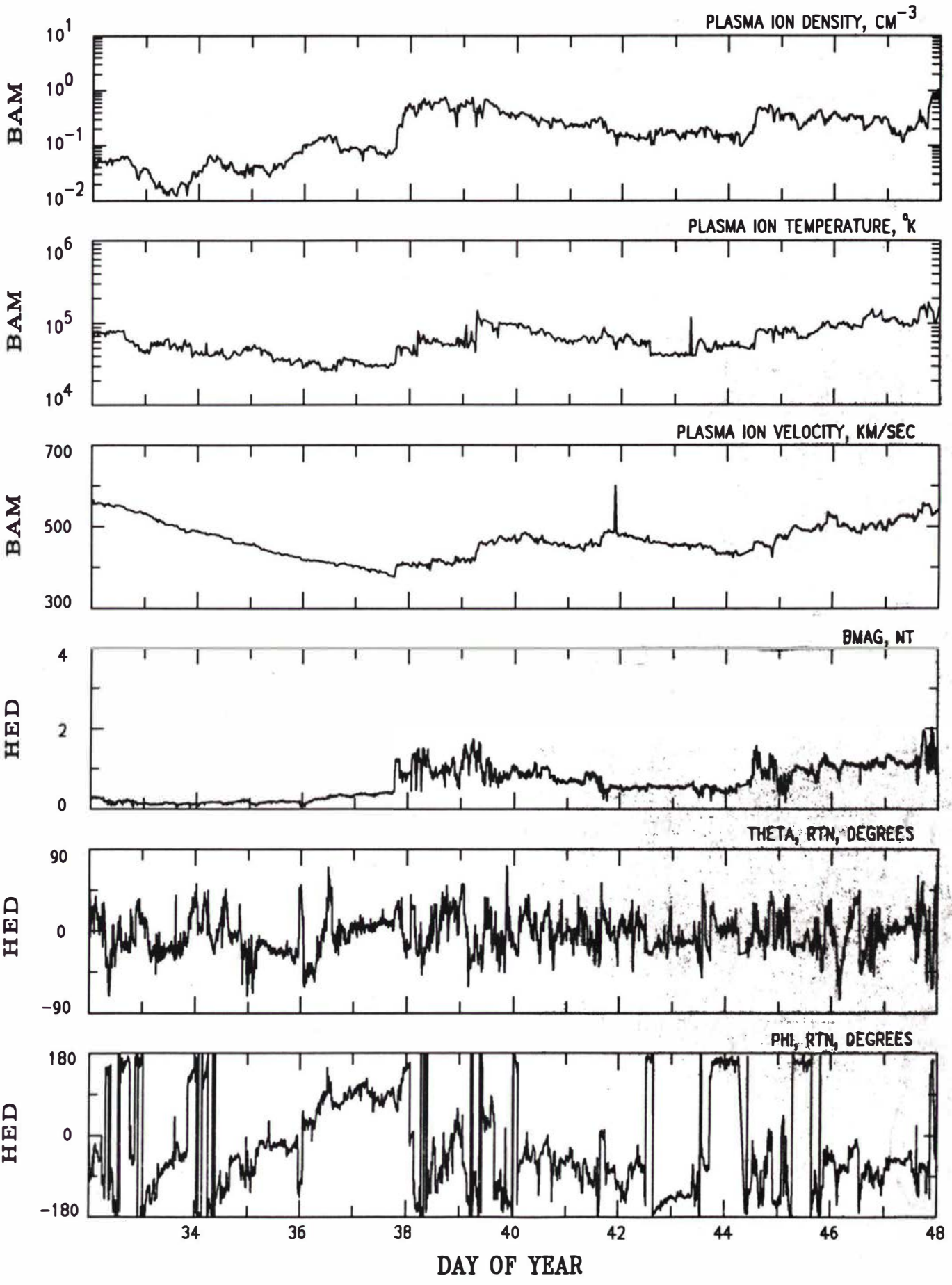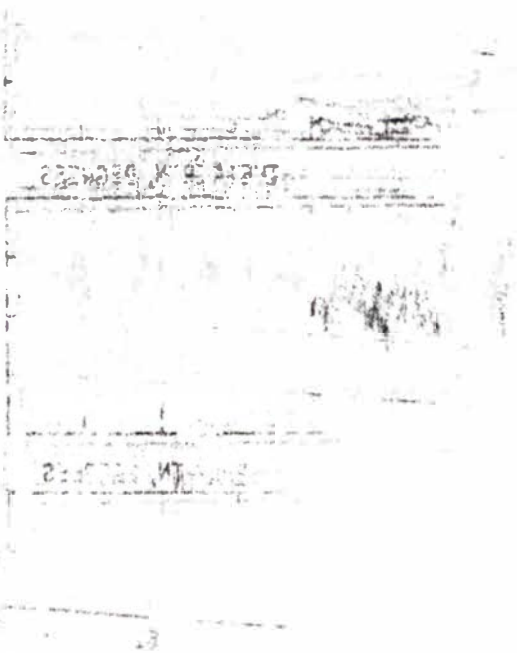
ULYSSES CDR – SOLAR WIND PLASMA AND MAGNETIC FIELD

97 032 FEB 1 00:00:00.000 – 97 048 FEB 17 00:00:00.000

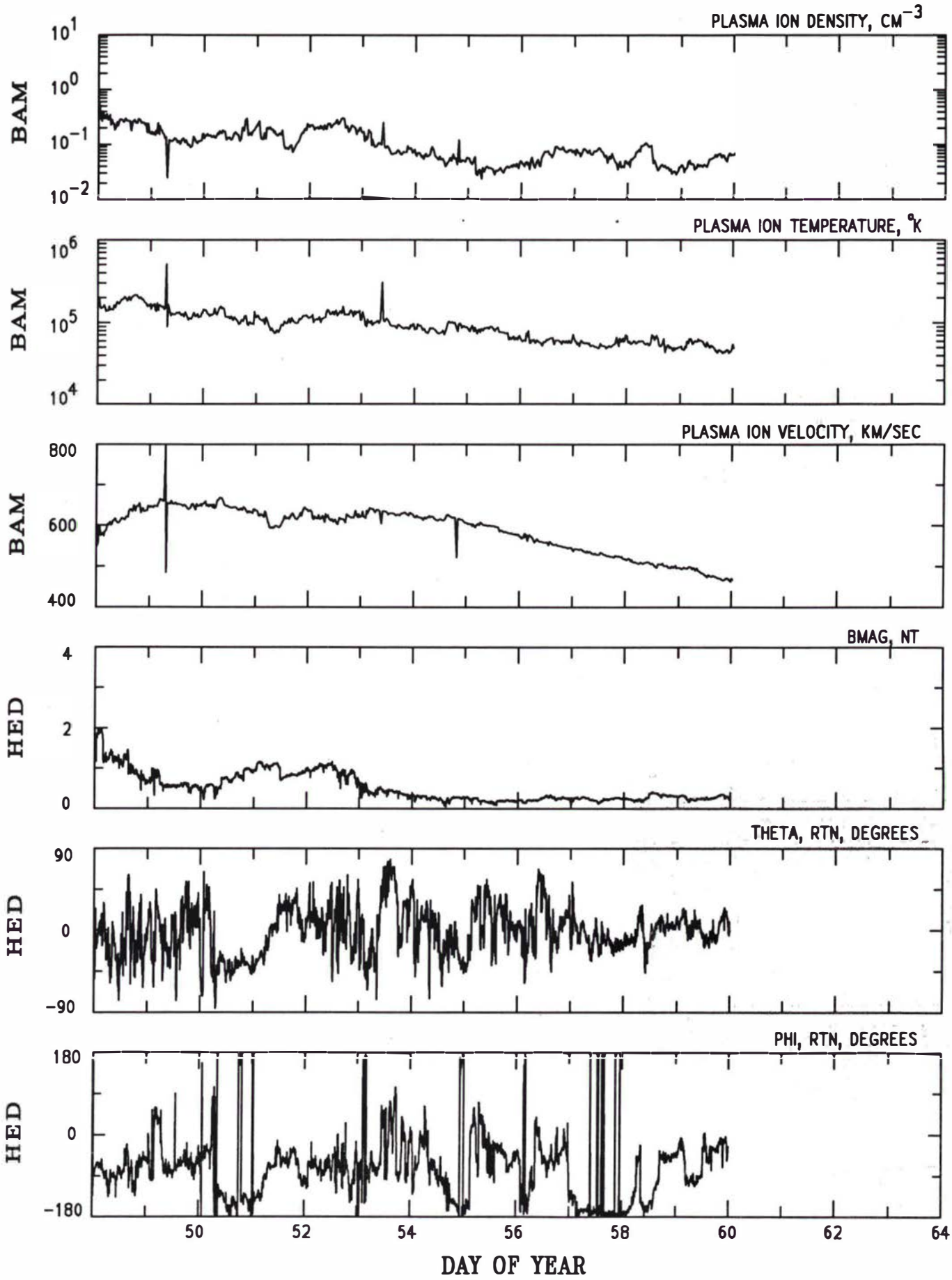






ULYSSES CDR – SOLAR WIND PLASMA AND MAGNETIC FIELD

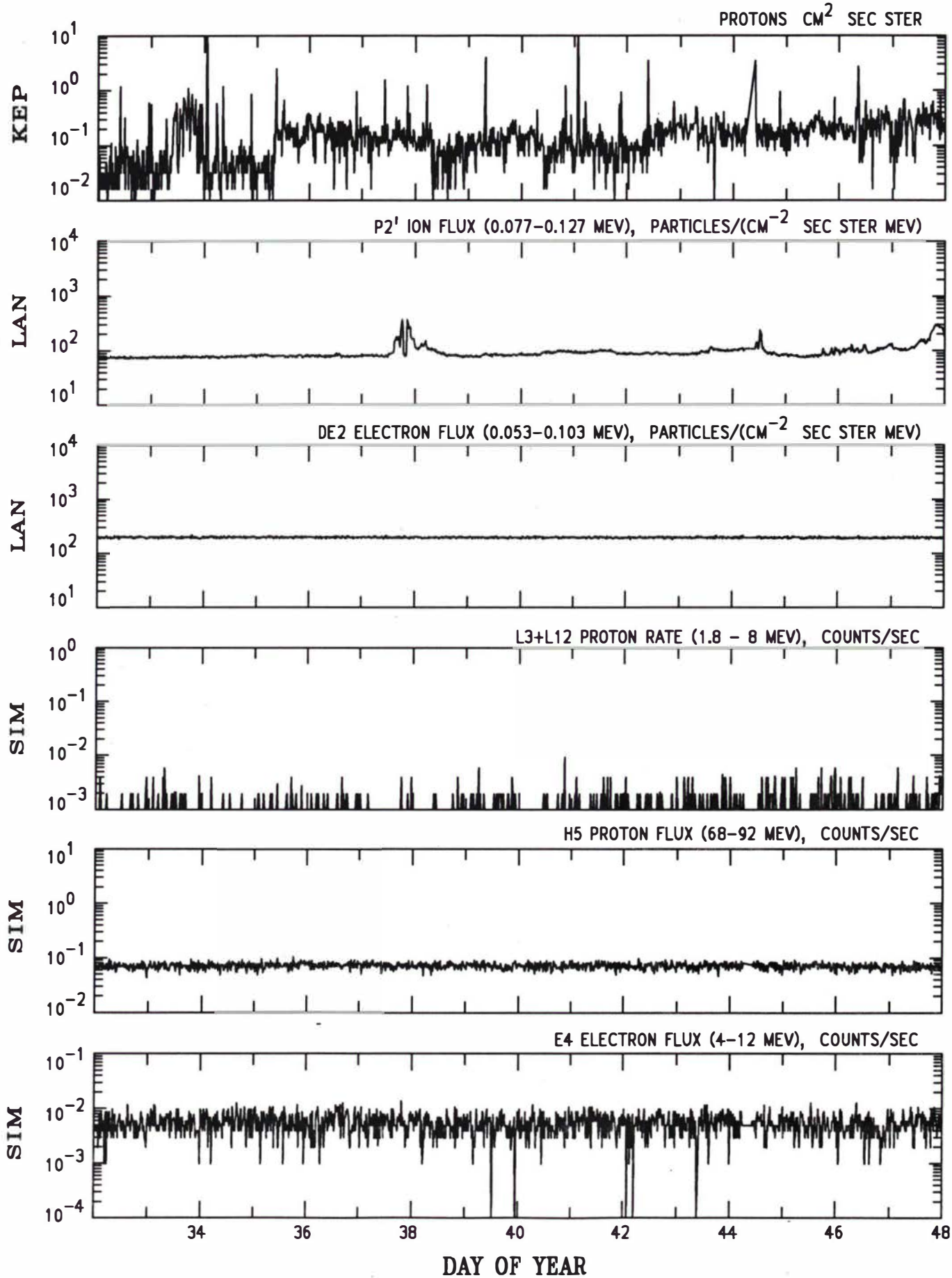
97 048 FEB 17 00:00:00.000 – 97 064 MAR 5 00:00:00.000





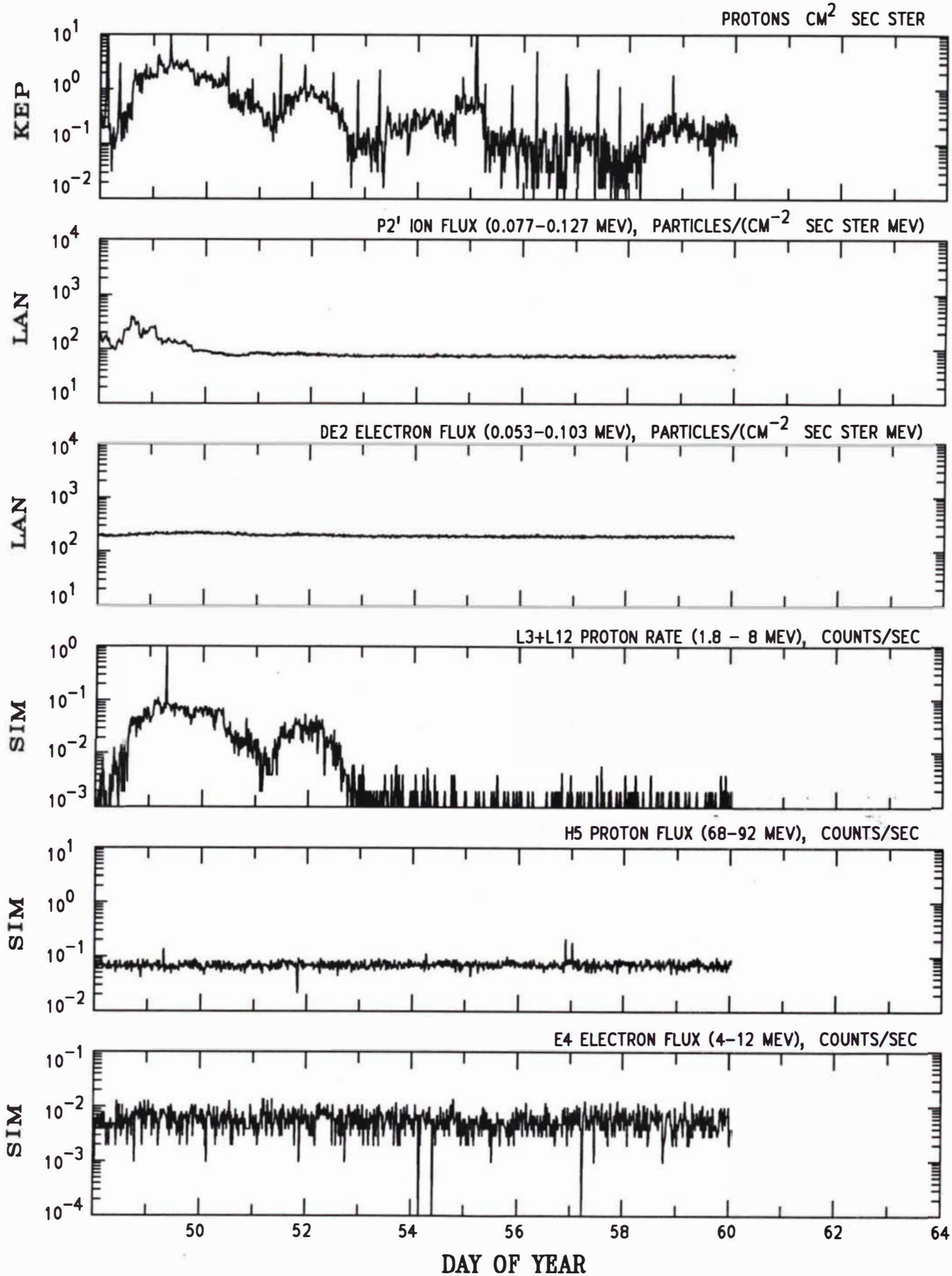
ULYSSES CDR – ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

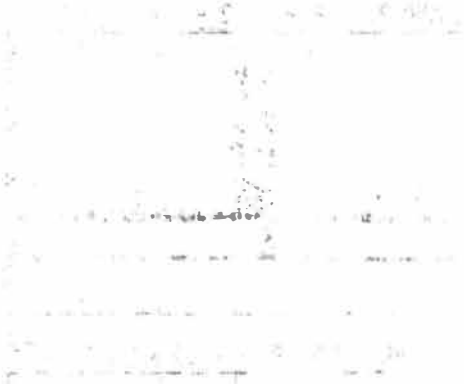
97 032 FEB 1 00:00:00.000 – 97 048 FEB 17 00:00:00.000



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

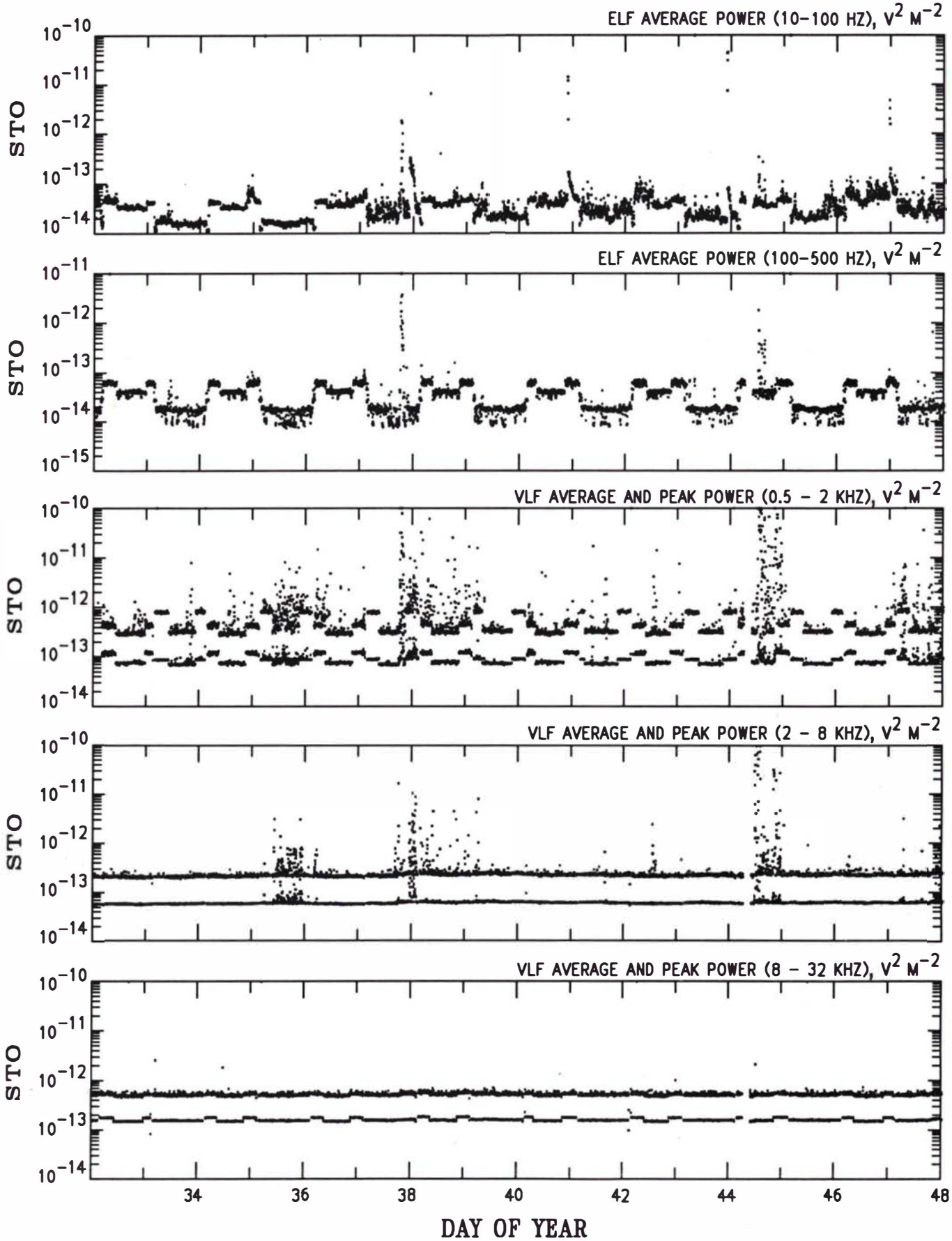
97 048 FEB 17 00:00:00.000 - 97 064 MAR 5 00:00:00.000





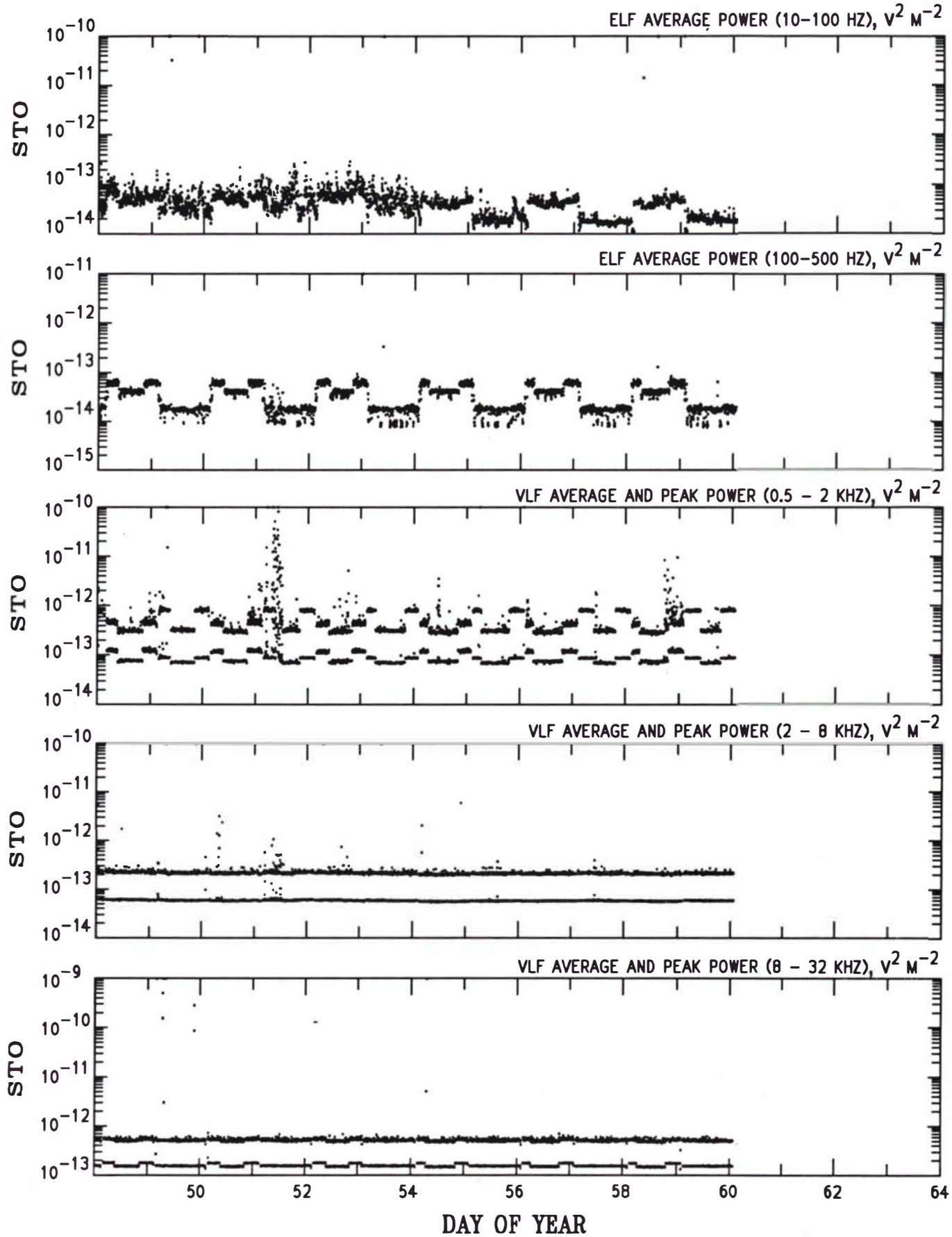
ULYSSES CDR - PLASMA WAVE

97 032 FEB 1 00:00:00.000 - 97 048 FEB 17 00:00:00.000



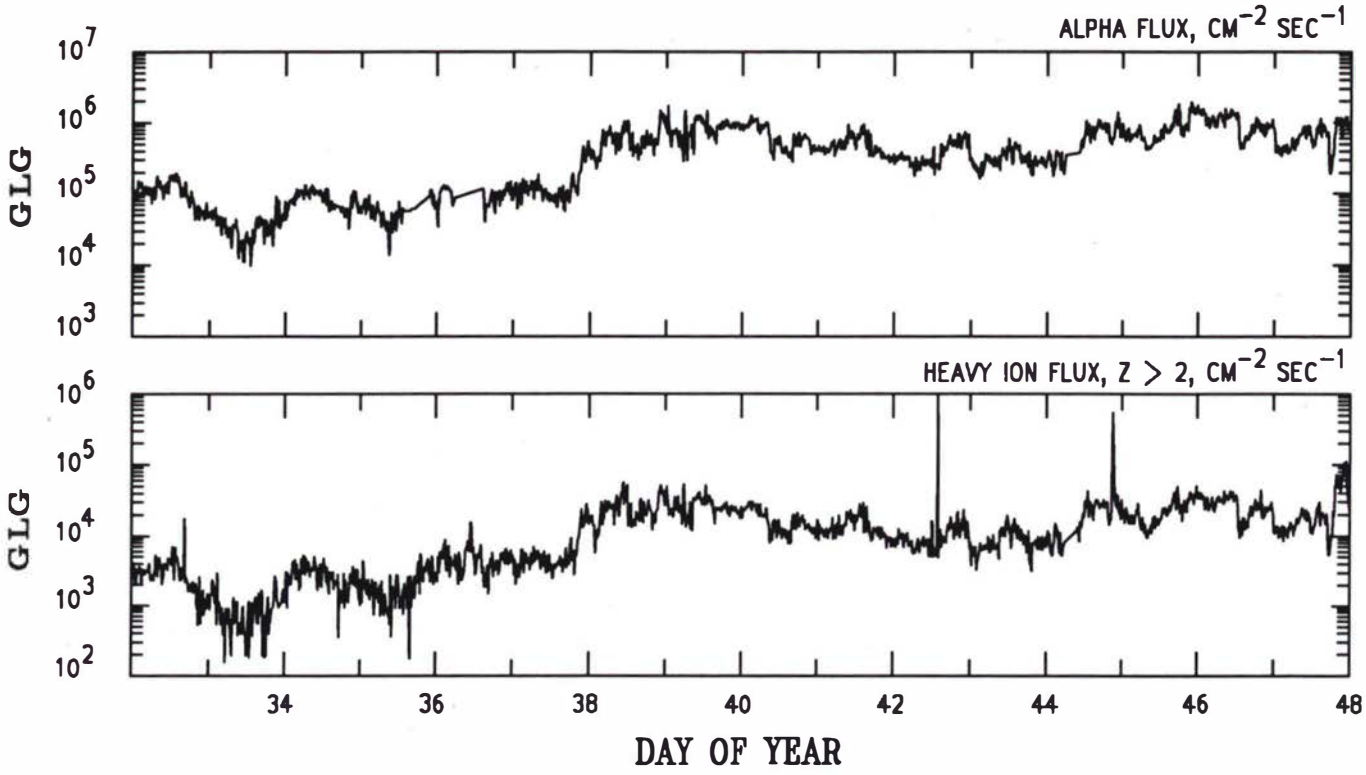
ULYSSES CDR – PLASMA WAVE

97 048 FEB 17 00:00:00.000 – 97 064 MAR 5 00:00:00.000



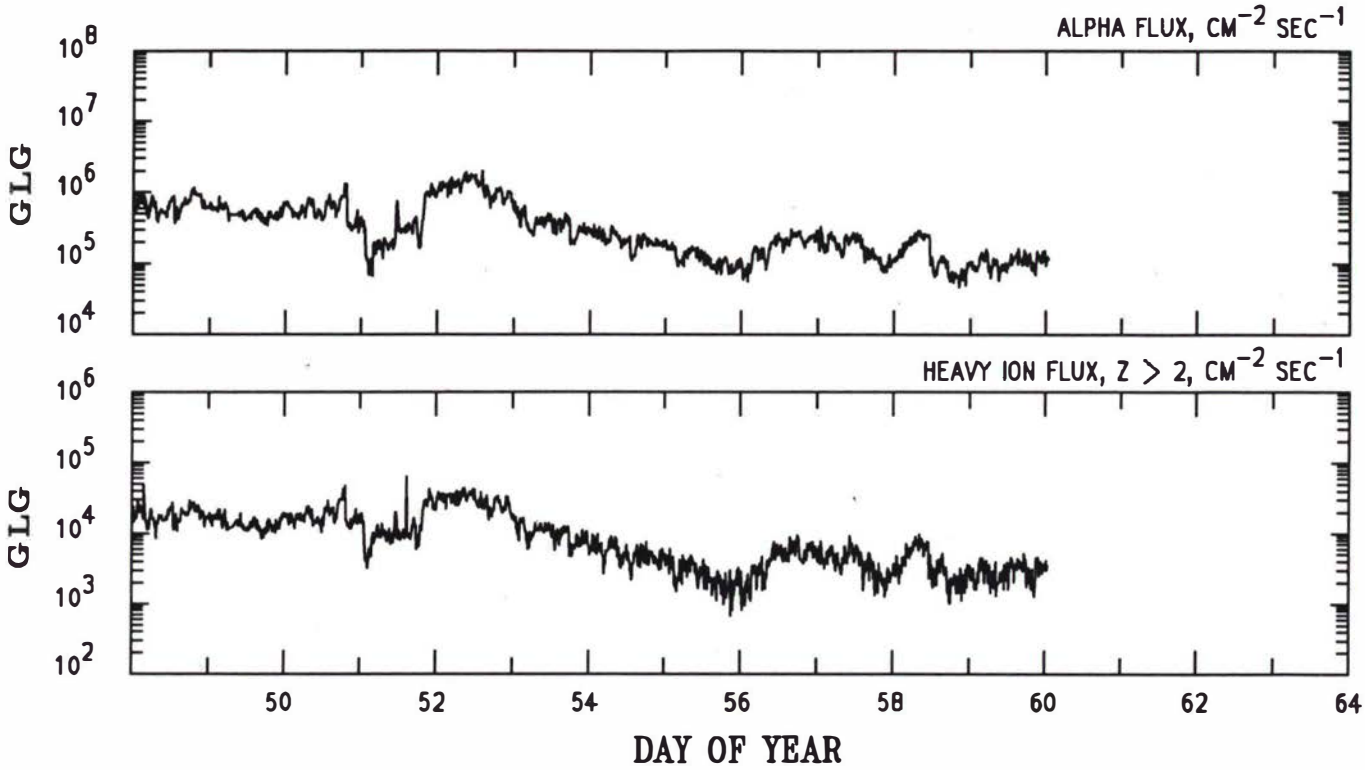
ULYSSES CDR – SOLAR WIND ION COMPOSITION

97 032 FEB 1 00:00:00.000 – 97 048 FEB 17 00:00:00.000



ULYSSES CDR – SOLAR WIND ION COMPOSITION

97 048 FEB 17 00:00:00.000 – 97 064 MAR 5 00:00:00.000



Date: Nov 21 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

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

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

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

☐ Was Mars-blocking used?

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

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

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

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

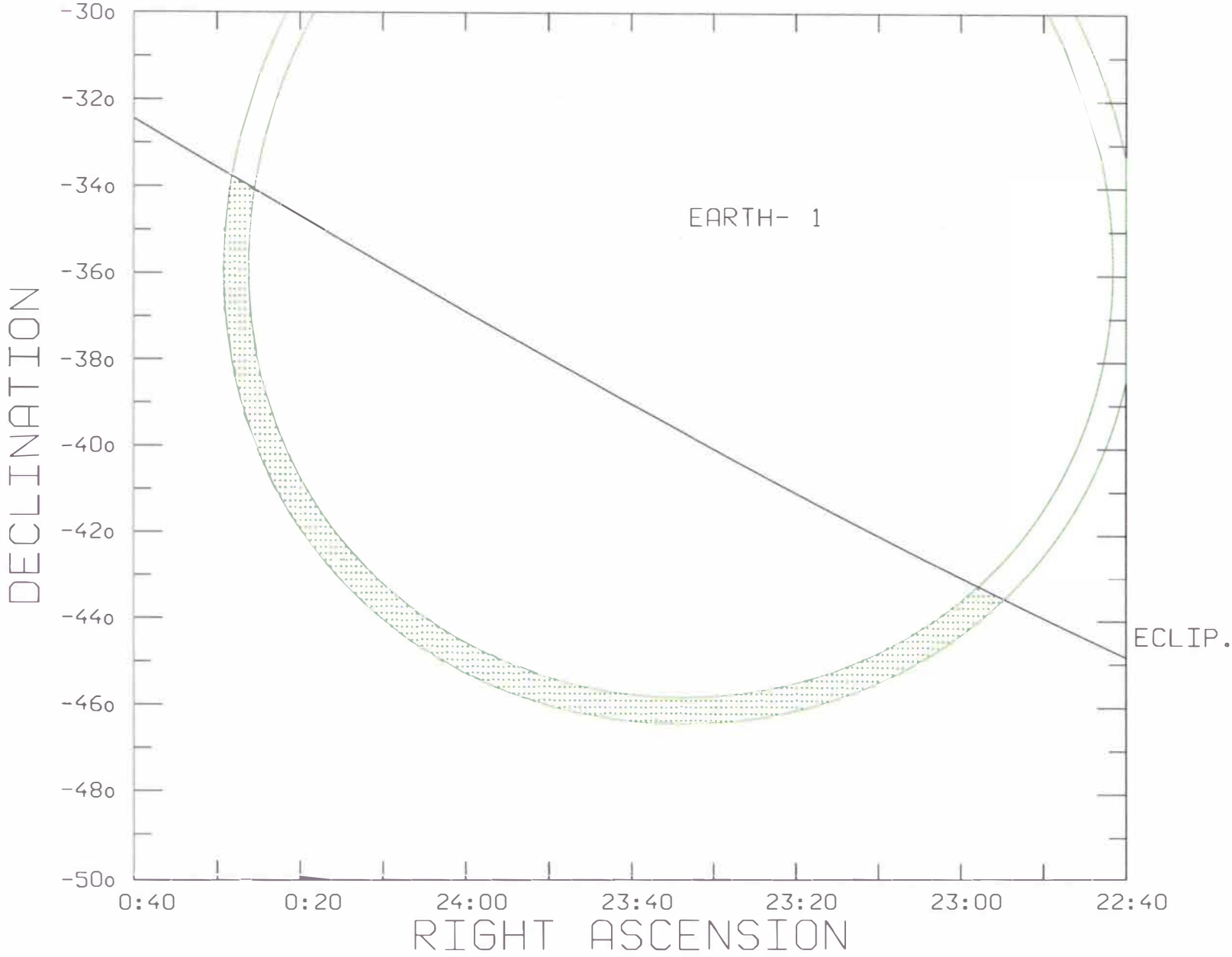
☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

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

☑ ACCESS and MBL4 databases updated with identical times?

GRB970201 ~48975 S

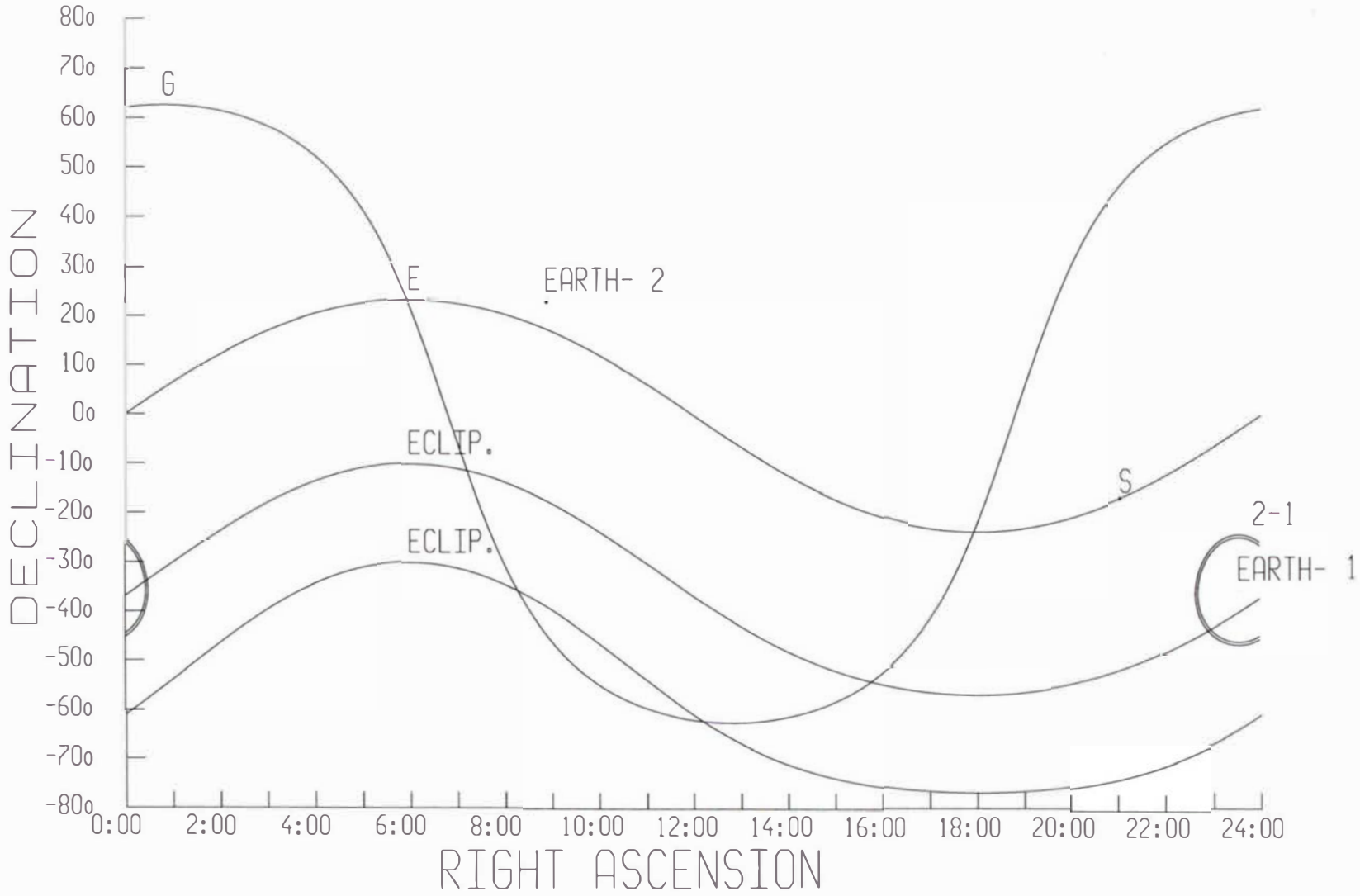
21/11/2011



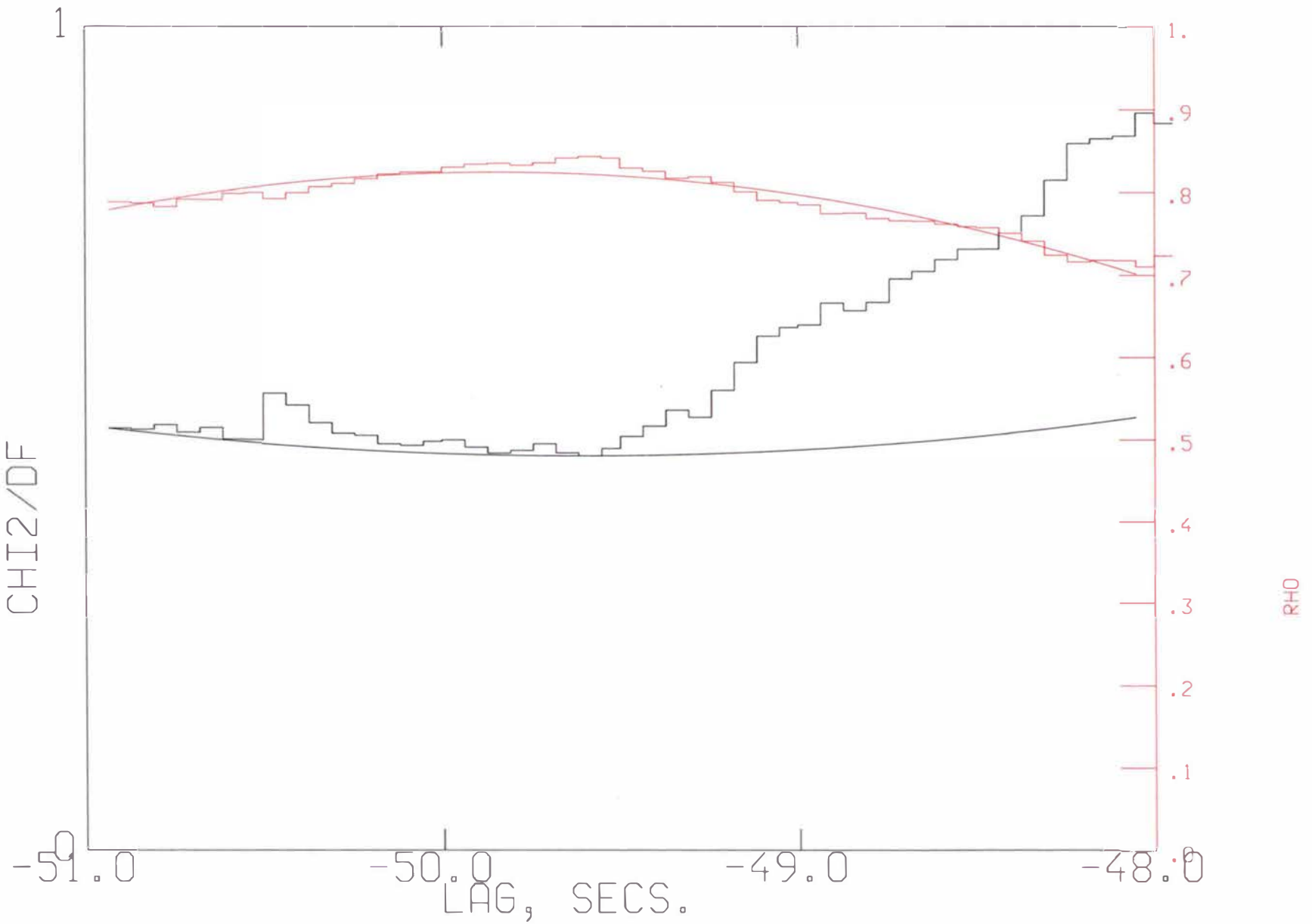
EVENT OF FEB 1, 1997 14:08

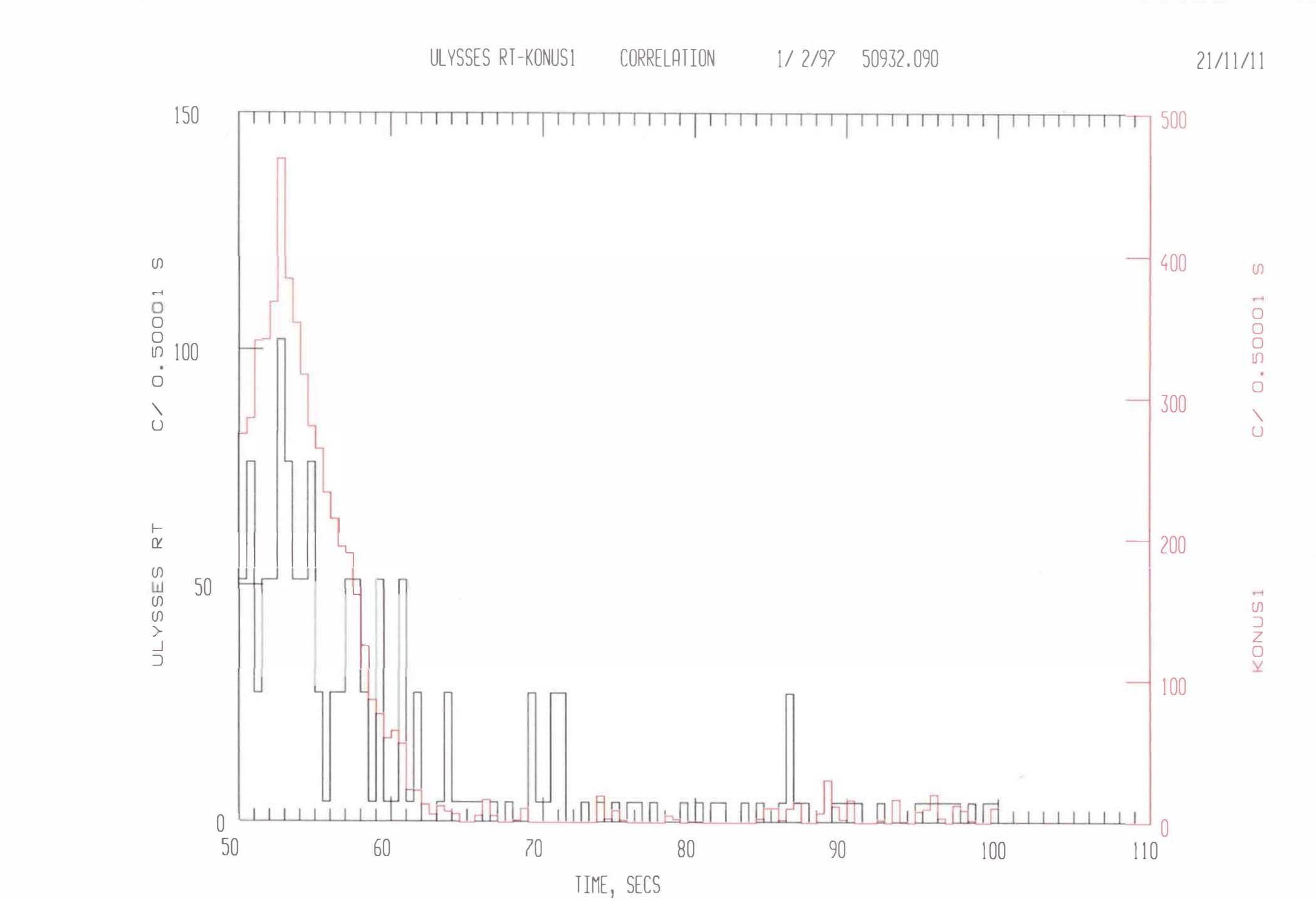
21/11/2011

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



ULYSSES RT-KONUS1 CORRELATION 1/ 2/97 50932.090




ULYSSES RT-KONUS1 CORRELATION 1/ 2/97 50932.090
21/11/11
150
100
50
0
C/ 0.50001 S
ULYSSES RT
500
400
300
200
100
0
C/ 0.50001 S
KONUS1
50
60
70
80
90
100
110
TIME, SECS

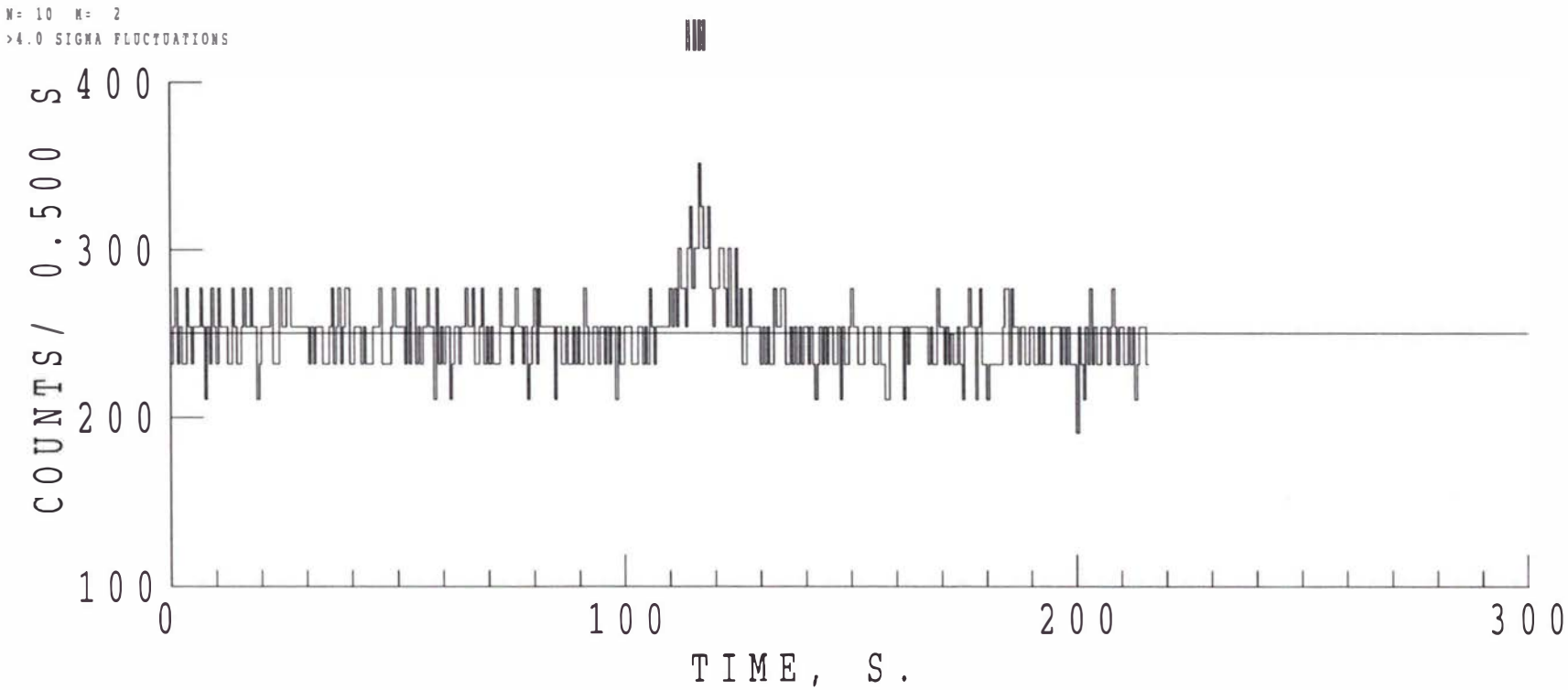
KONUS 19970201 50980

ULYSSES RT

27/10/11

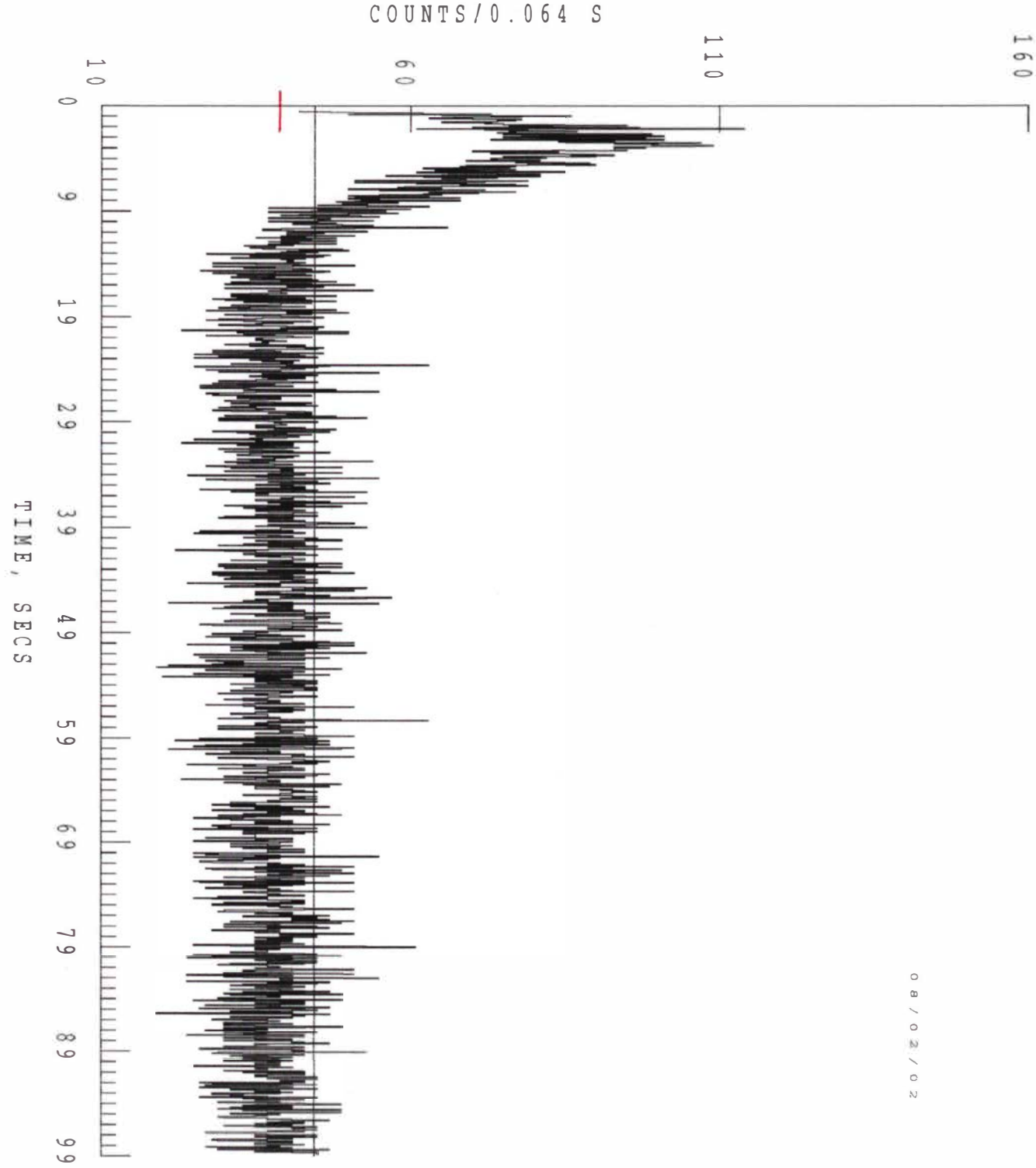
01/02/97 50868.062 s

0- 0 keV



KONUS1 01/02/97 49022.837

50- 200 keV



From WOODSP@SSLLES.MSFC.NASA.GOV Mon Feb 3 07:37 PST 1997
Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id HAA27214; Mon, 3 Feb 1997 07:37:05 -0800
Date: Mon, 3 Feb 1997 9:37:00 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970203093700.2d803619@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 5989
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

Trigger

****
BATSEARCH PROGRAM
****

BATSE BURST # 5989
EVENT OF 1997 FEB 1 DAY OF YEAR= 32
EVENT CROSSING TIME AT BATSE : 57250. S. OR 15:54:10.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 55.000 -19.000
BATSE PEAK COUNTING RATE: 290000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 1/ 2/ 97 IS:
RA= 172.614 DEC= 35.488 DIST= 3.989 AU
BATSE-ULYSSES DISTANCE = 596699484. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 56.92 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1086.45 SECS.
CROSSING TIME AT ULYSSES IS 58336. S. OR 16:12:16 +/- 356.04 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 1/ 2/ 97 IS:
RA= 186.613 DEC= 0.770 DIST= 0.881 AU
MARS-BATSE DISTANCE = 131781016. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 50.78 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 277.92 SECS.
CROSSING TIME AT MARS IS 57528. S. OR 15:58:47 +/- 63.35 SECONDS

BATSE BURST TRIGGER
NO.: 5989

TIME: TJD=0480 SECONDS=57250

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=121.6 AZIMUTH=60.2 ERROR=0.4 DEGREES

COMMENTS:
BRIGHT GRB LASTING ~ 50 SEC. ONE BRIGHT PULSE WITH A SMALL TAIL
FOLLOWED BY A DIMMER PULSE WITH THREE PEAKS. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
5989	970201	10480	57250	290000	055	-19	50

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

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

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

DATE	FL	DAY	TIME	NOTES---(ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)------REPORTED (NO=DATA CHECKED--SHOWS NO DETECTION)(SR=S. RADIATION BELT) (NR=NORTH RADIATION BELT)(SAA=SOUTH ATLANTIC ANOMALY)	
970111		011	35040.2	BATSE GRB#5773 (8727CTS/2S) (SEE IAU6569,6571,6574,6598)	
		011	35040.2	BEPPO SAX TRIG,INTENSE,50S,3 PEAKS(232.10,19.67J) IAU6533	
	13	011	35040.0	PEAKS(40/S),48.0(50/S),58.0(60/S),@24DEG,@848KM,SOFT	REP0313
970111		011	85744.6	KONUS (HARD,SLOW RISE) +TGR (UL:NO) (DMSP13:NO)	
970117		017	53211	TGR+SAX GRB (KONUS INOP)+UL@54420(STRONG,20S) (13:NO)	
970124		024	44343.4	KONUS(MULT PKS)+UL@46253@2100LS,STRONG+TGR (13SAA)	
970201		032	57250.7	BATSE GRB#5989 (53612/SEC) +UL	
	13	032	57222.1	PEAK (100/S,~30S,SOFT,BROAD) (@111DEG) UNCONVINCING	
970218		049	50996.1	KONUS (STRONG,5SEC) +UL@51274,2000LS (STRONG,8SEC)	
	13	049	51001.0	PEAK (320/S,<6S)	REP0624
970222		053	86006.6	KONUS (MOD.STRONG,SEV.SEC) +UL@85873,2000LS,MOD,2S(13NO)	
970226		057	31585.9	KONUS (STRONG,SOFT PK@+39) +UL@30547,2000LS(V.INT,40S)	
	13	057	31595.8	PEAK (270/S,10SEC) (MODERATELY STRONG)	REP0313
970228		059	10680.8	BEPPOSAX(IAU6572)MOD.INT.,80S,4 PKS (75.46,11.75J)IAU6578	
		059	10680.8	INT.X-RAY,RADIO(IAU6576,6577),OPTICAL(6584),MOTION(6629)	OPTICAL
	13	059	10659.1	PKS,667.1(60/S,ONE-SIDED,SOFT,@74DEG) DOUBTFUL (+UL,WIND)	
..0313		072	30096.5	KONUS(MOD.STRONG,PK@+11,40S)+UL@28380,2000LS(MOD.INT,10S)	
	13	072	28355.8	PEAK (180/S,<2S,SOFT) (NO PEAK AT 30096!) (CONFLICT)	REP0501

Helio corr removed 17/2/00

Date: Mar 25 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Were data checked by Joe Springer for 0.5 s errors?

☑ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?

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

2. BATSE Data

☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)? N/A

☑ BATSE ephemeris for T_0?

☑ Error circle position and radius from public catalog used?

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

3. PVO Data

☐ Ephemeris of PVO used (not Venus)?

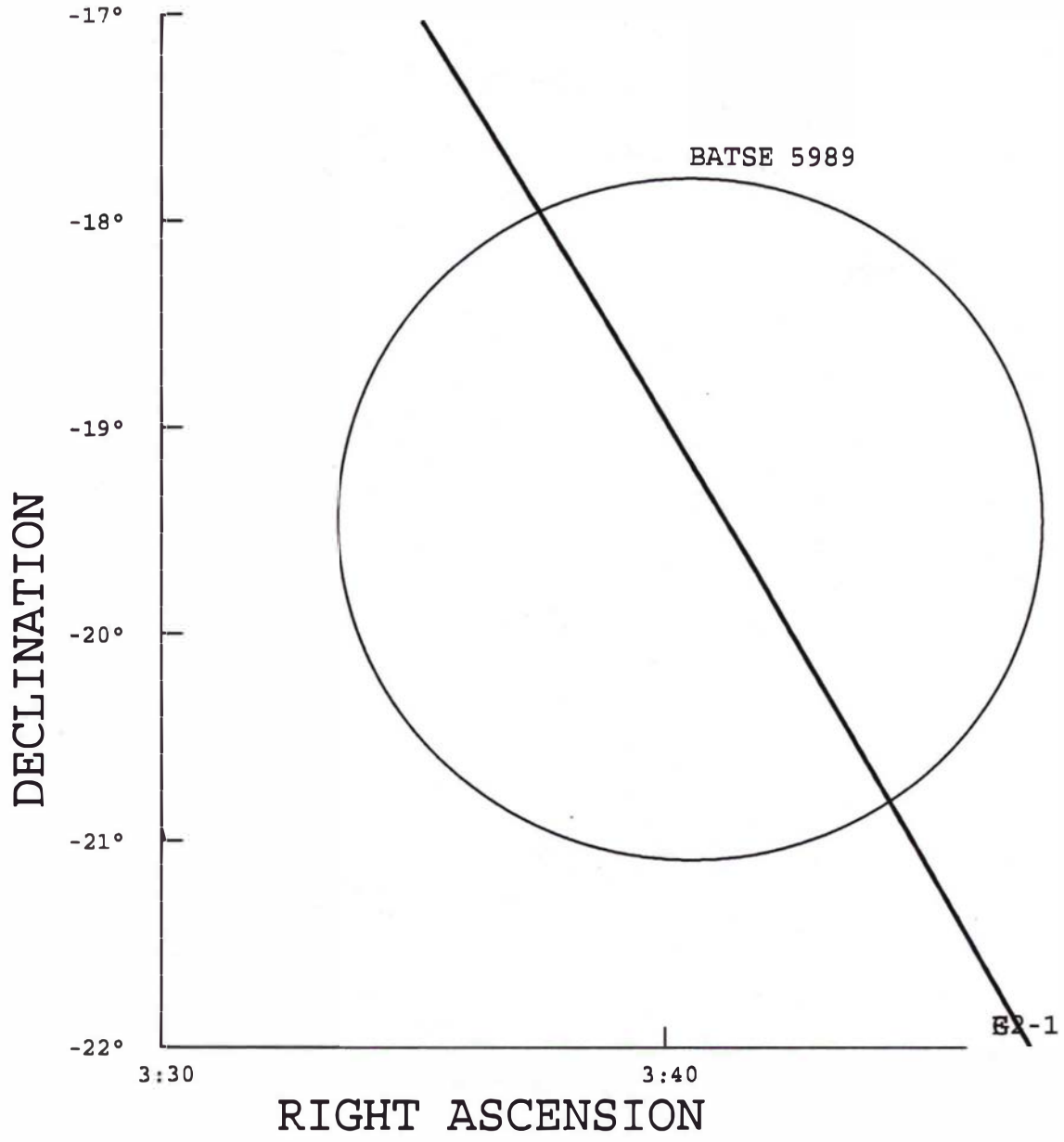
☐ 2000 coordinates used?

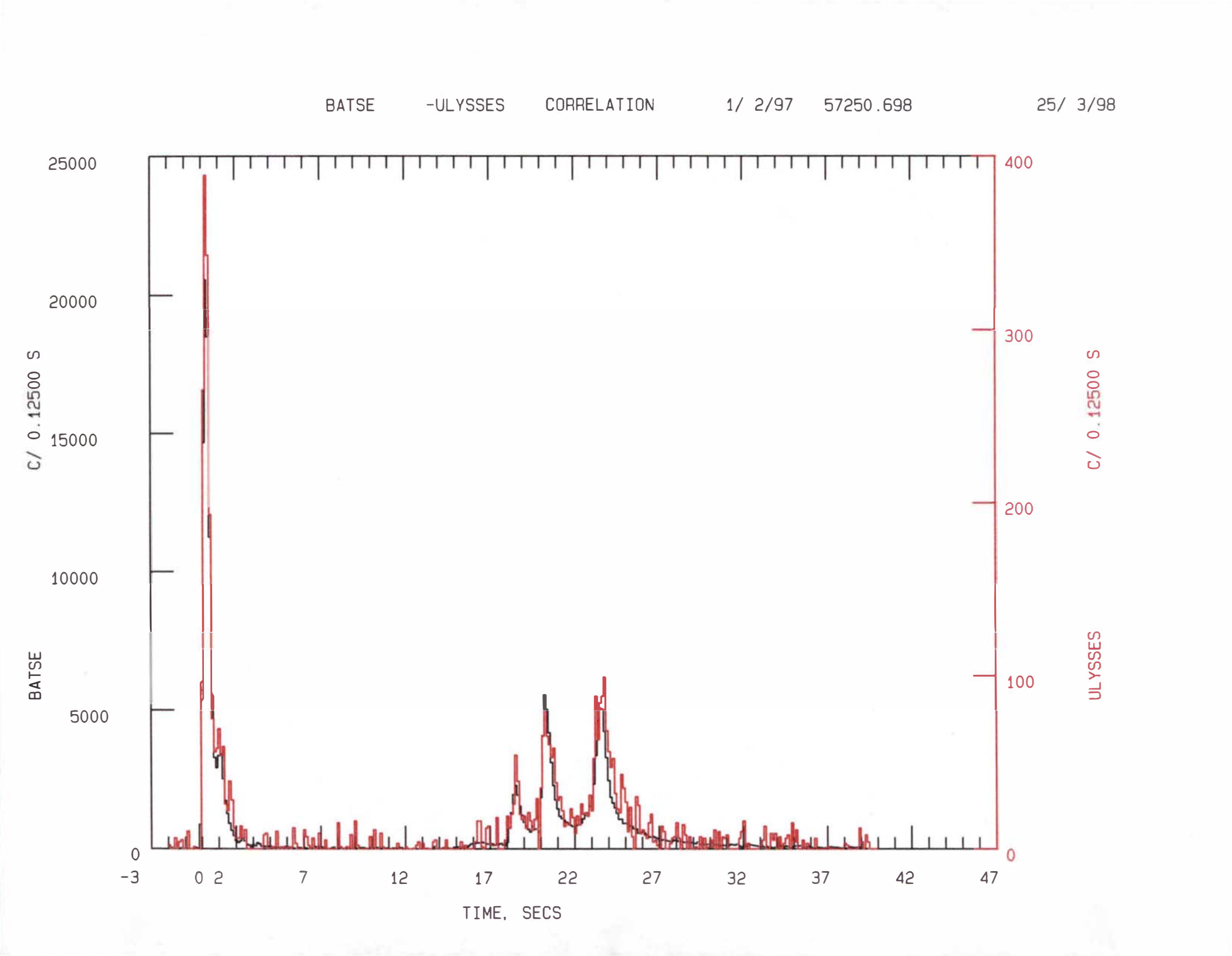
☐ Geocentric time used?

☑ ACCESS database updated?

EVENT OF FEB 1, 1997 16:12

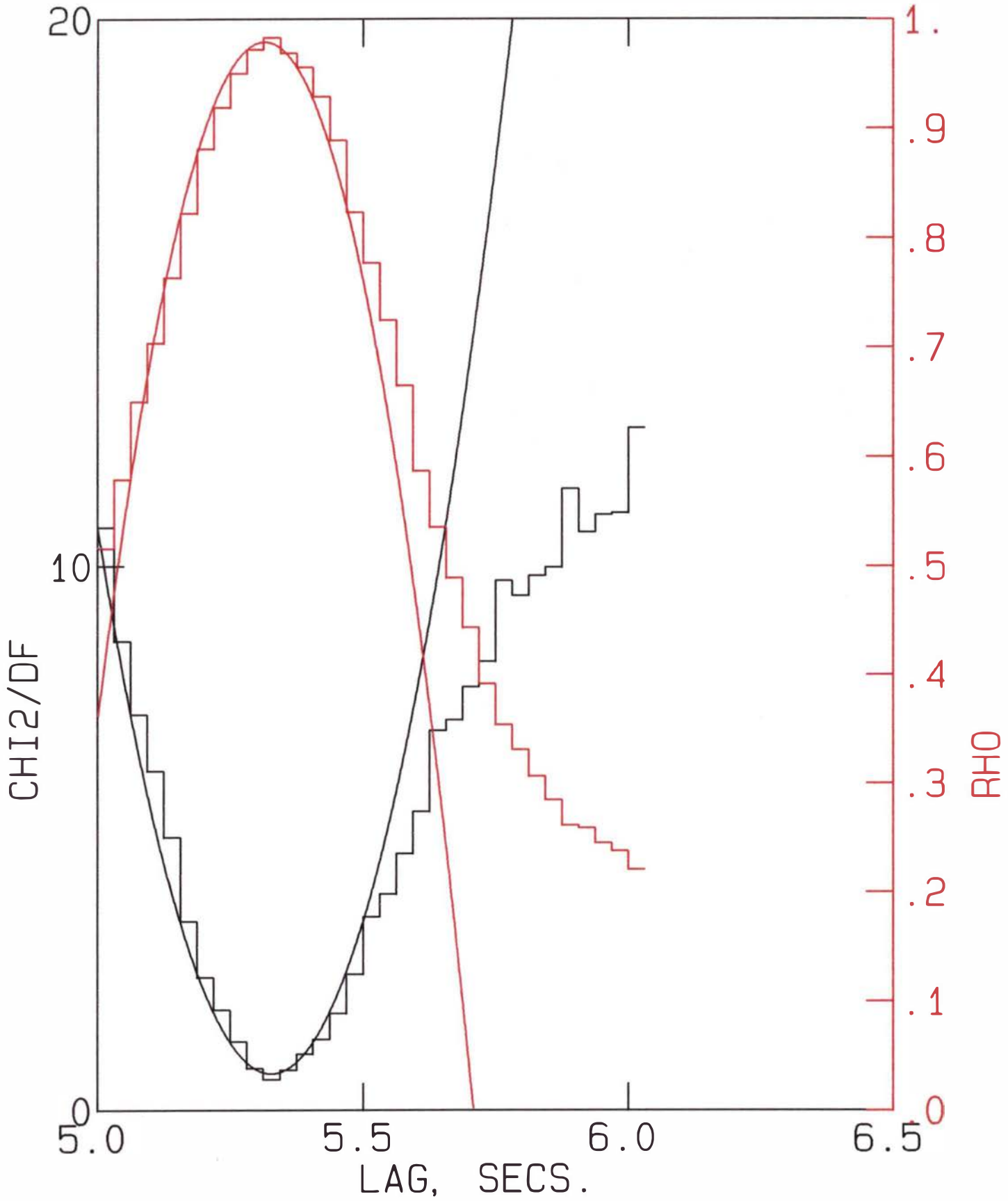
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE

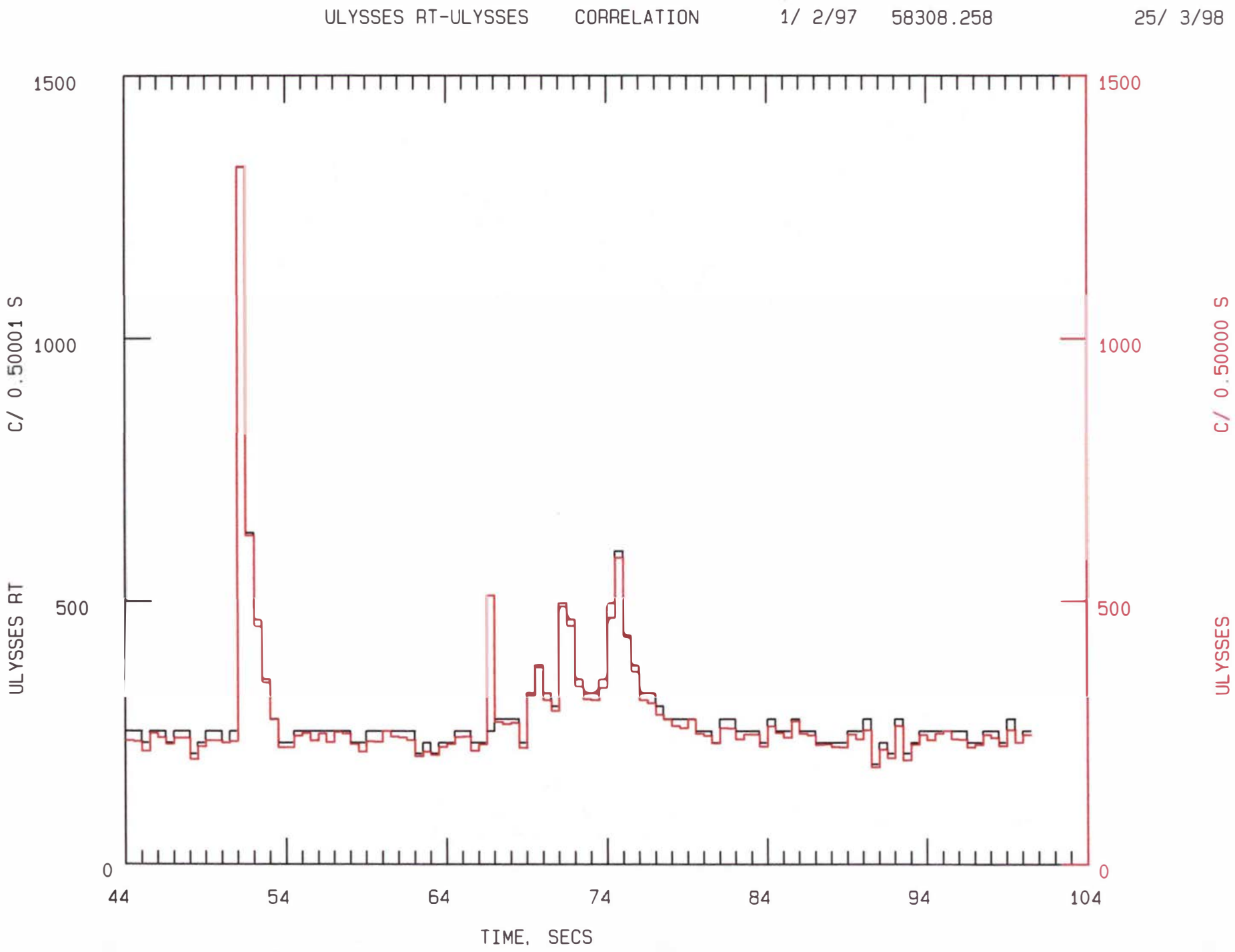



BATSE -ULYSSES CORRELATION 1/ 2/97 57250.698 25/ 3/98
25000
20000
15000
10000
5000
0
C/ 0.12500 S
BATSE
400
300
200
100
0
C/ 0.12500 S
ULYSSES
-3
0 2
7
12
17
22
27
32
37
42
47
TIME, SECS

25/ 3/98

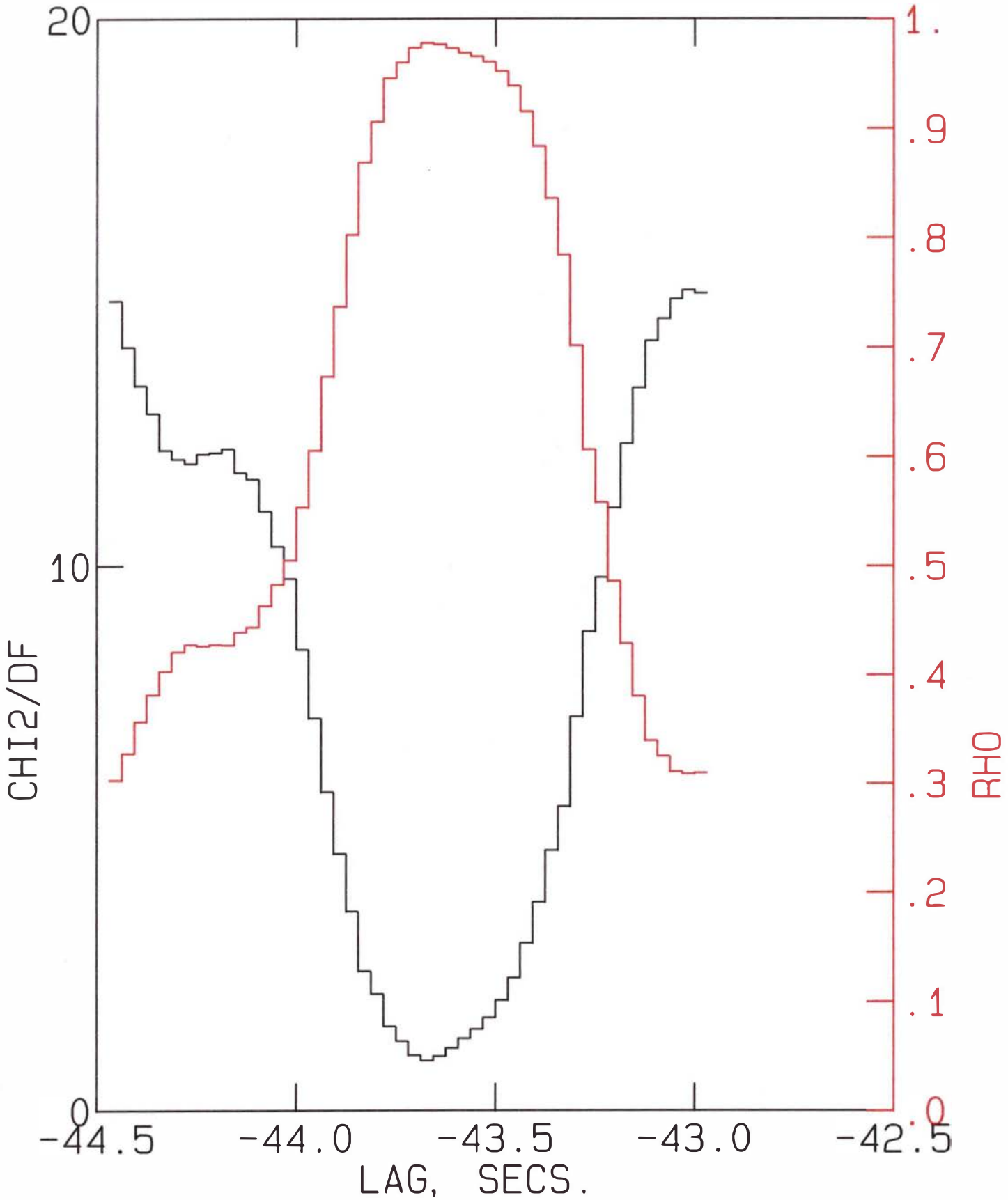
BATSE -ULYSSES CORRELATION 1/ 2/97 57250.698




ULYSSES RT-ULYSSES CORRELATION 1/ 2/97 58308.258 25/ 3/98
1500
1000
500
0
C/ 0.50001 S
ULYSSES RT
1500
1000
500
0
C/ 0.50000 S
ULYSSES
44
54
64
74
84
94
104
TIME, SECS

25/ 3/98

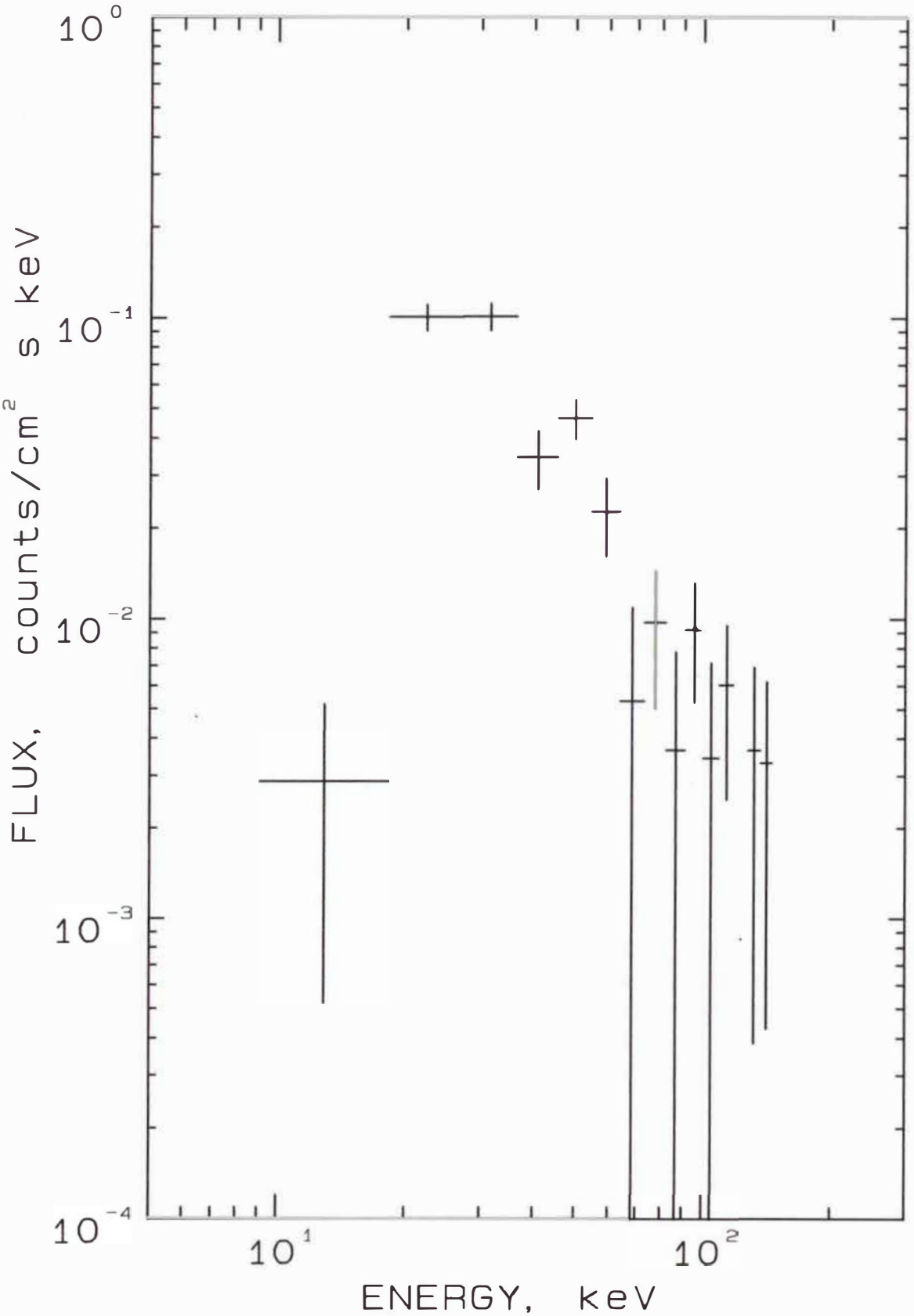
ULYSSES RT-ULYSSES CORRELATION 1/ 2/97 58308.258

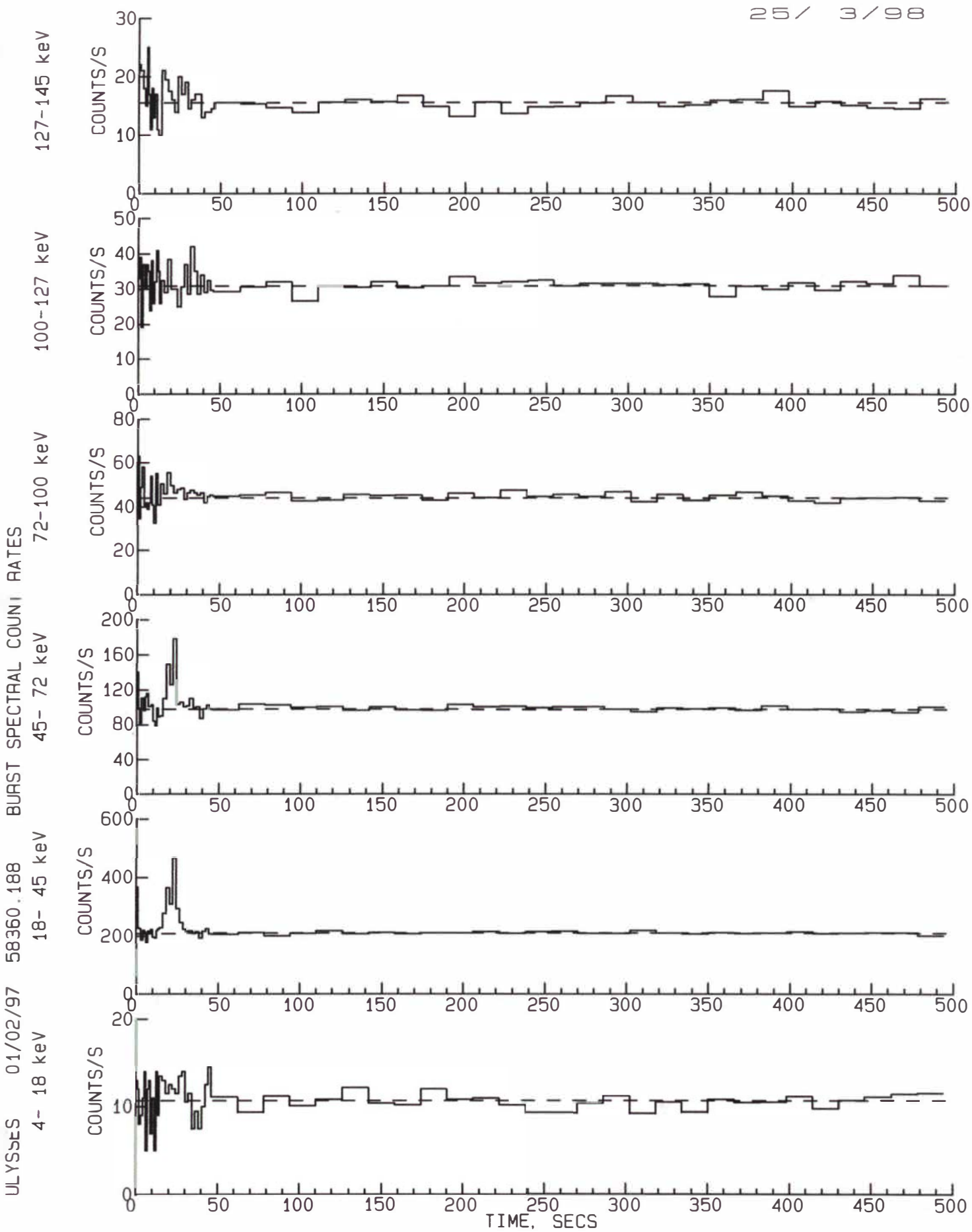


ULYSSES 01/02/97 58360.188

25/ 3/98

SPECTRUM INTEGRATED OVER 62.0 SECONDS, INTERVALS 2 TO 33




25/ 3/98
ULYSSES 01/02/97 58360.188 BURST SPECTRAL COUNT RATES
4- 18 keV
18- 45 keV
45- 72 keV
72-100 keV
100-127 keV
127-145 keV
COUNTS/S
TIME, SECS

ULYSSES 01/02/97 Ttrig=58359.351

21- 146 keV

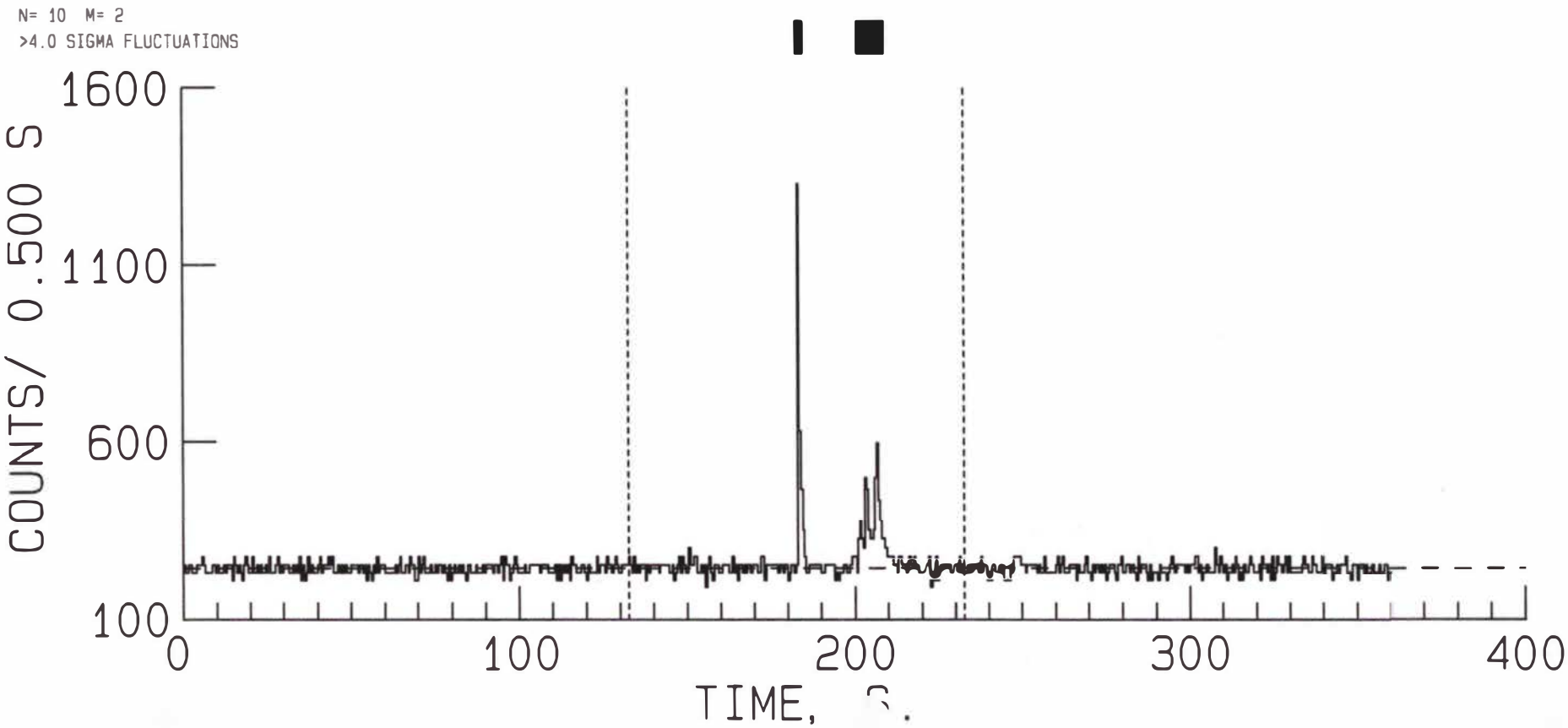
25/ 3/**

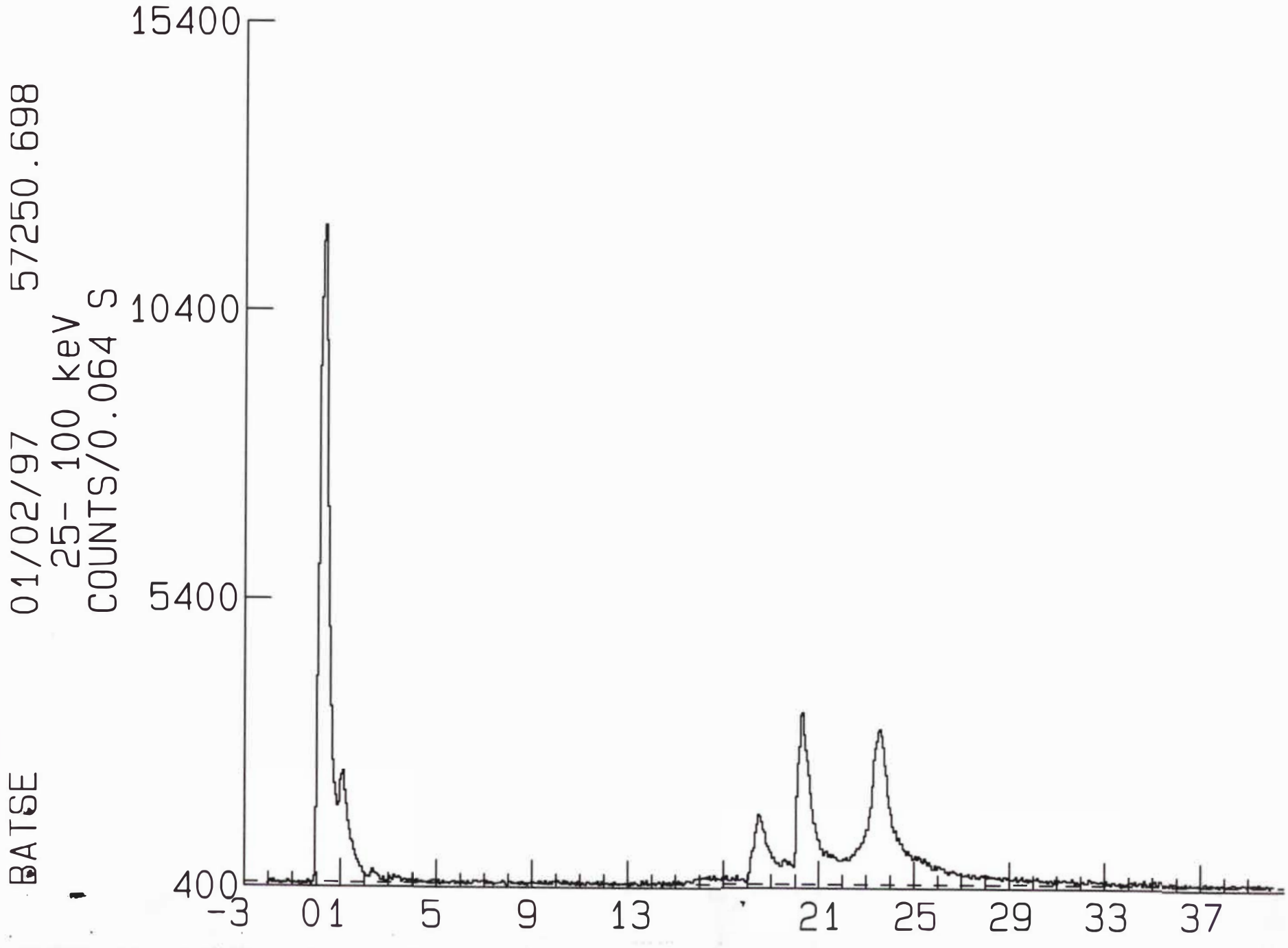
ULYSSES RT

25/ 3/98

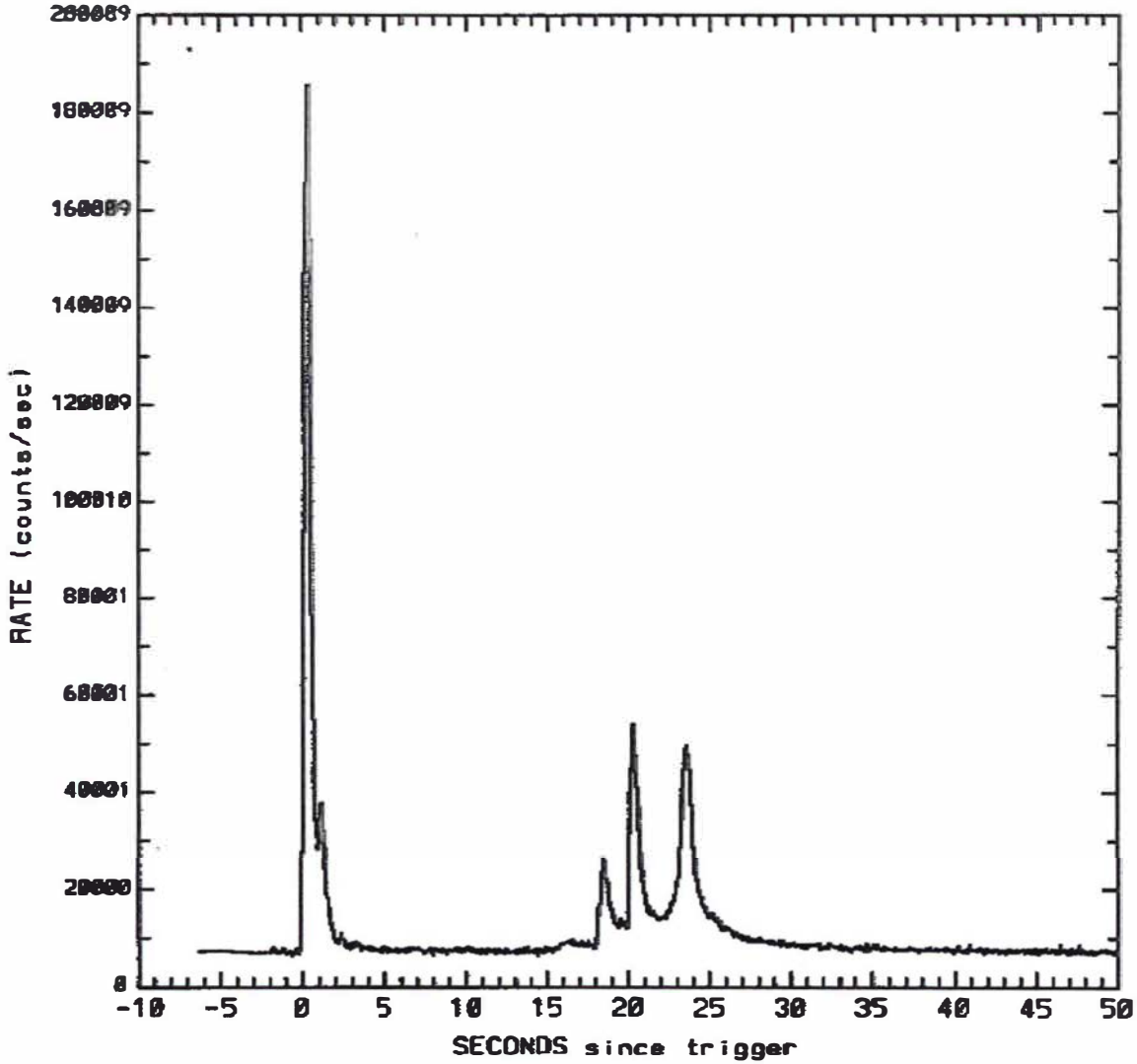
1/ 2/97 58176.157 s

21- 146 keV




15400
10400
5400
400
-3
01
5
9
13
21
25
29
33
37
BATSE
01/02/97
25- 100 keV
COUNTS/0.064 S
57250.698

DISCSC Data for K. Hurley. No. 5989



5-FEB-1997 18:37:41

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

Trigger # : 5989

Trigger Time:
19480 / 57250.697

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 second(s)

Detectors [7..0]:
--5---10

Discriminators:
[1 . 2]

Quality Mask:
BDISP1

From WOODSP@SSLLES.MSFC.NASA.GOV Mon Feb 3 11:44 PST 1997
Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA29390; Mon, 3 Feb 1997 11:44:05 -0800
Date: Mon, 3 Feb 1997 13:43:59 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970203134359.2d803a36@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 5992
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 5992
EVENT OF 1997 FEB 1 DAY OF YEAR= 32
EVENT CROSSING TIME AT BATSE : 80735. S. OR 22:25:35.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 178.000 -42.000
BATSE PEAK COUNTING RATE: 10000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 1/ 2/ 97 IS:
RA= 172.546 DEC= 35.509 DIST= 3.988 AU
BATSE-ULYSSES DISTANCE = 596530920. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=102.33 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -424.92 SECS.
CROSSING TIME AT ULYSSES IS 80310. S. OR 22:18:30 +/- 381.04 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 1/ 2/ 97 IS:
RA= 186.613 DEC= 0.770 DIST= 0.881 AU
MARS-BATSE DISTANCE = 131781016. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=136.53 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -319.00 SECS.
CROSSING TIME AT MARS IS 80416. S. OR 22:20:15 +/- 47.66 SECONDS

BATSE BURST TRIGGER

NO.: 5992

TIME: TJD=0480 SECONDS=80735

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=134.8 AZIMUTH=270.3 ERROR=12 DEGREES

COMMENTS:
GRB LASTING ~ 0.07 SEC. SINGLE PULSE. UNTRIGGERED BURST AT T + 150
SEC IN MODULES 6, 4, AND 2. OVERWROTE DURING MER.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
5992	970201	10480	80735	10000	178	-42	.07

BATSE# 5992

ULYSSES RT 4/ 2/97

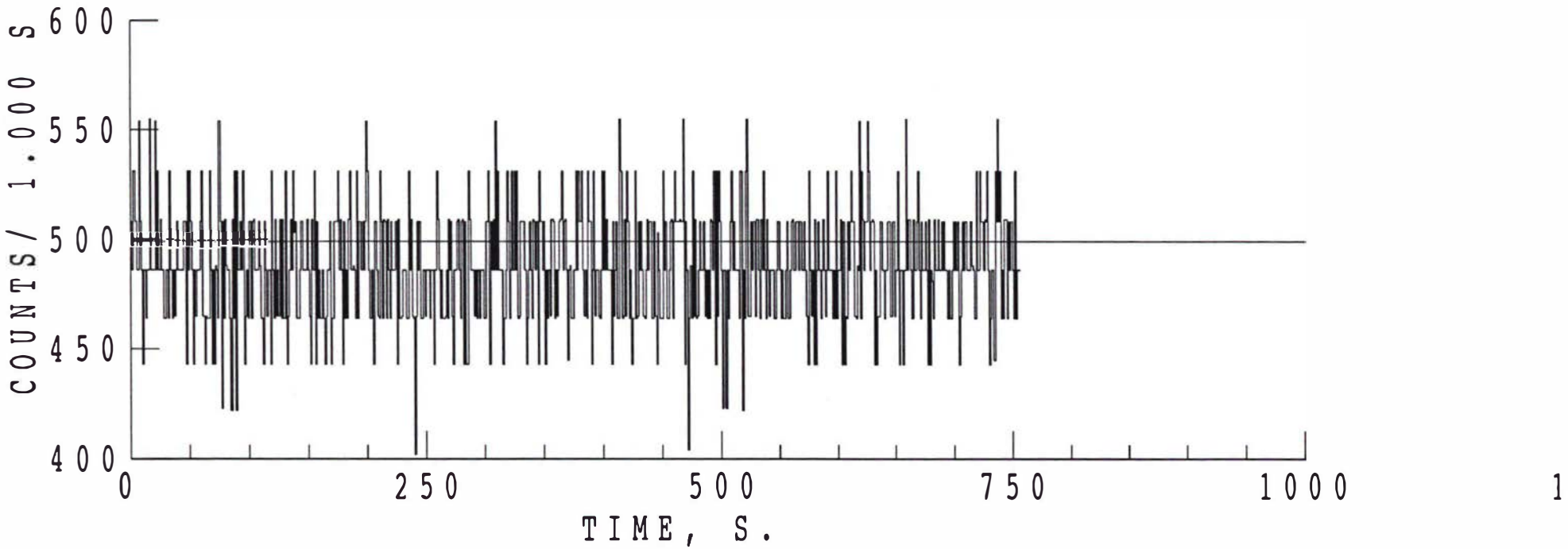
1/ 2/97 79920.414 s

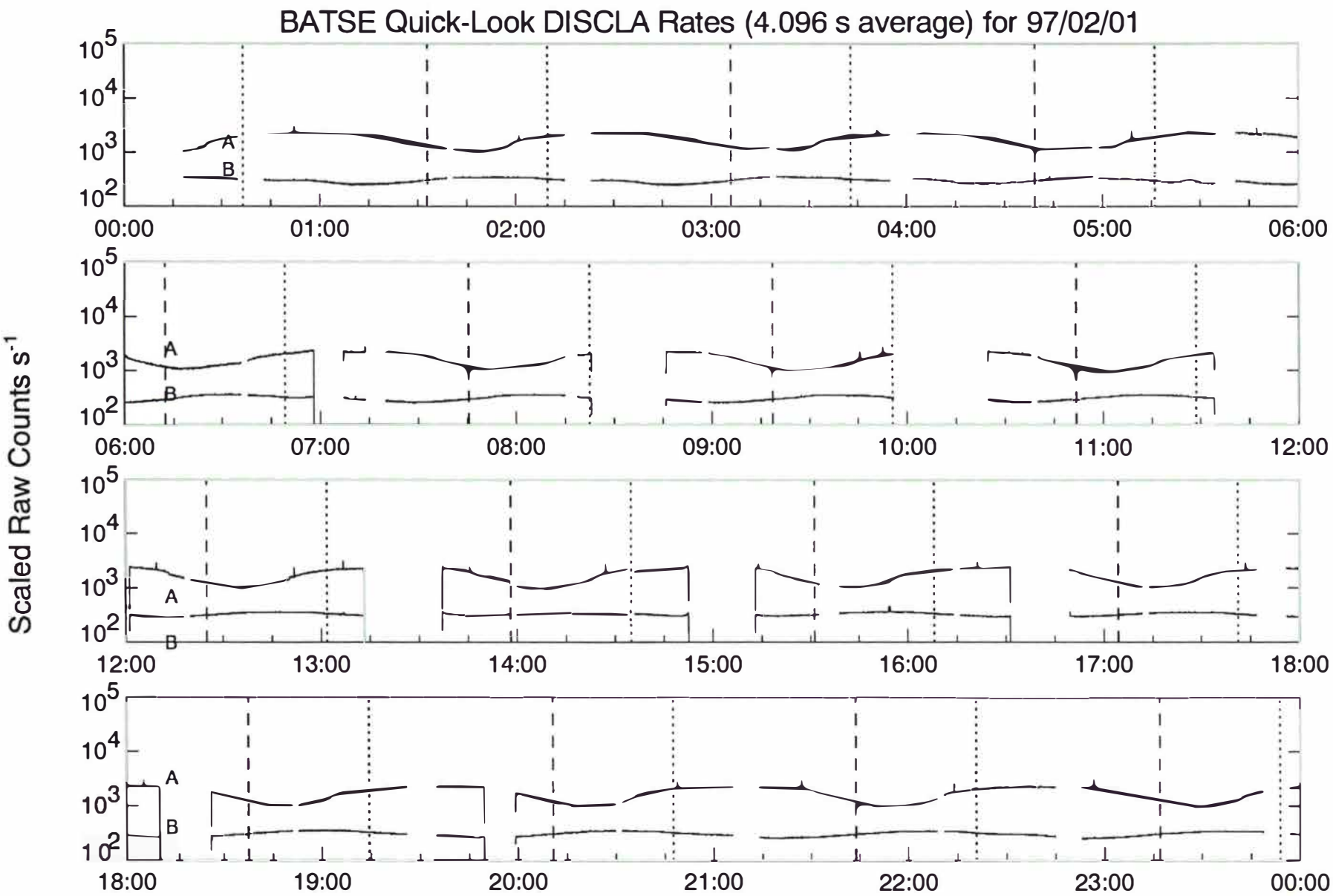
0.500 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



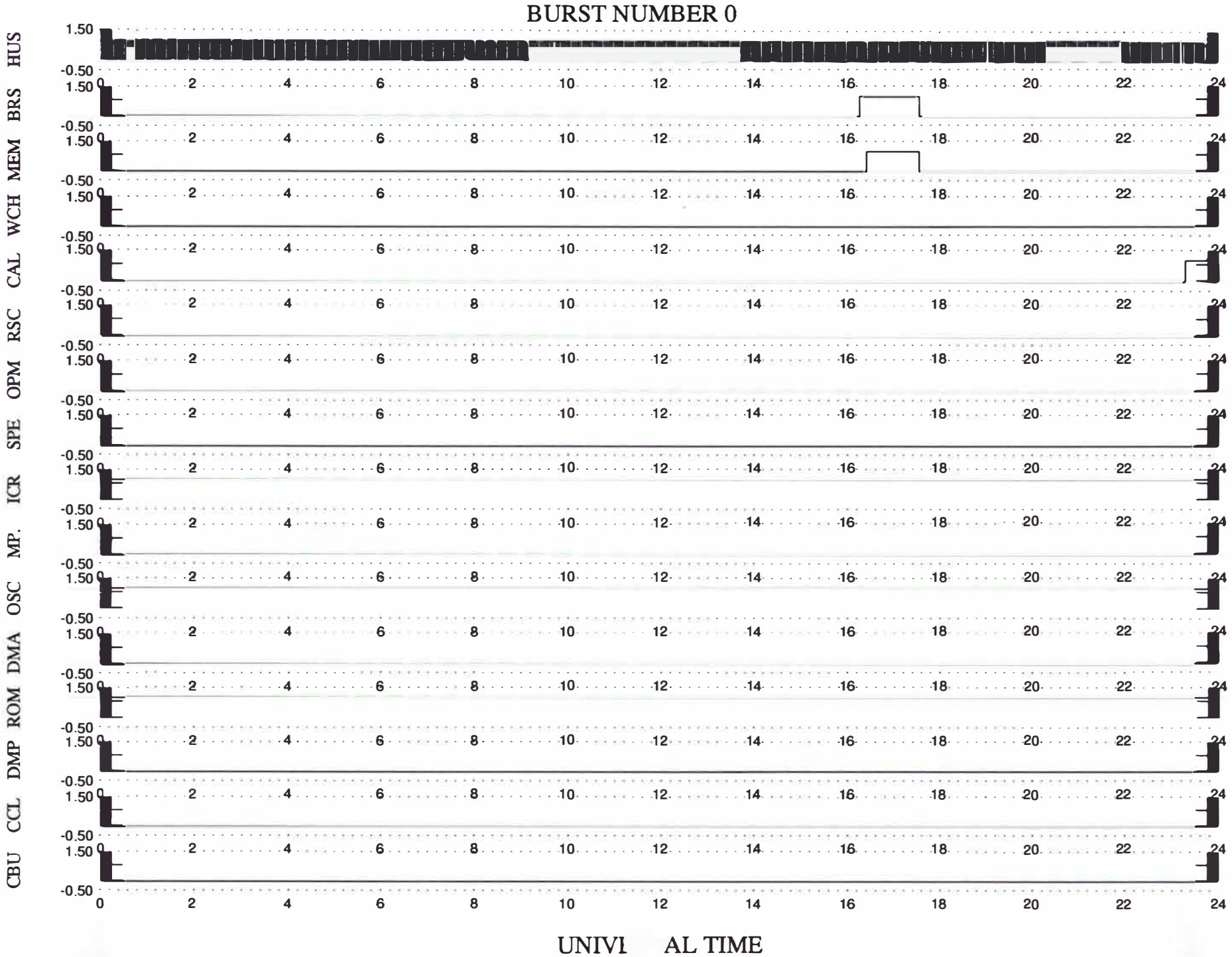


Current Time: 97/02/03, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

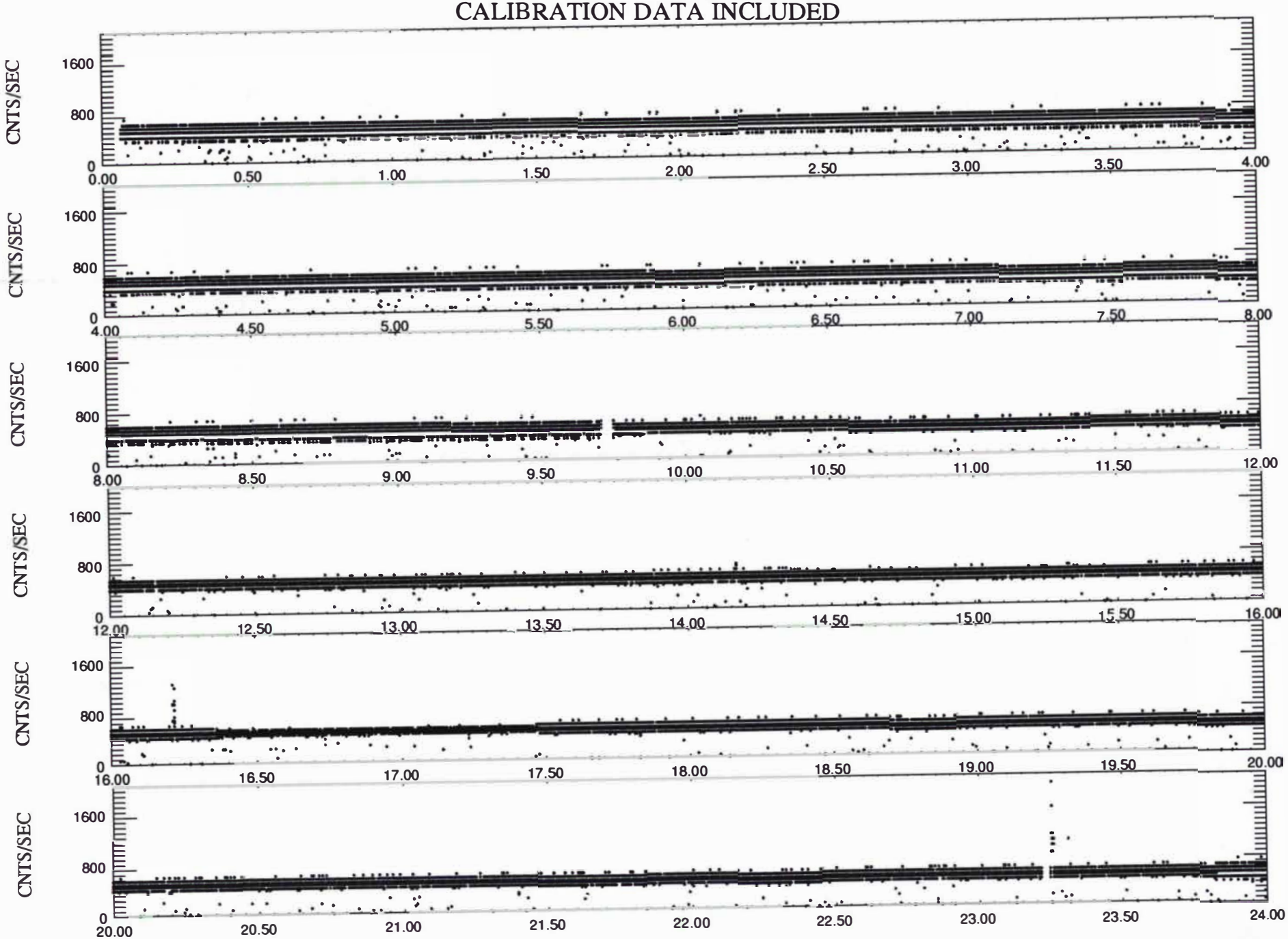
* Solar Burst Trigger
\+ Solar Flare

HUS MODES EDR day 32, year 1997 to day 32, year 1997 5/16/97



HUS 2A, MODE 1, NOT AVERAGED EDR day 32, year 1997 to day 32, year 1997 5/16/97

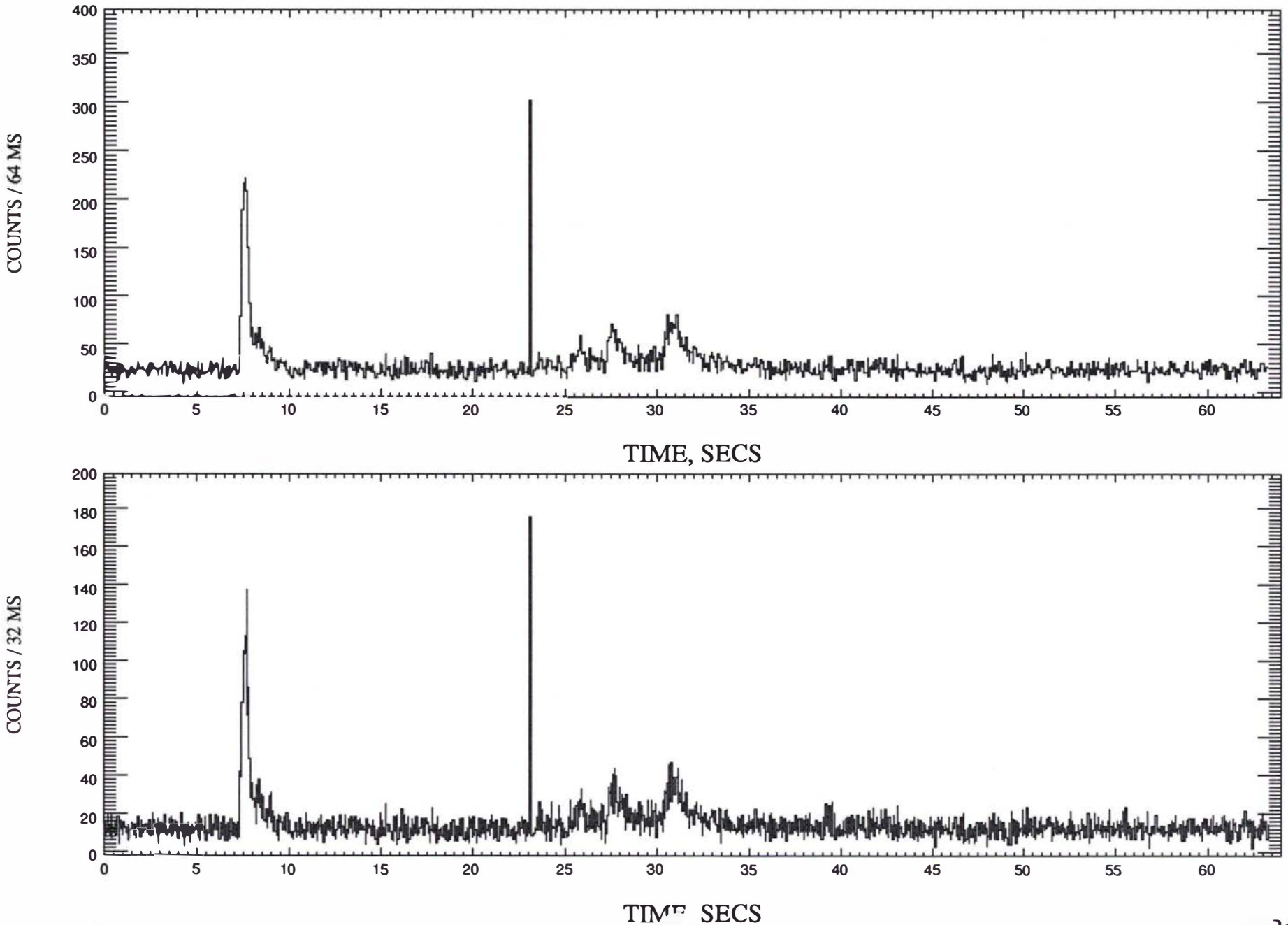
CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2A TRIGGERED DATA EDR day 32, year 1997 6/19/97

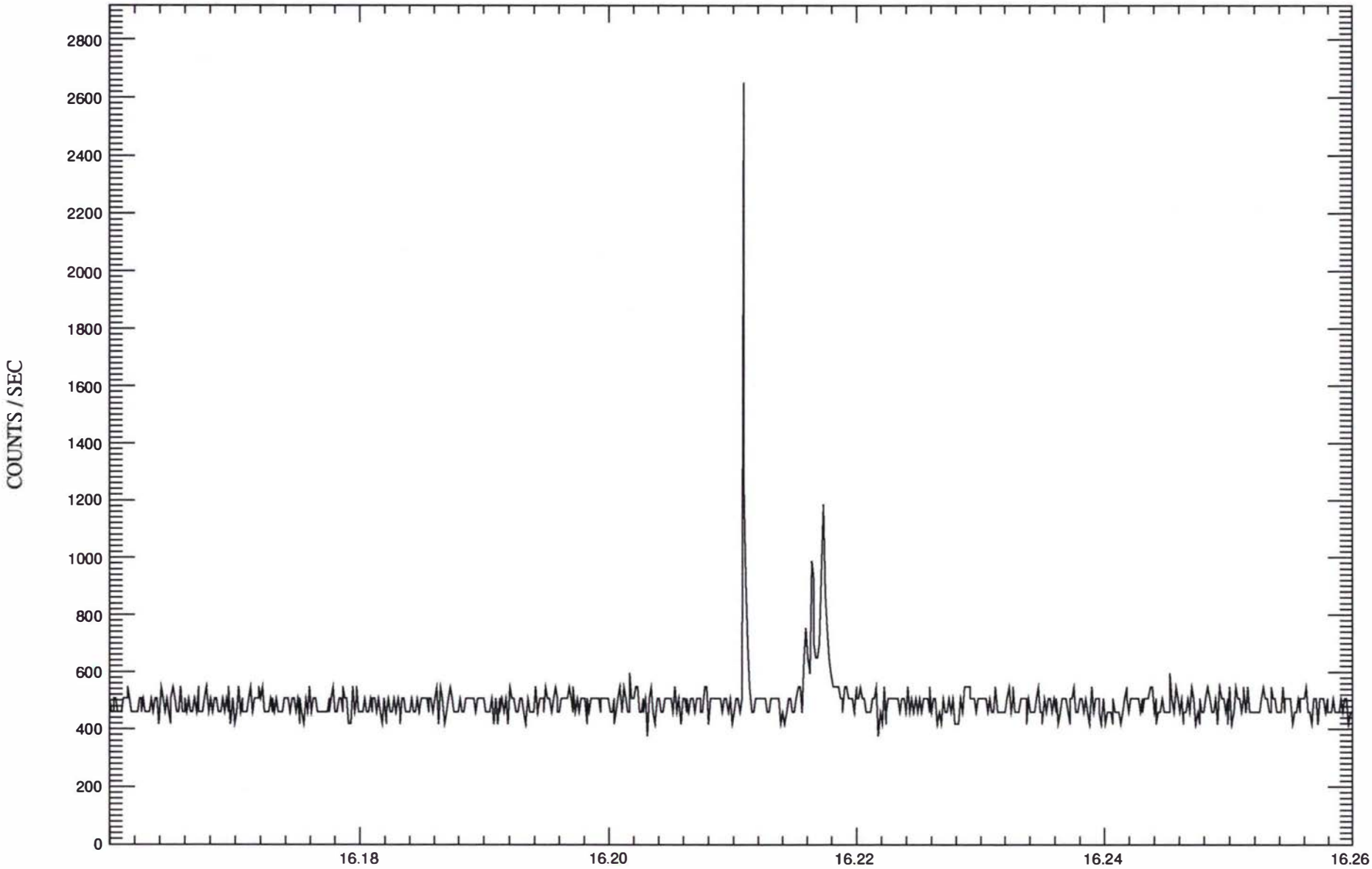
Burst Counter 0 at UT=16.210900895860 h=58359.243 s 16:12:39.243



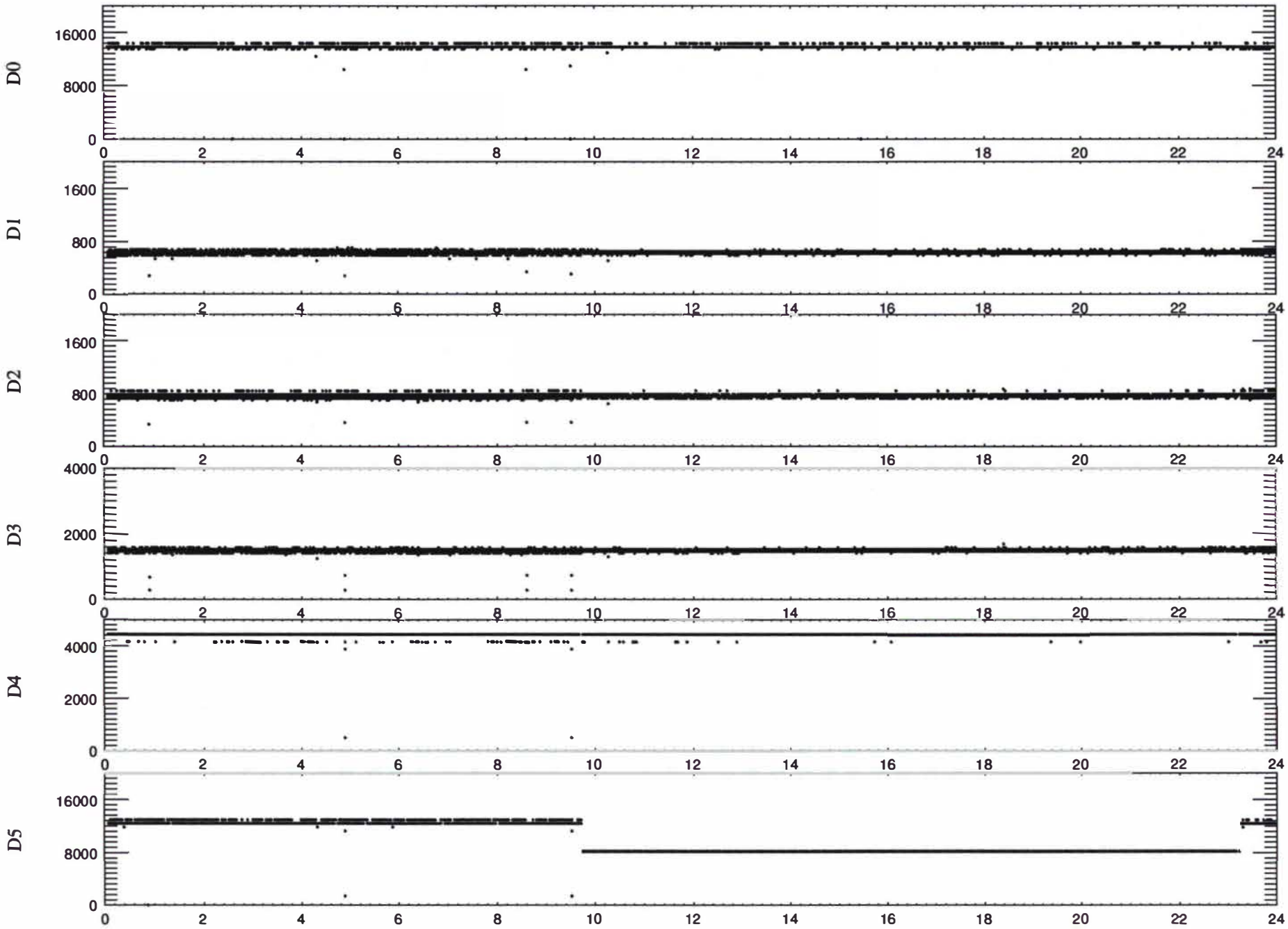
3# 1

HUS 2A, MODE 1, NOT AVERAGED EDR day 32, year 1997 to day 32, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 32, year 1997 to day 32, year 1997 5/16/97



From RICHARDSON@ssl.msfc.nasa.gov Wed Feb 5 07:02 PST 1997
Date: Wed, 5 Feb 1997 9:02:13 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 5994

TIME: TJD=0481 SECONDS=23541

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=46 AZIMUTH=324.8 ERROR=10.7 DEGREES

COMMENTS:
OPT. SF, GOES C2.9 EVENT OCCURED IN A DATA GAP-HAD VERY LITTLE DATA.
NOT VISIBLE ABOVE 100KEV.

From RICHARDSON@ssl.msfc.nasa.gov Mon Feb 3 11:55 PST 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA29549; Mon, 3 Feb 1997 11:54:58 -0800
Date: Mon, 3 Feb 1997 13:54:46 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970203135446.2dc00d0a@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 5995
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

Trigger

BATSE BURST # 5995
EVENT OF 1997 FEB 2 DAY OF YEAR= 33
EVENT CROSSING TIME AT BATSE : 25844. S. OR 07:10:44.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 50.000 -29.000
BATSE PEAK COUNTING RATE: 44000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 2/ 2/ 97 IS:
RA= 172.453 DEC= 35.536 DIST= 3.986 AU
BATSE-ULYSSES DISTANCE = 596317522. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 48.42 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1320.15 SECS.
CROSSING TIME AT ULYSSES IS 27164. S. OR 07:32:44 +/- 328.36 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 2/ 2/ 97 IS:
RA= 186.673 DEC= 0.769 DIST= 0.873 AU
MARS-BATSE DISTANCE = 130574416. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 50.01 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 279.92 SECS.
CROSSING TIME AT MARS IS 26124. S. OR 07:15:23 +/- 62.18 SECONDS

BATSE BURST TRIGGER

NO.: 5995

TIME: TJD=0481 SECONDS=25844

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=121.5 AZIMUTH=47.7 ERROR=0.2 DEGREES

COMMENTS:
GRB, STRONG PULSE WITH STRUCTURE. DUR.~60SEC. VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
5995	970202	10481	25844	44000	050	-29	60

From sprg@ssl.berkeley.edu Mon Nov 3 11:18 PST 1997
Date: Mon, 3 Nov 1997 11:18:08 -0800
From: sprg@ssl.berkeley.edu (Space Physics Research Group Account)
To: khurley@apollo
ject: GRB Master list

----- Begin Included Message -----

From vnp@isac.ernet.in Mon Nov 3 04:51:54 1997
From: vnp@isac.ernet.in
>Received: from sx07 by isac.ernet.in (AIX 3.2/UCB 5.64/4.03)
id AA04926; Mon, 3 Nov 1997 14:02:42 GMT
X-Authentication-Warning: sx07.ernet.in: vnp owned process doing -bs
Date: Mon, 3 Nov 1997 14:02:42 +0000 (GMT)
X-Sender: vnp@sx07
To: khurley@sunspot.ssl.berkeley.edu
Subject: GRB Master list
Mime-Version: 1.0

Dear Prof. Hurley,
SROSS-C2 has not recorded any event on 25 Jun 97.

The following SROSS events preceding and following the 7 Jun 97 event may
kindly be included in the next update of the GRB Master list
2 FEB 97 7:10:44.273UT confirmed by Ulysses & BATSE (Trig No. 5995)
22 Feb 97 23:53:27.392UT confirmed by Ulysses
26 Feb 97 8:46:34.198 UT confirmed by Ulysses
15 Jul 97 14:21:33.22UT confirmed by Ulysses, DMSP,Wind(TGRS)
?? Aug 97 17:45:2.272UT confirmed by Ulysses,BATSE,RXTE

Regards,
padmini

----- End Included Message -----

From kmarar@isac.ernet.in Tue Feb 18 06:36 PST 1997
From: kmarar@isac.ernet.in
>Received: from se07 by isac.ernet.in (AIX 3.2/UCB 5.64/4.03)
          id AA92712; Tue, 18 Feb 1997 16:39:57 GMT
   e: Tue, 18 Feb 1997 16:39:56 +0000 (CUT)
X-Sender: kmarar@se07
To: Hurley K <khurley@sunspot.ssl.berkeley.edu>
Subject: sross event of 2 feb 97
Mime-Version: 1.0

Dear Kevin
We have an event on Feb 2 at 07:10:44.273 UT. -- about 12 sec long.
Was it seen by Ulysses/ Batse/ Wind etc.?
Krishnan

Helio corr removed 17/2/00

Date: Mar 25 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Were data checked by Joe Springer for 0.5 s errors?

☑ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?

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

2. BATSE Data

☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)? N/A

☑ BATSE ephemeris for T_0?

☑ Error circle position and radius from public catalog used?

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

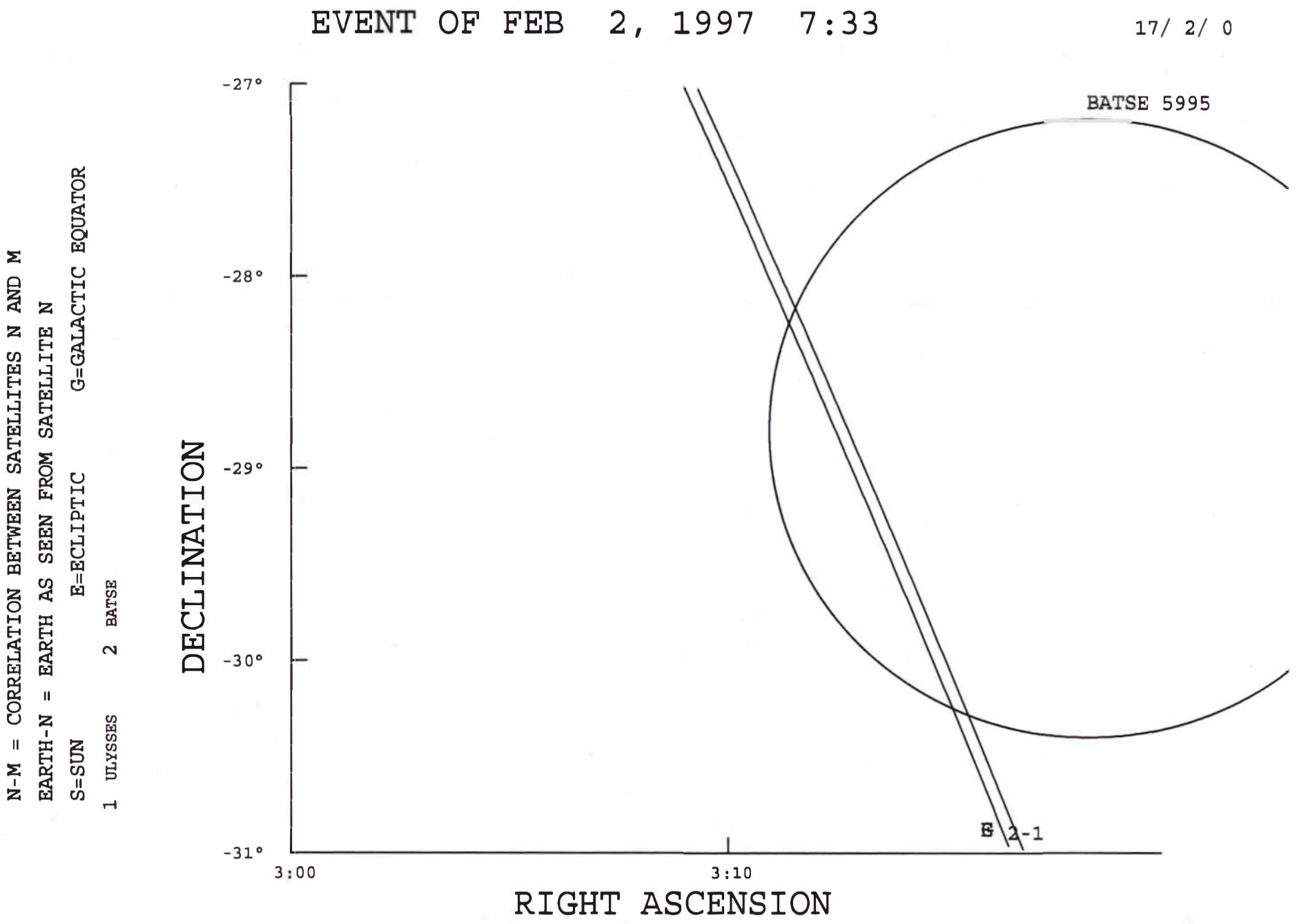
3. PVO Data

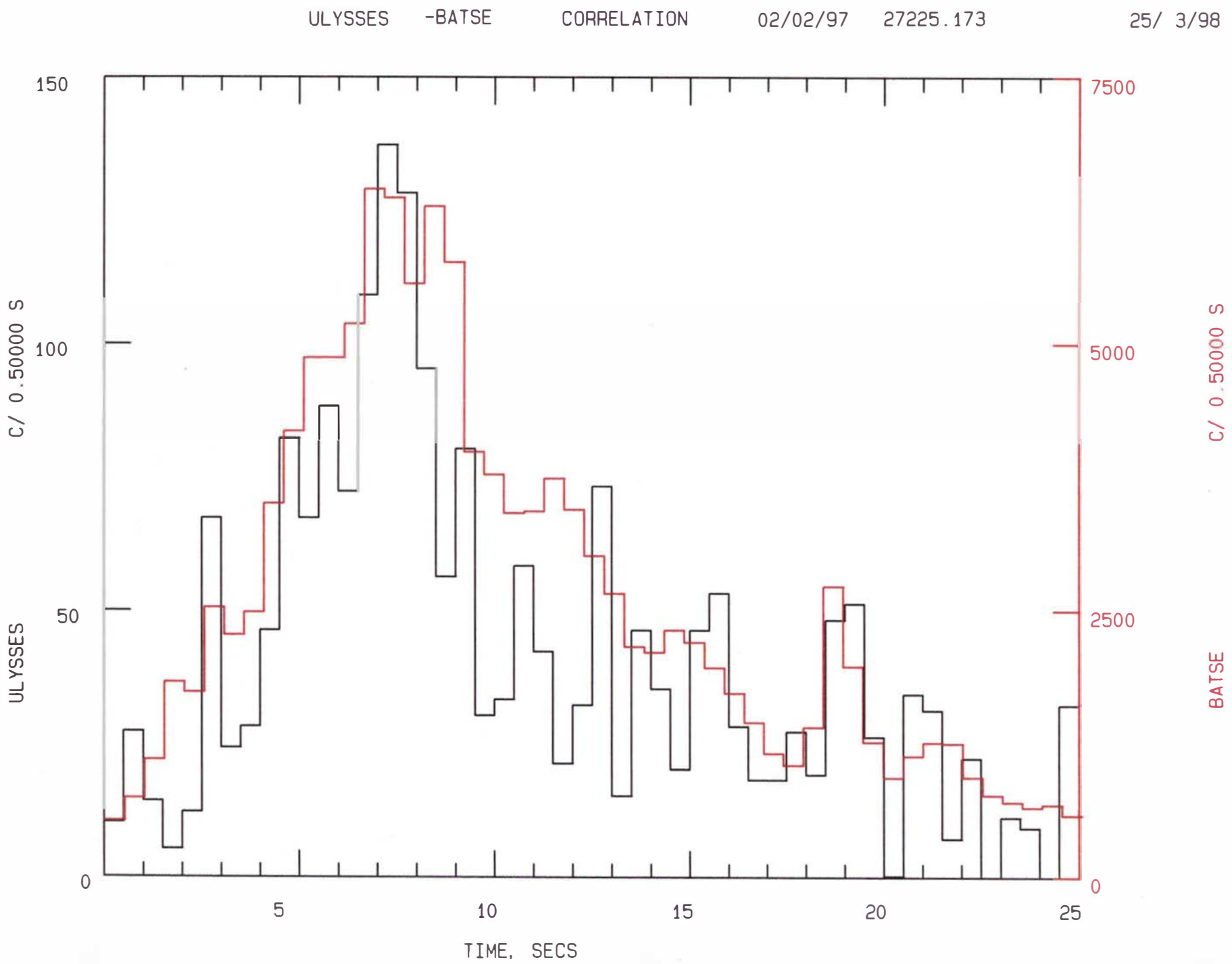
☐ Ephemeris of PVO used (not Venus)?

☐ 2000 coordinates used?

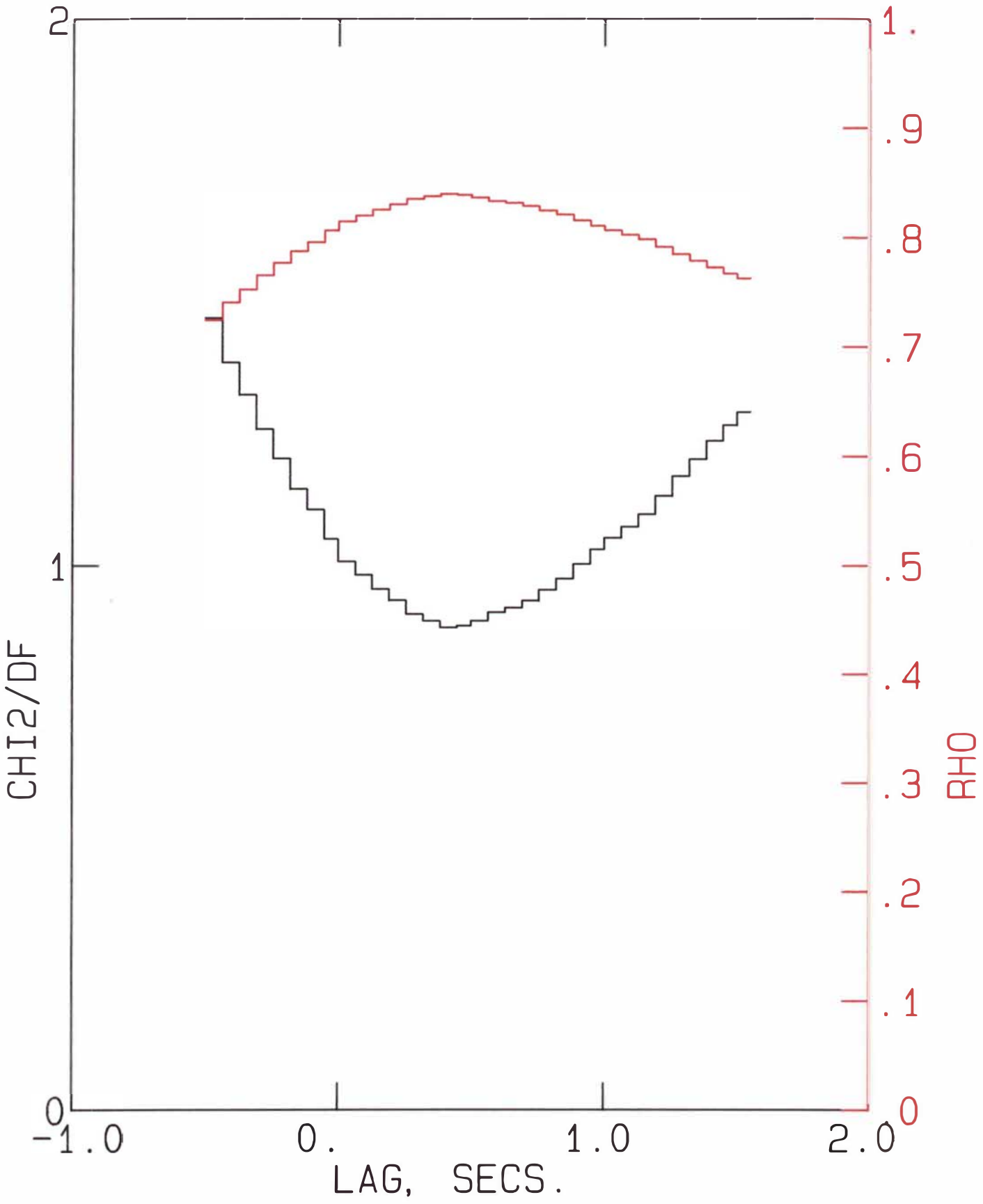
☐ Geocentric time used?

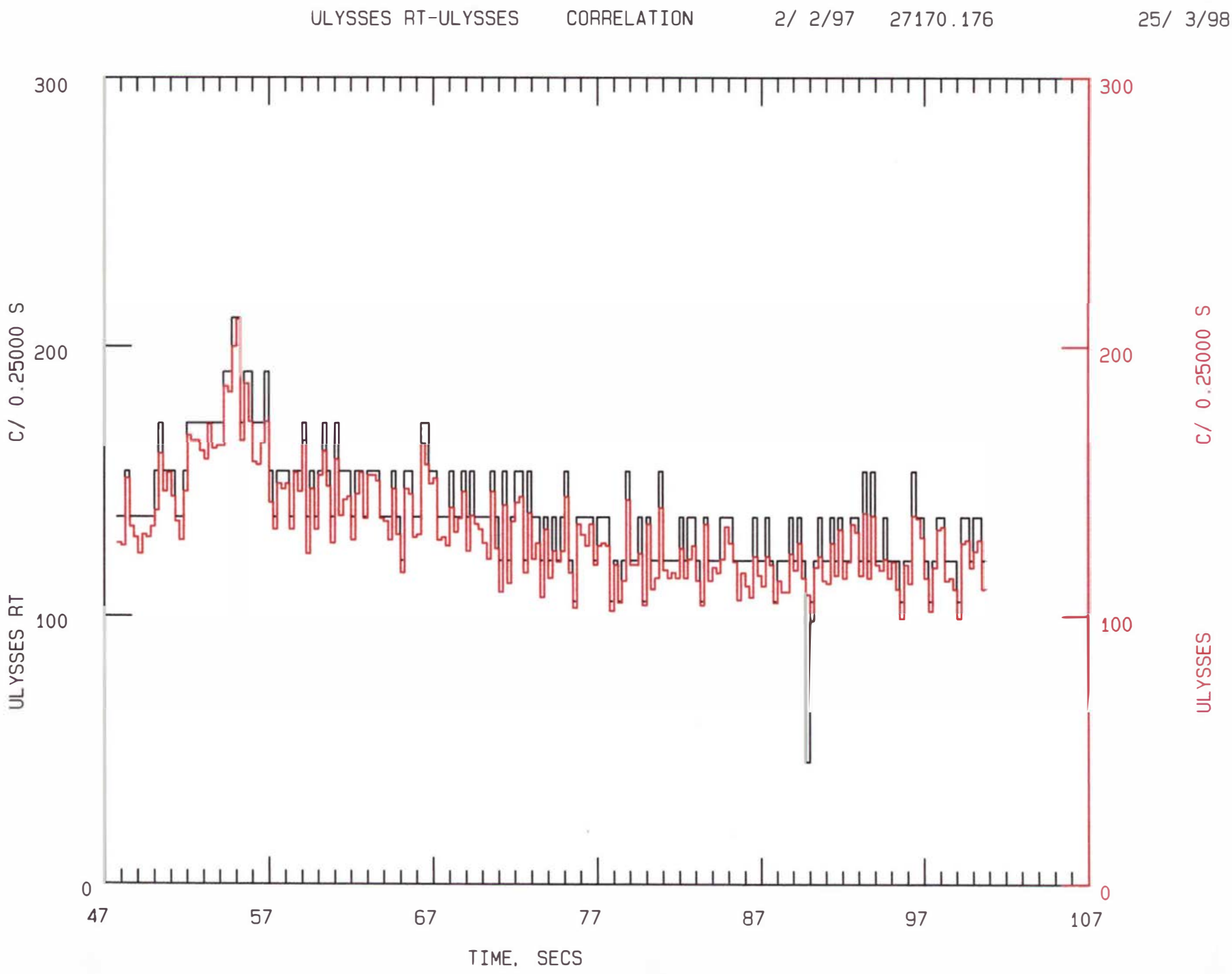
☑ ACCESS database updated?


EVENT OF FEB 2, 1997 7:33
17/ 2/ 0
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE
DECLINATION
-27°
-28°
-29°
-30°
-31°
3:00
3:10
RIGHT ASCENSION
BATSE 5995
E 2-1


ULYSSES -BATSE CORRELATION 02/02/97 27225.173 25/ 3/98
150
100
50
0
7500
5000
2500
0
C/ 0.50000 S
ULYSSES
C/ 0.50000 S
BATSE
5
10
15
20
25
TIME, SECS

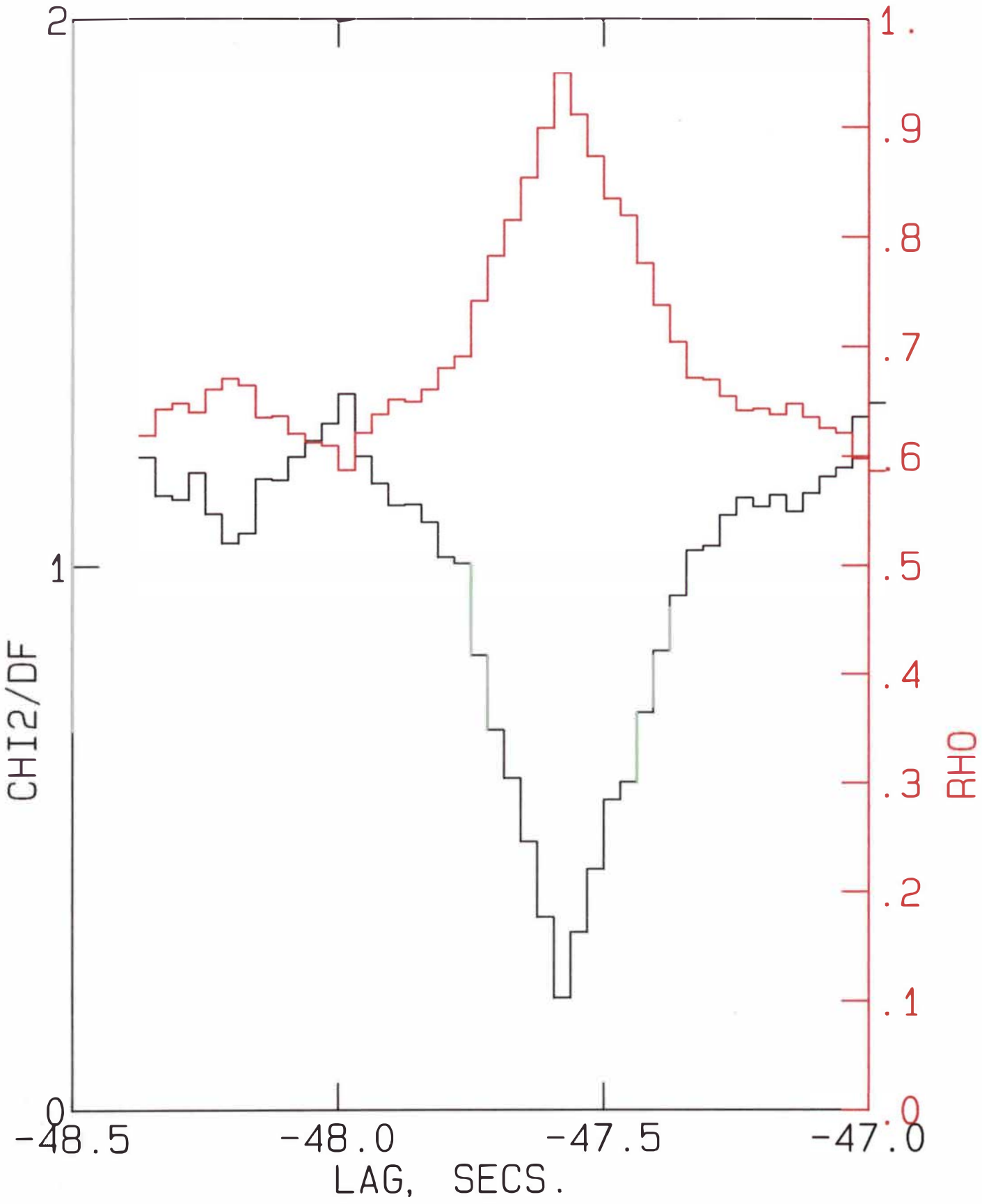
ULYSSES -BATSE CORRELATION 02/02/97 27225.173




ULYSSES RT-ULYSSES CORRELATION 2/ 2/97 27170.176 25/ 3/98
300
200
100
0
C/ 0.25000 S
ULYSSES RT
47
57
67
77
87
97
107
TIME, SECS
ULYSSES

25/ 3/98

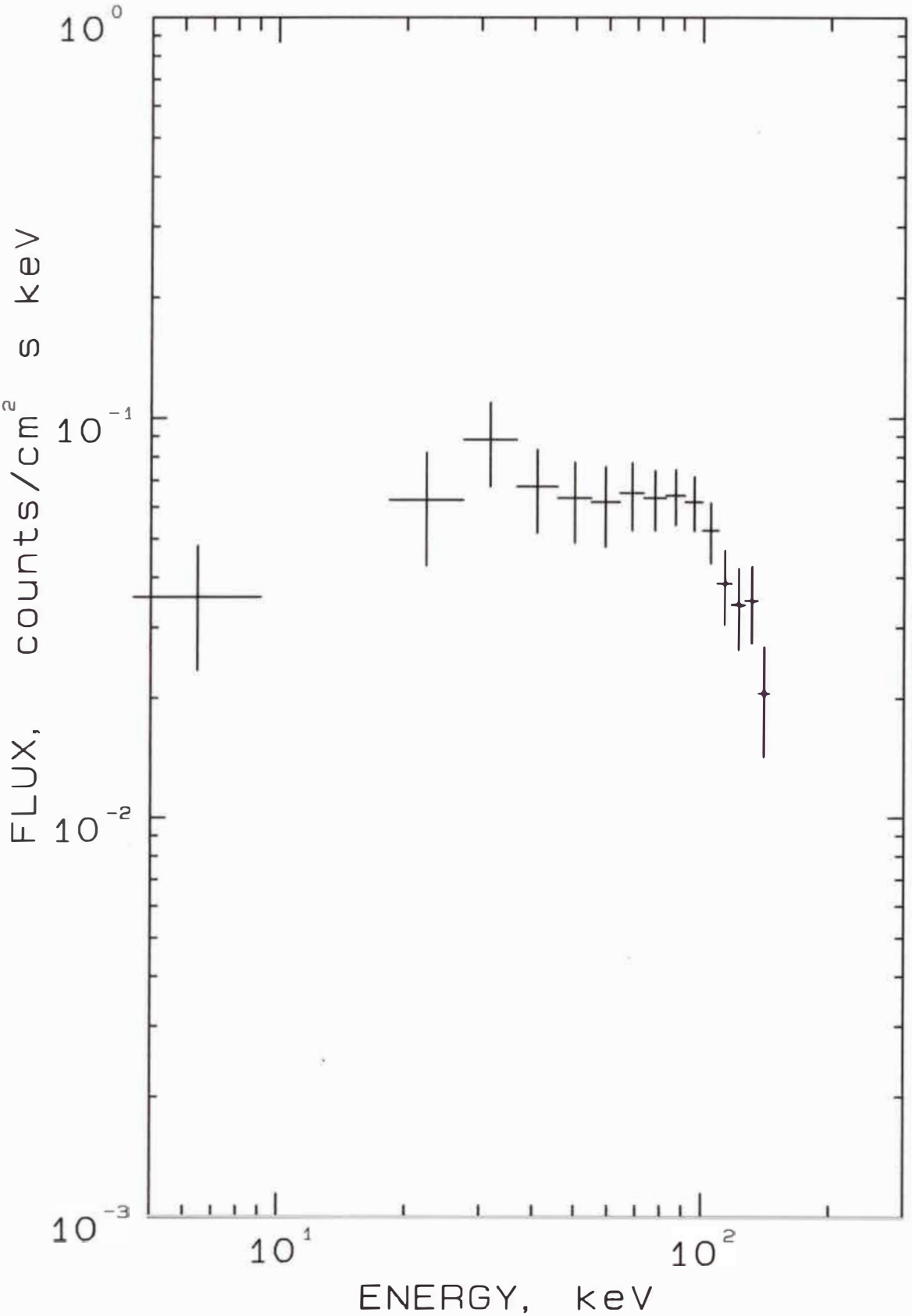
ULYSSES RT-ULYSSES CORRELATION 2/ 2/97 27170.176

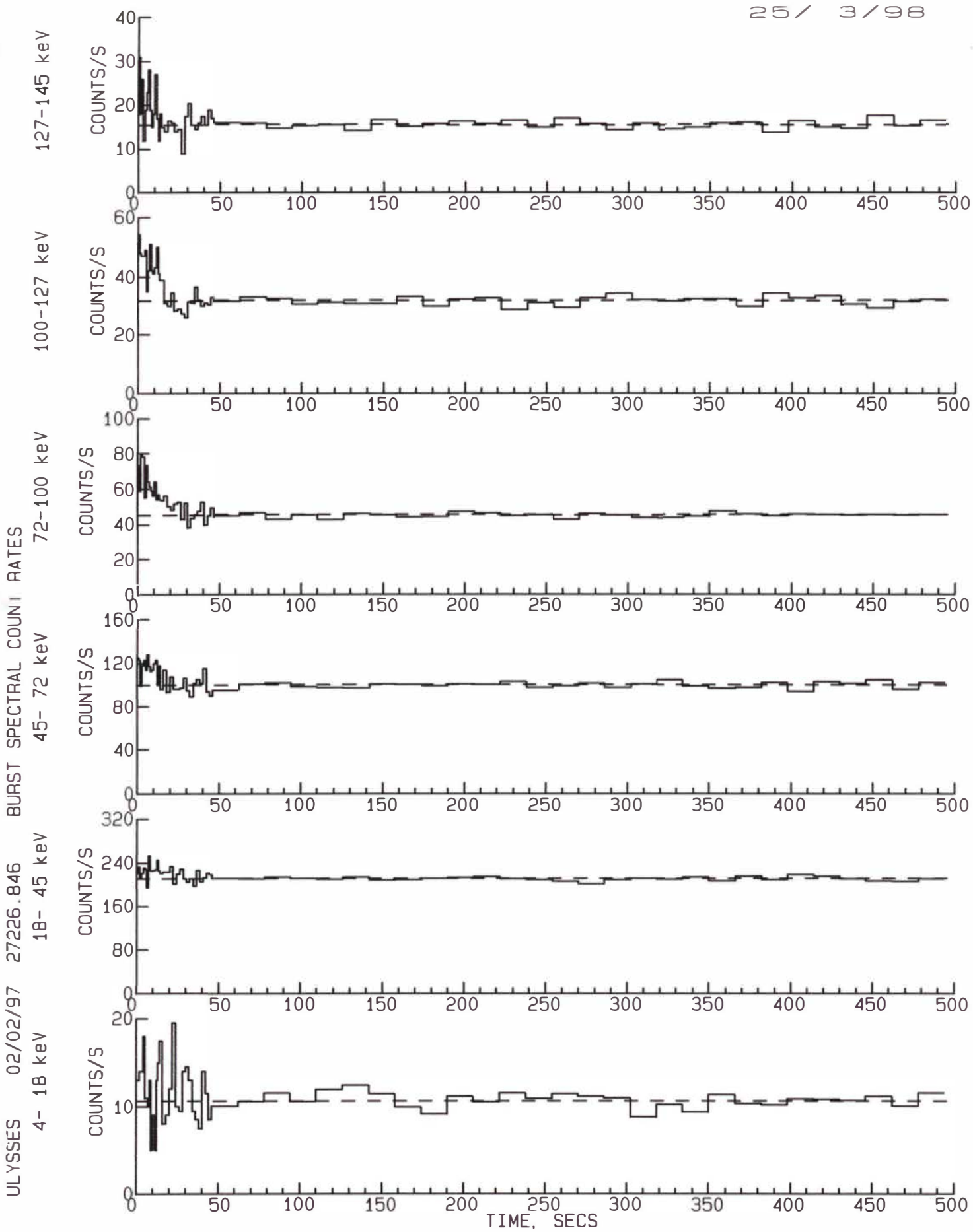


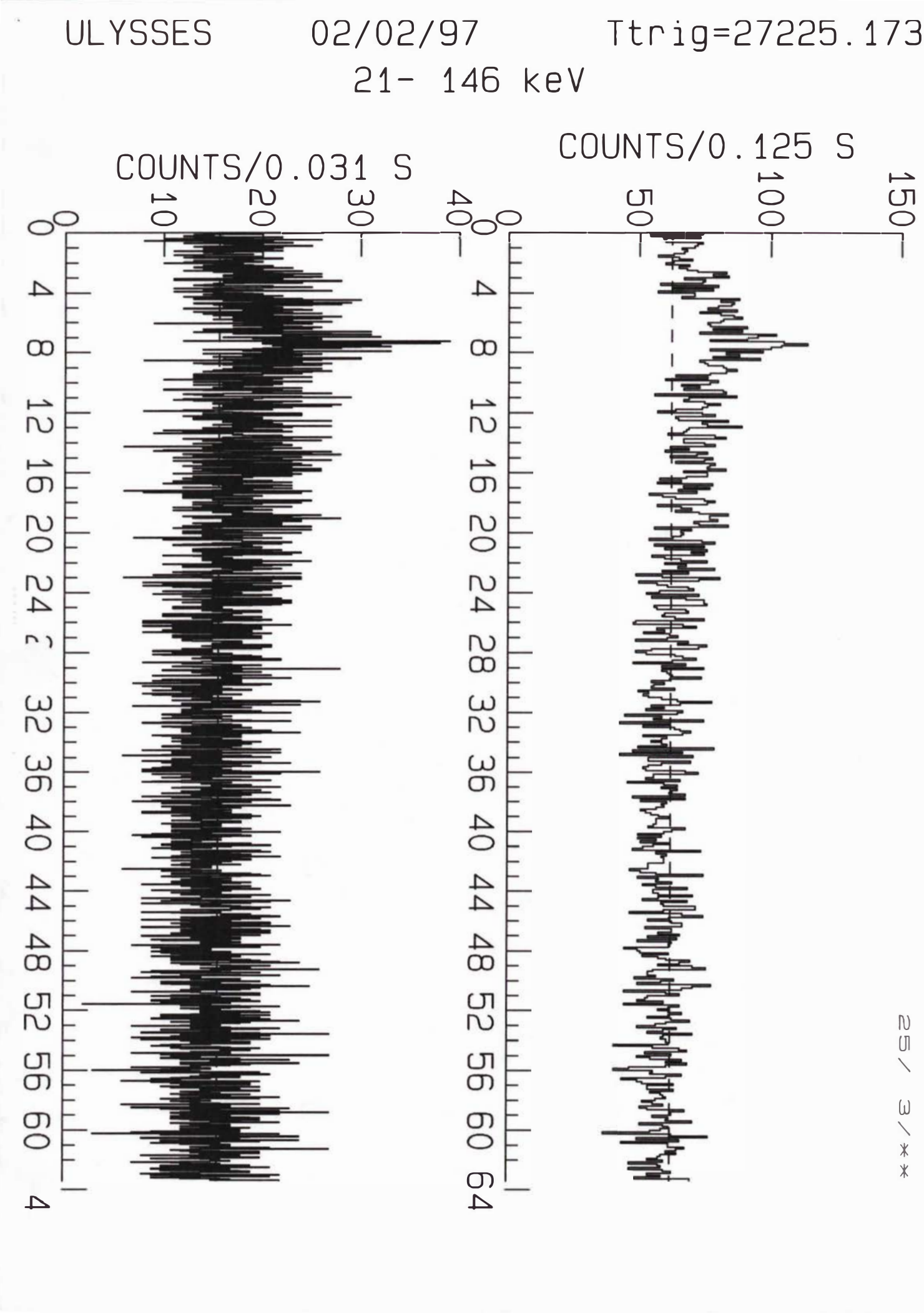
ULYSSES 02/02/97 27226.846

25/ 3/98

SPECTRUM INTEGRATED OVER 10.0 SECONDS, INTERVALS 2 TO 12




25/ 3/98
ULYSSES 02/02/97 27226.846 BURST SPECTRAL COUNT RATES
127-145 keV
100-127 keV
72-100 keV
45- 72 keV
18- 45 keV
4- 18 keV
COUNTS/S
TIME, SECS

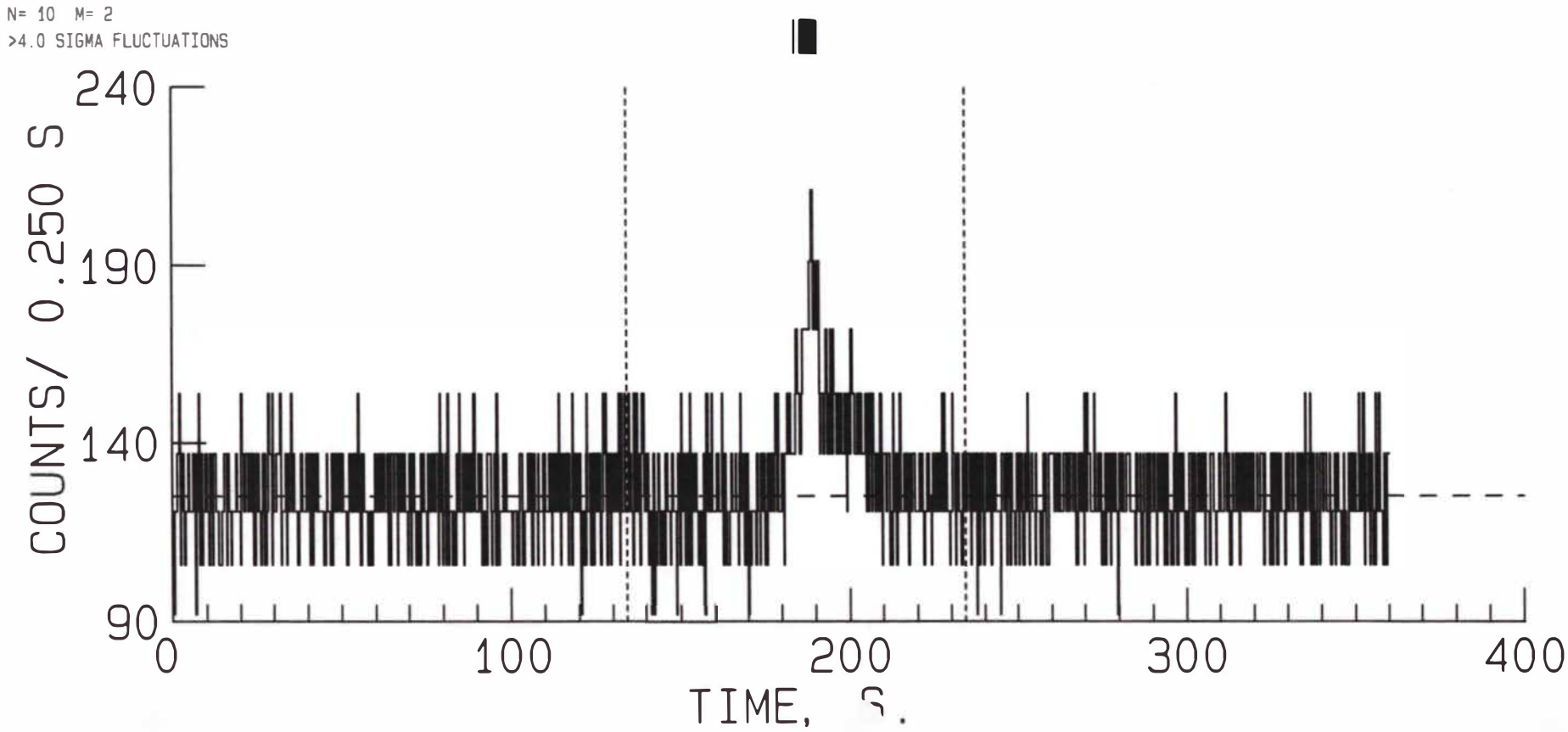

ULYSSES 02/02/97 Ttrig=27225.173
21- 146 keV
COUNTS/0.031 S
COUNTS/0.125 S
25/ 3/**

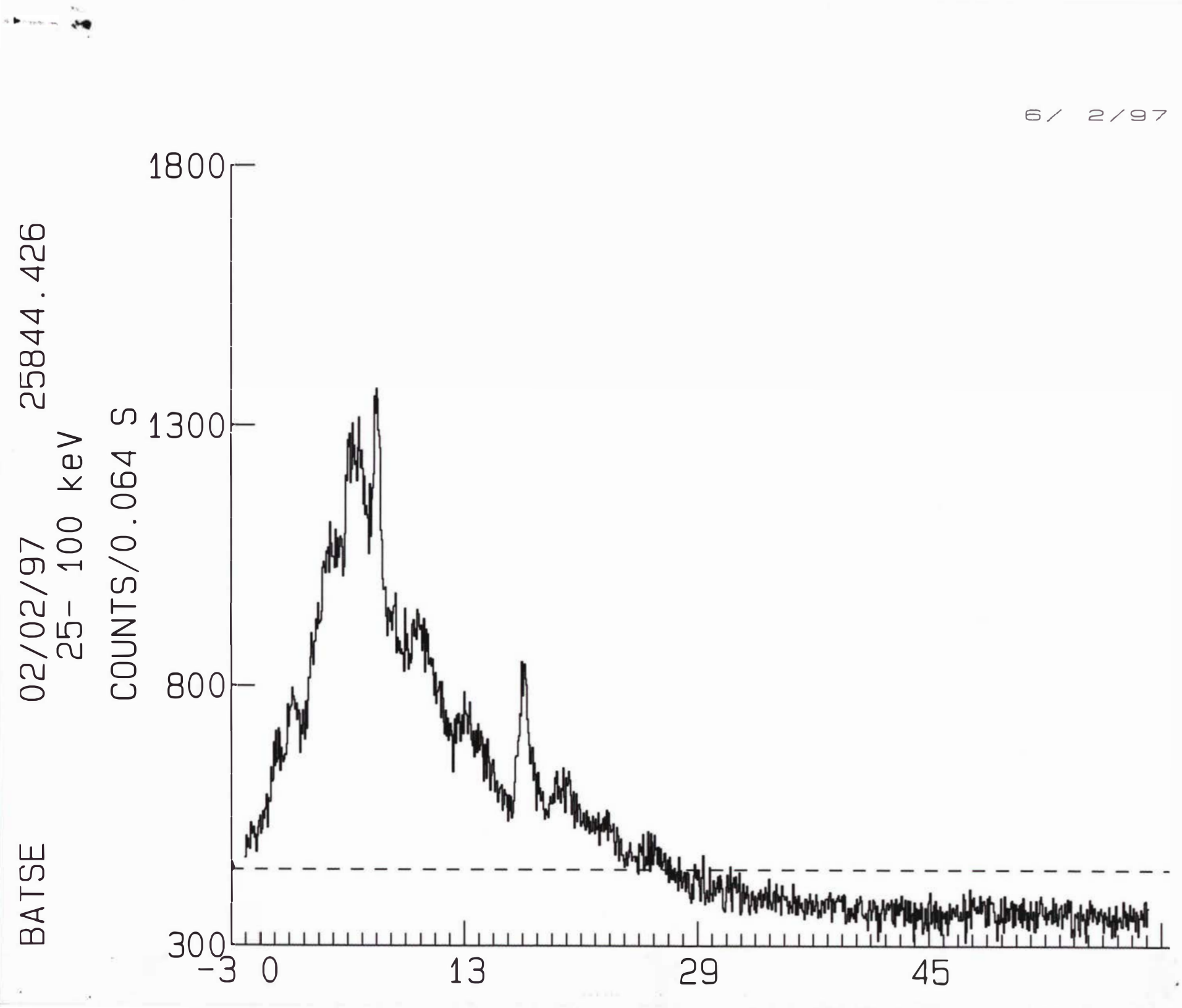
ULYSSES RT

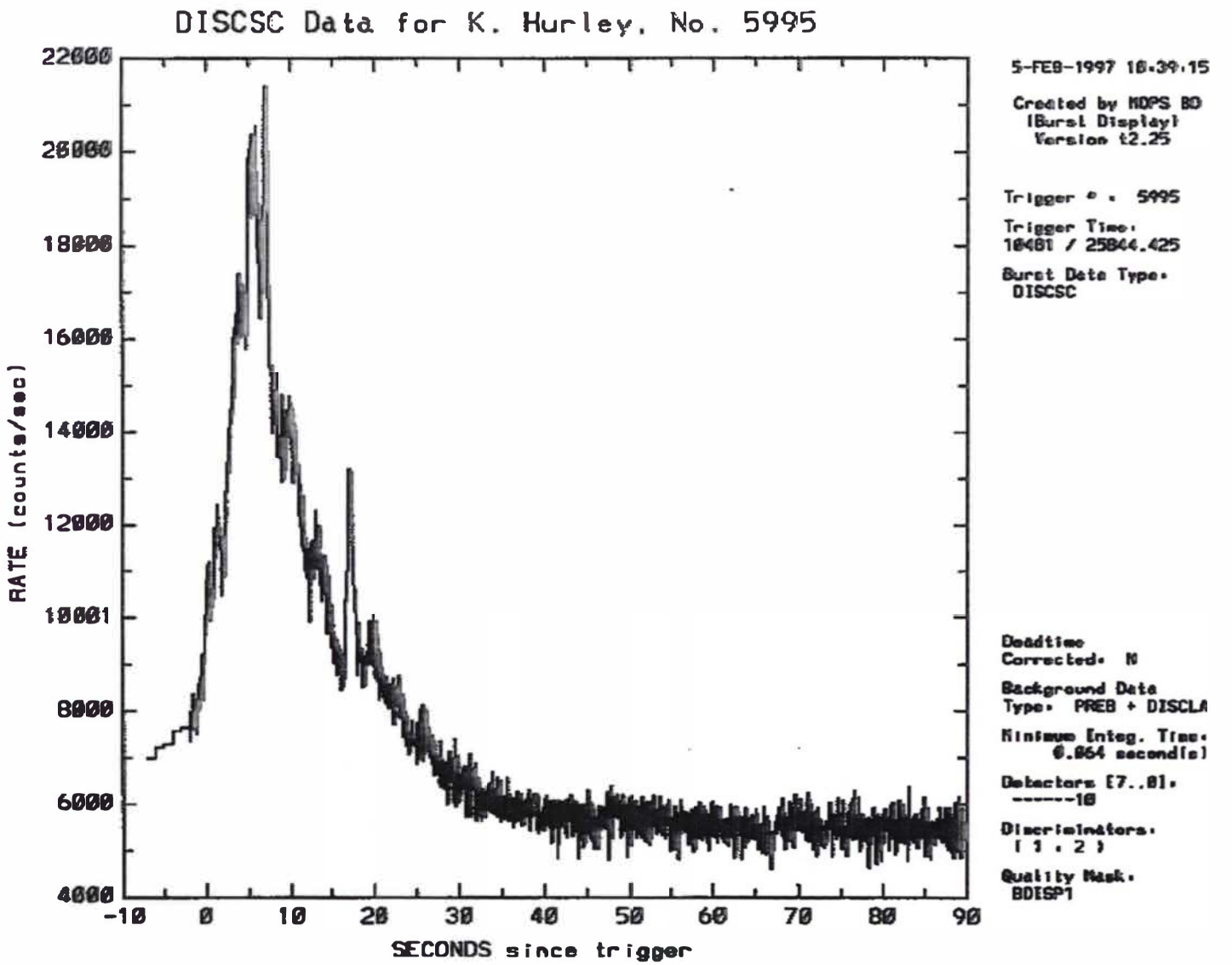
25/ 3/98

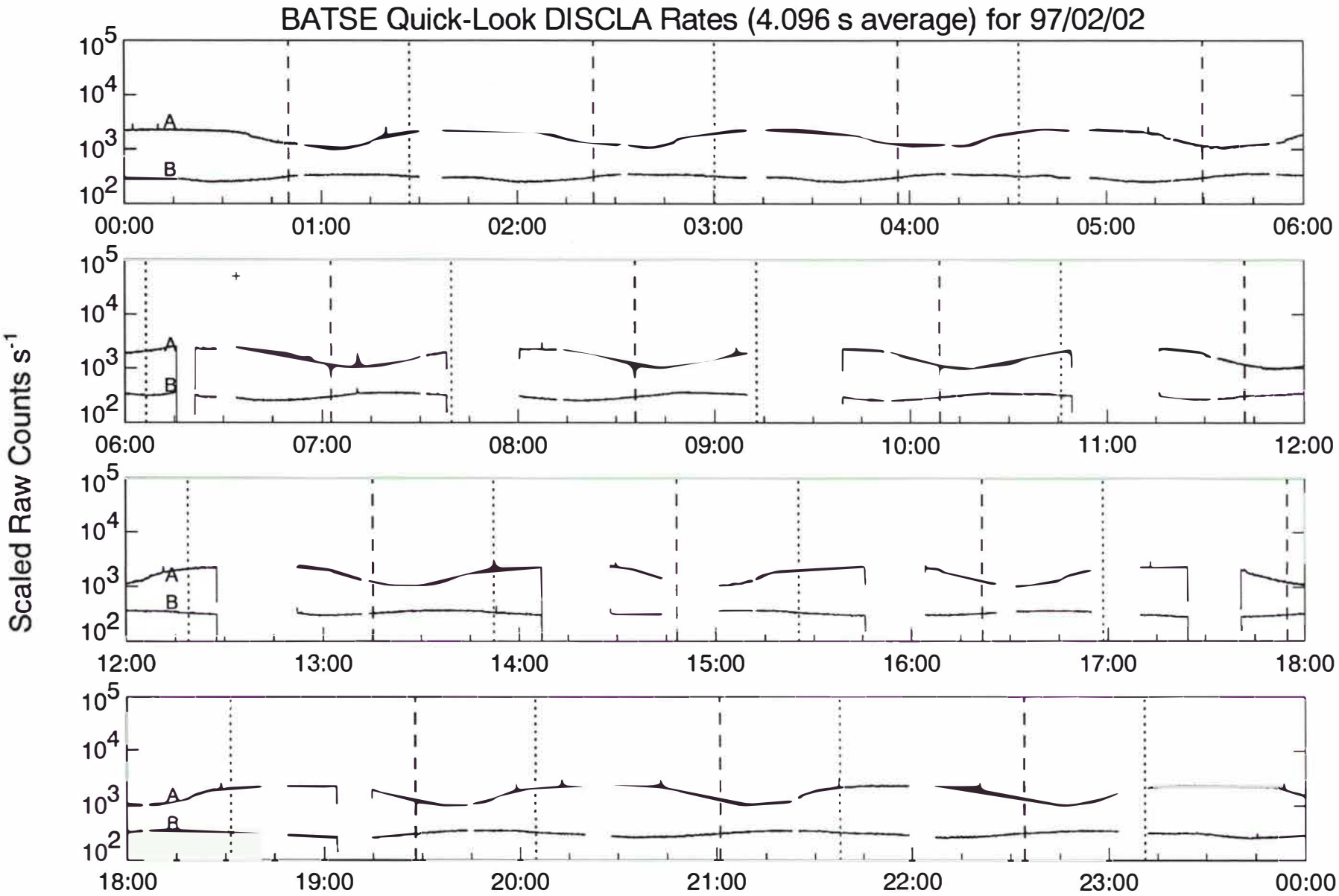
2/ 2/97 27036.074 s

21- 146 keV




6/ 2/97
BATSE 02/02/97 25844.426
25- 100 keV
COUNTS/0.064 S
1800
1300
800
300
-3
0
13
29
45

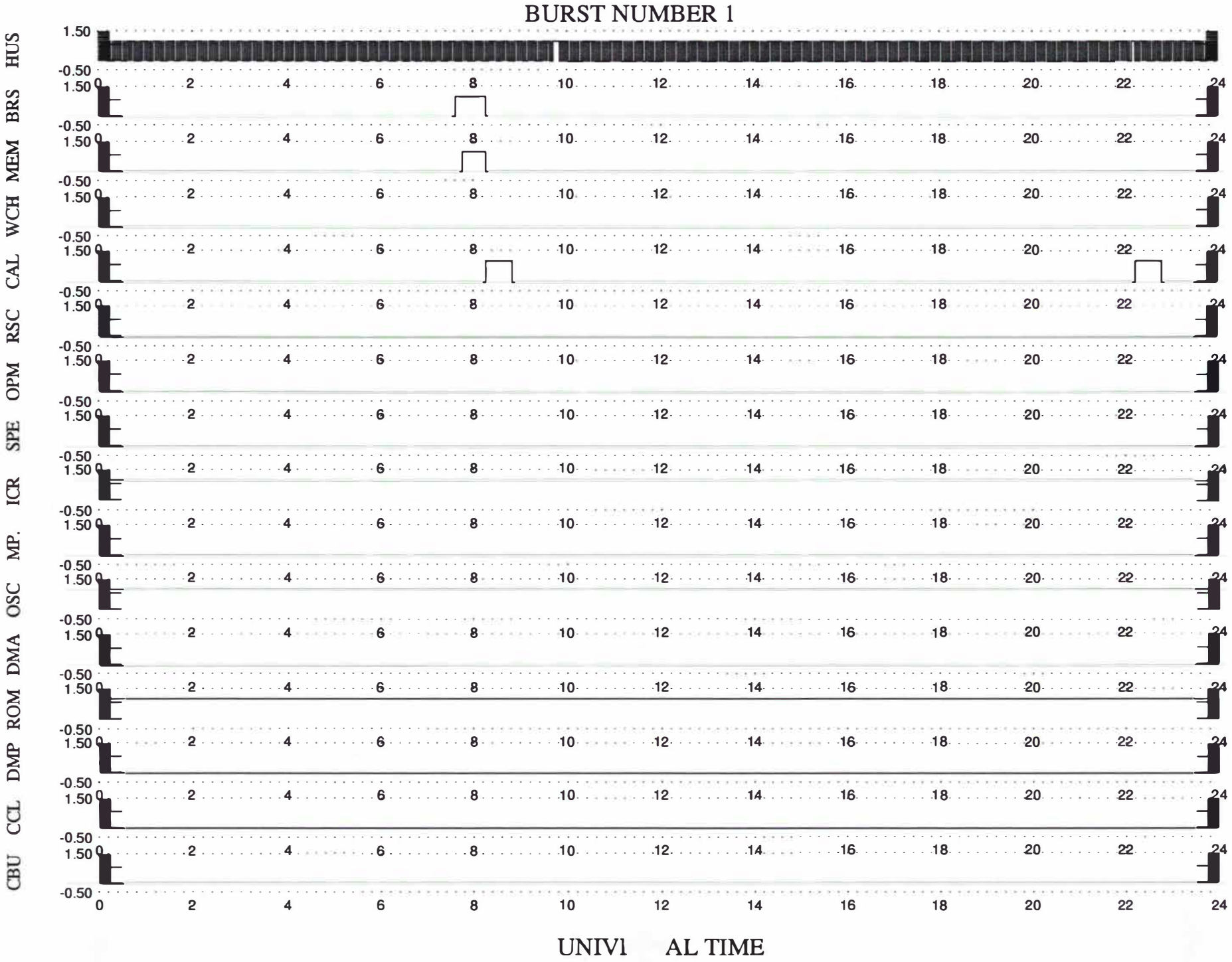

DISCSC Data for K. Hurley, No. 5995
RATE (counts/sec)
22000
20000
18000
16000
14000
12000
10000
8000
6000
4000
-10
0
10
20
30
40
50
60
70
80
90
SECONDS since trigger
5-FEB-1997 10:39:15
Created by MDPS BD
(Burst Display)
Version t2.25
Trigger # : 5995
Trigger Time:
10481 / 25844.425
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)
Detectors [7..0]:
------10
Discriminators:
[1 , 2]
Quality Mask:
BDISP1



Current Time: 97/02/04, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

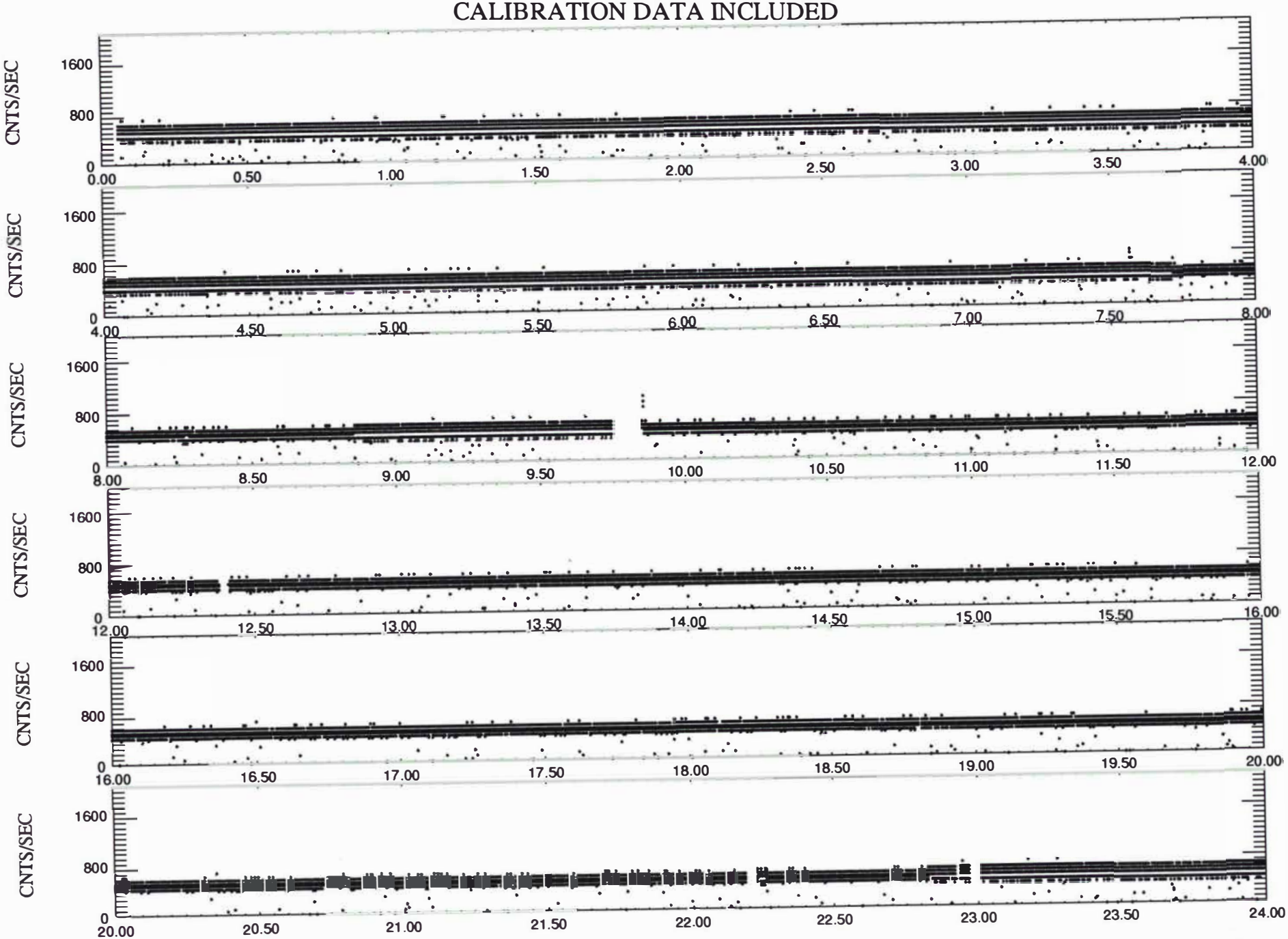
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
\+ Solar Flare


BURST NUMBER 1
HUS
BRS
MEM
WCH
CAL
RSC
OPM
SPE
ICR
MP.
OSC
DMA
ROM
DMP
CCL
CBU
1.50
-0.50
0
2
4
6
8
10
12
14
16
18
20
22
24
UNIVl AL TIME

HUS 2A, MODE 1, NOT AVERAGED EDR day 33, year 1997 to day 33, year 1997 5/16/97

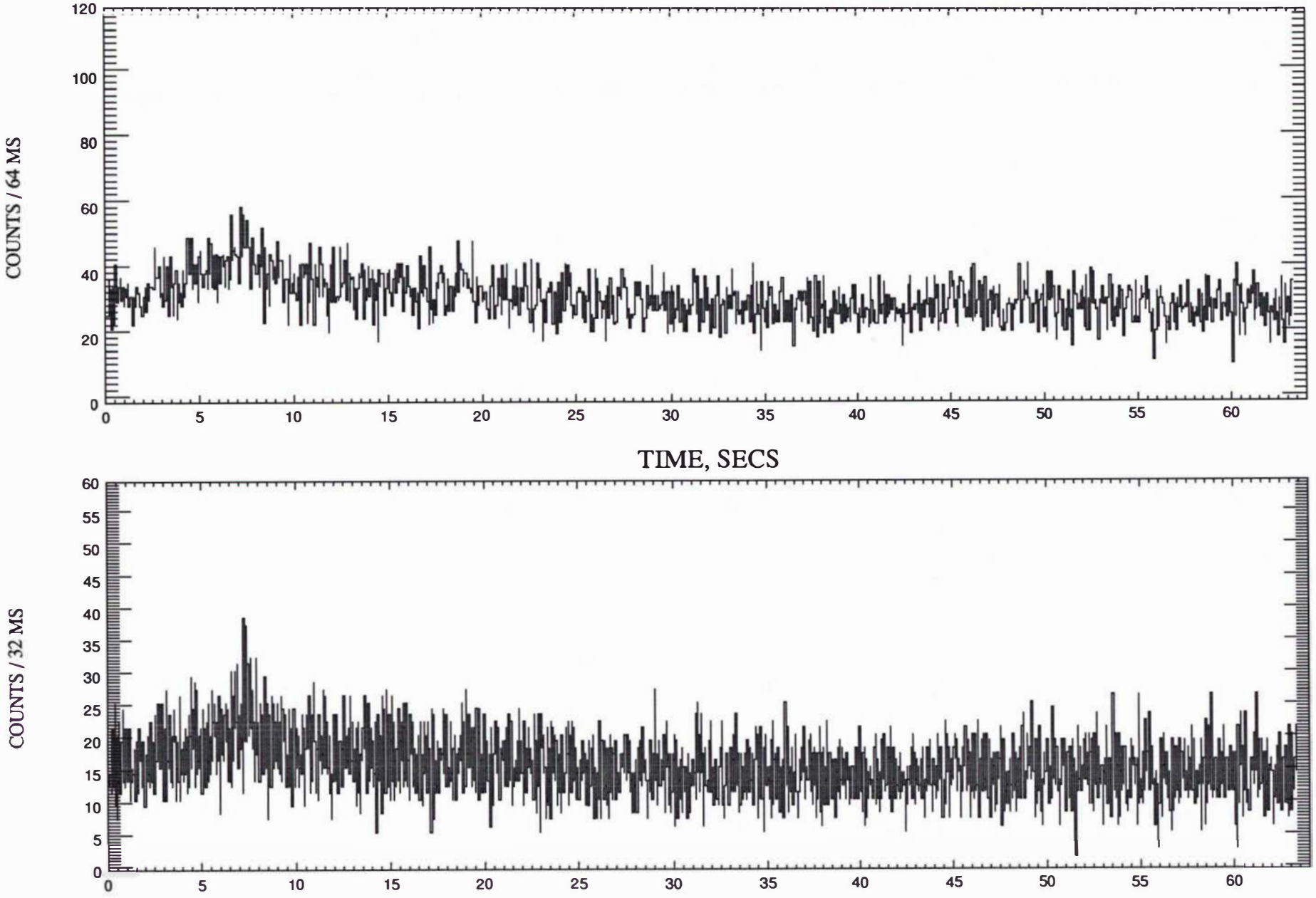
CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2A TRIGGERED DATA EDR day 33, year 1997 6/19/97

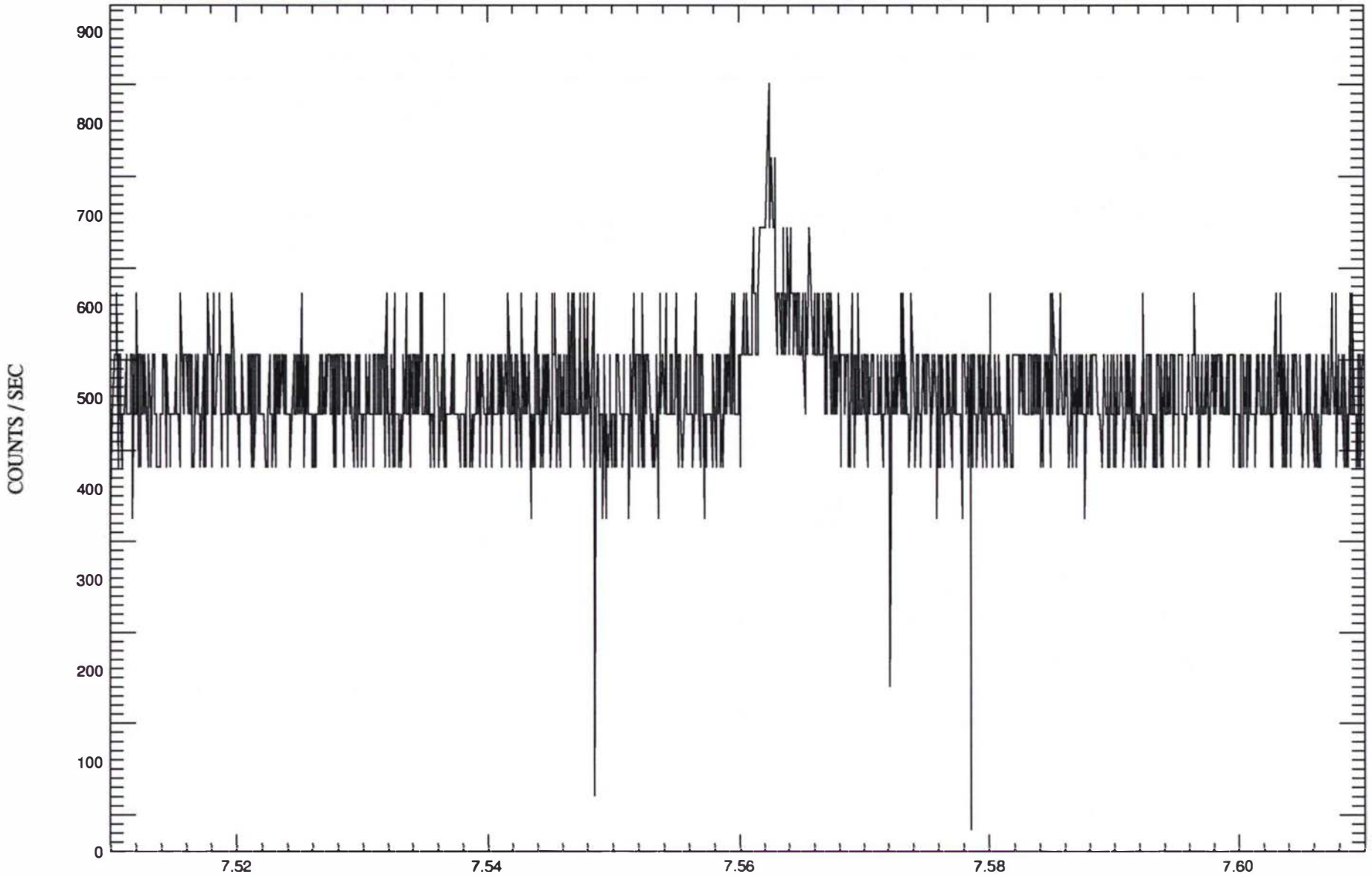
Burst Counter 1 at UT= 7.562519255744 h=27225.069 s 07:33:45.069



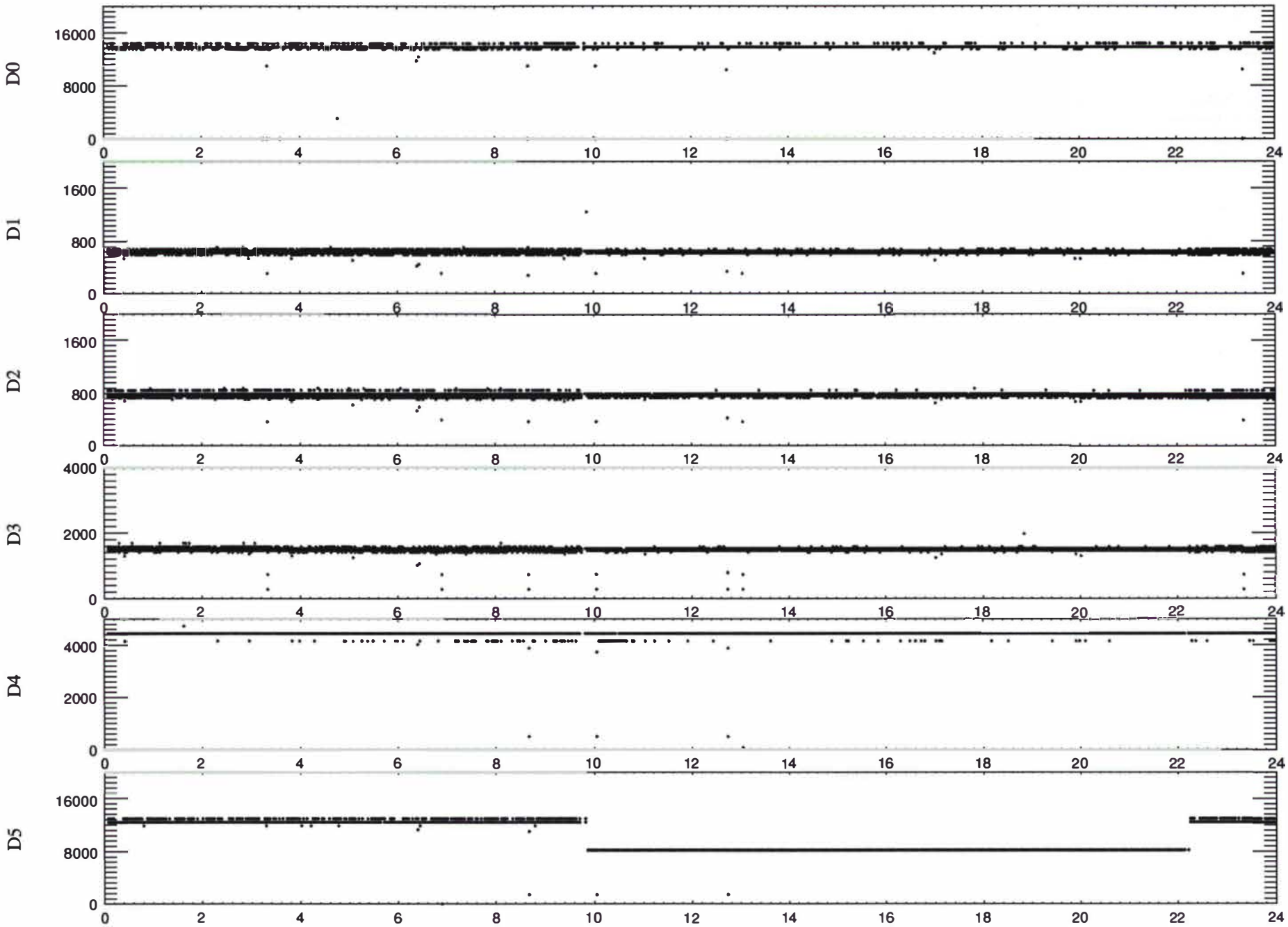
3# 1

HUS 2A, MODE 1, NOT AVERAGED EDR day 33, year 1997 to day 33, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 33, year 1997 to day 33, year 1997 5/16/97



Date: Feb 1 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

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

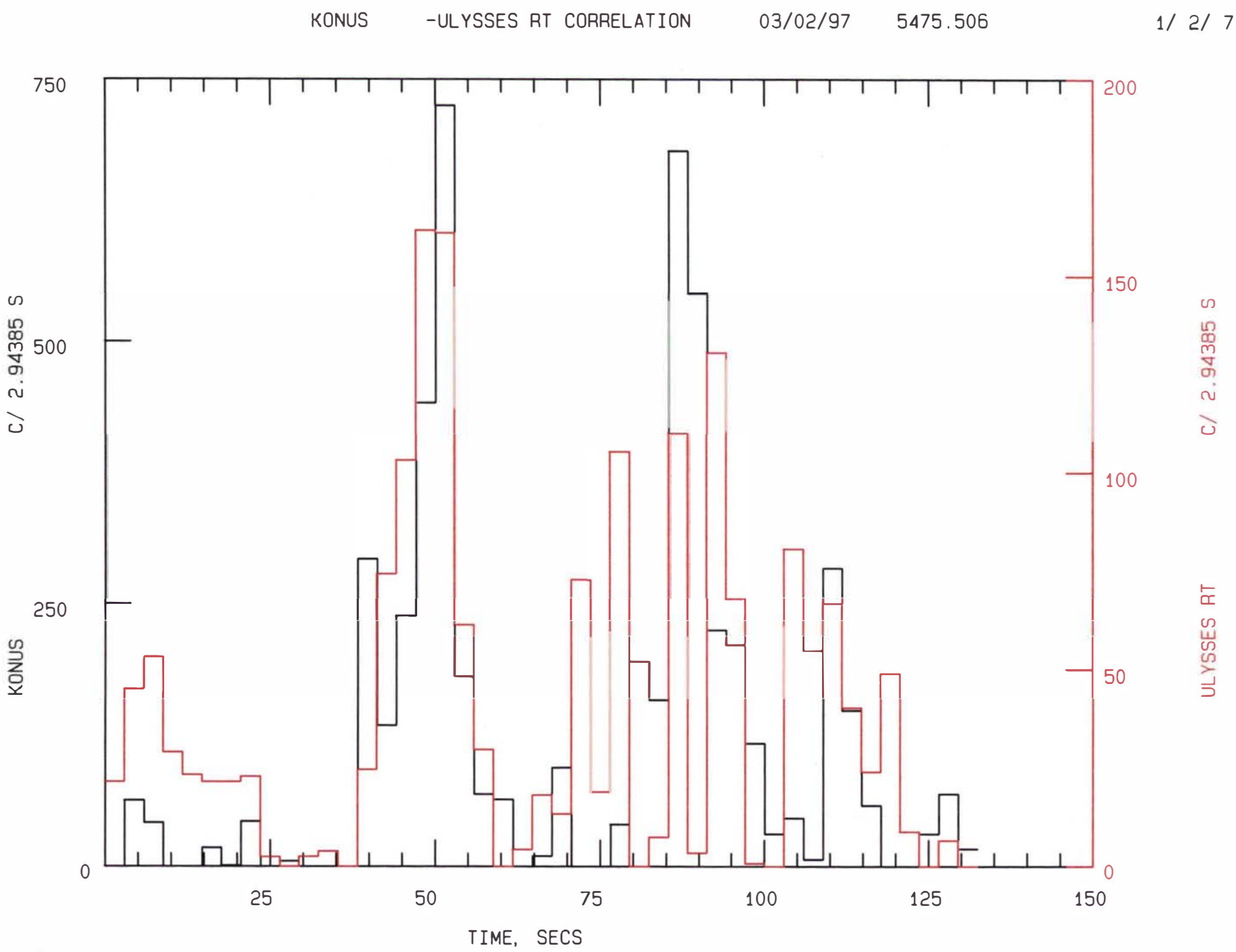
3. For INTEGRAL events

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

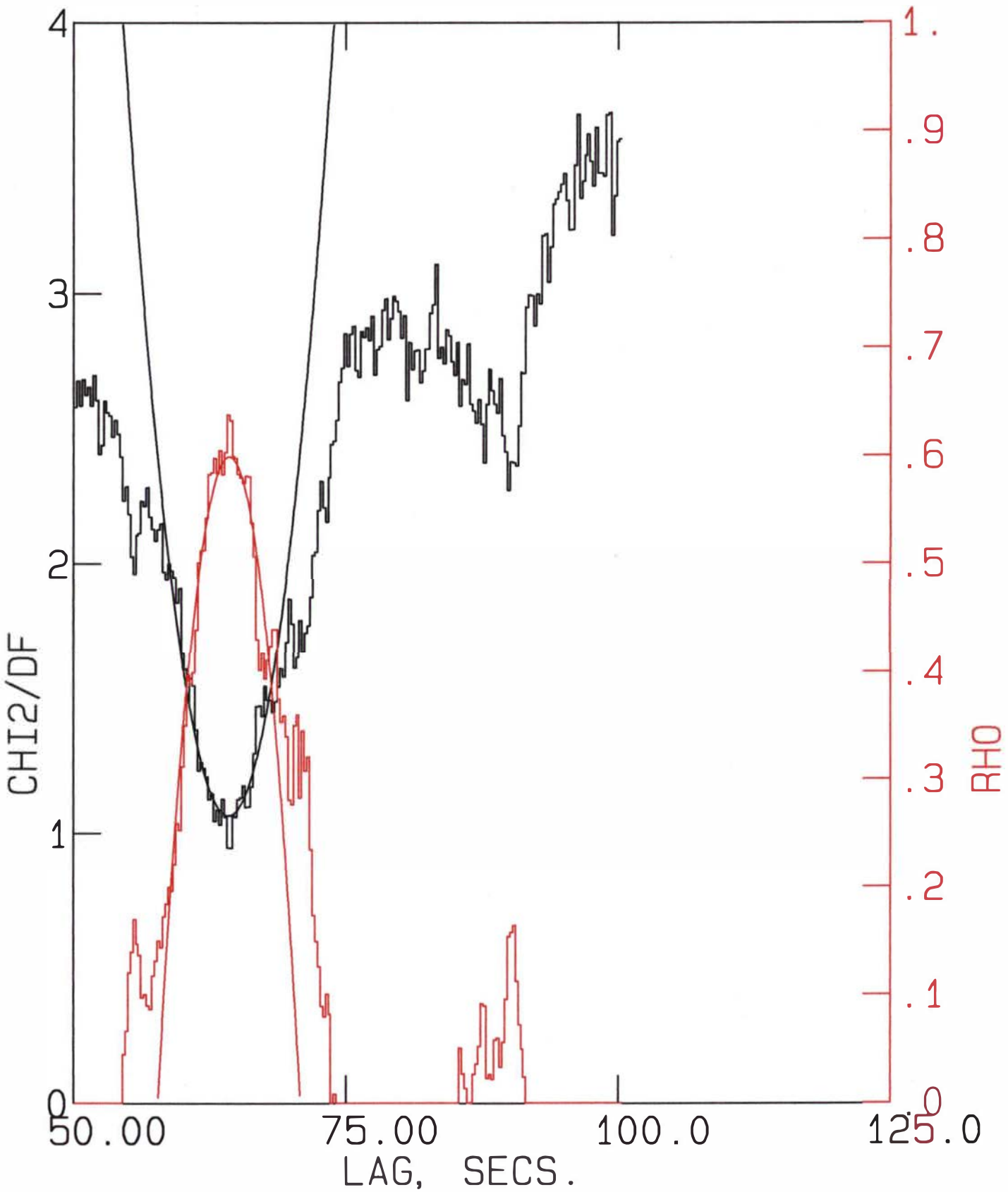
☐ 125 ms added to INTEGRAL SPI-ACS time for bursts prior to April 2 2004 11:00 UT?

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

☑ ACCESS and MBL4 databases updated?

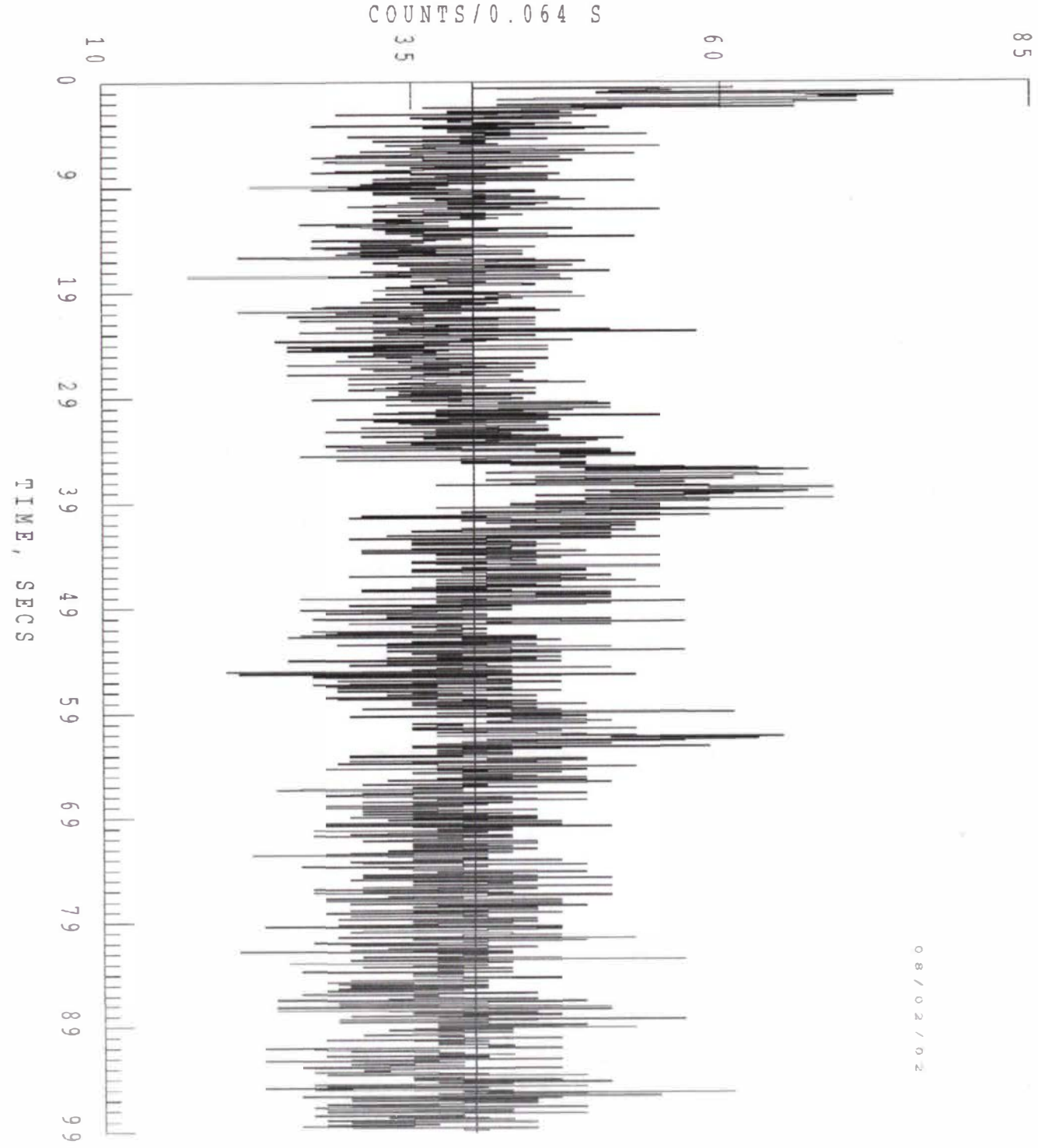

KONUS -ULYSSES RT CORRELATION 03/02/97 5475.506 1/ 2/ 7
750
500
250
0
200
150
100
50
0
C/ 2.94385 S
KONUS
C/ 2.94385 S
ULYSSES RT
25
50
75
100
125
150
TIME, SECS

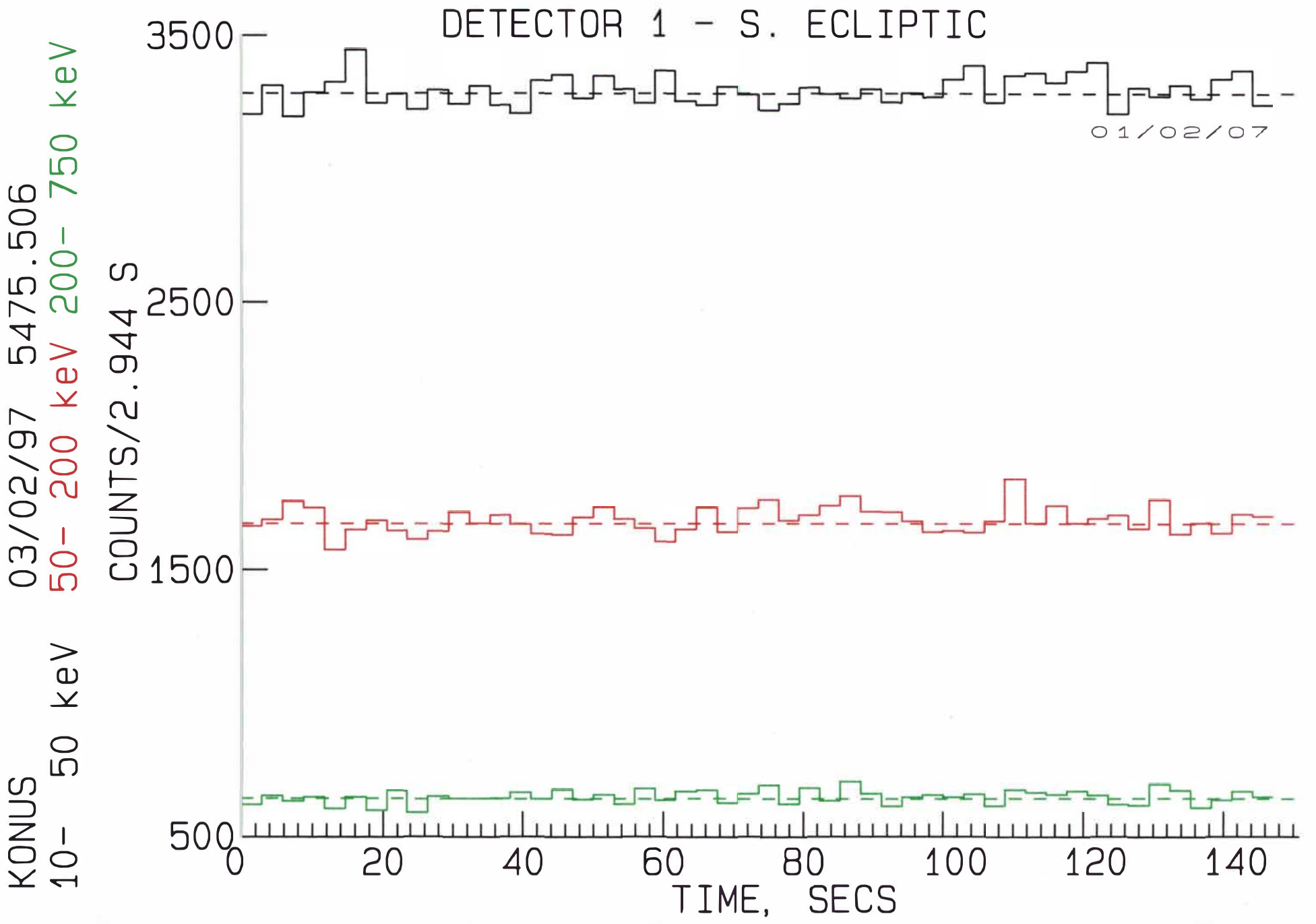
KONUS -ULYSSES RT CORRELATION 03/02/97 5475.506

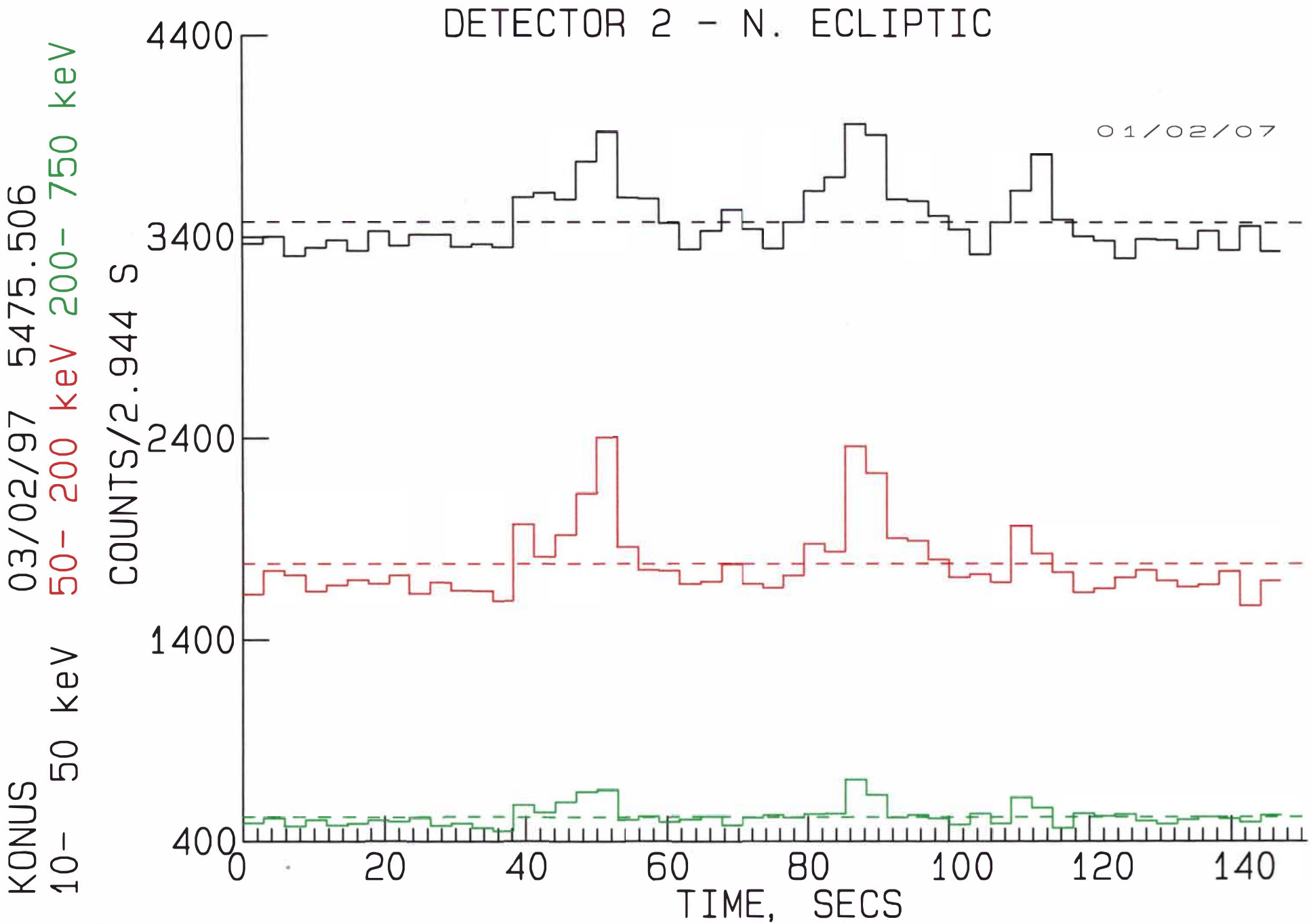


KONUS2 03/02/97 5525.913

50- 200 keV




DETECTOR 1 - S. ECLIPTIC
01/02/07
KONUS 03/02/97 5475.506
10- 50 keV 50- 200 keV 200- 750 keV
COUNTS/2.944 S
3500
2500
1500
500
0
20
40
60
80
100
120
140
TIME, SECS


DETECTOR 2 - N. ECLIPTIC
01/02/07
KONUS
10- 50 keV
50- 200 keV
200- 750 keV
03/02/97 5475.506
COUNTS/2.944 S
4400
3400
2400
1400
400
0
20
40
60
80
100
120
140
TIME, SECS

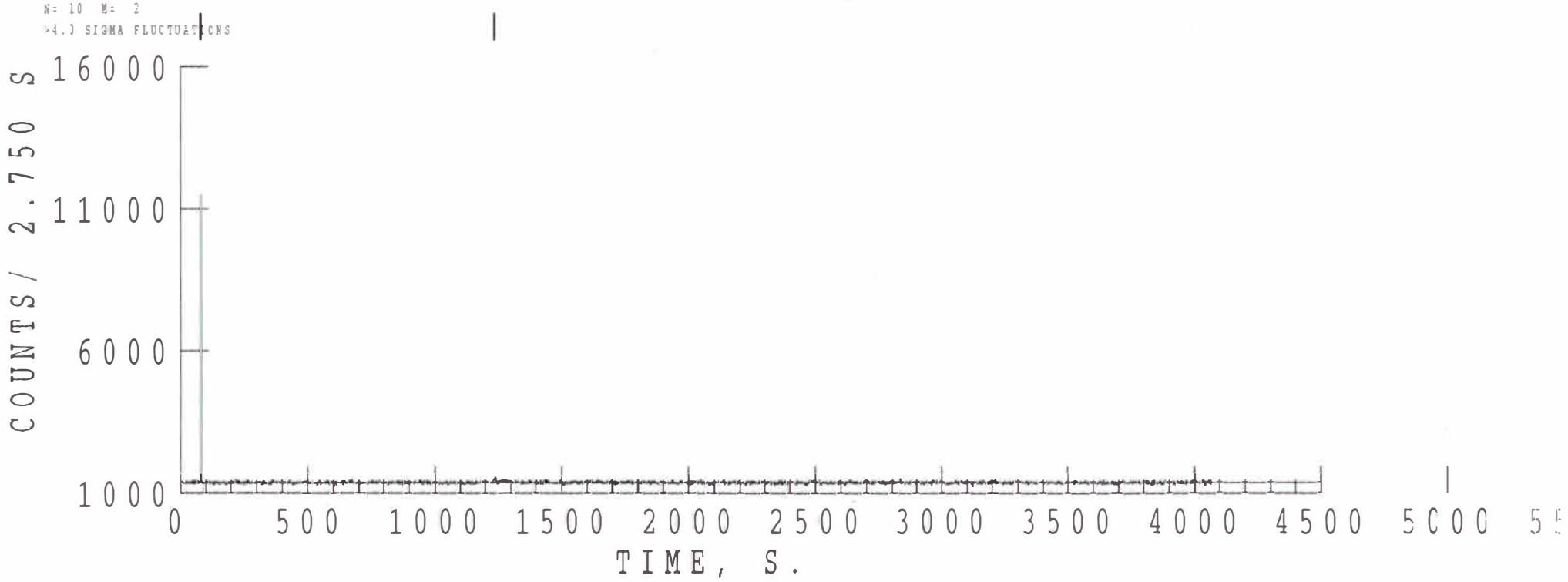
KONUS2 19970203 05525

ULYSSES RT 08/02/02

03/02/97 3492.085 s

0.250 S INTERVALS REGROUPED BY 11

0- 0 keV



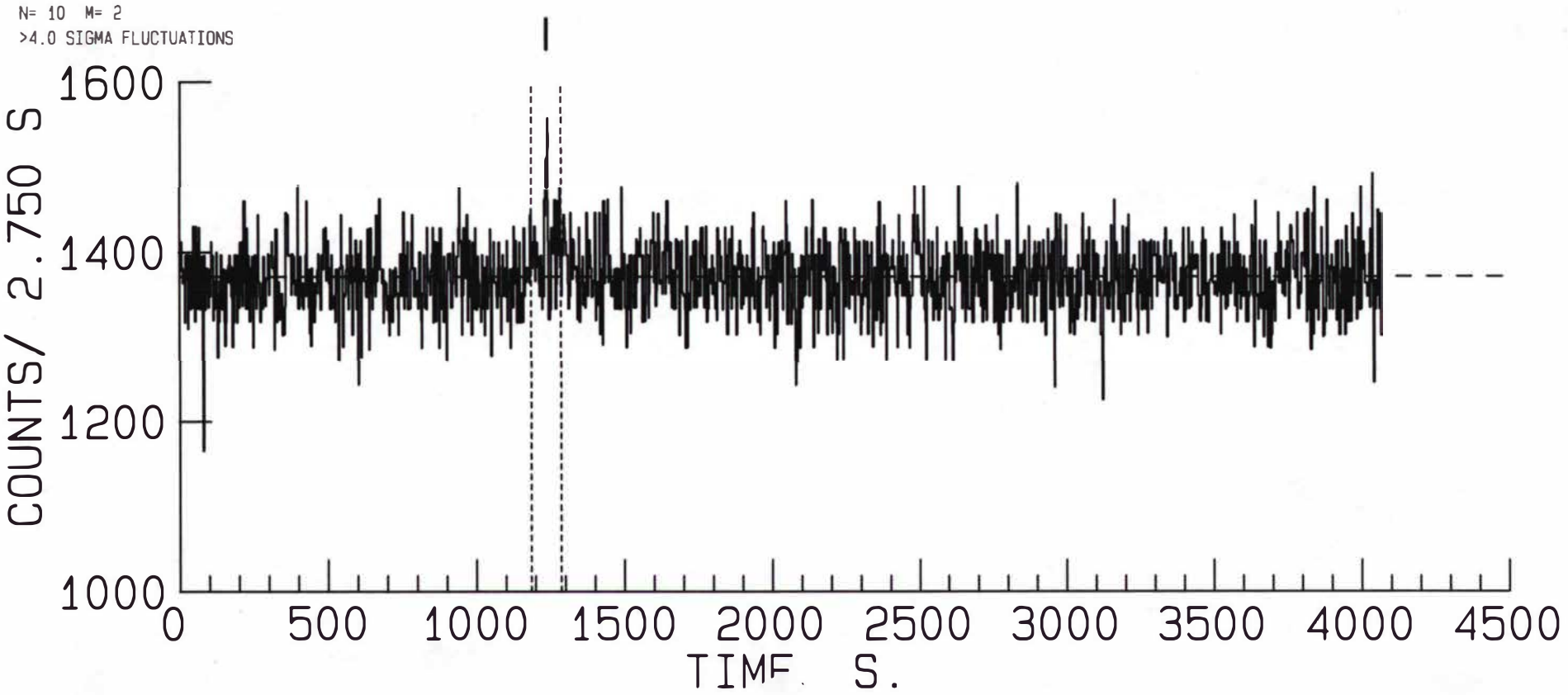
ULYSSES RT

3/ 2/ 0

3/ 2/97 3492.085 s

0.250 S INTERVALS REGROUPED BY 11

21- 146 keV



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

 BATSE BURST #     6004
 EVENT OF 1997 FEB  3 DAY OF YEAR= 34
 EVENT CROSSING TIME AT BATSE      : 66758. S. OR 18:32:38.0
 COORDINATES ARE    0.000    0.000       6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION:    9.000    -4.000
 BATSE PEAK COUNTING RATE:    6500     C/S

 EVENT CROSSING TIME AT ULYSSES     WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON  3/ 2/  97 IS:
 RA=  172.073 DEC=    35.645 DIST=     3.981 AU
 BATSE-ULYSSES DISTANCE =  595501237. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 35.29 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1621.27 SECS.
 CROSSING TIME AT ULYSSES     IS 68379. S. OR   18:59:39 +/-  273.88 SECONDS

 EVENT CROSSING TIME AT MARS        WILL BE FOUND
 POSITION OF MARS ON  3/ 2/  97 IS:
 RA=  186.721 DEC=     0.772 DIST=     0.865 AU
 MARS-BATSE DISTANCE =  129381344. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=  3.95 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH=  430.54 SECS.
 CROSSING TIME AT MARS        IS 67189. S. OR   18:39:48 +/-   11.70 SECONDS


 BATSE #   Date     TJD     SoD   Max ct/s   RA   Dec  Dur (s)
   6004   970203   10482   66758     6500   009   -04     67

                BATSE BURST TRIGGER
NO.: 6004

TIME: TJD=0482 SECONDS=66758

TYPE: BURST                    SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE:       SIGMA

INTENSITY:          COUNTS/CM2

LOCATION: ZENITH=75.6   AZIMUTH=46.8   ERROR=1.8   DEGREES

COMMENTS:
GRB LASTING ~ 67 SEC.  SINGLE PULSE WITH LARGE DIP IN TIME HISTORY.
SOME SUBSTRUCTURE.  NOT VISIBLE ABOVE 300 KEV.
```

BATSE# 6004

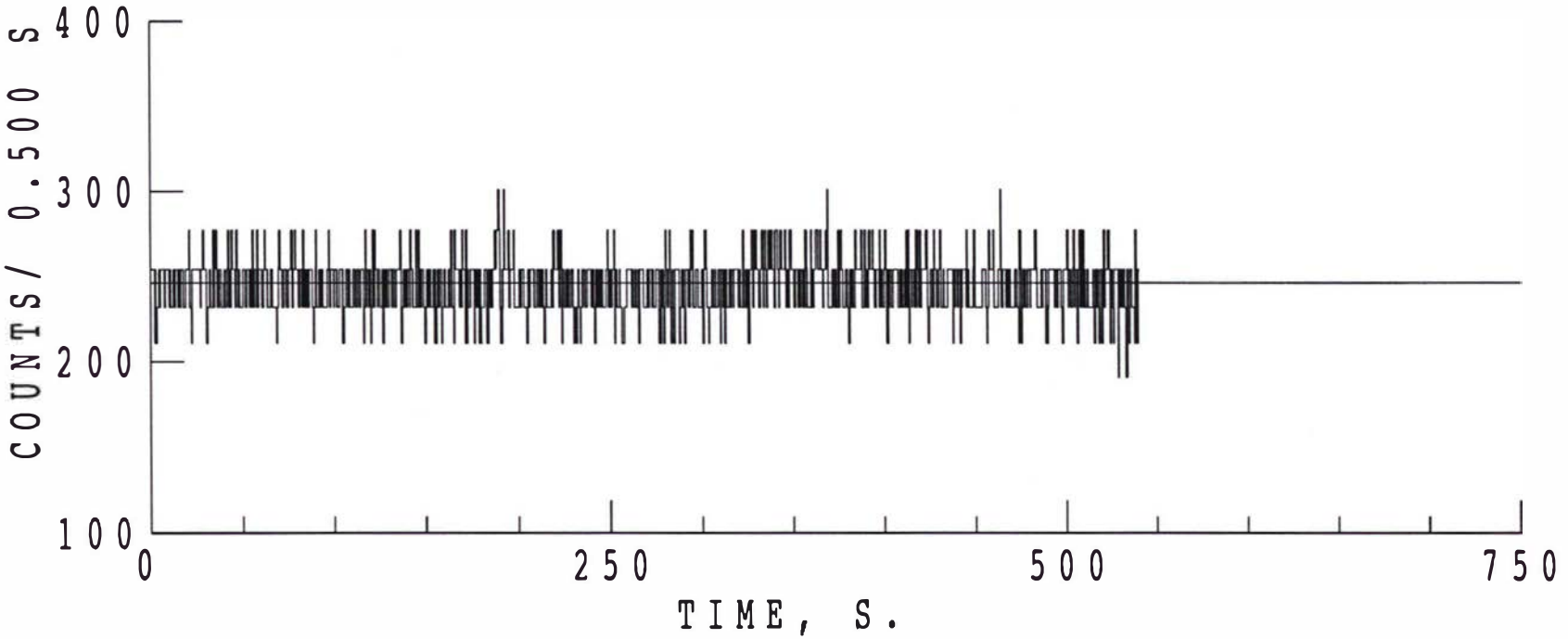
ULYSSES RT 5/ 2/97

3/ 2/97 68112.367 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS (on 4th)

ULYSSES RT

02/02/00

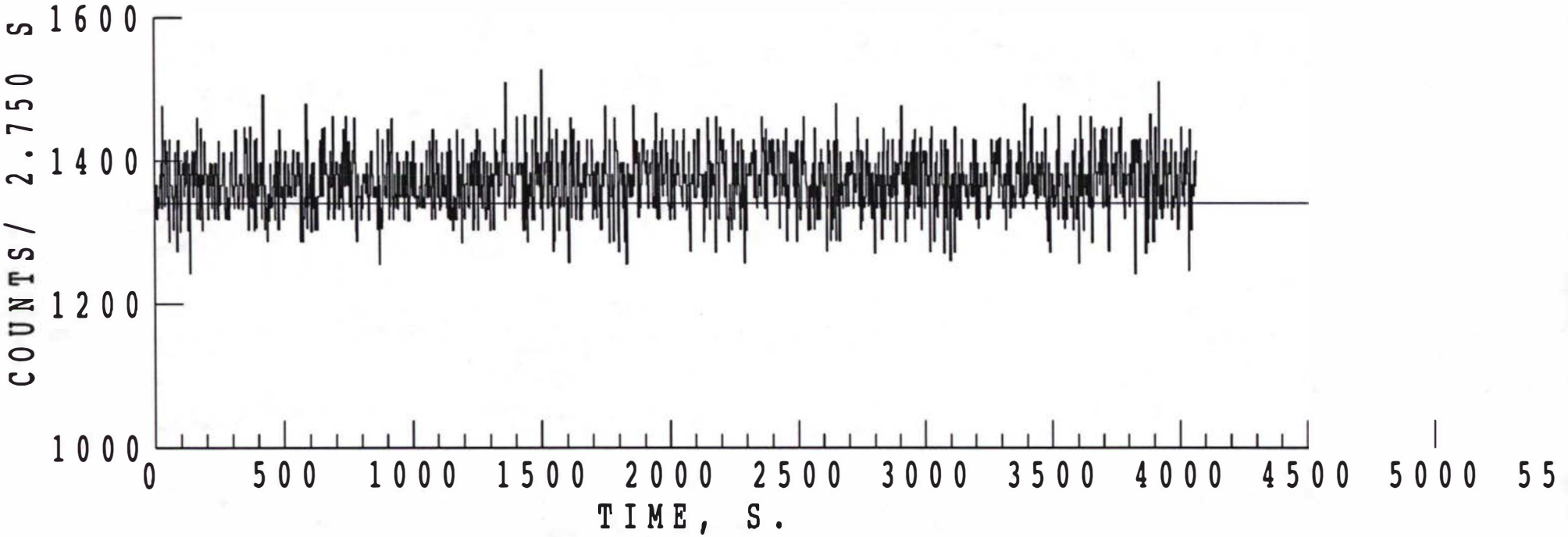
03/02/97 84636.062 s

0.250 S INTERVALS REGROUPED BY 11

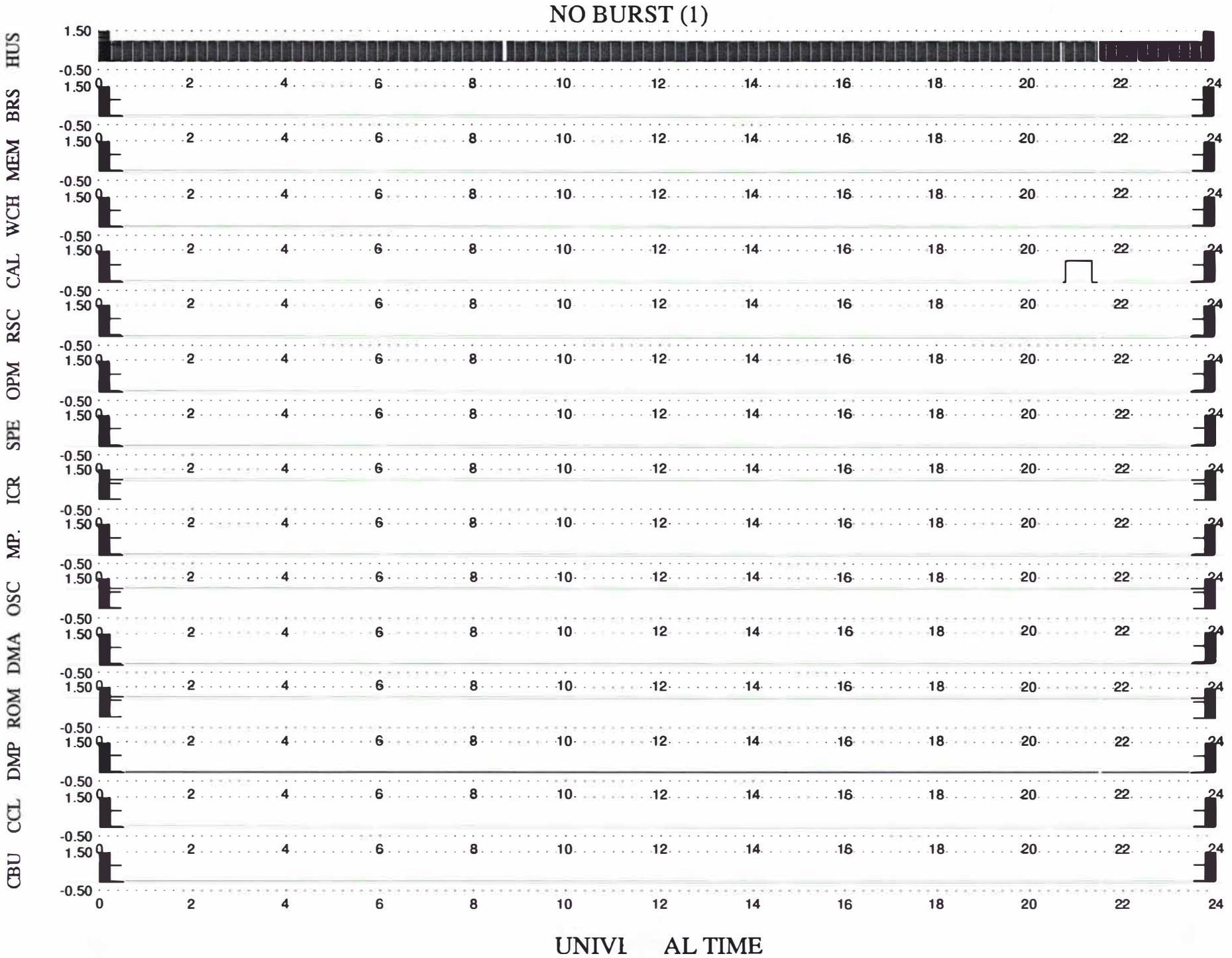
0- 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

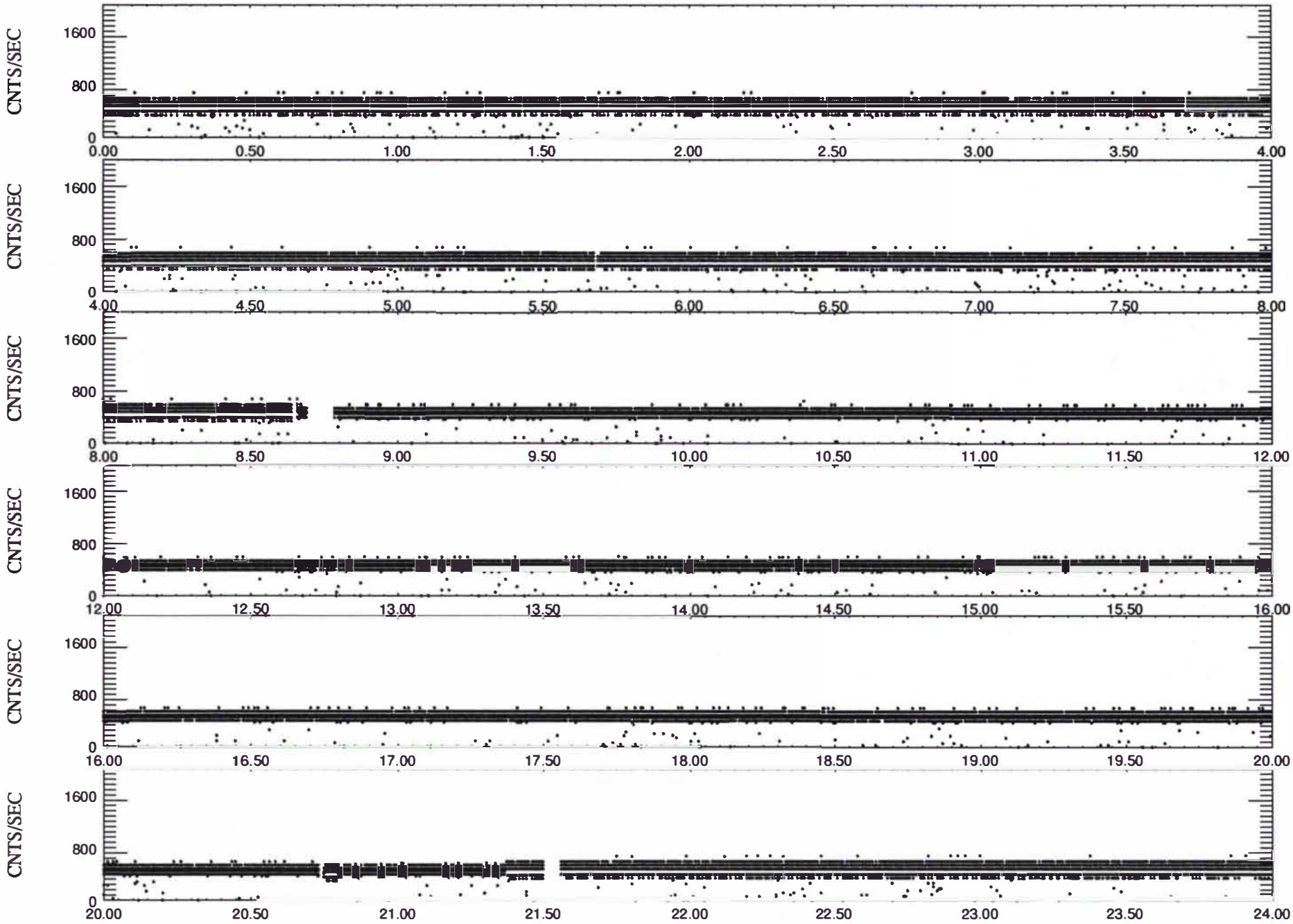


HUS MODES EDR day 34, year 1997 to day 34, year 1997 5/16/97



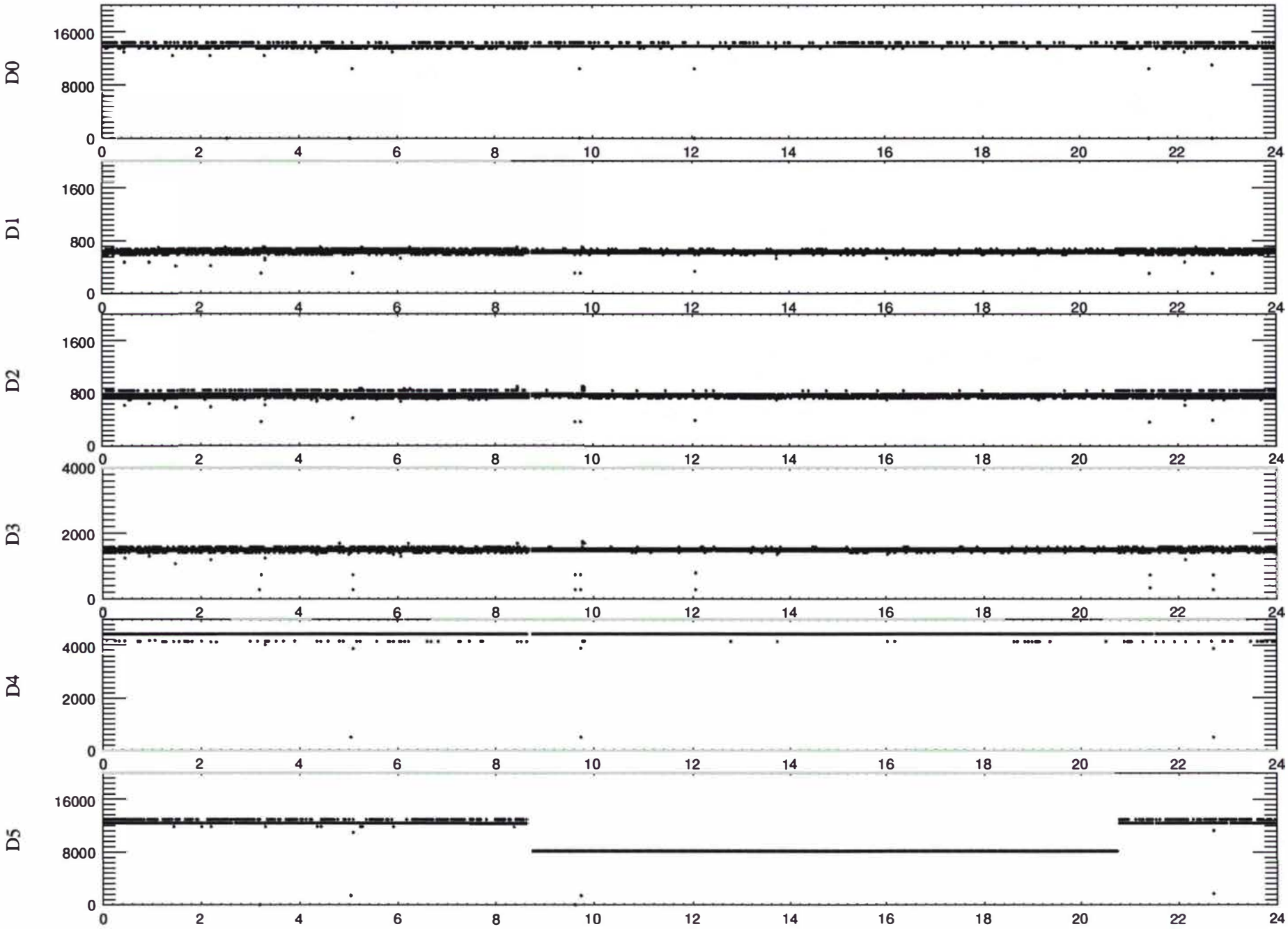
HUS 2A, MODE 1, NOT AVERAGED EDR day 34, year 1997 to day 34, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 34, year 1997 to day 34, year 1997 5/16/97



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

Hi Everyone,

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

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

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

From kraken@rosserv.gsfc.nasa.gov Wed Mar 12 15:00 PST 1997
X-Sender: kraken@lheapop.gsfc.nasa.gov
Mime-Version: 1.0
Date: Wed, 12 Mar 1997 18:00:58 -0500
    khurley@sunspot.ssl.berkeley.edu
From: kraken@rosserv.gsfc.nasa.gov (Peter Kurczynski)
Subject: TGRS/Ulysses GRB's
Cc: bonnard@rosserv.gsfc.nasa.gov, kraken@rosserv.gsfc.nasa.gov

Hello Dr. Hurley,

I'm Peter Kurczynski, a graduate student in the LEGR group here at Goddard. I am working on TGRS data analysis. I am messaging you in response to several emails you've sent to Bonnard Teegarden and others about Ulysses gamma ray bursts and whether they could be corroborated by other instruments.

What follows is a list of the dates and times of Ulysses observations that were forwarded to me recently, and the results of a search through TGRS data for bursts. We've found two matches among the Ulysses bursts listed below. Please
let me know if you would like me to forward time history data or other information about them.

Take care,

Pete

Ulysses date/time	TGRS detection
.. 15 1997 13:36	NO
Jan. 17 1997 15:07	YES! 20s duration FRED; peak at 970117:53211s
Jan. 17 1997 18:45	NO
Jan. 24 1997 12:51	YES! <10s duration; very narrow; peak at 970124:44347s
Jan. 26 1997 15:30	NO
Jan. 30 1997 19:33	NO
Feb. 4 1997 11:18	NO
Feb. 8 1997 18:04	NO

From HENZE@fender.msfc.nasa.gov Tue Feb 18 14:58 PST 1997
Date: Tue, 18 Feb 1997 16:58:01 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: khurley@sunspot.ssl.berkeley.edu
Subject: Ulysses events and possible BATSE observations

Ulysses events and times				BATSE
Year	Mon	Day	hh:mm	TJD / SoD	Status and/or Comments
1996	Nov	19	03:13	10406/11580	HV off SoD 10544-12158.
1996	Nov	19	05:39	10406/20340	SGR event (trig. #5677) at SoD 19826. Data gaps SoD 18777-19259, 19916-19959.
1996	Nov	19	06:31	10406/23460	HV off SoD 22425-23674. Trigger disabled SoD 22185-22455.
1996	Nov	19	07:33	10406/27180	SGR event (trig. #5678) at SoD 26644. Data gap SoD 24837-25200. Trigger disabled SoD 28095-28365.

Other BATSE SGR triggers on 1996 Nov 19 (TJD 10406) were
#5676 at SoD 16123, #5679 at SoD 35567, #5681 at SoD 65701.
Untriggered probable SGR events observed by BATSE occurred on
1996 Nov 19 (TJD 10406) at ~SoD: 21323, 21538, 26177.

1997	Feb	04	11:18	10483/40680	HV off SoD 39377-40915. Nothing evident outside that interval, but 32 ms probably too short to see if not triggered.
1997	Feb	08	18:04	10487/65040	GRO J1744-28 event (trig. #6059) at SoD 64177. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	12	22:50	10491/82200	Data gap SoD 81658-82260. Untriggered GRO J1744-28 events at SoD ~79581 ,84853. Trigger disabled SoD 80235-80535, 82845-83145. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	13	19:03	10492/68580	Data gaps SoD 66840-66877, 68697-68849. Trigger disabled SoD 65805-65955. Nothing evident but 64 ms probably too short to see if not triggered.

From DEAL@fender.msfc.nasa.gov Thu Feb 6 10:41 PST 1997
From: DEAL@fender.msfc.nasa.gov
Date: Thu, 6 Feb 1997 12:41:00 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6011

TIME: TJD=0483 SECONDS=53354

TYPE: UNKNOWN SOLAR FLARE TRIGGER SIGNAL:N

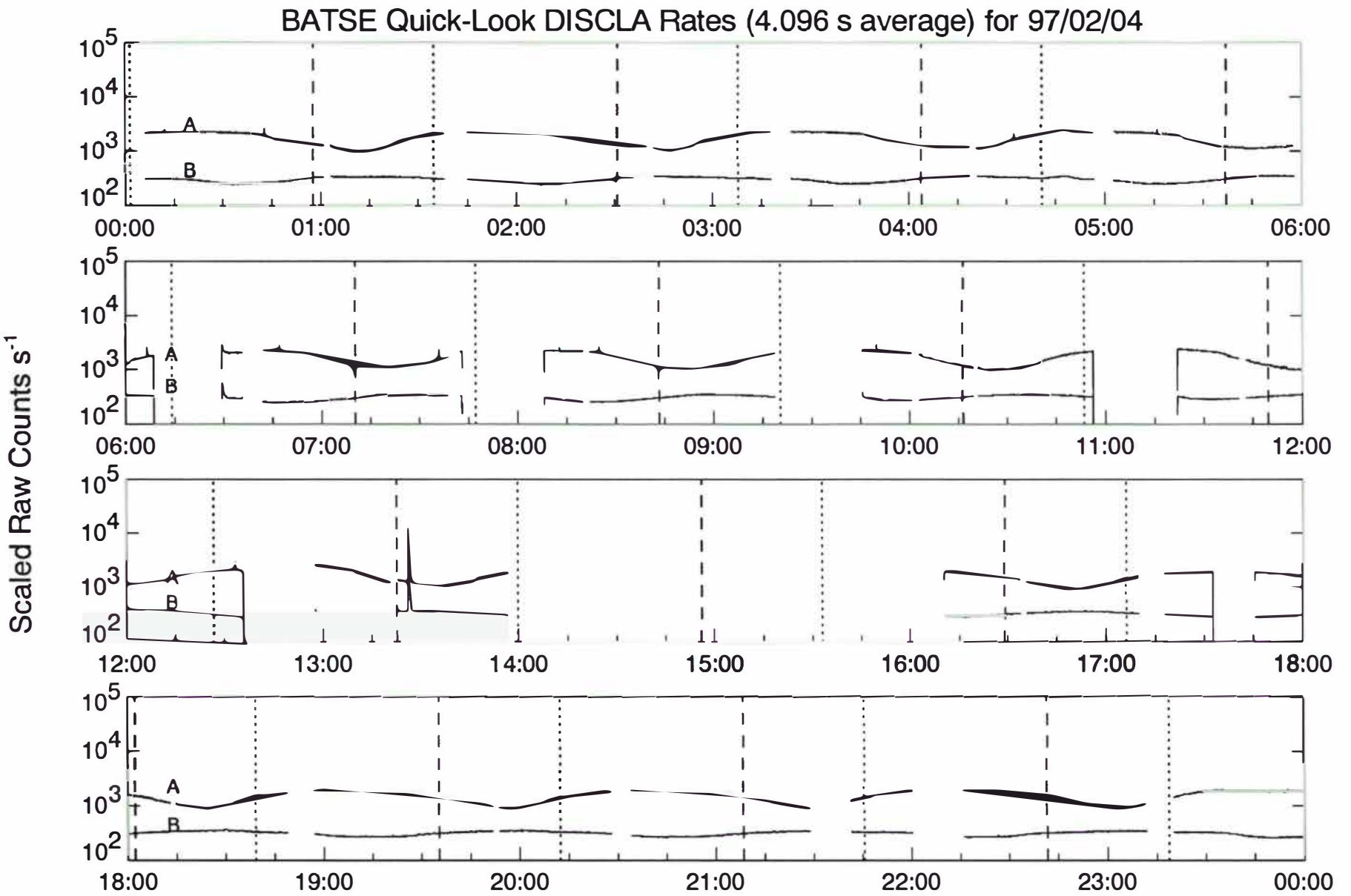
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

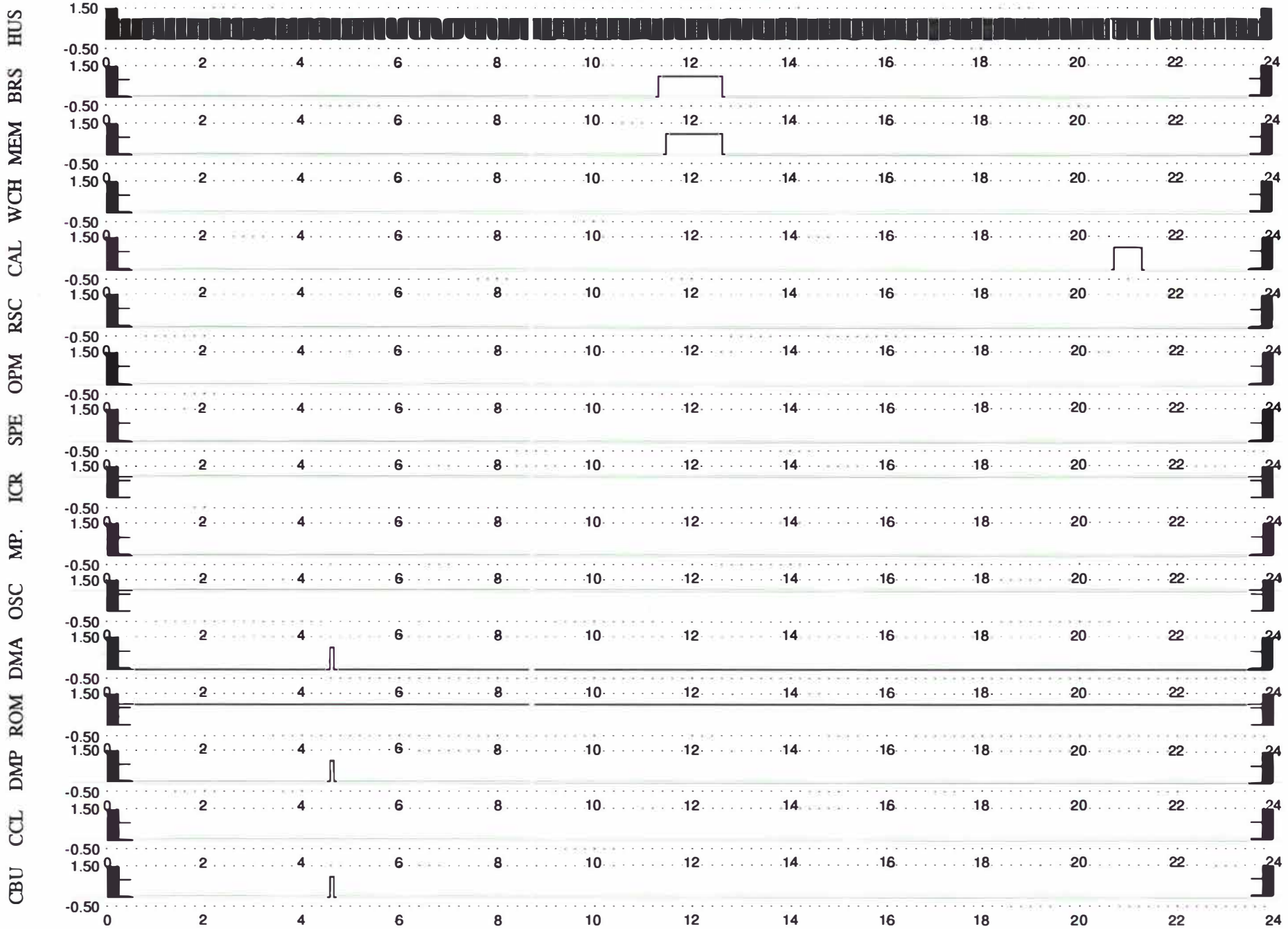
COMMENTS:
UKNOWN. TRIGGER OCCURRED DURING SPACECRAFT REORIENTATION.

Reclassified as Cyg X-1
by Briggs et al 2001


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

HUS MODES EDR day 35, year 1997 to day 35, year 1997 5/16/97

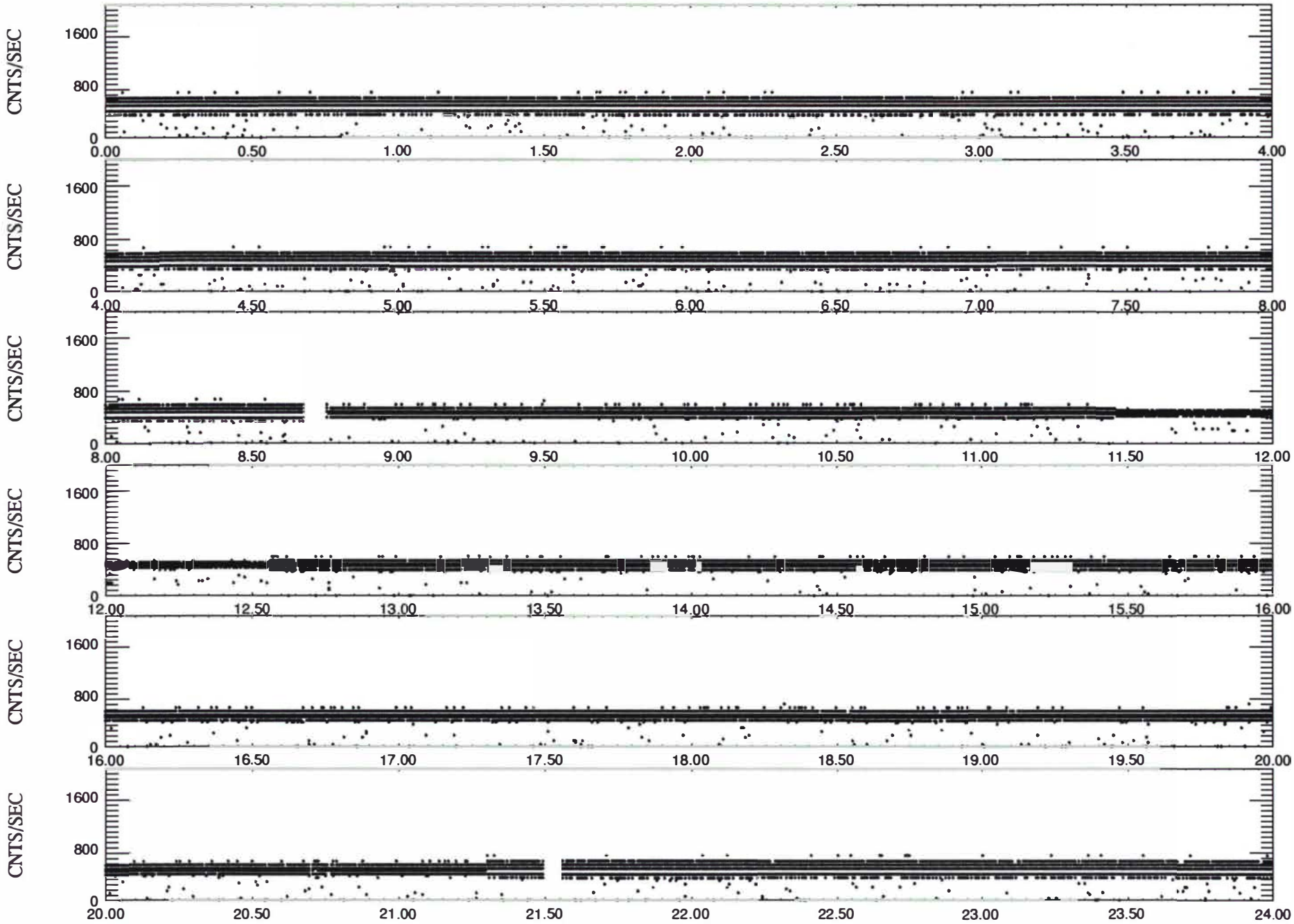
BURST NUMBER 2



UNIVERSAL TIME

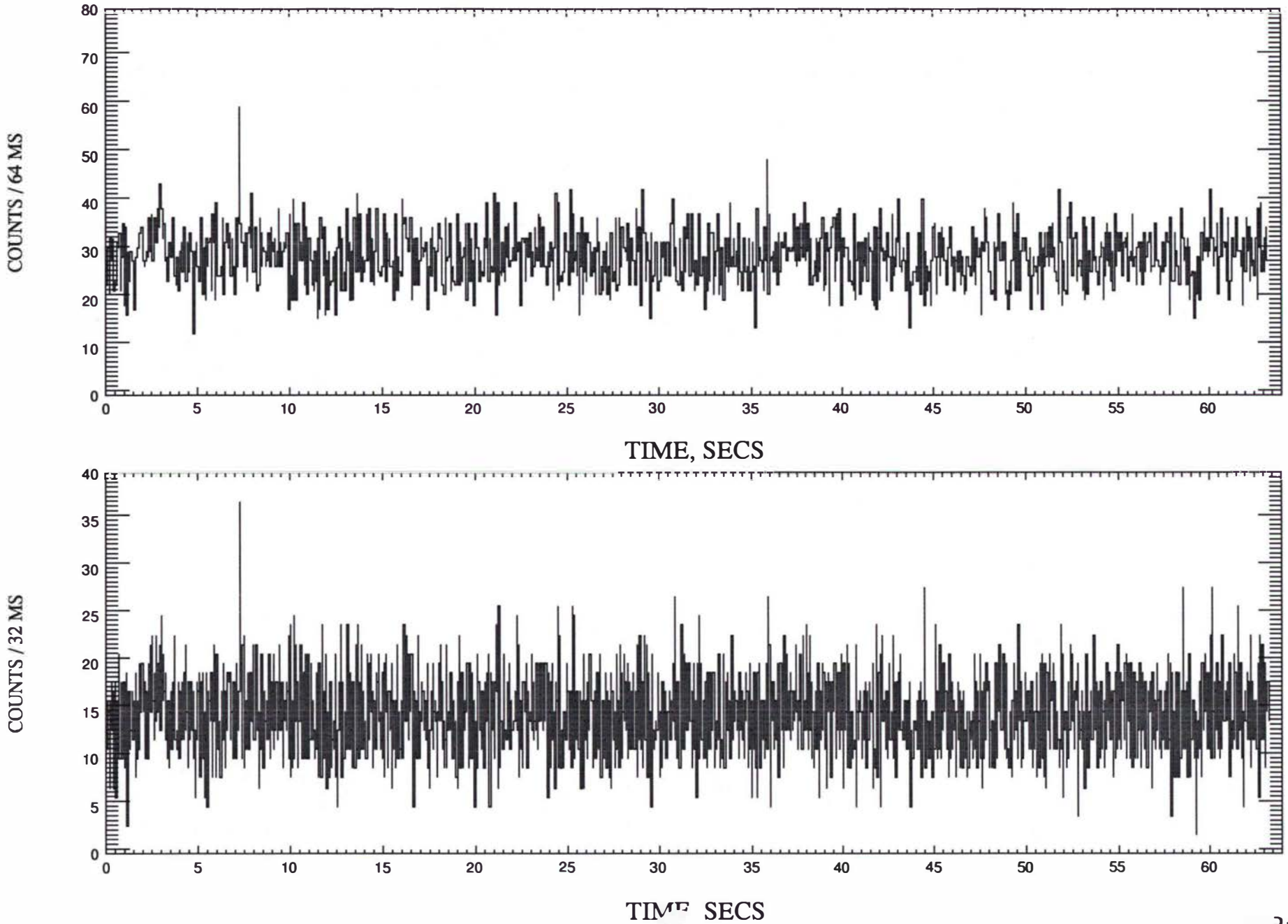
HUS 2A, MODE 1, NOT AVERAGED EDR day 35, year 1997 to day 35, year 1997 5/16/97

CALIBRATION DATA INCLUDED



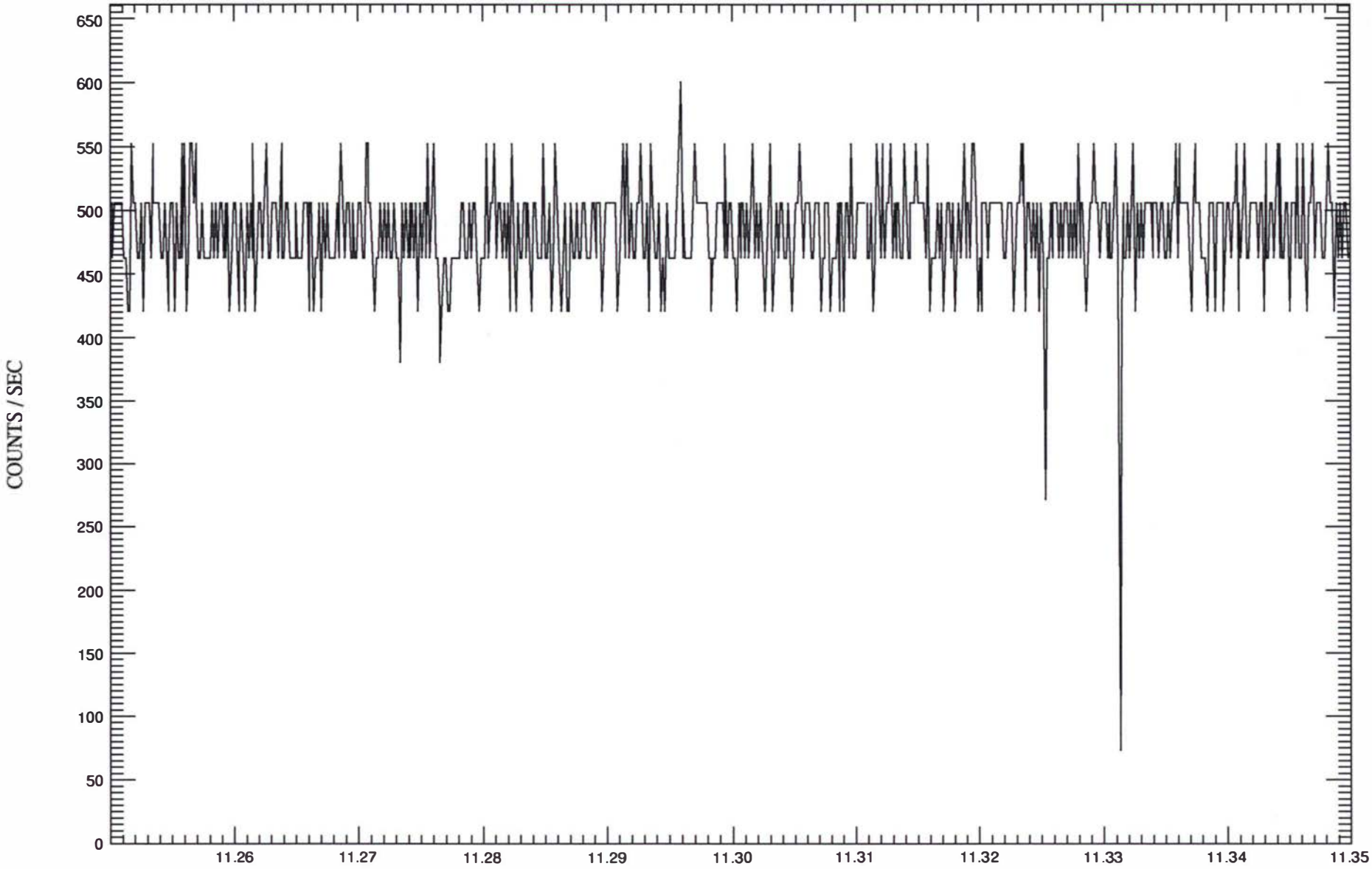
UNIVI AL TIME

Burst Counter 2 at UT=11.297241376241 h=40670.069 s 11:17:50.069

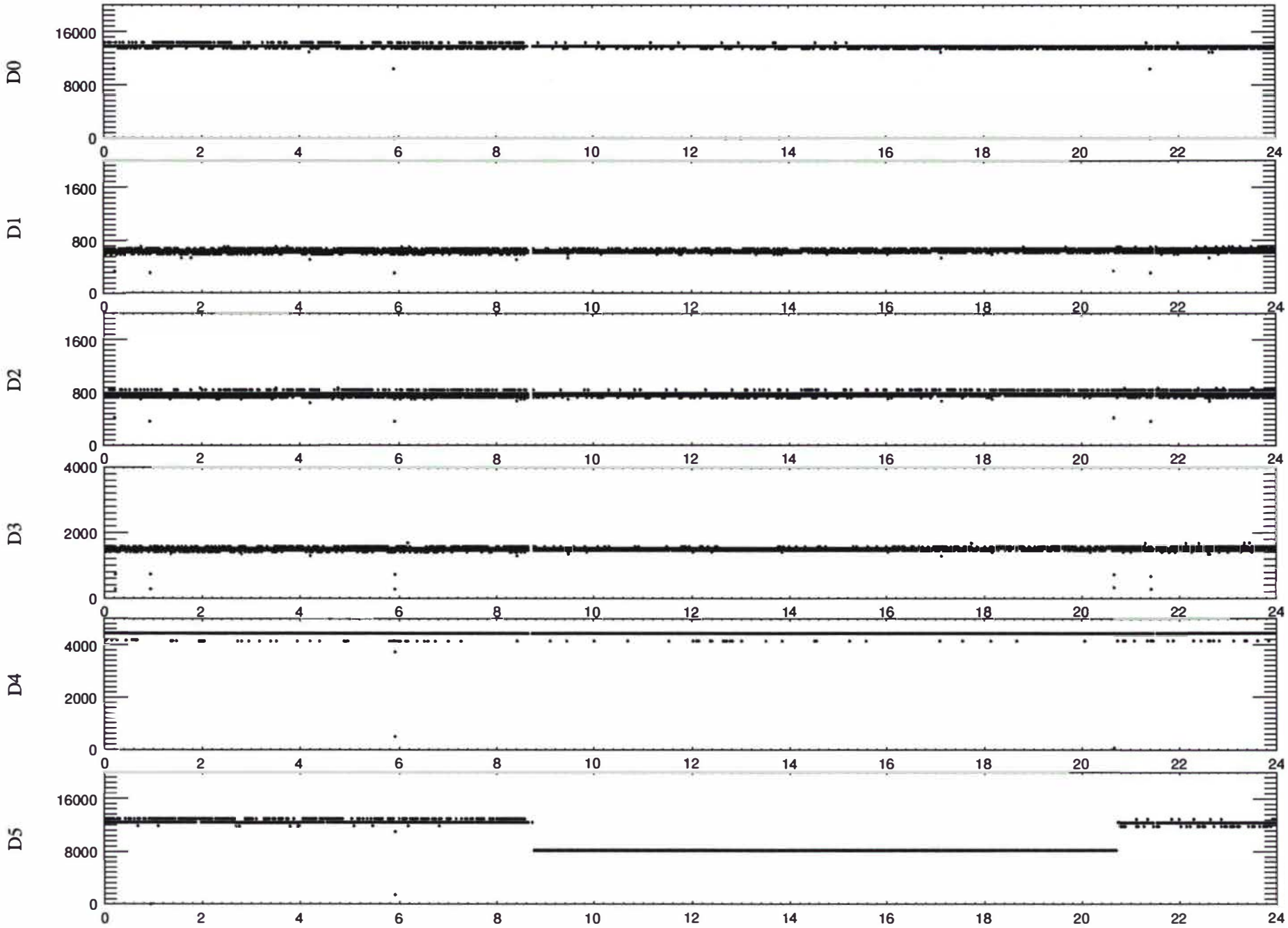


HUS 2A, MODE 1, NOT AVERAGED EDR day 35, year 1997 to day 35, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 35, year 1997 to day 35, year 1997 5/16/97



From RICHARDSON@ssl.msfc.nasa.gov Fri Feb 7 10:38 PST 1997
Date: Fri, 7 Feb 1997 12:37:51 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6021

TIME: TJD=0484 SECONDS=34357

TYPE: CYX X-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=62.6 AZIMUTH=95.1 ERROR=14.1 DEGREES

COMMENTS:
CYG X-1 FLUCTUATION

From RICHARDSON@ssl.msfc.nasa.gov Fri Feb 7 10:40 PST 1997
Date: Fri, 7 Feb 1997 12:40:12 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6024

TIME: TJD=0484 SECONDS=50960

TYPE: CYG X-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=51.9 AZIMUTH=92.2 ERROR=26.5 DEGREES

COMMENTS:
CYG X-1 FLUCTUATION

From RICHARDSON@ssl.msfc.nasa.gov Fri Feb 7 10:42 PST 1997
Date: Fri, 7 Feb 1997 12:41:56 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6027

TIME: TJD=0484 SECONDS=70117

TYPE: CYG X-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=47.9 AZIMUTH=133.5 ERROR=24.6 DEGREES

COMMENTS:
CYG X-1 FLUCTUATION

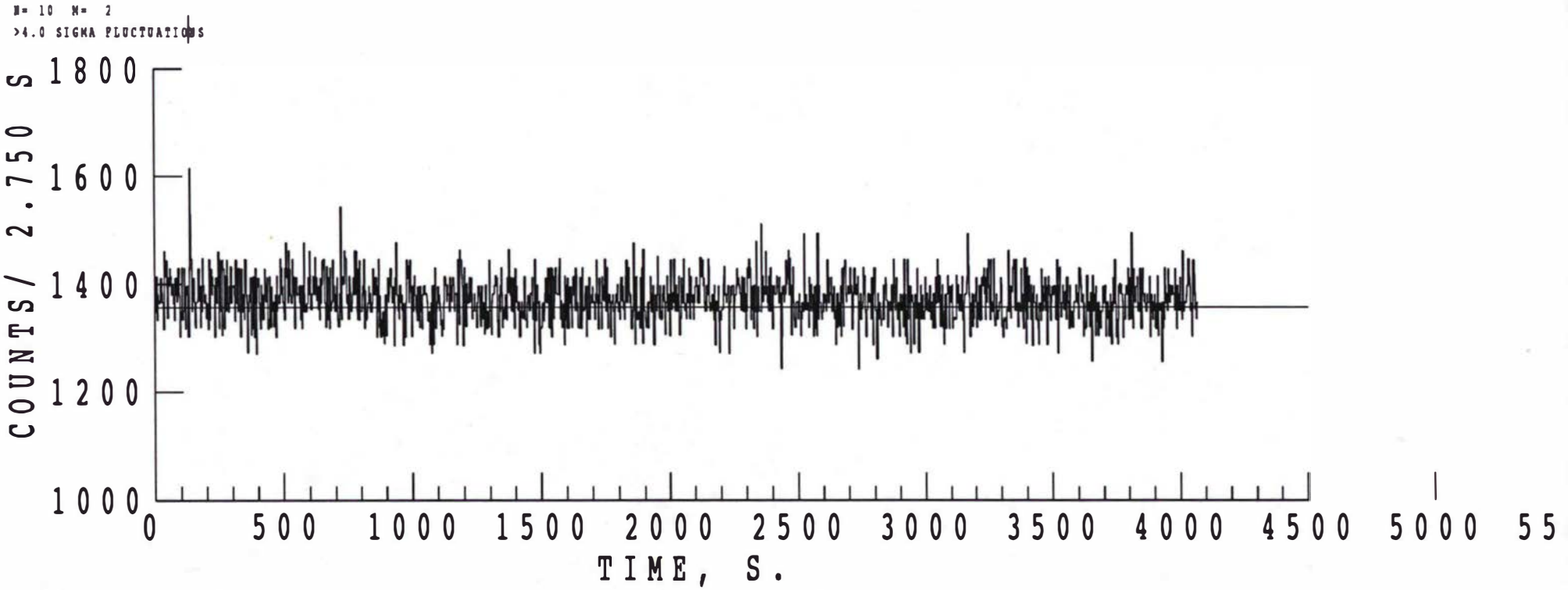
KONUS

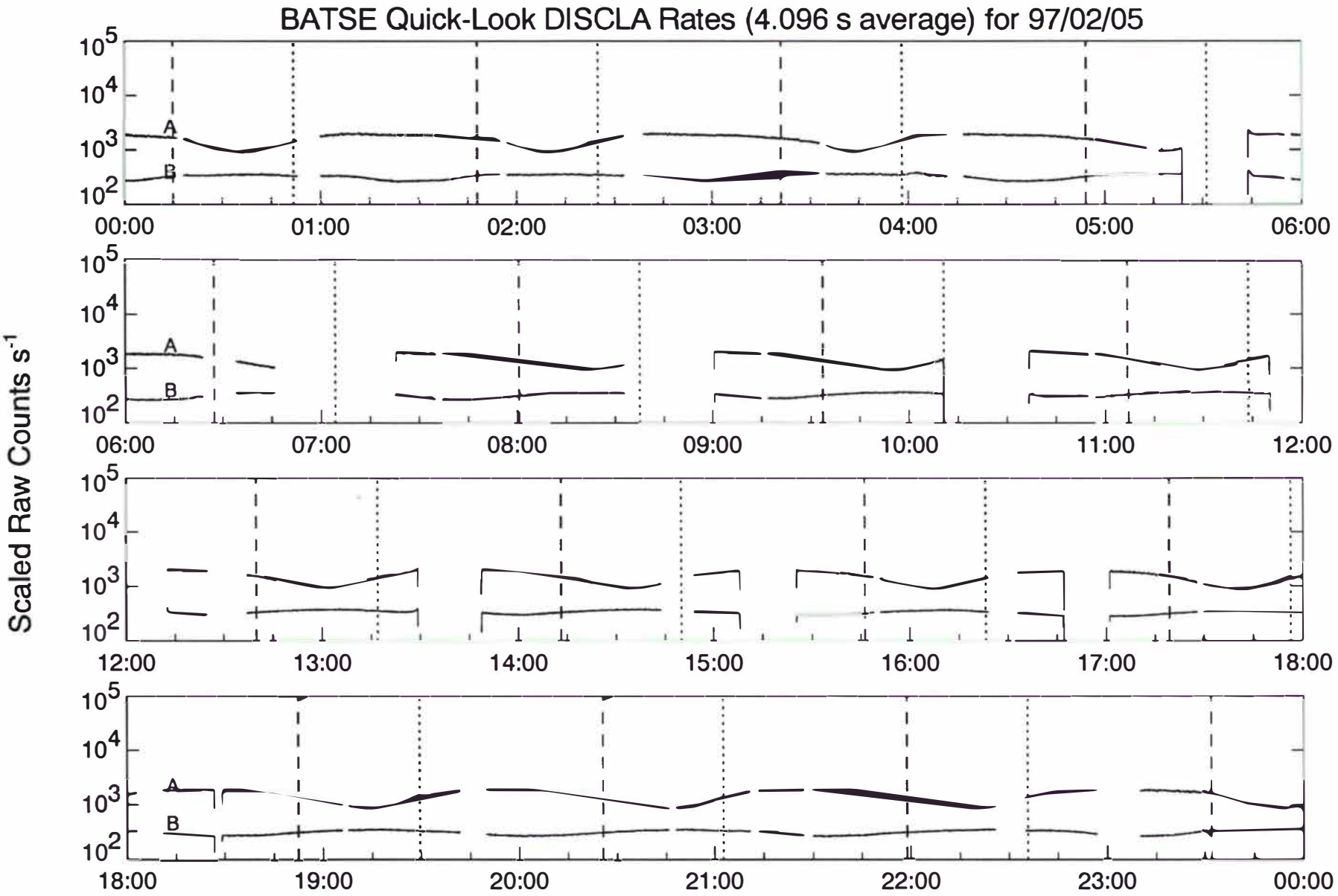
ULYSSES RT 02/02/00

05/02/97 85176.156 s

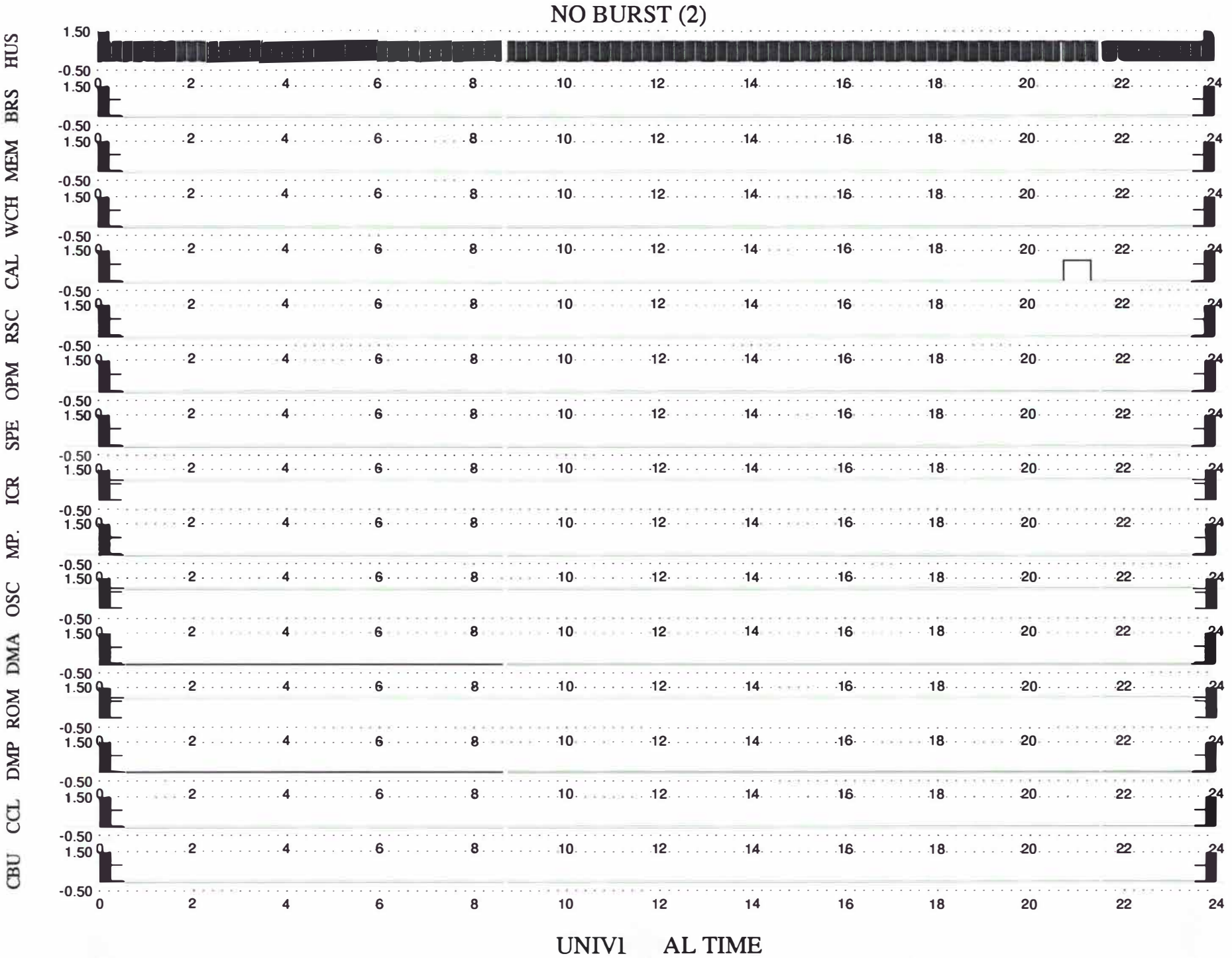
0.250 S INTERVALS REGROUPED BY 11

0- 0 keV



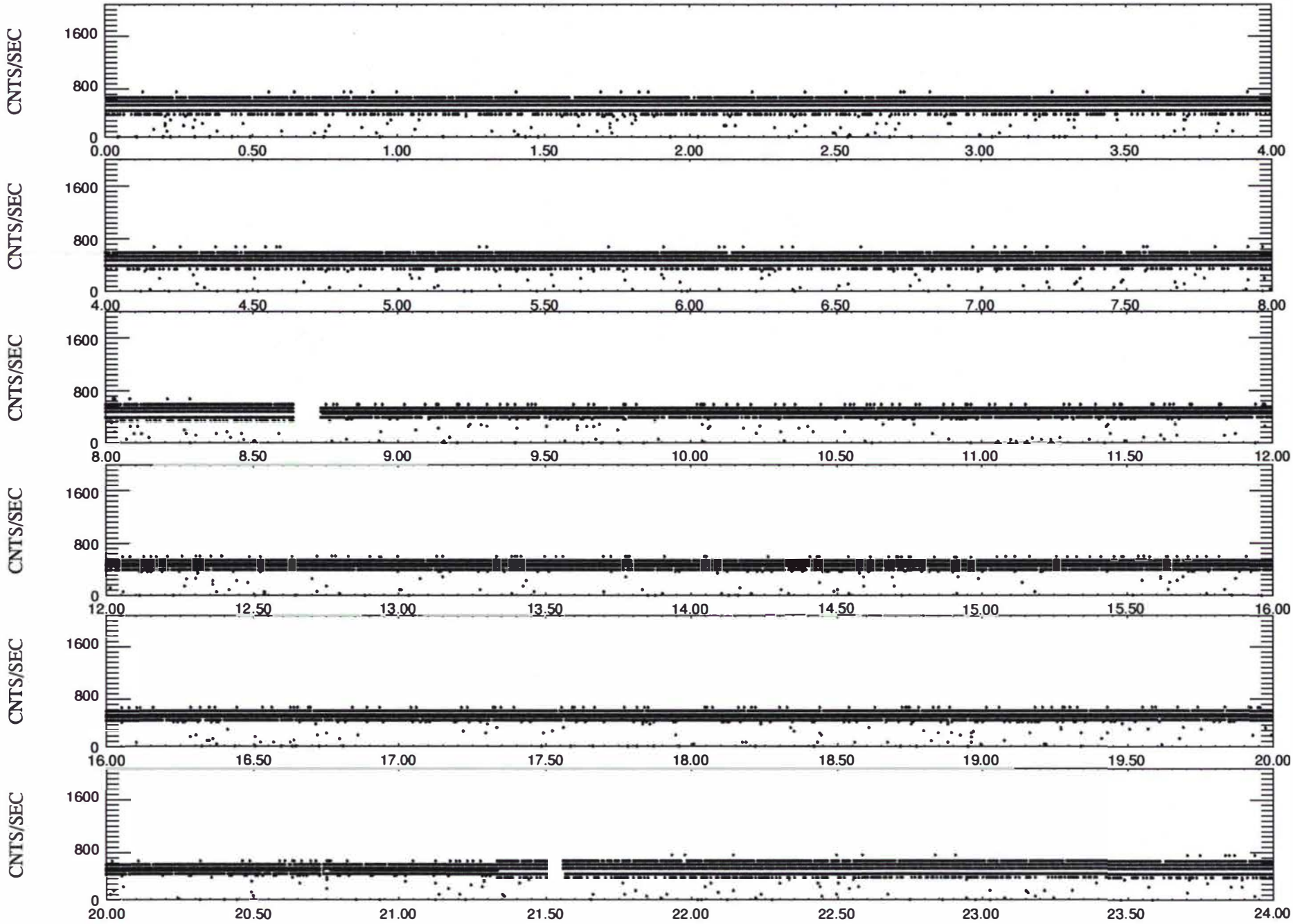

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/02/05
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/02/07, 1008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

HUS MODES EDR day 36, year 1997 to day 36, year 1997 5/16/97



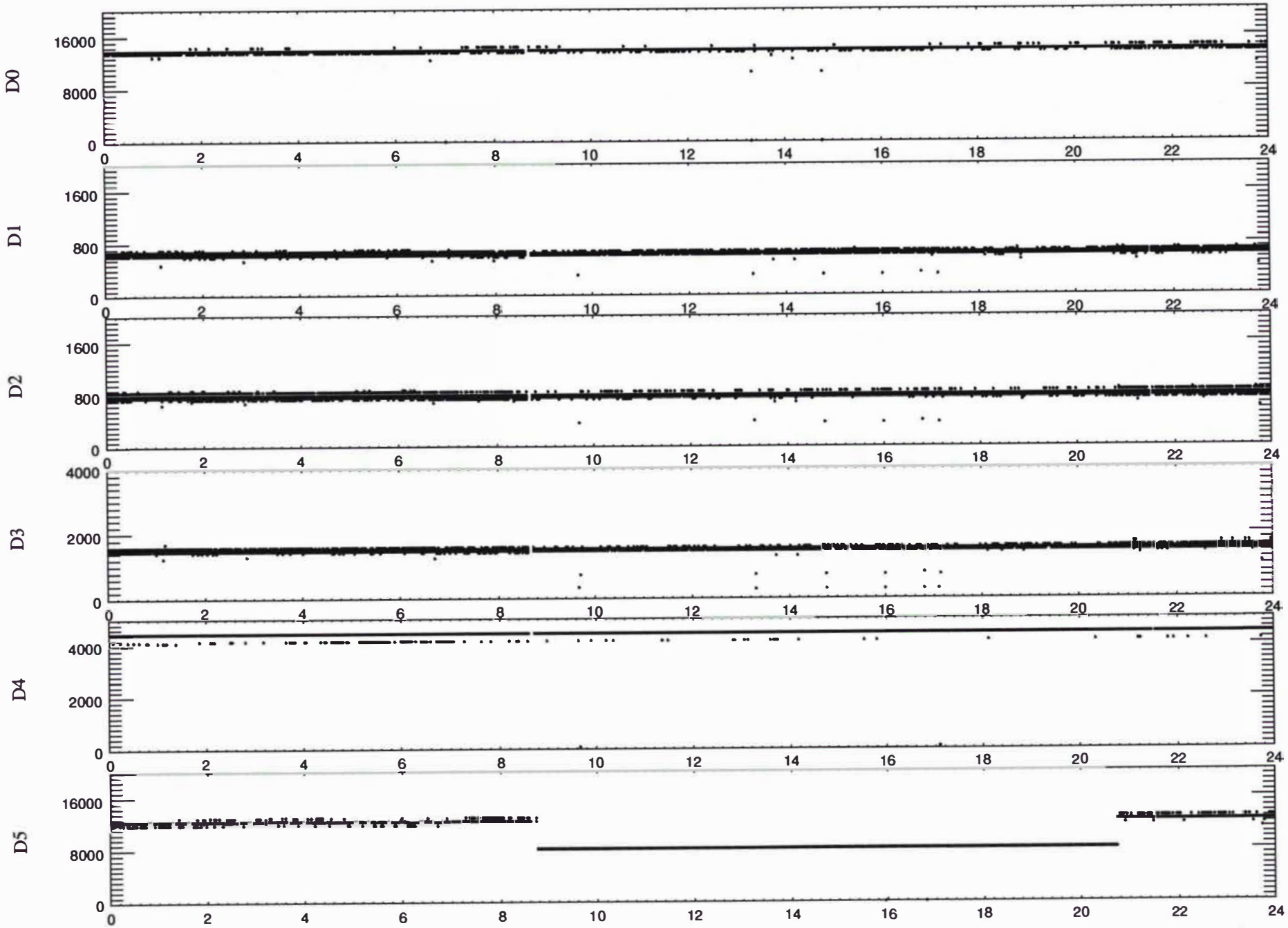
HUS 2A, MODE 1, NOT AVERAGED EDR day 36, year 1997 to day 36, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 36, year 1997 to day 36, year 1997 5/16/97



From HENZE@ssl.msfc.nasa.gov Mon Feb 10 13:53 PST 1997
Return-Path: <HENZE@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id NAA13992; Mon, 10 Feb 1997 13:53:45 -0800
From: HENZE@ssl.msfc.nasa.gov
Date: Mon, 10 Feb 1997 15:53:41 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970210155341.2d80793b@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6029
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6029
EVENT OF 1997 FEB 6 DAY OF YEAR= 37
EVENT CROSSING TIME AT BATSE : 798. S. OR 00:13:18.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 170.000 17.000
BATSE PEAK COUNTING RATE: 10000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 6/ 2/ 97 IS:
RA= 171.481 DEC= 35.806 DIST= 3.974 AU
BATSE-ULYSSES DISTANCE = 594442735. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=161.15 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1876.48 SECS.
CROSSING TIME AT ULYSSES IS 85322. S. OR 23:42:01 +/- 132.74 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 6/ 2/ 97 IS:
RA= 186.799 DEC= 0.810 DIST= 0.842 AU
MARS-BATSE DISTANCE = 125888936. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=156.86 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -386.13 SECS.
CROSSING TIME AT MARS IS 412. S. OR 00:06:51 +/- 22.79 SECONDS

BATSE BURST TRIGGER
NO.: 6029

TIME: TJD=0485 SECONDS=00798

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=104.9 AZIMUTH=193.7 ERROR=001.2 DEGREES

COMMENTS:
SINGLE PULSE, DUR. ~15 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6029	970206	10485	00798	10000	170	+17	15

Date: Aug 31 2000

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

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

2. BATSE Data

☑ BATSE ephemeris for T_0?

☑ Error circle position and radius from public catalog used?

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

3. NEAR Data N/A

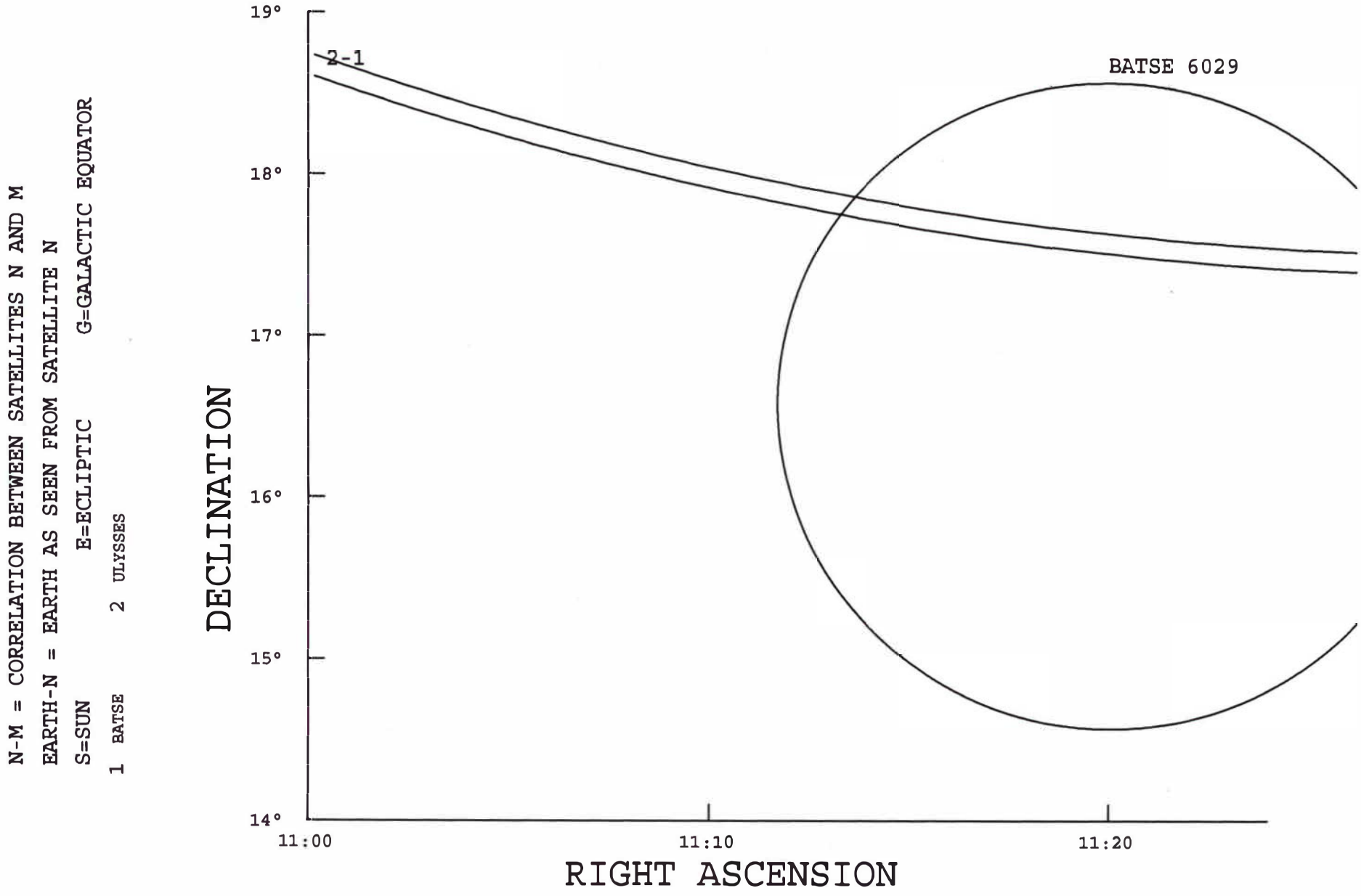
☐ Final, correct time used? (Files postmarked vwx@bocc1, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times)

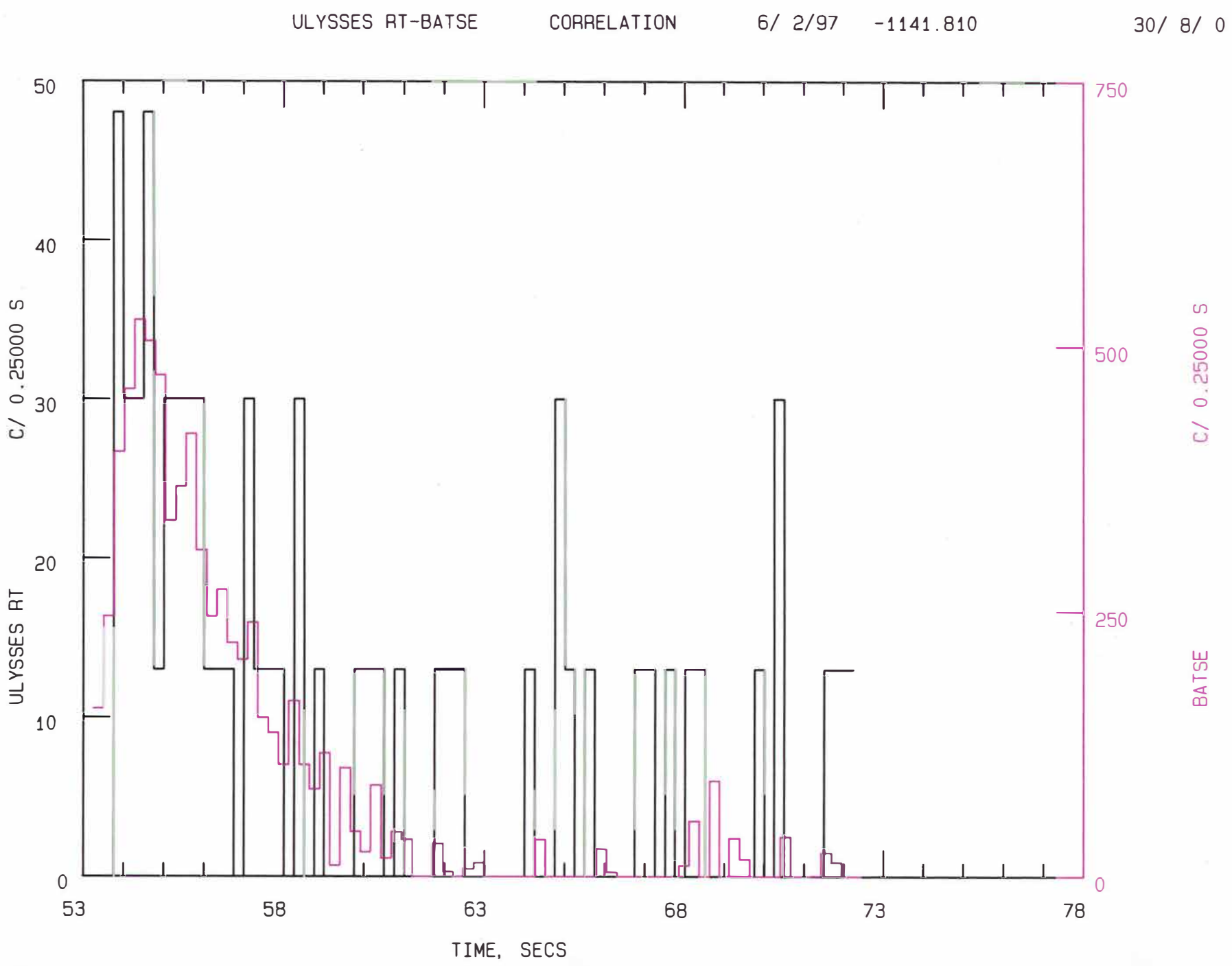
☐ BATSE >100 keV data used for NEAR correlation?

☑ ACCESS database updated?

EVENT OF FEB 6, 1997 0:13

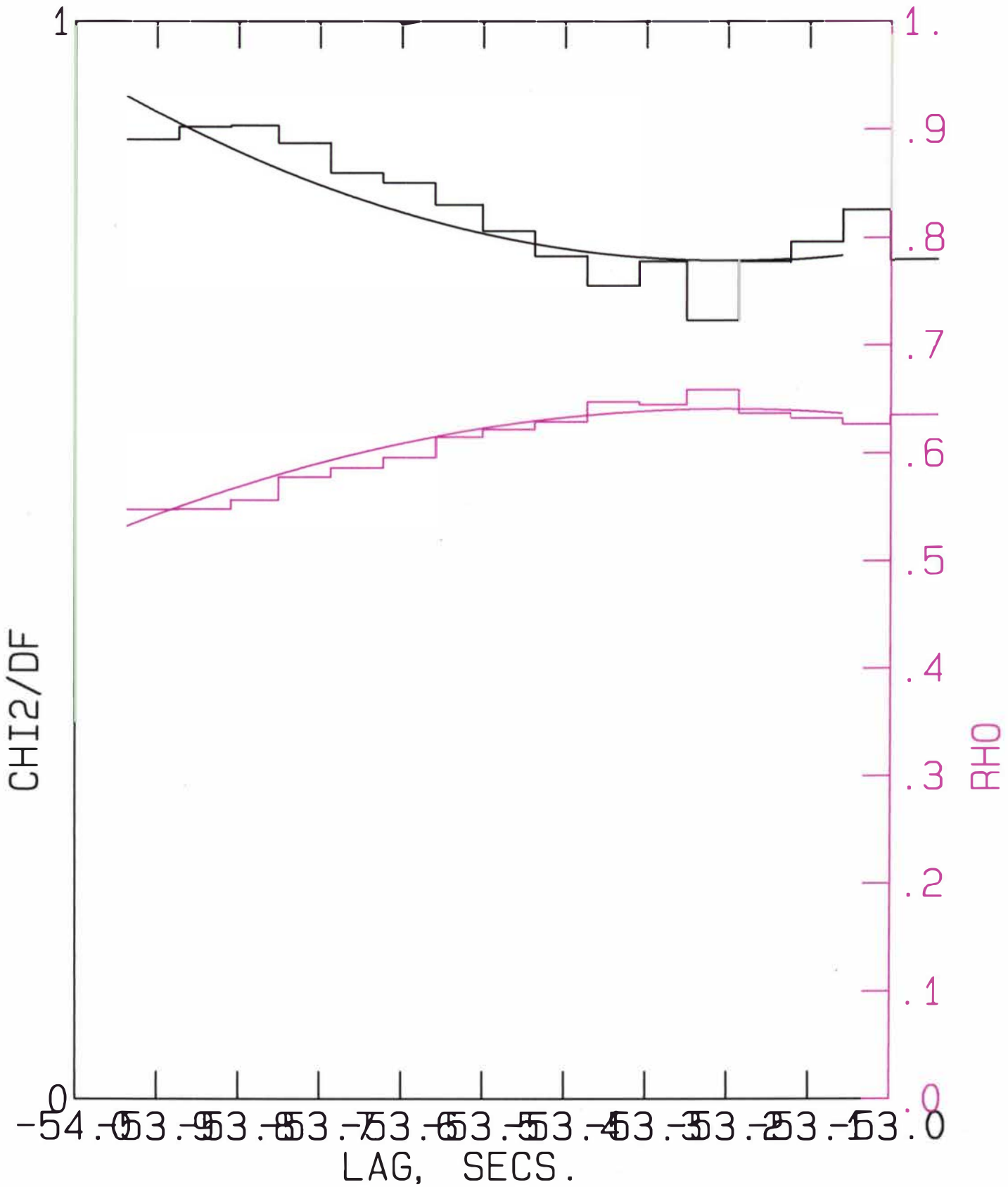
31/ 8/ 0




ULYSSES RT-BATSE CORRELATION 6/ 2/97 -1141.810 30/ 8/ 0
50
40
30
20
10
0
C/ 0.25000 S
ULYSSES RT
750
500
250
0
C/ 0.25000 S
BATSE
53
58
63
68
73
78
TIME, SECS

30/ 8/ 0

ULYSSES RT-BATSE CORRELATION 6/ 2/97 -1141.810



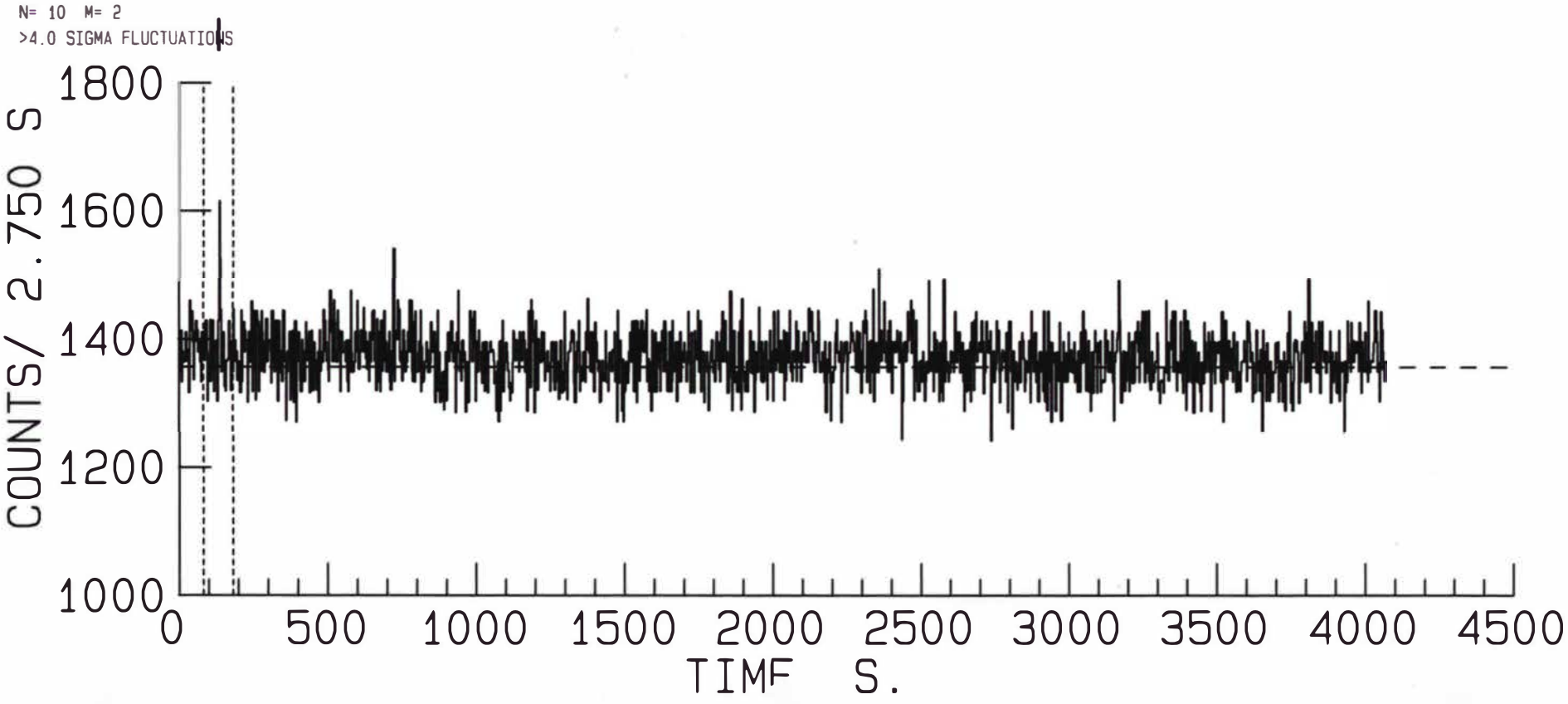
ULYSSES RT

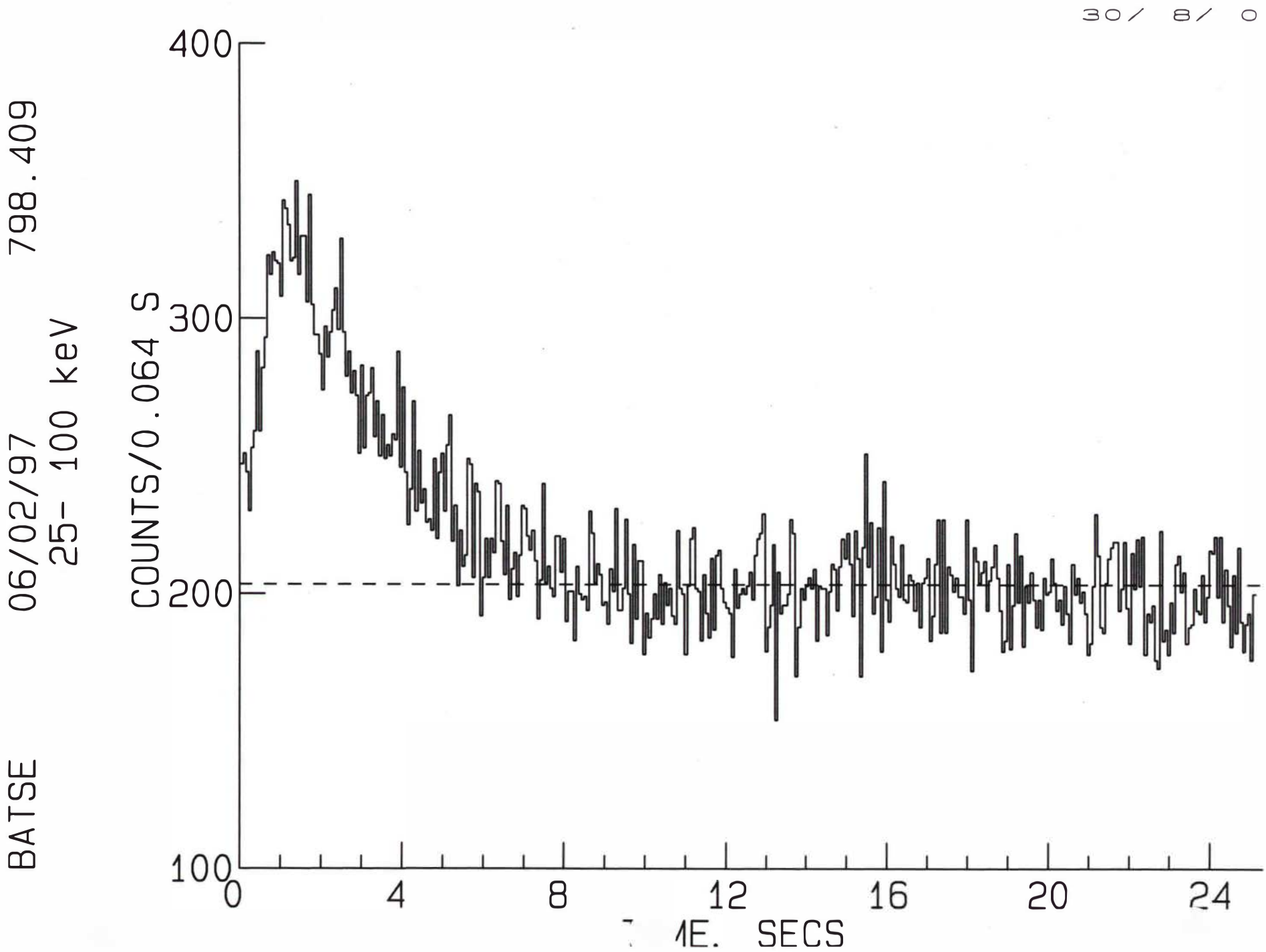
30/ 8/ 0

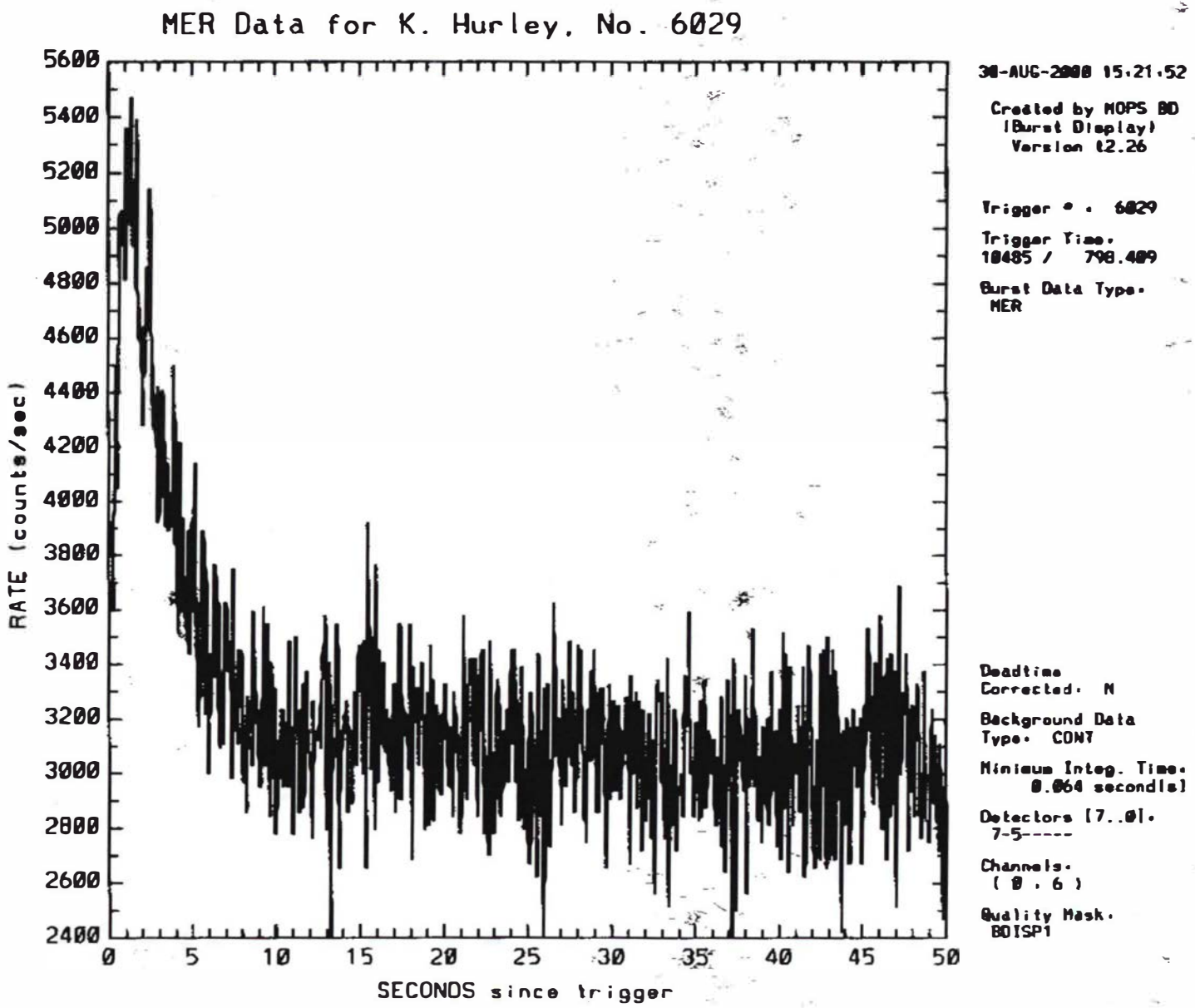
5/ 2/97 85176.164 s

0.250 S INTERVALS REGROUPED BY 11

21- 147 keV




30/ 8/ 0
798.409
06/02/97
25- 100 keV
BATSE
COUNTS/0.064 S
400
300
200
100
0
4
8
12
16
20
24
TIME. SECS


MER Data for K. Hurley, No. 6029
RATE (counts/sec)
SECONDS since trigger
5600
5400
5200
5000
4800
4600
4400
4200
4000
3800
3600
3400
3200
3000
2800
2600
2400
0
5
10
15
20
25
30
35
40
45
50
30-AUG-2000 15:21:52
Created by MOPS BD
(Burst Display)
Version t2.26
Trigger # : 6029
Trigger Time:
10485 / 798.489
Burst Data Type:
MER
Deadtime
Corrected: N
Background Data
Type: CONT
Minimum Integ. Time:
0.064 second(s)
Detectors [7..0]:
7-5-----
Channels:
(0 . 6)
Quality Mask:
BDISP1

BATSE BURST# 6029

ULYSSES RT

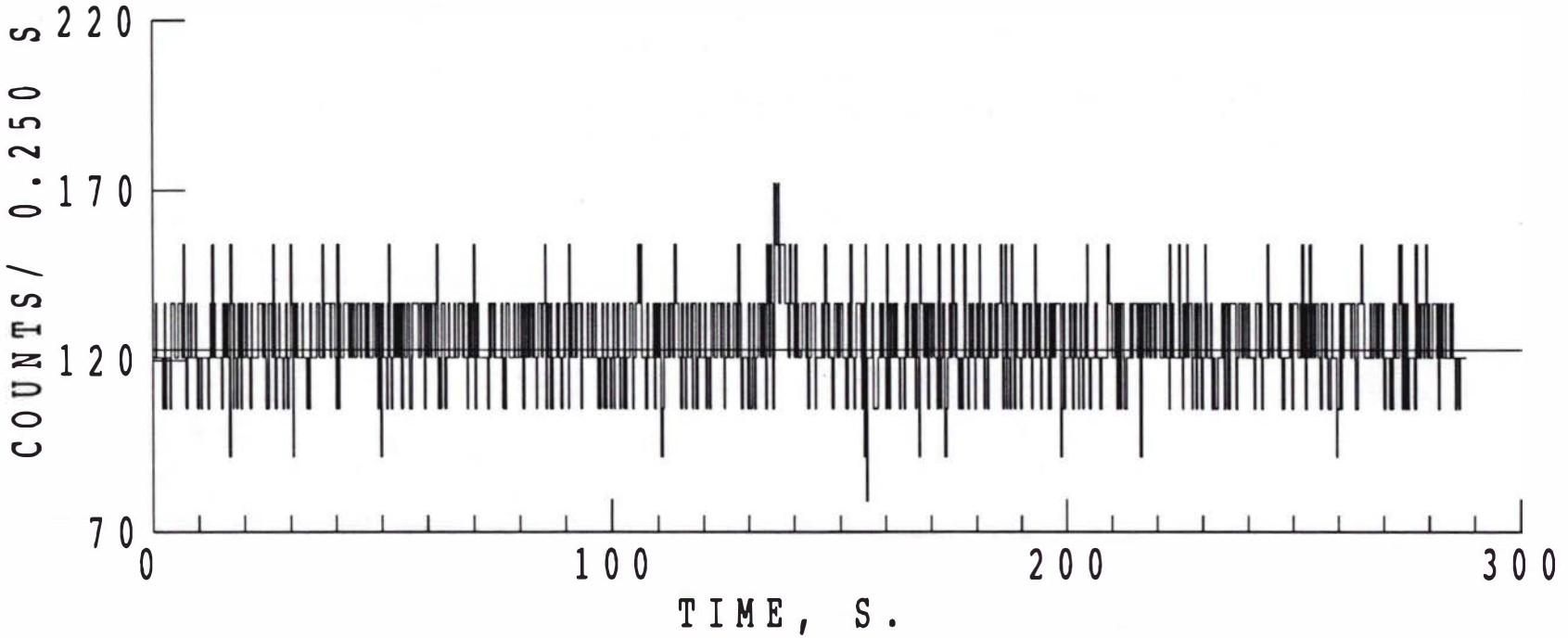
24/08/00

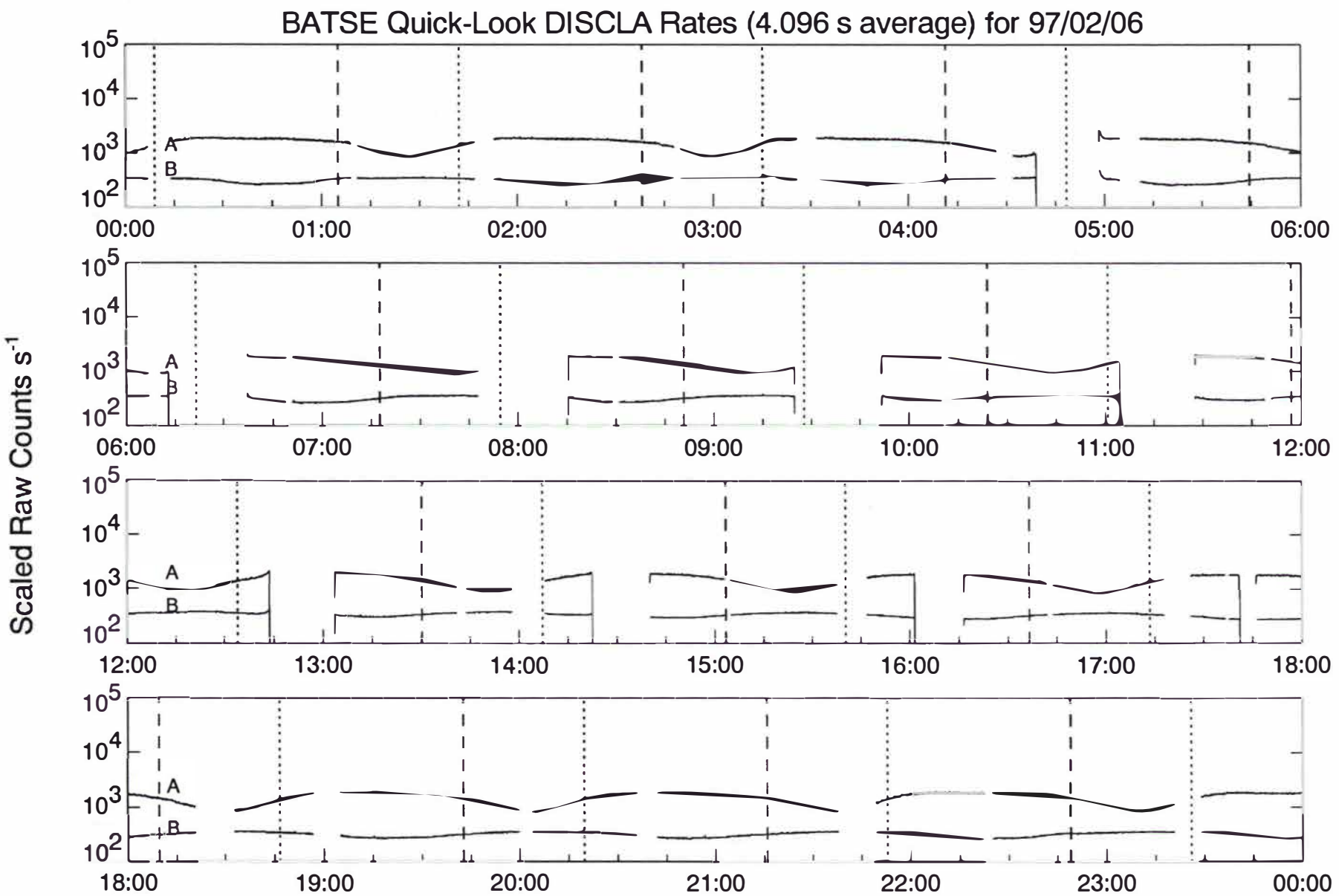
05/02/97 85176.156 s

0- 0 keV

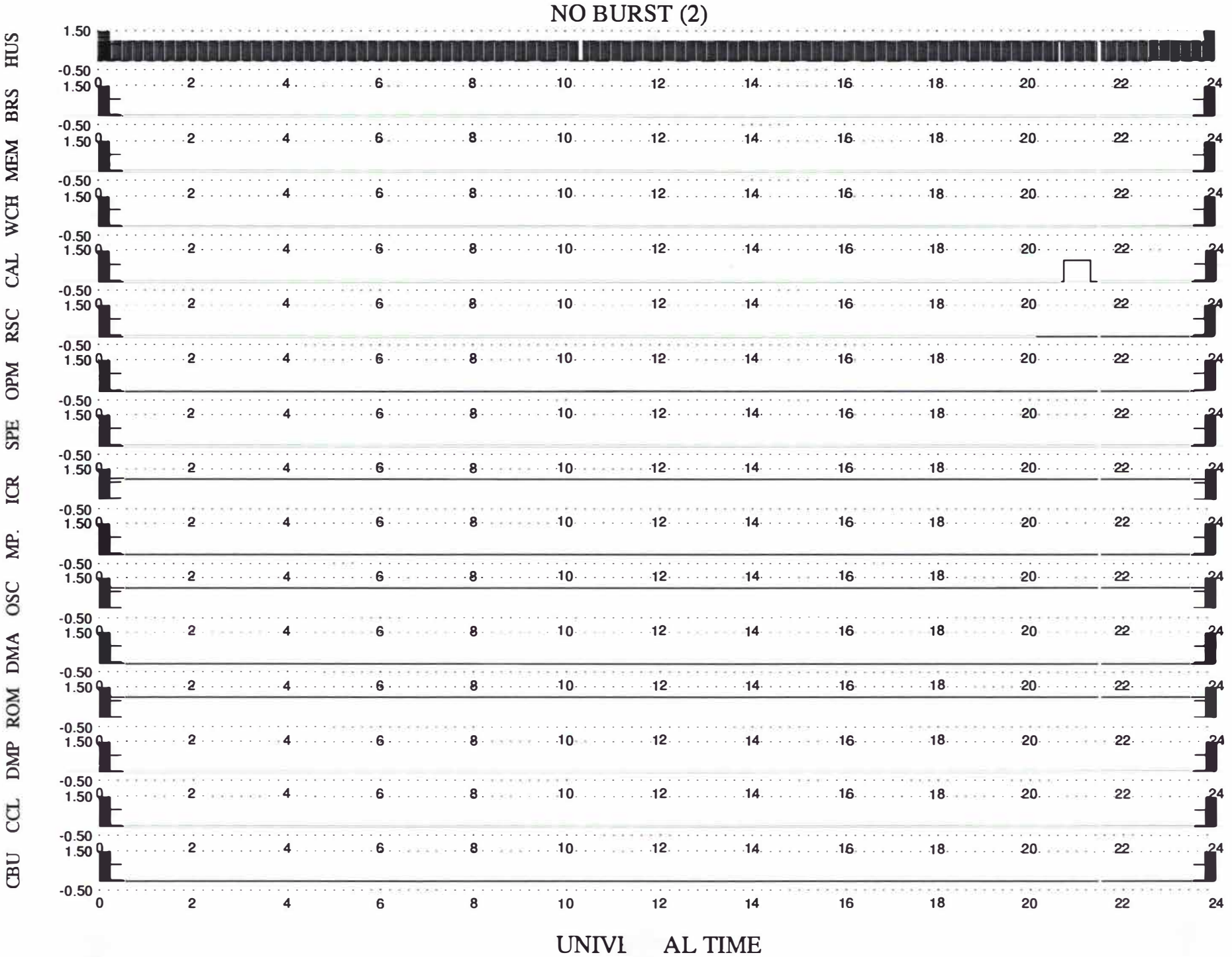
M= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

M= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



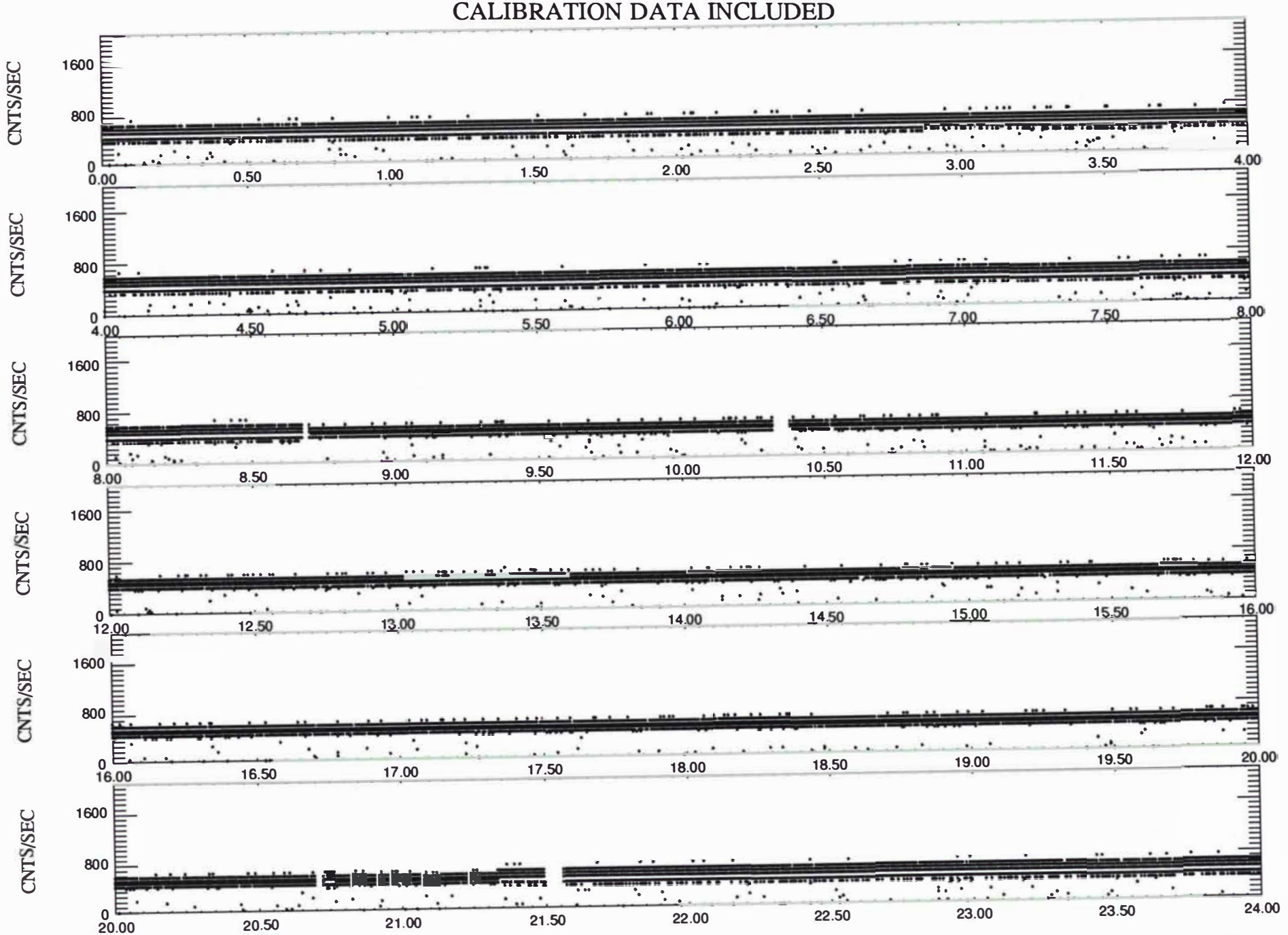

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/02/06
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/02/08, 1008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

HUS MODES EDR day 37, year 1997 to day 37, year 1997 5/16/97



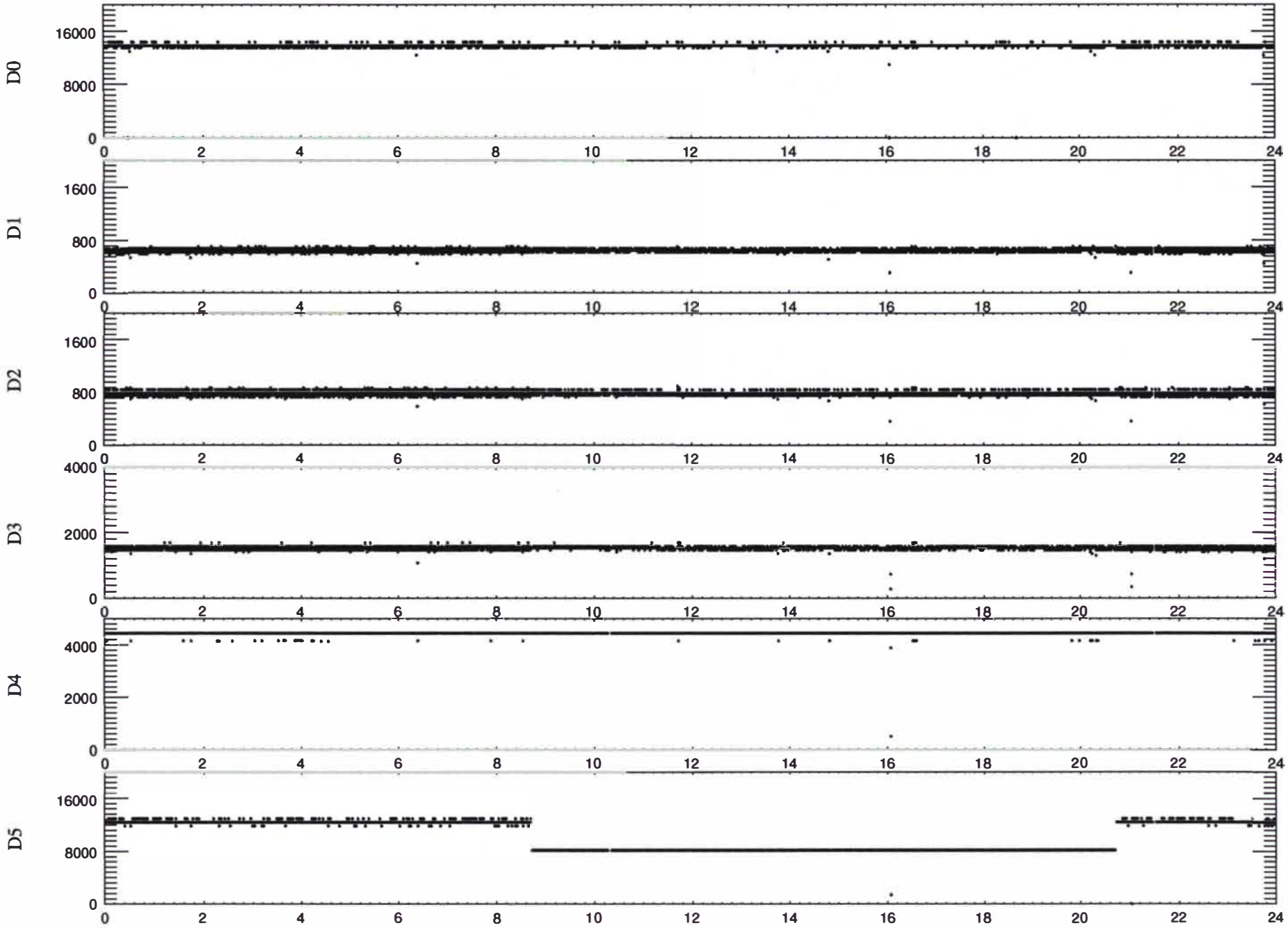
HUS 2A, MODE 1, NOT AVERAGED EDR day 37, year 1997 to day 37, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 37, year 1997 to day 37, year 1997 5/16/97



From HENZE@fender.msfc.nasa.gov Mon Feb 10 13:15 PST 1997
Date: Mon, 10 Feb 1997 15:15:18 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6043

TIME: TJD=0486 SECONDS=04208

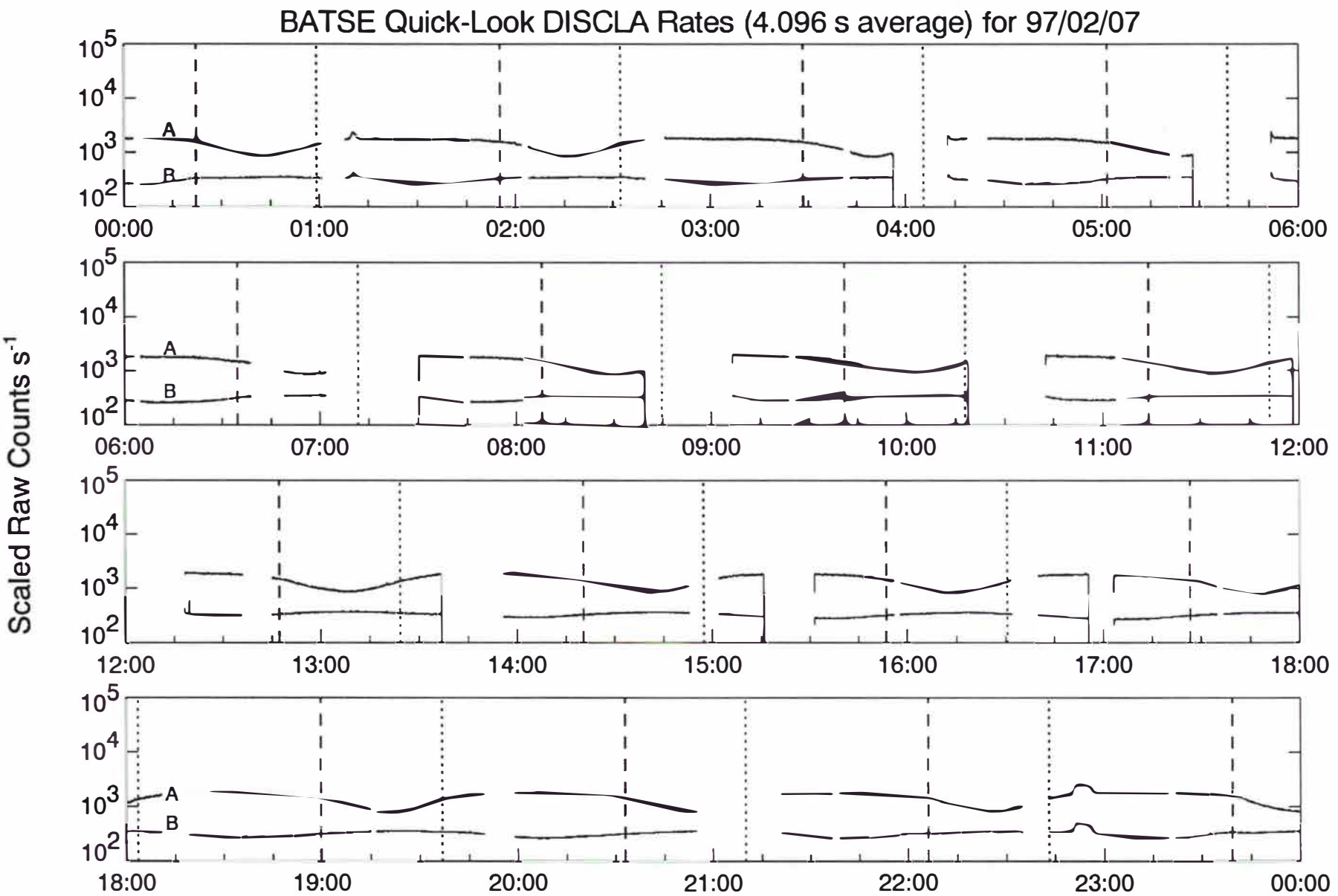
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

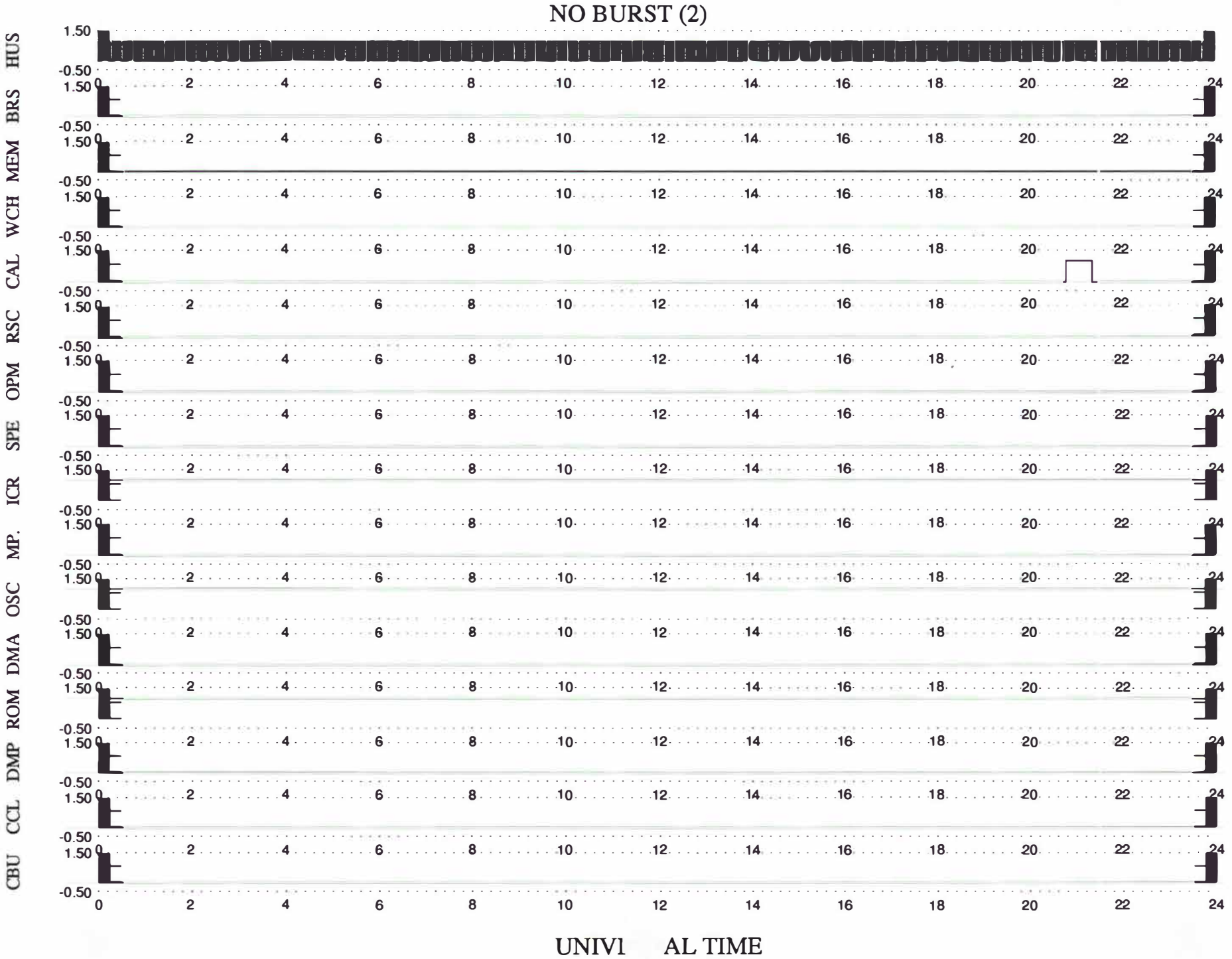
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

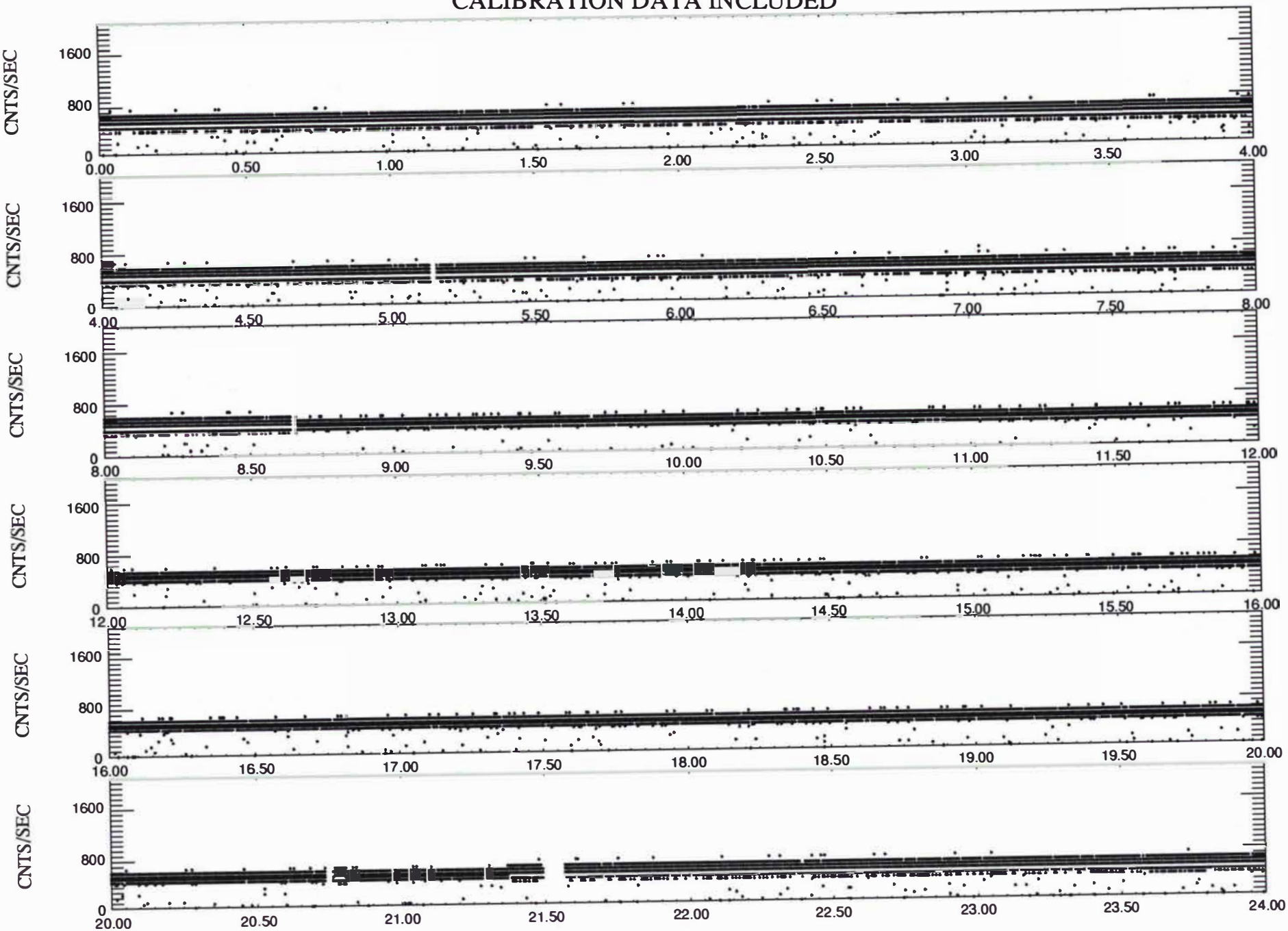

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/02/07
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/02/09, 1008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

HUS MODES EDR day 38, year 1997 to day 38, year 1997 5/16/97



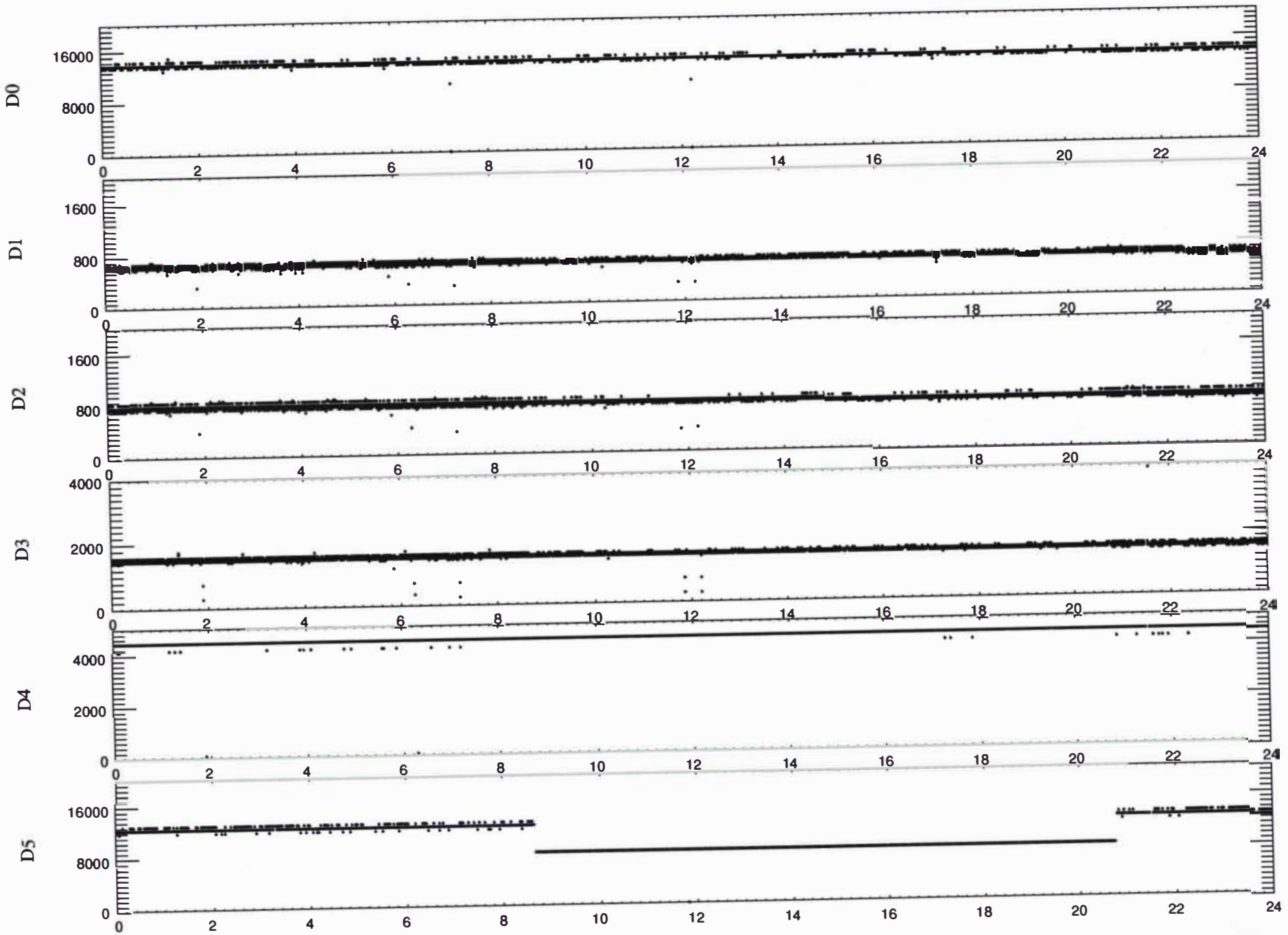
HUS 2A, MODE 1, NOT AVERAGED EDR day 38, year 1997 to day 38, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 38, year 1997 to day 38, year 1997 5/16/97



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

Hi Everyone,

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

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

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

From kraken@rosserv.gsfc.nasa.gov Wed Mar 12 15:00 PST 1997
X-Sender: kraken@lheapop.gsfc.nasa.gov
Mime-Version: 1.0
Date: Wed, 12 Mar 1997 18:00:58 -0500
    khurley@sunspot.ssl.berkeley.edu
From: kraken@rosserv.gsfc.nasa.gov (Peter Kurczynski)
Subject: TGRS/Ulysses GRB's
Cc: bonnard@rosserv.gsfc.nasa.gov, kraken@rosserv.gsfc.nasa.gov

Hello Dr. Hurley,

I'm Peter Kurczynski, a graduate student in the LEGR group here at Goddard. I am working on TGRS data analysis. I am messaging you in response to several emails you've sent to Bonnard Teegarden and others about Ulysses gamma ray bursts and whether they could be corroborated by other instruments.

What follows is a list of the dates and times of Ulysses observations that were forwarded to me recently, and the results of a search through TGRS data for bursts. We've found two matches among the Ulysses bursts listed below. Please
let me know if you would like me to forward time history data or other information about them.

Take care,

Pete

Ulysses date/time	TGRS detection
. 15 1997 13:36	NO
Jan. 17 1997 15:07	YES! 20s duration FRED; peak at 970117:53211s
Jan. 17 1997 18:45	NO
Jan. 24 1997 12:51	YES! <10s duration; very narrow; peak at 970124:44347s
Jan. 26 1997 15:30	NO
Jan. 30 1997 19:33	NO
Feb. 4 1997 11:18	NO
Feb. 8 1997 18:04	NO

From HENZE@fender.msfc.nasa.gov Tue Feb 18 14:58 PST 1997
Date: Tue, 18 Feb 1997 16:58:01 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: khurley@sunspot.ssl.berkeley.edu
ject: Ulysses events and possible BATSE observations

Ulysses events and times				BATSE
Year	Mon	Day	hh:mm TJD / SoD	Status and/or Comments
1996	Nov	19	03:13 10406/11580	HV off SoD 10544-12158.
1996	Nov	19	05:39 10406/20340	SGR event (trig. #5677) at SoD 19826. Data gaps SoD 18777-19259, 19916-19959.
1996	Nov	19	06:31 10406/23460	HV off SoD 22425-23674. Trigger disabled SoD 22185-22455.
1996	Nov	19	07:33 10406/27180	SGR event (trig. #5678) at SoD 26644. Data gap SoD 24837-25200. Trigger disabled SoD 28095-28365.

Other BATSE SGR triggers on 1996 Nov 19 (TJD 10406) were #5676 at SoD 16123, #5679 at SoD 35567, #5681 at SoD 65701.
Untriggered probable SGR events observed by BATSE occurred on 1996 Nov 19 (TJD 10406) at ~SoD: 21323, 21538, 26177.

1997	Feb	04	11:18 10483/40680	HV off SoD 39377-40915. Nothing evident outside that interval, but 32 ms probably too short to see if not triggered.
1997	Feb	08	18:04 10487/65040	GRO J1744-28 event (trig. #6059) at SoD 64177. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	12	22:50 10491/82200	Data gap SoD 81658-82260. Untriggered GRO J1744-28 events at SoD ~79581 ,84853. Trigger disabled SoD 80235-80535, 82845-83145. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	13	19:03 10492/68580	Data gaps SoD 66840-66877, 68697-68849. Trigger disabled SoD 65805-65955. Nothing evident but 64 ms probably too short to see if not triggered.

From DEAL@fender.msfc.nasa.gov Tue Feb 11 08:22 PST 1997
From: DEAL@fender.msfc.nasa.gov
Date: Tue, 11 Feb 1997 10:19:57 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6055

TIME: TJD=0487 SECONDS=6981

TYPE: CYGX-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
CYGX-1 FLUCTUATION

From DEAL@fender.msfc.nasa.gov Tue Feb 11 08:19 PST 1997
From: DEAL@fender.msfc.nasa.gov
Date: Tue, 11 Feb 1997 10:18:40 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6056

TIME: TJD=0487 SECONDS=13195

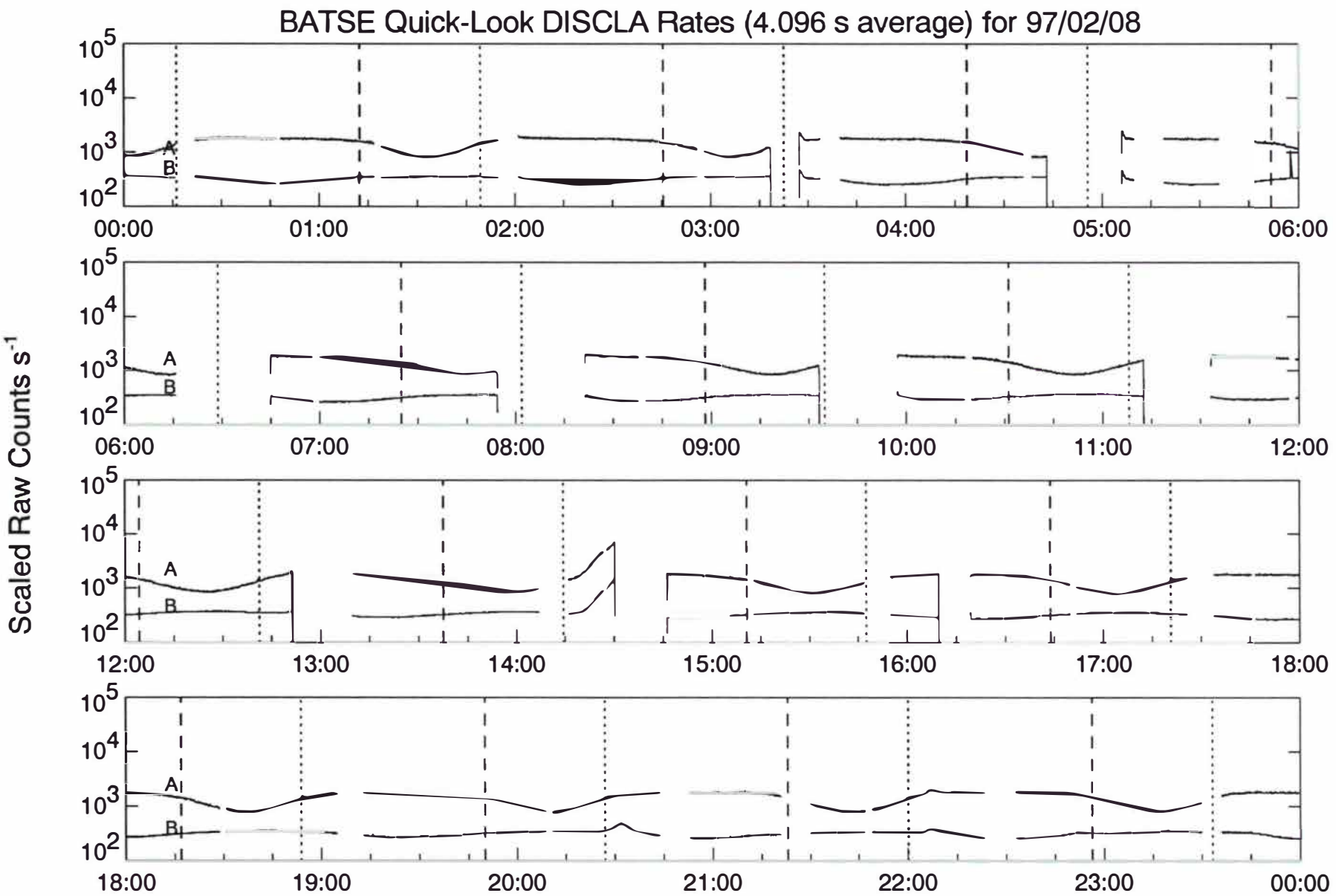
TYPE: CYGX-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
CYGX-1 FLUCTUATION



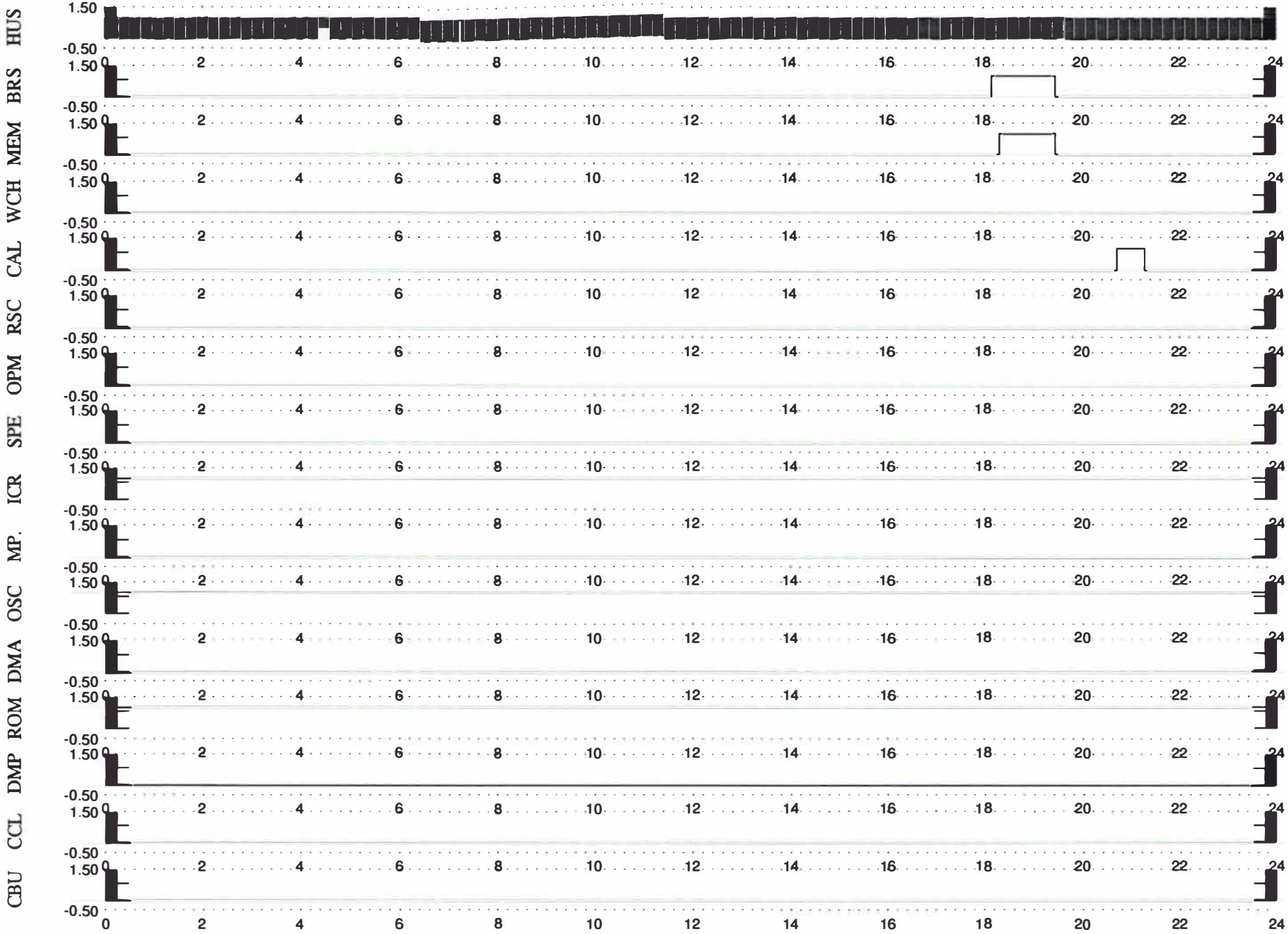
Current Time: 97/02/10, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
\+ Solar Flare

HUS MODES EDR day 39, year 1997 to day 39, year 1997 5/16/97

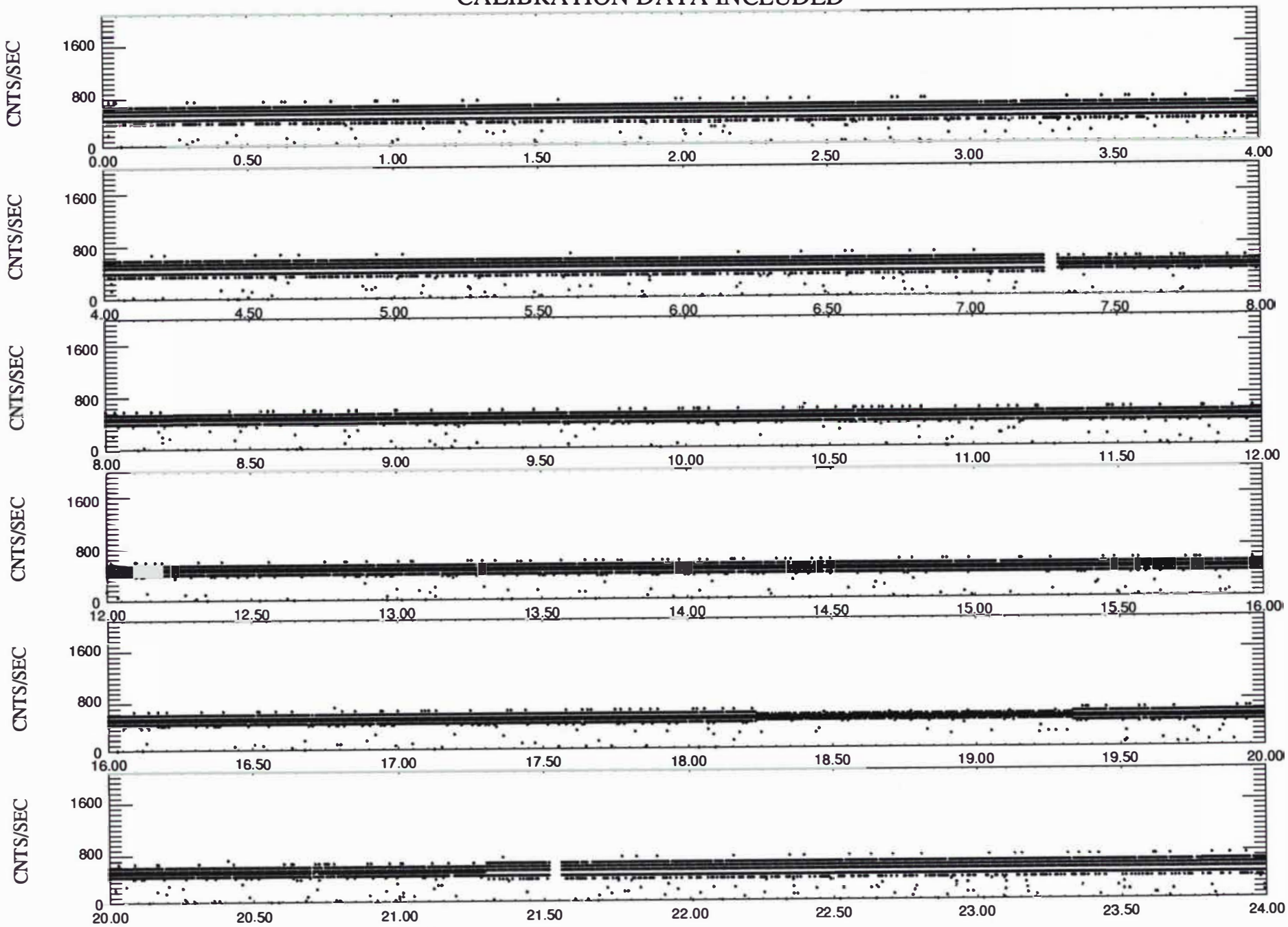
BURST NUMBER 3



UNIVI AL TIME

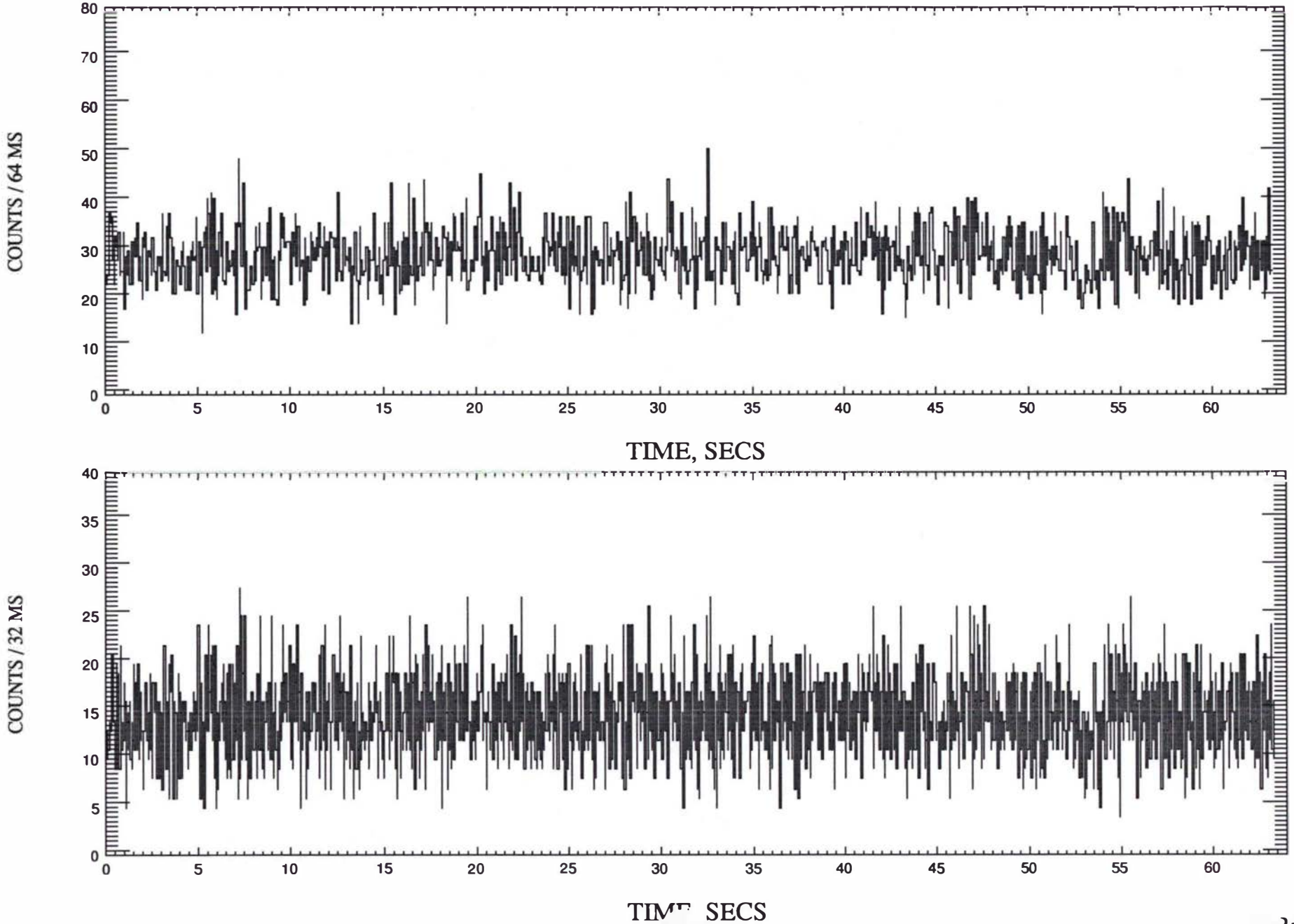
HUS 2A, MODE 1, NOT AVERAGED EDR day 39, year 1997 to day 39, year 1997 5/16/97

CALIBRATION DATA INCLUDED



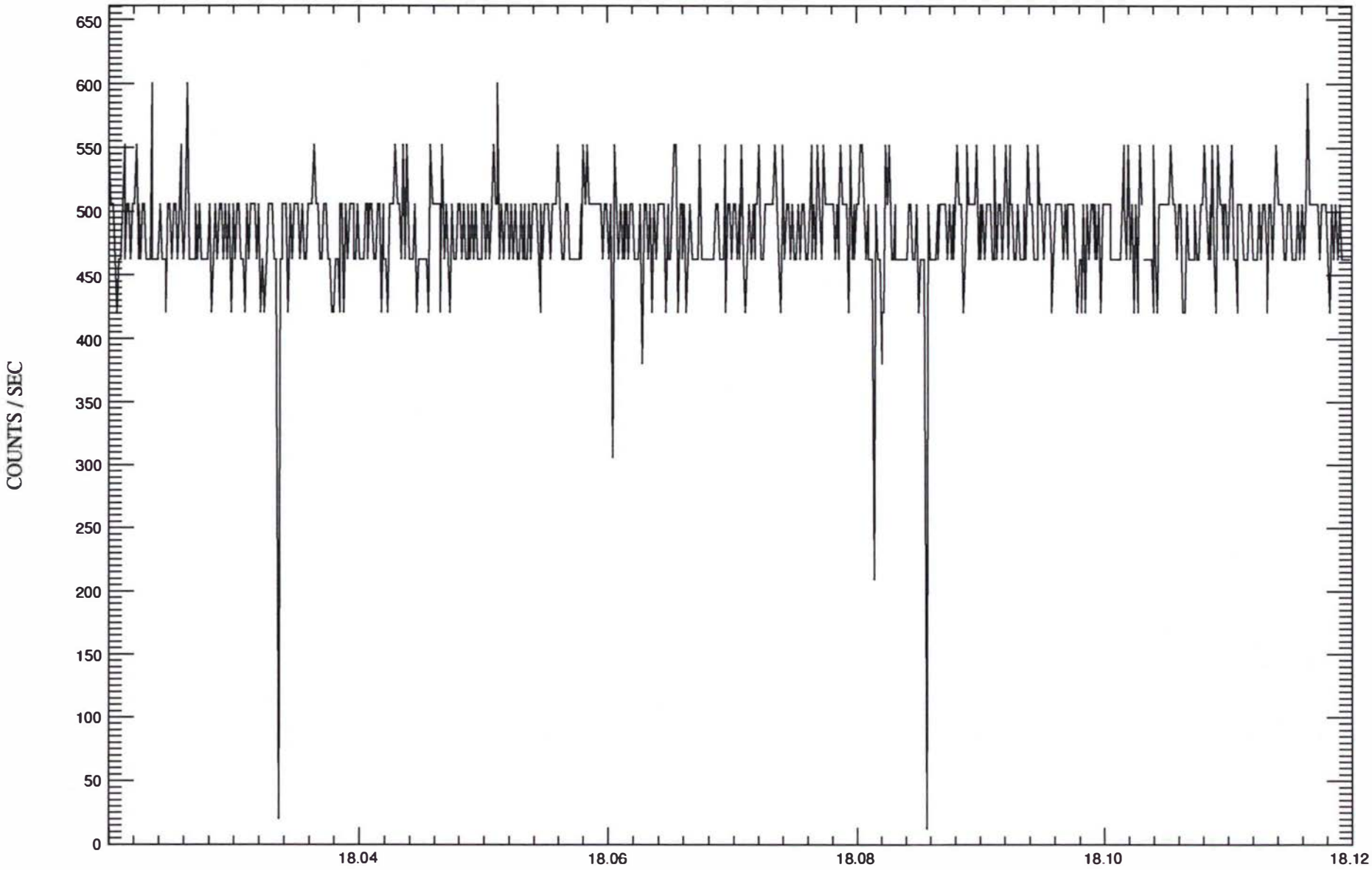
UNIVI AL TIME

Burst Counter 3 at UT=18.069492094252 h=65050.172 s 18:04:10.172

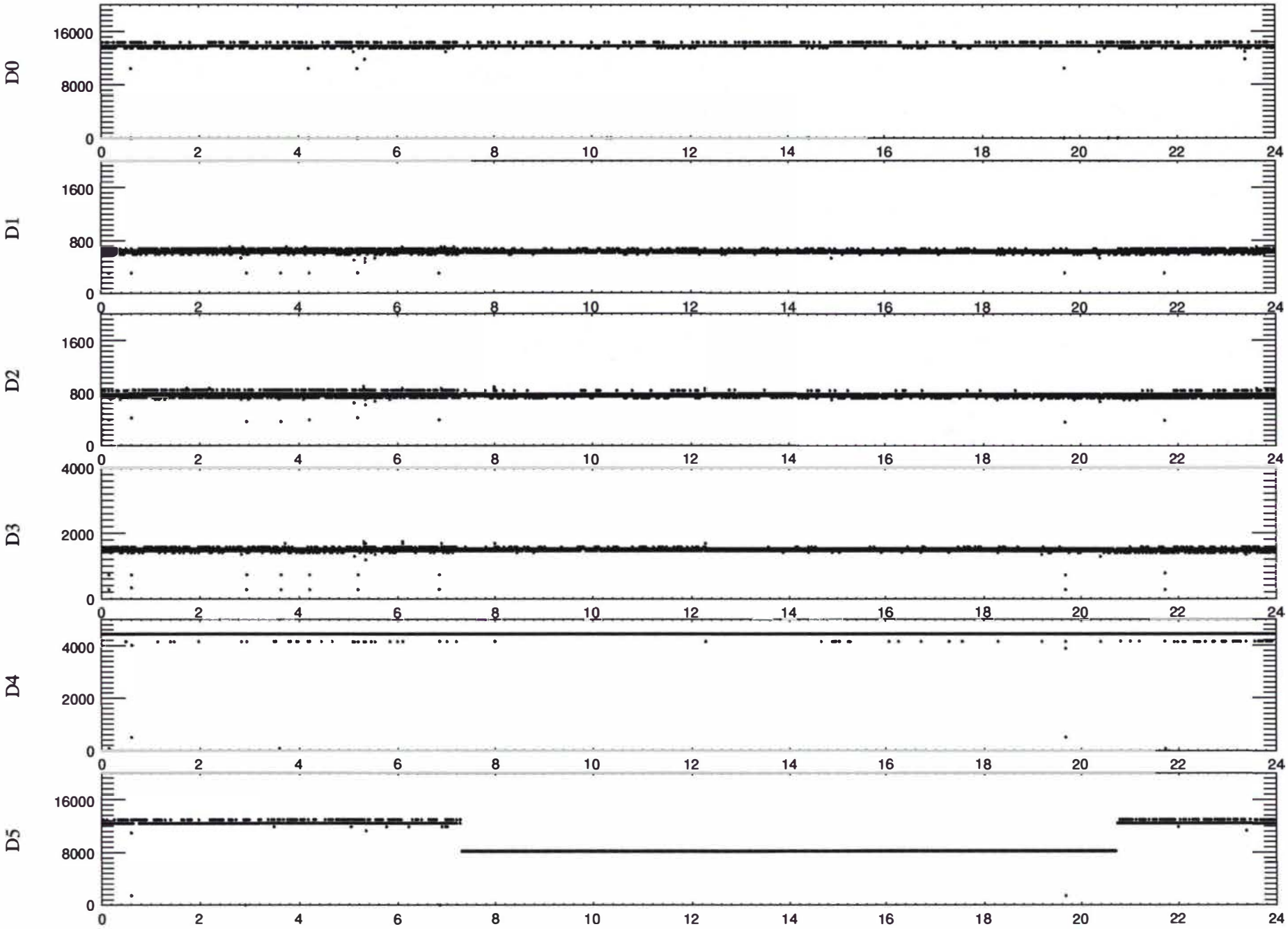


HUS 2A, MODE 1, NOT AVERAGED EDR day 39, year 1997 to day 39, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 39, year 1997 to day 39, year 1997 5/16/97



From RICHARDSON@ssl.msfc.nasa.gov Tue Feb 11 09:22 PST 1997
Date: Tue, 11 Feb 1997 11:21:42 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6065

TIME: TJD=0488 SECONDS=29587

TYPE: CYG X-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=59.4 AZIMUTH=97.2 ERROR=5.8 DEGREES

COMMENTS:
CYG X-1 FLUCTUATIONS

From RICHARDSON@ssl.msfc.nasa.gov Tue Feb 11 09:29 PST 1997
Date: Tue, 11 Feb 1997 11:24:18 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6066

TIME: TJD=0488 SECONDS=34420

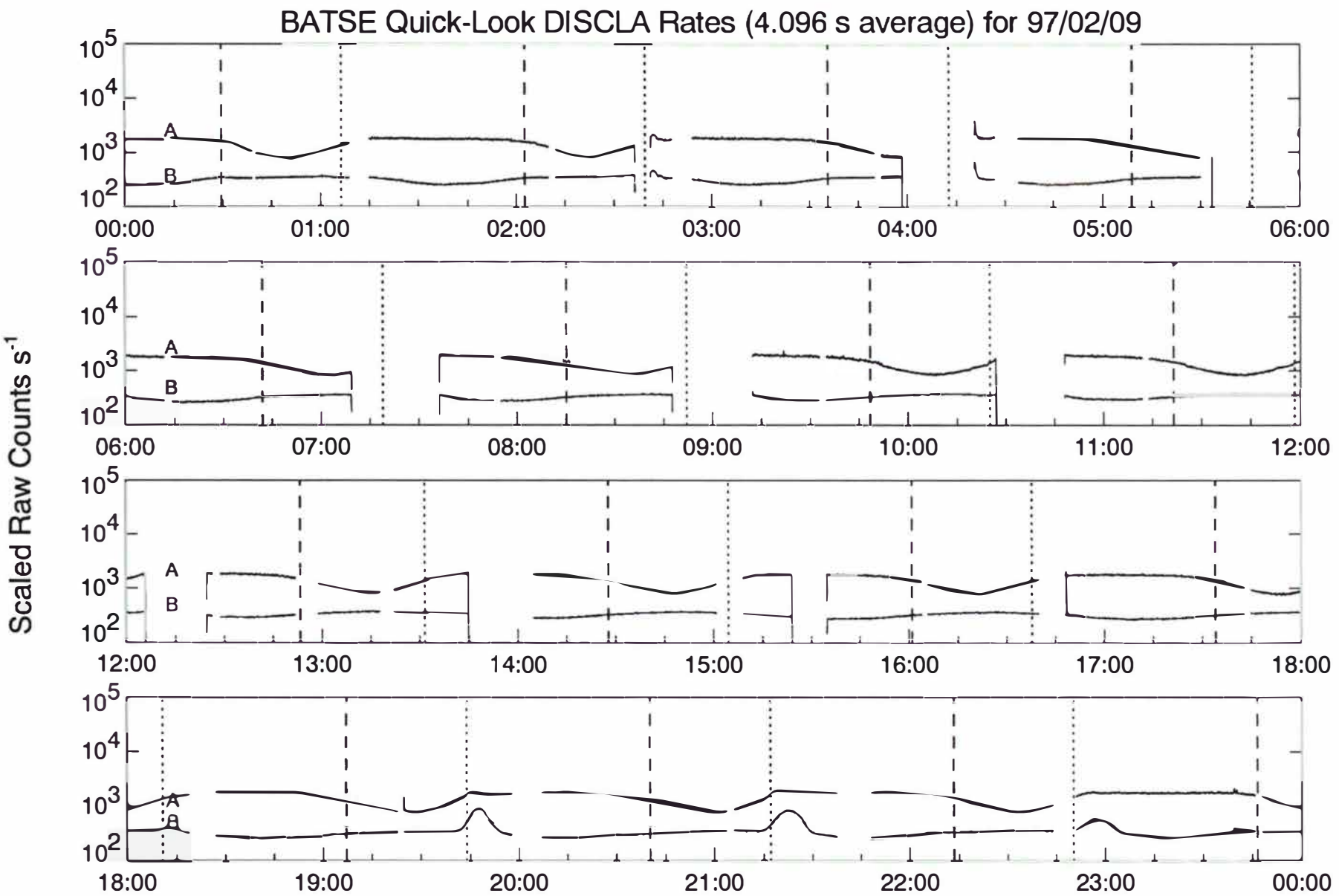
TYPE: CYG X-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

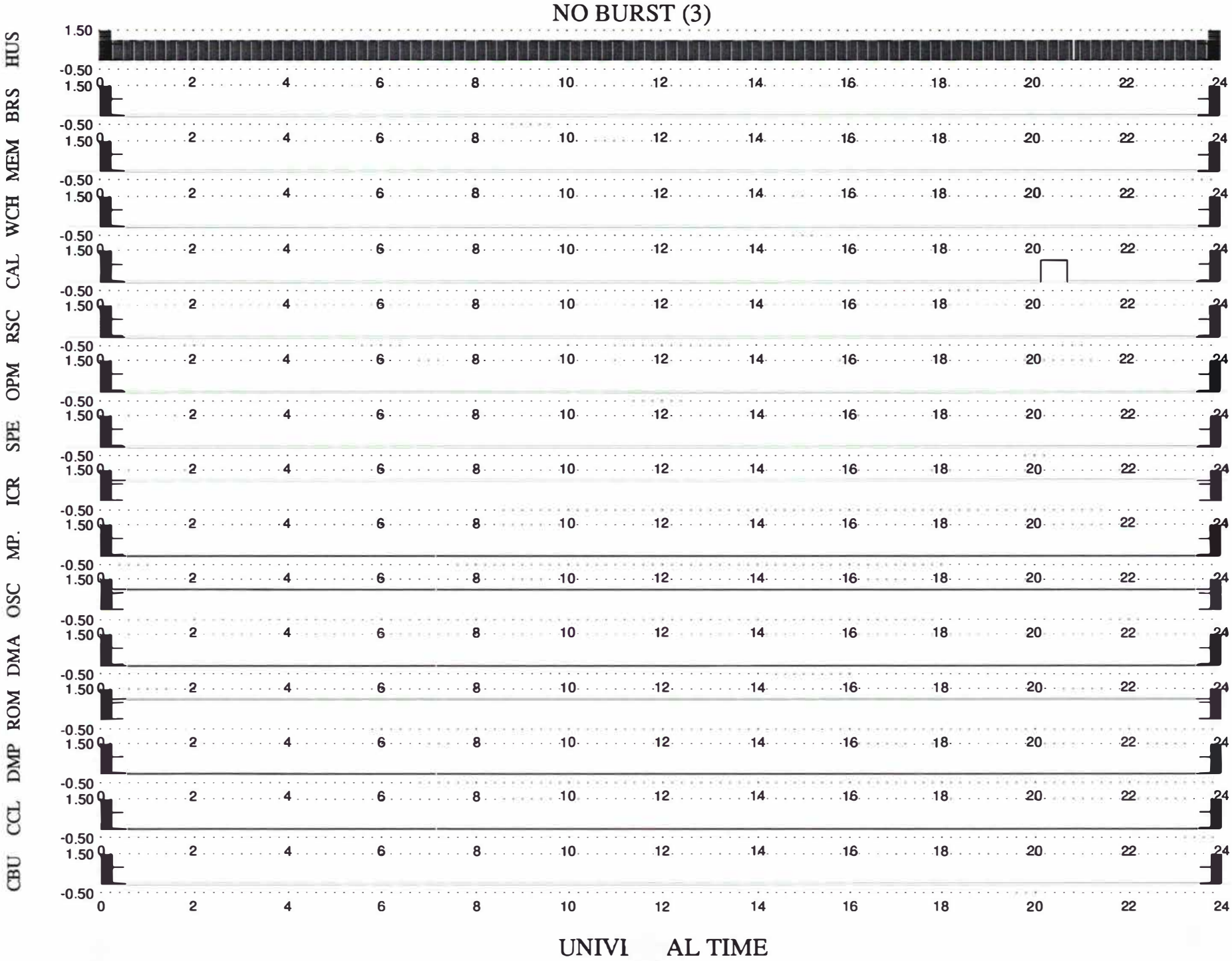
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=57.1 AZIMUTH=101.5 ERROR=5.2 DEGREES

COMMENTS:
CYG X-1 FLUCTUATIONS

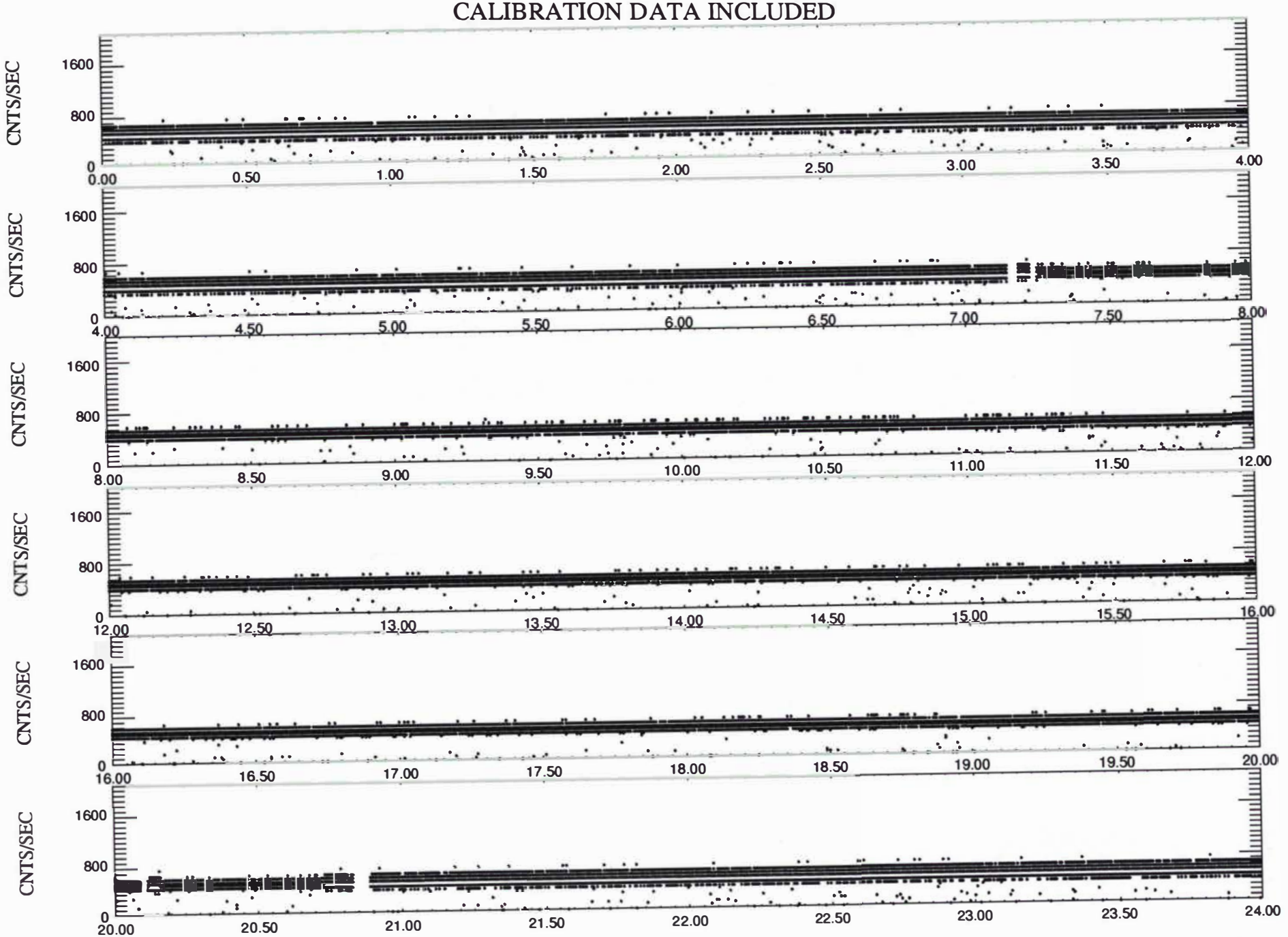

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/02/09
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/02/11, 1008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

HUS MODES EDR day 40, year 1997 to day 40, year 1997 5/16/97



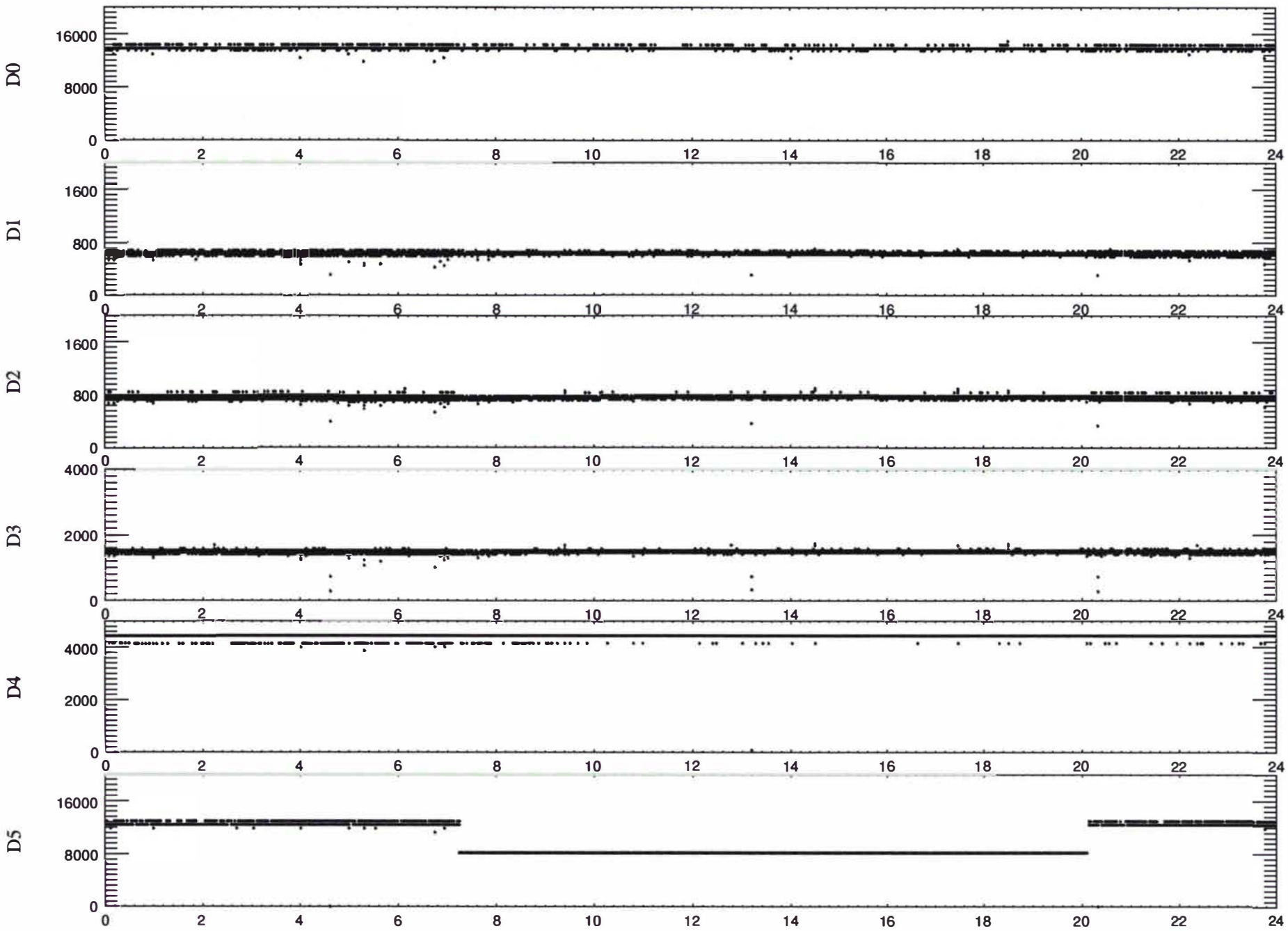
HUS 2A, MODE 1, NOT AVERAGED EDR day 40, year 1997 to day 40, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 40, year 1997 to day 40, year 1997 5/16/97



From DEAL@fender.msfc.nasa.gov Wed Feb 12 09:30 PST 1997
From: DEAL@fender.msfc.nasa.gov
Date: Wed, 12 Feb 1997 11:28:13 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6073

TIME: TJD=0489 SECONDS=9519

TYPE: CYGX-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
CYGX-1 FLUCTUATION

From DEAL@fender.msfc.nasa.gov Wed Feb 12 09:33 PST 1997
From: DEAL@fender.msfc.nasa.gov
Date: Wed, 12 Feb 1997 11:30:27 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6074

TIME: TJD=0489 SECONDS=13131

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

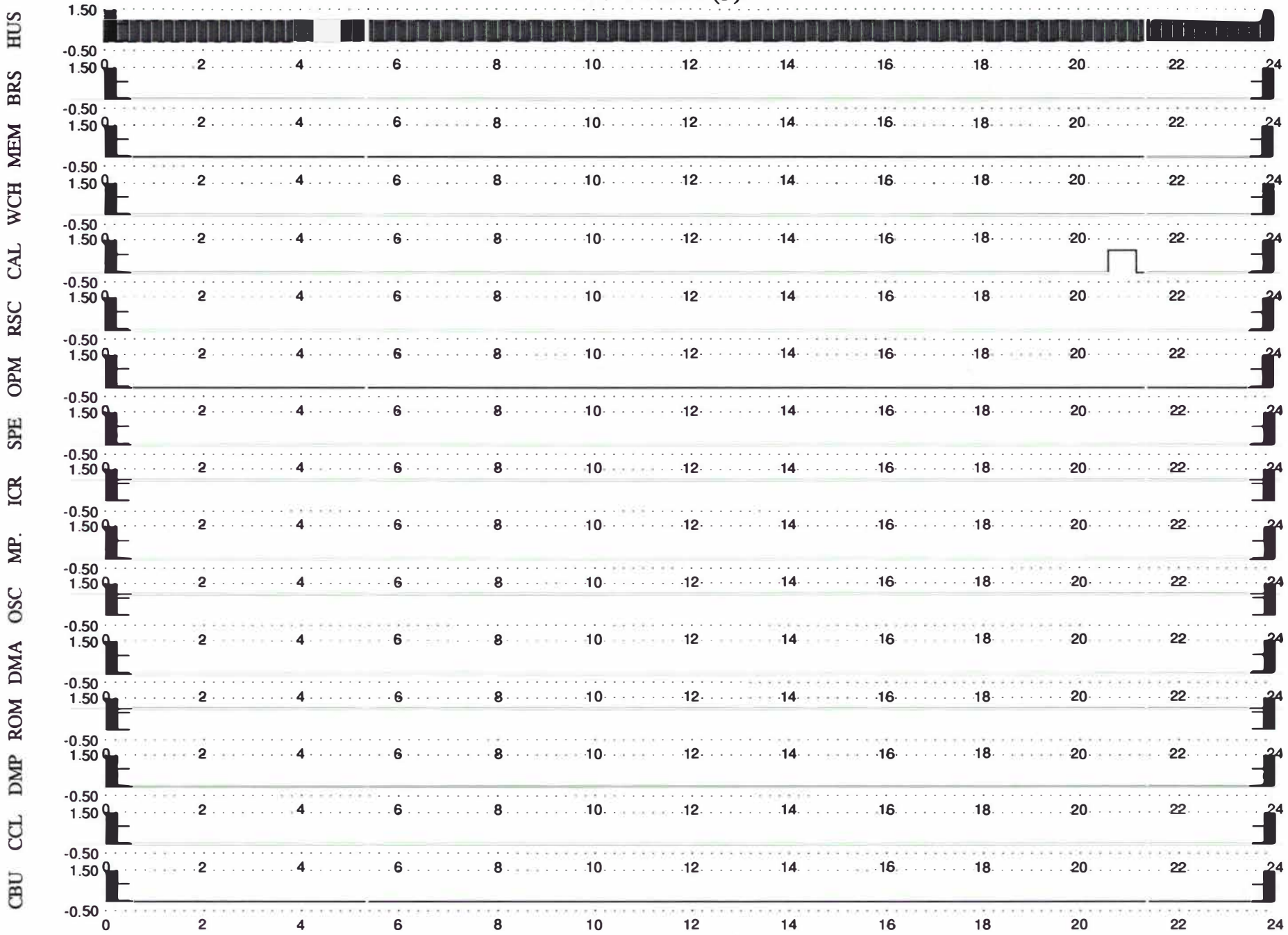
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

HUS MODES EDR day 41, year 1997 to day 41, year 1997 5/16/97

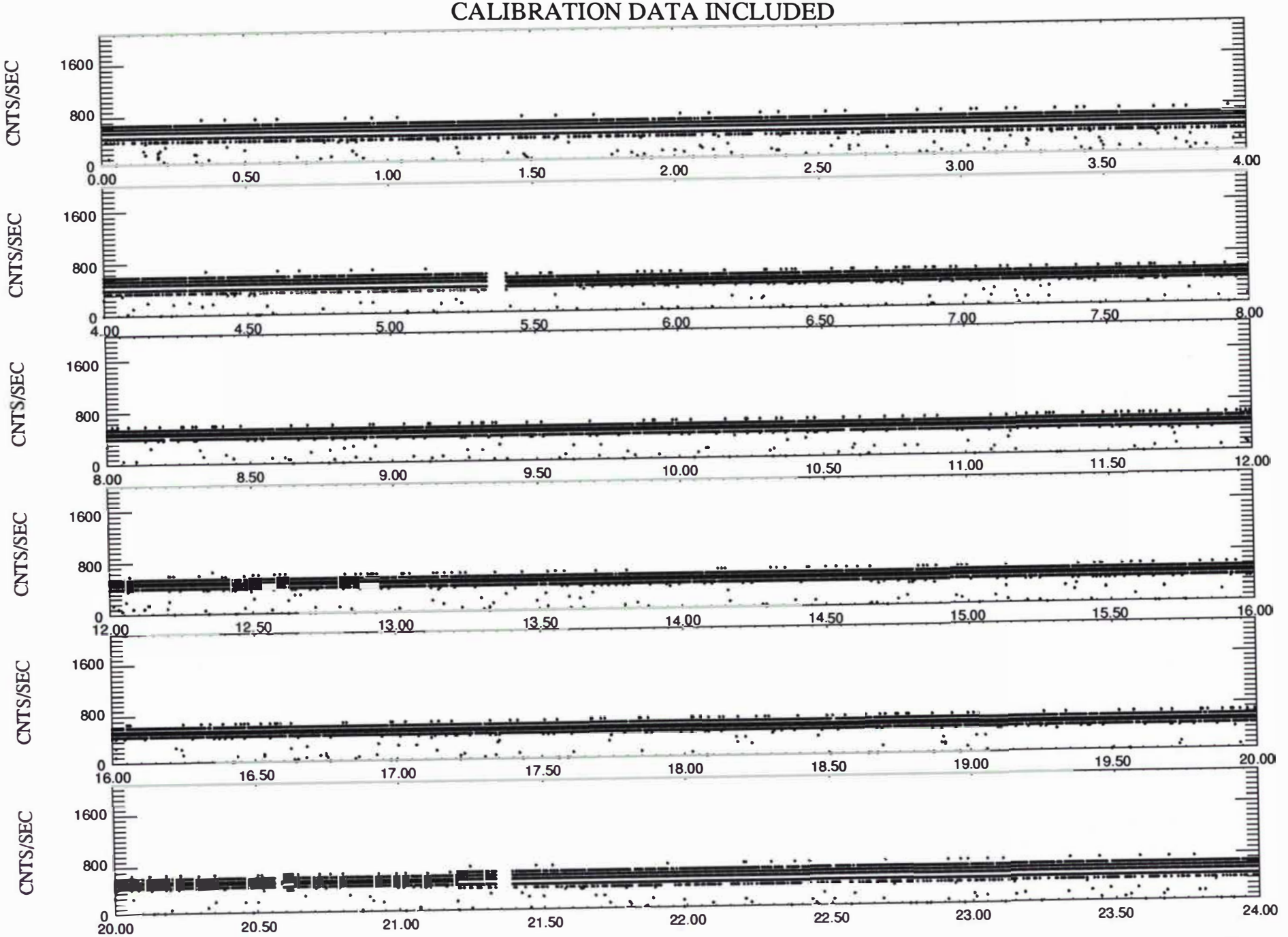
NO BURST (3)



UNIVI AL TIME

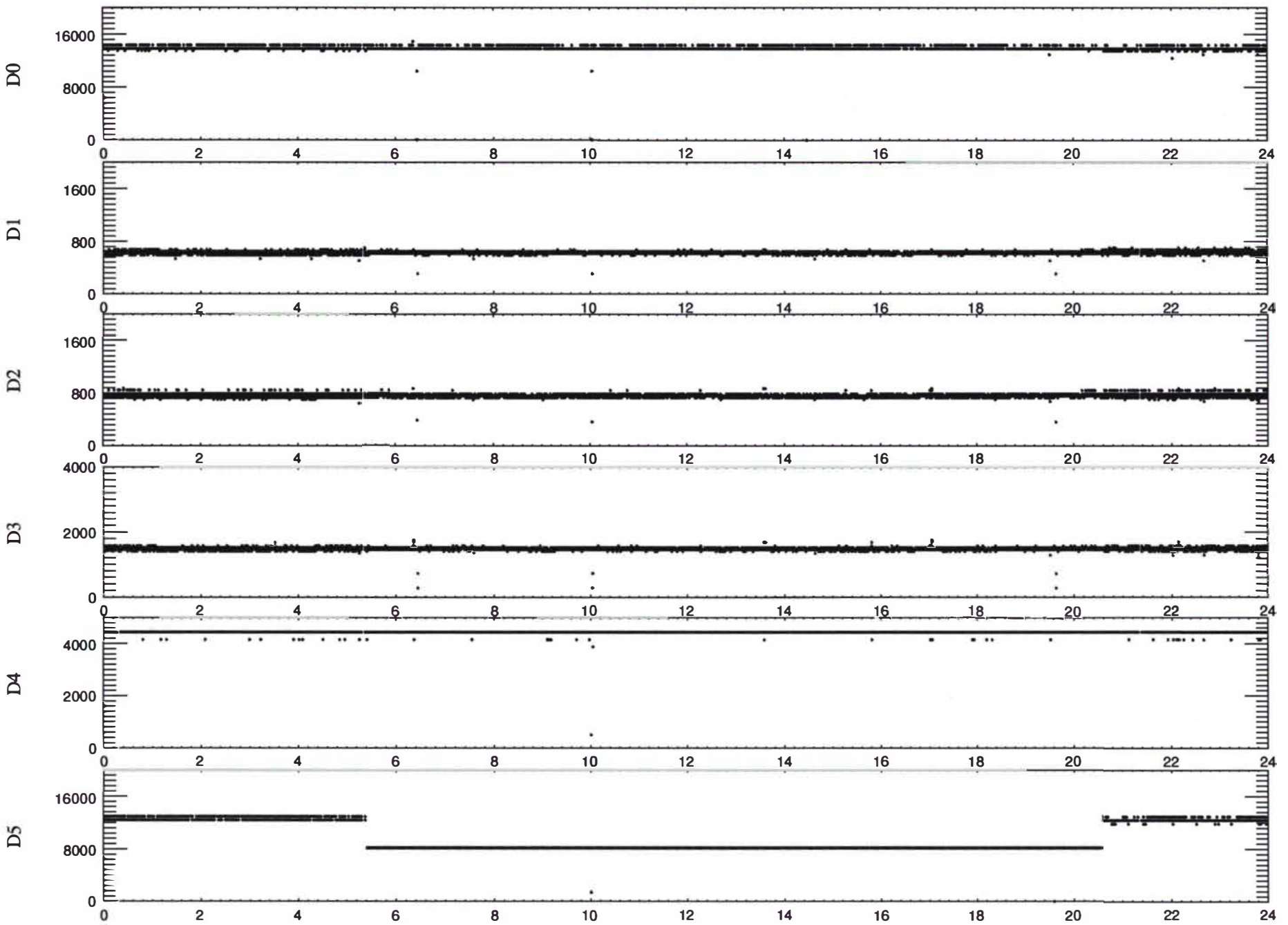
HUS 2A, MODE 1, NOT AVERAGED EDR day 41, year 1997 to day 41, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 41, year 1997 to day 41, year 1997 5/16/97



From HENZE@fender.msfc.nasa.gov Thu Feb 13 12:11 PST 1997
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id MAA09325; Thu, 13 Feb 1997 12:11:08 -0800
From: HENZE@fender.msfc.nasa.gov
Date: Thu, 13 Feb 1997 13:57:04 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970213135704.2e200de4@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6082
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6082
EVENT OF 1997 FEB 11 DAY OF YEAR= 42
EVENT CROSSING TIME AT BATSE : 5275. S. OR 01:27:55.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 243.000 39.000
BATSE PEAK COUNTING RATE: 6800 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 11/ 2/ 97 IS:
RA= 170.079 DEC= 36.135 DIST= 3.963 AU
BATSE-ULYSSES DISTANCE = 592902509. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=123.74 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1098.49 SECS.
CROSSING TIME AT ULYSSES IS 4177. S. OR 01:09:36 +/- 318.84 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 11/ 2/ 97 IS:
RA= 186.696 DEC= 0.967 DIST= 0.805 AU
MARS-BATSE DISTANCE = 120392568. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=116.21 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -177.39 SECS.
CROSSING TIME AT MARS IS 5098. S. OR 01:24:57 +/- 59.86 SECONDS

BATSE BURST TRIGGER

NO.: 6082

TIME: TJD=0490 SECONDS=05275

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=058.6 AZIMUTH=143.8 ERROR=001.4 DEGREES

COMMENTS:
SINGLE PULSE WITH SUBSTRUCTURE, DUR. ~8 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6082	970211	10490	05275	6800	243	+39	8

Helio corr removed 17/2/00

Date: Mar 25 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Were data checked by Joe Springer for 0.5 s errors?

☑ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?

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

2. BATSE Data

☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)? N/A

☑ BATSE ephemeris for T_0?

☑ Error circle position and radius from public catalog used?

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

3. PVO Data

☐ Ephemeris of PVO used (not Venus)?

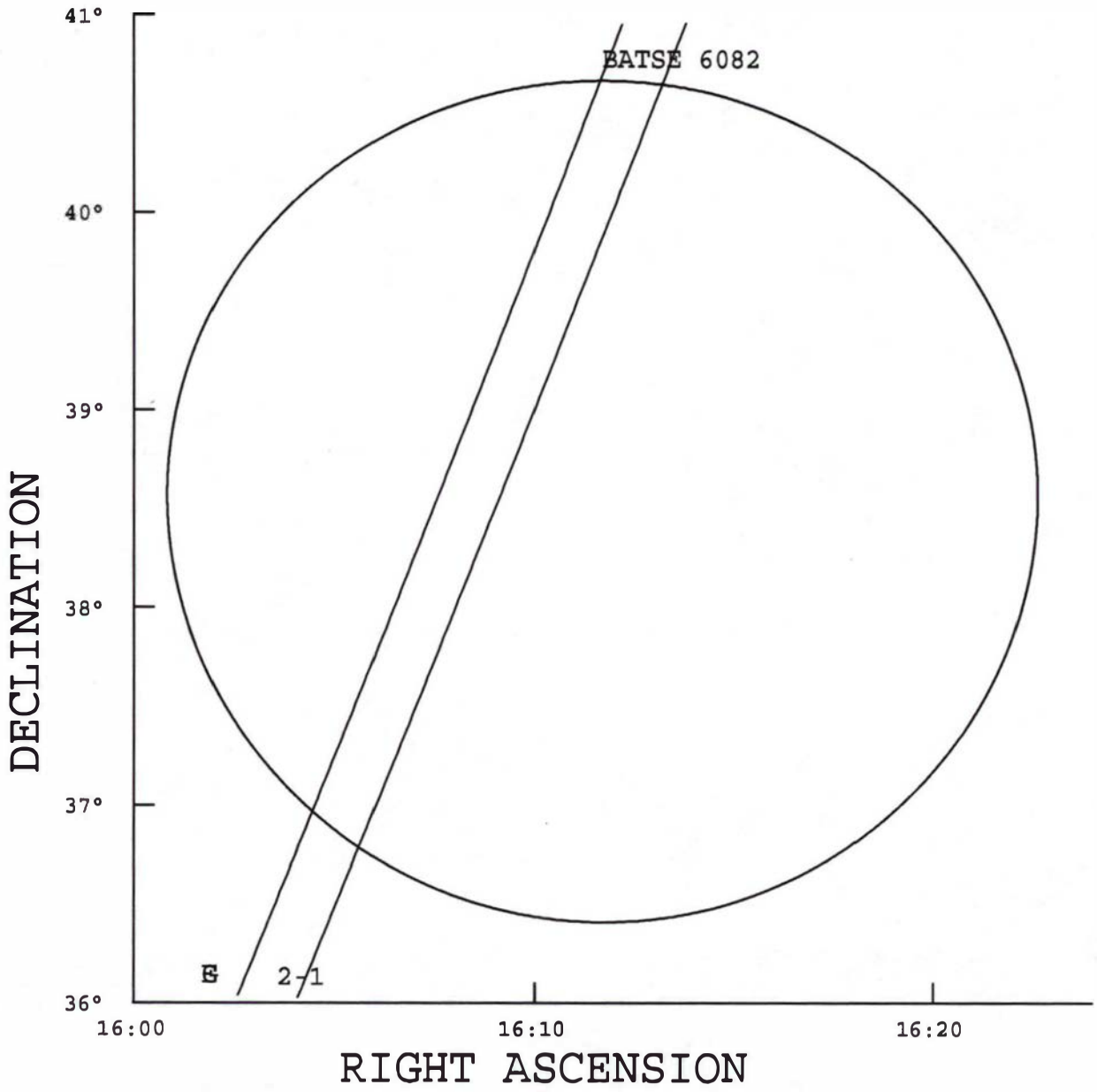
☐ 2000 coordinates used?

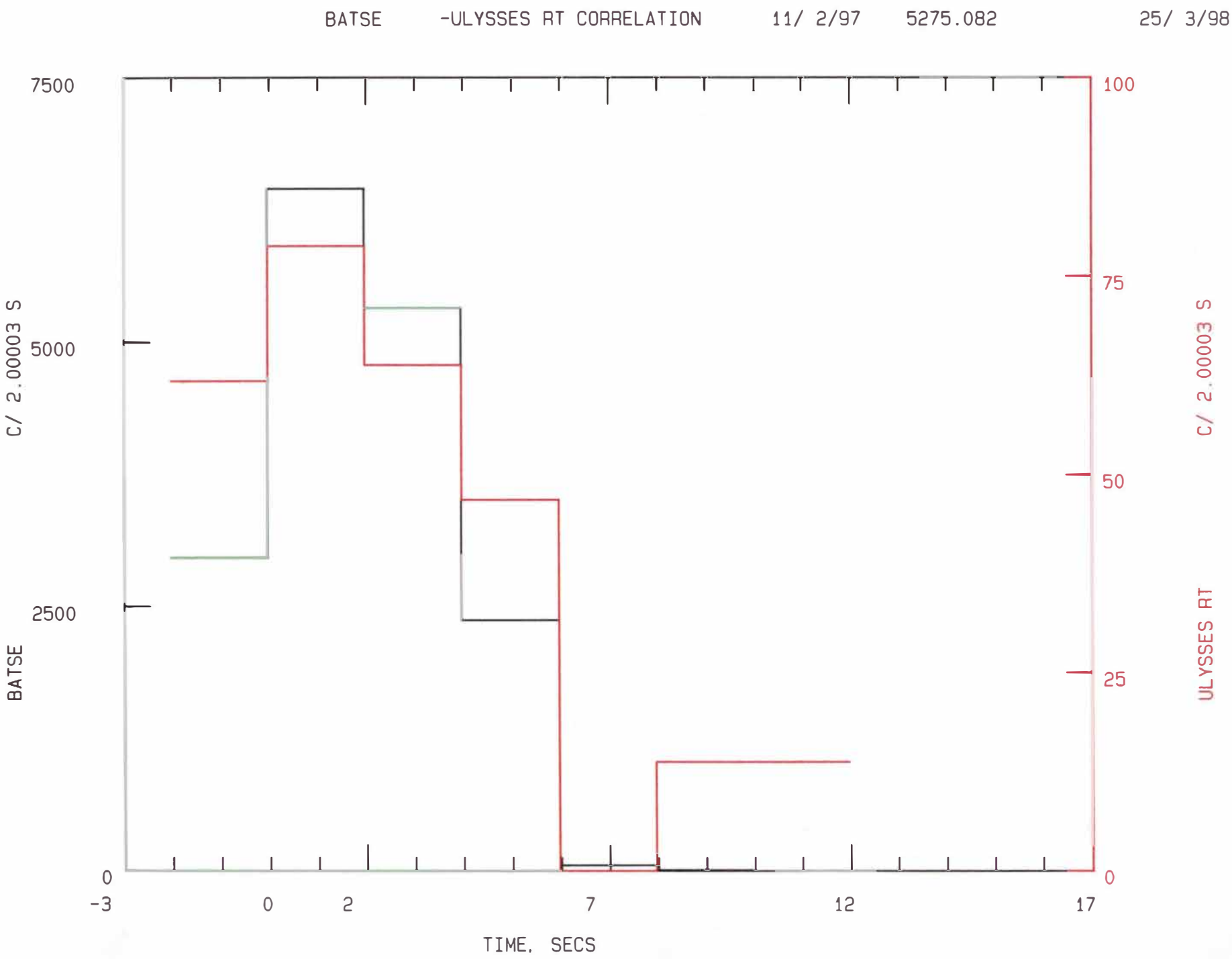
☐ Geocentric time used?

☑ ACCESS database updated?

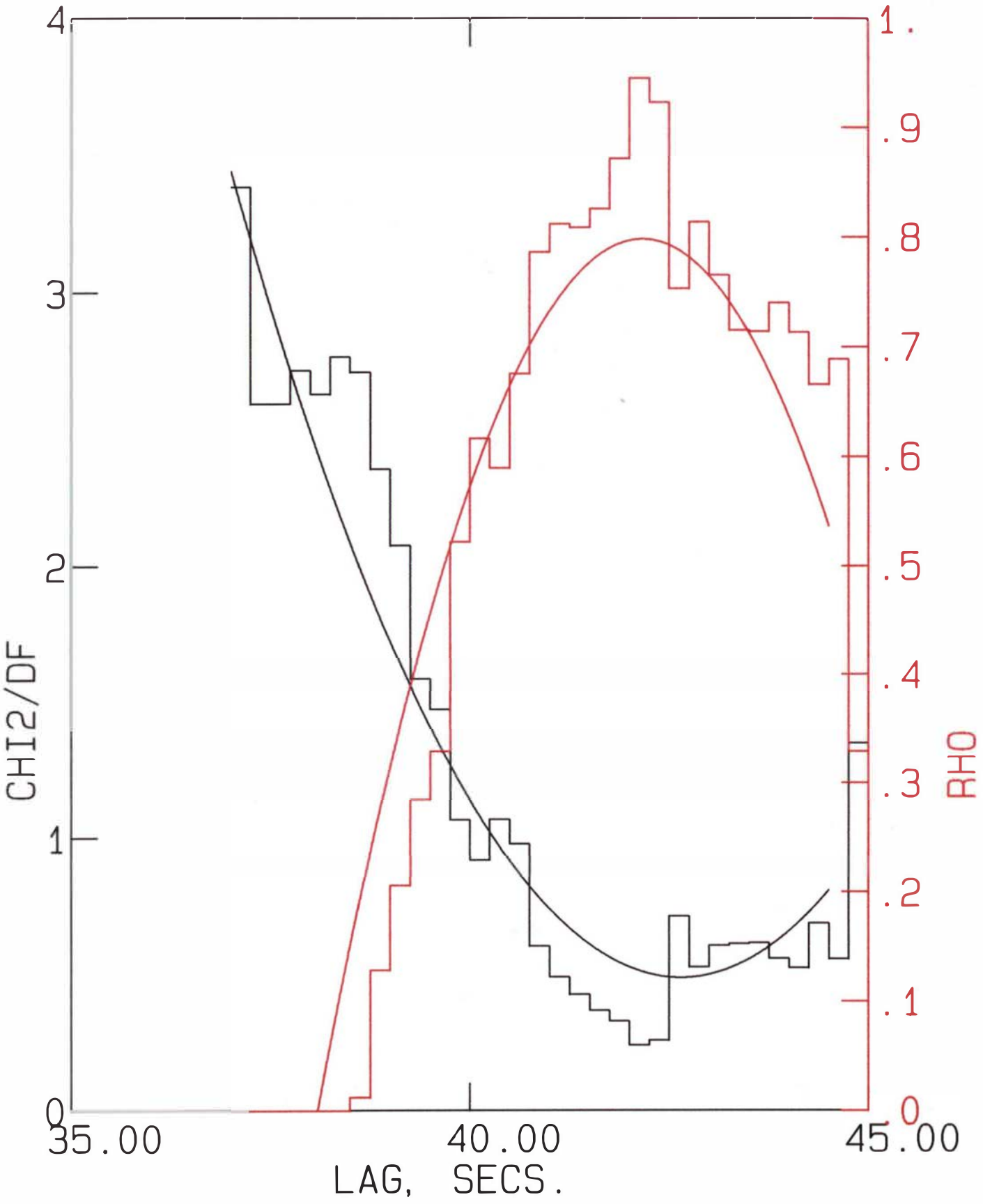
EVENT OF FEB 11, 1997 1:08

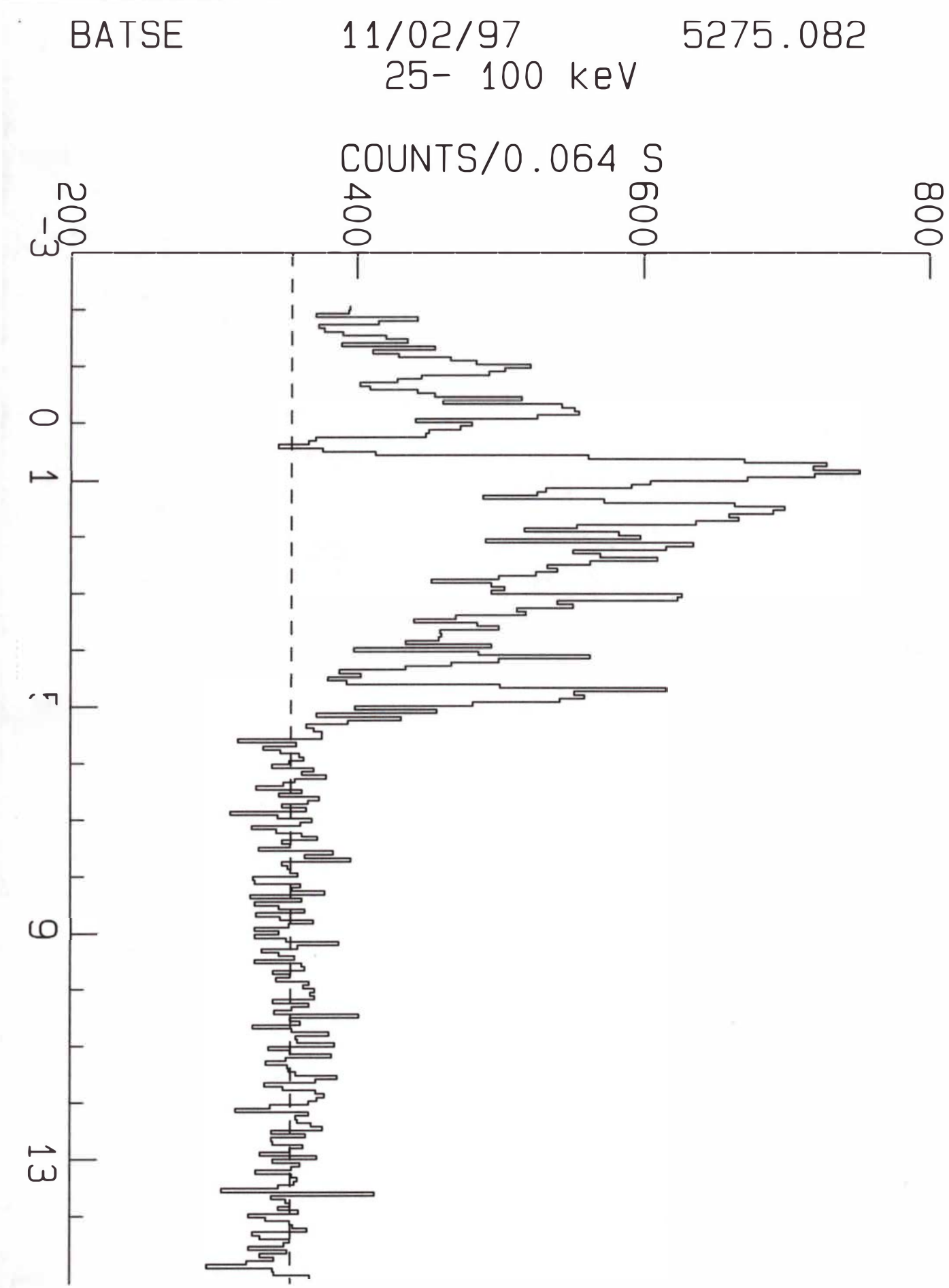
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE




BATSE -ULYSSES RT CORRELATION 11/ 2/97 5275.082 25/ 3/98
7500
5000
2500
0
C/ 2.00003 S
BATSE
100
75
50
25
0
C/ 2.00003 S
ULYSSES RT
-3
0
2
7
12
17
TIME, SECS

BATSE -ULYSSES RT CORRELATION 11/ 2/97 5275.082



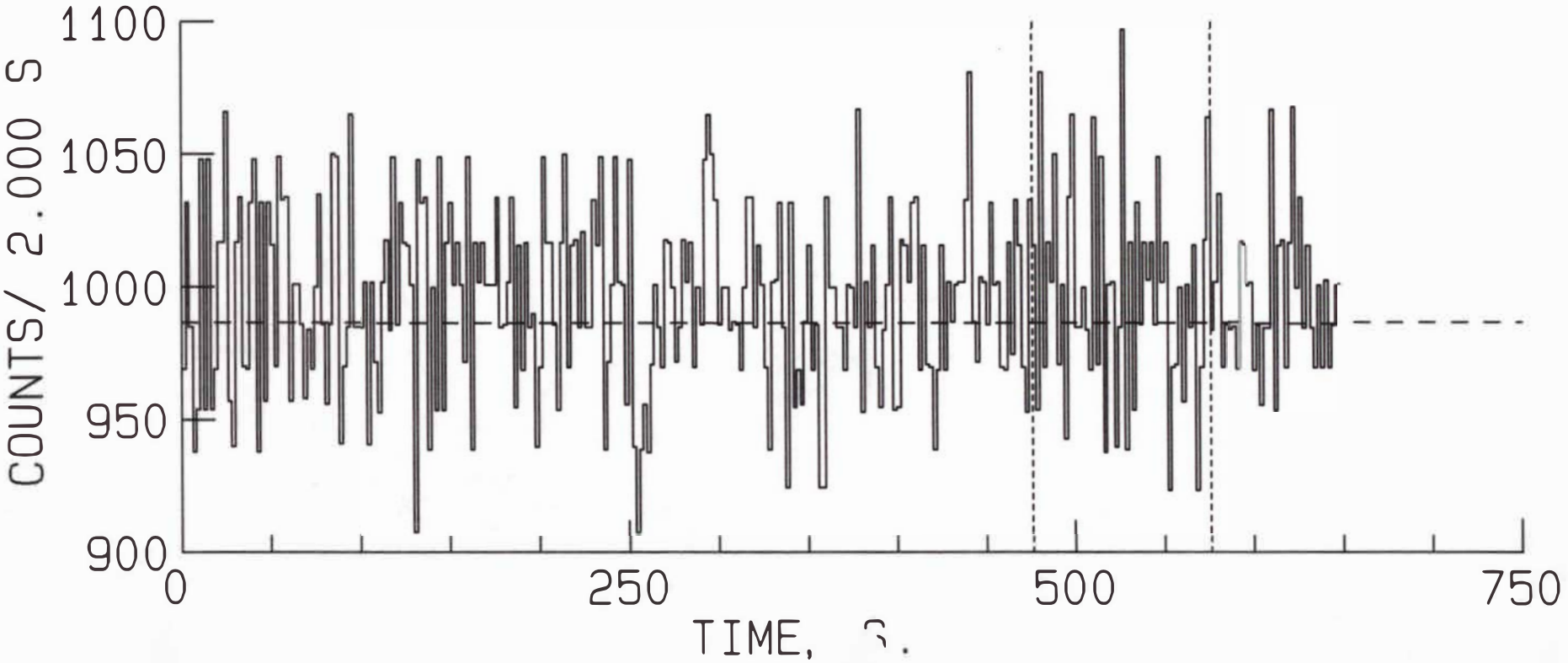

BATSE
11/02/97
5275.082
25- 100 keV
COUNTS/0.064 S
200
400
600
800
-3
0
1
6
13

ULYSSES RT 25/ 3/98

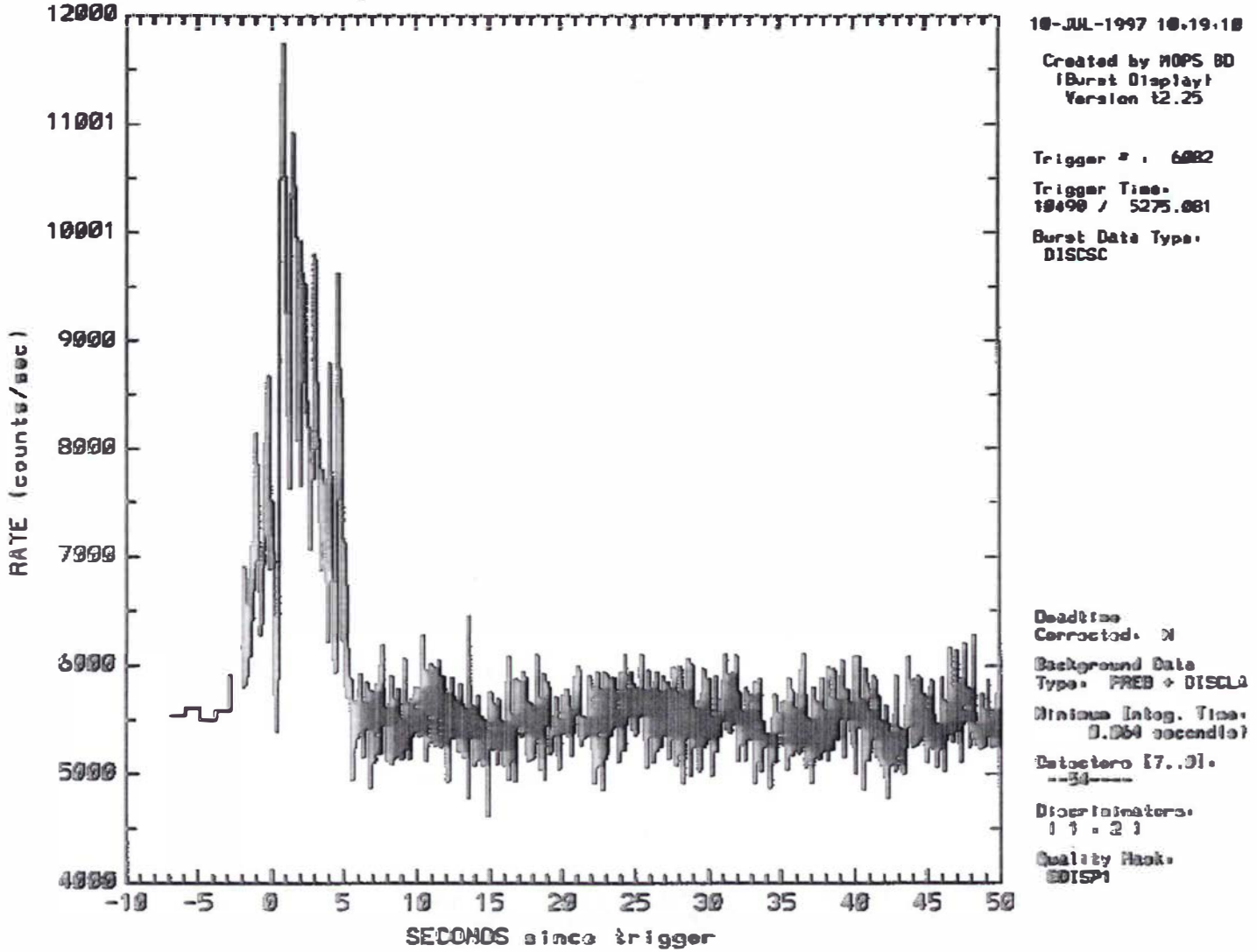
11/ 2/97 3852.202 s

0.250 S INTERVALS REGROUPED BY 8

21- 146 keV



DISCSC Data for K. Hurley, No. 6082



From HENZE@fender.msfc.nasa.gov Thu Feb 13 12:13 PST 1997
Return-Path: <HENZE@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA09341; Thu, 13 Feb 1997 12:13:40 -0800
From: HENZE@fender.msfc.nasa.gov
Date: Thu, 13 Feb 1997 13:58:48 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970213135848.2e200de4@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6083
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

Very weak - maybe not detected

BATSE BURST # 6083
EVENT OF 1997 FEB 11 DAY OF YEAR= 42
EVENT CROSSING TIME AT BATSE : 13095. S. OR 03:38:15.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 96.000 -31.000
BATSE PEAK COUNTING RATE: 8000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 11/ 2/ 97 IS:
RA= 170.053 DEC= 36.140 DIST= 3.963 AU
BATSE-ULYSSES DISTANCE = 592887315. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 83.48 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 224.59 SECS.
CROSSING TIME AT ULYSSES IS 13320. S. OR 03:41:59 +/- 394.54 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 11/ 2/ 97 IS:
RA= 186.696 DEC= 0.967 DIST= 0.805 AU
MARS-BATSE DISTANCE = 120392568. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 88.91 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 7.67 SECS.
CROSSING TIME AT MARS IS 13103. S. OR 03:38:22 +/- 69.83 SECONDS

BATSE BURST TRIGGER

NO.: 6083

TIME: TJD=0490 SECONDS=13095

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=135.5 AZIMUTH=292.9 ERROR=002.5 DEGREES

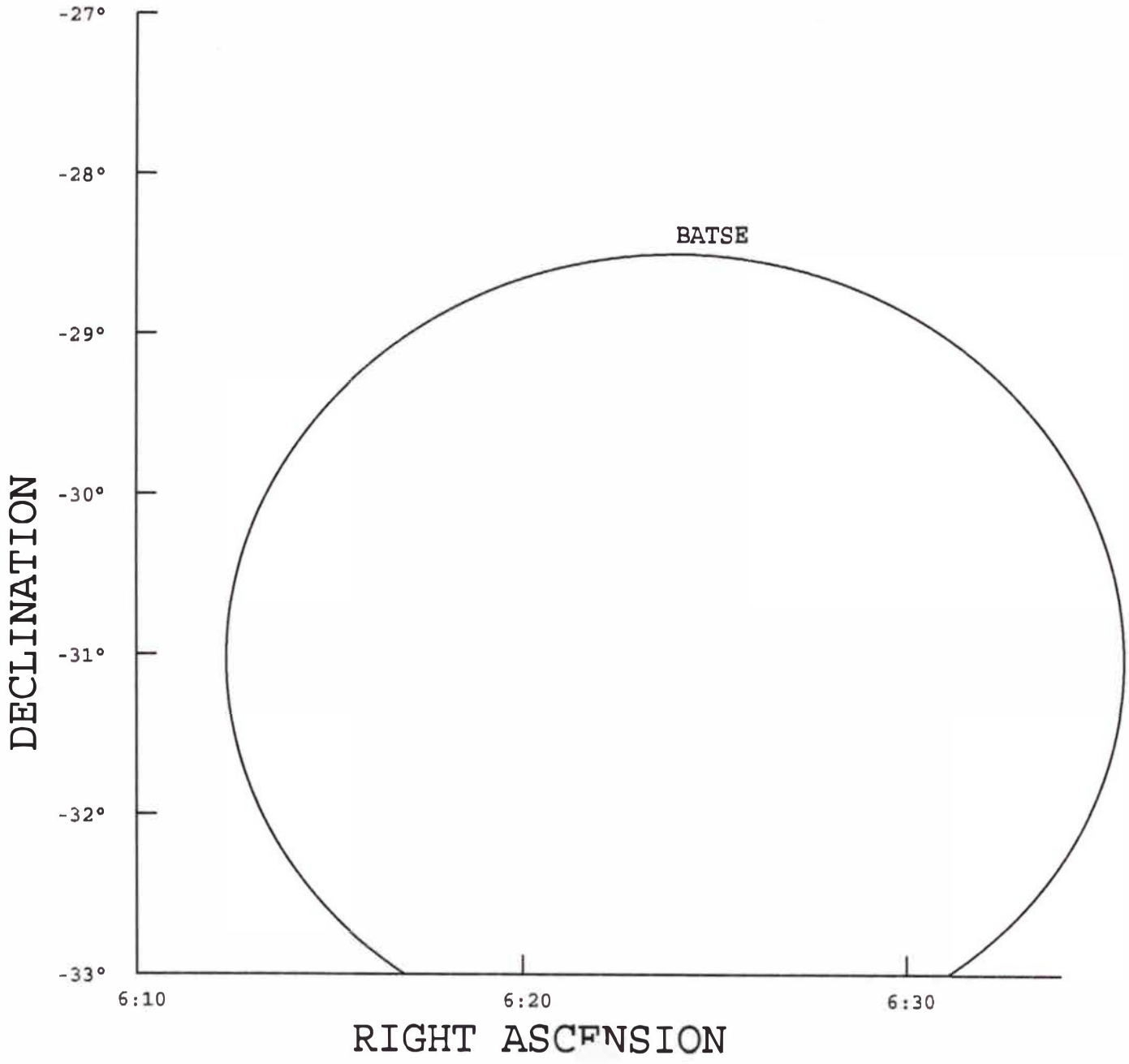
COMMENTS:
DOUBLE PULSE; SECOND IS BRIGHTER WITH MAX AT ~T+10.8 S. TOTAL DUR. ~18 S.
NOT VISIBLE ABOVE 300 KEV.

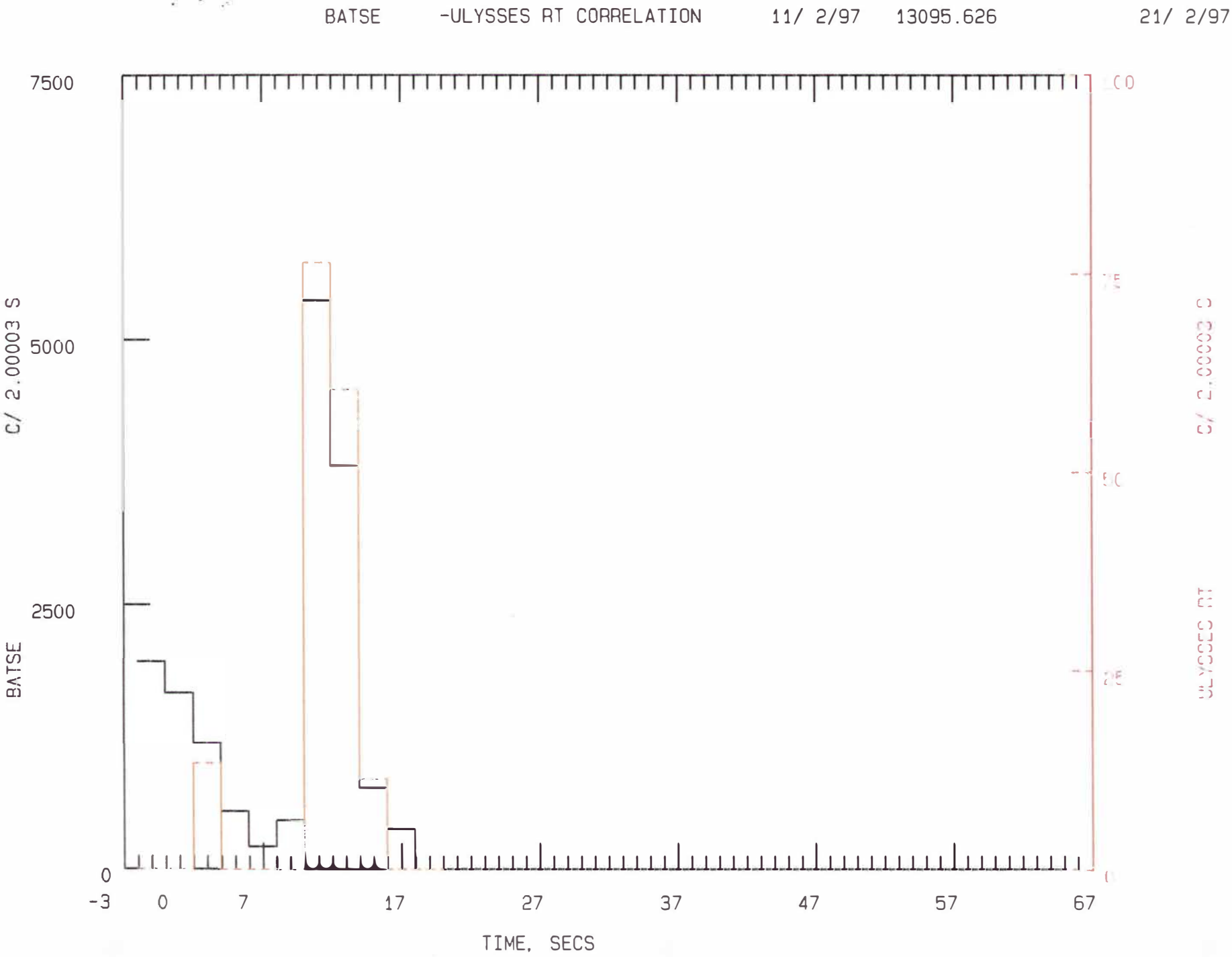
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6083	970211	10490	13095	8000	096	-31	18

EVENT OF FEB 11, 1997 3:45

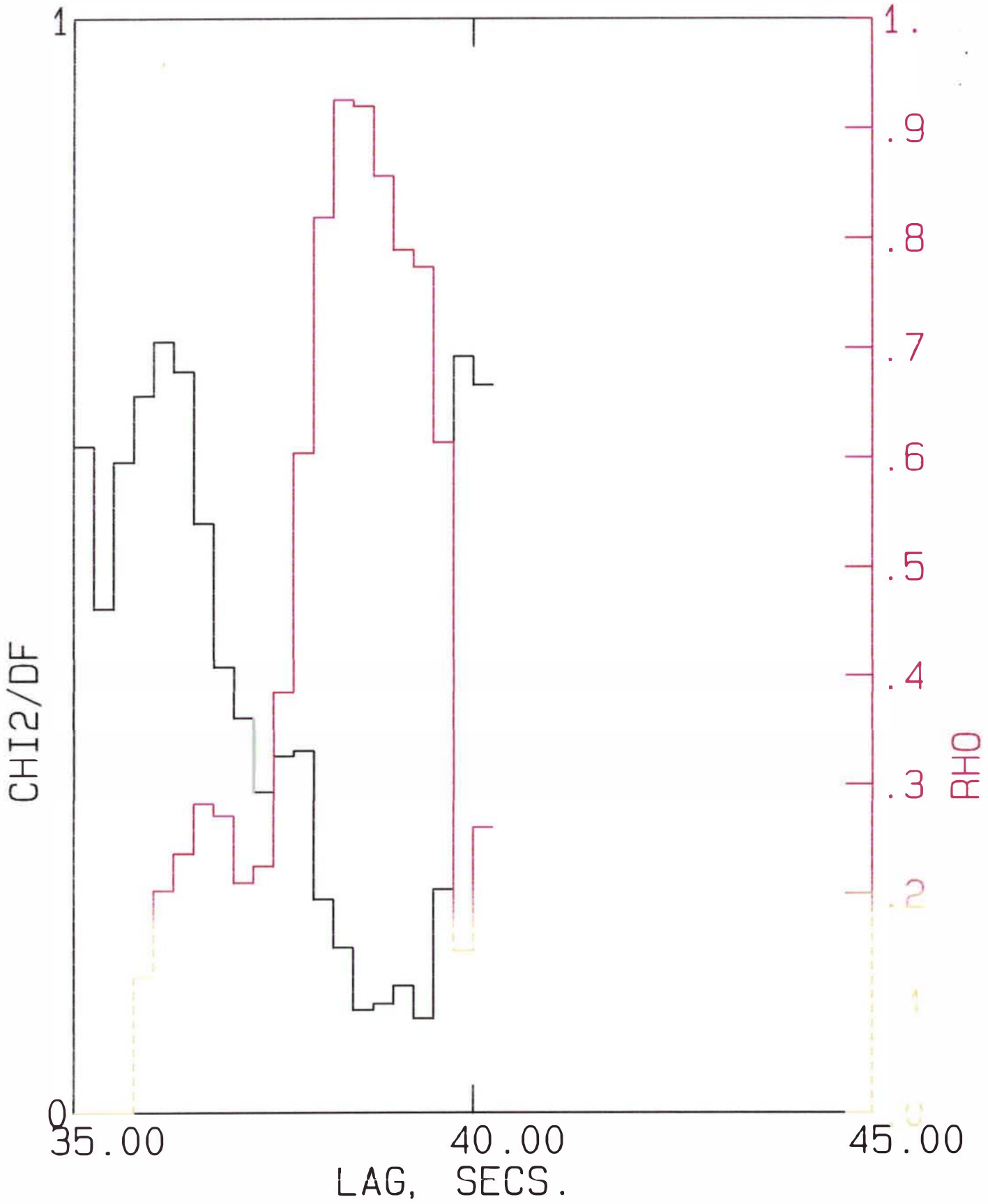
21/ 2/97

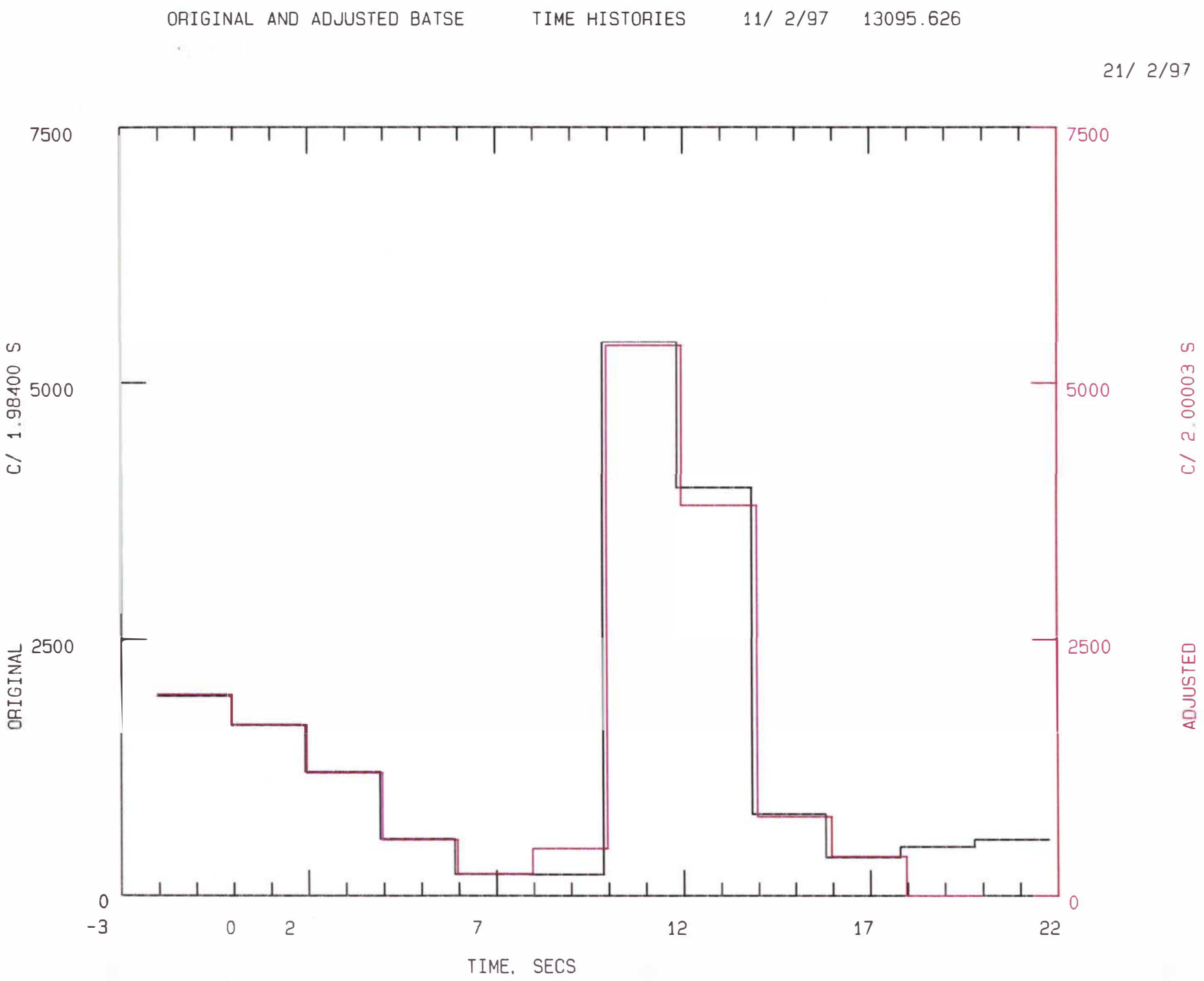
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE




BATSE -ULYSSES RT CORRELATION 11/ 2/97 13095.626 21/ 2/97
7500
5000
2500
0
C/ 2.00003 S
BATSE
-3
0
7
17
27
37
47
57
67
TIME, SECS

BATSE -ULYSSES RT CORRELATION 11/ 2/97 13095.626




ORIGINAL AND ADJUSTED BATSE TIME HISTORIES 11/ 2/97 13095.626
21/ 2/97
7500
5000
2500
0
C/ 1.98400 S
ORIGINAL
7500
5000
2500
0
C/ 2.00003 S
ADJUSTED
-3
0
2
7
12
17
22
TIME, SECS

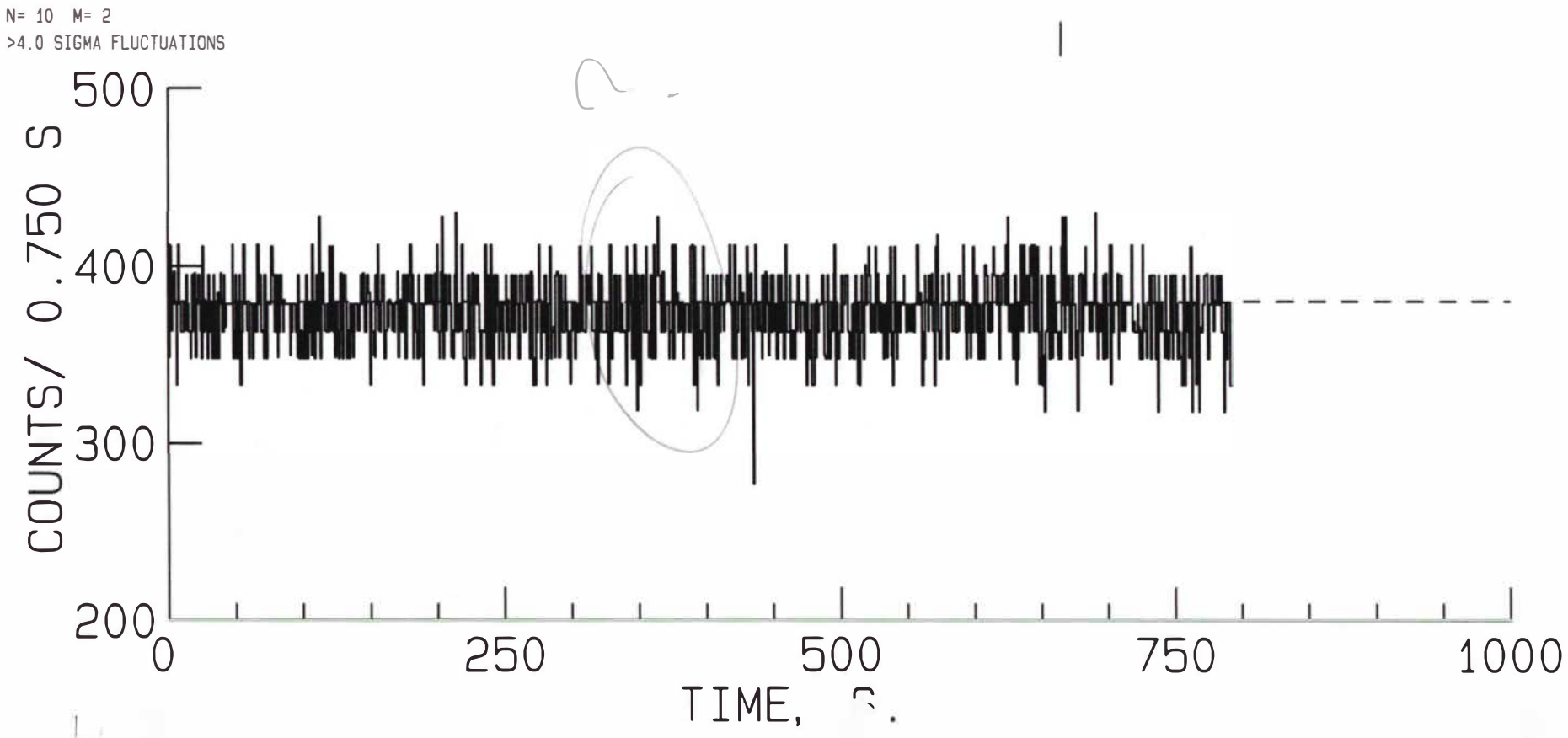
ULYSSES RT

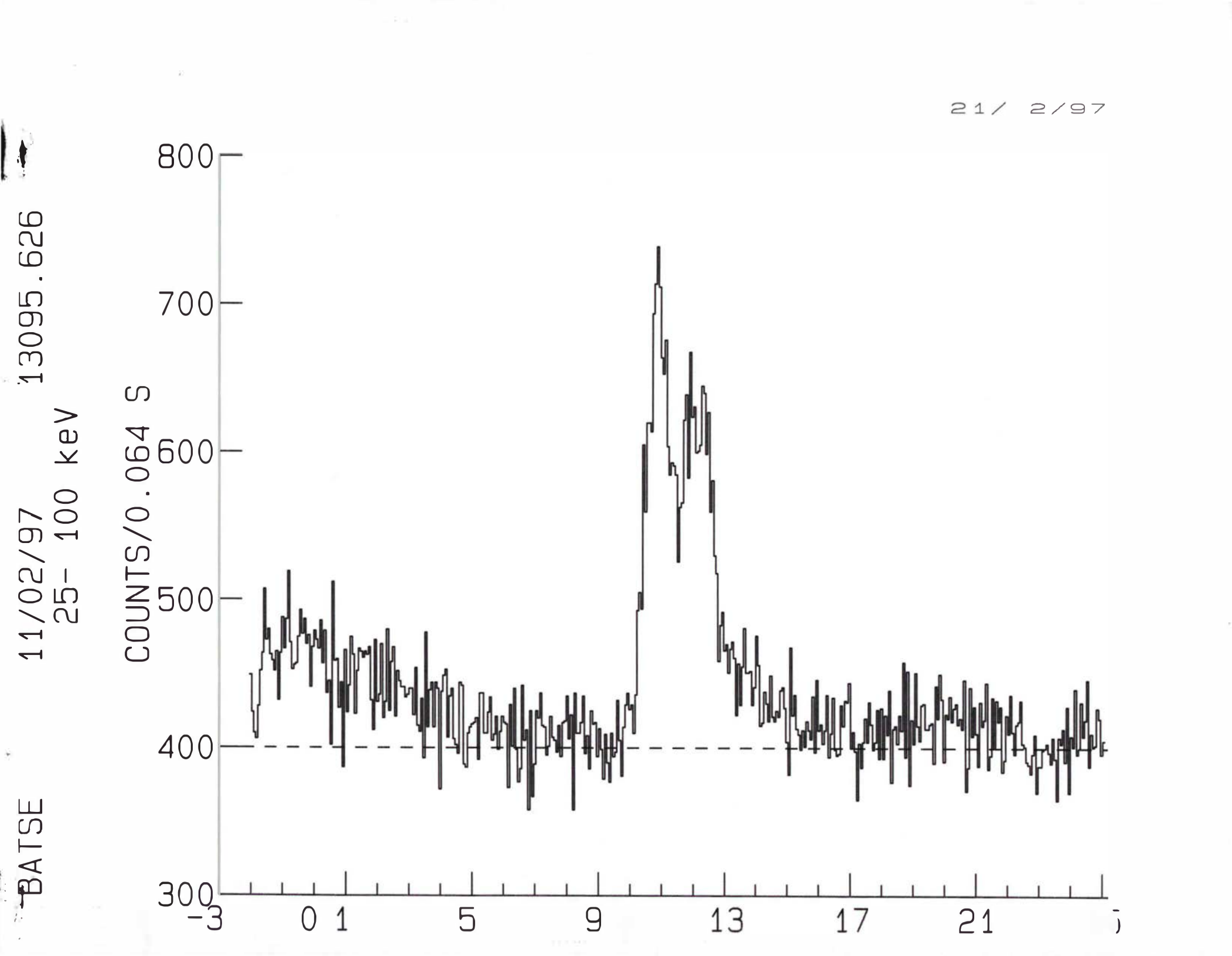
21/ 2/97

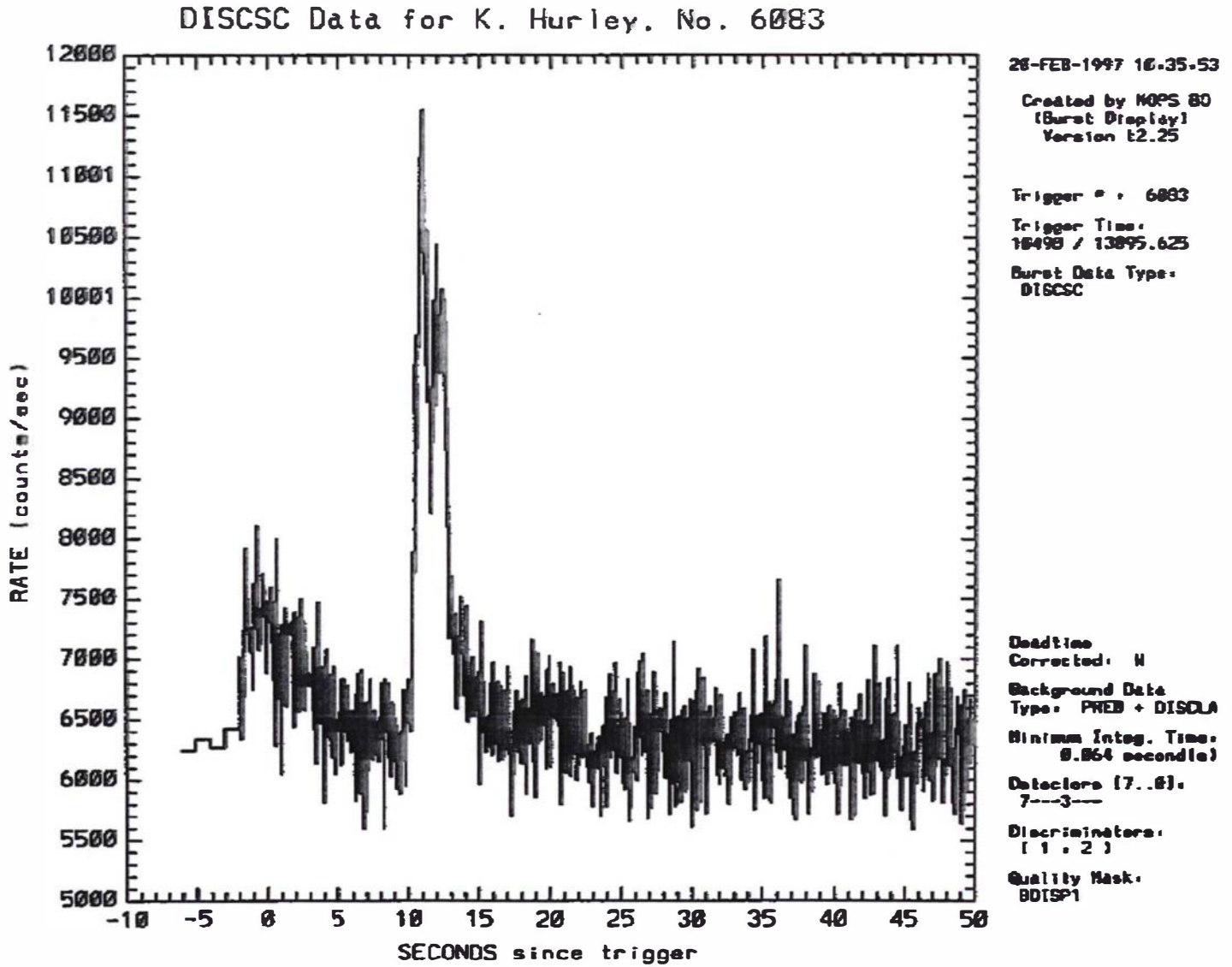
11/ 2/97 12924.064 s

0.250 S INTERVALS REGROUPED BY 3

21- 145 keV




21/ 2/97
BATSE 11/02/97 13095.626
25- 100 keV
COUNTS/0.064 S
800
700
600
500
400
300
-3
0 1
5
9
13
17
21


DISCSC Data for K. Hurley. No. 6083
RATE (counts/sec)
SECONDS since trigger
28-FEB-1997 10:35:53
Created by MOPS 80
(Burst Display)
Version t2.25
Trigger # : 6083
Trigger Time:
10490 / 13895.623
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 seconds)
Detectors (7..0):
7---3---
Discriminators:
(1 , 2)
Quality Mask:
BDISP1

From HENZE@ssl.msfc.nasa.gov Fri Feb 21 15:22 PST 1997
Return-Path: <HENZE@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id PAA27615; Fri, 21 Feb 1997 15:21:57 -0800
From: HENZE@ssl.msfc.nasa.gov
Date: Fri, 21 Feb 1997 17:21:52 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970221172152.2020034c@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6087
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

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

 BATSE BURST #    6087
 EVENT OF 1997 FEB 11 DAY OF YEAR= 42
 EVENT CROSSING TIME AT BATSE     : 53611. S. OR 14:53:31.0
 COORDINATES ARE   0.000   0.000       6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 242.000   10.000
 BATSE PEAK COUNTING RATE:   5000    C/S

 EVENT CROSSING TIME AT ULYSSES    WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON 11/ 2/  97 IS:
 RA=  169.919 DEC=   36.168 DIST=    3.963 AU
 BATSE-ULYSSES DISTANCE =  592809810. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=110.31 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= -686.33 SECS.
 CROSSING TIME AT ULYSSES    IS 52925. S. OR   14:42:04 +/-  361.54 SECONDS

 EVENT CROSSING TIME AT MARS       WILL BE FOUND
 POSITION OF MARS ON 11/ 2/  97 IS:
 RA=  186.696 DEC=    0.967 DIST=    0.805 AU
 MARS-BATSE DISTANCE =  120392568. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=124.29 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= -226.27 SECS.
 CROSSING TIME AT MARS       IS 53385. S. OR   14:49:44 +/-   54.17 SECONDS


                BATSE BURST TRIGGER
NO.: 6087

TIME: TJD=0490 SECONDS=53611

TYPE: BURST                    SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE:       SIGMA

INTENSITY:          COUNTS/CM2

LOCATION: ZENITH=102.0  AZIMUTH=307.0  ERROR=008.0 DEGREES

COMMENTS:
PROBABLY GRB.  PROBABLY SINGLE SPIKE WITH DUR. ~0.15 S.
VISIBLE ABOVE 300 KEV.  SPARSE DATA.

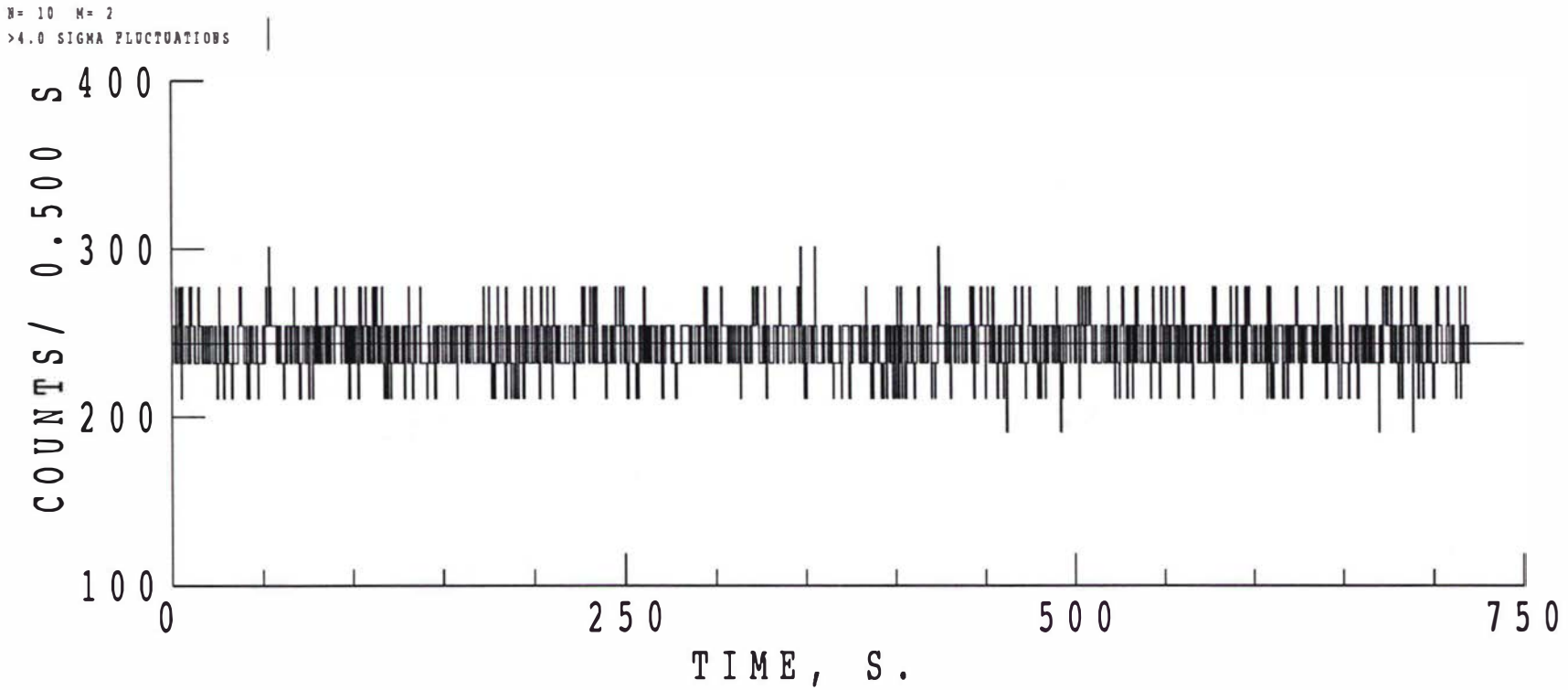

 BATSE #   Date     TJD     SoD   Max ct/s   RA   Dec  Dur (s)
   6087   970211   10490   53611     5000   242   +10   .15
```

BATSE# 6087

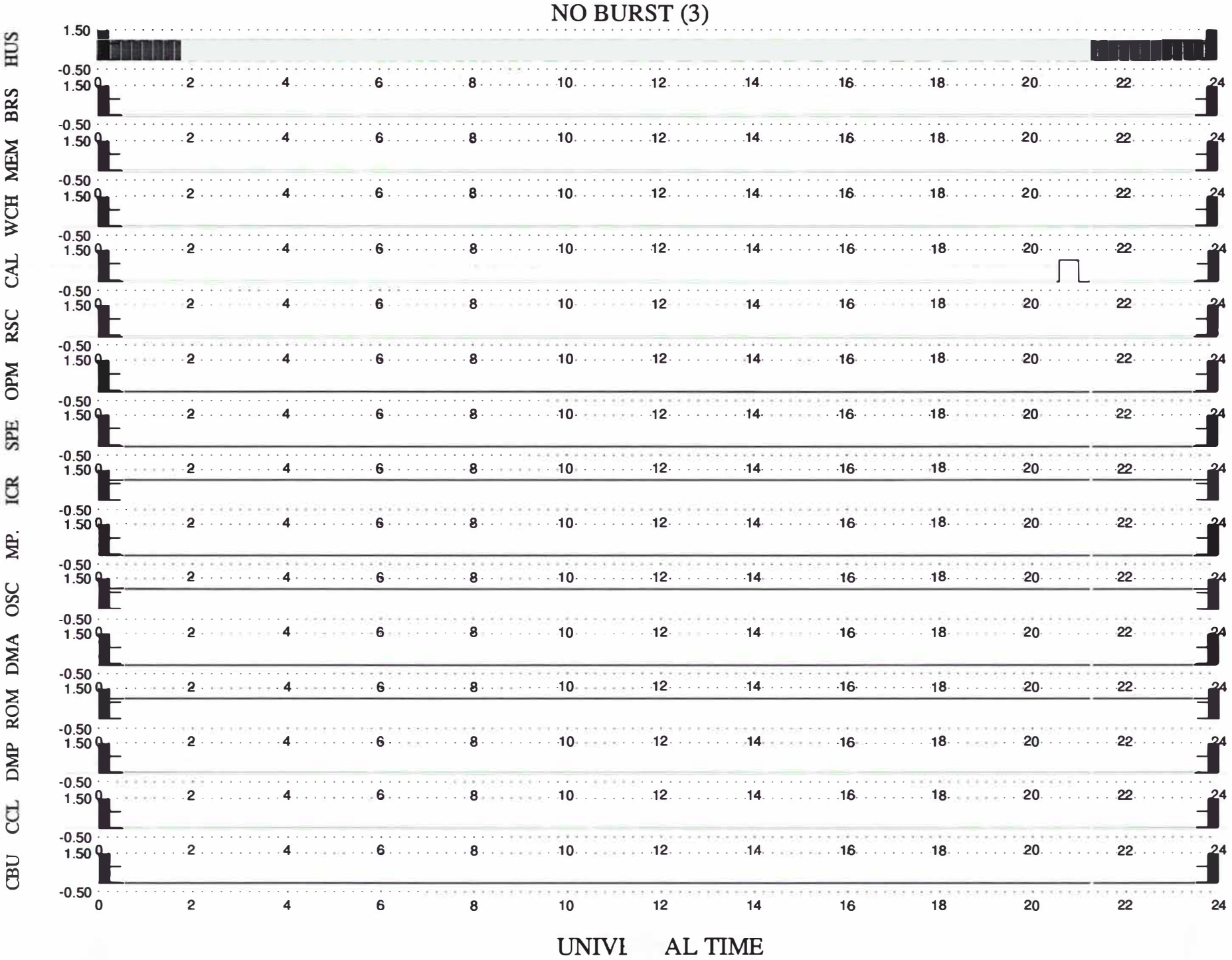
ULYSSES RT 27/ 2/97

11/ 2/97 52560.043 s

0- 0 keV

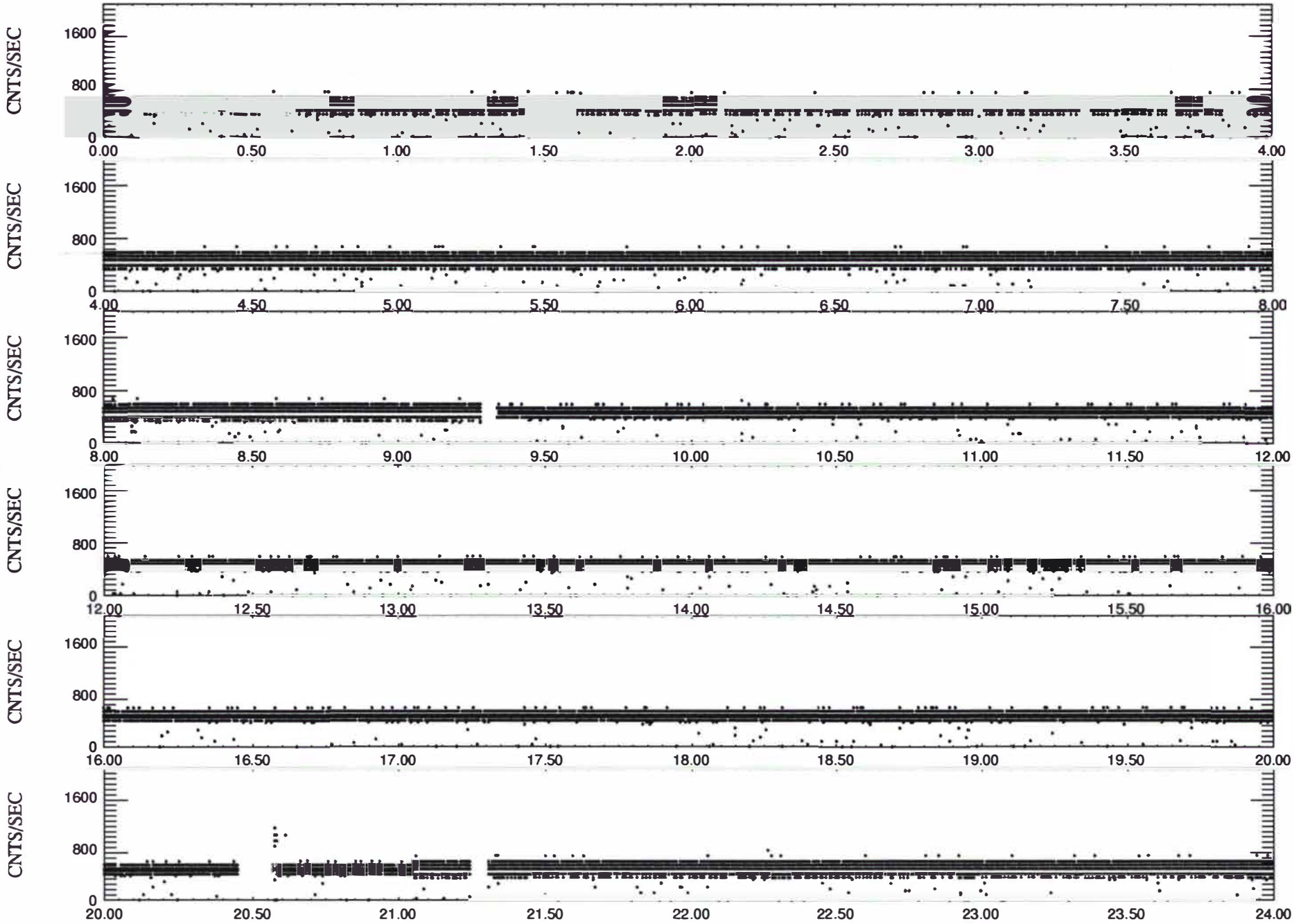


HUS MODES EDR day 42, year 1997 to day 42, year 1997 5/16/97



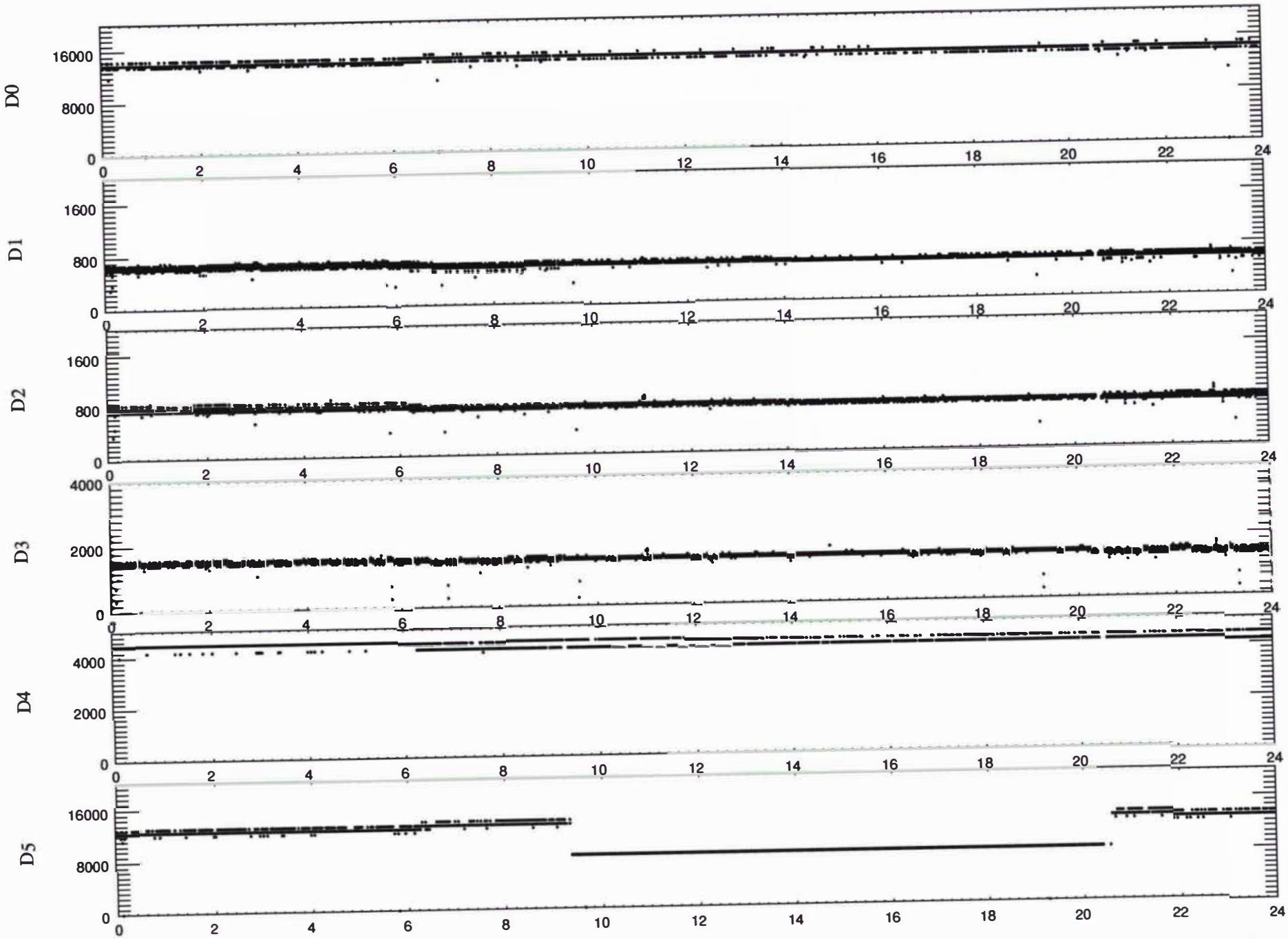
HUS 2A, MODE 1, NOT AVERAGED EDR day 42, year 1997 to day 42, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 42, year 1997 to day 42, year 1997 5/16/97



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

Hi Everyone,

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

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

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

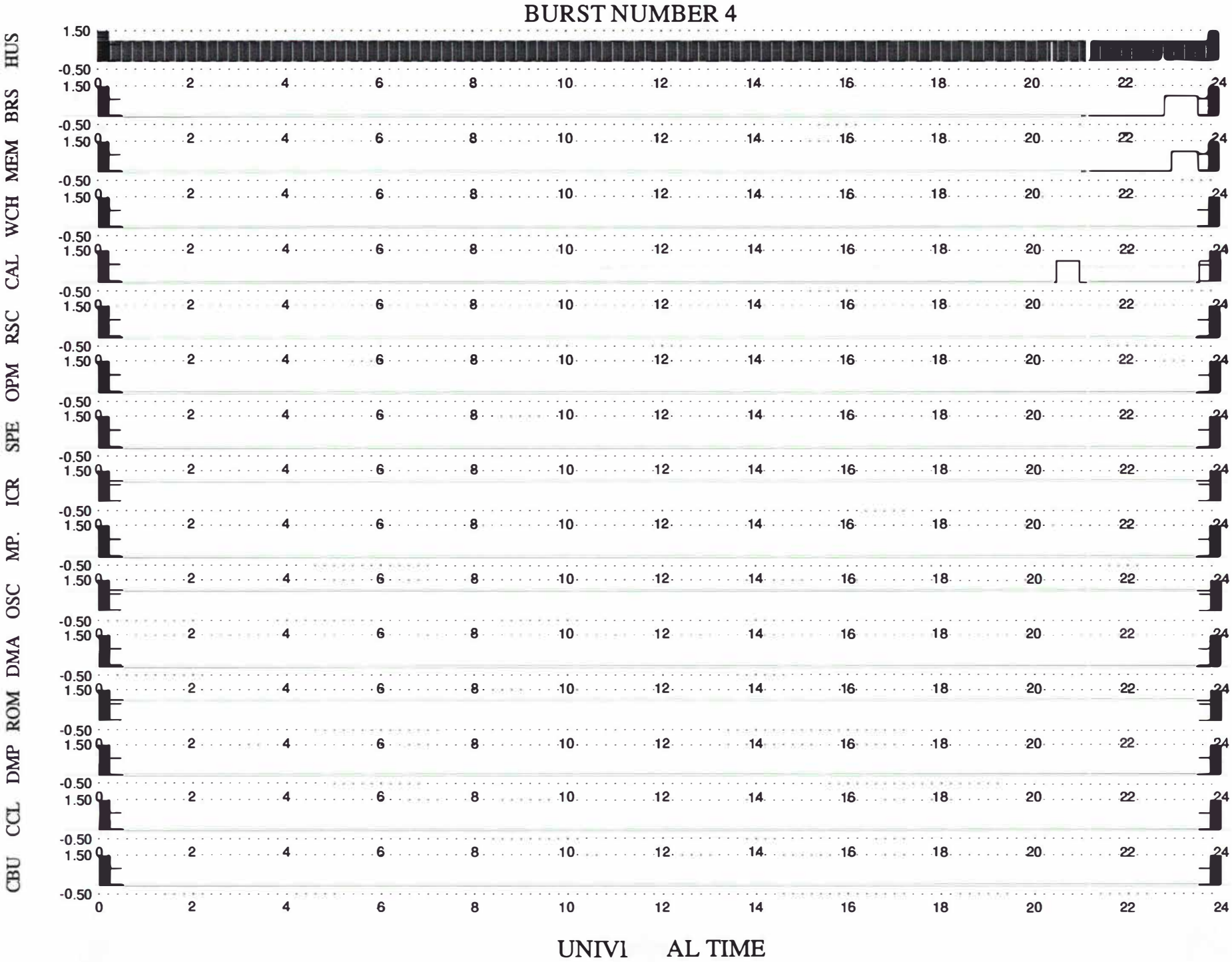
From HENZE@fender.msfc.nasa.gov Tue Feb 18 14:58 PST 1997
Date: Tue, 18 Feb 1997 16:58:01 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: khurley@sunspot.ssl.berkeley.edu
Subject: Ulysses events and possible BATSE observations

Ulysses events and times				BATSE
Year	Mon	Day	hh:mm	TJD / SoD	Status and/or Comments
1996	Nov	19	03:13	10406/11580	HV off SoD 10544-12158.
1996	Nov	19	05:39	10406/20340	SGR event (trig. #5677) at SoD 19826. Data gaps SoD 18777-19259, 19916-19959.
1996	Nov	19	06:31	10406/23460	HV off SoD 22425-23674. Trigger disabled SoD 22185-22455.
1996	Nov	19	07:33	10406/27180	SGR event (trig. #5678) at SoD 26644. Data gap SoD 24837-25200. Trigger disabled SoD 28095-28365.

Other BATSE SGR triggers on 1996 Nov 19 (TJD 10406) were
#5676 at SoD 16123, #5679 at SoD 35567, #5681 at SoD 65701.
Untriggered probable SGR events observed by BATSE occurred on
1996 Nov 19 (TJD 10406) at ~SoD: 21323, 21538, 26177.

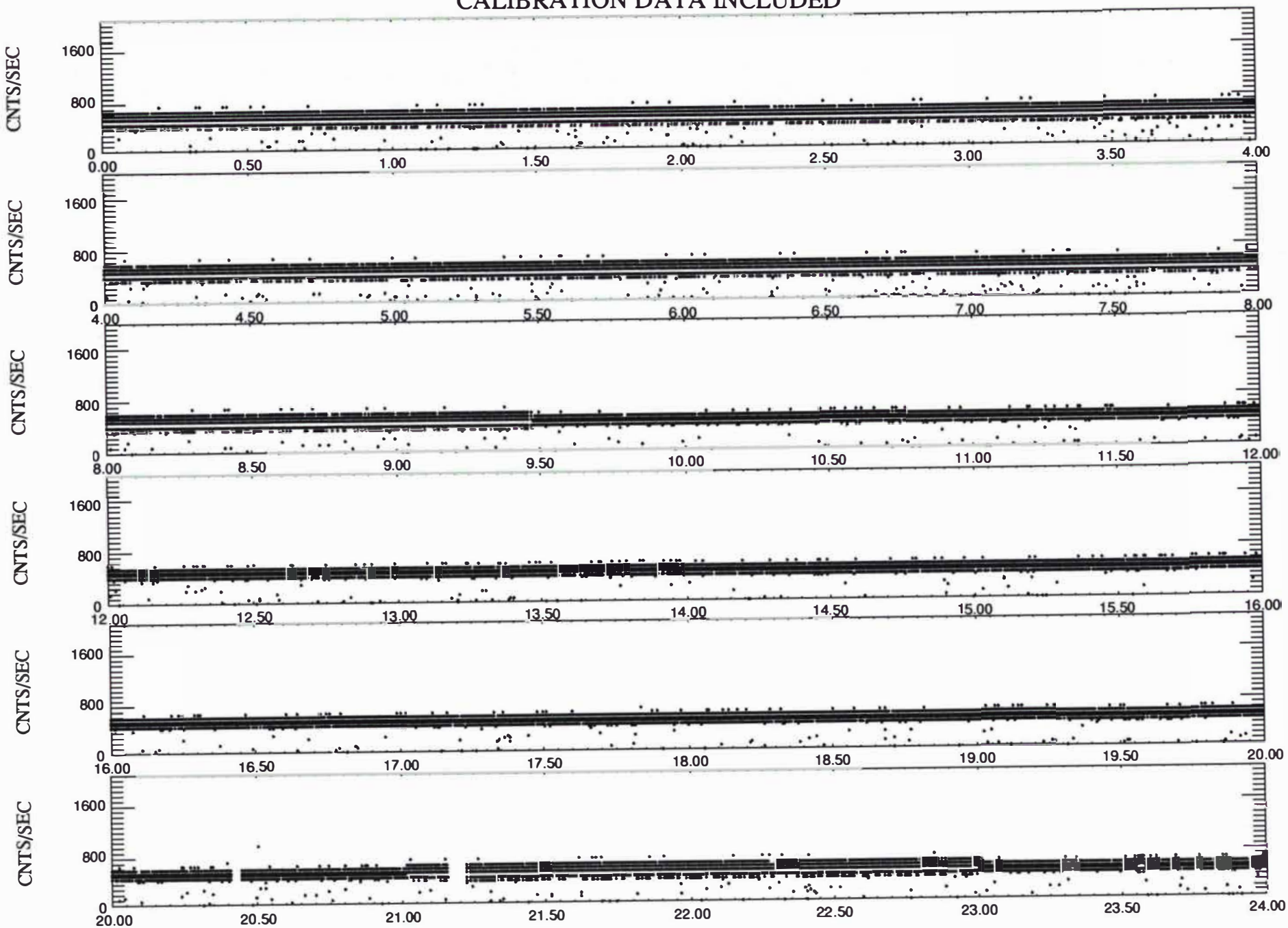
1997	Feb	04	11:18	10483/40680	HV off SoD 39377-40915. Nothing evident outside that interval, but 32 ms probably too short to see if not triggered.
1997	Feb	08	18:04	10487/65040	GRO J1744-28 event (trig. #6059) at SoD 64177. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	12	22:50	10491/82200	Data gap SoD 81658-82260. Untriggered GRO J1744-28 events at SoD ~79581 ,84853. Trigger disabled SoD 80235-80535, 82845-83145. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	13	19:03	10492/68580	Data gaps SoD 66840-66877, 68697-68849. Trigger disabled SoD 65805-65955. Nothing evident but 64 ms probably too short to see if not triggered.

HUS MODES EDR day 43, year 1997 to day 43, year 1997 5/16/97



HUS 2A, MODE 1, NOT AVERAGED EDR day 43, year 1997 to day 43, year 1997 5/16/97

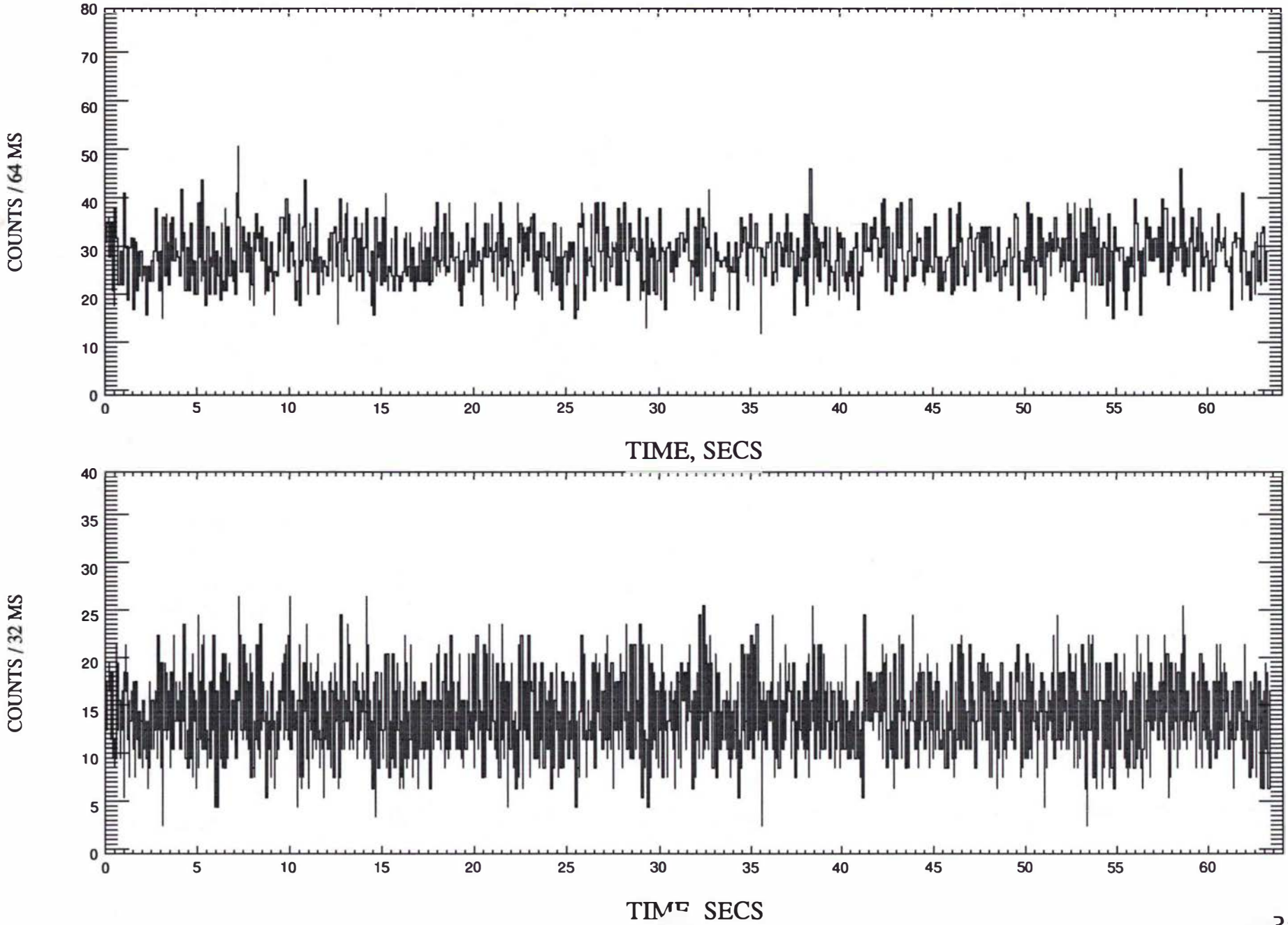
CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2A TRIGGERED DATA EDR day 43, year 1997 6/19/97

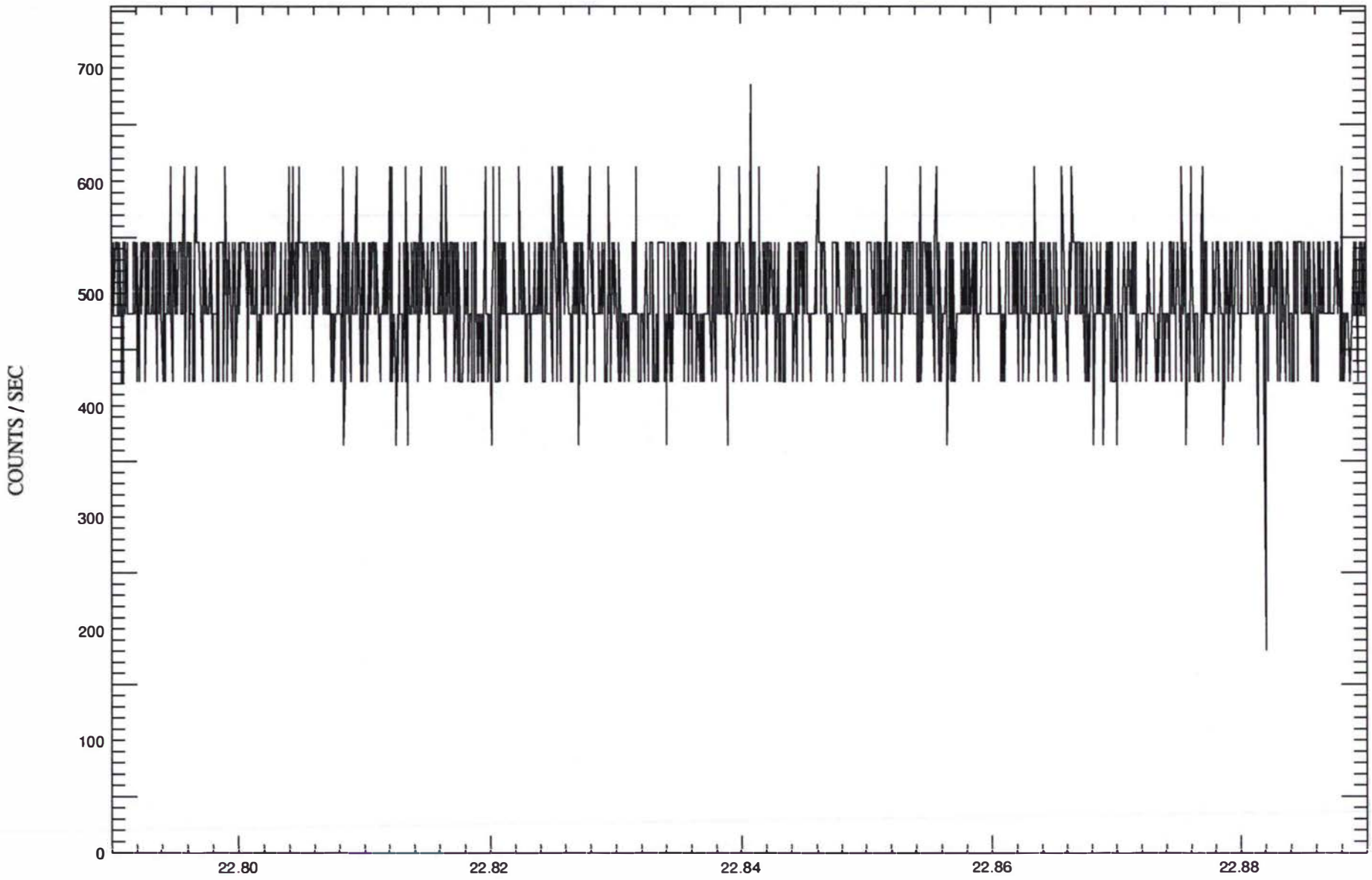
Burst Counter 4 at UT=22.840955043369 h=82227.438 s 22:50:27.438



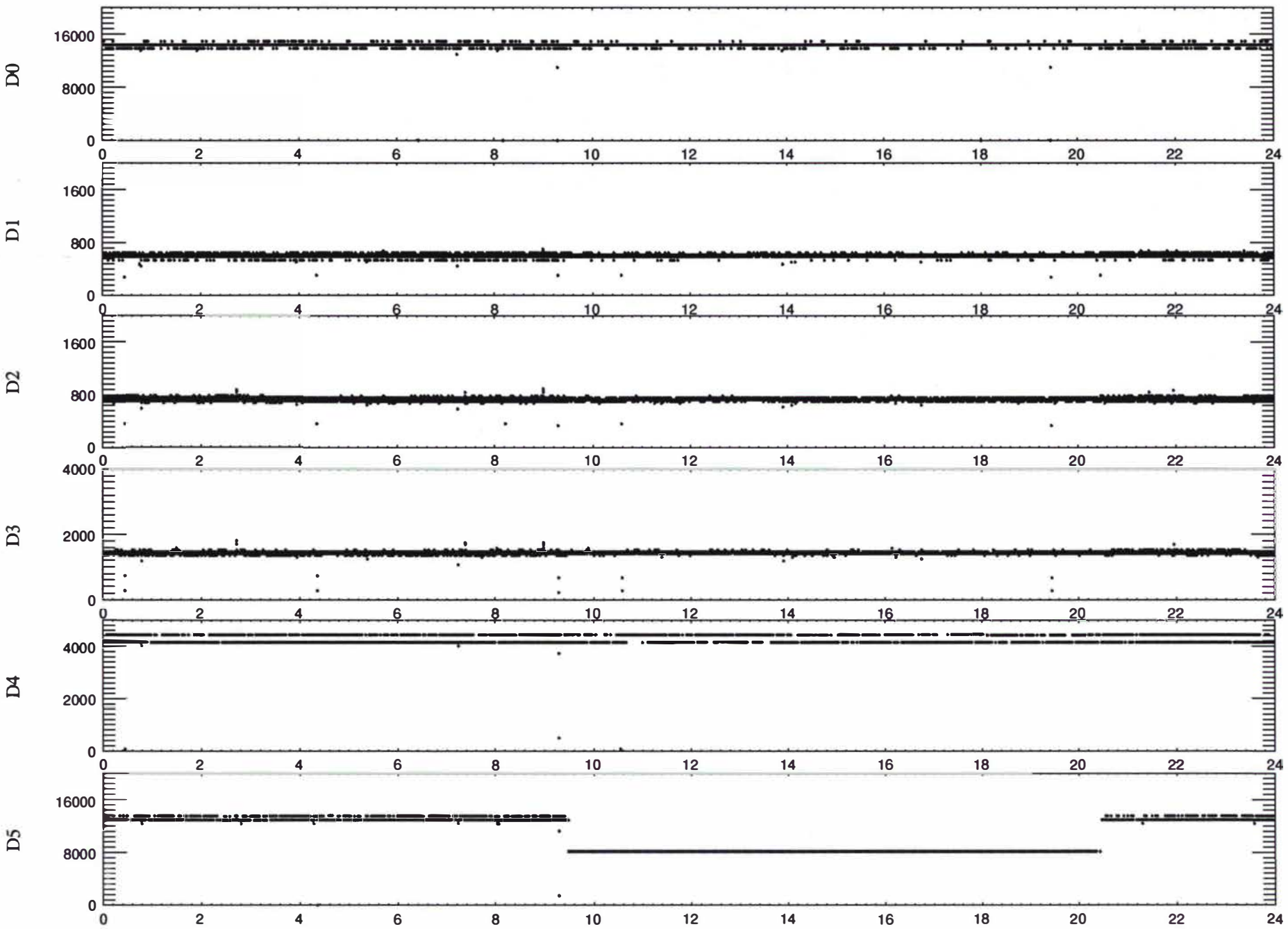
3# 1

HUS 2A, MODE 1, NOT AVERAGED EDR day 43, year 1997 to day 43, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 43, year 1997 to day 43, year 1997 5/16/97



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

Hi Everyone,

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

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970107 14:13	not detected
970109 01:25	not detected
970110 08:53	not detected
970110 14:31	not detected
970111 23:35	trigger at 23:49:04.563 - peak ~60 seconds later S of ecliptic, hard event lasting 4 minutes with slow rise and decay
970113 14:31	not detected
970114 05:17	not detected
970115 13:36	not detected
970117 15:07	not observed (unrelated trigger at 14:27 will have prevented any further trigger until after 15:32)
970117 18:45	not detected
970124 12:51	trigger at 12:19:03.397 - peak 4.2 seconds later S of ecliptic, several peaks with the strongest the hardest
970126 15:30	not detected
970130 19:33	not detected
970204 11:18	not detected
970208 18:04	not detected
970212 22:50	not detected
970203 19:03	not detected
970216 14:35	not detected
970218 14:15	trigger at 14:09:56.145 - peak ~3 seconds later N of ecliptic, strong event lasting 5 seconds
970222 23:51	trigger at 23:53:26.565 - peak 0.7 seconds later N of ecliptic, moderately strong event lasting several seconds
970223 15:53	not detected
970224 21:08	not detected
970226 08:29	trigger at 08:46:25.868 - peak 39 seconds later N of ecliptic, strong, double broad FRED, with the second peak (39 seconds after the trigger) much softer than the first (12 seconds after the trigger)
970310 00:22	not detected

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

From HENZE@fender.msfc.nasa.gov Tue Feb 18 14:58 PST 1997
Date: Tue, 18 Feb 1997 16:58:01 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: khurley@sunspot.ssl.berkeley.edu
Subject: Ulysses events and possible BATSE observations

Ulysses events and times				BATSE
Year	Mon	Day	hh:mm	TJD / SoD	Status and/or Comments
1996	Nov	19	03:13	10406/11580	HV off SoD 10544-12158.
1996	Nov	19	05:39	10406/20340	SGR event (trig. #5677) at SoD 19826. Data gaps SoD 18777-19259, 19916-19959.
1996	Nov	19	06:31	10406/23460	HV off SoD 22425-23674. Trigger disabled SoD 22185-22455.
1996	Nov	19	07:33	10406/27180	SGR event (trig. #5678) at SoD 26644. Data gap SoD 24837-25200. Trigger disabled SoD 28095-28365.

Other BATSE SGR triggers on 1996 Nov 19 (TJD 10406) were
#5676 at SoD 16123, #5679 at SoD 35567, #5681 at SoD 65701.
Untriggered probable SGR events observed by BATSE occurred on
1996 Nov 19 (TJD 10406) at ~SoD: 21323, 21538, 26177.

1997	Feb	04	11:18	10483/40680	HV off SoD 39377-40915. Nothing evident outside that interval, but 32 ms probably too short to see if not triggered.
1997	Feb	08	18:04	10487/65040	GRO J1744-28 event (trig. #6059) at SoD 64177. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	12	22:50	10491/82200	Data gap SoD 81658-82260. Untriggered GRO J1744-28 events at SoD ~79581 ,84853. Trigger disabled SoD 80235-80535, 82845-83145. Nothing else evident but 64 ms probably too short to see if not triggered.
1997	Feb	13	19:03	10492/68580	Data gaps SoD 66840-66877, 68697-68849. Trigger disabled SoD 65805-65955. Nothing evident but 64 ms probably too short to see if not triggered.

From SURASAK@ssl.msfc.nasa.gov Fri Feb 14 11:36 PST 1997
From: SURASAK@ssl.msfc.nasa.gov
Date: Fri, 14 Feb 1997 13:36:10 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6089

TIME: TJD=0492 SECONDS=55147

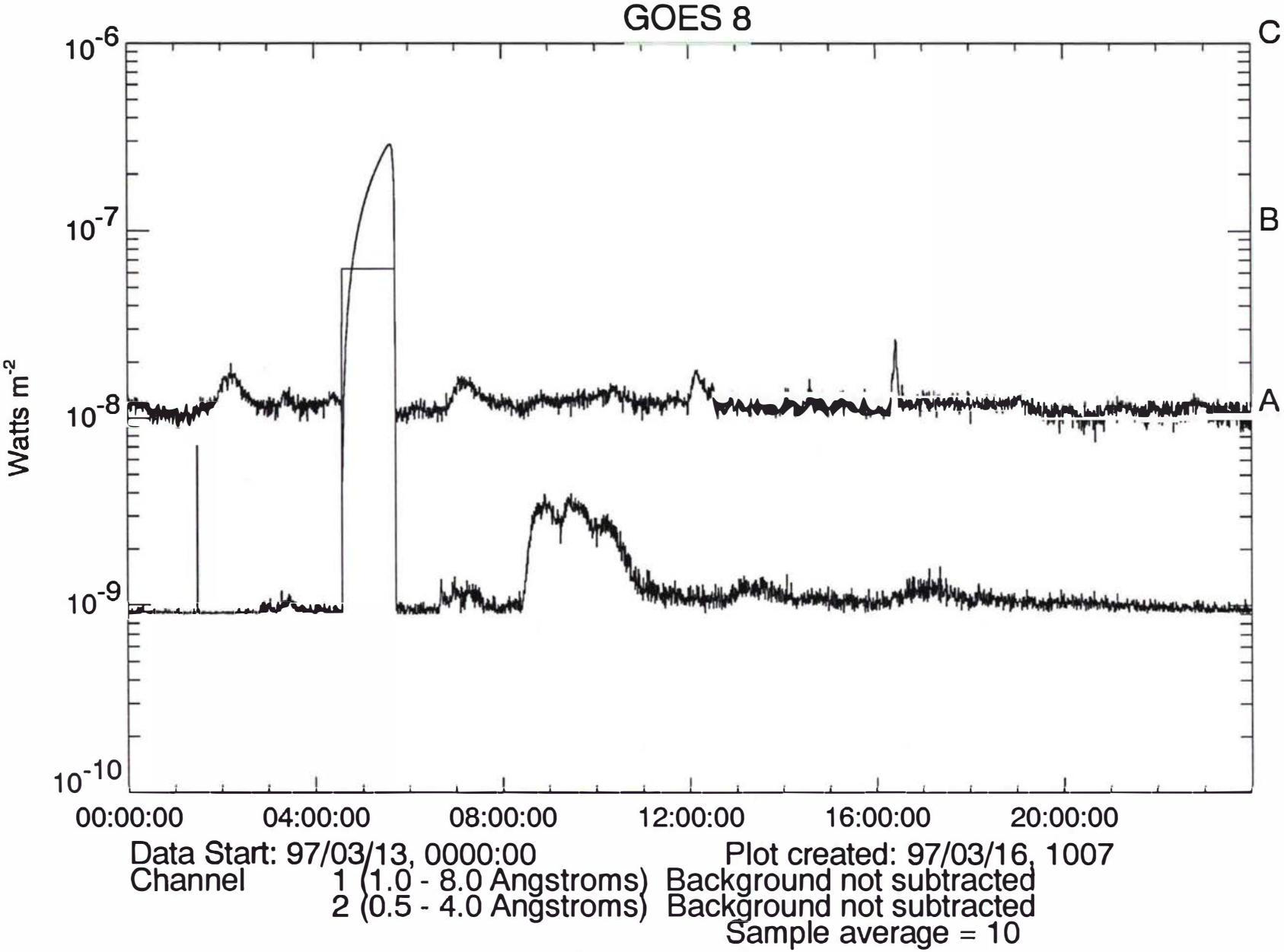
TYPE: CYG X-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

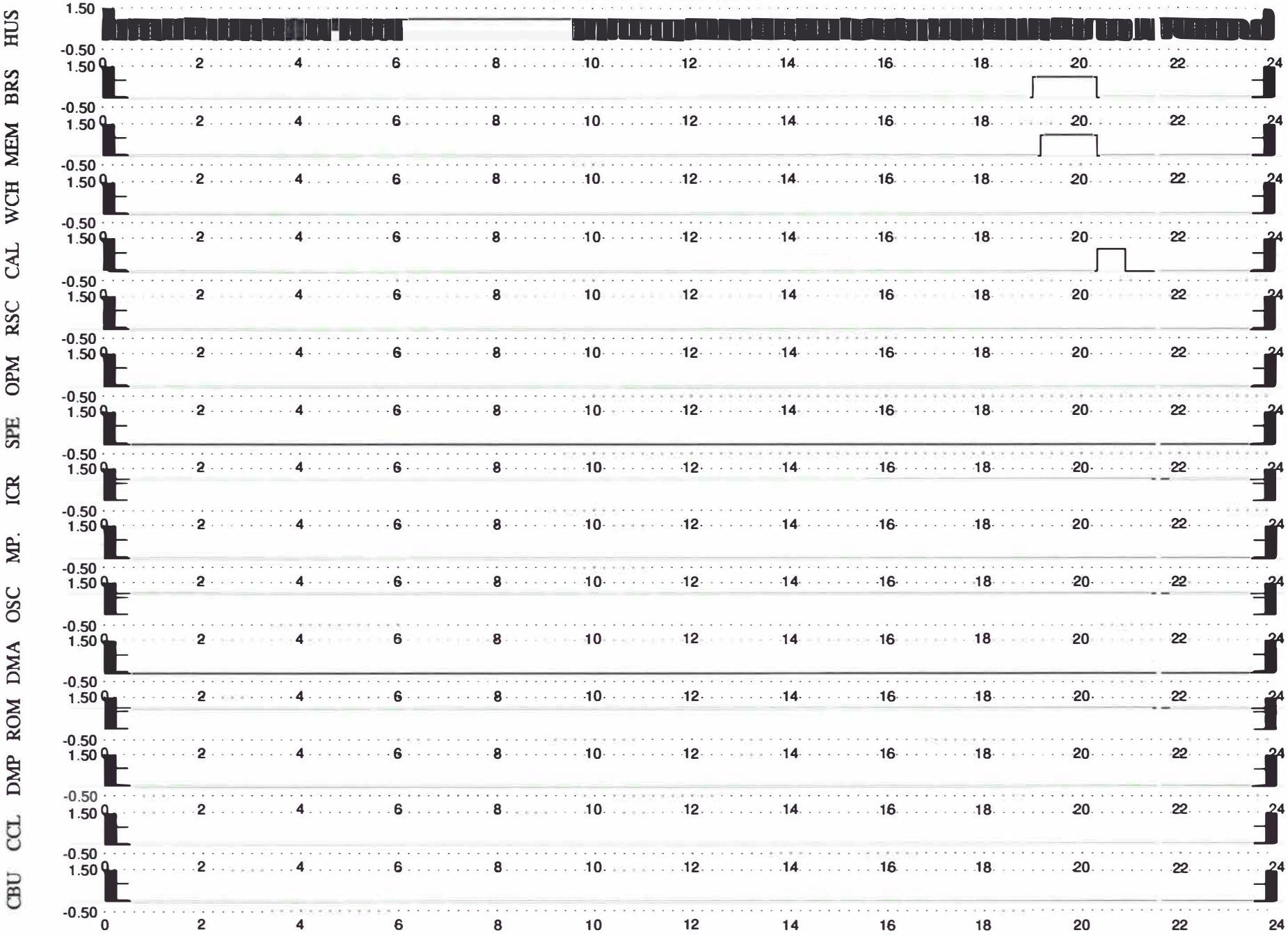
LOCATION: ZENITH=73.3 AZIMUTH=251.2 ERROR=9.53 DEGREES

COMMENTS:
CYG X-1 FLUCTUATION.


GOES 8
C
B
A
Watts m-2
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/03/13, 0000:00
Plot created: 97/03/16, 1007
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 44, year 1997 to day 44, year 1997 5/16/97

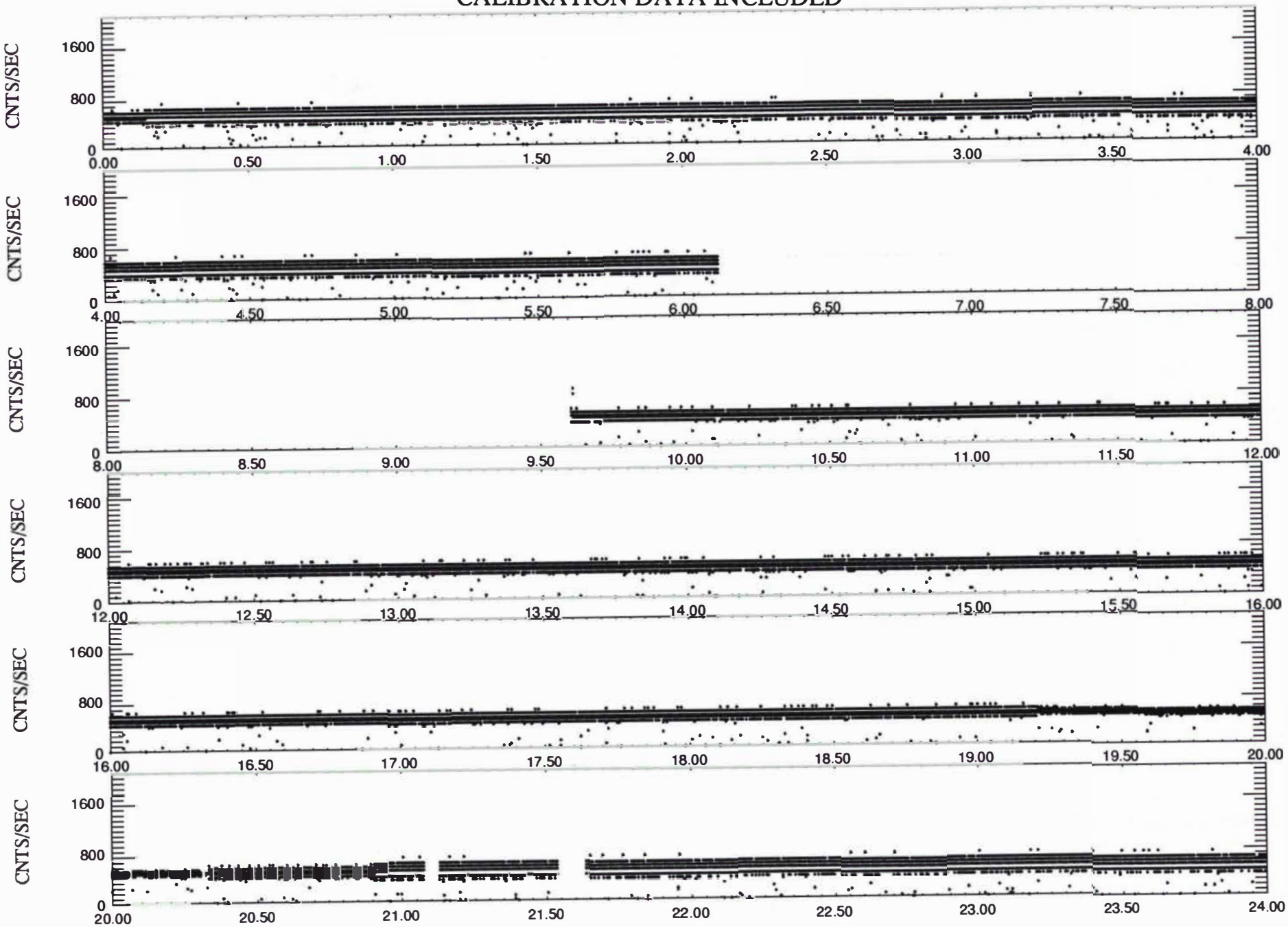
BURST NUMBER 5



UNIVI AL TIME

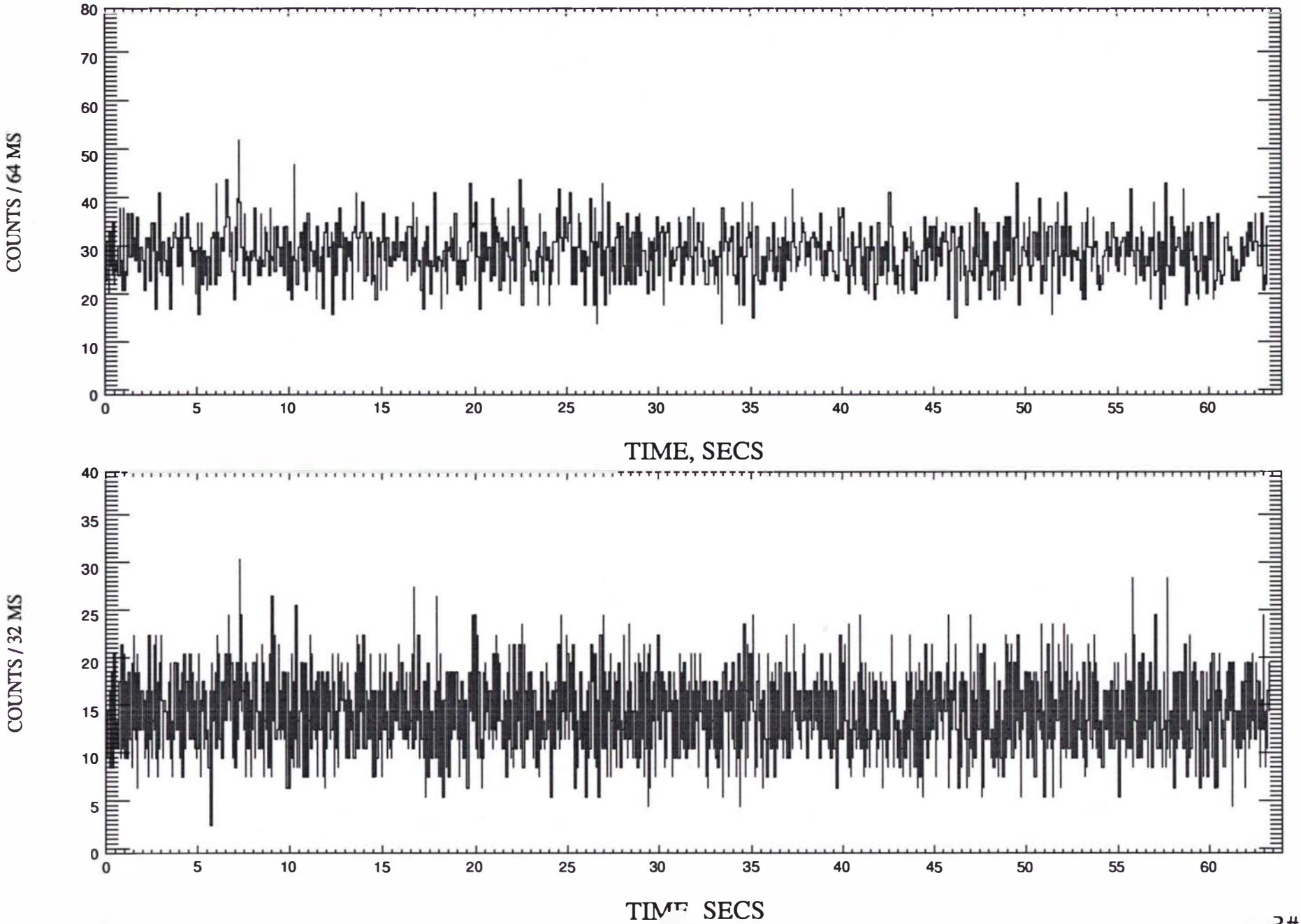
HUS 2A, MODE 1, NOT AVERAGED EDR day 44, year 1997 to day 44, year 1997 5/16/97

CALIBRATION DATA INCLUDED



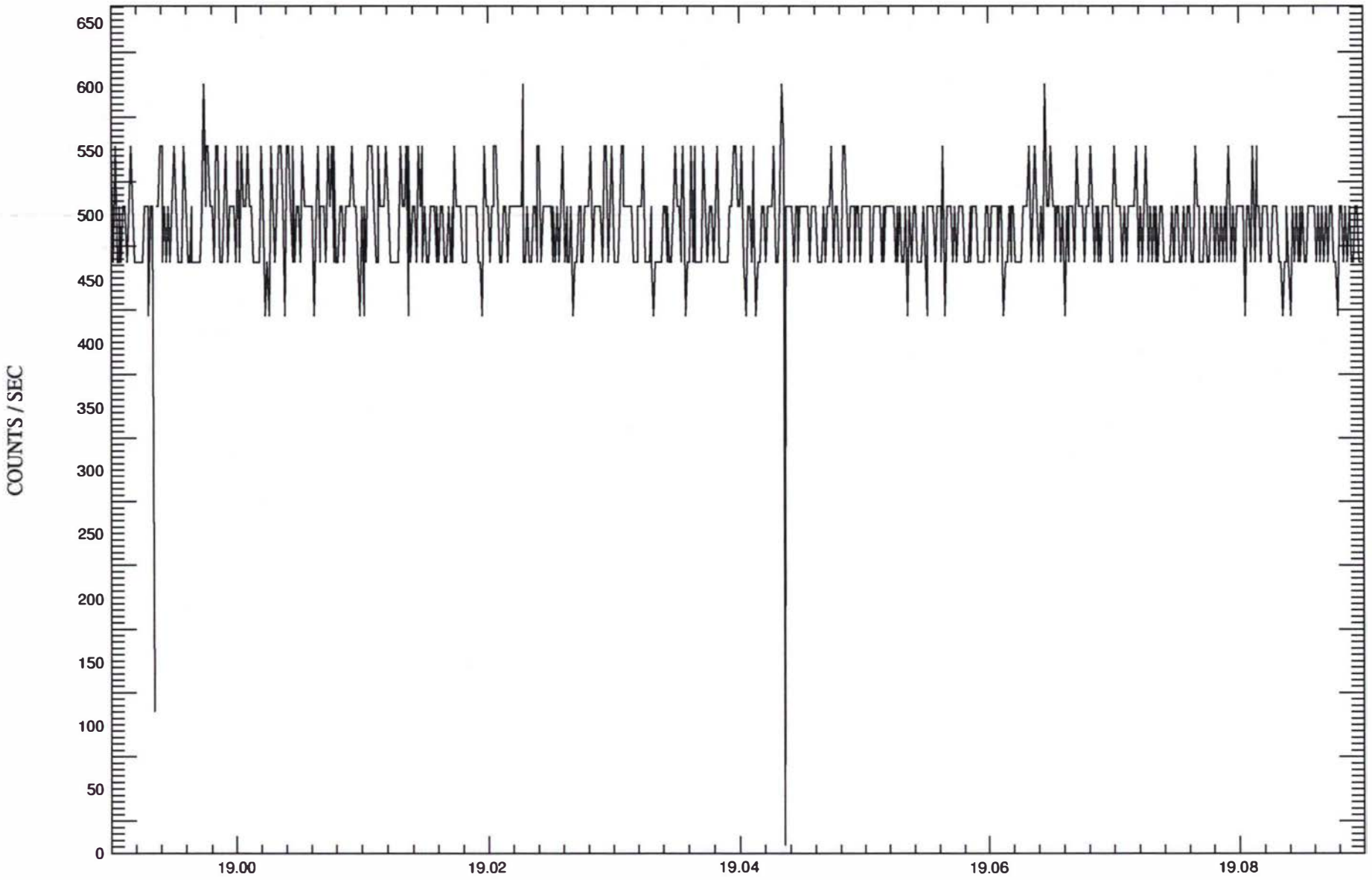
UNIVI AL TIME

Burst Counter 5 at UT=19.043697903951 h=68557.312 s 19:02:37.312

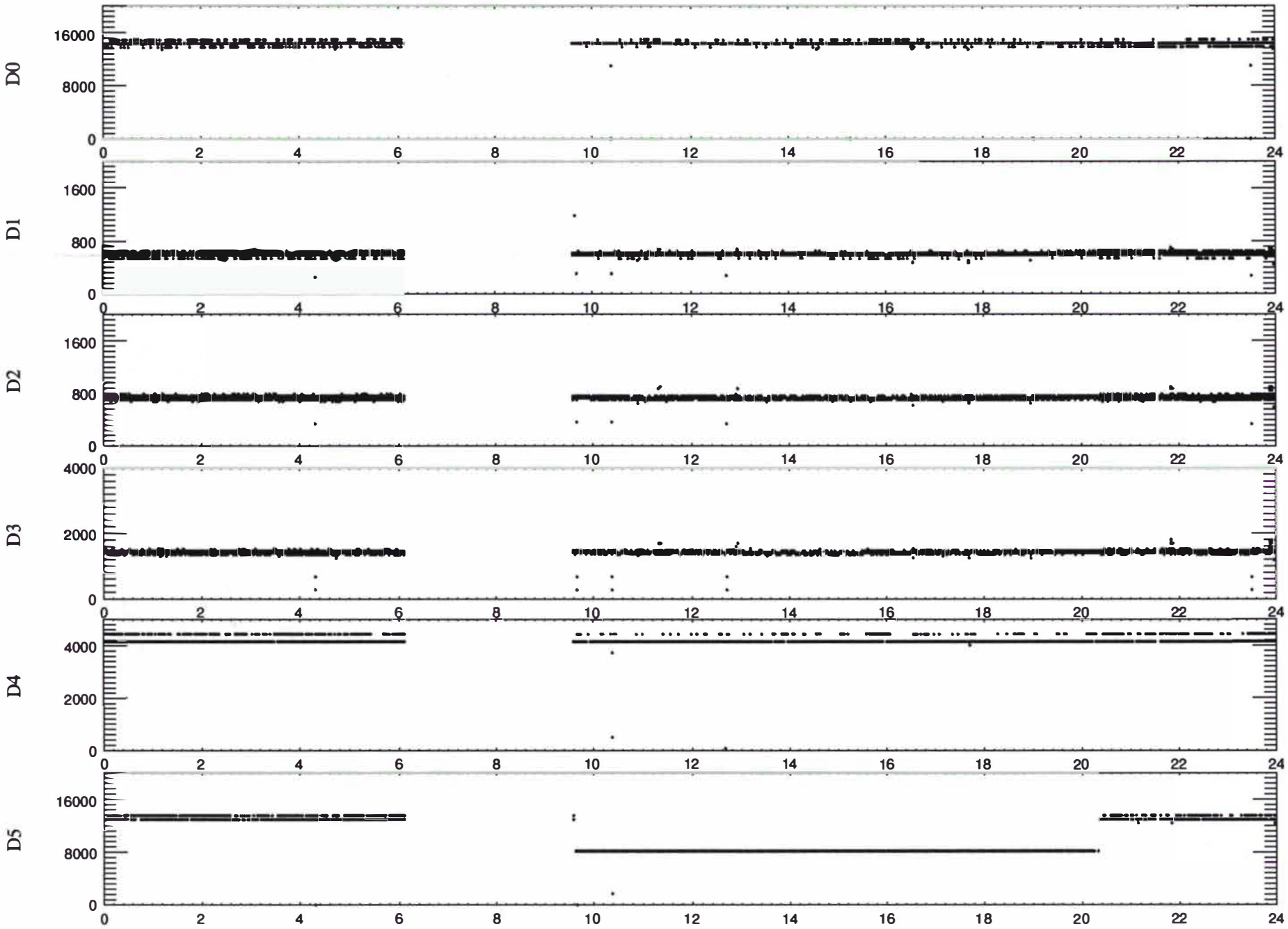


HUS 2A, MODE 1, NOT AVERAGED EDR day 44, year 1997 to day 44, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 44, year 1997 to day 44, year 1997 5/16/97



From WOODSP@SSLLES.MSFC.NASA.GOV Wed Feb 19 08:59 PST 1997
Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id IAA04997; Wed, 19 Feb 1997 08:59:26 -0800
Date: Wed, 19 Feb 1997 10:58:59 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970219105859.2d808aa0@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6090
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6090
EVENT OF 1997 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 38784. S. OR 10:46:24.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 340.000 16.000
BATSE PEAK COUNTING RATE: 11400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 2/ 97 IS:
RA= 169.098 DEC= 36.327 DIST= 3.961 AU
BATSE-ULYSSES DISTANCE = 592546548. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 53.03 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1188.71 SECS.
CROSSING TIME AT ULYSSES IS 39973. S. OR 11:06:12 +/- 342.21 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 2/ 97 IS:
RA= 186.492 DEC= 1.118 DIST= 0.784 AU
MARS-BATSE DISTANCE = 117315088. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 31.26 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 334.50 SECS.
CROSSING TIME AT MARS IS 39118. S. OR 10:51:58 +/- 40.34 SECONDS

BATSE BURST TRIGGER

NO.: 6090

TIME: TJD=0493 SECONDS=38784

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=35.9 AZIMUTH=226.1 ERROR=0.7 DEGREES

COMMENTS:
GRB LASTING ~ 10 SEC. SINGLE PULSE WITH SUBSTRUCTURE. VISIBLE ABOVE
300 KEV. STRONG CYGNUS X-1 FLUCTUATIONS BEFORE AND AFTER THE BURST.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6090	970214	10493	38784	11400	340	+16	10

Helio corr removed 17/2/00

Date: Mar 25 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Were data checked by Joe Springer for 0.5 s errors?

☑ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?

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

2. BATSE Data

☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)? N/A

☑ BATSE ephemeris for T_0?

☑ Error circle position and radius from public catalog used?

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

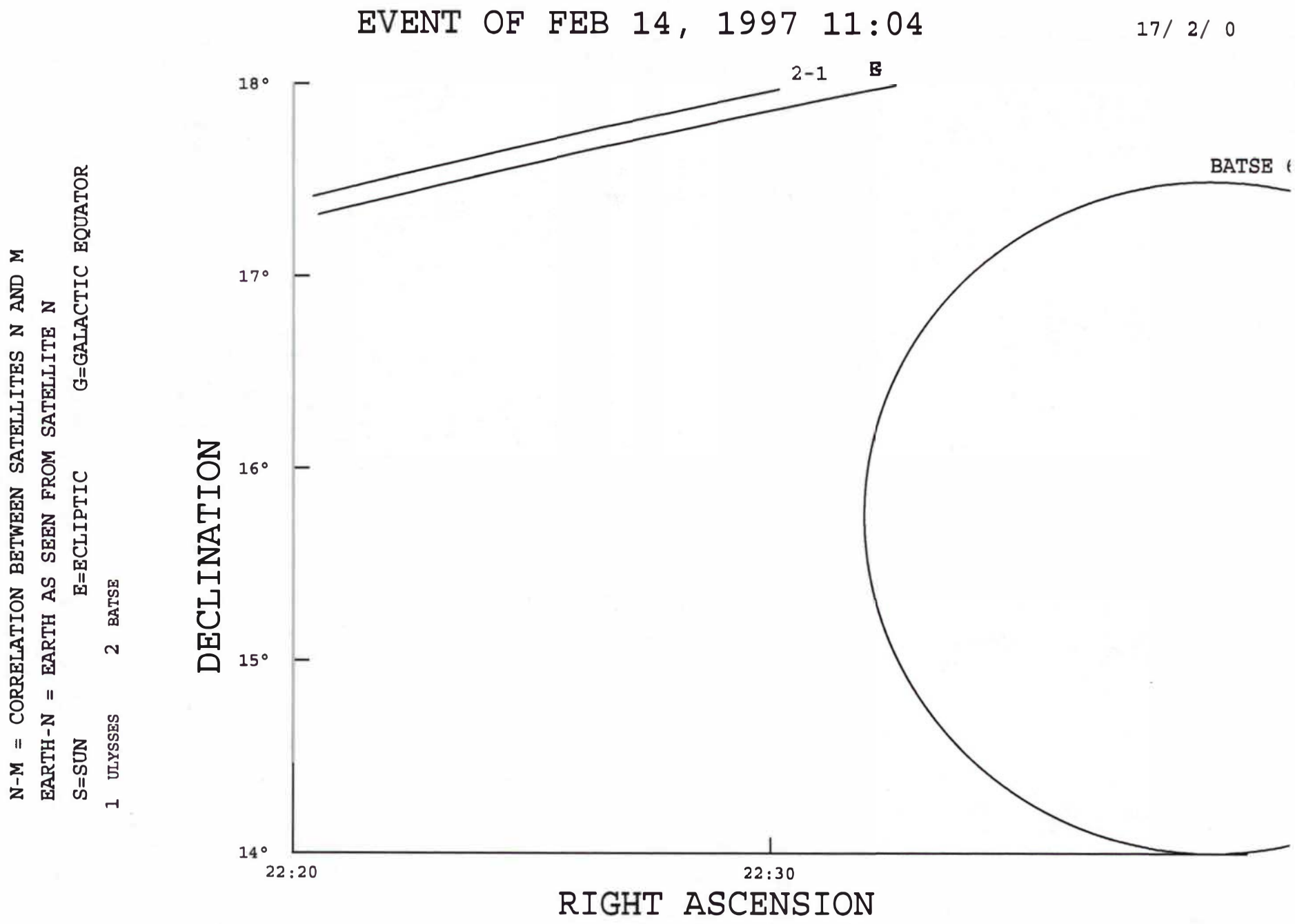
3. PVO Data

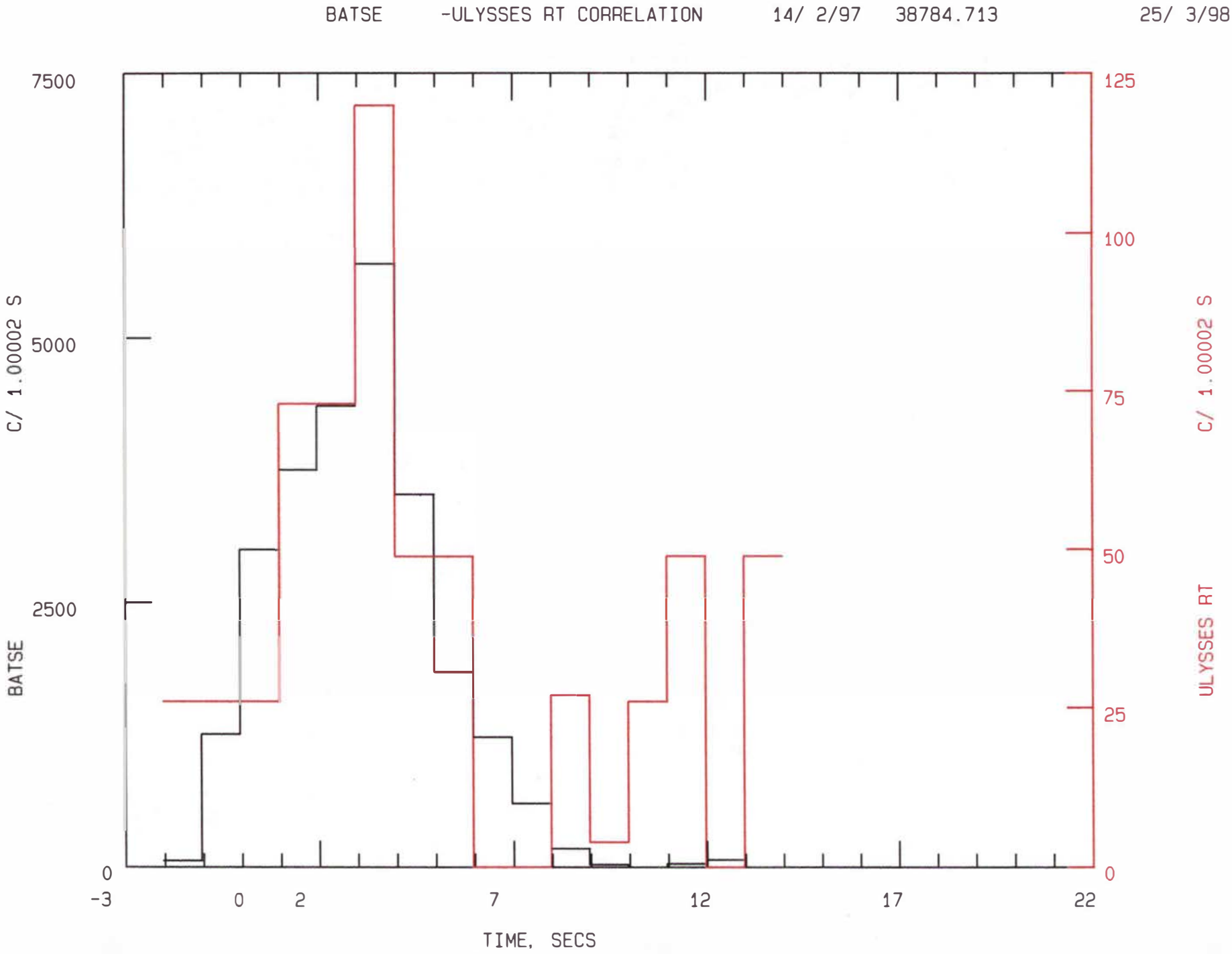
☐ Ephemeris of PVO used (not Venus)?

☐ 2000 coordinates used?

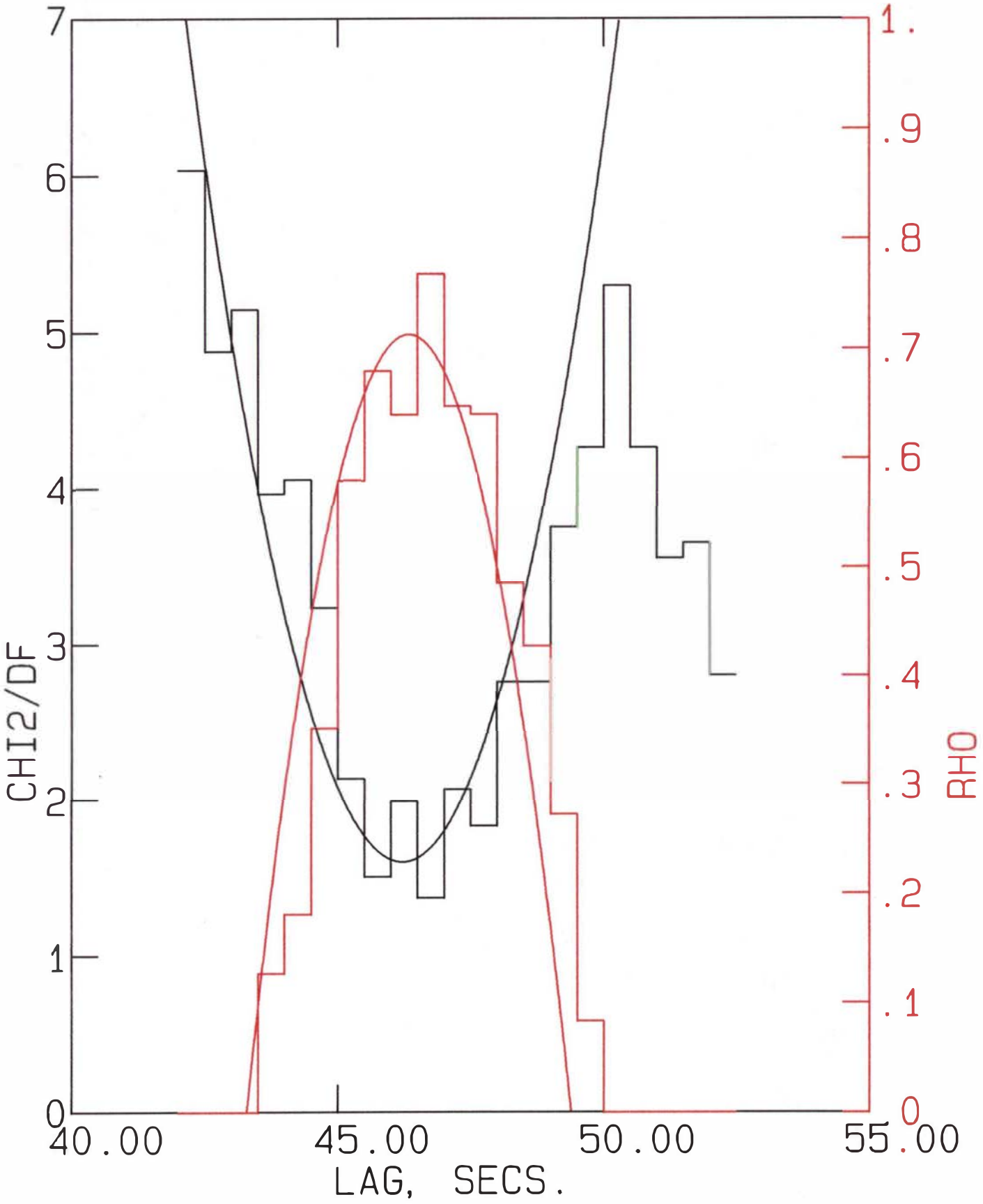
☐ Geocentric time used?

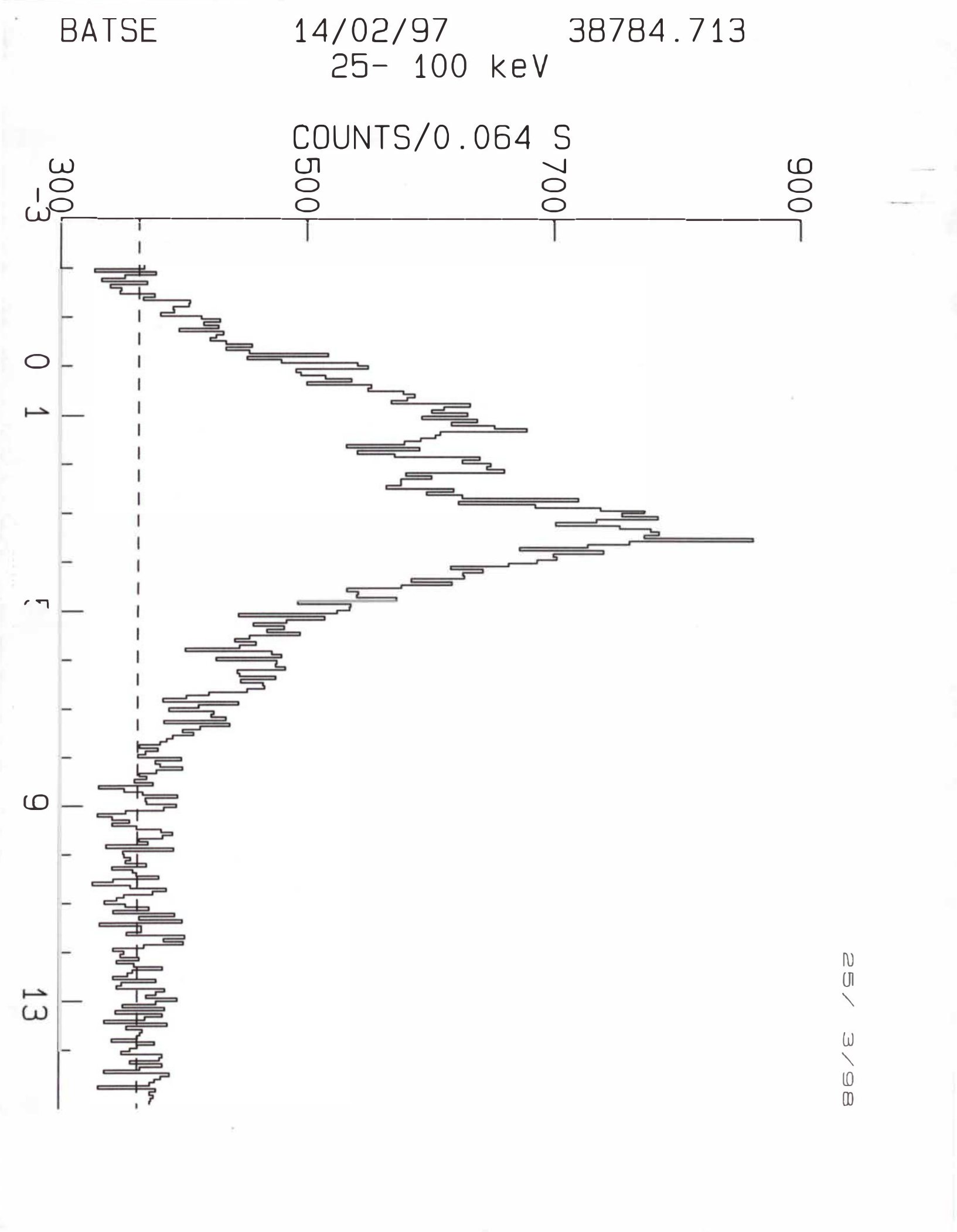
☑ ACCESS database updated?


EVENT OF FEB 14, 1997 11:04
17/ 2/ 0
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE
2-1 E
BATSE
DECLINATION
18°
17°
16°
15°
14°
22:20
22:30
RIGHT ASCENSION


BATSE -ULYSSES RT CORRELATION 14/ 2/97 38784.713 25/ 3/98
7500
5000
2500
0
C/ 1.00002 S
BATSE
125
100
75
50
25
0
C/ 1.00002 S
ULYSSES RT
-3
0
2
7
12
17
22
TIME, SECS

BATSE -ULYSSES RT CORRELATION 14/ 2/97 38784.713



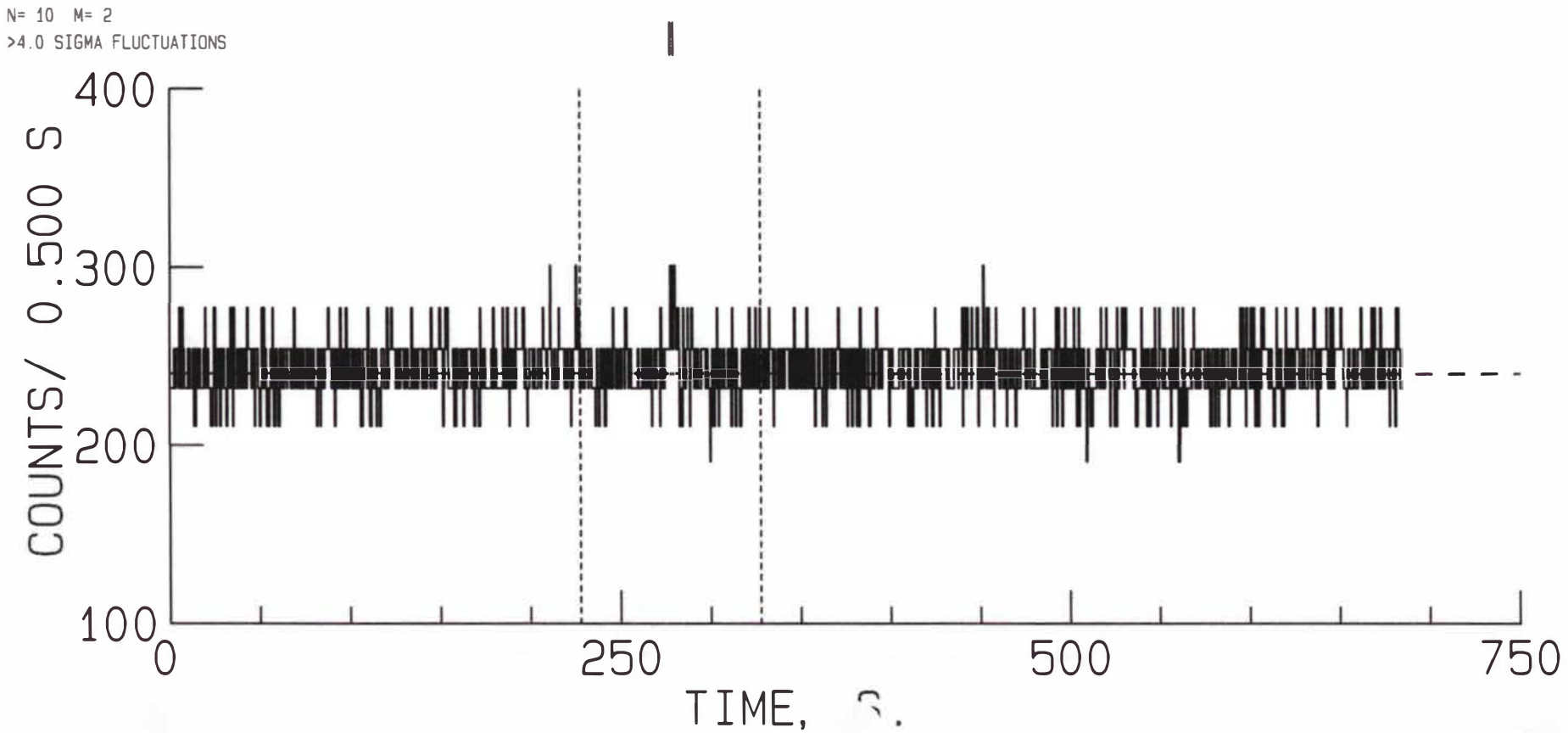

BATSE
14/02/97
38784.713
25- 100 keV
COUNTS/0.064 S
300
500
700
900
-3
0
1
6
13

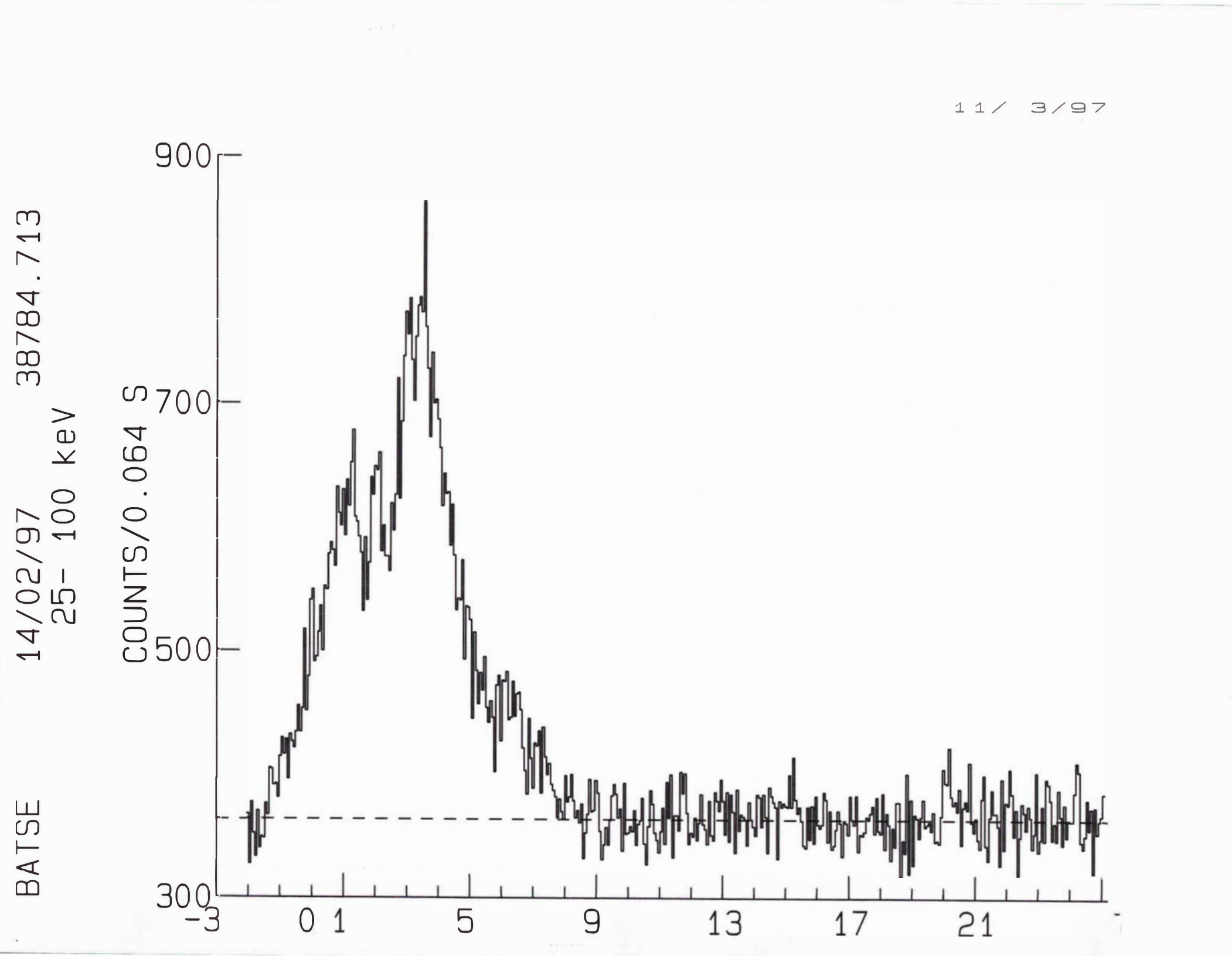
ULYSSES RT

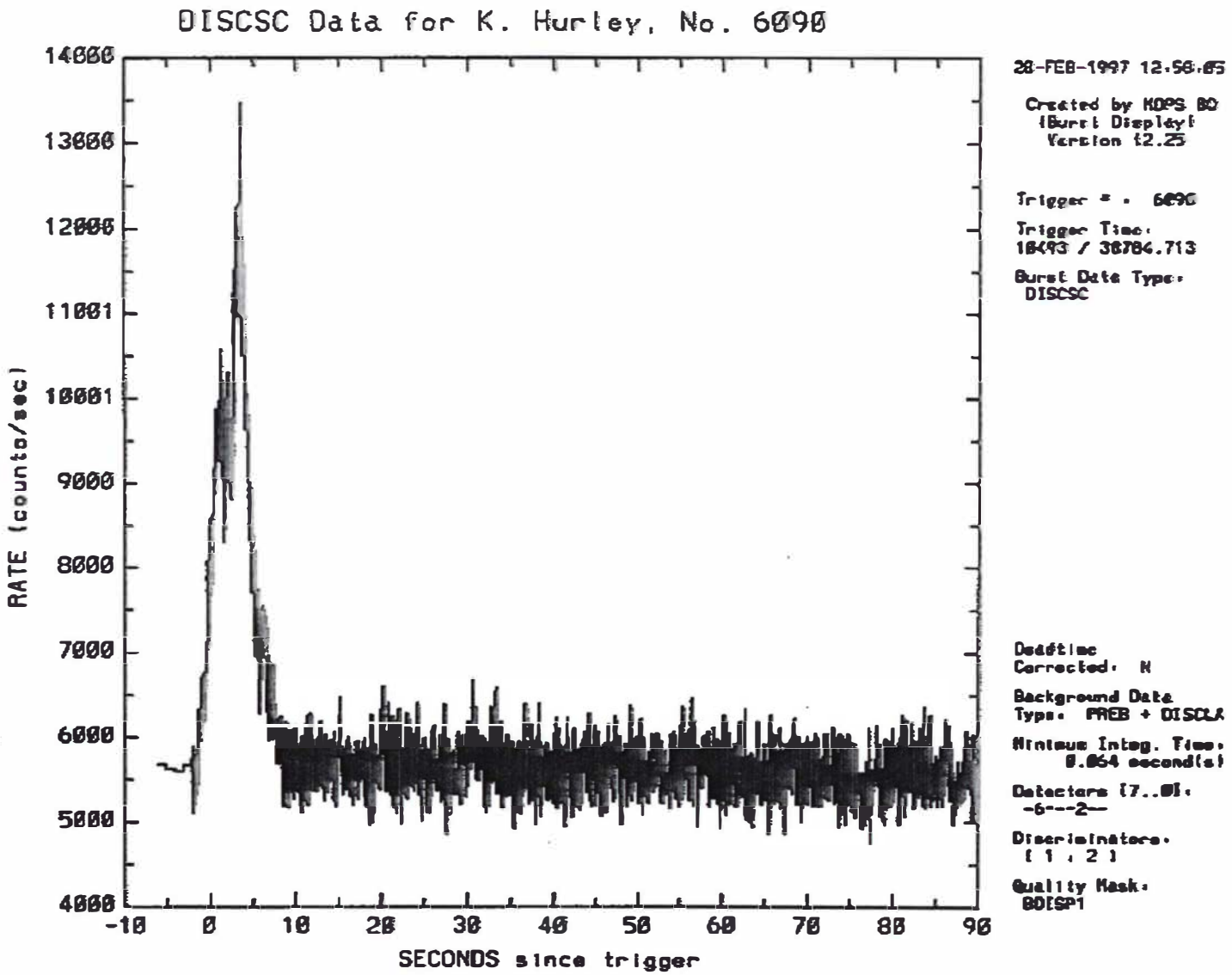
25/ 3/98

14/ 2/97 39636.020 s

21- 148 keV




11/ 3/97
BATSE 14/02/97 38784.713
25- 100 keV
COUNTS/0.064 S
900
700
500
300
-3
0 1
5
9
13
17
21


DISCSC Data for K. Hurley, No. 6090
RATE (counts/sec)
SECONDS since trigger
14000
13000
12000
11001
10001
9000
8000
7000
6000
5000
4000
-10
0
10
20
30
40
50
60
70
80
90
28-FEB-1997 12:58:05
Created by KOPS_BD
(Burst Display)
Version 12.25
Trigger # . 6090
Trigger Time:
18493 / 38784.713
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)
Detectors (7..0):
-6---2-
Discriminators:
(1 , 2)
Quality Mask:
BDISP1

From WOODSP@ssl.msfc.nasa.gov Wed Feb 19 09:00 PST 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id JAA05035; Wed, 19 Feb 1997 09:00:44 -0800
From: WOODSP@ssl.msfc.nasa.gov
Date: Wed, 19 Feb 1997 11:00:32 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970219110032.2d808aa0@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6091
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6091
EVENT OF 1997 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 57690. S. OR 16:01:30.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 199.000 -13.000
BATSE PEAK COUNTING RATE: 8000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 2/ 97 IS:
RA= 169.033 DEC= 36.338 DIST= 3.961 AU
BATSE-ULYSSES DISTANCE = 592541591. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=123.14 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1080.48 SECS.
CROSSING TIME AT ULYSSES IS 56610. S. OR 15:43:29 +/- 320.93 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 2/ 97 IS:
RA= 186.492 DEC= 1.118 DIST= 0.784 AU
MARS-BATSE DISTANCE = 117315088. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=161.20 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -370.45 SECS.
CROSSING TIME AT MARS IS 57320. S. OR 15:55:19 +/- 16.26 SECONDS

BATSE BURST TRIGGER

NO.: 6091

TIME: TJD=0493 SECONDS=57690

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=130.3 AZIMUTH=351.8 ERROR=3.4 DEGREES

COMMENTS:
GRB LASTING ~ 1.3 SEC. SINGLE PULSE. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6091	970214	10493	57690	8000	199	-13	1.3

BATSE# 6091

ULYSSES RT

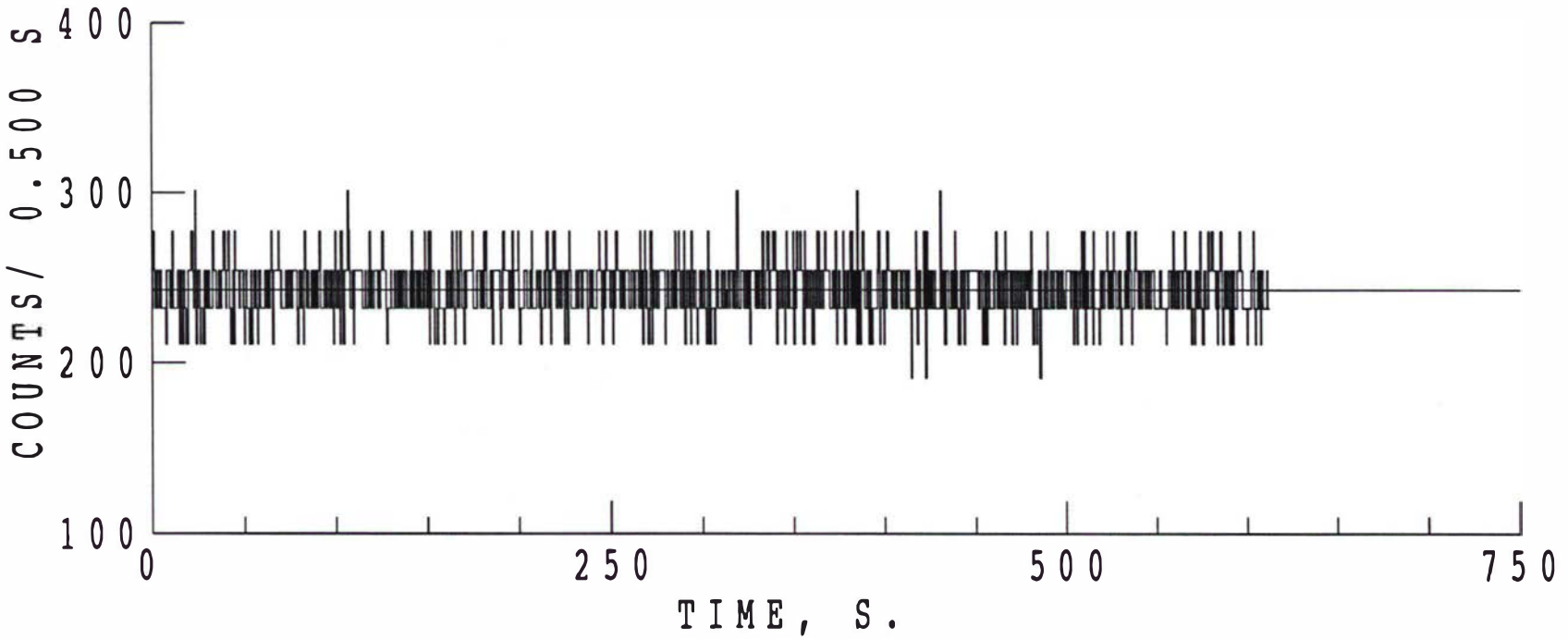
20/ 2/97

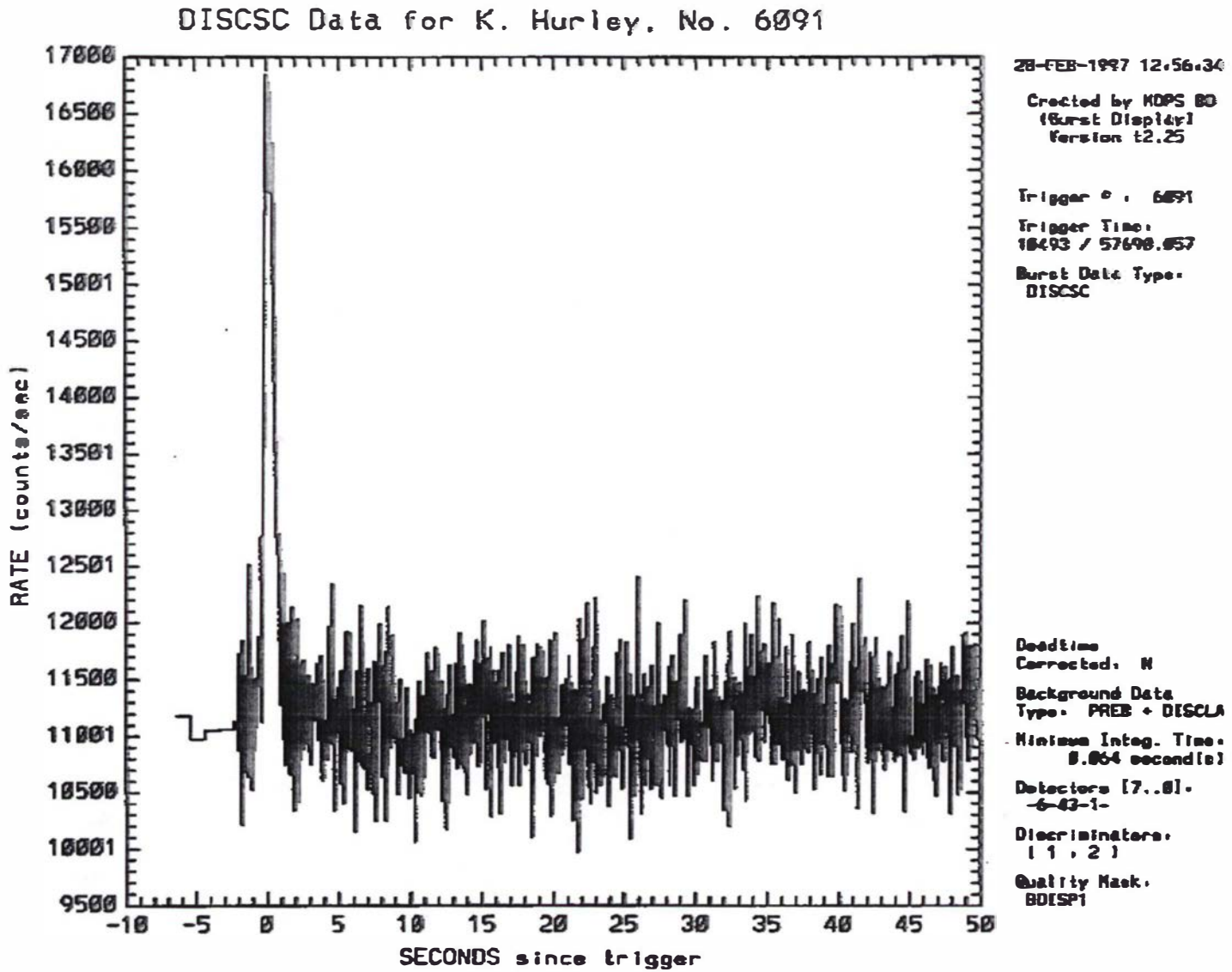
14/ 2/97 56304.219 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





Plot hard to read - looks like there was no Ulysses detection

From WOODSP@ssl.msfc.nasa.gov Wed Feb 19 08:59 PST 1997
From: WOODSP@ssl.msfc.nasa.gov
Date: Wed, 19 Feb 1997 10:57:28 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6092

TIME: TJD=0493 SECONDS=75999

TYPE: CYGNUS SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=69.3 AZIMUTH=264.1 ERROR=5.0 DEGREES

COMMENTS:
CYGNUS X-1 FLUCTUATION. VERY BRIGHT (FOR A FLUCTUATION).

Date: Nov 22 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

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

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

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

☐ Was Mars-blocking used?

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

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

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

2. For 3 or More Spacecraft events

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

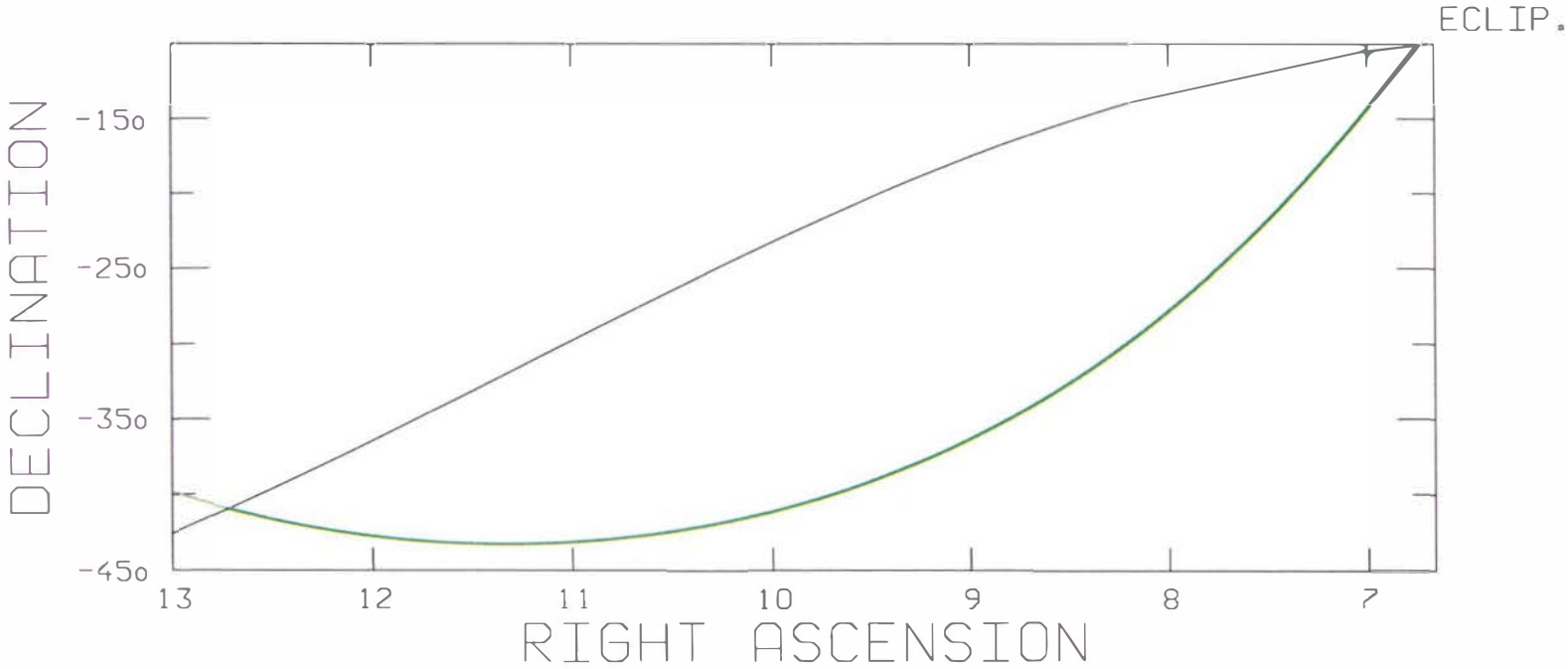
3. For INTEGRAL events

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

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

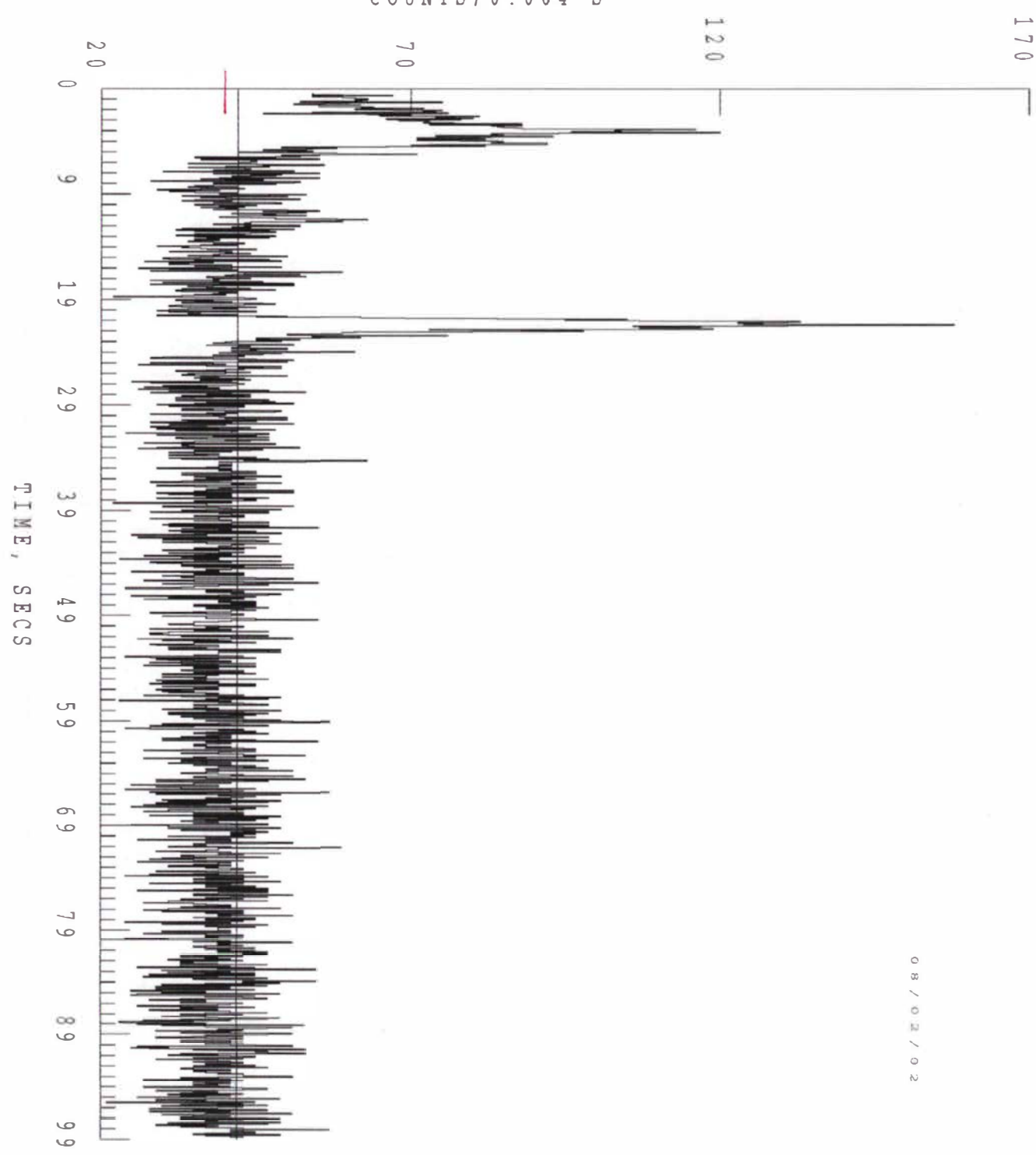
☐ Updated ephemeris used for bursts prior to September 30, 2003?

☑ ACCESS and MBL4 databases updated with identical times?


ECLIP.
DECLINATION
-15o
-25o
-35o
-45o
13
12
11
10
9
8
7
RIGHT ASCENSION

KONUS1 14/02/97 82753.965

50- 200 keV



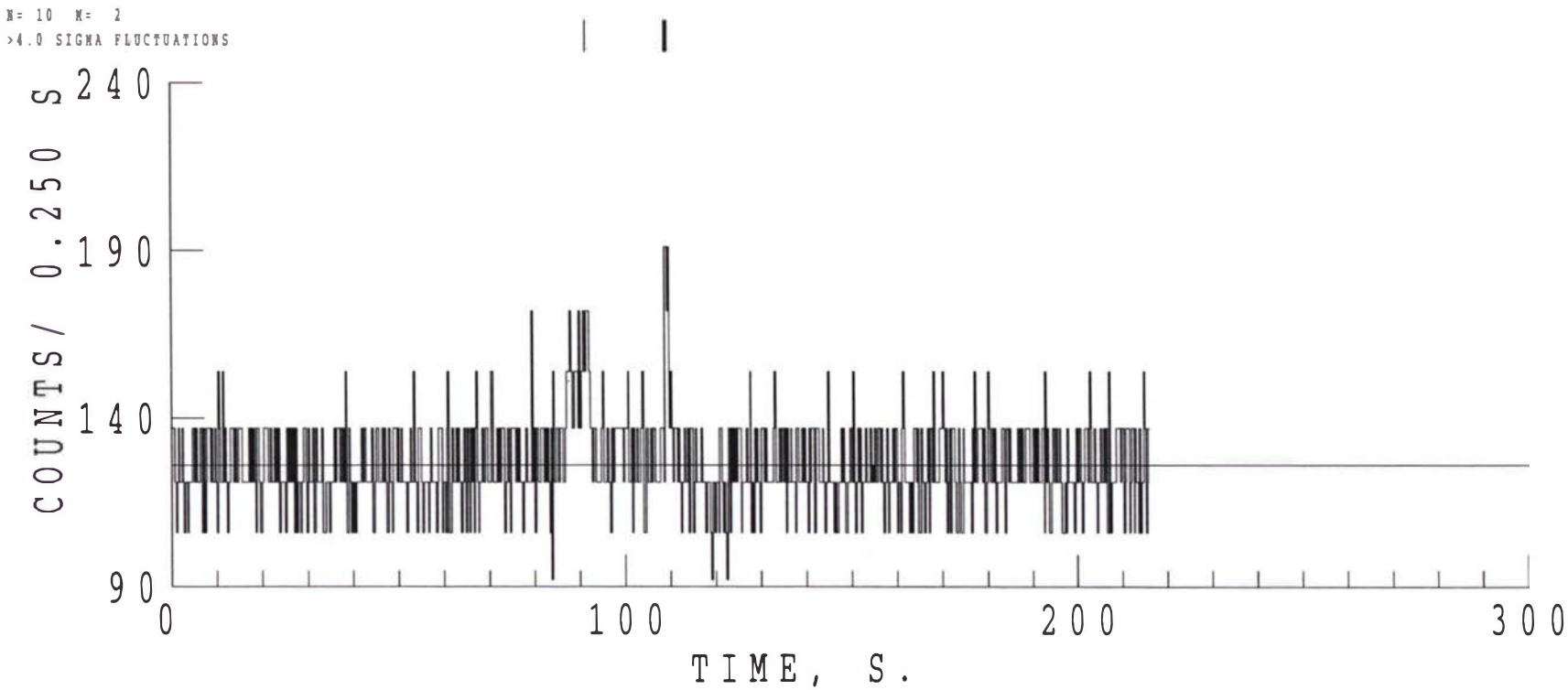
KONUS 19970214 82412

ULYSSES RT

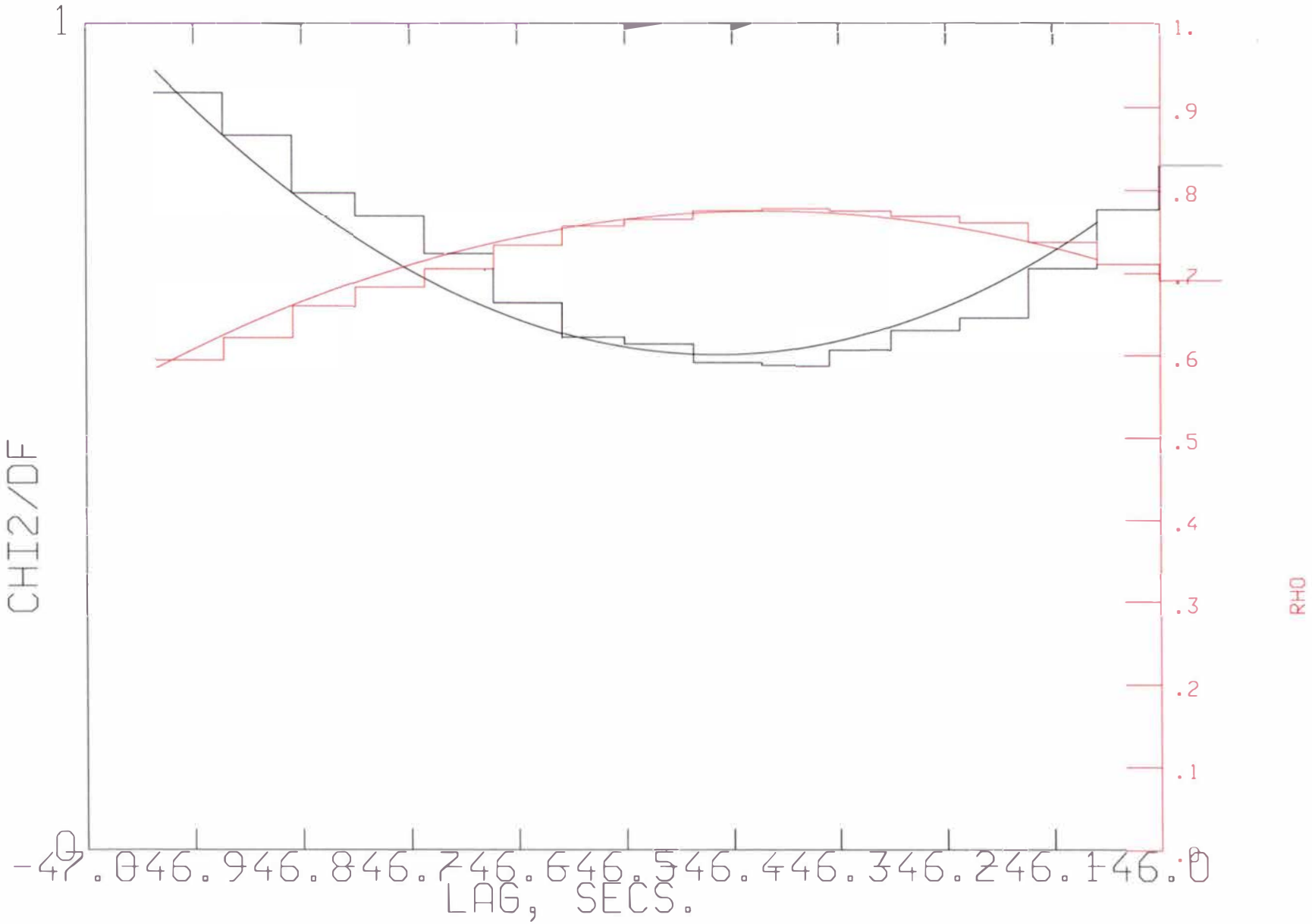
27/10/11

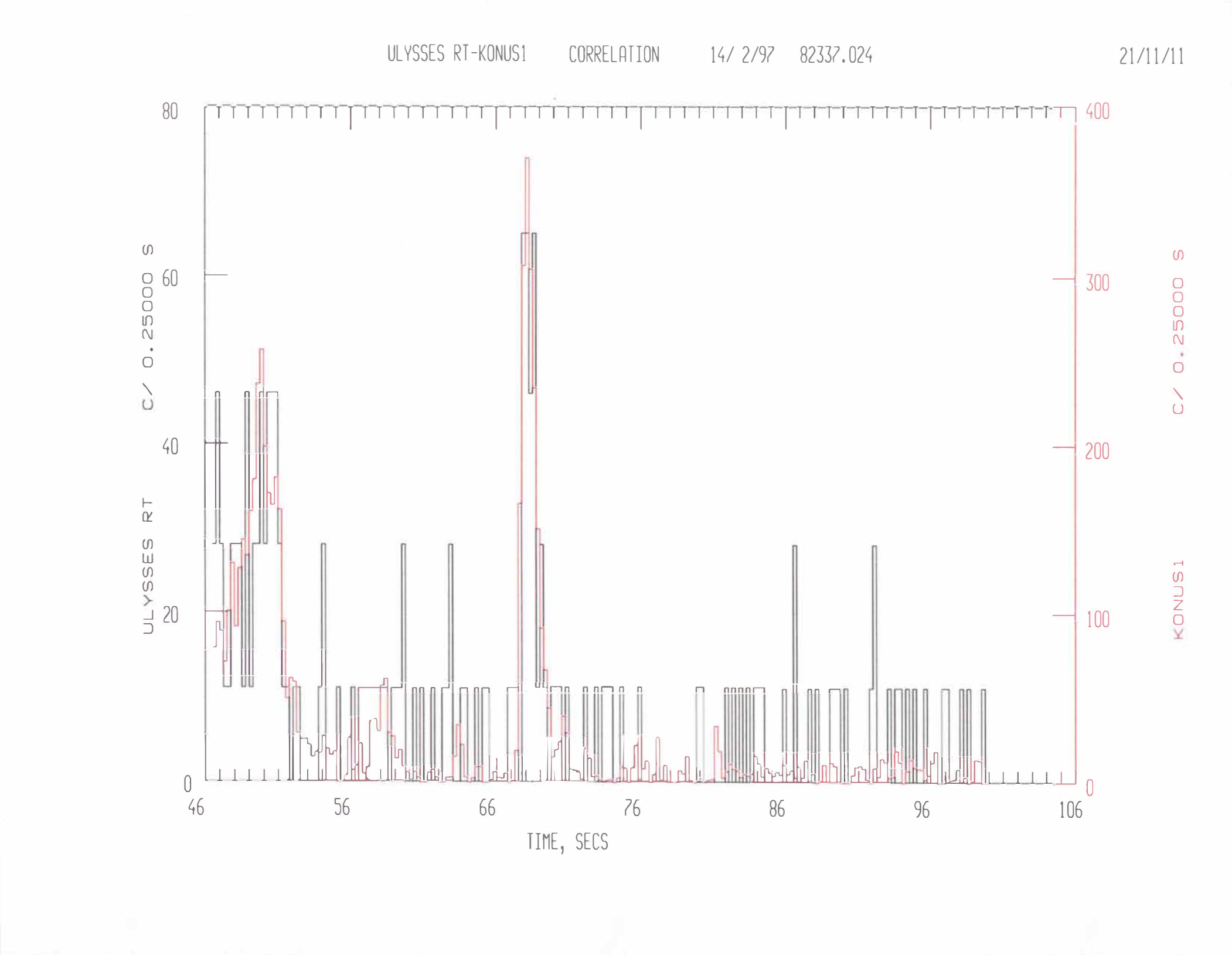
14/02/97 82296.039 s

0- 0 keV



ULYSSES RT-KONUS1 CORRELATION 14/ 2/97 82337.024




ULYSSES RT-KONUS1 CORRELATION 14/ 2/97 82337.024
21/11/11
80
60
40
20
0
C/ 0.25000 S
ULYSSES RT
400
300
200
100
0
C/ 0.25000 S
KONUS1
46
56
66
76
86
96
106
TIME, SECS

From WOODSP@ssl.msfc.nasa.gov Wed Feb 19 09:08 PST 1997
From: WOODSP@ssl.msfc.nasa.gov
Date: Wed, 19 Feb 1997 11:05:36 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6093

TIME: TJD=0493 SECONDS=83634

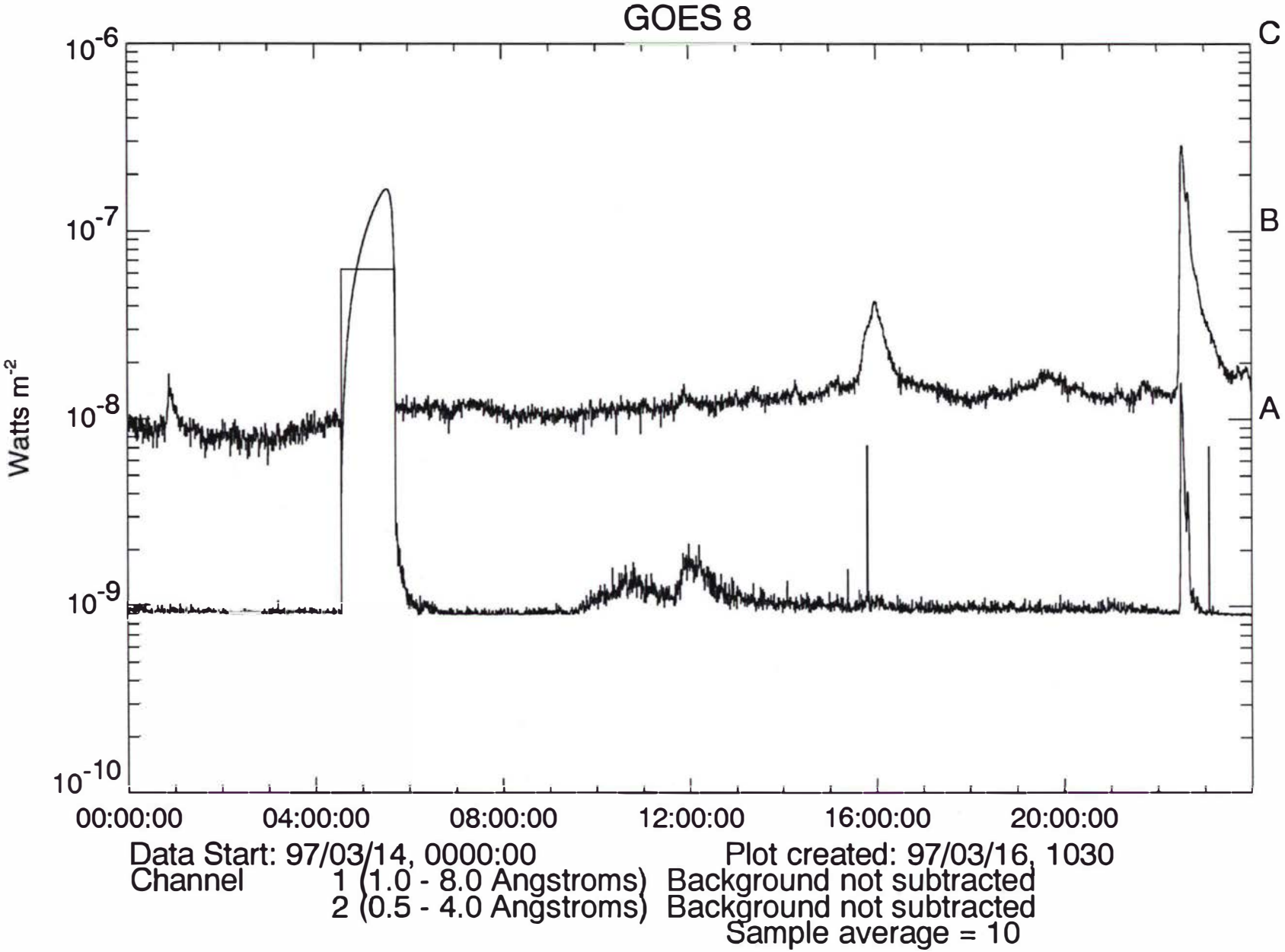
TYPE: CYGNUS SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

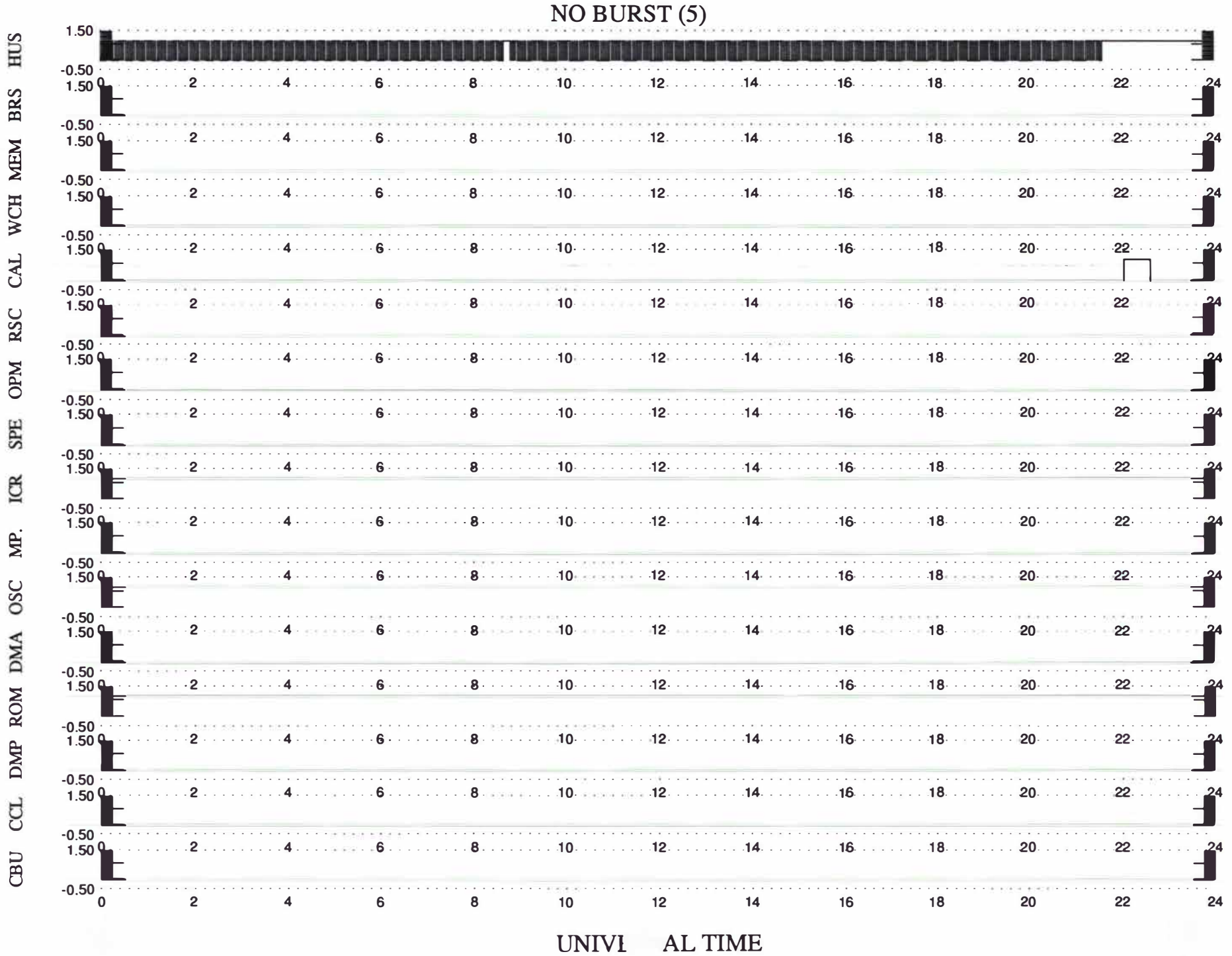
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=69.7 AZIMUTH=256.3 ERROR=14 DEGREES

COMMENTS:
CYGNUS X-1 FLUCTUATION.

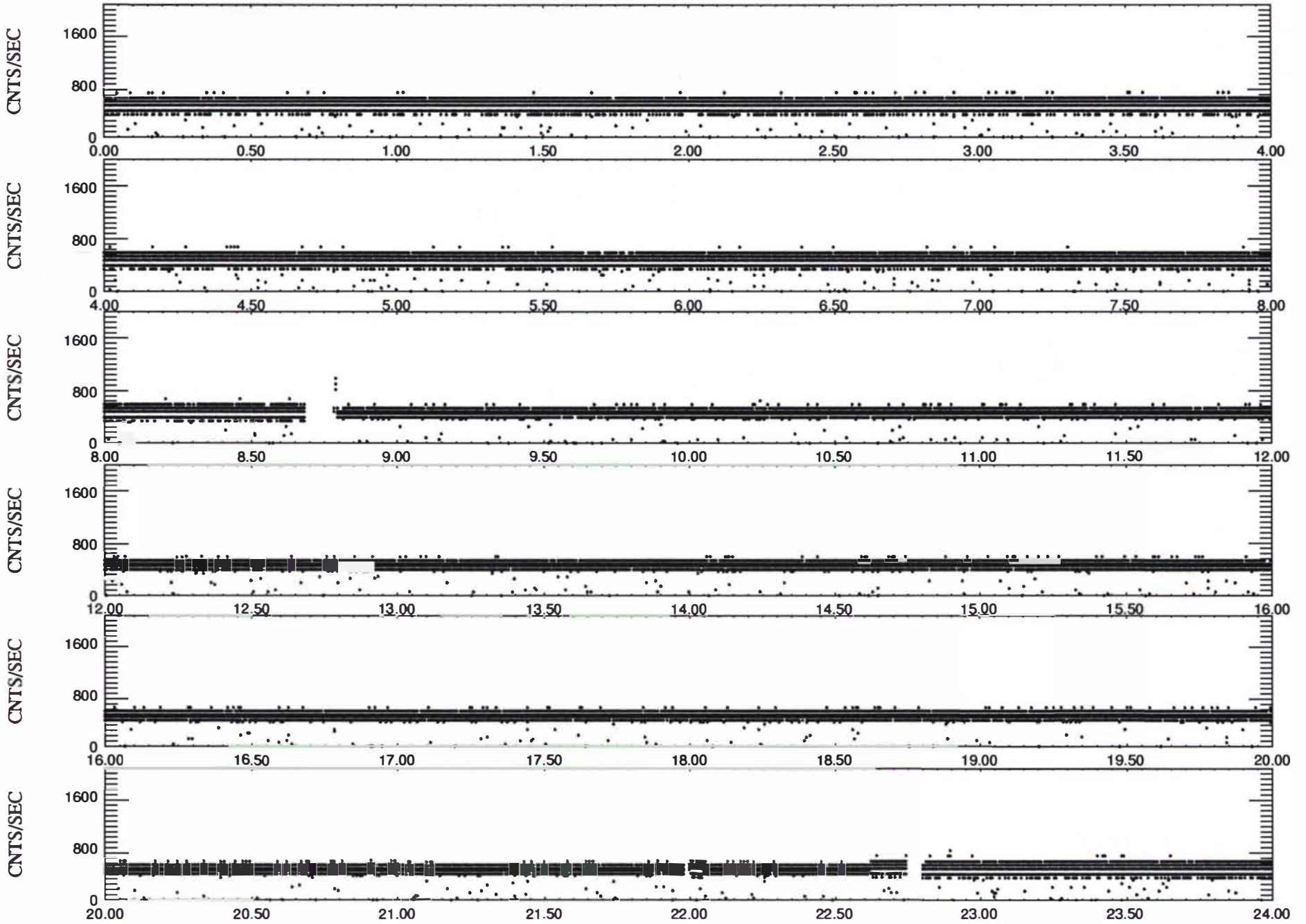

GOES 8
C
B
A
Watts m-2
10-6
10-7
10-8
10-9
10-10
00:00:00
04:00:00
08:00:00
12:00:00
16:00:00
20:00:00
Data Start: 97/03/14, 0000:00
Plot created: 97/03/16, 1030
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted
2 (0.5 - 4.0 Angstroms) Background not subtracted
Sample average = 10

HUS MODES EDR day 45, year 1997 to day 45, year 1997 5/16/97



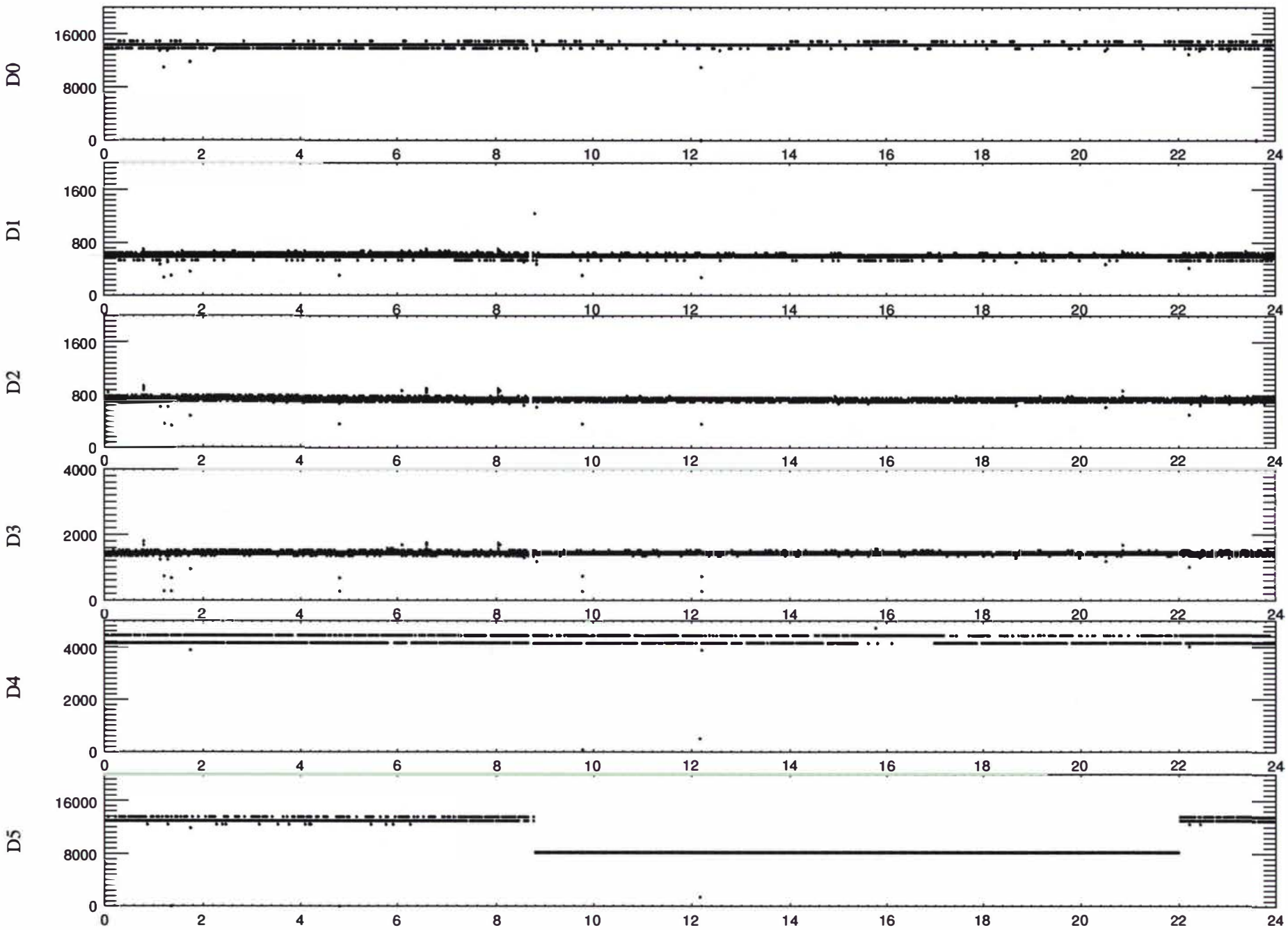
HUS 2A, MODE 1, NOT AVERAGED EDR day 45, year 1997 to day 45, year 1997 5/16/97

CALIBRATION DATA INCLUDED

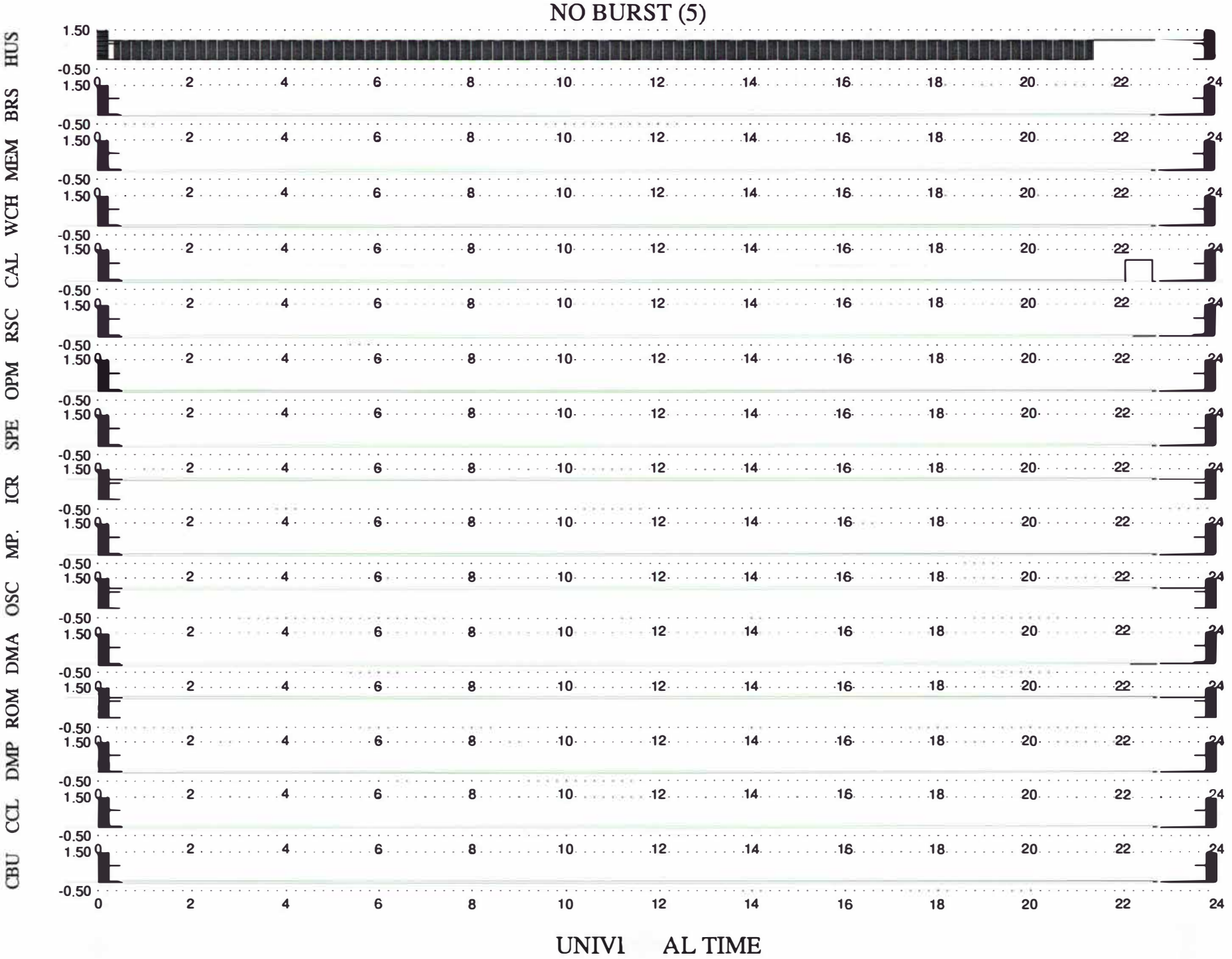


UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 45, year 1997 to day 45, year 1997 5/16/97

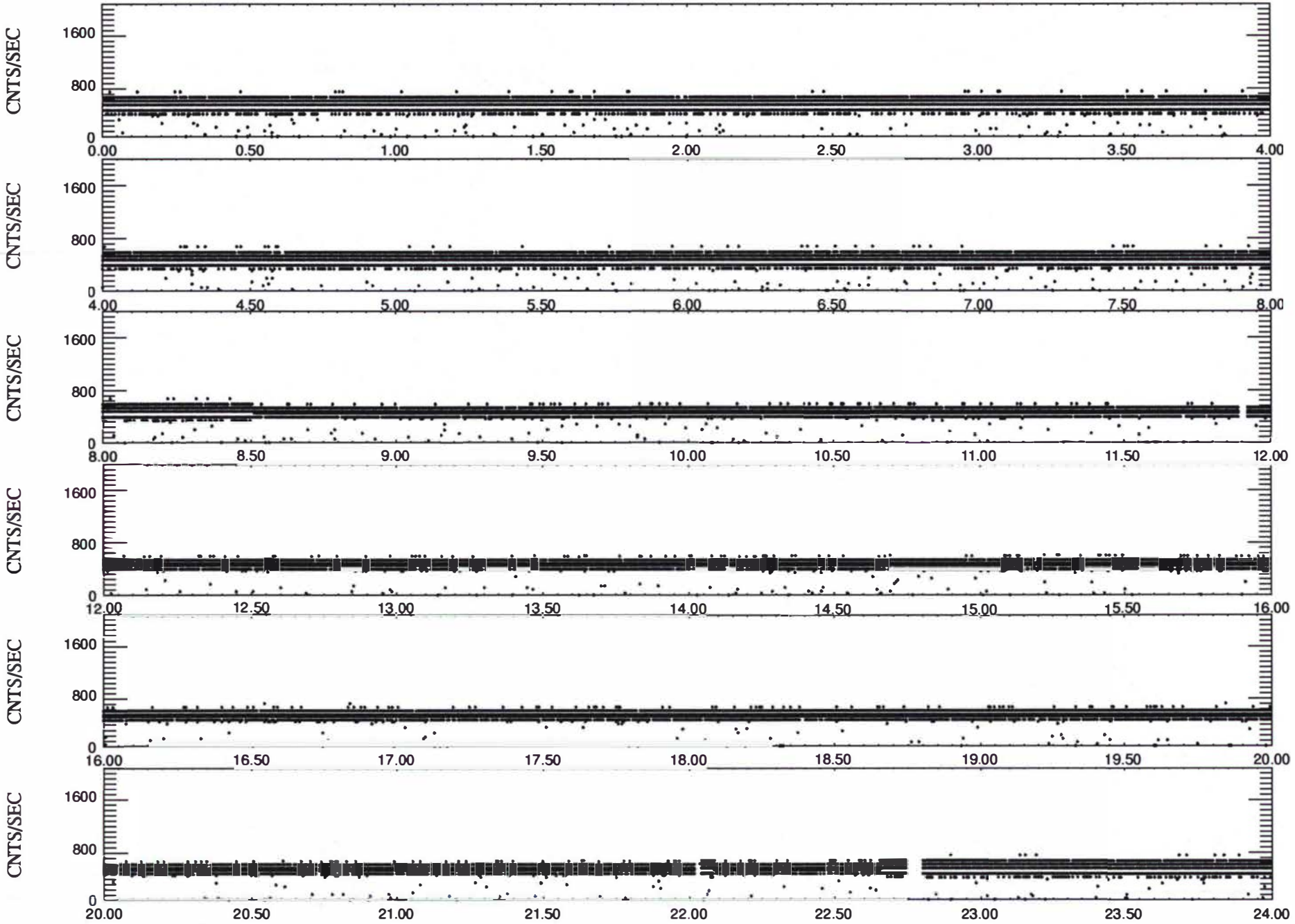


HUS MODES EDR day 46, year 1997 to day 46, year 1997 5/16/97



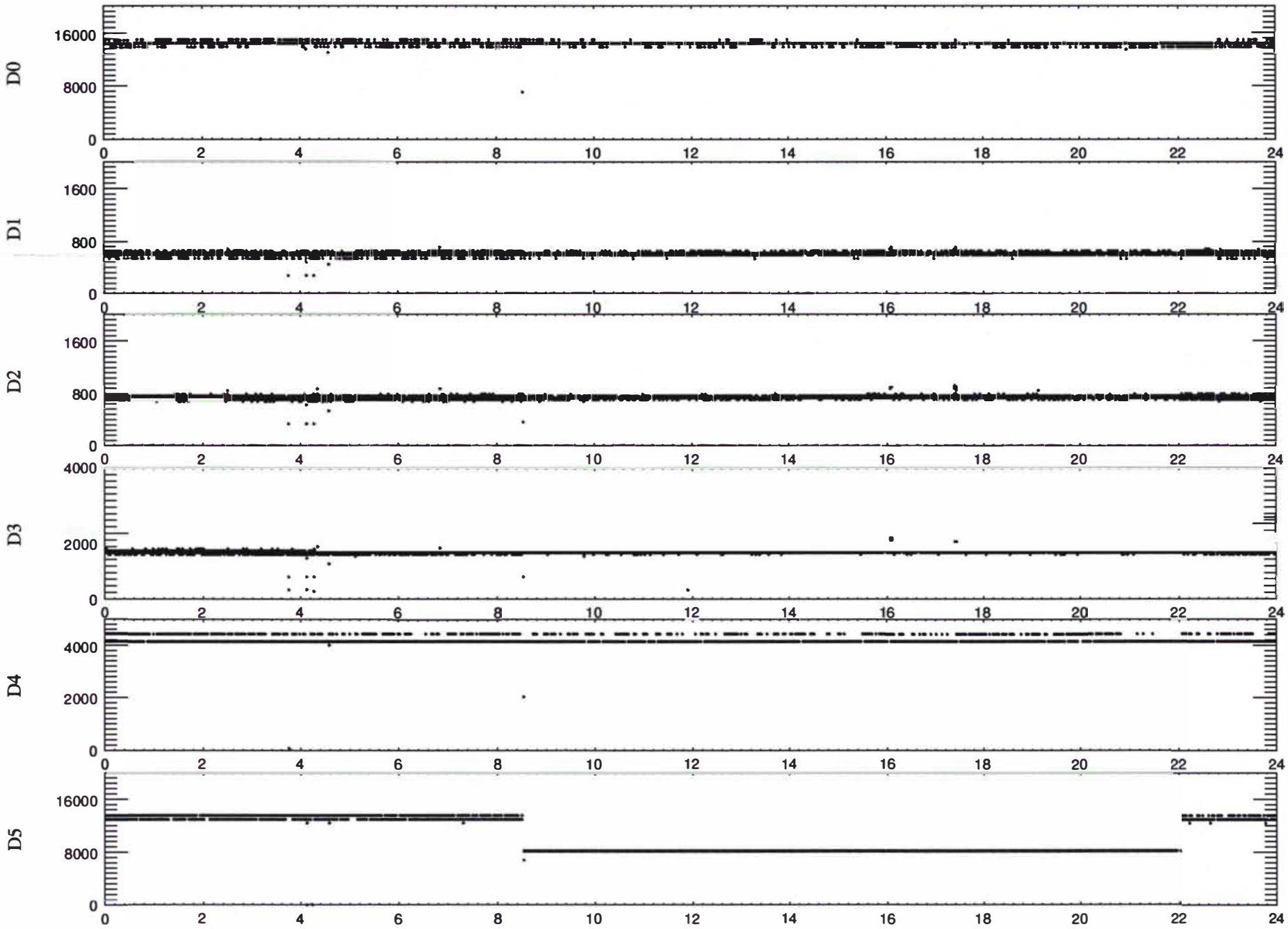
HUS 2A, MODE 1, NOT AVERAGED EDR day 46, year 1997 to day 46, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 46, year 1997 to day 46, year 1997 5/16/97



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

Hi Everyone,

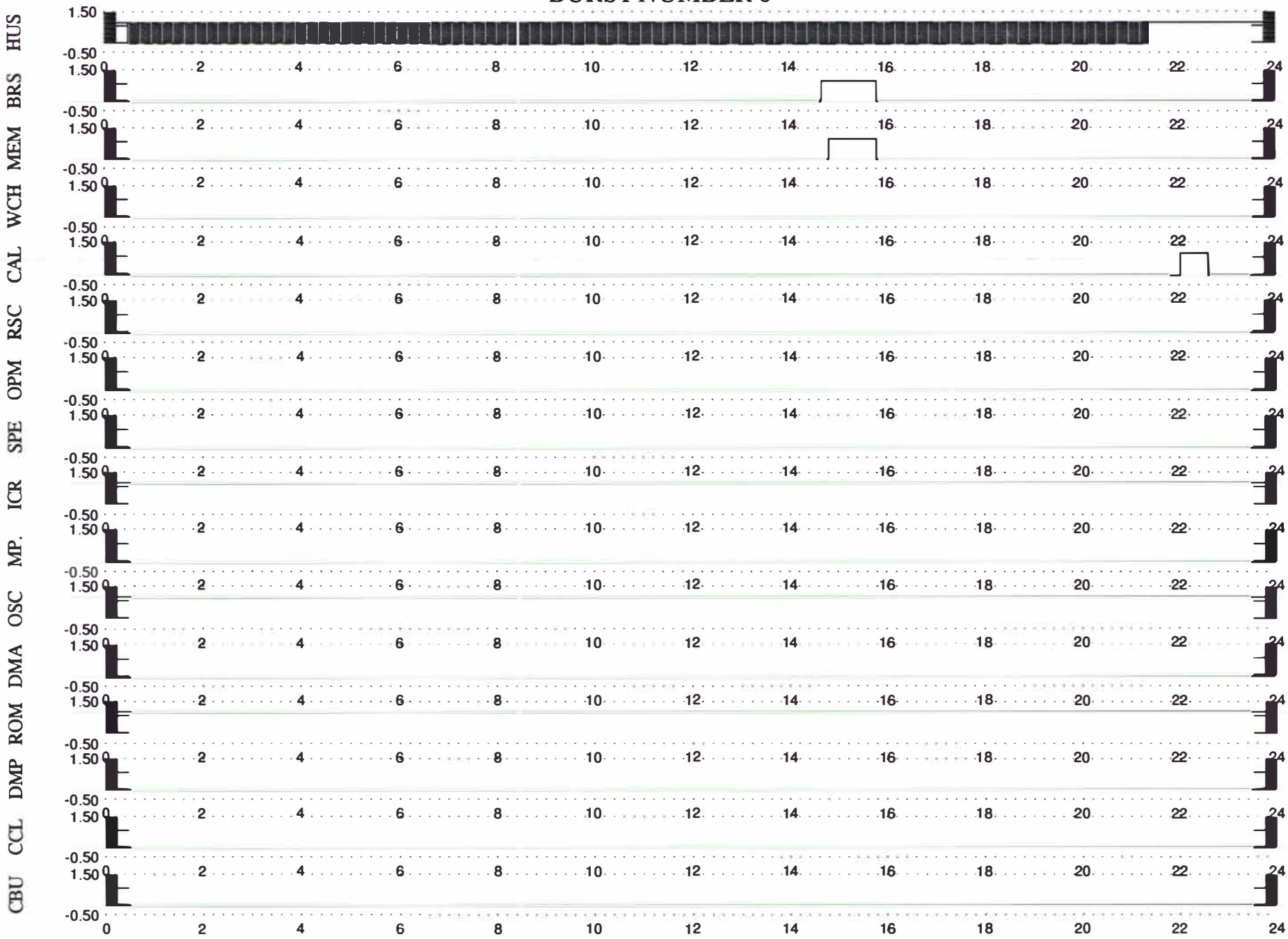
Here is a summary for this year to date of Konus observations corresponding to events seen by Ulysses but not reported by BATSE:

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

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

HUS MODES EDR day 47, year 1997 to day 47, year 1997 5/16/97

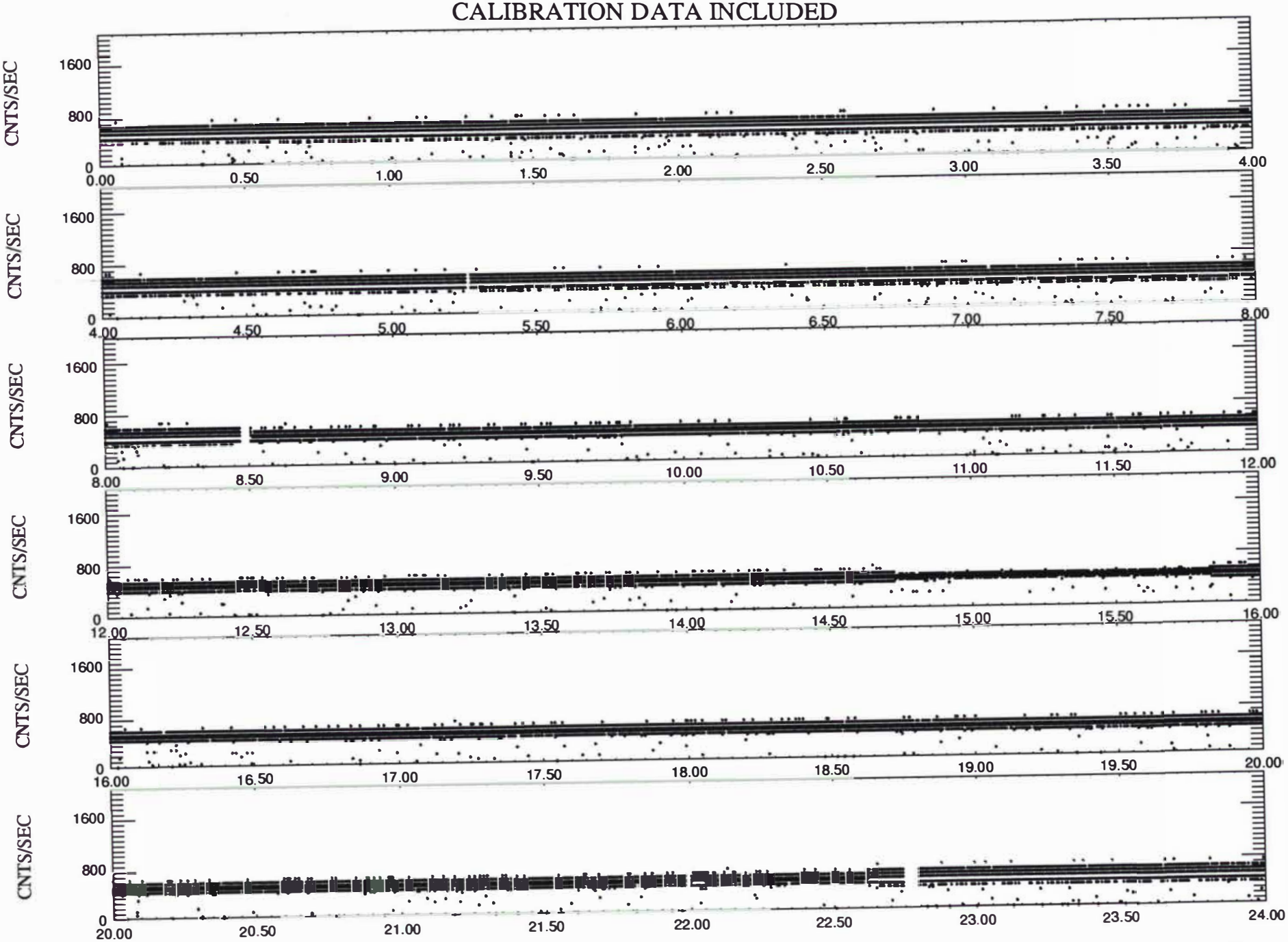
BURST NUMBER 6



UNIVI AL TIME

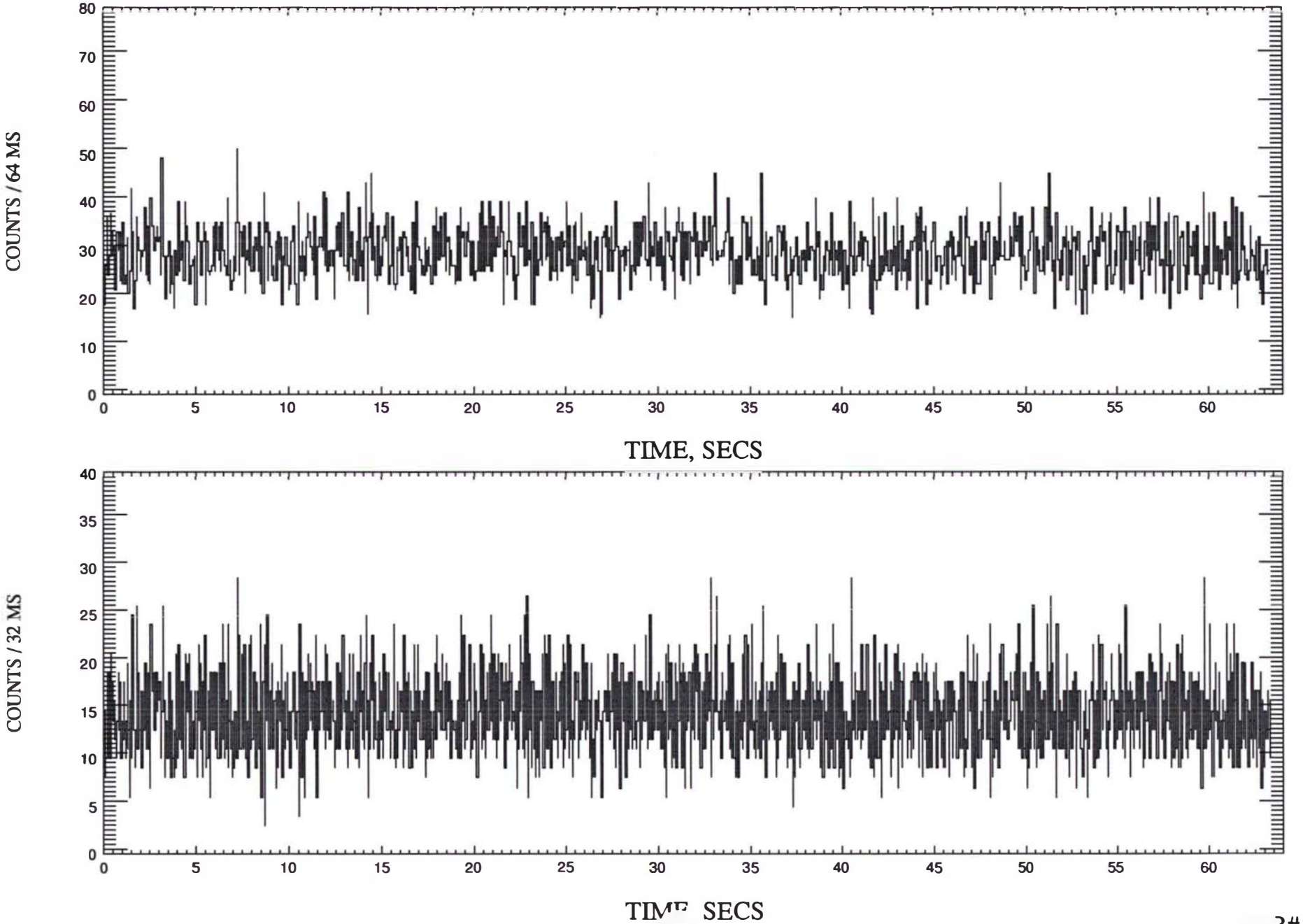
HUS 2A, MODE 1, NOT AVERAGED EDR day 47, year 1997 to day 47, year 1997 5/16/97

CALIBRATION DATA INCLUDED



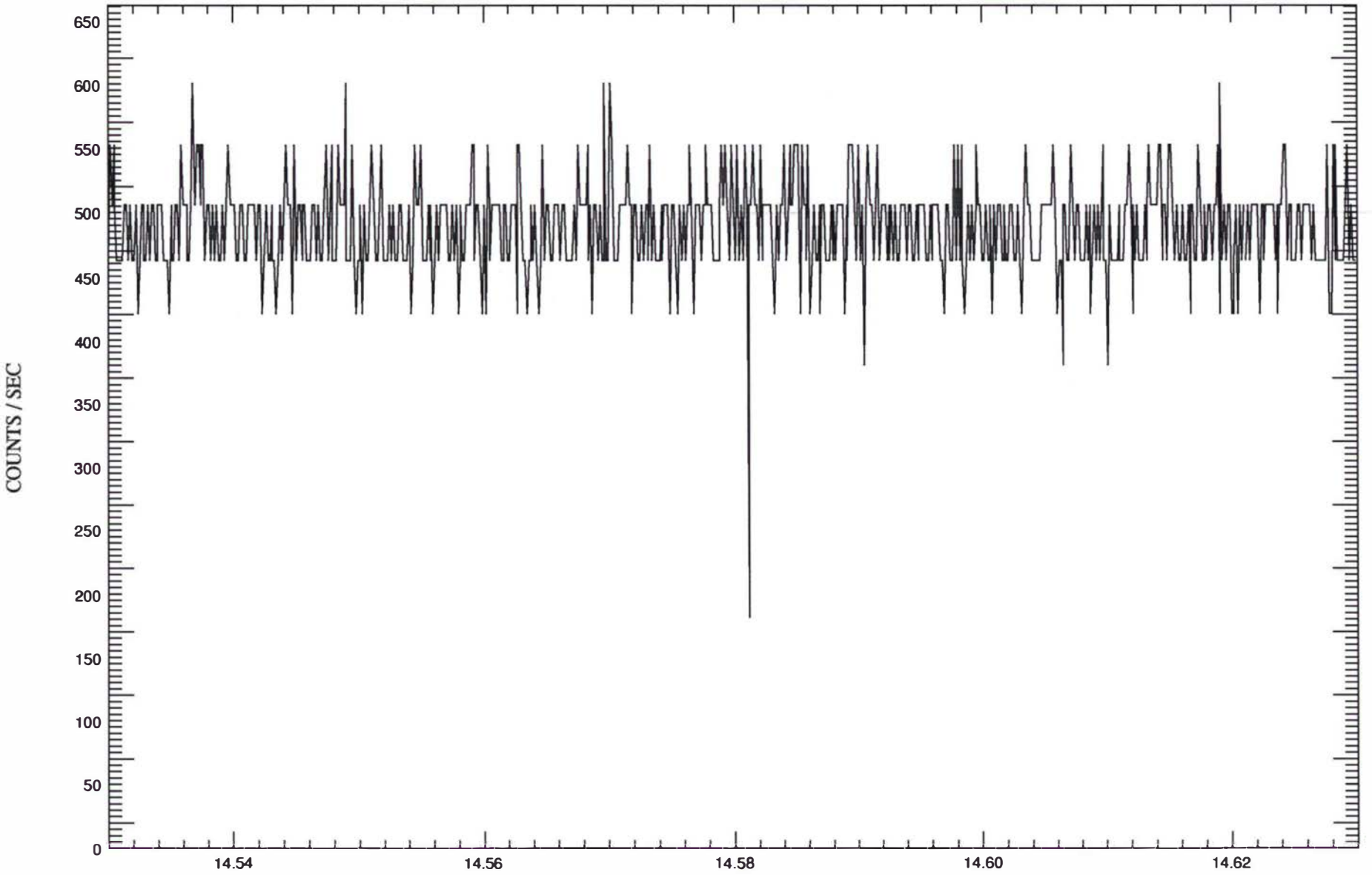
UNIVI AL TIME

Burst Counter 6 at UT=14.577953686184 h=52480.633 s 14:34:40.633

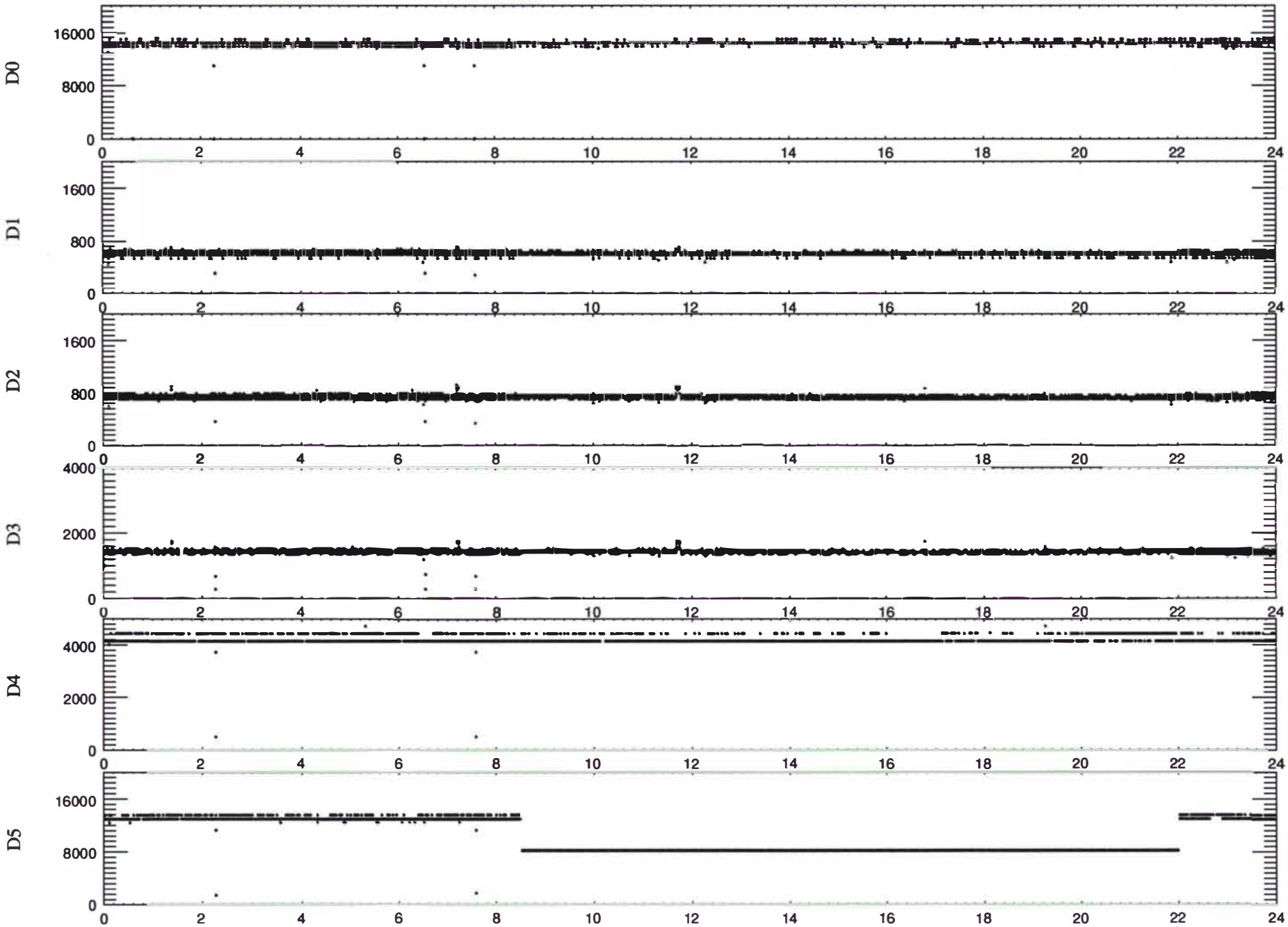


HUS 2A, MODE 1, NOT AVERAGED EDR day 47, year 1997 to day 47, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 47, year 1997 to day 47, year 1997 5/16/97



From RICHARDSON@ssl.msfc.nasa.gov Tue Feb 18 10:40 PST 1997
Date: Tue, 18 Feb 1997 12:39:13 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu
X-Vmsmail-To: @mops$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6094

TIME: TJD=0496 SECONDS=60951

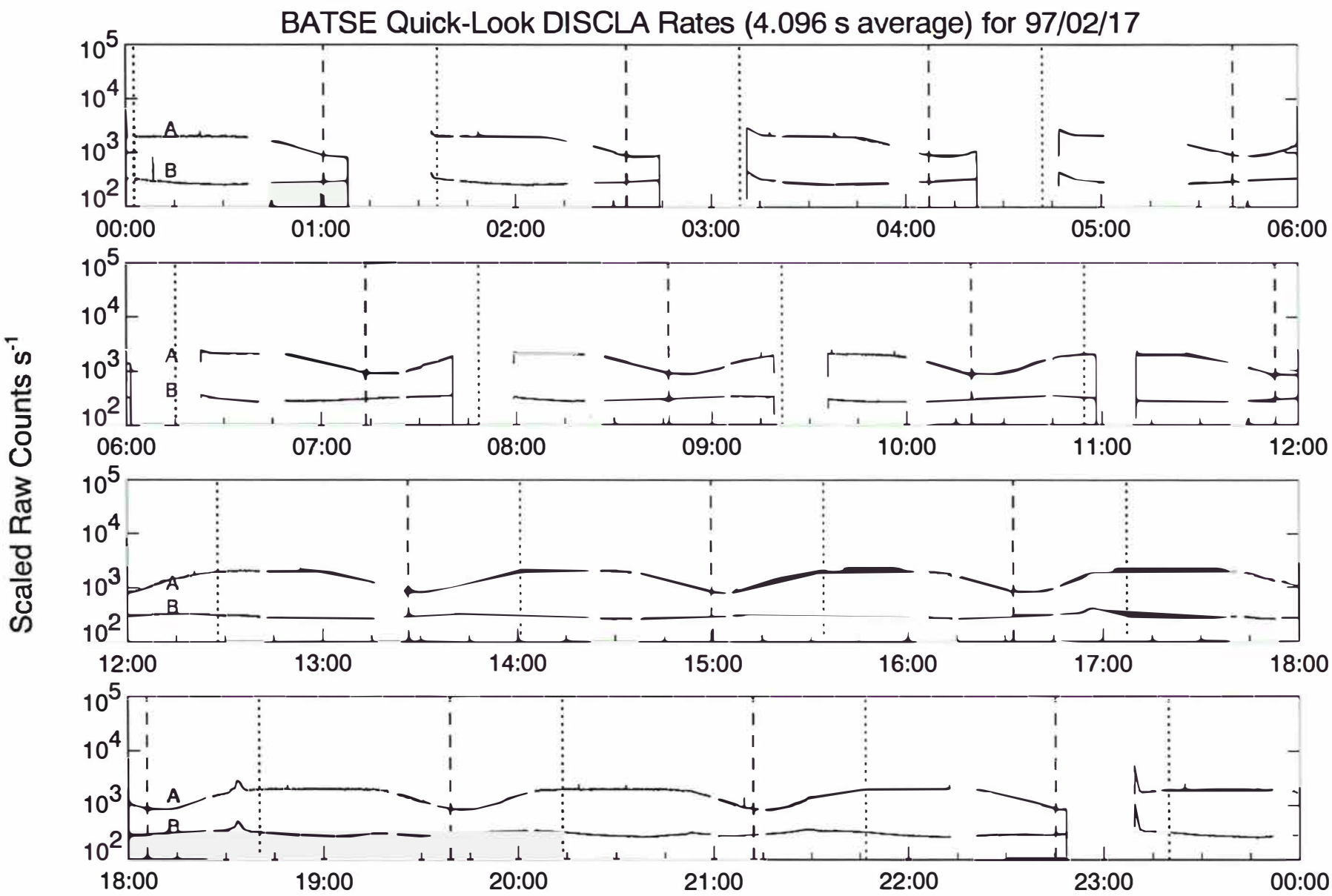
TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

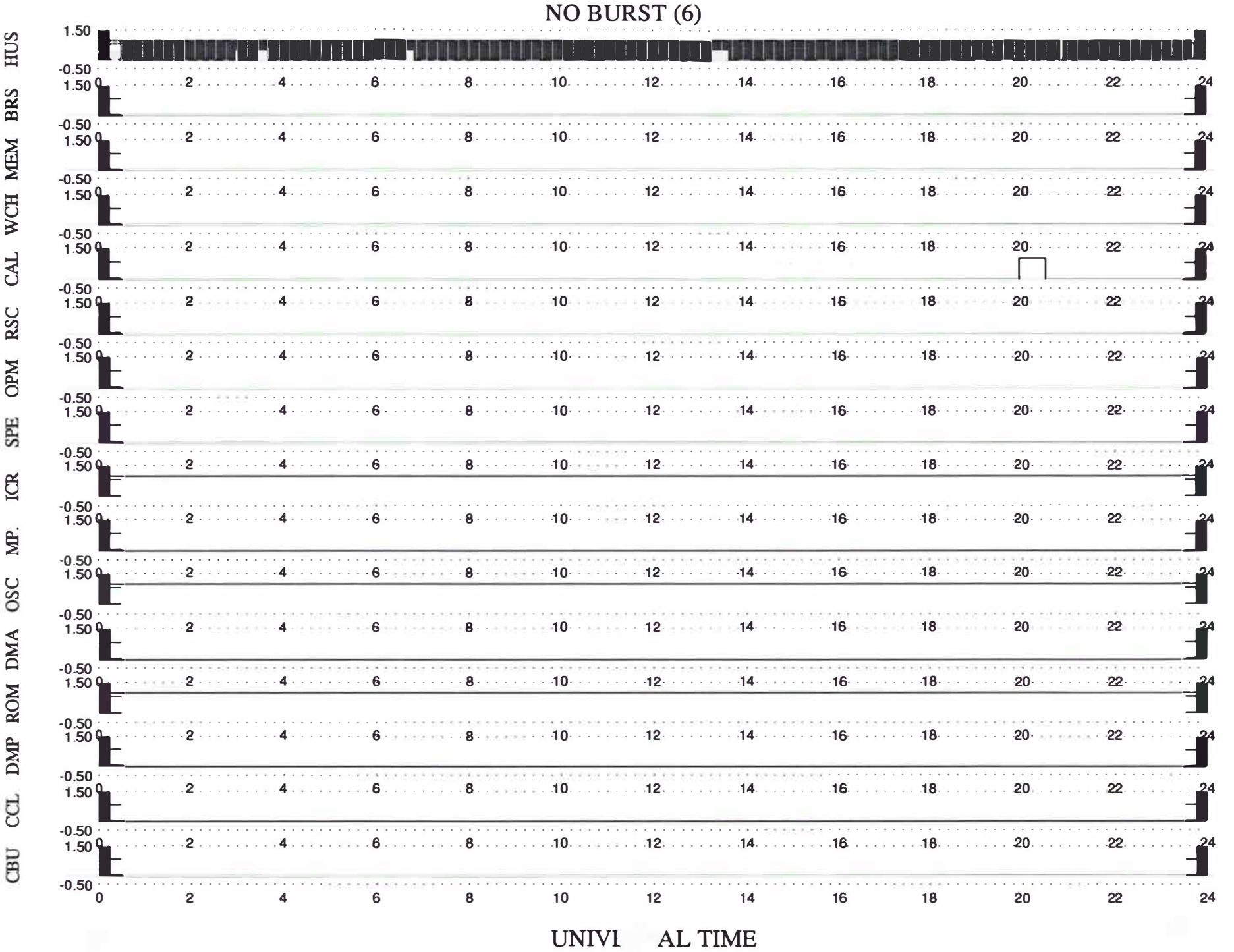
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

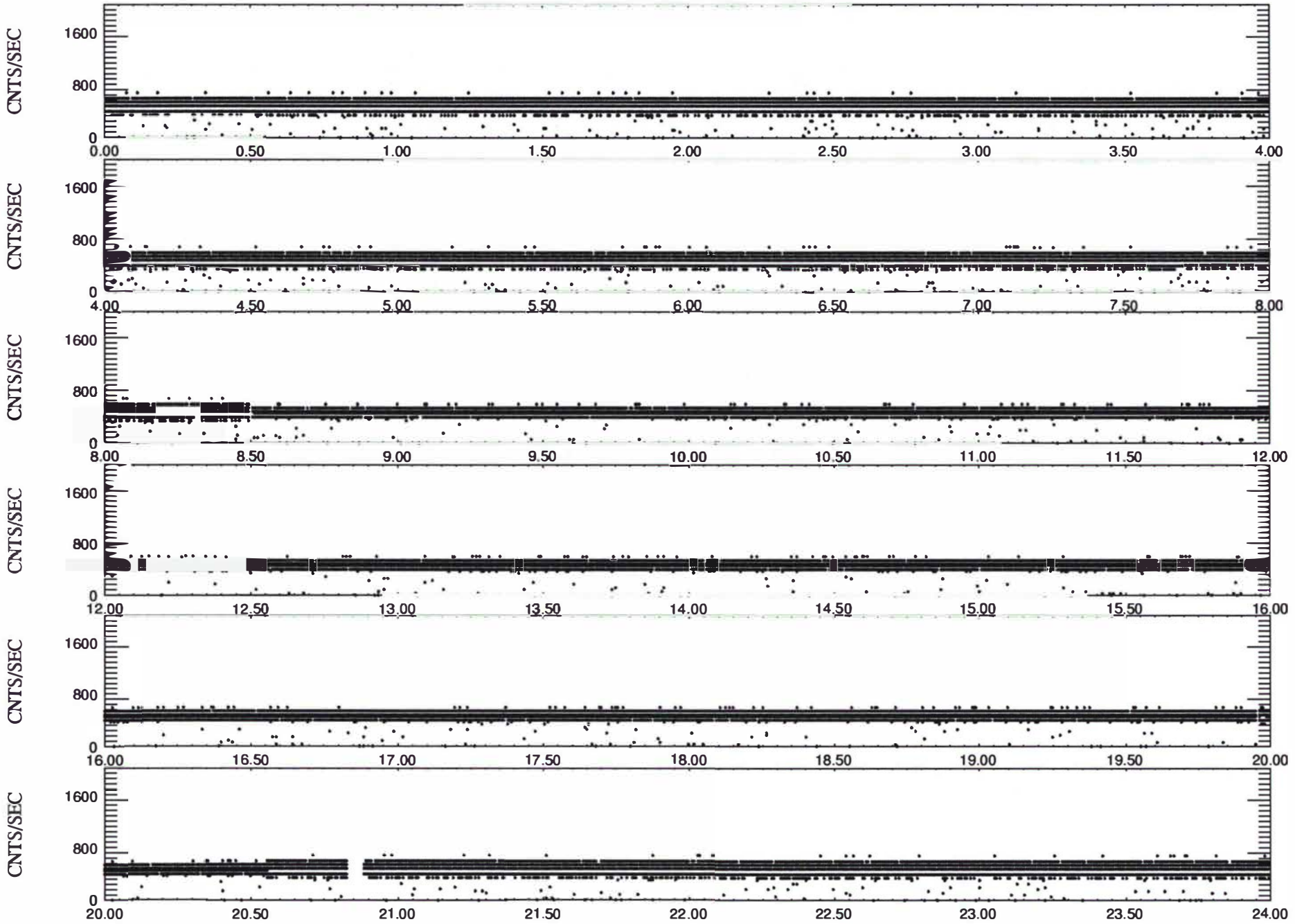

BATSE Quick-Look DISCLA Rates (4.096 s average) for 97/02/17
Scaled Raw Counts s-1
10^5
10^4
10^3
10^2
A
B
00:00
01:00
02:00
03:00
04:00
05:00
06:00
06:00
07:00
08:00
09:00
10:00
11:00
12:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
18:00
19:00
20:00
21:00
22:00
23:00
00:00
Current Time: 97/02/19, 1009 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05
Dotted line: Day entry
Dashed line: Night entry
* Solar Burst Trigger
+ Solar Flare

HUS MODES EDR day 48, year 1997 to day 48, year 1997 5/16/97



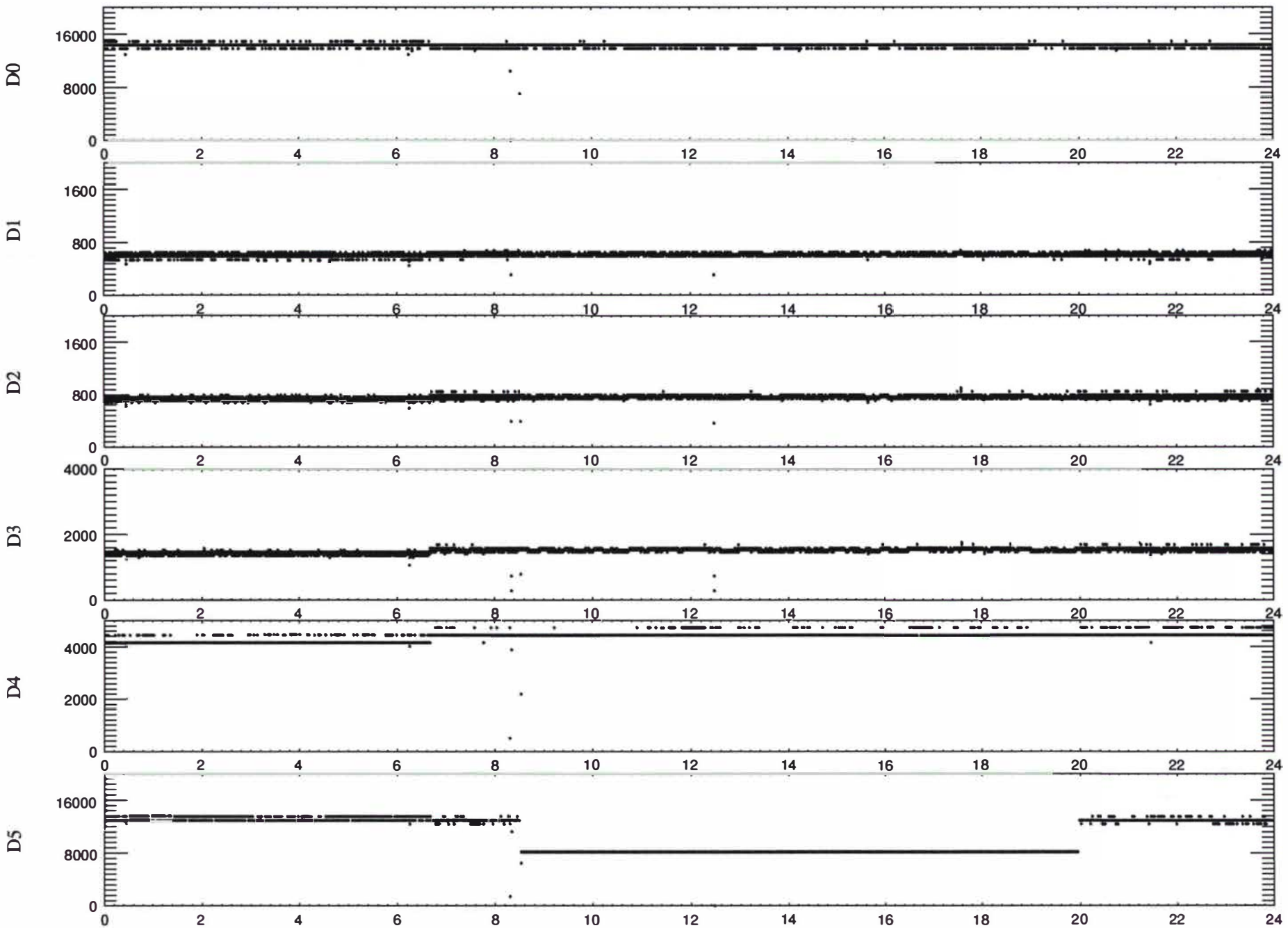
HUS 2A, MODE 1, NOT AVERAGED EDR day 48, year 1997 to day 48, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 48, year 1997 to day 48, year 1997 5/16/97



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

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

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

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

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

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

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

Date: Nov 22 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

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

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

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

☐ Was Mars-blocking used?

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

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

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

2. For 3 or More Spacecraft events

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

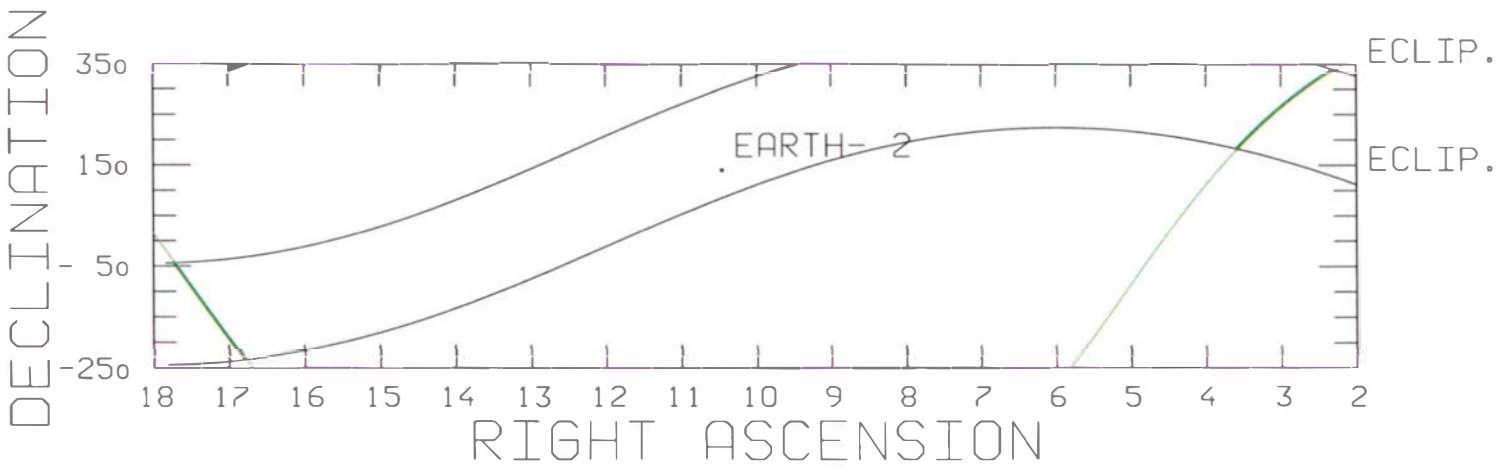
3. For INTEGRAL events

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

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

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

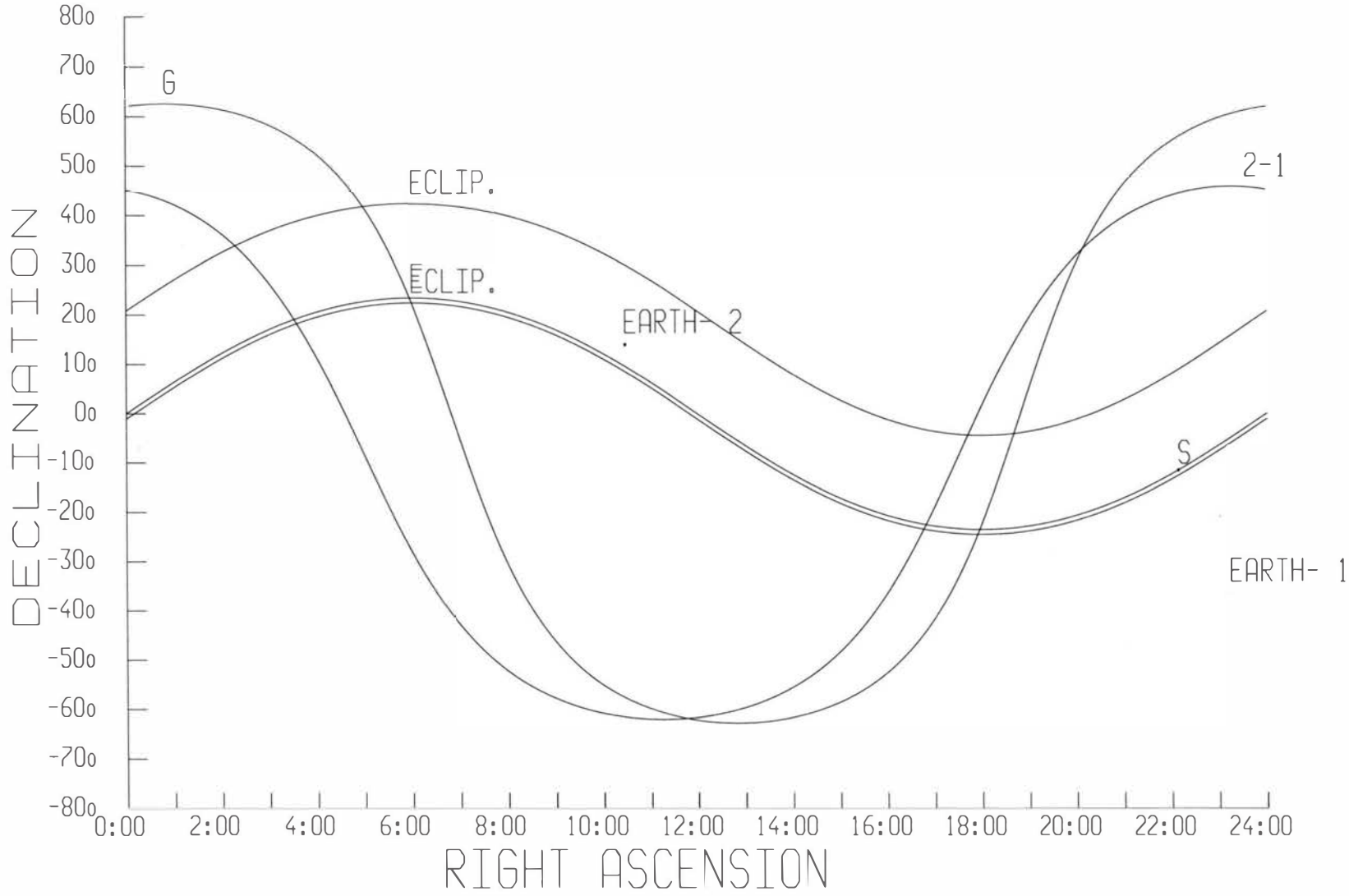
☑ ACCESS and MBL4 databases updated with identical times?


DECLINATION
35o
15o
- 5o
-25o
18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2
RIGHT ASCENSION
EARTH- 2
ECLIP.
ECLIP.

EVENT OF FEB 18, 1997 14:13

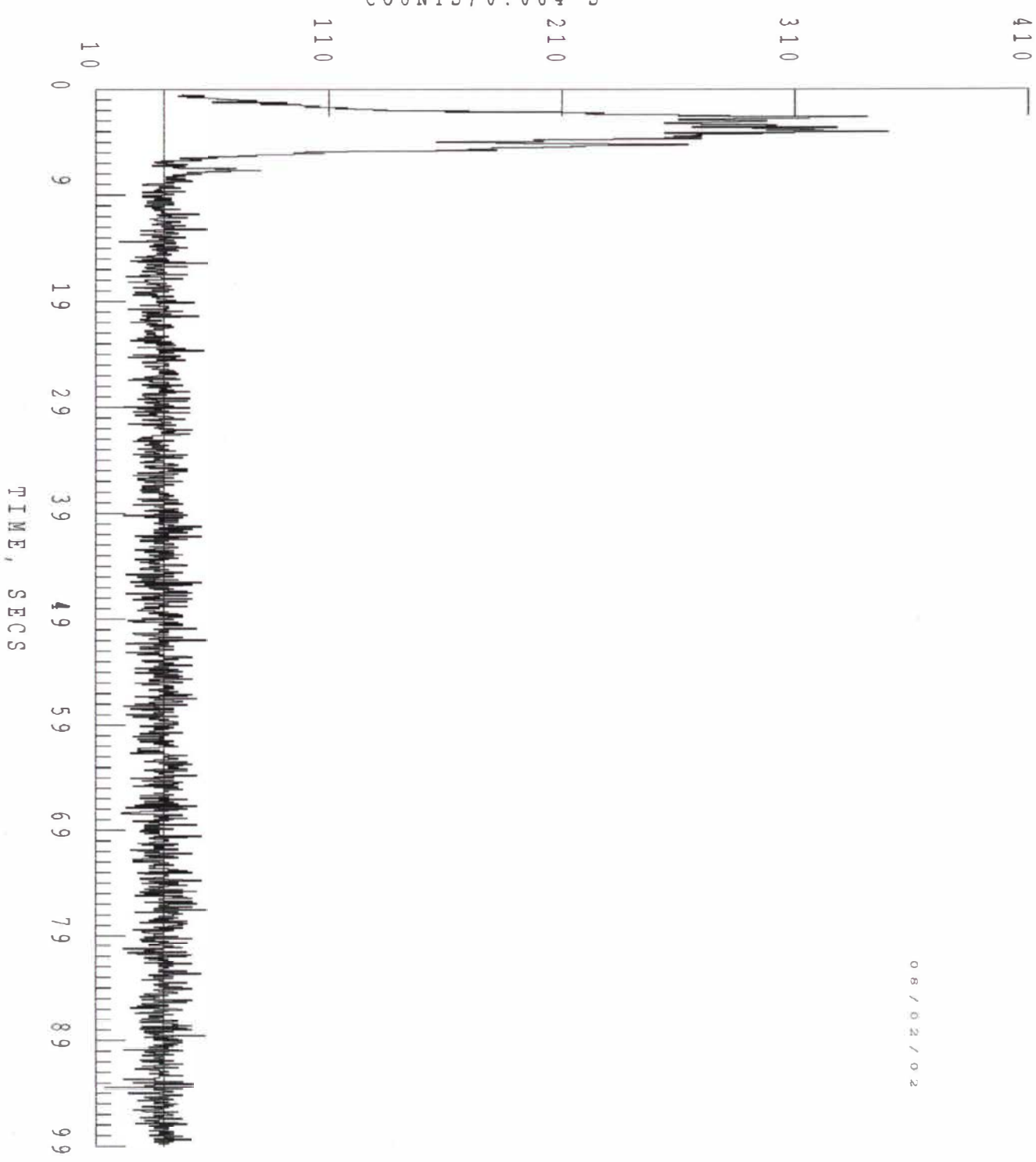
21/11/2011

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



KONUS2 18/02/97 50996.145

50- 200 keV



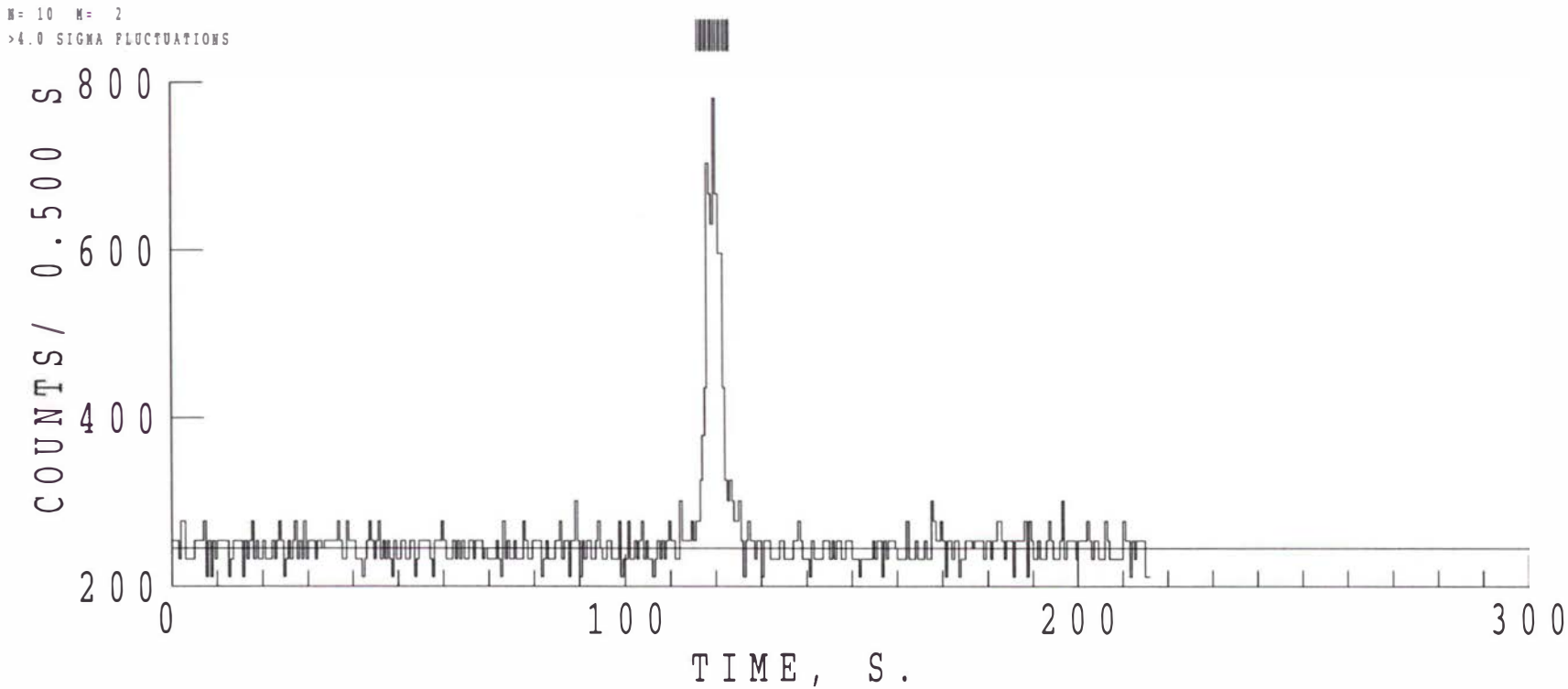
KONUS 19970218 51273

ULYSSES RT

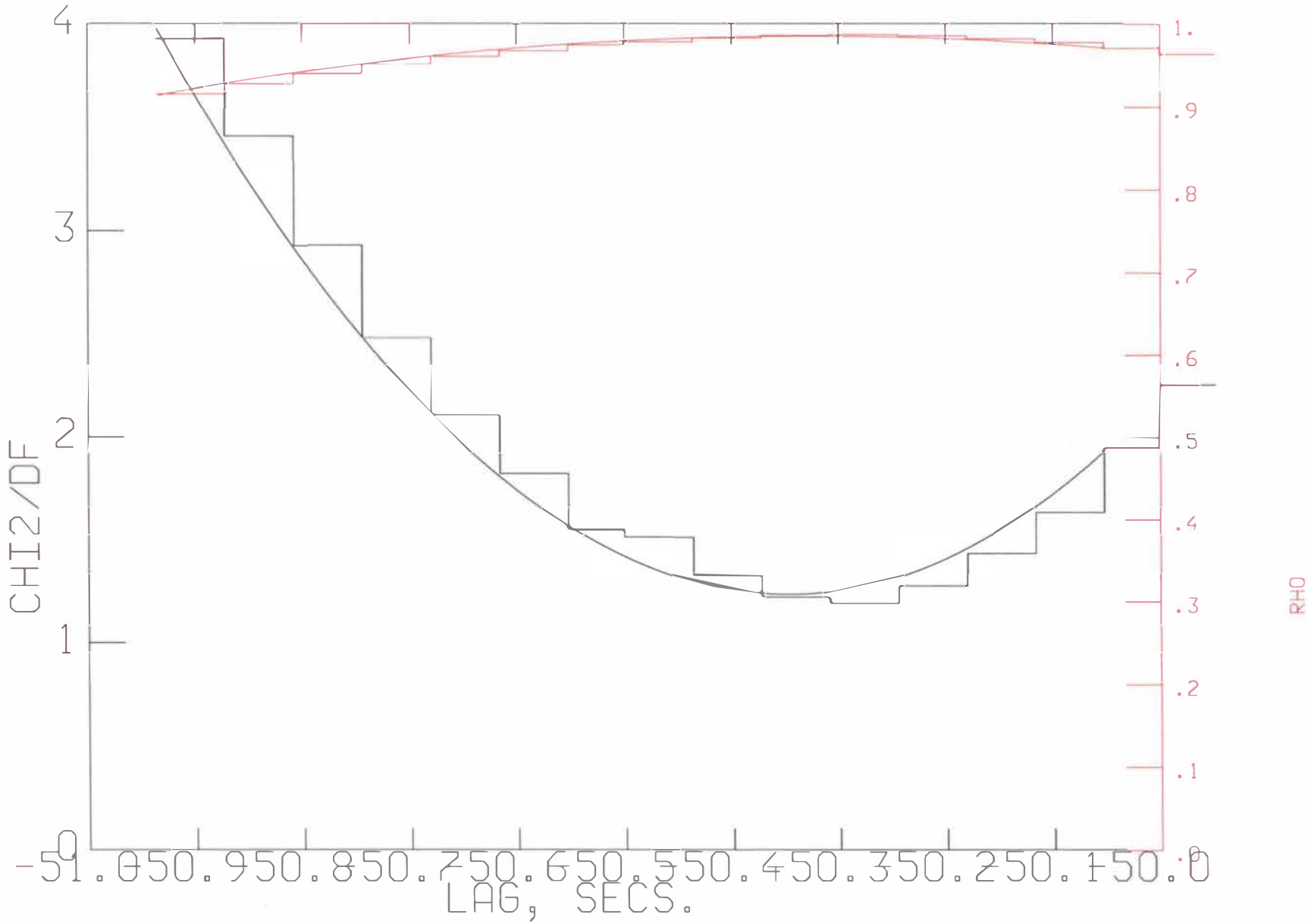
27/10/11

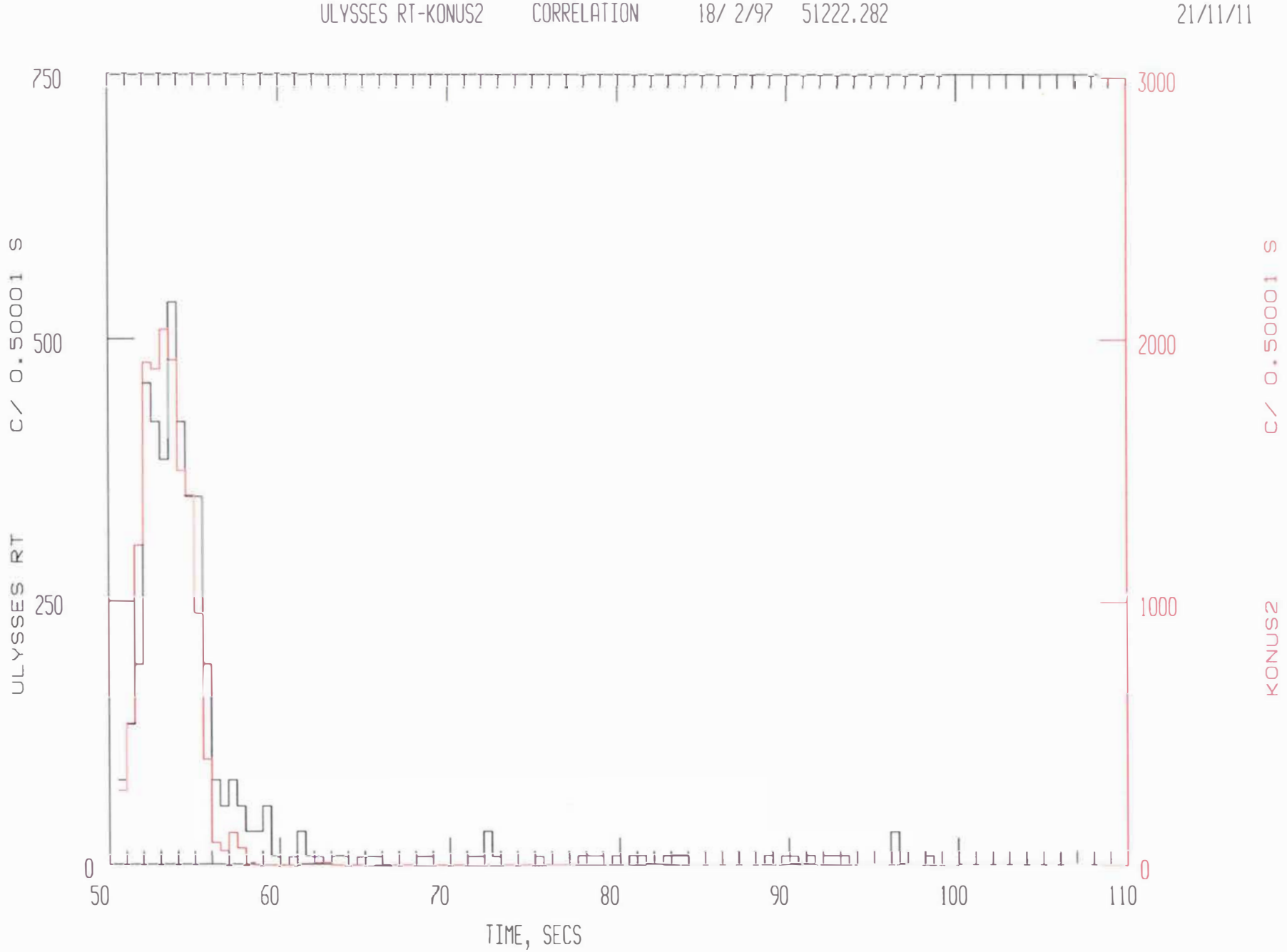
18/02/97 51156.273 s

0- 0 keV



ULYSSES RT-KONUS2 CORRELATION 18/ 2/97 51222.282




ULYSSES RT-KONUS2 CORRELATION 18/ 2/97 51222.282
21/11/11
750
500
250
0
3000
2000
1000
0
C/ 0.50001 S
ULYSSES RT
KONUS2
50
60
70
80
90
100
110
TIME, SECS

From DEAL@fender.msfc.nasa.gov Thu Mar 6 06:09 PST 1997
From: DEAL@fender.msfc.nasa.gov
Date: Thu, 6 Mar 1997 8:08:42 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER Feb 18

NO.: 6095

TIME: TJD=0497 SECONDS=72104

TYPE: BURSTIN SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
BURSTING PULSAR

BATSE# 6095

ULYSSES RT 8/ 3/97

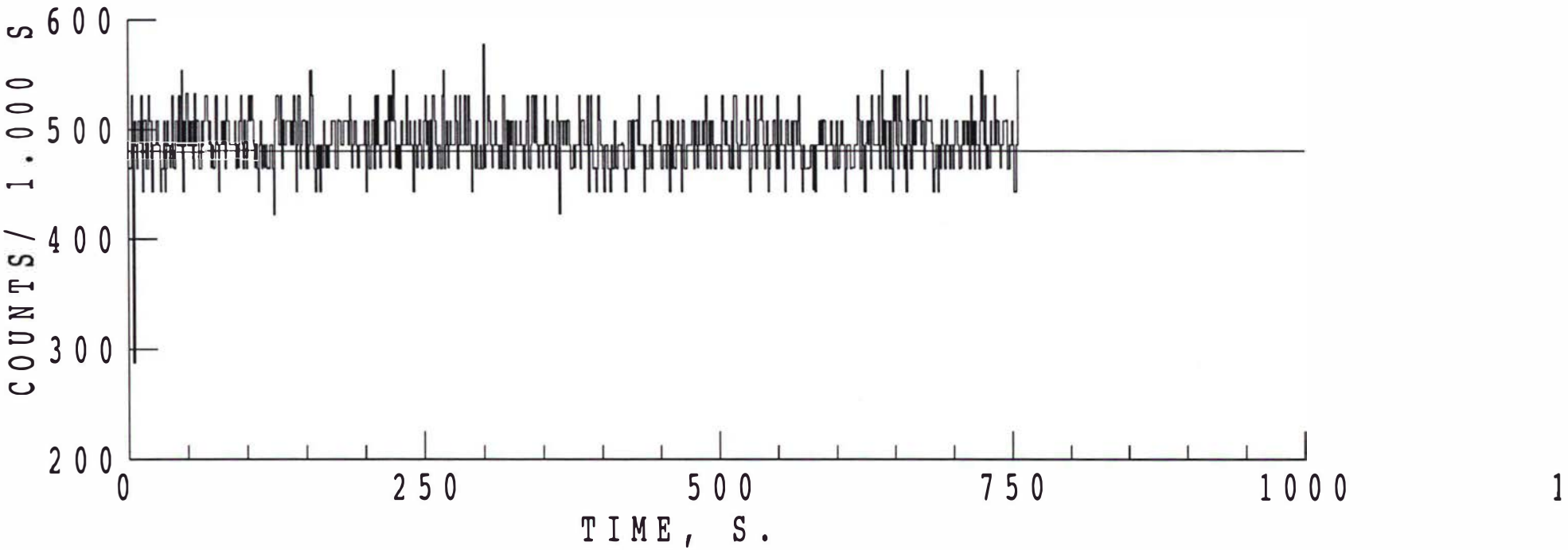
18/ 2/97 72504.031 s

0.500 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

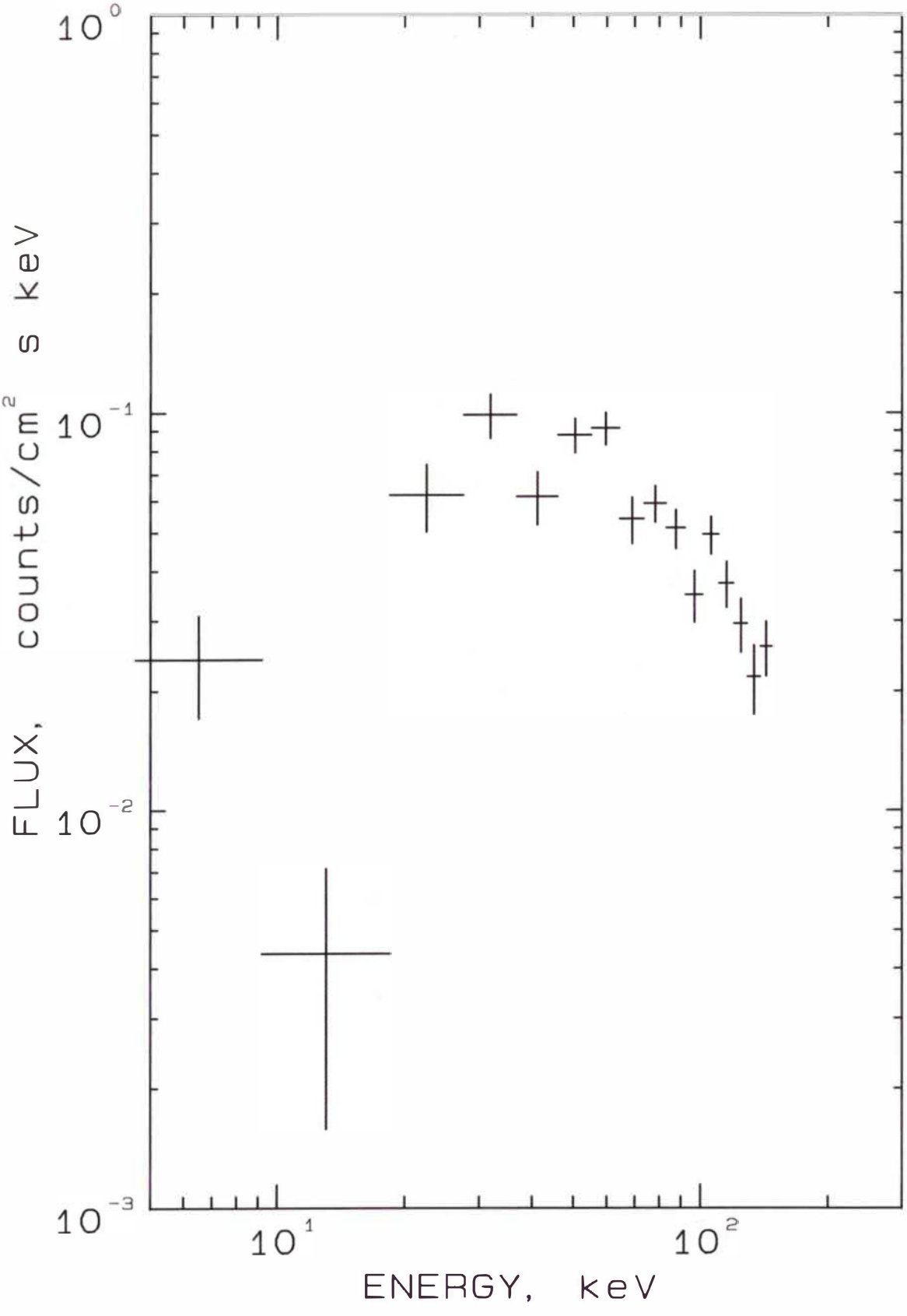
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

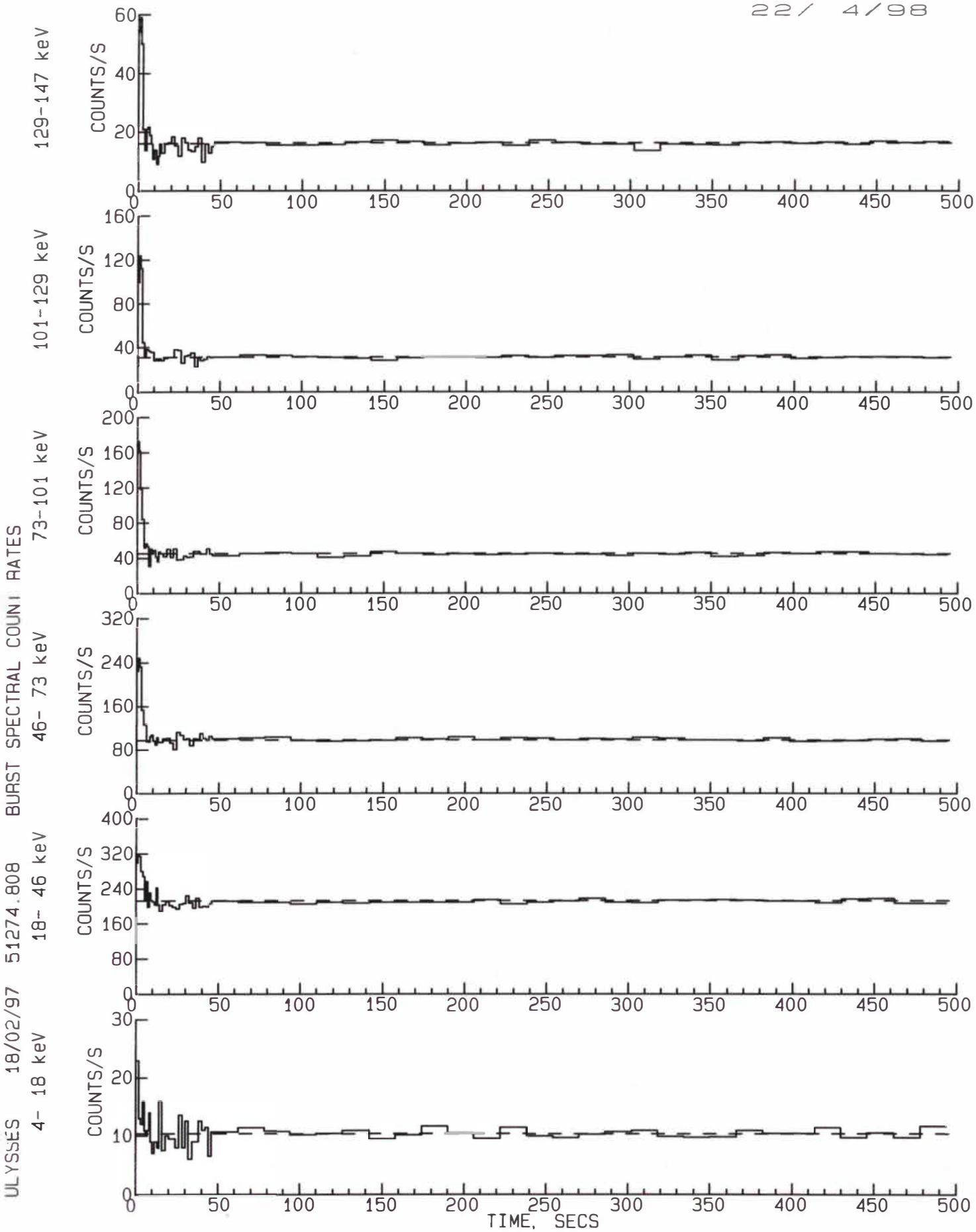


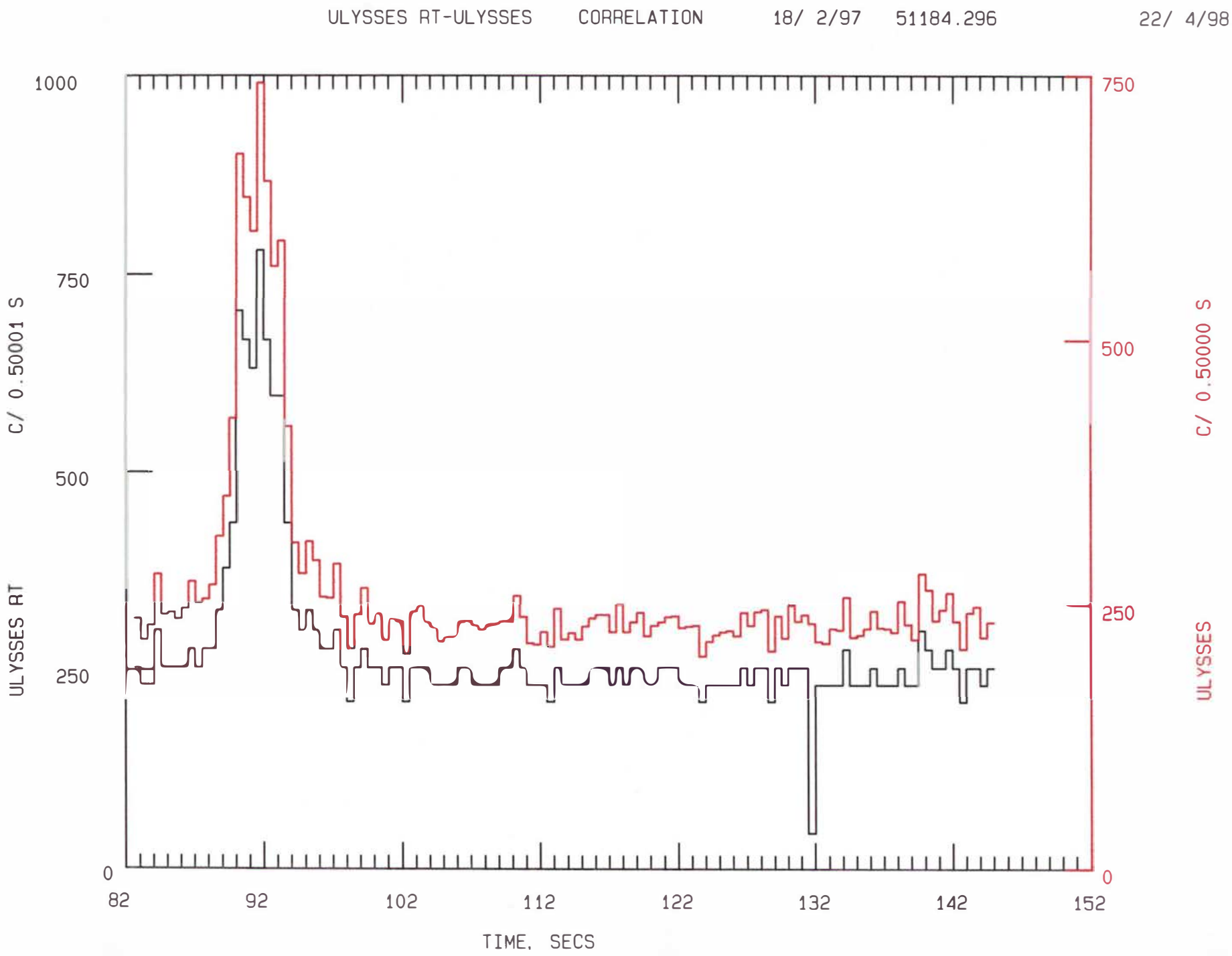
ULYSSES 18/02/97 51274.808

22/ 4/98

SPECTRUM INTEGRATED OVER 30.0 SECONDS, INTERVALS 2 TO 24

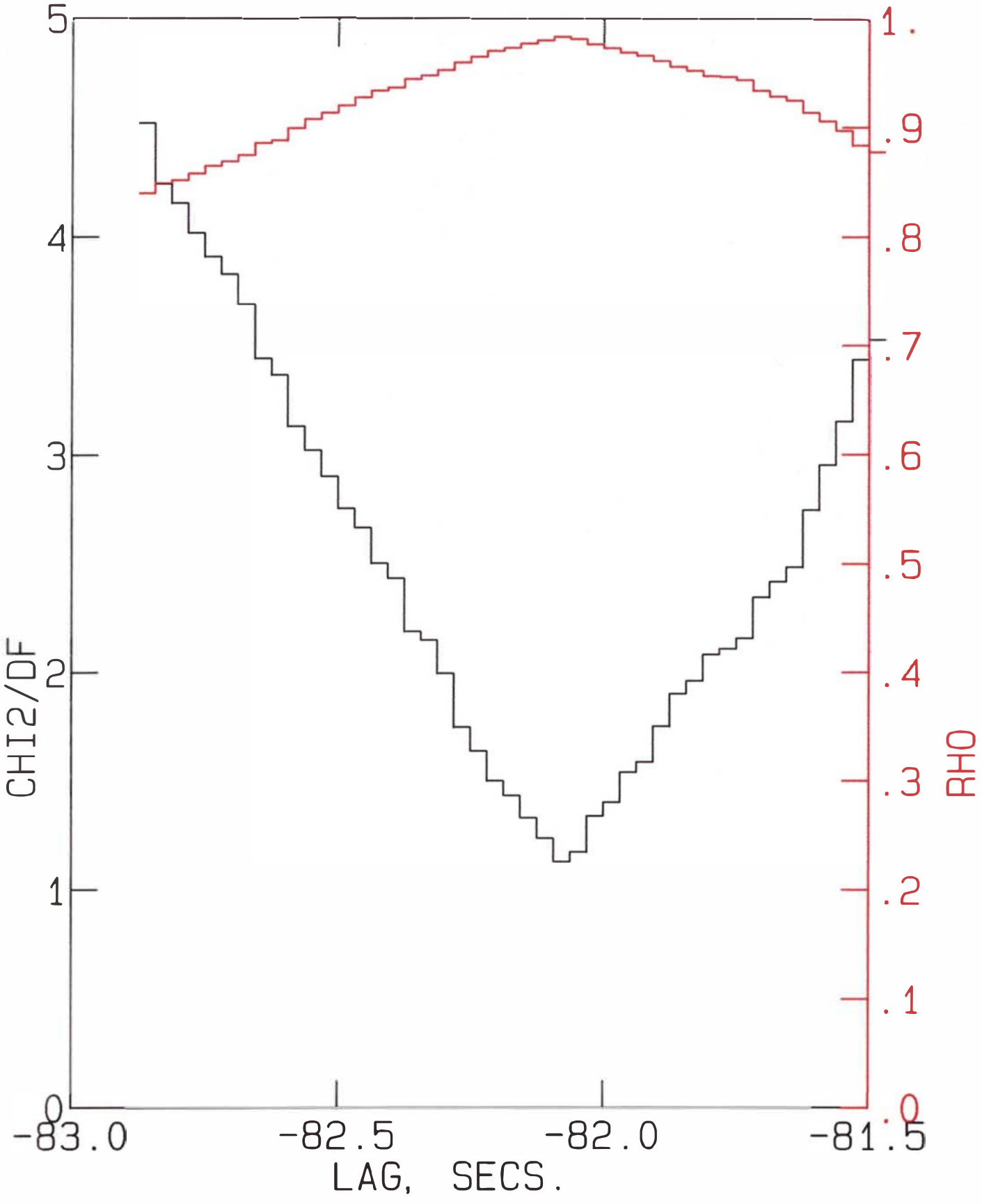



22/ 4/98
ULYSSES 18/02/97 51274.808 BURST SPECTRAL COUNT RATES
129-147 keV
101-129 keV
73-101 keV
46- 73 keV
18- 46 keV
4- 18 keV
COUNTS/S
TIME, SECS


ULYSSES RT-ULYSSES CORRELATION 18/ 2/97 51184.296 22/ 4/98
1000
750
500
250
0
C/ 0.50001 S
ULYSSES RT
750
500
250
0
C/ 0.50000 S
ULYSSES
82
92
102
112
122
132
142
152
TIME, SECS

22/ 4/98

ULYSSES RT-ULYSSES CORRELATION 18/ 2/97 51184.296



ULYSSES 18/02/97 Ttrig=51273.788

22- 148 keV

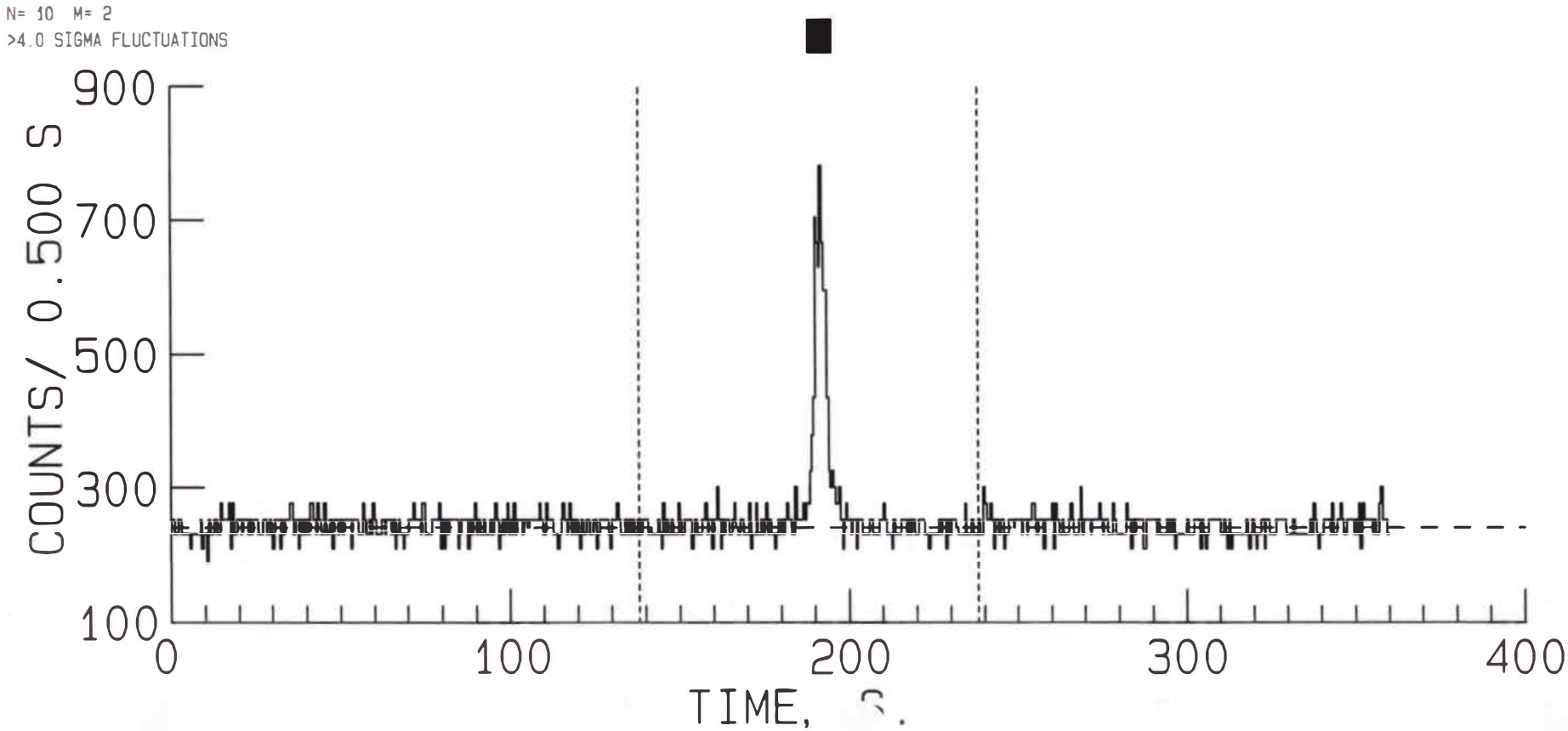
22/ 4/98

ULYSSES RT

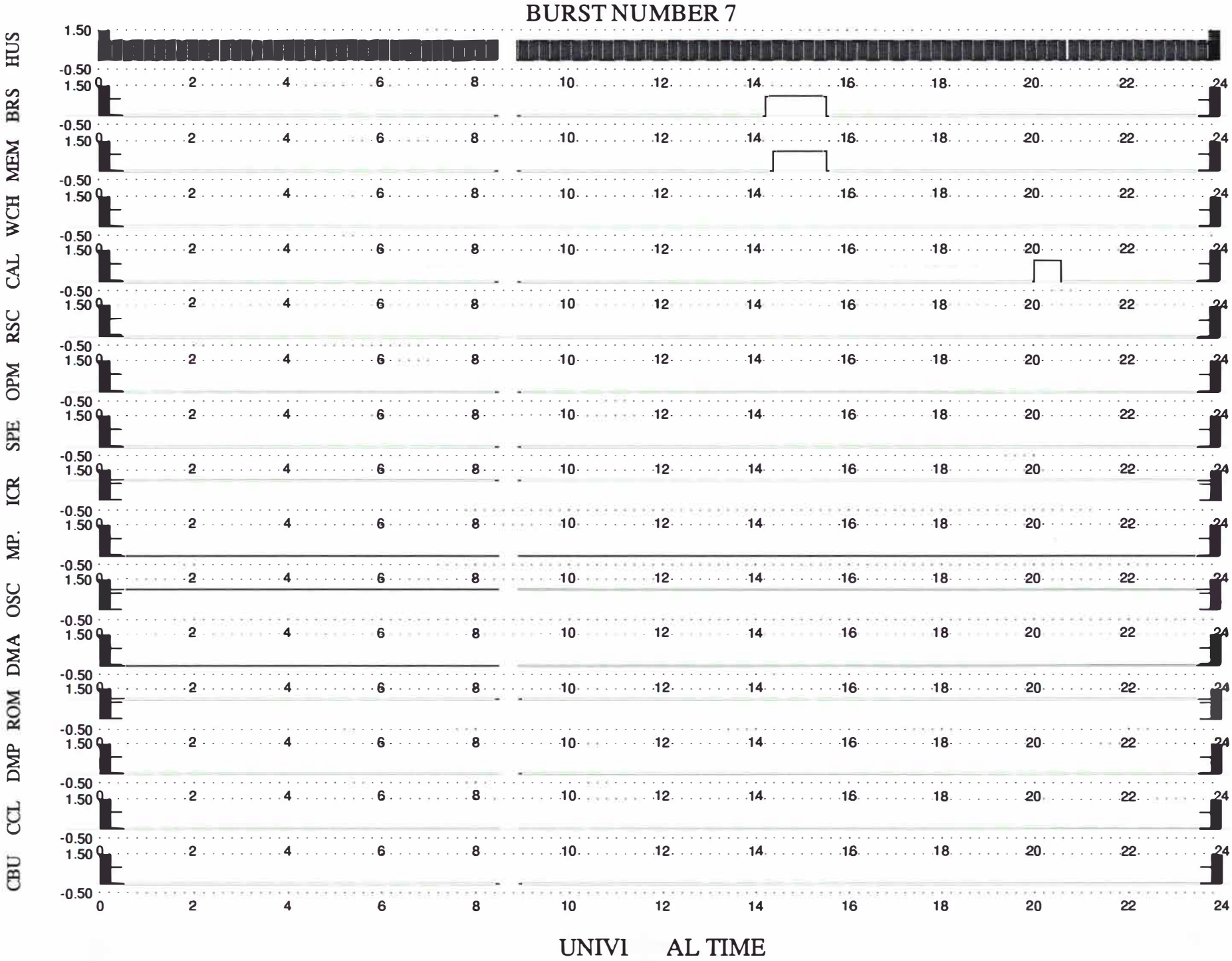
22/ 4/98

18/ 2/97 51084.271 s

22- 148 keV

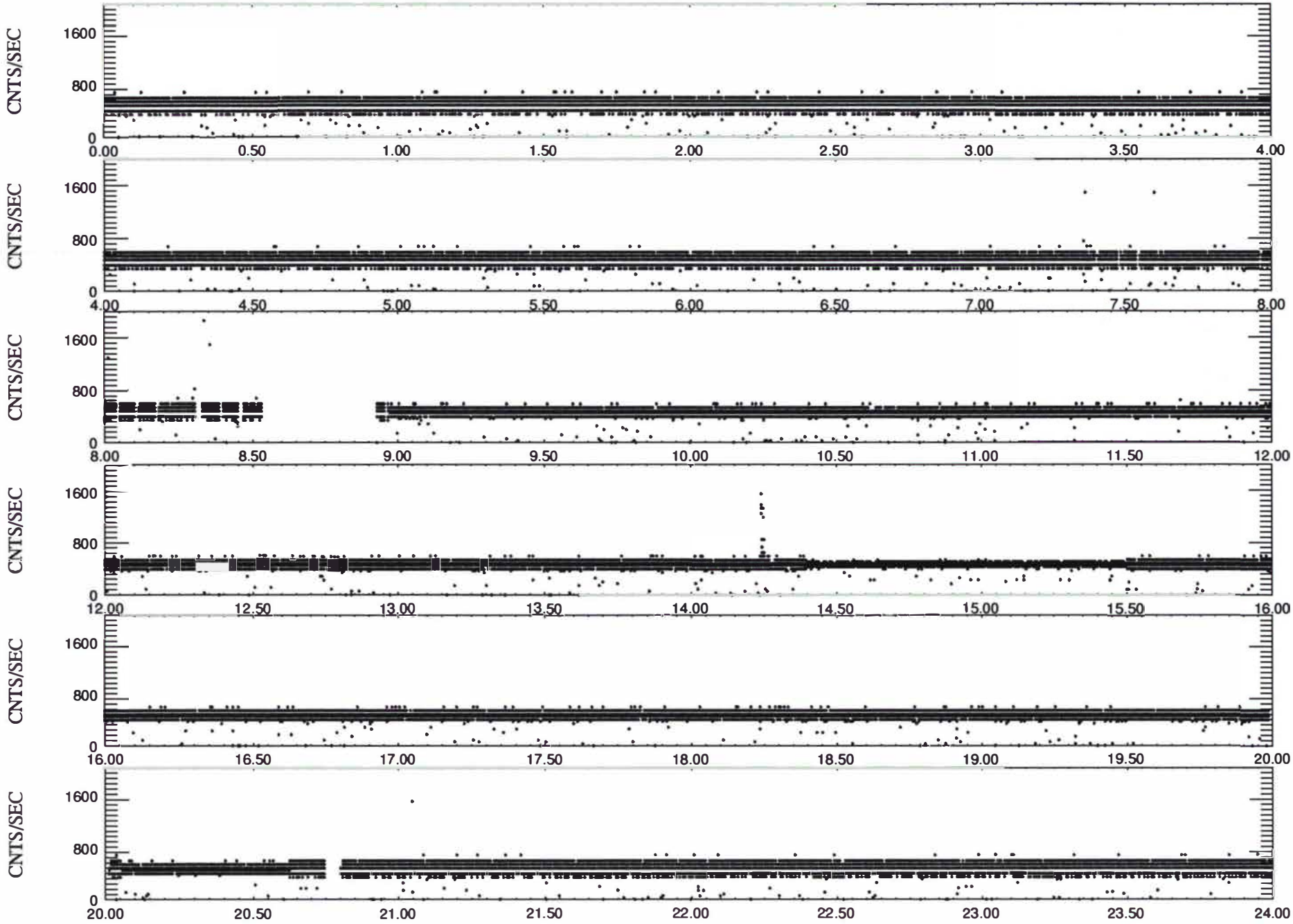


HUS MODES EDR day 49, year 1997 to day 49, year 1997 5/16/97



HUS 2A, MODE 1, NOT AVERAGED EDR day 49, year 1997 to day 49, year 1997 5/16/97

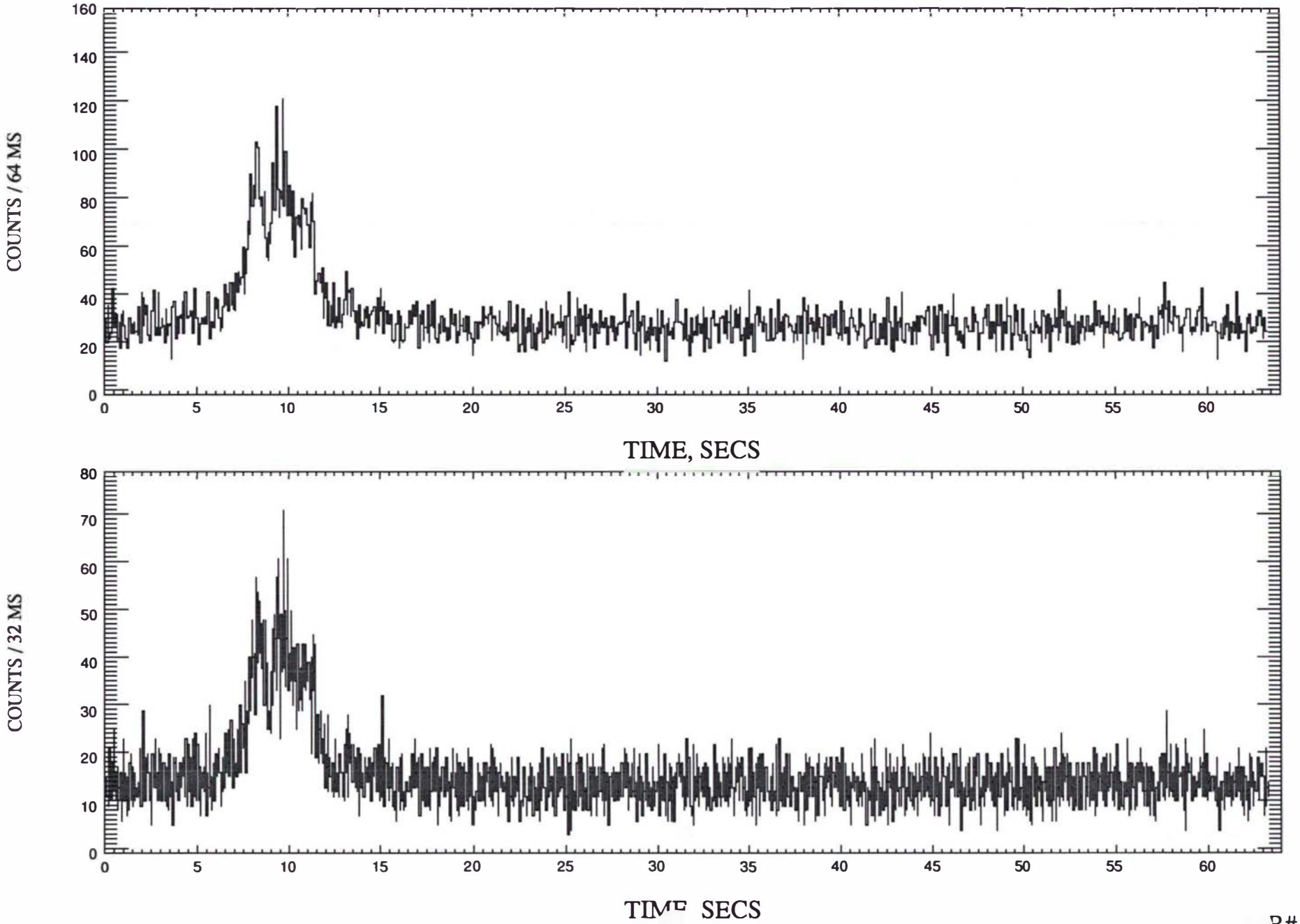
CALIBRATION DATA INCLUDED



UNIVI AL TIME

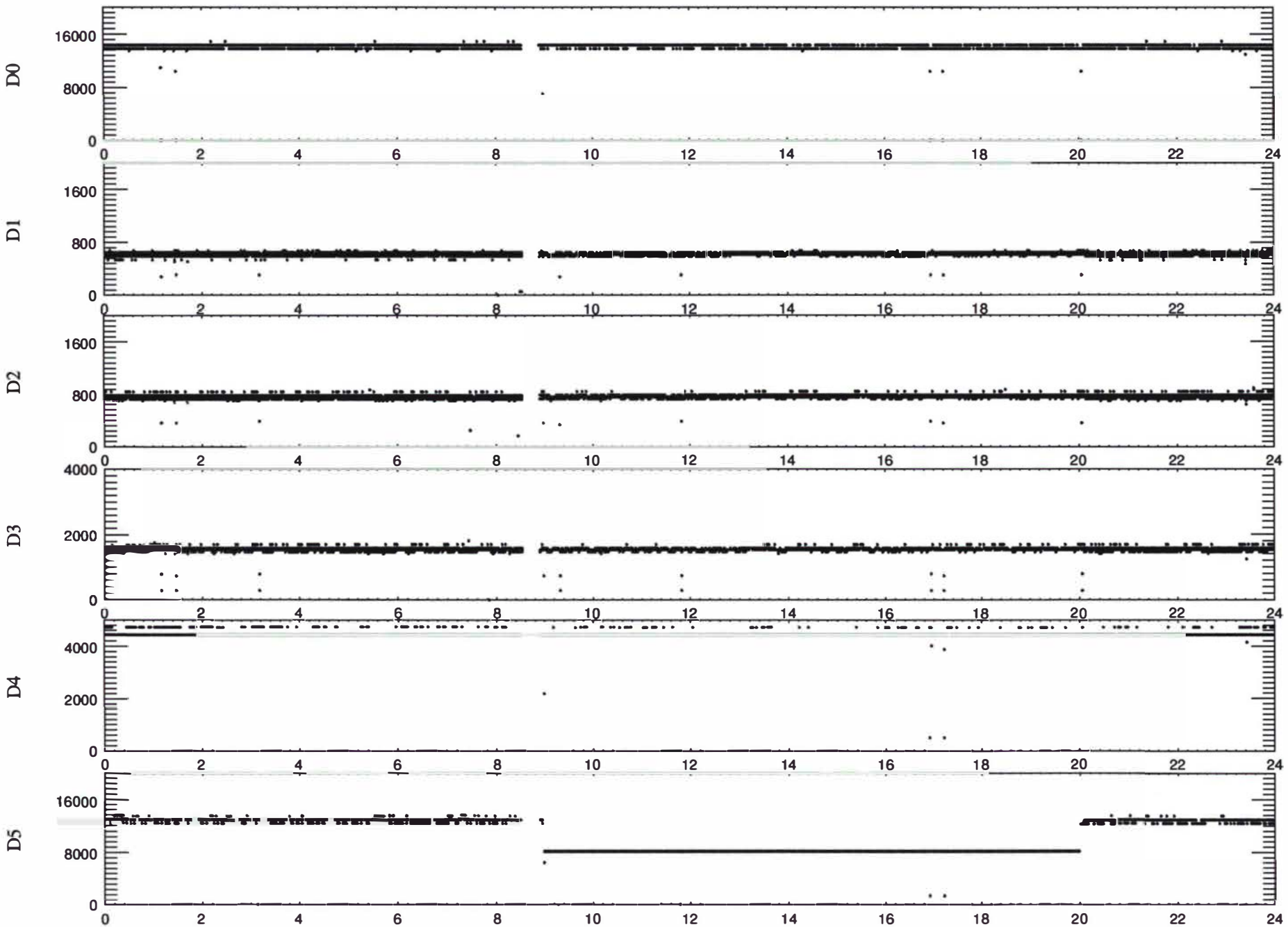
HUS 2A TRIGGERED DATA EDR day 49, year 1997 6/19/97

Burst Counter 7 at UT=14.242710020277 h=51273.756 s 14:14:33.756



B# 1

HUS 2B COUNTS / SEC EDR day 49, year 1997 to day 49, year 1997 5/16/97



From RICHARDSON@ssl.msfc.nasa.gov Thu Feb 20 10:35 PST 1997
Return-Path: <RICHARDSON@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id KAA16019; Thu, 20 Feb 1997 10:35:45 -0800
Date: Thu, 20 Feb 1997 12:35:23 -0600 (CST)
From: RICHARDSON@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970220123523.2e4042d5@SSLLES.MSFC.NASA.GOV>
Subject: Crossing Windows for BATSE Burst 6096
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6096
EVENT OF 1997 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 23881. S. OR 06:38:01.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 328.000 70.000
BATSE PEAK COUNTING RATE: 11000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 19/ 2/ 97 IS:
RA= 167.657 DEC= 36.554 DIST= 3.964 AU
BATSE-ULYSSES DISTANCE = 592984402. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=107.51 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -595.24 SECS.
CROSSING TIME AT ULYSSES IS 23286. S. OR 06:28:05 +/- 368.45 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 19/ 2/ 97 IS:
RA= 185.908 DEC= 1.461 DIST= 0.753 AU
MARS-BATSE DISTANCE = 112601544. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 75.77 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 92.32 SECS.
CROSSING TIME AT MARS IS 23973. S. OR 06:39:33 +/- 64.61 SECONDS

BATSE BURST TRIGGER

NO.: 6096

TIME: TJD=0498 SECONDS=23881

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=85.4 AZIMUTH=264.9 ERROR=3.4 DEGREES

COMMENTS:
GRB. DOUBLE SPIKE WITH STRUCTURE. DUR.~2 SEC. SLIGHTLY VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6096	970219	10498	23881	11000	328	+70	2

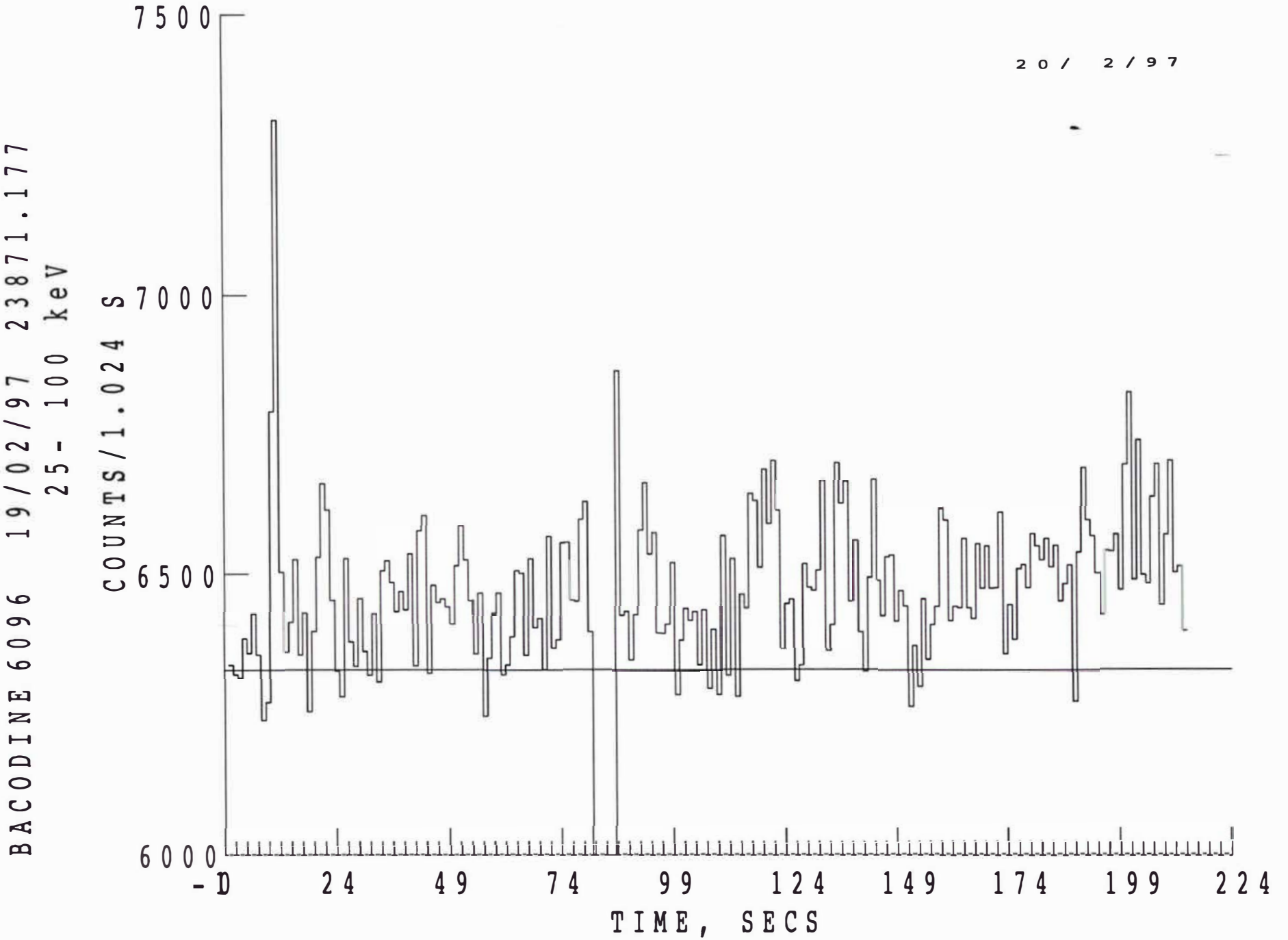
From park@kabul.llnl.gov Wed Feb 19 11:34 PST 1997
Date: Wed, 19 Feb 97 11:31:44 PST
From: park@kabul.llnl.gov (Hyesook Park)
To: Elden.Ables@quickmail.llnl.gov, CLINE@tgrs.gsfc.nasa.gov,
FISHMAN@SSLMOR.msfc.nasa.gov, gehrels@lheavx.gsfc.nasa.gov,
KOUVELIOTOU@batse.msfc.nasa.gov, llo@kabul.llnl.gov,
park@kabul.llnl.gov, elp@kabul.llnl.gov, MEEGAN@SSLMOR.msfc.nasa.gov,
bionta@kabul.llnl.gov, scott@rosserv.gsfc.nasa.gov,
73251.3043@compuserve.com, butterworth@lheavx.gsfc.nasa.gov,
DEAL@gibson.msfc.nasa.gov, DLBBAT@cass09.ucsd.edu, wurtz1@llnl.gov,
Mark.McKernan@quickmail.llnl.gov, hartmann@grb.phys.clemson.edu,
ggwilli@cosmo.phys.clemson.edu, Mark.Eckart@quickmail.llnl.gov,
Andy.Hazi@quickmail.llnl.gov, William.Goldstein@quickmail.llnl.gov,
nakae1@llnl.gov, khurley@sunspot.ssl.berkeley.edu
Subject: BATSE Trig 6096

Dear colleagues,

LOTIS recorded BATSE trigger 6096 last night.
Scott and Paul, Is this a real GRB? It was a clear night. Other than
Camera 3 images were slightly out of focus, all cameras worked fine.
If it is a real burst, Kim, could you send me the light curve and
the final Huntsville coordinate?

It seems that the long rainy season is over. We've been running
every night. Please hope for the good events.

Hye-Sook


BACODINE 6096 19/02/97 23871.177
25- 100 keV
COUNTS/1.024 S
7500
7000
6500
6000
20/ 2/97
-D
24
49
74
99
124
149
174
199
224
TIME, SECS

BATSE# 6096

ULYSSES RT 27/ 2/97

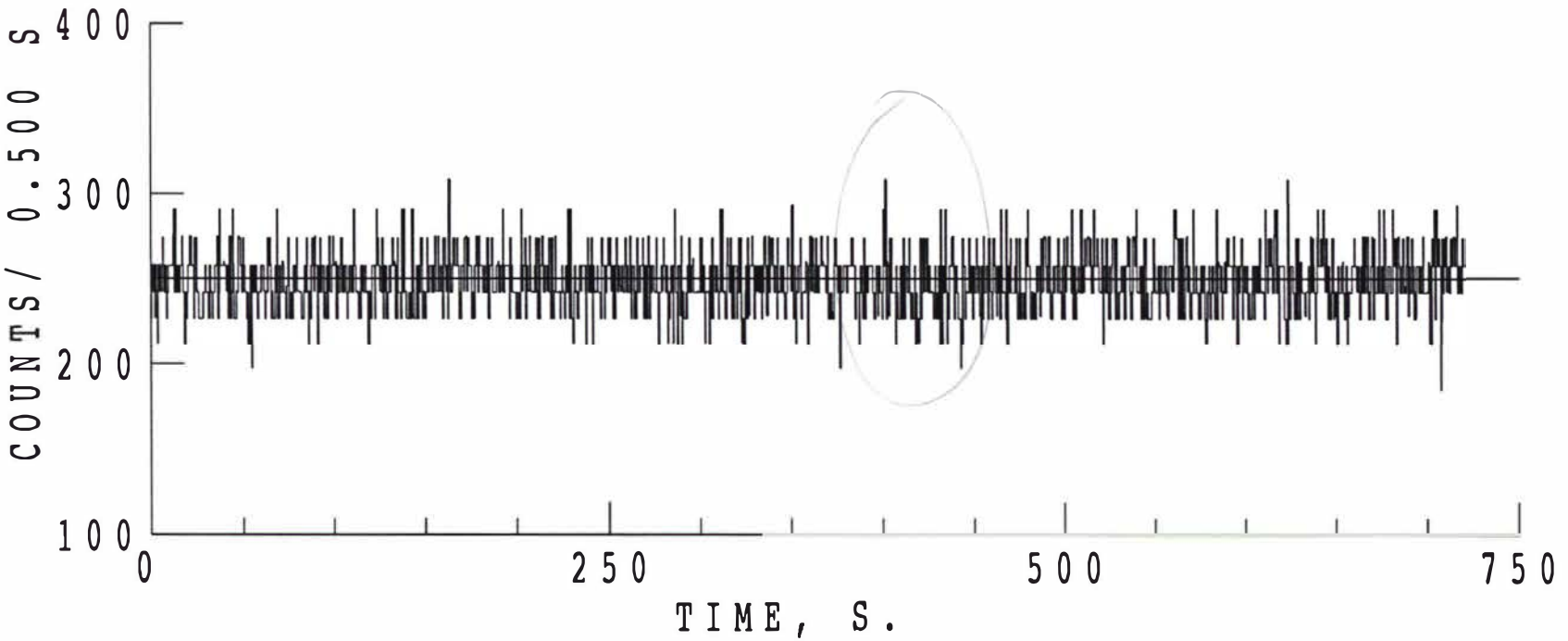
19/ 2/97 22932.217 s

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



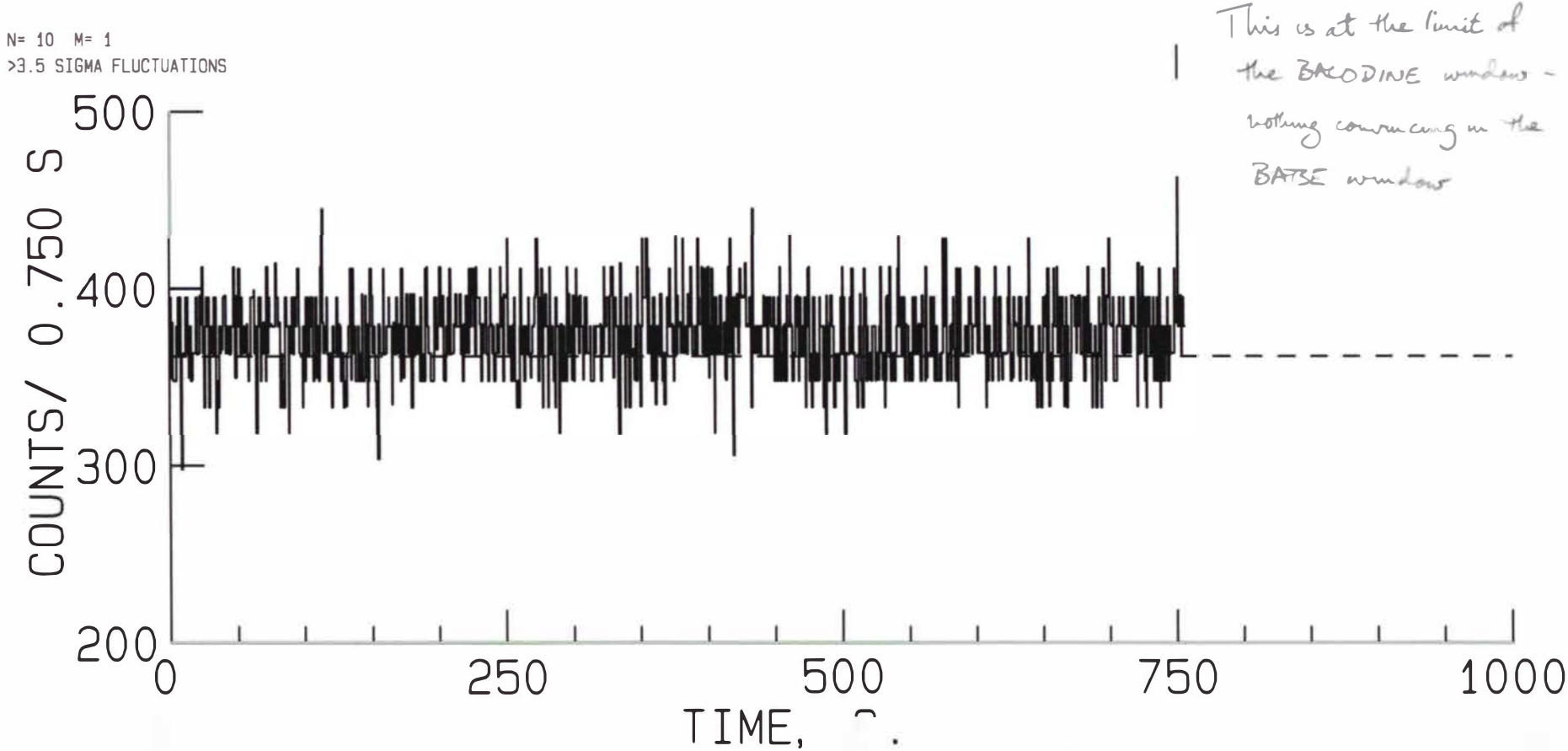
ULYSSES RT

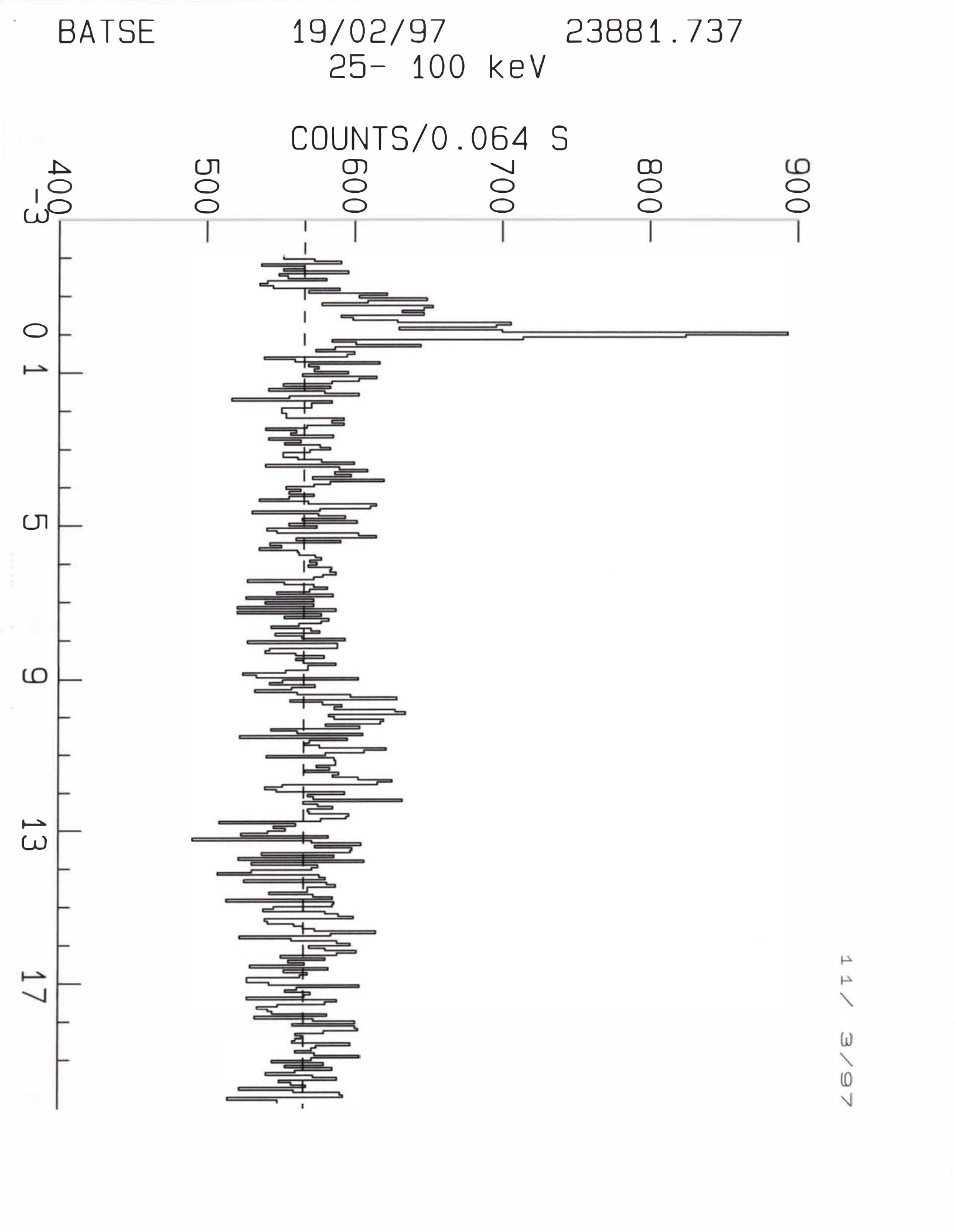
11/ 3/97

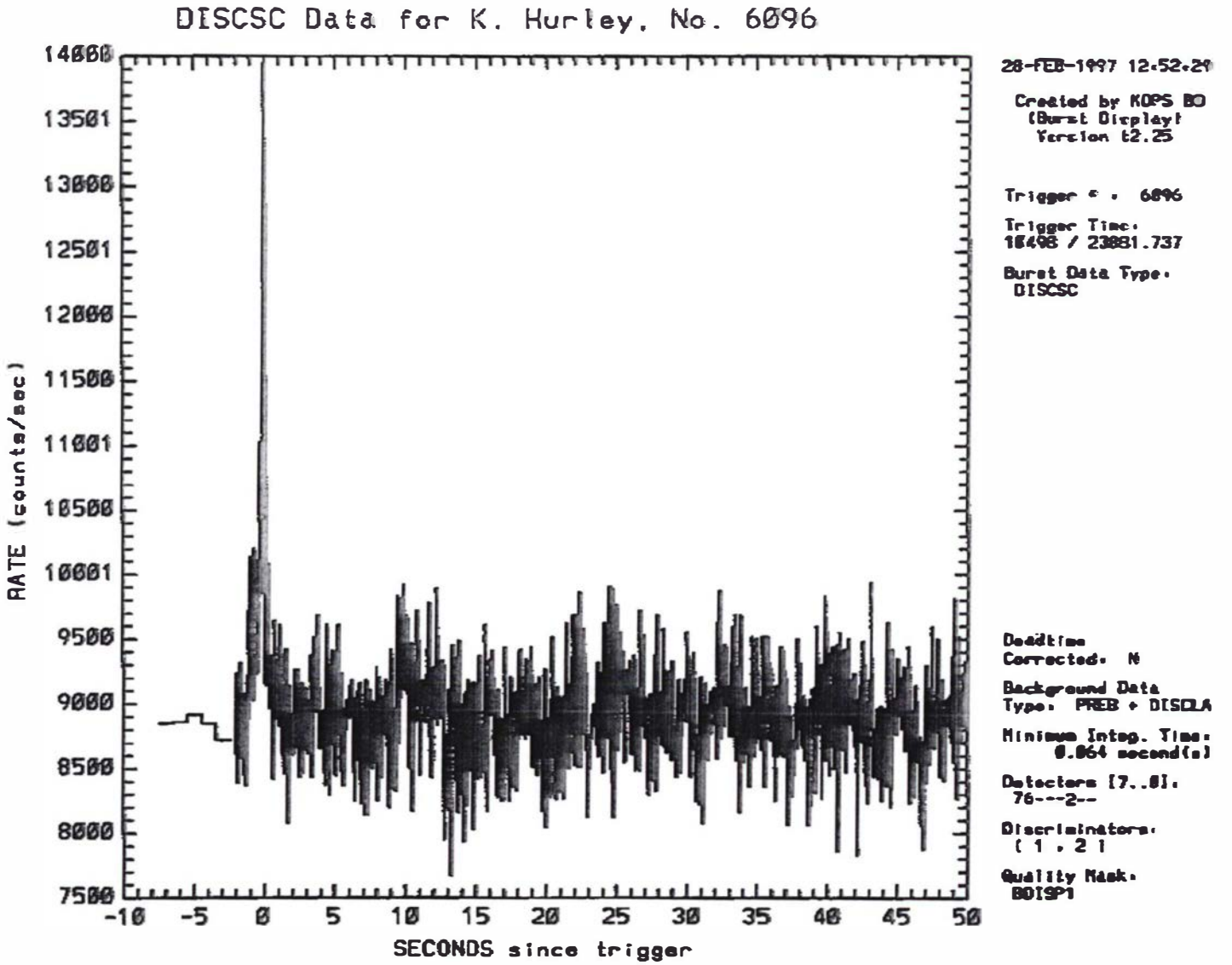
19/ 2/97 23220.220 s

0.250 S INTERVALS REGROUPED BY 3

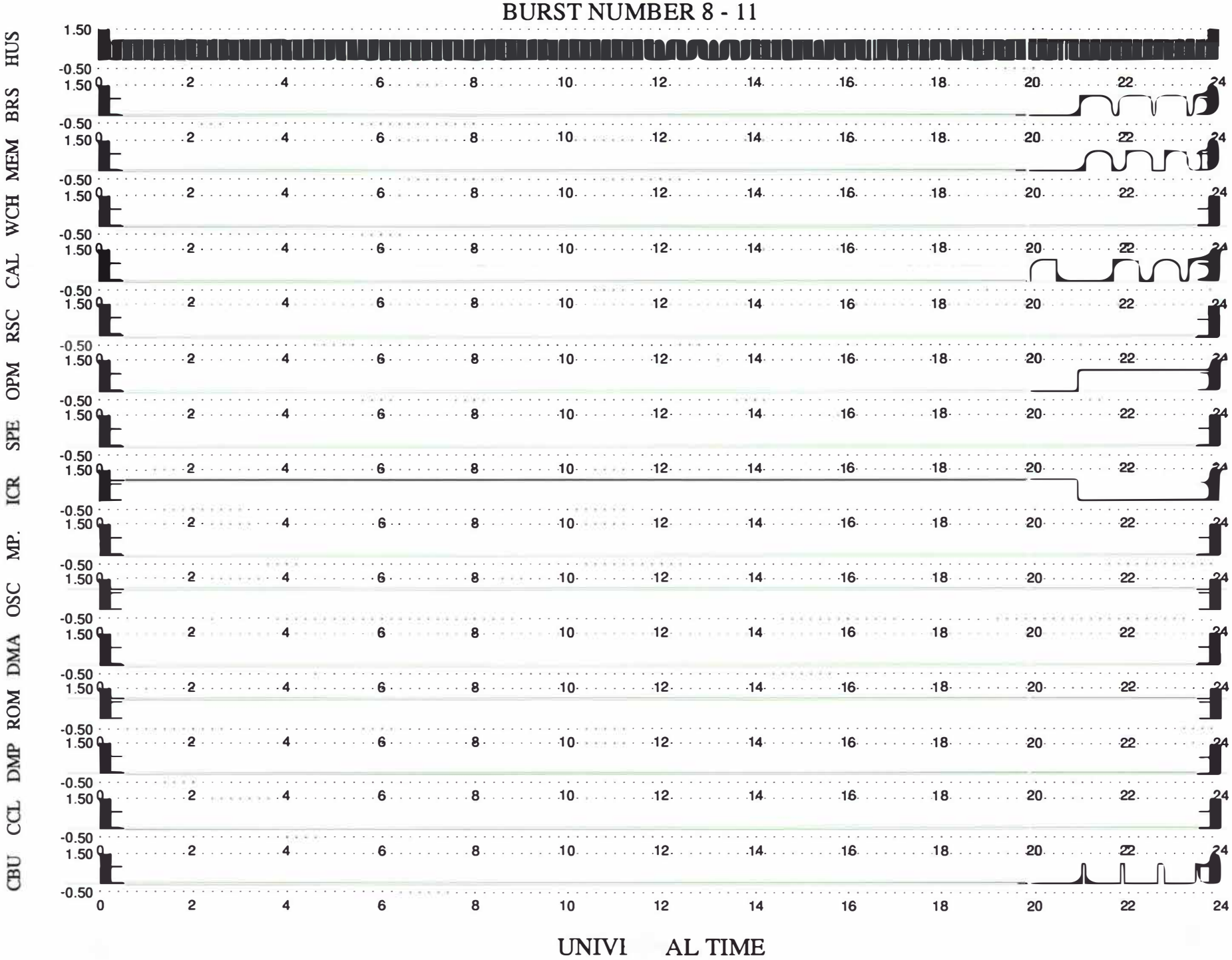
21- 145 keV




BATSE 19/02/97 23881.737
25- 100 keV
COUNTS/0.064 S
400
500
600
700
800
900
-3
0
1
5
9
13
17
11/ 3/97

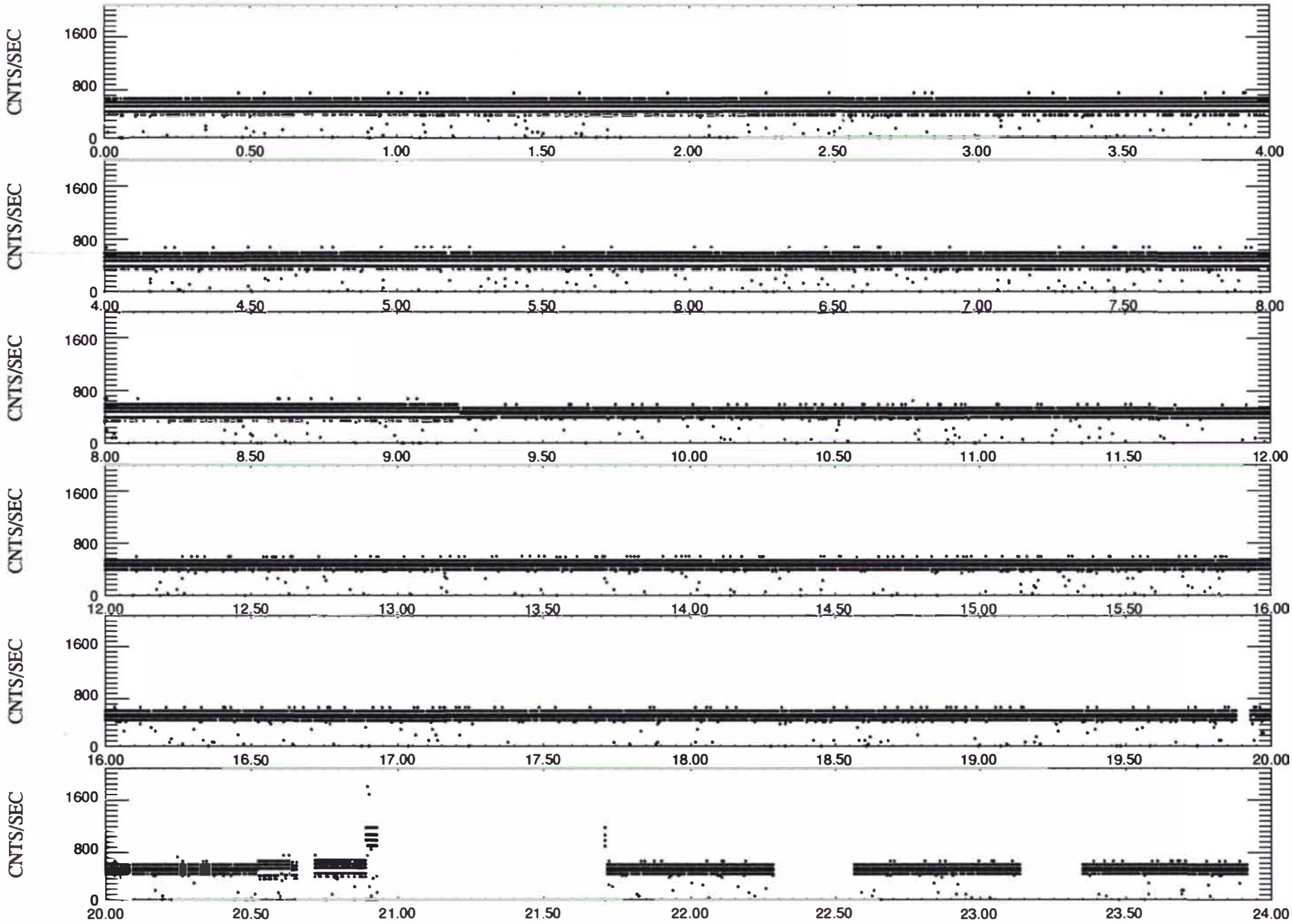

DISCSC Data for K. Hurley, No. 6096
RATE (counts/sec)
14000
13501
13000
12501
12000
11500
11001
10500
10001
9500
9000
8500
8000
7500
-10
-5
0
5
10
15
20
25
30
35
40
45
50
SECONDS since trigger
28-FEB-1997 12:52:29
Created by KOPS BO
(Burst Display)
Version t2.25
Trigger # . 6096
Trigger Time:
18498 / 23881.737
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)
Detectors [7..0]:
76---2--
Discriminators:
(1 , 2)
Quality Mask:
BDISP1

HUS MODES EDR day 50, year 1997 to day 50, year 1997 5/16/97



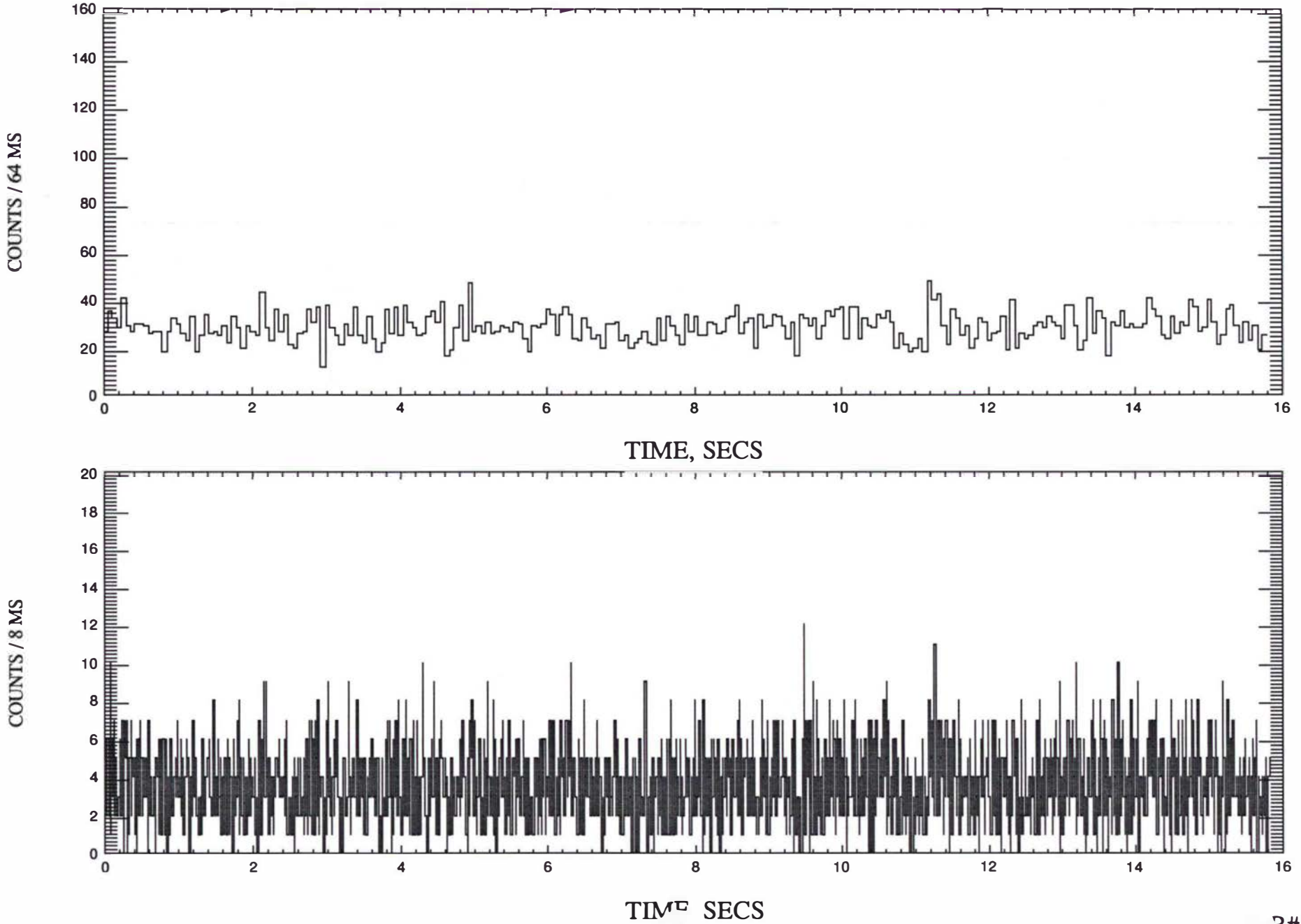
HUS 2A, MODE 1, NOT AVERAGED EDR day 50, year 1997 to day 50, year 1997 5/16/97

CALIBRATION DATA INCLUDED

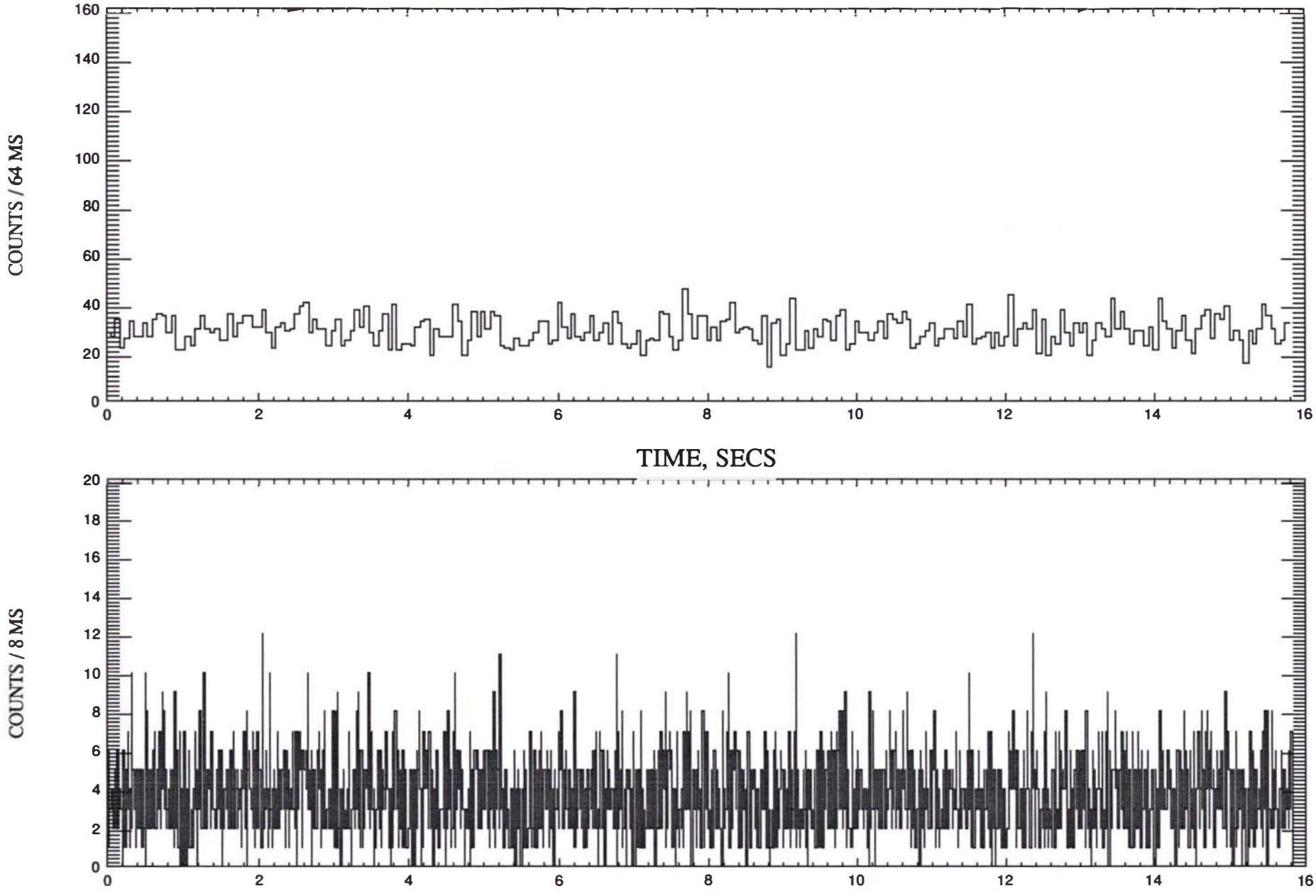


UNIVI AL TIME

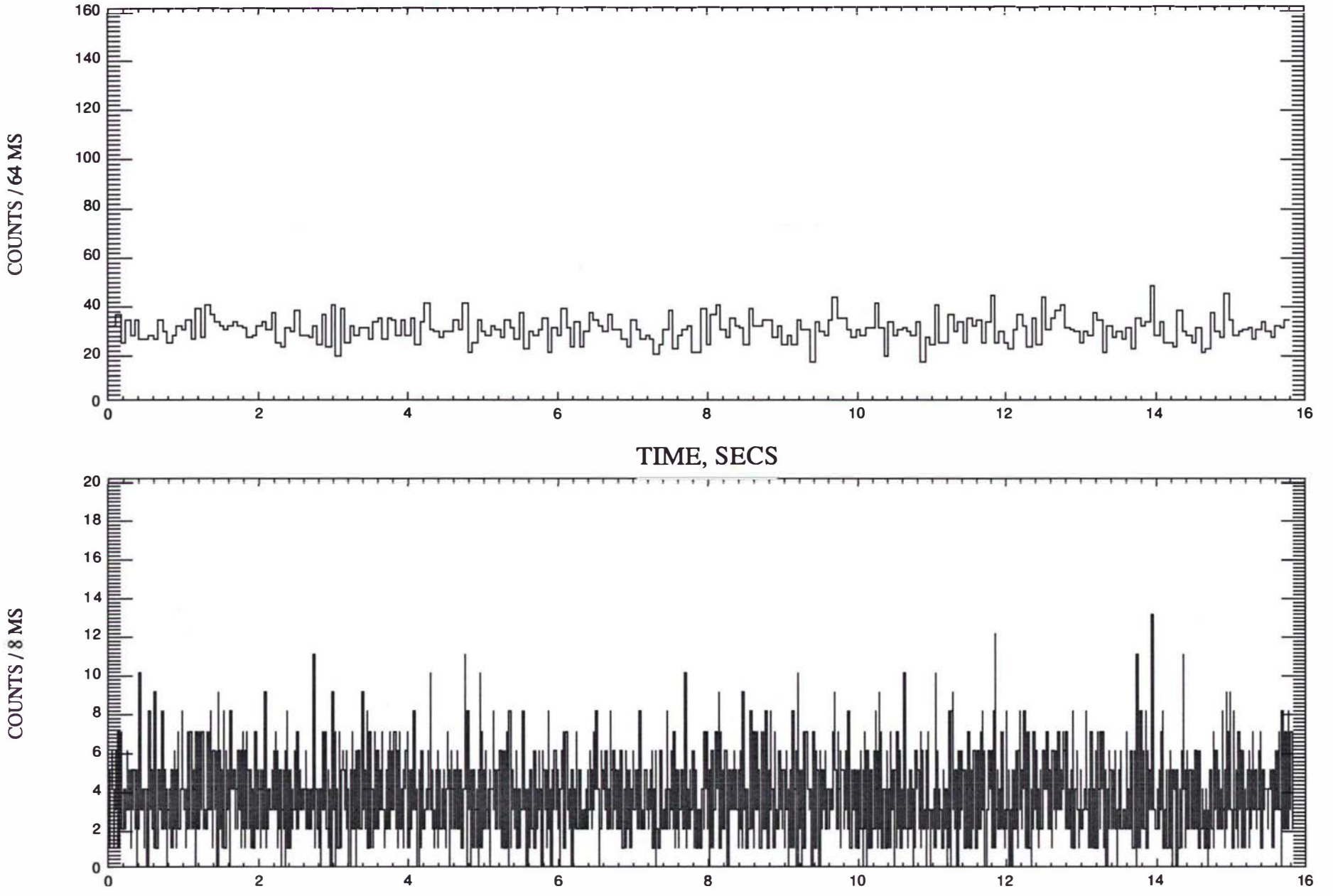
Burst Counter 8 at UT=20.970312313504 h=75493.124 s 20:58:13.124



Burst Counter 9 at UT=21.803655802409 h=78493.161 s 21:48:13.161

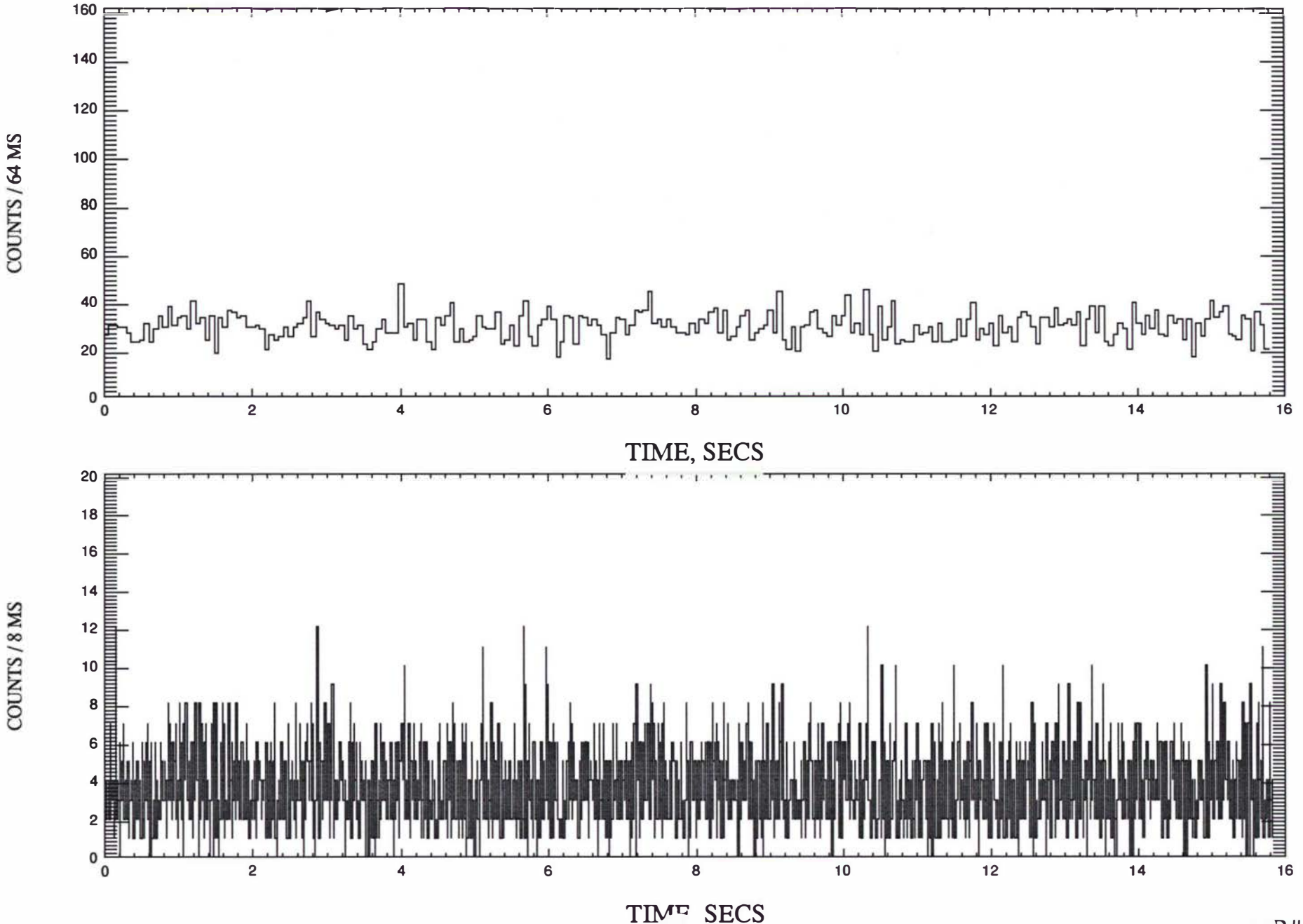


Burst Counter 10 at UT=22.636998443604 h=81493.194 s 22:38:13.194



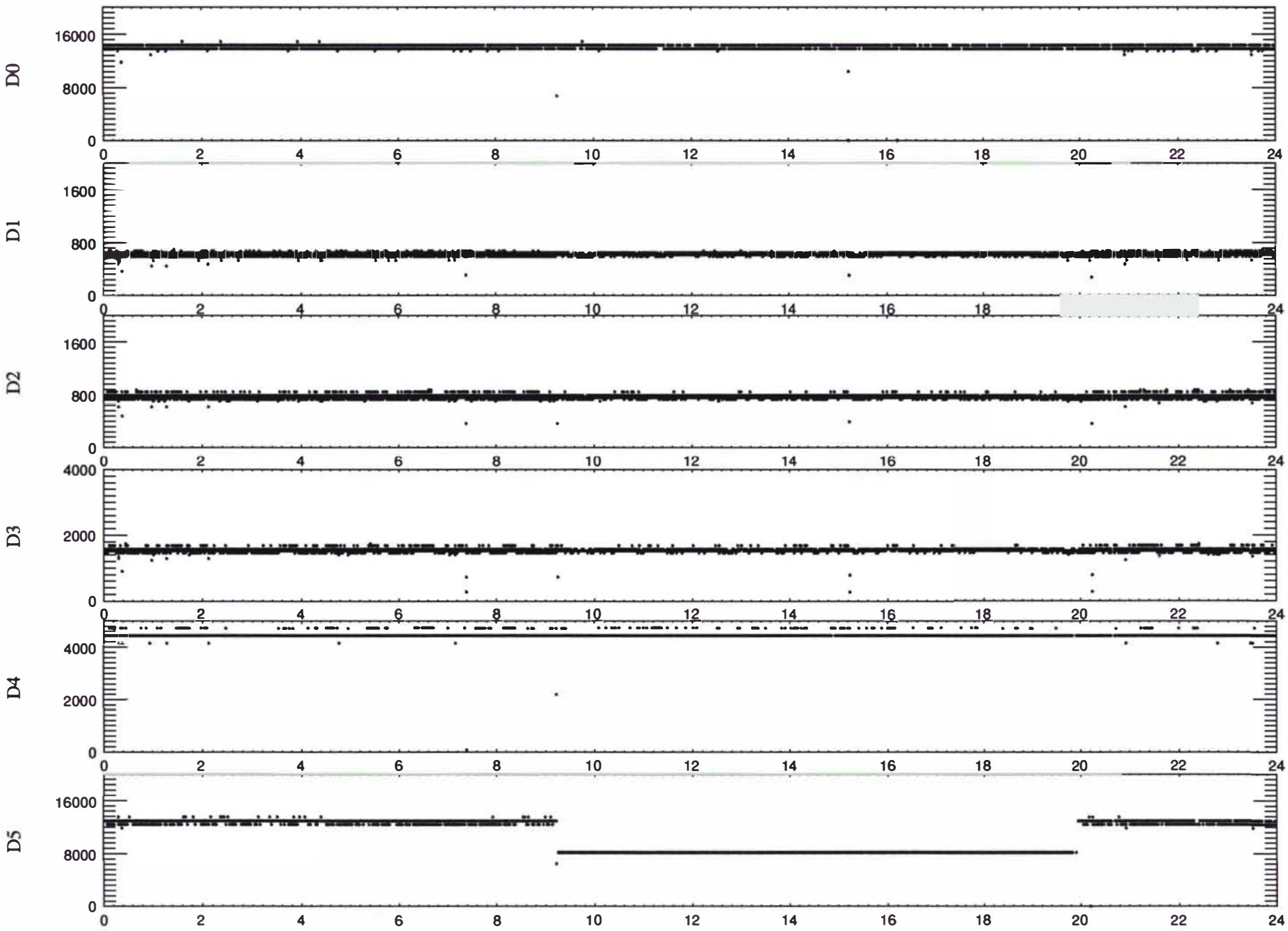
HUS 2A TRIGGERED DATA EDR day 50, year 1997 6/19/97

Burst Counter 11 at UT=23.470341928270 h=84493.231 s 23:28:13.231



3# 4

HUS 2B COUNTS / SEC EDR day 50, year 1997 to day 50, year 1997 5/16/97



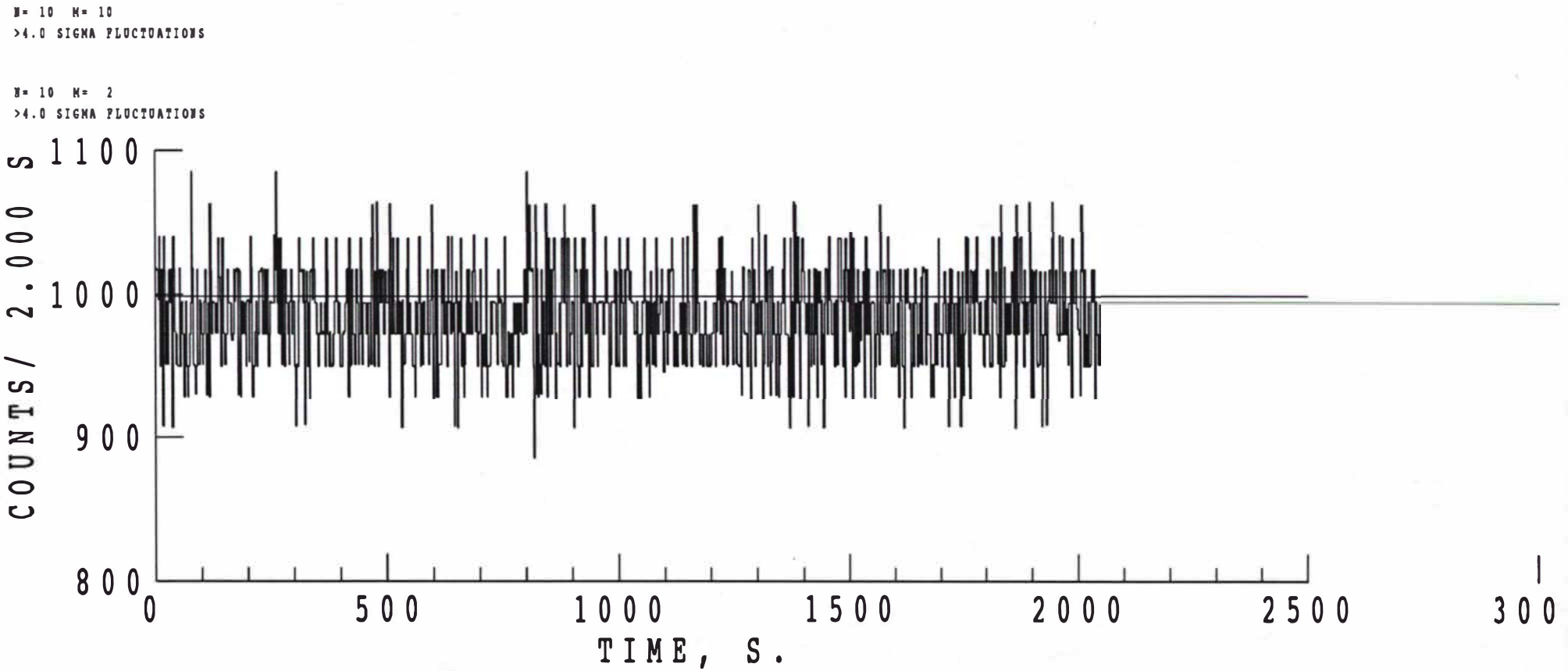
KONUS

ULYSSES RT 02/02/00

20/02/97 6624.303 s

0.500 S INTERVALS REGROUPED BY 4

0- 0 keV



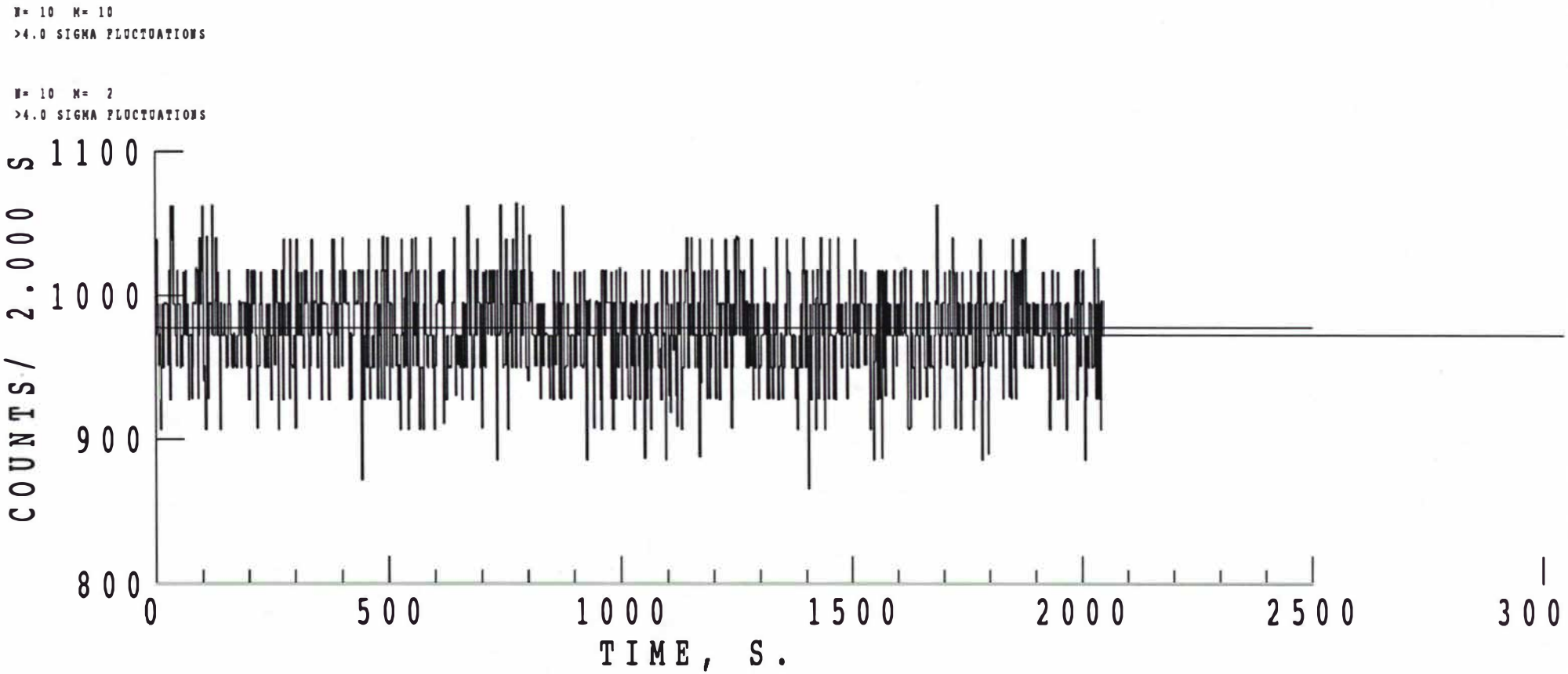
KONUS

ULYSSES RT 02/02/00

20/02/97 27616.553 s

0.500 S INTERVALS REGROUPED BY 4

0- 0 keV



From HENZE@fender.msfc.nasa.gov Fri Feb 21 15:20 PST 1997
Date: Fri, 21 Feb 1997 17:19:32 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@fender.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6097

TIME: TJD=0499 SECONDS=28897

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

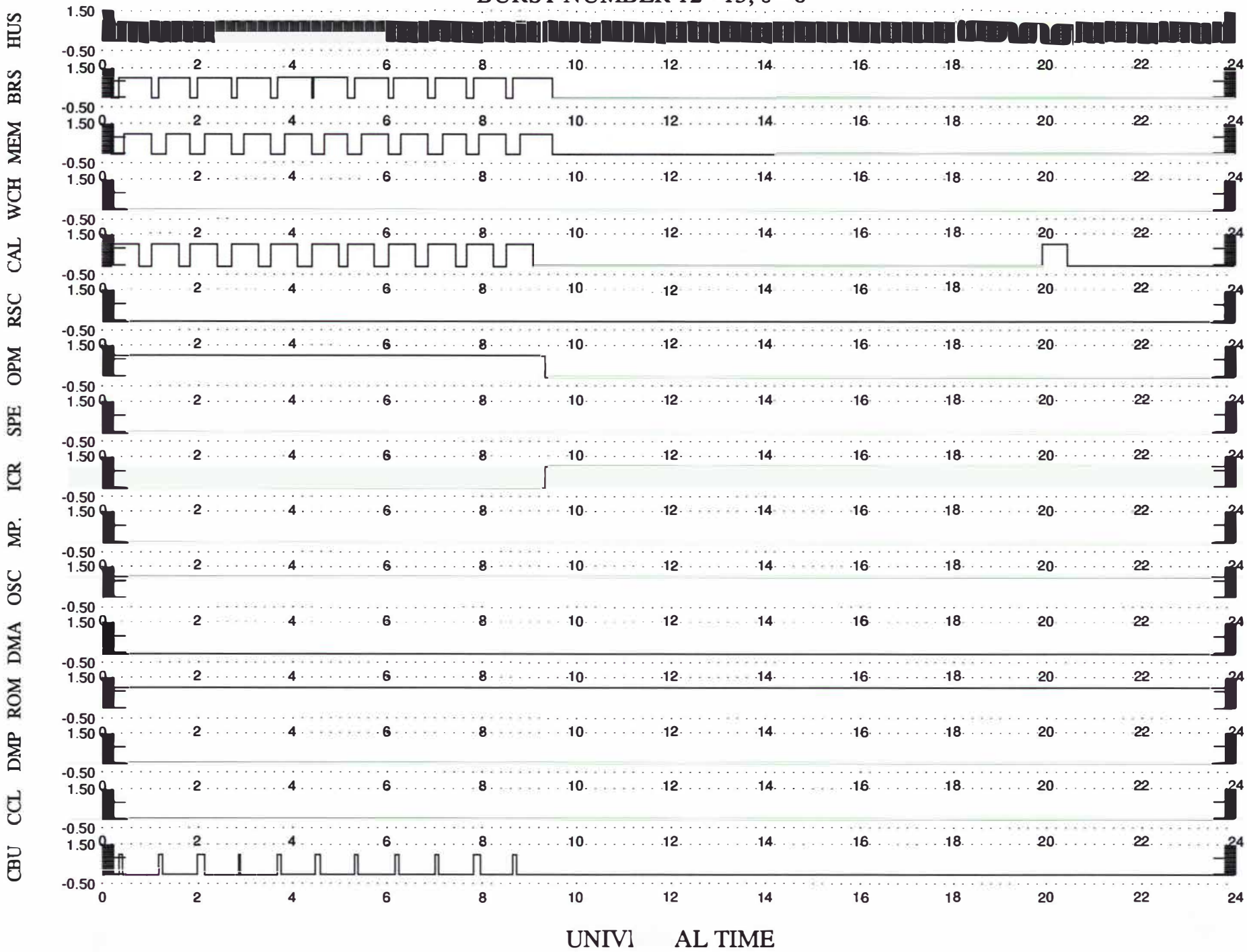
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SOLAR FLARE, GOES C3.4. COMPLEX, DUR. ~100 S, MAX AT ~T+7 S.
NOT VISIBLE ABOVE 300 KEV.

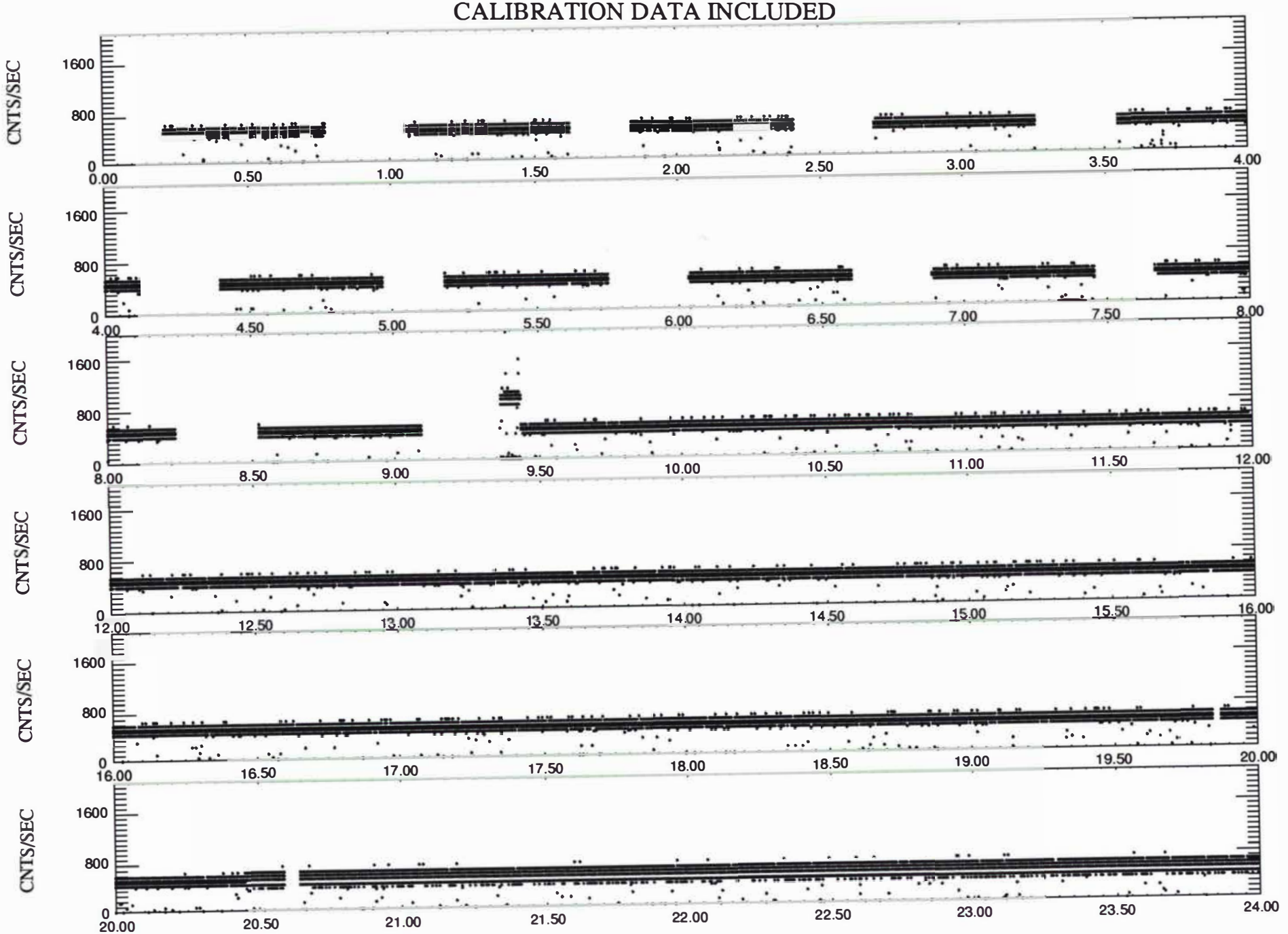
HUS MODES EDR day 51, year 1997 to day 51, year 1997 5/16/97

BURST NUMBER 12 - 15, 0 - 6



HUS 2A, MODE 1, NOT AVERAGED EDR day 51, year 1997 to day 51, year 1997 5/16/97

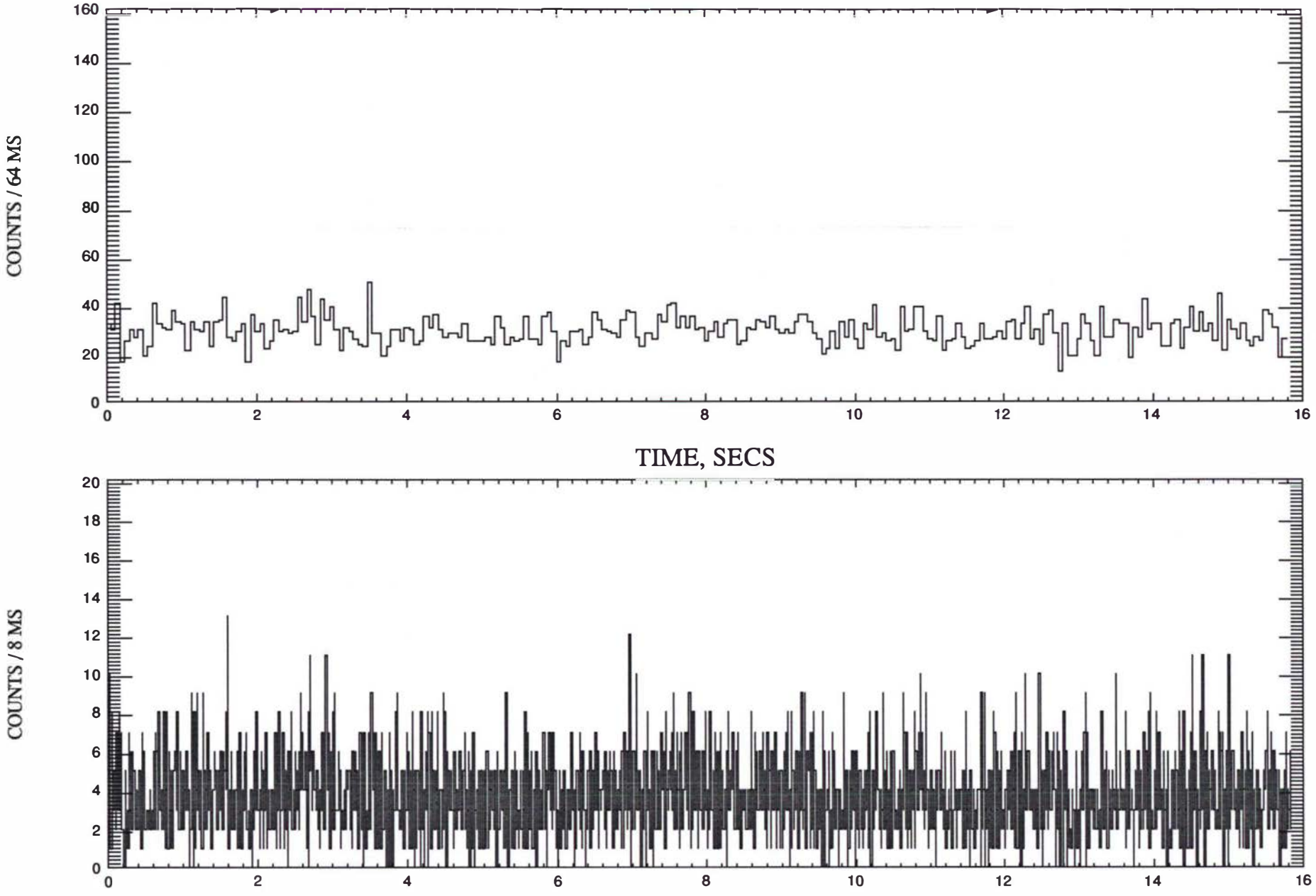
CALIBRATION DATA INCLUDED



UNIV! AL TIME

HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

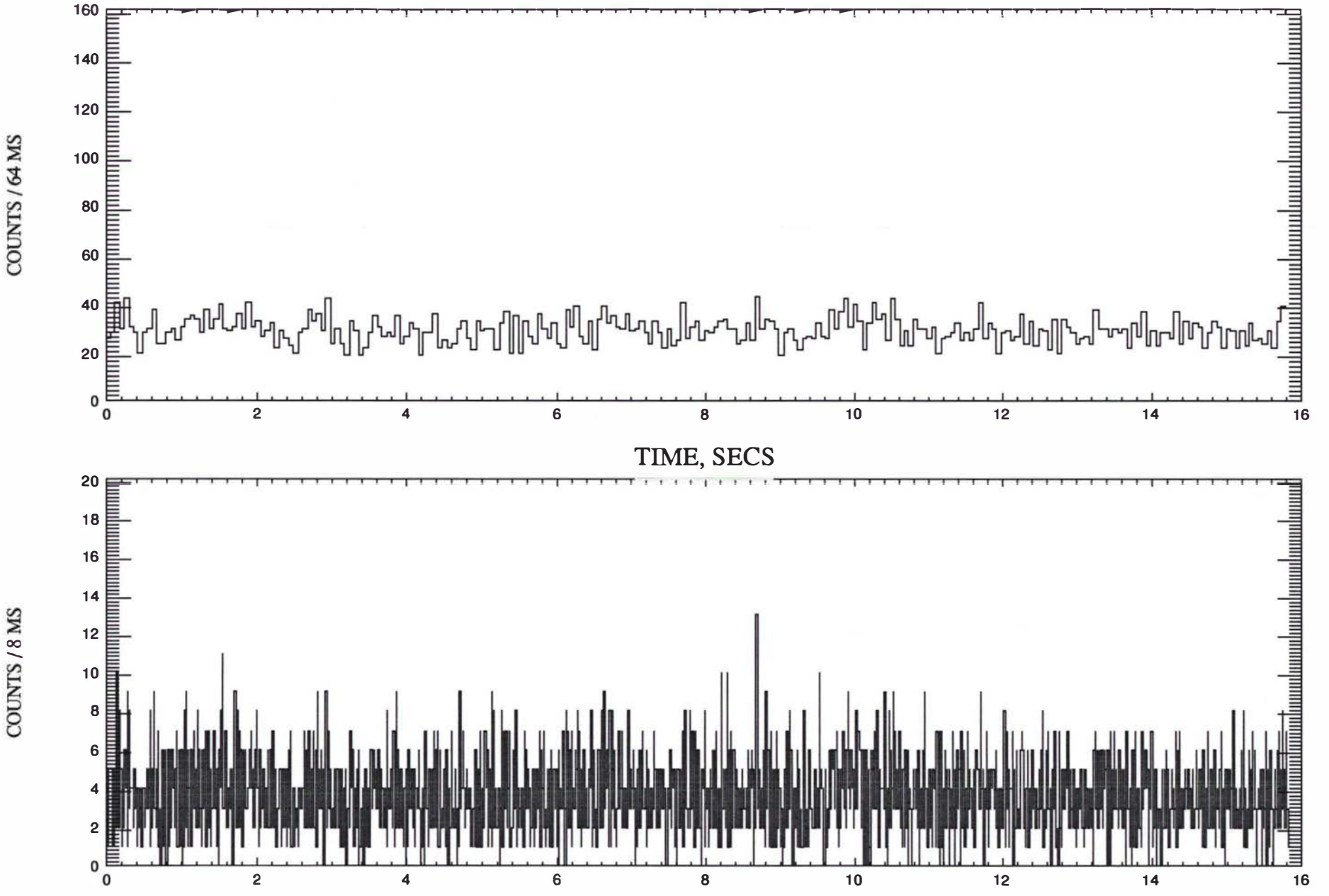
Burst Counter 12 at UT= 0.303650694953 h= 1093.143 s 00:18:13.143



B# 1

HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

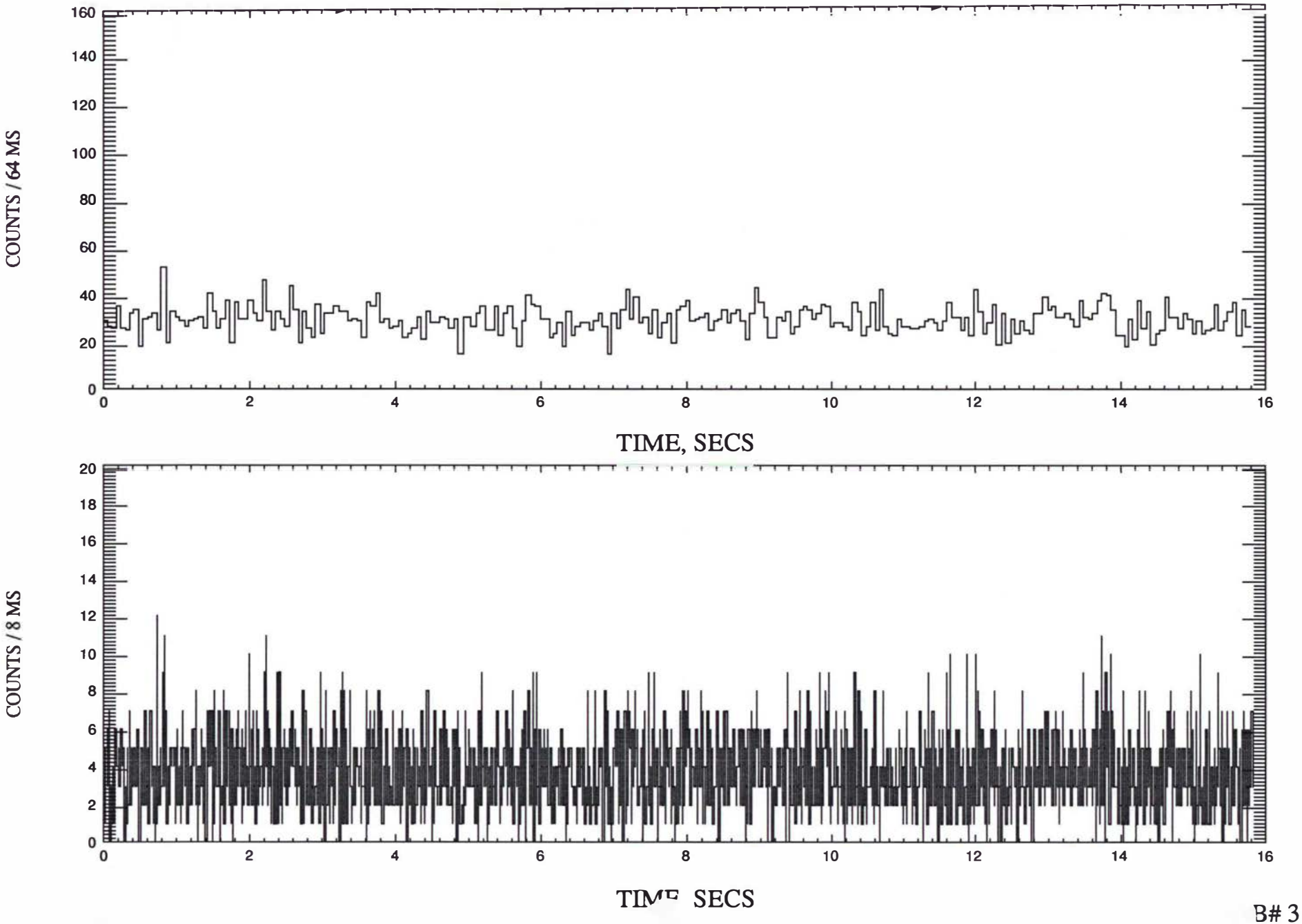
Burst Counter 13 at UT= 1.136994183858 h= 4093.179 s 01:08:13.179



B# 2

HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

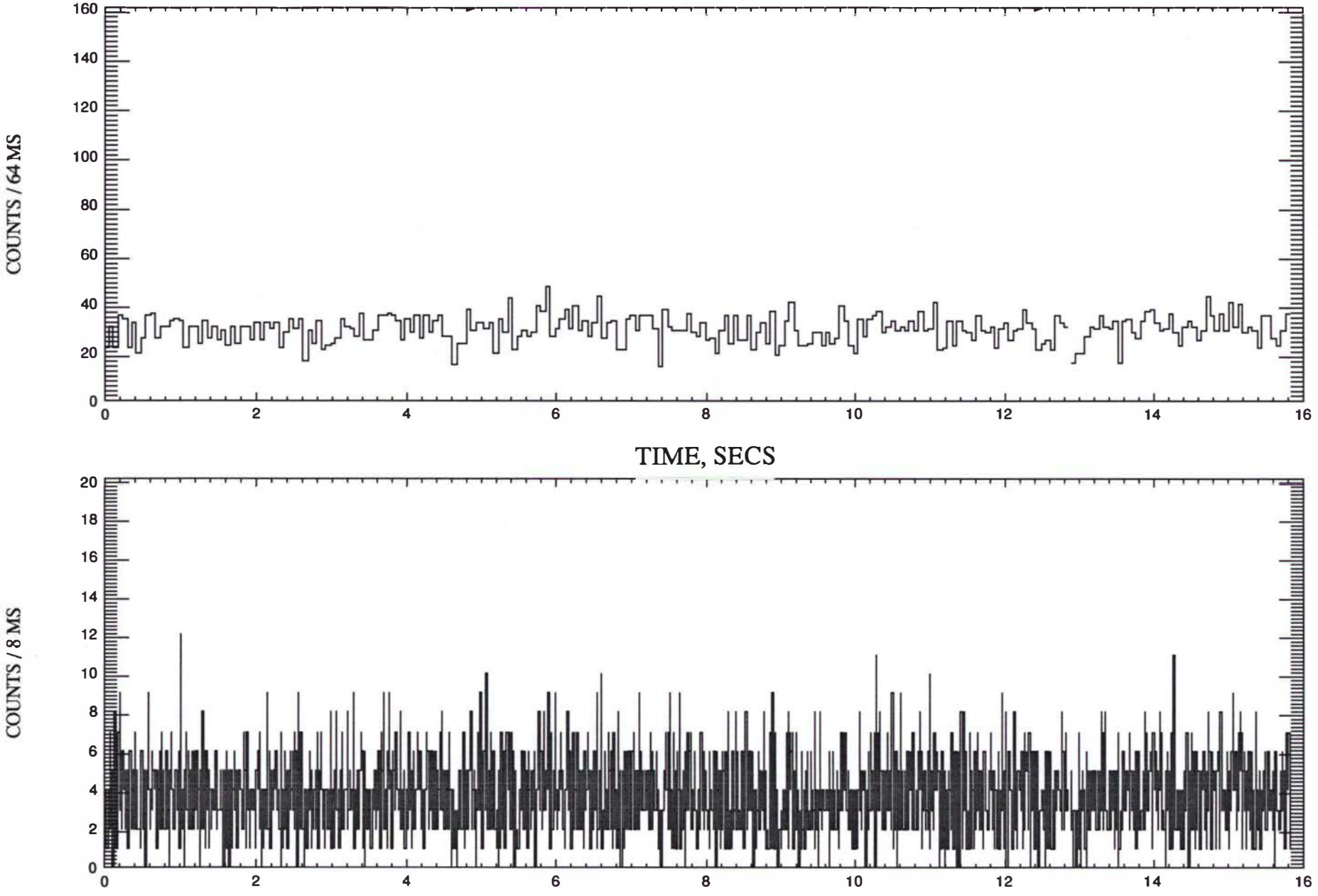
Burst Counter 14 at UT= 1.970336825053 h= 7093.213 s 01:58:13.213



B# 3

HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

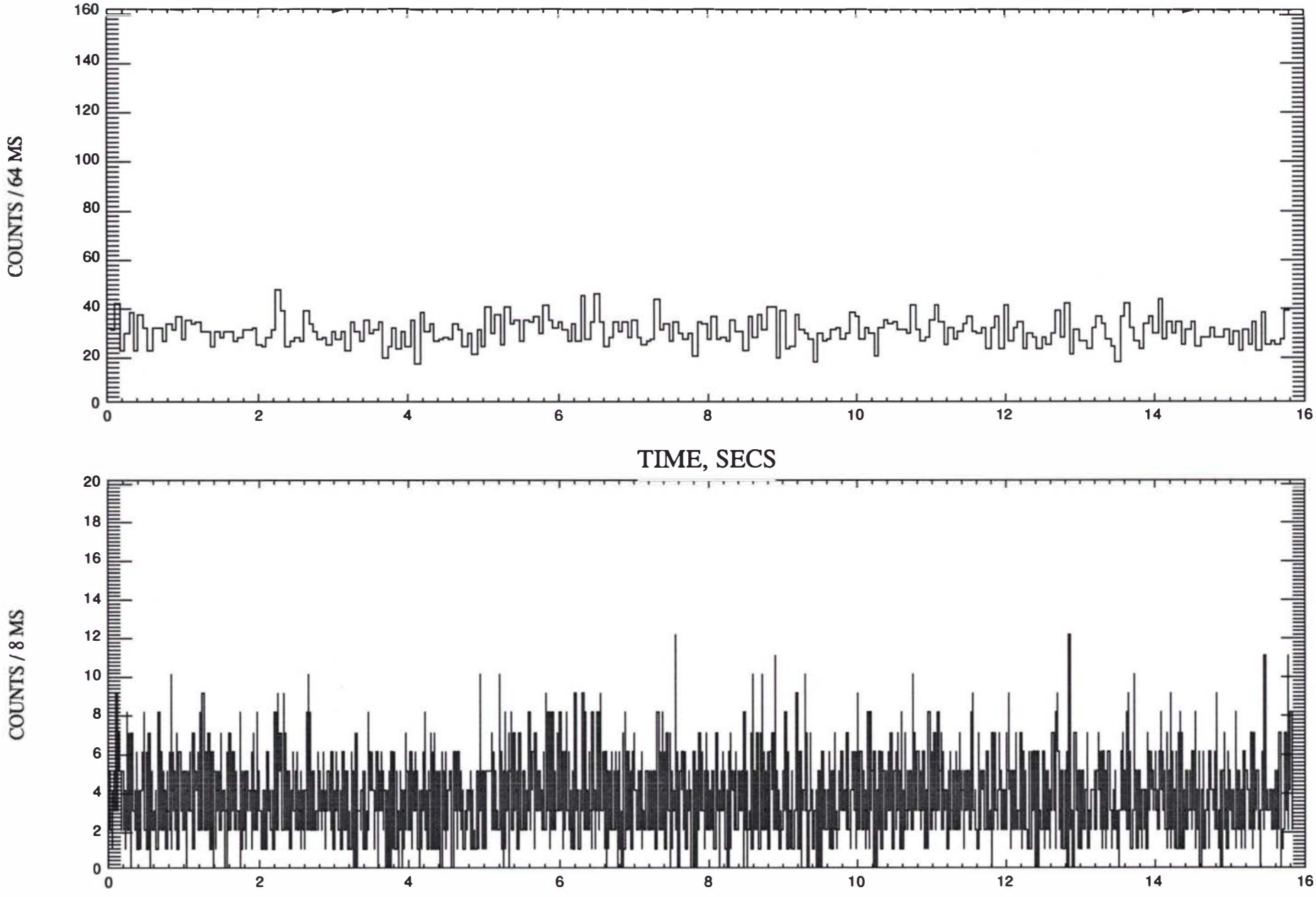
Burst Counter 15 at UT= 2.803680313958 h=10093.249 s 02:48:13.249



B# 4

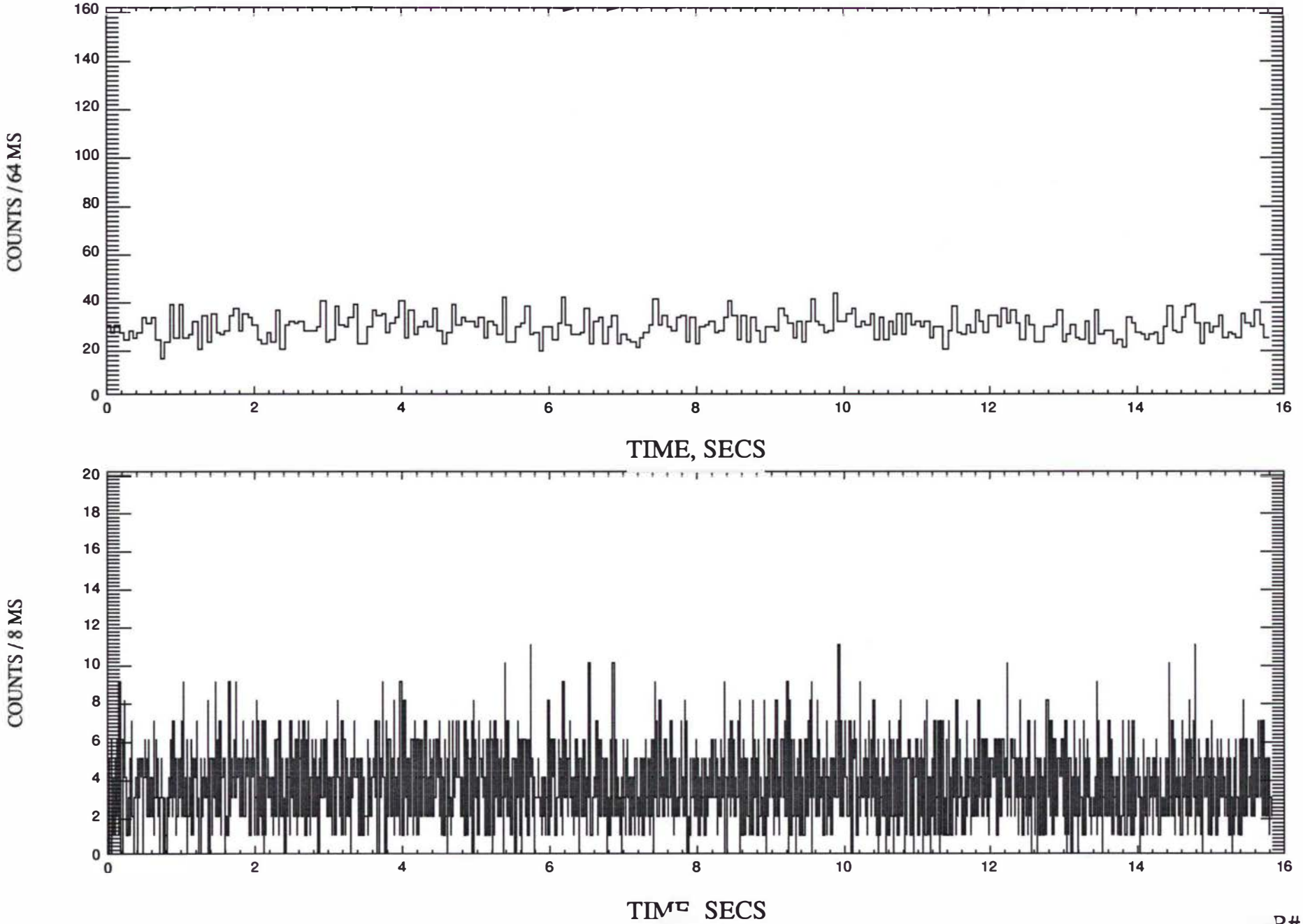
HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

Burst Counter 0 at UT= 3.637023802863 h=13093.286 s 03:38:13.286

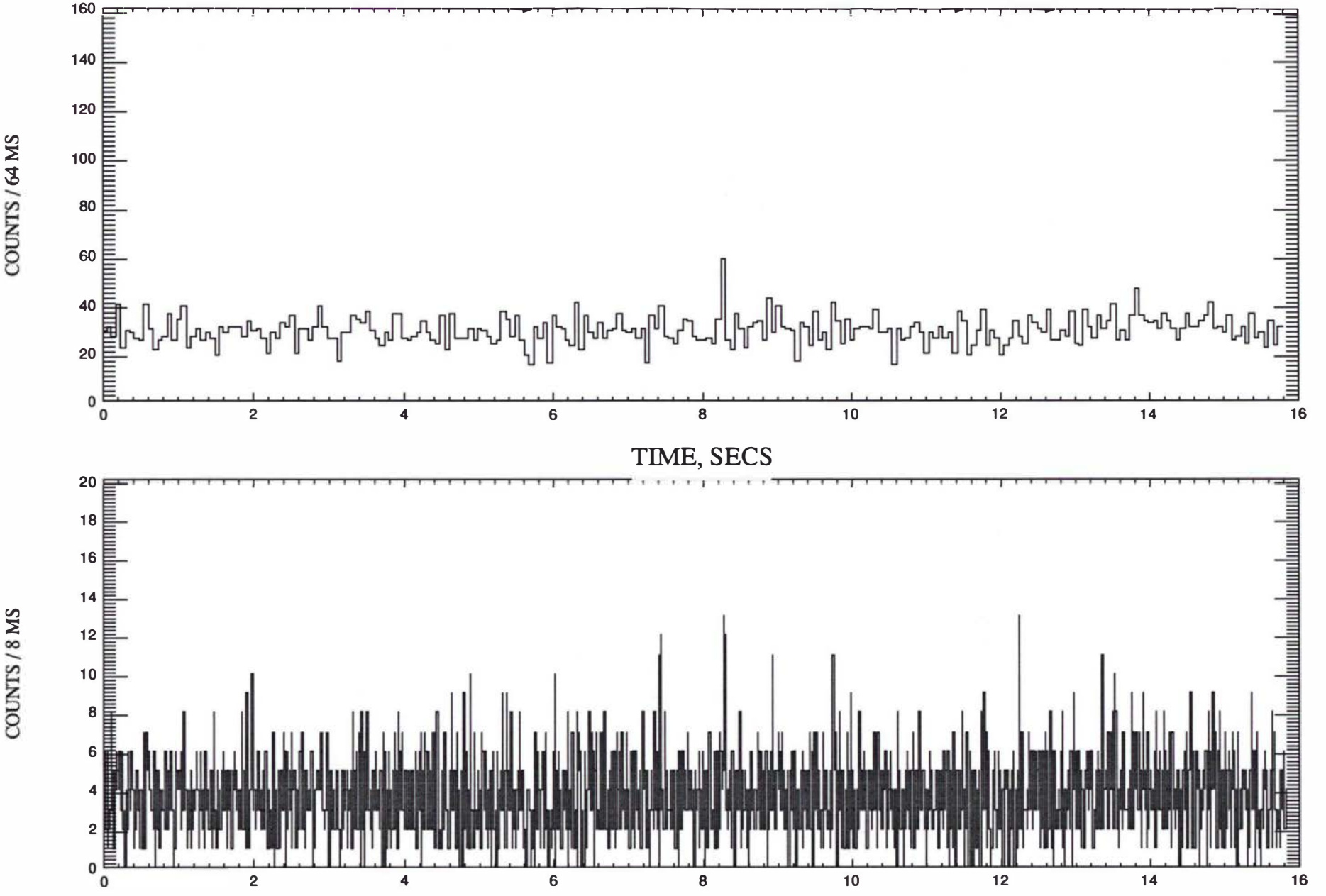


B# 5

Burst Counter 1 at UT= 4.470366444058 h=16093.319 s 04:28:13.319

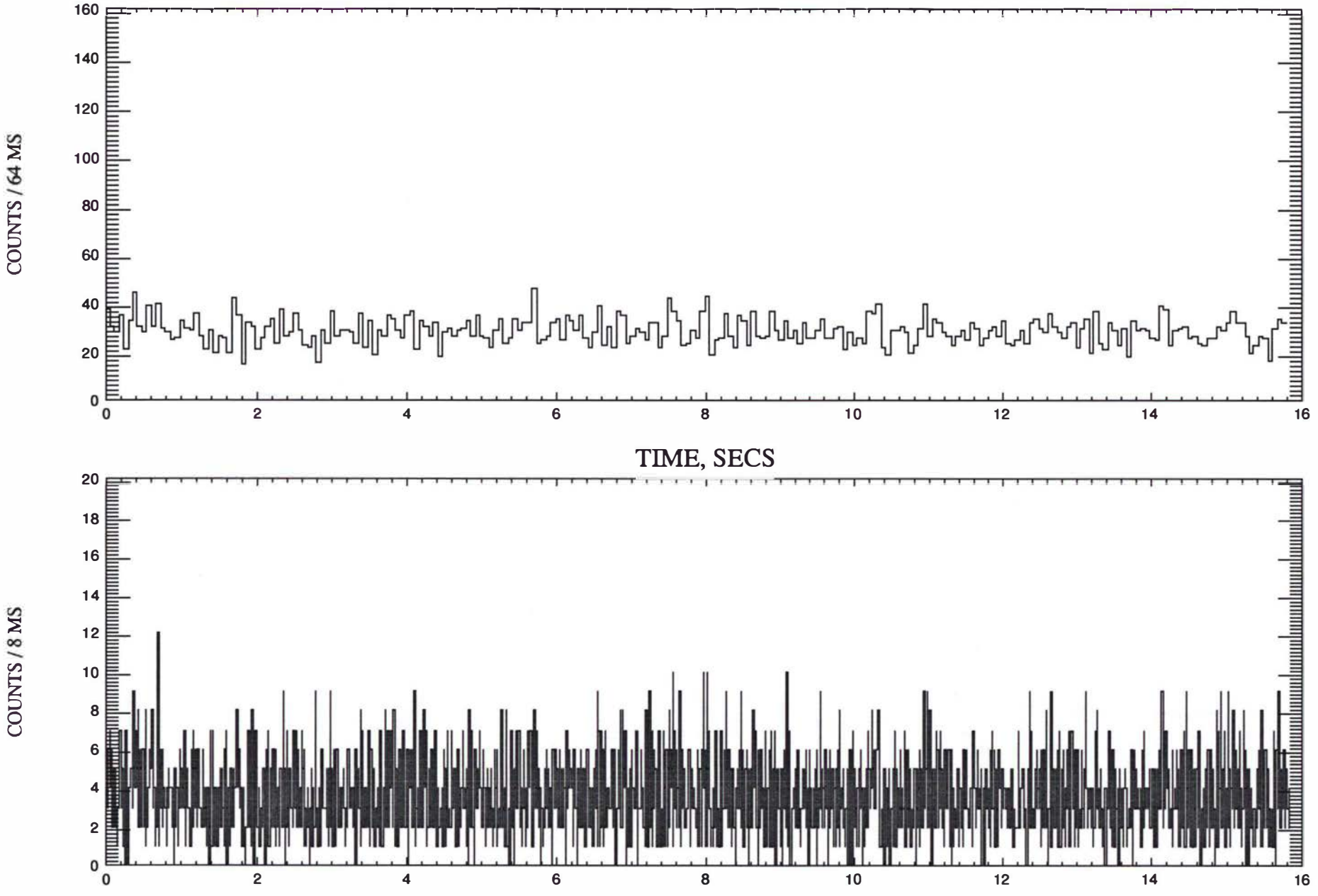


Burst Counter 2 at UT= 5.303709932963 h=19093.356 s 05:18:13.356



HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

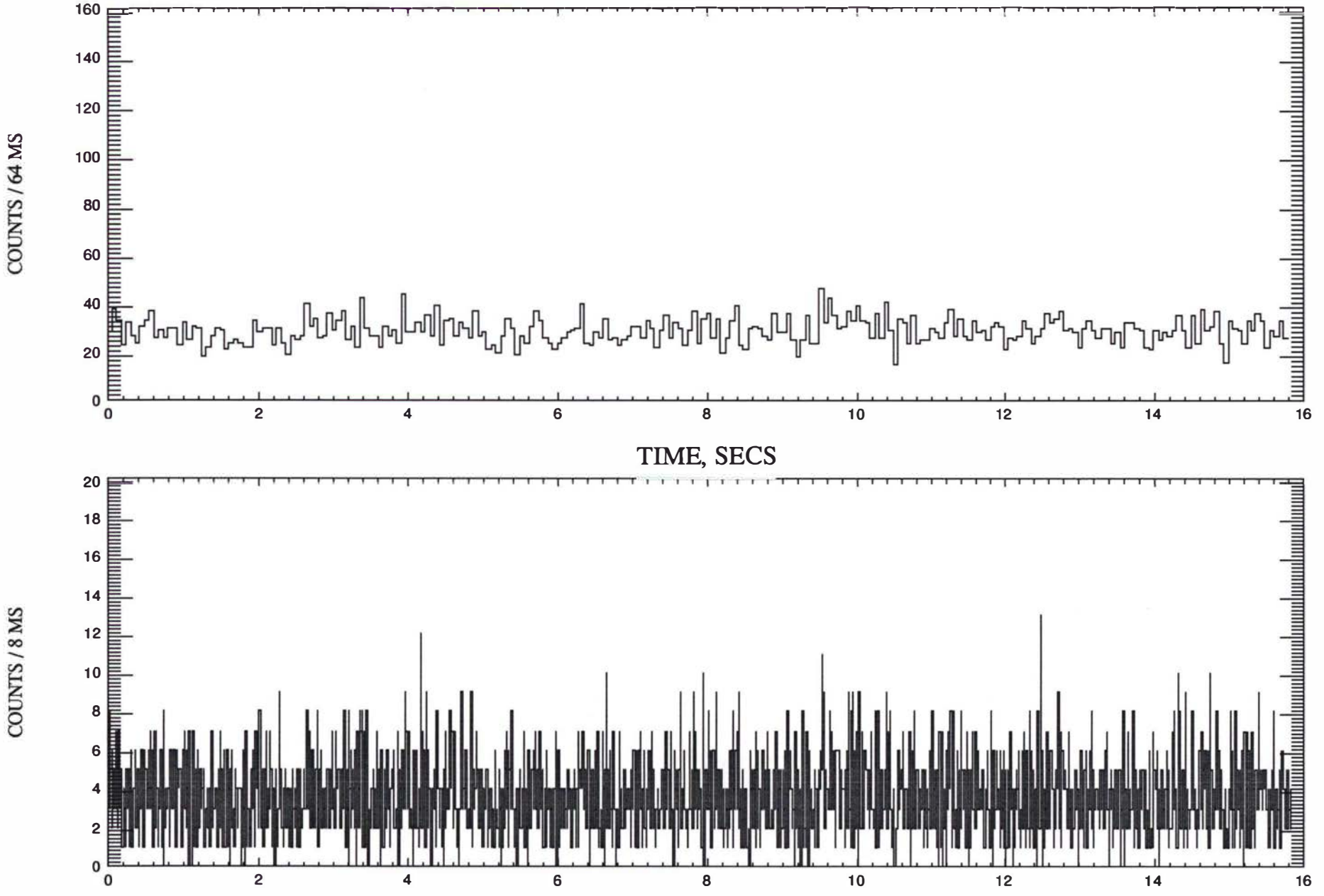
Burst Counter 3 at UT= 6.137053417630 h=22093.392 s 06:08:13.392



B# 8

HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

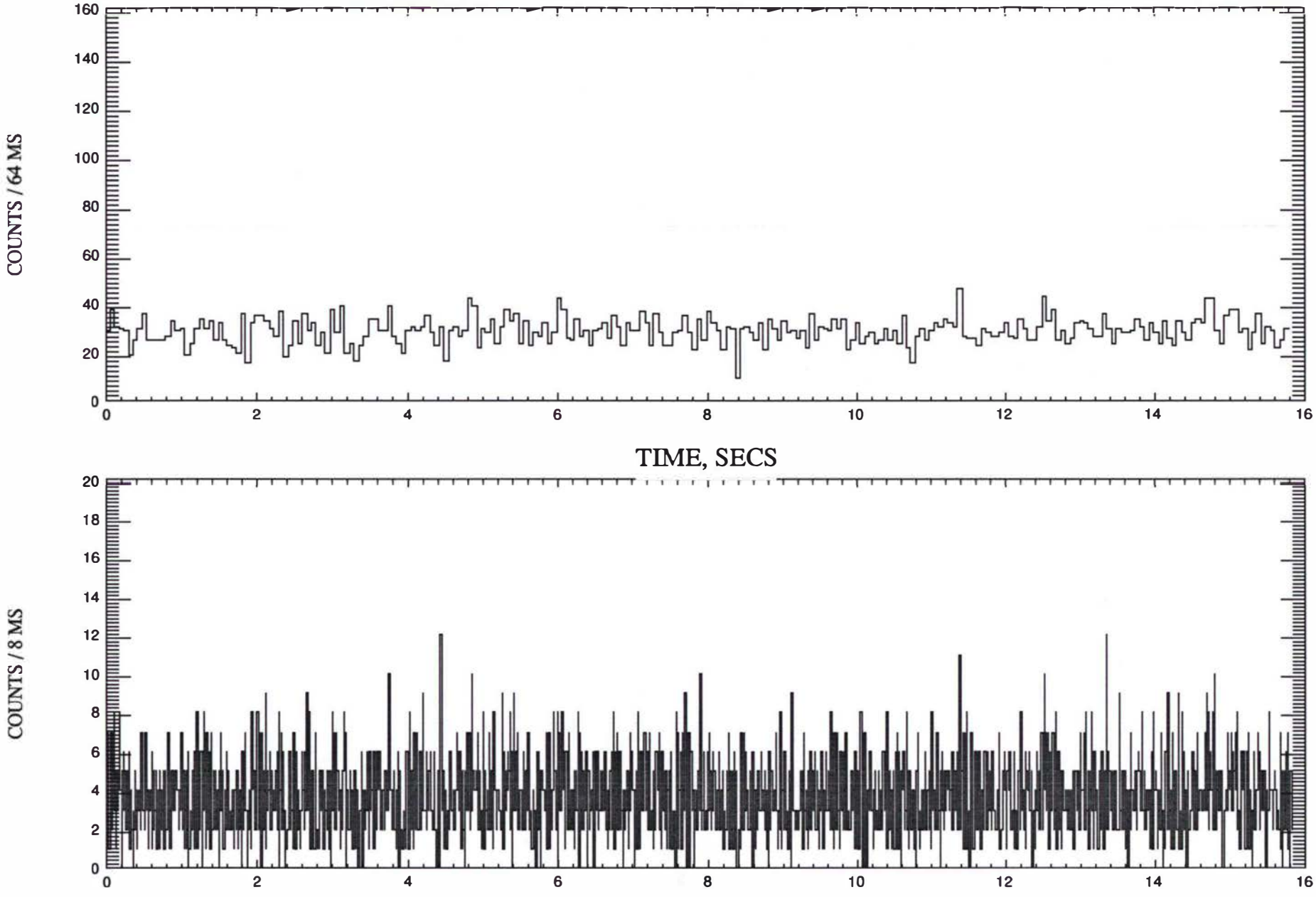
Burst Counter 4 at UT= 6.970396906535 h=25093.429 s 06:58:13.429



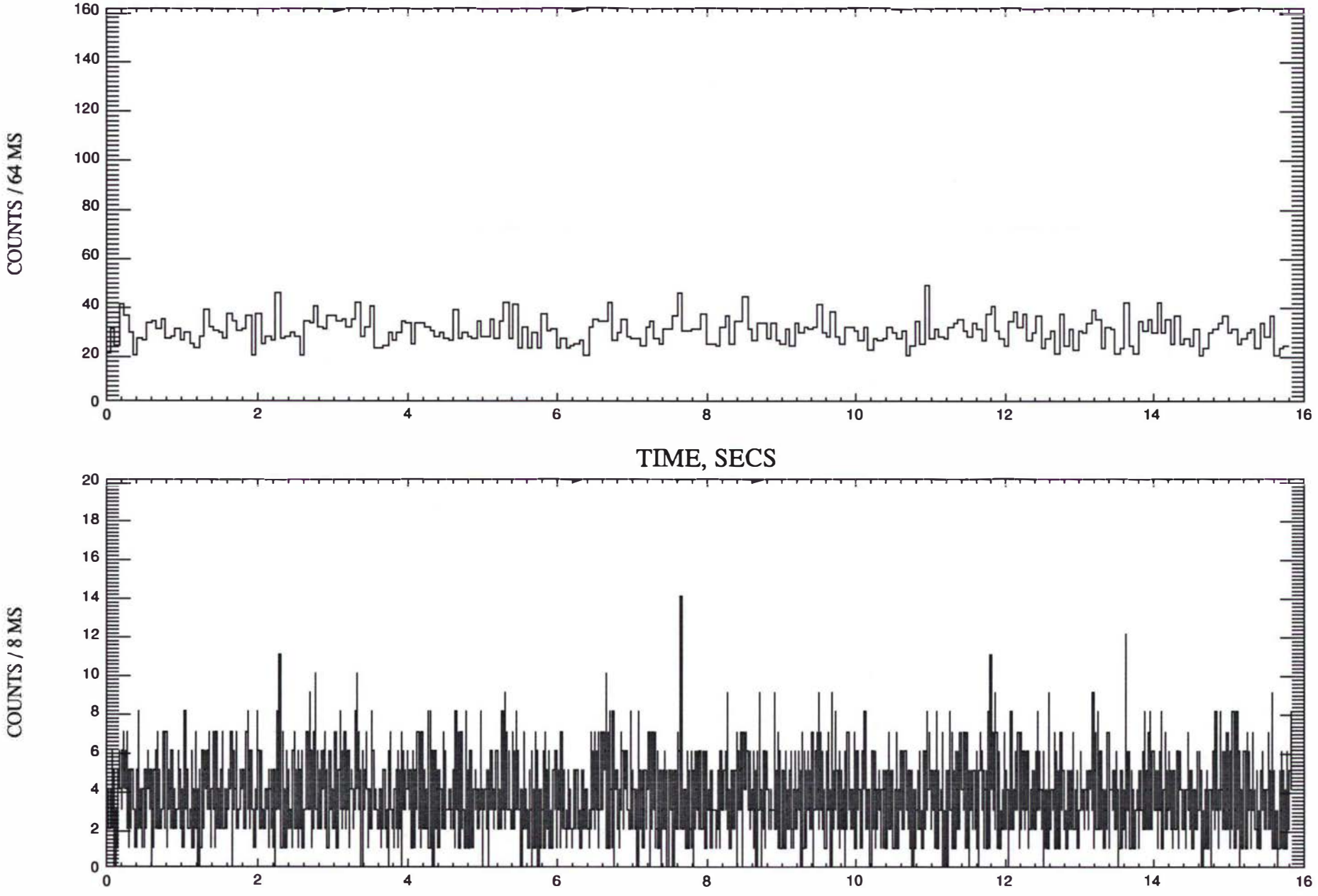
B# 9

HUS 2A TRIGGERED DATA EDR day 51, year 1997 6/19/97

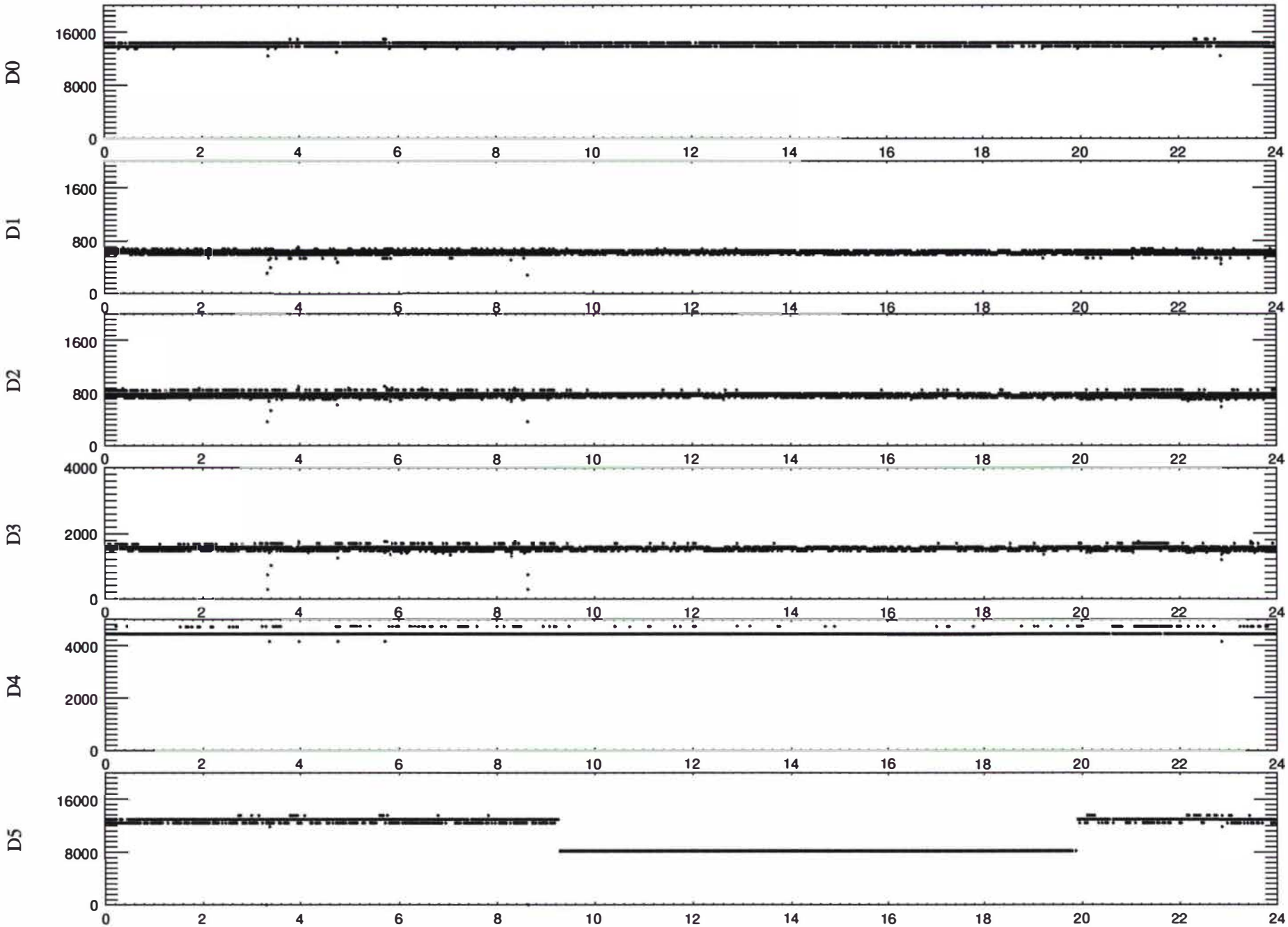
Burst Counter 5 at UT= 7.803704825507 h=28093.337 s 07:48:13.337

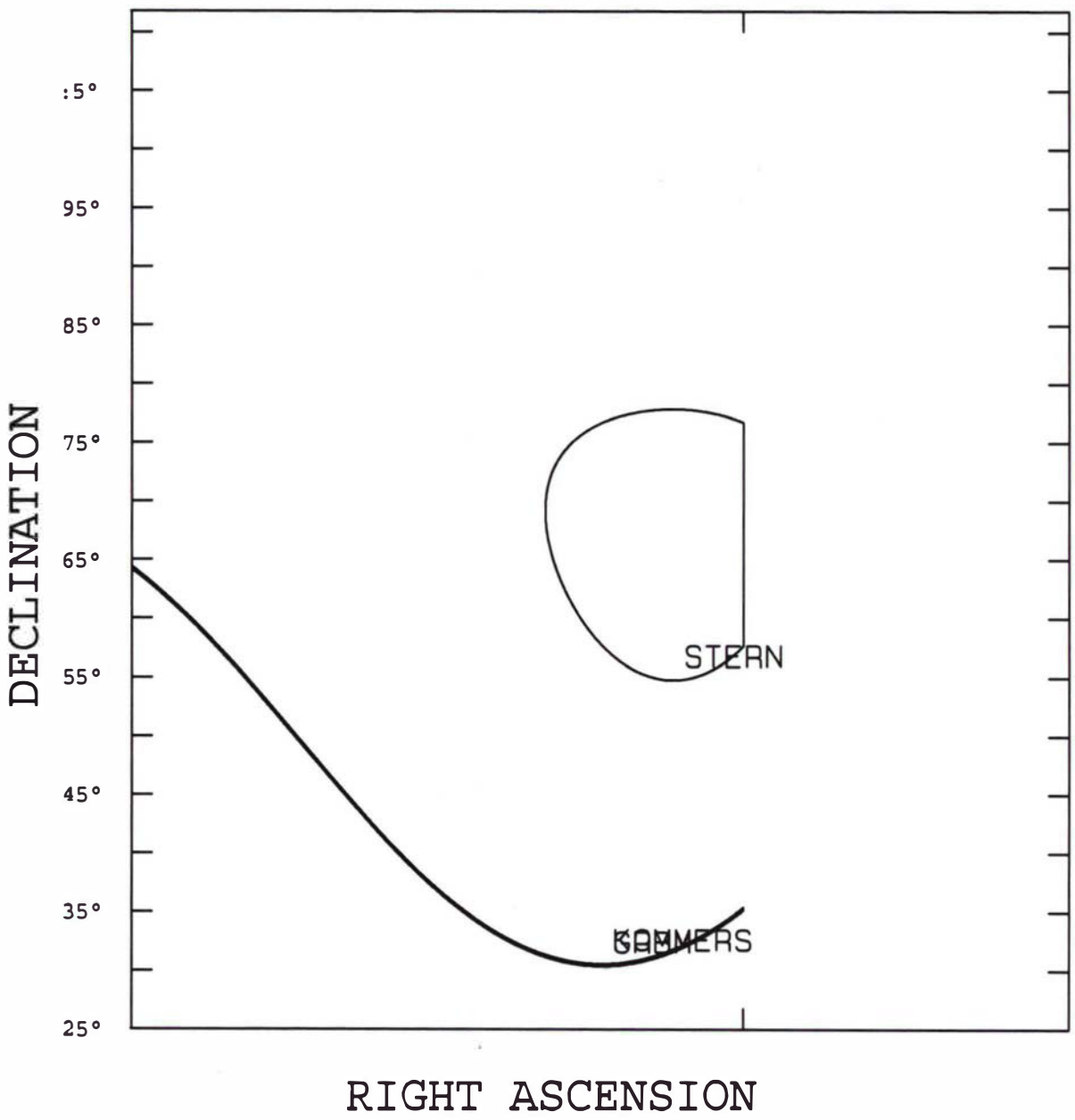


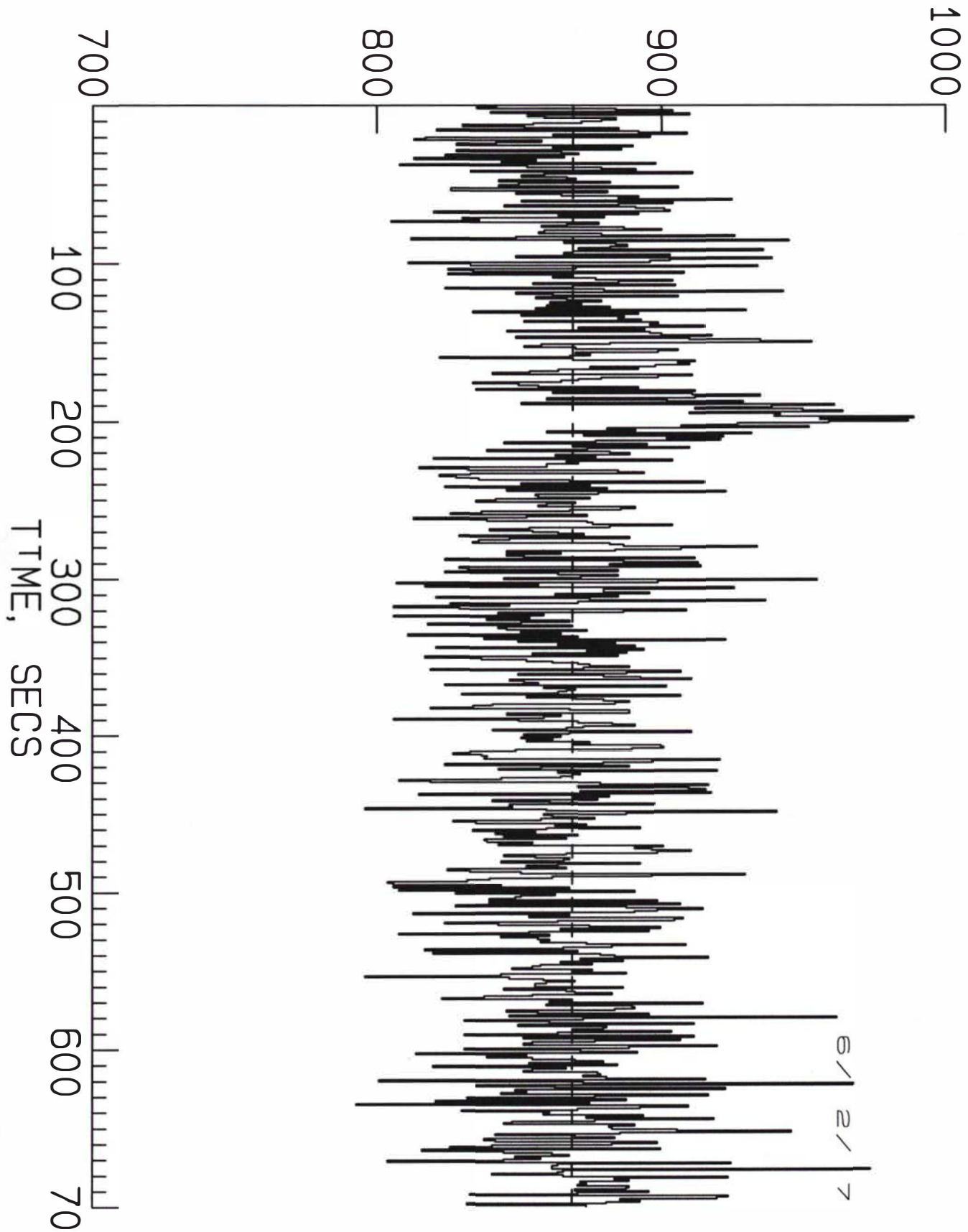
Burst Counter 6 at UT= 8.637048314412 h=31093.374 s 08:38:13.374

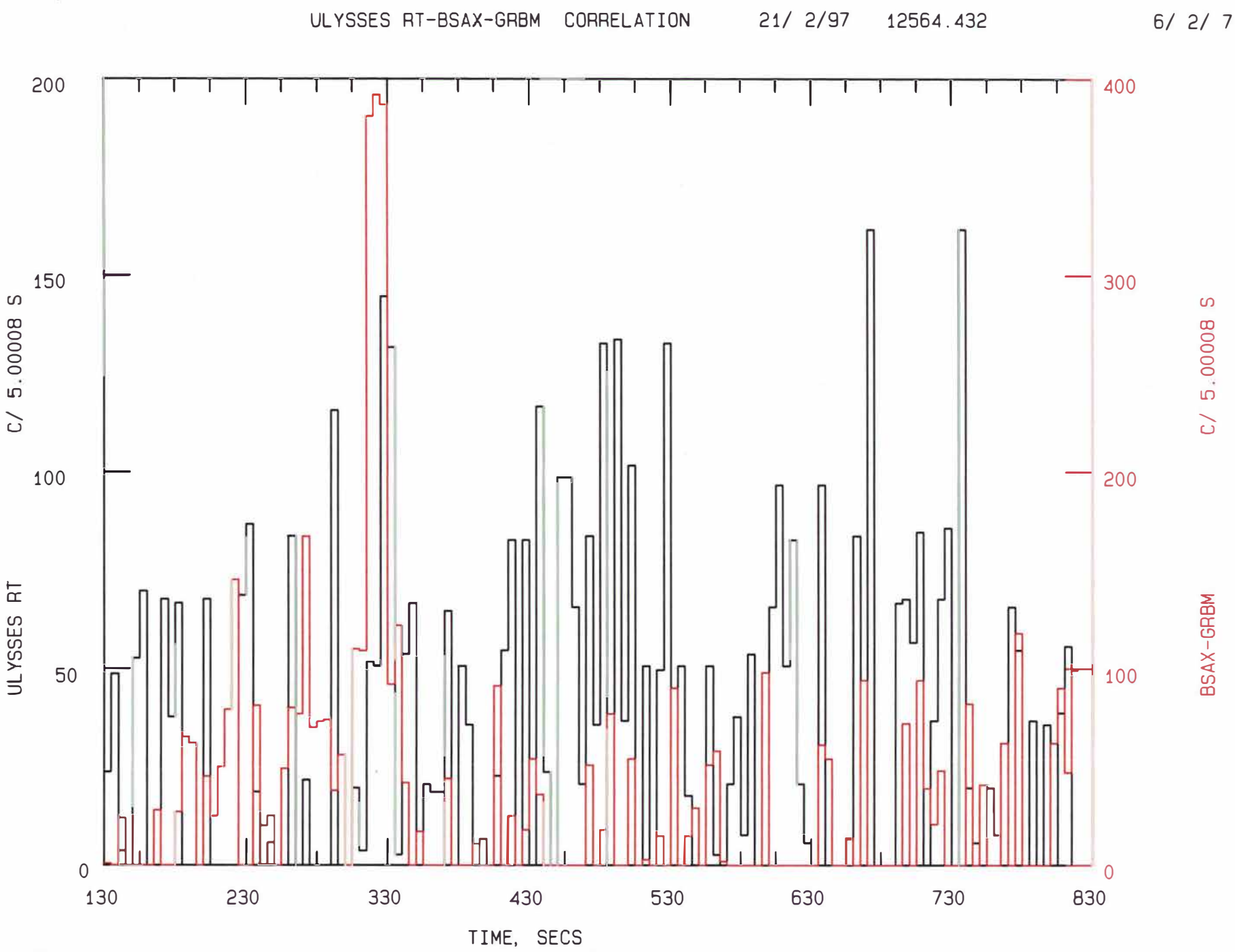


HUS 2B COUNTS / SEC EDR day 51, year 1997 to day 51, year 1997 5/16/97

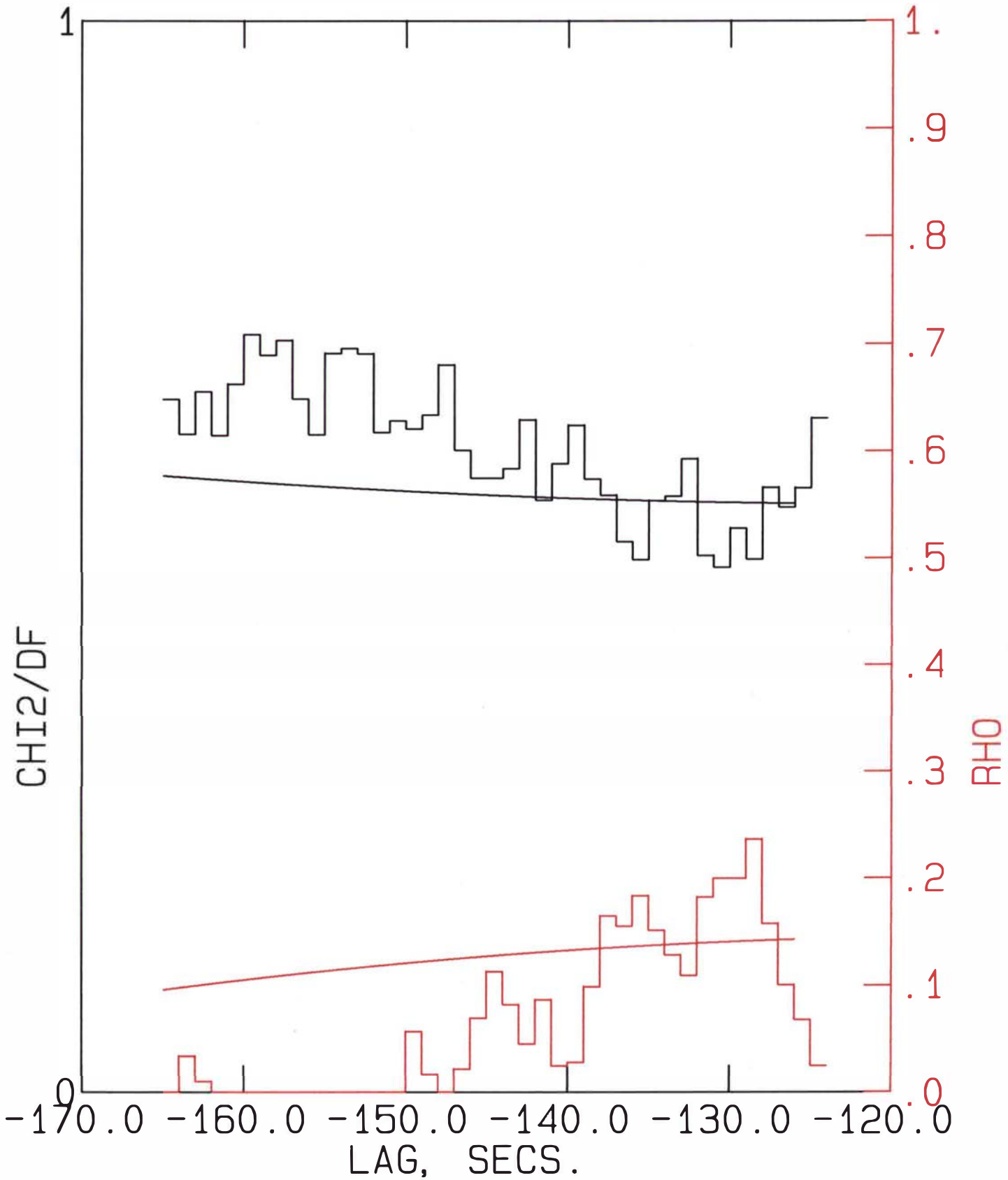



:5°
95°
85°
75°
65°
55°
45°
35°
25°
DECLINATION
STERN
RIGHT ASCENSION


SAX GRBM
21/02/97 13559.342
40- 700 keV
COUNTS/1.000 S
700
800
900
1000
100
200
300
400
500
600
700
TIME, SECS
6
2
7


ULYSSES RT-BSAX-GRBM CORRELATION 21/ 2/97 12564.432 6/ 2/ 7
200
150
100
50
0
C/ 5.00008 S
ULYSSES RT
400
300
200
100
0
C/ 5.00008 S
BSAX-GRBM
130
230
330
430
530
630
730
830
TIME, SECS

ULYSSES RT-BSAX-GRBM CORRELATION 21/ 2/97 12564.432

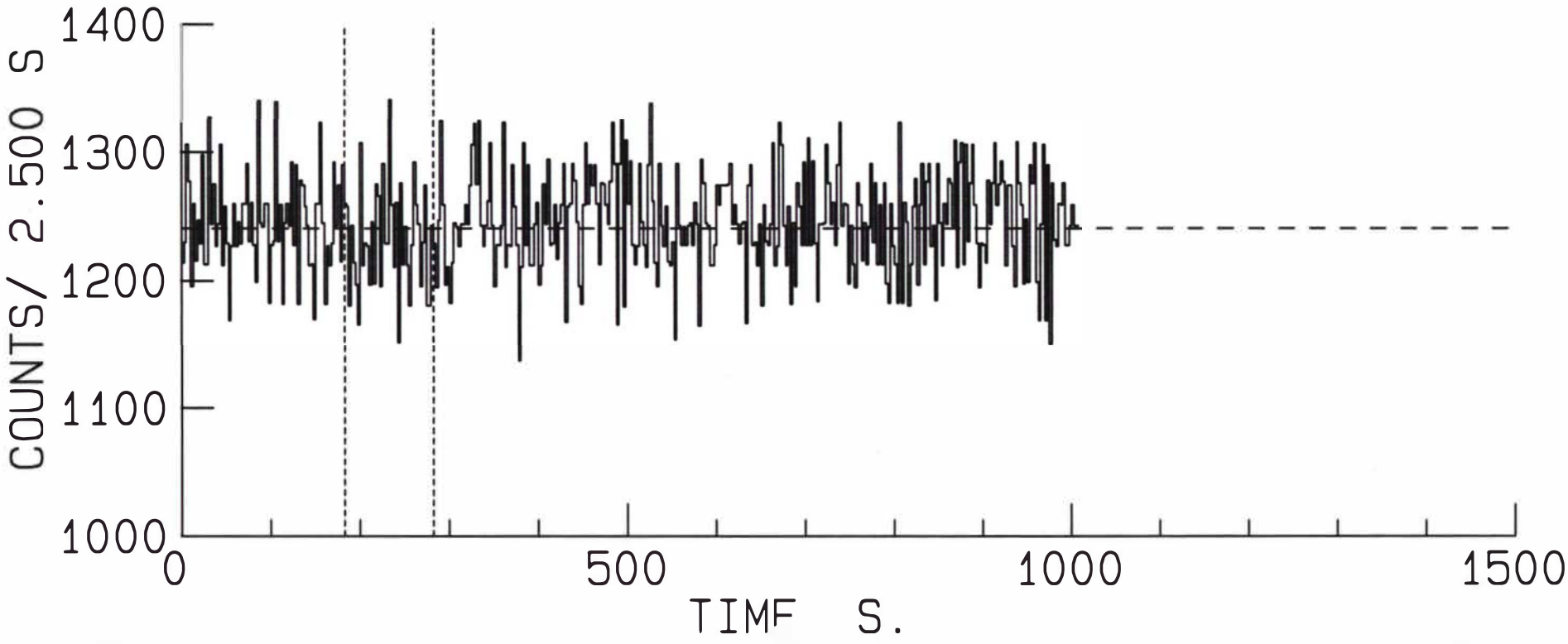


ULYSSES RT 6/ 2/ 7

21/ 2/97 12564.151 s

0.250 S INTERVALS REGROUPED BY 10

21- 147 keV



From HENZE@ssl.msfc.nasa.gov Mon Feb 24 11:35 PST 1997
Return-Path: <HENZE@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id LAA10915; Mon, 24 Feb 1997 11:35:39 -0800
From: HENZE@ssl.msfc.nasa.gov
Date: Mon, 24 Feb 1997 13:35:31 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970224133531.202016e2@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6098
Content-Type: text
Content-Length: 1135
X-Lines: 26

****
BATSEARCH PROGRAM
****

BATSE BURST # 6098
EVENT OF 1997 FEB 21 DAY OF YEAR= 52
EVENT CROSSING TIME AT BATSE : 37107. S. OR 10:18:27.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 343.000 -70.000
BATSE PEAK COUNTING RATE: 6000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 21/ 2/ 97 IS:
RA= 167.002 DEC= 36.637 DIST= 3.968 AU
BATSE-ULYSSES DISTANCE = 593546734. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 33.43 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1652.26 SECS.
CROSSING TIME AT ULYSSES IS 38759. S. OR 10:45:59 +/- 264.47 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 21/ 2/ 97 IS:
RA= 185.590 DEC= 1.630 DIST= 0.741 AU
MARS-BATSE DISTANCE = 110874160. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 69.98 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 126.62 SECS.
CROSSING TIME AT MARS IS 37234. S. OR 10:20:33 +/- 62.25 SECONDS

BATSE BURST TRIGGER
NO.: 6098

TIME: TJD=0500 SECONDS=37107

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=106.1 AZIMUTH=045.8 ERROR=001.6 DEGREES

COMMENTS:
SINGLE EPISODE WITH STRUCTURE, DUR. ~12 S. NOT VISIBLE ABOVE 300 KEV.

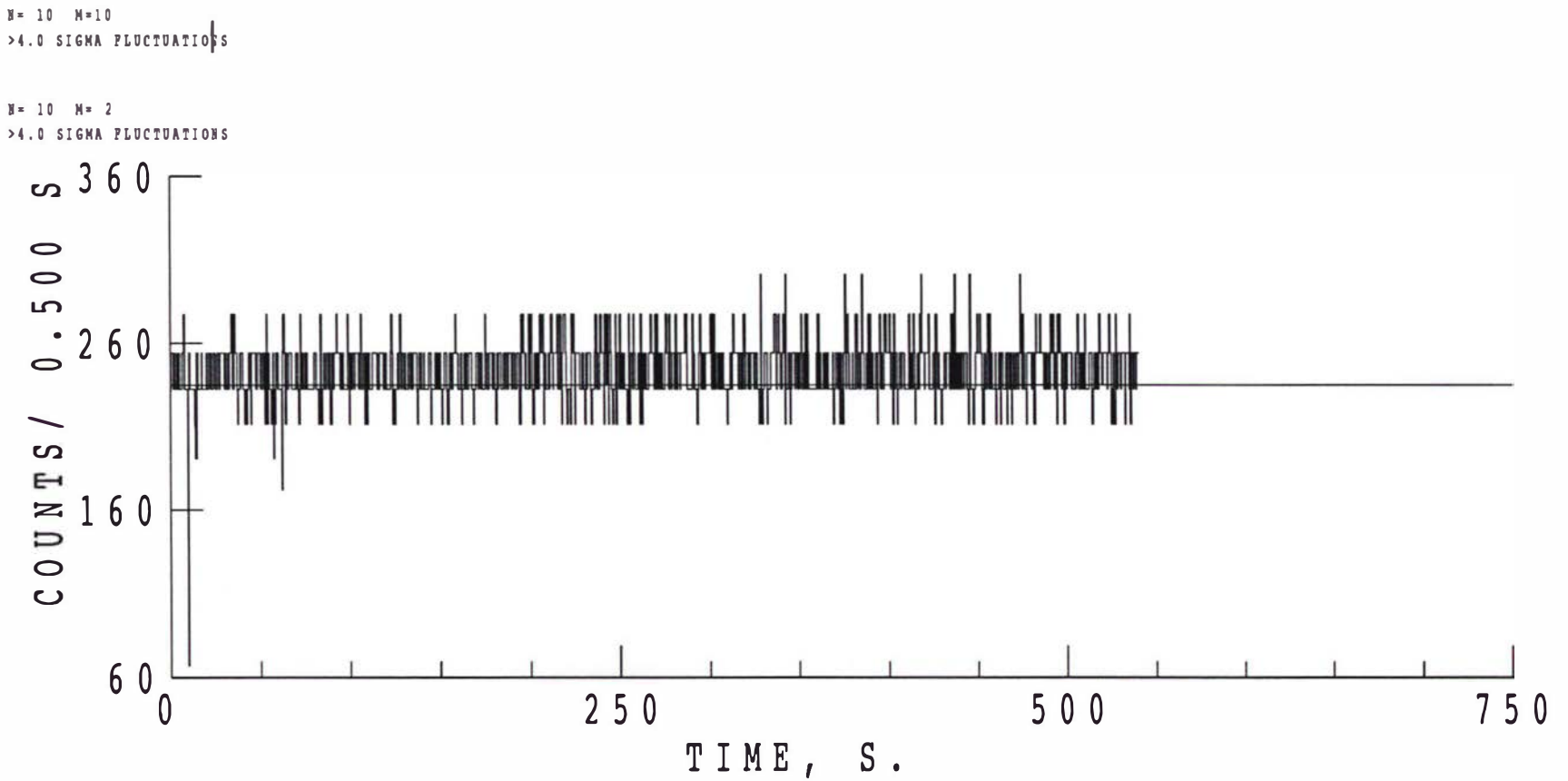
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6098	970221	10500	37107	6000	343	-70	12

BATSE# 6098

ULYSSES RT 27/ 2/97

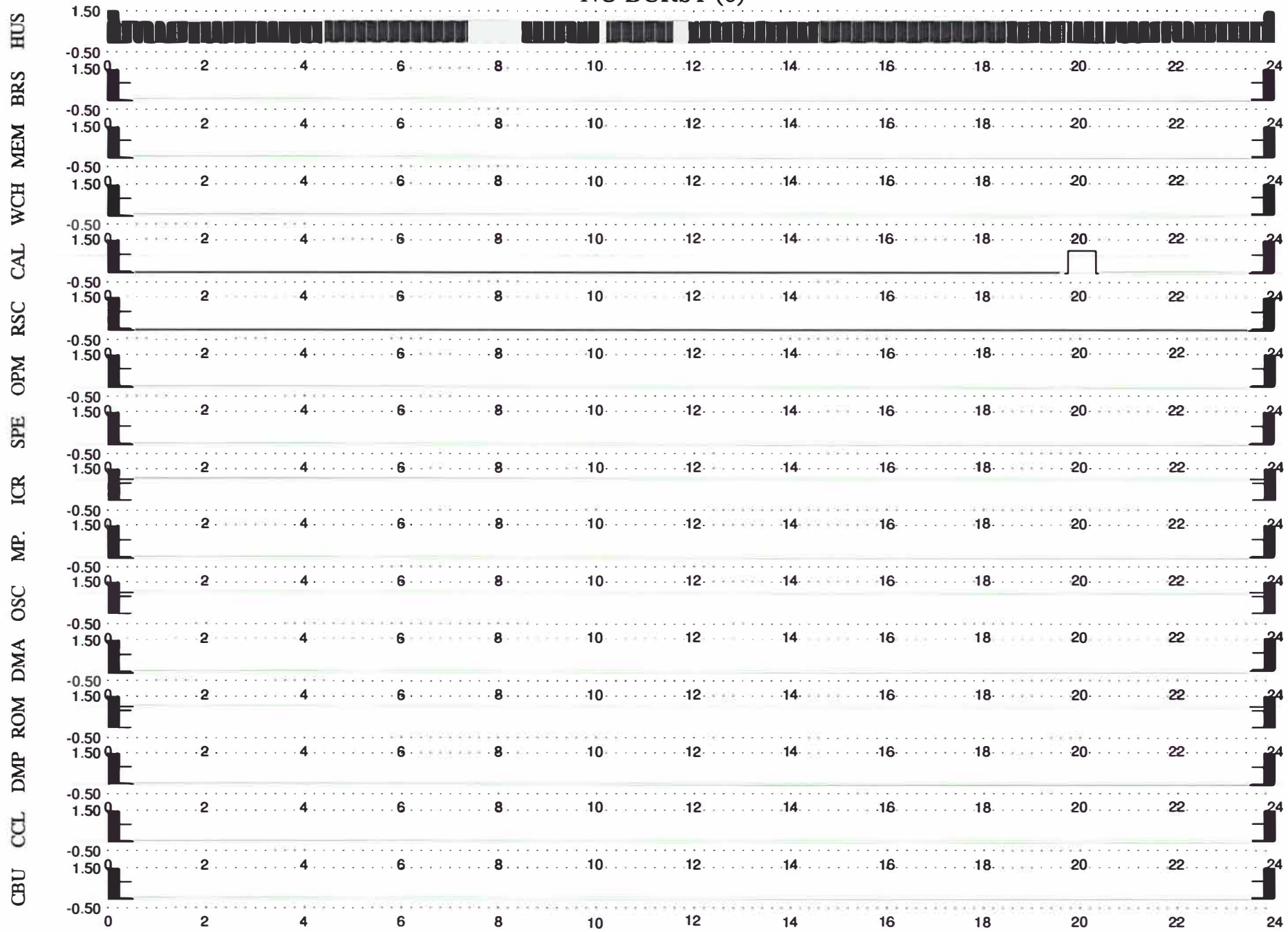
21/ 2/97 38484.207 s

0- 0 keV



HUS MODES EDR day 52, year 1997 to day 52, year 1997 5/16/97

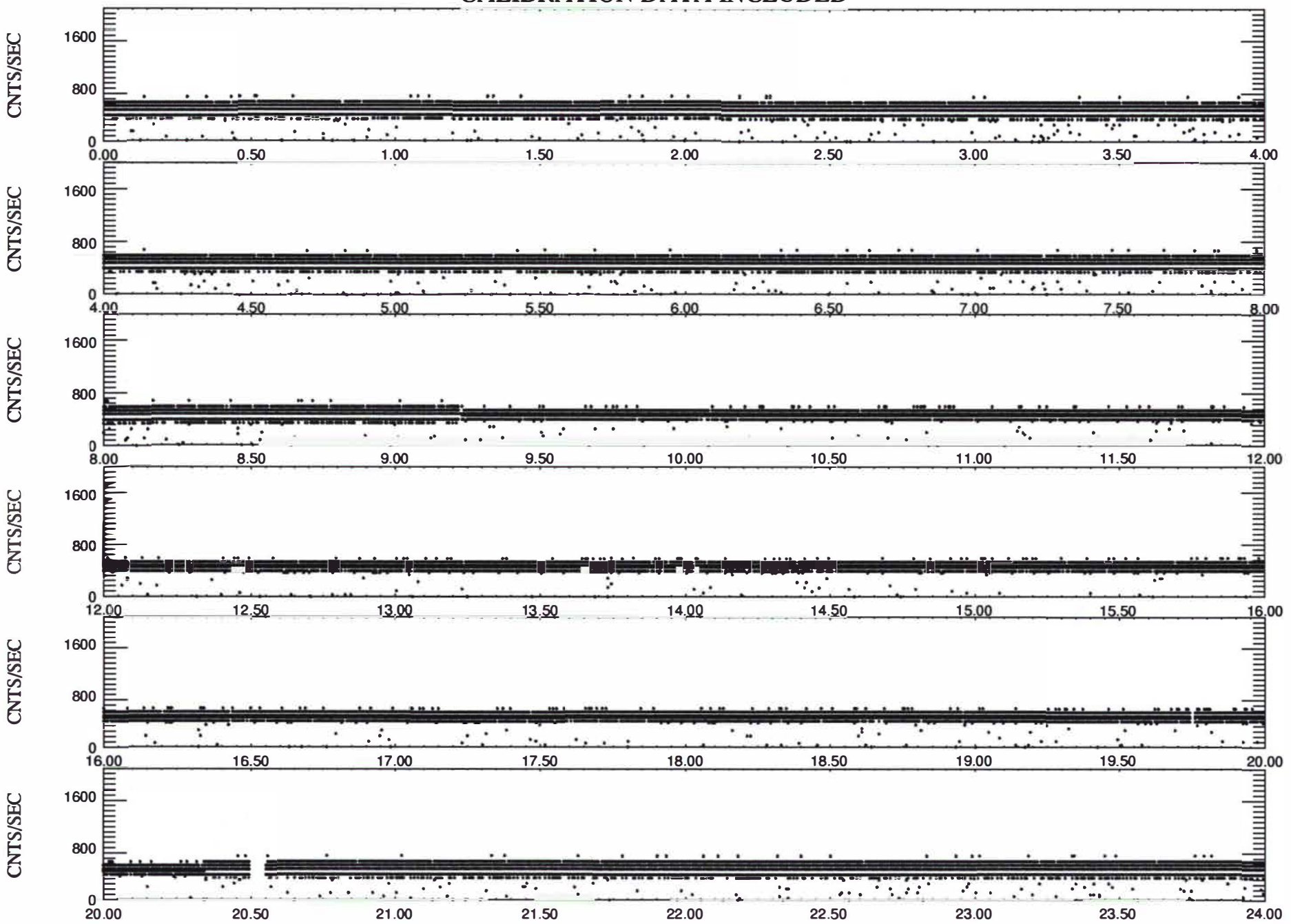
NO BURST (6)



UNIV AL TIME

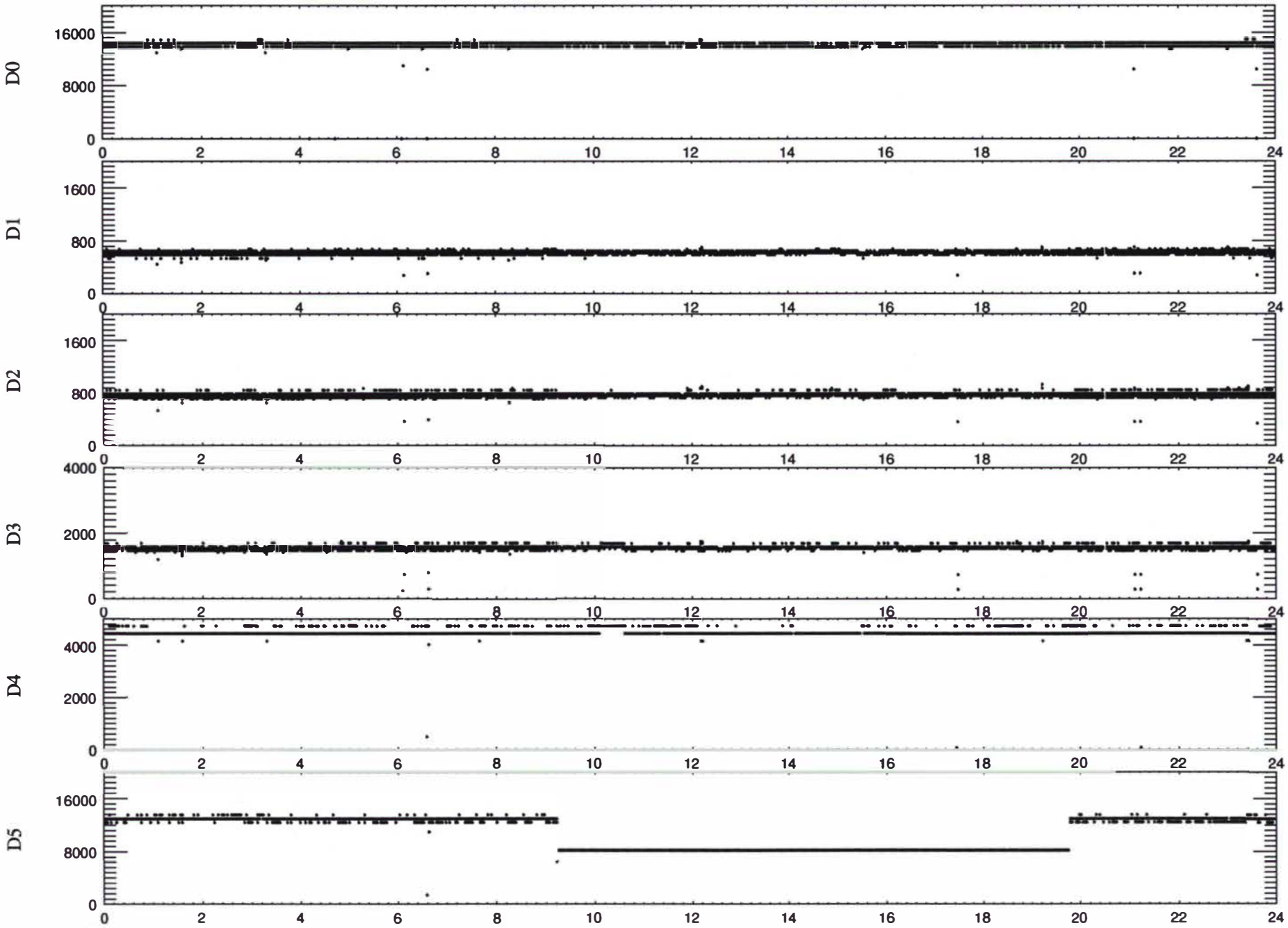
HUS 2A, MODE 1, NOT AVERAGED EDR day 52, year 1997 to day 52, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIVI AL TIME

HUS 2B COUNTS / SEC EDR day 52, year 1997 to day 52, year 1997 5/16/97



From sprg@ssl.berkeley.edu Mon Nov 3 11:18 PST 1997
Date: Mon, 3 Nov 1997 11:18:08 -0800
From: sprg@ssl.berkeley.edu (Space Physics Research Group Account)
To: khurley@apollo
ject: GRB Master list

----- Begin Included Message -----

From vnp@isac.ernet.in Mon Nov 3 04:51:54 1997
From: vnp@isac.ernet.in
>Received: from sx07 by isac.ernet.in (AIX 3.2/UCB 5.64/4.03)
id AA04926; Mon, 3 Nov 1997 14:02:42 GMT
X-Authentication-Warning: sx07.ernet.in: vnp owned process doing -bs
Date: Mon, 3 Nov 1997 14:02:42 +0000 (GMT)
X-Sender: vnp@sx07
To: khurley@sunspot.ssl.berkeley.edu
Subject: GRB Master list
Mime-Version: 1.0

Dear Prof. Hurley,
SROSS-C2 has not recorded any event on 25 Jun 97.

The following SROSS events preceding and following the 7 Jun 97 event may
kindly be included in the next update of the GRB Master list
2 FEB 97 7:10:44.273UT confirmed by Ulysses & BATSE (Trig No. 5995)
22 Feb 97 23:53:27.392UT confirmed by Ulysses
26 Feb 97 8:46:34.198 UT confirmed by Ulysses
15 Jul 97 14:21:33.22UT confirmed by Ulysses, DMSP,Wind(TGRS)
?? Aug 97 17:45:2.272UT confirmed by Ulysses,BATSE,RXTE

Regards,
padmini

----- End Included Message -----

SAX

HUS DATA

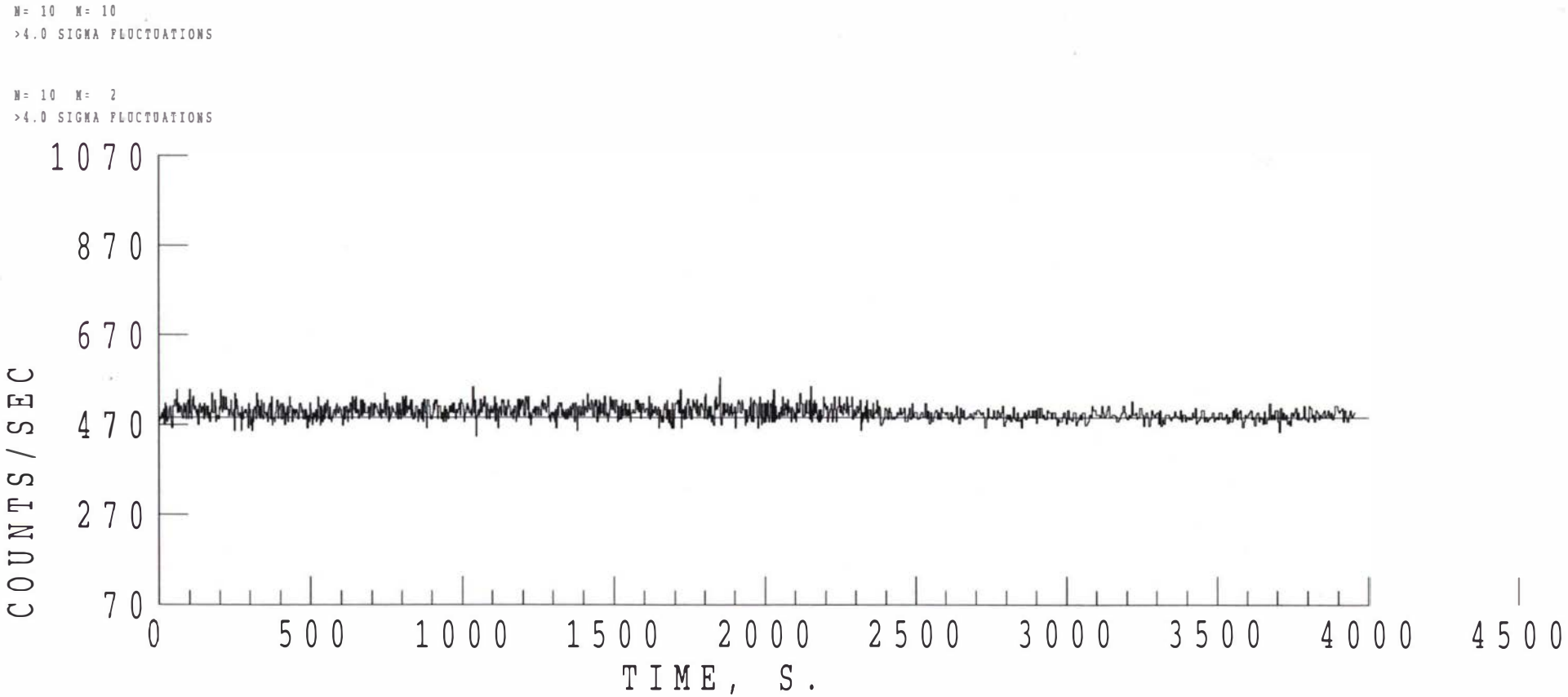
19/07/05

ULYSSES RT

22/02/97 84024.031 s

INTERVALS REGROUPED BY 9

0- 0 keV



Date: Feb 26 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

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

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events N/A

☐ Was CHECKMO run to eliminate data gaps?

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

☐ Was Mars-blocking used?

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

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

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

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events N/A

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

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

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

☑ ACCESS and MBL4 databases updated?

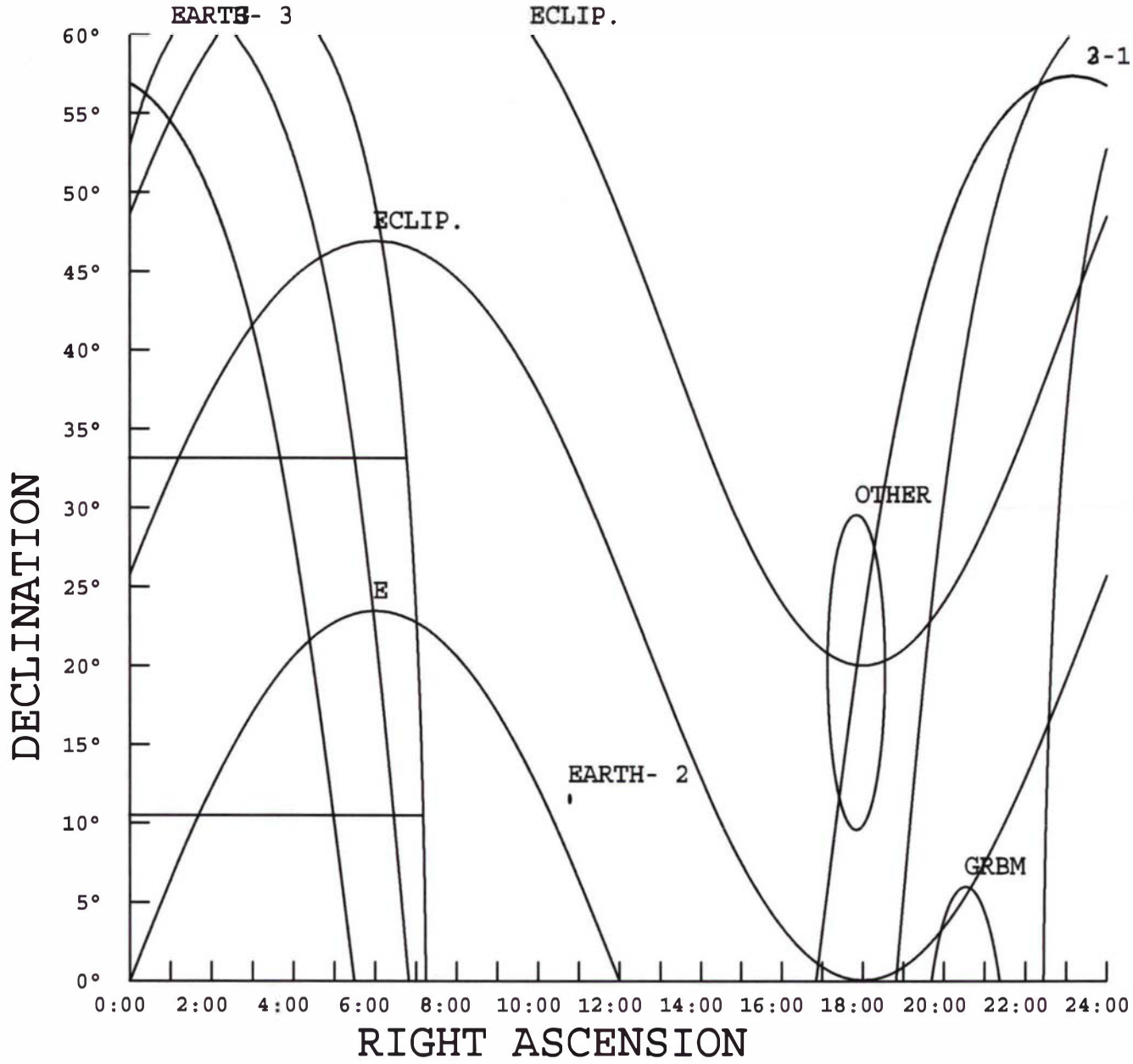
IPN box intersects w. GRBM circle, but intersects w. contours

"other" circle added

EVENT OF FEB 22, 1997 23:51

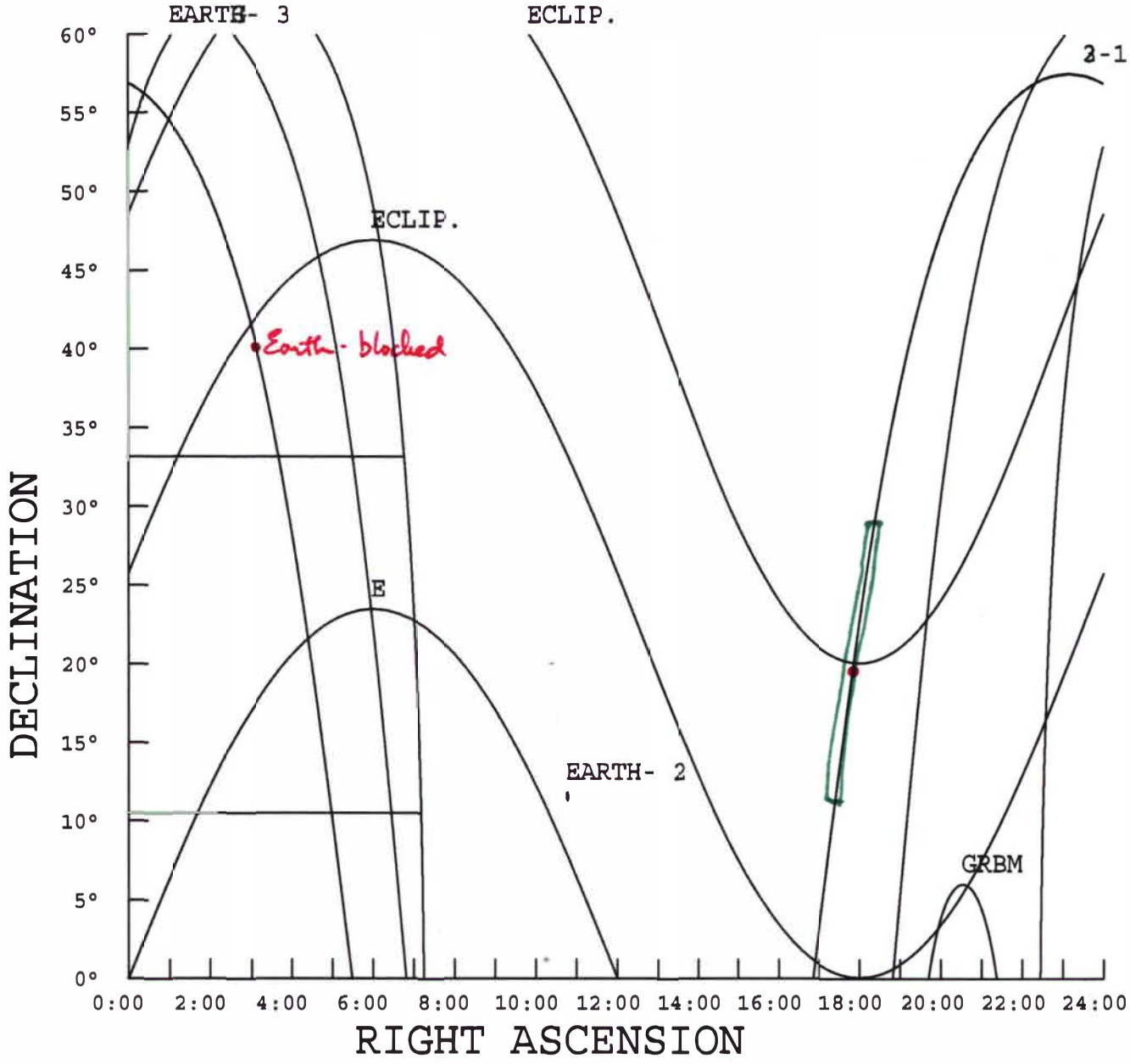
23/ 7/ 9

N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 KONUS2 3 SAX



EVENT OF FEB 22, 1997 23:51

6/ 2/ 7

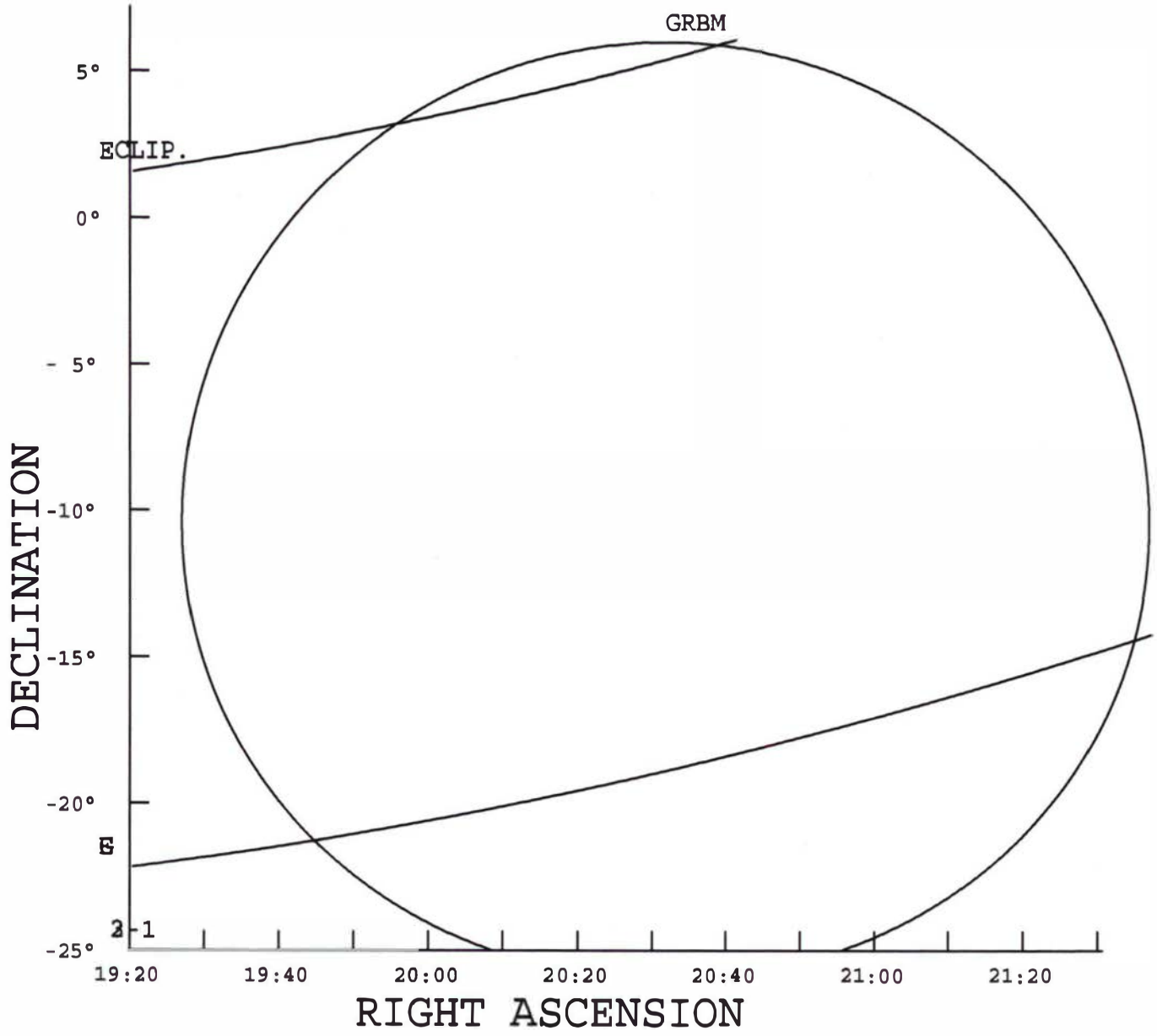


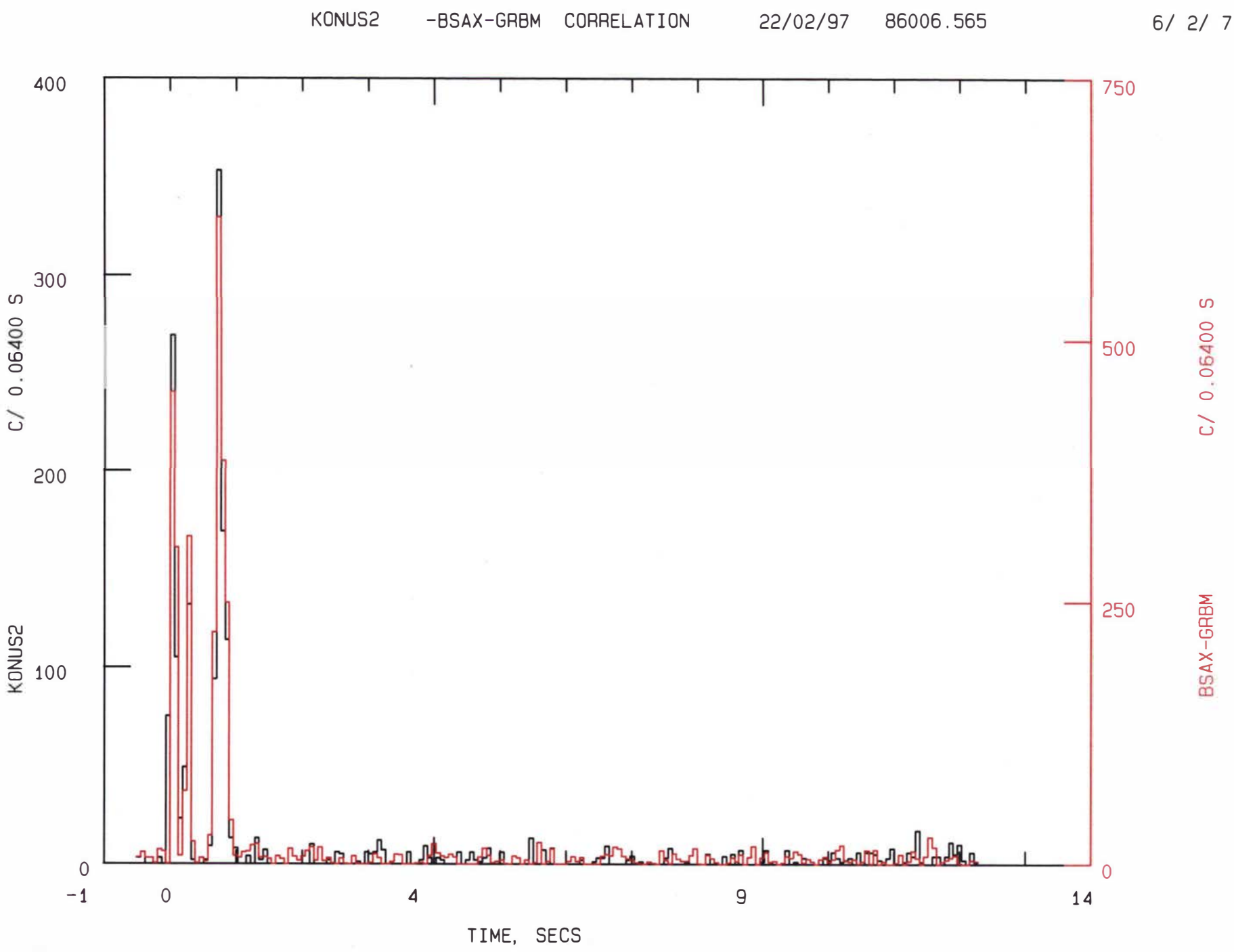
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 KONUS2 3 SAX

N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 KONUS2 3 SAX

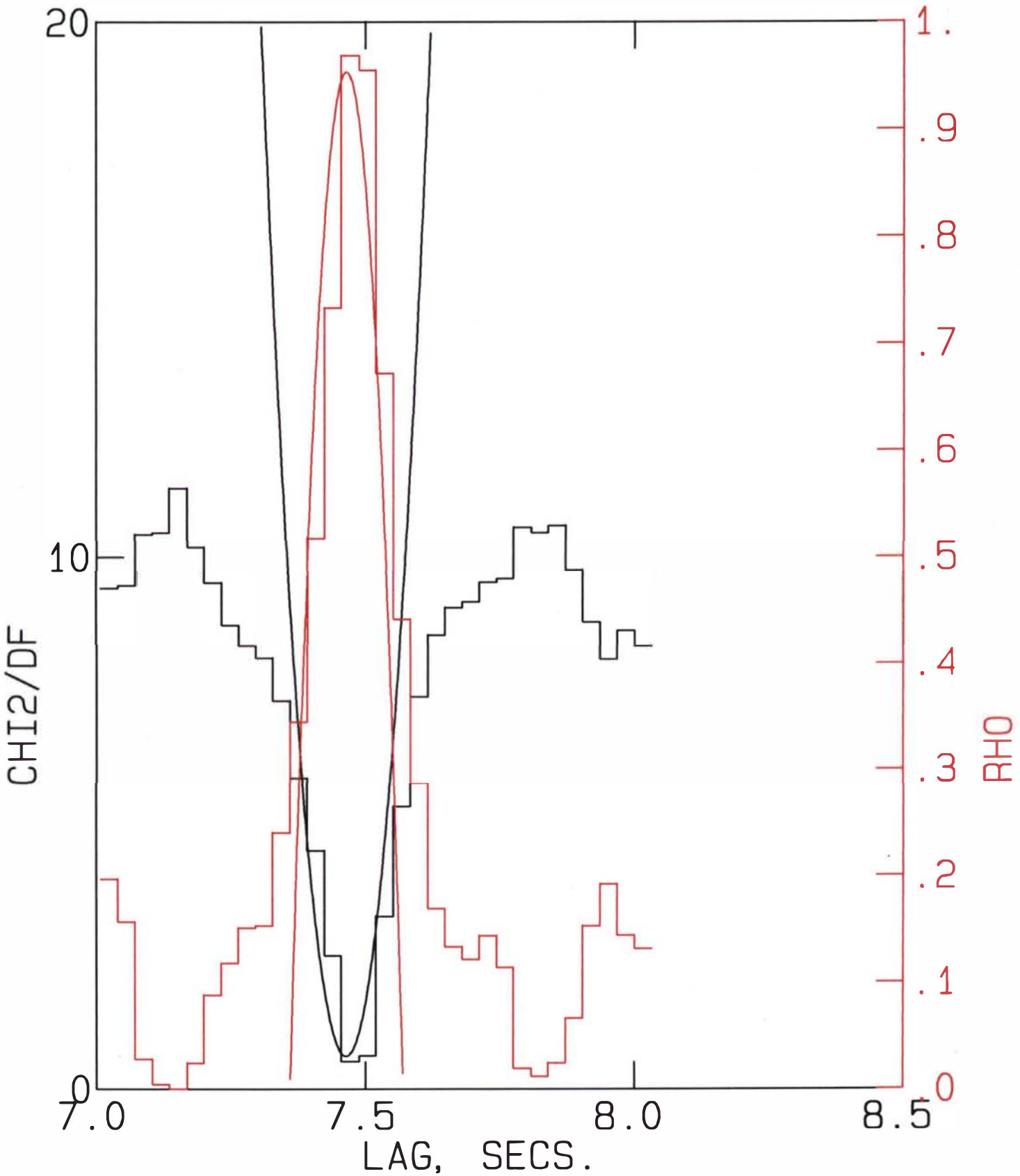
*SGR1900 EVENT OF FEB 22, 1997 23:51

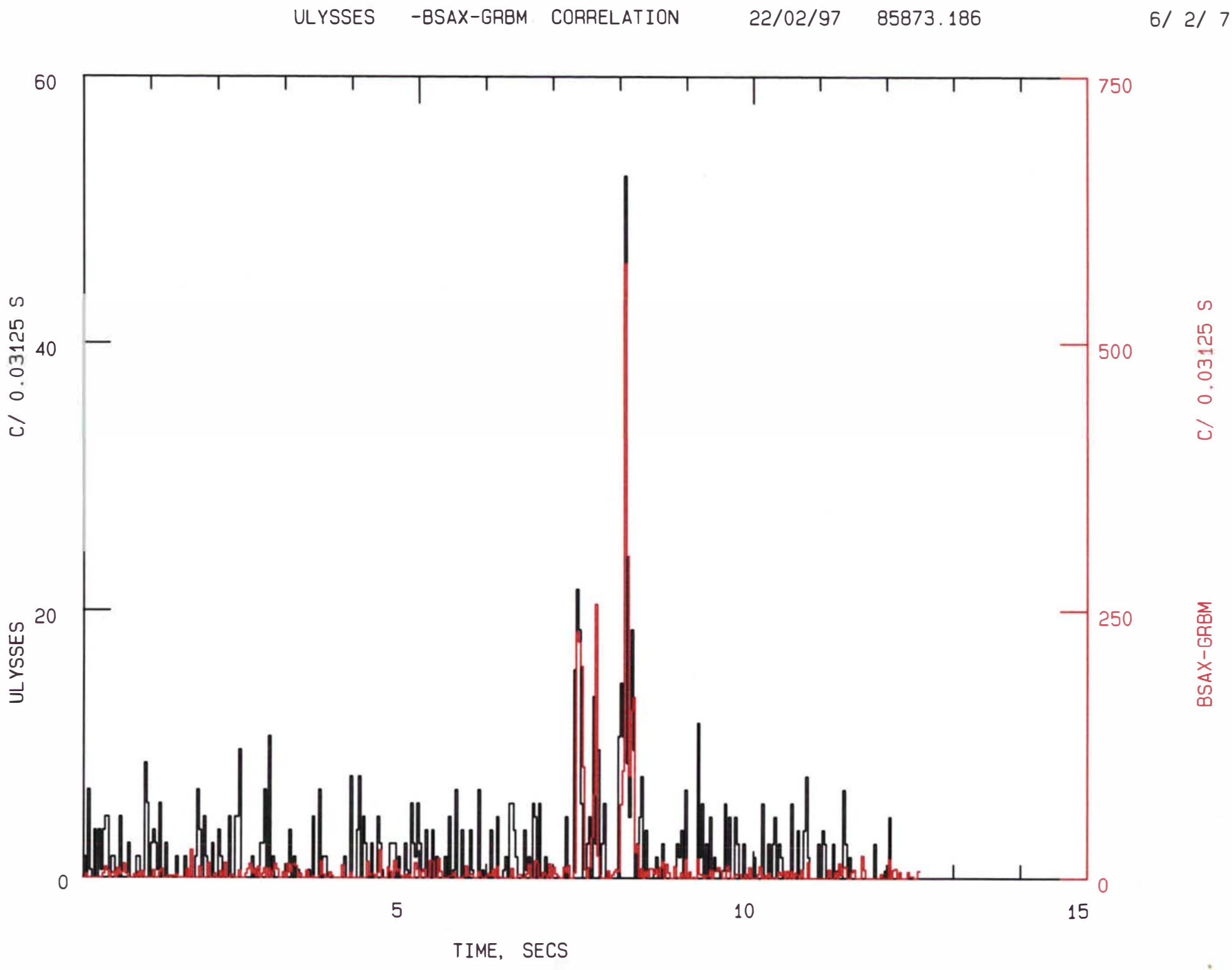
6/ 2/ 7



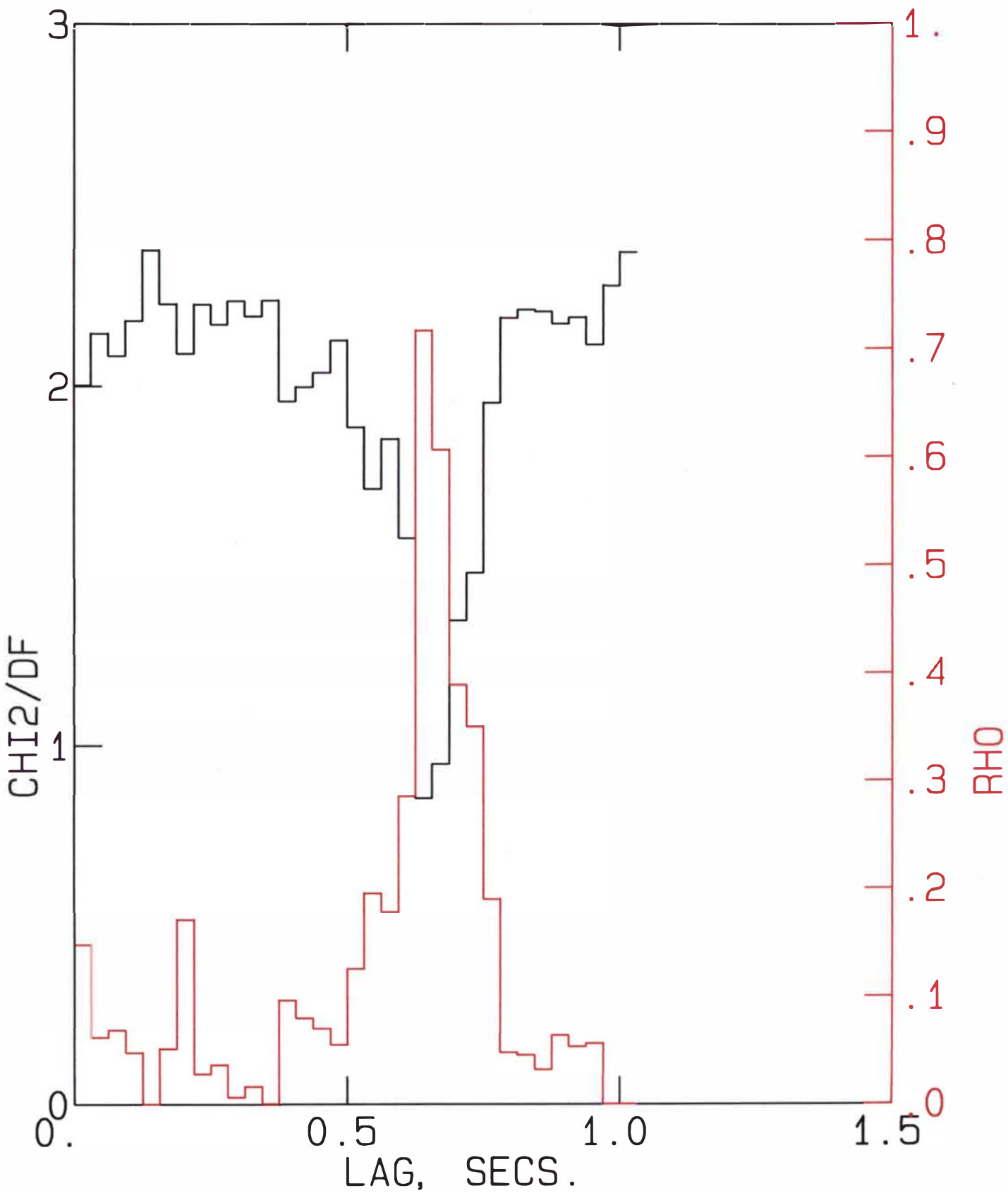

KONUS2 -BSAX-GRBM CORRELATION 22/02/97 86006.565
6/ 2/ 7
400
300
200
100
0
C/ 0.06400 S
KONUS2
750
500
250
0
C/ 0.06400 S
BSAX-GRBM
-1
0
4
9
14
TIME, SECS

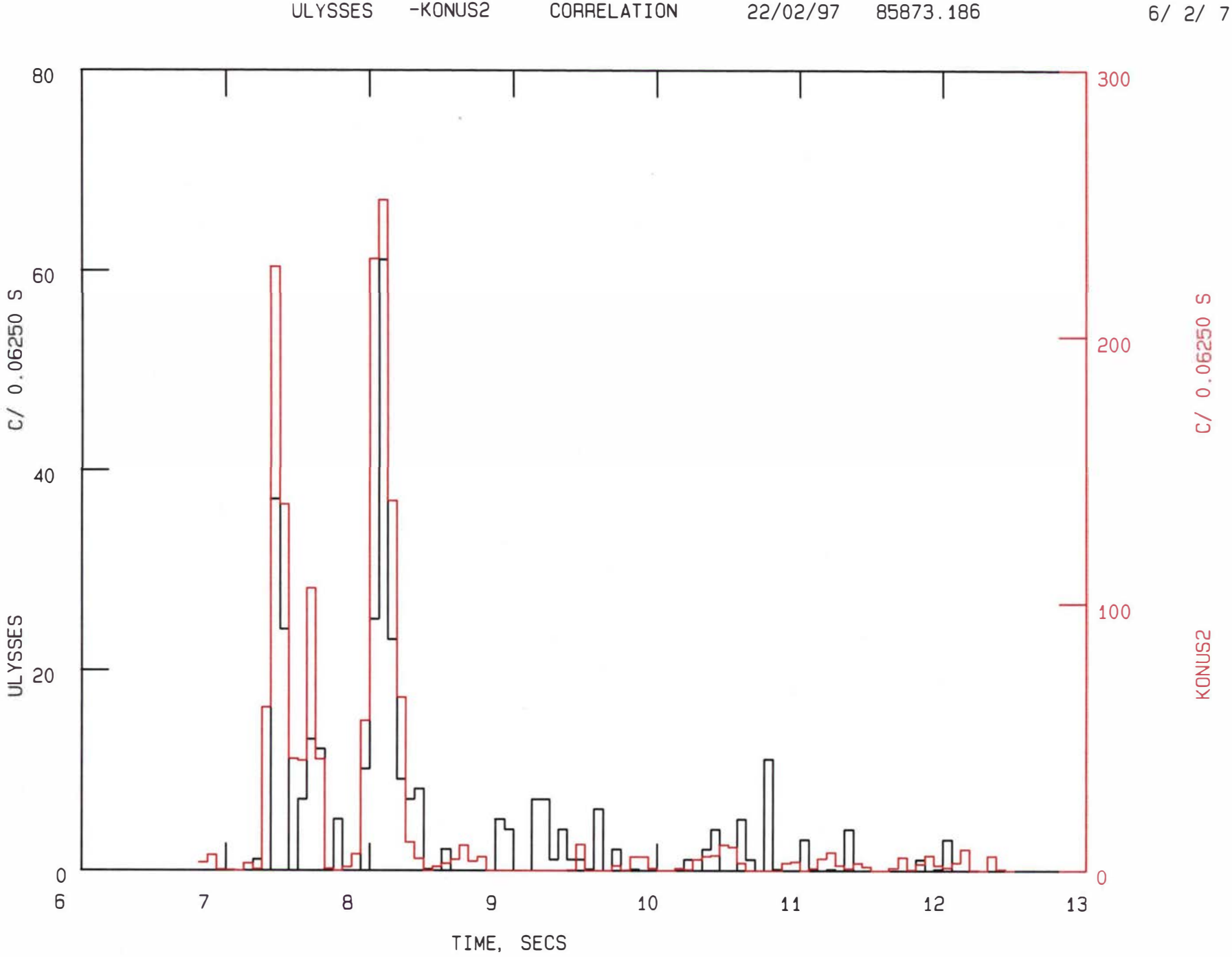
KONUS2 -BSAX-GRBM CORRELATION 22/02/97 86006.565



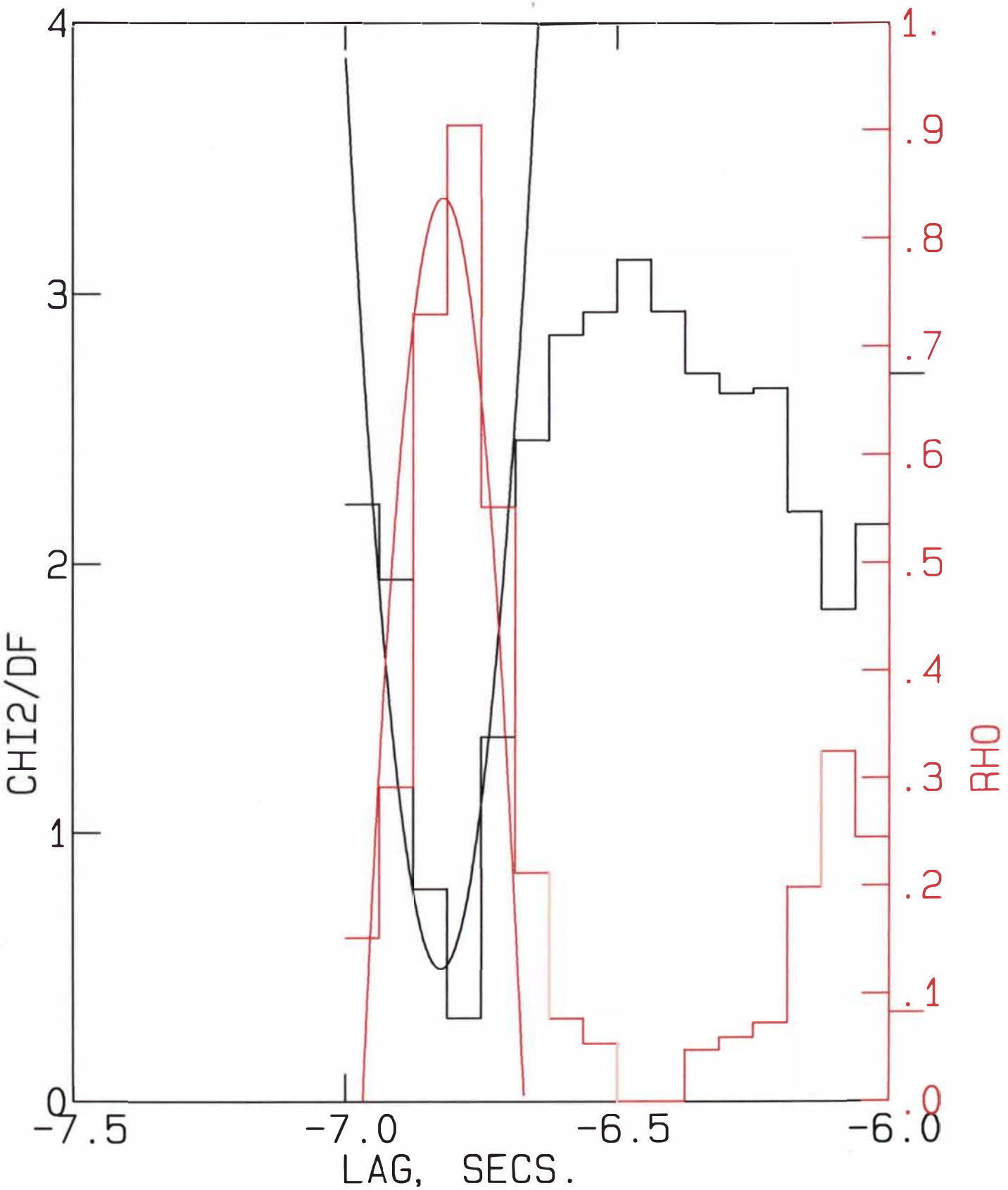

ULYSSES -BSAX-GRBM CORRELATION 22/02/97 85873.186 6/ 2/ 7
60
40
20
0
750
500
250
0
C/ 0.03125 S
ULYSSES
BSAX-GRBM
5
10
15
TIME, SECS

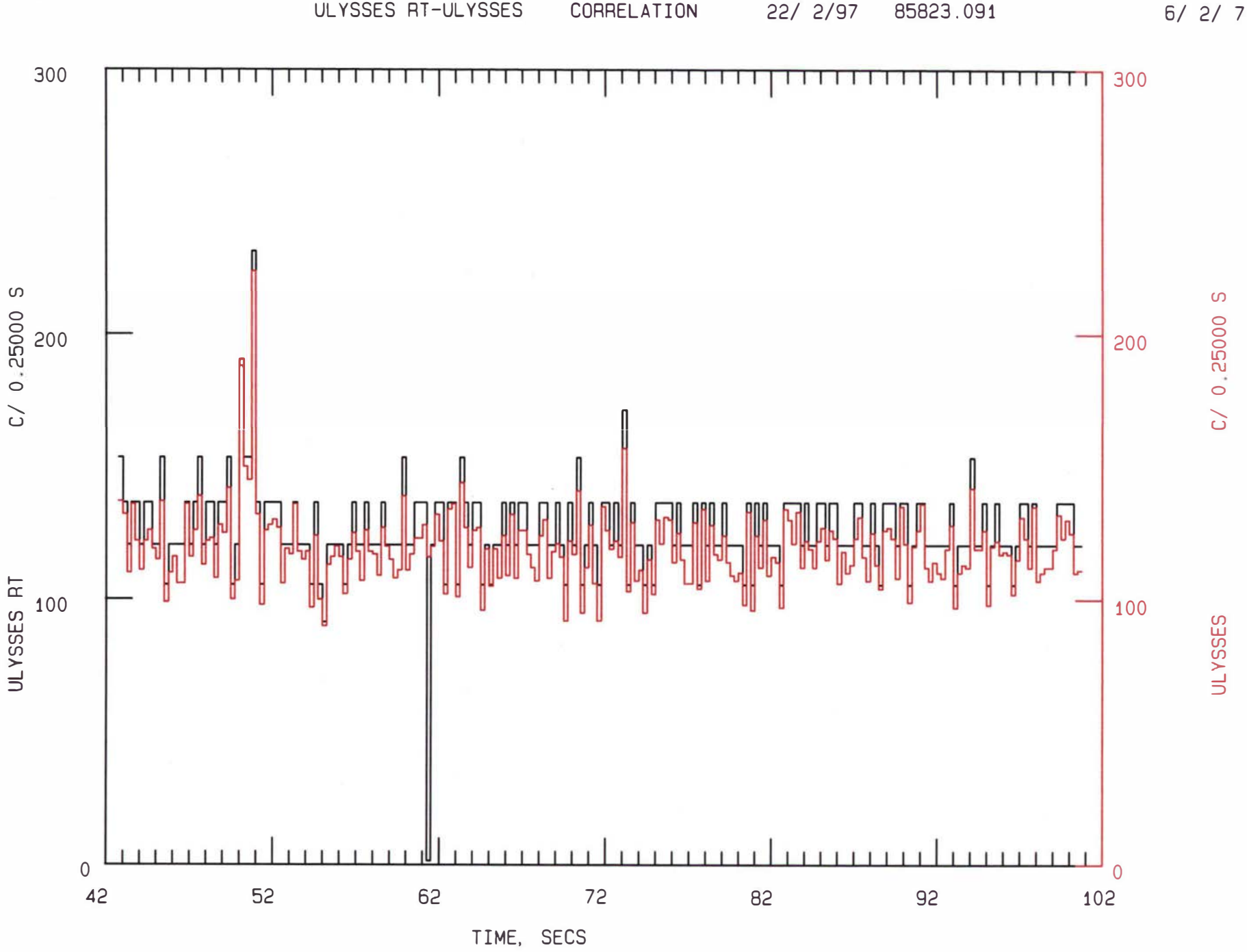
ULYSSES -BSAX-GRBM CORRELATION 22/02/97 85873.186



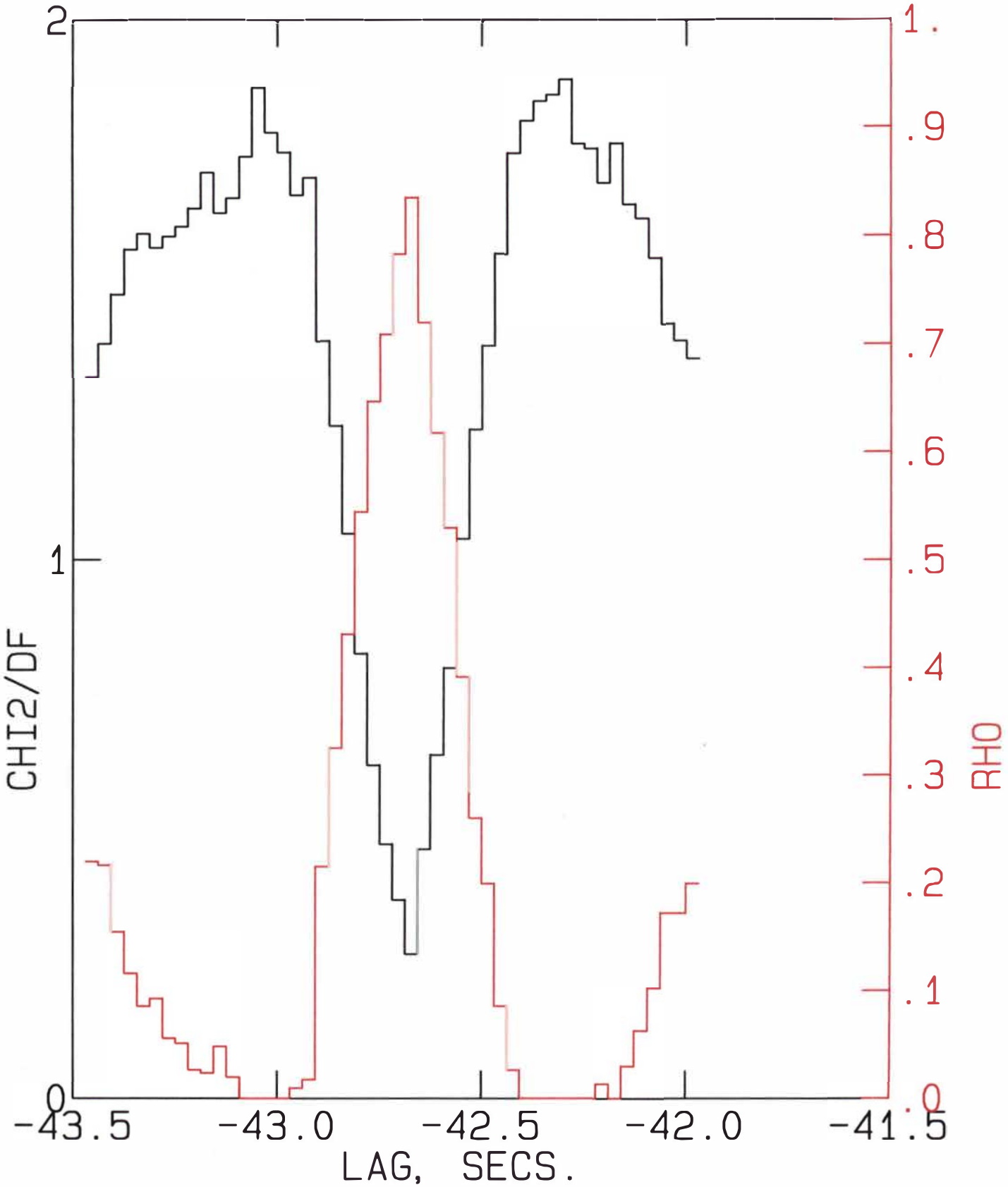

ULYSSES -KONUS2 CORRELATION 22/02/97 85873.186 6/ 2/ 7
80
60
40
20
0
C/ 0.06250 S
ULYSSES
300
200
100
0
C/ 0.06250 S
KONUS2
6
7
8
9
10
11
12
13
TIME, SECS

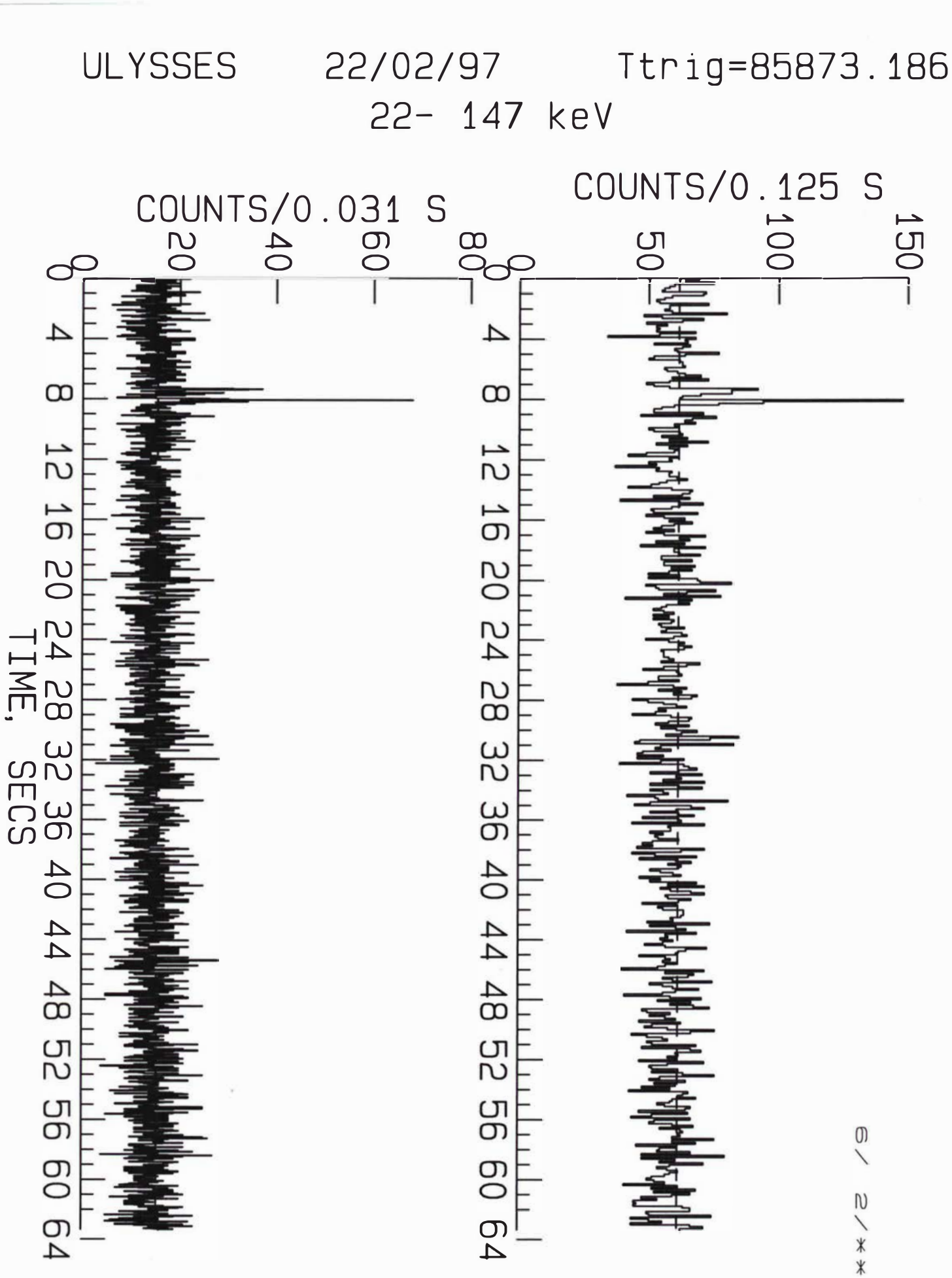
ULYSSES -KONUS2 CORRELATION 22/02/97 85873.186




ULYSSES RT-ULYSSES CORRELATION 22/ 2/97 85823.091 6/ 2/ 7
300
200
100
0
C/ 0.25000 S
ULYSSES RT
42
52
62
72
82
92
102
TIME, SECS
ULYSSES

ULYSSES RT-ULYSSES CORRELATION 22/ 2/97 85823.091



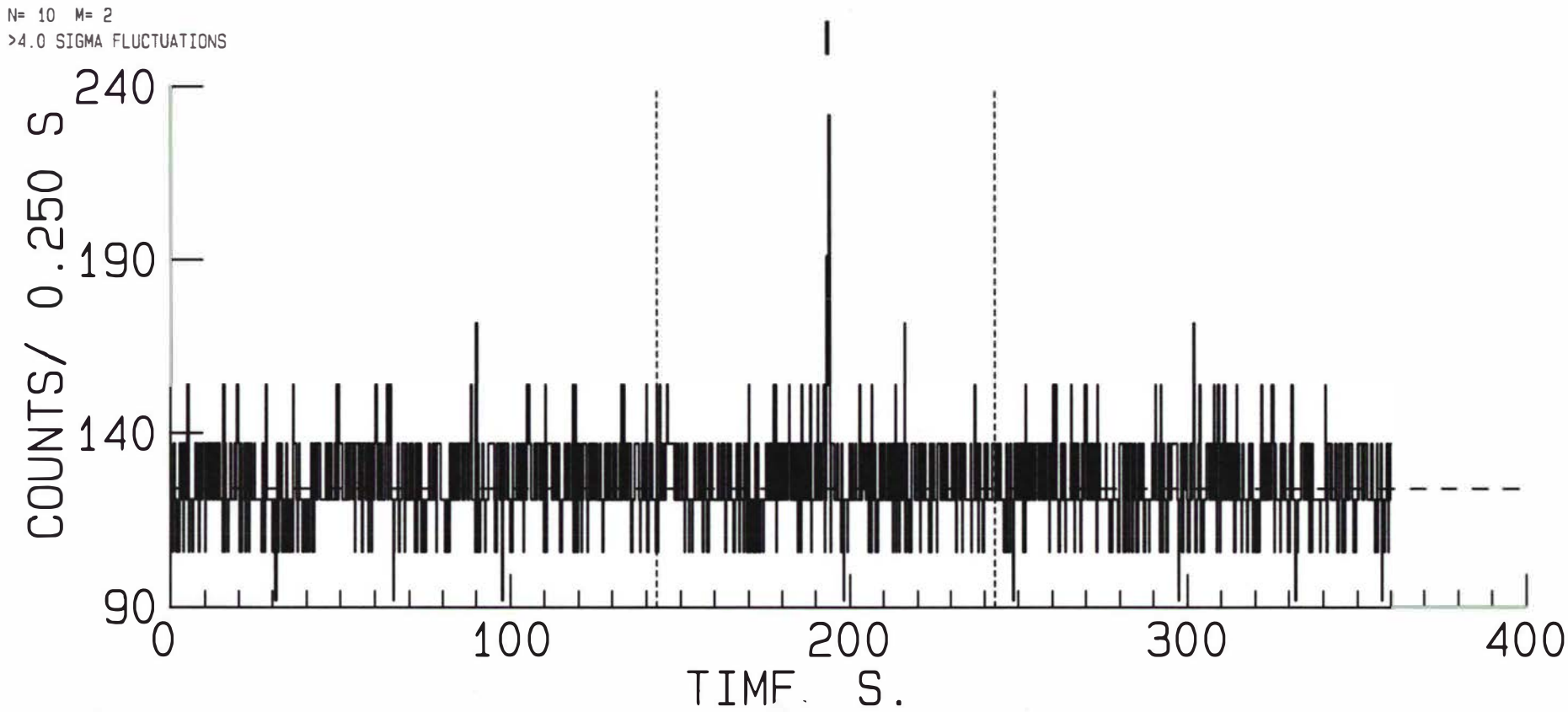

ULYSSES 22/02/97 Ttrig=85873.186
22- 147 keV
COUNTS/0.031 S
0 20 40 60 80
COUNTS/0.125 S
0 50 100 150
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64
TIME, SECS
6/ 2/ **

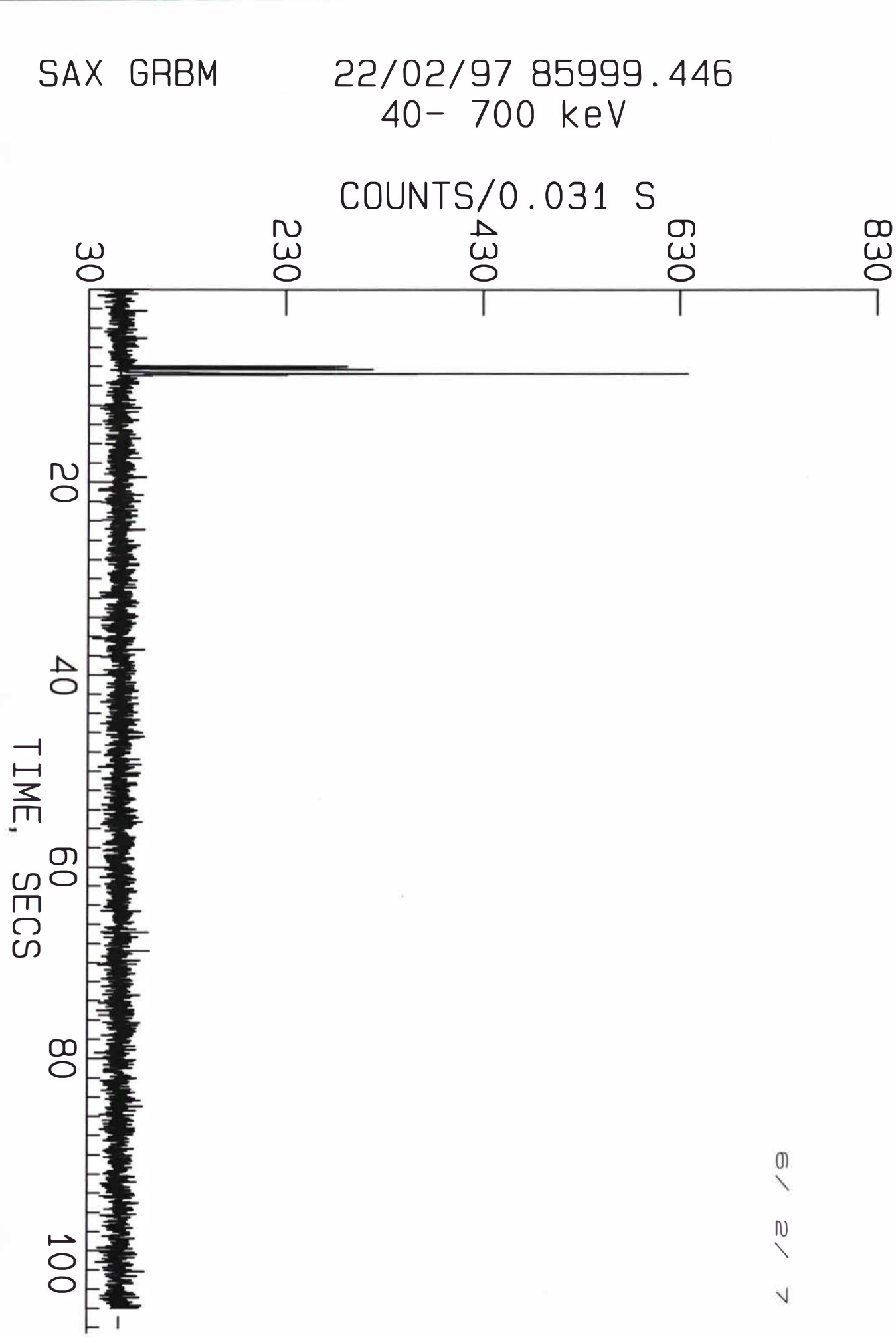
ULYSSES RT

6/ 2/ 7

22/ 2/97 85680.047 s

22- 147 keV




SAX GRBM
22/02/97 85999.446
40- 700 keV
COUNTS/0.031 S
30
230
430
630
830
20
40
60
80
100
TIME, SECS

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

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

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

DATE	FL	DAY	TIME	NOTES---(ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)------REPORTED (NO=DATA CHECKED--SHOWS NO DETECTION)(SR=S. RADIATION BELT) (NR=NORTH RADIATION BELT)(SAA=SOUTH ATLANTIC ANOMALY)	
970111		011	35040.2	BATSE GRB#5773 (8727CTS/2S) (SEE IAU6569,6571,6574,6598)	
		011	35040.2	BEPPO SAX TRIG,INTENSE,50S,3 PEAKS(232.10,19.67J) IAU6533	
	13	011	35040.0	PEAKS(40/S),48.0(50/S),58.0(60/S),@24DEG,@848KM,SOFT	REP0313
970111		011	85744.6	KONUS (HARD,SLOW RISE) +TGR (UL:NO) (DMSP13:NO)	
970117		017	53211	TGR+SAX GRB (KONUS INOP)+UL@54420(STRONG,20S) (13:NO)	
970124		024	44343.4	KONUS(MULT PKS)+UL@46253@2100LS,STRONG+TGR (13SAA)	
970201		032	57250.7	BATSE GRB#5989 (53612/SEC) +UL	
	13	032	57222.1	PEAK (100/S,~30S,SOFT,BROAD) (@111DEG) UNCONVINCING	
970218		049	50996.1	KONUS (STRONG,5SEC) +UL@51274,2000LS (STRONG,8SEC)	
	13	049	51001.0	PEAK (320/S,<6S)	REP0624
970222		053	86006.6	KONUS (MOD.STRONG,SEV.SEC) +UL@85873,2000LS,MOD,2S(13NO)	
970226		057	31585.9	KONUS (STRONG,SOFT PK@+39) +UL@30547,2000LS(V.INT,40S)	
	13	057	31595.8	PEAK (270/S,10SEC) (MODERATELY STRONG)	REP0313
970228		059	10680.8	BEPPOSAX(IAU6572)MOD.INT.,80S,4 PKS (75.46,11.75J)IAU6578	
		059	10680.8	INT.X-RAY,RADIO(IAU6576,6577),OPTICAL(6584),MOTION(6629)	OPTICAL
	13	059	10659.1	PKS,667.1(60/S,ONE-SIDED,SOFT,@74DEG) DOUBTFUL (+UL,WIND)	
..0313		072	30096.5	KONUS(MOD.STRONG,PK@+11,40S)+UL@28380,2000LS(MOD.INT,10S)	
	13	072	28355.8	PEAK (180/S,<2S,SOFT) (NO PEAK AT 30096!) (CONFLICT)	REP0501

From sinha@isac.ernet.in Fri Aug 11 06:11 PDT 2000
From: sinha@isac.ernet.in
Date: Fri, 11 Aug 2000 15:24:30 +0530 (IST)
X-Sender: sinha@sx08
To: Kevin Hurley <khurley@sunspot.ssl.berkeley.edu>
Subject: Confirmation for SROSS C-2 GRB events (probably SGRs)
MIME-Version: 1.0

Dear Prof. Hurley,

We have now obtained good estimates of some parameters of our GRB data. Below I am listing the derived parameters for few short events.

DATE	EVENT TIME (UT SEC)	T90 (SEC)	HARDNESS RATIO (100-1024keV)/ (20-100 keV)	FLUENCE ERGS CM-2
22.02.97	86007.392	0.142	1.02+-0.21	7.91.10-6
21.05.97	49988.655	0.335	0.53+-0.13	1.47.10-5
24.07.99	77354.837	1.152	0.44+-0.07	4.03.10-5
07.04.00	37496.548	0.759	0.05+-0.01	1.05.10-5

(A) The event times given in UT may be off by as much as 200 ms.

(B)0 The true T90 for the first event would be somewhat larger than the quoted value.

C) Since we do not know the source direction, the fluence value is not rreceted for the sec (theta) factor.

Will it be possible for you to kindly go through your archive and let us know whether ULYSSES or any other IPN spacecrafts detected these events and particularly do any of these match with any known SGR ? The reason I thought they may be related to SGRs is their very short durations (often two or three short sub-bursts within the main profile) and their soft spectra (small values of H_R). None of these four events match with any of BATSE events (according to Dr. Peter Woods- post. doc working with Dr. Kouveliotou).

If some match is found I would like to send our high time resolution data to you and jointly carry out further work with you, if something more can be done.

Thanking you.

With warm regards.

SRIKANTA SINHA

From DEAL@fender.msfc.nasa.gov Sun Feb 23 09:48 PST 1997
From: DEAL@fender.msfc.nasa.gov
Date: Sun, 23 Feb 1997 11:48:20 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu, lmm@egret.gsfc.nasa.gov,
mops@osse.nrl.navy.mil, grove@osse.nrl.navy.mil,
matz@osse.nrl.navy.mil, share@osse.nrl.navy.mil,
messina@osse.nrl.navy.mil, sandora@osse.nrl.navy.mil
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6099

TIME: TJD=0501 SECONDS=53215

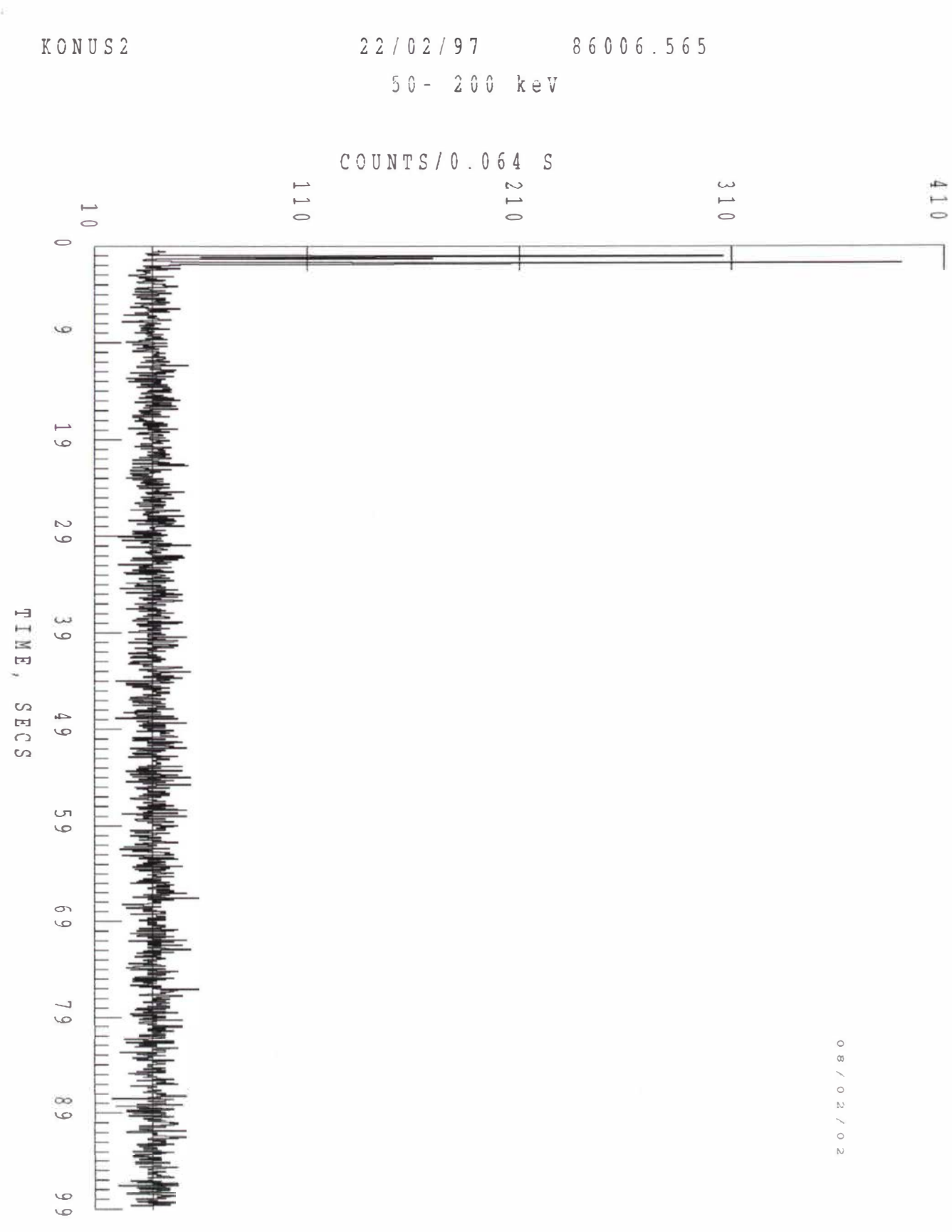
TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

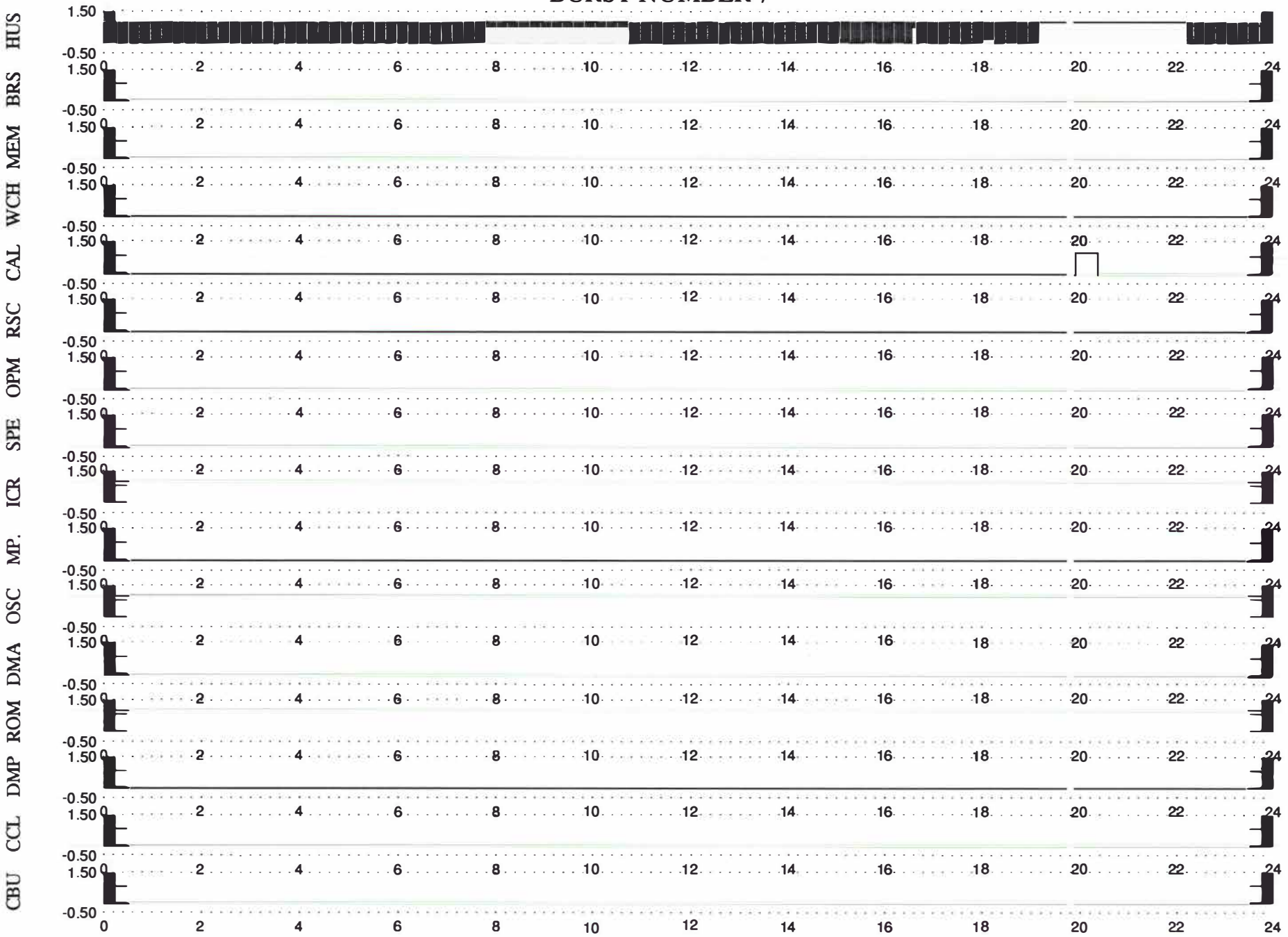
LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT


KONUS2
22/02/97
86006.565
50- 200 keV
COUNTS/0.064 S
10
110
210
310
410
0
9
19
29
39
49
59
69
79
89
99
TIME, SECS
08/02/02

HUS MODES EDR day 53, year 1997 to day 53, year 1997 5/16/97

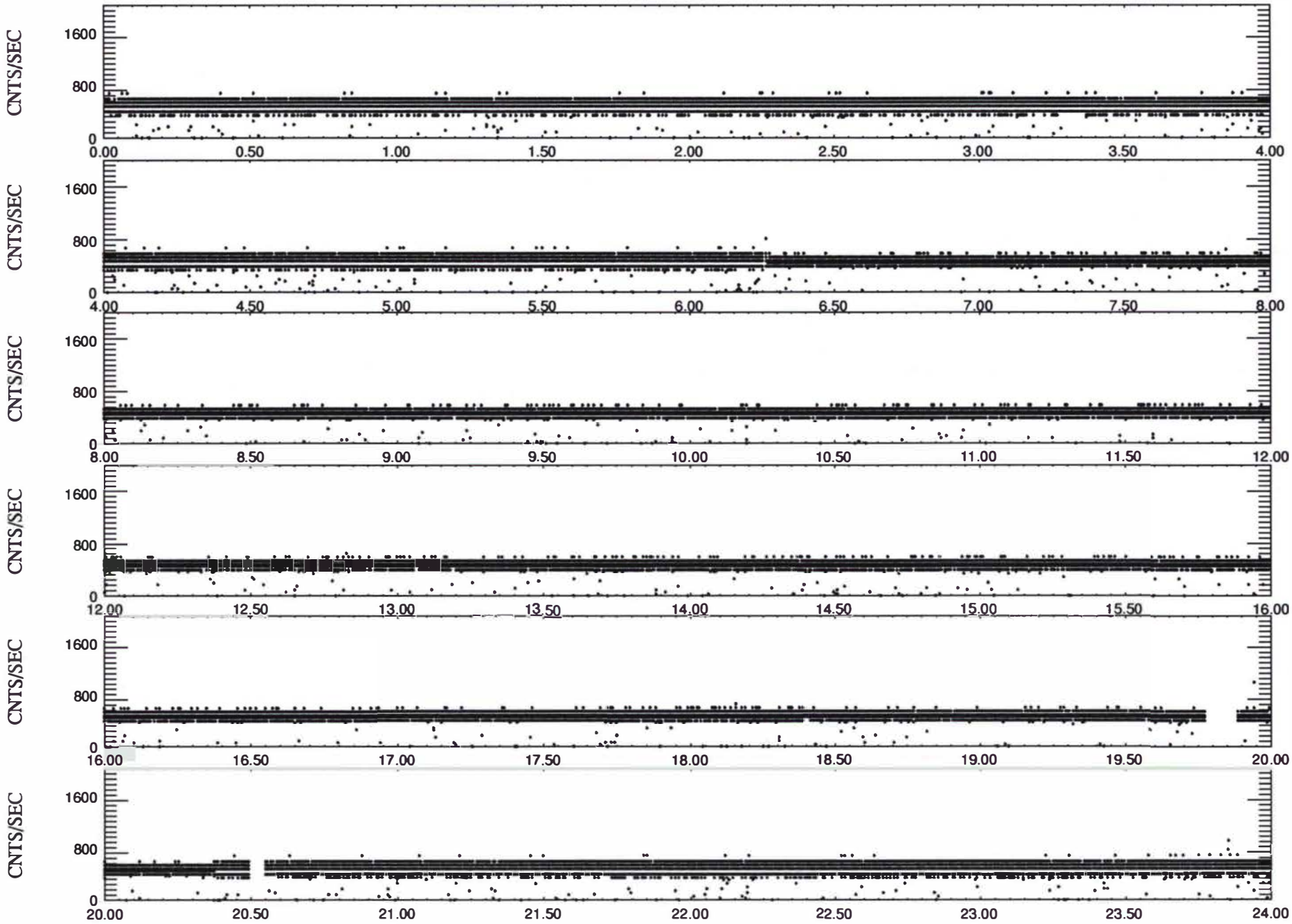
BURST NUMBER 7



UNIVERSAL TIME

HUS 2A, MODE 1, NOT AVERAGED EDR day 53, year 1997 to day 53, year 1997 5/16/97

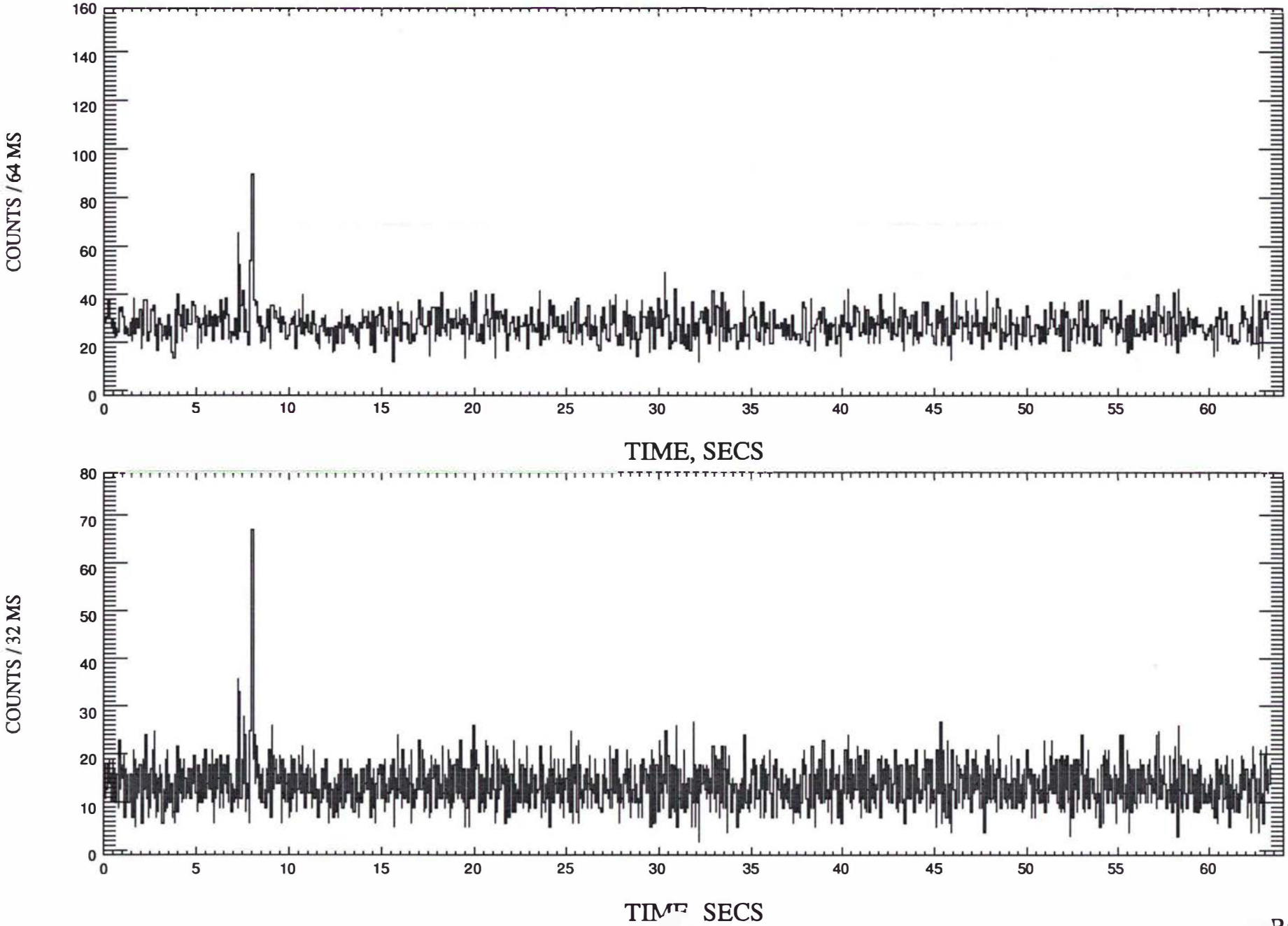
CALIBRATION DATA INCLUDED



UNIVI AL TIME

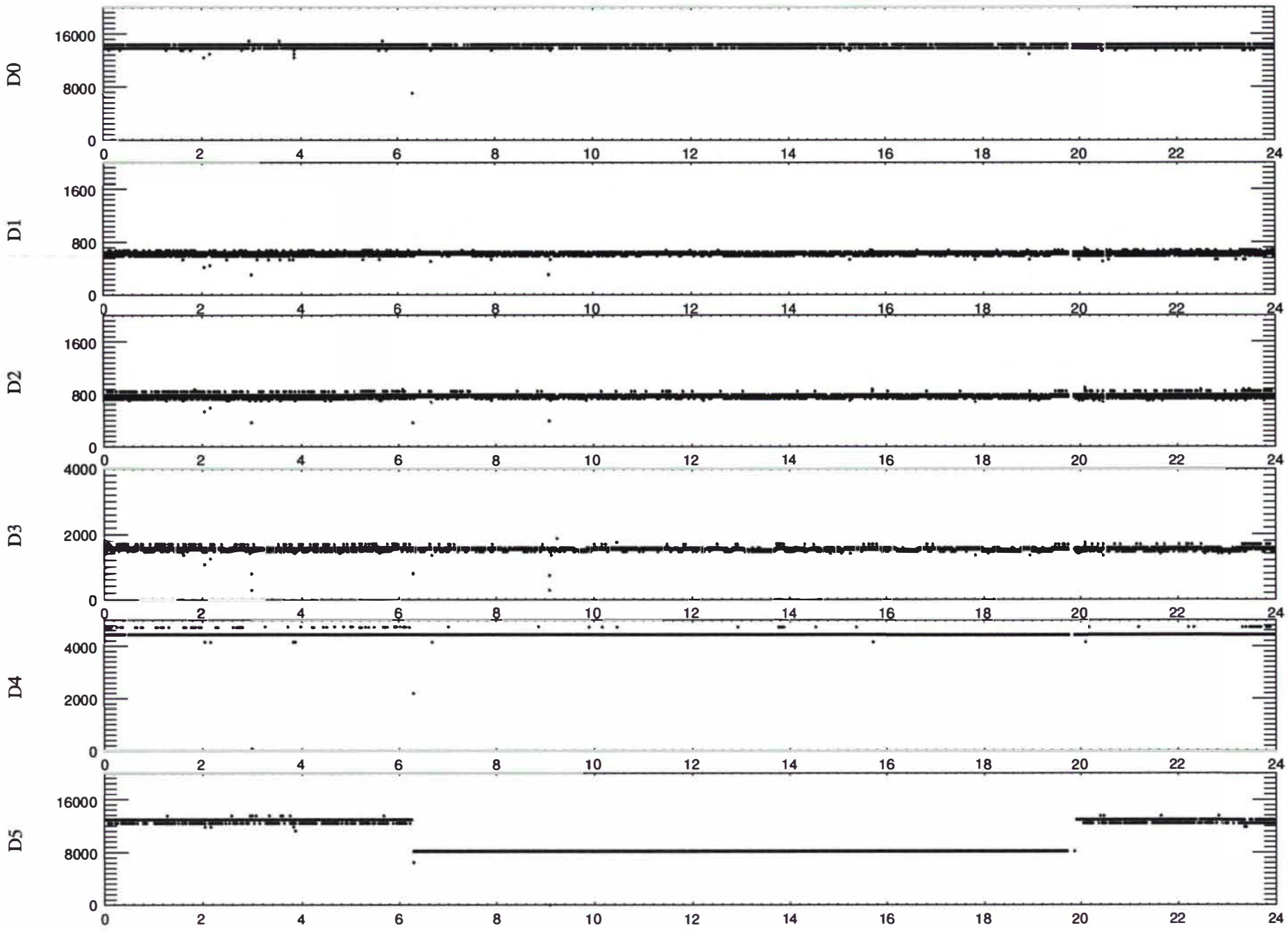
HUS 2A TRIGGERED DATA EDR day 53, year 1997 6/19/97

Burst Counter 7 at UT=23.853649130927 h=85873.137 s 23:51:13.137



B# 1

HUS 2B COUNTS / SEC EDR day 53, year 1997 to day 53, year 1997 5/16/97



From DEAL@fender.msfc.nasa.gov Tue Feb 25 09:01 PST 1997
Return-Path: <DEAL@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id JAA19941; Tue, 25 Feb 1997 09:01:38 -0800
    m: DEAL@fender.msfc.nasa.gov
Date: Tue, 25 Feb 1997 11:01:10 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970225110110.20c003a1@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6100
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6100
EVENT OF 1997 FEB 23 DAY OF YEAR= 54
EVENT CROSSING TIME AT BATSE : 30377. S. OR 08:26:17.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 142.000 36.000
BATSE PEAK COUNTING RATE: 63000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 23/ 2/ 97 IS:
RA= 166.414 DEC= 36.701 DIST= 3.972 AU
BATSE-ULYSSES DISTANCE = 594236970. KM.
NGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=160.38 DEG.
GHT TRAVEL TIME ALONG PROJECTED PATH=-1867.05 SECS.
CROSSING TIME AT ULYSSES IS 28510. S. OR 07:55:09 +/- 137.21 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 23/ 2/ 97 IS:
RA= 185.225 DEC= 1.815 DIST= 0.730 AU
MARS-BATSE DISTANCE = 109243576. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=127.43 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -221.49 SECS.
CROSSING TIME AT MARS IS 30156. S. OR 08:22:35 +/- 46.87 SECONDS

BATSE BURST TRIGGER
NO.: 6100

TIME: TJD=0502 SECONDS=30377

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=57.7 AZIMUTH=190.3 ERROR=.7 DEGREES

COMMENTS:
ONG SINGLE PULSED BURST LASTING ~ 30 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6100	970223	10502	30377	63000	142	+36	30

From park@kabul.llnl.gov Mon Feb 24 12:32 PST 1997
Return-Path: <park@kabul.llnl.gov>
Received: from kabul.llnl.gov by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id MAA11463; Mon, 24 Feb 1997 12:32:07 -0800
   eived: by kabul.llnl.gov (4.1/LLNL-1.20)
        id AA05645; Mon, 24 Feb 97 12:23:38 PST
Date: Mon, 24 Feb 97 12:23:38 PST
From: park@kabul.llnl.gov (Hyesook Park)
Message-Id: <9702242023.AA05645@kabul.llnl.gov>
To: Elden.Ables@quickmail.llnl.gov, CLINE@tgrs.gsfc.nasa.gov,
        FISHMAN@SSLMOR.msfc.nasa.gov, gehrels@lheavx.gsfc.nasa.gov,
        KOUVELIOTOU@batse.msfc.nasa.gov, llo@kabul.llnl.gov,
        park@kabul.llnl.gov, elp@kabul.llnl.gov, MEEGAN@SSLMOR.msfc.nasa.gov,
        bionta@kabul.llnl.gov, scott@rosserv.gsfc.nasa.gov,
        73251.3043@compuserve.com, butterworth@lheavx.gsfc.nasa.gov,
        DEAL@gibson.msfc.nasa.gov, DLBBAT@cass09.ucsd.edu, wurtz1@llnl.gov,
        Mark.McKernan@quickmail.llnl.gov, hartmann@grb.phys.clemson.edu,
        ggwilli@cosmo.phys.clemson.edu, Mark.Eckart@quickmail.llnl.gov,
        Andy.Hazi@quickmail.llnl.gov, William.Goldstein@quickmail.llnl.gov,
        nakae1@llnl.gov, khurley@sunspot.ssl.berkeley.edu
Subject: Trig 6100
Content-Type: text
Content-Length: 715
Status: RO
X-Lines: 15

Dear Colleagues,

LOTIS recorded another trigger on Sunday night. It was a clear night and all
 cameras worked. It was a type 1 trigger and we started imaging the BACODINE
 rdinate area 11 sec after the burst. Any further info on this trigger from
Huntsville and Goddard will be appreciated.

The trigger 6096 we recorded the other day was a ~2 sec long weak burst.
We only received type 11 BACODINE notice (i.e. 10 min delayed MAXBC trigger)
for this event. Also there was ~8 deg difference between BACODINE and
Huntsville coordinates leading < 50% LOTIS coverage. So this burst may not
be the best one to look for simultananeous GRB optical counterparts. But
further analysis will tell us more.

                Hye-Sook

From park@kabul.llnl.gov Mon Feb 24 13:34 PST 1997
Return-Path: <park@kabul.llnl.gov>
Received: from kabul.llnl.gov by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id NAA12147; Mon, 24 Feb 1997 13:34:47 -0800
Received: by kabul.llnl.gov (4.1/LLNL-1.20)
        id AA05697; Mon, 24 Feb 97 13:31:34 PST
Date: Mon, 24 Feb 97 13:31:34 PST
From: park@kabul.llnl.gov (Hyesook Park)
Message-Id: <9702242131.AA05697@kabul.llnl.gov>
To: scott@rosserv.gsfc.nasa.gov
Subject: Re: BACODINE_BATSE_LIGHTCURVE (fwd)
Cc: Elden.Ables@quickmail.llnl.gov, CLINE@tgrs.gsfc.nasa.gov,
        FISHMAN@SSLMOR.msfc.nasa.gov, gehrels@lheavx.gsfc.nasa.gov,
        KOUVELIOTOU@batse.msfc.nasa.gov, llo@kabul.llnl.gov,
        park@kabul.llnl.gov, elp@kabul.llnl.gov, MEEGAN@SSLMOR.msfc.nasa.gov,
        bionta@kabul.llnl.gov, scott@rosserv.gsfc.nasa.gov,
        73251.3043@compuserve.com, butterworth@lheavx.gsfc.nasa.gov,
        DEAL@gibson.msfc.nasa.gov, DLBBAT@cass09.ucsd.edu, wurtz1@llnl.gov,

Mark.McKernan@quickmail.llnl.gov, hartmann@grb.phys.clemson.edu,
ggwilli@cosmo.phys.clemson.edu, Mark.Eckart@quickmail.llnl.gov,
Andy.Hazi@quickmail.llnl.gov, William.Goldstein@quickmail.llnl.gov,
nakae1@llnl.gov, khurley@sunspot.ssl.berkeley.edu
tent-Type: text
ontent-Length: 1496
Status: RO
X-Lines: 39

Scott,

Thank you for the info on the light curve. I will plot it out.

We started imaging 11 sec from the BSOD. Isn't BSOD defined to be the
the starting time of the burst trigger? Please clear me on this. If that is
the case, we started imaging right in the peak of gamma-ray emission. Isn't
this exciting?

I still need Huntsville coordinate to see how much BACODINE differ from
the final position to estimate our coverage.

Hye-Sook

> From scott@rosserv.gsfc.nasa.gov Mon Feb 24 13:12:14 1997
> From: Scott Barthelmy <scott@rosserv.gsfc.nasa.gov>
> Subject: BACODINE_BATSE_LIGHTCURVE (fwd)
> To: hpark@llnl.gov, rbionta@llnl.gov, ott2@llnl.gov, wurtz@llnl.gov
Date: Mon, 24 Feb 1997 16:12:01 -0500 (EST)
c: cline@apache.gsfc.nasa.gov, gehrels@lheavx.gsfc.nasa.gov,
> scott@rosserv.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
> fishman@SSLMOR.msfc.nasa.gov, meegan@SSLMOR.msfc.nasa.gov,
> chryssa.kouveliotou@msfc.nasa.gov, marc.kippen@msfc.nasa.gov,
> connauv@gibson.msfc.nasa.gov
> X-Mailer: ELM [version 2.4 PL25]
> Mime-Version: 1.0
> Content-Type> : > text/plain> ; > charset=US-ASCII>
> Content-Transfer-Encoding: 7bit
> Content-Length: 8120
>
> Hye-Sook,
> Here is the light curve in the 25-100keV band.
> In this form the burst trigger starts at 10sec, so your first observations
> was at 21sec (Trig+11) for which there is still about 4sec of continuted
> strong emission (and maybe as much ast 12-15sec of weak emission).
> --scott
>

Helio corr removed 17/2/00

Date: Mar 25 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☑ Were data checked by Joe Springer for 0.5 s errors?

☑ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?

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

2. BATSE Data

☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)? N/A

☑ BATSE ephemeris for T_0?

☑ Error circle position and radius from public catalog used?

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

3. PVO Data

☐ Ephemeris of PVO used (not Venus)?

☐ 2000 coordinates used?

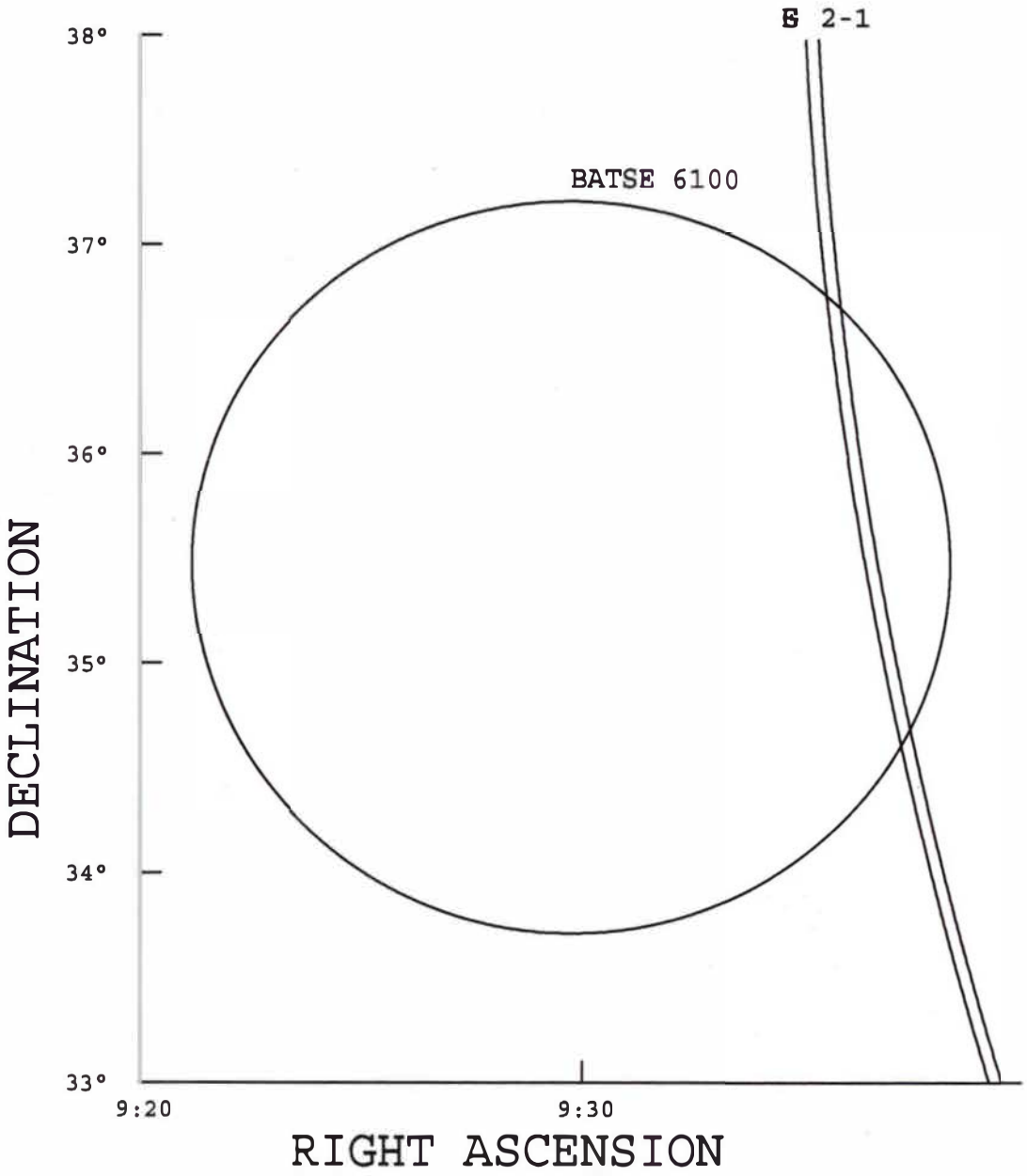
☐ Geocentric time used?

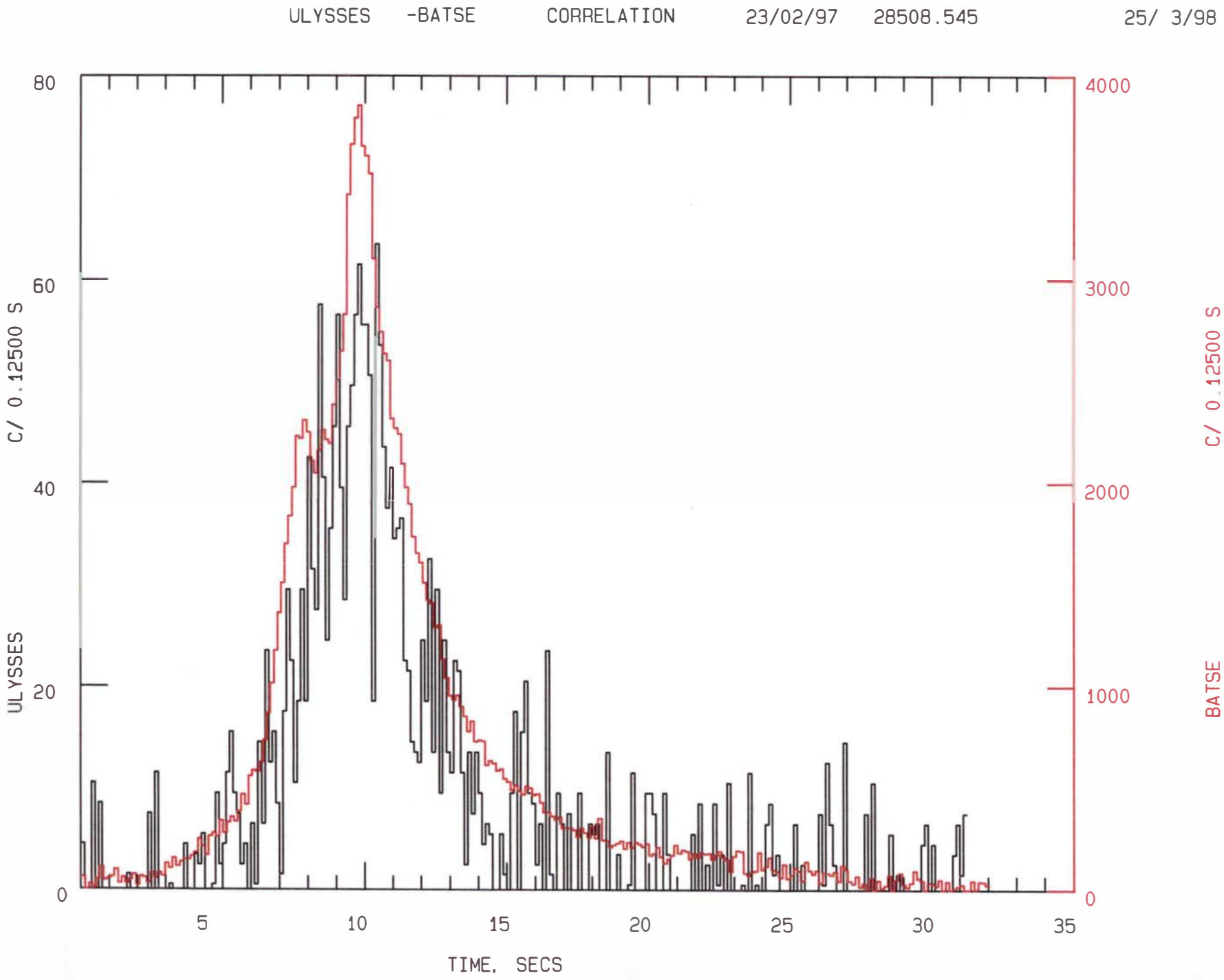
☑ ACCESS database updated?

EVENT OF FEB 23, 1997 7:55

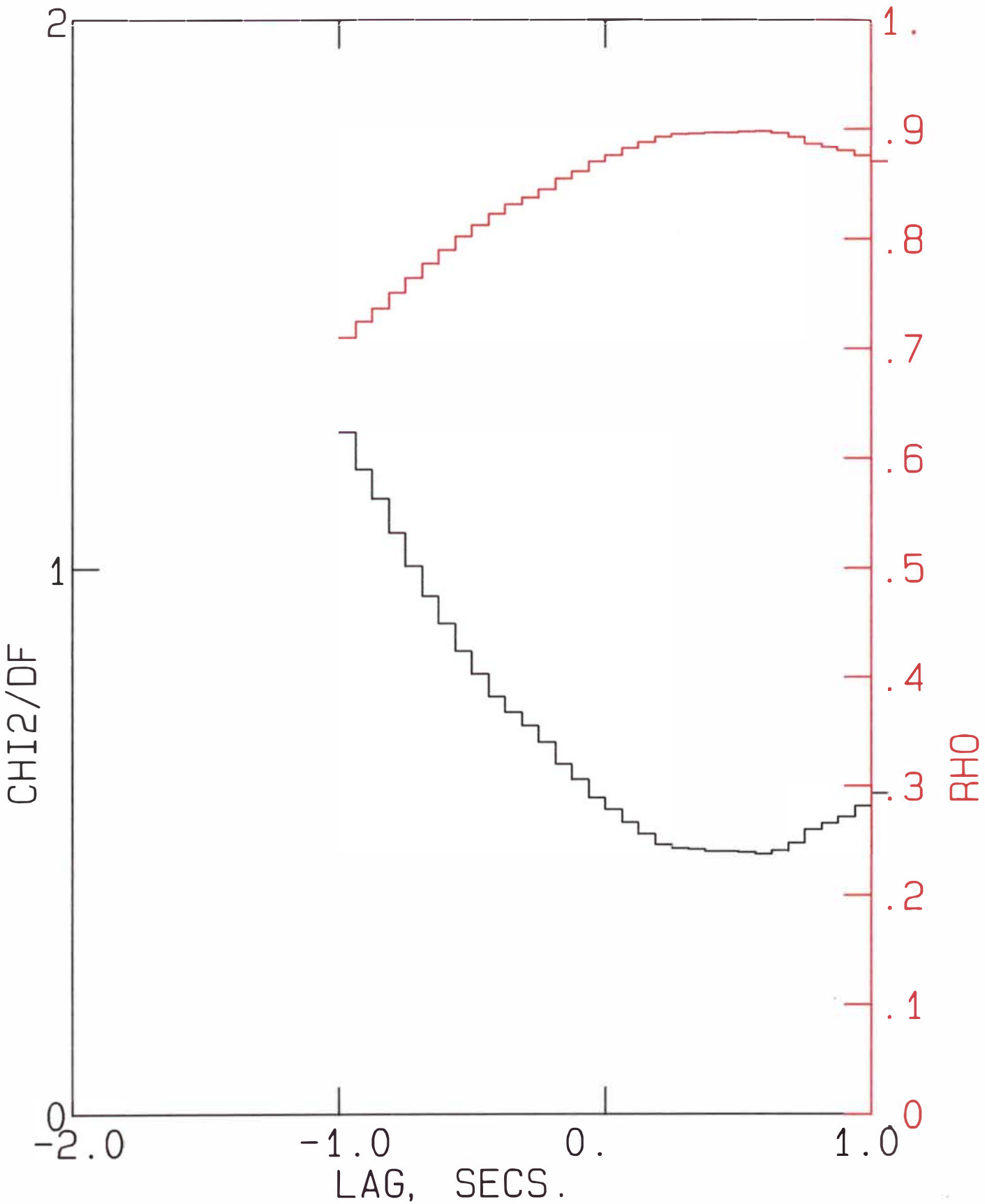
17/ 2/ 0

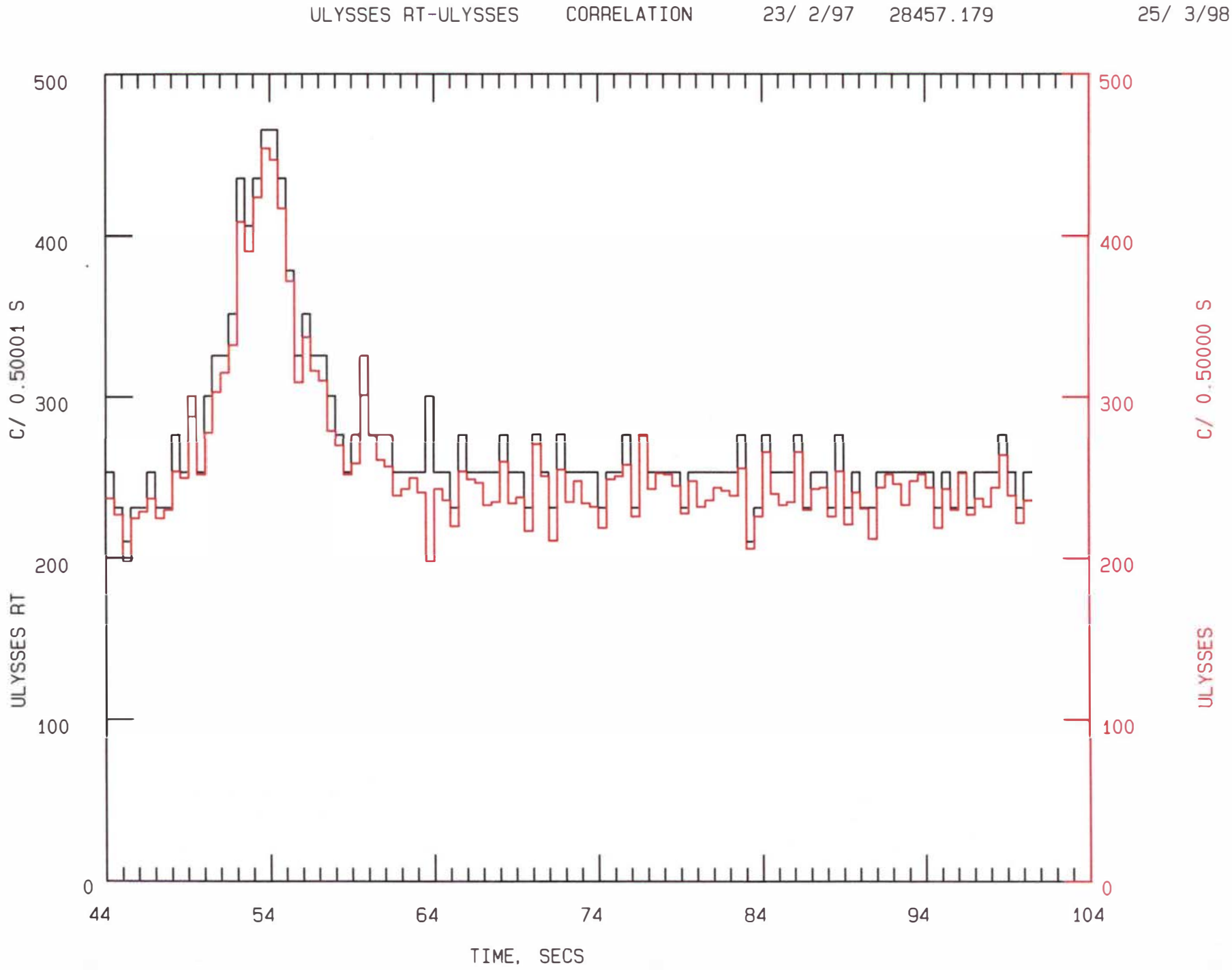
N-M = CORRELATION BETWEEN SATELLITES N AND M
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 ULYSSES 2 BATSE




ULYSSES -BATSE CORRELATION 23/02/97 28508.545 25/ 3/98
80
60
40
20
0
C/ 0.12500 S
ULYSSES
4000
3000
2000
1000
0
C/ 0.12500 S
BATSE
5
10
15
20
25
30
35
TIME, SECS

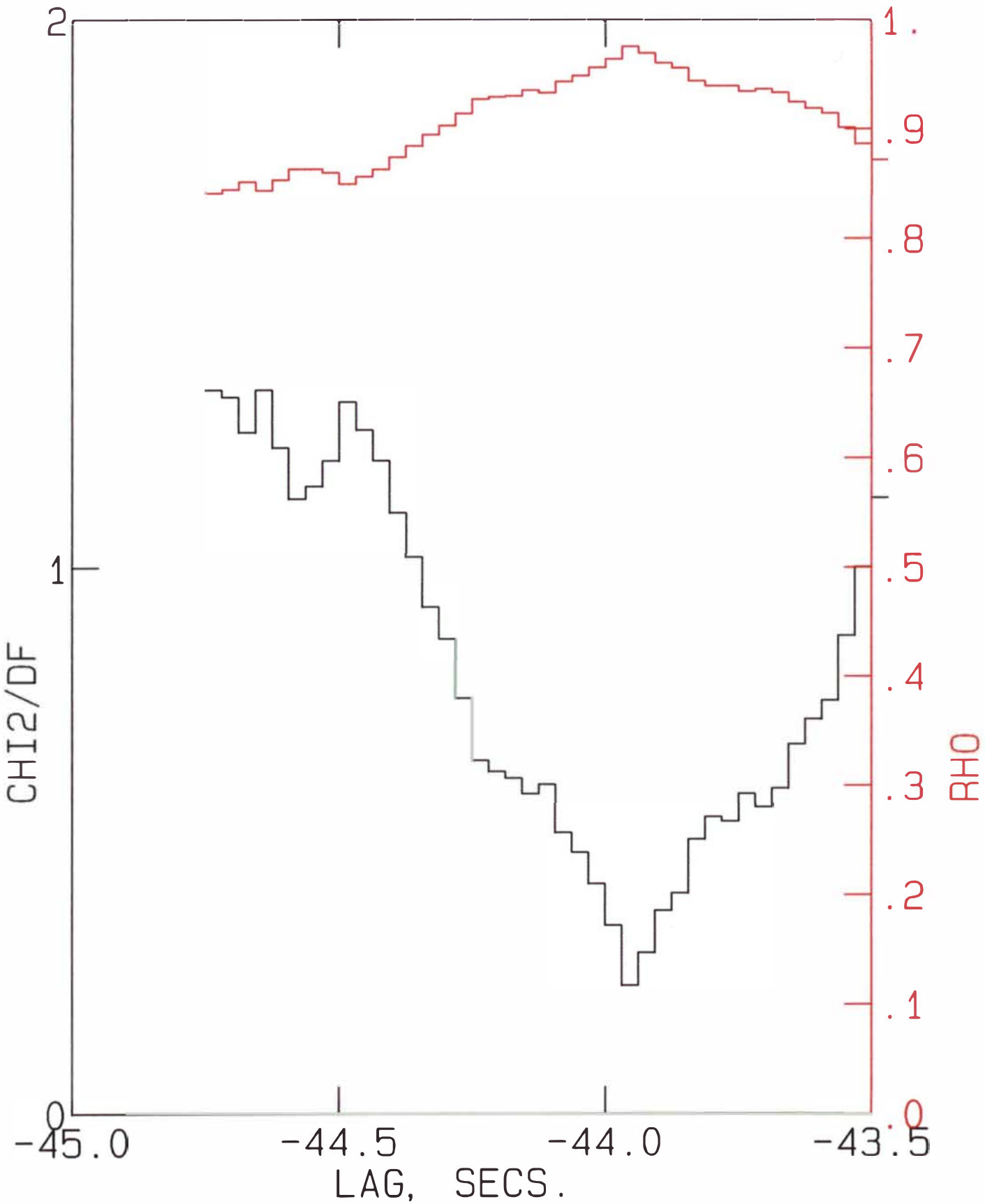
ULYSSES -BATSE CORRELATION 23/02/97 28508.545




ULYSSES RT-ULYSSES CORRELATION 23/ 2/97 28457.179 25/ 3/98
500
400
300
200
100
0
C/ 0.50001 S
ULYSSES RT
C/ 0.50000 S
ULYSSES
44
54
64
74
84
94
104
TIME, SECS

25/ 3/98

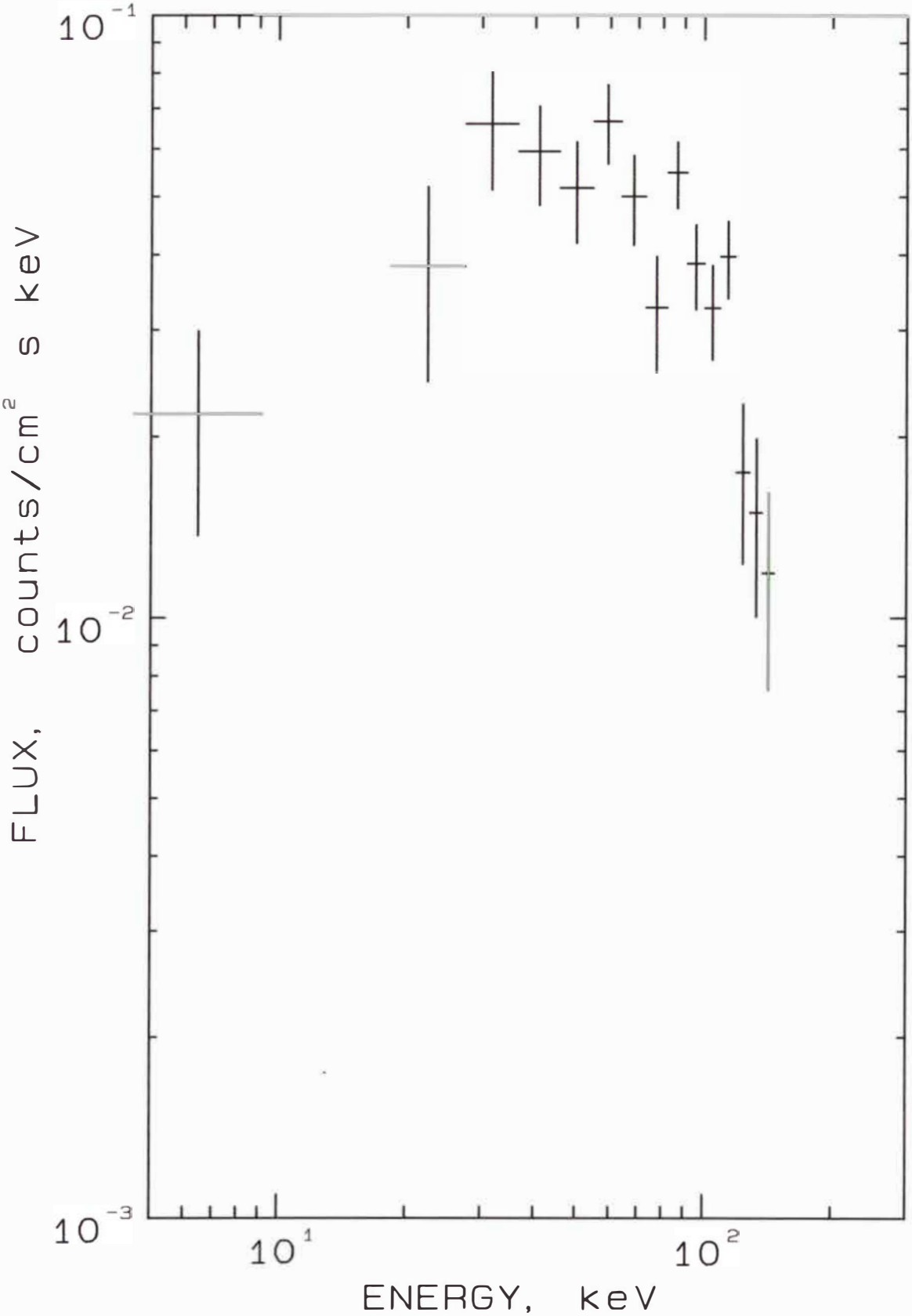
ULYSSES RT-ULYSSES CORRELATION 23/ 2/97 28457.179

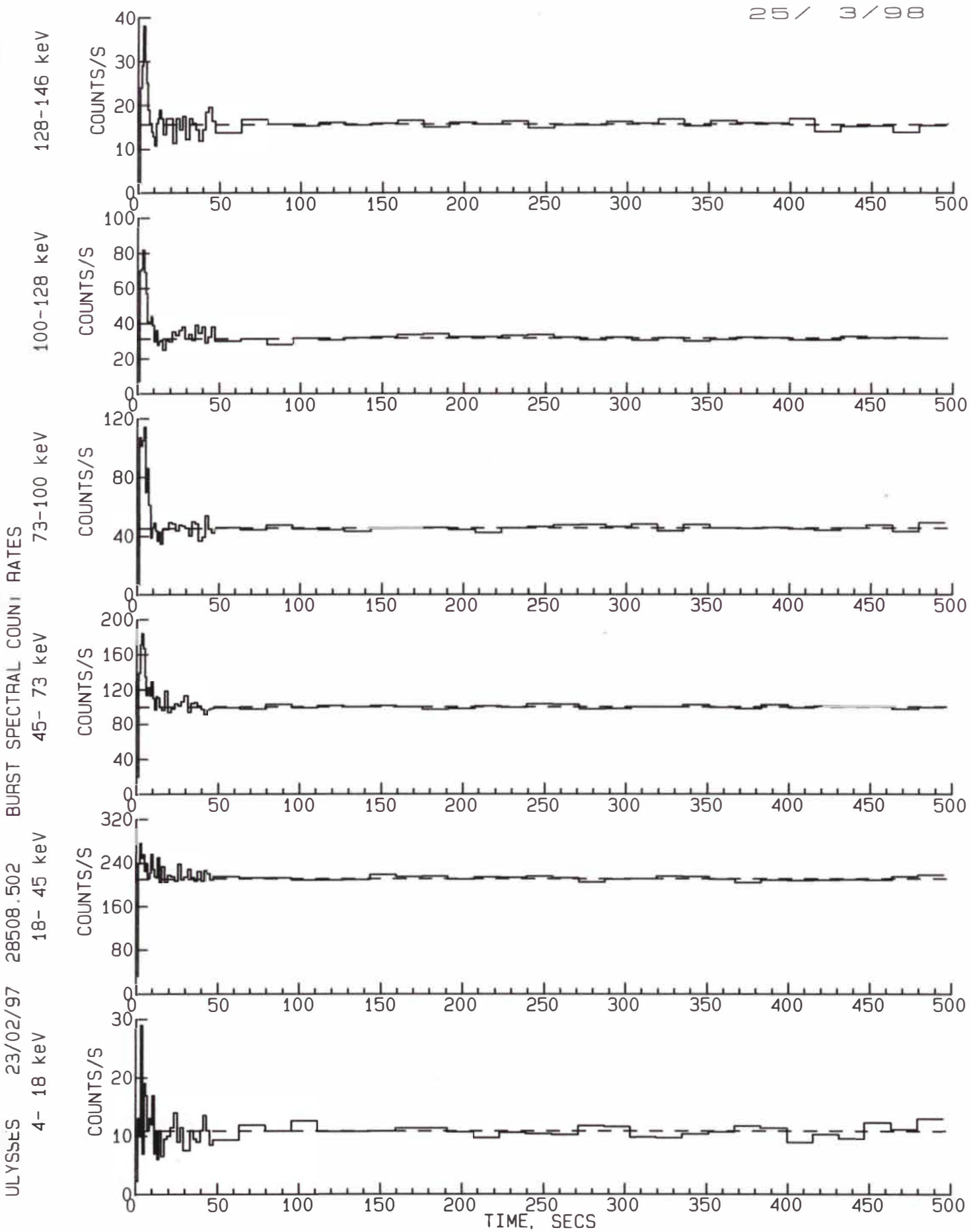


ULYSSES 23/02/97 28508.502

25/ 3/98

SPECTRUM INTEGRATED OVER 21.2 SECONDS, INTERVALS 2 TO 20




25/ 3/98
ULYSSES 23/02/97 28508.502 BURST SPECTRAL COUNT RATES
4- 18 keV
18- 45 keV
45- 73 keV
73-100 keV
100-128 keV
128-146 keV
COUNTS/S
TIME, SECS

ULYSSES 23/02/97 Ttrig=28508.545

21- 146 keV

COUNTS/0.031 S

COUNTS/0.125 S

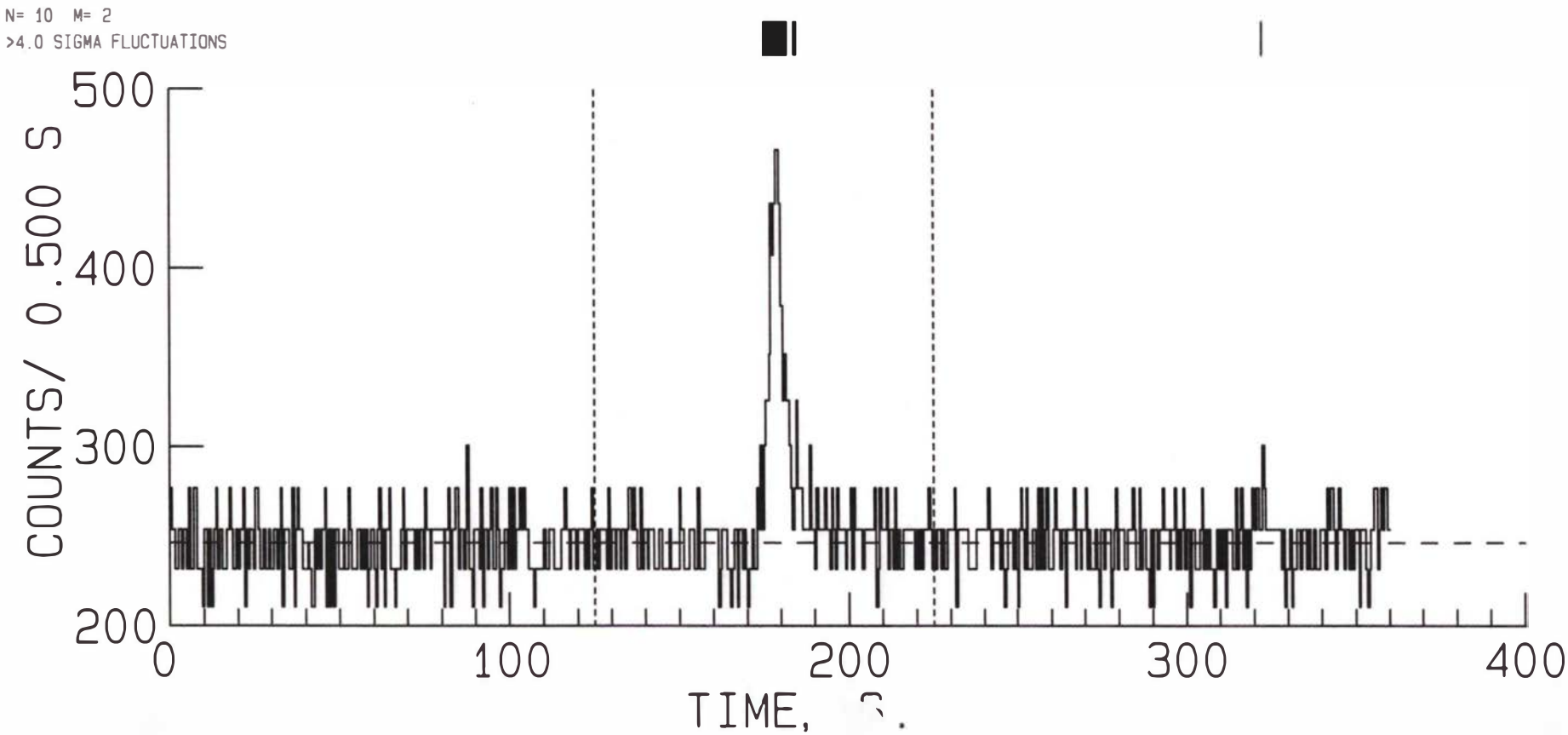
25/ 3/**

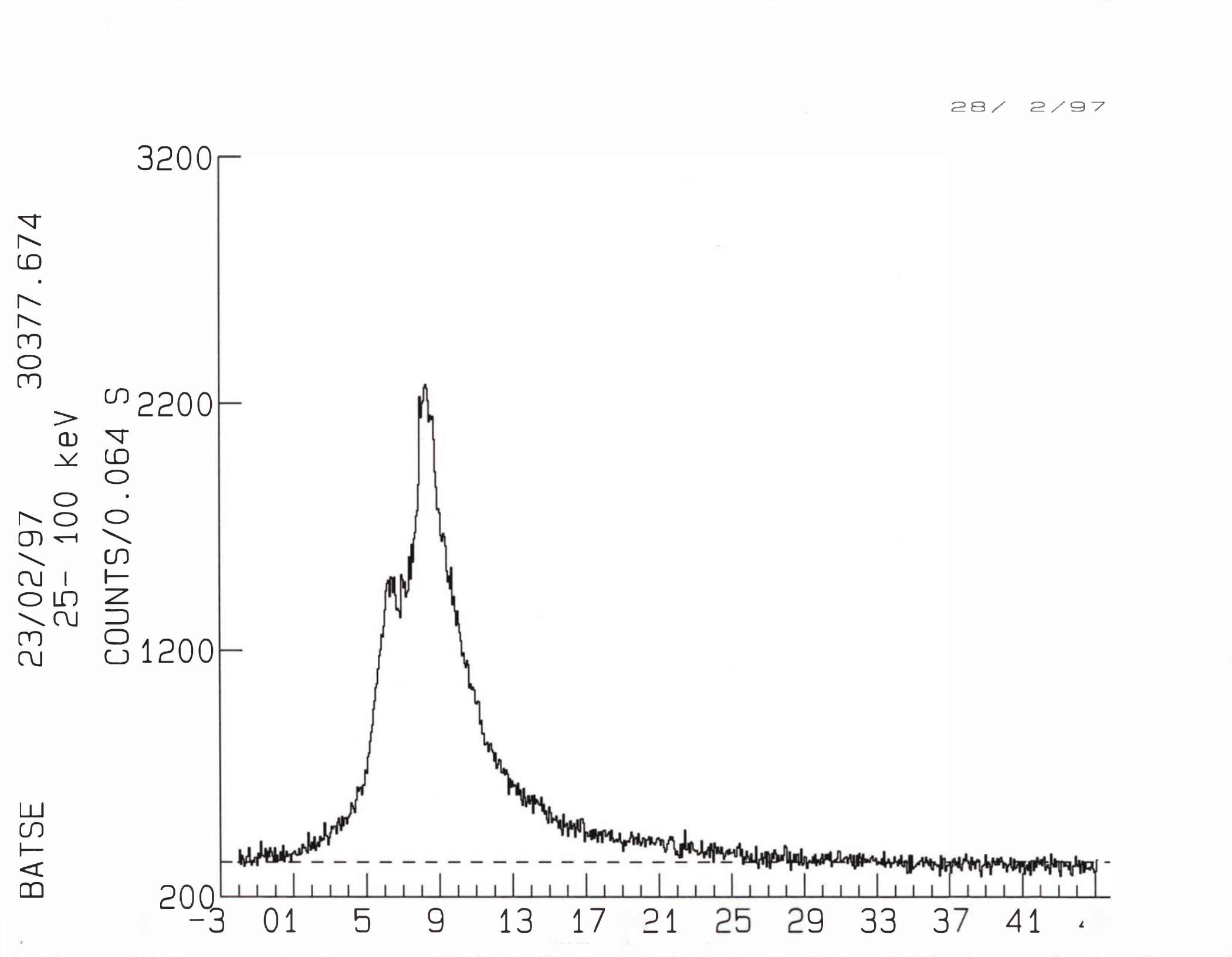
ULYSSES RT

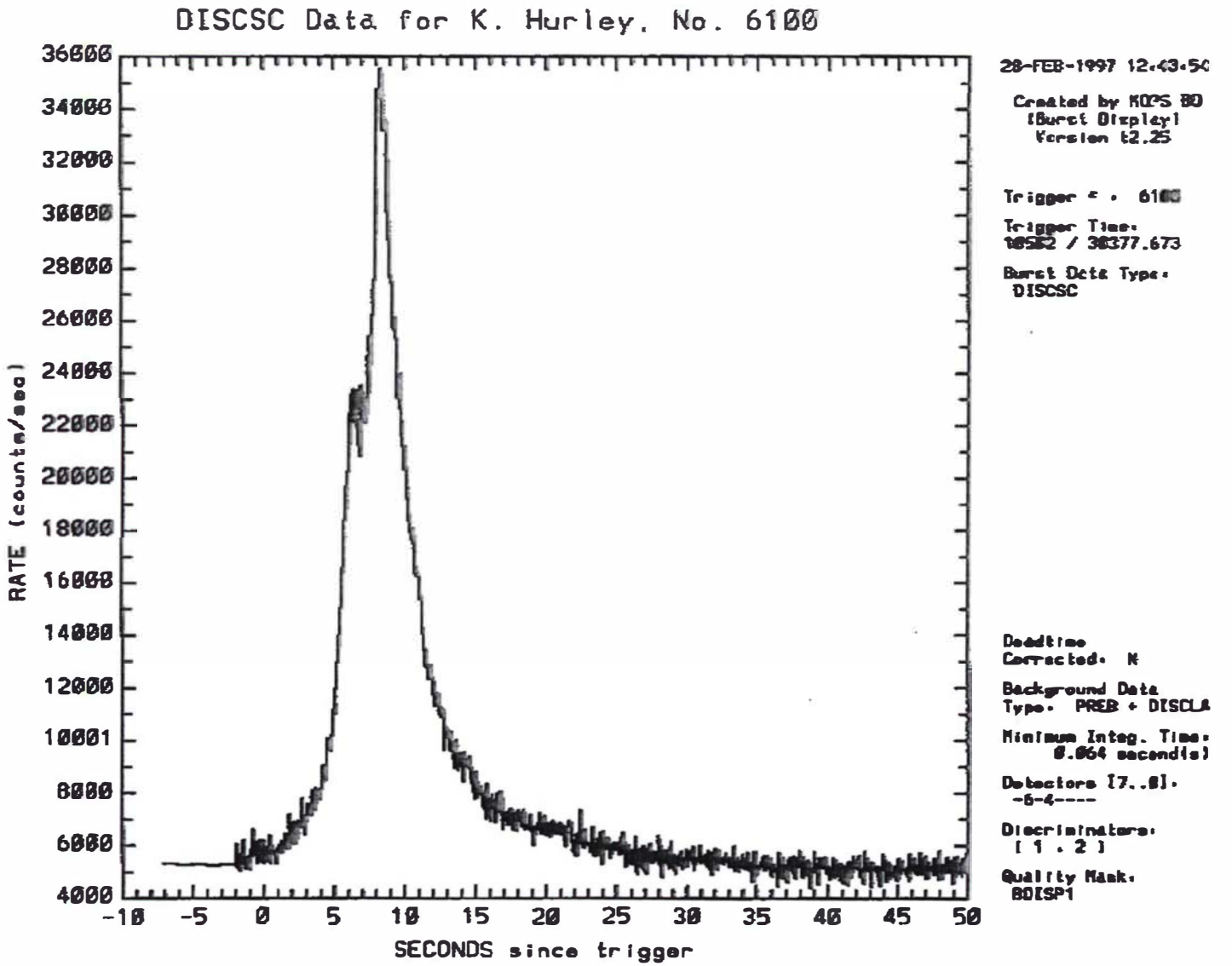
25/ 3/98

23/ 2/97 28332.142 s

21- 146 keV




28/ 2/97
BATSE 23/02/97 30377.674
25- 100 keV
COUNTS/0.064 S
3200
2200
1200
200
-3
01
5
9
13
17
21
25
29
33
37
41


DISCSC Data for K. Hurley, No. 6100
RATE (counts/sec)
36000
34000
32000
30000
28000
26000
24000
22000
20000
18000
16000
14000
12000
10001
8000
6000
4000
-10
-5
0
5
10
15
20
25
30
35
40
45
50
SECONDS since trigger
28-FEB-1997 12:43:50
Created by KOPS BD
(Burst Display)
Version t2.25
Trigger # : 6100
Trigger Time:
10582 / 30377.673
Burst Data Type:
DISCSC
Deadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 second(s)
Detectors [7..0]:
-6-4----
Discriminators:
[1 , 2]
Quality Mask:
BDISP1

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

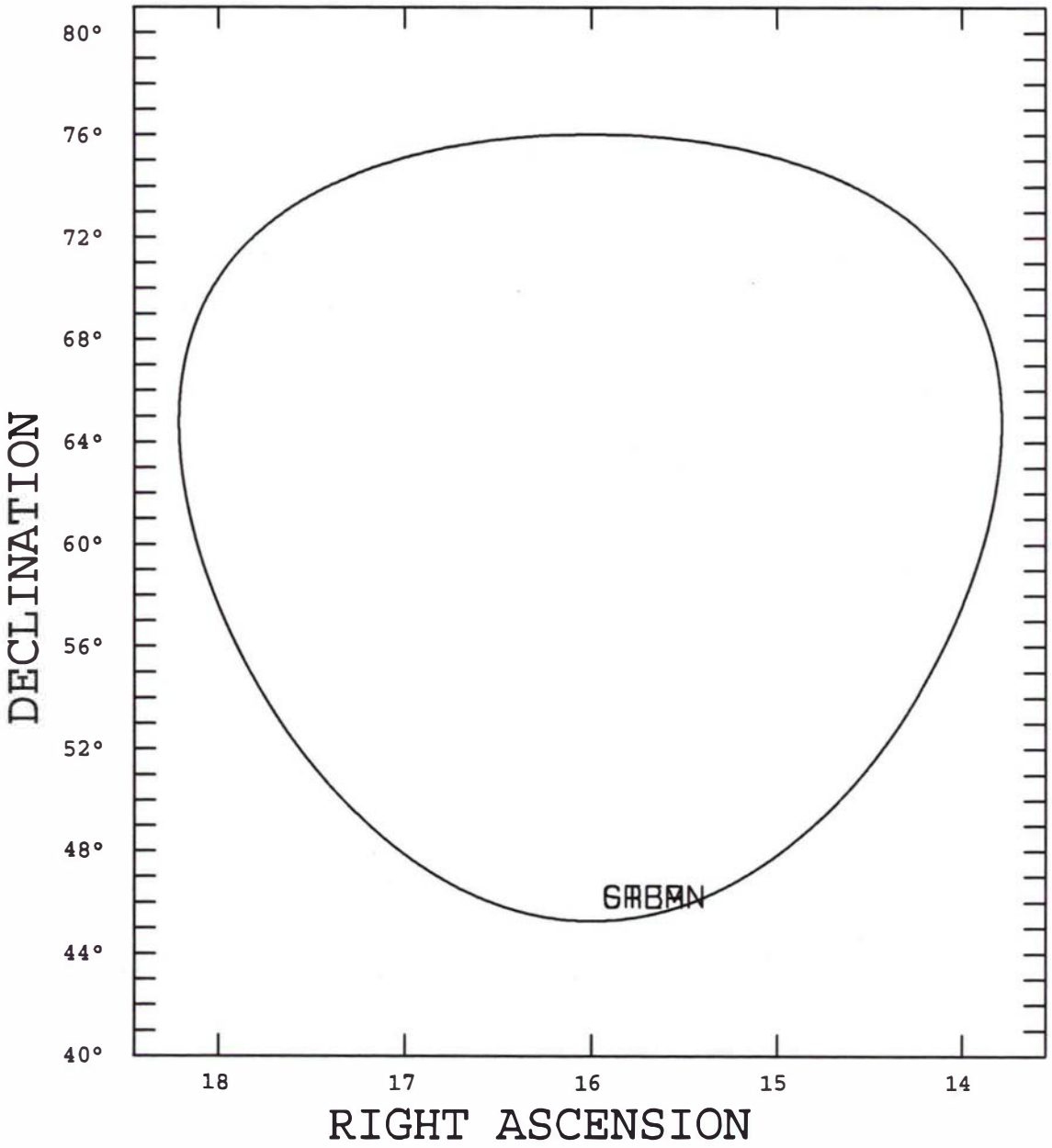
Hi Everyone,

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

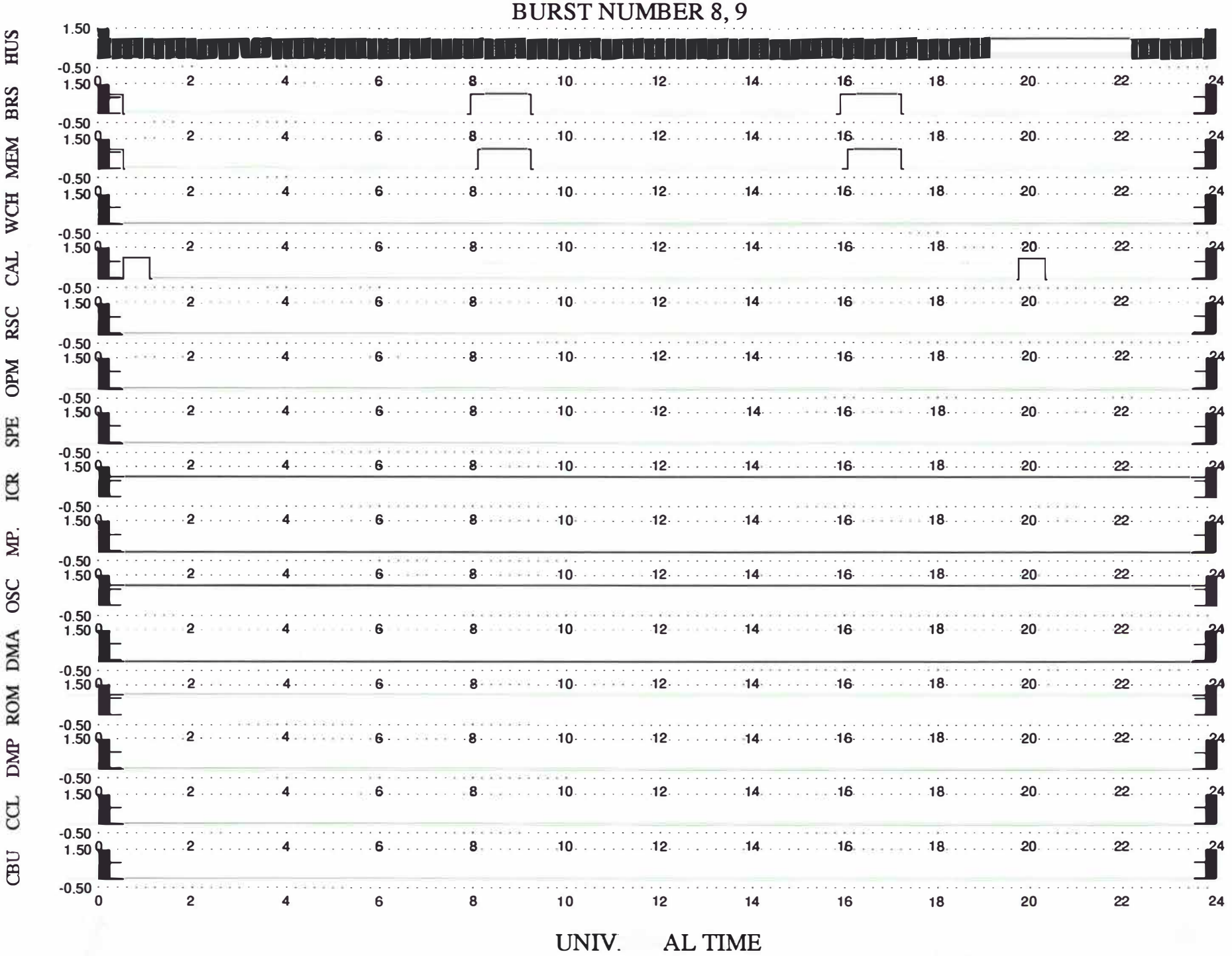
Ulysses event	Konus observation
970105 01:40	not detected
970105 18:17	not detected
970107 07:57	not detected
970107 14:13	not detected
970109 01:25	not detected
970110 08:53	not detected
970110 14:31	not detected
970111 23:35	trigger at 23:49:04.563 - peak ~60 seconds later S of ecliptic, hard event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

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

Feb 23 1997 18:01:24

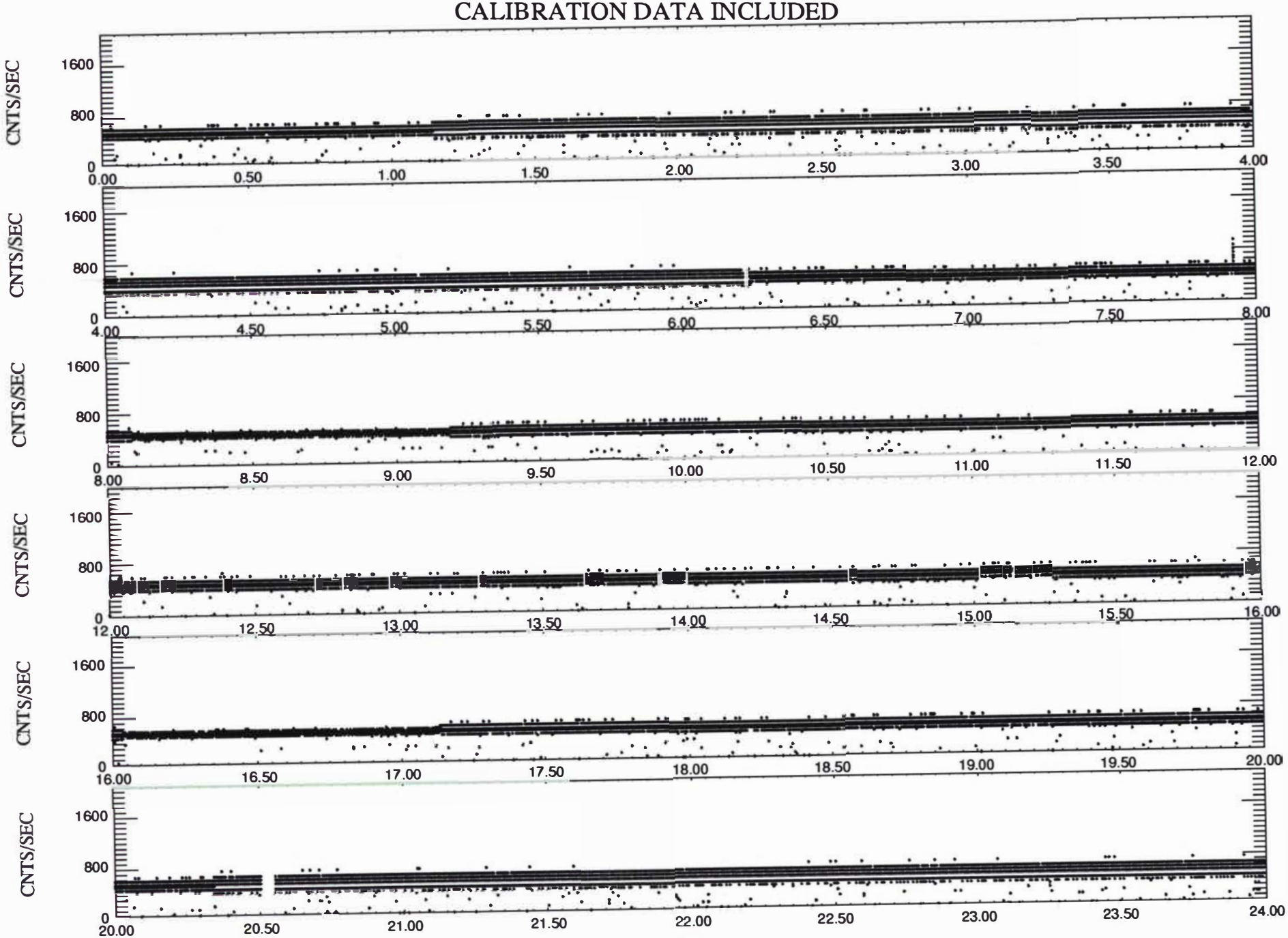


HUS MODES EDR day 54, year 1997 to day 54, year 1997 5/16/97



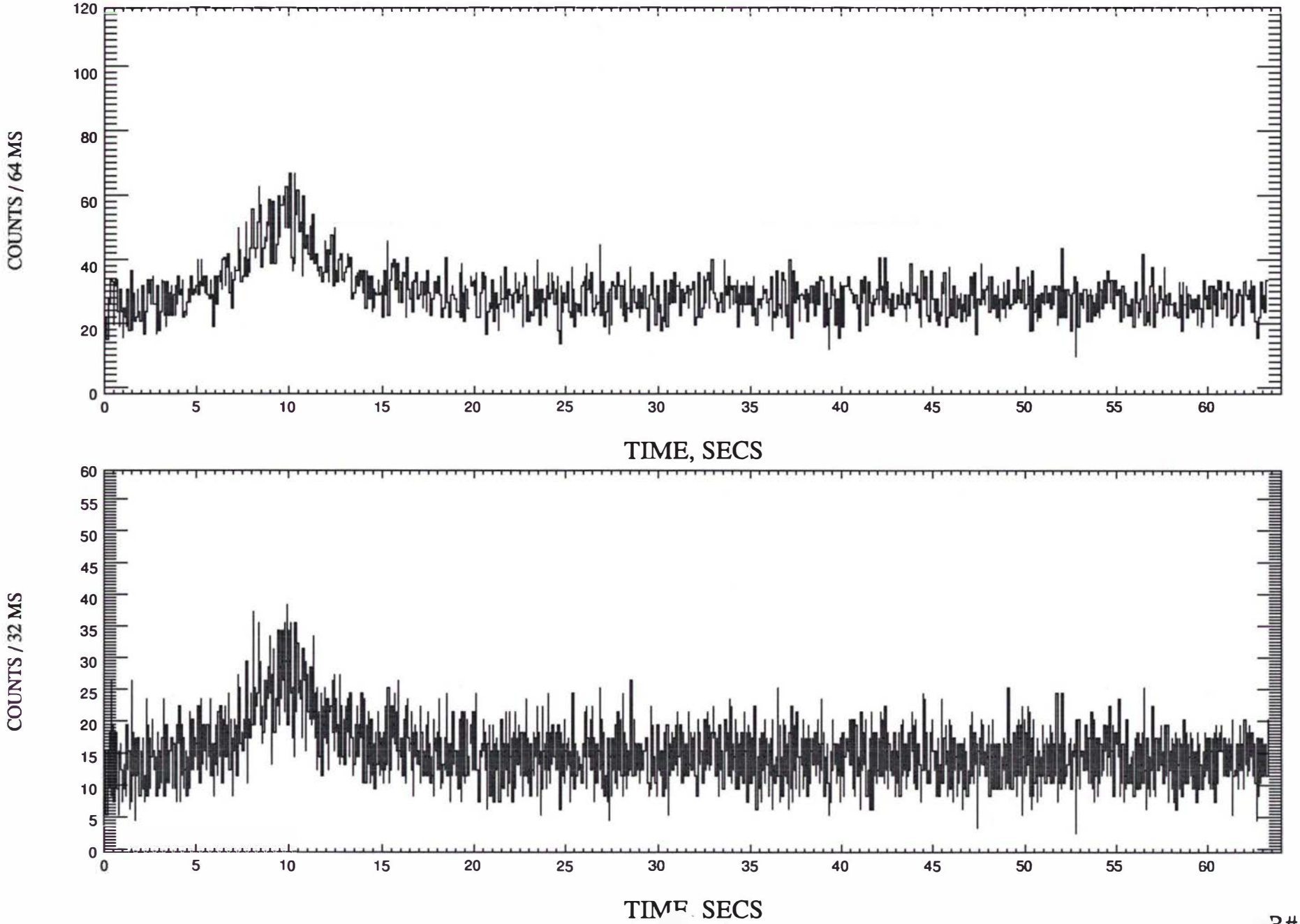
HUS 2A, MODE 1, NOT AVERAGED EDR day 54, year 1997 to day 54, year 1997 5/16/97

CALIBRATION DATA INCLUDED



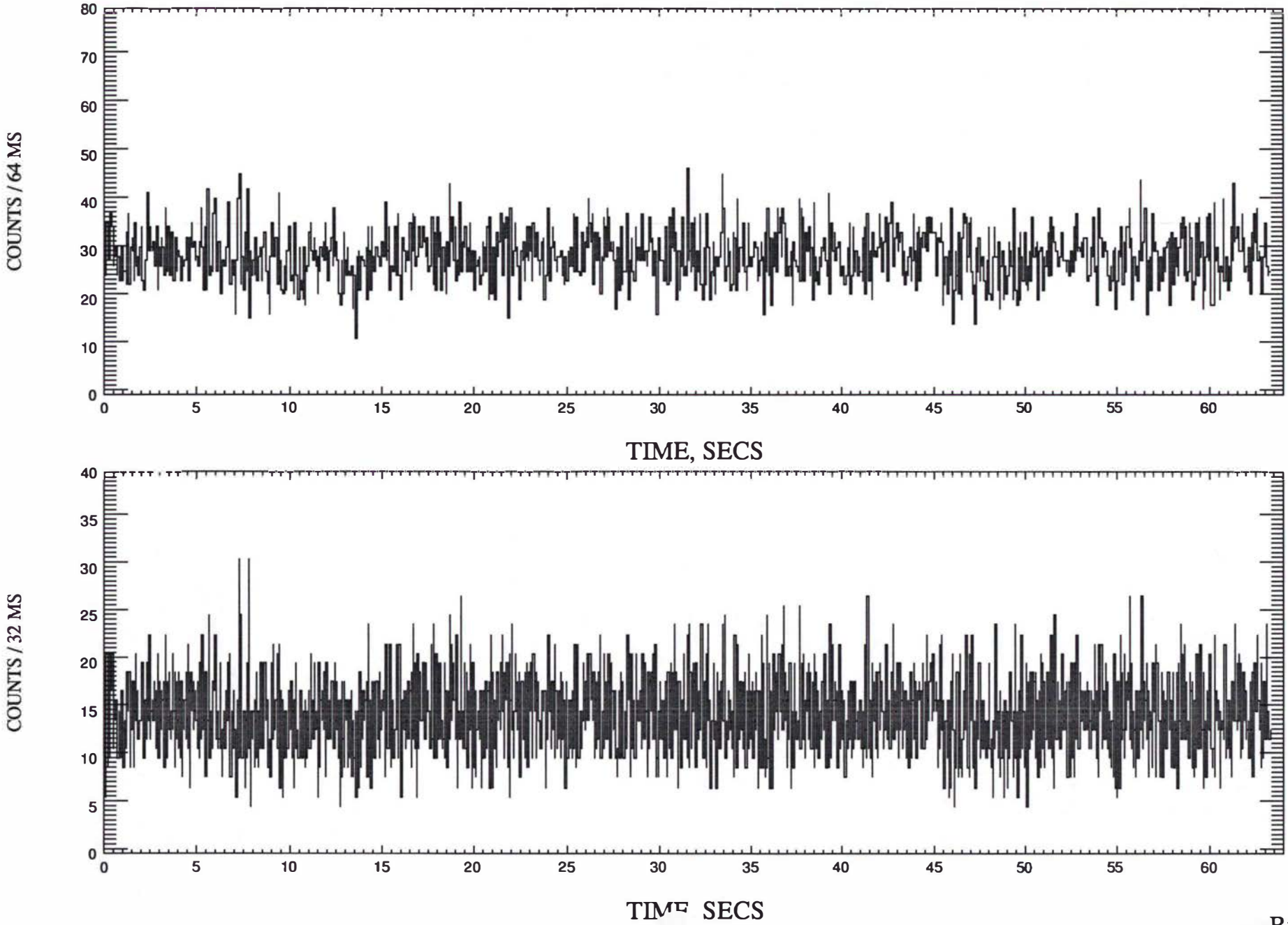
UNIVERSAL TIME

Burst Counter 8 at UT= 7.919028409322 h=28508.502 s 07:55:08.502



HUS 2A TRIGGERED DATA EDR day 54, year 1997 6/19/97

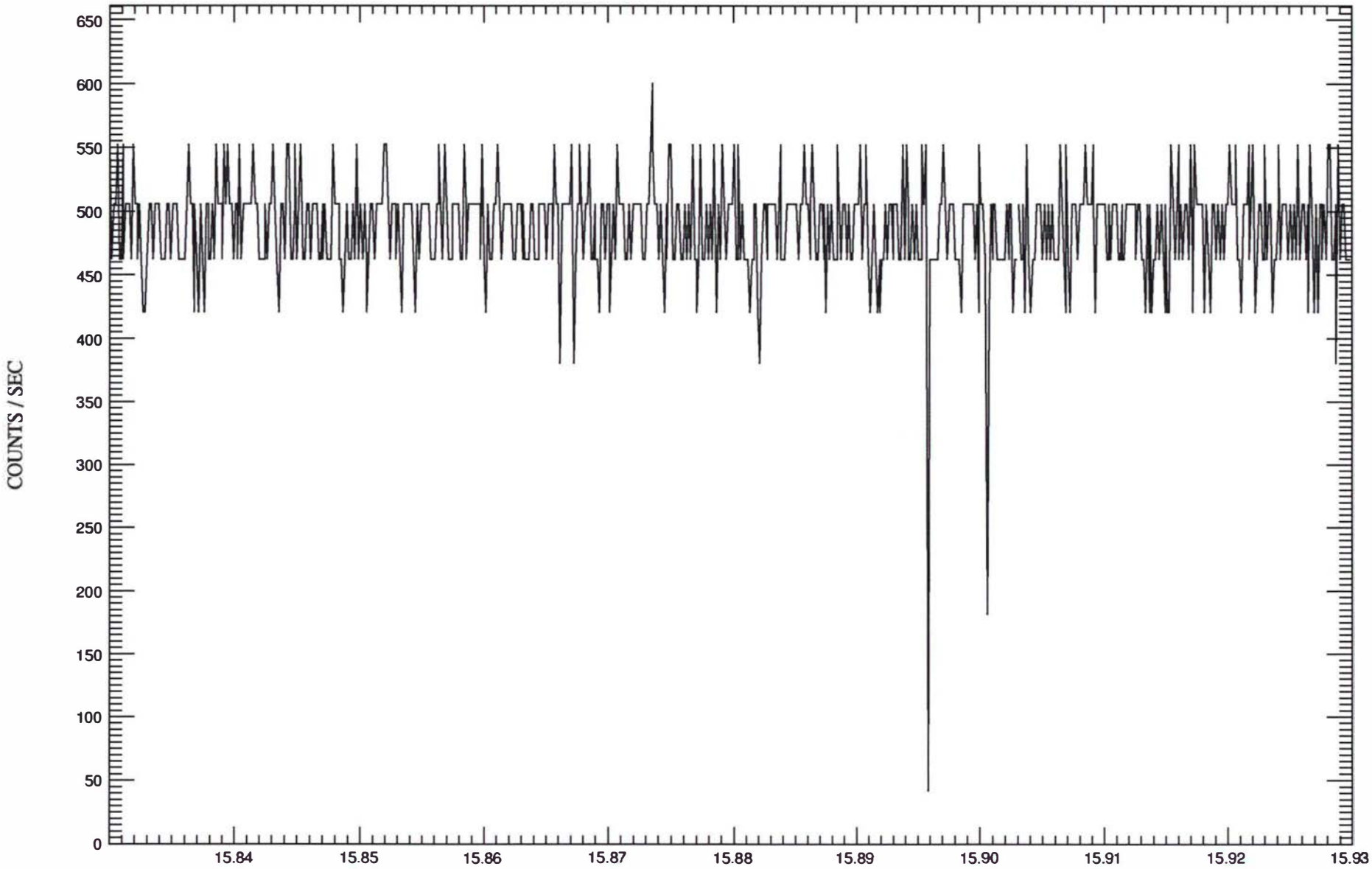
Burst Counter 9 at UT=15.880583686829 h=57170.101 s 15:52:50.101



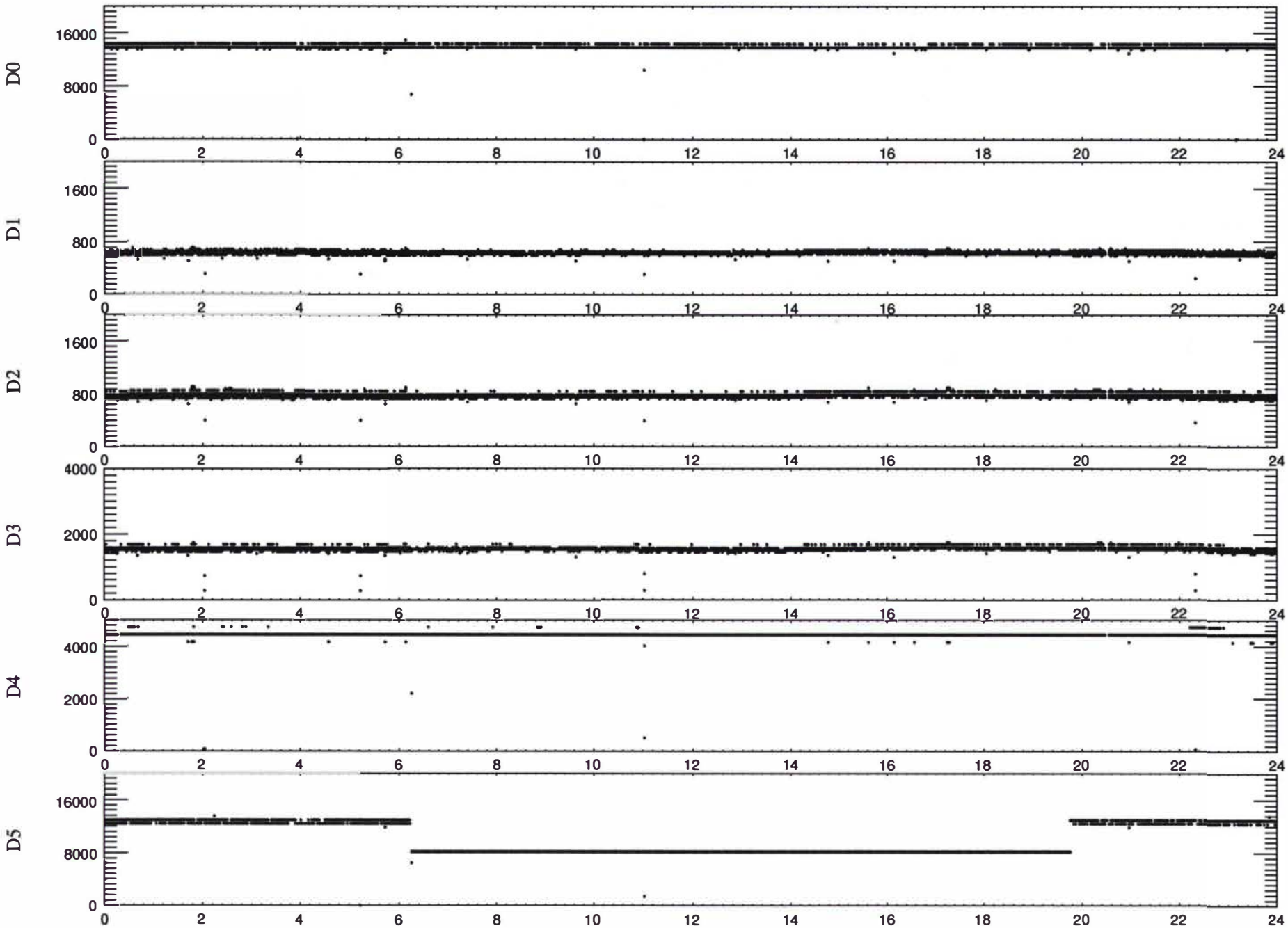
B# 2

HUS 2A, MODE 1, NOT AVERAGED EDR day 54, year 1997 to day 54, year 1997 6/19/97

CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 54, year 1997 to day 54, year 1997 5/16/97



From DEAL@fender.msfc.nasa.gov Wed Feb 26 10:04 PST 1997
Return-Path: <DEAL@fender.msfc.nasa.gov>
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id KAA00903; Wed, 26 Feb 1997 10:04:43 -0800
From: DEAL@fender.msfc.nasa.gov
Date: Wed, 26 Feb 1997 12:04:23 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970226120423.20c00485@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6101
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6101
EVENT OF 1997 FEB 24 DAY OF YEAR= 55
EVENT CROSSING TIME AT BATSE : 18087. S. OR 05:01:27.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 68.000 -38.000
BATSE PEAK COUNTING RATE: 4000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 24/ 2/ 97 IS:
RA= 166.150 DEC= 36.726 DIST= 3.975 AU
BATSE-ULYSSES DISTANCE = 594602490. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 62.76 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 907.78 SECS.
CROSSING TIME AT ULYSSES IS 18995. S. OR 05:16:34 +/- 369.95 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 24/ 2/ 97 IS:
RA= 185.024 DEC= 1.914 DIST= 0.725 AU
MARS-BATSE DISTANCE = 108465856. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 67.76 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 136.91 SECS.
CROSSING TIME AT MARS IS 18224. S. OR 05:03:43 +/- 60.22 SECONDS

BATSE BURST TRIGGER
NO.: 6101

TIME: TJD=0503 SECONDS=18087

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=53.0 AZIMUTH=51.9 ERROR=1.3 DEGREES

COMMENTS:
GRB. SLOW RISE, FAST DECAY. DURATION ~ 45 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6101	970224	10503	18087	4000	068	-38	45

BATSE# 6101

ULYSSES RT 27/ 2/97

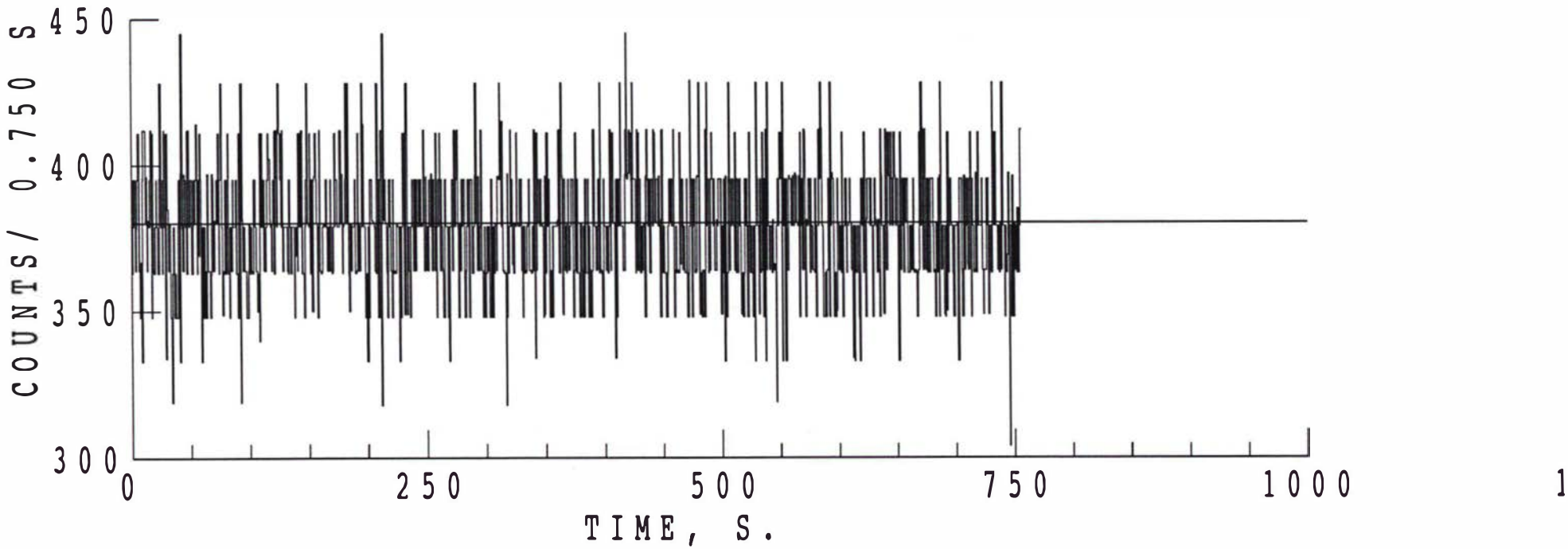
24/ 2/97 18612.057 s

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

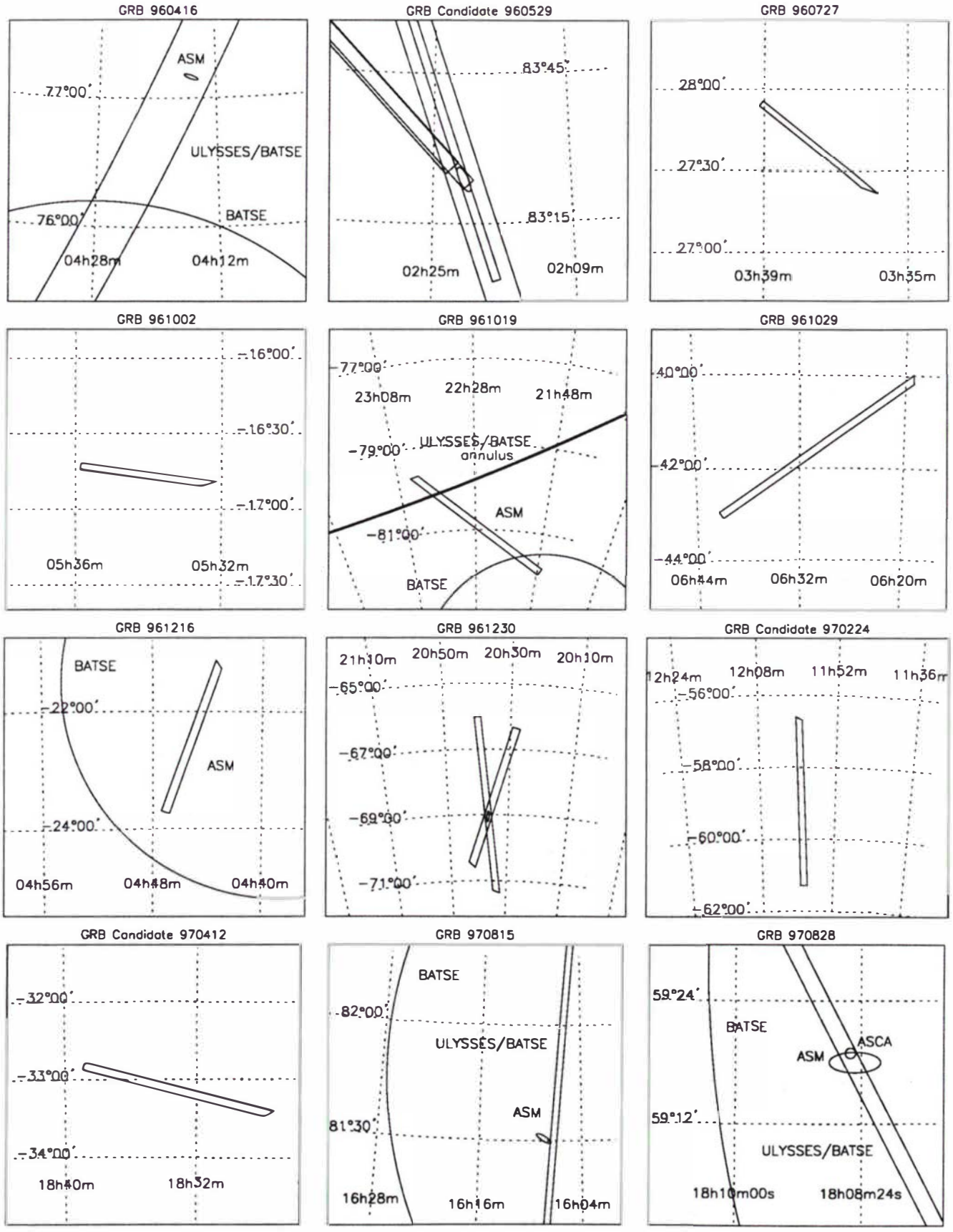
Dear Don,

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

Kevin

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

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


GRB 960416
ASM
77°00′
ULYSSES/BATSE
76°00′
BATSE
04h28m
04h12m
GRB Candidate 960529
83°45′
83°15′
02h25m
02h09m
GRB 960727
28°00′
27°30′
27°00′
03h39m
03h35m
GRB 961002
-16°00′
-16°30′
-17°00′
-17°30′
05h36m
05h32m
GRB 961019
-77°00′
23h08m
22h28m
21h48m
-79°00′
ULYSSES/BATSE annulus
ASM
-81°00′
BATSE
GRB 961029
40°00′
42°00′
44°00′
06h44m
06h32m
06h20m
GRB 961216
BATSE
-22°00′
ASM
-24°00′
04h56m
04h48m
04h40m
GRB 961230
21h10m
20h50m
20h30m
20h10m
-65°00′
-67°00′
-69°30′
-71°00′
GRB Candidate 970224
12h24m
12h08m
11h52m
11h36m
-56°00′
-58°00′
-60°00′
-62°00′
GRB Candidate 970412
-32°00′
-33°00′
-34°00′
18h40m
18h32m
GRB 970815
BATSE
82°00′
ULYSSES/BATSE
ASM
81°30′
16h28m
16h16m
16h04m
GRB 970828
59°24′
BATSE
ASM
ASCA
59°12′
ULYSSES/BATSE
18h10m00s
18h08m24s

XTE

ULYSSES RT 25/ 9/97

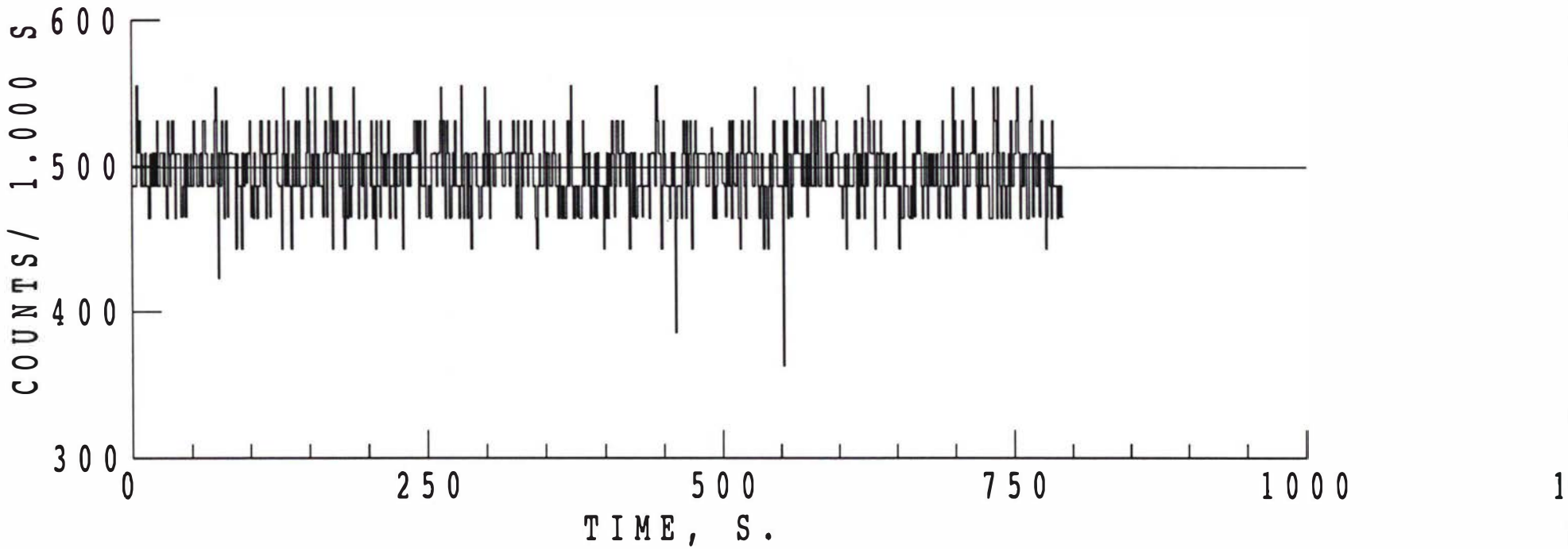
24/ 2/97 25848.143 s

0.500 S INTERVALS REGROUPED BY 2

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



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

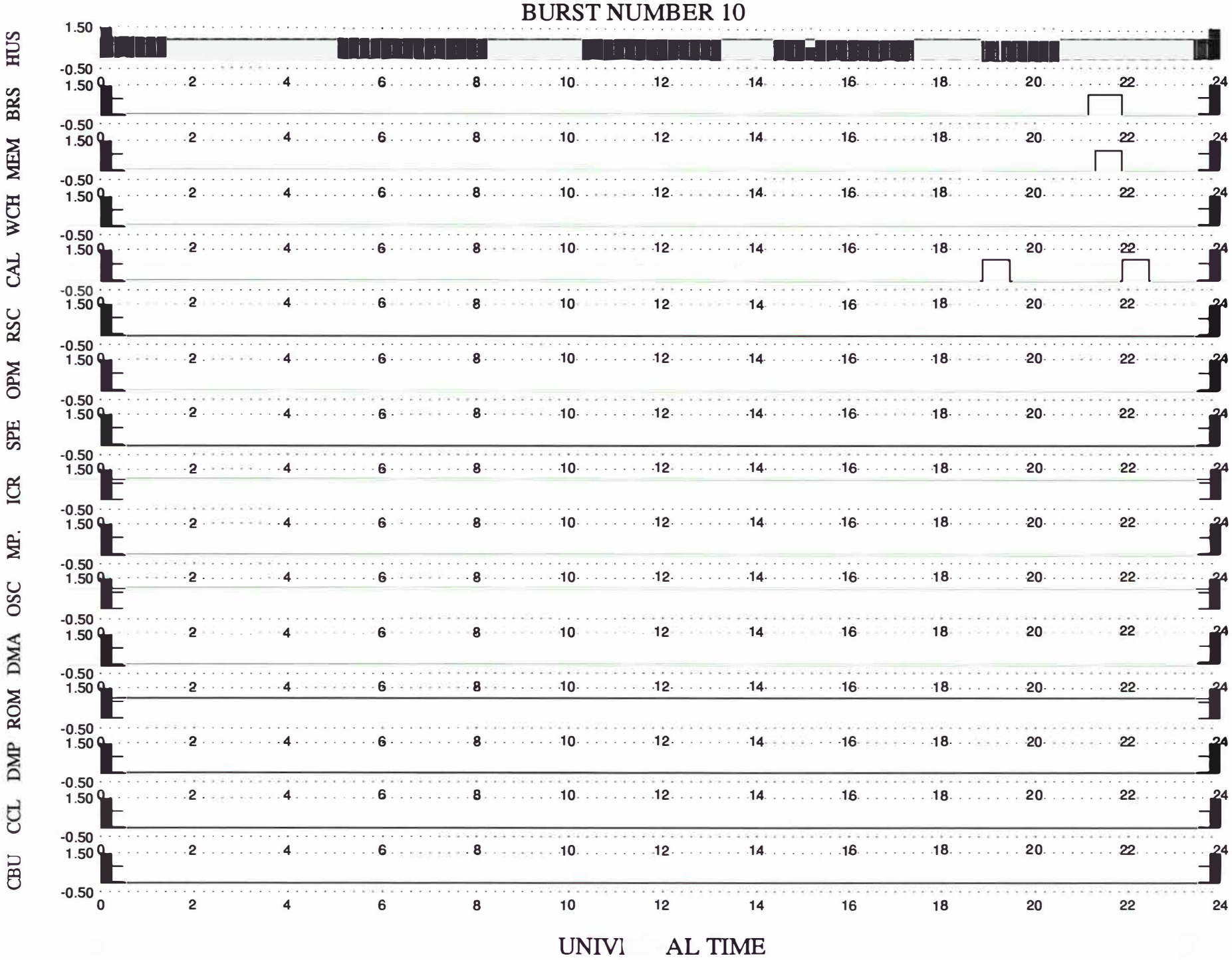
Hi Everyone,

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

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

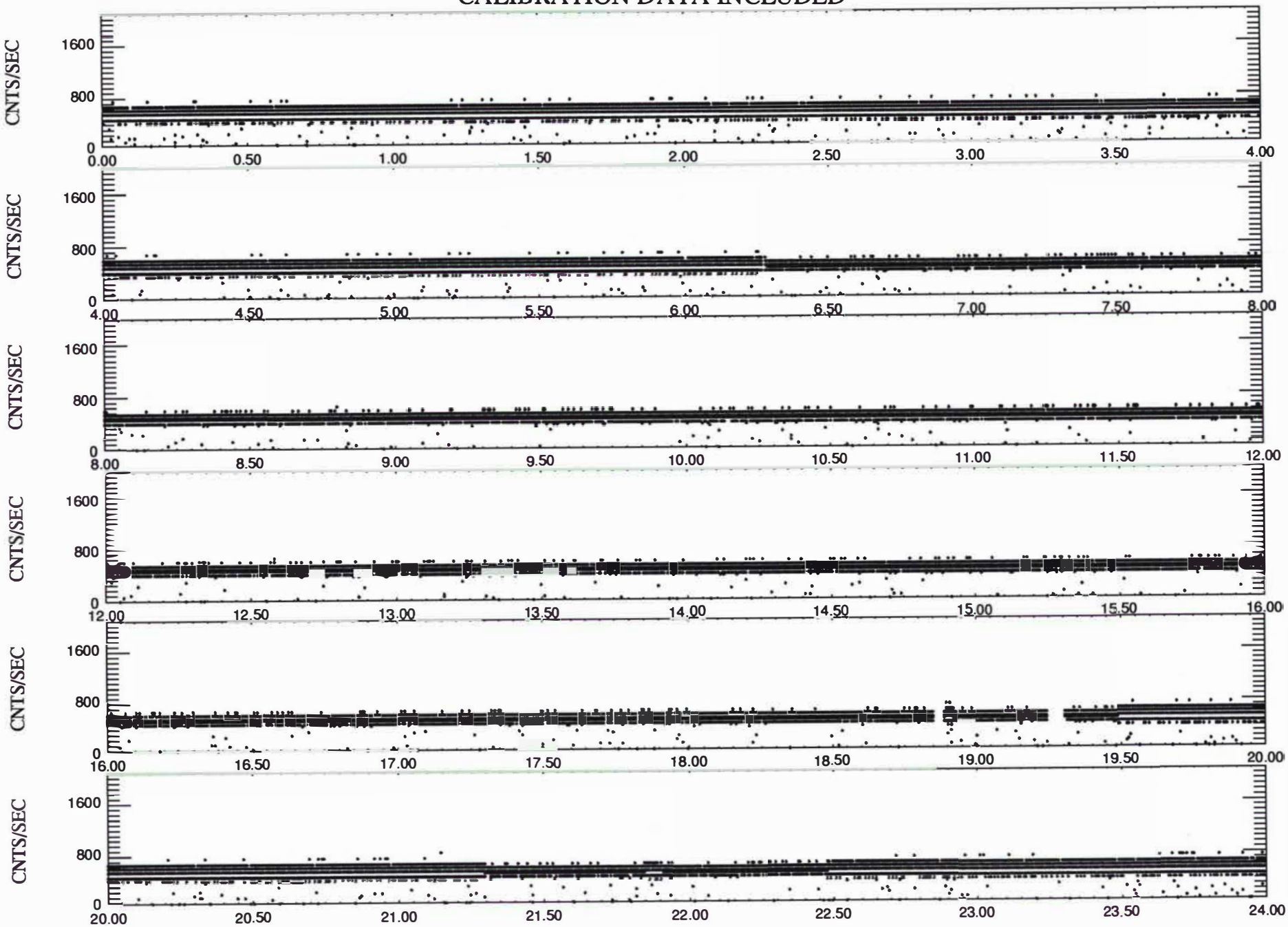
970313 07:53	trigger at 08:21:36.505 - peak 11 seconds later N of ecliptic, moderately strong event lasting 40 seconds
970316 13:16	not detected
970321 21:42	not detected
970322 00:16	not detected
970405 11:35	not detected
970405 23:44	trigger at 00:17:40.876 on 970406 N of ecliptic, moderately strong,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

HUS MODES EDR day 55, year 1997 to day 55, year 1997 5/16/97



HUS 2A, MODE 1, NOT AVERAGED EDR day 55, year 1997 to day 55, year 1997 5/16/97

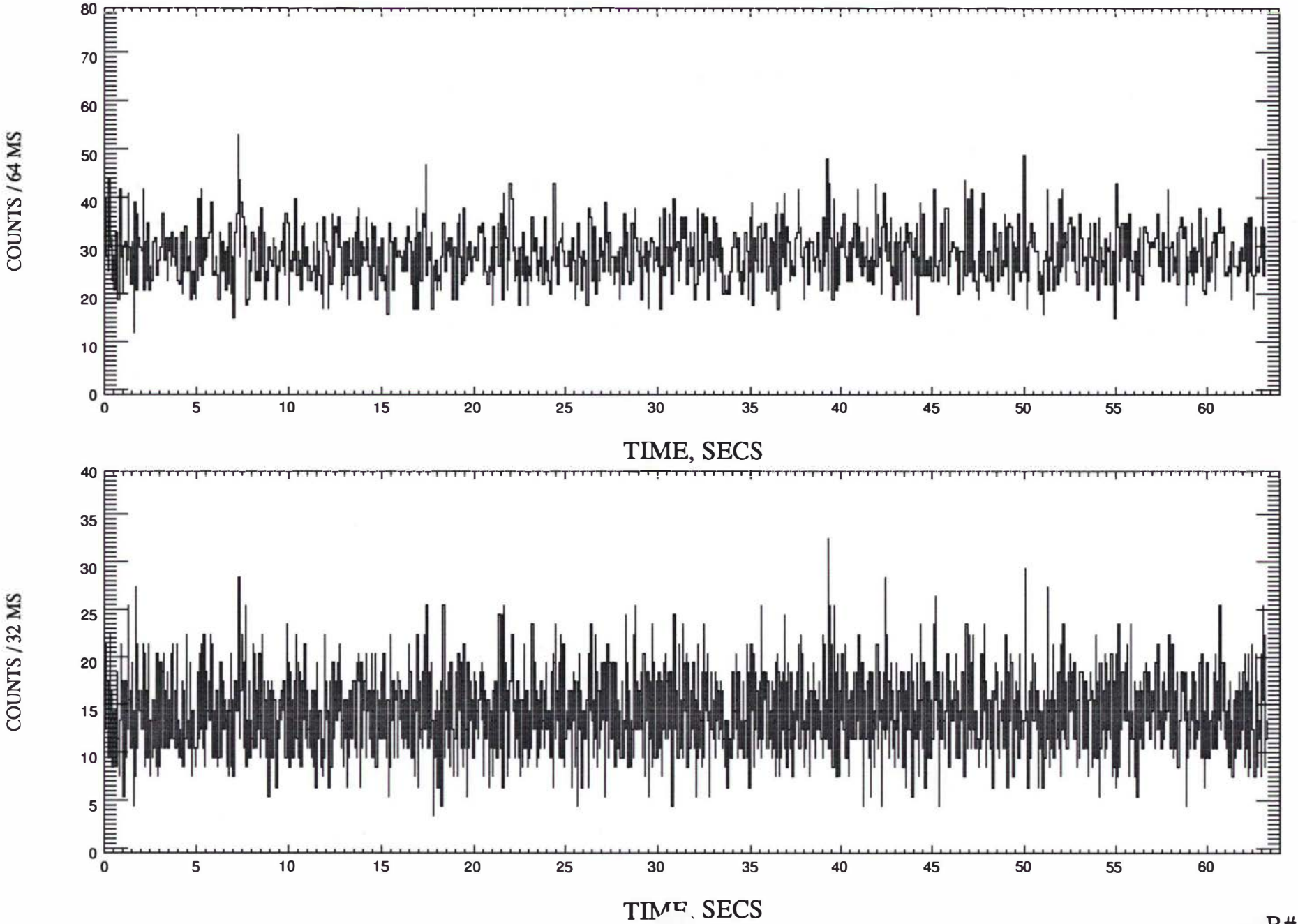
CALIBRATION DATA INCLUDED



UNIV! AL TIME

HUS 2A TRIGGERED DATA EDR day 55, year 1997 6/19/97

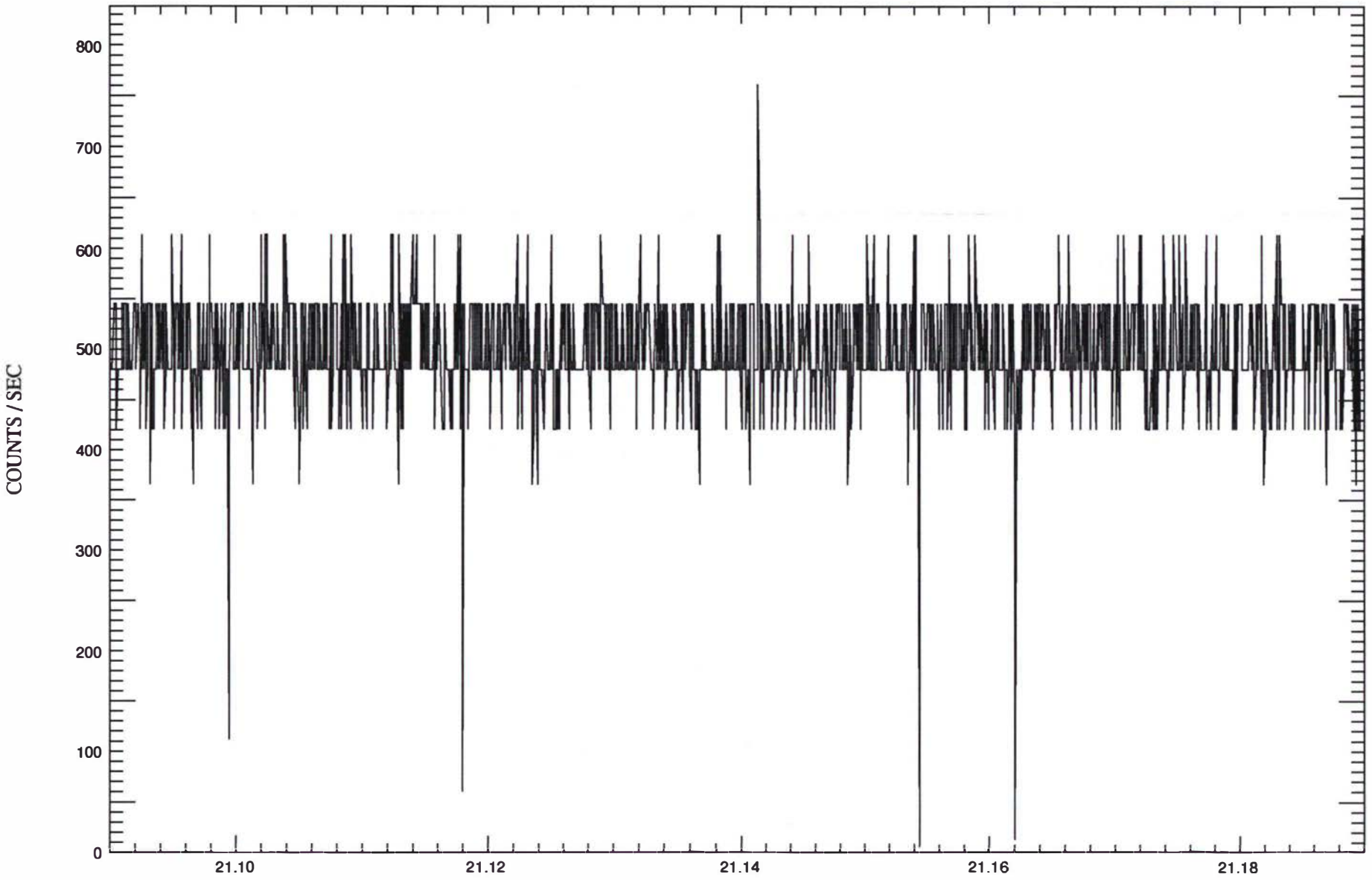
Burst Counter 10 at UT=21.141485930549 h=76109.349 s 21:08:29.349



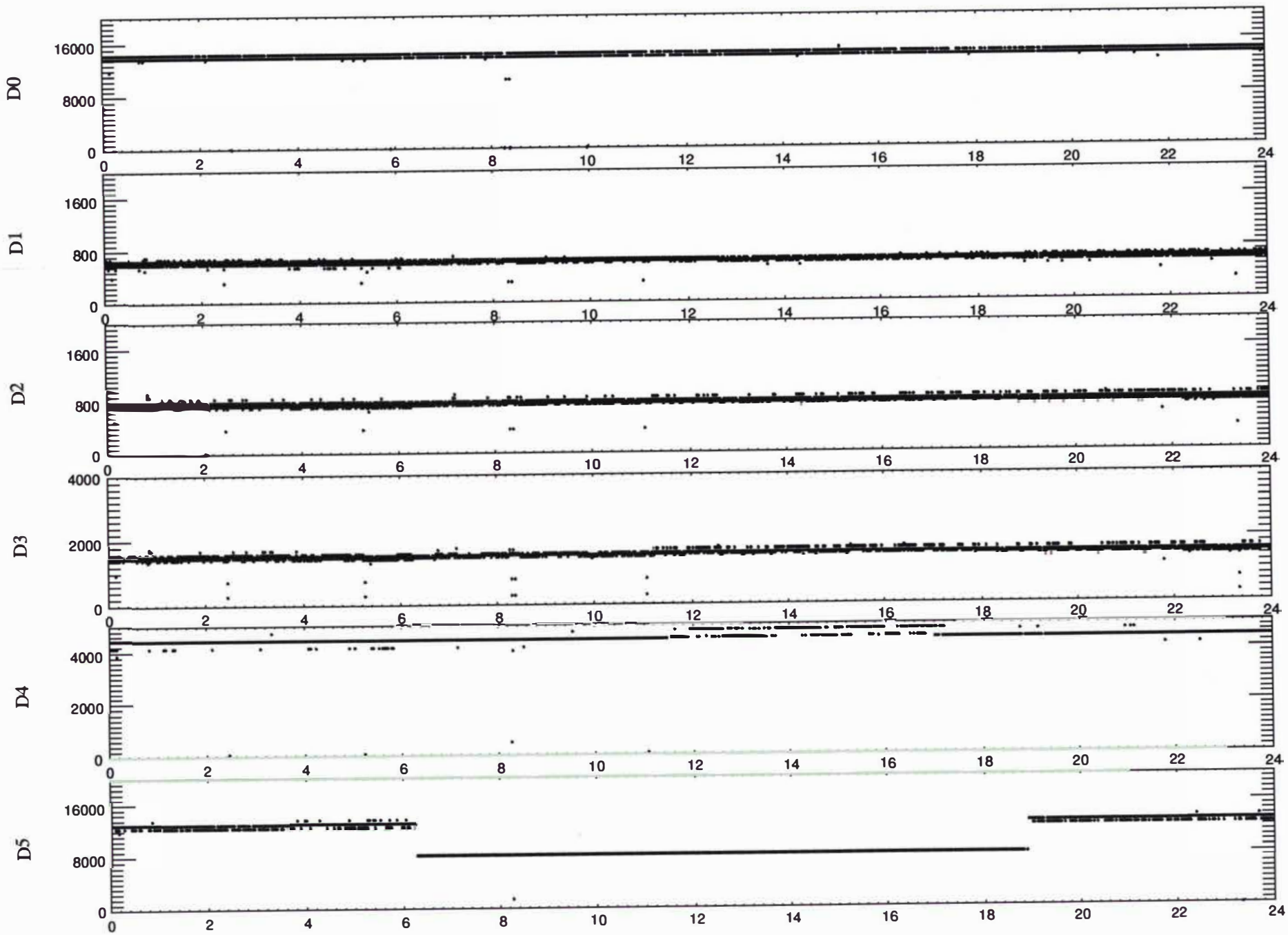
B# 1

HUS 2A, MODE 1, NOT AVERAGED EDR day 55, year 1997 to day 55, year 1997 6/19/97

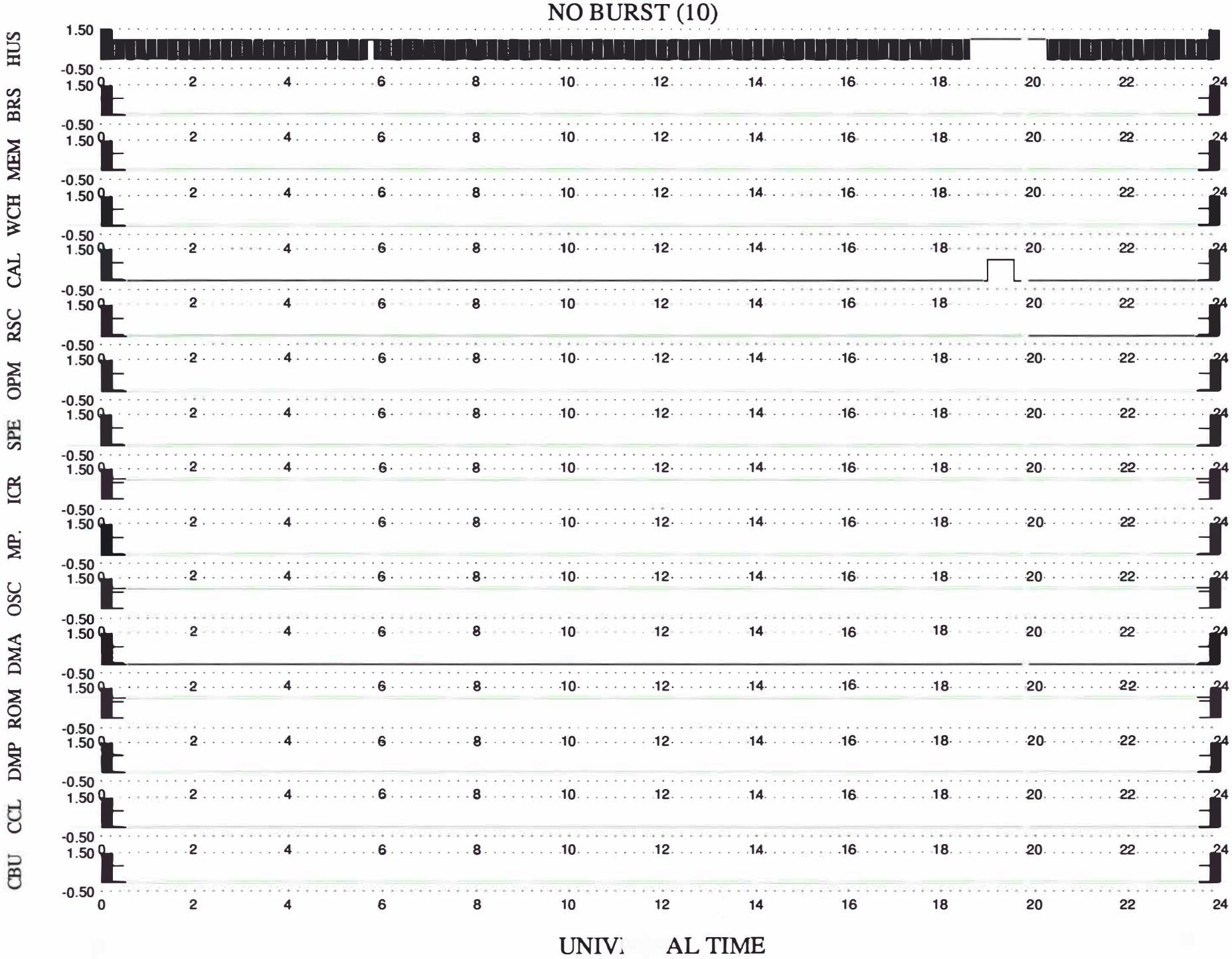
CALIBRATION DATA INCLUDED



HUS 2B COUNTS / SEC EDR day 55, year 1997 to day 55, year 1997 5/16/97

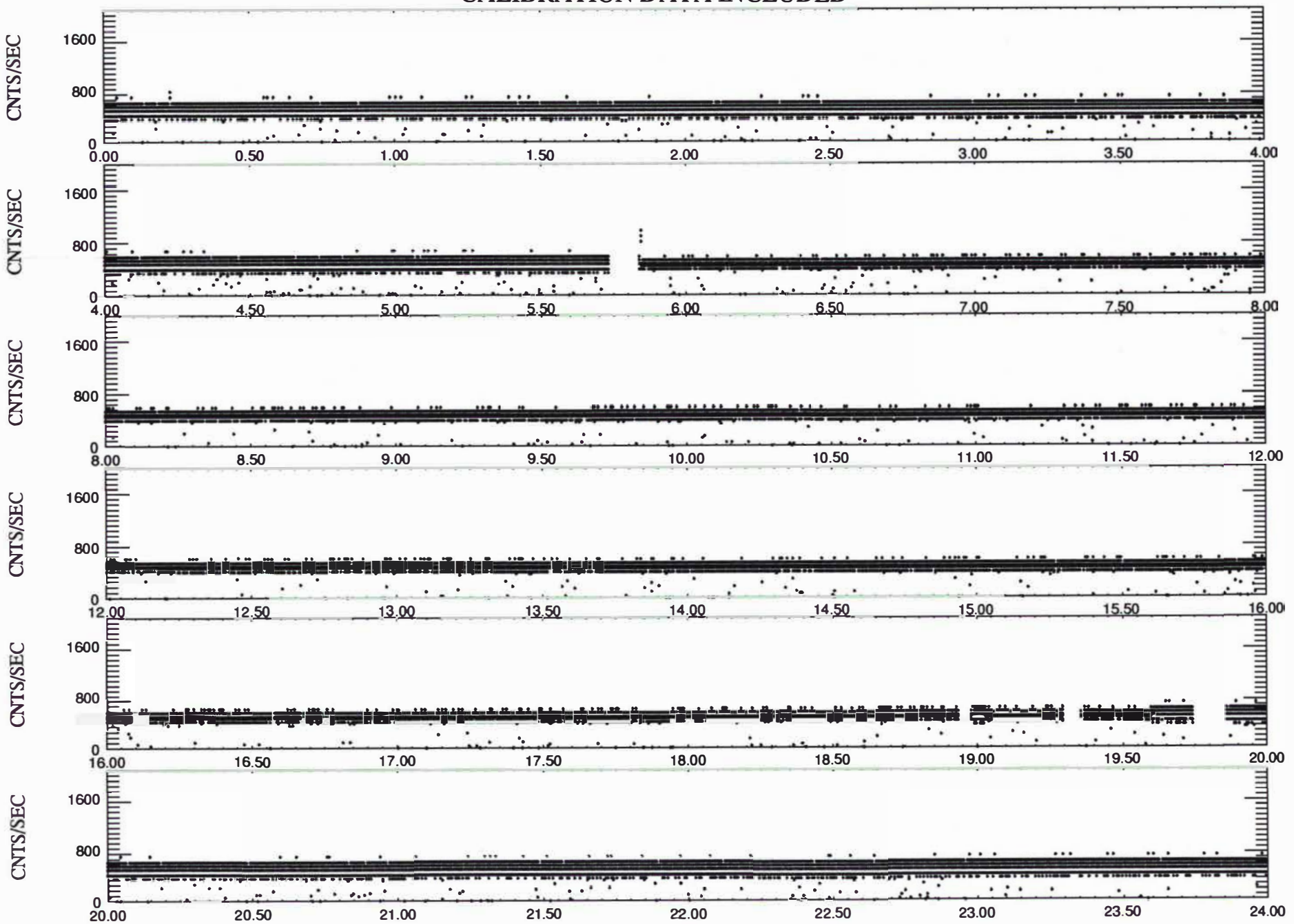


HUS MODES EDR day 56, year 1997 to day 56, year 1997 5/16/97



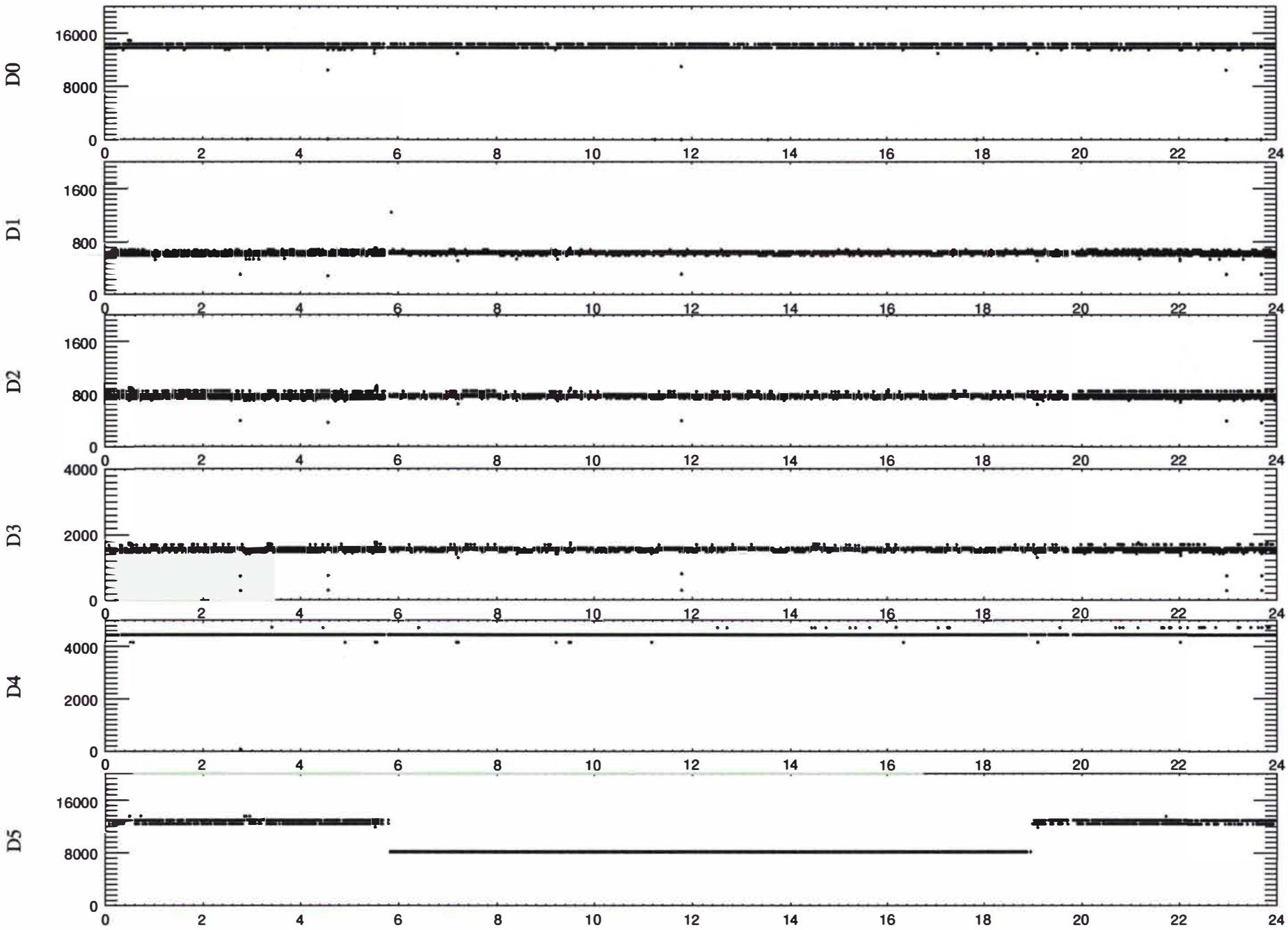
HUS 2A, MODE 1, NOT AVERAGED EDR day 56, year 1997 to day 56, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 56, year 1997 to day 56, year 1997 5/16/97



From sprg@ssl.berkeley.edu Mon Nov 3 11:18 PST 1997
Date: Mon, 3 Nov 1997 11:18:08 -0800
From: sprg@ssl.berkeley.edu (Space Physics Research Group Account)
To: khurley@apollo
Subject: GRB Master list

----- Begin Included Message -----

From vnp@isac.ernet.in Mon Nov 3 04:51:54 1997
From: vnp@isac.ernet.in
>Received: from sx07 by isac.ernet.in (AIX 3.2/UCB 5.64/4.03)
id AA04926; Mon, 3 Nov 1997 14:02:42 GMT
X-Authentication-Warning: sx07.ernet.in: vnp owned process doing -bs
Date: Mon, 3 Nov 1997 14:02:42 +0000 (GMT)
X-Sender: vnp@sx07
To: khurley@sunspot.ssl.berkeley.edu
Subject: GRB Master list
Mime-Version: 1.0

Dear Prof. Hurley,
SROSS-C2 has not recorded any event on 25 Jun 97.

The following SROSS events preceding and following the 7 Jun 97 event may kindly be included in the next update of the GRB Master list
2 FEB 97 7:10:44.273UT confirmed by Ulysses & BATSE (Trig No. 5995)
22 Feb 97 23:53:27.392UT confirmed by Ulysses
26 Feb 97 8:46:34.198 UT confirmed by Ulysses
15 Jul 97 14:21:33.22UT confirmed by Ulysses, DMSP,Wind(TGRS)
` Aug 97 17:45:2.272UT confirmed by Ulysses,BATSE,RXTE

Regards,
padmini

----- End Included Message -----

Date: Nov 22 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

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

2. For Konus events

☑ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

☐ Was CHECKMO run to eliminate data gaps?

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

☐ Was Mars-blocking used?

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

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

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

2. For 3 or More Spacecraft events

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

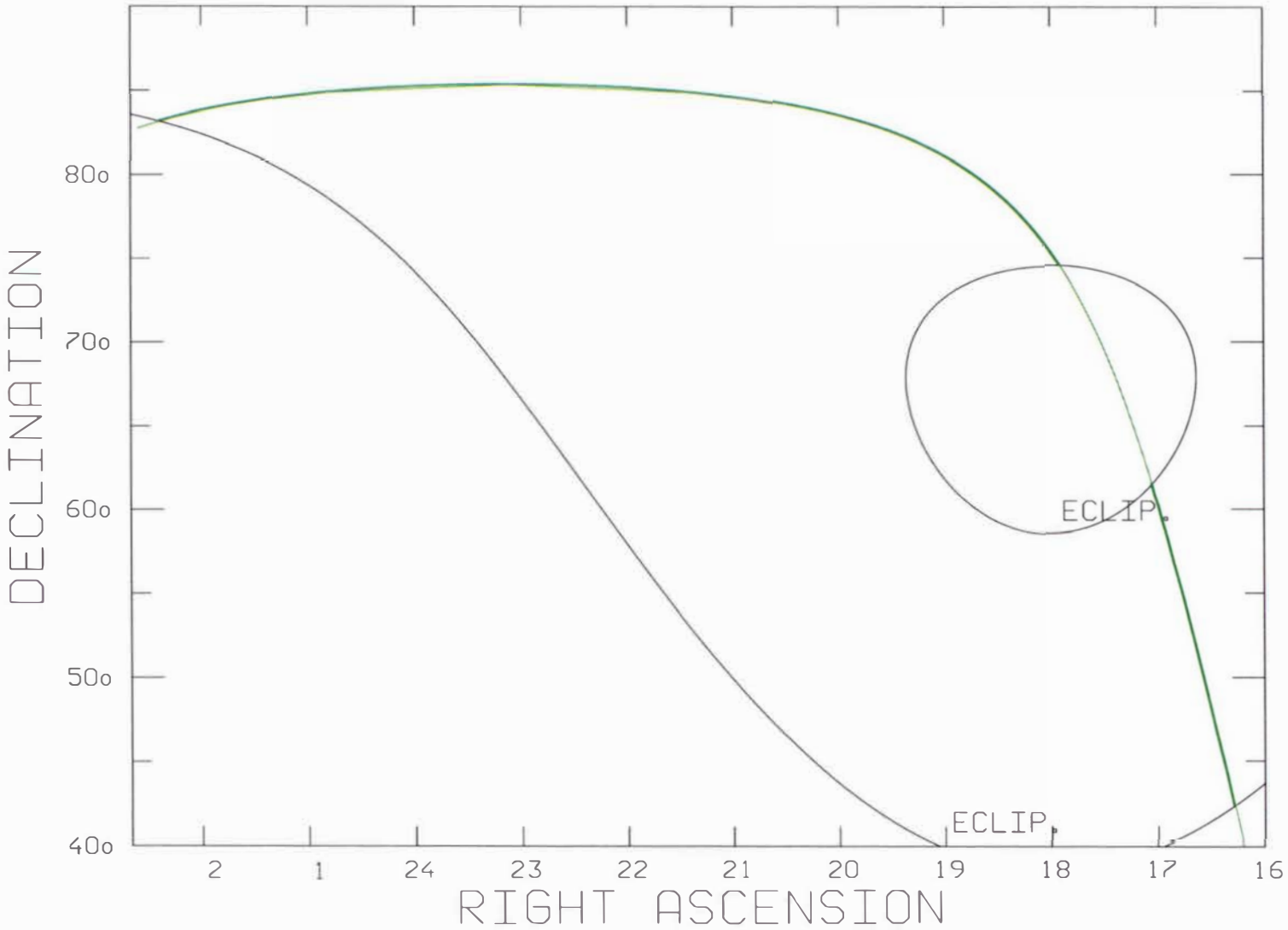
3. For INTEGRAL events

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

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

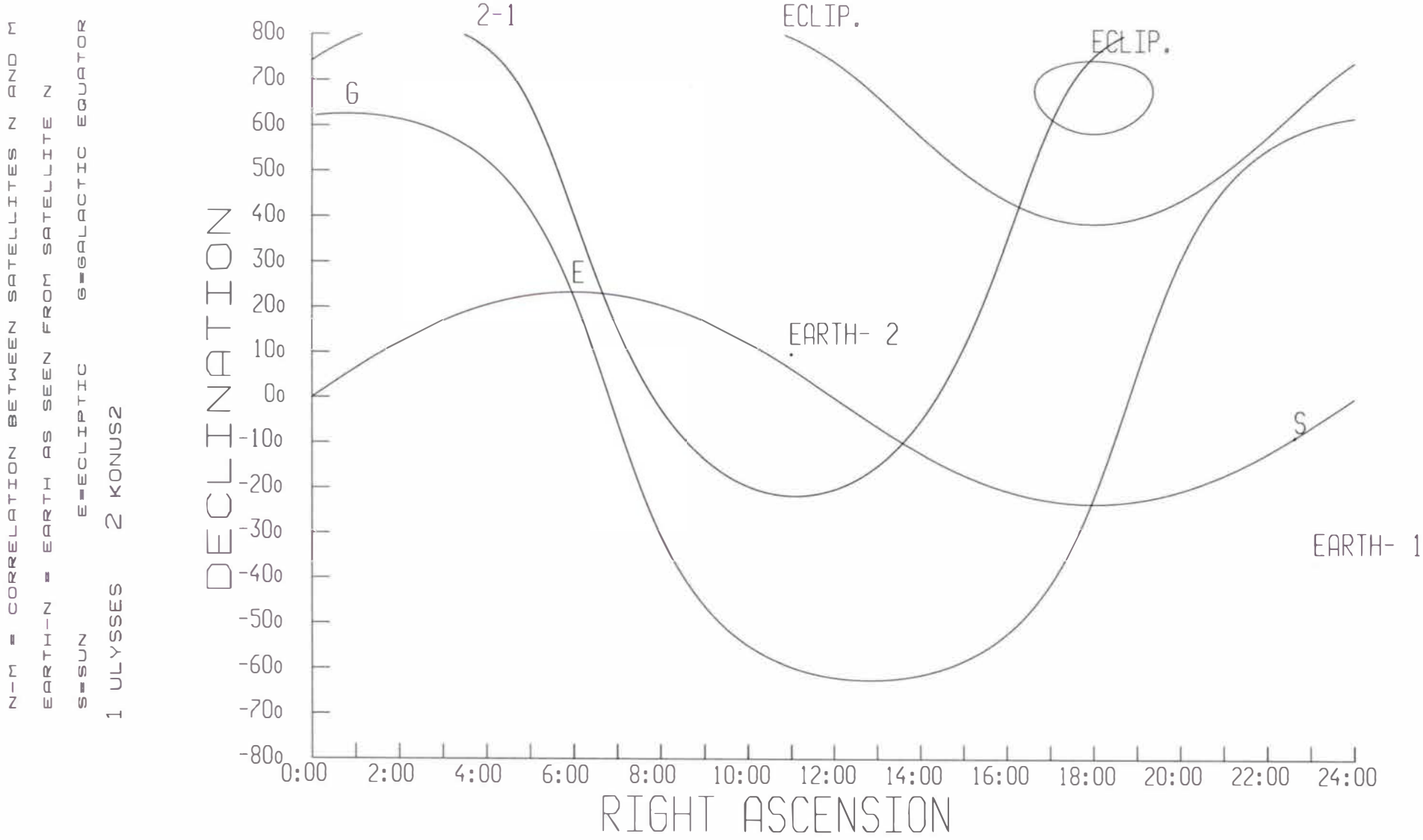
☐ Updated ephemeris used for bursts prior to September 30, 2003?

☑ ACCESS and MBL4 databases updated with identical times?

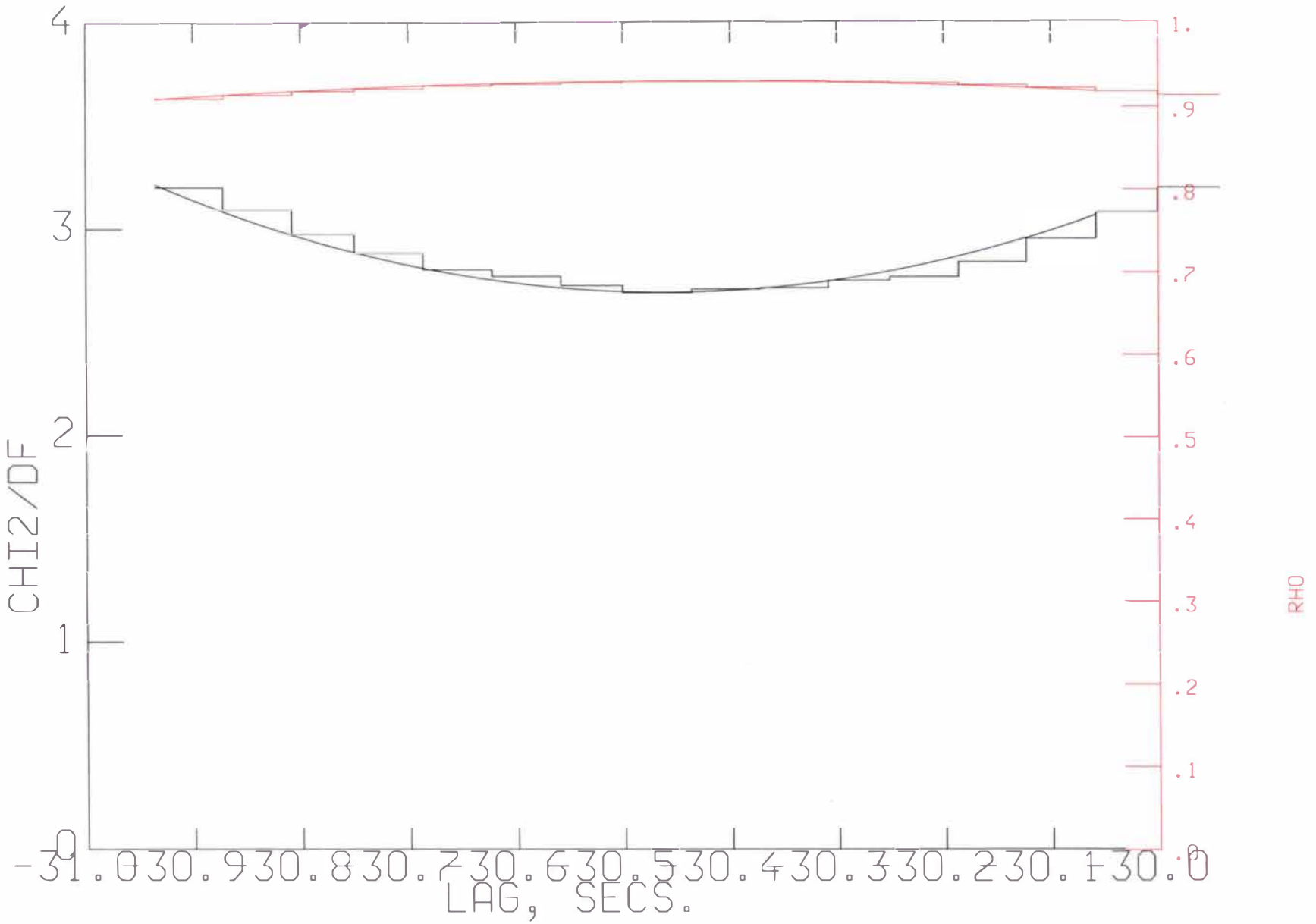

DECLINATION
80o
70o
60o
50o
40o
2
1
24
23
22
21
20
19
18
17
16
RIGHT ASCENSION
ECLIP.
ECLIP.

EVENT OF FEB 26, 1997 8:28

22/11/2011



ULYSSES RT-KONUS2 CORRELATION 26/ 2/97 30506.056




ULYSSES RT-KONUS2 CORRELATION 26/ 2/97 30506.056
22/11/11
300
200
100
0
C/ 0.25000 S
ULYSSES RT
2000
1500
1000
500
0
C/ 0.25000 S
KONUS2
30
40
50
60
70
80
90
100
110
TIME, SECS

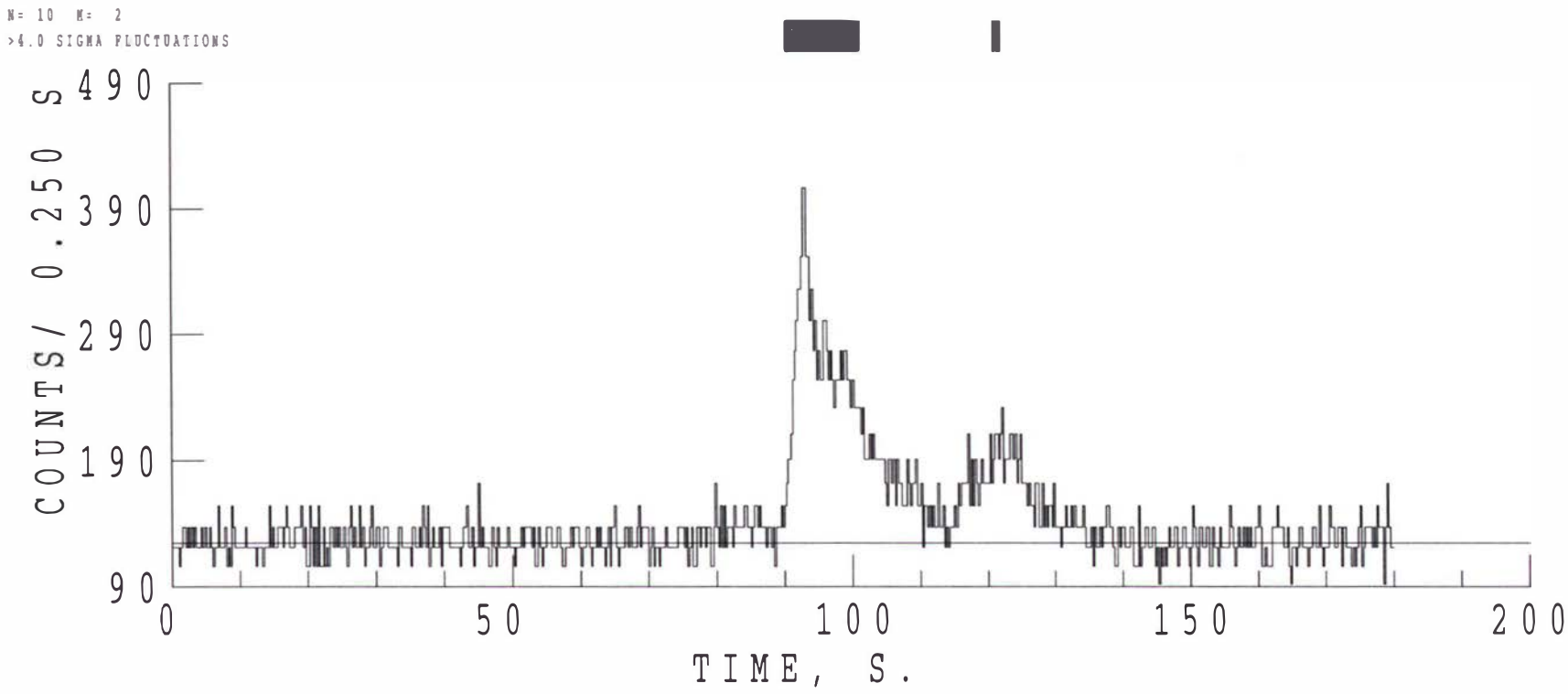
KONUS 19970226 30547

ULYSSES RT

27/10/11

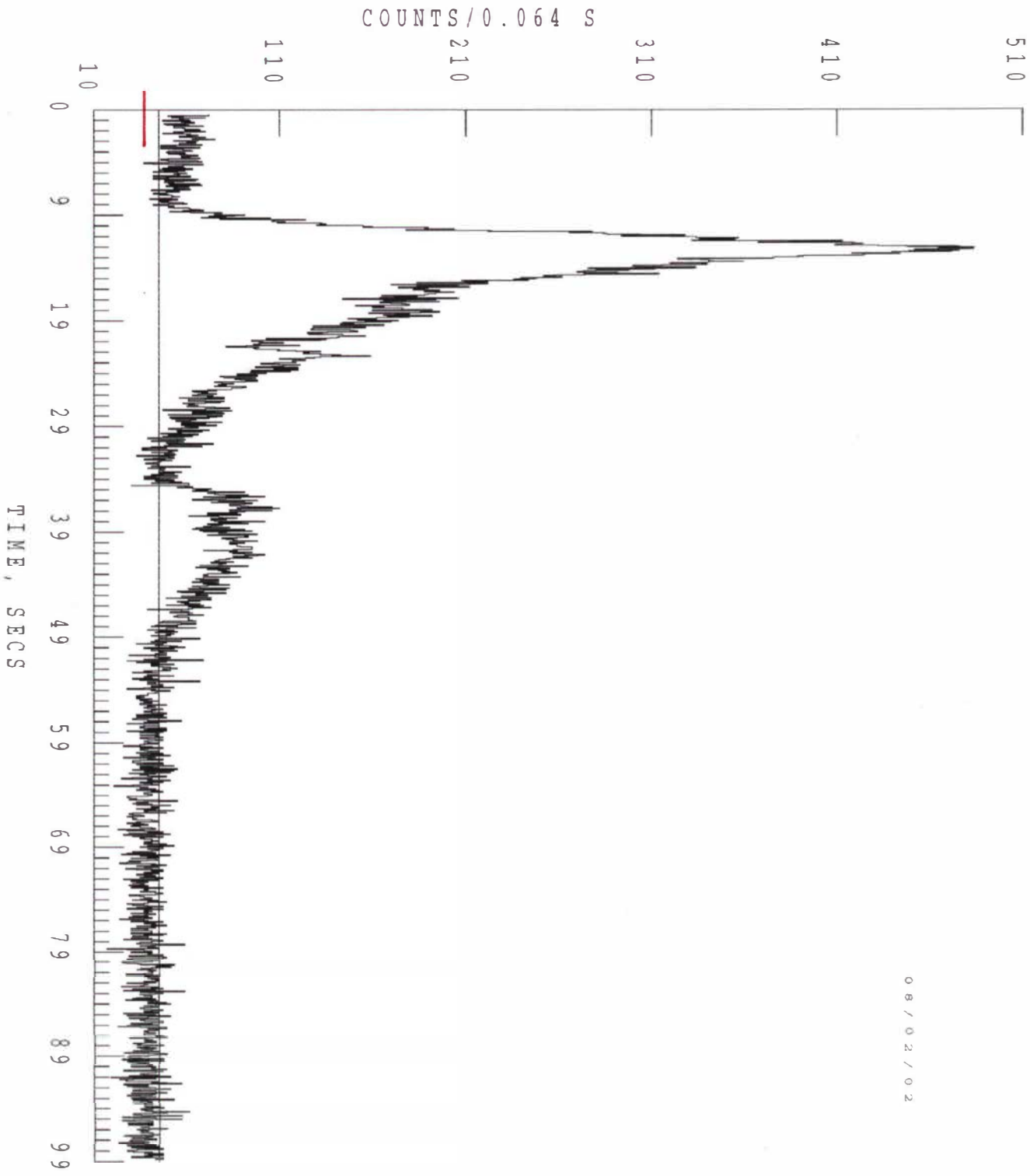
26/02/97 30456.004 s

0- 0 keV



KONUS2 26/02/97 31585.868

50- 200 keV



From TERRELL@nisdp0.lanl.gov Thu Mar 13 13:41 PST 1997
From: TERRELL@nisdp0.lanl.gov
Date: Thu, 13 Mar 1997 14:41:37 -0700
To: khurley@sunspot.ssl.berkeley.edu, bonnard@rosserv.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, chryssa.kouveliotou@msfc.nasa.gov,
cline@lheavx.gsfc.nasa.gov, henze@fender.msfc.nasa.gov
X-Vmsmail-To: @MAILOUTUL.DIS
Subject: grb detections by DMSP 13

From: jterrell@lanl.gov (James Terrell) 970313
To: khurley@sunspot.ssl.berkeley.edu,butterworth@lheavx.gsfc.nasa.gov,
filippo@botes1.tesre.bo.cnr.it,cline@lheavx.gsfc.nasa.gov,
kmarar@isac.ernet.in,scott@rosserv.gsfc.nasa.gov,
teegarden@lheavx.gsfc.nasa.gov,yosimori@rikkyo.ac.jp,
bonnard@rosserv.gsfc.nasa.gov,chryssa.kouveliotou@msfc.nasa.gov,
henze@fender.msfc.nasa.gov
Subj: DMSP GRB detections

DMSP 13 detected the event of 11 January 1997 (IAUC 6533,...) as 3 soft peaks at 35041.8, 35049.8, and 35059.8 sec UT.

DMSP 13 detected the event of 26 February 1997 as a moderately strong peak at 31596.8 sec UT, lasting about 10 sec. The first rise in counting rate occurred in the 2-sec interval preceding the peak count. --Jim

From WOODSP@ssl.msfc.nasa.gov Fri Feb 28 13:07 PST 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id NAA06602; Fri, 28 Feb 1997 13:07:07 -0800
From: WOODSP@ssl.msfc.nasa.gov
Date: Fri, 28 Feb 1997 15:07:03 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970228150703.20205532@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6102
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6102
EVENT OF 1997 FEB 26 DAY OF YEAR= 57
EVENT CROSSING TIME AT BATSE : 33911. S. OR 09:25:11.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 336.000 -37.000
BATSE PEAK COUNTING RATE: 1800 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 26/ 2/ 97 IS:
RA= 165.478 DEC= 36.779 DIST= 3.982 AU
BATSE-ULYSSES DISTANCE = 595700155. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 7.58 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1969.68 SECS.
CROSSING TIME AT ULYSSES IS 35881. S. OR 09:58:00 +/- 125.42 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 26/ 2/ 97 IS:
RA= 184.588 DEC= 2.124 DIST= 0.715 AU
MARS-BATSE DISTANCE = 106988408. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 43.69 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 258.05 SECS.
CROSSING TIME AT MARS IS 34169. S. OR 09:29:29 +/- 46.72 SECONDS

BATSE BURST TRIGGER

NO.: 6102

TIME: TJD=0505 SECONDS=33911

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=111.7 AZIMUTH=11.1 ERROR=3.4 DEGREES

COMMENTS:
GRB LASTING ~ 45 SEC. SINGLE WEAK PULSE WITH EXTENDED TAIL. WEAKLY VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6102	970226	10505	33911	1800	336	-37	45

BATSE# 6102

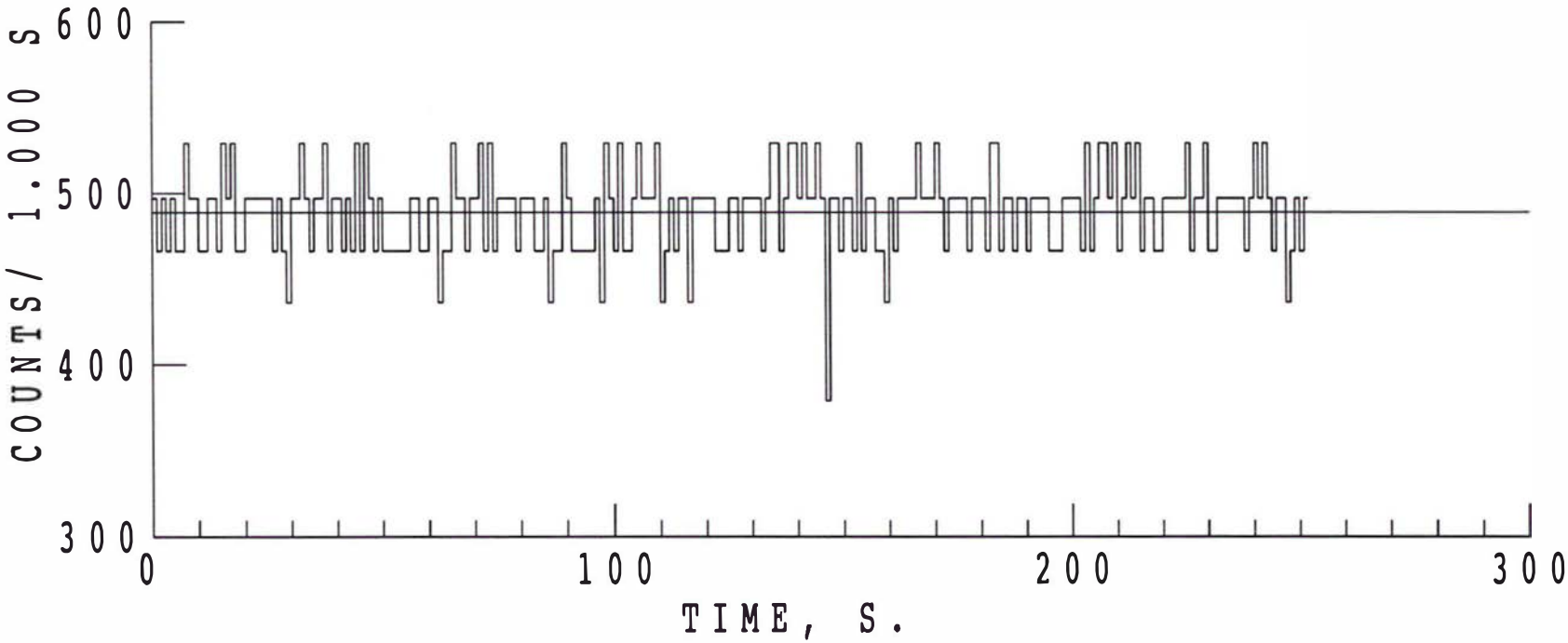
ULYSSES RT 28/ 2/97

26/ 2/97 35748.816 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From WOODSP@ssl.msfc.nasa.gov Fri Feb 28 13:12 PST 1997
Return-Path: <WOODSP@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
        id NAA06684; Fri, 28 Feb 1997 13:12:53 -0800
From: WOODSP@ssl.msfc.nasa.gov
Date: Fri, 28 Feb 1997 15:12:49 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970228151249.20205532@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6103
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

****
BATSEARCH PROGRAM
****

BATSE BURST # 6103
EVENT OF 1997 FEB 26 DAY OF YEAR= 57
EVENT CROSSING TIME AT BATSE : 37102. S. OR 10:18:22.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 45.000 -26.000
BATSE PEAK COUNTING RATE: 6500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 26/ 2/ 97 IS:
RA= 165.466 DEC= 36.780 DIST= 3.982 AU
BATSE-ULYSSES DISTANCE = 595720449. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 51.14 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1246.86 SECS.
CROSSING TIME AT ULYSSES IS 38349. S. OR 10:39:08 +/- 337.56 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 26/ 2/ 97 IS:
RA= 184.588 DEC= 2.124 DIST= 0.715 AU
MARS-BATSE DISTANCE = 106988408. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 45.56 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 249.86 SECS.
CROSSING TIME AT MARS IS 37352. S. OR 10:22:31 +/- 48.03 SECONDS

BATSE BURST TRIGGER

NO.: 6103

TIME: TJD=0505 SECONDS=37102

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=53.9 AZIMUTH=24.4 ERROR=1.3 DEGREES

COMMENTS:
GRB LASTING ~ 125 SEC. MULTIPLE PEAKED EVENT. SHOWS SOFT TAIL OUT
TO ~ T + 100 SEC. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6103	970226	10505	37102	6500	045	-26	125

BATSE# 6103

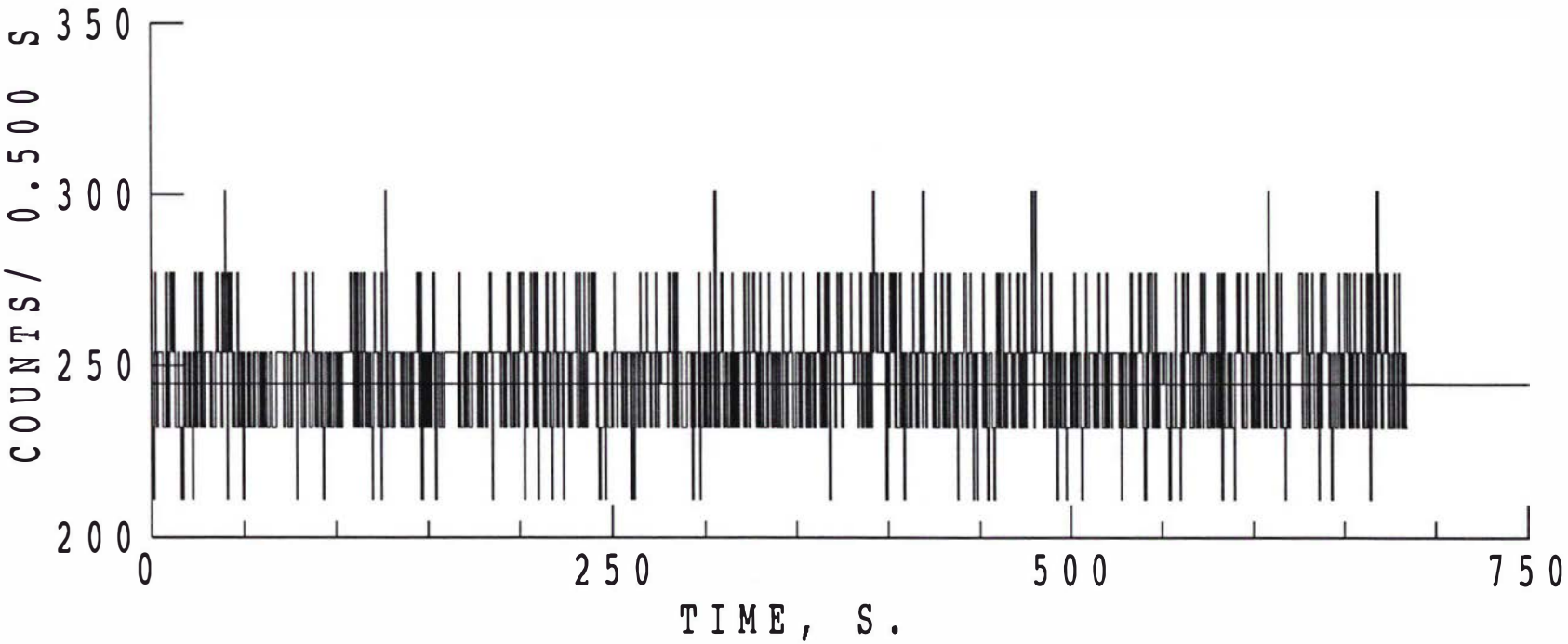
ULYSSES RT 28/ 2/97

26/ 2/97 38016.340 s

0- 0 keV

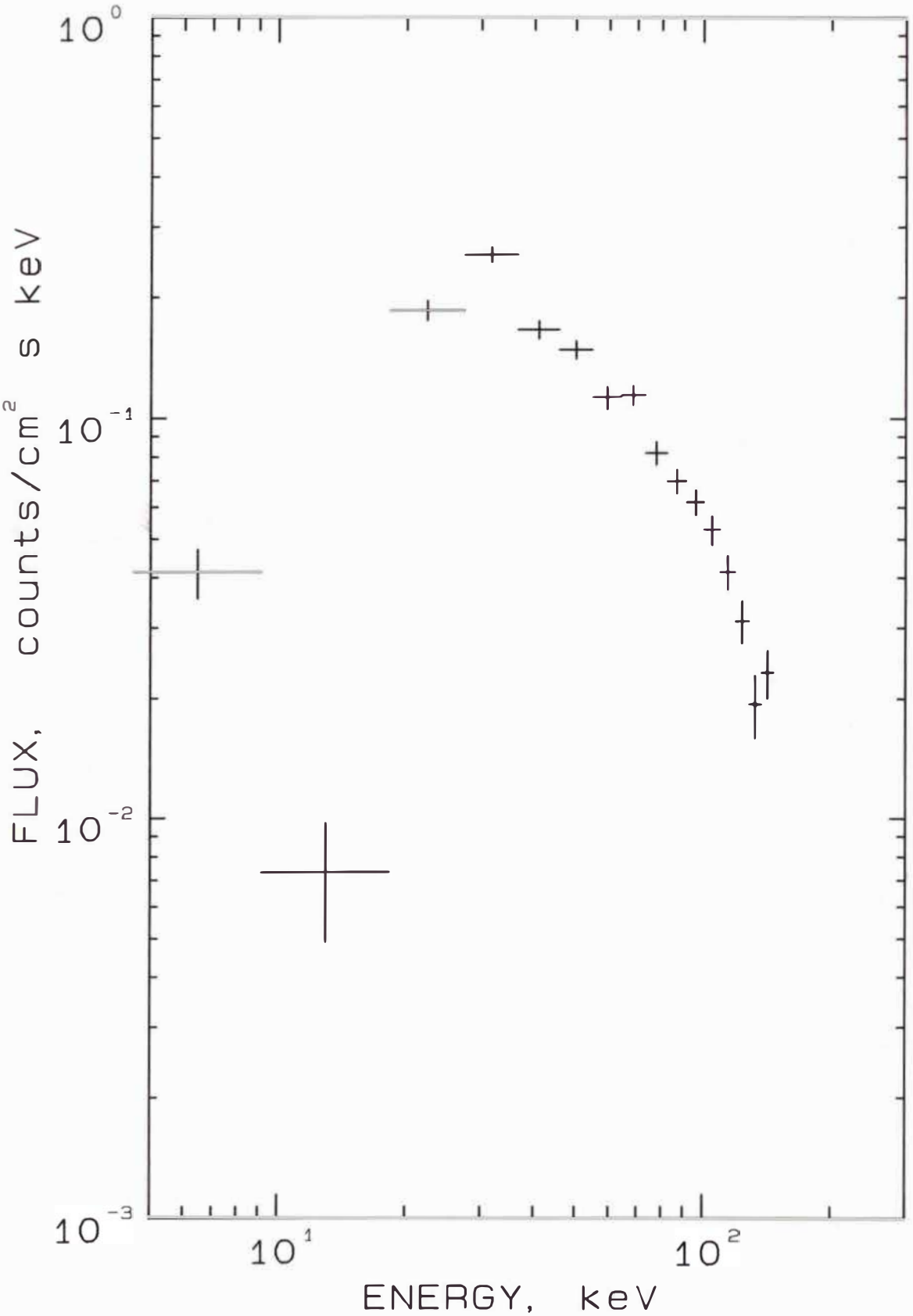
N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

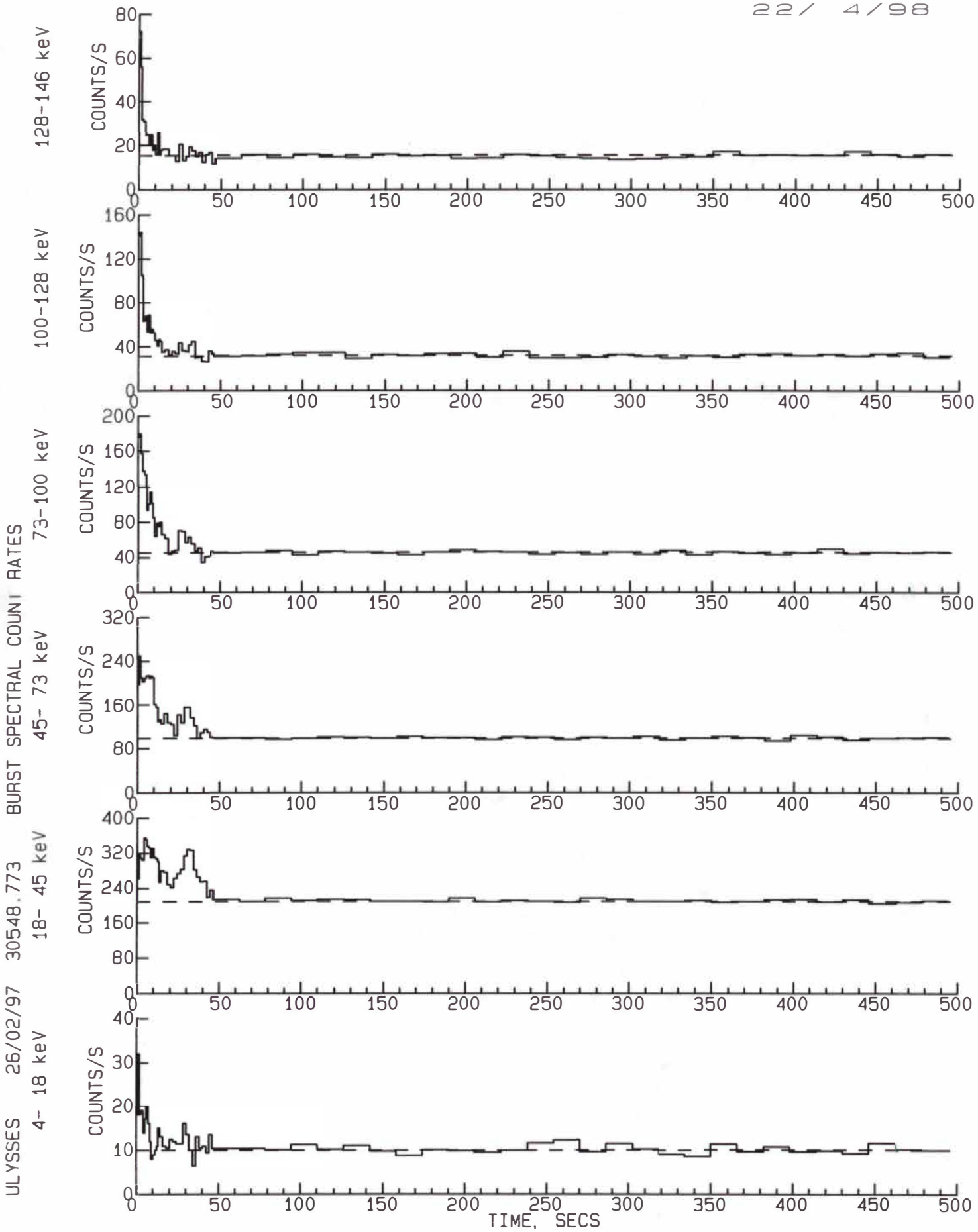
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

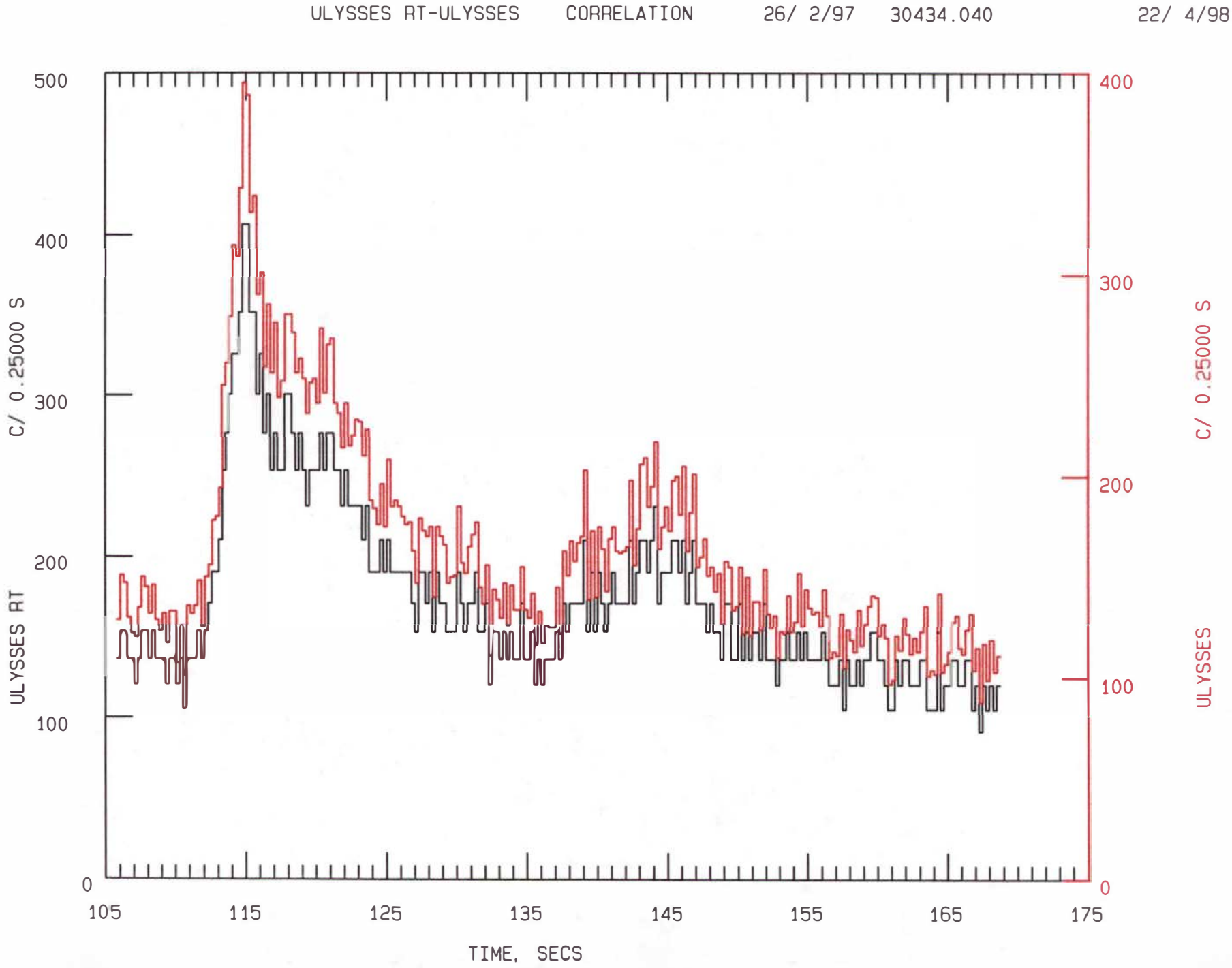


ULYSSES 26/02/97 30548.773

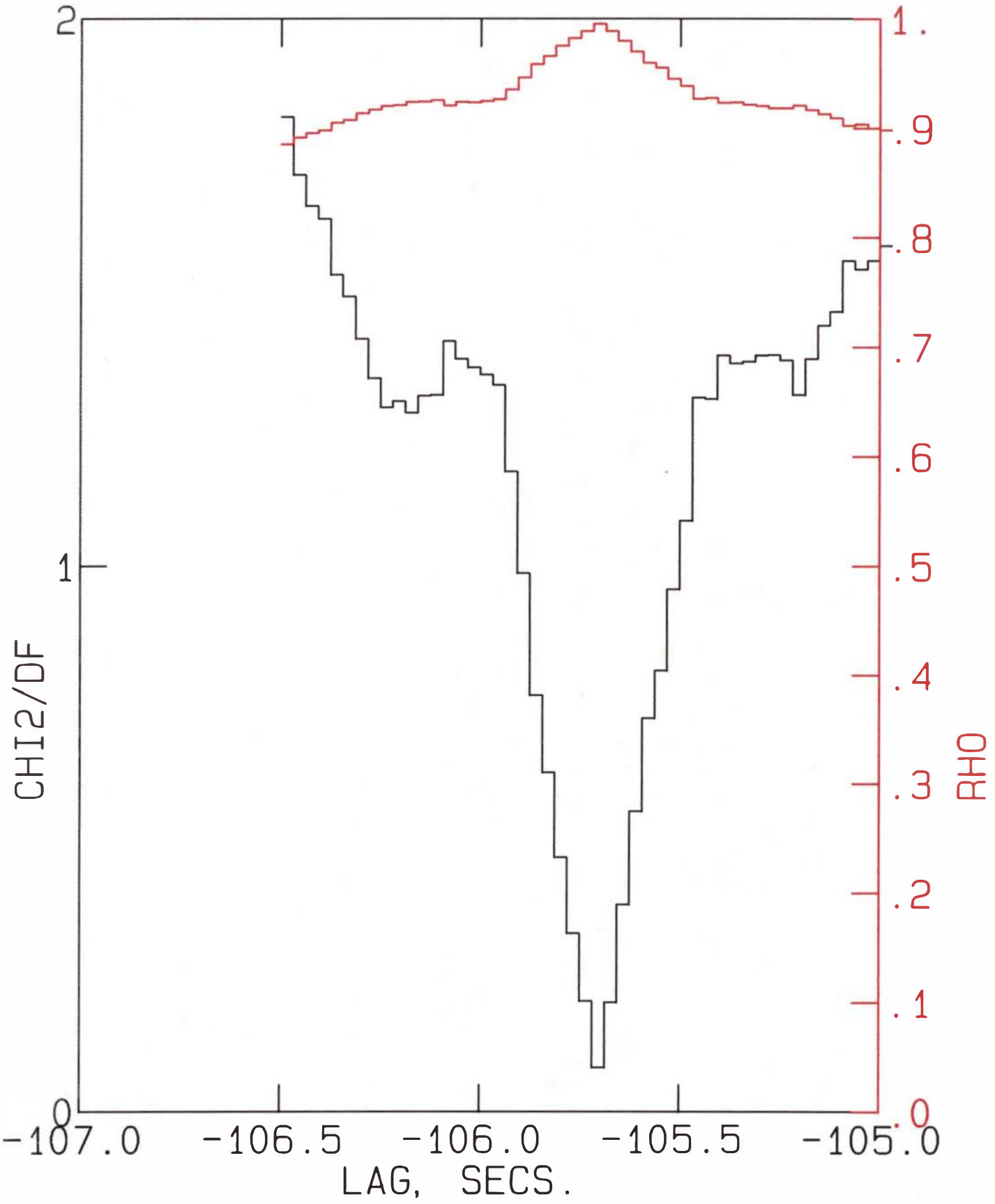
SPECTRUM INTEGRATED OVER 62.0 SECONDS, INTERVALS 2 TO 33




22/ 4/98
ULYSSES 26/02/97 30548.773 BURST SPECTRAL COUNT RATES
128-146 keV
100-128 keV
73-100 keV
45- 73 keV
18- 45 keV
4- 18 keV
COUNTS/S
TIME, SECS


ULYSSES RT-ULYSSES CORRELATION 26/ 2/97 30434.040 22/ 4/98
500
400
300
200
100
0
C/ 0.25000 S
ULYSSES RT
400
300
200
100
0
C/ 0.25000 S
ULYSSES
105
115
125
135
145
155
165
175
TIME, SECS

ULYSSES RT-ULYSSES CORRELATION 26/ 2/97 30434.040



ULYSSES 26/02/97 Ttrig=30547.166

21- 146 keV

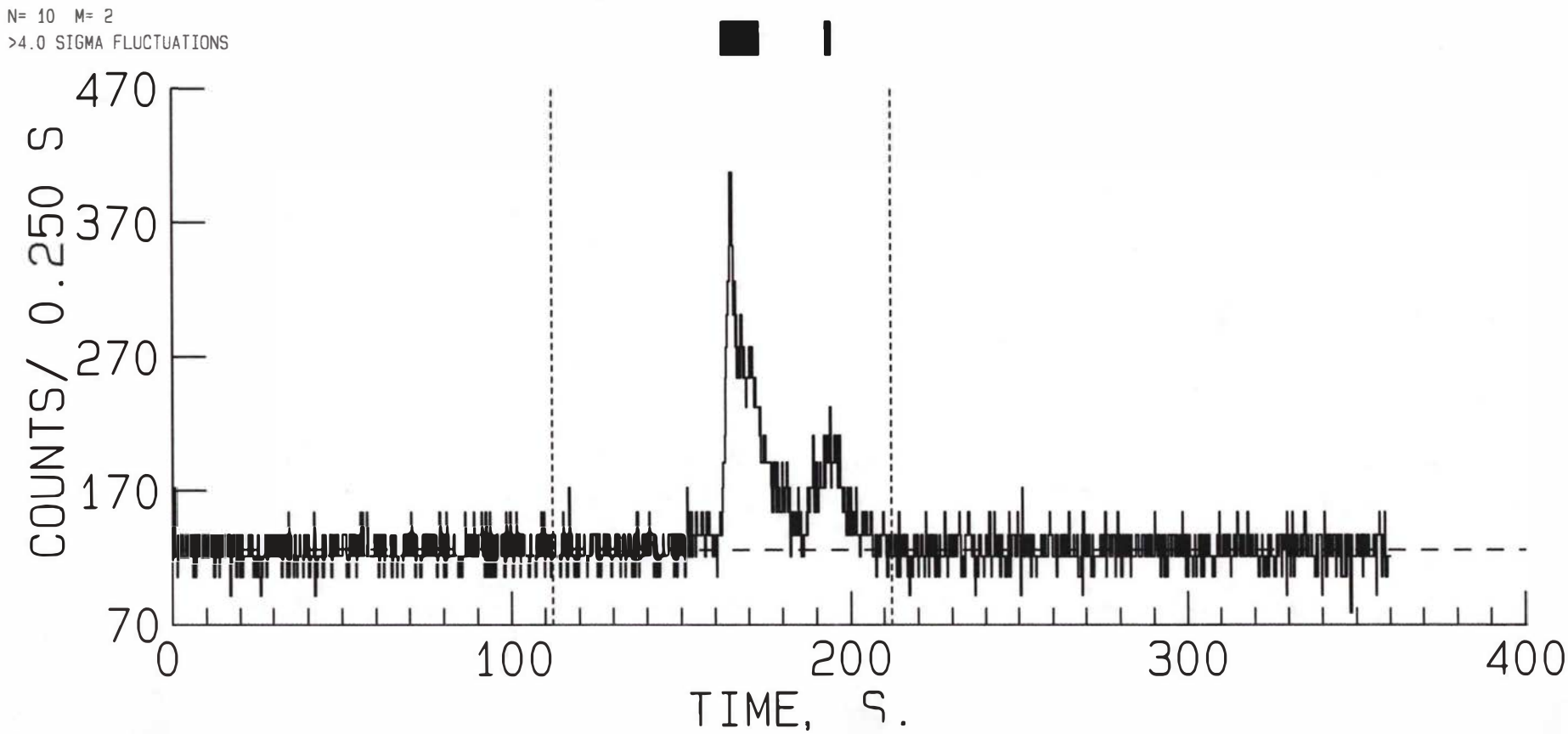
22/ 4/98

ULYSSES RT

22/ 4/98

26/ 2/97 30384.004 s

21- 146 keV



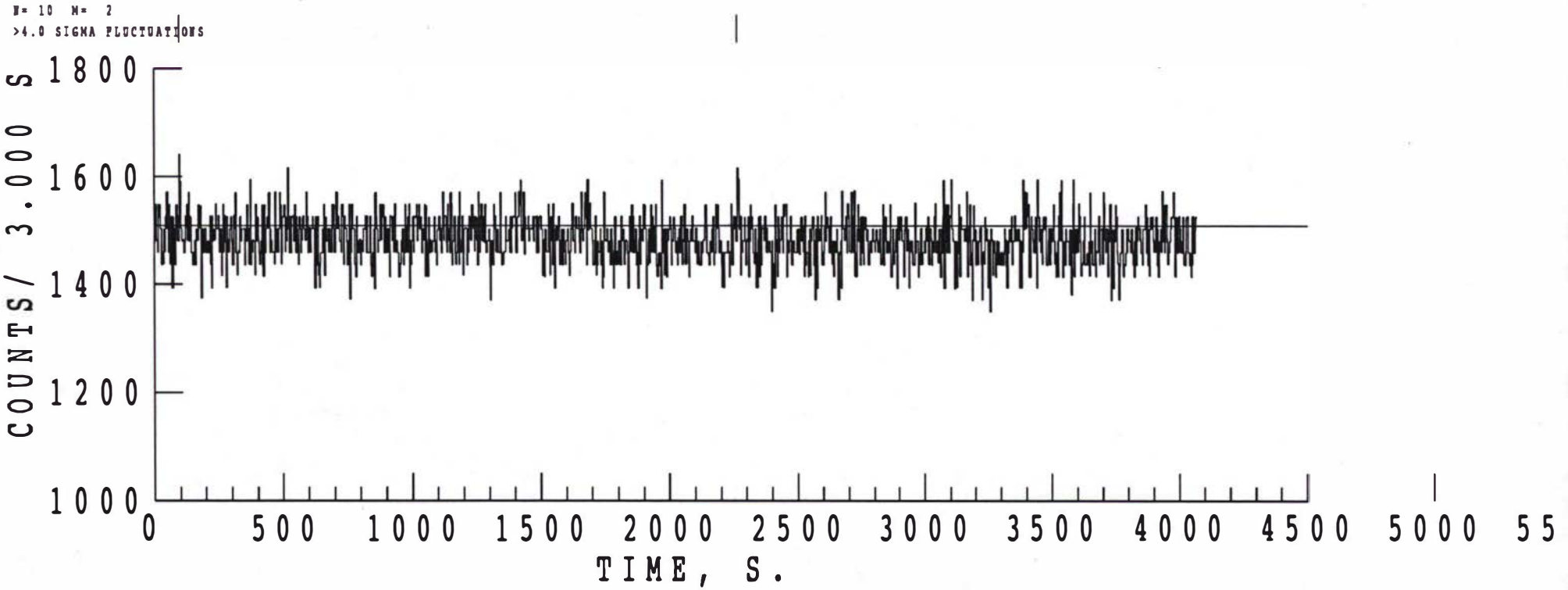
KONUS

ULYSSES RT 02/02/00

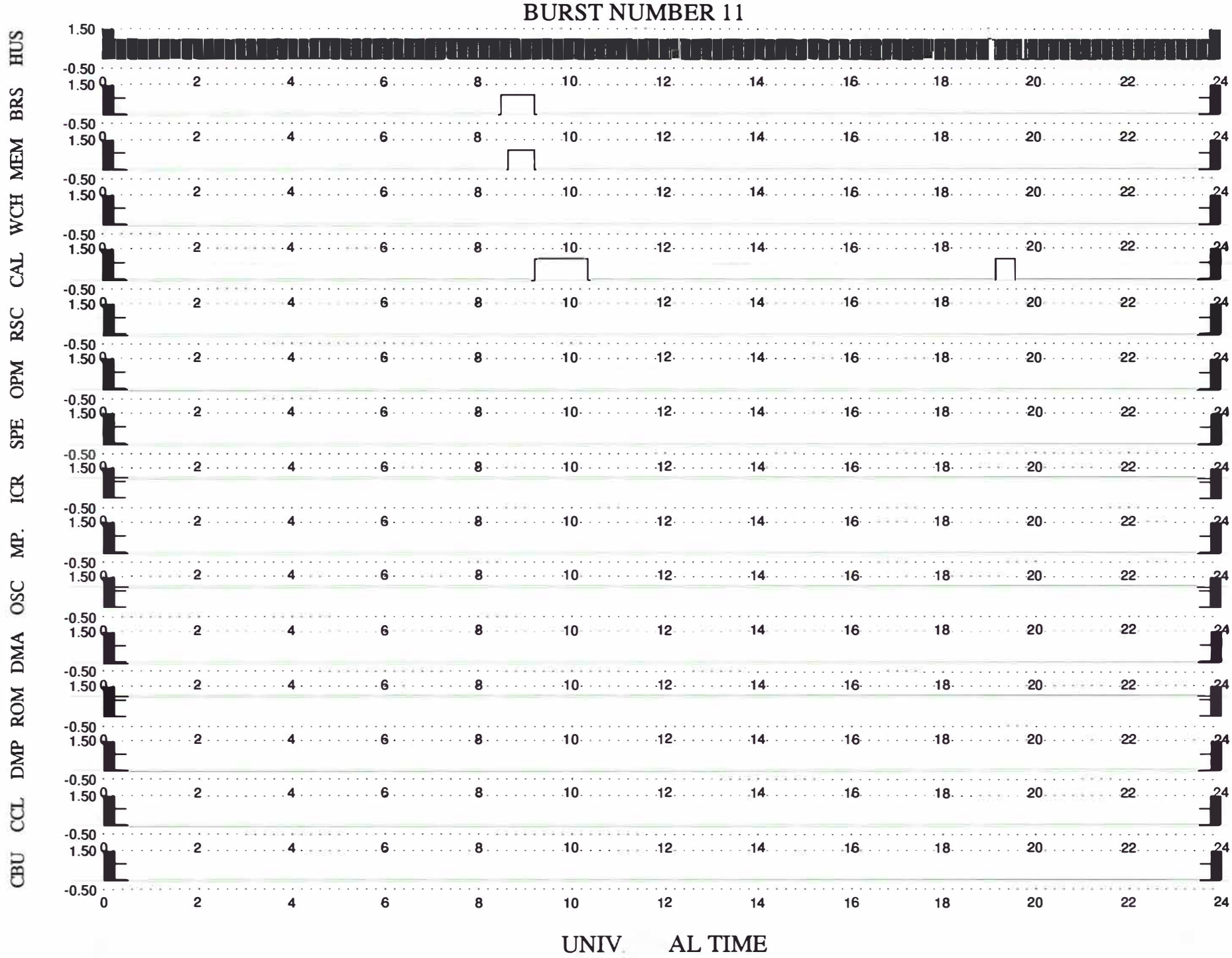
26/02/97 39312.355 s

0.500 S INTERVALS REGROUPED BY 6

0- 0 keV

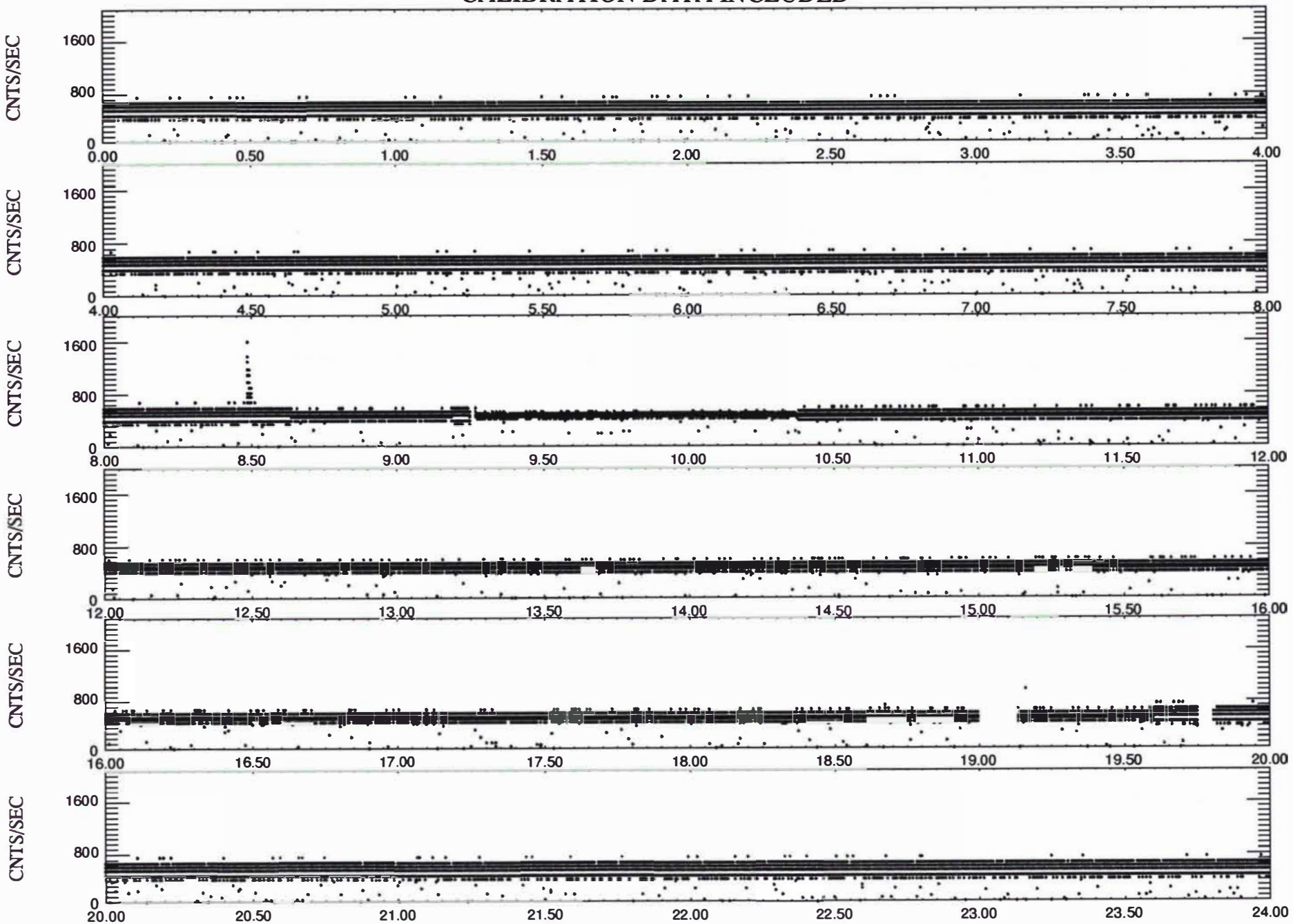


HUS MODES EDR day 57, year 1997 to day 57, year 1997 5/16/97



HUS 2A, MODE 1, NOT AVERAGED EDR day 57, year 1997 to day 57, year 1997 5/16/97

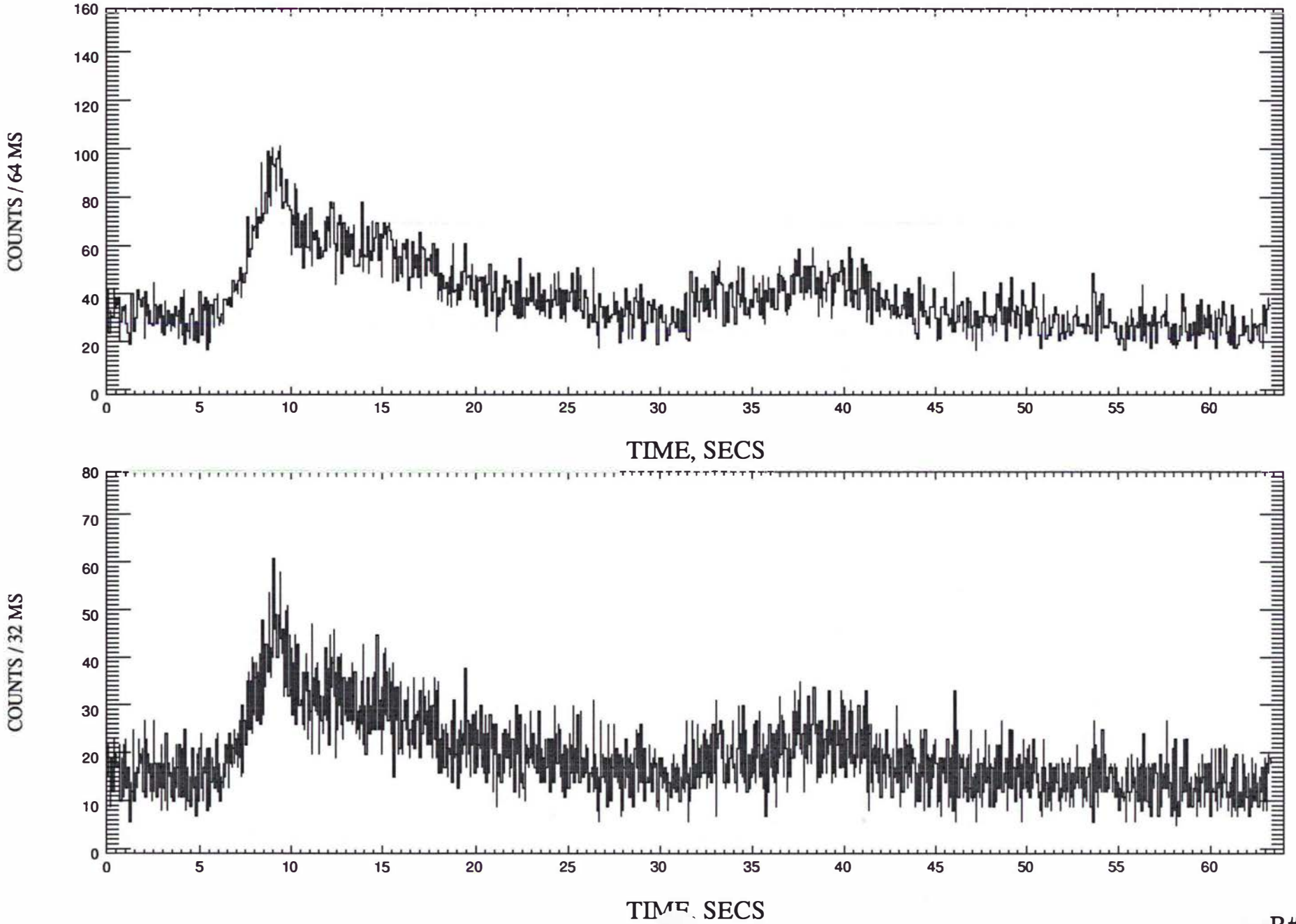
CALIBRATION DATA INCLUDED



UNIV AL TIME

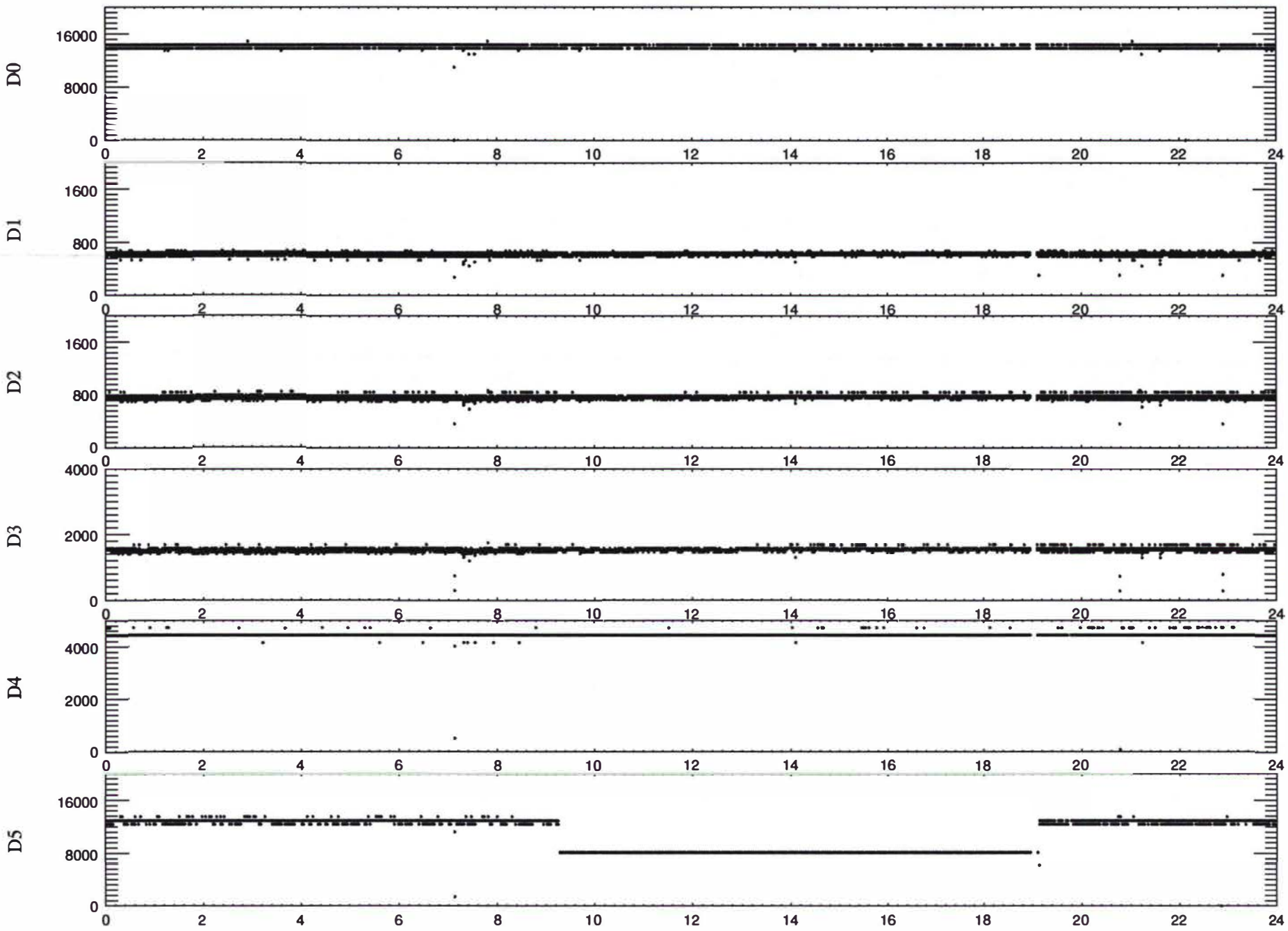
HUS 2A TRIGGERED DATA EDR day 57, year 1997 6/19/97

Burst Counter 11 at UT= 8.485311660767 h=30547.122 s 08:29:07.122



B# 1

HUS 2B COUNTS / SEC EDR day 57, year 1997 to day 57, year 1997 5/16/97



From SURASAK@ssl.msfc.nasa.gov Sat Mar 1 10:00 PST 1997
Return-Path: <SURASAK@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id KAA13882; Sat, 1 Mar 1997 10:00:45 -0800
From: SURASAK@ssl.msfc.nasa.gov
Date: Sat, 1 Mar 1997 12:00:40 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970301120040.20205c97@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6104
Content-Type: text
Content-Length: 1135
Status: RO
X-Lines: 26

****
BATSEARCH PROGRAM
****

BATSE BURST # 6104
EVENT OF 1997 FEB 27 DAY OF YEAR= 58
EVENT CROSSING TIME AT BATSE : 32858. S. OR 09:07:38.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 333.000 -31.000
BATSE PEAK COUNTING RATE: 3500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 27/ 2/ 97 IS:
RA= 165.172 DEC= 36.799 DIST= 3.986 AU
BATSE-ULYSSES DISTANCE = 596273187. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 11.64 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1948.08 SECS.
CROSSING TIME AT ULYSSES IS 34806. S. OR 09:40:06 +/- 149.23 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 27/ 2/ 97 IS:
RA= 184.354 DEC= 2.234 DIST= 0.710 AU
MARS-BATSE DISTANCE = 106289784. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 41.28 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 266.45 SECS.
CROSSING TIME AT MARS IS 33124. S. OR 09:12:04 +/- 44.65 SECONDS

BATSE BURST TRIGGER

NO.: 06104

TIME: TJD=0506 SECONDS=32858

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=122.5 AZIMUTH=4.6 ERROR=3.7 DEGREES

COMMENTS:
GRB. DUR~20S. SINGLE PULSE. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6104	970227	10506	32858	3500	333	-31	20

BATSE# 6104

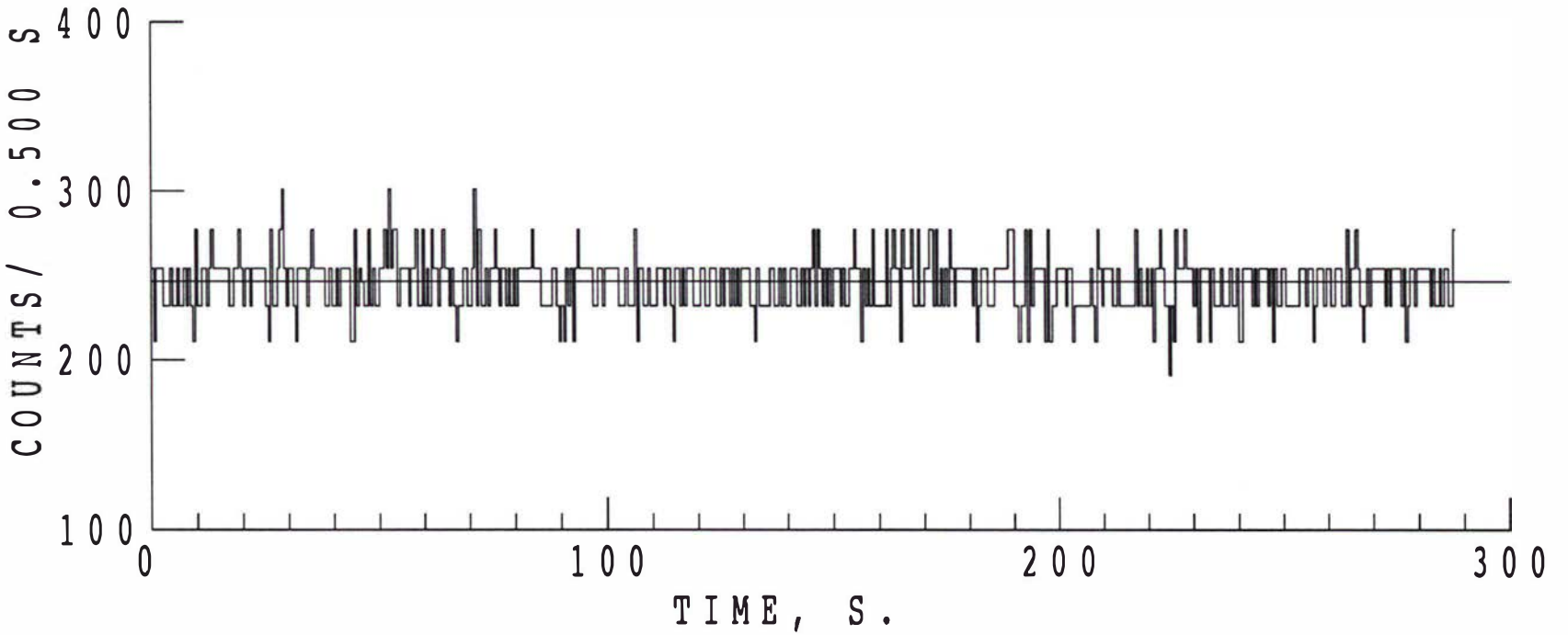
ULYSSES RT 4/ 3/97

27/ 2/97 34668.328 s

0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HENZE@ssl.msfc.nasa.gov Tue Mar 4 11:07 PST 1997
Return-Path: <HENZE@ssl.msfc.nasa.gov>
Received: from SSLMOR.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA04763; Tue, 4 Mar 1997 11:07:28 -0800
From: HENZE@ssl.msfc.nasa.gov
Date: Tue, 4 Mar 1997 13:07:19 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <970304130719.20207663@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6105
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: O

****
BATSEARCH PROGRAM
****

BATSE BURST # 6105
EVENT OF 1997 FEB 27 DAY OF YEAR= 58
EVENT CROSSING TIME AT BATSE : 48276. S. OR 13:24:36.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 94.000 50.000
BATSE PEAK COUNTING RATE: 7400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 27/ 2/ 97 IS:
RA= 165.118 DEC= 36.803 DIST= 3.987 AU
BATSE-ULYSSES DISTANCE = 596381723. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=128.72 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1244.26 SECS.
CROSSING TIME AT ULYSSES IS 47032. S. OR 13:03:51 +/- 300.58 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 27/ 2/ 97 IS:
RA= 184.354 DEC= 2.234 DIST= 0.710 AU
MARS-BATSE DISTANCE = 106289784. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 91.48 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -9.18 SECS.
CROSSING TIME AT MARS IS 48267. S. OR 13:24:26 +/- 61.39 SECONDS

BATSE BURST TRIGGER
NO.: 6105

TIME: TJD=0506 SECONDS=48276

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=037.4 AZIMUTH=235.1 ERROR=007.2 DEGREES

COMMENTS:
DOUBLE SPIKE, TOTAL DUR. ~0.2 S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6105	970227	10506	48276	7400	094	+50	.2

BATSE# 6105

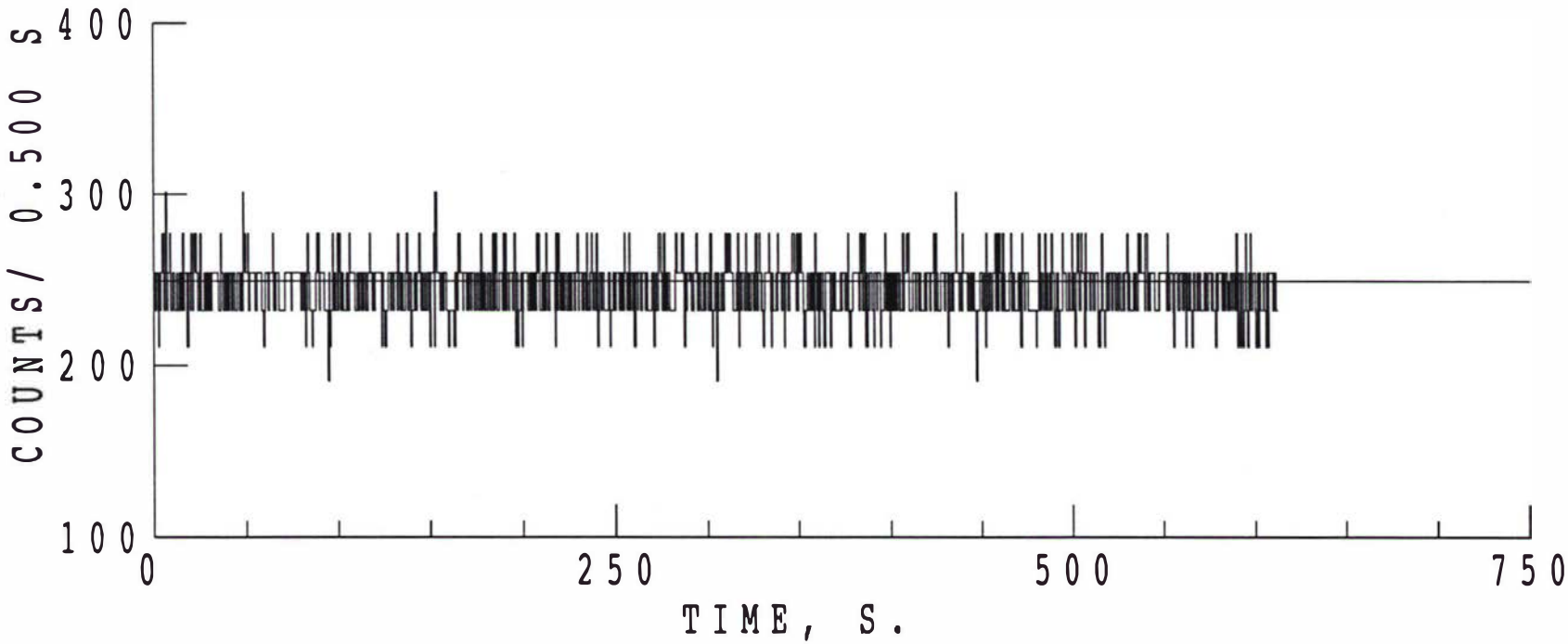
ULYSSES RT 4/ 3/97

27/ 2/97 46728.473 s

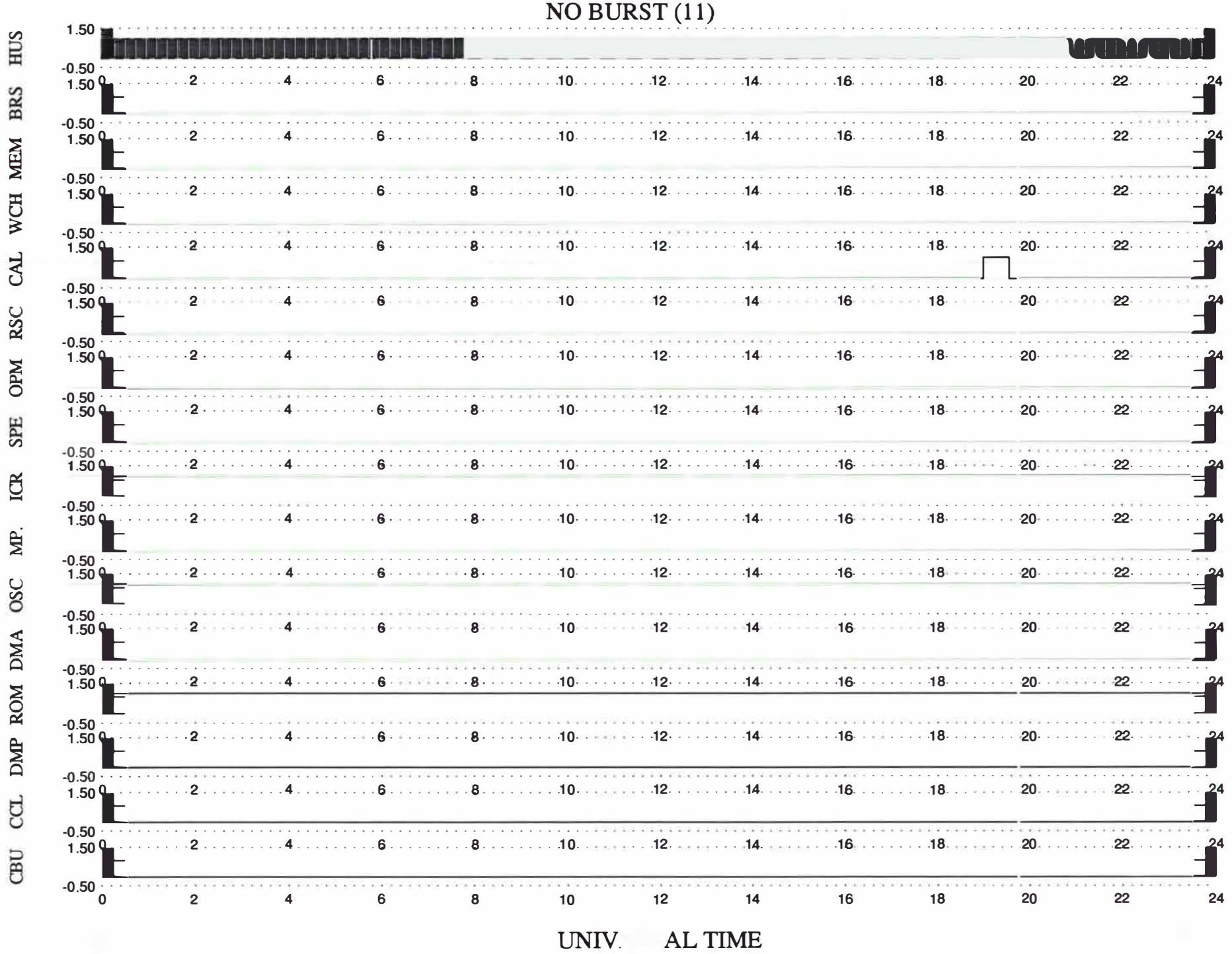
0- 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

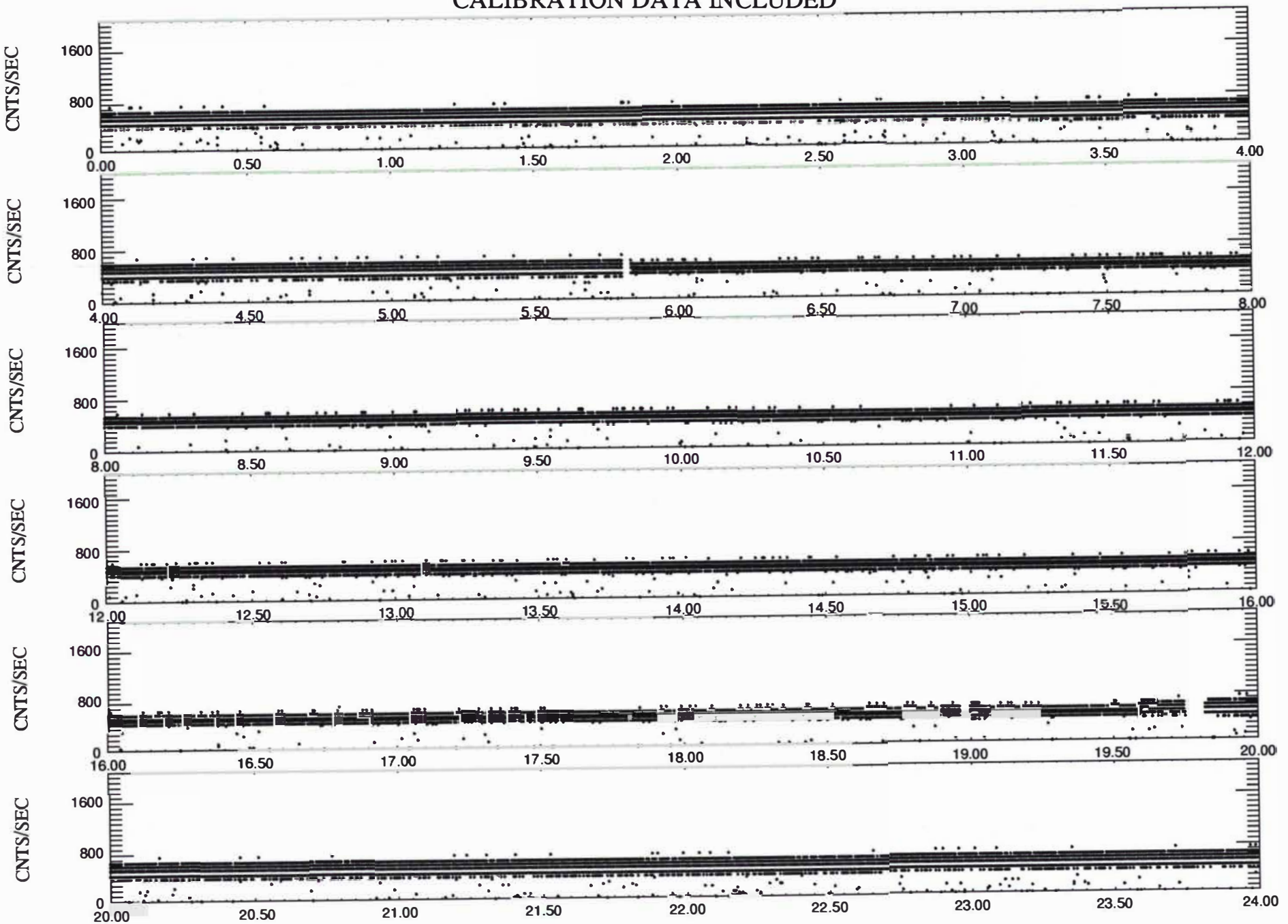


HUS MODES EDR day 58, year 1997 to day 58, year 1997 5/16/97



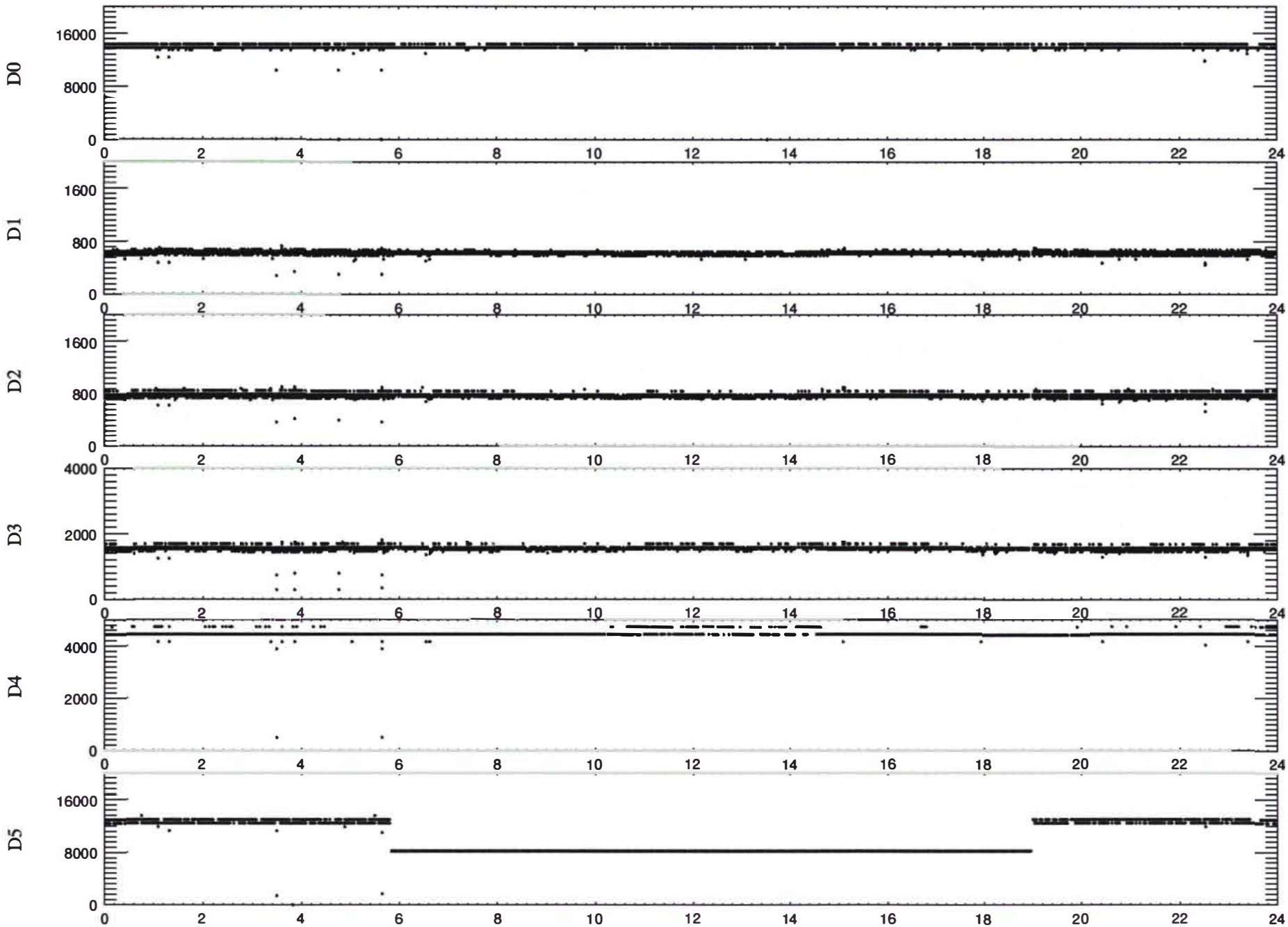
HUS 2A, MODE 1, NOT AVERAGED EDR day 58, year 1997 to day 58, year 1997 5/16/97

CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2B COUNTS / SEC EDR day 58, year 1997 to day 58, year 1997 5/16/97



Date: Jan 5 99

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

☑ Jim Schmidling's stat file correction applied?

☑ Final ephemeris used?

☑ Final, CDROM data used?

☐ Were data checked by Joe Springer for 0.5 s errors? N/A

☑ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?

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

2. BATSE Data N/A

☐ 2.042 s subtracted for bursts prior to June 25 1992 and DISCSC programs prior to Version 2.16 (August 28 1992)?

☐ BATSE ephemeris for T_0?

☐ Error circle position and radius from public catalog used?

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

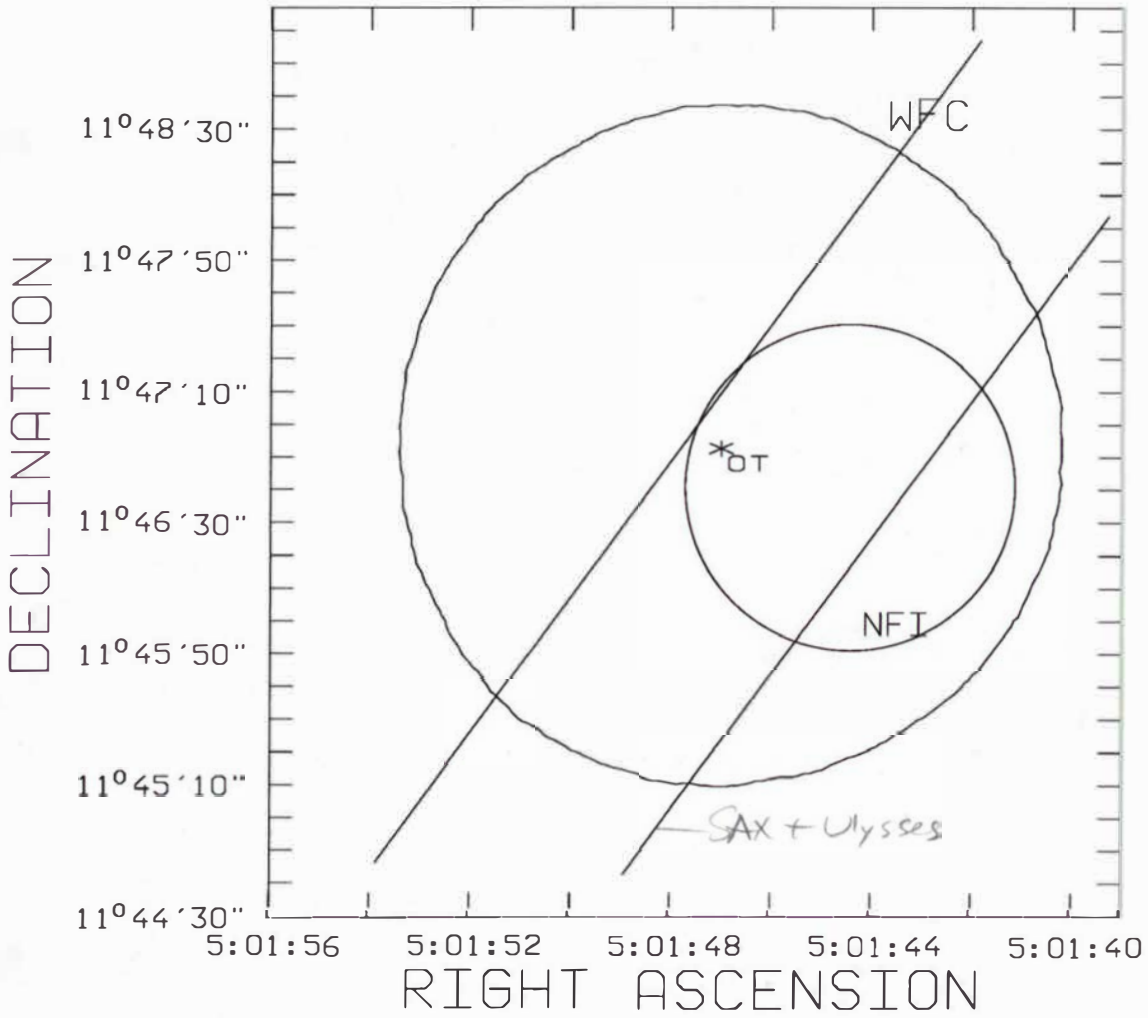
3. PVO Data

☐ Ephemeris of PVO used (not Venus)?

☐ 2000 coordinates used?

☐ Geocentric time used?

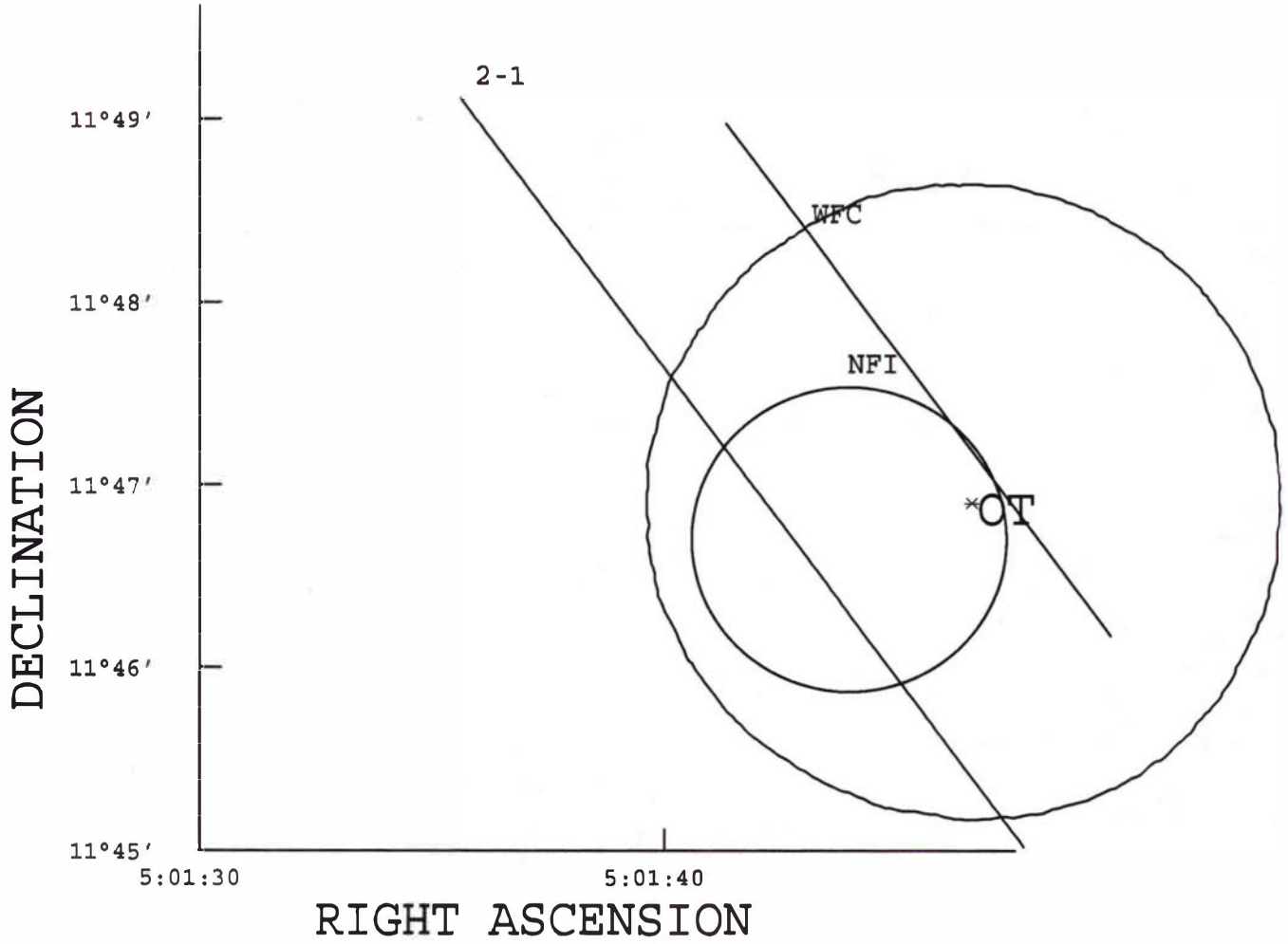
☑ ACCESS database updated?

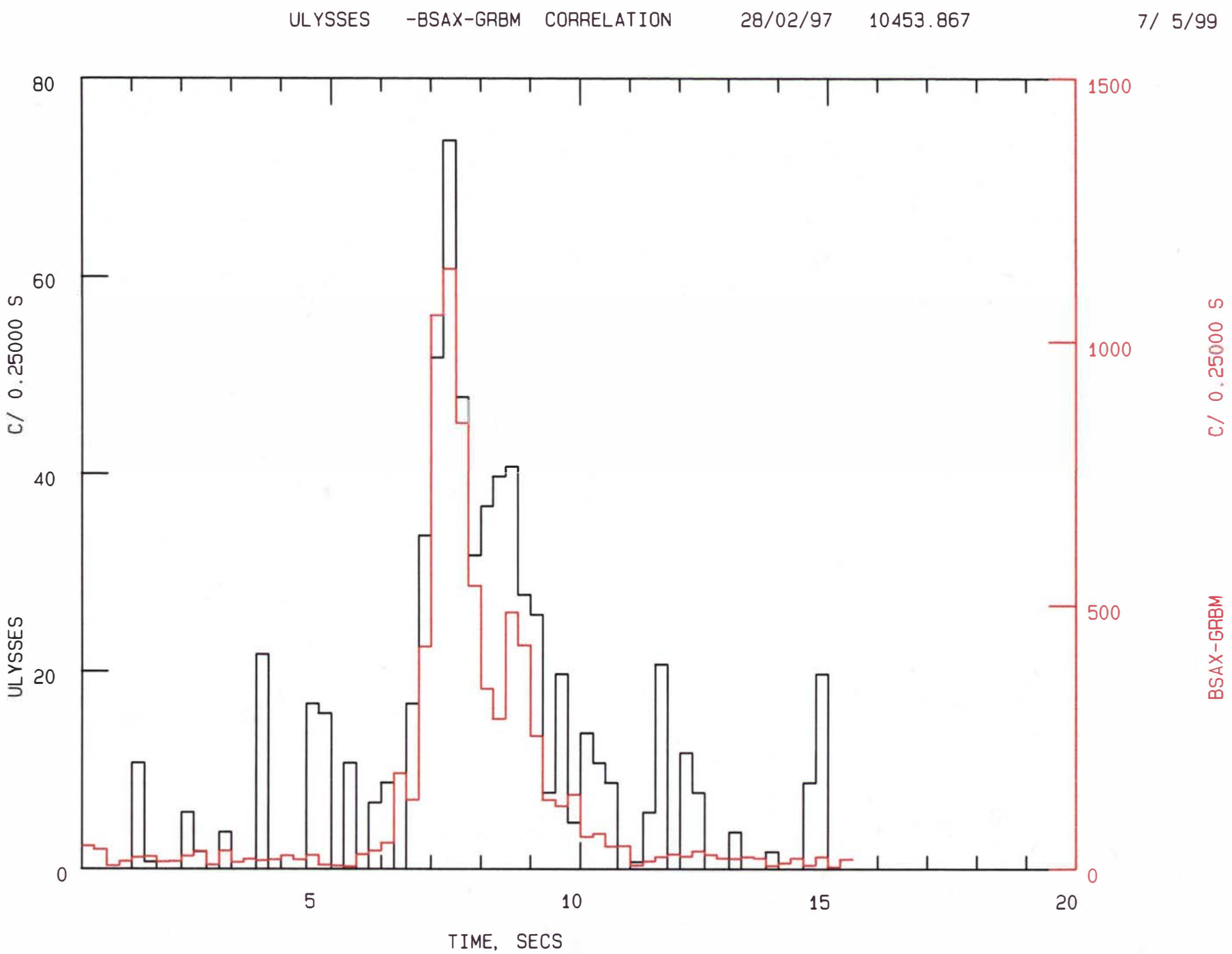

WFC
*OT
NFI
SAX + Ulysses
11°48'30"
11°47'50"
11°47'10"
11°46'30"
11°45'50"
11°45'10"
11°44'30"
DECLINATION
5:01:56
5:01:52
5:01:48
5:01:44
5:01:40
RIGHT ASCENSION

970228

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

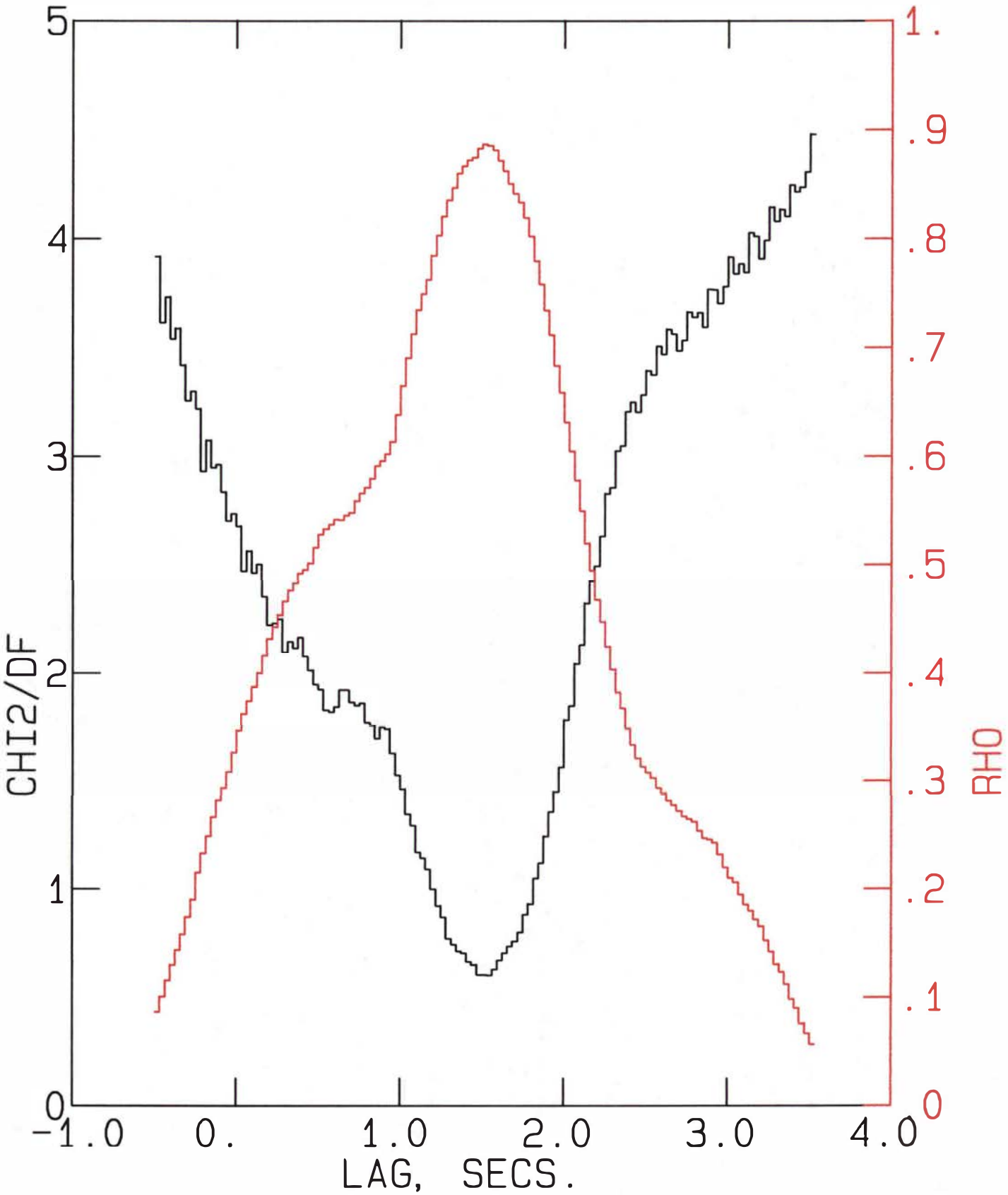
EVENT OF FEB 28, 1997 2:54




ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.867 7/ 5/99
80
60
40
20
0
C/ 0.25000 S
ULYSSES
1500
1000
500
0
C/ 0.25000 S
BSAX-GRBM
5
10
15
20
TIME, SECS

7/ 5/99

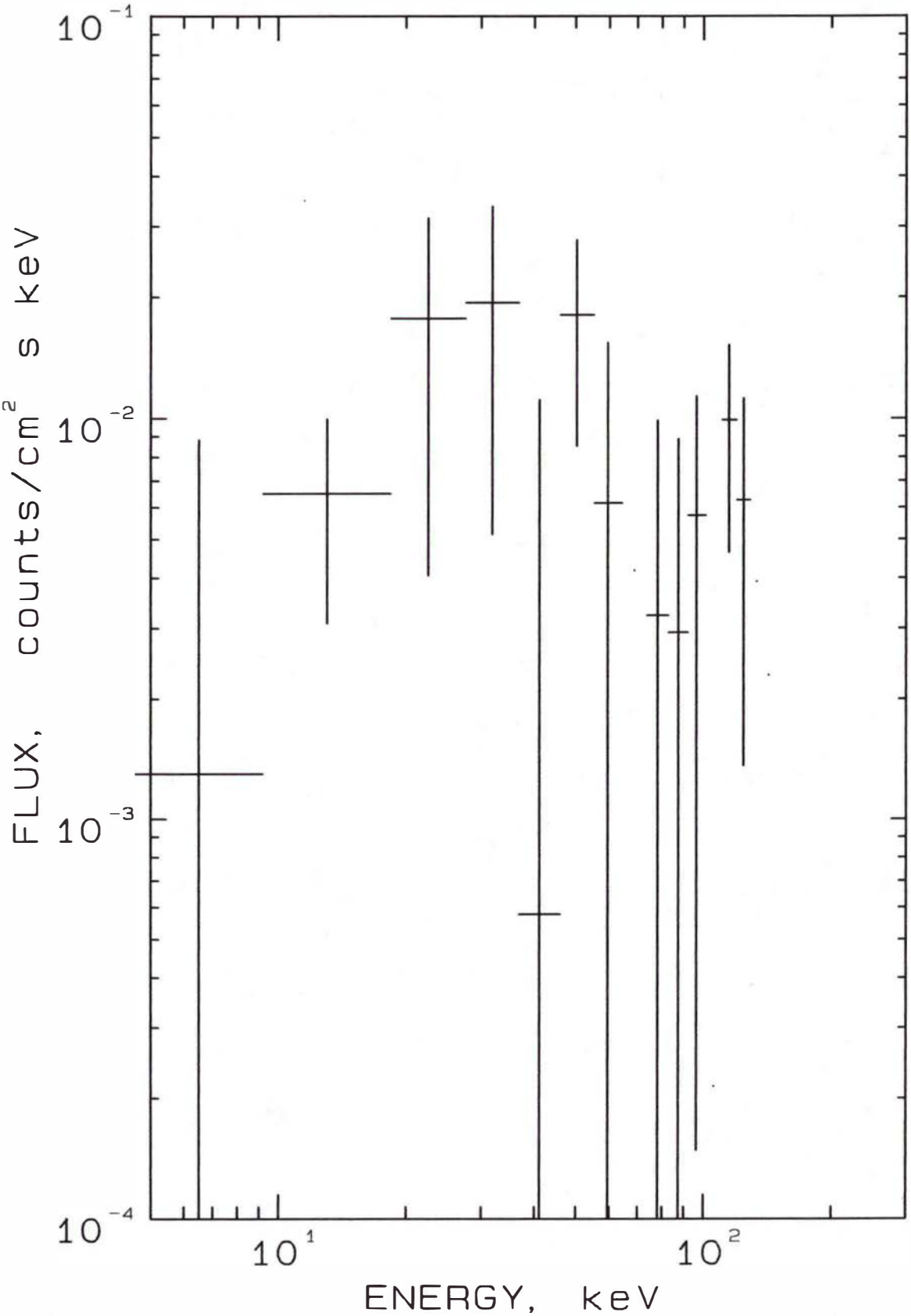
ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.867

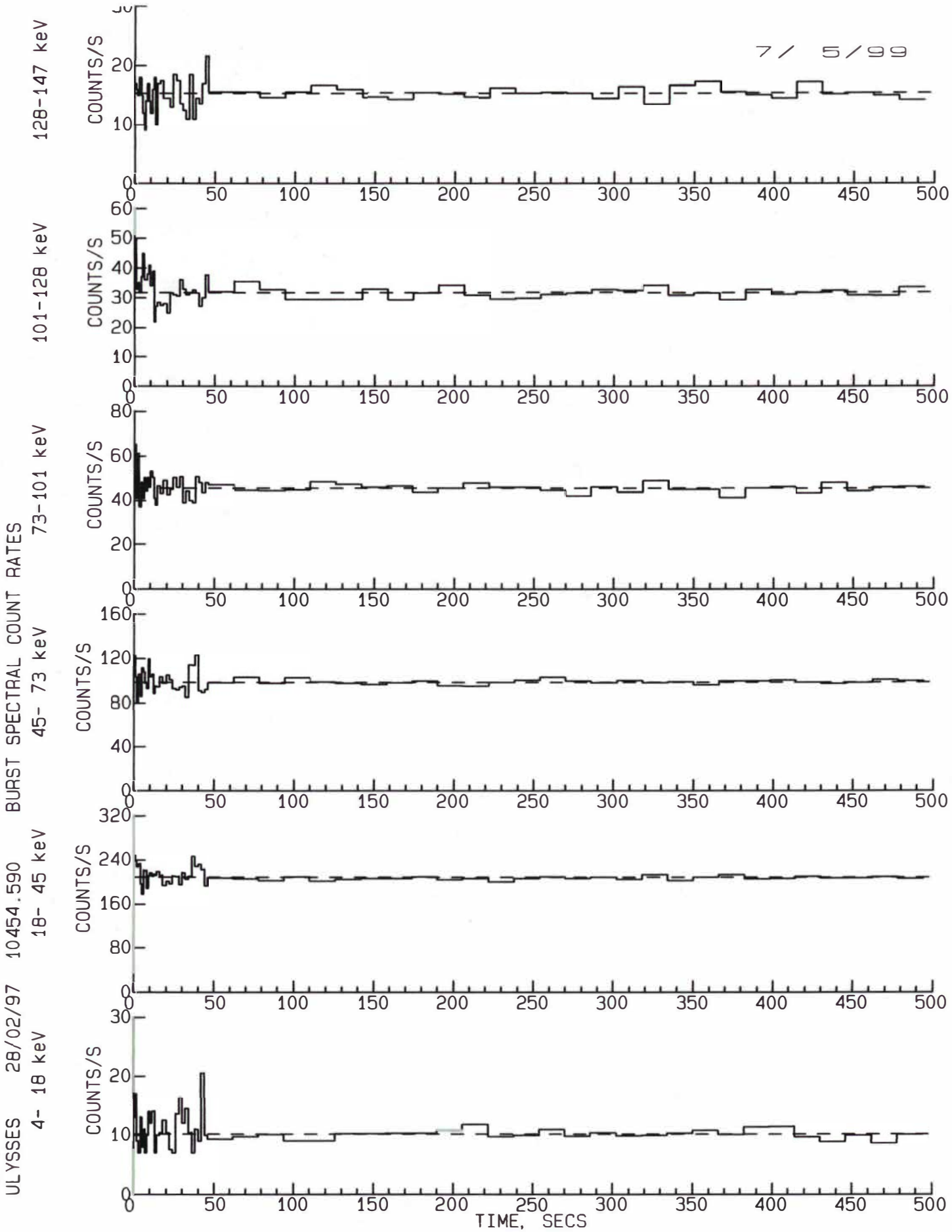


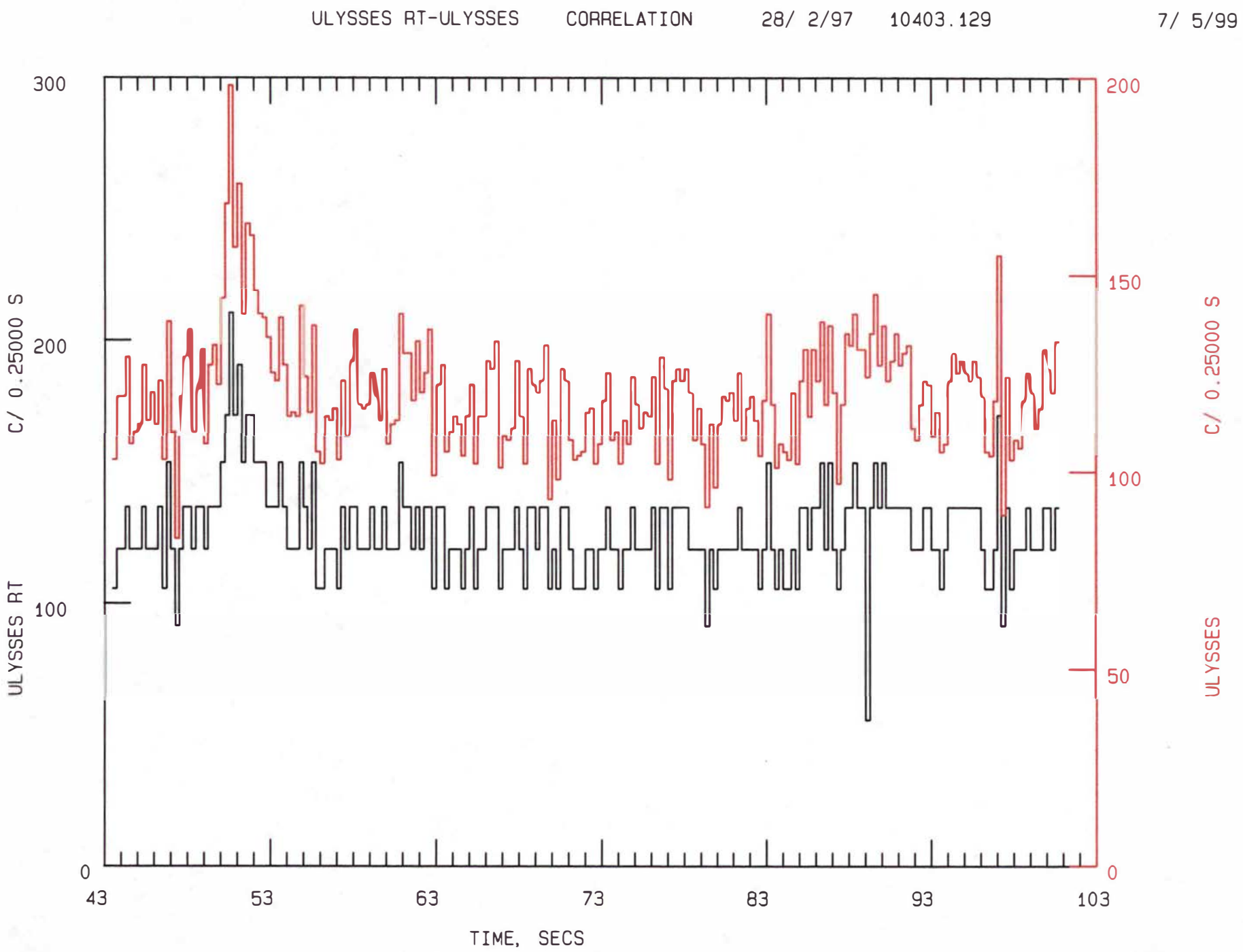
7/ 5/99

ULYSSES 28/02/97 10454.590

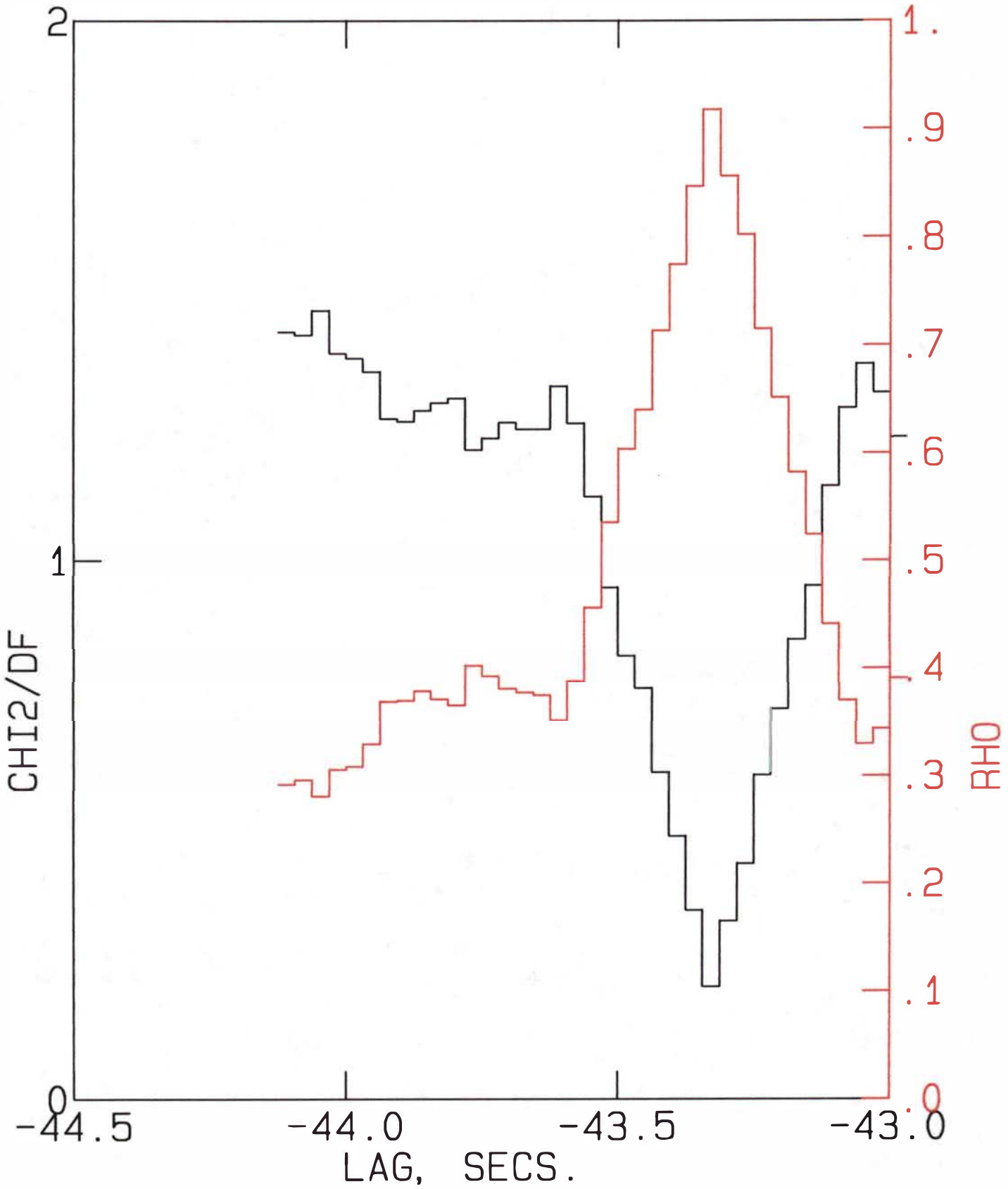
SPECTRUM INTEGRATED OVER 20.0 SECONDS. INTERVALS 2 TO 19

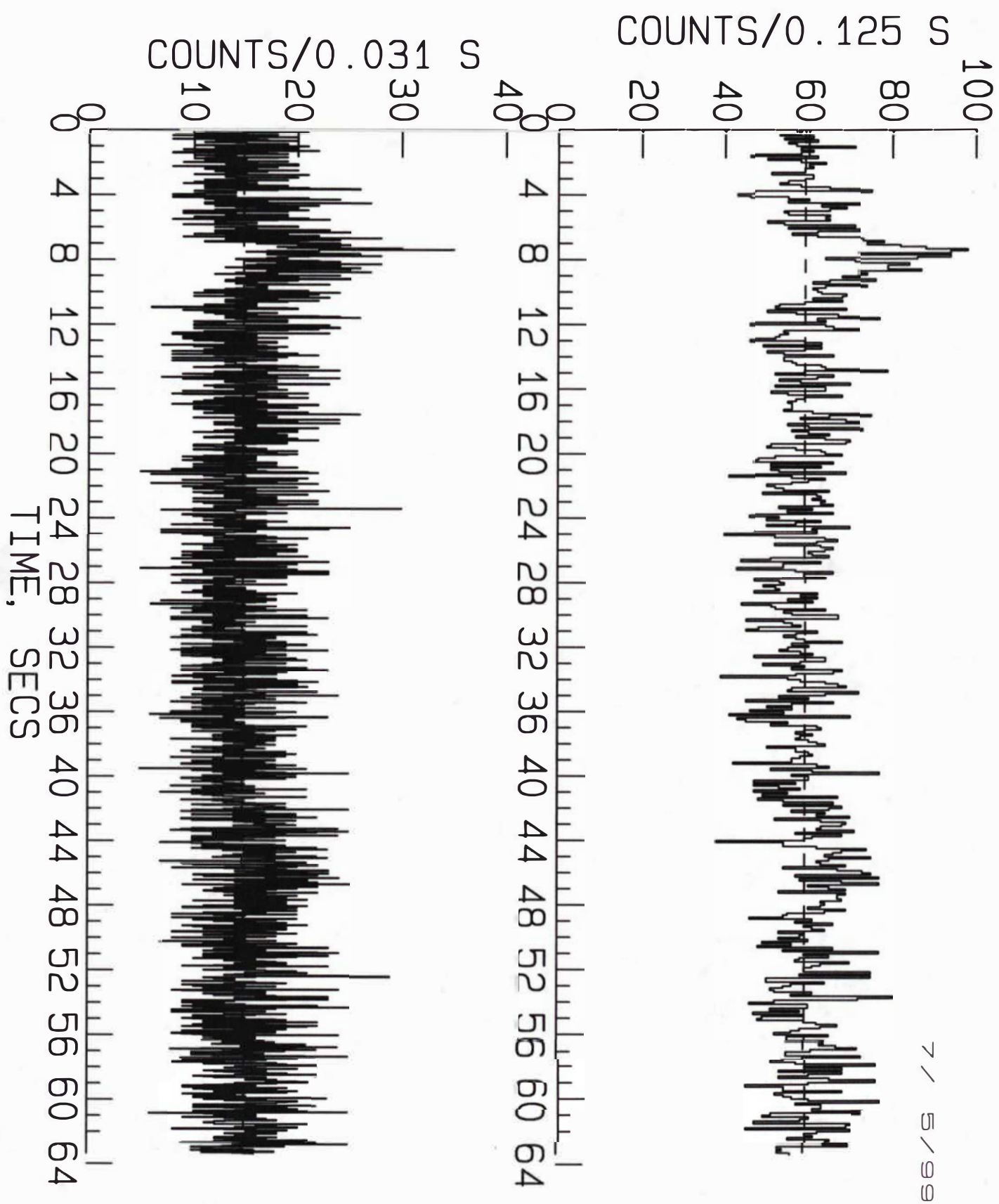



ULYSSES 28/02/97 10454.590 BURST SPECTRAL COUNT RATES
128-147 keV
101-128 keV
73-101 keV
45- 73 keV
18- 45 keV
4- 18 keV
COUNTS/S
7/ 5/99
TIME, SECS


ULYSSES RT-ULYSSES CORRELATION 28/ 2/97 10403.129 7/ 5/99
300
200
100
0
C/ 0.25000 S
ULYSSES RT
200
150
100
50
0
C/ 0.25000 S
ULYSSES
43
53
63
73
83
93
103
TIME, SECS

ULYSSES RT-ULYSSES CORRELATION 28/ 2/97 10403.129



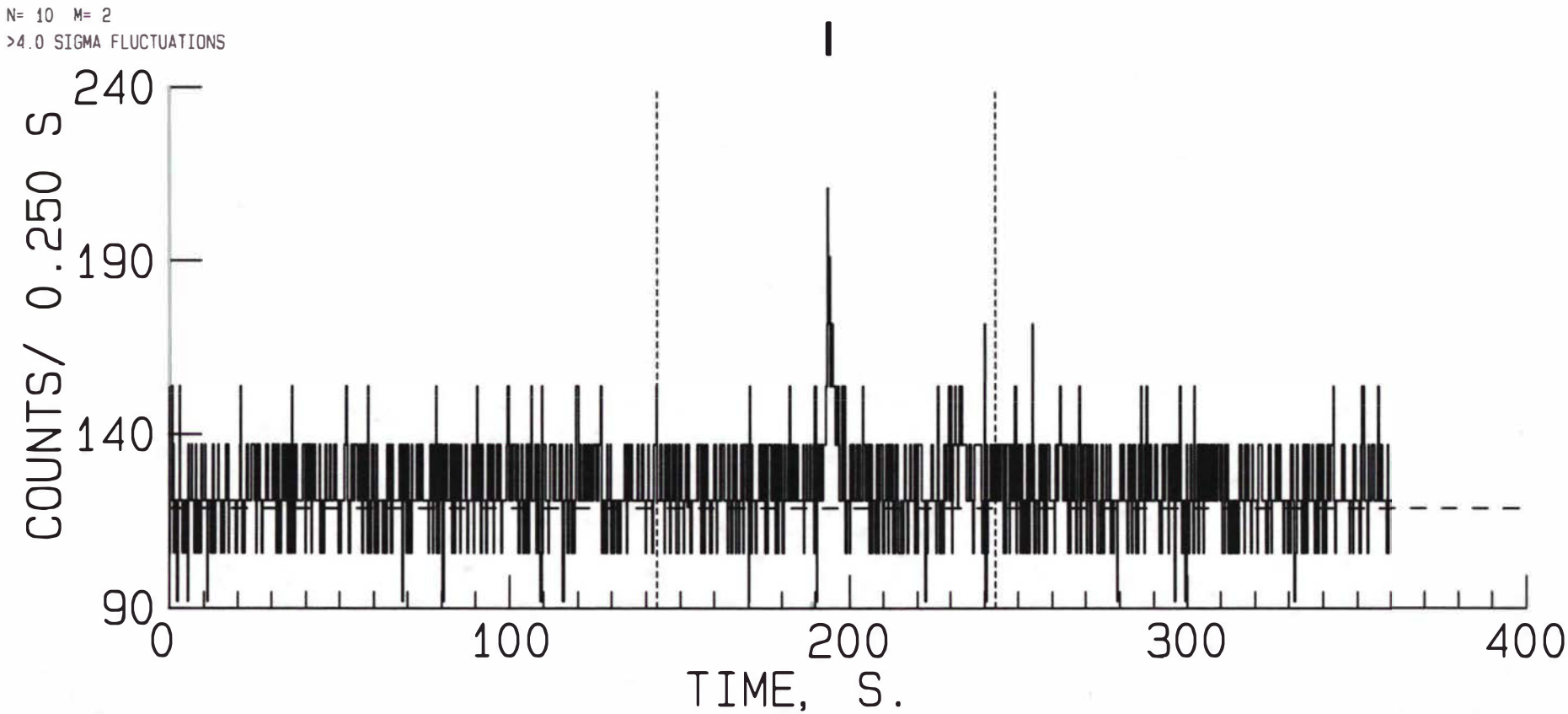

ULYSSES 28/02/97 Ttrig=10453.867
22- 147 keV
COUNTS/0.031 S
COUNTS/0.125 S
TIME, SECS
7/ 5/99

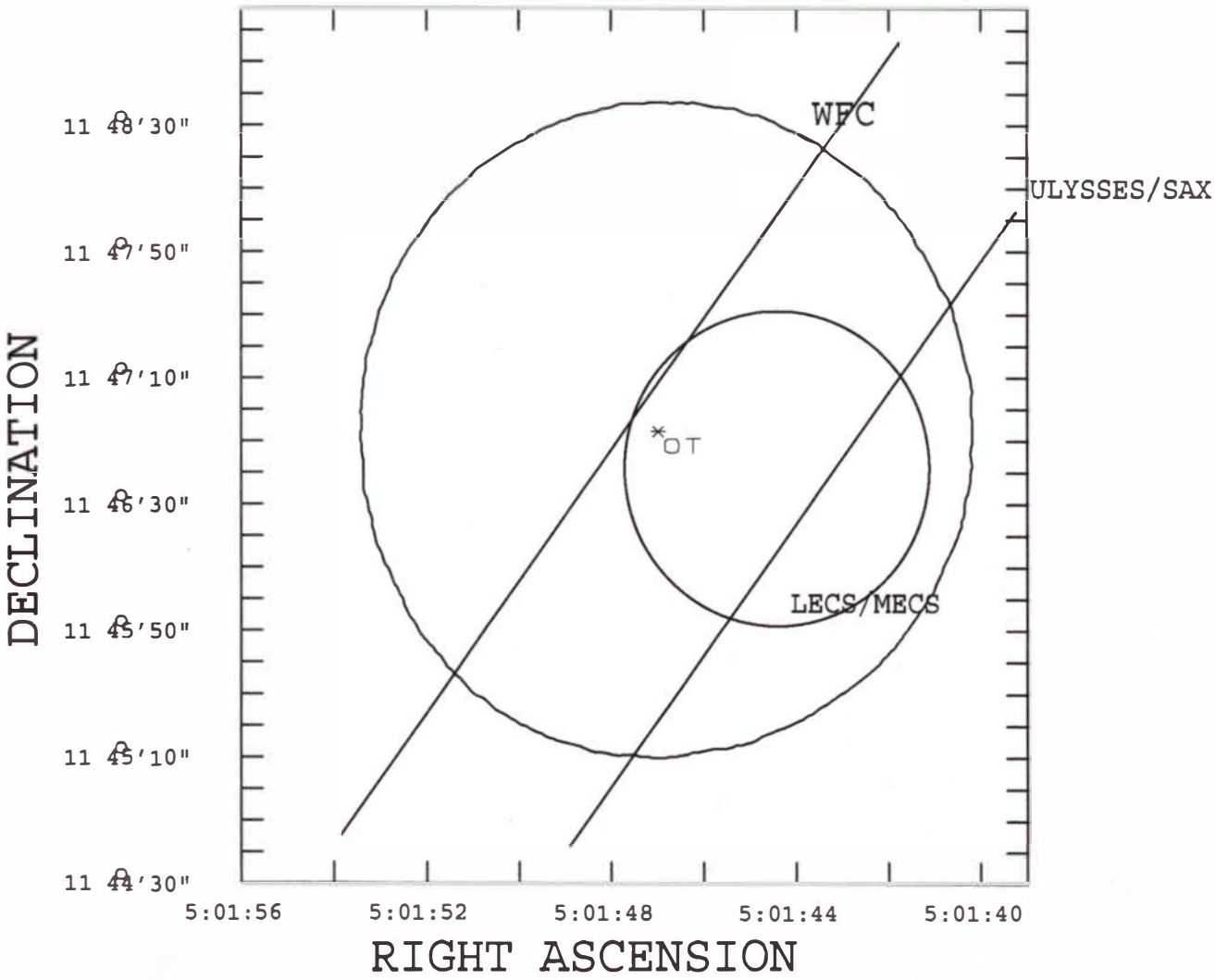
ULYSSES RT

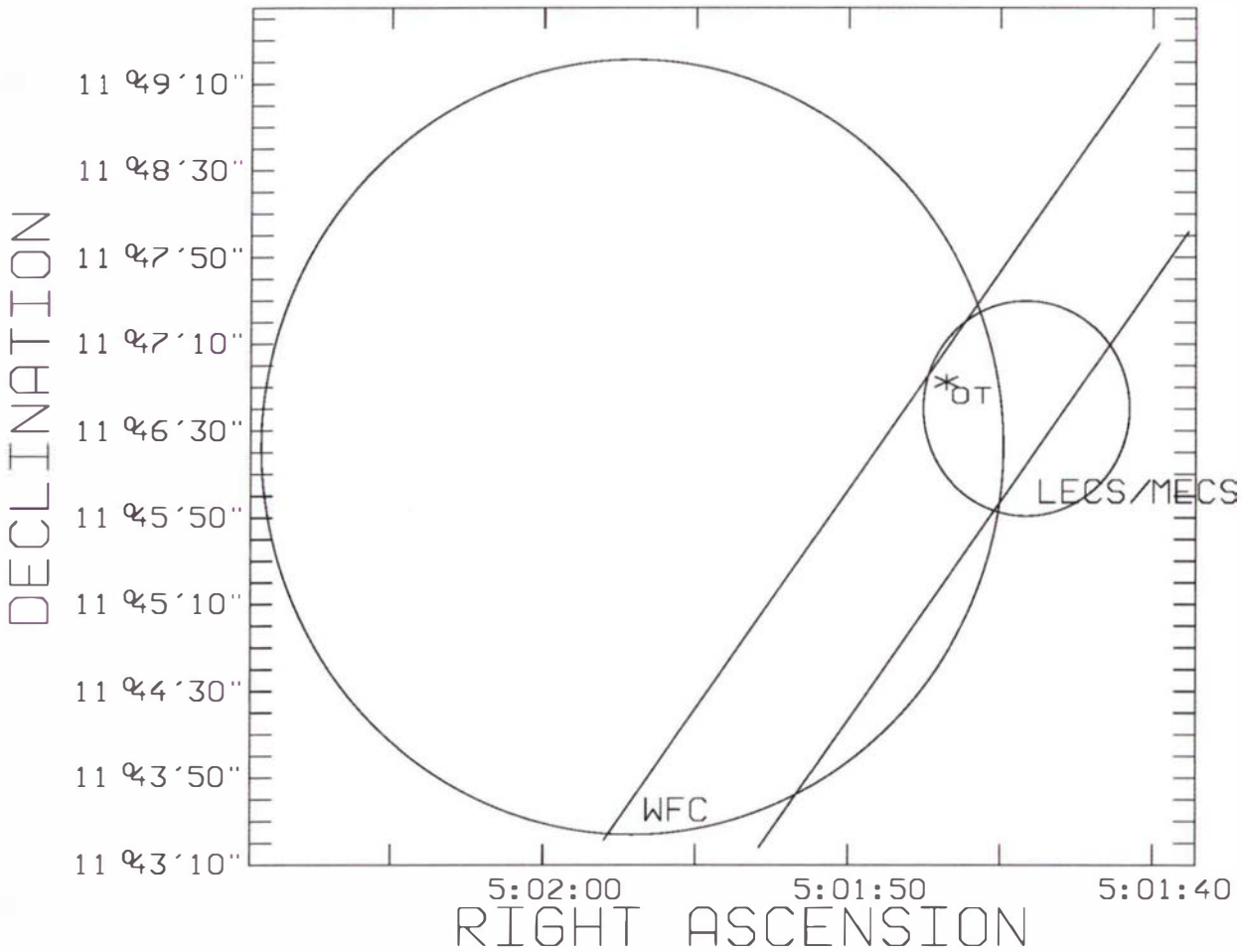
7/ 5/99

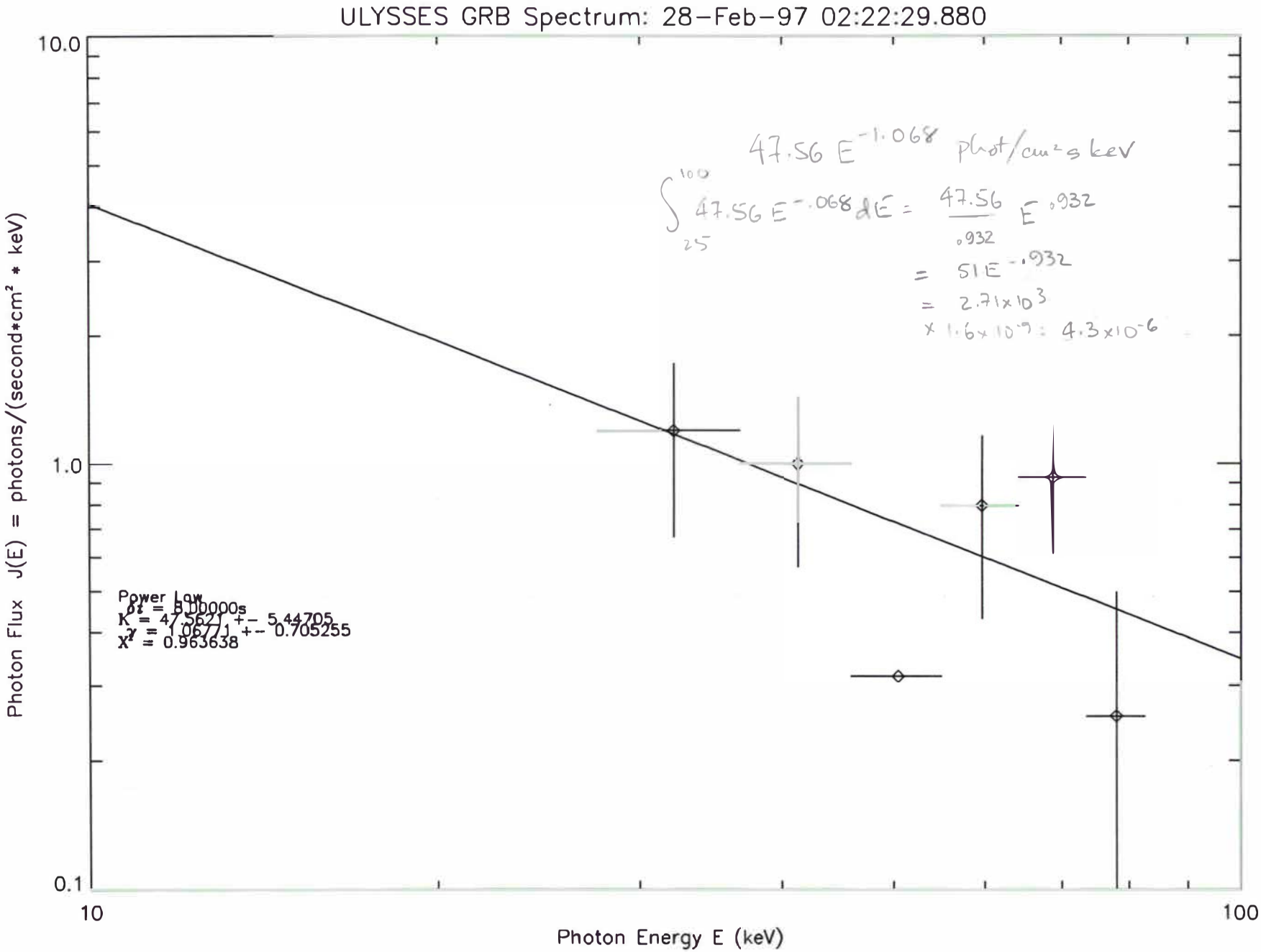
28/ 2/97 10260.068 s

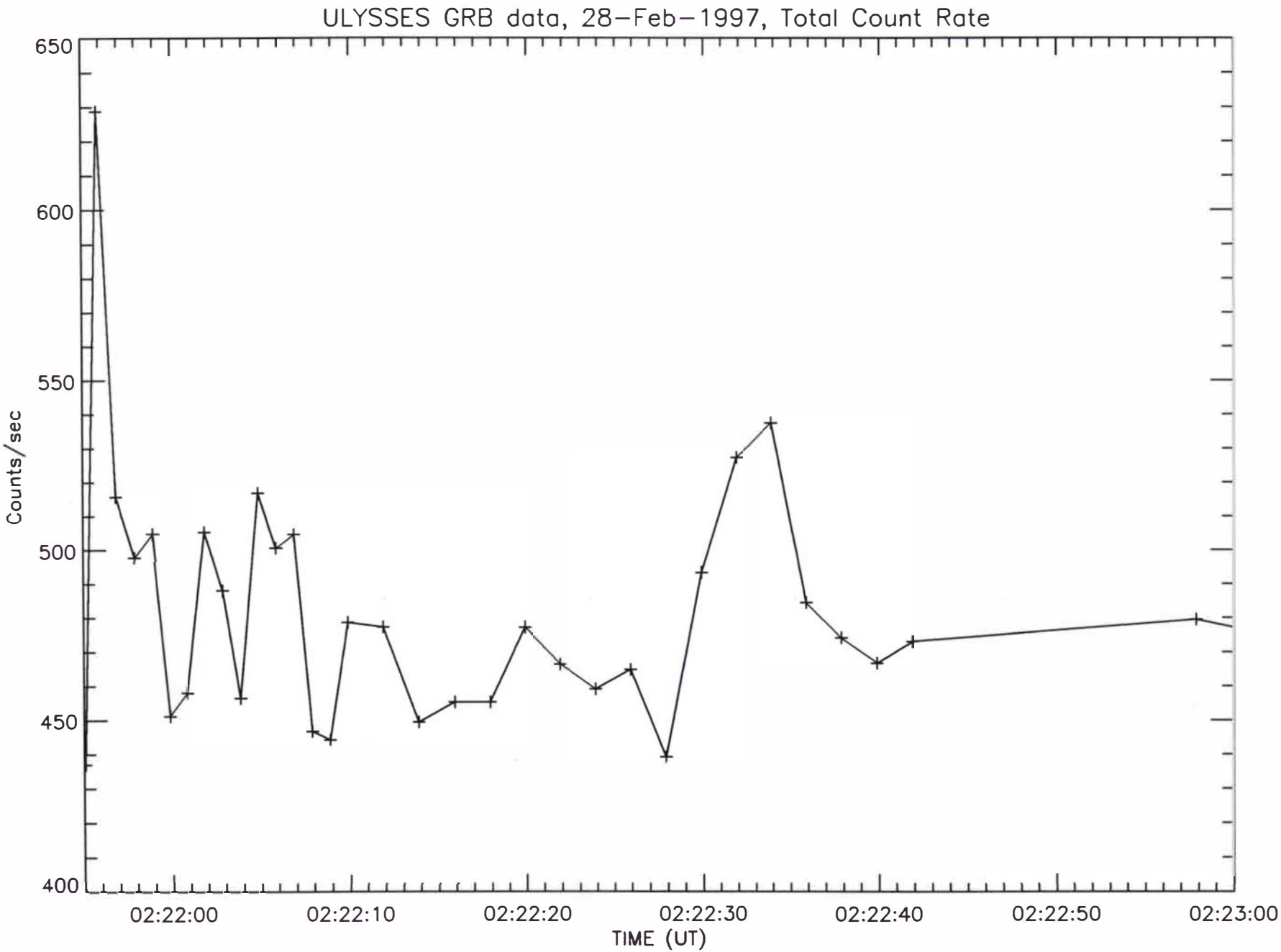
22- 147 keV

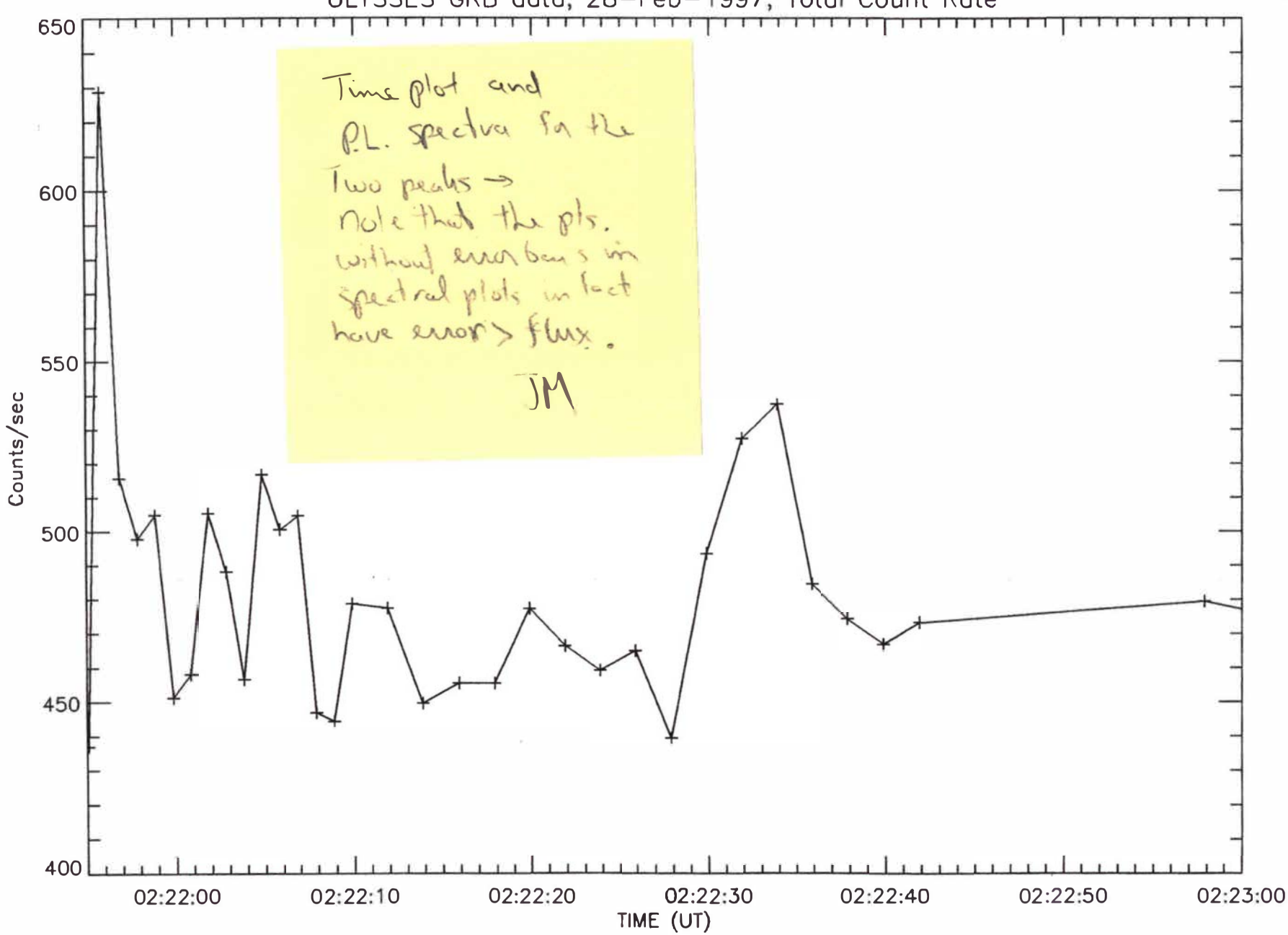


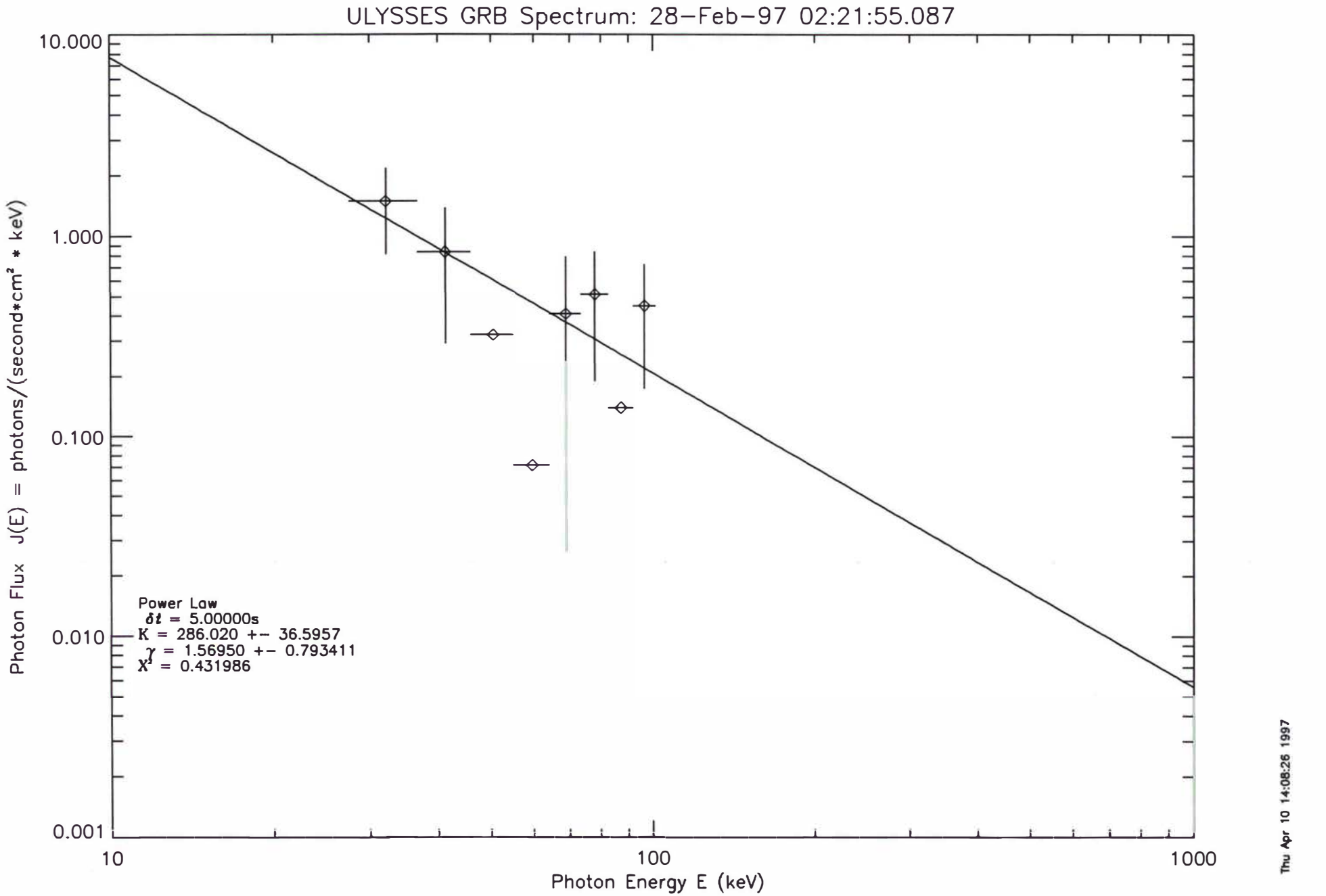

WFC
ULYSSES/SAX
OT
LECS/MECS
11 48'30"
11 47'50"
11 47'10"
11 46'30"
11 45'50"
11 45'10"
11 44'30"
DECLINATION
5:01:56
5:01:52
5:01:48
5:01:44
5:01:40
RIGHT ASCENSION


11 49'10"
11 48'30"
11 47'50"
11 47'10"
11 46'30"
11 45'50"
11 45'10"
11 44'30"
11 43'50"
11 43'10"
DECLINATION
5:02:00
5:01:50
5:01:40
RIGHT ASCENSION
*OT
LECS/MECS
WFC

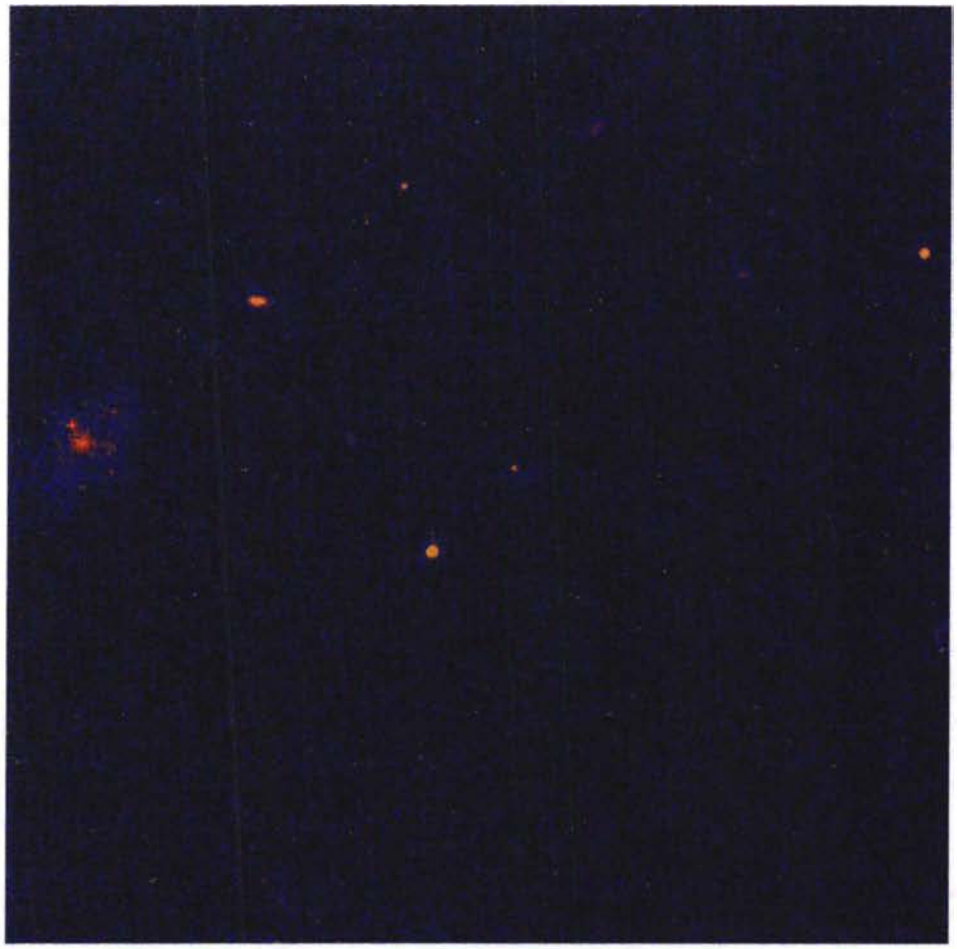

ULYSSES GRB Spectrum: 28-Feb-97 02:22:29.880
10.0
1.0
0.1
10
100
Photon Flux J(E) = photons/(second*cm² * keV)
Photon Energy E (keV)
Power Law
K = 47.5621 +- 5.44705
γ = 1.06771 +- 0.705255
χ² = 0.963638
47.56 E^-1.068 phot/cm²s keV
∫ 47.56 E^-.068 dE = 47.56/.932 E^.932
= 51 E^-.932
= 2.71x10^3
x 1.6x10^-9 = 4.3x10^-6
Thu Apr 10 14:09:11 1997

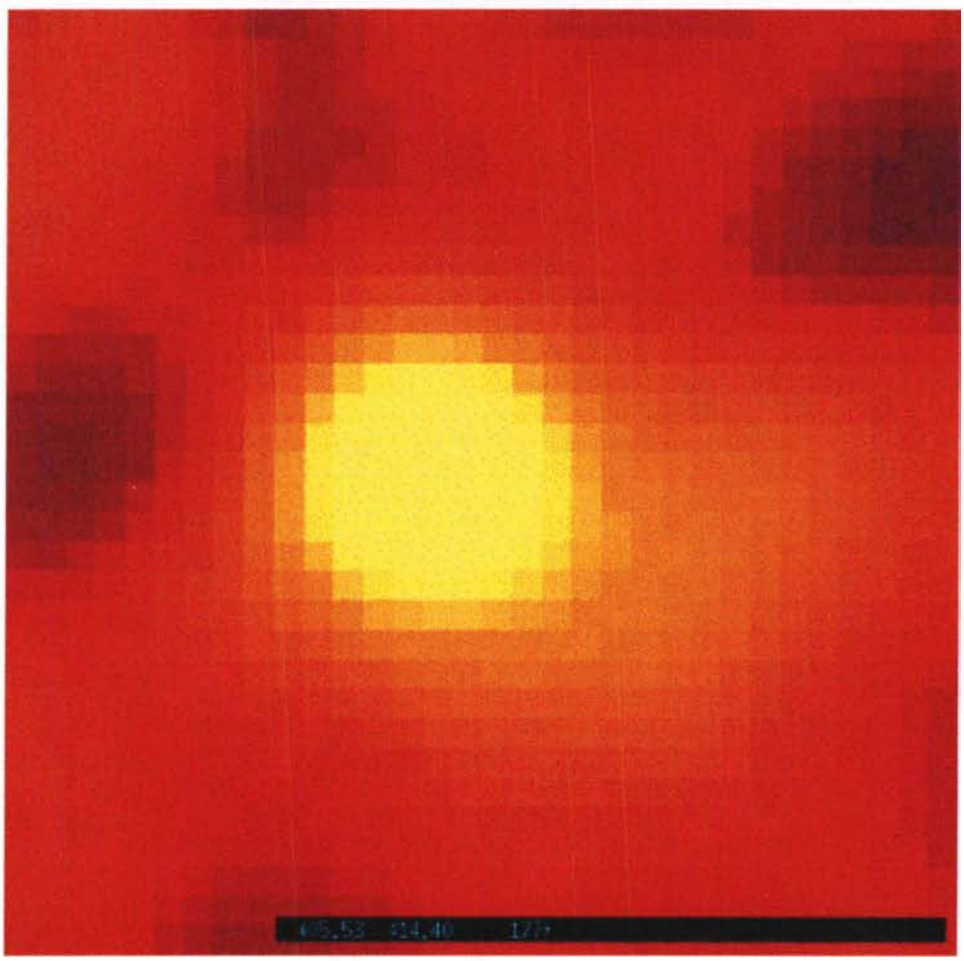

ULYSSES GRB data, 28–Feb–1997, Total Count Rate
650
600
550
500
450
400
Counts/sec
02:22:00
02:22:10
02:22:20
02:22:30
02:22:40
02:22:50
02:23:00
TIME (UT)

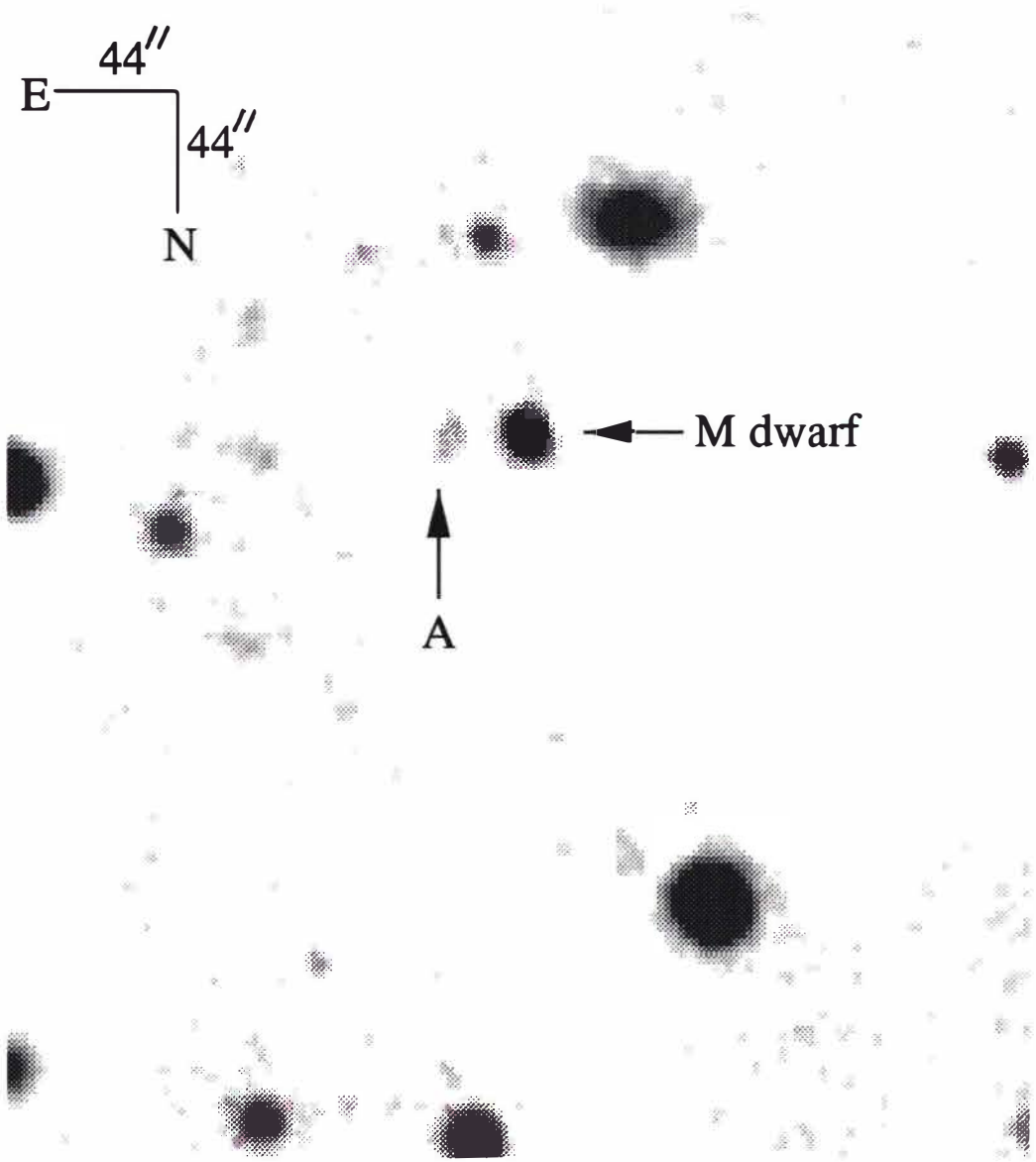

ULYSSES GRB data, 28–Feb–1997, Total Count Rate
650
600
550
500
450
400
Counts/sec
02:22:00
02:22:10
02:22:20
02:22:30
02:22:40
02:22:50
02:23:00
TIME (UT)
Time plot and
P.L. spectra for the
Two peaks →
Note that the pts.
without error bars in
spectral plots in fact
have error > flux.
JM


ULYSSES GRB Spectrum: 28-Feb-97 02:21:55.087
10.000
1.000
0.100
0.010
0.001
Photon Flux J(E) = photons/(second*cm² * keV)
Power Law
δt = 5.00000s
K = 286.020 +- 36.5957
γ = 1.56950 +- 0.793411
X² = 0.431986
10
100
1000
Photon Energy E (keV)
Thu Apr 10 14:08:26 1997

Bloom identifies 30 objects / 0.7 arcmin^2 = 30 objects / 2520 arcsec^2
= 0.012 object/arcsec^2. Perhaps 4 out of 30 are identifiable as galaxies $\Rightarrow \sim 0.002$/arcsec^2

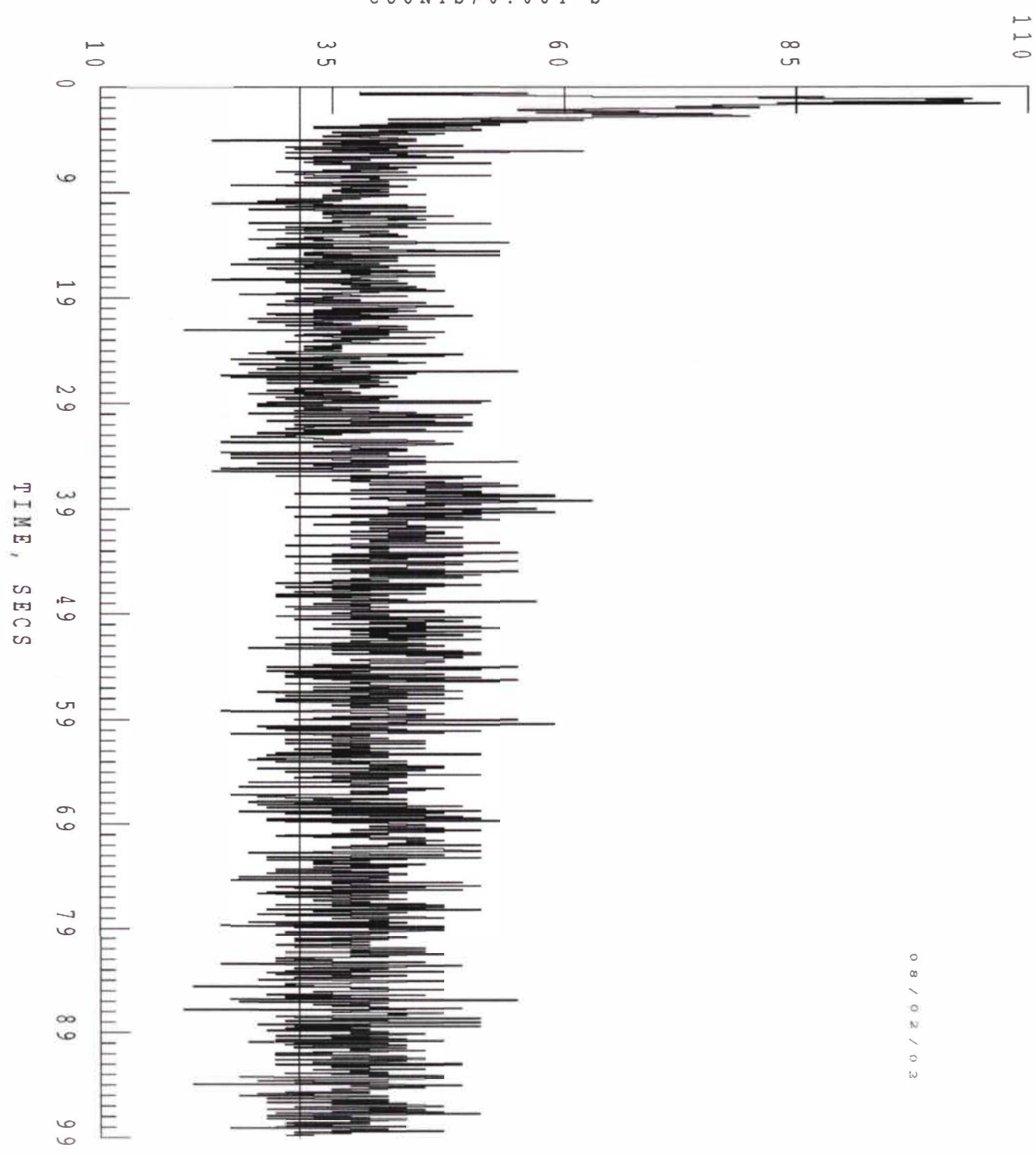





44″
E
44″
N
M dwarf
A

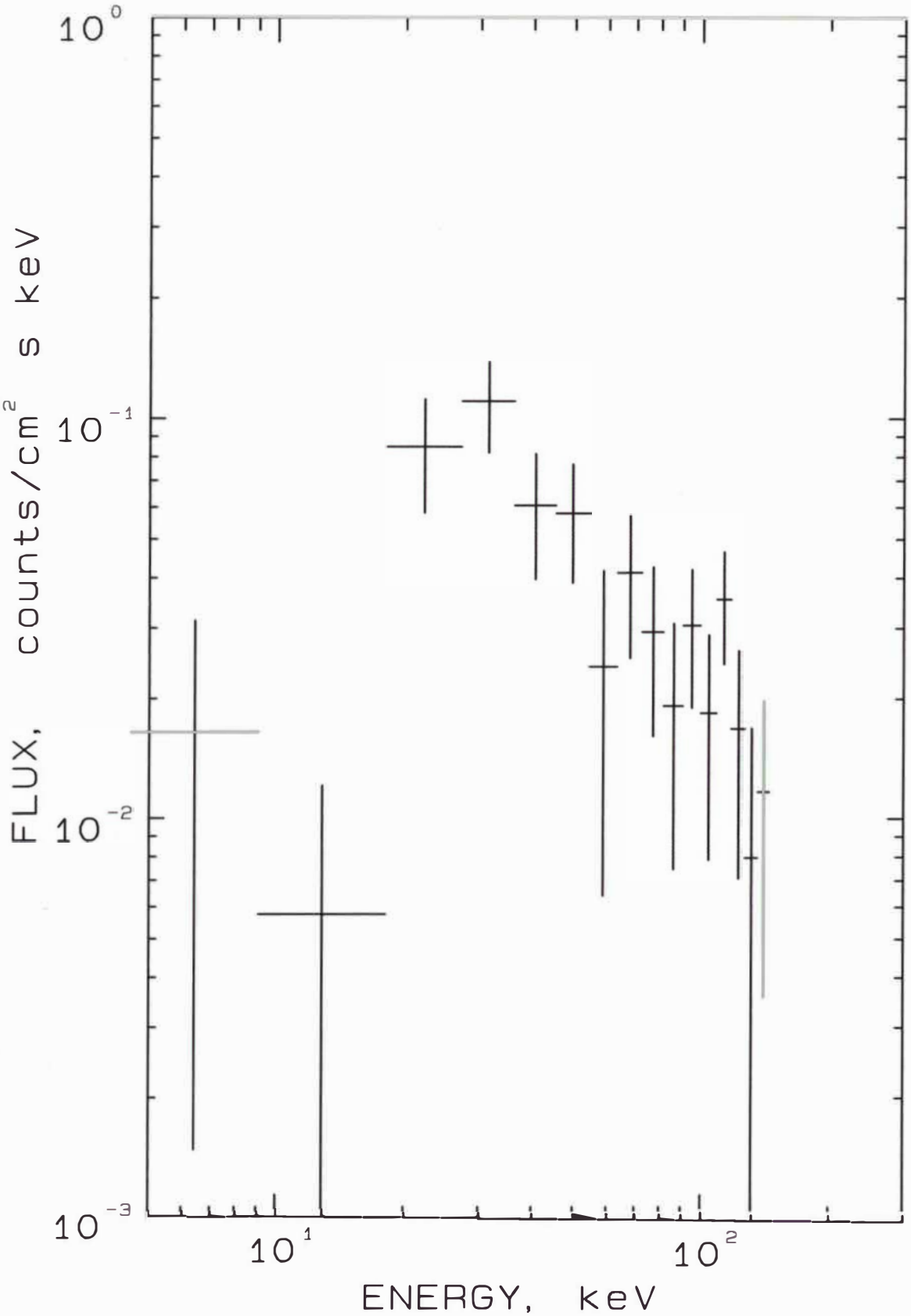
KONUS1 28/02/97 10681.317

50- 200 keV



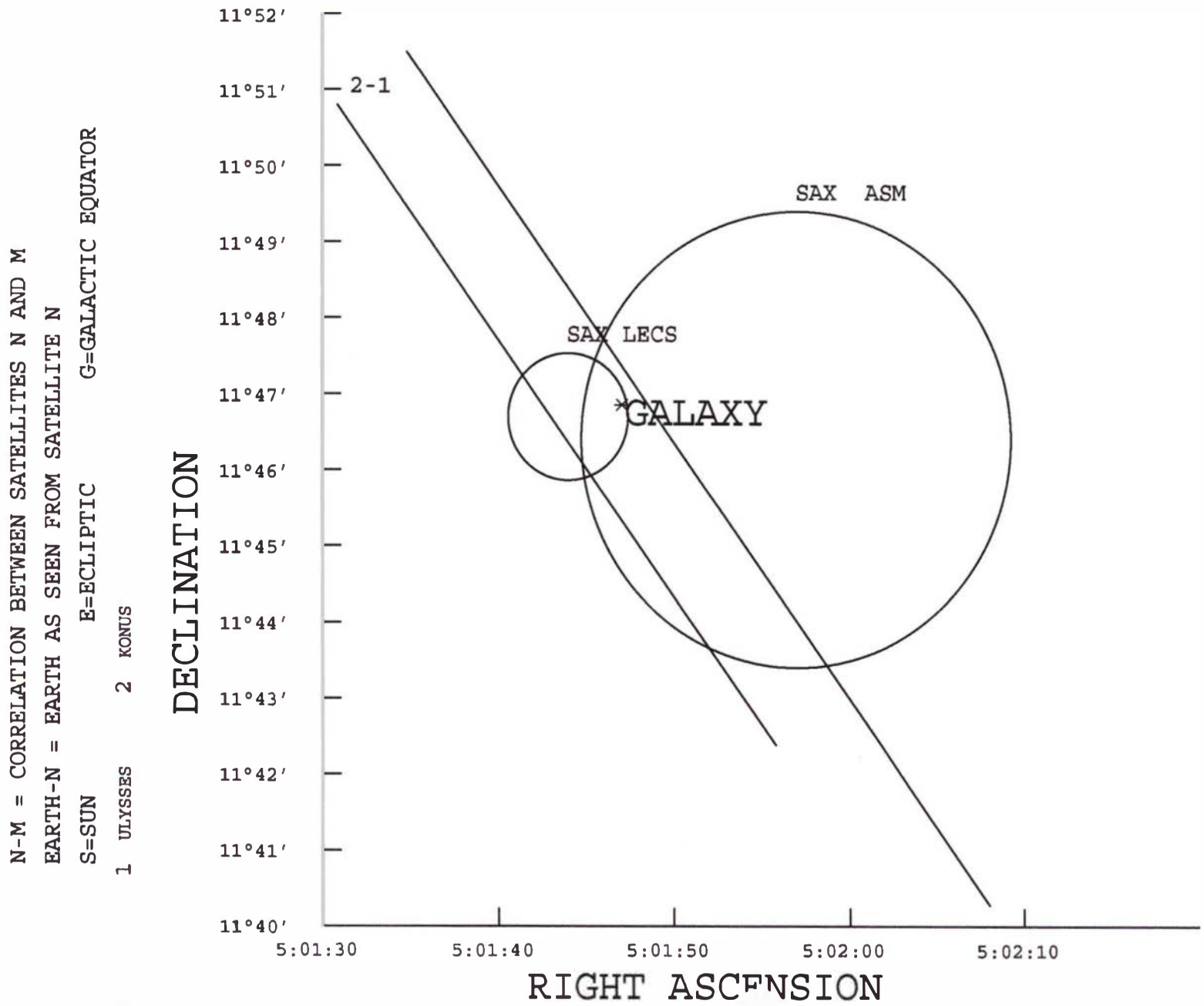
ULYSSES 28/02/97 10453.803

SPECTRUM INTEGRATED OVER 5.8 SECONDS, INTERVALS 2 TO 8



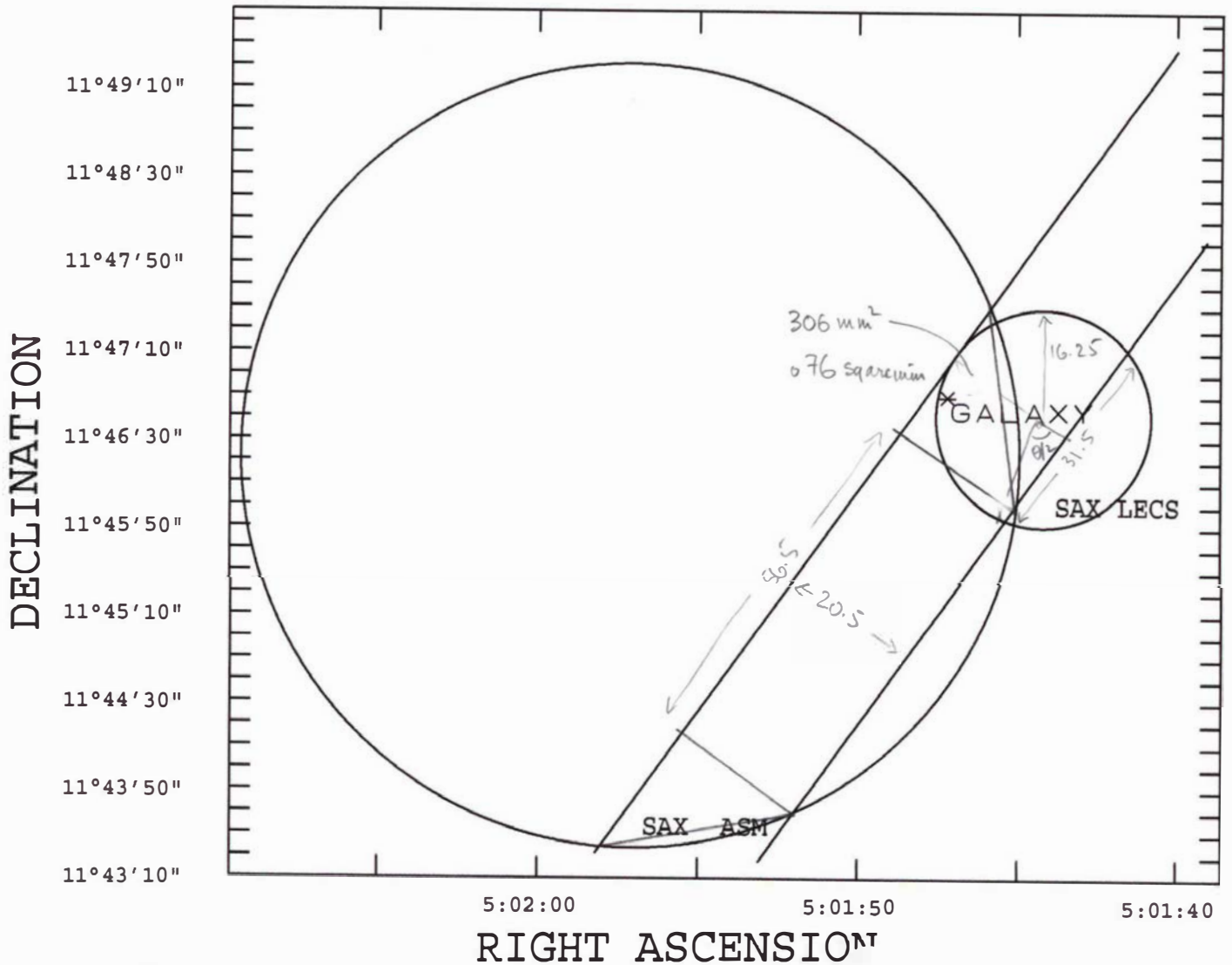
EVENT OF FEB 28, 1997 2:54

26/ 3/97



Area of SAX ASM = $\pi 3'^2$ = 28.26 sq arcmin

Area of SAX LECS = $\pi \left(\frac{50}{60}\right)^2$ = 2.2 sq arcmin



Area of annulus + SAX ASM =

20.5 x 56.5 + 21x20.5 =

1588 mm²

1 arcmin = 20 mm

3.97 sq arcmin or 0.14 times as large as SAX ASM

Area of annulus + SAX LECS

$\sin \theta/2 = \frac{15.75}{16.25}$ $\theta/2 = 75.75$

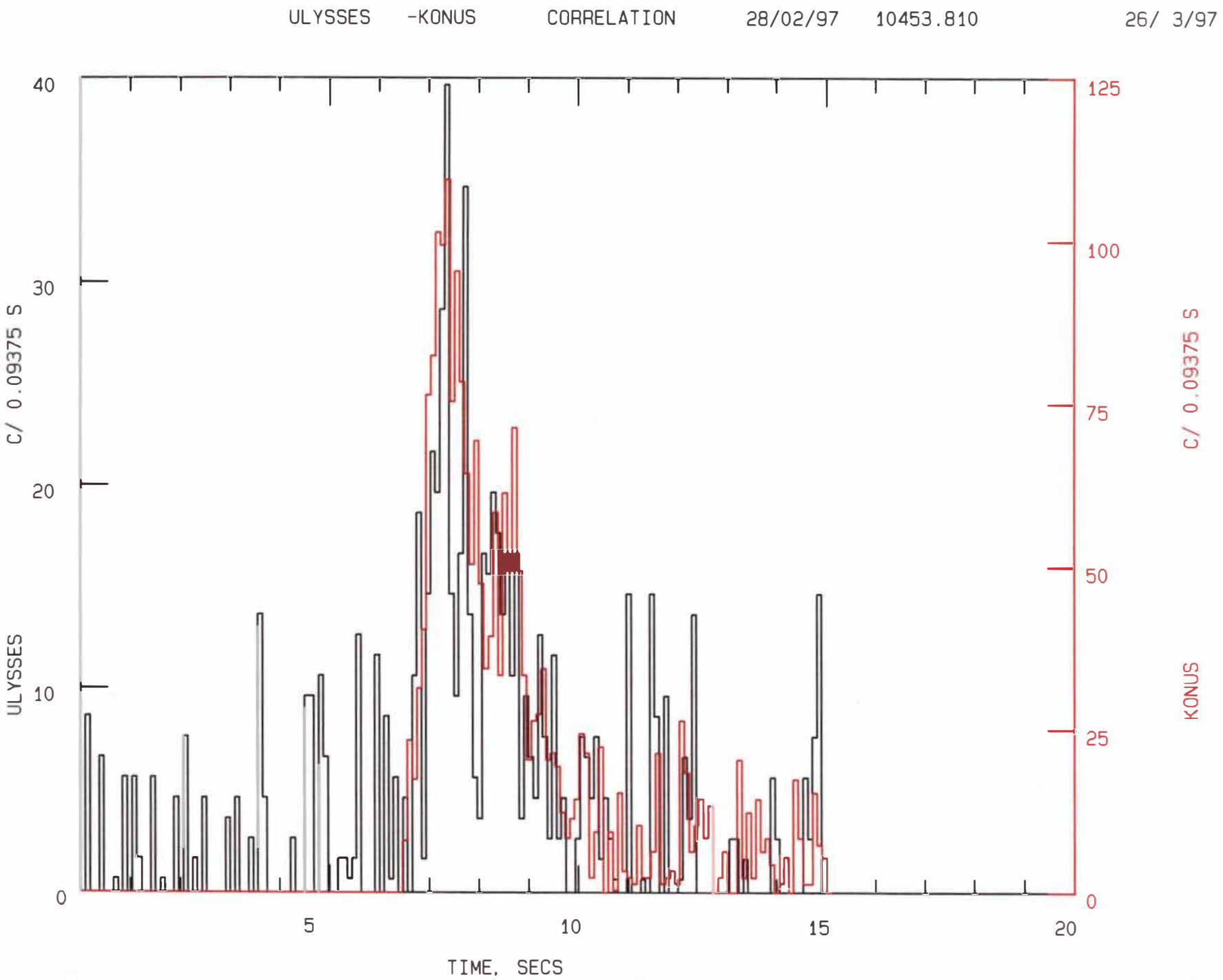
$\theta = 151.5^\circ = 2.64$ rad

Area of segment = $\frac{1}{2} R^2 (\theta - \sin\theta)$

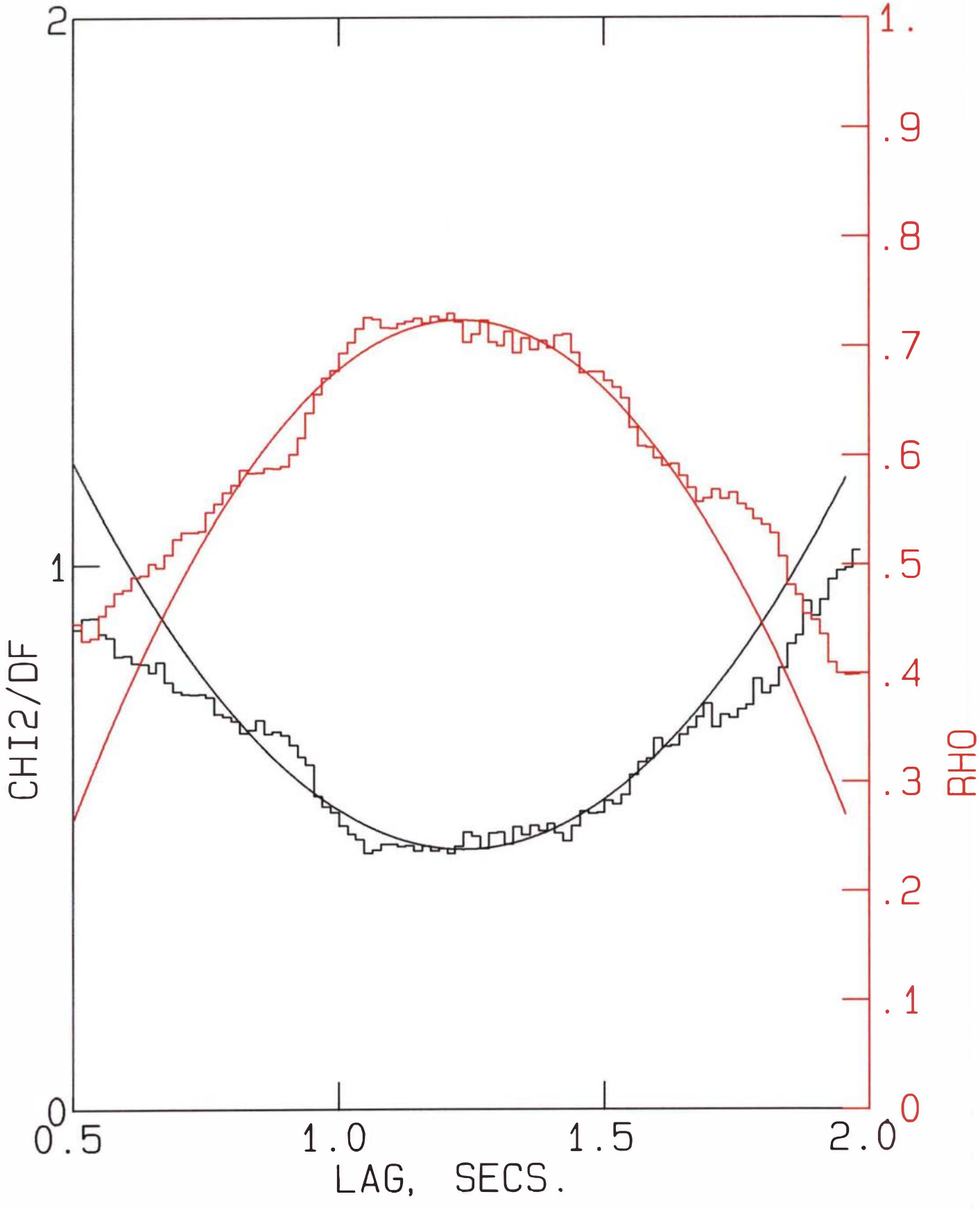
$= \frac{1}{2} 16.25^2 (2.64 - .47)$

= 286. sq mm = .71 sqarcmin

$\frac{2.2 - .71}{2.2} = .67$

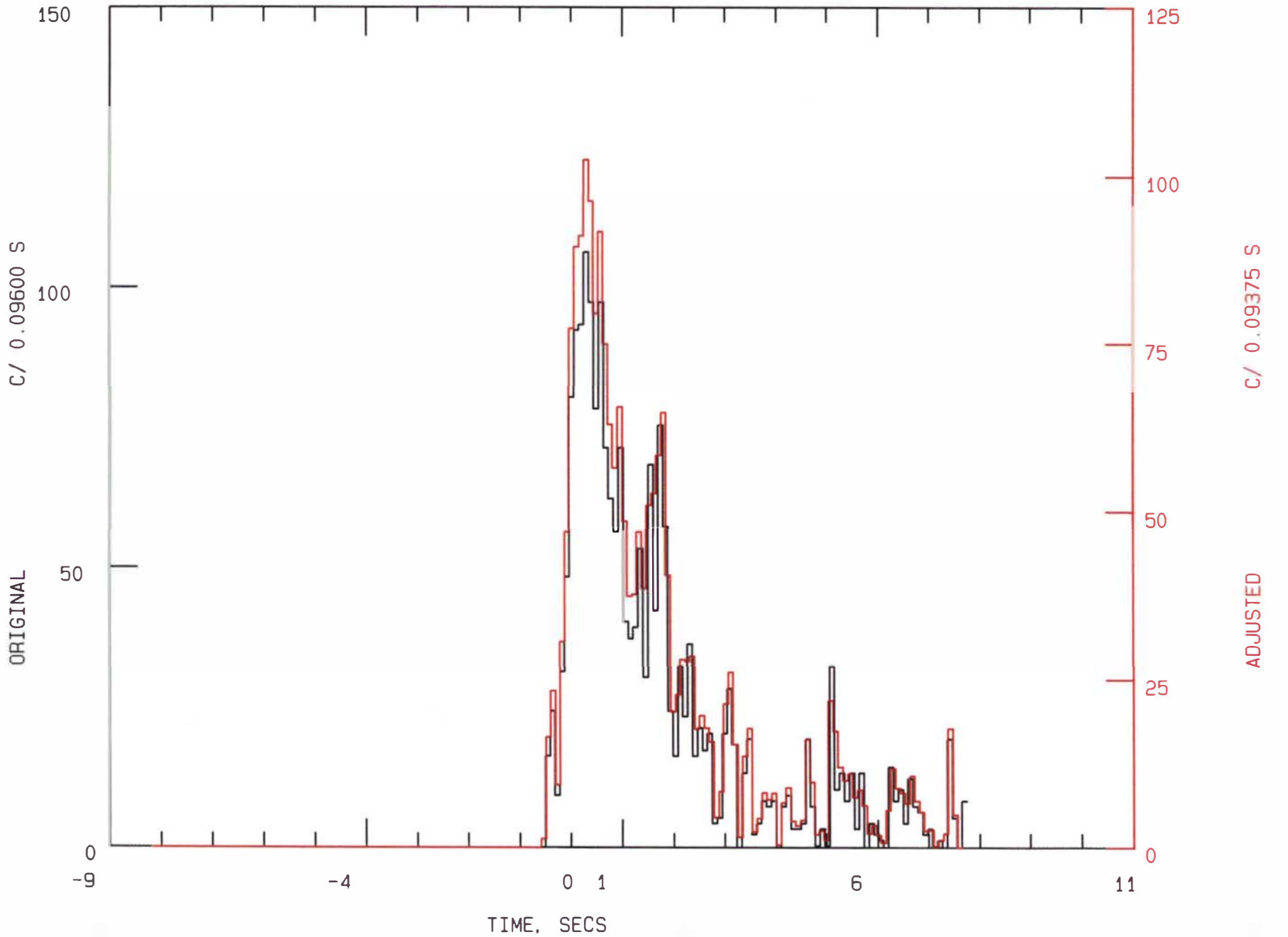

ULYSSES -KONUS CORRELATION 28/02/97 10453.810 26/ 3/97
40
30
20
10
0
C/ 0.09375 S
ULYSSES
125
100
75
50
25
0
C/ 0.09375 S
KONUS
5
10
15
20
TIME, SECS

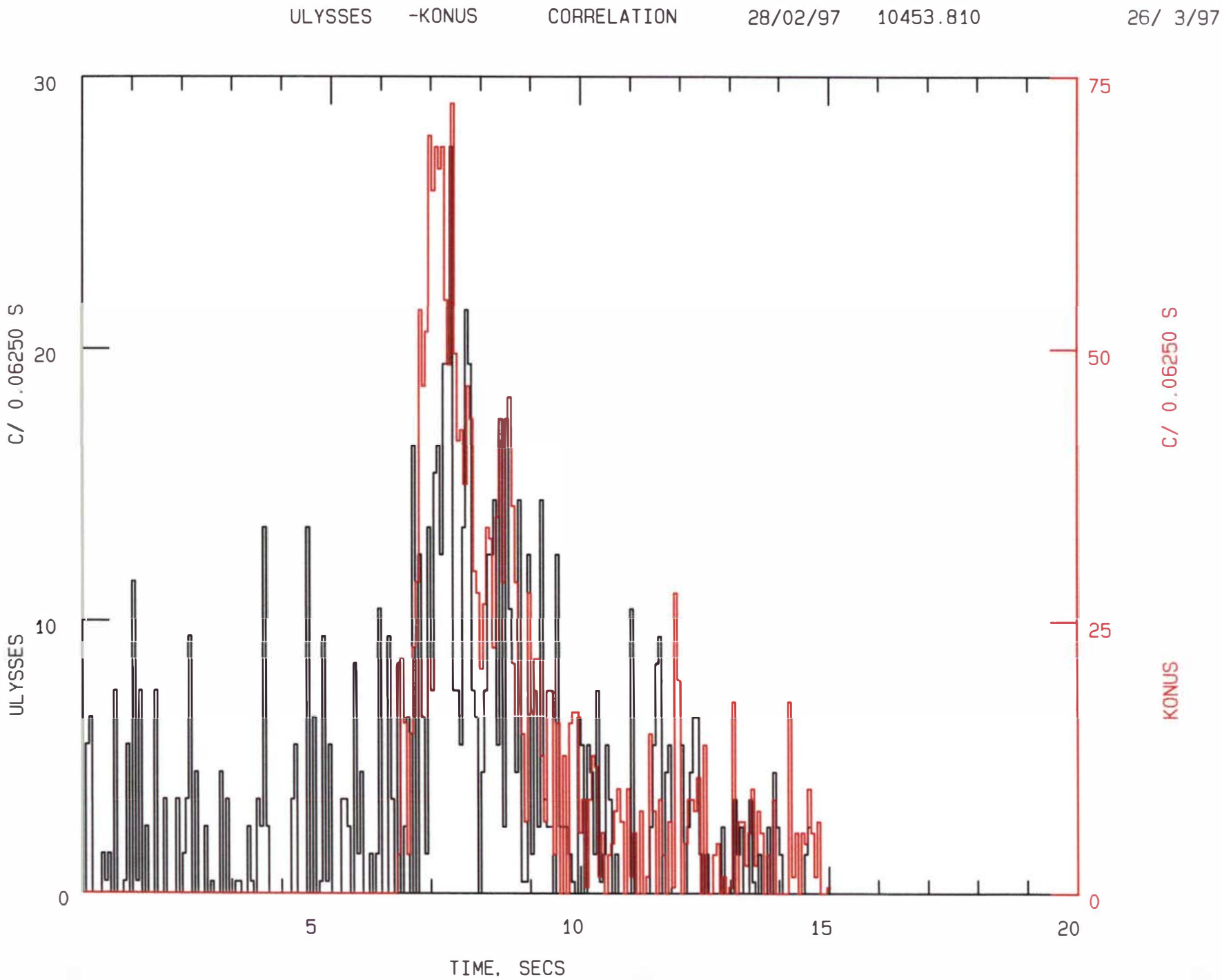
ULYSSES -KONUS CORRELATION 28/02/97 10453.810



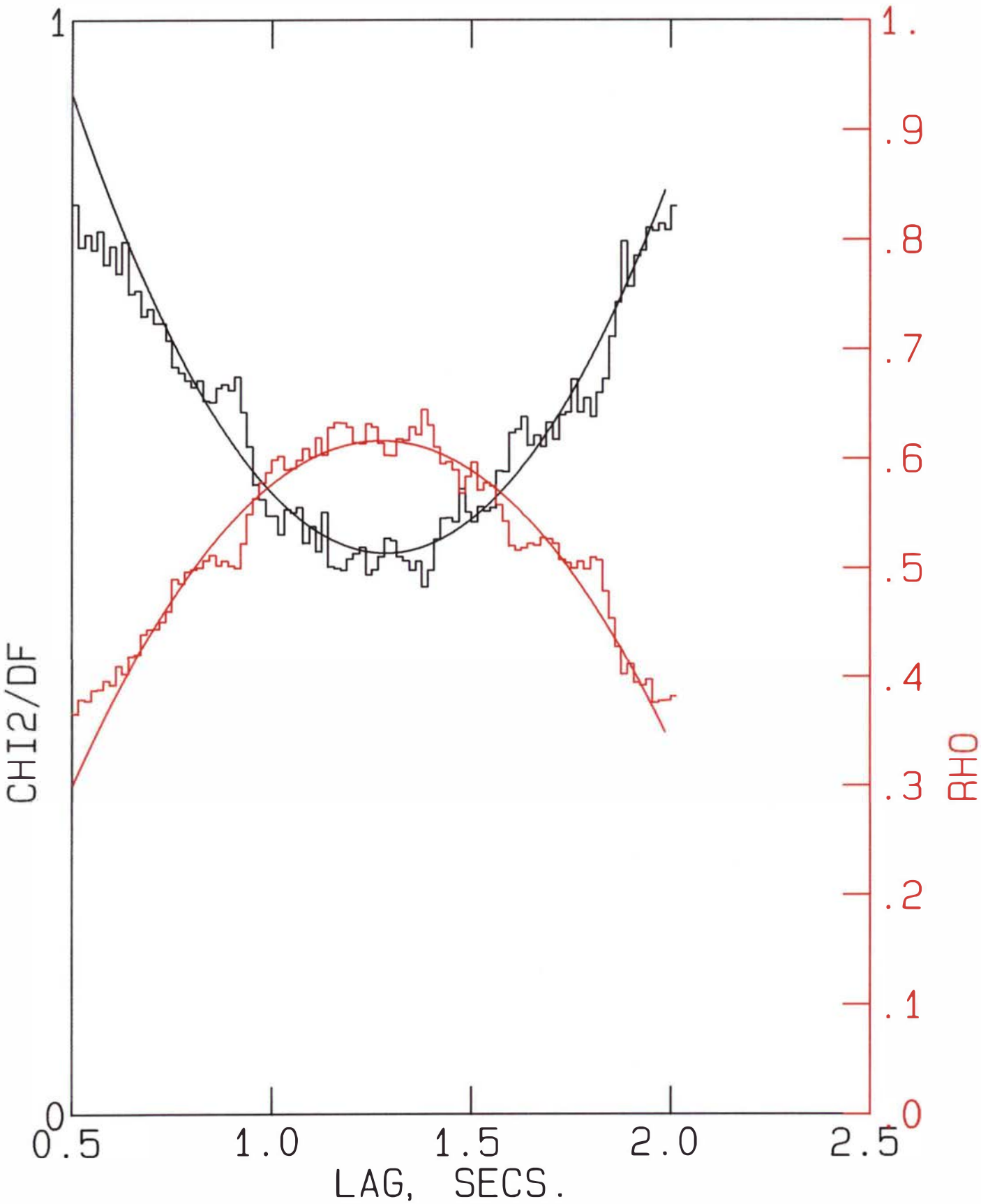
ORIGINAL AND ADJUSTED KONUS TIME HISTORIES 28/02/97 10681.317

26/ 3/97



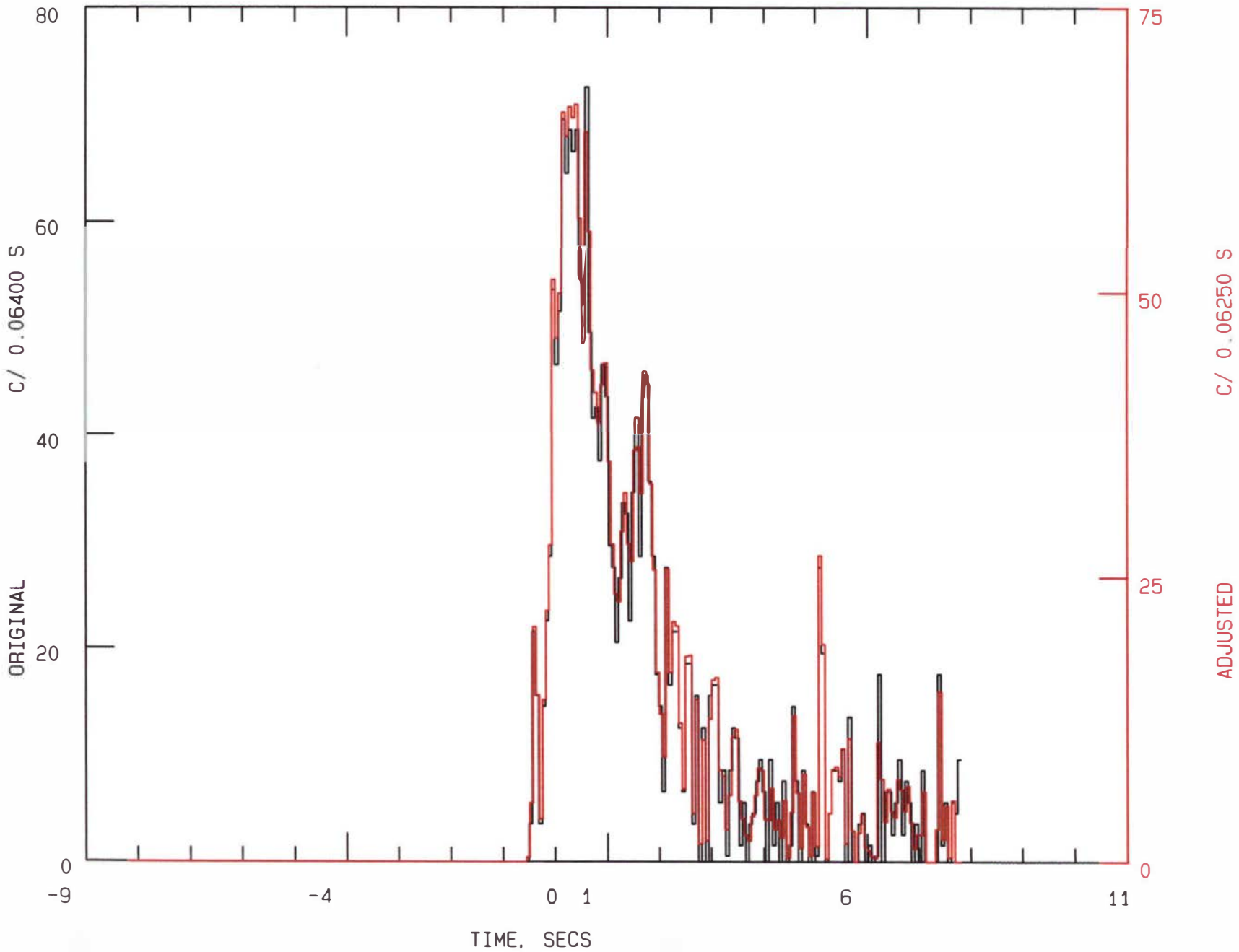

ULYSSES -KONUS CORRELATION 28/02/97 10453.810 26/ 3/97
30
20
10
0
C/ 0.06250 S
ULYSSES
75
50
25
0
C/ 0.06250 S
KONUS
5
10
15
20
TIME, SECS

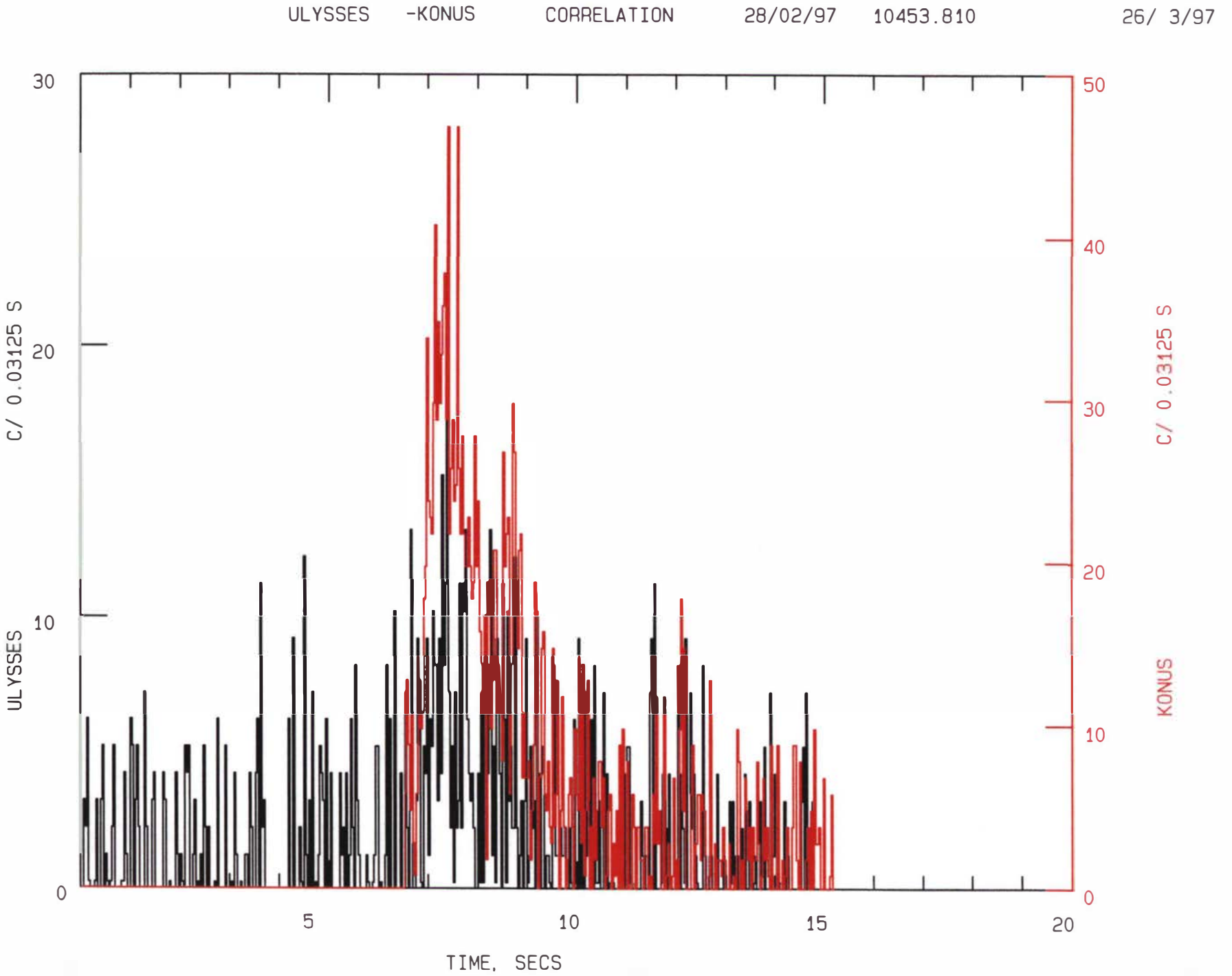
ULYSSES -KONUS CORRELATION 28/02/97 10453.810



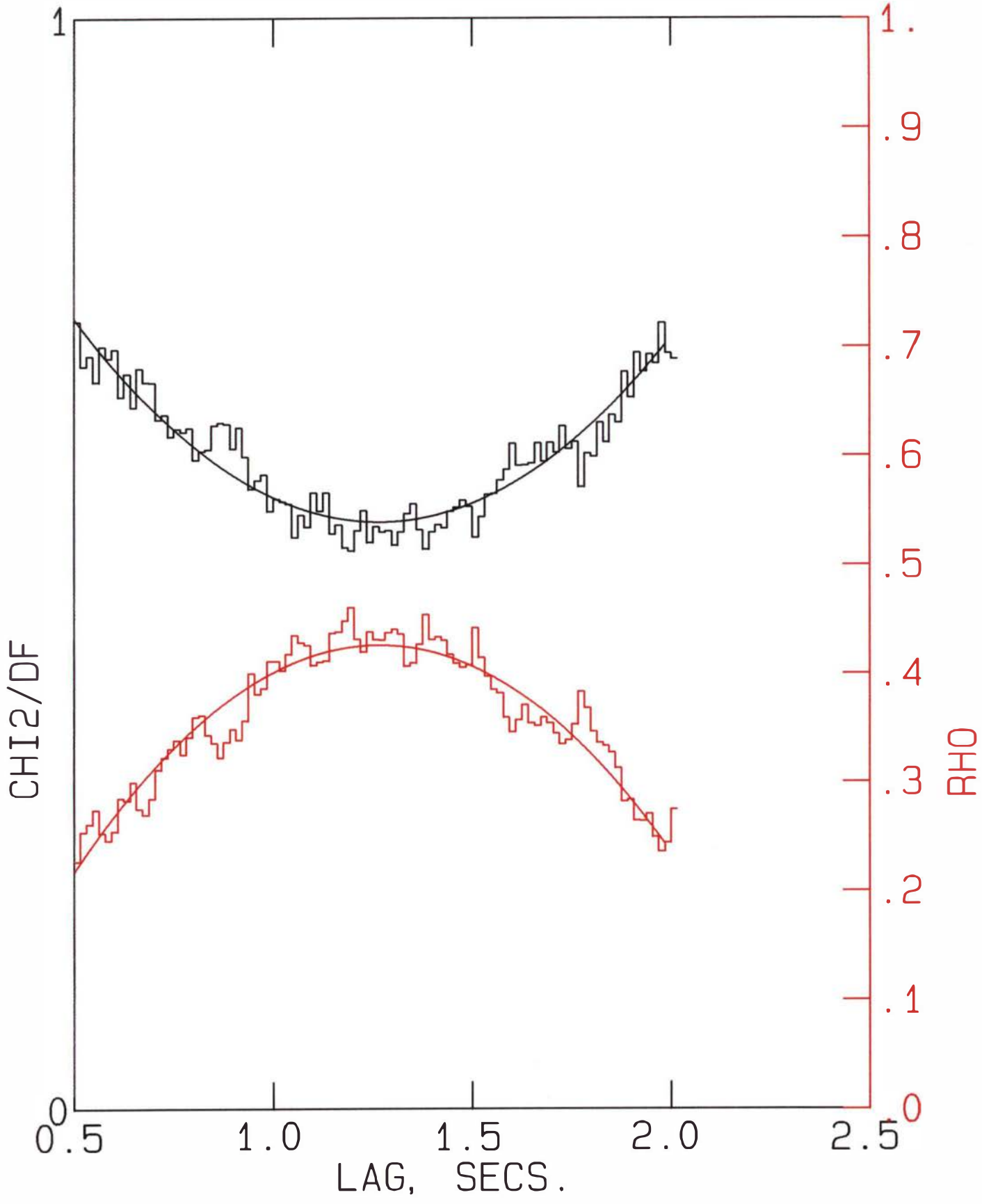
ORIGINAL AND ADJUSTED KONUS TIME HISTORIES 28/02/97 10681.317

26/ 3/97



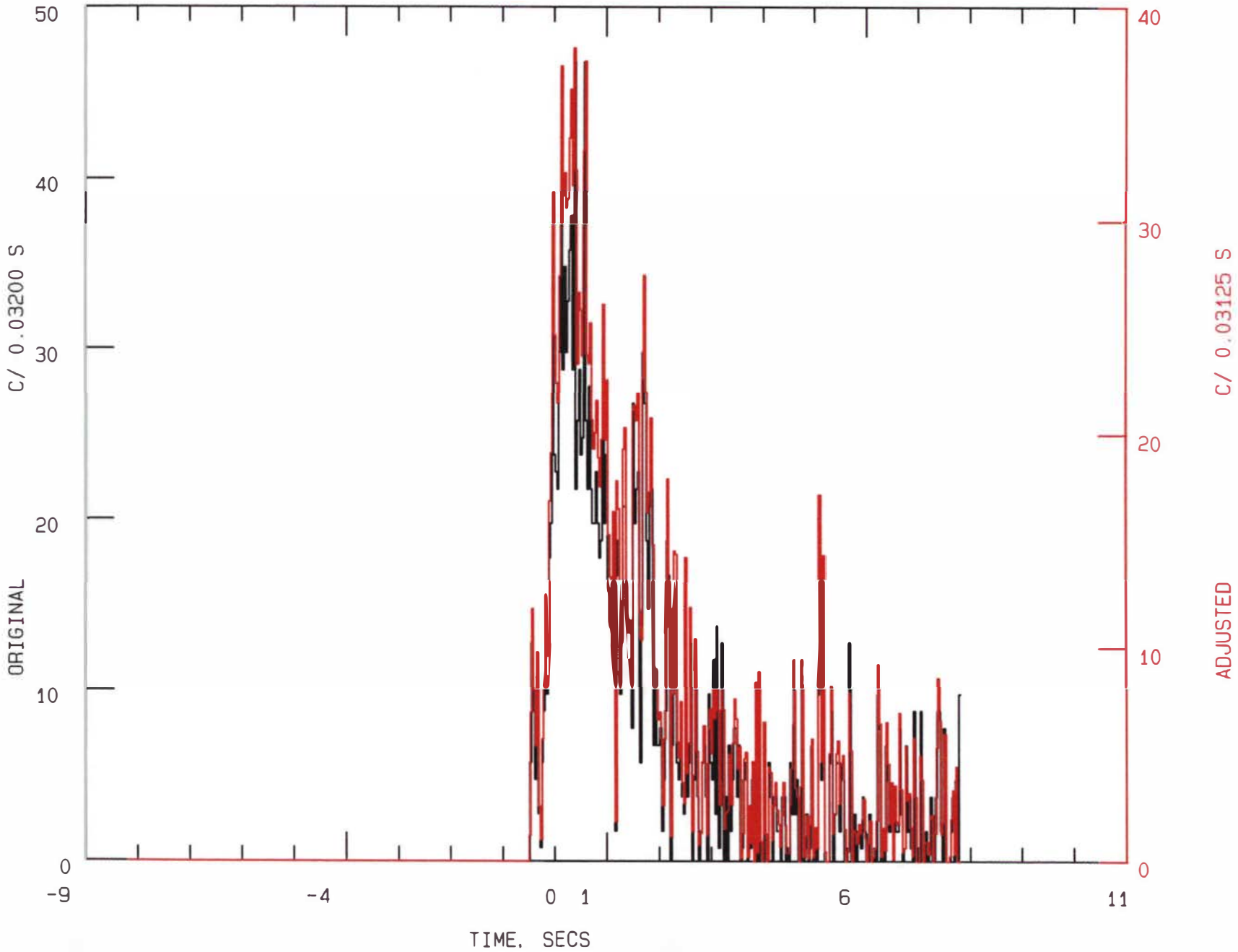

ULYSSES -KONUS CORRELATION 28/02/97 10453.810 26/ 3/97
30
20
10
0
C/ 0.03125 S
ULYSSES
50
40
30
20
10
0
C/ 0.03125 S
KONUS
5
10
15
20
TIME, SECS

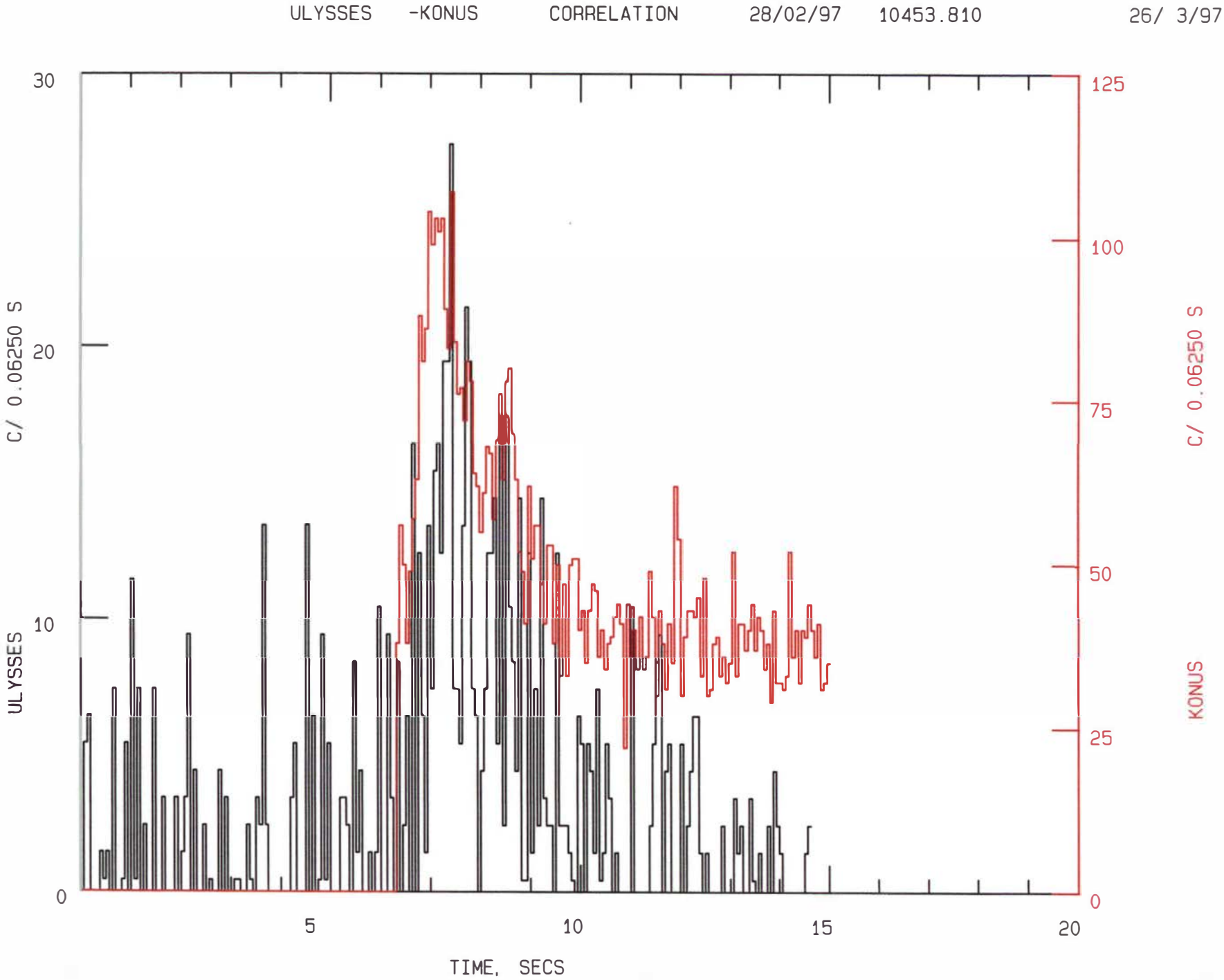
ULYSSES -KONUS CORRELATION 28/02/97 10453.810

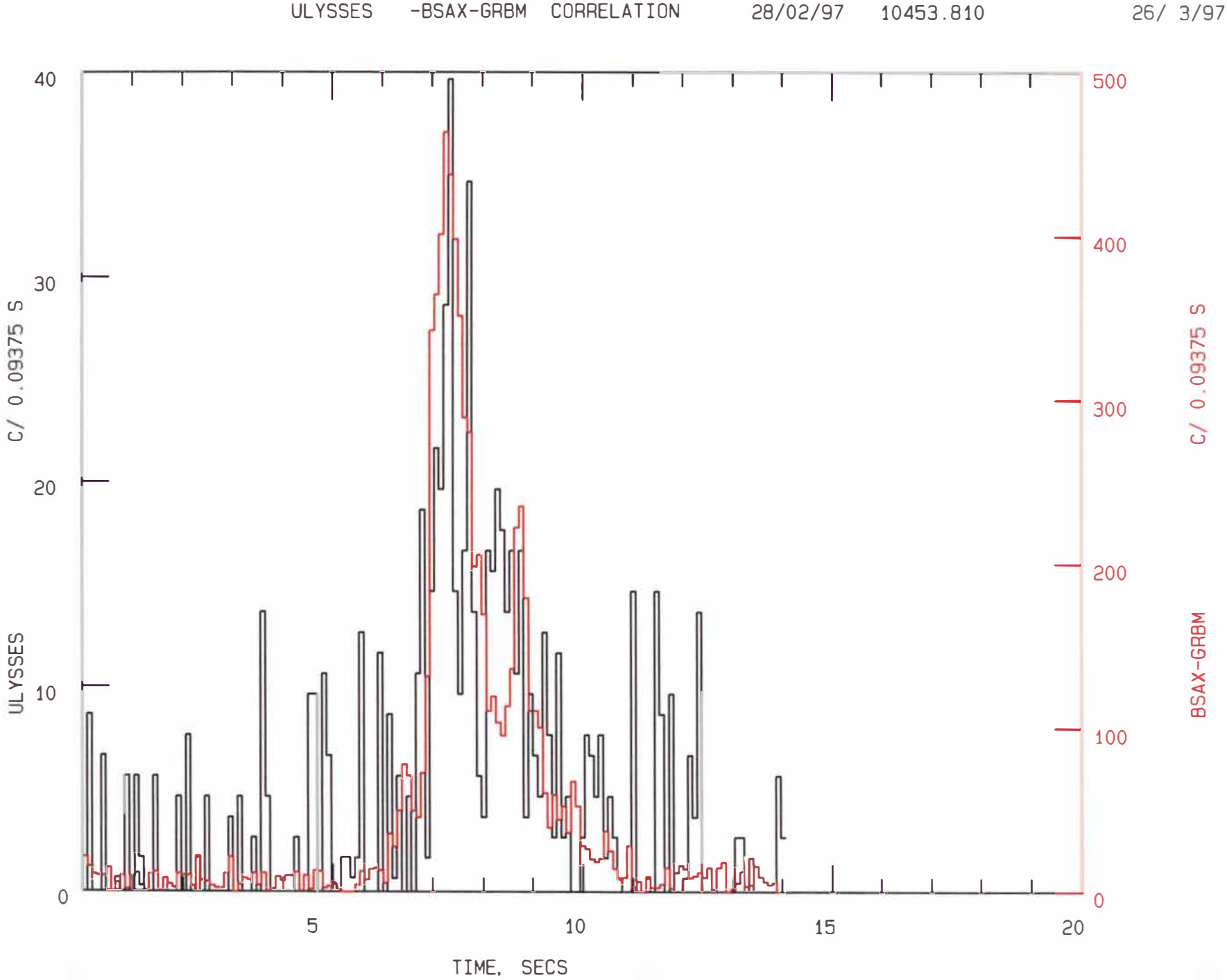


ORIGINAL AND ADJUSTED KONUS TIME HISTORIES 28/02/97 10681.317

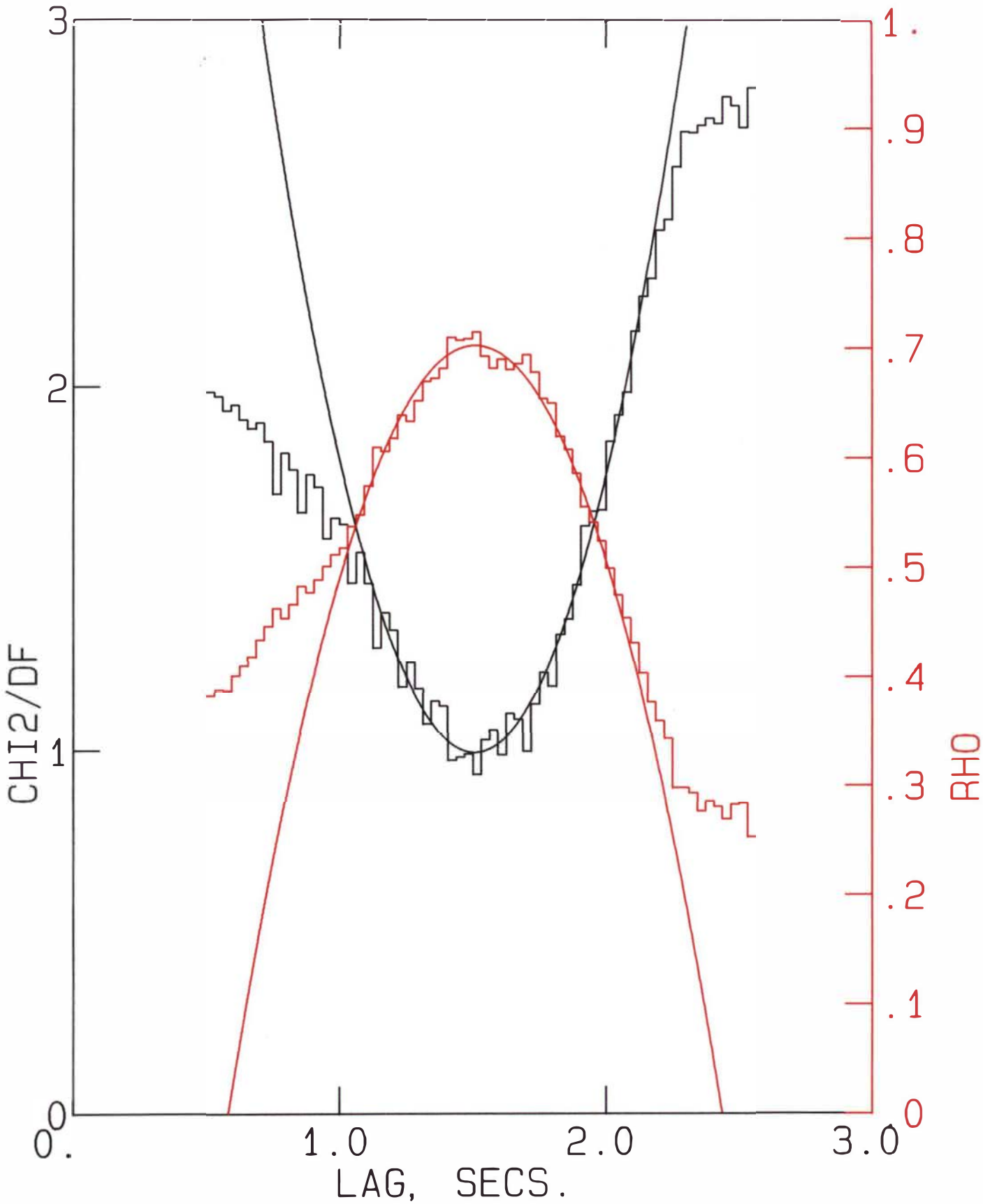
26/ 3/97

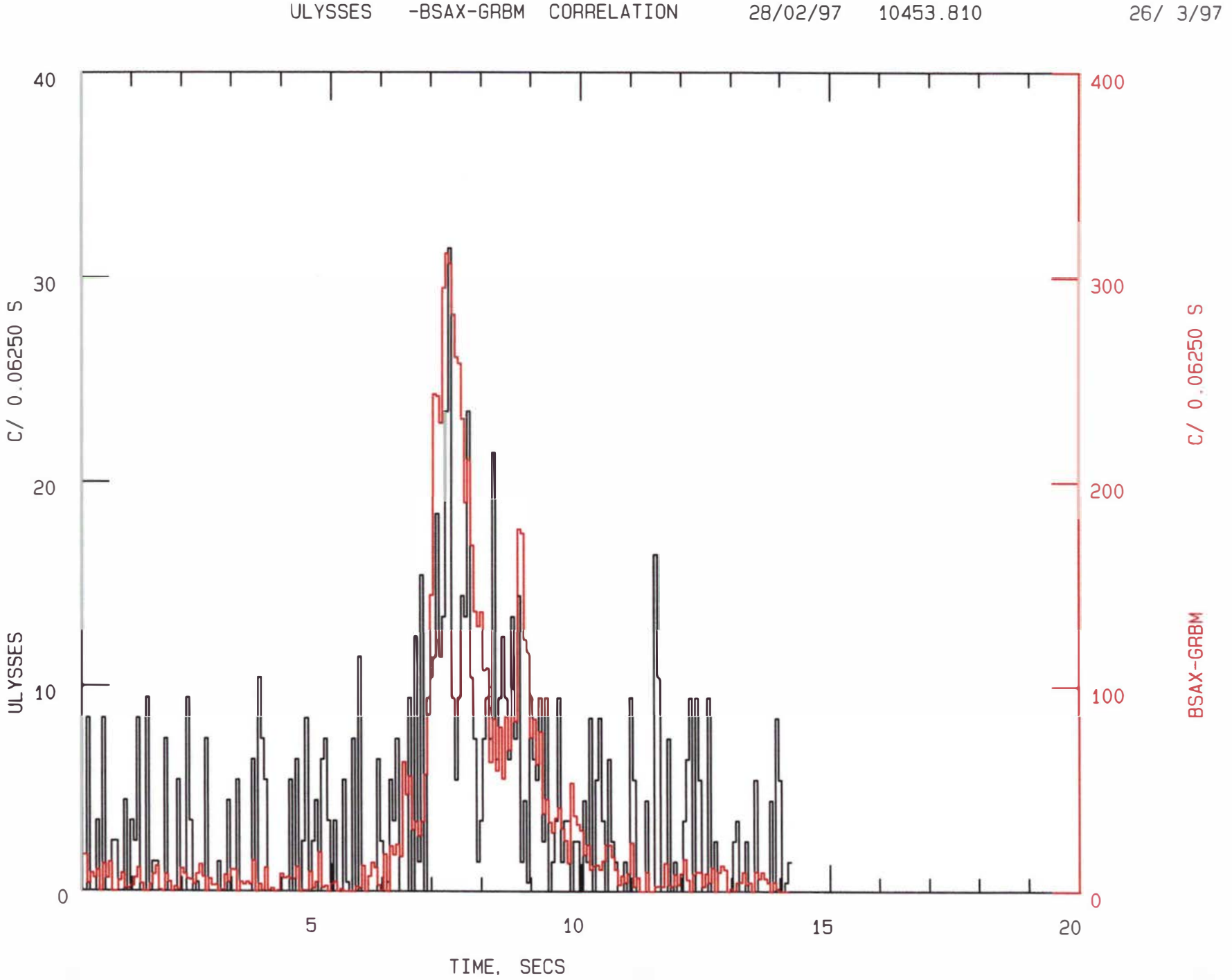



ULYSSES -KONUS CORRELATION 28/02/97 10453.810 26/ 3/97
30
20
10
0
C/ 0.06250 S
ULYSSES
125
100
75
50
25
0
C/ 0.06250 S
KONUS
5
10
15
20
TIME, SECS

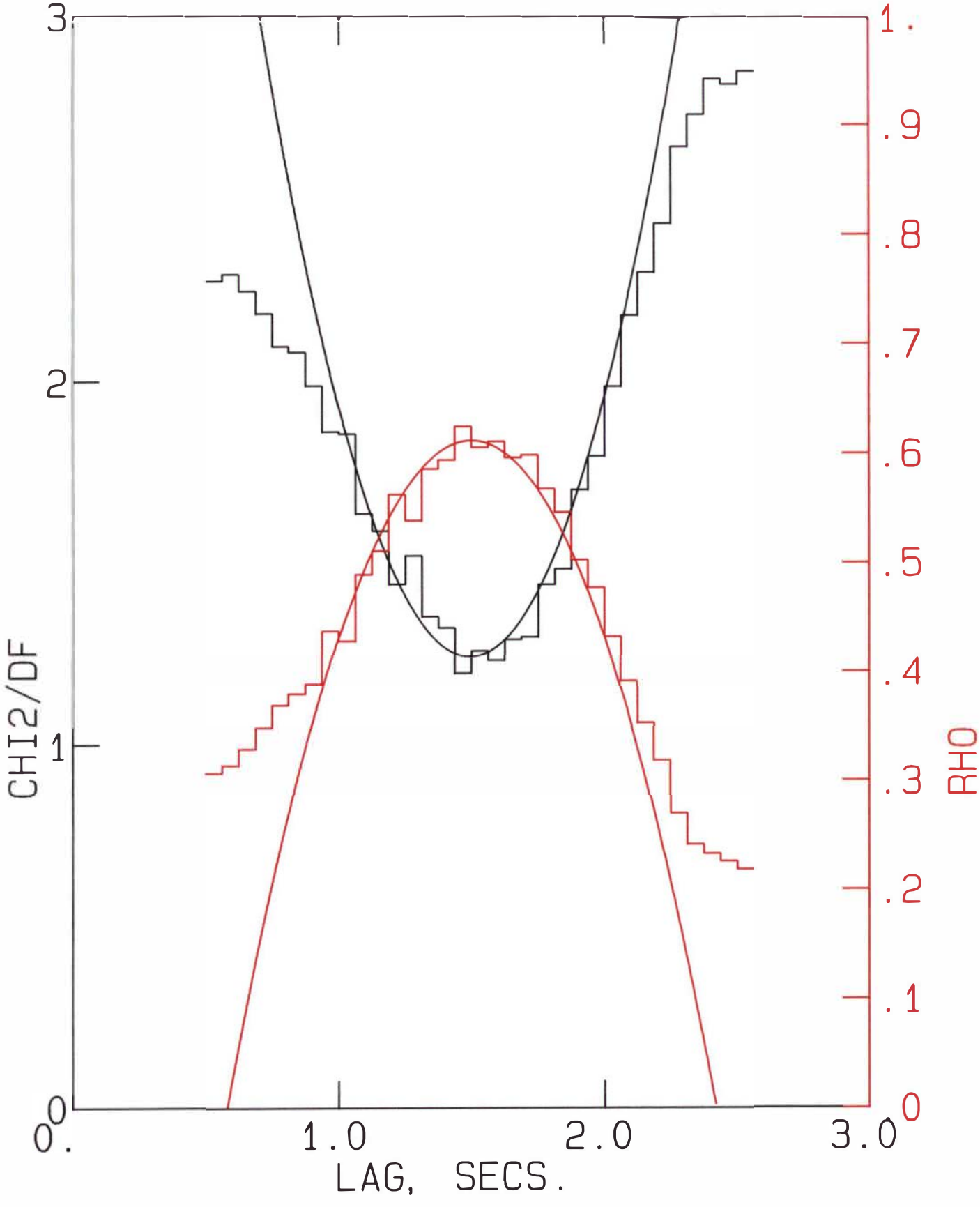

ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810 26/ 3/97
40
30
20
10
0
C/ 0.09375 S
ULYSSES
500
400
300
200
100
0
C/ 0.09375 S
BSAX-GRBM
5
10
15
20
TIME, SECS

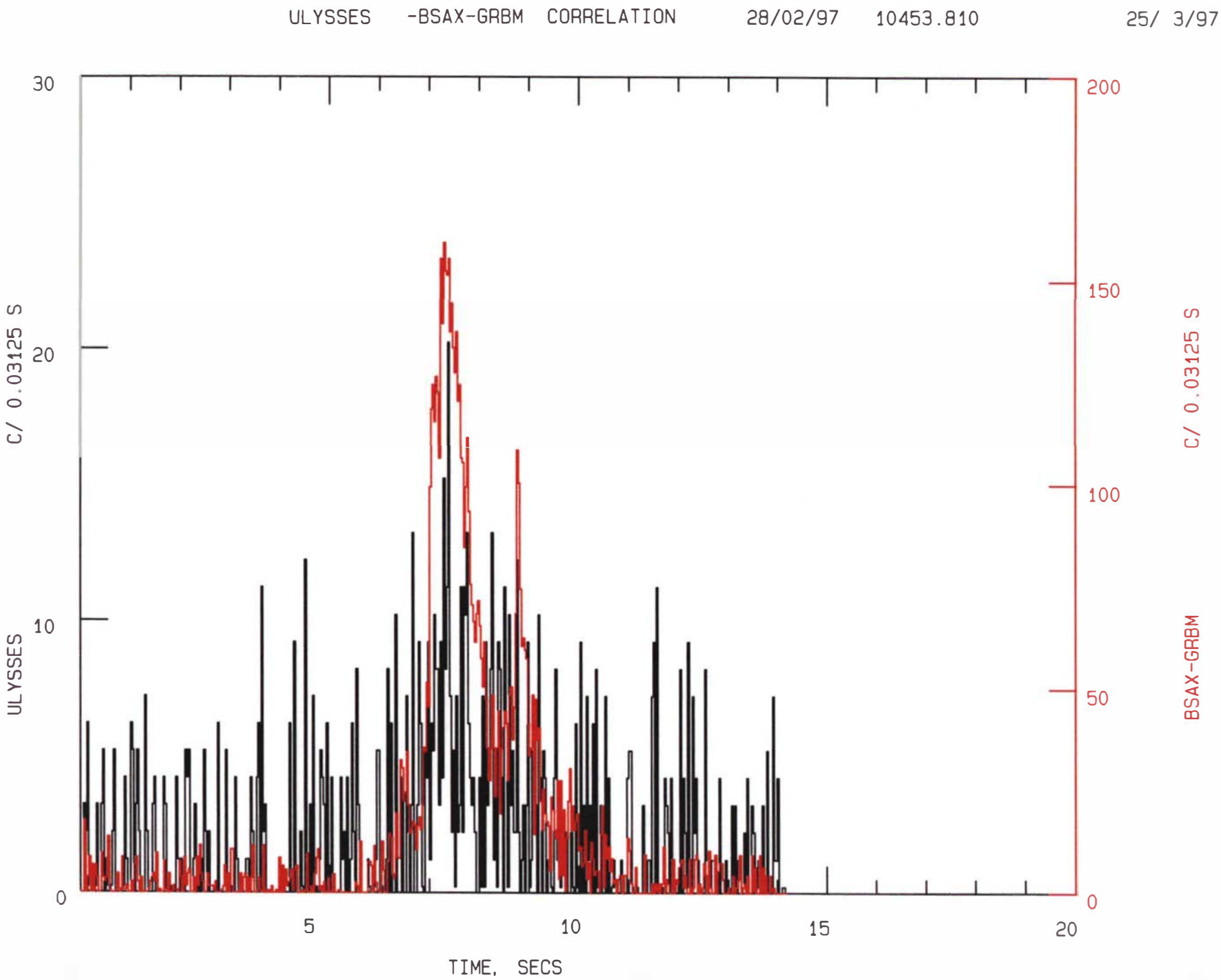
ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810



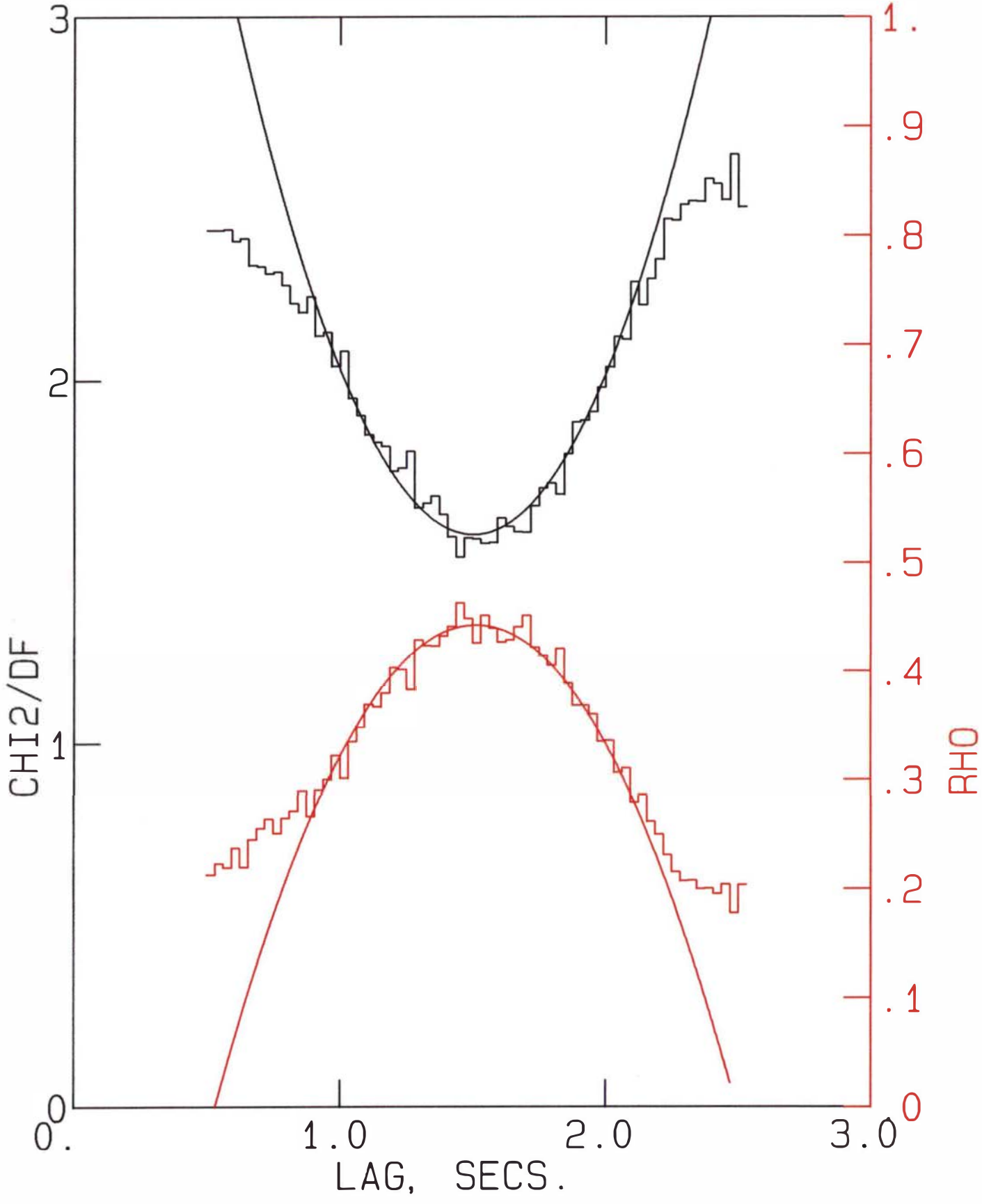

ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810 26/ 3/97
40
30
20
10
0
C/ 0.06250 S
ULYSSES
400
300
200
100
0
C/ 0.06250 S
BSAX-GRBM
5
10
15
20
TIME, SECS

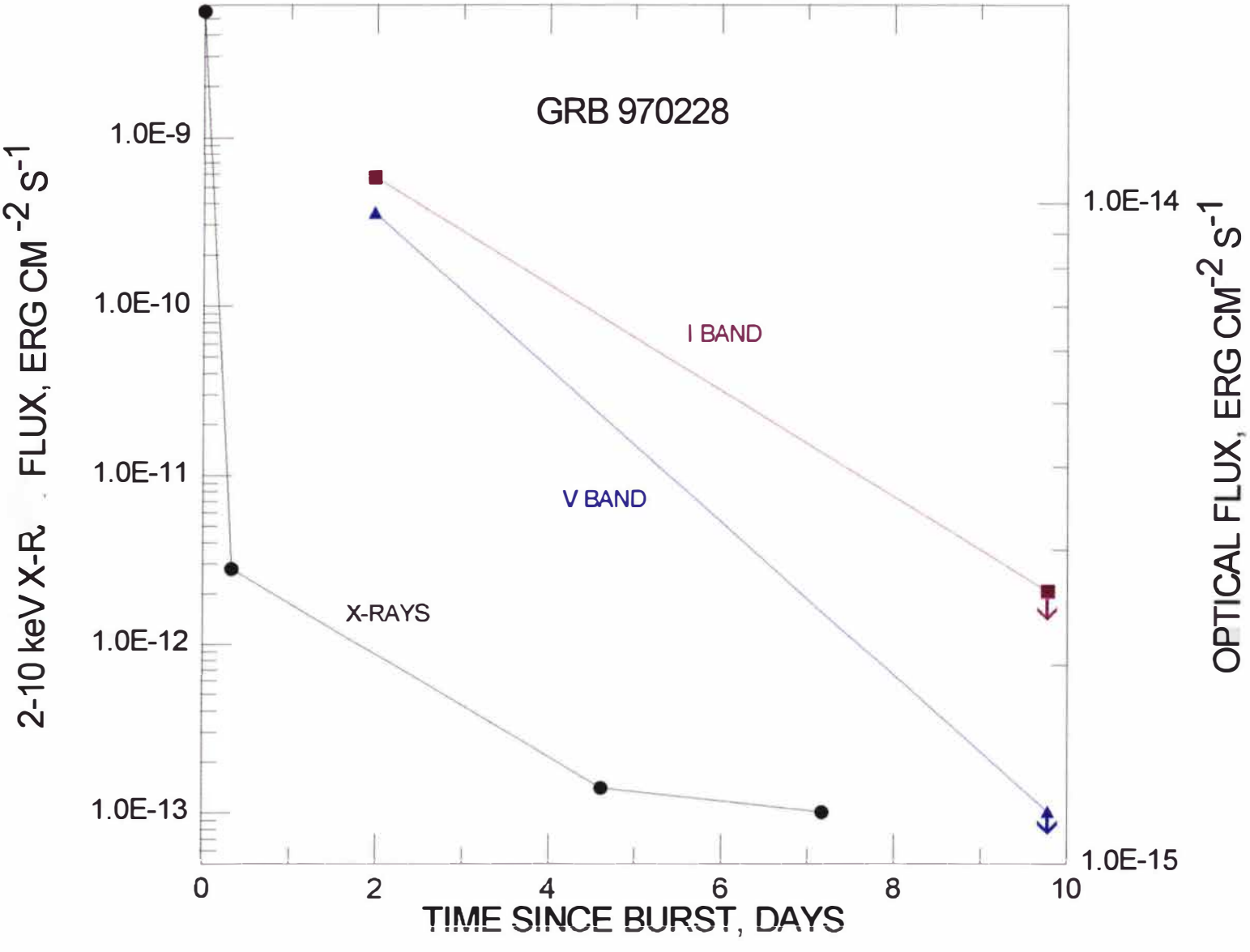
ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810




ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810 25/ 3/97
30
20
10
0
C/ 0.03125 S
ULYSSES
200
150
100
50
0
C/ 0.03125 S
BSAX-GRBM
5
10
15
20
TIME, SECS

ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810




GRB 970228
2-10 keV X-R FLUX, ERG CM -2 S-1
OPTICAL FLUX, ERG CM-2 S-1
1.0E-9
1.0E-10
1.0E-11
1.0E-12
1.0E-13
1.0E-14
1.0E-15
I BAND
V BAND
X-RAYS
0
2
4
6
8
10
TIME SINCE BURST, DAYS

Feb 28.123 (= Mar −0.877)

$.23\ \text{Crab} = .23 \int_2^{10} 10 E^{-2.05} E\, dE \times 1.6\times10^{-9}$

$= 10 \cdot \frac{.23\times1.6\times10^{-9}}{.05} E^{-.05}\Big|_2^{10} \quad (.891-.966) = 5.5\times10^{-9}$

$T_0 + 8^h$ $\quad 2.8\times10^{-12}$ erg/cm²s $\quad 2-10 \quad$ SAX

$4\times10^{-12} \quad .5-10$

Mar 3.734 $\quad$ 20x lower $\quad$ SAX

$T_0 + 4.611$

Mar 7 0:10 $\quad 10^{-13} \quad 2-10 \quad$ ASCA

7.167

$T_0 + 8.044$

Mar 1.1 $\quad m_V = 21.3 \quad 9.7\times10^{-15}$

$T_0 + 1.977 \quad m_I = 20.6 \quad 1.1\times10^{-14}$ erg/cm²s

Mar 8.9 $\quad m_V > 23.6 \quad < 1.2\times10^{-15}$

$T_0 + 9.777 \quad m_I > 22.2 \quad < 2.6\times10^{-15}$

Mar 6.19 $\quad m_I \simeq 21.5 \quad 5\times10^{-15}$

$T_0 + 7.067$

Mar 6.32 $\quad m_R = 22.4$

$T_0 + 7.197$

Mar 9.9 $T_0 + 10.777 \quad m_R = 24.0$

Mar 11.18 $\quad m_I \simeq 21.5$

$T_0 + 12.057$

Mar 13.0 $\quad m_R = 23.8 \pm 0.2$

$T_0 + 13.877$

$1\mu = 10^4$ Å

$f = f_0\, 10^{-.4m} \quad \Delta\lambda(\mu)\times10^{+4}$

3.6×10^{-9} V $\quad .089\times10^{+4} = 8.9\times10^{-2}$ V

8.3×10^{-10} I $\quad .24\times10^{+4} = 2.4\times10^{-3}$ I

$3.2\times10^{-6}\, 10^{-.4m_V}$

$2.\times10^{-6}\, 10^{-.4m_I}$

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

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

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

DATE	FL	DAY	TIME	NOTES---(ND=NO DATA,NA=NOT APPARENT & NOT ANALYZED)------REPORTED (NO=DATA CHECKED--SHOWS NO DETECTION)(SR=S. RADIATION BELT) (NR=NORTH RADIATION BELT)(SAA=SOUTH ATLANTIC ANOMALY)	
970111		011	35040.2	BATSE GRB#5773 (8727CTS/2S) (SEE IAU6569,6571,6574,6598)	
		011	35040.2	BEPPO SAX TRIG,INTENSE,50S,3 PEAKS(232.10,19.67J) IAU6533	
	13	011	35040.0	PEAKS(40/S),48.0(50/S),58.0(60/S),@24DEG,@848KM,SOFT	REP0313
970111		011	85744.6	KONUS (HARD,SLOW RISE) +TGR (UL:NO) (DMSP13:NO)	
970117		017	53211	TGR+SAX GRB (KONUS INOP)+UL@54420(STRONG,20S) (13:NO)	
970124		024	44343.4	KONUS(MULT PKS)+UL@46253@2100LS,STRONG+TGR (13SAA)	
970201		032	57250.7	BATSE GRB#5989 (53612/SEC) +UL	
	13	032	57222.1	PEAK (100/S,~30S,SOFT,BROAD) (@111DEG) UNCONVINCING	
970218		049	50996.1	KONUS (STRONG,5SEC) +UL@51274,2000LS (STRONG,8SEC)	
	13	049	51001.0	PEAK (320/S,<6S)	REP0624
970222		053	86006.6	KONUS (MOD.STRONG,SEV.SEC) +UL@85873,2000LS,MOD,2S(13NO)	
970226		057	31585.9	KONUS (STRONG,SOFT PK@+39) +UL@30547,2000LS(V.INT,40S)	
	13	057	31595.8	PEAK (270/S,10SEC) (MODERATELY STRONG)	REP0313
970228		059	10680.8	BEPPOSAX(IAU6572)MOD.INT.,80S,4 PKS (75.46,11.75J)IAU6578	
		059	10680.8	INT.X-RAY,RADIO(IAU6576,6577),OPTICAL(6584),MOTION(6629)	OPTICAL
	13	059	10659.1	PKS,667.1(60/S,ONE-SIDED,SOFT,@74DEG) DOUBTFUL (+UL,WIND)	
0313		072	30096.5	KONUS(MOD.STRONG,PK@+11,40S)+UL@28380,2000LS(MOD.INT,10S)	
	13	072	28355.8	PEAK (180/S,<2S,SOFT) (NO PEAK AT 30096!) (CONFLICT)	REP0501

From dfrail@aoc.nrao.edu Sat Mar 8 15:08 PST 1997
Date: Sat, 8 Mar 1997 16:07:53 -0700 (MST)
From: Dale Frail <dfrail@aoc.nrao.edu>
To: khurley@sunspot.ssl.berkeley.edu
ject: Re: GRB970228

Thanks. I received your message along with the official telegram. I'll print this file and have a look. Too bad BATSE didn't see it. I would have liked another independent test of the WFC errors.

I wouldn't be at all suprised if the radio source fell out of the final error box. Its not distingusihed itself as an unusual source to date. STill its the only source in the 50" circle down to very good limits.

Exciting times we live in.

Dale

From dgreen@cfa0.harvard.edu Sun Mar 2 11:57 PST 1997
Date: Sun, 2 Mar 1997 14:46:19 -0500
From: dgreen@cfa0.harvard.edu (Daniel W. E. Green)
To: quai@mars.harvard.edu
Subject: IAUC 6572: GRB 970228; SN 1997aa

Circular No. 6572

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Phone 617-495-7244/7440/7444 (for emergency use only)

GRB 970228

E. Costa and M. Feroci, Istituto Astrofisica Spaziale, CNR, Frascati; F. Frontera and G. Zavattini, Universita di Ferrara; L. Nicastro and E. Palazzi, Istituto Tecnologie e Studio Radiazioni Extraterrestri, CNR, Bologna; G. Spoliti, L. Di Ciolo, A. Coletta, G. D'Andreta, and J. M. Muller, BeppoSAX, Rome; and R. Jager, J. Heise, and J. in 't Zand, Space Research Organization of the Netherlands, Utrecht, communicate: "The BeppoSAX Gamma Ray Burst Monitor (GRBM) was triggered on Feb. 28.123620 UT. A quick-look analysis of the GRBM light curve shows a moderately intense, multi-peaked gamma-ray burst lasting about 80 s, with one major structured peak followed by three minor peaks. The first peak intensity at maximum is about 3700 counts/s, while the trailing peaks show a decreasing intensity from 600 to 150 counts/s. The gamma-ray burst was detected by the Wide Field Camera (WFC) number with a similar time profile and a peak countrate of about 400 counts/s. Taking into account the off-axis position, the peak flux corresponds to about 0.23 Crab. From the WFC image, we have derived a preliminary position of R.A. = 5h01m57s, Decl. = +11 46'.4 (equinox 2000.0), with a 3' error radius. A BeppoSAX TOO pointing of the Narrow Field Instruments was performed starting on Feb. 28.458, just 8 hr after the GRB trigger time. The relevant data analysis is in progress. Observations in all bands are solicited."

75.4875, 11.77333
3' = 0.050

SUPERNOVA 1997aa IN IC 2102

W.-d. Li, Y.-l. Qiu, Q.-y. Qiaom and J.-y. Hu, Beijing Astronomical Observatory (BAO), on behalf of the BAO supernova survey, report the discovery of a supernova on CCD images of IC 2102 taken on Mar. 1.5 UT with the BAO 0.60-m reflector. SN 1997aa is located at R.A. = 4h51m53s.6, Decl. = -4 57'36" (equinox 2000.0), which is 25" west and 29" south of the center of IC 2102. Available unfiltered CCD magnitudes: Mar. 1.5, about 17.0; 2.5, about 16.7. A low-resolution spectrum (40 nm/mm, range 350-930 nm) obtained by Q.-r. Yuan (Nanjing Normal University) and W. Liu and W.-d. Li (BAO) on Mar. 2.5 with the BAO 2.16-m telescope at Xinglong station shows that this is an type-II supernova prior to optical maximum. There are weak, yet conspicuous, H Balmer lines superimposed on a very blue continuum. The expansion velocity of the photosphere is 15 000 km/s (as derived from the H-alpha line). Beta could be seen only marginally.

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From dgreen@cfa0.harvard.edu Tue Mar 4 09:55 PST 1997
Date: Tue, 4 Mar 1997 12:37:49 -0500
From: dgreen@cfa0.harvard.edu (Daniel W. E. Green)
To: quai@mars.harvard.edu
Subject: IAUC 6574: GRB 970111; GRB 970228

Circular No. 6574

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BMARSDEN@CFA.HARVARD.EDU or DGREEN@CFA.HARVARD.EDU (science)
URL http://cfa-www.harvard.edu/cfa/ps/cbat.html
Phone 617-495-7244/7440/7444 (for emergency use only)

GRB 970111

P. J. Groot and T. Galama, University of Amsterdam (UoA); J. Telting and R. G. M. Rutten, ING Telescopes, La Palma; and J. van Paradijs, UoA and University of Alabama in Huntsville, report: "We have obtained BVI images of the refined error-box of GRB 970111 (IAUC 6569) on Feb. 28.2 UT with integration times of 930, 405, and 695 s, respectively, and R images (405 s) on Mar. 1.1, using the 4.2-m William Herschel Telescope (prime focus) at La Palma. Comparison with the Digital Sky Survey shows no brightening of sources to V = 19. The three radio sources reported by Galama et al. (IAUC 6571) show no optical counterpart down to V = 24.0. The GRB error box contains two galaxies, at R.A. = 15h28m15s.2, Decl. = +19o35'55" (equinox 2000.0), with V = 20.2, B-V = +1.3, V-R = +0.7, V-I = +1.4; and at R.A. = 15h28m10s.8, Decl. = +19o35'35", with V = 5, B-V = +0.5, V-R = +0.4, V-I = +0.9. These galaxies are not ected in the radio observations reported by Galama et al."

GRB 970228

Galama; R. Strom, Netherlands Foundation for Research in Astronomy, Dwingeloo, and UoA; van Paradijs; L. Hanlon and K. Bennett, European Space Agency/ESTEC; C. Kouveliotou, Universities Space Research Association; G. Fishman and C. Meegan, NASA Marshall Space Flight Center; J. Heise and J. in 't Zand, SRON, Utrecht; E. Costa, M. Feroci, and L. Piro, Istituto di Astrofisica Spaziale, CNR, Frascati; F. Frontera and G. Zavattini, Universita di Ferrara; L. Nicastro and E. Palazzi, Istituto Tecnologia e Studio Radiazioni Extraterrestri, CNR, Bologna; and K. Hurley, Space Sciences Laboratory, Berkeley, report: "We made radio observations (5 GHz, 3".8 x 17" beamwidth) with the Westerbork array of the SAX/WFC error box of GRB 970228 (IAUC 6572) on Feb. 28 (19.9 hr after the onset of GRB 970228) for 1.2 hr, and on Mar. 1 and 2 for 12 hr each. The error box contains no radio sources above 0.7 mJy (4 sigma)."

Groot et al. (above), in 't Zand, Heise, Costa, Feroci, Frontera, and Palazzi further report: "We have obtained V and I images of the error box of GRB 970228 (IAUC 6572) on Mar. 1.0 UT (21 hr after the BeppoSAX trigger) with integration times of 300 s each using the same telescope. Comparison with the Digital Sky Survey shows no brightening of sources to V = 19. A spiral galaxy with V = 20.5 and V-I = +1.3 is located just outside the error box R.A. = 5h01m46s.0, Decl. = +11o48'19" (equinox 2000.0)."

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From dgreen@cfa0.harvard.edu Thu Mar 6 13:19 PST 1997
Date: Thu, 6 Mar 1997 16:01:45 -0500
From: dgreen@cfa0.harvard.edu (Daniel W. E. Green)
To: quai@mars.harvard.edu
ject: IAUC 6576: GRB 970228

Circular No. 6576

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BMARSDEN@CFA.HARVARD.EDU or DGREEN@CFA.HARVARD.EDU (science)
URL http://cfa-www.harvard.edu/cfa/ps/cbat.html
Phone 617-495-7244/7440/7444 (for emergency use only)

GRB 970228

E. Costa, M. Feroci, L. Piro, and M. N. Cinti, Istituto di Astrofisica Spaziale (IAS), CNR, Frascati; F. Frontera and G. Zavattini, Universita di Ferrara; L. Nicastro, E. Palazzi, D. Dal Fiume, and M. Orlandini, Istituto Tecnologie e Studio Radiazioni Extraterrestri (ITESRE), CNR, Bologna; J. in 't Zand, J. Heise, and R. Jager, Space Research Organization of the Netherlands (SRON), Utrecht; A. Parmar and A. Owens, Space Science Department, ESTEC; S. Molendi, Istituto di Fisica Cosmica e Tecnologie Relative, CNR, Milano; G. Cusumano, M. C. Maccarone, and S. Giarrusso, Istituto di Fisica Cosmica e Applicazioni Informatica, CNR, Palermo; L. A. Antonelli, F. Fiore, P. Giommi, J. M. Muller, L. Salotti, G. Gennaro, M. Stornelli, G. Crisigiovanni, R. Ricci, and A. Coletta, BeppoSAX, Rome; and R. C. Butler, Agenzia Spaziale Italiana, Rome,
ort: "The BeppoSAX GRBM/WFC error box of GRB 970228 (IAUC 6572)
, observed with the BeppoSAX Narrow Field Instruments on Feb. 28.458 UT for 15~000 s (8 hr after the gamma-ray burst). A previously unknown intense x-ray source, SAX J0501.7+1146, has been detected by the MECS and LECS at the same position (R.A. = 5h01m44s, Decl. = +11o46'.7, equinox 2000.0; estimated error radius 50"). This position lies at the edge of the reported BeppoSAX WFC error box (IAUC 6572). The source flux is (2.8 +/- 0.4) x 10E-12 erg cmE-2 sE-1 in the MECS (2-10 keV) and (4.0 +/- 0.6) x 10E-12 erg cmE-2 sE-1 in the LECS (0.5-10 keV). The field was observed again on Mar. 3.734, and a source was detected at a position consistent with the previous one, but at a flux level lower by a factor of 20. Given this very peculiar time variability, we conclude that the new BeppoSAX x-ray source is related to GRB 970228."

75.4333 11.77833
~~0.6333~~ 0.013889

D. A. Frail, National Radio Astronomy Observatory; S. R. Kulkarni, California Institute of Technology; E. Costa, M. Feroci, and L. Piro, IAS, Frascati; L. Nicastro, D. Dal Fiume, and E. Palazzi, ITESRE, Bologna; F. Frontera, Universita di Ferrara; and R. Jager and J. Heise, SRON, report: "Observations at 20 cm with the Very Large Array on Mar. 1.03 and 2.16 UT, and at 6 cm on Mar. 4.04, centered on the gamma-ray burst position given on IAUC 6572, have detected a single, unresolved radio source in the error circle of the x-ray transient seen by Costa et al. (above). The radio source is at R.A. = 5h01m41s.68 +/- 0s.01, Decl. = +11o47'05".1 +/- 0".2 (equinox J2000.0). Flux densities measured on these three days are
90, 0.76, and 0.62 mJy, respectively, with errors of order 0.15
."

75.4236 11.78472

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FAX MESSAGE

TO: KEVIN HURLEY (001-510-645-8302)

FROM: MARCO RAPOPORT

PAGES 1/3

01/March/1997

Kevin,

please find enclosed the GRB 970228 light curve.

Trigger time is:

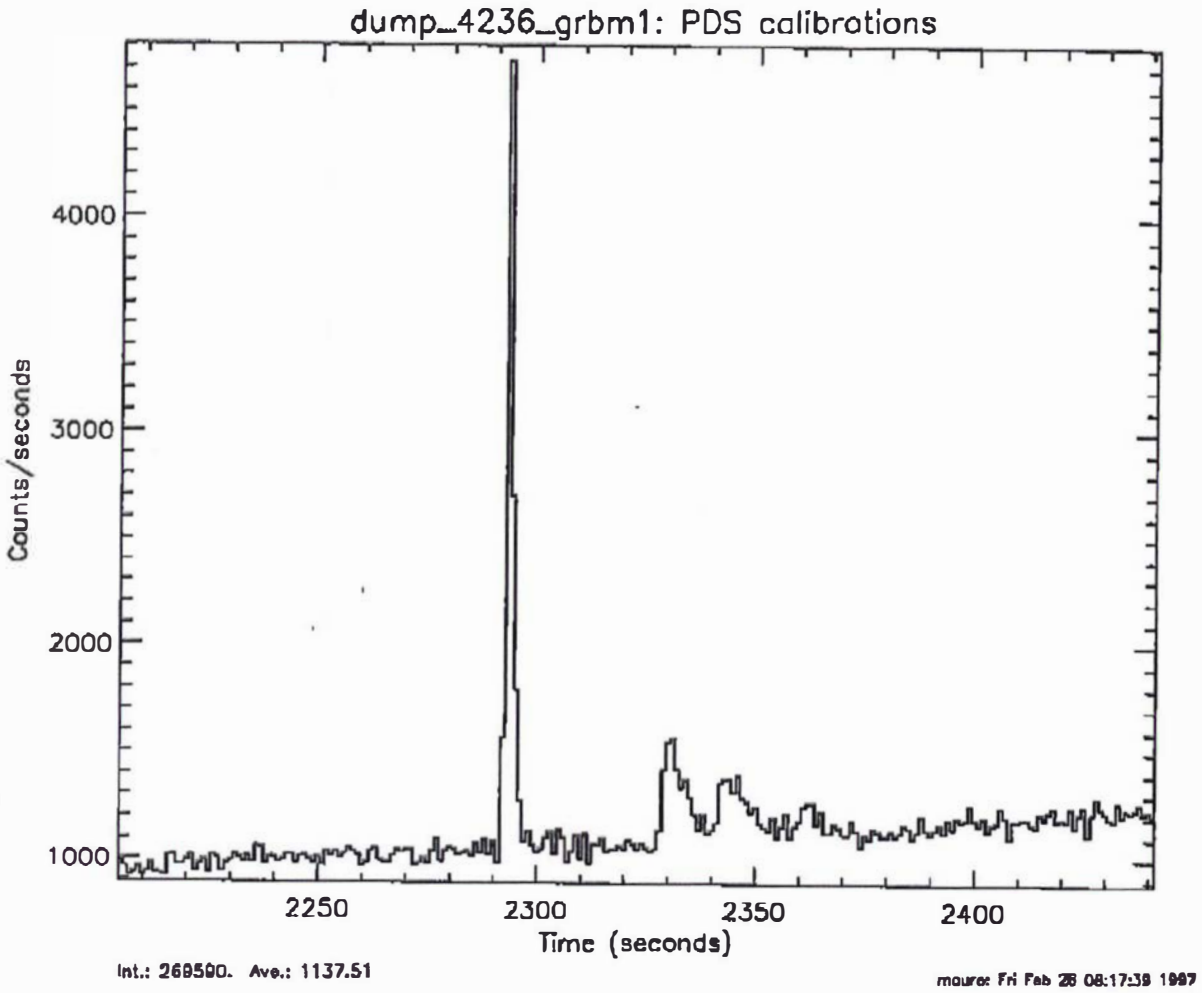
28/Feb/97 02:58:00.78 UT

The first light curve is the 1s curve (from the rate meters) of the entire burst. The second plot is the enlargement of the first peak, with time bin of 62.5 ms (sorry for the black page).

Bye

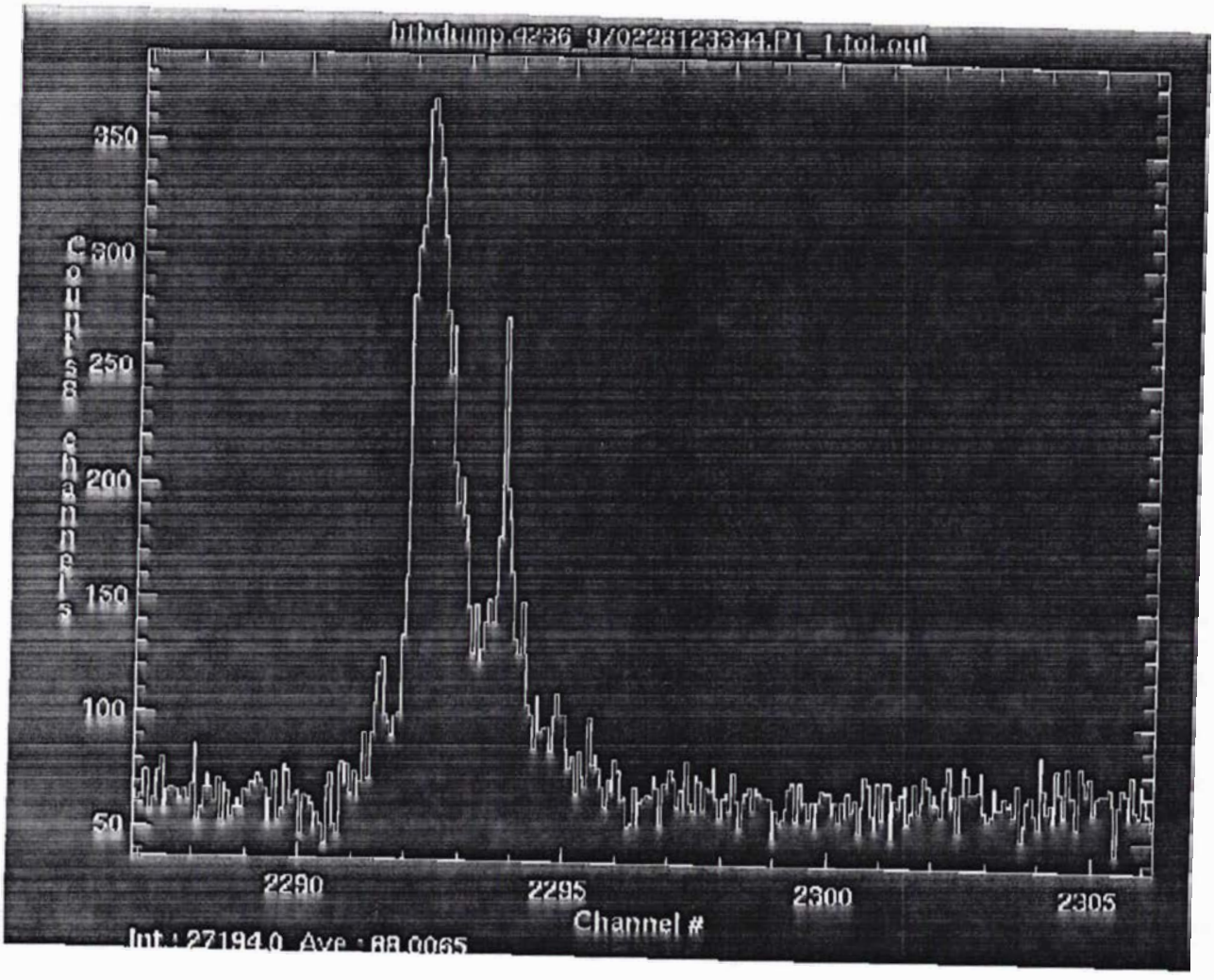
Marco

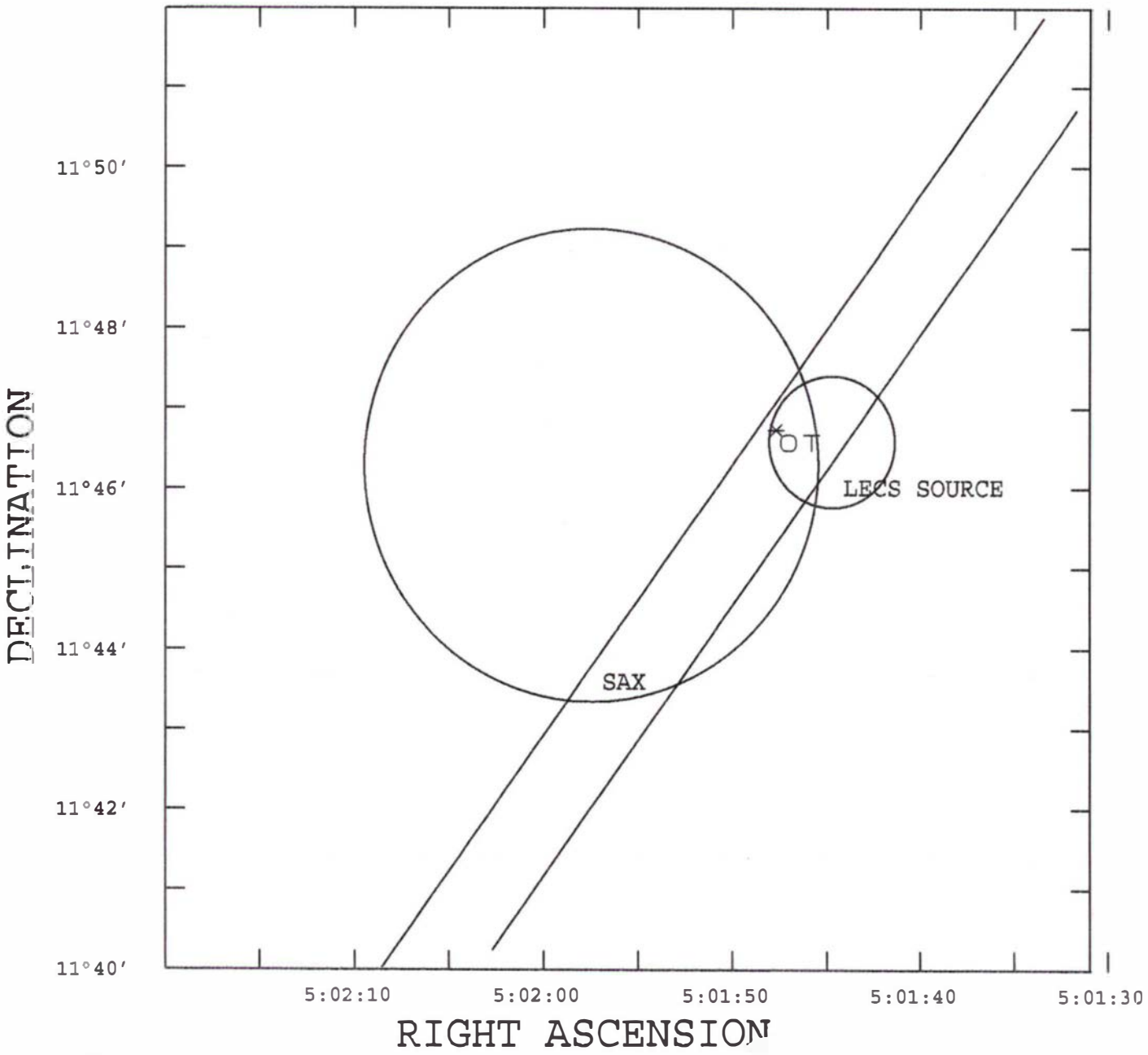
2/3

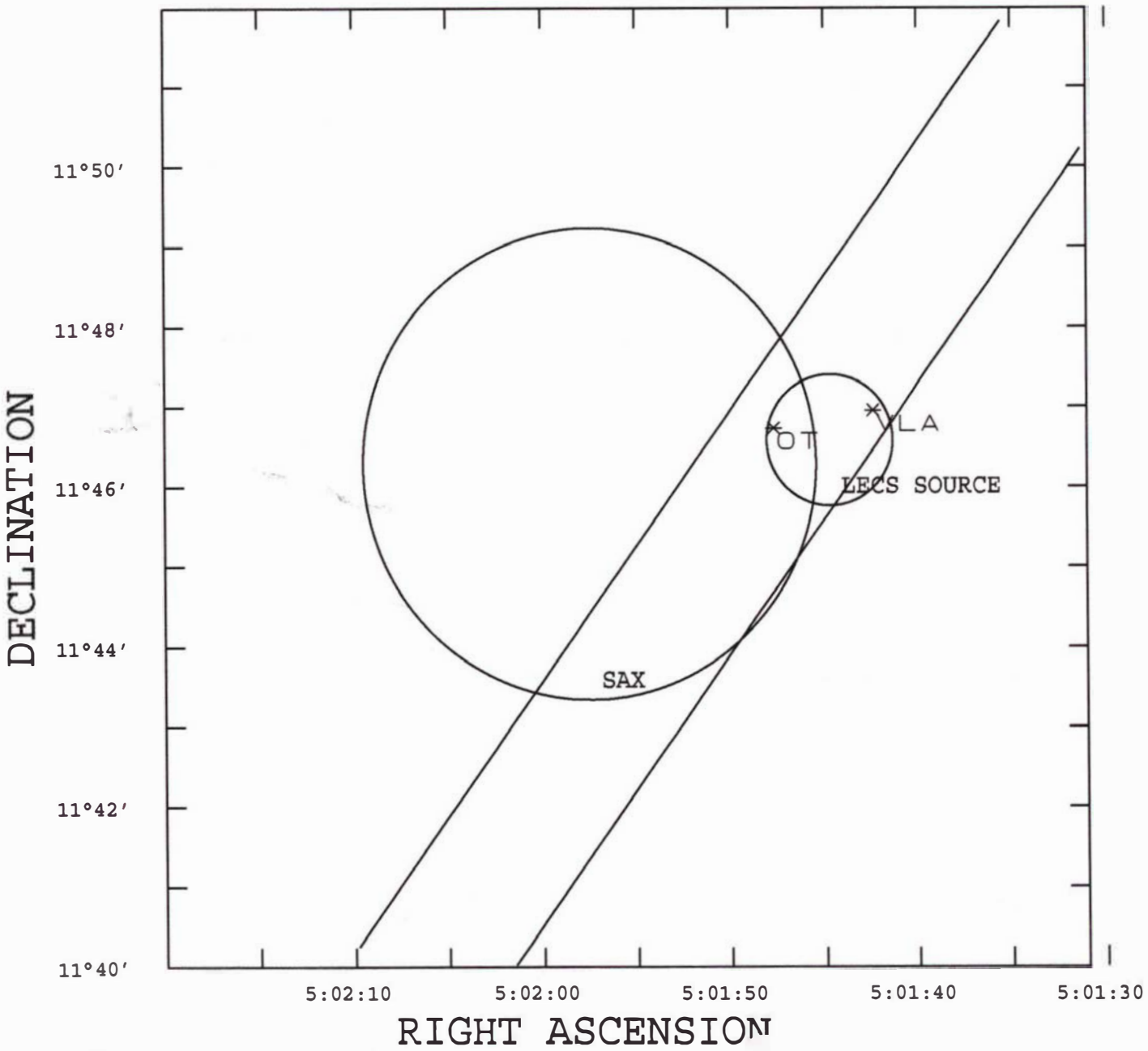


Exposure: 12410.002 sec (X-range: 2205 - 2441)

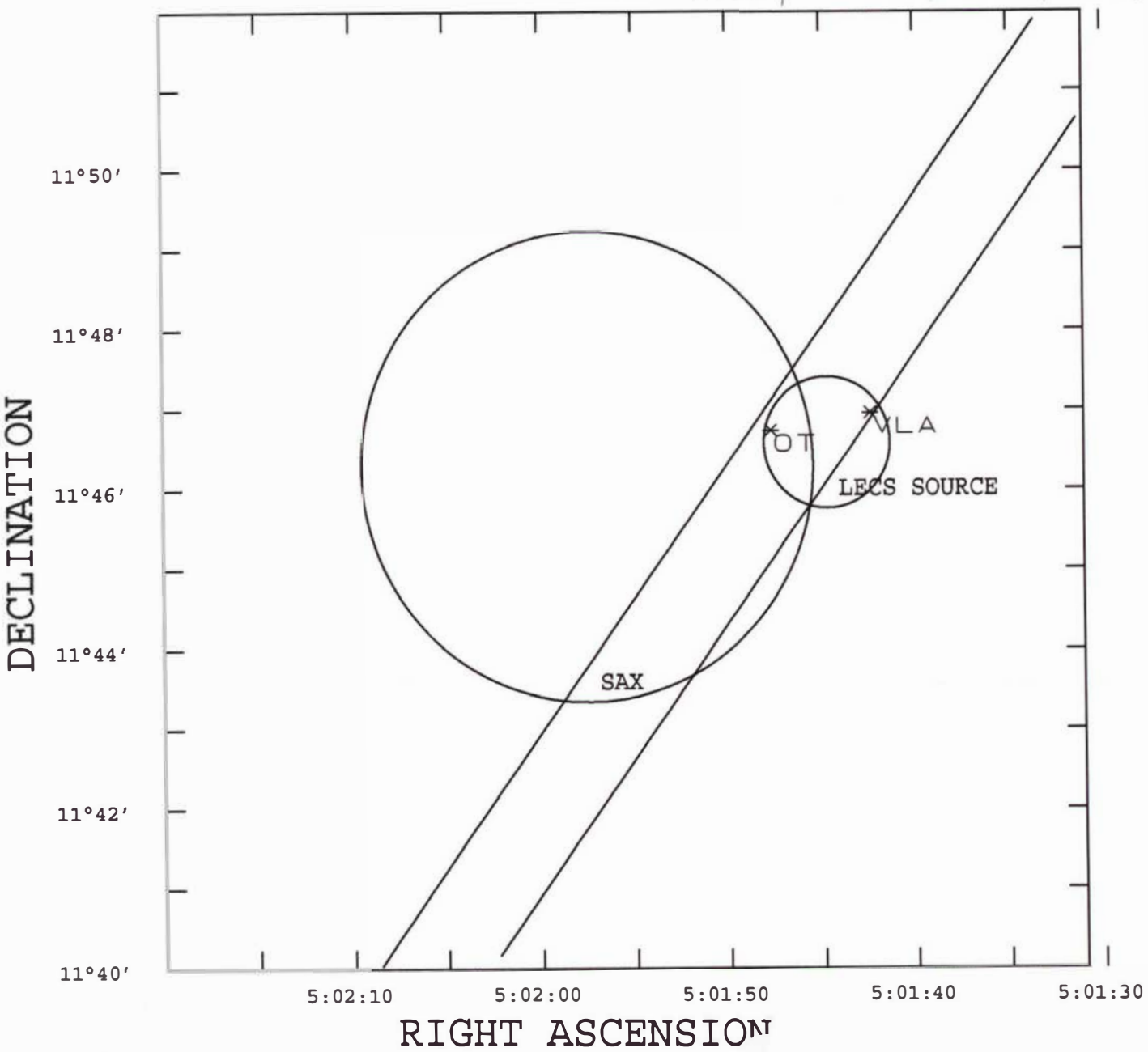
Obs. date: 1997-Feb-28 03:39:44.99


hibdump.4236_970228123344.P1_1.tot.out
350
300
250
200
150
100
50
Counts/channels
2290
2295
2300
2305
Channel #
Int.: 27194.0 Ave.: 88.0065


11°50′
11°48′
11°46′
11°44′
11°42′
11°40′
DECLINATION
5:02:10
5:02:00
5:01:50
5:01:40
5:01:30
RIGHT ASCENSION
OT
LECS SOURCE
SAX

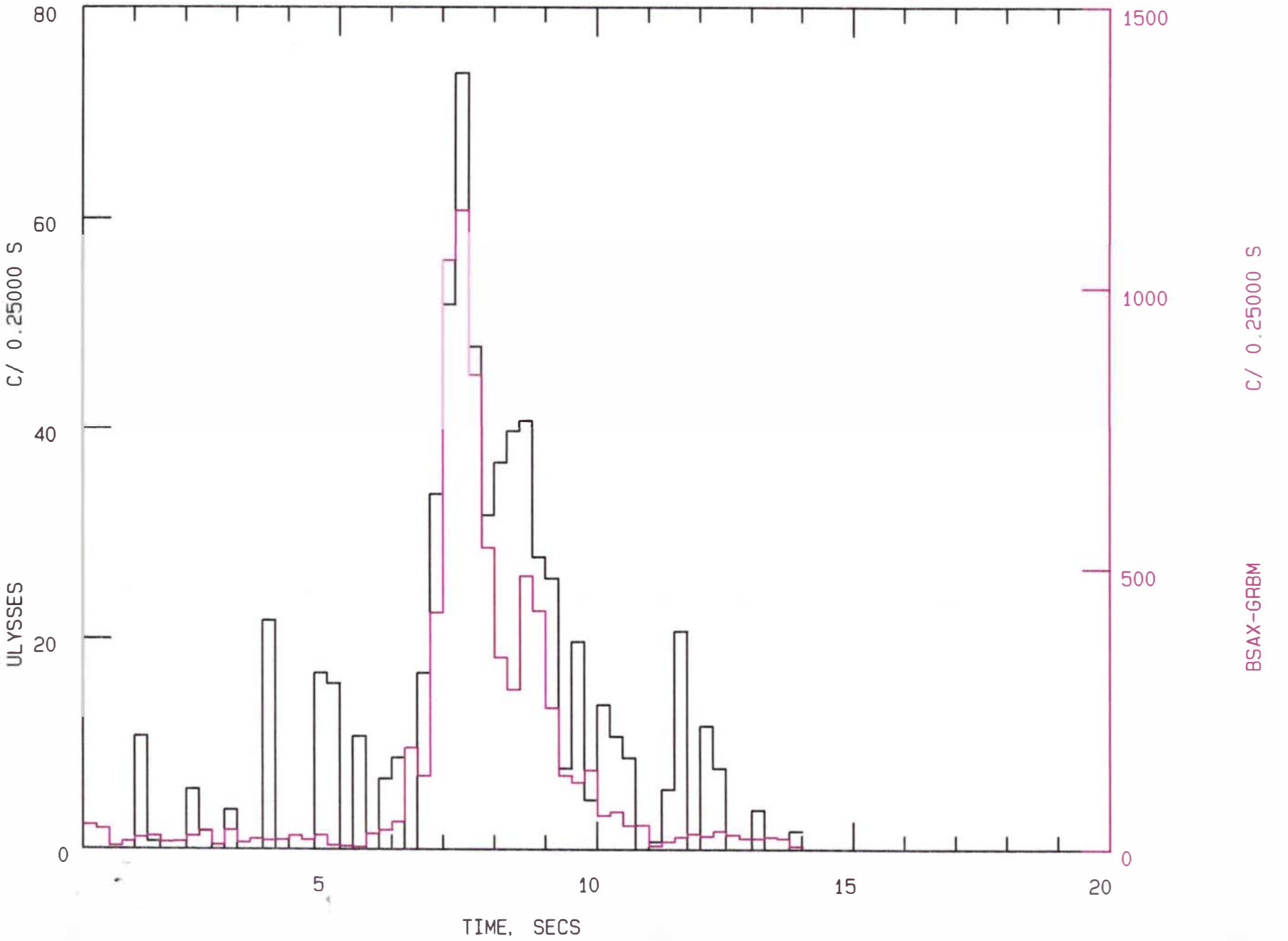

11°50′
11°48′
11°46′
11°44′
11°42′
11°40′
DECLINATION
5:02:10
5:02:00
5:01:50
5:01:40
5:01:30
RIGHT ASCENSION
OT
LA
LECS SOURCE
SAX

Clock + aberration correction added; errors in predict ephemeris reduced to ±100 km, ±0.001°



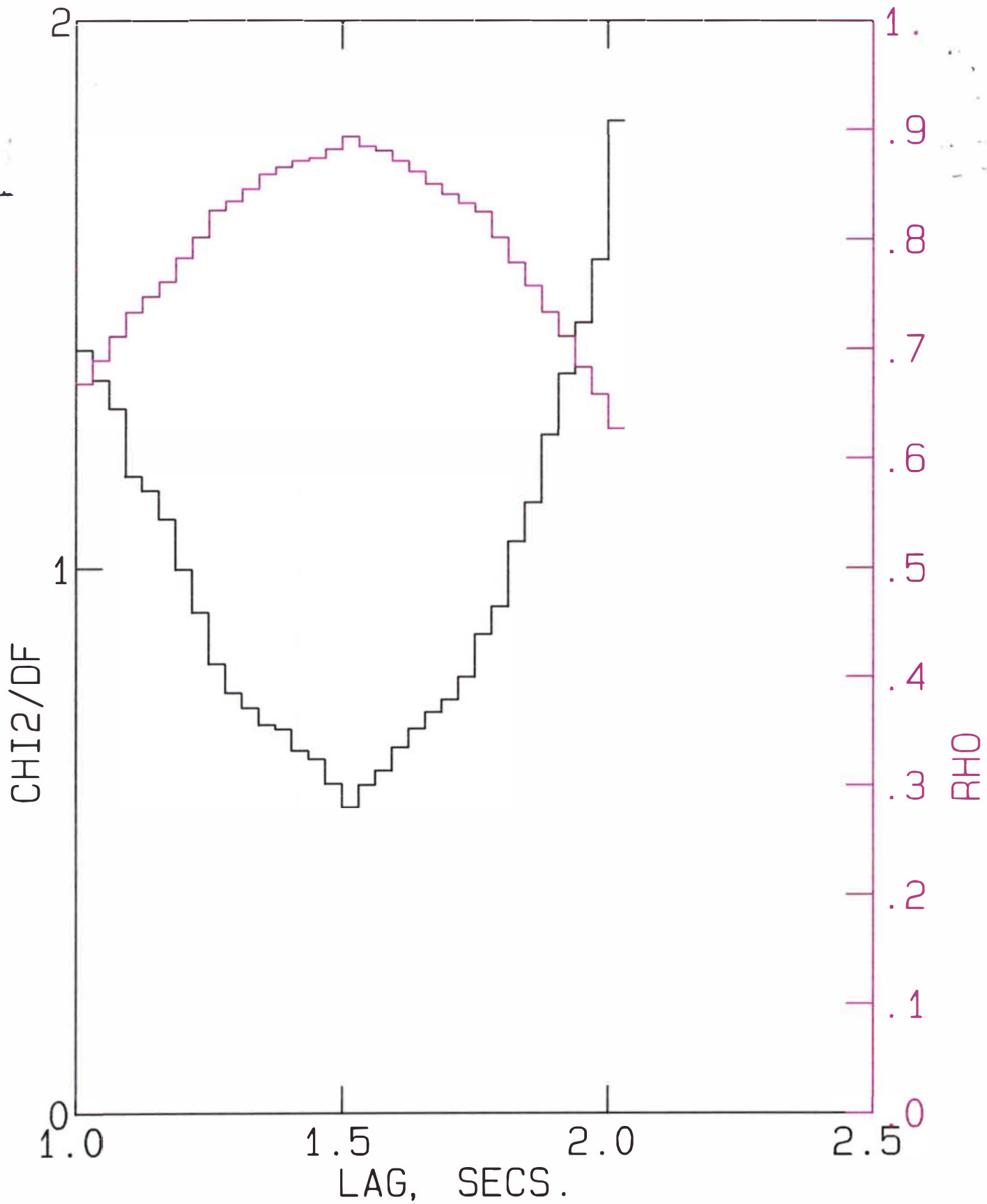
3 SAX shield sectors summed

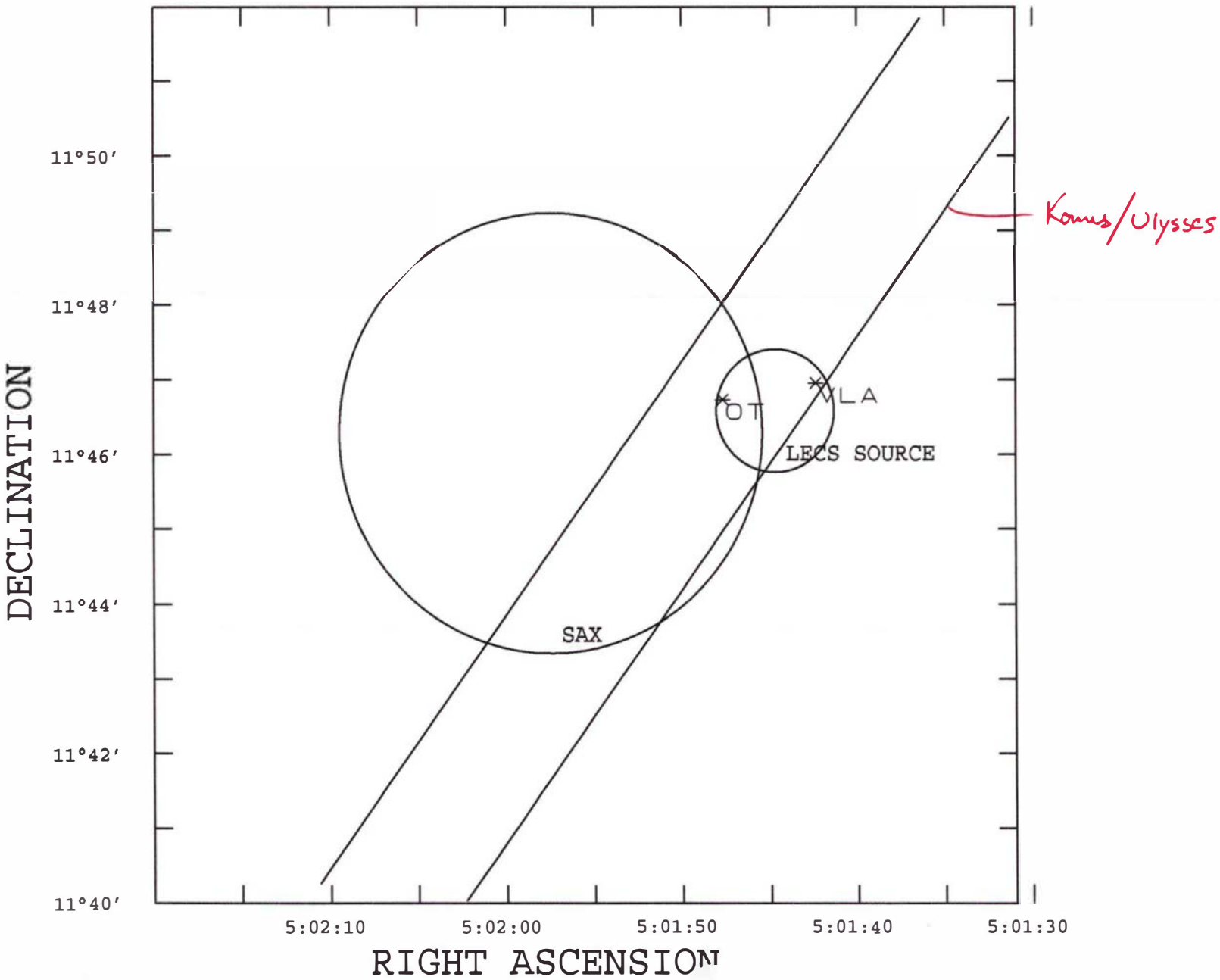
ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810 13/ 3/97

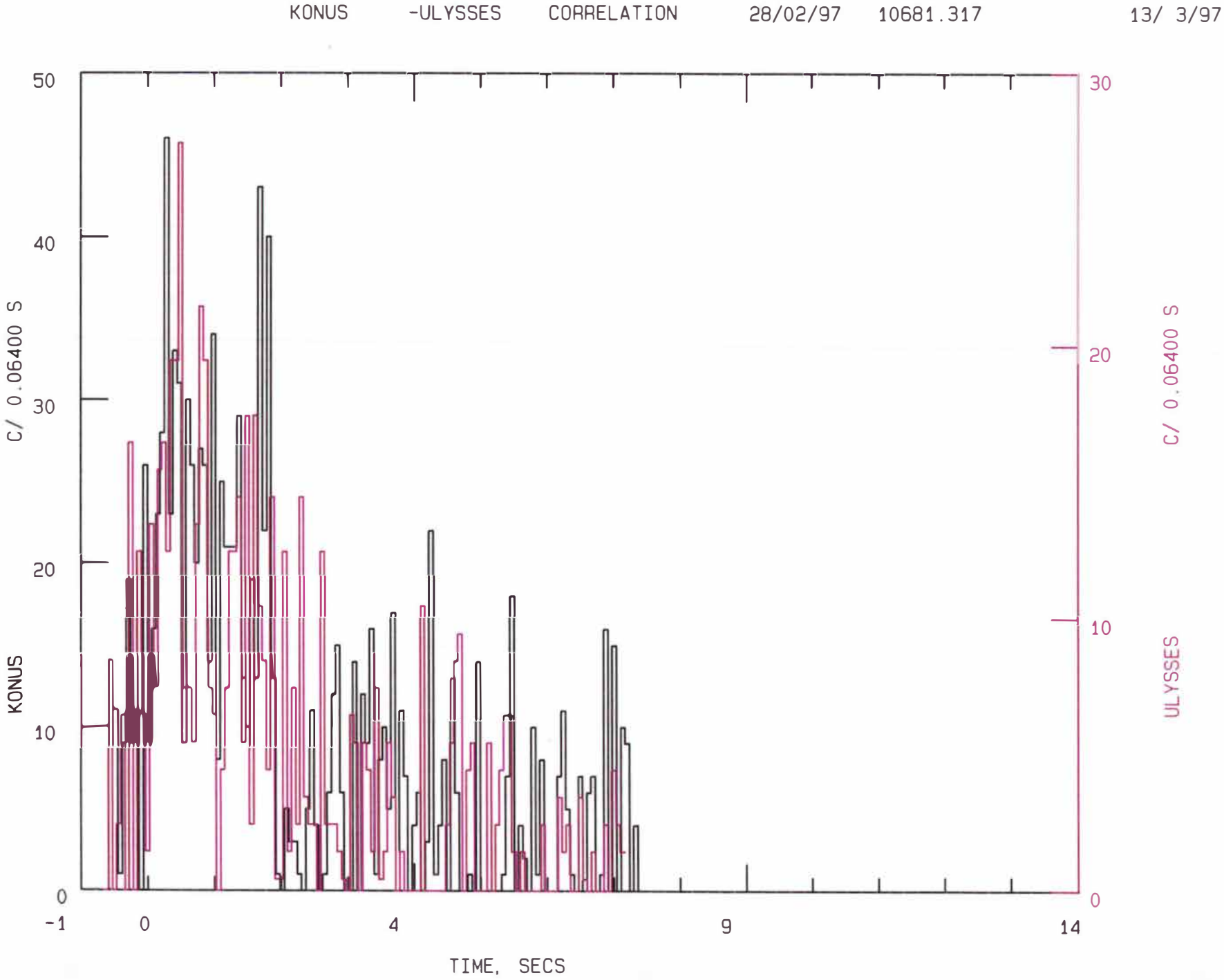


13/ 3/97

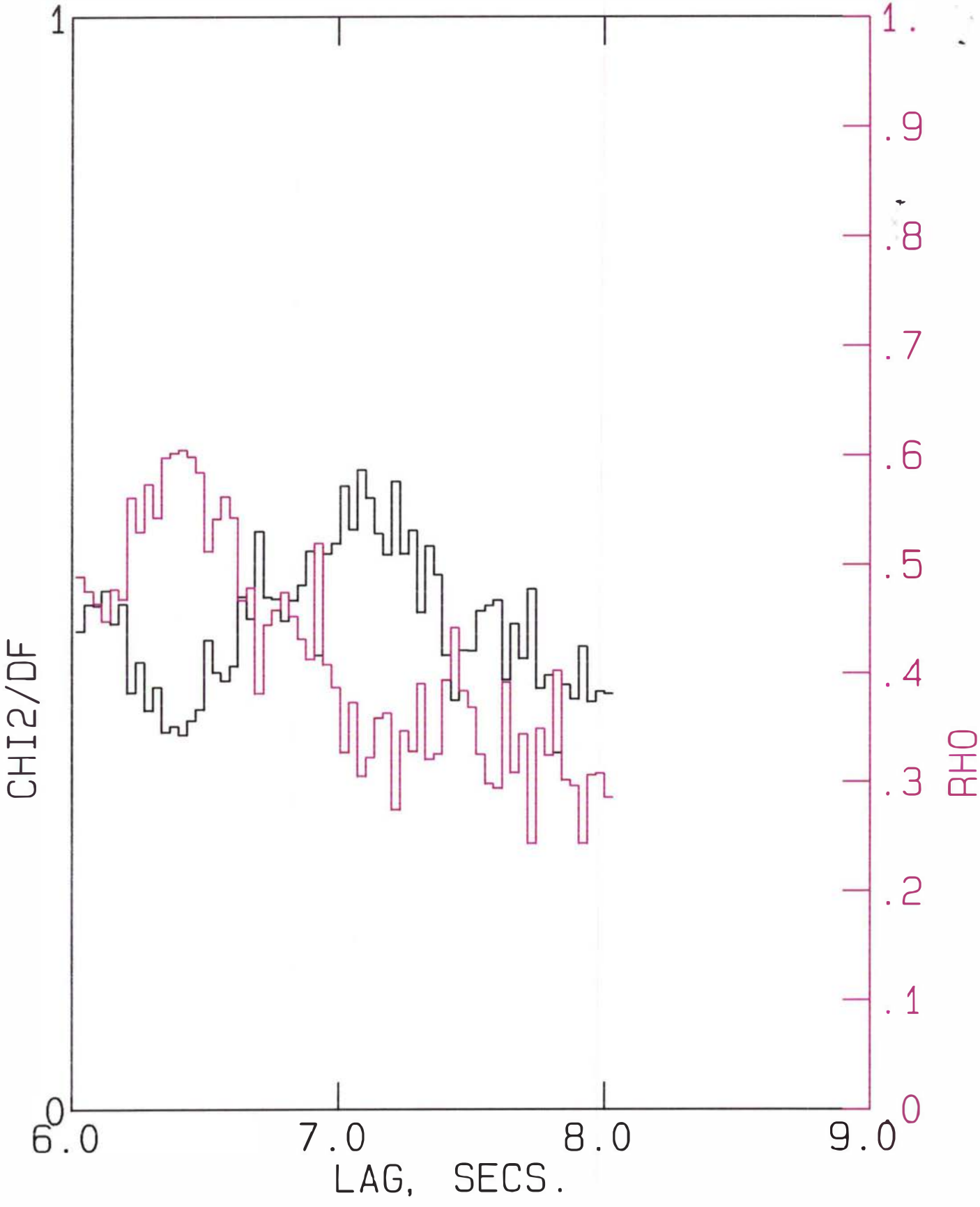
ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810

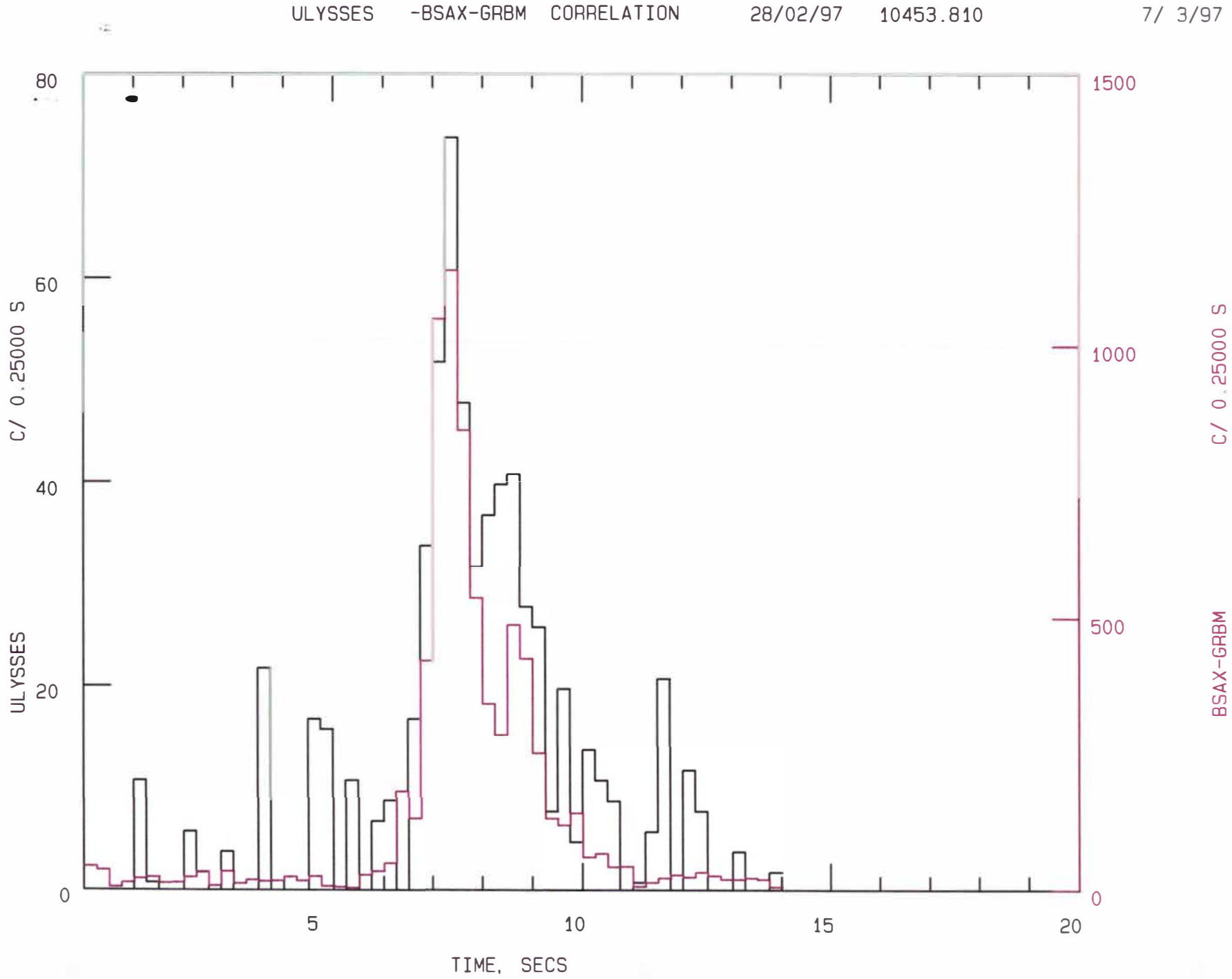



DECLINATION
11°50′
11°48′
11°46′
11°44′
11°42′
11°40′
5:02:10
5:02:00
5:01:50
5:01:40
5:01:30
RIGHT ASCENSION
OT
VLA
LECS SOURCE
SAX
Koms/Ulysses

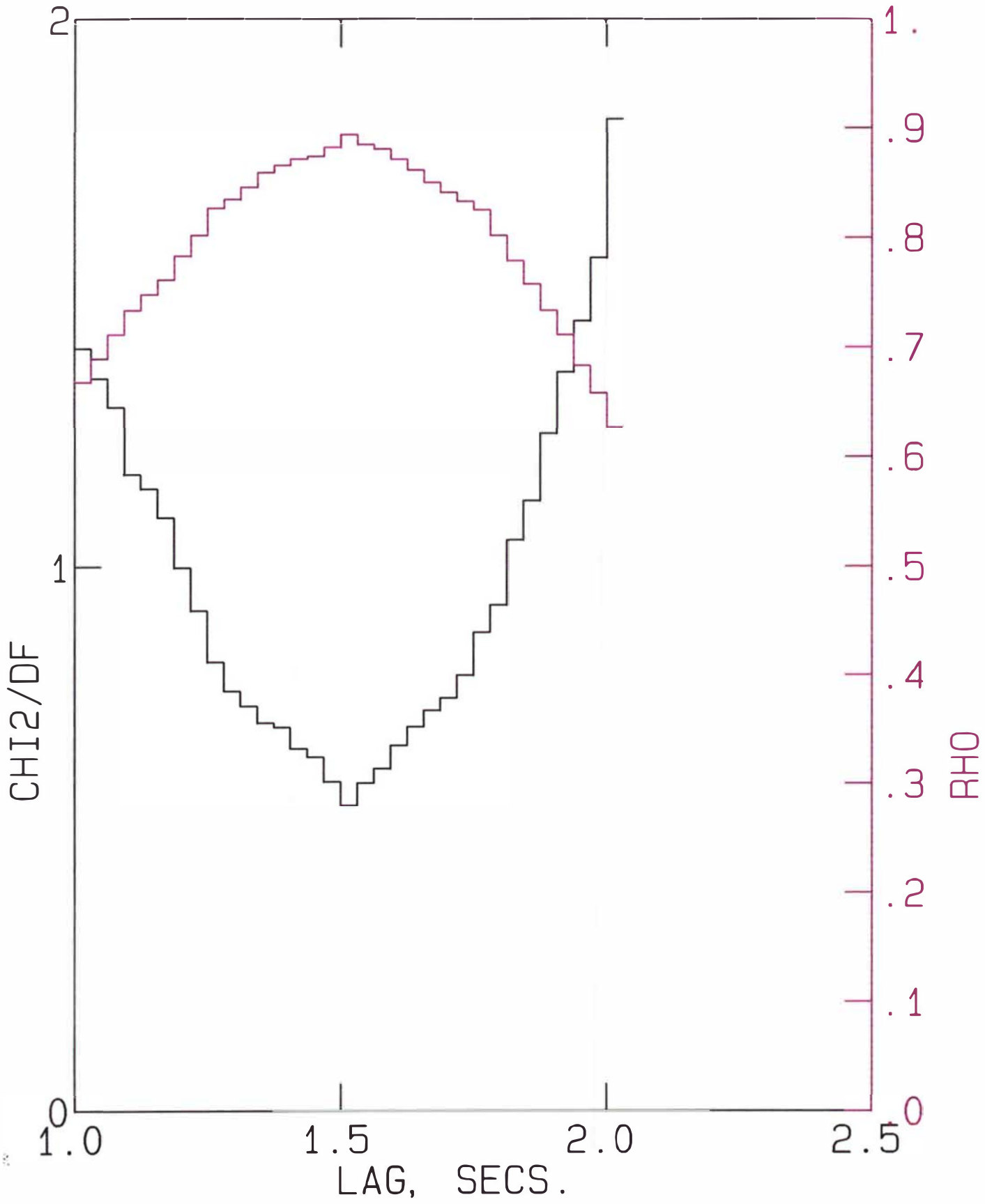

KONUS -ULYSSES CORRELATION 28/02/97 10681.317 13/ 3/97
50
40
30
20
10
0
C/ 0.06400 S
KONUS
30
20
10
0
C/ 0.06400 S
ULYSSES
-1
0
4
9
14
TIME, SECS

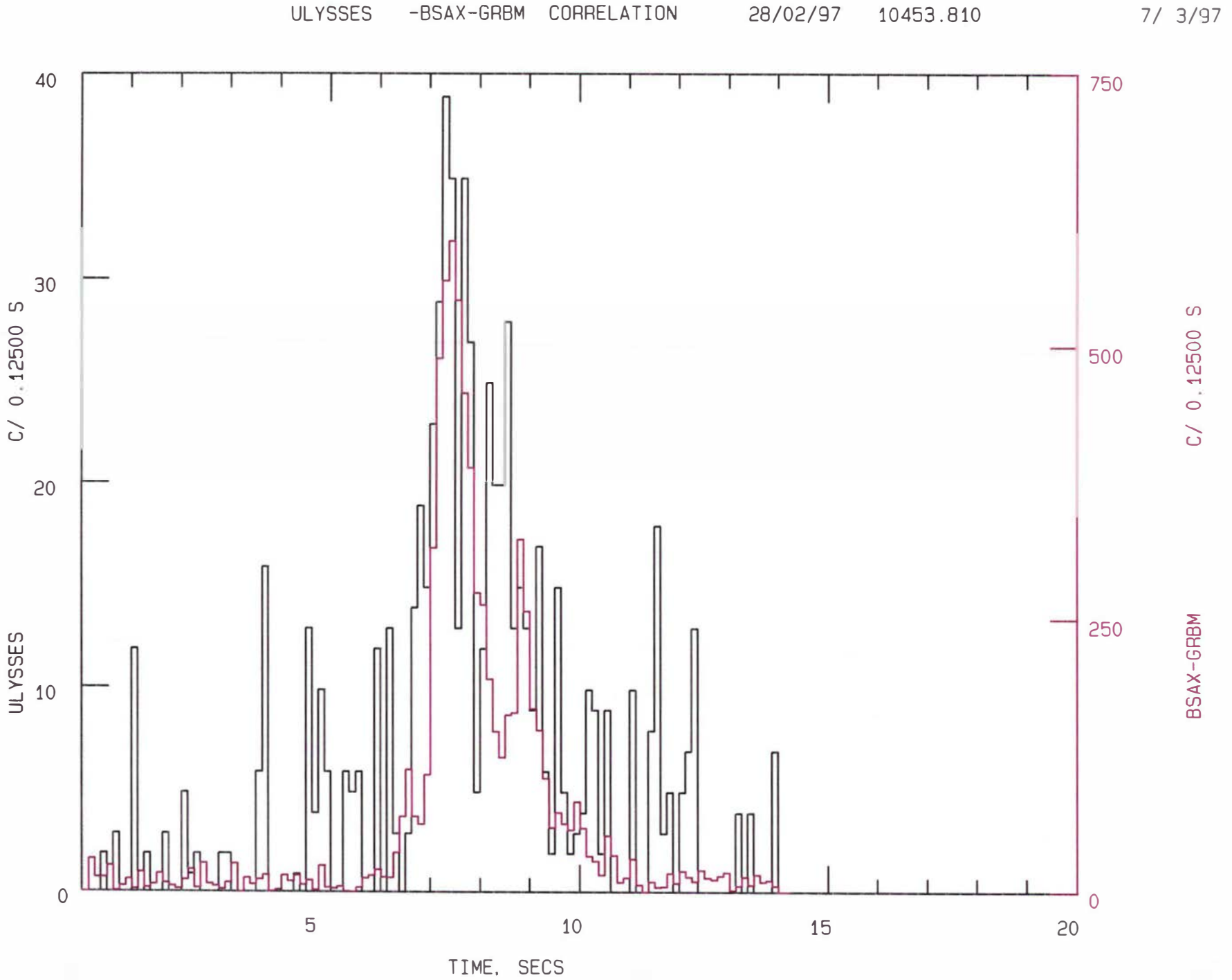
KONUS -ULYSSES CORRELATION 28/02/97 10681.317



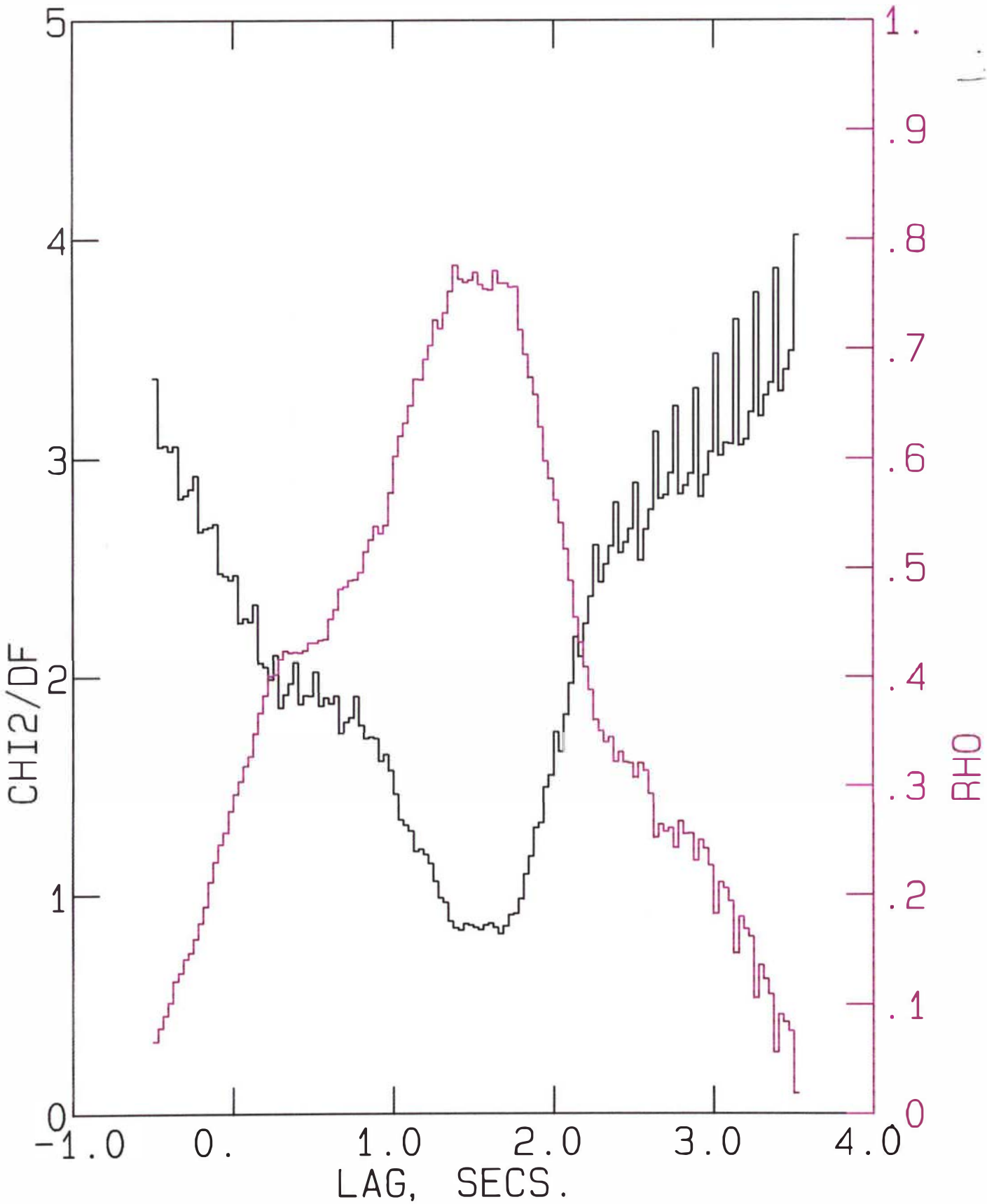

ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810 7/ 3/97
80
60
40
20
0
C/ 0.25000 S
ULYSSES
1500
1000
500
0
C/ 0.25000 S
BSAX-GRBM
5
10
15
20
TIME, SECS

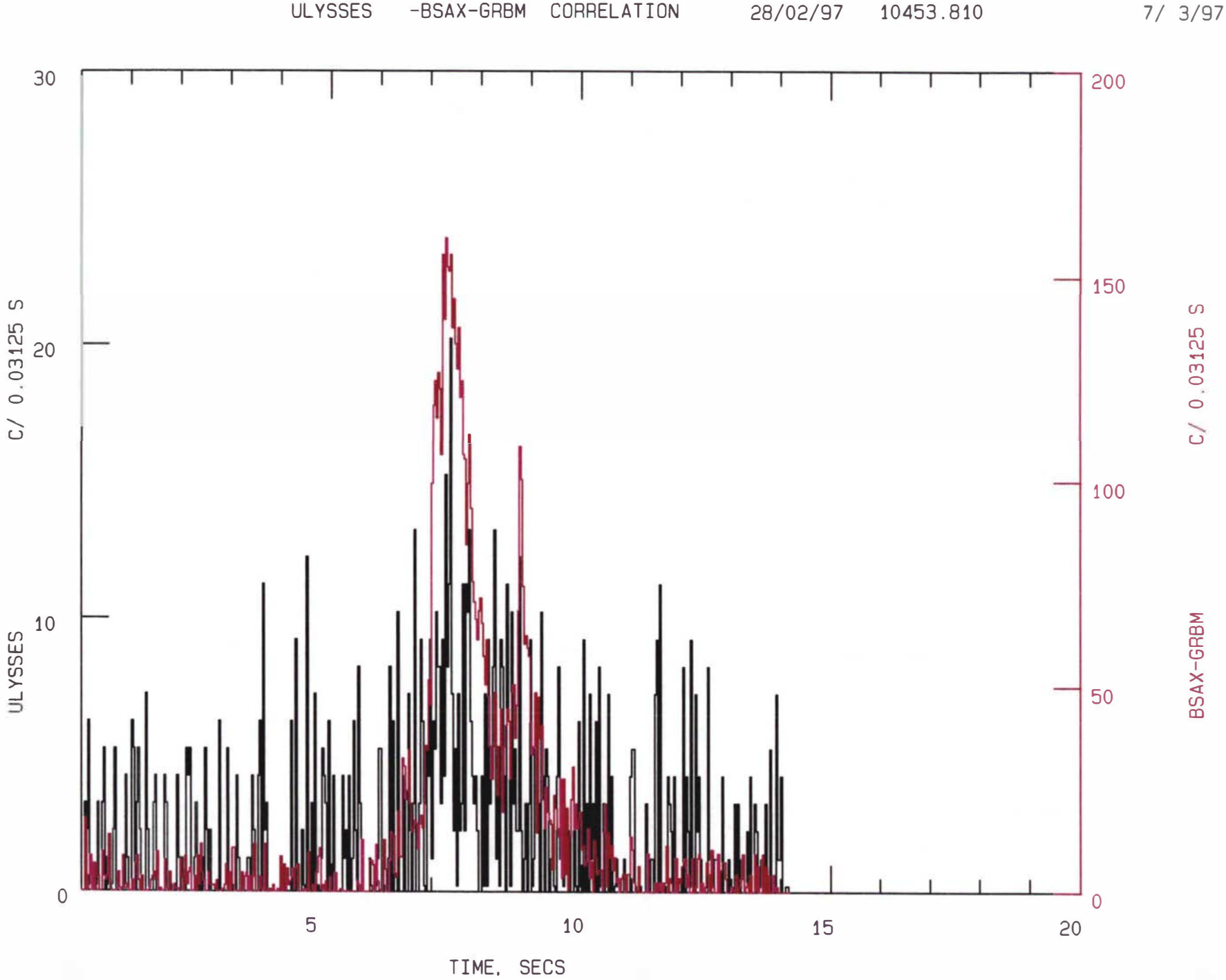
ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810



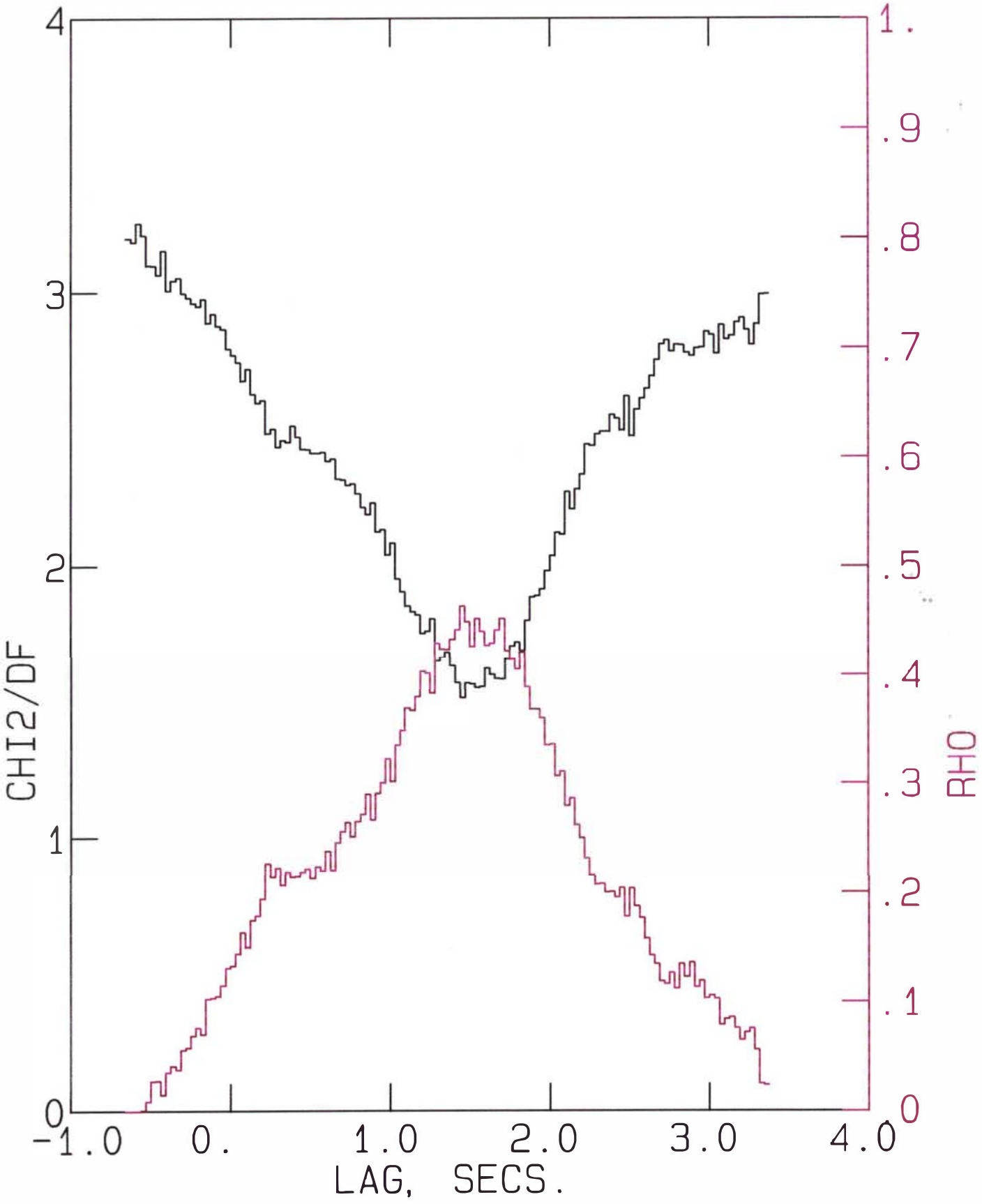

ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810 7/ 3/97
40
30
20
10
0
C/ 0.12500 S
ULYSSES
750
500
250
0
C/ 0.12500 S
BSAX-GRBM
5
10
15
20
TIME, SECS

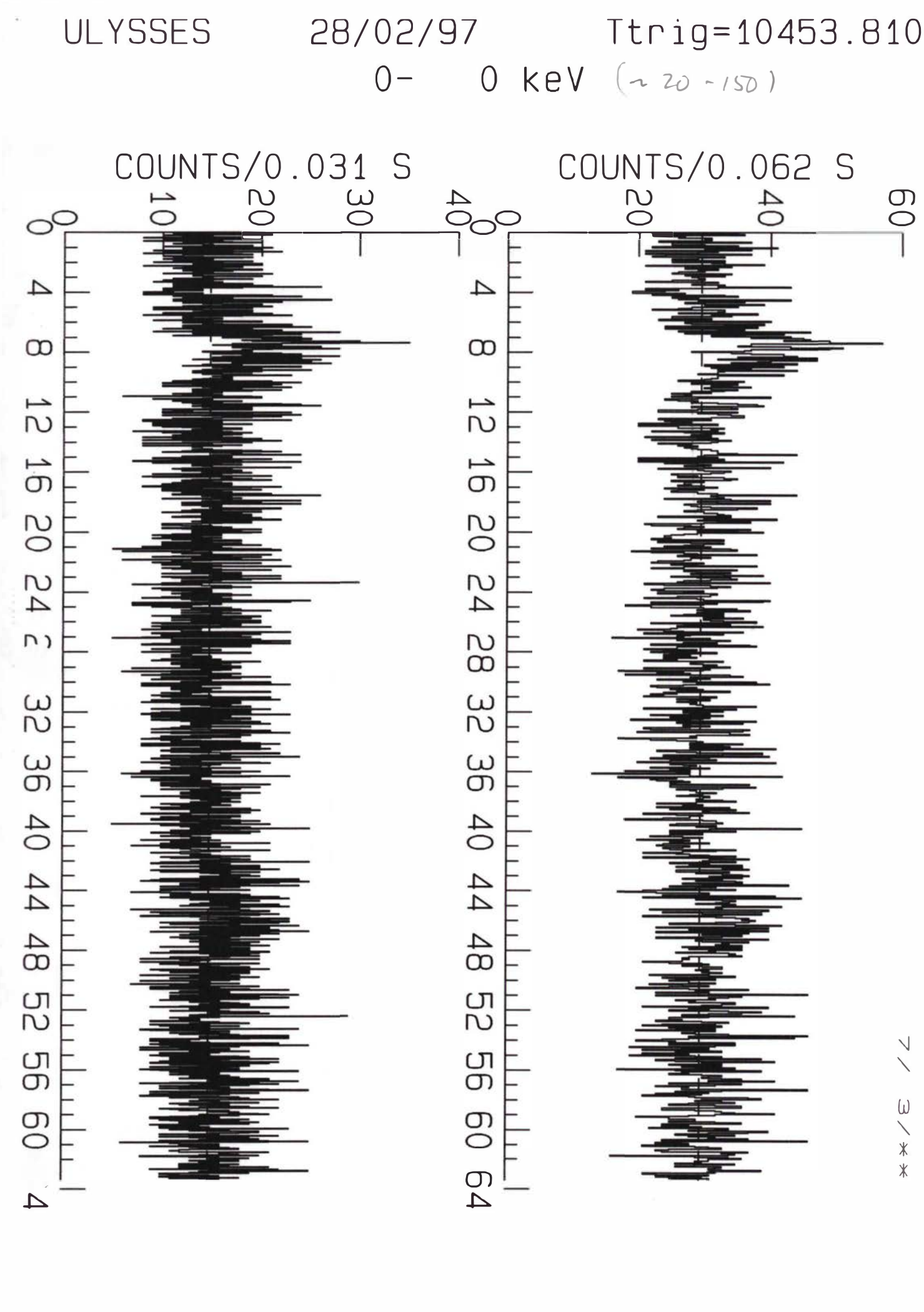
ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810




ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810 7/ 3/97
30
20
10
0
C/ 0.03125 S
ULYSSES
200
150
100
50
0
C/ 0.03125 S
BSAX-GRBM
5
10
15
20
TIME, SECS

ULYSSES -BSAX-GRBM CORRELATION 28/02/97 10453.810



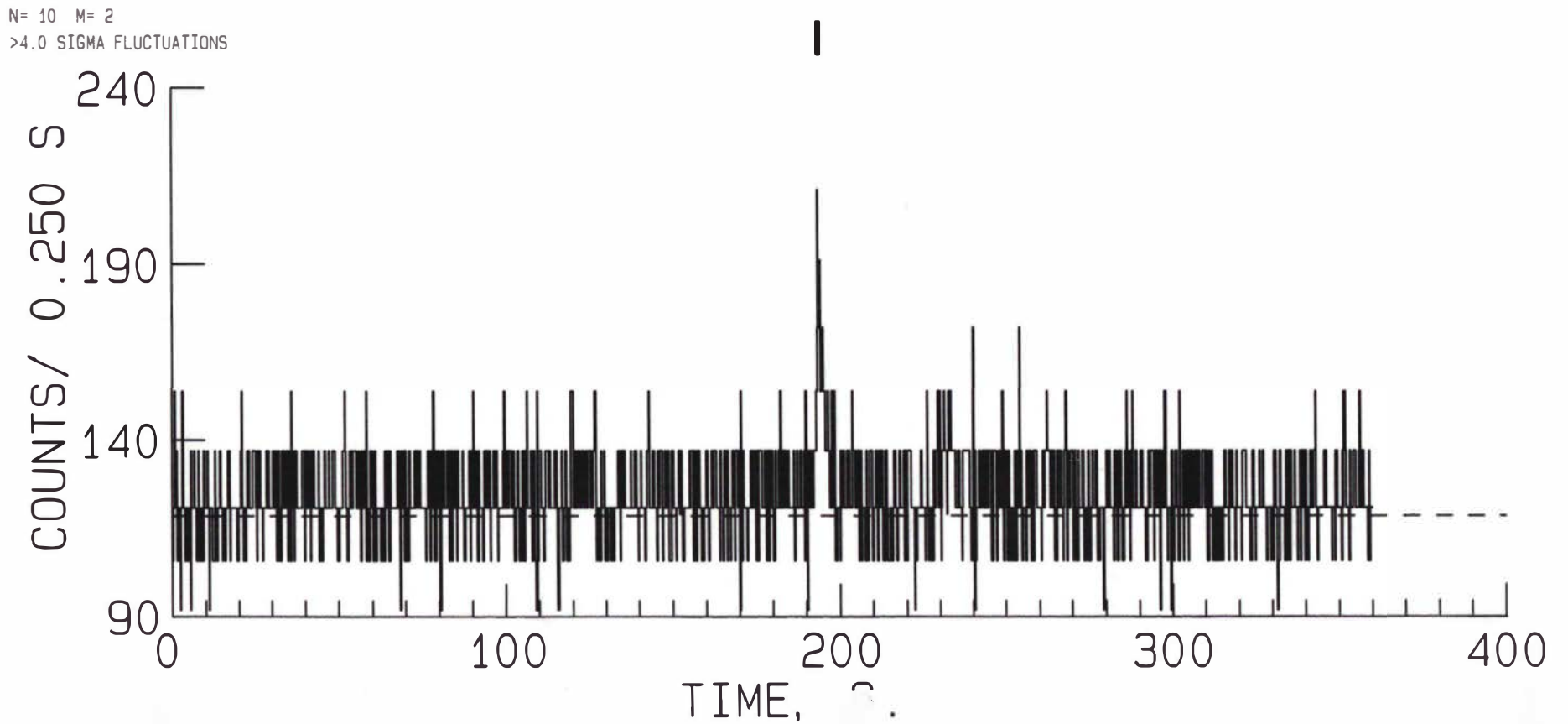

ULYSSES 28/02/97 Ttrig=10453.810
0- 0 keV (~ 20 - 150)
COUNTS/0.031 S
COUNTS/0.062 S
0 4 8 12 16 20 24 28 32 36 40 44 48 52 56 60 64
7/ 3/**

ULYSSES RT

7/ 3/97

28/ 2/97 10260.068 s

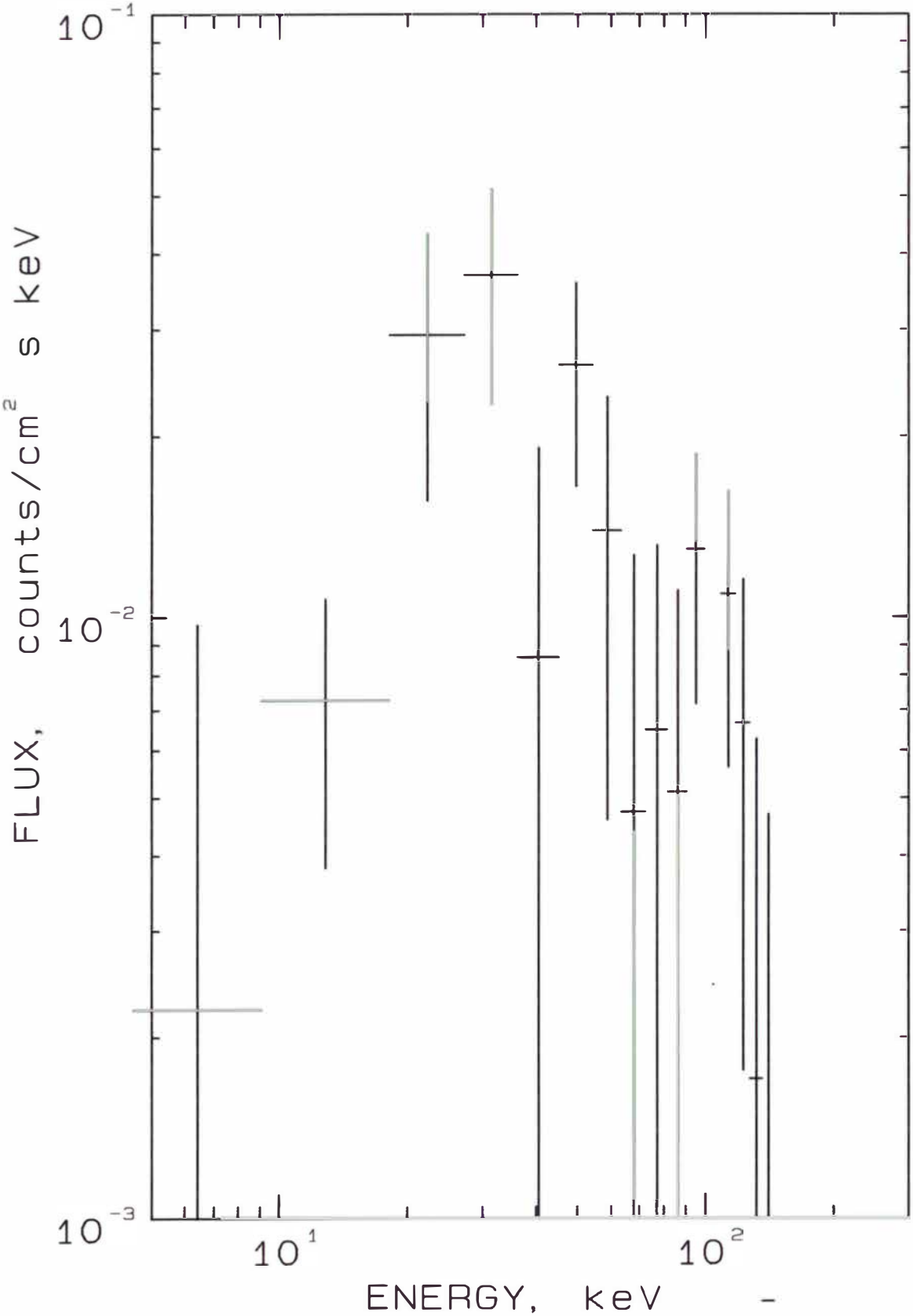
21- 145 keV

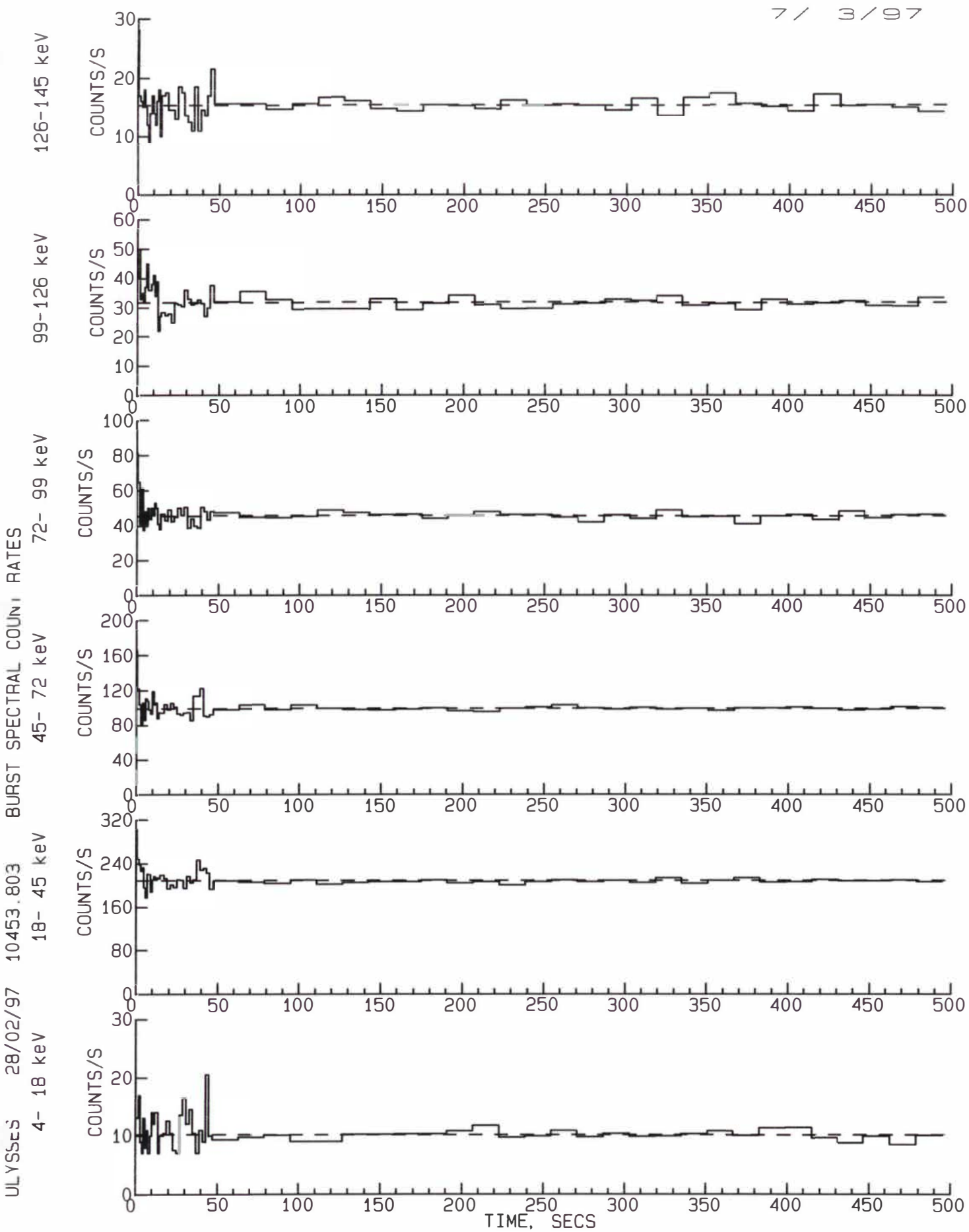


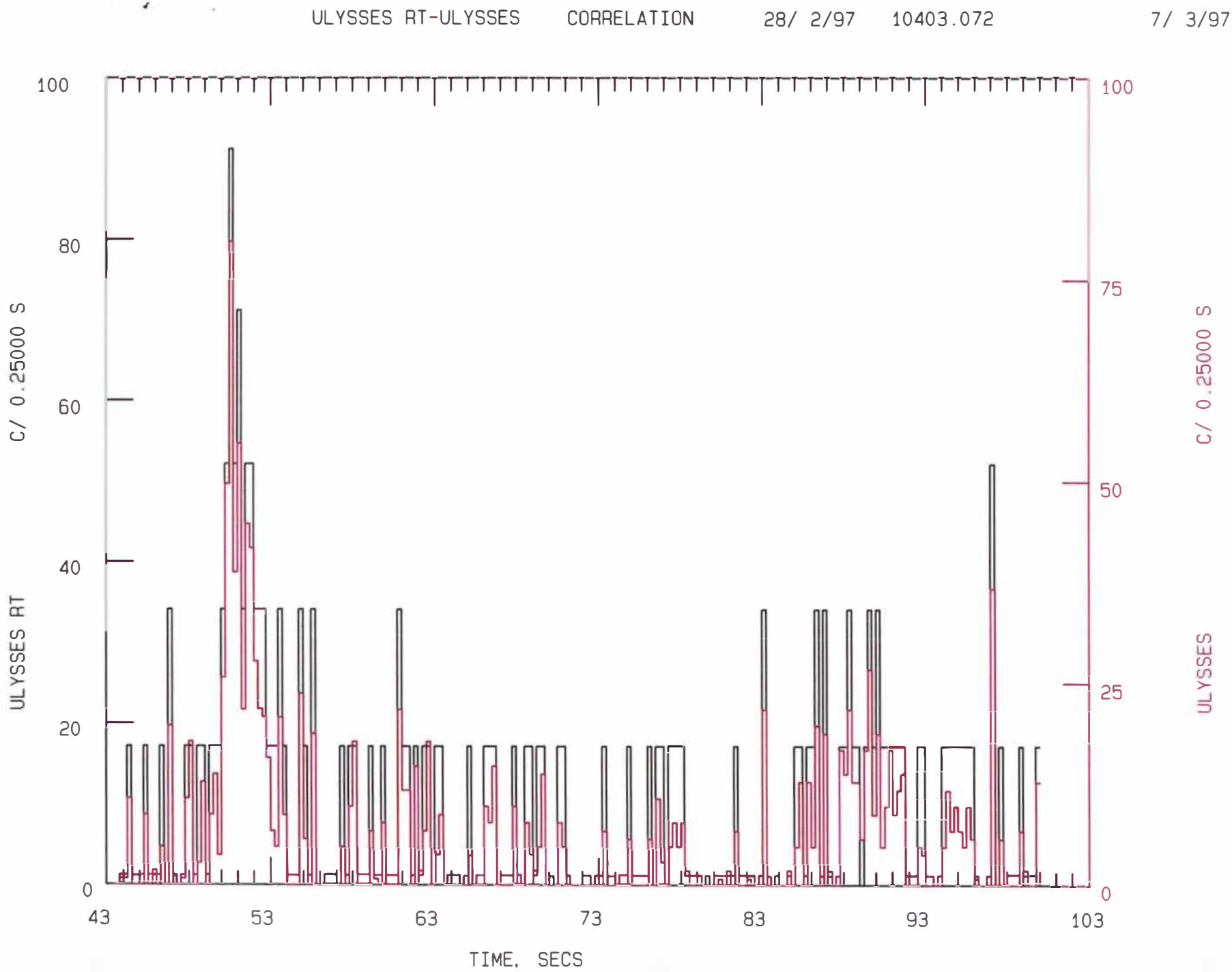
7/ 3/97

ULYSSES 28/02/97 10453.803

SPECTRUM INTEGRATED OVER 20.8 SECONDS, INTERVALS 2 TO 20

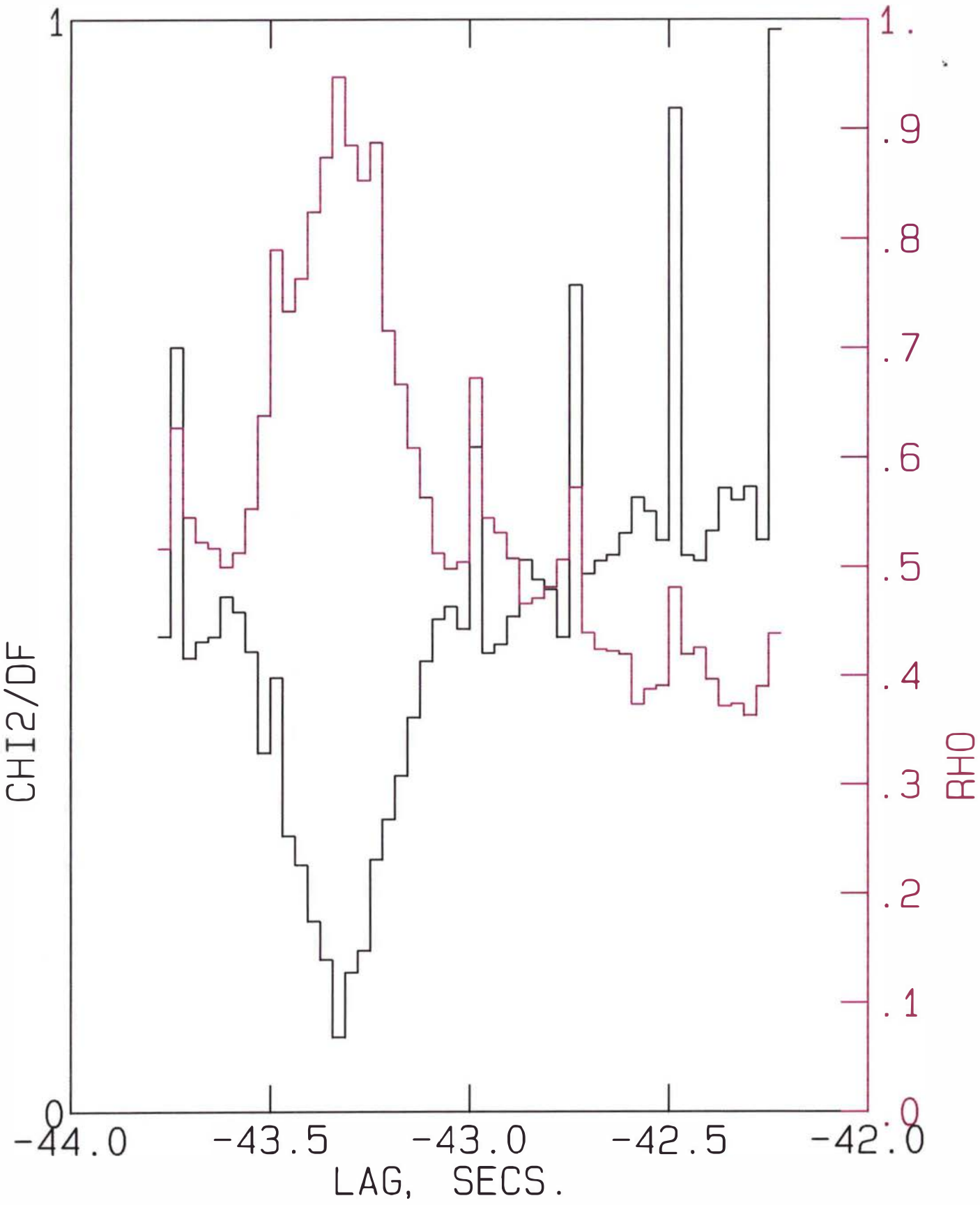



7/ 3/97
ULYSSES 28/02/97 10453.803 BURST SPECTRAL COUNT RATES
126-145 keV
99-126 keV
72- 99 keV
45- 72 keV
18- 45 keV
4- 18 keV
COUNTS/S
TIME, SECS

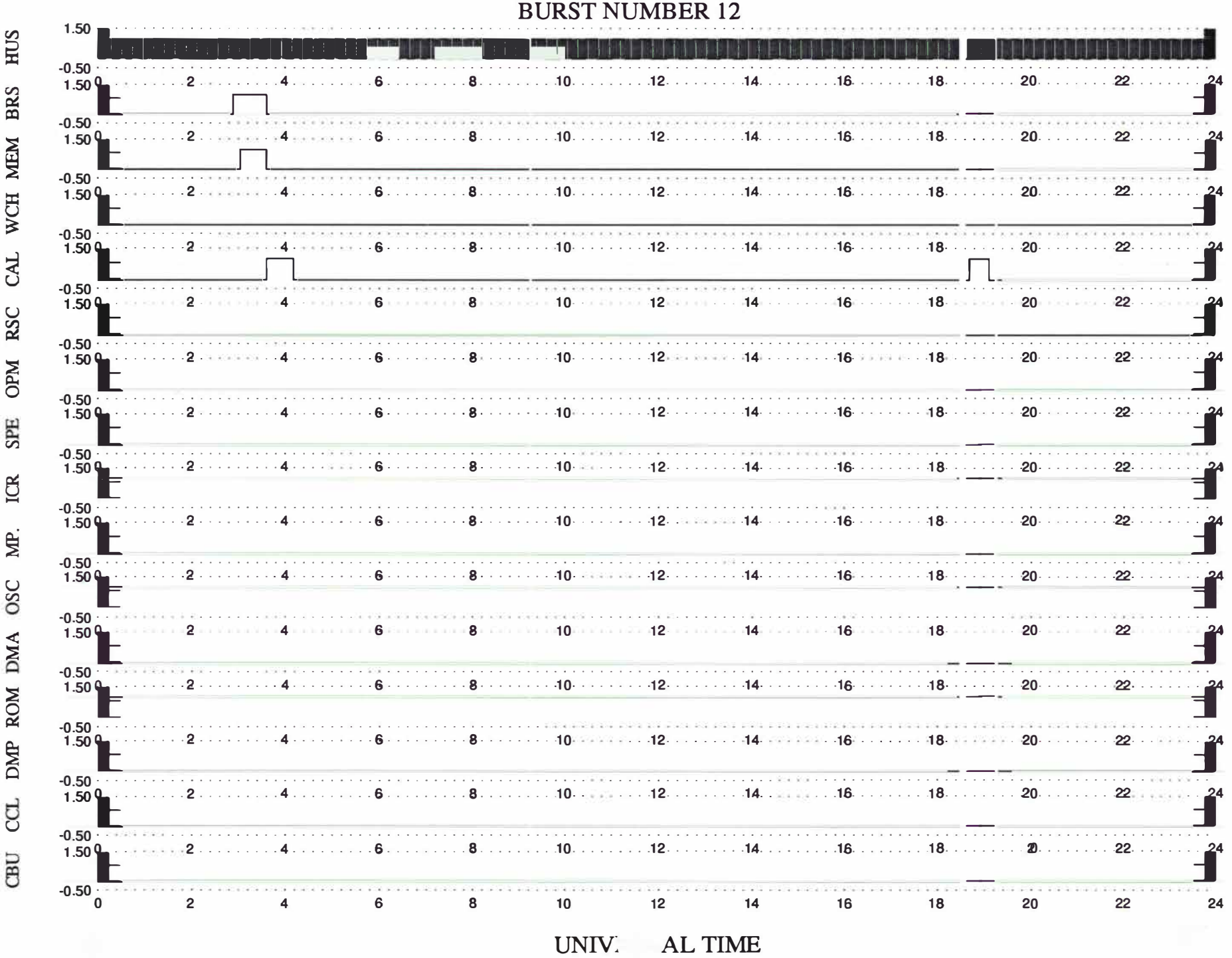

ULYSSES RT-ULYSSES CORRELATION 28/ 2/97 10403.072 7/ 3/97
100
80
60
40
20
0
C/ 0.25000 S
ULYSSES RT
100
75
50
25
0
C/ 0.25000 S
ULYSSES
43
53
63
73
83
93
103
TIME, SECS

7/ 3/97

ULYSSES RT-ULYSSES CORRELATION 28/ 2/97 10403.072

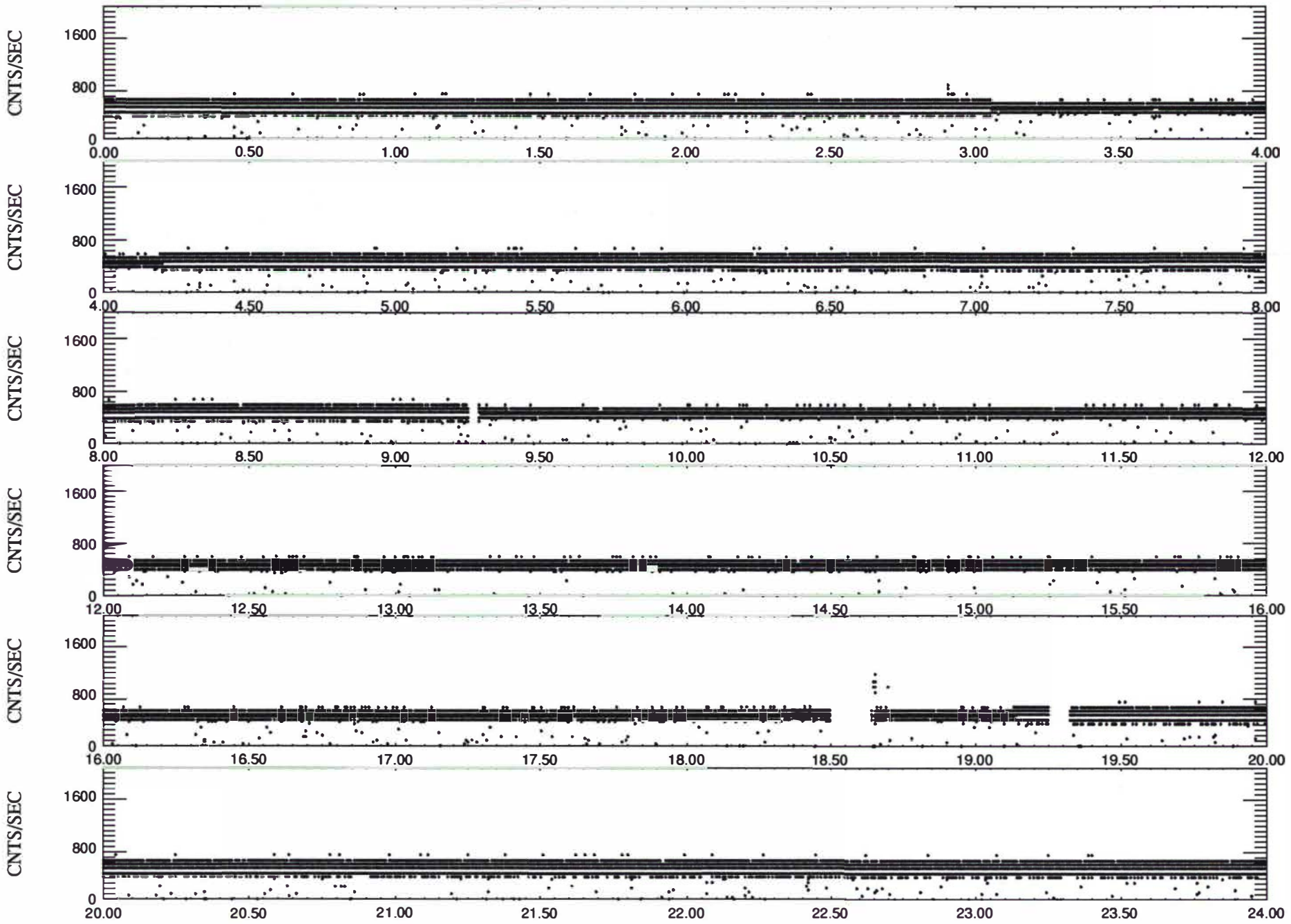


HUS MODES EDR day 59, year 1997 to day 59, year 1997 5/16/97



HUS 2A, MODE 1, NOT AVERAGED EDR day 59, year 1997 to day 59, year 1997 5/16/97

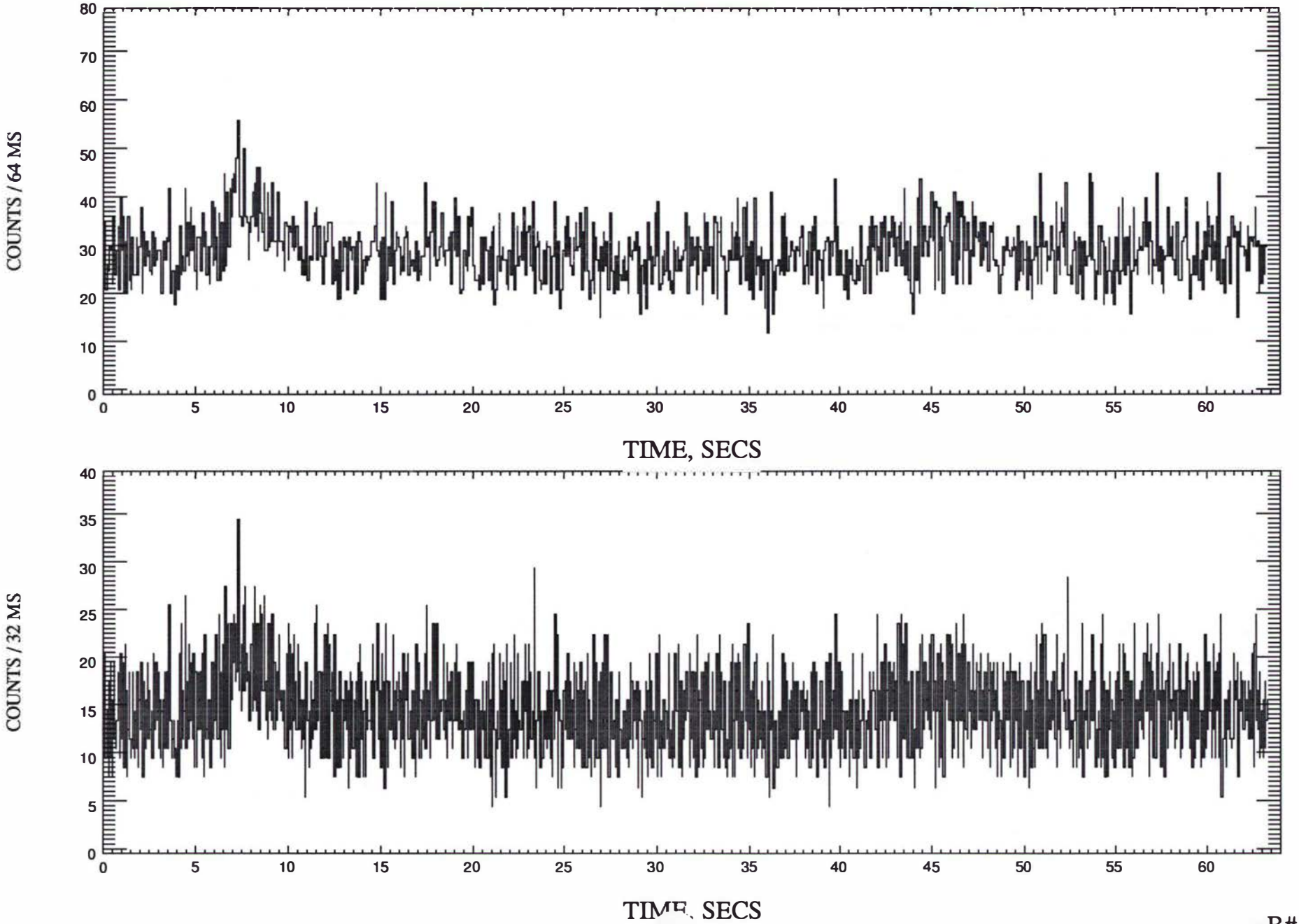
CALIBRATION DATA INCLUDED



UNIV AL TIME

HUS 2A TRIGGERED DATA EDR day 59, year 1997 6/19/97

Burst Counter 12 at UT= 2.903834249708 h=10453.803 s 02:54:13.803



B# 1

HUS 2B COUNTS / SEC EDR day 59, year 1997 to day 59, year 1997 5/16/97

