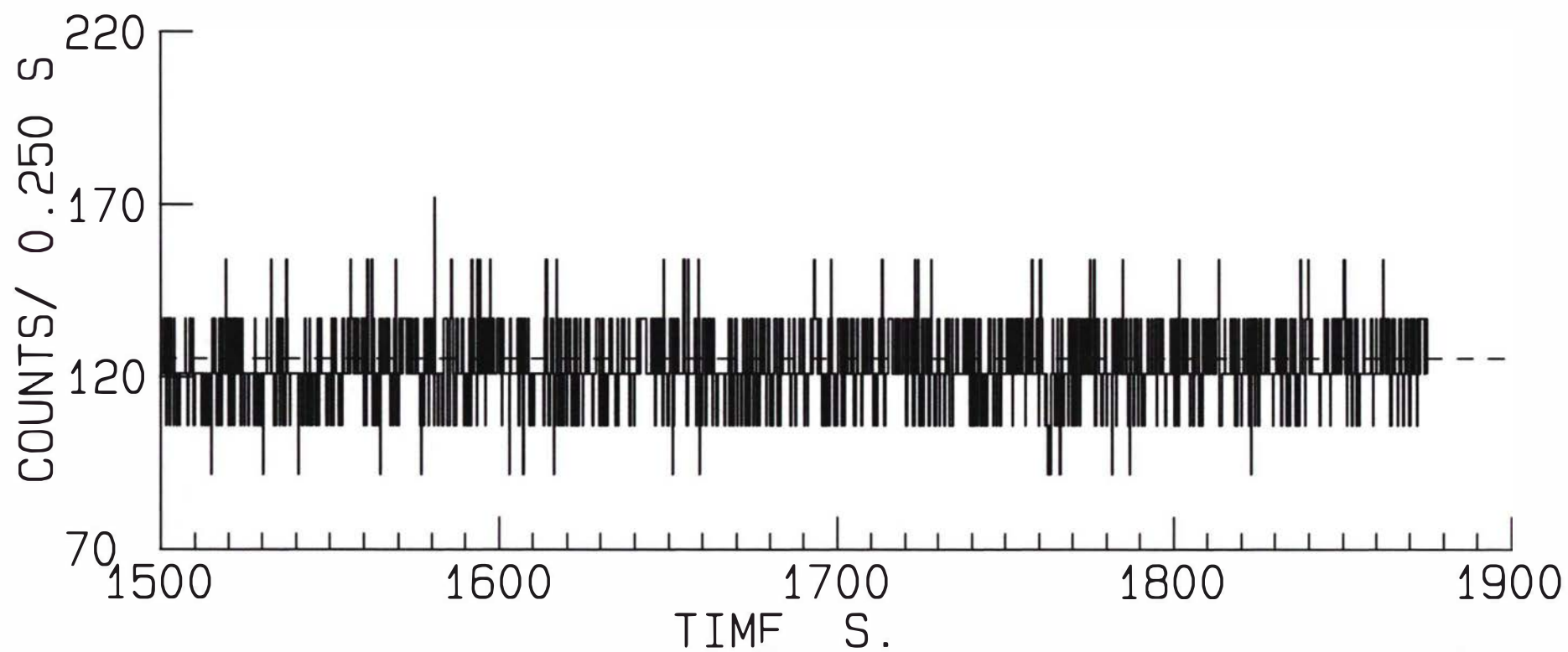
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



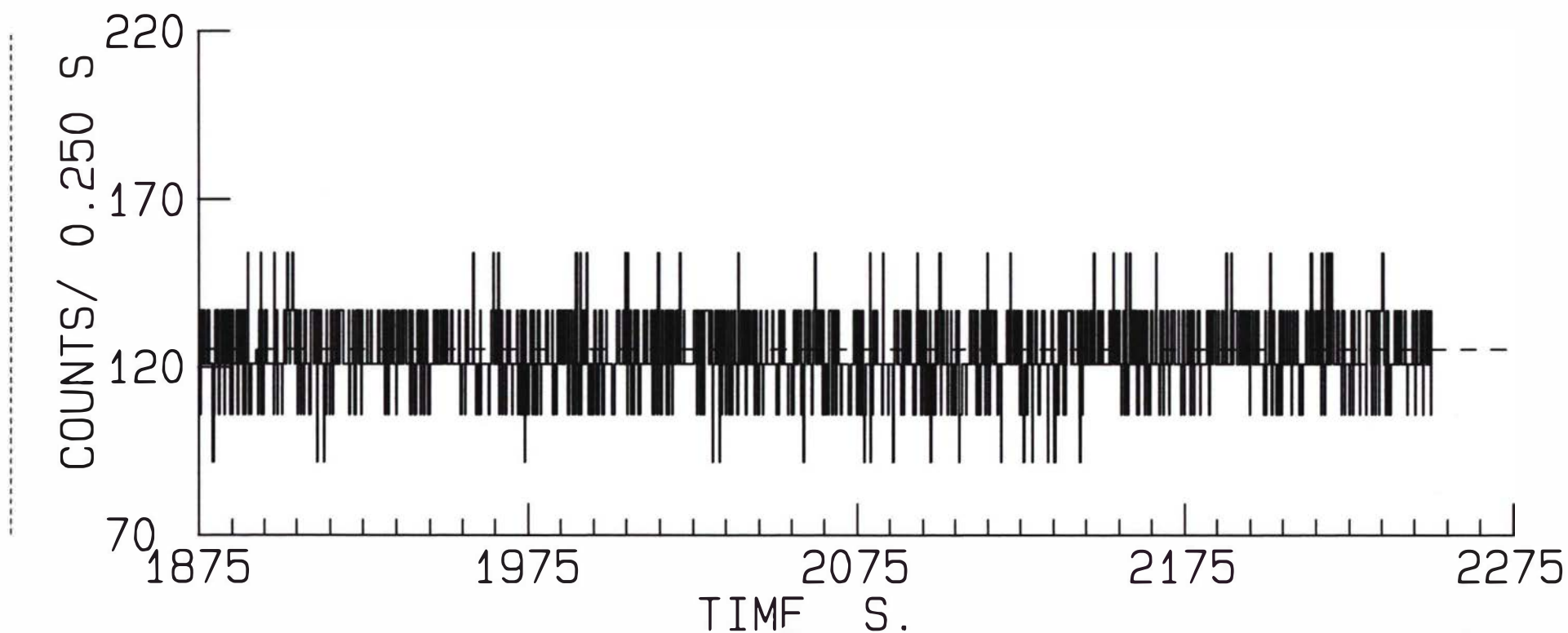
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



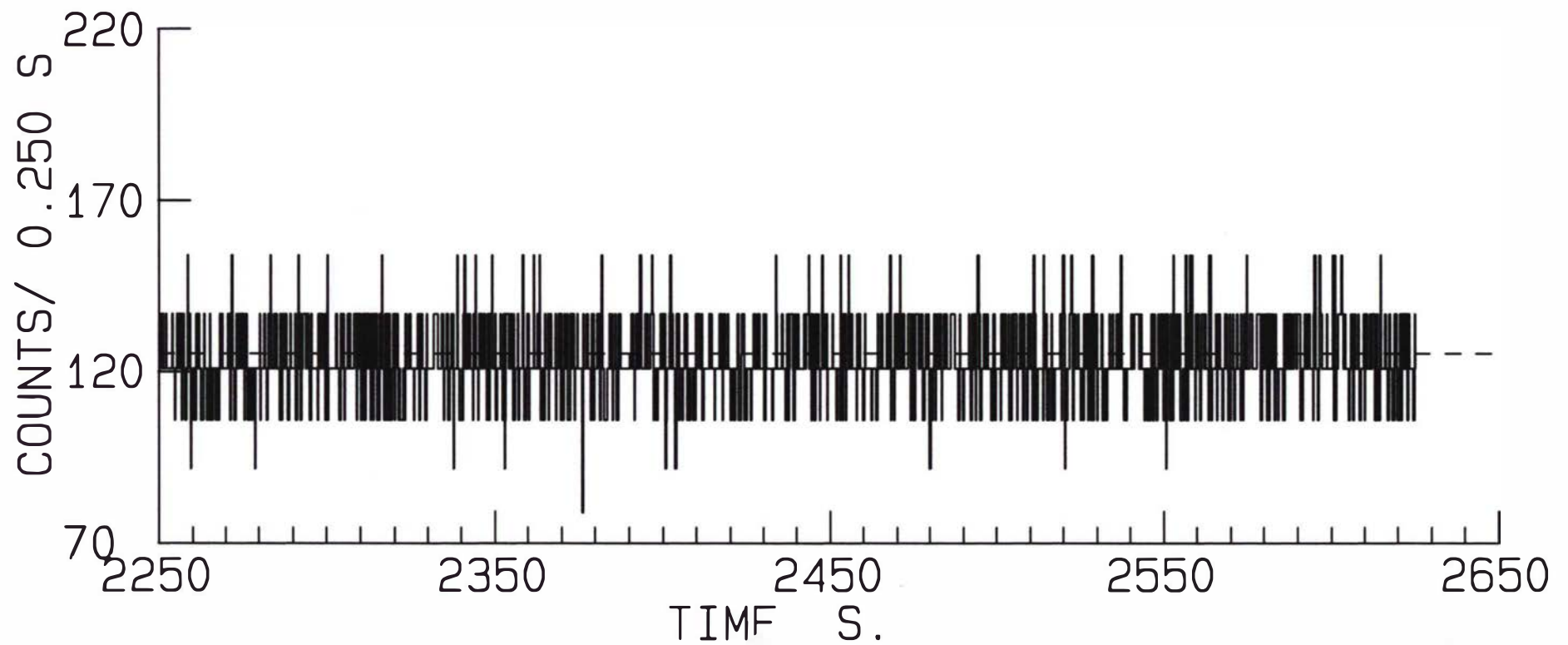
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



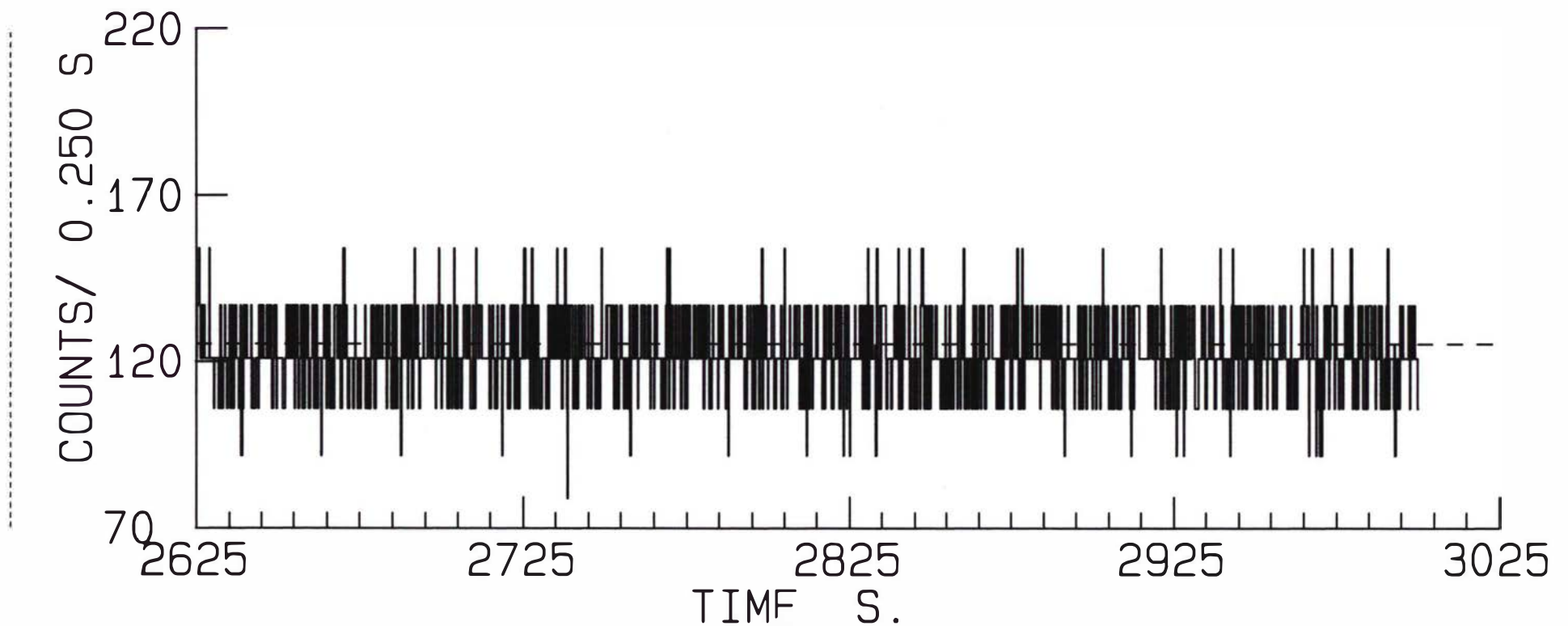
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

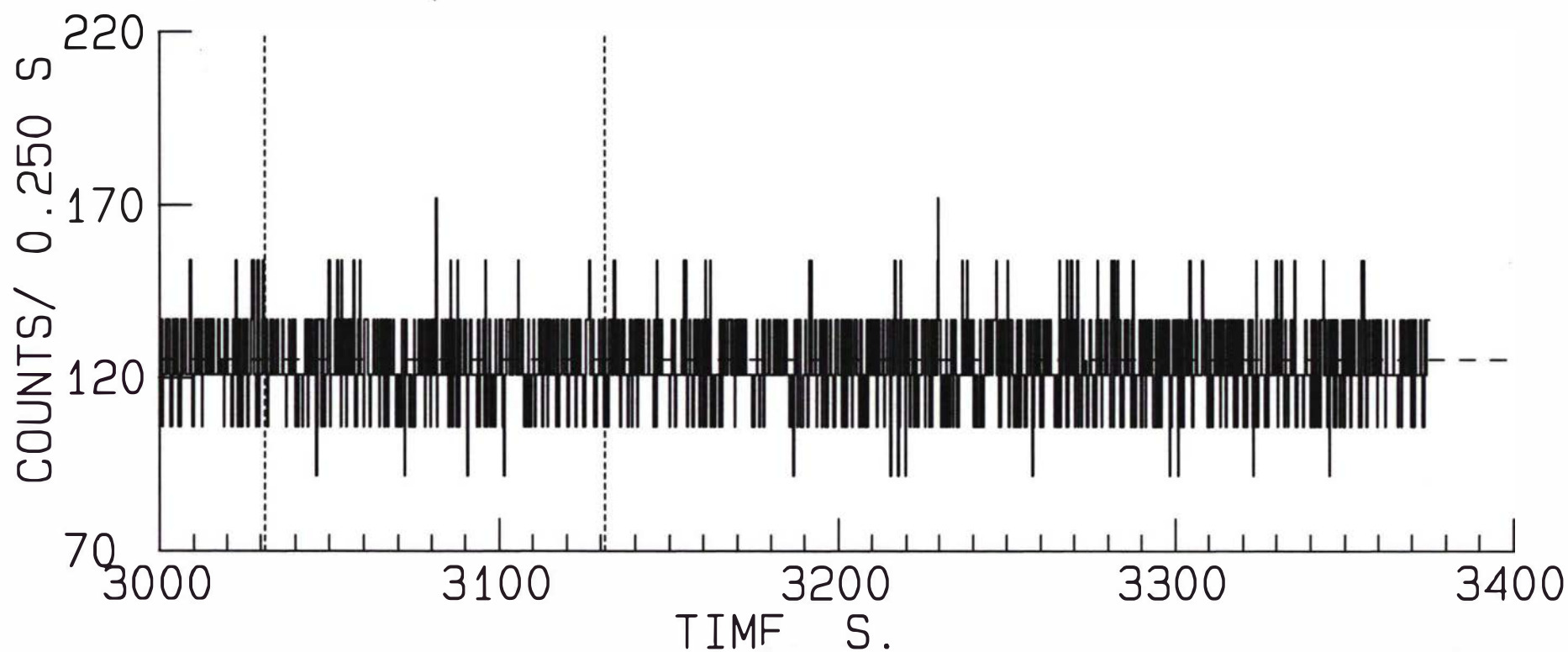
21 / 11 / 8



ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

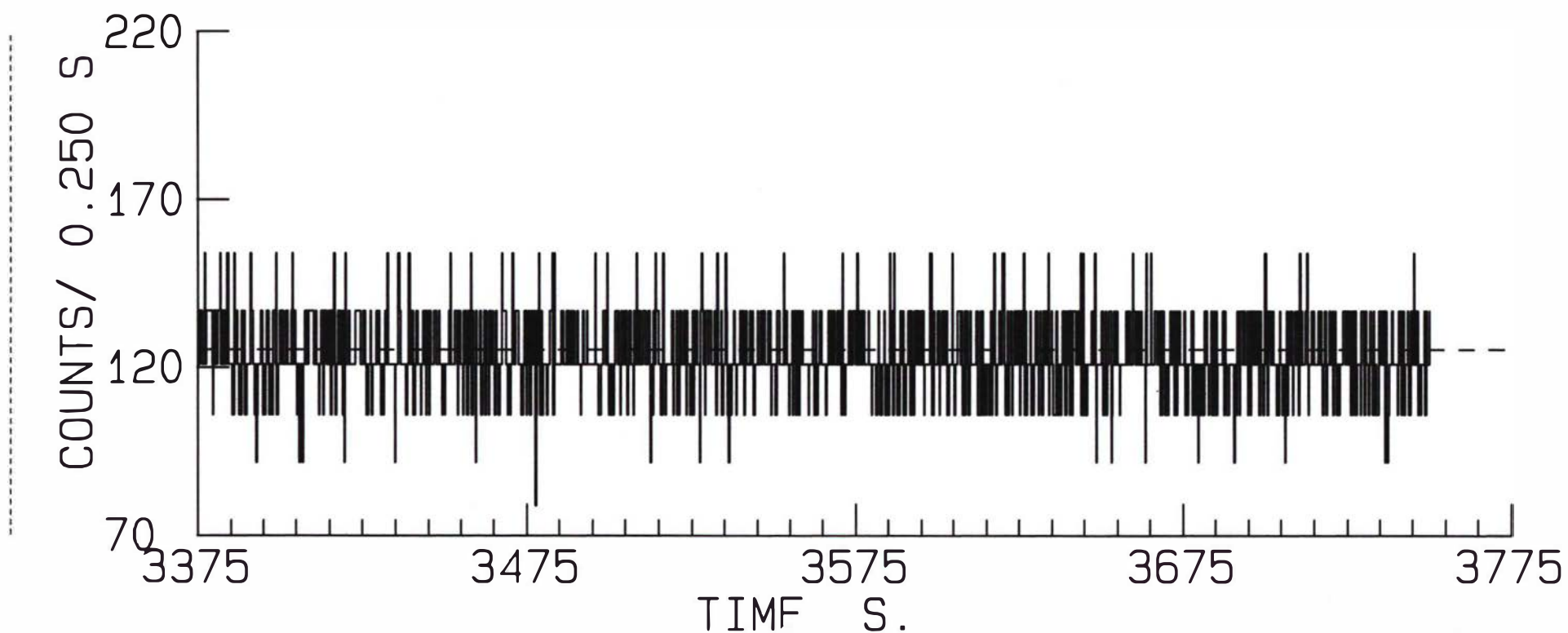
21 / 11 / 8

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



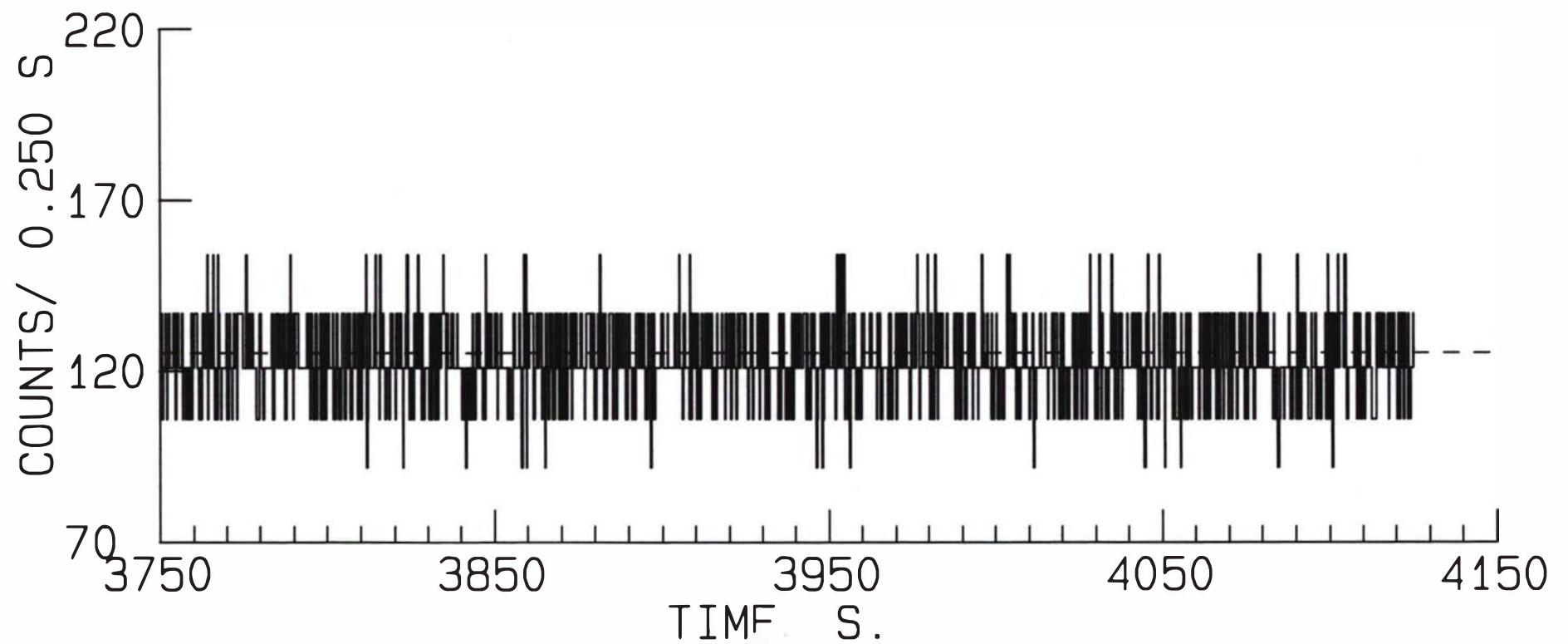
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



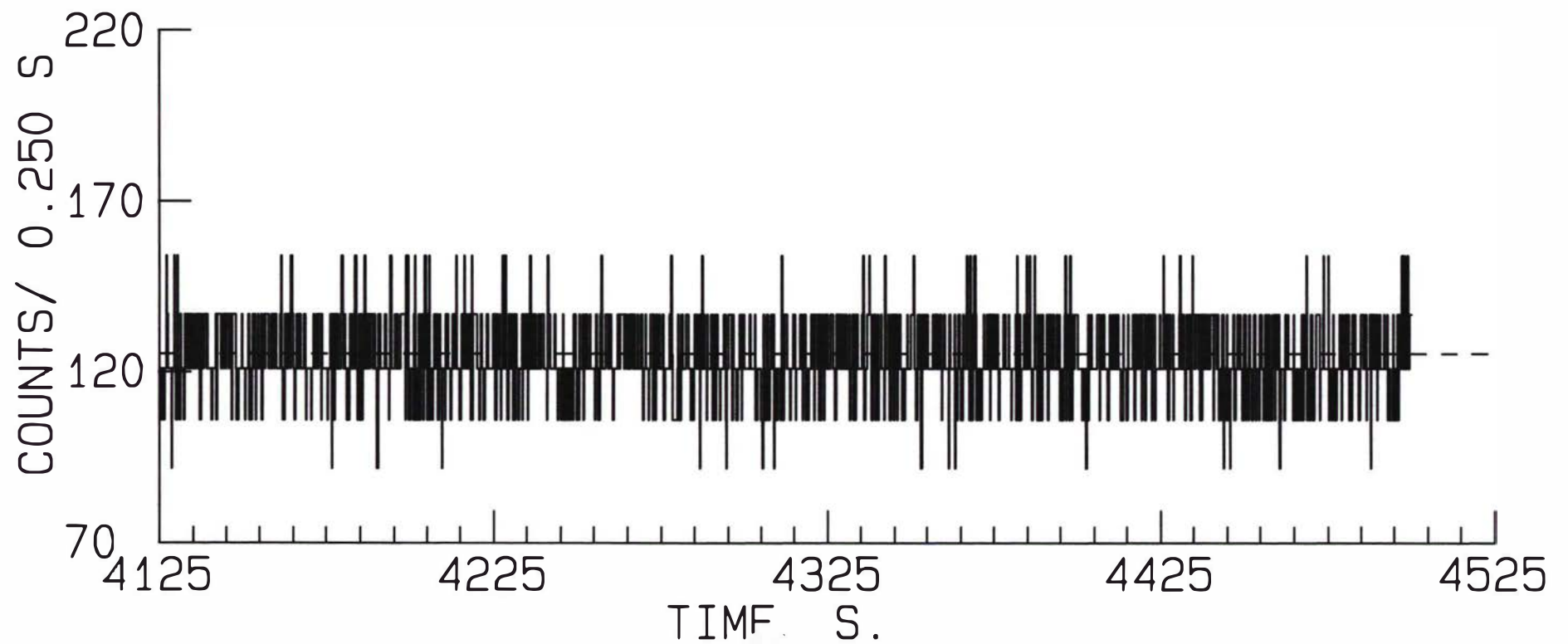
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



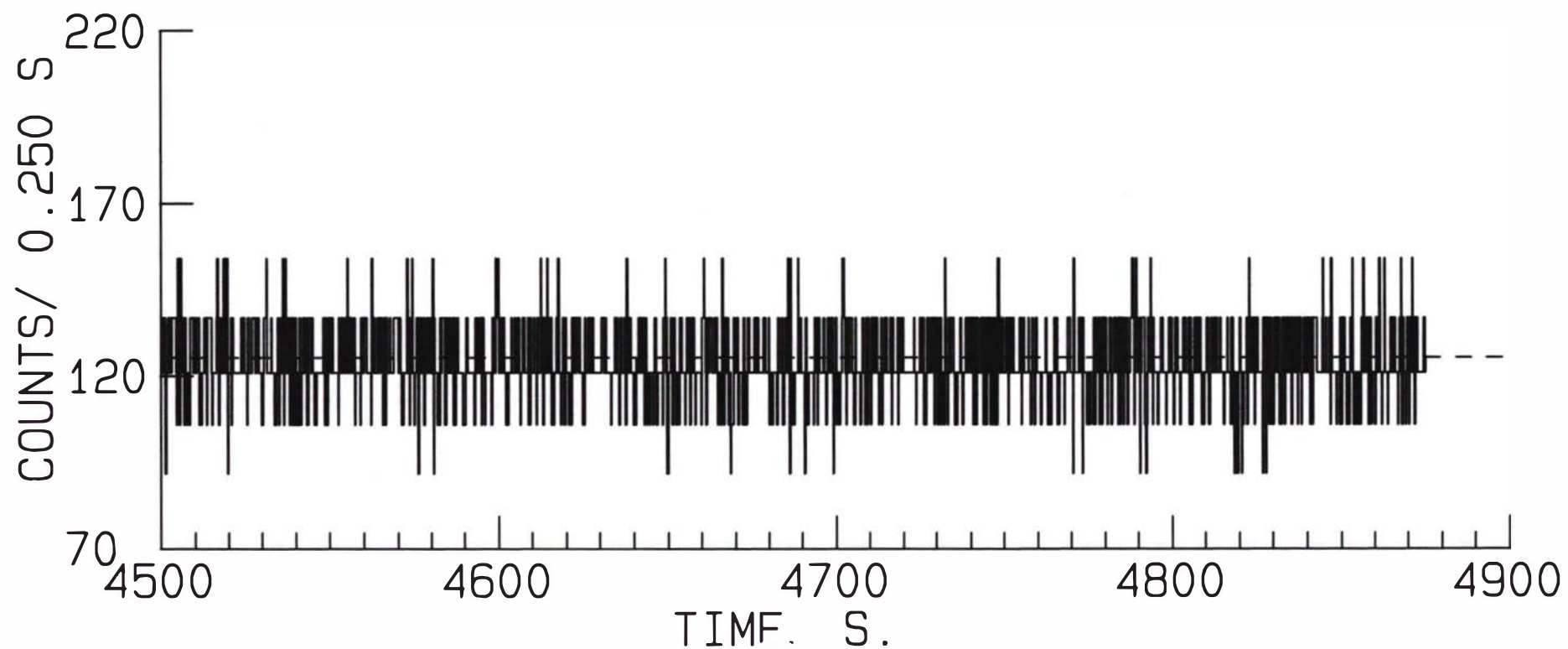
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



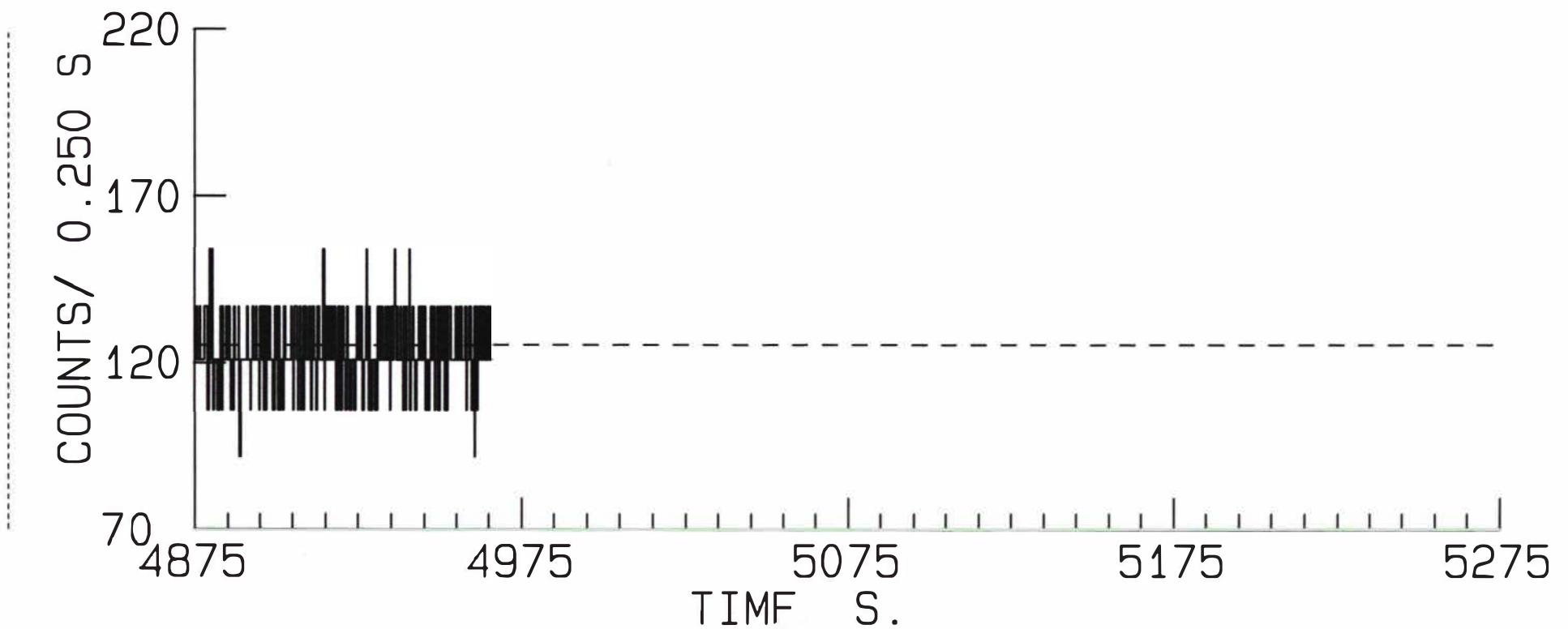
ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8

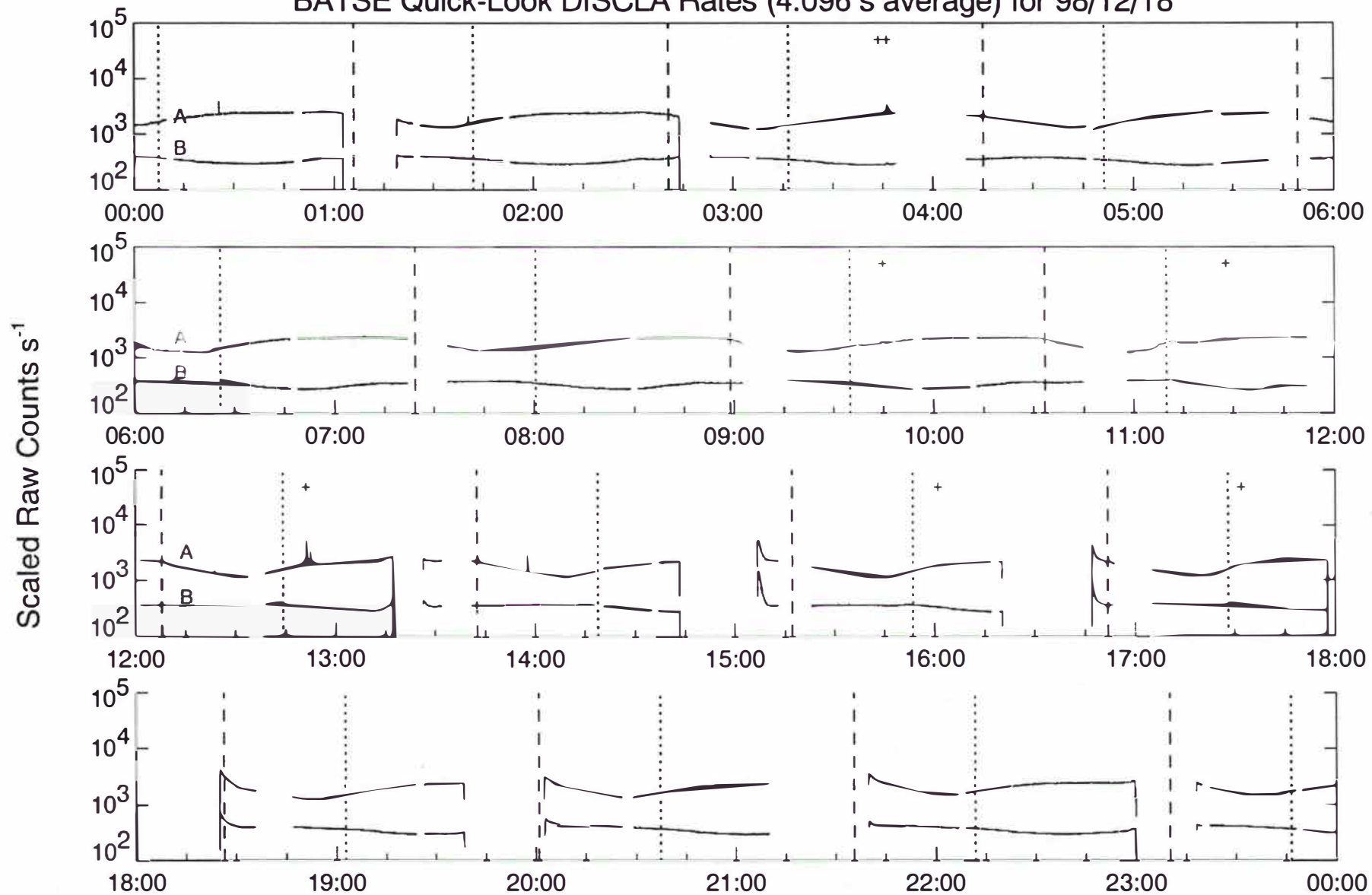


ULYSSES RT
18/12/98 59726.352 s
22- 151 keV

21 / 11 / 8



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/18

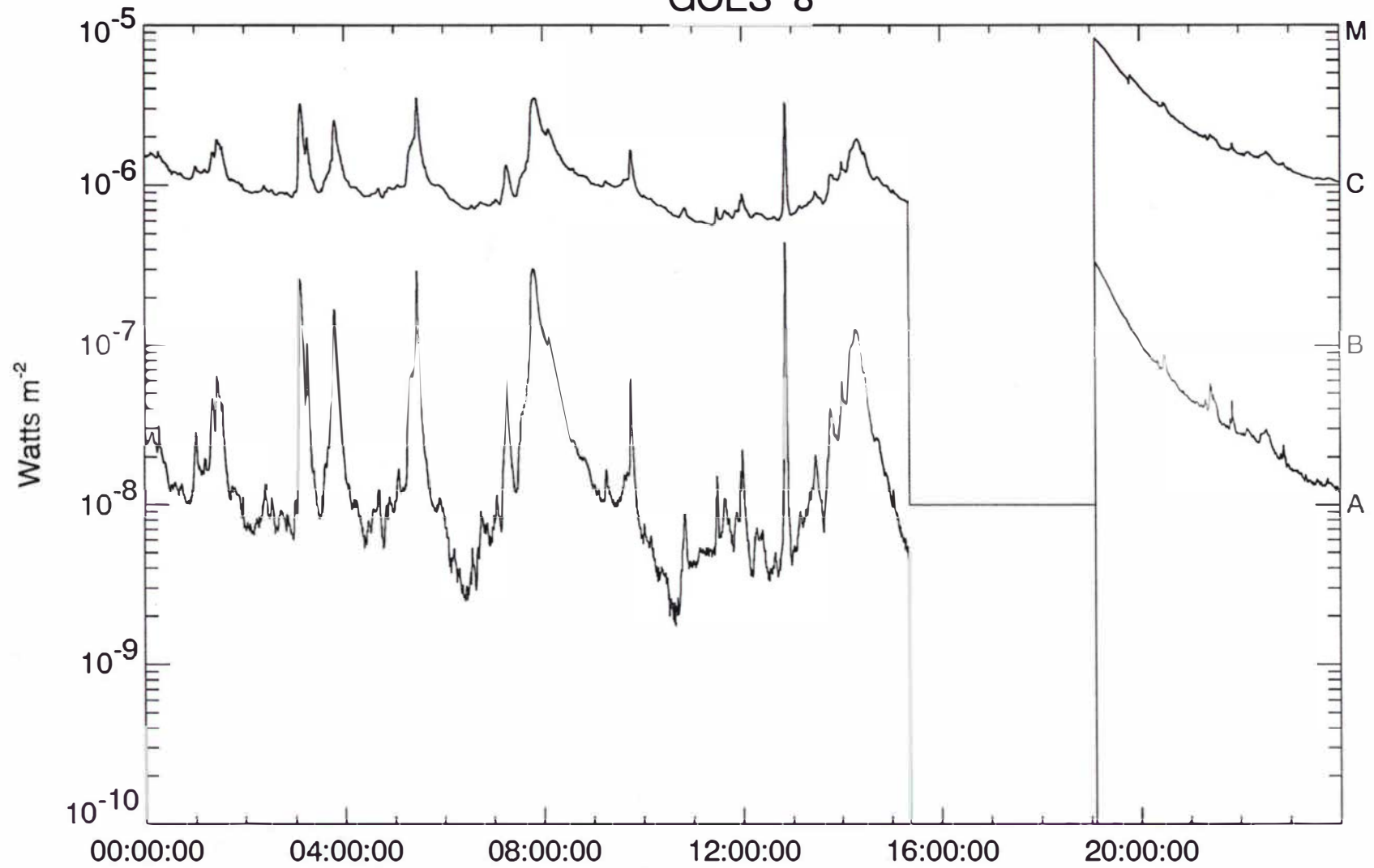


Current Time: 98/12/22, 1010 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/18, 0000:00

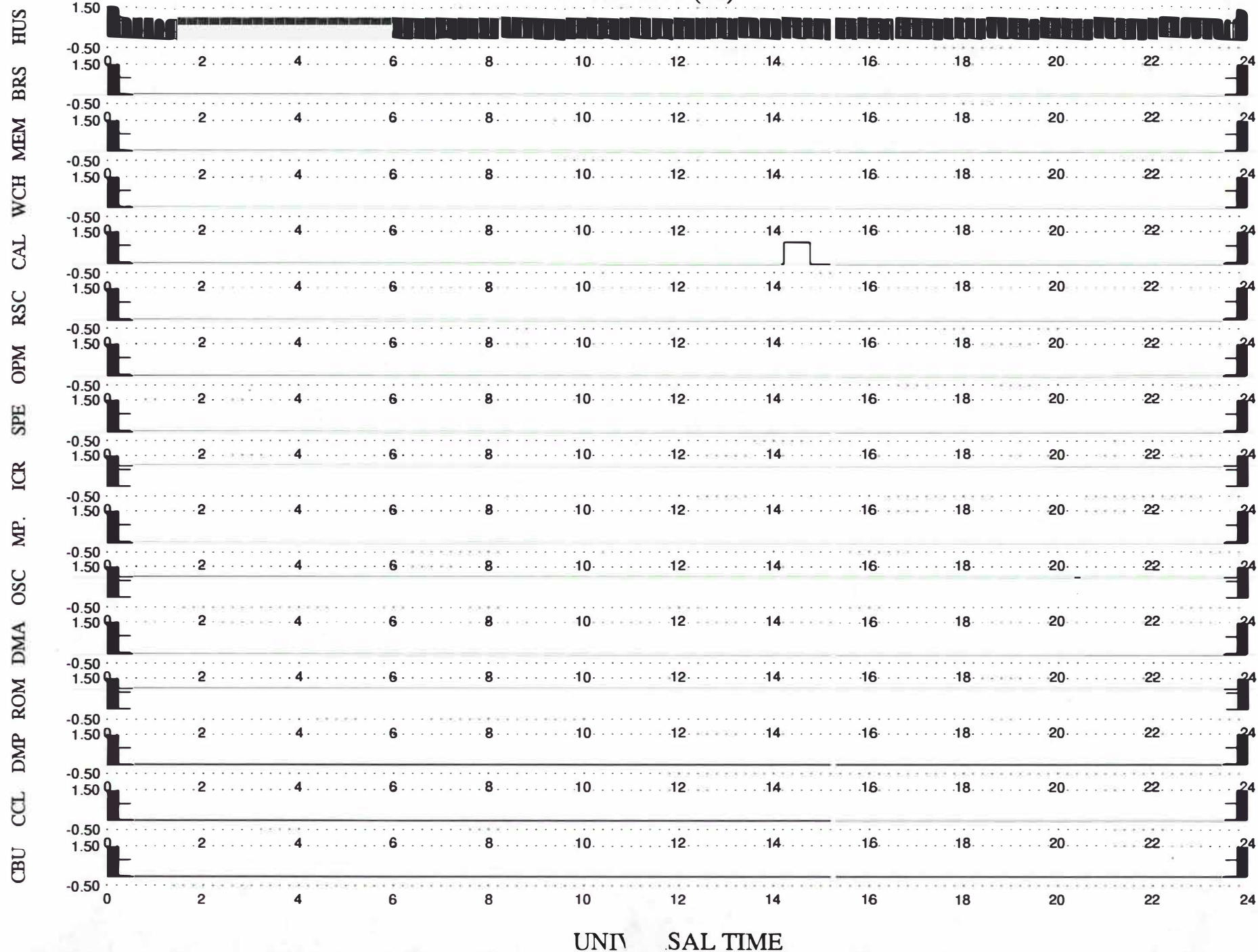
Plot created: 98/12/22, 1010

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

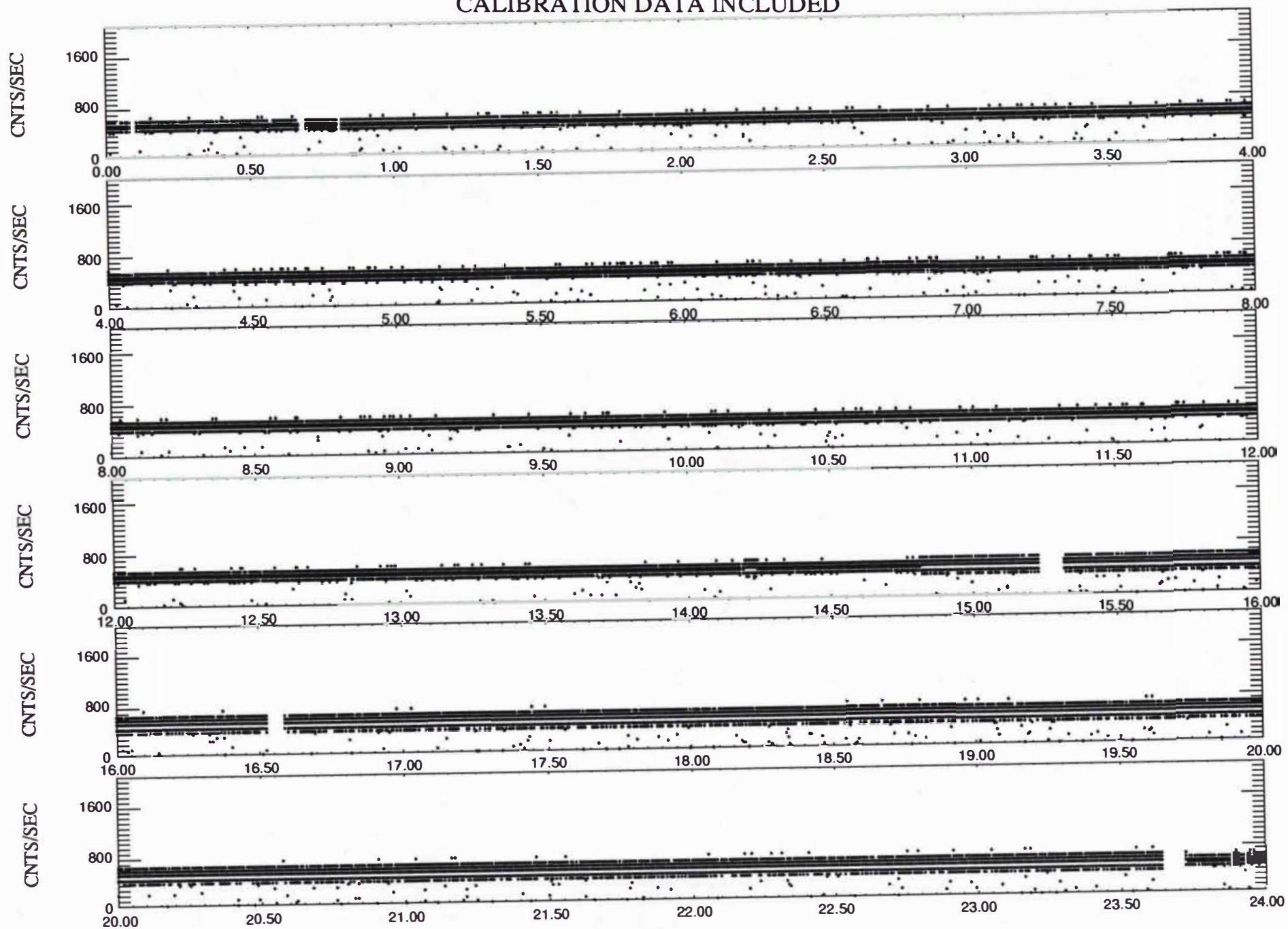
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

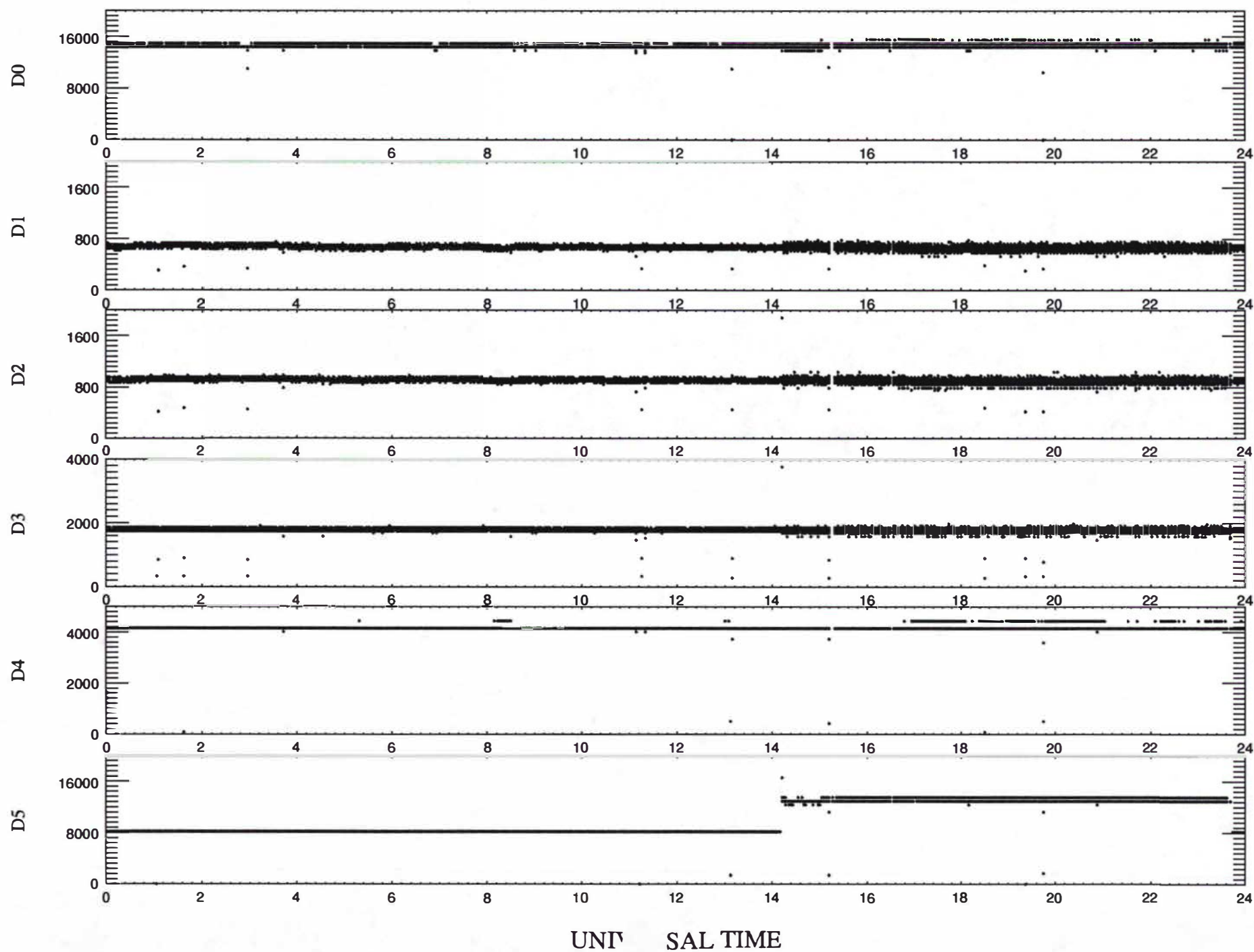
NO BURST (12)



CALIBRATION DATA INCLUDED



UNIT SAL TIME



From williams@sunspot.ssl.berkeley.edu Thu Jun 3 18:45 PDT 1999
Date: Thu, 3 Jun 1999 18:48:36 -0700
From: williams@ssl.berkeley.edu (Roger Williams)
To: khurley@ssl.berkeley.edu
Subject: autobrst
Cc: williams@sunspot.ssl.berkeley.edu

Hi Kevin -

We received a NEAR request for 19981219_33604 that is causing NEARSEARCH some trouble. The request is contained in the attached file 'FILE.near'. NEARSEARCH'S error message implicates the ephemeris data of the attached 'FILE.neareph'. The failed output file is attached as 'FILE.nearsearch'. I looked at the ephemeris file and the 19th of Dec. 1998 is unusual in that it has only 1 line in the file. In any case it looks like we need either a new NEARSEARCH.f or a new FILE.neareph.

Roger and Jay

<This message contains 3 attachments (not printed)>

BATSEARCH PROGRAM

No - too weak

BATSE BURST # 7270
EVENT OF 1998 DEC 19 DAY OF YEAR=353
EVENT CROSSING TIME AT BATSE : 33948. S. OR 09:25:48.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 219.000 -44.000
BATSE PEAK COUNTING RATE: 4500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 19/12/ 98 IS:
RA= 166.790 DEC= -7.025 DIST= 5.012 AU
BATSE-ULYSSES DISTANCE = 749744065. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=121.50 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1306.54 SECS.
CROSSING TIME AT ULYSSES IS 32641. S. OR 09:04:01 +/- 400.38 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 19/12/ 98 IS:
RA= 191.511 DEC= -2.974 DIST= 1.620 AU
MARS-BATSE DISTANCE = 242404640. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=132.32 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -544.42 SECS.
CROSSING TIME AT MARS IS 33404. S. OR 09:16:43 +/- 95.53 SECONDS

BATSE BURST TRIGGER

NO.: 7270

TIME: TJD=1166 SECONDS=33948

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=100.6 AZIMUTH=37.0 ERROR=2.0 DEGREES

COMMENTS:

GRB. MULTI-PEAKED, DUR. APPROX. 530 S, MAX. AT APPROX. T+505 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7270	981219	11166	33948	4500	219	-44	530

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

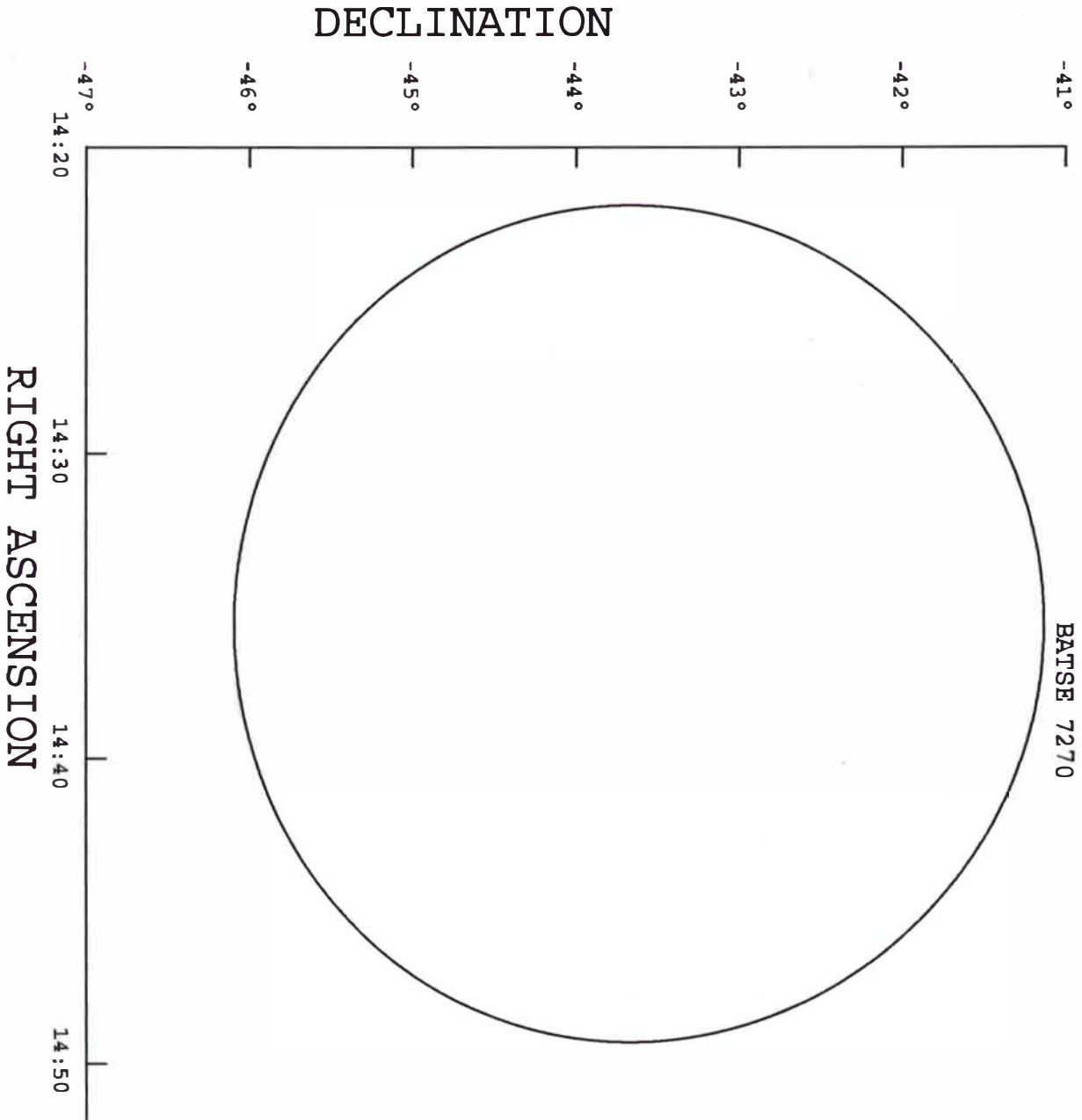
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF DEC 19, 1998 9:06

15 / 6/99



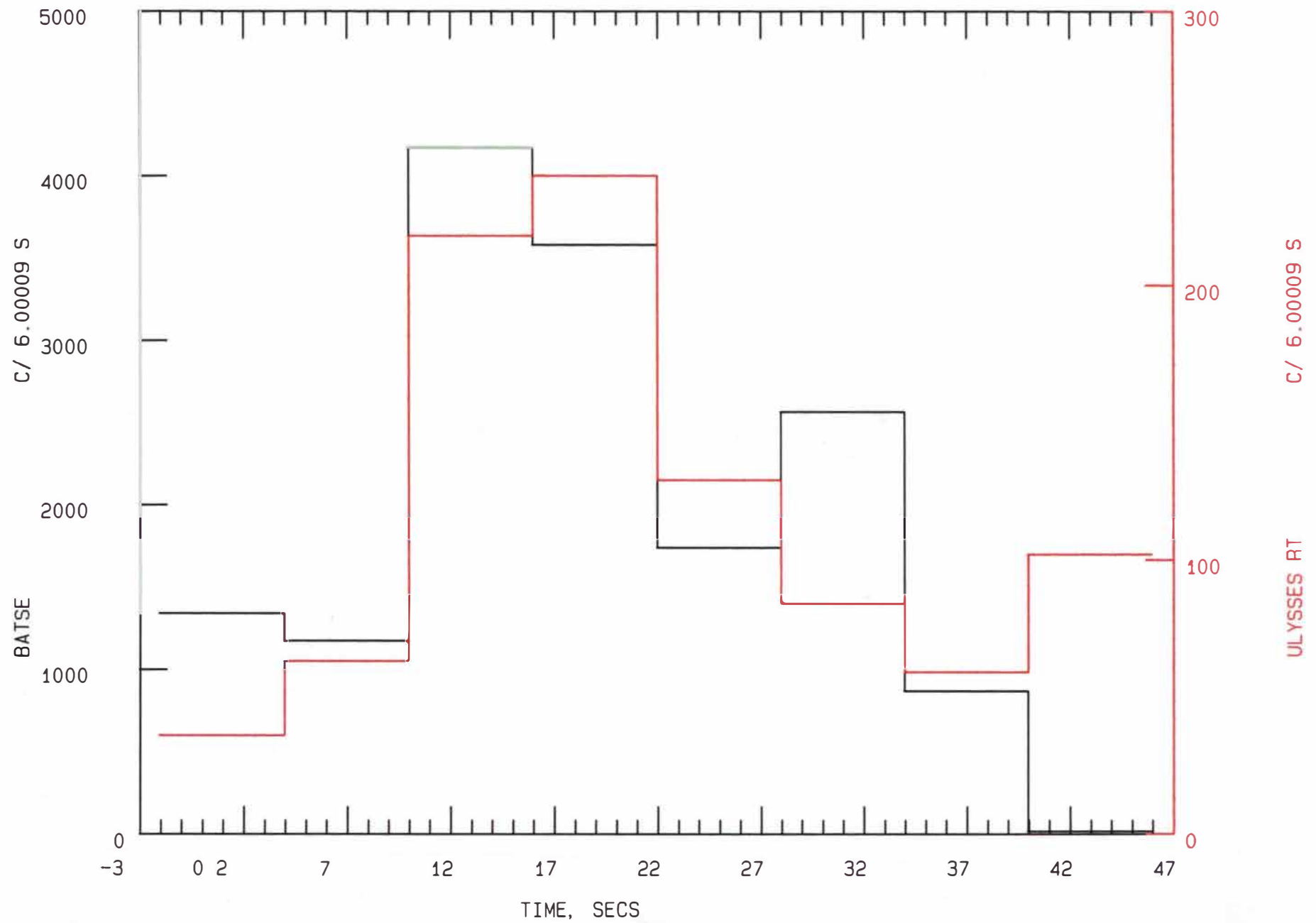
BATSE

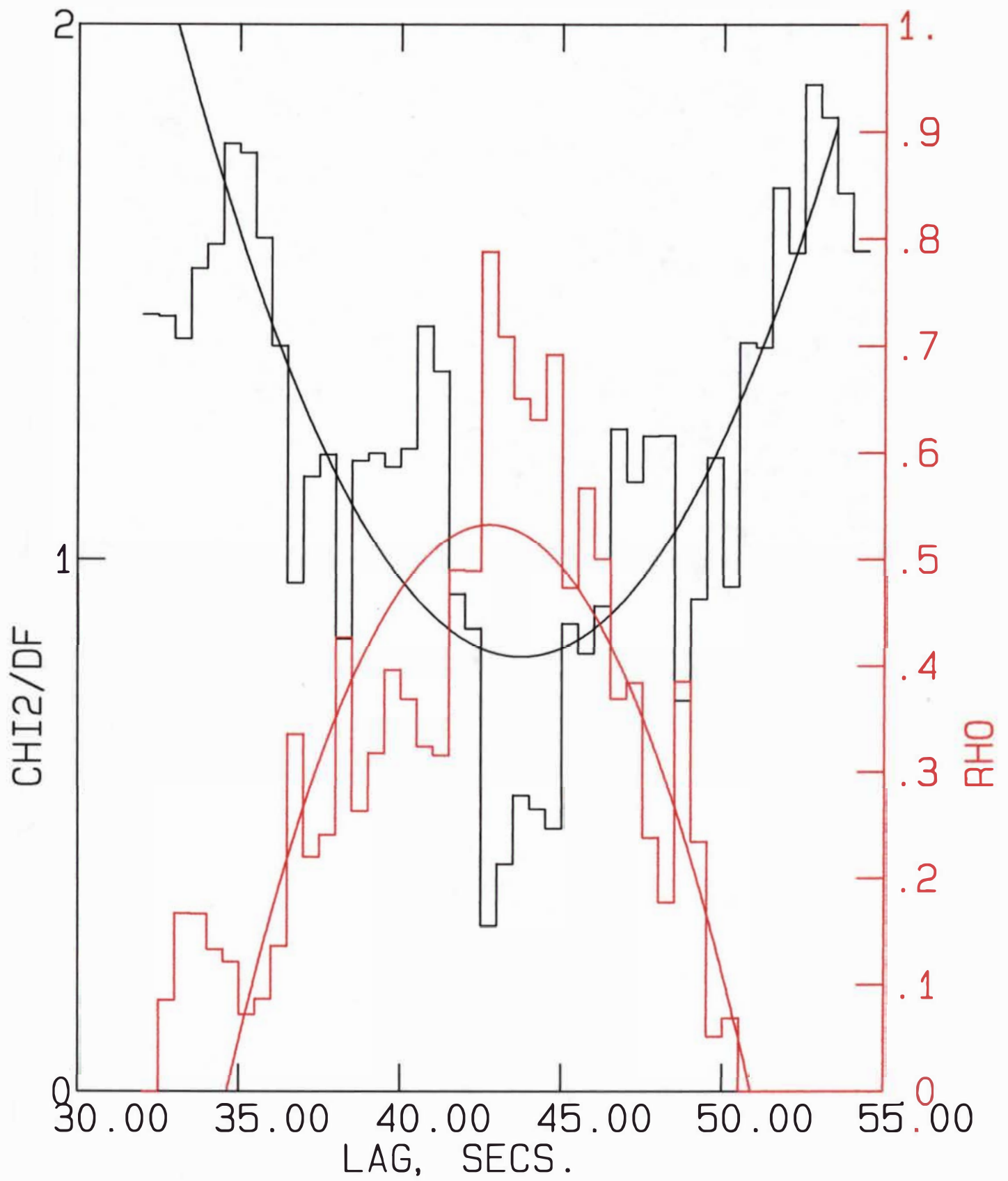
-ULYSSES RT CORRELATION

19/12/98

33948.385

15/ 6/99





ULYSSES RT

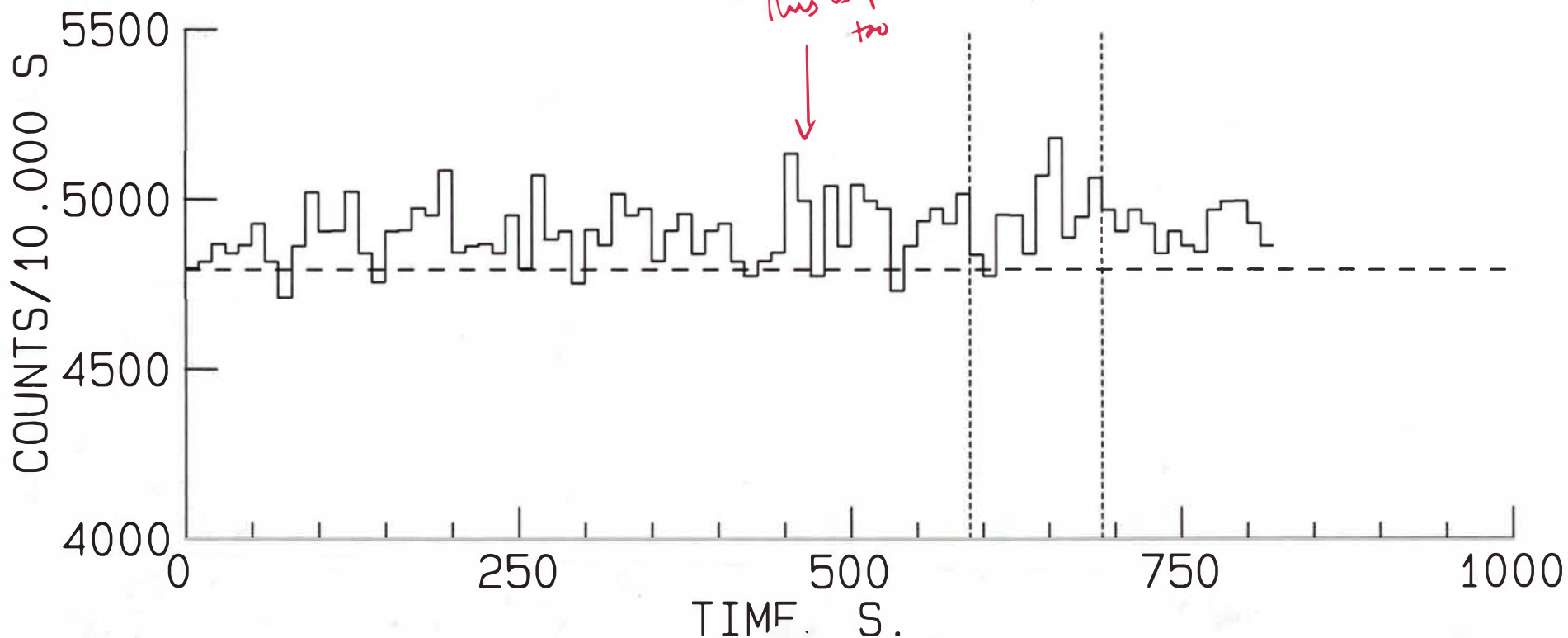
15 / 6 / 99

19/12/98 32220.204 s

0.500 S INTERVALS REGROUPED BY 20

22- 149 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



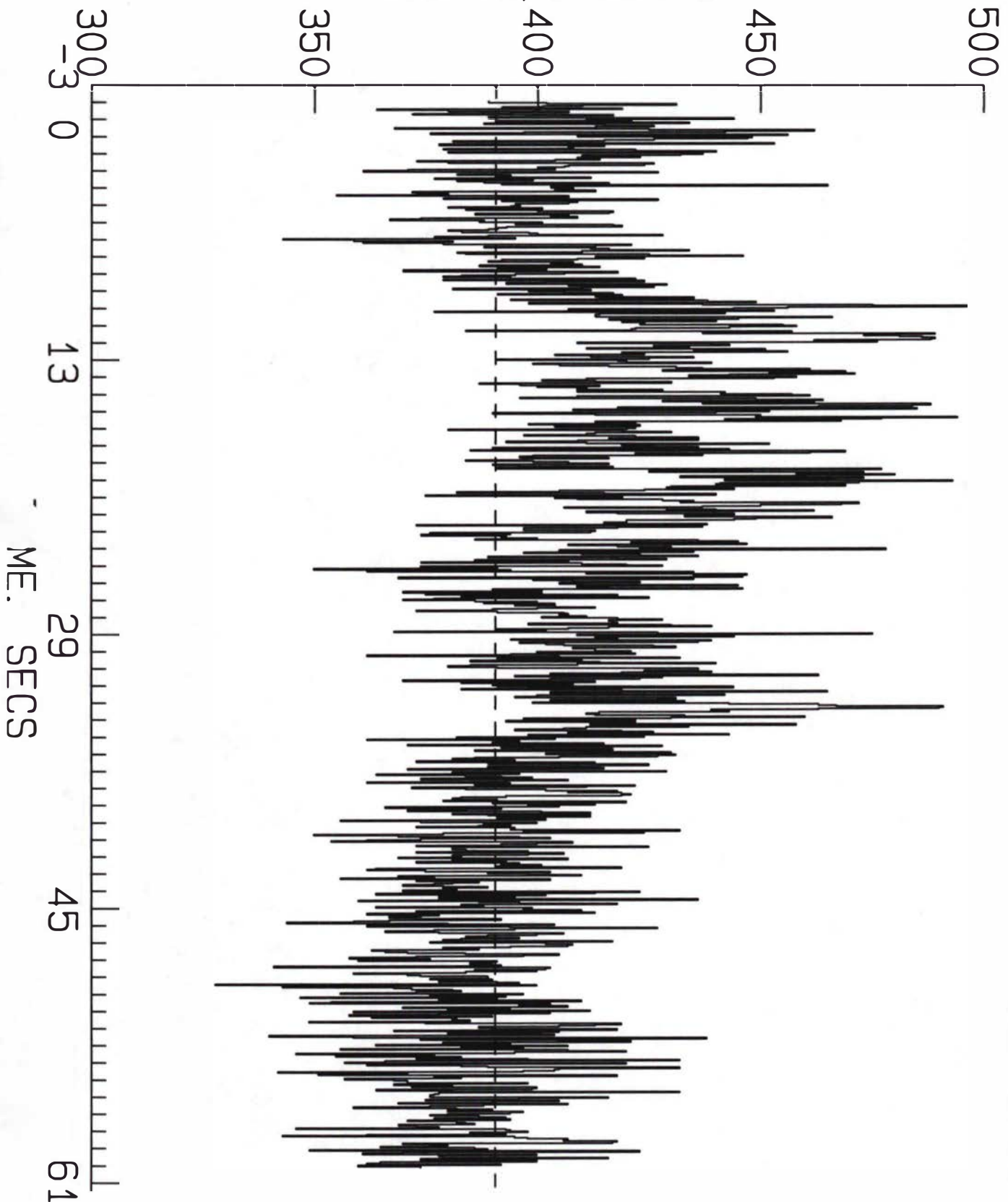
BATSE

19/12/98

33948.385

25- 100 keV

COUNTS/0.064 S



BATSE BURST# 7270

ULYSSES RT

5 / 6 / 99

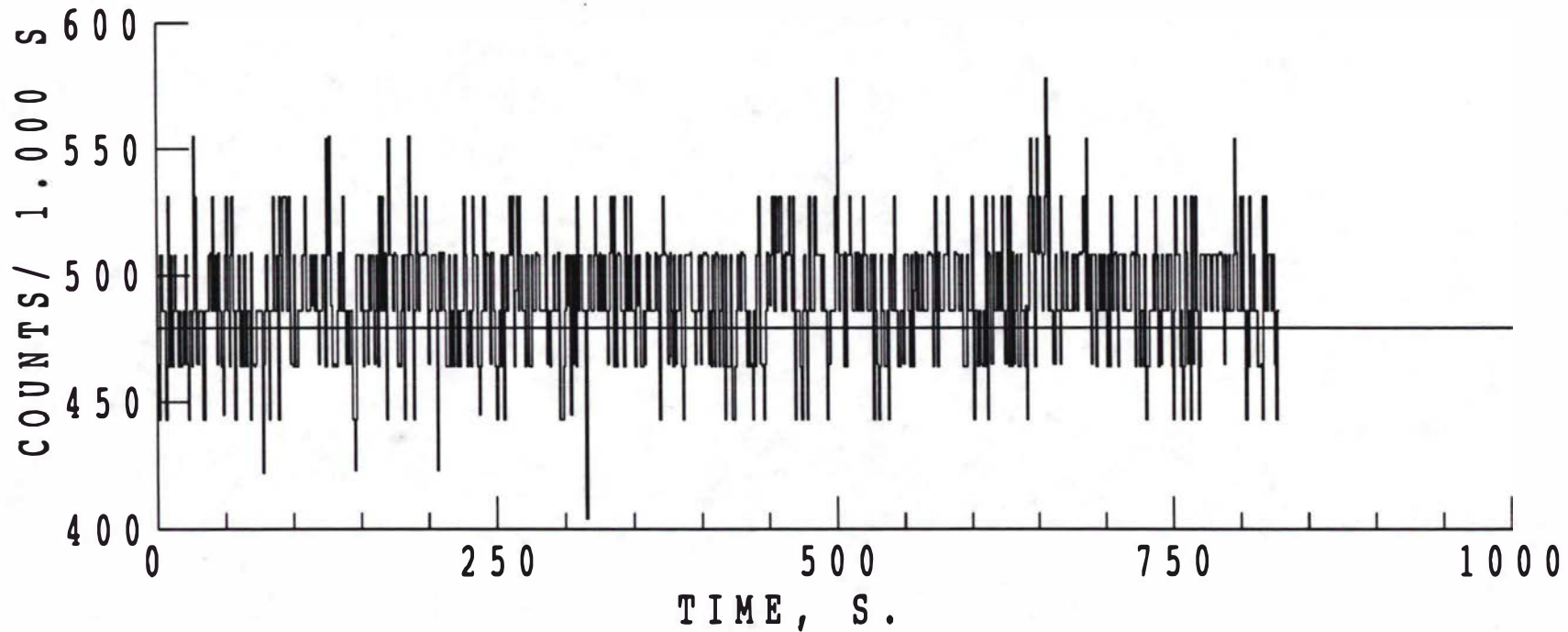
19/12/98 32220.203 s

0.500 S INTERVALS REGROUPED BY 2

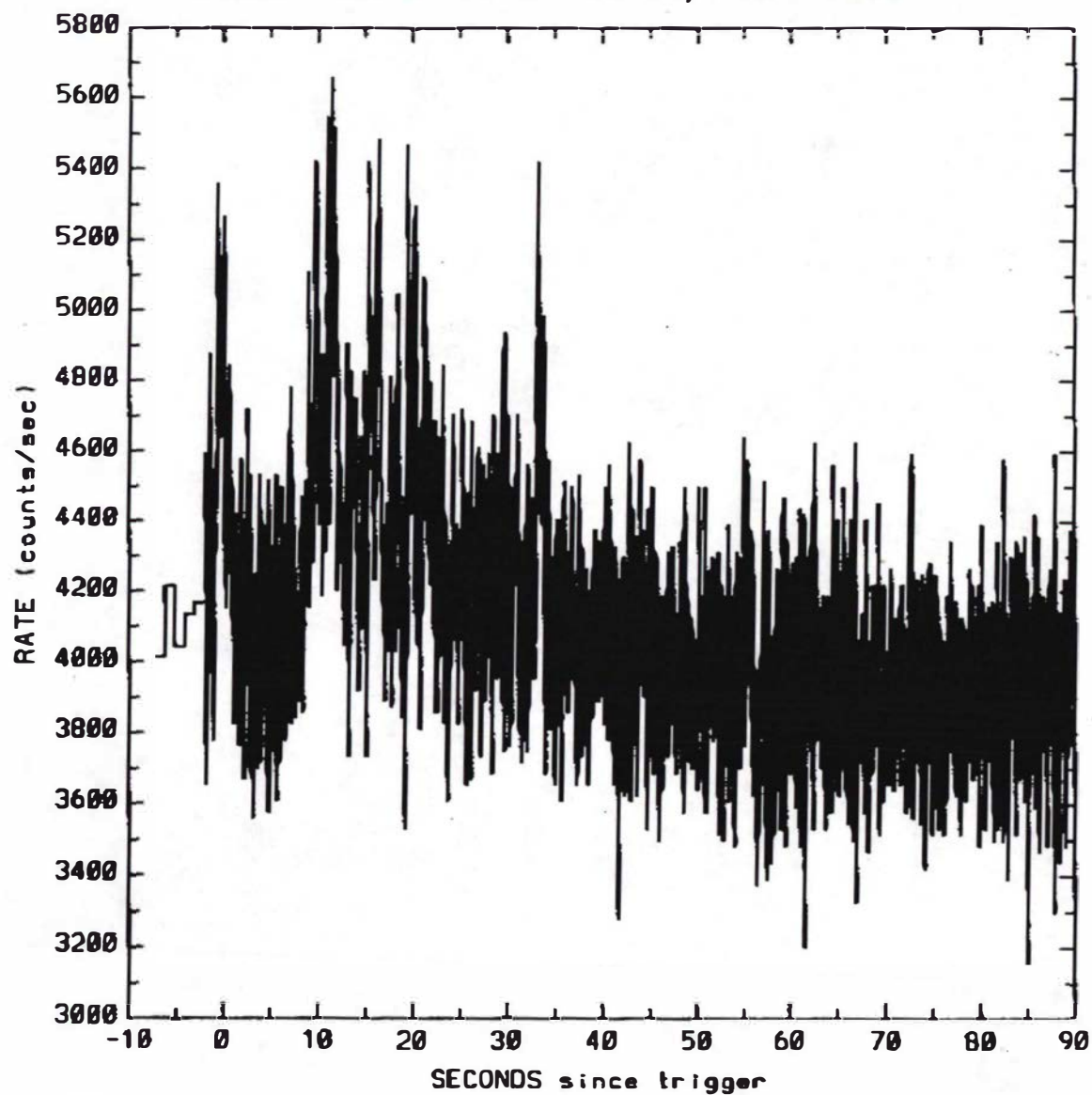
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



DISCSC Data for K. Hurley, No. 7270



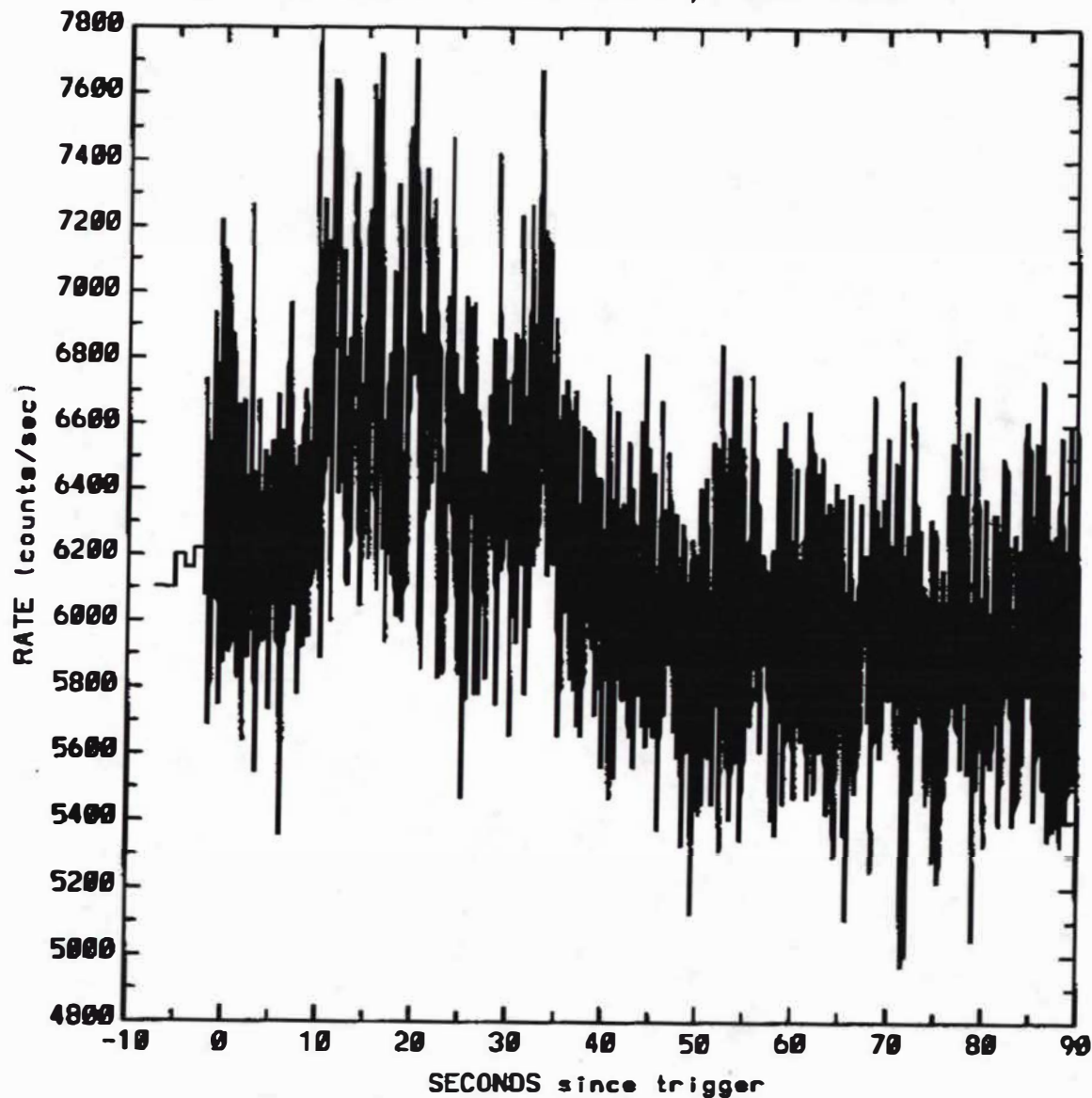
9-FEB-2000 09:55:53

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

Trigger # : 7270

Trigger Time:
11166 / 33948.385Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors (7..8):
-----18Discriminators:
(3 . 4)Quality Mask:
BDISP1

DISCSC Data for K. Hurley, No. 7270



4-JUN-1999 11:41:38

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

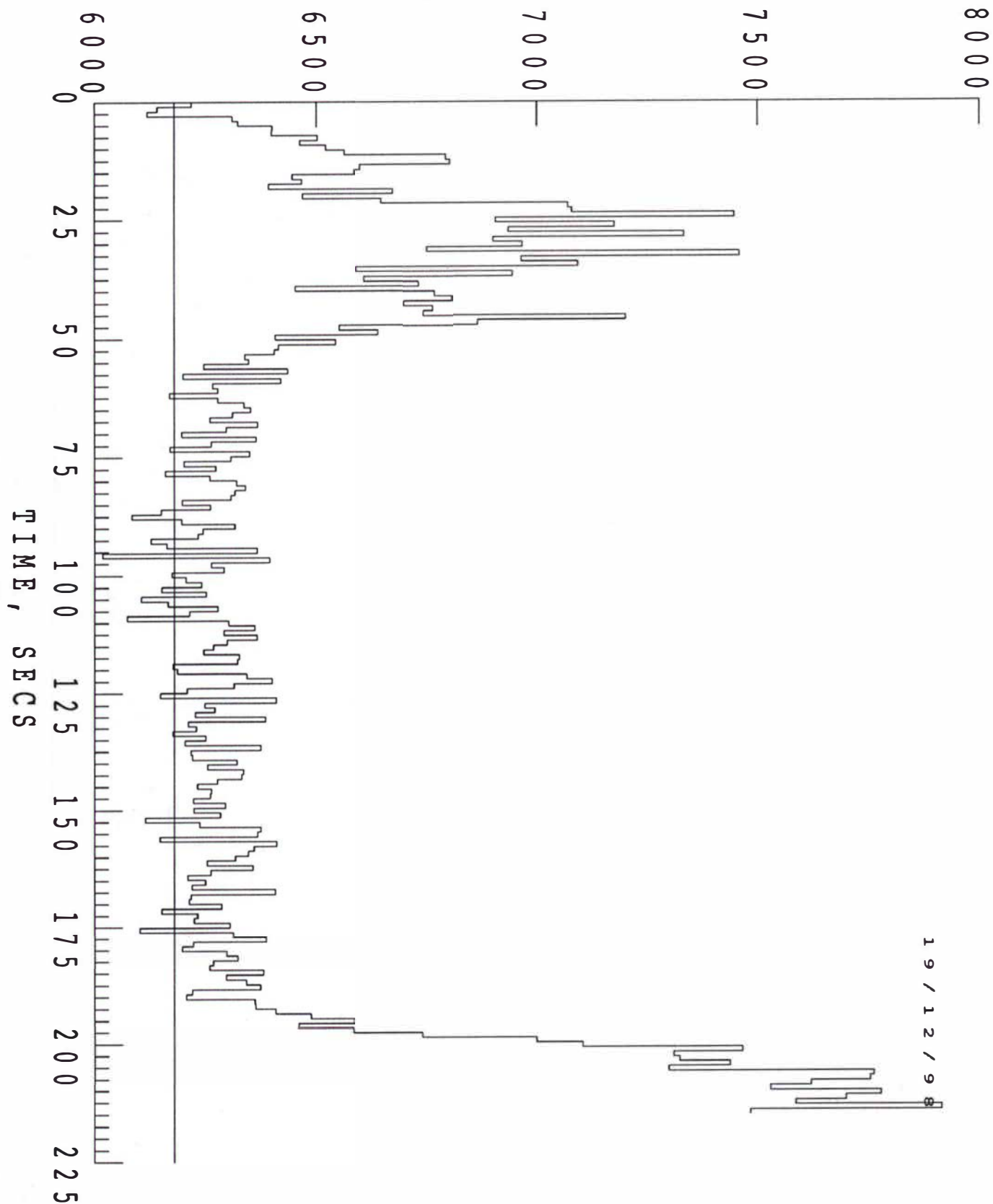
Trigger # : 7270

Trigger Time:
11166 / 33948.385Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PRED + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8]:
-----10Discriminators:
(1 . 2)Quality Mask:
B01SP1

BACODINE 7270 19/12/98 33936.097

25 - 100 keV

COUNTS/1.024 S



19 / 12 / 98

BATSE BURST# 7270

ULYSSES RT

21 / 12 / 98

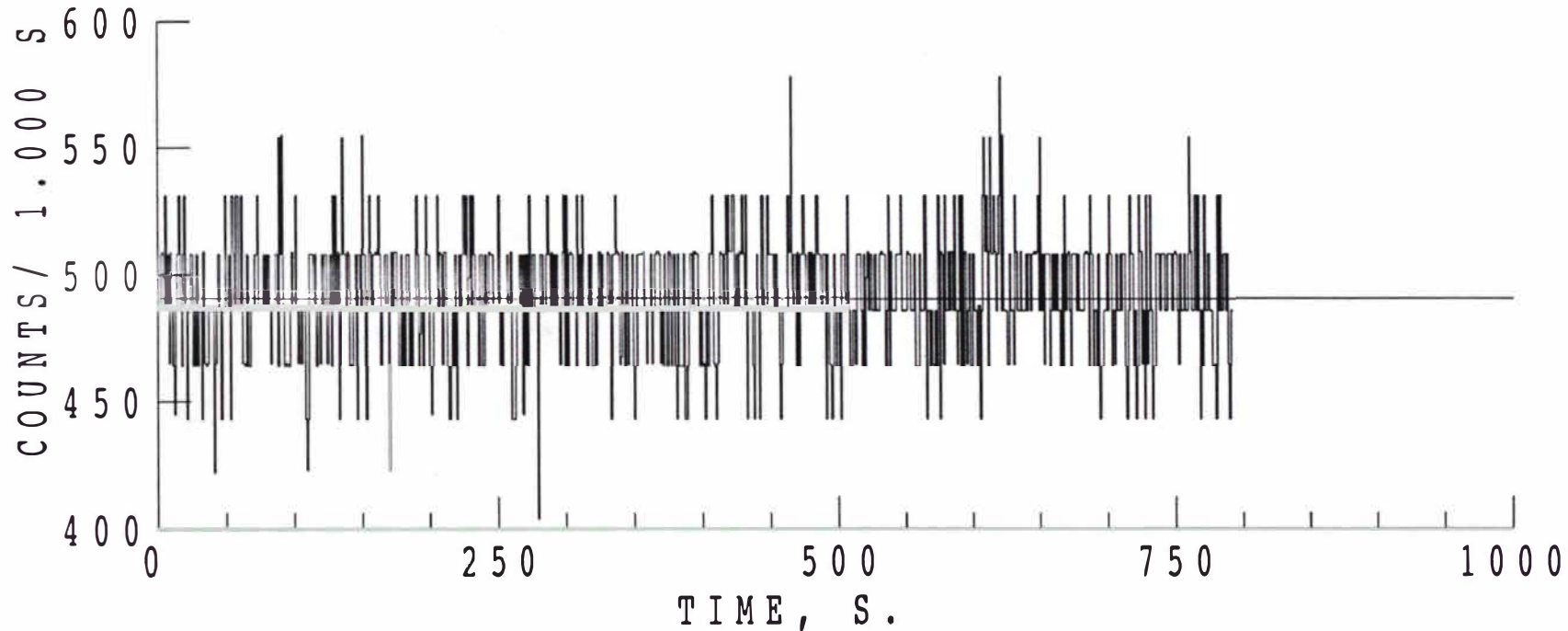
19/12/98 32256.203 s

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

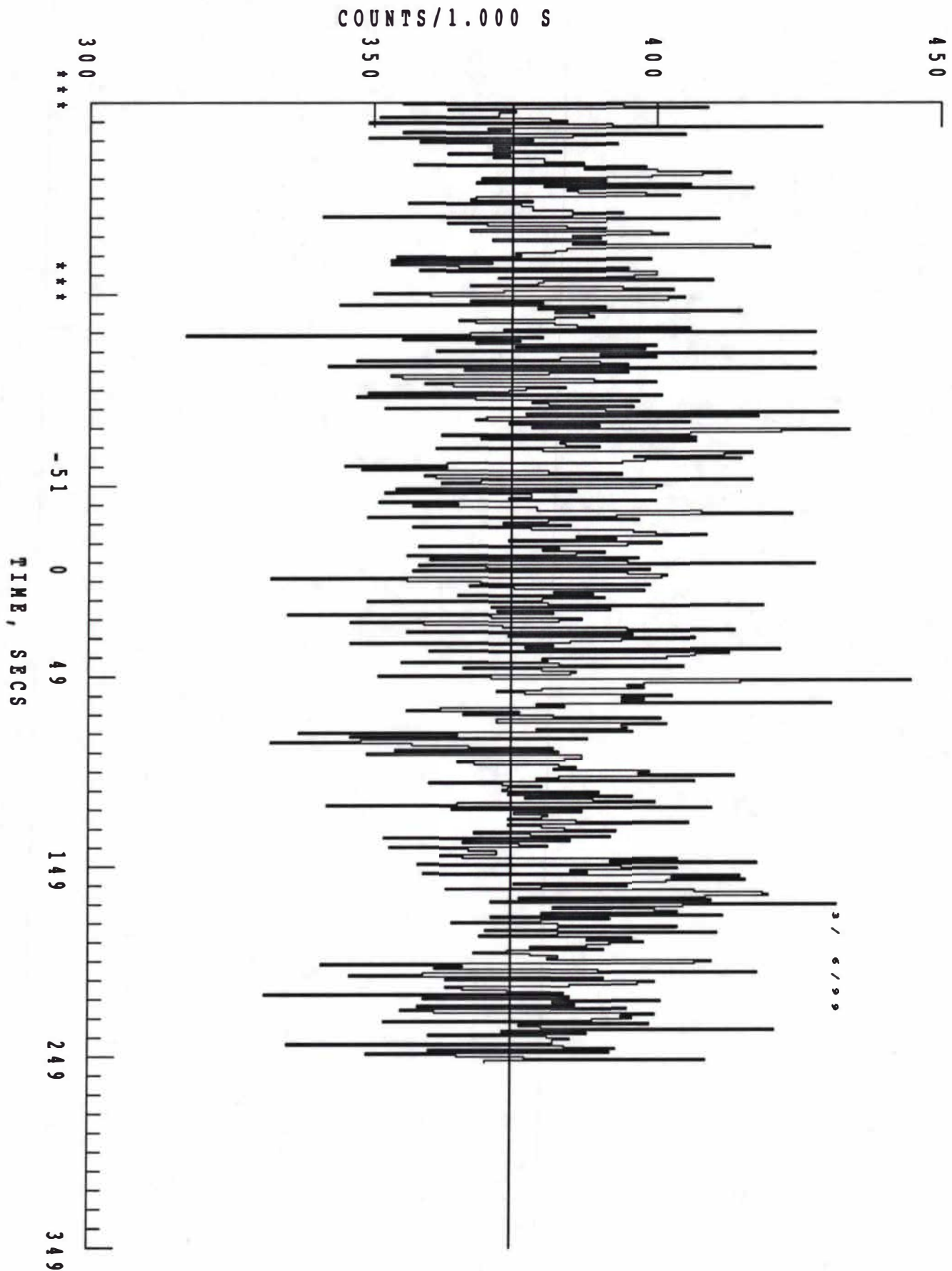


NEAR

19/12/98

33604.502

100-1000 keV



From HENZE@fender.msfc.nasa.gov Mon Dec 21 15:19:59 1998
Date: Mon, 21 Dec 1998 17:19:37 -0600 (CST)
From: Bill Henze (256-544-7616) <HENZE@fender.msfc.nasa.gov>

To: burst@comptel.sr.unh.edu, grobad@ests2.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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7271

TIME: TJD=1166 SECONDS=57455

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

Date: May 11 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

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

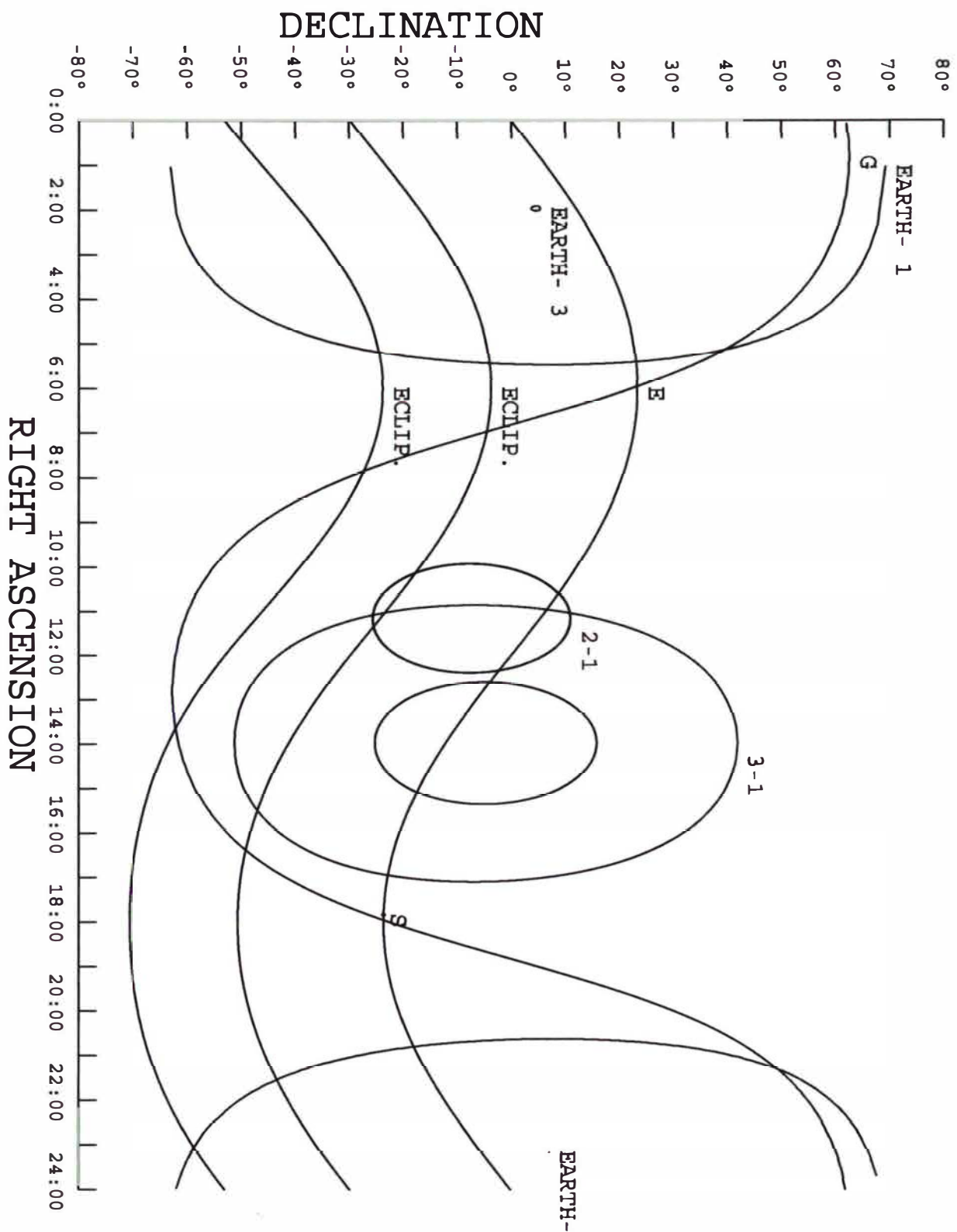
1 SAX

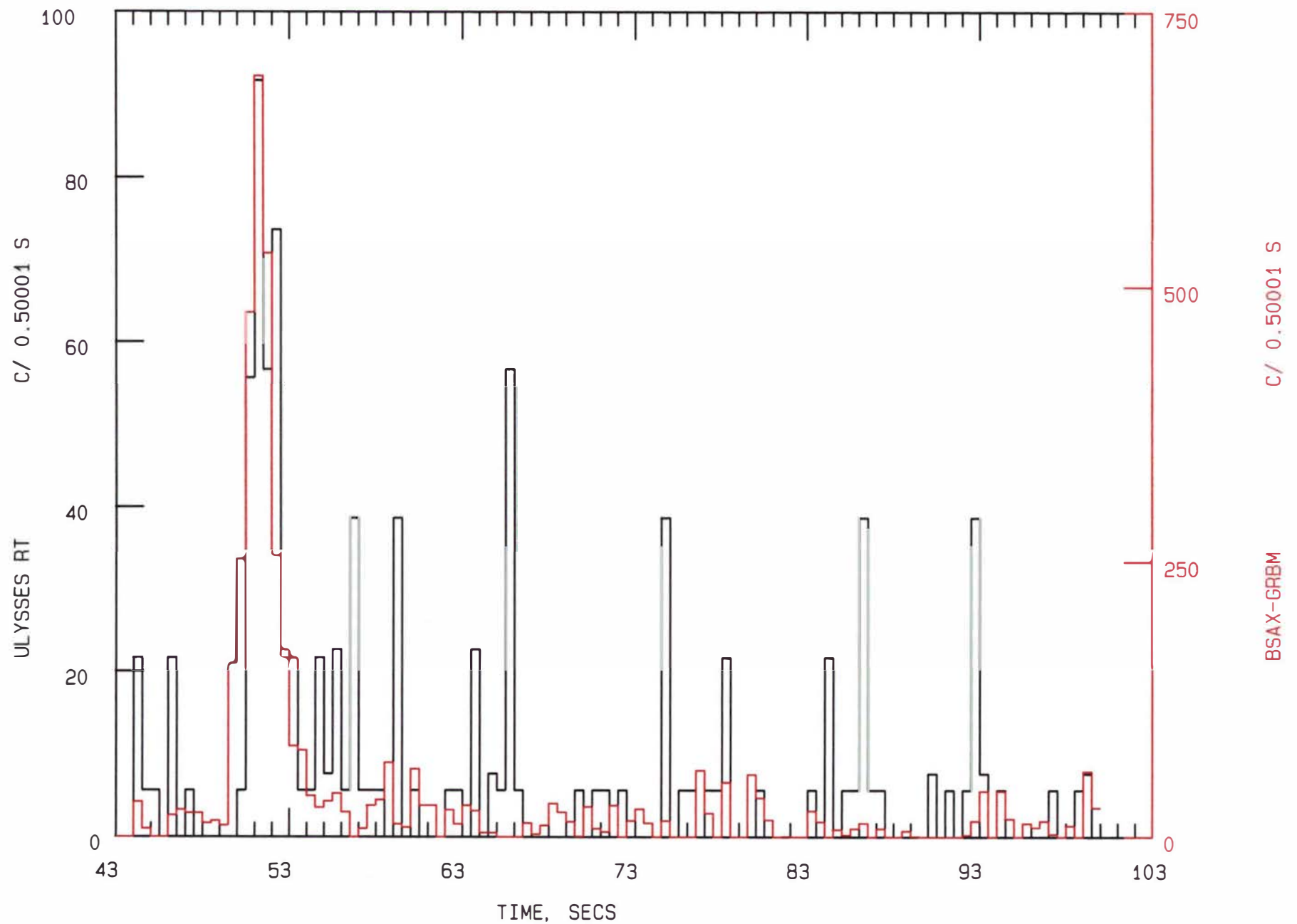
2 ULYSSES

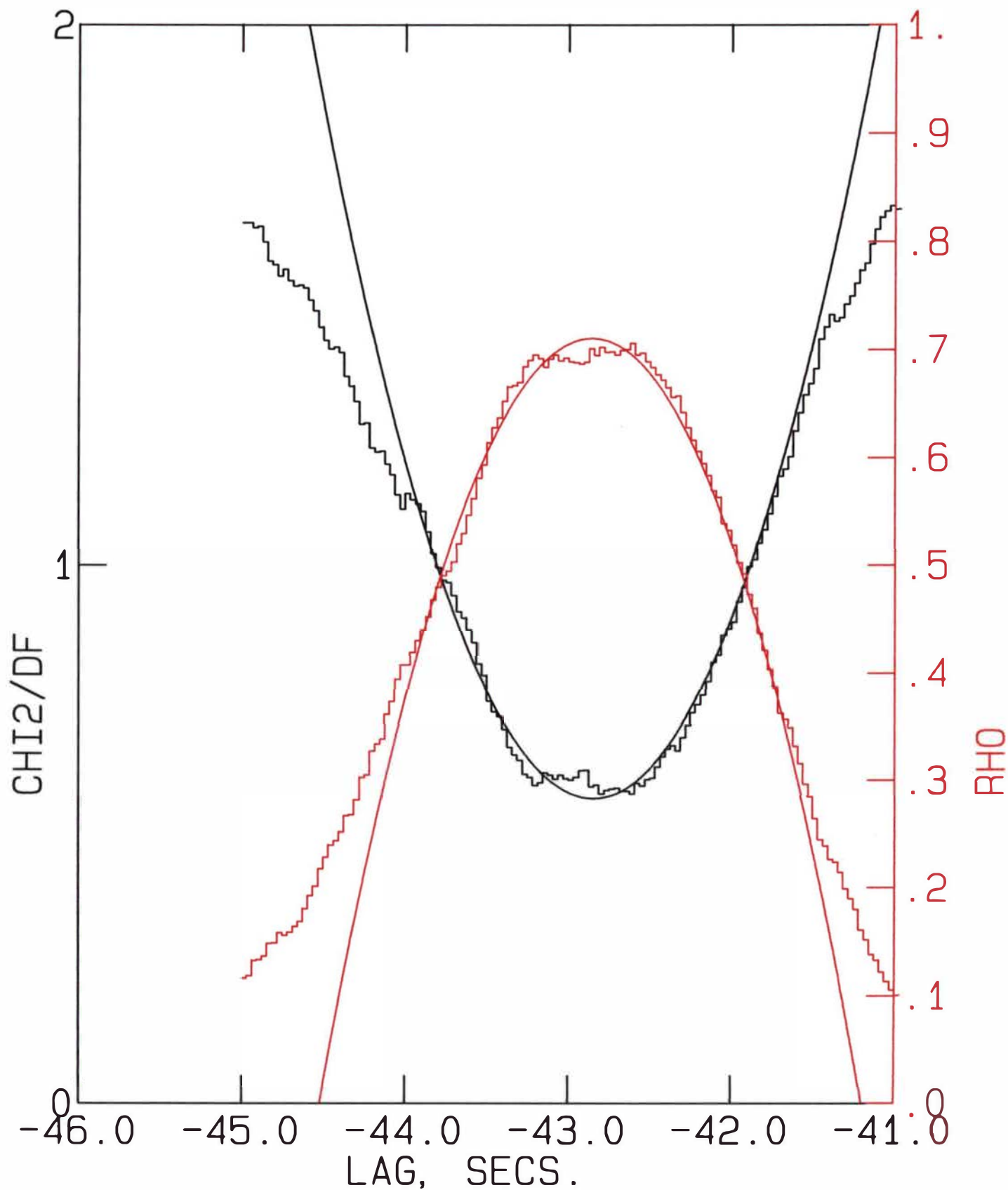
3 KONUS1

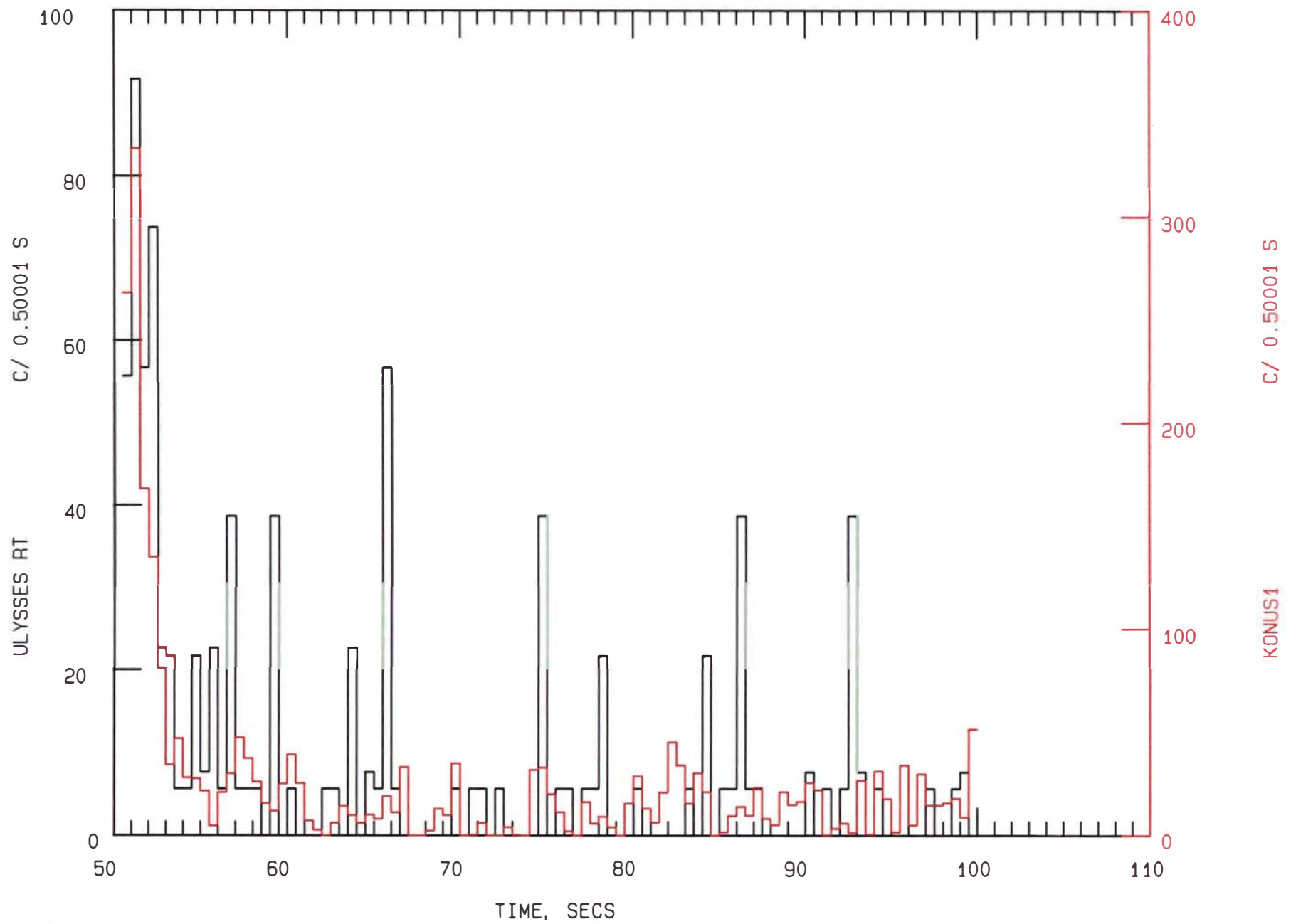
EVENT OF DEC 19, 1998 18:04

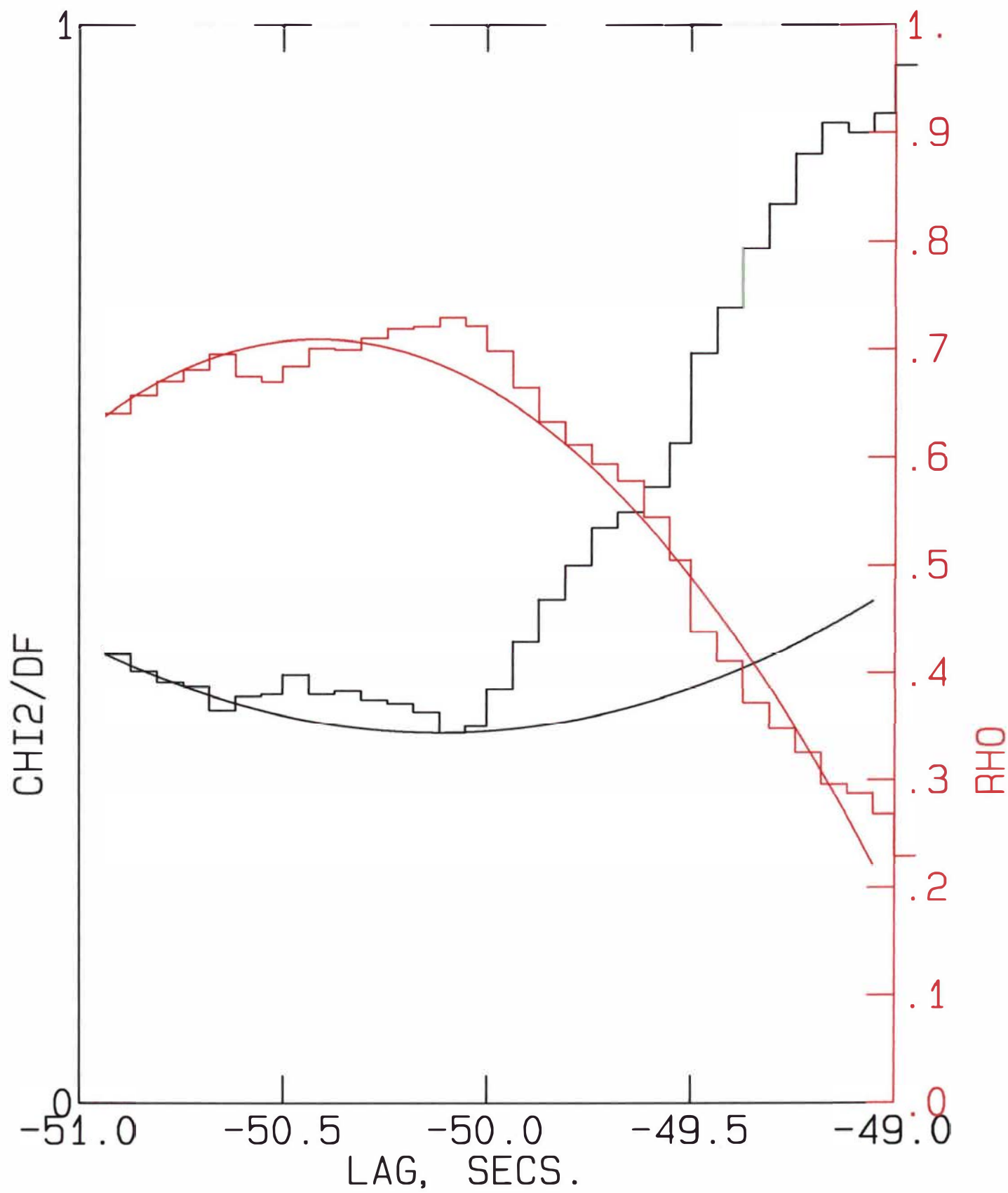
11/ 5/ 7











ULYSSES RT

11 / 5 / 7

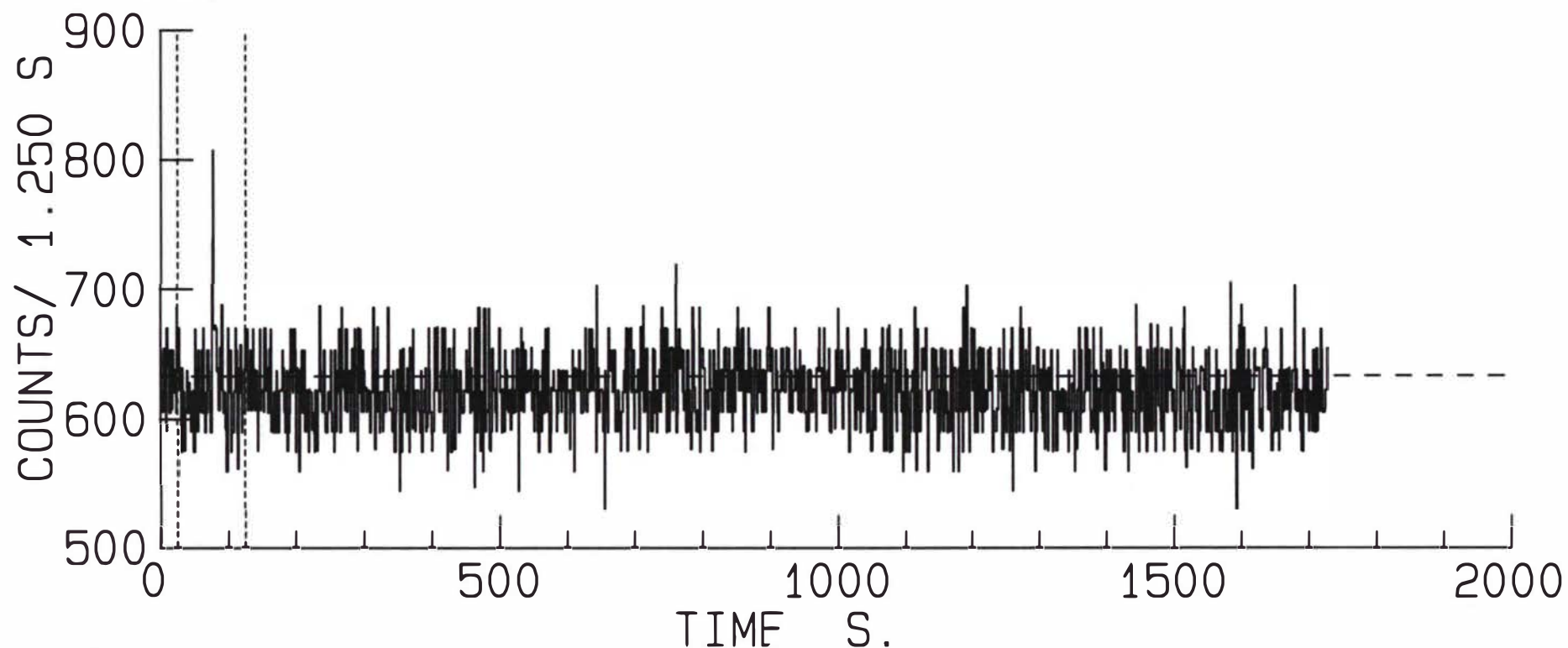
19/12/98 62640.016 s

0.250 S INTERVALS REGROUPED BY 5

22- 149 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



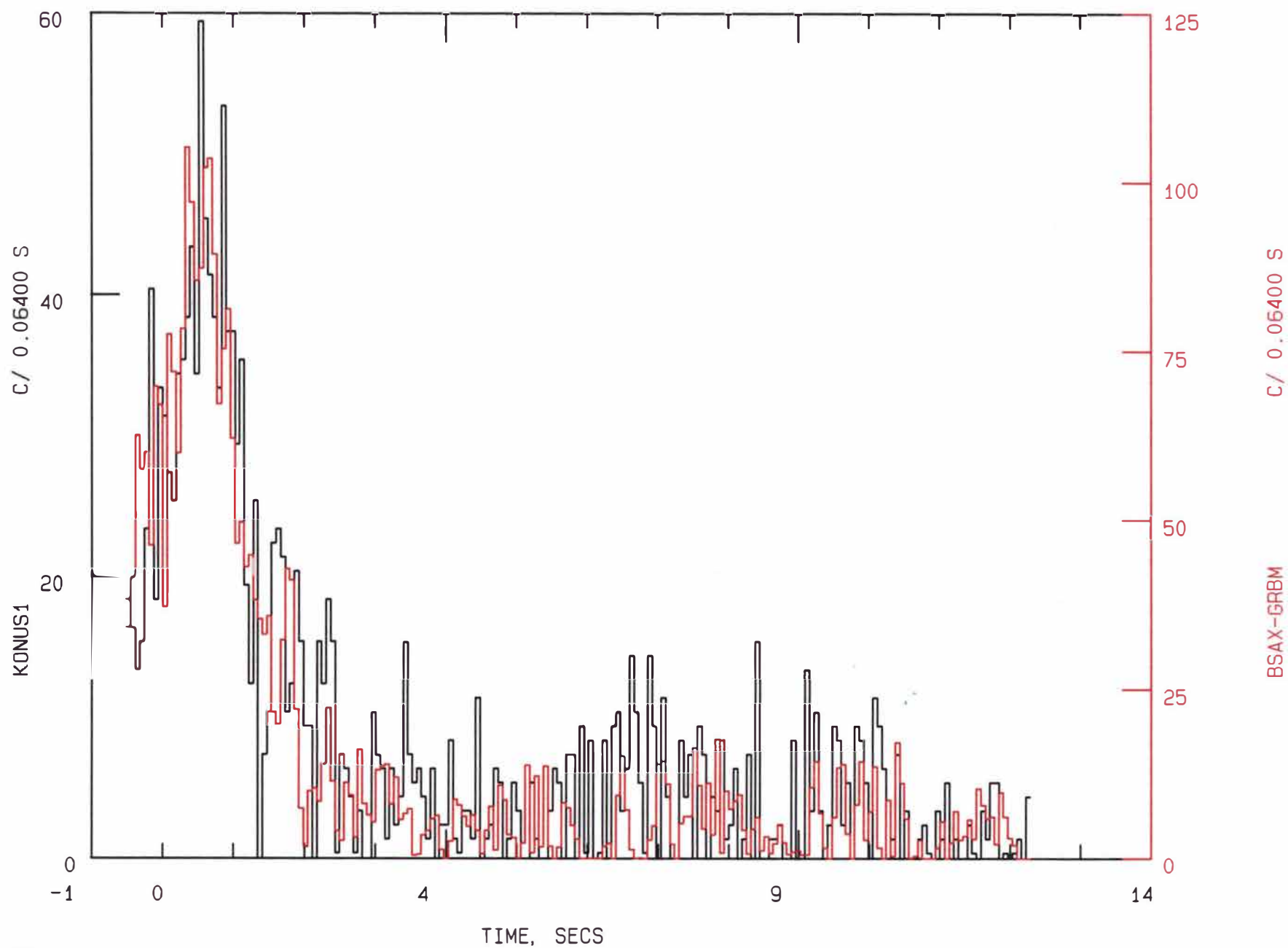
KONUS1

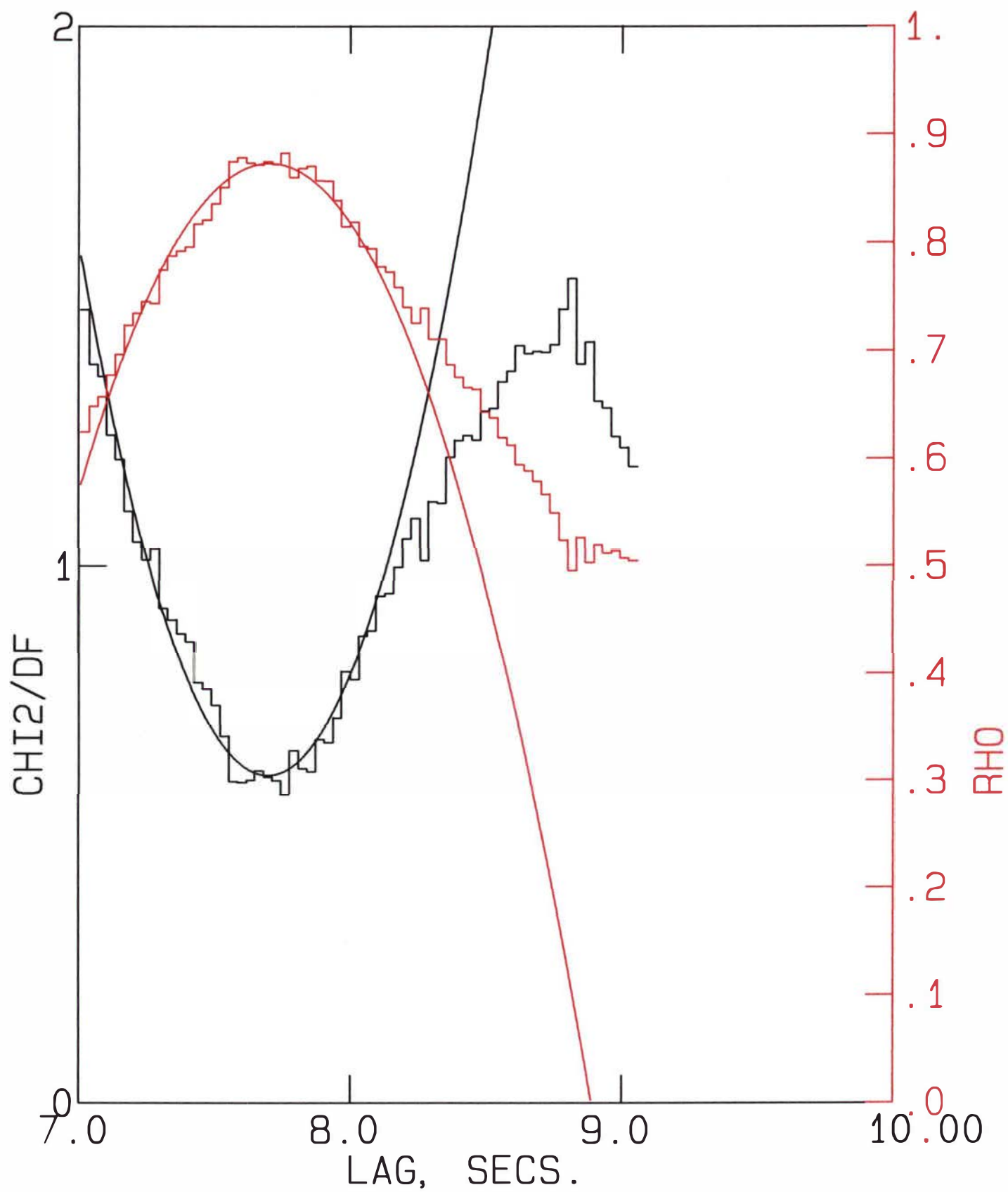
-BSAX-GRBM CORRELATION

19/12/98

65094.764

11/ 5/ 7



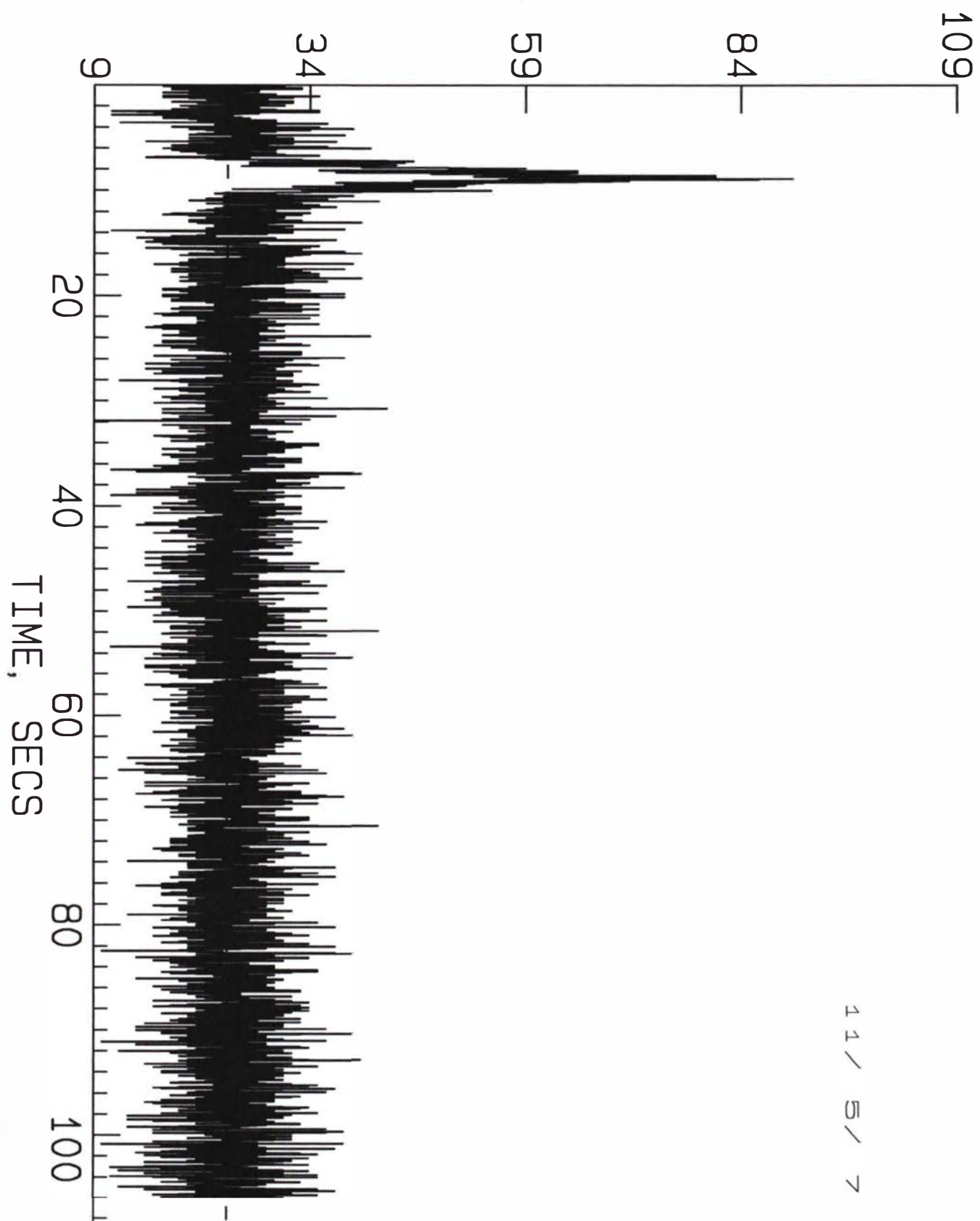


SAX GRBM

19/12/98 65087.710

40- 700 keV

COUNTS/0.031 S



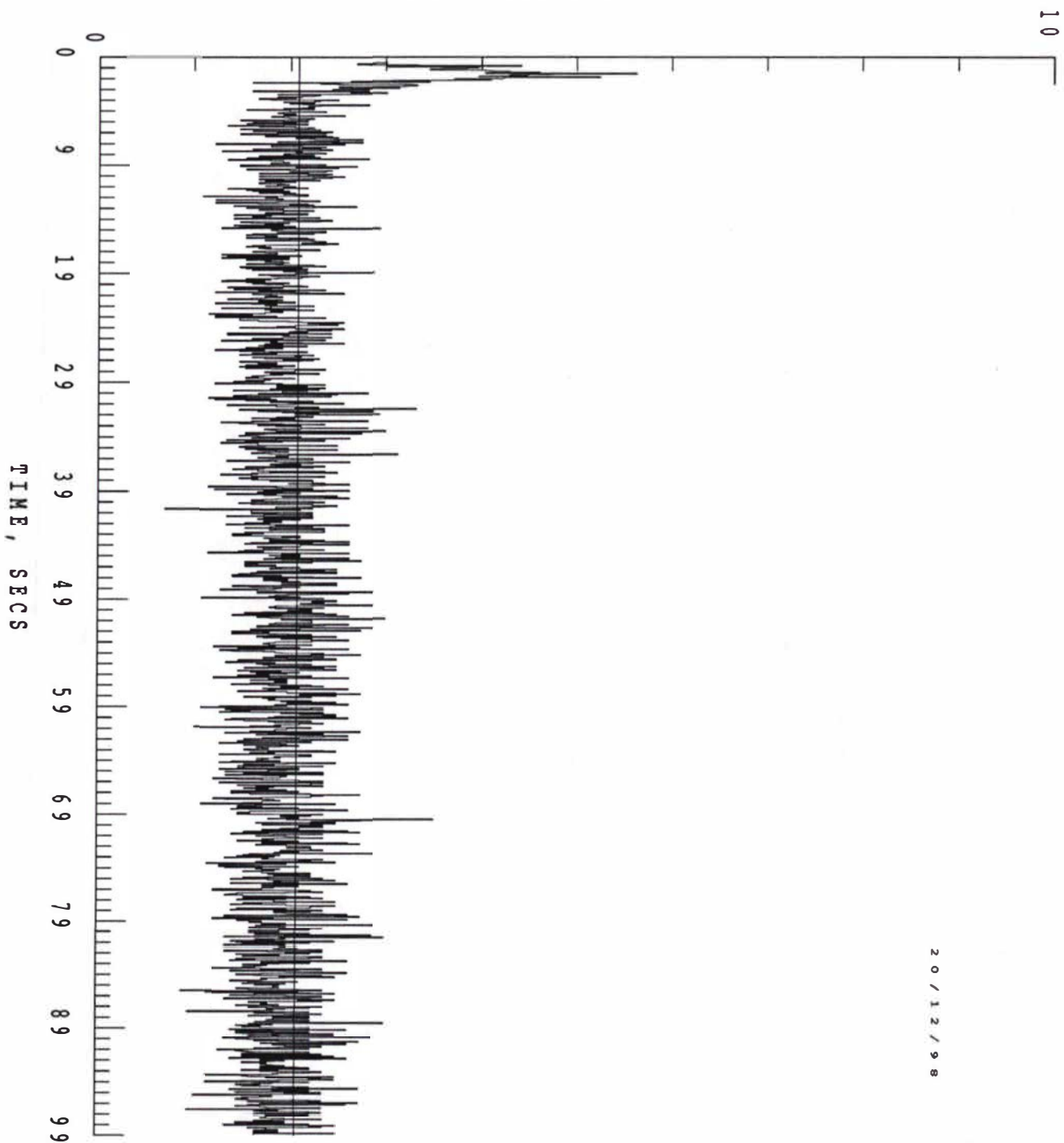
KONUS

19/12/98

65094.764

50 - 200 keV

COUNTS/0.064 S



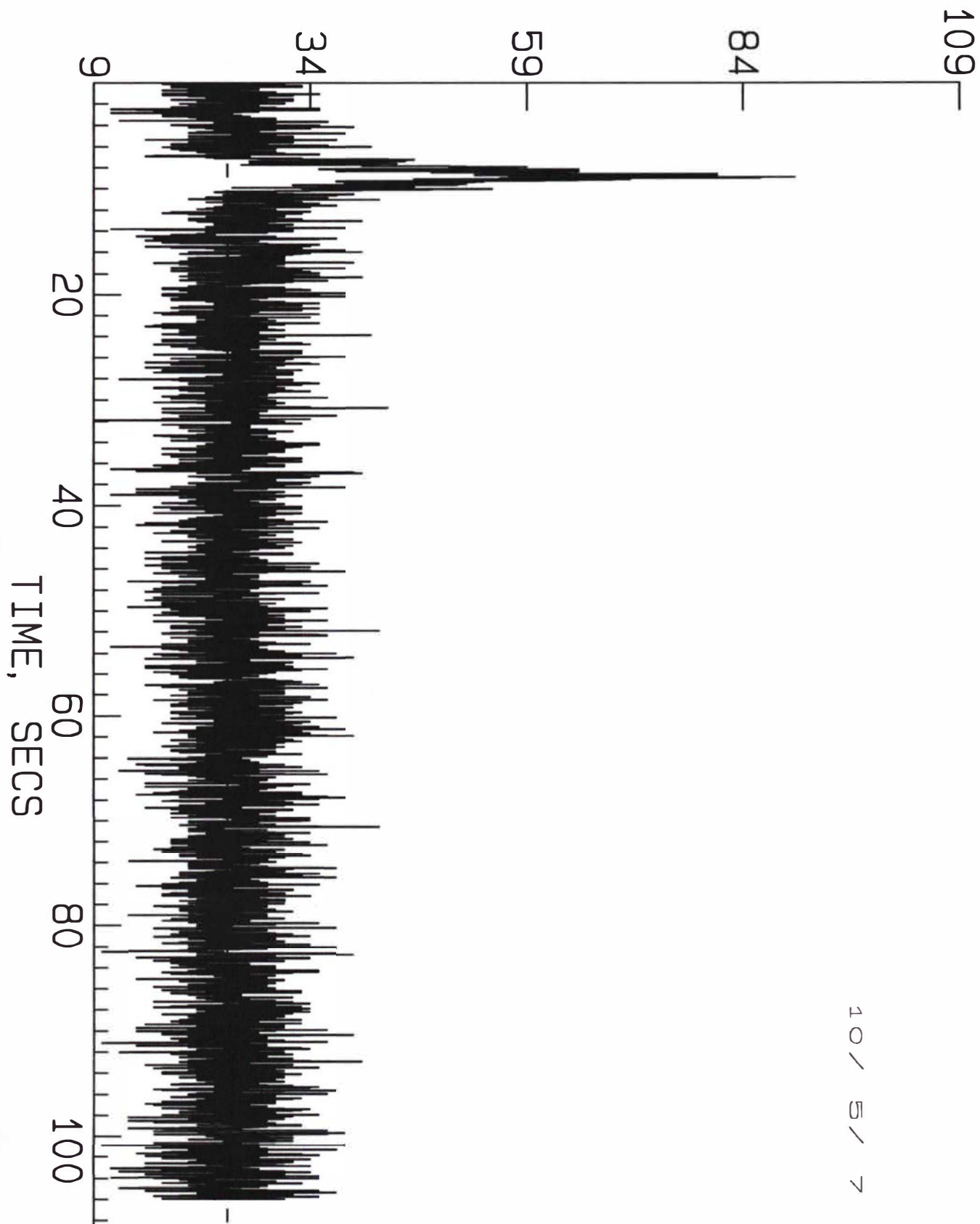
20/12/98

SAX GRBM

19/12/98 65080.710

40- 700 keV

COUNTS/0.031 S



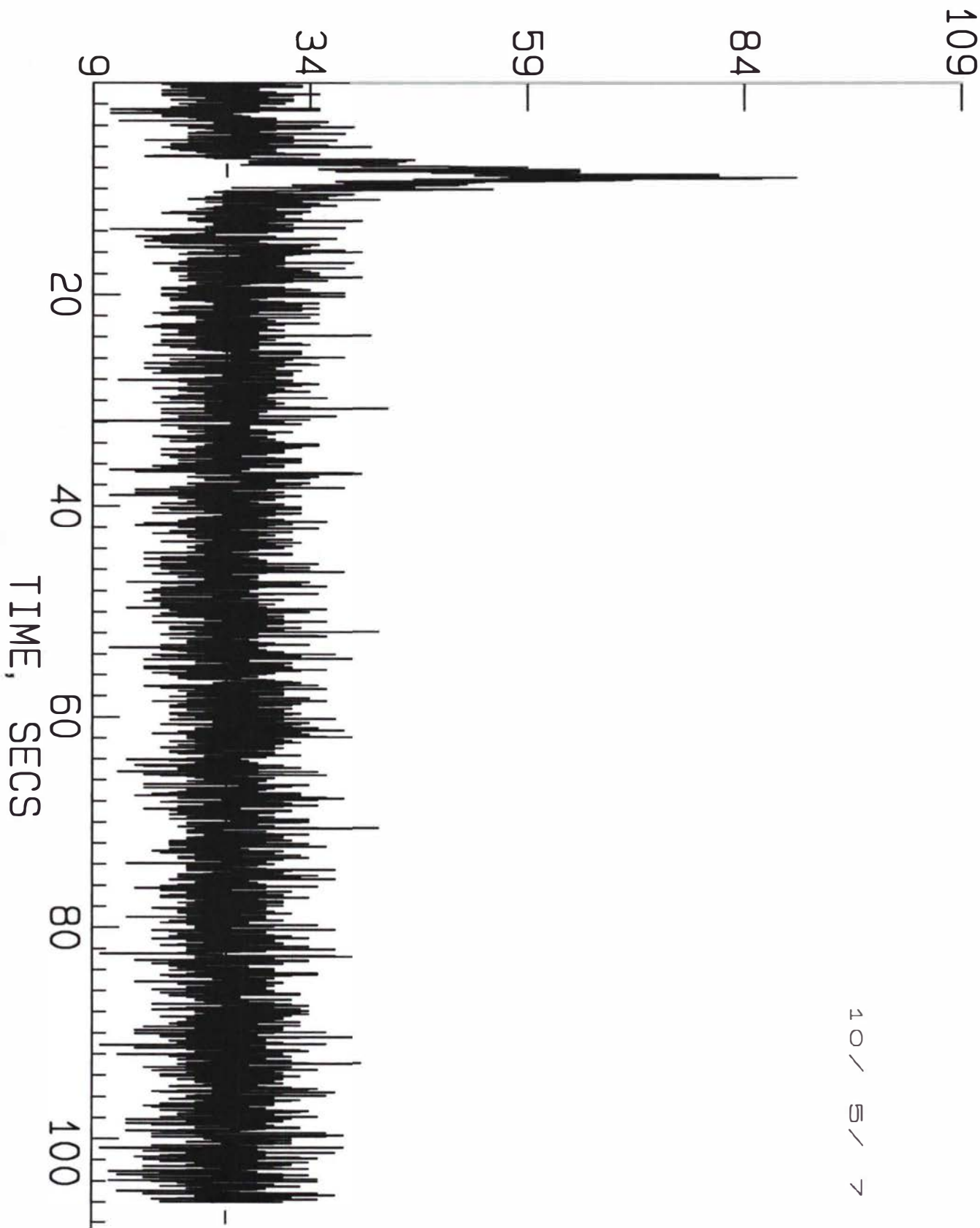
Wrong time

10 / 5 / 7

SAX GRBM

19/12/98 65088.710
40- 700 keV

COUNTS/0.031 S



Wrong time

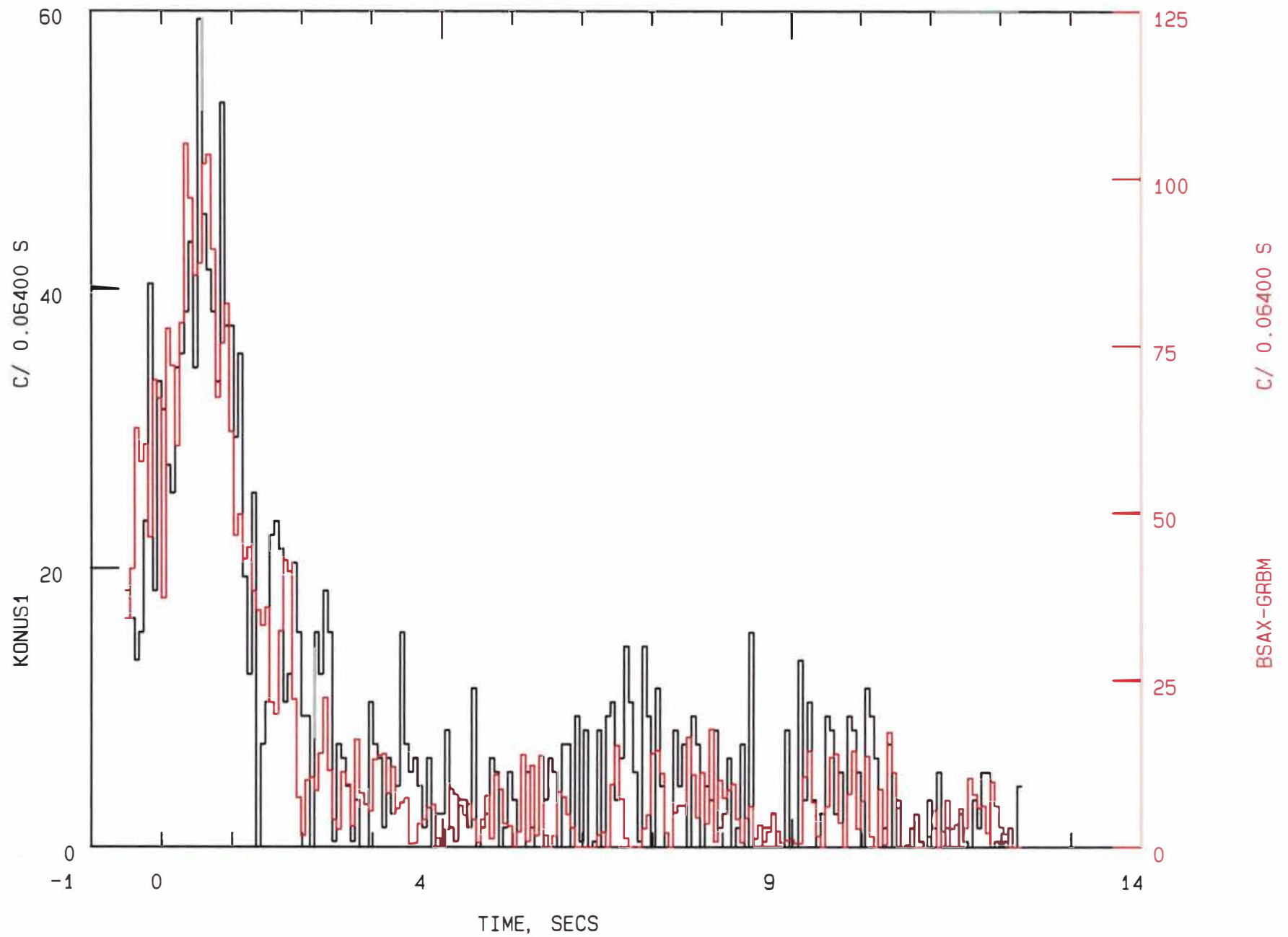
KONUS1

-BSAX-GRBM CORRELATION

19/12/98

65094.764

10/ 5/ 7



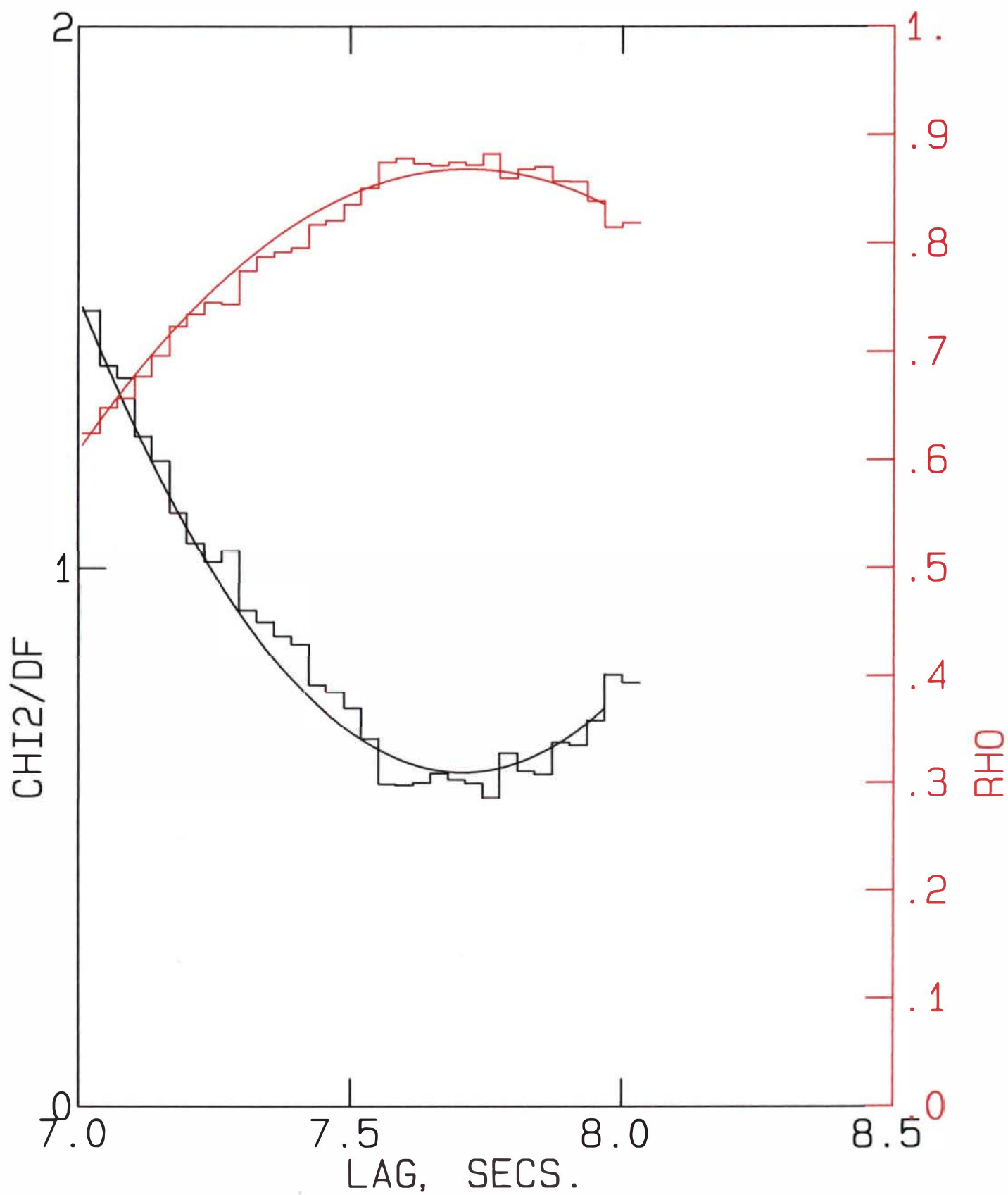
KONUS1

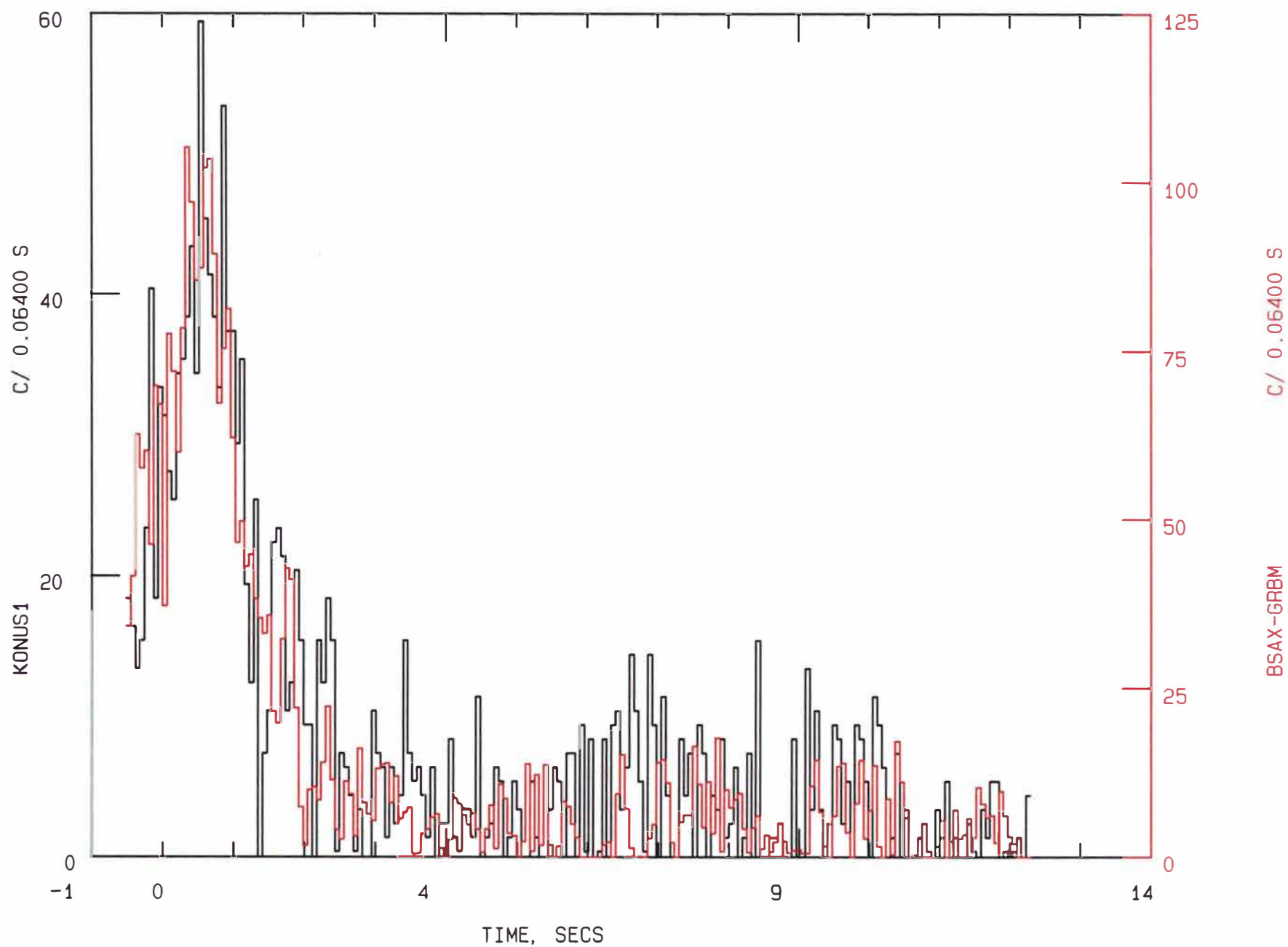
-BSAX-GRBM

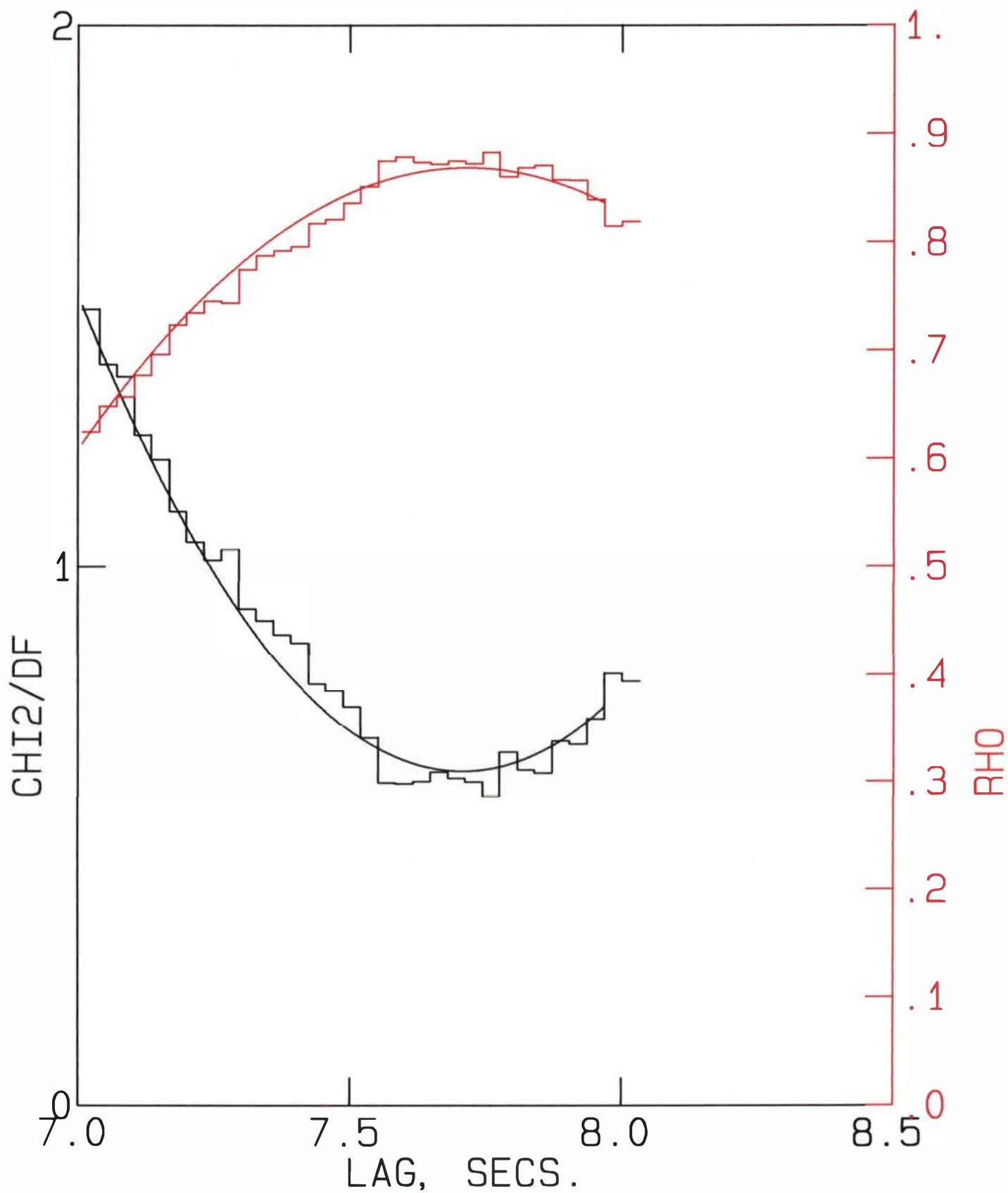
CORRELATION

19/12/98

65094.764







KONUS 19981219 65094

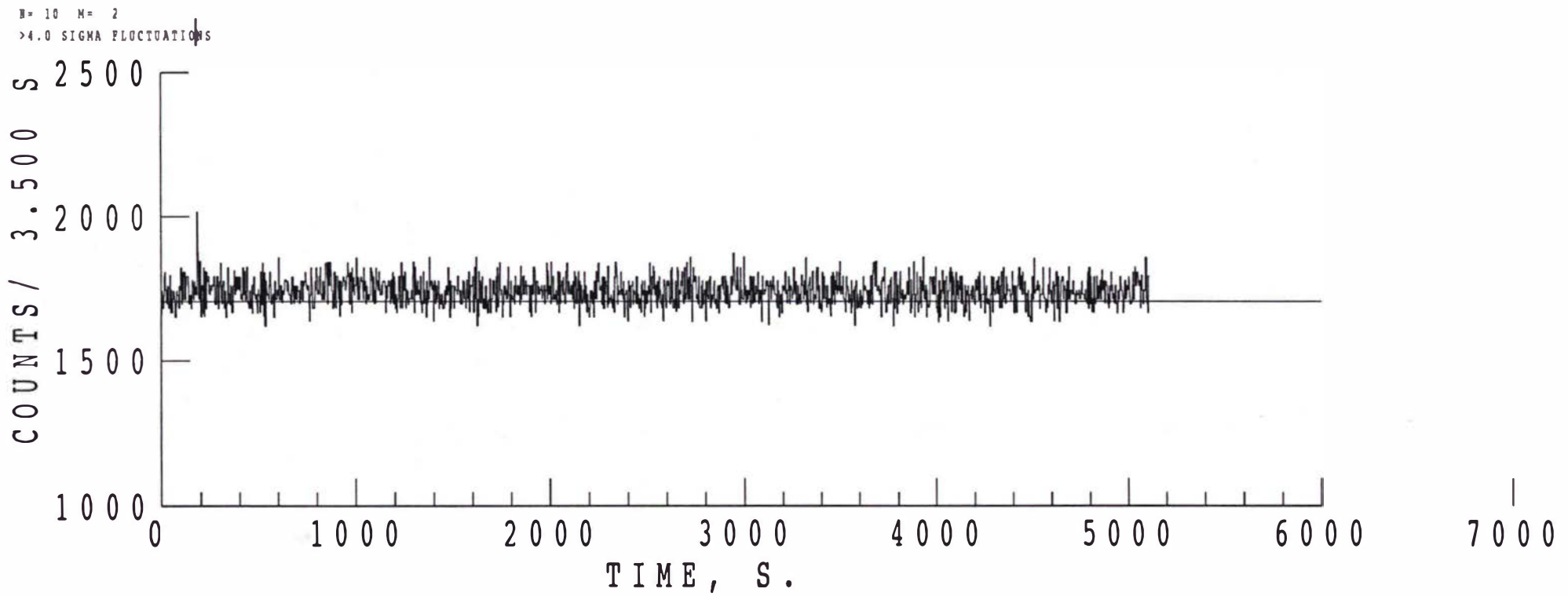
ULYSSES RT

21 / 12 / 98

19/12/98 62532.016 s

0.250 S INTERVALS REGROUPED BY 14

0 - 0 keV

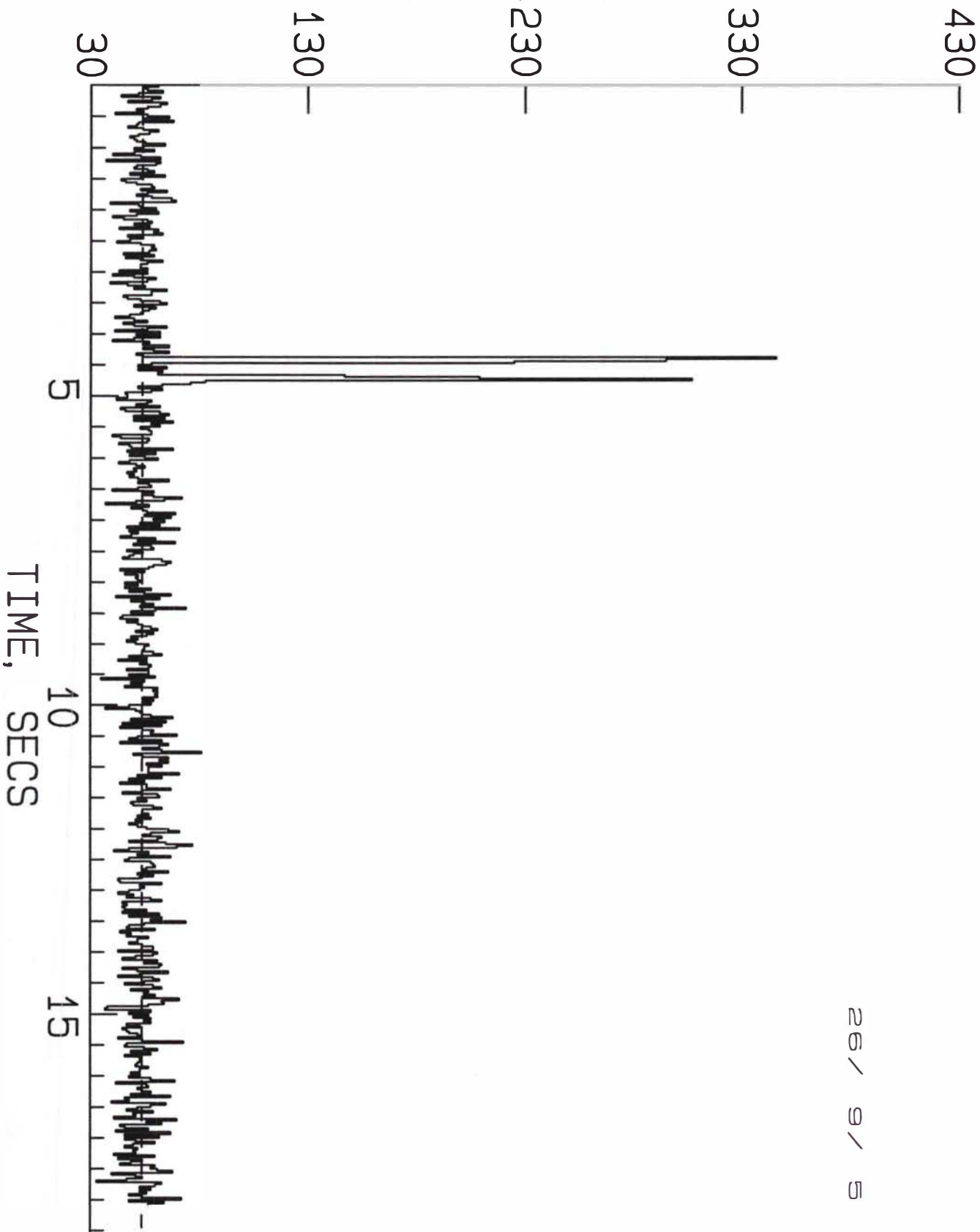


SAX GRBM

19/12/98 69931.000

40- 700 keV

COUNTS/0.031 S



GRBM 19981219 69203

ULYSSES RT

09/05/07

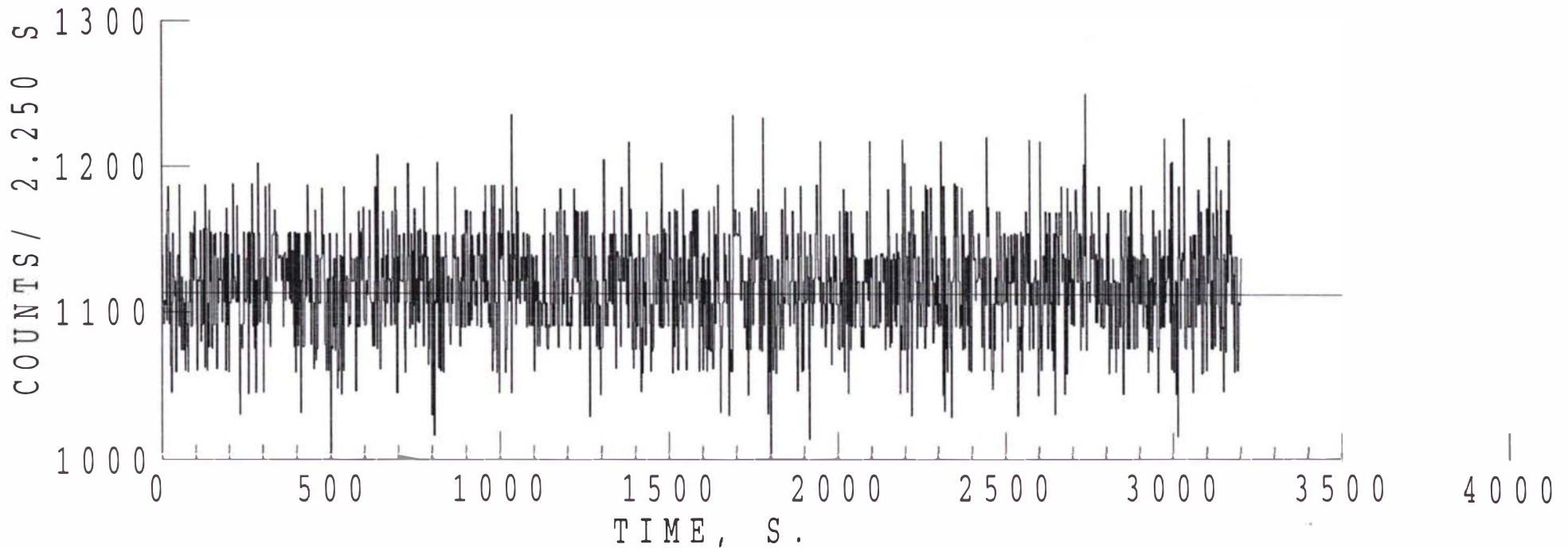
19/12/98 67608.062 s

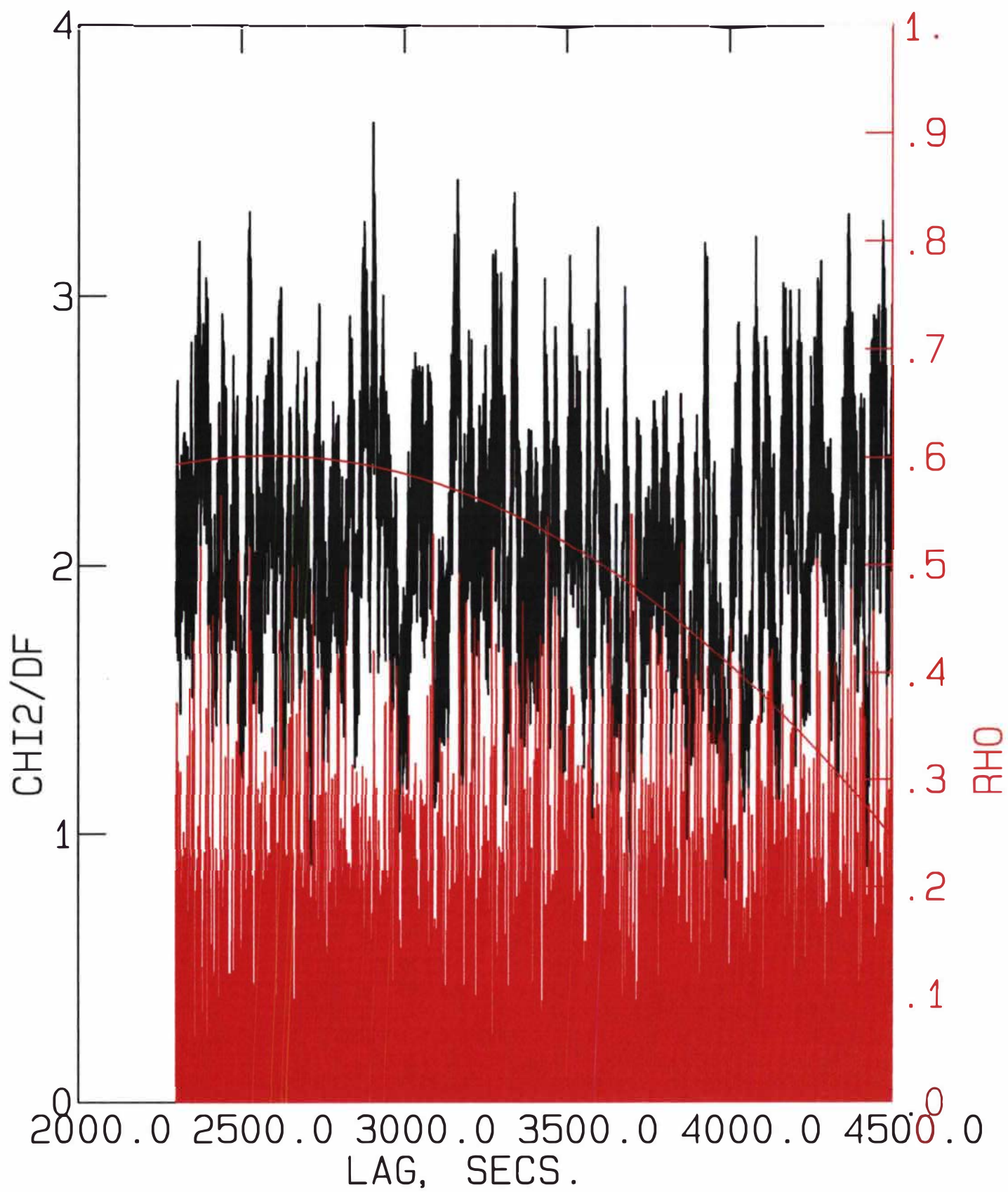
0.250 S INTERVALS REGROUPED BY 9

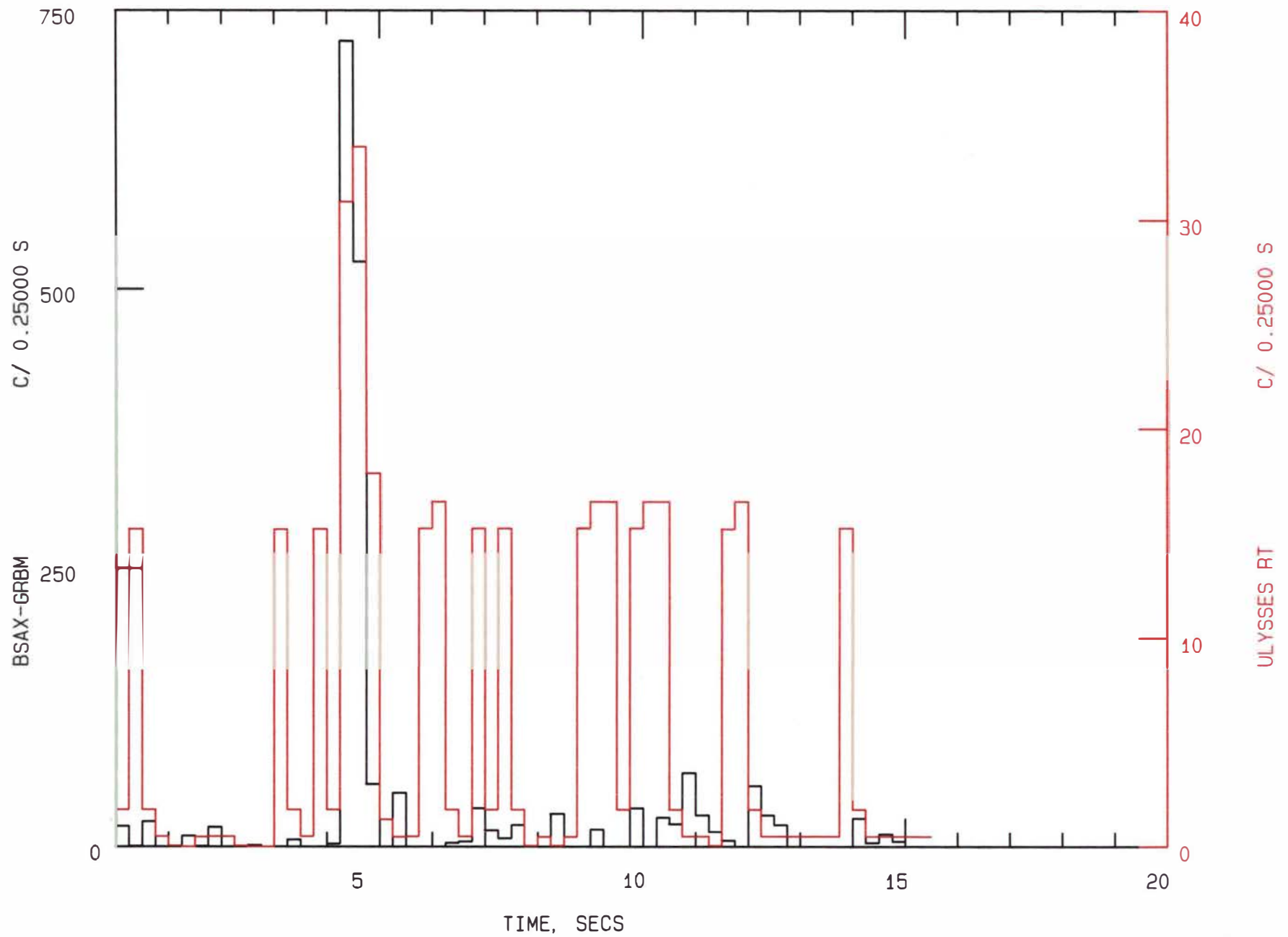
0 - 0 keV

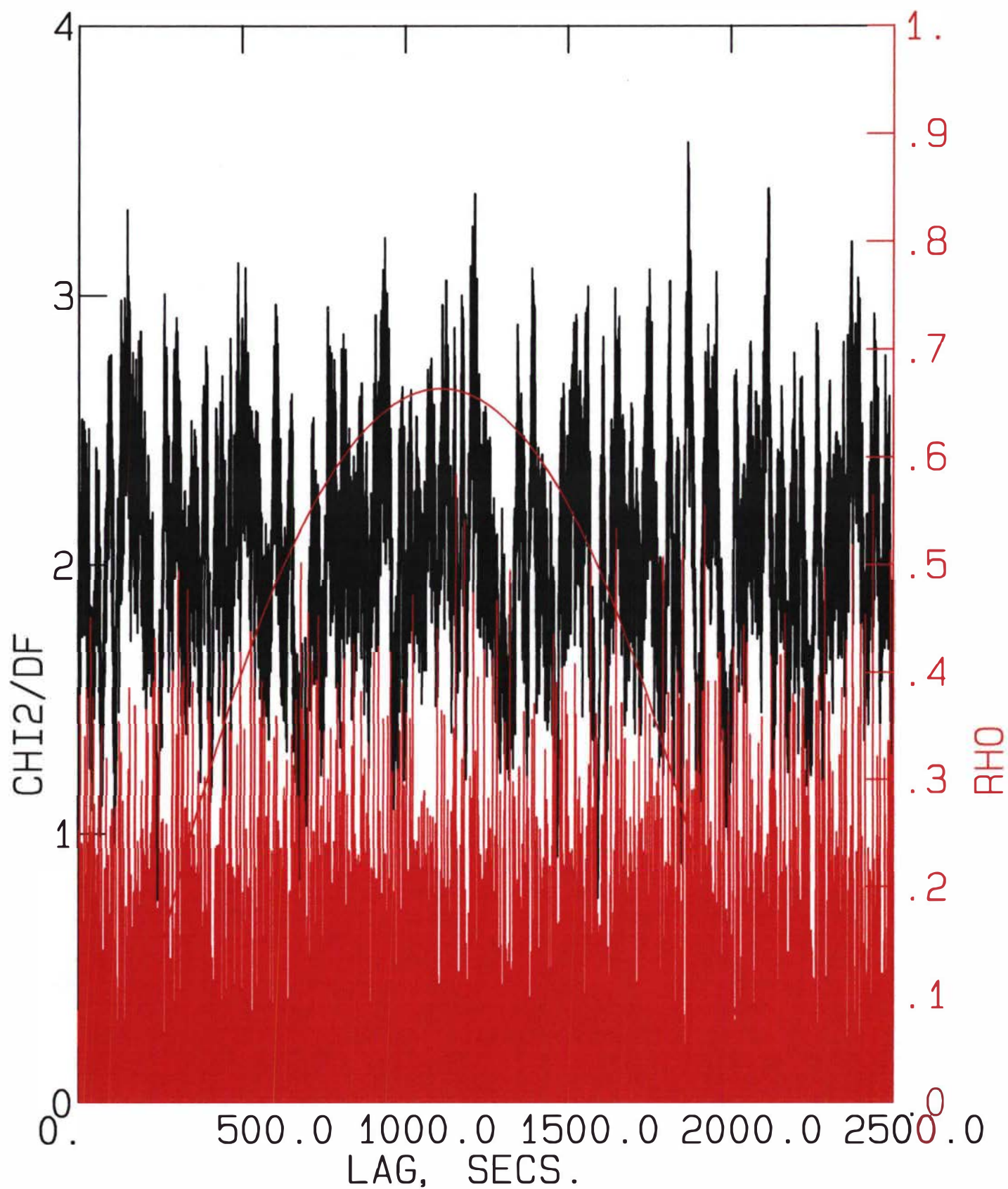
N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

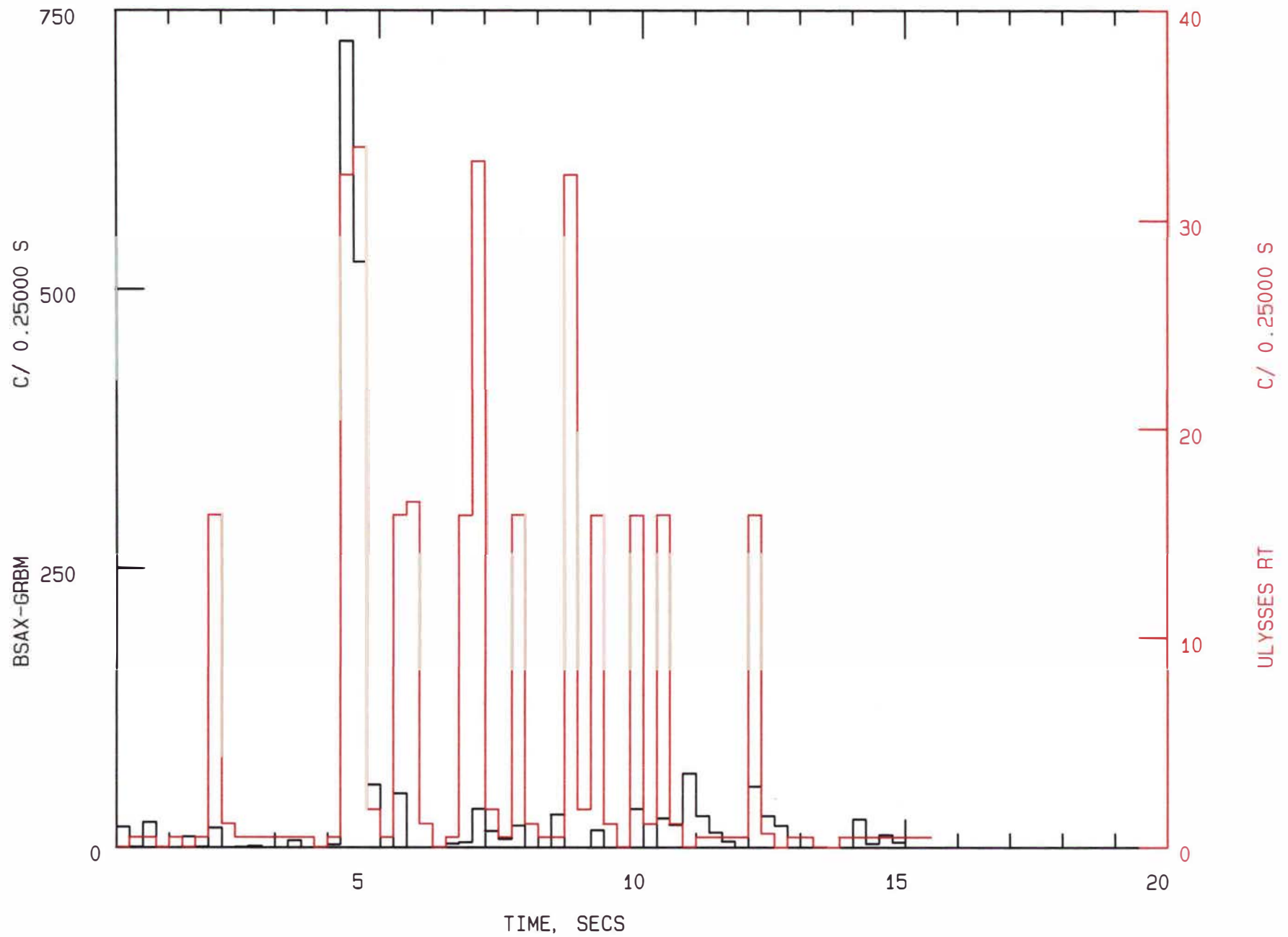
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





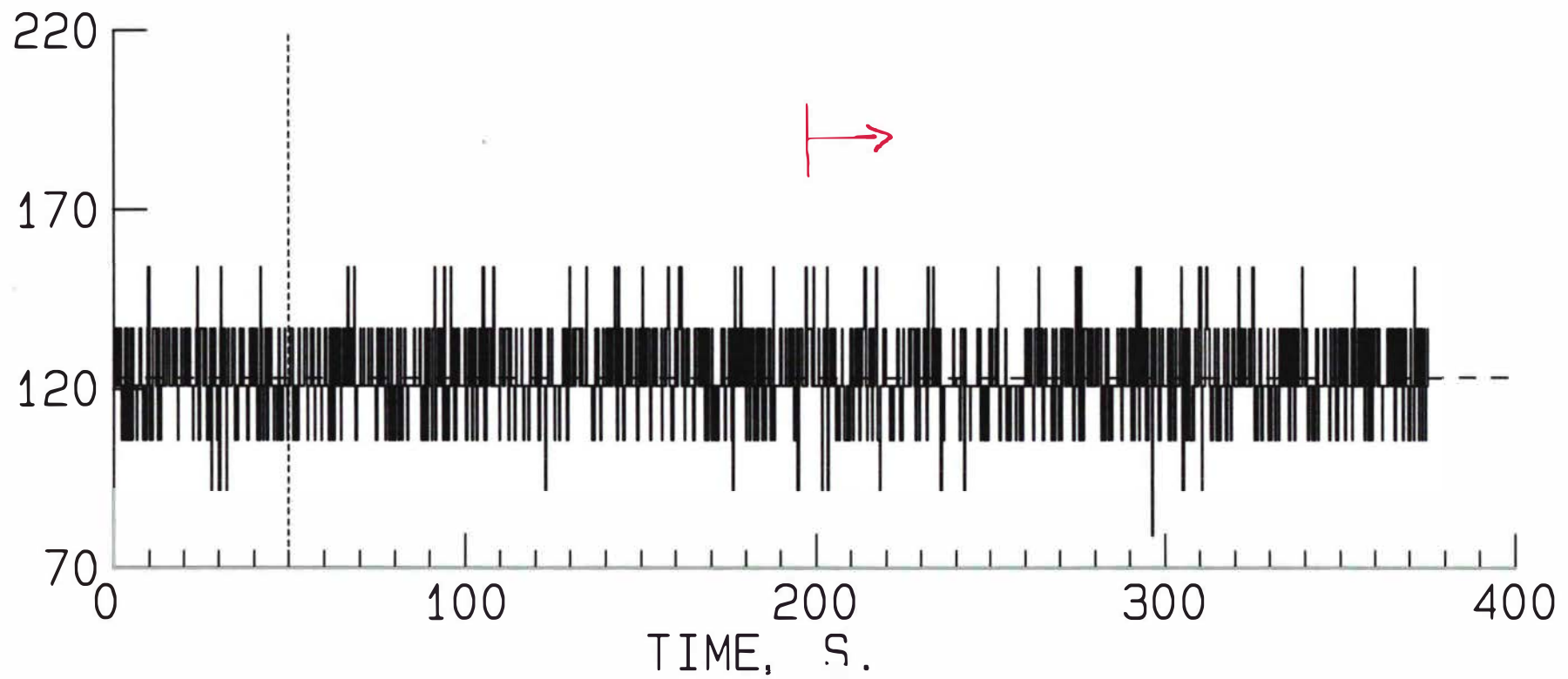






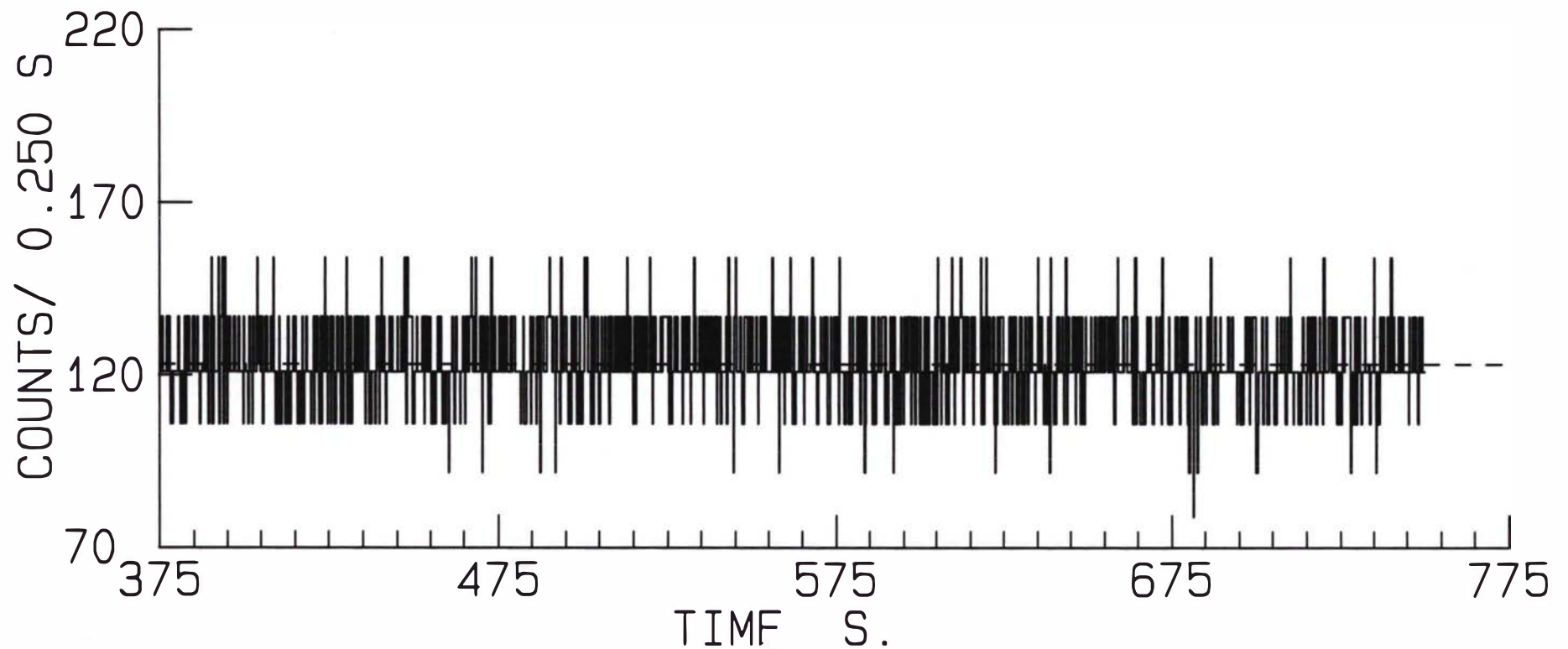
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



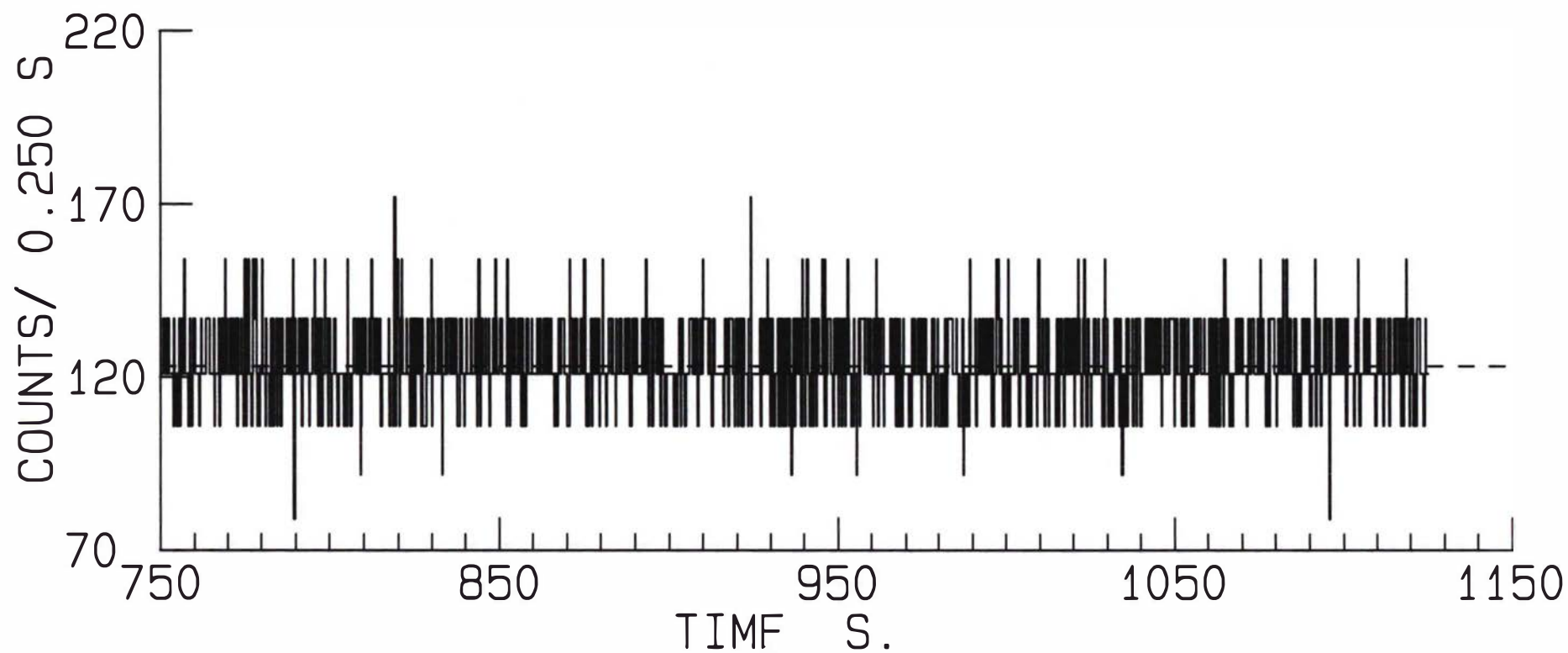
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



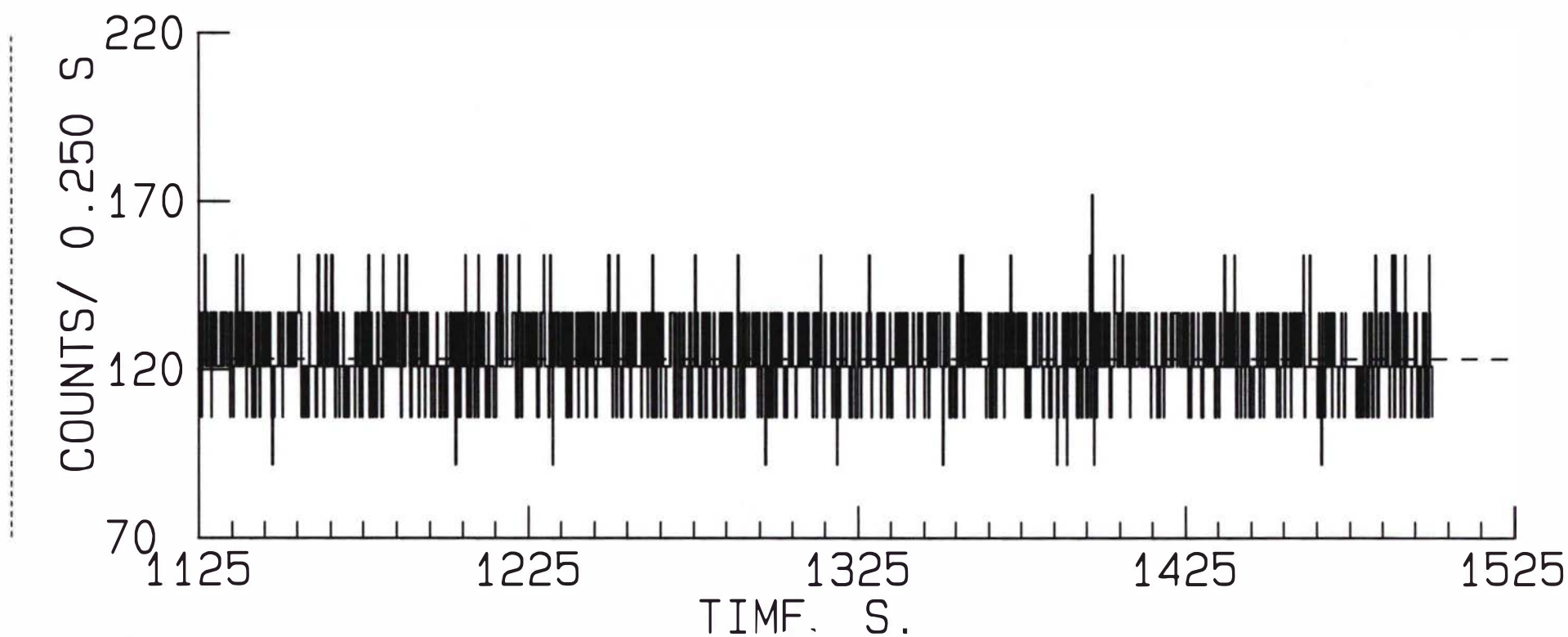
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



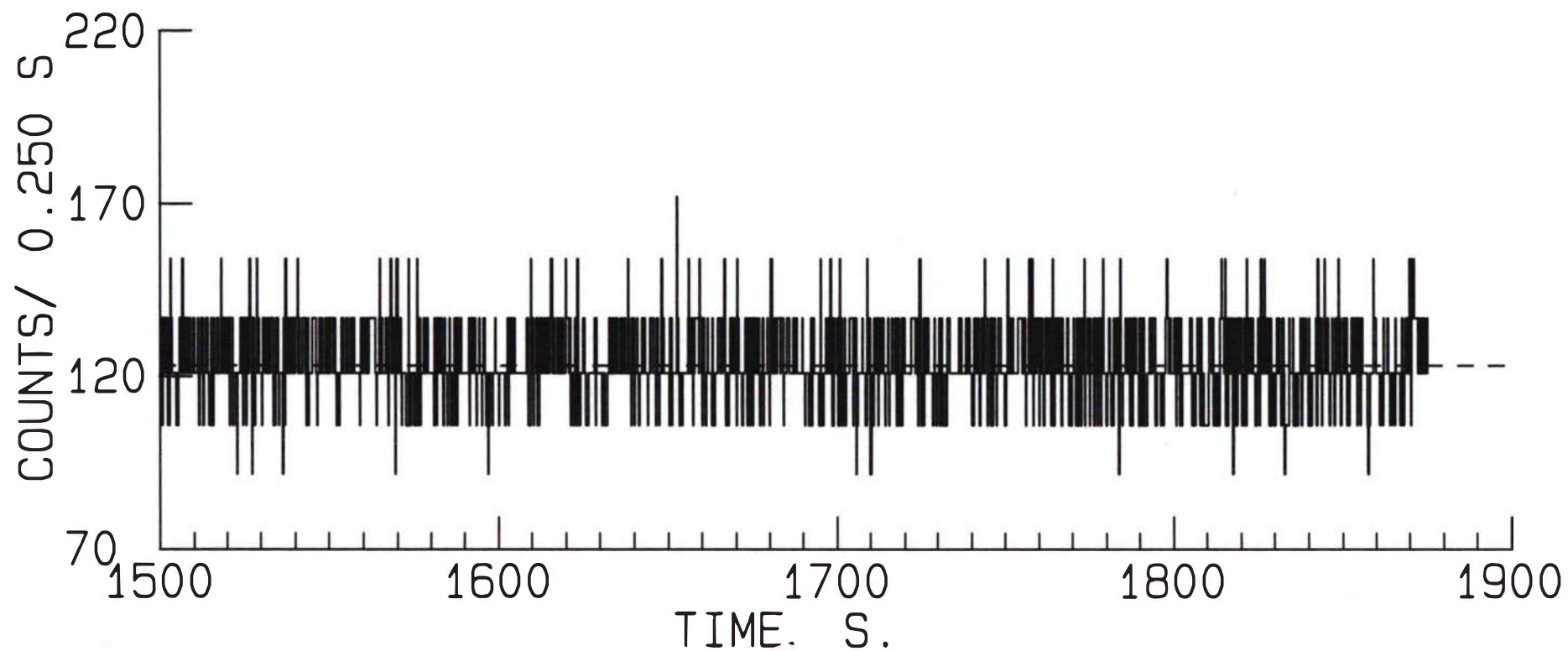
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



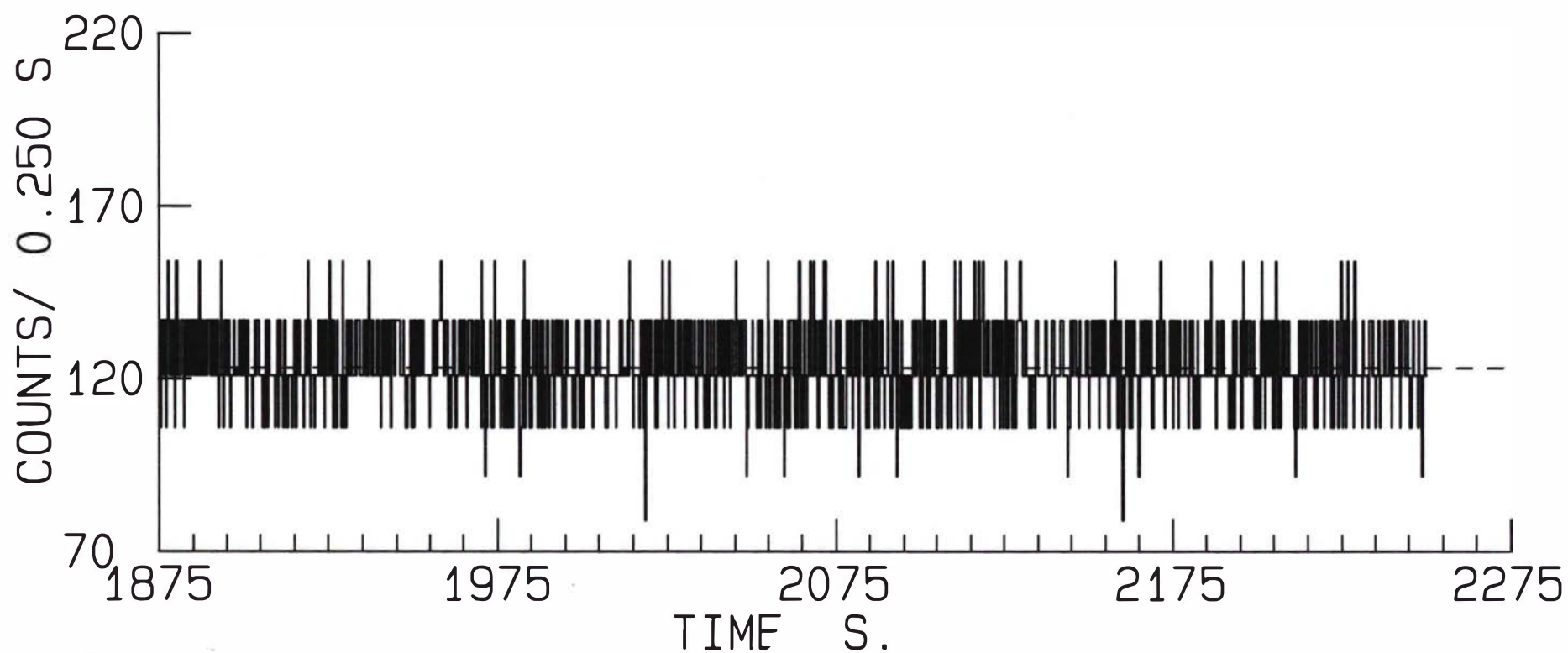
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

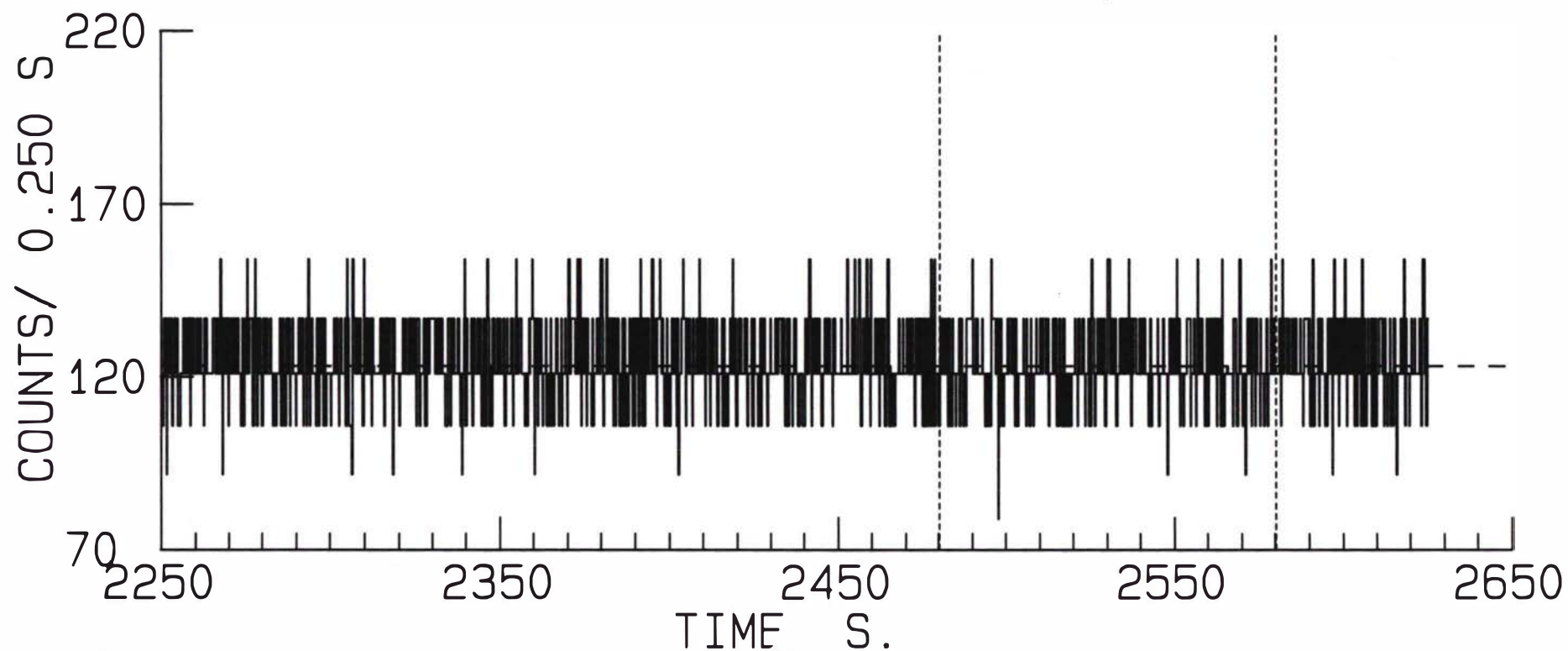
9 / 5 / 7



ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

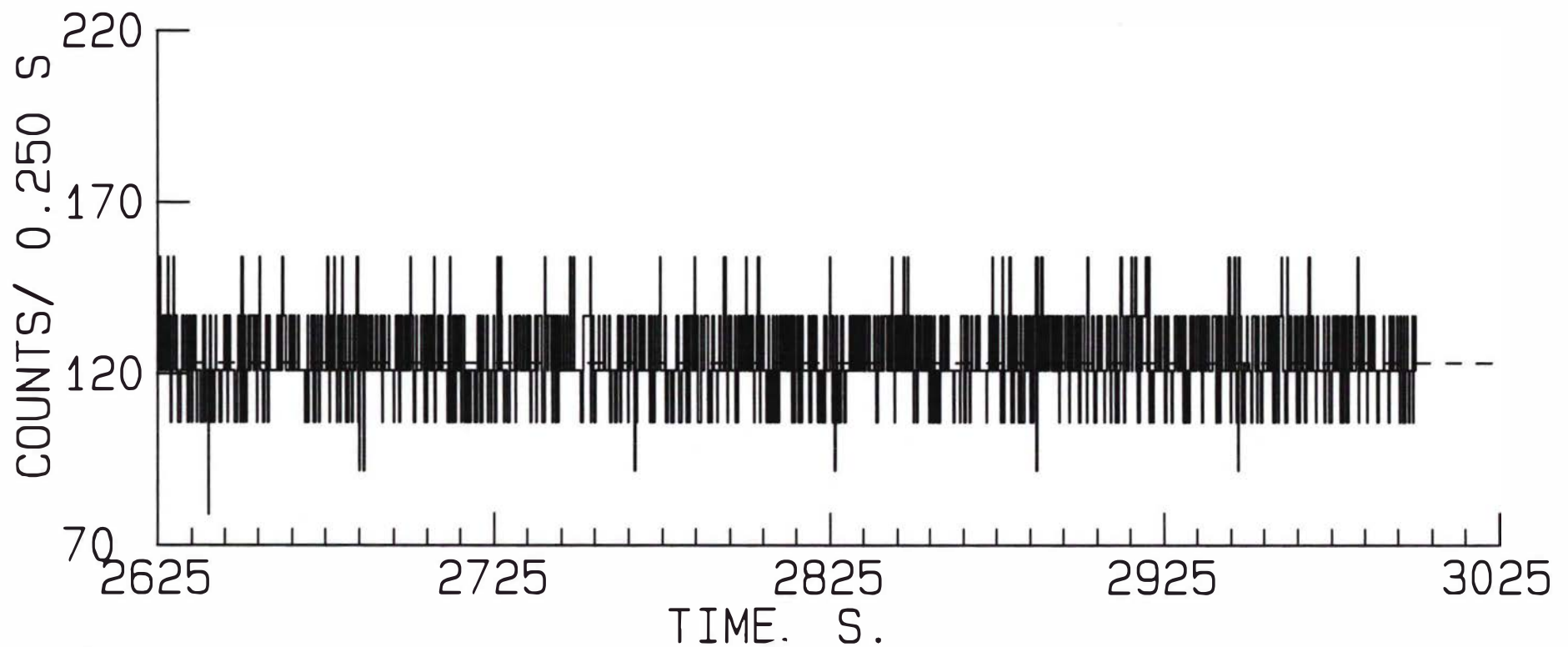
9 / 5 / 7

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



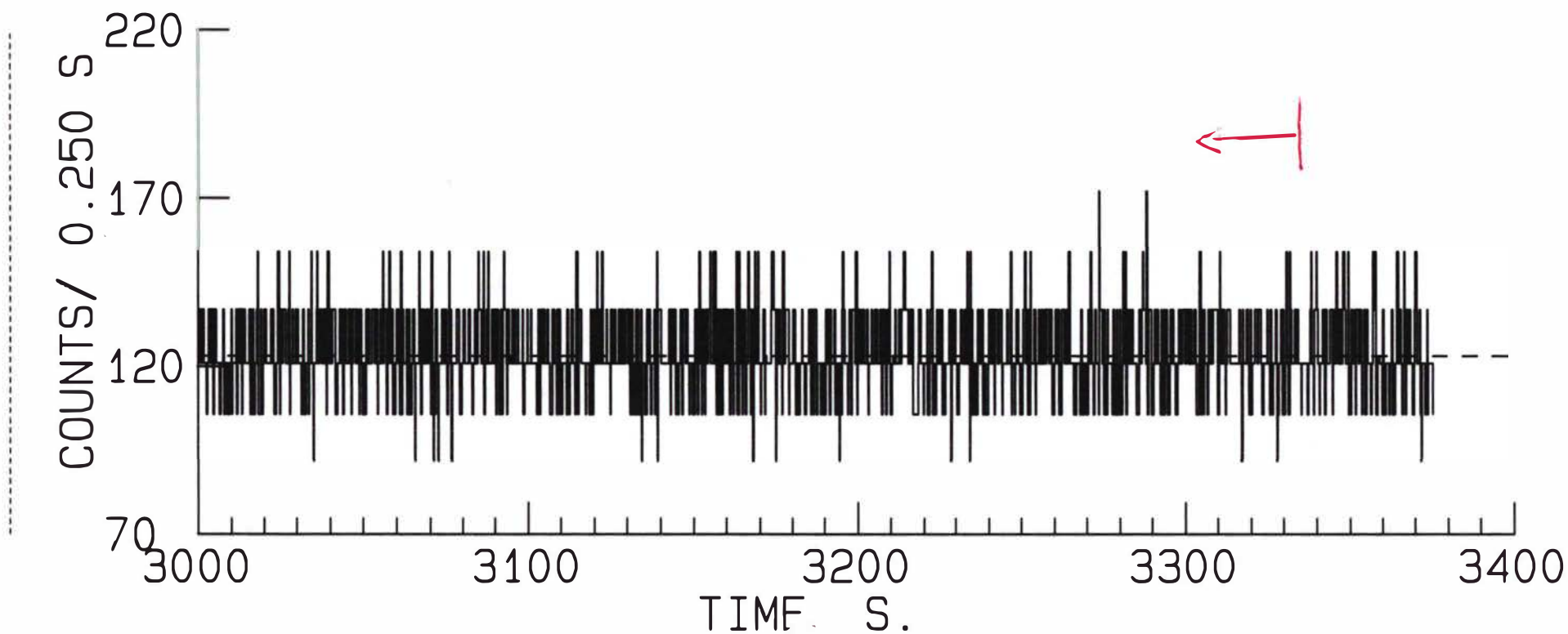
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



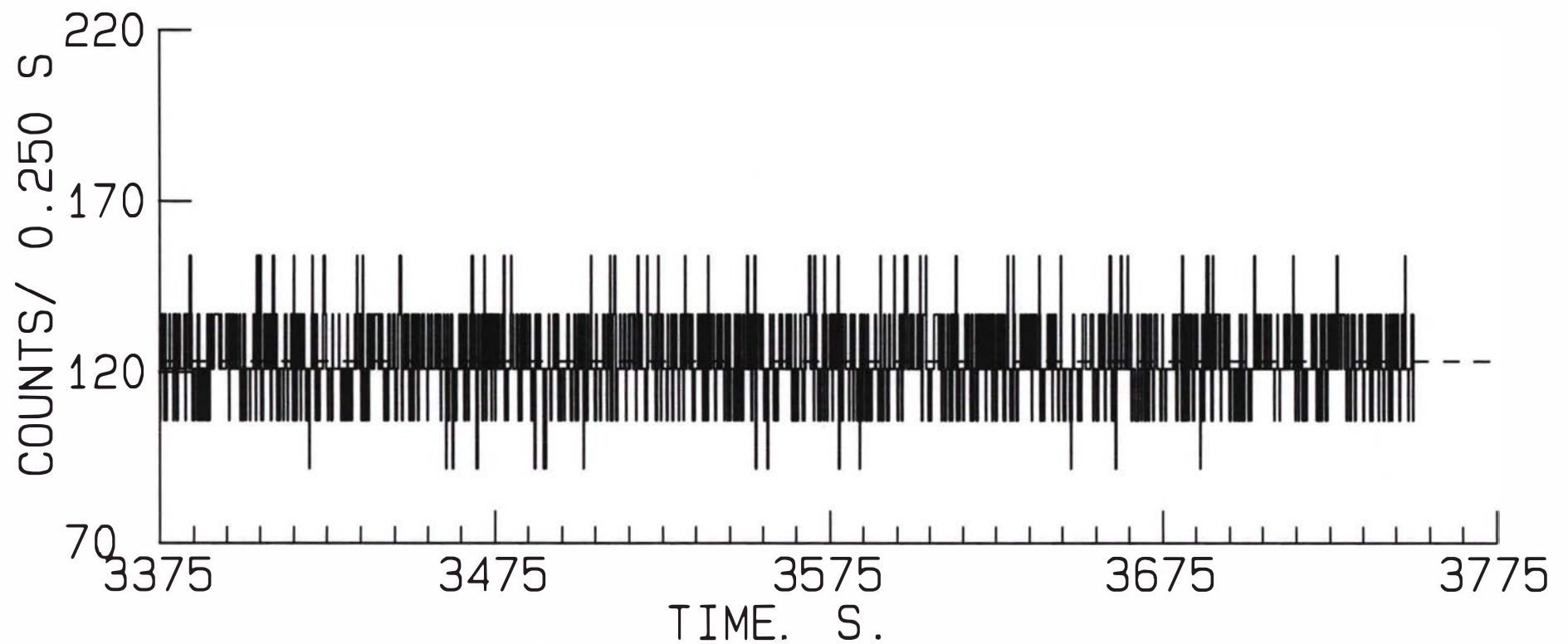
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



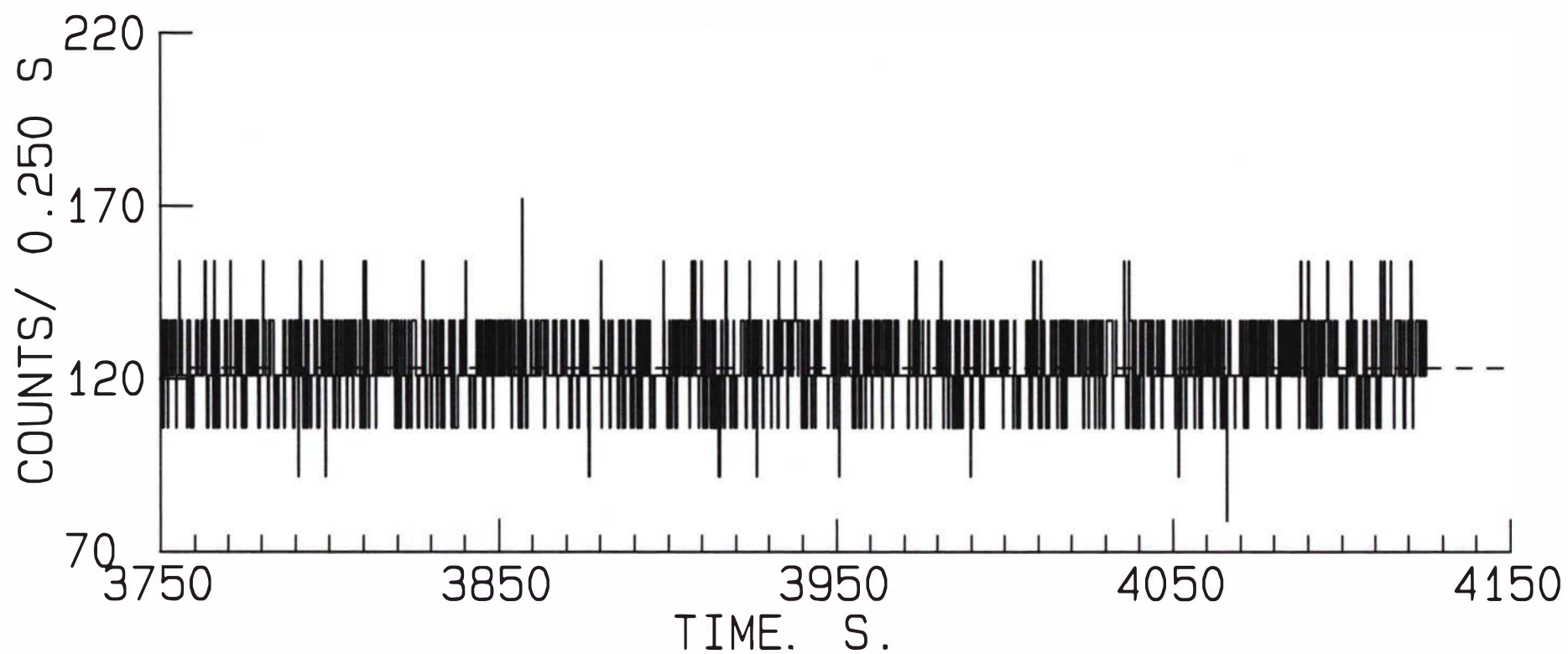
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



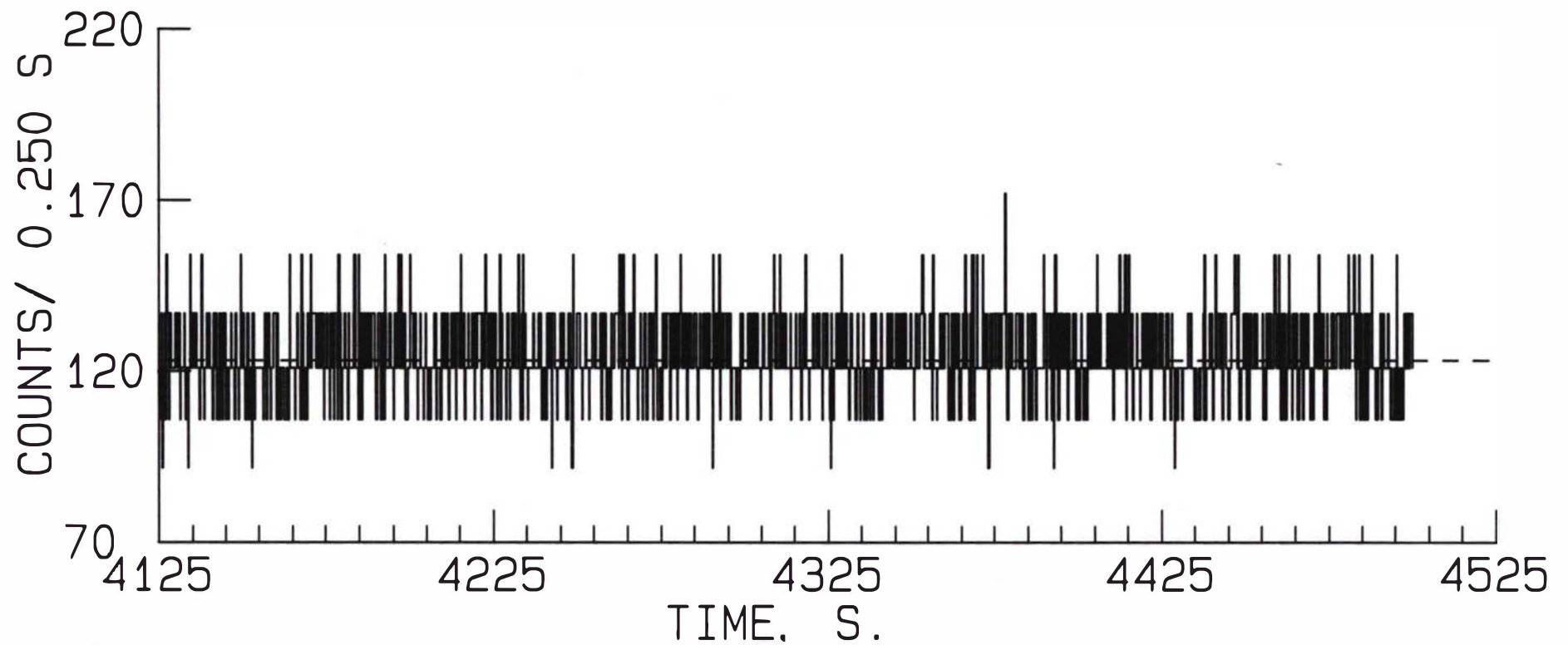
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



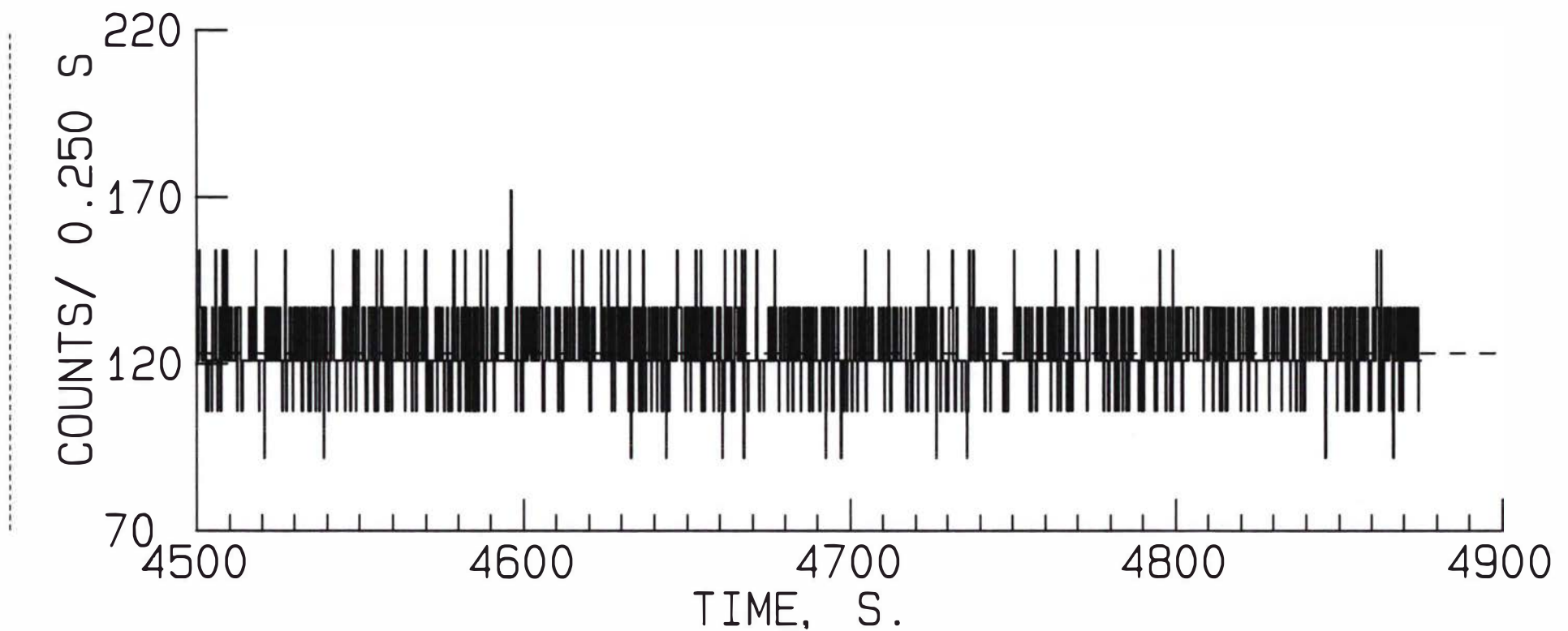
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



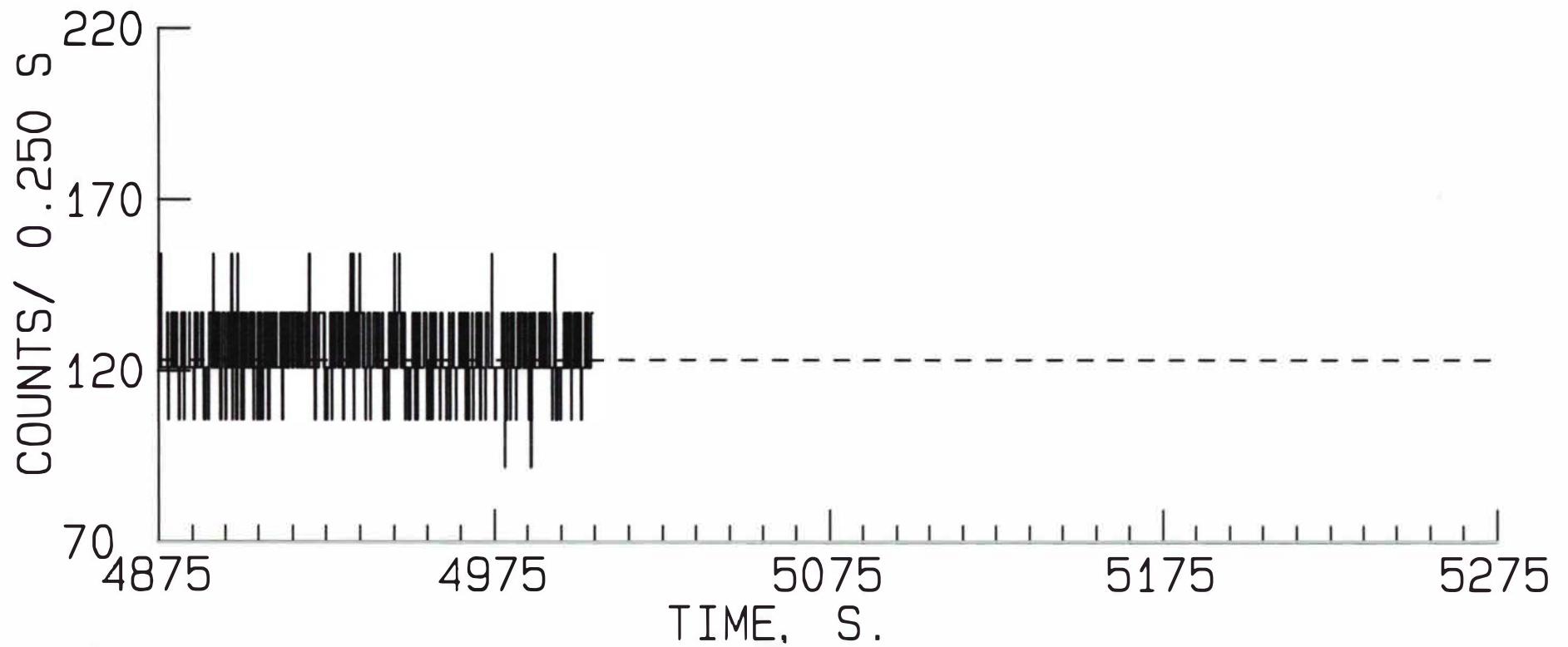
ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



ULYSSES RT
19/12/98 67428.062 s
22- 149 keV

9 / 5 / 7



SAX GBM

HUS DATA

19 / 07 / 05

ULYSSES RT

19 / 12 / 98 67428.062 s

0.250 S INTERVALS REGROUPED BY 14

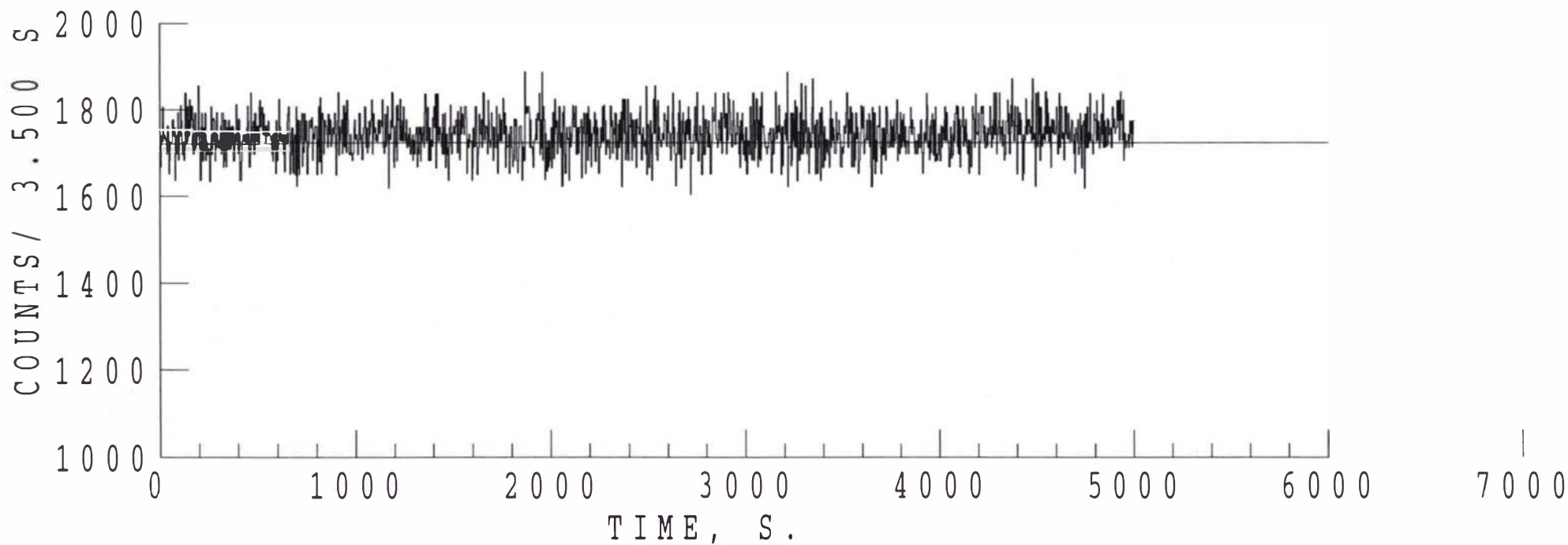
0 - 0 keV

N= 10 M= 10

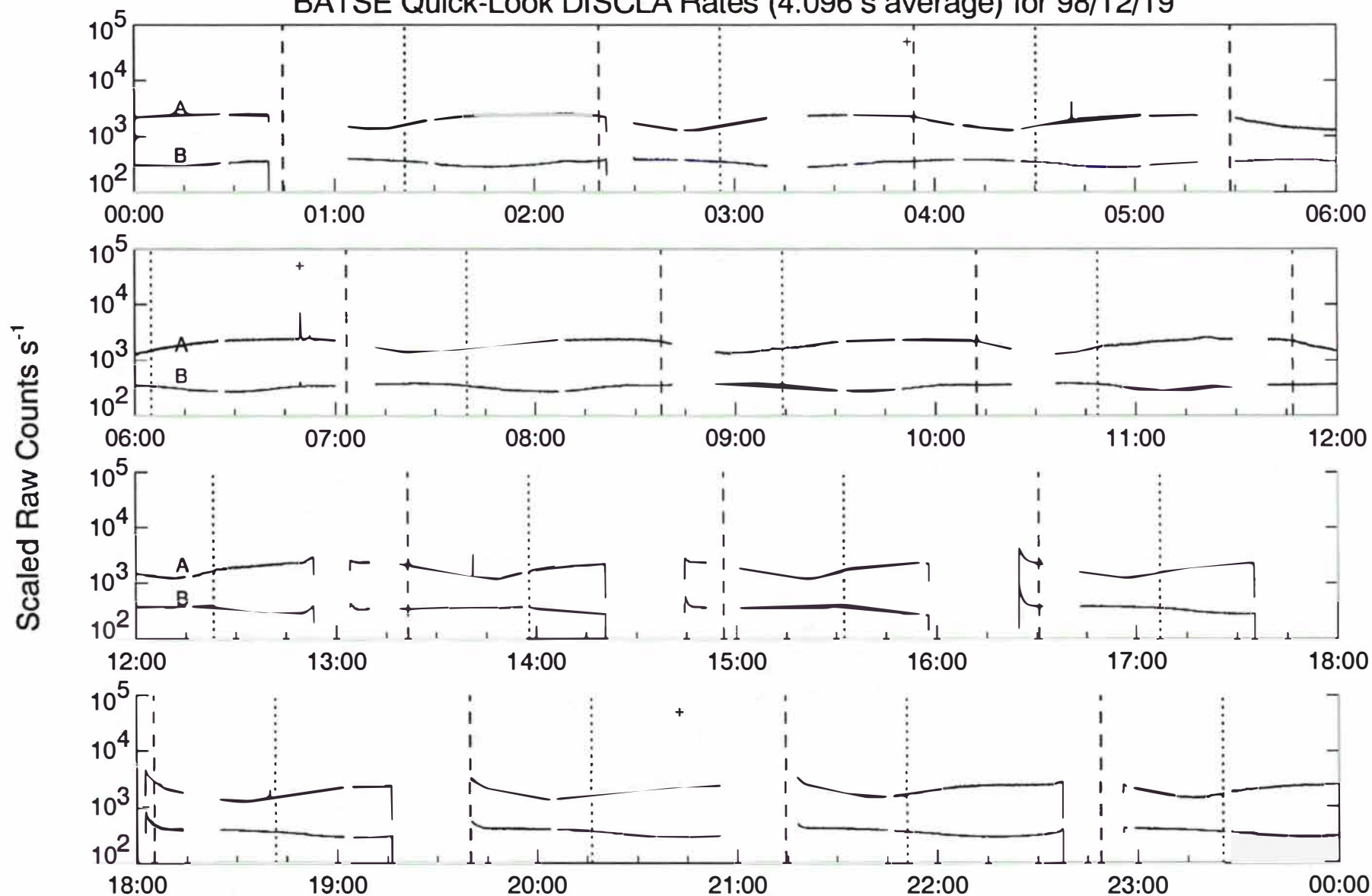
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/19

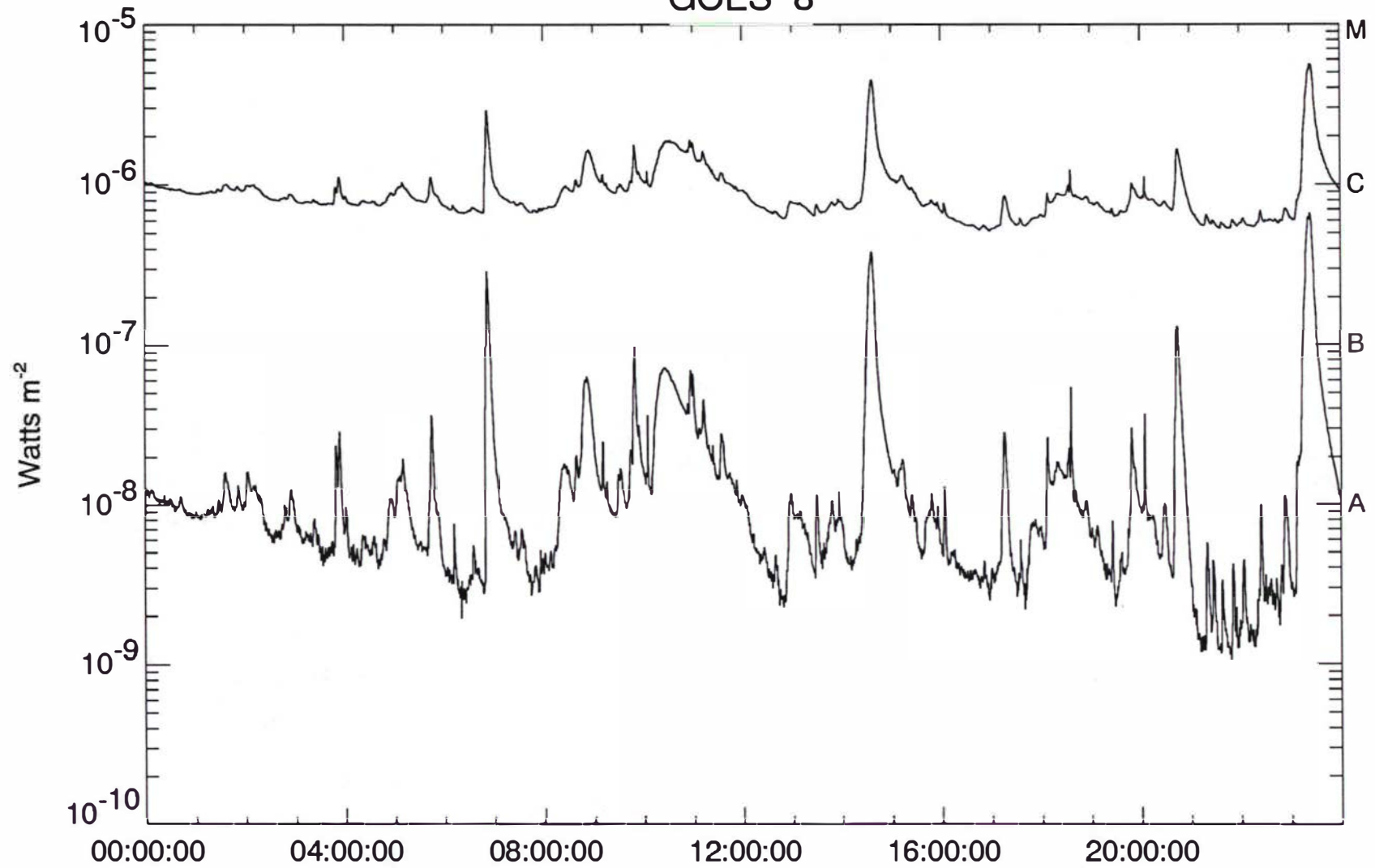


Current Time: 98/12/23, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



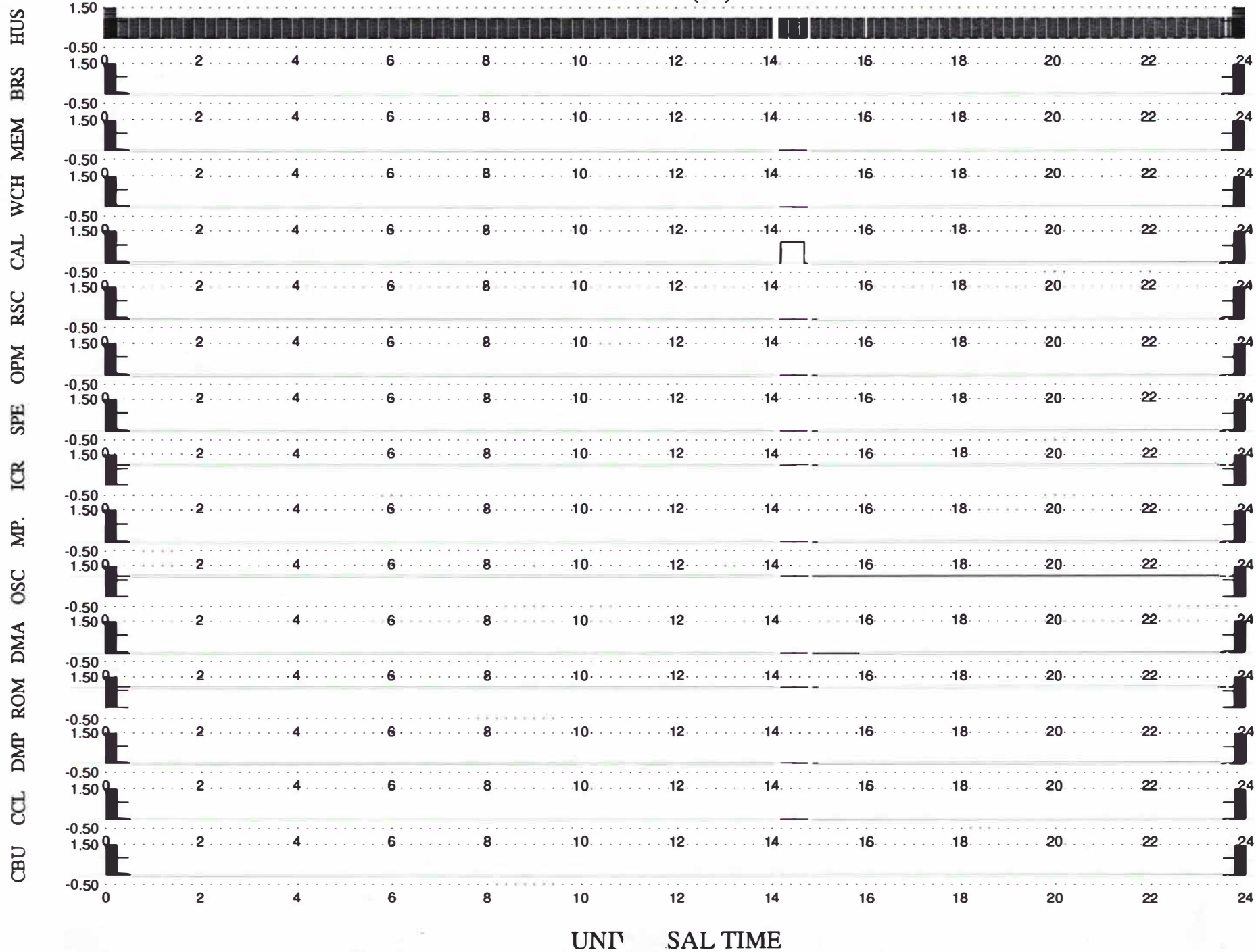
Data Start: 98/12/19, 0000:00

Plot created: 98/12/23, 1010

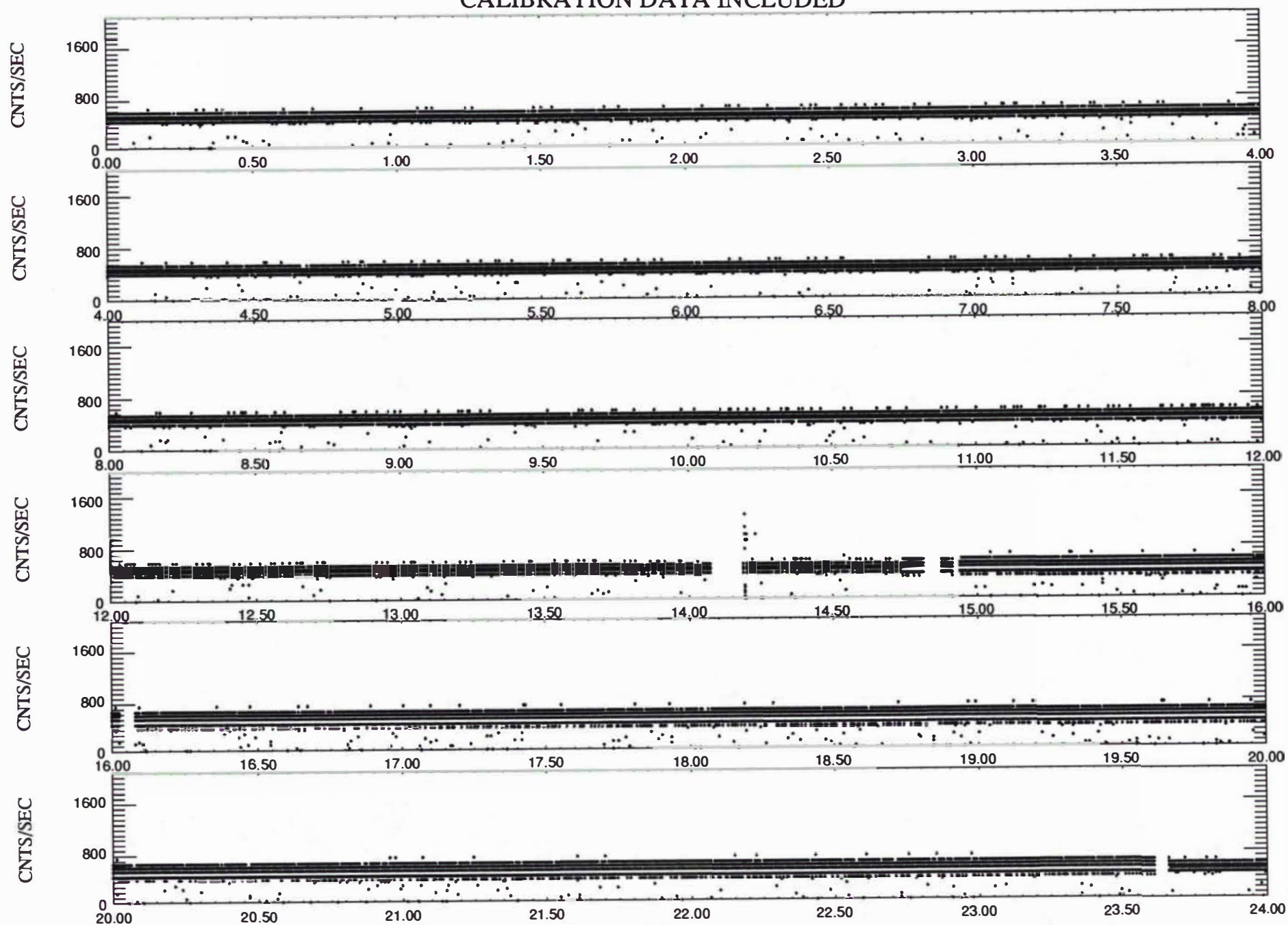
Channel 1 (1.0 - 8.0 Angstroms)
Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

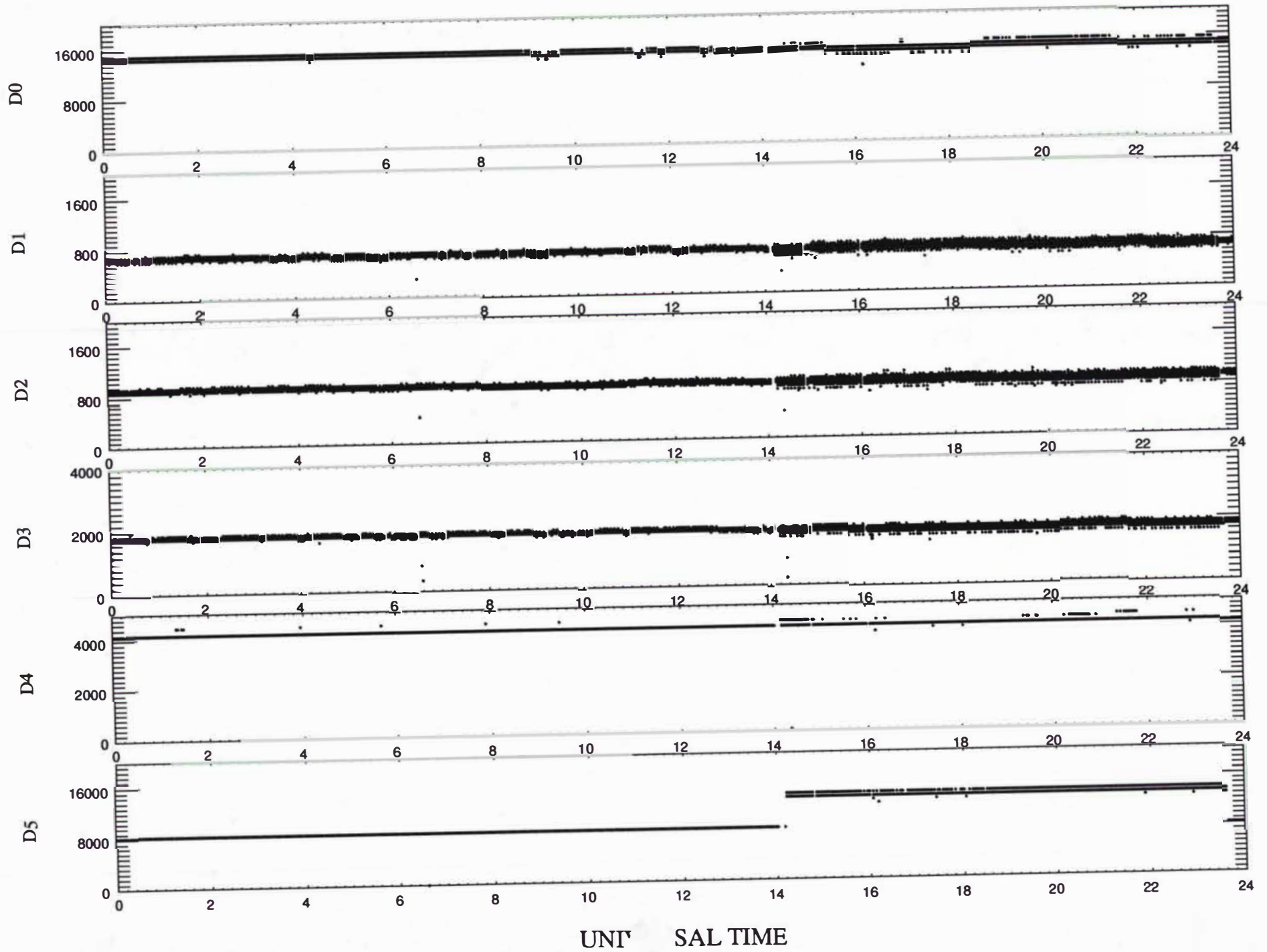
NO BURST (12)



CALIBRATION DATA INCLUDED



UNIT SAL TIME



Date: Nov 11 '09

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

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- ☐ Was CHECKMO run to eliminate data gaps?
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- ☐ For cruise phase data (April – October 2001), was the updated data used? (Old data has timing errors)
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- ☐ $\Sigma 3\Delta t$'s calculated, and/or BMAPSUM executed?

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- ☐ 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

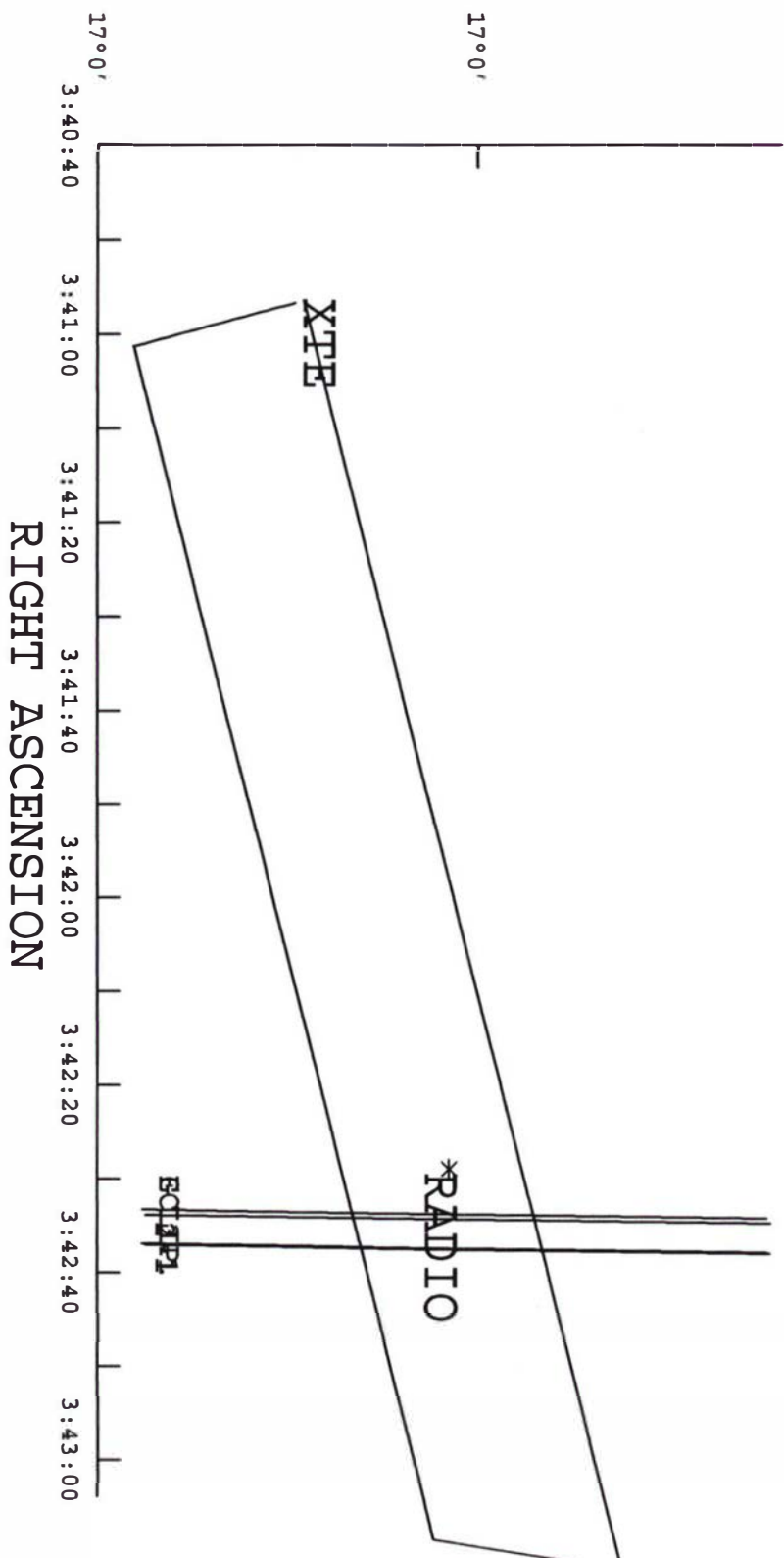
1 ULYSSES

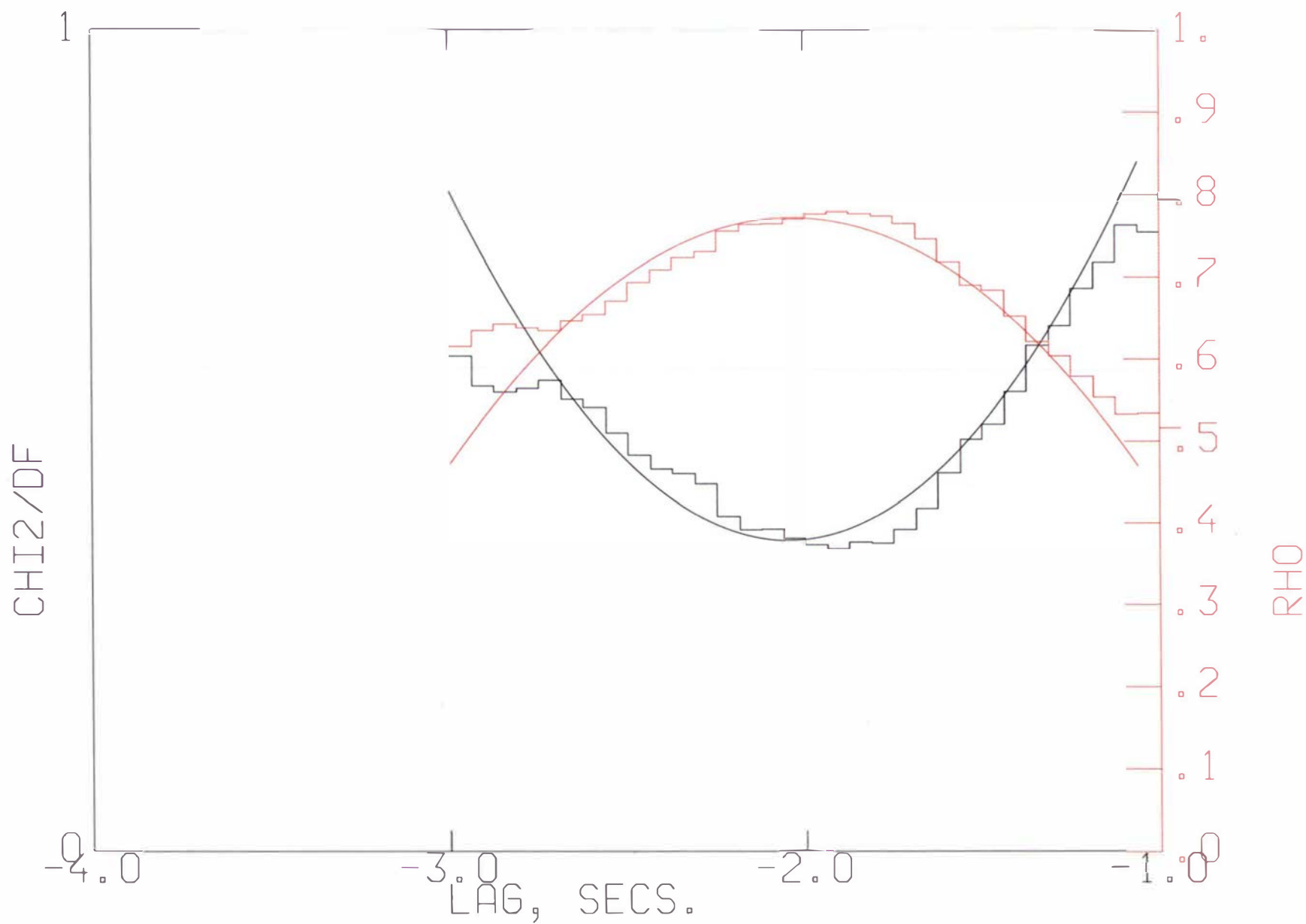
2 KONUS1

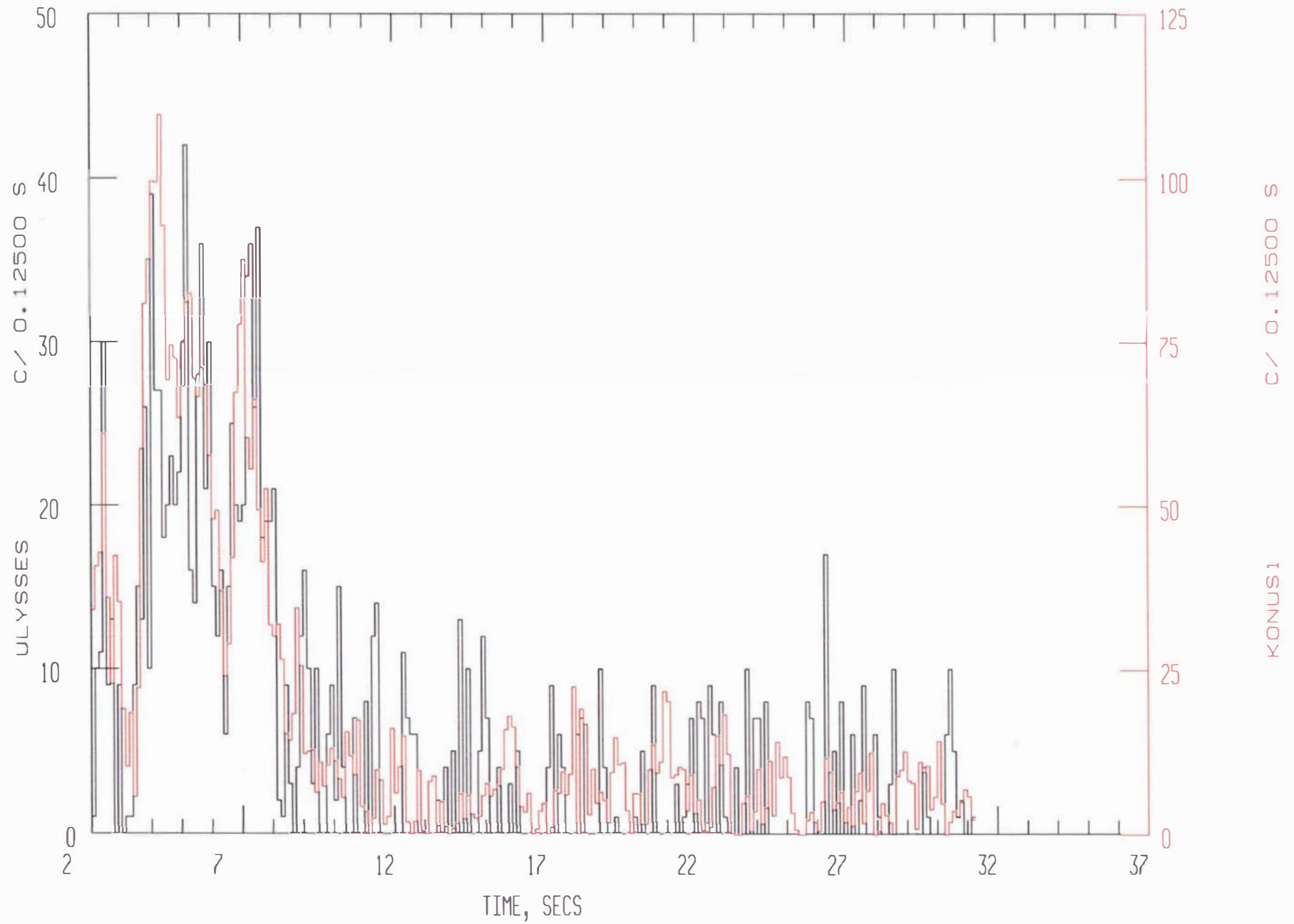
3 SAX

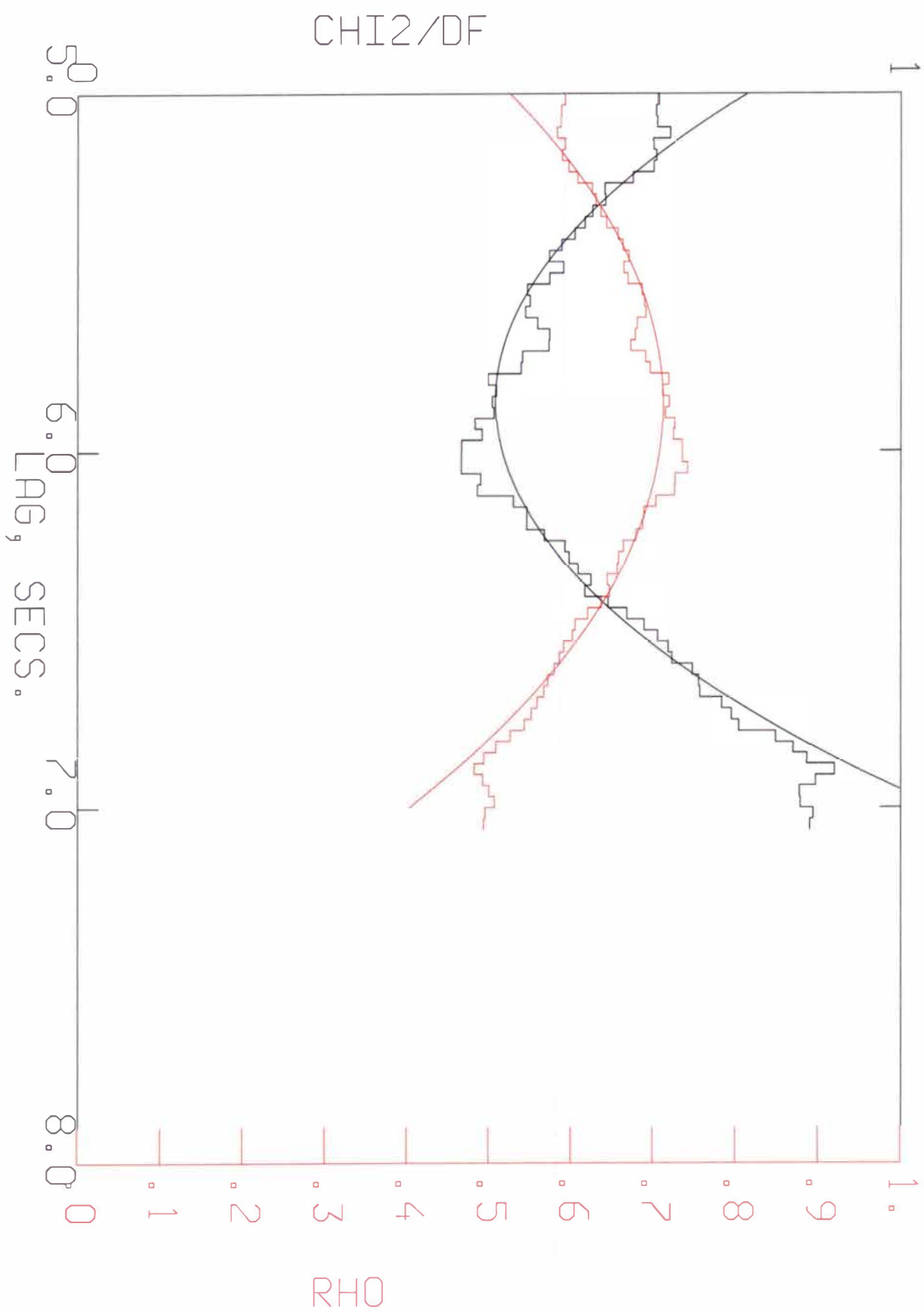
DECLINATION

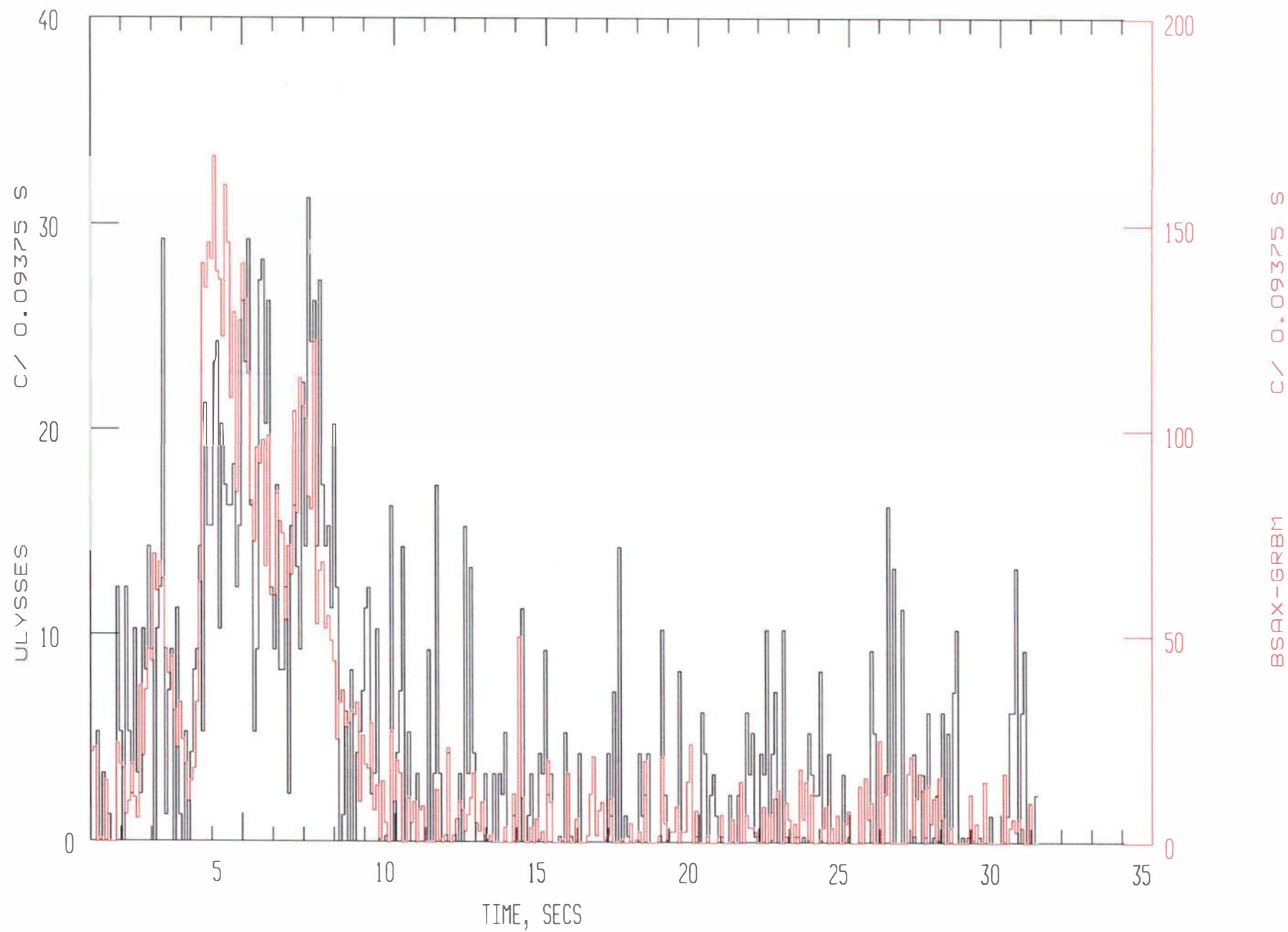
EVENT OF DEC 20, 1998 22:08









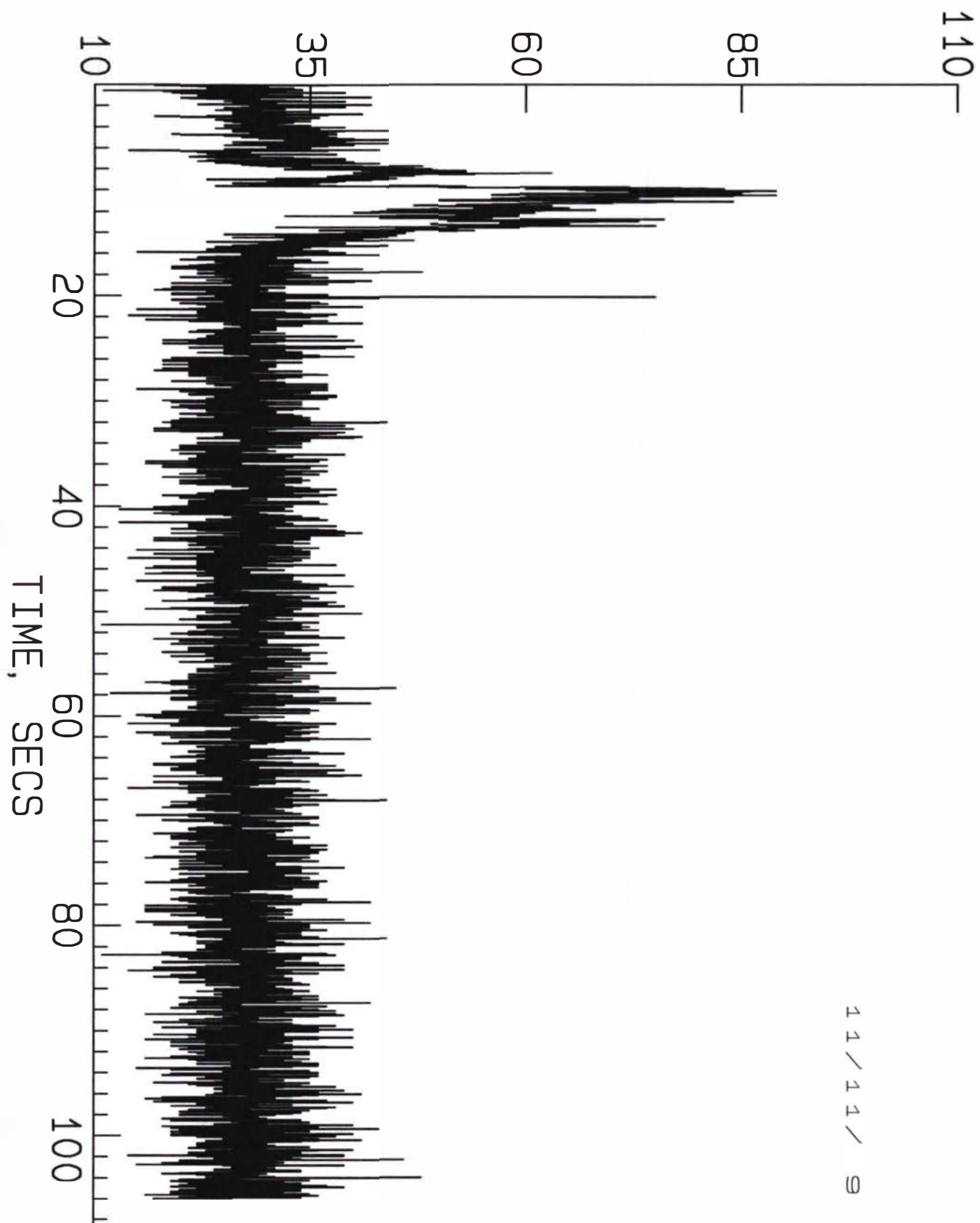


SAX GRBM

20/12/98 78737.893

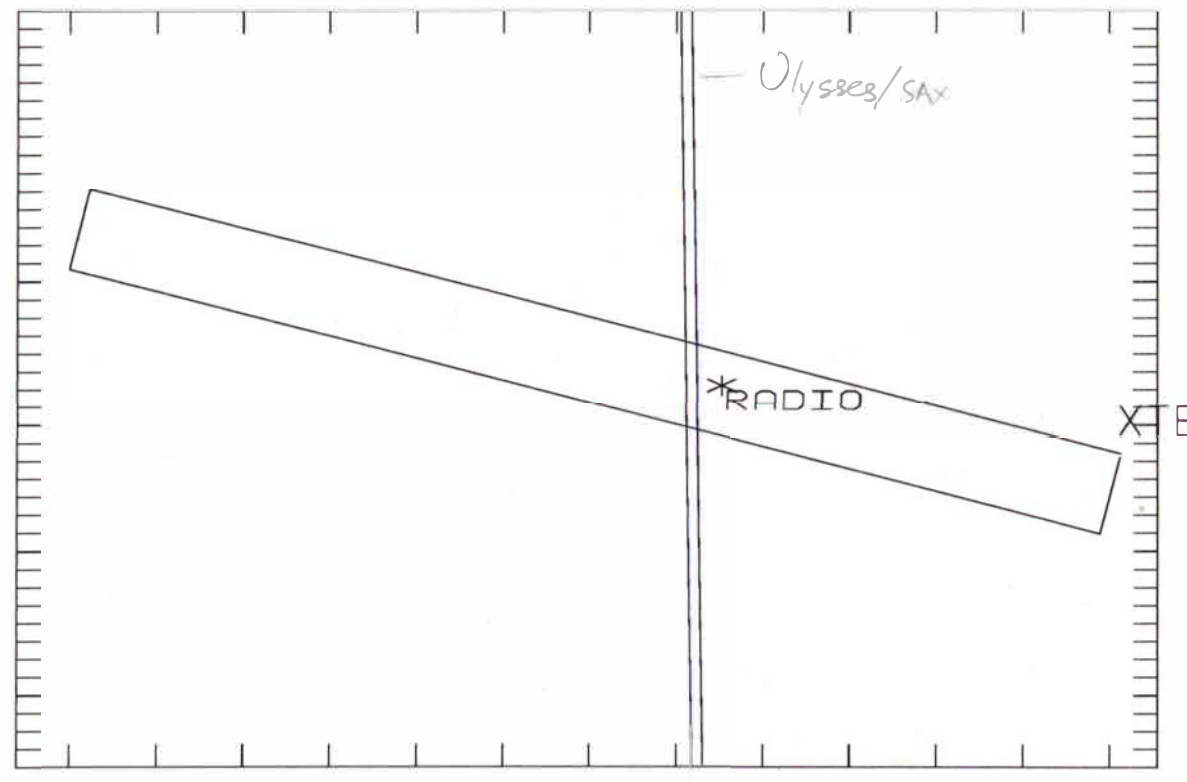
40- 700 keV

COUNTS/0.031 S



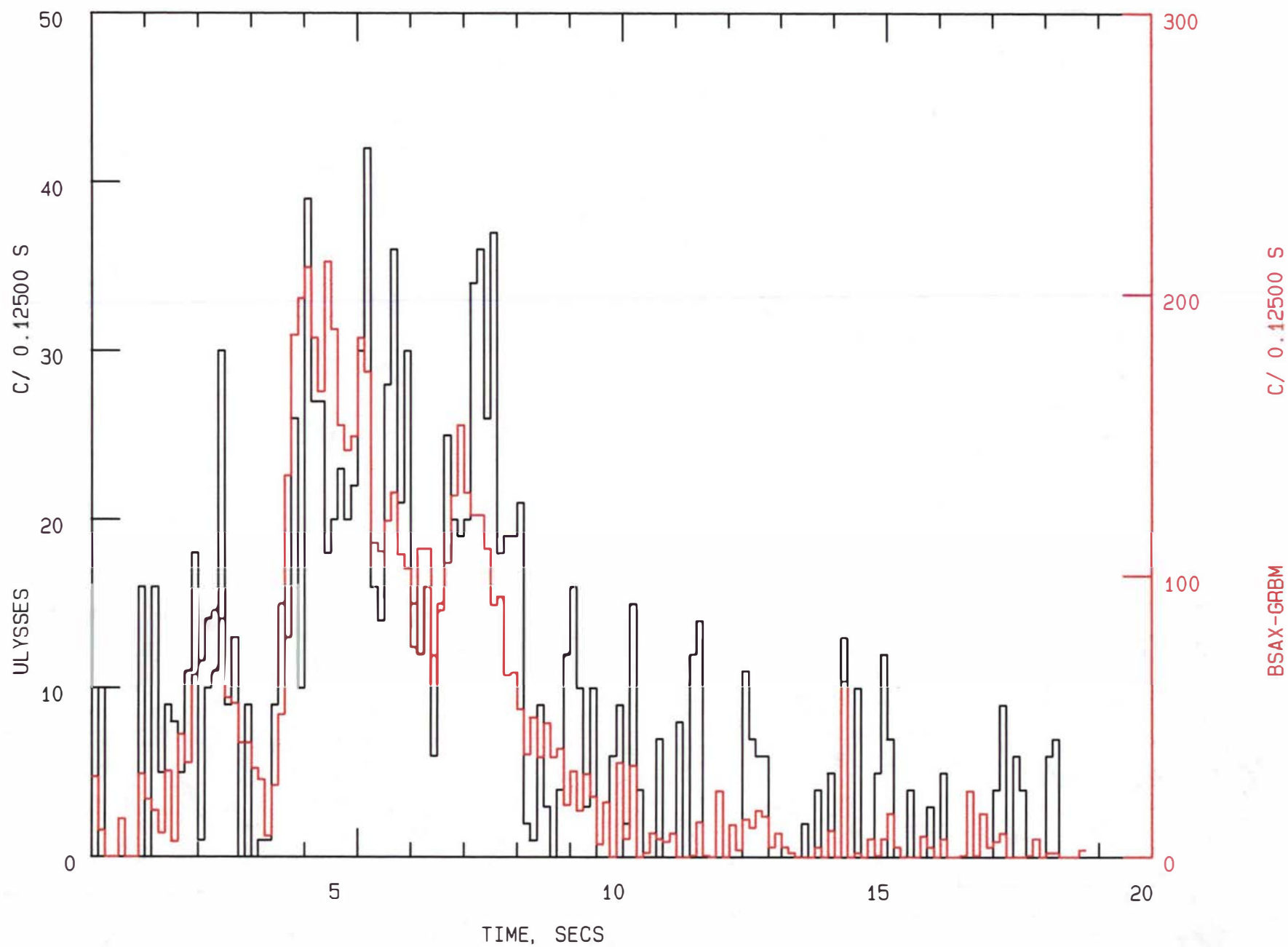
DECLINATION

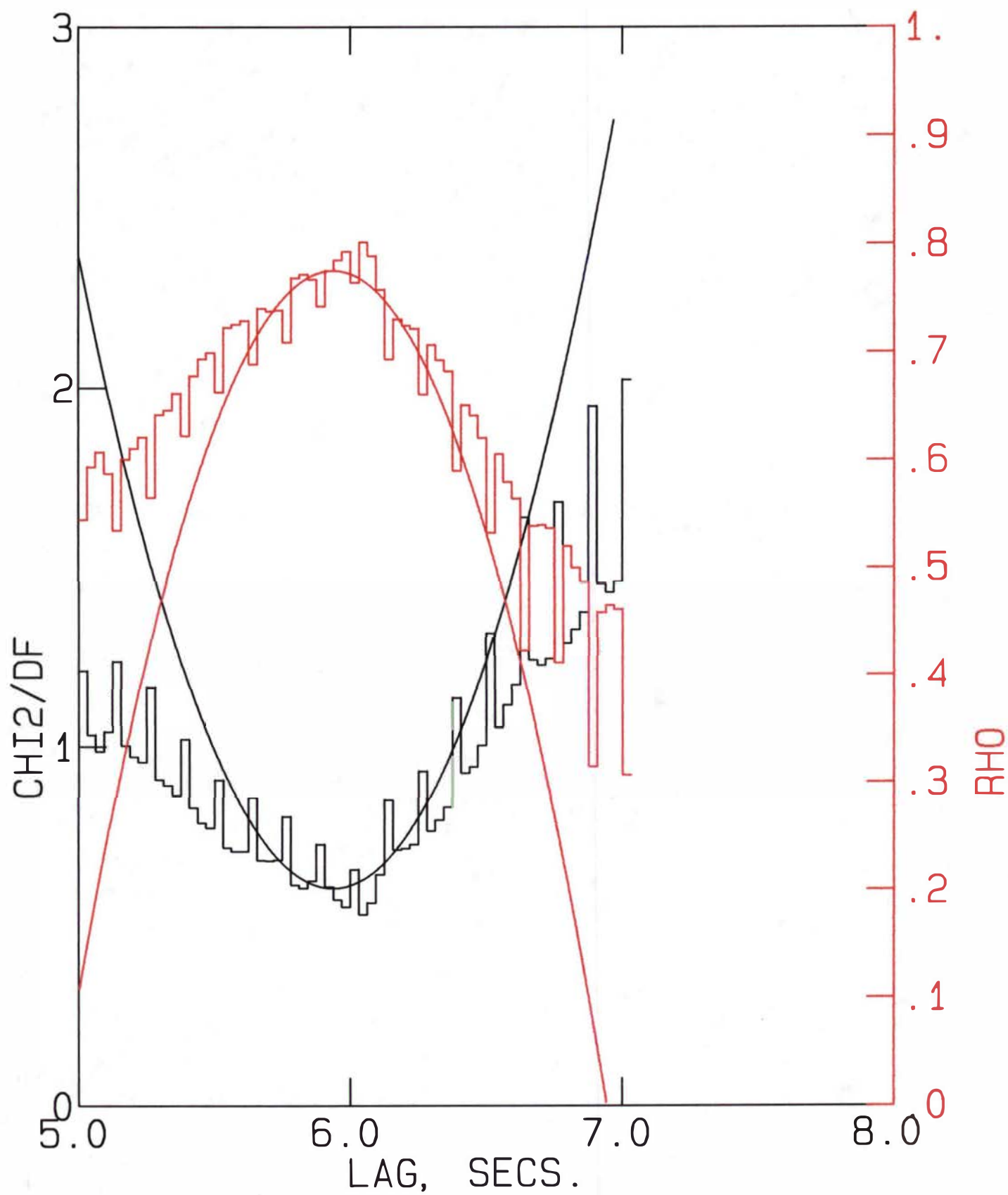
17° 28'
17° 24'
17° 20'
17° 16'
17° 12'
17° 08'
17° 04'
17° 00'
16° 56'
16° 52'
16° 48'

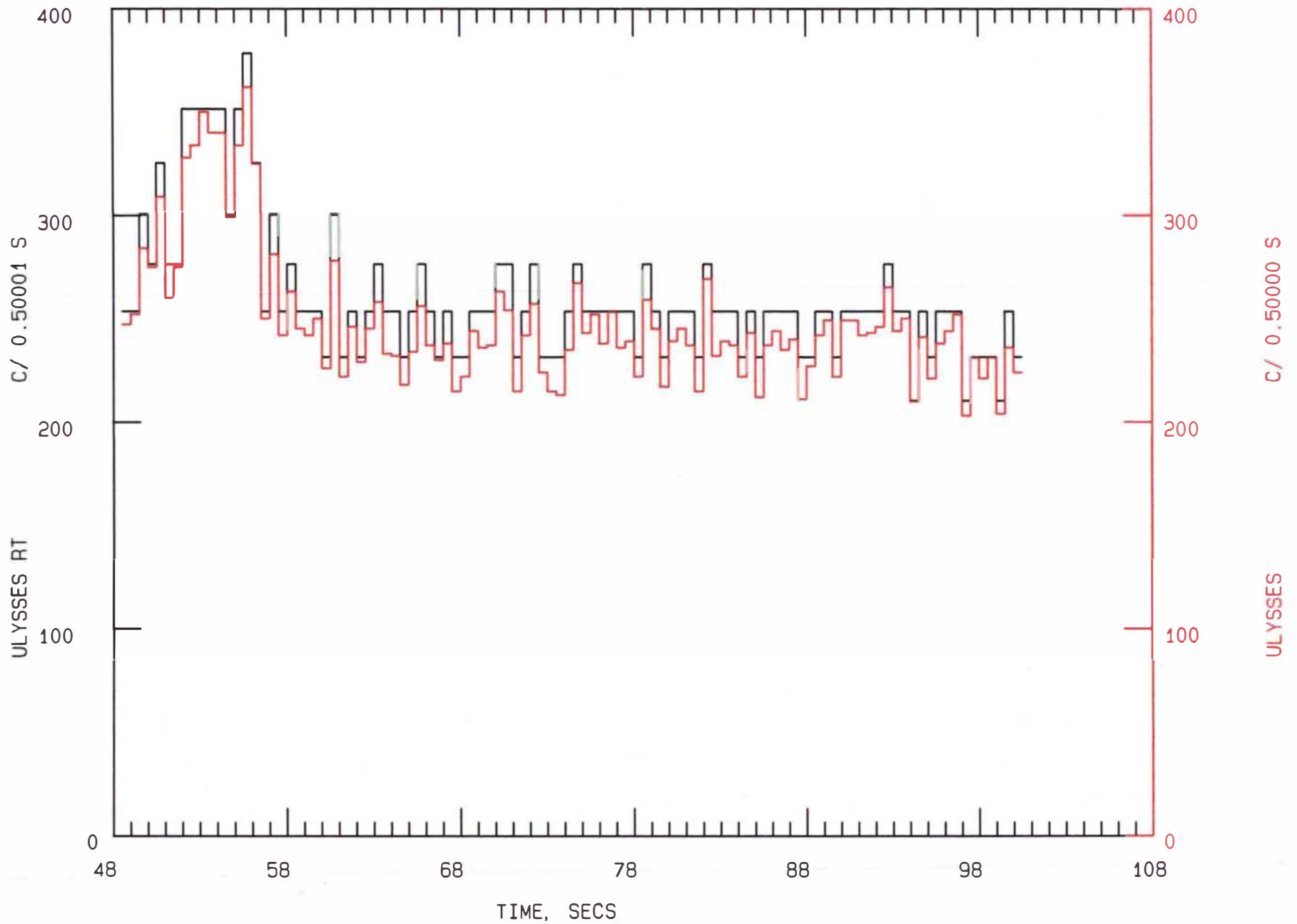


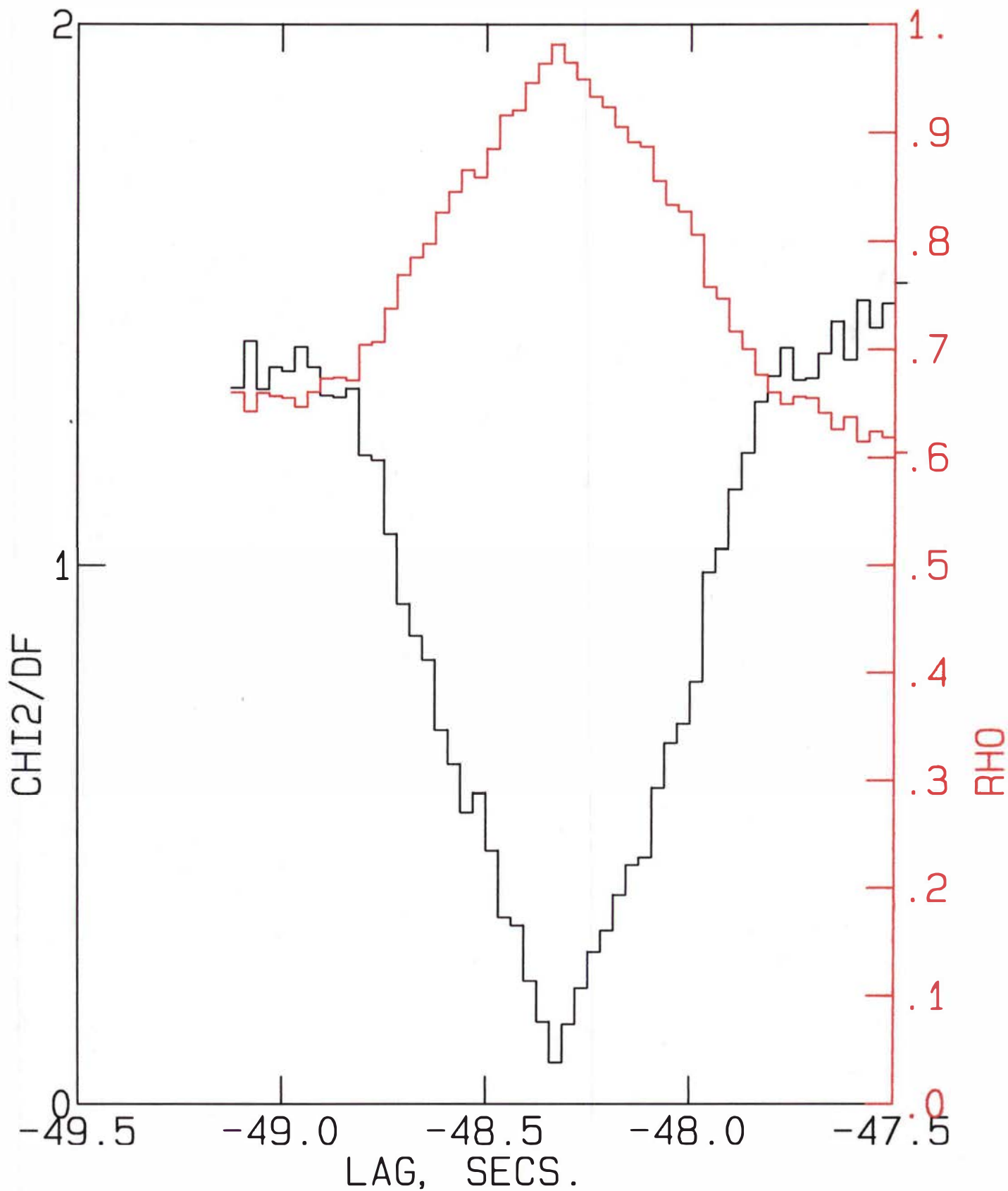
3:45:00 3:44:20 3:43:40 3:43:00 3:42:20 3:41:40 3:41:00

RIGHT ASCENSION

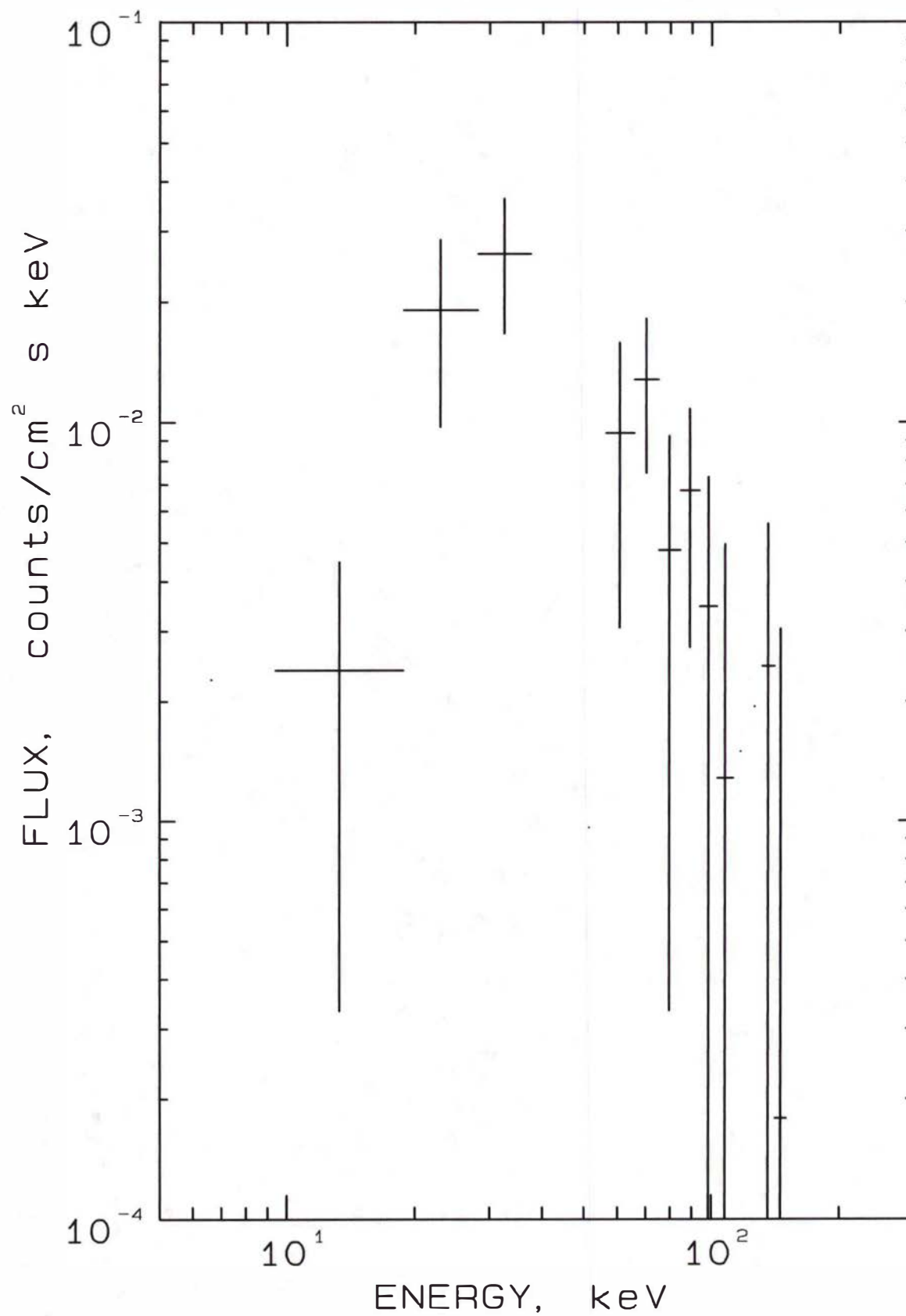








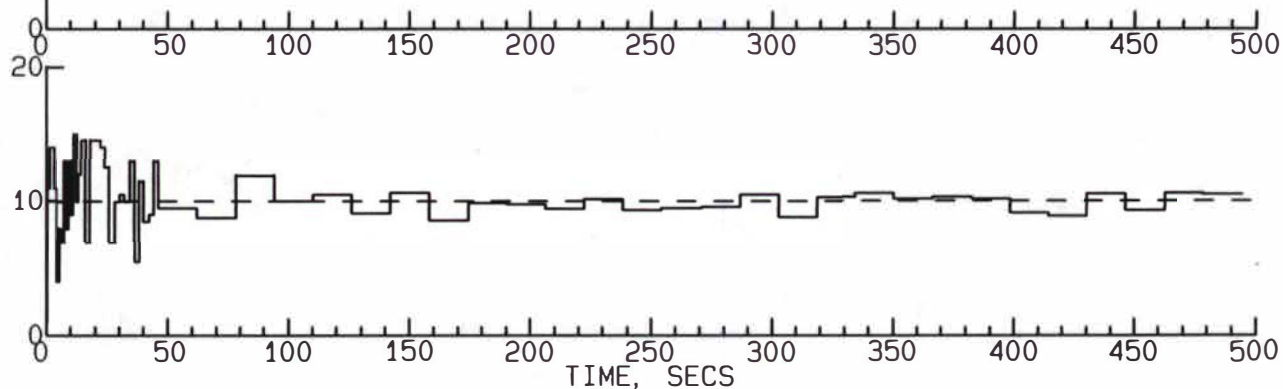
SPECTRUM INTEGRATED OVER 62.3 SECONDS, INTERVALS 2 TO 34



ULYSSES 20/12/98 79721.819 BURST SPECTRAL COUNT RATES

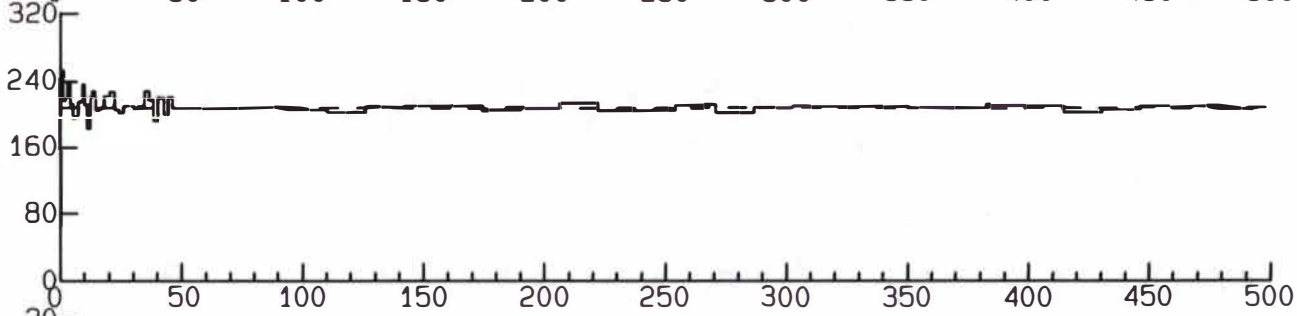
4- 18 keV

COUNTS/S



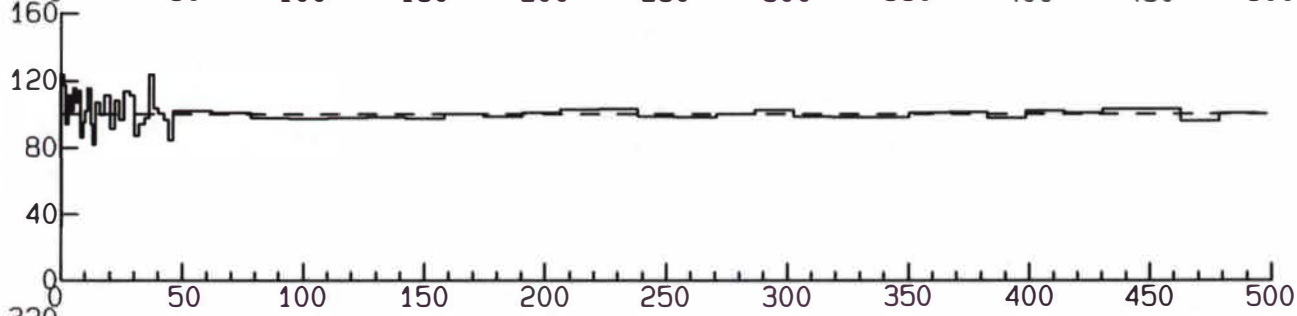
18- 46 keV

COUNTS/S



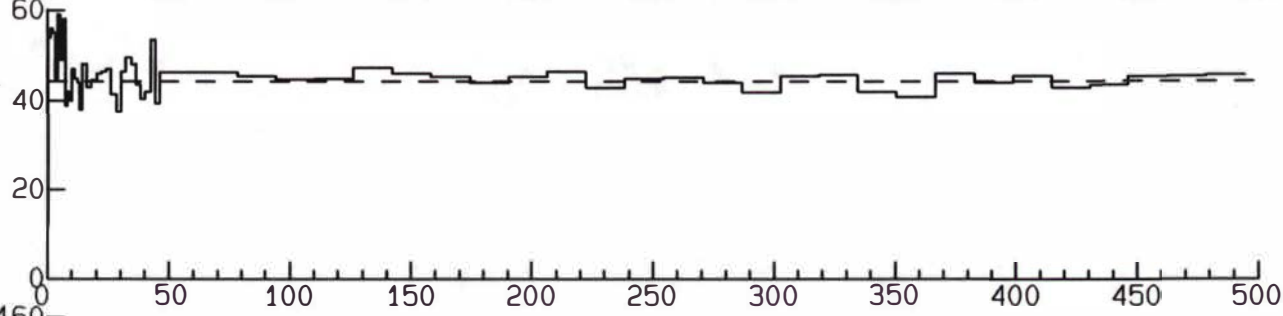
46- 75 keV

COUNTS/S



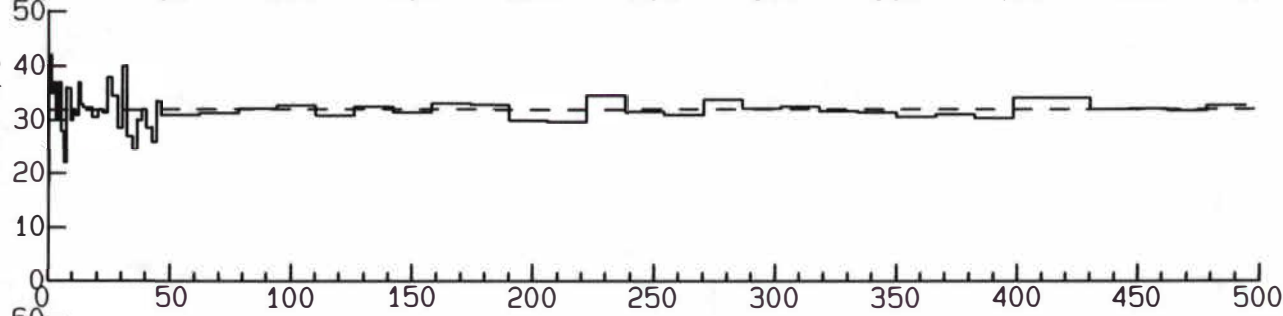
75-103 keV

COUNTS/S



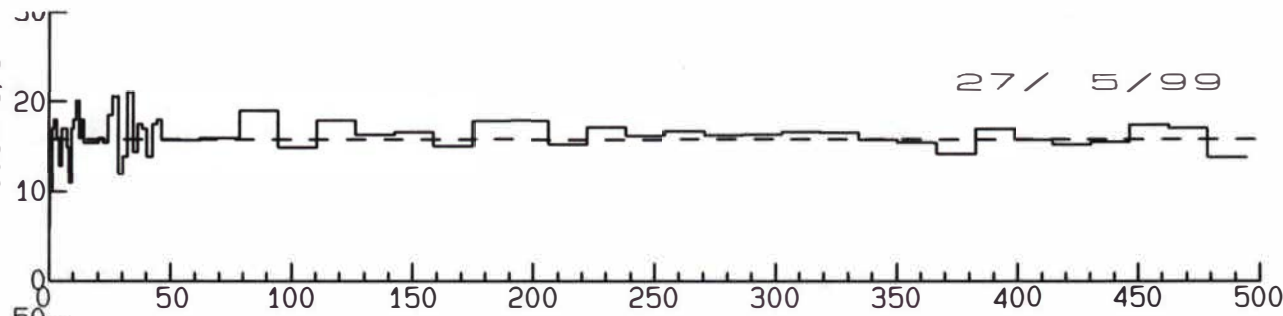
103-131 keV

COUNTS/S



131-150 keV

COUNTS/S

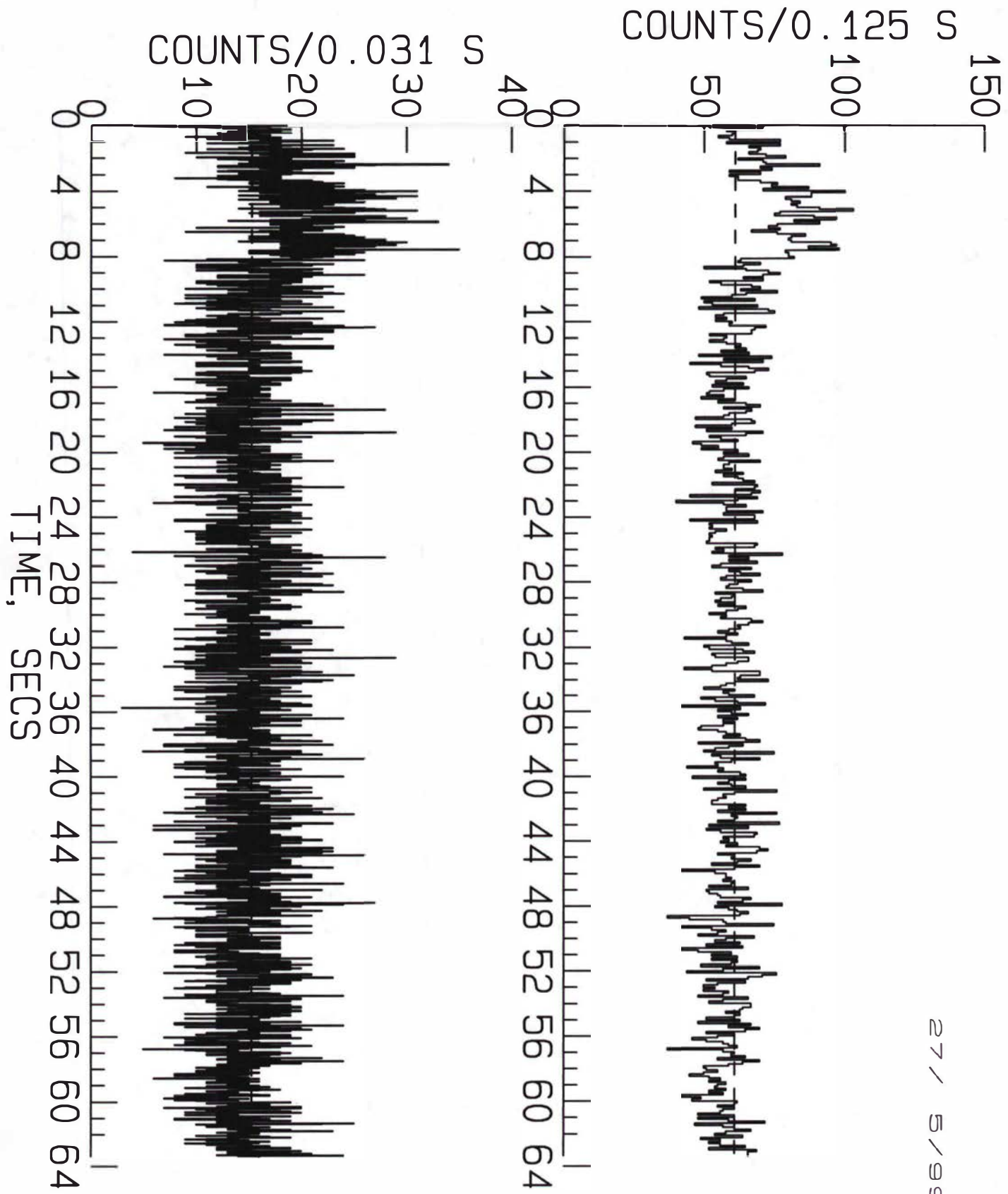


ULYSSES

20/12/98

Ttrig=79721.852

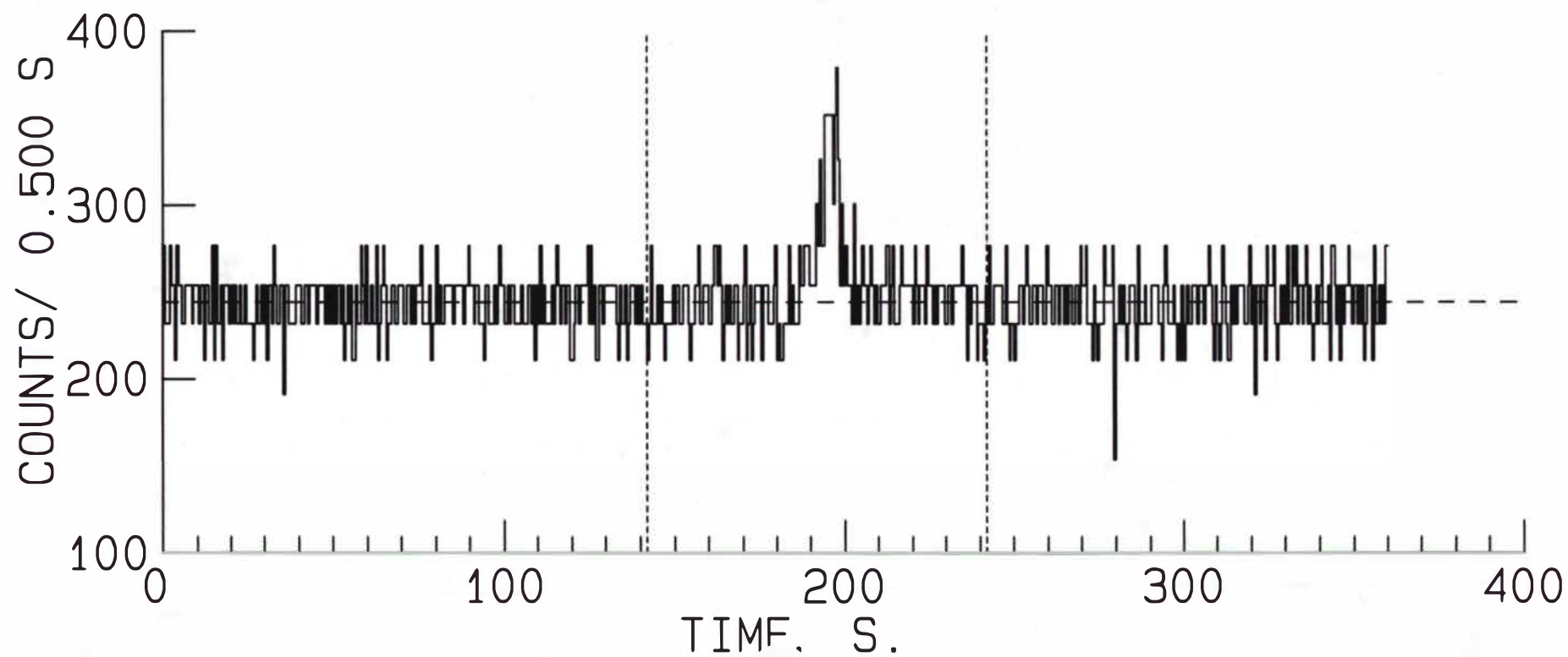
0- 0 keV



ULYSSES RT
20/12/98 79524.076 s
22- 150 keV

27 / 5 / 99

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

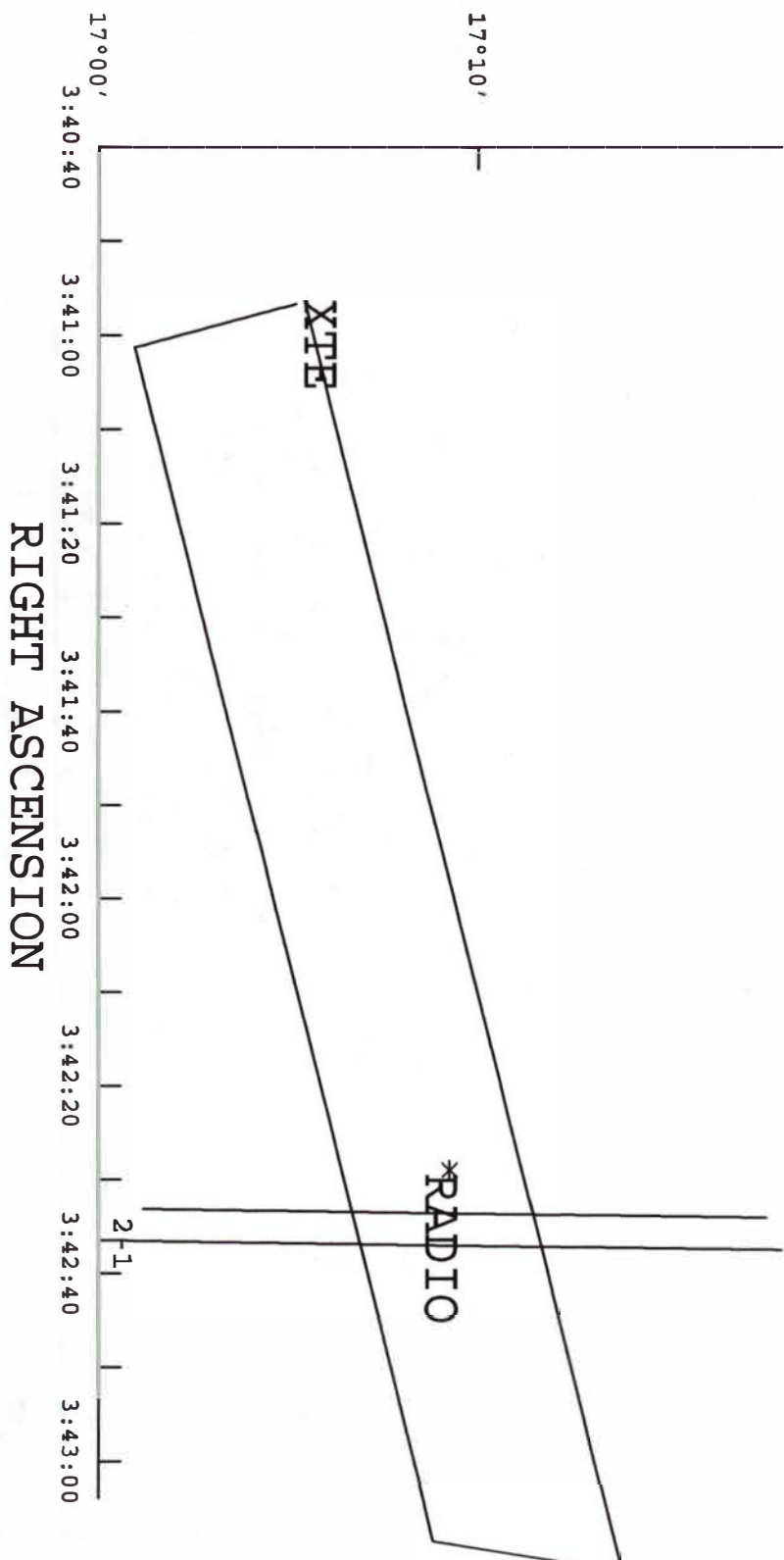
G=GALACTIC EQUATOR

1 ULYSSES

2 KONUS

DECLINATION

EVENT OF DEC 20, 1998 22:08



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

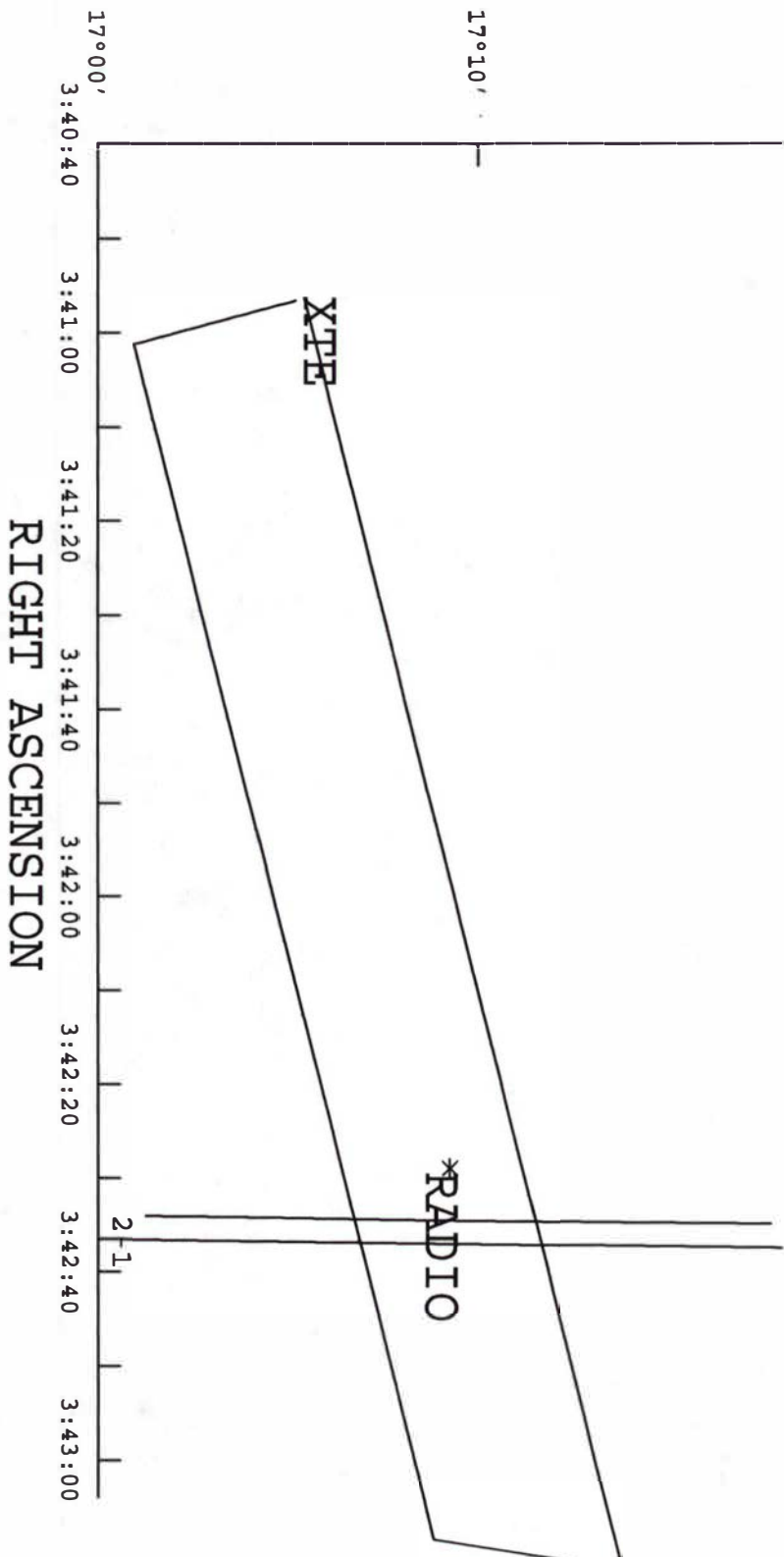
G=GALACTIC EQUATOR

1 ULYSSES

2 SAX

DECLINATION

EVENT OF DEC 20, 1998 22:08



ULYSSES

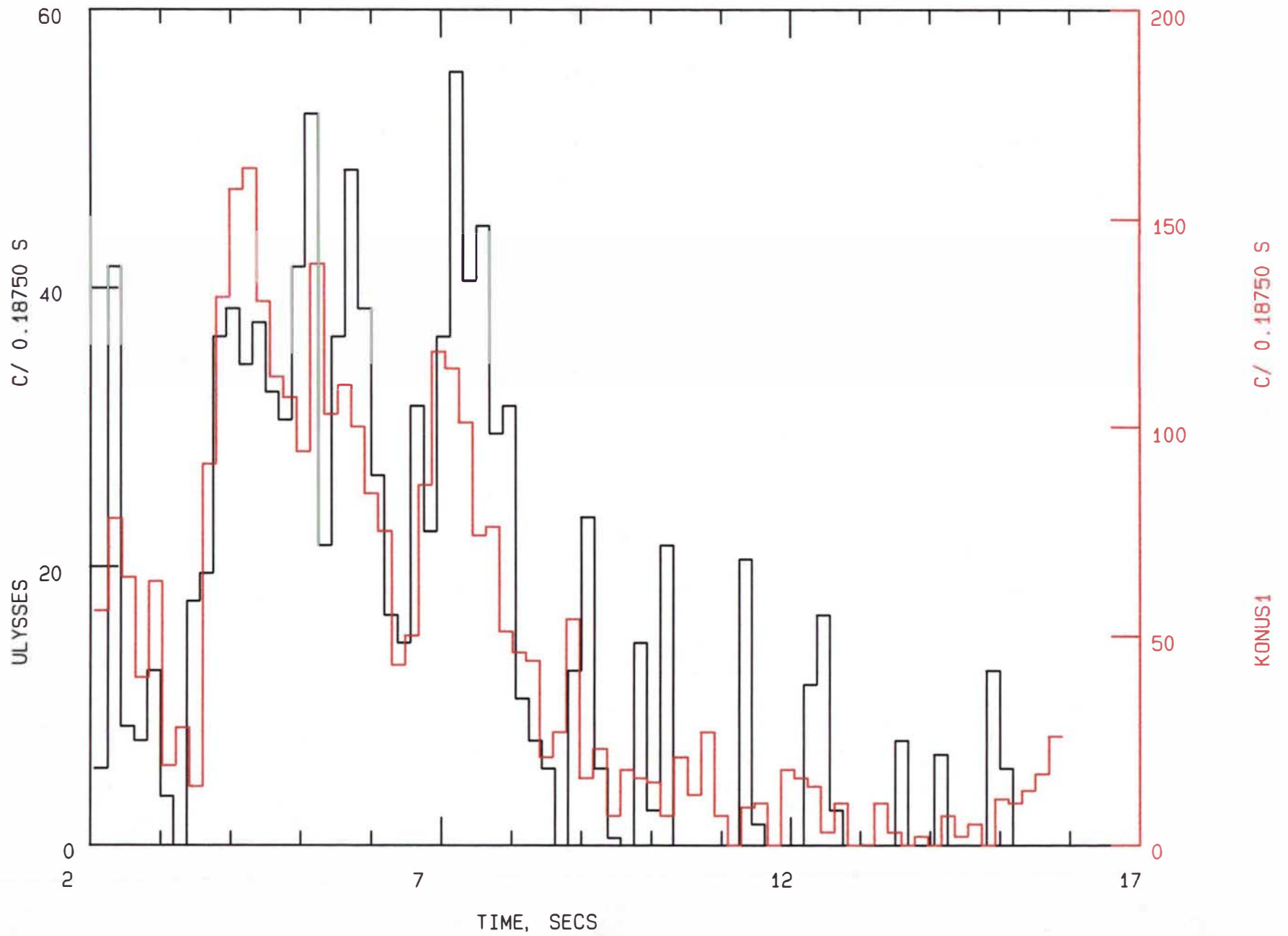
-KONUS1

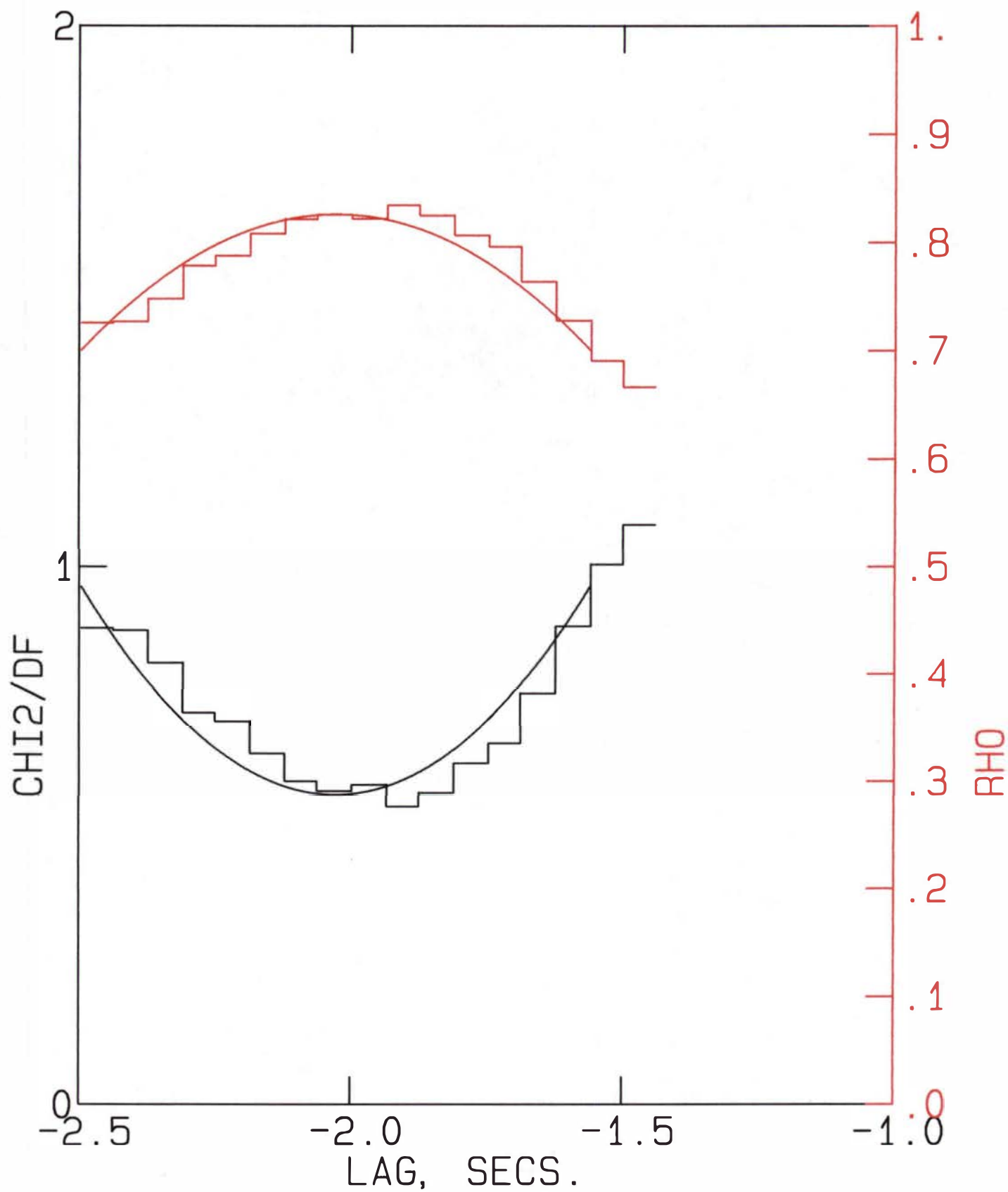
CORRELATION

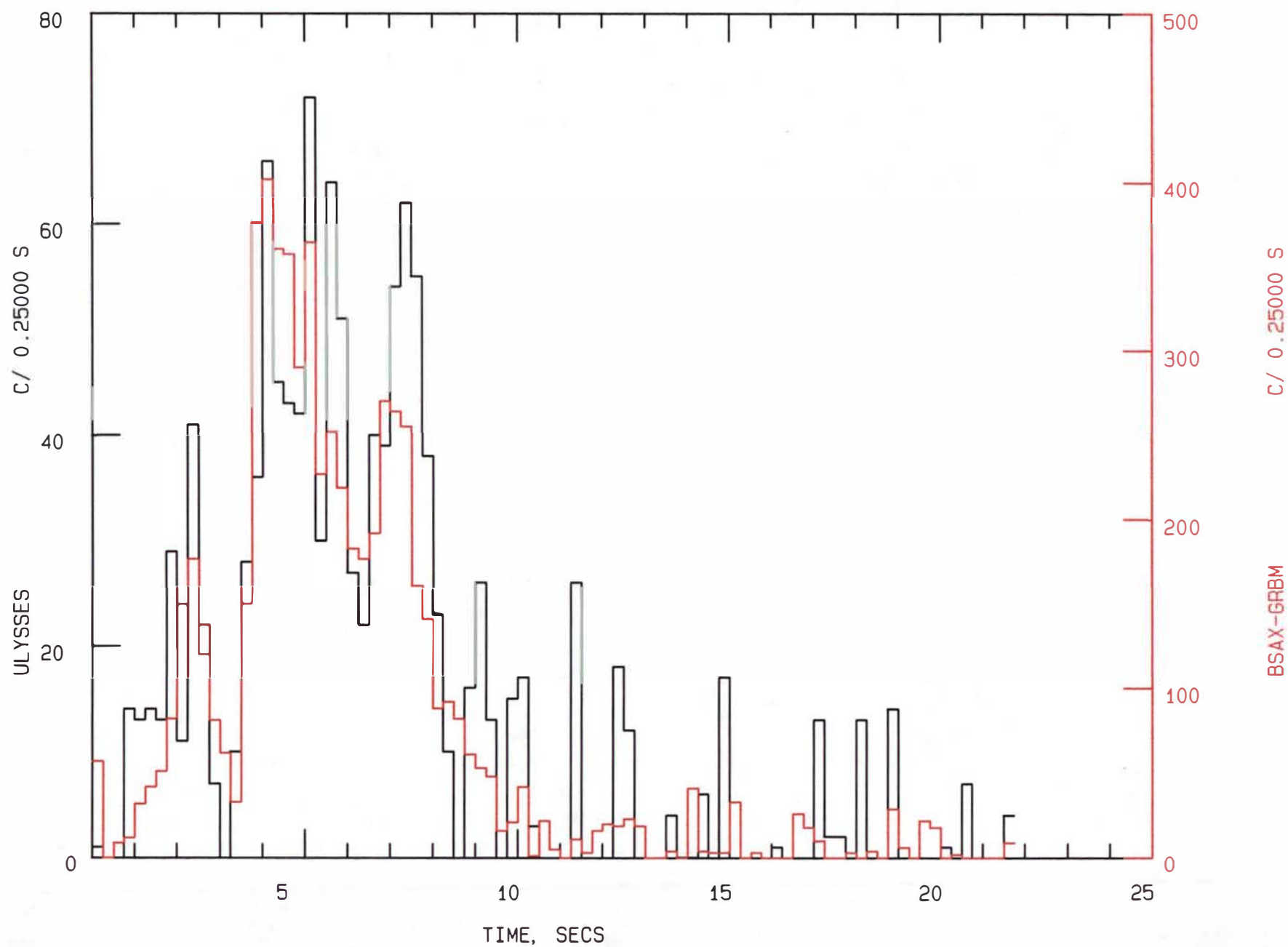
20/12/98

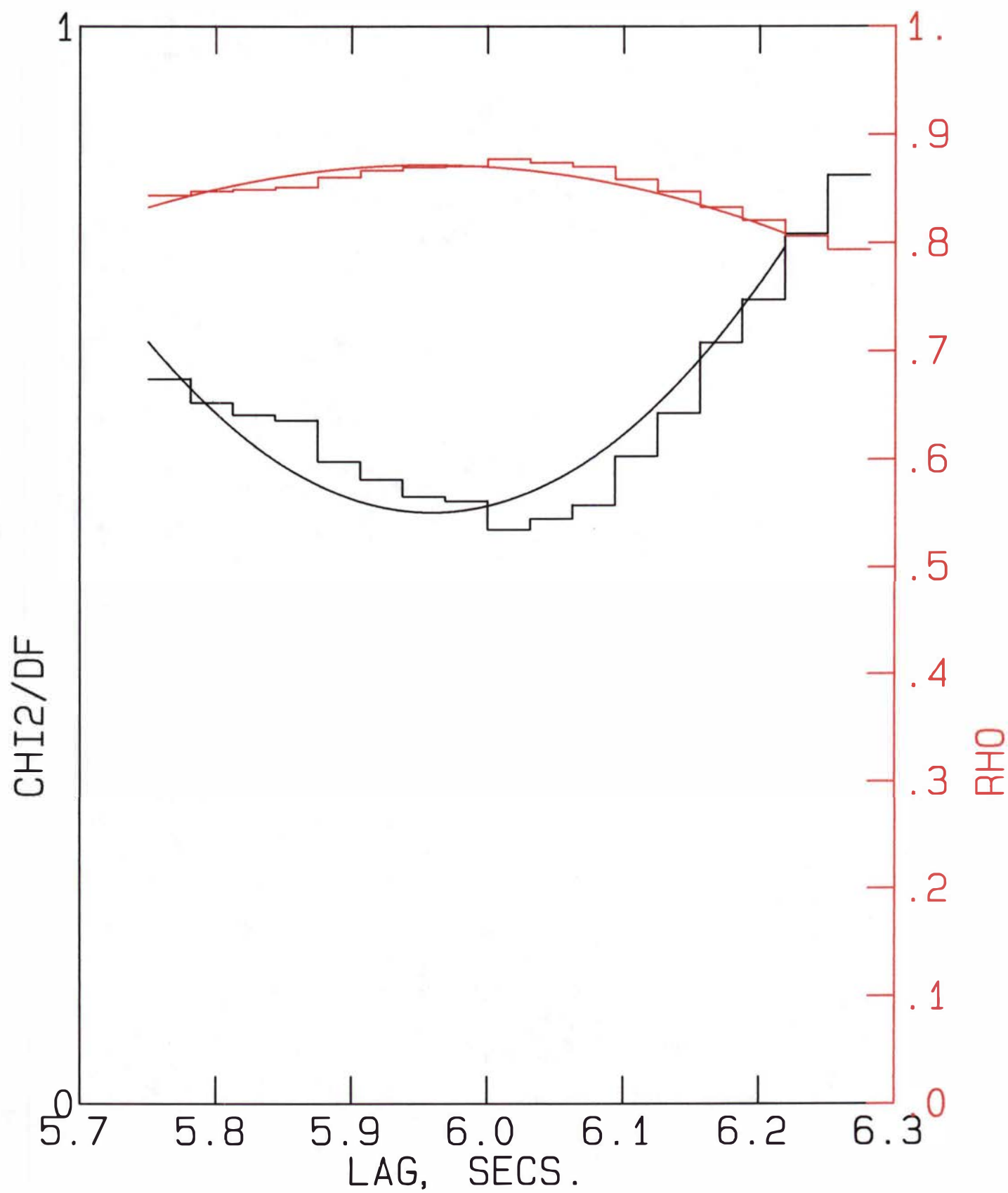
79721.852

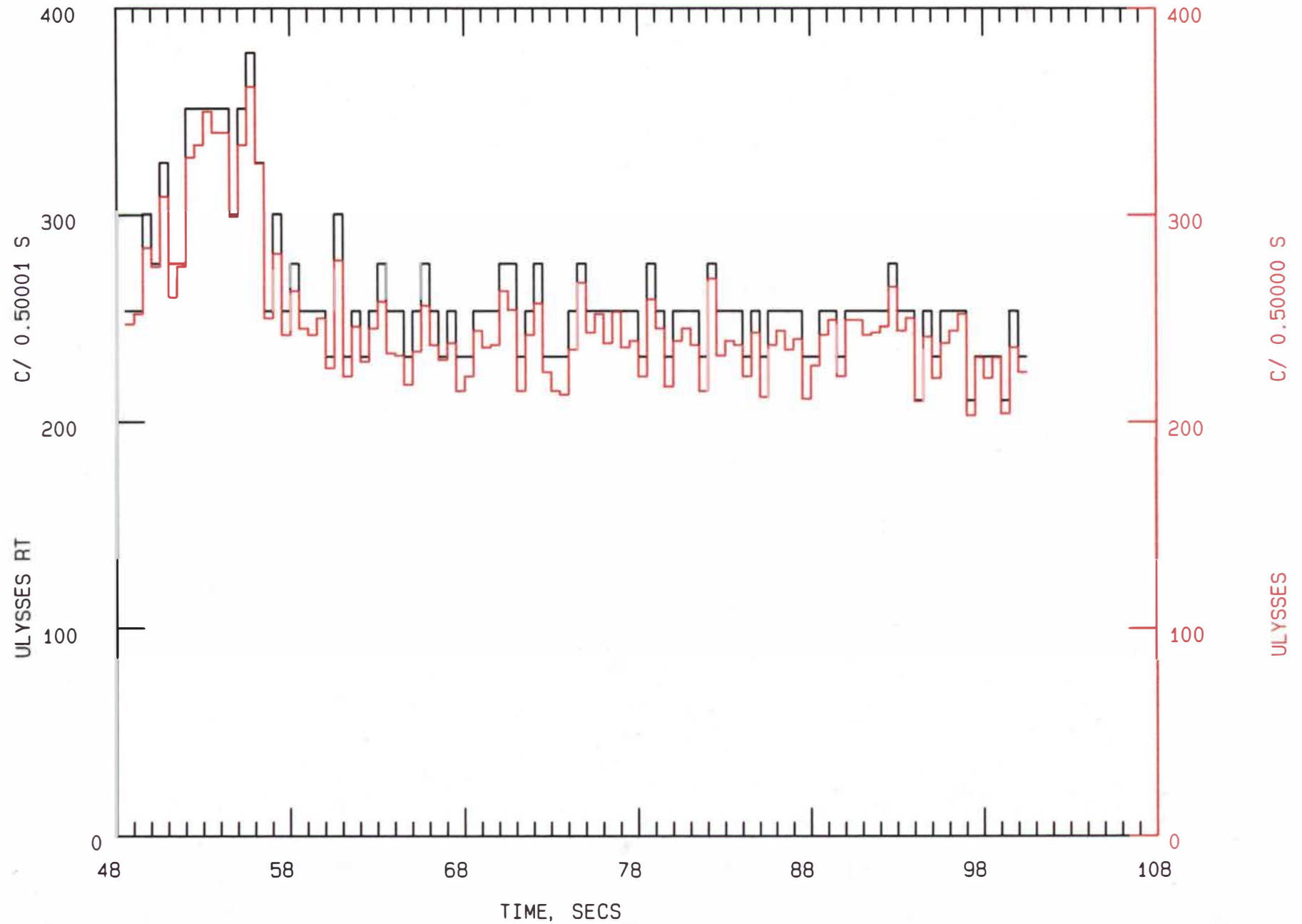
23/ 3/99

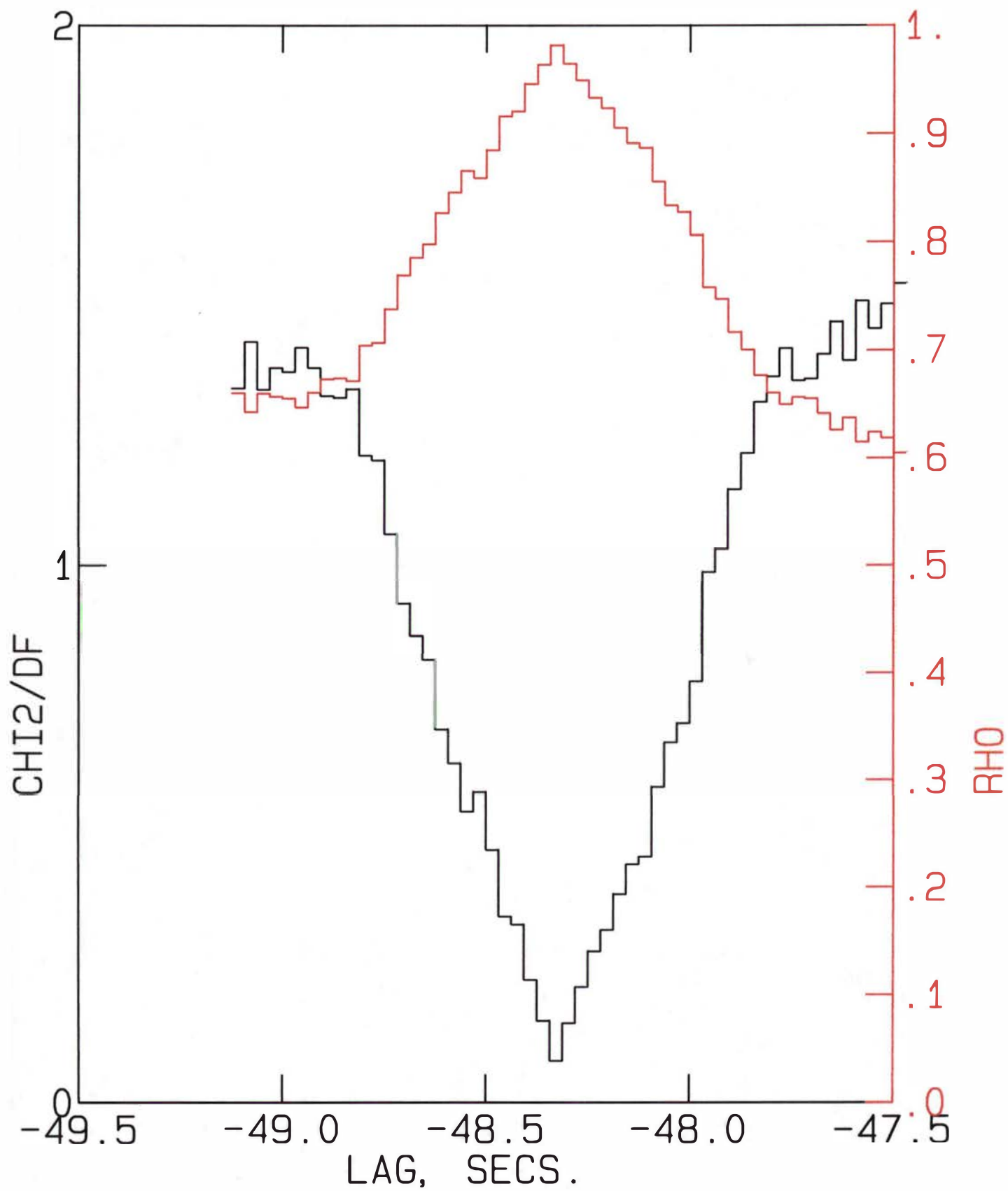








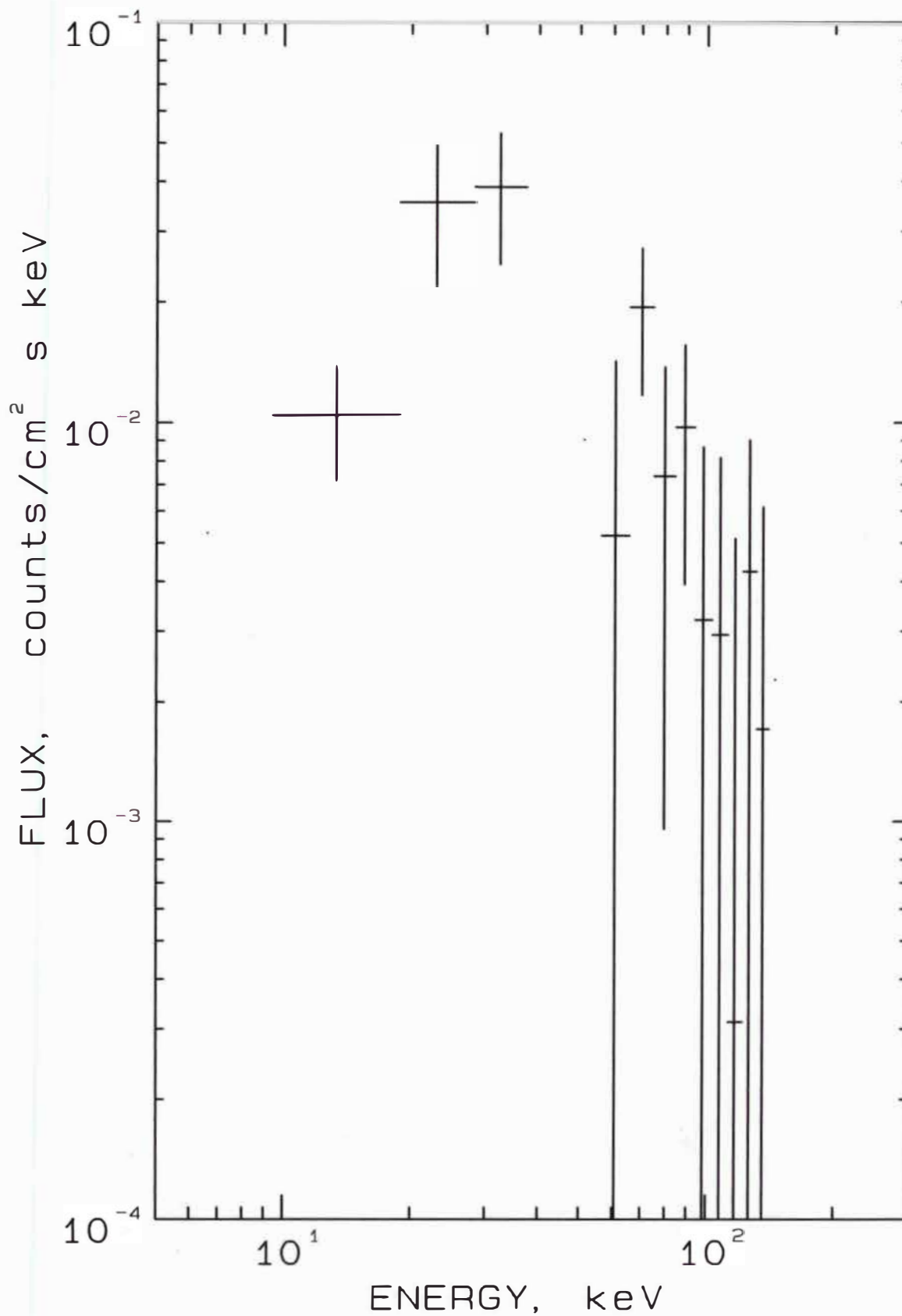




ULYSSES 20/12/98 79721.819

27/ 2/99

SPECTRUM INTEGRATED OVER 20.3 SECONDS, INTERVALS 2 TO 20



ULYSSES 20/12/98 79721.819 BURST SPECTRAL COUNT RATES

4- 18 keV

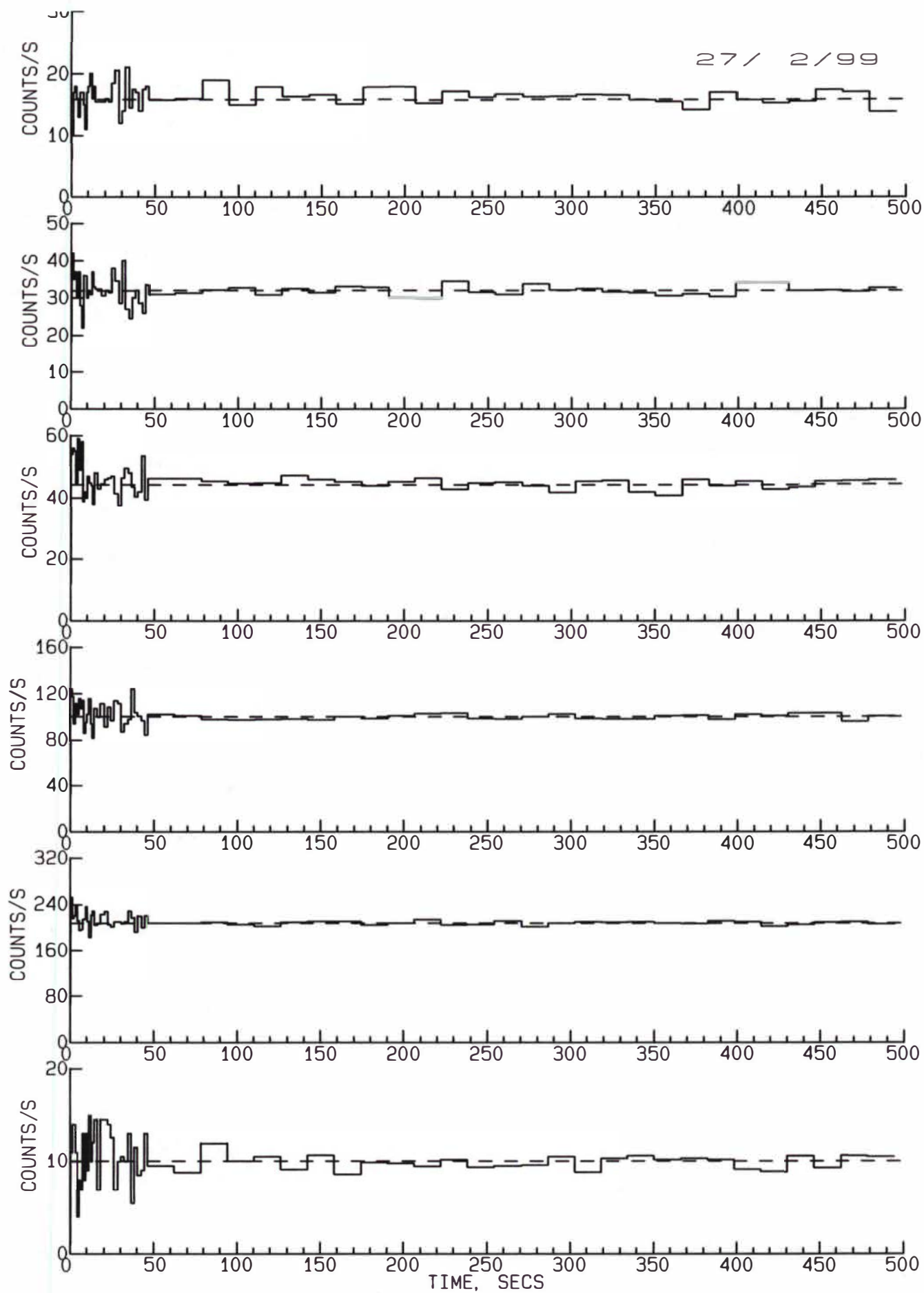
18- 46 keV

46- 74 keV

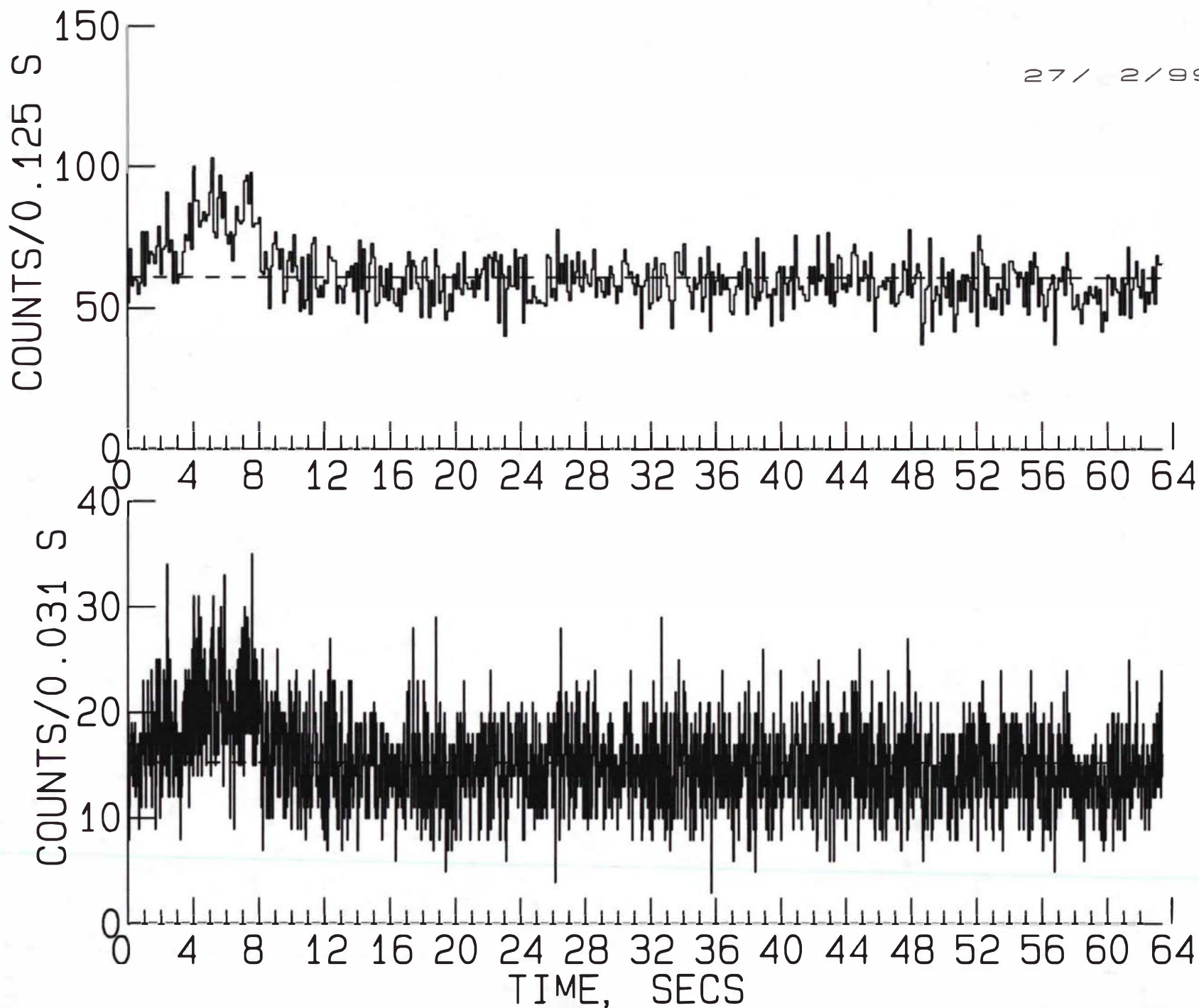
74-102 keV

102-131 keV

131-149 keV



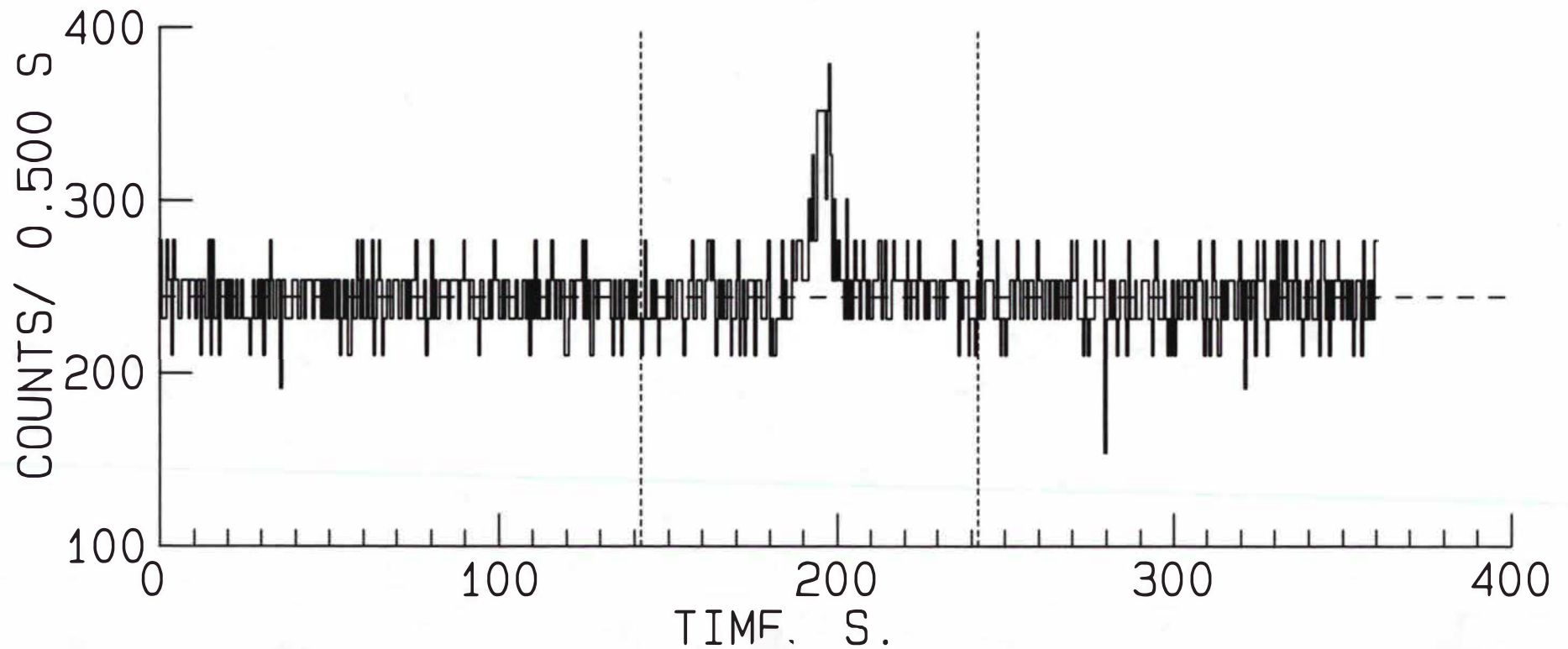
ULYSSES 20/12/98 Ttrig=79721.852
0- 0 keV



ULYSSES RT
20/12/98 79524.076 s
22- 151 keV

27 / 2 / 99

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

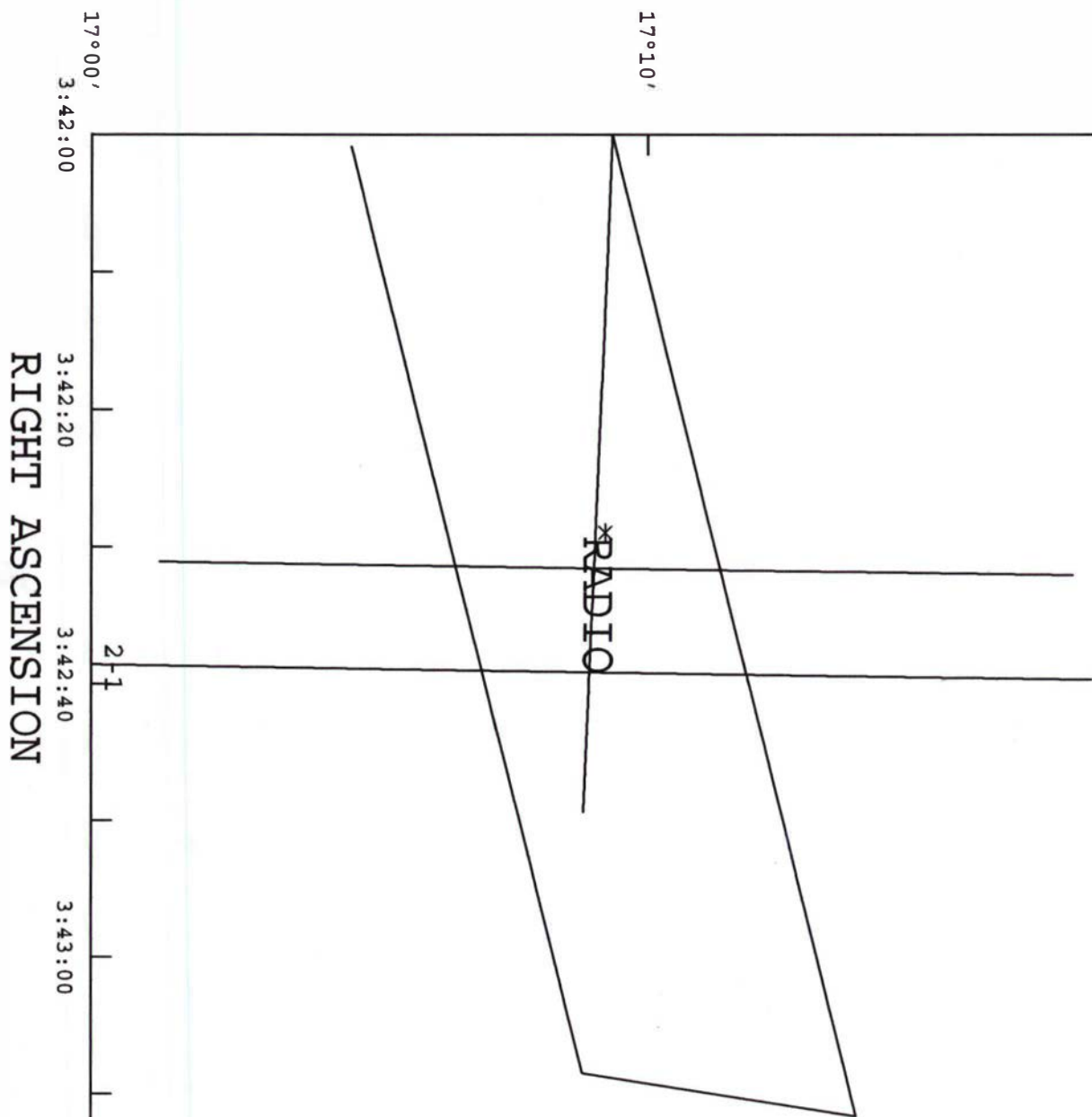
E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

2 KONUS

DECLINATION



EVENT OF DEC 20, 1998 22:08

27/12/98

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

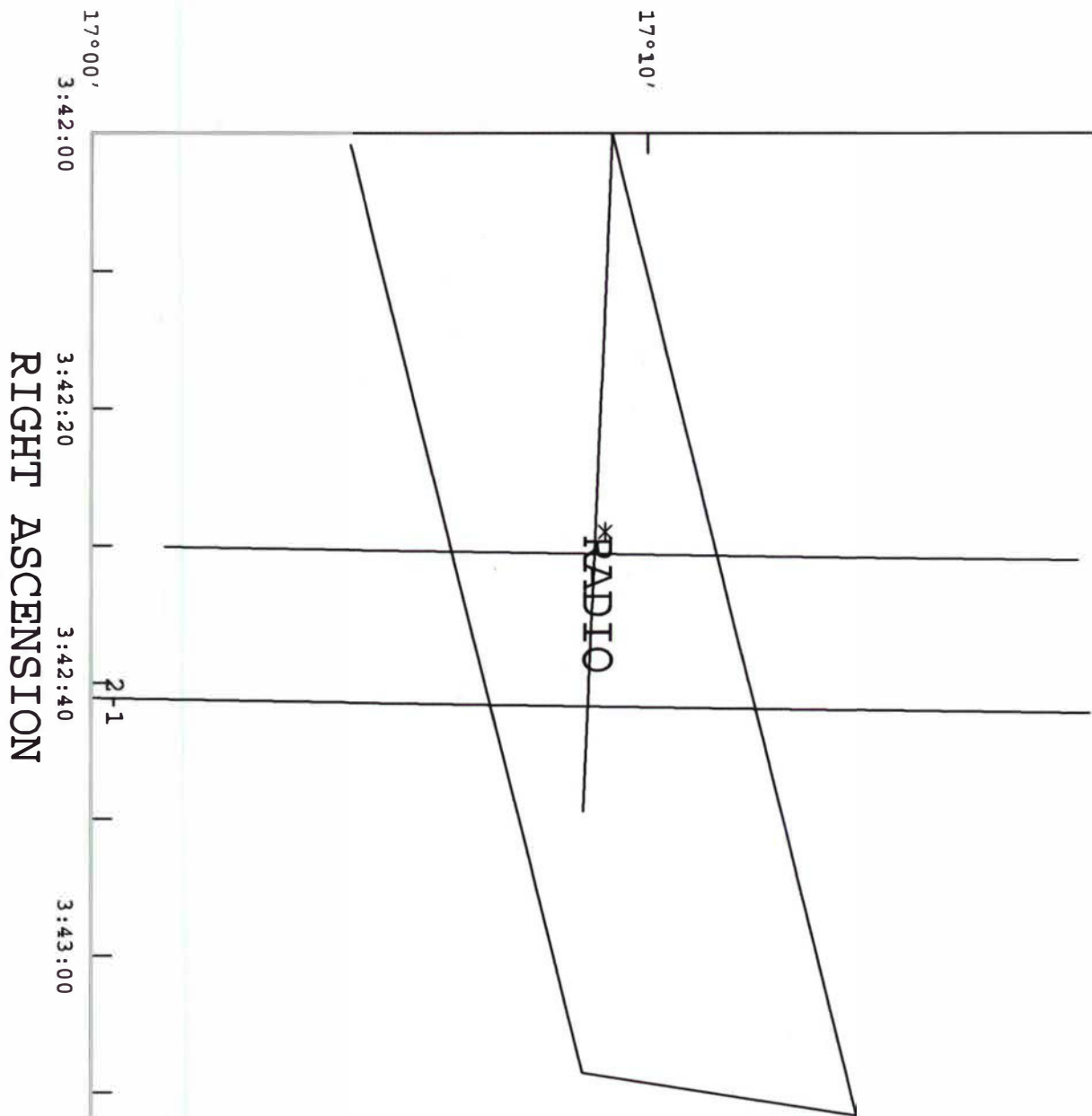
E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

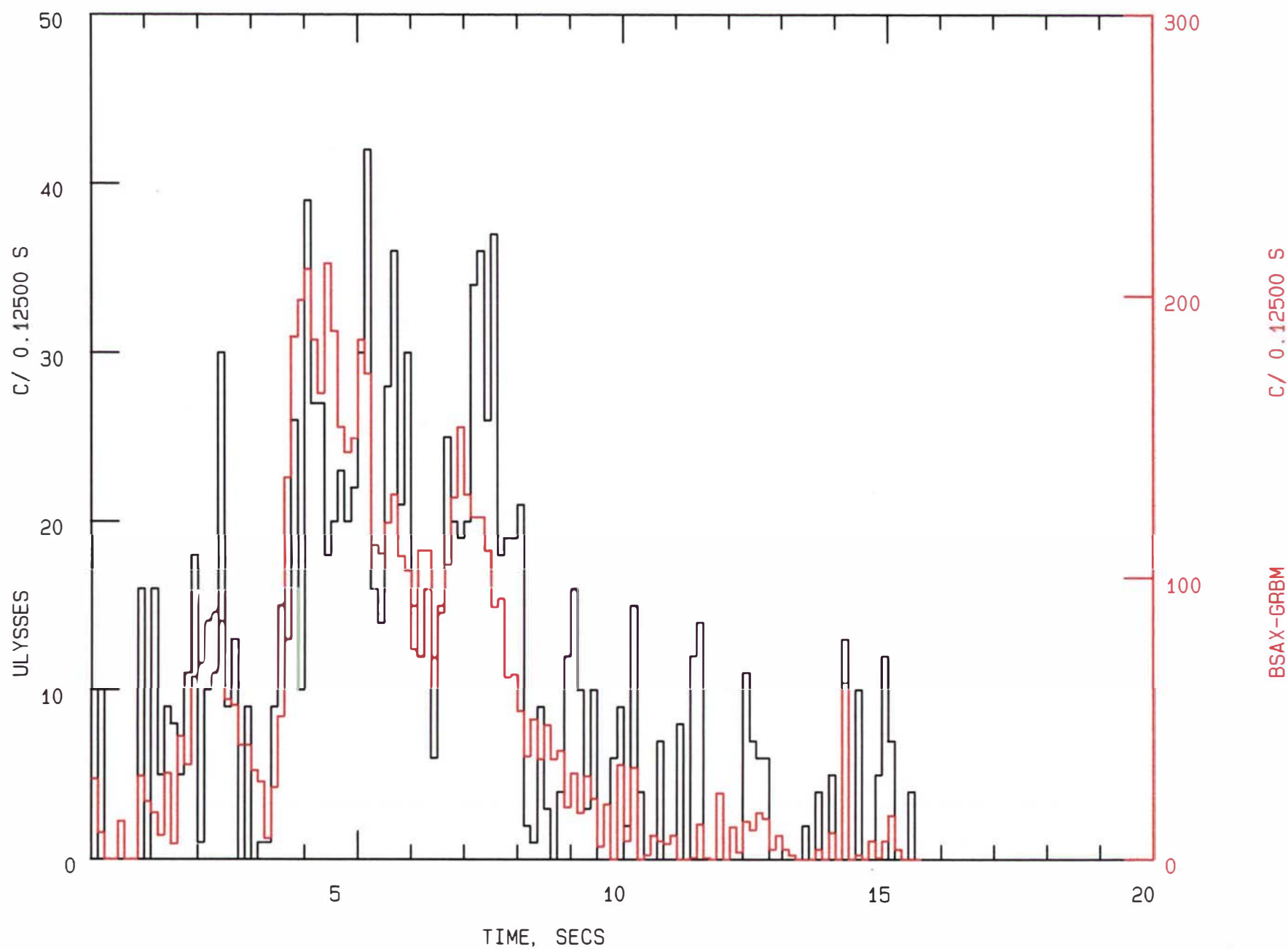
2 SAX

DECLINATION



EVENT OF DEC 20, 1998 22:08

28/12/98

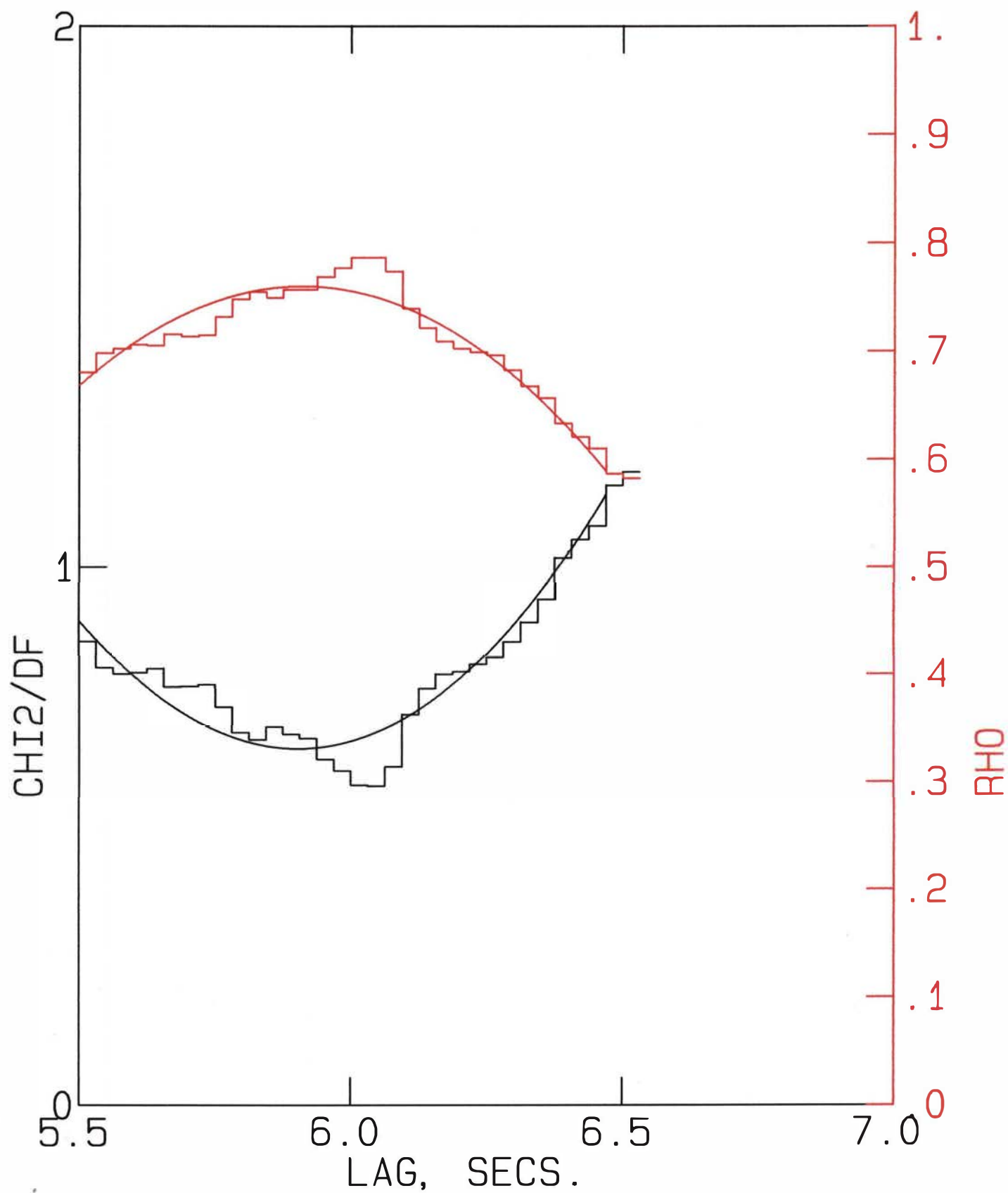


28/12/98

ULYSSES -BSAX-GRBM CORRELATION

20/12/98

79721.828



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

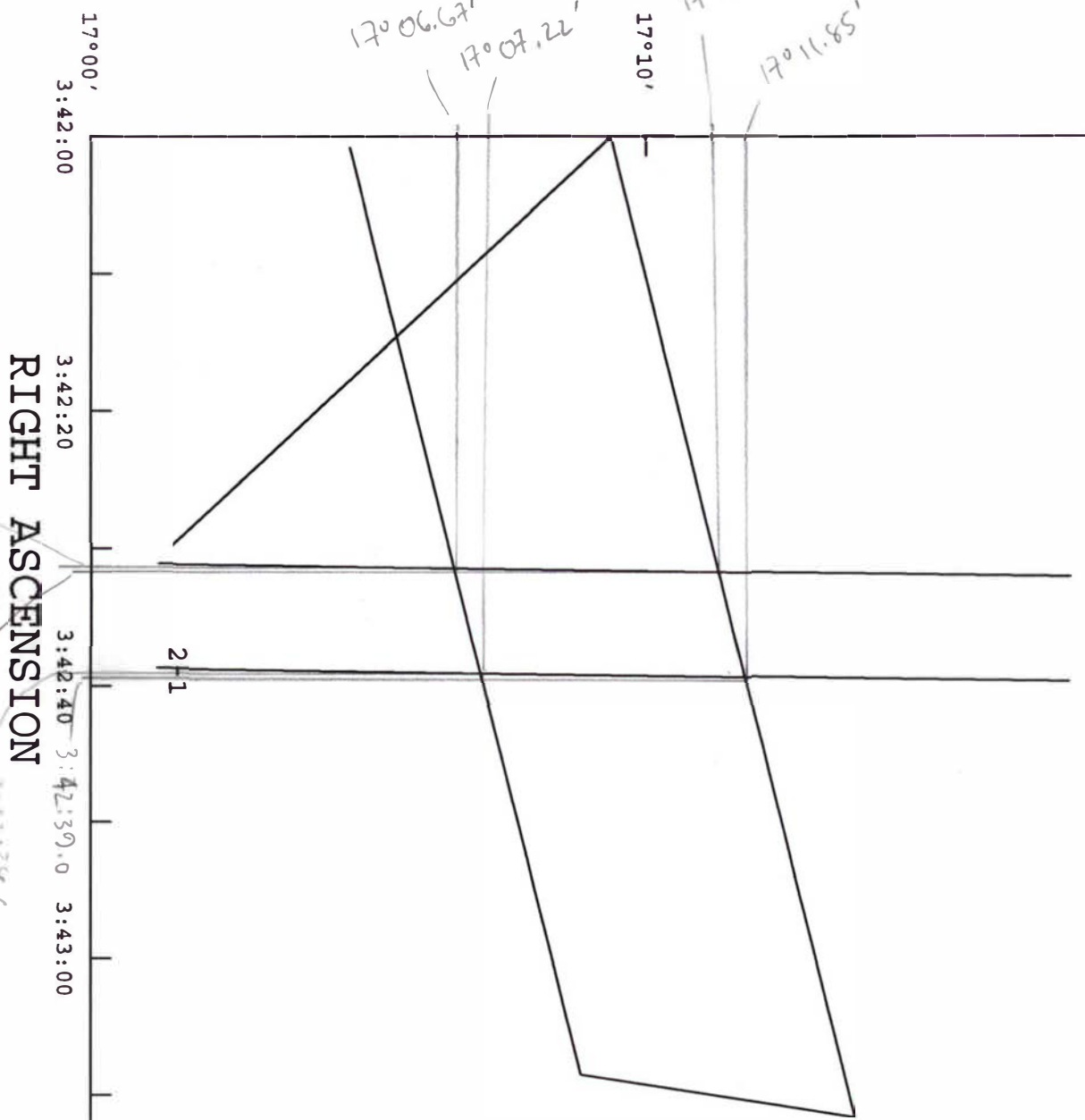
G=GALACTIC EQUATOR

1 ULYSSES

2 KONUS

DECLINATION

EVENT OF DEC 20, 1998 22:08

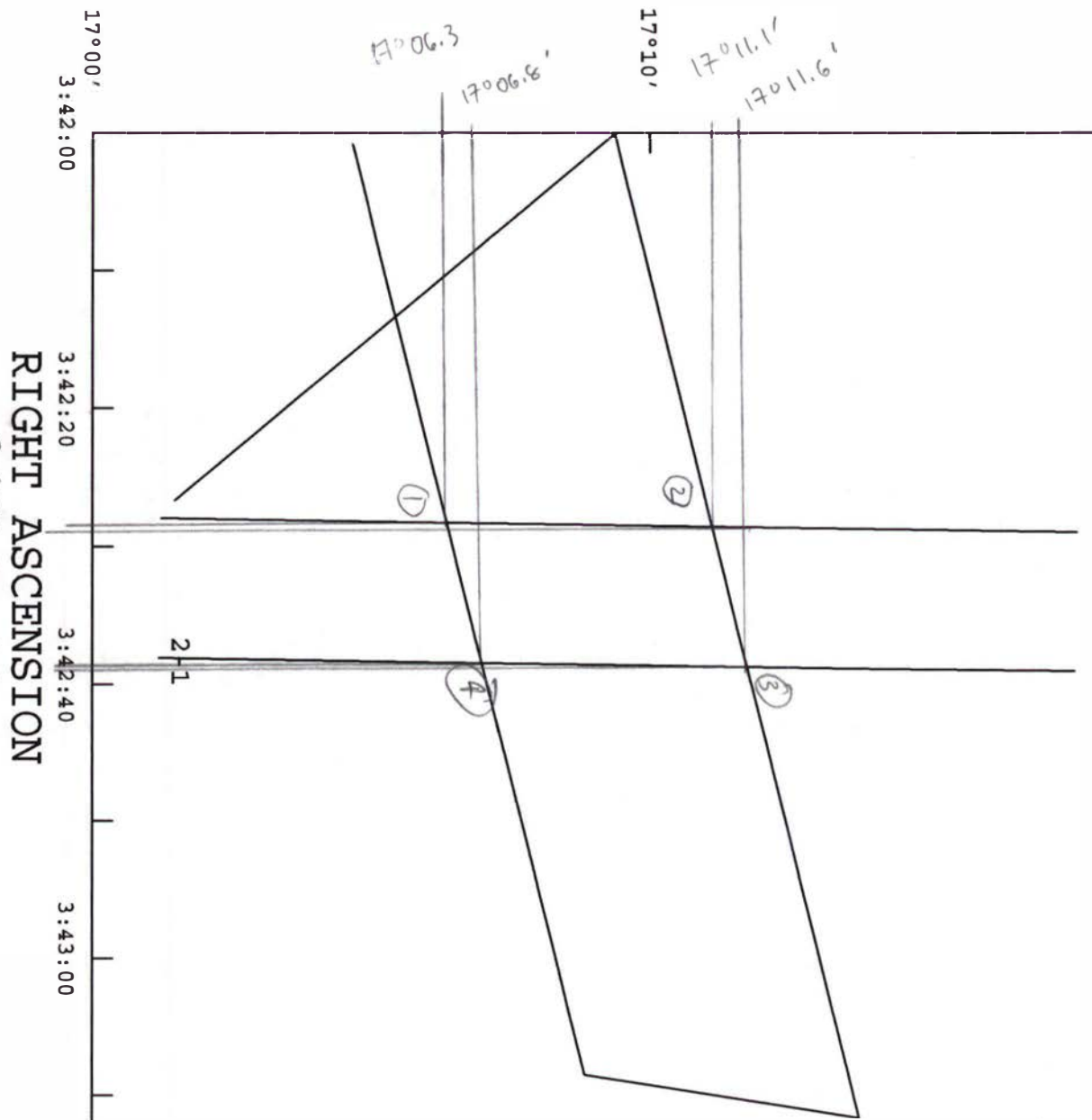


22/12/98

G=GALACTIC EQUATOR

2 KONUS

DECLINATION



EVENT OF DEC 20, 1998 22:06

22/12/98

ULYSSES

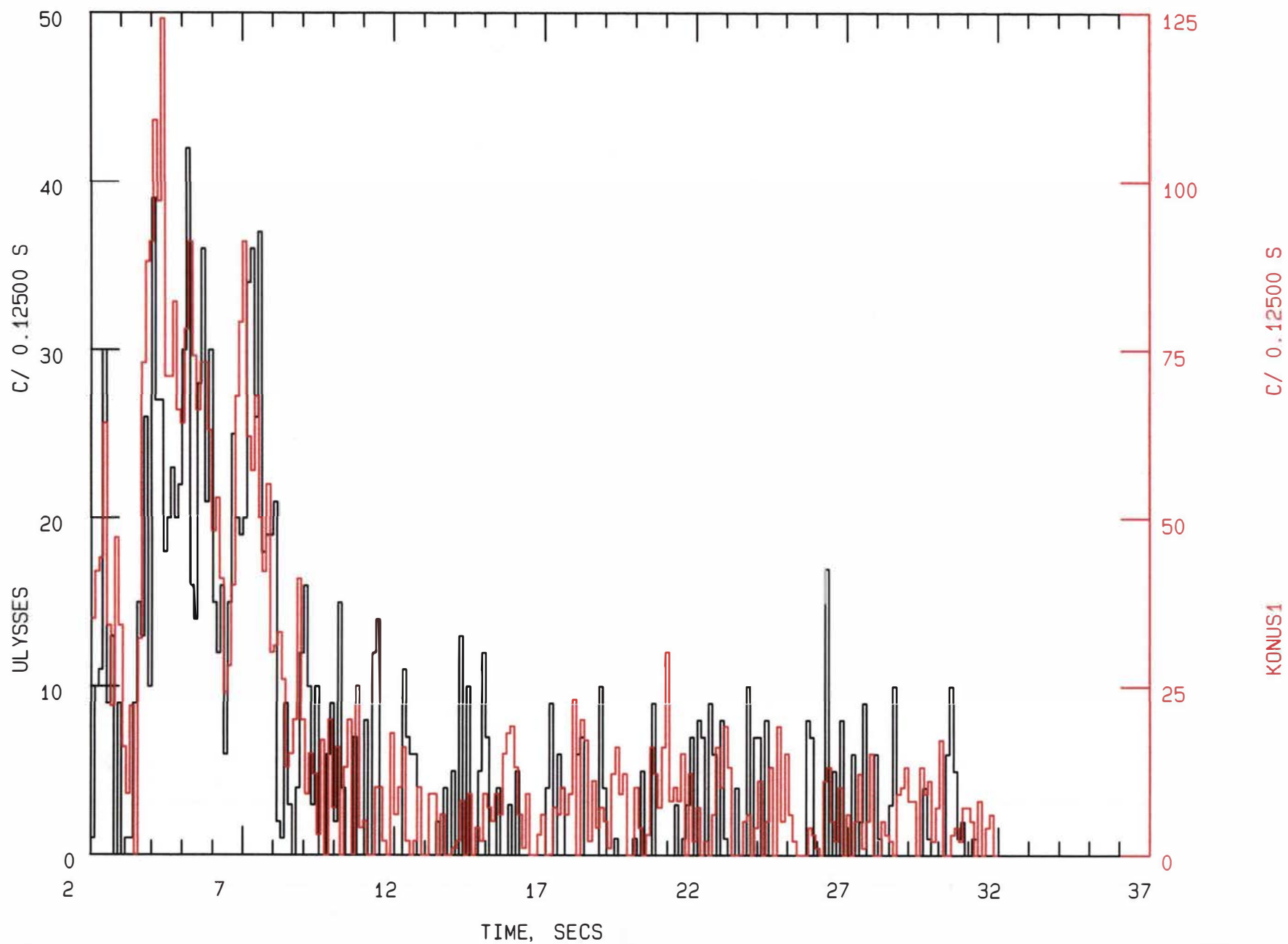
-KONUS1

CORRELATION

20/12/98

79721.828

22/12/98



22/12/98

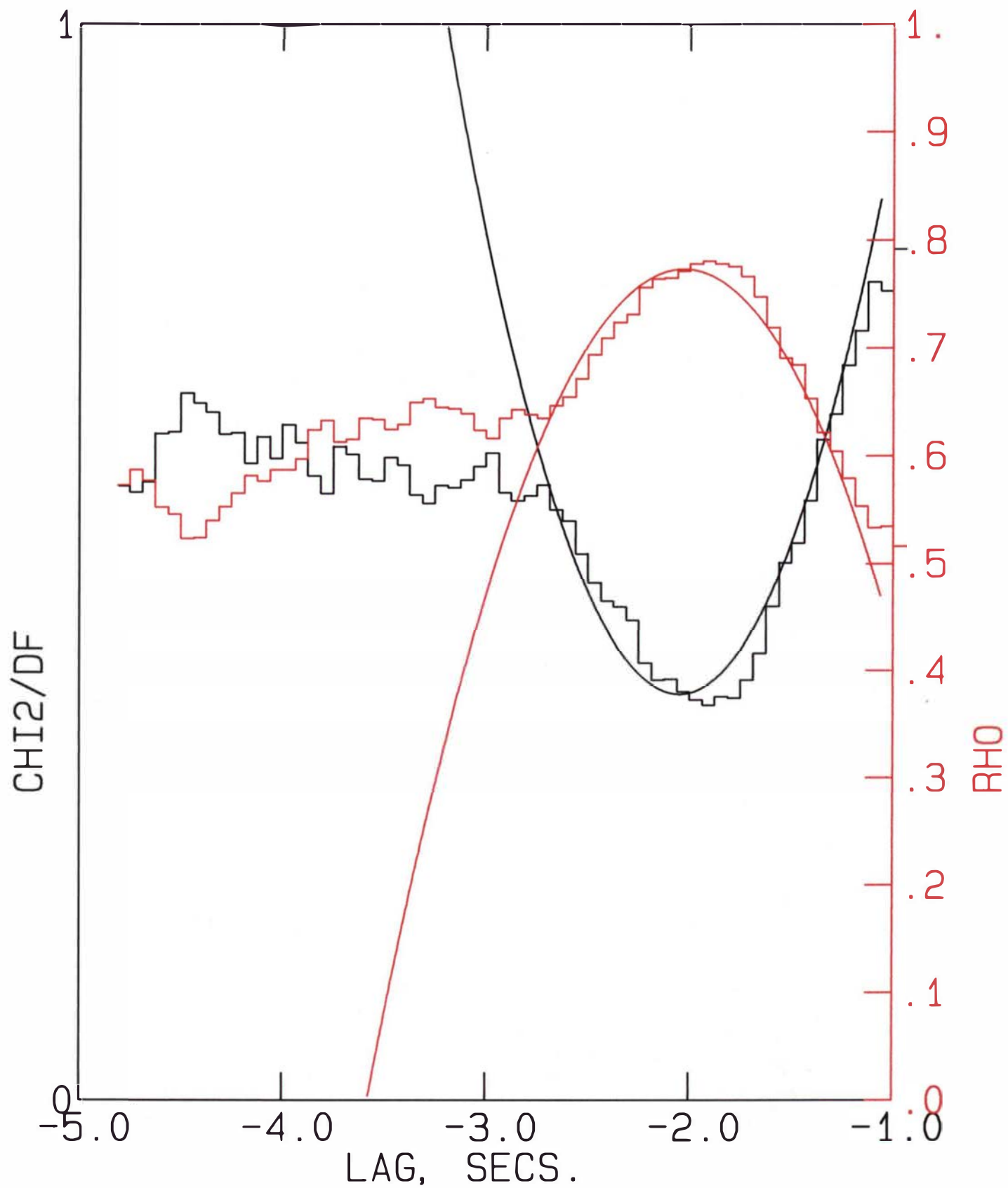
ULYSSES

-KONUS1

CORRELATION

20/12/98

79721.828



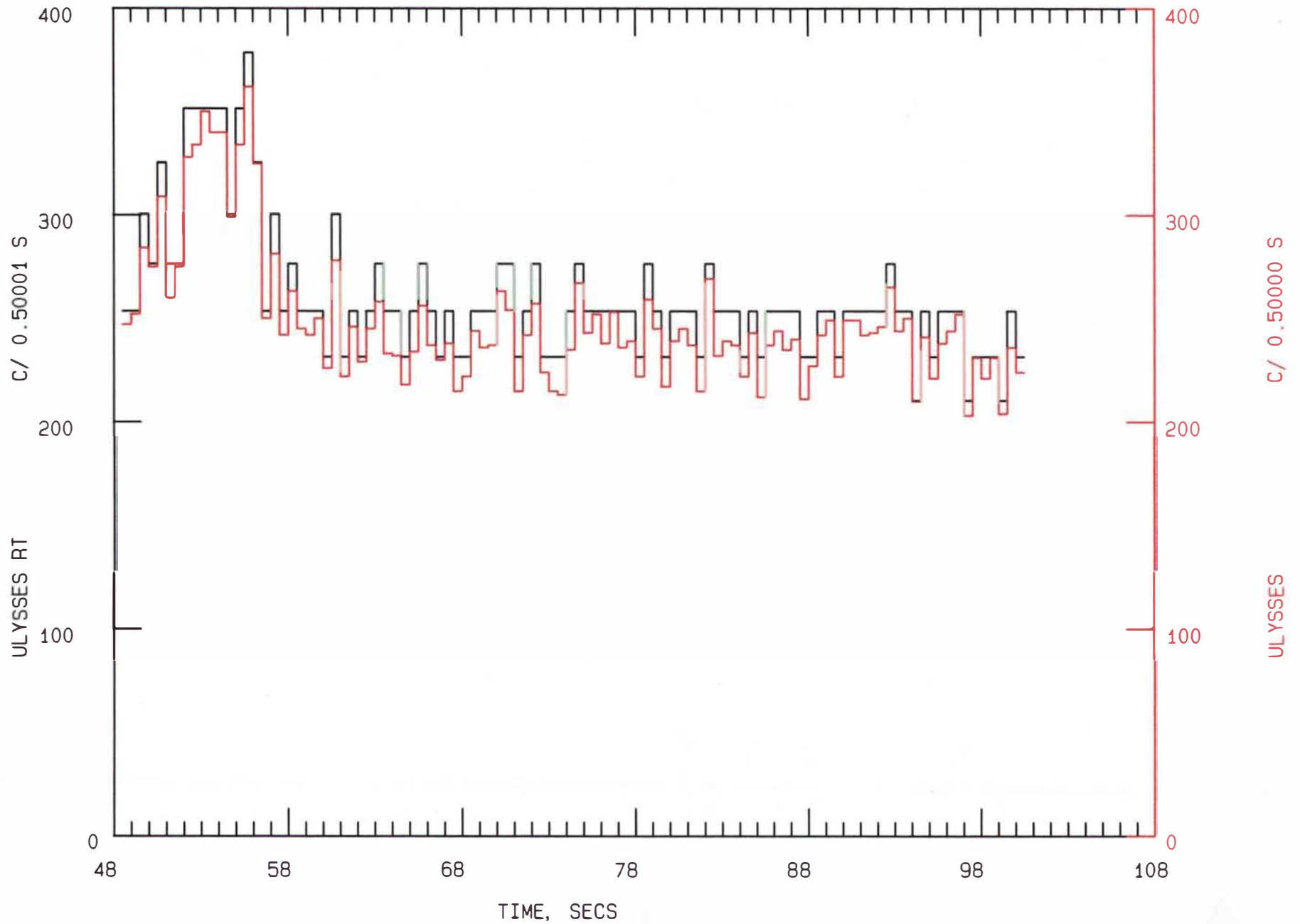
ULYSSES RT-ULYSSES

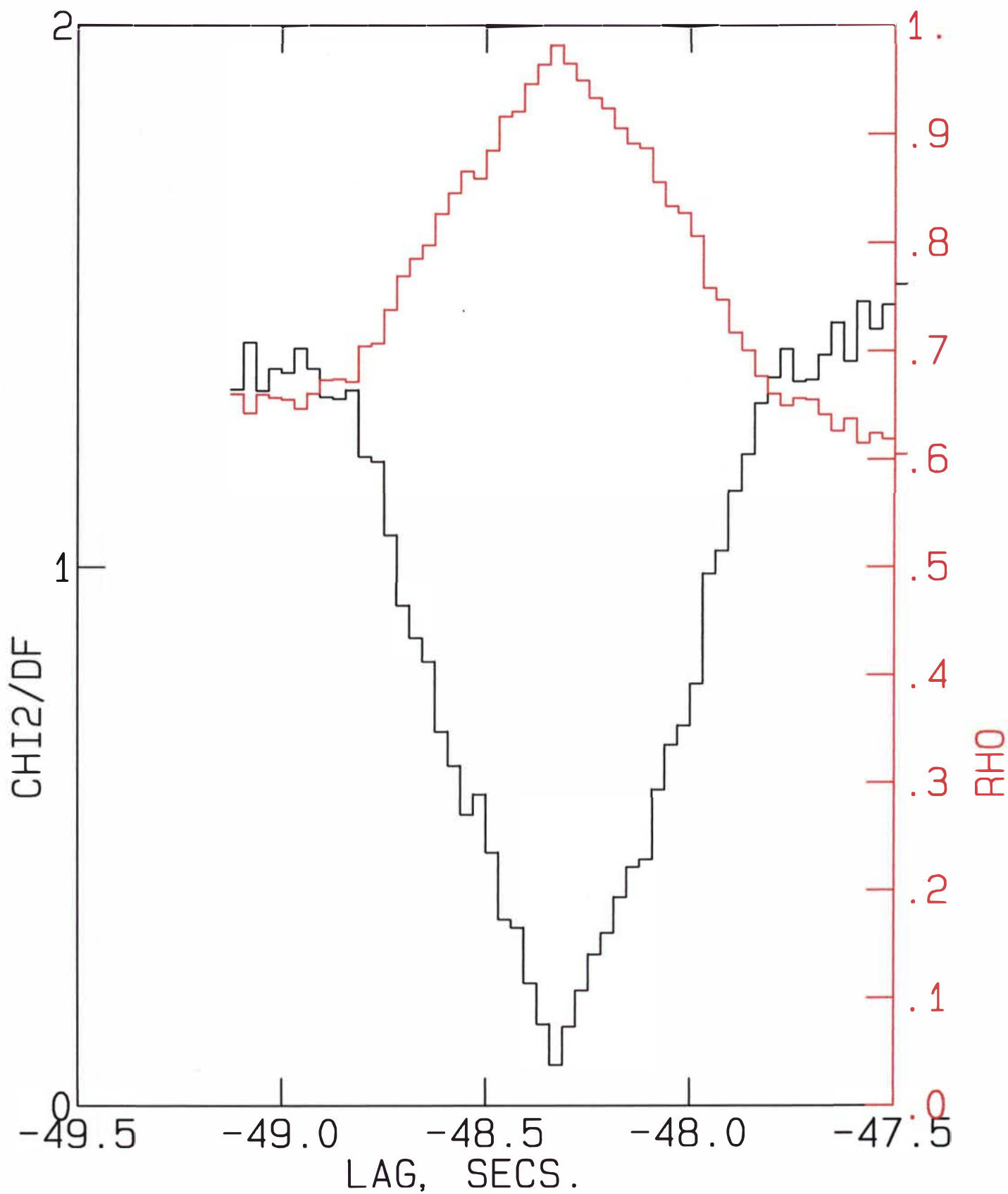
CORRELATION

20/12/98

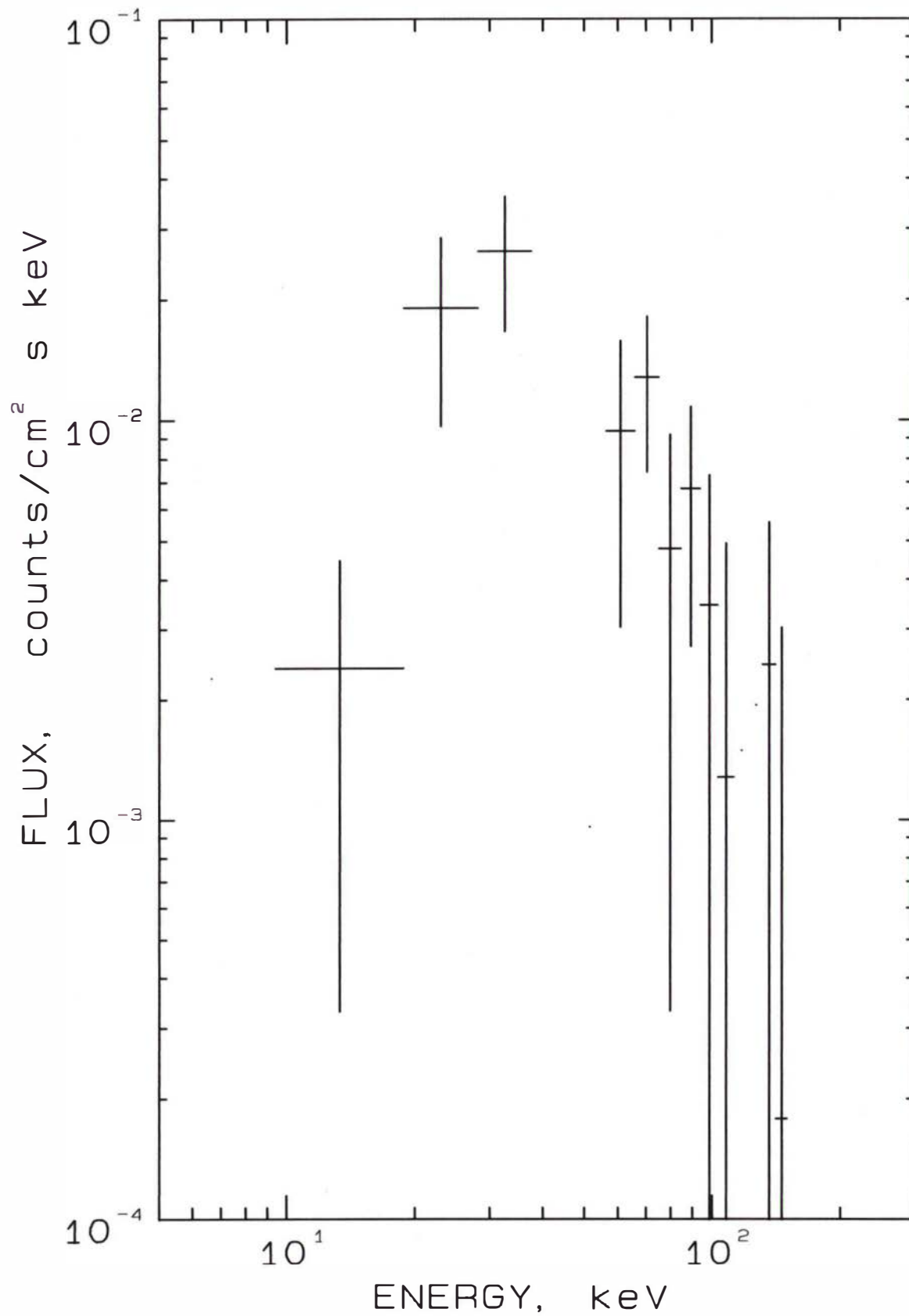
79666.076

22/12/98



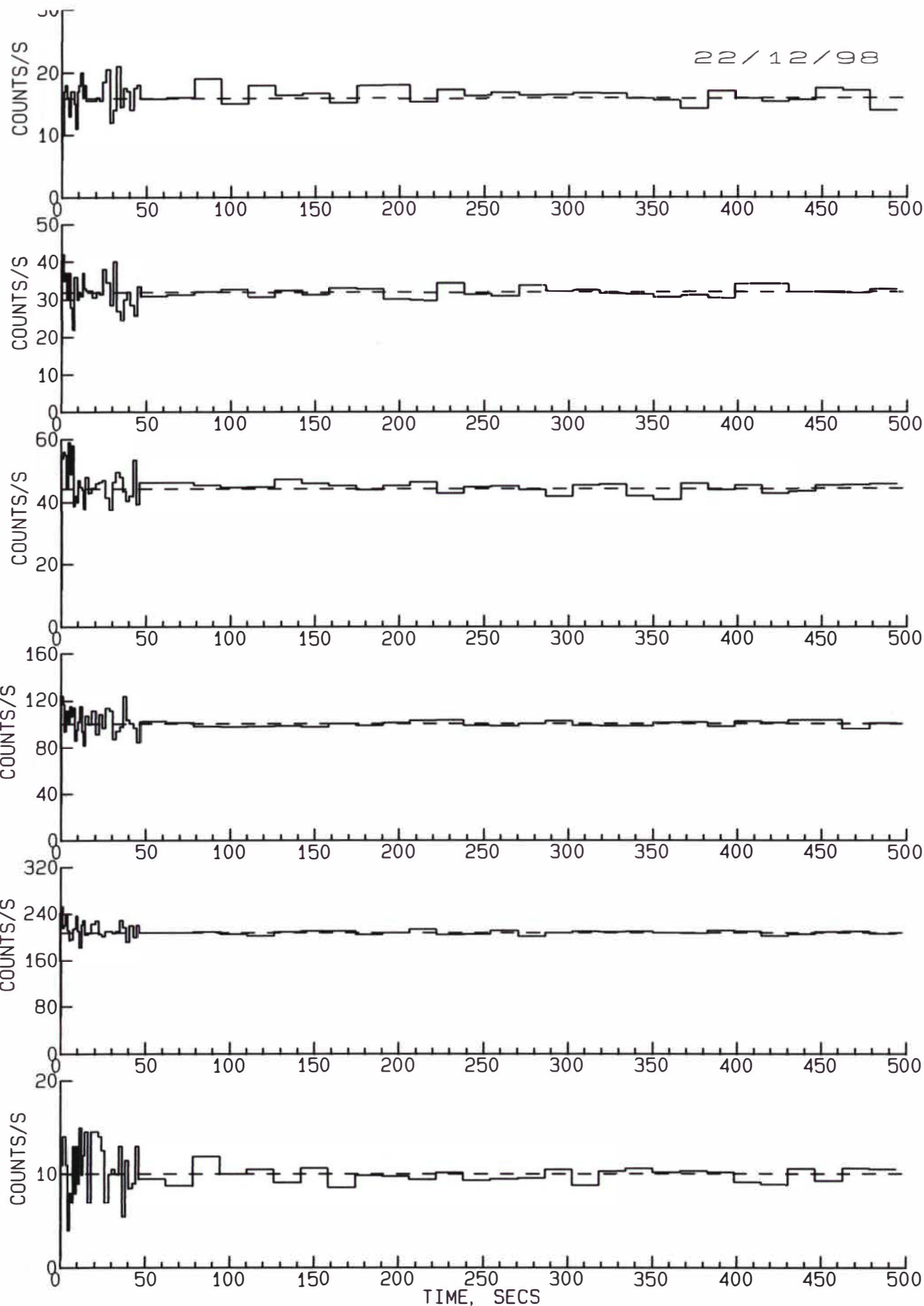


SPECTRUM INTEGRATED OVER 62.3 SECONDS, INTERVALS 2 TO 34



ULYSSES 20/12/98 79721.819 BURST SPECTRAL COUNT RATES

4- 18 keV

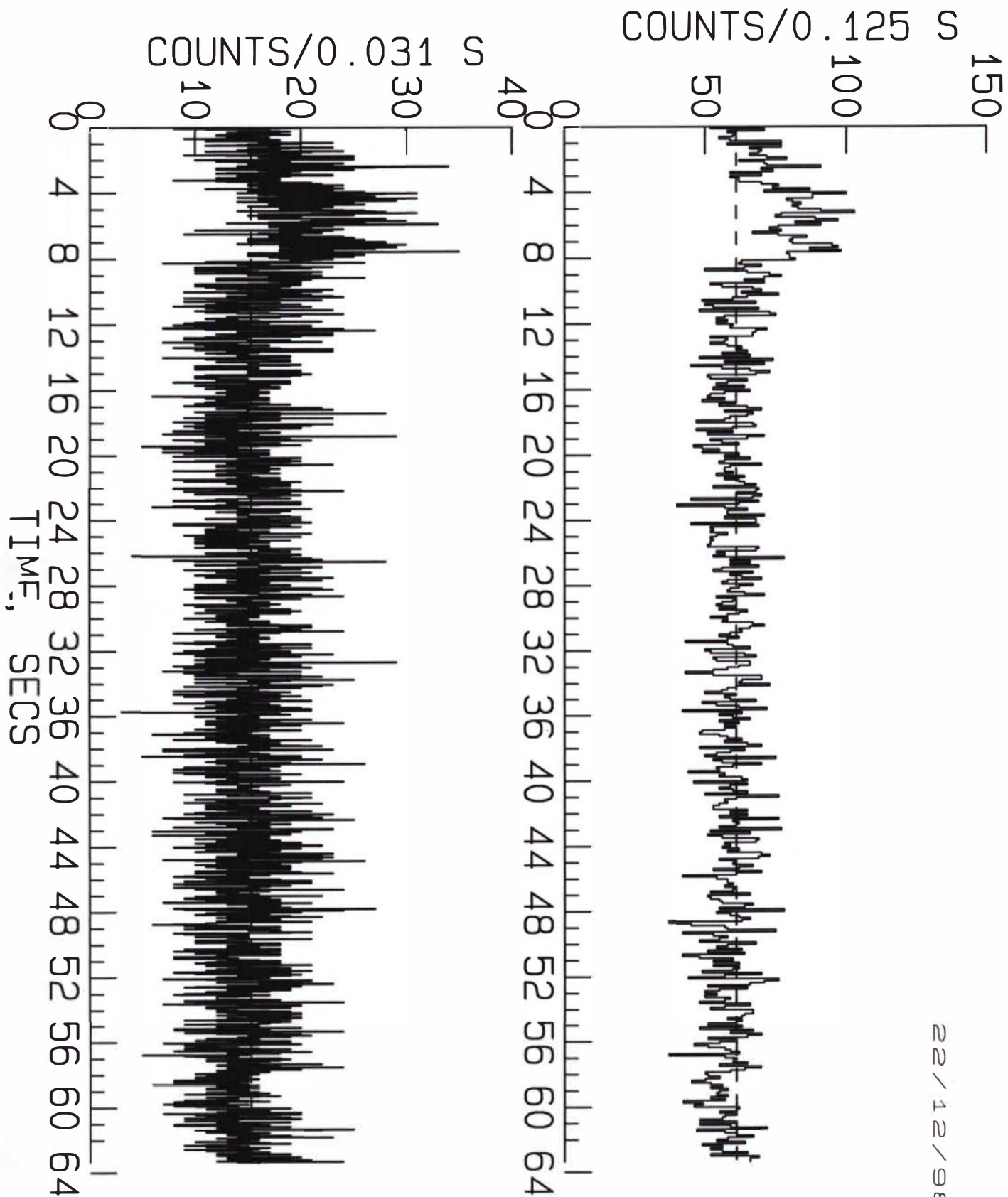


ULYSSES

20/12/98

Ttrig=79721.828

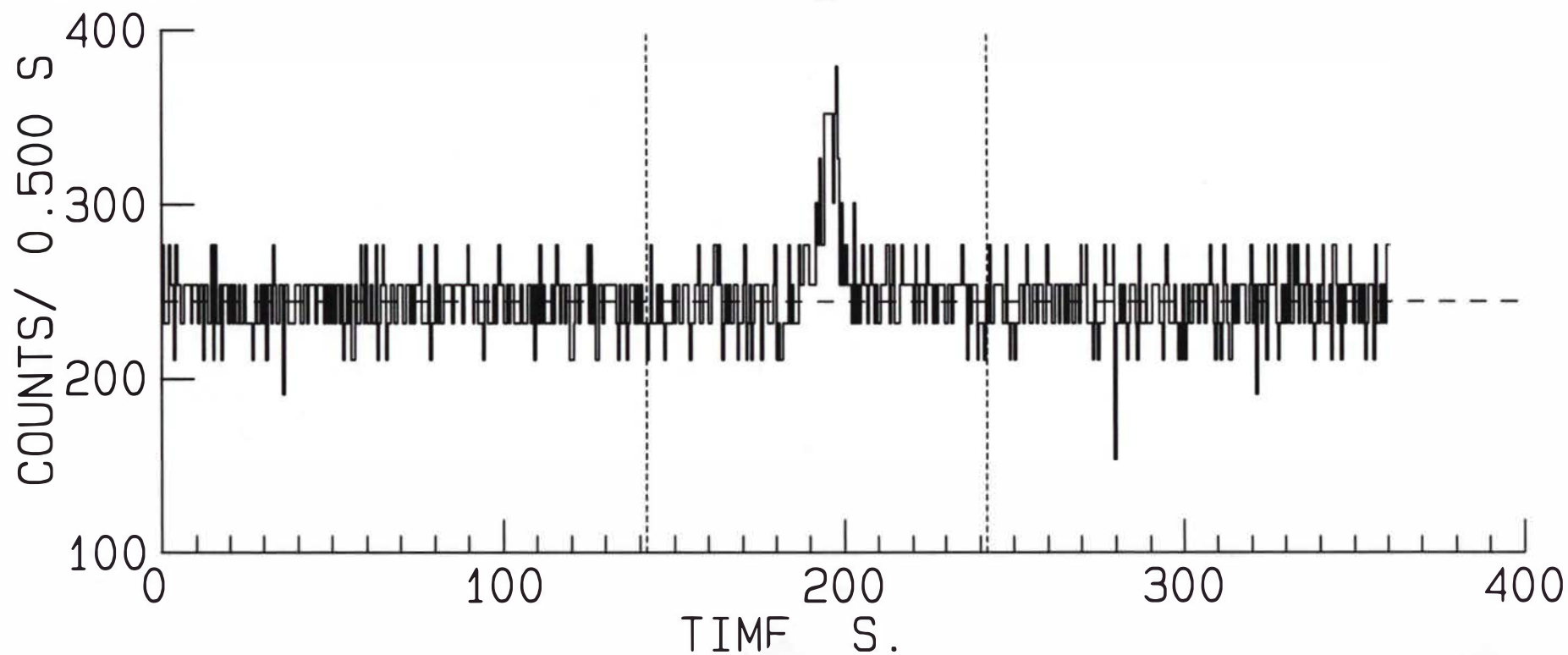
0- 0 keV

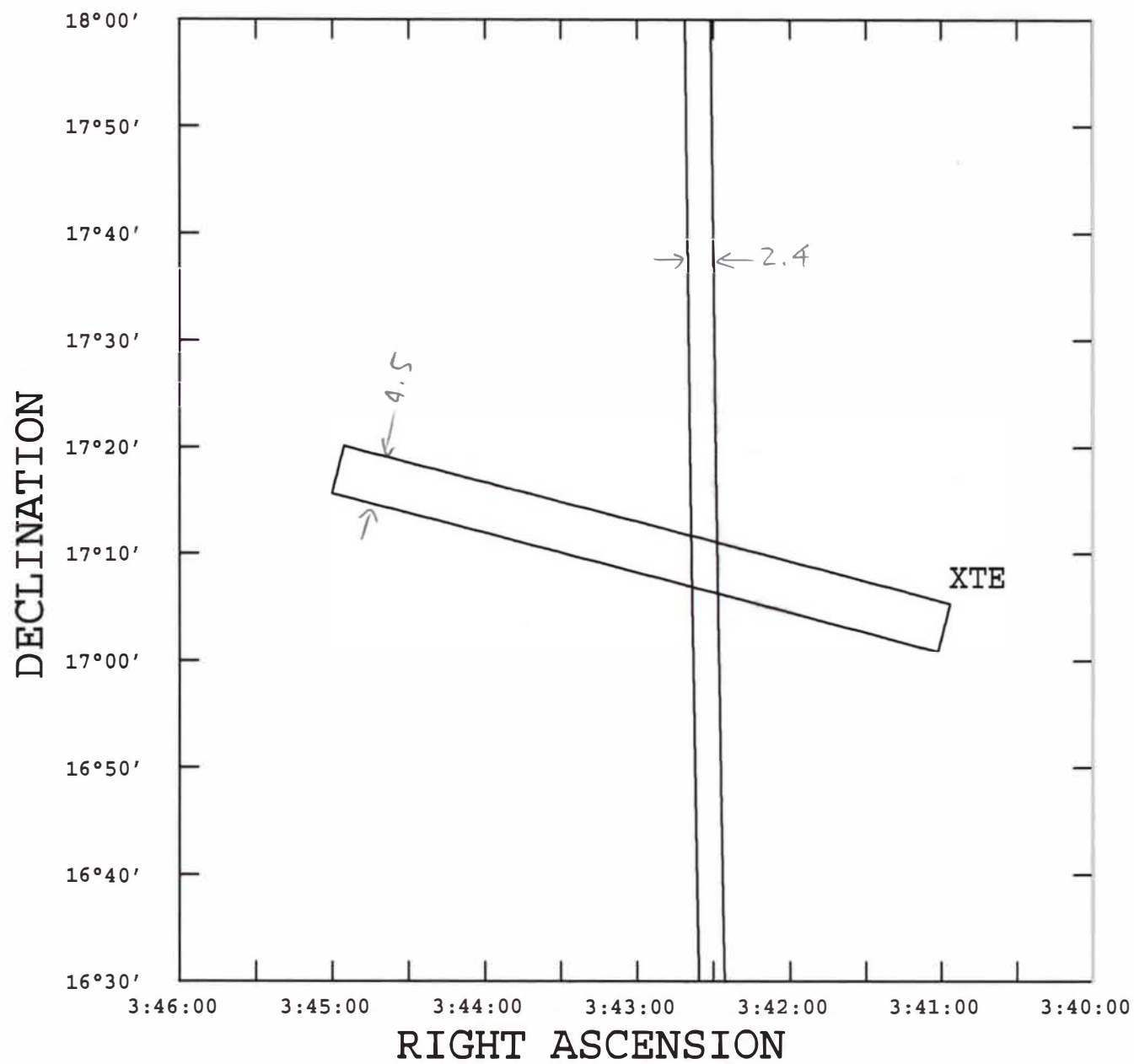


ULYSSES RT
20/12/98 79524.076 s
22- 151 keV

22/12/98

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





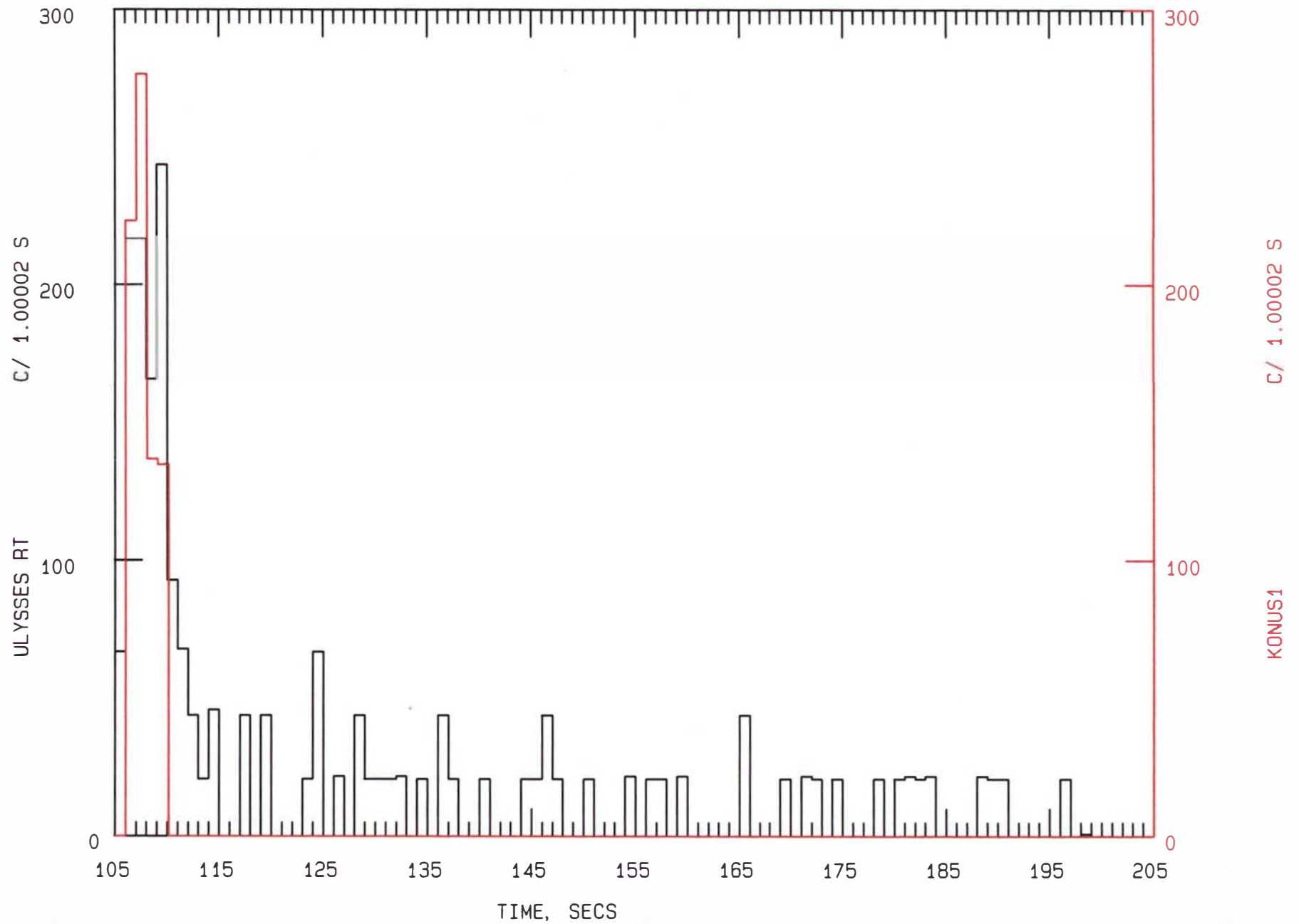
ULYSSES RT-KONUS1

CORRELATION

20/12/98

79612.076

22/12/98



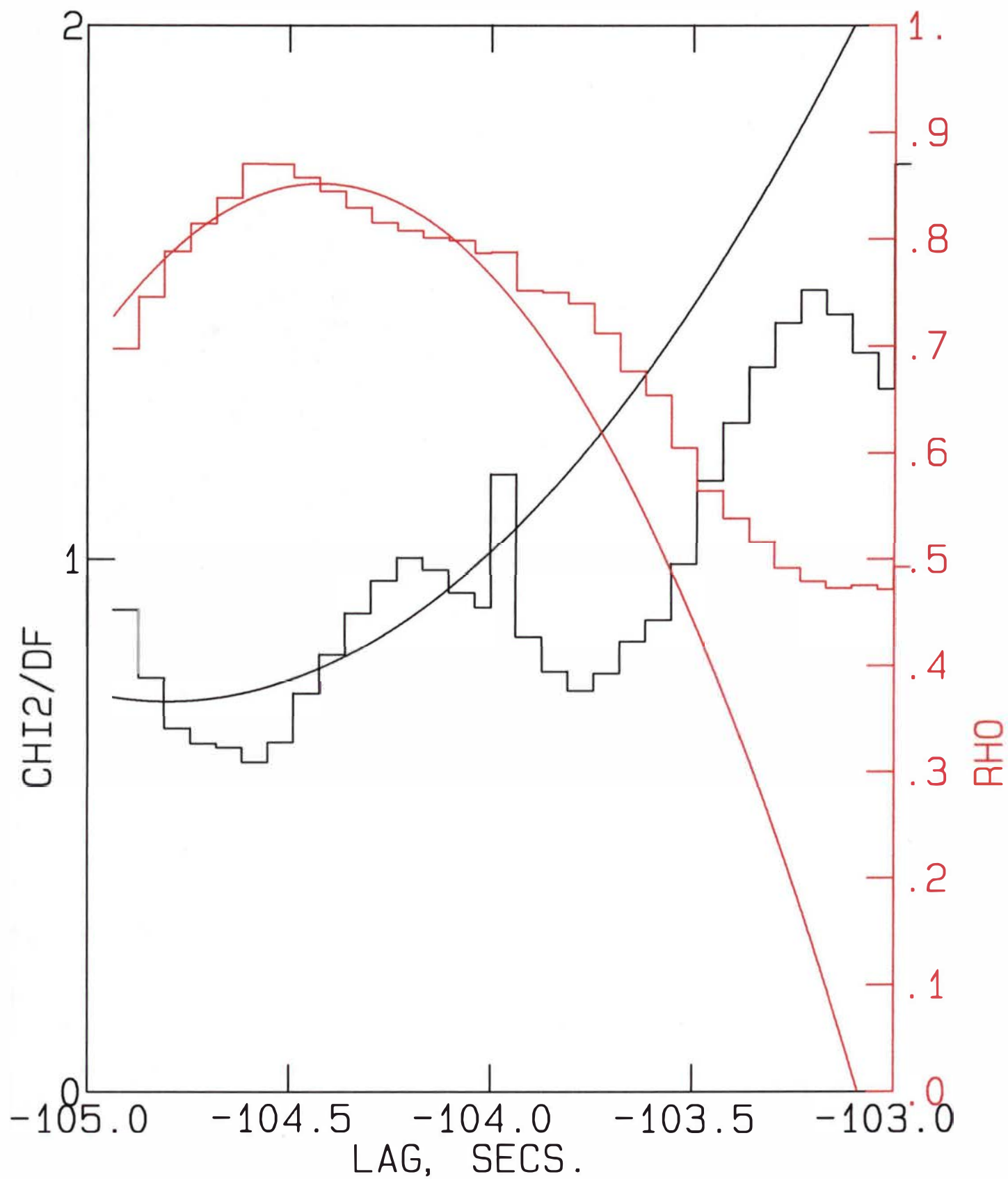
22/12/98

ULYSSES RT-KONUS1

CORRELATION

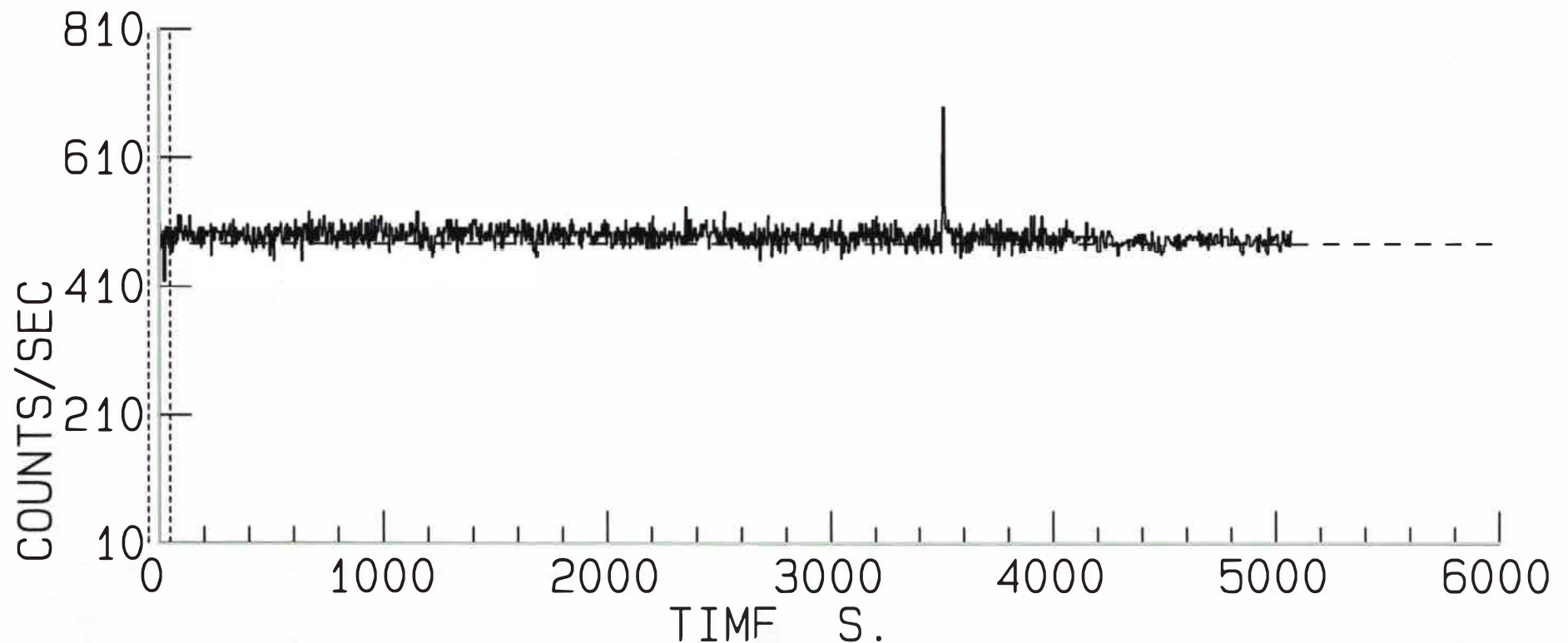
20/12/98

79612.076



ULYSSES RT
20/12/98 76212.039 s
INTERVALS REGROUPED BY 7
22- 151 keV

22/12/98



KONUS

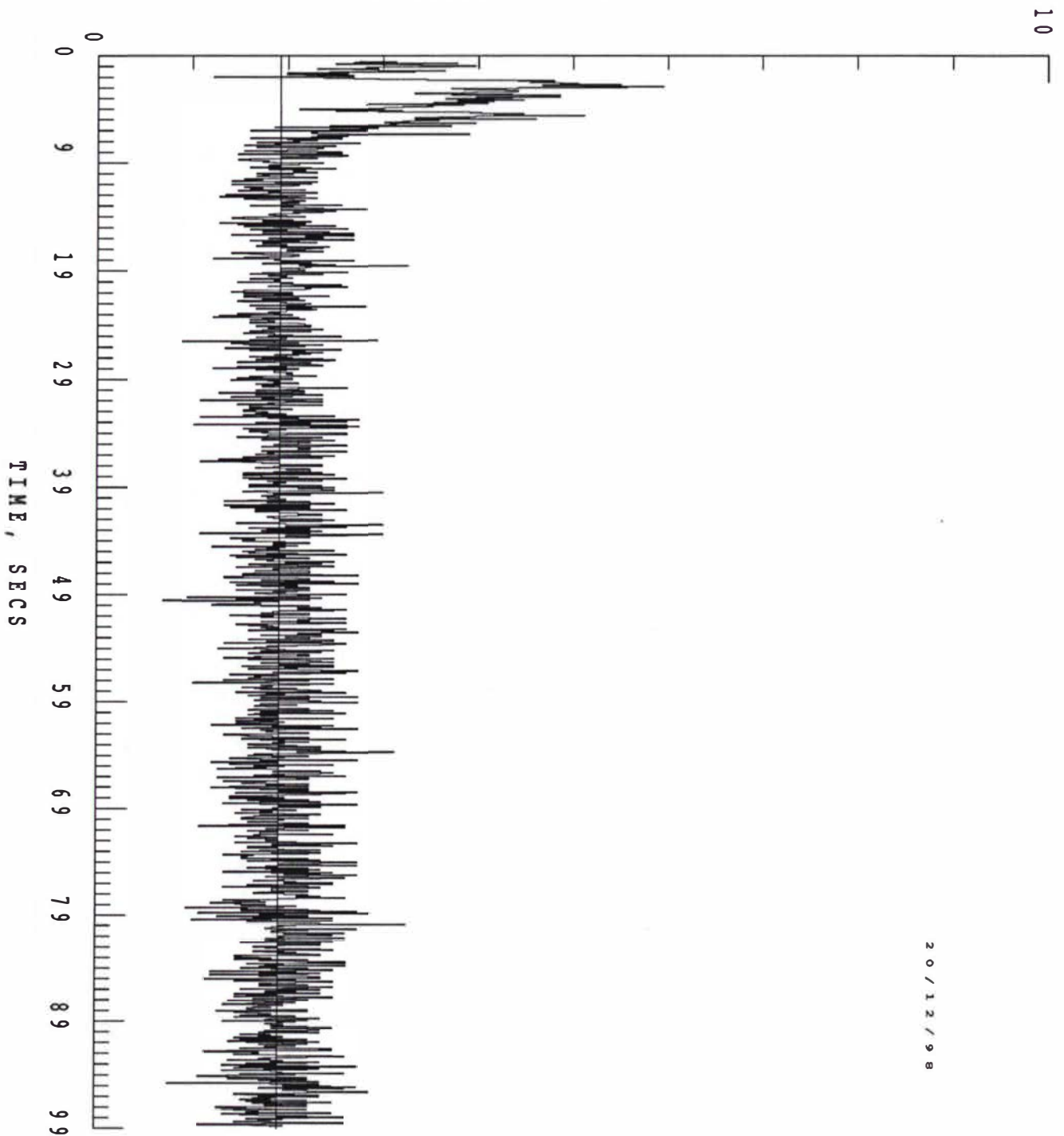
20/12/98

78747.712

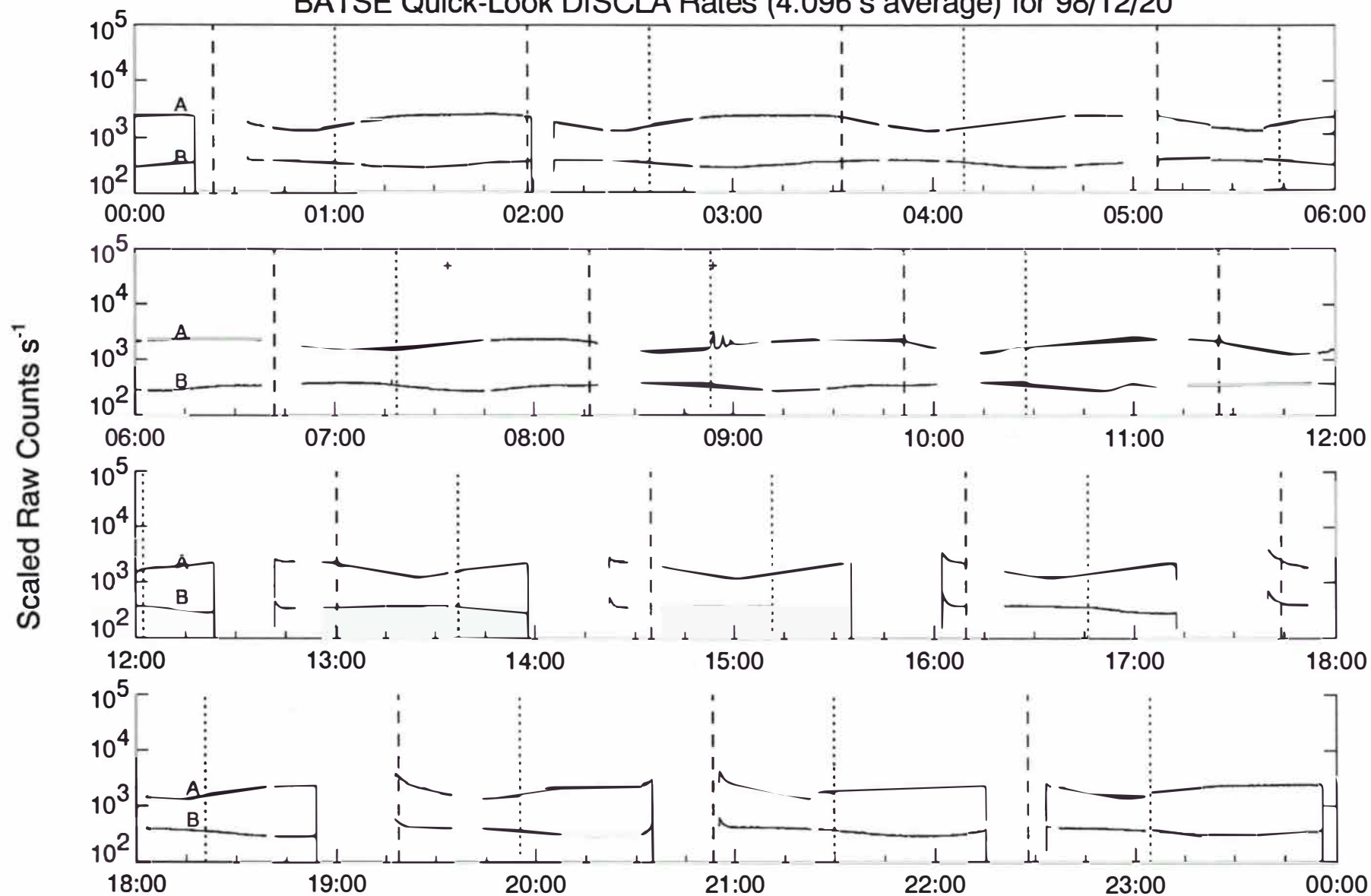
50 - 200 keV

21:52:27

COUNTS/0.064 S



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/20

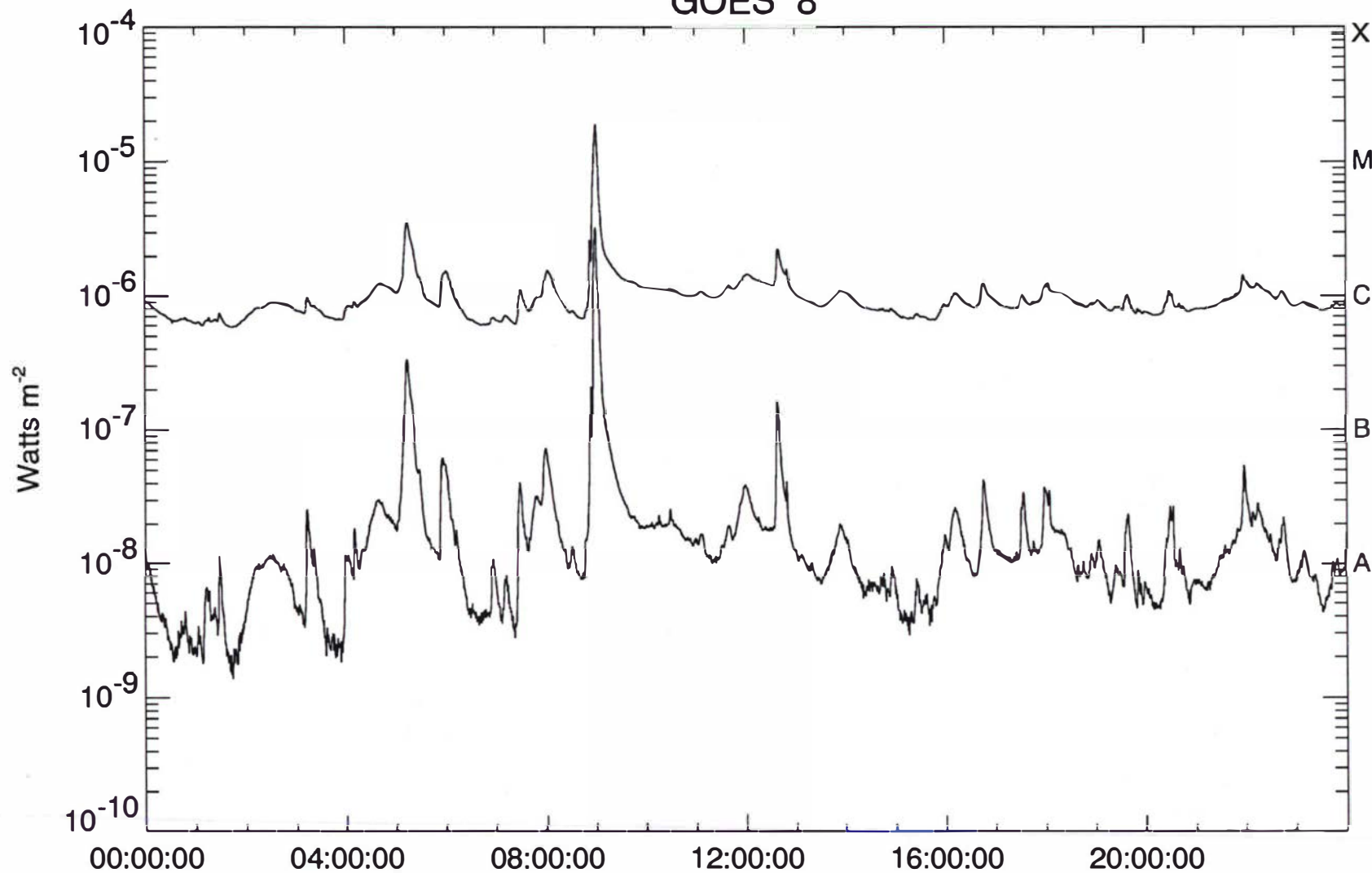


Current Time: 98/12/24, 1011 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

GOES 8



Data Start: 98/12/20, 0000:00

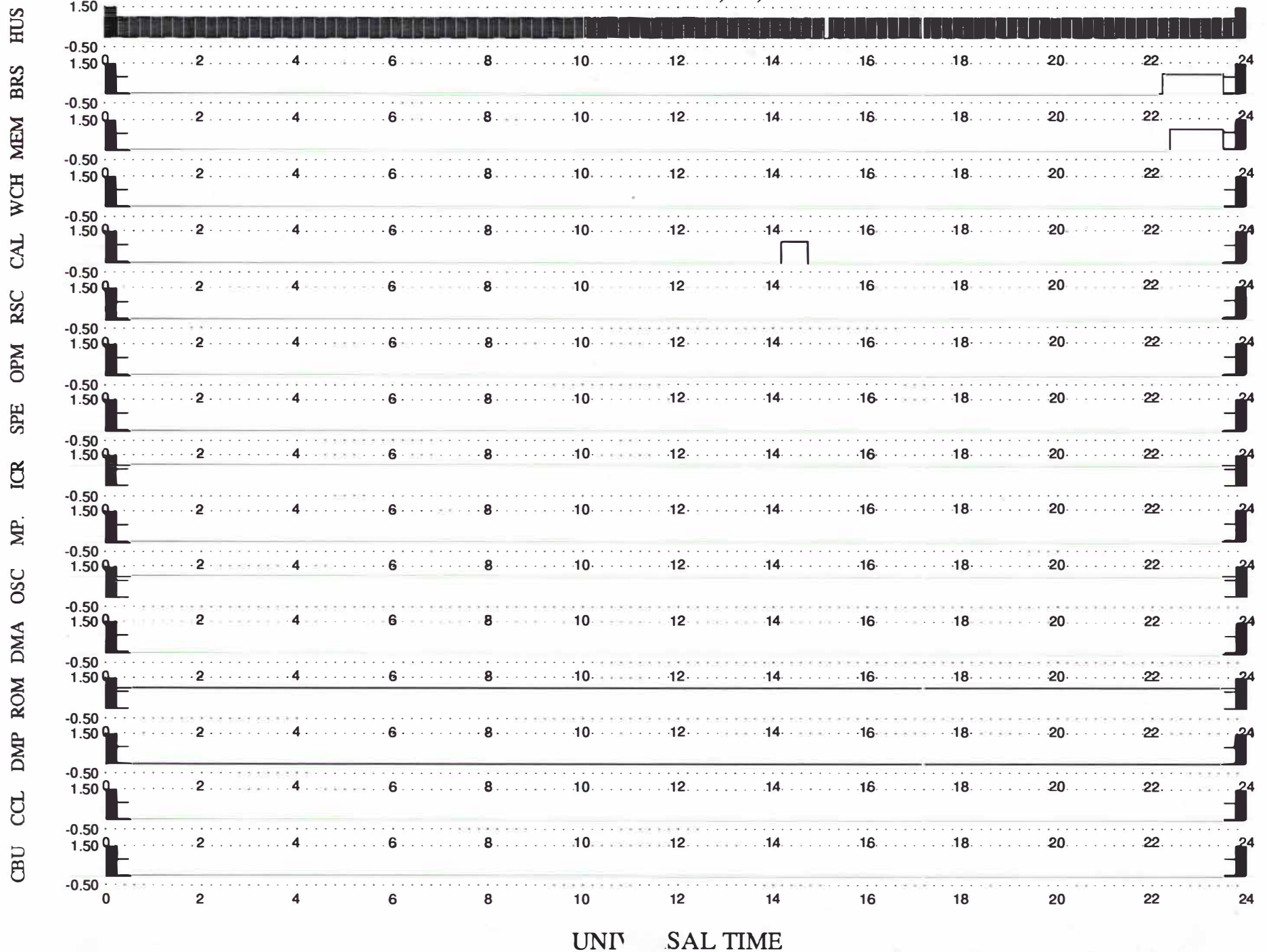
Plot created: 98/12/24, 1010

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

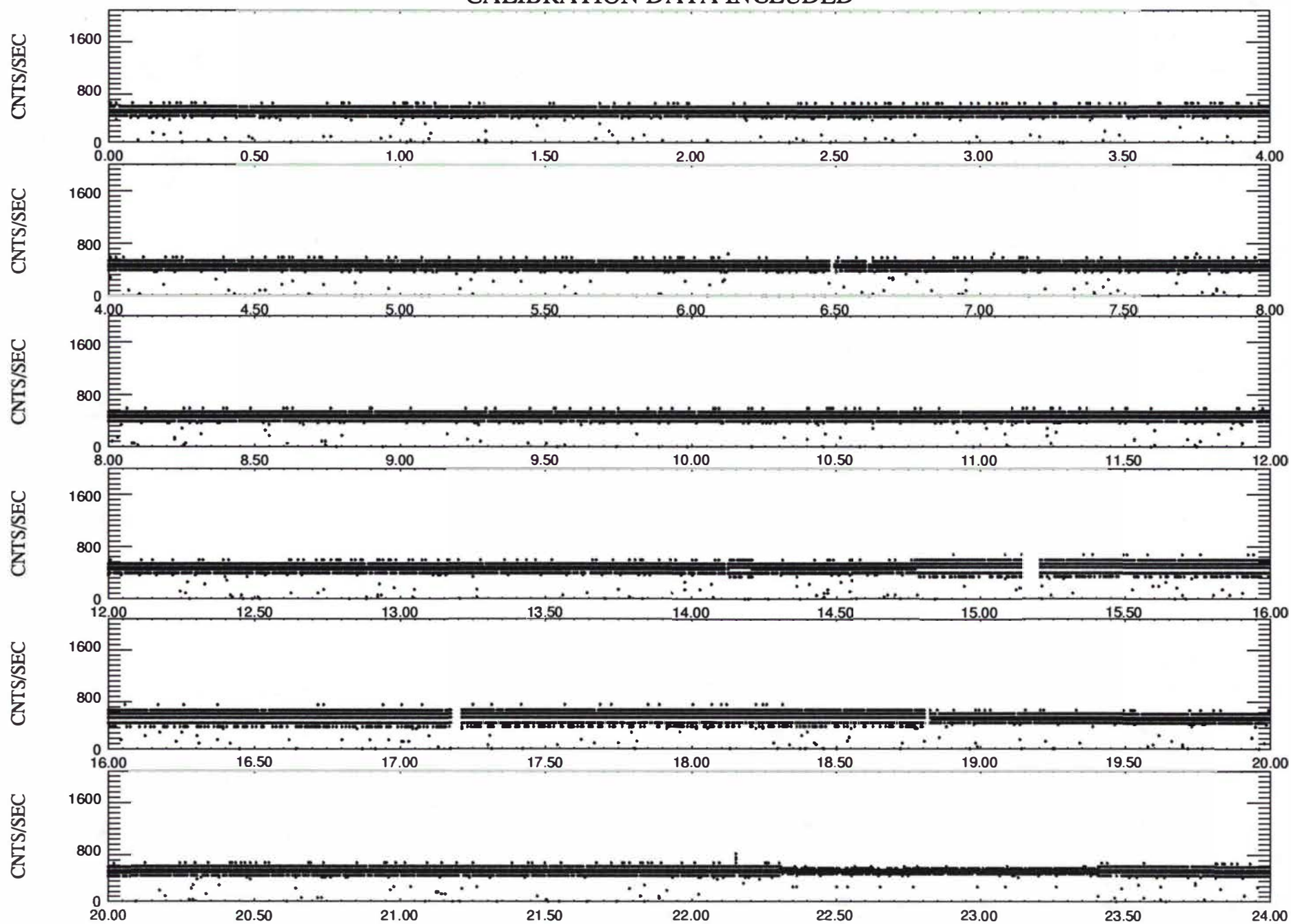
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

BURST NUMBER 3, 12, 13

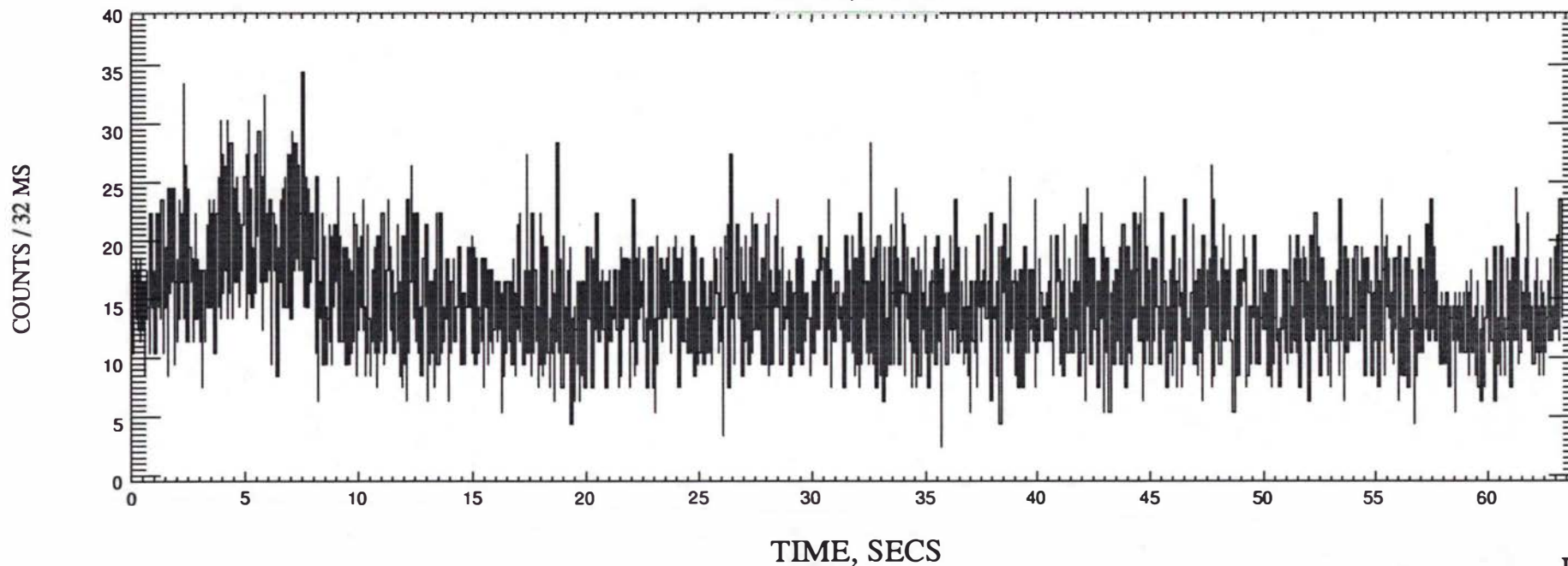
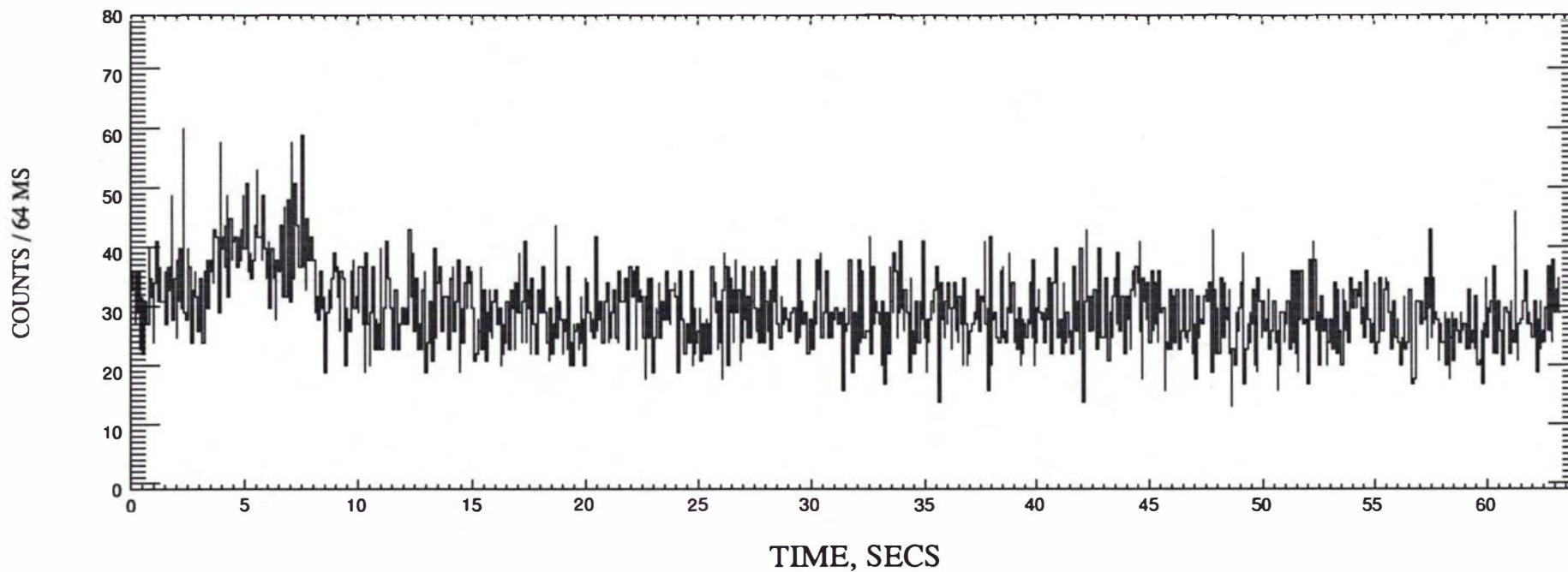


CALIBRATION DATA INCLUDED

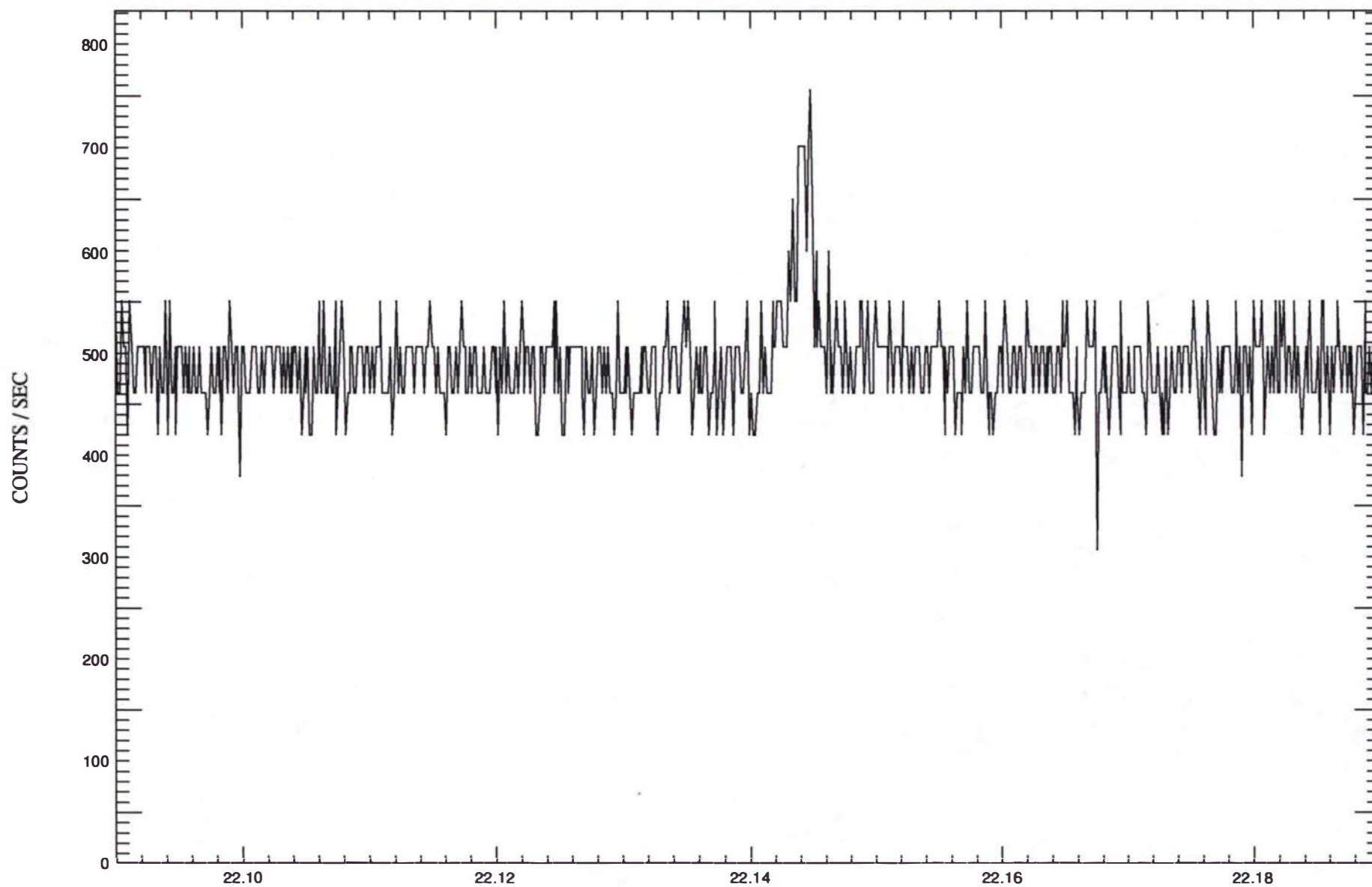


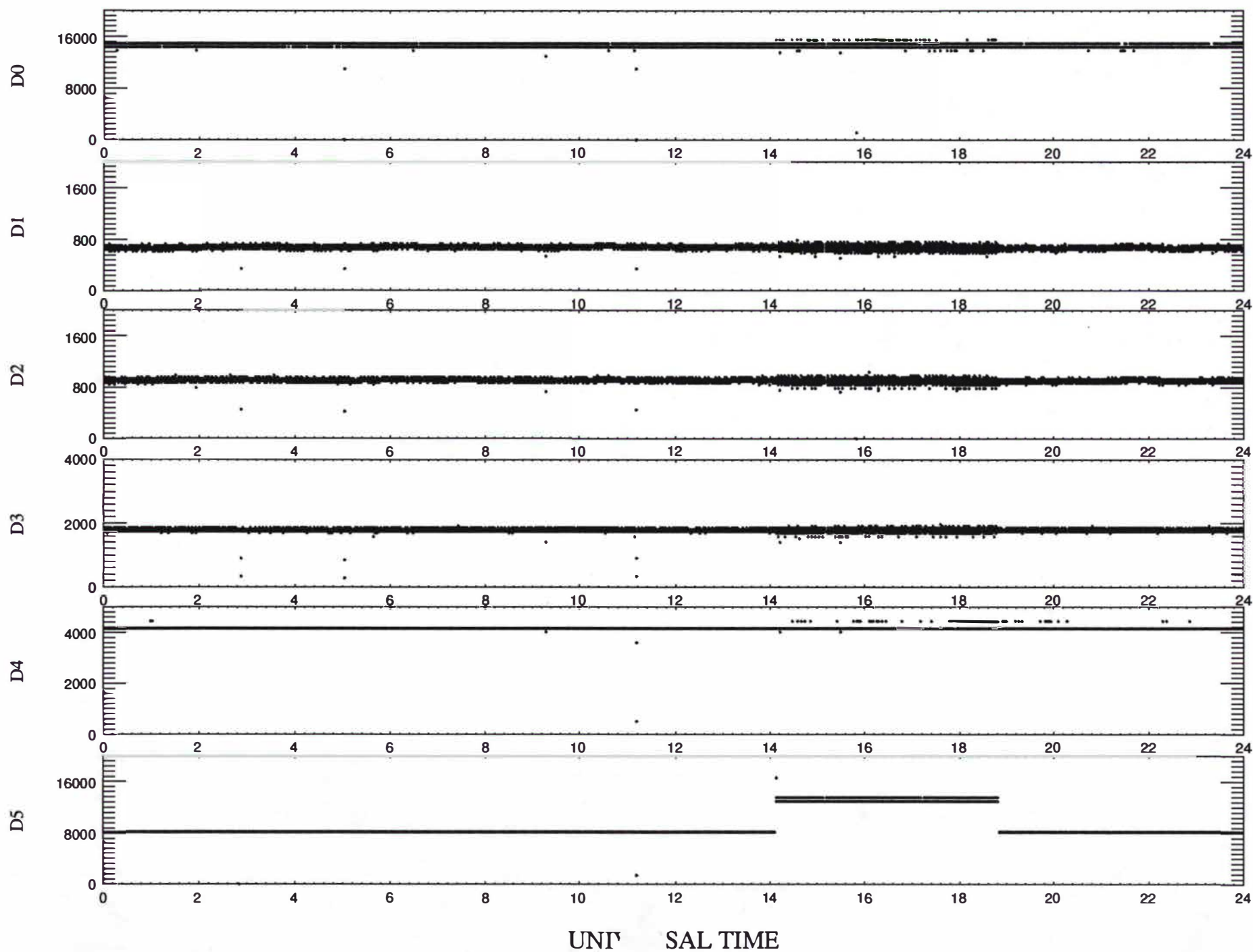
UNF SAL TIME

Burst Counter 13 at UT=22.144949607849 h=79721.819 s 22:08:41.819



CALIBRATION DATA INCLUDED





 BATSEARCH PROGRAM

BATSE BURST # 7272
 EVENT OF 1998 DEC 21 DAY OF YEAR=355
 EVENT CROSSING TIME AT BATSE : 3576. S. OR 00:59:36.0
 COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 287.000 -10.000
 BATSE PEAK COUNTING RATE: 4300 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON 21/12/ 98 IS:
 RA= 166.709 DEC= -7.160 DIST= 4.982 AU
 BATSE-ULYSSES DISTANCE = 745247474. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 61.89 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1171.38 SECS.
 CROSSING TIME AT ULYSSES IS 4747. S. OR 01:19:07 +/- 448.46 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
 POSITION OF MARS ON 21/12/ 98 IS:
 RA= 192.481 DEC= -3.369 DIST= 1.601 AU
 MARS-BATSE DISTANCE = 239497632. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 86.14 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= 53.73 SECS.
 CROSSING TIME AT MARS IS 3630. S. OR 01:00:29 +/- 139.20 SECONDS

BATSE BURST TRIGGER

NO.: 7272

TIME: TJD=1168 SECONDS= 3576

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 76.9 AZIMUTH=333.7 ERROR= 2.5 DEGREES

COMMENTS:

COMPLEX, TOTAL DUR. APPROX. 300 S, STARTS AT APPROX. T-200 S.
 VERY MARGINALLY VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7272	981221	11168	03576	4300	287	-10	300

BATSE BURST# 7272

ULYSSES RT

23 / 12 / 98

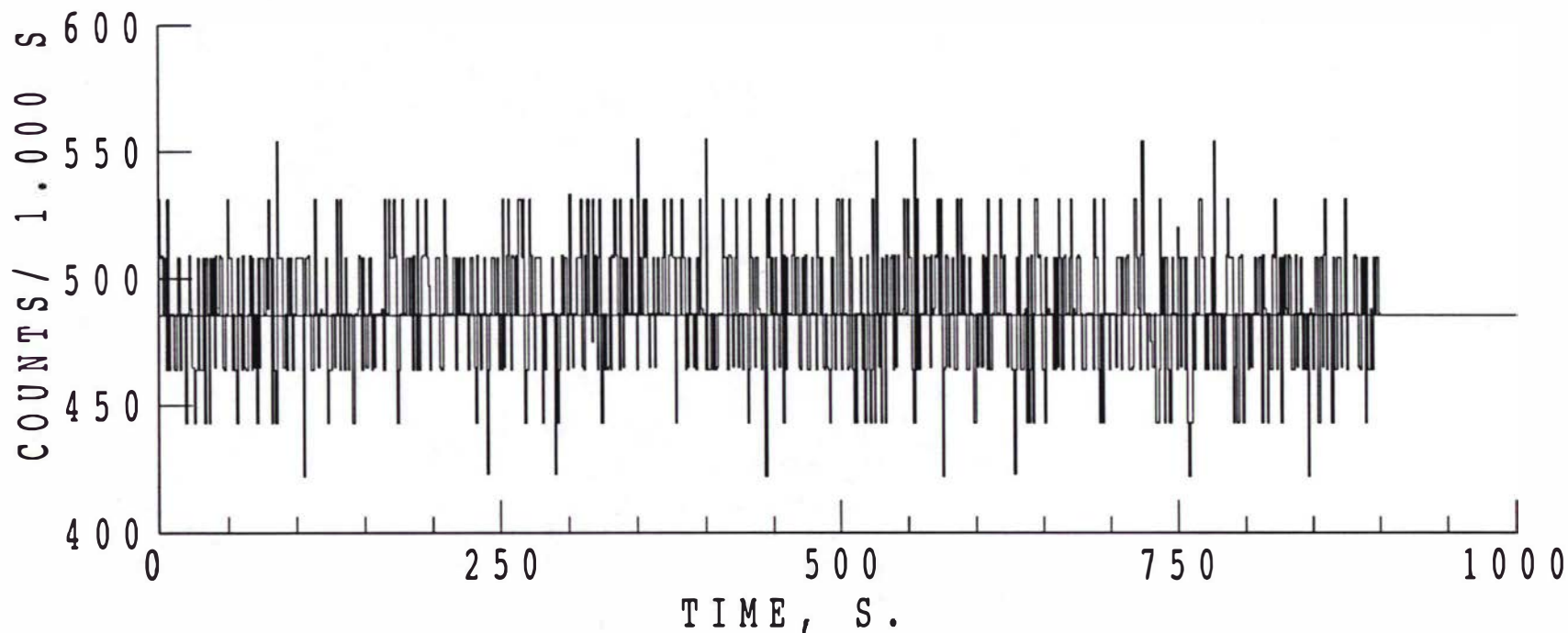
21 / 12 / 98 4284.186 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

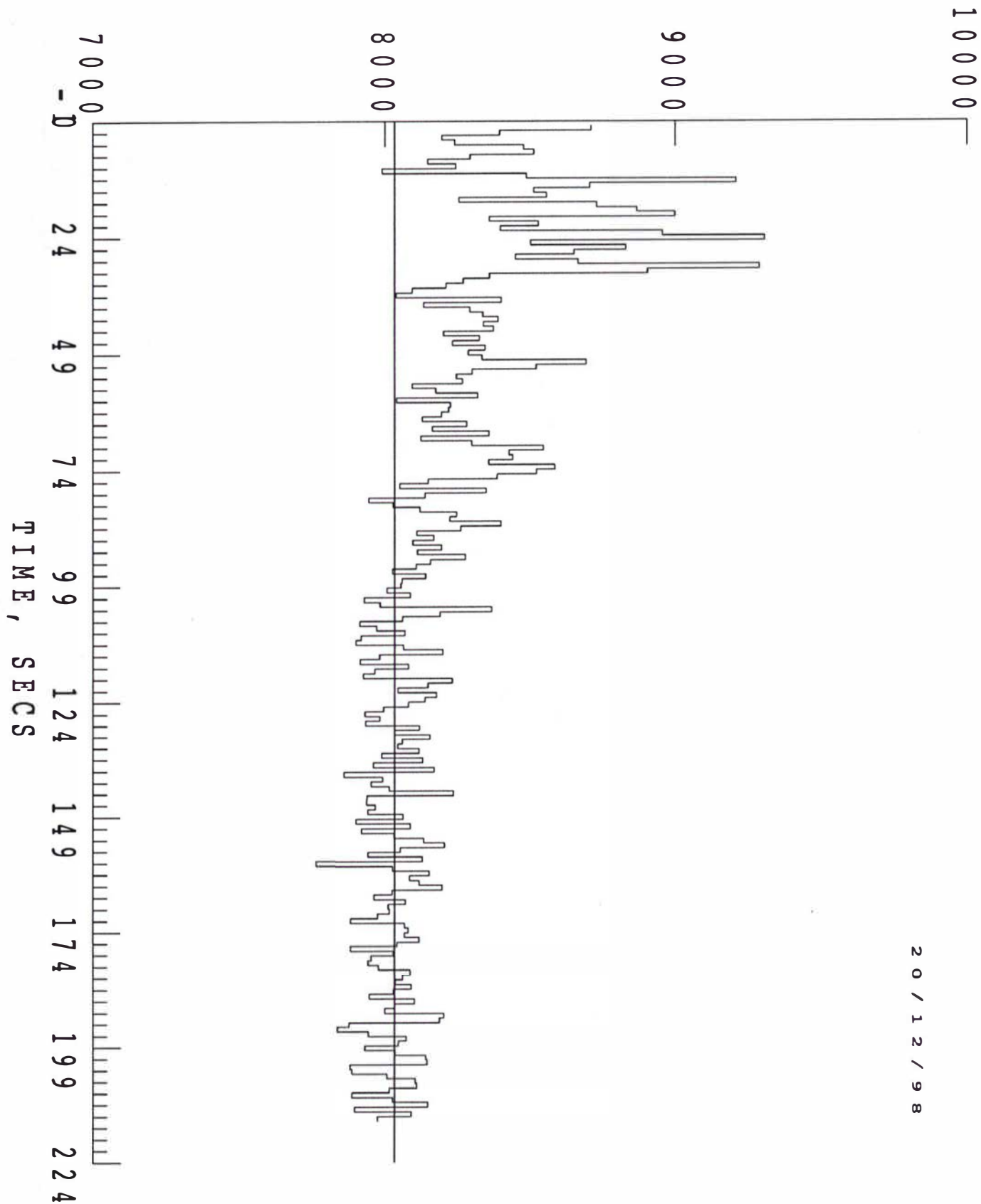
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BACODINE 7272 21/12/98 3564.257

25- 100 keV

COUNTS/1.024 S



20 / 12 / 98

Date: Feb 10 2010

BURST TRIANGULATION CHECKLIST

1. Ulysses Data *N/A*

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

2. BATSE Data

- ☐ 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@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?

4. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

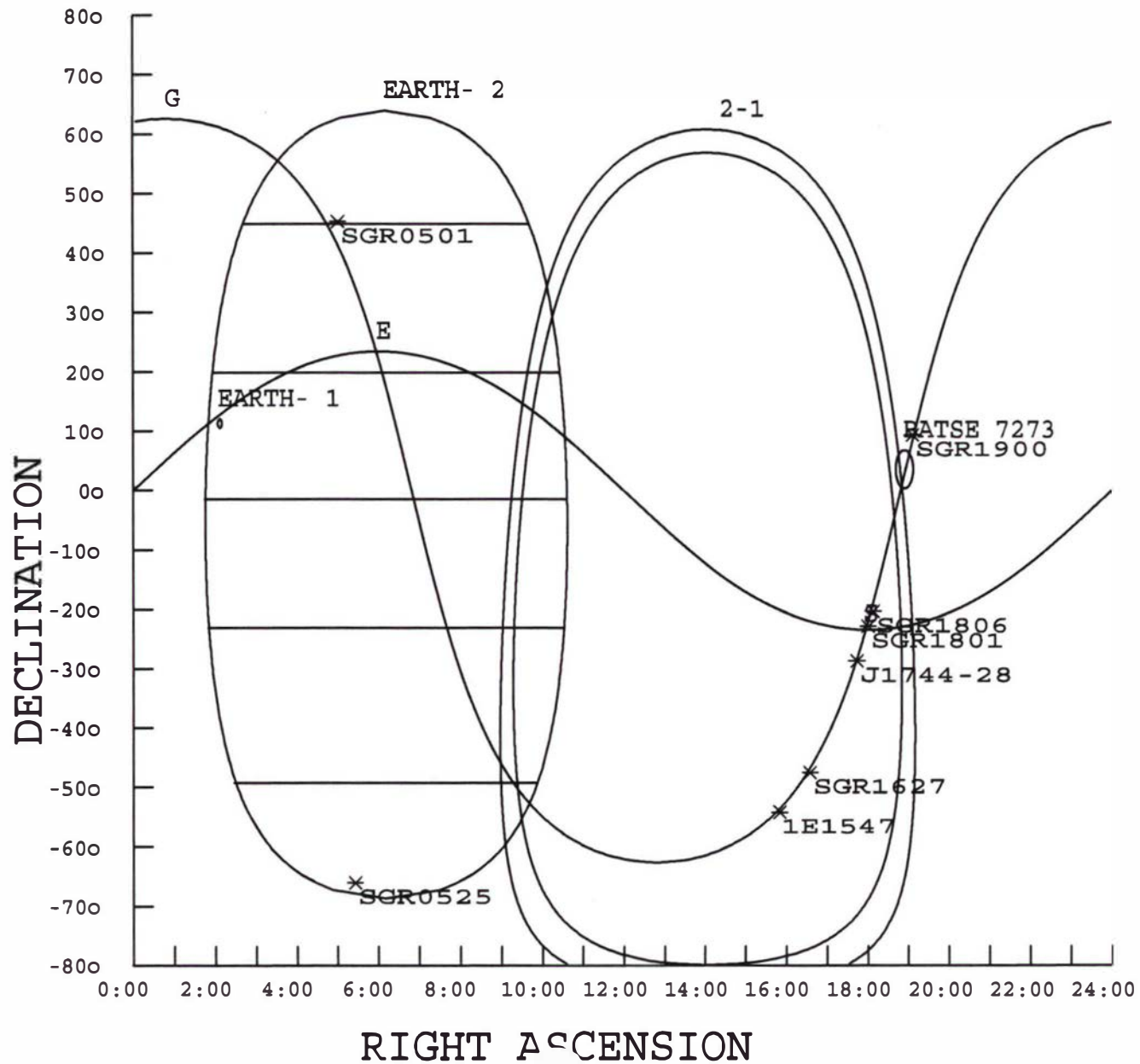
5. For 3 Spacecraft events

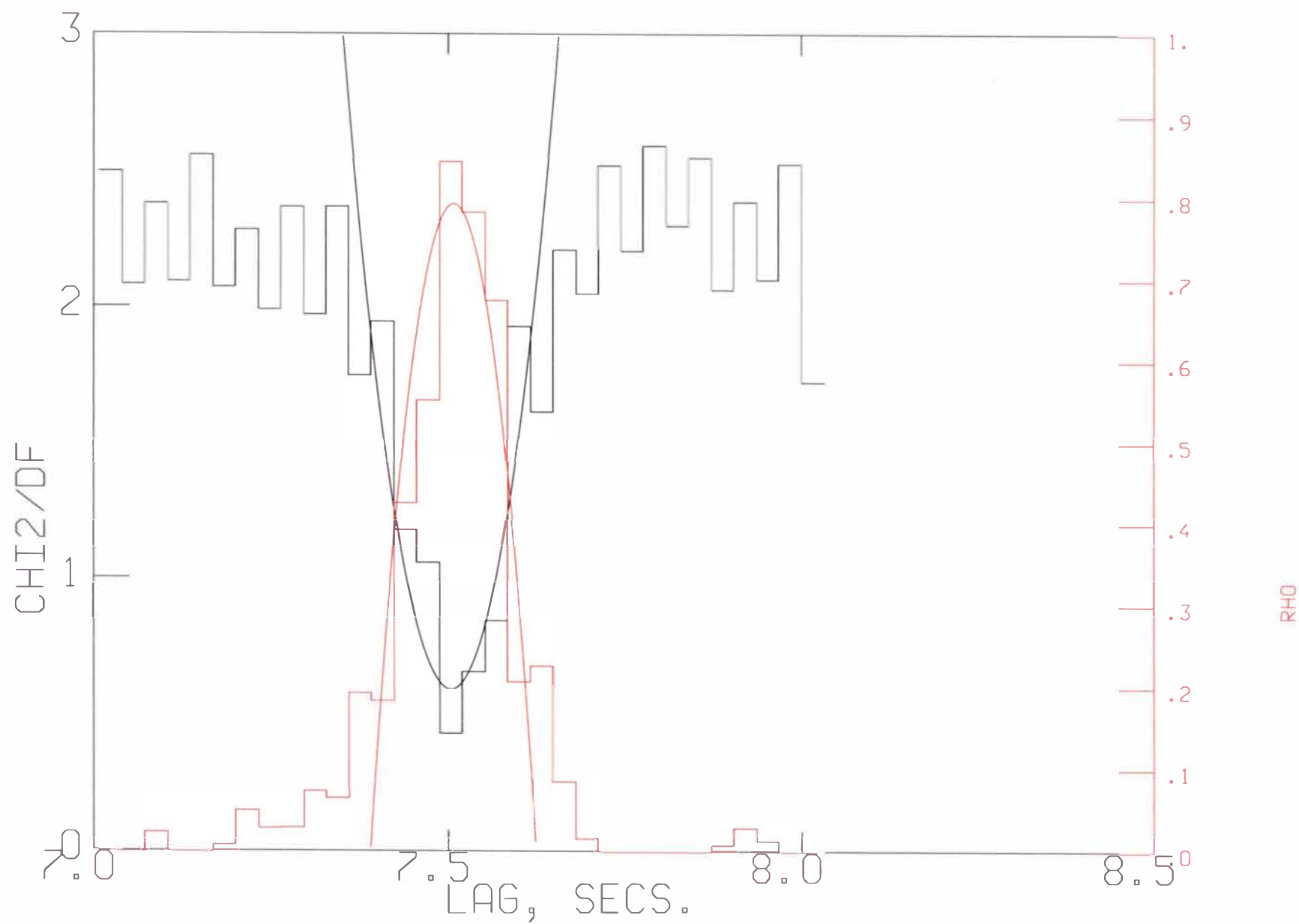
- ☐ $\Sigma 3\Delta t$'s calculated?

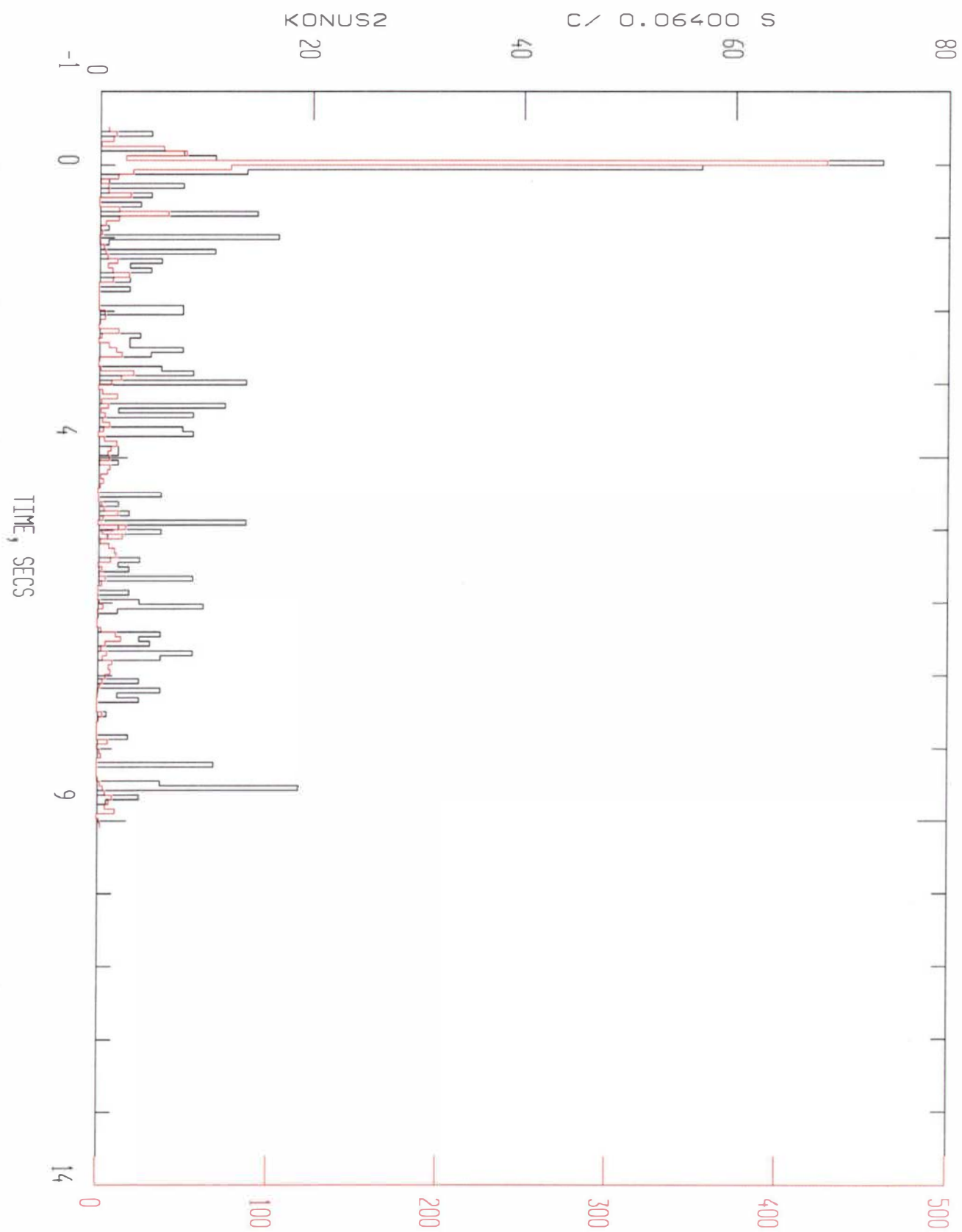
- ☒ ACCESS database updated?

EVENT OF DEC 21, 1998 2:30

10/02/2010





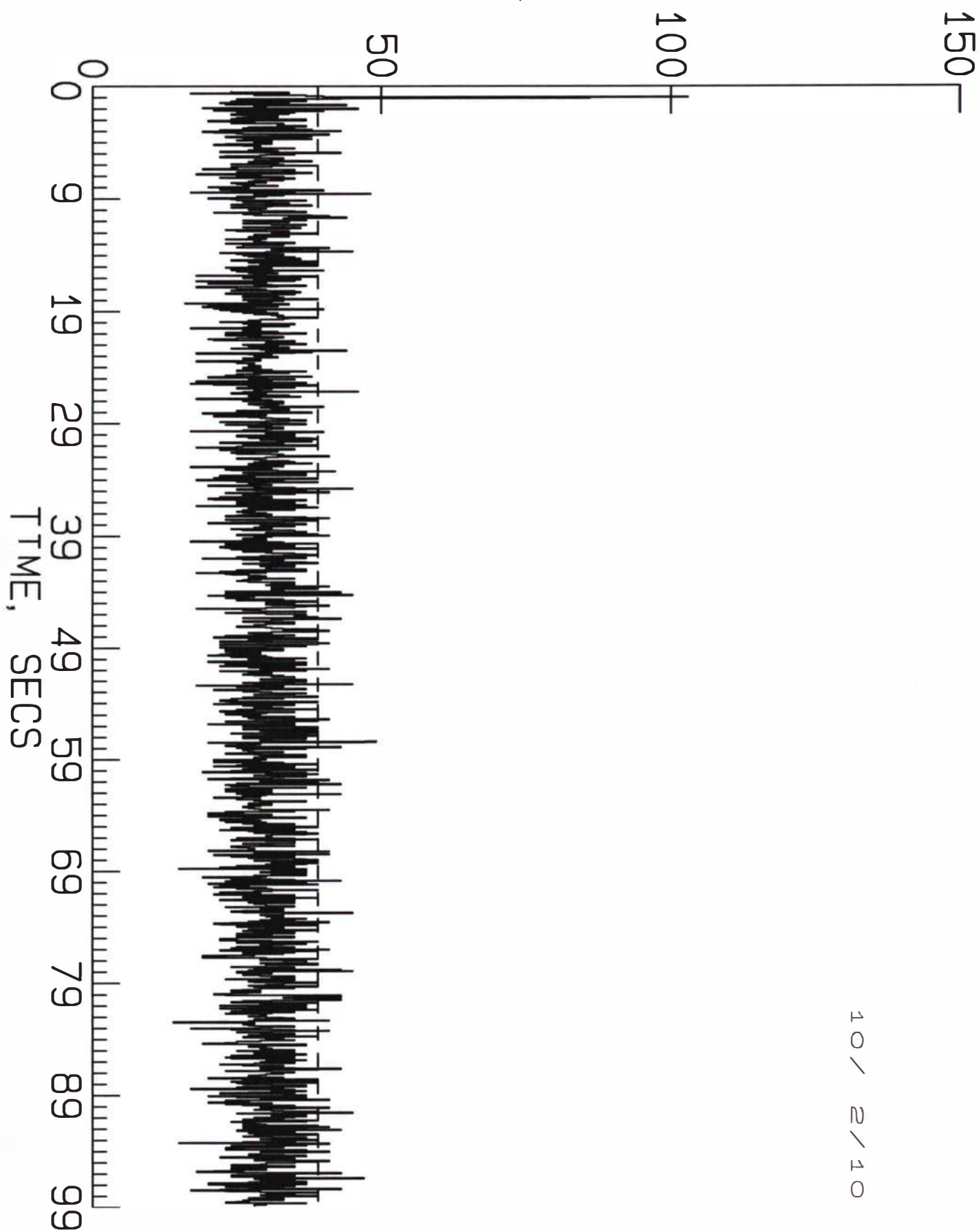


KONUS

21/12/98 9057.150

50- 200 keV

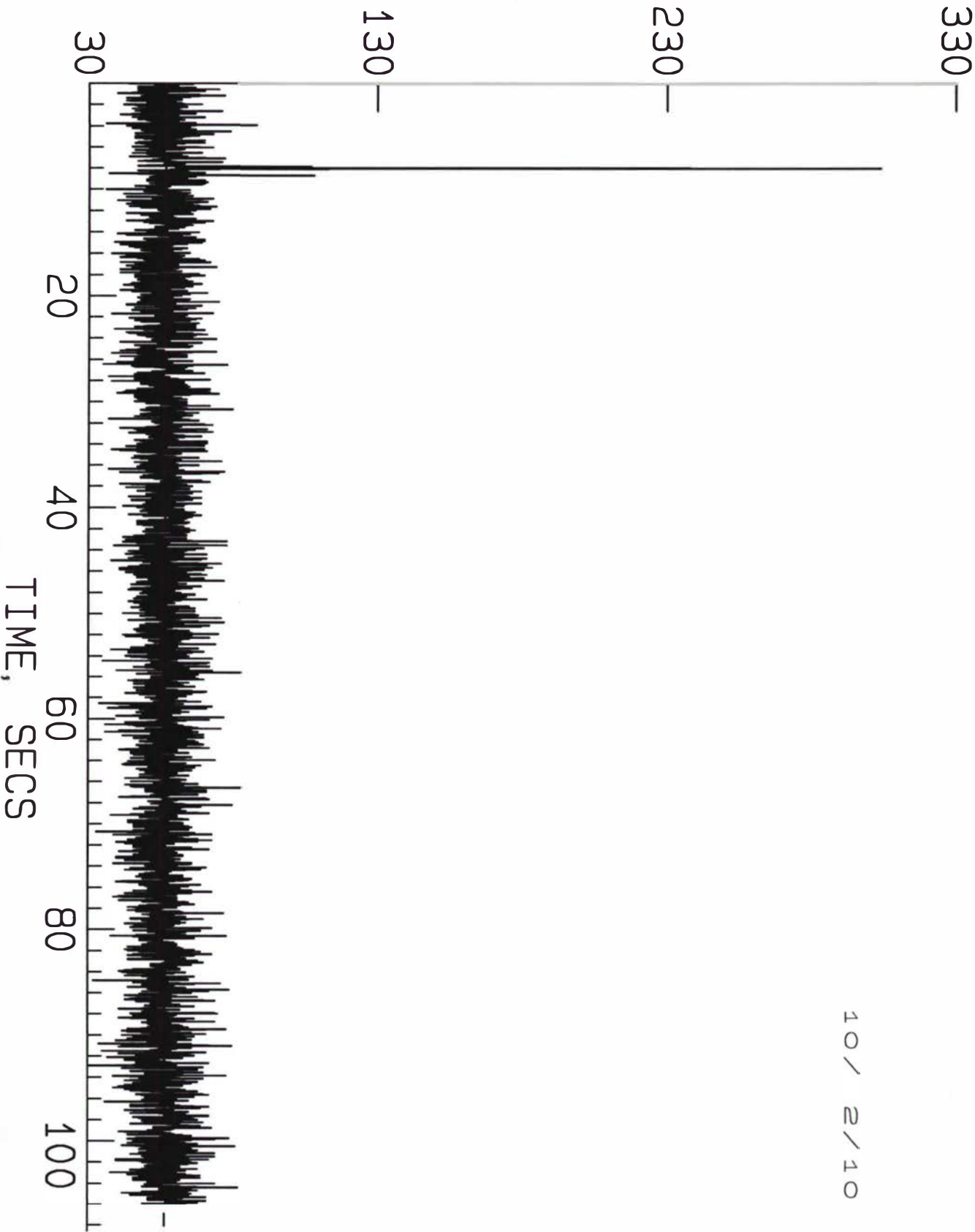
COUNTS/0.064 S



SAX GRBM

21/12/98 9049.685
40- 700 keV

COUNTS/0.031 S



BATSEARCH PROGRAM

BATSE BURST # 7273
EVENT OF 1998 DEC 21 DAY OF YEAR=355
EVENT CROSSING TIME AT BATSE : 9057. S. OR 02:30:57.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 284.000 4.000
BATSE PEAK COUNTING RATE: 40000 C/S

No - too weak -

*There are only ~ 2500
BATSE counts, so only
~ 50 Ulysses counts*

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 21/12/ 98 IS:
RA= 166.705 DEC= -7.165 DIST= 4.980 AU
BATSE-ULYSSES DISTANCE = 745073346. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 62.45 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1149.65 SECS.
CROSSING TIME AT ULYSSES IS 10207. S. OR 02:50:06 +/- 450.01 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 21/12/ 98 IS:
RA= 192.481 DEC= -3.369 DIST= 1.601 AU
MARS-BATSE DISTANCE = 239497632. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 88.25 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 24.37 SECS.
CROSSING TIME AT MARS IS 9081. S. OR 02:31:21 +/- 139.00 SECONDS

BATSE BURST TRIGGER

NO.: 7273

TIME: TJD=1168 SECONDS= 9057

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 86.1 AZIMUTH=323.4 ERROR= 2.8 DEGREES

COMMENTS:

MULTIPLE SPIKES, TOTAL DUR. APPROX. 0.35 S, MAX AT APPROX. T+0.13 S.
HARD SPECTRUM, VISIBLE ABOVE 300 KEV.
LOCATION CLOSE TO SGR 1900+14.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7273	981221	11168	09057	40000	284	+04	.35

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

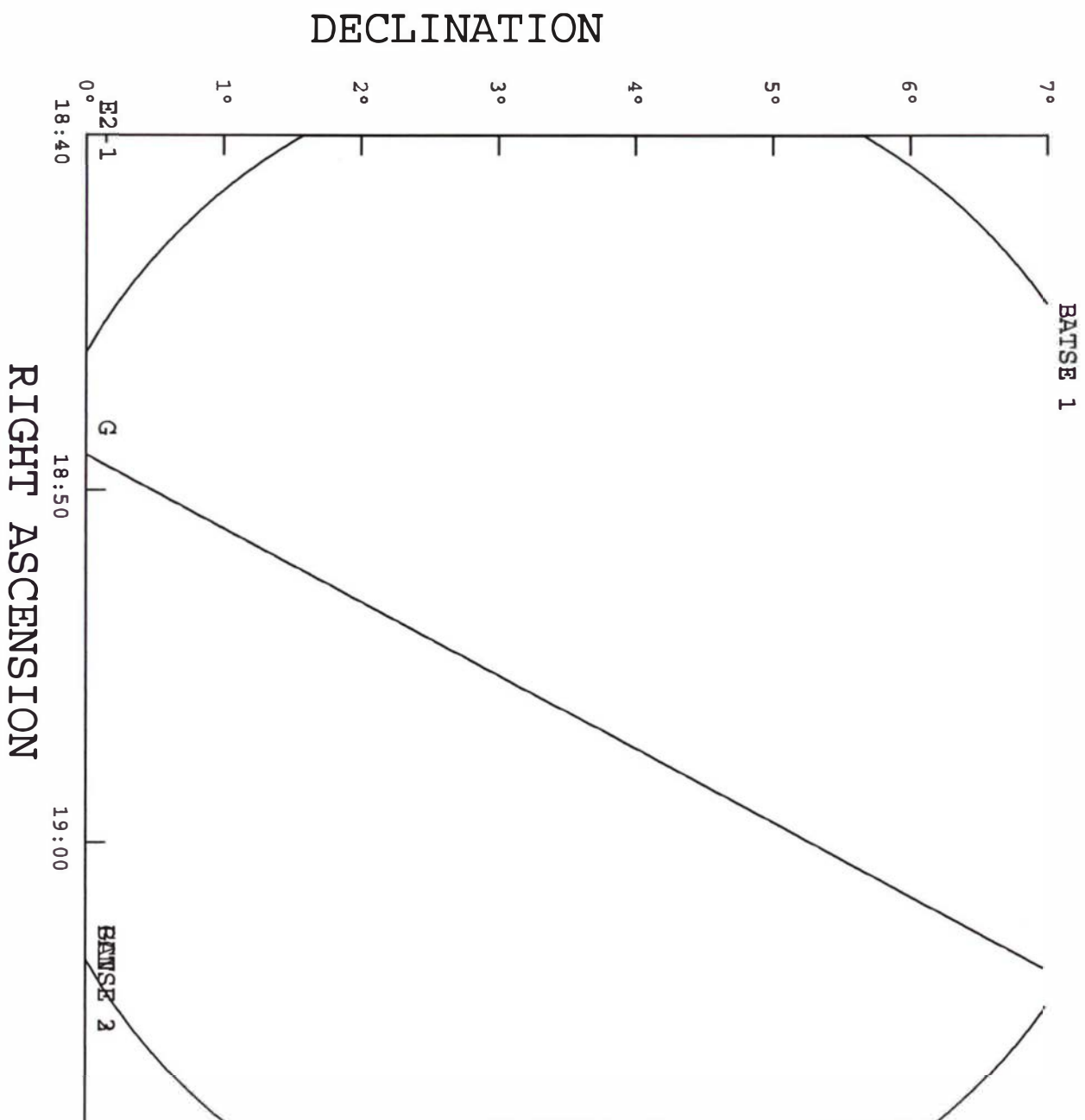
G=GALACTIC EQUATOR

1 BATSE

2 KONUS

EVENT OF DEC 21, 1998 2:30

7 / 4 / 0



BATSE

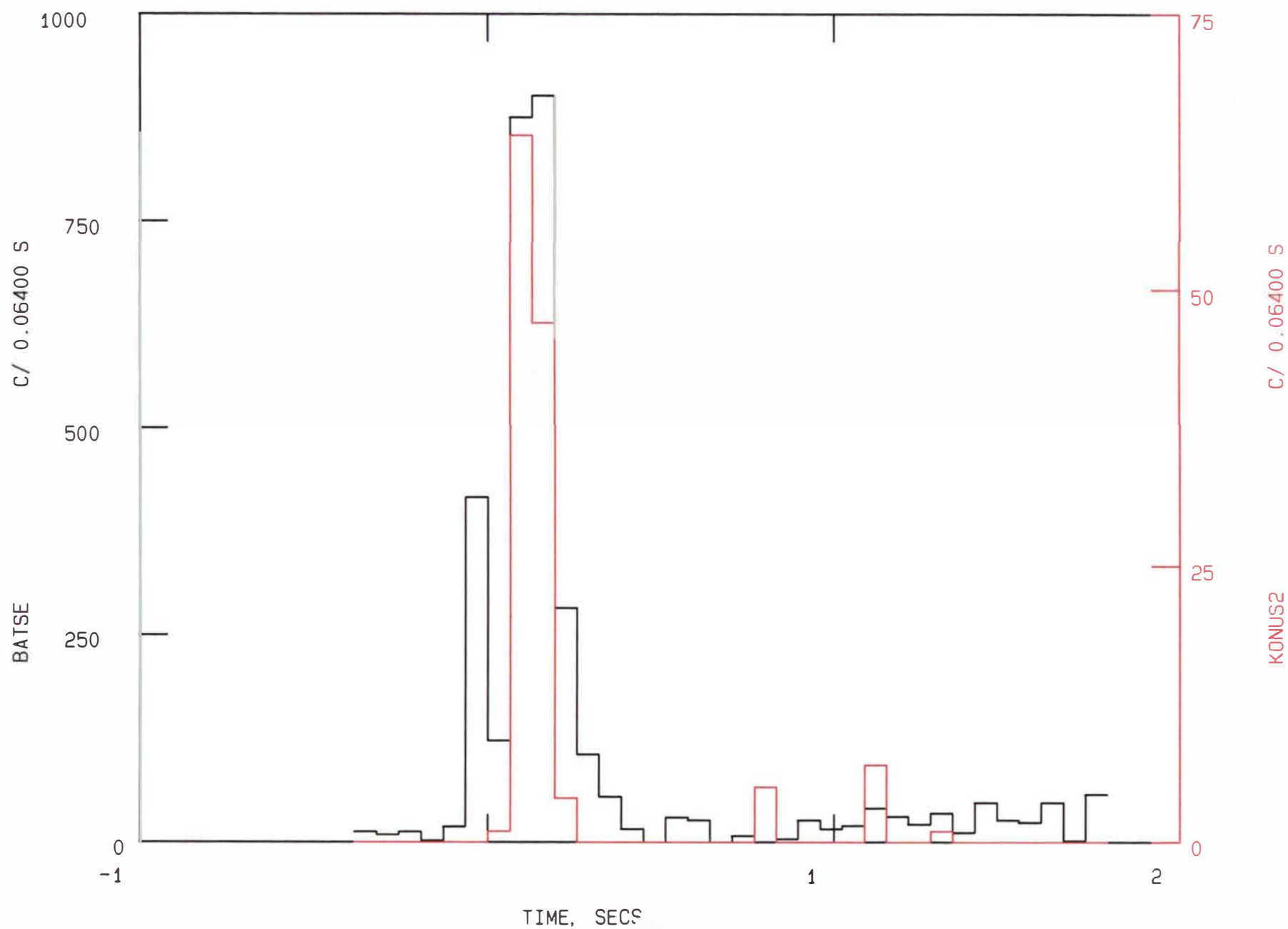
-KONUS2

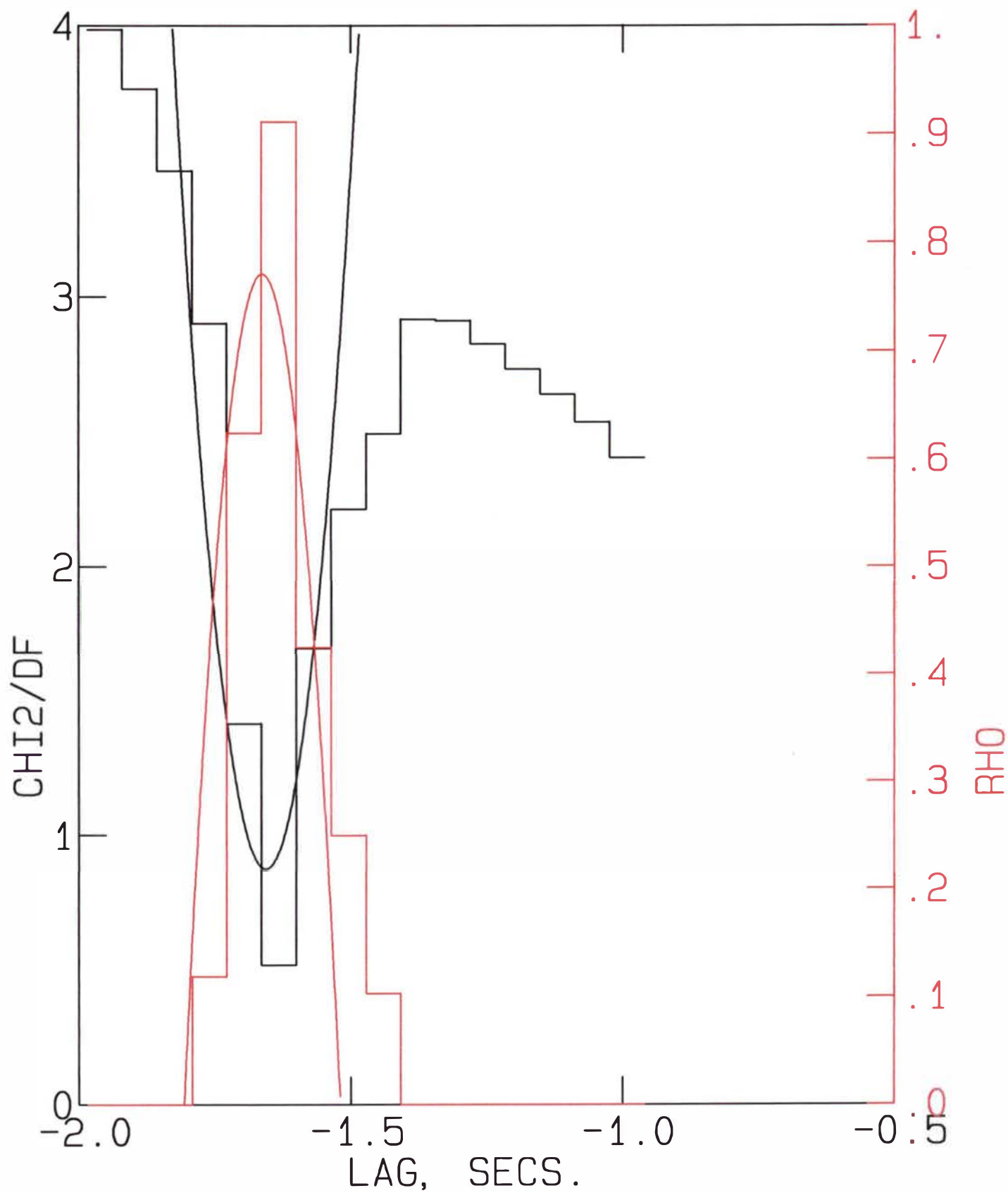
CORRELATION

21/12/98

9057.505

7/ 4/ 0





N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

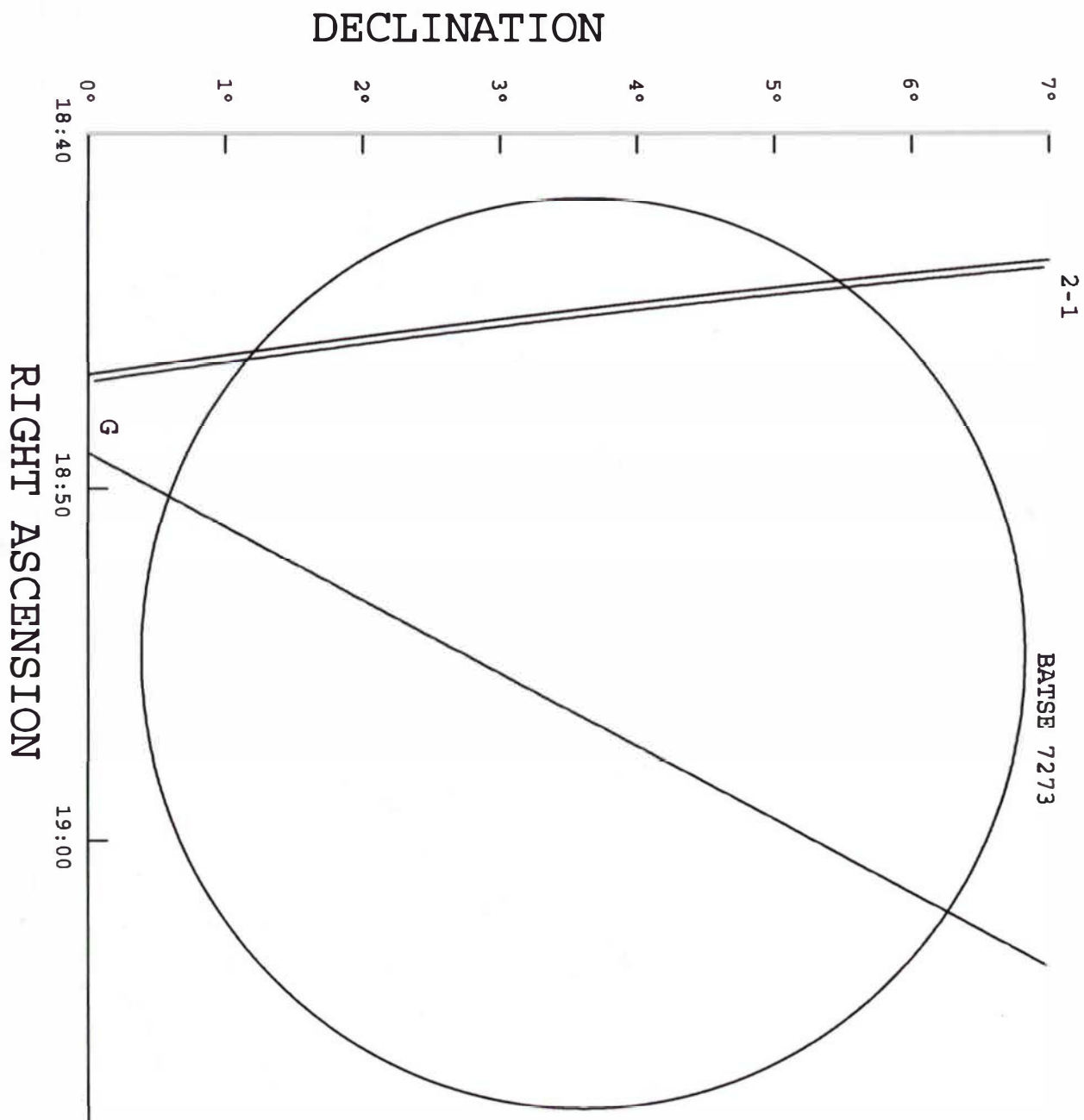
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF DEC 21, 1998 2:47

15/ 6/99



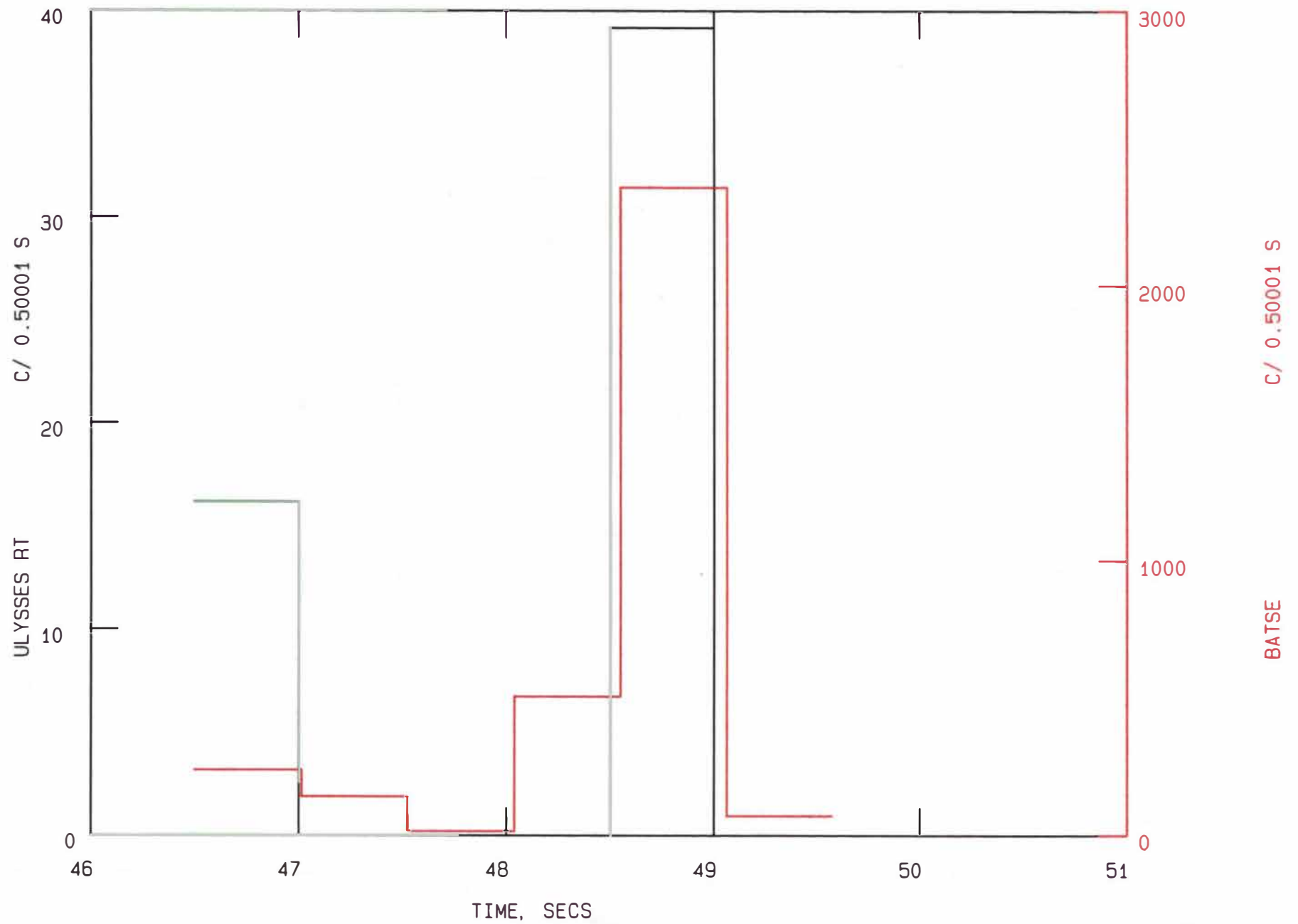
ULYSSES RT-BATSE

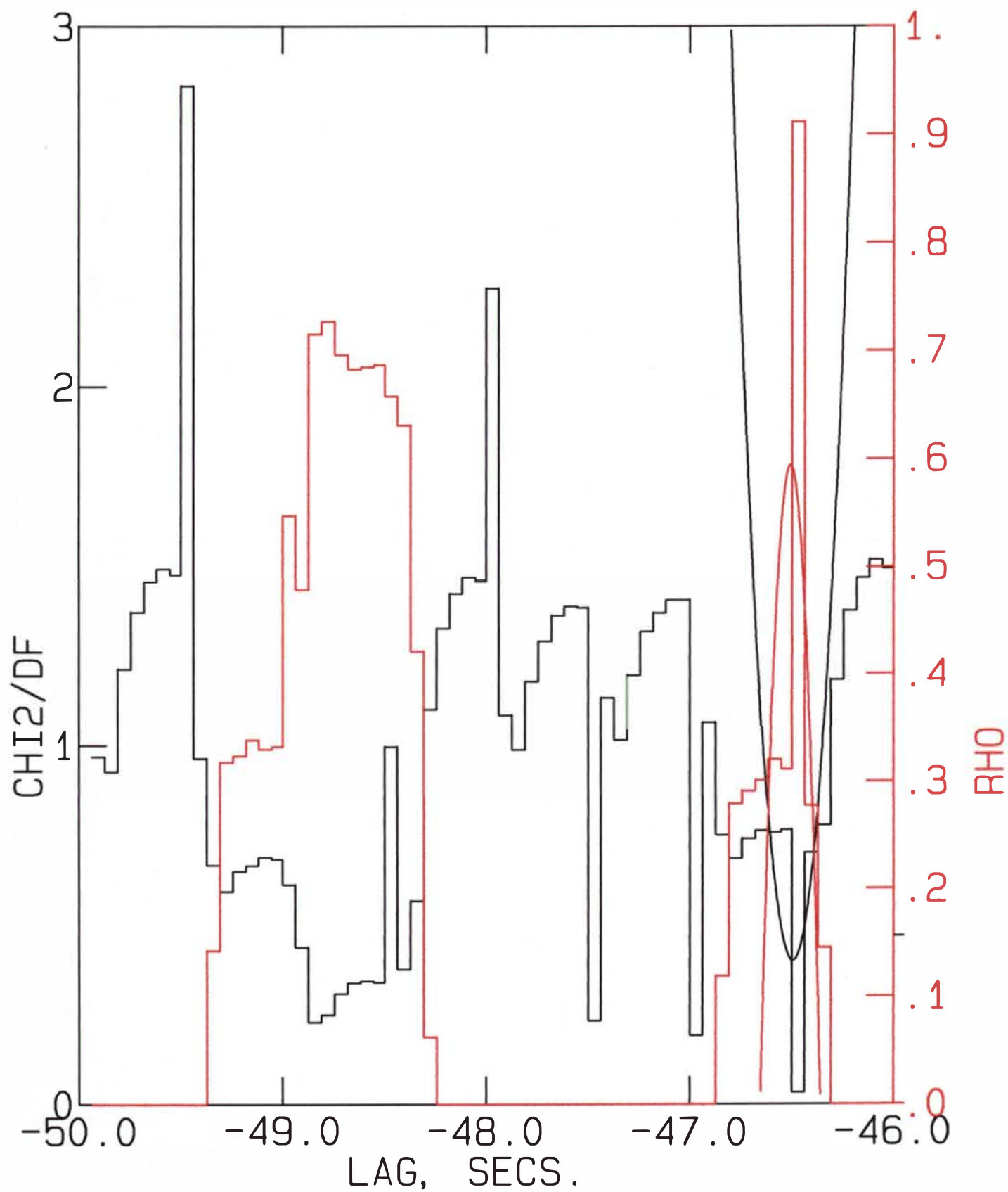
CORRELATION

21/12/98

10028.274

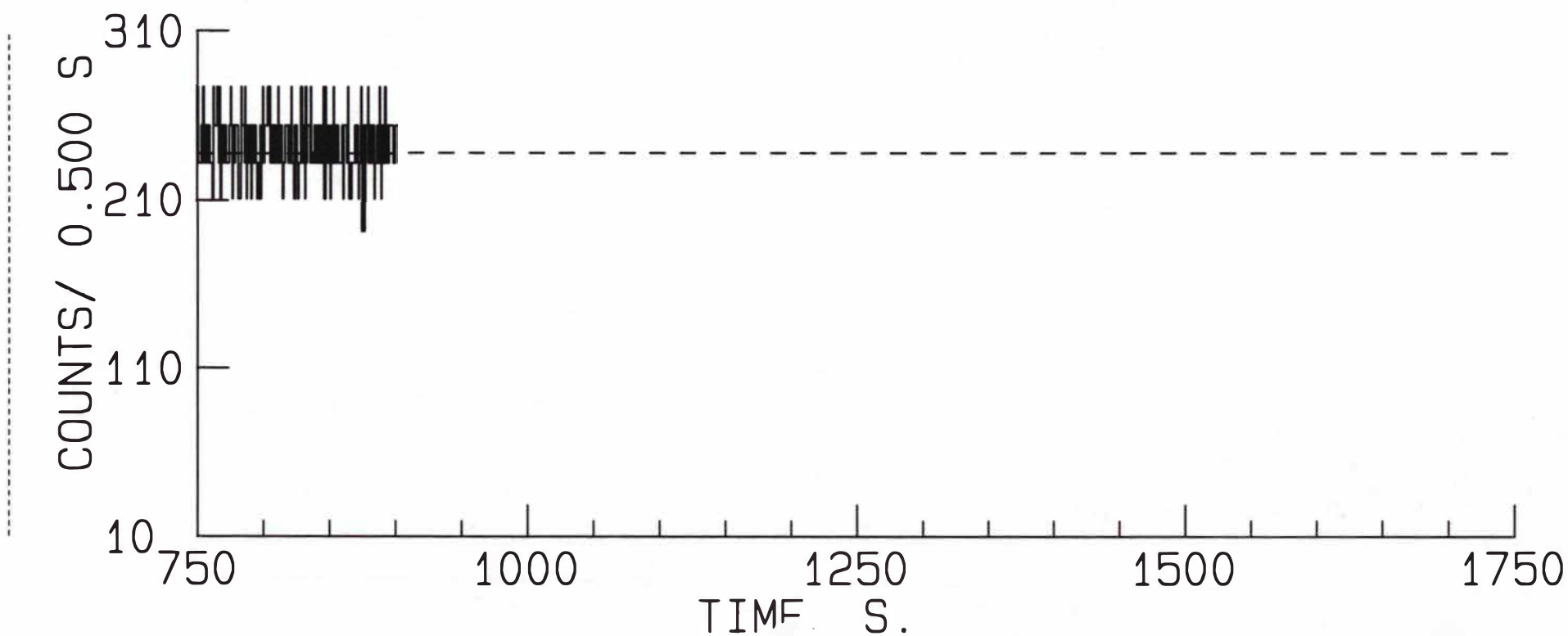
15/ 6/99





ULYSSES RT
21/12/98 9756.243 s
22- 150 keV

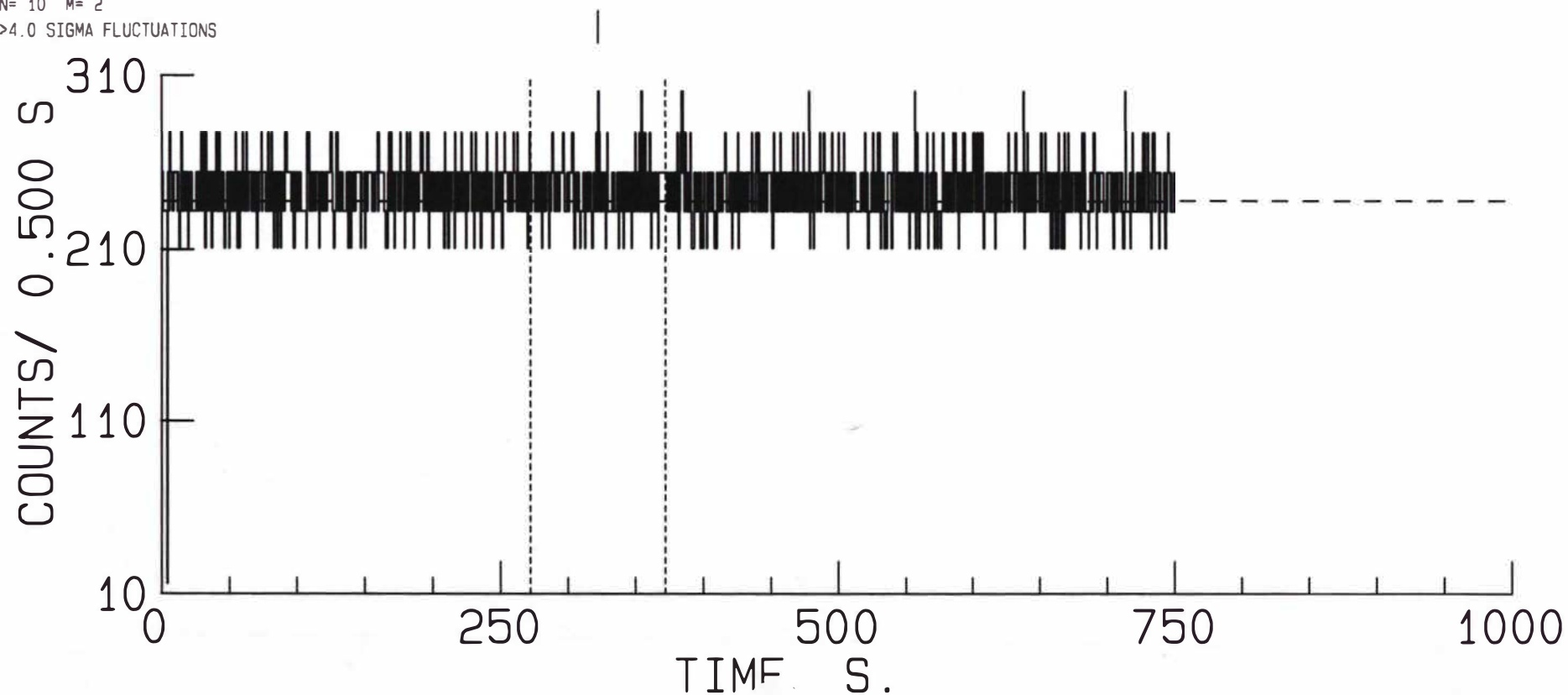
15 / 6 / 99



ULYSSES RT
21/12/98 9756.243 s
22- 150 keV

15 / 6 / 99

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE BURST# 7273

ULYSSES RT

5 / 6 / 99

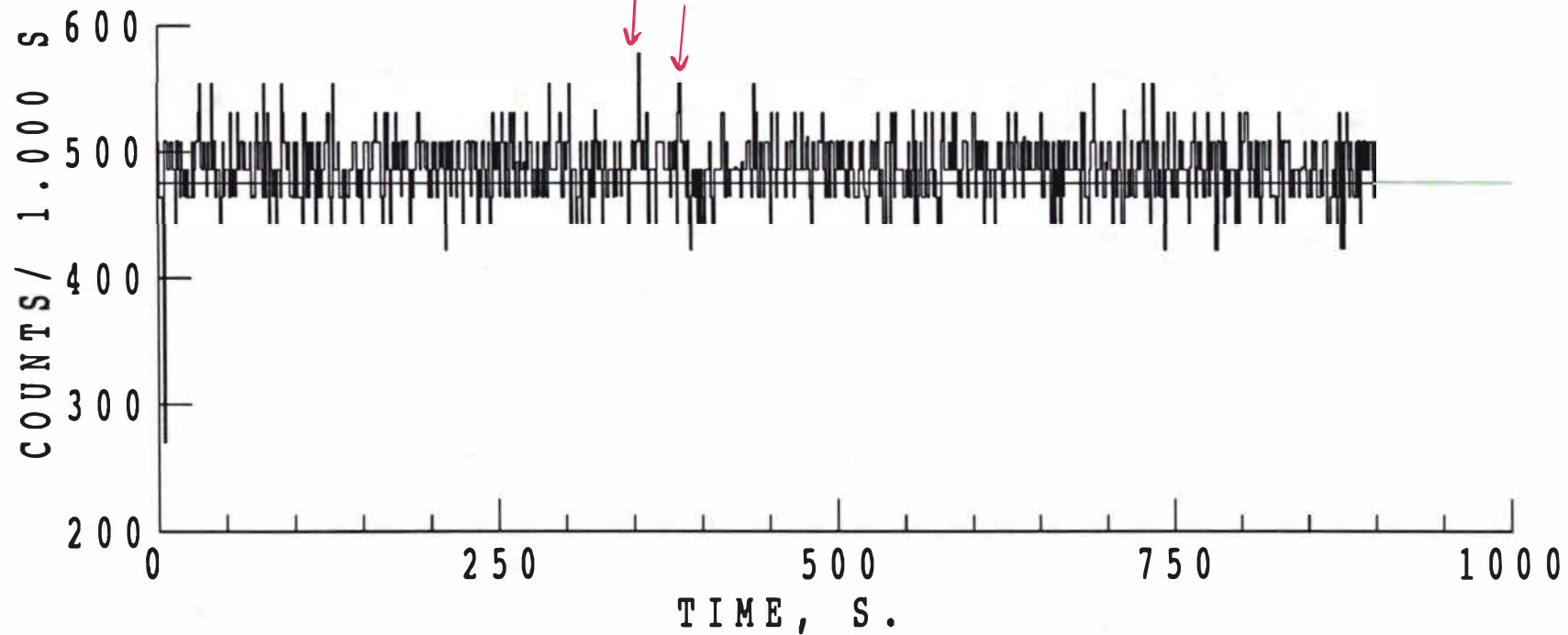
21/12/98 9756.243 s

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



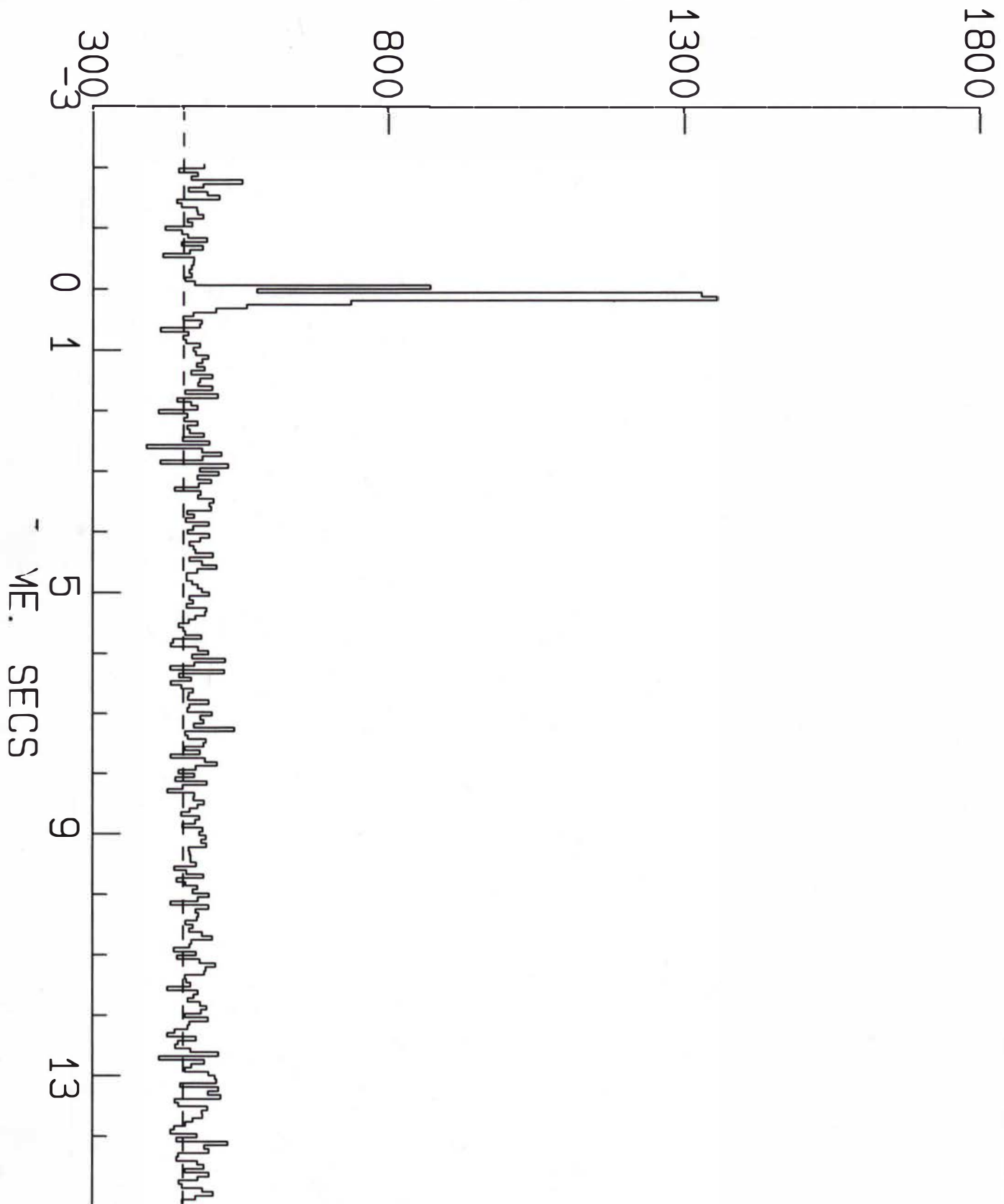
BATSE

21/12/98

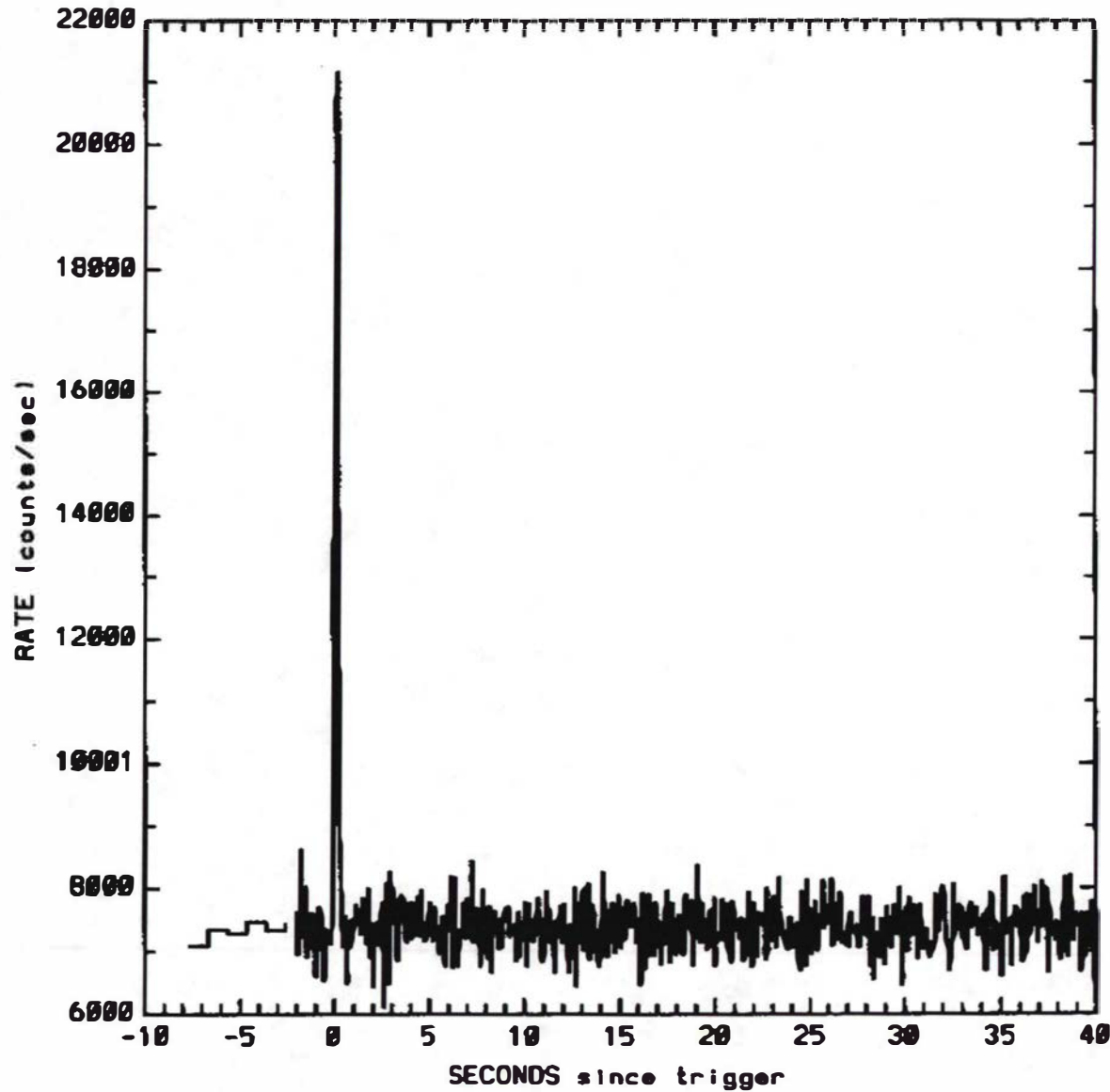
9057.505

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 7273



4-JAN-1999 11:50:20

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

Trigger # = 7273

Trigger Time:
11168 / 9857.505Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors [7..8]:
----32--Discriminators:
(1..2)Quality Mask:
BDISP1

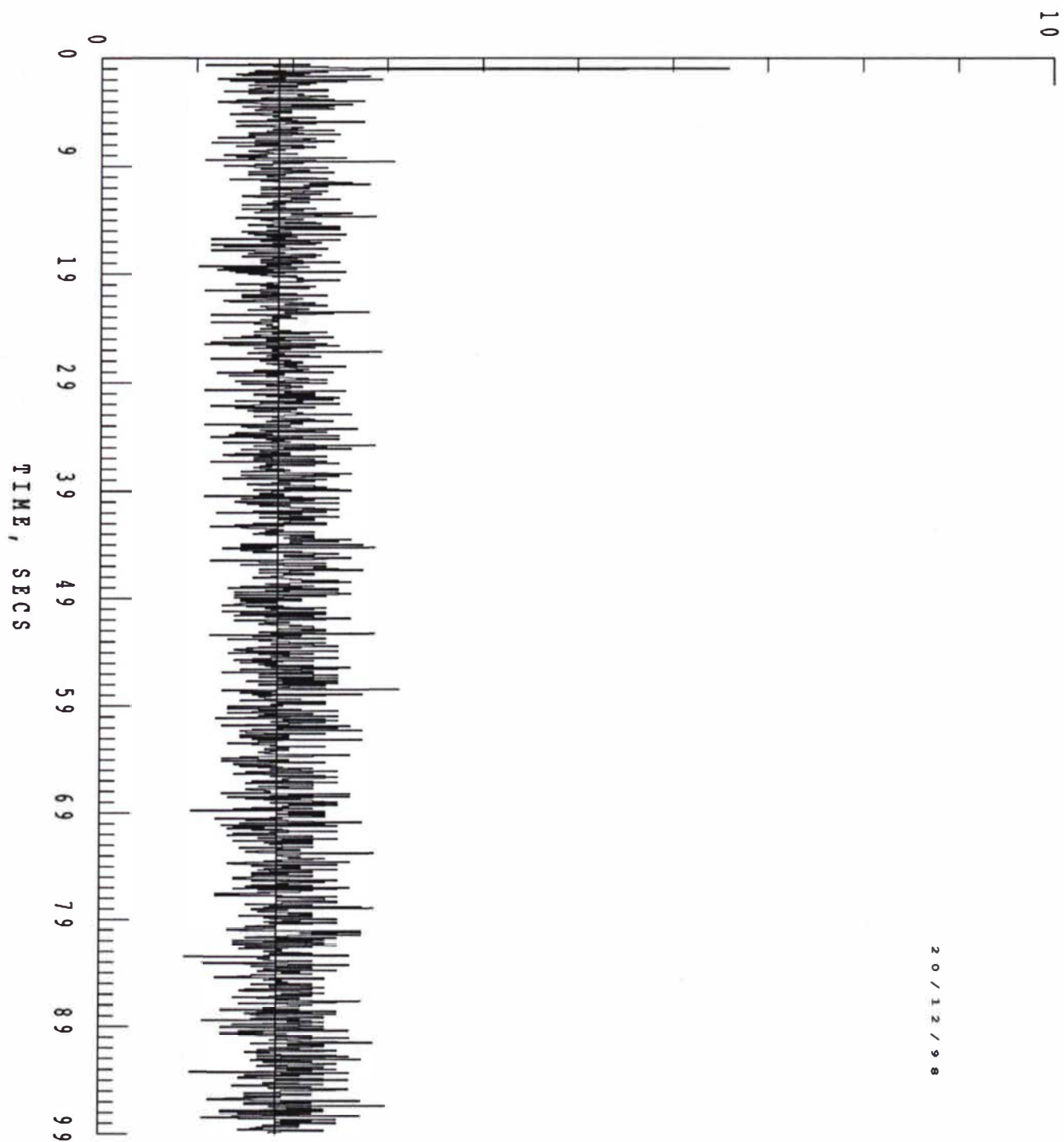
KONUS

21/12/98

9057.150

50 - 200 keV

COUNTS/0.064 S



20/12/98

JANA TAB1 19981221 18248

ULYSSES RT

05/08/05

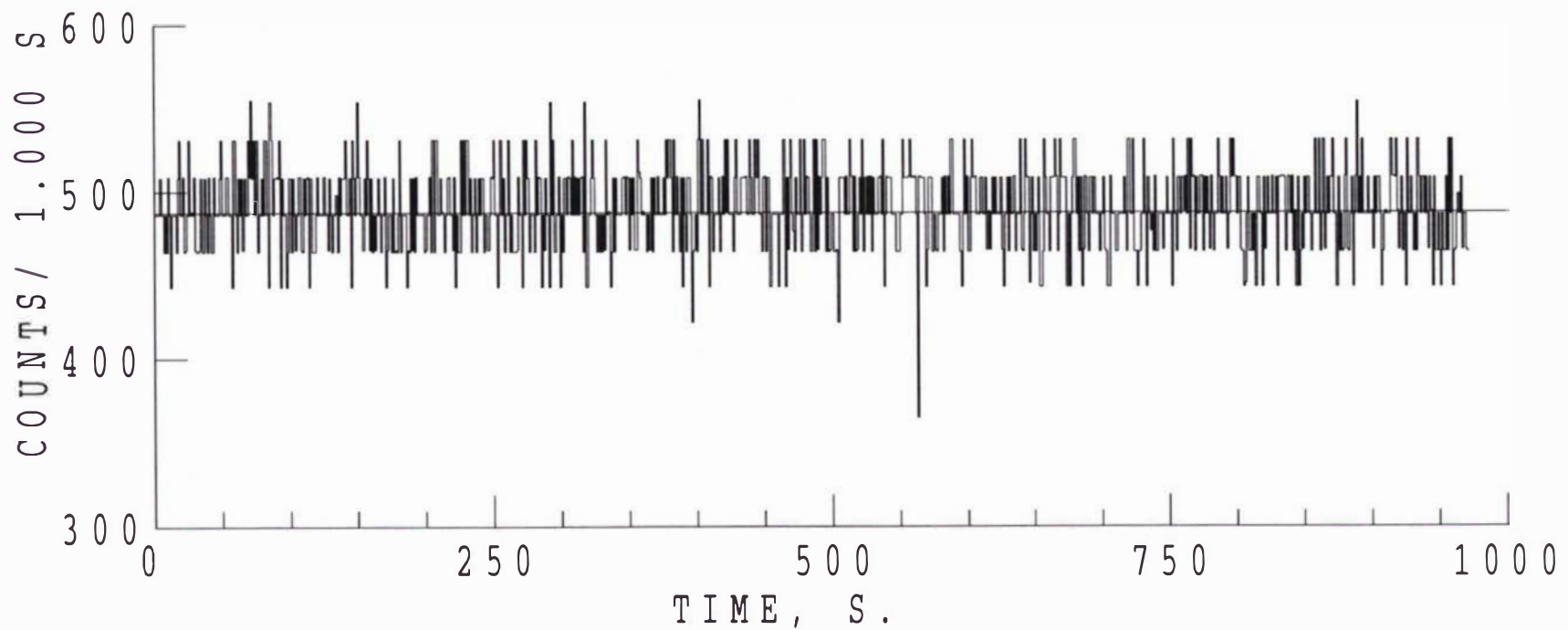
21/12/98 17748.328 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



 BATSEARCH PROGRAM

BATSE BURST # 7274
 EVENT OF 1998 DEC 21 DAY OF YEAR=355
 EVENT CROSSING TIME AT BATSE : 63455. S. OR 17:37:35.0
 COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 150.000 25.000
 BATSE PEAK COUNTING RATE: 6000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON 21/12/ 98 IS:
 RA= 166.671 DEC= -7.216 DIST= 4.969 AU
 BATSE-ULYSSES DISTANCE = 743362094. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=143.93 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2004.13 SECS.
 CROSSING TIME AT ULYSSES IS 61451. S. OR 17:04:10 +/- 273.06 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
 POSITION OF MARS ON 21/12/ 98 IS:
 RA= 192.481 DEC= -3.369 DIST= 1.601 AU
 MARS-BATSE DISTANCE = 239497632. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=129.97 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= -513.21 SECS.
 CROSSING TIME AT MARS IS 62942. S. OR 17:29:01 +/- 98.50 SECONDS

BATSE BURST TRIGGER

NO.: 7274

TIME: TJD=1168 SECONDS=63455

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=147.1 AZIMUTH=148.9 ERROR= 1.5 DEGREES

COMMENTS:

SINGLE PULSE, RISE FASTER THAN DECAY, DUR. APPROX. 25 S.
 VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7274	981221	11168	63455	6000	150	+25	25

BATSE BURST# 7274

ULYSSES RT

23 / 12 / 98

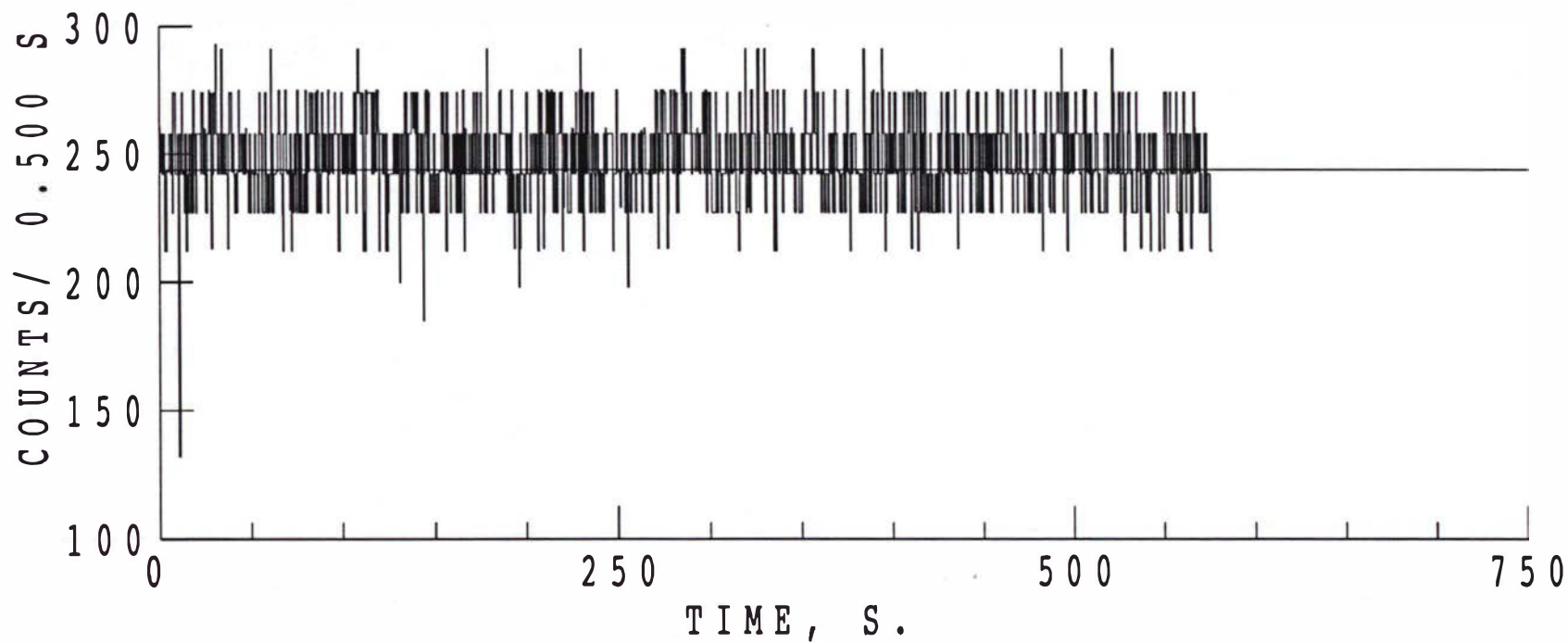
21/12/98 61164.023 s

0.250 S INTERVALS REGROUPED BY 2

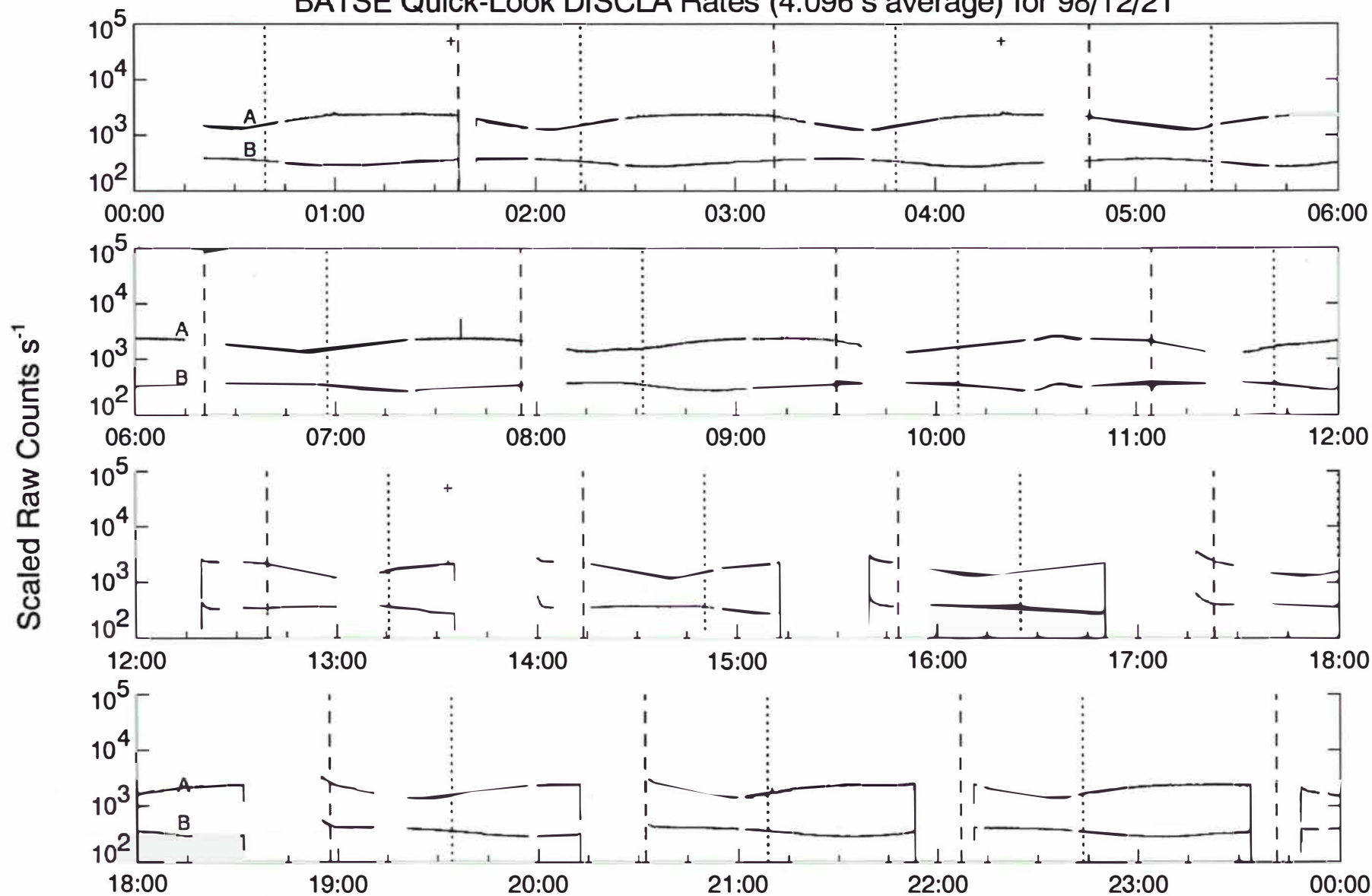
0 - 0 keV

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 98/12/21

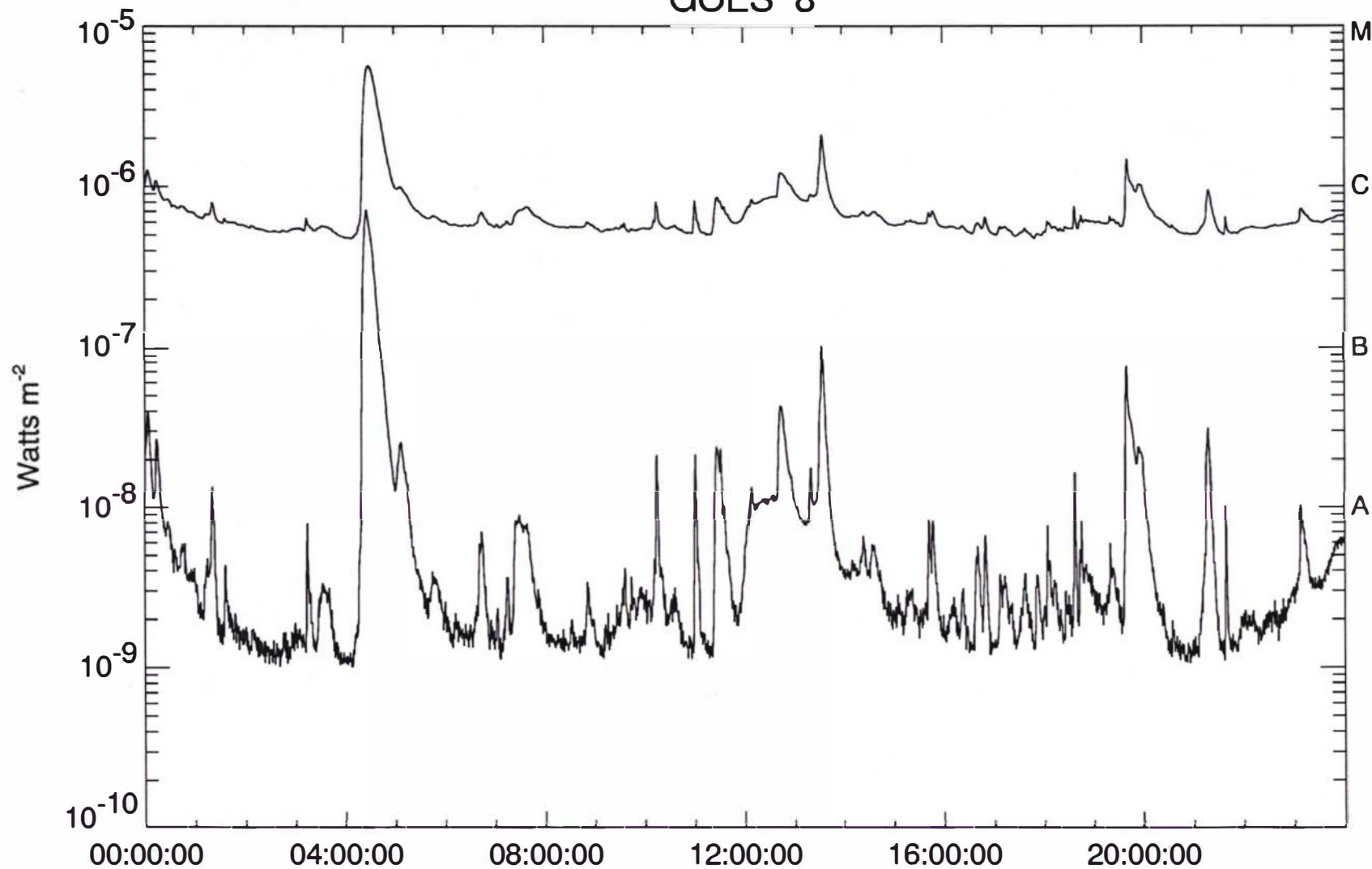


Current Time: 98/12/25, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 98/12/21, 0000:00

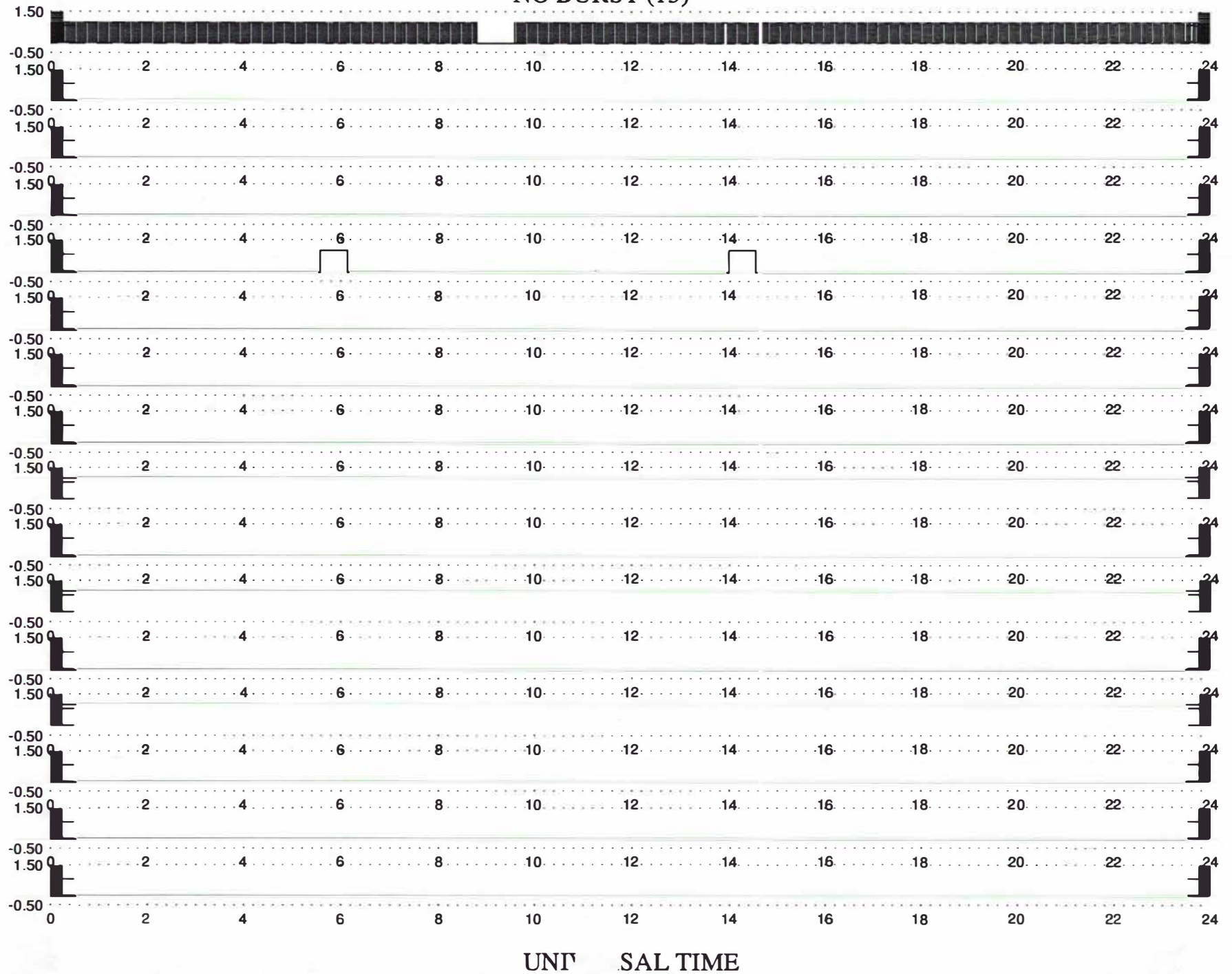
Plot created: 98/12/25, 1010

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

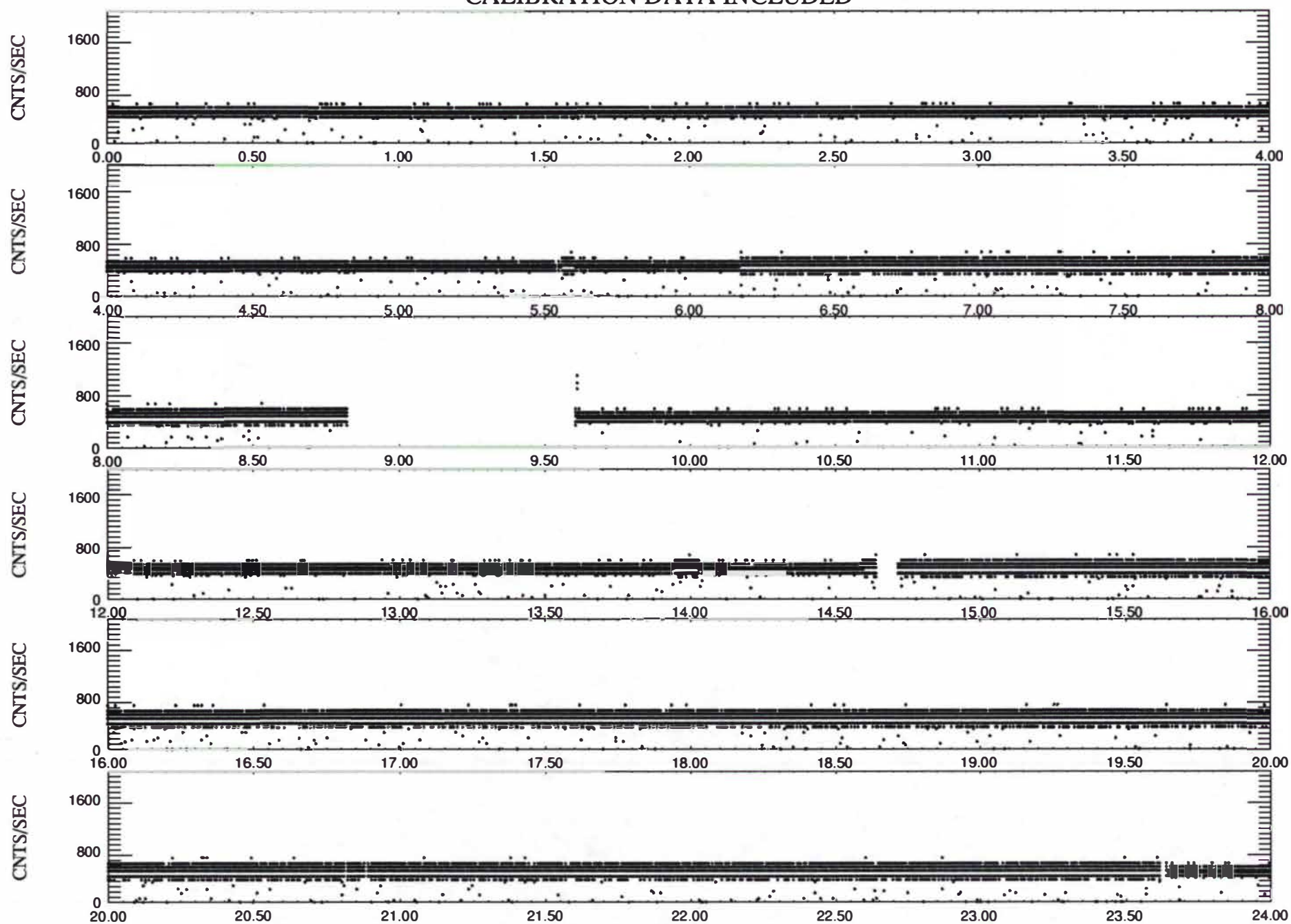
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

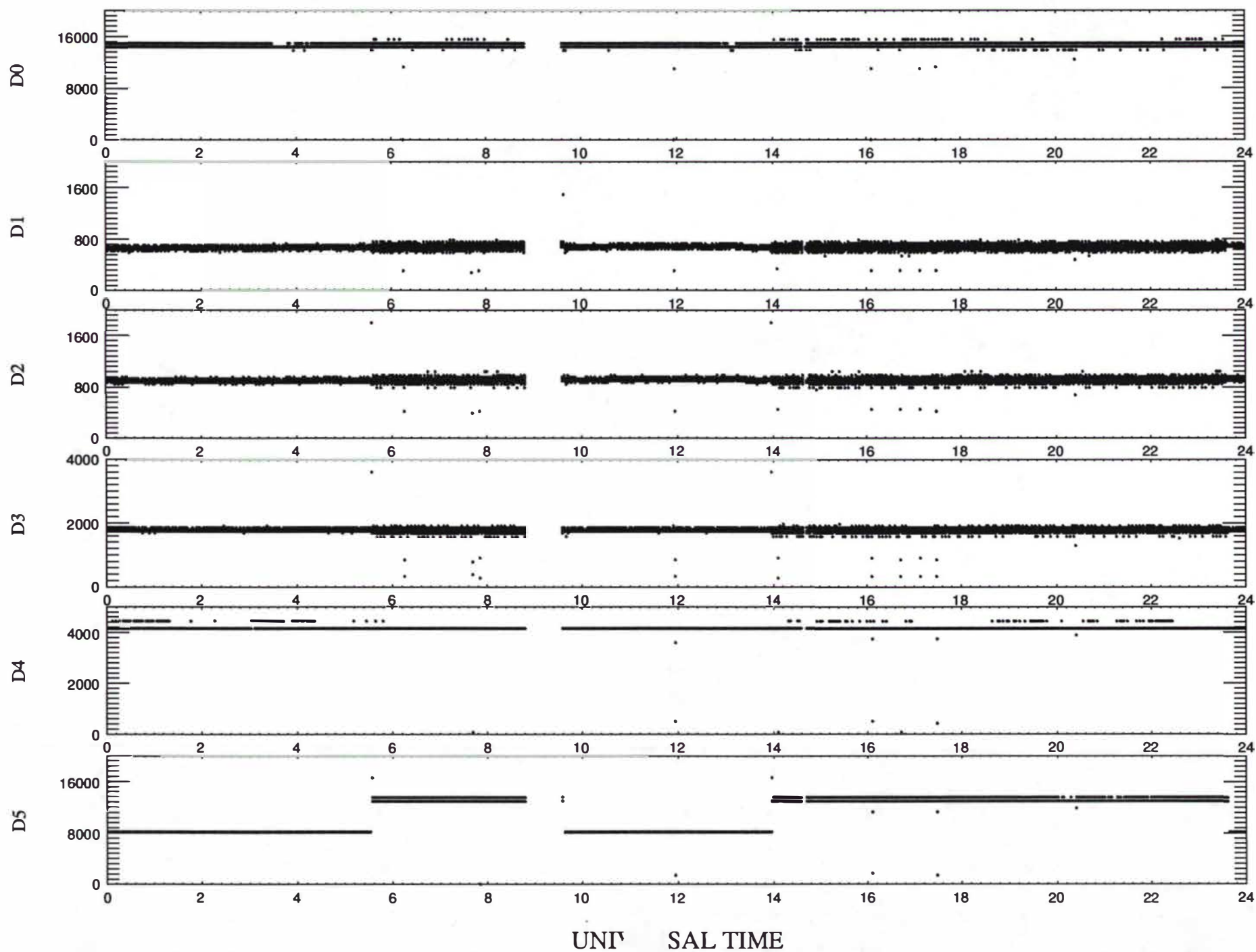
CBU	CCL	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



CALIBRATION DATA INCLUDED



UNIT SAL TIME



From HENZE@fender.msfc.nasa.gov Mon Dec 28 07:50:32 1998

Date: Mon, 28 Dec 1998 9:49:19 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7275

Dec 22

TIME: TJD=1169 SECONDS=41798

TYPE: PARTICL

SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY.

KONUS RI

2 / 6 / 99

ULYSSES RT

22/12/98 61200.152 s

0.250 S INTERVALS REGROUPED BY 14

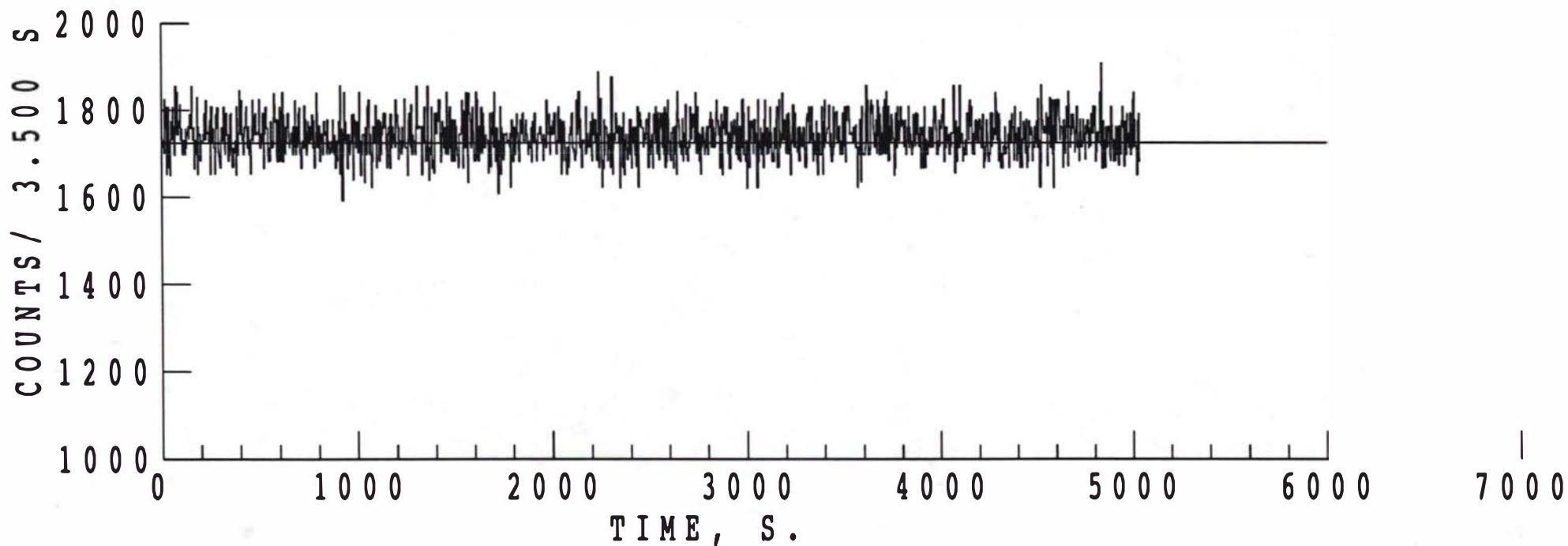
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



JANA TAB2 19981222 57571

ULYSSES RT

05/08/05

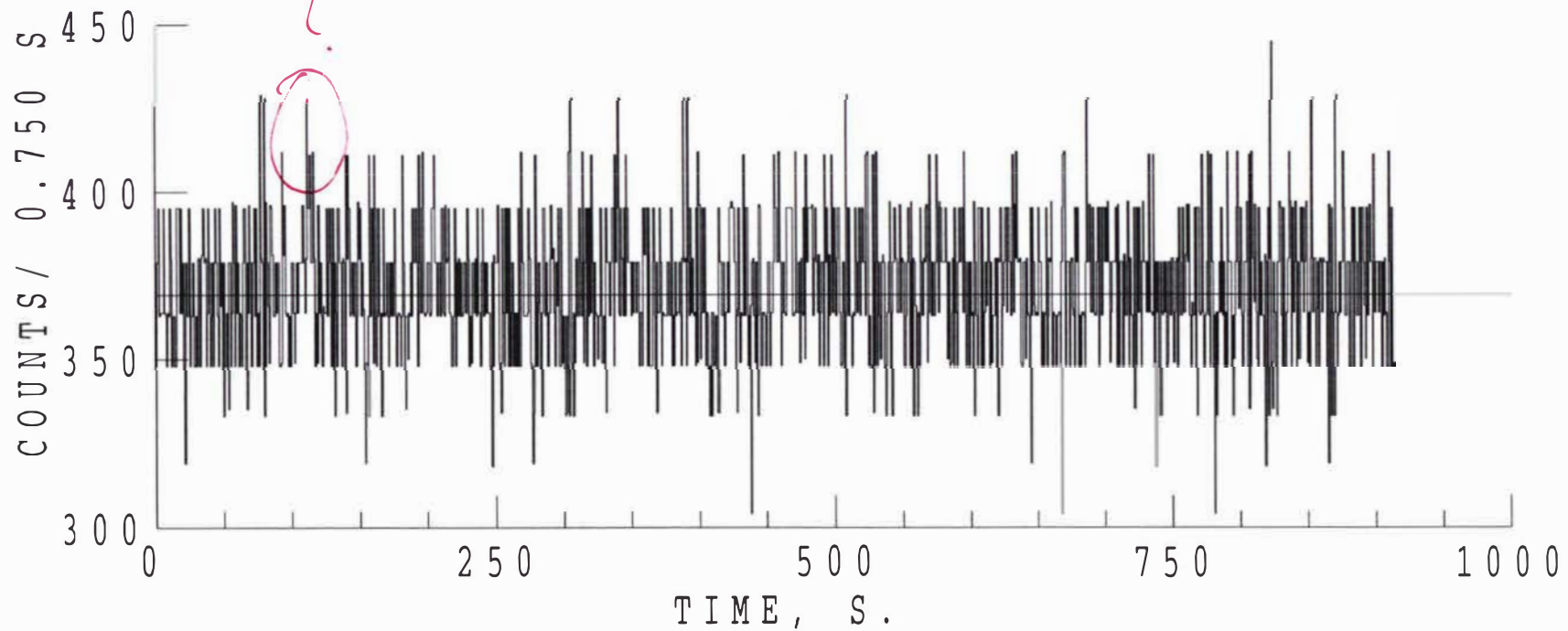
22/12/98 57096.113 s

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



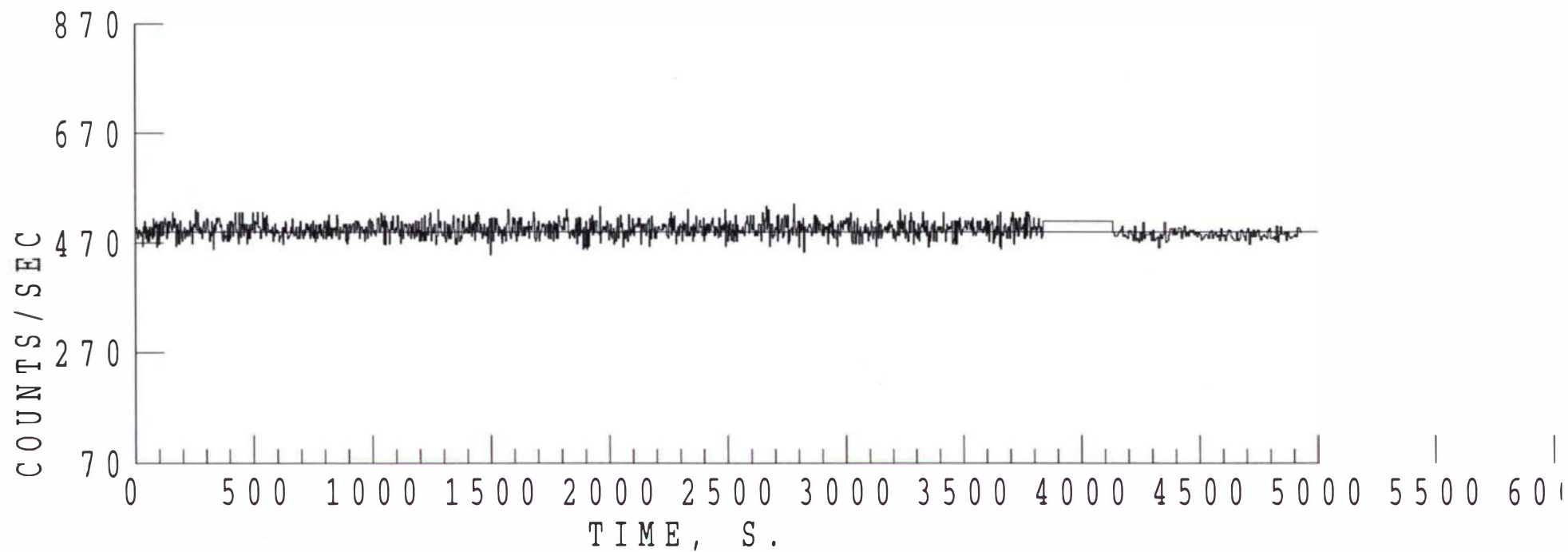
SAX GRBM
HUS DATA

19 / 07 / 05

ULYSSES RT
22 / 12 / 98 80784.102 s
INTERVALS REGROUPED BY 12
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

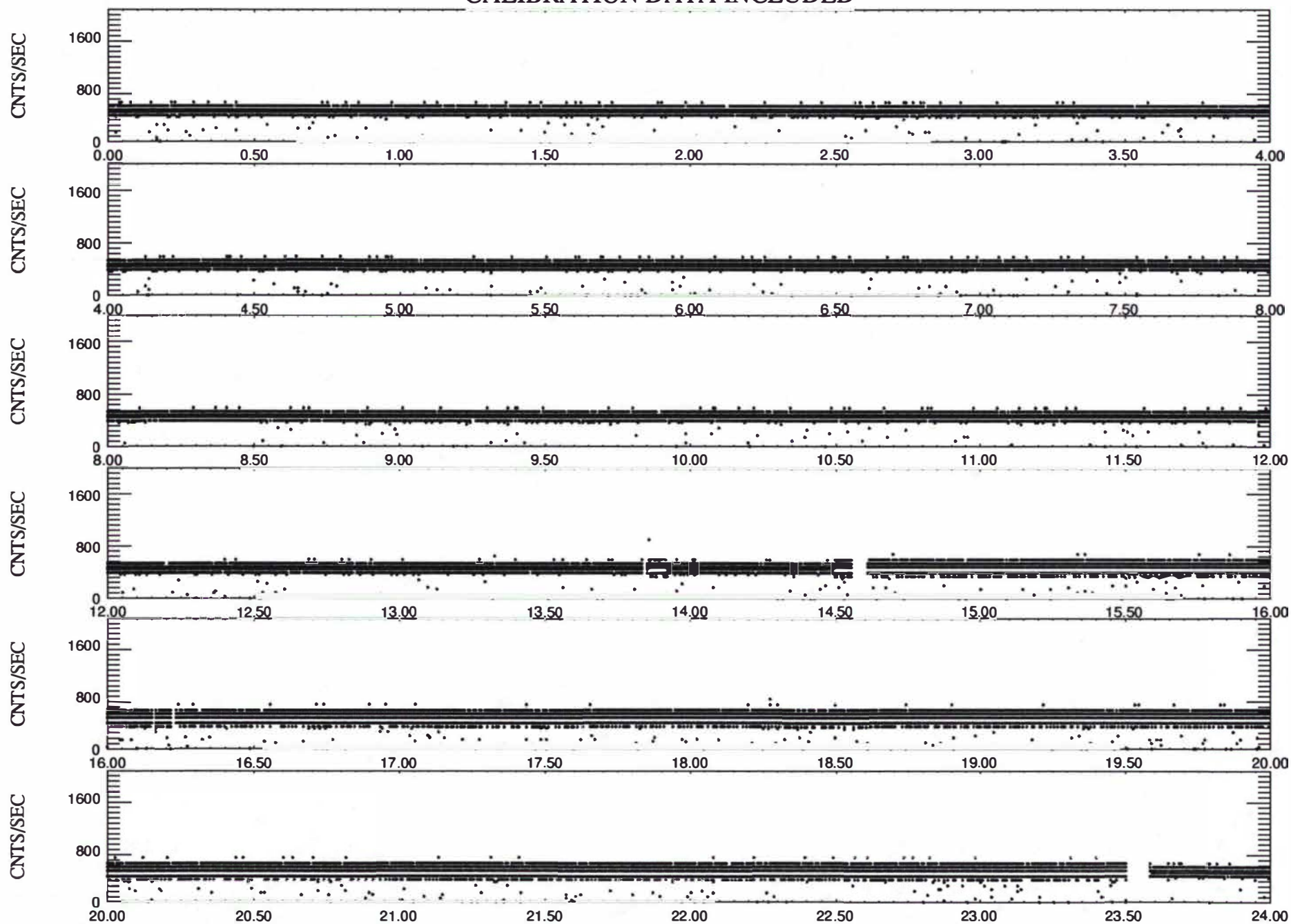
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



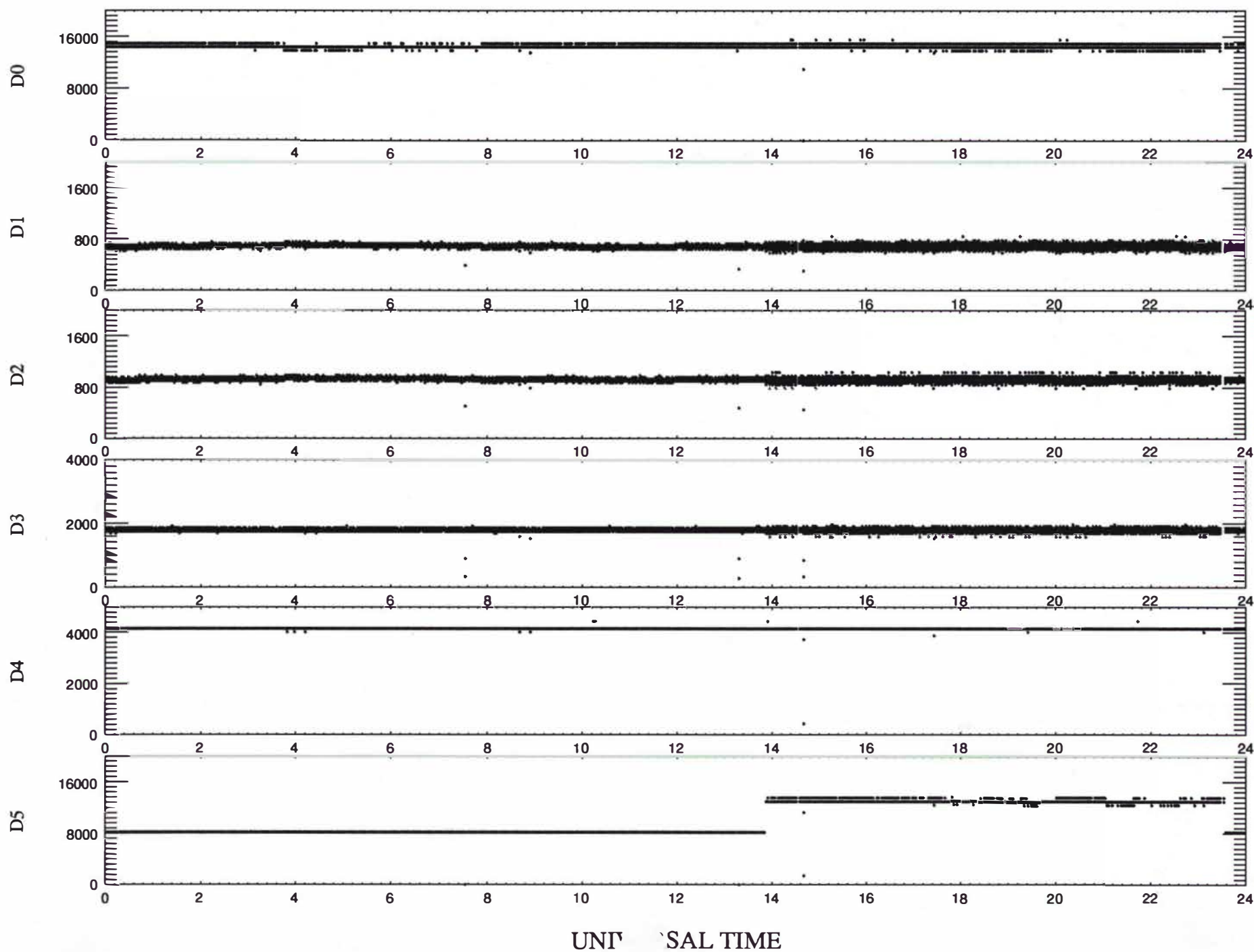
	CPU	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
--	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



CALIBRATION DATA INCLUDED



UNIT SAL TIME



From HENZE@fender.msfc.nasa.gov Mon Dec 28 07:53:36 1998

Date: Mon, 28 Dec 1998 9:53:24 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7276

TIME: TJD=1170 SECONDS=40451

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

From HENZE@fender.msfc.nasa.gov Mon Dec 28 10:20:45 1998
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id KAA13743; Mon, 28 Dec 1998 10:20:45 -0800
From: HENZE@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id KAA00813; Mon, 28 Dec 1998 10:20:39 -0800
Date: Mon, 28 Dec 1998 12:12:46 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981228121246.20258a68@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7277
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7277
EVENT OF 1998 DEC 23 DAY OF YEAR=357
EVENT CROSSING TIME AT BATSE : 43875. S. OR 12:11:15.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 192.000 13.000
BATSE PEAK COUNTING RATE: 29000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 23/12/ 98 IS:
RA= 166.569 DEC= -7.357 DIST= 4.937 AU
BATSE-ULYSSES DISTANCE = 738557122. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=147.55 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-2079.01 SECS.
CROSSING TIME AT ULYSSES IS 41796. S. OR 11:36:35 +/- 247.89 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 23/12/ 98 IS:
RA= 193.443 DEC= -3.759 DIST= 1.581 AU
MARS-BATSE DISTANCE = 236573744. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=163.18 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -755.36 SECS.
CROSSING TIME AT MARS IS 43120. S. OR 11:58:39 +/- 28.17 SECONDS

BATSE BURST TRIGGER

NO.: 7277

TIME: TJD=1170 SECONDS=43875

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=103.1 AZIMUTH=274.2 ERROR= 0.2 DEGREES

COMMENTS:

MULTIPEAKED, TOTAL DUR. APPROX. 60 S, MAX AT APPROX. T+25 S.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7277	981223	11170	43875	29000	192	+13	60

Date: 20/1/00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. NEAR Data **N/A**

- ☐ Final, correct time used? (Files on website have the correct time)
- ☐ 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

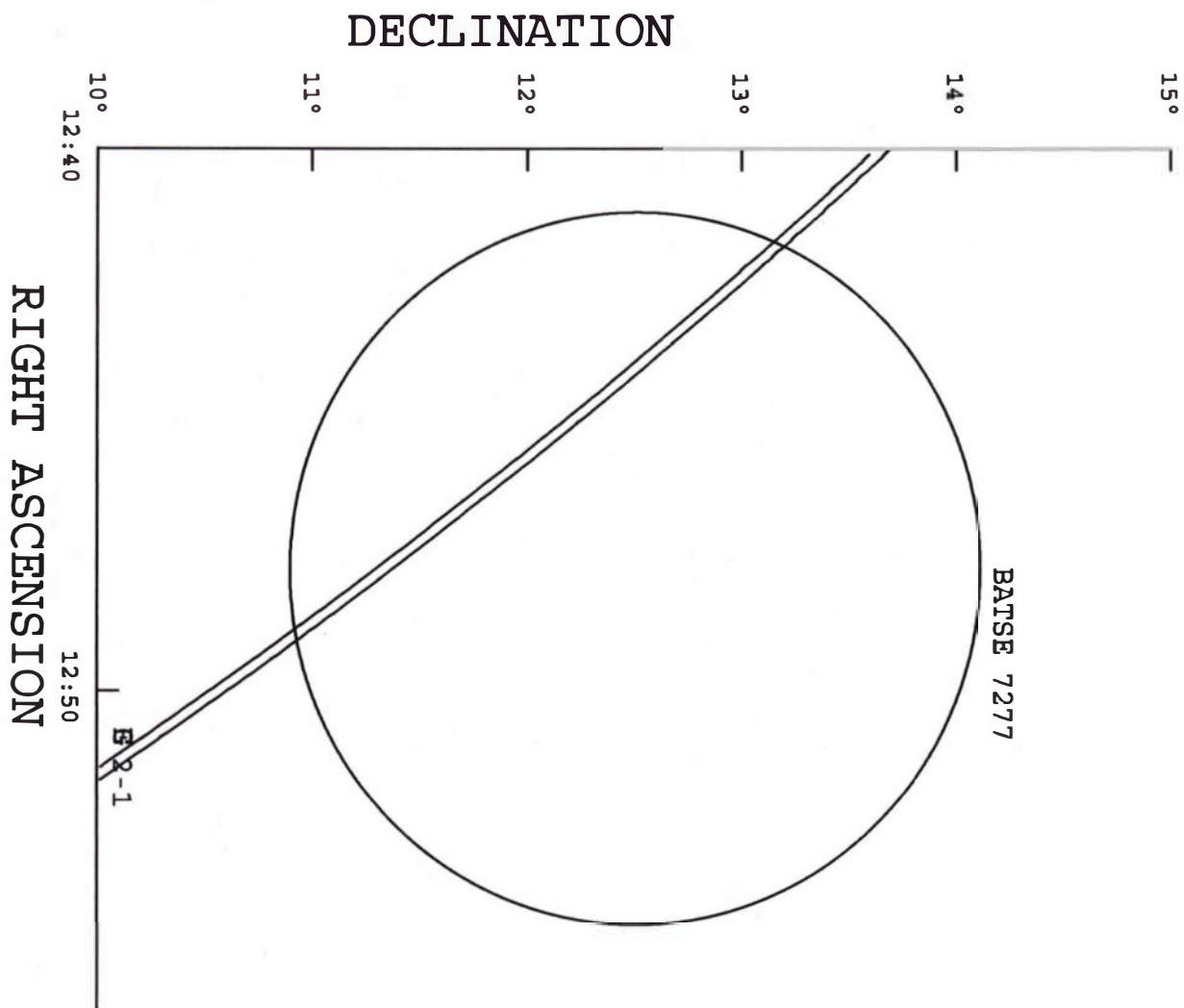
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

EVENT OF DEC 23, 1998 12:11

21 / 1 / 0



BATSE

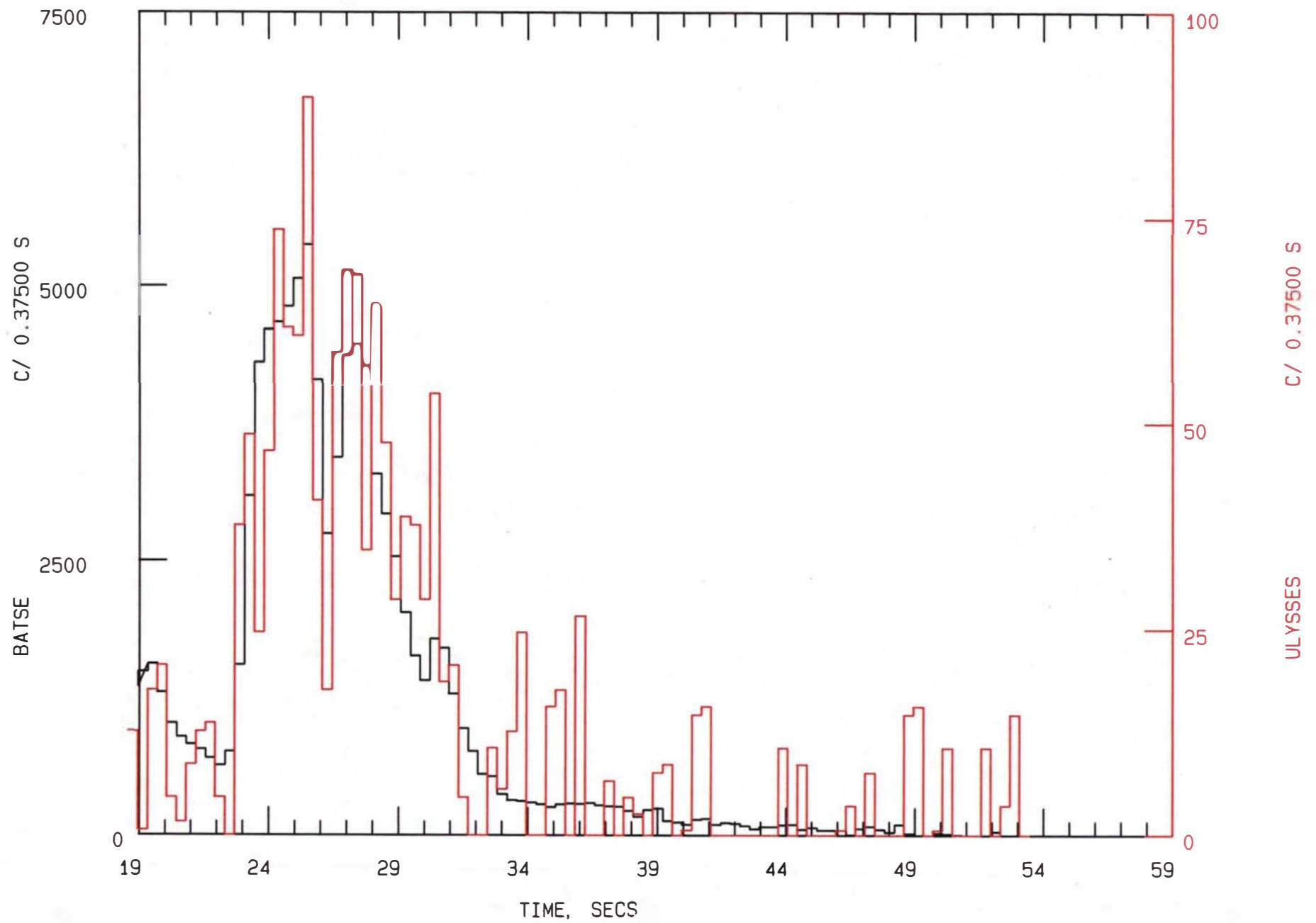
-ULYSSES

CORRELATION

23/12/98

43875.041

21/ 1/ 0



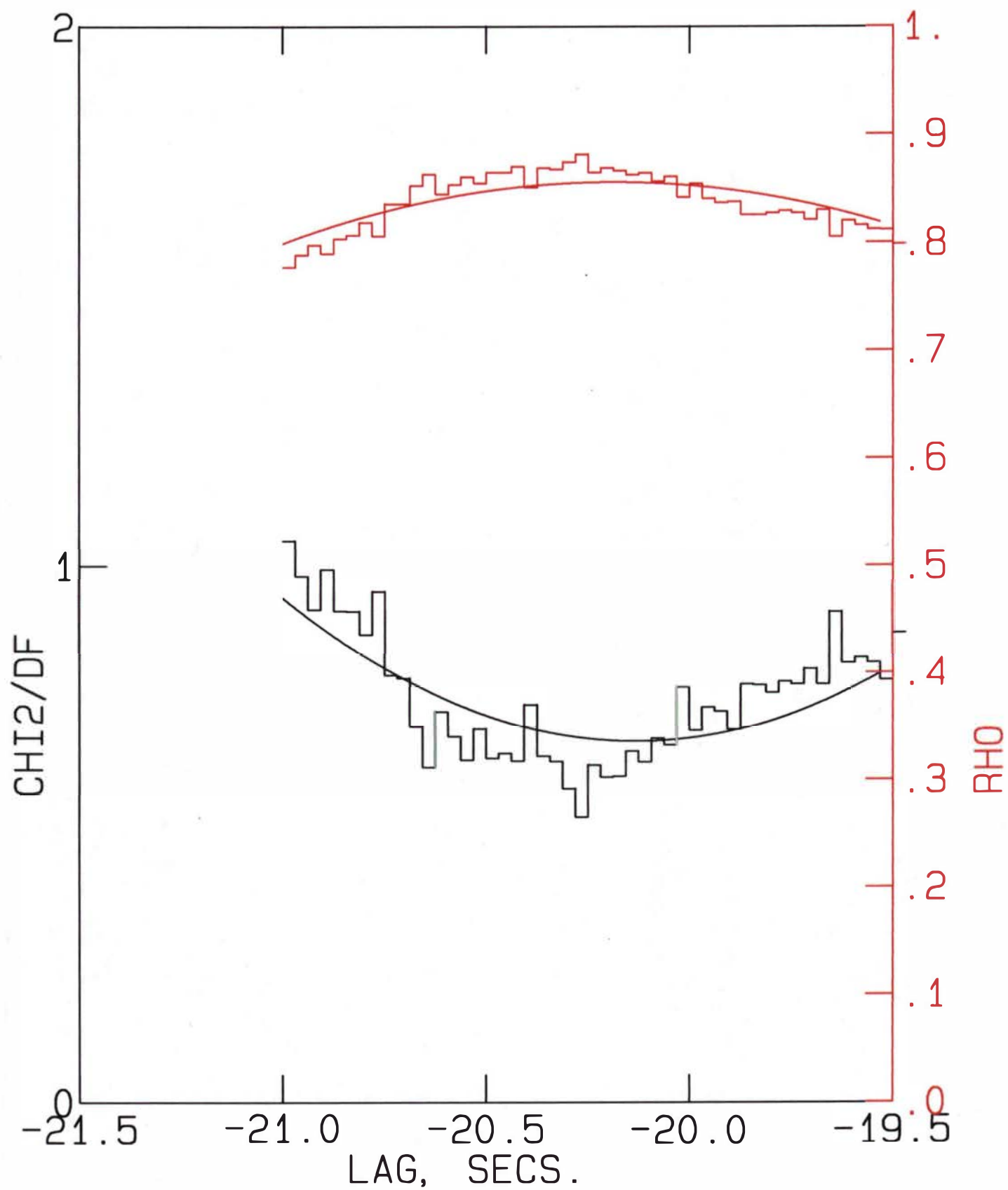
BATSE

-ULYSSES

CORRELATION

23/12/98

43875.041



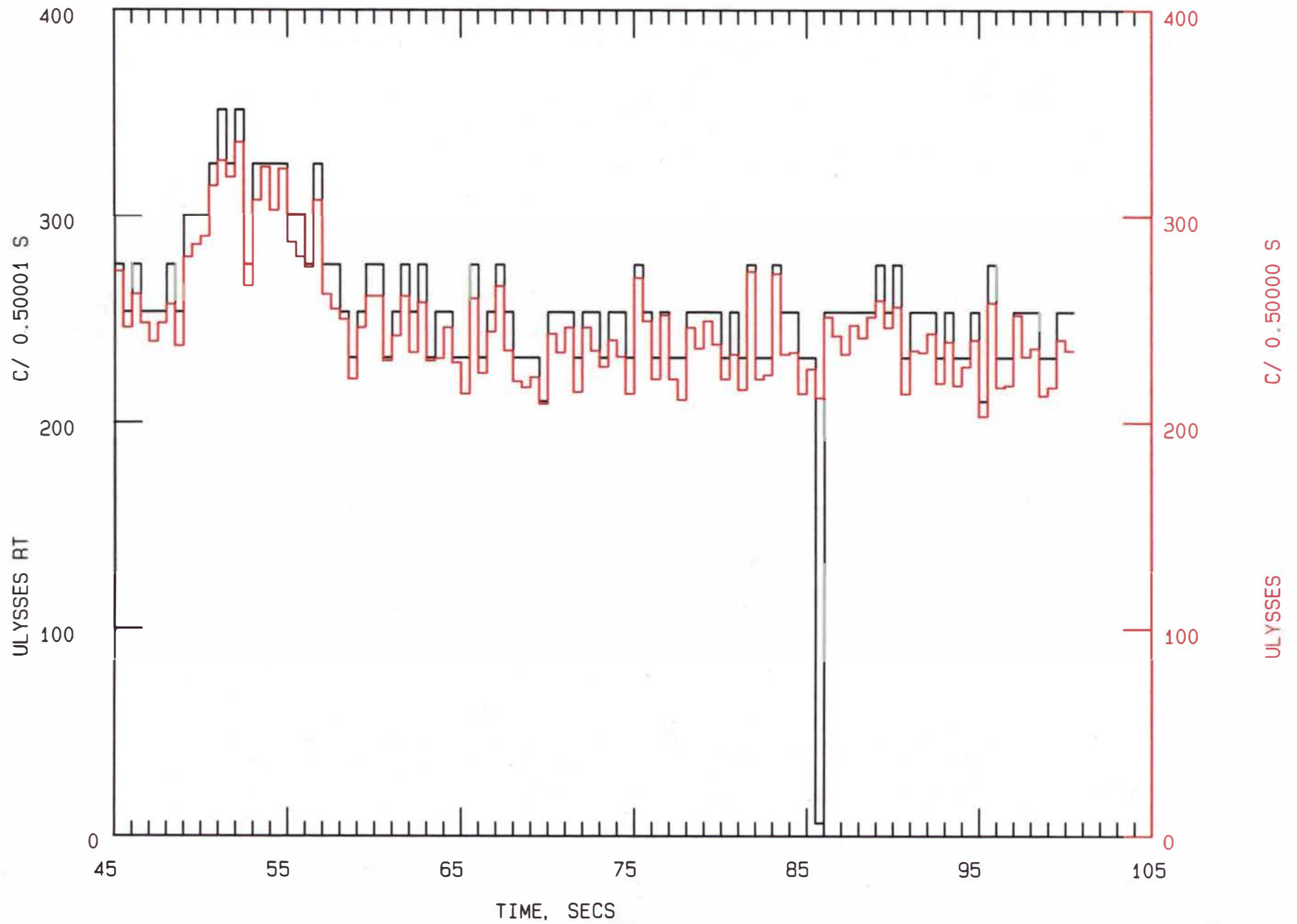
ULYSSES RT-ULYSSES

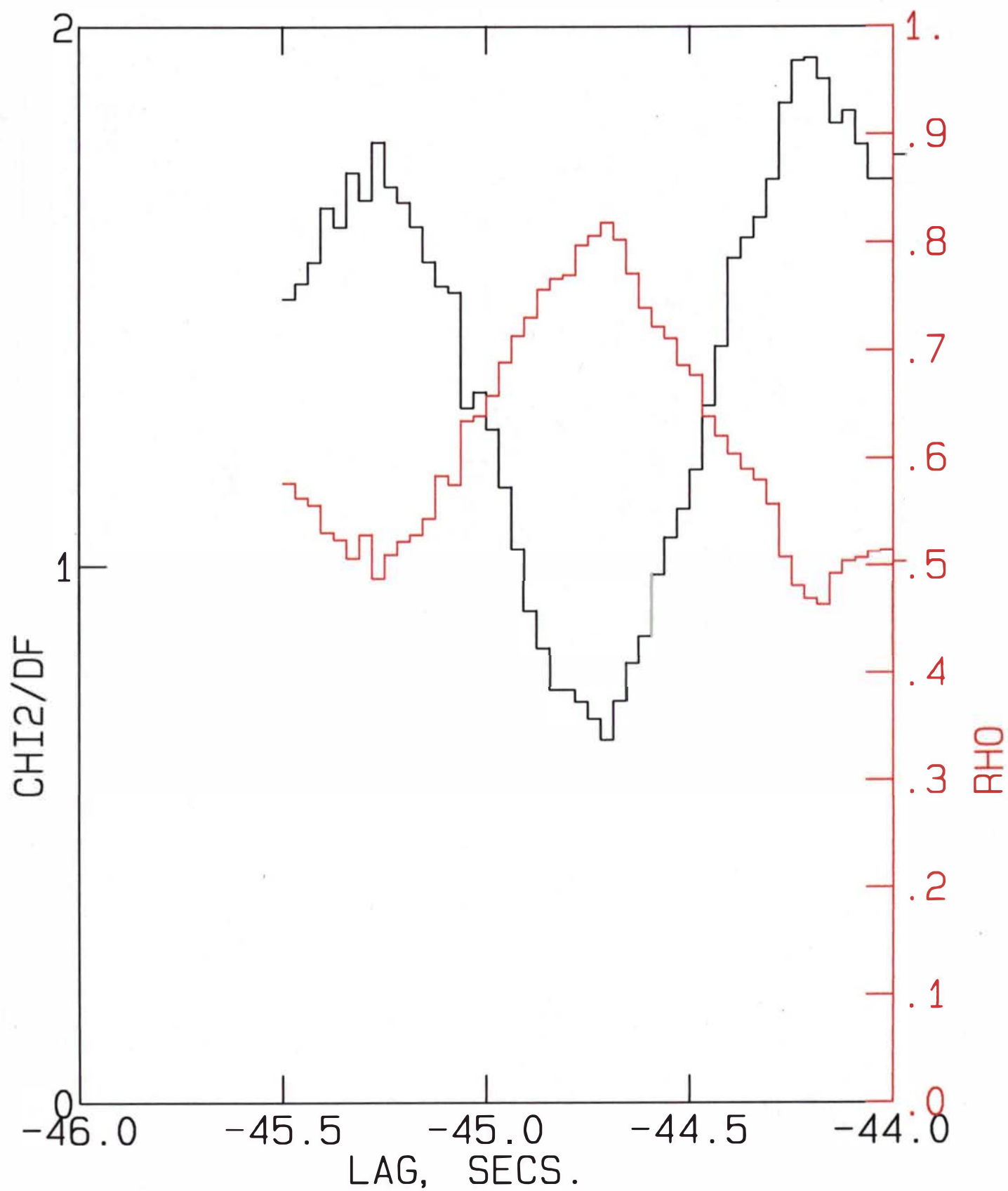
CORRELATION

23/12/98

41728.381

21/ 1/ 0

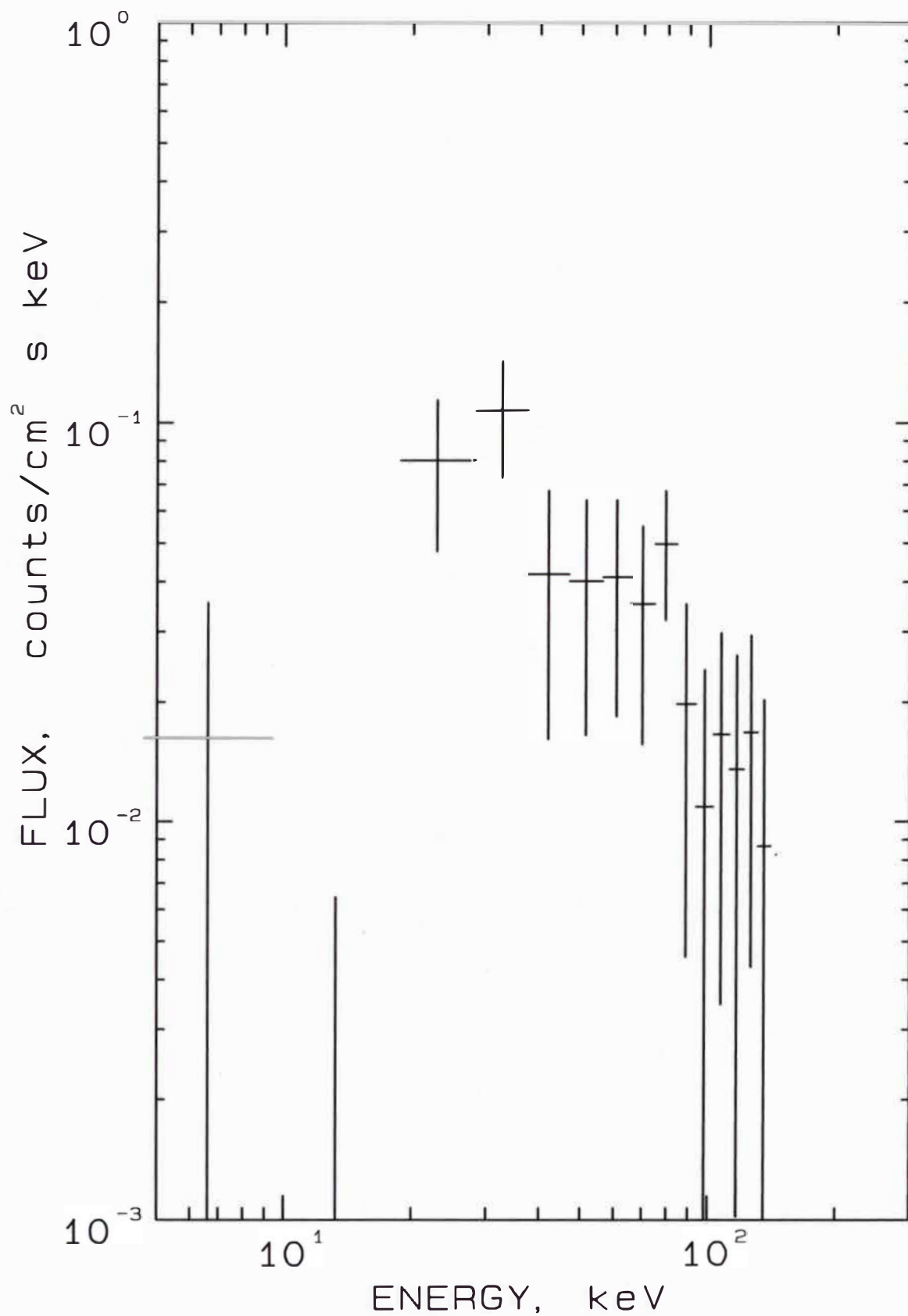




ULYSSES 23/12/98 41781.377

21/ 1/ 0

SPECTRUM INTEGRATED OVER 9.9 SECONDS, INTERVALS 1 TO 10



ULYSSES 23/12/98 41781.377 BURST SPECTRAL COUNT RATES

4- 18 keV

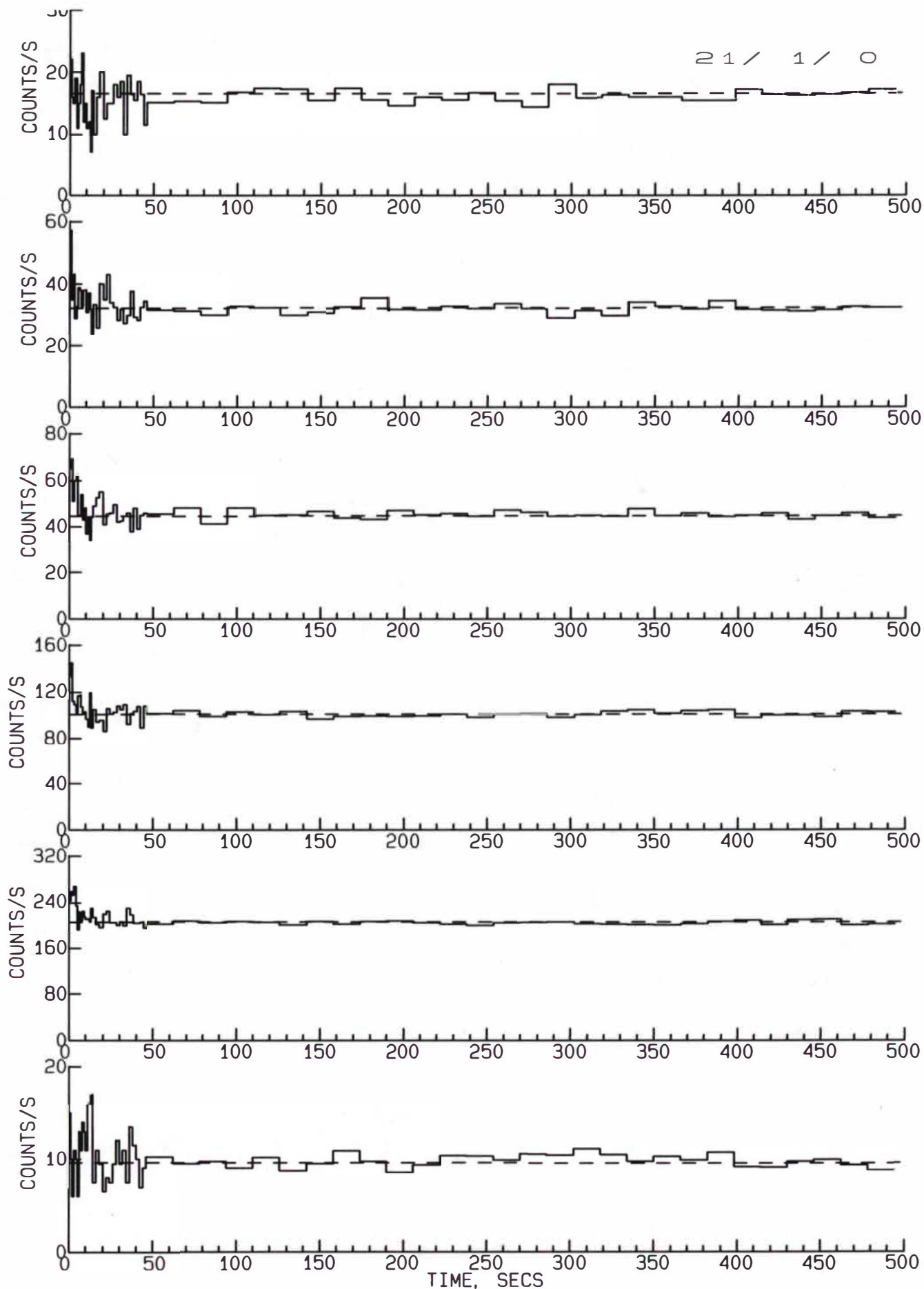
18- 46 keV

46- 74 keV

74-102 keV

102-130 keV

130-149 keV

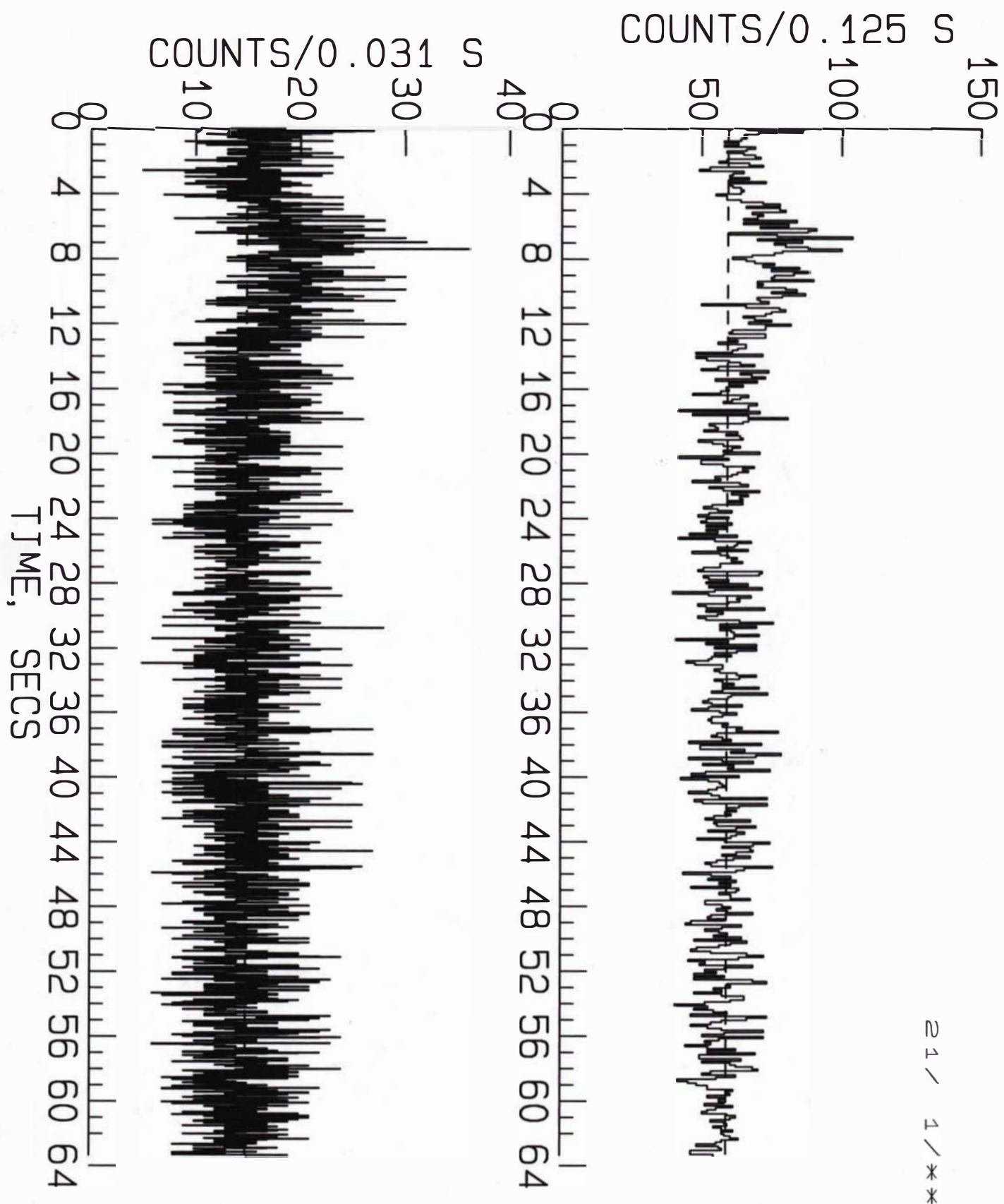


ULYSSES

23/12/98

Ttrig=41780.508

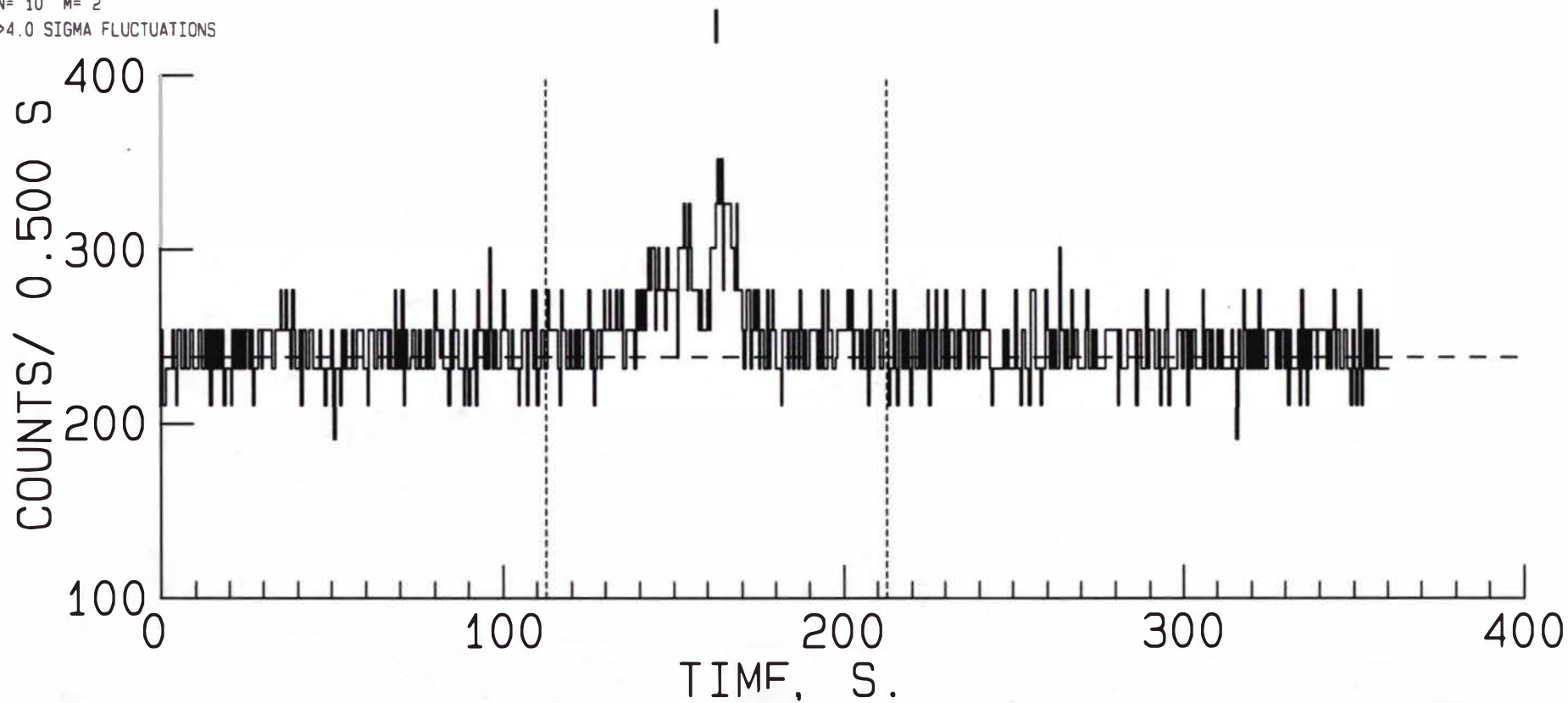
22- 149 keV



ULYSSES RT
23/12/98 41616.376 s
22- 149 keV

21 / 1 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



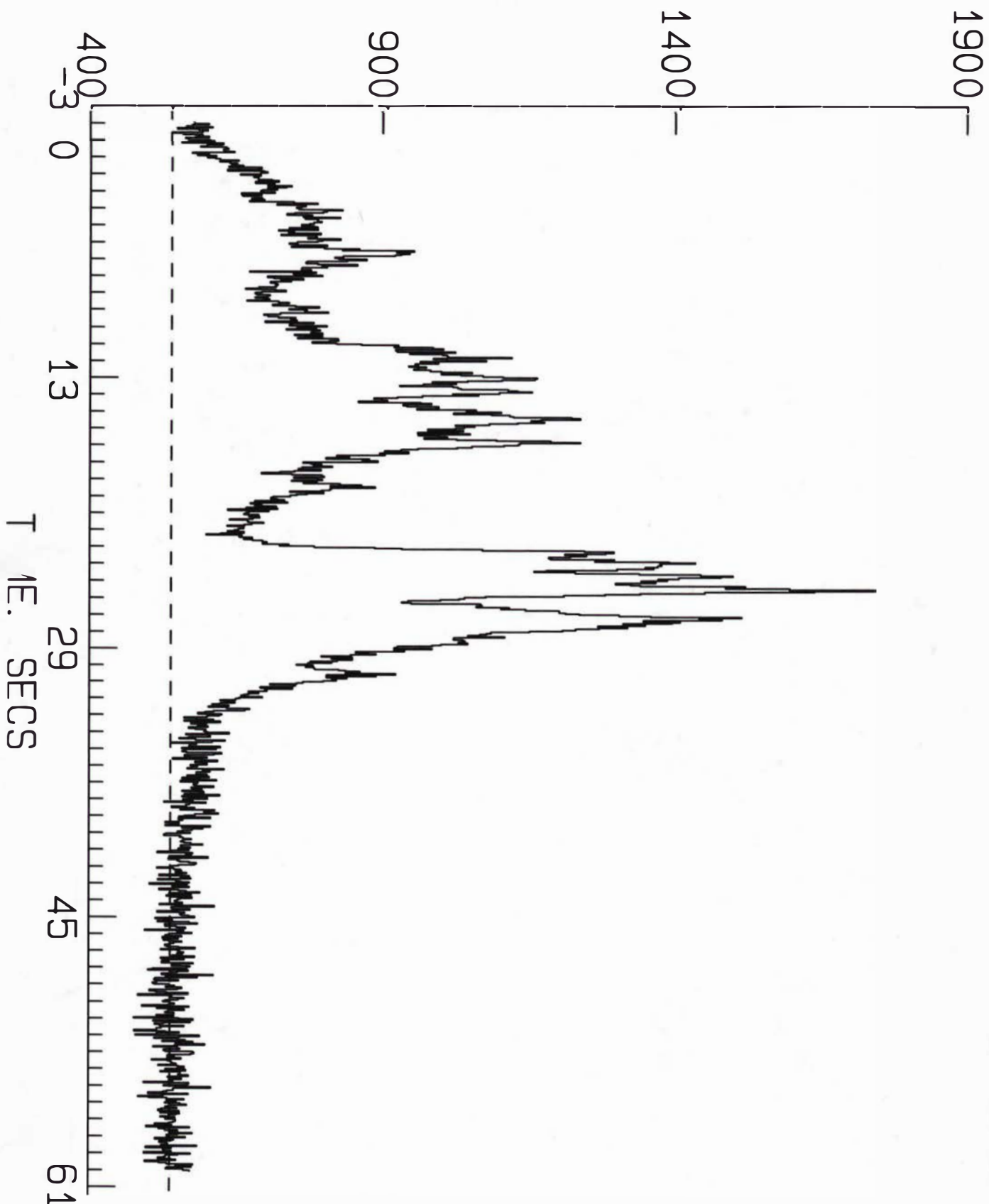
BATSE

23/12/98

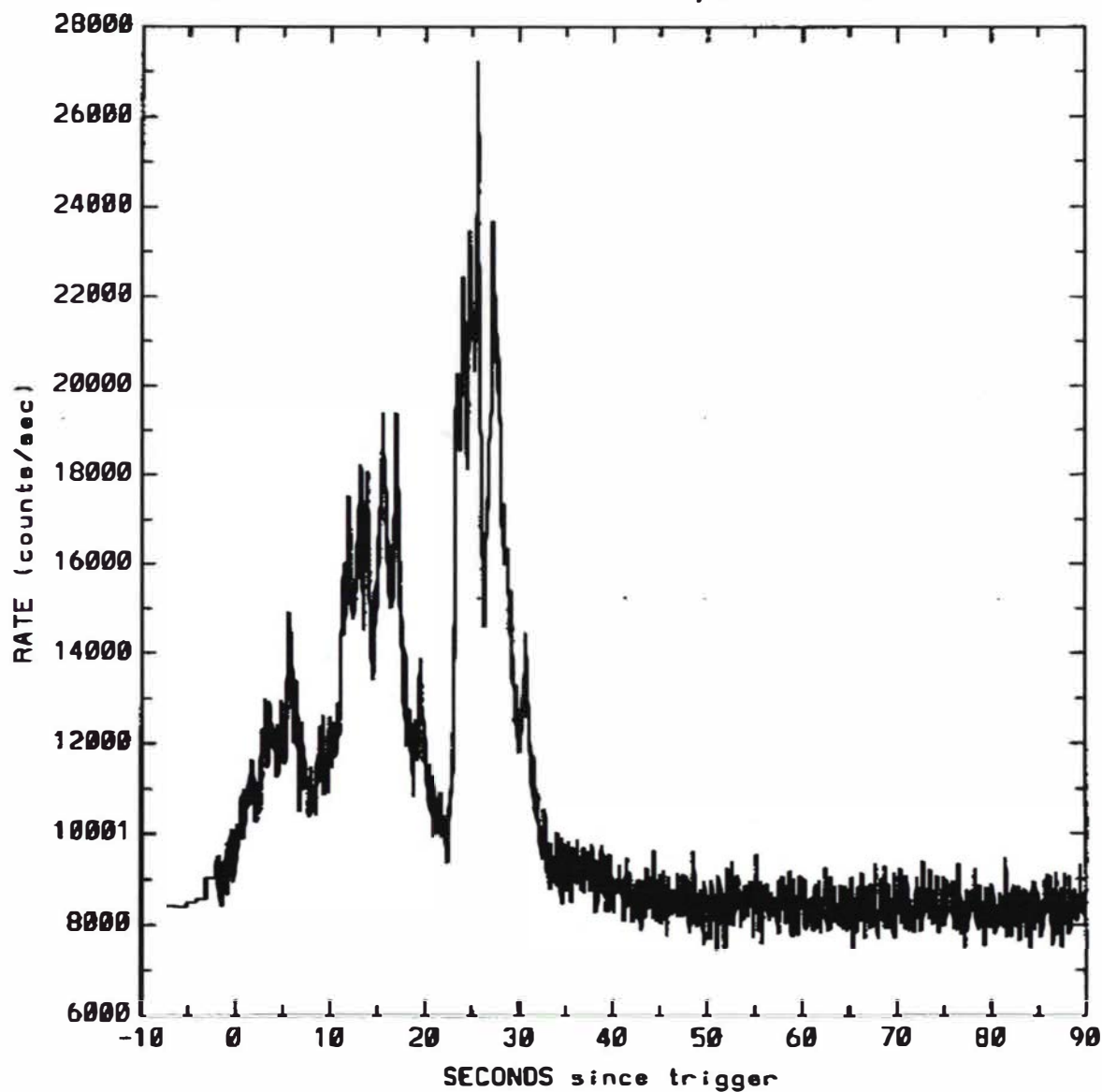
43875.041

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 7277



12-JAN-1999 09:46:38

Created by MOPS 8D
(Burst Display)
Version 12.26

Trigger # : 7277

Trigger Time:
11178 / 43875.841Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors (7..8).
7---32--Discriminators:
(1..2)Quality Mask:
BDISP1

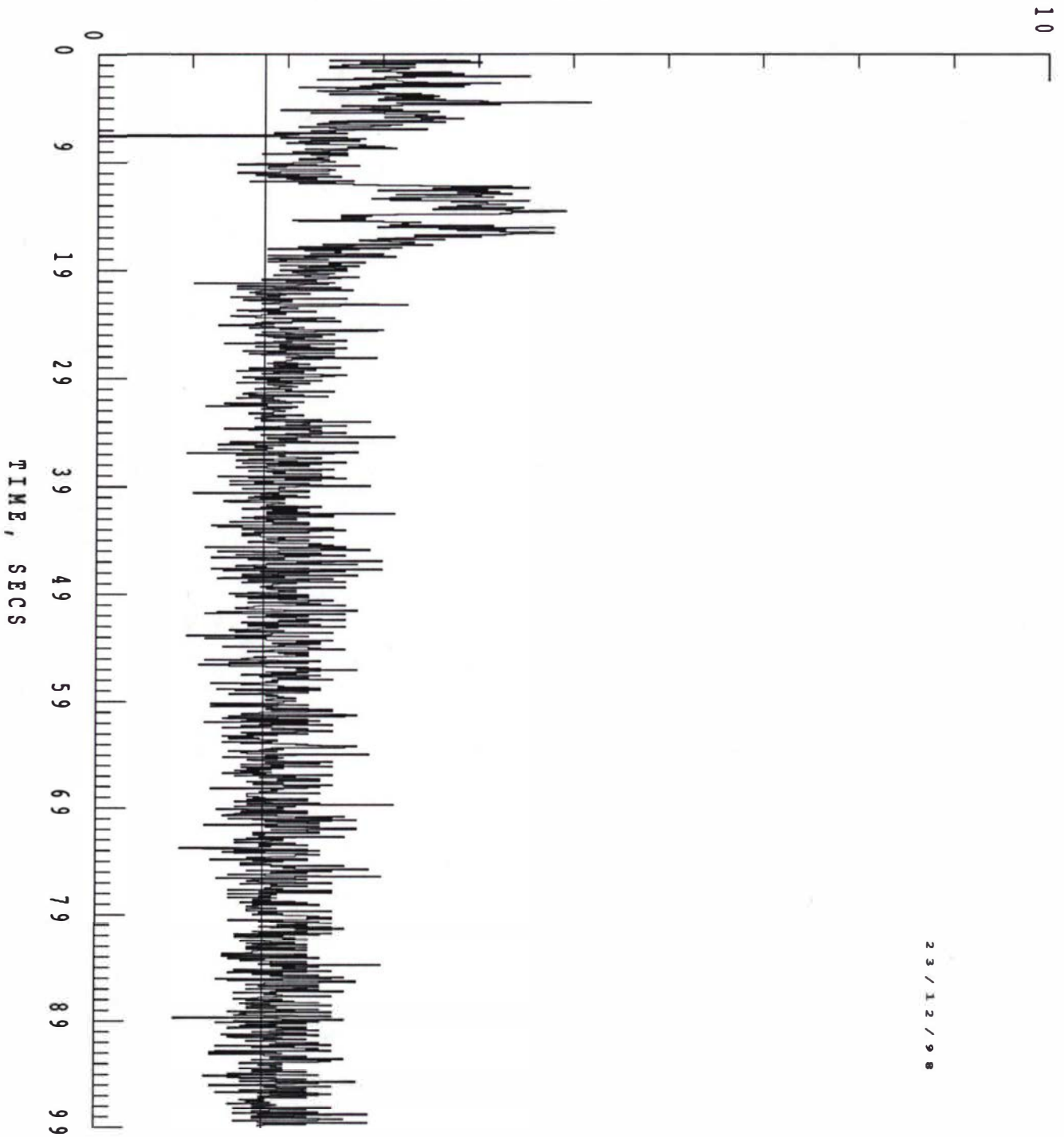
KONUS

23/12/98

43885.774

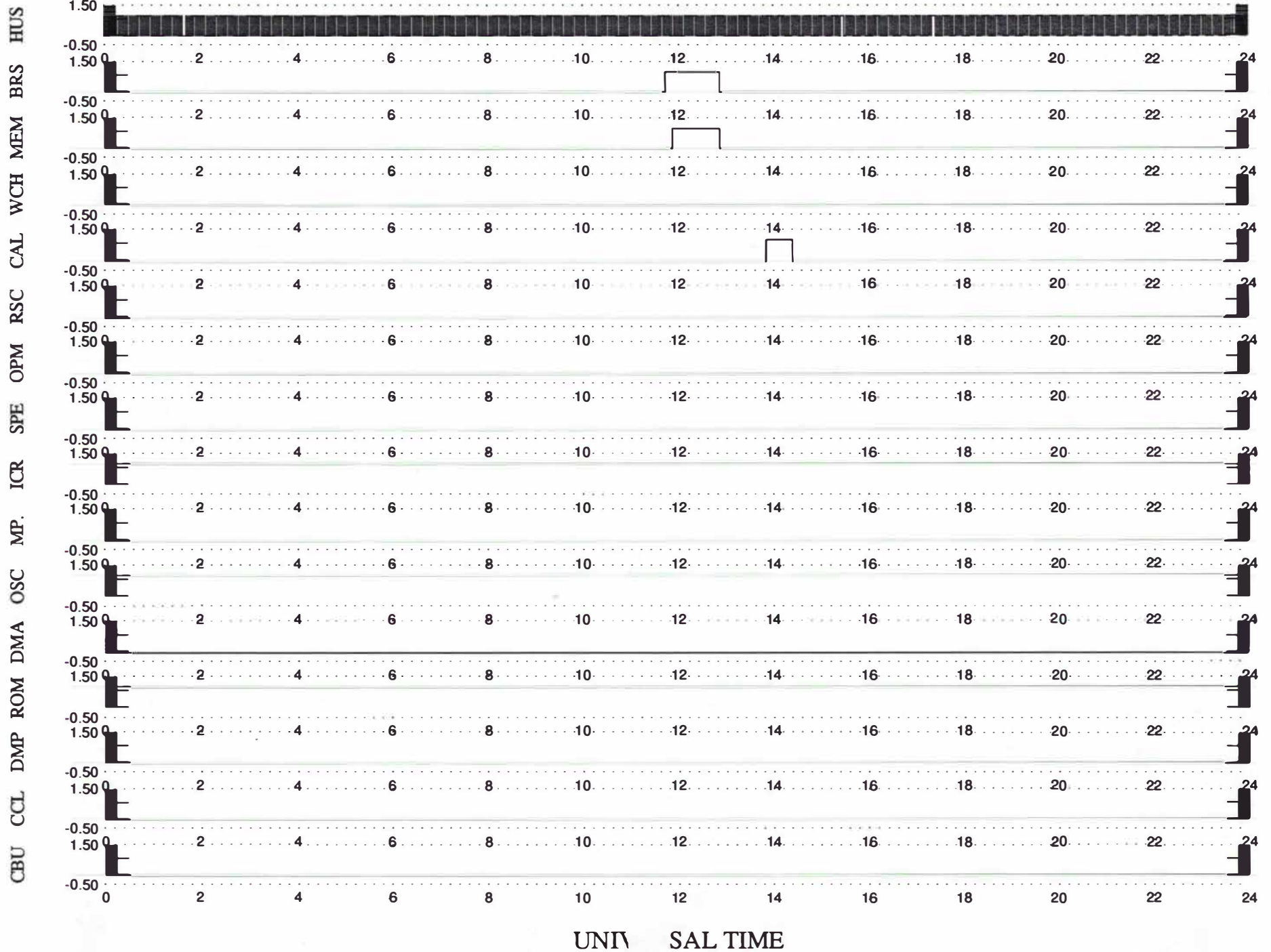
50 - 200 keV

COUNTS/0.064 S

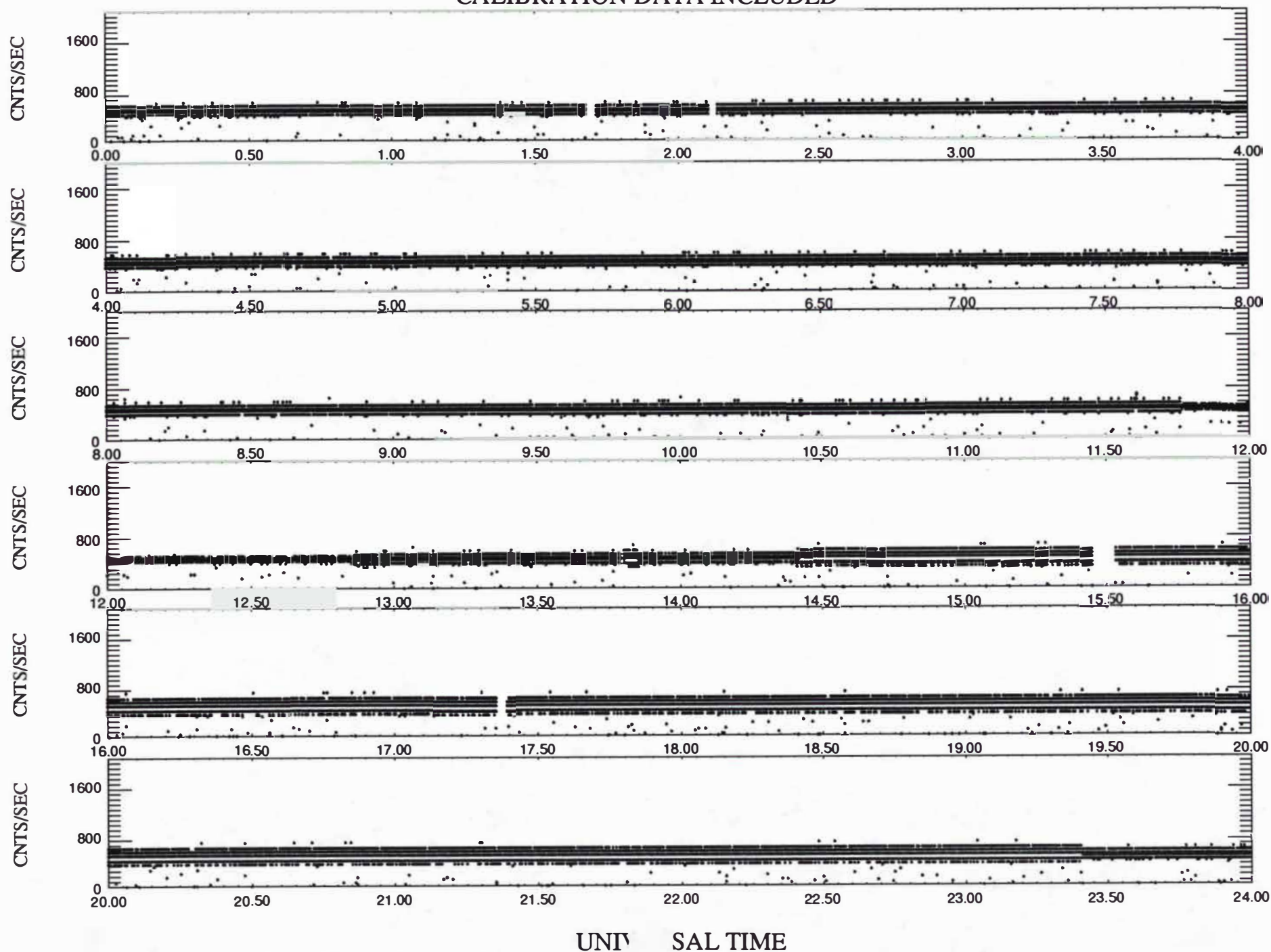


23/12/98

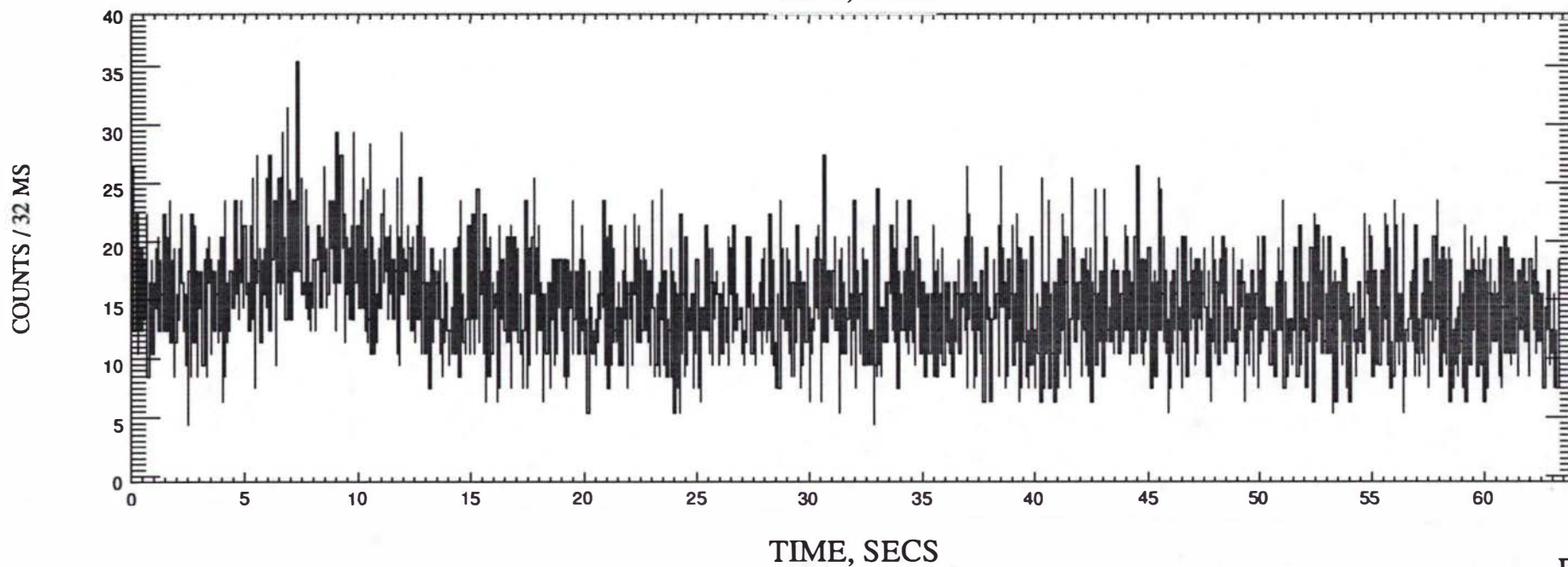
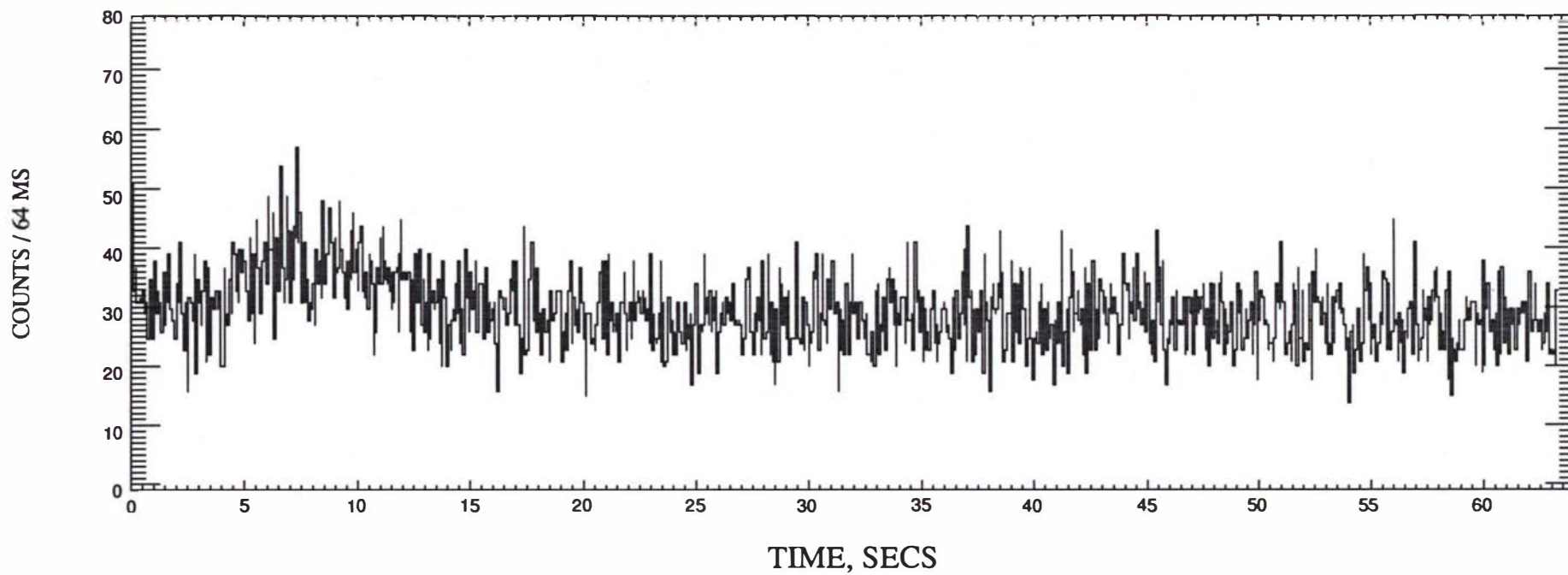
BURST NUMBER 14



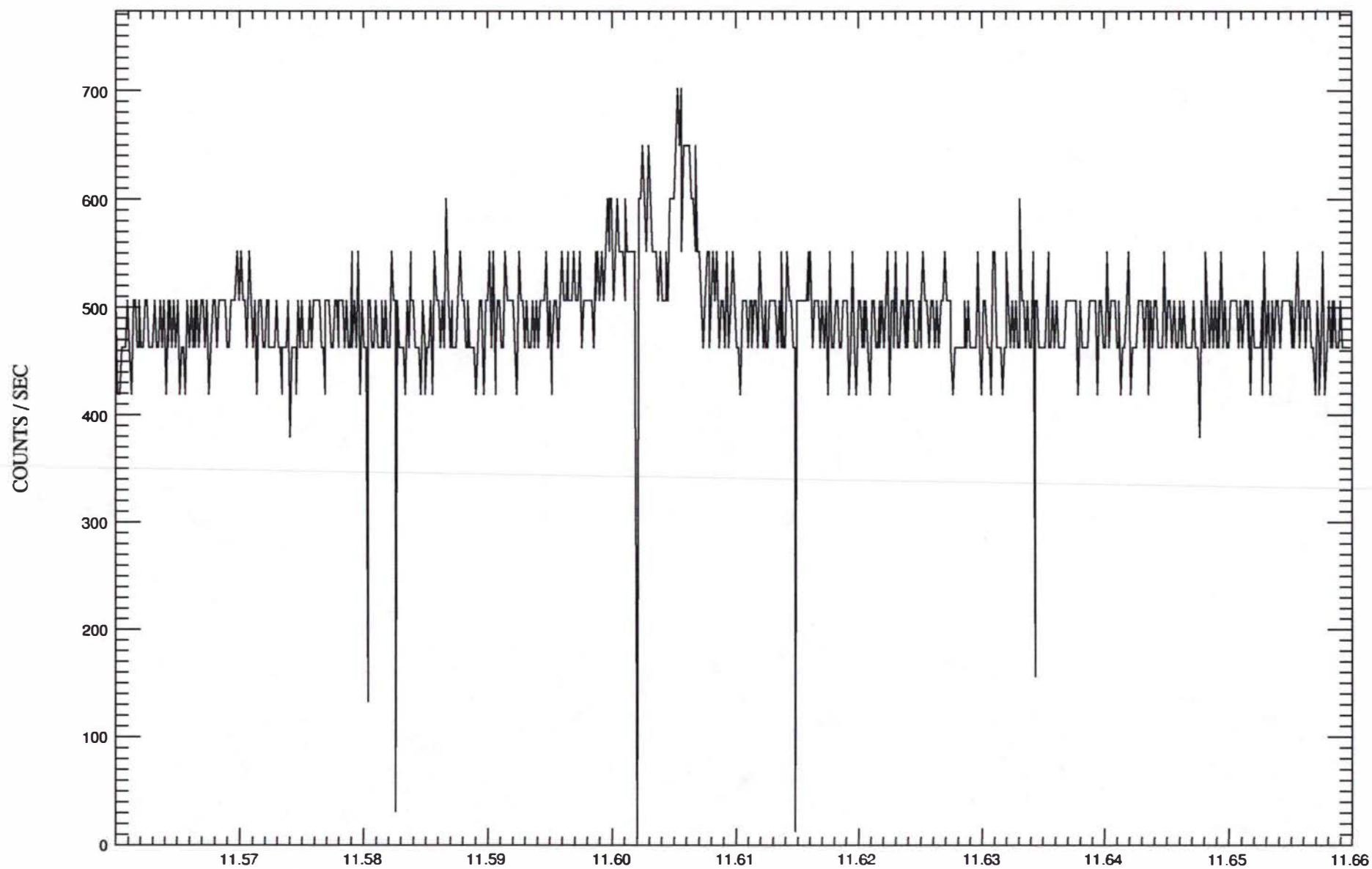
CALIBRATION DATA INCLUDED

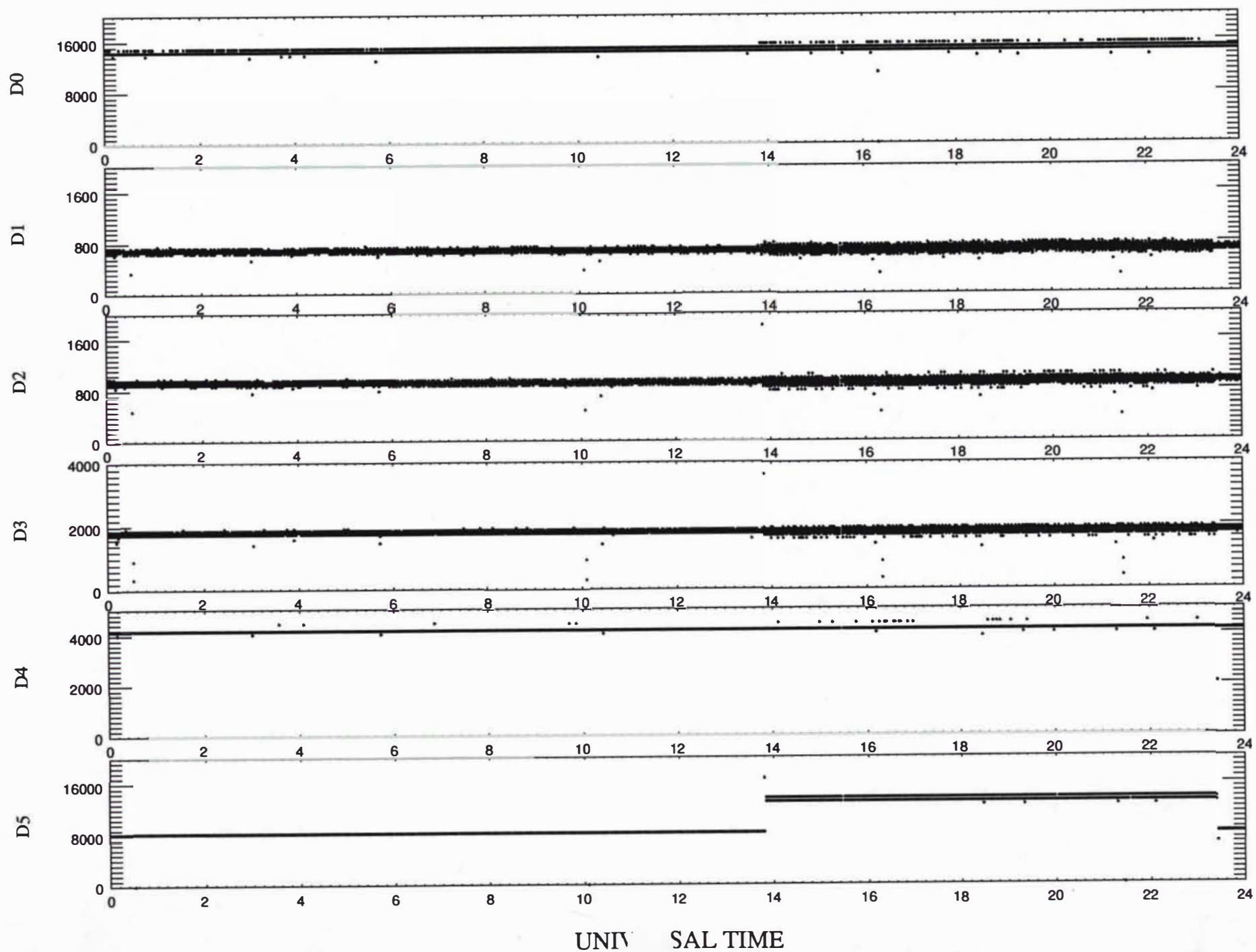


Burst Counter 14 at UT=11.605692804125 h=41780.494 s 11:36:20.494



CALIBRATION DATA INCLUDED





From RICHARDSON@fender.msfc.nasa.gov Mon Dec 28 11:17:08 1998

From: RICHARDSON@fender.msfc.nasa.gov

Date: Mon, 28 Dec 1998 13:16:37 -0600 (CST)

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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7278

TIME: TJD=1171 SECONDS=39087

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY

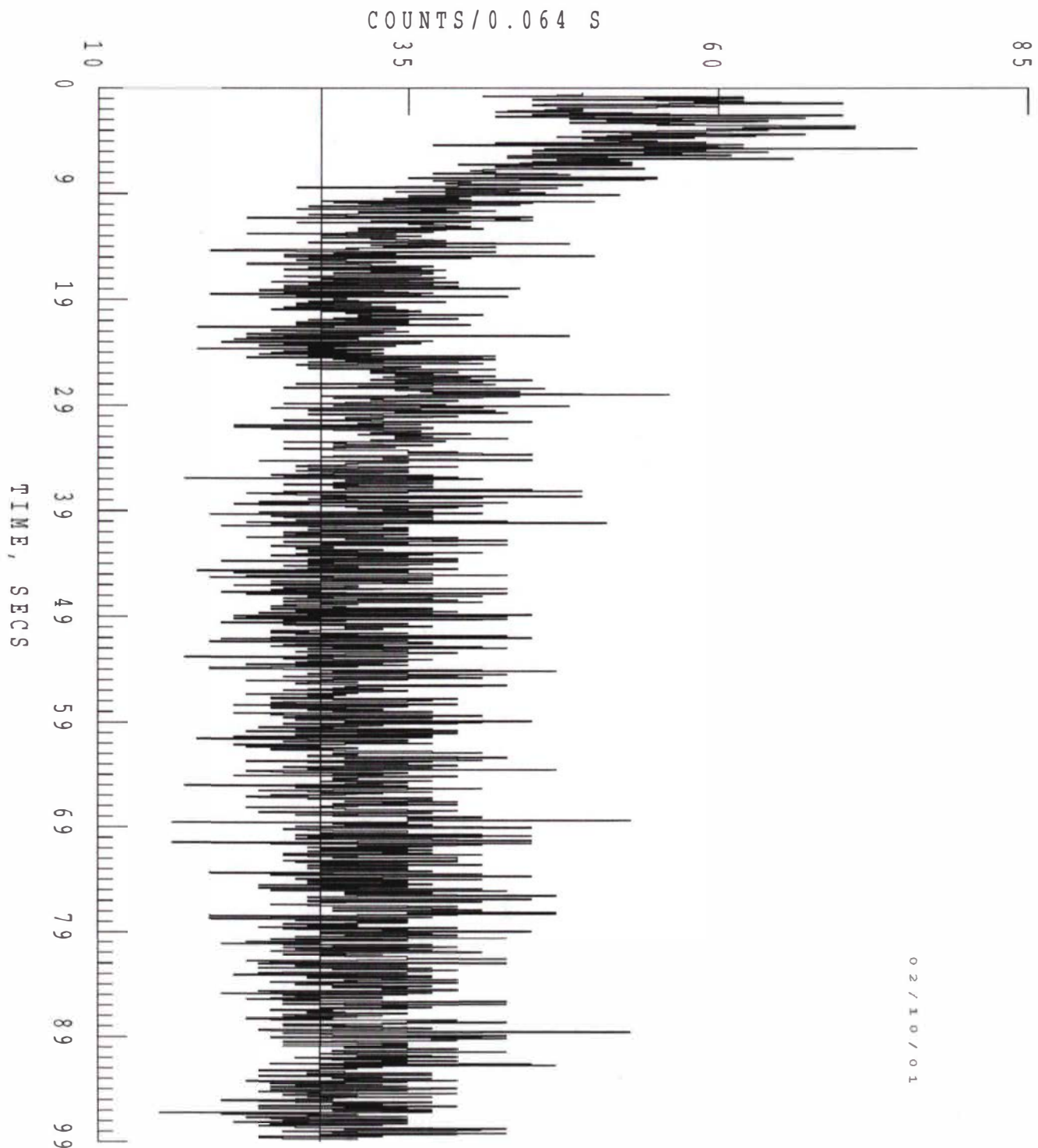
KONUS2

24/12/98

42040.661

50 - 200 keV

Solar



KONUS 19981224 42040

ULYSSES RT

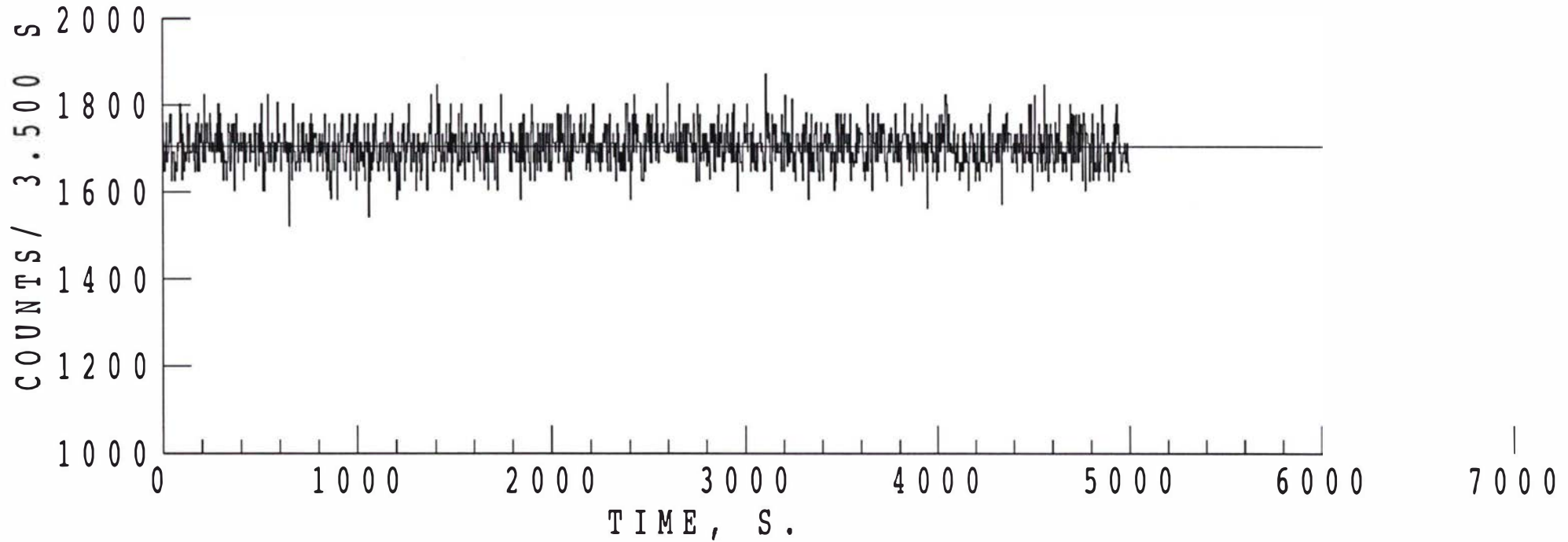
29 / 12 / 98

24 / 12 / 98 39528.238 s

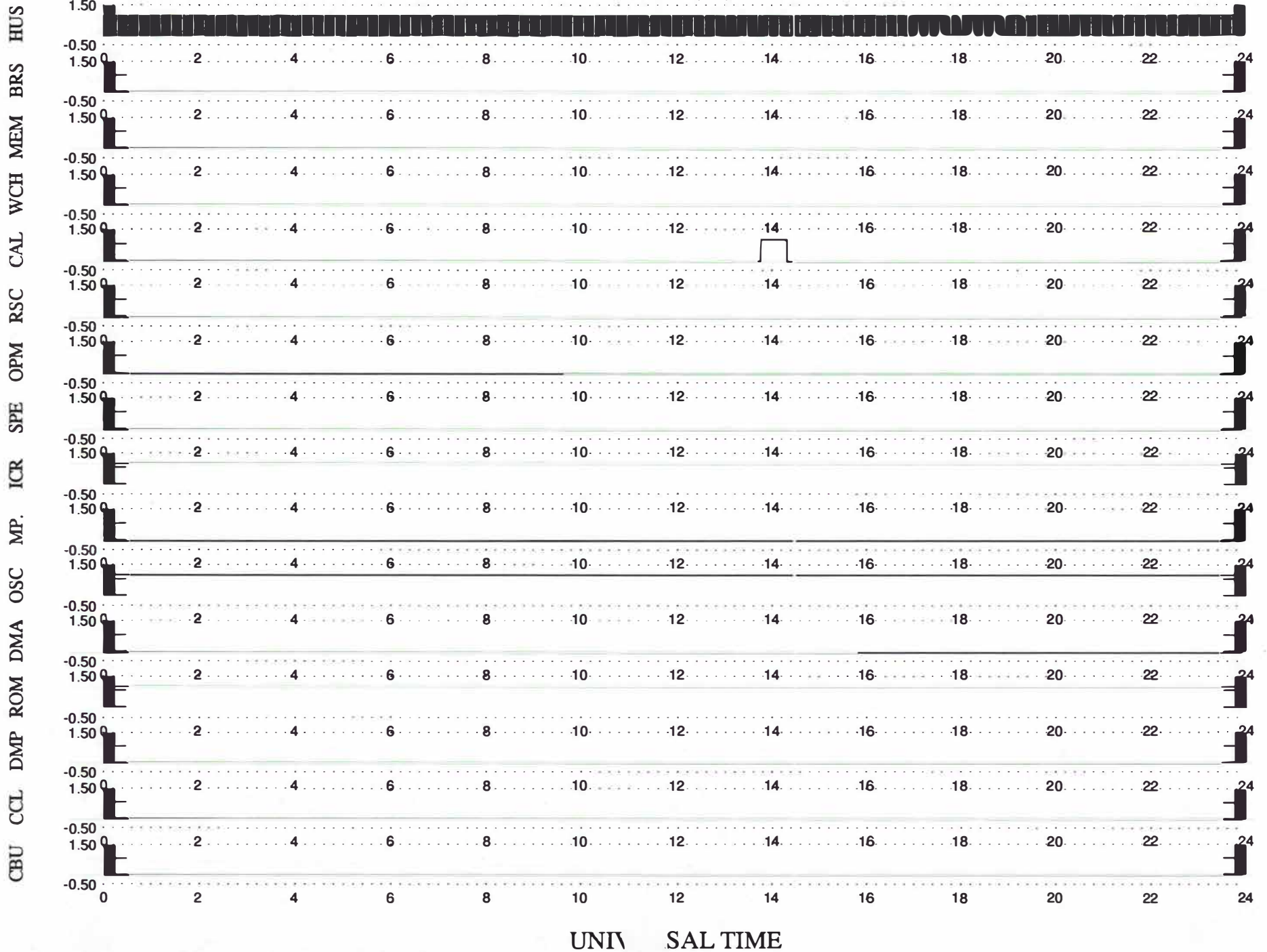
0.500 S INTERVALS REGROUPED BY 7

0 - 0 keV

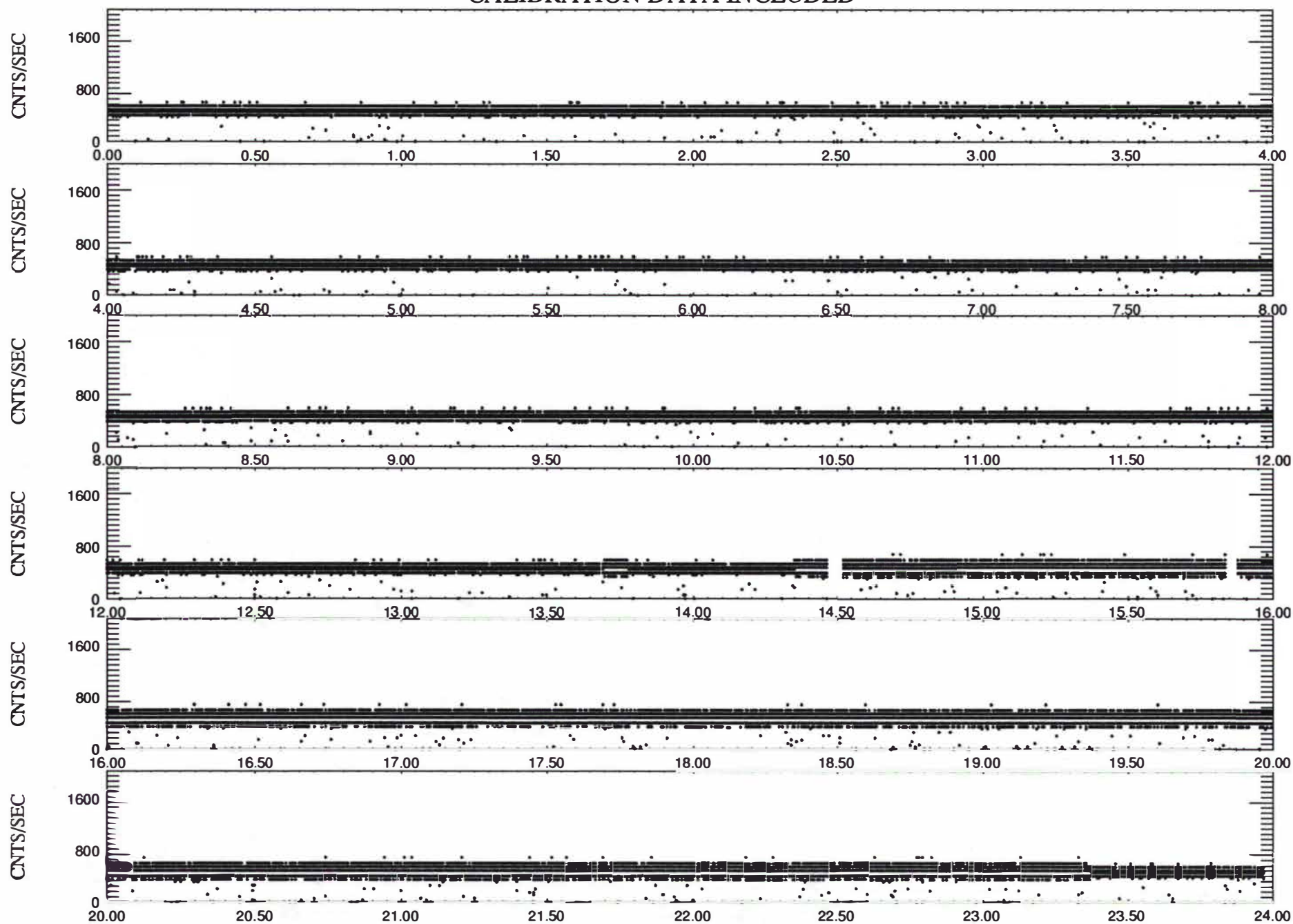
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



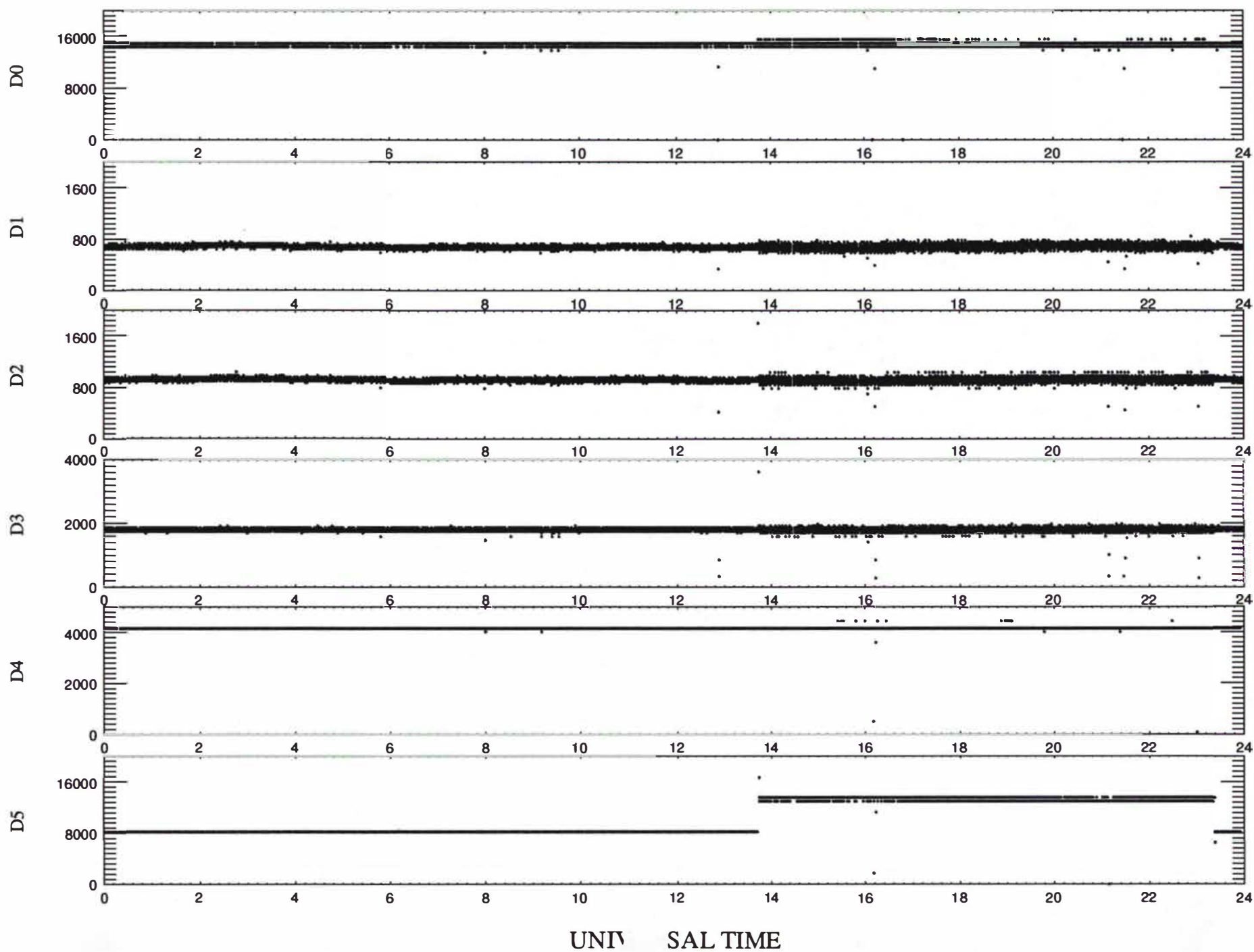
NO BURST (14)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



JANA TAB .1 19981225 75311

ULYSSES RT

05/08/05

25/12/98 74952.250 s

0.250 S INTERVALS REGROUPED BY 2

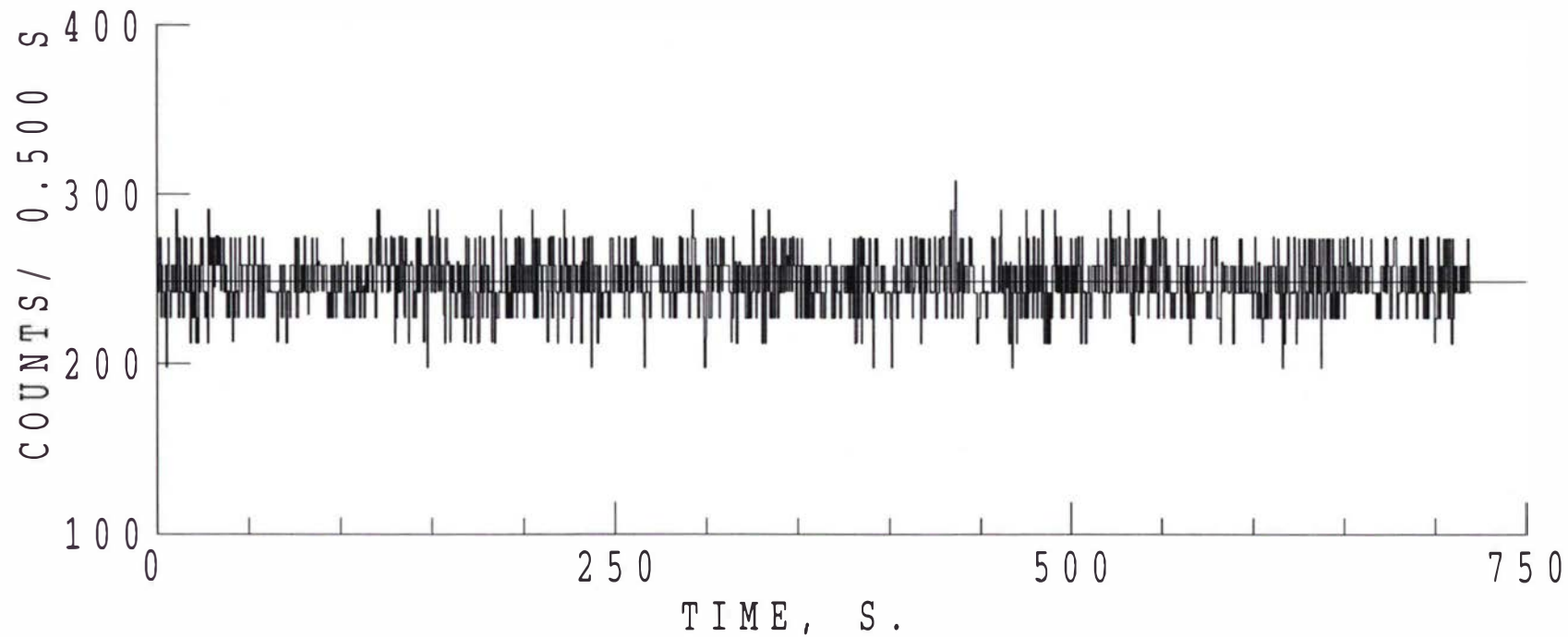
0 - 0 keV

N= 10 M= 10

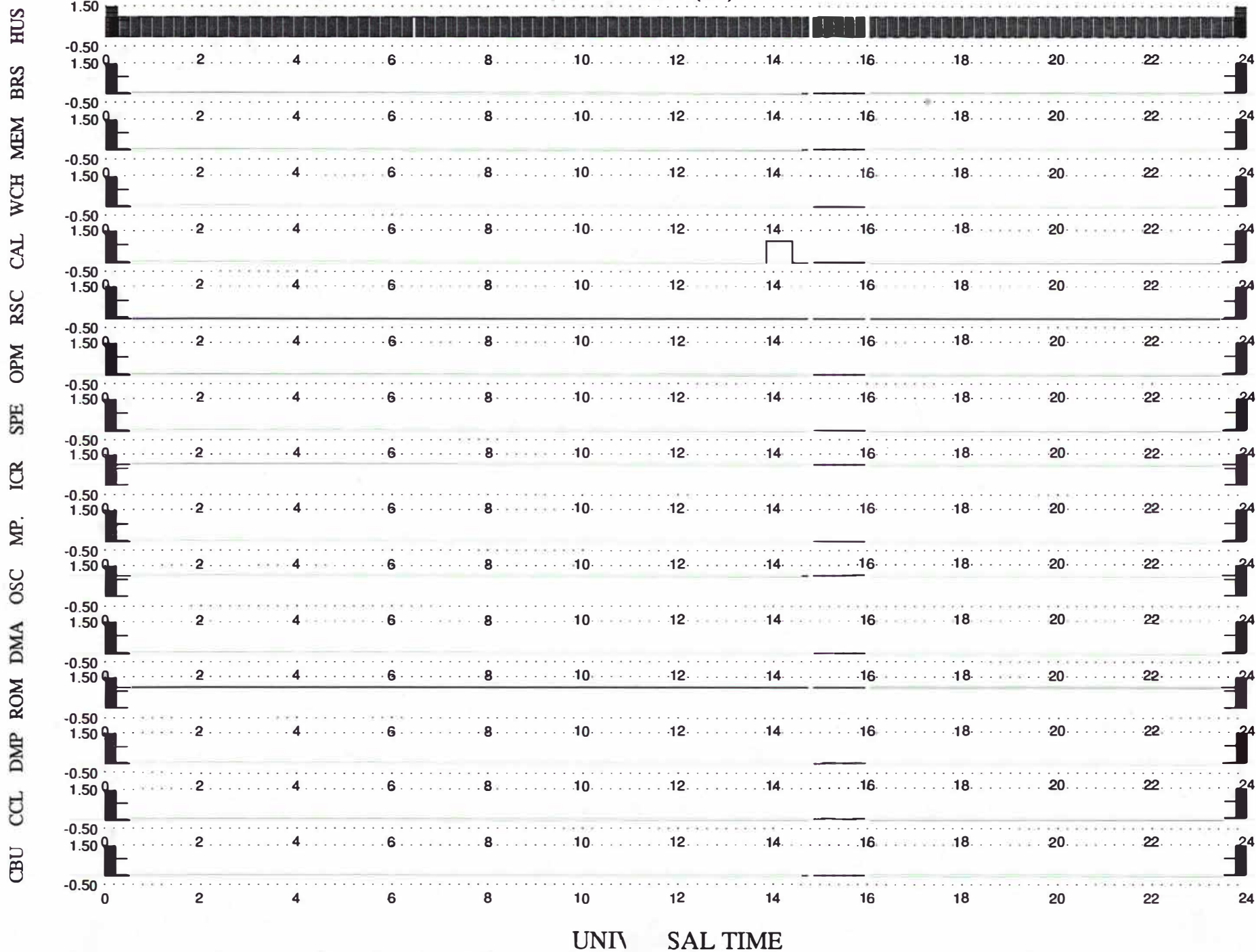
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

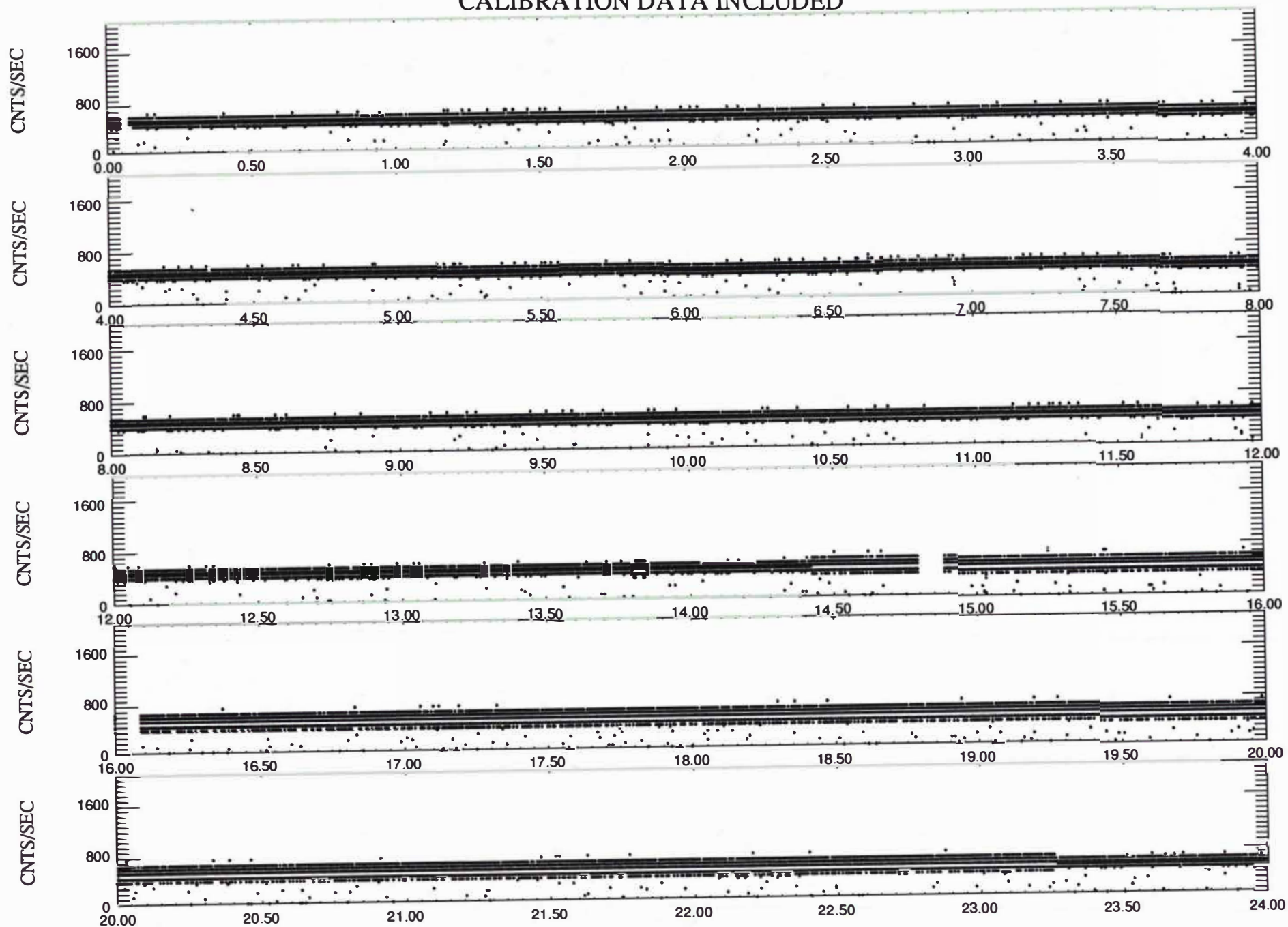
>4.0 SIGMA FLUCTUATIONS



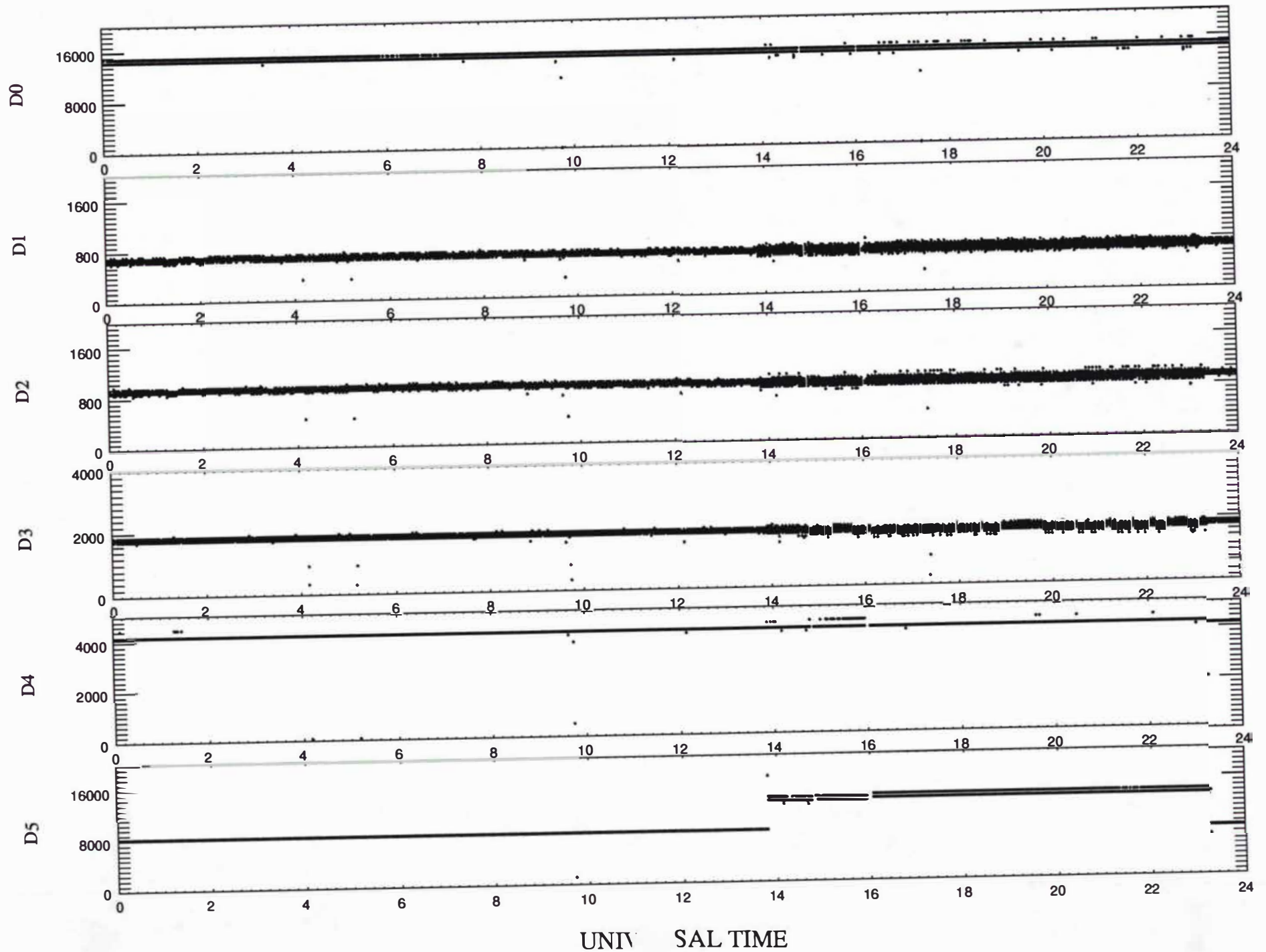
NO BURST (14)



CALIBRATION DATA INCLUDED



UNIV SAL TIME



From RICHARDSON@fender.msfc.nasa.gov Mon Dec 28 11:20:23 1998

From: RICHARDSON@fender.msfc.nasa.gov

Date: Mon, 28 Dec 1998 13:20:11 -0600 (CST)

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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7279

TIME: TJD=1173 SECONDS=21496

TYPE: FLARE

SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=50.9 AZIMUTH=348.0 ERROR=0.7 DEGREES

COMMENTS:

SOLAR FLARE. GOES M1.2 OPTICAL SF

LOTS OF STRUCTURE. DURATION APPROX. = 80 SEC. NOT VISIBLE ABOVE 300KEV.

From RICHARDSON@fender.msfc.nasa.gov Mon Dec 28 11:21:24 1998

From: RICHARDSON@fender.msfc.nasa.gov

Date: Mon, 28 Dec 1998 13:21:13 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7280

TIME: TJD=1173 SECONDS=36360

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY

KONUS

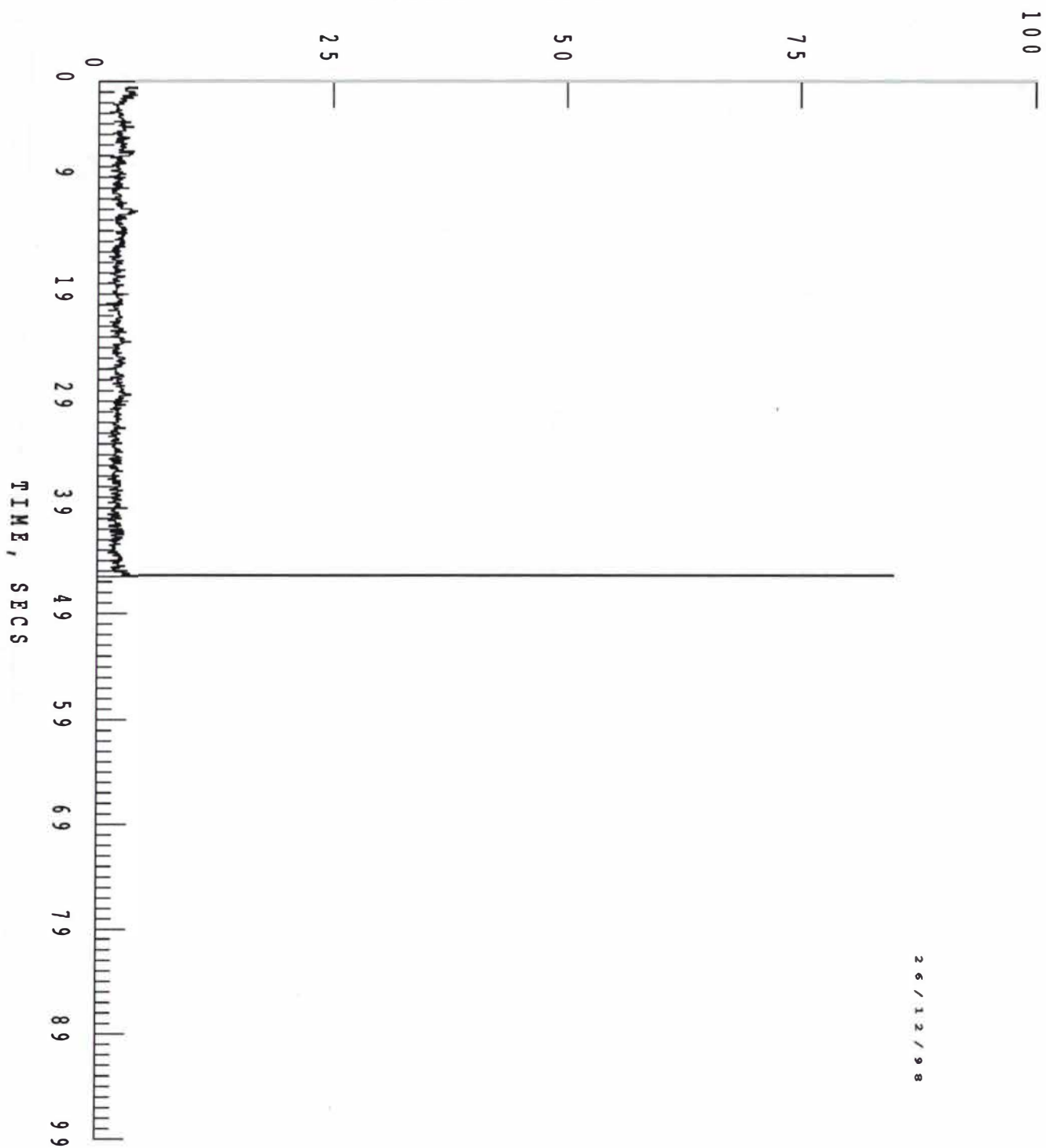
26/12/98

21496.168

50 - 200 keV

Solar

COUNTS/0.064 S



KONUS 19981226 21496

ULYSSES RT

29 / 12 / 98

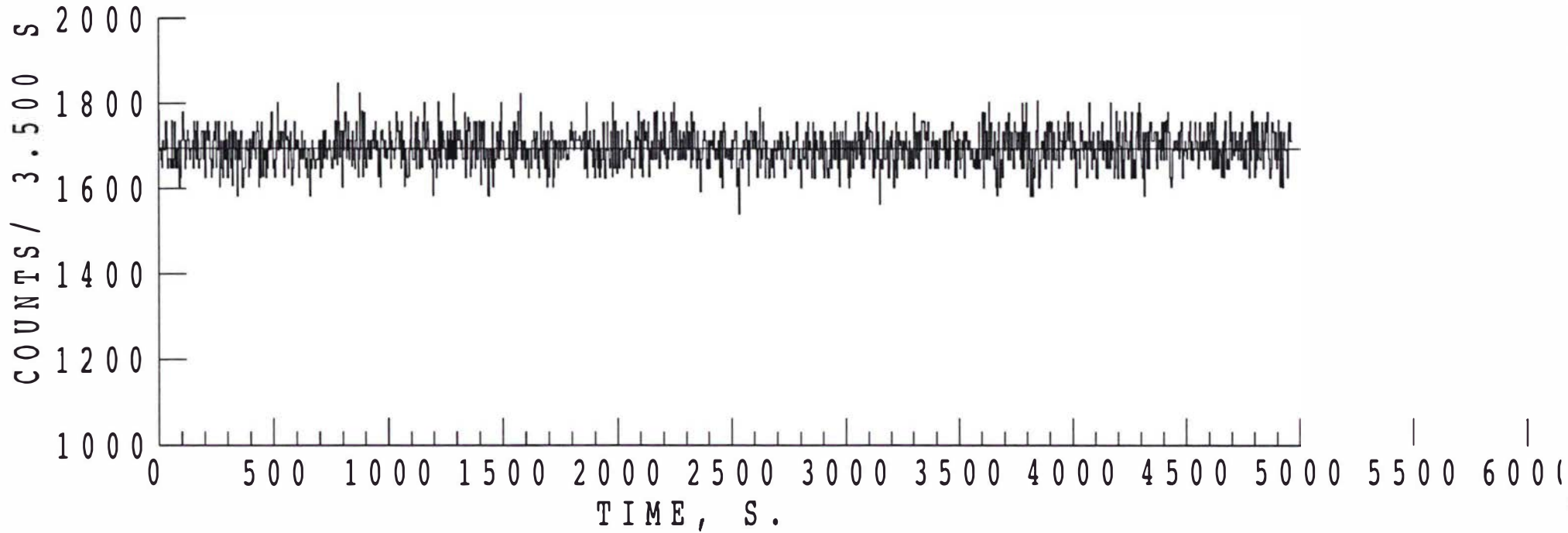
26 / 12 / 98 19008.309 s

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



S A X

ULYSSES RT

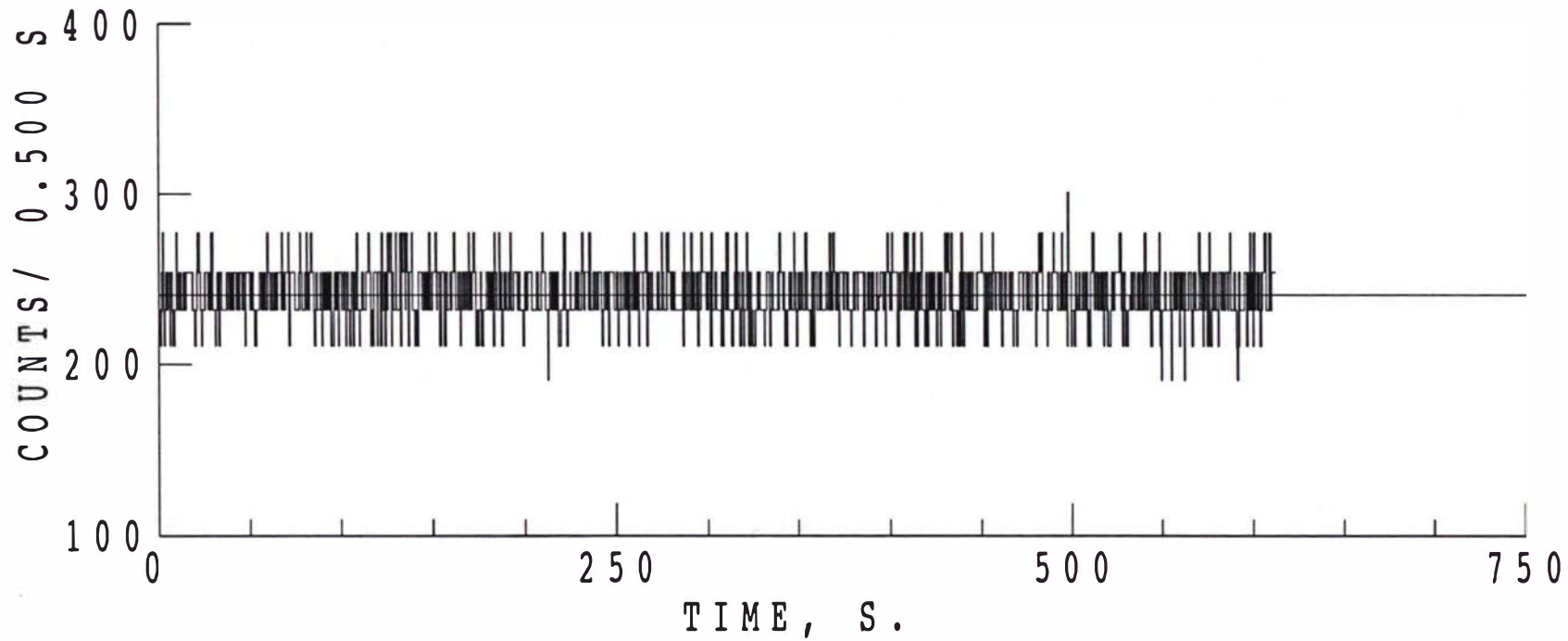
2 8 / 1 2 / 9 8

2 6 / 1 2 / 9 8 3 6 9 7 2 . 4 9 2 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 28 11:48:03 1998
Return-Path: <RICHARDSON@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA14470; Mon, 28 Dec 1998 11:48:02 -0800
From: RICHARDSON@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA02001; Mon, 28 Dec 1998 11:47:59 -0800
Date: Mon, 28 Dec 1998 13:42:13 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981228134213.2025a75e@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7281
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7281
EVENT OF 1998 DEC 26 DAY OF YEAR=360
EVENT CROSSING TIME AT BATSE : 38824. S. OR 10:47:04.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 267.000 -24.000
BATSE PEAK COUNTING RATE: 65000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 26/12/ 98 IS:
RA= 166.375 DEC= -7.585 DIST= 4.884 AU
BATSE-ULYSSES DISTANCE = 730667917. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 83.50 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 276.10 SECS.
CROSSING TIME AT ULYSSES IS 39100. S. OR 10:51:40 +/- 474.61 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 26/12/ 98 IS:
RA= 194.873 DEC= -4.335 DIST= 1.552 AU
MARS-BATSE DISTANCE = 232159120. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=108.08 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -240.31 SECS.
CROSSING TIME AT MARS IS 38584. S. OR 10:43:03 +/- 124.16 SECONDS

BATSE BURST TRIGGER

NO.: 7281

TIME: TJD=1173 SECONDS=38824

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=58.1 AZIMUTH=346.1 ERROR=1.8 DEGREES

COMMENTS:

GRB. STRONG TRIPLE SPIKES. DURATION APPROX. = 2.3 SEC.
VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7281	981226	11173	38824	65000	267	-24	2.3

Date: 21/1/00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. NEAR Data N/A

- ☐ Final, correct time used? (Files on website have the correct time)
- ☐ 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

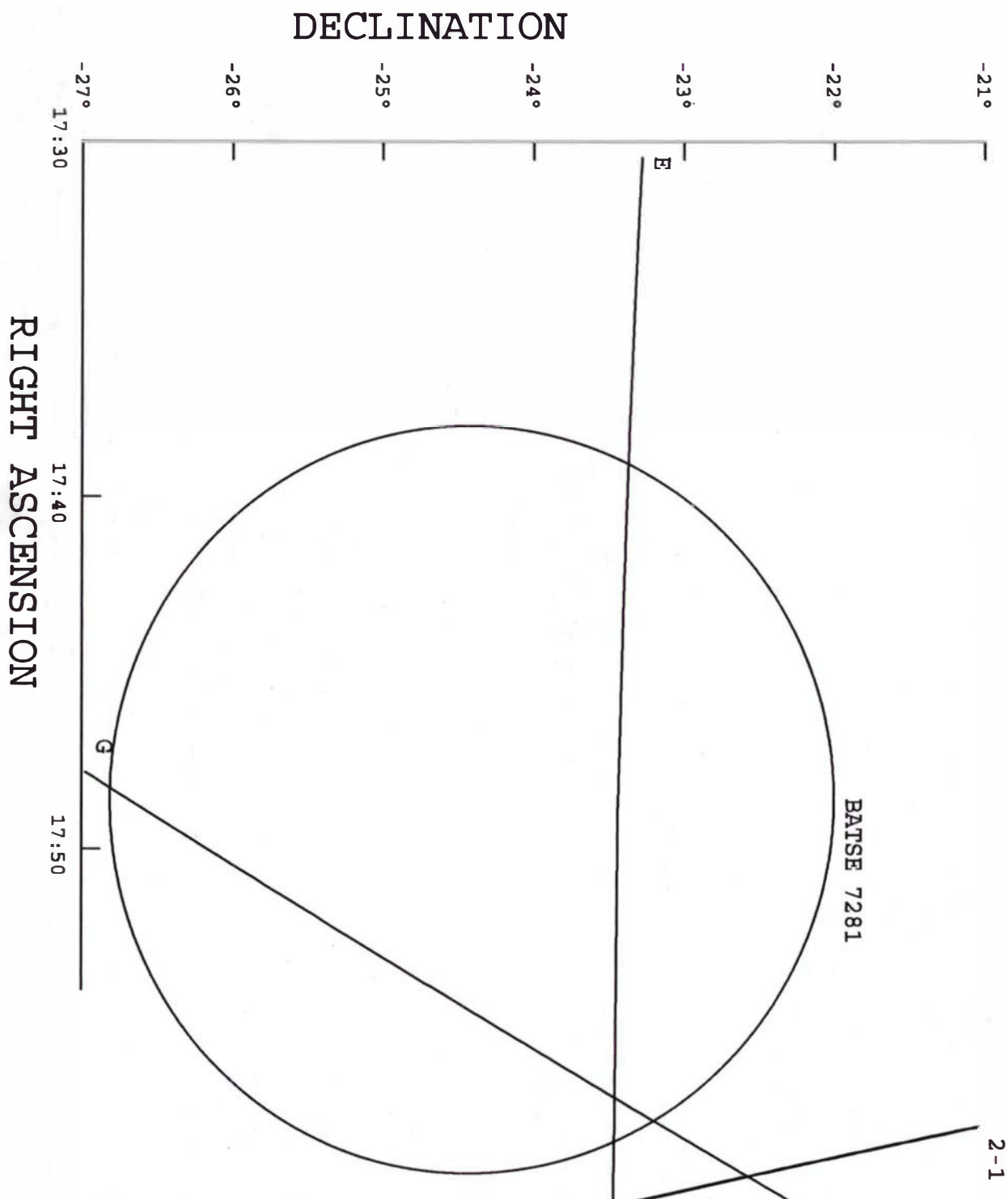
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

EVENT OF DEC 26, 1998 10:47

21/ 1/ 0



BATSE

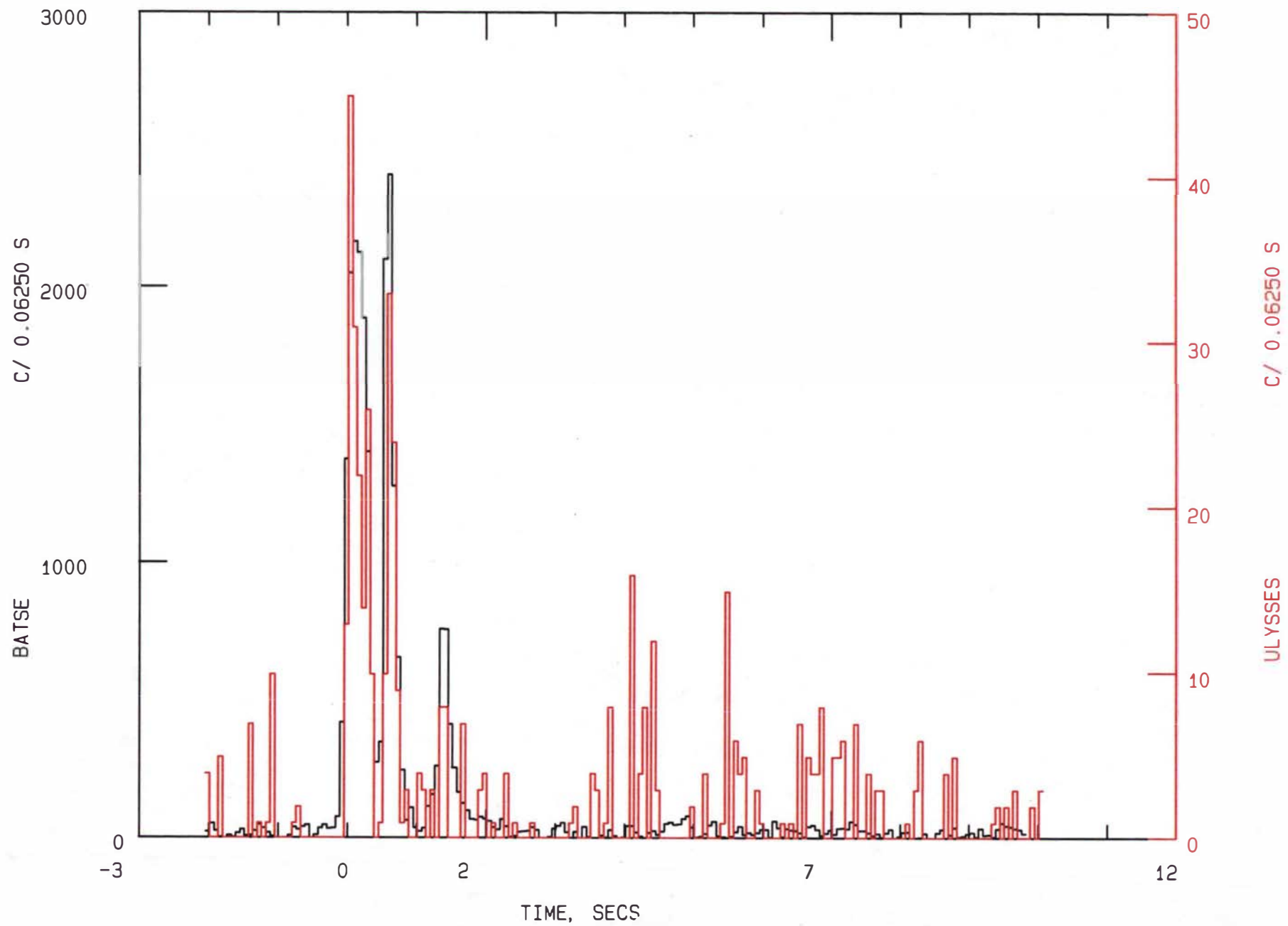
-ULYSSES

CORRELATION

26/12/98

38824.161

21/ 1/ 0



BATSE

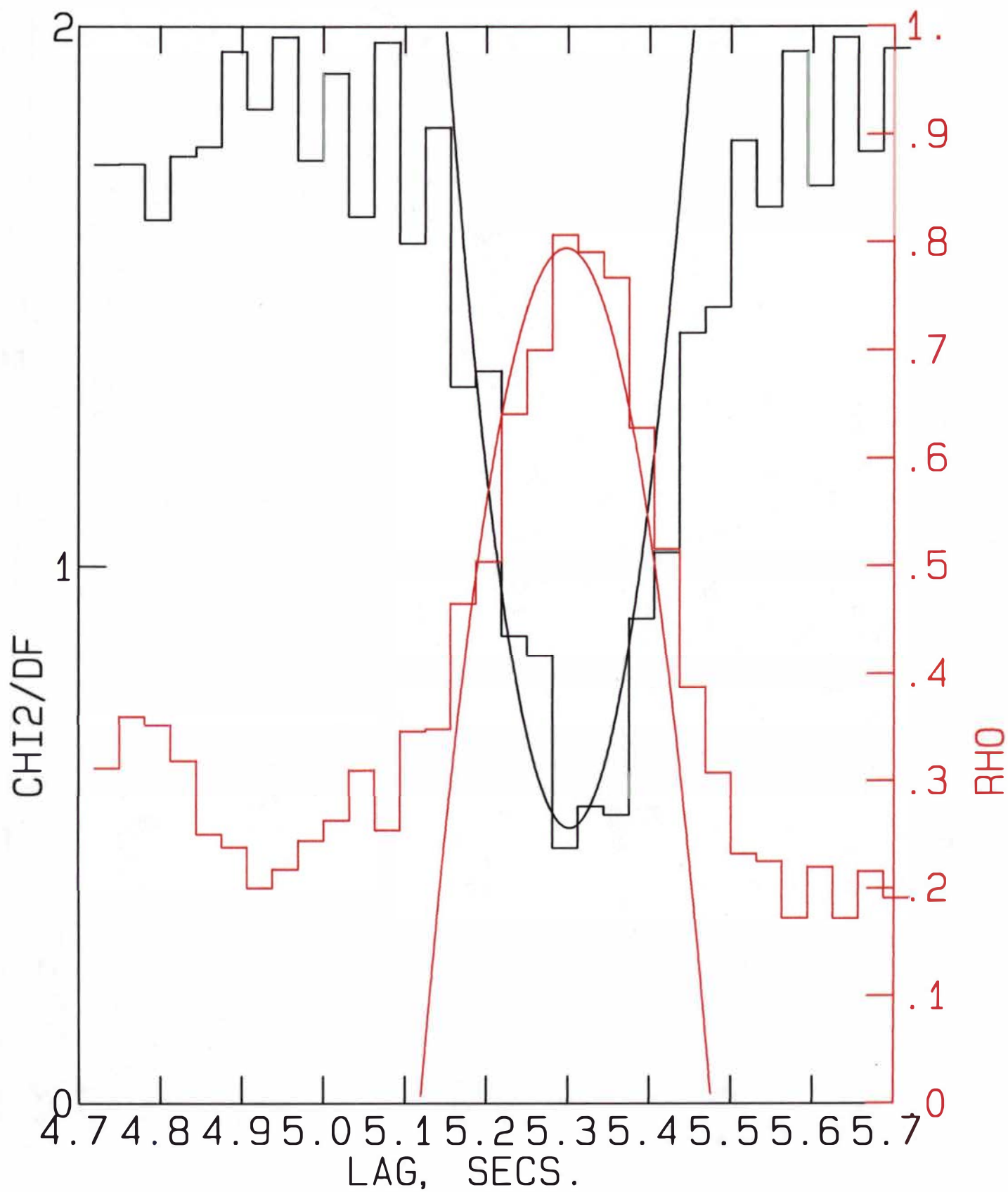
-ULYSSES

CORRELATION

26/12/98

38824.161

21/ 1/ 0



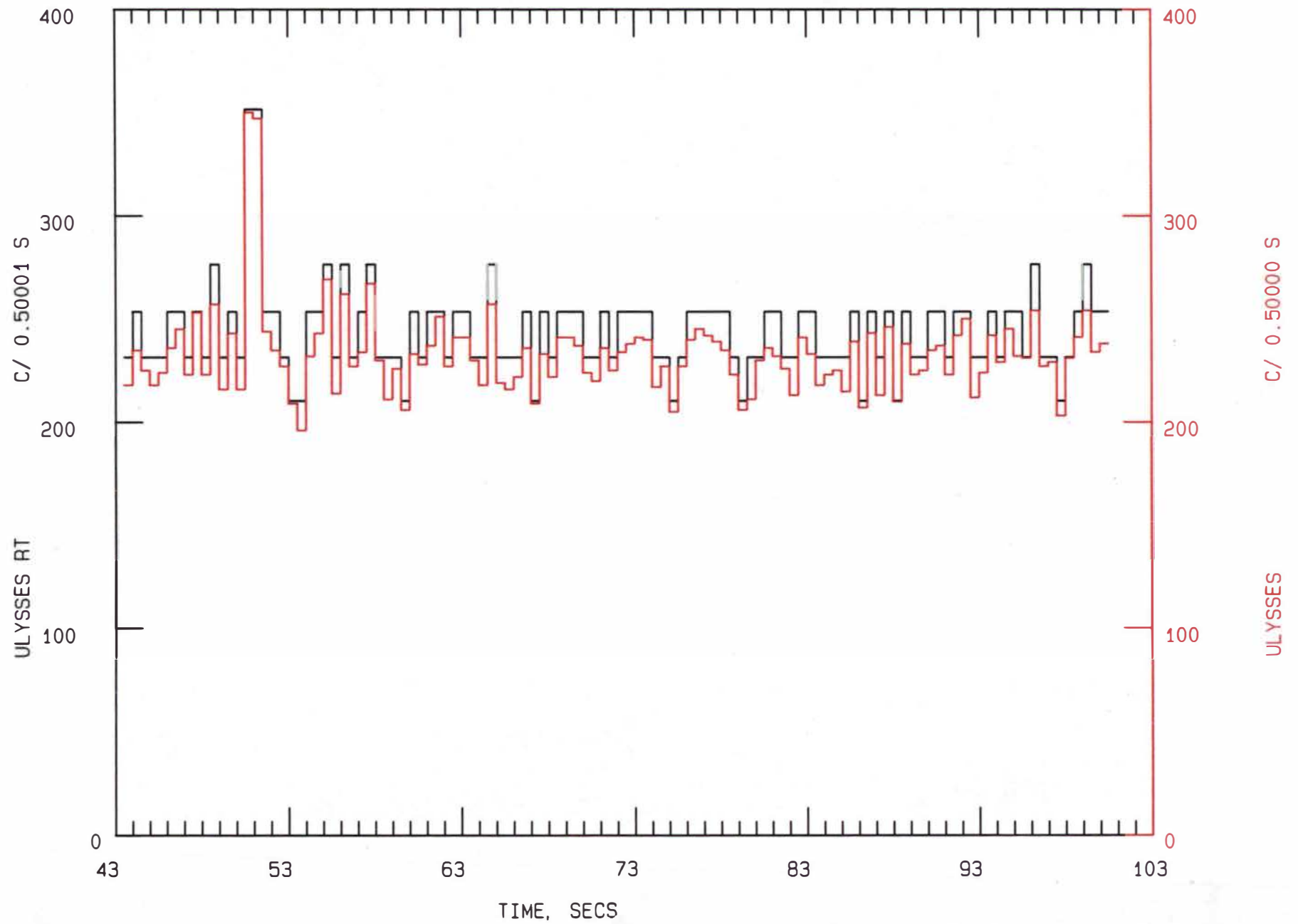
ULYSSES RT-ULYSSES

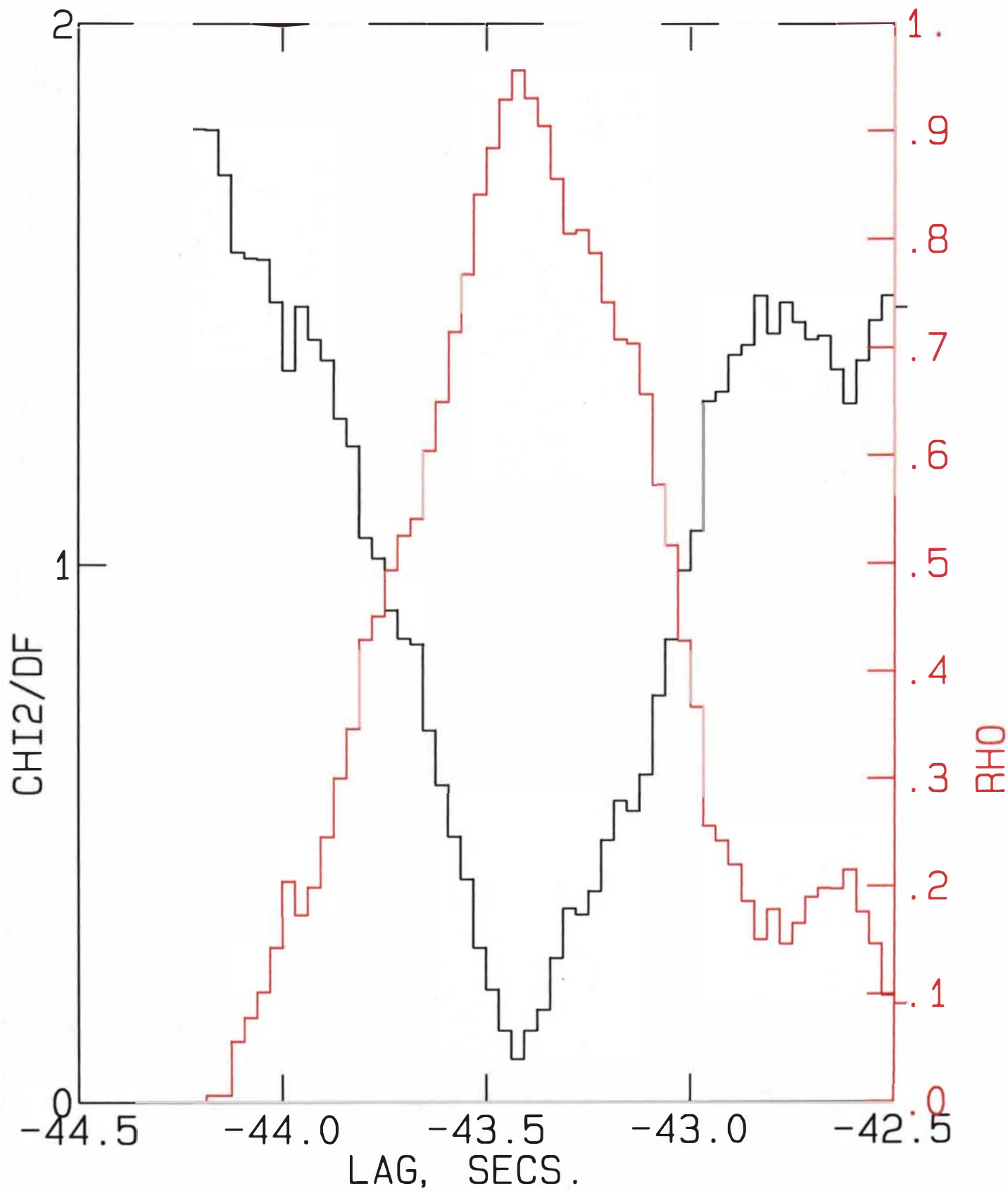
CORRELATION

26/12/98

39140.007

21/ 1/ 0

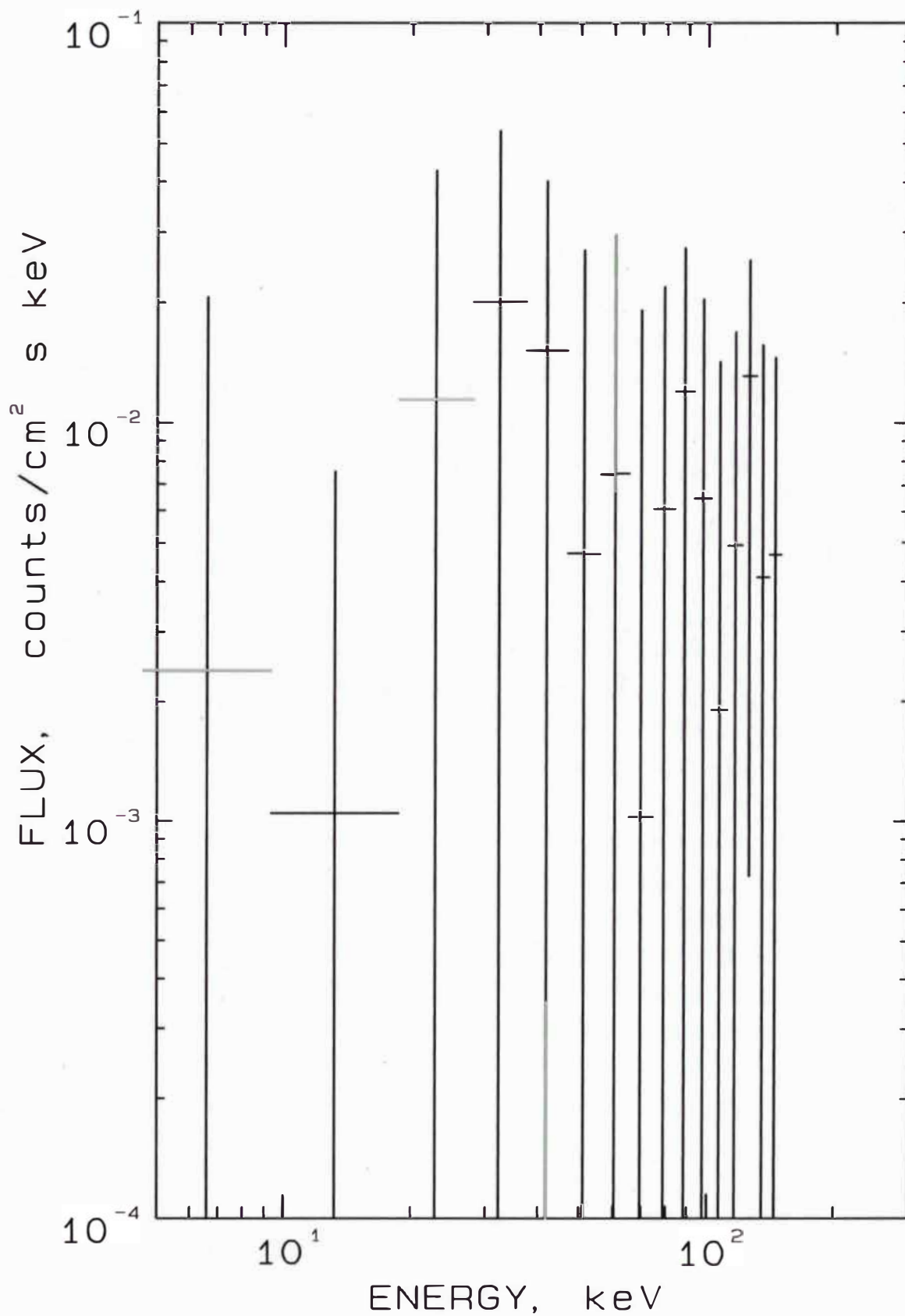




ULYSSES 26/12/98 39191.014

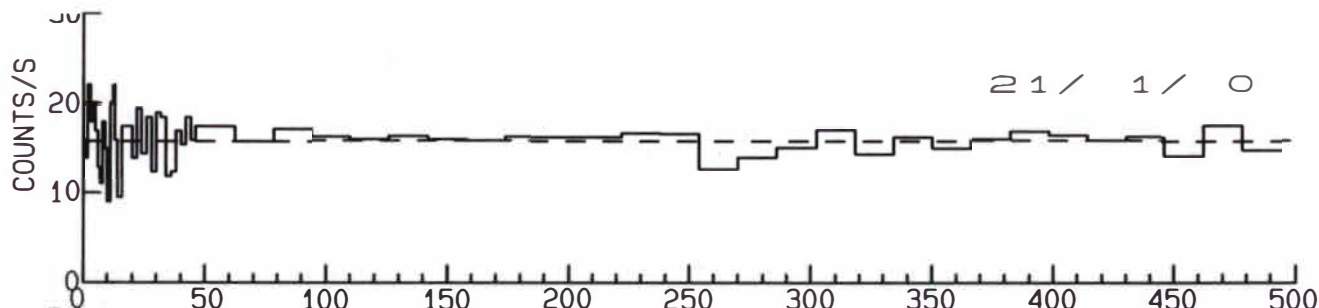
21/ 1/ 0

SPECTRUM INTEGRATED OVER 9.2 SECONDS, INTERVALS 1 TO 10

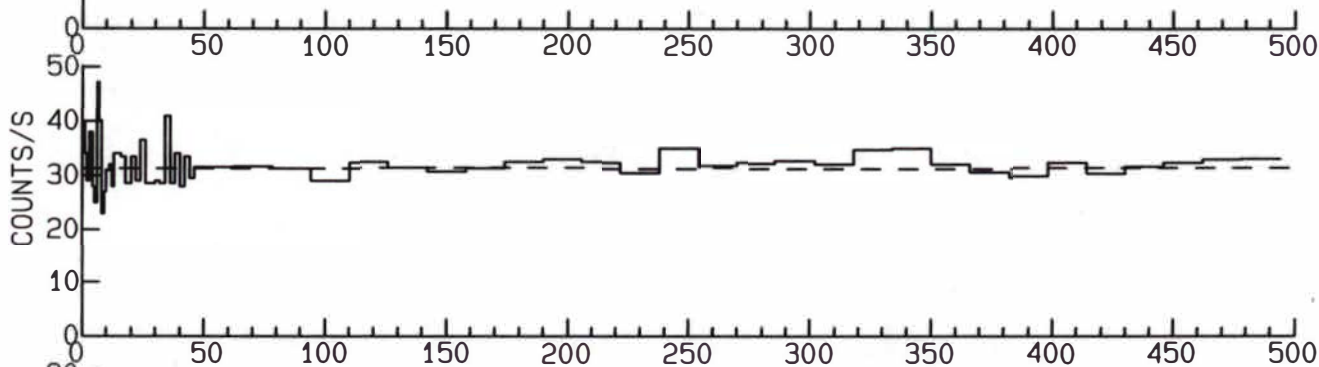


ULYSSES 26/12/98 39191.014 BURST SPECTRAL COUNT RATES

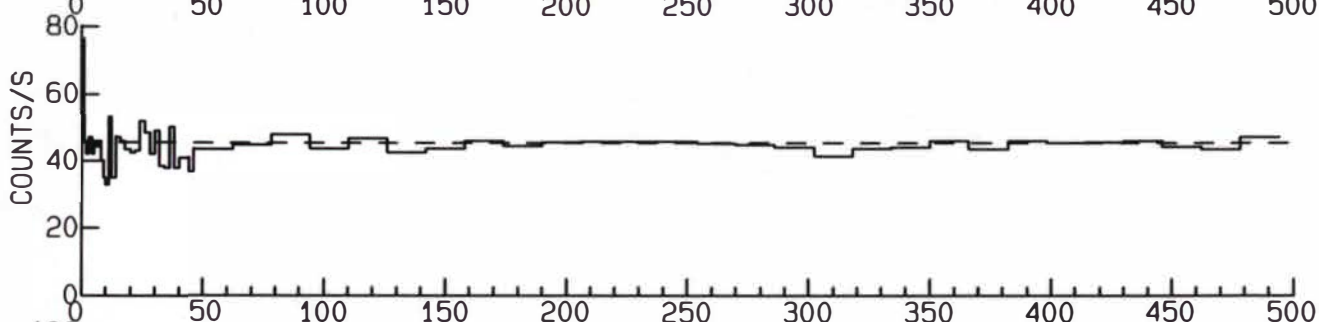
130-148 keV



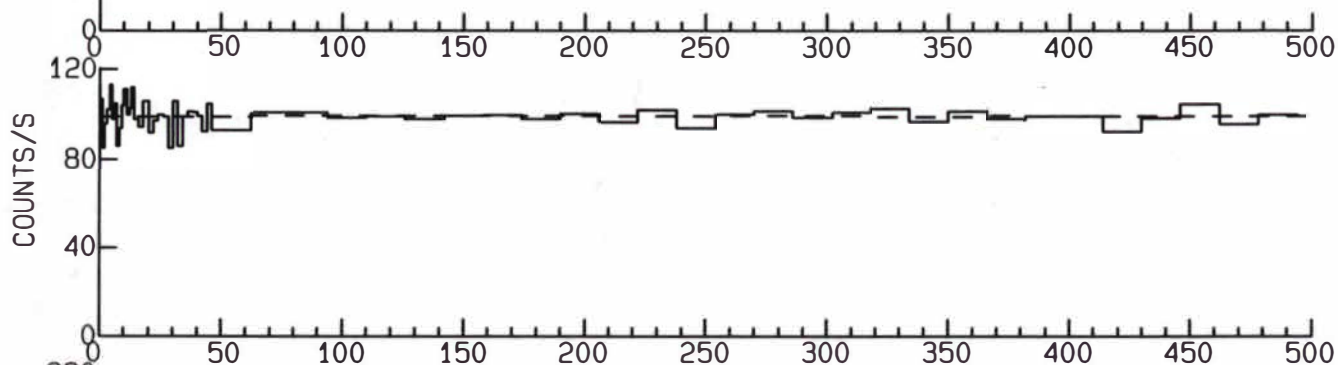
102-130 keV



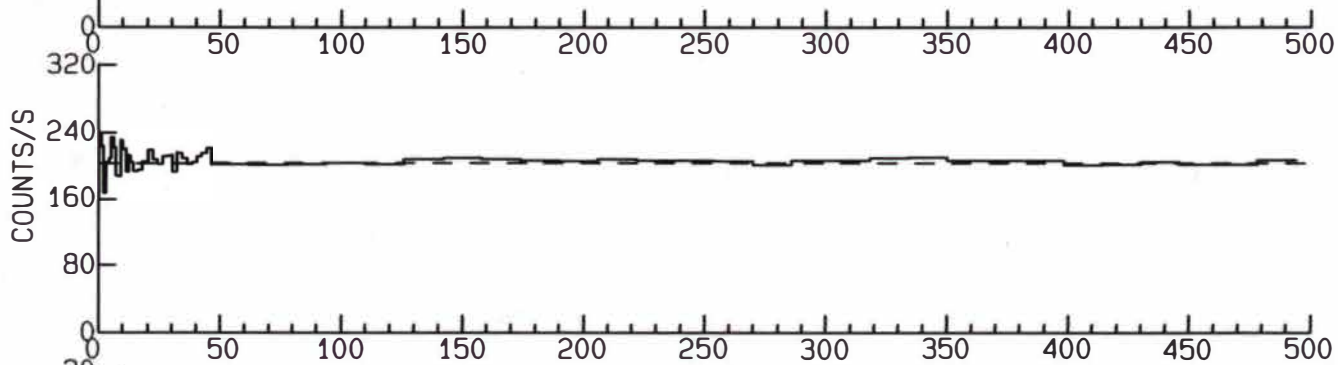
74-102 keV



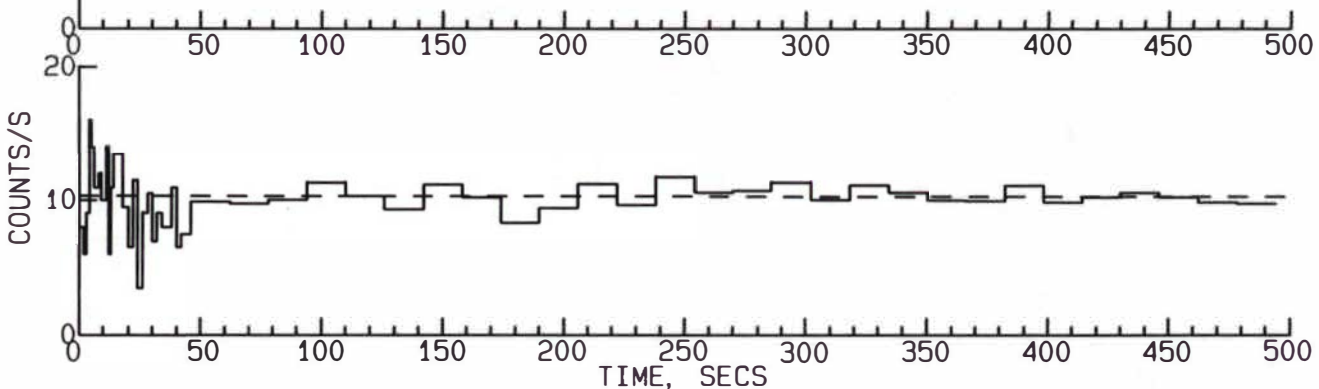
46-74 keV



18-46 keV



4-18 keV

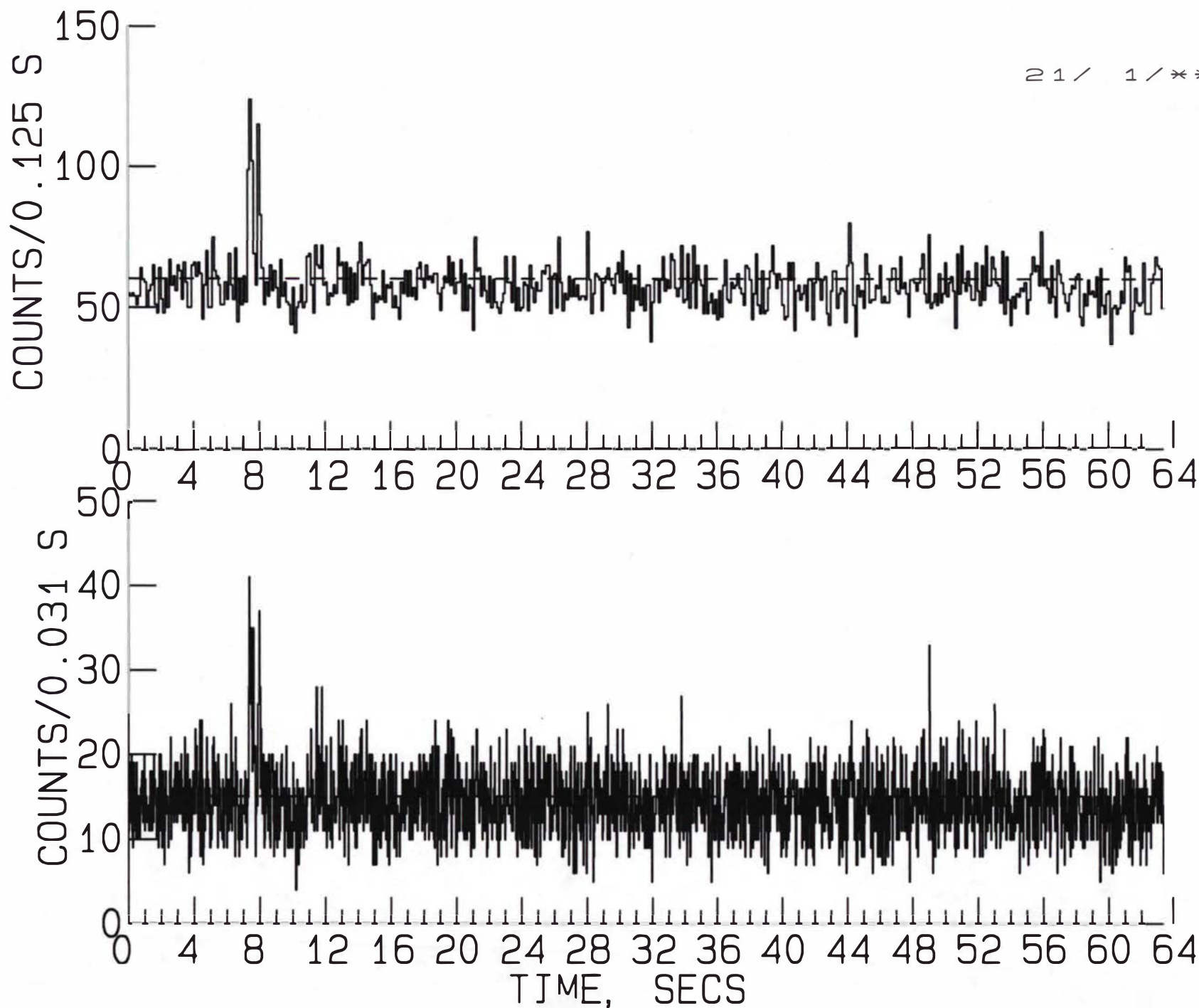


ULYSSES

26/12/98

Ttrig=39190.852

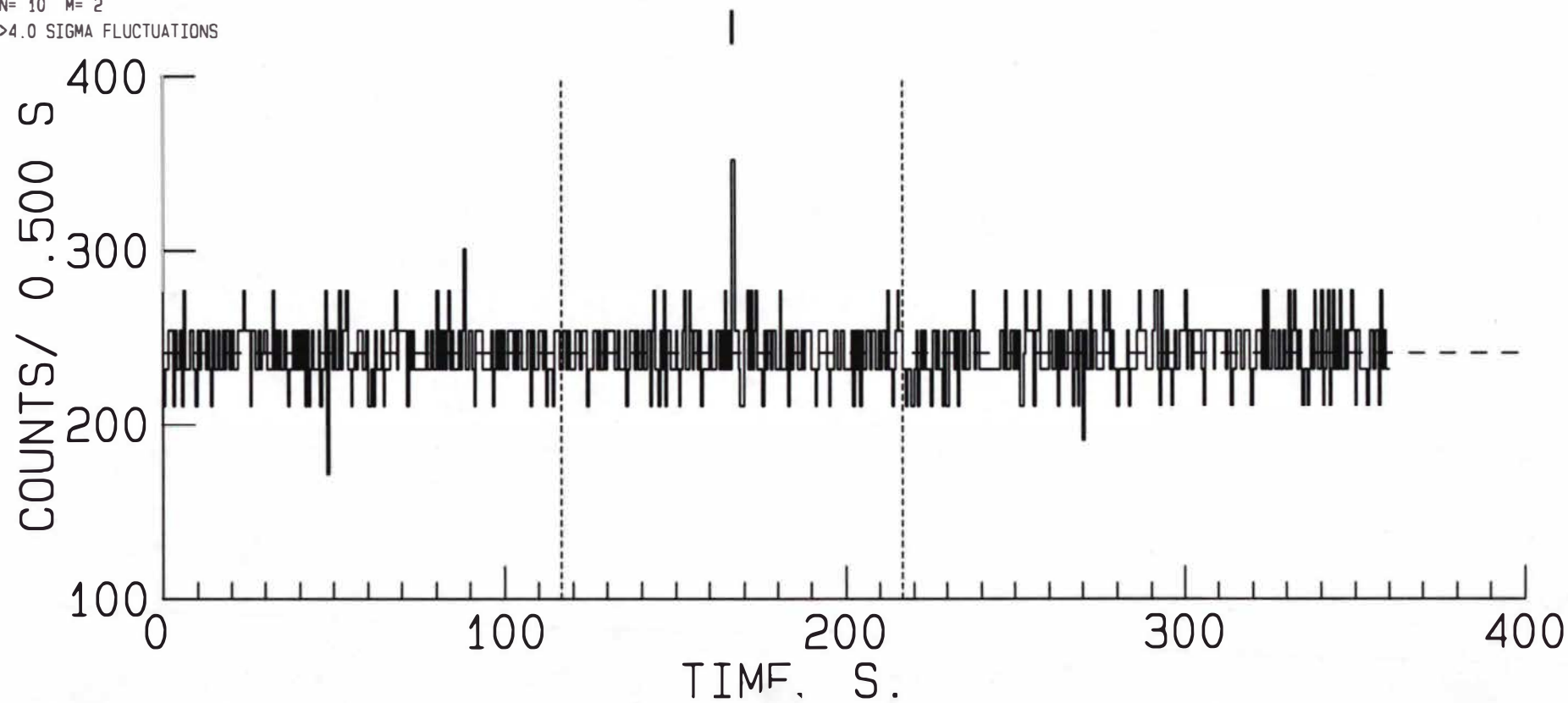
22- 149 keV



ULYSSES RT
26/12/98 39024.013 s
22- 149 keV

21 / 1 / 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



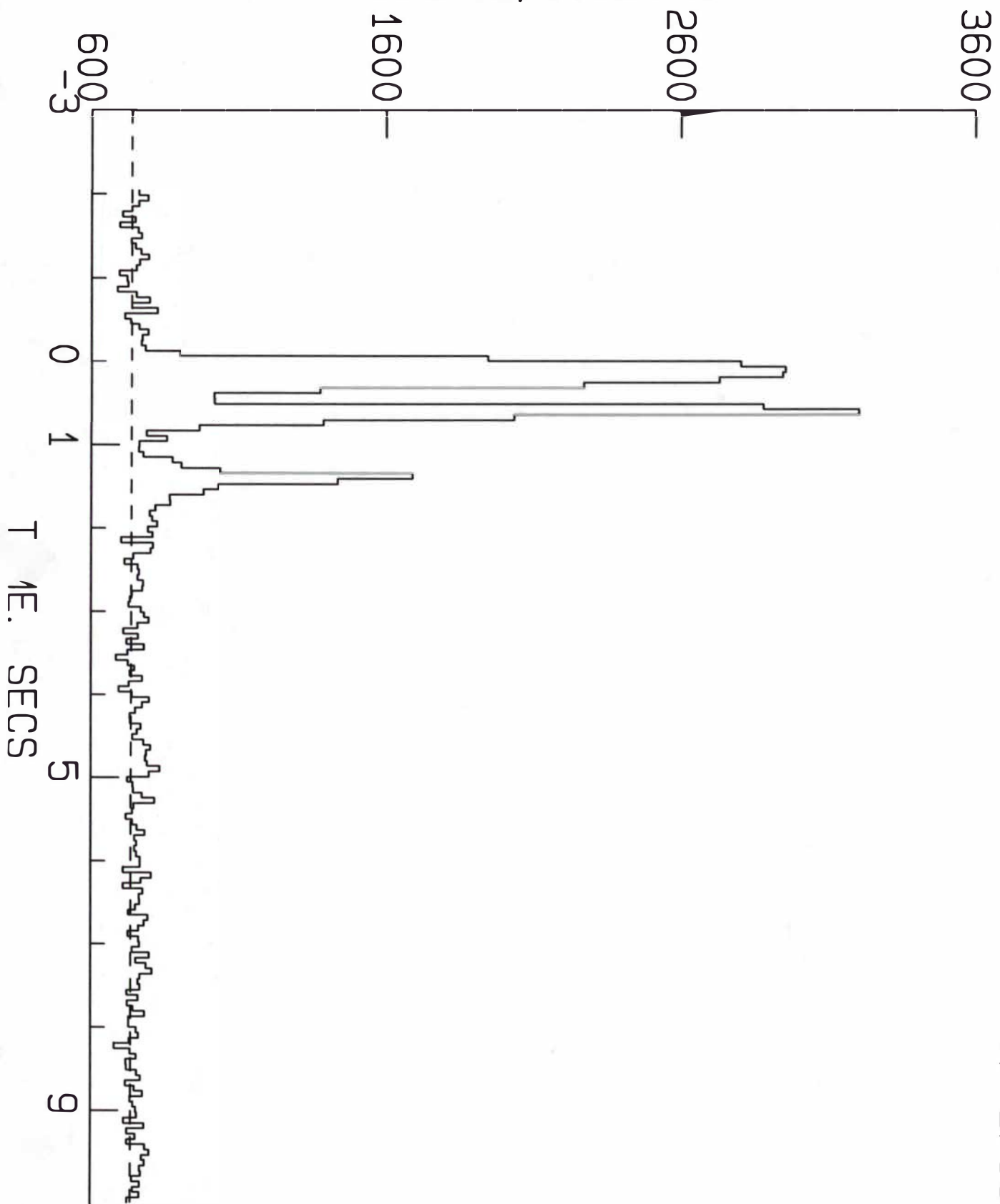
BATSE

26/12/98

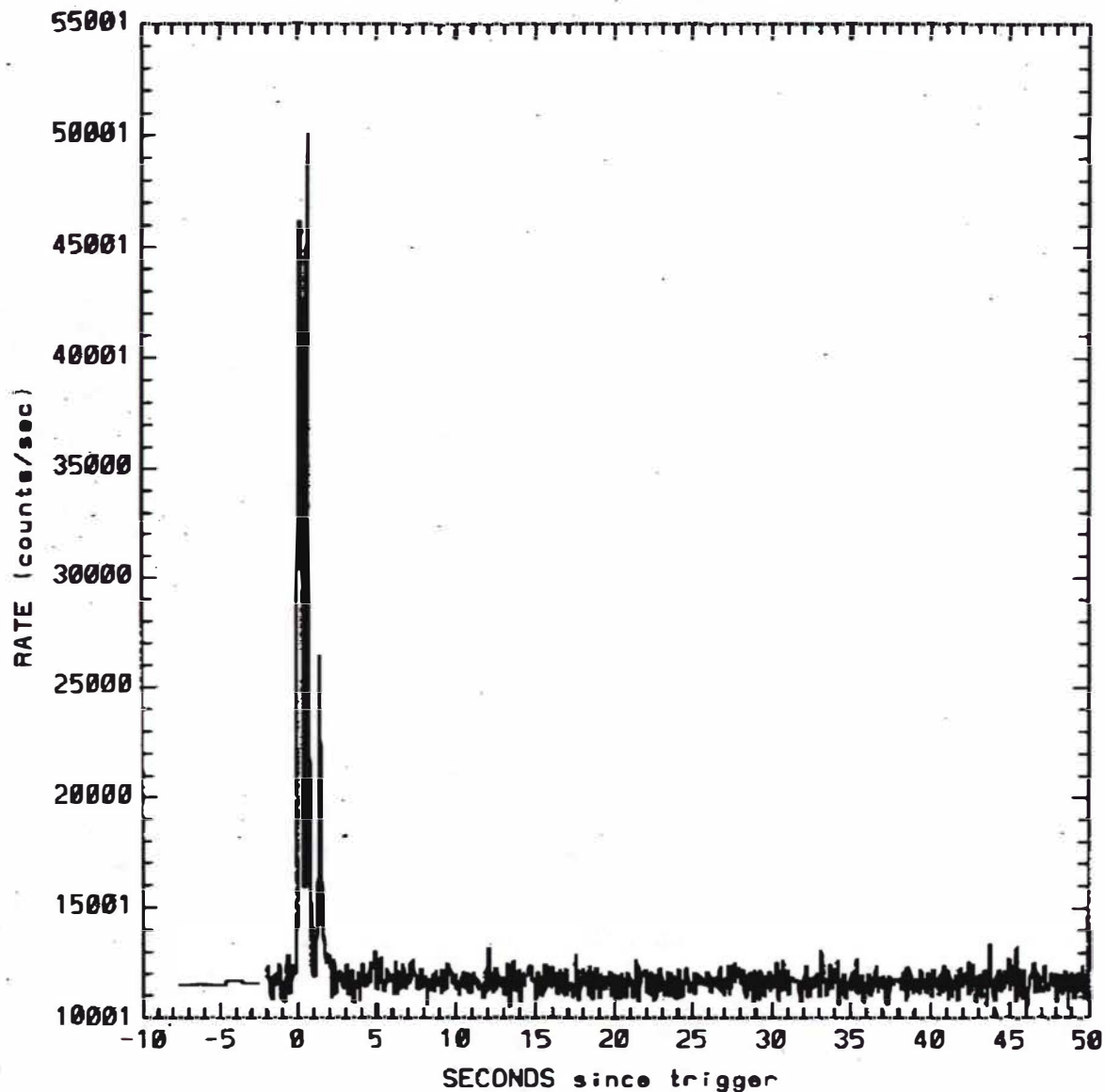
38824.161

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 7281



12-JAN-1999 09:55:29

Created by MOPS 80
(Burst Display)
Version 12.26

Trigger # . 7281

Trigger Time:
11173 / 38824.161

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 seconds

Detectors (7..8),
----3218

Discriminators:
(1 . 2)

Quality Mask:
BOISP1

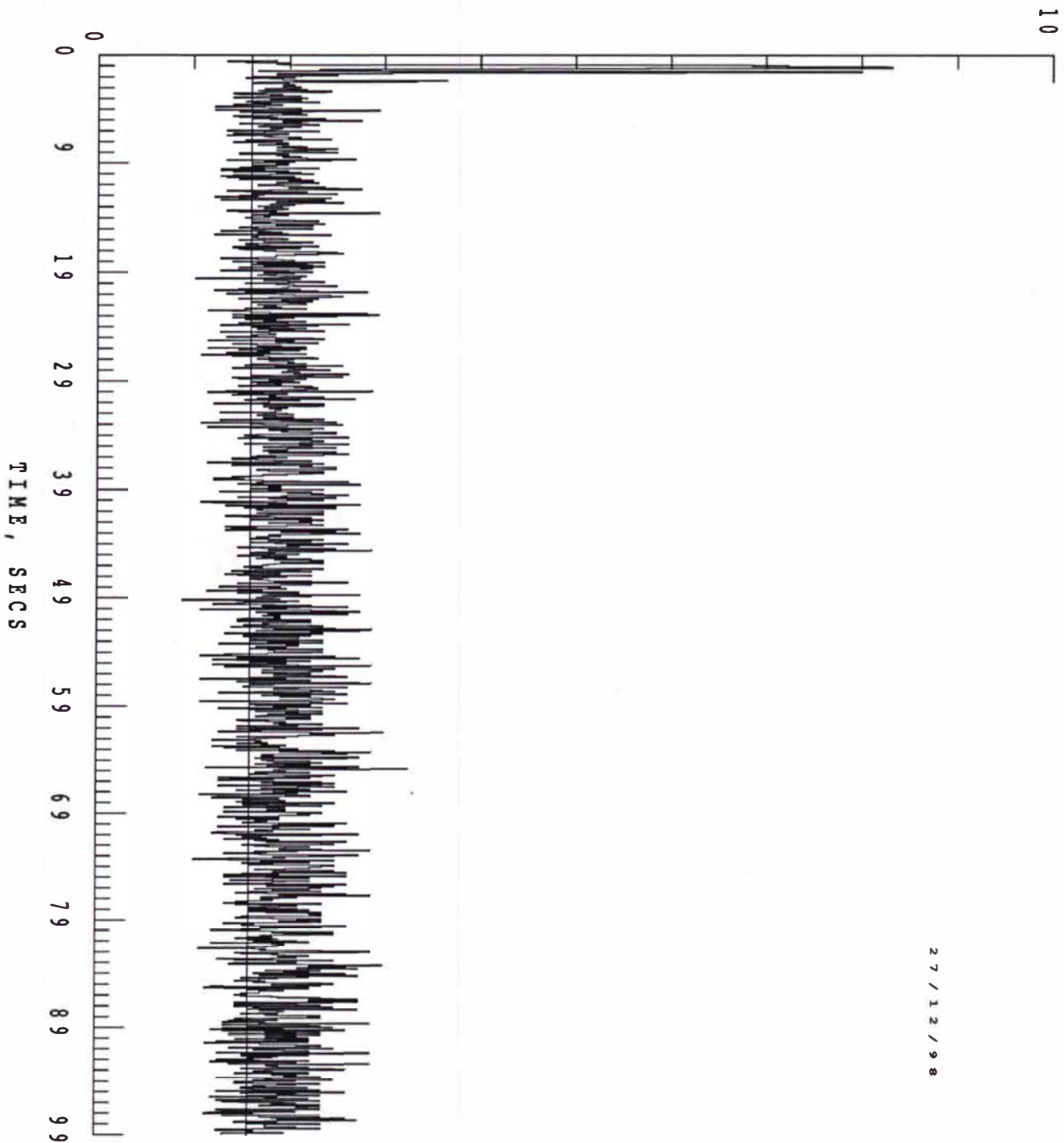
KONUS

26/12/98

38822.991

50 - 200 keV

COUNTS/0.064 S



~~5053~~
KONUS

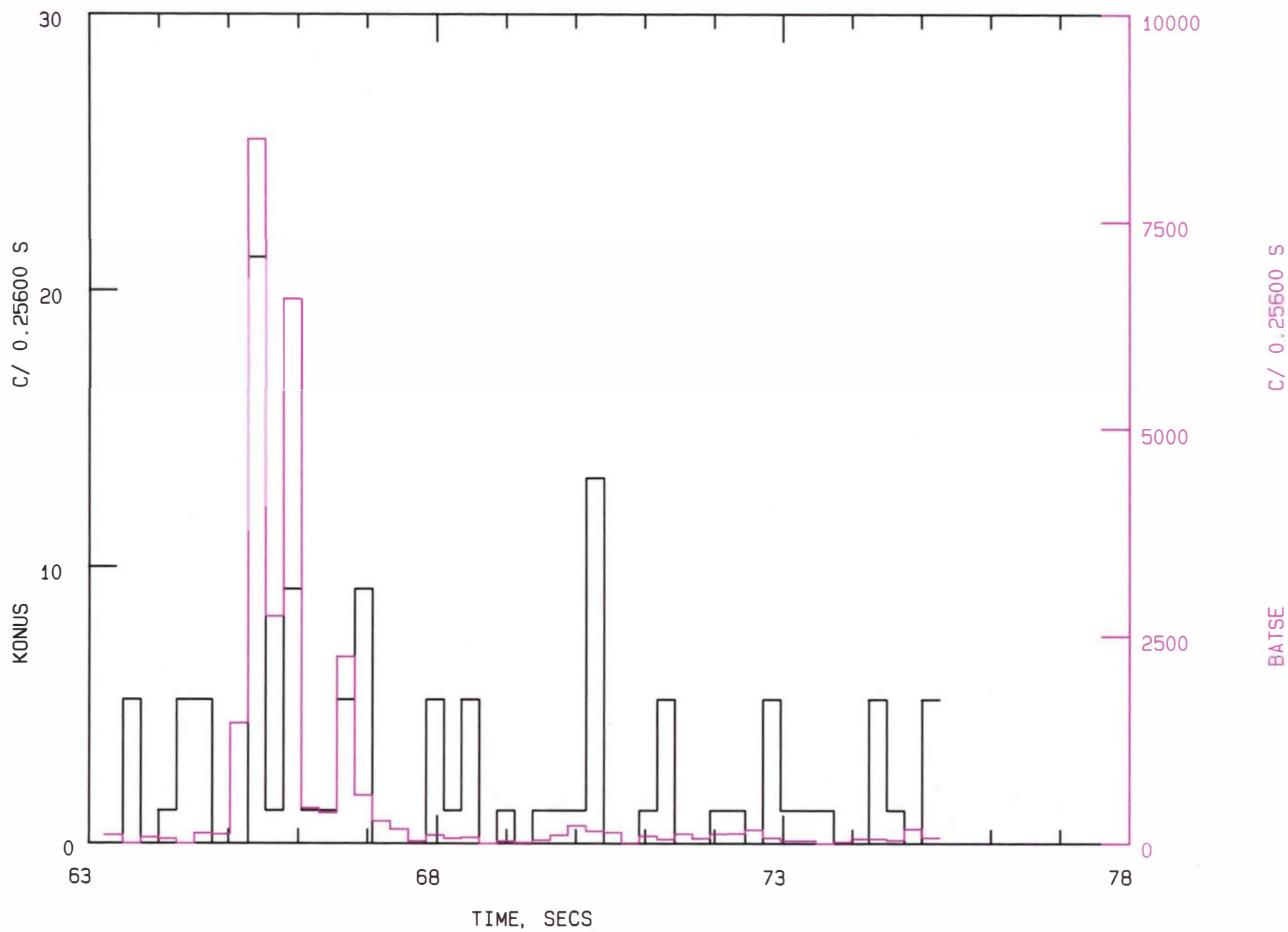
-BATSE

CORRELATION

26/12/98

38758.844

4/ 5/ 1



S2055
KONUS

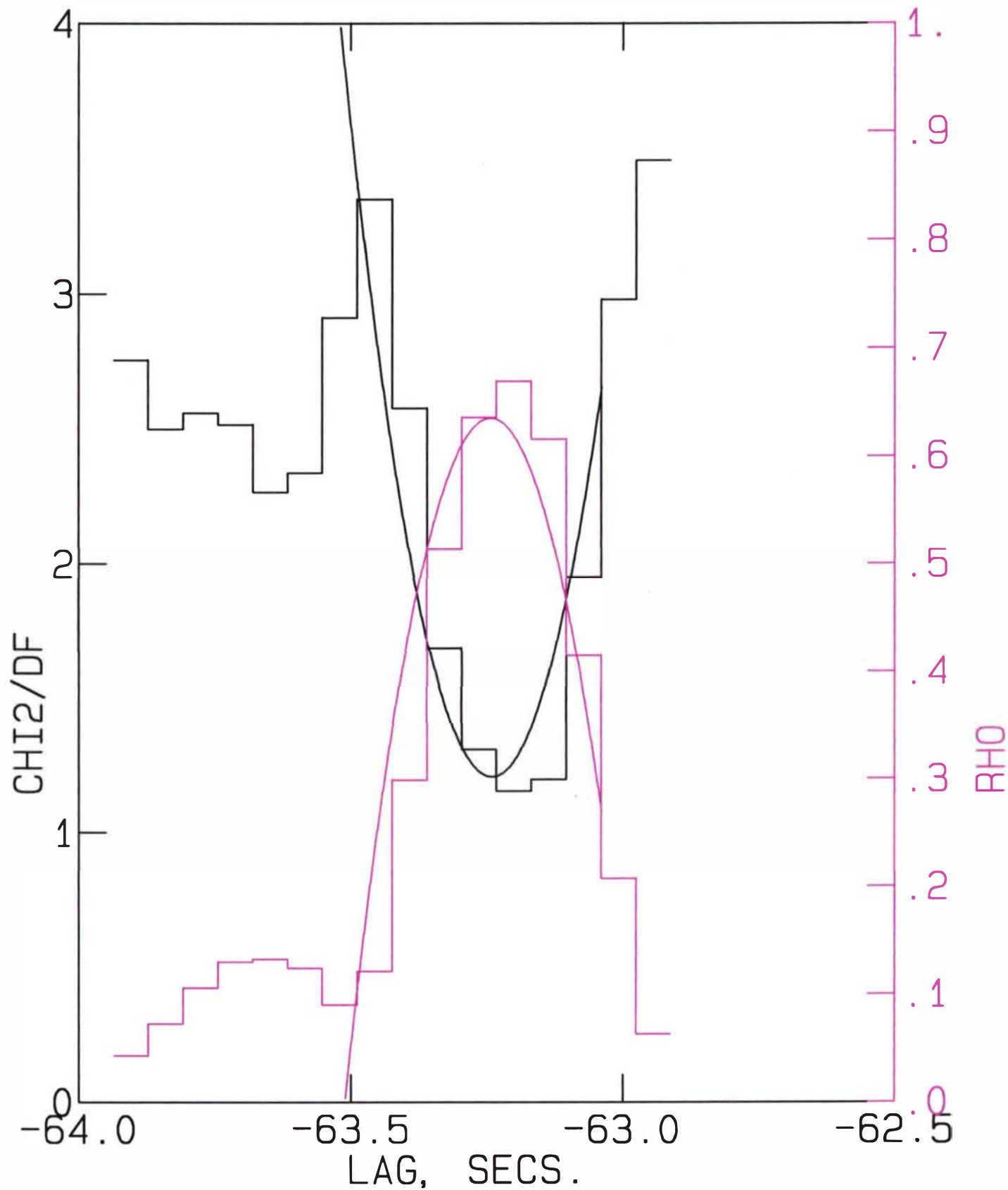
-BATSE

CORRELATION

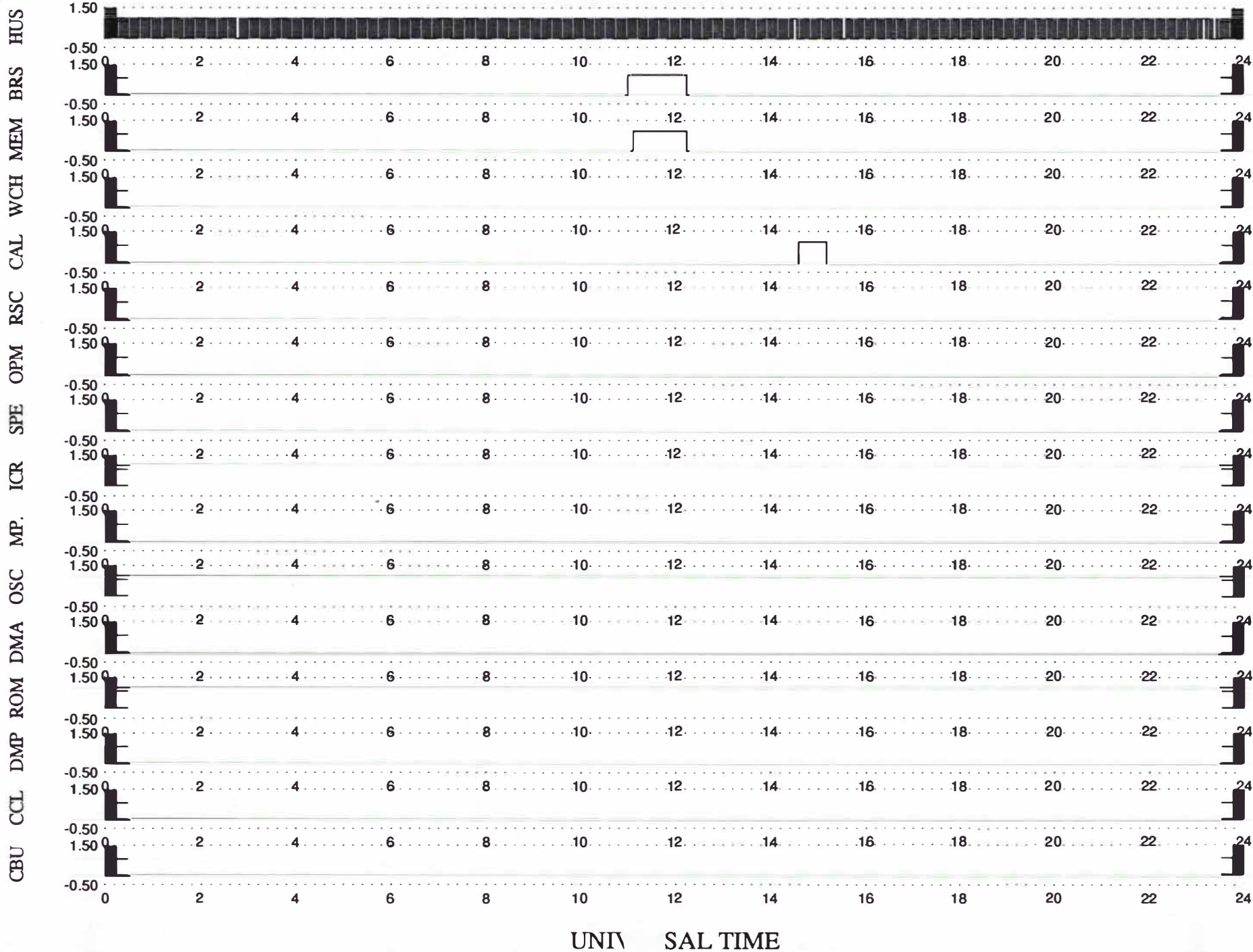
26/12/98

38758.844

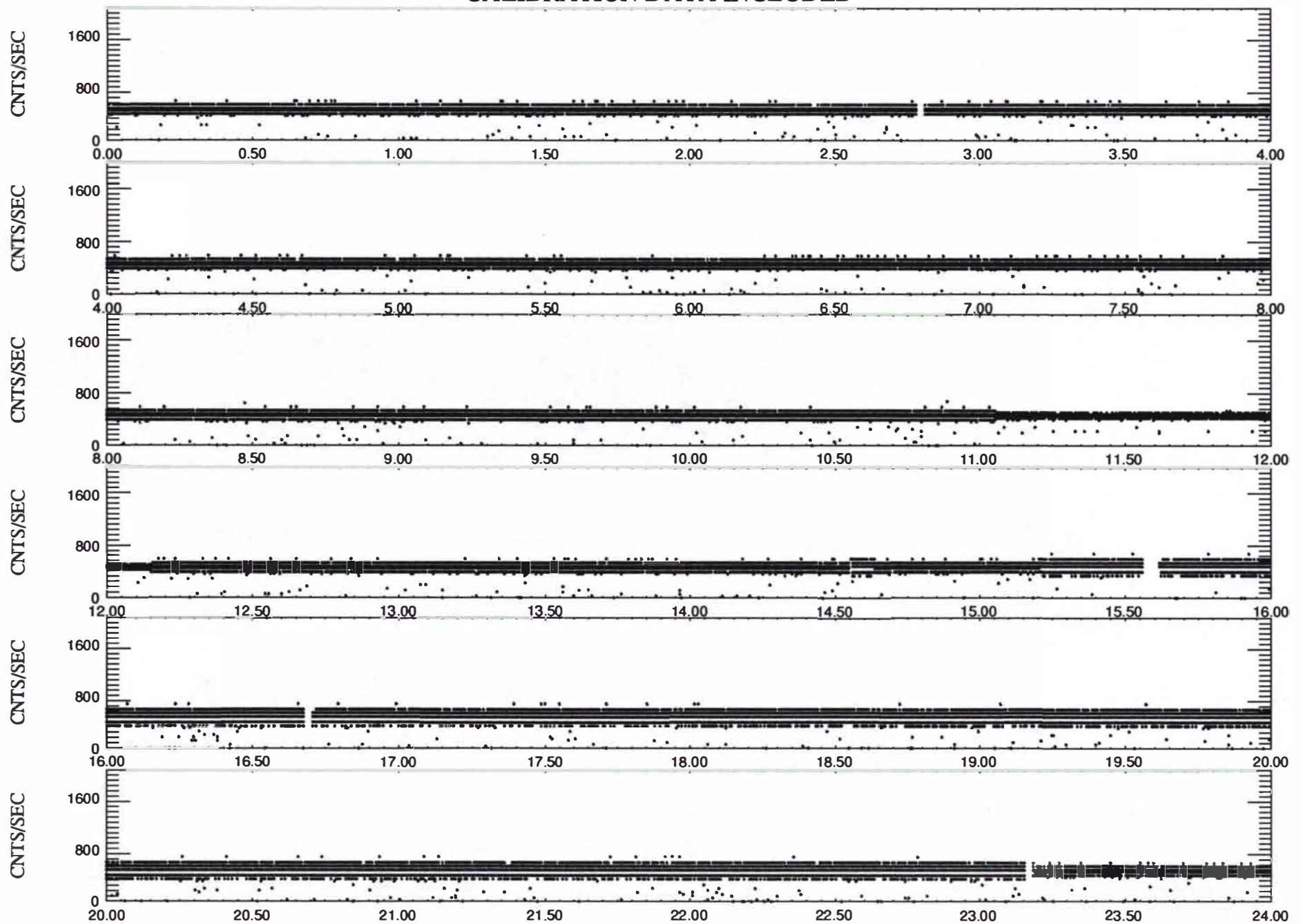
4/ 5/ 1



BURST NUMBER 15

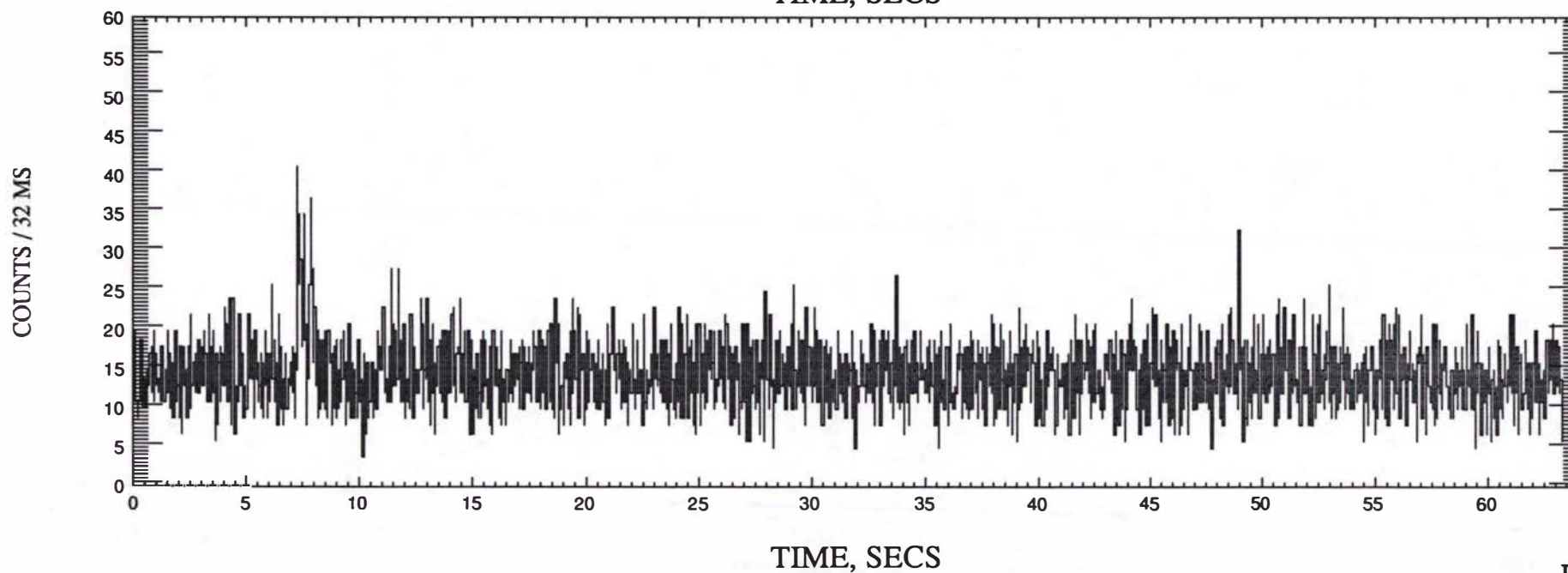
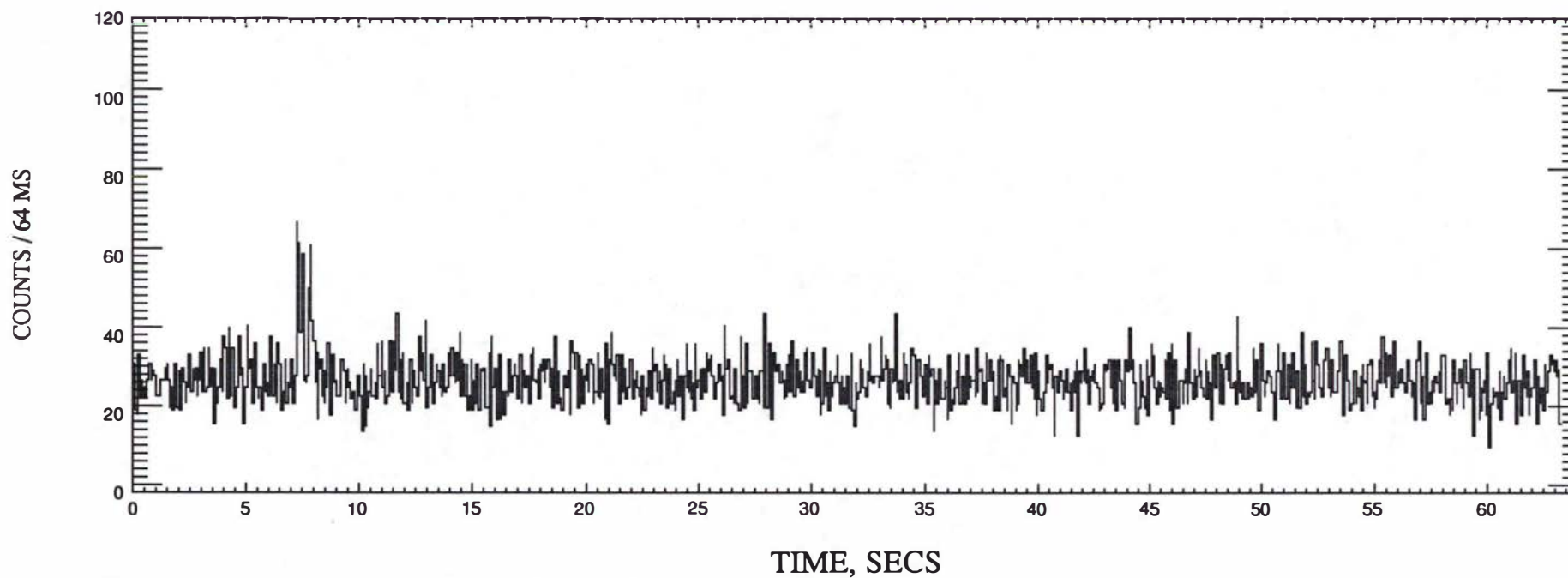


CALIBRATION DATA INCLUDED

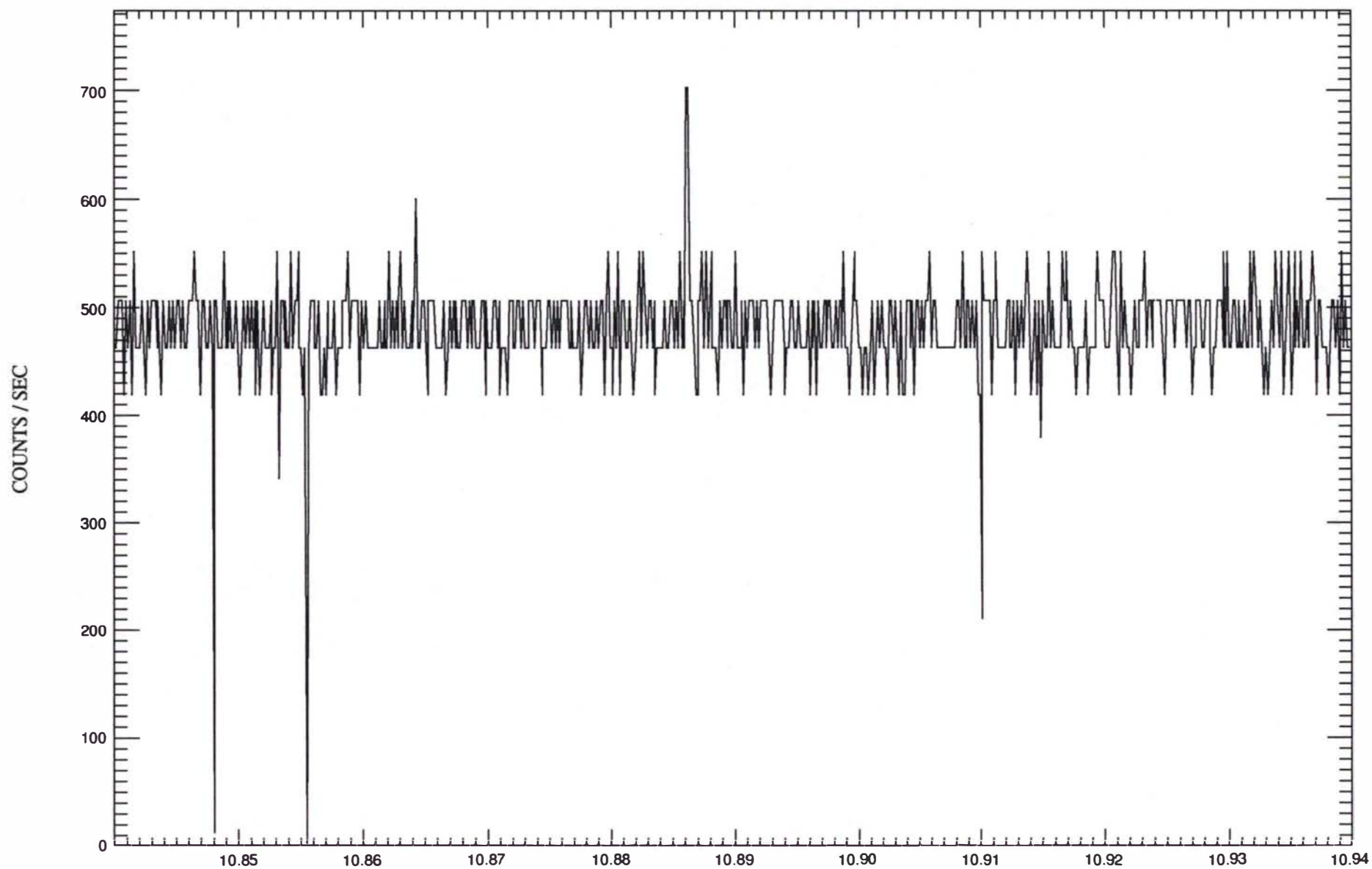


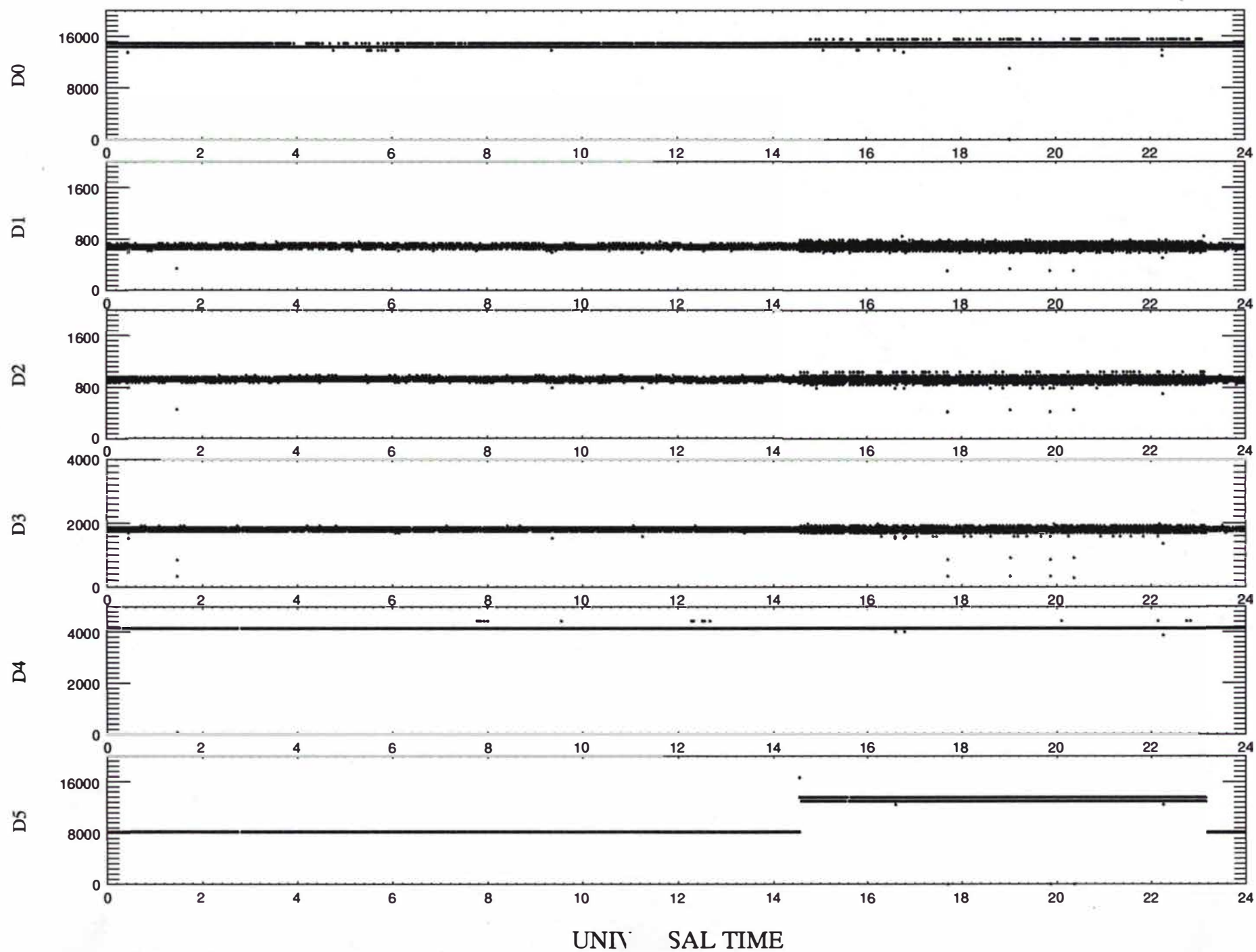
UNIT SAL TIME

Burst Counter 15 at UT=10.886347160339 h=39190.850 s 10:53:10.850



CALIBRATION DATA INCLUDED





From HENZE@fender.msfc.nasa.gov Tue Dec 29 04:23:26 1998
Date: Tue, 29 Dec 1998 6:22:56 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7282

TIME: TJD=1174 SECONDS=35006

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

Date: Dec 14 2012

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?

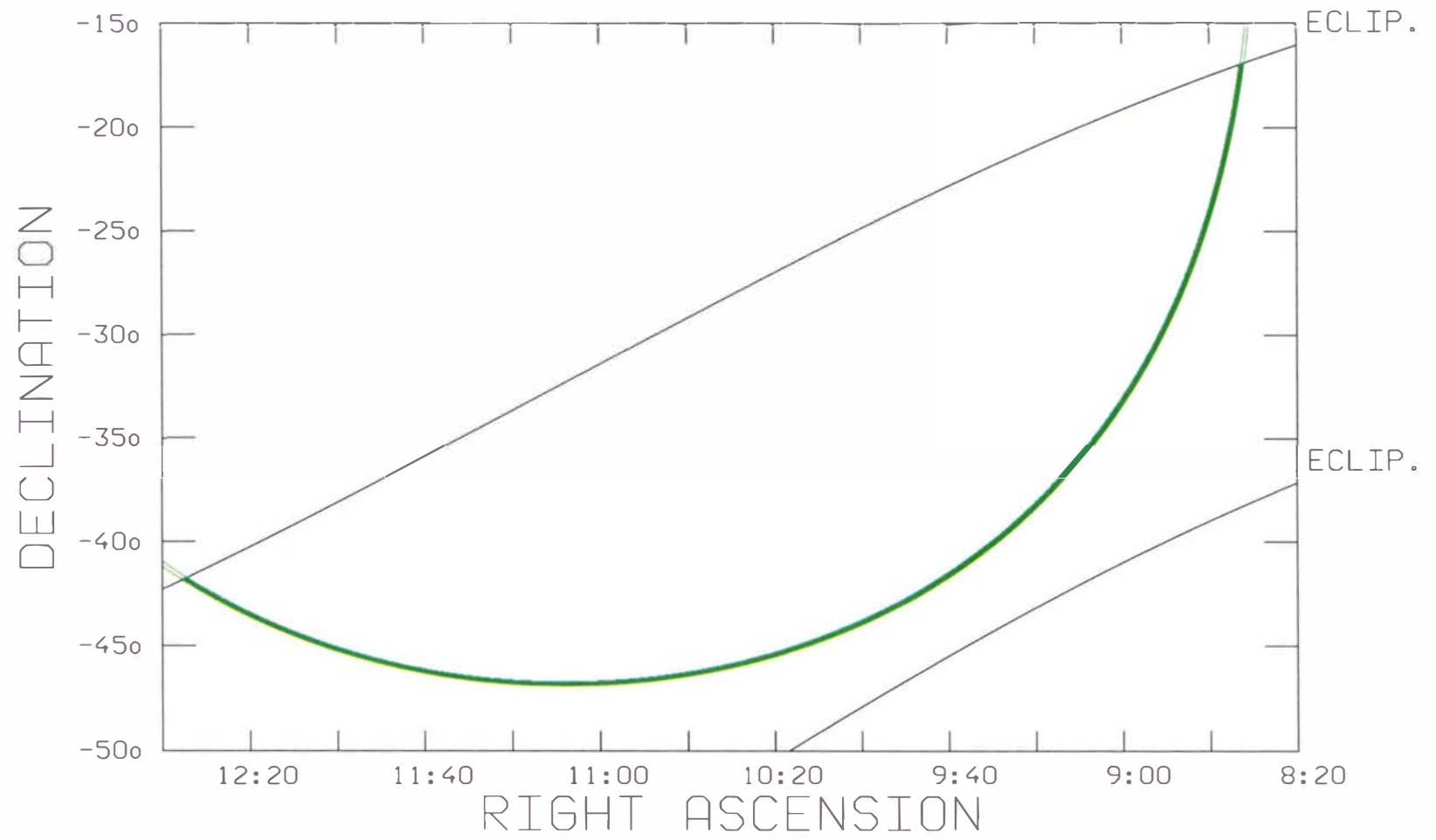
2. For 3 or More Spacecraft events

- ☐ $\Sigma 3\Delta t$'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?

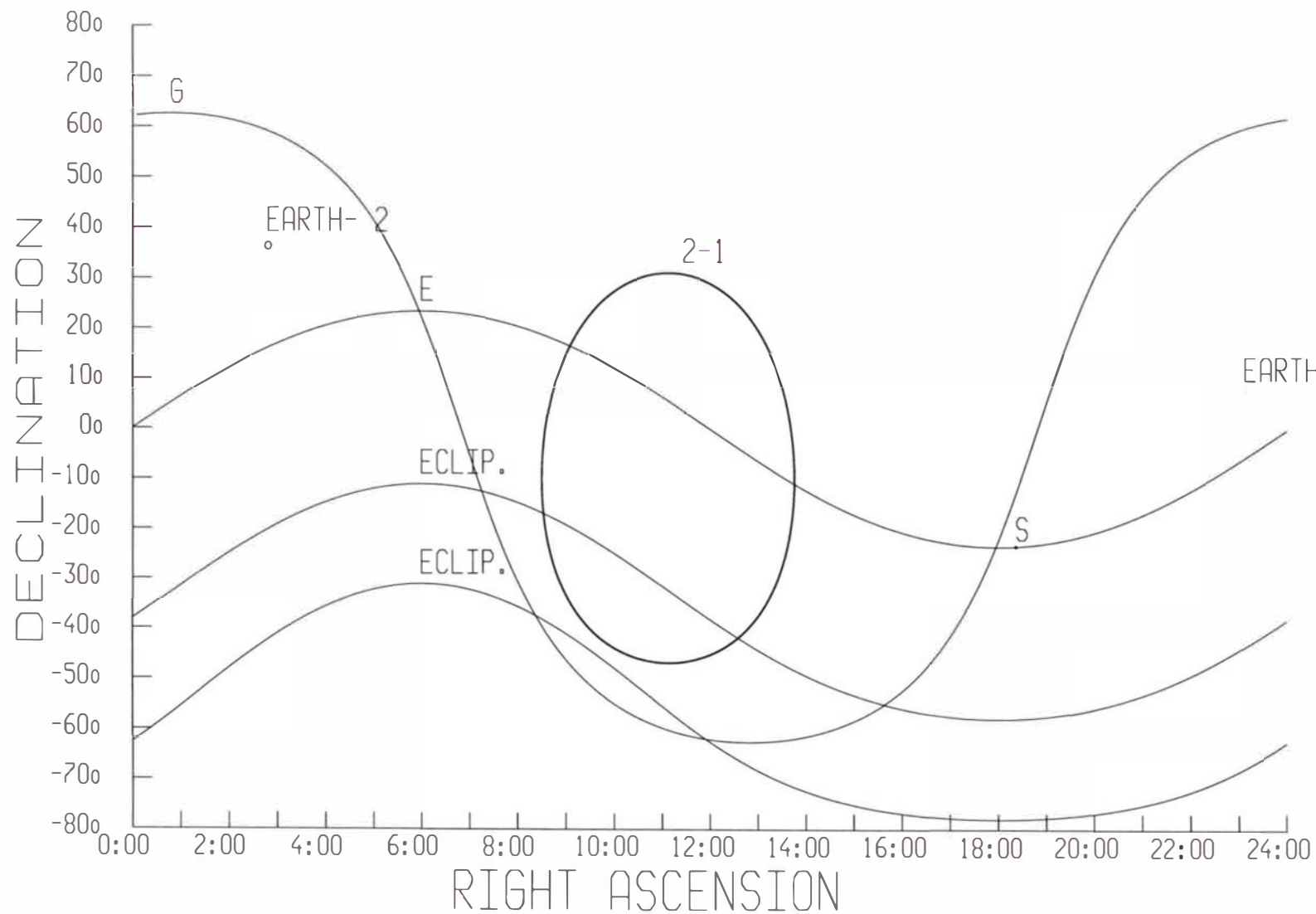
-
- ☒ ACCESS and MBL4 databases updated with identical times?

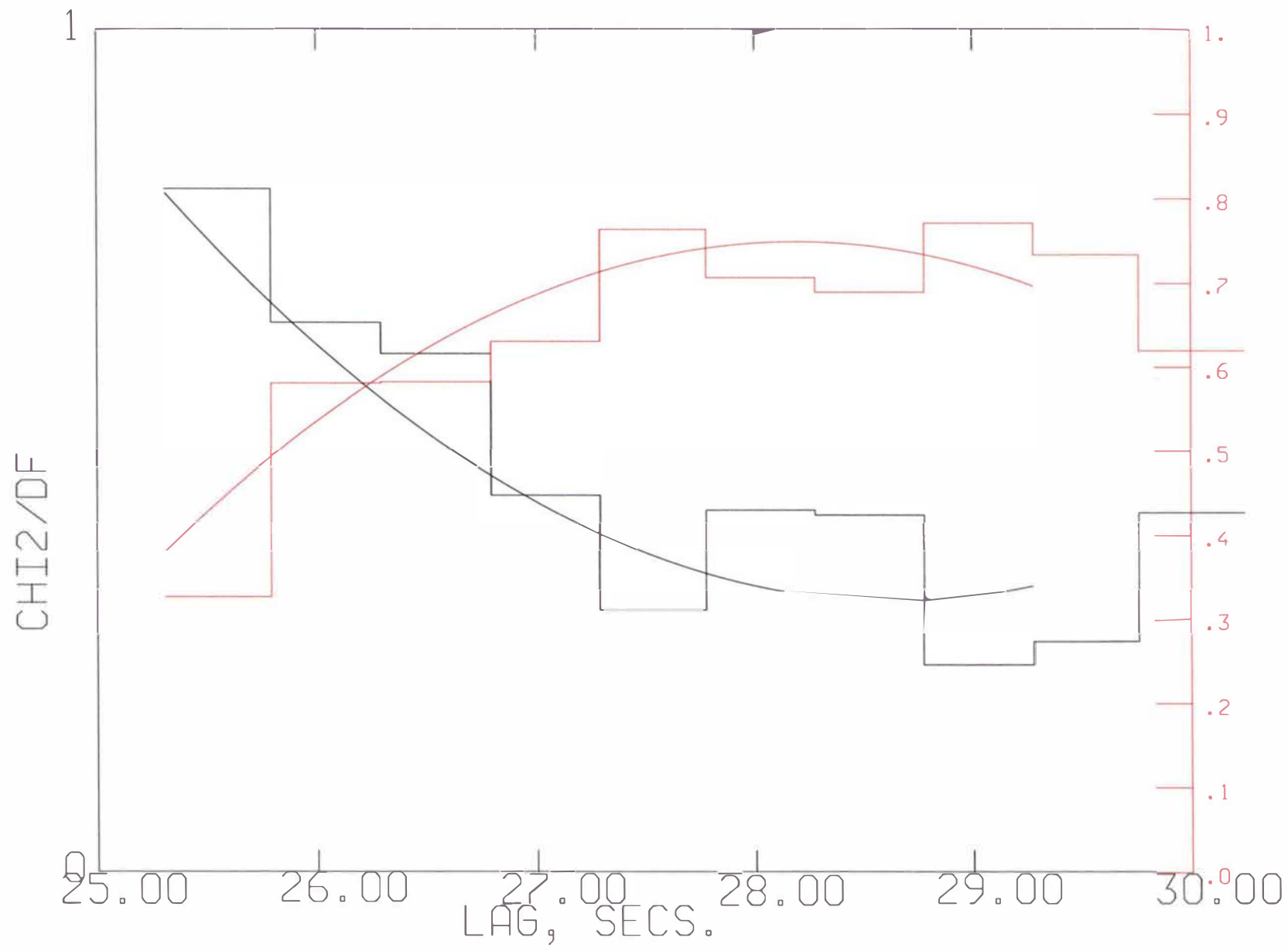


EVENT OF DEC 27, 1998 1:41

14/12/2012

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





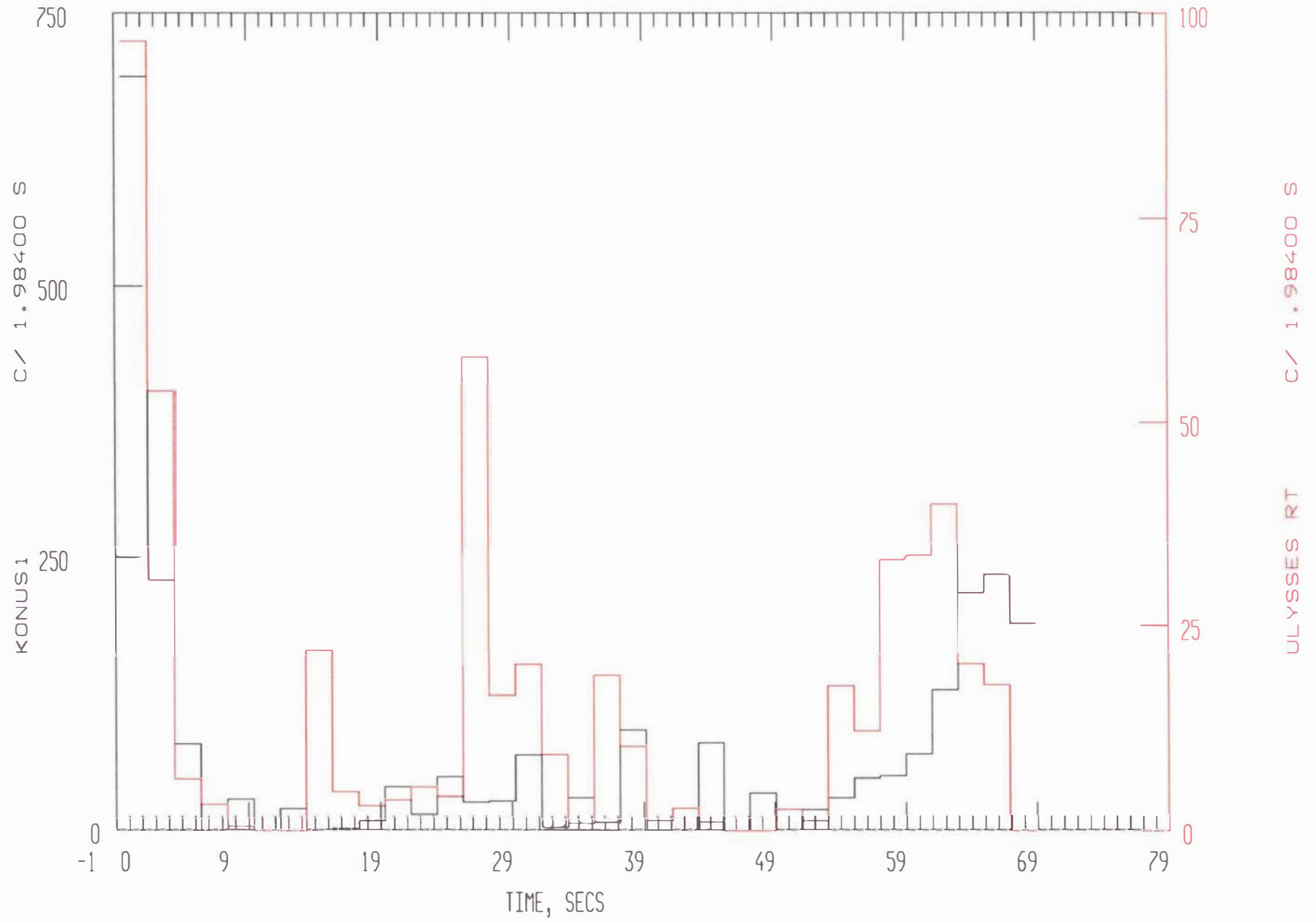
KONUS1

-ULYSSES RT CORRELATION

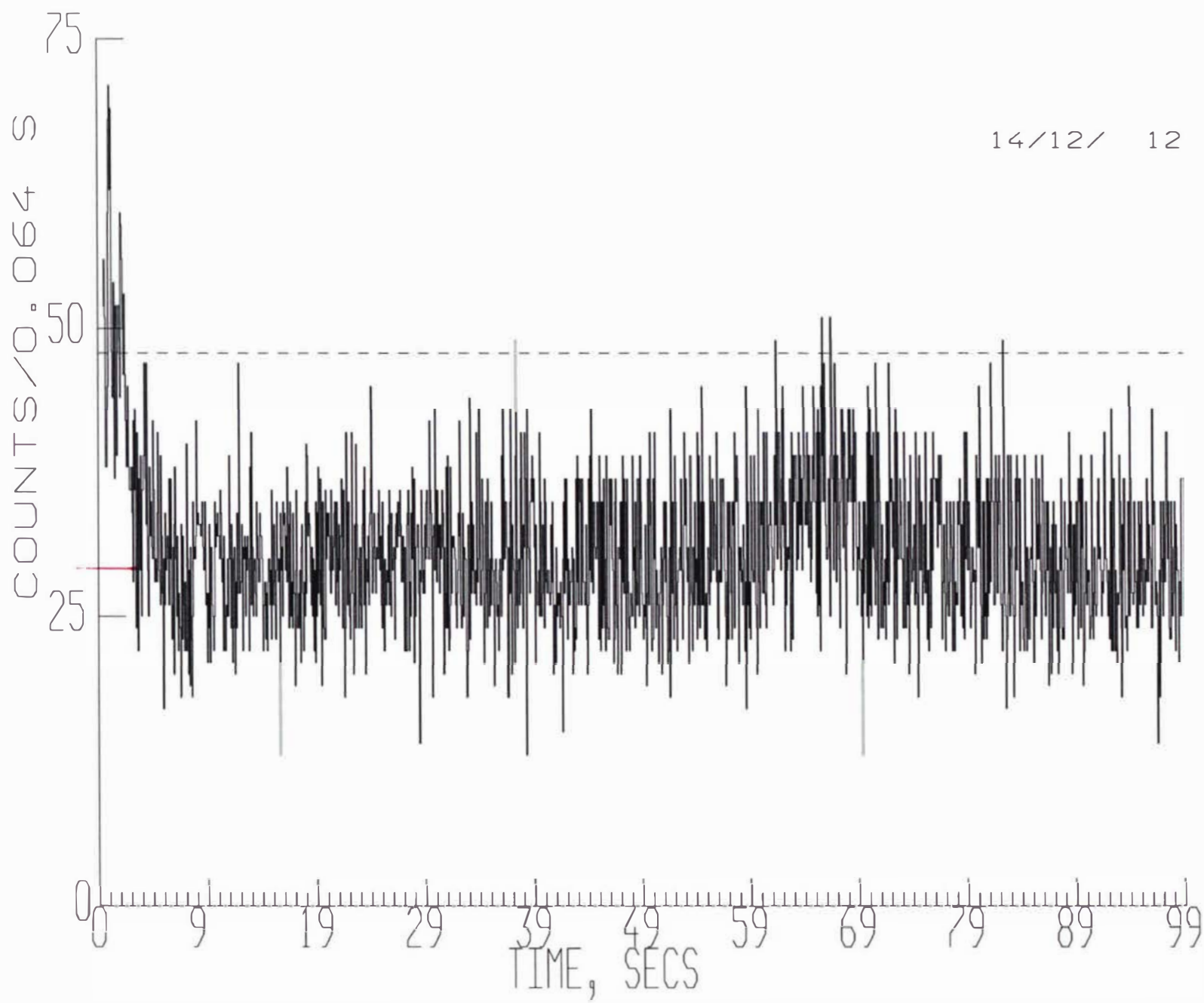
27/12/98

8019.164

14/12/12

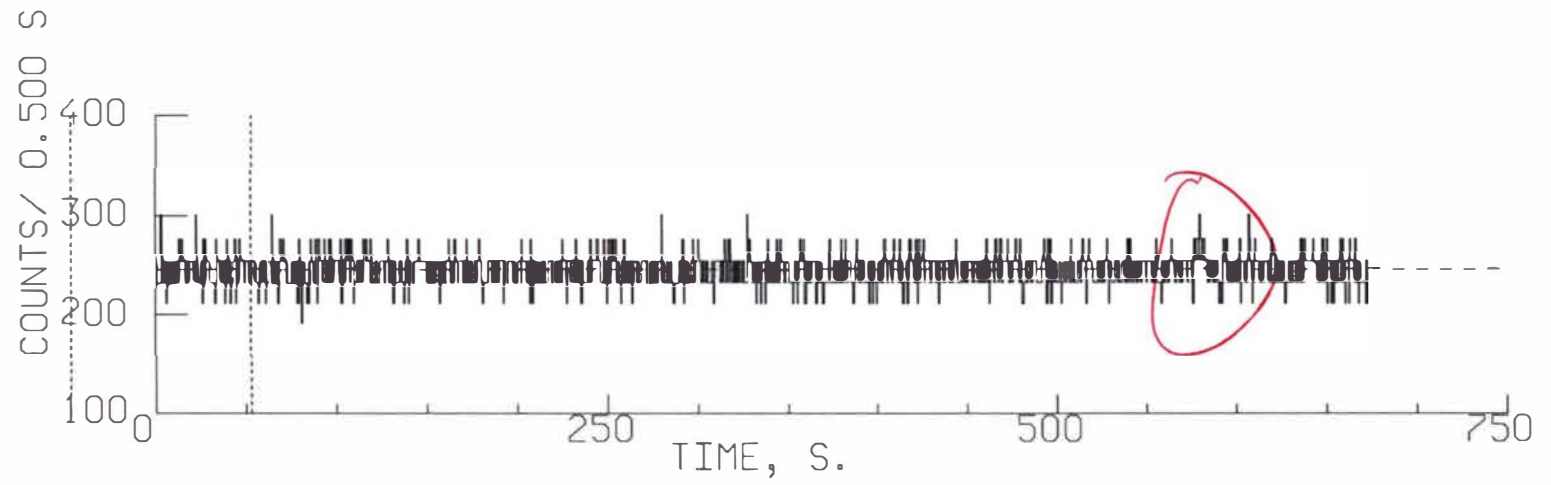


KONUS 27/12/98 8019.164
50- 200 keV



ULYSSES RT
27/12/98 5544.055 s
22- 150 keV

14/12/12



GRB19981227 08019

ULYSSES RT

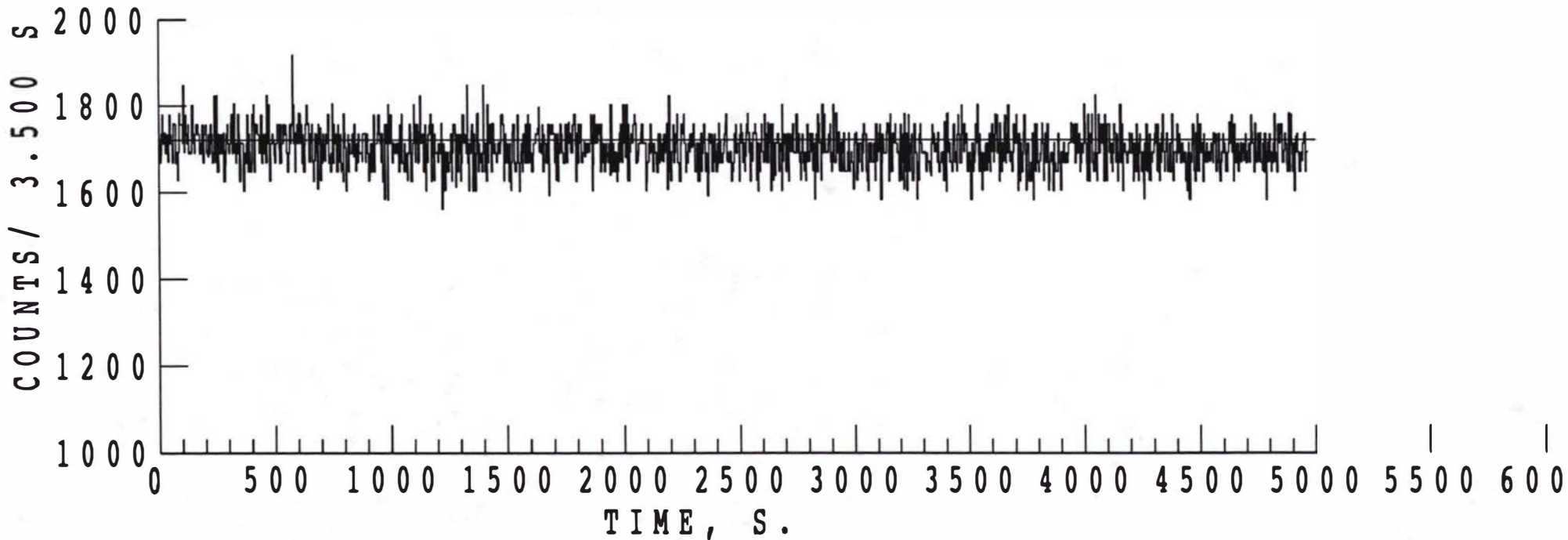
23 / 4 / 99

27/12/98 5544.055 s

0.500 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HENZE@fender.msfc.nasa.gov Thu Dec 31 14:13:47 1998
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA11732; Thu, 31 Dec 1998 14:13:46 -0800
From: HENZE@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA02997; Thu, 31 Dec 1998 14:13:43 -0800
Date: Thu, 31 Dec 1998 16:01:55 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981231160155.2025c272@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7283
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7283
EVENT OF 1998 DEC 27 DAY OF YEAR=361
EVENT CROSSING TIME AT BATSE : 67496. S. OR 18:44:56.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 112.000 38.000
BATSE PEAK COUNTING RATE: 5500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 27/12/ 98 IS:
RA= 166.276 DEC= -7.685 DIST= 4.860 AU
BATSE-ULYSSES DISTANCE = 727125714. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=111.94 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -906.23 SECS.
CROSSING TIME AT ULYSSES IS 66590. S. OR 18:29:49 +/- 426.83 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 27/12/ 98 IS:
RA= 195.347 DEC= -4.524 DIST= 1.542 AU
MARS-BATSE DISTANCE = 230680480. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 92.43 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -32.67 SECS.
CROSSING TIME AT MARS IS 67463. S. OR 18:44:23 +/- 132.98 SECONDS

BATSE BURST TRIGGER

NO.: 7283

TIME: TJD=1174 SECONDS=67496

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=118.2 AZIMUTH=195.4 ERROR= 6.8 DEGREES

COMMENTS:

SINGLE PULSE, DUR. APPROX. 0.8 S.

VISIBLE ABOVE 300 KEV; marginally visible below 50 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7283	981227	11174	67496	5500	112	+38	.8

BATSE BURST# 7283

ULYSSES RT

23 / 4 / 99

27/12/98 66168.188 s

0.250 S INTERVALS REGROUPED BY 3

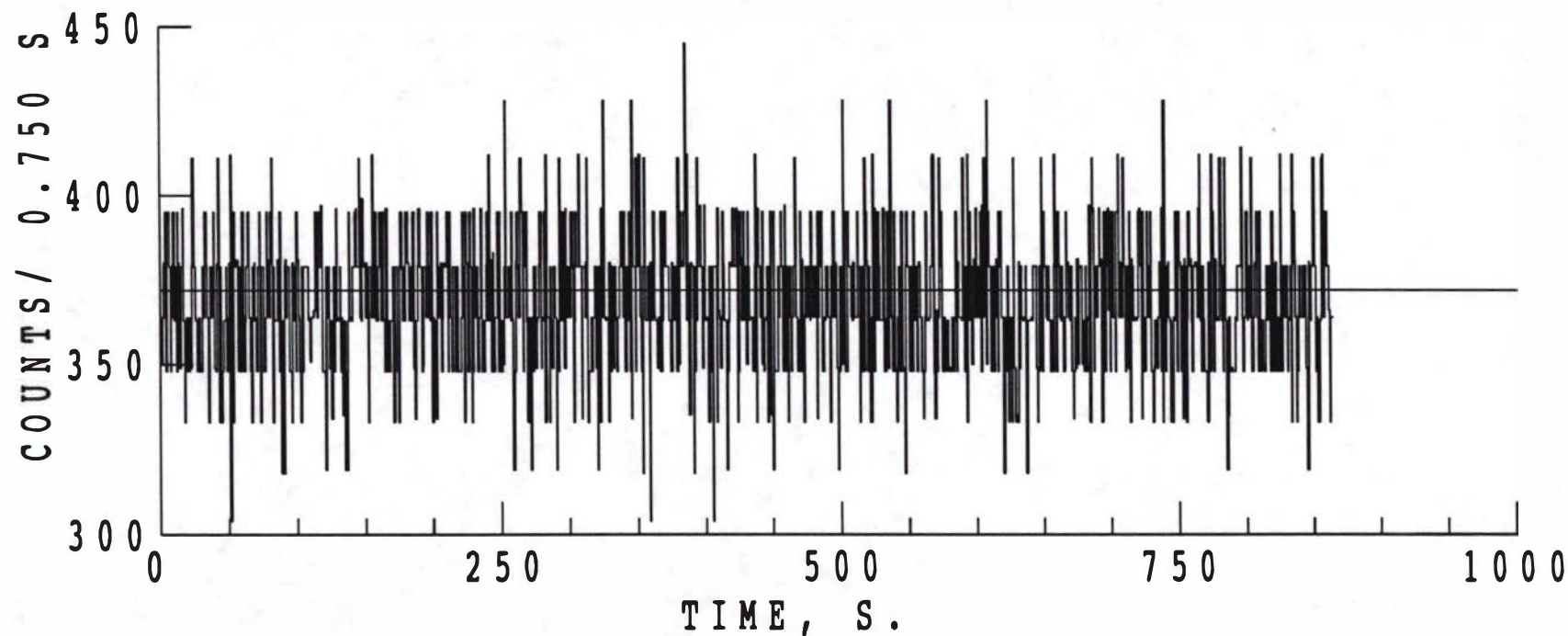
0 - 0 keV

N= 10 M= 10

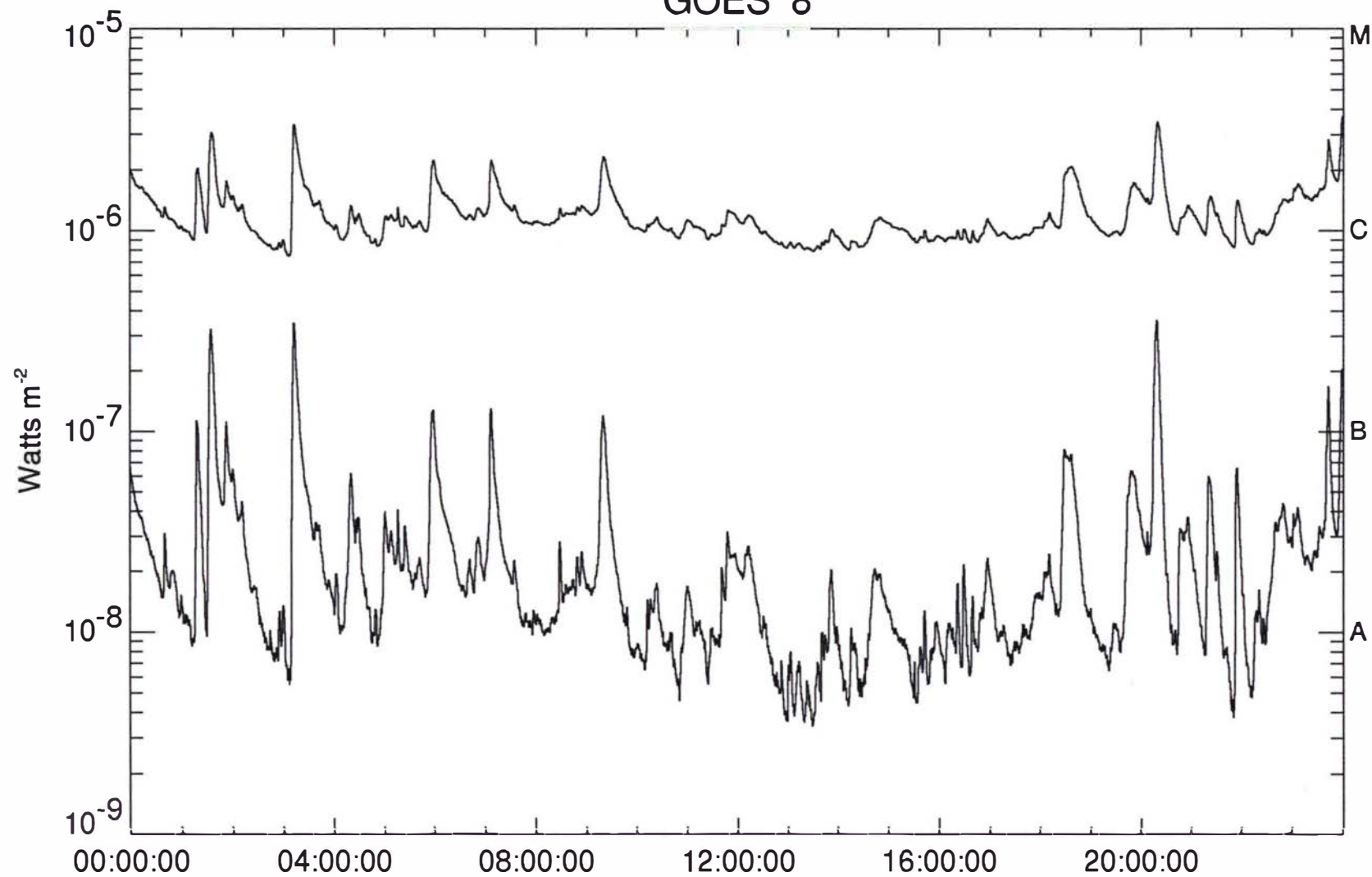
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



GOES 8



Data Start: 98/12/27, 0000:00

Plot created: 98/12/31, 1010

Channel

1 (1.0 - 8.0 Angstroms)

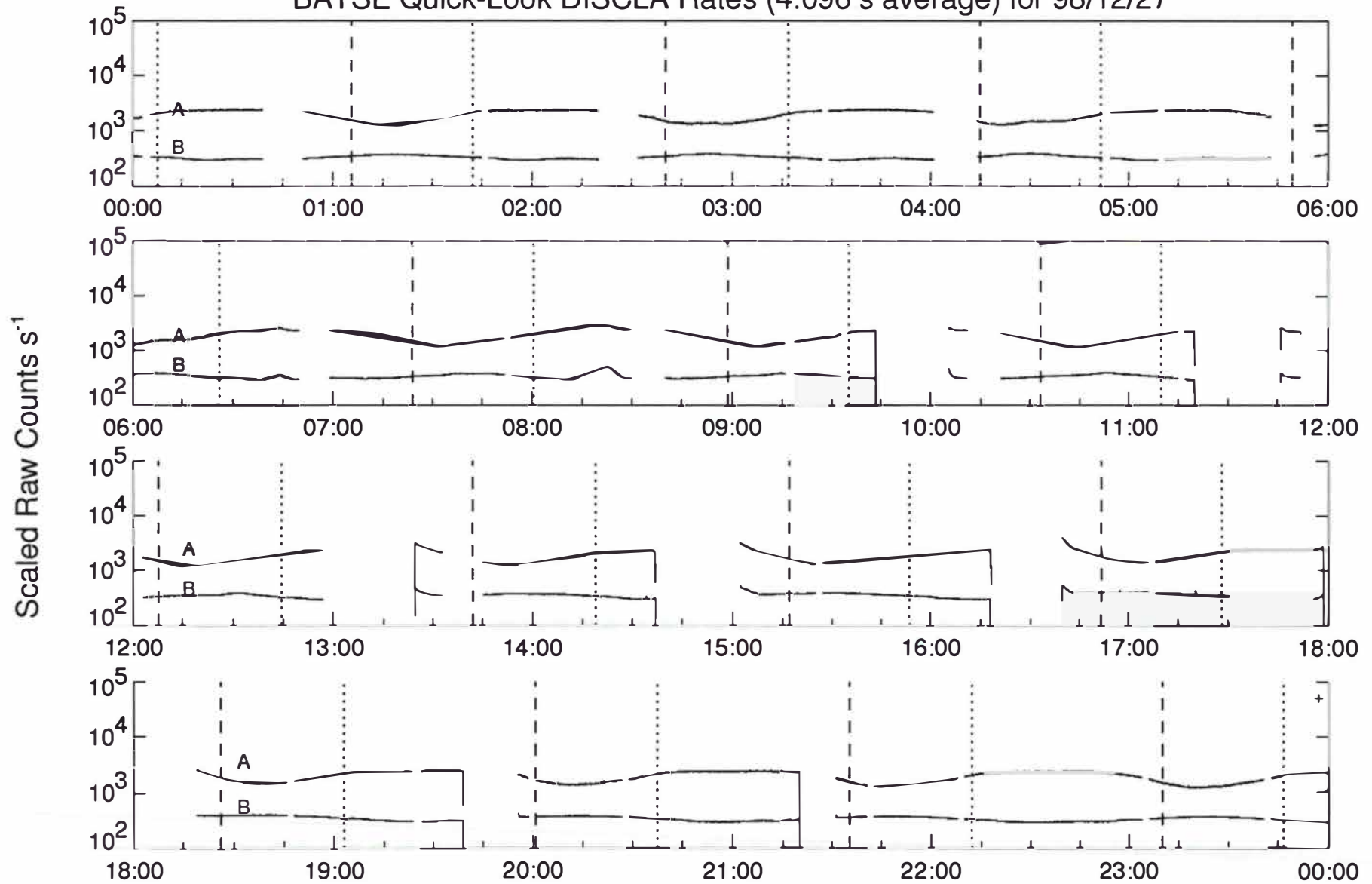
Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/27

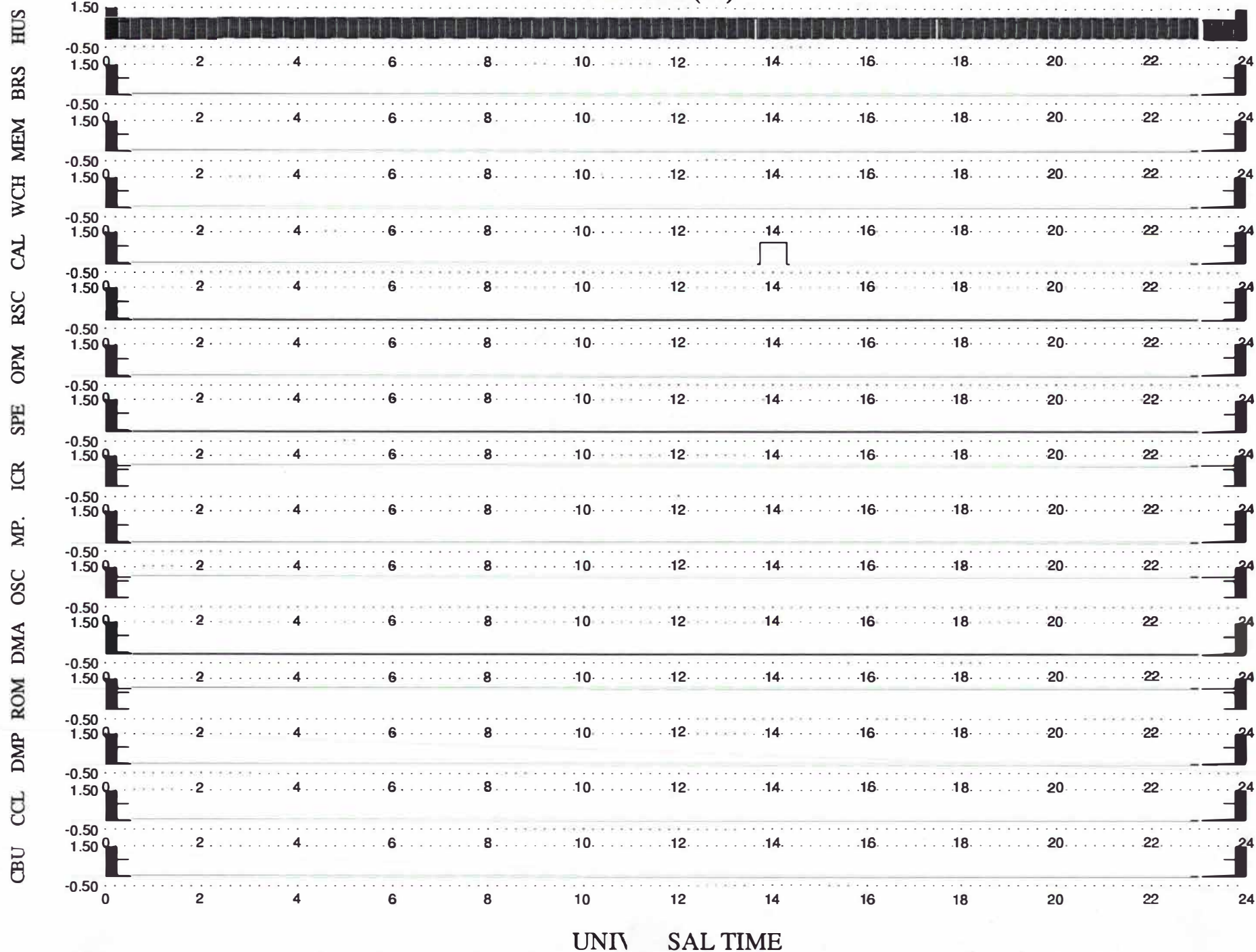


Current Time: 98/12/31, 1011 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

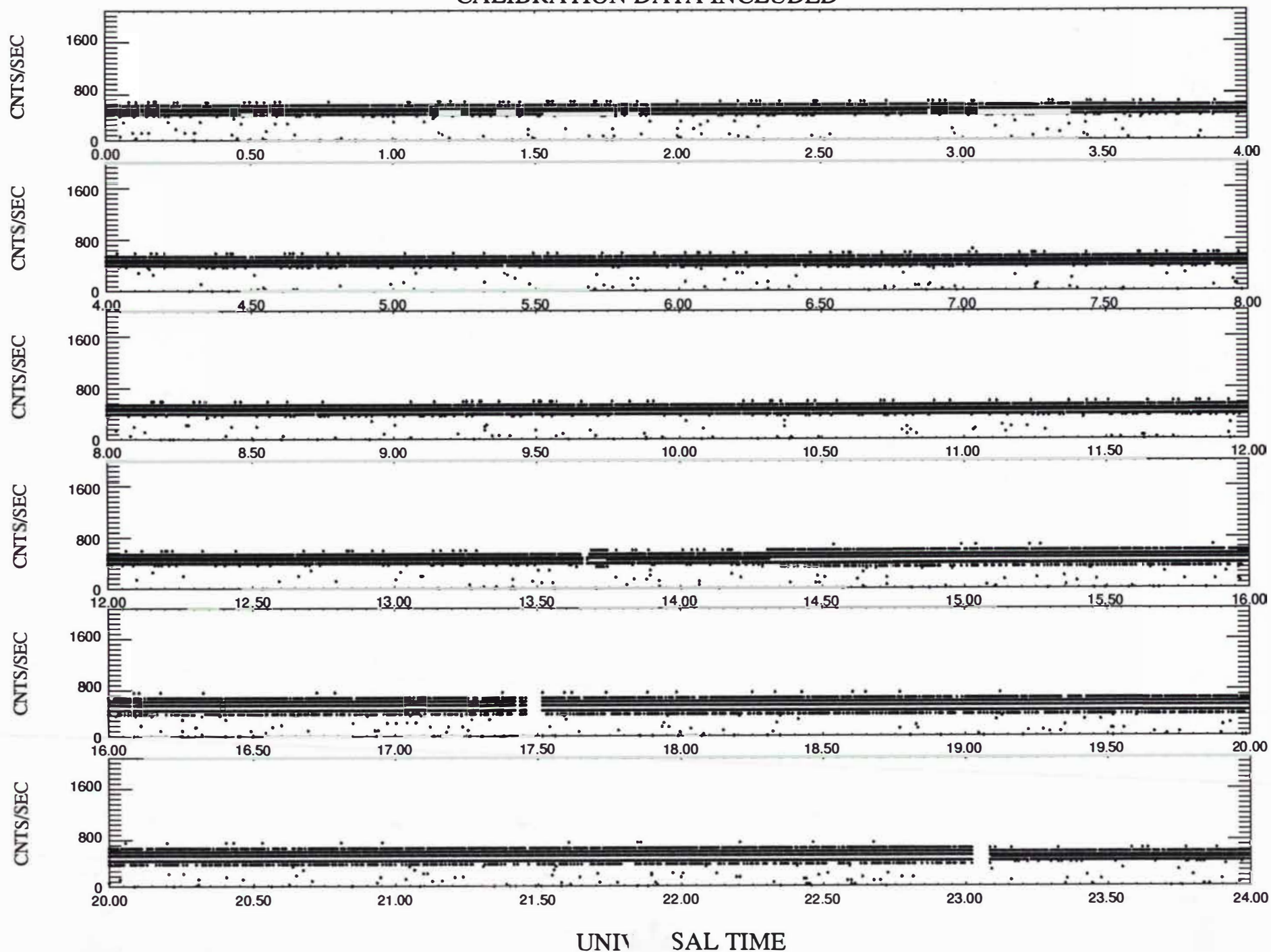
Dotted line: Day entry
 Dashed line: Night entry

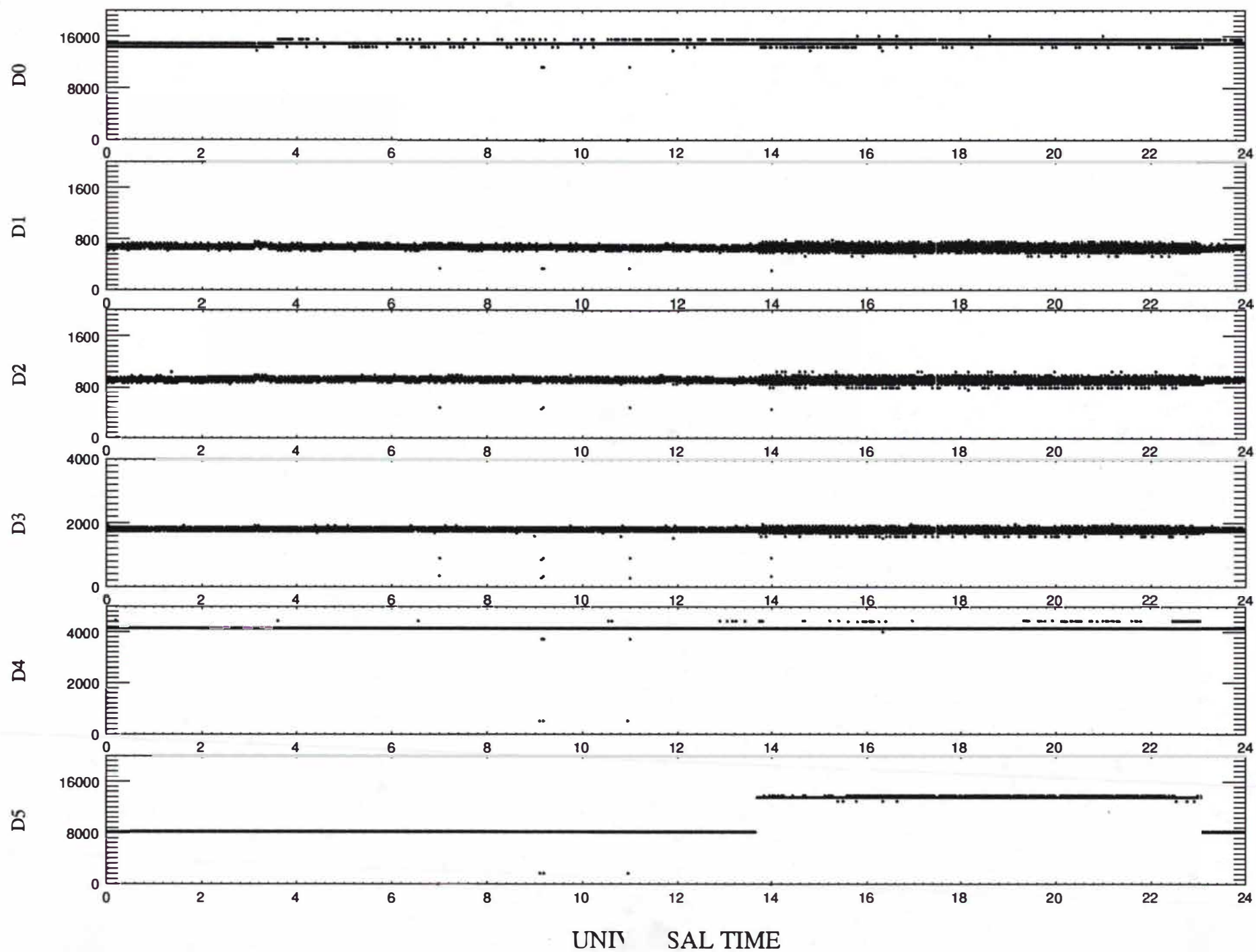
* Solar Burst Trigger
 + Solar Flare

NO BURST (15)



CALIBRATION DATA INCLUDED





From RICHARDSON@fender.msfc.nasa.gov Wed Dec 30 11:07:40 1998

From: RICHARDSON@fender.msfc.nasa.gov

Date: Wed, 30 Dec 1998 13:07:20 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7284

TIME: TJD=1175 SECONDS=33646

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY

KONUS RI

2 / 6 / 99

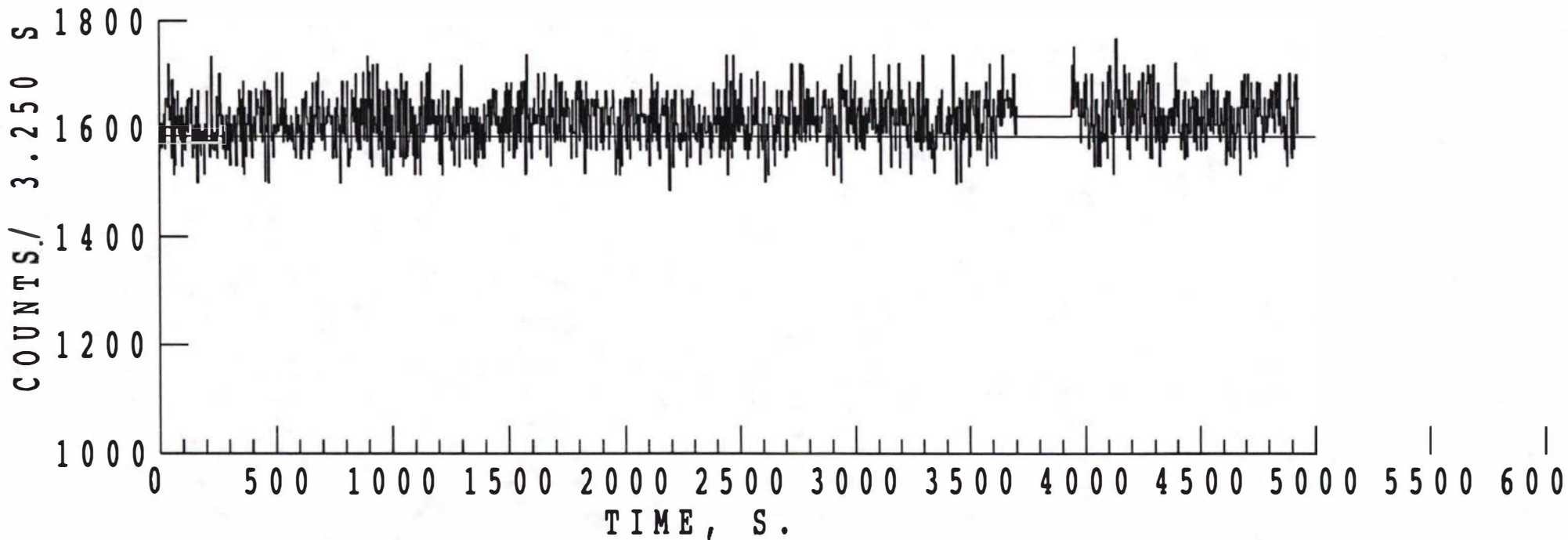
ULYSSES RT

28/12/98 42048.070 s

0.250 S INTERVALS REGROUPED BY 13

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@fender.msfc.nasa.gov Wed Dec 30 11:28:00 1998
Return-Path: <RICHARDSON@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA02057; Wed, 30 Dec 1998 11:28:00 -0800
From: RICHARDSON@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA04377; Wed, 30 Dec 1998 11:27:56 -0800
Date: Wed, 30 Dec 1998 13:22:20 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981230132220.2025c342@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7285
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

Too weak

BATSE BURST # 7285
EVENT OF 1998 DEC 28 DAY OF YEAR=362
EVENT CROSSING TIME AT BATSE : 44616. S. OR 12:23:36.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 266.000 13.000
BATSE PEAK COUNTING RATE: 8500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 28/12/ 98 IS:
RA= 166.218 DEC= -7.740 DIST= 4.847 AU
BATSE-ULYSSES DISTANCE = 725179985. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 78.79 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 470.07 SECS.
CROSSING TIME AT ULYSSES IS 45086. S. OR 12:31:26 +/- 469.10 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 28/12/ 98 IS:
RA= 195.818 DEC= -4.712 DIST= 1.532 AU
MARS-BATSE DISTANCE = 229198544. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=108.10 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -237.57 SECS.
CROSSING TIME AT MARS IS 44378. S. OR 12:19:38 +/- 122.55 SECONDS

BATSE BURST TRIGGER

NO.: 7285

TIME: TJD=1175 SECONDS=44616

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=35.9 AZIMUTH=303.5 ERROR=0.9 DEGREES

COMMENTS:

GRB. LOTS OF STRUCTURE. DURATION APPROX. = 200 SEC.
SLIGHTLY VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7285	981228	11175	44616	8500	266	+13	200

From HENZE@fender.msfc.nasa.gov Wed Jan 6 12:33:59 1999
Date: Wed, 6 Jan 1999 14:23:22 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7285

TIME: TJD=1175 SECONDS=44616

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 16.9 AZIMUTH=259.8 ERROR= 1.0 DEGREES

COMMENTS:

REVISED MESSAGE WITH NEW LOCATION:

COMPLEX, DUR. APPROX. 200 S, STARTS AT APPROX. T-100 S.

SLIGHTLY VISIBLE ABOVE 300 KEV.

BATSE

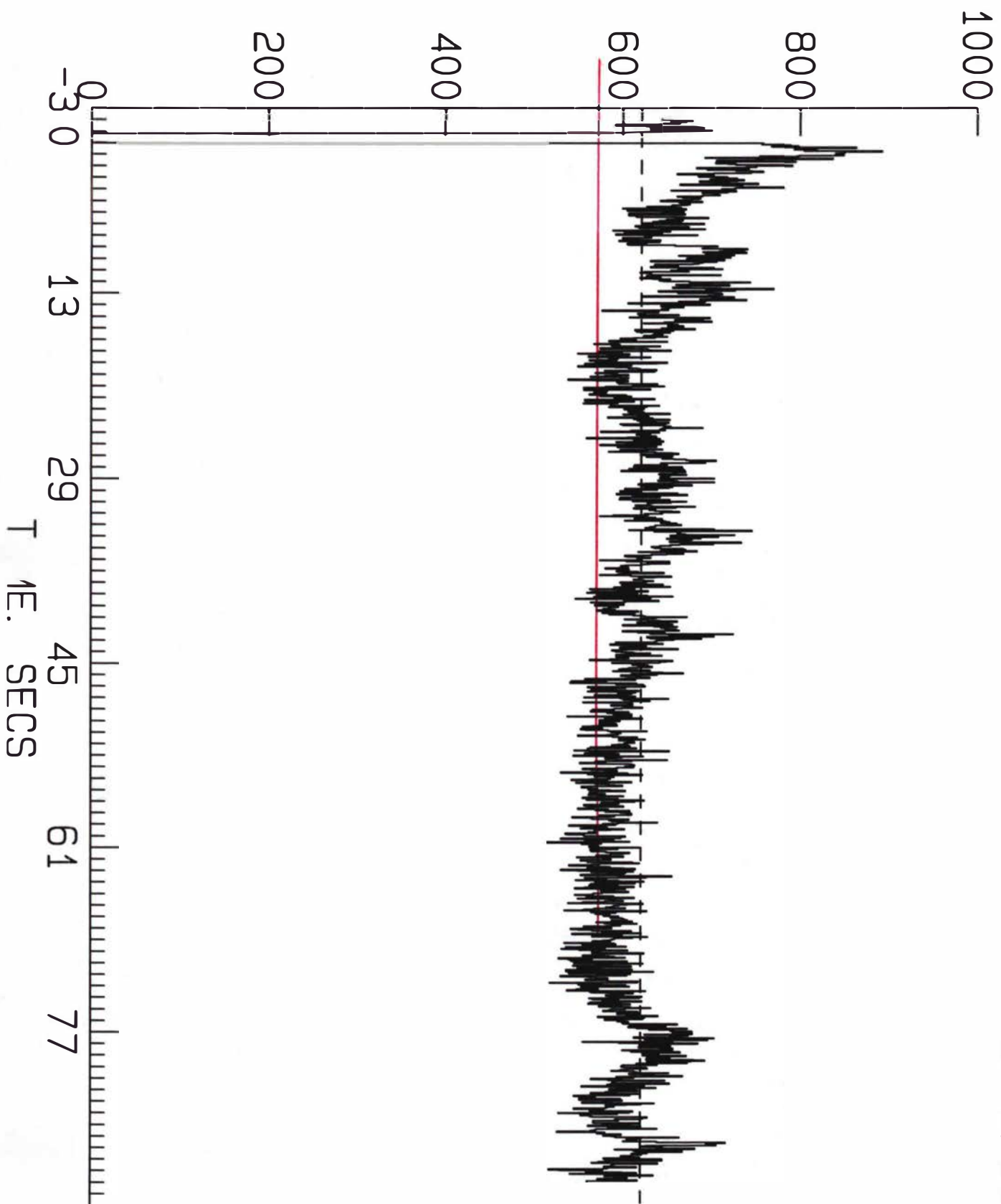
28/12/98

44616.417

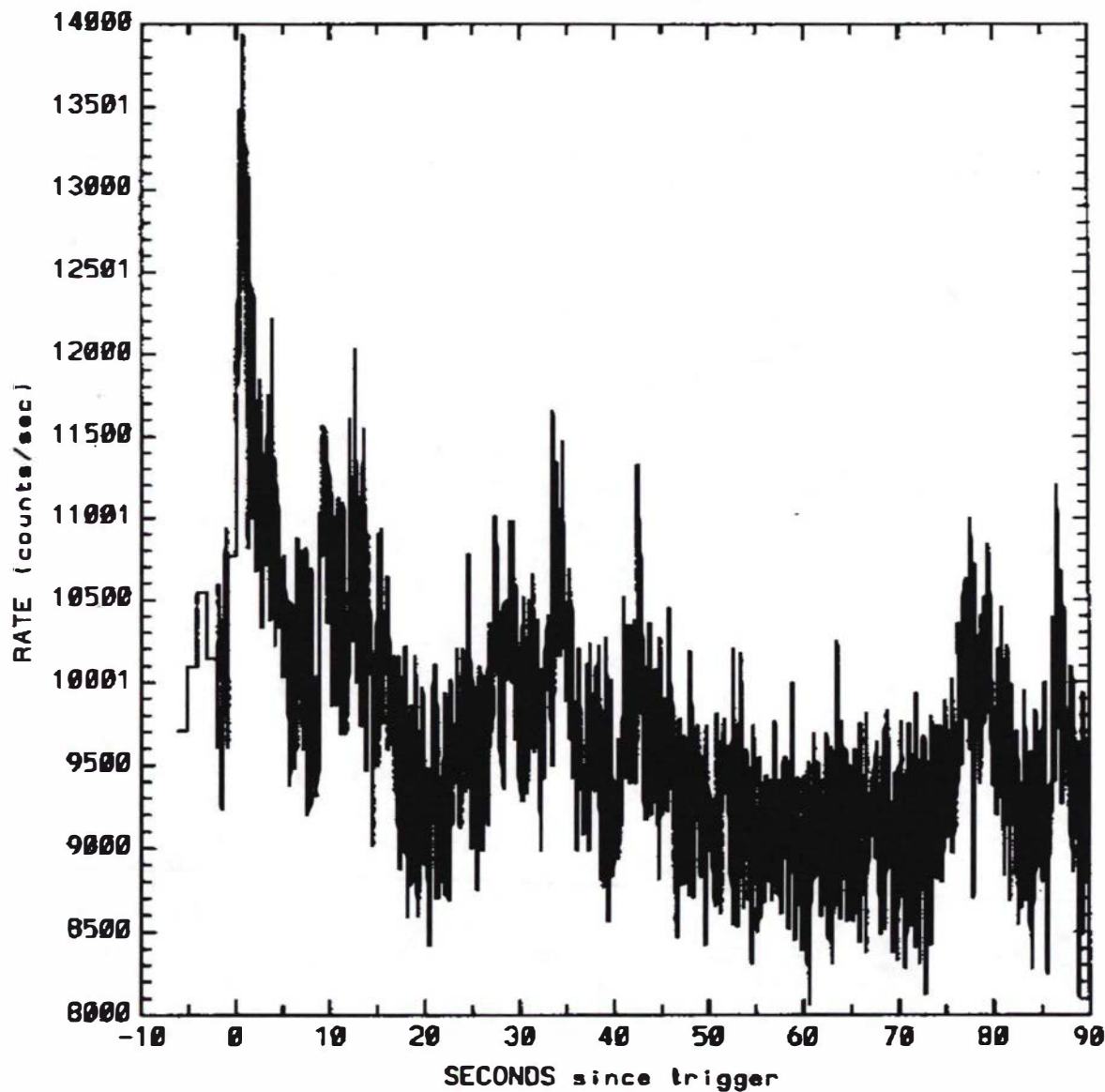
25- 100 keV

COUNTS/0.064 S

2 / 2 / 99



DISCSC Data for K. Hurley, No. 7285



12-JAN-1999 09:59:09

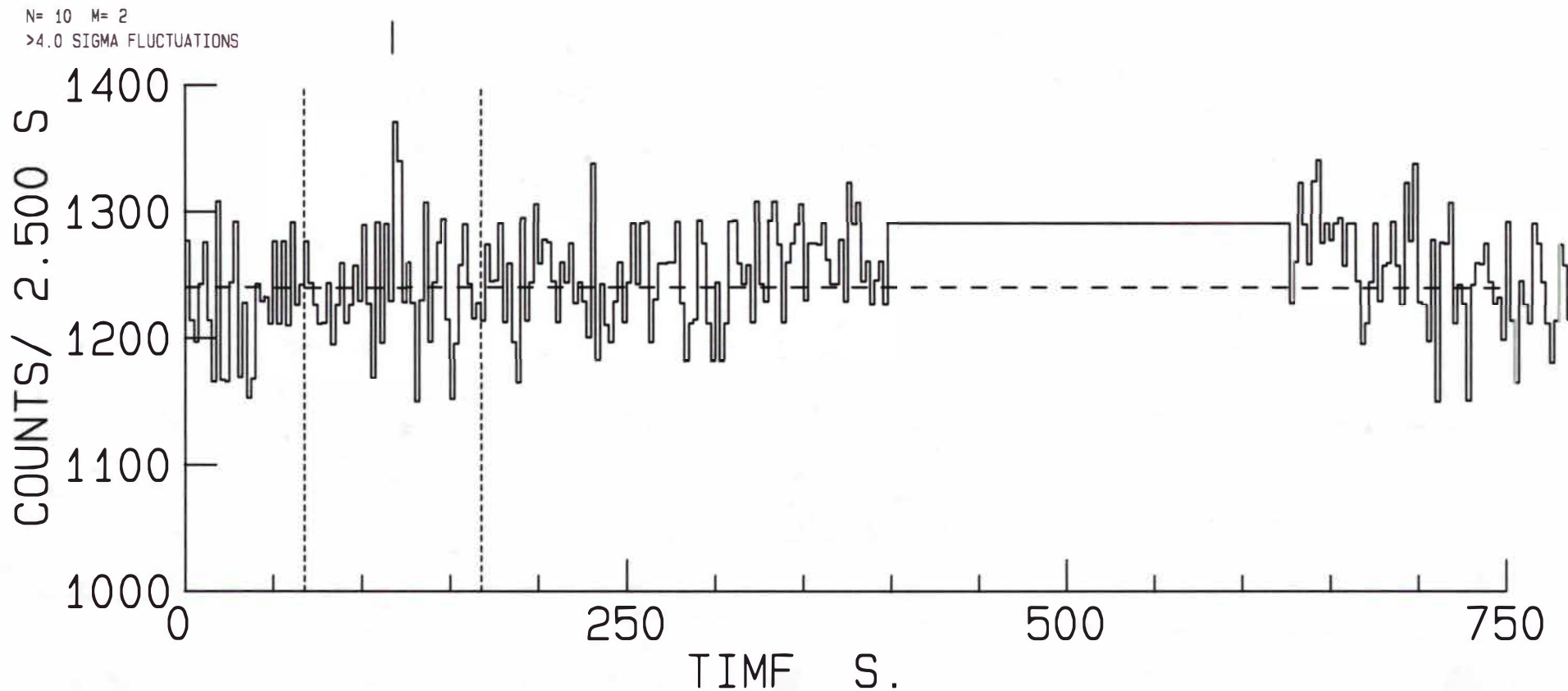
Created by MOPS BD
(Burst Display)
Version 12.26

Trigger # . 7285

Trigger Time:
11175 / 44616.417Burst Data Type:
DISCSCDeadtime
Corrected. NBackground Data
Type. PREB + DISCLAMinimum Integ. Time.
0.064 second(s)Detectors [7..0].
-6-4-2--Discriminators:
[1 . 2]Quality Mask:
BDISP1

ULYSSES RT
28/12/98 45360.106 s
0.250 S INTERVALS REGROUPED BY 10
22- 150 keV

2 / 2 / 99



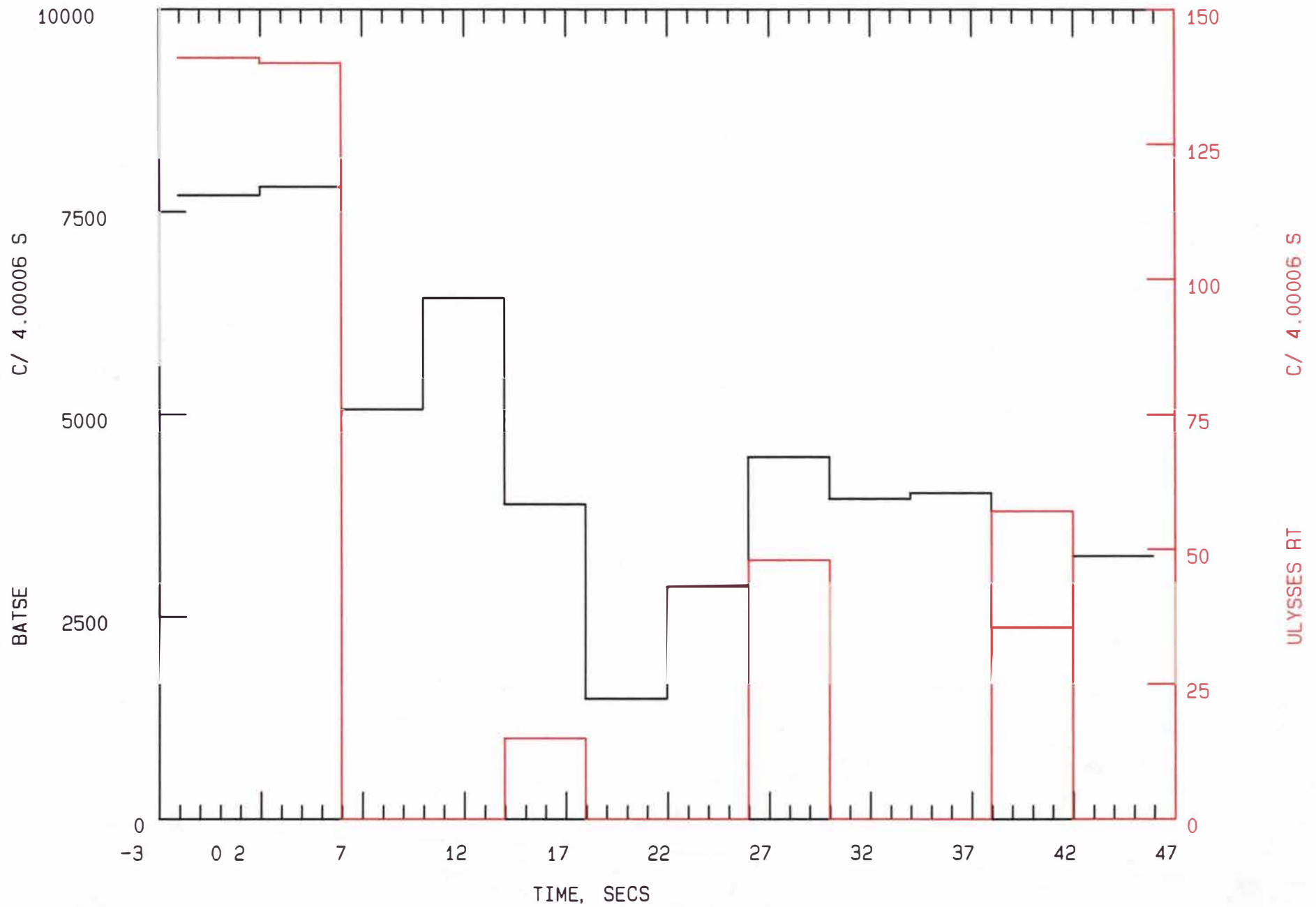
BATSE

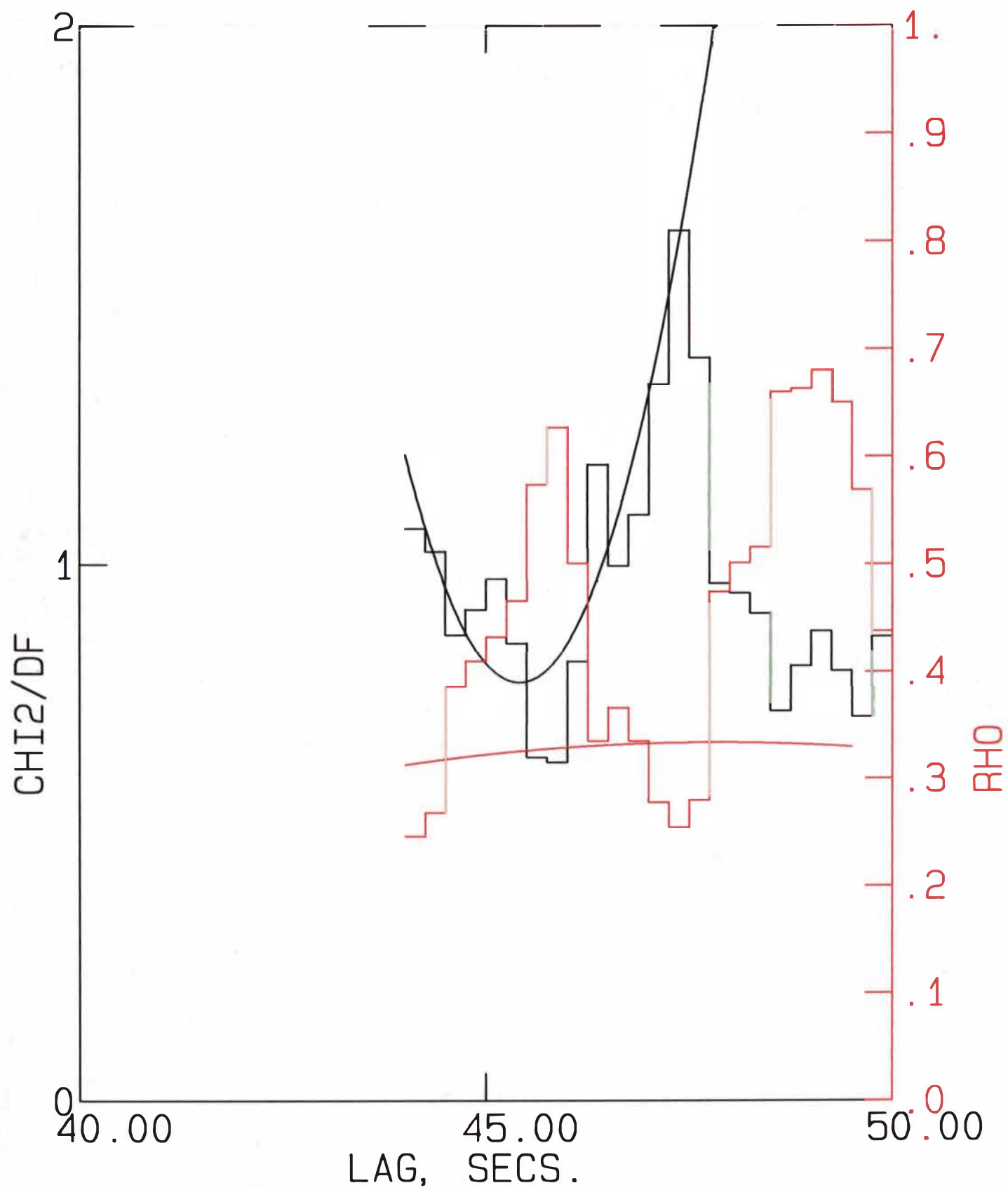
-ULYSSES RT CORRELATION

28/12/98

44616.417

2/ 2/99





From RICHARDSON@fender.msfc.nasa.gov Wed Dec 30 11:11:54 1998

From: RICHARDSON@fender.msfc.nasa.gov

Date: Wed, 30 Dec 1998 13:11:42 -0600 (CST)

To: burst@compTEL.sr.unh.edu, grobad@estsA2.estec.esa.nl,
cline@lhevX.gsfc.nasa.gov, barthelmy@lhevX.gsfc.nasa.gov,
bacodine@lhevwww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lhevX.gsfc.nasa.gov, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7286

TIME: TJD=1175 SECONDS=75459

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

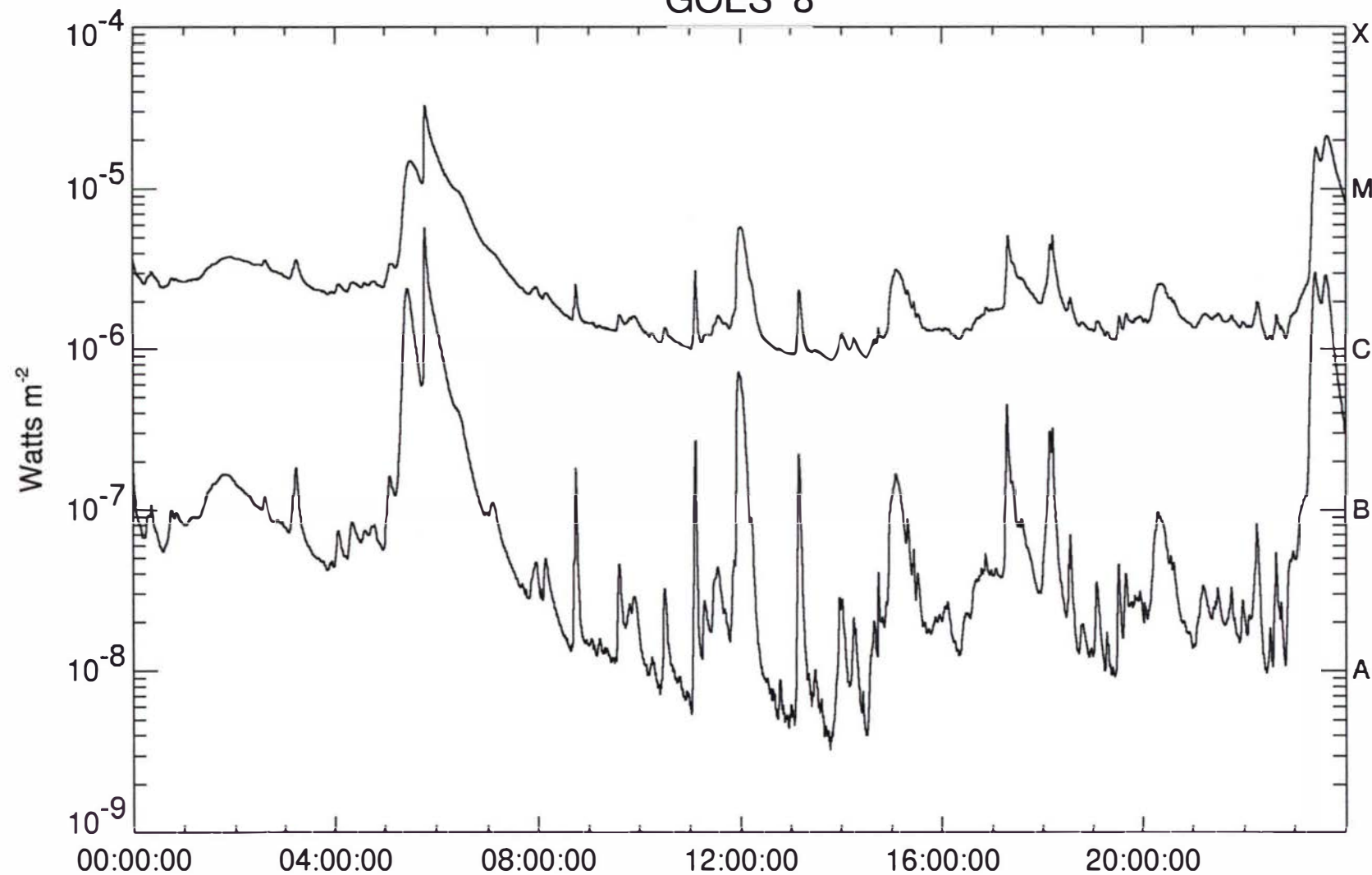
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY

GOES 8



Data Start: 98/12/28, 0000:00

Plot created: 99/01/06, 0048

Channel 1 (1.0 - 8.0 Angstroms)

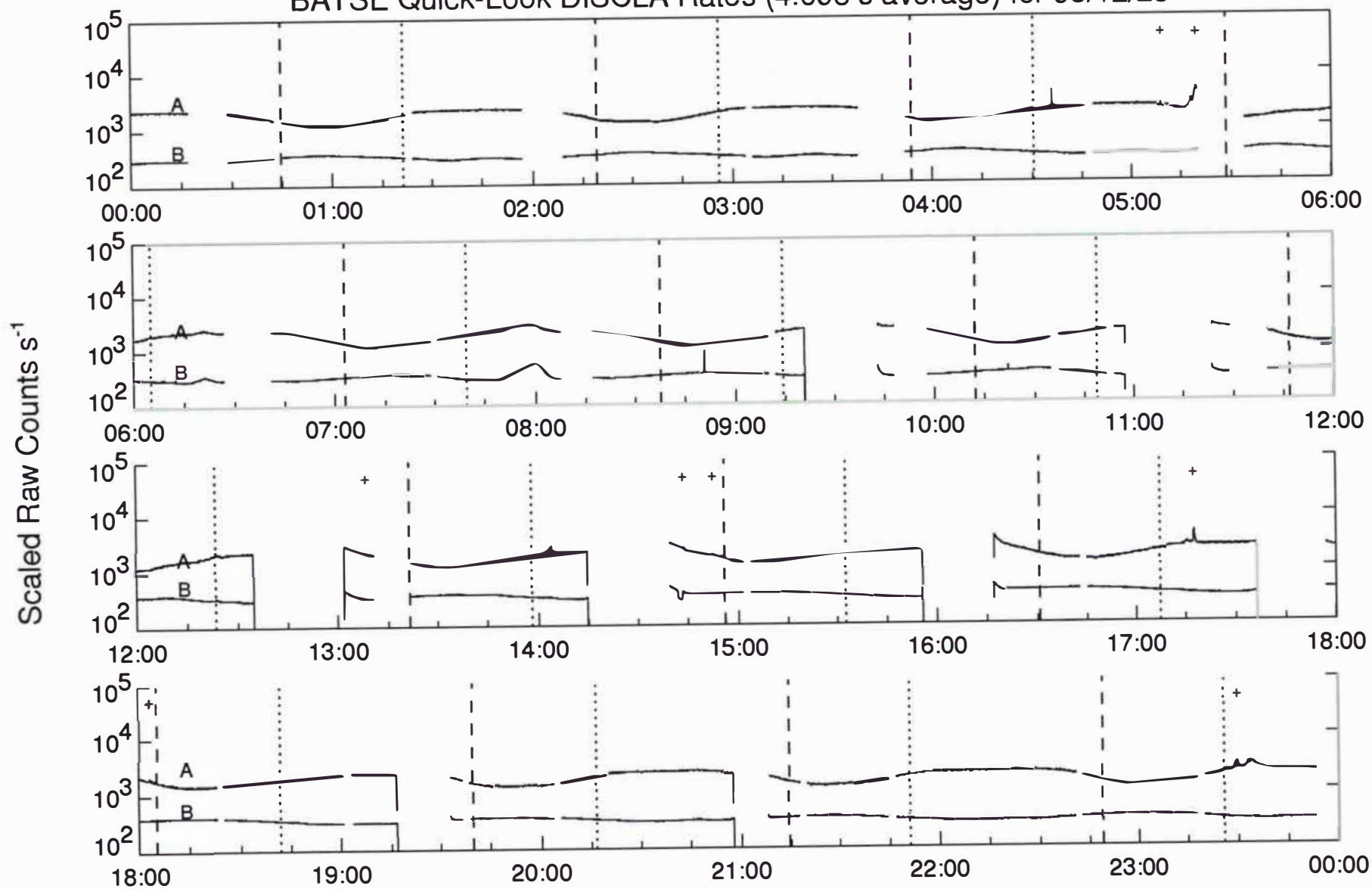
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/28

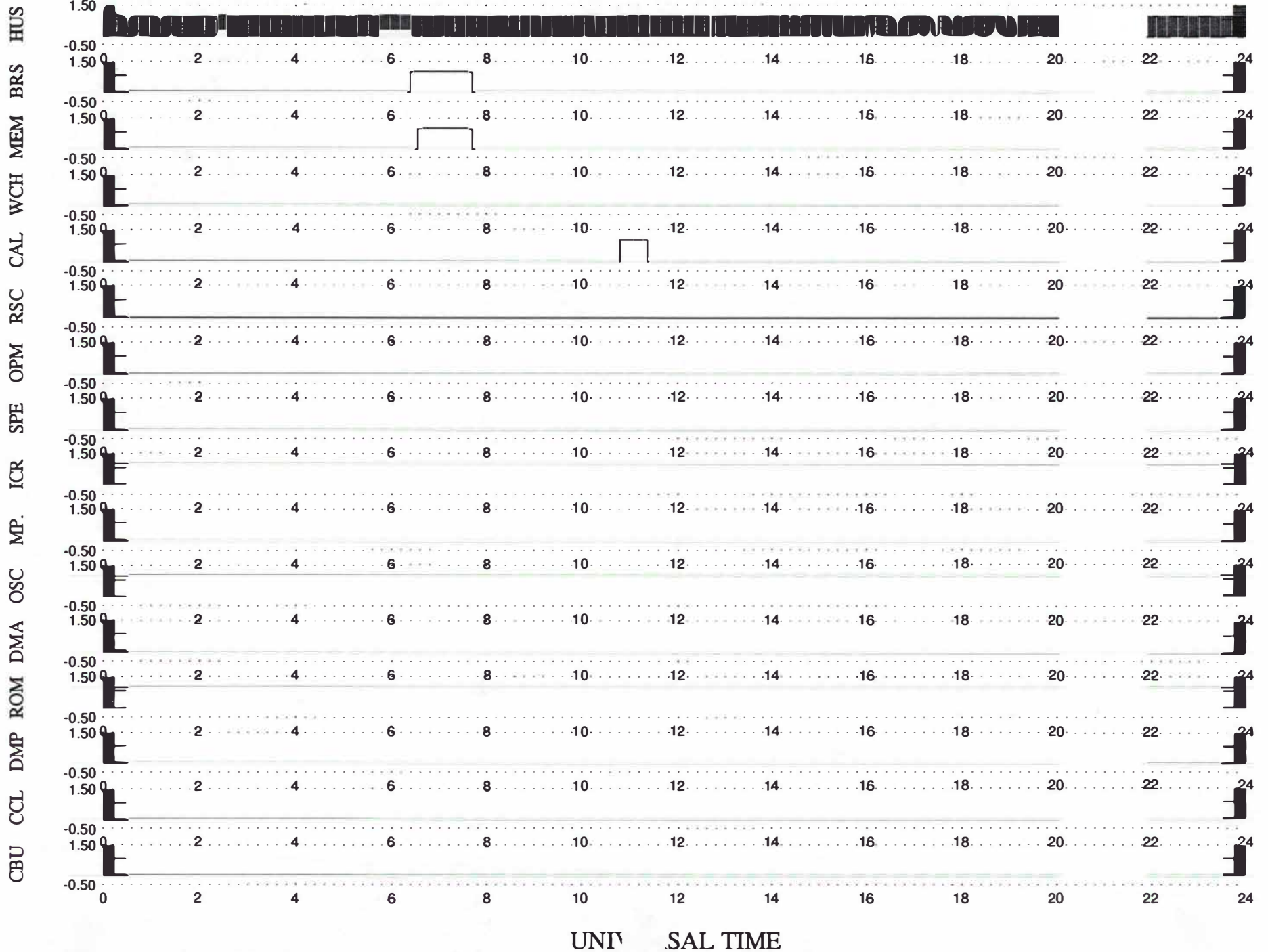


Current Time: 99/01/06, 0049 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

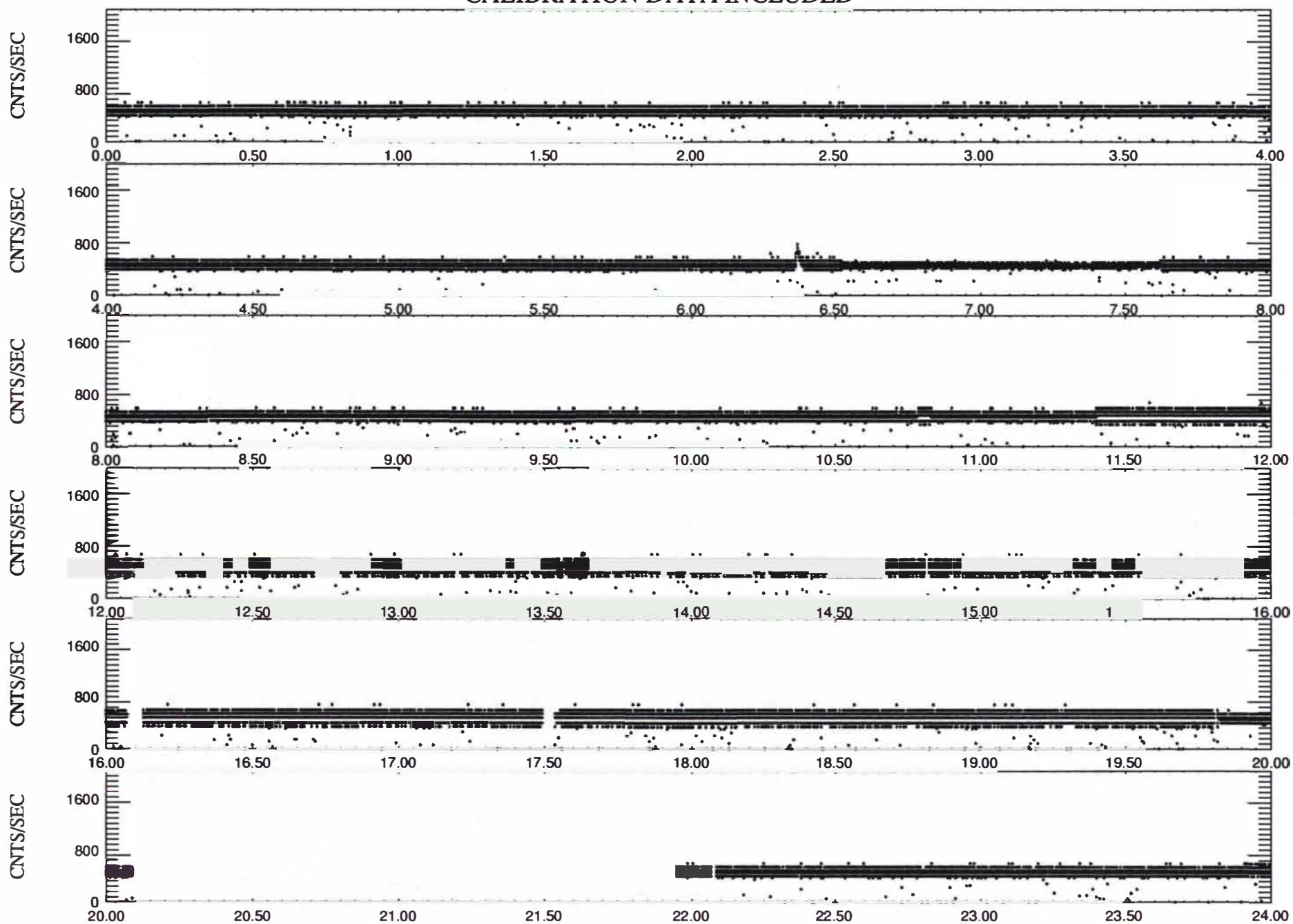
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

BURST NUMBER 0

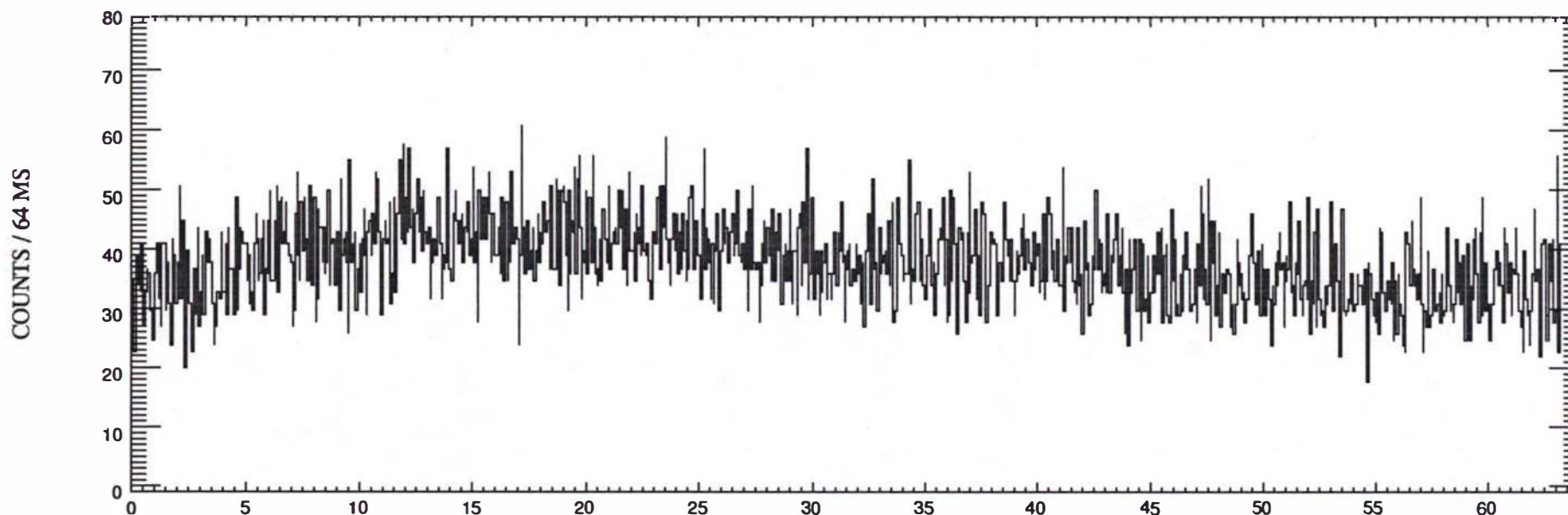


CALIBRATION DATA INCLUDED

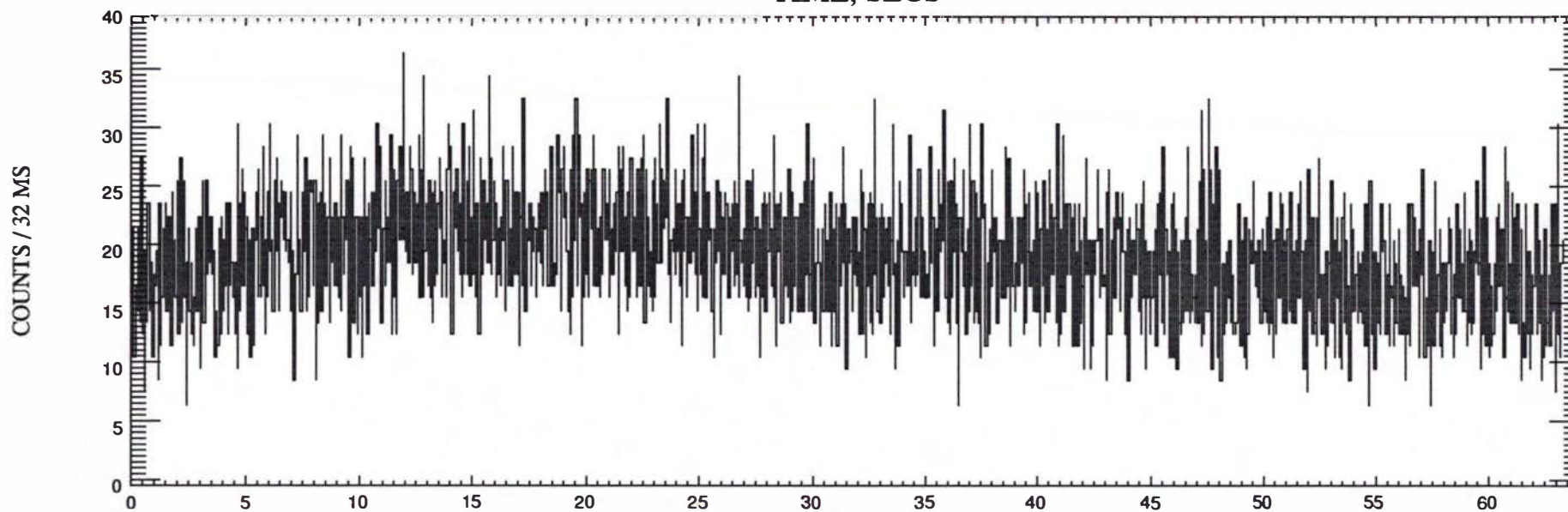


UNT SAL TIME

Burst Counter 0 at UT= 6.363678228590 h=22909.242 s 06:21:49.242

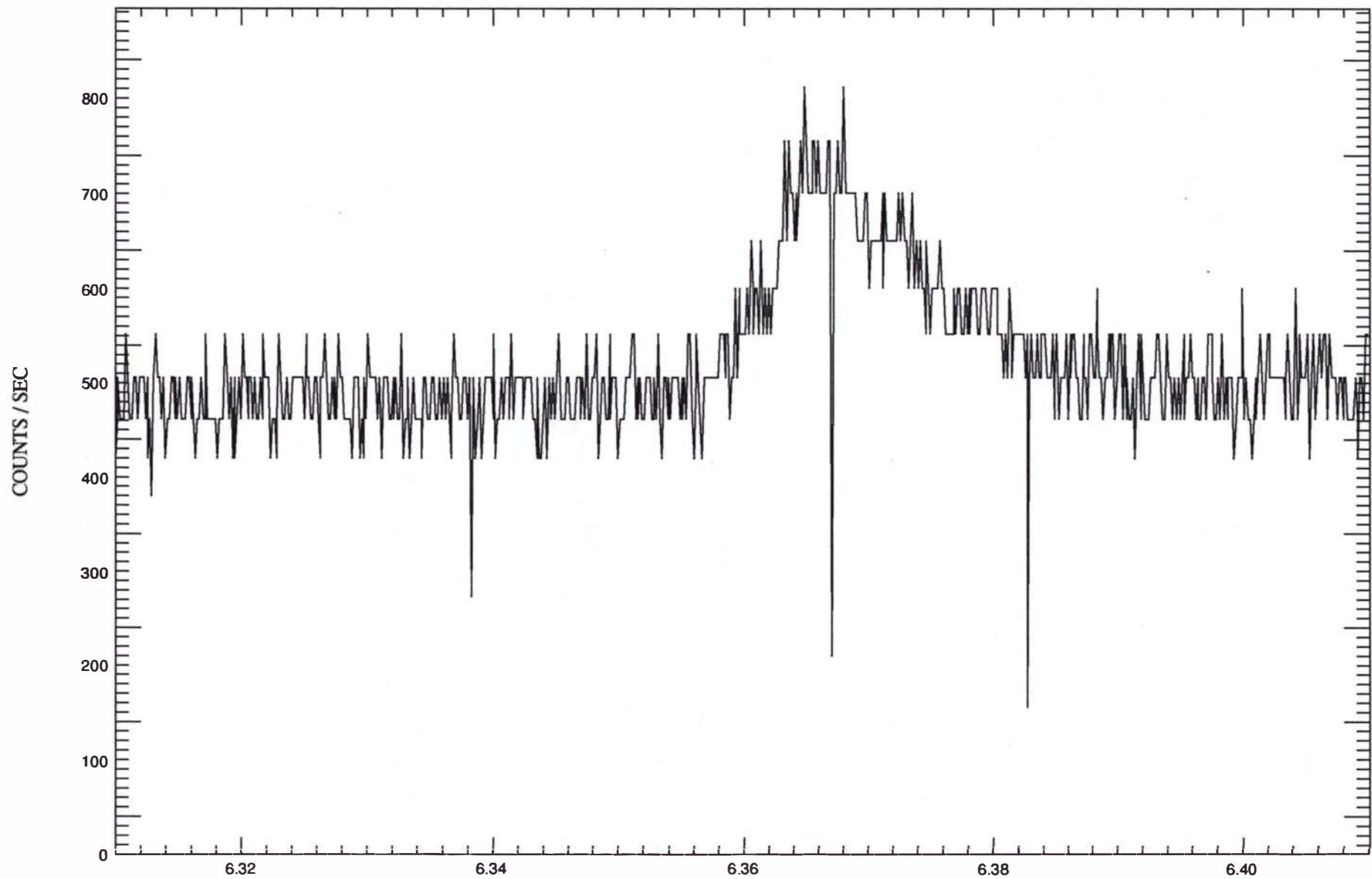


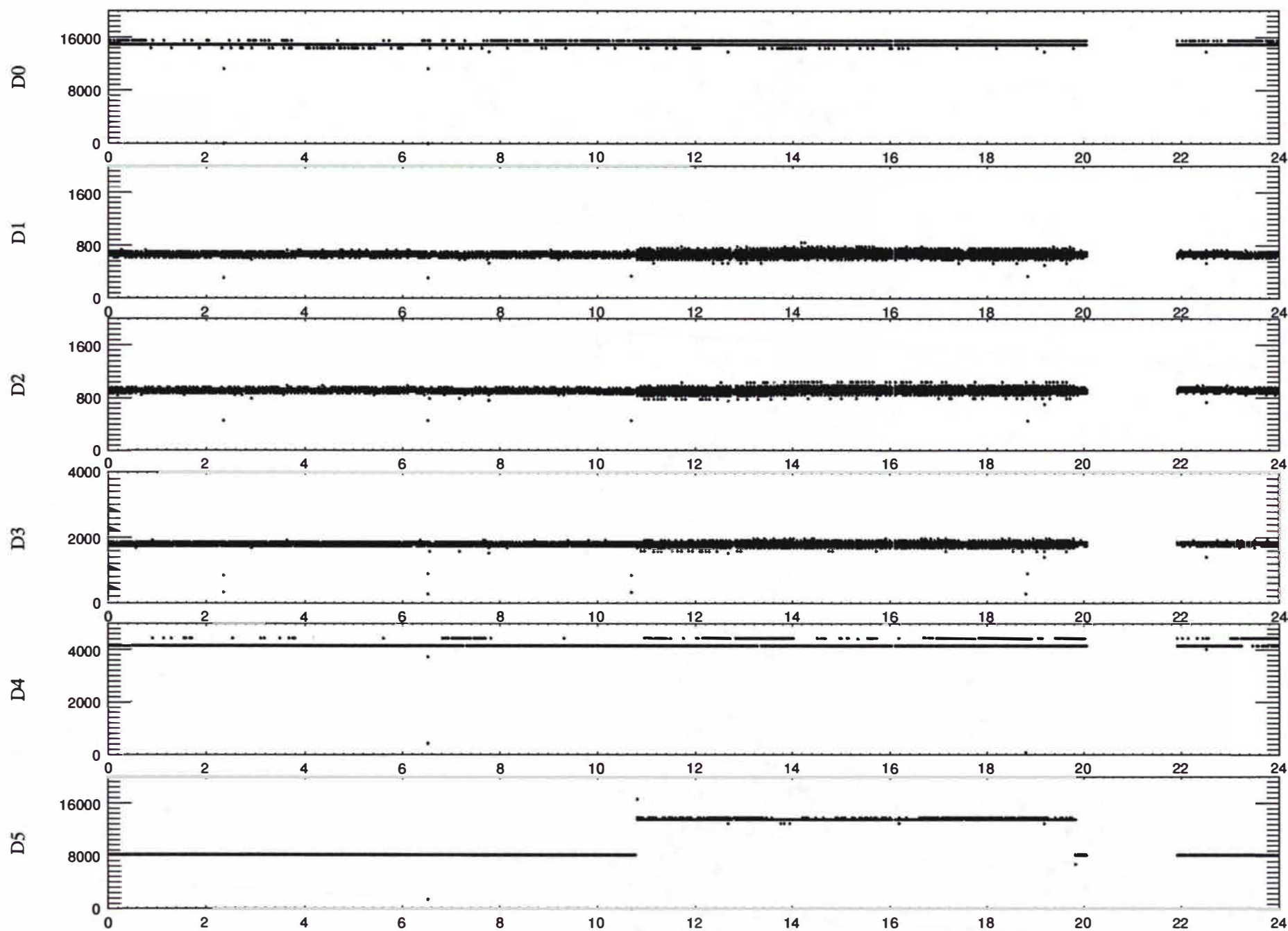
TIME, SECS



TIME, SECS

CALIBRATION DATA INCLUDED





UNT \SAL TIME

From HENZE@fender.msfc.nasa.gov Thu Dec 31 14:13:54 1998
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA11737; Thu, 31 Dec 1998 14:13:53 -0800
From: HENZE@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA03009; Thu, 31 Dec 1998 14:13:51 -0800
Date: Thu, 31 Dec 1998 16:04:37 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <981231160437.2025c272@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7287
Content-Length: 1135
X-Lines: 26
Status: RO

Too weak

BATSEARCH PROGRAM

BATSE BURST # 7287
EVENT OF 1998 DEC 29 DAY OF YEAR=363
EVENT CROSSING TIME AT BATSE : 33785. S. OR 09:23:05.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 327.000 61.000
BATSE PEAK COUNTING RATE: 23400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 29/12/ 98 IS:
RA= 166.148 DEC= -7.804 DIST= 4.832 AU
BATSE-ULYSSES DISTANCE = 722875014. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 55.07 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1380.48 SECS.
CROSSING TIME AT ULYSSES IS 35165. S. OR 09:46:05 +/- 414.20 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 29/12/ 98 IS:
RA= 196.287 DEC= -4.898 DIST= 1.522 AU
MARS-BATSE DISTANCE = 227713392. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 67.06 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 296.05 SECS.
CROSSING TIME AT MARS IS 34081. S. OR 09:28:01 +/- 125.94 SECONDS

BATSE BURST TRIGGER

NO.: 7287

TIME: TJD=1176 SECONDS=33785

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= 42.2 AZIMUTH=186.8 ERROR= 8.1 DEGREES

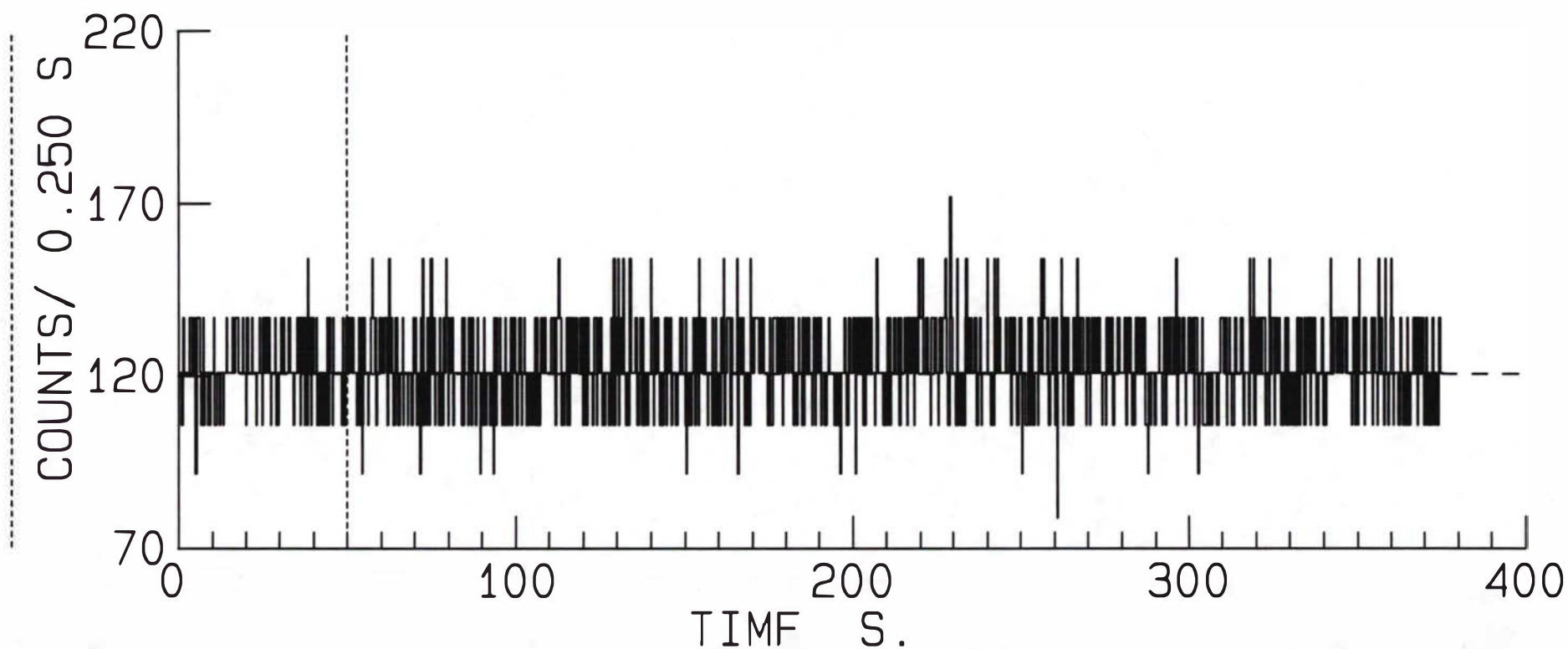
COMMENTS:

SPIKE, DUR. APPROX. 0.014 S, WITH TAIL, TOTAL DUR. APPROX. 0.15 S.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7287	981229	11176	33785	23400	327	+61	.014

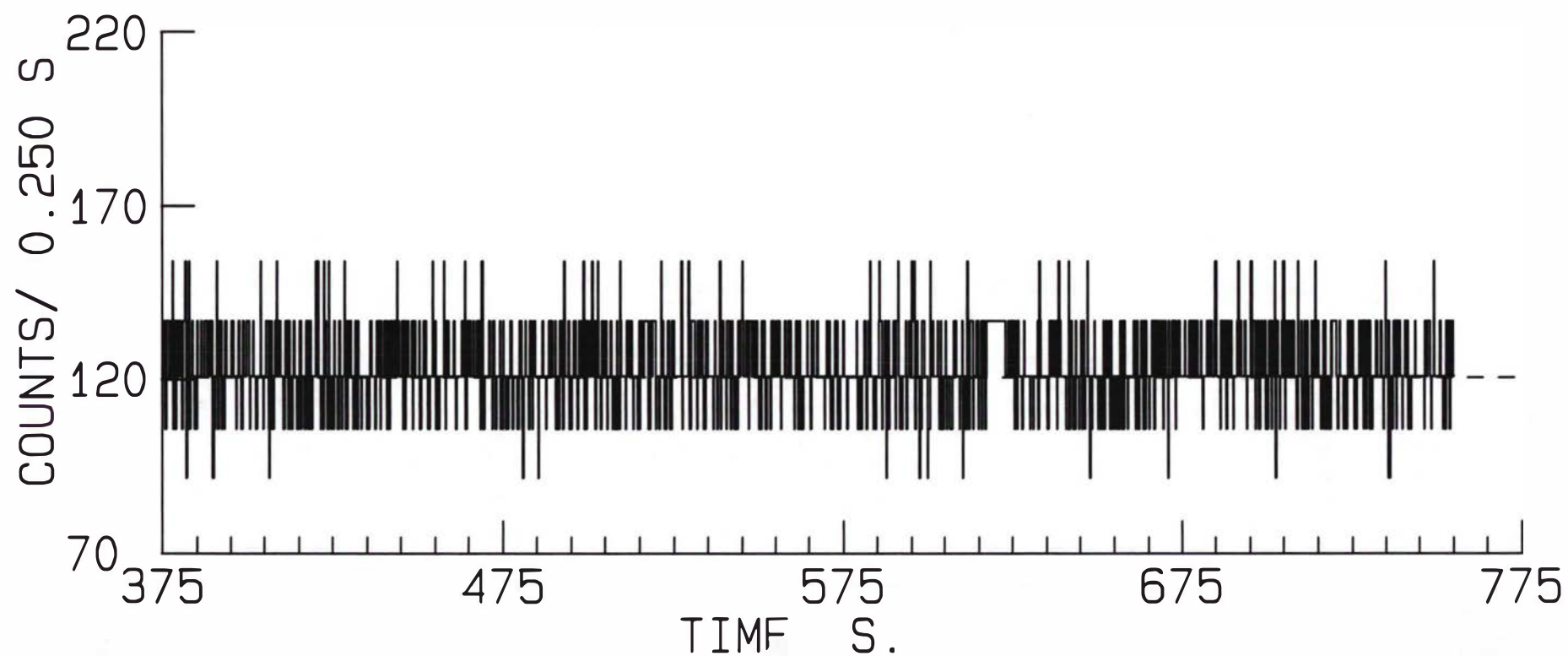
ULYSSES RT
29/12/98 34740.134 s
22- 150 keV

3 / 2 / 99



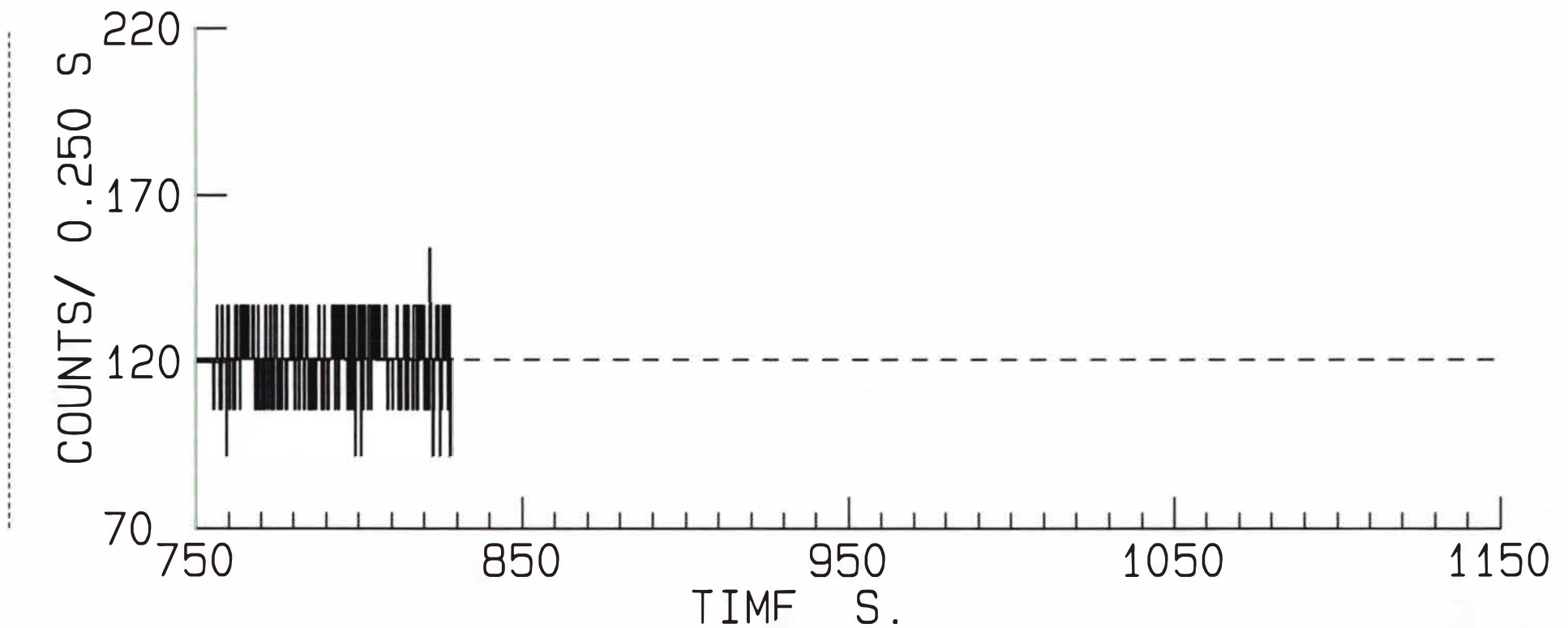
ULYSSES RT
29/12/98 34740.134 s
22- 150 keV

3 / 2 / 99



ULYSSES RT
29/12/98 34740.134 s
22- 150 keV

3 / 2 / 99



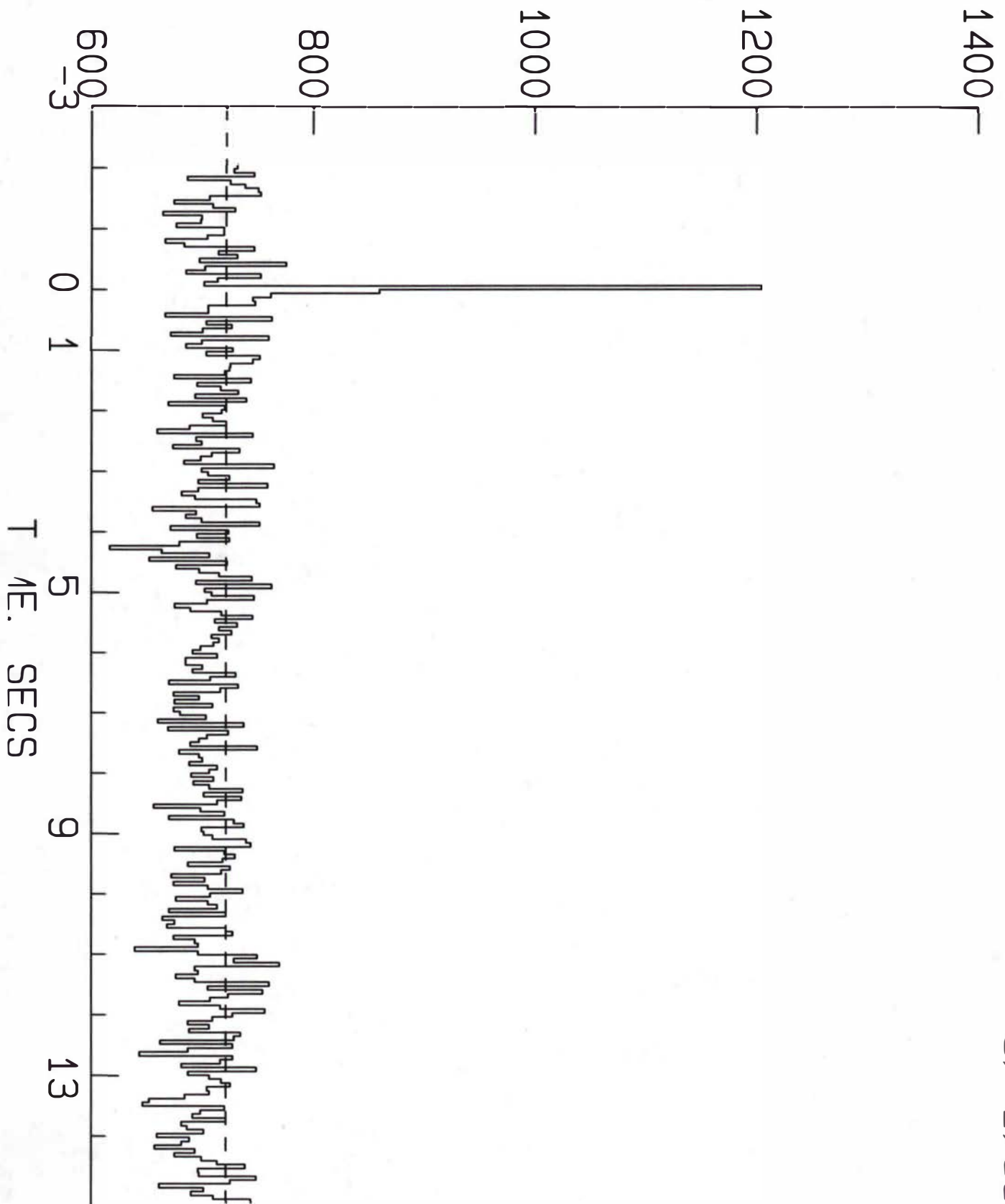
BATSE

29/12/98

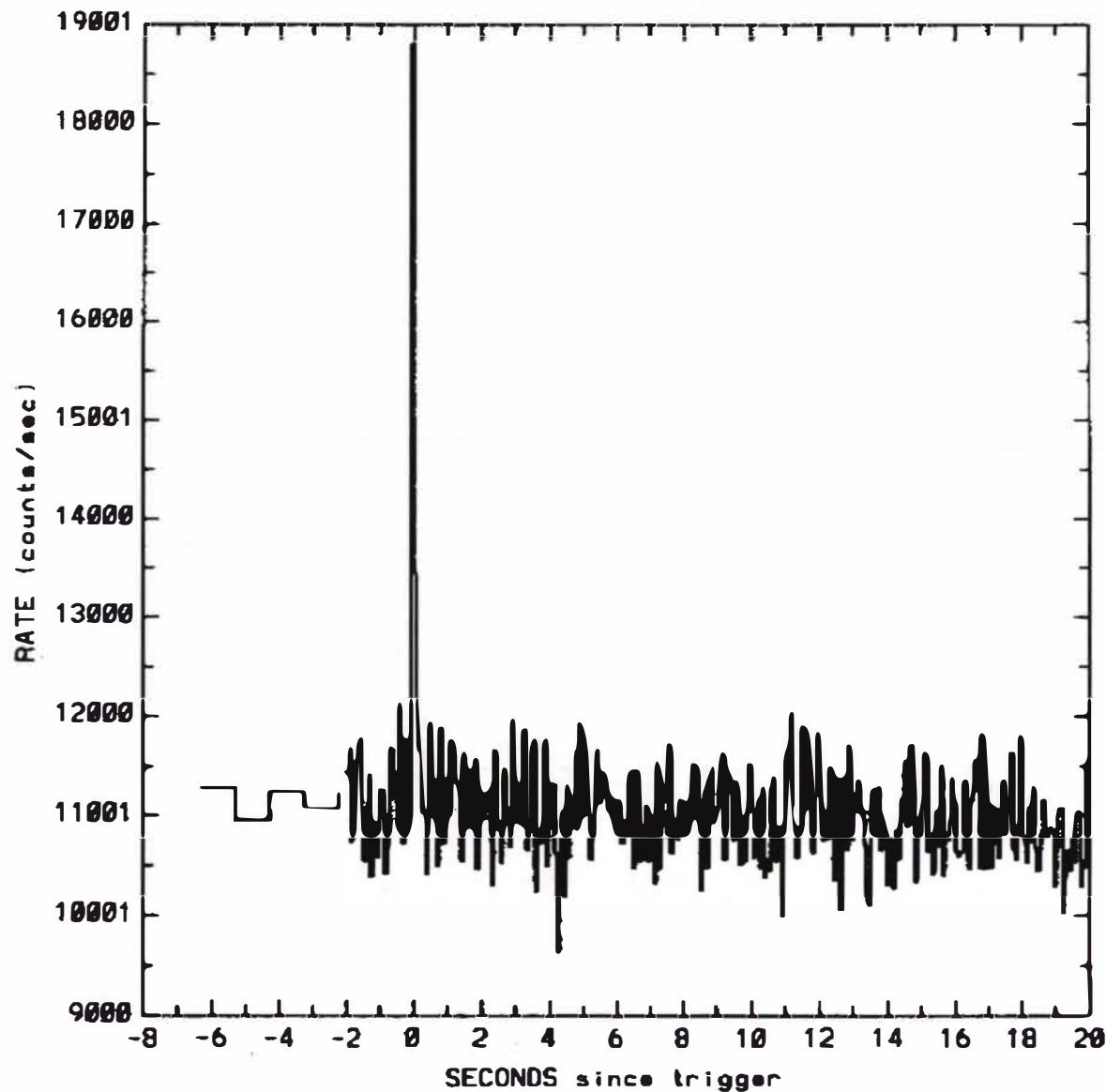
33785.761

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 7287



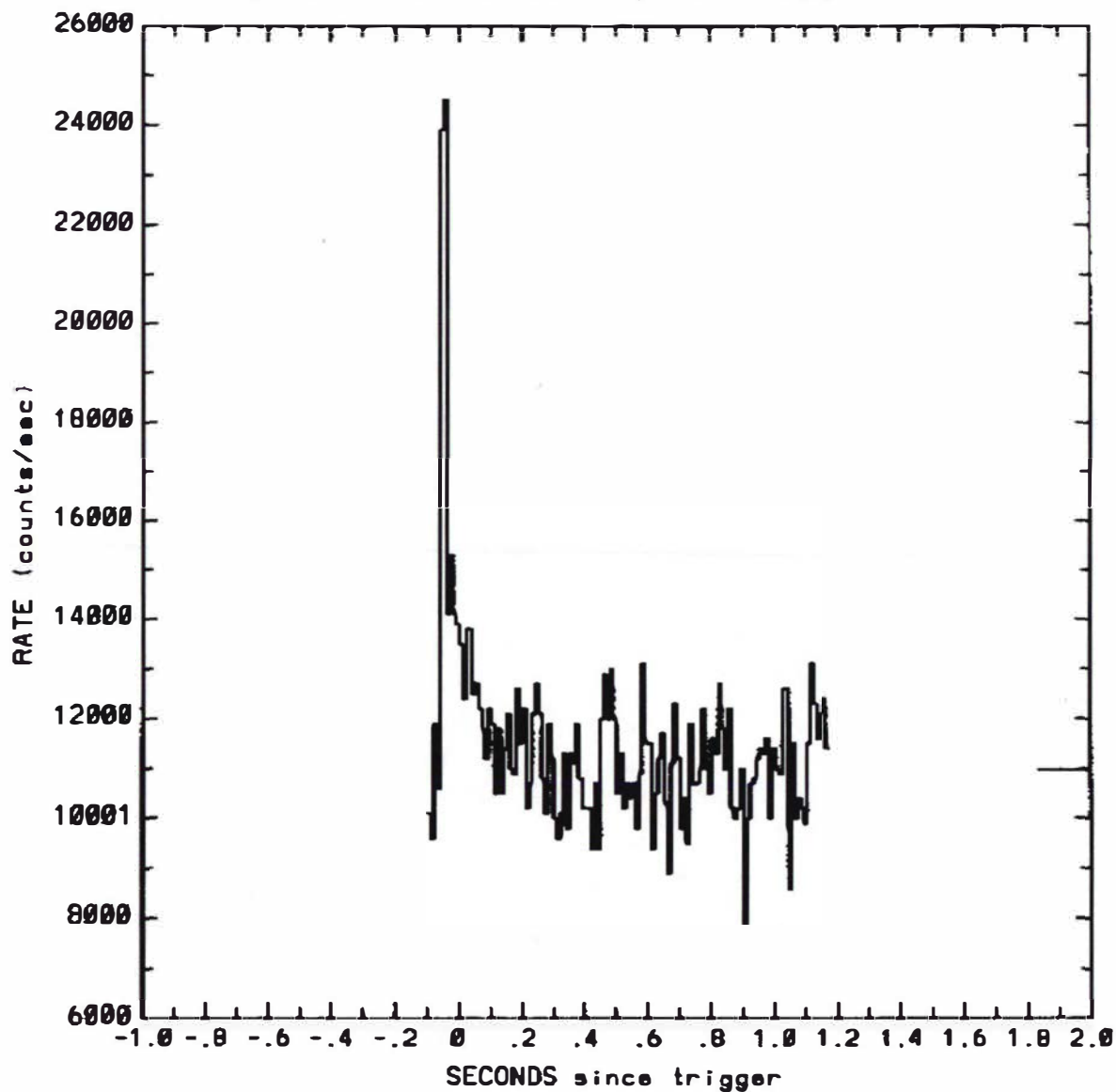
12-JAN-1999 18:02:01

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

Trigger # . 7287

Trigger Time:
11176 / 33705.761Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..0].
-6-4-2--Discriminators:
(1 . 2)Quality Mask:
00ISP1

TTE Data for K. Hurley, No. 7287



12-JAN-1999 18:05:53

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

Trigger #: 7287

Trigger Time:
11176 / 33785.761Burst Data Type:
TTEMultiple Events
Ignored: 64Deadtime
Corrected: NBackground Data
Type: DISCLAMinimum Integ. Time:
0.010000 secondsDetectors (7..0),
-6-4-2-Discriminators:
(1, 2)Quality Mask:
80ISP1

From HENZE@fender.msfc.nasa.gov Thu Dec 31 13:06:46 1998
Date: Thu, 31 Dec 1998 15:06:12 -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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7288

TIME: TJD=1176 SECONDS=74121

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

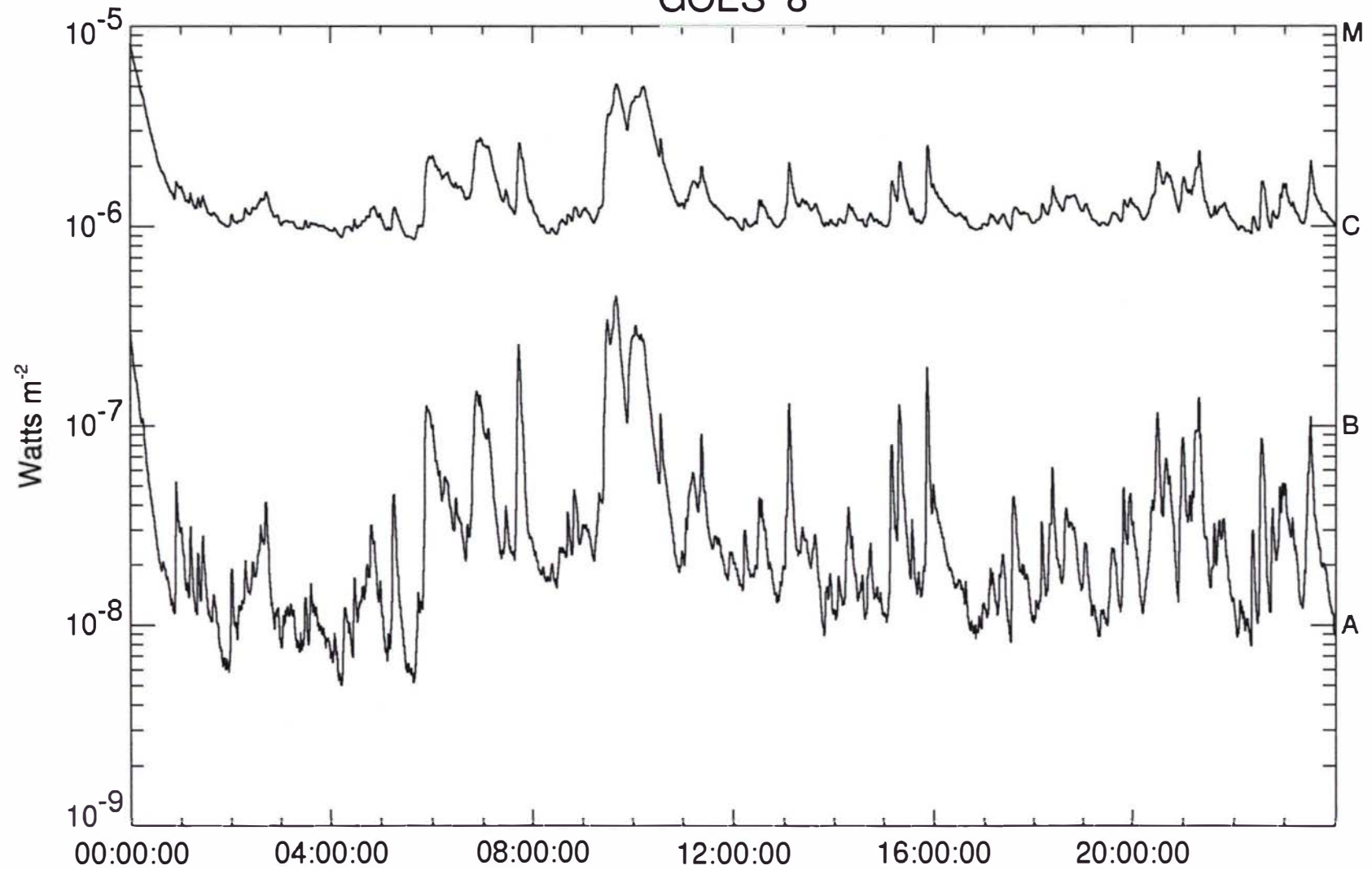
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY.

GOES 8



Data Start: 98/12/29, 0000:00

Plot created: 99/01/06, 0053

Channel

1 (1.0 - 8.0 Angstroms)

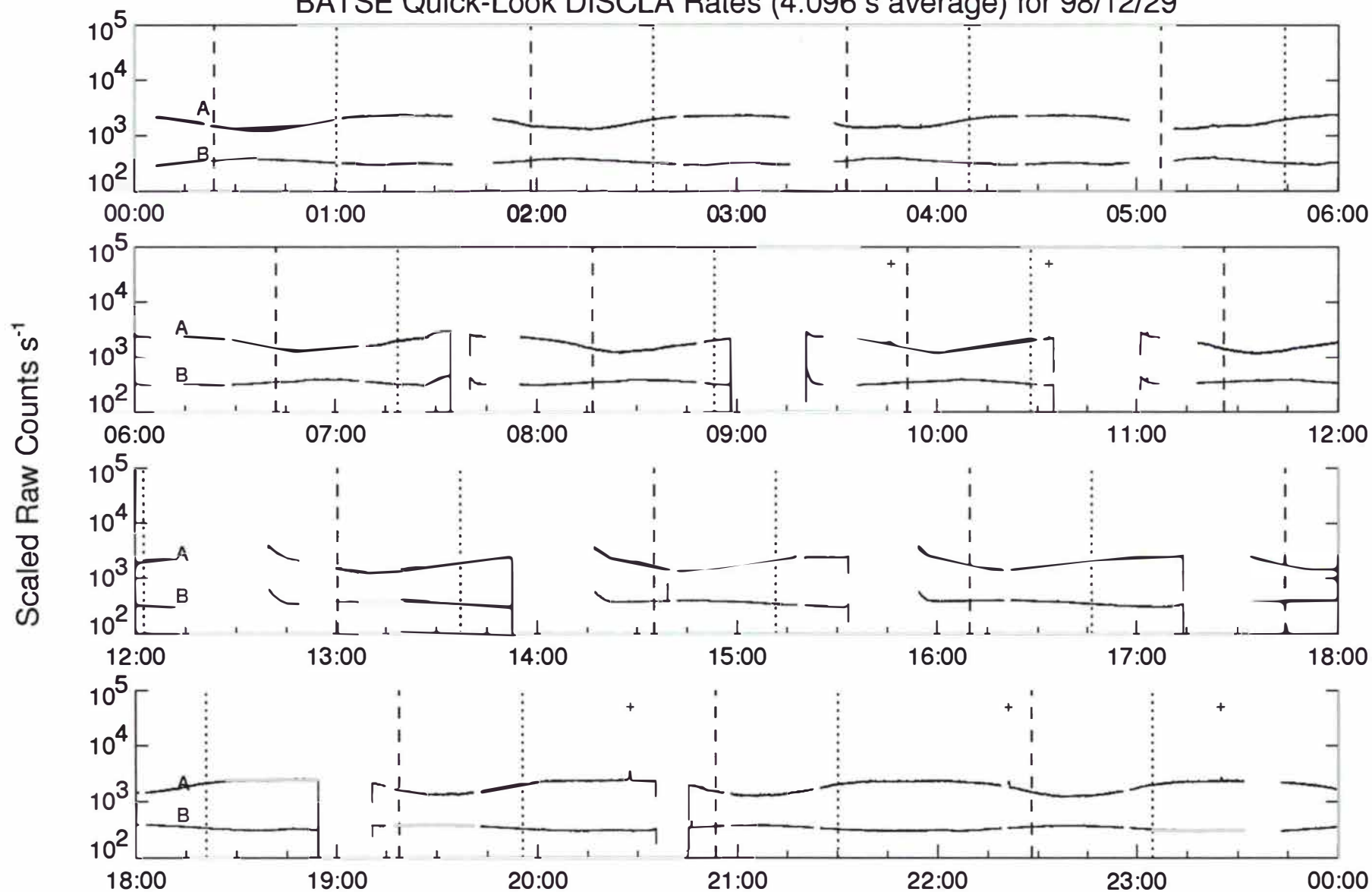
Background not subtracted

2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/29

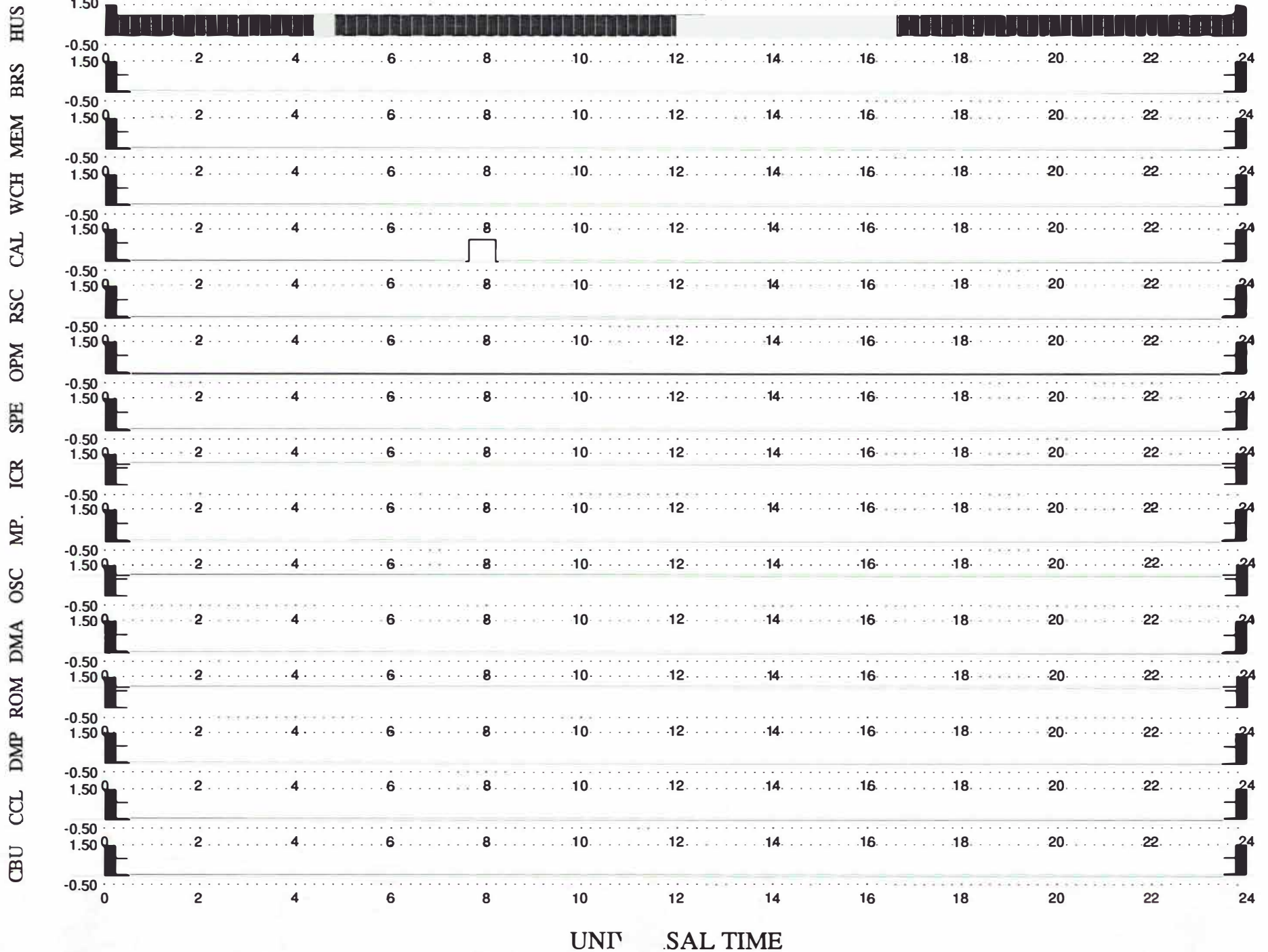


Current Time: 99/01/06, 0054 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

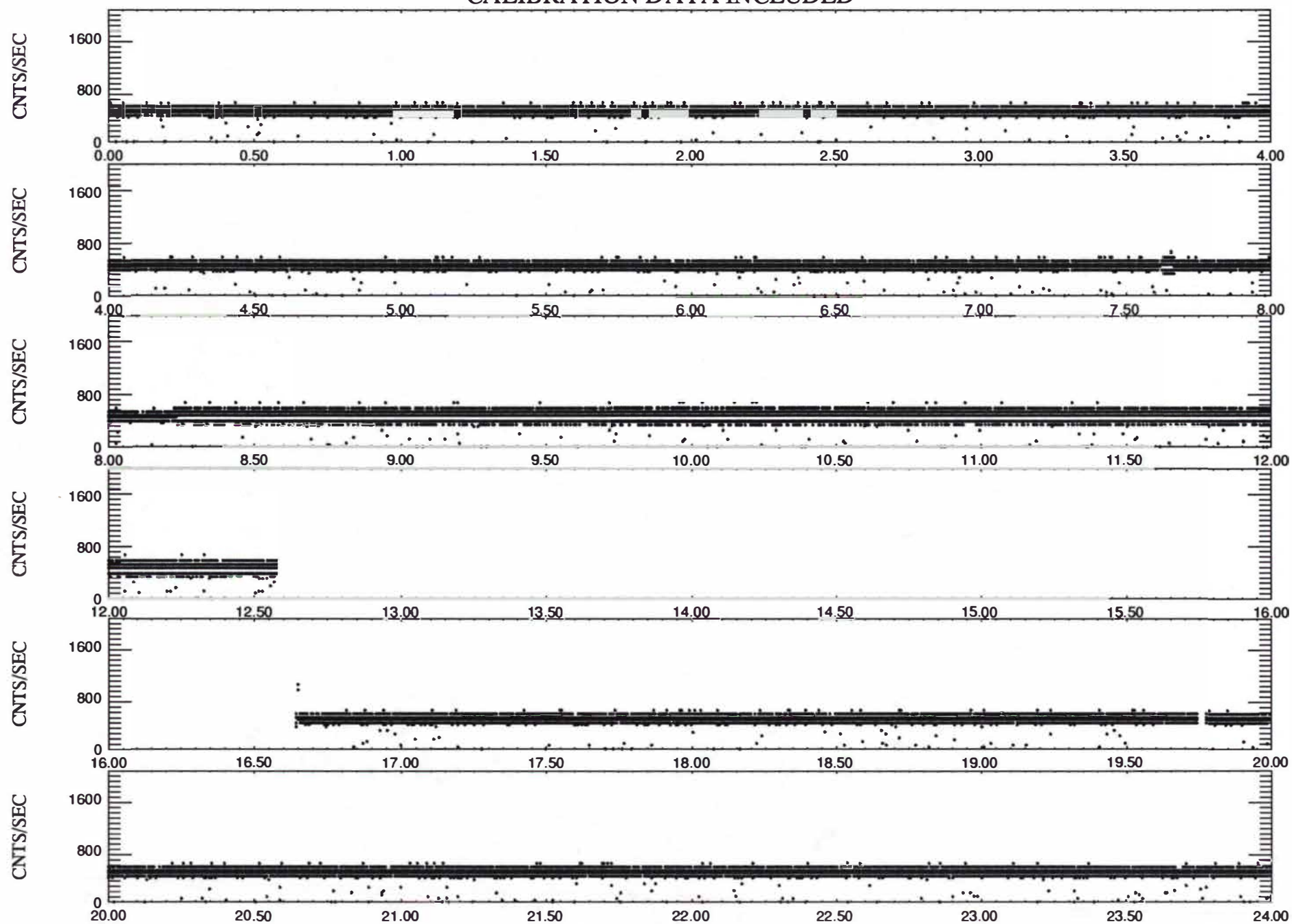
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

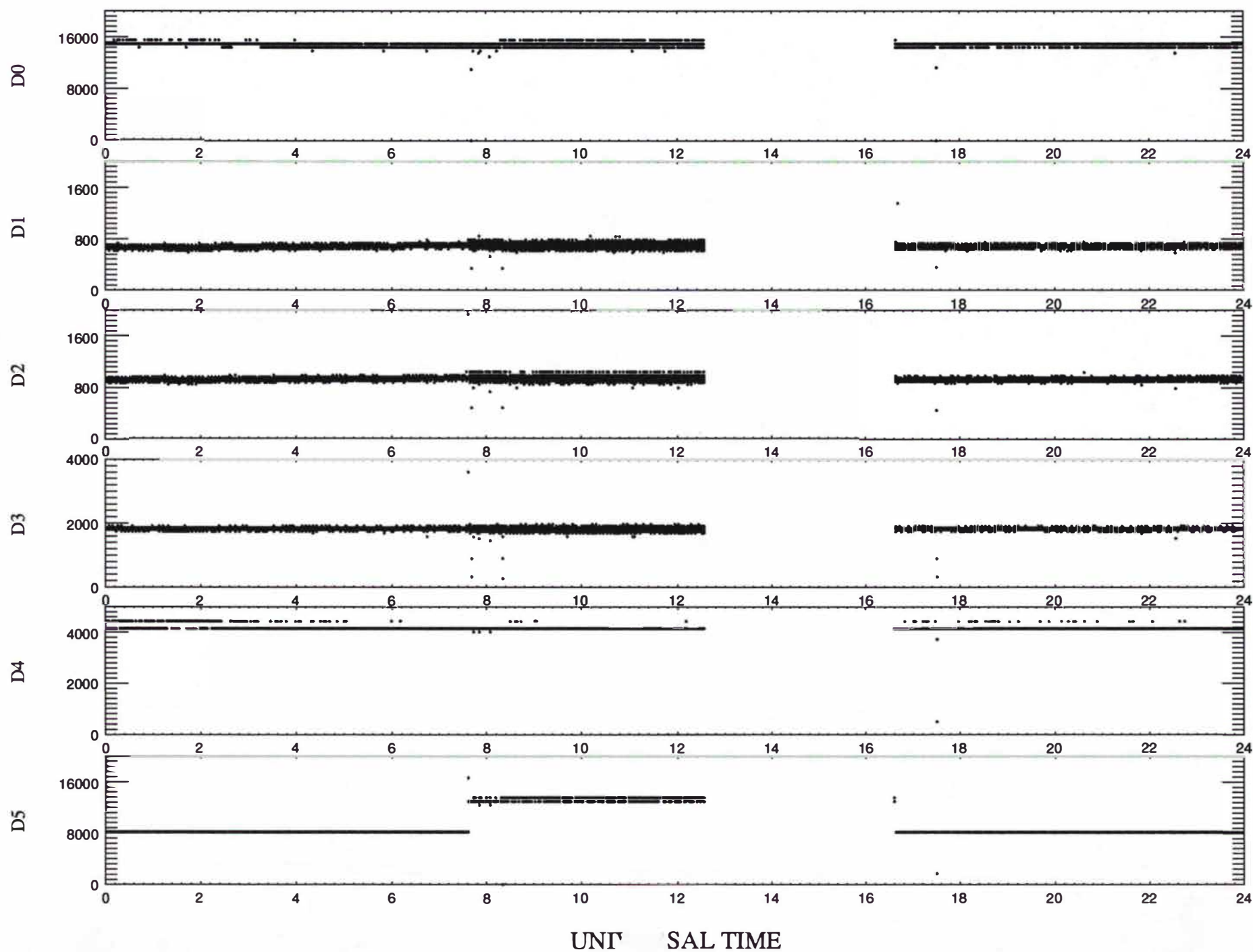
NO BURST (0)



CALIBRATION DATA INCLUDED



UNT SAL TIME



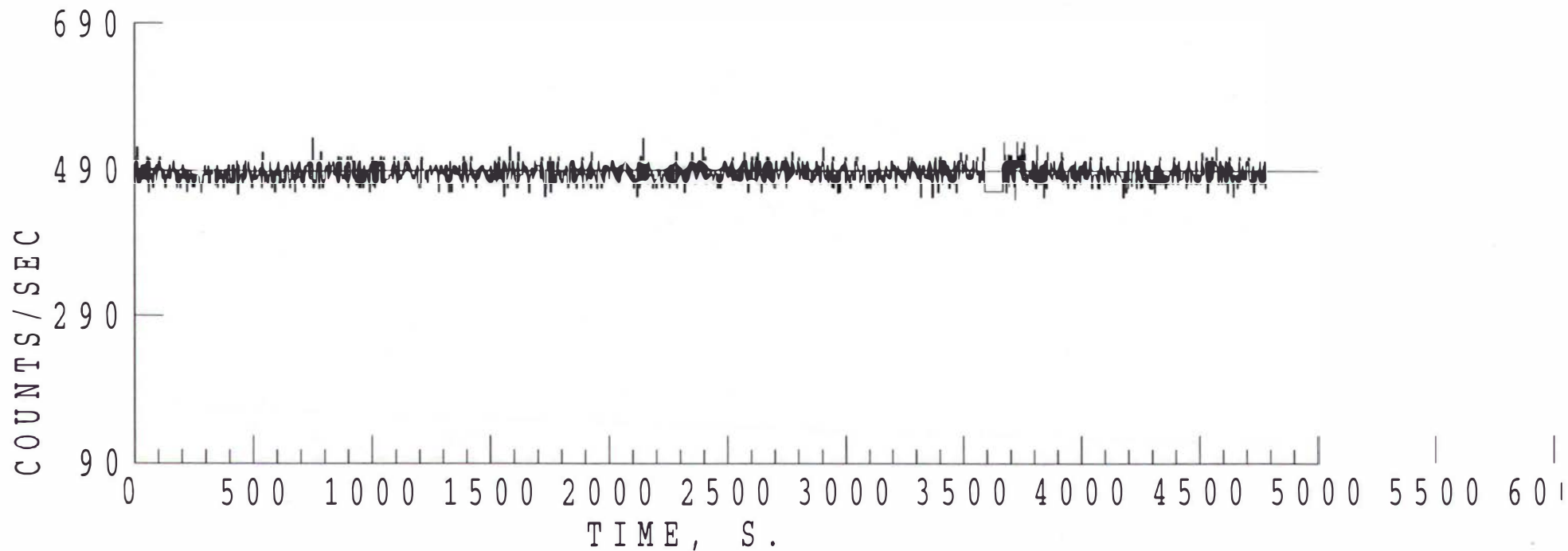
SAX GRBM
HUS DATA

19 / 07 / 05

ULYSSES RT
30/12/98 23436.404 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 WOODSP@fender.msfc.nasa.gov Mon Jan 4 15:02:00 1999
Return-Path: <WOODSP@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id PAA07480; Mon, 4 Jan 1999 15:02:00 -0800
From: WOODSP@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id PAA04261; Mon, 4 Jan 1999 15:01:51 -0800
Date: Mon, 4 Jan 1999 16:27:24 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <990104162724.2026223c@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7289
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7289
EVENT OF 1998 DEC 30 DAY OF YEAR=364
EVENT CROSSING TIME AT BATSE : 80996. S. OR 22:29:56.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 44.000 9.000
BATSE PEAK COUNTING RATE: 3500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 30/12/ 98 IS:
RA= 166.016 DEC= -7.917 DIST= 4.805 AU
BATSE-ULYSSES DISTANCE = 718820555. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 57.30 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1295.23 SECS.
CROSSING TIME AT ULYSSES IS 82291. S. OR 22:51:31 +/- 419.99 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 30/12/ 98 IS:
RA= 196.754 DEC= -5.084 DIST= 1.512 AU
MARS-BATSE DISTANCE = 226225152. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 27.31 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 670.48 SECS.
CROSSING TIME AT MARS IS 81666. S. OR 22:41:06 +/- 70.30 SECONDS

BATSE BURST TRIGGER

NO.: 7289

TIME: TJD=1177 SECONDS=80996

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=97.0 AZIMUTH=127.1 ERROR=18 DEGREES

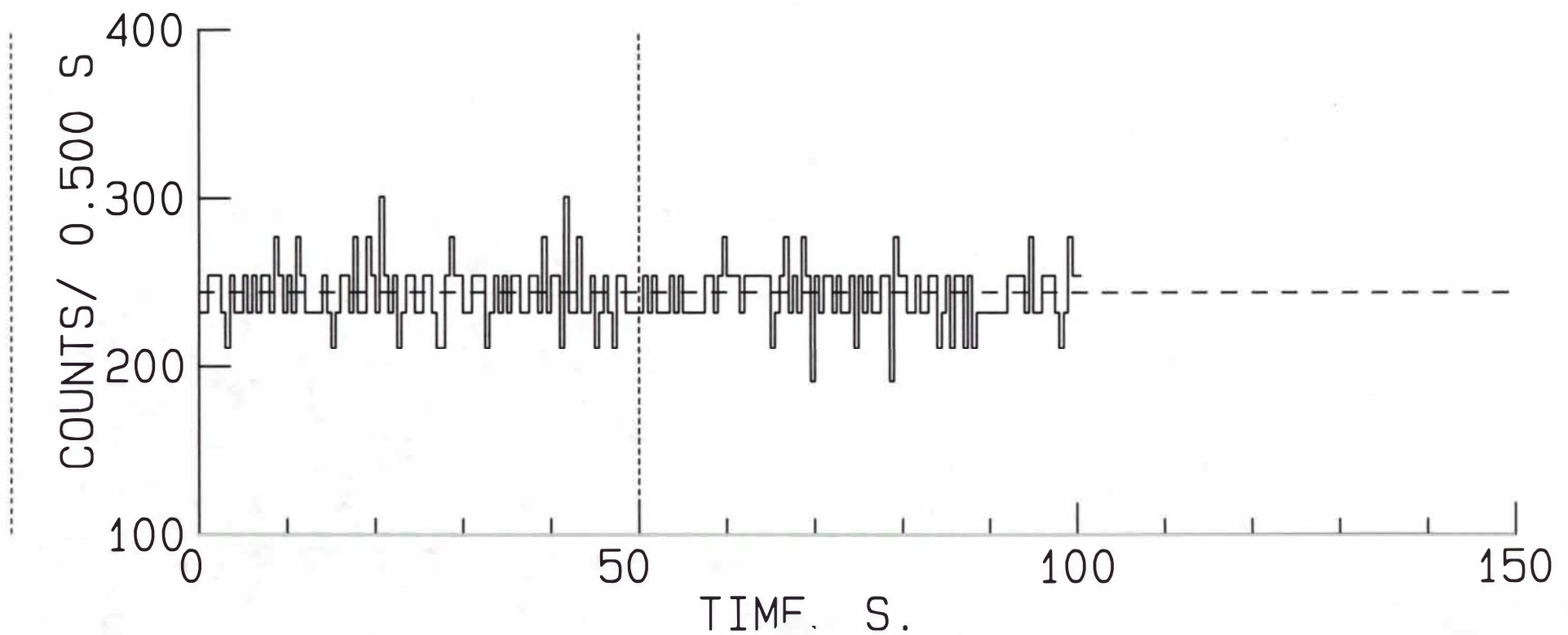
COMMENTS:

GRB LASTING ABOUT 0.3 SEC. SINGLE, HARD PULSE VISIBLE ABOVE
300 KEV.

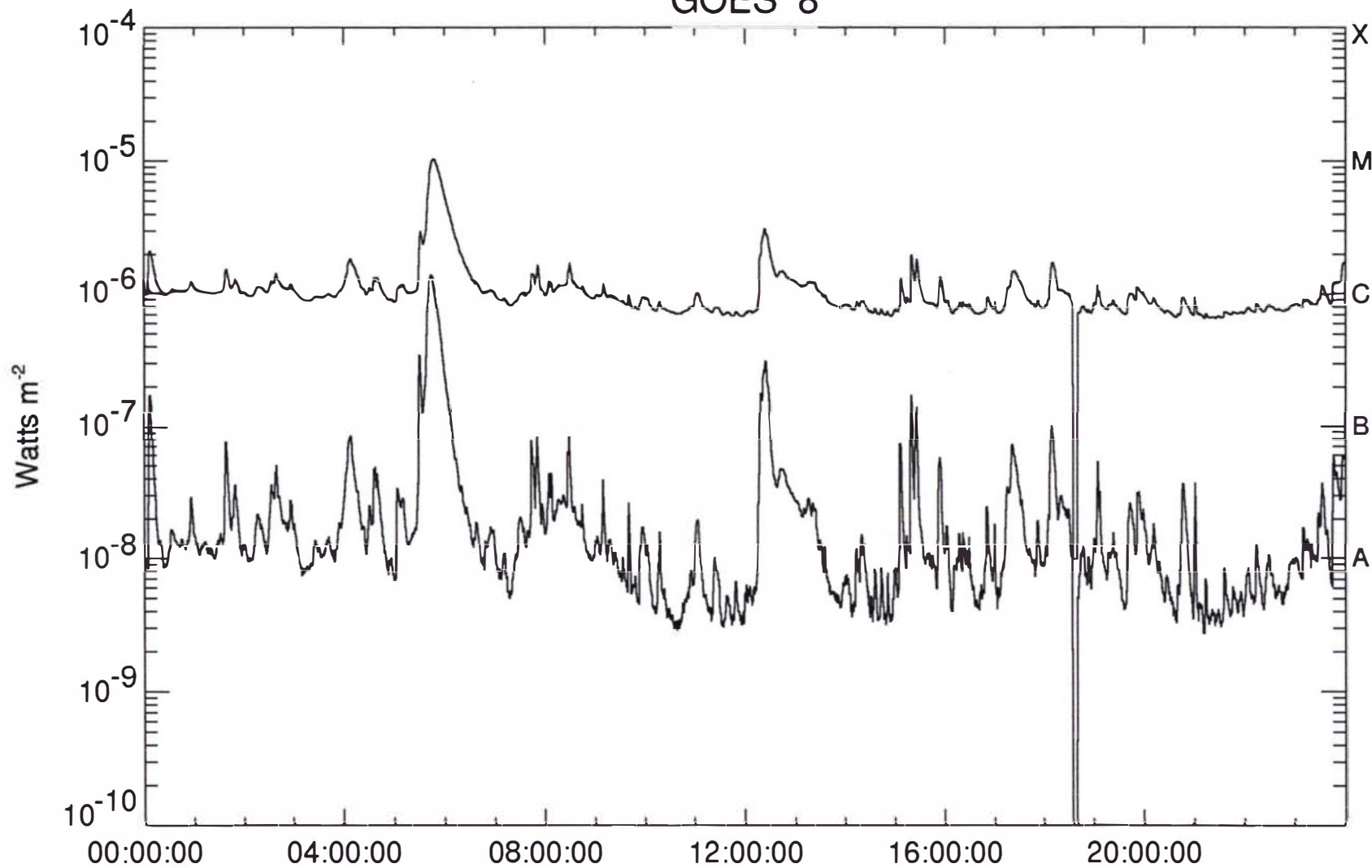
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7289	981230	11177	80996	3500	044	+09	.3

ULYSSES RT
30/12/98 81864.007 s
22- 150 keV

31 / 5 / 99



GOES 8



Data Start: 98/12/30, 0000:00

Plot created: 99/01/06, 0058

Channel 1 (1.0 - 8.0 Angstroms)

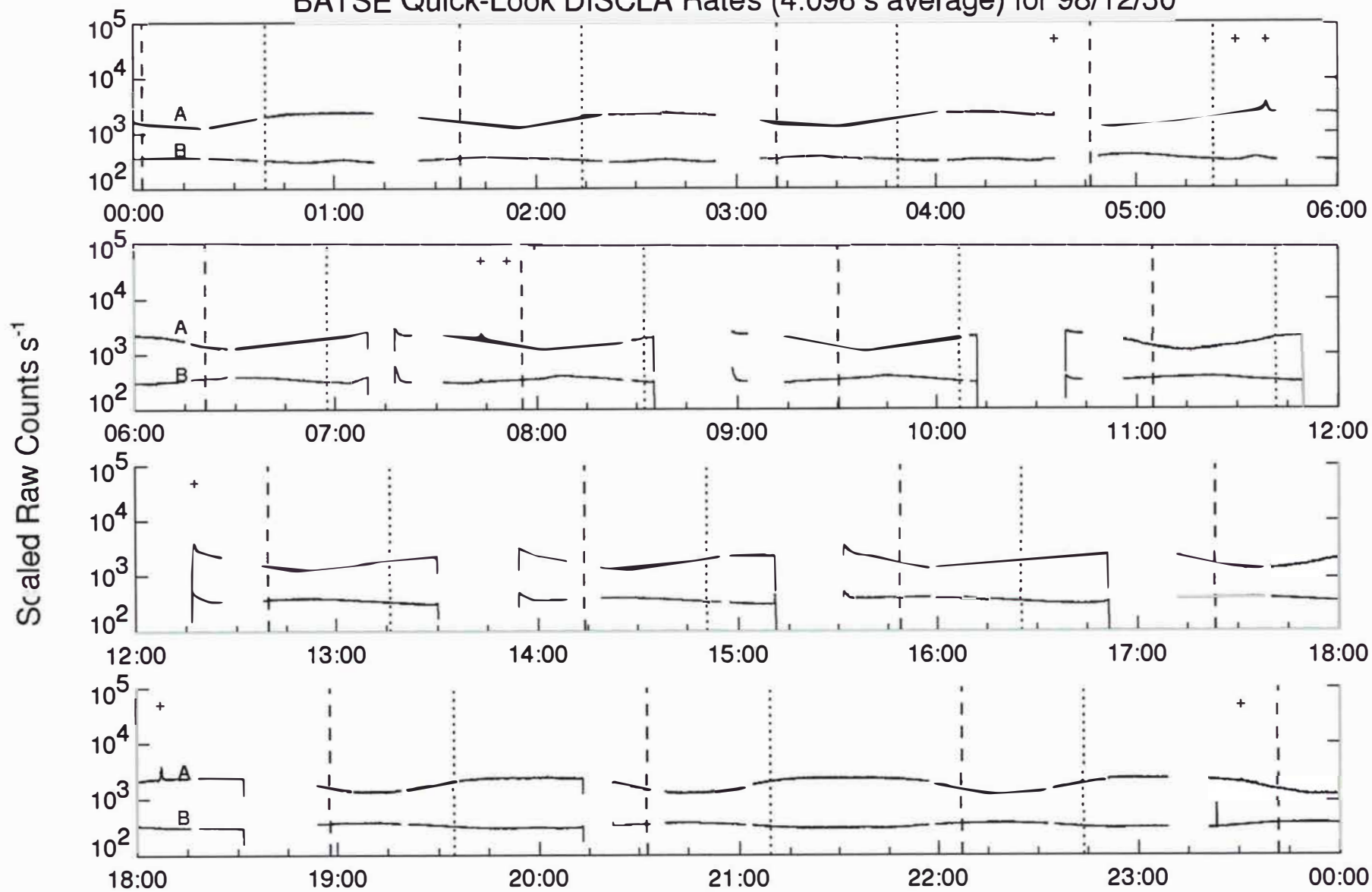
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted

Sample average = 10

BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/30

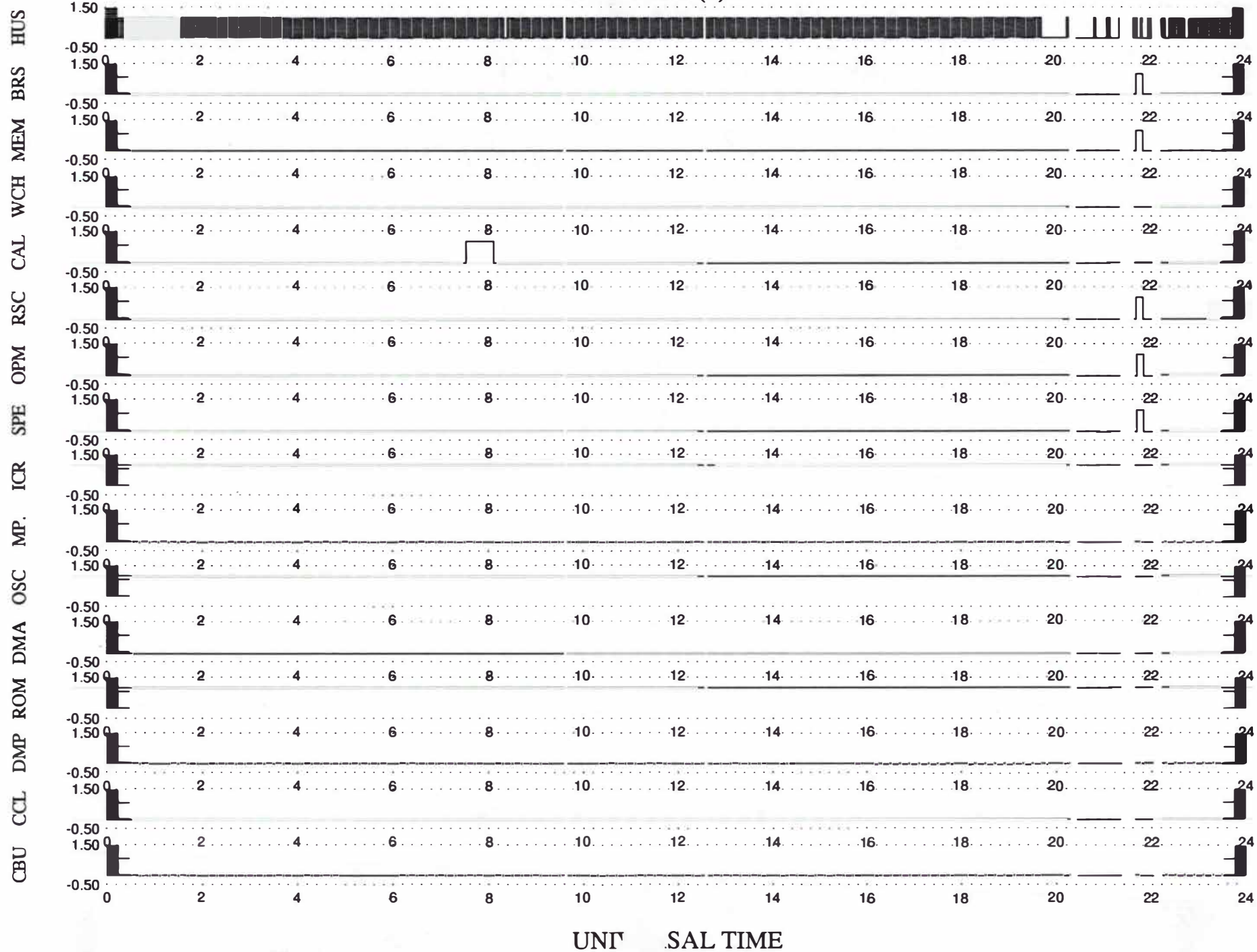


Current Time: 99/01/06, 0059 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

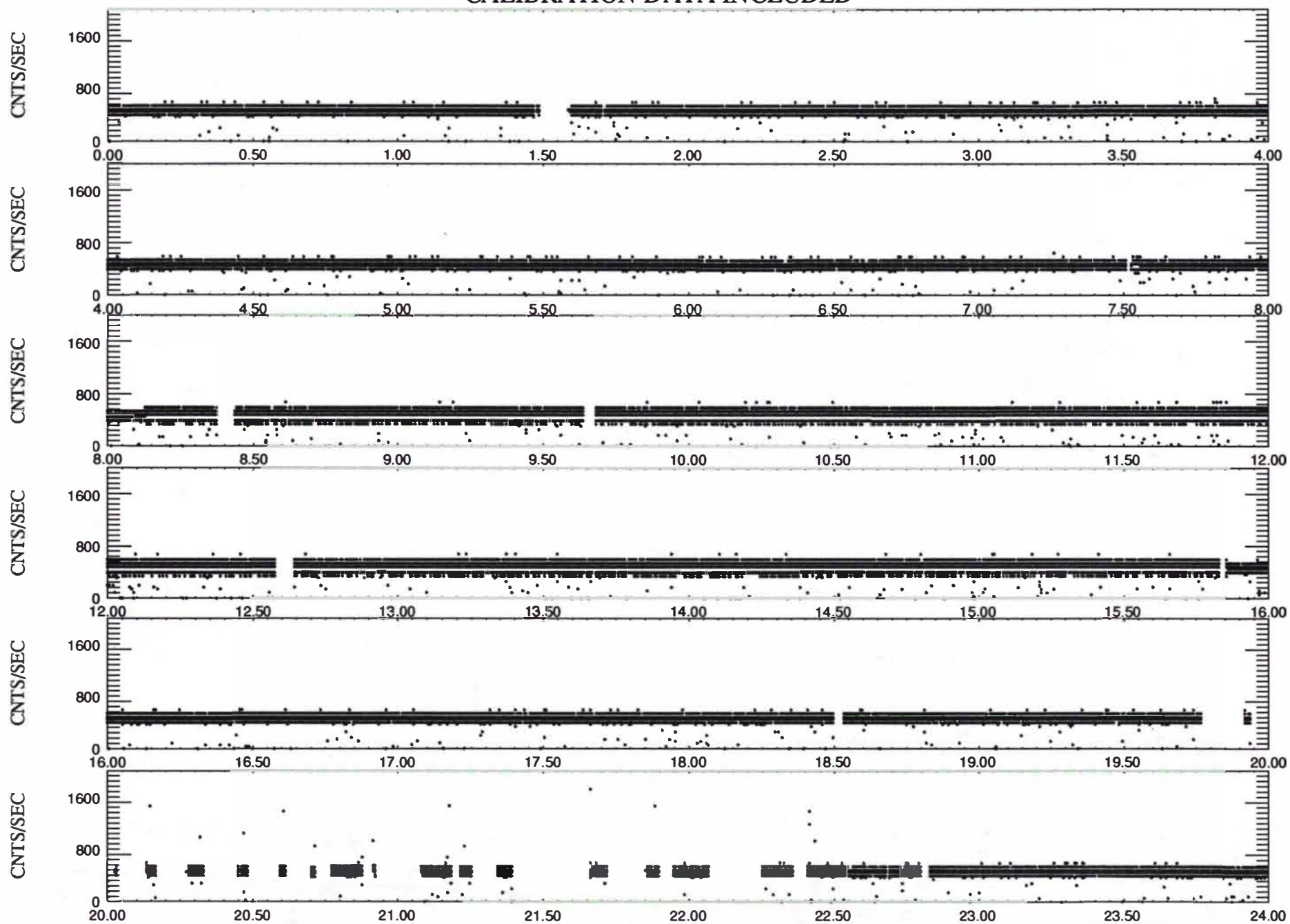
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

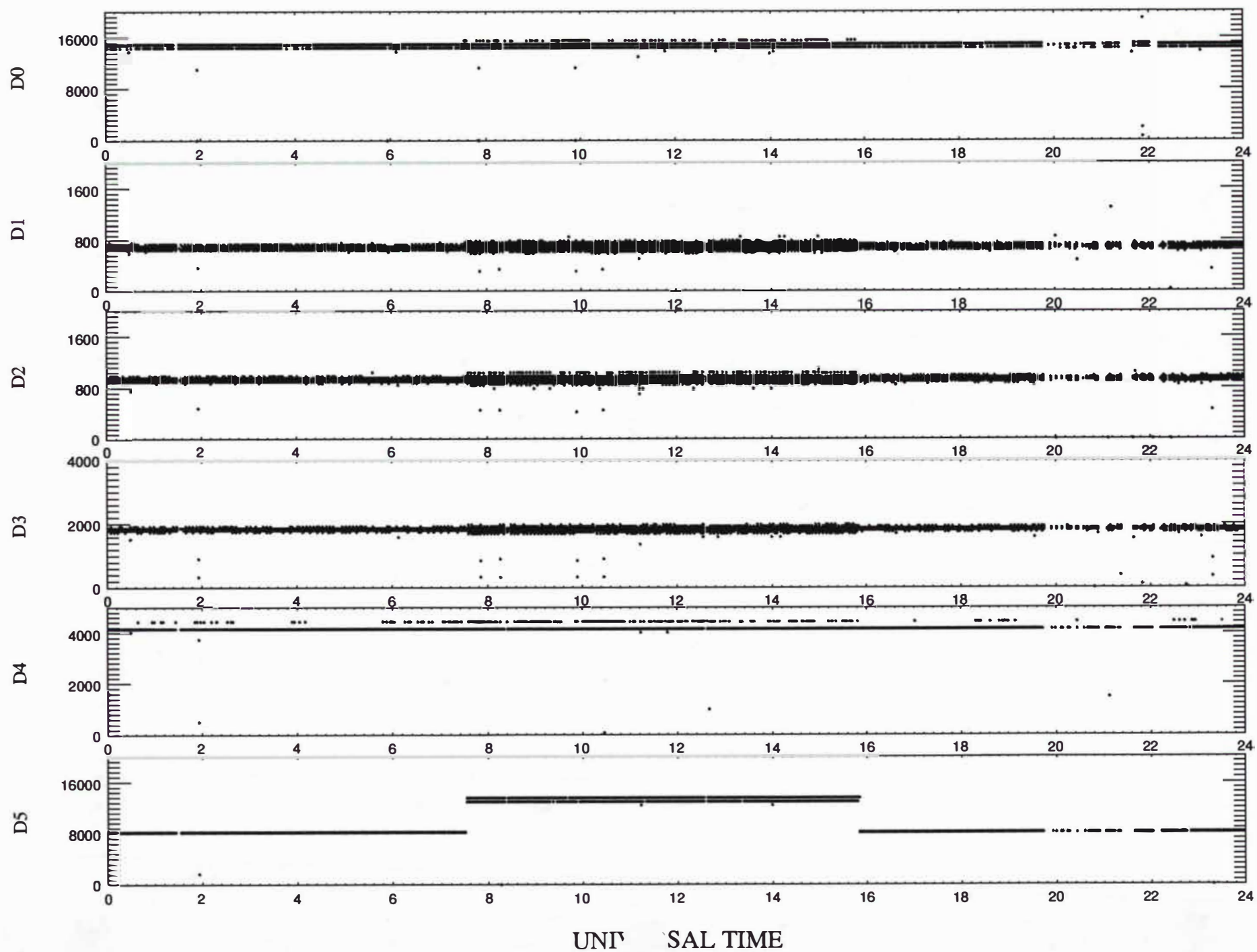
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIT SAL TIME



KONUS

ULYSSES RT

11 / 02 / 00

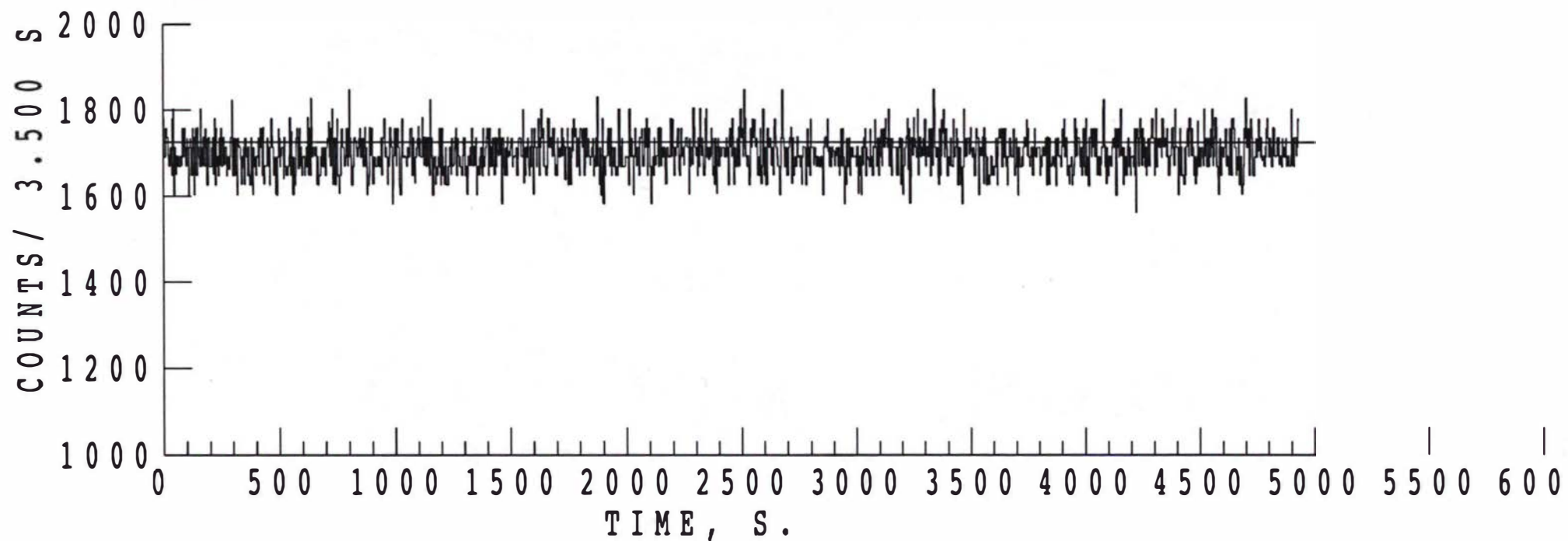
31 / 12 / 98 1620.070 s

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 Jan 4 09:58:46 1999

From: RICHARDSON@fender.msfc.nasa.gov

Date: Mon, 4 Jan 1999 11:27:57 -0600 (CST)

To: 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, dband@ucsd.edu, dgruber@ucsd.edu,
jmatteson@ucsd.edu, PACIESAS@fender.msfc.nasa.gov,
HORACK@fender.msfc.nasa.gov, khurley@sunspot.ssl.berkeley.edu,
hpark@llnl.gov

Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 7291

TIME: TJD=1178 SECONDS=71449

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

SAA ENTRY

From RICHARDSON@fender.msfc.nasa.gov Mon Jan 4 09:57:49 1999
Return-Path: <RICHARDSON@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA00293; Mon, 4 Jan 1999 09:57:48 -0800
From: RICHARDSON@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA25250; Mon, 4 Jan 1999 09:57:39 -0800
Date: Mon, 4 Jan 1999 11:32:33 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <990104113233.2025ee34@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 7292
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 7292
EVENT OF 1998 DEC 31 DAY OF YEAR=365
EVENT CROSSING TIME AT BATSE : 83300. S. OR 23:08:20.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 336.000 -52.000
BATSE PEAK COUNTING RATE: 10500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 31/12/ 98 IS:
RA= 165.870 DEC= -8.029 DIST= 4.777 AU
BATSE-ULYSSES DISTANCE = 714655314. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 60.62 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1169.36 SECS.
CROSSING TIME AT ULYSSES IS 84469. S. OR 23:27:49 +/- 428.41 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 31/12/ 98 IS:
RA= 197.220 DEC= -5.268 DIST= 1.502 AU
MARS-BATSE DISTANCE = 224733952. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 67.12 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 291.45 SECS.
CROSSING TIME AT MARS IS 83591. S. OR 23:13:11 +/- 124.33 SECONDS

BATSE BURST TRIGGER

NO.: 7292

TIME: TJD=1178 SECONDS=83300

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=80.0 AZIMUTH=44.3 ERROR=7.2 DEGREES

COMMENTS:

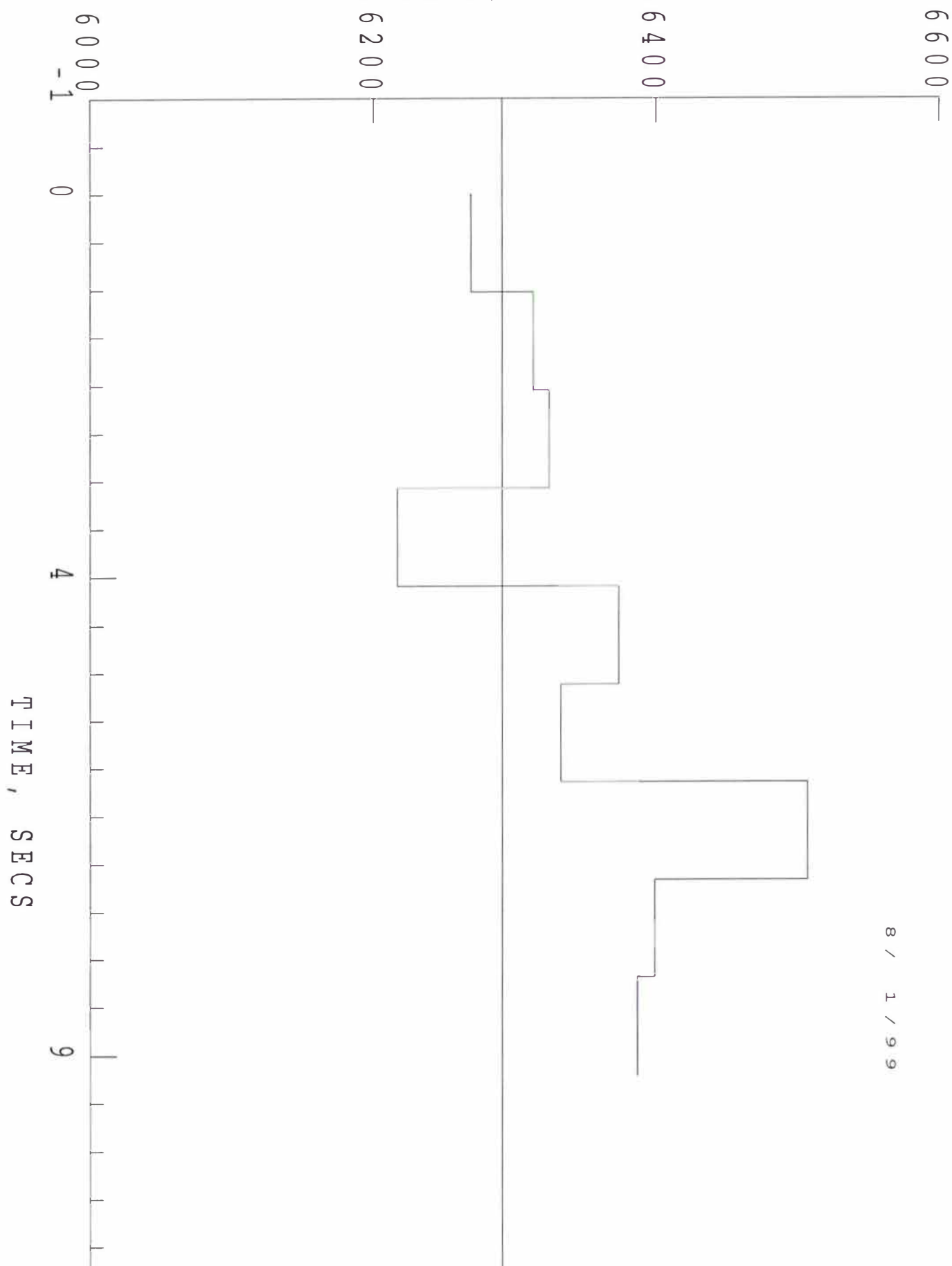
GRB. SINGLE SPIKE. DURATION APPROX. = 0.4 SEC. SLIGHTLY VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
7292	981231	11178	83300	10500	336	-52	.4

BACODINE 7292 31/12/98 83288.801

25 - 100 keV

COUNTS/1.024 S



BATSE 729

ULYSSES RT

4 / 6 / 99

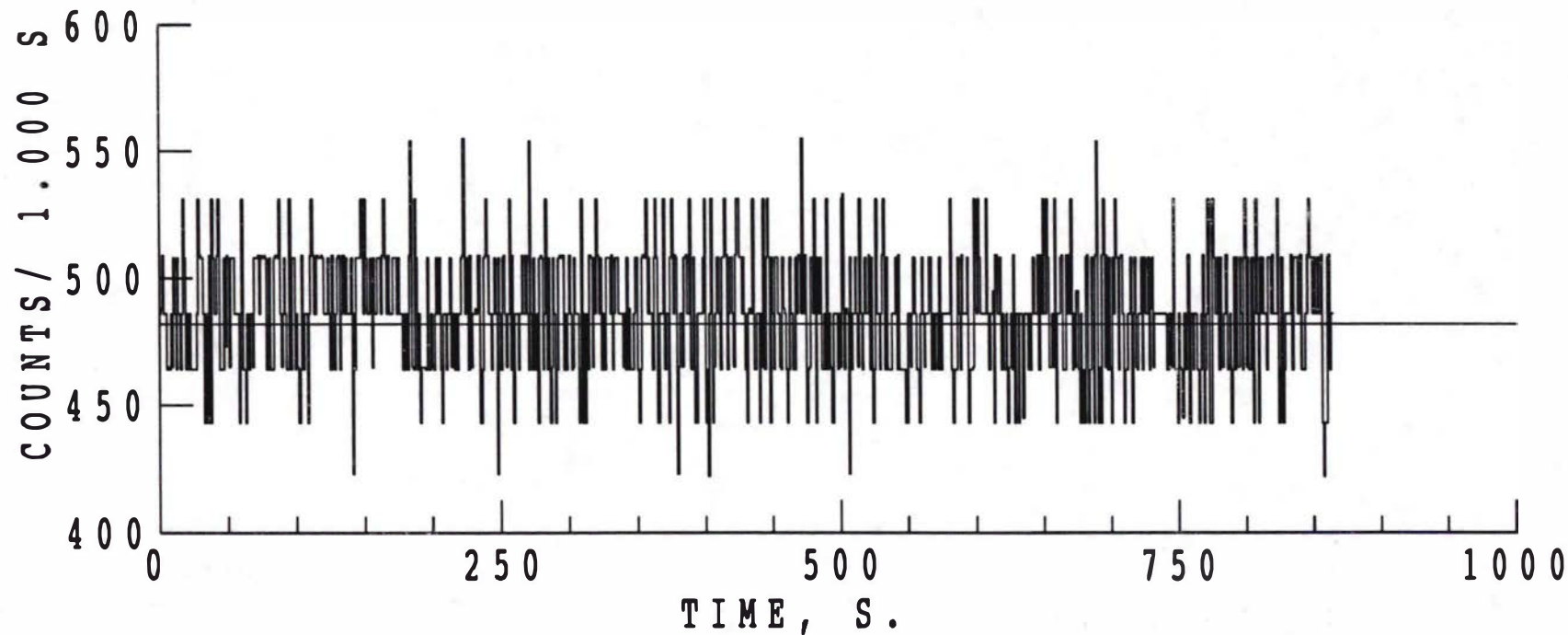
31/12/98 84060.414 s

0.500 S INTERVALS REGROUPED BY 2

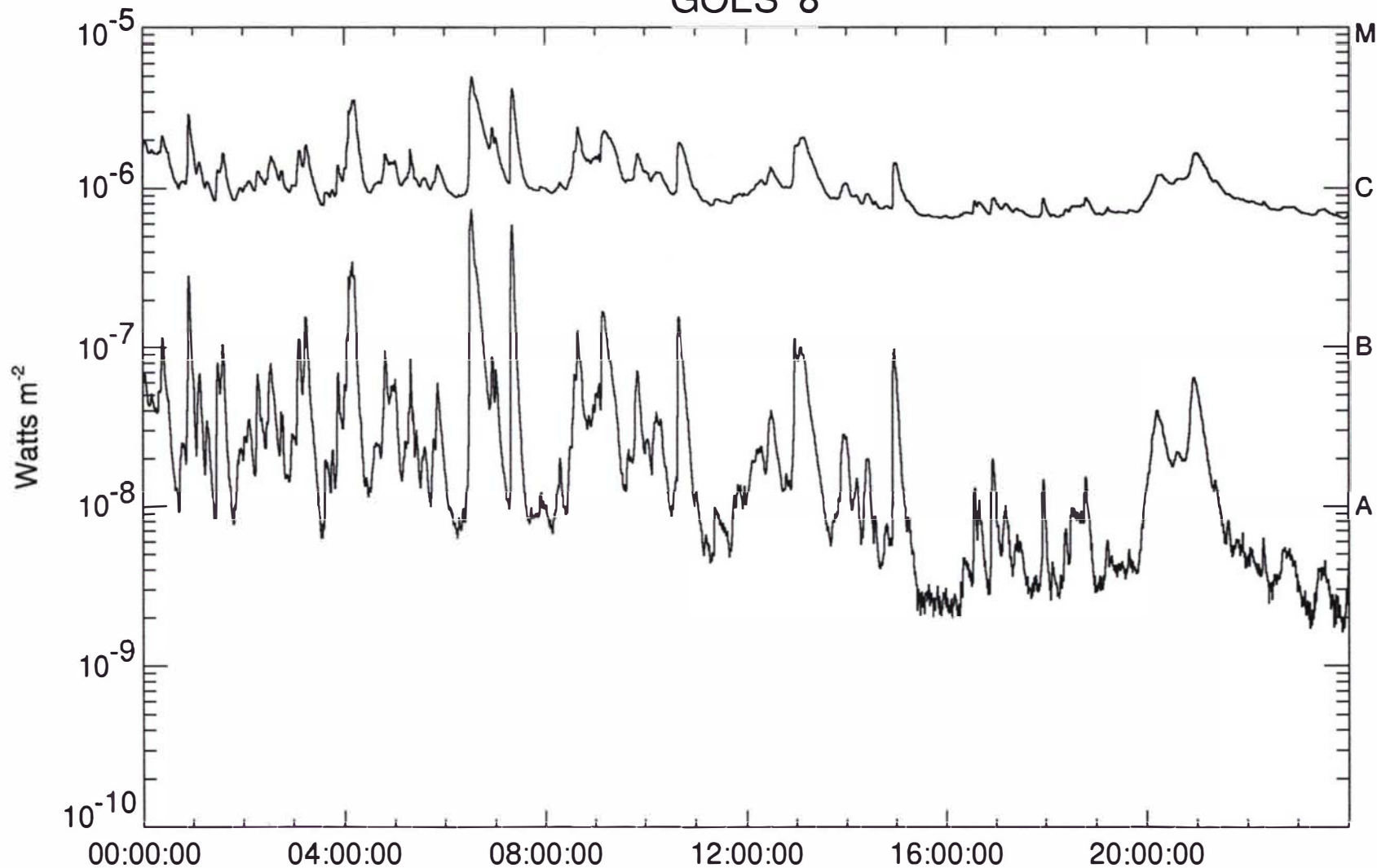
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



GOES 8



Data Start: 98/12/31, 0000:00

Plot created: 99/01/06, 0102

Channel

1 (1.0 - 8.0 Angstroms)

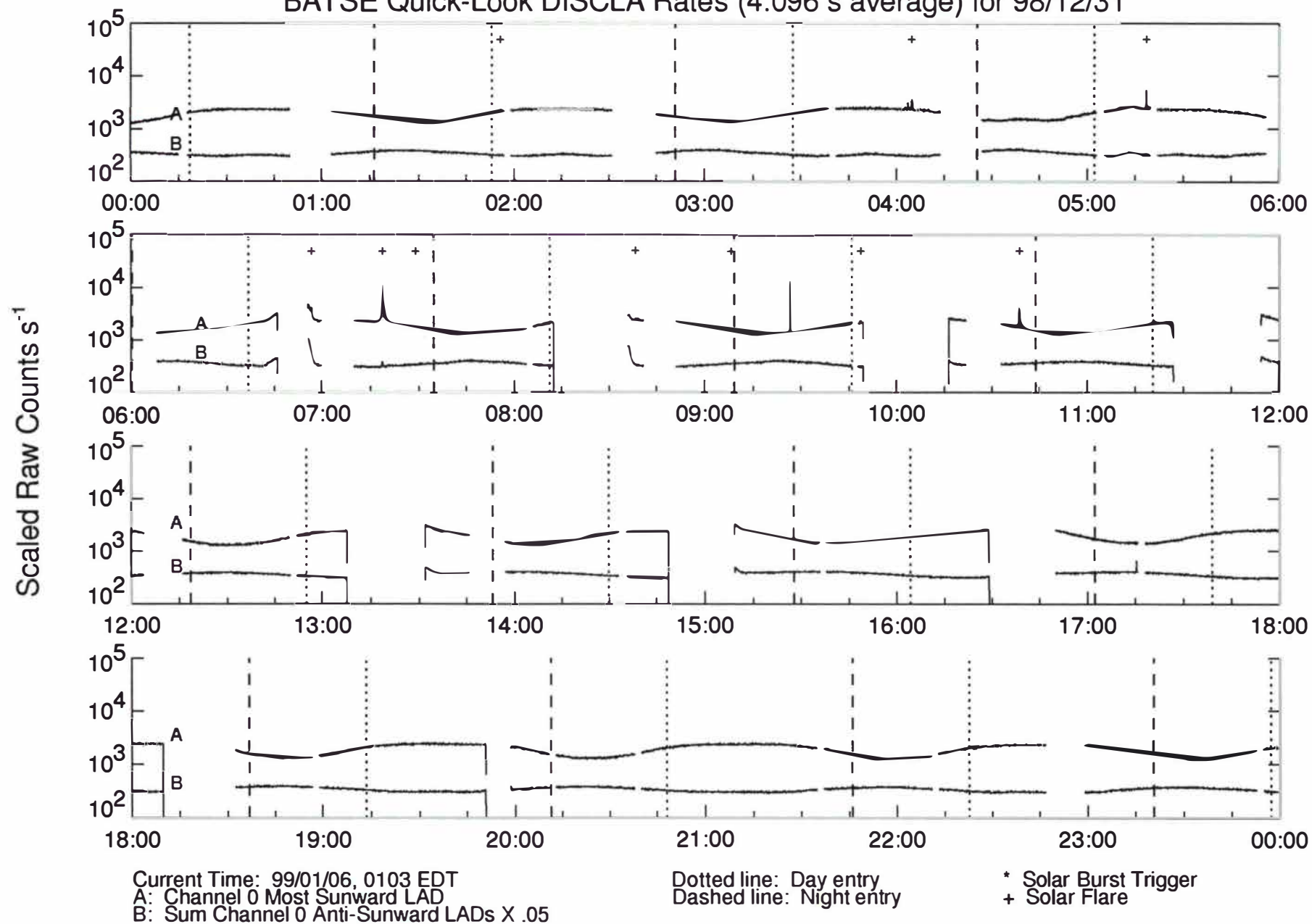
Background not subtracted

2 (0.5 - 4.0 Angstroms)

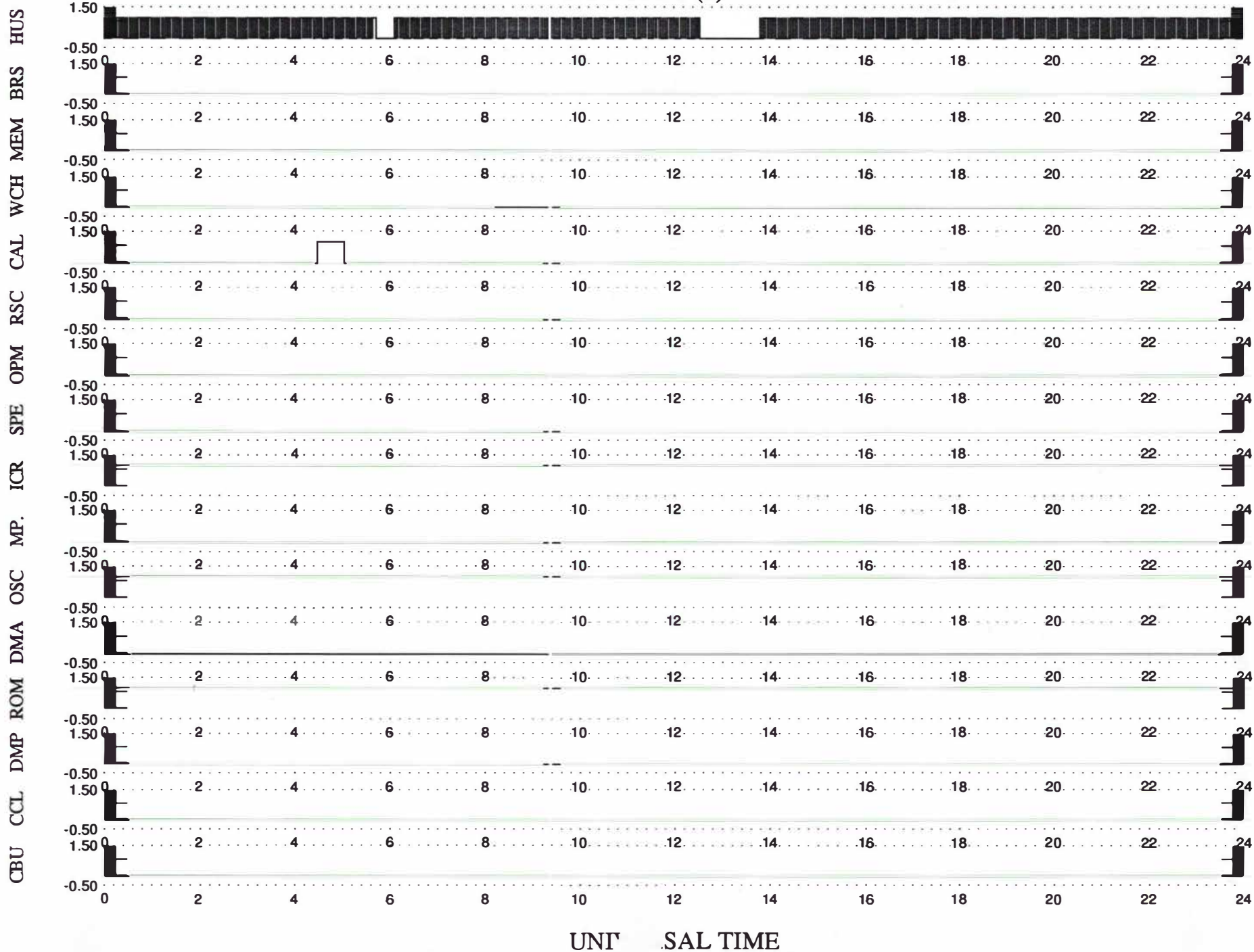
Background not subtracted

Sample average = 10

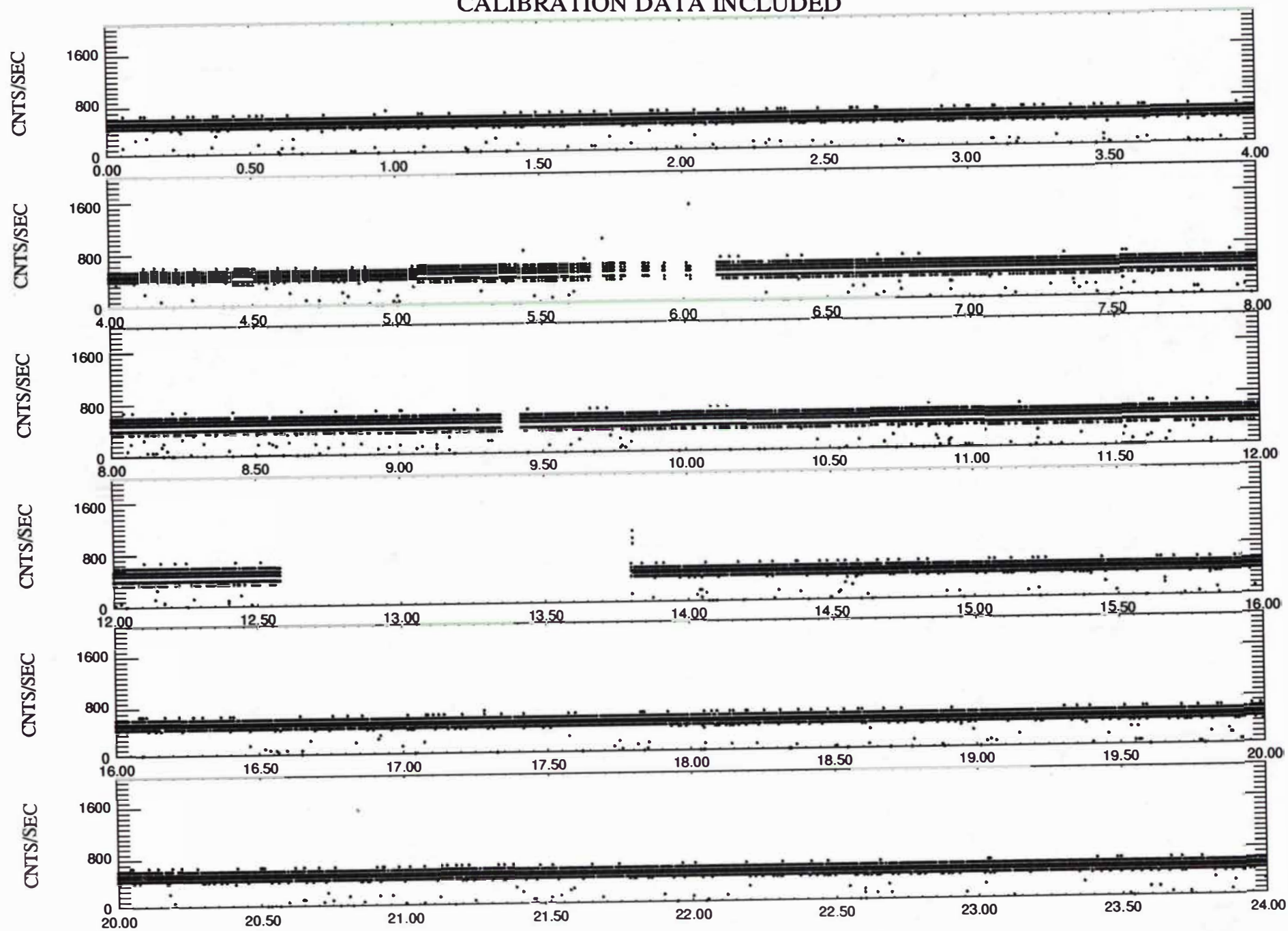
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/12/31



NO BURST (0)



CALIBRATION DATA INCLUDED



UNT SAL TIME

