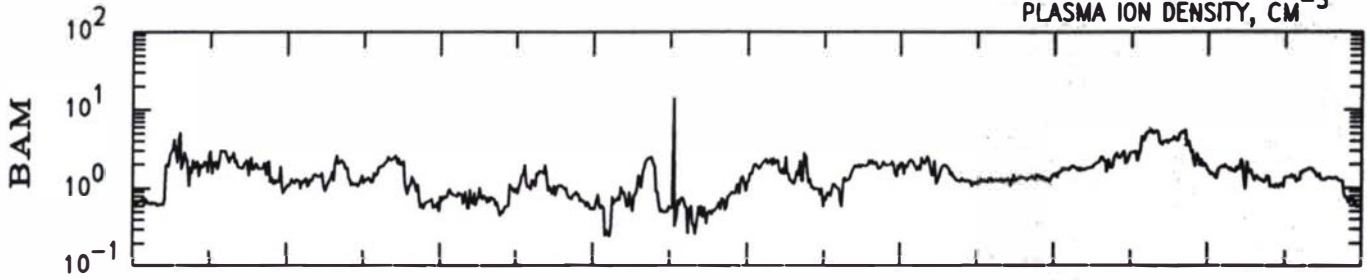


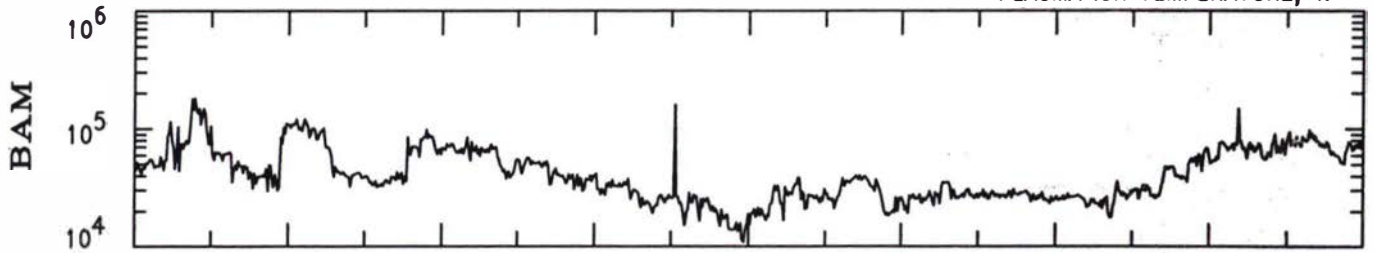
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

00 336 DEC 1 00:00:00.000 - 00 352 DEC 17 00:00:00.000

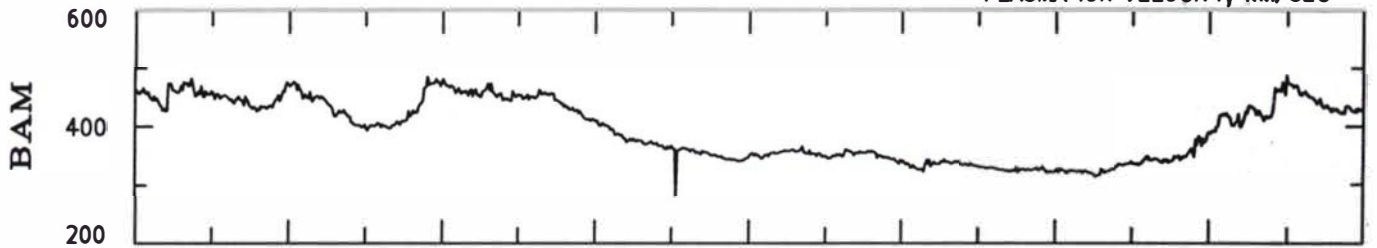
PLASMA ION DENSITY, CM^{-3}



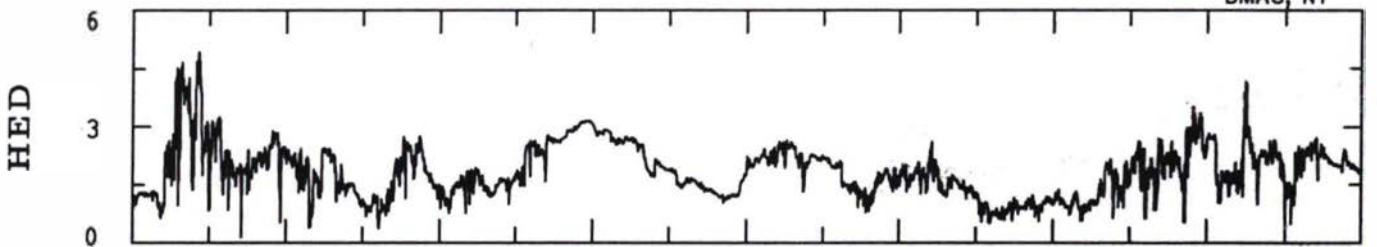
PLASMA ION TEMPERATURE, $^{\circ}\text{K}$



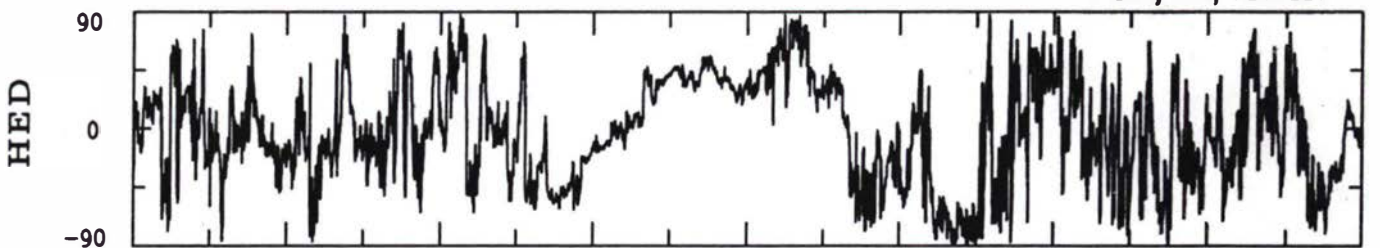
PLASMA ION VELOCITY, KM/SEC



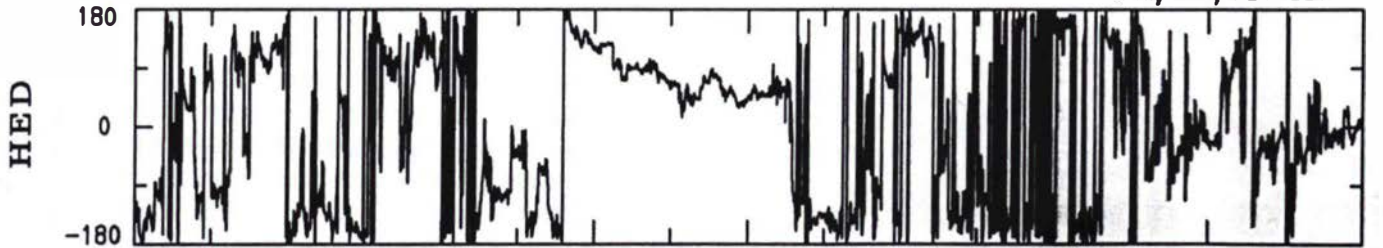
BMAG, NT



THETA, RTN, DEGREES



PHI, RTN, DEGREES



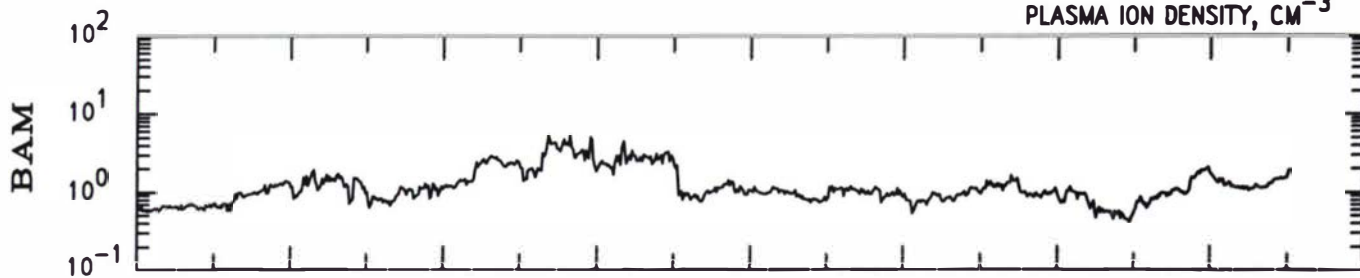
338 340 342 344 346 348 350 352

DAY OF YEAR

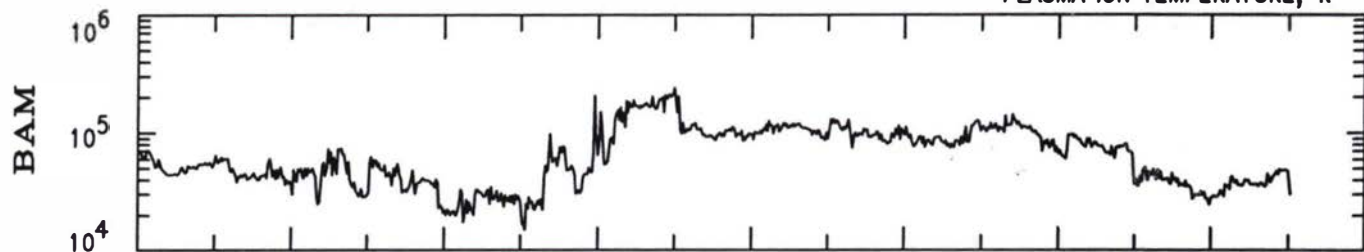
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

00 352 DEC 17 00:00:00.000 - 01 002 JAN 2 00:00:00.000

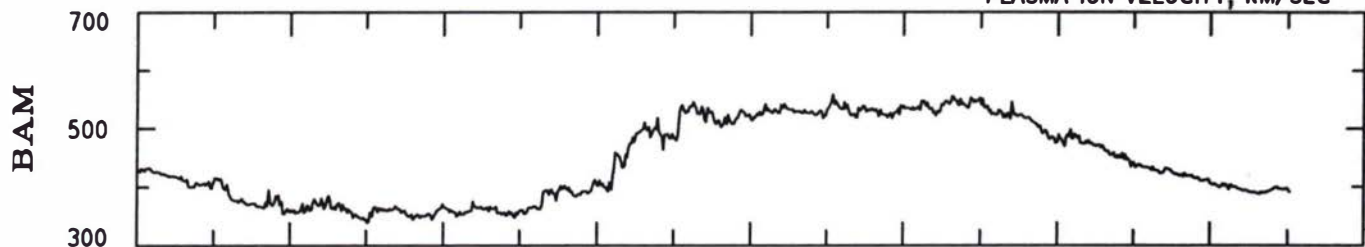
PLASMA ION DENSITY, CM^{-3}



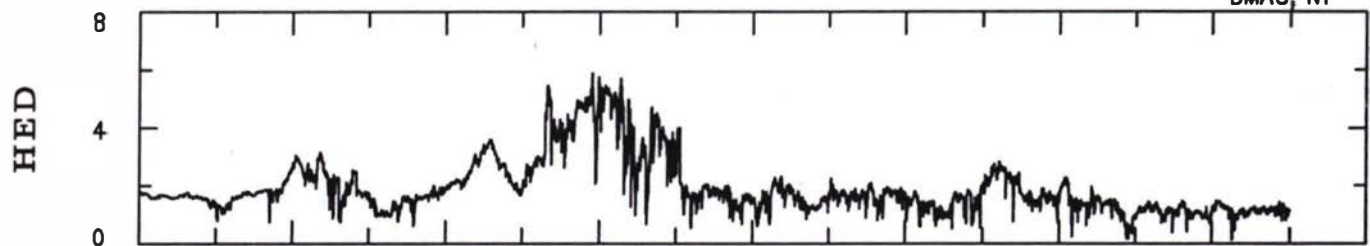
PLASMA ION TEMPERATURE, $^{\circ}\text{K}$



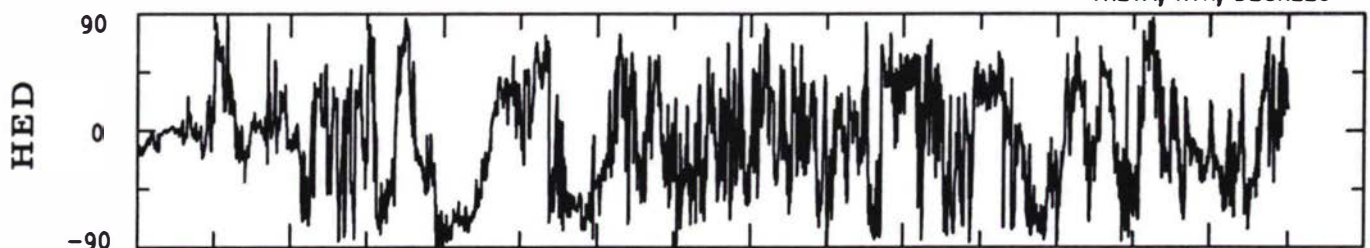
PLASMA ION VELOCITY, KM/SEC



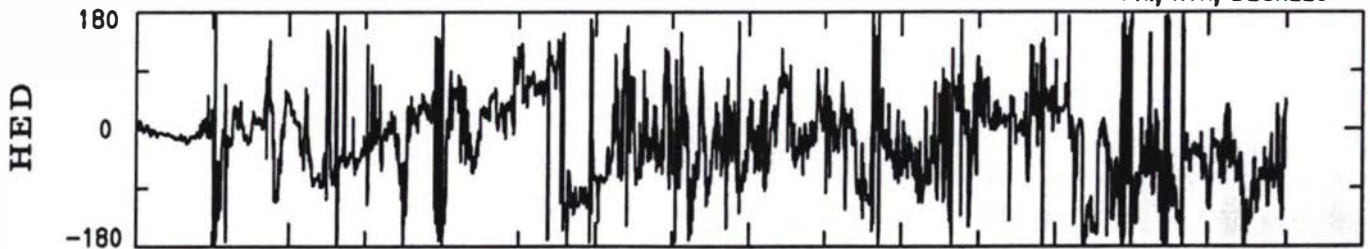
BMAG, NT



THETA, RTN, DEGREES



PHI, RTN, DEGREES



354

356

358

360

362

364

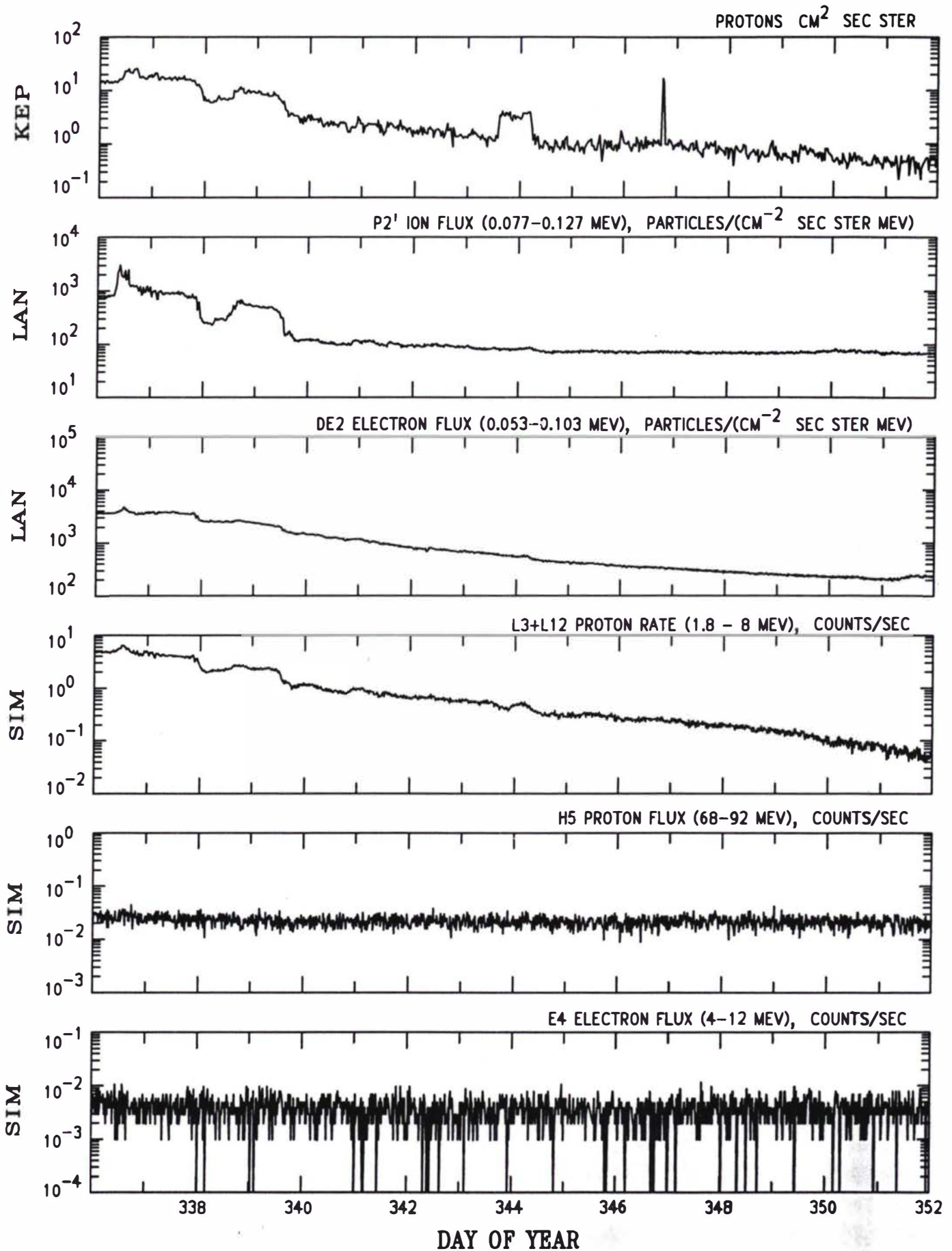
366

2

DAY OF YEAR

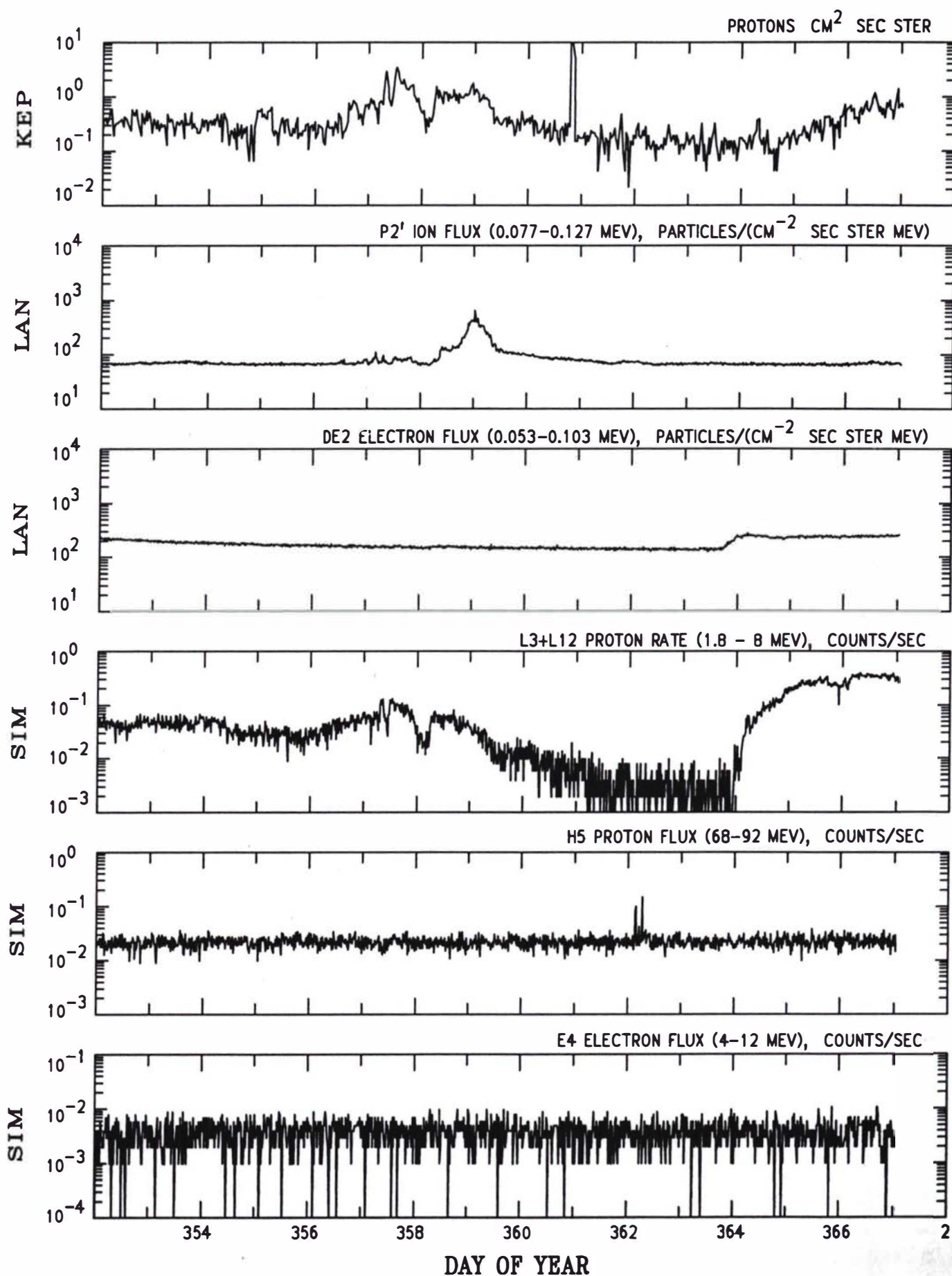
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

00 336 DEC 1 00:00:00.000 - 00 352 DEC 17 00:00:00.000



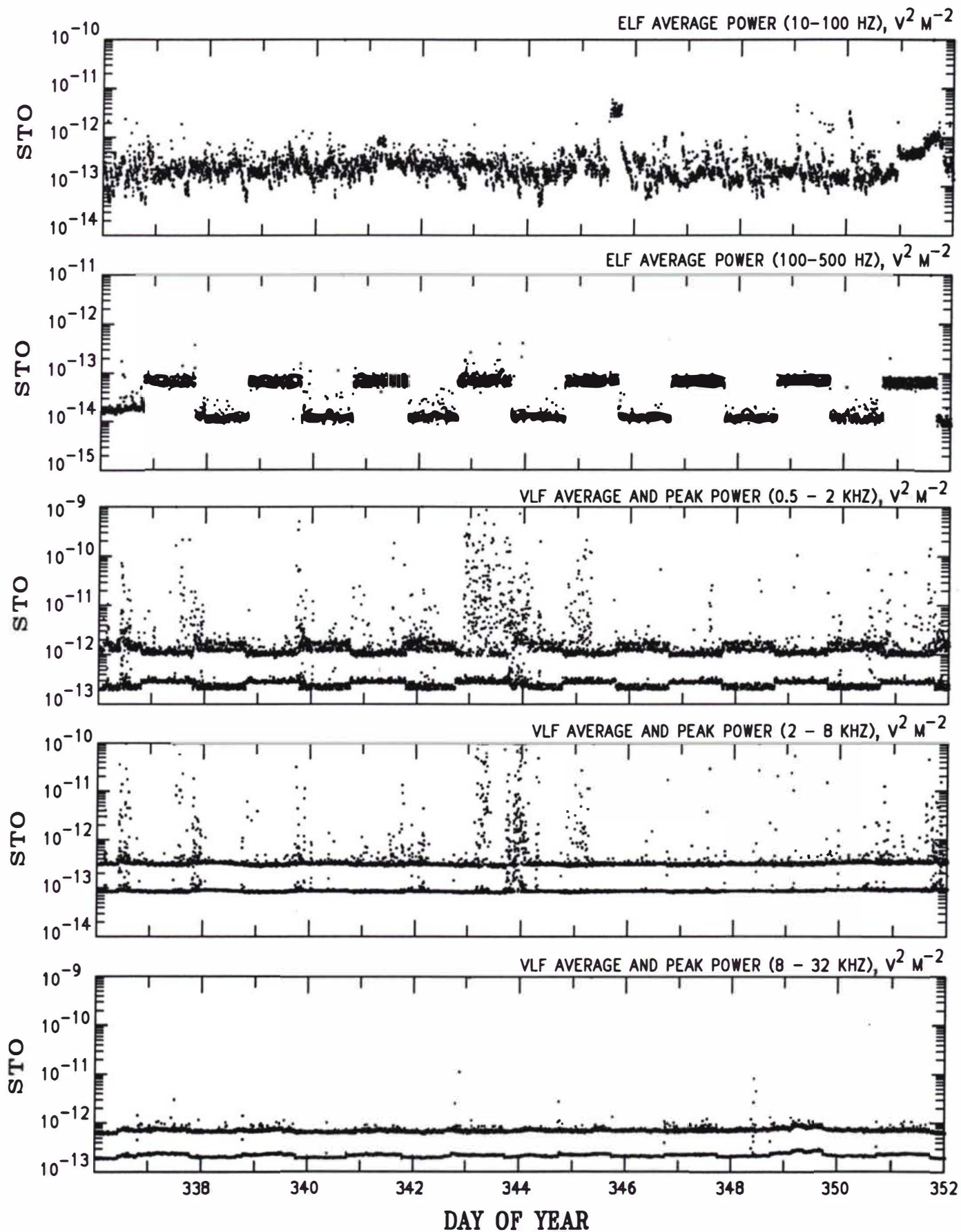
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

00 352 DEC 17 00:00:00.000 - 01 002 JAN 2 00:00:00.000



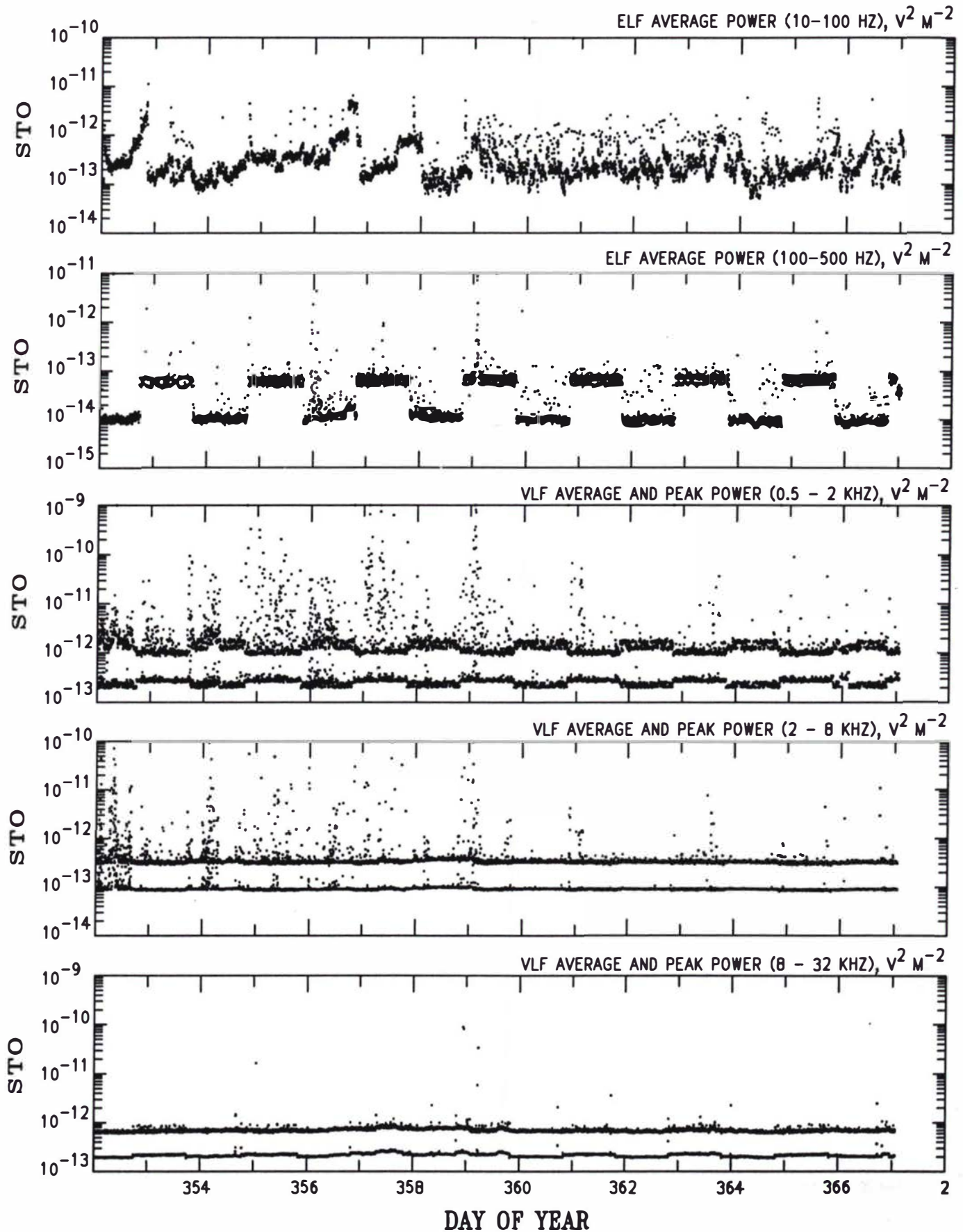
ULYSSES CDR - PLASMA WAVE

00 336 DEC 1 00:00:00.000 - 00 352 DEC 17 00:00:00.000



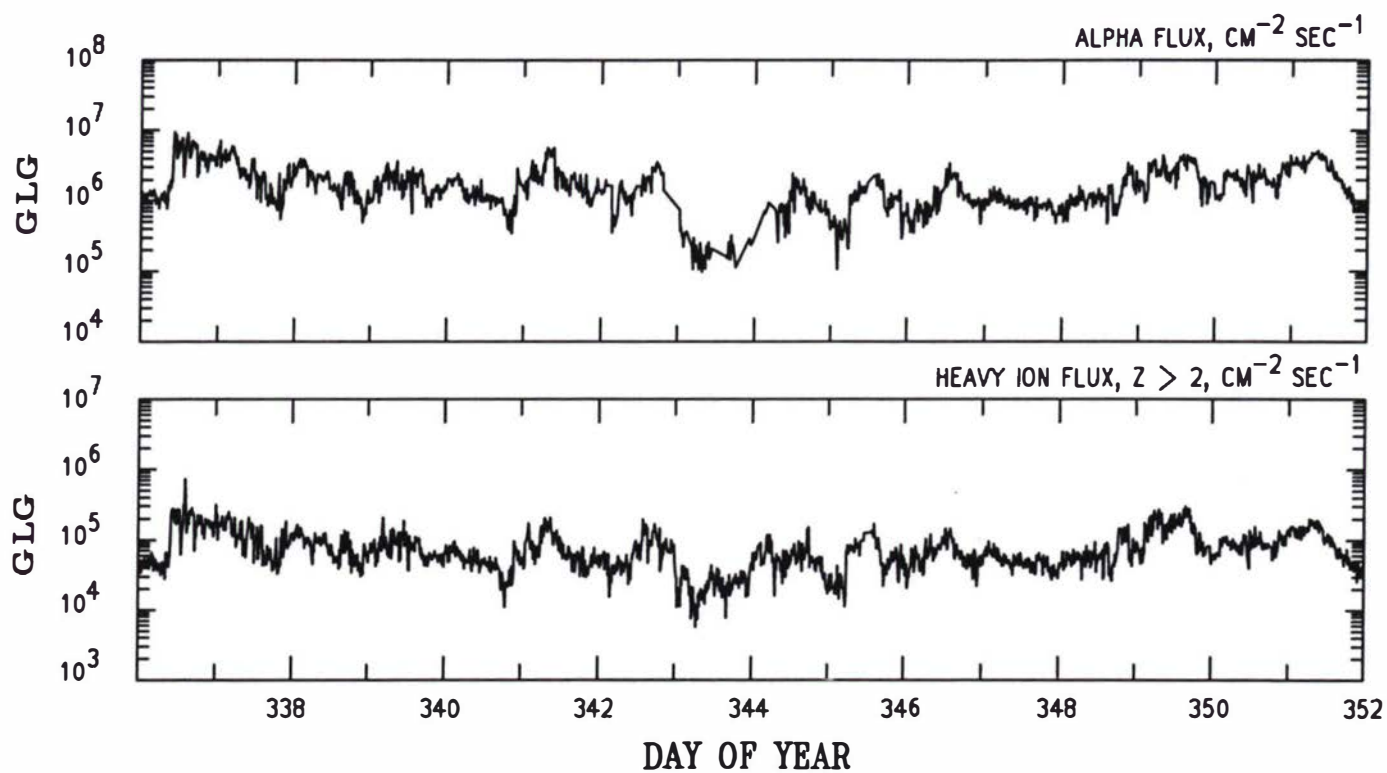
ULYSSES CDR - PLASMA WAVE

00 352 DEC 17 00:00:00.000 - 01 002 JAN 2 00:00:00.000



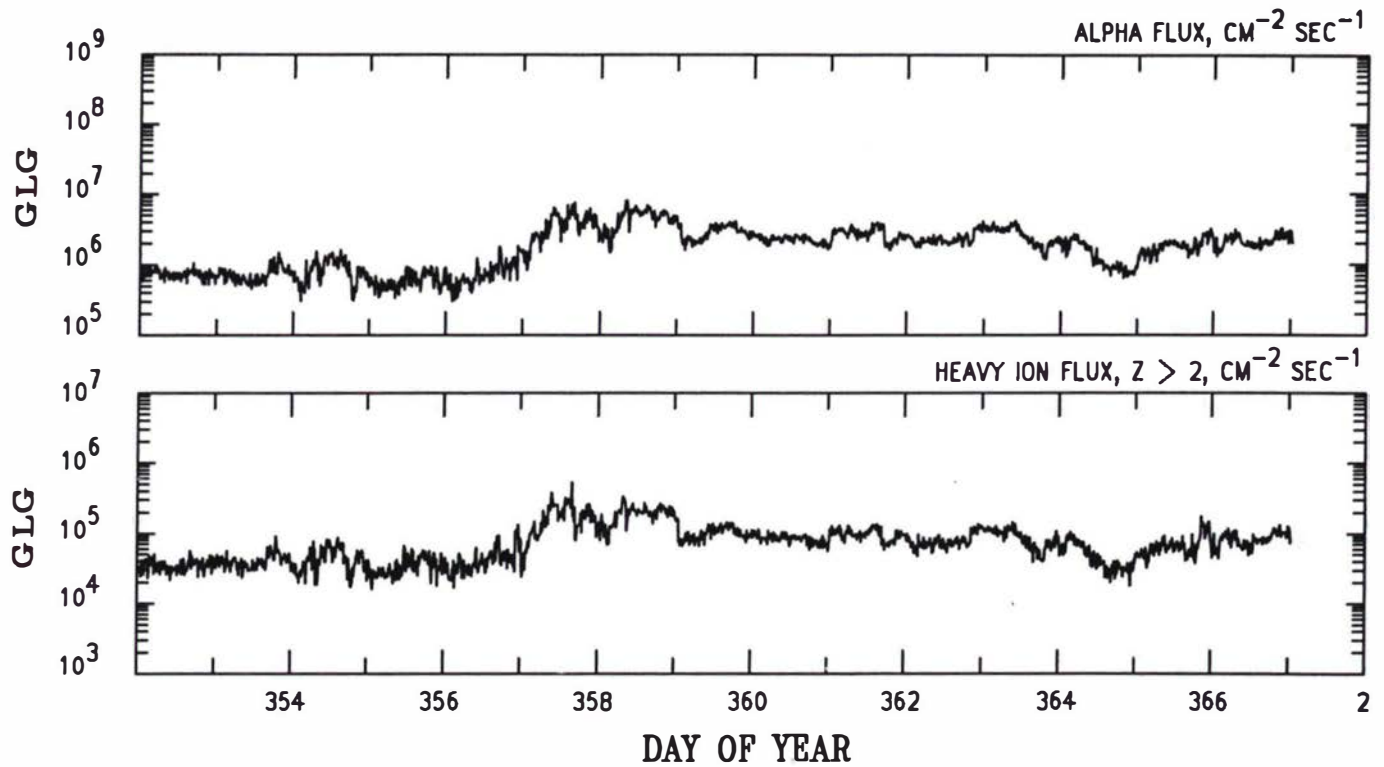
ULYSSES CDR - SOLAR WIND ION COMPOSITION

00 336 DEC 1 00:00:00.000 - 00 352 DEC 17 00:00:00.000



ULYSSES CDR - SOLAR WIND ION COMPOSITION

00 352 DEC 17 00:00:00.000 - 01 002 JAN 2 00:00:00.000



ULYSSES - BAM

00 361 DEC 26 00:00:35.009 - 01 026 JAN 26 23:51:49.774

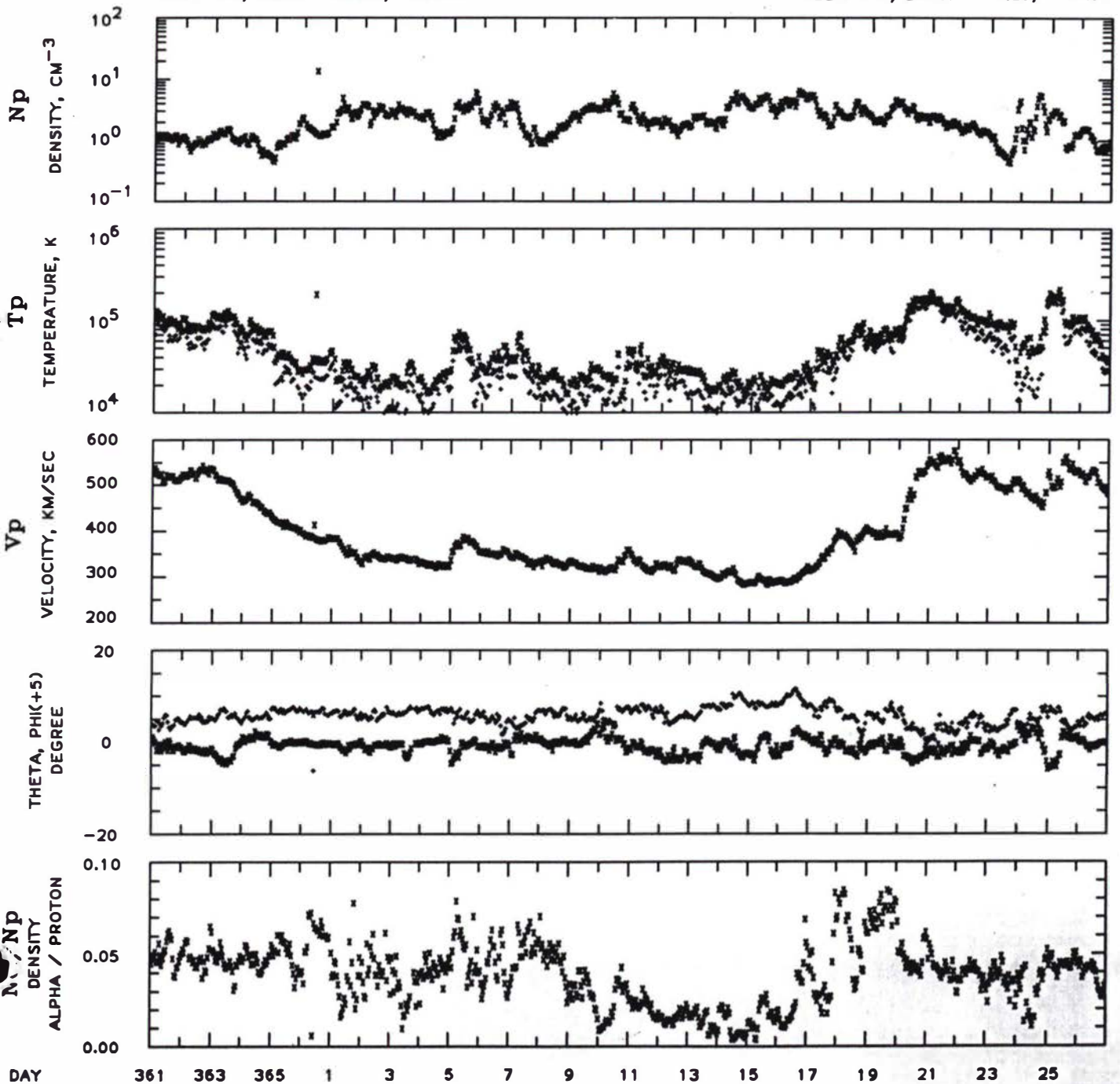
CMB

R: 2.069 θ : 168.84 ϕ : -99.69 (EME 50)

R: 1.847 θ : 161.92 ϕ : -58.65

HELIO LAT, LONG: -76.29, 133.88

HELIO LAT, LONG: -66.29, 61.93



NEAR

01/12/00 47335.475

100-1000 keV

COUNTS/1,000 S

500

400

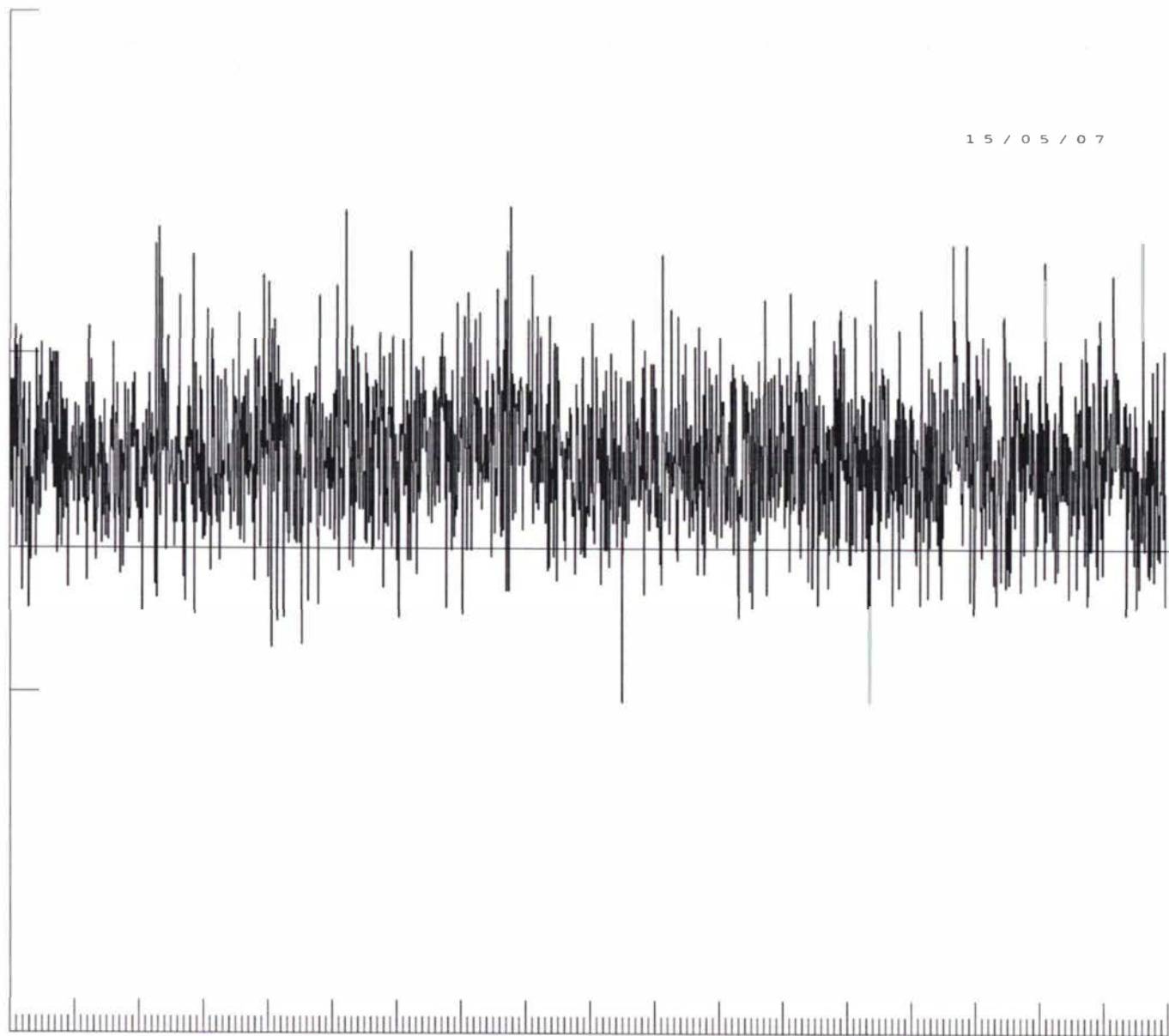
300

200

15 / 05 / 07

*** ** -98 0 102 202 302 402 502 602 702 802 902

TIME, SECS



GRBM 20001201 46539

ULYSSES RT

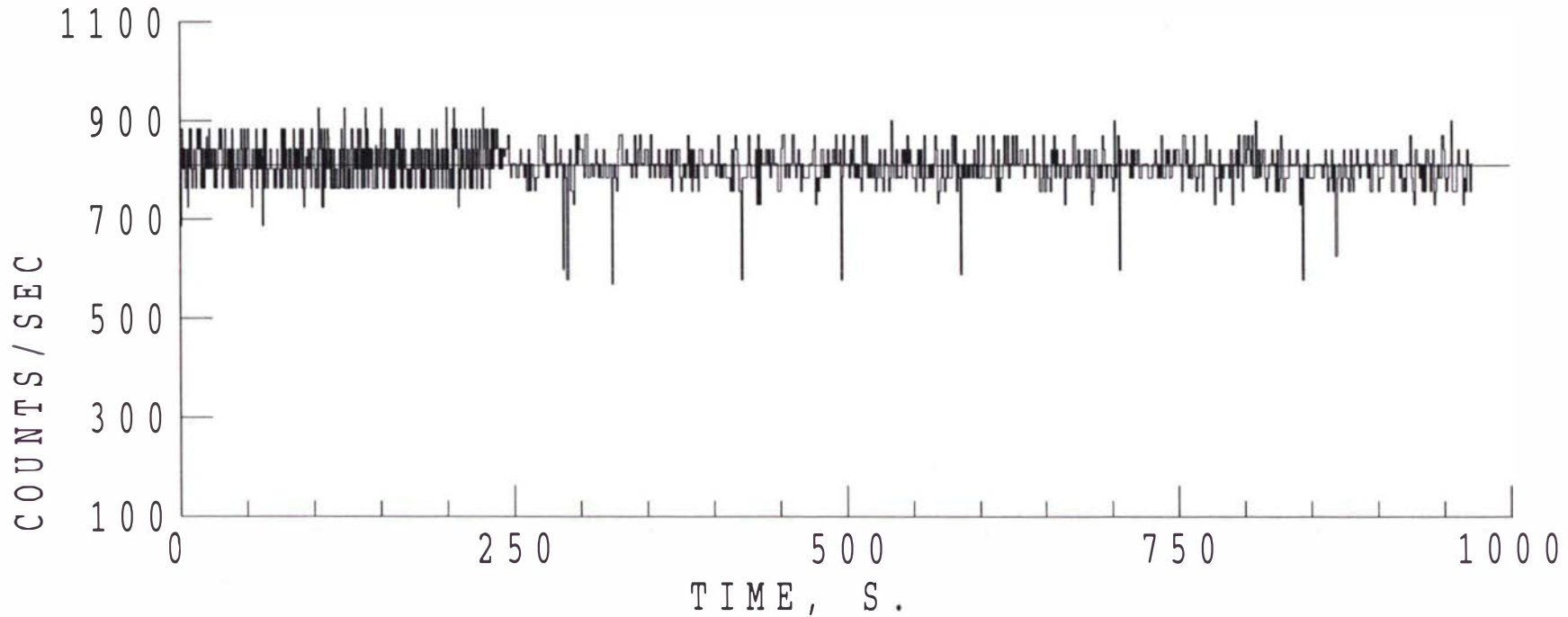
04/10/07

01/12/00 46044.113 s

INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

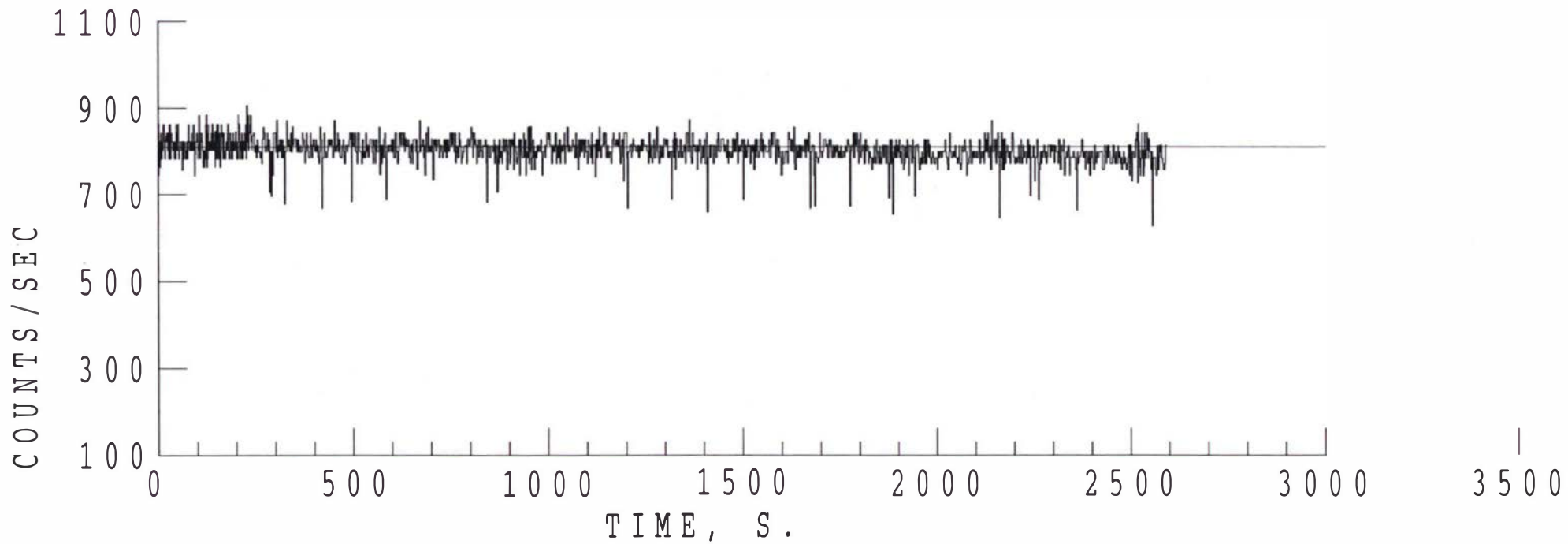


SAX GRBM
HUS DATA

19 / 07 / 05

ULYSSES RT
01 / 12 / 00 46044.113 s
INTERVALS REGROUPED BY 4
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From guidorzi@fe.infn.it Fri Dec 1 12:11 PST 2000
From: Auto GRB monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Fri, 1 Dec 2000 21:10:04 +0100 (MET)

1kGRB[135] #LSs: 2 Good HRR: 3
SW Trigger Time (OBT): 37725.921
UTC: Fri, 01 Dec 2000 16:38:41:59534

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.292

Nsig(trg):	3.8	5.8	2.6	8.5	2.2	3.7	1.8	5.6
Nsig(pfl):	3.8	7.2	2.6	14.7	2.2	3.7	1.8	10.0
Bkg lev. :	702	823	747	631	813	874	807	867
ChiSq R. :	1.046	0.997	1.033	1.043	0.988	0.942	1.057	0.977

Peak fl. :	102	206	70	369	62	110	51	295
------------	-----	-----	----	-----	----	-----	----	-----

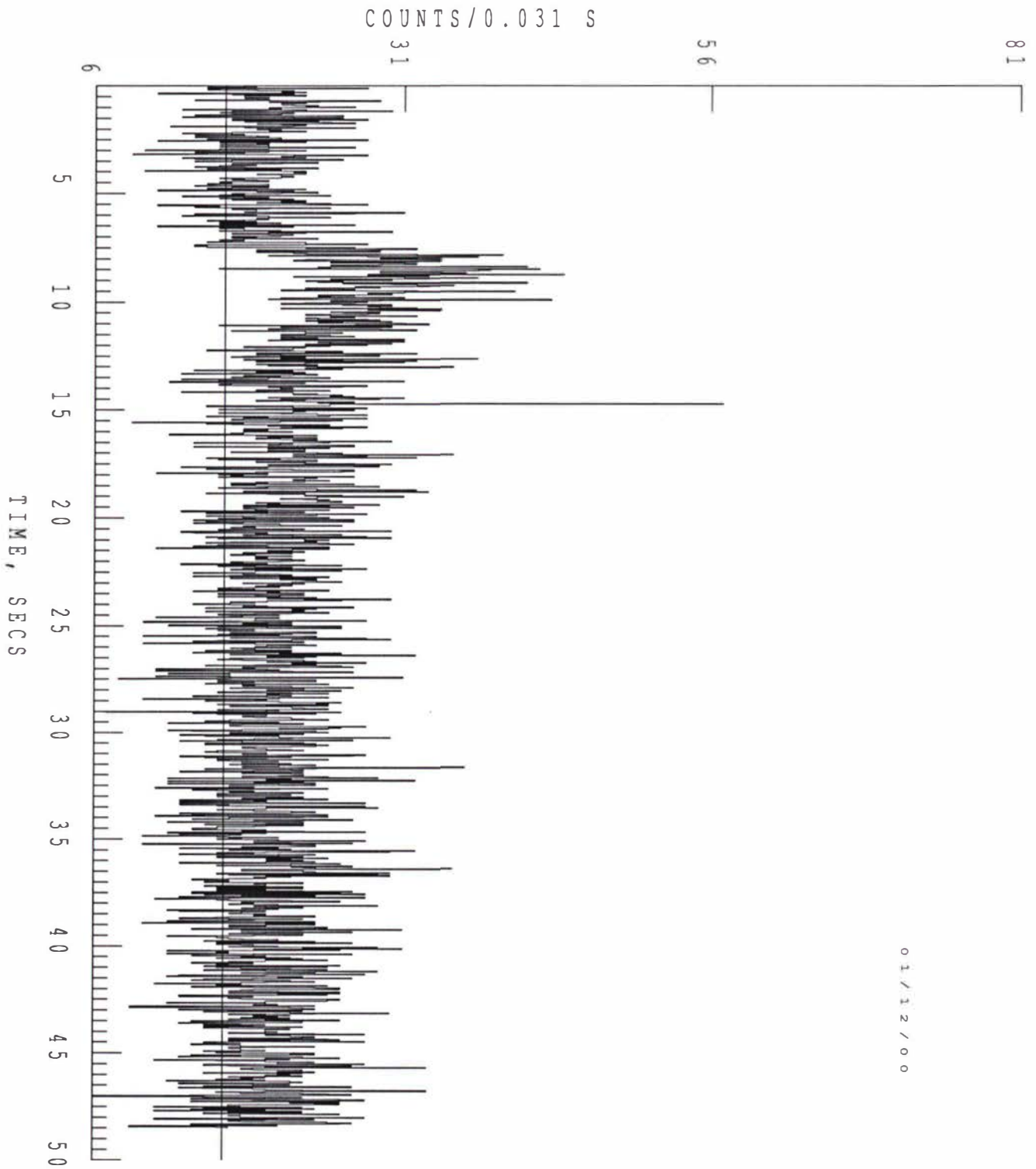
Dur (s) :	3.00	8.00	2.00	12.00				
Abundance:	3	8	2	9				
H. Ratio :	0.731	0.513	0.636	0.834				
HR Ratio :	1.425	1.150	0.877	0.807	0.615	0.763		

BSAX-GRBM

01/12/00

59913.303

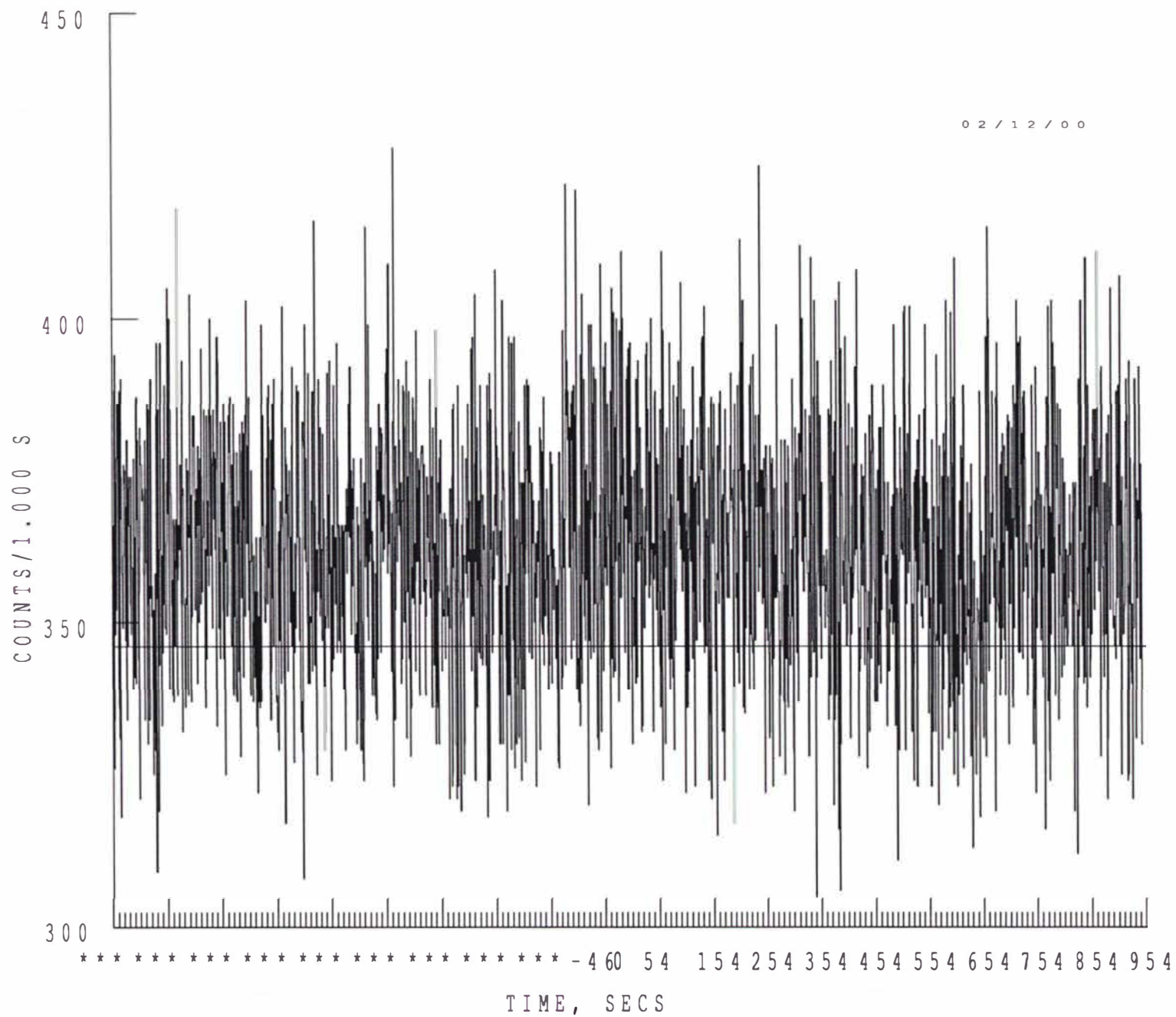
40 - 700 keV



NEAR

01/12/00 59920.470

100-1000 keV



KNEAR GRS 20001201 59920

ULYSSES RT

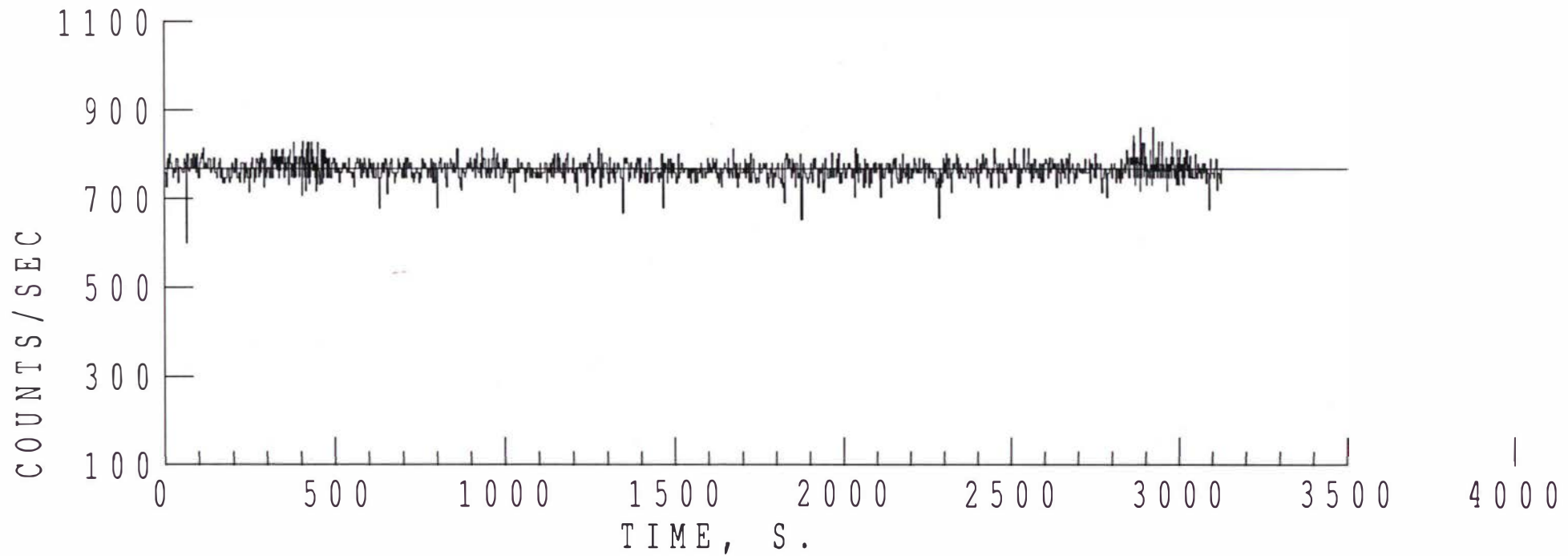
04/12/00

01/12/00 58356.035 s

INTERVALS REGROUPED BY 5

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Sax GRBM

HUS DATA

ULYSSES RT

19 / 07 / 05

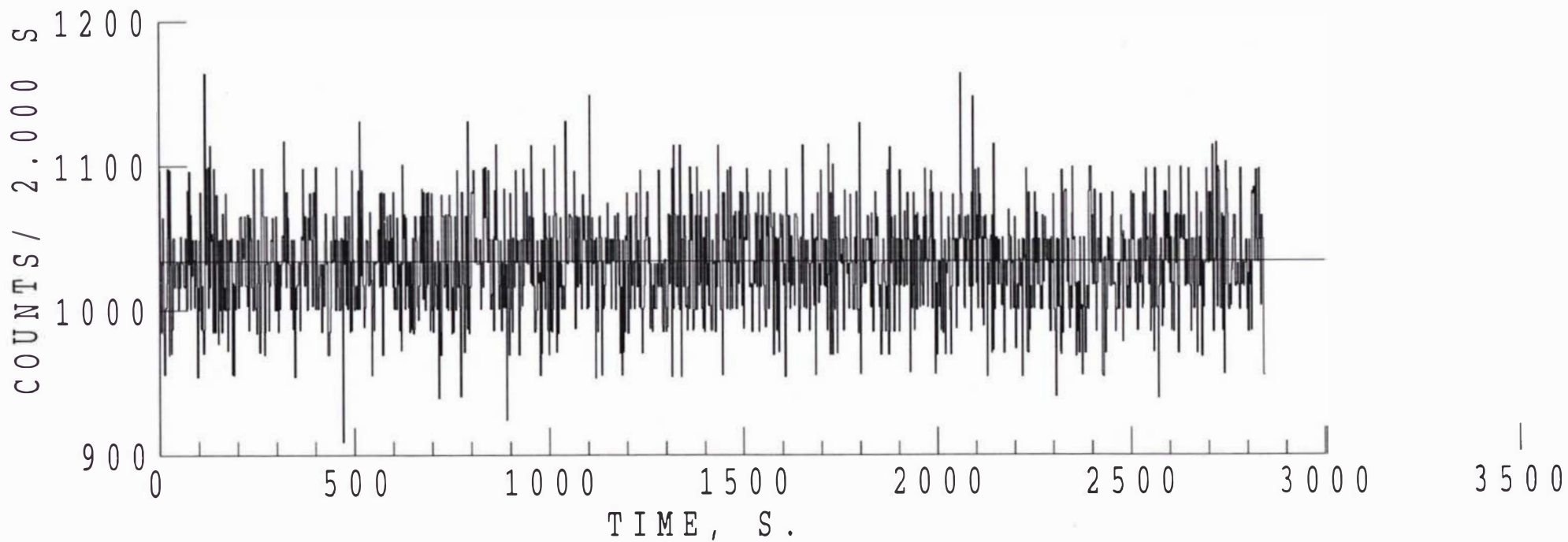
01 / 11 / 00 77328.047 s

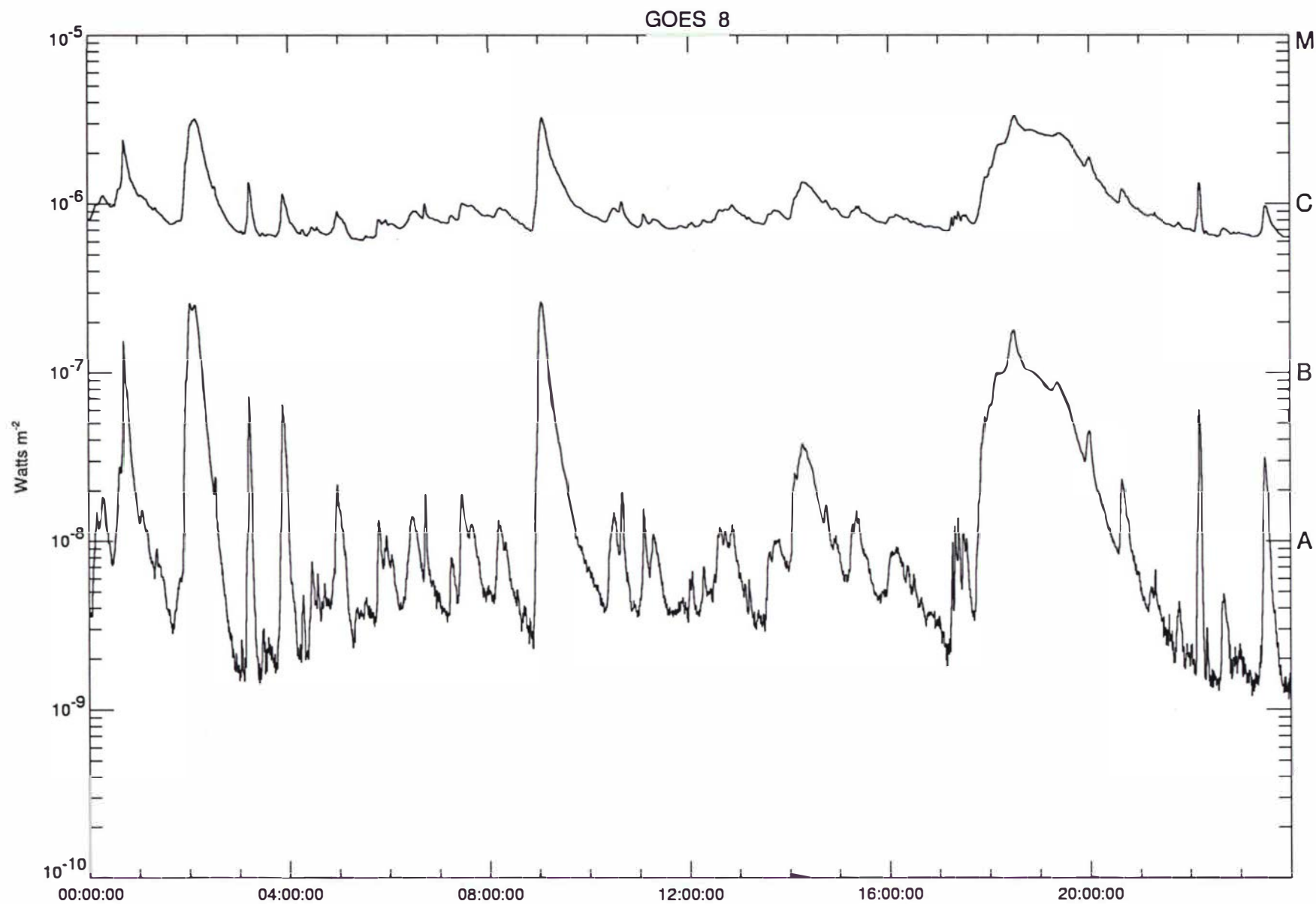
0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

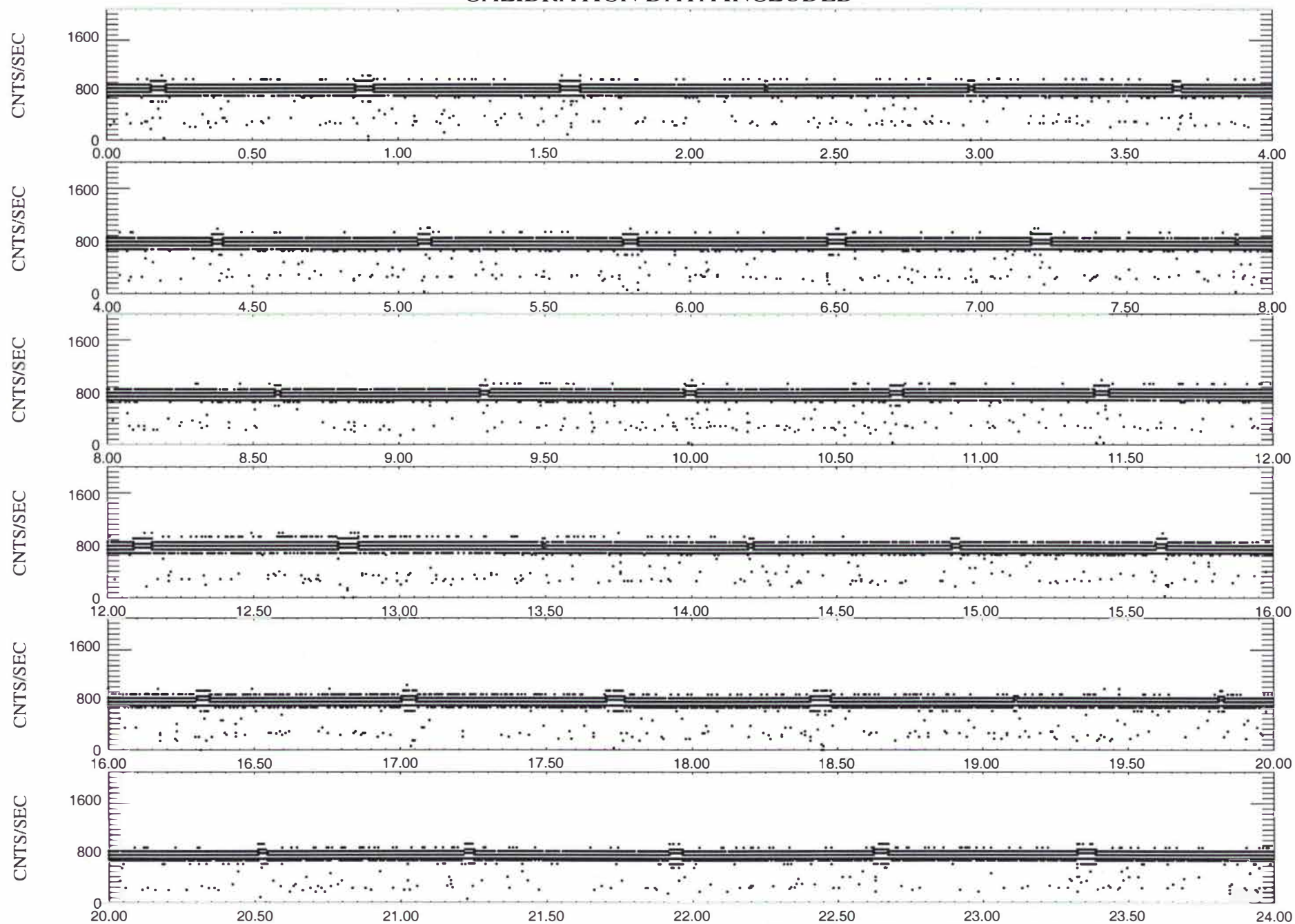
Plot created: 00/12/05, 1057

Sample average = 10

BURST NUMBER 2 - 15, 0 - 15, 0 - 3

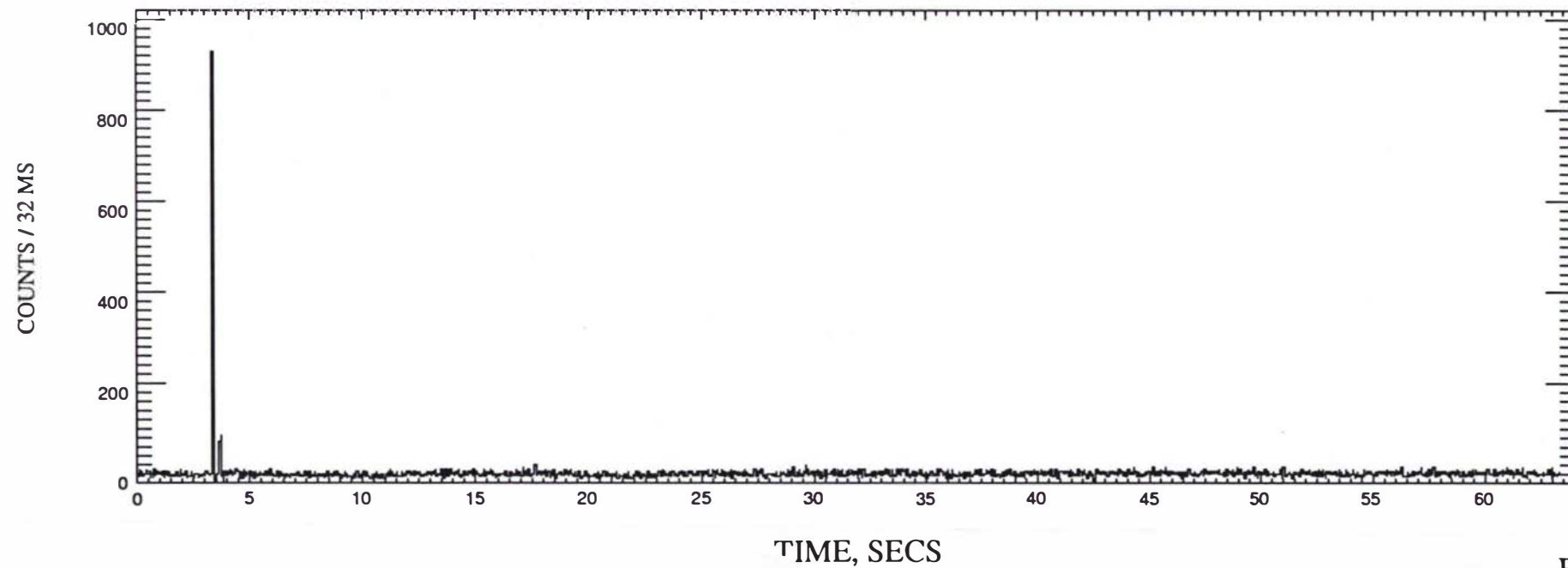
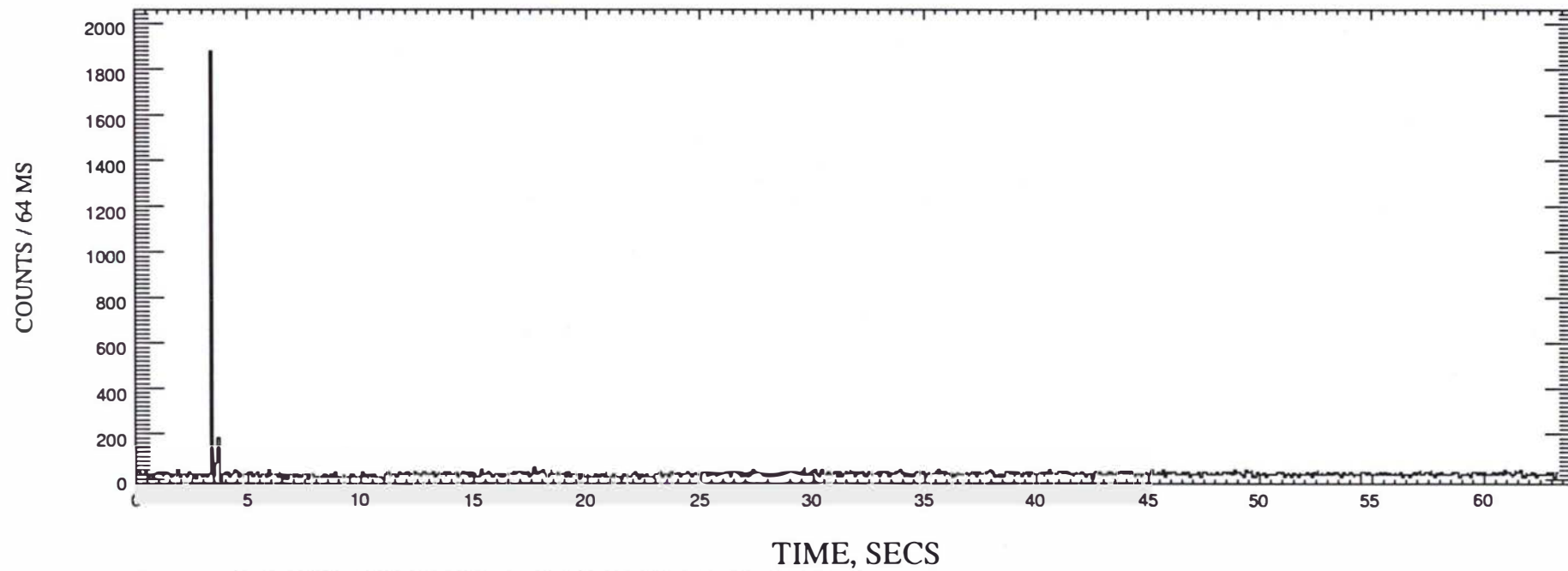


CALIBRATION DATA INCLUDED

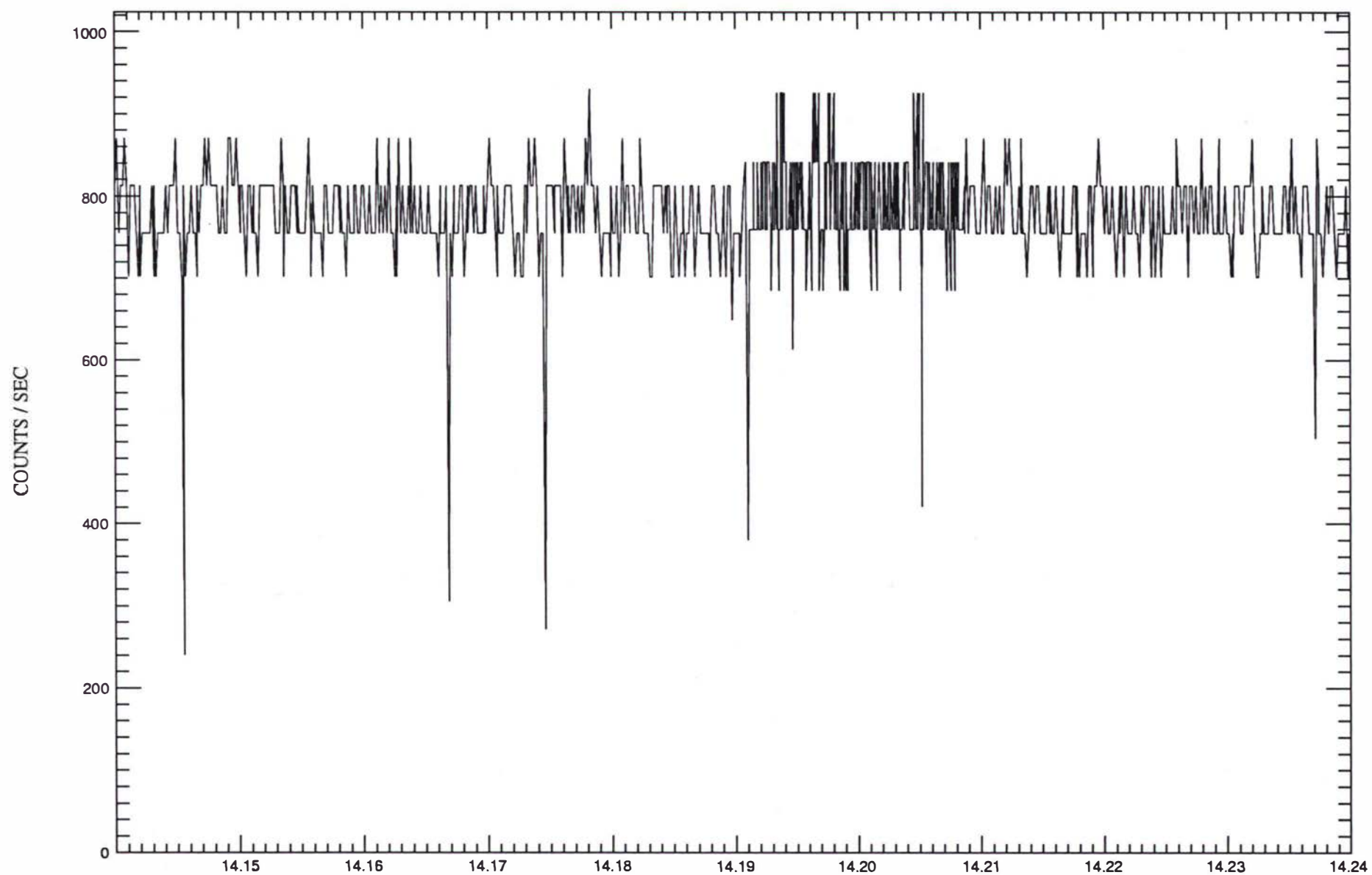


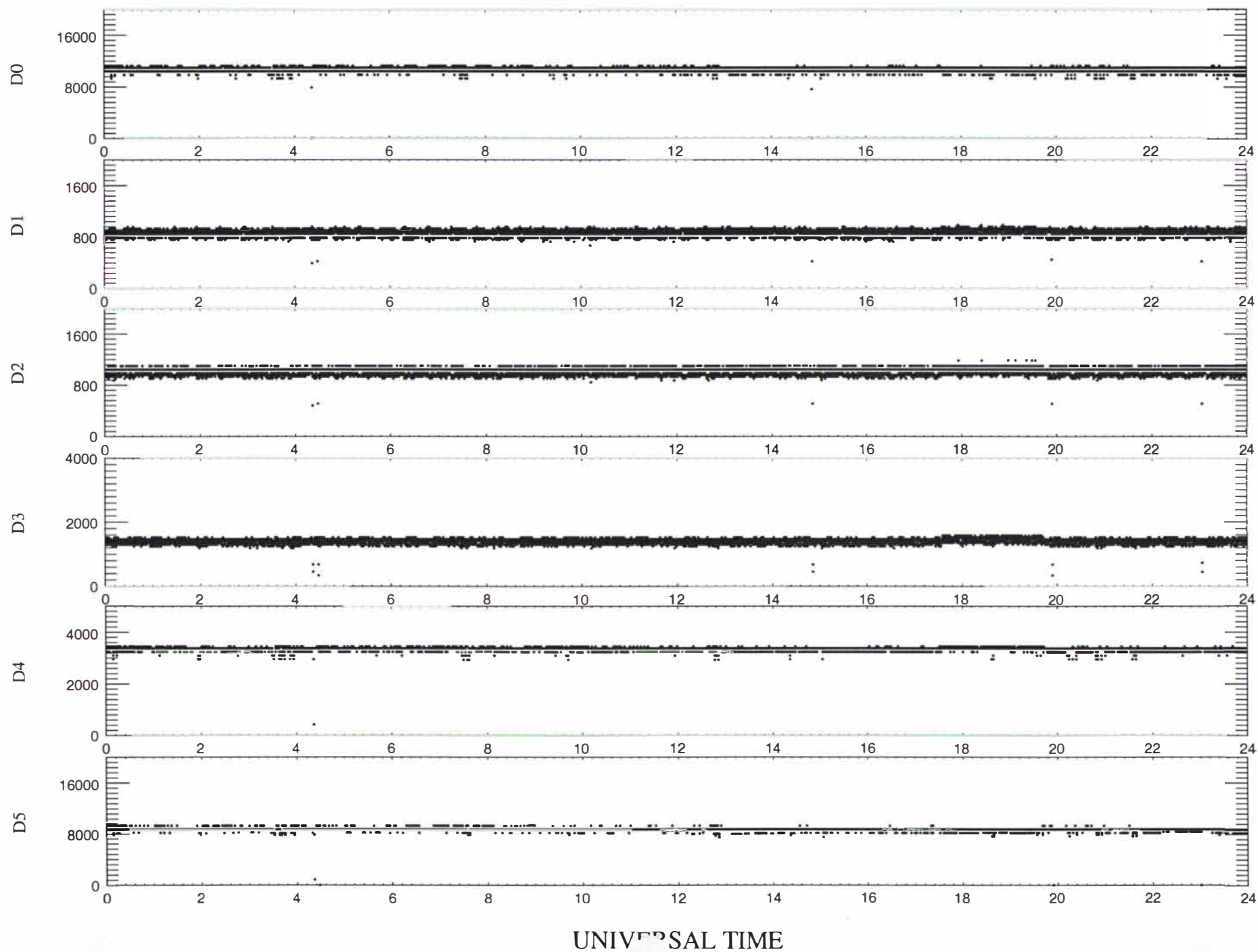
UNIVERSAL TIME

Burst Counter 2 at UT= 0.146381551954 h= 526.974 s 00:08:46.974

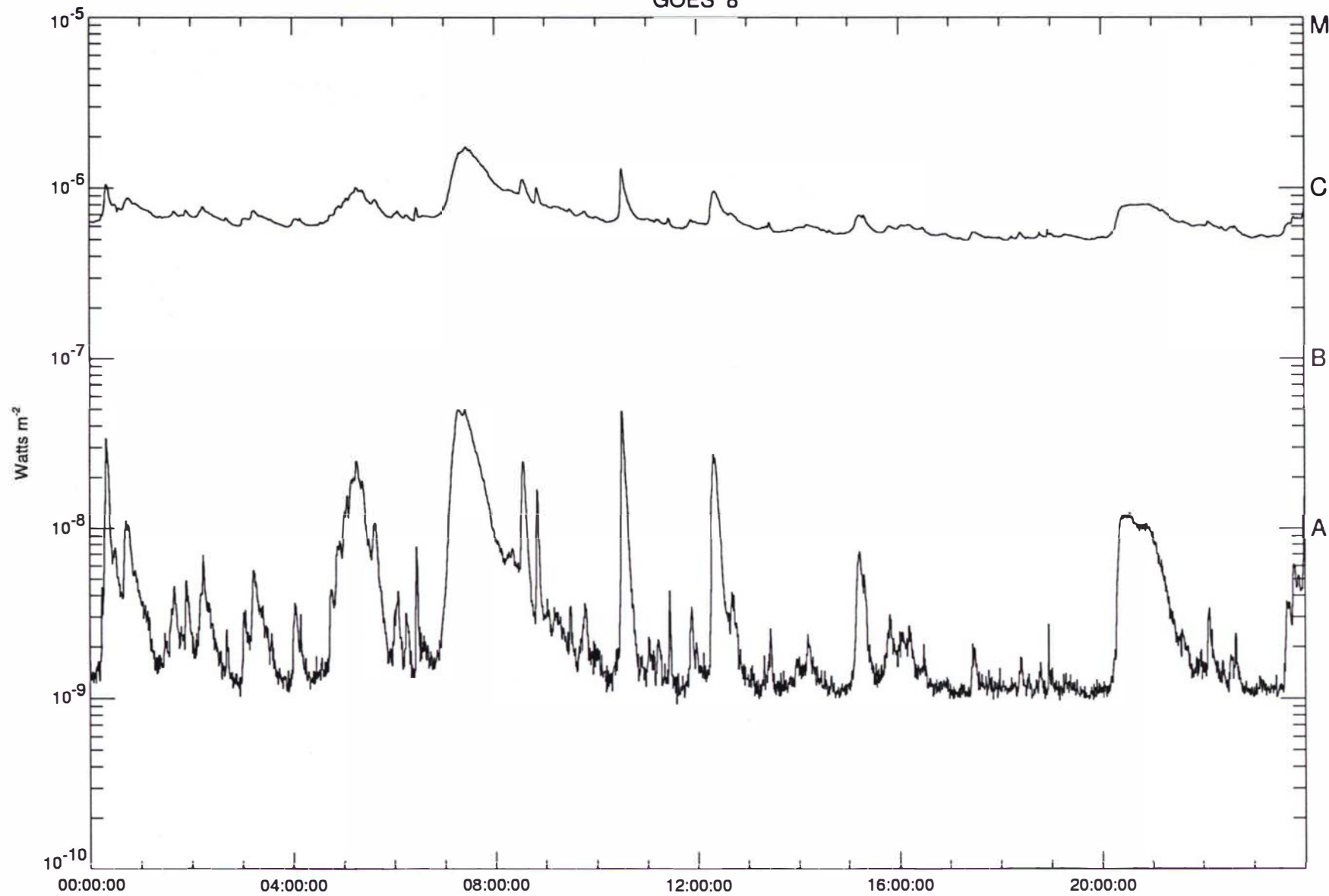


CALIBRATION DATA INCLUDED





GOES 8



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

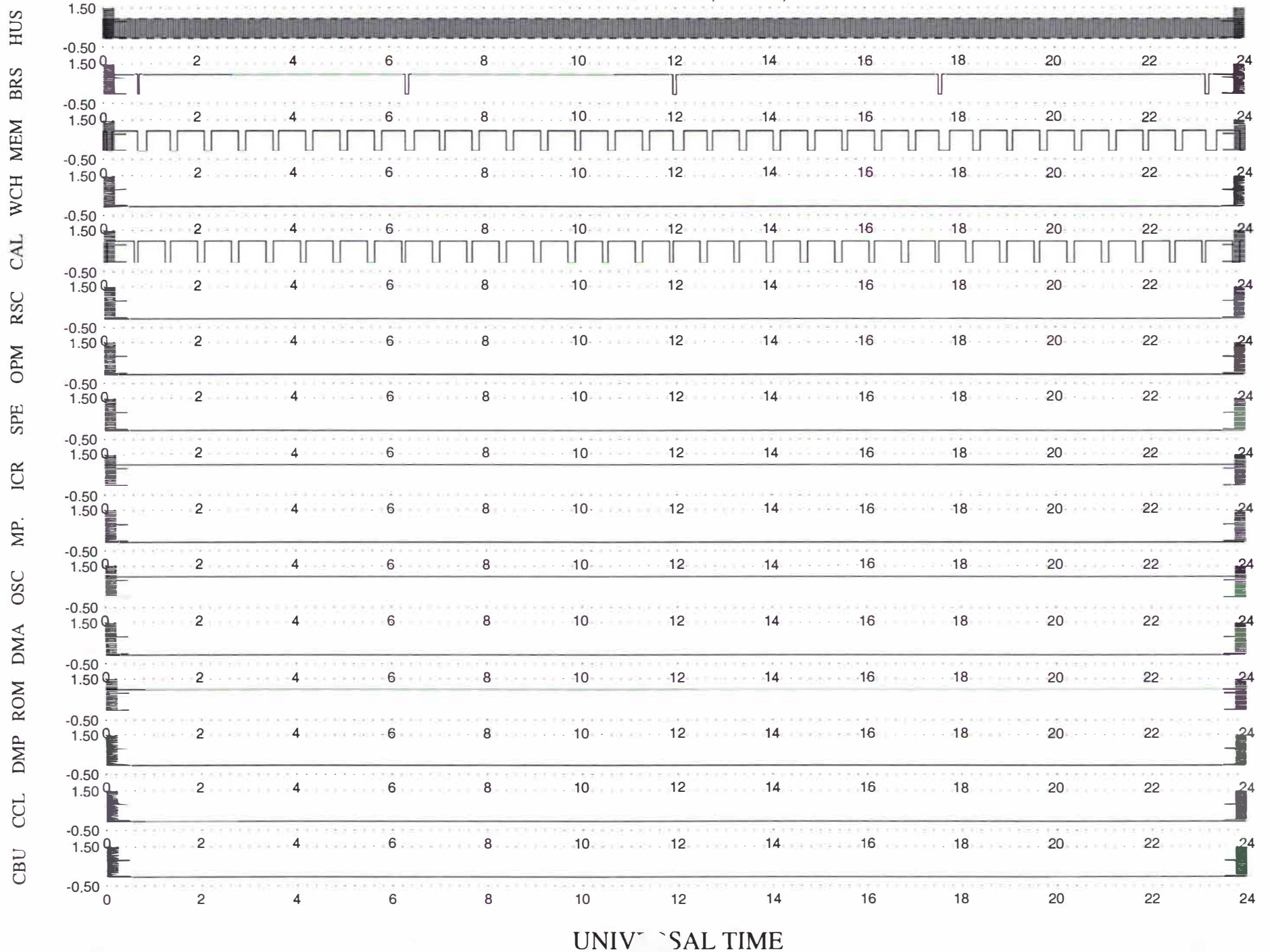
2 (0.5 - 4.0 Angstroms)

Background not subtracted

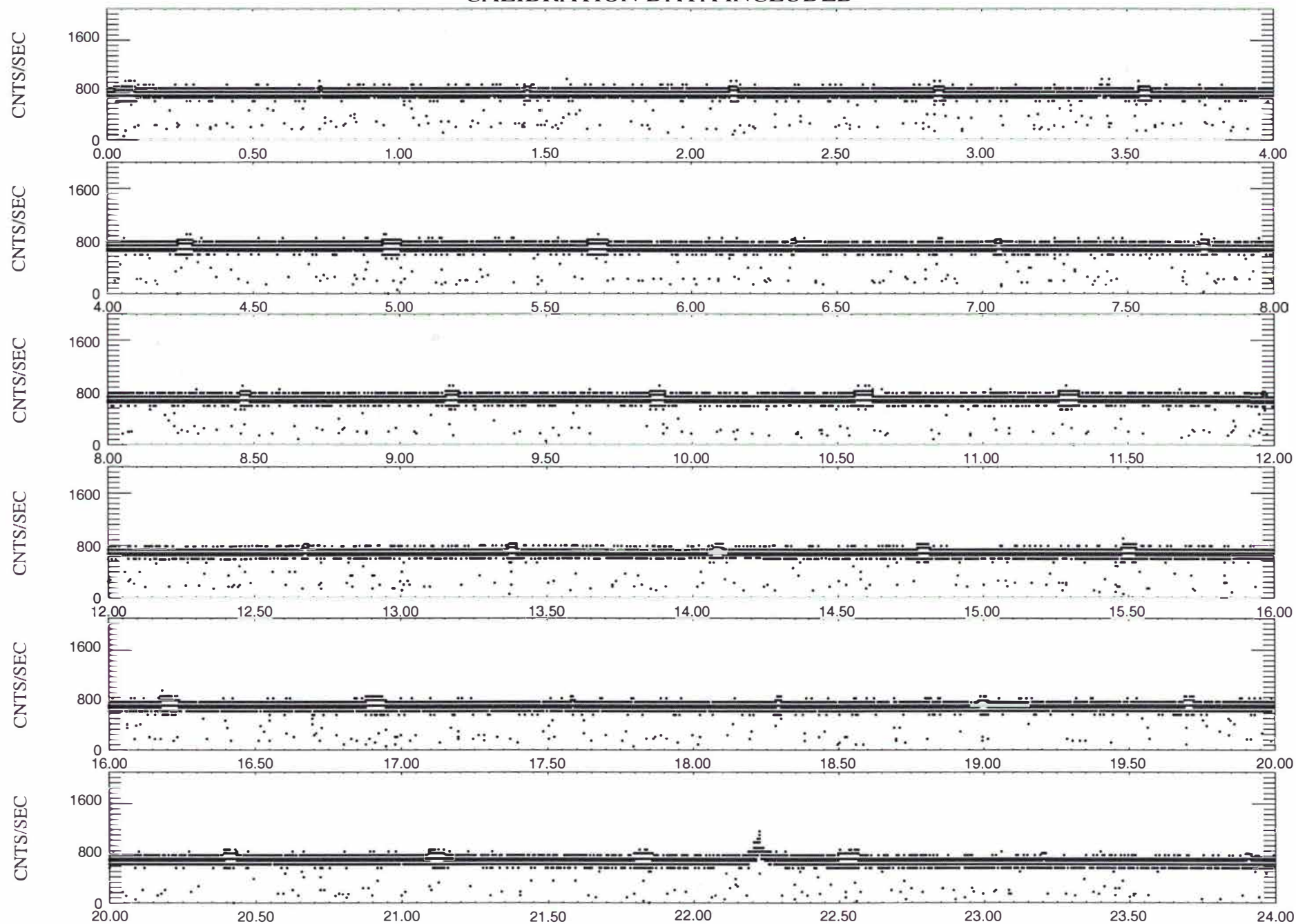
Plot created: 00/12/06, 1057

Sample average = 10

BURST NUMBER 4 - 15, 0 - 15, 0 - 6

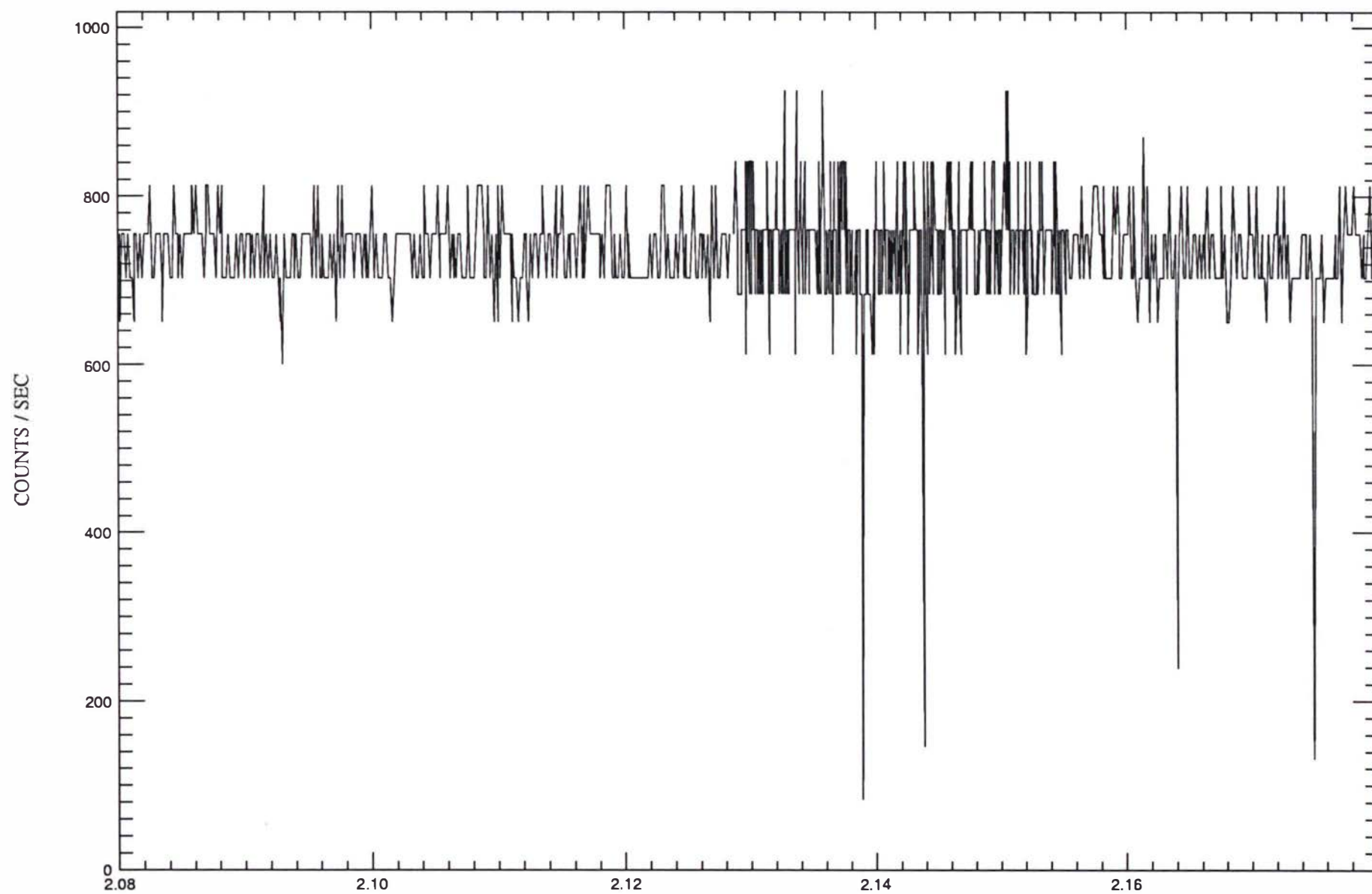


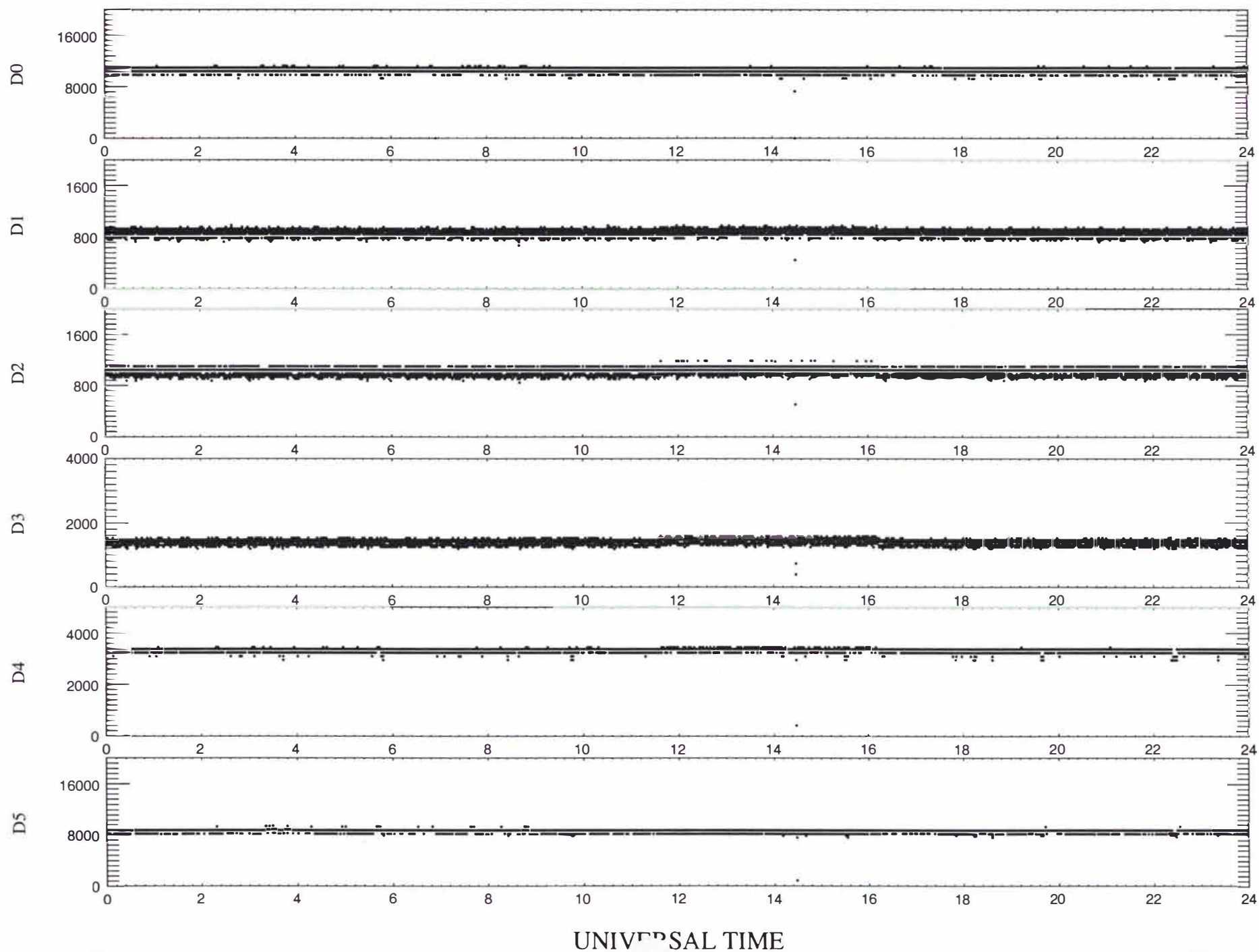
CALIBRATION DATA INCLUDED

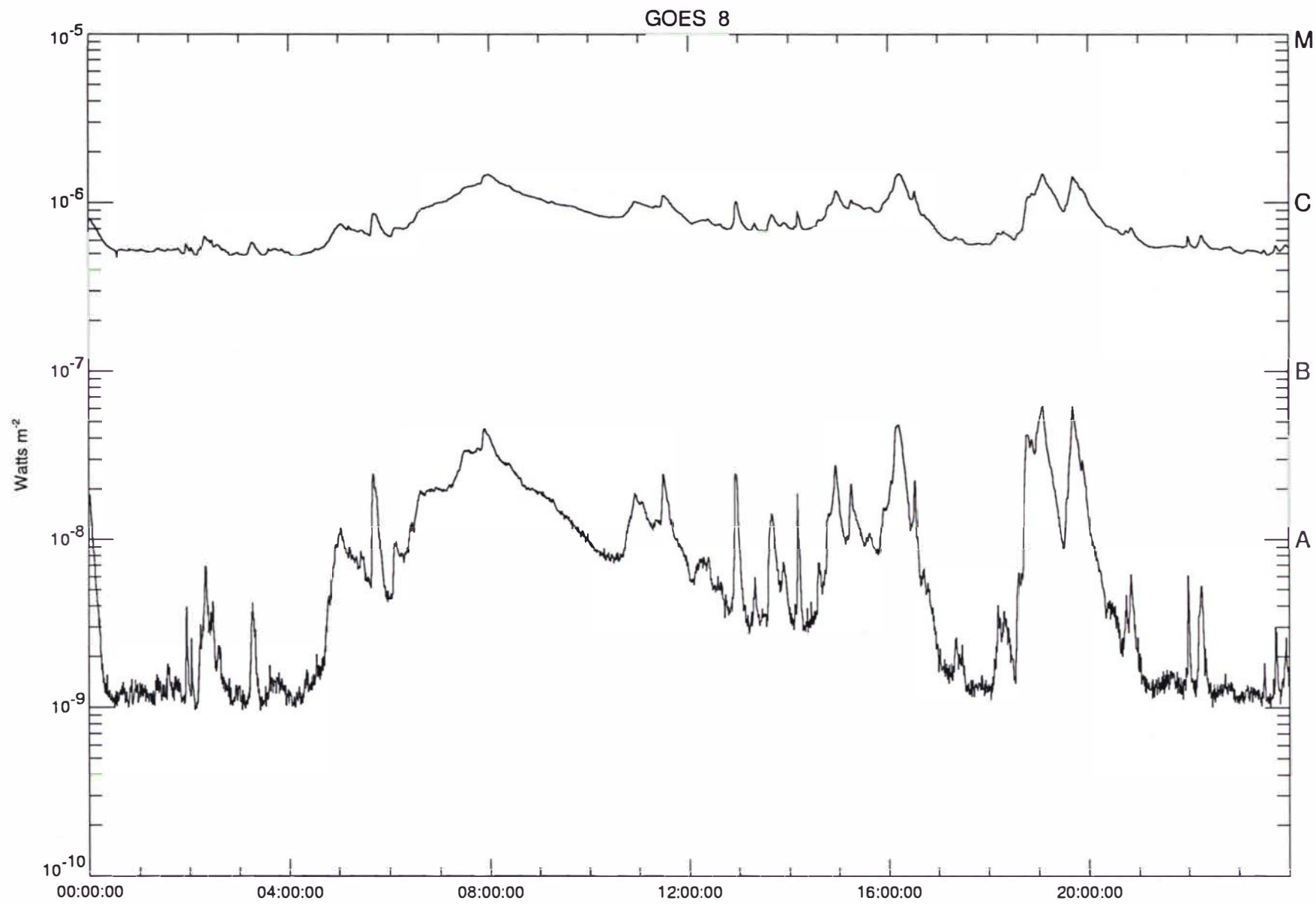


UNIVRSAL TIME

CALIBRATION DATA INCLUDED







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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

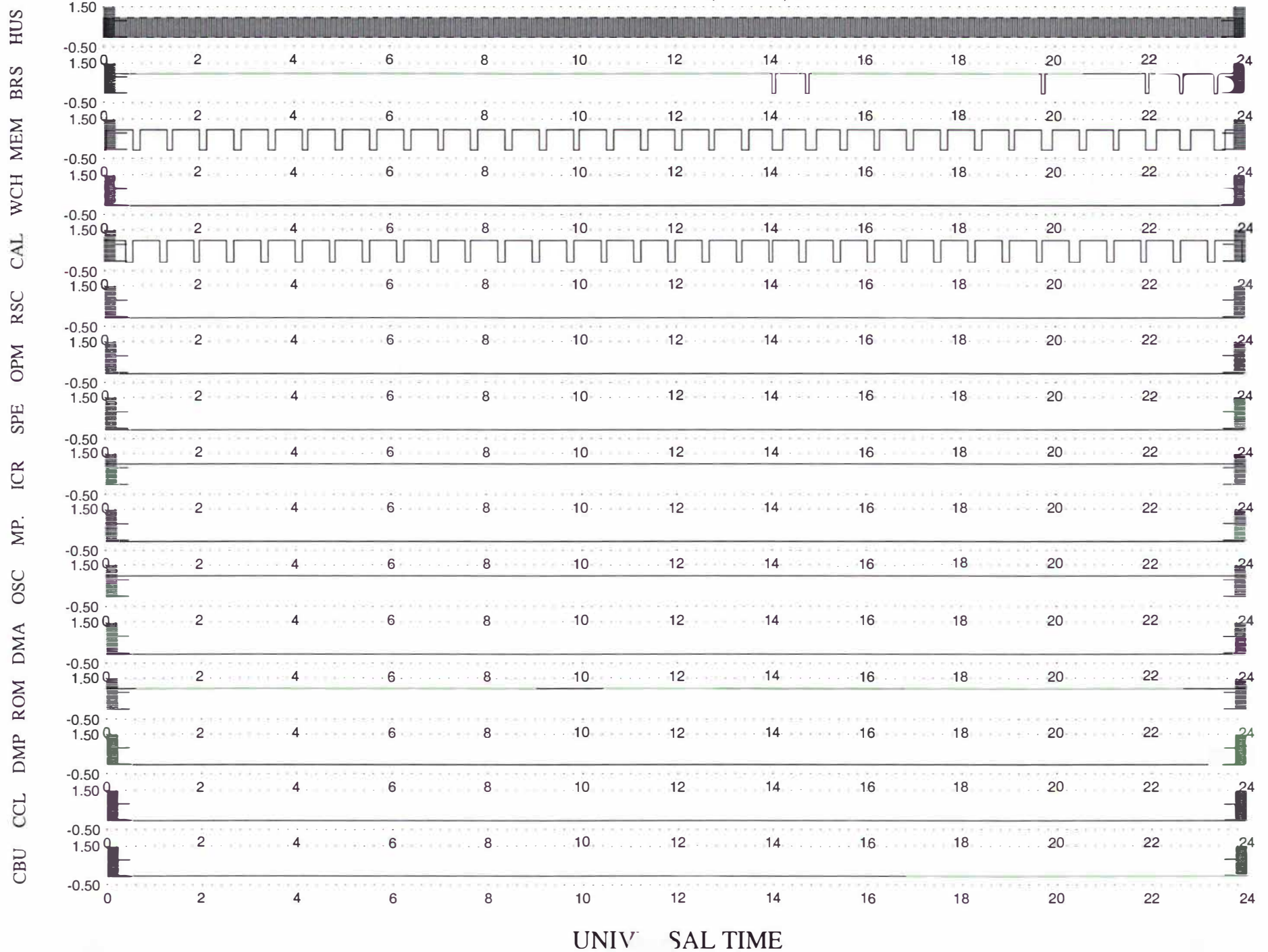
2 (0.5 - 4.0 Angstroms)

Background not subtracted

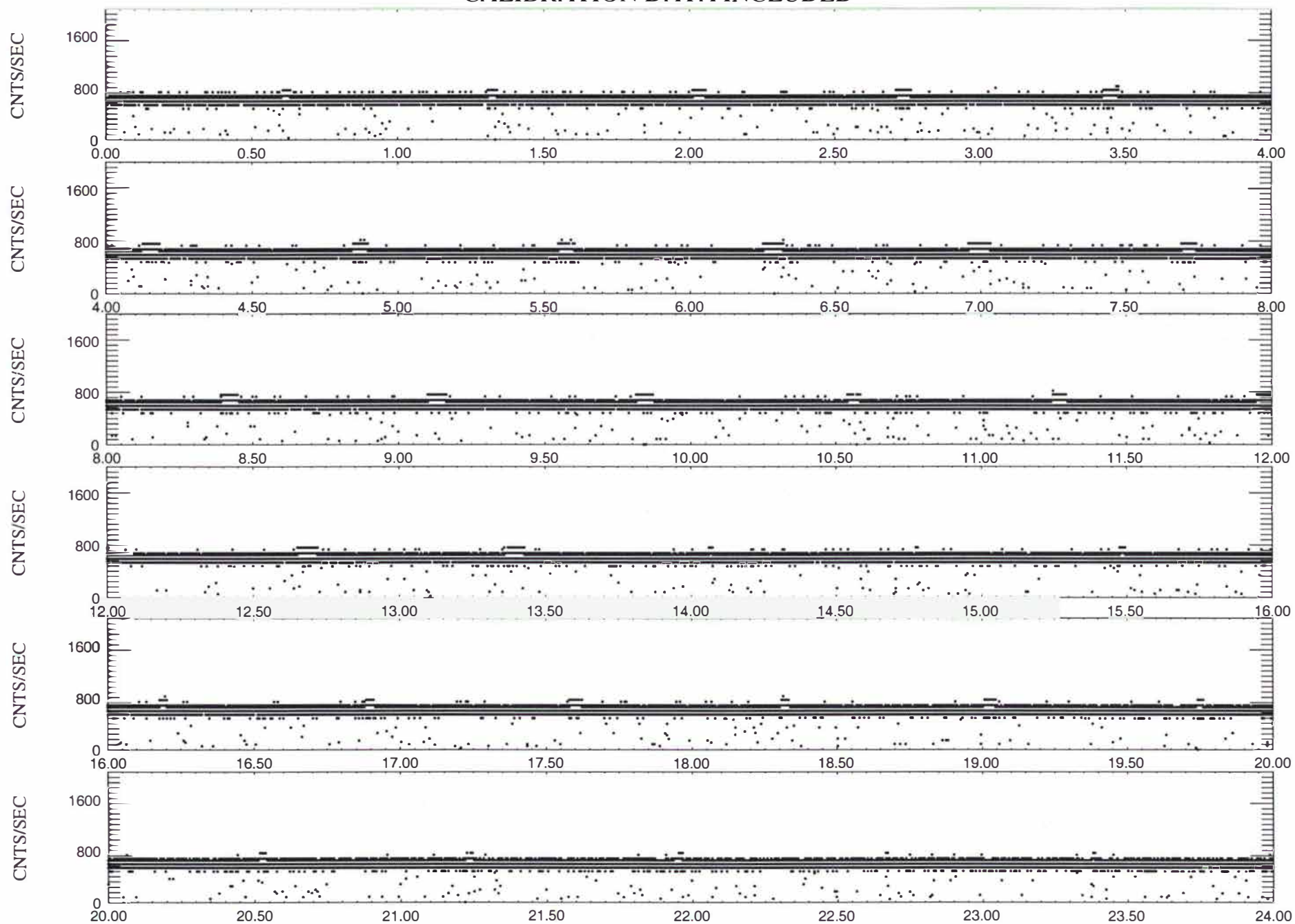
Plot created: 00/12/07, 1057

Sample average = 10

BURST NUMBER 7 - 15, 0 - 15, 0 - 7

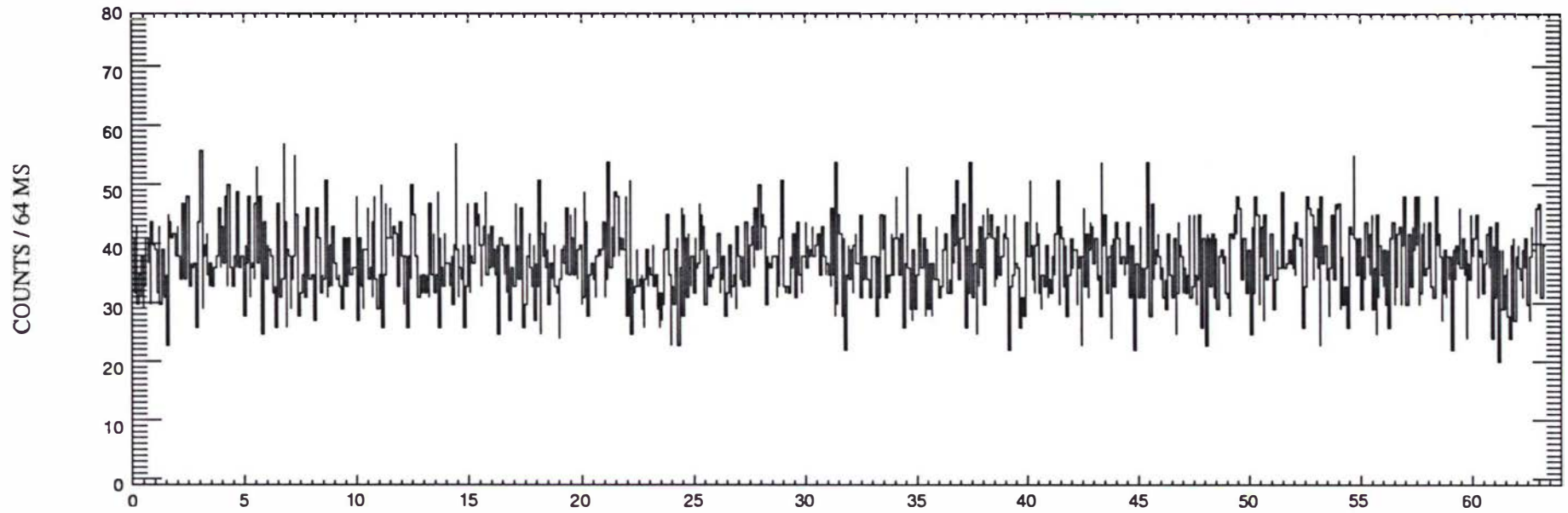


CALIBRATION DATA INCLUDED

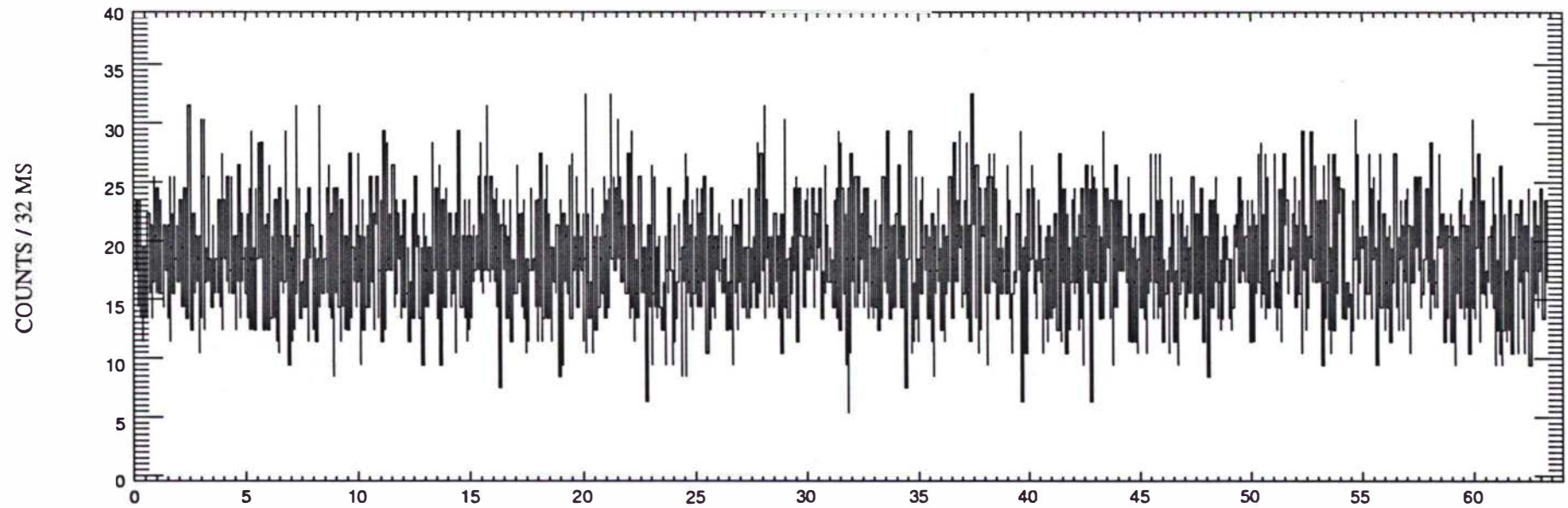


UNIVERSAL TIME

Burst Counter 7 at UT= 0.600560968187 h= 2162.019 s 00:36:02.019

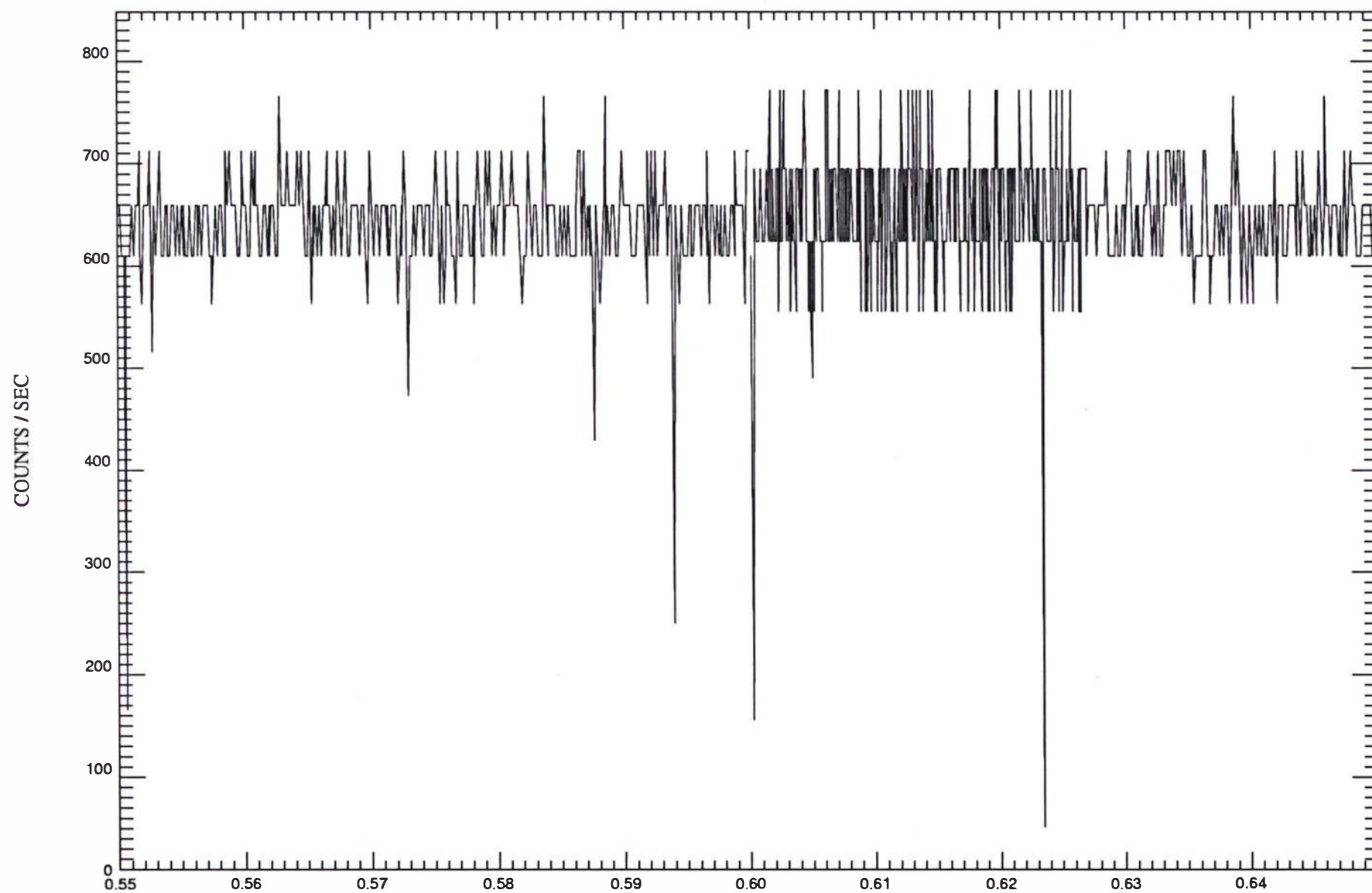


TIME, SECS

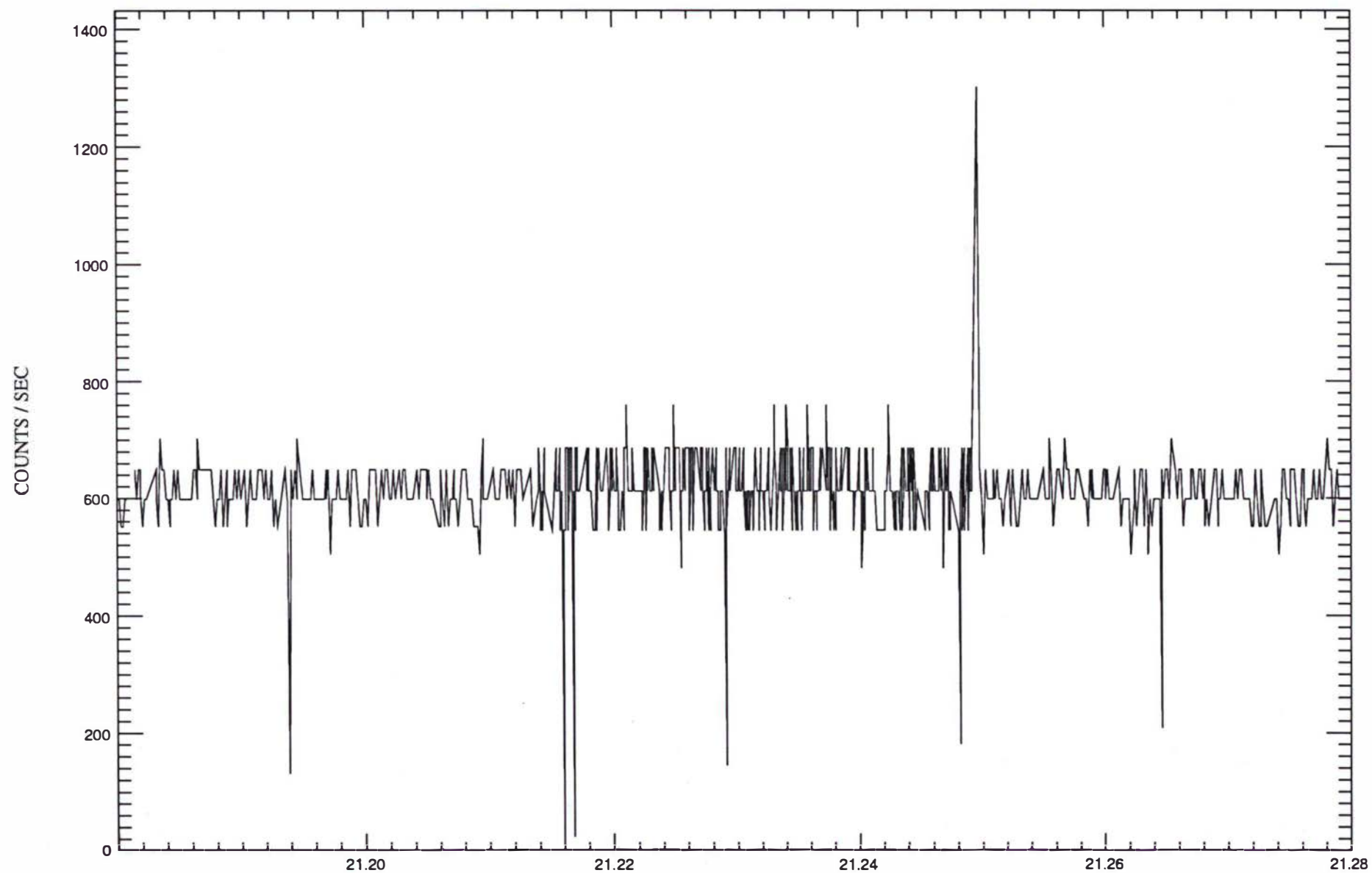


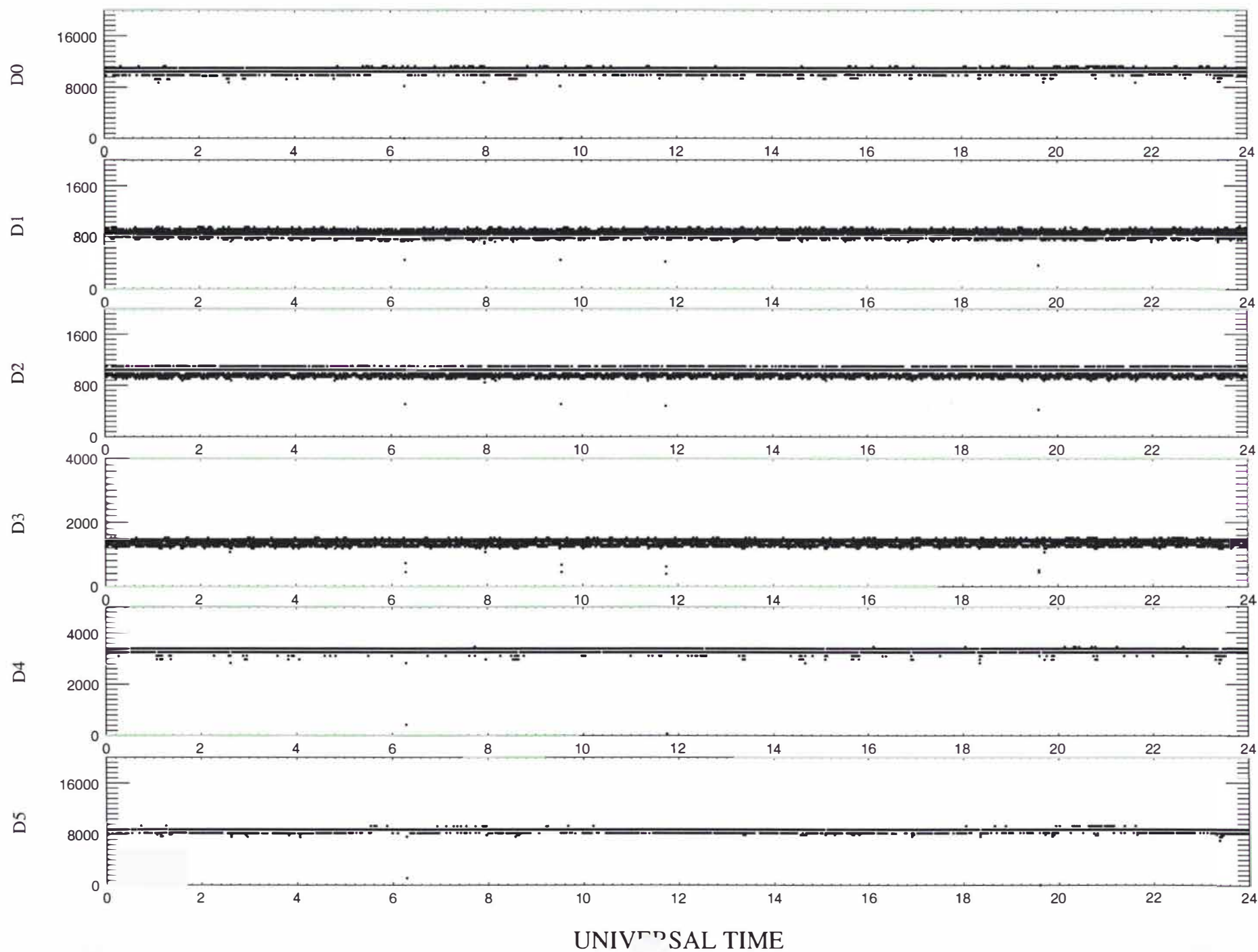
TIME, SECS

CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





From guidorzi@fe.infn.it Sun Dec 3 23:21 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Mon, 4 Dec 2000 08:20:04 +0100 (MET)

GRB[136] #LSs: 1 Good HRR: 0
SW Trigger Time (OBT): 49014.920
UTC: Mon, 04 Dec 2000 02:23:38:53009

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.164

Nsig(trg):	11.1	0.1	3.7	7.7	1.8	1.3	2.5	6.5
Nsig(pfl):	11.1	0.0	3.7	7.7	1.8	0.0	2.5	6.5
Bkg lev. :	740	894	781	674	857	897	842	911
ChiSq R. :	1.072	0.941	1.029	1.231	1.146	0.967	0.916	1.023

Peak fl. :	303	0	102	200	54	0	73	196
------------	-----	---	-----	-----	----	---	----	-----

Dur (s) :	1.00	0.00	1.00	4.00				
Abundance:	1	0	1	4				
H. Ratio :	0.177	-1.000	0.710	0.898				
HR Ratio :	-1.000	0.249	0.197	-1.000	-1.000	0.791		

GRBM 20001204 08714

ULYSSES RT

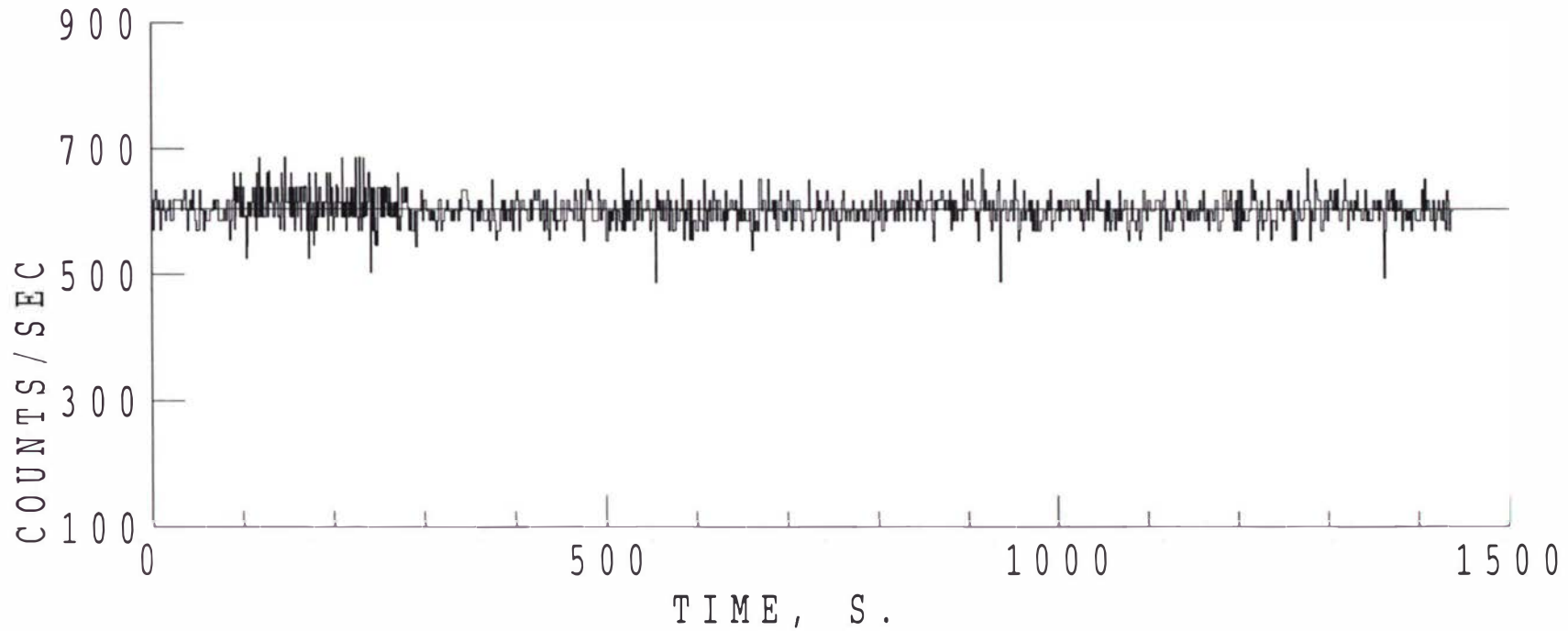
04 / 10 / 07

04 / 12 / 00 7992.145 s

INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

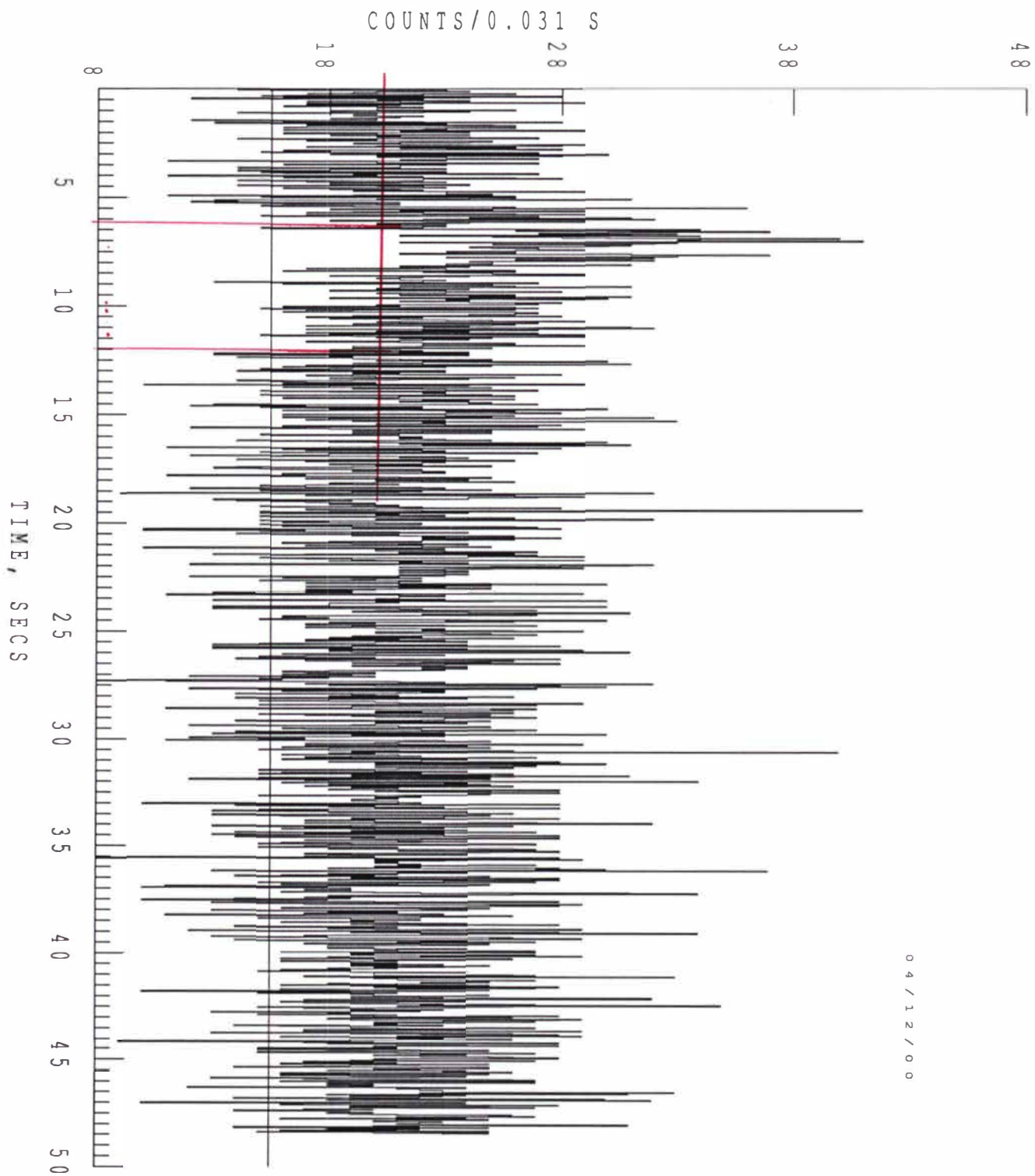


BSAX-GRBM

04/12/00

8610.366

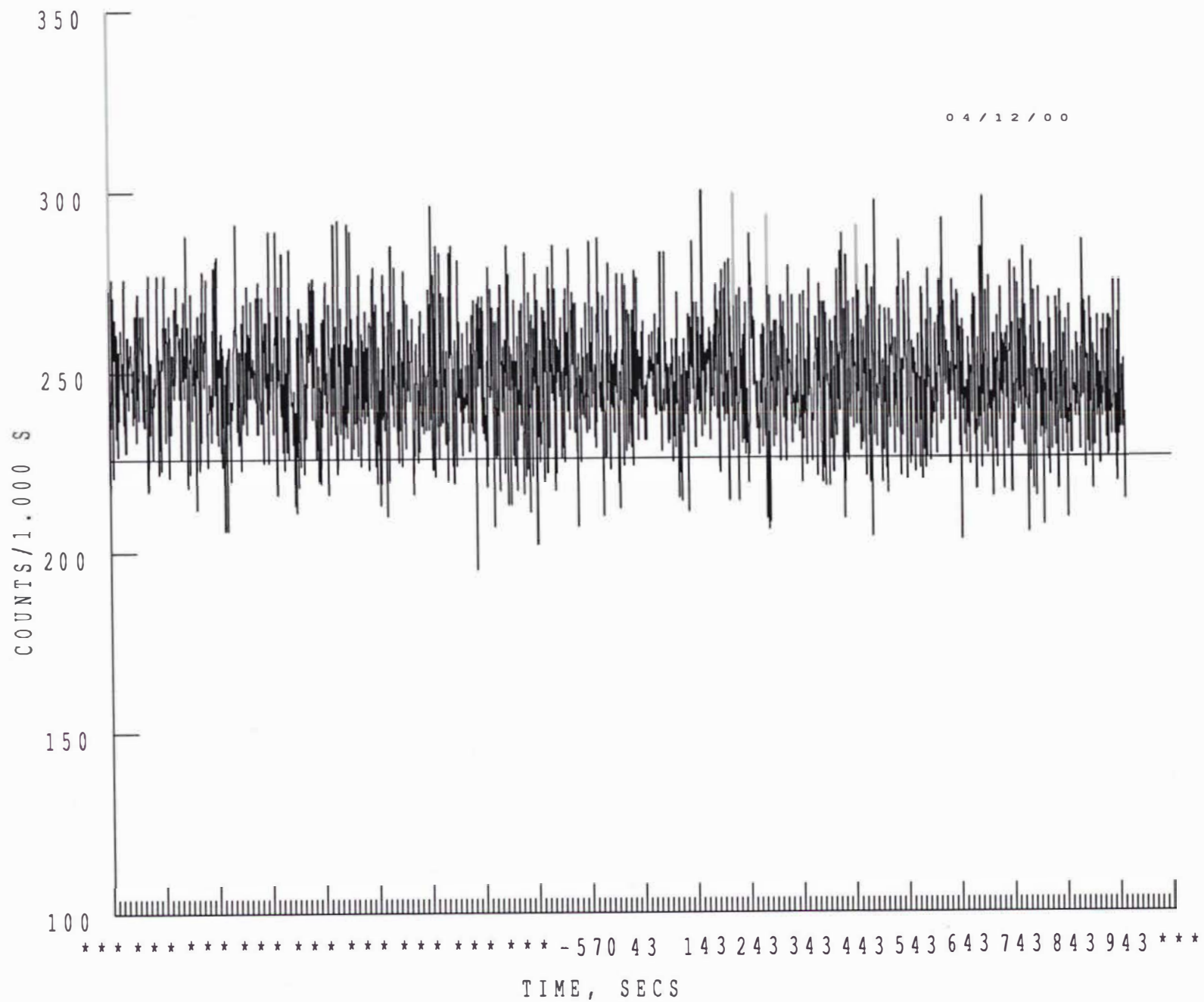
40 - 700 keV



NEAR

04/12/00 8617.396

100-1000 keV



KNEAR GRS 20001204 08617

ULYSSES RT

04 / 12 / 00

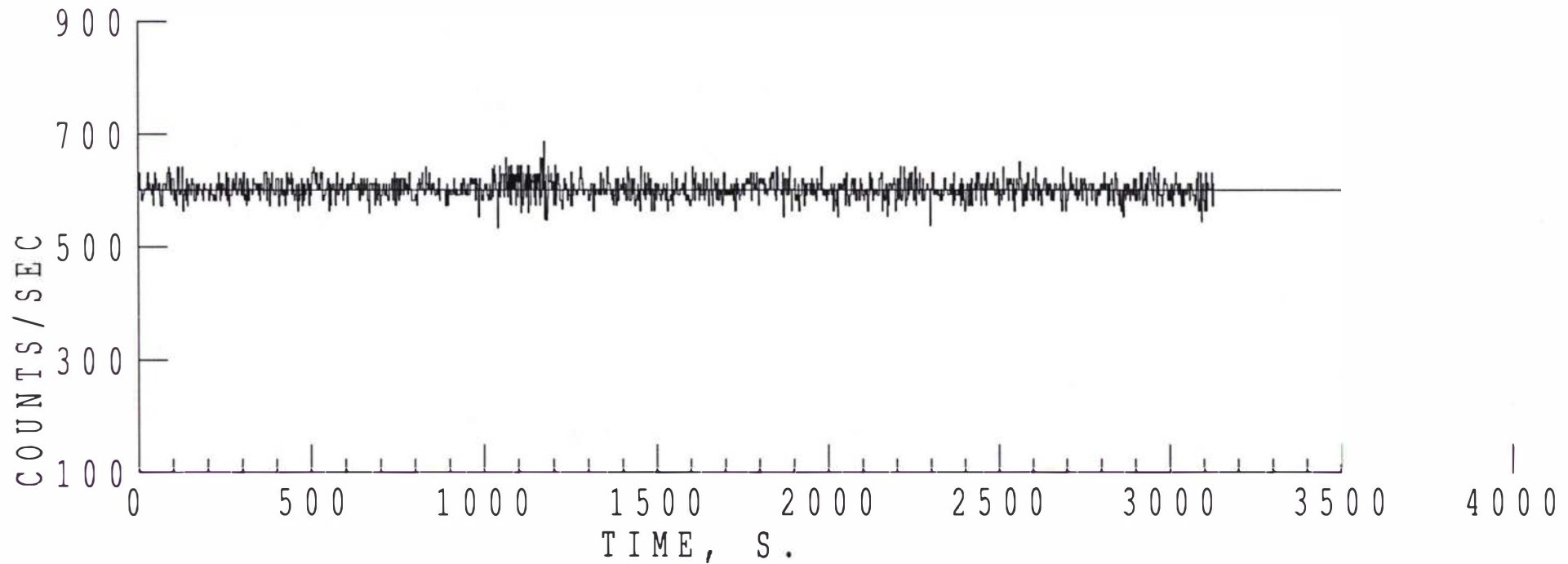
04 / 12 / 00 7056.130 s

INTERVALS REGROUPED BY 5

0 - 0 keV

U= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

U= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Date: Mar 28 '01

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

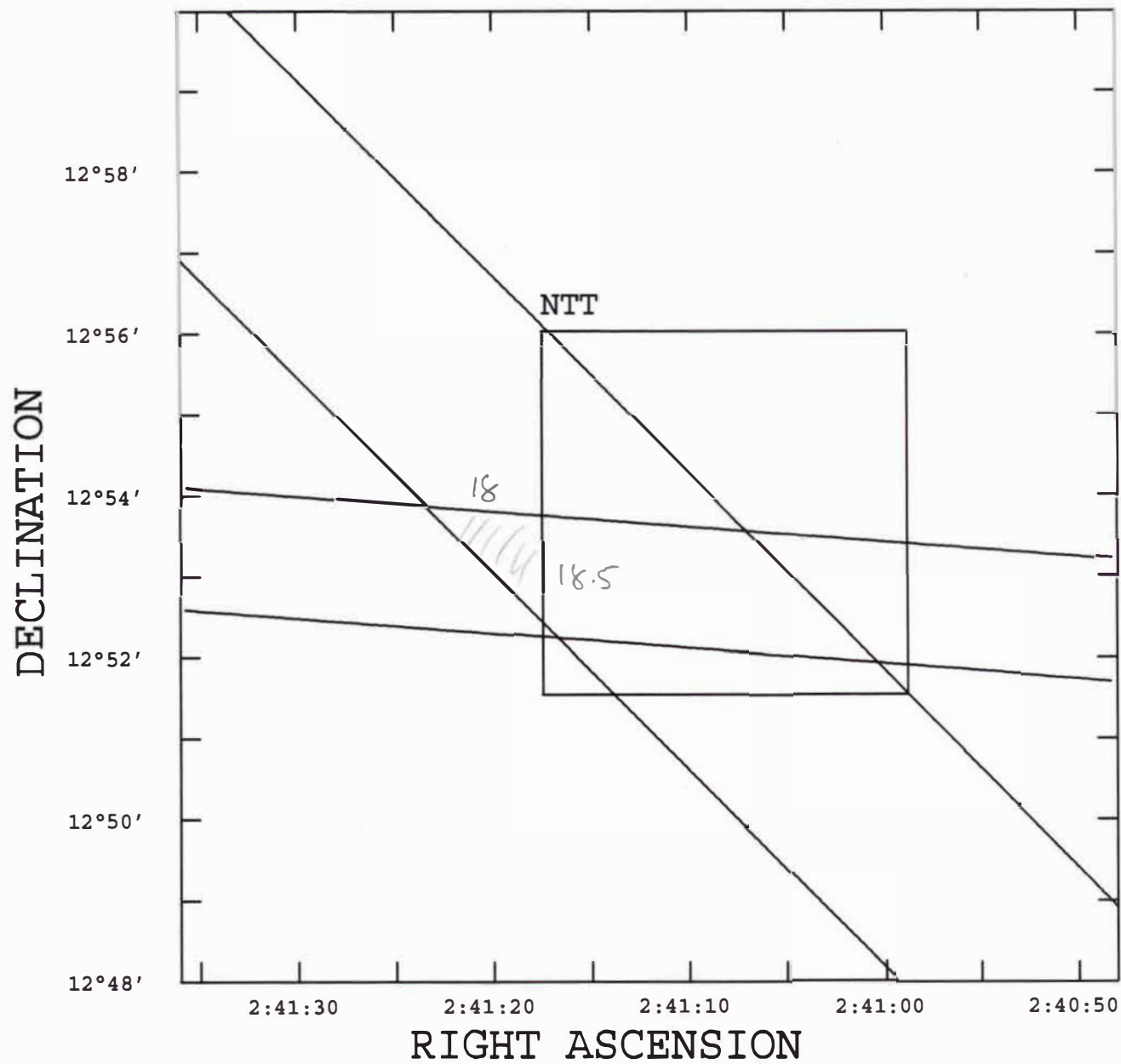
2. BATSE Data N/A

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

3. NEAR Data

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

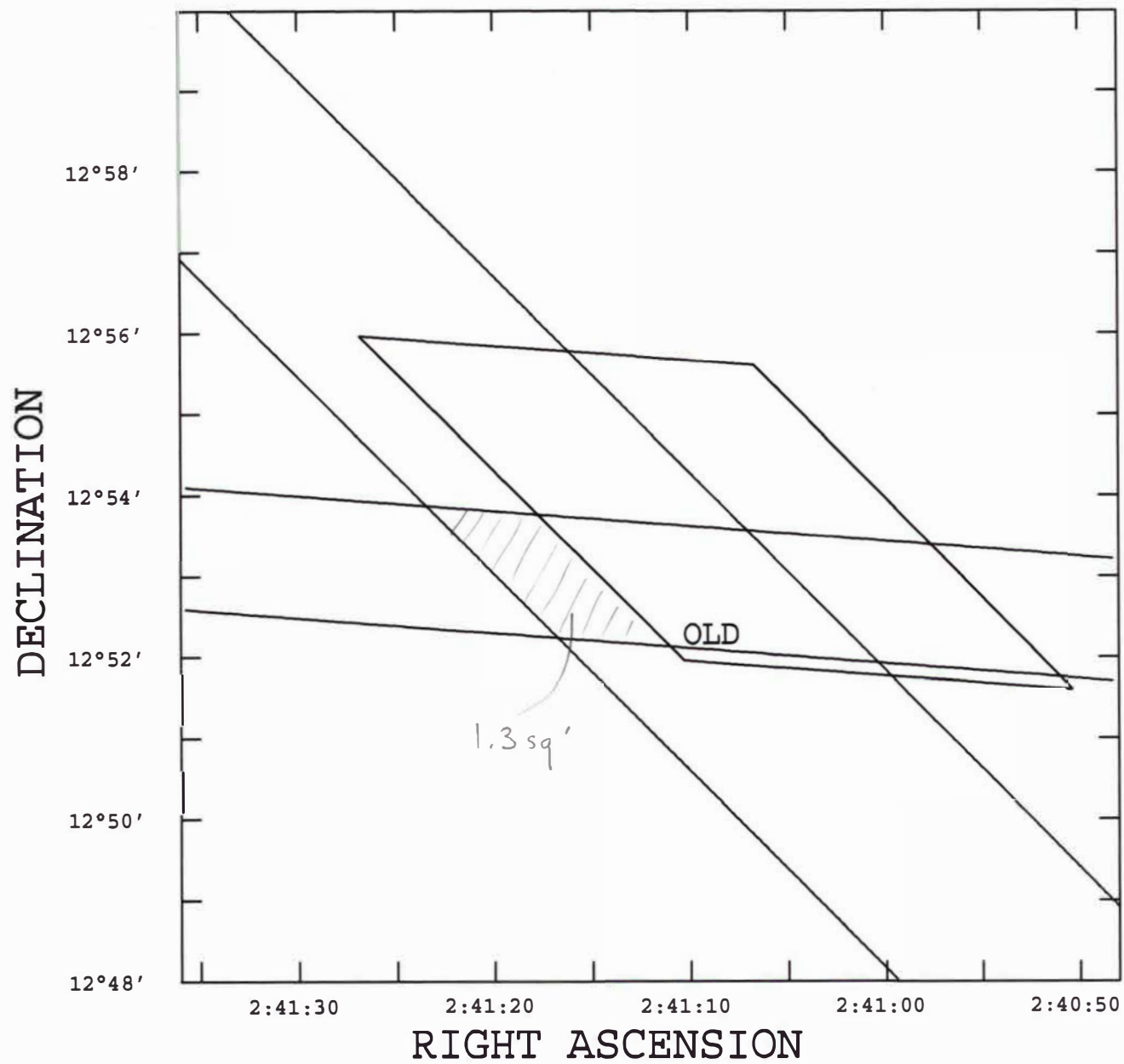
- ☒ ACCESS database updated?

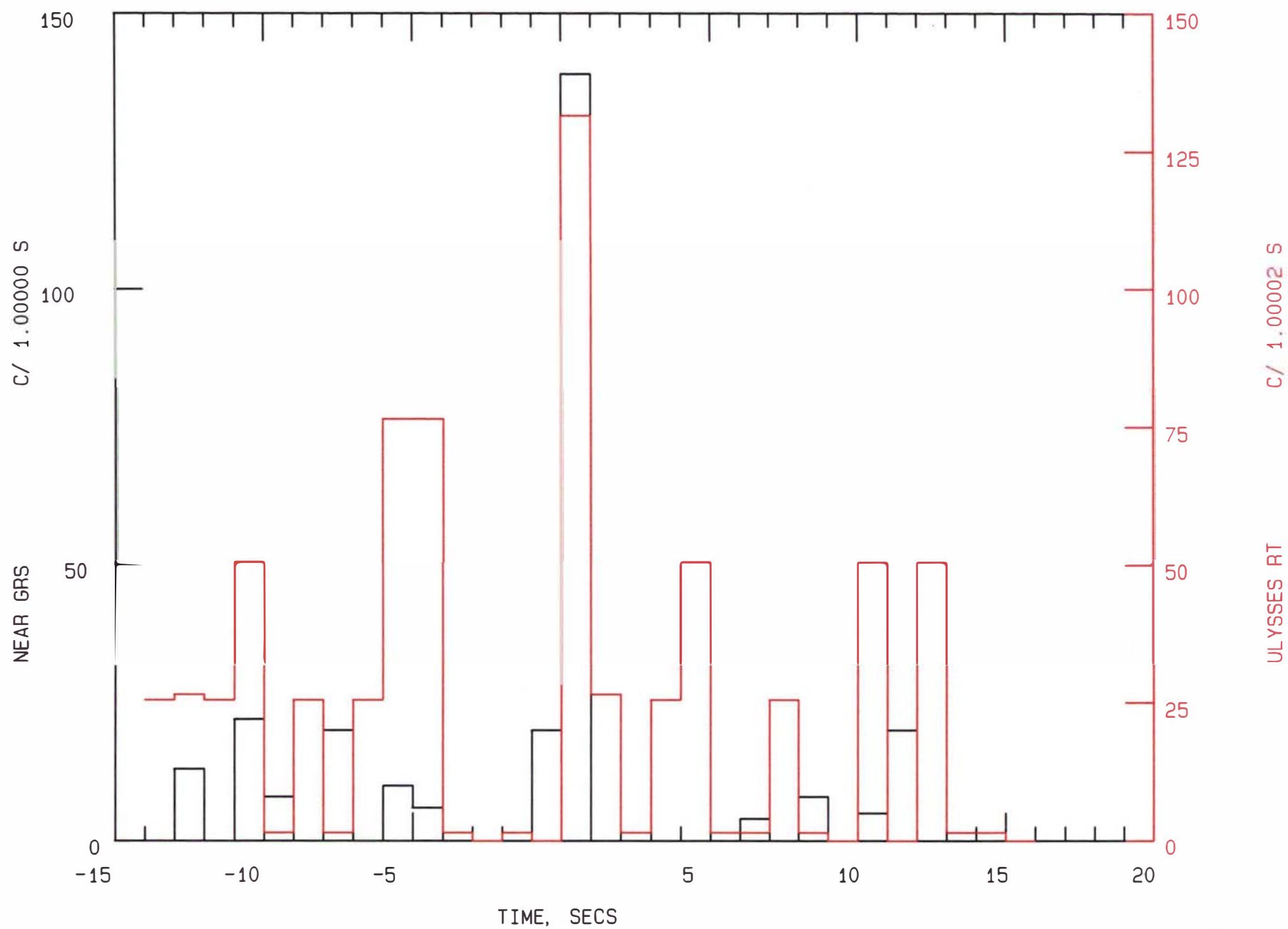


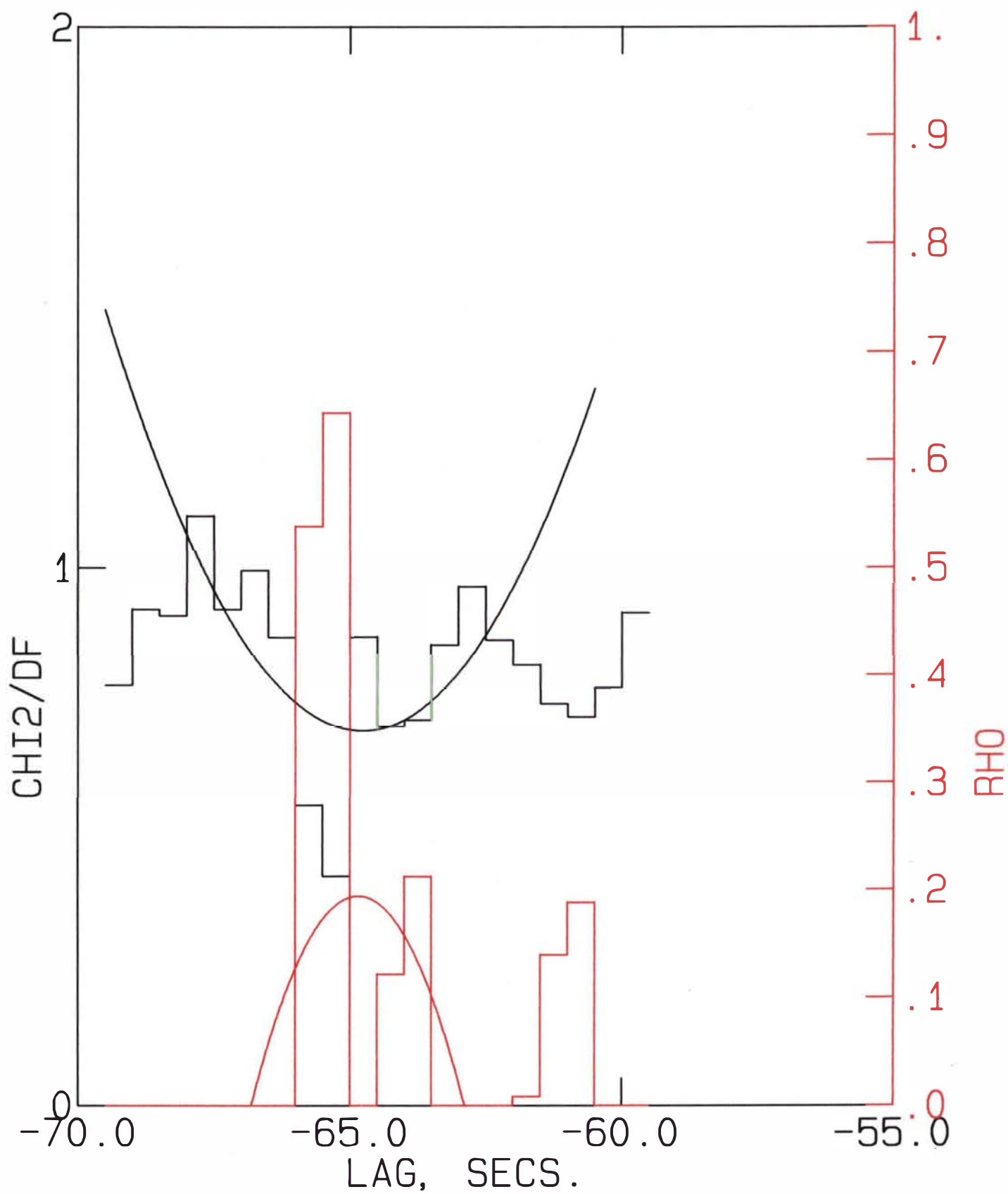
Area missed =

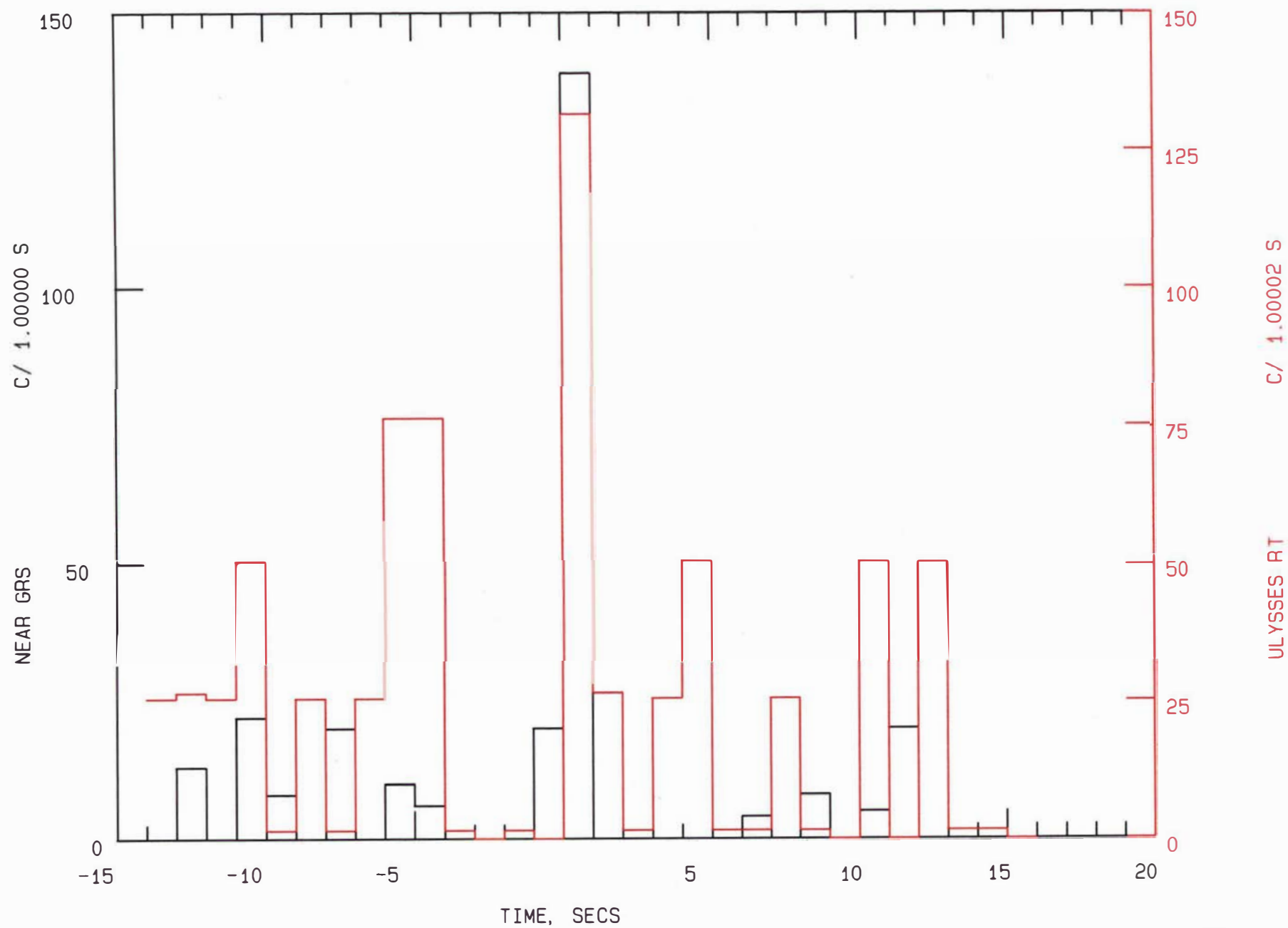
$$\frac{1}{2} 18 \times 18.5 \times \left(\frac{1'}{12.5} \right)^2 =$$

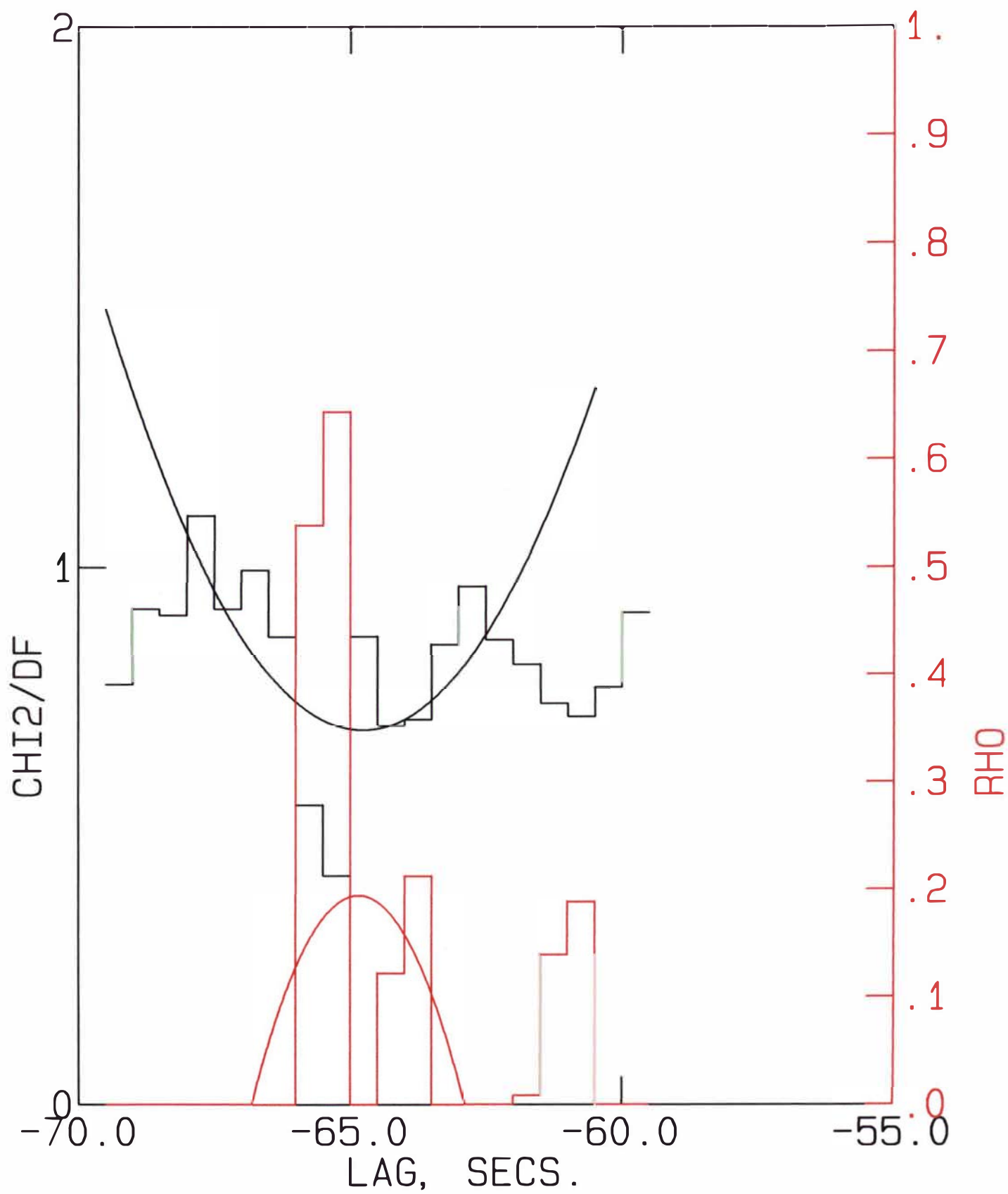
1'

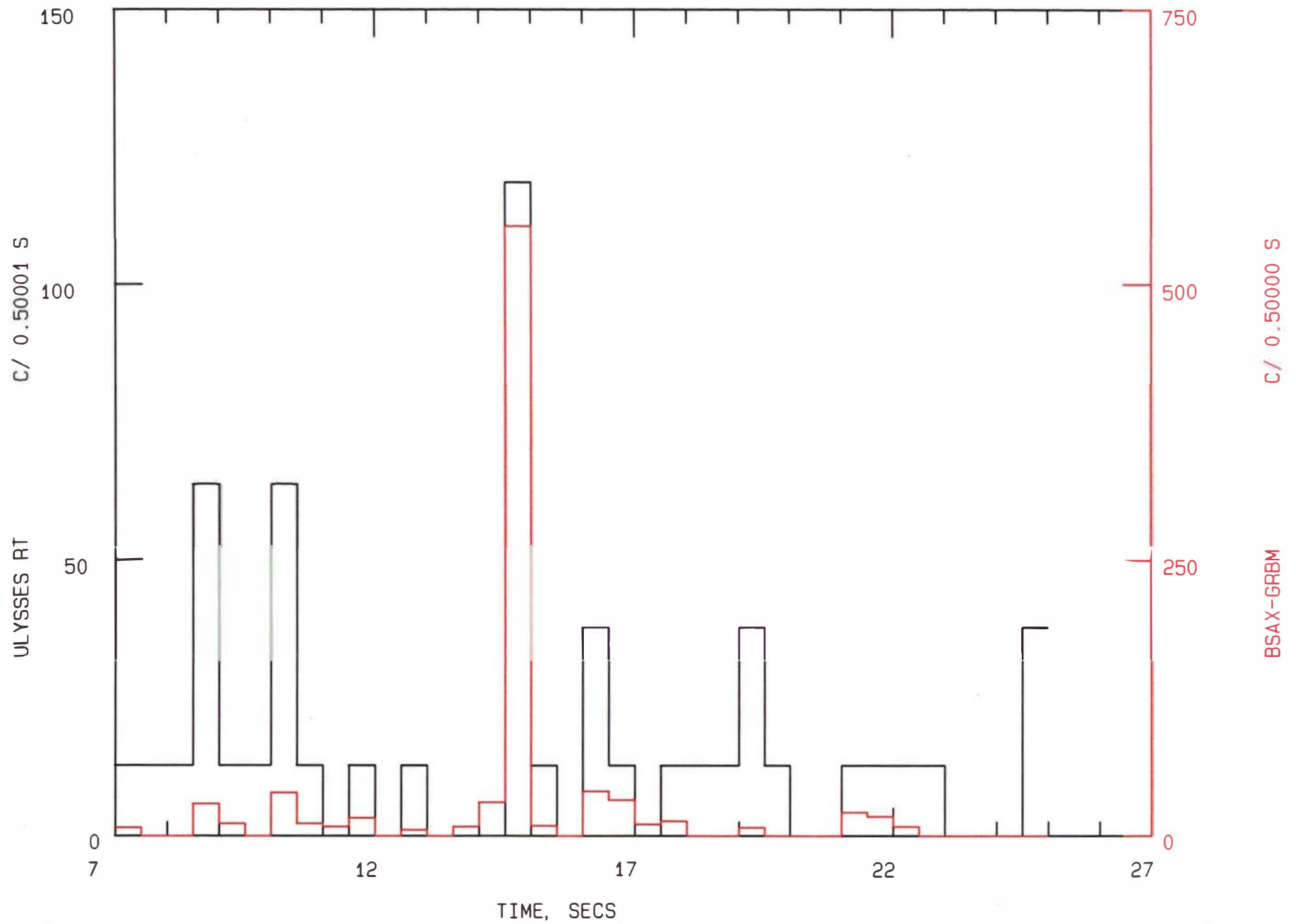


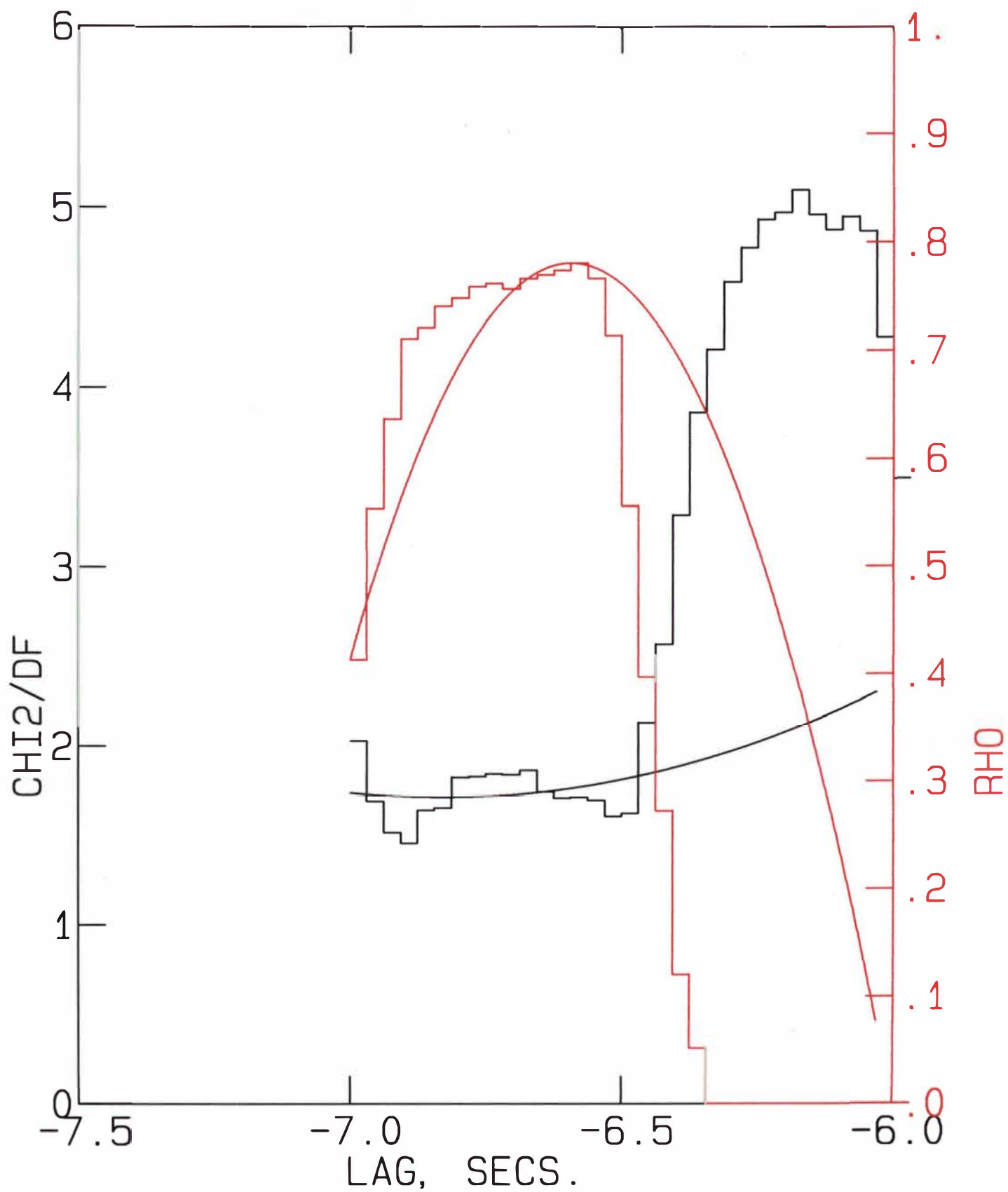


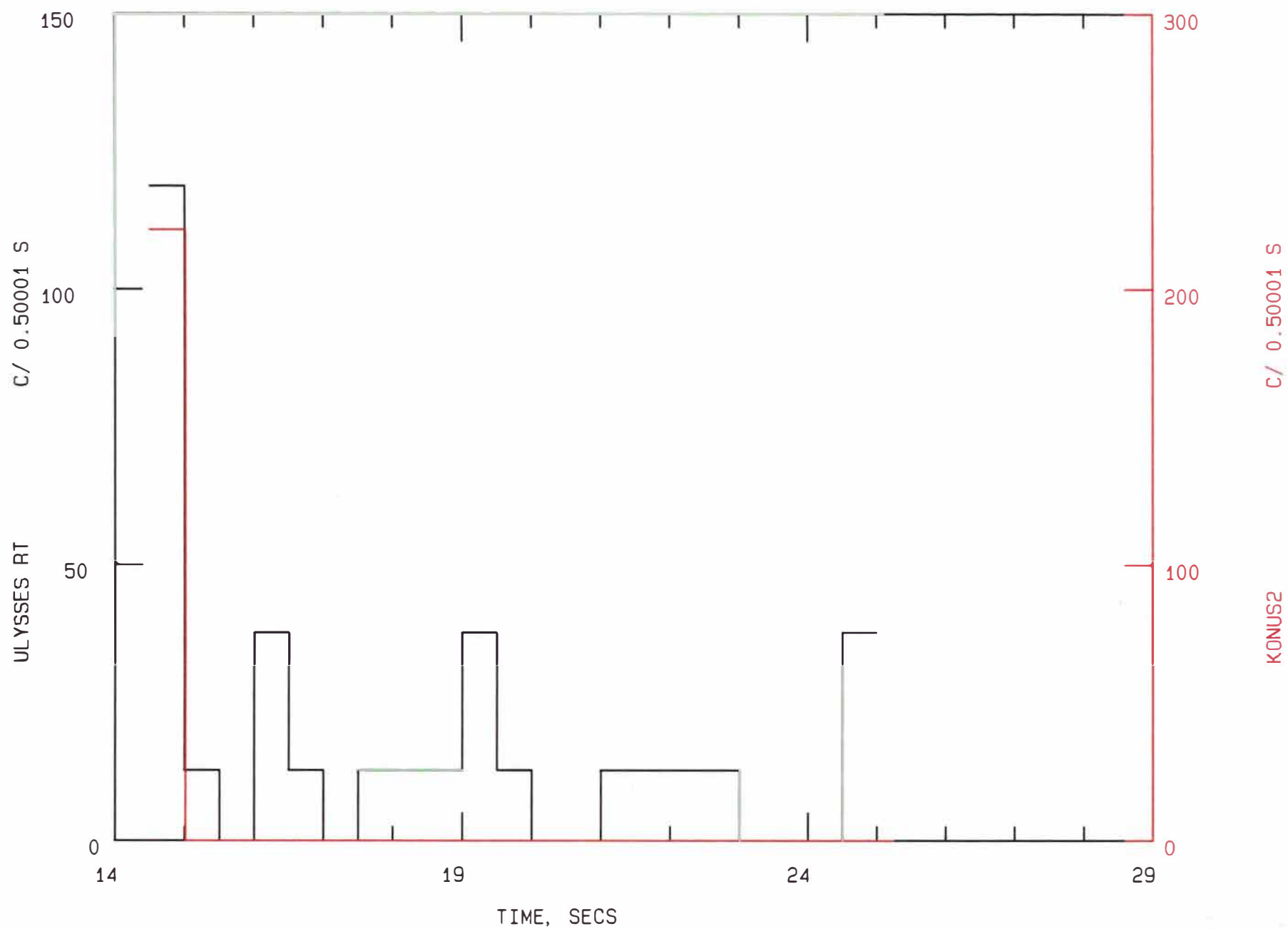


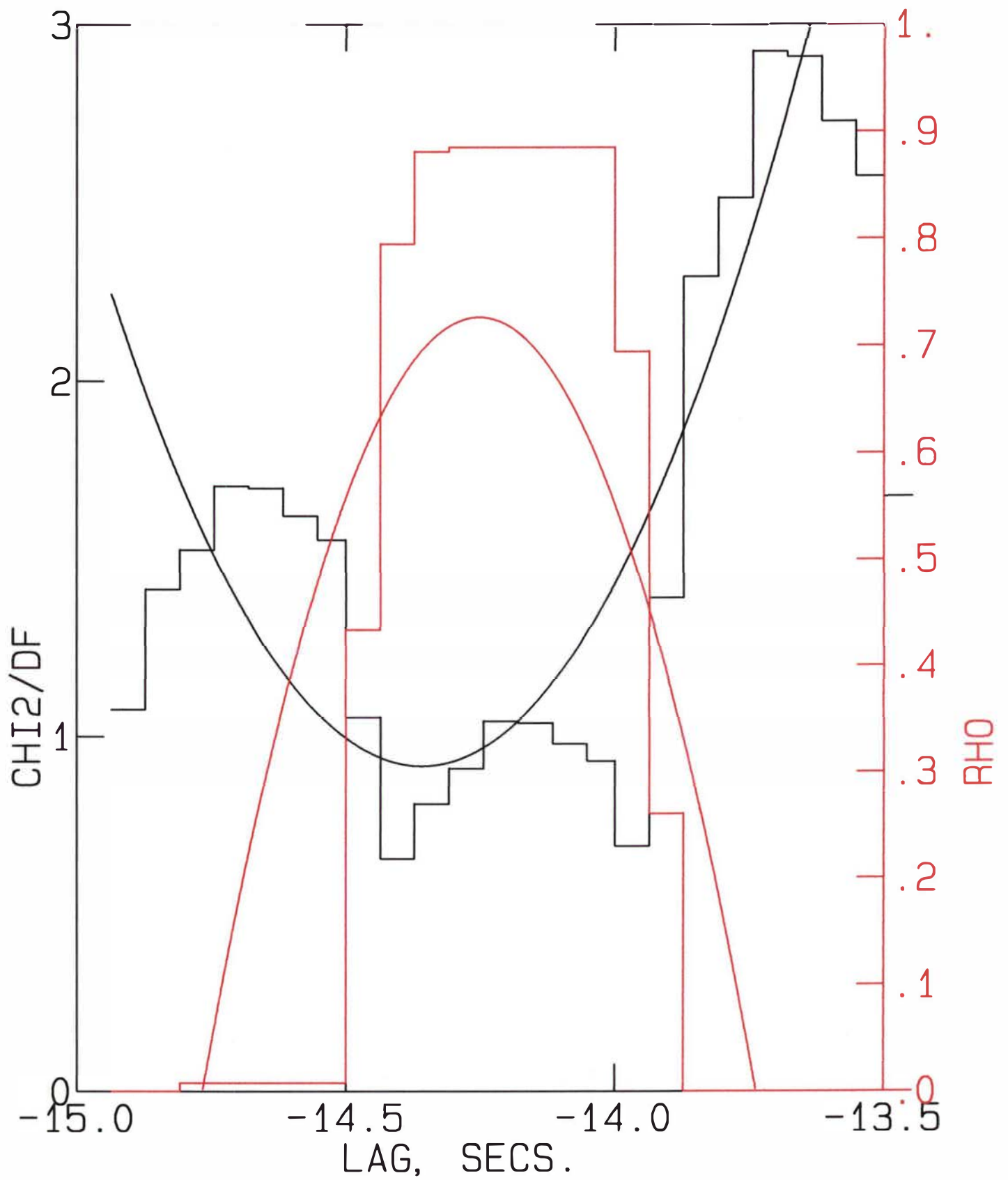






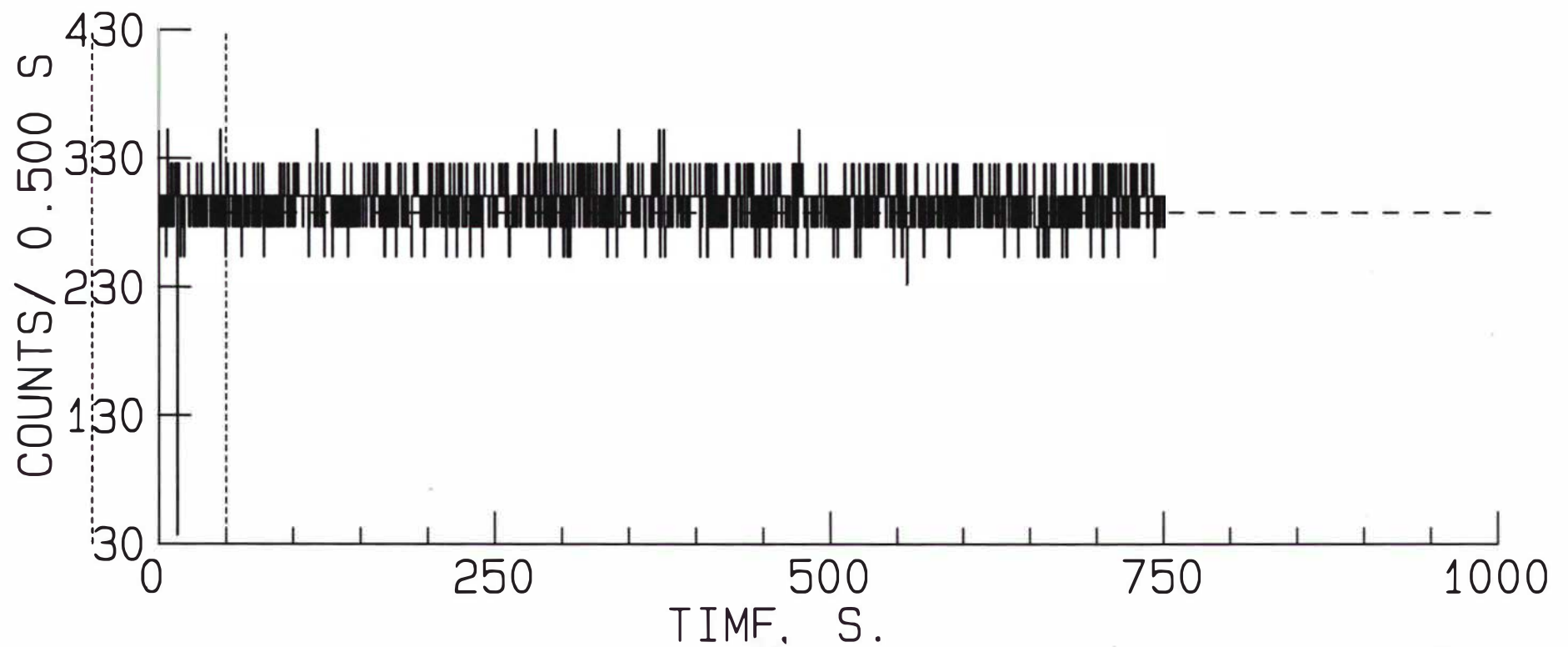






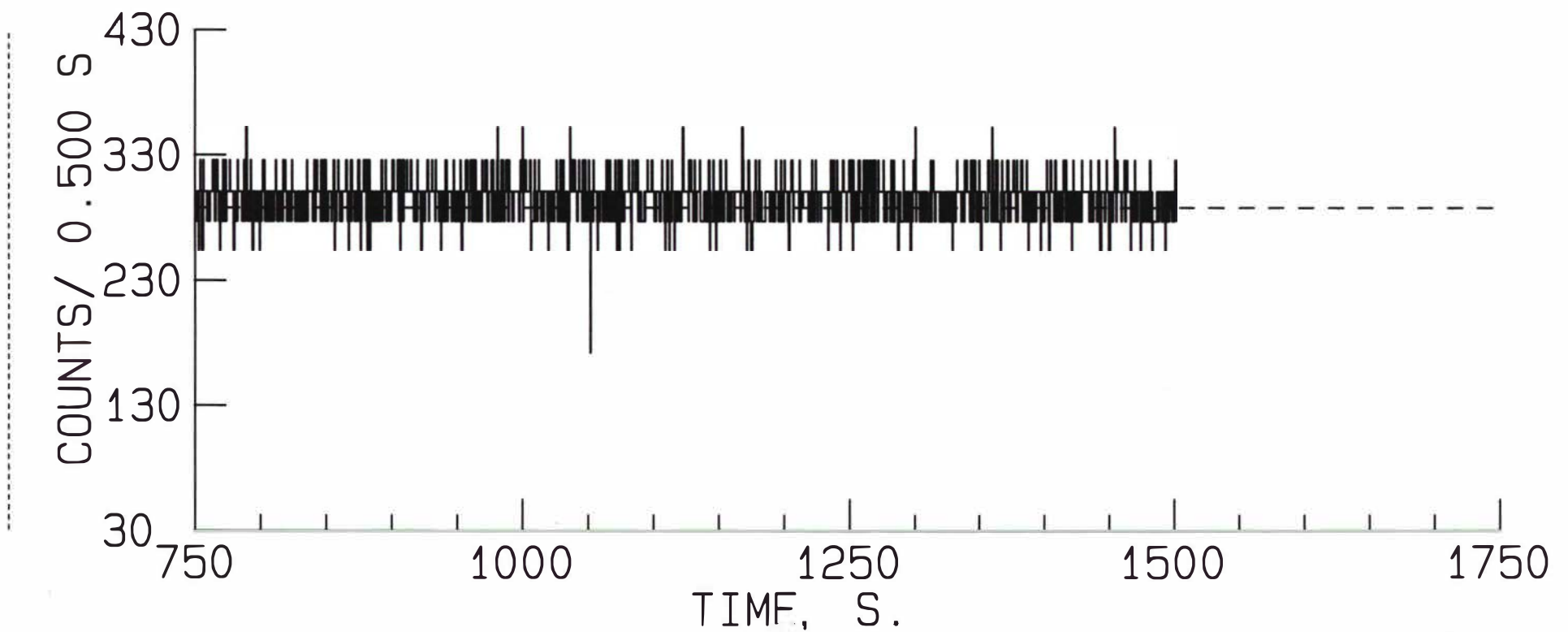
ULYSSES RT
4/12/ 0 27252.429 s
23- 155 keV

28 / 3 / 1



ULYSSES RT
4/12/ 0 27252.429 s
23- 155 keV

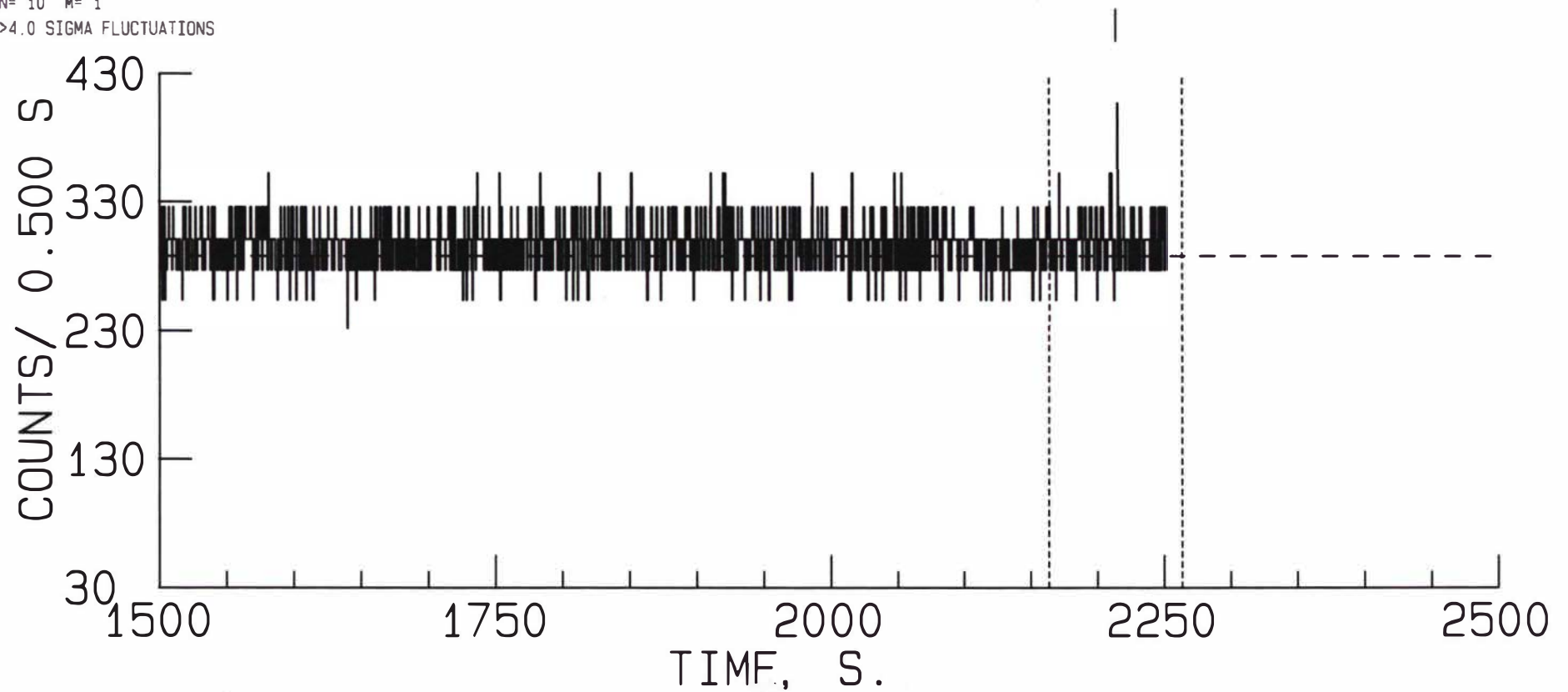
28 / 3 / 1



ULYSSES RT
4/12/ 0 27252.429 s
23- 155 keV

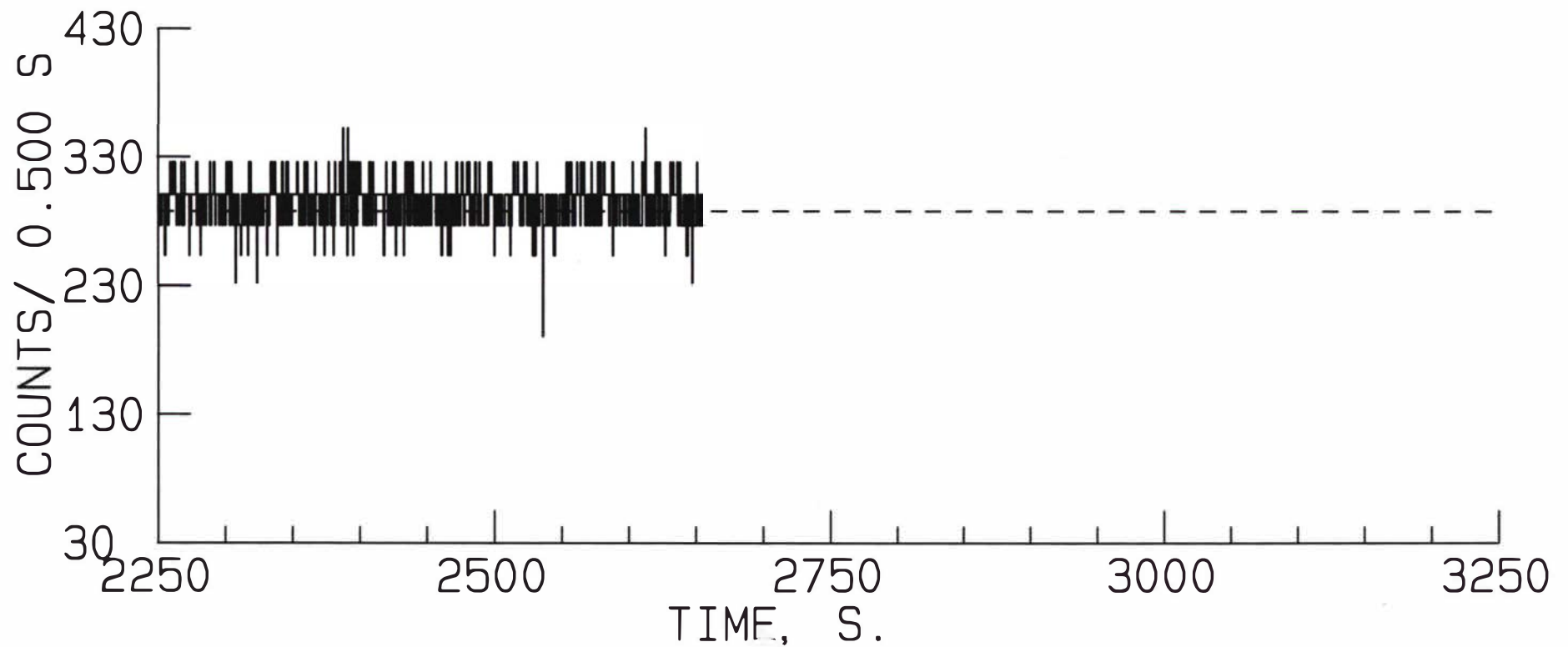
28/ 3/ 1

N= 10 M= 1
>4.0 SIGMA FLUCTUATIONS



ULYSSES RT
4/12/ 0 27252.429 s
23- 155 keV

28 / 3 / 1



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

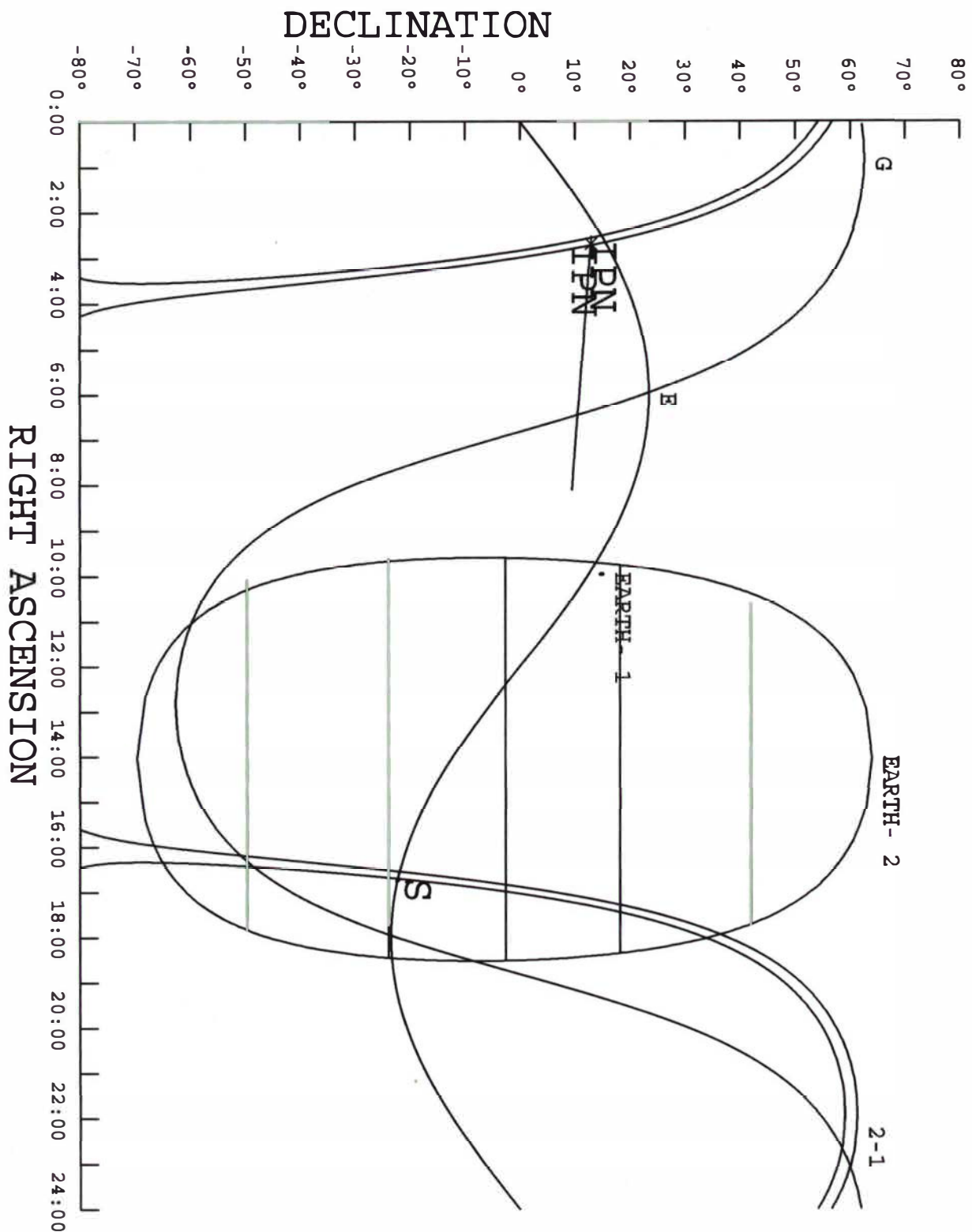
G=GALACTIC EQUATOR

1 KONUS2

2 SAX

EVENT OF DEC 4, 2000 8:01

7/12/ 0



KONUS2

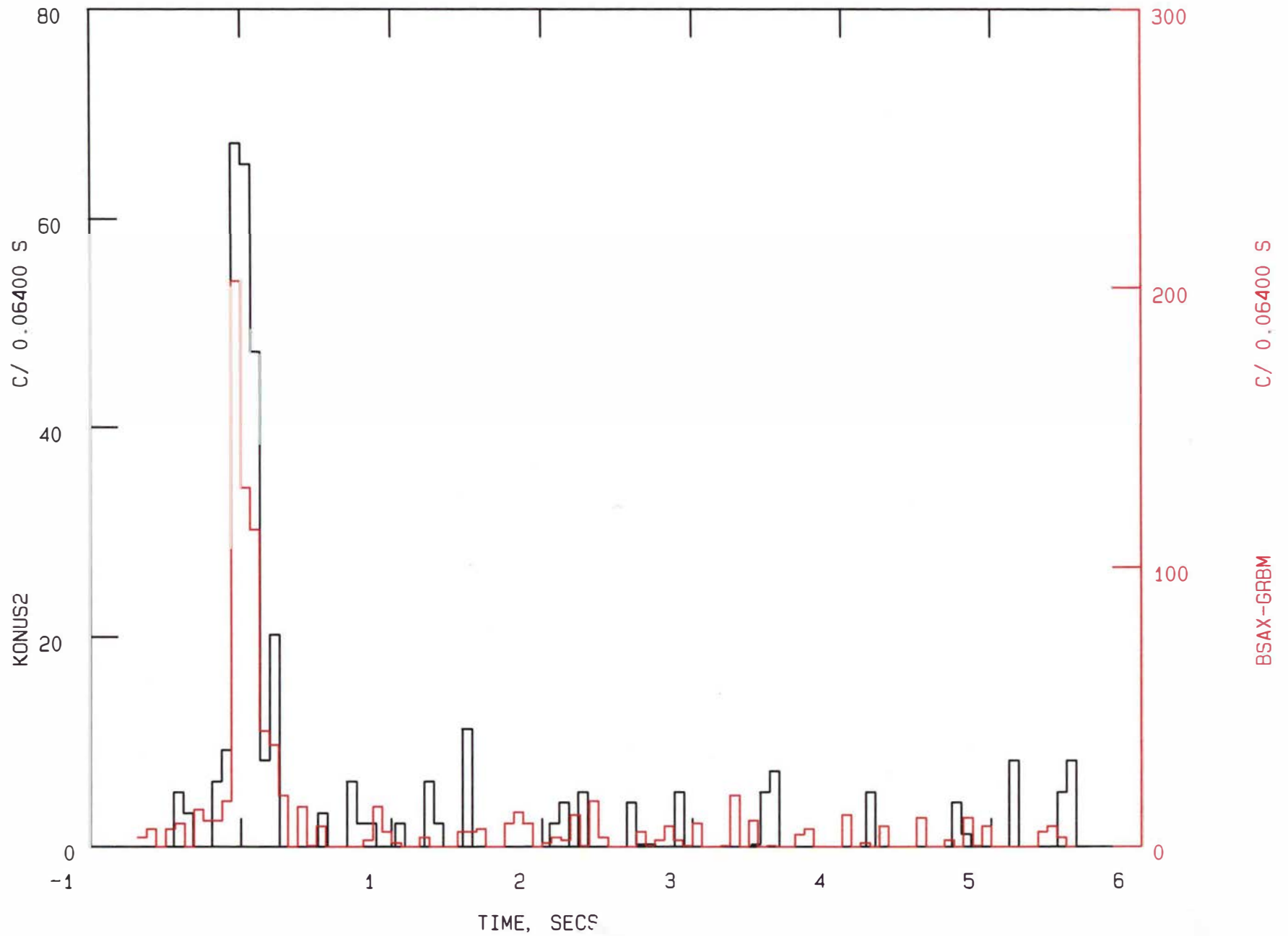
-BSAX-GRBM

CORRELATION

04/12/00

28869.372

7/12/ 0



7/12/ 0

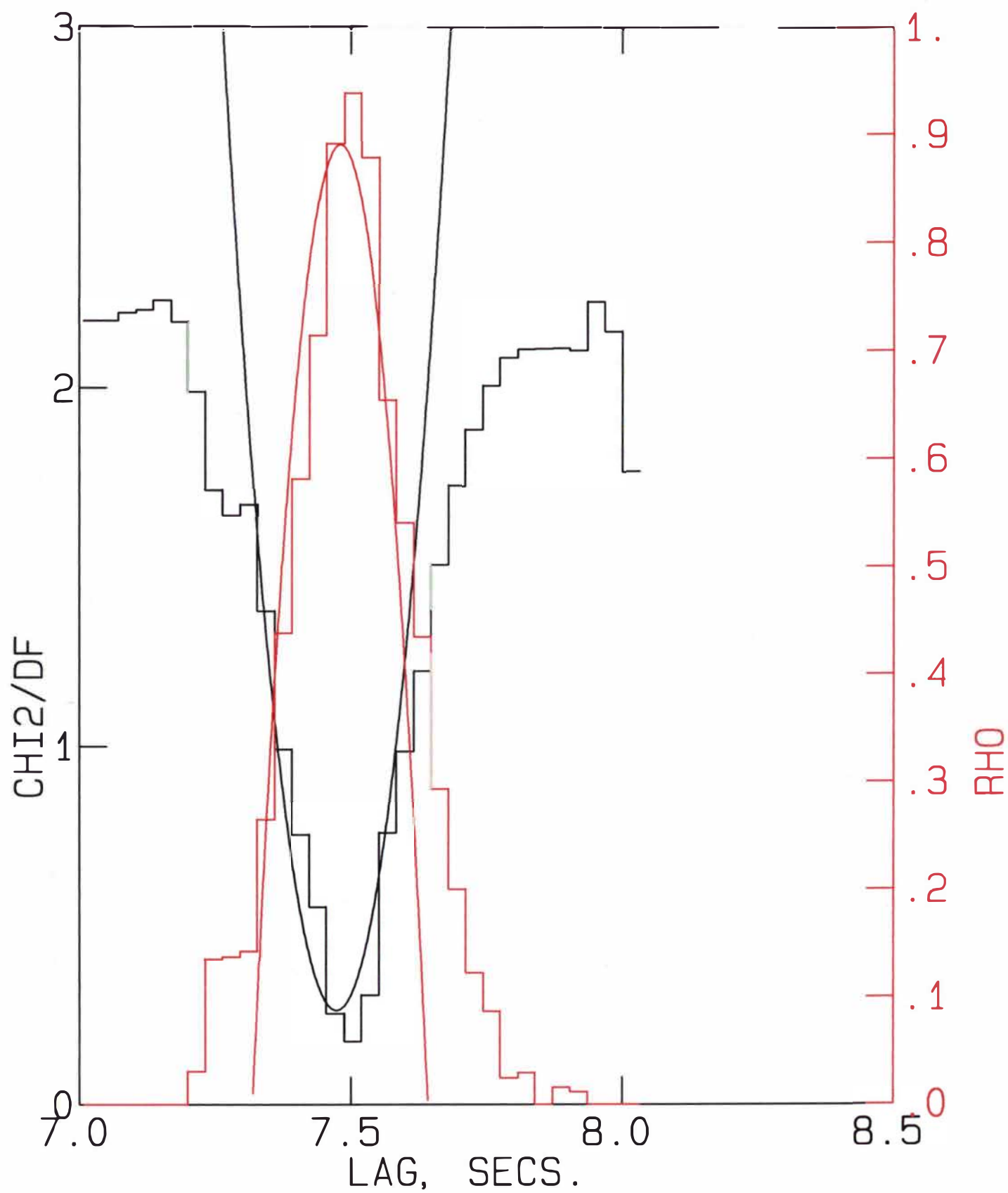
KONUS2

-BSAX-GRBM

CORRELATION

04/12/00

28869.372



From guidorzi@fe.infn.it Mon Dec 4 03:51 PST 2000
From: Auto GRB monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Mon, 4 Dec 2000 12:50:05 +0100 (MET)

1kGRB[137] #LSs: 4 Good HRR: 6
SW Trigger Time (OBT): 3730.920
UTC: Mon, 04 Dec 2000 08:01:10:51360 28870

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.241

Nsig(trg):	12.0	13.2	4.8	23.1	9.9	9.5	3.4	15.7
Nsig(pfl):	12.0	13.2	4.8	23.1	9.9	9.5	3.4	15.7
Bkg lev. :	767	865	774	685	849	904	835	909
ChiSq R. :	1.216	0.919	0.915	0.858	0.903	0.933	0.918	0.880

Peak fl. :	332	388	133	605	289	285	98	474
------------	-----	-----	-----	-----	-----	-----	----	-----

Dur (s) :	1.00	1.00	1.00	1.00				
Abundance:	1	1	1	1				
H. Ratio :	0.872	0.735	0.737	0.784				
HR Ratio :	1.185	1.183	1.112	0.998	0.938	0.940		

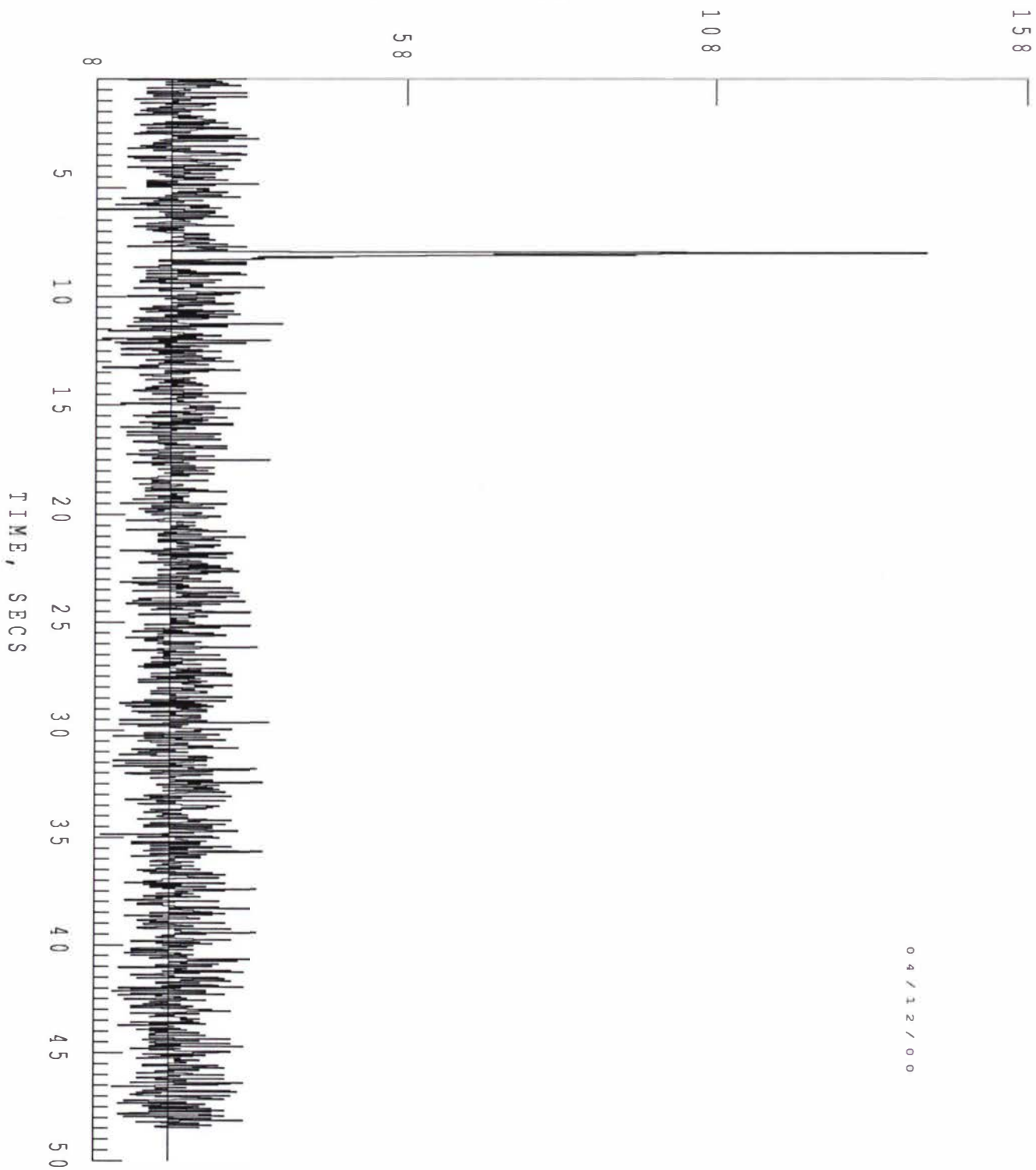
BSAX-GRBM

04/12/00

28862.273

40 - 700 keV

COUNTS/0.031 S



04/12/00

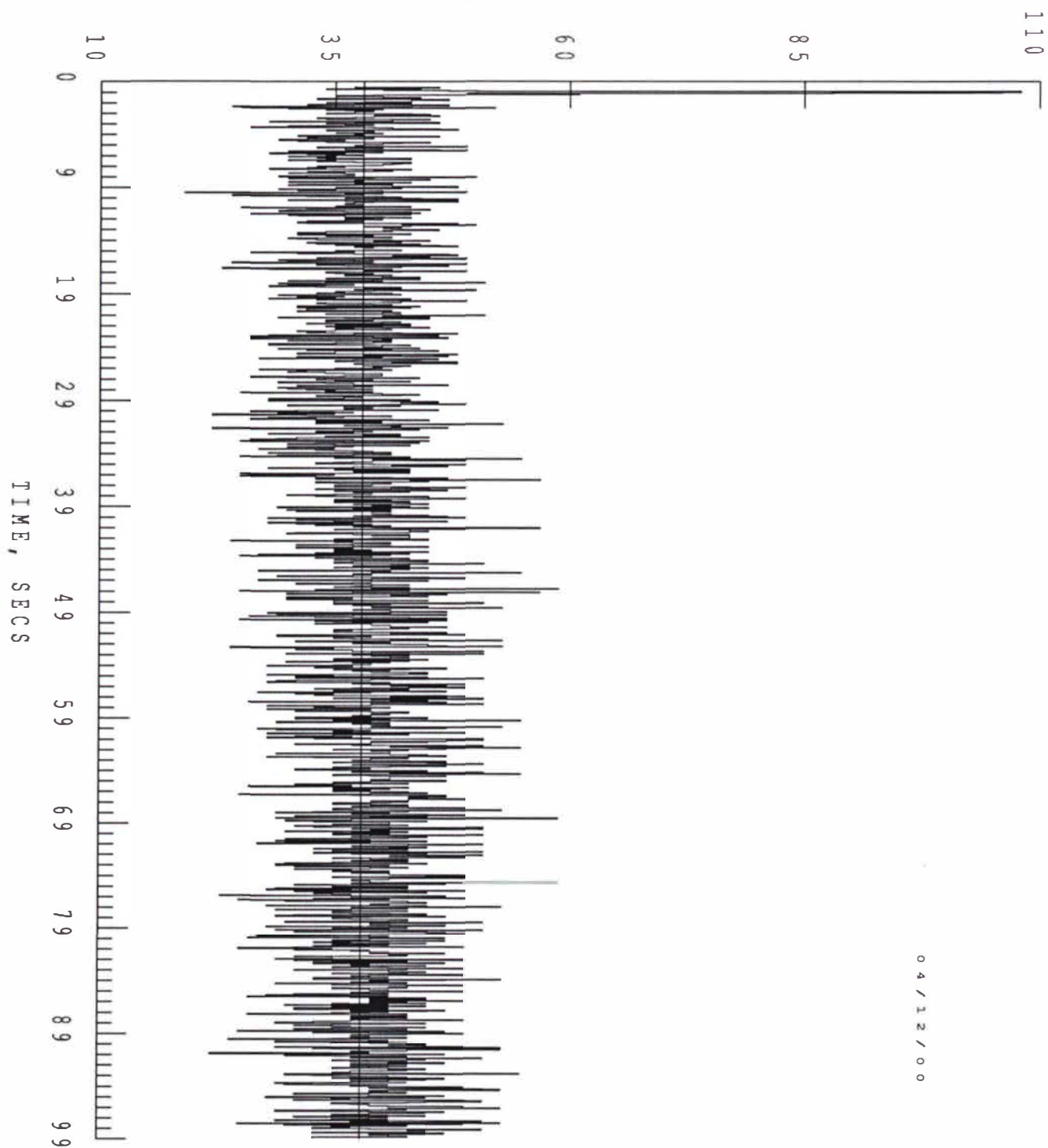
KONUS2

04/12/00

28869.372

50 - 200 keV

COUNTS/0.064 S



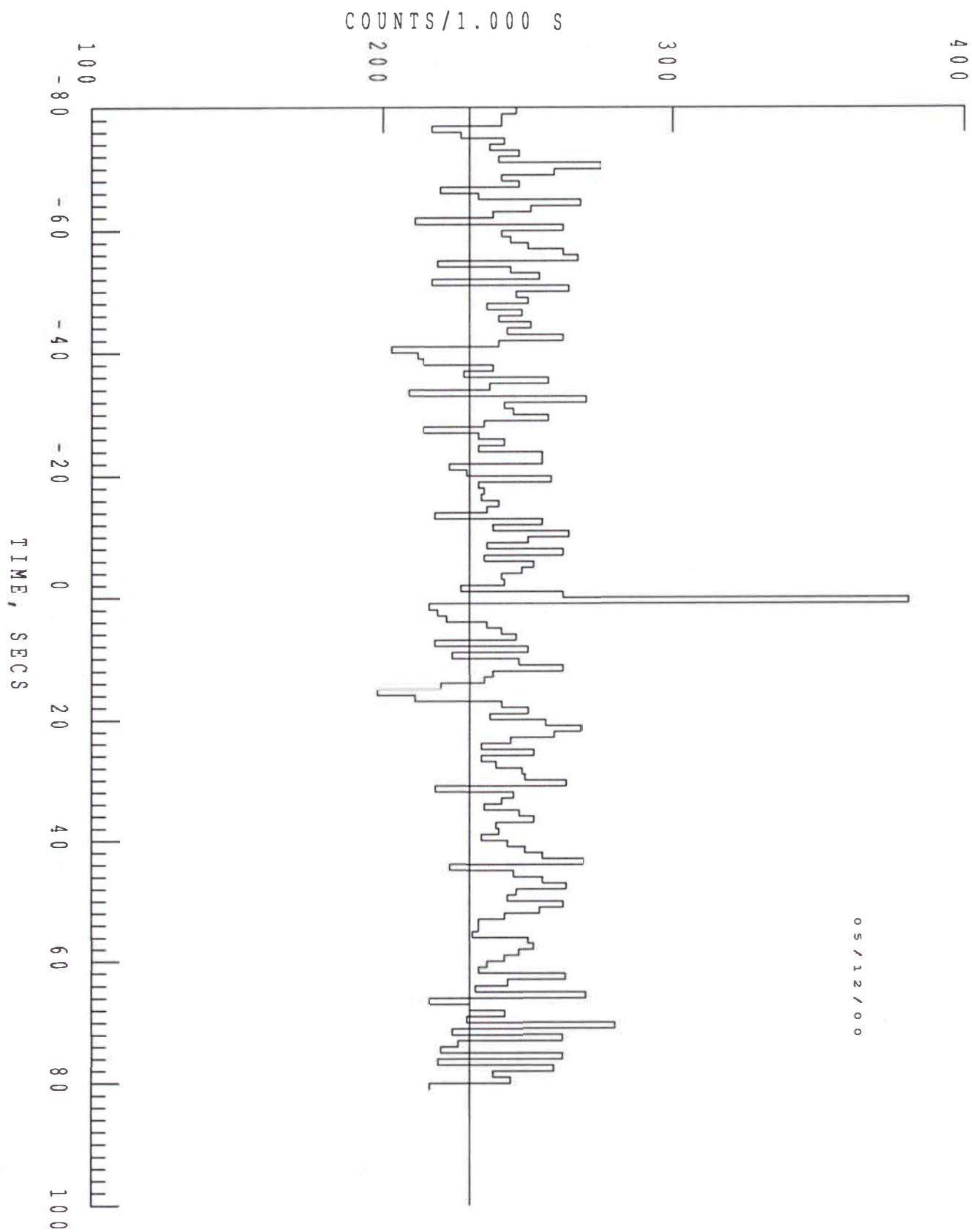
04/12/00

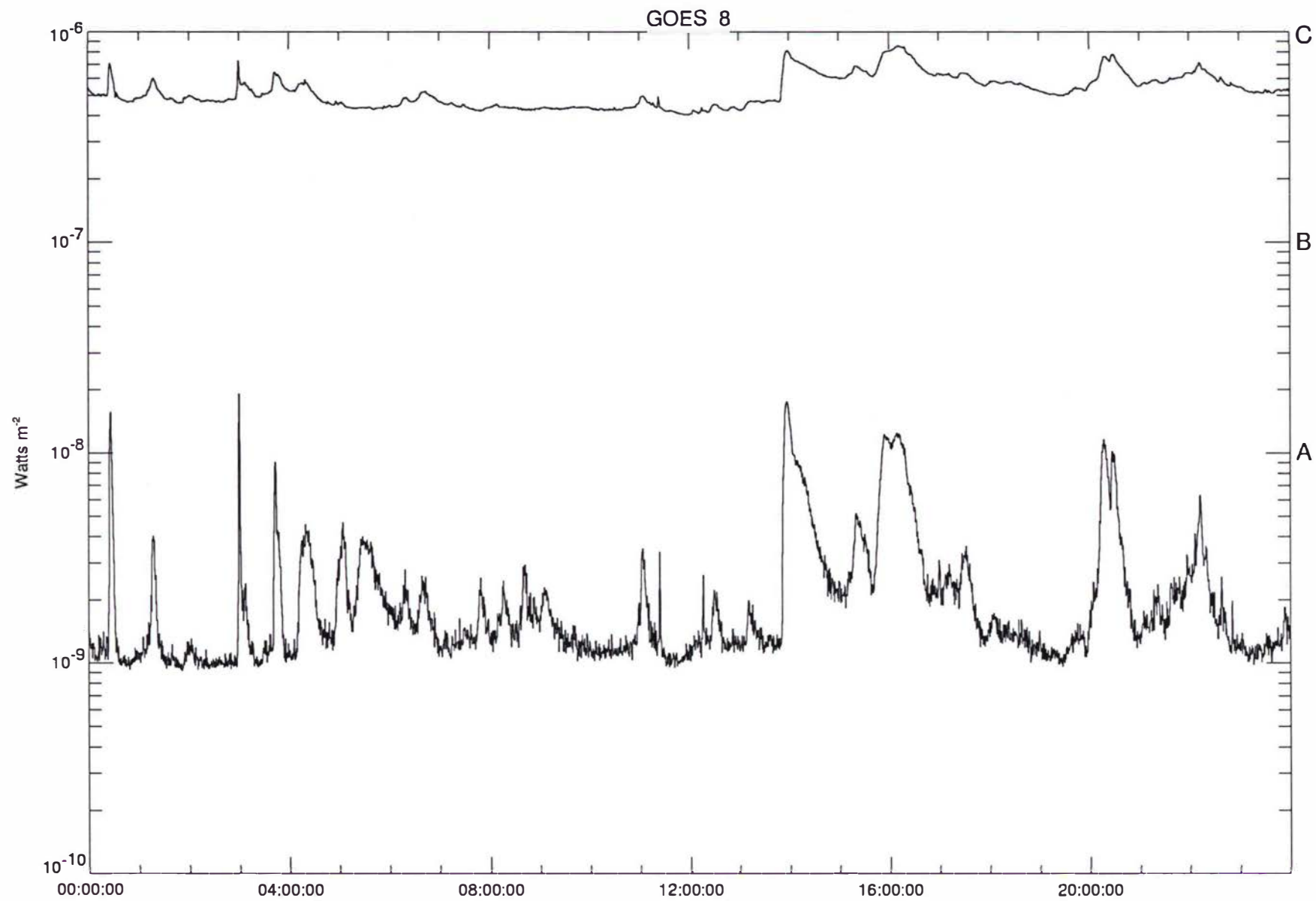
NEAR

04/12/00

28813.389

100-1000 keV





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

Channel

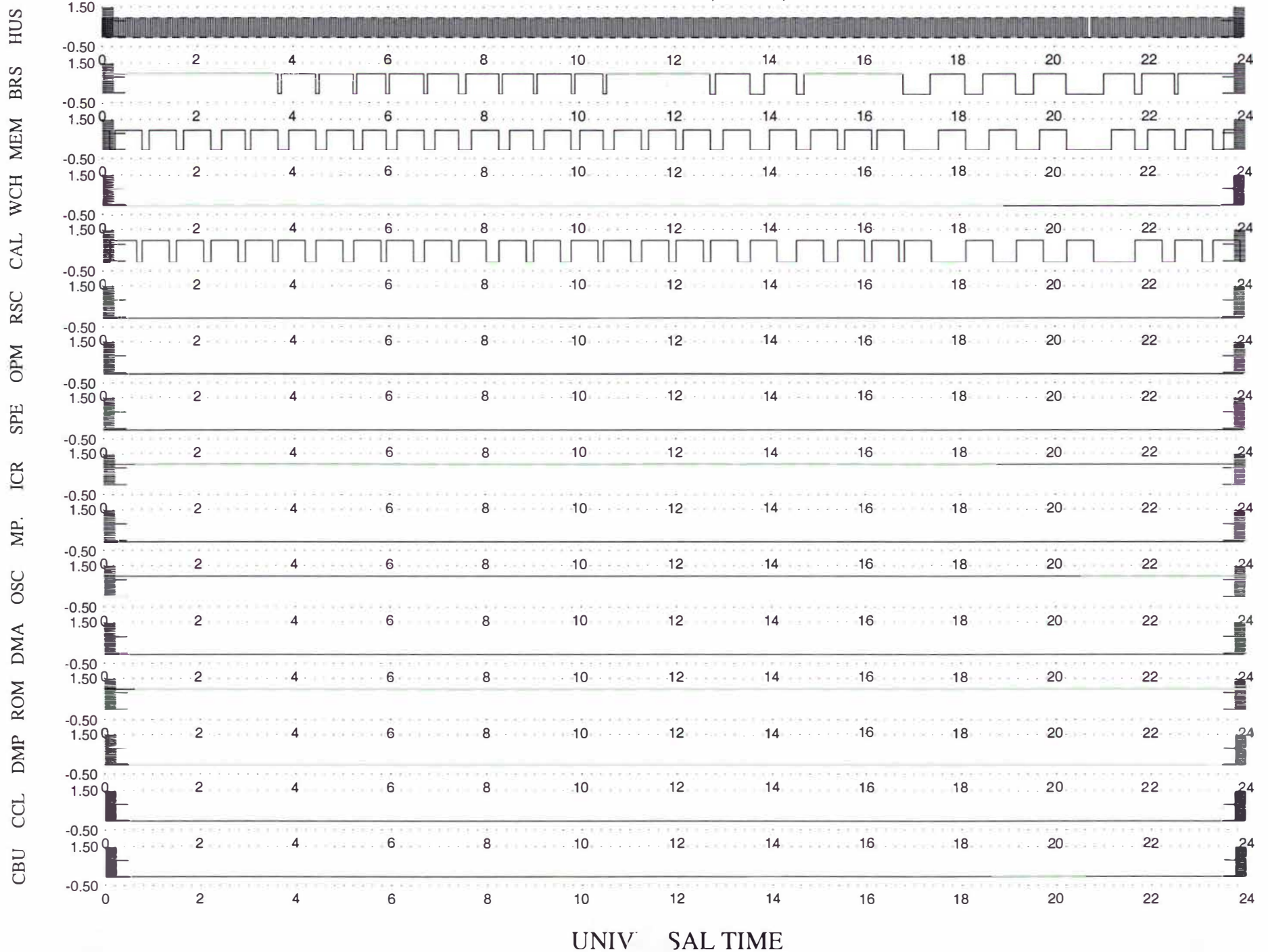
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

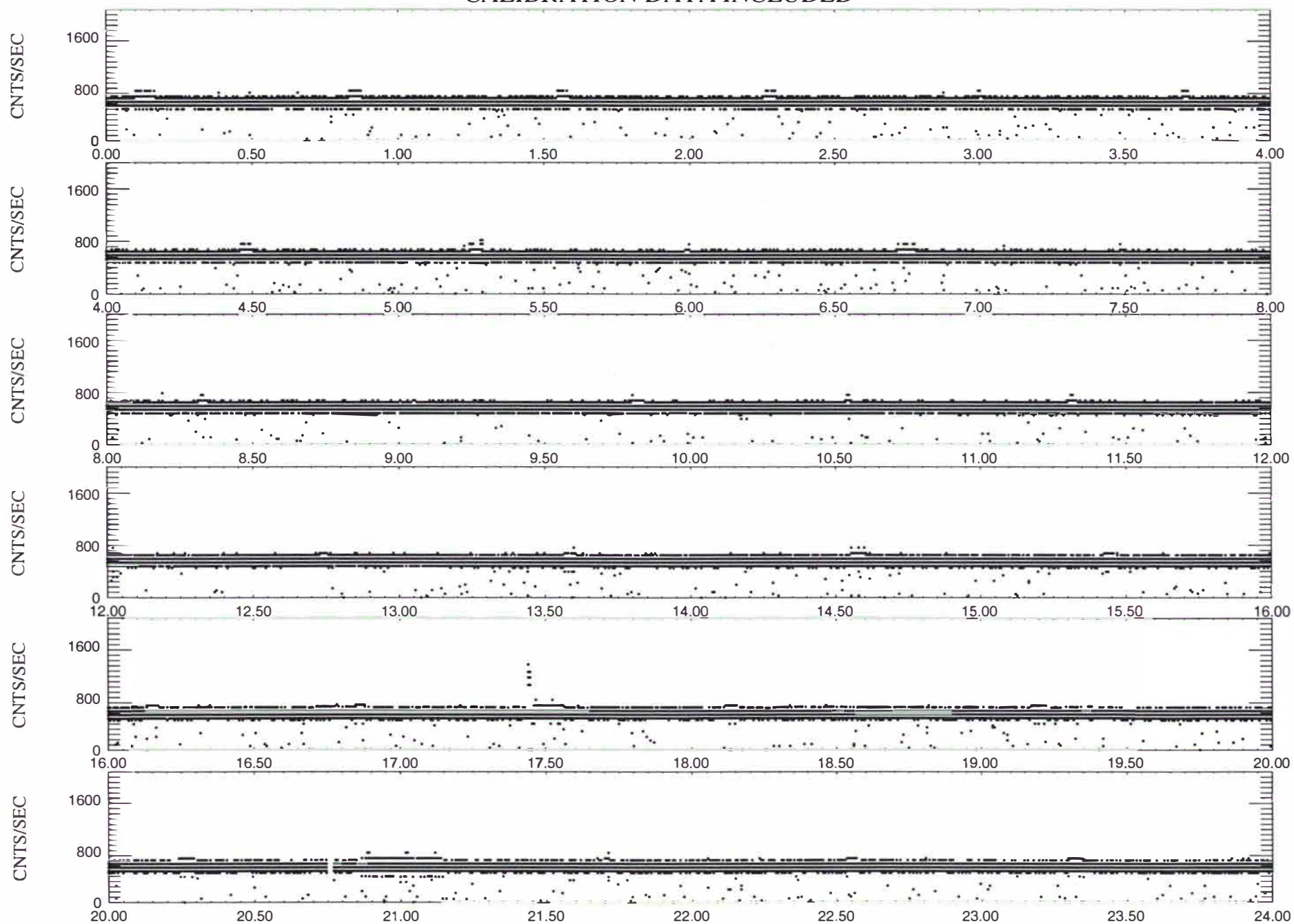
Plot created: 00/12/08, 1057

Sample average = 10

BURST NUMBER 8 - 15, 0 - 15, 0 - 4

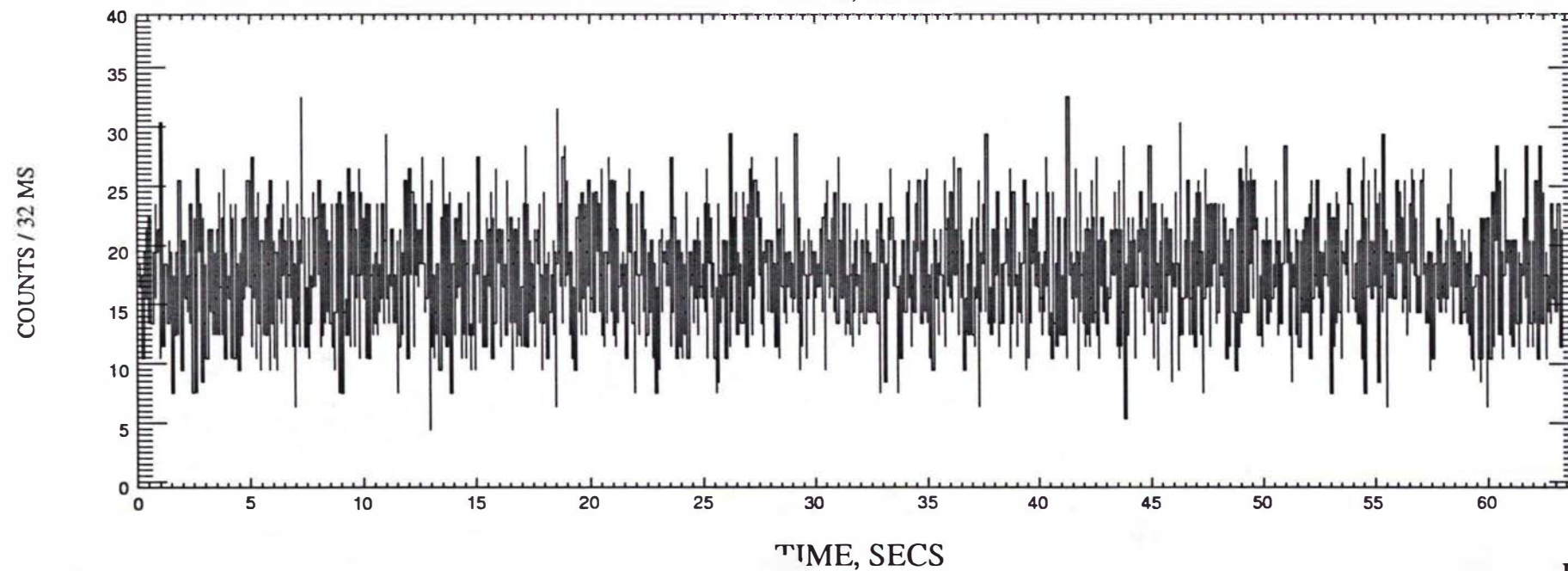
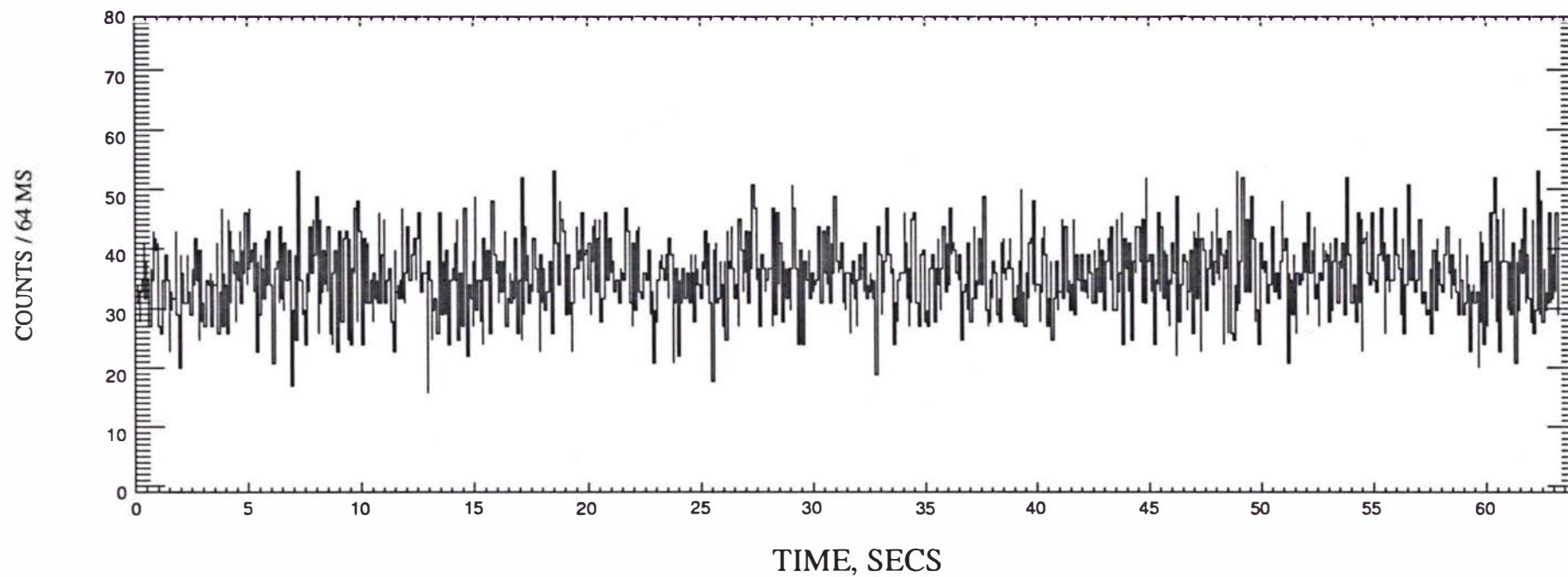


CALIBRATION DATA INCLUDED

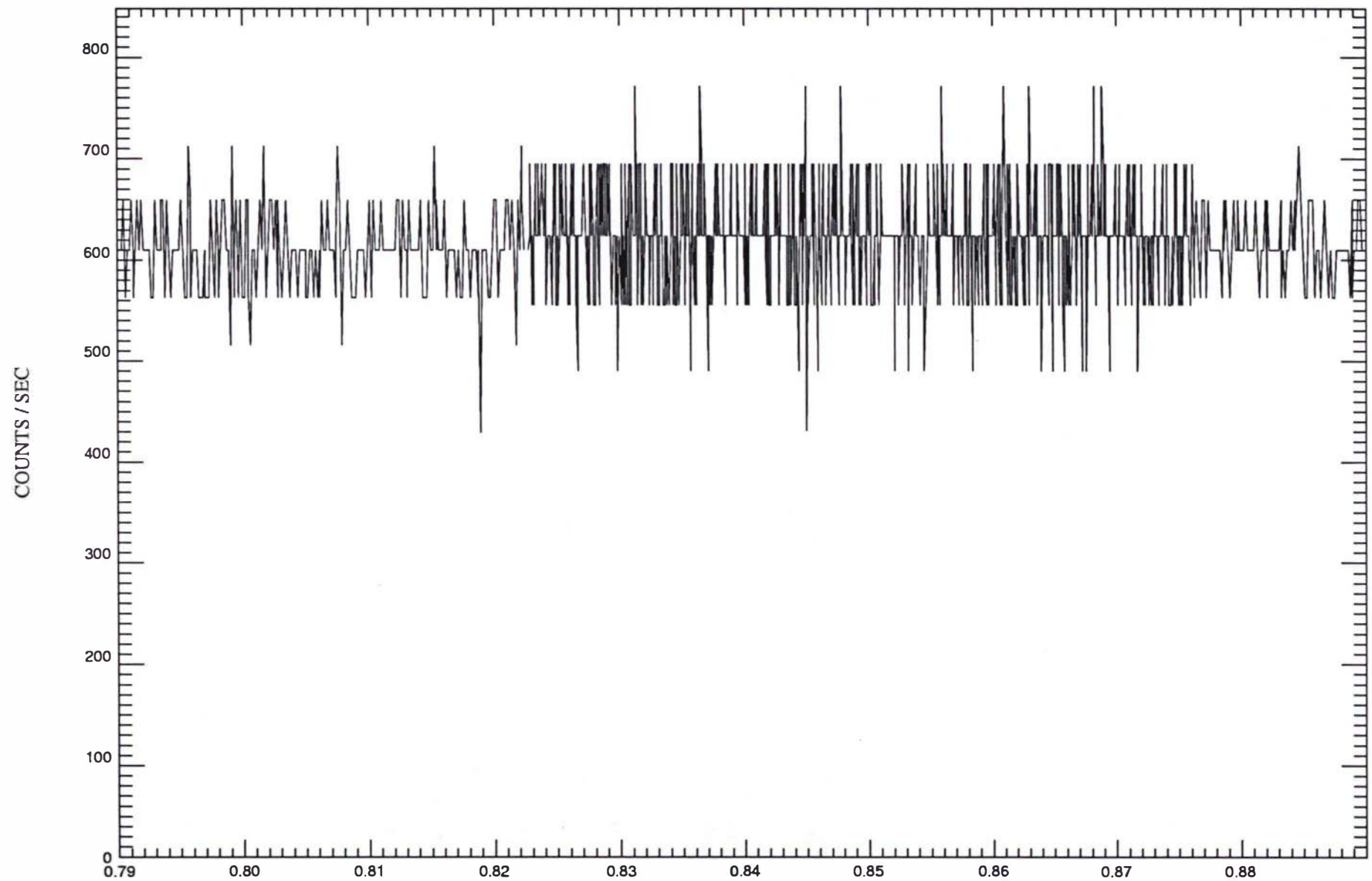


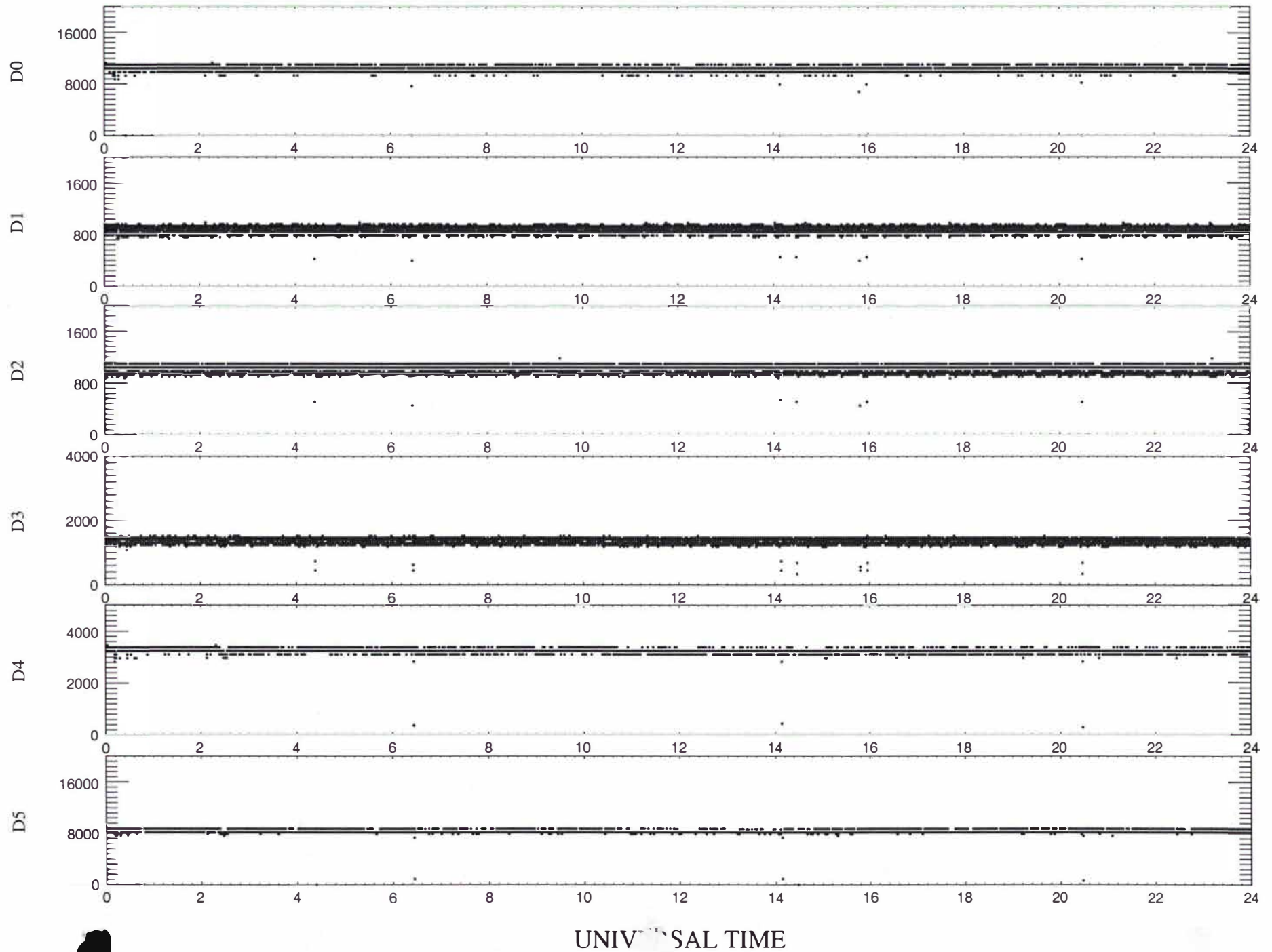
UNIVERSAL TIME

Burst Counter 8 at UT= 0.123583174811 h= 444.899 s 00:07:24.899



CALIBRATION DATA INCLUDED





GRBM 20001205 54541

ULYSSES RT

04/10/07

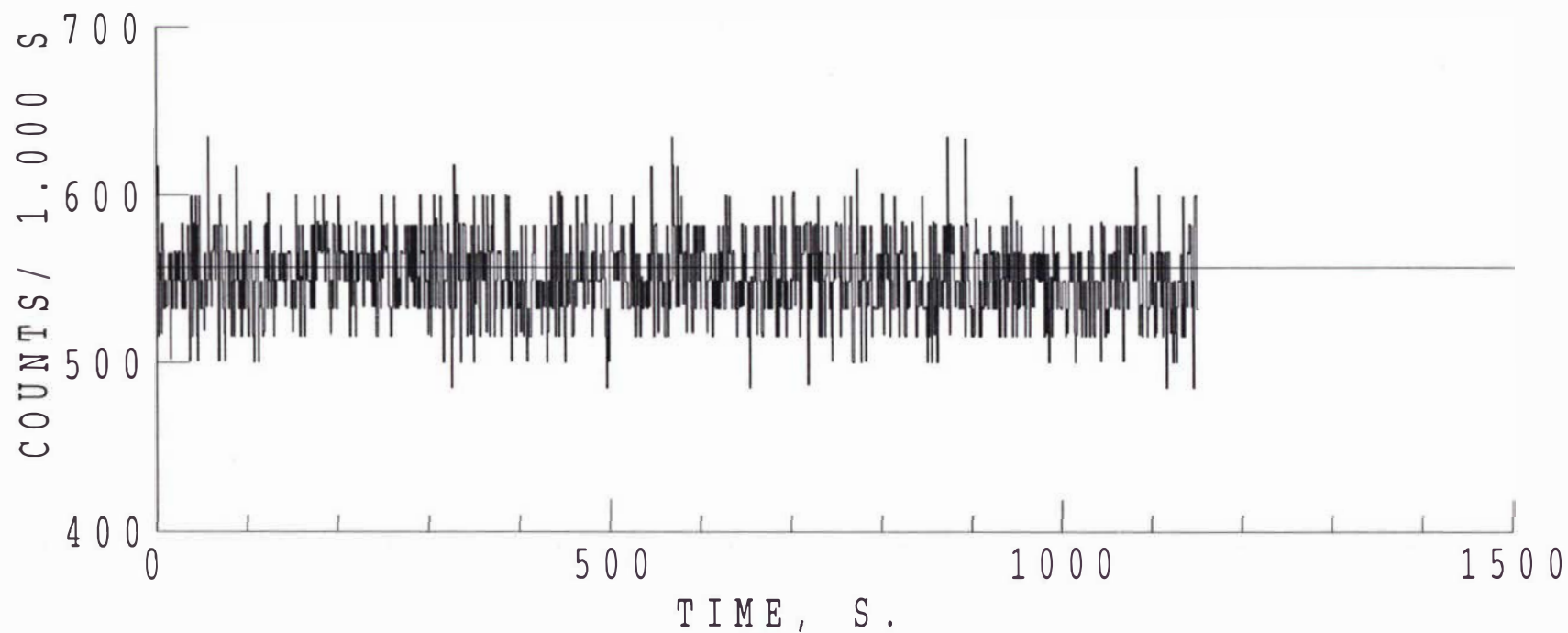
05/12/00 53964.105 s

0.250 S INTERVALS REGROUPED BY 4

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



SAX GRBM
HUS DATA

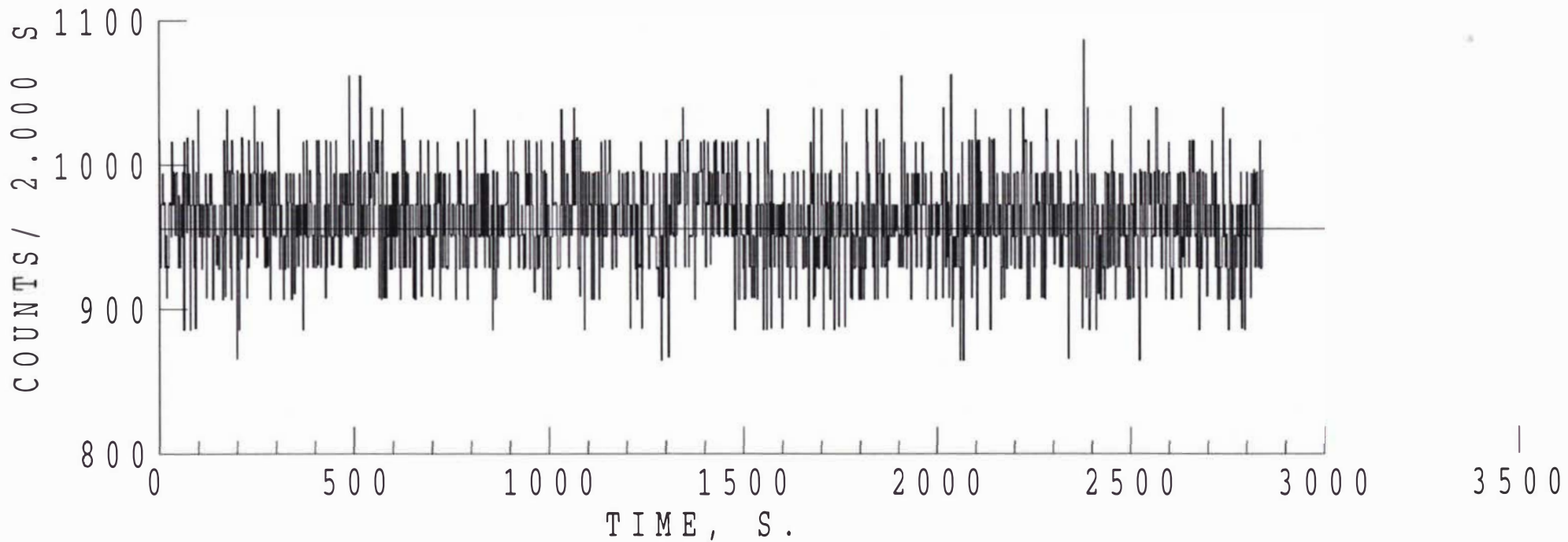
ULYSSES RT

19 / 07 / 05

05 / 11 / 00 33912.105 s
0.500 S INTERVALS REGROUPED BY 4
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Date: Tue, 5 Dec 2000 19:20:05 +0100 (MET)

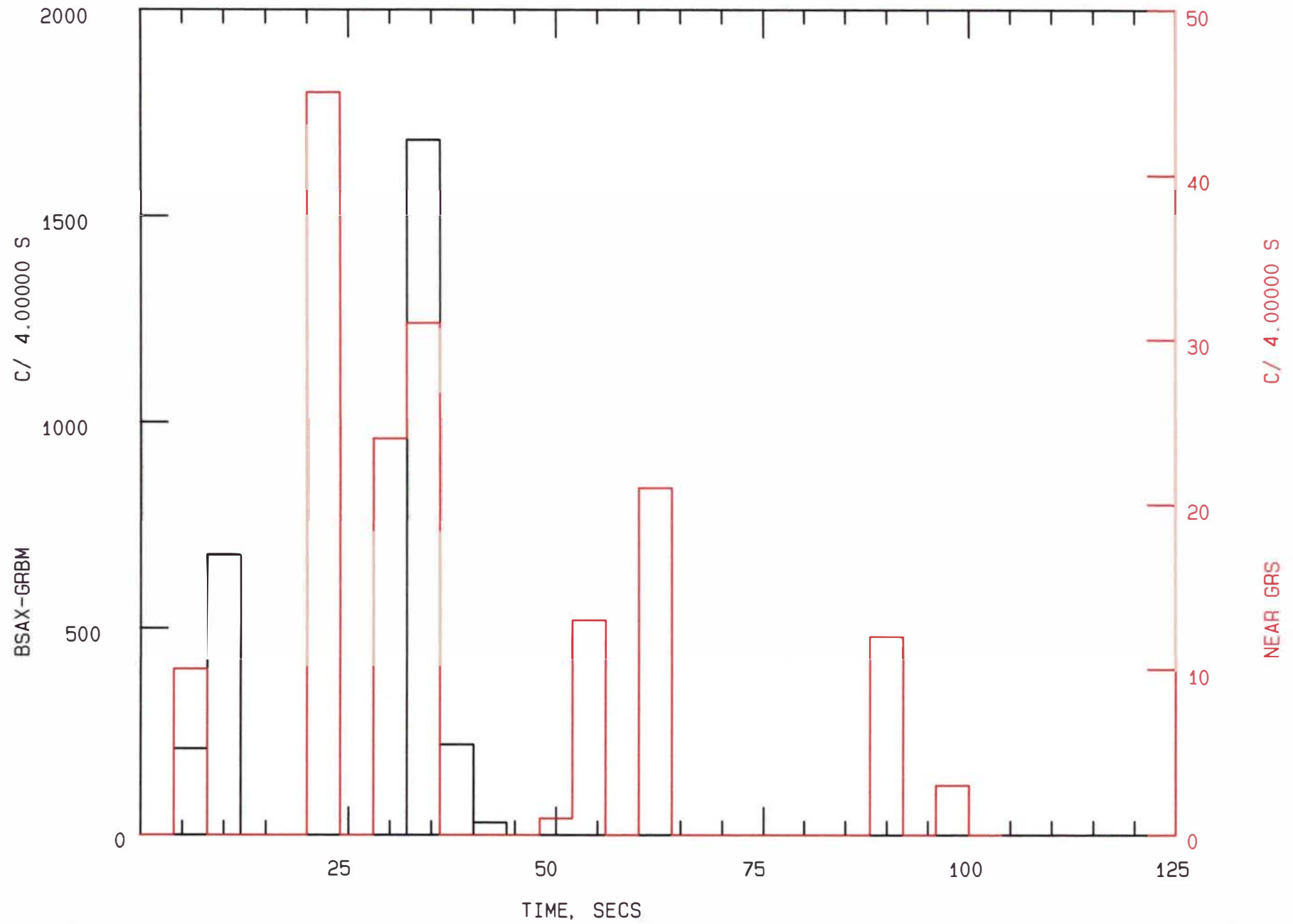
UTC: Tue, 05 Dec 2000 14:59:30:46719

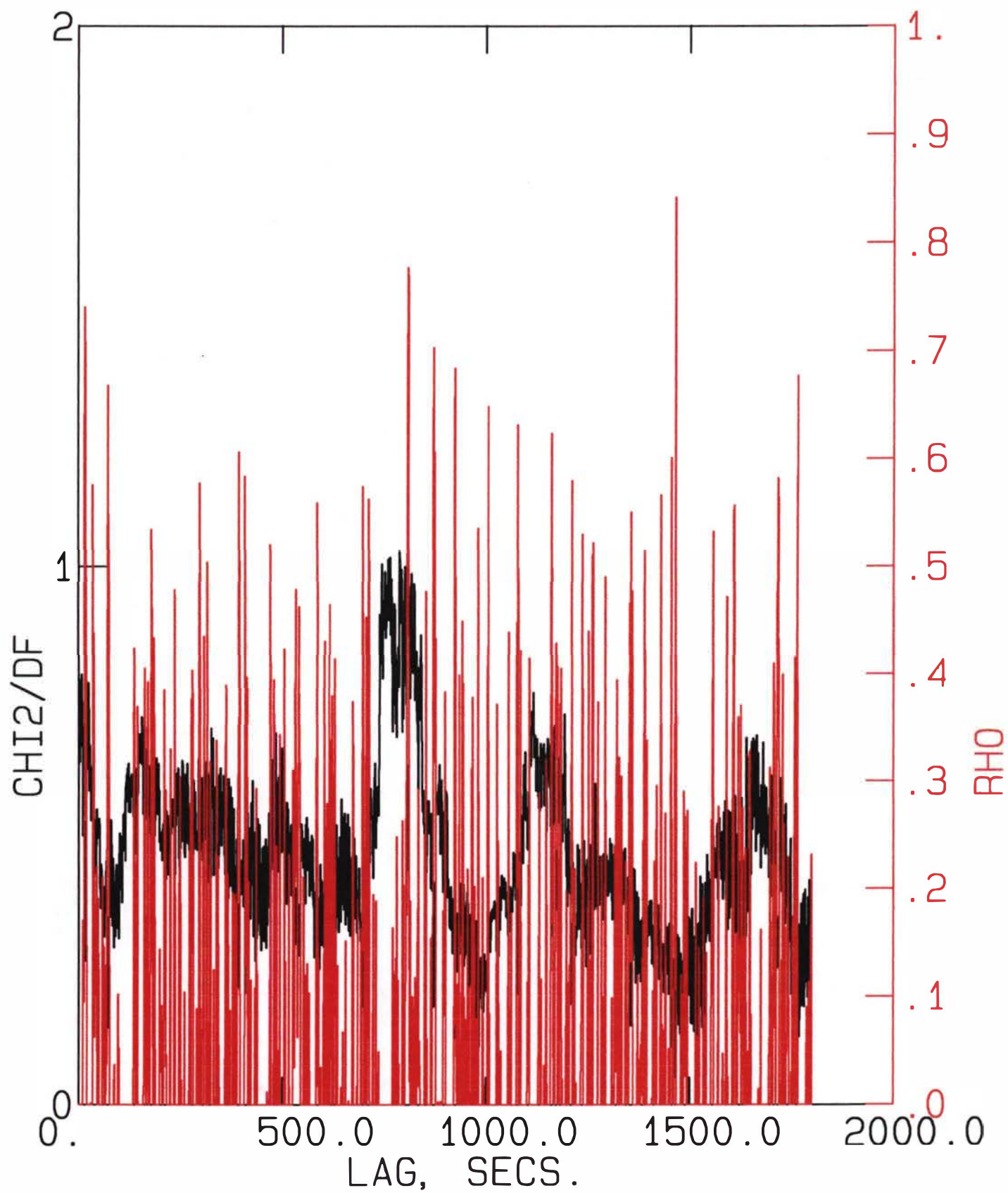
```
*****Event 0 triggered on board: ev_time - onbtrig time = 2.766
```

ChiSq R. : 0.891 0.928 1.247 1.181 0.788 0.862 1.026 0.847

Peak fl. :	300	405	0	0	228	254	0	0
------------	-----	-----	---	---	-----	-----	---	---

```
HR Ratio :      1.085      -1.000      -1.000      -1.000      -1.000      -1.000
```





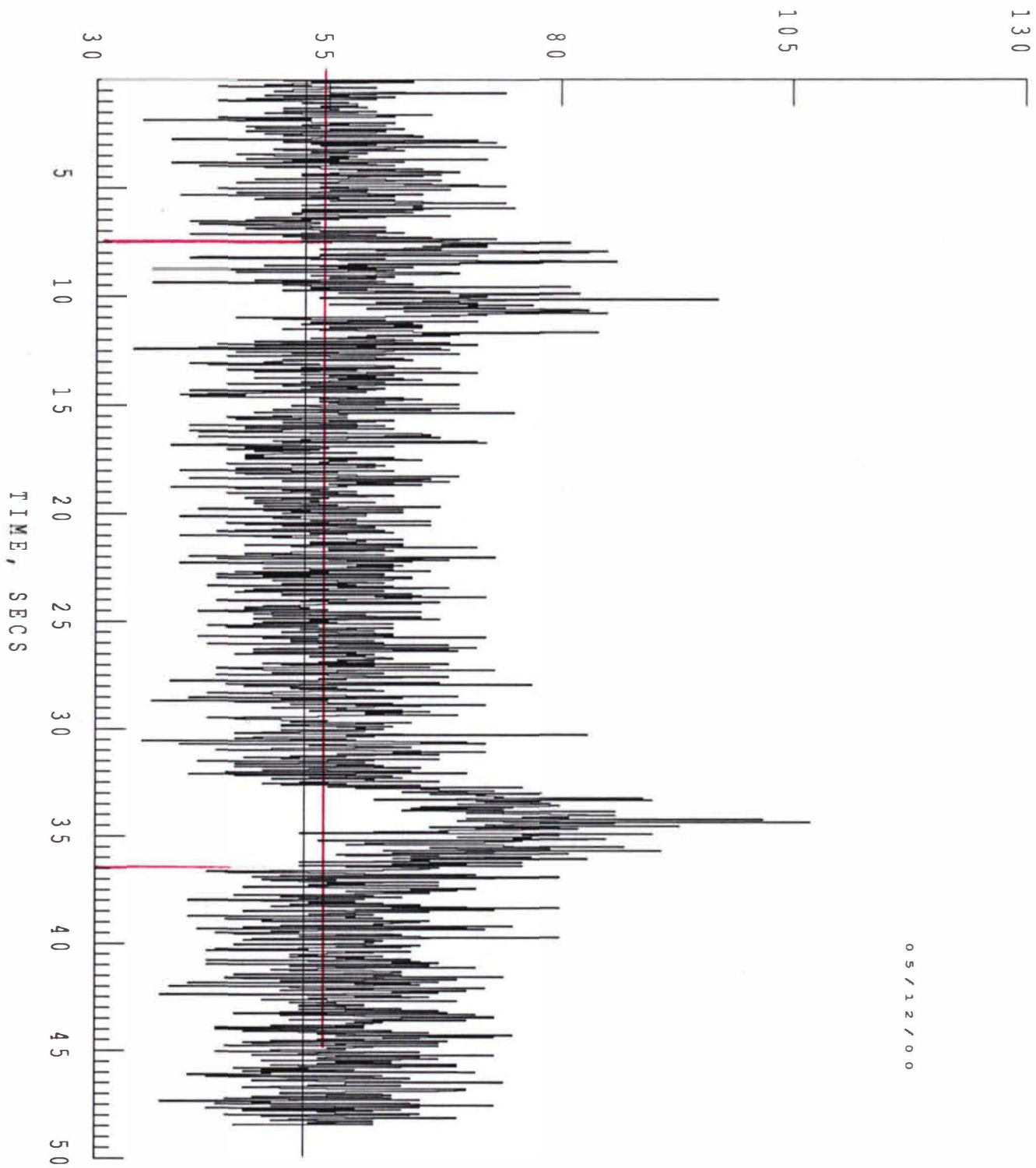
BSAX-GRBM

05/12/00

53959.701

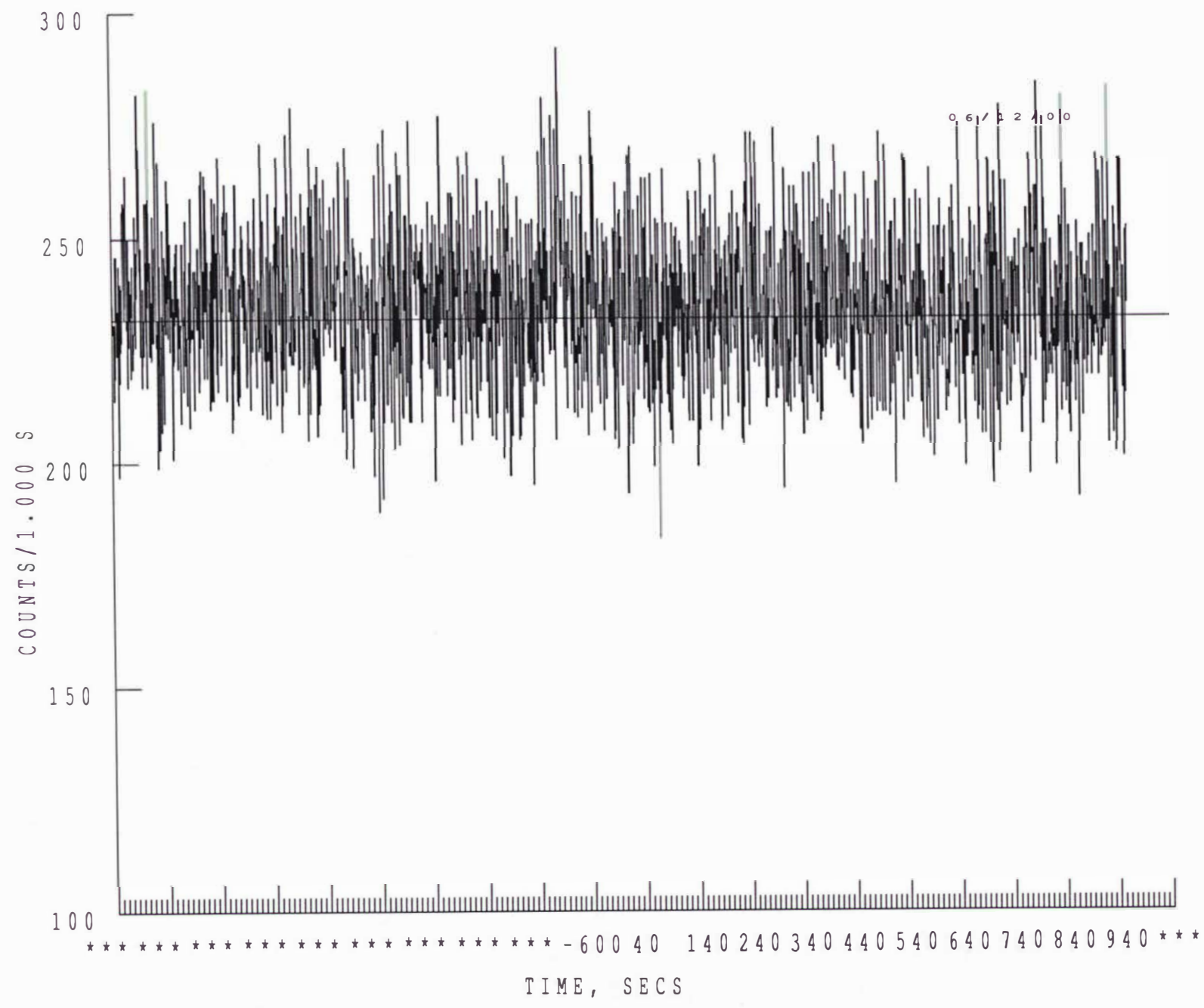
40- 700 keV

COUNTS/0.031 S



05/12/00

NEAR 05/12/00 53969.350
100-1000 keV



SAX 20001205 53970

ULYSSES RT

06/12/00

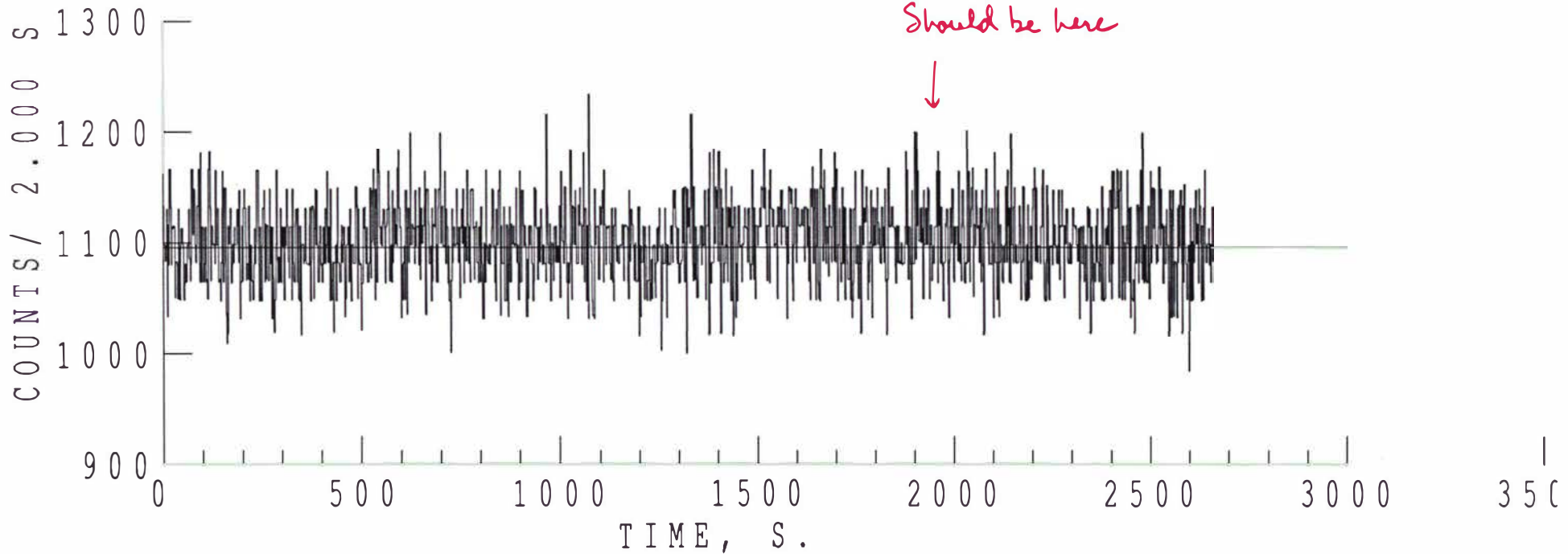
05/12/00 52632.090 s

0.250 S INTERVALS REGROUPED BY 8

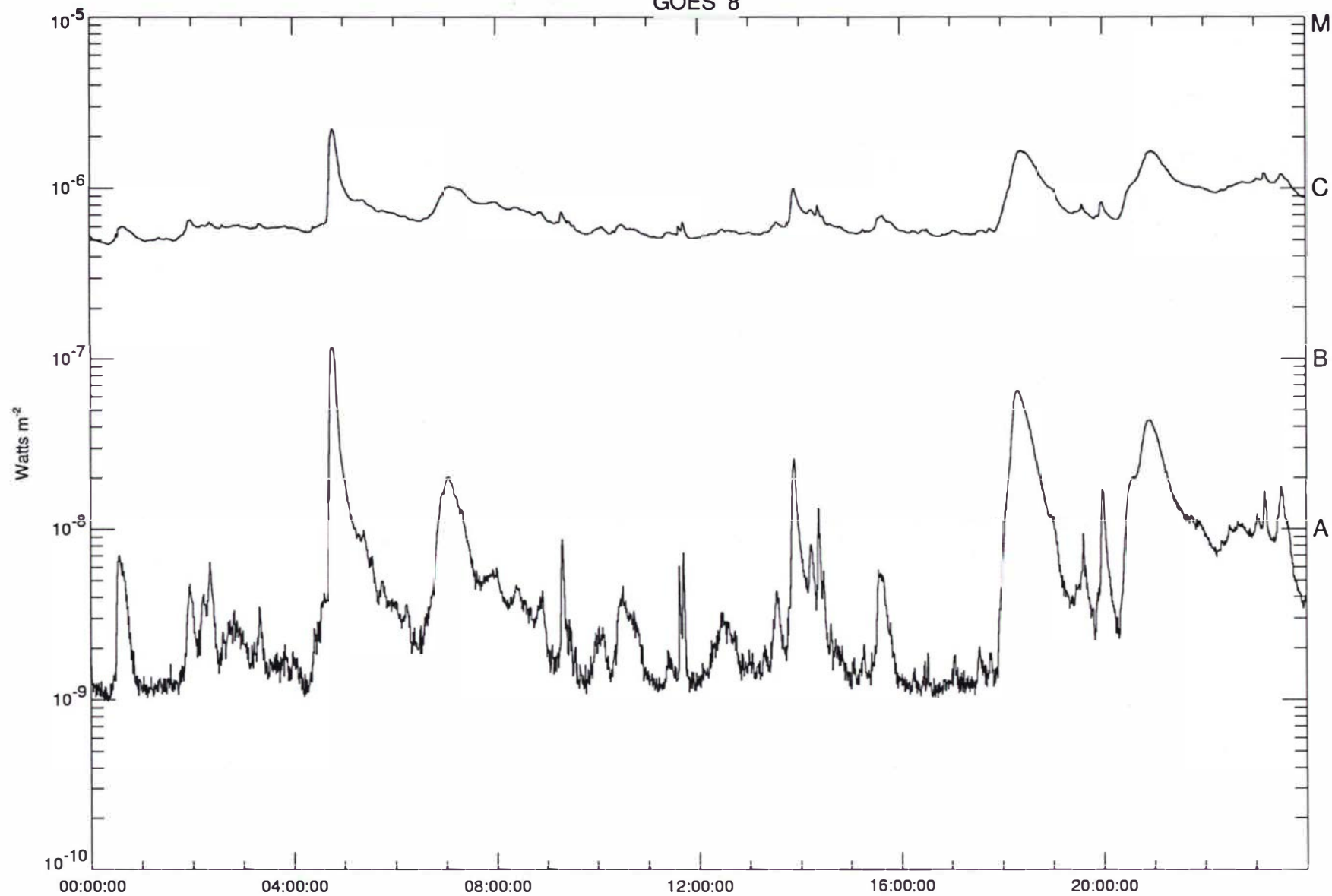
0 - 0 keV

U= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

U= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



GOES 8



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

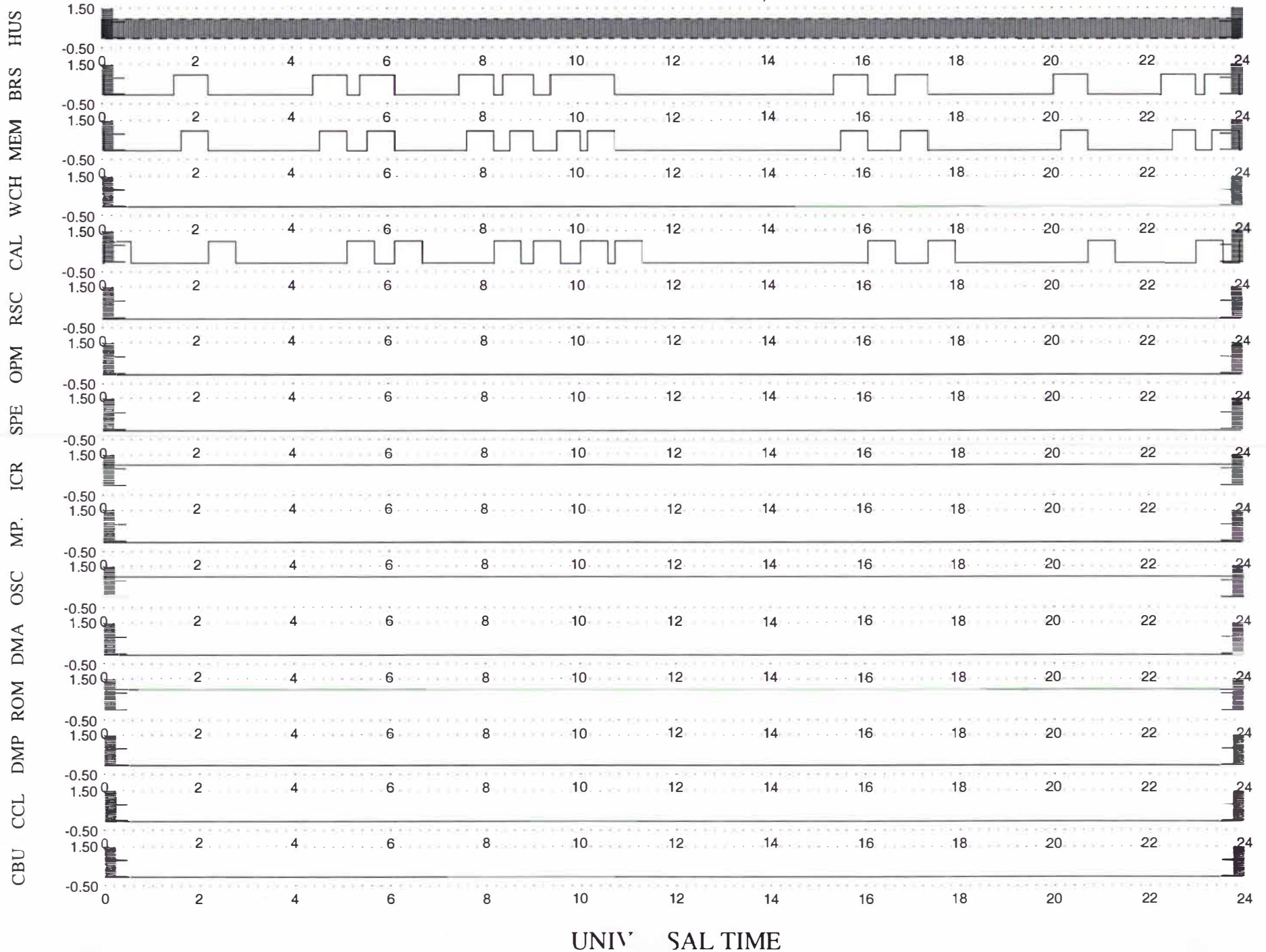
2 (0.5 - 4.0 Angstroms)

Background not subtracted

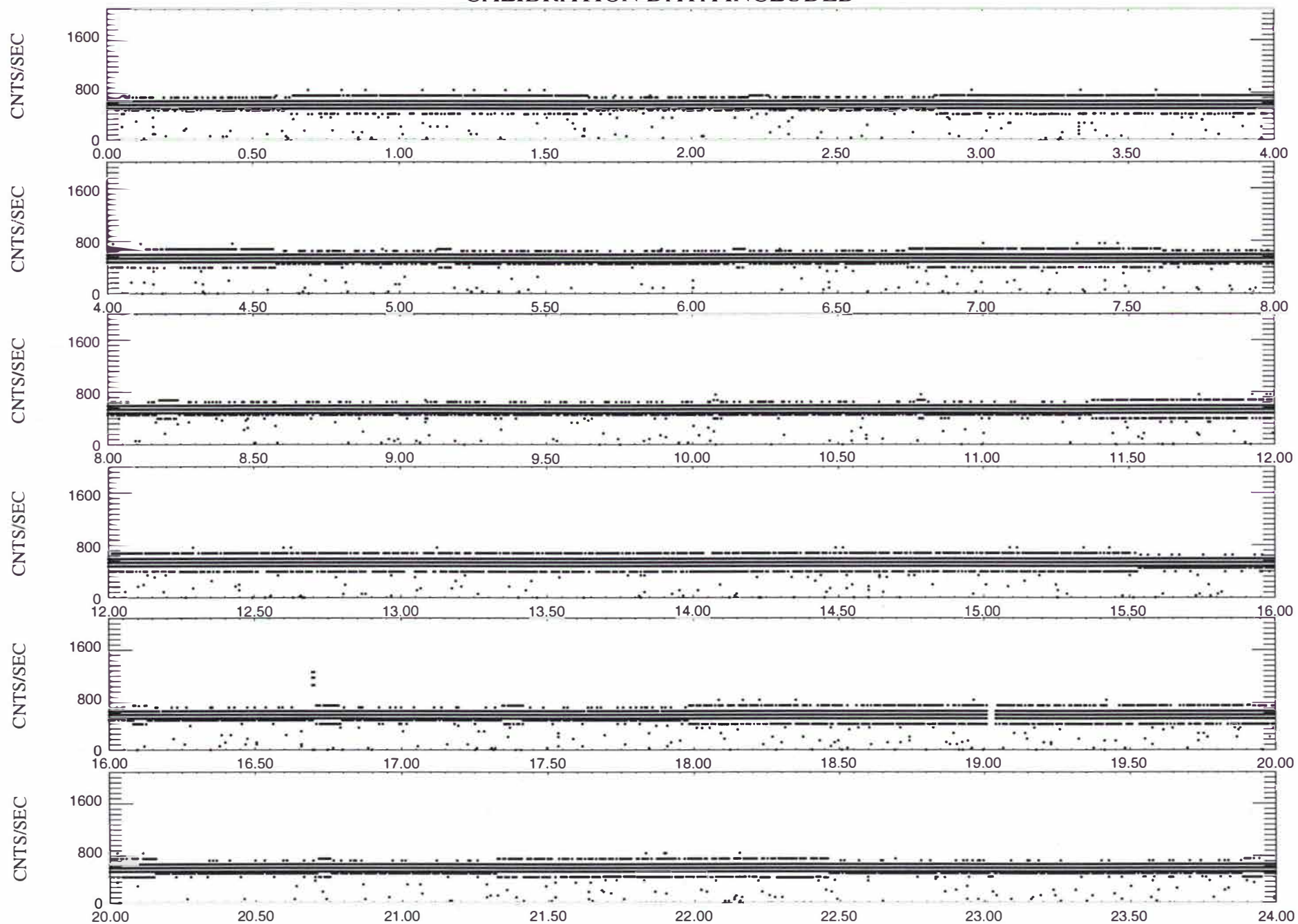
Plot created: 00/12/09, 1057

Sample average = 10

BURST NUMBER 5 - 15, 0

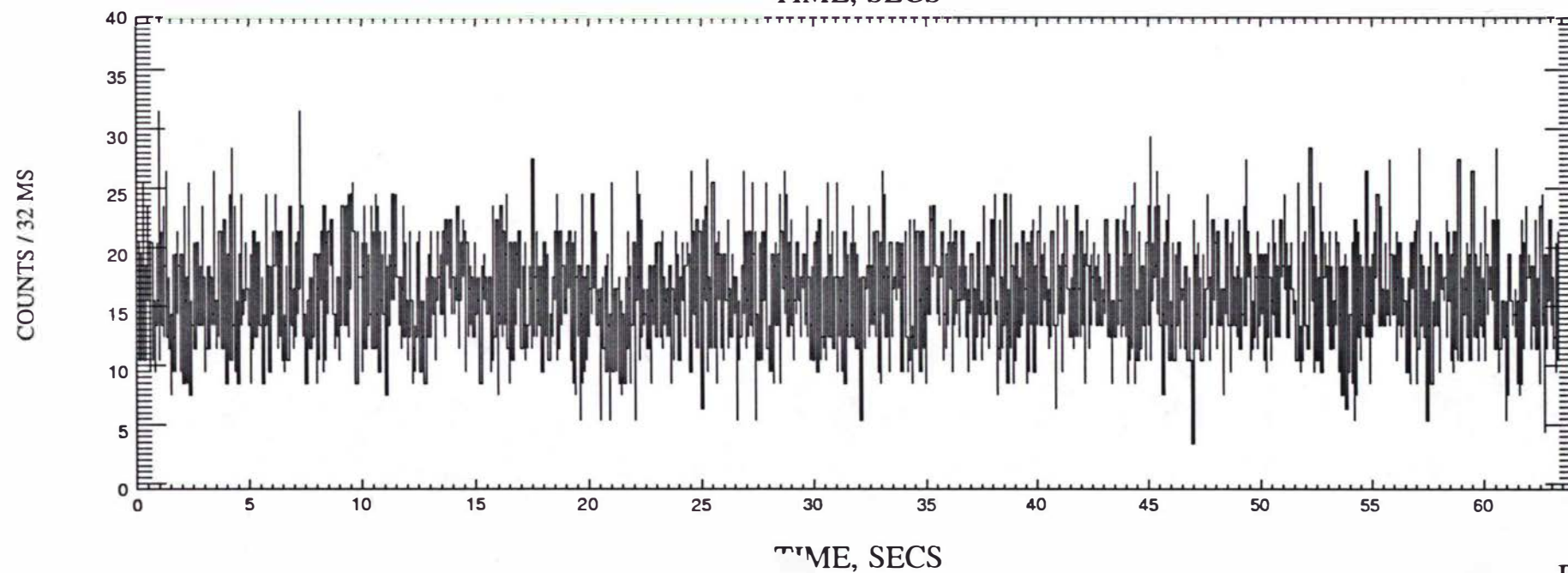
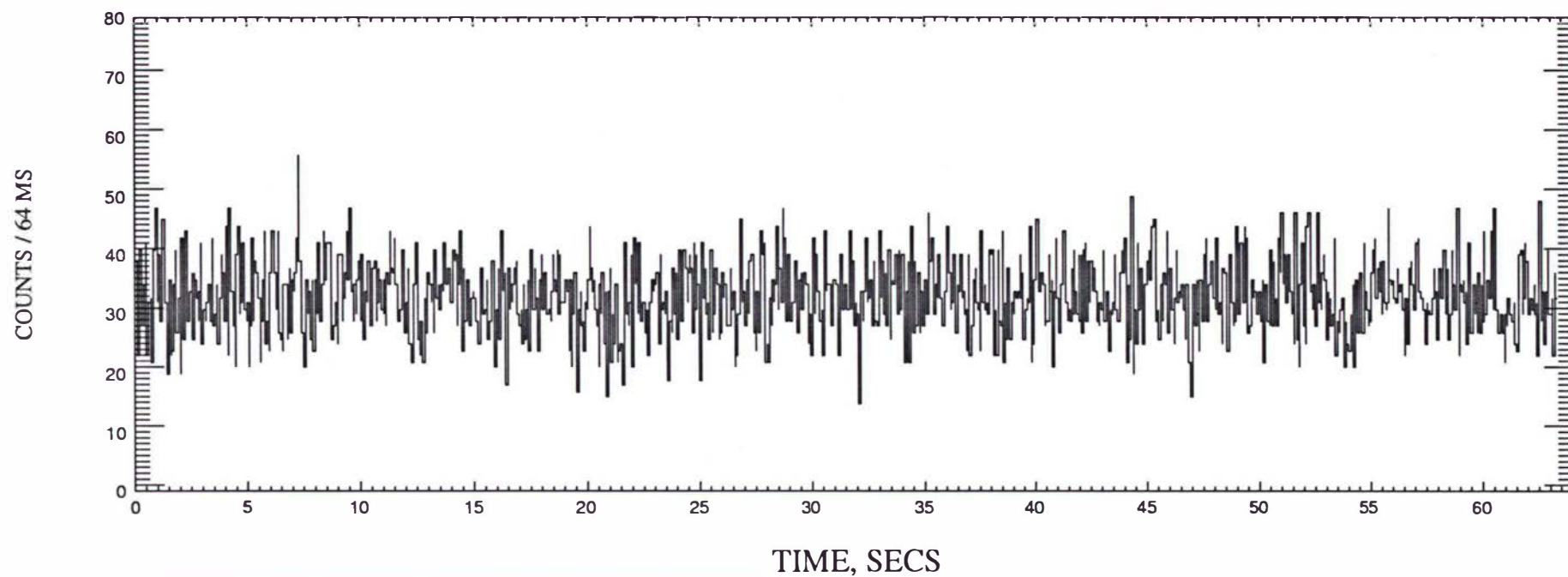


CALIBRATION DATA INCLUDED

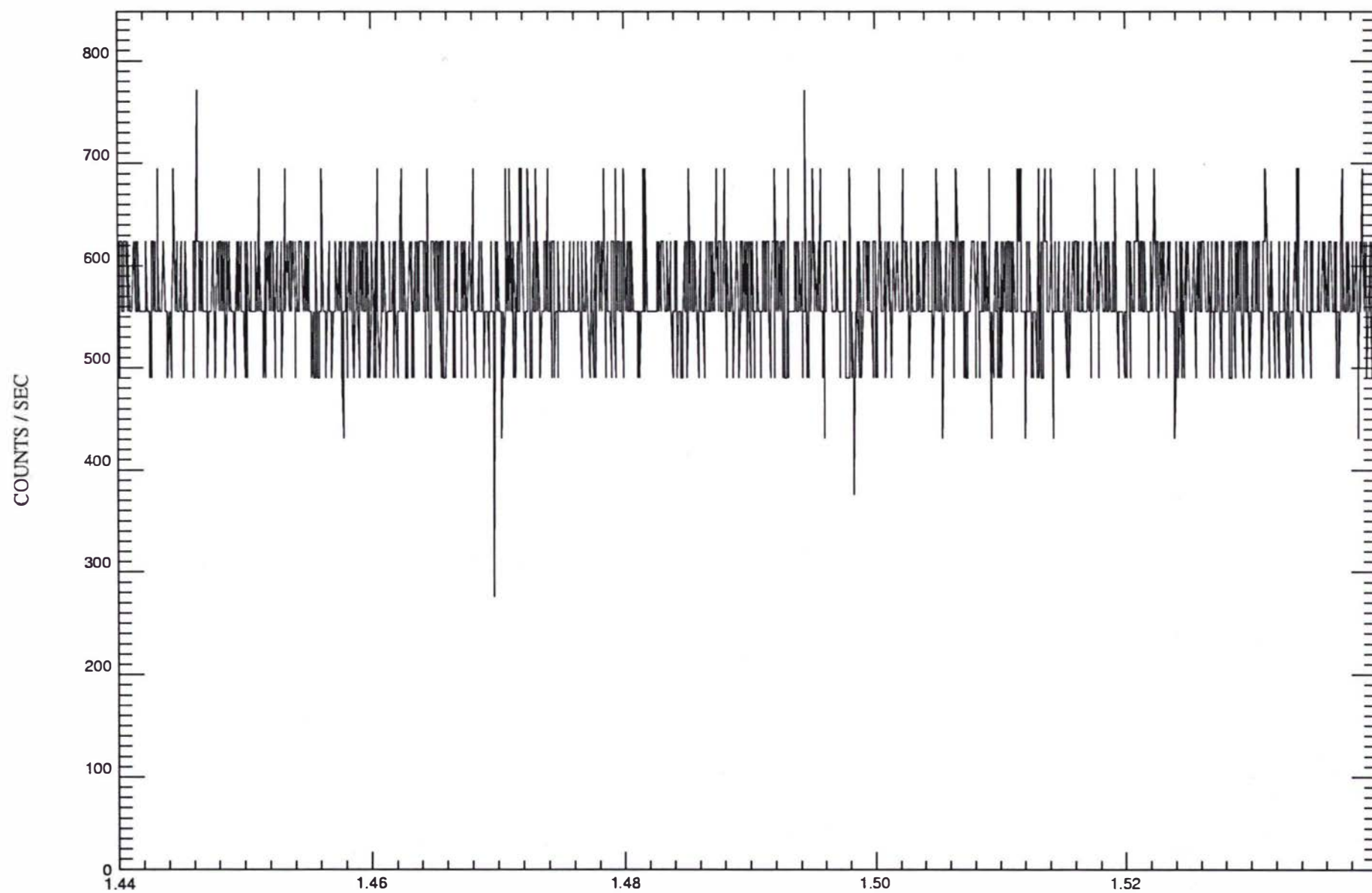


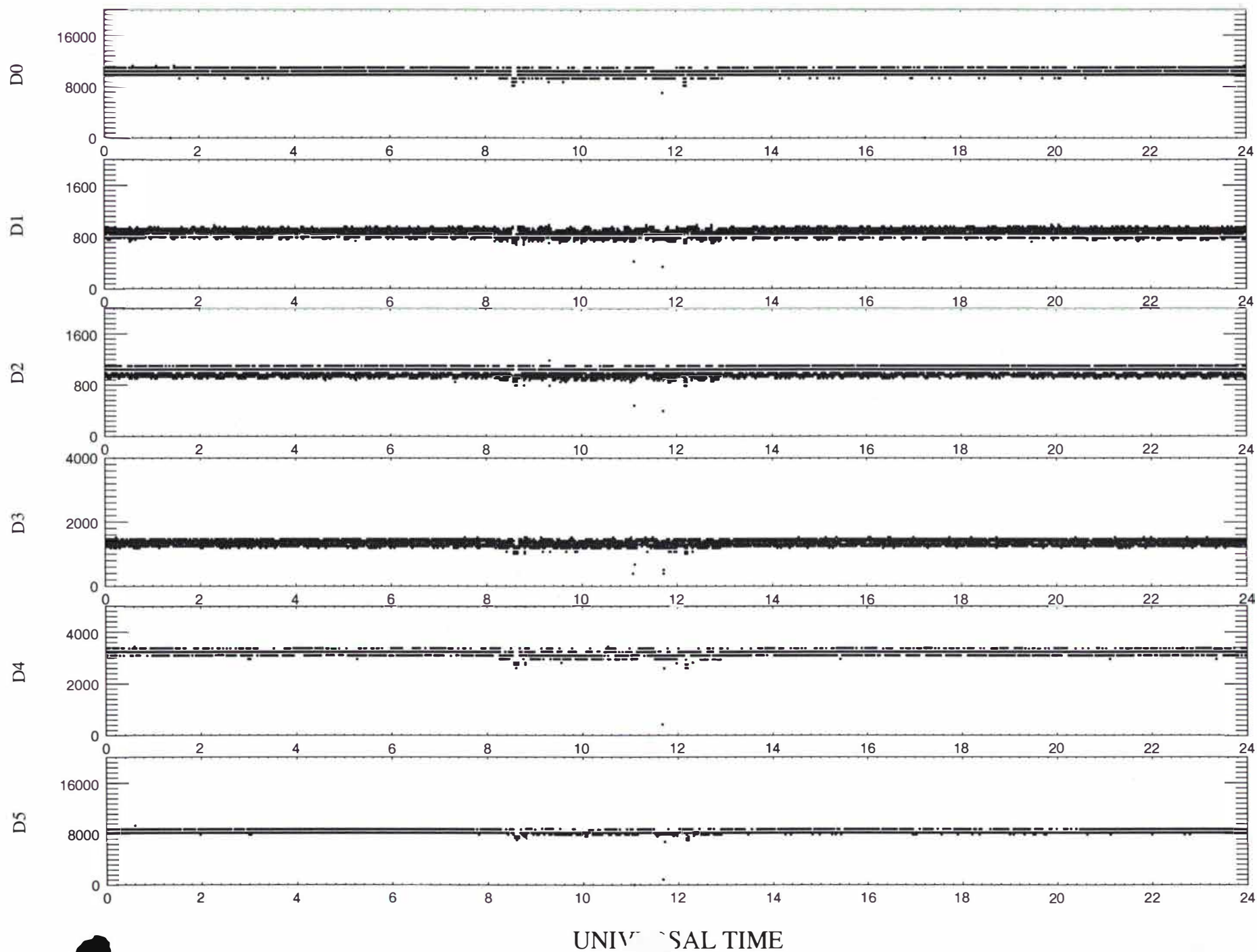
UNIVERSAL TIME

Burst Counter 5 at UT= 1.494547259013 h= 5380.370 s 01:29:40.370



CALIBRATION DATA INCLUDED





From guidorzi@fe.infn.it Wed Dec 6 04:51 PST 2000
From: Auto GRB monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Wed, 6 Dec 2000 13:50:05 +0100 (MET)

1kGRB[139] #LSs: 3 Good HRR: 3
SW Trigger Time (OBT): 51211.917
UTC: Wed, 06 Dec 2000 09:37:03:44102

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.245

Nsig(trg):	11.5	1.1	0.0	4.3	9.0	0.7	0.3	4.7
Nsig(pfl):	21.1	4.5	0.0	8.2	14.9	4.0	0.0	5.7
Bkg lev. :	778	908	796	709	885	946	894	934
ChiSq R. :	1.040	1.120	1.153	1.301	0.925	0.786	0.841	1.159

Peak fl. :	590	135	0	218	443	124	0	173
------------	-----	-----	---	-----	-----	-----	---	-----

Dur (s) :	30.00	11.00	0.00	8.00				
Abundance:	28	11	0	8				
H. Ratio :	0.720	0.750	-1.000	0.866				
HR Ratio :	0.960	-1.000	0.832	-1.000	0.866	-1.000		

Updated Oct 9 2007

Date: Mar 10 '03

BURST TRIANGULATION CHECKLIST

1. Ulysses Data N/A

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

2. For 3 Spacecraft events

- ☐ Konus N/S anisotropy used to distinguish between positions?
- ☐ SAX anisotropy used to distinguish between positions?
- ☐ SAX Earth-blocking used to distinguish between positions?
- ☐ $\Sigma 3\Delta t$'s calculated?

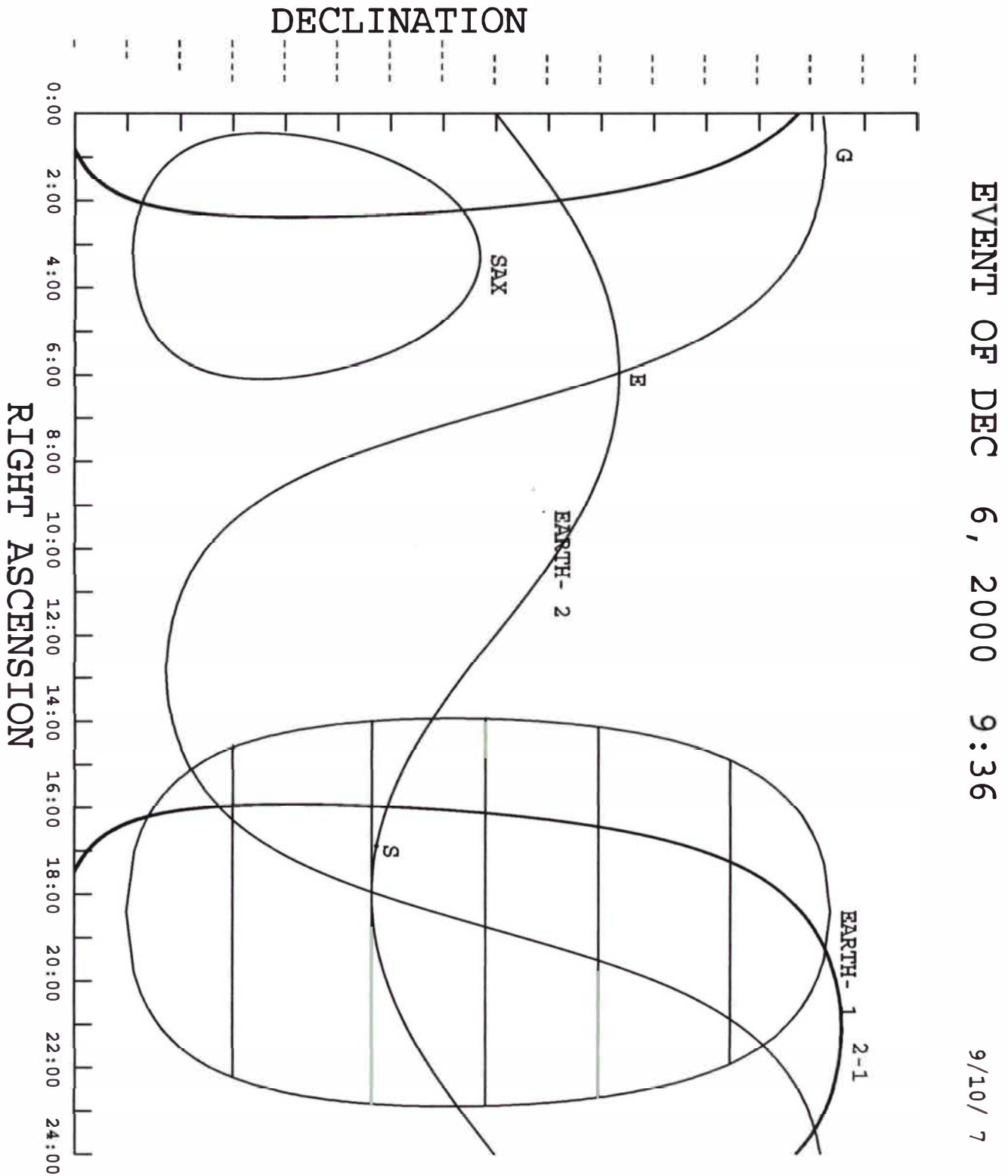
3. For 4 Spacecraft Events

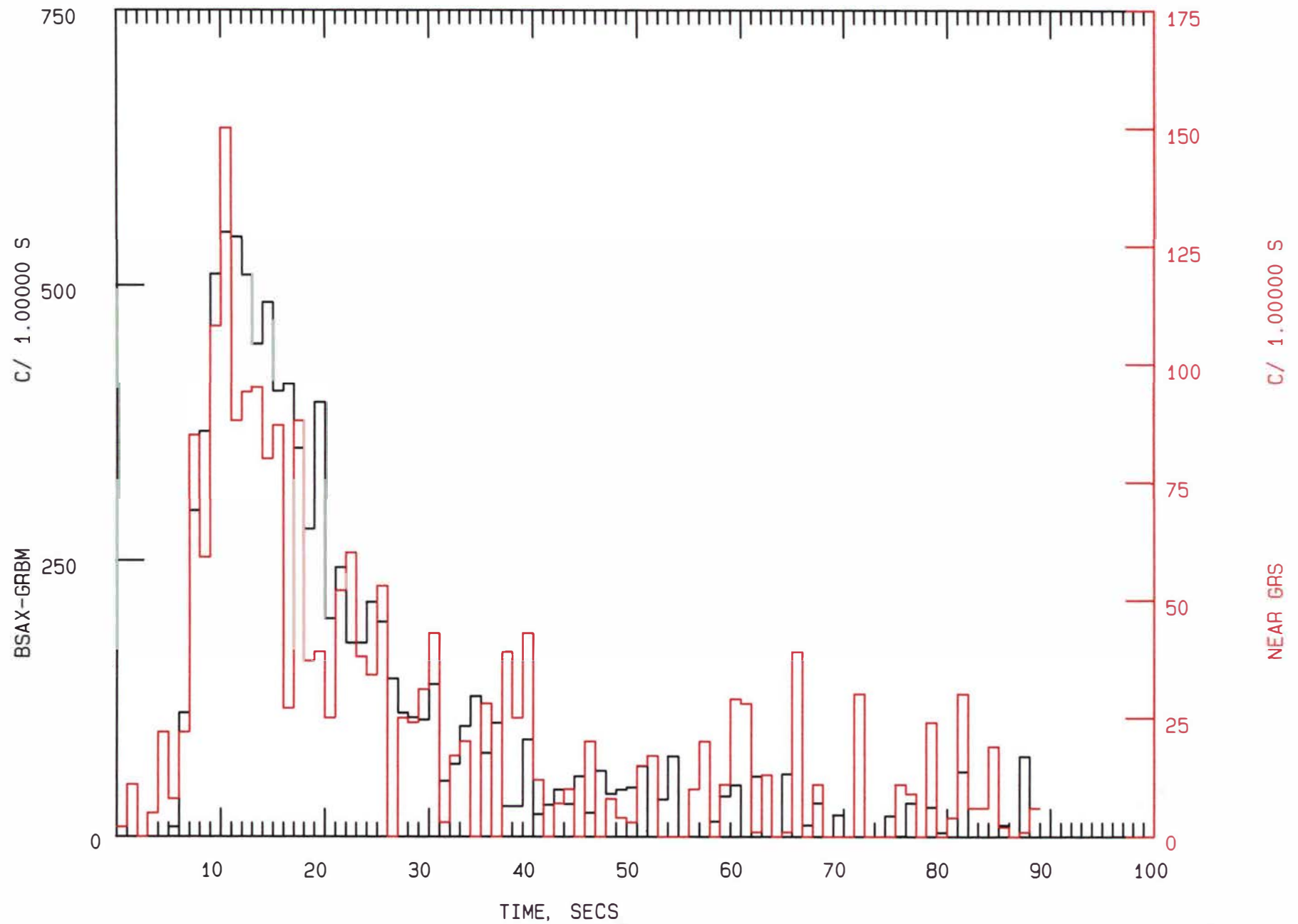
- ☐ BMAPSUM executed to get chisquare for alternate positions?

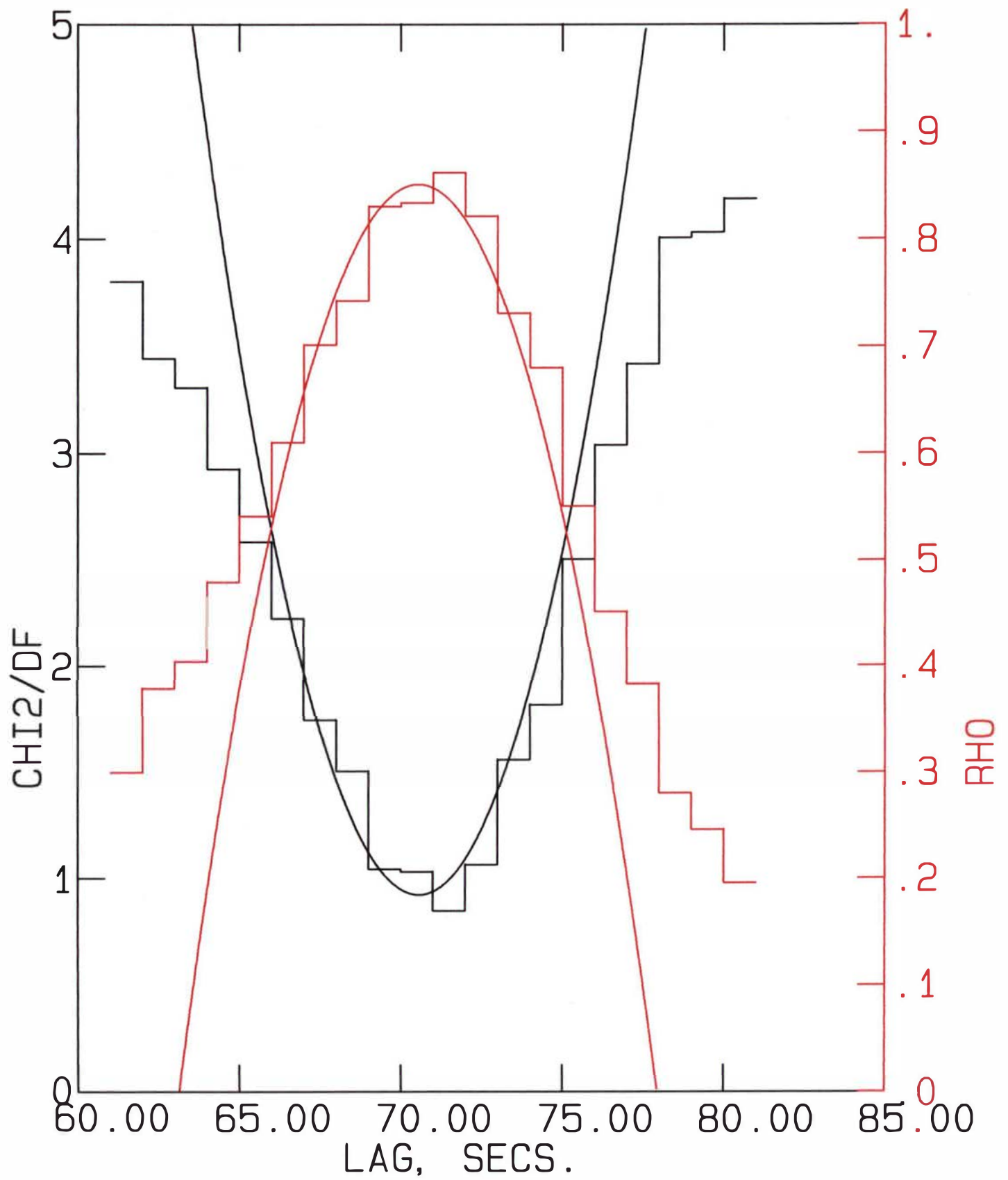
- ☒ ACCESS database updated?

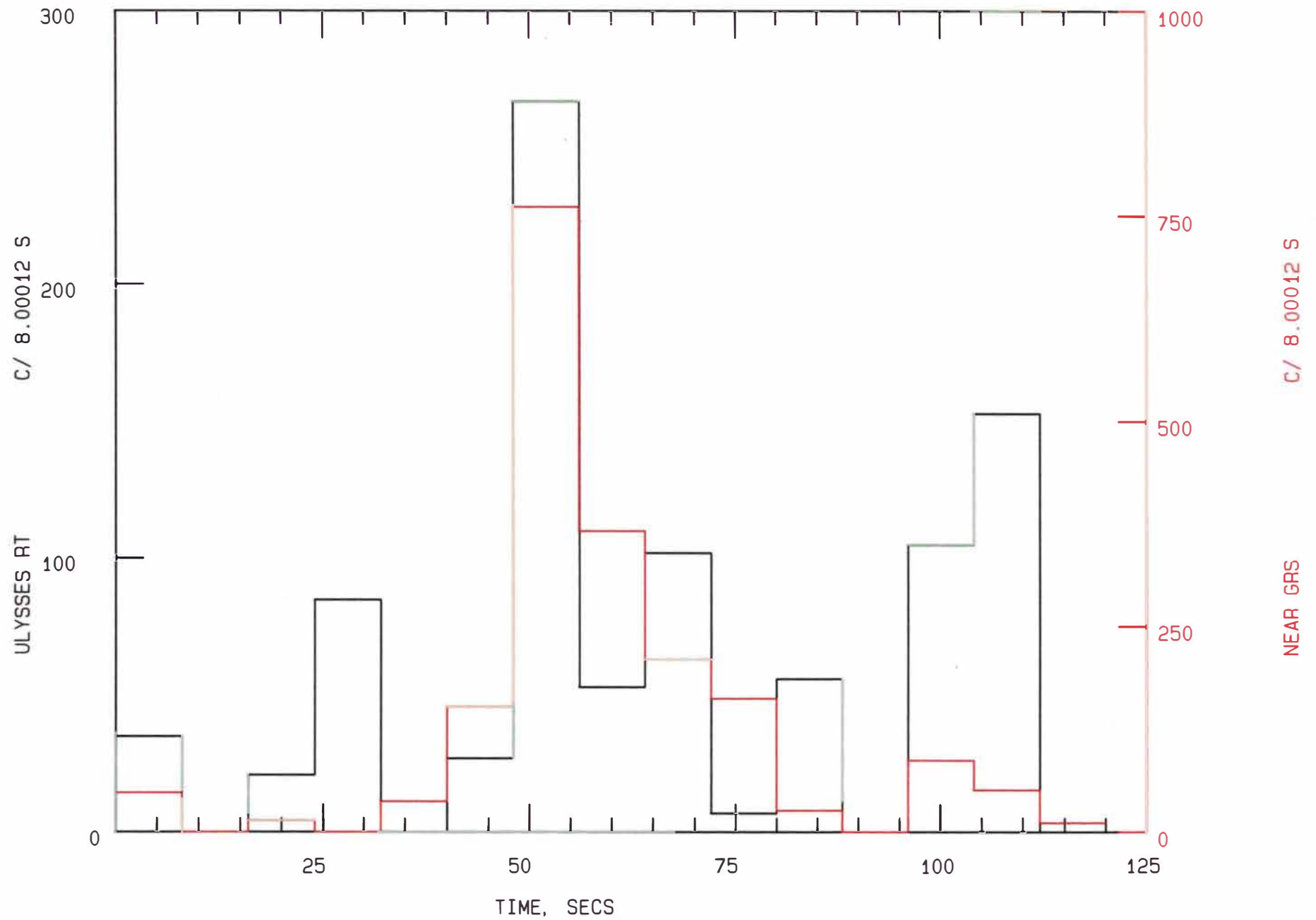
G=GALACTIC EQUATOR

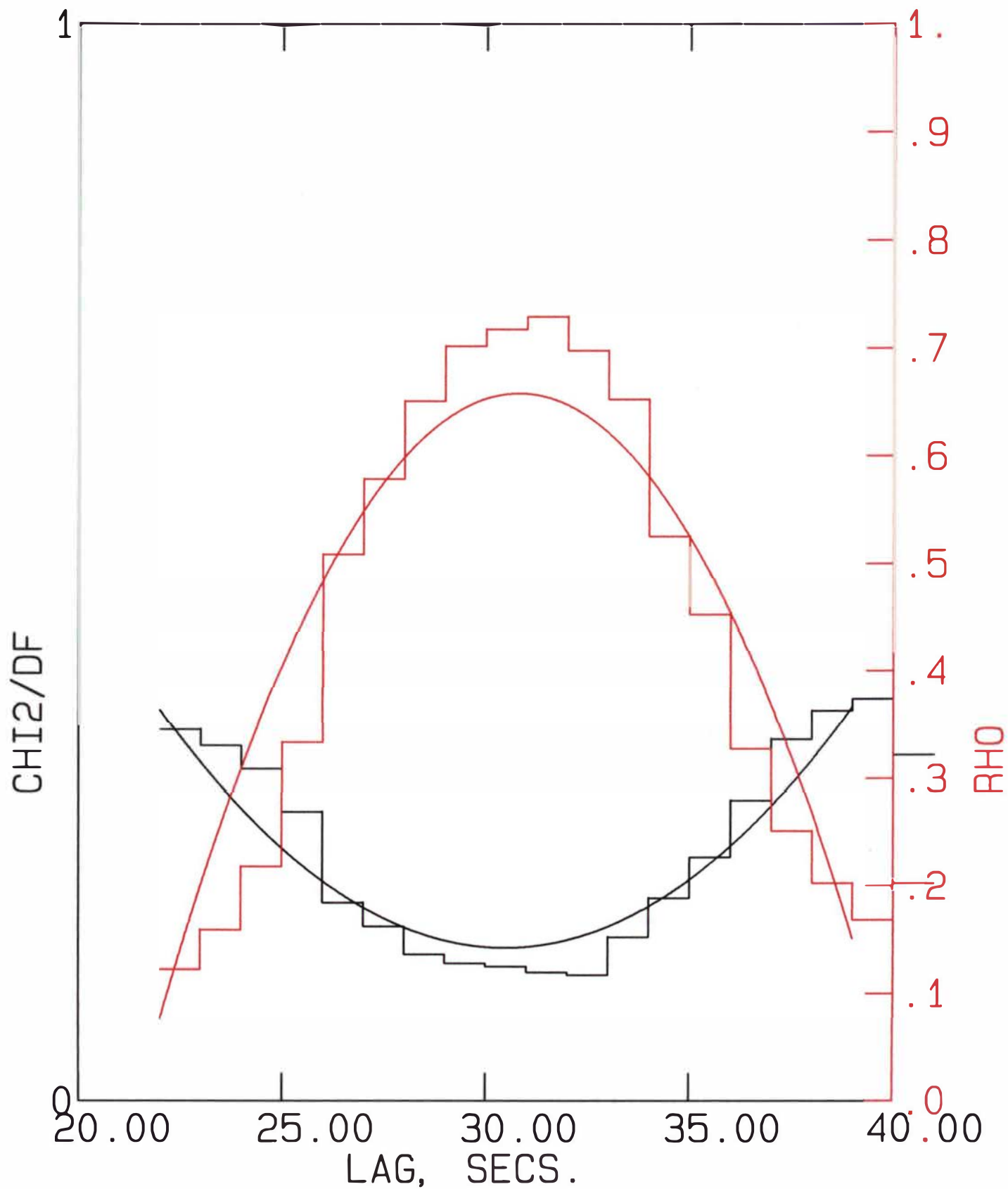
2 NEAR

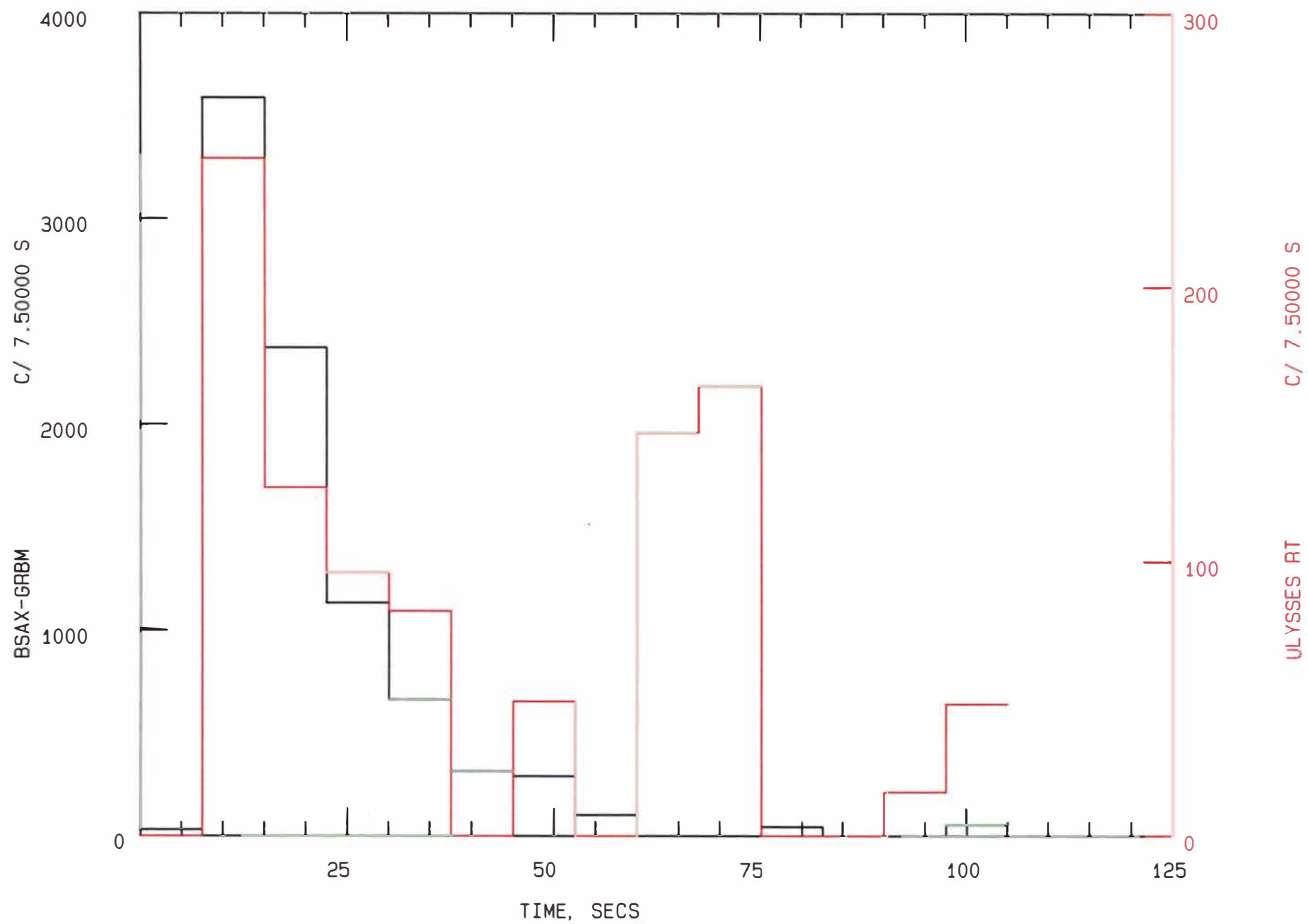


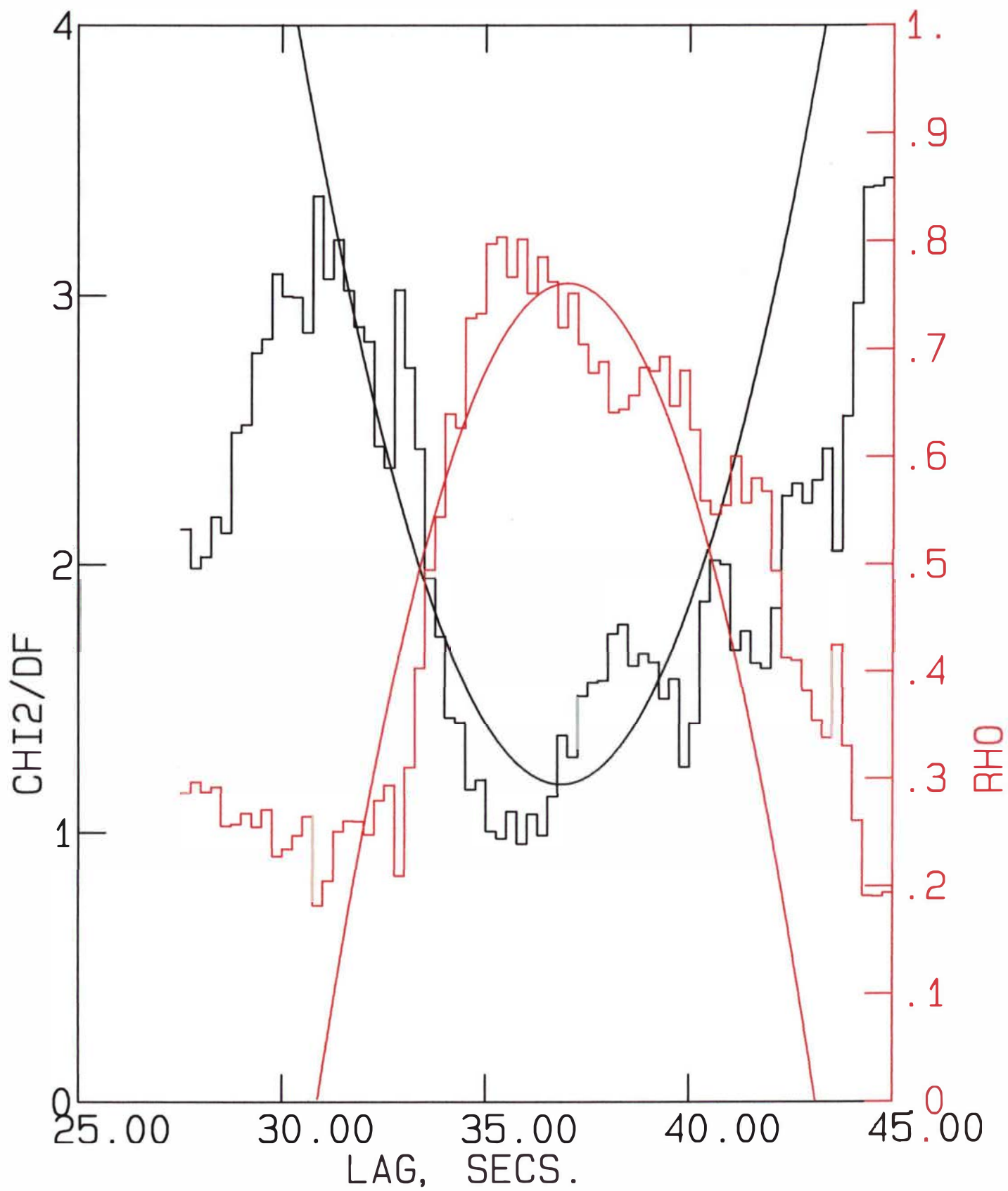






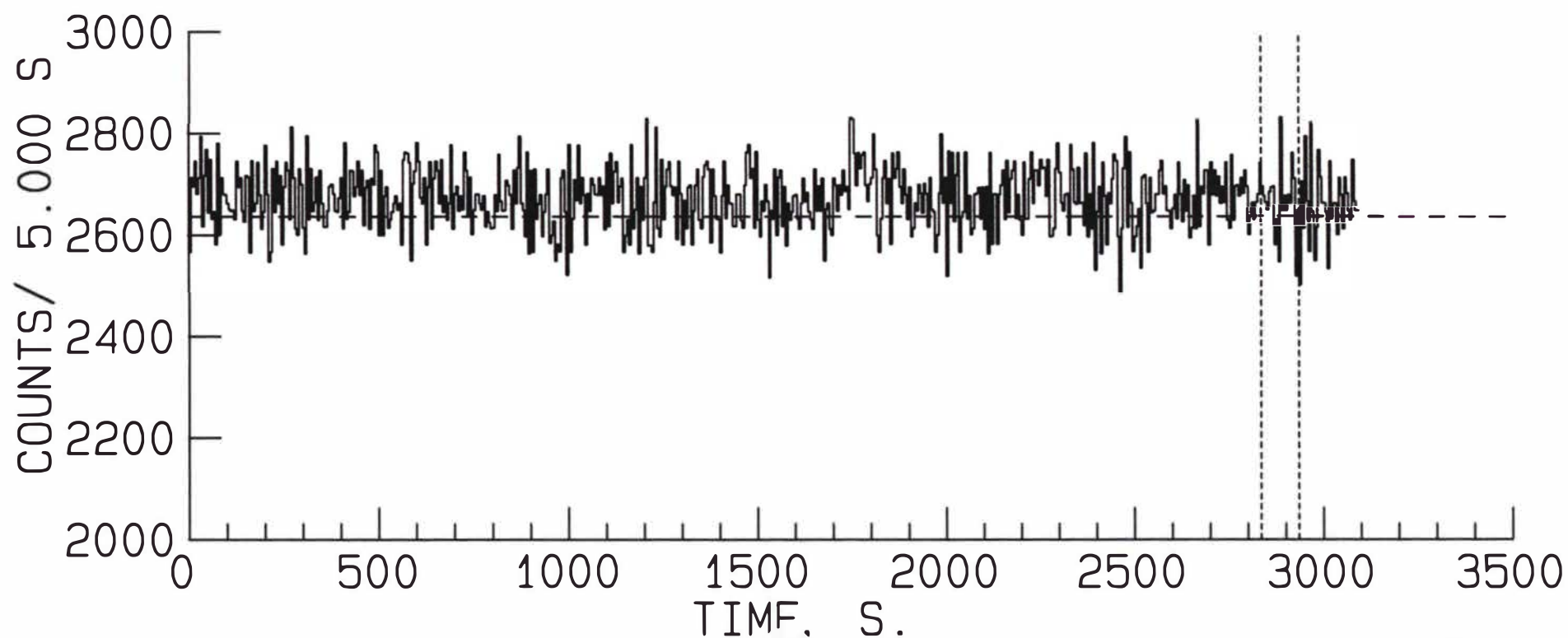






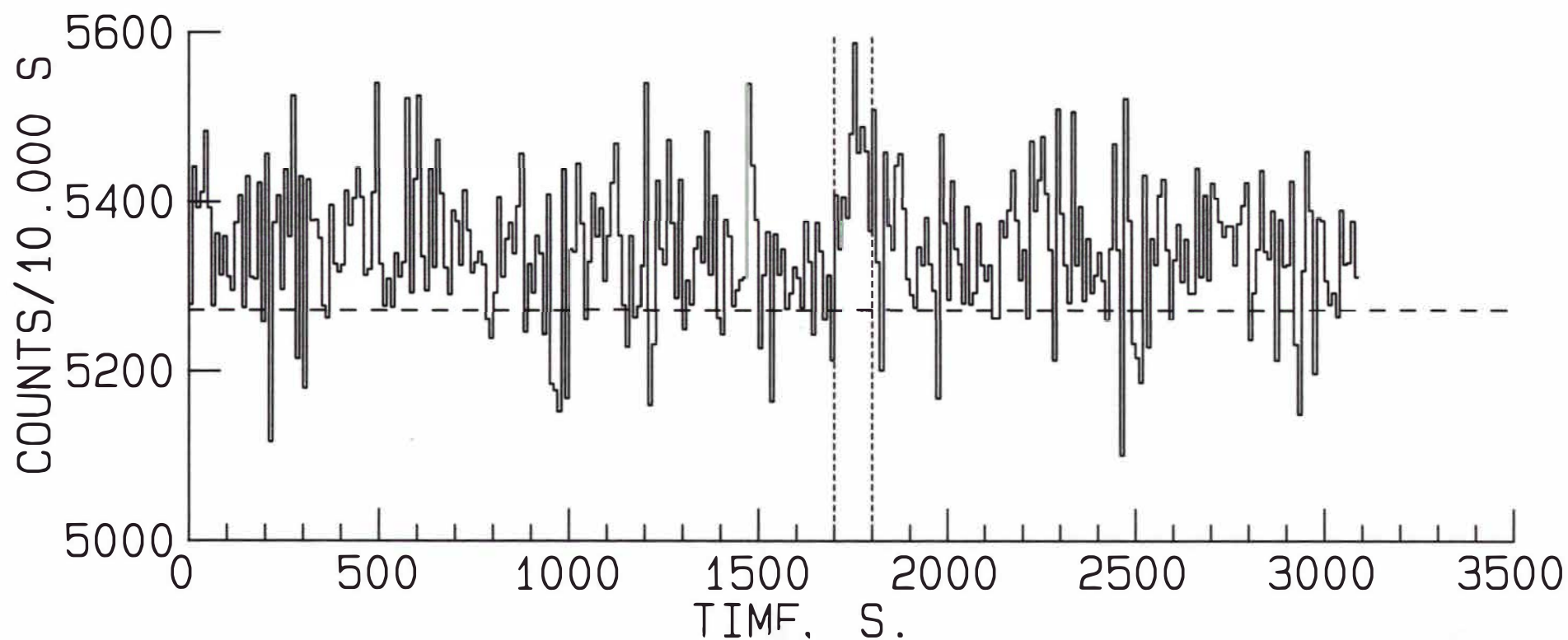
ULYSSES RT
6/12/ 0 32760.072 s
0.250 S INTERVALS REGROUPED BY 20
23- 158 keV

10 / 3 / 3



ULYSSES RT
6/12/ 0 32760.072 s
0.250 S INTERVALS REGROUPED BY 40
23- 158 keV

10 / 3 / 3



GRBM 20001206 34212

ULYSSES RT

04/10/07

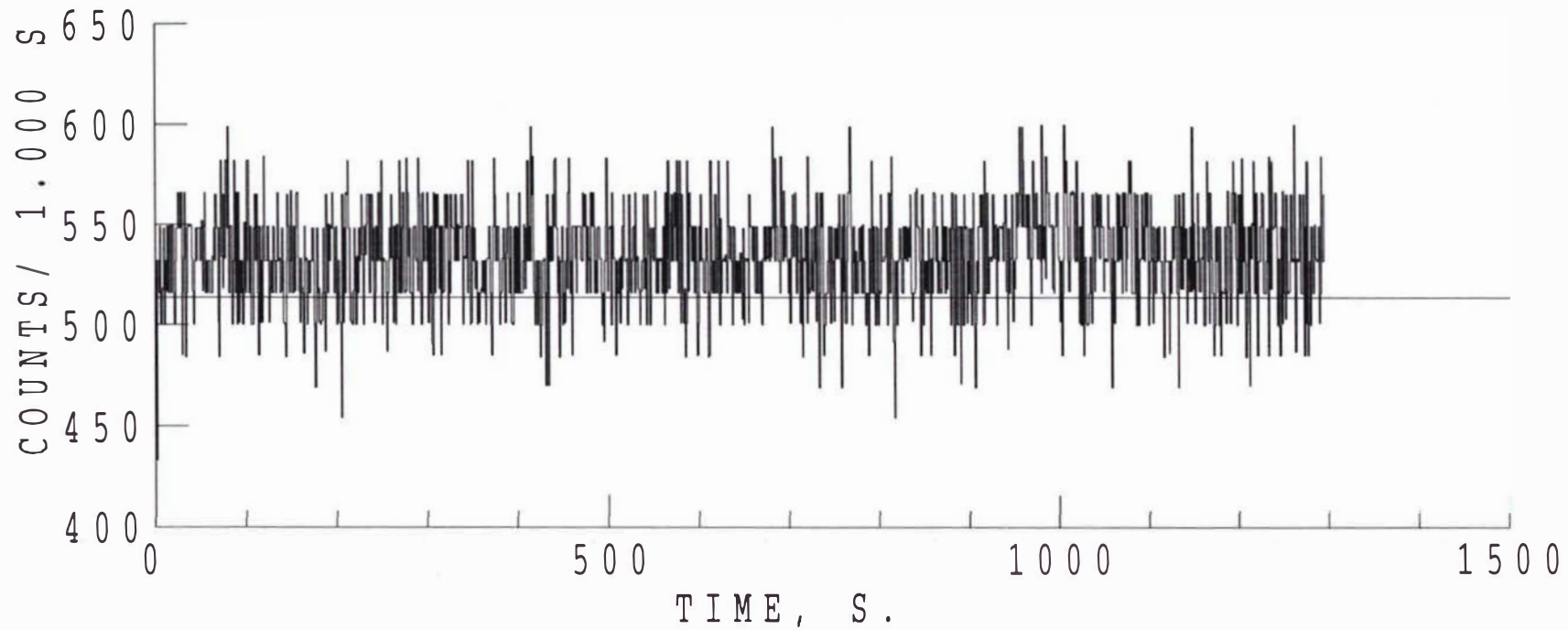
06/12/00 33552.086 s

0.250 S INTERVALS REGROUPED BY 4

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



ULYSSES RT

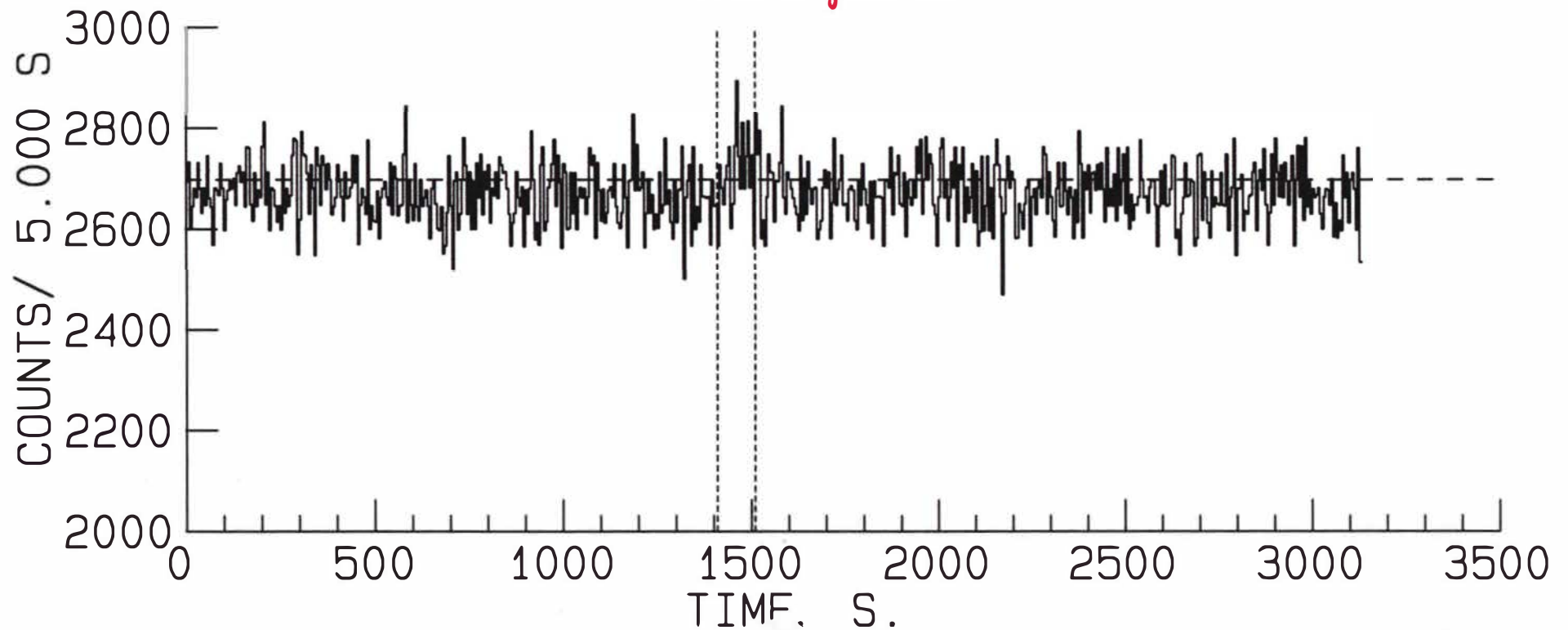
10 / 3 / 3

6/12/ 0 33048.074 s

0.250 S INTERVALS REGROUPED BY 20

23- 158 keV

Not a good fit

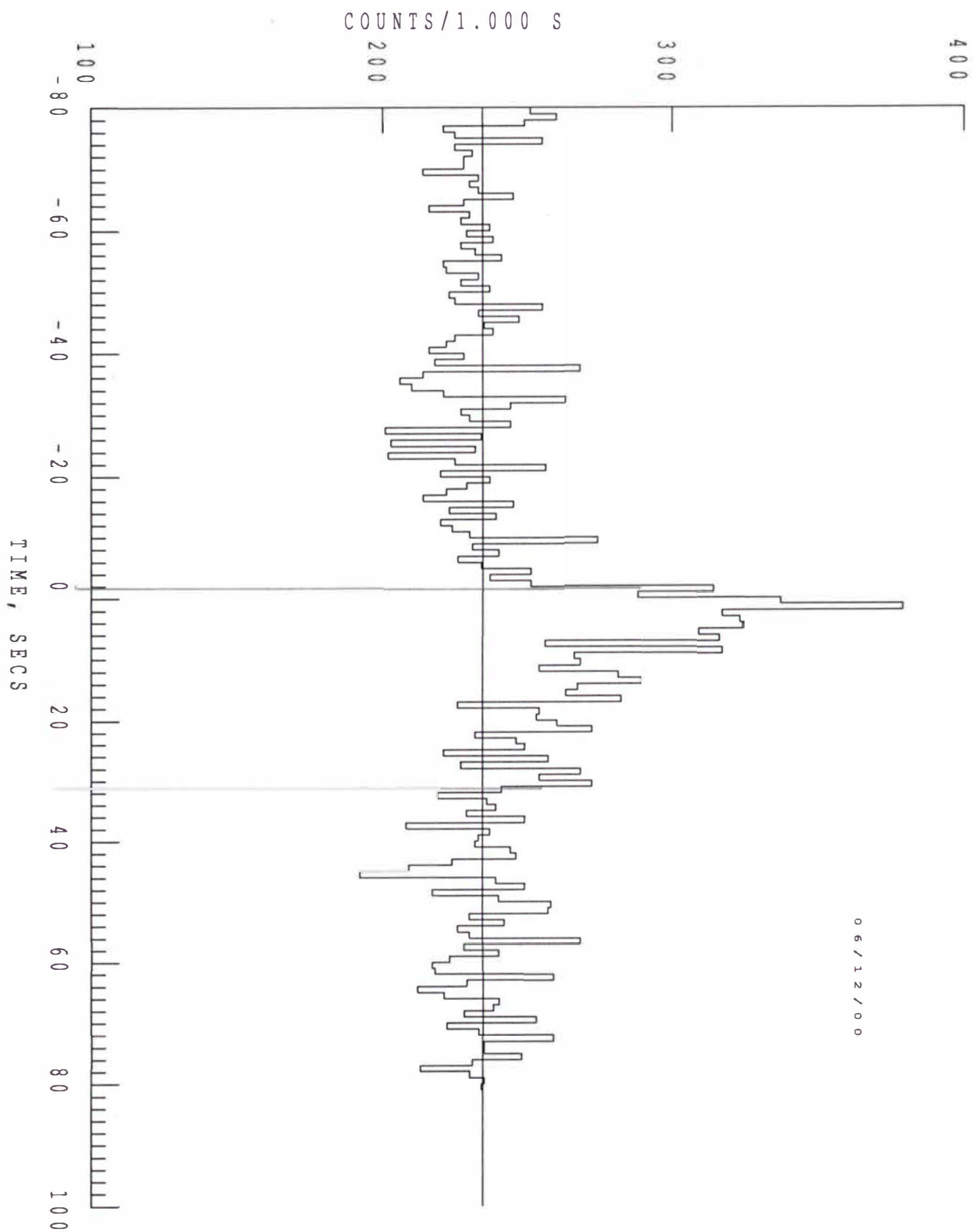


NEAR

06/12/00

34310.326

100-1000 keV

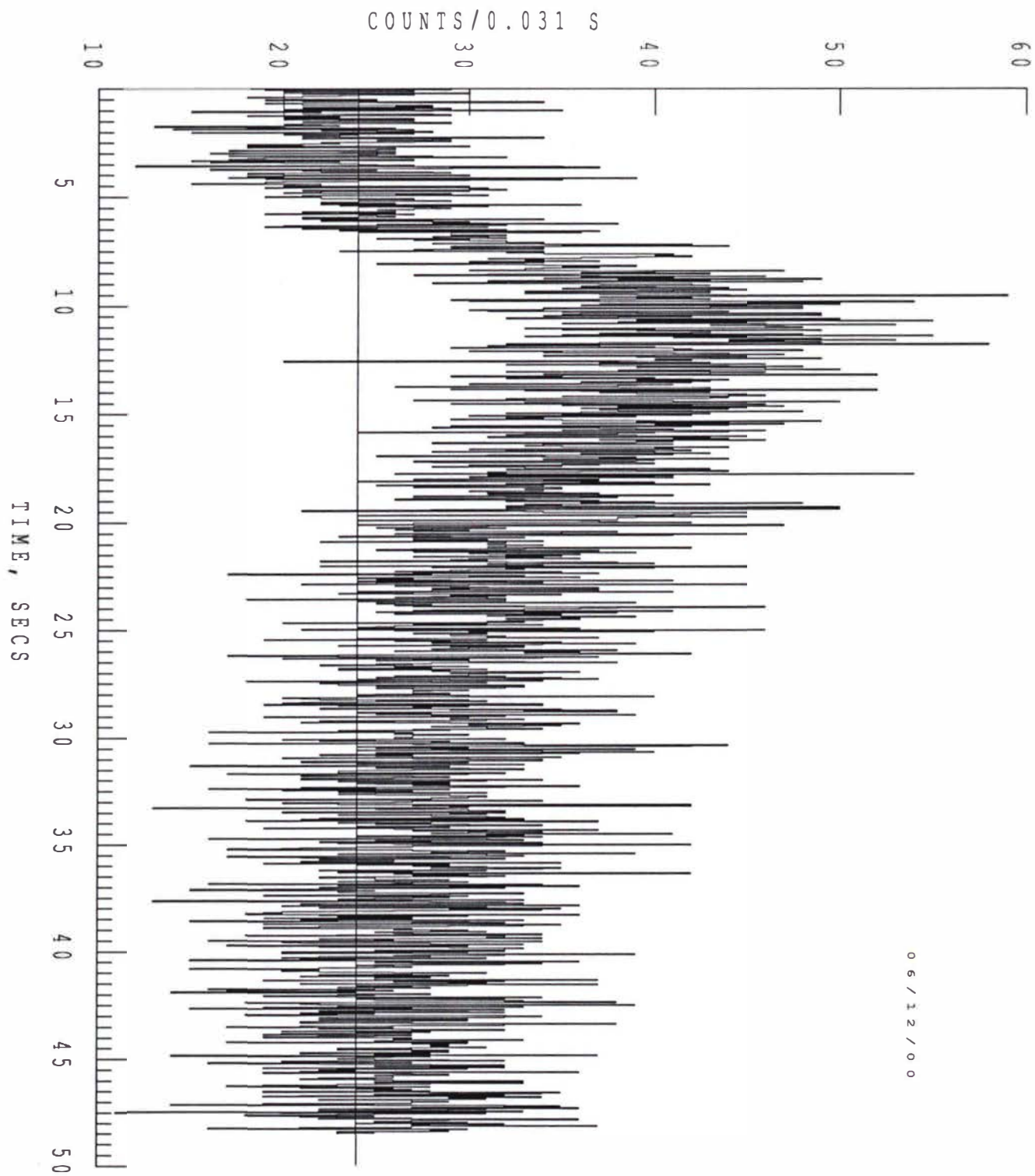


BSAX-GRBM

06/12/00

34615.196

40 - 700 keV



From guidorzi@fe.infn.it Wed Dec 6 10:21 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Wed, 6 Dec 2000 19:20:06 +0100 (MET)

1kGRB[140] #LSs: 1 Good HRR: 3
SW Trigger Time (OBT): 3371.916
UTC: Wed, 06 Dec 2000 14:31:59:43322

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.339

Nsig(trg):	6.3	3.0	2.4	3.4	3.8	2.1	1.5	2.8
Nsig(pfl):	6.3	5.6	2.4	3.4	3.8	4.6	2.8	2.8
Bkg lev. :	765	895	785	698	870	907	854	912
ChiSq R. :	1.269	1.202	0.973	1.009	1.348	0.964	0.853	1.017

Peak fl. :	173	167	67	90	113	140	81	86
------------	-----	-----	----	----	-----	-----	----	----

Dur (s) :	3.00	6.00	3.00	1.00				
Abundance:	3	6	3	1				
H. Ratio :	0.711	0.735	0.896	0.950				
HR Ratio :	0.968	0.793	0.749	0.819	0.773	0.944		

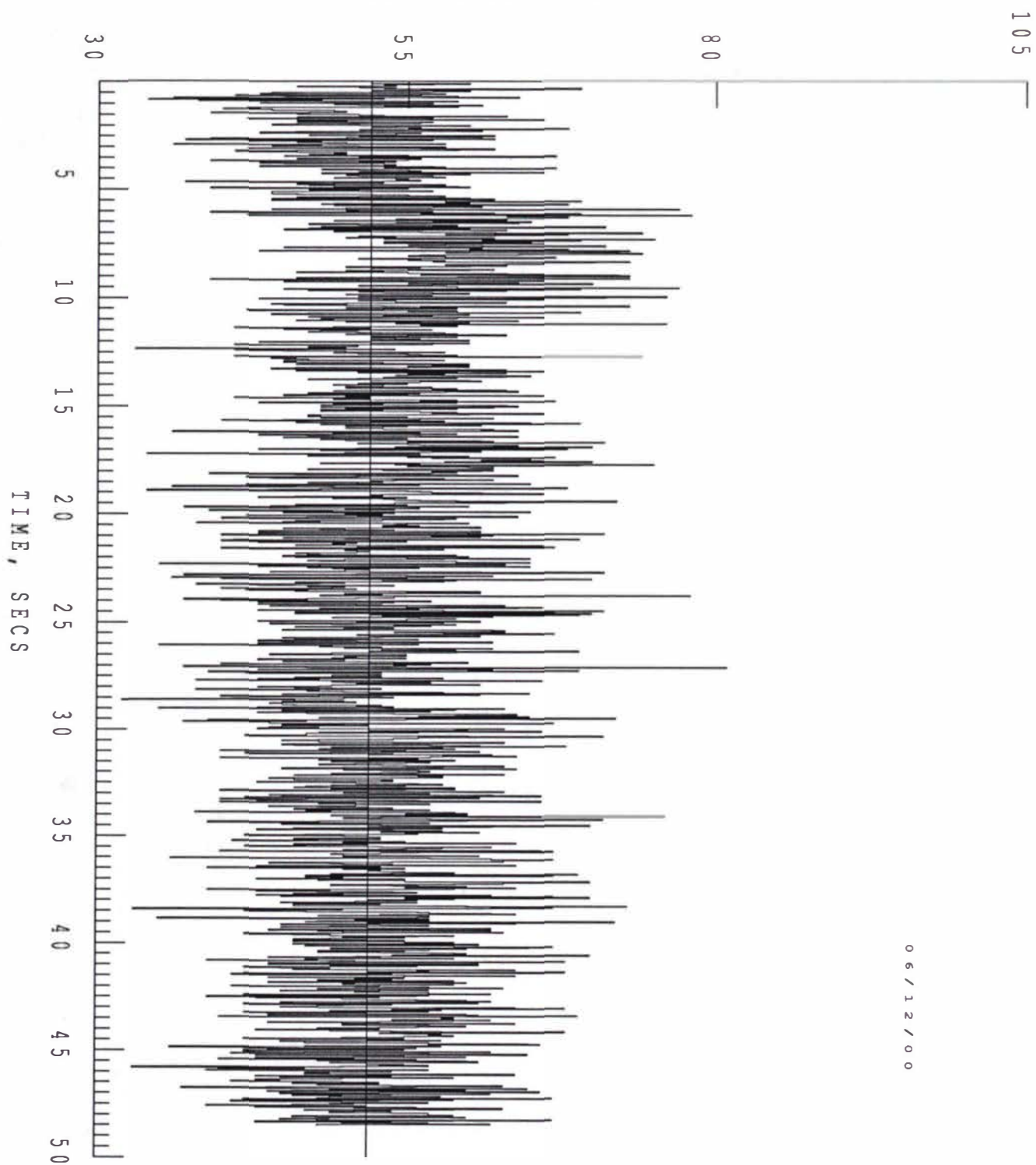
BSAX-GRBM

06/12/00

52311.094

40 - 700 keV

COUNTS/0.031 S

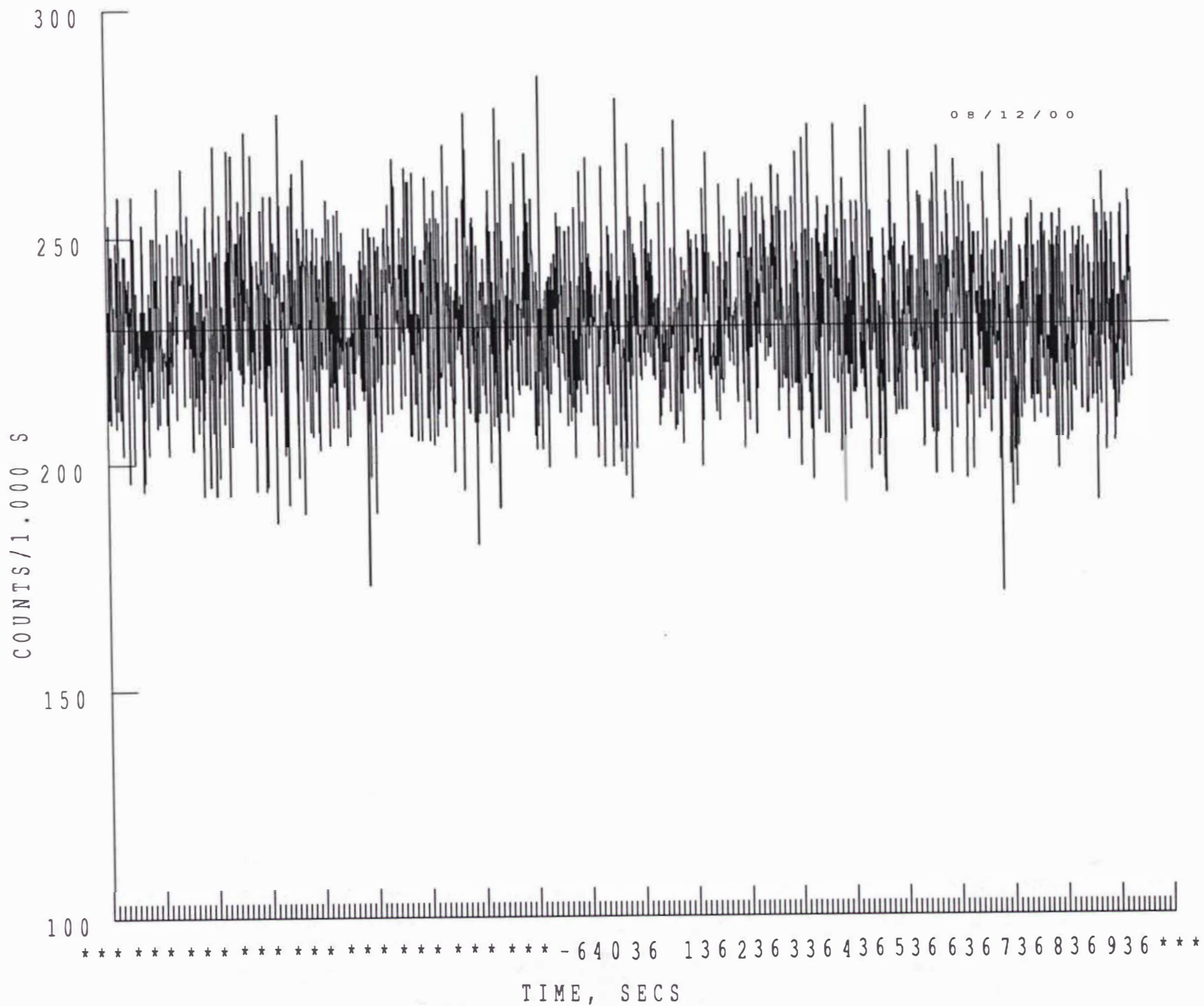


06/12/00

NEAR

06/12/00 52318.320

100-1000 keV



SAX 20001206 52319

ULYSSES RT

07/12/00

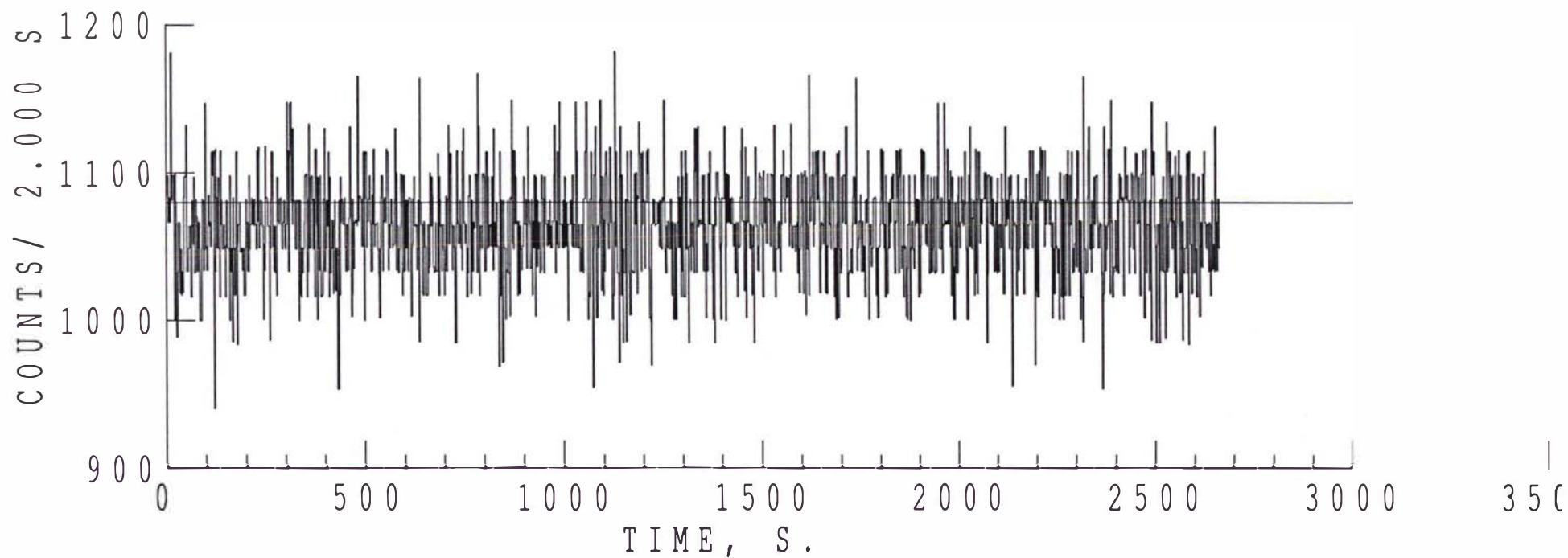
06/12/00 50976.109 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

H= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



SAX GRBM
HUS DATA

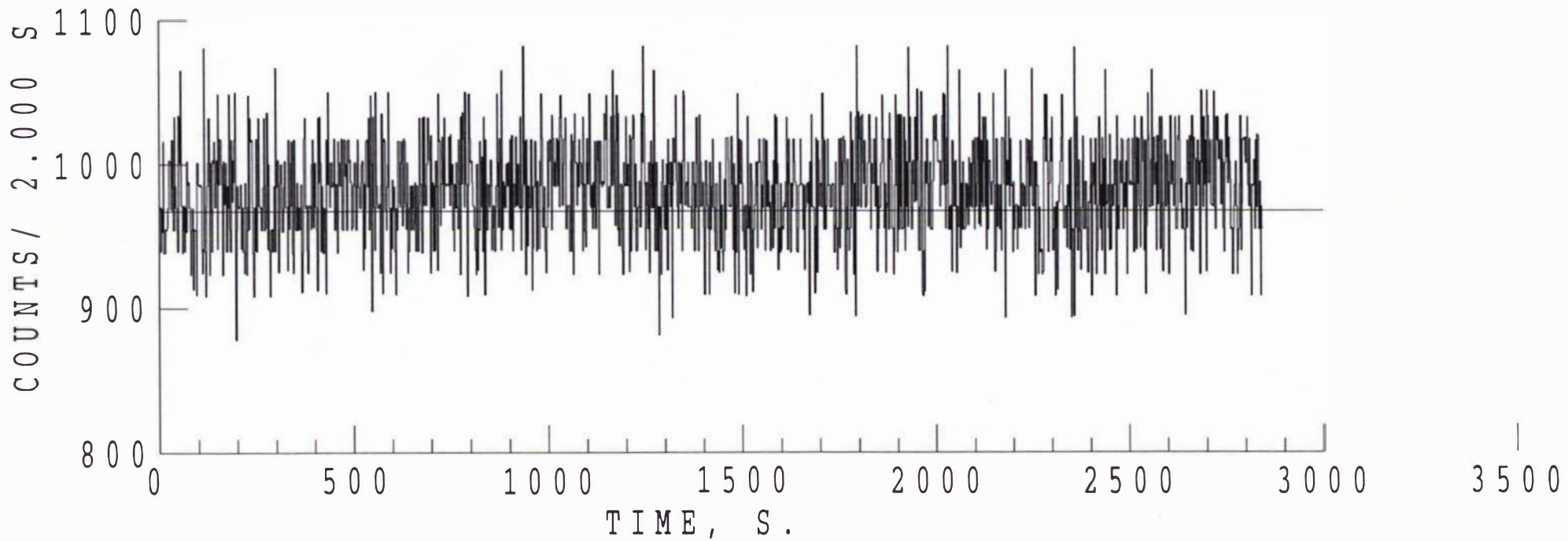
ULYSSES RT

19 / 07 / 05

06/11/00 60840.121 s
0.250 S INTERVALS REGROUPED BY 8
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Date: Oct 9 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events *N/A*

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

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events *N/A*

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

-
- ☒ ACCESS and MBL4 databases updated?

From guidorzi@fe.infn.it Wed Dec 6 16:51 PST 2000
From: Auto GRB monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Thu, 7 Dec 2000 01:50:04 +0100 (MET)

1kGRB[141] #LSs: 3 Good HRR: 6
SW Trigger Time (OBT): 28433.916
UTC: Wed, 06 Dec 2000 21:29:41:42401

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.542

Nsig(trg):	5.0	10.7	2.7	3.8	4.2	9.9	2.2	3.4
Nsig(pfl):	7.8	16.6	4.5	5.7	5.5	12.9	2.4	4.8
Bkg lev. :	773	910	805	727	933	922	883	969
ChiSq R. :	1.115	0.876	1.044	0.858	0.989	0.997	0.921	0.977

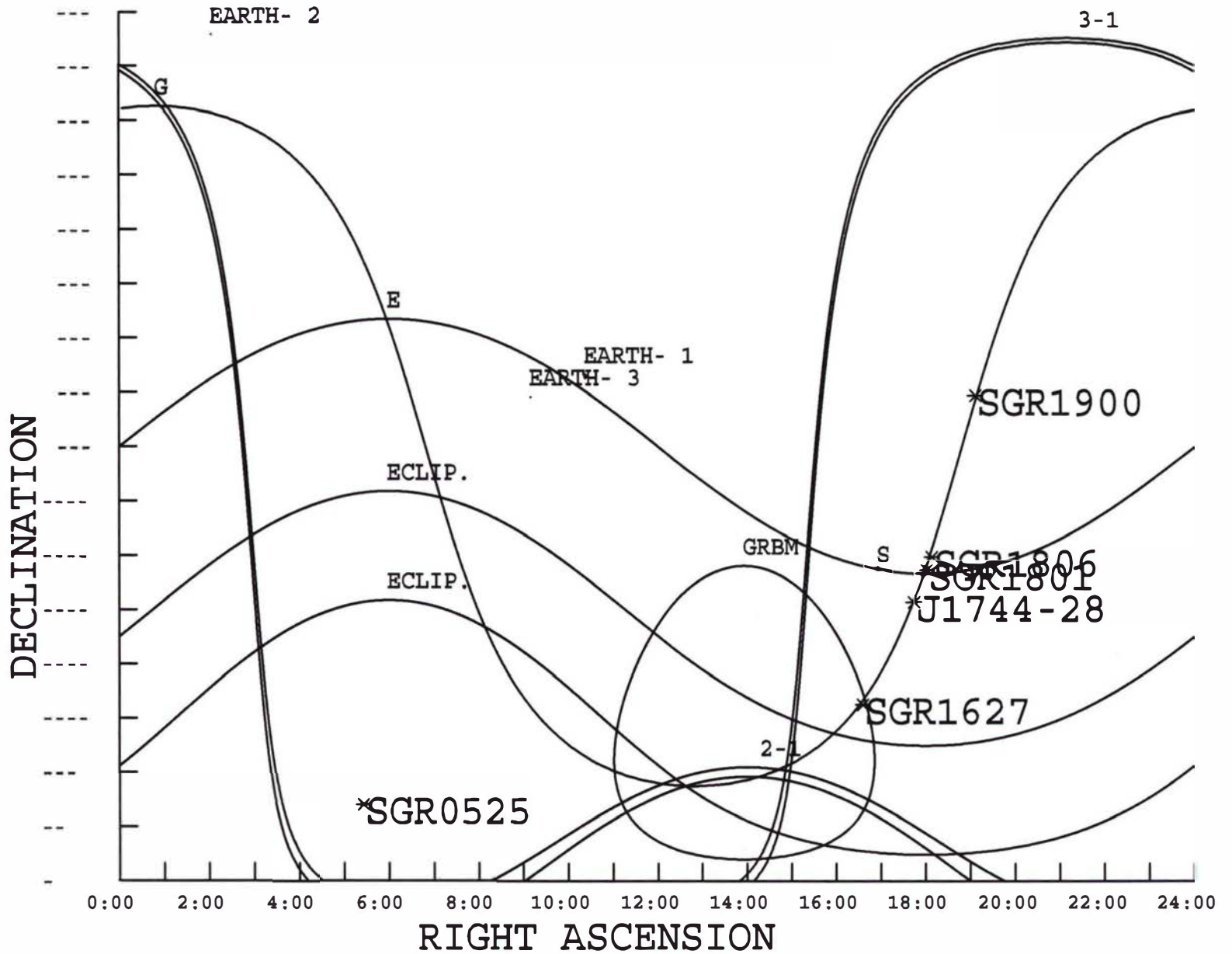
Peak fl. :	217	502	129	153	169	390	72	148
------------	-----	-----	-----	-----	-----	-----	----	-----

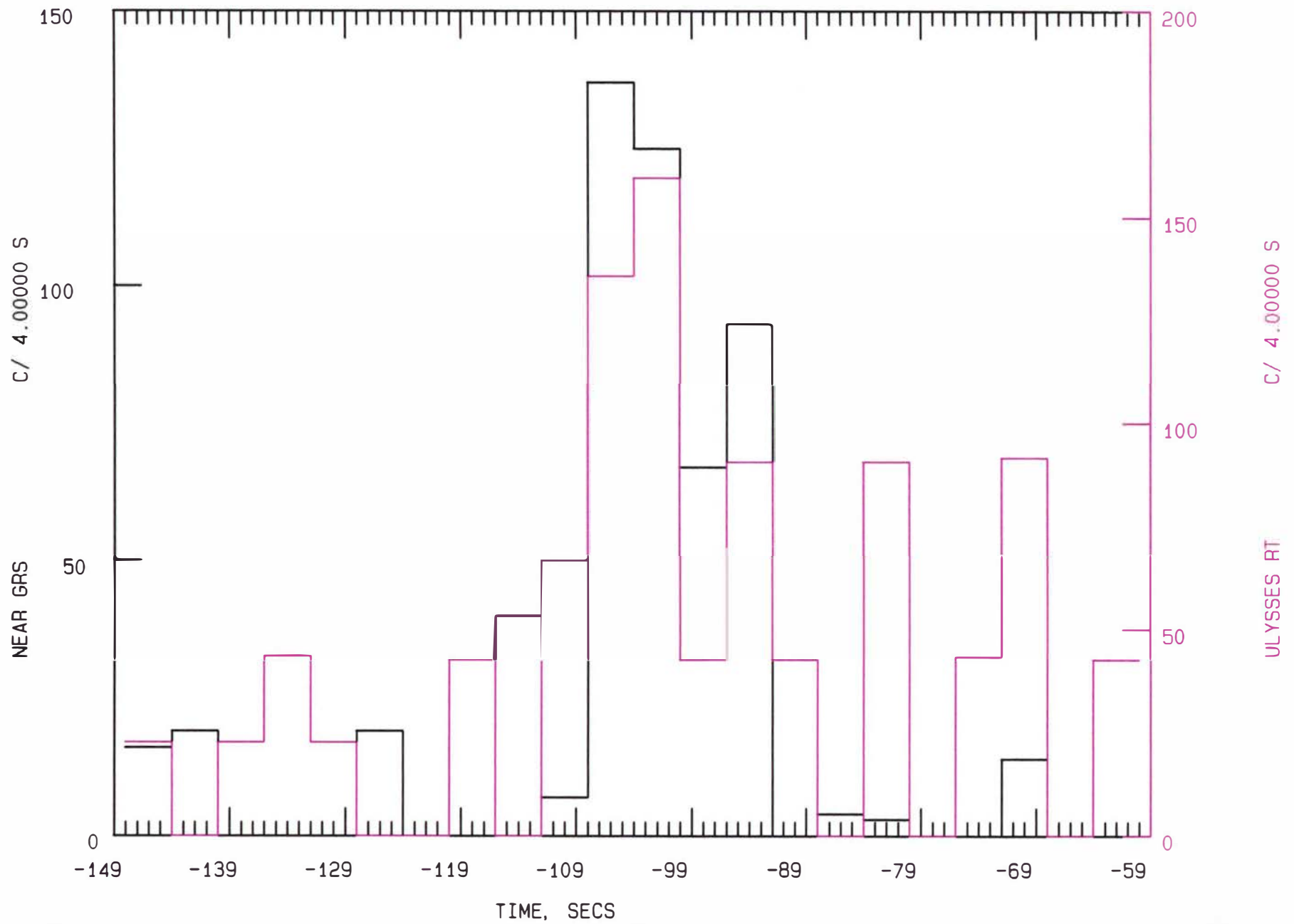
Dur (s) :	13.00	21.00	4.00	7.00				
Abundance:	13	21	4	4				
H. Ratio :	0.689	0.720	0.621	0.733				
HR Ratio :	0.957	1.109	0.940	1.159	0.983	0.848		

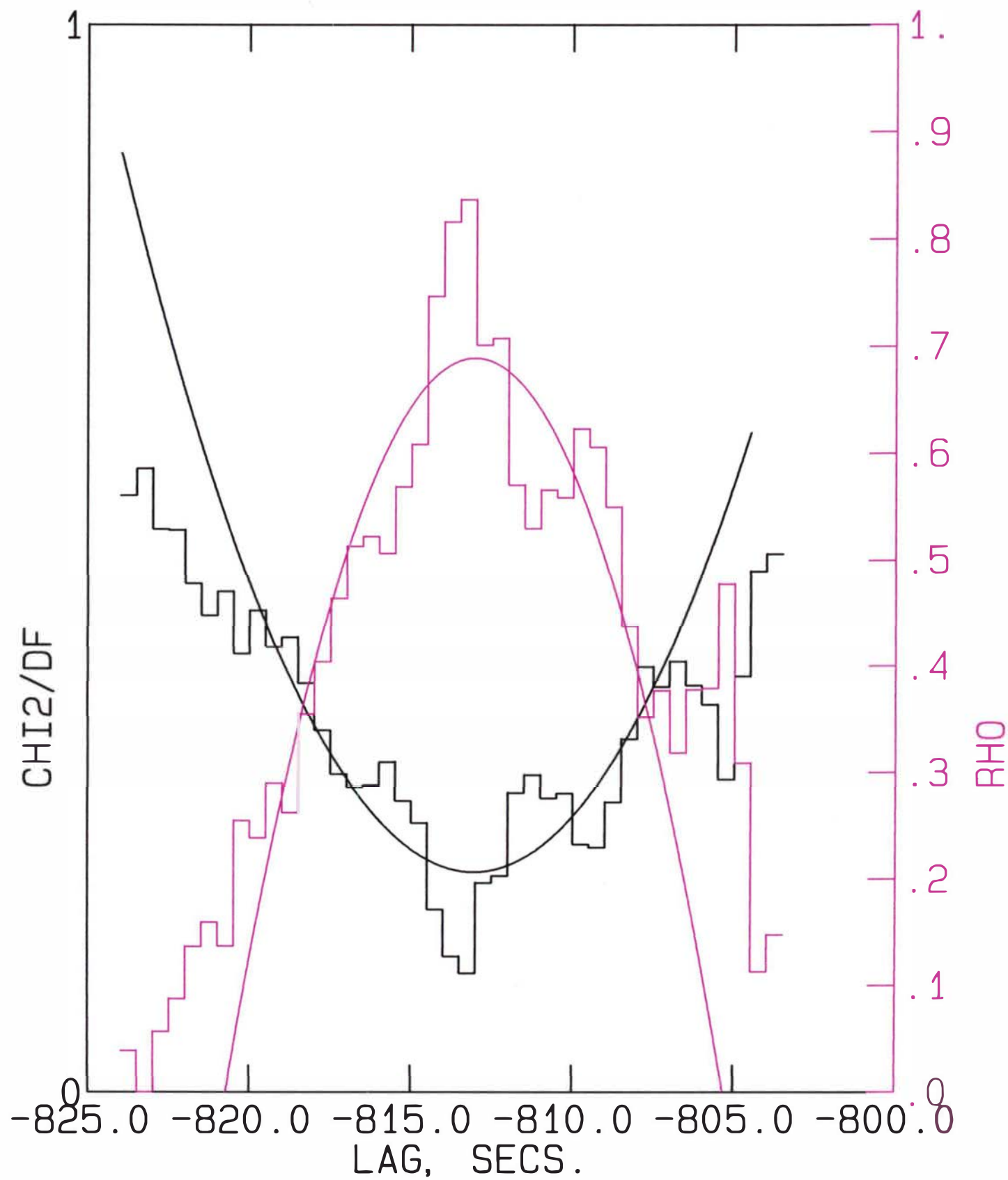
EVENT OF DEC 6, 2000 21:27

9/10/ 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 KONUS 2 ULYSSES 3 NEAR







KONUS

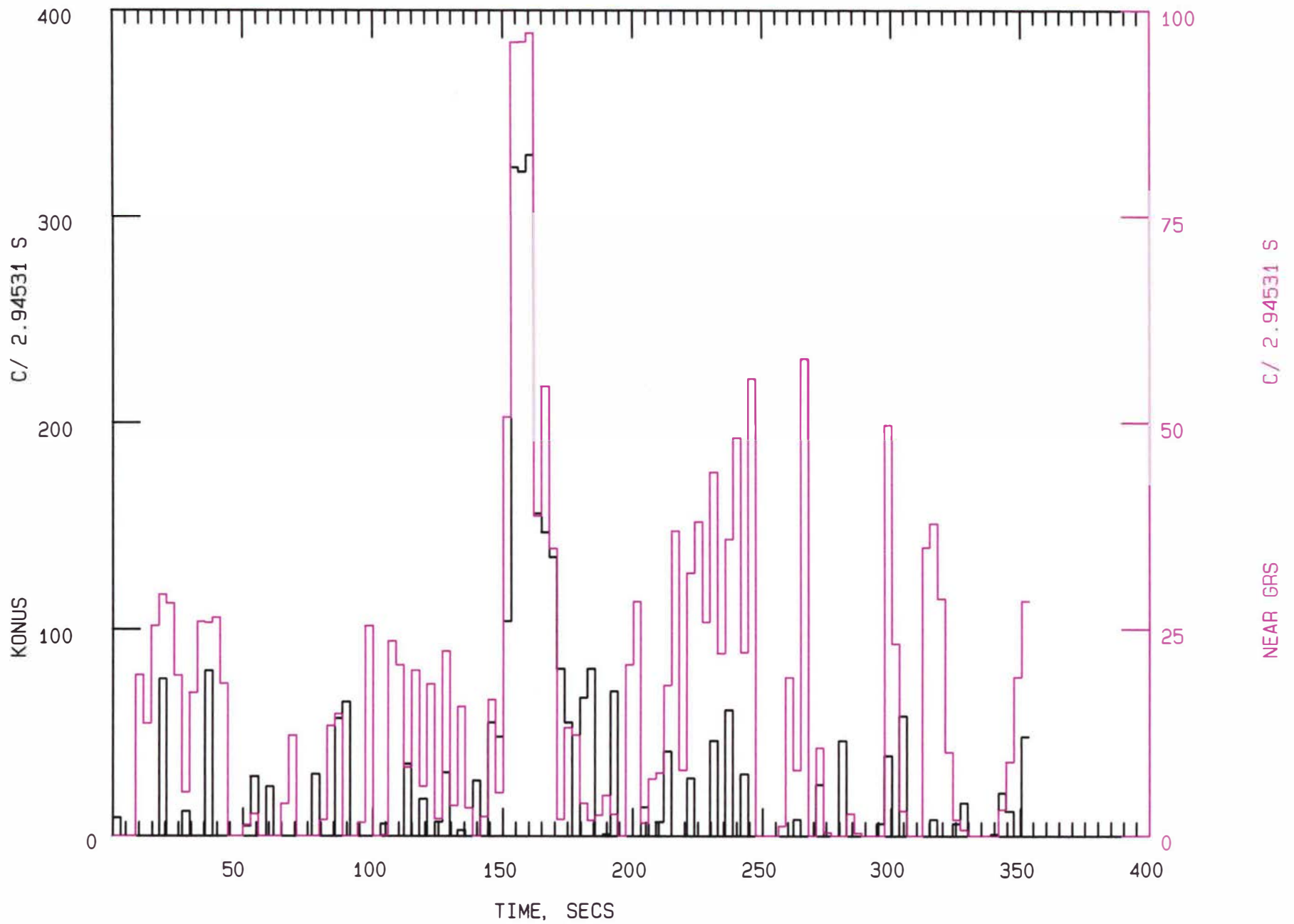
-NEAR GRS

CORRELATION

06/12/00

77228.453

9/10/ 7



9/10/ 7

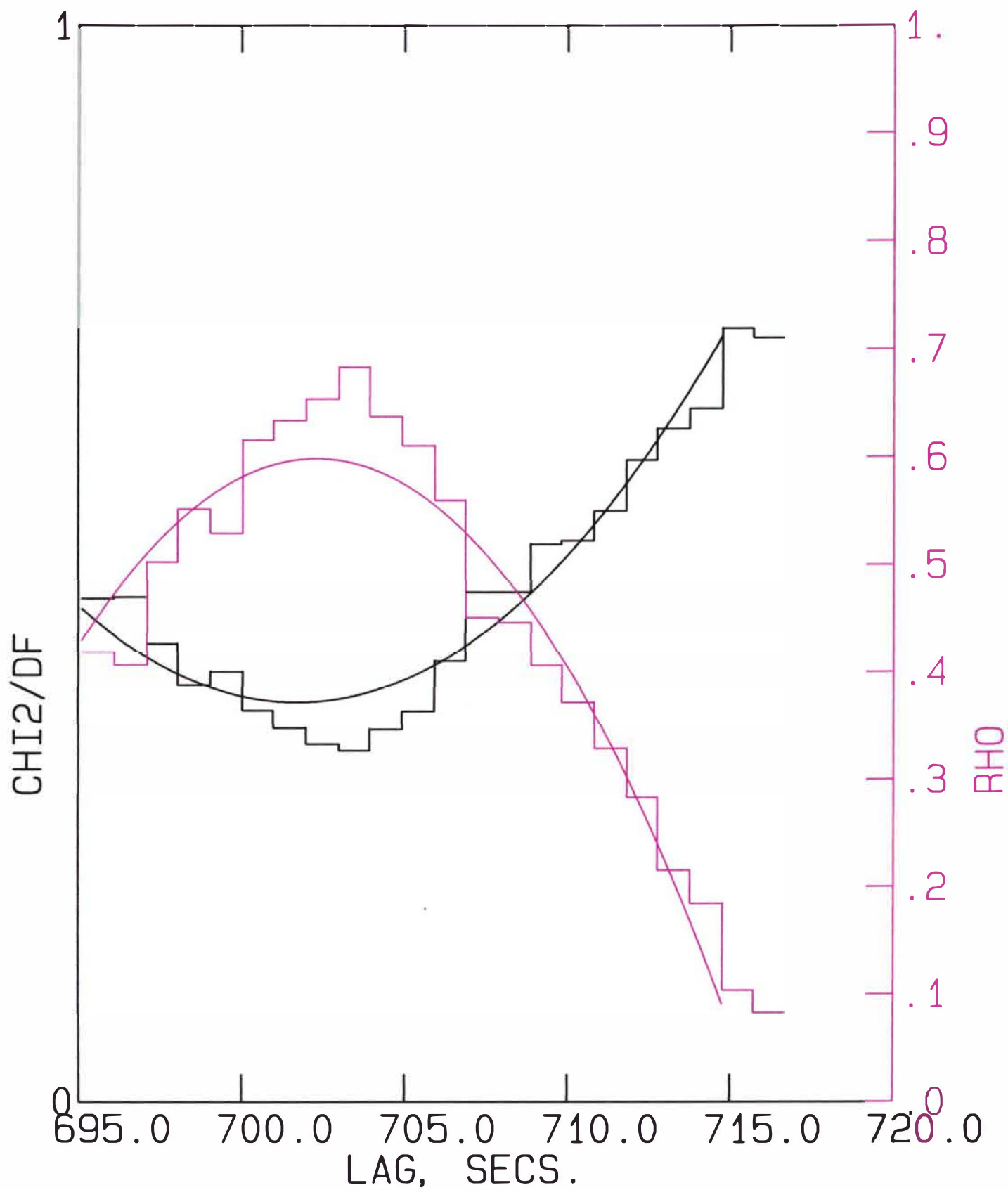
KONUS

-NEAR GRS

CORRELATION

06/12/00

77228.453



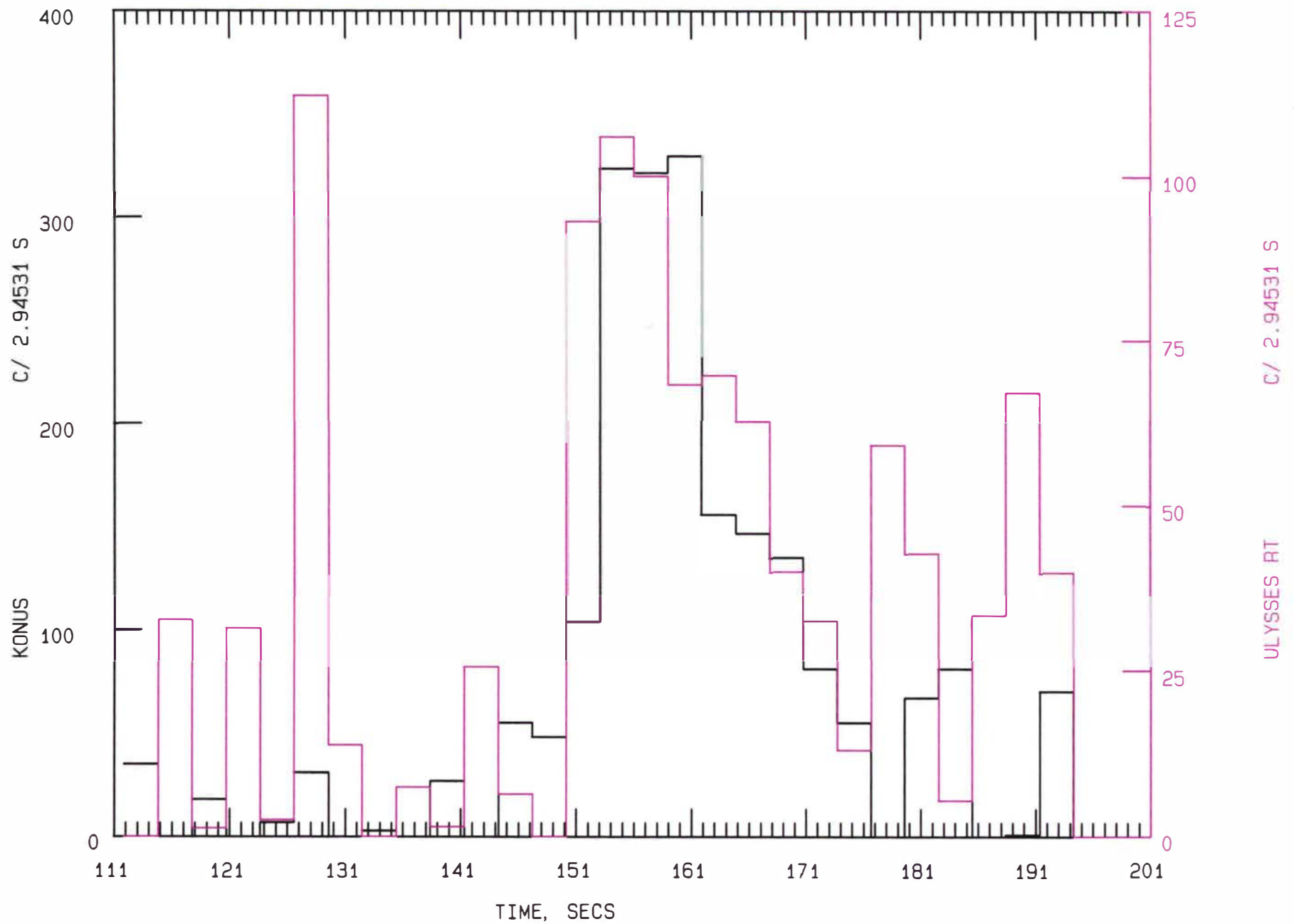
KONUS

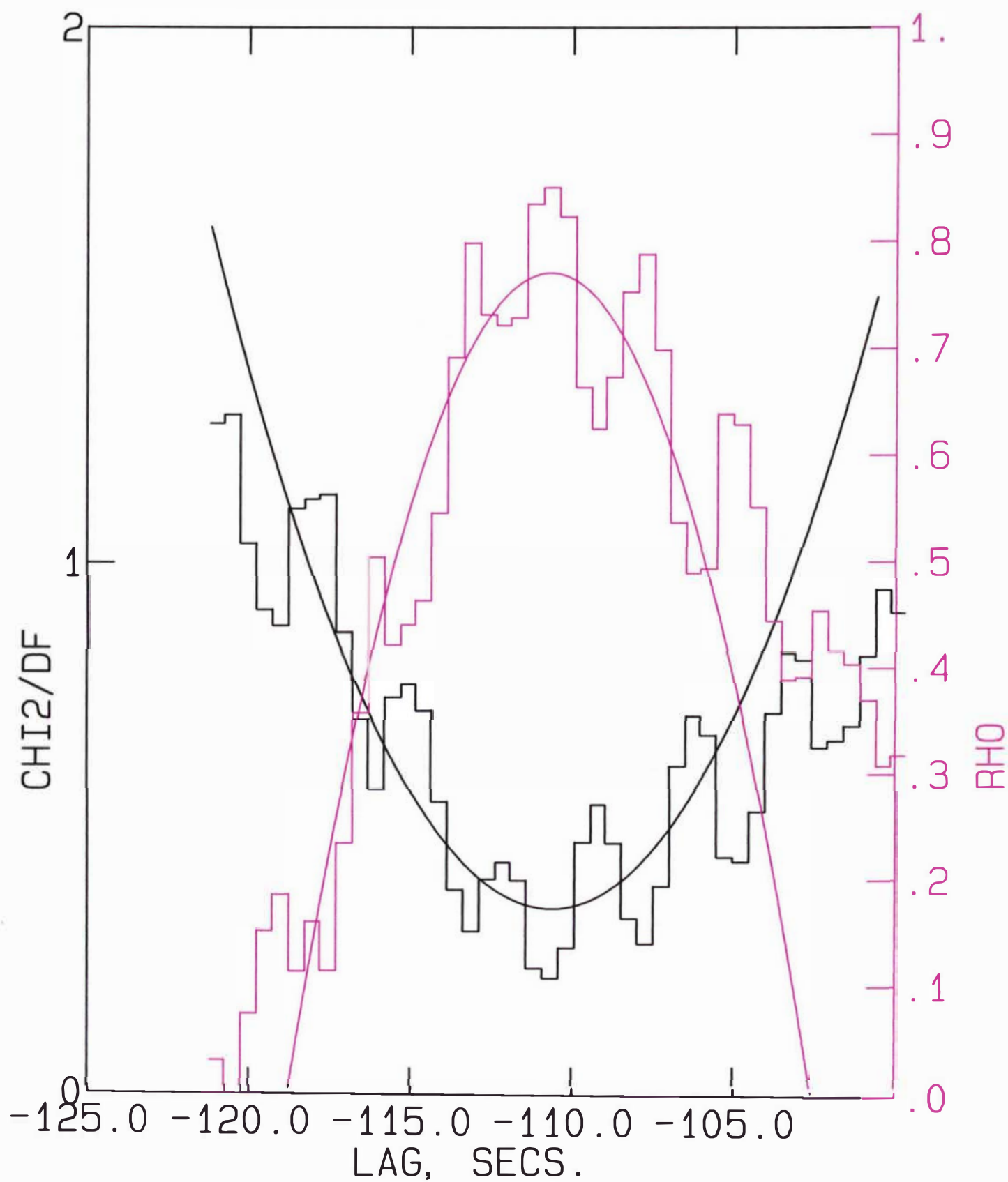
-ULYSSES RT CORRELATION

06/12/00

77228.453

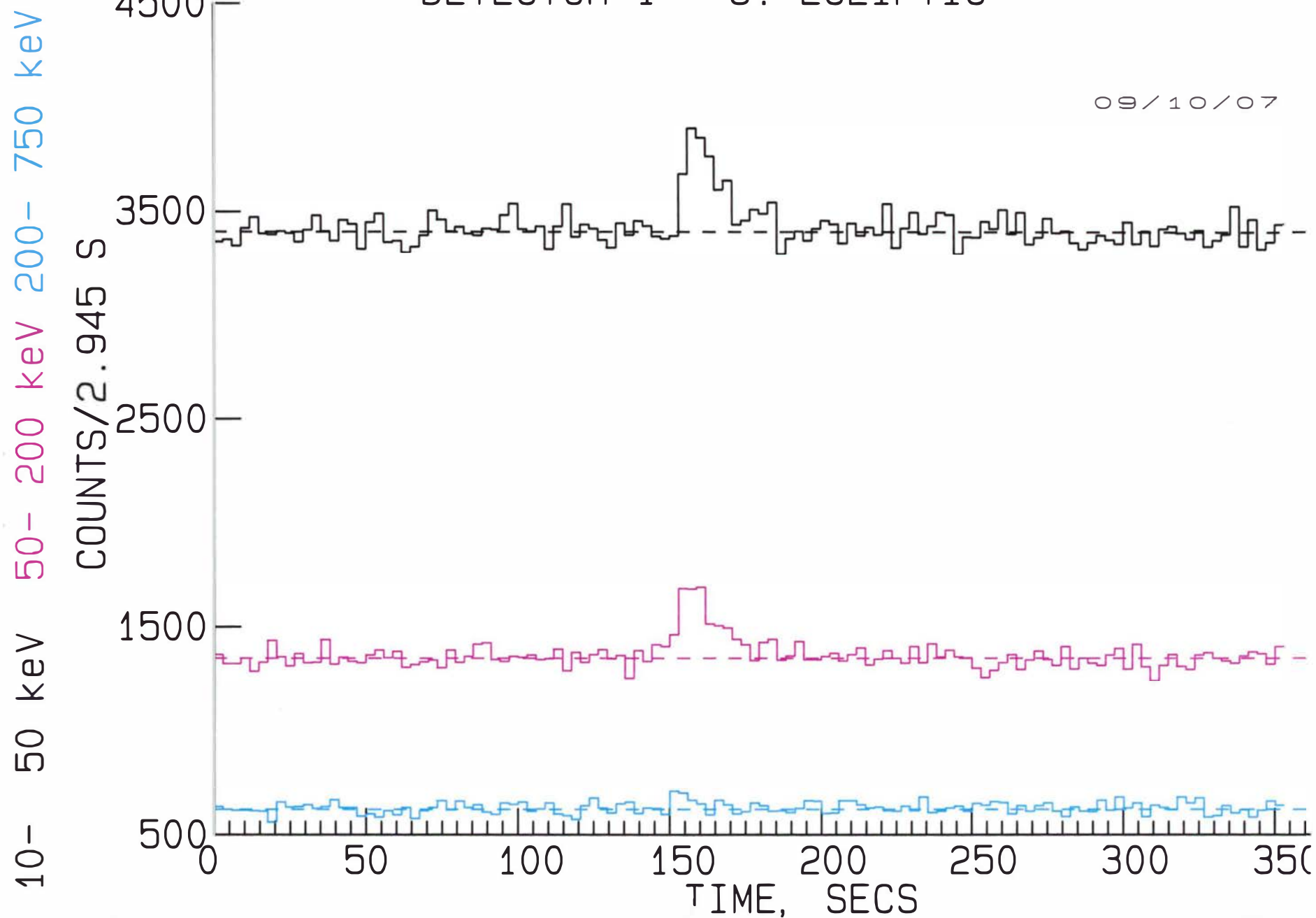
9/10/ 7





DETECTOR 1 - S. ECLIPTIC

09/10/07



KONUS

06/12/00 77228.453

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.945 S

4500

DETECTOR 2 - N. ECLIPTIC

3500

2500

1500

500

50

100

150

200

250

300

350

TIME, SECS

09/10/07

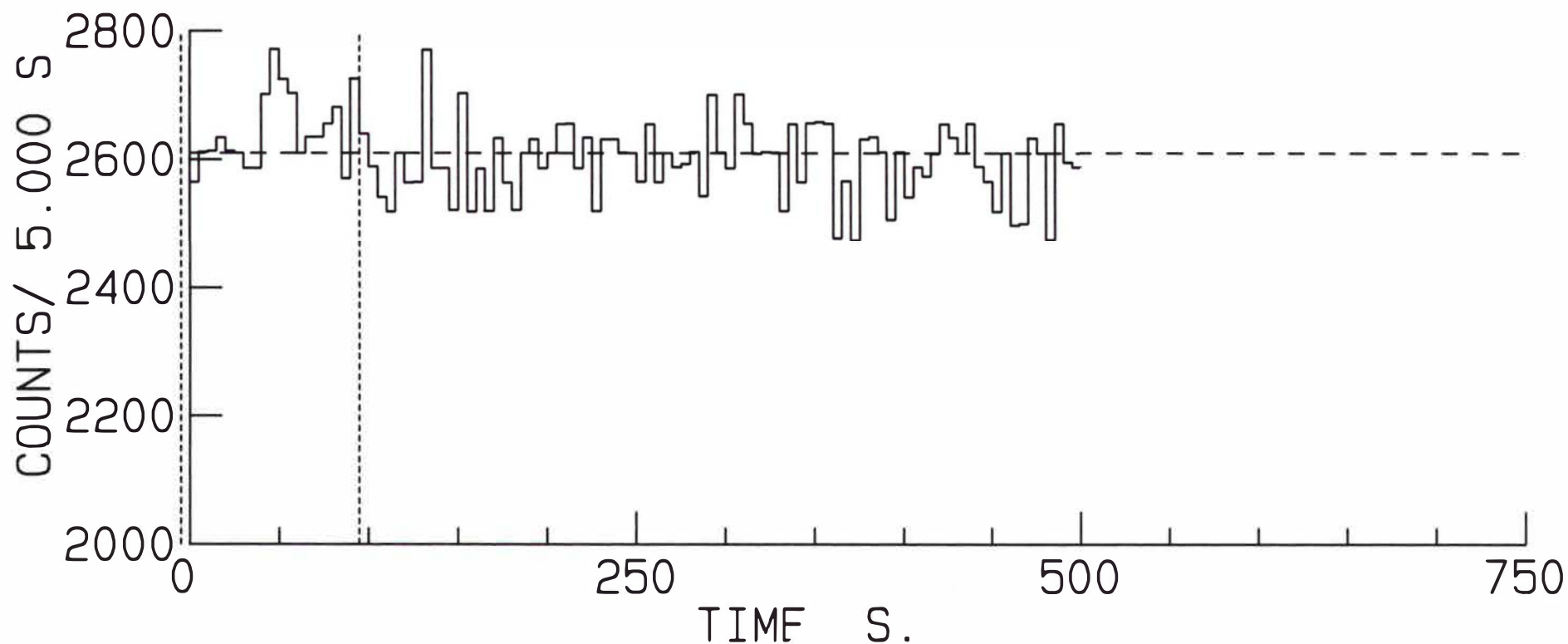
ULYSSES RT

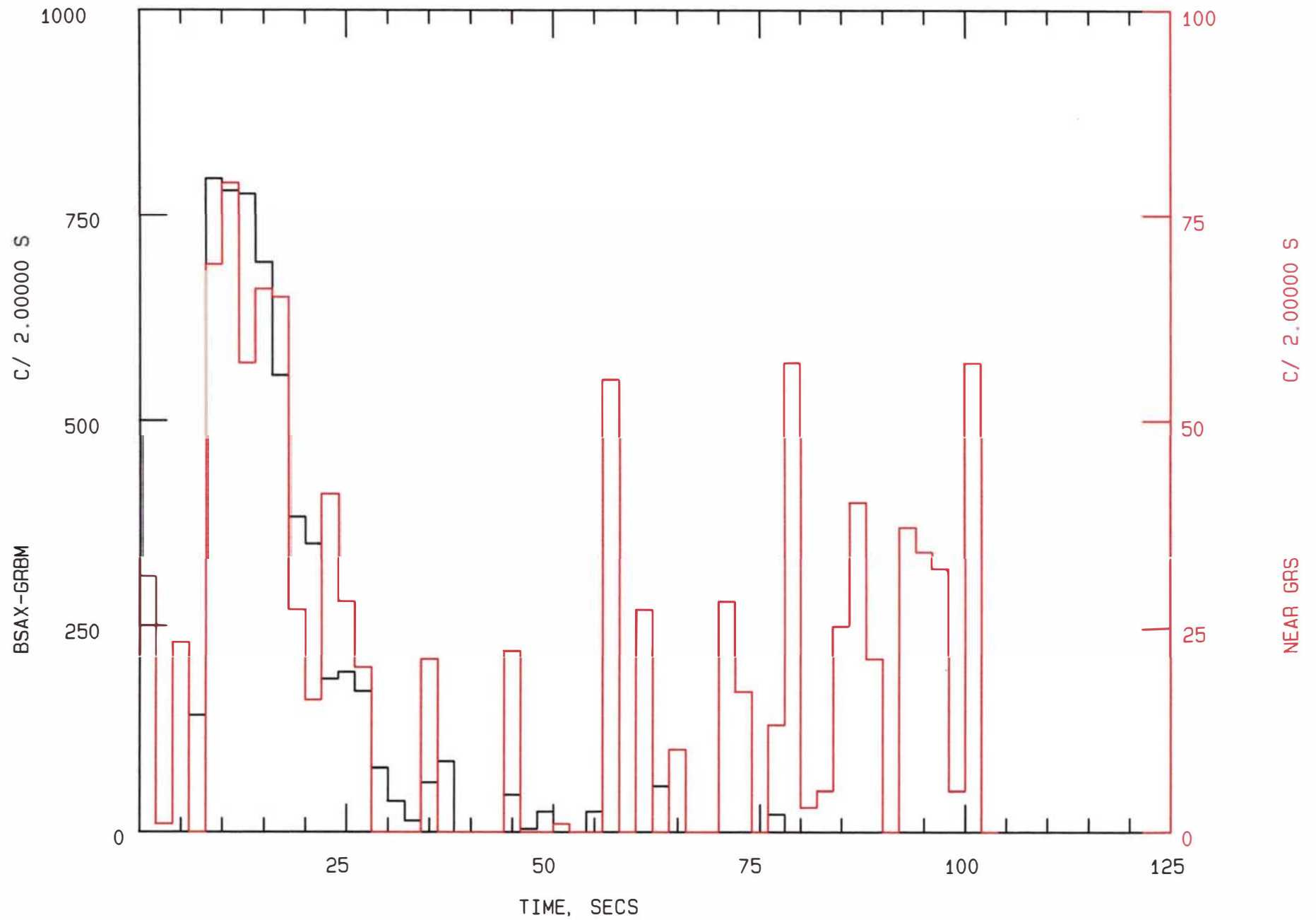
9/10/7

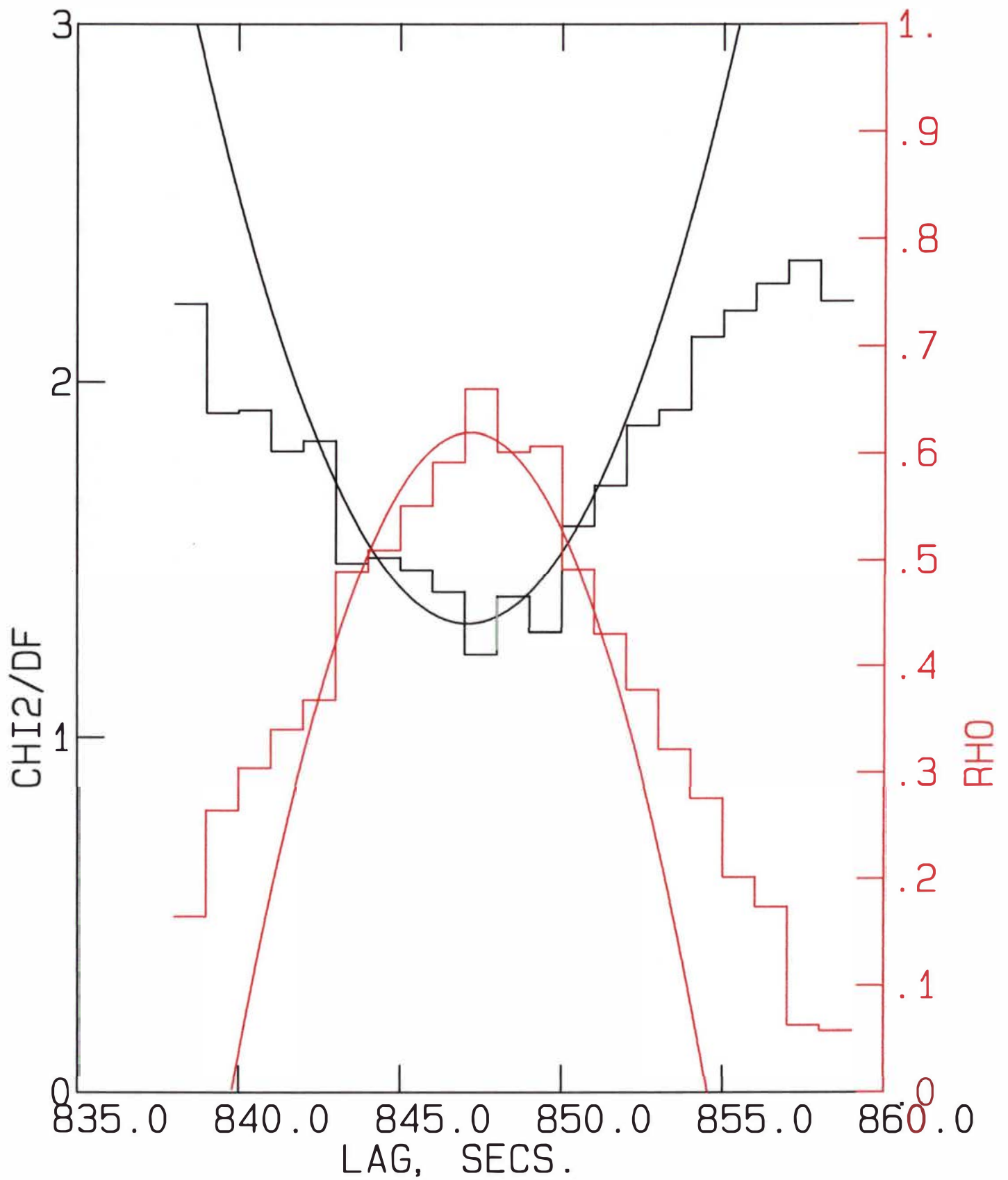
6/12/ 0 76104.258 s

0.500 S INTERVALS REGROUPED BY 10

23- 158 keV





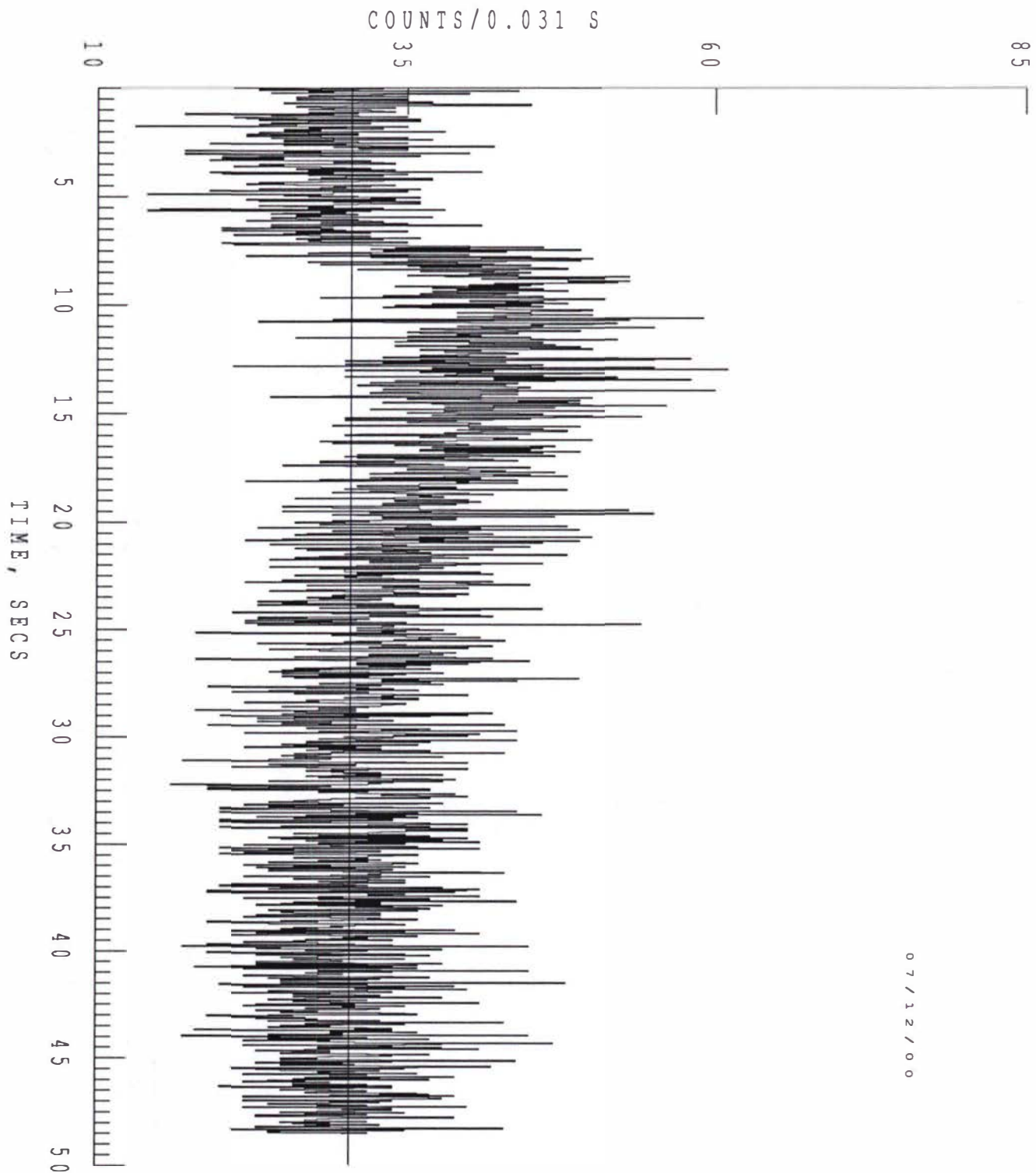


BSAX-GRBM

06/12/00

77372.882

40 - 700 keV



GRBM 20001206 76358

ULYSSES RT

04/10/07

06/12/00 76104.258 s

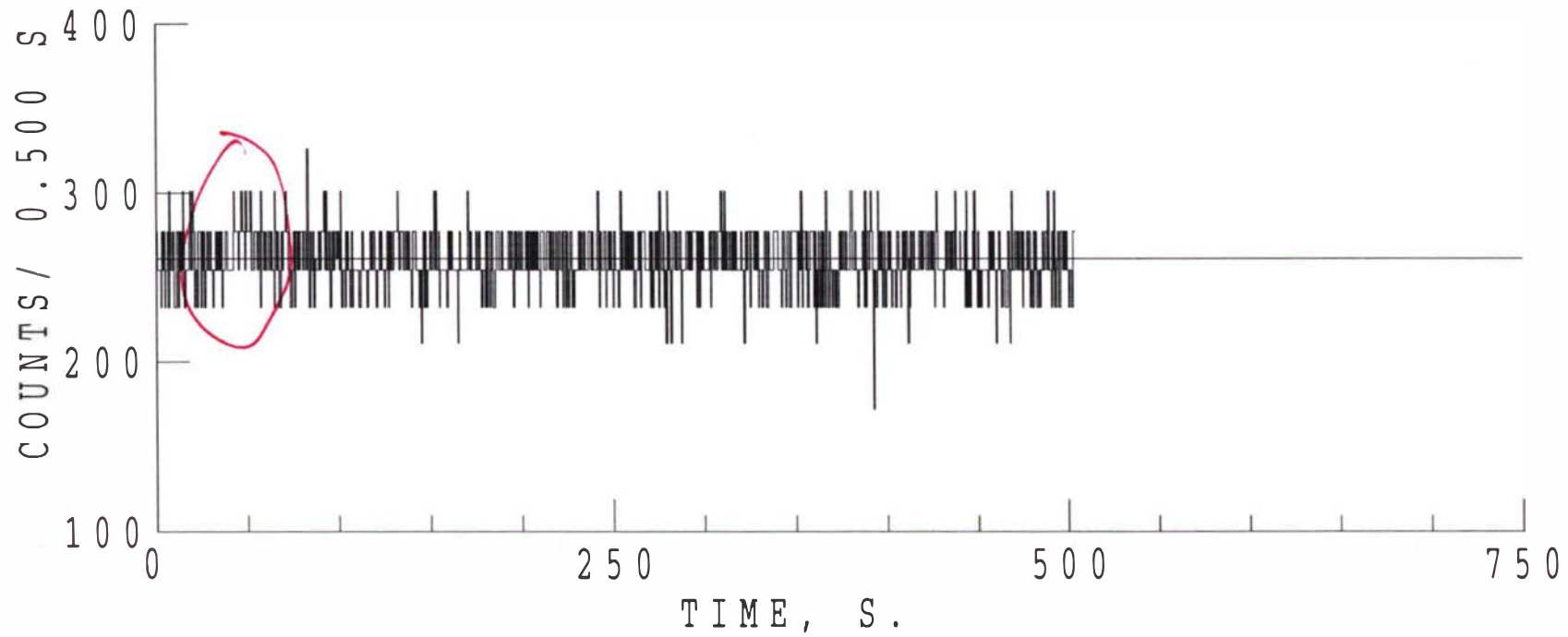
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



NEAR

06/12/00 77380.311

100-1000 keV

COUNTS/1,000 S

300

250

200

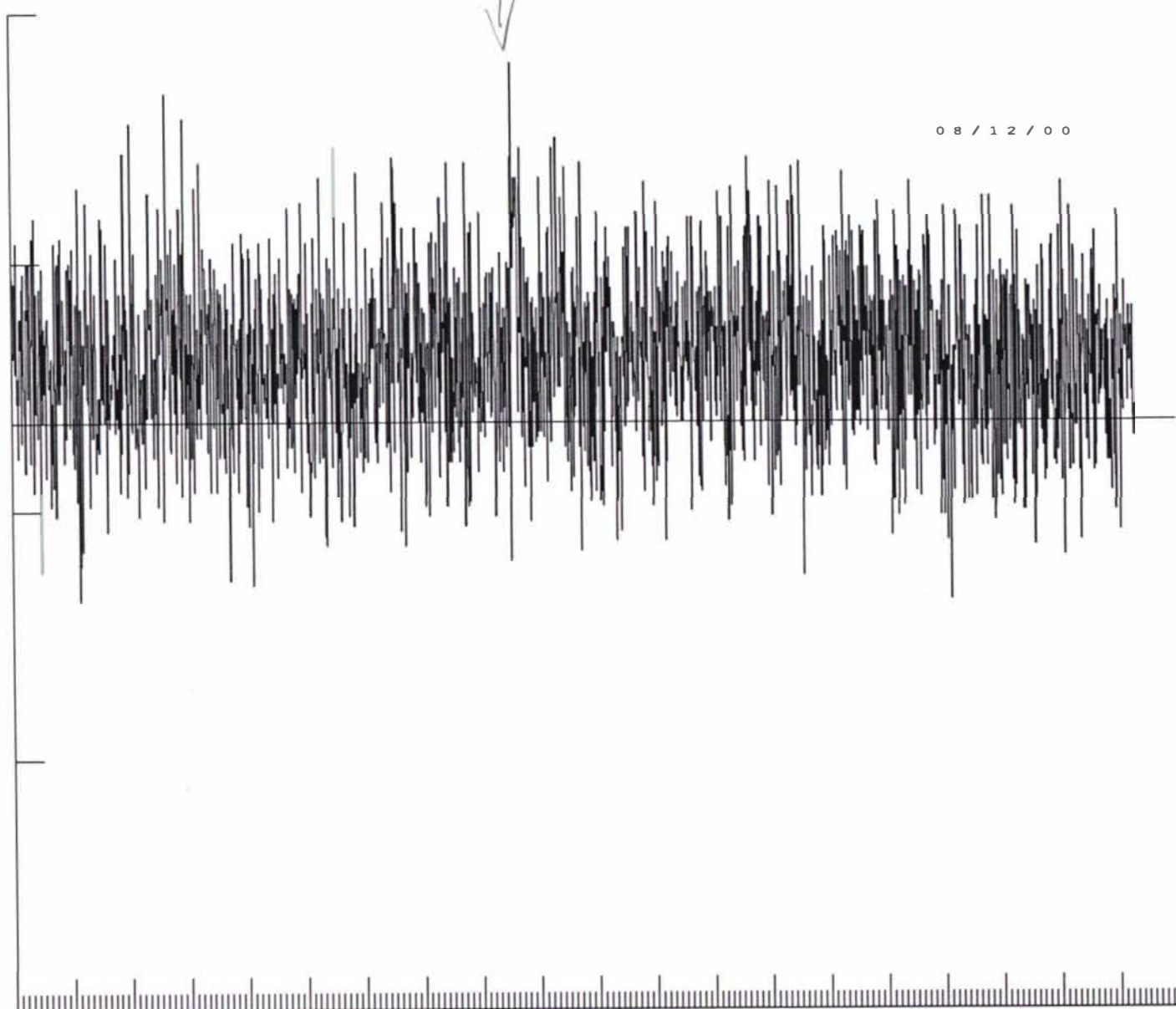
150

100

***** - 64036 136236336436536636736836936 ***

TIME, SECS

08/12/00



SAX 20001206 77381

ULYSSES RT

07/12/00

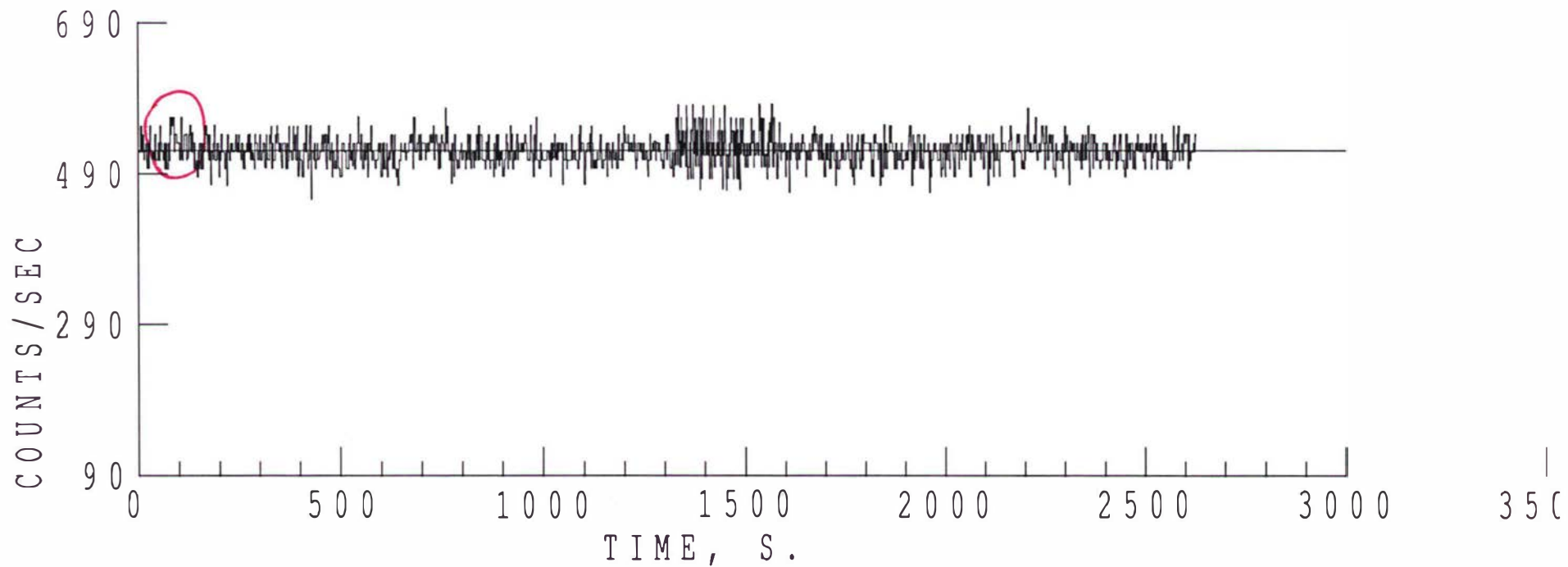
06/12/00 76068.258 s

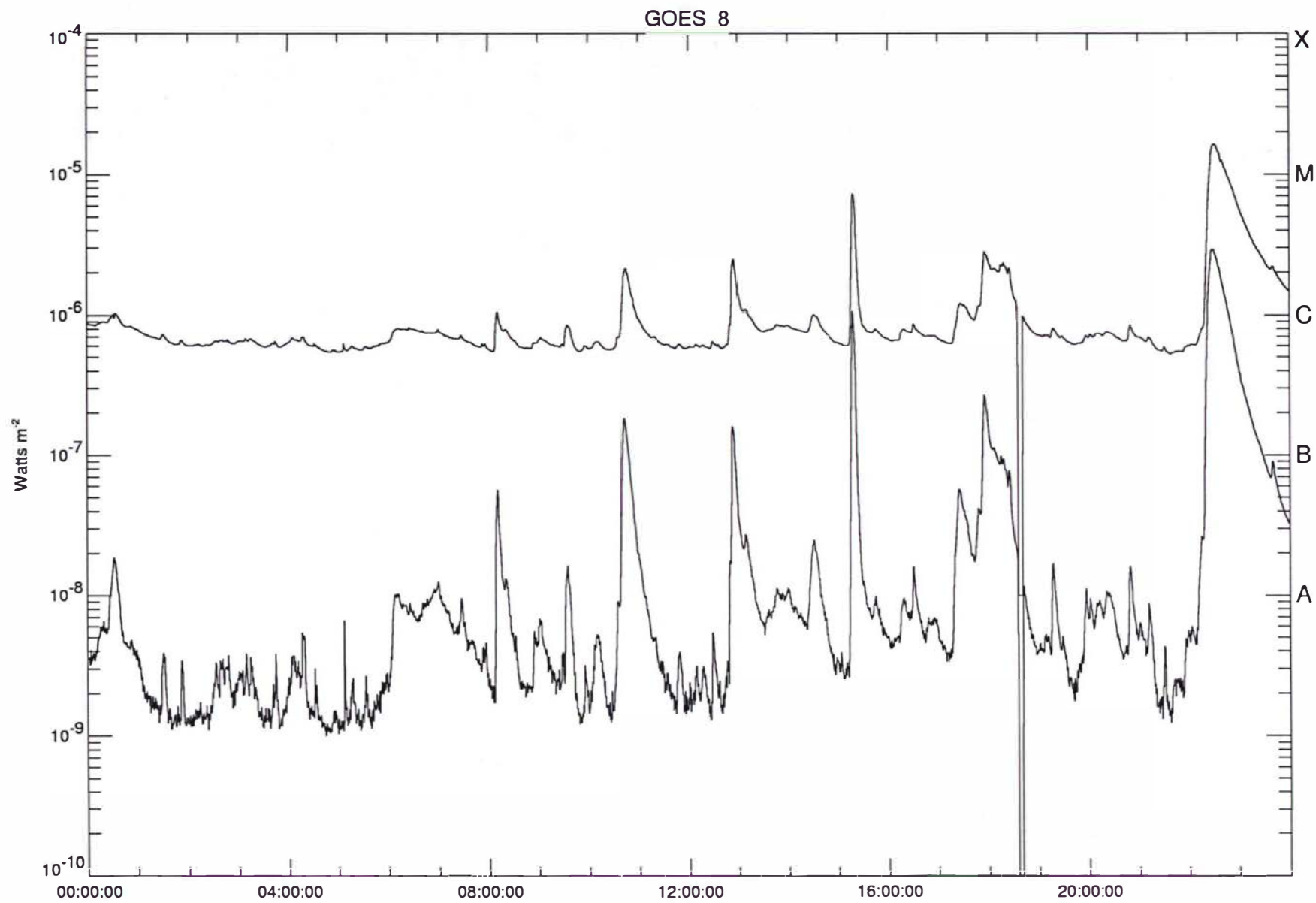
INTERVALS REGROUPED BY 4

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

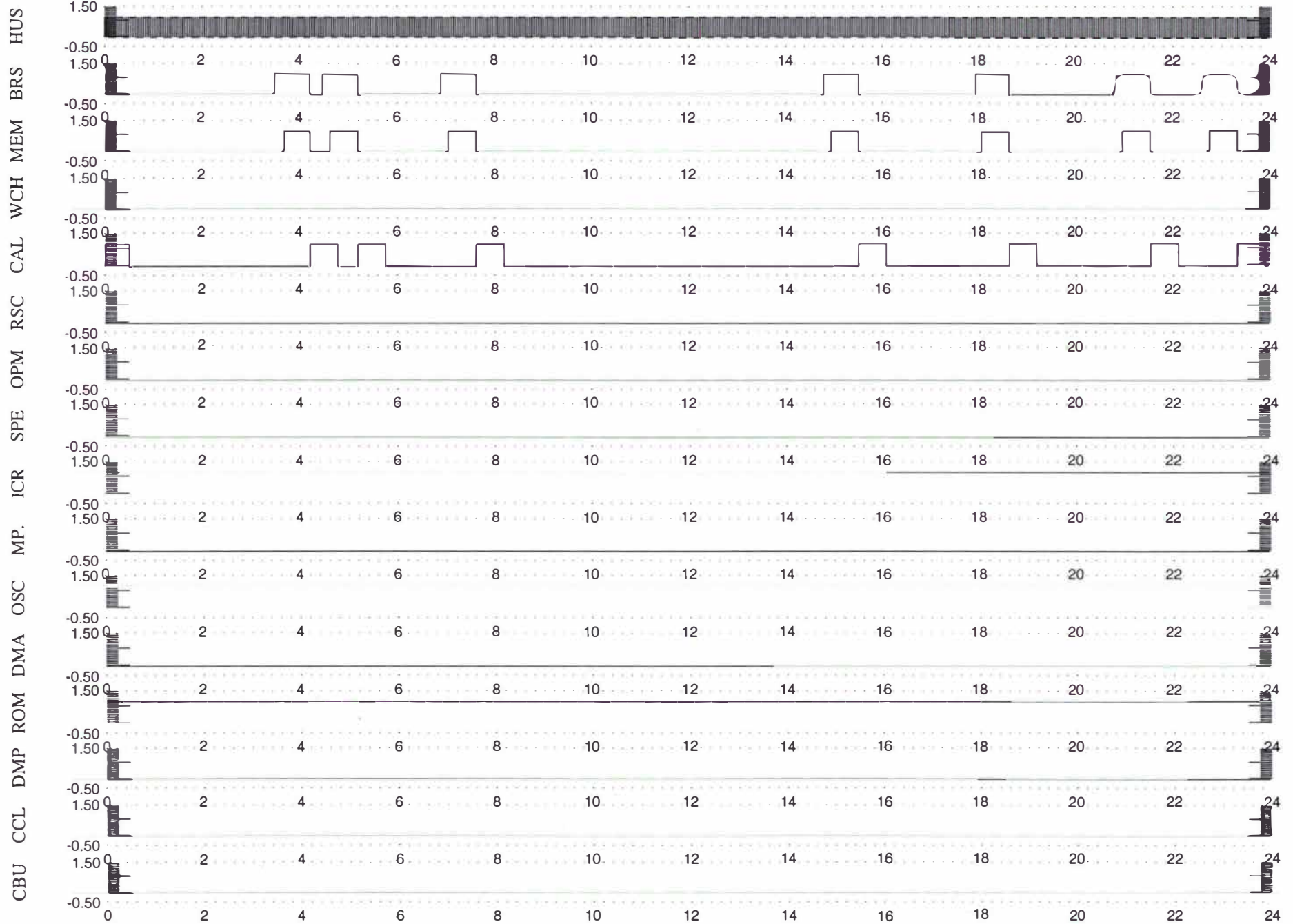
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

Plot created: 00/12/10, 1100

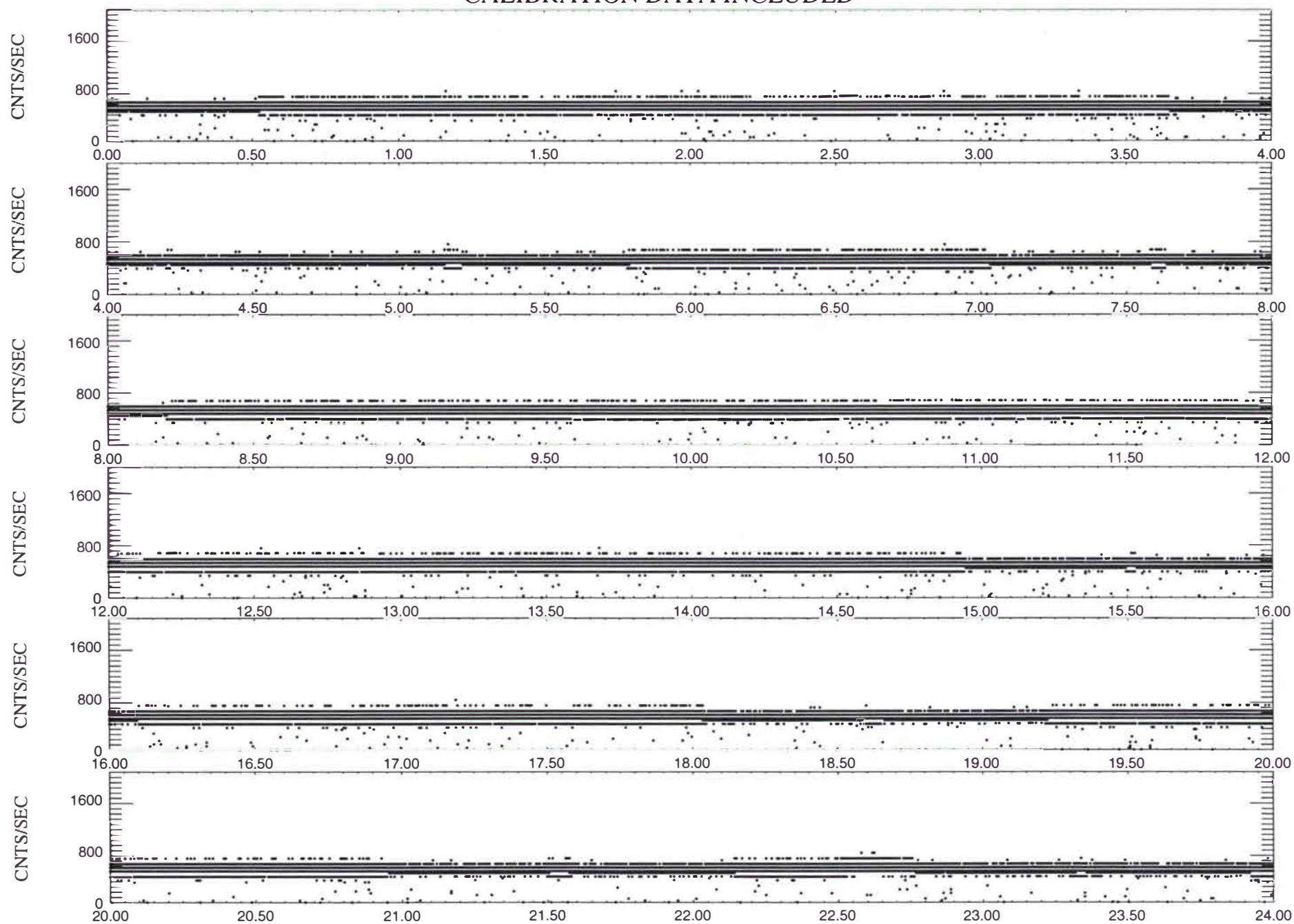
Sample average = 10

BURST NUMBER 1 - 7



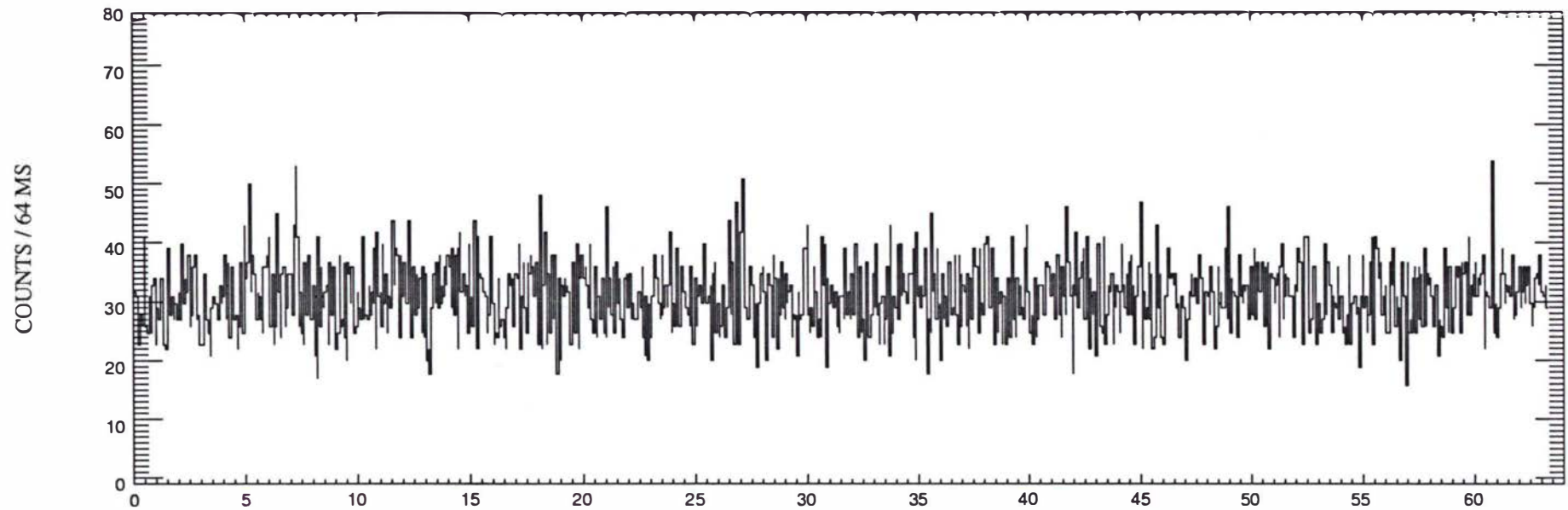
UNIV SAL TIME

CALIBRATION DATA INCLUDED

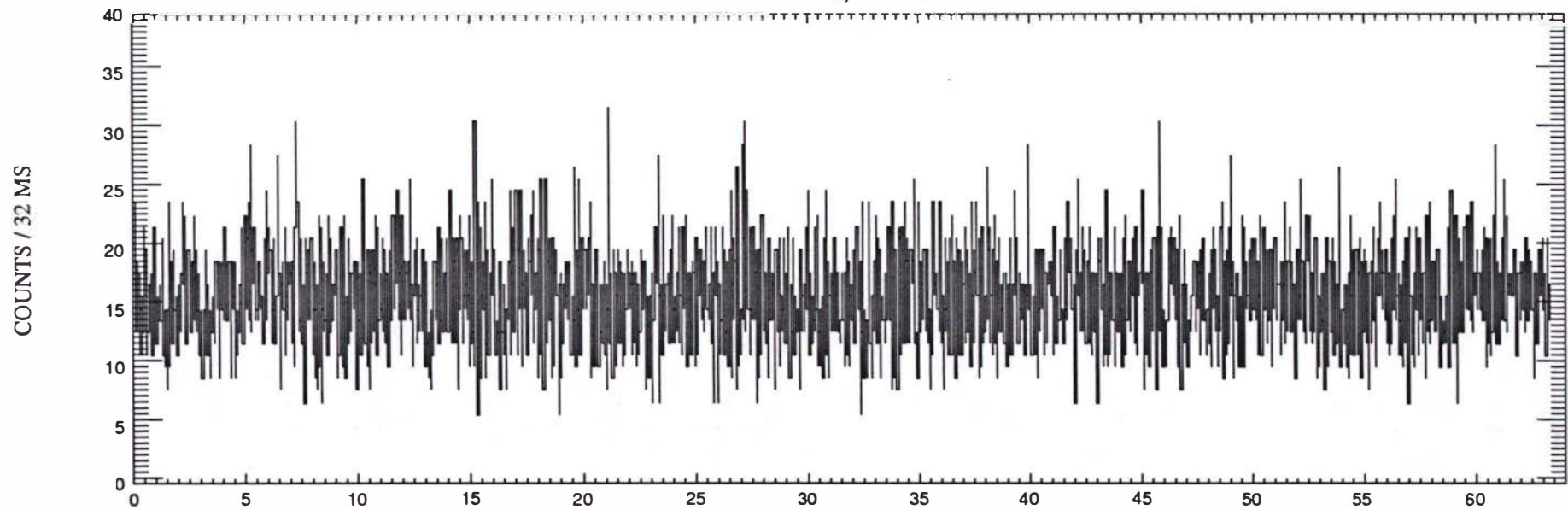


UNIVERSAL TIME

Burst Counter 1 at UT= 3.497017423842 h=12589.263 s 03:29:49.263

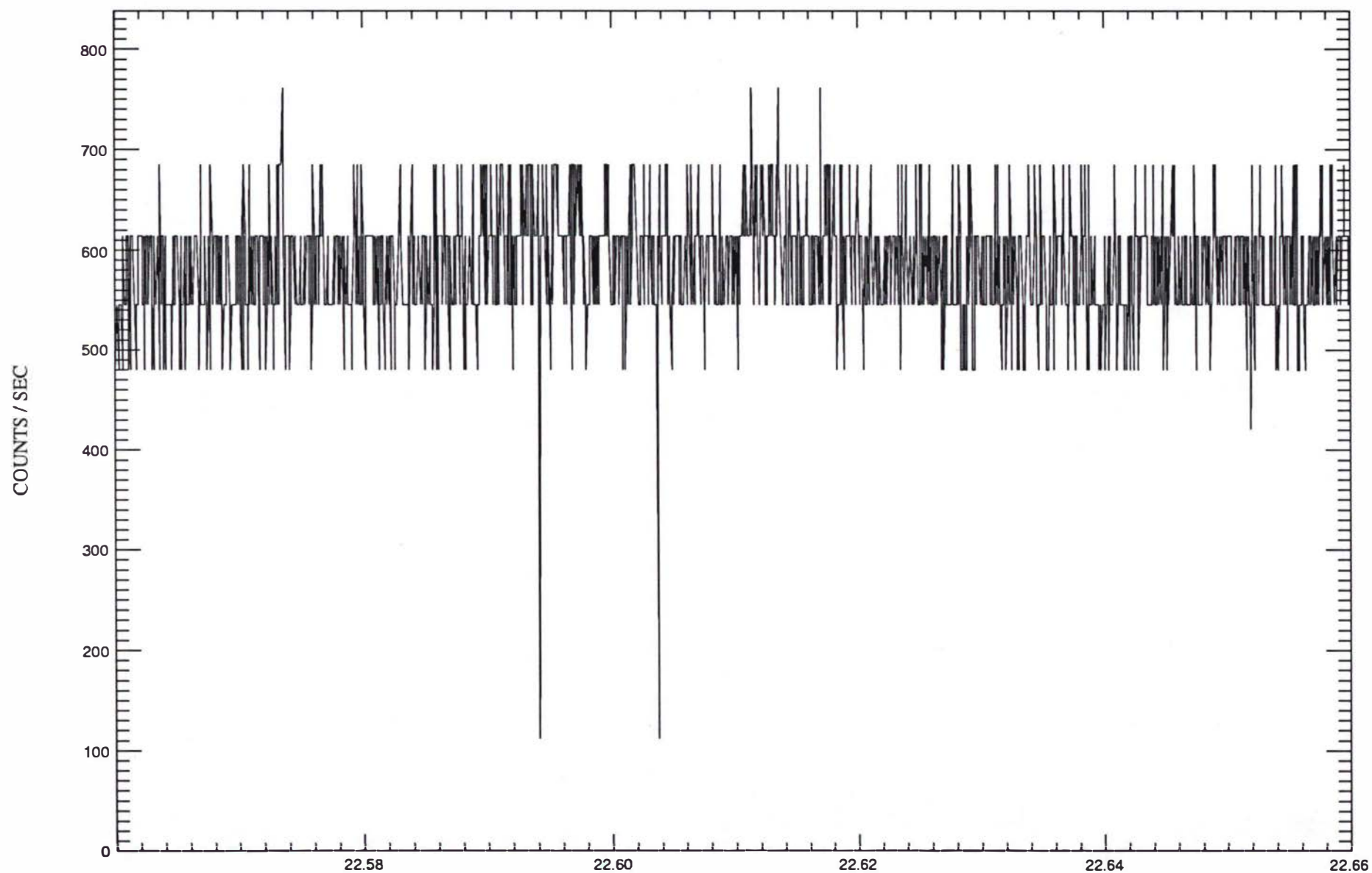


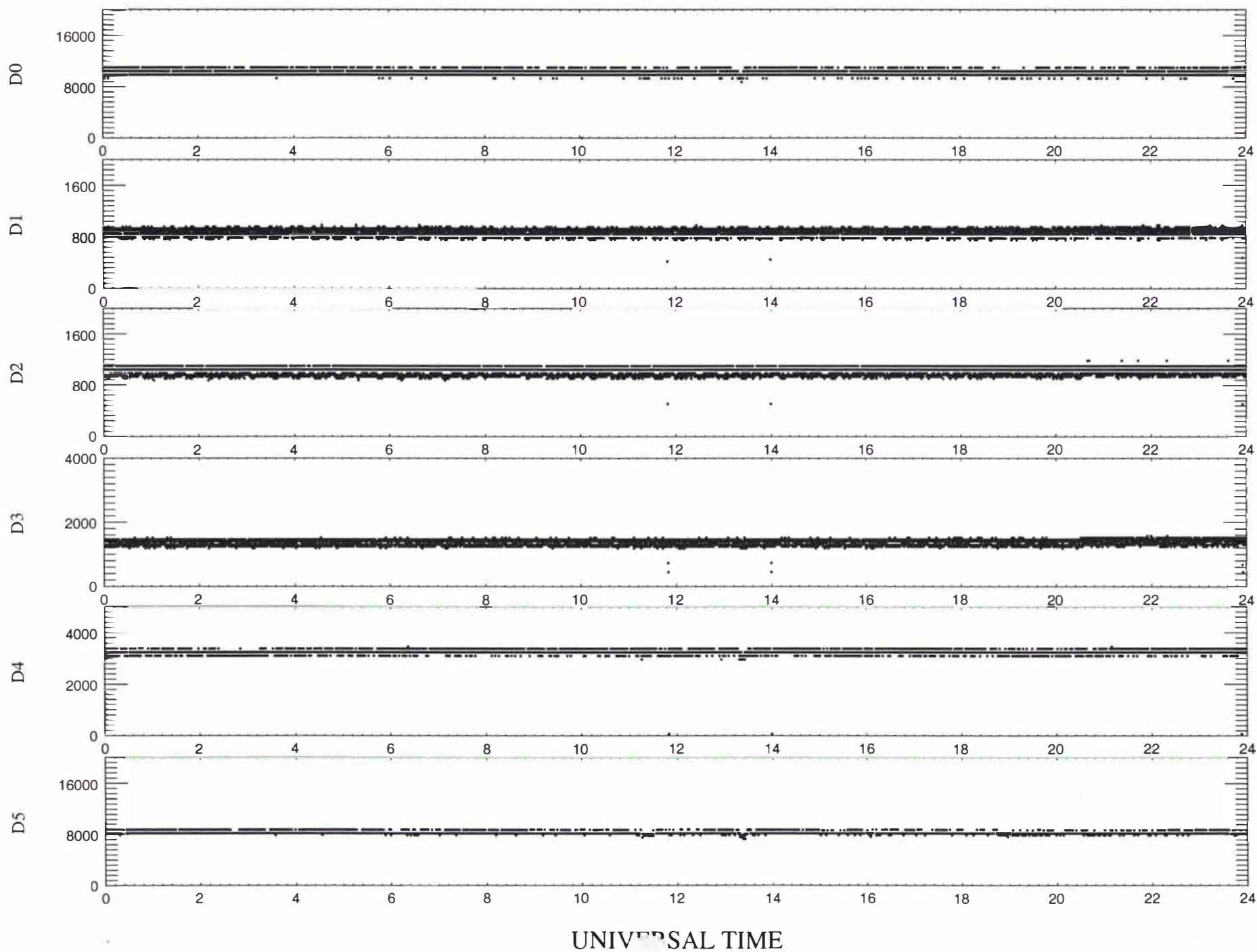
TIME, SECS



TIME, SECS

CALIBRATION DATA INCLUDED





Date: Jan 16 '02

BURST TRIANGULATION CHECKLIST

1. Ulysses Data *N/A*

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

2. BATSE Data *N/A*

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

3. NEAR Data

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

4. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

- ☐ $\Sigma 3\Delta t$'s calculated?

- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

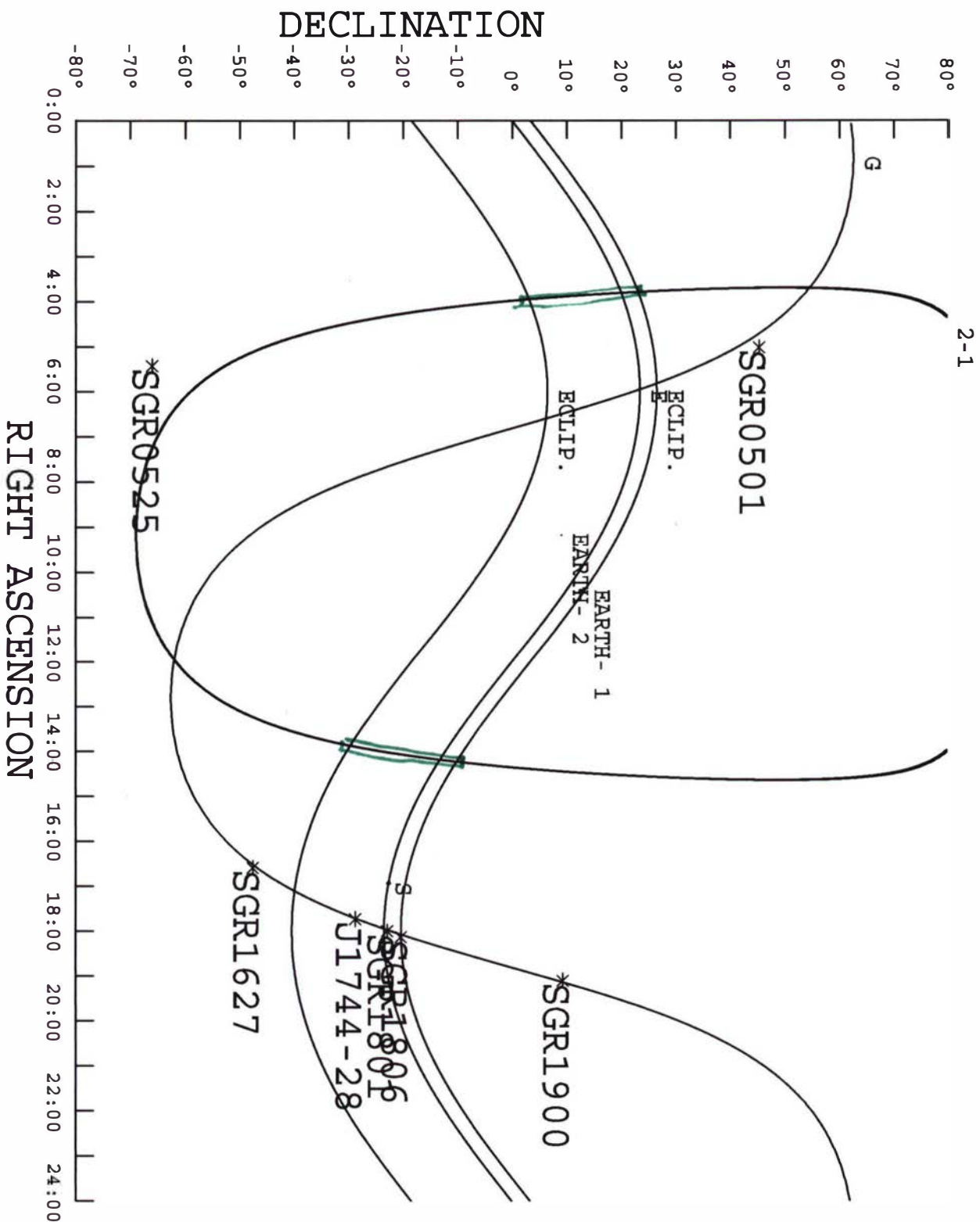
G=GALACTIC EQUATOR

1 KONUS1

2 NEAR

EVENT OF DEC 7, 2000 2:26

16 / 1 / 9



KONUS1

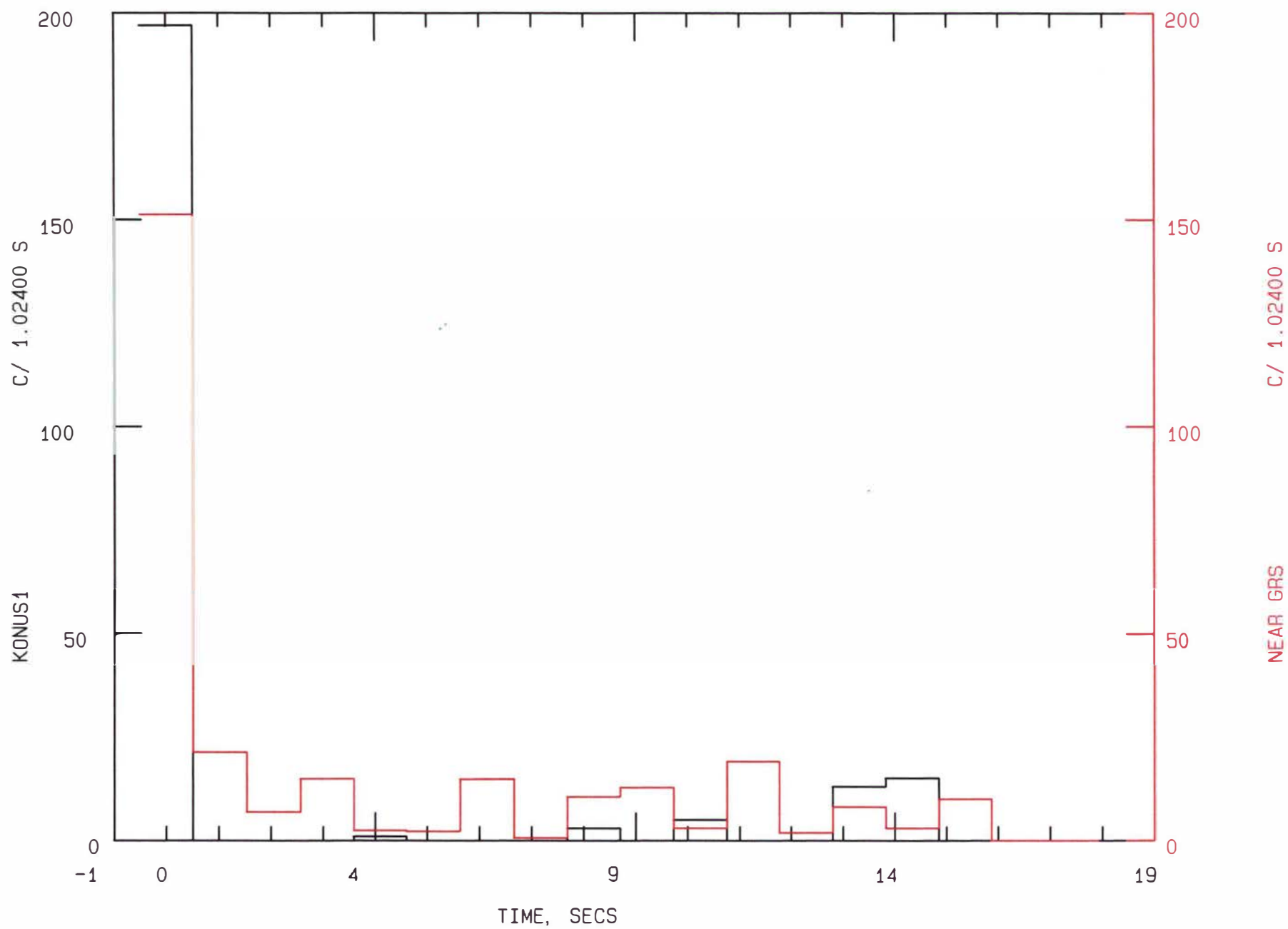
-NEAR GRS

CORRELATION

07/12/00

8815.958

16/ 1/ 9



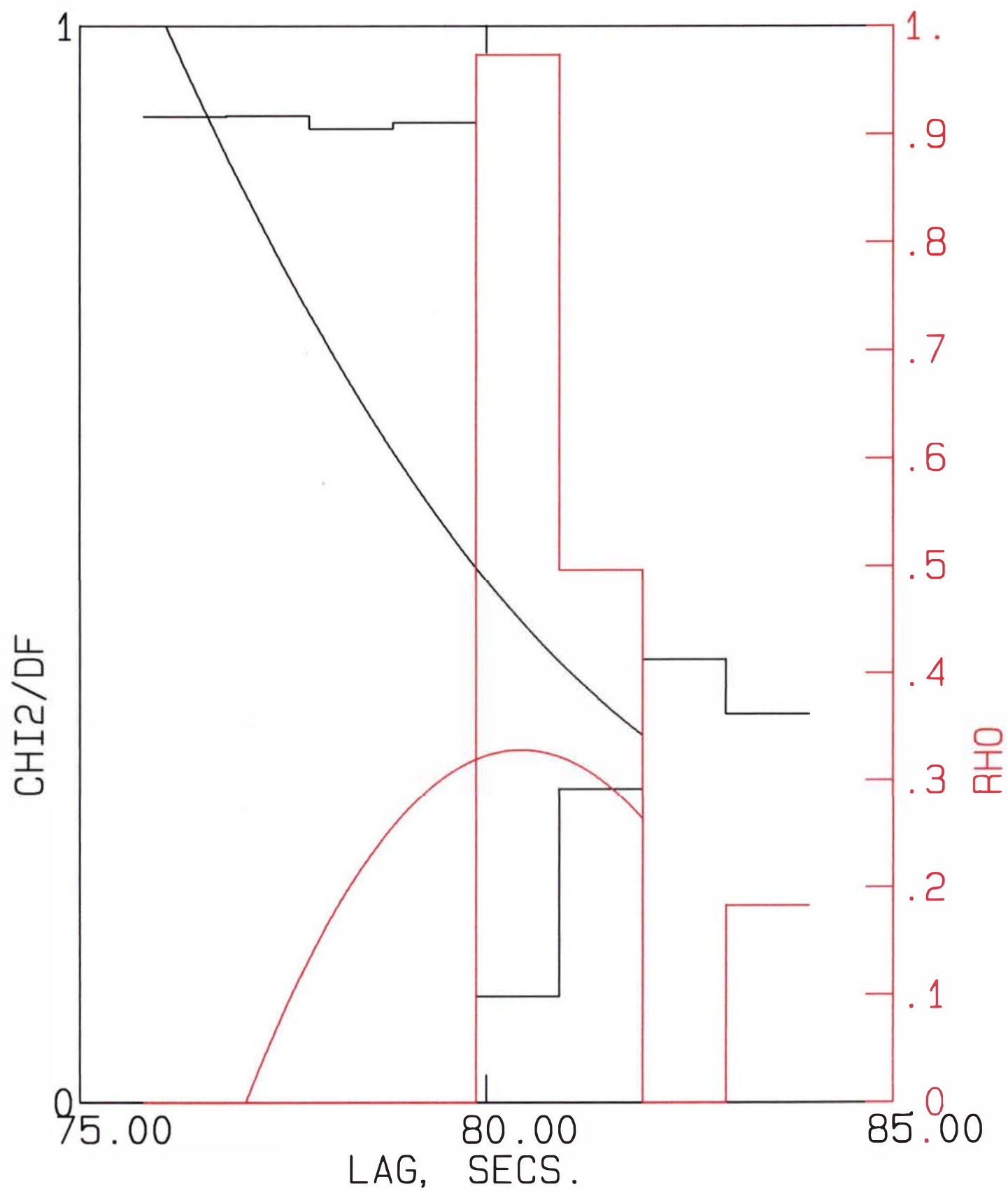
KONUS1

-NEAR GRS

CORRELATION

07/12/00

8815.958

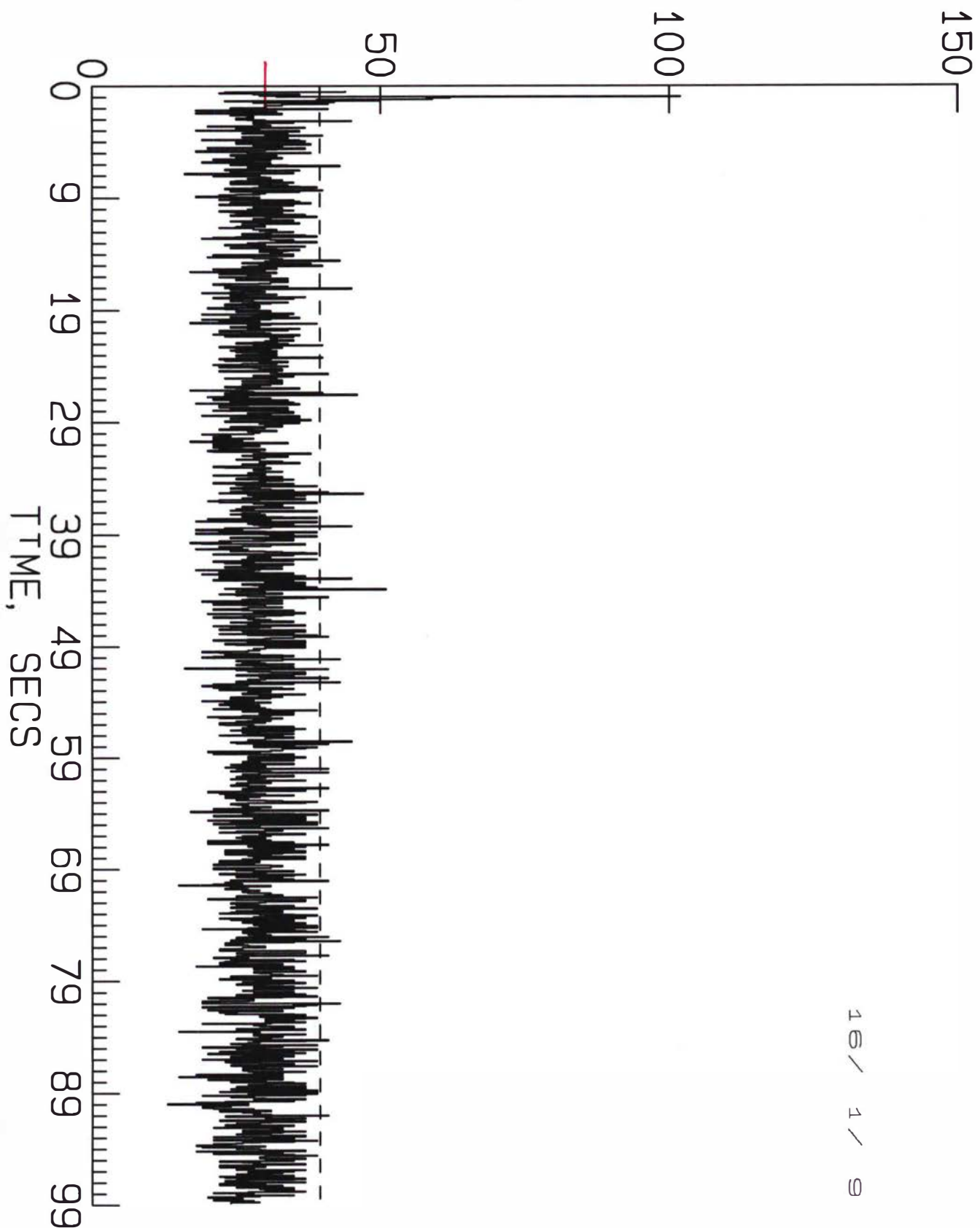


KONUS

07/12/00 8815.950

50- 200 keV

COUNTS/0.064 S



NEAR

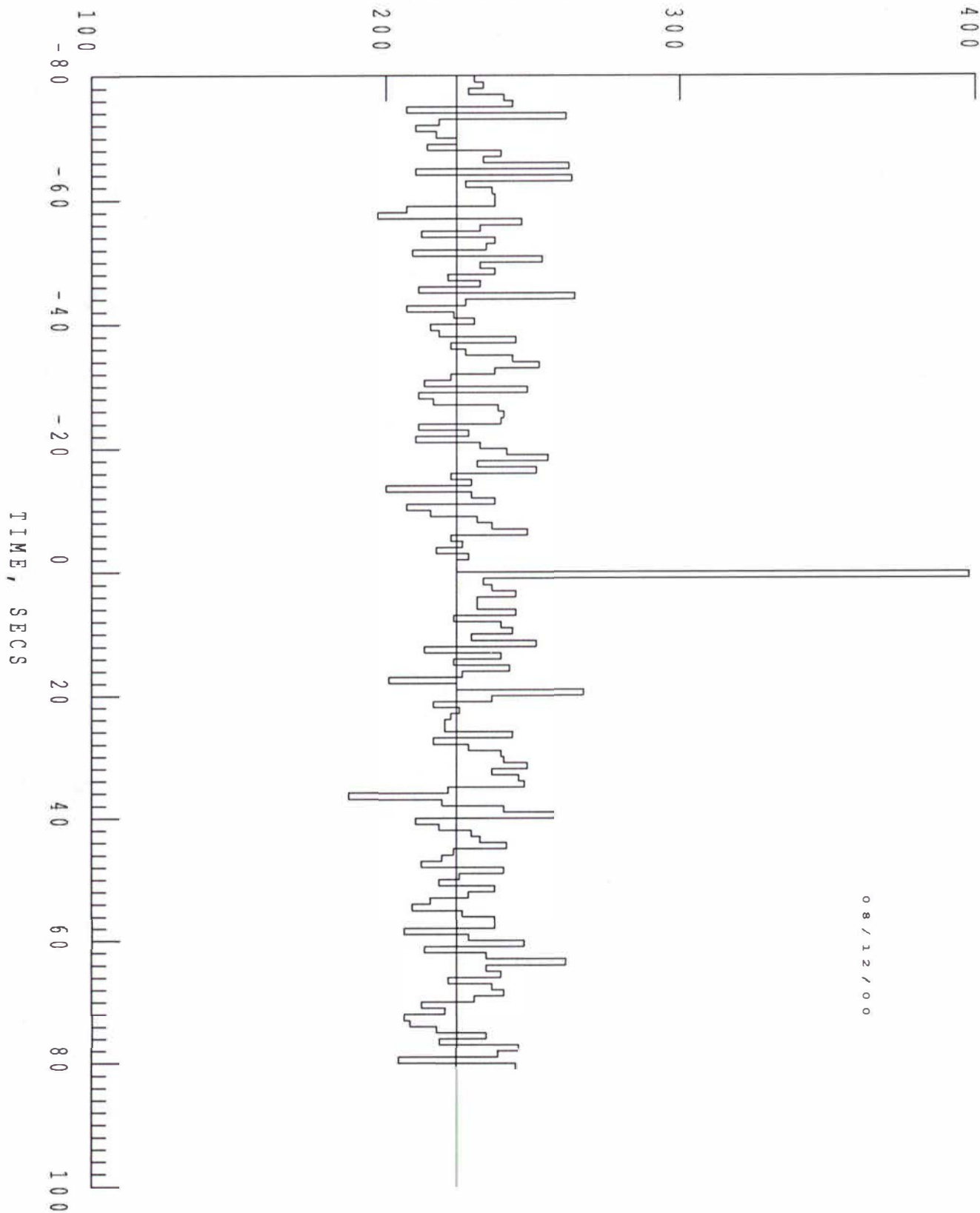
07/12/00

9005.304

OK

100-1000 keV

COUNTS/1.000 S



08/12/00

KNEAR GRS 20001207 09005

ULYSSES RT

08/12/00

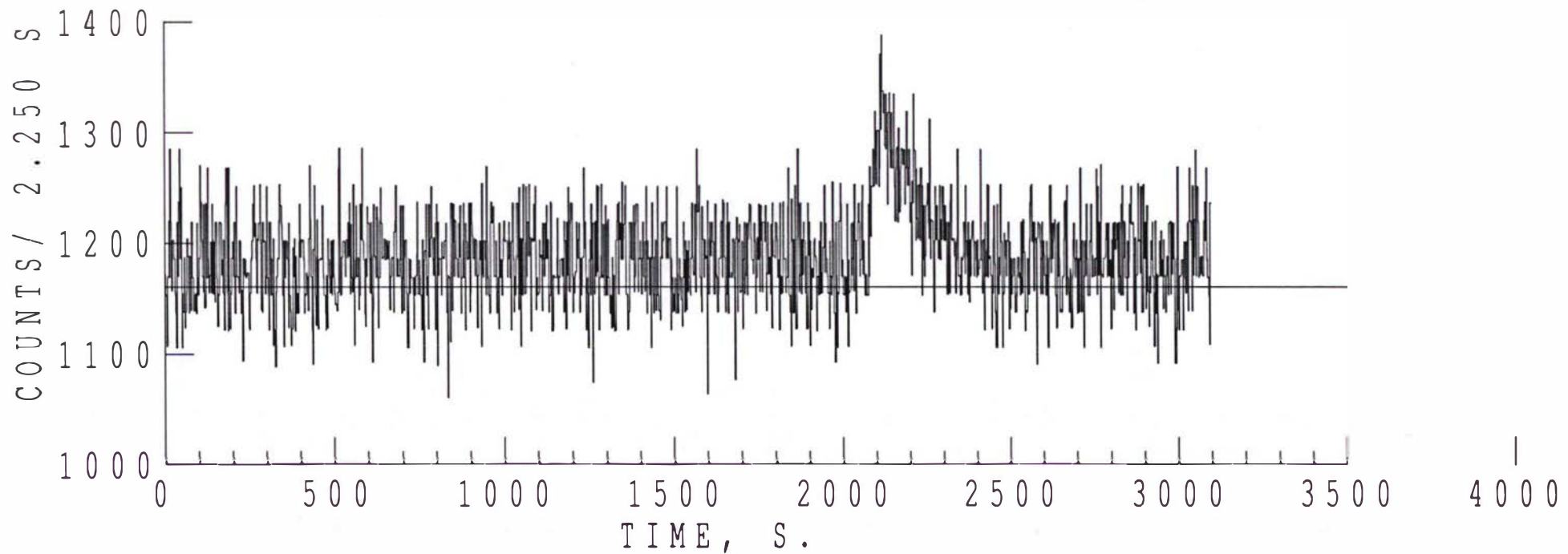
07/12/00 7452.025 s

0.250 S INTERVALS REGROUPED BY 9

0 - 0 keV

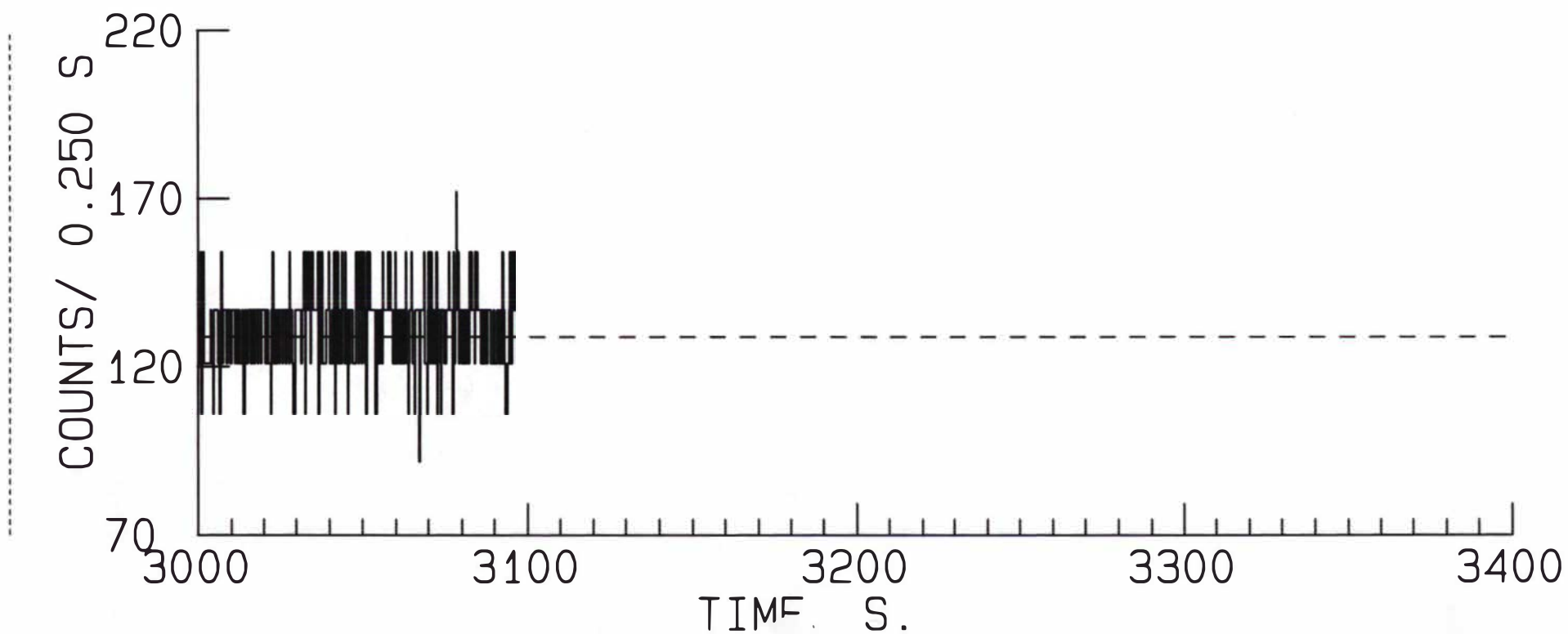
N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



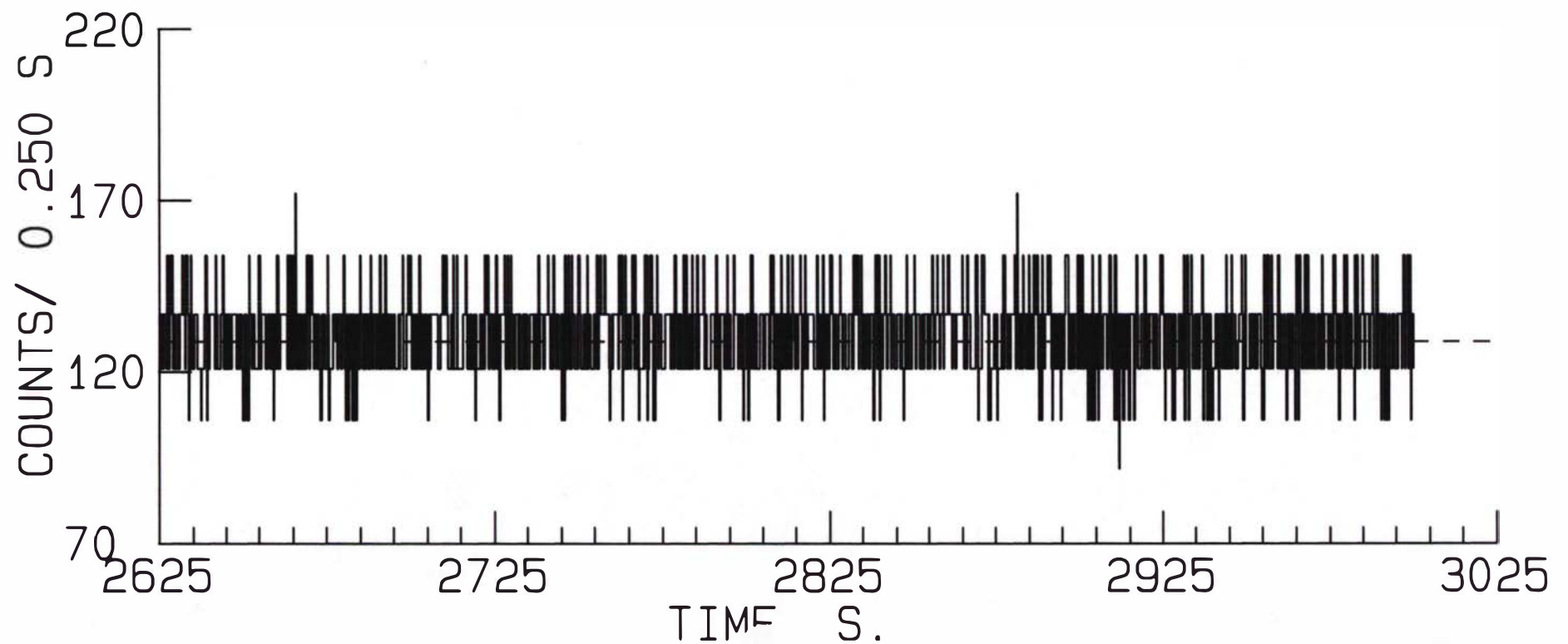
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



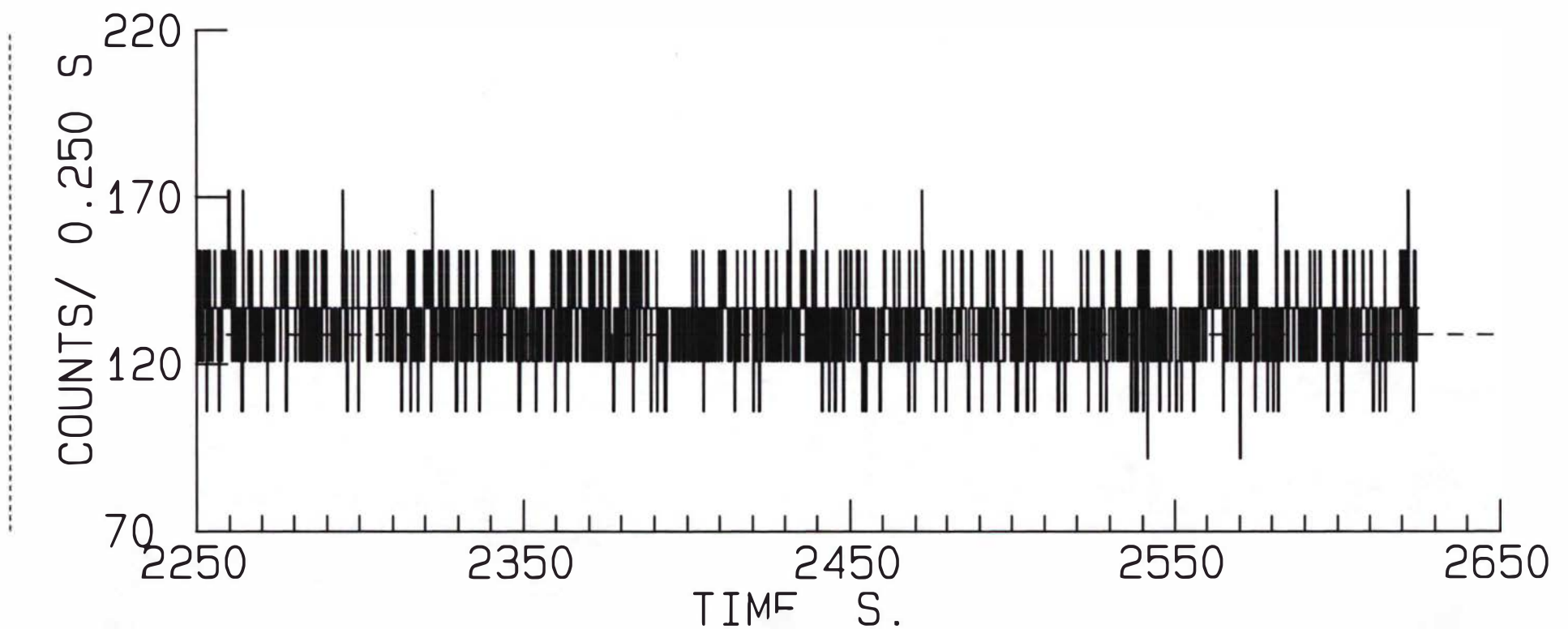
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



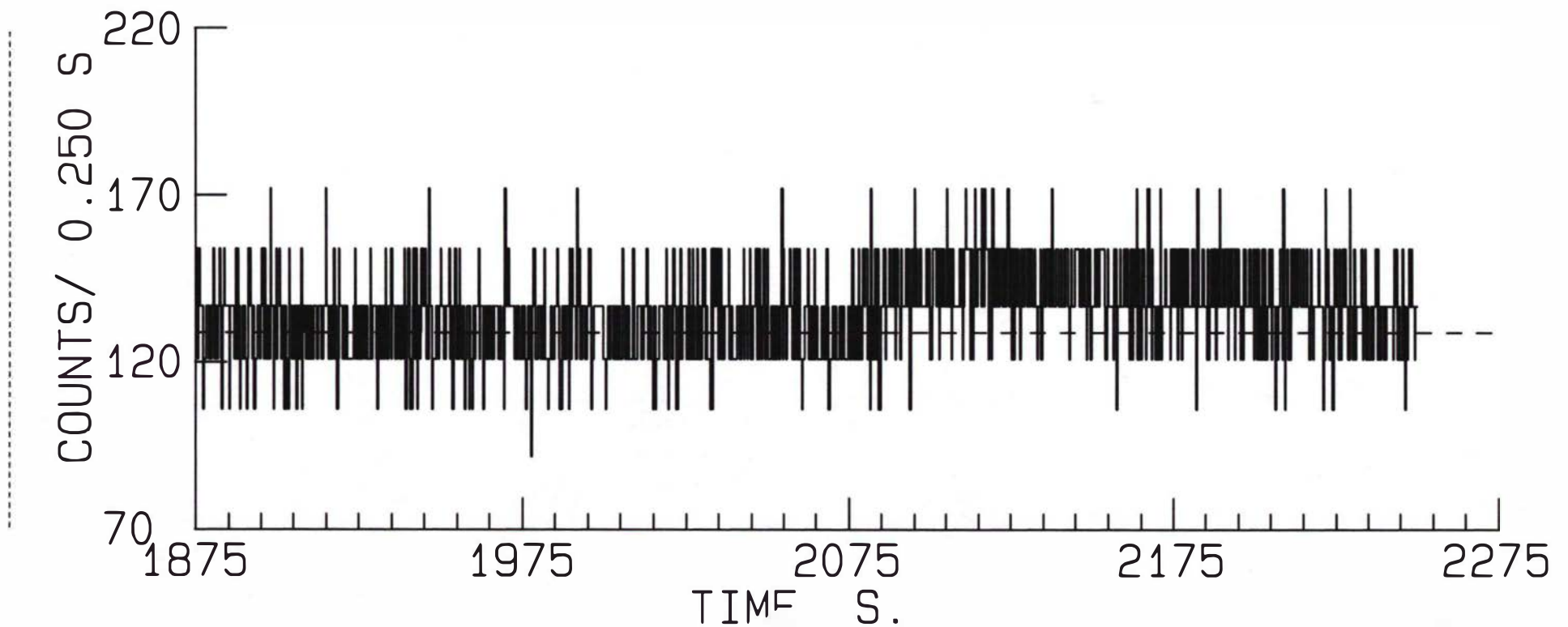
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



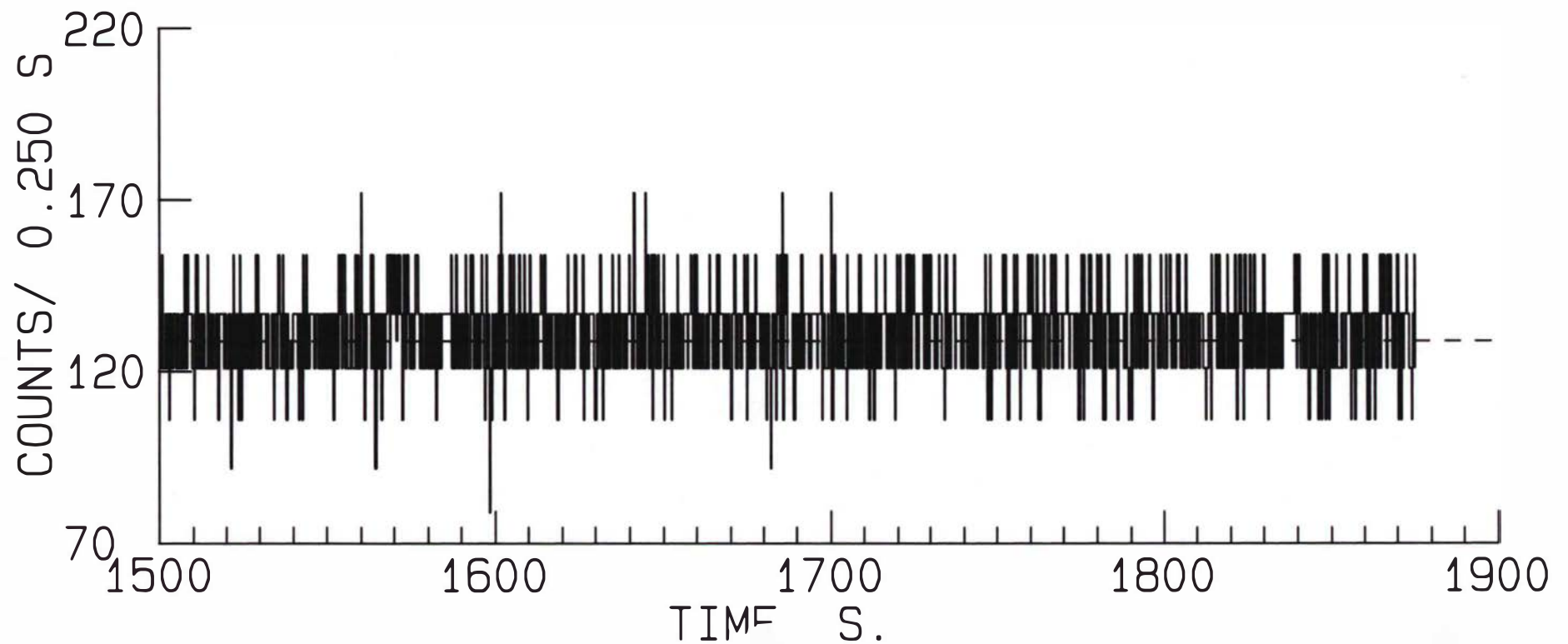
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



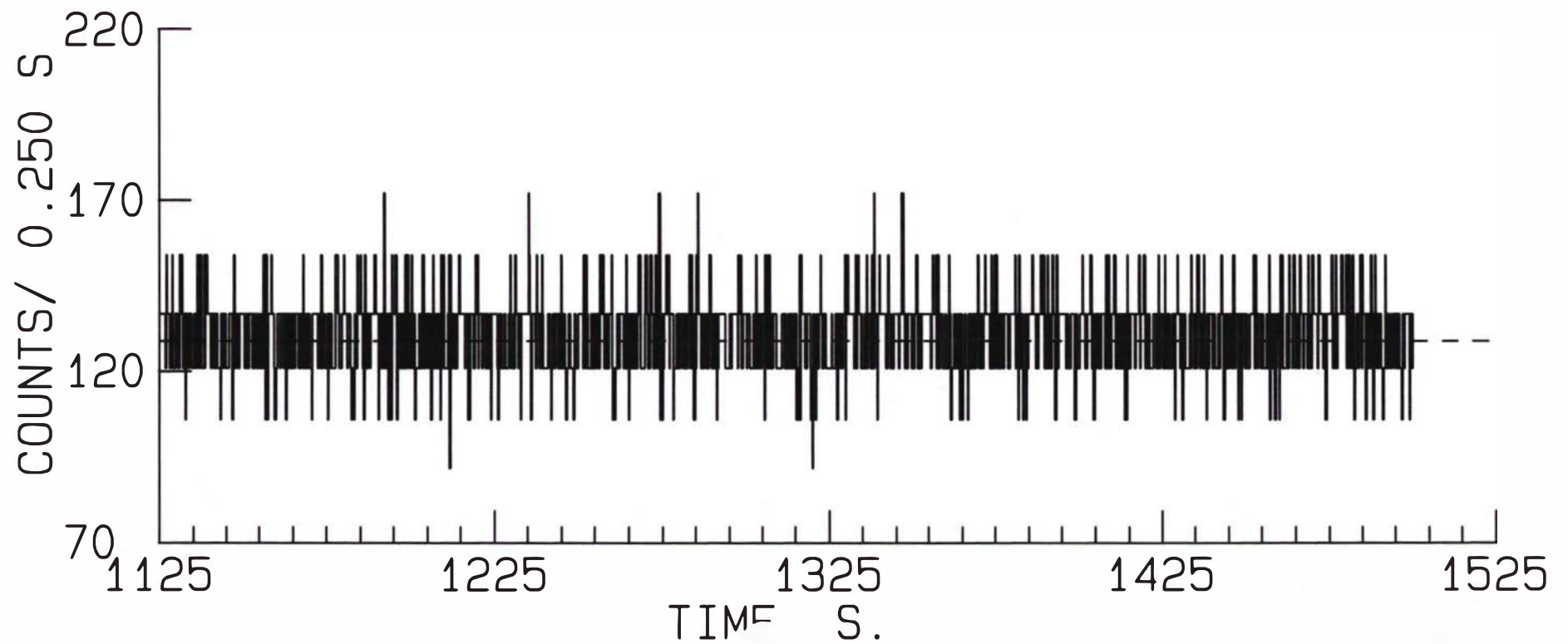
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



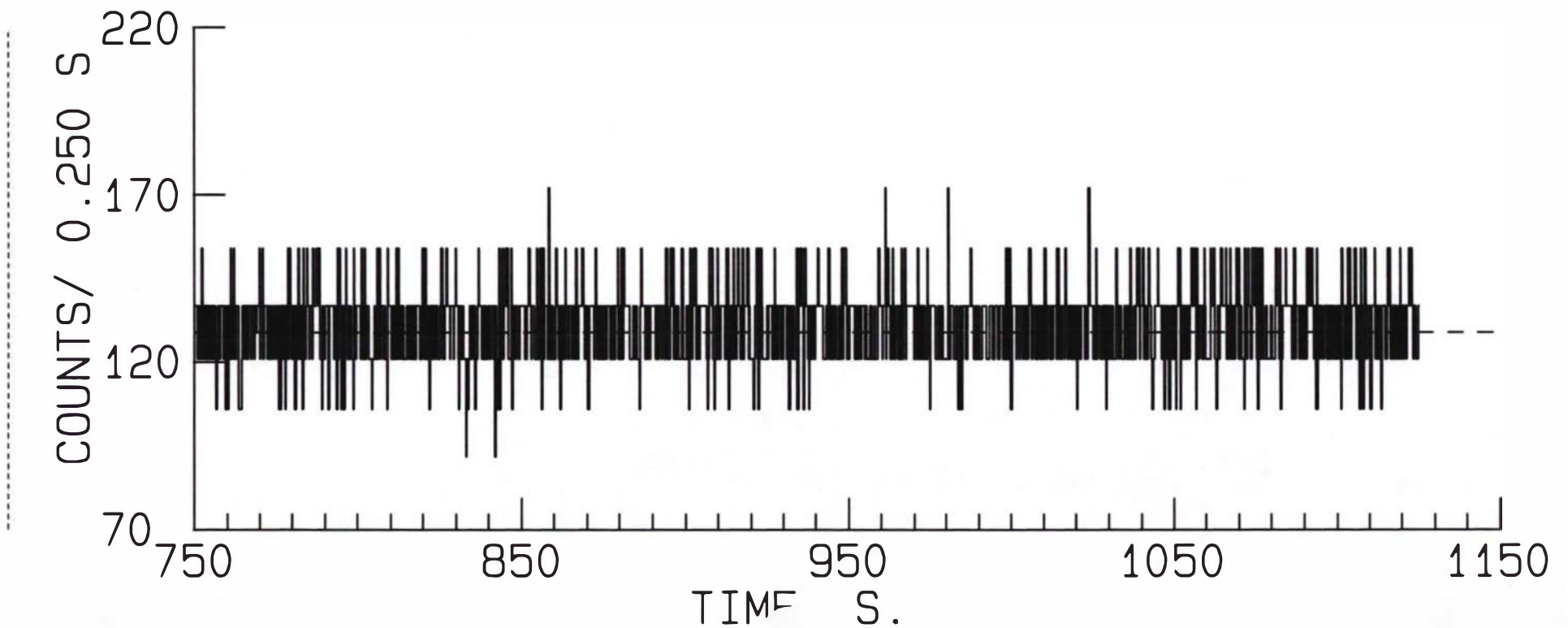
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



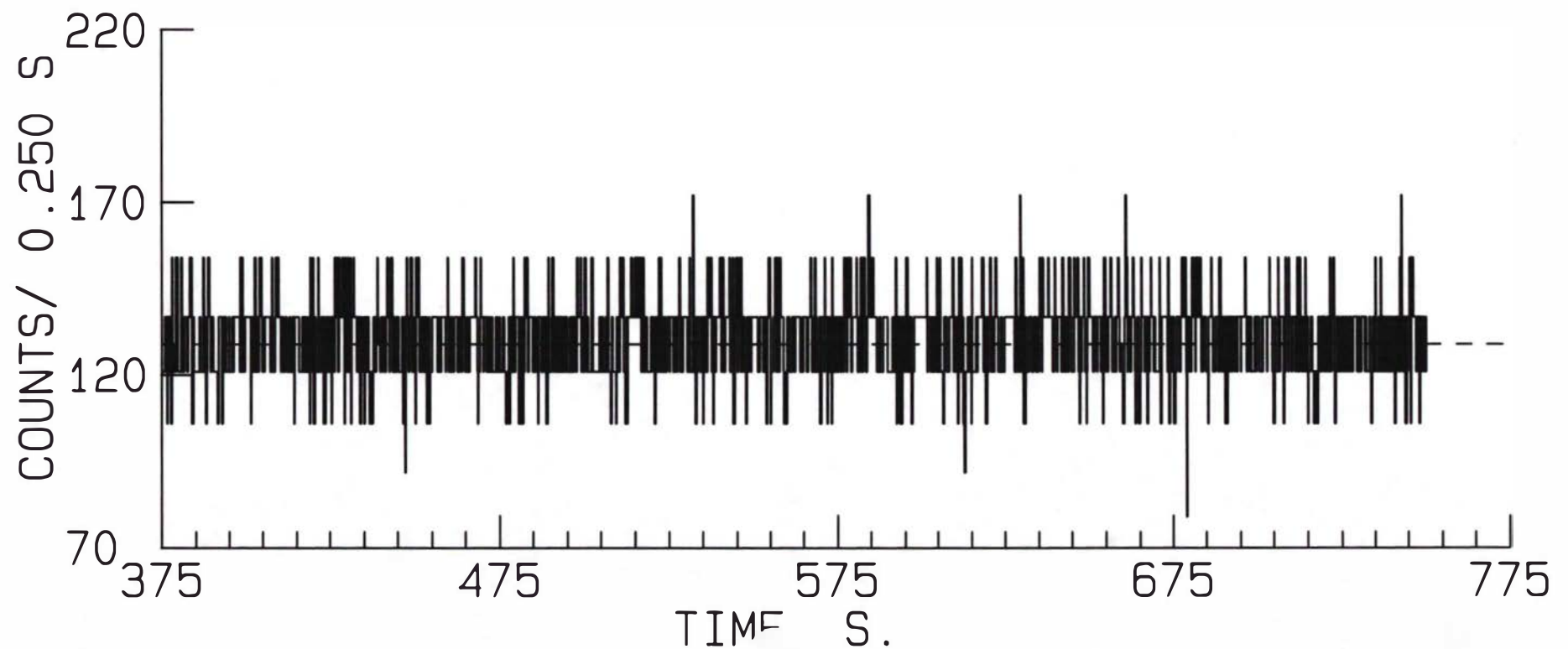
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



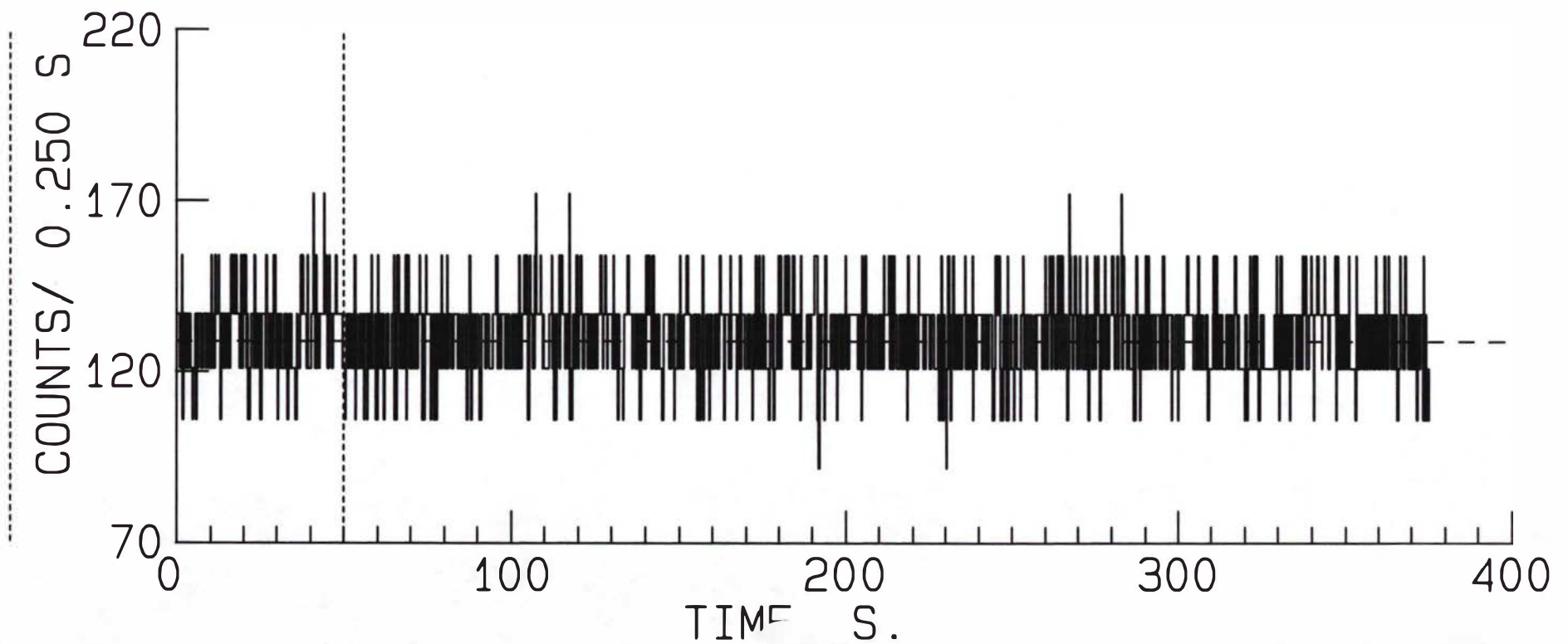
ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



ULYSSES RT
7/12/ 0 7452.025 s
23- 155 keV

8/12/ 0



Date: Jan 16 '09

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. NEAR Data

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

- ☐ BATSE >100 keV data used for NEAR correlation?

Two NEAR events around this time, but U-N annuli don't intersect U-K one, and they don't agree with the Konus ☒

4. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

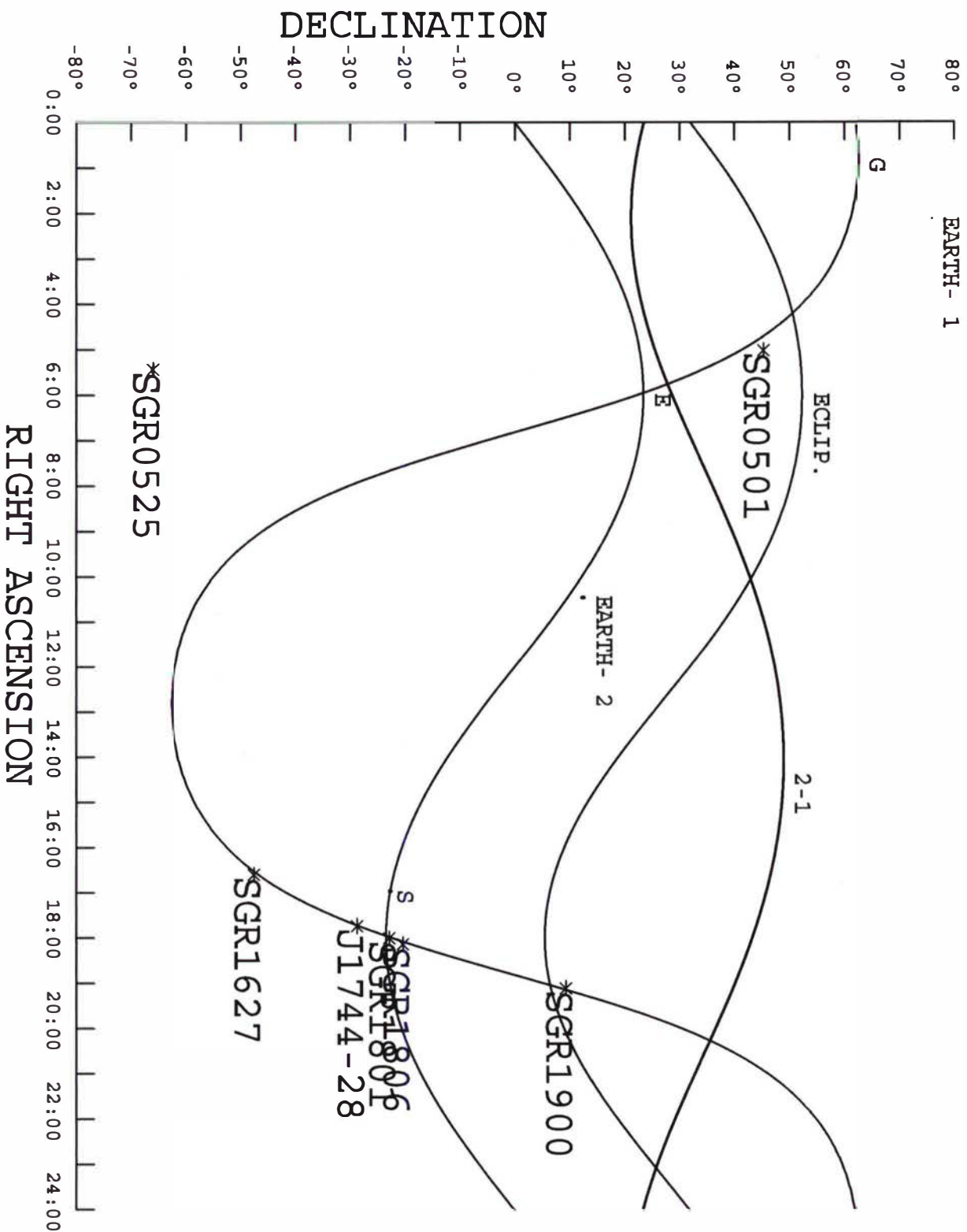
- ☒ $\Sigma 3\Delta t$'s calculated?

- ☒ ACCESS database updated?

EVENT OF DEC 7, 2000 9:42

16 / 1 / 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



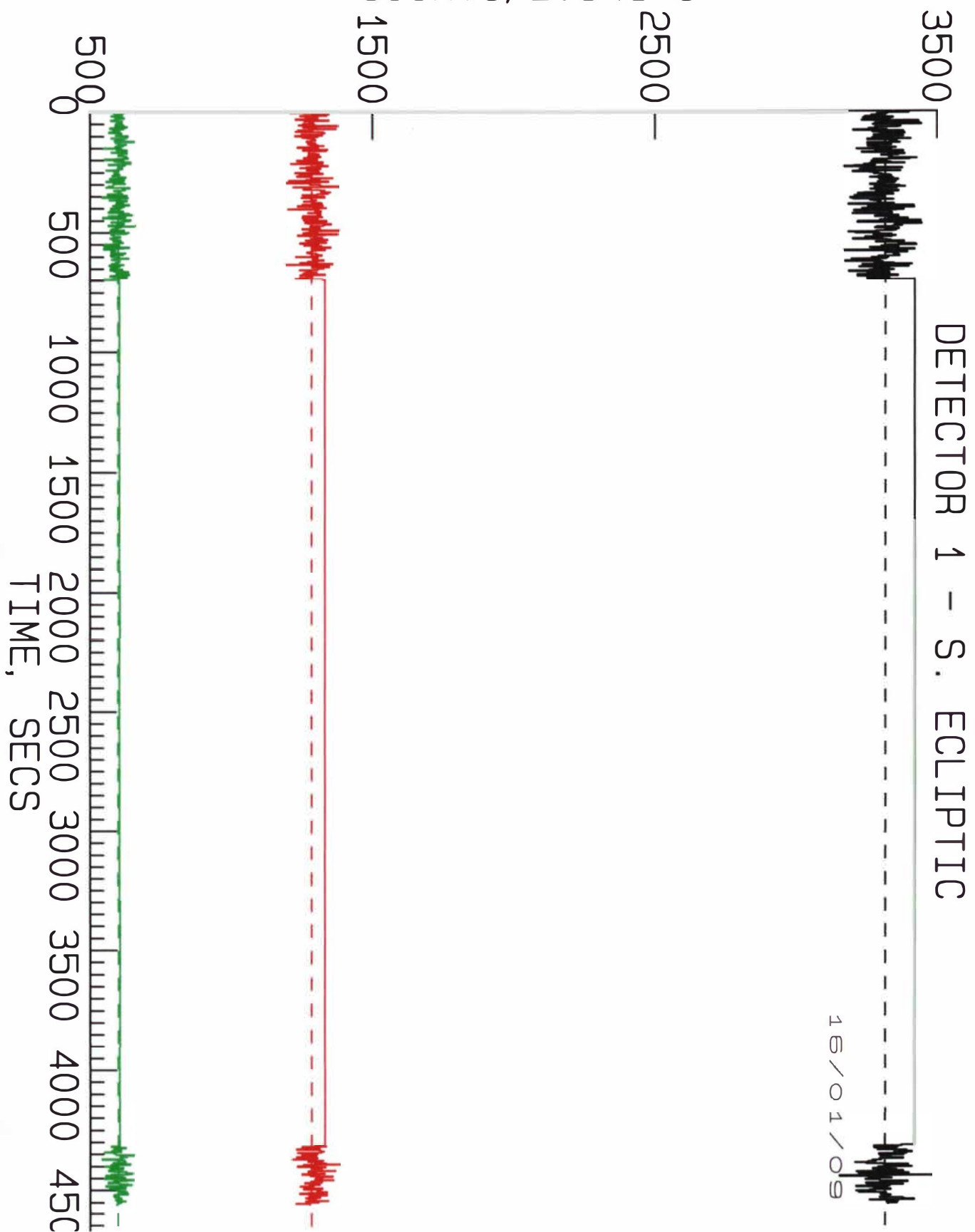
KONUS

07/12/00 33740.199

10- 50 keV

50- 200 keV 200- 750 keV

COUNTS/2.941 S



KONUS

07/12/00 33740.199

10- 50 keV

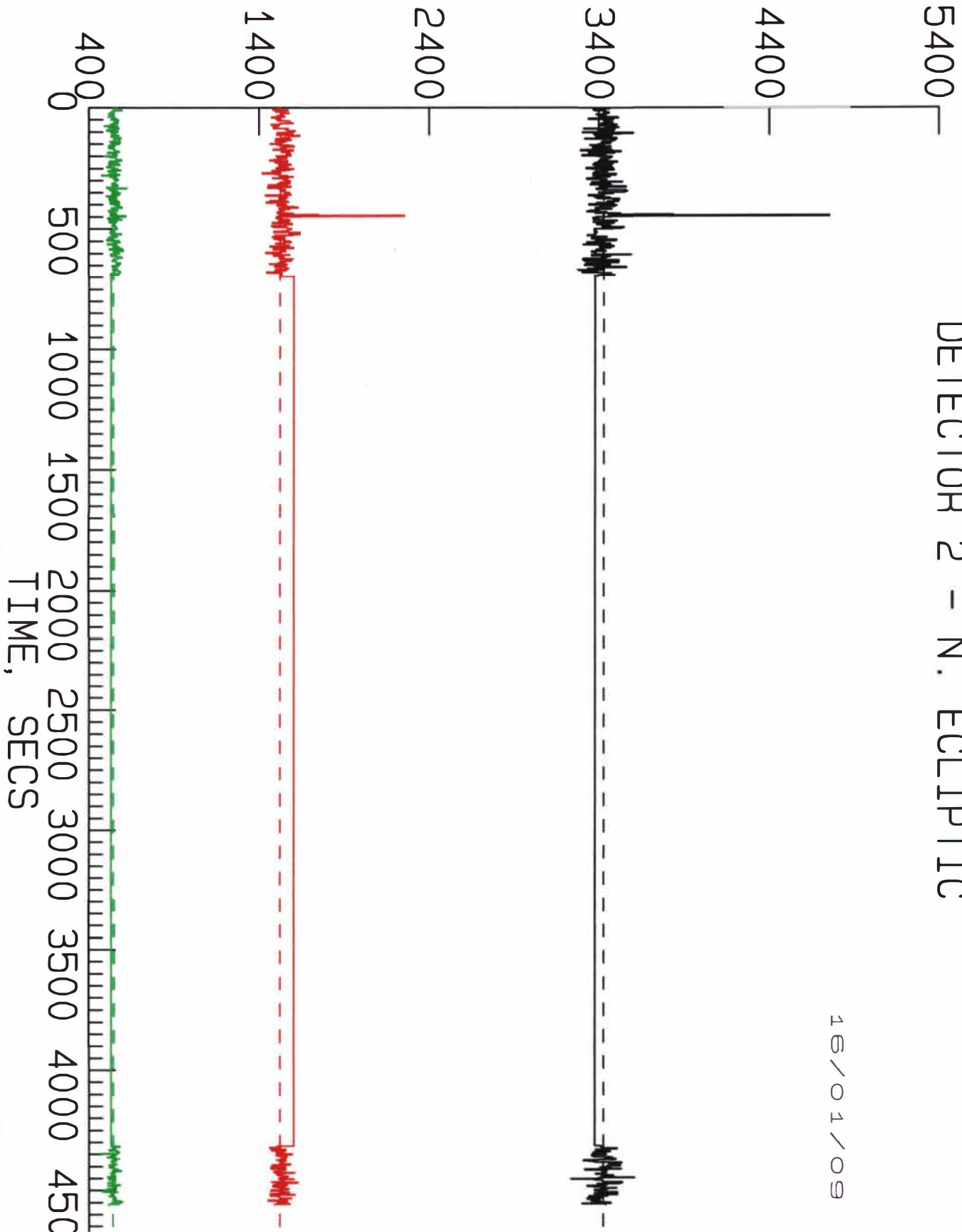
50- 200 keV

200- 750 keV

COUNTS/2.941 S

DETECTOR 2 - N. ECLIPHTIC

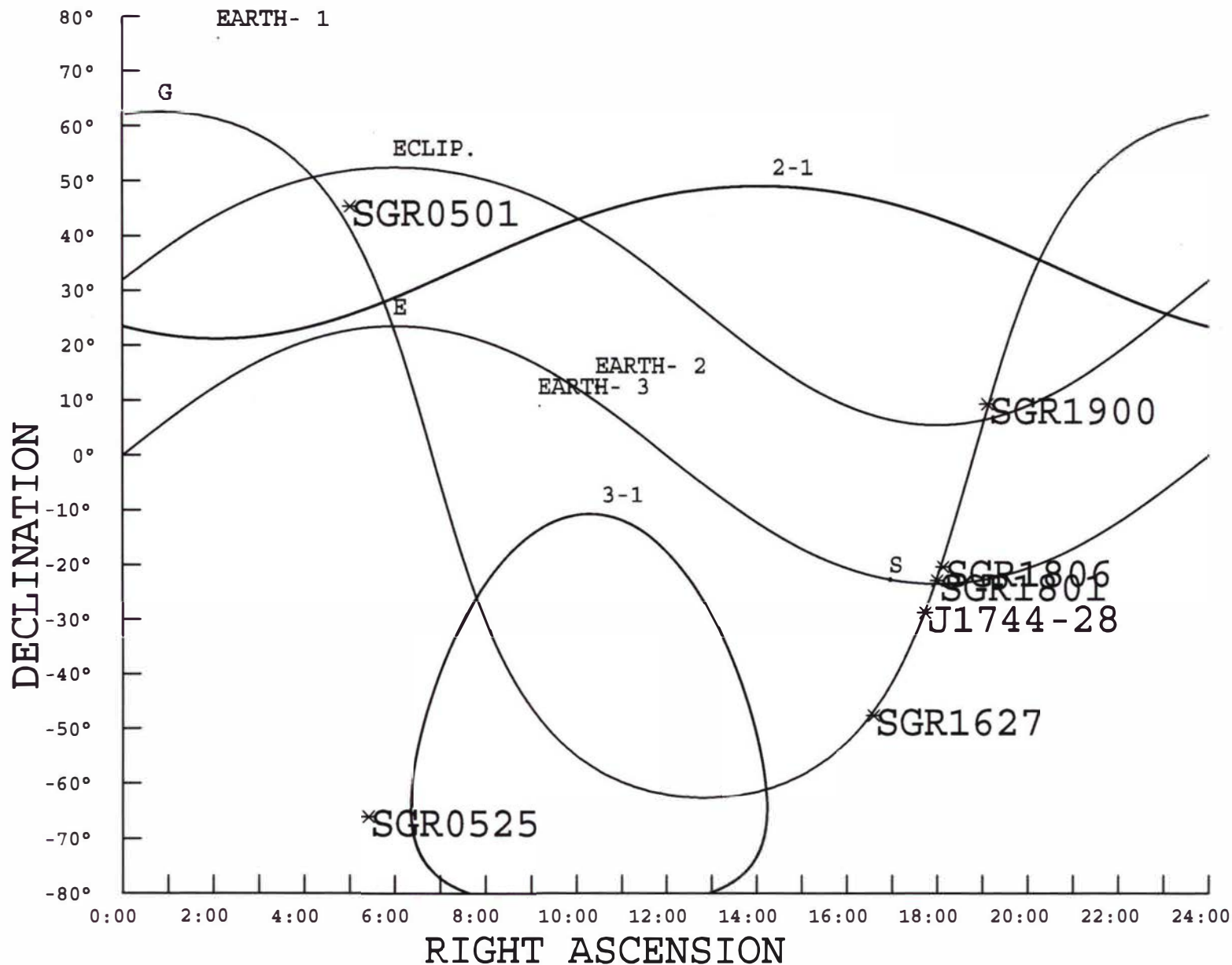
16/01/09



EVENT OF DEC 7, 2000 9:42

16/ 1/ 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 NEAR



KONUS2

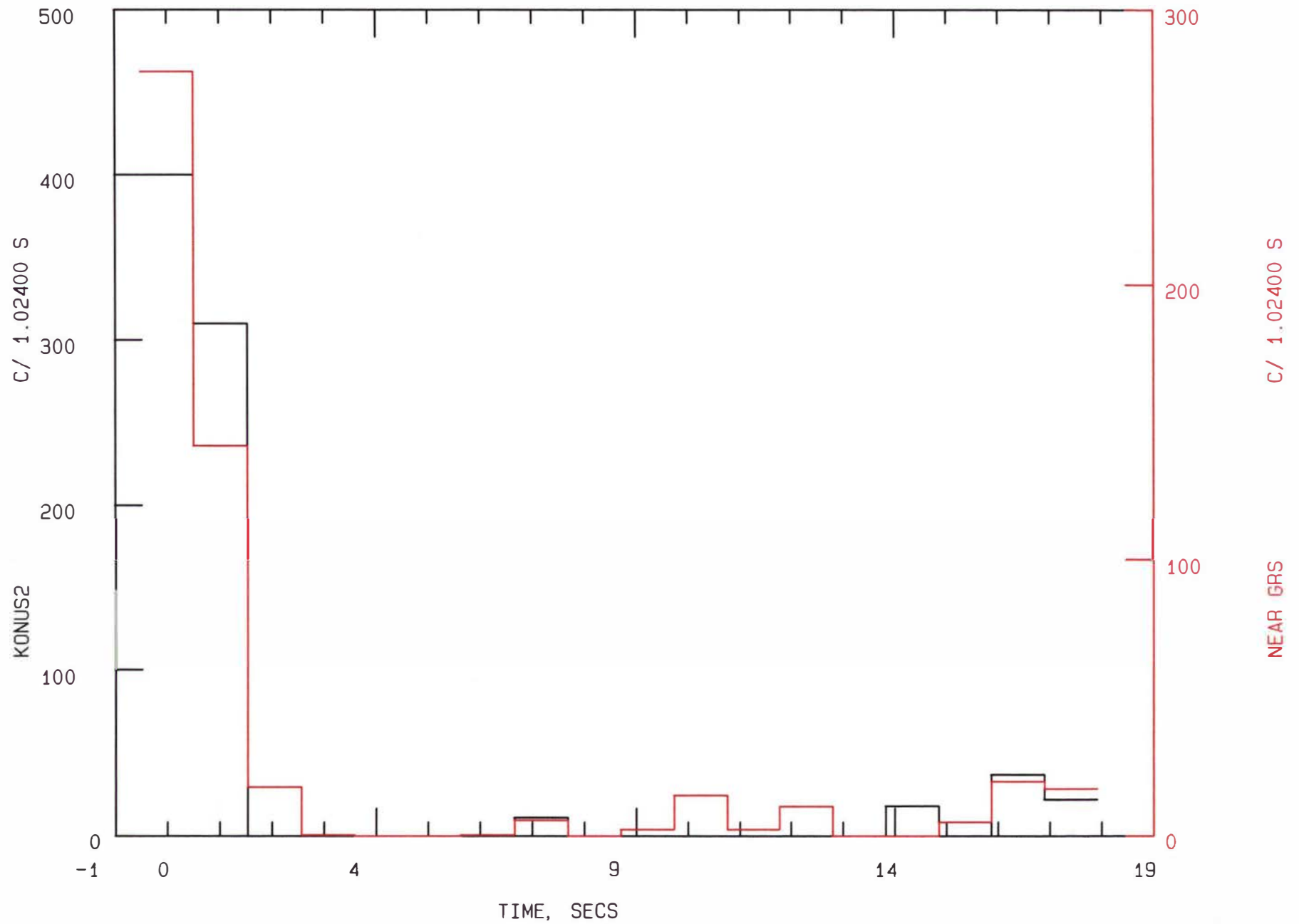
-NEAR GRS

CORRELATION

07/12/00

34185.588

16/ 1/ 9



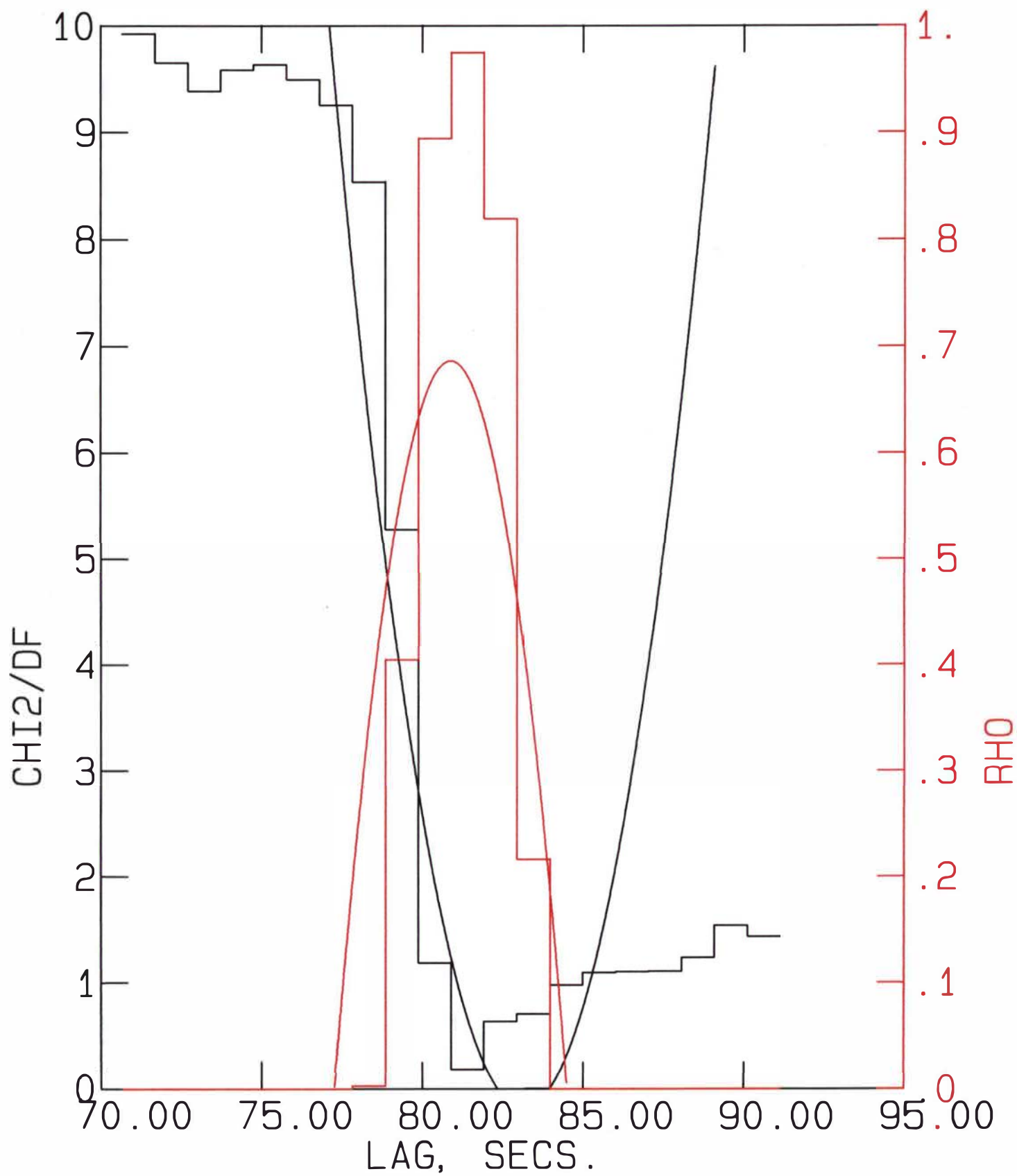
KONUS2

-NEAR GRS

CORRELATION

07/12/00

34185.588



ULYSSES

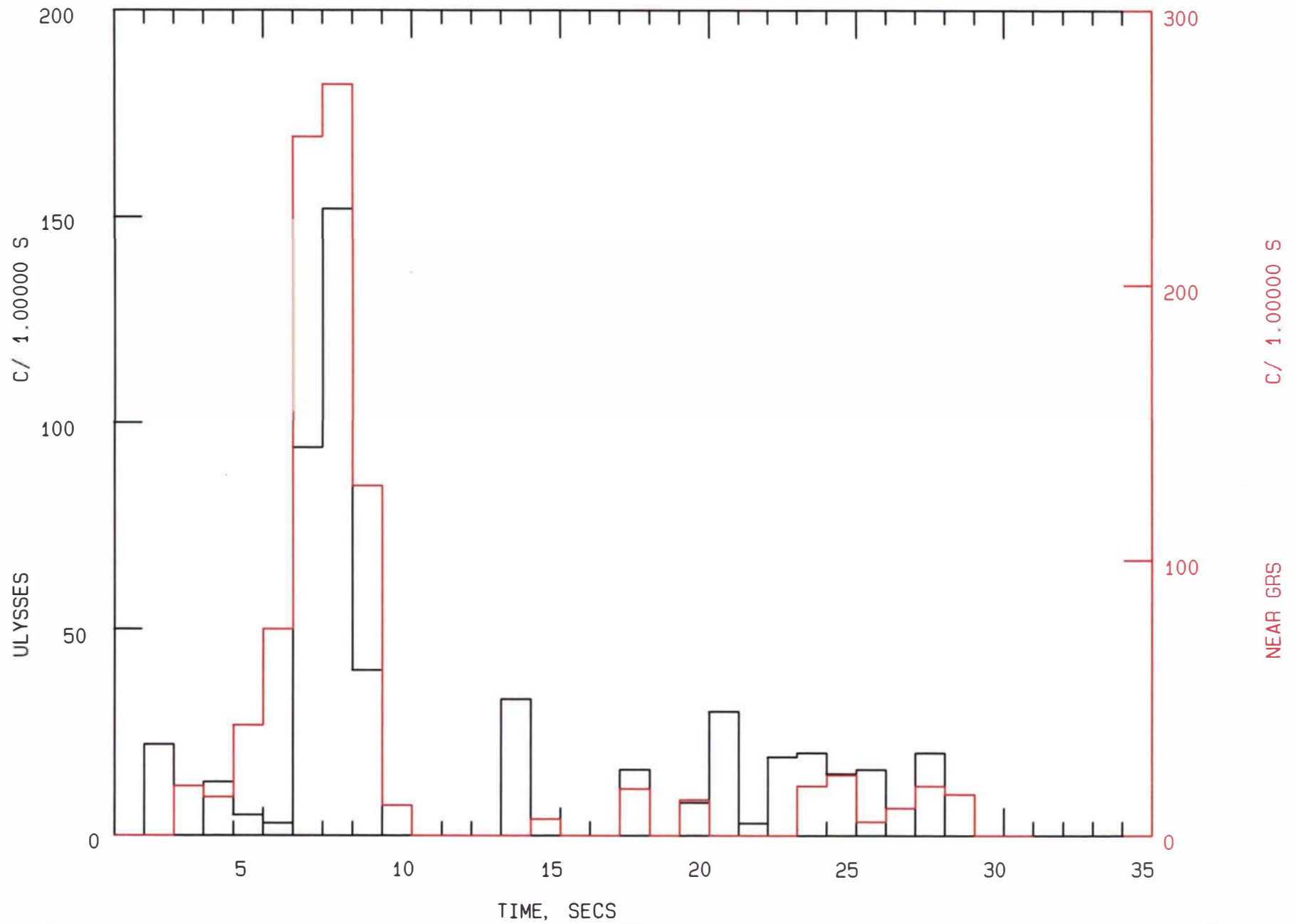
-NEAR GRS

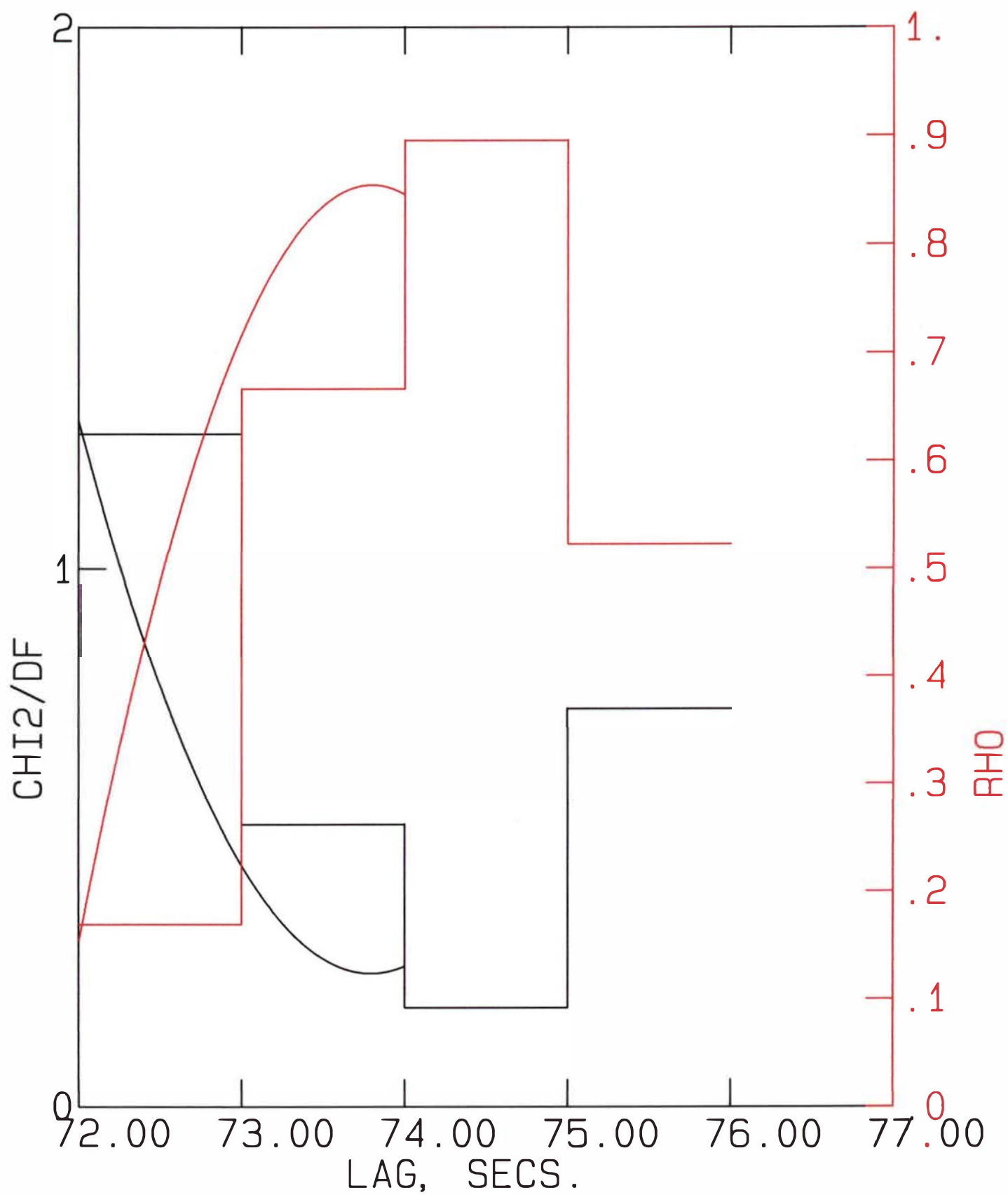
CORRELATION

07/12/00

34923.929

16/ 1/ 9





ULYSSES

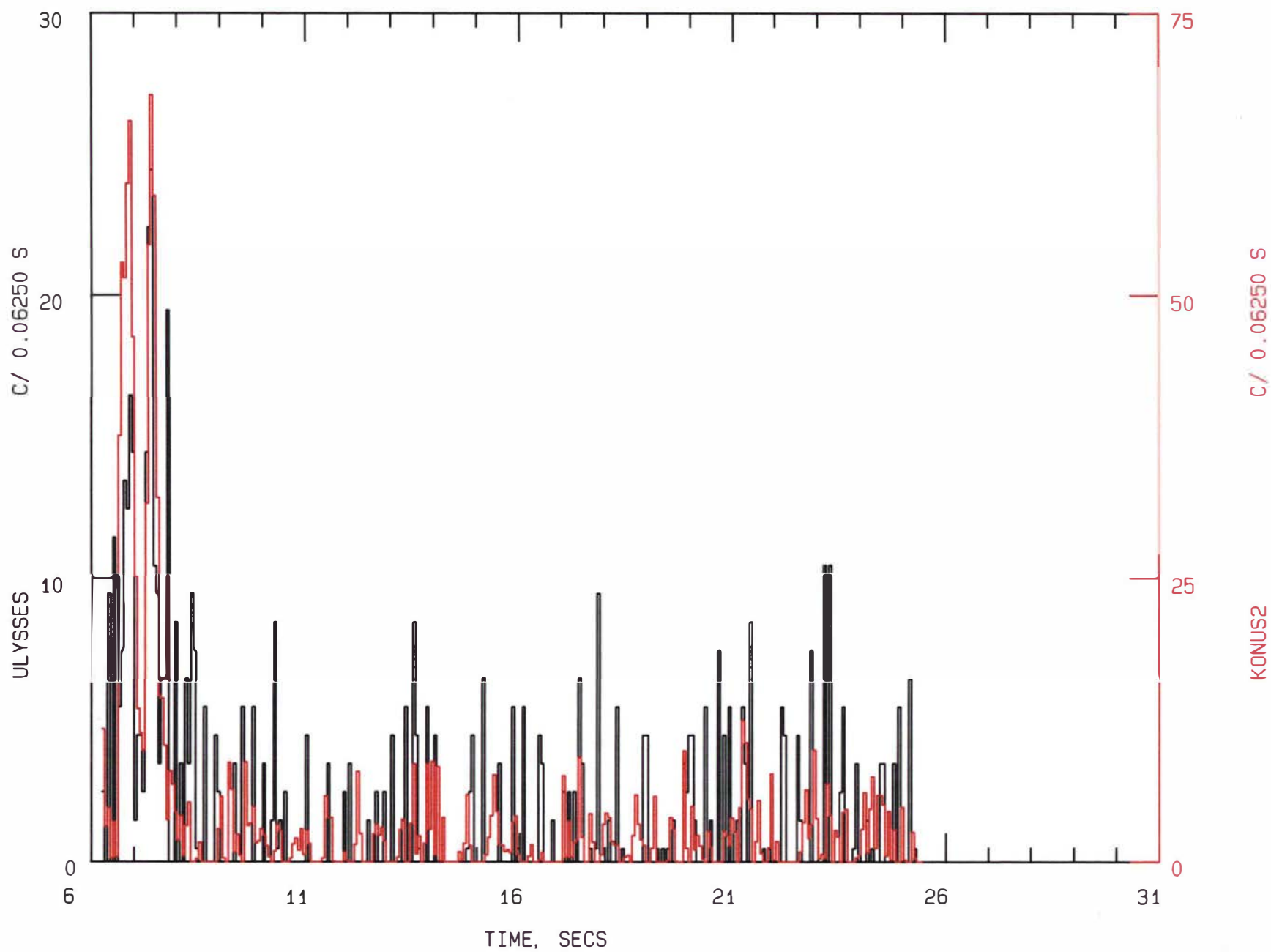
-KONUS2

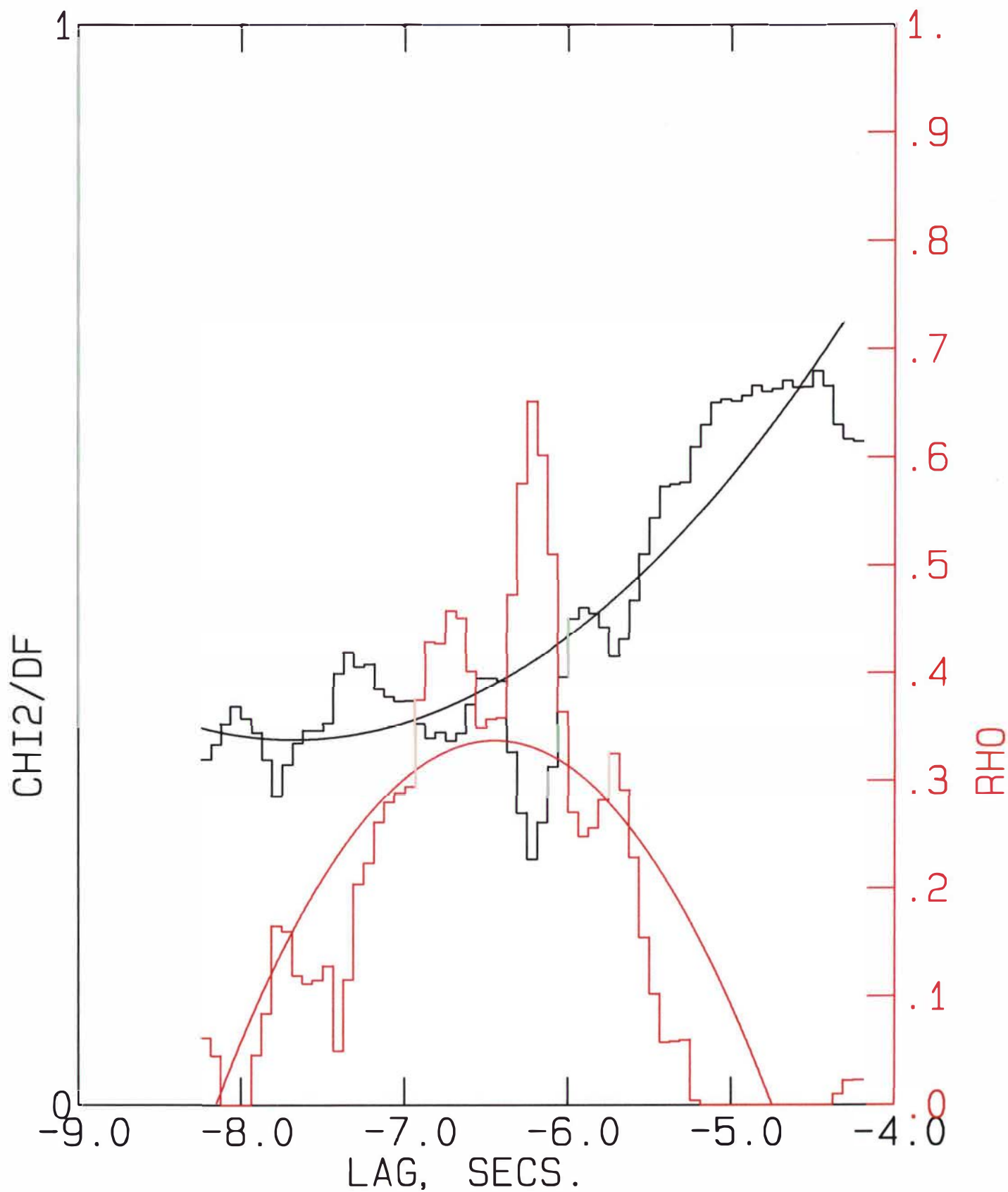
CORRELATION

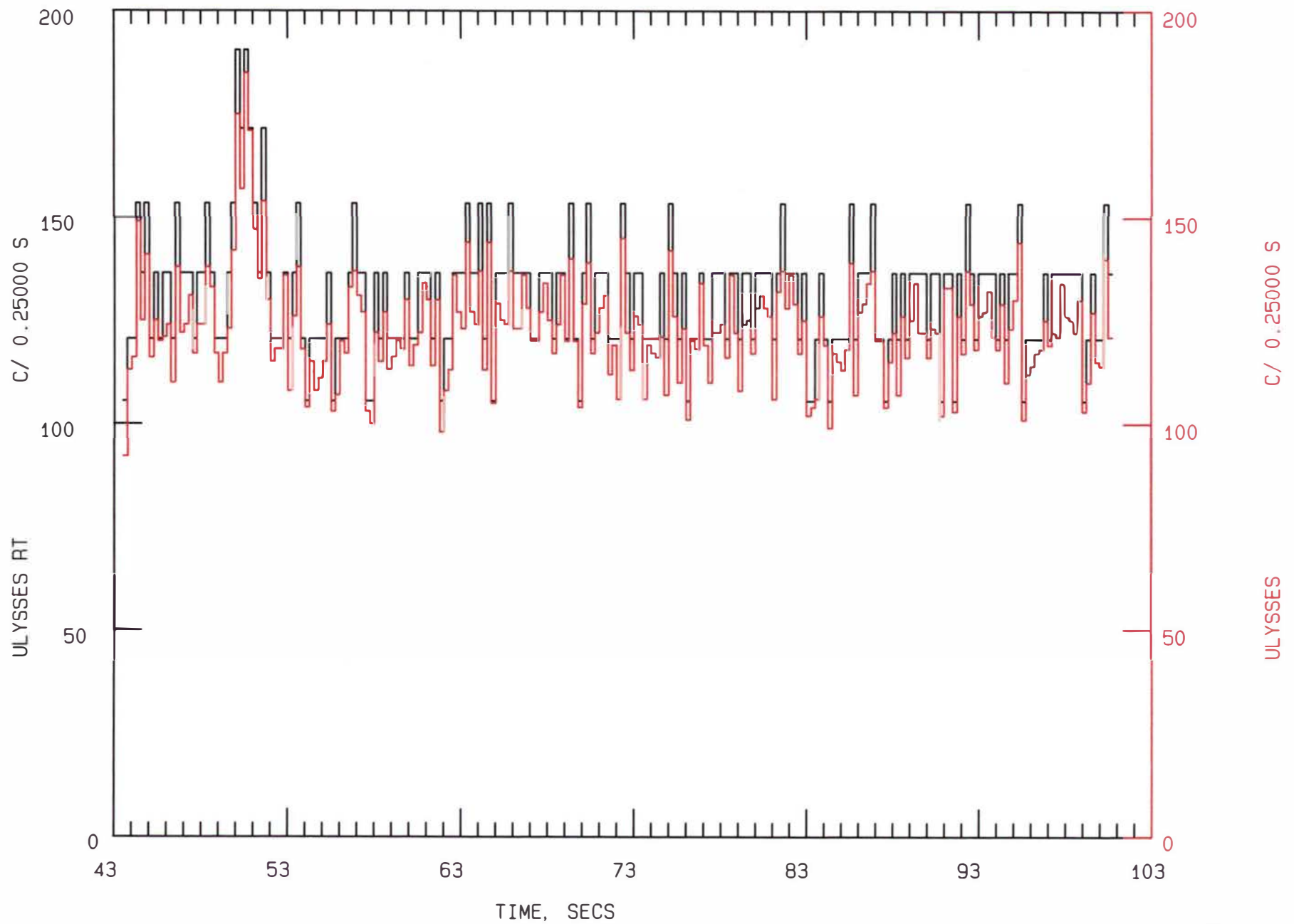
07/12/00

34923.929

16/ 1/ 9







N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

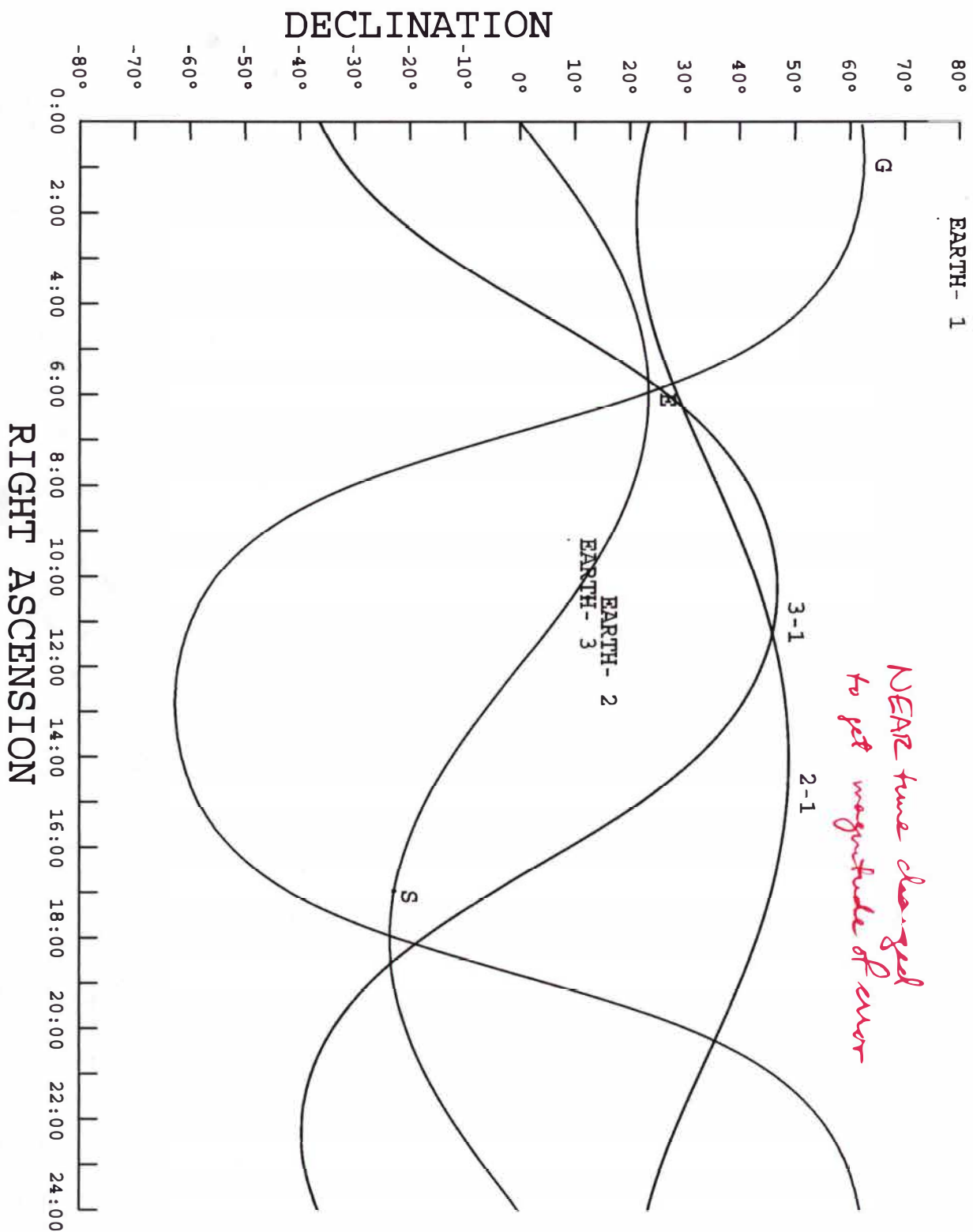
1 ULYSSES

2 KONUS2

3 NEAR

EVENT OF DEC 7, 2000 9:42

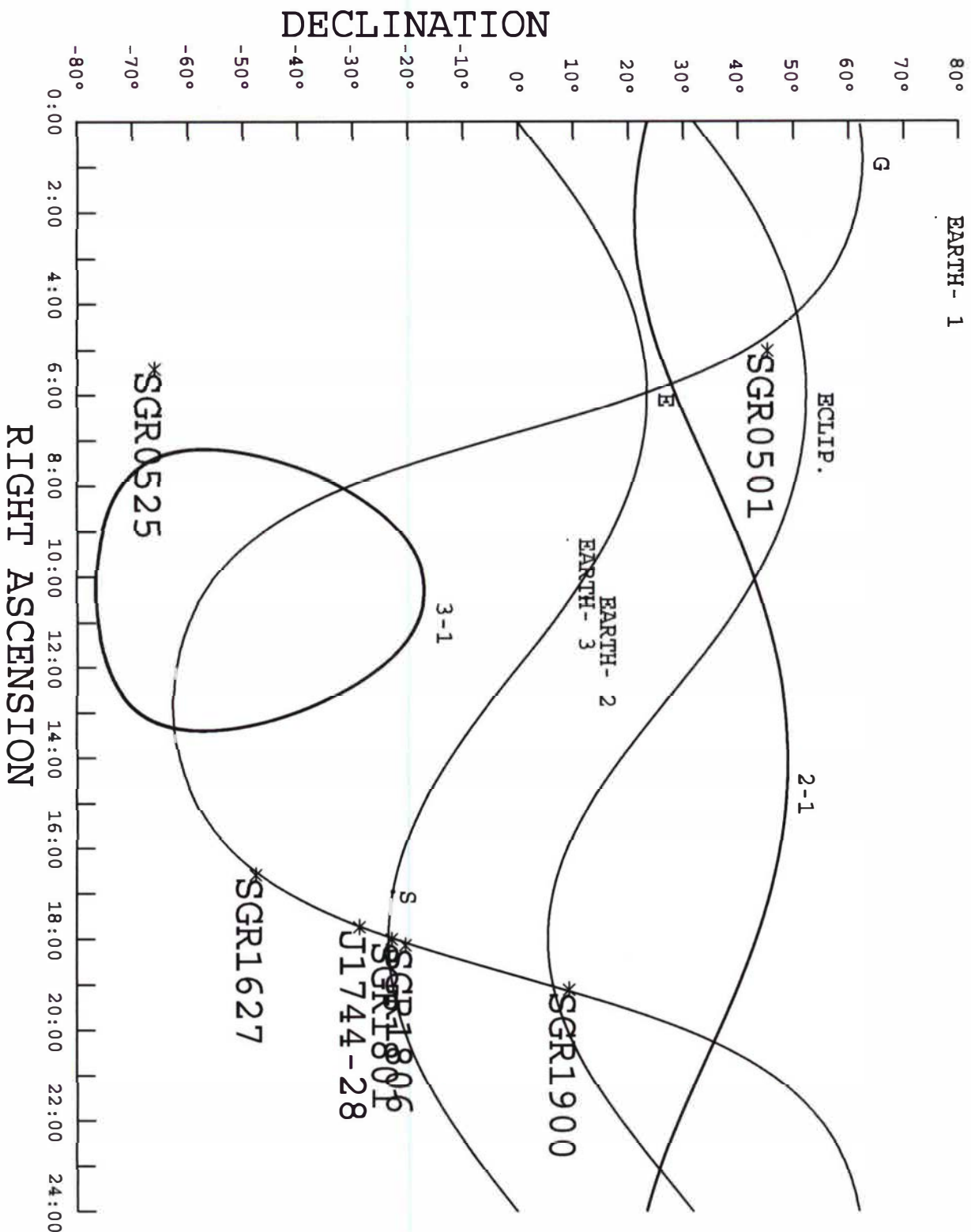
8/12/ 0



EVENT OF DEC 7, 2000 9:42

16 / 1 / 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 NEAR



KONUS2

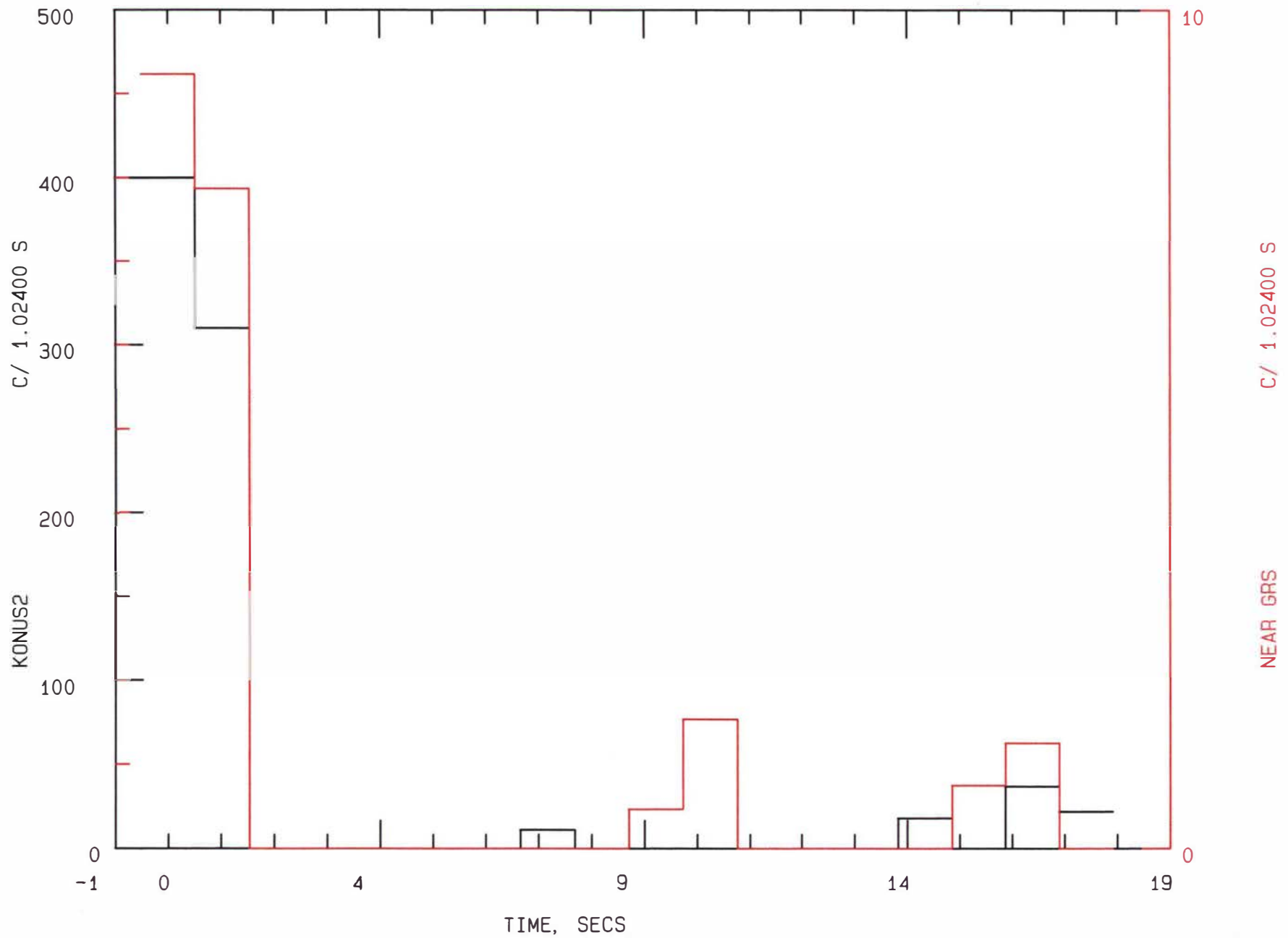
-NEAR GRS

CORRELATION

07/12/00

34185.588

16/ 1/ 9



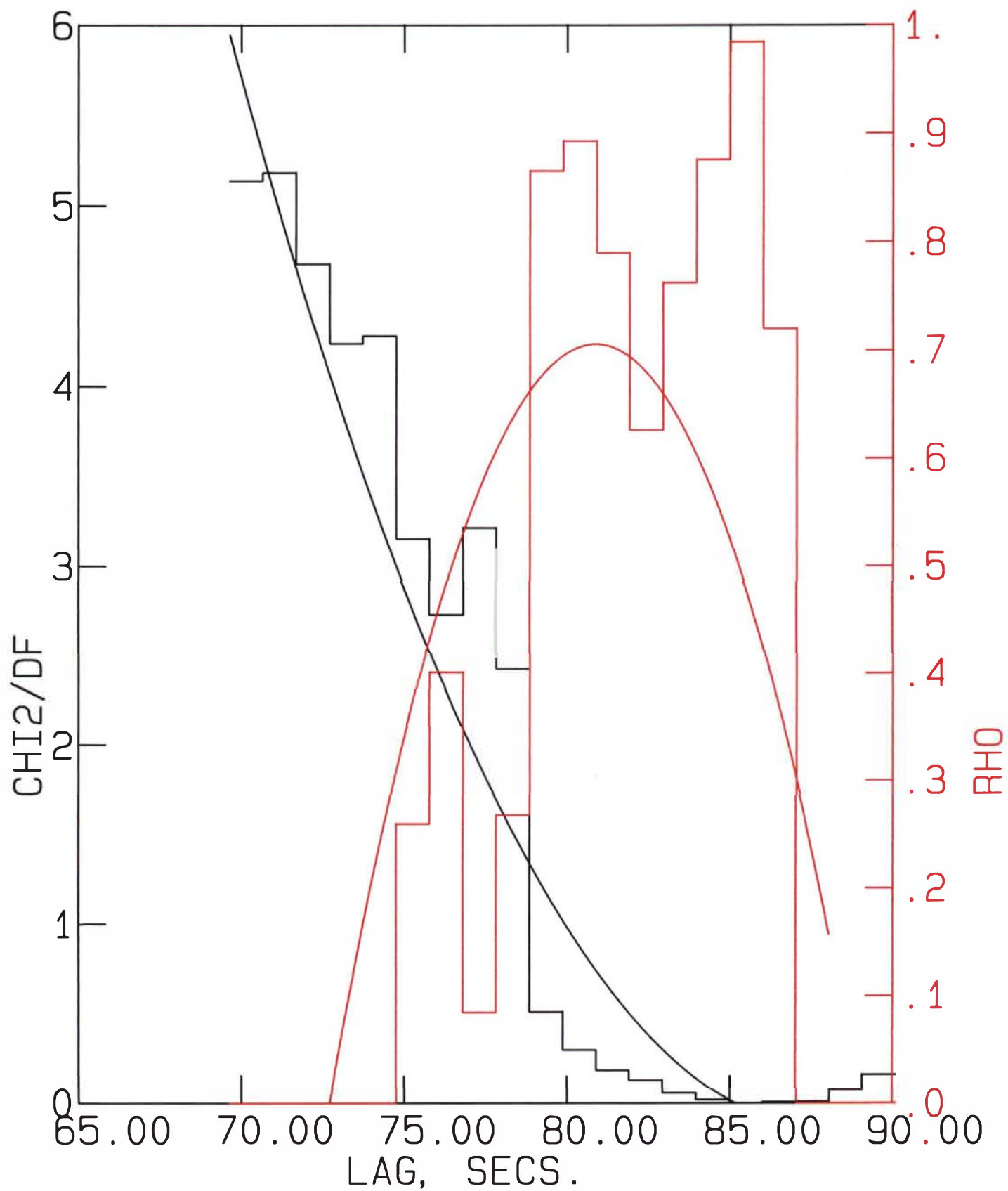
KONUS2

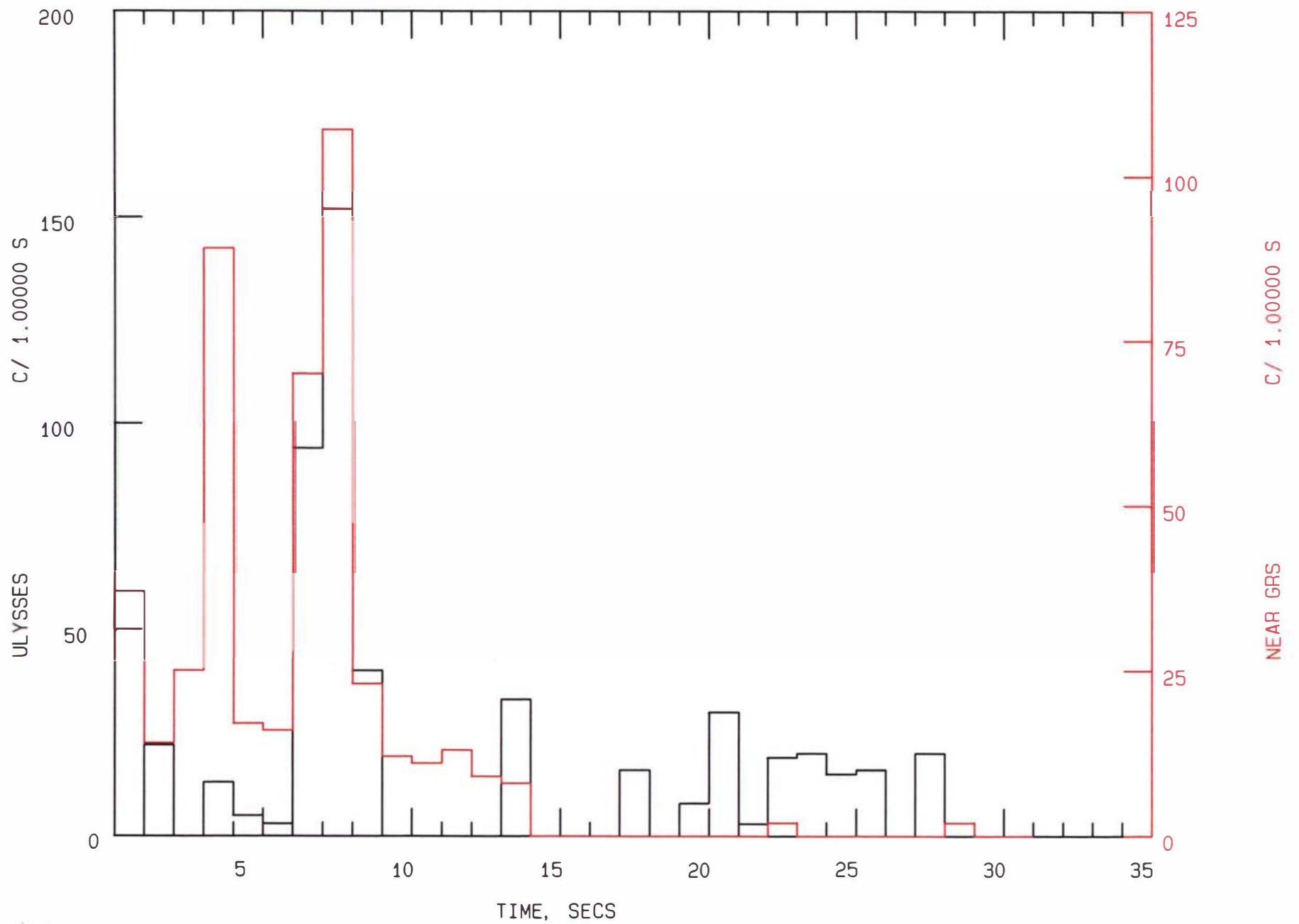
-NEAR GRS

CORRELATION

07/12/00

34185.588





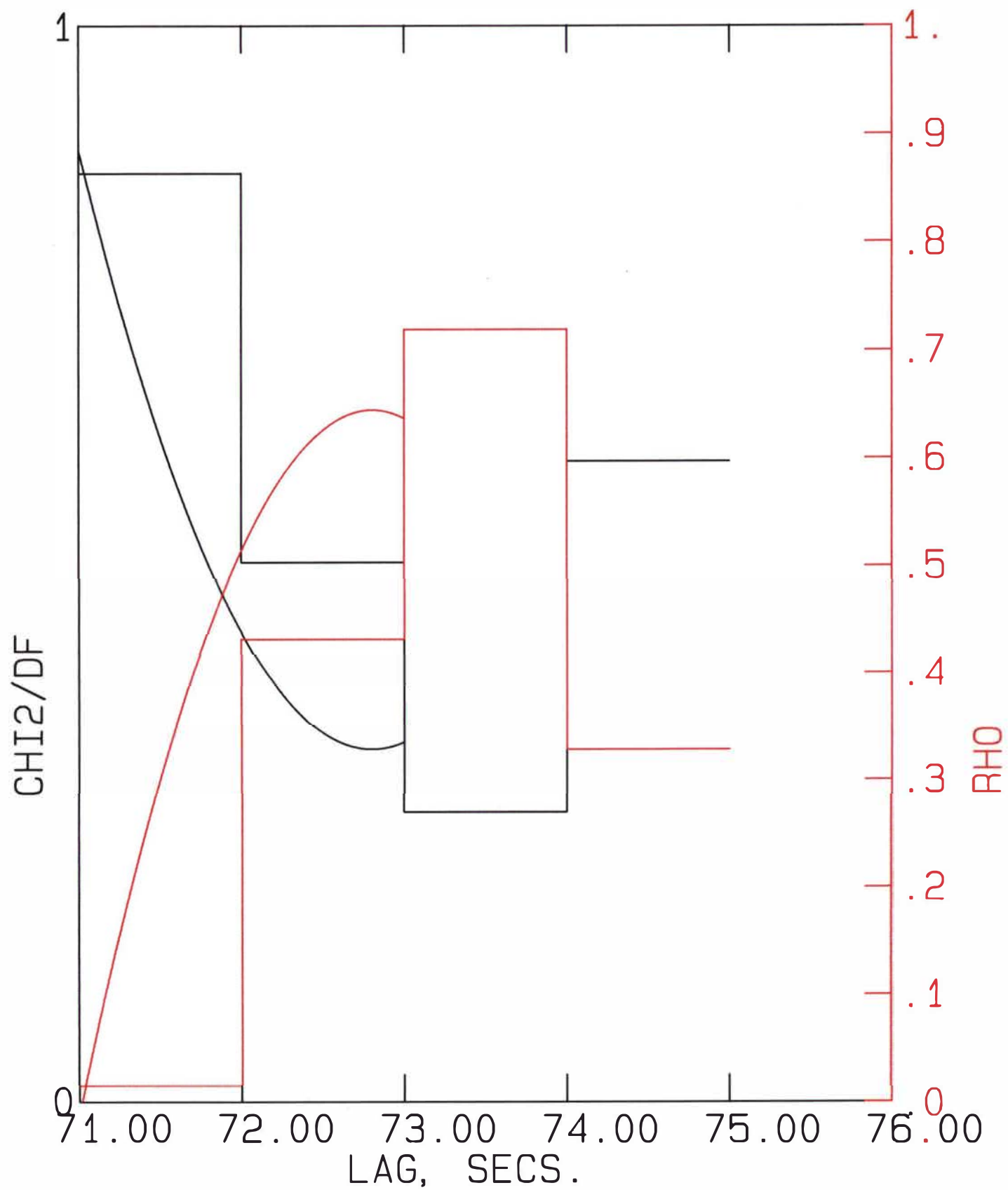
ULYSSES

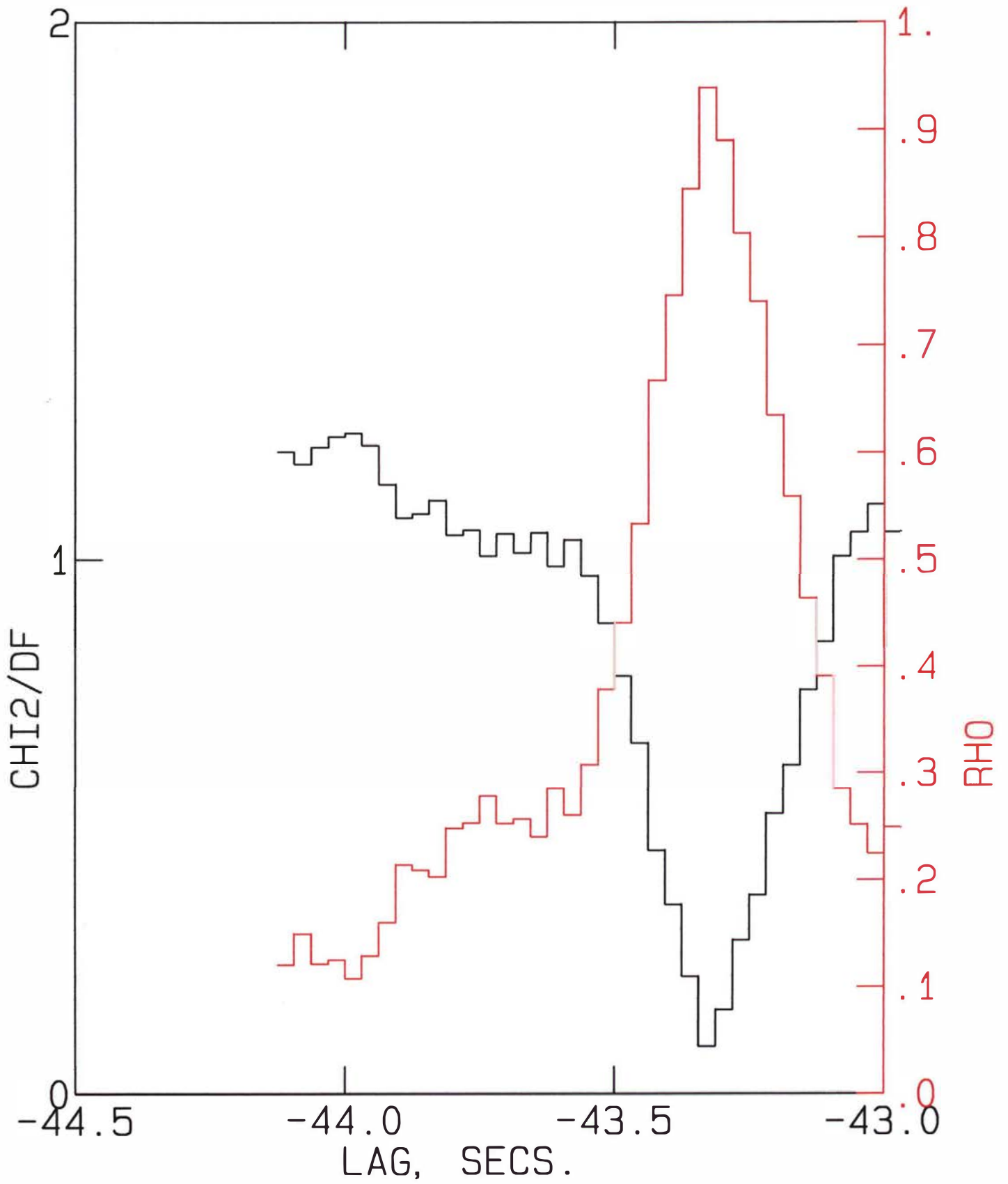
-NEAR GRS

CORRELATION

07/12/00

34923.929



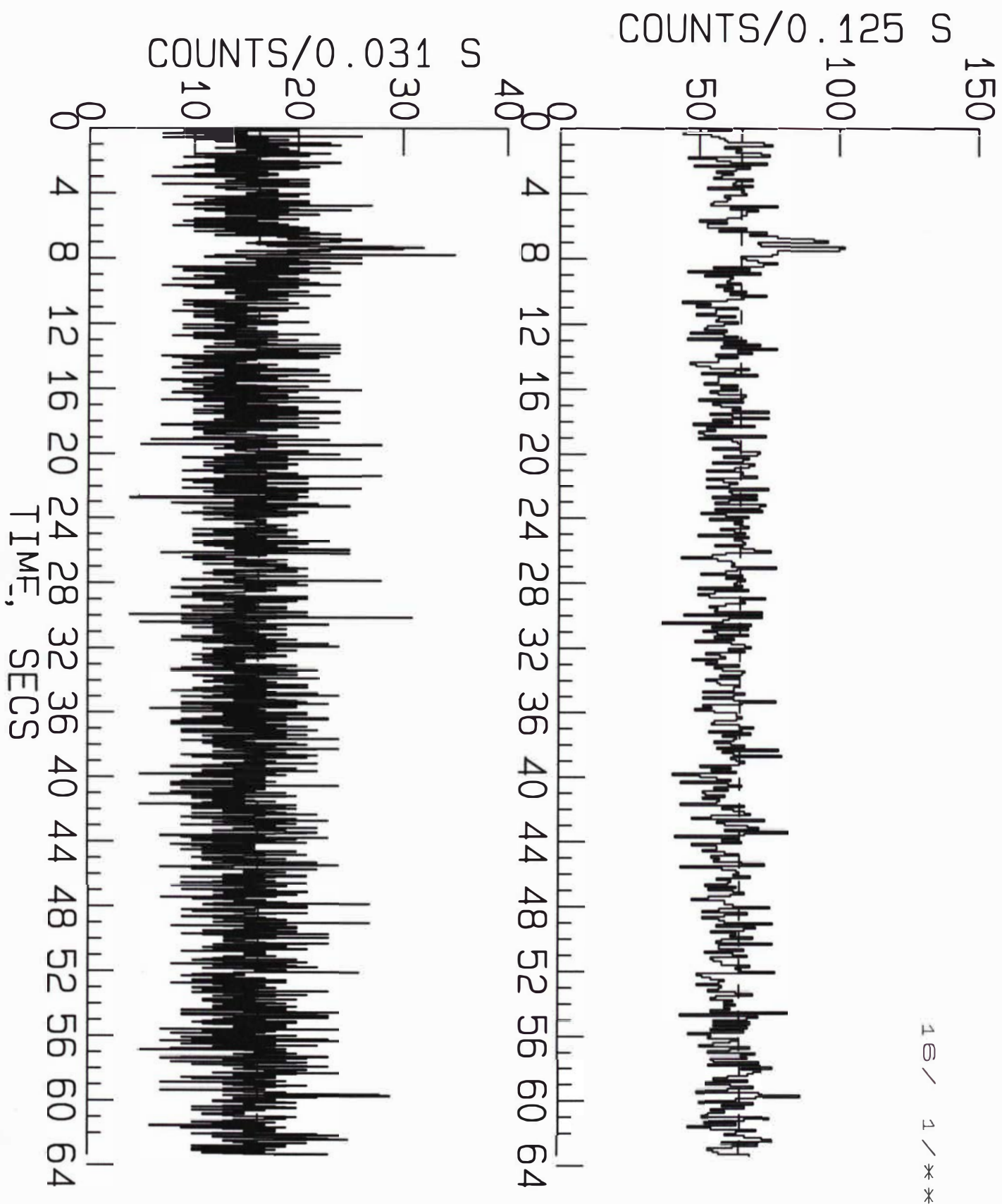


ULYSSES

07/12/00

Ttrig=34923.929

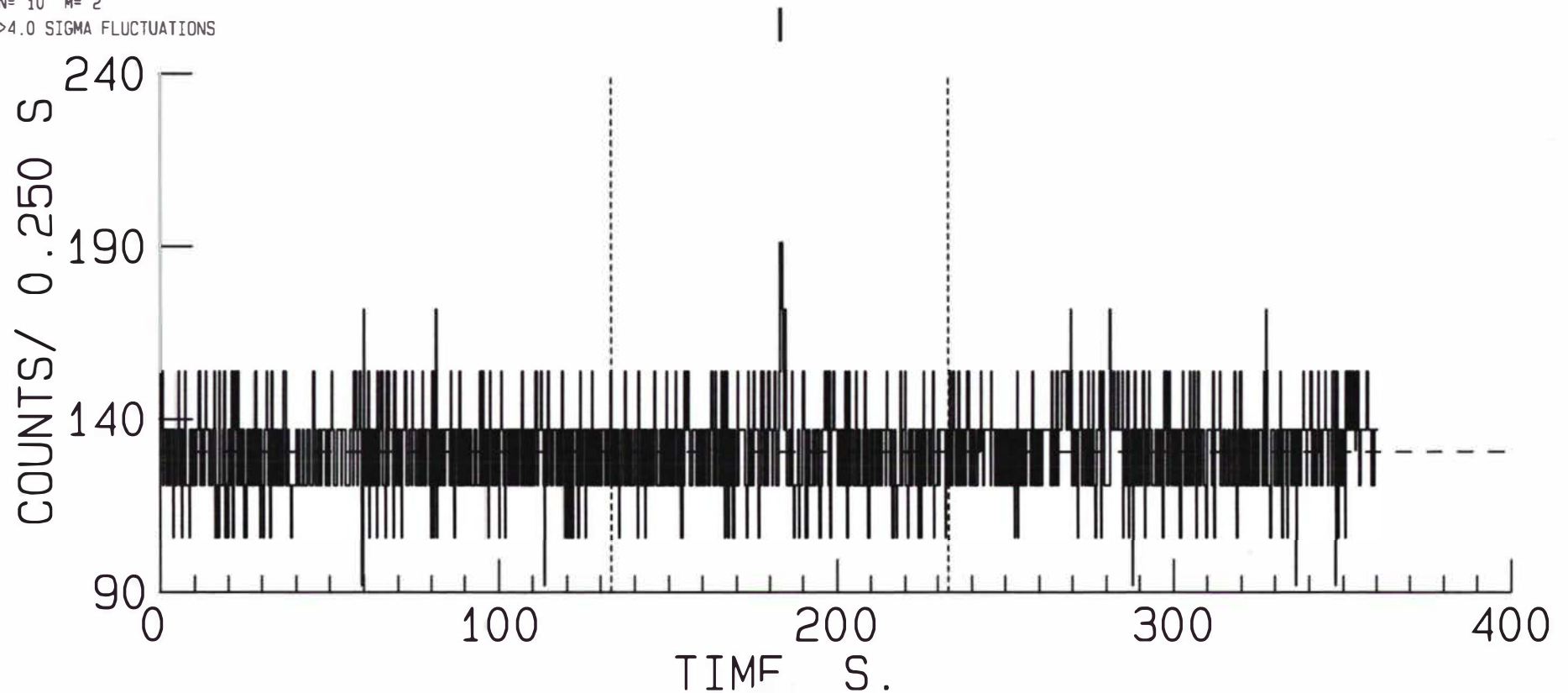
23- 157 keV



ULYSSES RT
7/12/ 0 34740.188 s
23- 157 keV

16 / 1 / 9

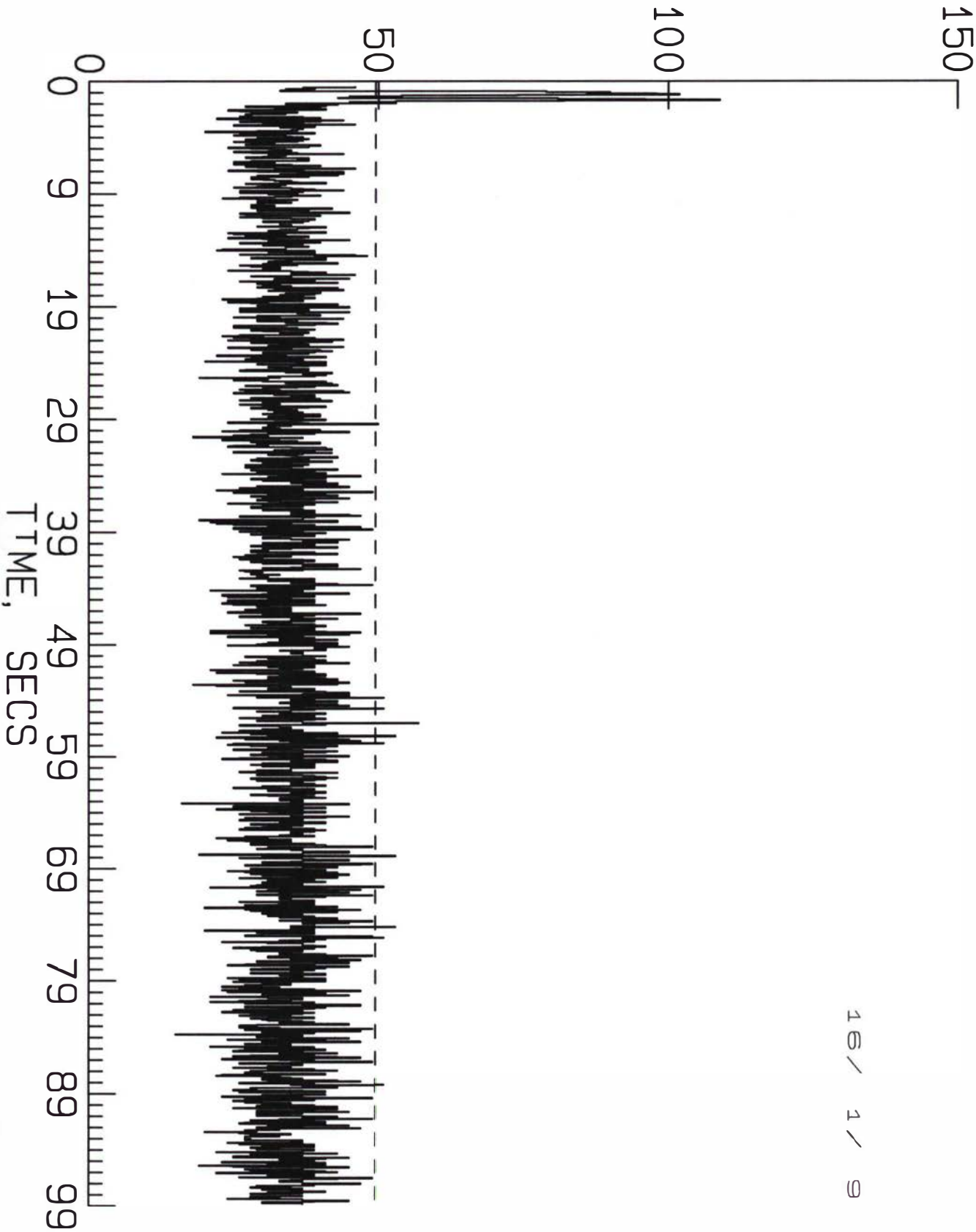
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS

07/12/00 34185.580
50- 200 keV

COUNTS/0.064 S

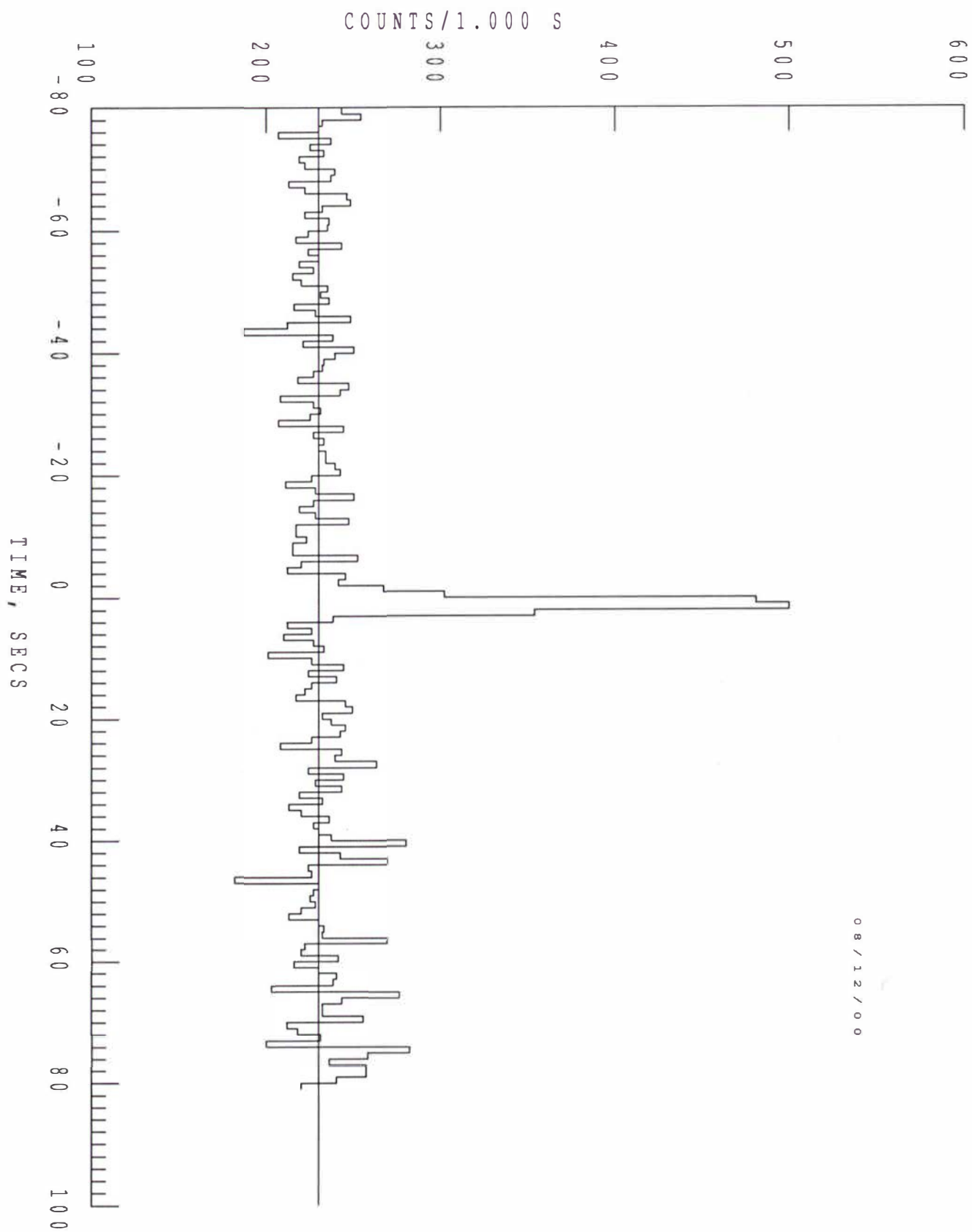


NEAR

07/12/00

36144.295

100-1000 keV



KNEAR GRS 20001207 36144

ULYSSES RT

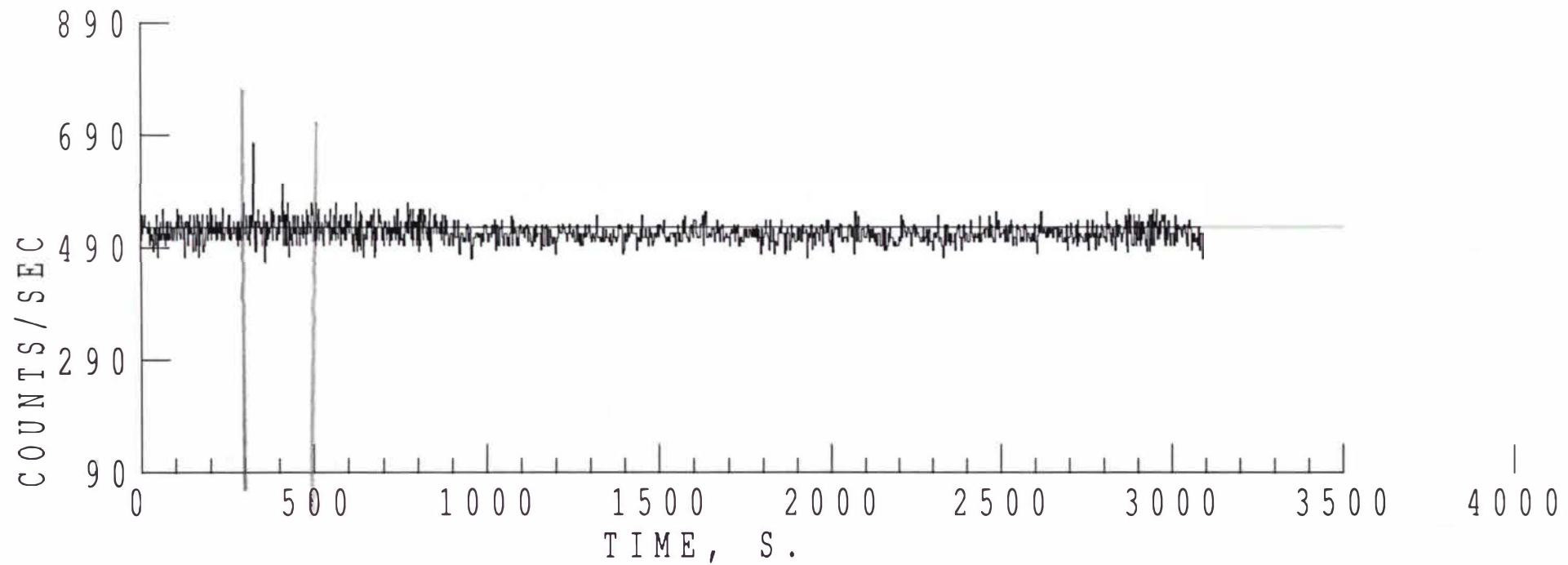
08/12/00

07/12/00 34596.184 s

INTERVALS REGROUPED BY 6

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



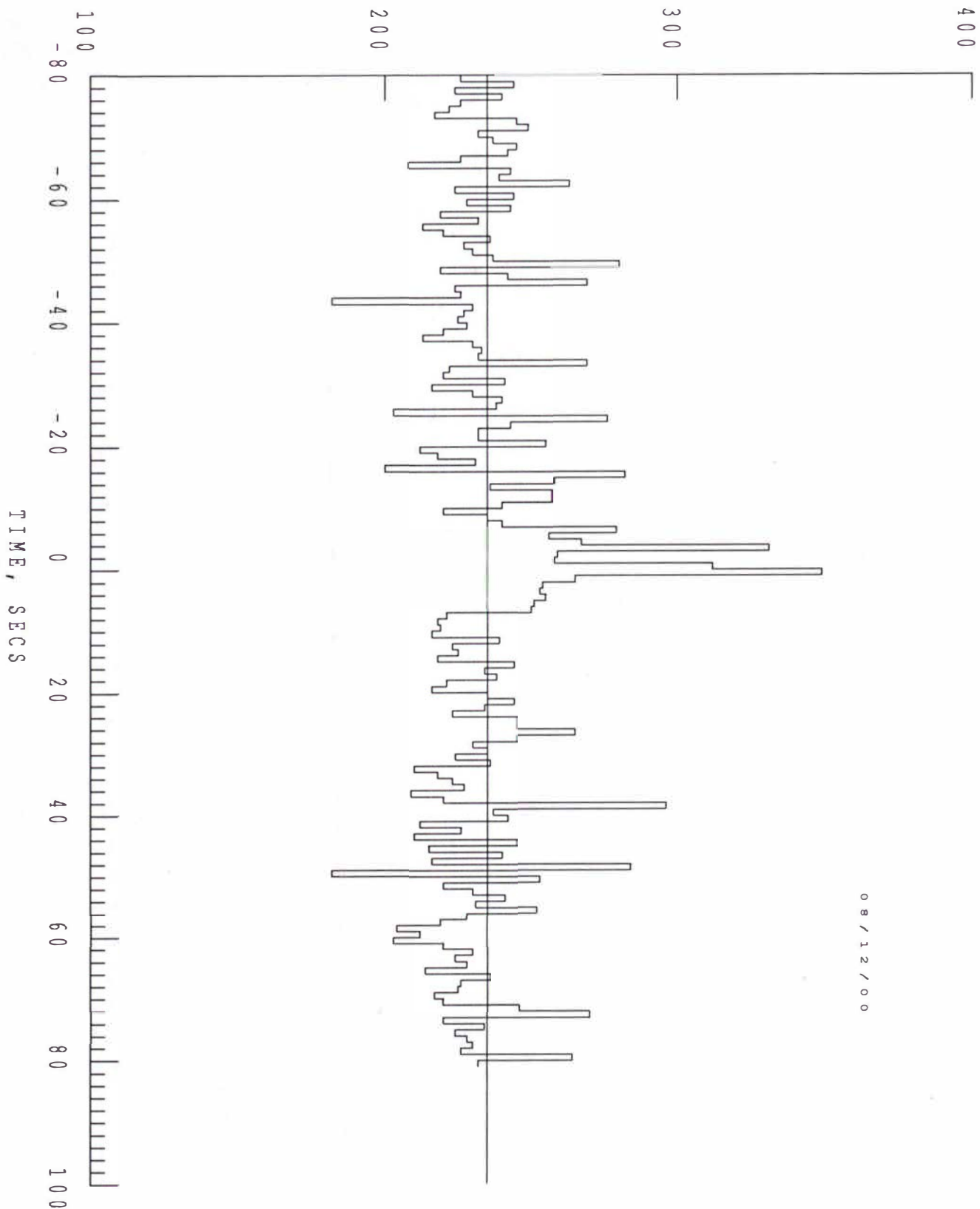
NEAR

07/12/00

36234.295

100-1000 keV

COUNTS/1.000 S



KNEAR GRS 20001207 36234

ULYSSES RT

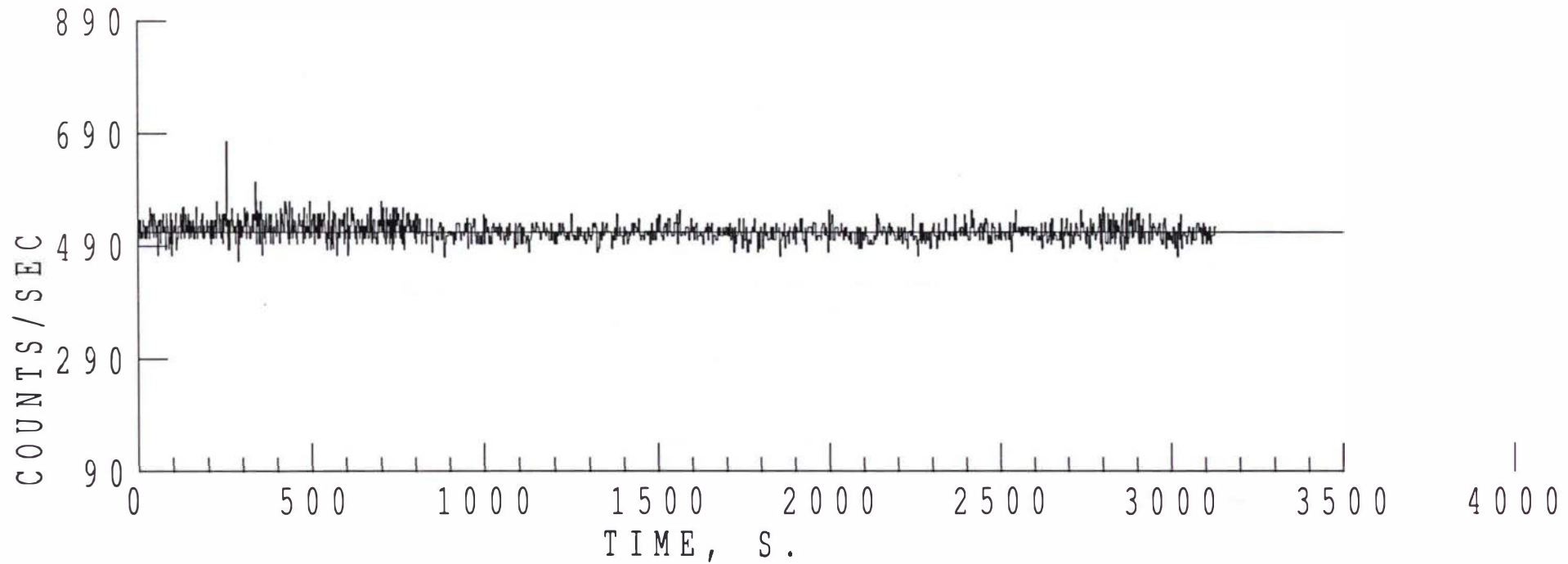
08/12/00

07/12/00 34668.188 s

INTERVALS REGROUPED BY 6

0 - 0 keV

N=10 M=2
>4.0 SIGMA FLUCTUATIONS



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

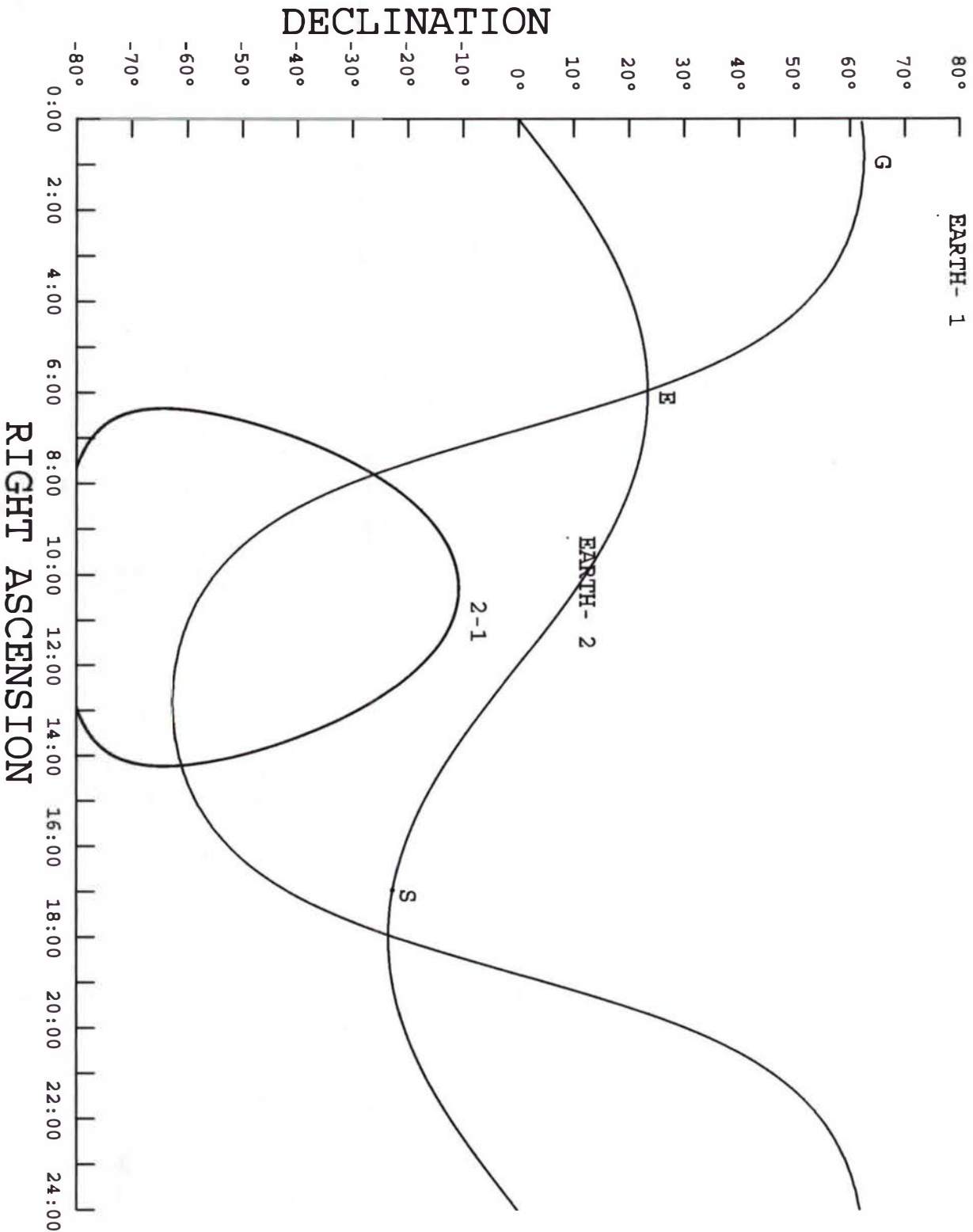
G=GALACTIC EQUATOR

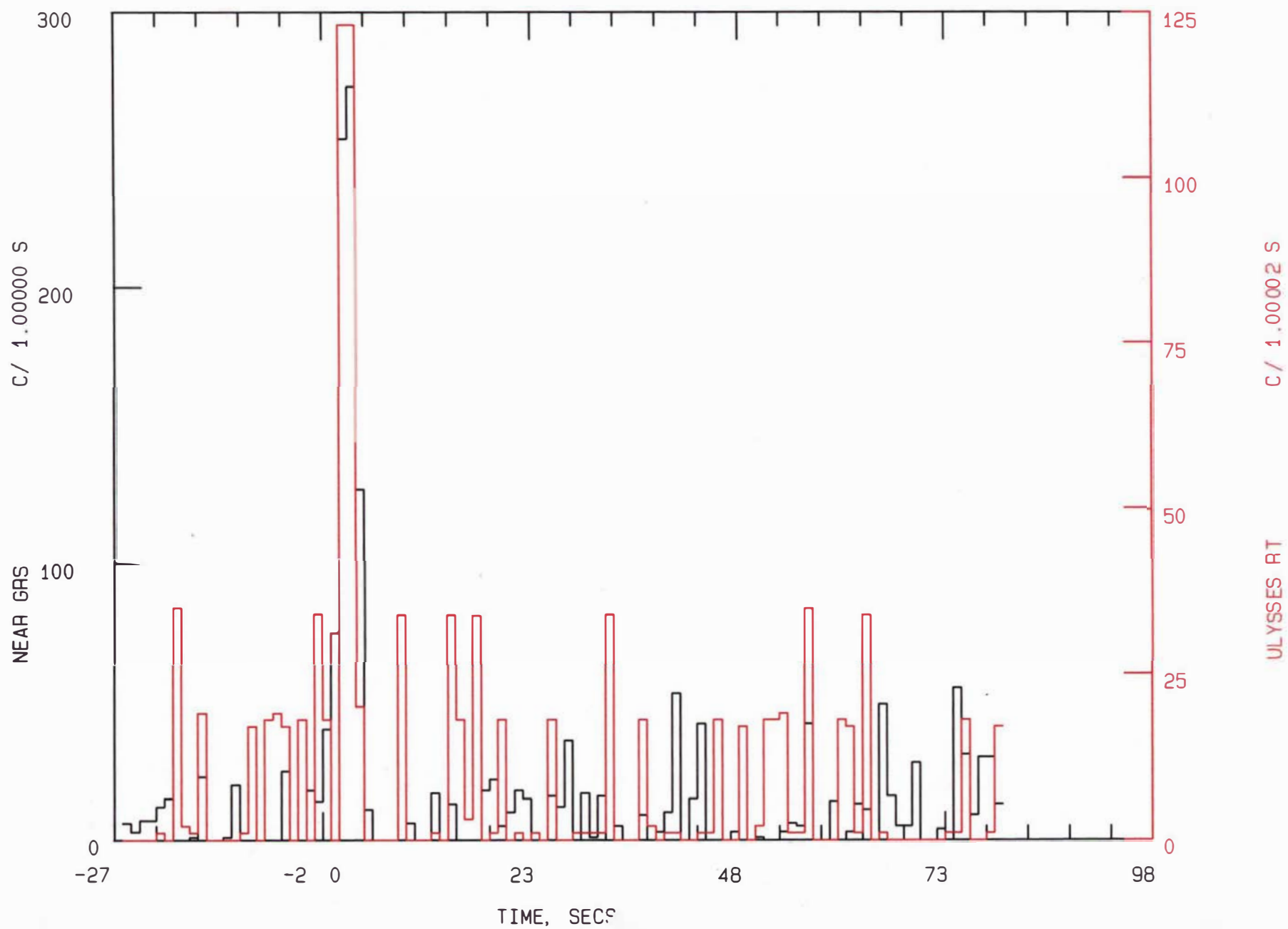
1 ULYSSES

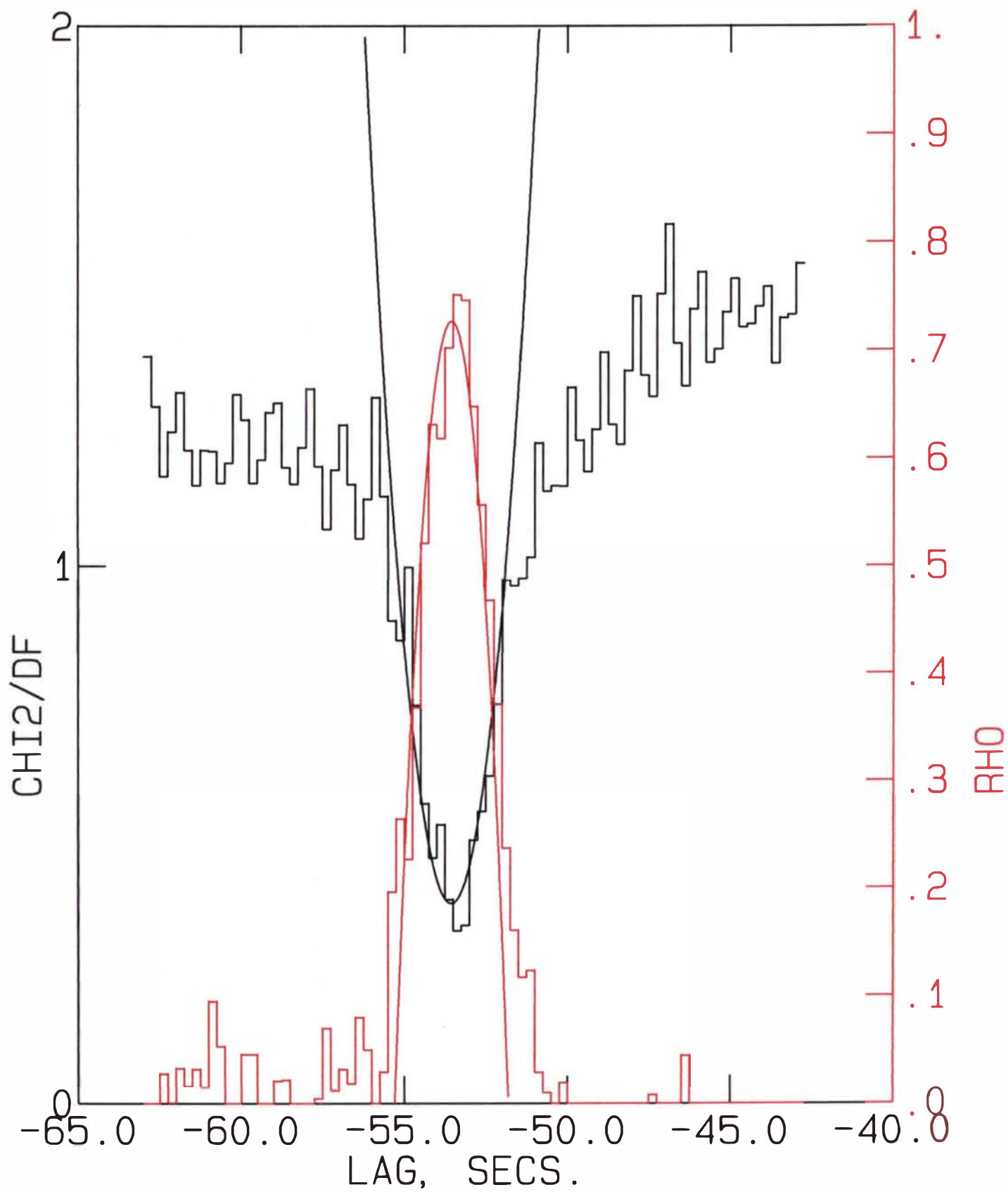
2 NEAR

EVENT OF DEC 7, 2000 9:41

8/12/ 0



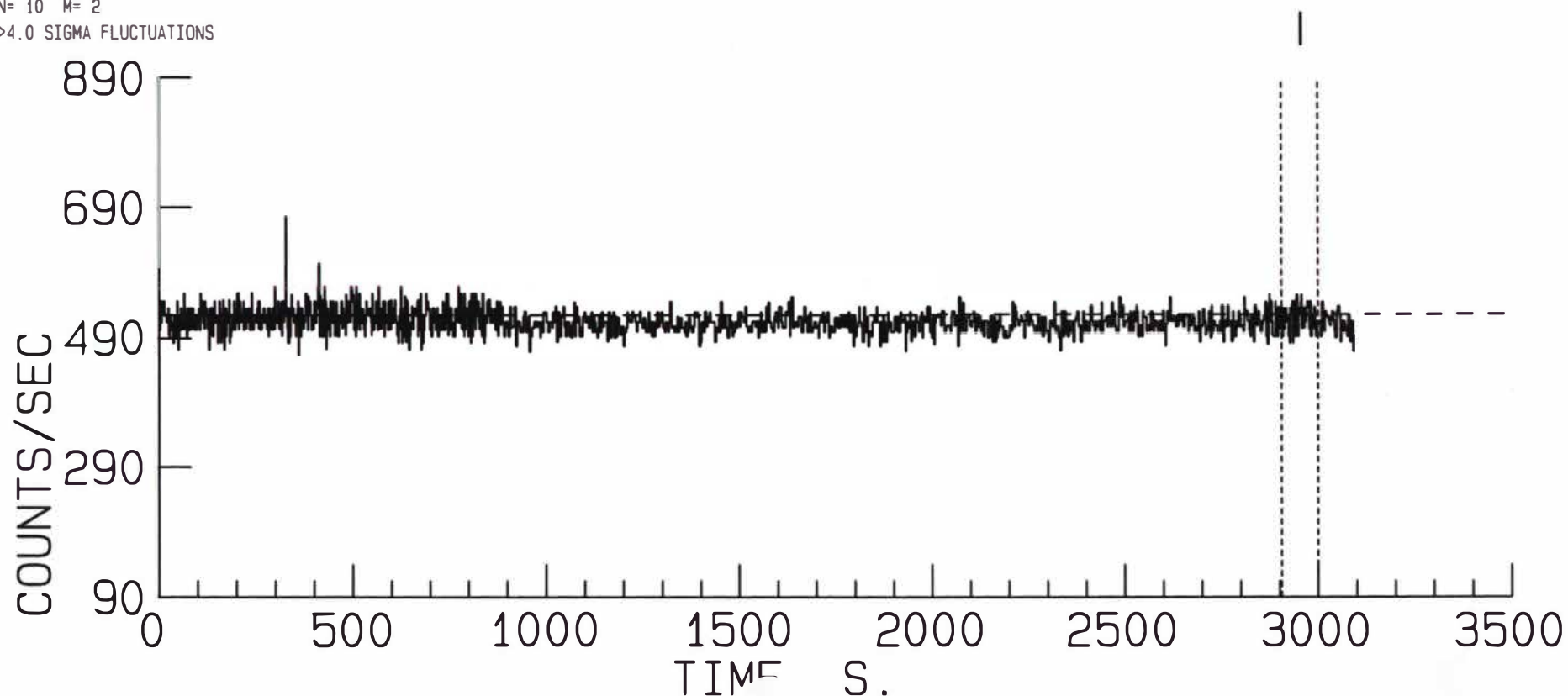


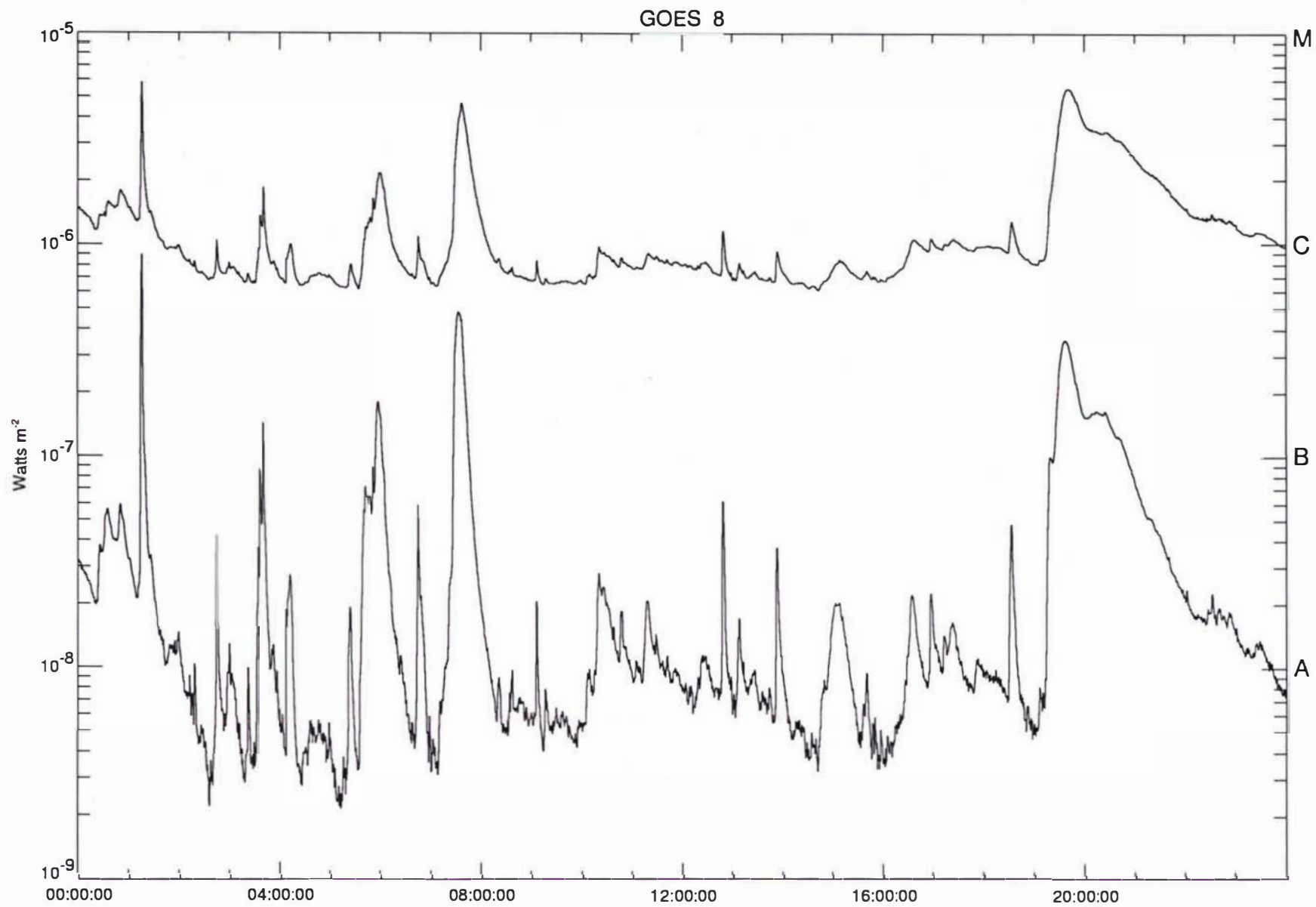


ULYSSES RT
7/12/ 0 34596.183 s
INTERVALS REGROUPED BY 6
23- 155 keV

8/12/ 0

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

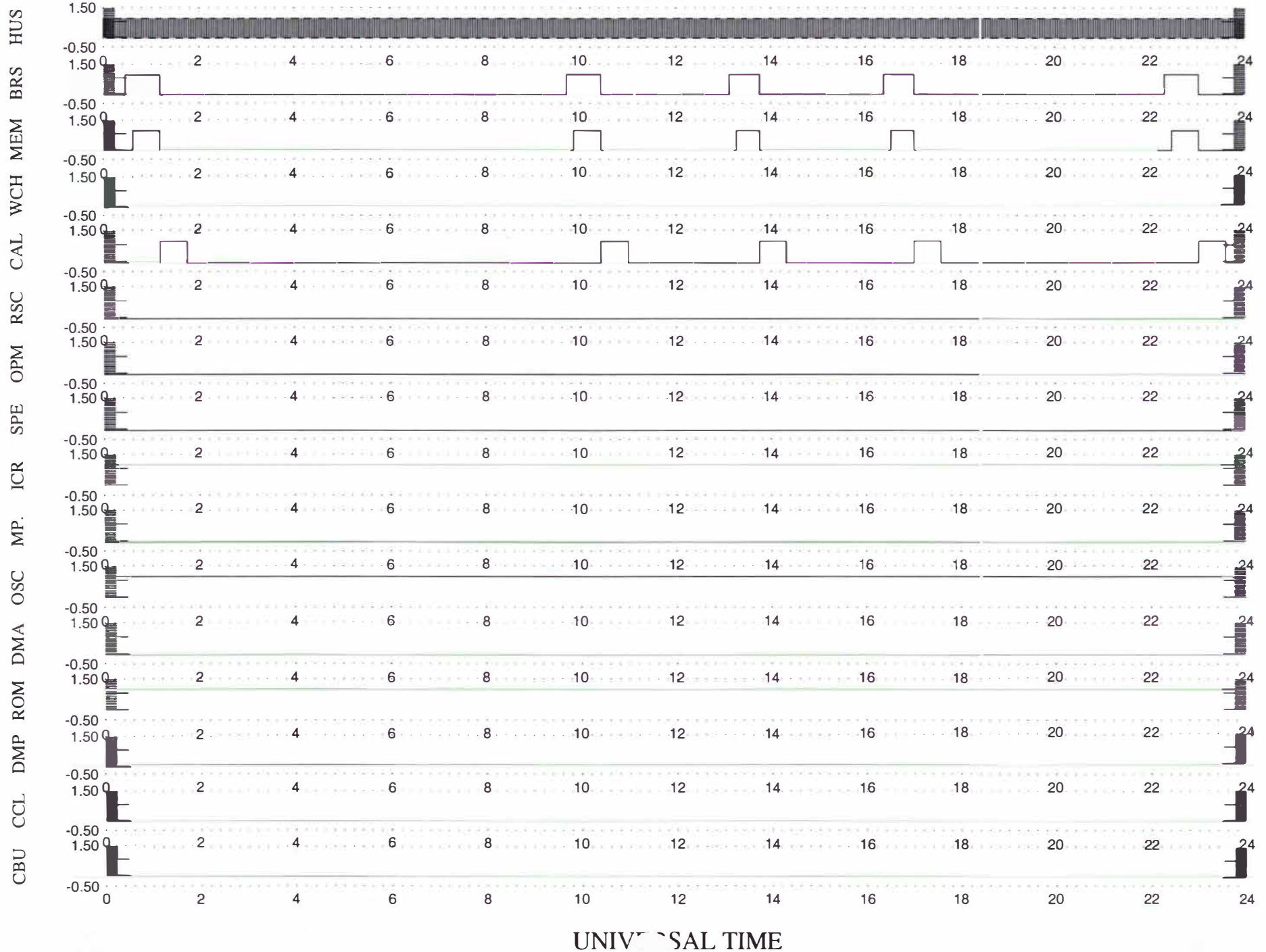
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

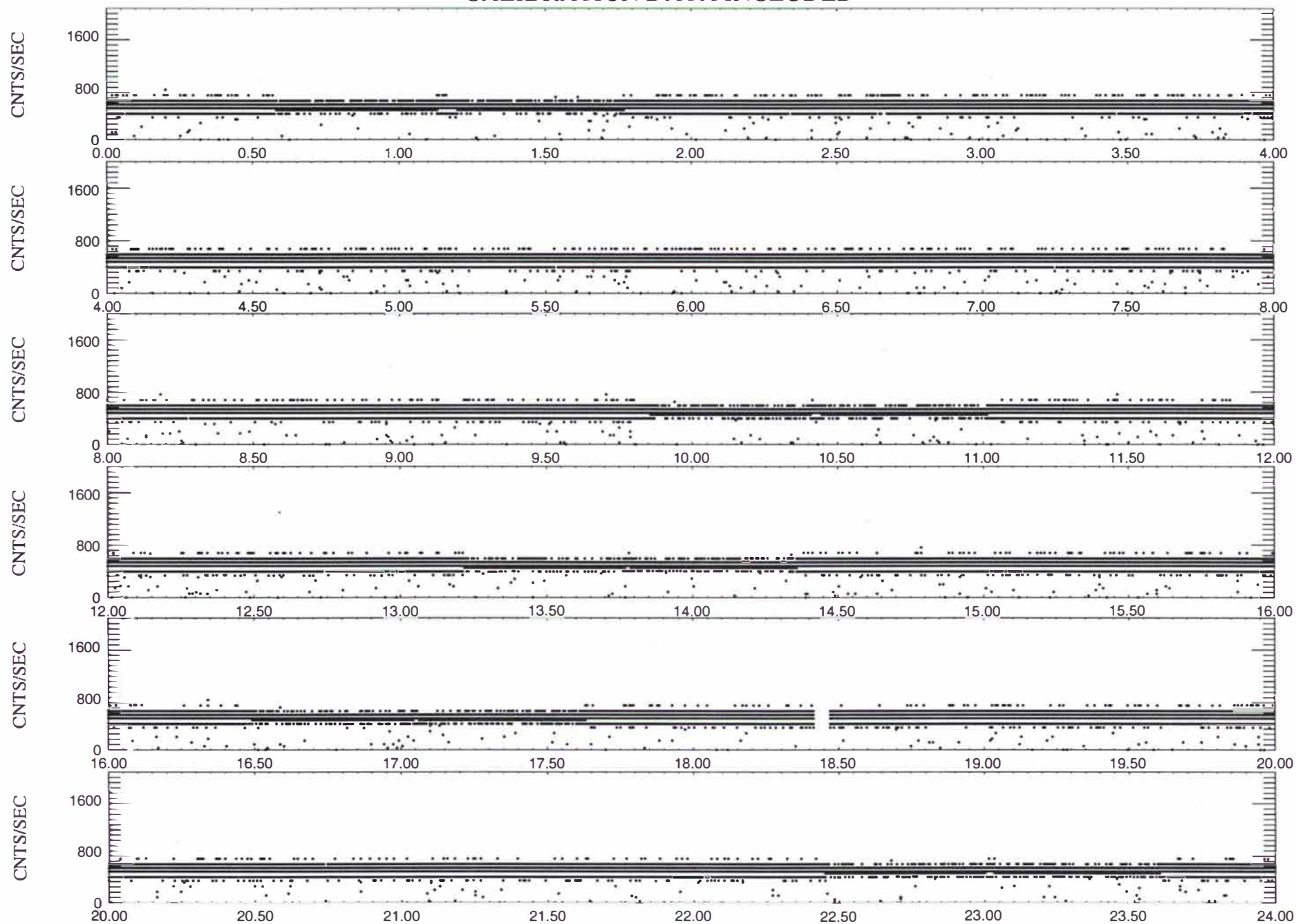
Plot created: 00/12/11, 1058

Sample average = 10

BURST NUMBER 8 - 12

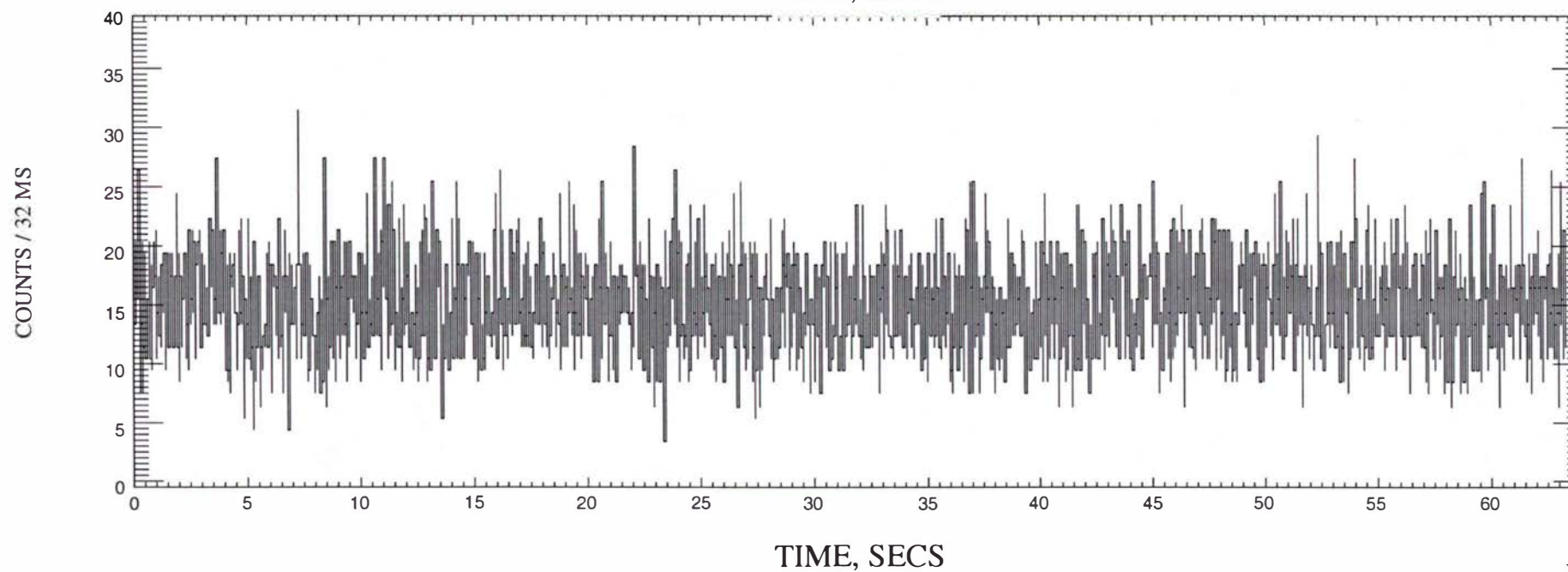
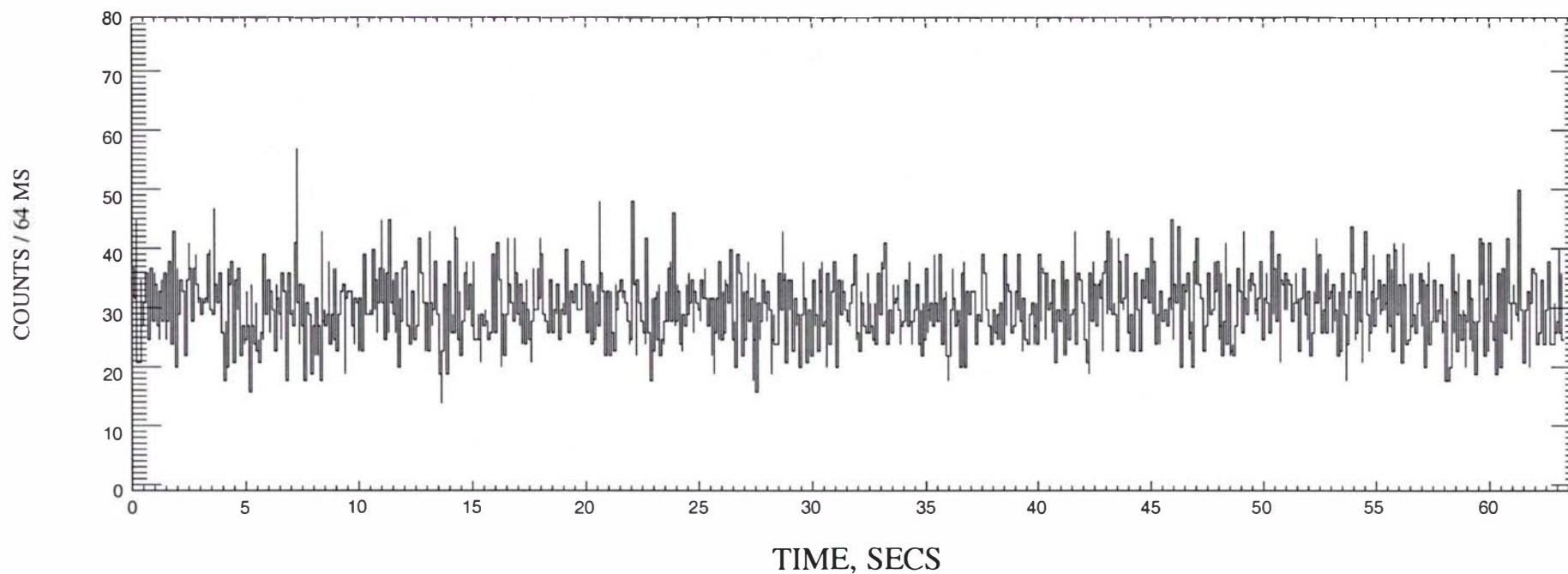


CALIBRATION DATA INCLUDED

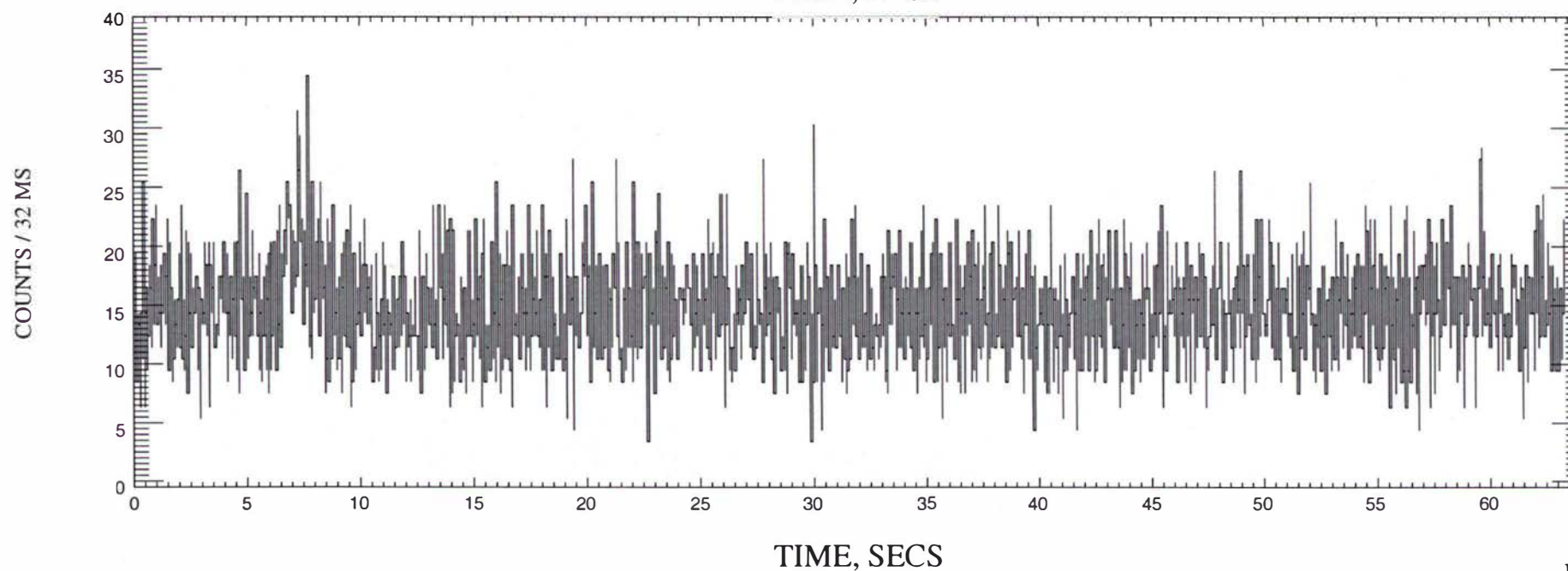
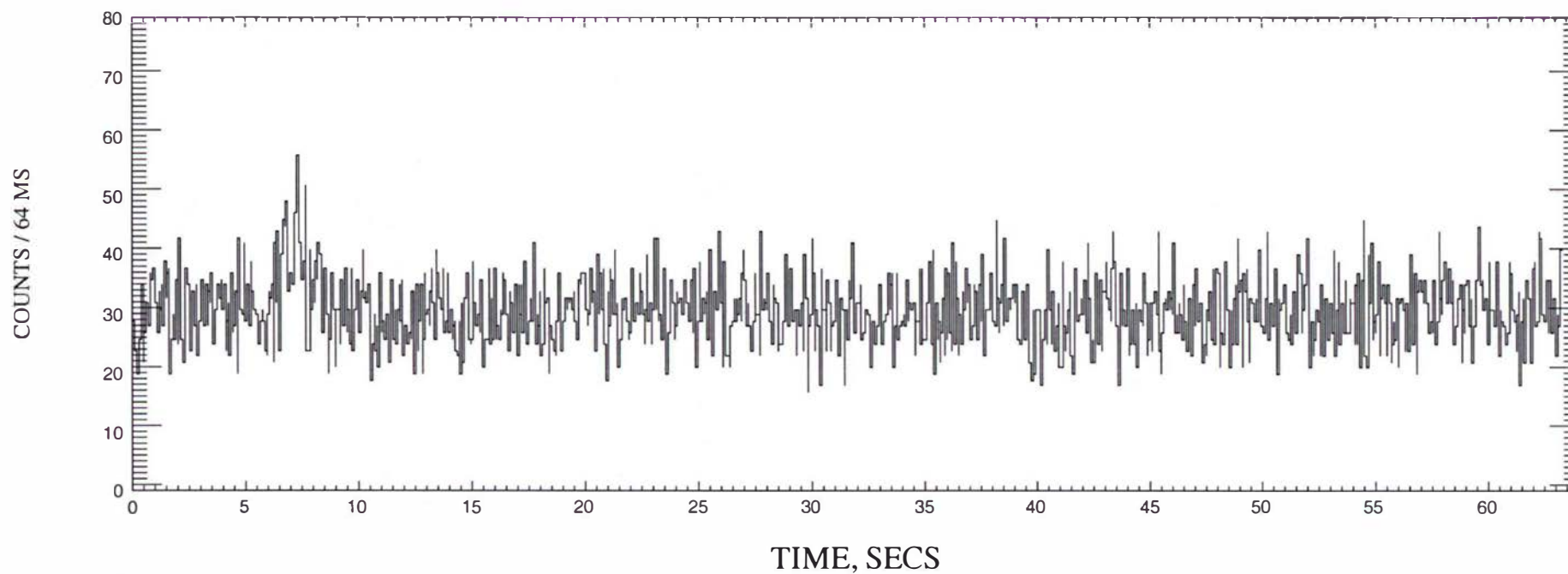


UNIVERSAL TIME

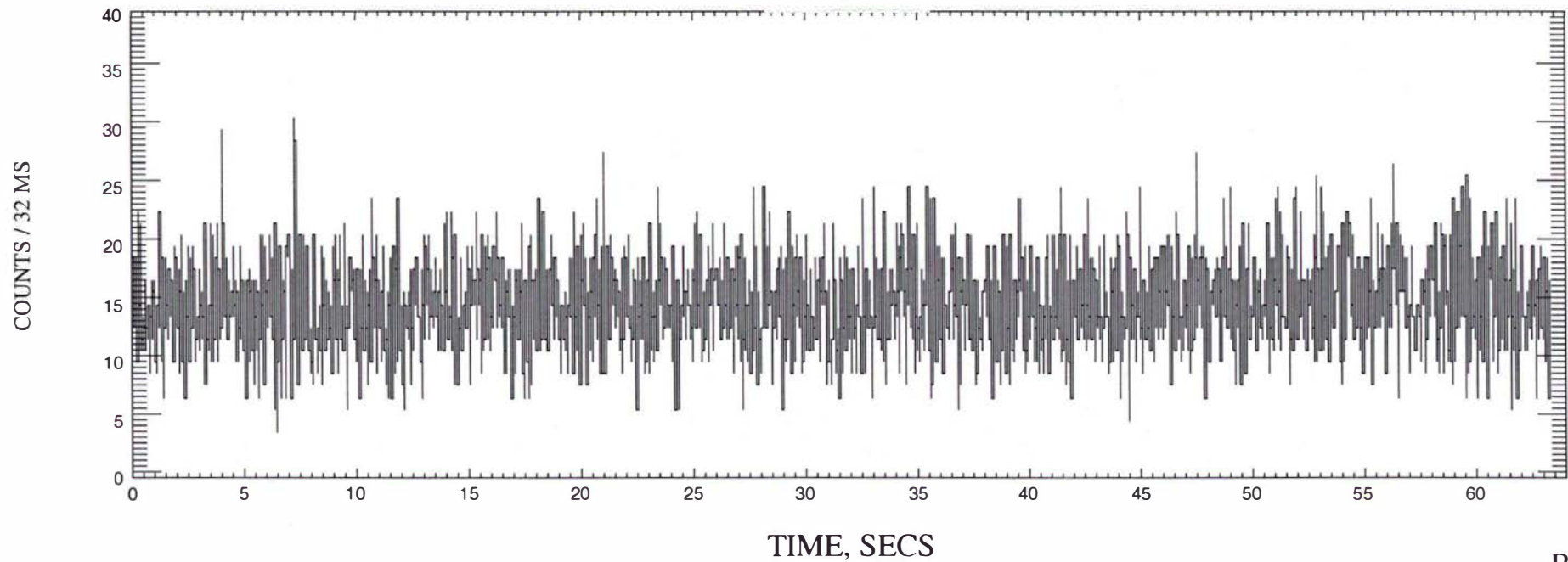
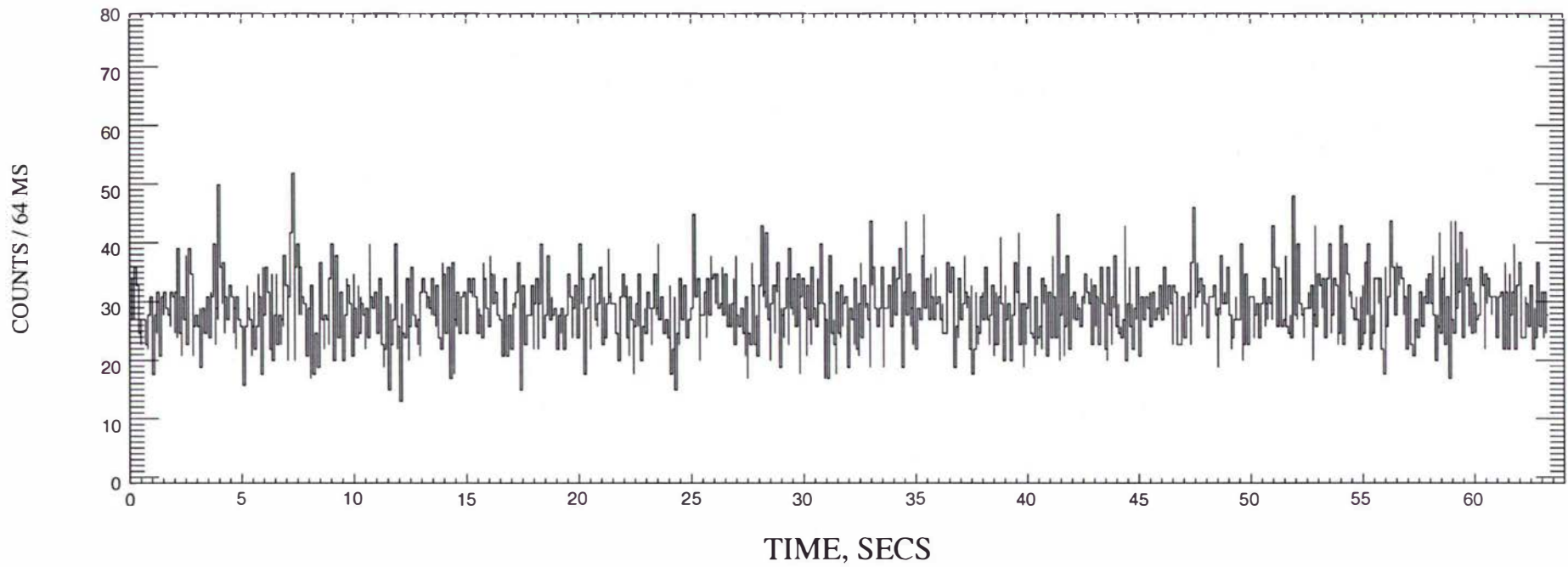
Burst Counter 8 at UT= 0.426369374593 h= 1534.930 s 00:25:34.930



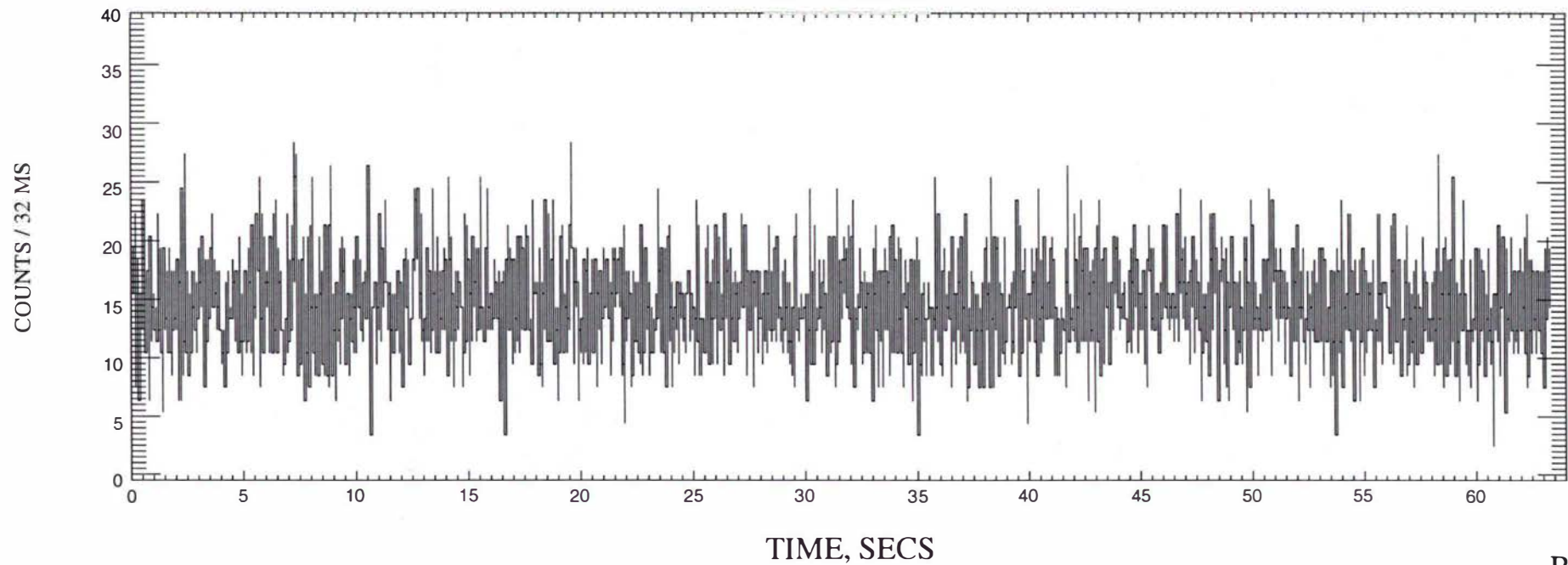
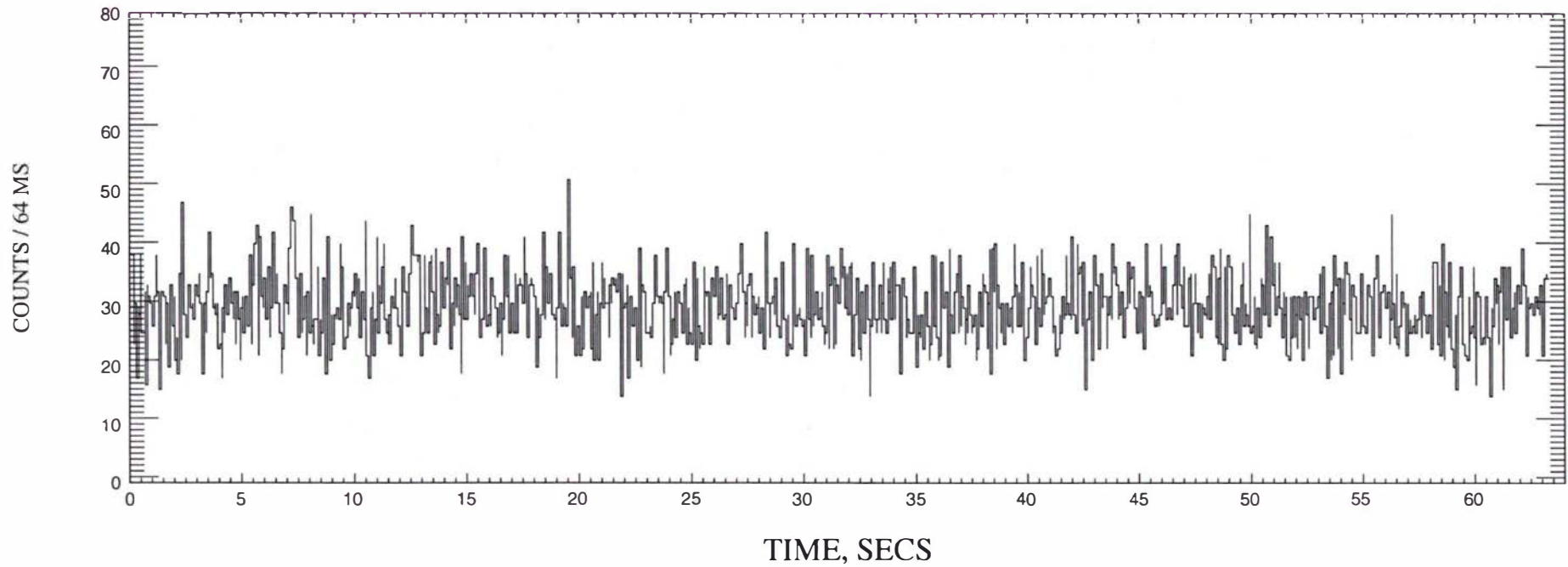
Burst Counter 9 at UT= 9.701089295281 h=34923.921 s 09:42:03.921



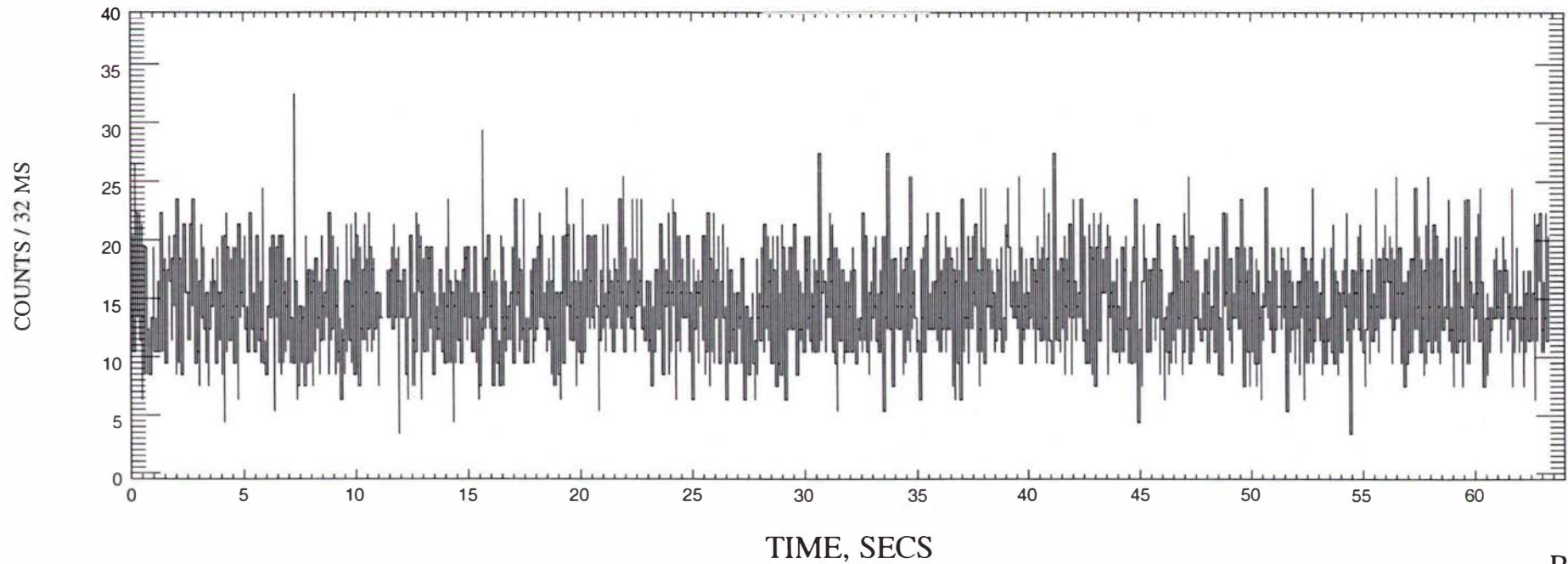
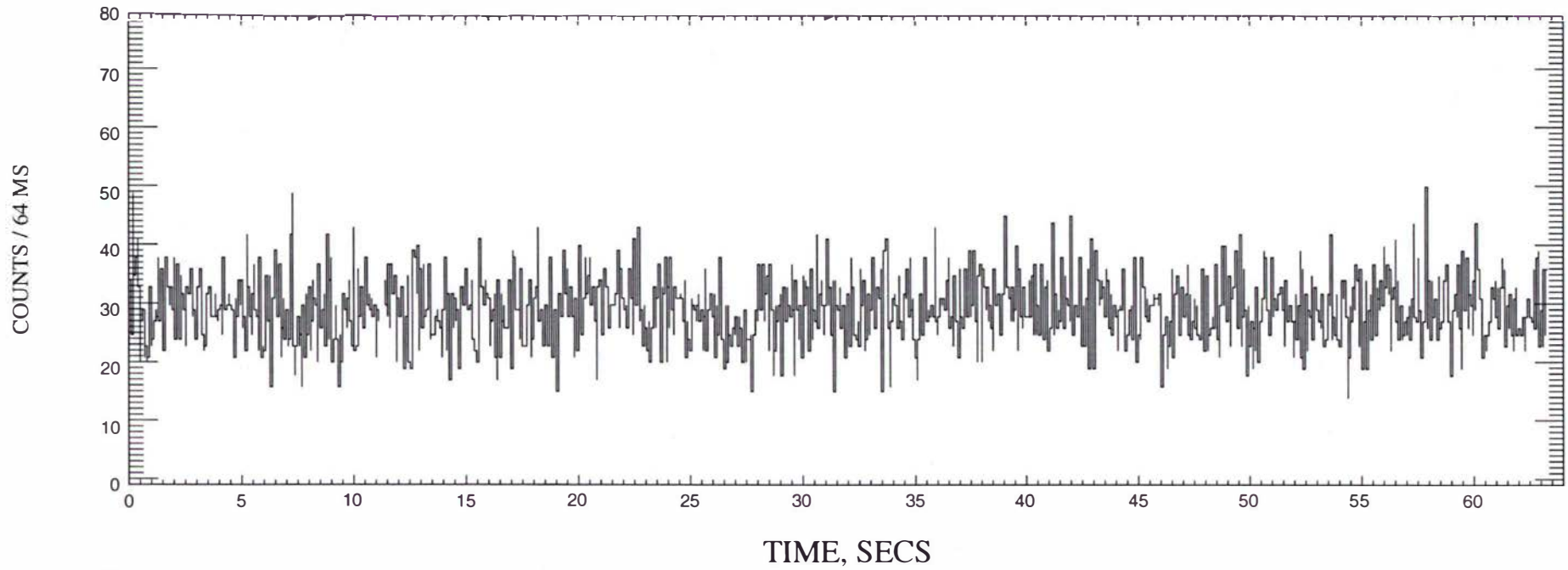
Burst Counter 10 at UT=13.065656589932 h=47036.364 s 13:03:56.364



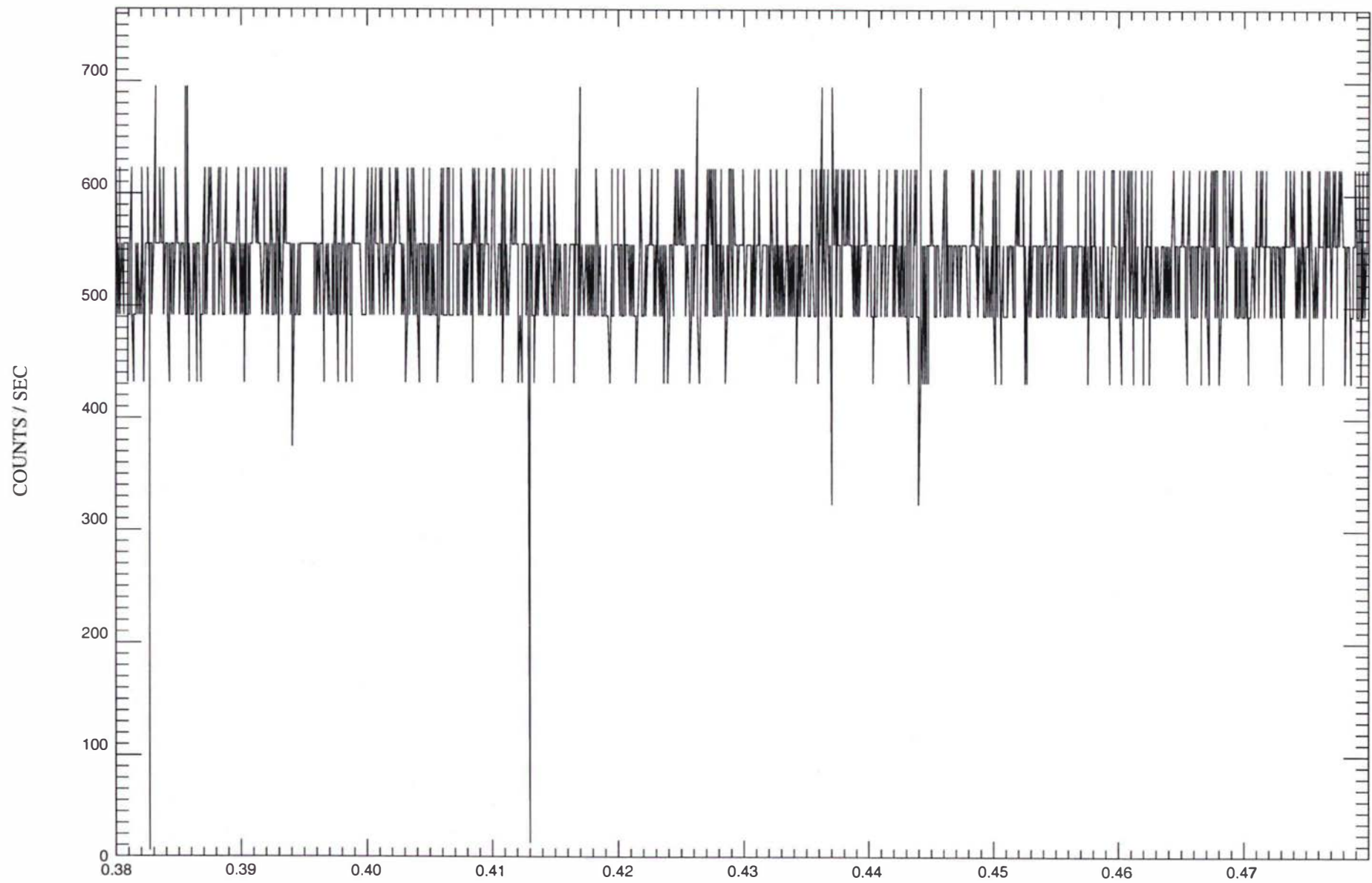
Burst Counter 11 at UT=16.339562026130 h=58822.423 s 16:20:22.423



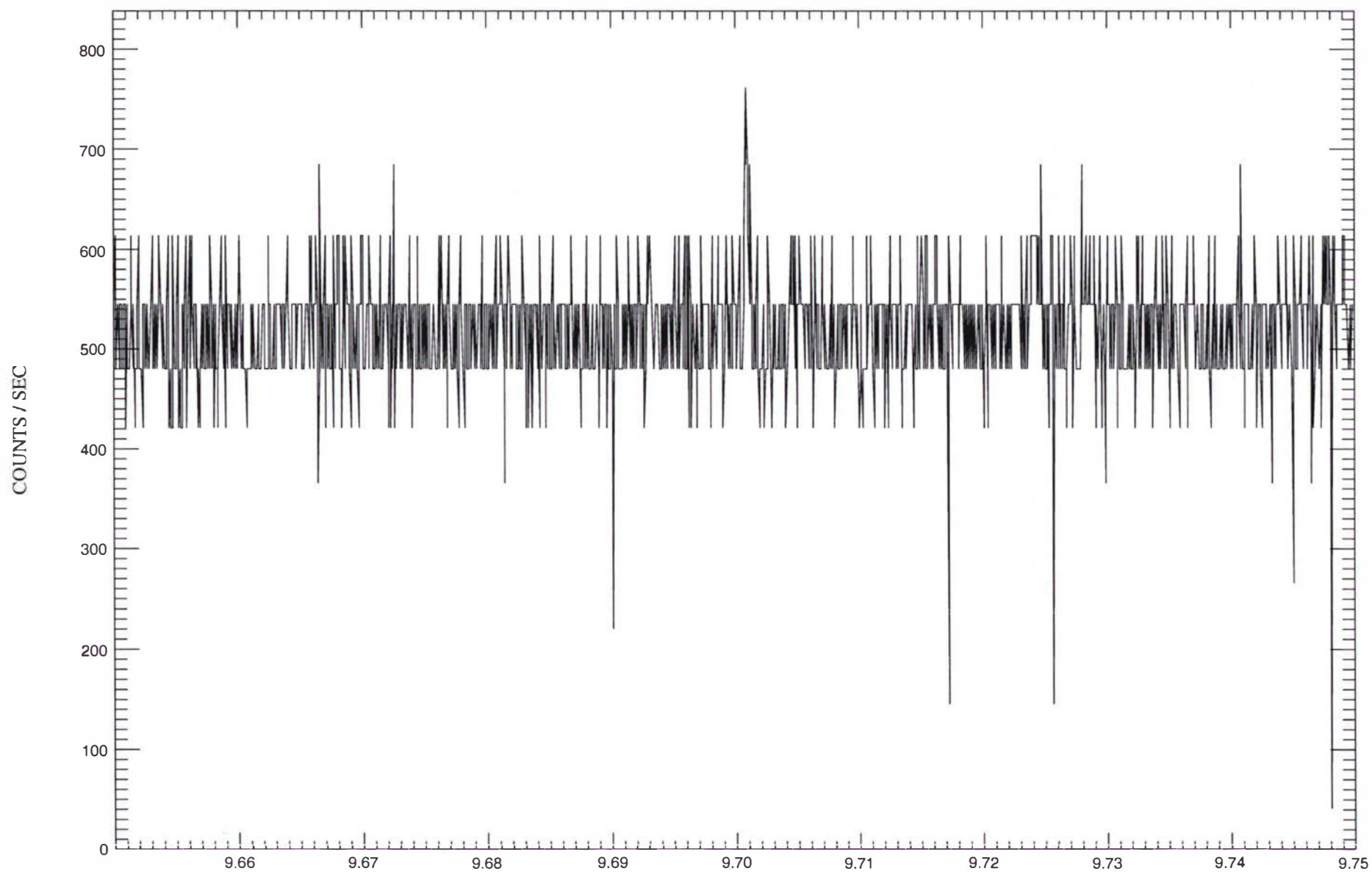
Burst Counter 12 at UT=22.302114257813 h=80287.611 s 22:18:07.611



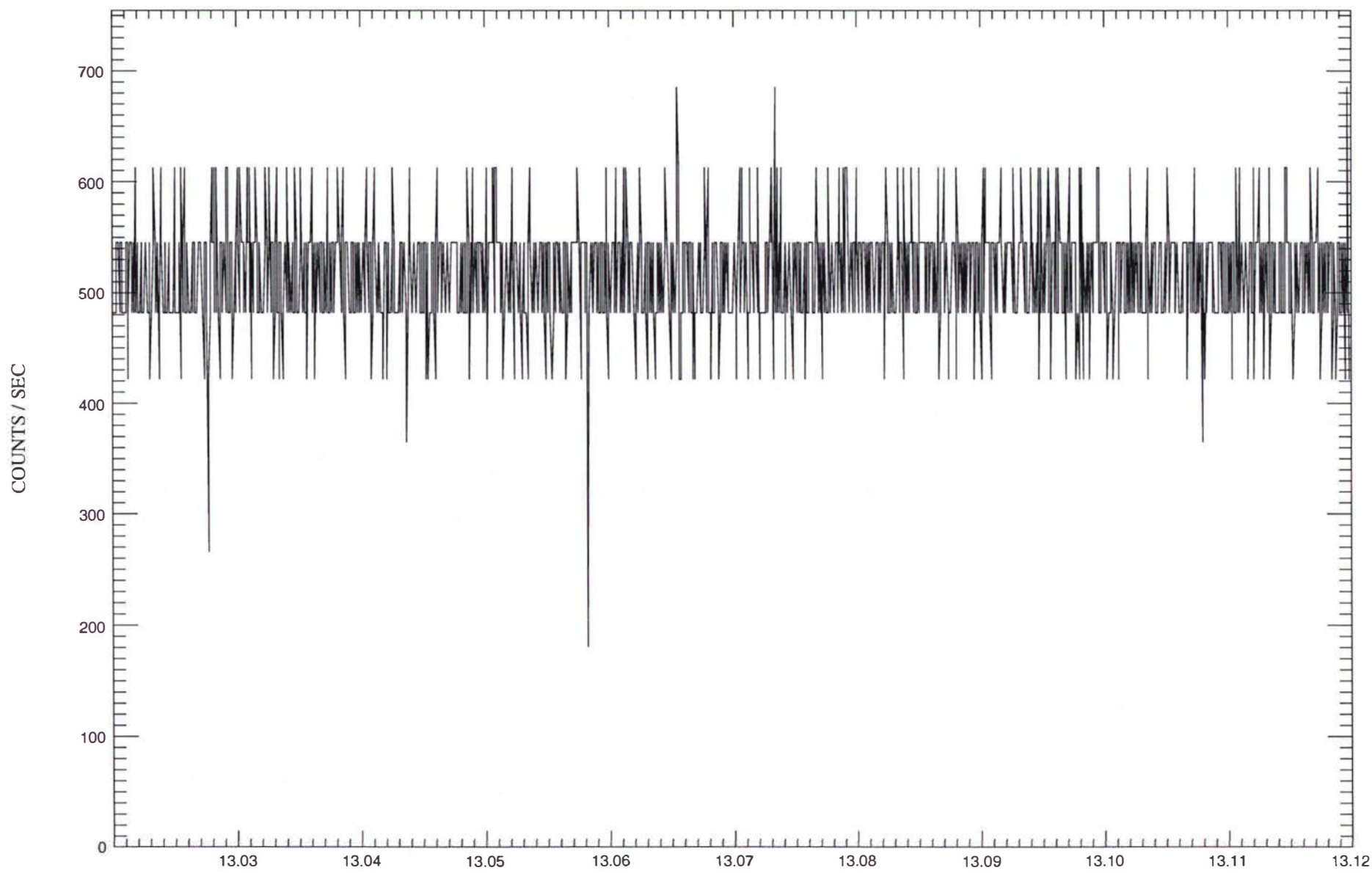
CALIBRATION DATA INCLUDED



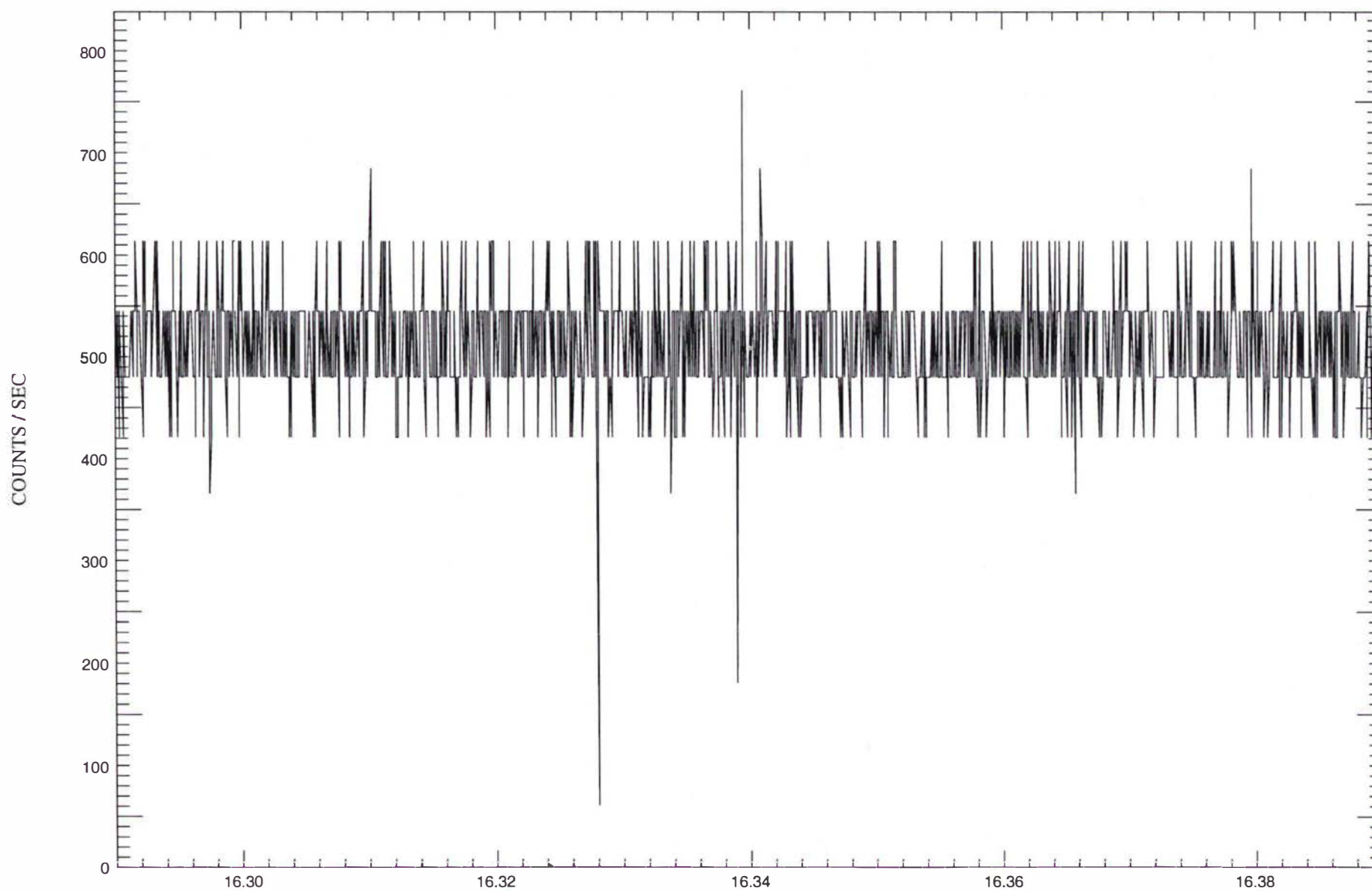
CALIBRATION DATA INCLUDED



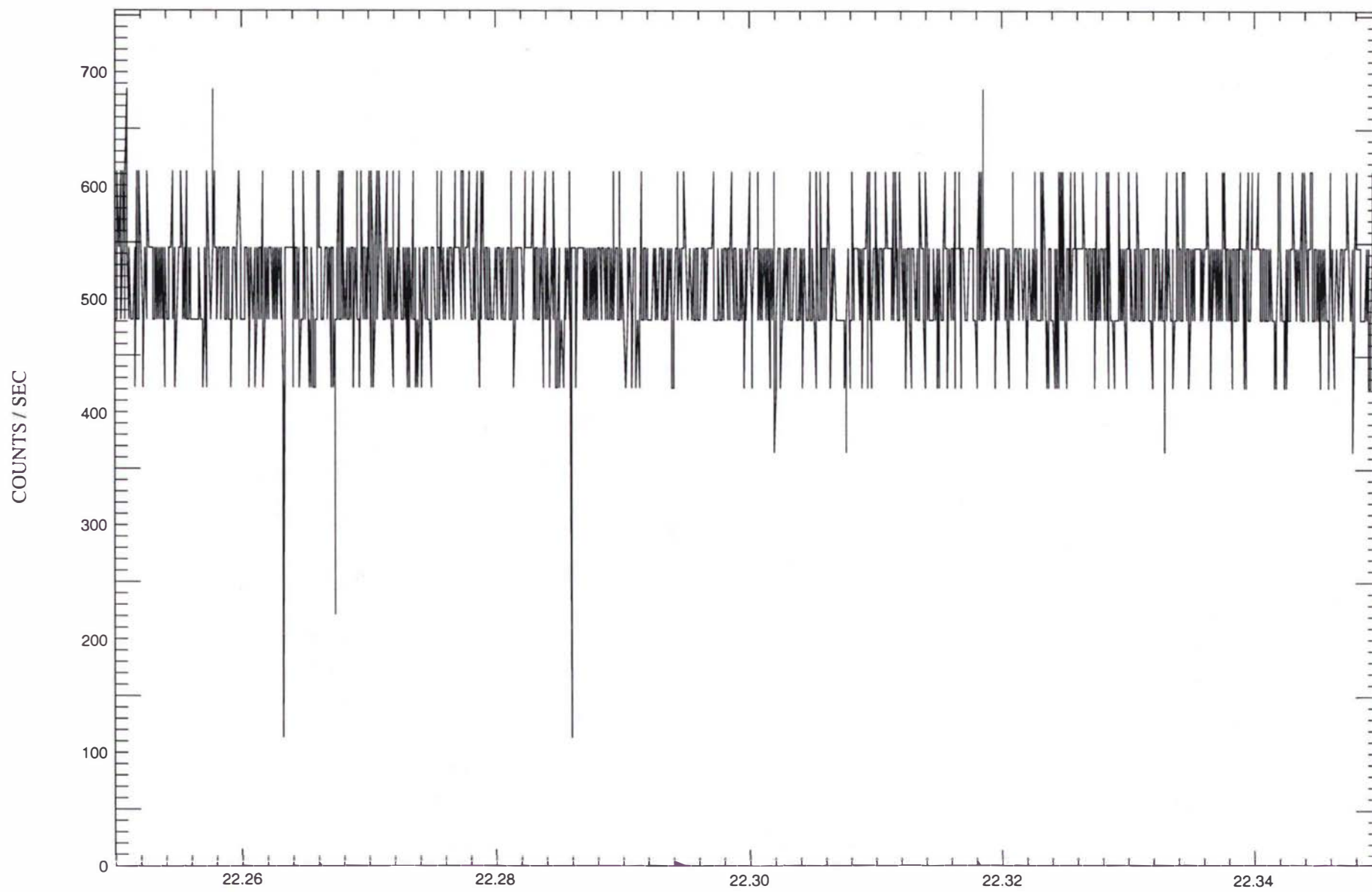
CALIBRATION DATA INCLUDED

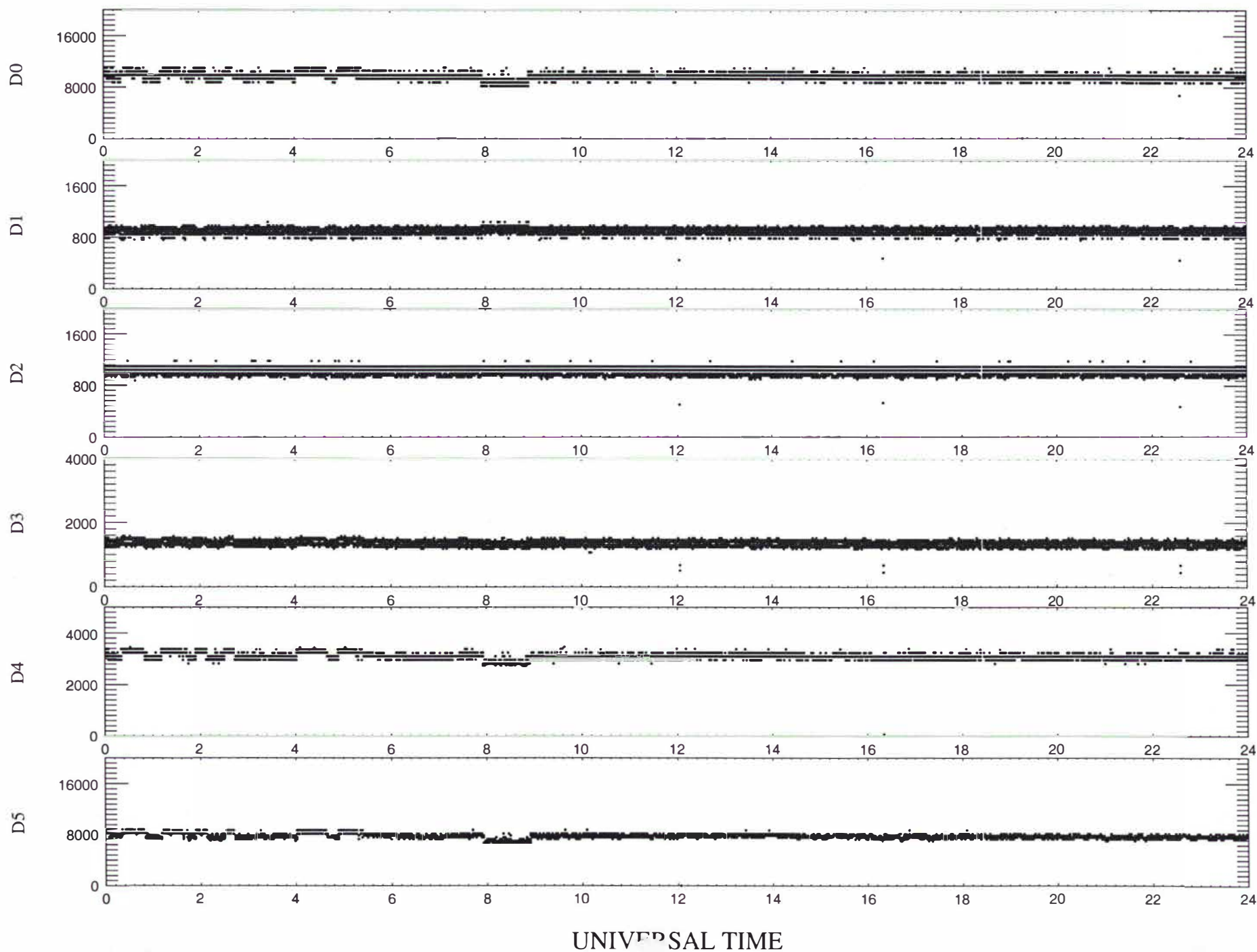


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





SAX GRBM
HUS DATA

ULYSSES RT

19 / 07 / 05

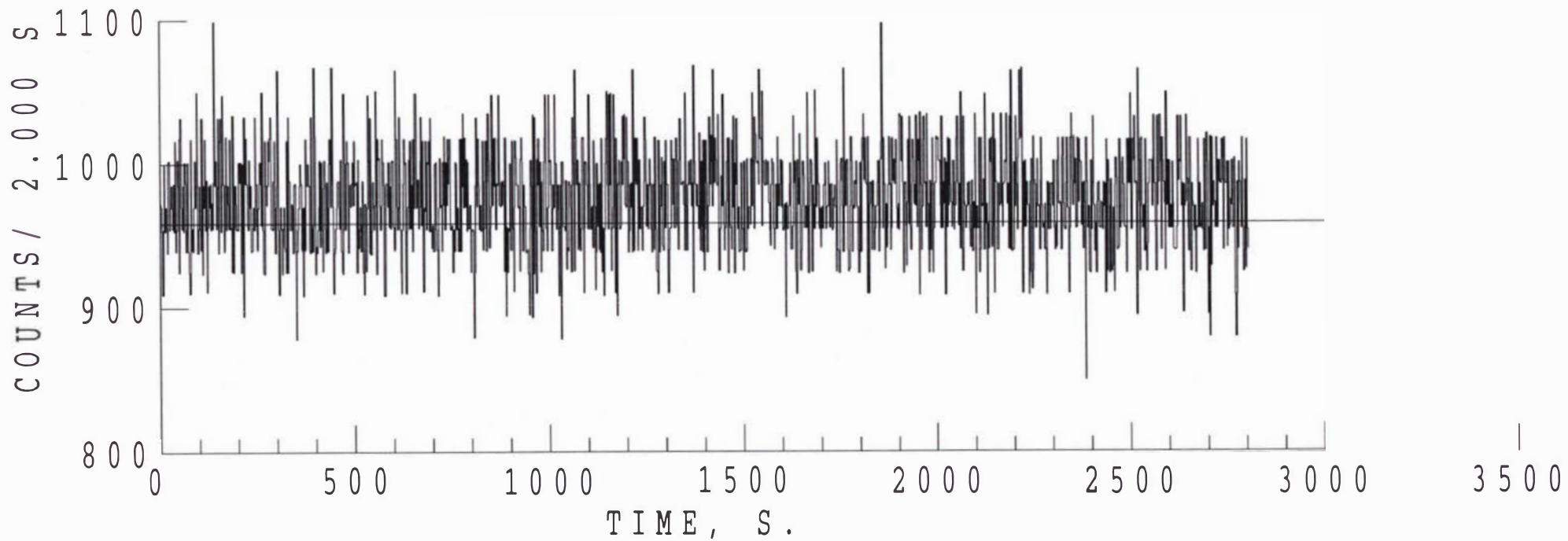
08 / 11 / 00 75348.219 s

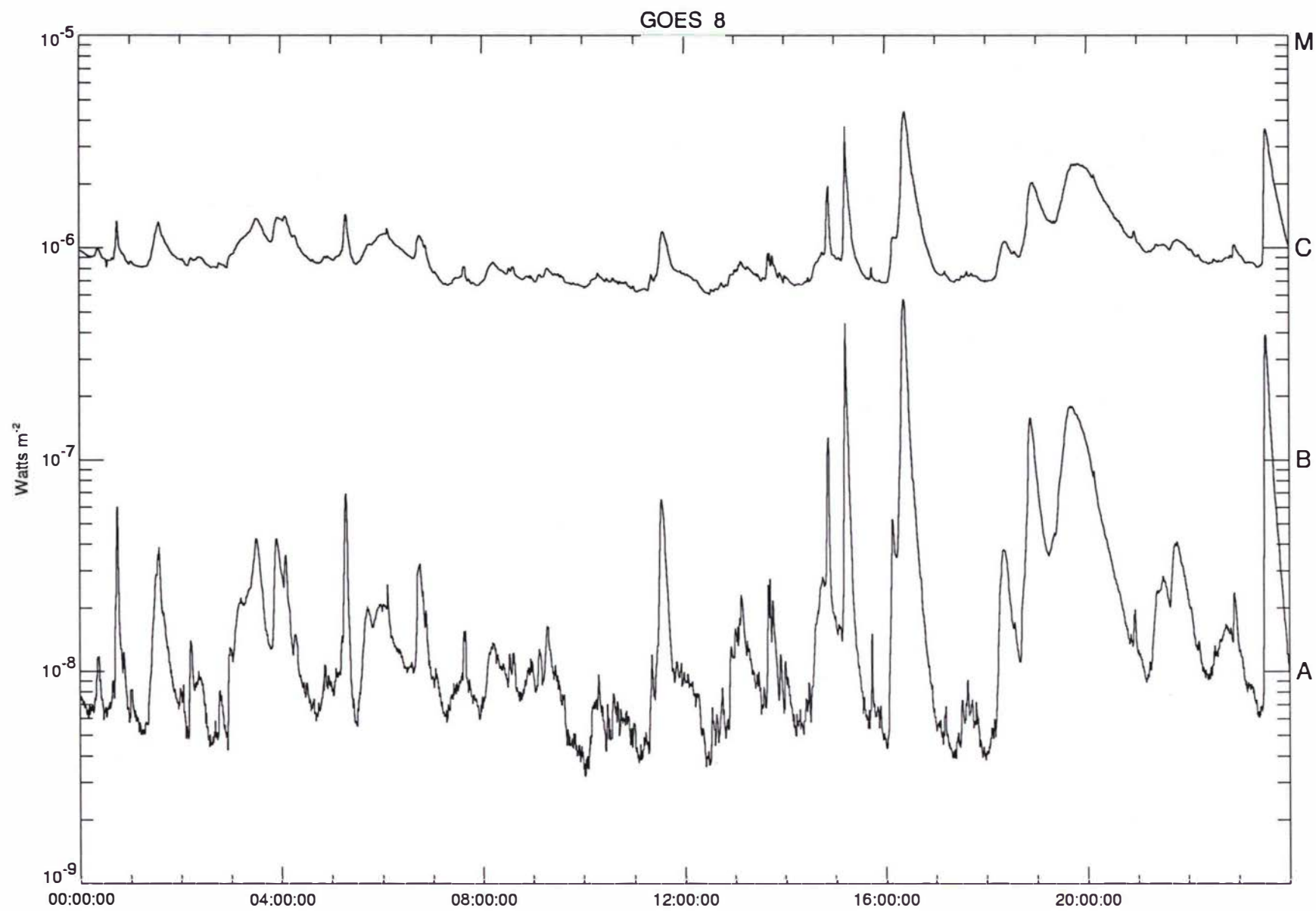
0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Plot created: 00/12/12, 1102

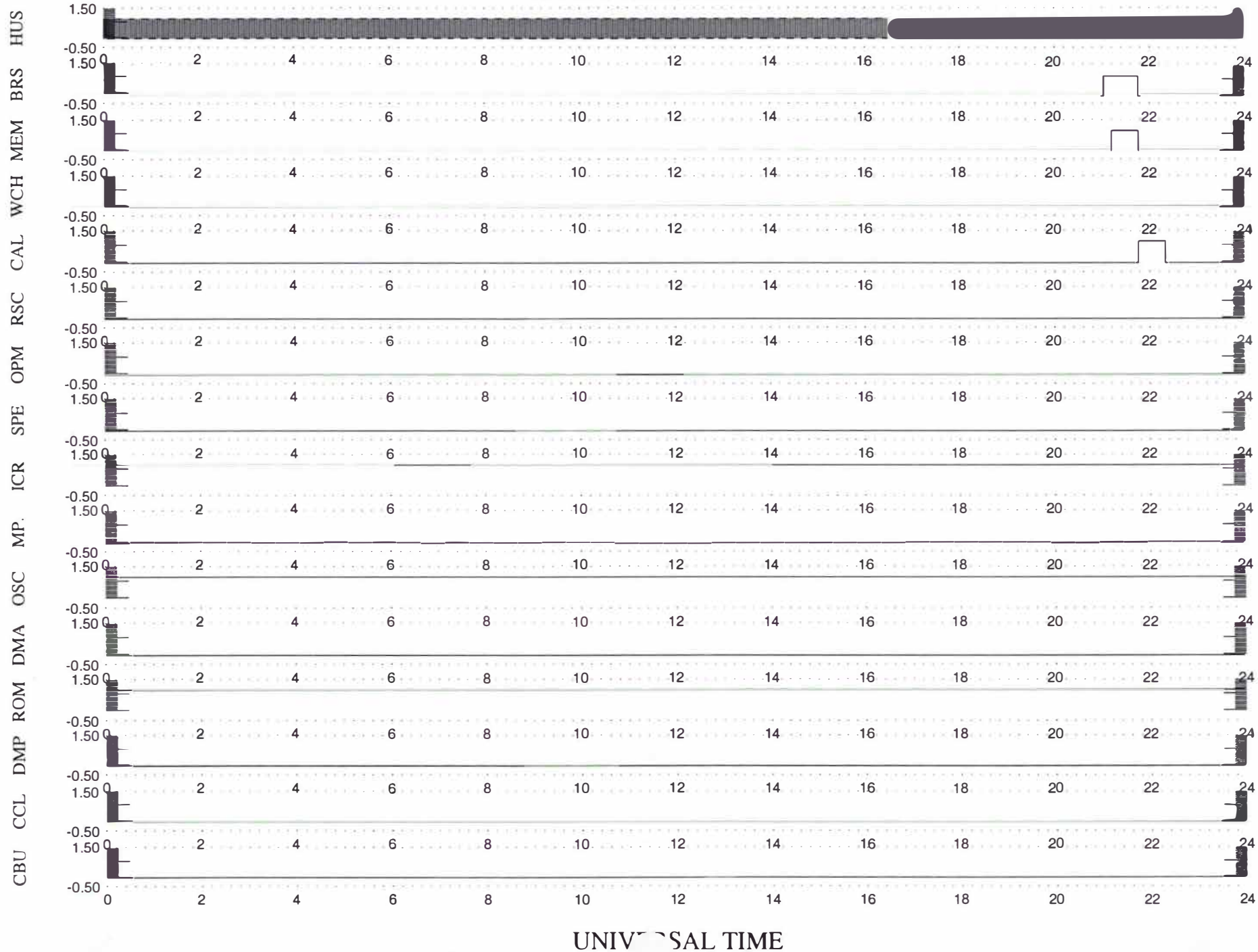
Channel

1 (1.0 - 8.0 Angstroms) Background not subtracted

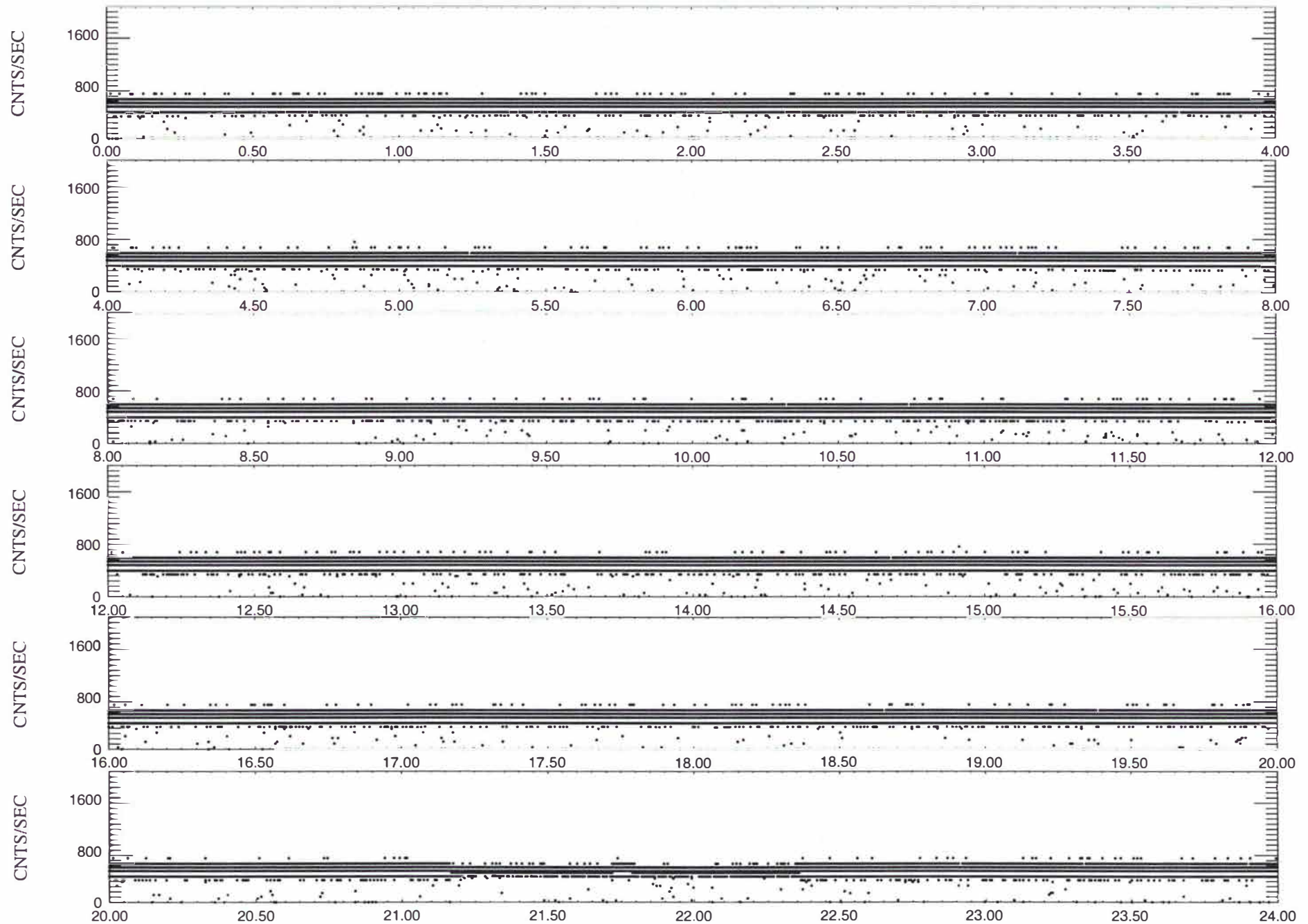
2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

BURST NUMBER 13

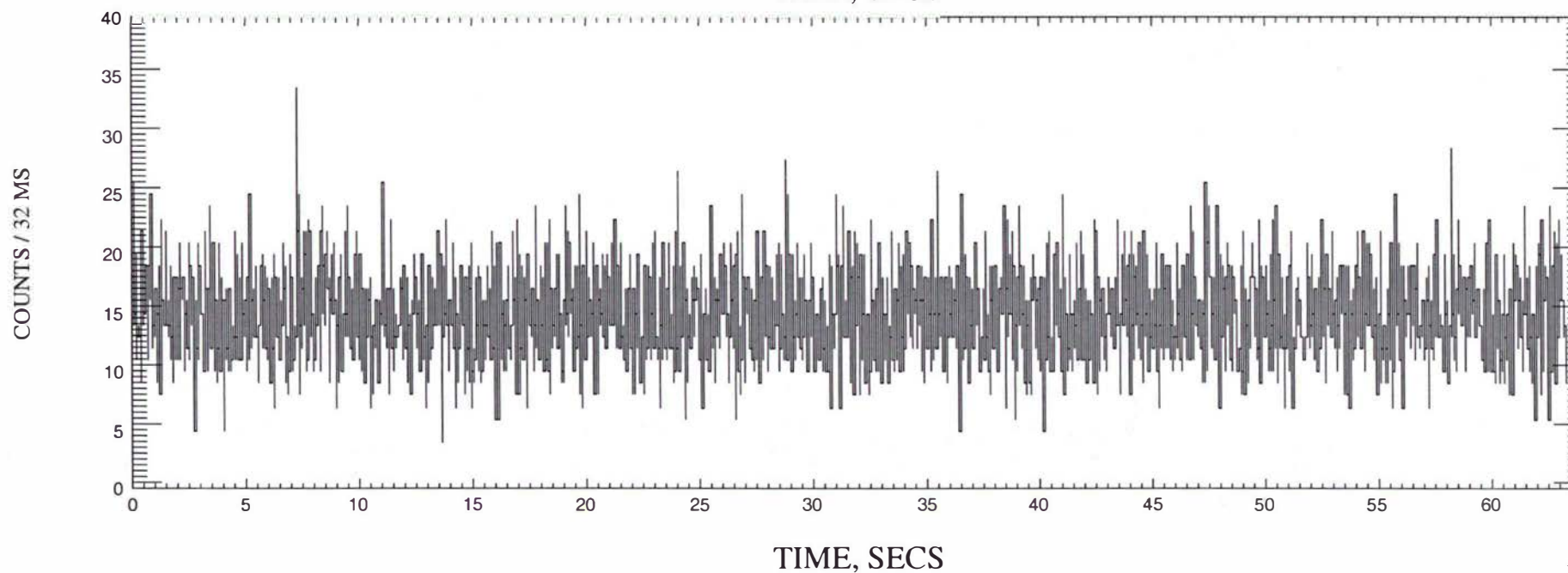
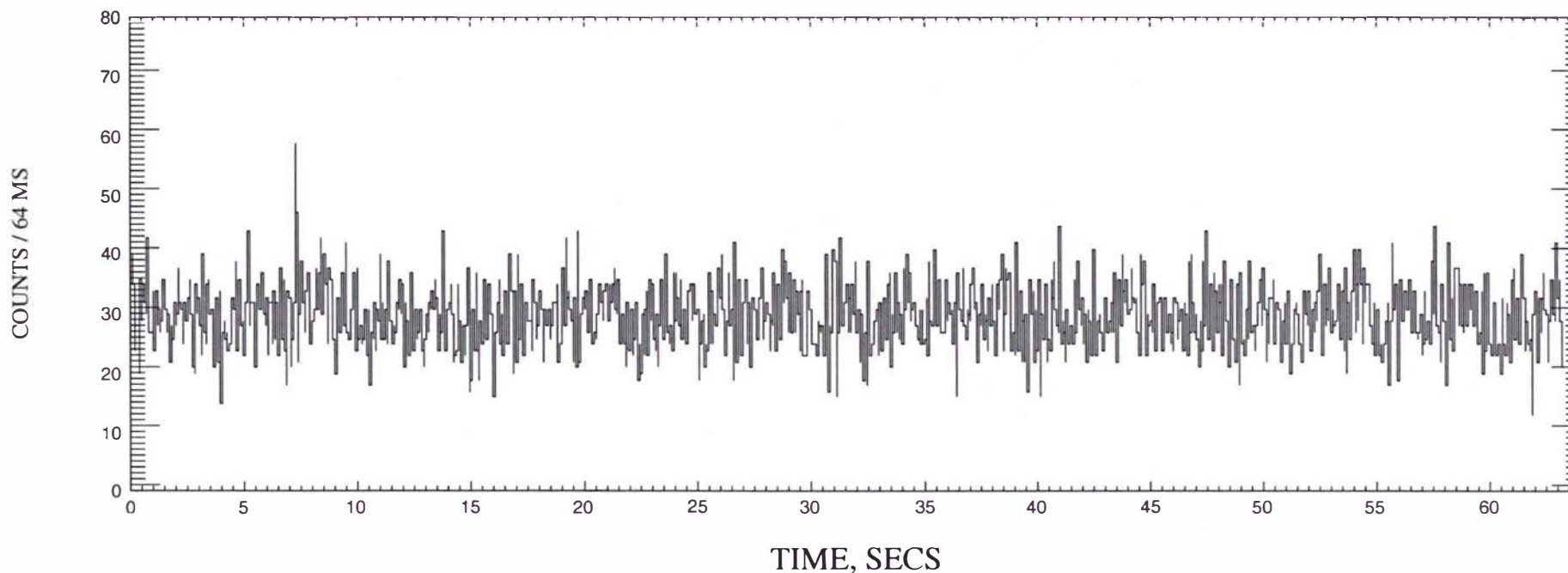


CALIBRATION DATA INCLUDED

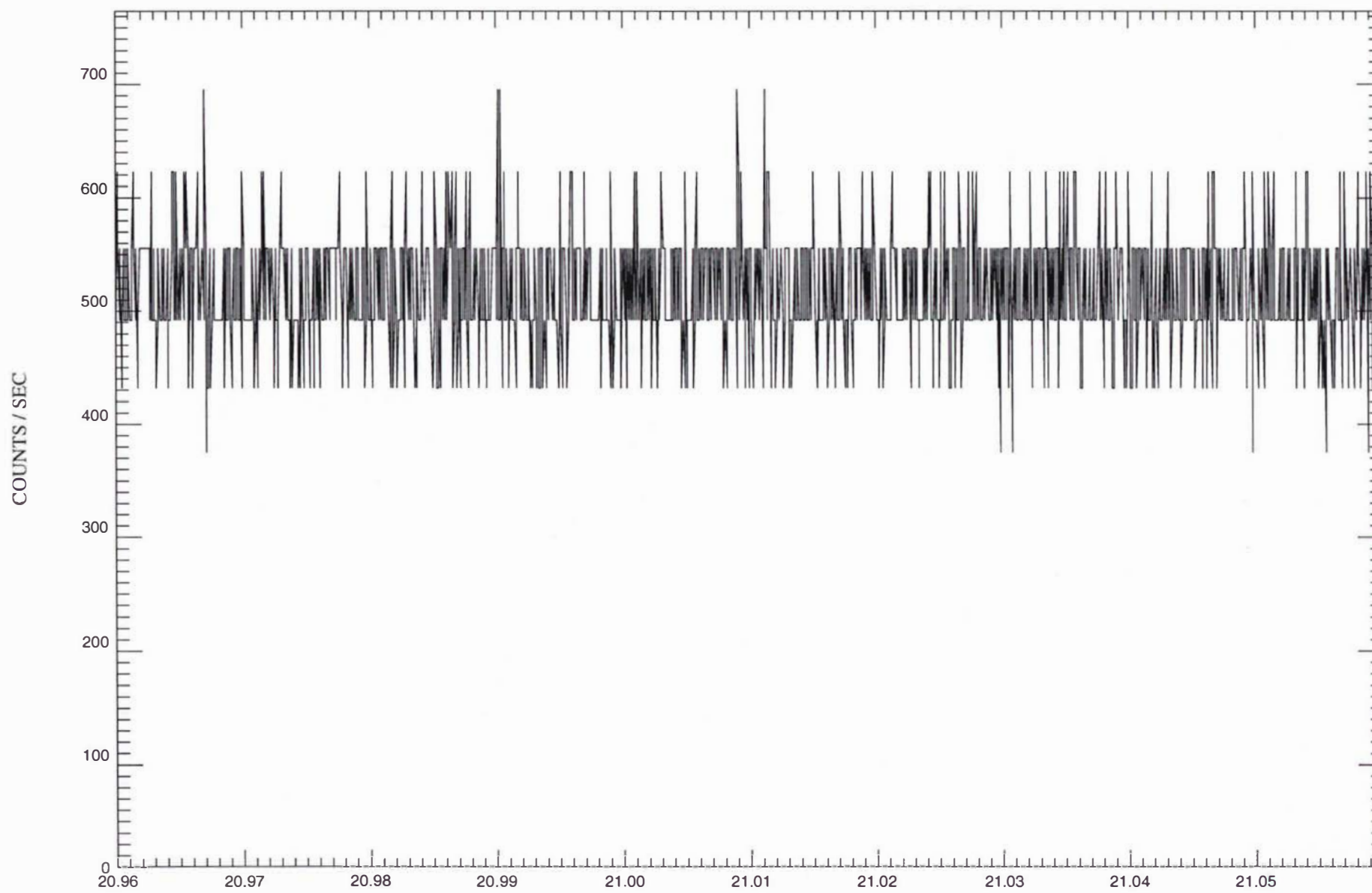


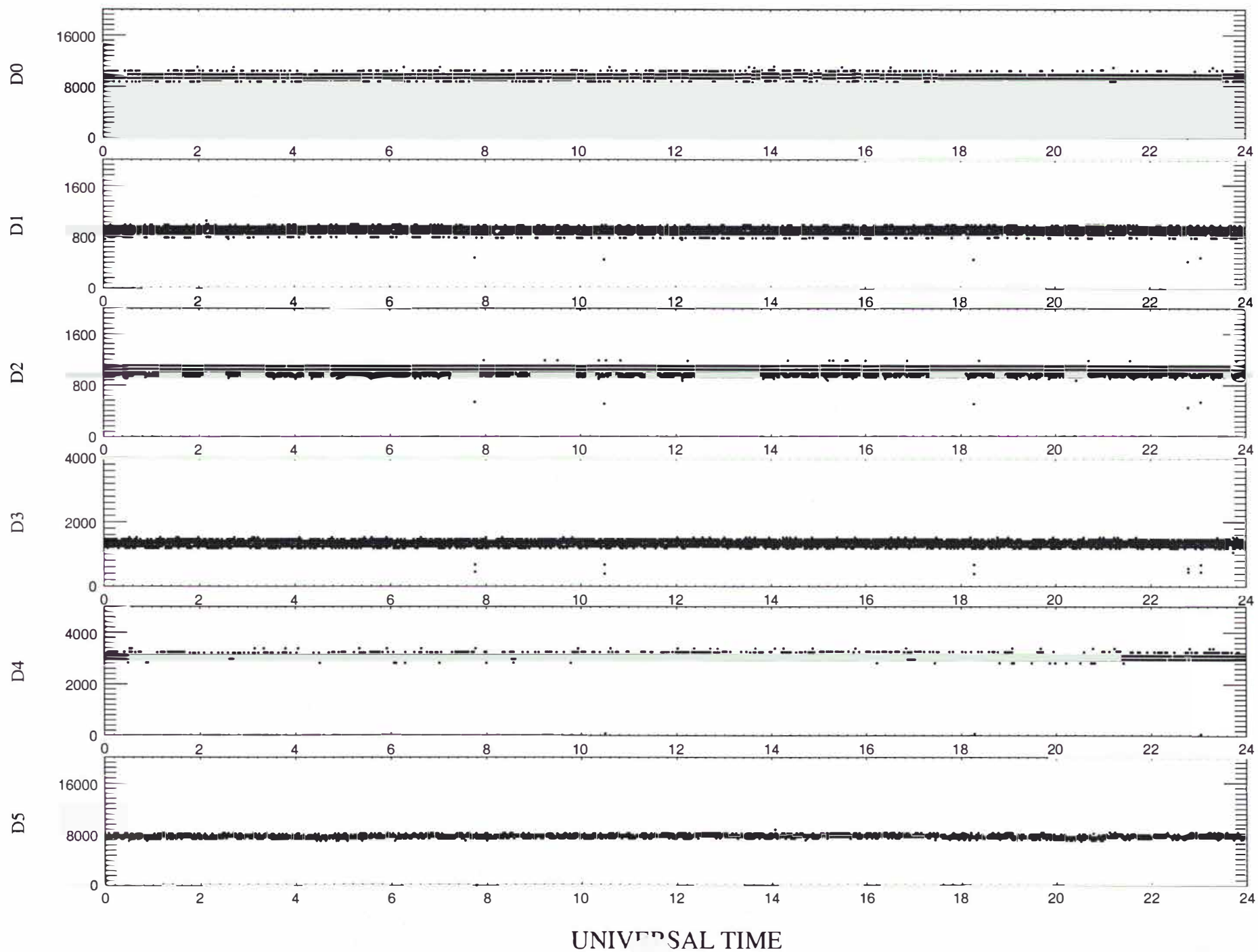
UNIVERSAL TIME

Burst Counter 13 at UT=21.011242713928 h=75640.474 s 21:00:40.474

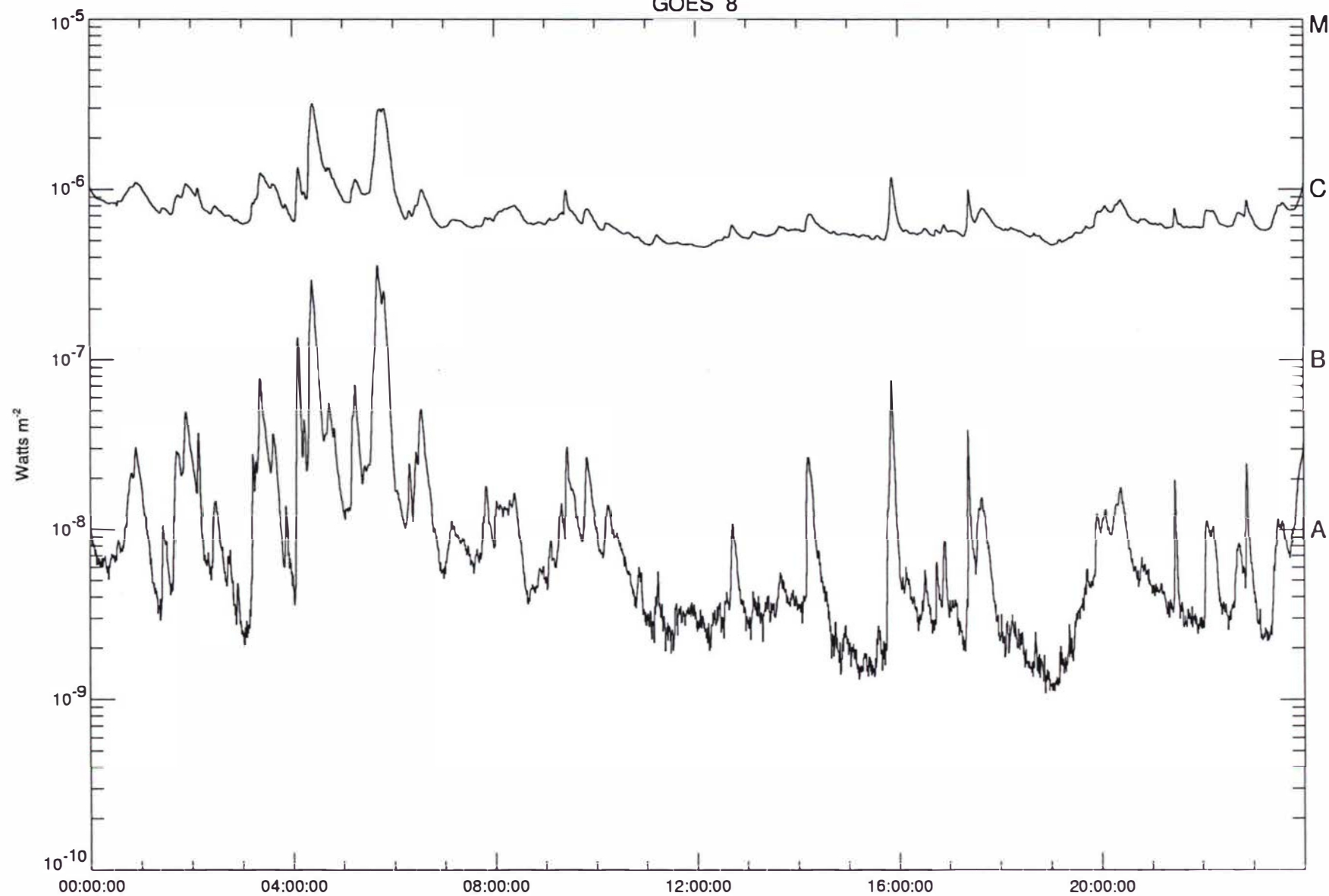


CALIBRATION DATA INCLUDED





GOES 8



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

Channel

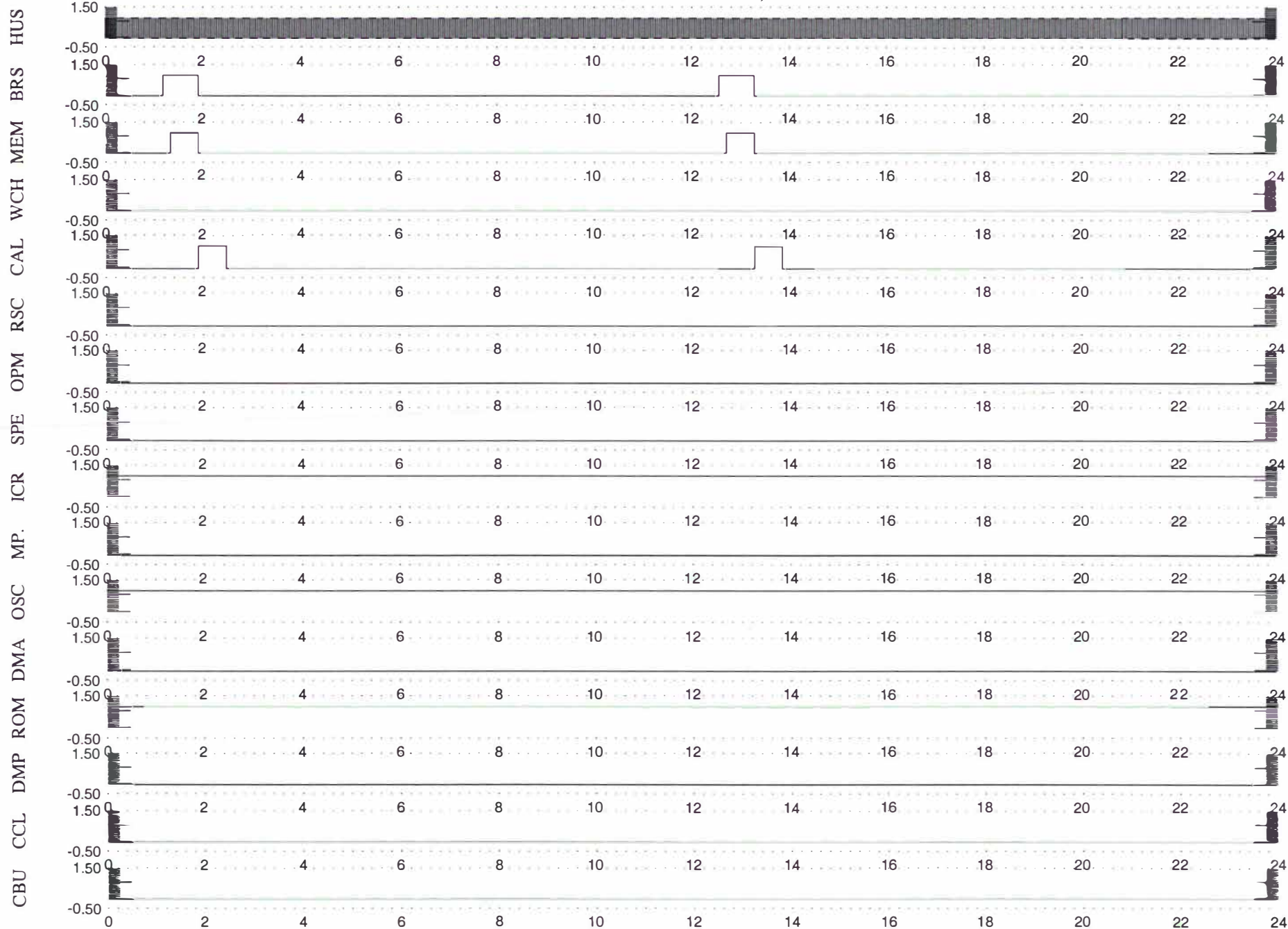
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

Plot created: 00/12/13, 1057

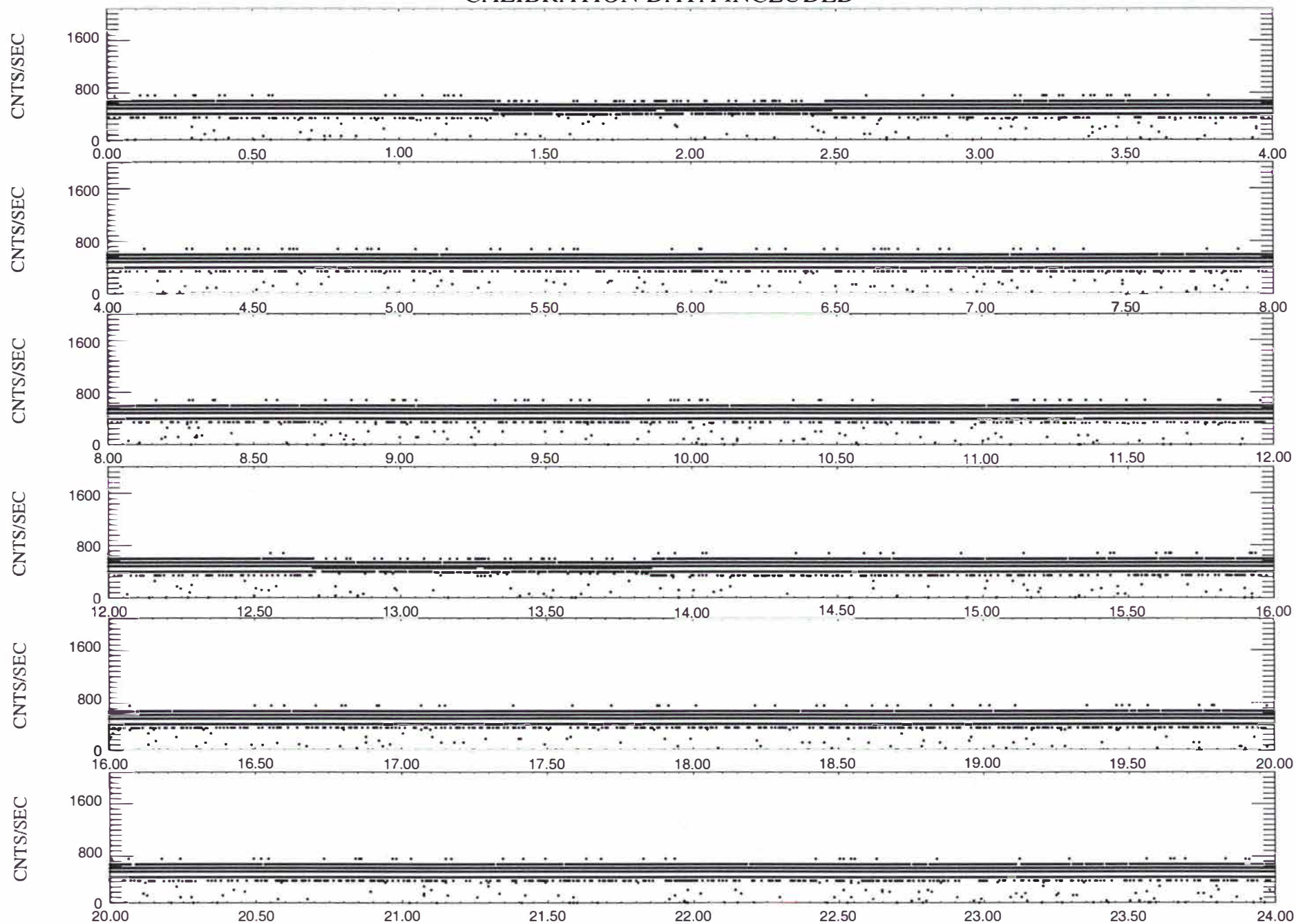
Sample average = 10

BURST NUMBER 14, 15



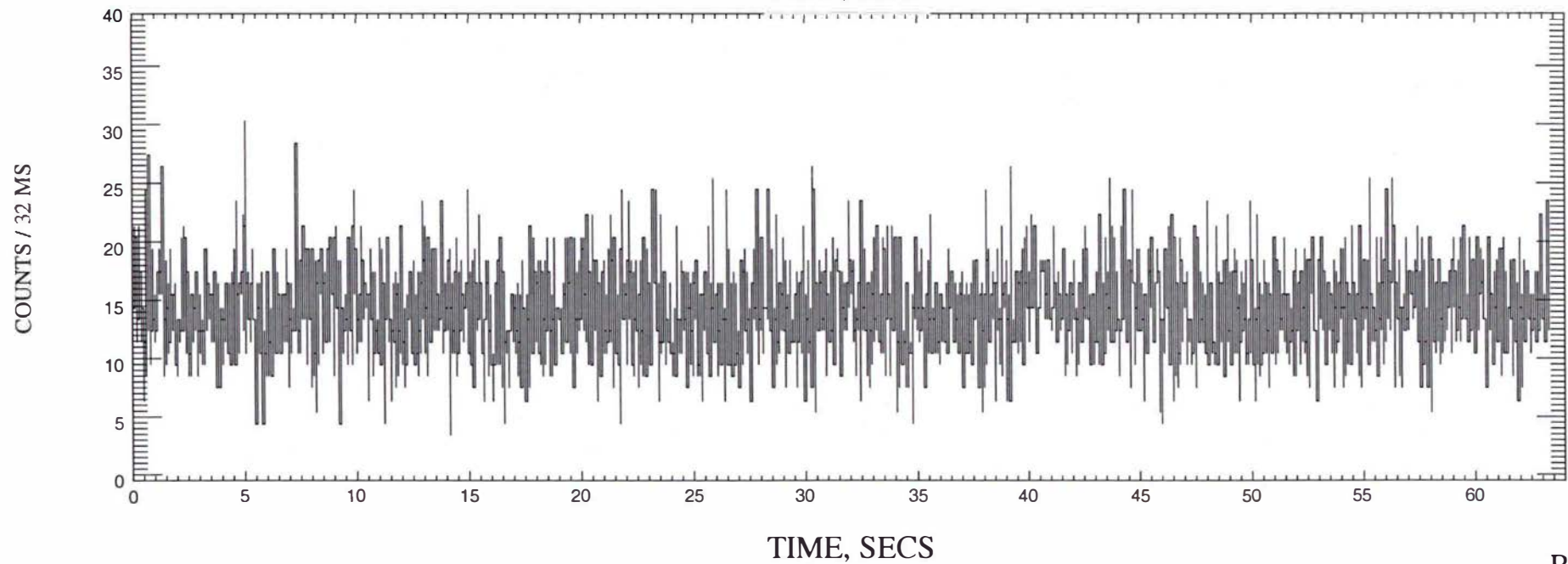
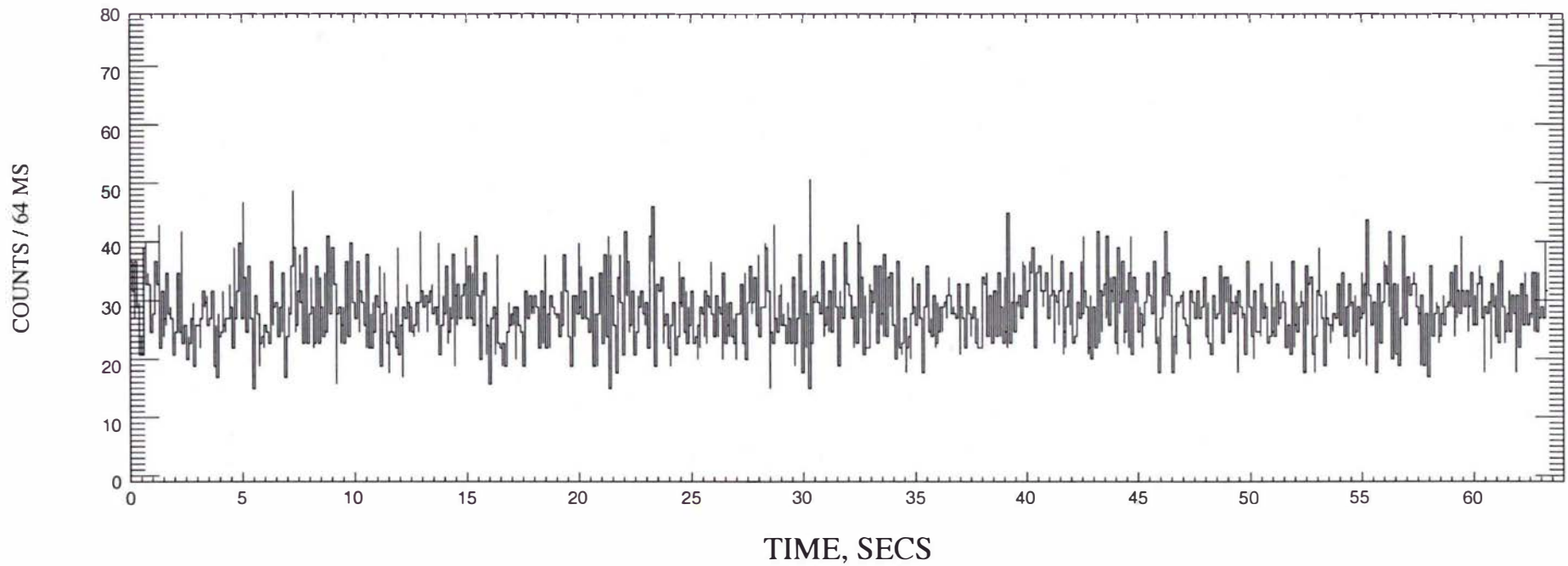
UNIVERSAL TIME

CALIBRATION DATA INCLUDED

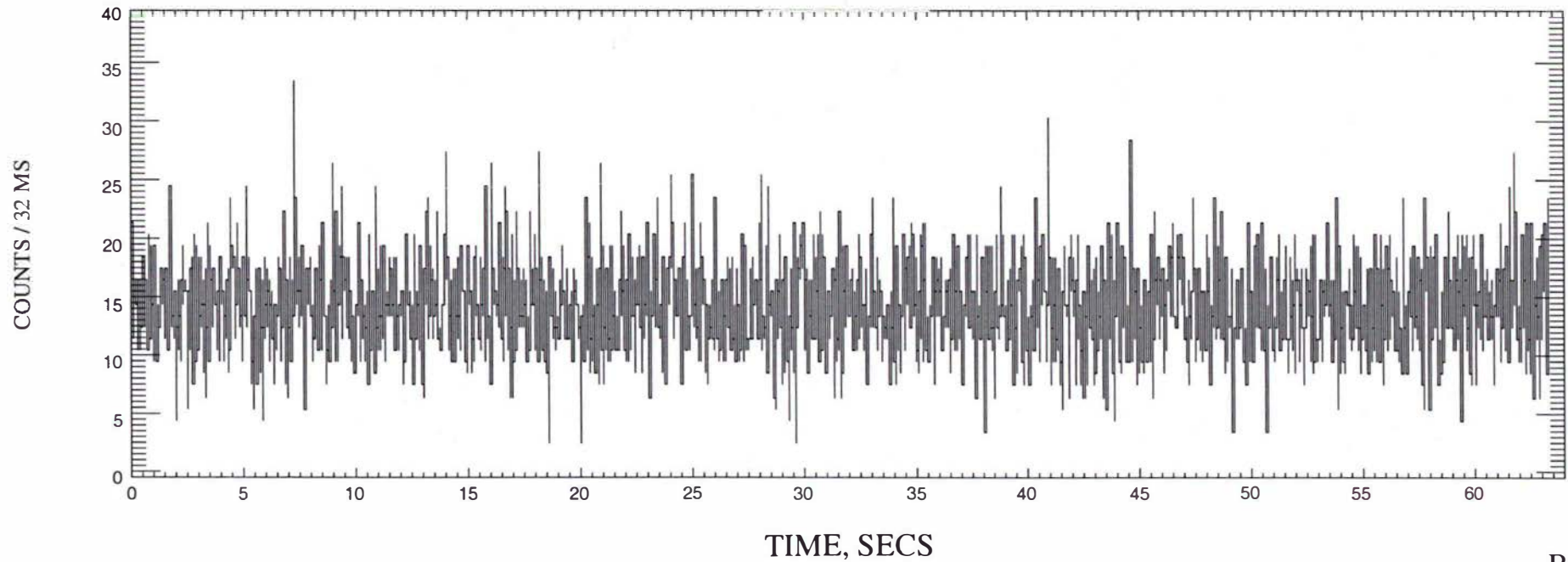
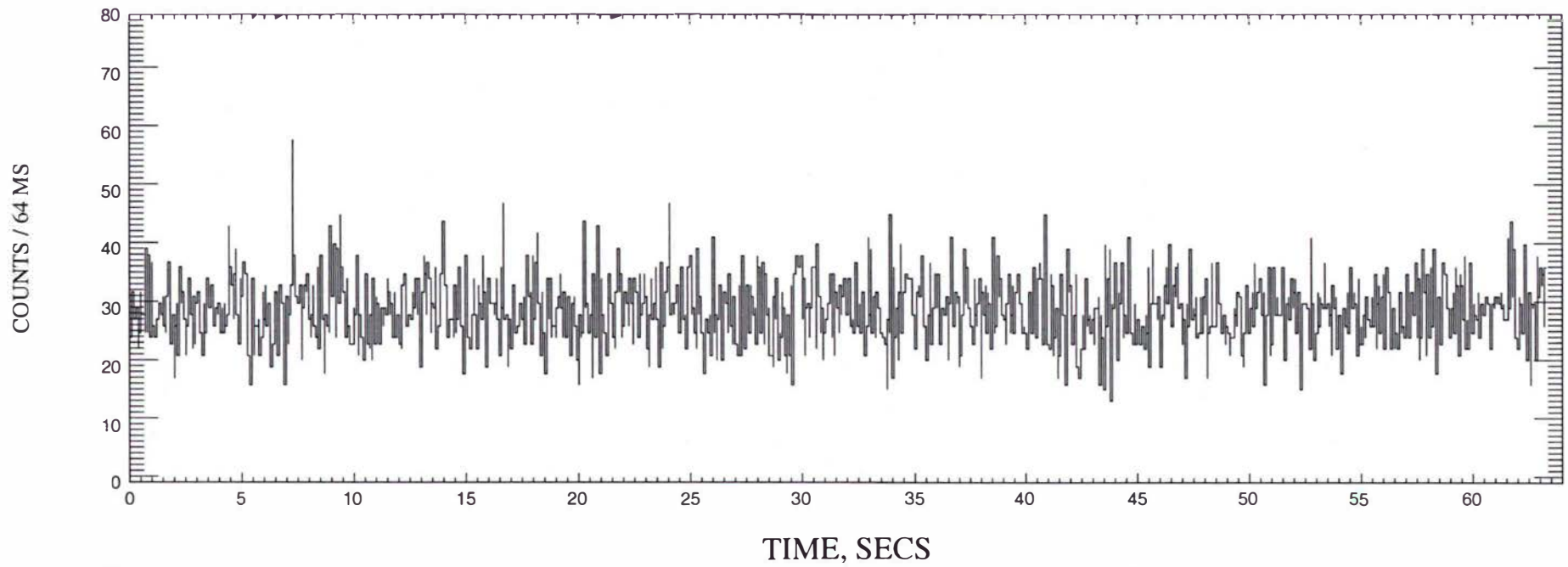


UNIVERSAL TIME

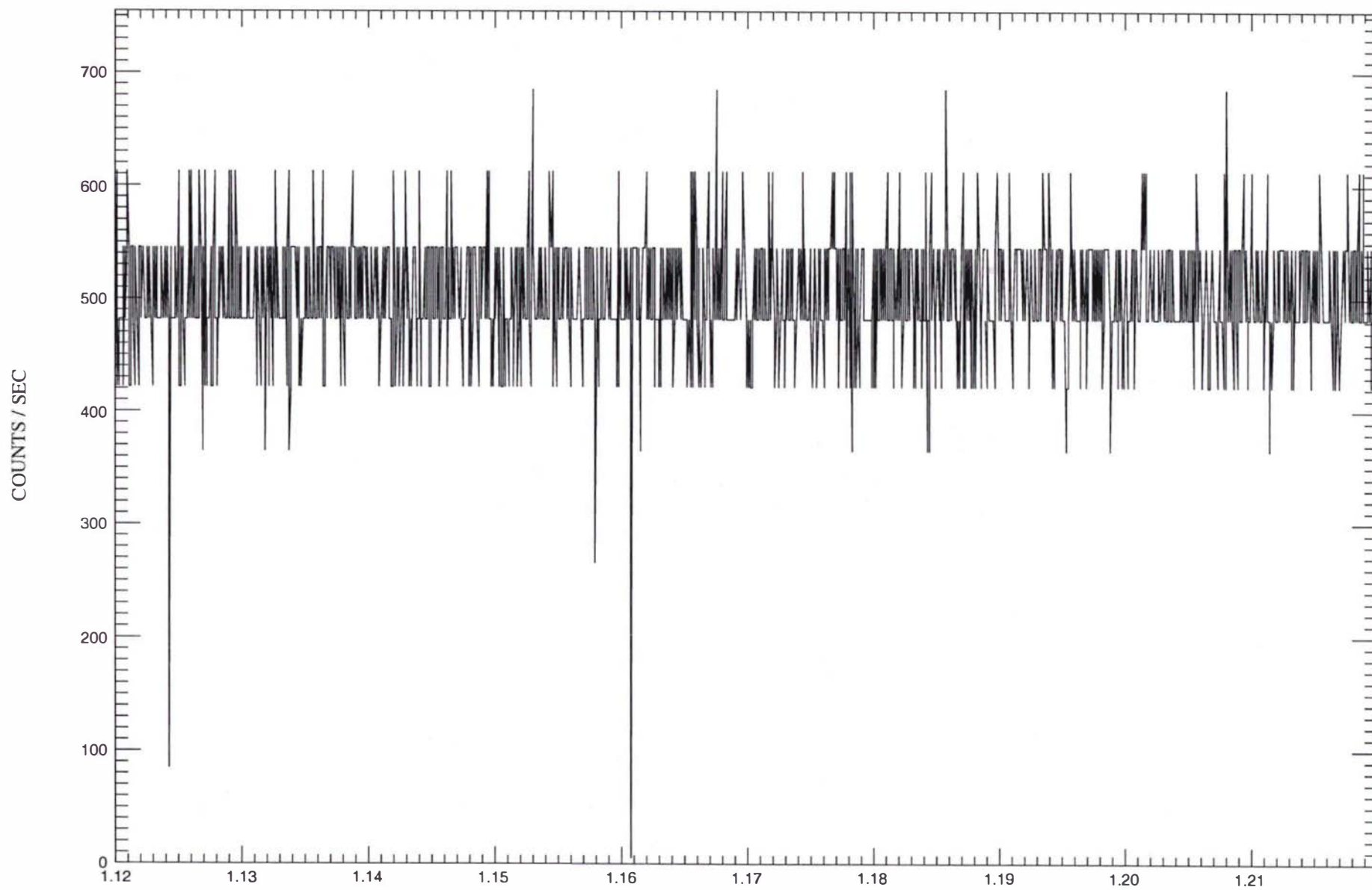
Burst Counter 14 at UT= 1.167656614516 h= 4203.564 s 01:10:03.564



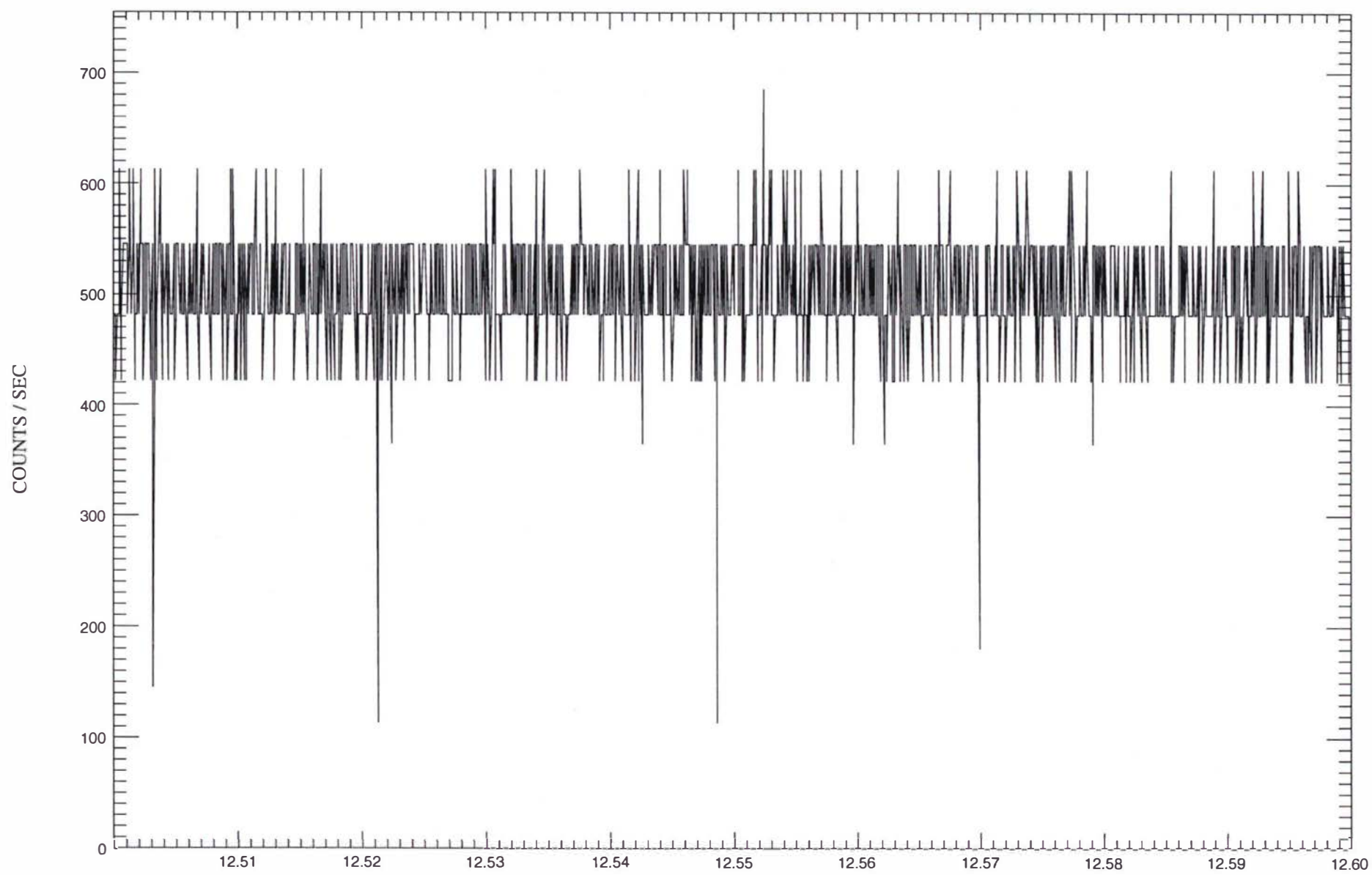
Burst Counter 15 at UT=12.552549620734 h=45189.179 s 12:33:09.179

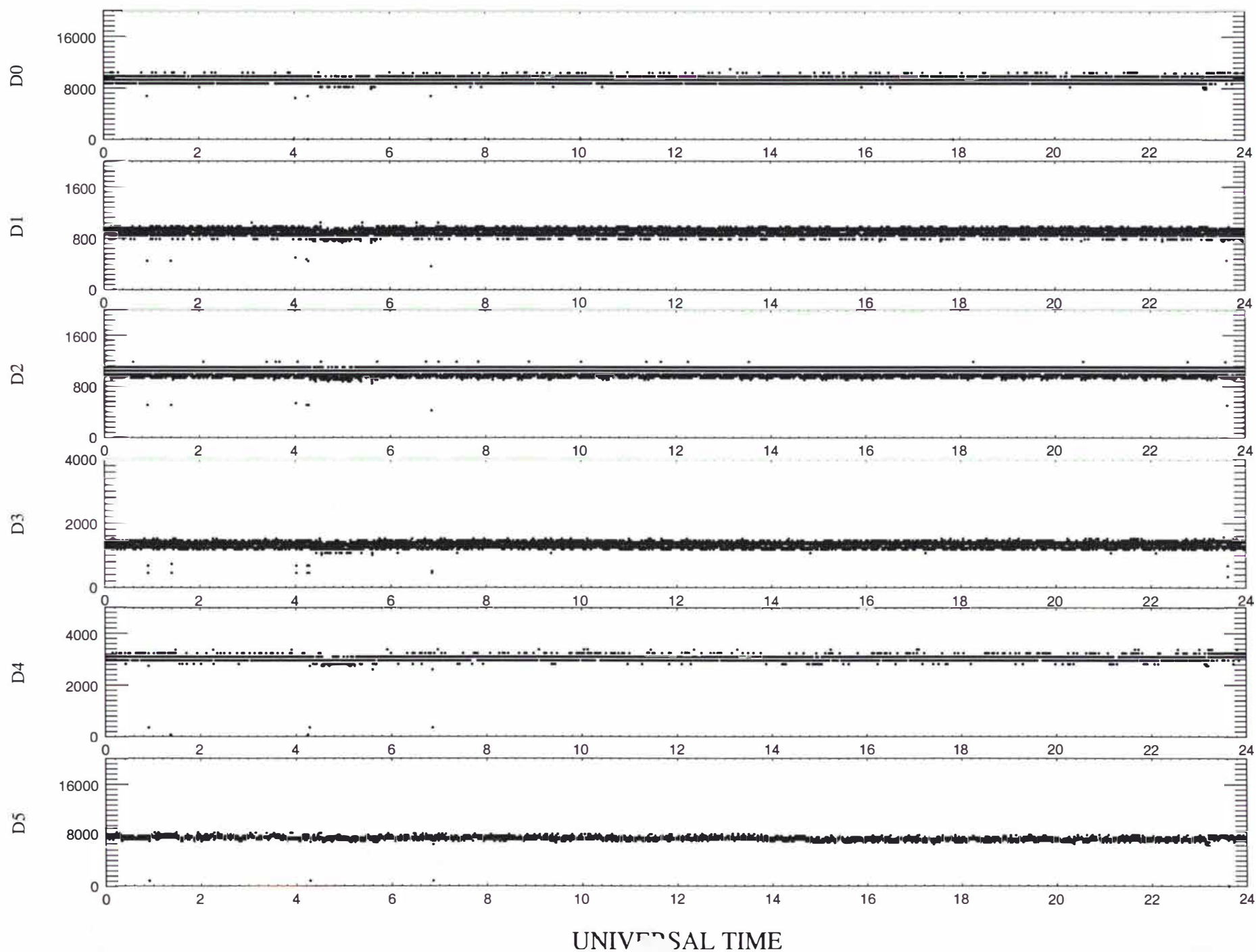


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



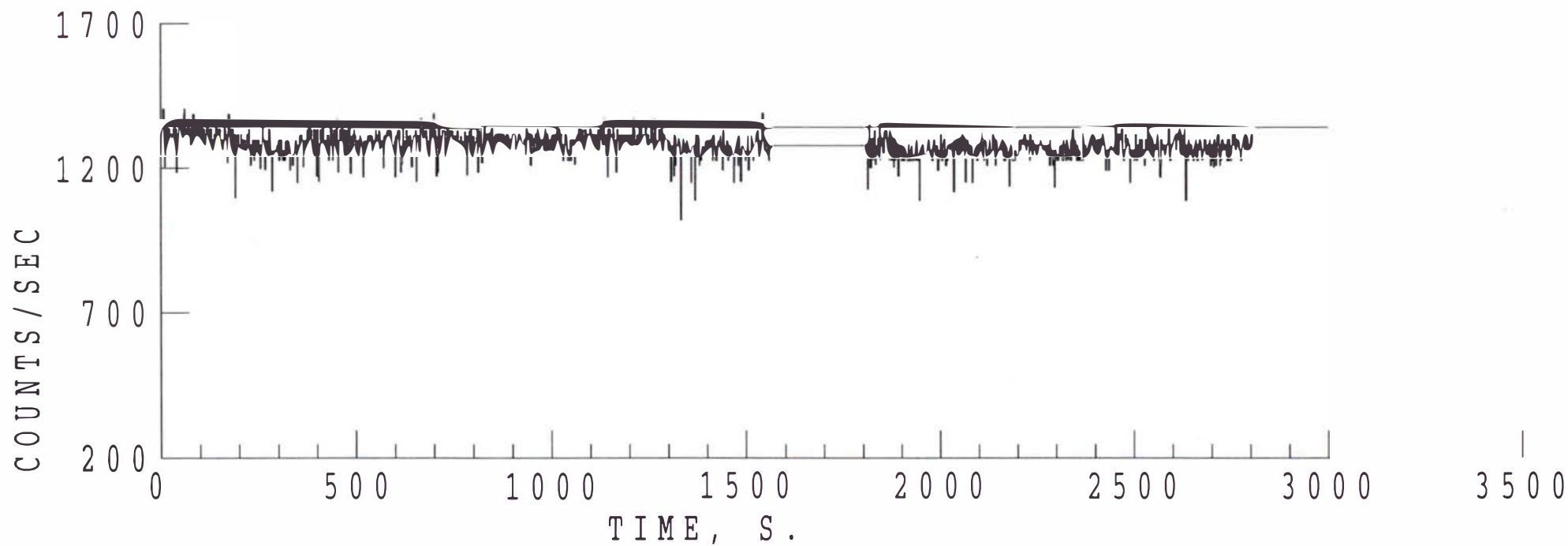


SAX GRBM
HUS DATA

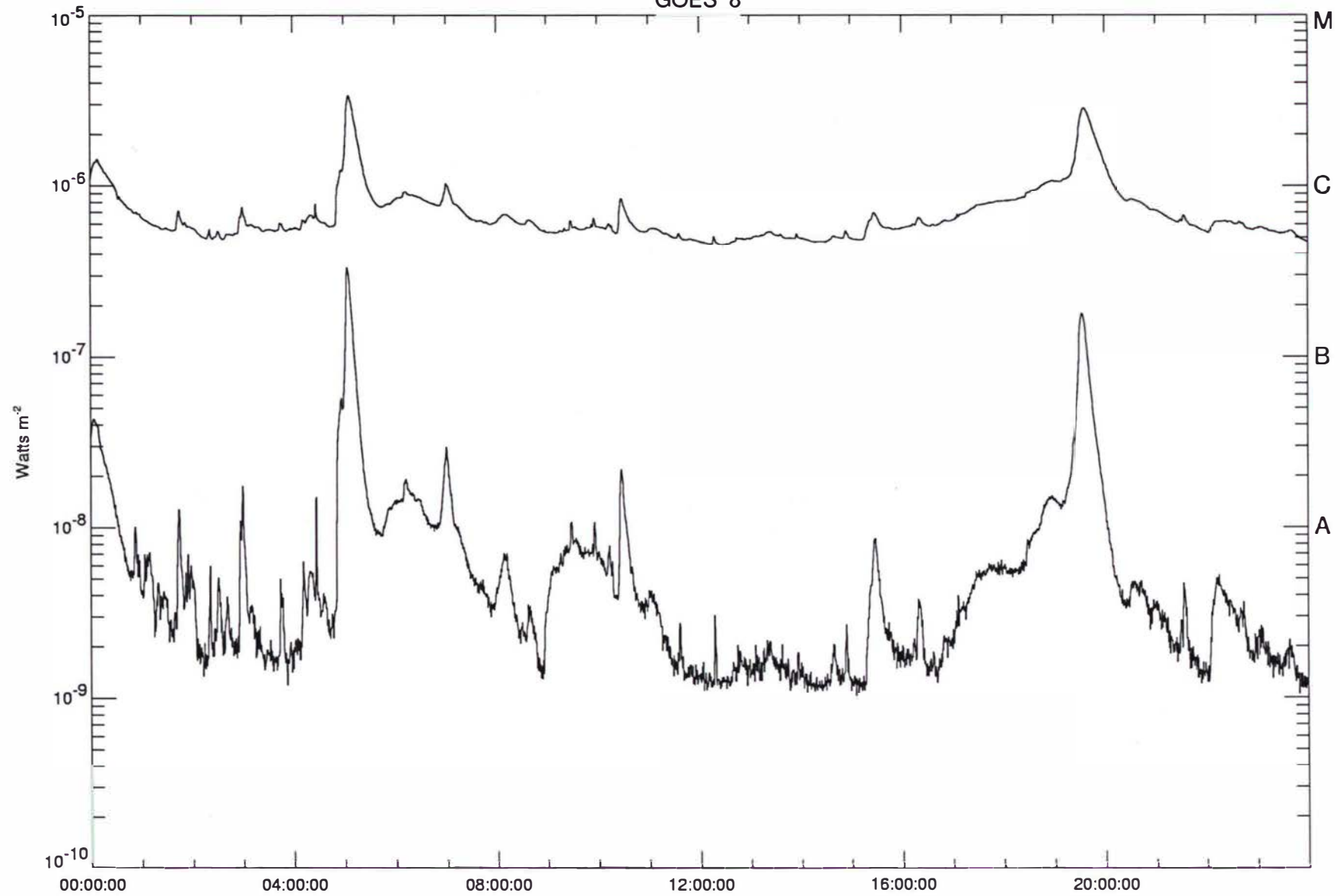
ULYSSES RT
10/11/00 42840.145 s
INTERVALS REGROUPED BY 4
0 - 0 keV

19/07/05

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



GOES 8



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

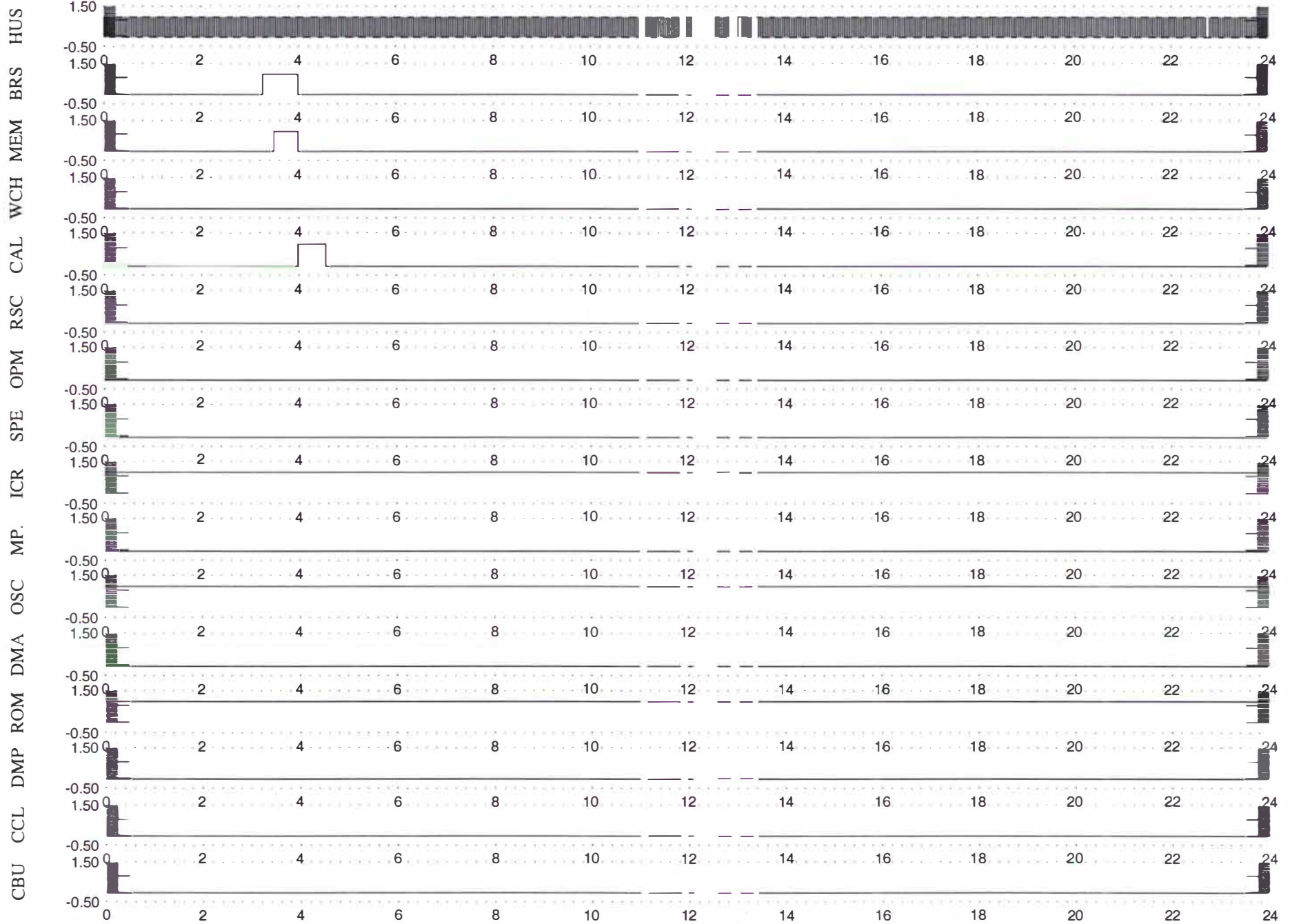
2 (0.5 - 4.0 Angstroms)

Background not subtracted

Plot created: 00/12/14, 1057

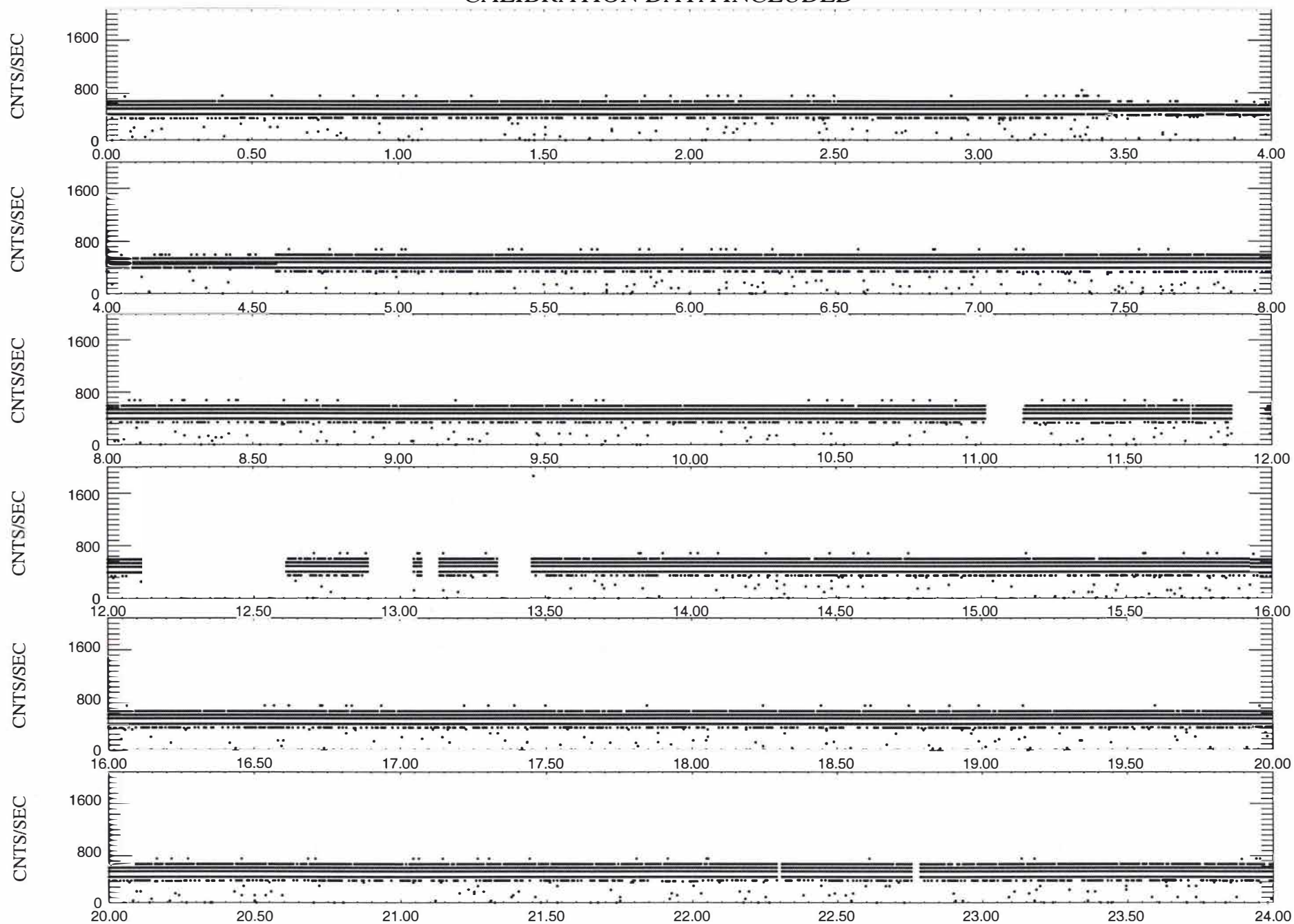
Sample average = 10

BURST NUMBER 0



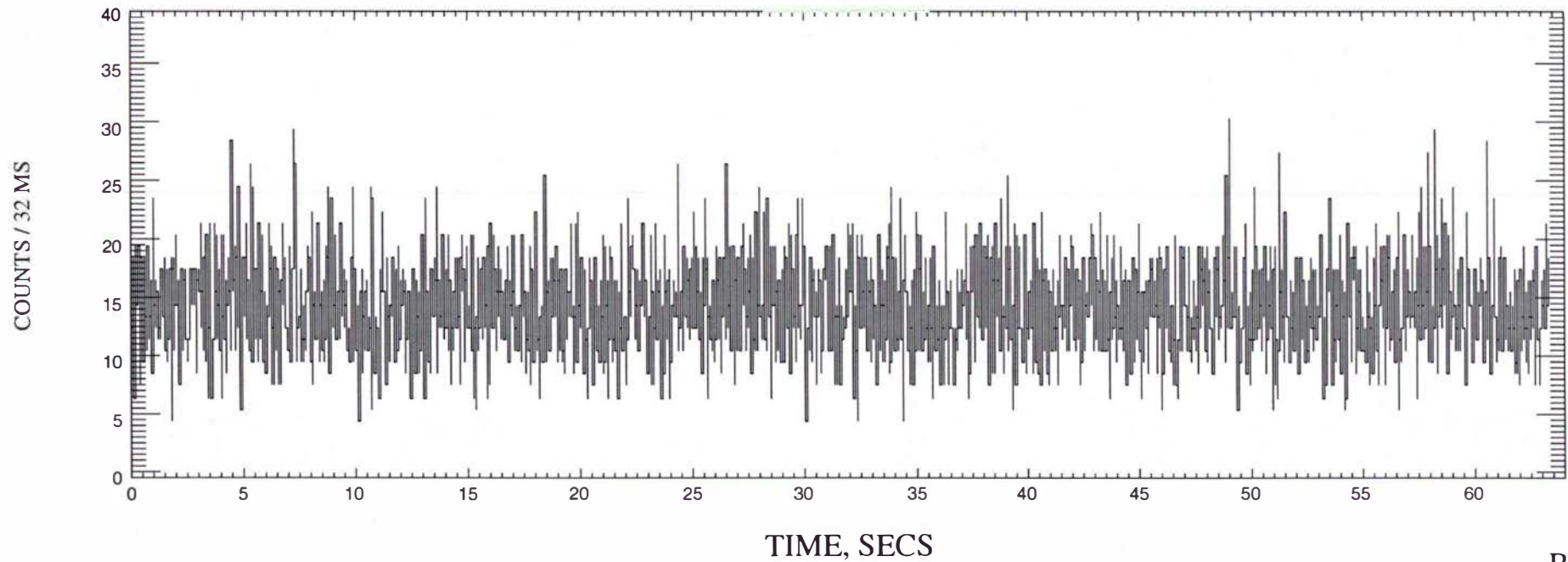
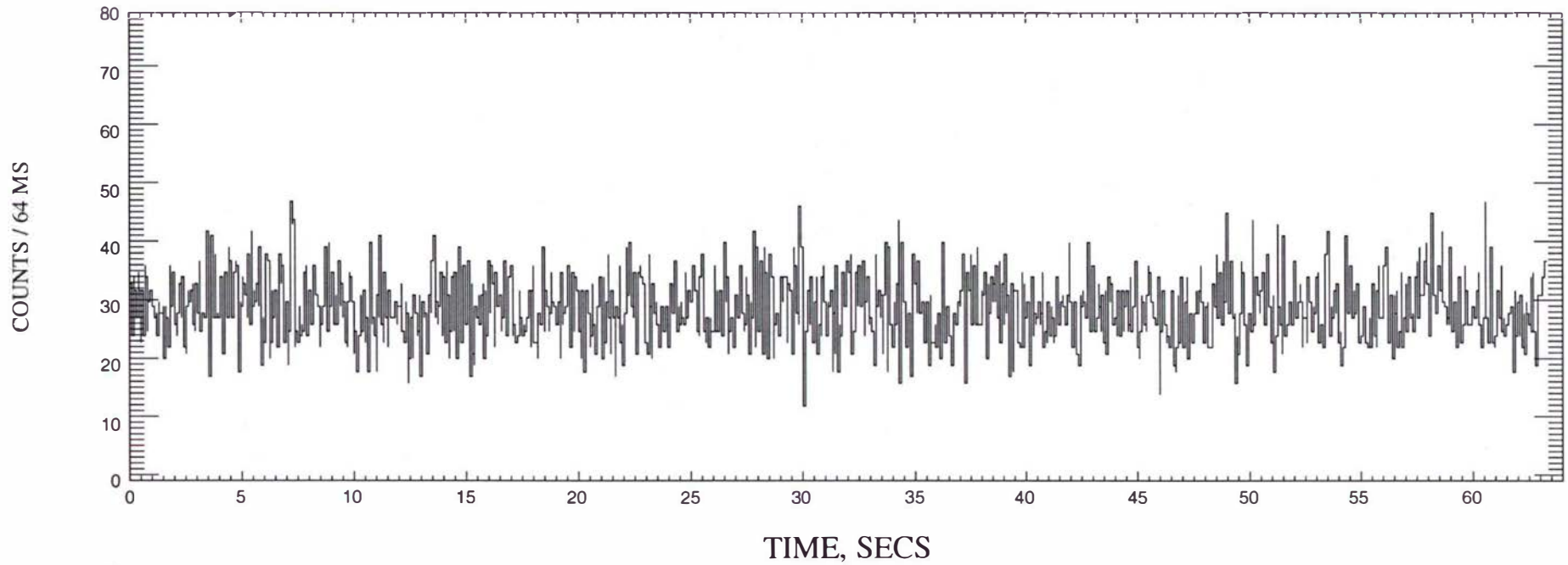
UNIVERSAL TIME

CALIBRATION DATA INCLUDED

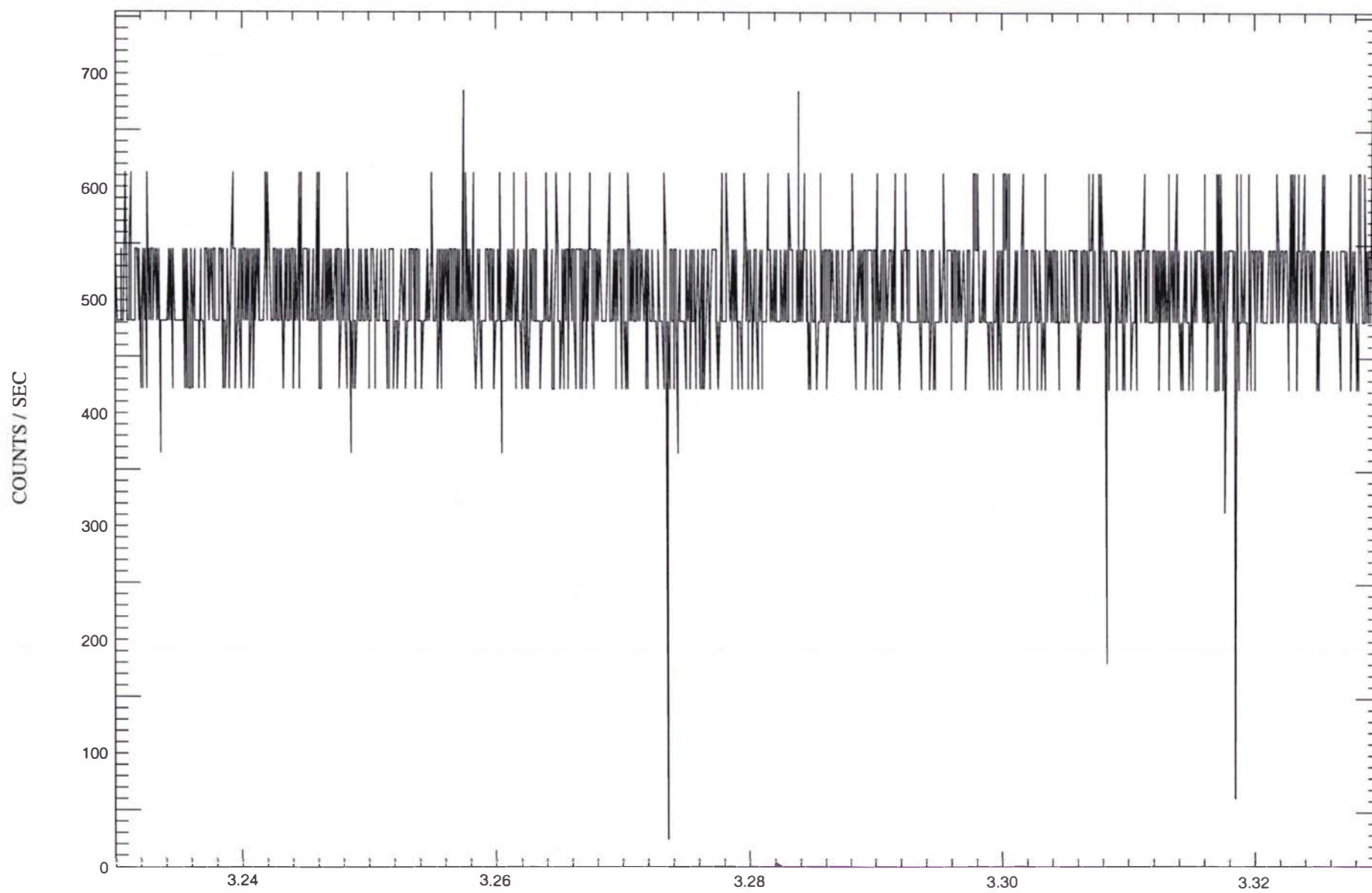


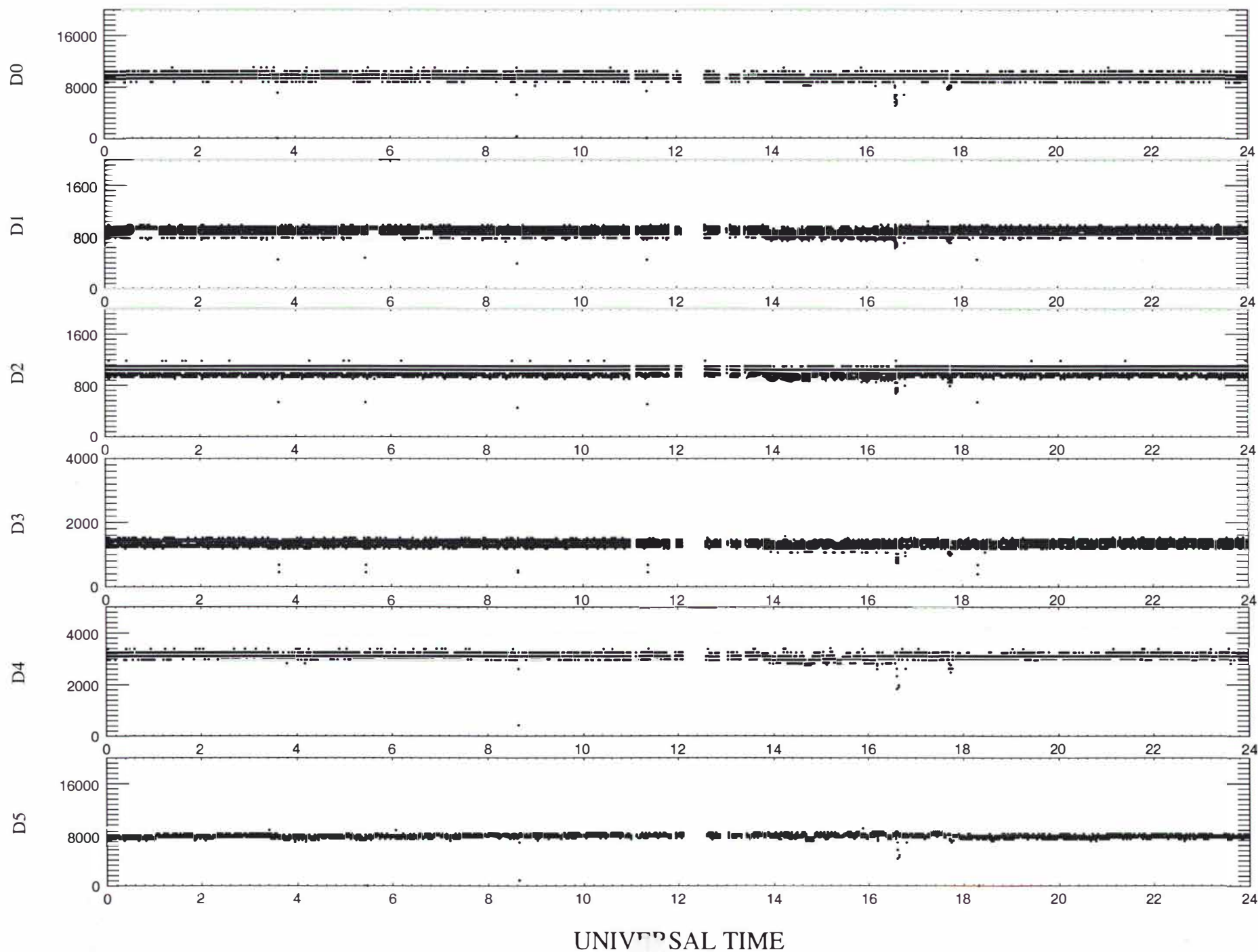
UNIVERSAL TIME

Burst Counter 0 at UT= 3.283985845778 h=11822.349 s 03:17:02.349

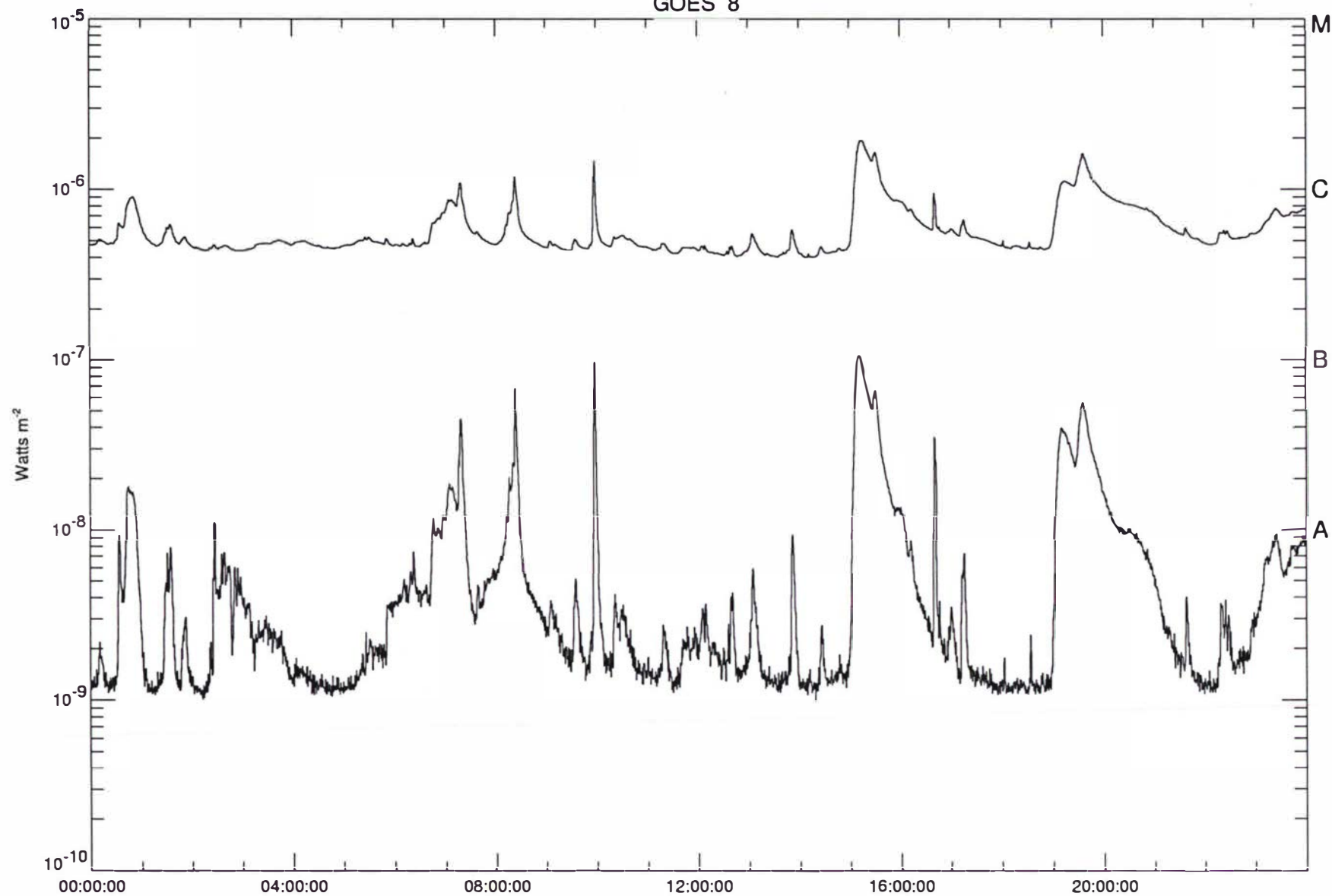


CALIBRATION DATA INCLUDED





GOES 8



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

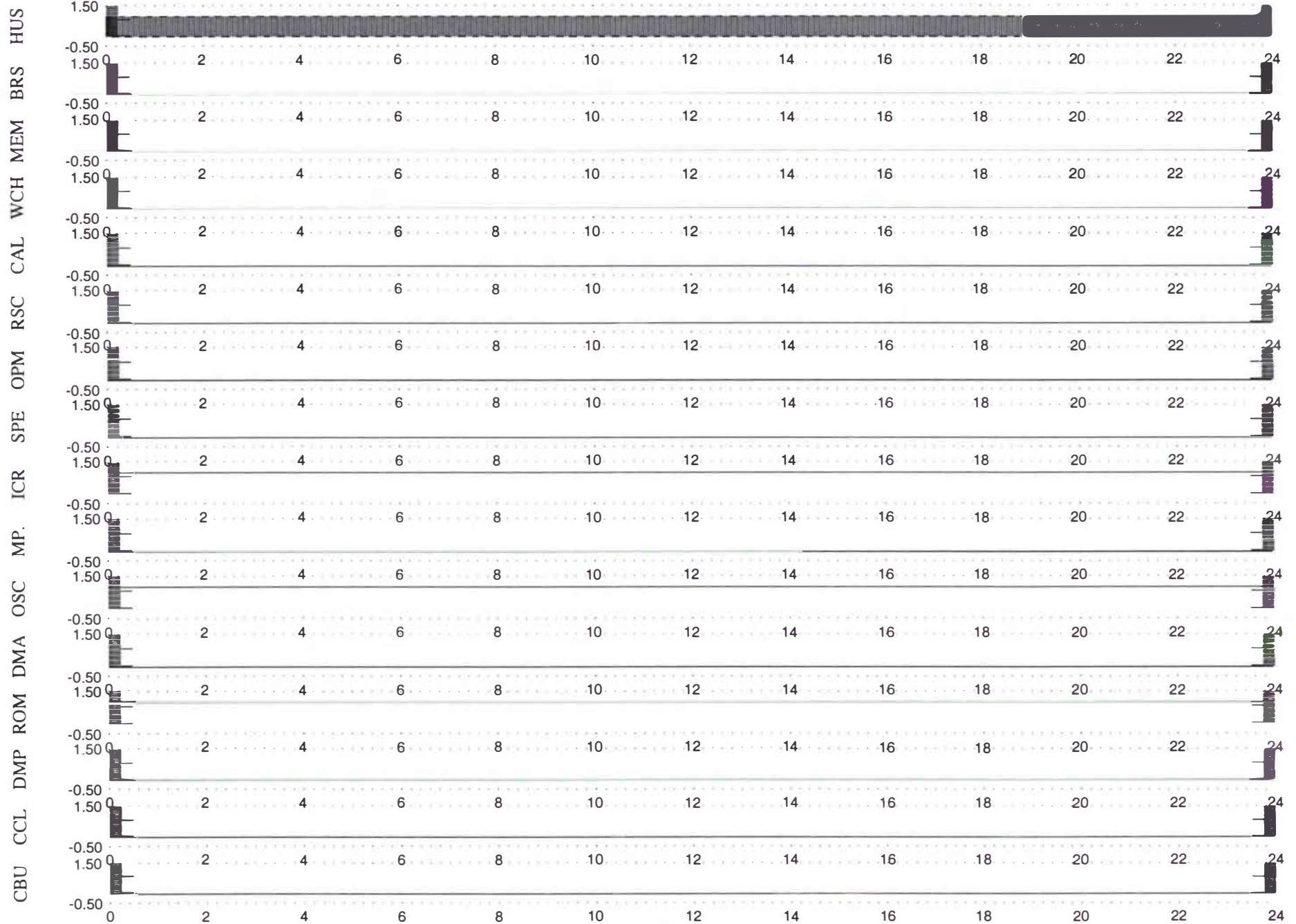
2 (0.5 - 4.0 Angstroms)

Background not subtracted

Plot created: 00/12/15, 1102

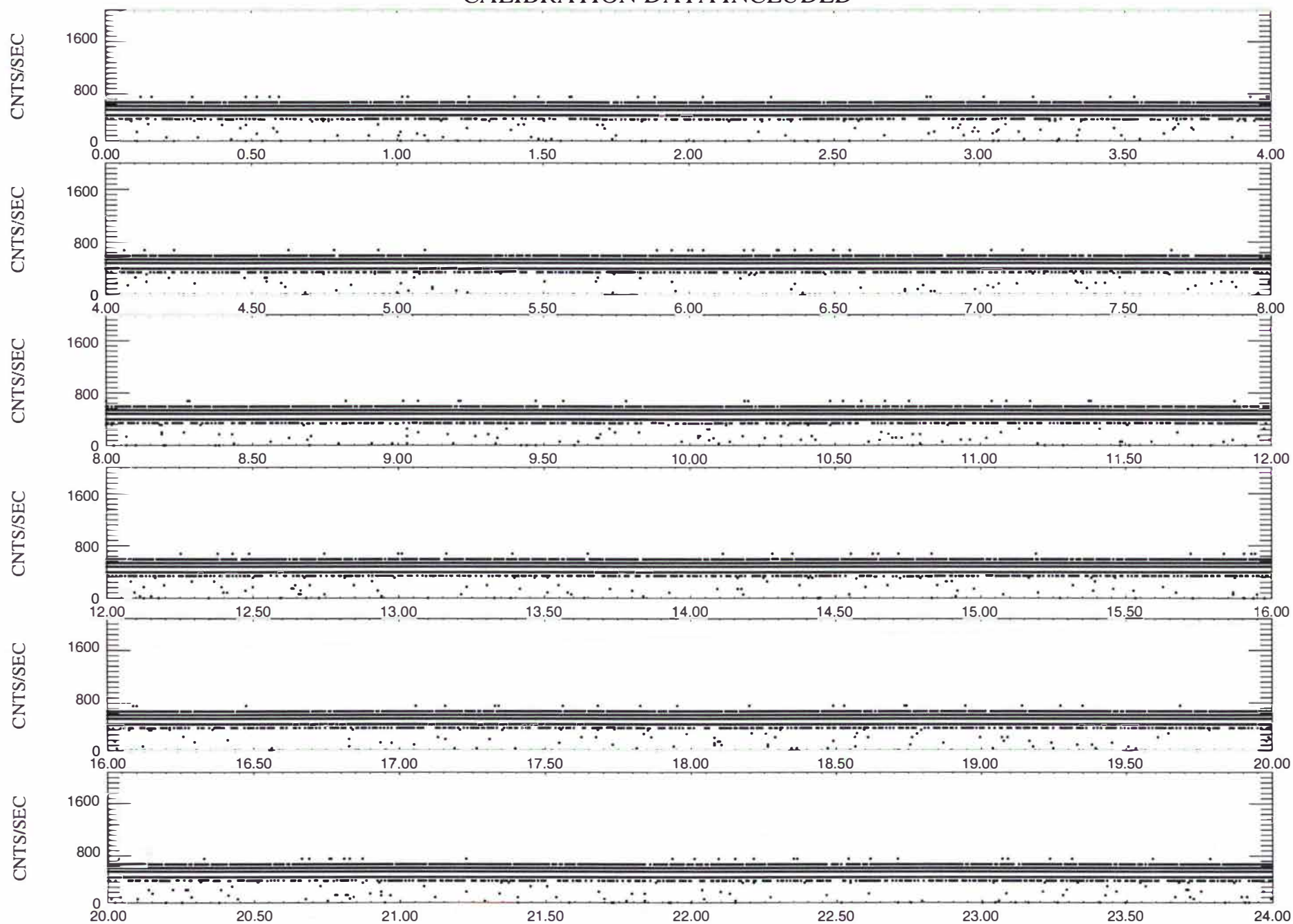
Sample average = 10

NO BURST (0)

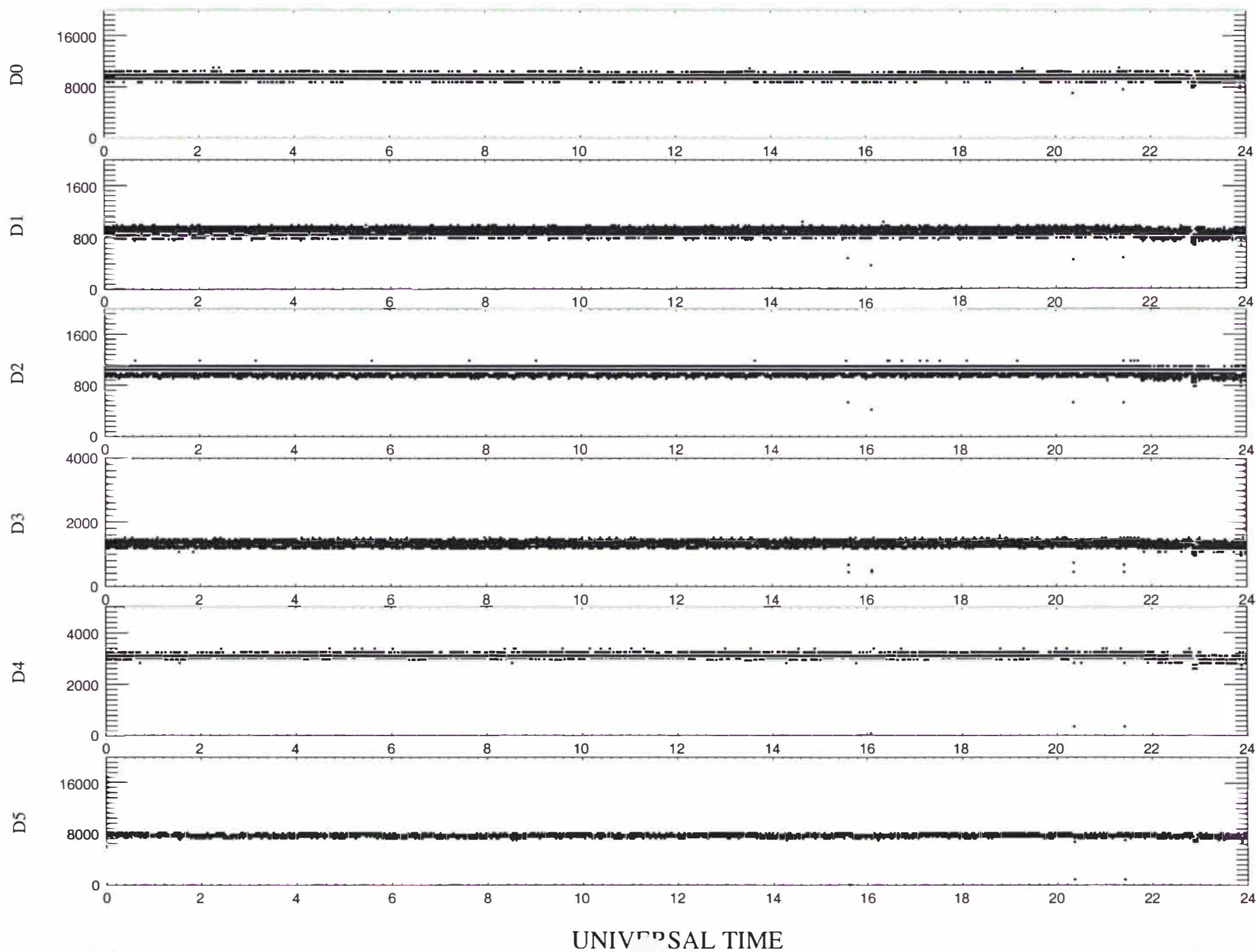


UNIVERSAL TIME

CALIBRATION DATA INCLUDED



UNIVERSAL TIME



Date: Oct 09 2017

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 KONUS

2 NEAR

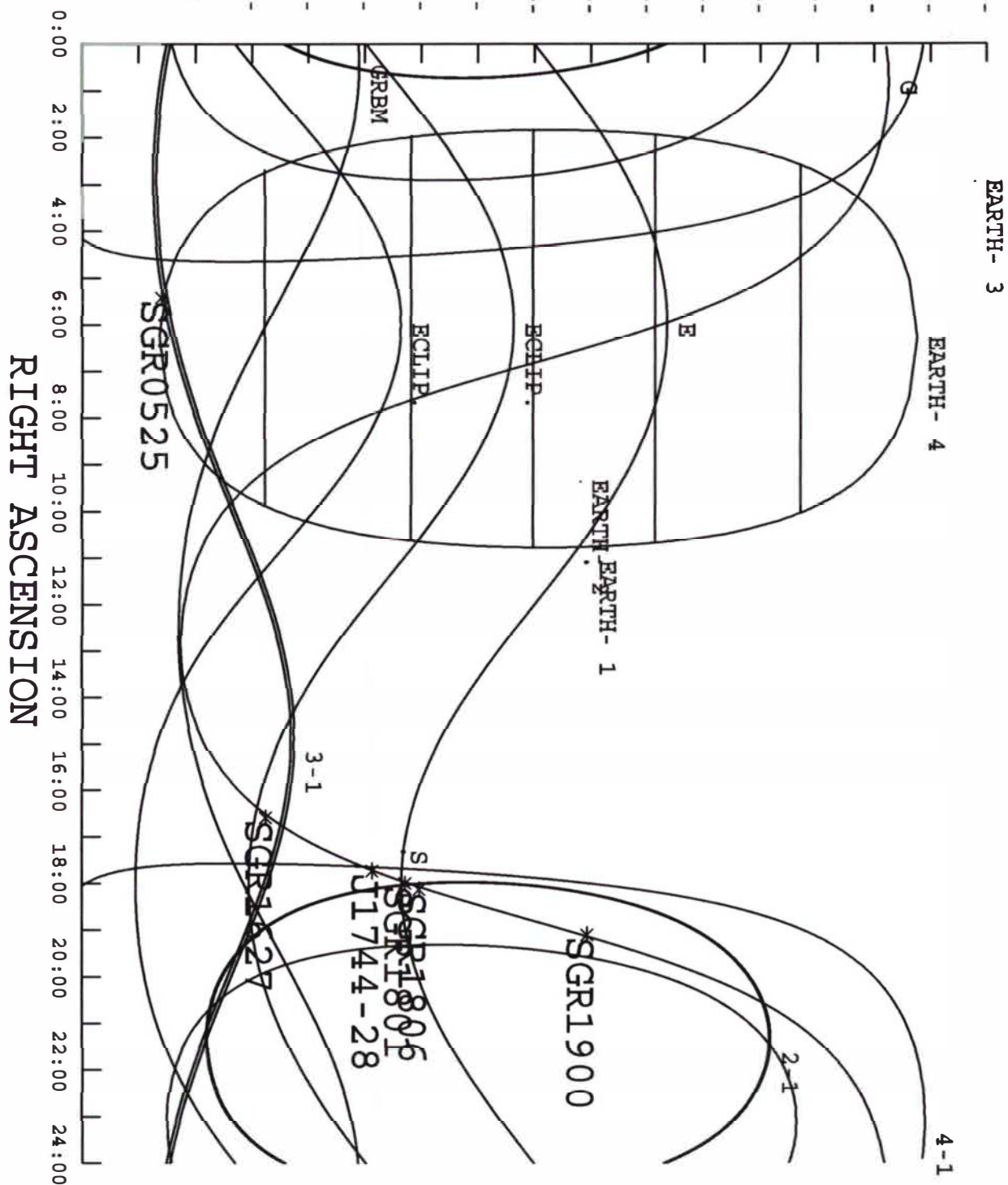
3 ULYSSES

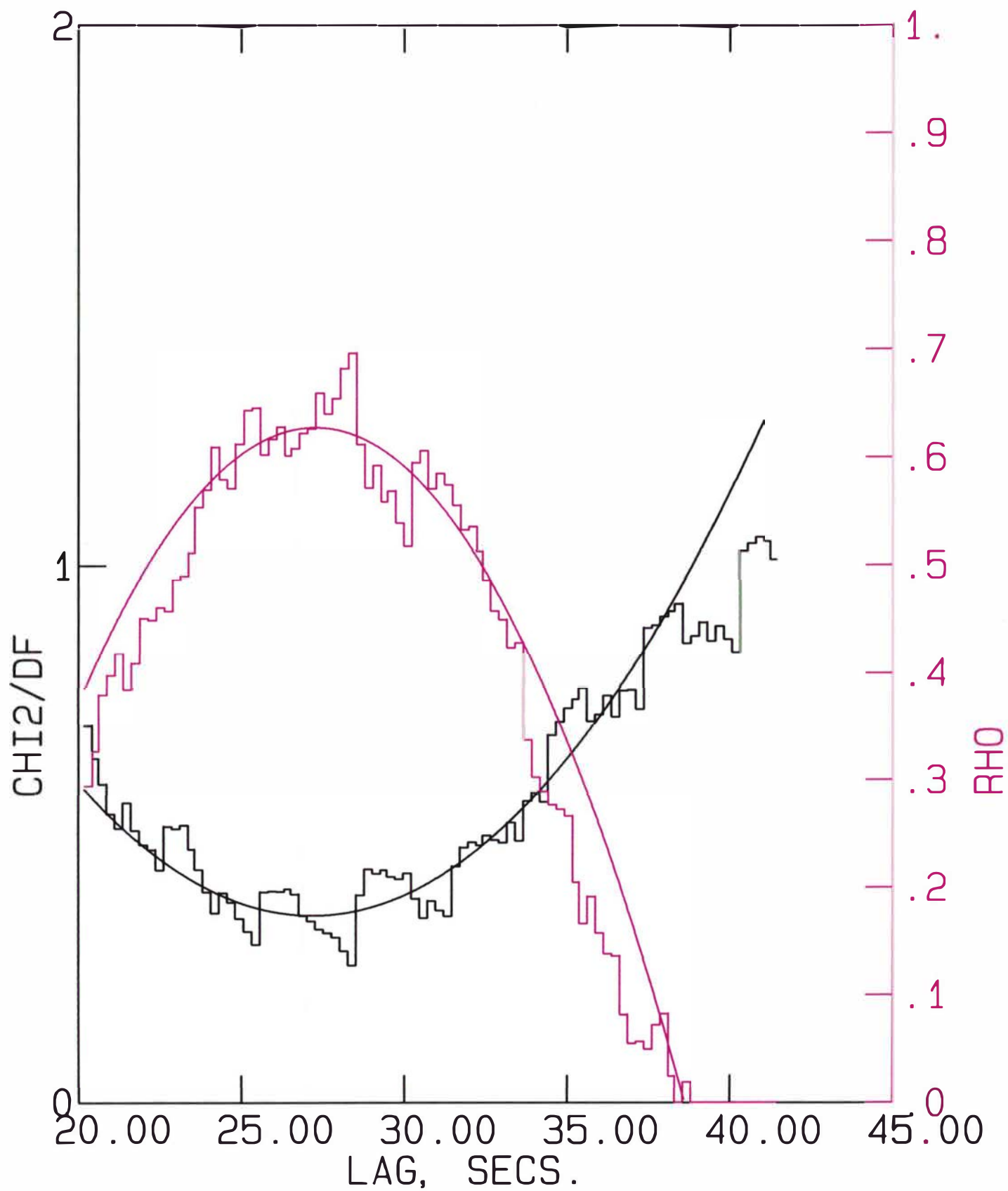
4 SAX

DECLINATION

EVENT OF DEC 12, 2000 9:30

9/10/ 7





KONUS

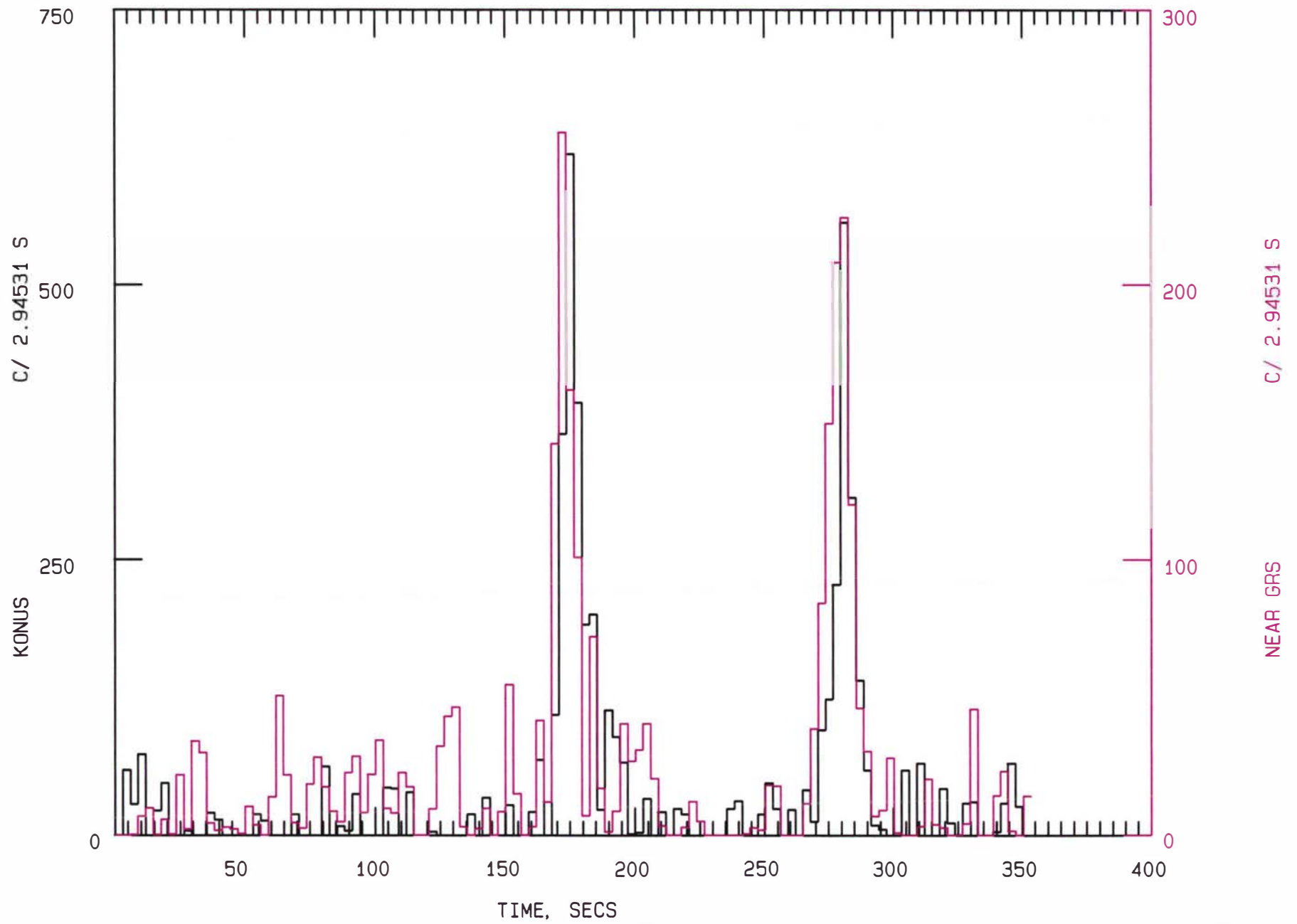
-NEAR GRS

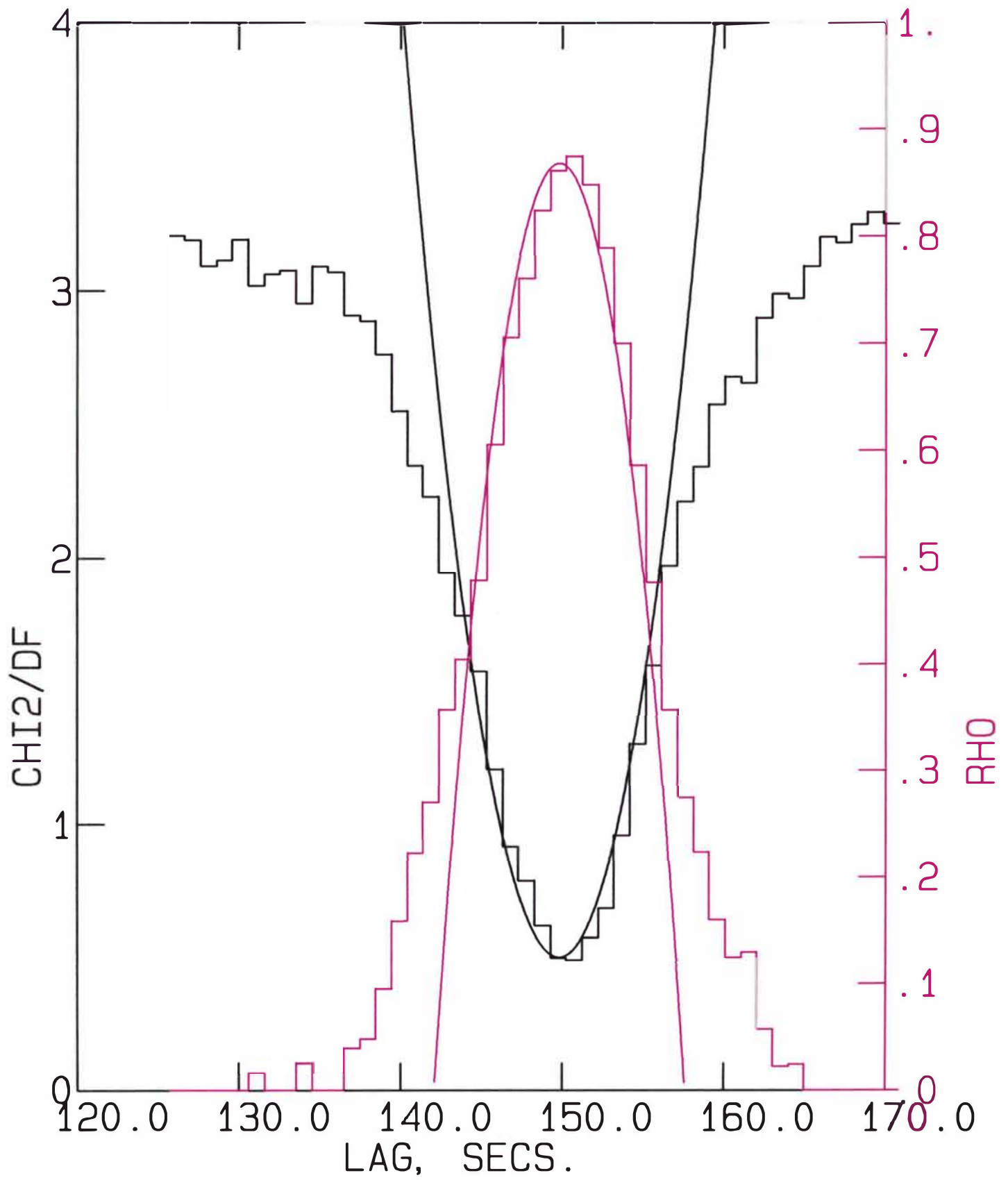
CORRELATION

12/12/00

34249.086

9/10/ 7





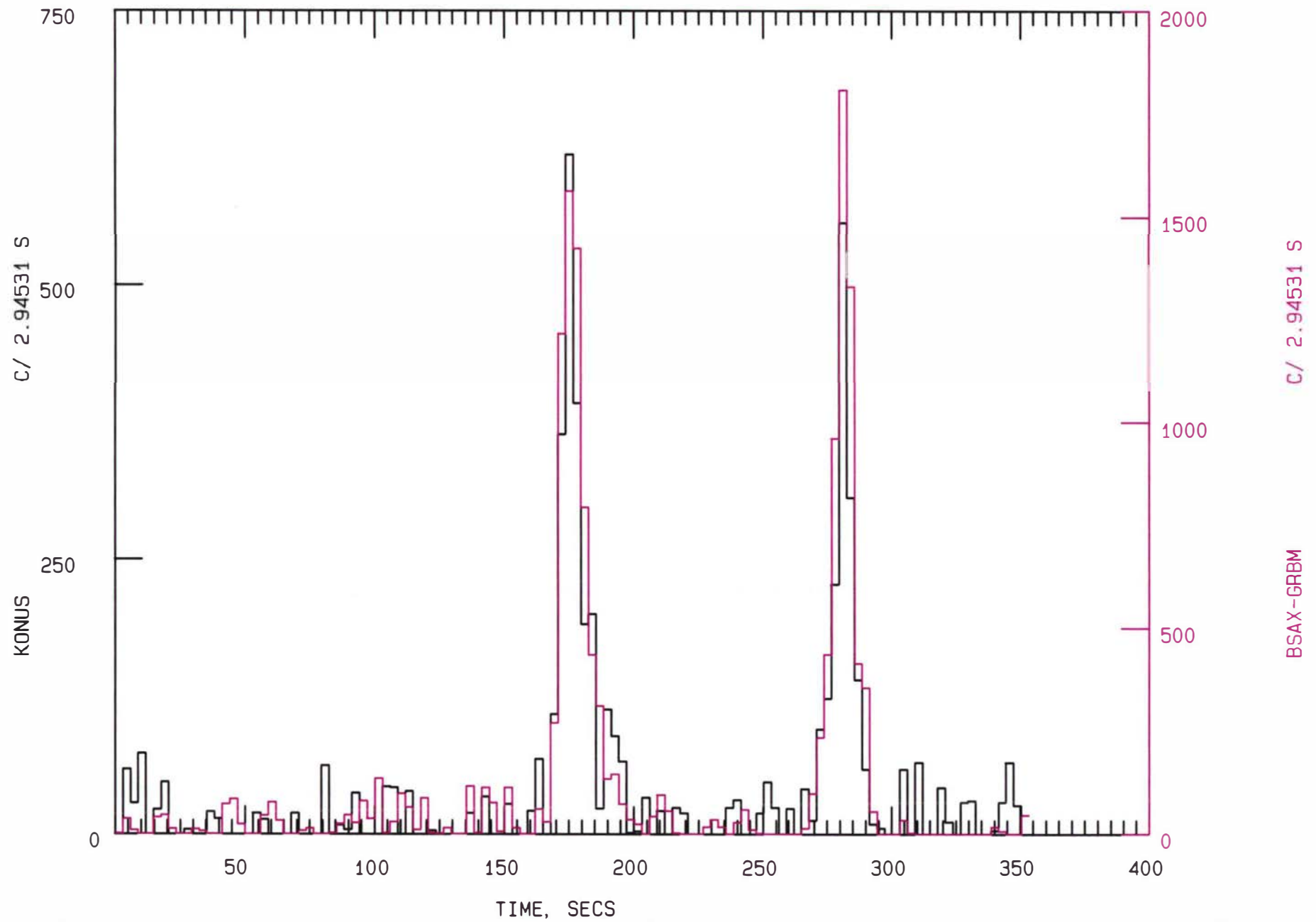
KONUS

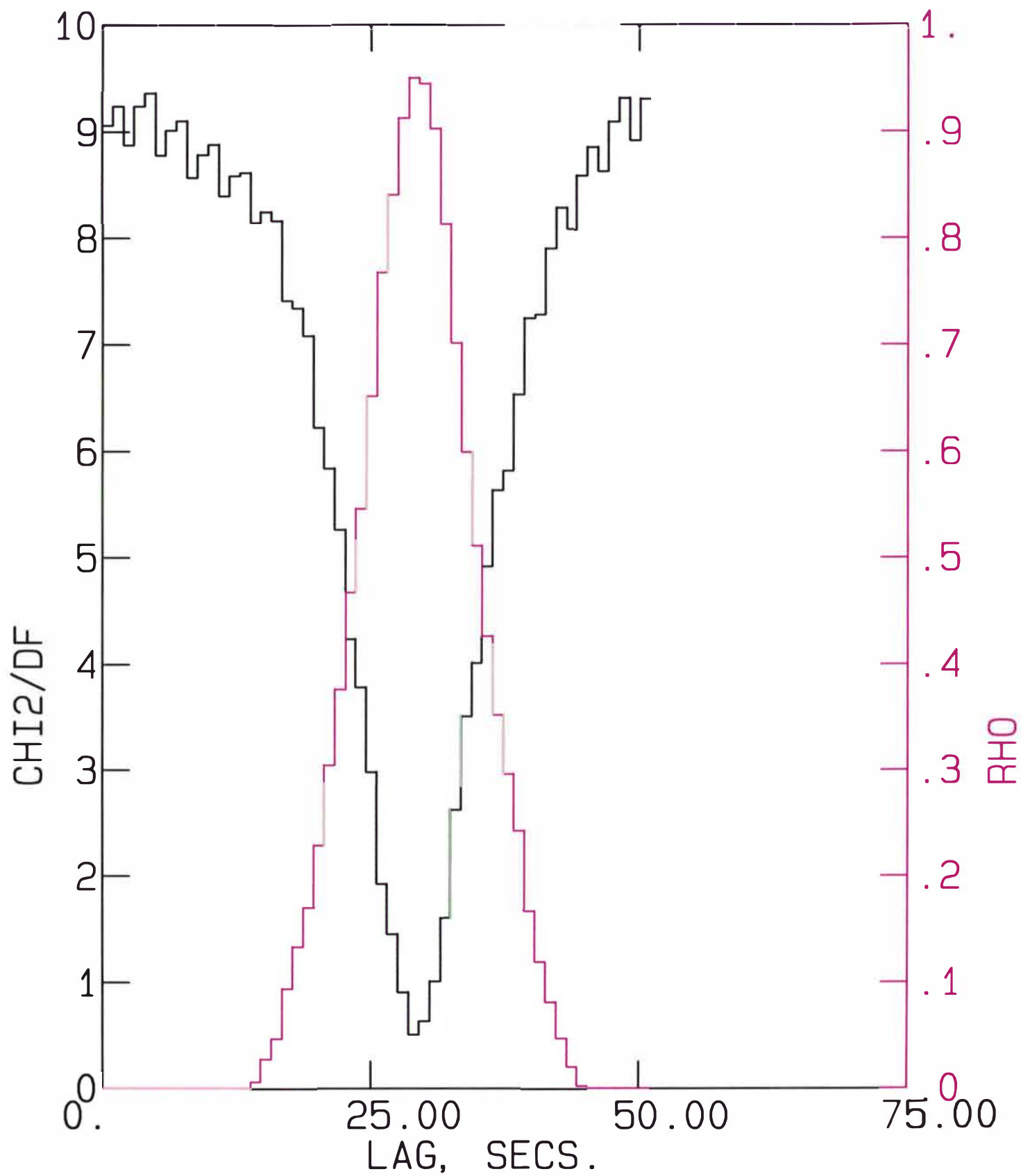
-BSAX-GRBM CORRELATION

12/12/00

34249.086

9/10/ 7





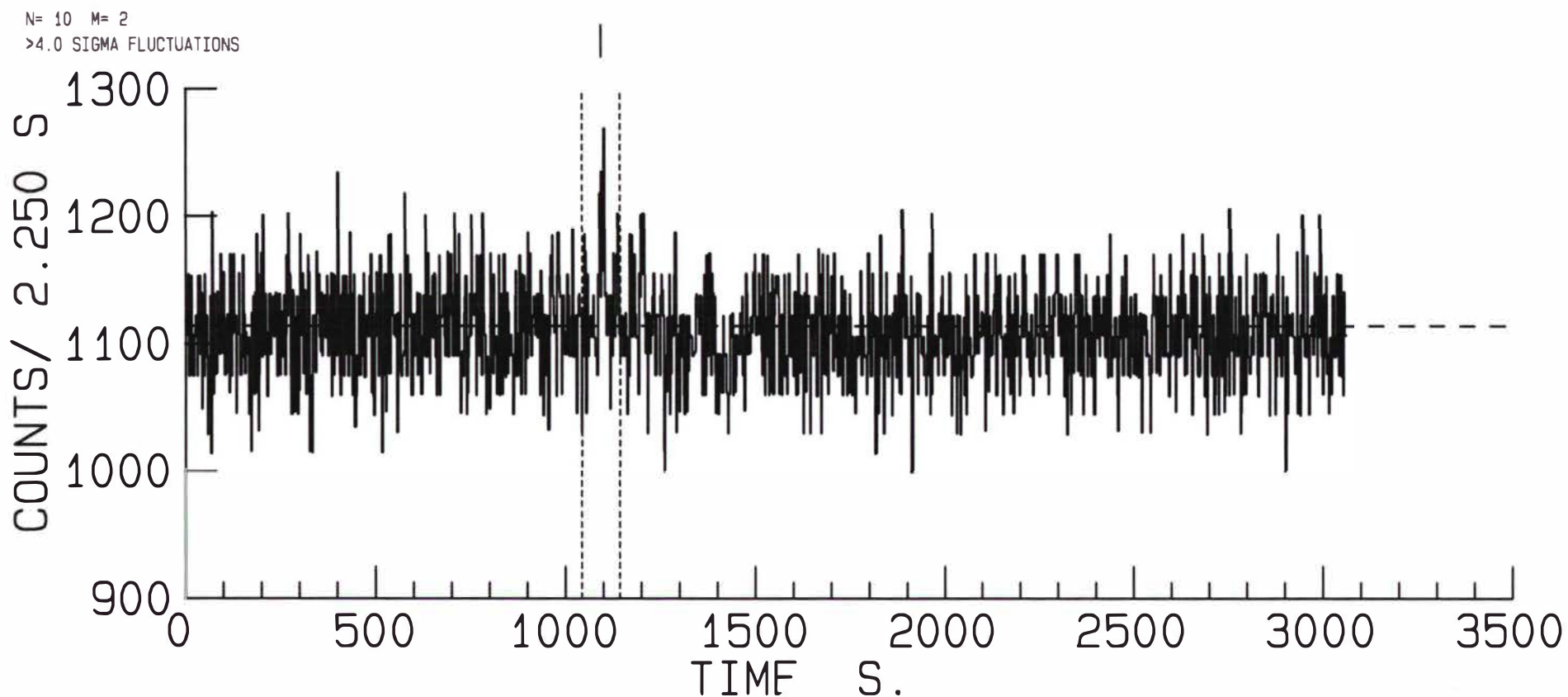
ULYSSES RT

9/10/ 7

12/12/ 0 32292.133 s

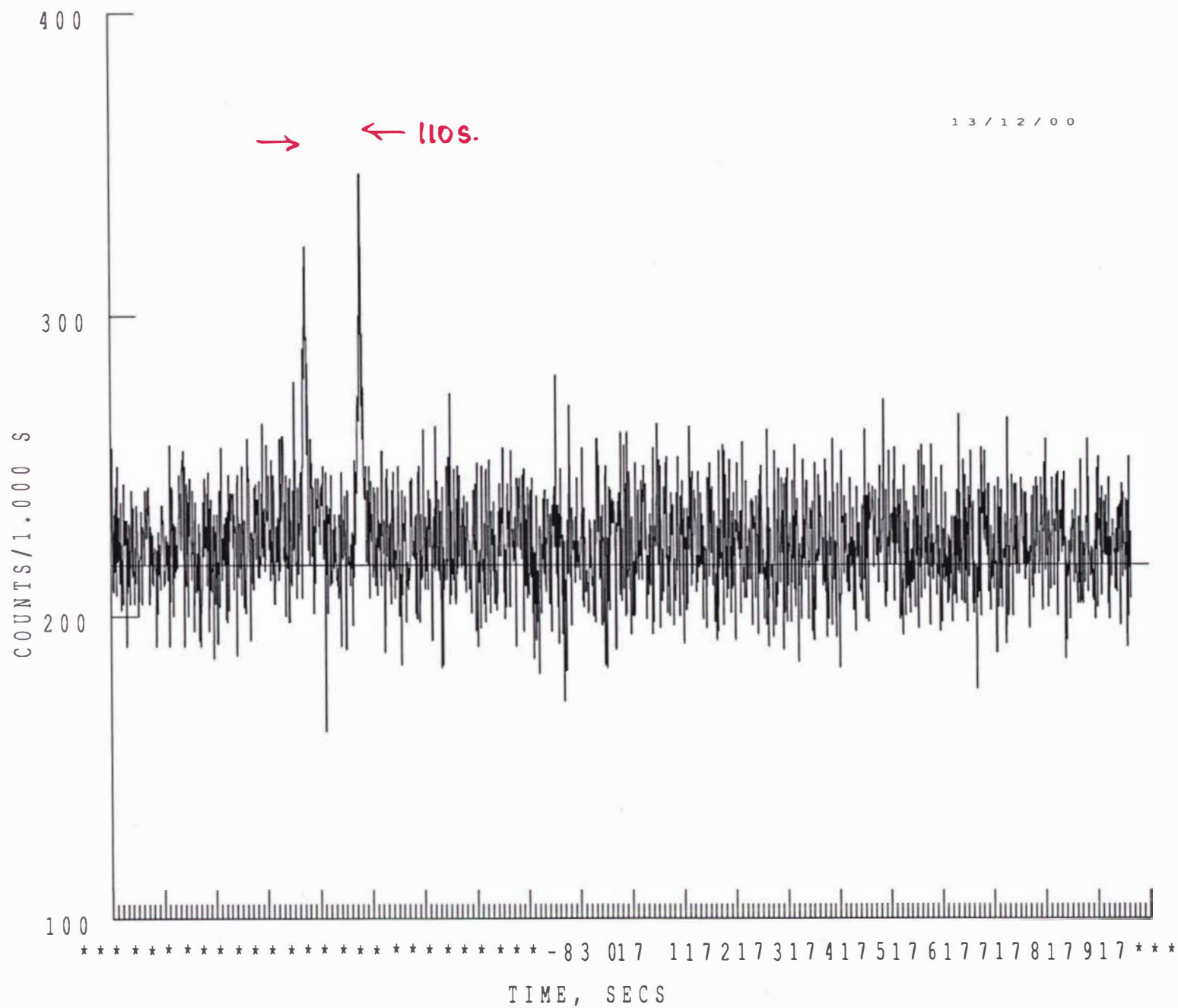
0.250 S INTERVALS REGROUPED BY 9

23- 158 keV



12/12/00 34422.142
100-1000 keV

NEAR



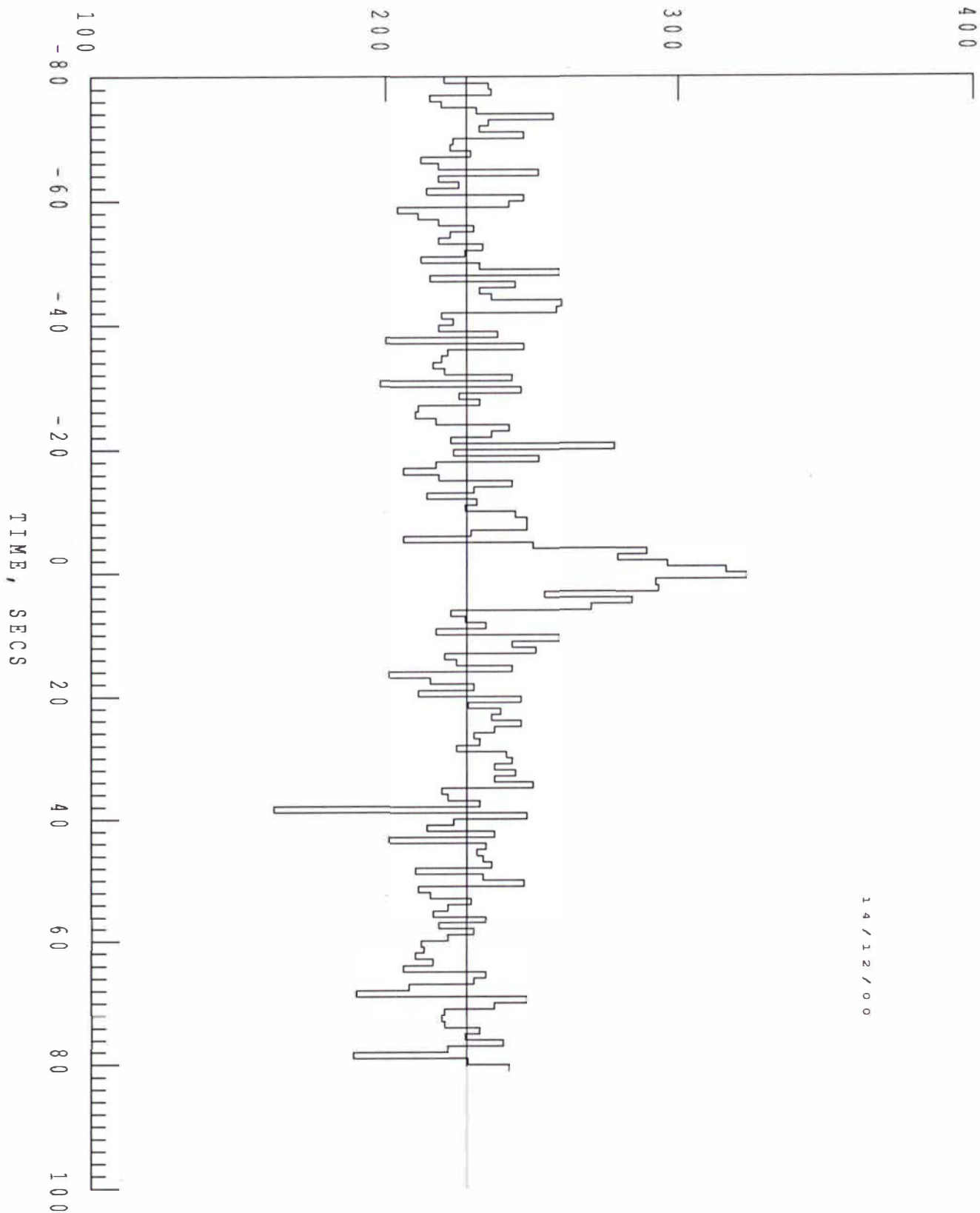
NEAR

12/12/00

33812.142

100-1000 keV

COUNTS/1.000 S



14/12/00

KONUS

12/12/00 34249.086

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.945 S

4400

3400

2400

1400

400

50

100

150

200

250

300

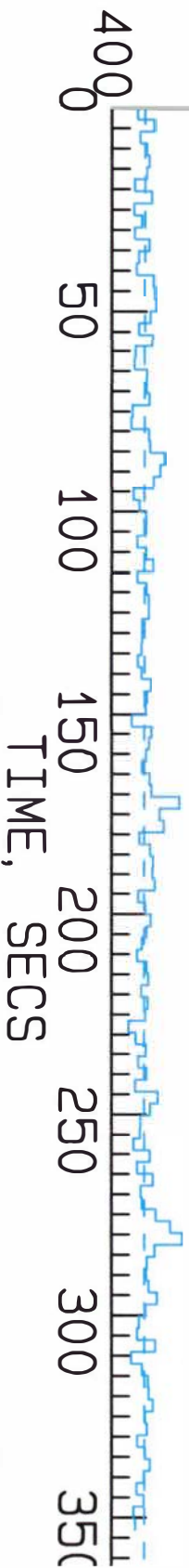
350

DETECTOR 1 - S. ECLIPPTIC

Trigger ↑

09/10/07

TIME, SECS



KONUS

12/12/00 34249.086

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.945 S

4400

3400

2400

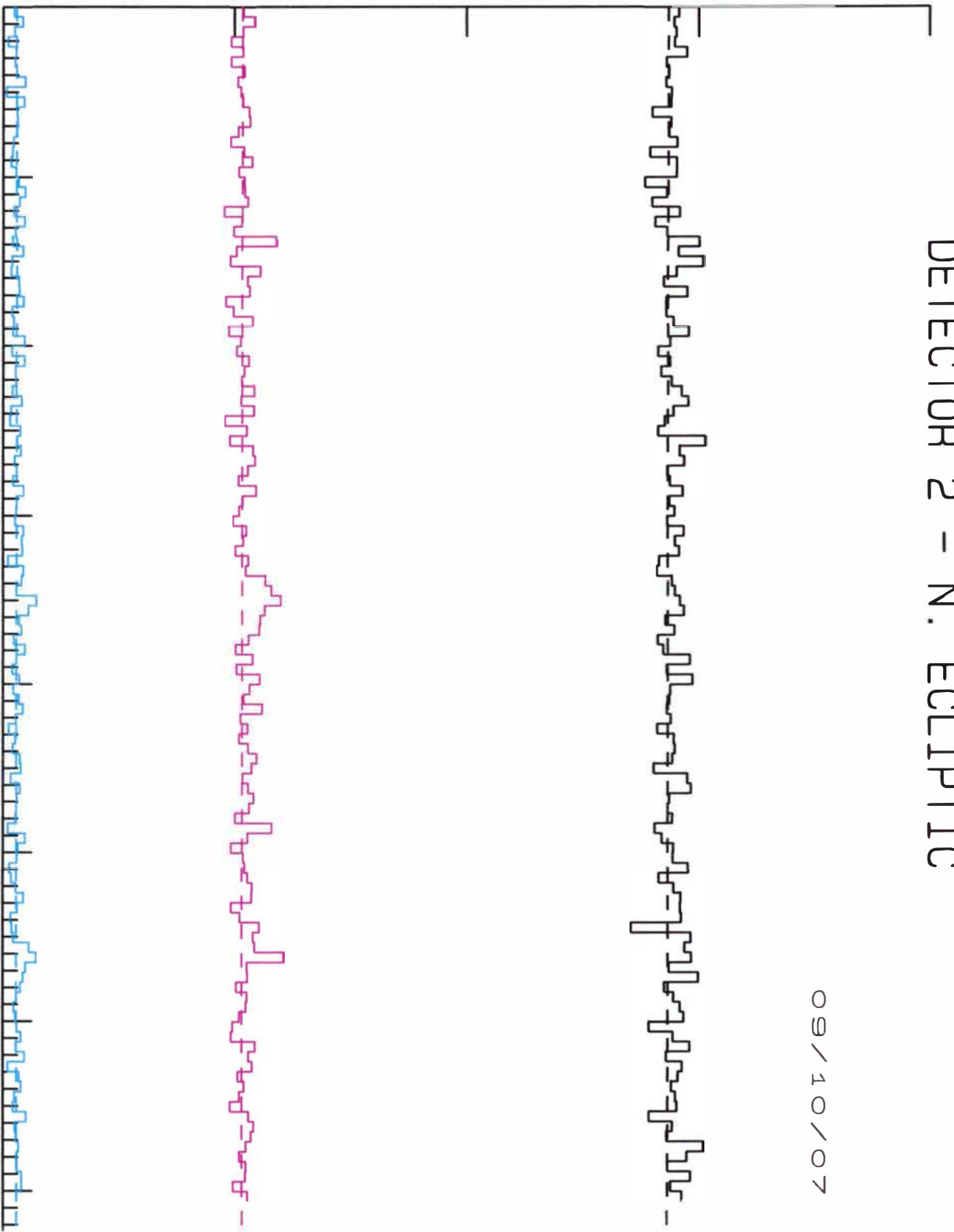
1400

0 50 100 150 200 250 300 350

TIME, SECS

DETECTOR 2 - N. ECLIPHTIC

09/10/07

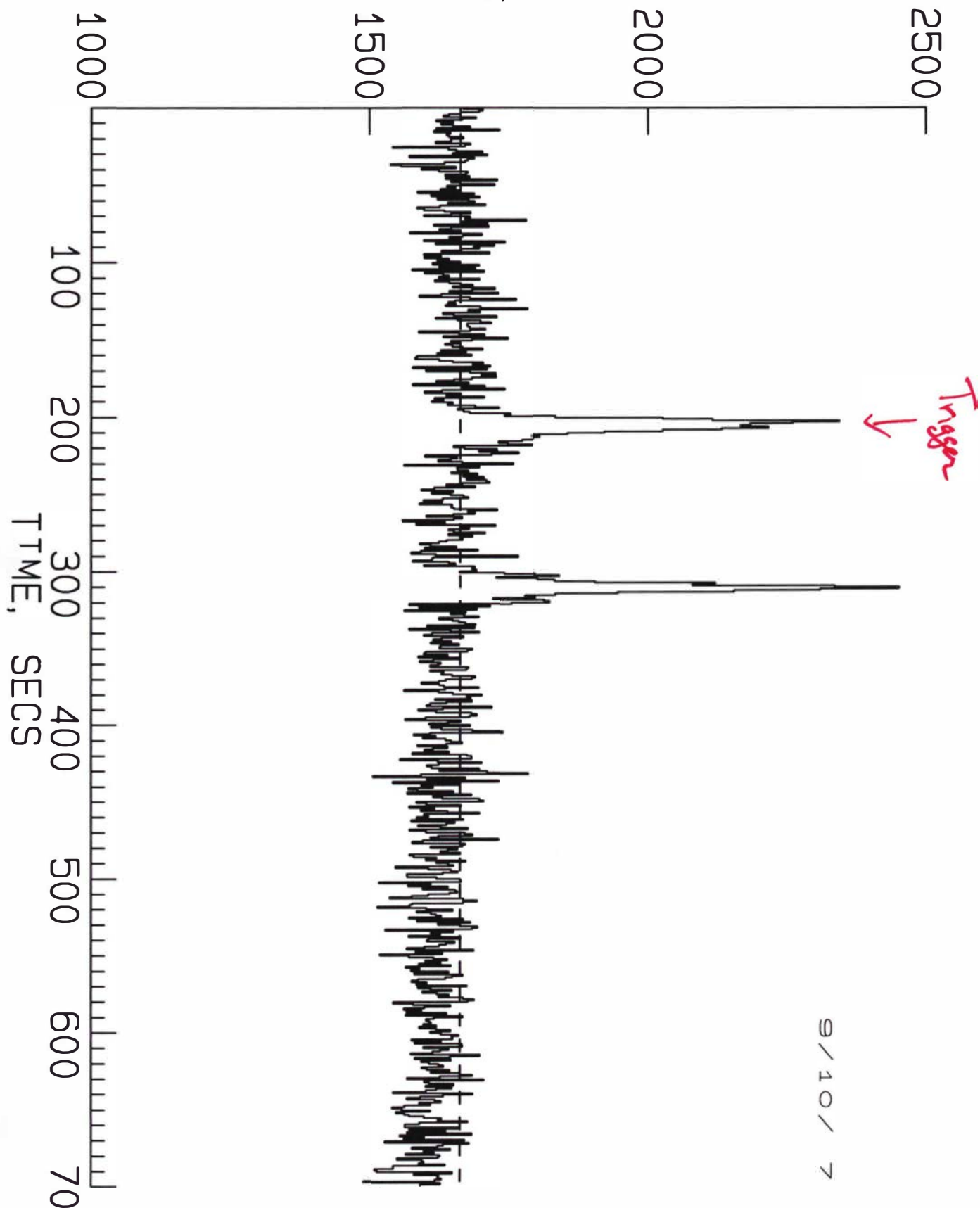


SAX GRBM

12/12/00 34222.246

40- 700 keV

COUNTS/1.000 S

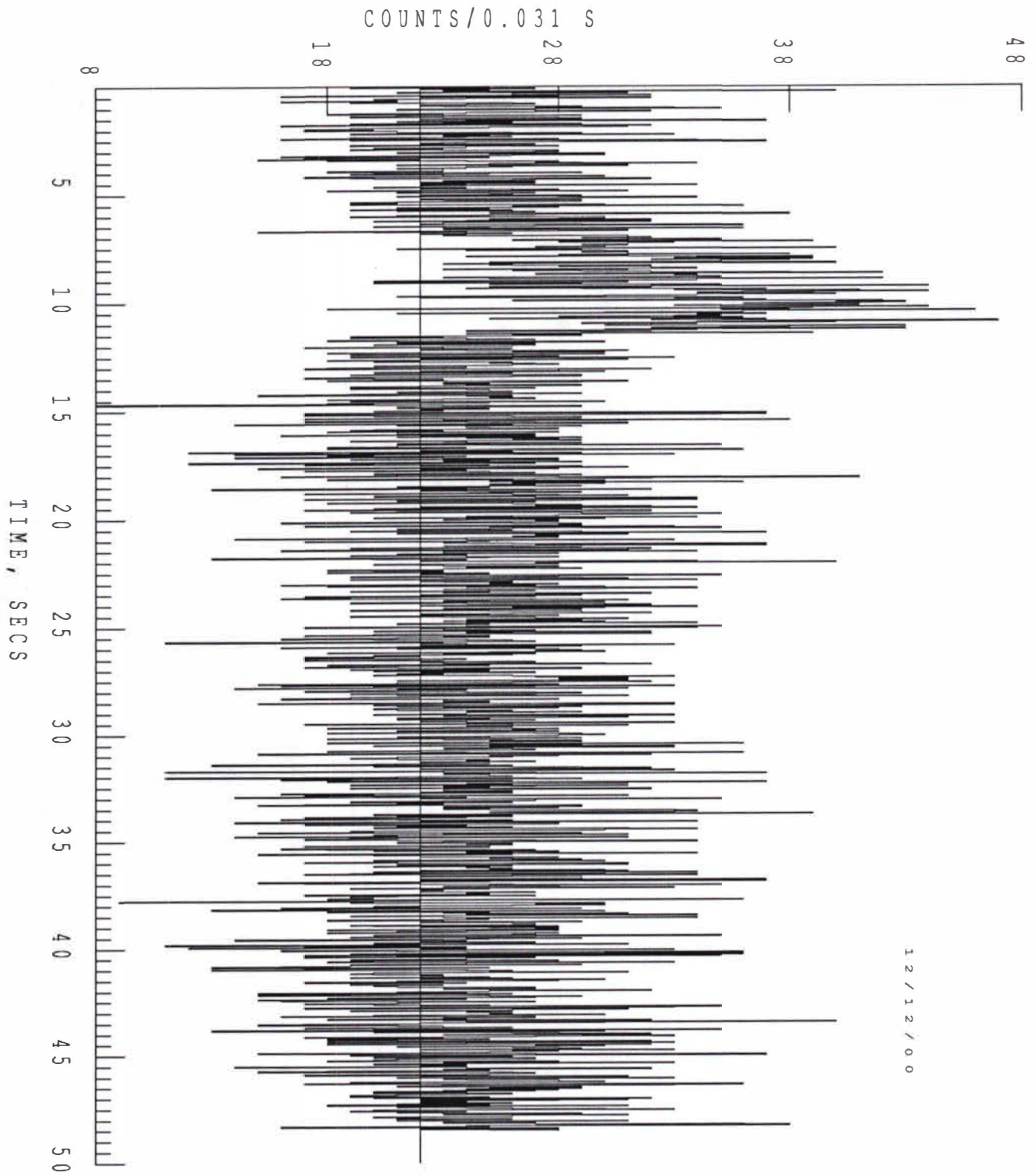


BSAX-GRBM

12/12/00

34415.002

40 - 700 keV

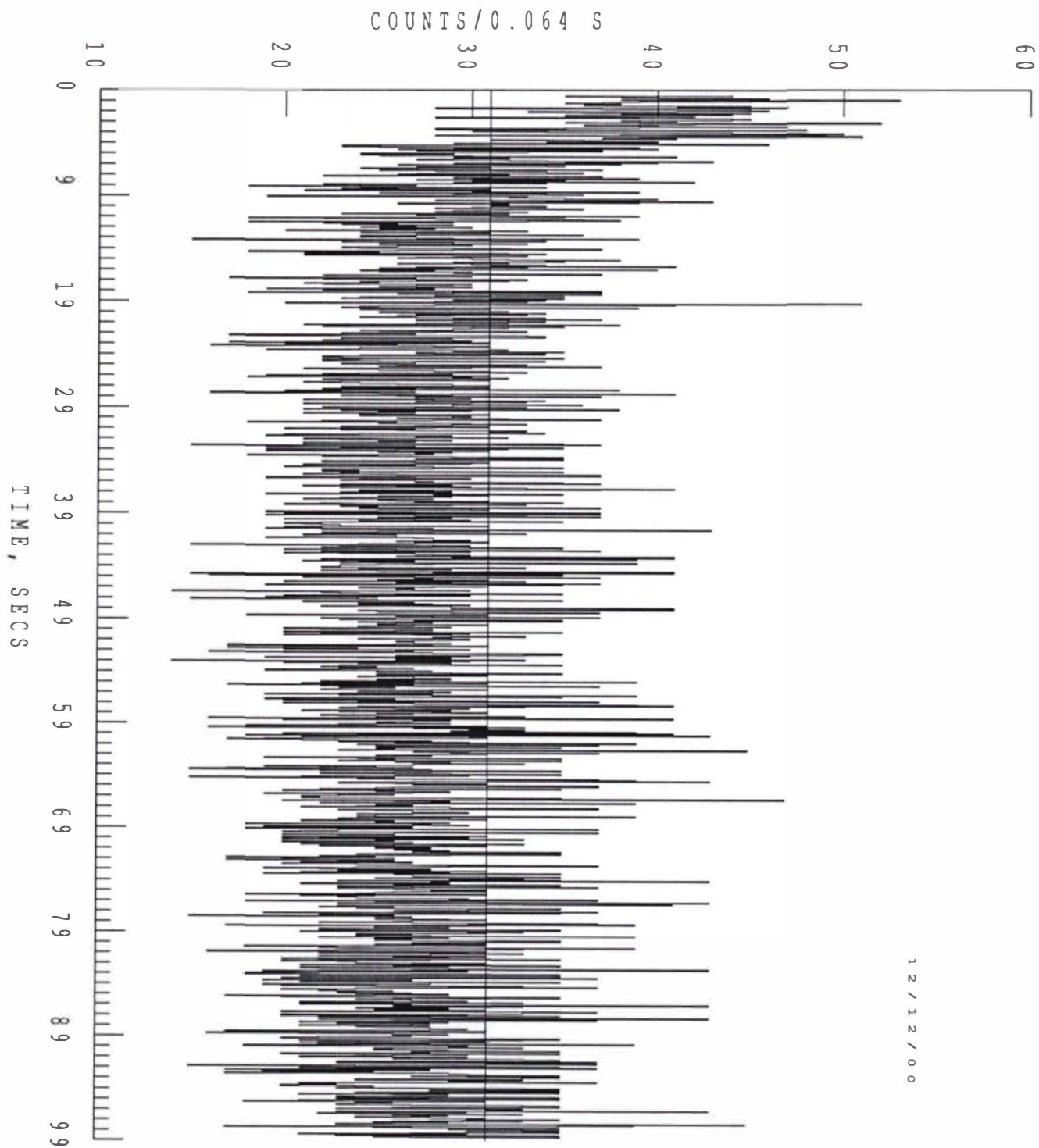


KONUS1

12/12/00

34423.468

50 - 200 keV

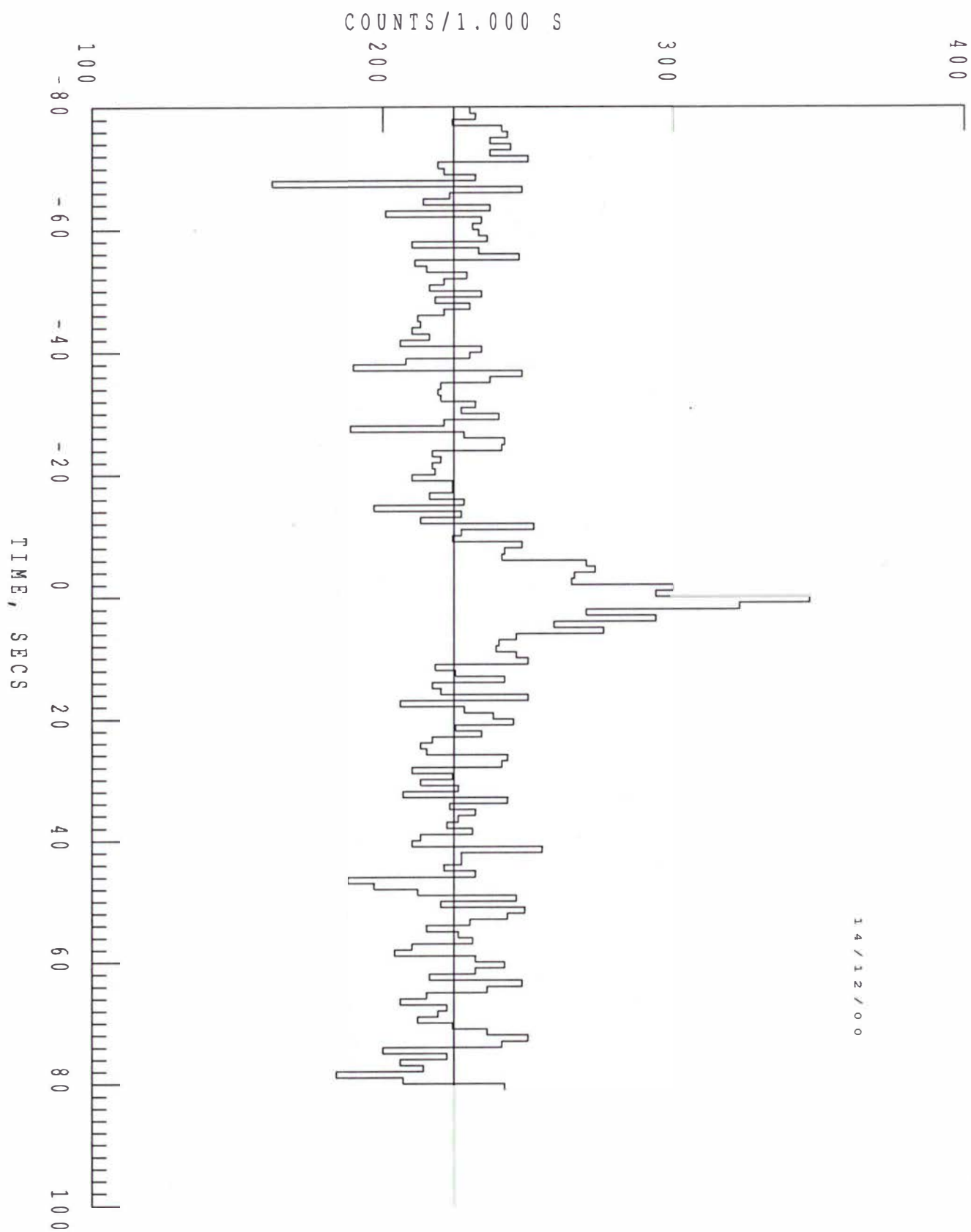


NEAR

12/12/00

33918.142

100-1000 keV



KNEAR GRS 20001212 33918

ULYSSES RT

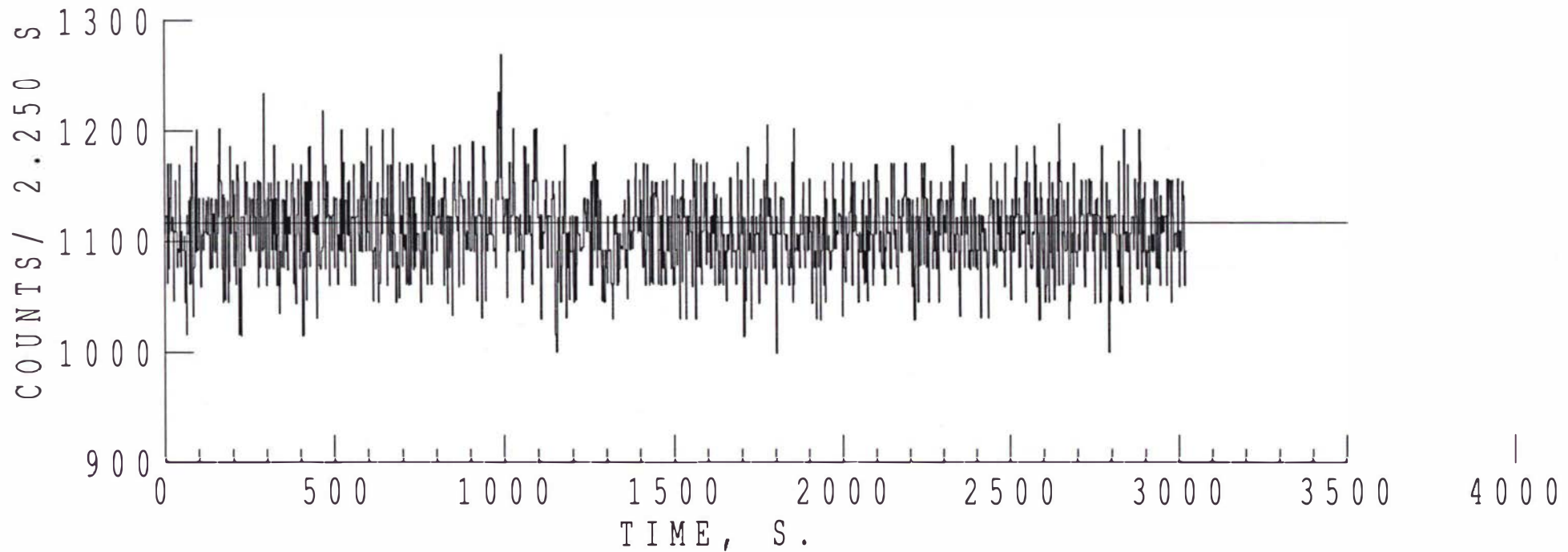
14 / 12 / 00

12 / 12 / 00 32400.137 s

0.250 S INTERVALS REGROUPED BY 9

0 - 0 keV

N = 10 M = 2
>4.0 SIGMA FLUCTUATIONS



Date: Nov 19 '09

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. NEAR Data

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

4. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

- ☐ $\Sigma 3\Delta t$'s calculated?
- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

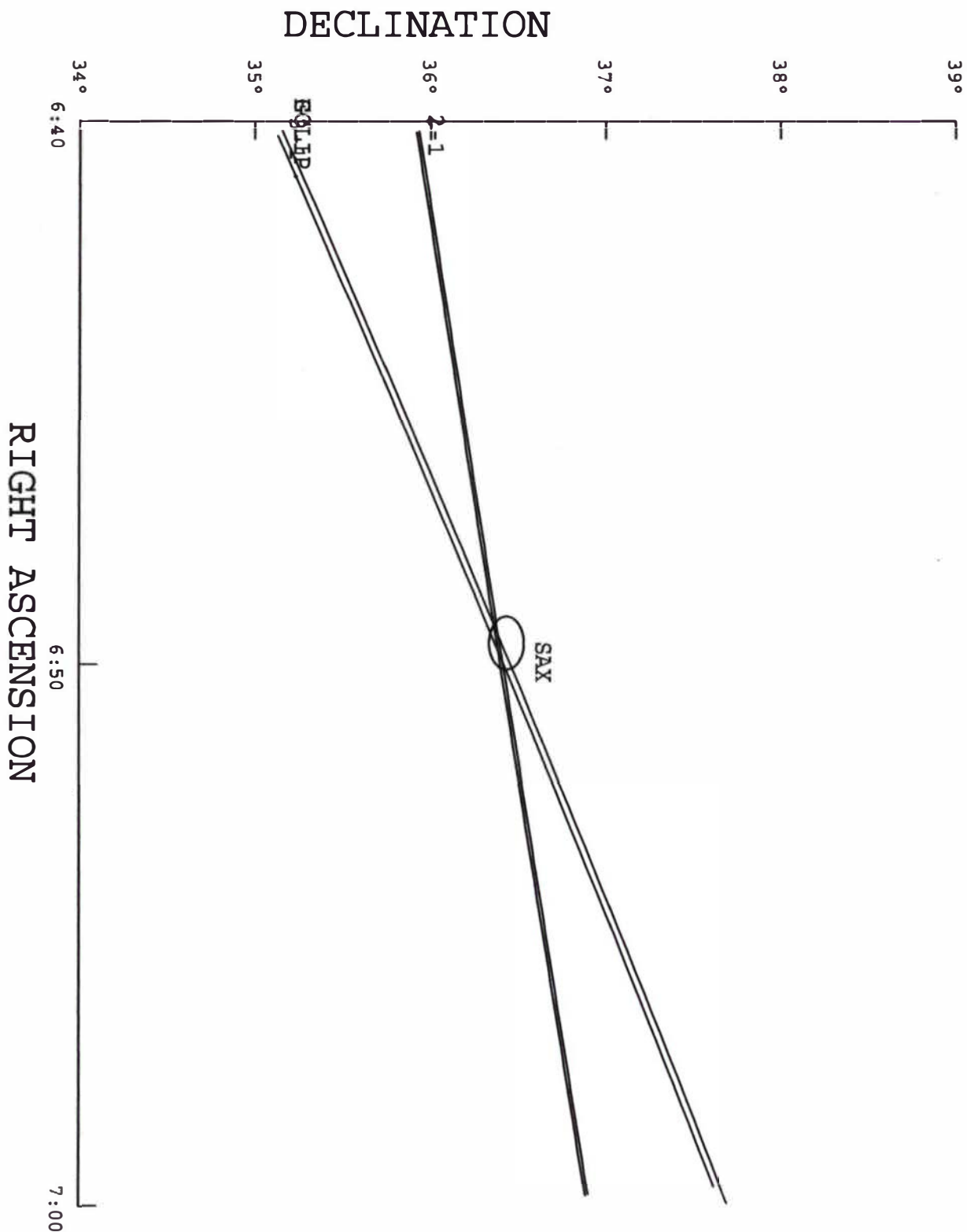
1 ULYSSES

2 KONUS2

3 NEAR

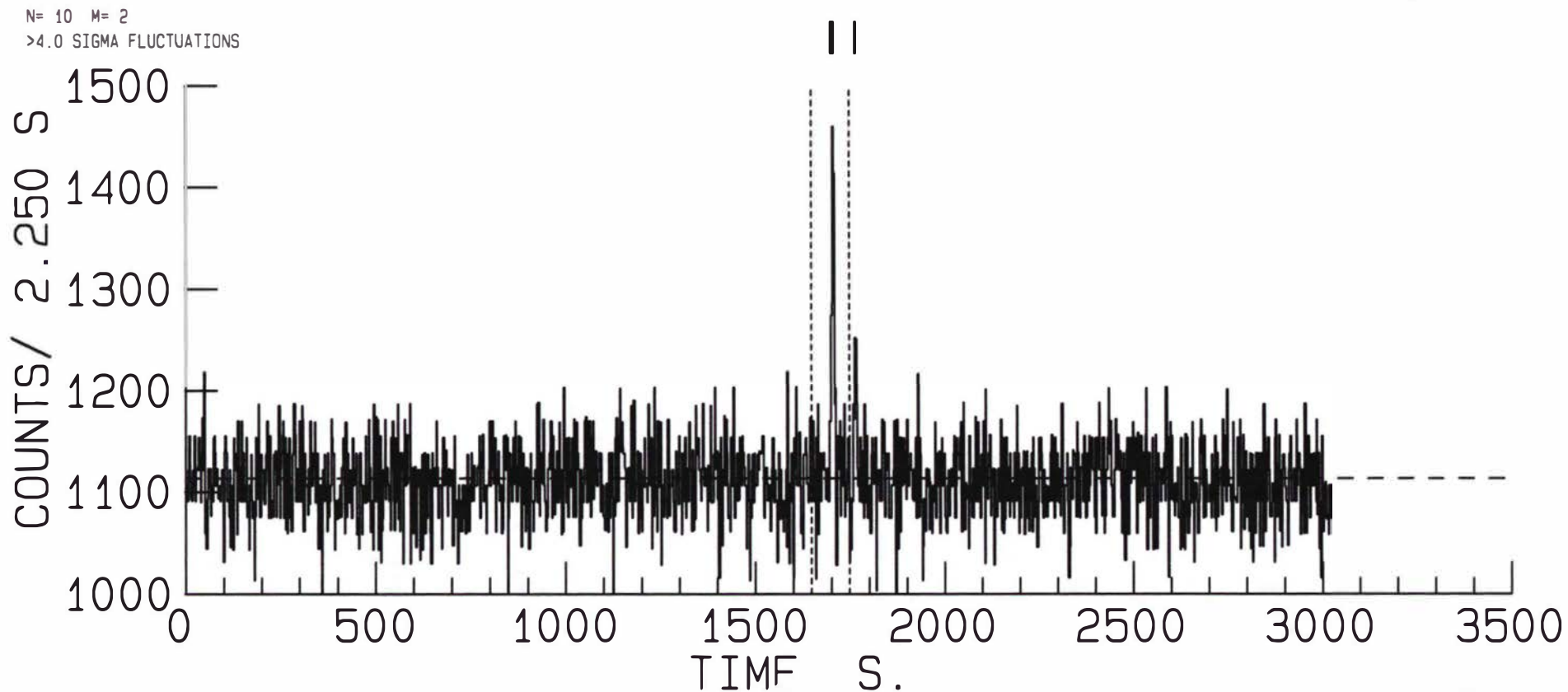
EVENT OF DEC 12, 2000 15:10

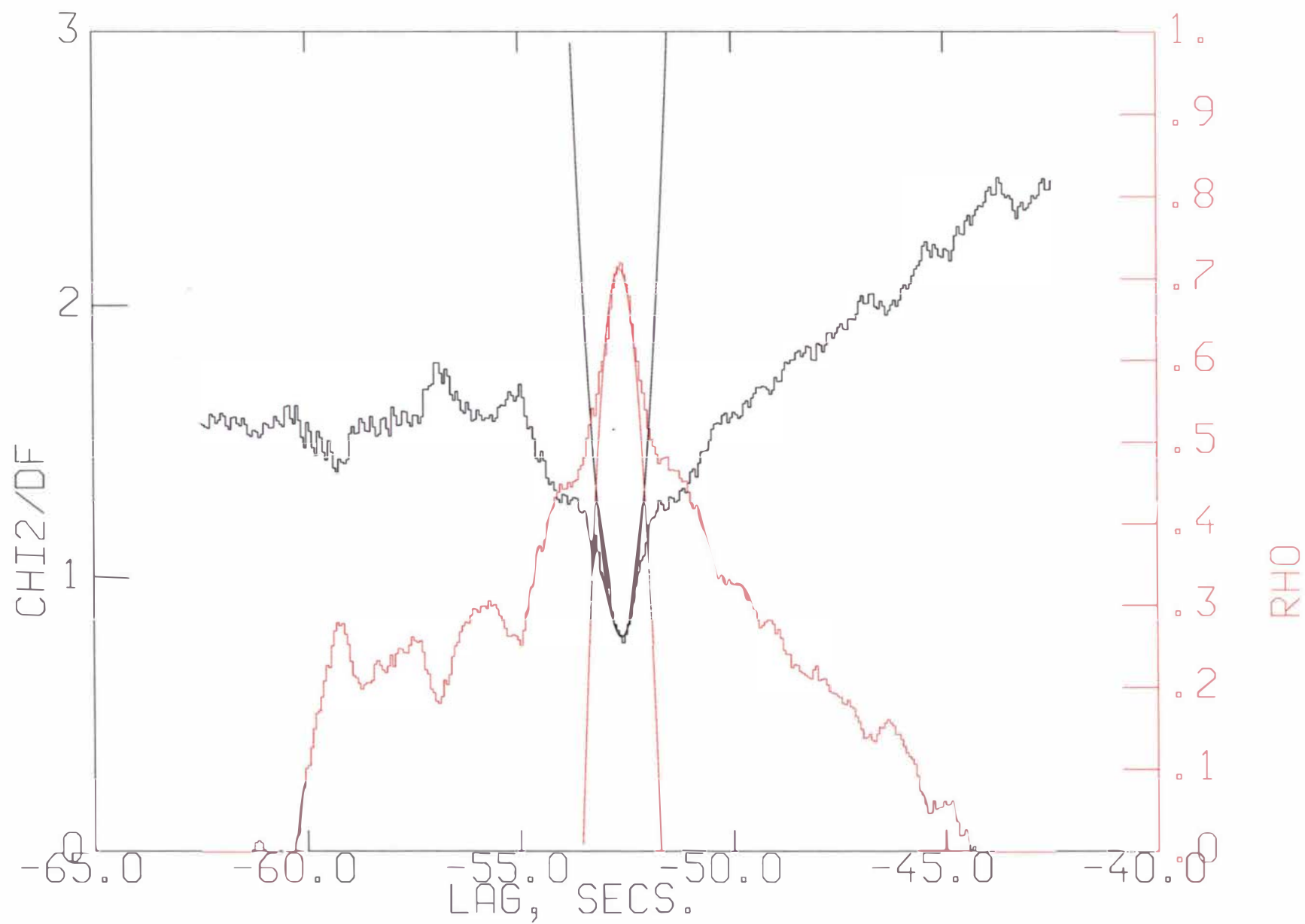
19/11/ 9

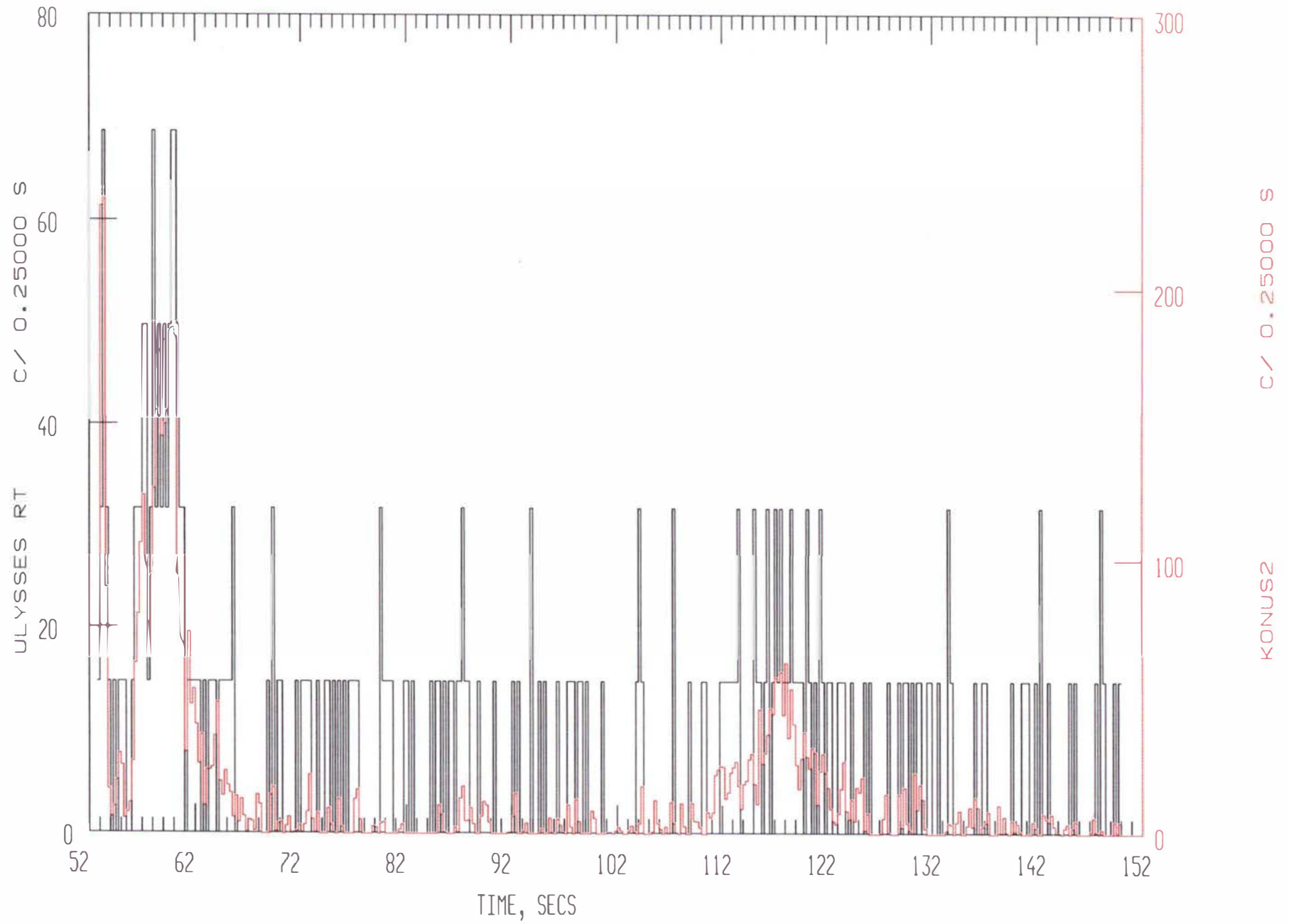


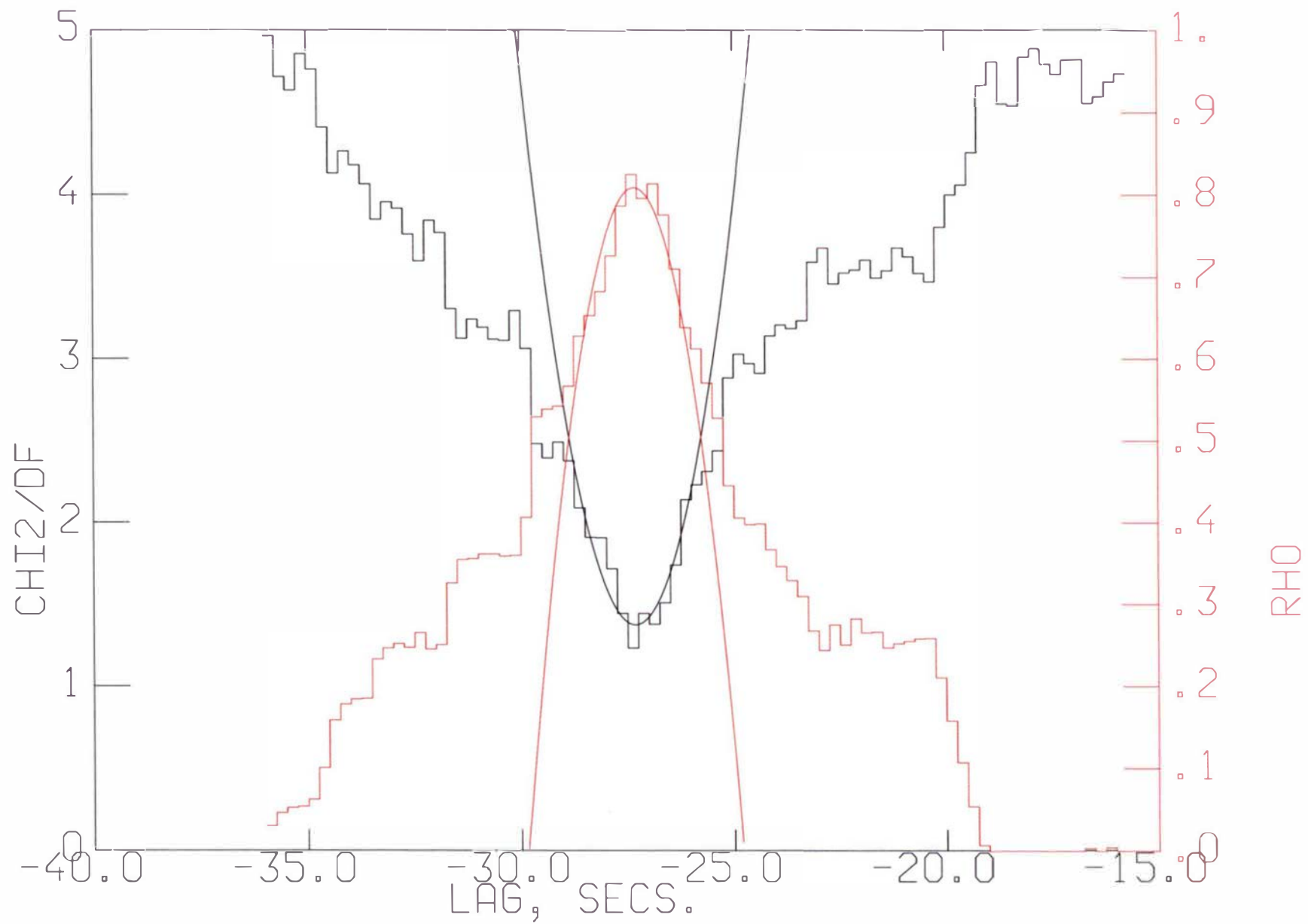
ULYSSES RT
12/12/ 0 52992.195 s
0.250 S INTERVALS REGROUPED BY 9
23- 158 keV

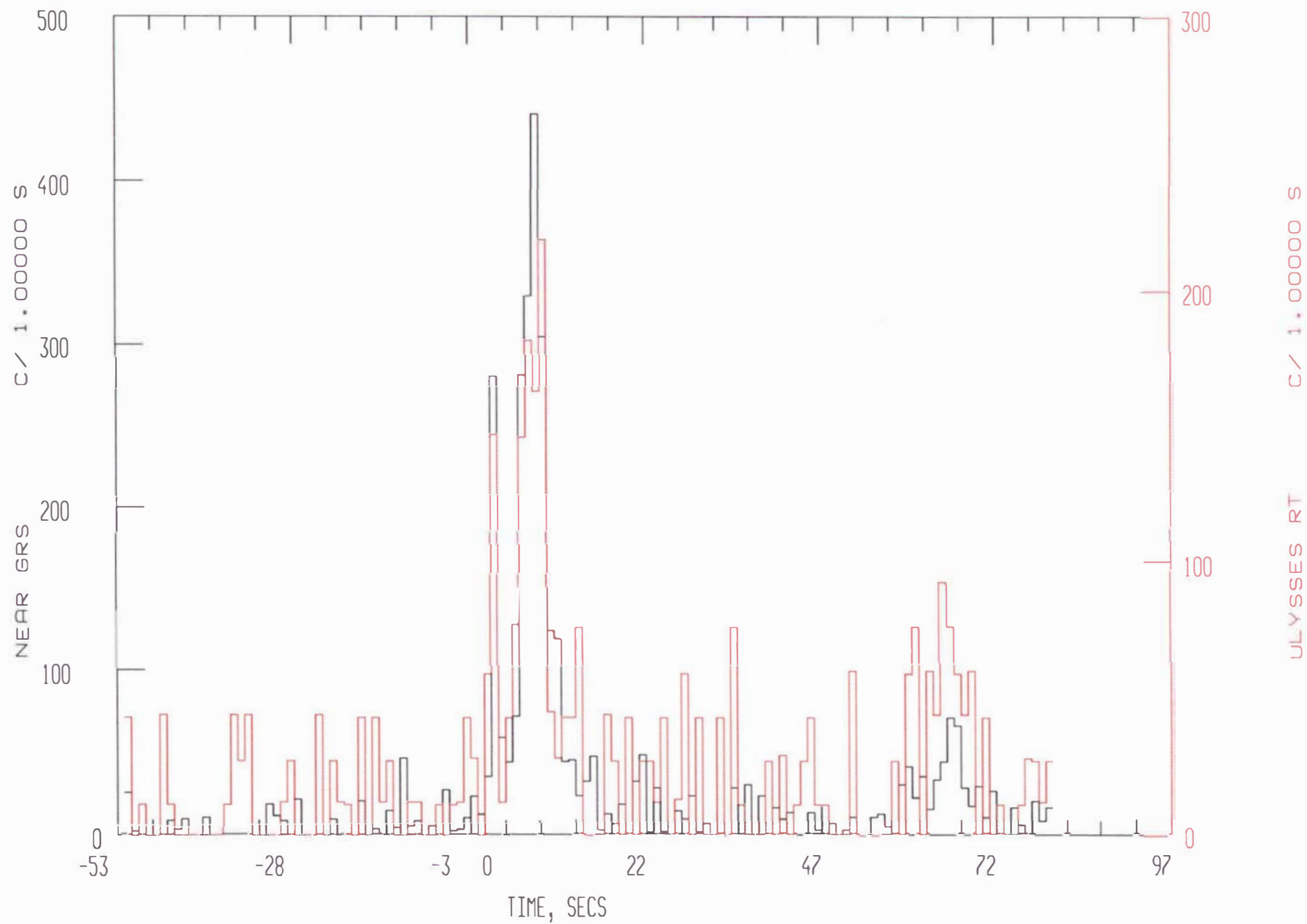
19/11/9











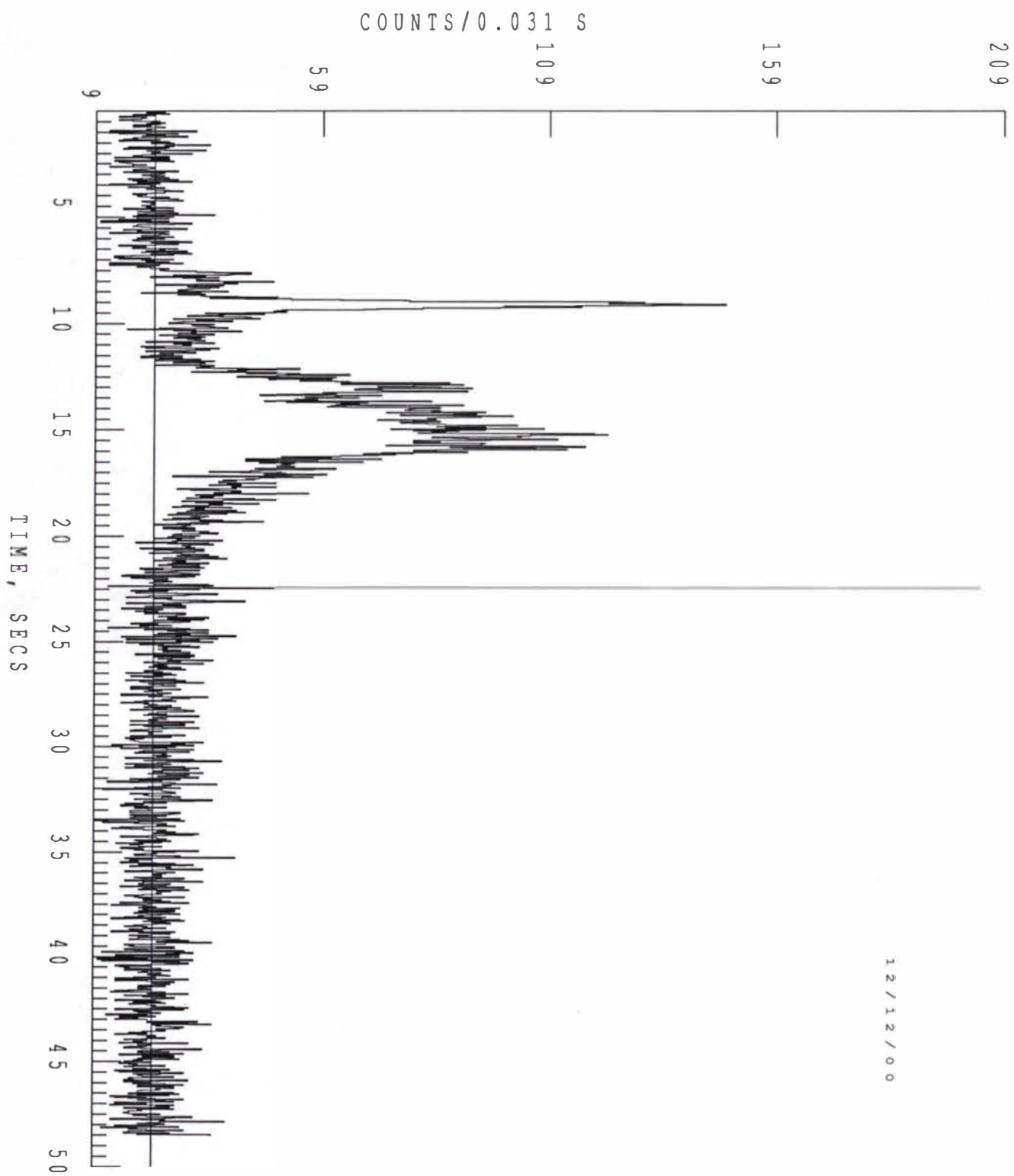
BSAX-GRBM

12/12/00

53836.040

40 - 700 keV

14:57:16



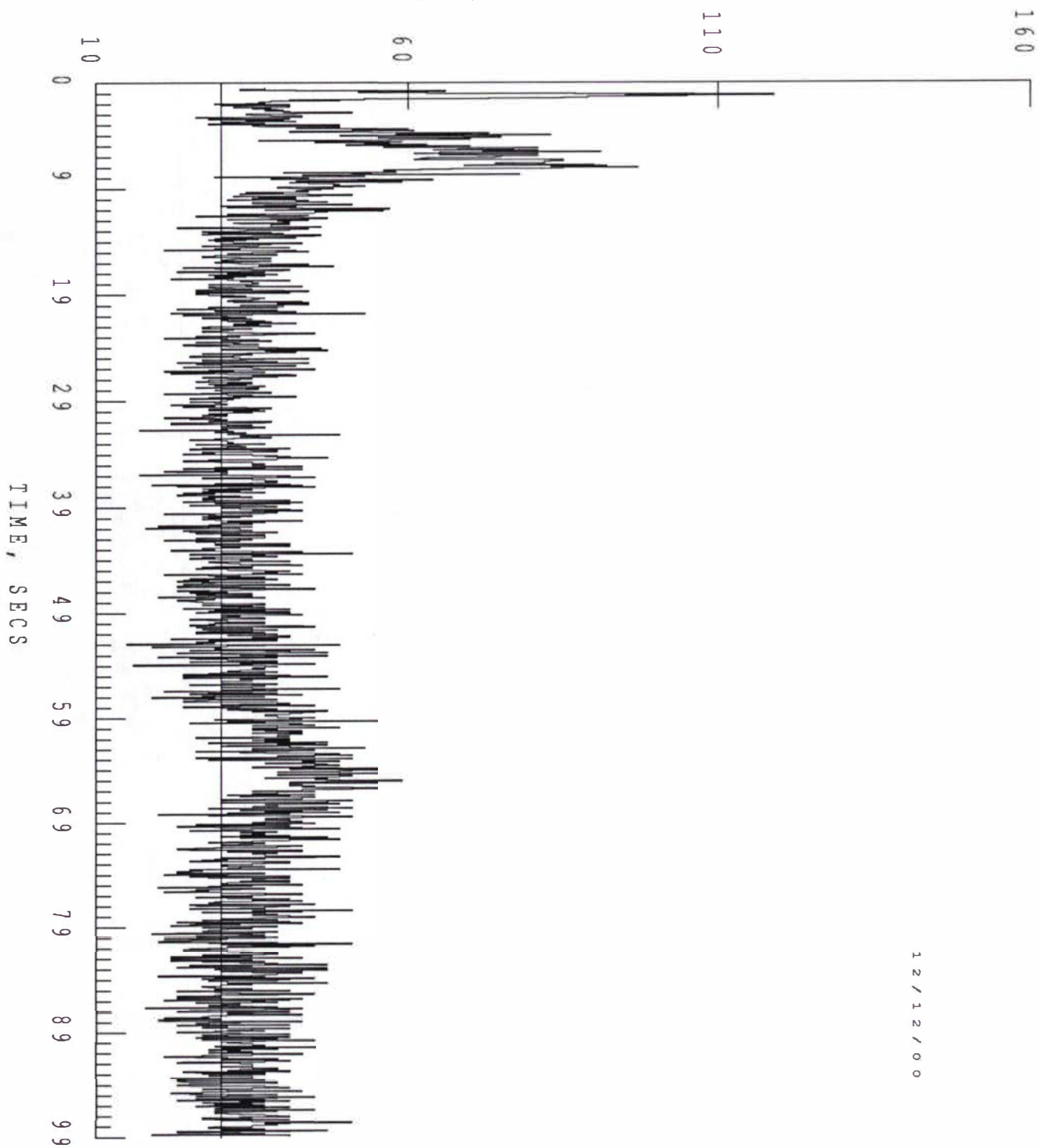
KONUS2

12/12/00

53846.840

50 - 200 keV

COUNTS/0.064 S



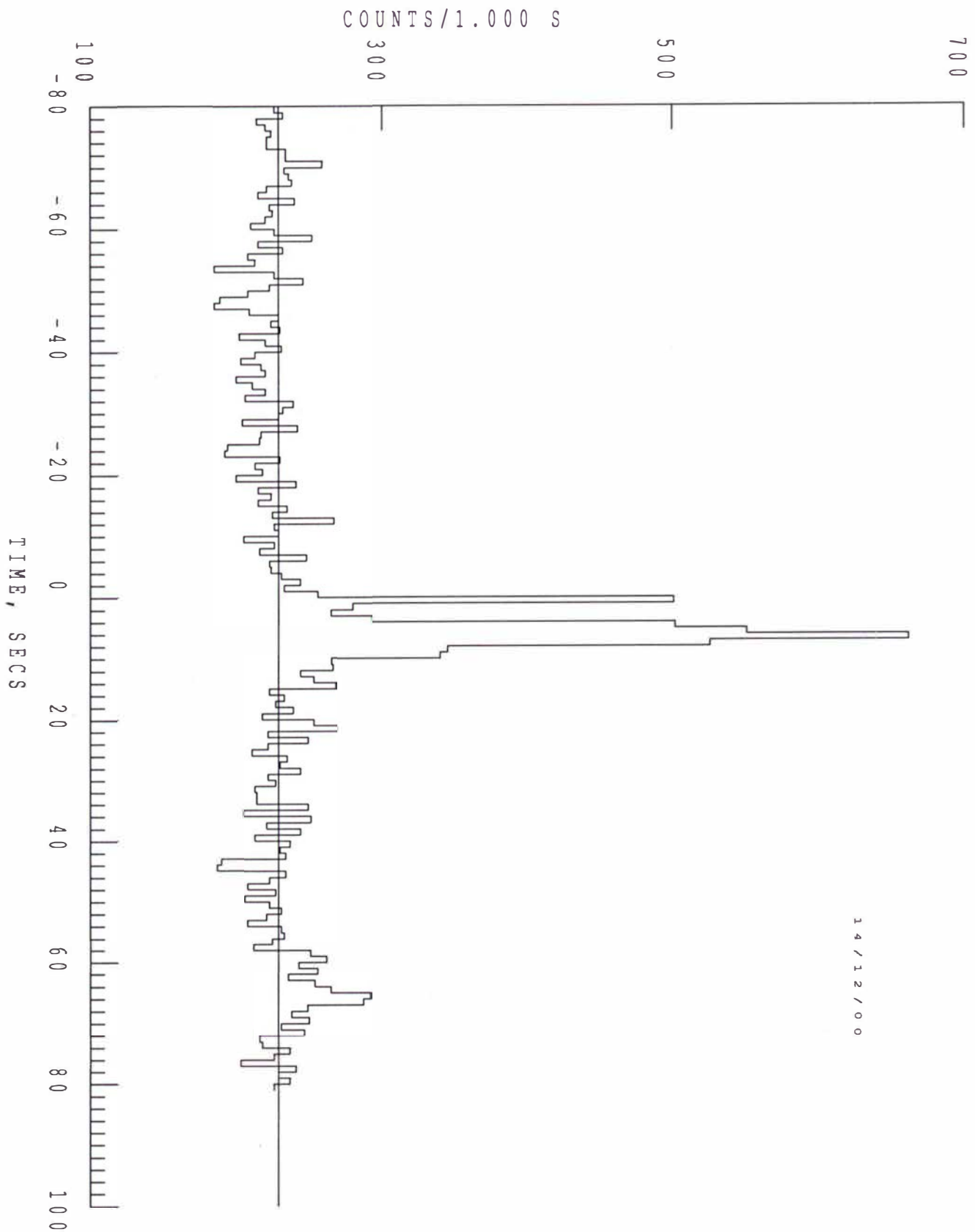
12/12/00

NEAR

12/12/00

54509.135

100-1000 keV



KNEAR GRS 20001212 54509

ULYSSES RT

14/12/00

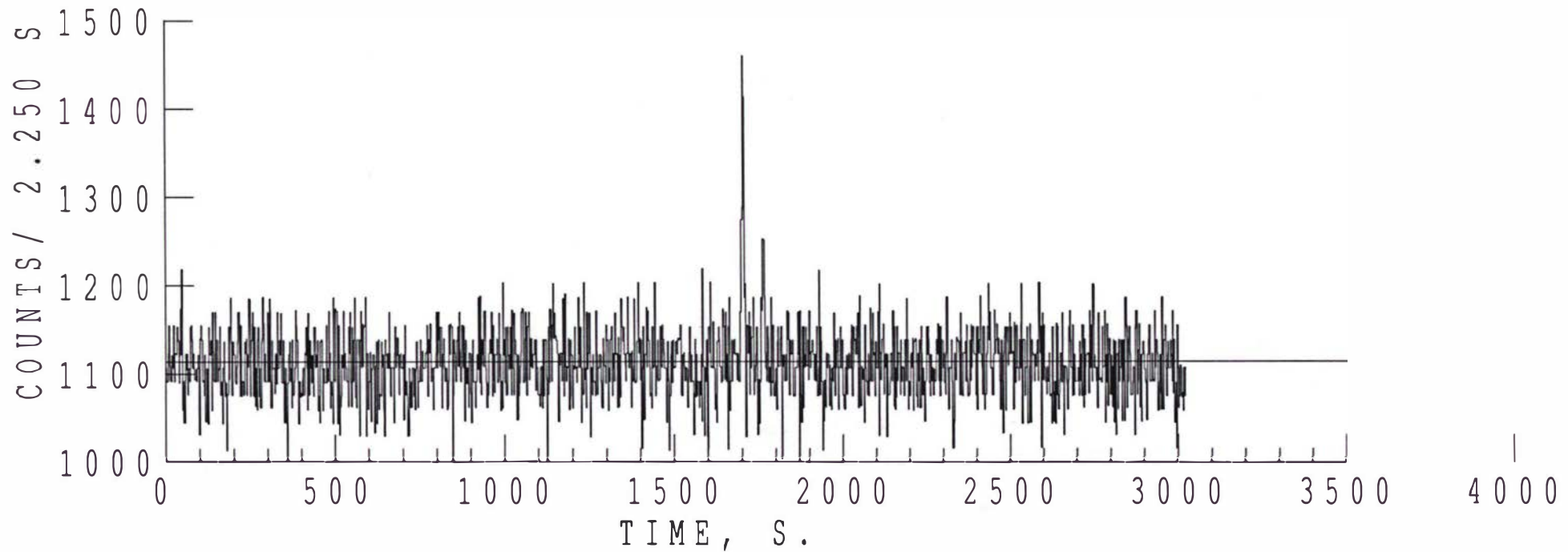
12/12/00 52992.195 s

0.250 S INTERVALS REGROUPED BY 9

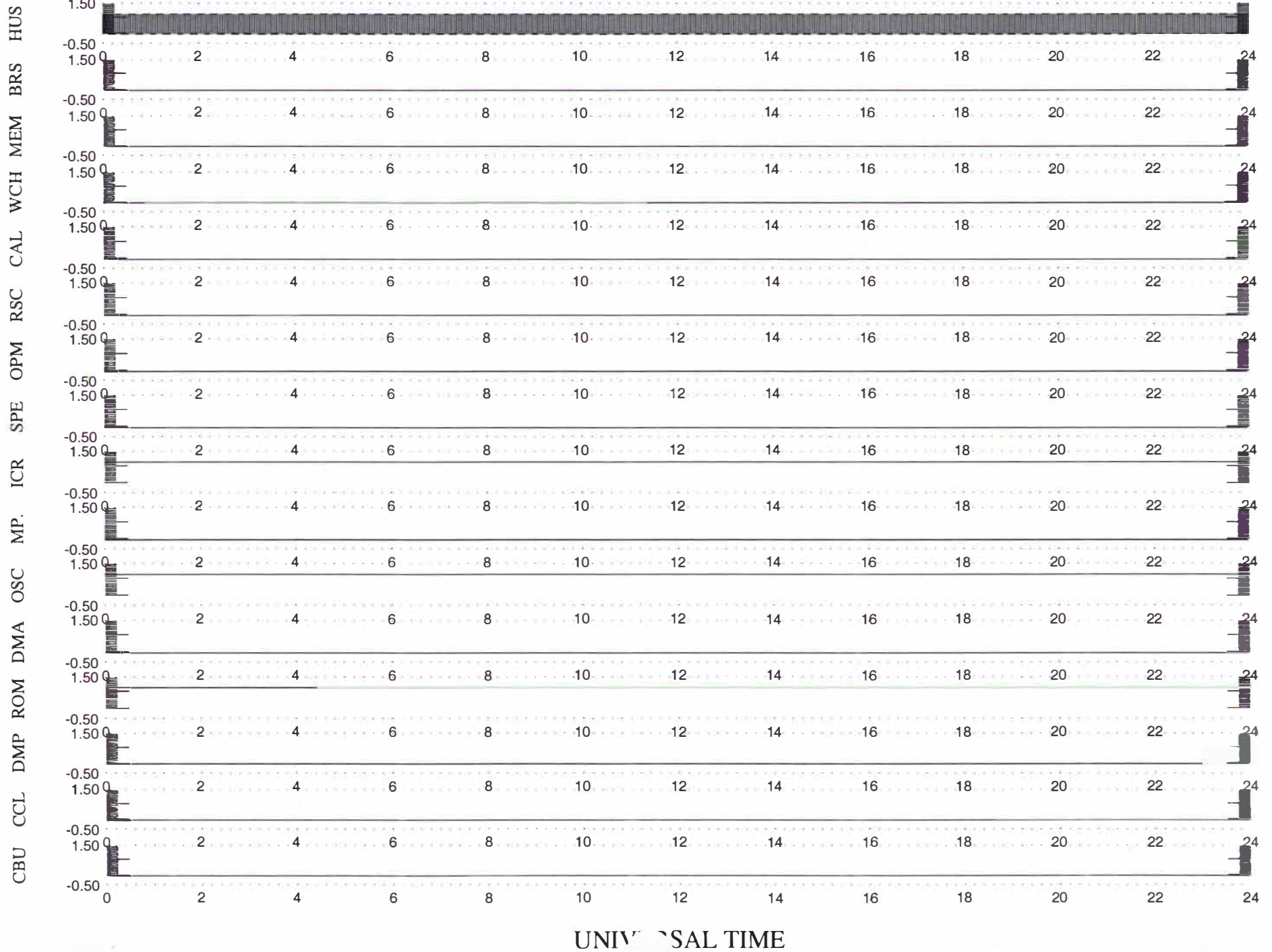
0 - 0 keV

N=10 M=2

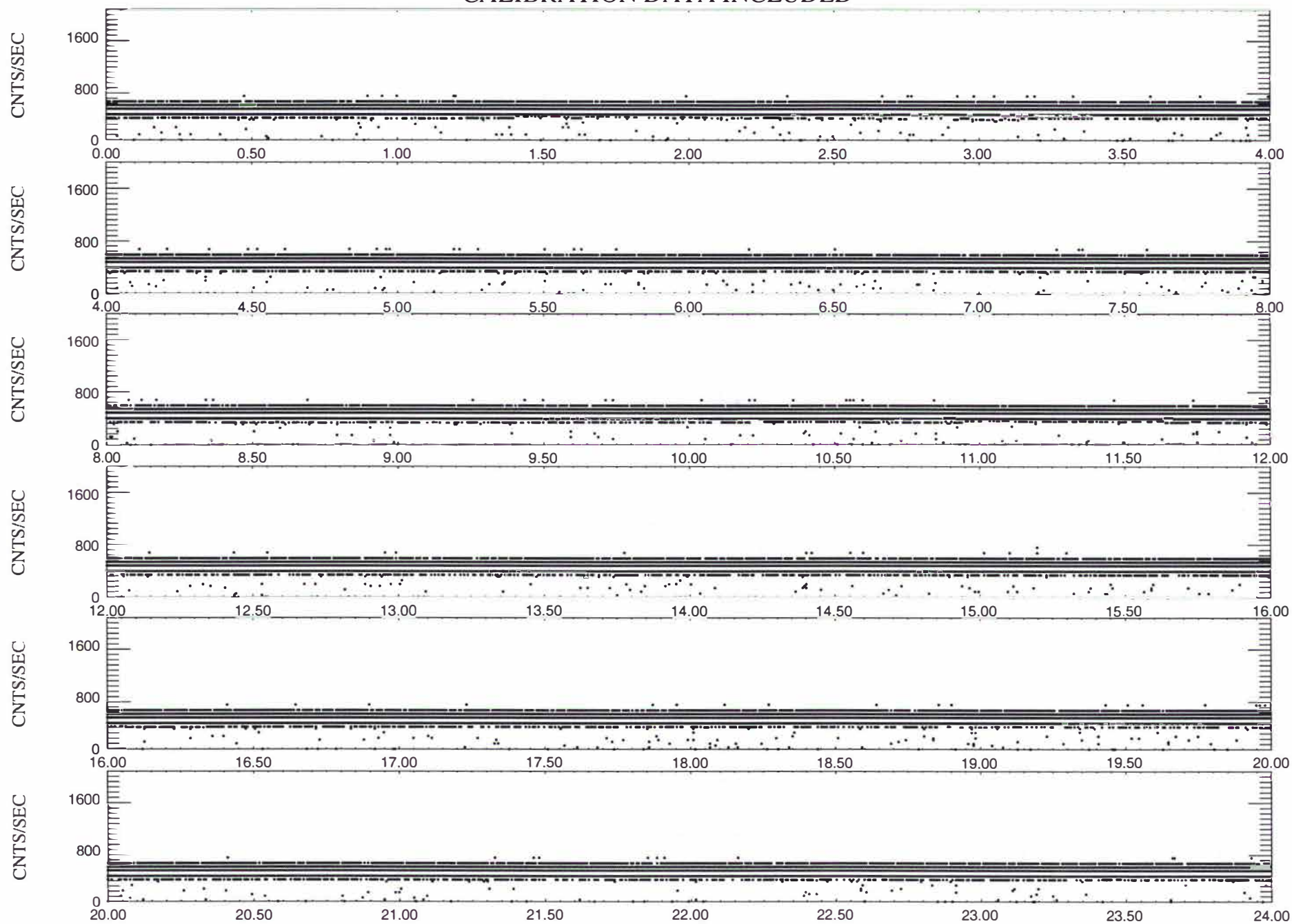
>4.0 SIGMA FLUCTUATIONS



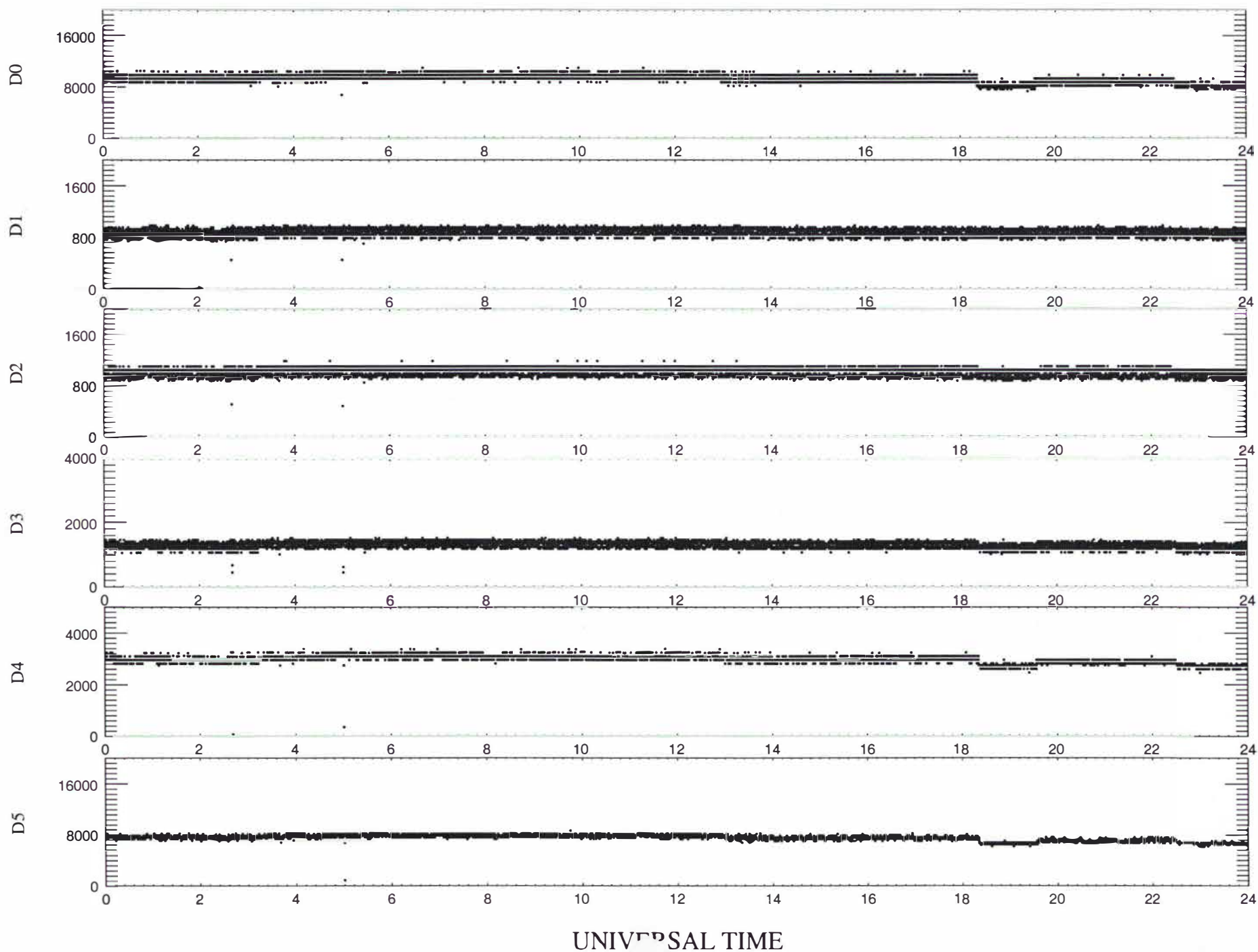
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME

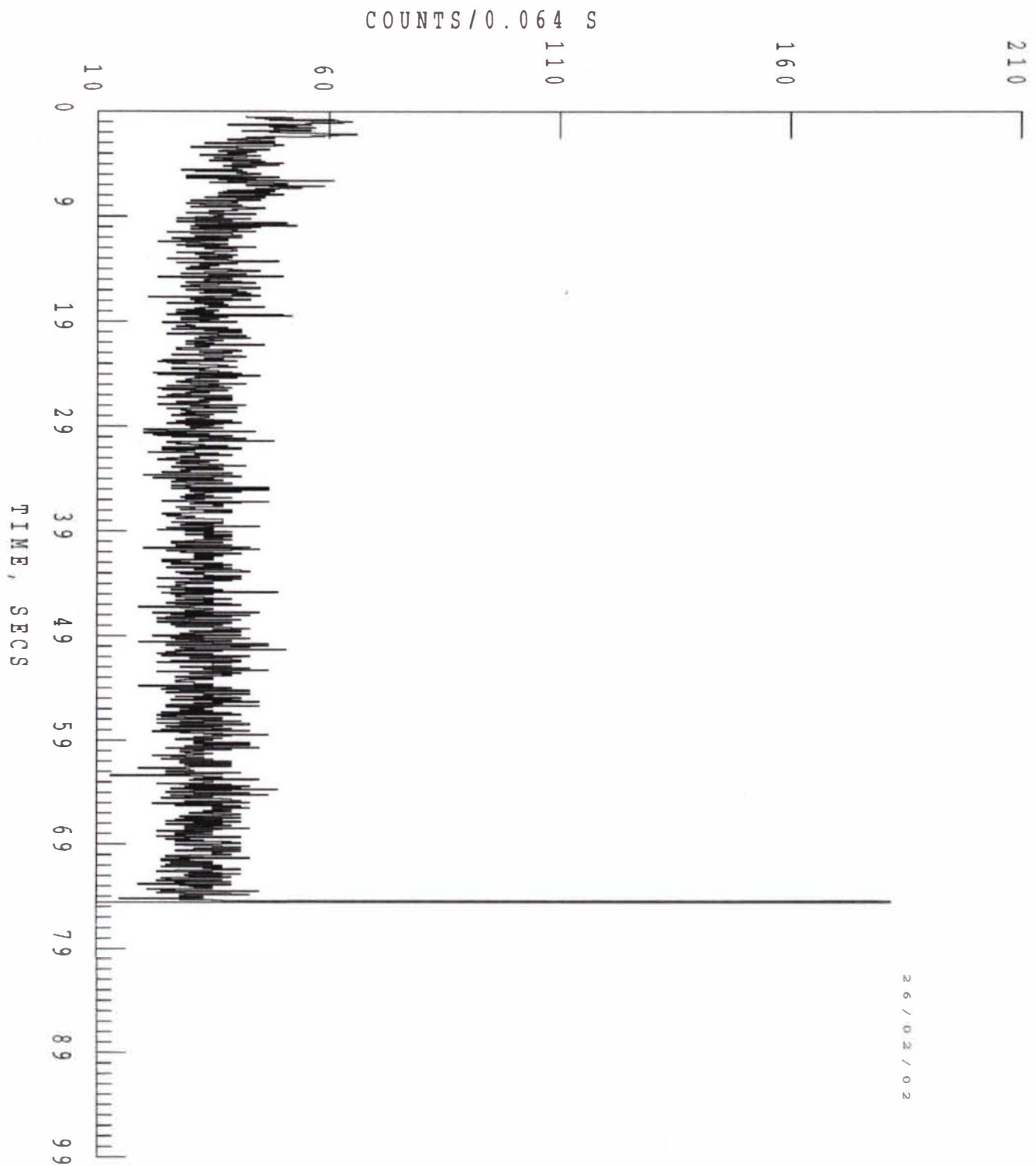


KONUS2

13/12/00

50546.182

50 - 200 keV



KONUS2 20001213 50546

ULYSSES RT

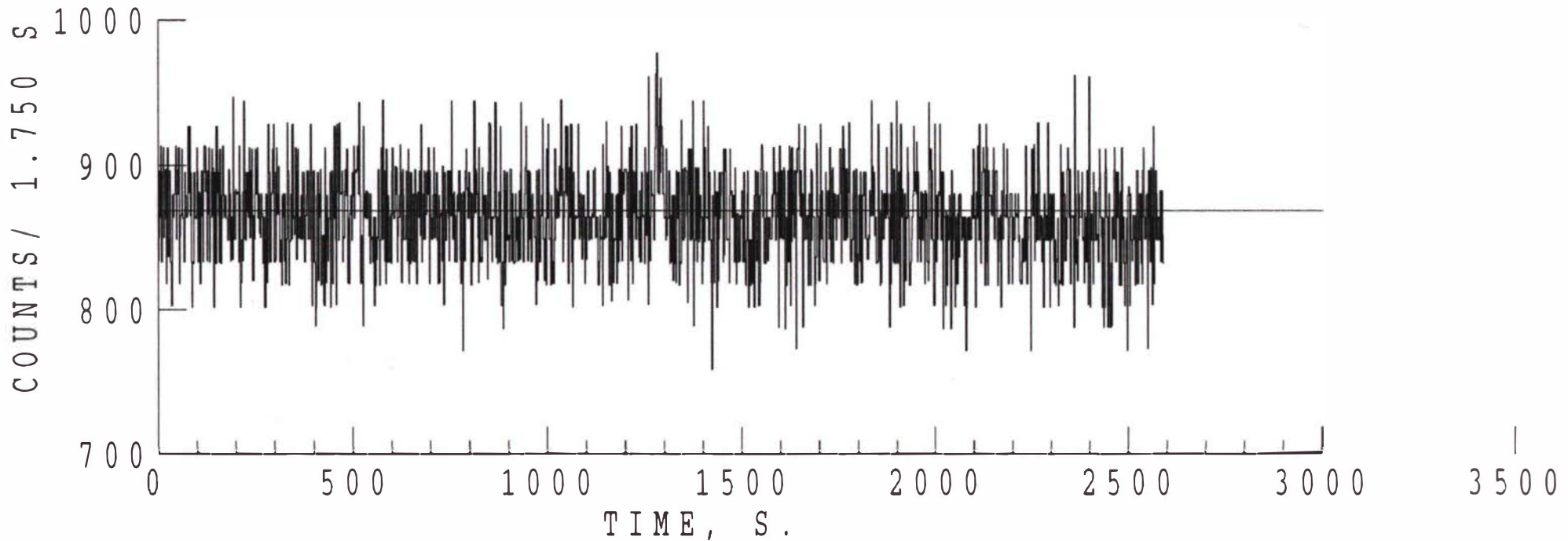
26 / 02 / 02

13 / 12 / 00 49248.184 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

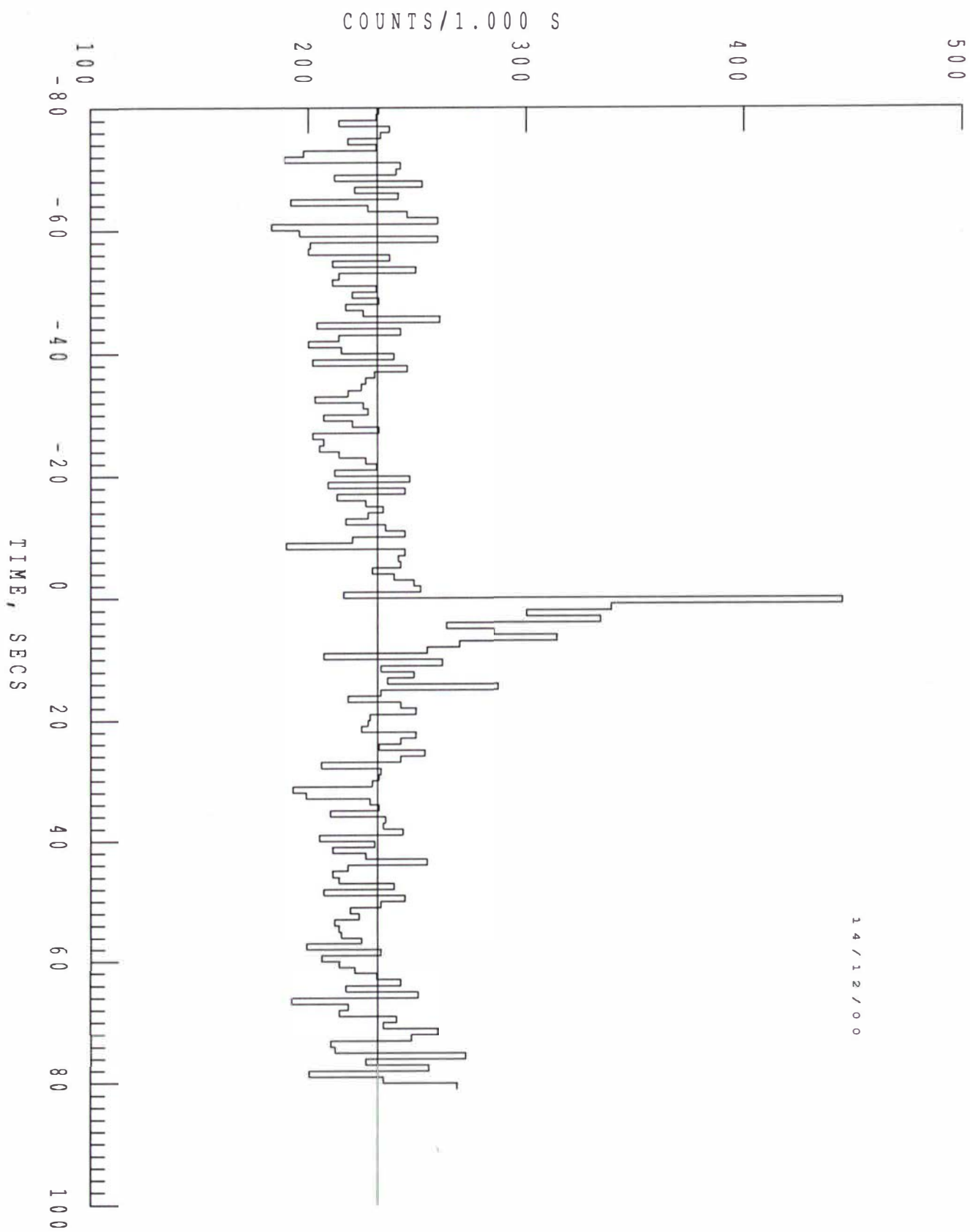


NEAR

13/12/00

49963.105

100-1000 keV



From guidorzi@fe.infn.it Wed Dec 13 19:51 PST 2000
From: Auto GRB monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Thu, 14 Dec 2000 04:50:04 +0100 (MET)

1kGRB[144] #LSs: 3 Good HRR: 1
SW Trigger Time (OBT): 49254.912
UTC: Wed, 13 Dec 2000 23:07:06:19921

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.193

Nsig(trg):	7.0	5.4	2.1	0.8	5.4	5.4	1.9	0.6
Nsig(pfl):	10.0	13.6	4.8	0.0	5.7	8.1	2.0	0.0
Bkg lev. :	762	876	755	688	876	913	873	912
ChiSq R. :	0.892	1.090	0.983	0.990	0.846	0.816	0.929	0.968

Peak fl. :	276	402	133	0	169	245	59	0
Error :	42.5	46.5	40.6	0.0	43.9	45.6	42.5	0.0

Fluence :	1171	1575	631	0	817	1015	303	0
Error :	109.0	117.8	106.0	0.0	114.6	117.6	112.1	0.0

Dur (s) :	7.00	7.00	7.00	0.00				
Abundance:	7	7	7	0				
H. Ratio :	0.698	0.644	0.480	-1.000				
HR Ratio :	1.084	1.454	-1.000	1.342	-1.000	-1.000		
HR W-ave :	0.642	+/-	0.067					

KNEAR GRS 20001213 83225

ULYSSES RT

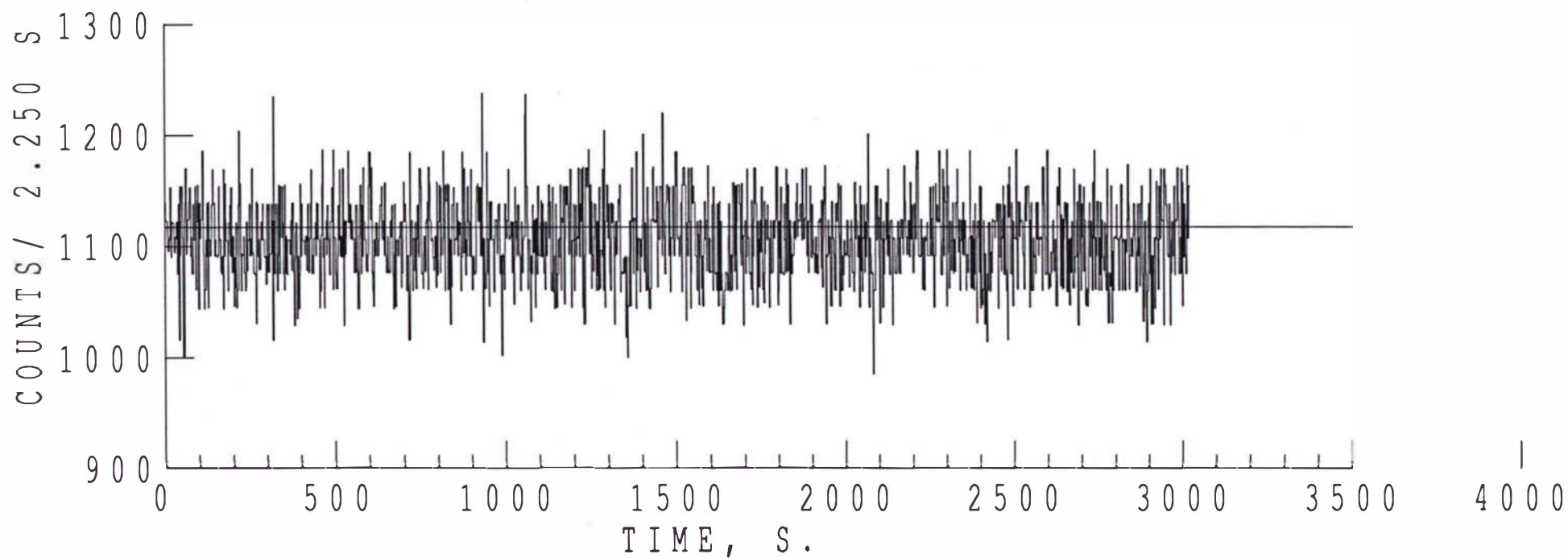
14/12/00

13/12/00 81720.180 s

0.250 S INTERVALS REGROUPED BY 9

0 - 0 keV

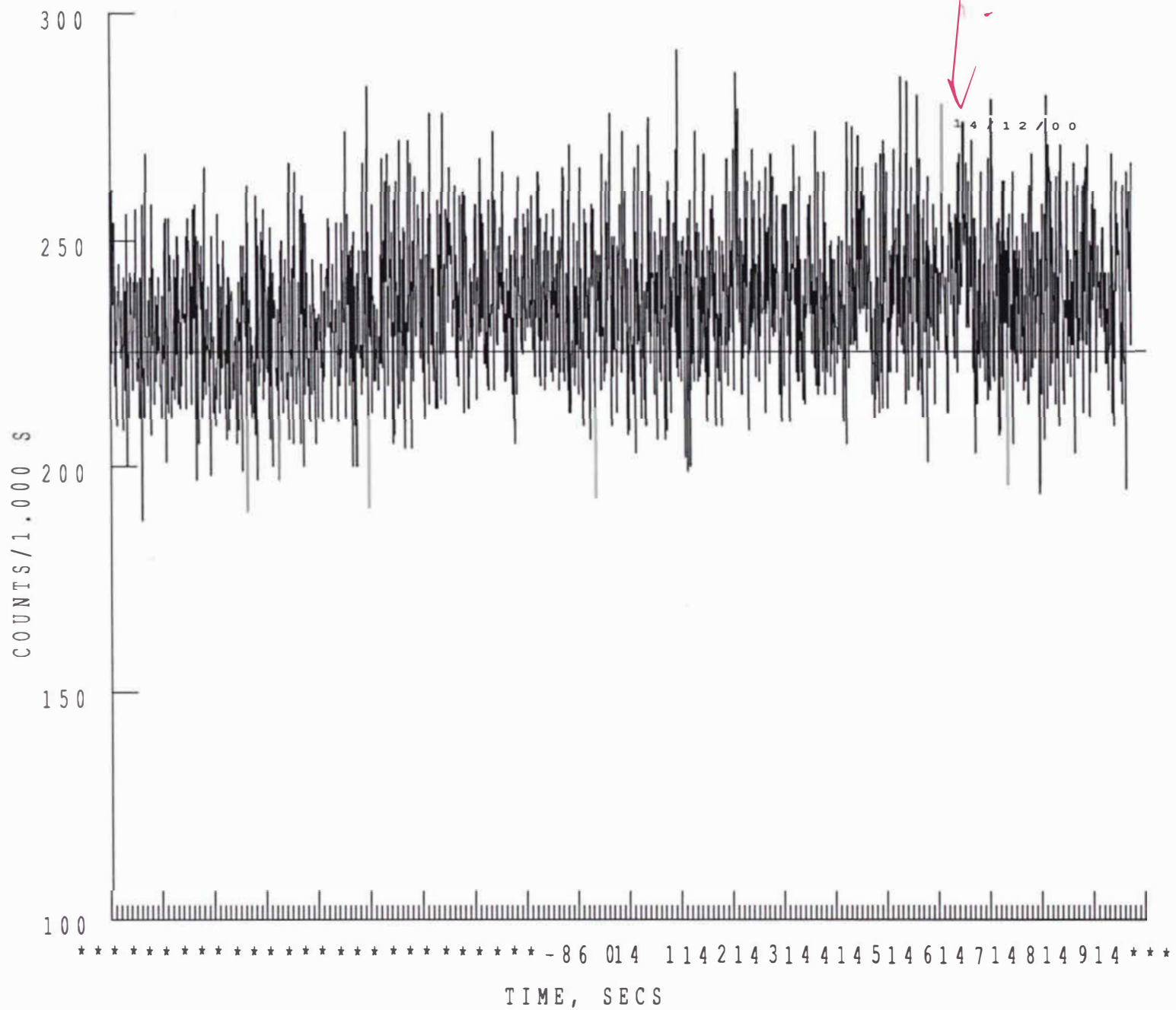
H=10 M=2
>4.0 SIGMA FLUCTUATIONS



NEAR

13/12/00 83225.094

100-1000 keV



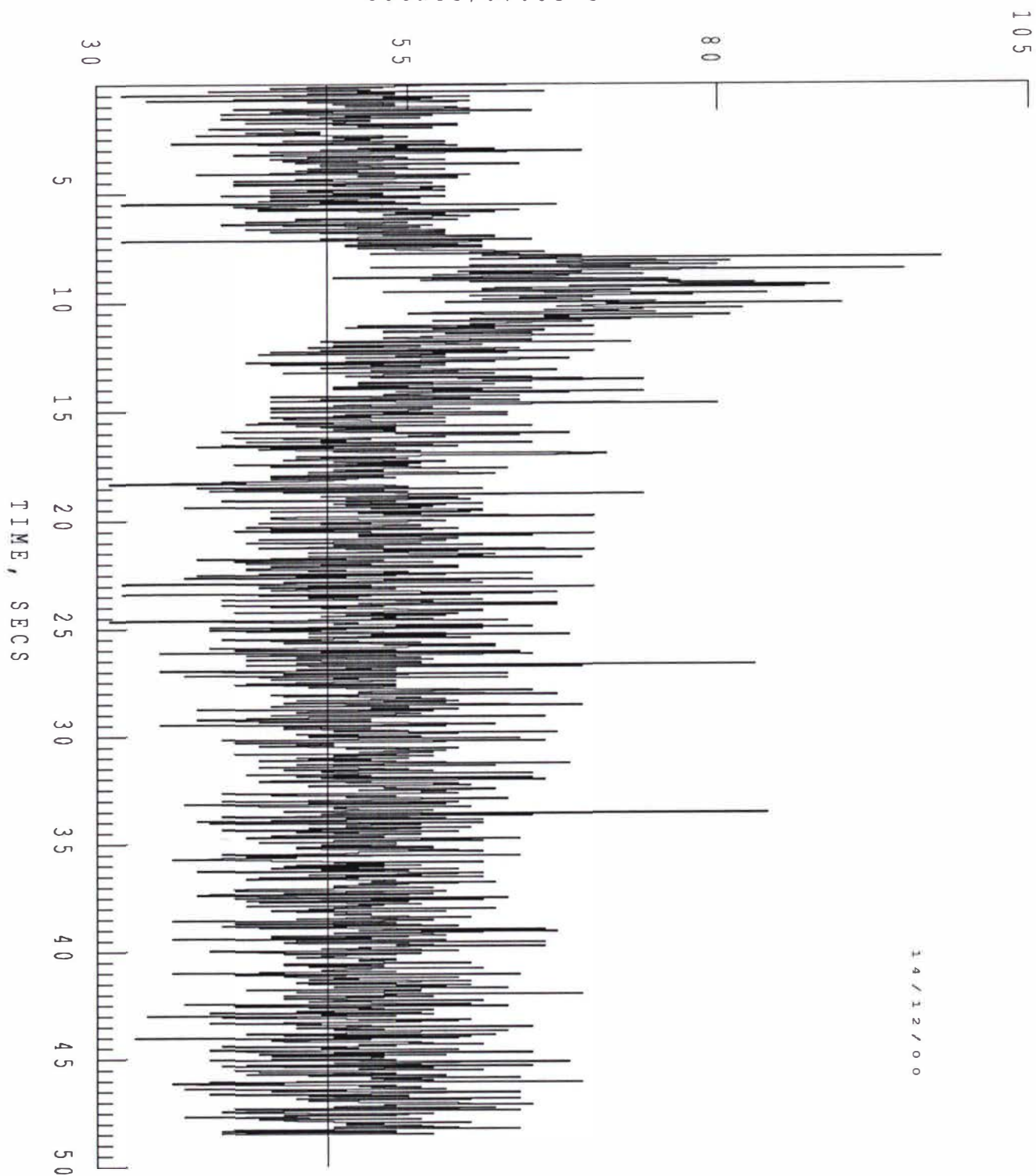
BSAX-GRBM

13/12/00

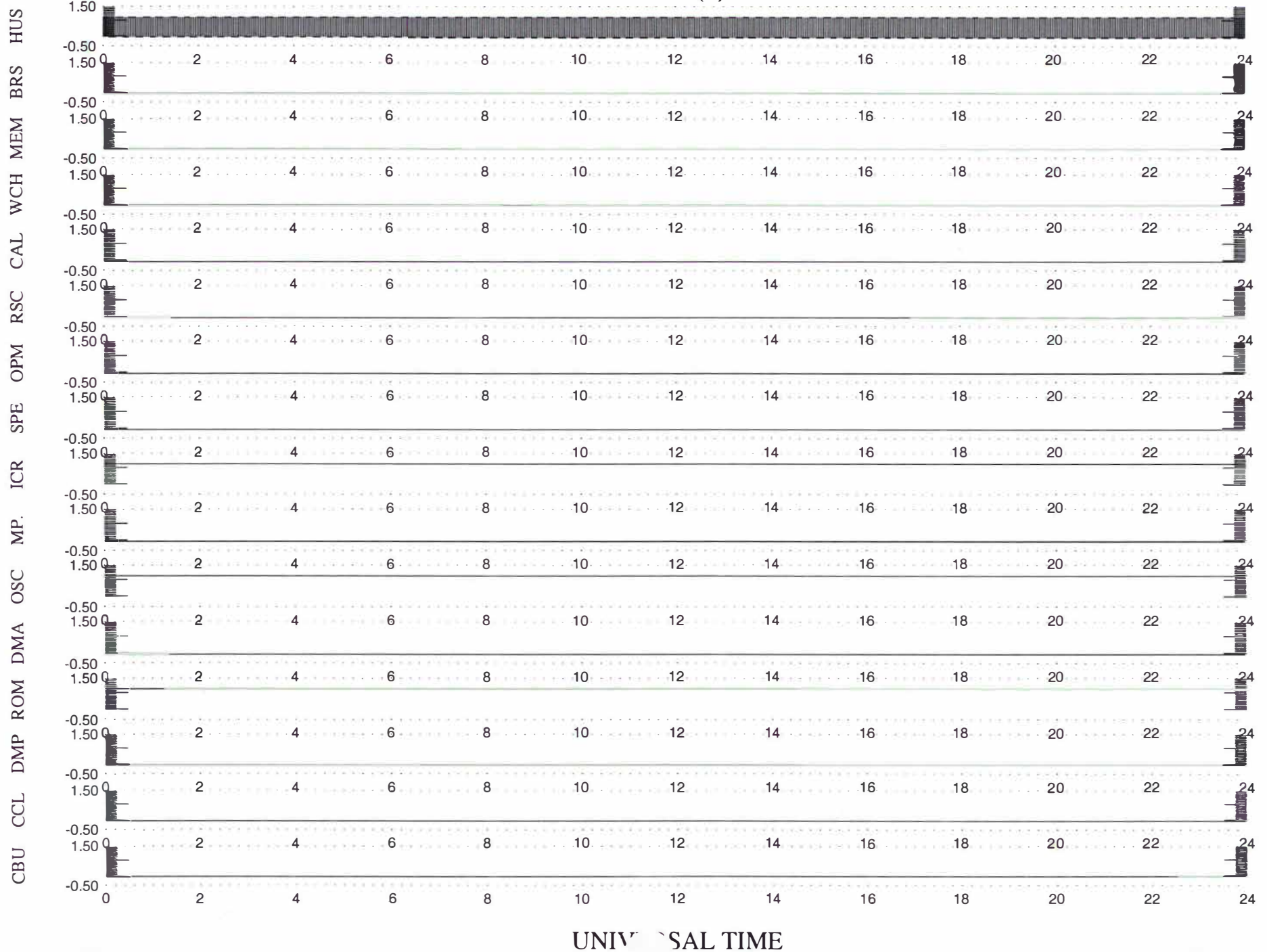
83218.006

40 - 700 keV

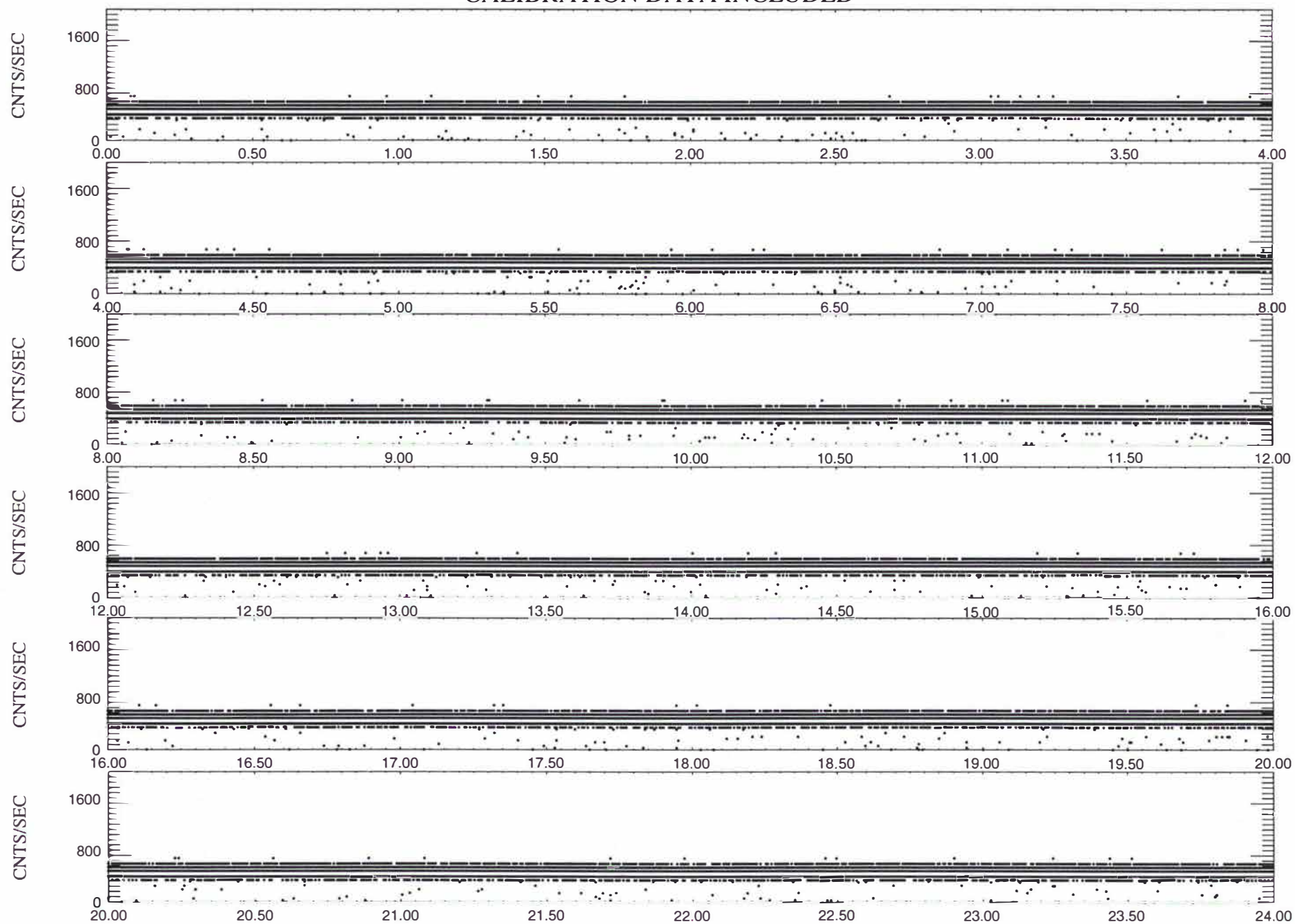
COUNTS/0.031 S



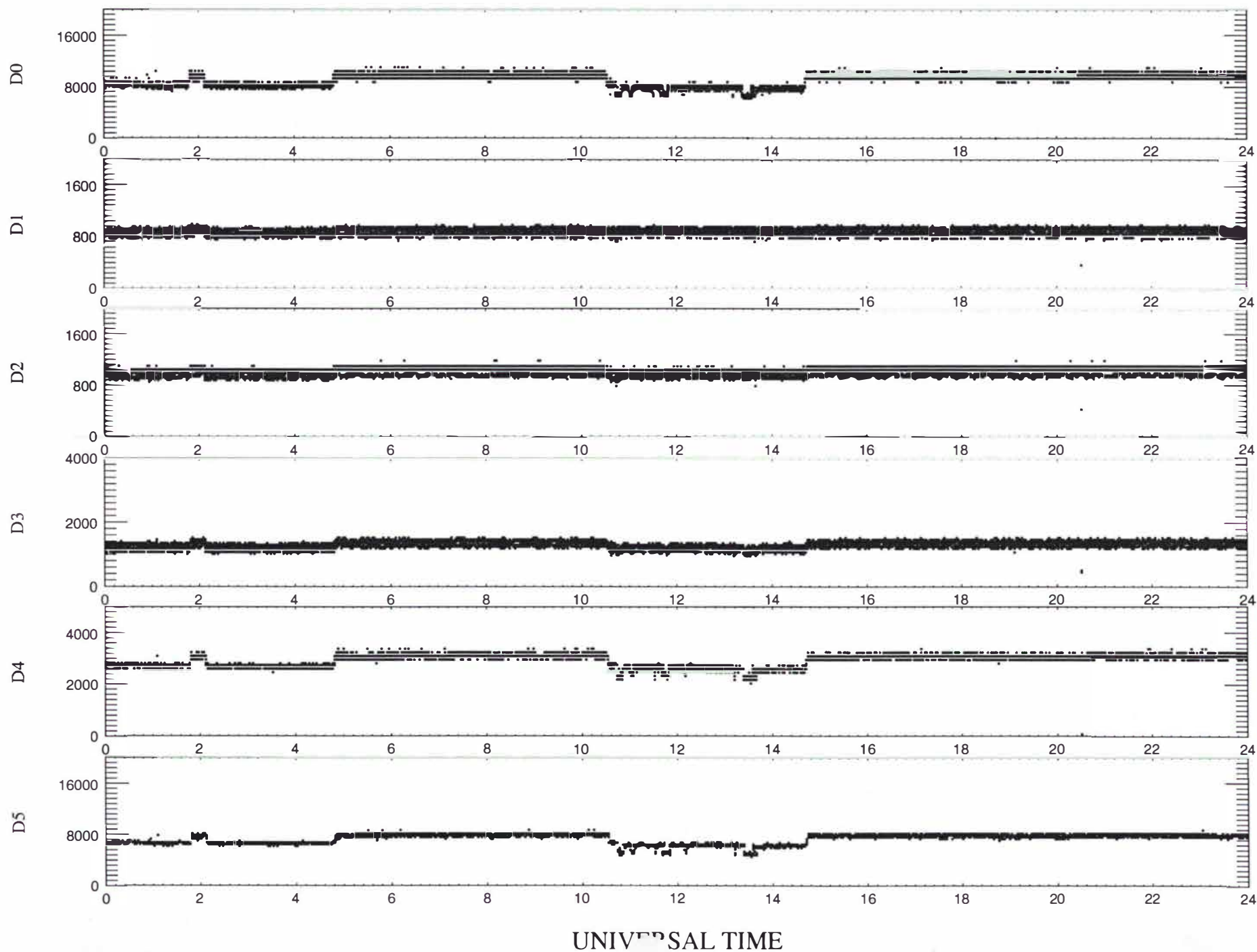
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



From guidorzi@fe.infn.it Thu Dec 14 02:21 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Thu, 14 Dec 2000 11:20:06 +0100 (MET)

1kGRB[145] #LSs: 2 Good HRR: 1
SW Trigger Time (OBT): 8440.912
UTC: Thu, 14 Dec 2000 05:59:08:18922

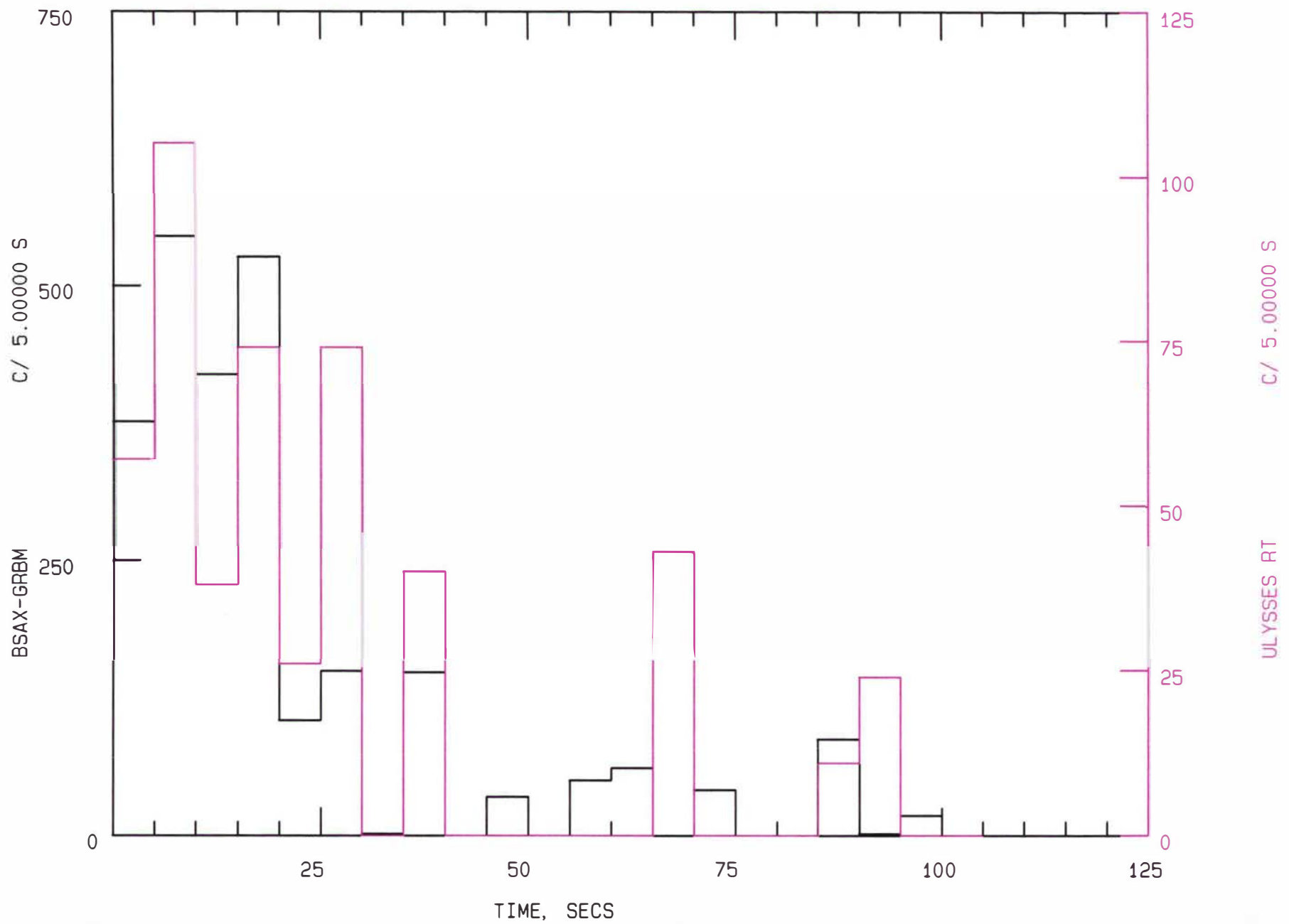
*****Event 0 triggered on board: ev_time - onbtrig_time = -2.491

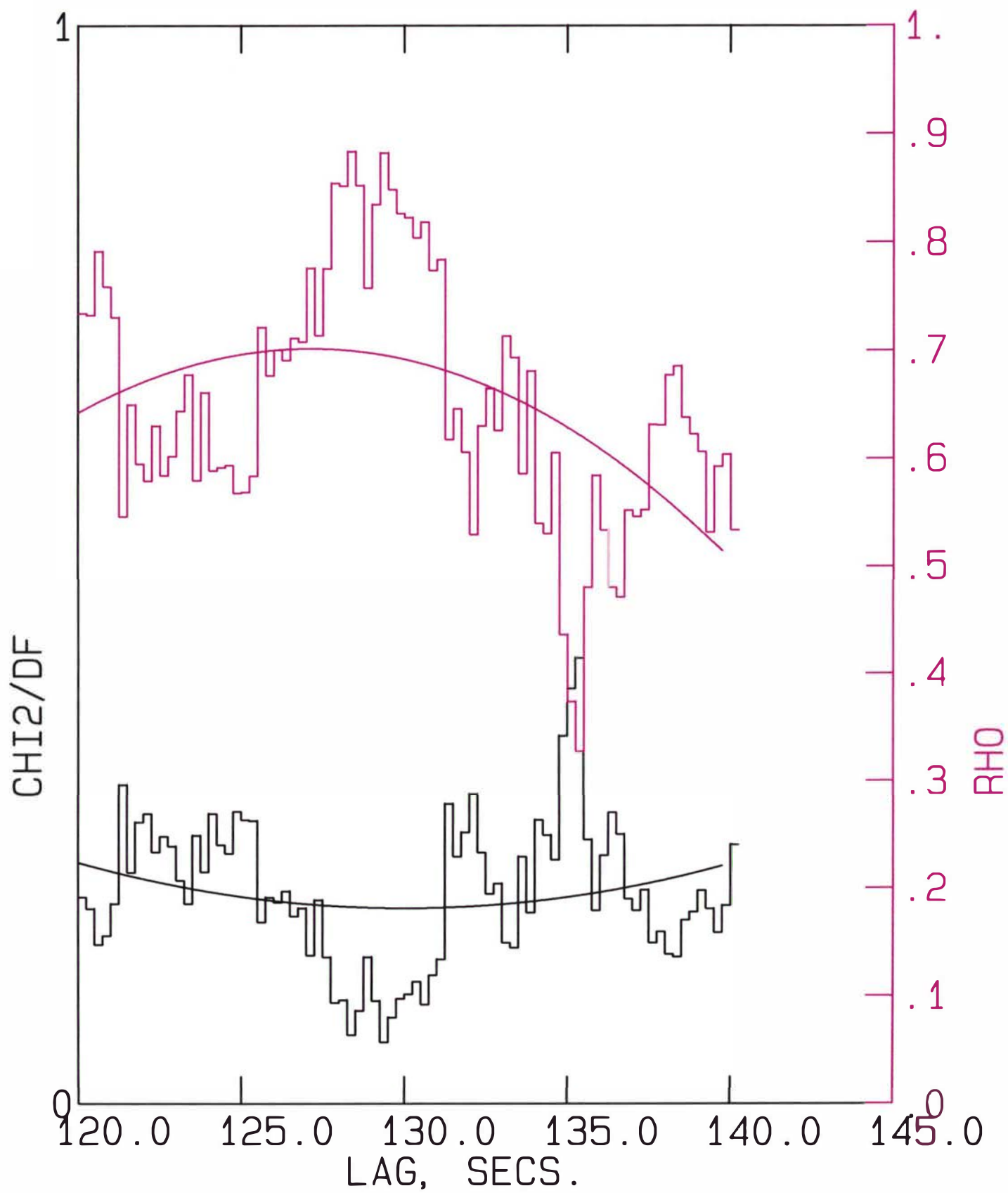
Nsig(trg):	7.1	3.3	1.5	2.1	4.9	1.8	0.8	1.6
Nsig(pfl):	8.0	3.3	0.0	2.1	4.9	1.8	0.0	1.6
Bkg lev. :	747	862	769	691	845	860	847	909
ChiSq R. :	0.949	0.773	0.989	1.240	0.944	0.886	0.871	1.190

Peak fl. :	219	97	0	56	142	53	0	50
Error :	41.5	42.8	0.0	38.0	42.9	42.2	0.0	43.3

Fluence :	603	97	0	56	401	53	0	50
Error :	81.3	42.8	0.0	38.0	84.7	42.2	0.0	43.3

Dur (s) :	15.00	1.00	0.00	1.00				
Abundance:	4	1	0	1				
H. Ratio :	0.665	0.552	-1.000	0.881				
HR Ratio :	1.204	-1.000	0.755	-1.000	0.627	-1.000		
HR W-ave :	0.660	+/-	0.156					



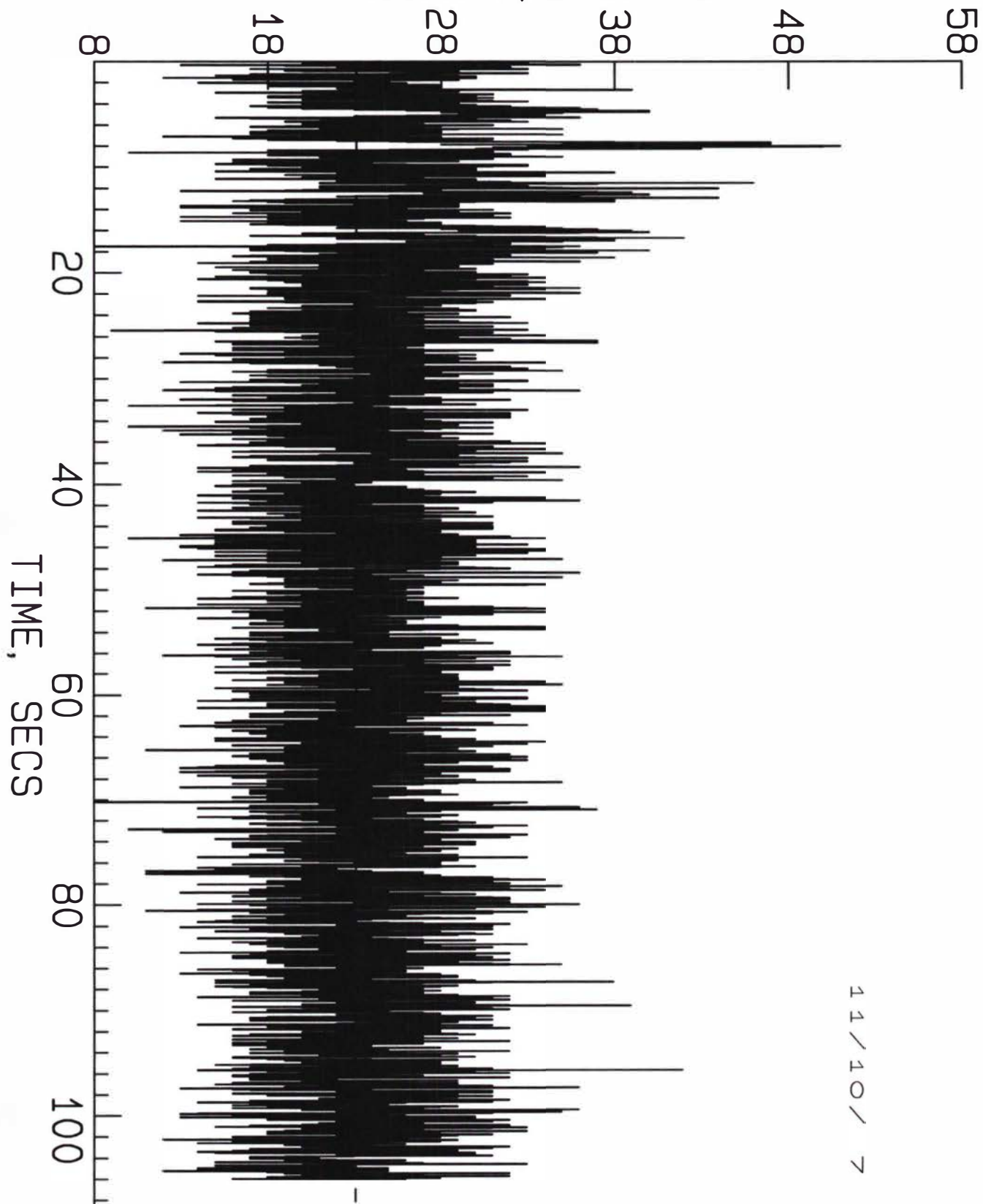


SAX GRBM

14/12/00 21542.680

40- 700 keV

COUNTS/0.031 S



11/10/7

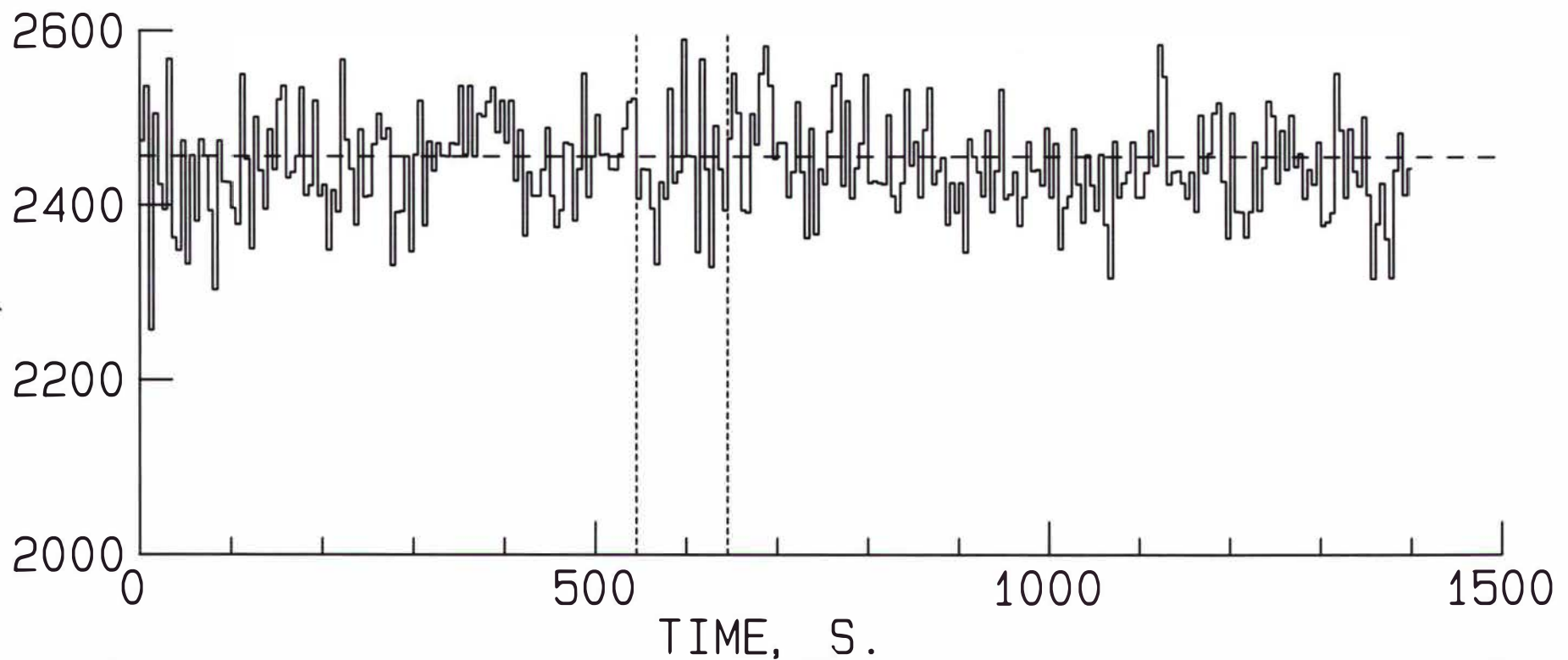
ULYSSES RT

11/10/7

14/12/ 0 20412.051 s

0.250 S INTERVALS REGROUPED BY 20

23- 158 keV



GRBM 20001214 21118

ULYSSES RT

04/10/07

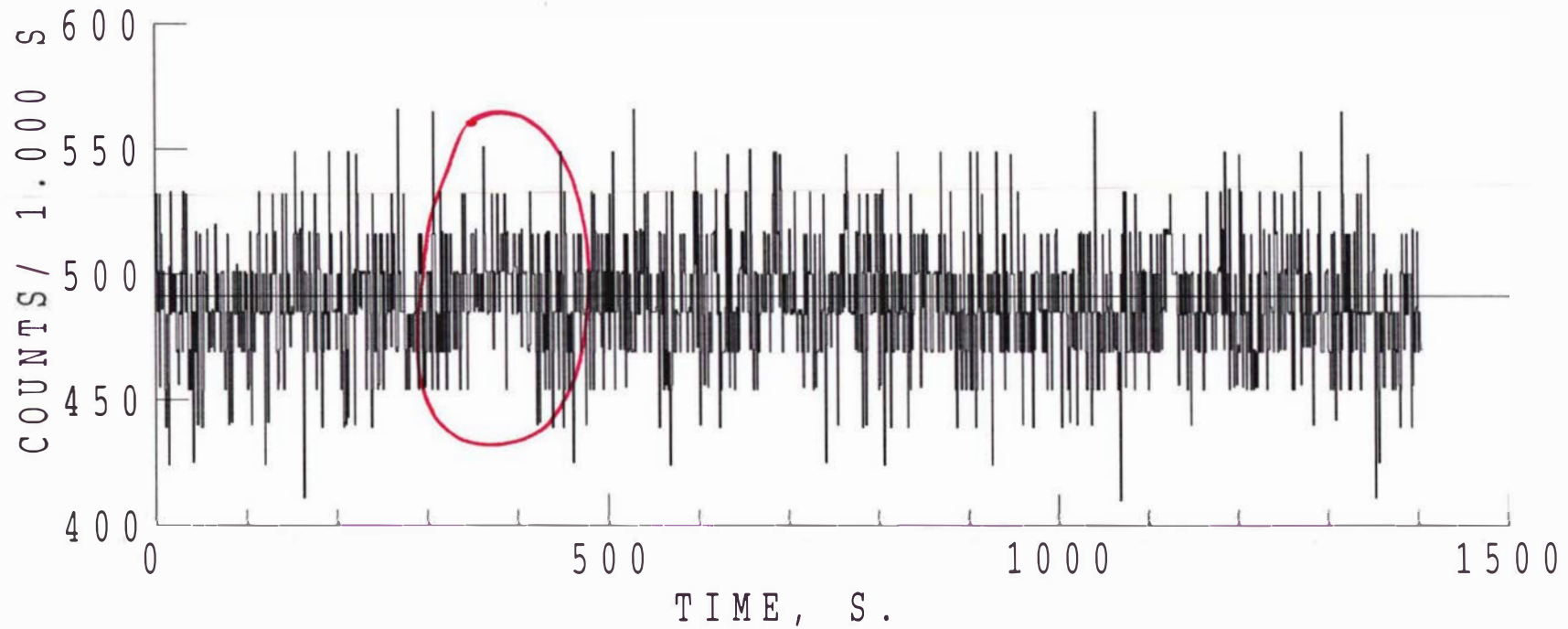
14/12/00 20412.051 s

0.250 S INTERVALS REGROUPED BY 4

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



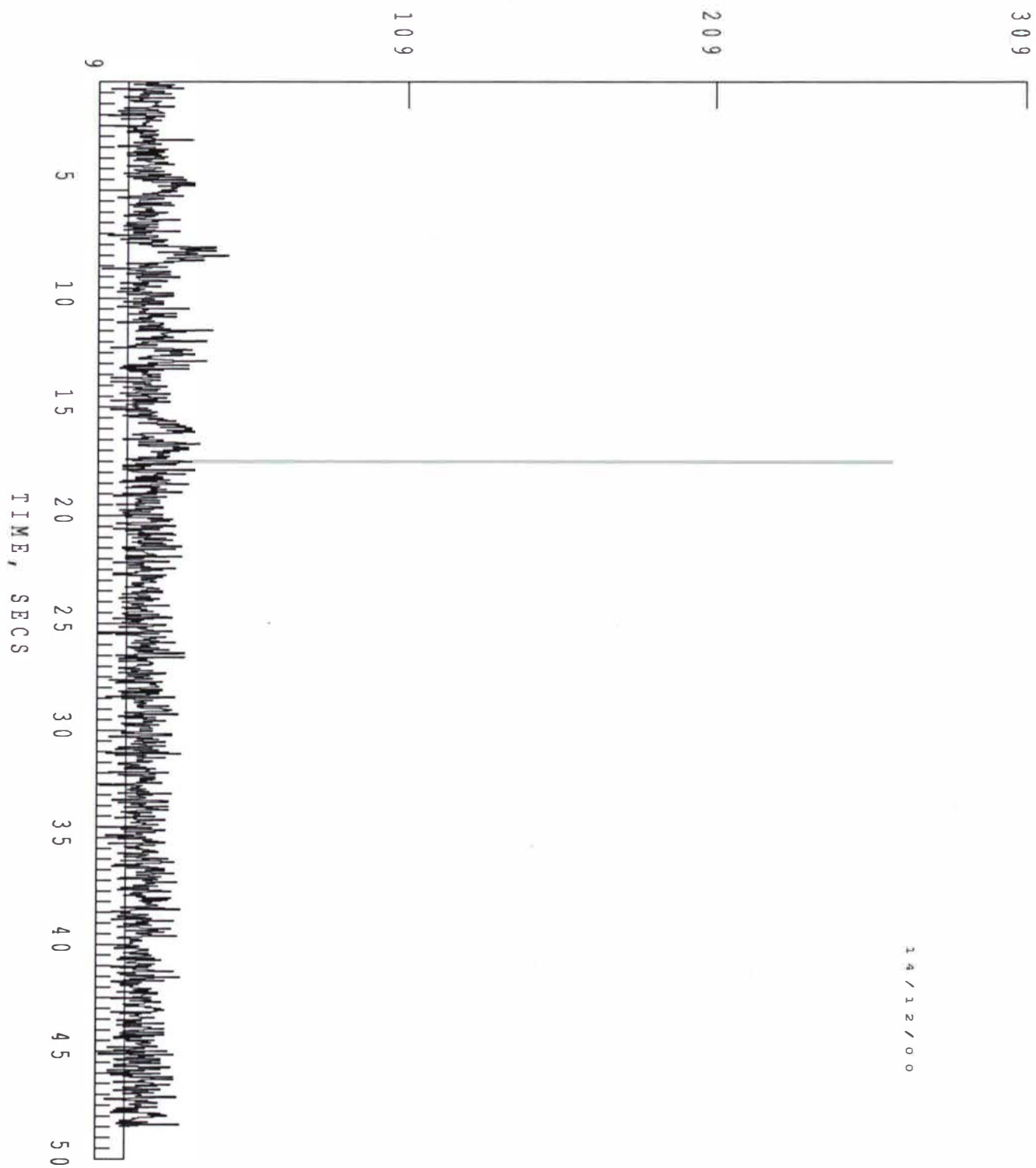
BSAX-GRBM

14/12/00

21542.680

40 - 700 keV

COUNTS/0.031 S



SAX 20001214 21548

ULYSSES RT

14/12/00

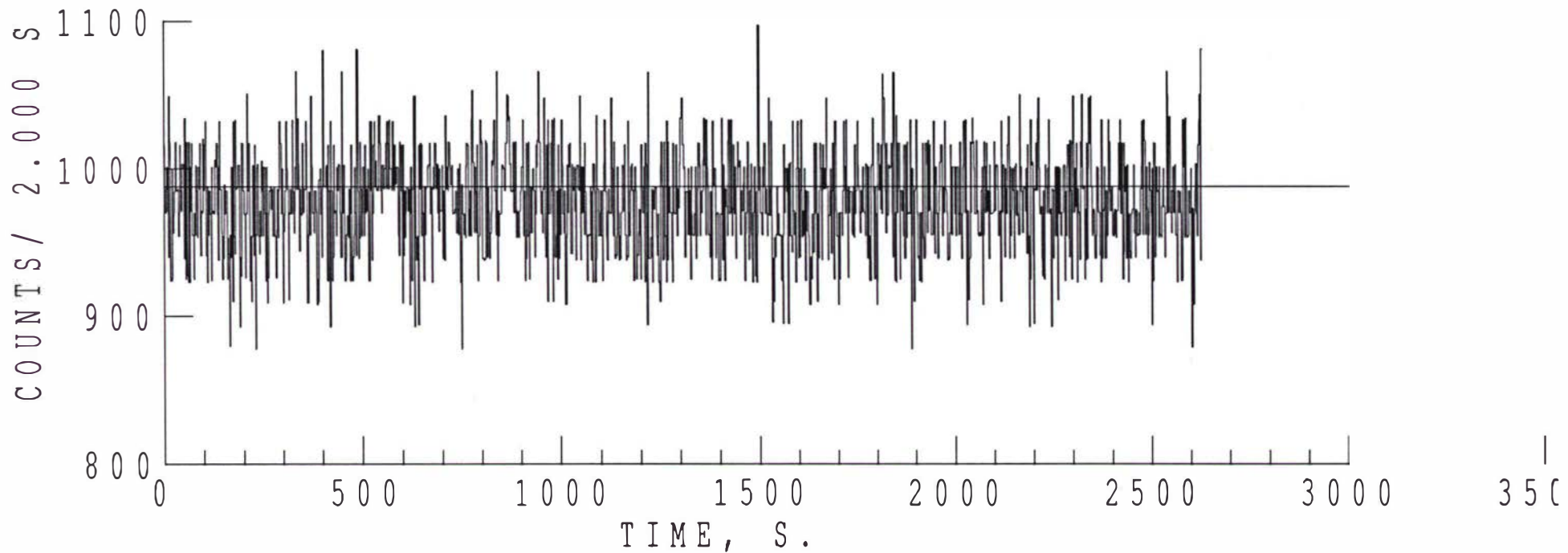
20232.049 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

H= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

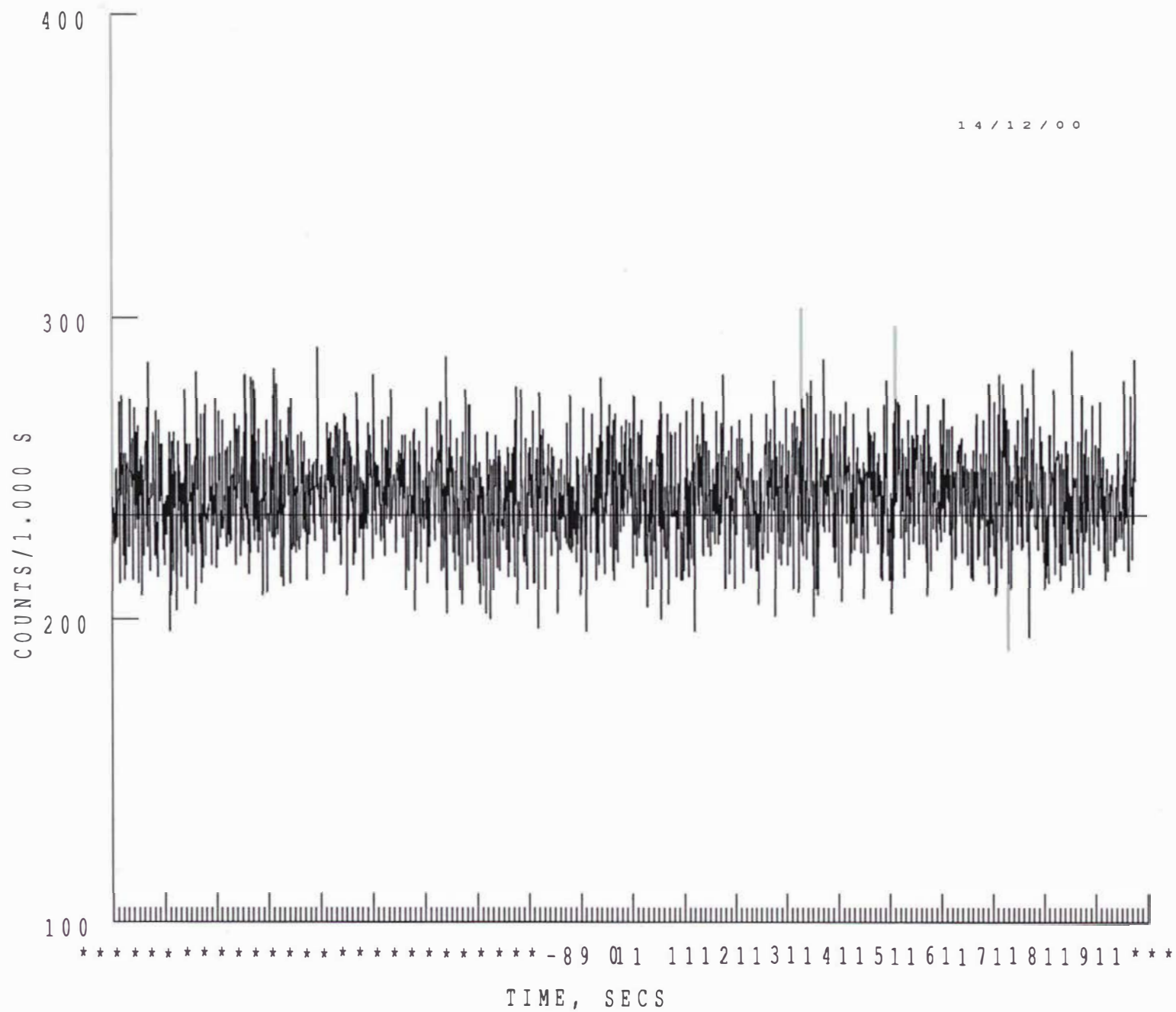
H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



14/12/00 21547.085

100-1000 keV

NEAR



Date: Oct 11 '07

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

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

3. For INTEGRAL events

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

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

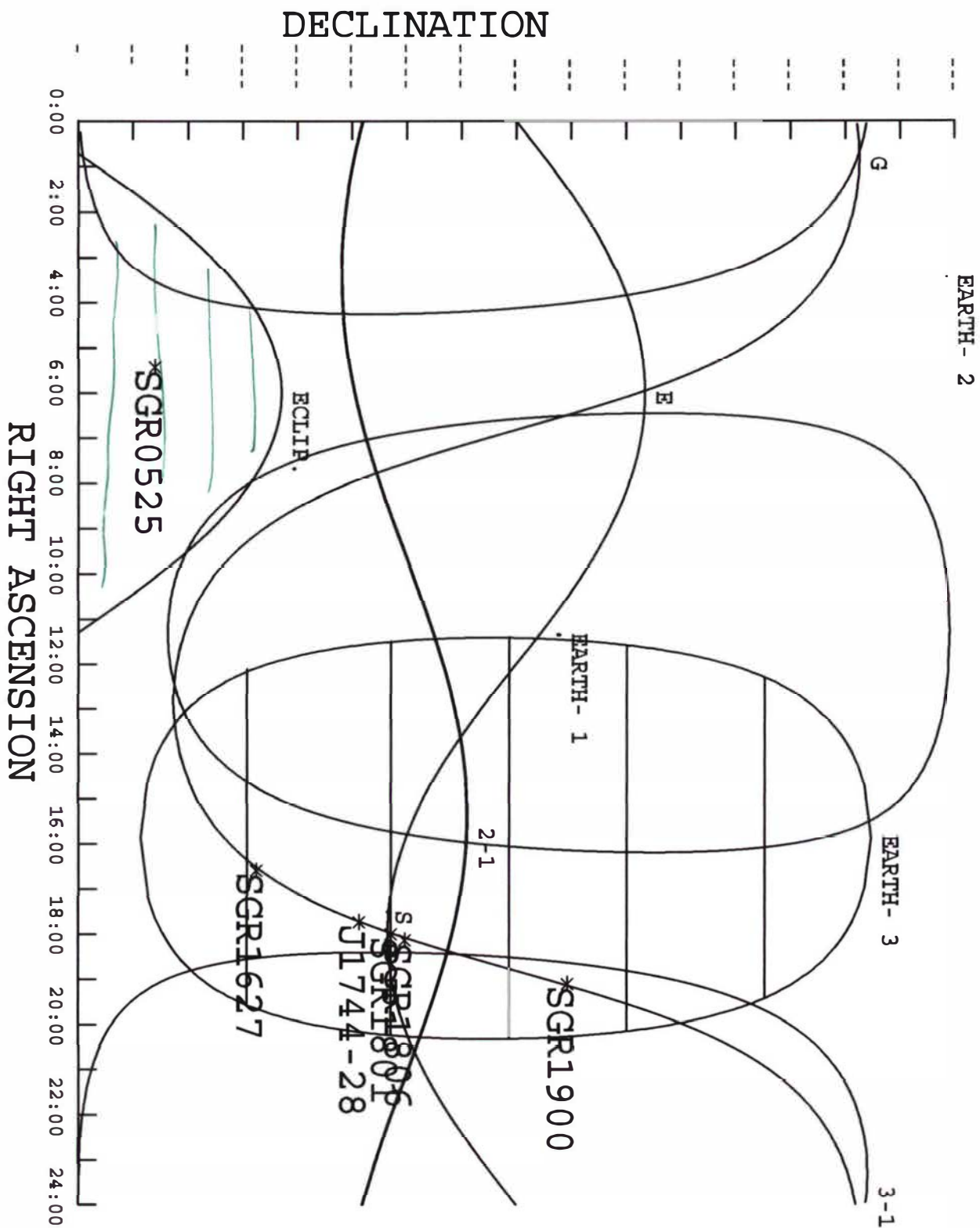
1 KONUS1

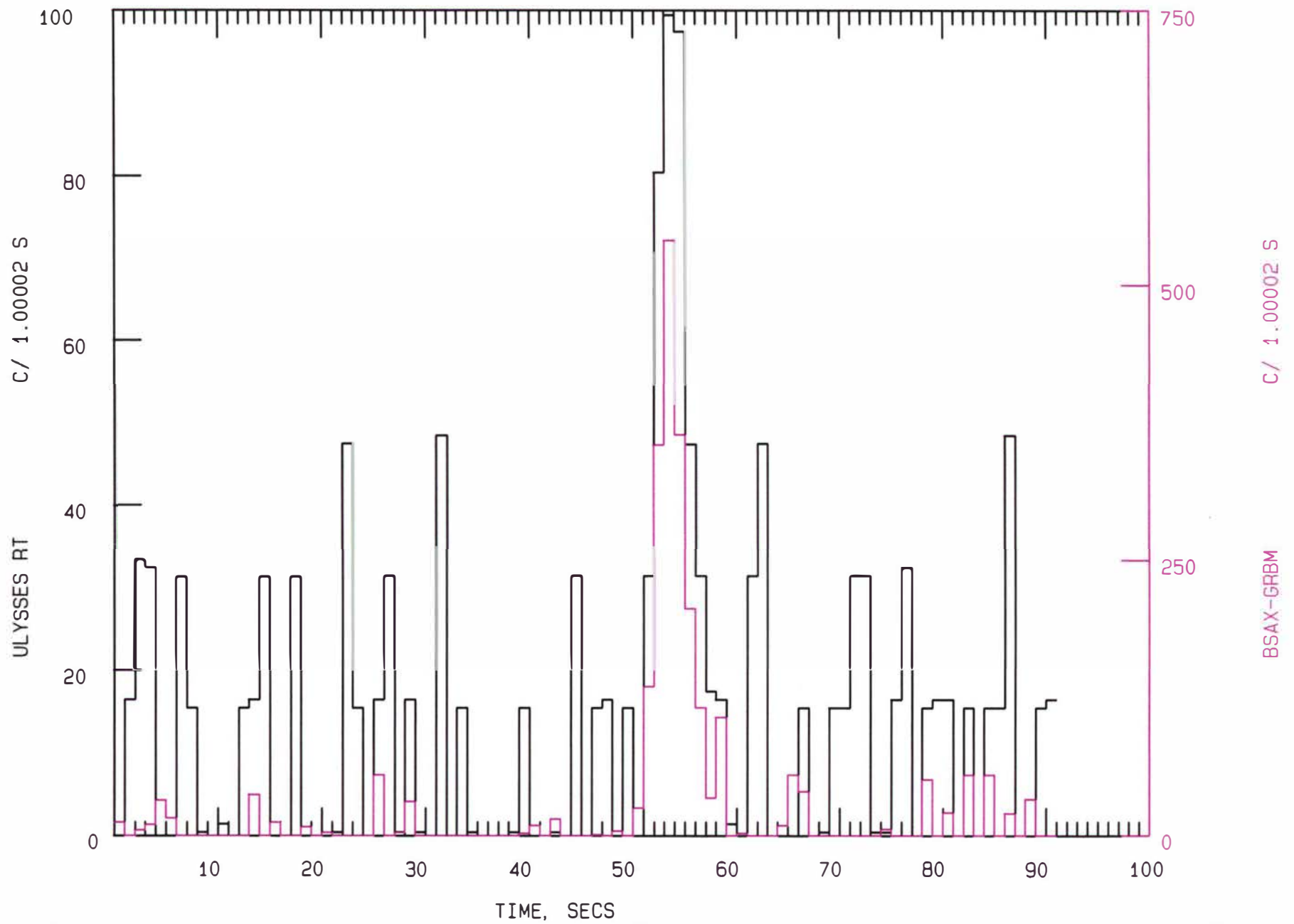
2 ULYSSES

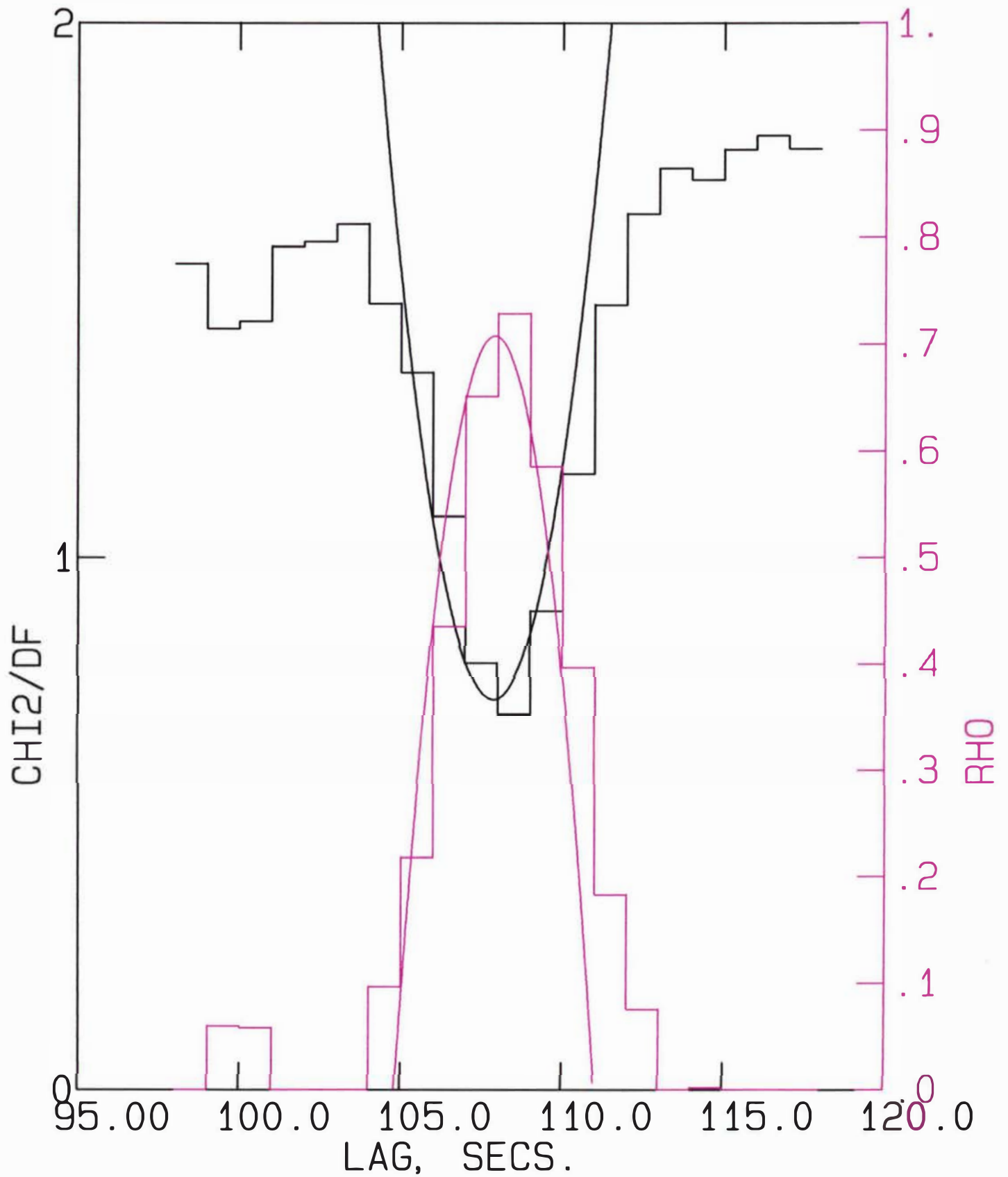
3 SAX

EVENT OF DEC 14, 2000 21:03

11/10/ 7







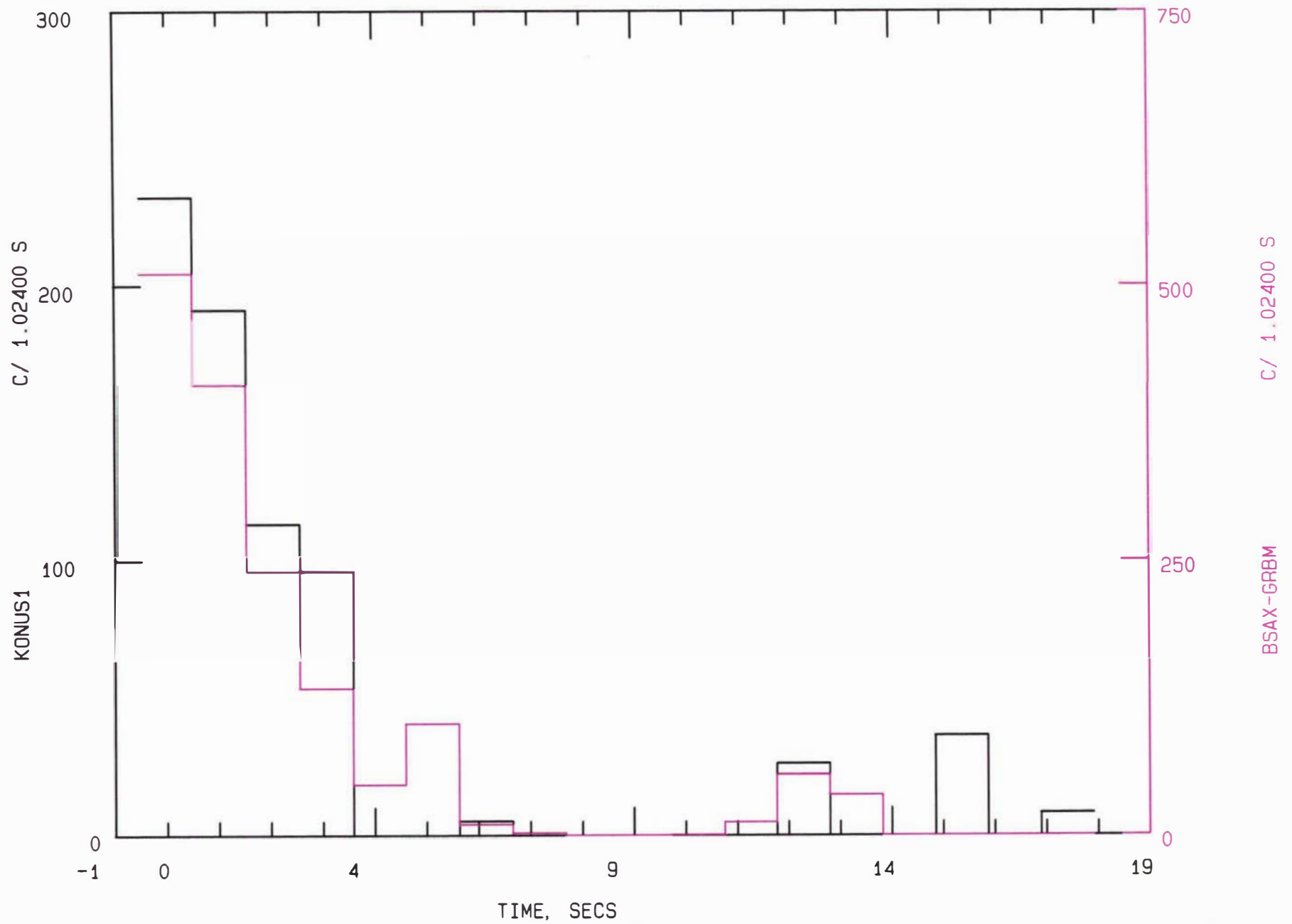
KONUS1

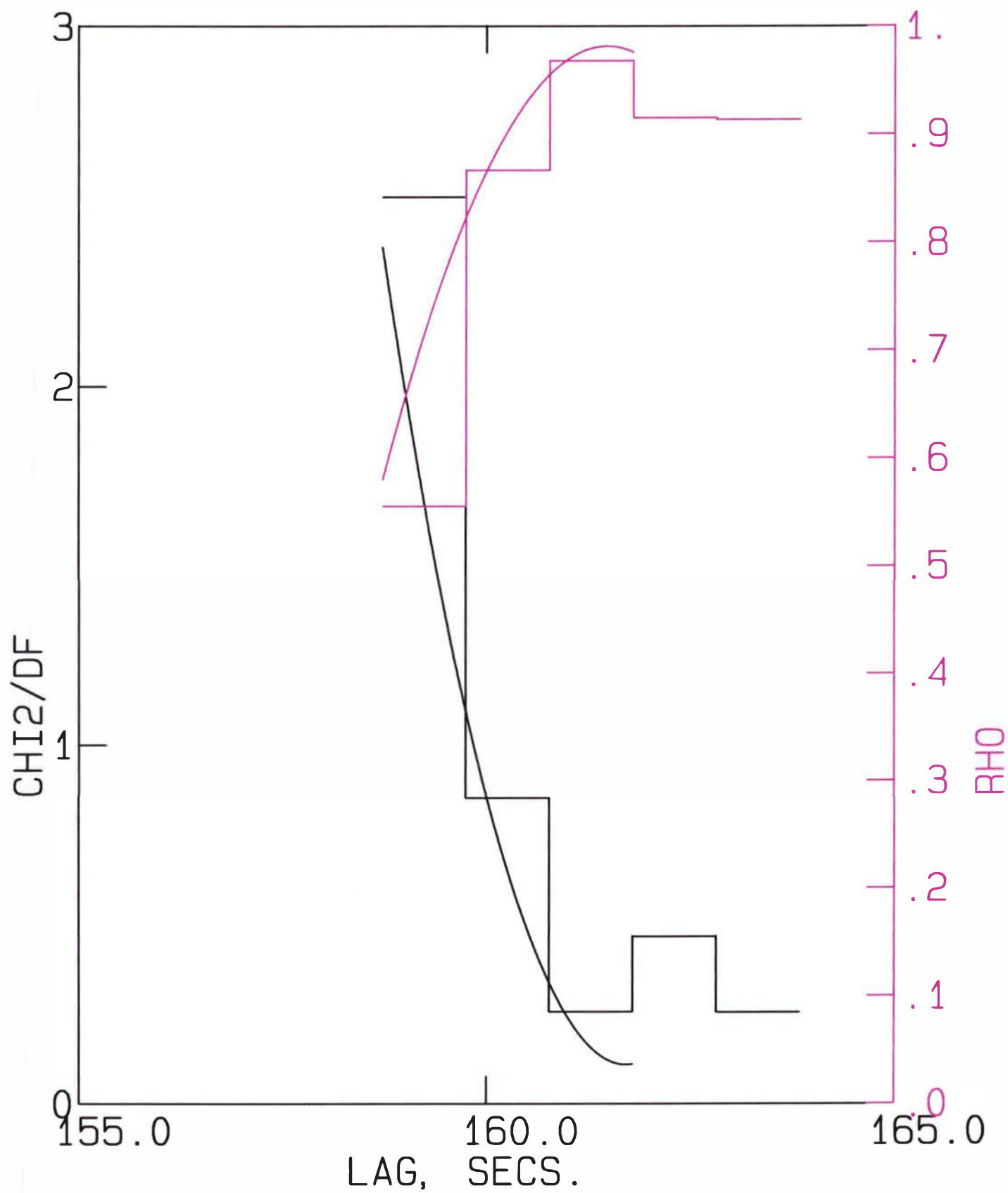
-BSAX-GRBM CORRELATION

14/12/00

75788.523

11/10/ 7





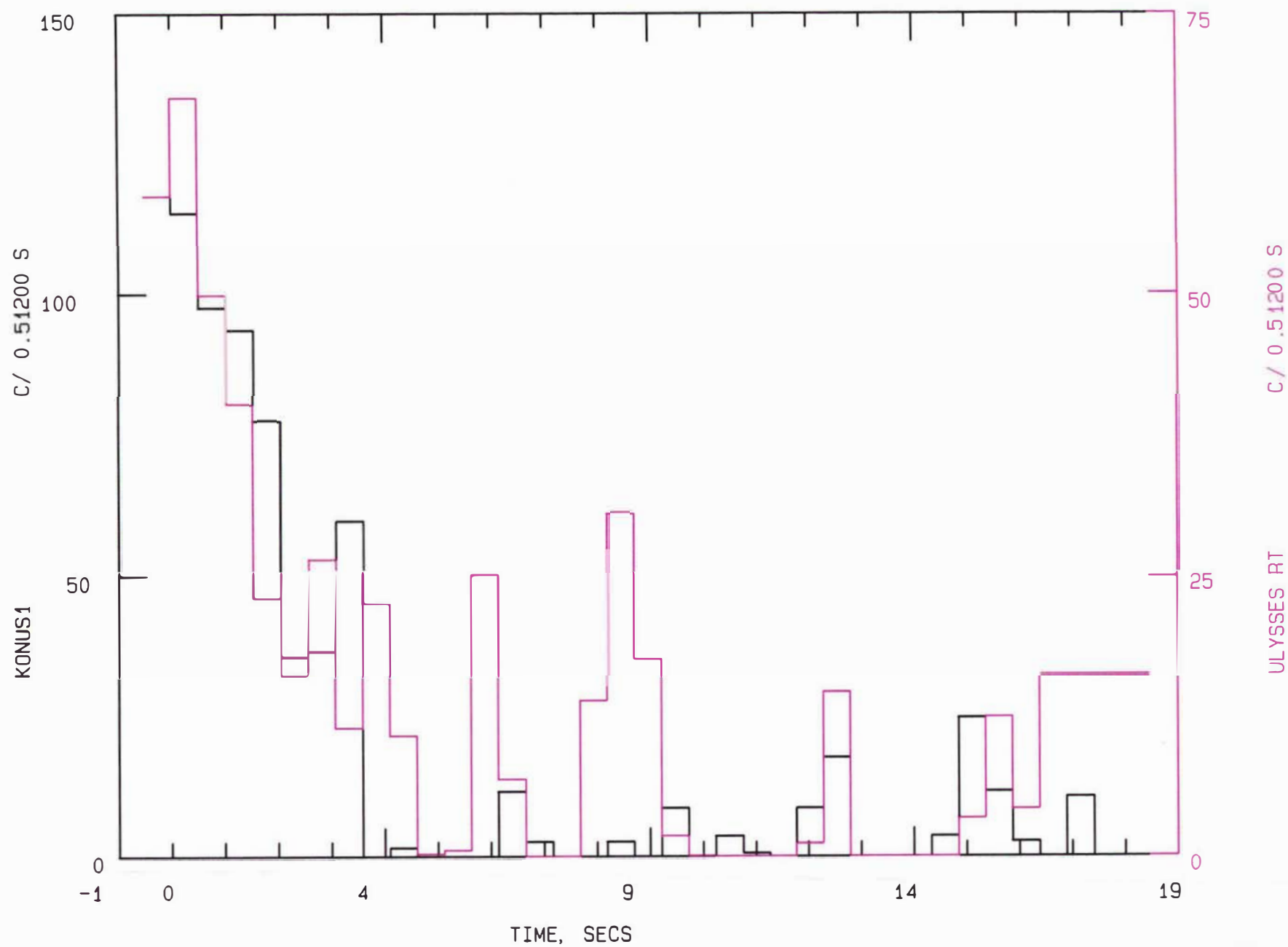
KONUS1

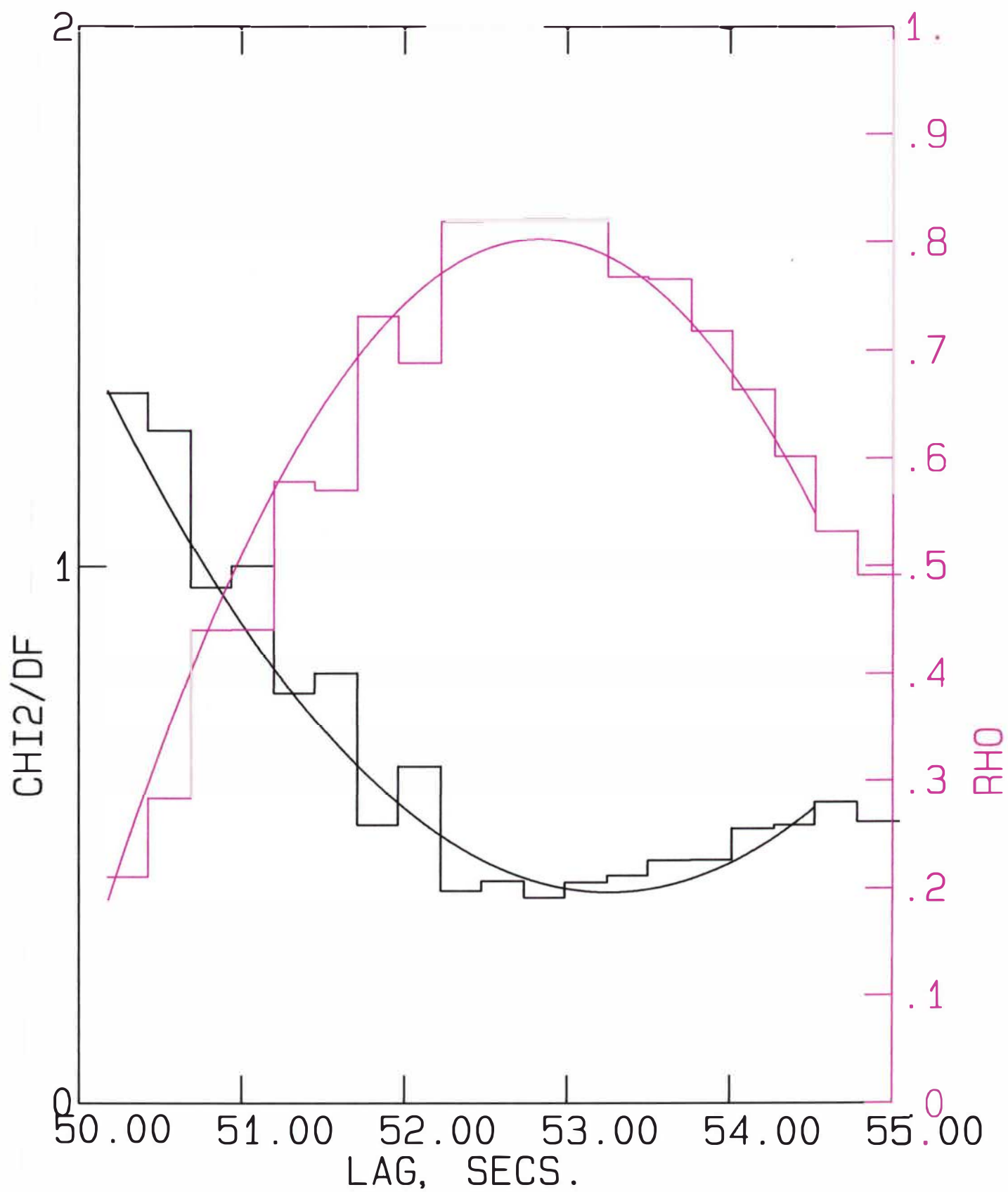
-ULYSSES RT CORRELATION

14/12/00

75788.523

11/10/ 7





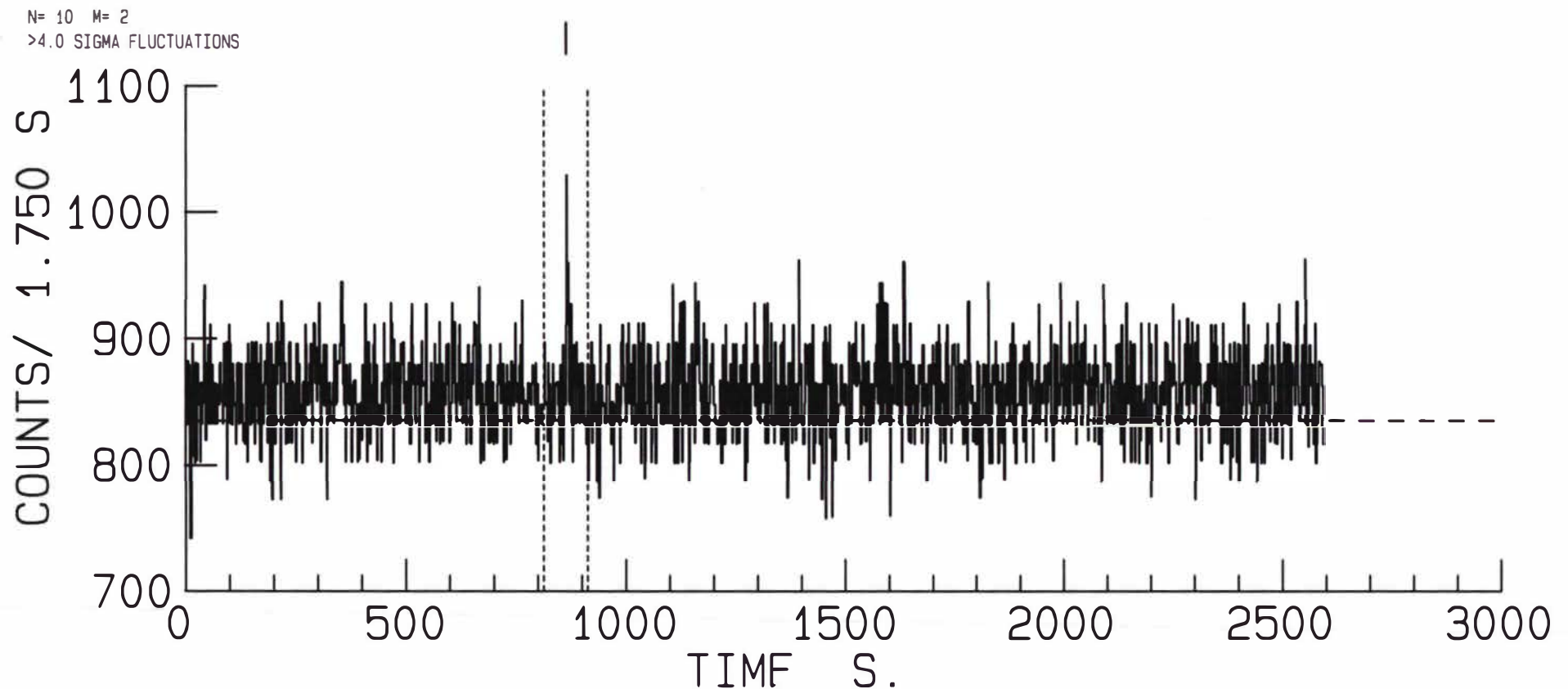
ULYSSES RT

11/10/7

14/12/ 0 74484.156 s

0.250 S INTERVALS REGROUPED BY 7

23- 158 keV

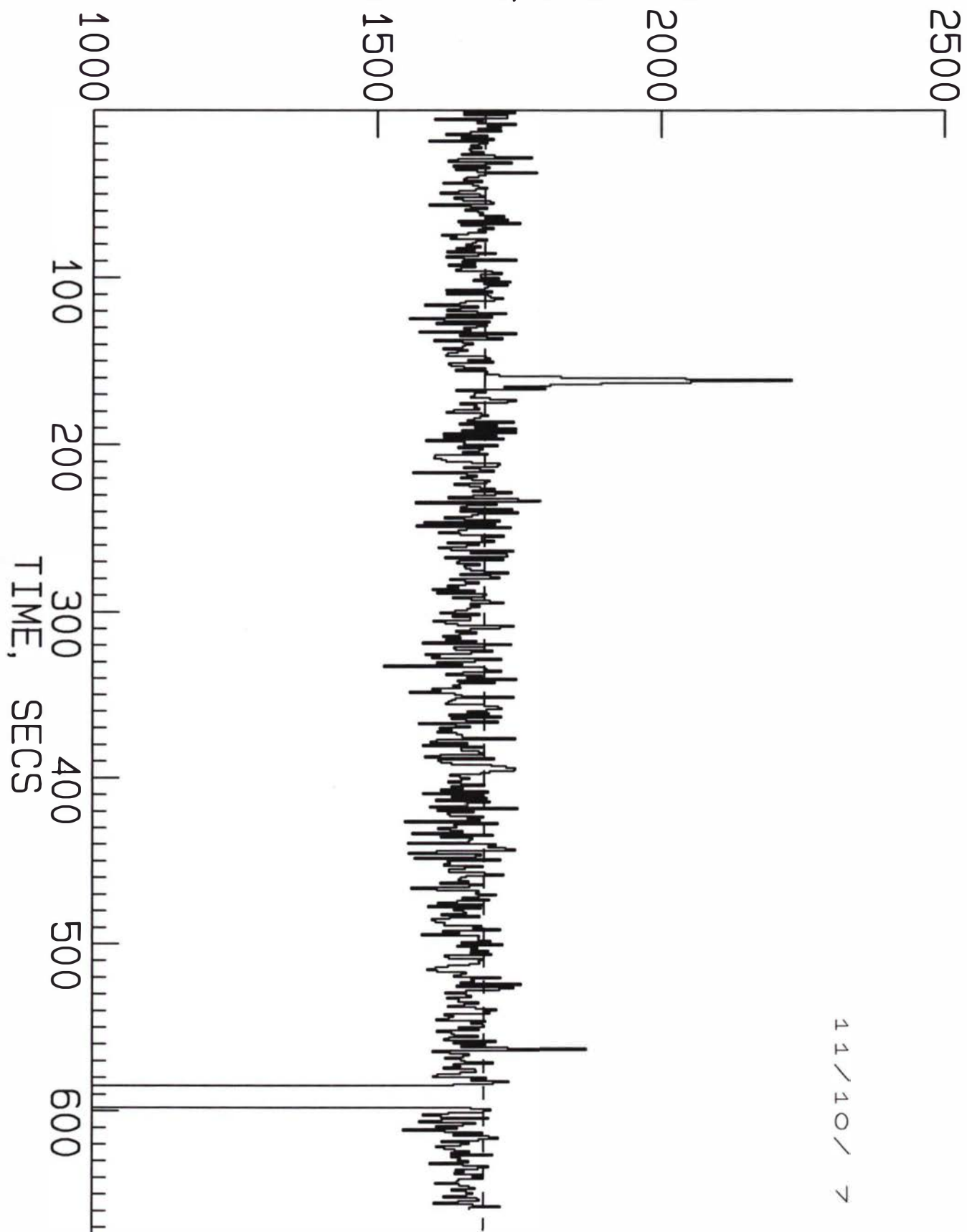


SAX GRBM

14/12/00 75625.169

40- 700 keV

COUNTS/1.000 S



From guidorzi@fe.infn.it Thu Dec 14 15:51 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Fri, 15 Dec 2000 00:50:06 +0100 (MET)

1kGRB[146] #LSs: 3 Good HRR: 4
SW Trigger Time (OBT): 62678.911
UTC: Thu, 14 Dec 2000 21:03:06:16810

Nsig(trg):	6.1	6.0	7.4	5.1	4.8	2.1	3.5	4.3
Nsig(pfl):	7.1	9.3	10.6	5.1	4.8	5.2	5.7	4.3
Bkg lev. :	770	882	778	729	903	944	931	953
ChiSq R. :	1.258	1.137	1.199	1.032	0.929	1.004	1.000	0.852

Peak fl. :	198	276	295	138	145	159	175	133
Error :	41.8	45.2	43.1	40.0	44.2	45.3	45.2	45.2

Fluence :	592	845	914	528	387	409	552	369
Error :	82.3	98.5	93.4	88.5	87.4	99.4	99.5	99.7

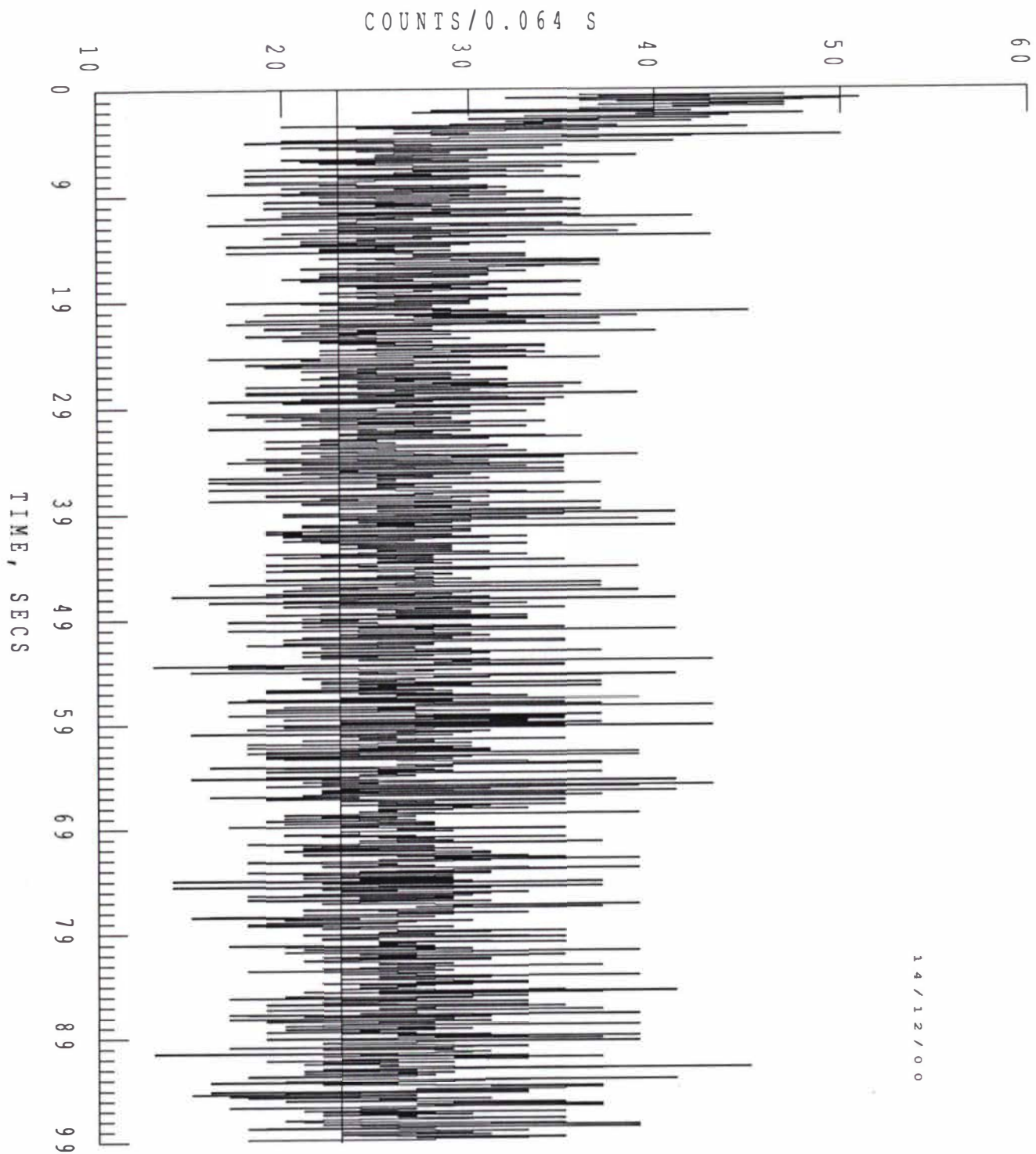
Dur (s) :	4.00	5.00	5.00	5.00				
Abundance:	4	5	5	5				
H. Ratio :	0.654	0.483	0.603	0.699				
HR Ratio :	1.353	1.085	0.936	0.802	0.692		0.863	
HR W-ave :	0.584	+/-	0.075					

KONUS1

14/12/00

75788.523

50 - 200 keV



KONUS1 20001214 75788

ULYSSES RT

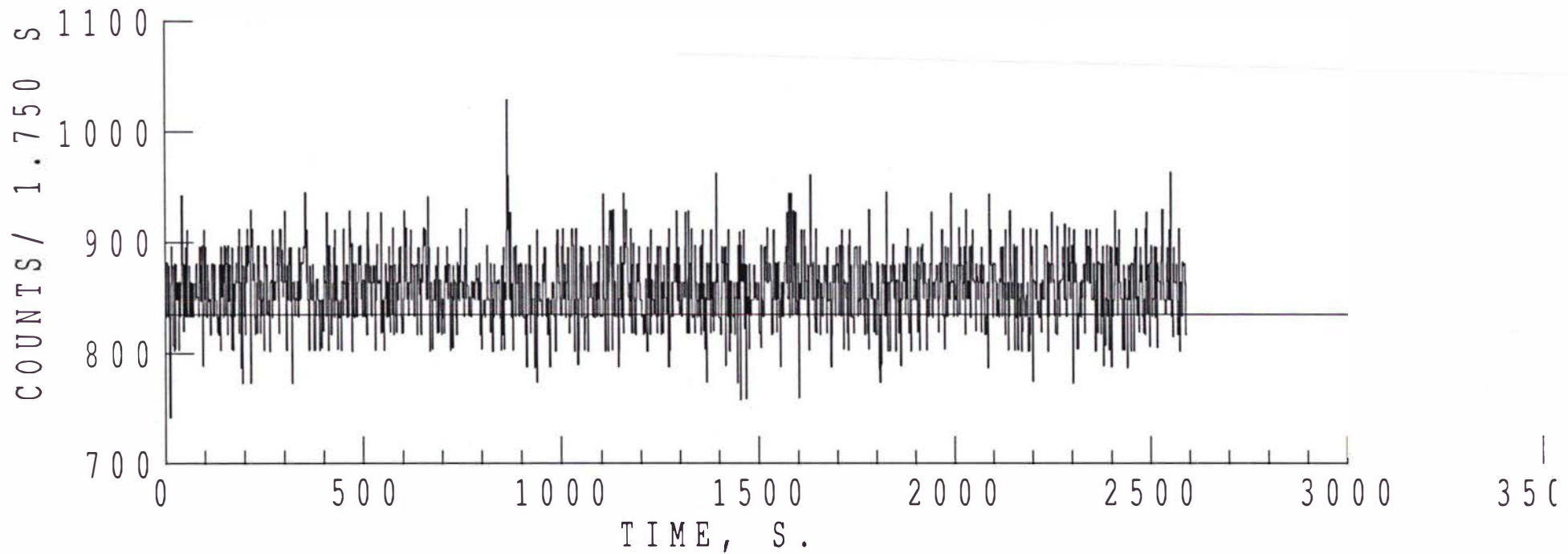
15 / 12 / 00

14/12/00 74484.156 s

0.250 S INTERVALS REGROUPED BY 7

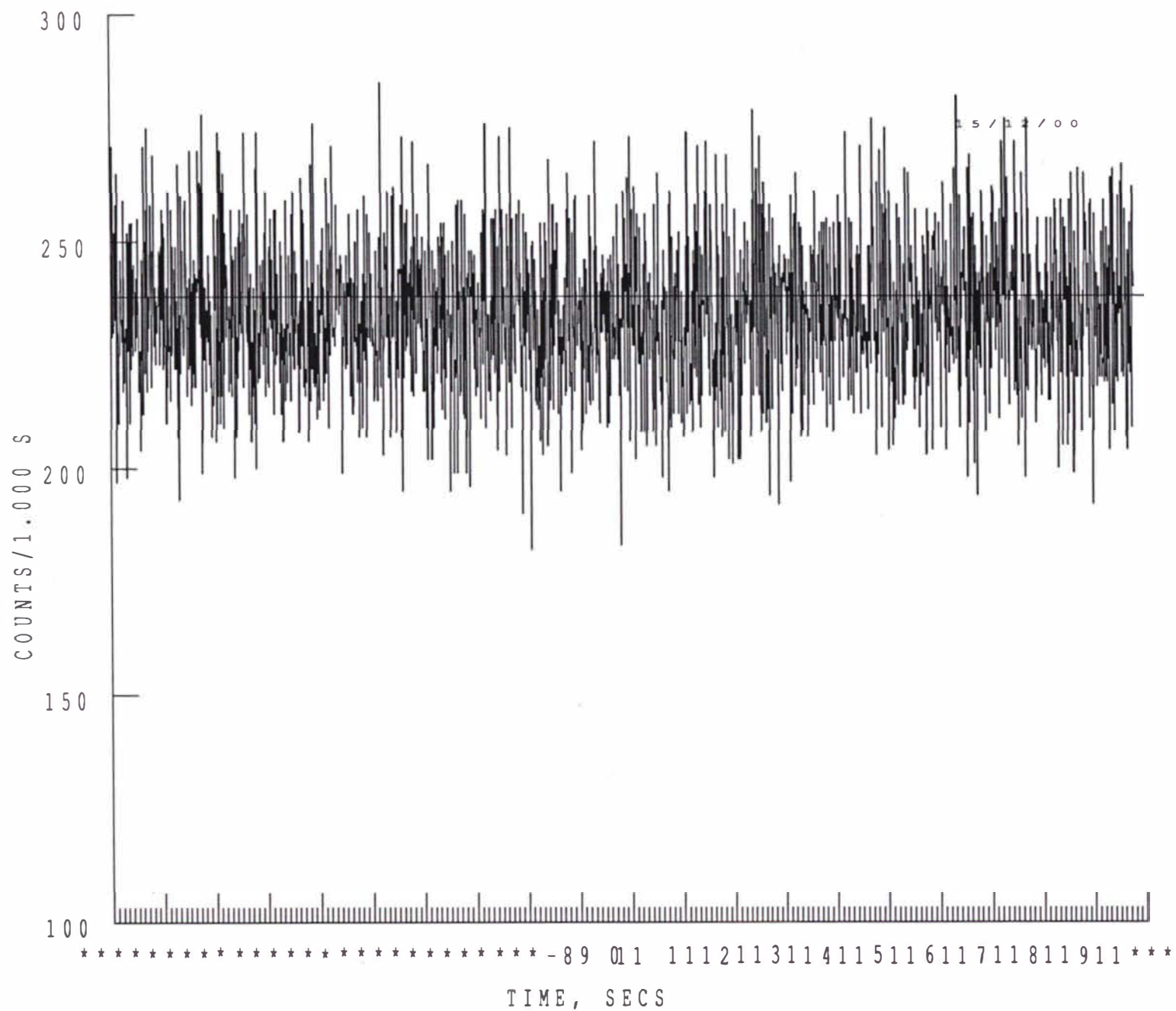
0 - 0 keV

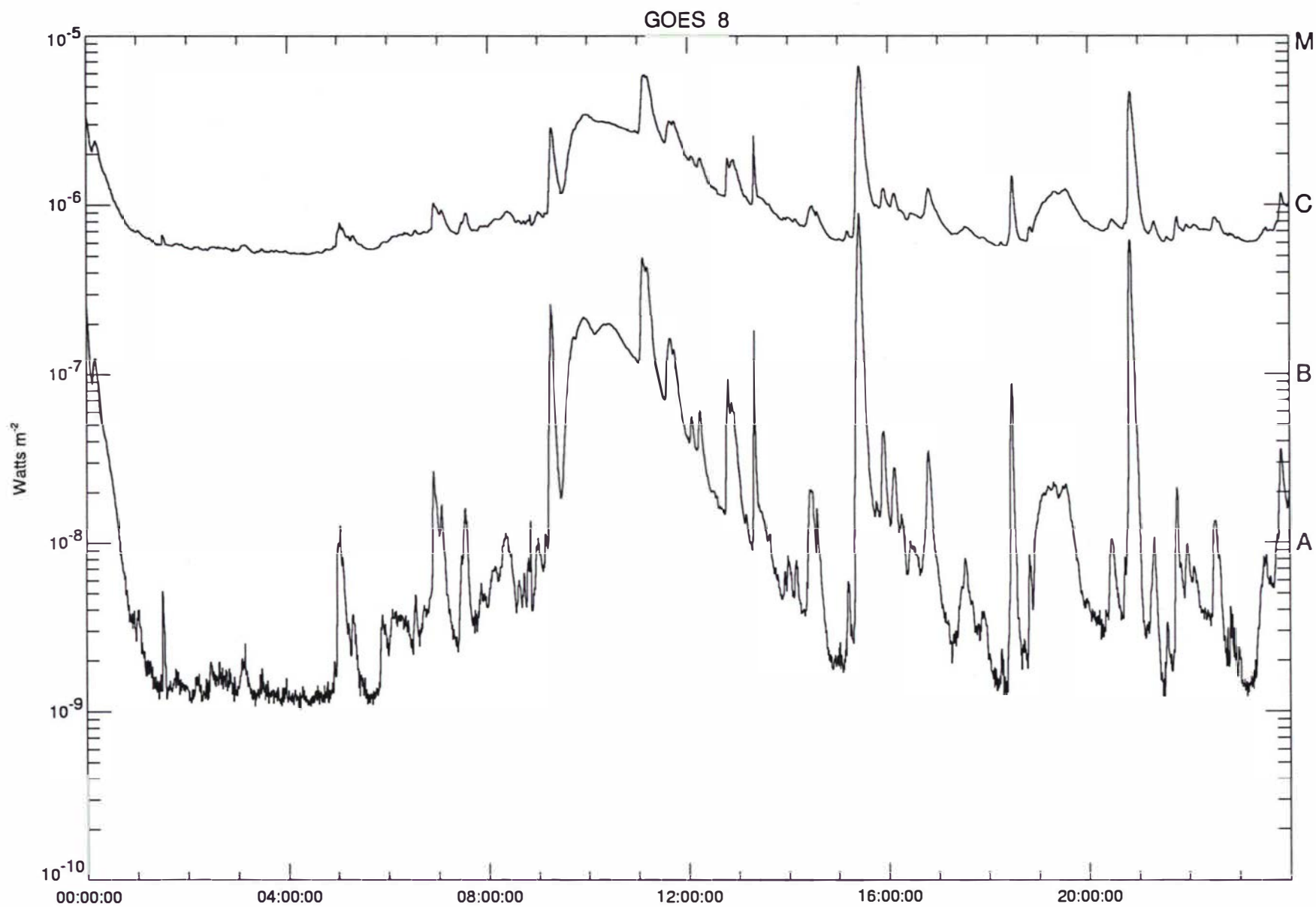
U= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



14/12/00 75785.066

100-1000 keV





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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

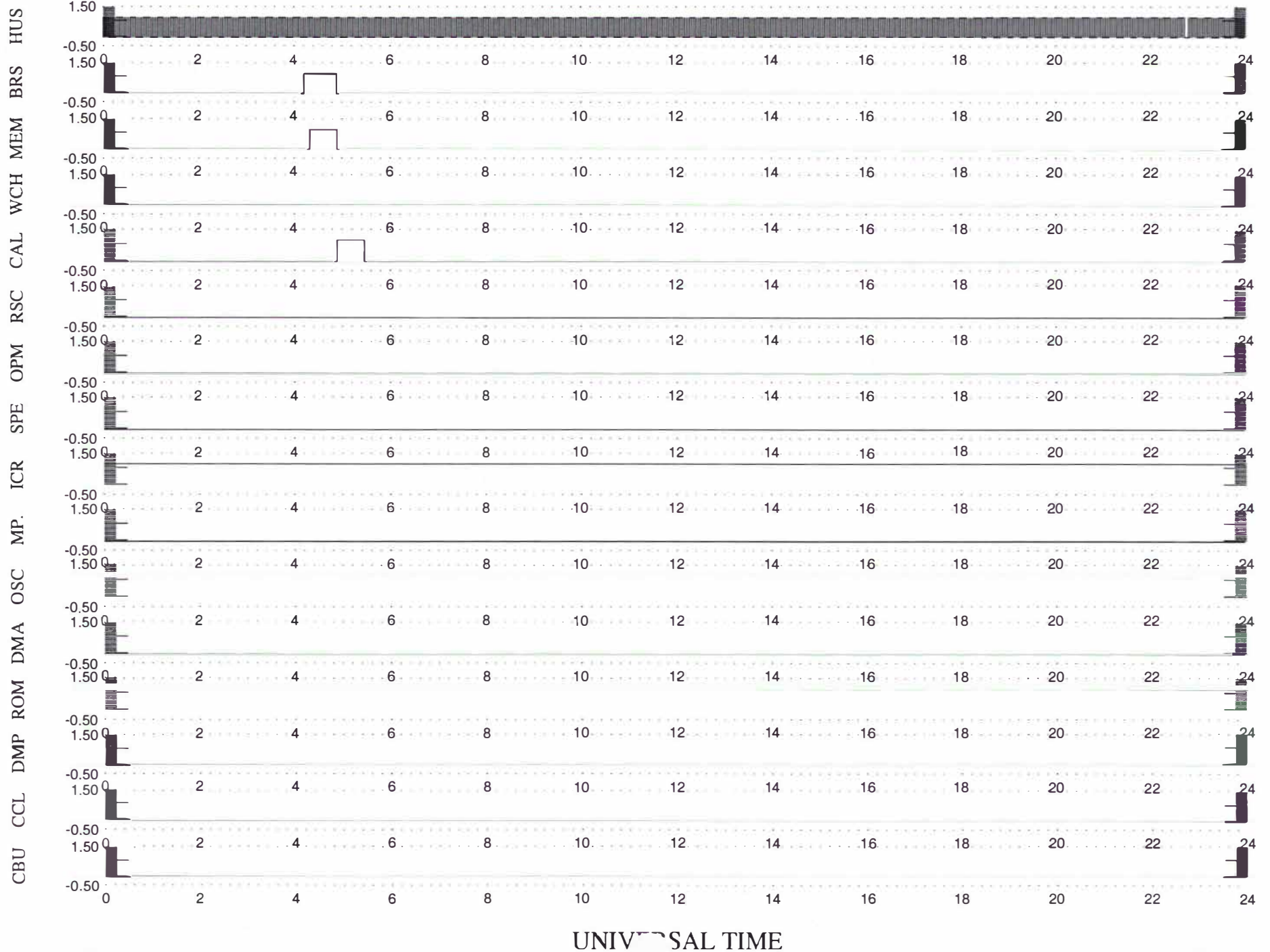
2 (0.5 - 4.0 Angstroms)

Background not subtracted

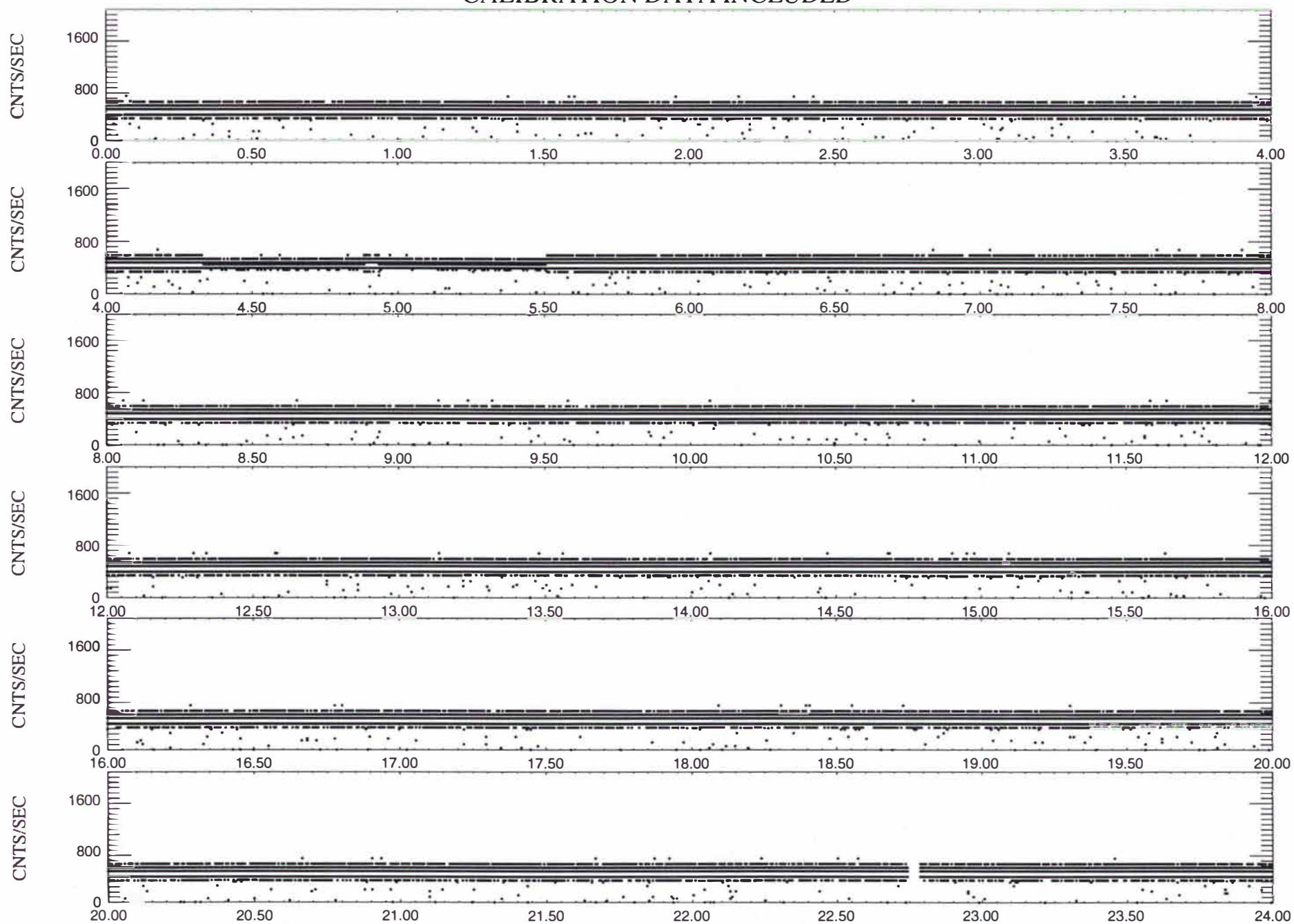
Plot created: 00/12/18, 1056

Sample average = 10

BURST NUMBER 1

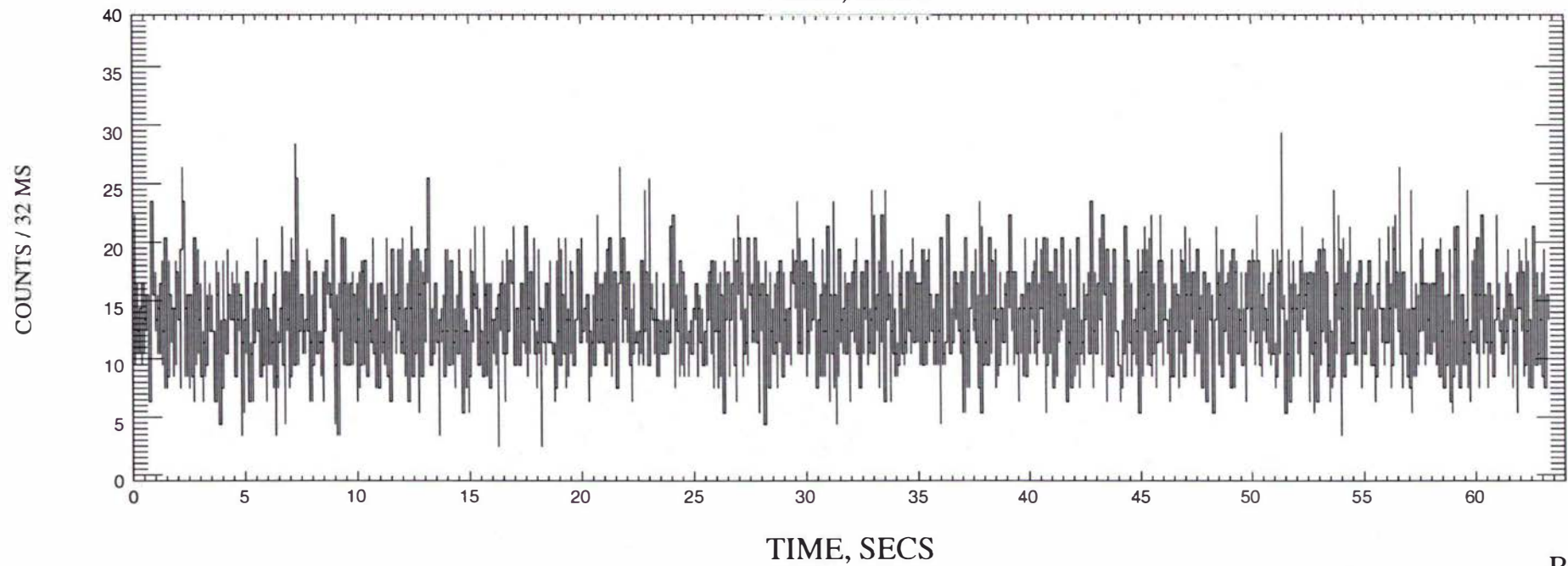
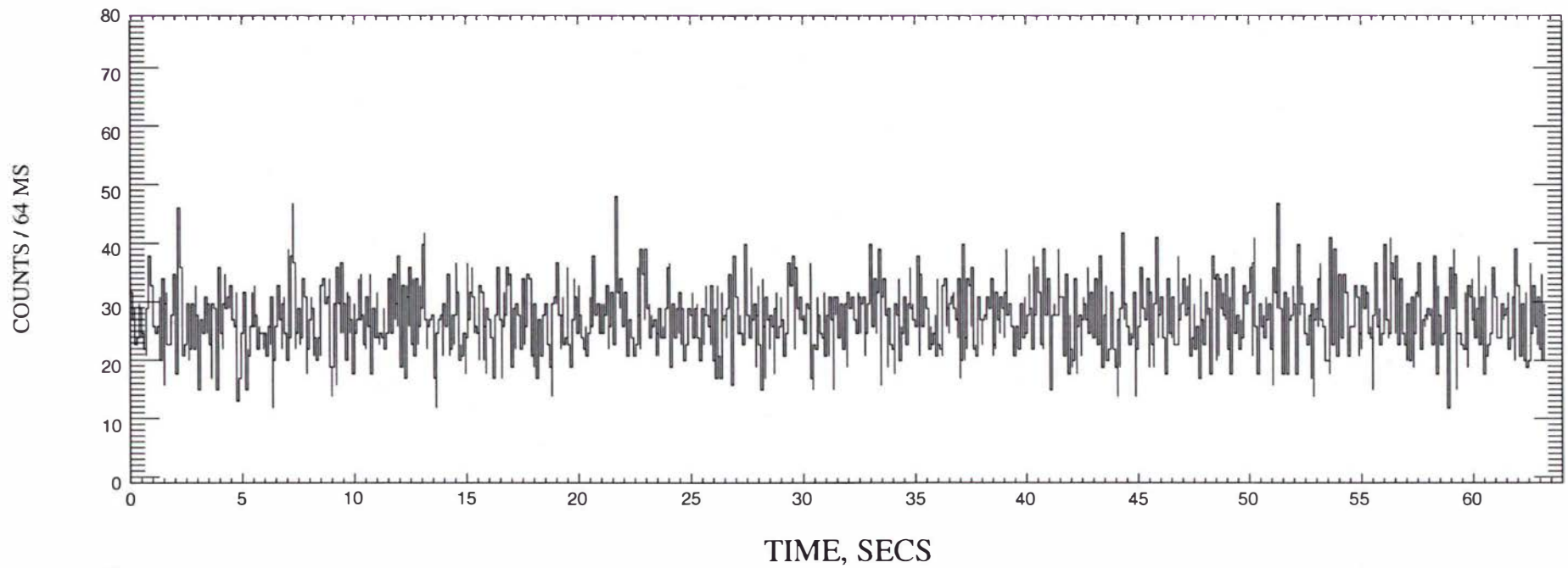


CALIBRATION DATA INCLUDED

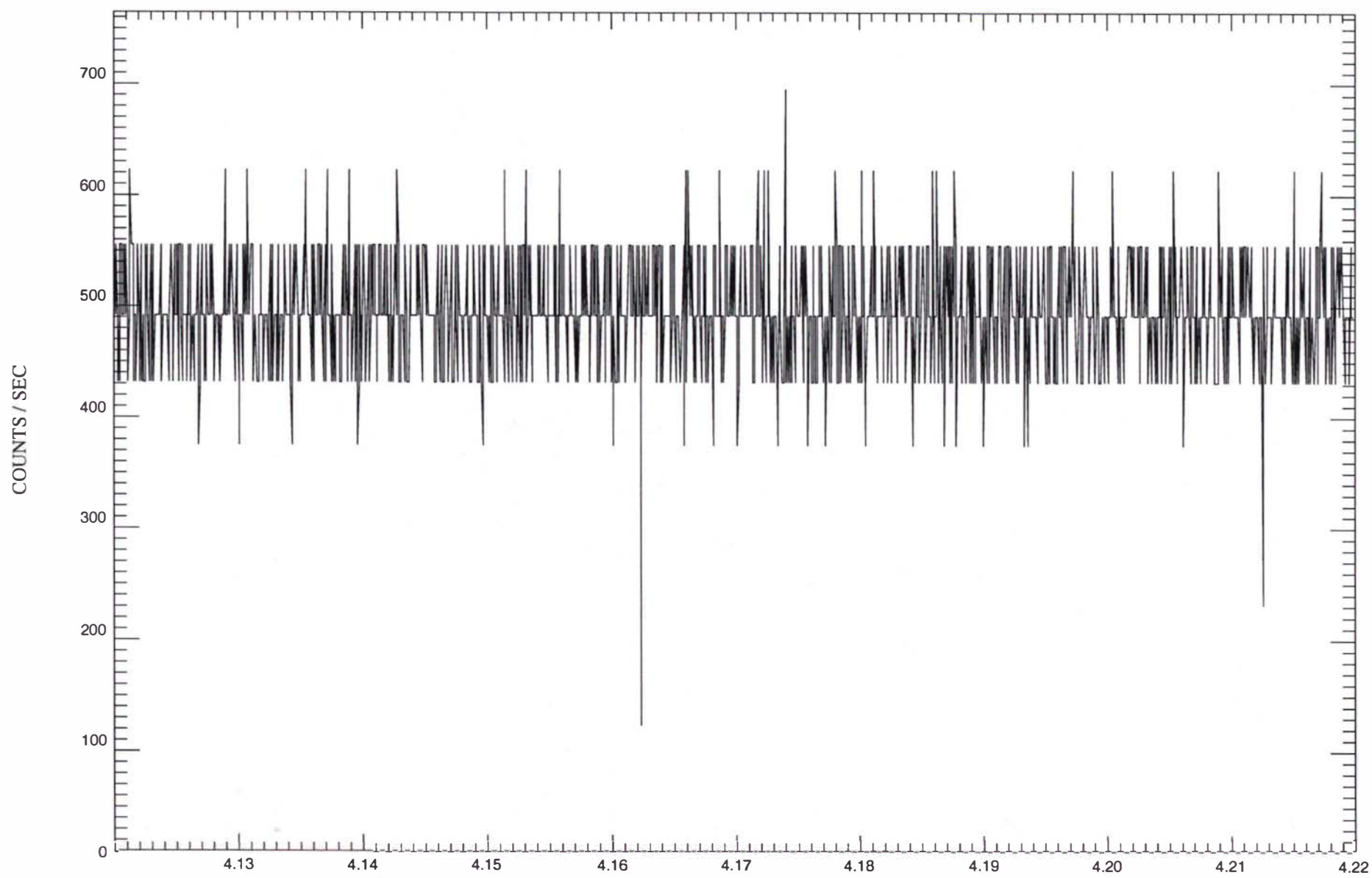


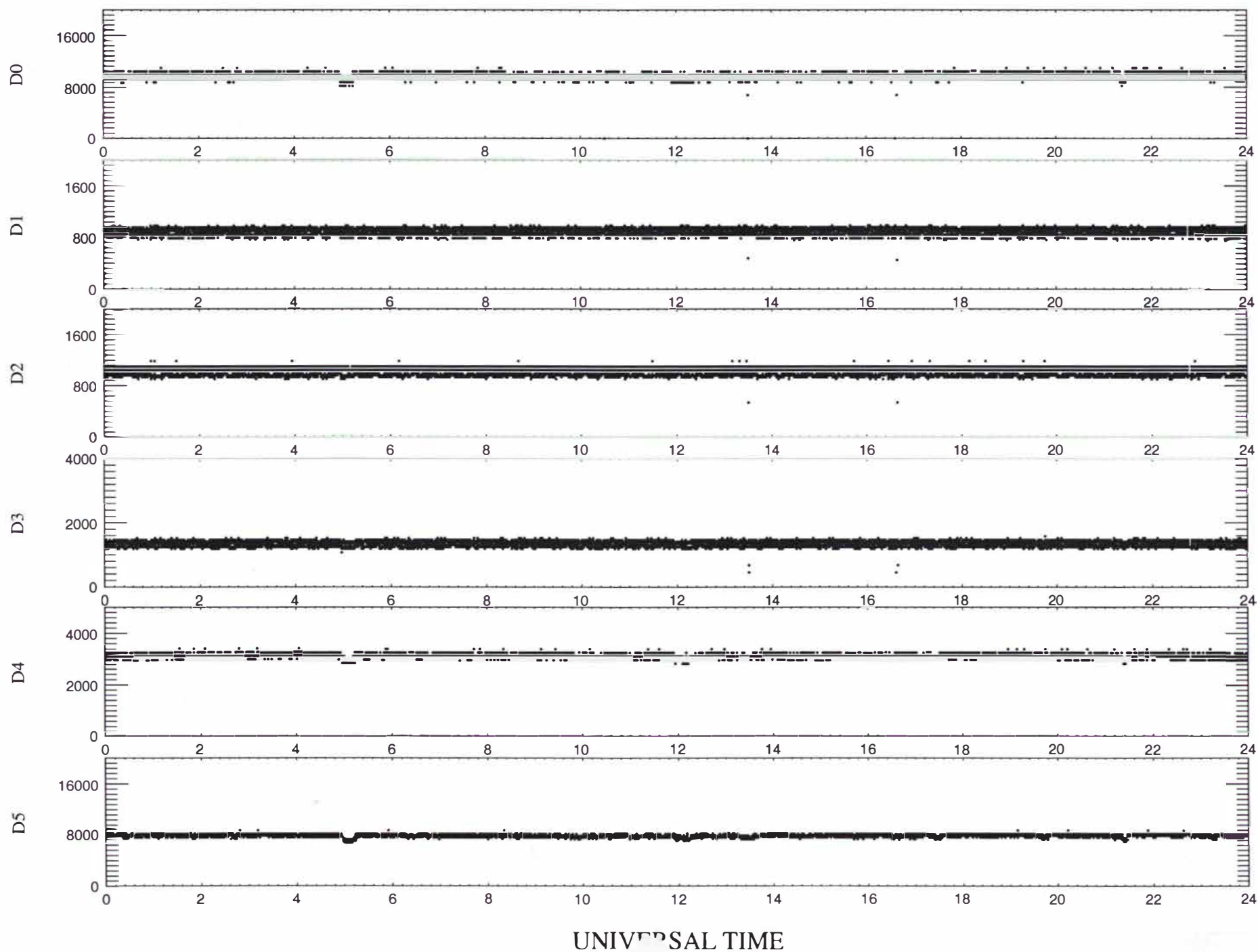
UNIVERSAL TIME

Burst Counter 1 at UT= 4.174155158997 h=15026.959 s 04:10:26.959



CALIBRATION DATA INCLUDED





Date: Oct 23 '07

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

N/A

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

N/A

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

2. For 3 or More Spacecraft events

N/A

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

3. For INTEGRAL events

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

-
- ☒ ACCESS and MBL4 databases updated?

Triangulation not possible

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

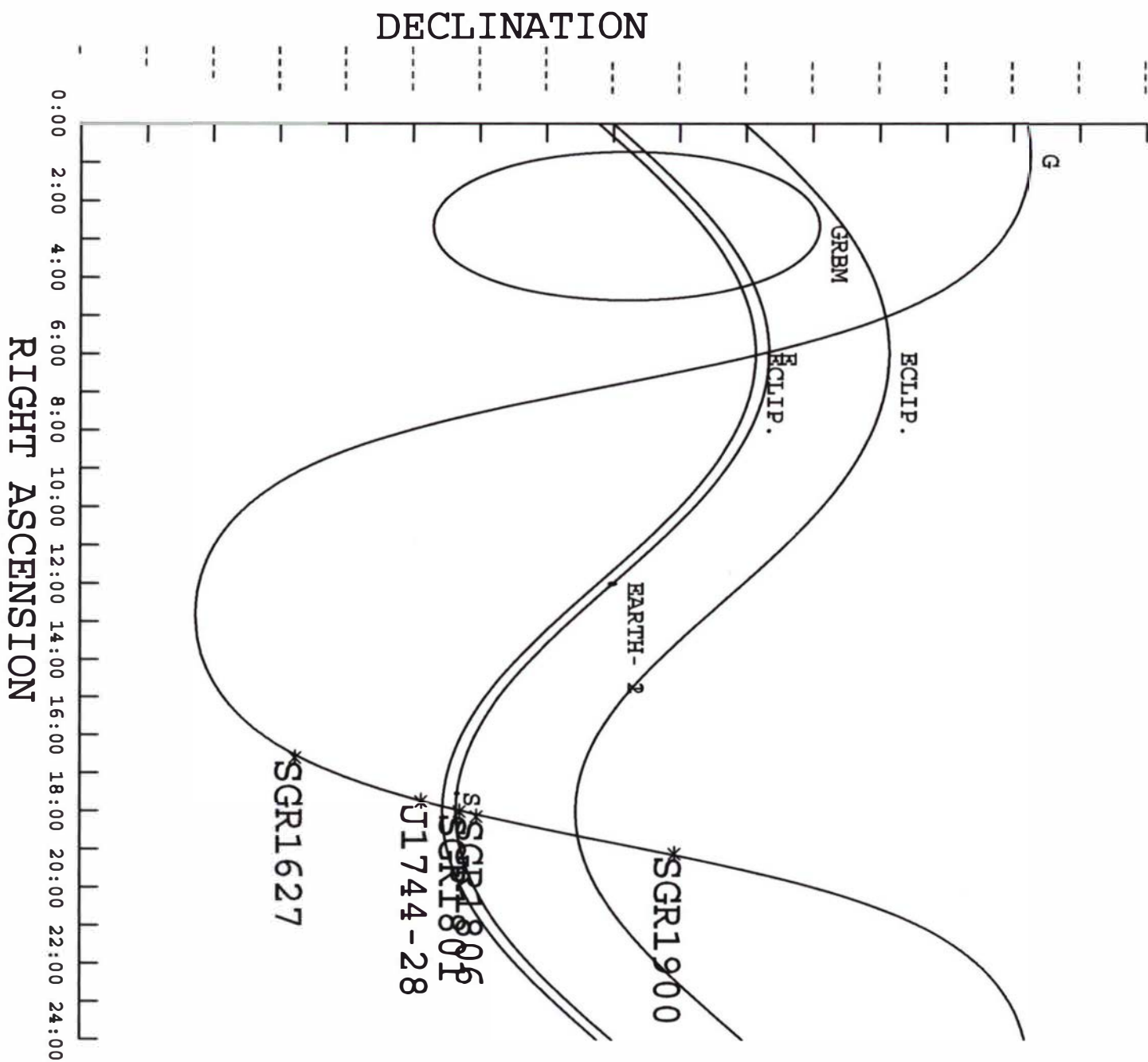
S=SUN

E=ECLIPTIC

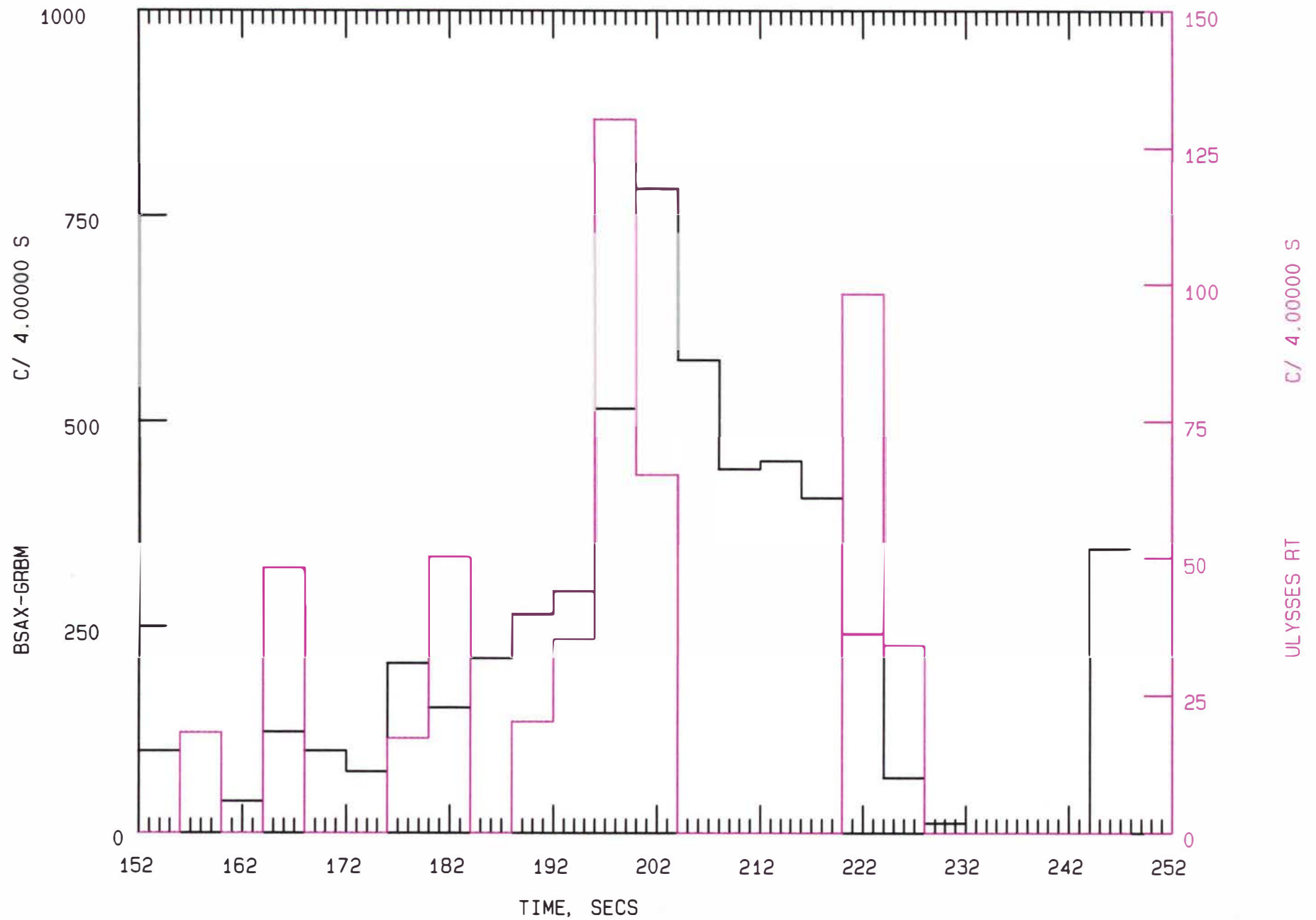
G=GALACTIC EQUATOR

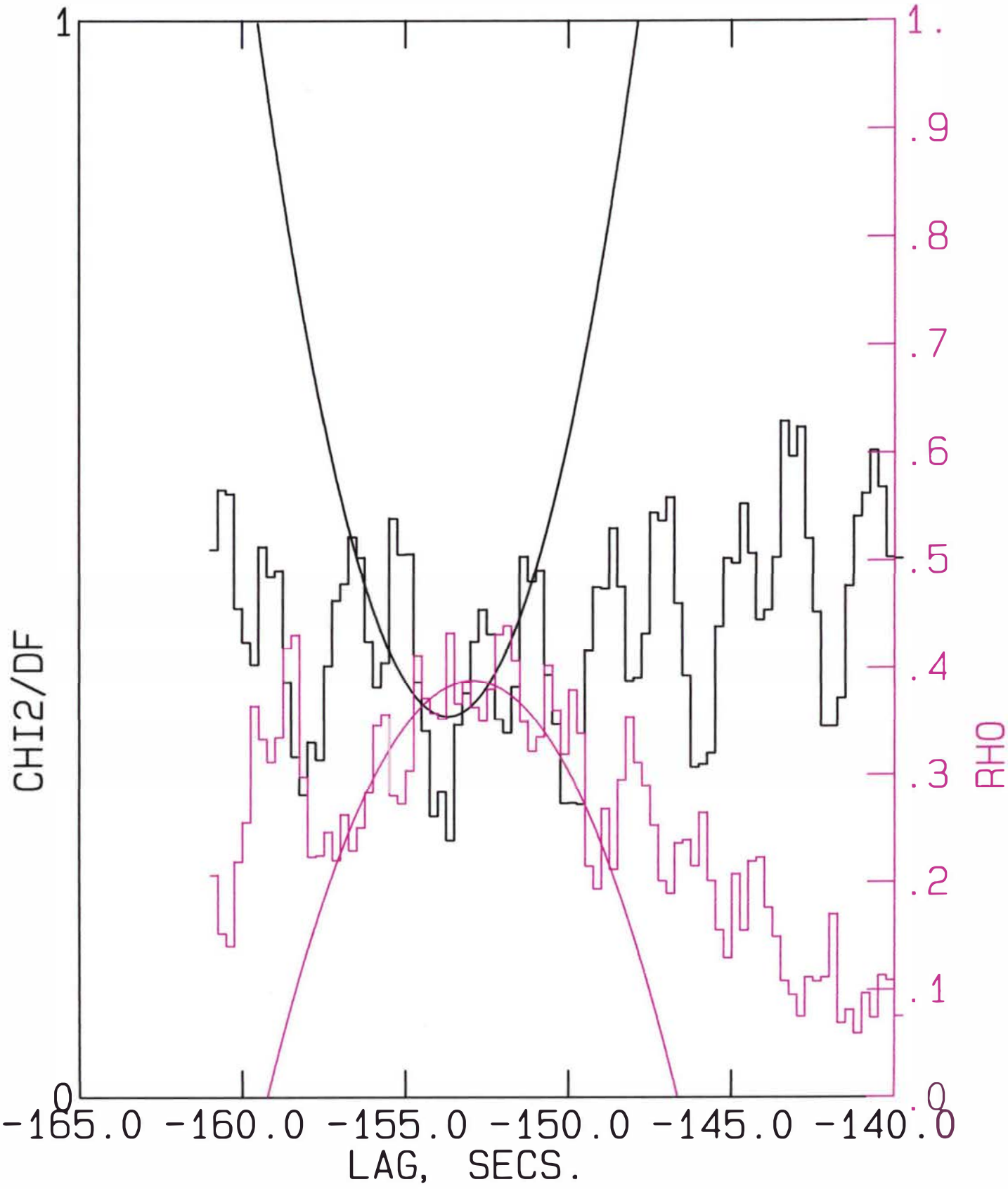
1 SAX GRBM

2 KONUS



23/10/ 7





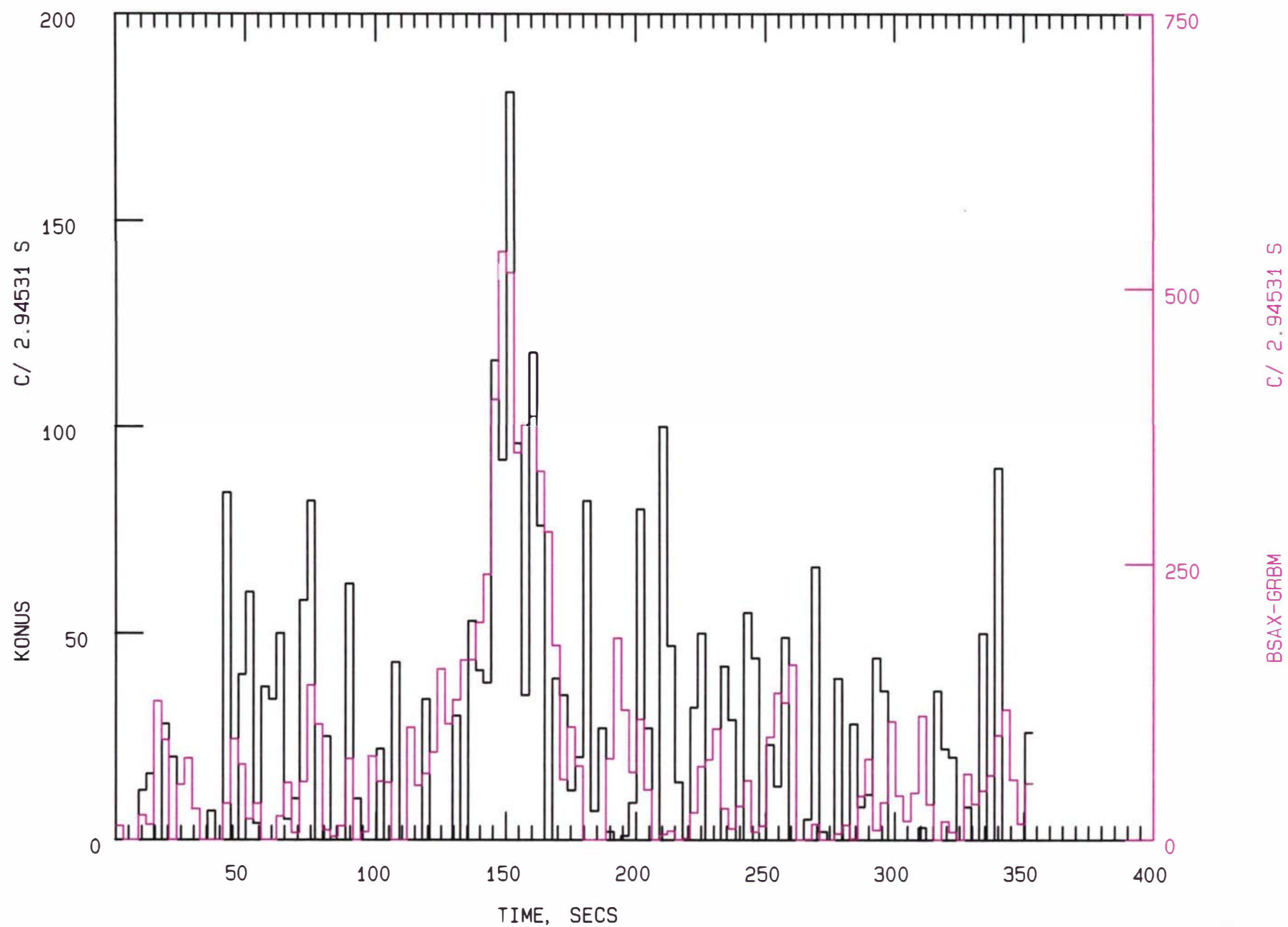
KONUS

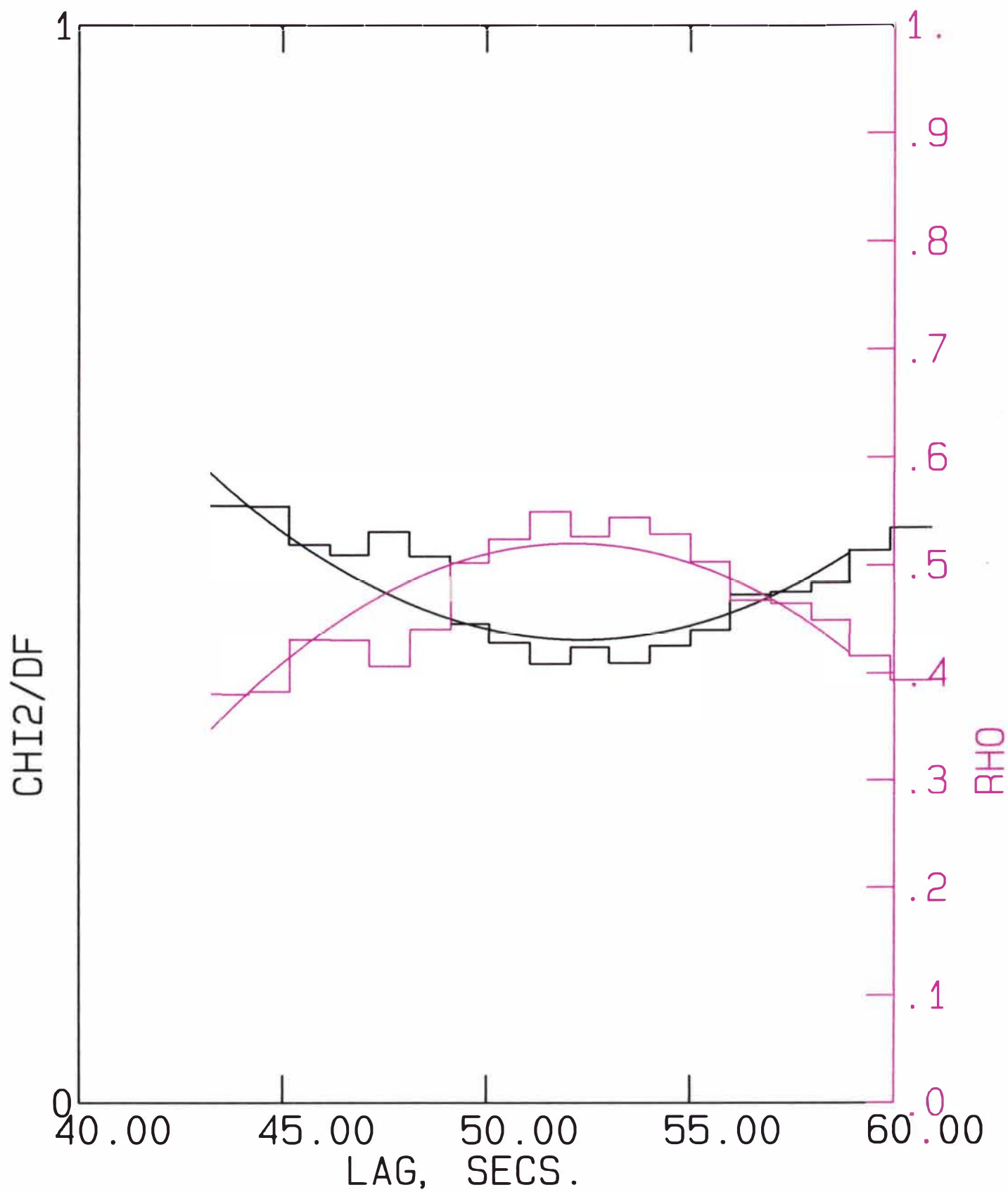
-BSAX-GRBM CORRELATION

15/12/00

17643.500

23/10/ 7





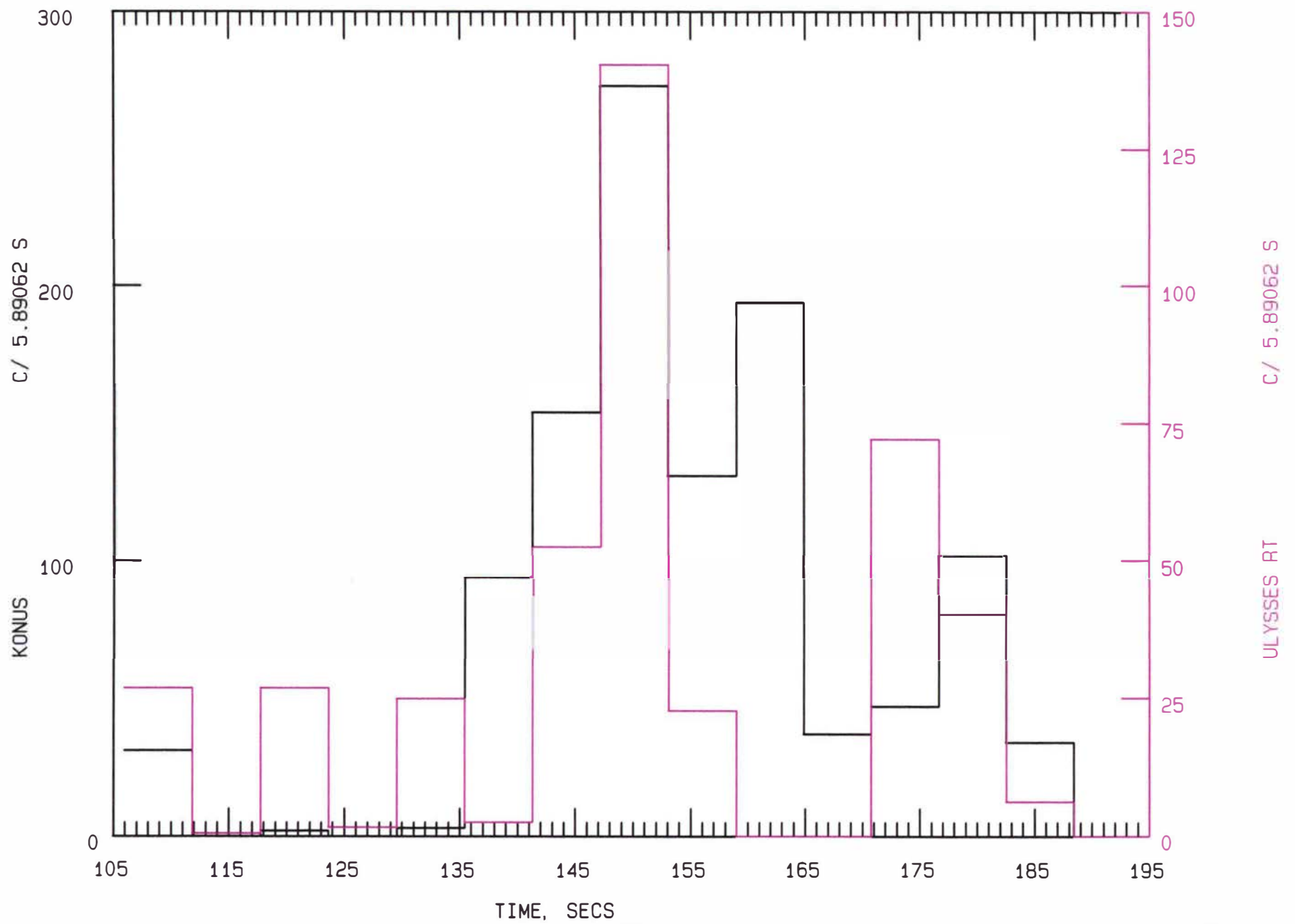
KONUS

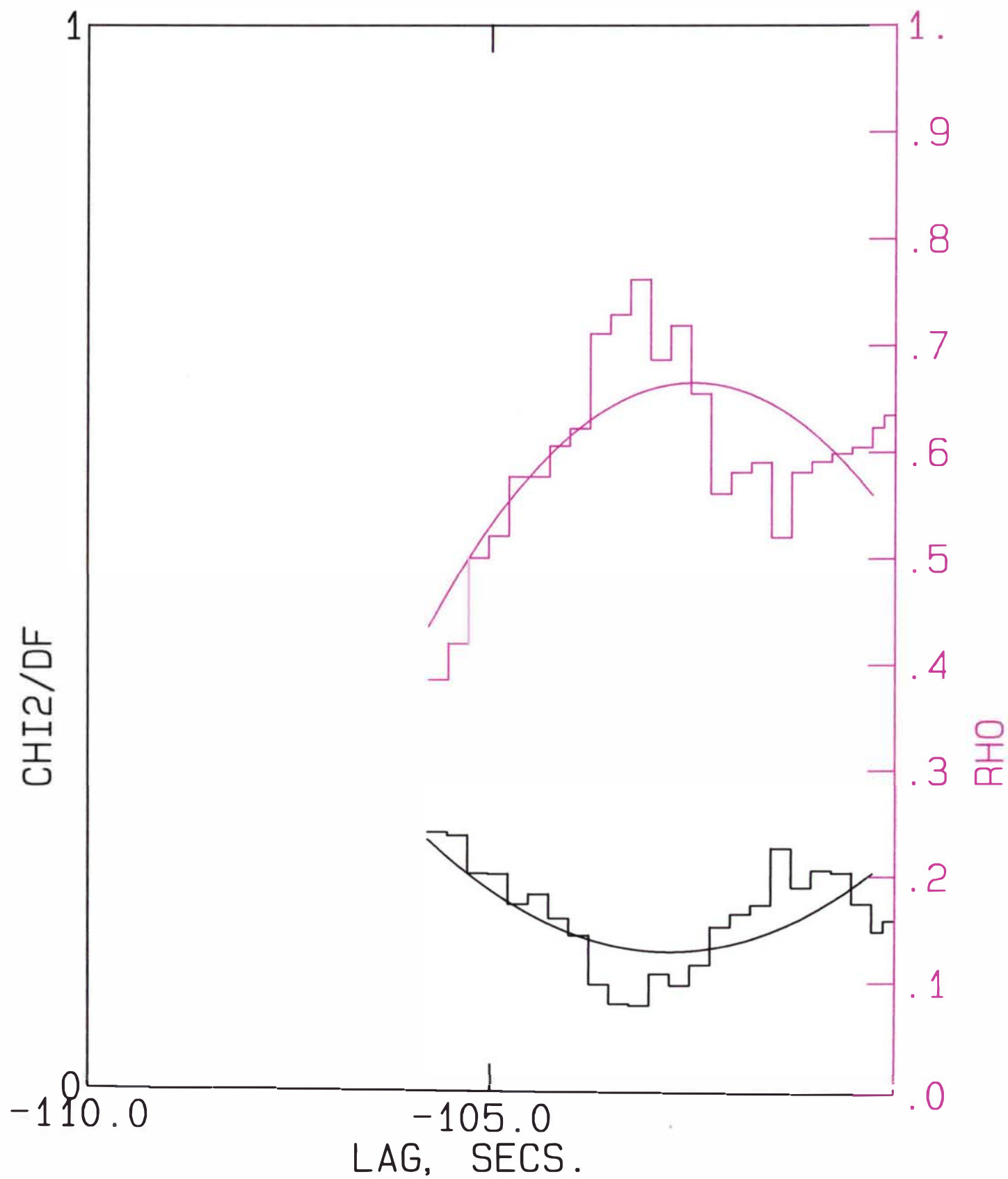
-ULYSSES RT CORRELATION

15/12/00

17643.500

23/10/ 7

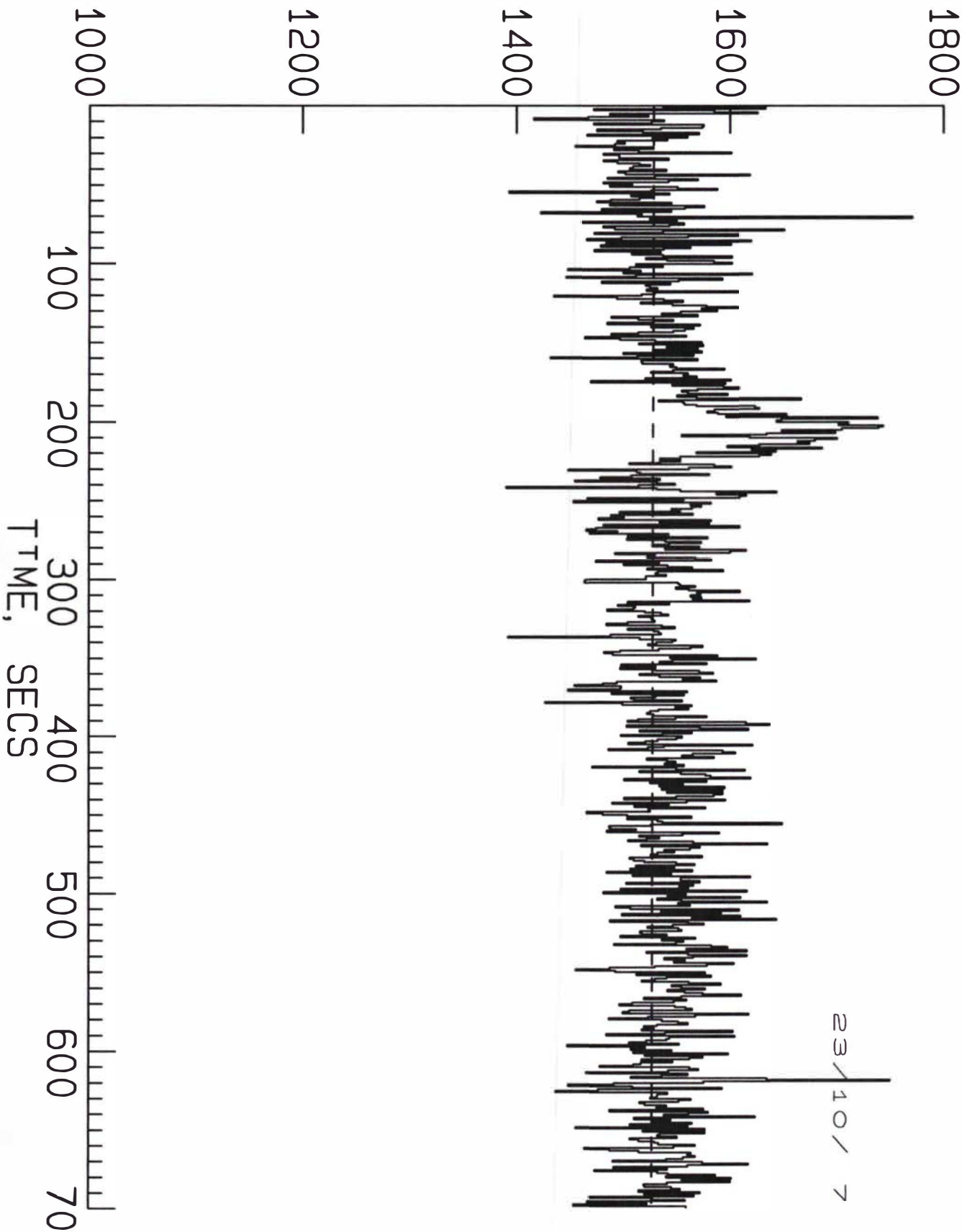




SAX GRBM

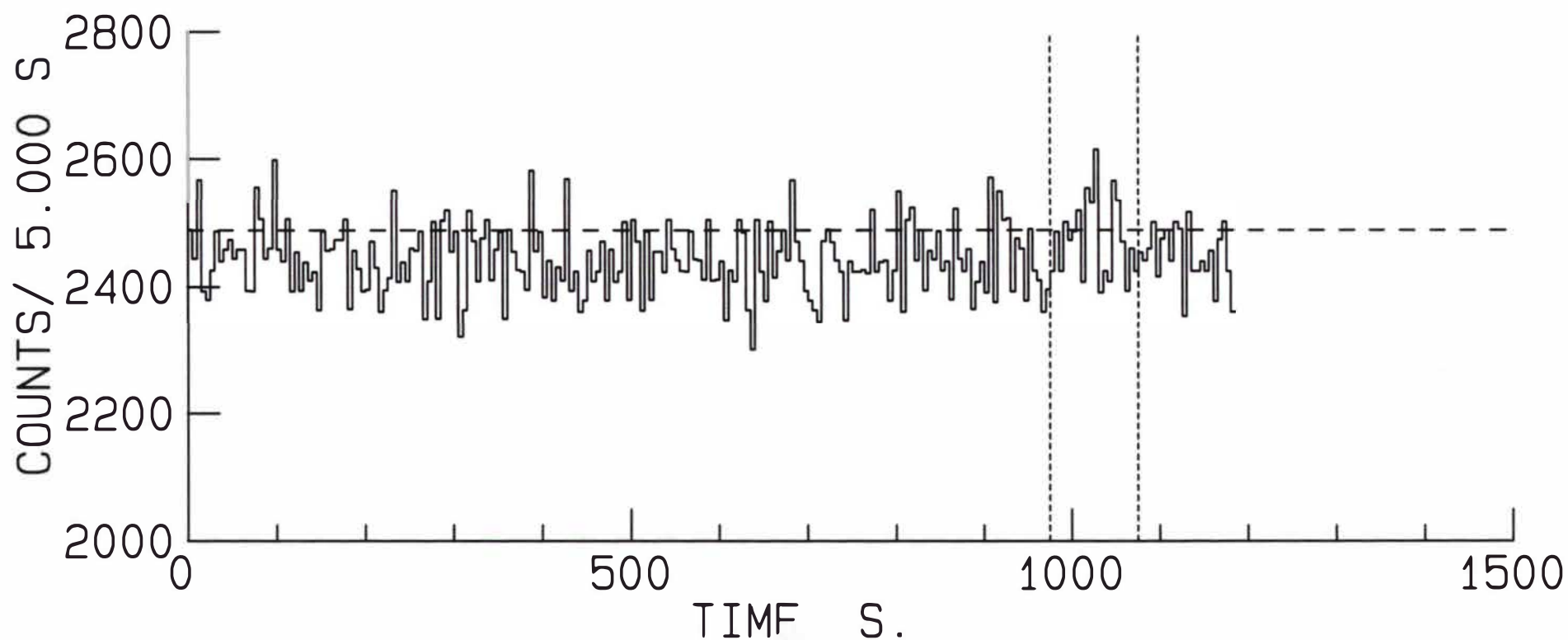
15/12/00 17595.160
40- 700 keV

COUNTS/1.000 S



ULYSSES RT
15/12/ 0 17460.107 s
0.250 S INTERVALS REGROUPED BY 20
23- 157 keV

23/10/ 7



KONUS

15/12/00 17643.500

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.945 S

3400

DETECTOR 1 - S. ECLIPSE

23/10/07

2400

1400

400

50

100

150

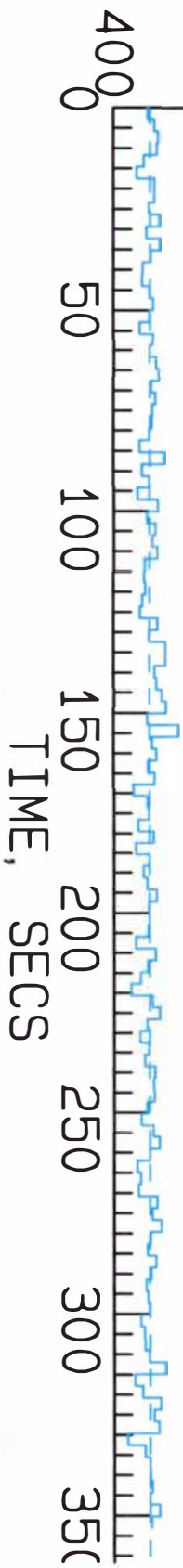
200

250

300

350

TIME, SECS



KONUS 15/12/00 17643.500
10- 50 keV 50- 200 keV 200- 750 keV

COUNTS/2.945 S

4300

DETECTOR 2 - N. ECLIPHTIC

3300

2300

1300

300

50

100

150

200

250

300

350

TIME, SECS

23/10/07

Date: Oct 23 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

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

3. For INTEGRAL events **N/A**

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

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

2 KONUS1

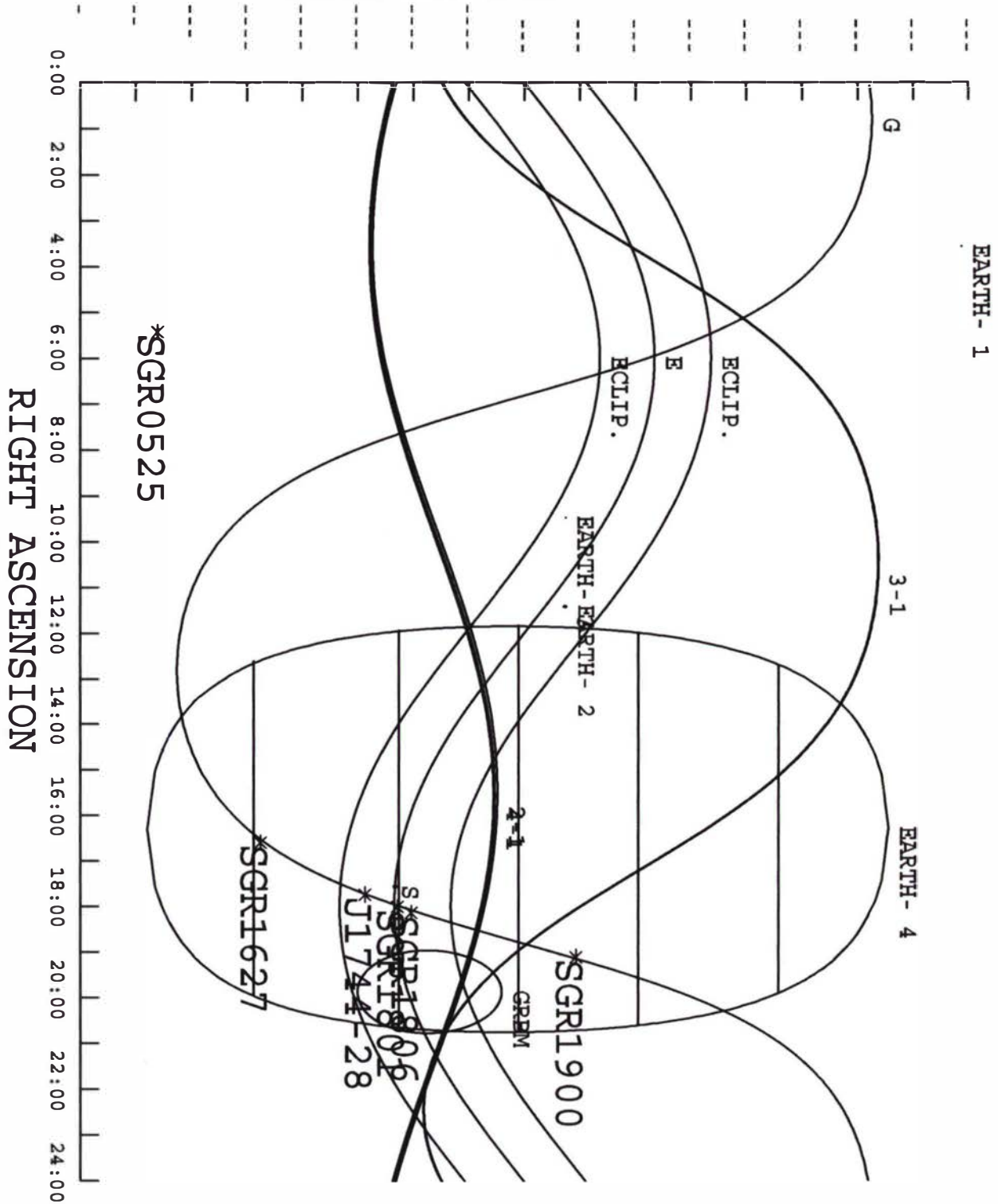
3 NEAR

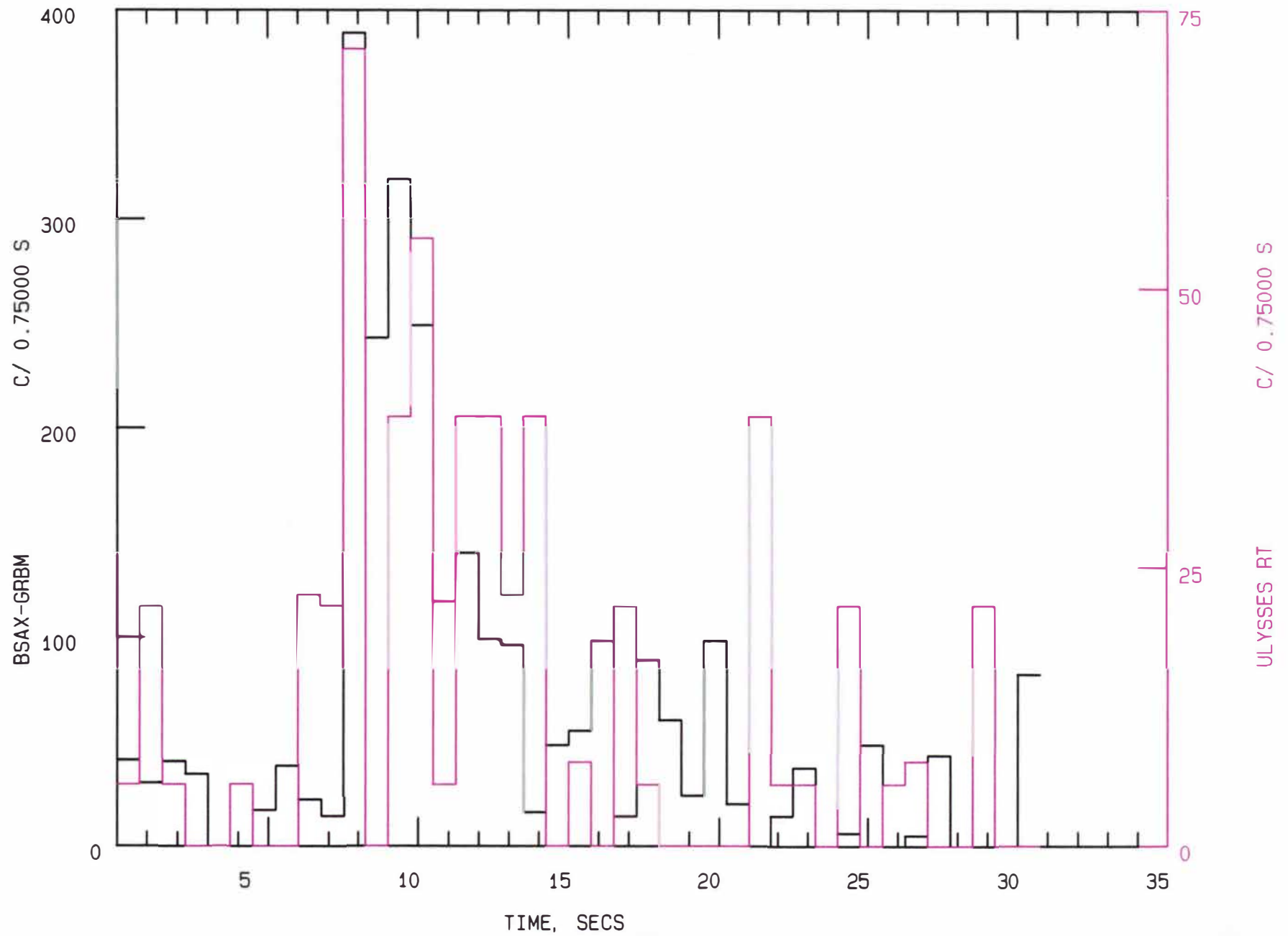
4 SAX

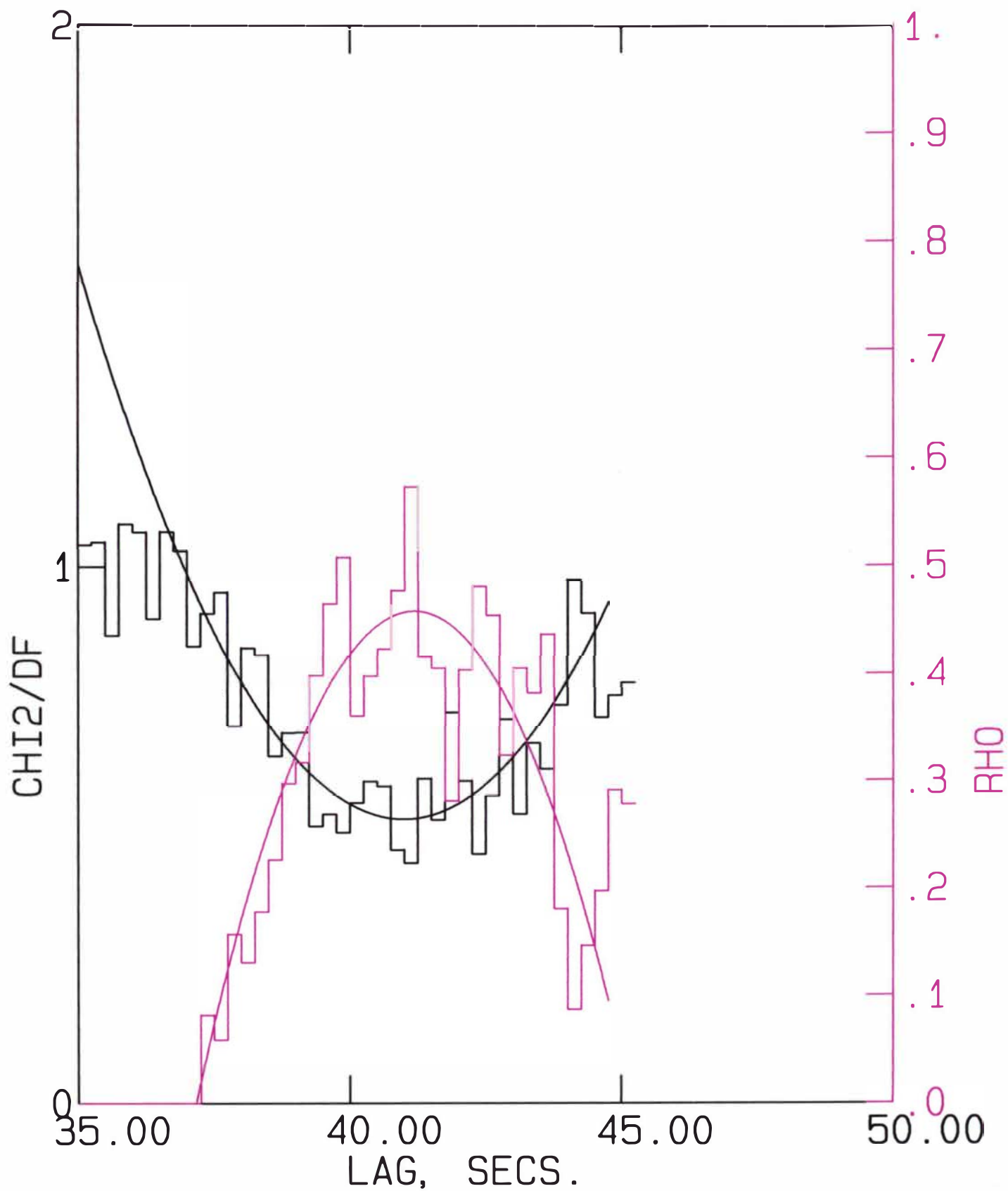
EVENT OF DEC 15, 2000 14:27

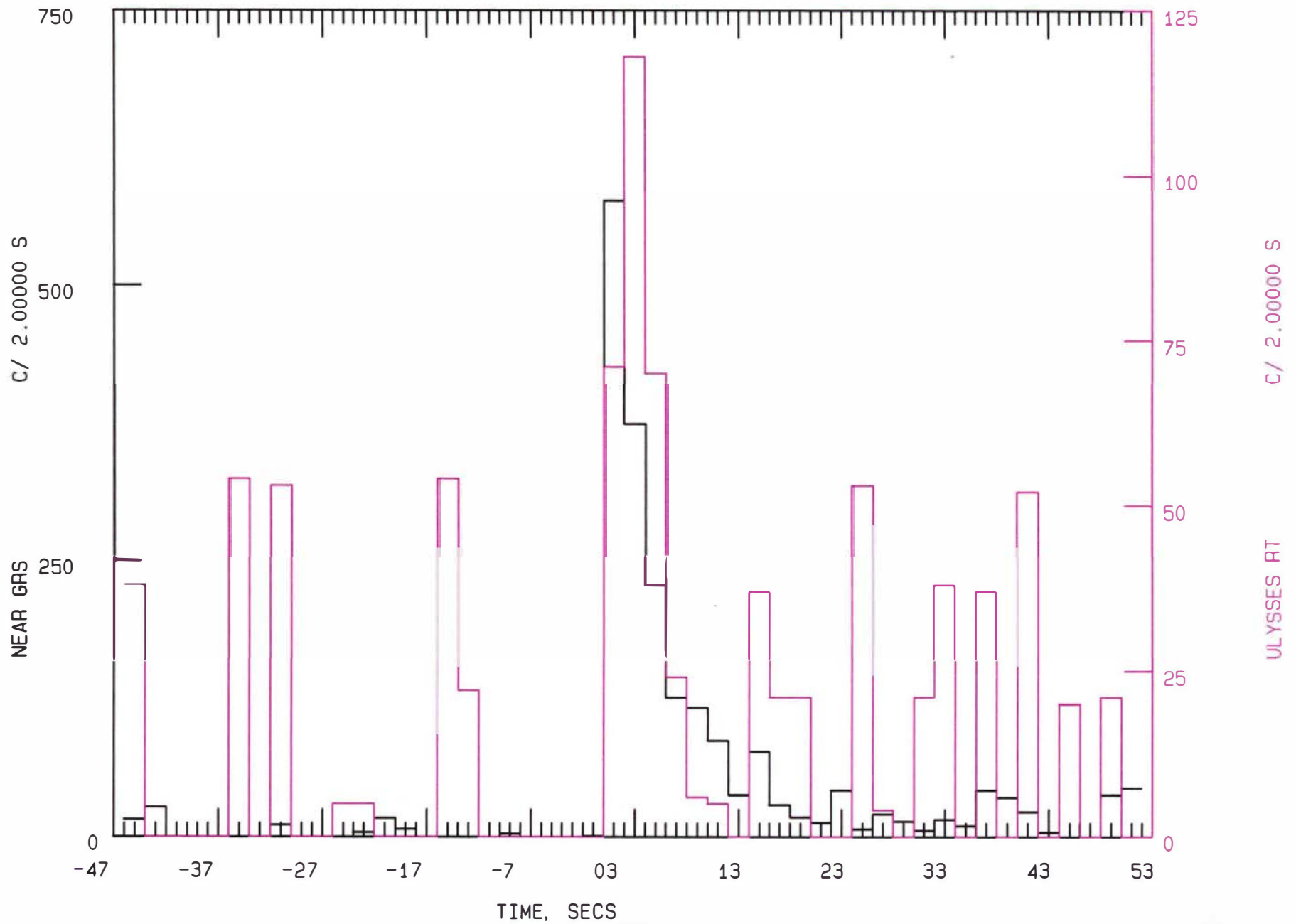
23/10/ 7

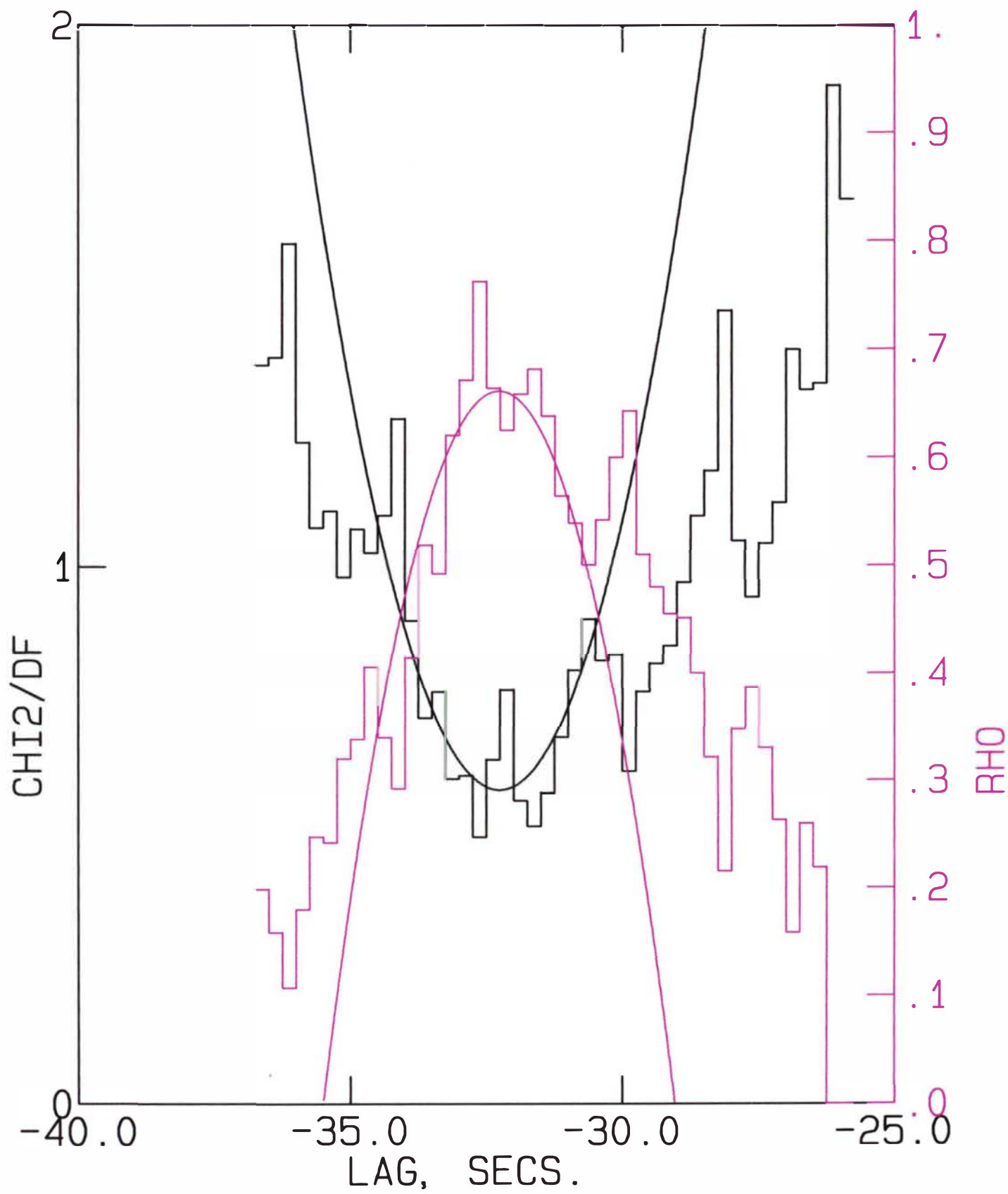
DECLINATION











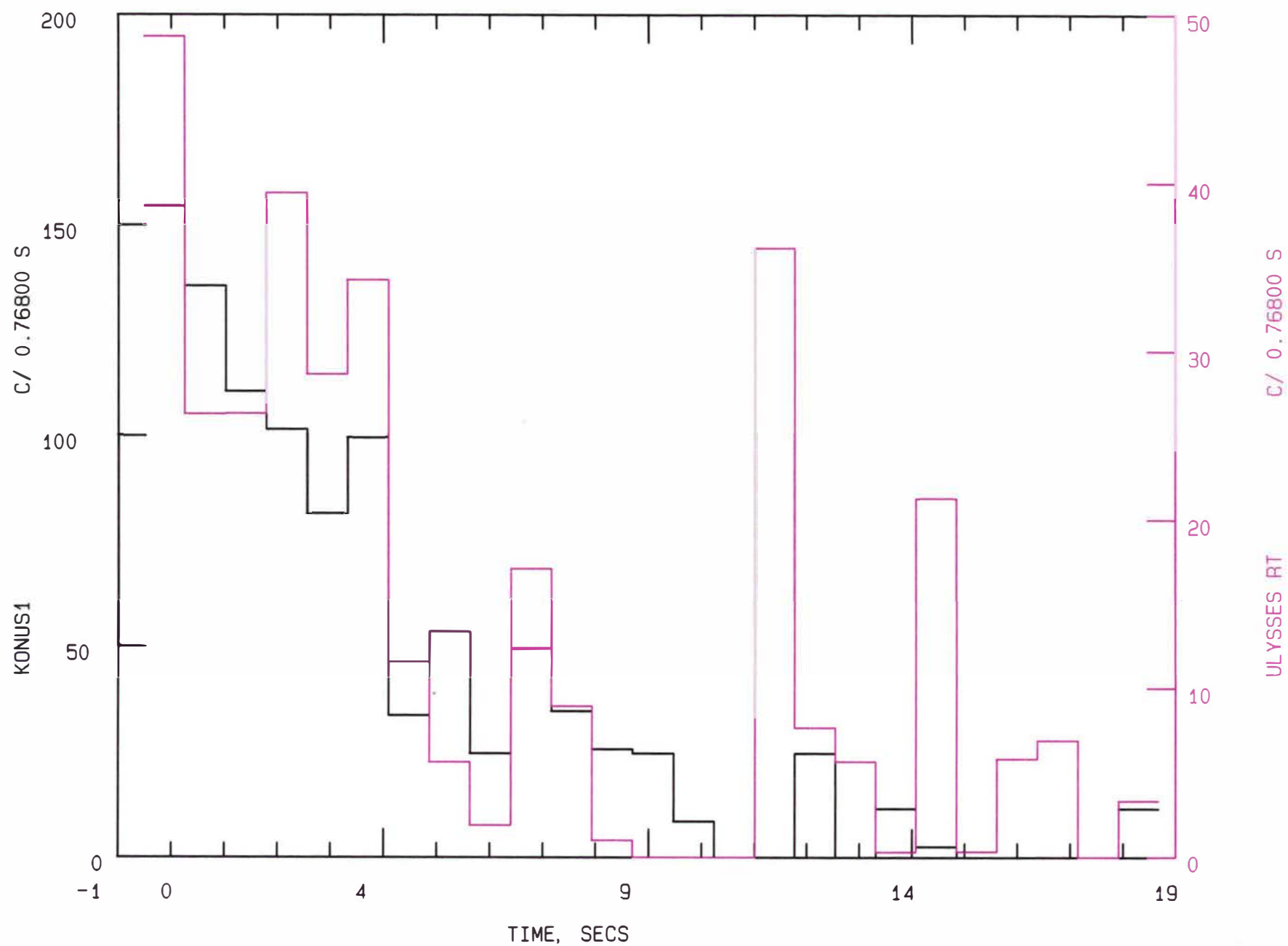
KONUS1

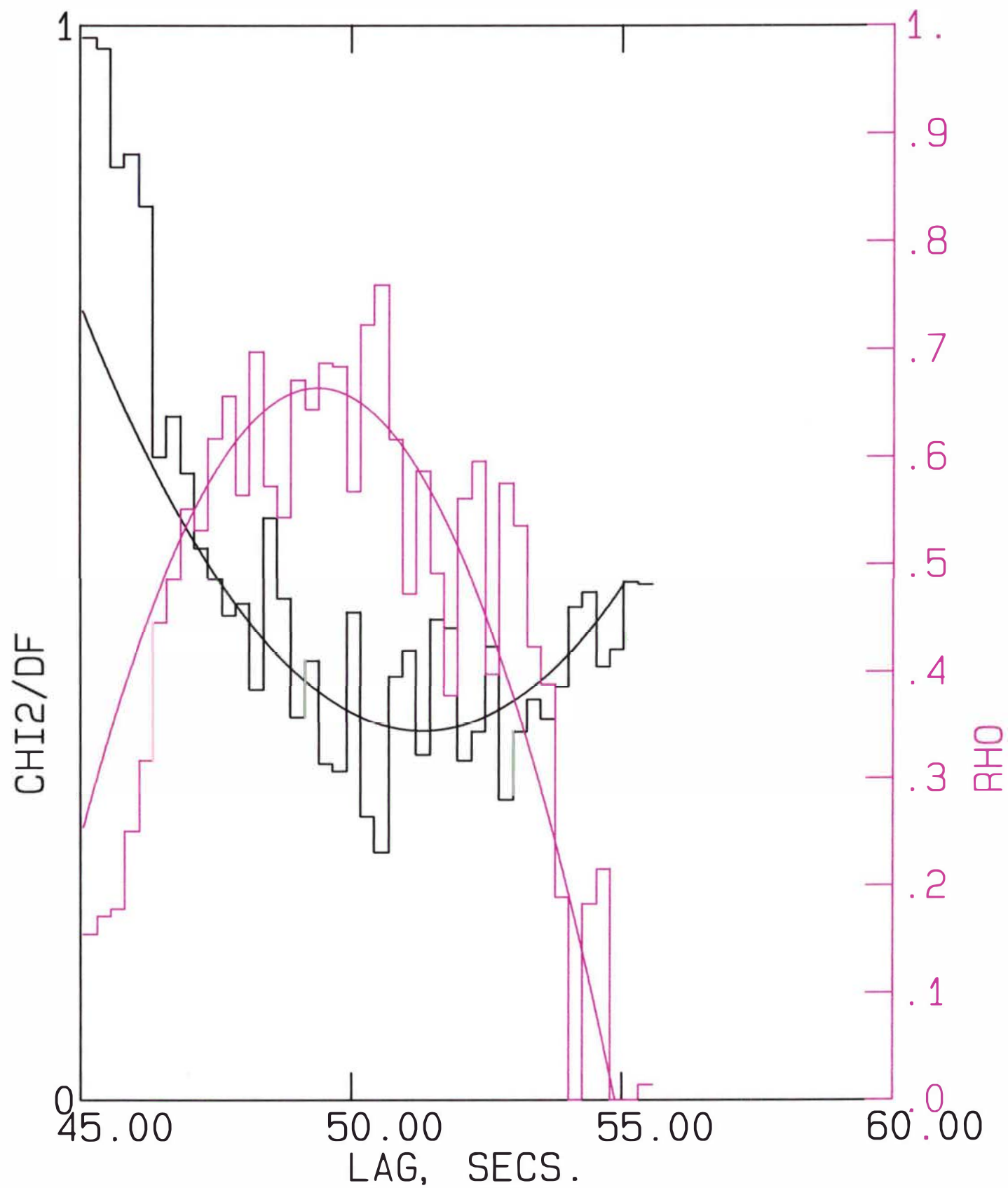
-ULYSSES RT CORRELATION

15/12/00

52471.874

23/10/ 7





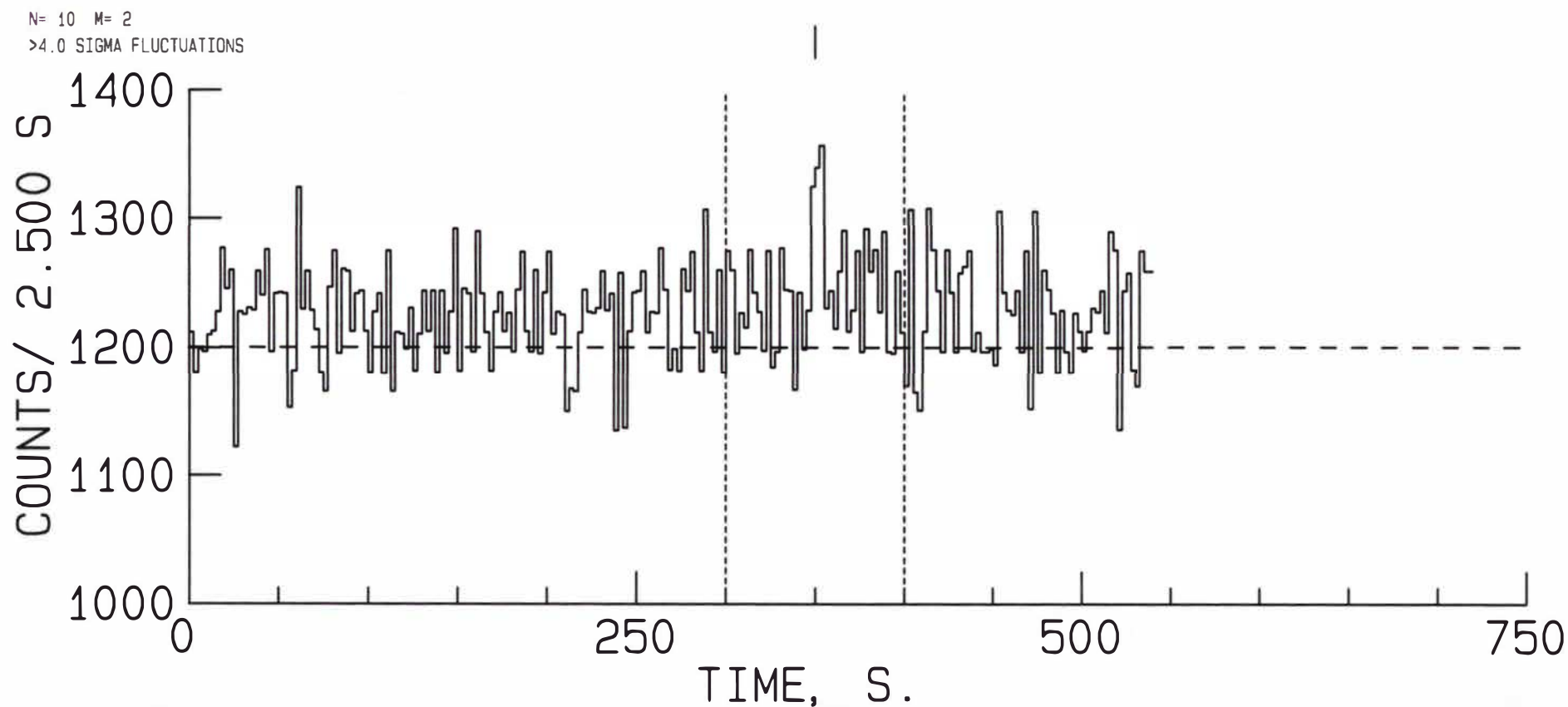
ULYSSES RT

23/10/ 7

15/12/ 0 51768.133 s

0.250 S INTERVALS REGROUPED BY 10

23- 157 keV



From guidorzi@fe.infn.it Fri Dec 15 10:21 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Fri, 15 Dec 2000 19:20:13 +0100 (MET)

1kGRB[147] #LSs: 3 Good HRR: 6
SW Trigger Time (OBT): 60231.911
UTC: Fri, 15 Dec 2000 14:34:35:14449 **52475**

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.230

Nsig(trg):	7.1	6.9	4.0	4.7	7.2	5.4	4.1	4.5
Nsig(pfl):	9.1	6.9	4.0	6.0	9.1	6.9	4.1	6.1
Bkg lev. :	736	843	746	684	838	868	848	875
ChiSq R. :	1.228	1.097	1.189	0.946	0.948	0.857	1.026	0.818

Peak fl. :	248	200	108	156	264	202	118	180
Error :	41.5	43.5	40.1	39.1	44.1	44.1	42.7	44.0

Fluence :	1078	804	352	611	1228	844	363	579
Error :	113.6	104.7	79.6	94.1	121.2	106.3	84.7	105.5

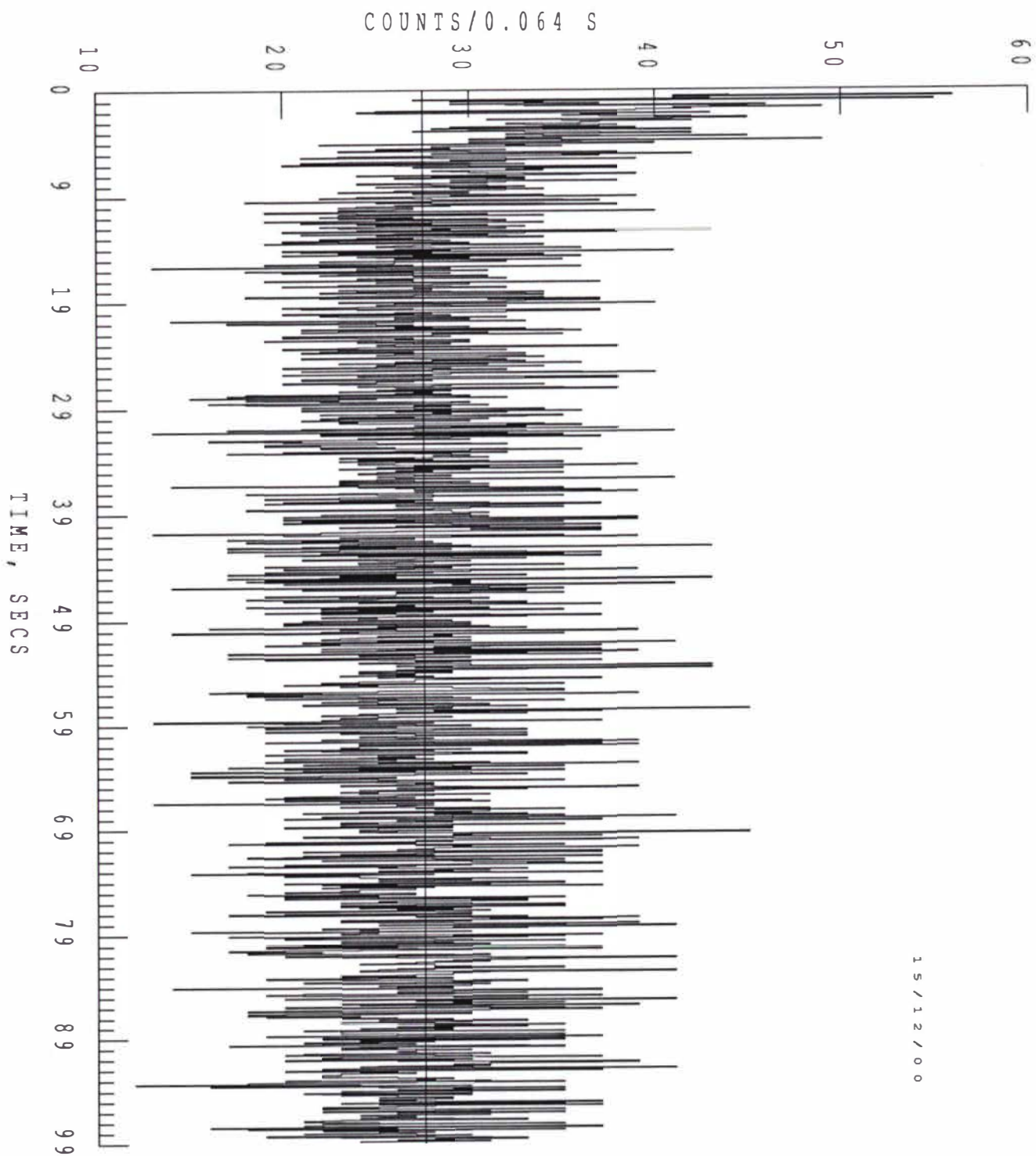
Dur (s) :	8.00	6.00	4.00	6.00				
Abundance:	8	6	4	6				
H. Ratio :	1.139	1.050	1.029	0.947				
HR Ratio :	1.084	1.107	1.202	1.021	1.108		1.086	
HR W-ave :	1.062	+/-	0.104					

KONUS1

15/12/00

52471.874

50 - 200 keV



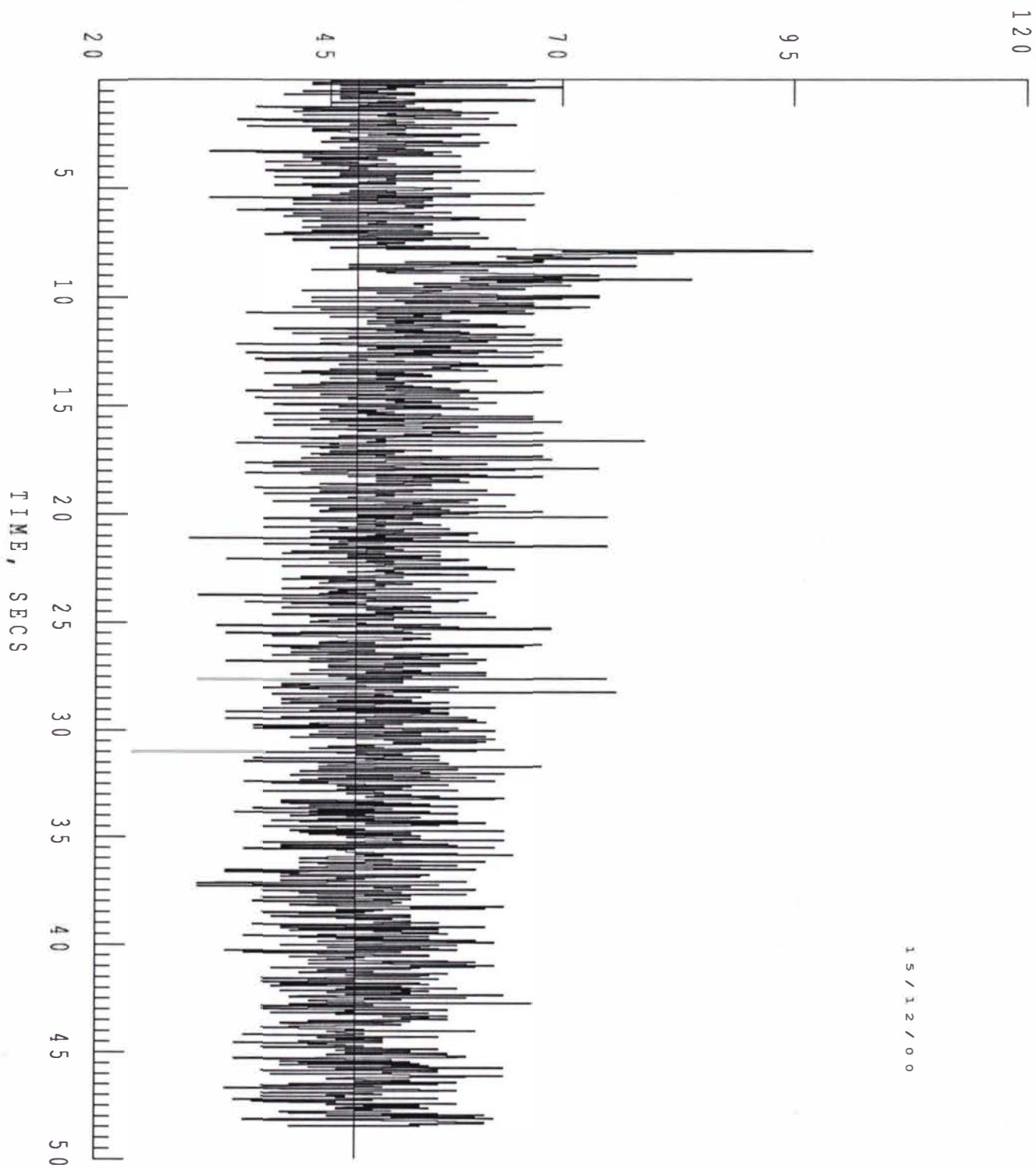
BSAX-GRBM

15/12/00

52466.914

40 - 700 keV

COUNTS/0.031 S

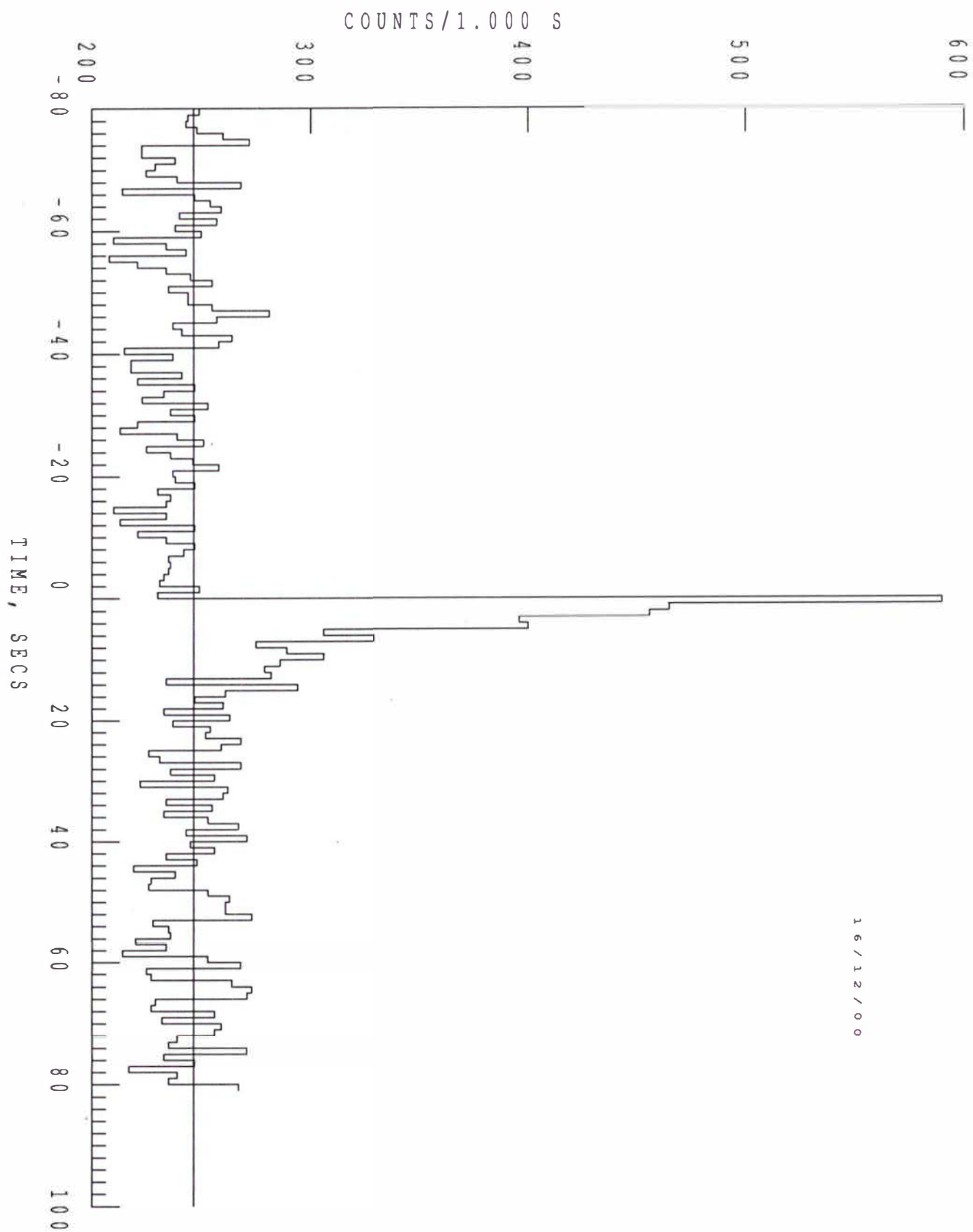


NEAR

15/12/00

51546.043

100-1000 keV



GRBM 20001215 52029

ULYSSES RT

04/10/07

15/12/00 51768.133 s

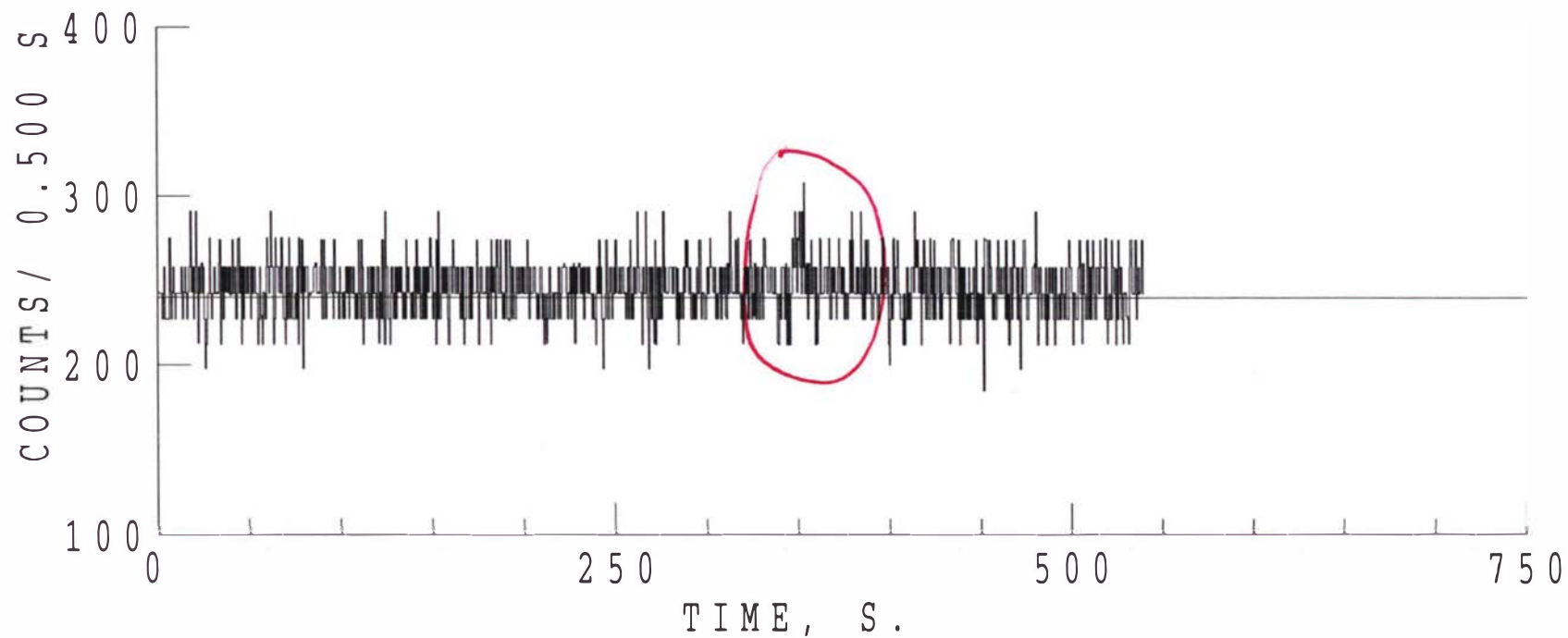
0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

|

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KNEAR GRS 20001215 85707

ULYSSES RT

18/12/00

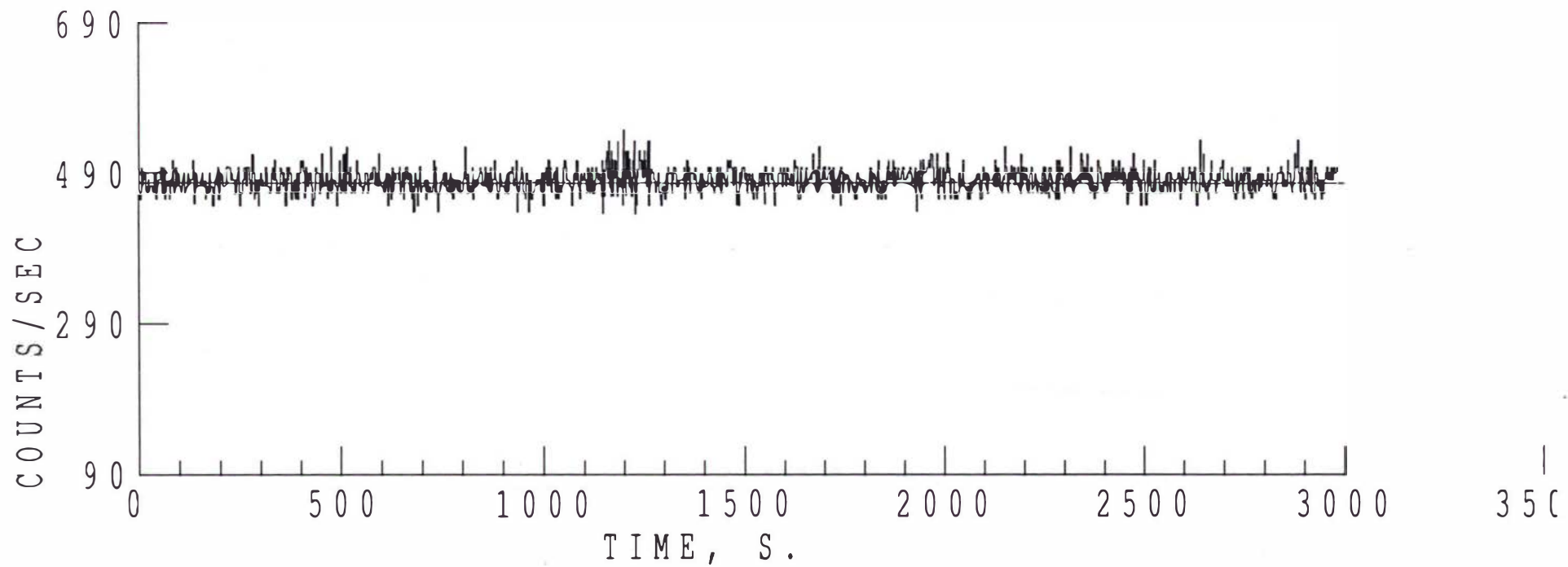
15/12/00 84204.125 s

INTERVALS REGROUPED BY 5

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

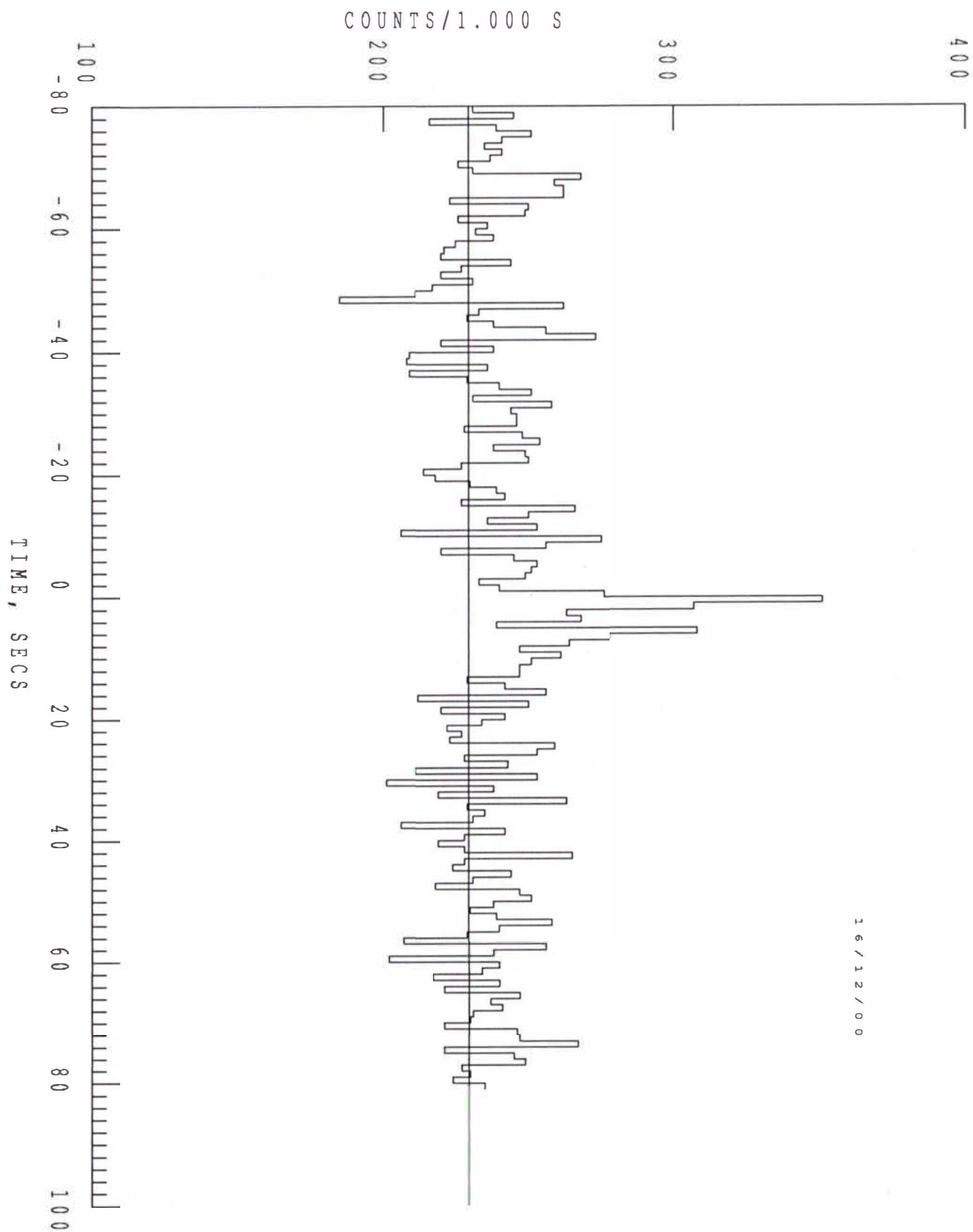


NEAR

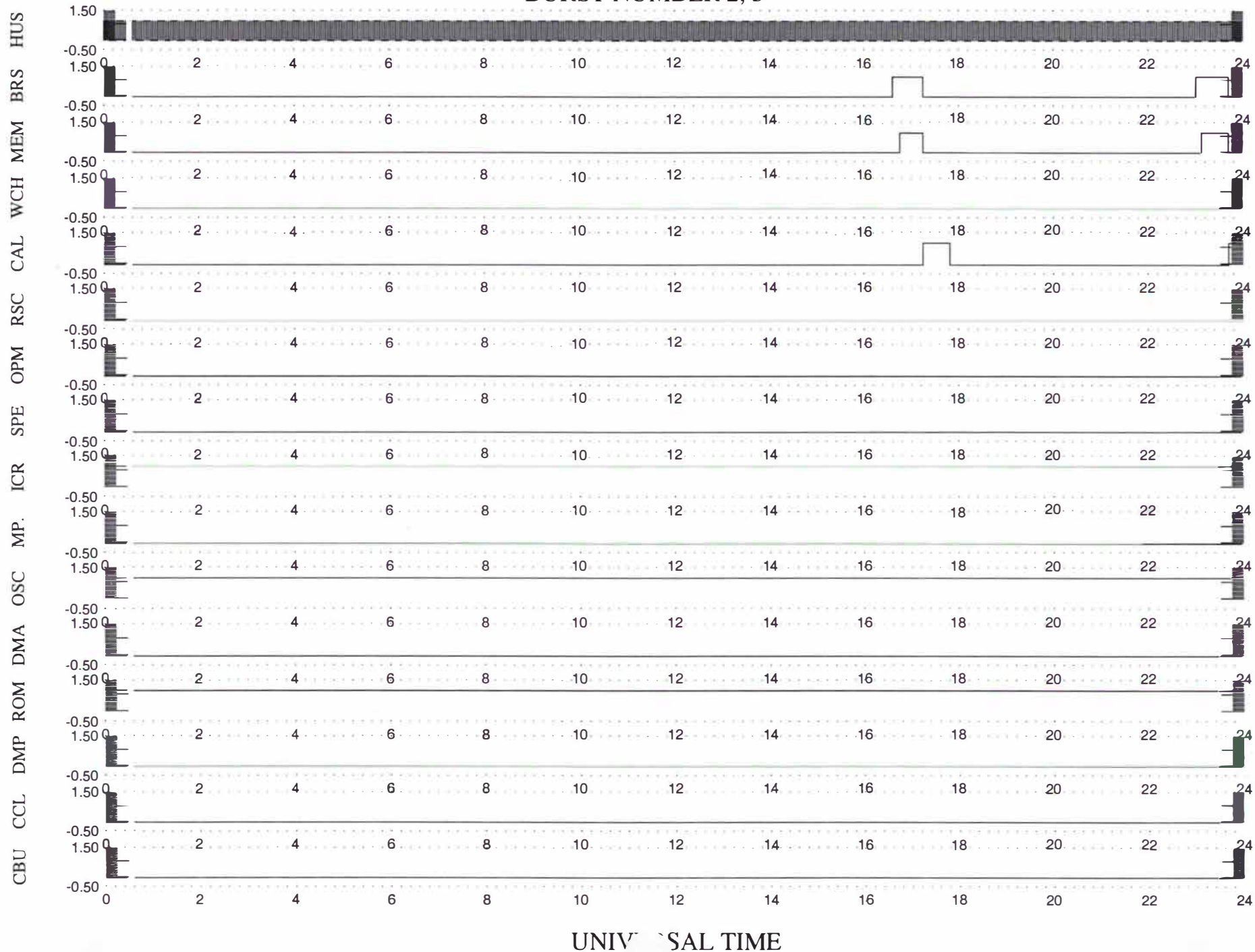
15/12/00

85707.031

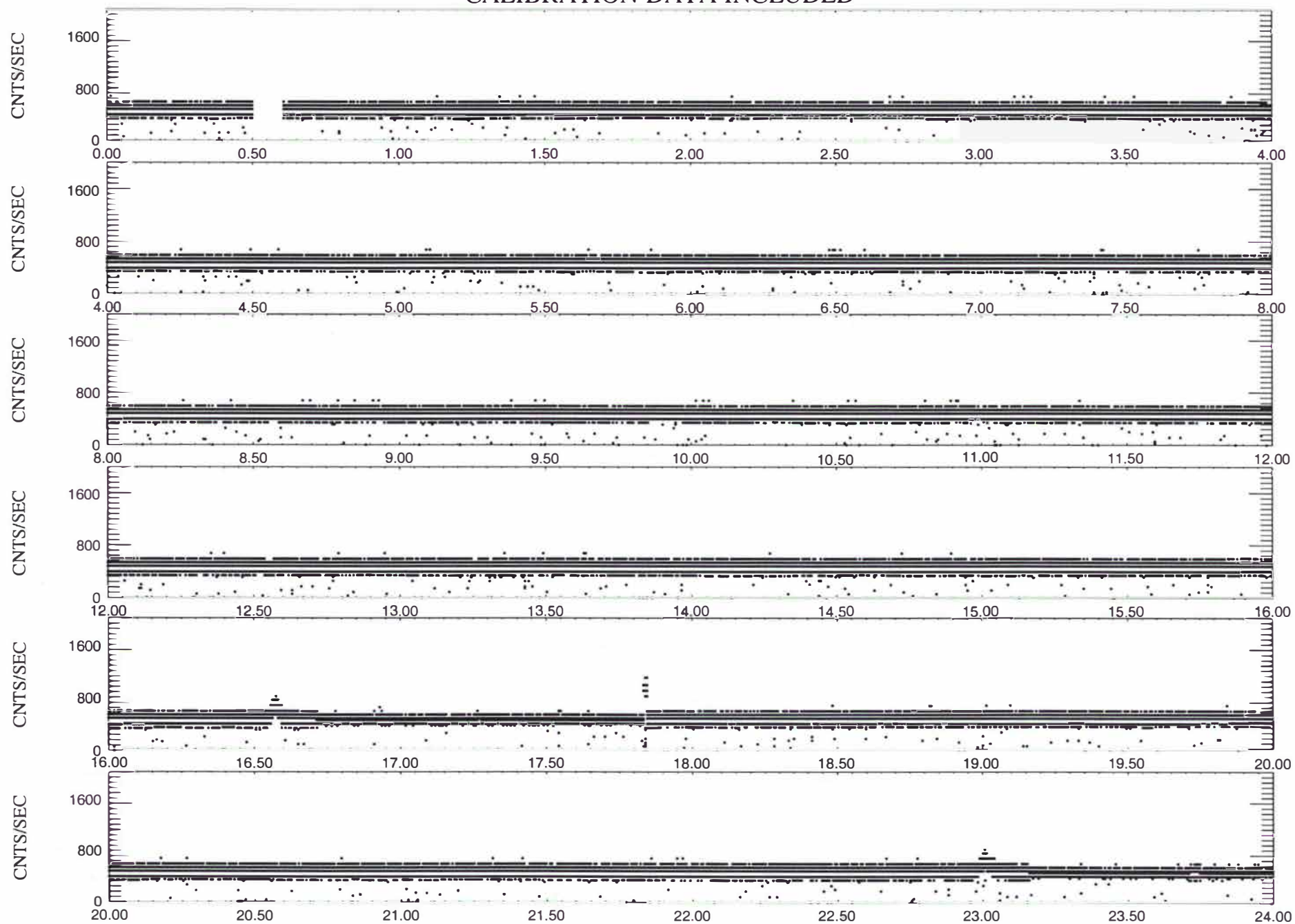
100-1000 keV



BURST NUMBER 2, 3

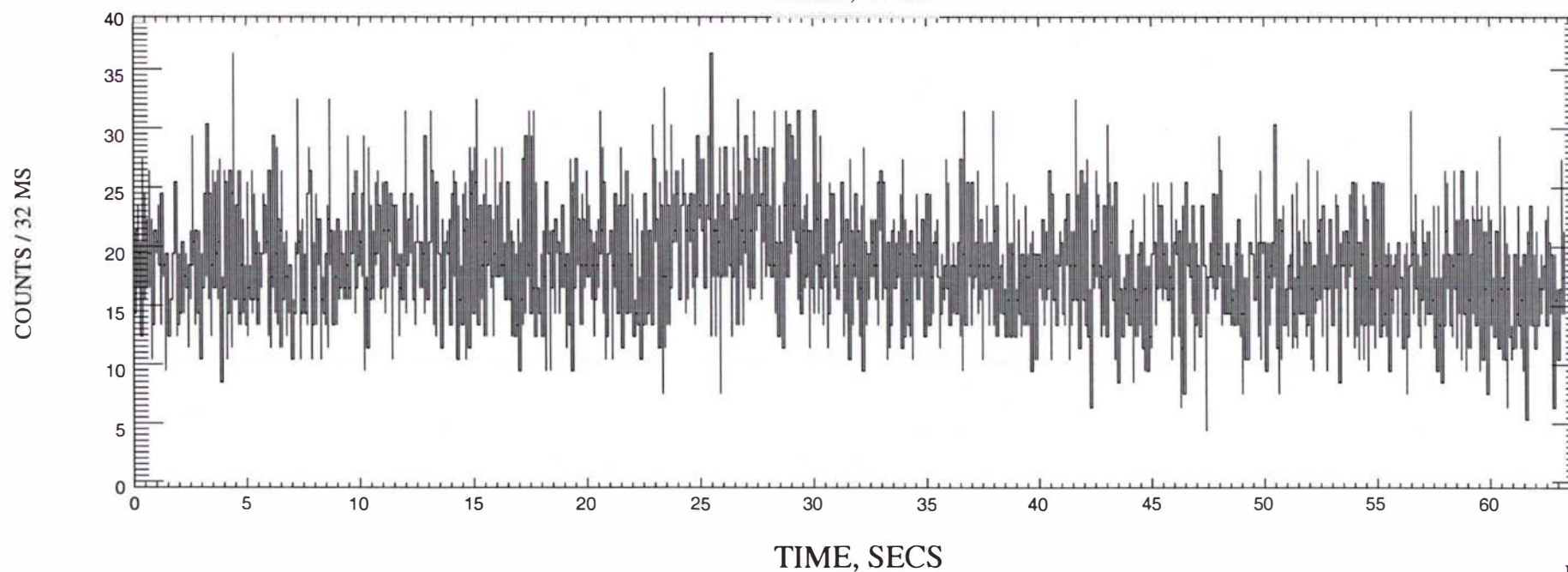
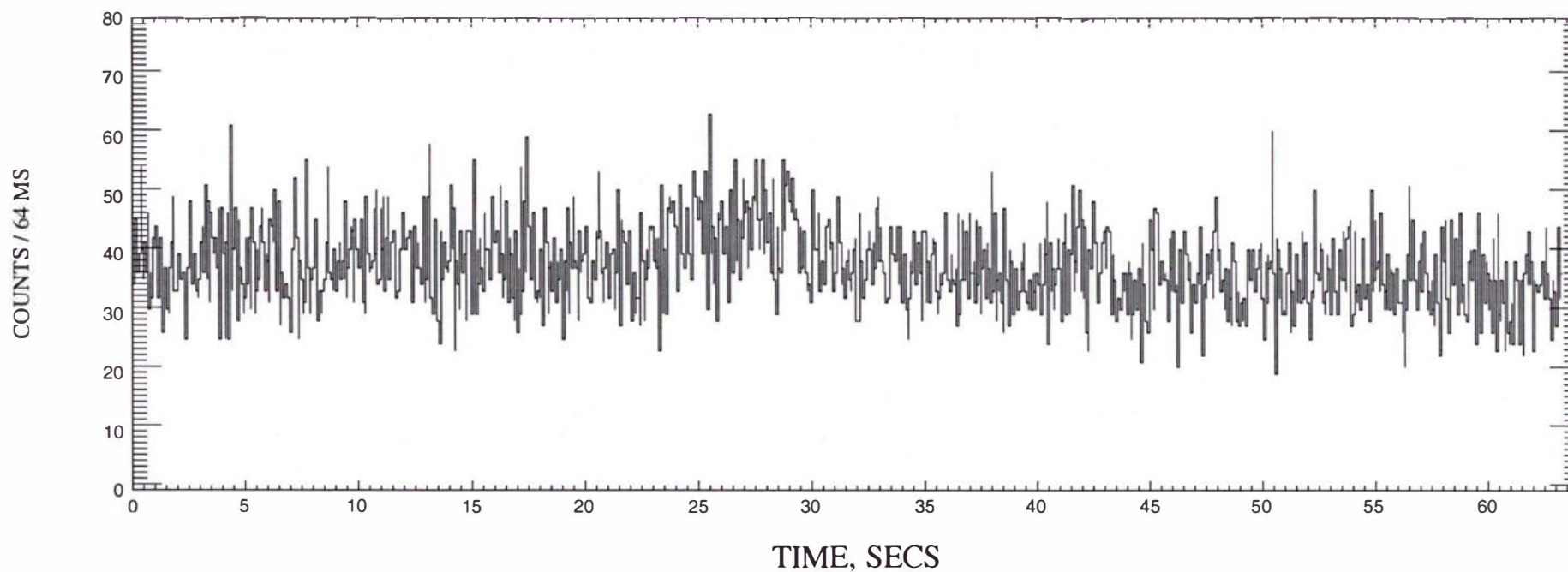


CALIBRATION DATA INCLUDED

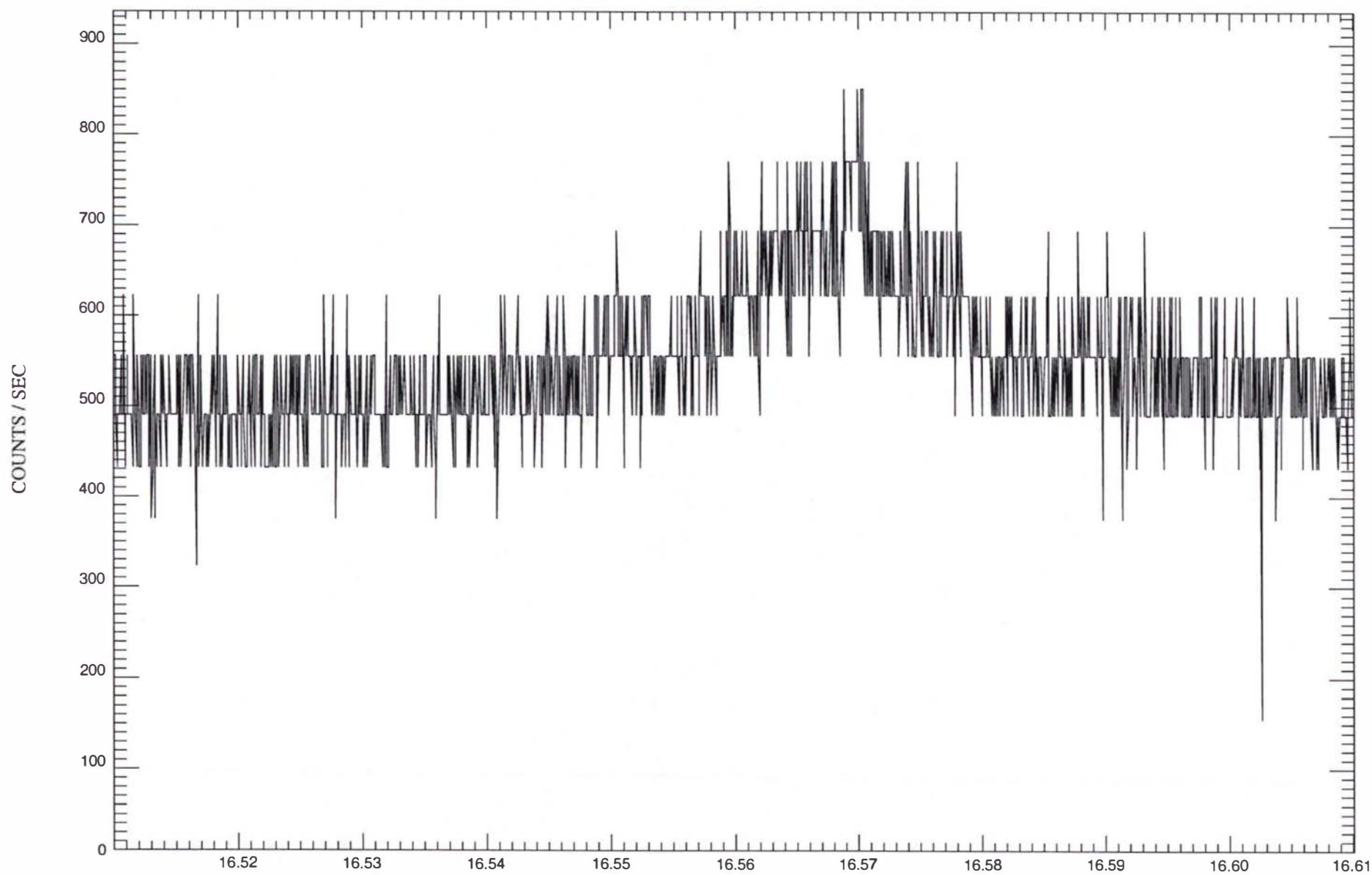


UNIVERSAL TIME

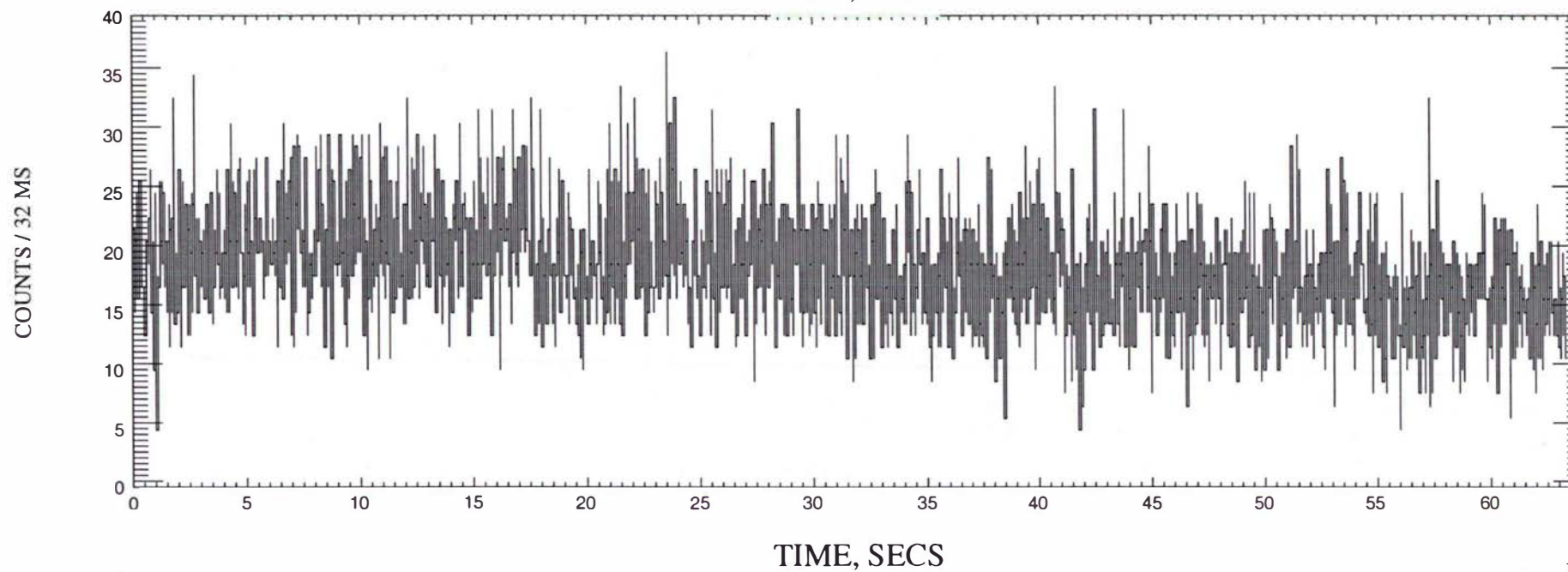
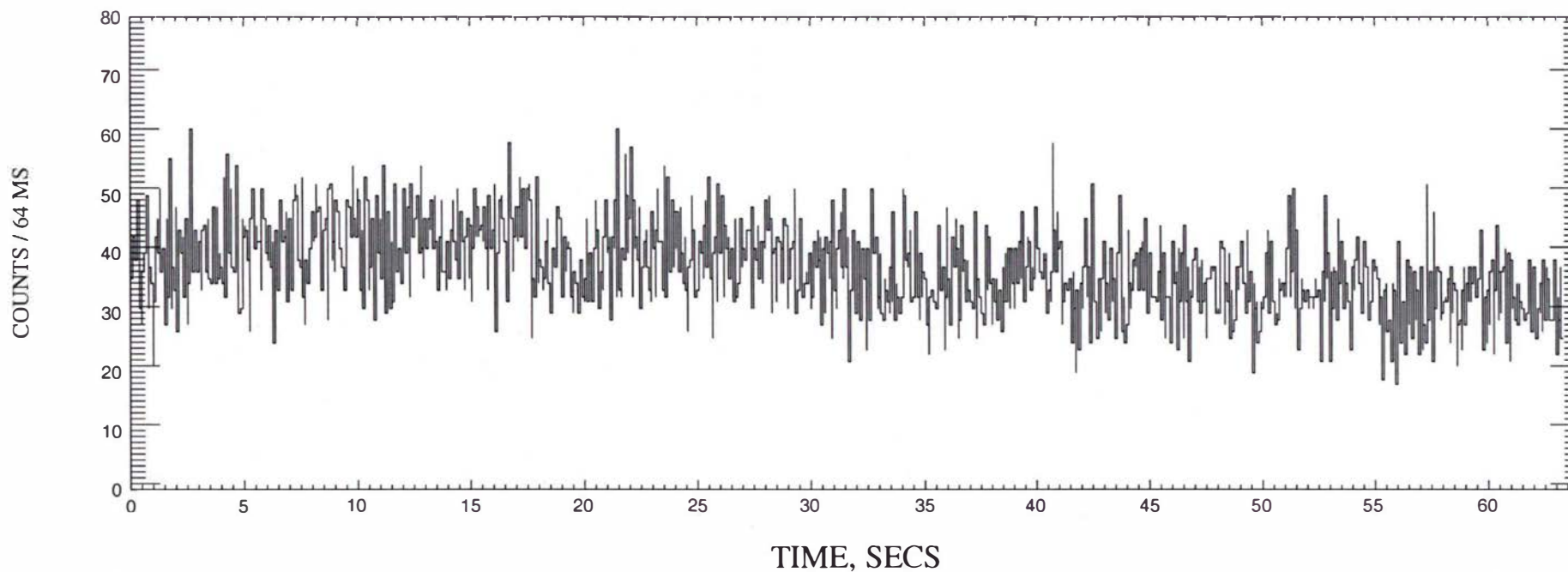
Burst Counter 2 at UT=16.564339247810 h=59631.621 s 16:33:51.621



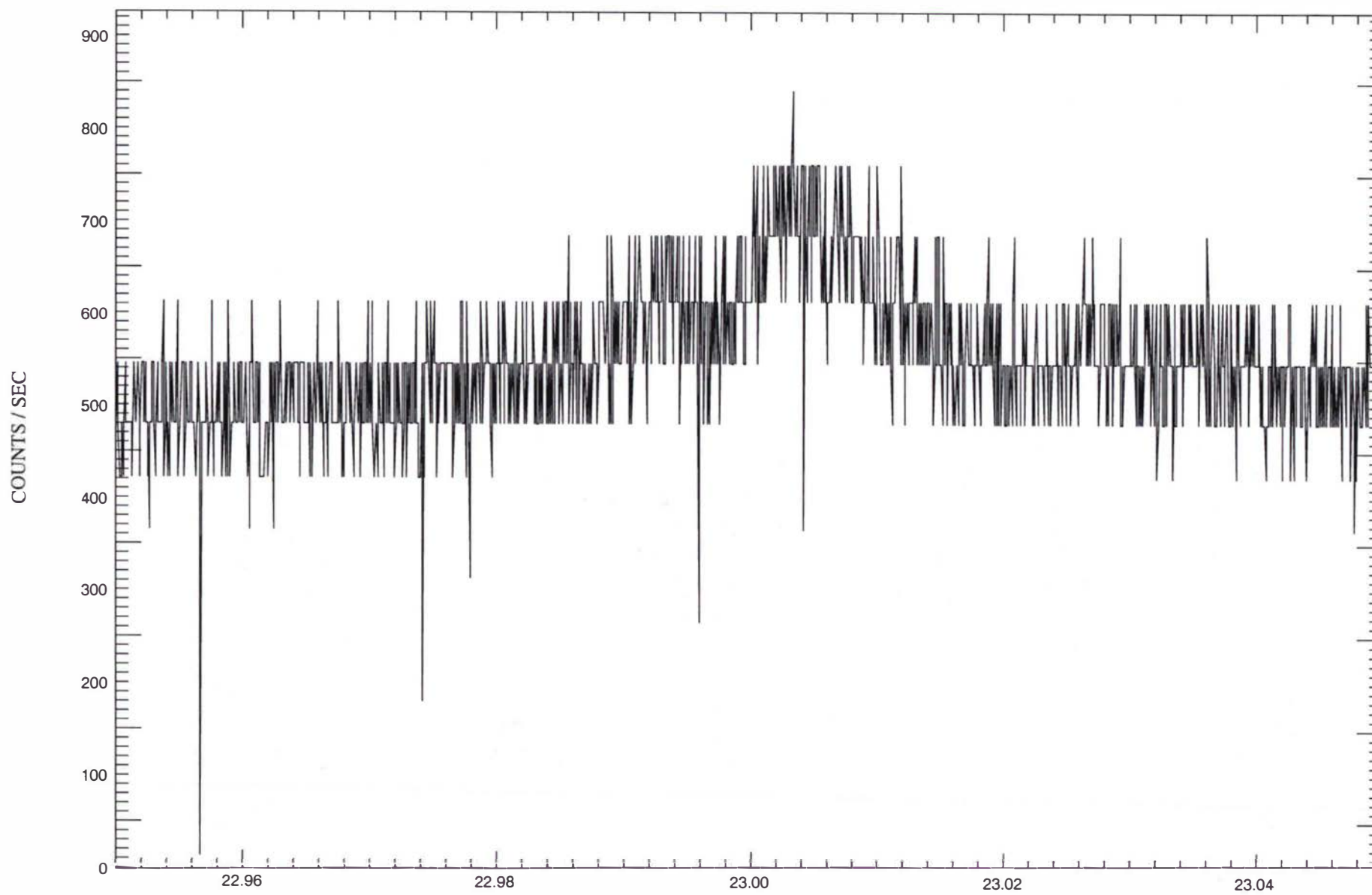
CALIBRATION DATA INCLUDED

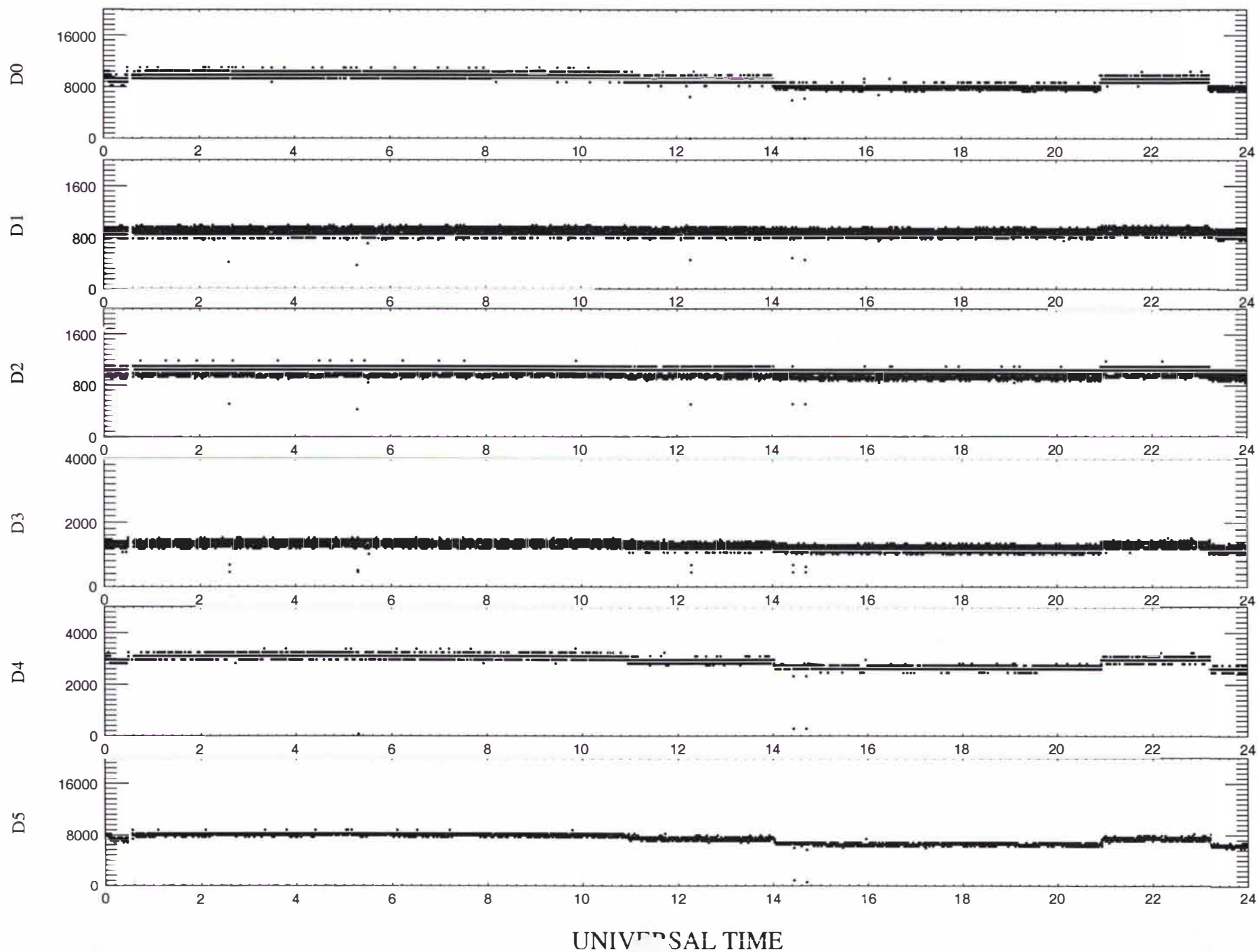


Burst Counter 3 at UT=23.002770182292 h=82809.973 s 23:00:09.973



CALIBRATION DATA INCLUDED





From guidorzi@fe.infn.it Sat Dec 16 10:21 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Sat, 16 Dec 2000 19:20:05 +0100 (MET)

1kGRE[148] #LSs: 2 Good HRR: 3
SW Trigger Time (OBT): 14287.910
UTC: Sat, 16 Dec 2000 14:13:23:11119

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.103

Nsig(trg):	11.0	5.0	3.6	1.6	8.6	3.5	2.6	2.4
Nsig(pfl):	11.0	5.0	3.6	0.0	8.6	3.5	2.6	0.0
Bkg lev. :	746	846	747	698	872	902	886	923
ChiSq R. :	1.277	0.929	1.026	1.077	0.857	1.157	0.895	0.937

Peak fl. :	300	145	98	0	254	105	76	0
Error :	42.4	42.9	40.0	0.0	44.8	43.8	43.1	0.0

Fluence :	300	145	98	0	254	105	76	0
Error :	42.4	42.9	40.0	0.0	44.8	43.8	43.1	0.0

Dur (s) :	1.00	1.00	1.00	0.00				
Abundance:	1	1	1	0				
H. Ratio :	0.846	0.723	0.778	-1.000				
HR Ratio :	1.171	1.087	-1.000	0.928	-1.000	-1.000		
HR W-ave :	0.816	+/-	0.162					

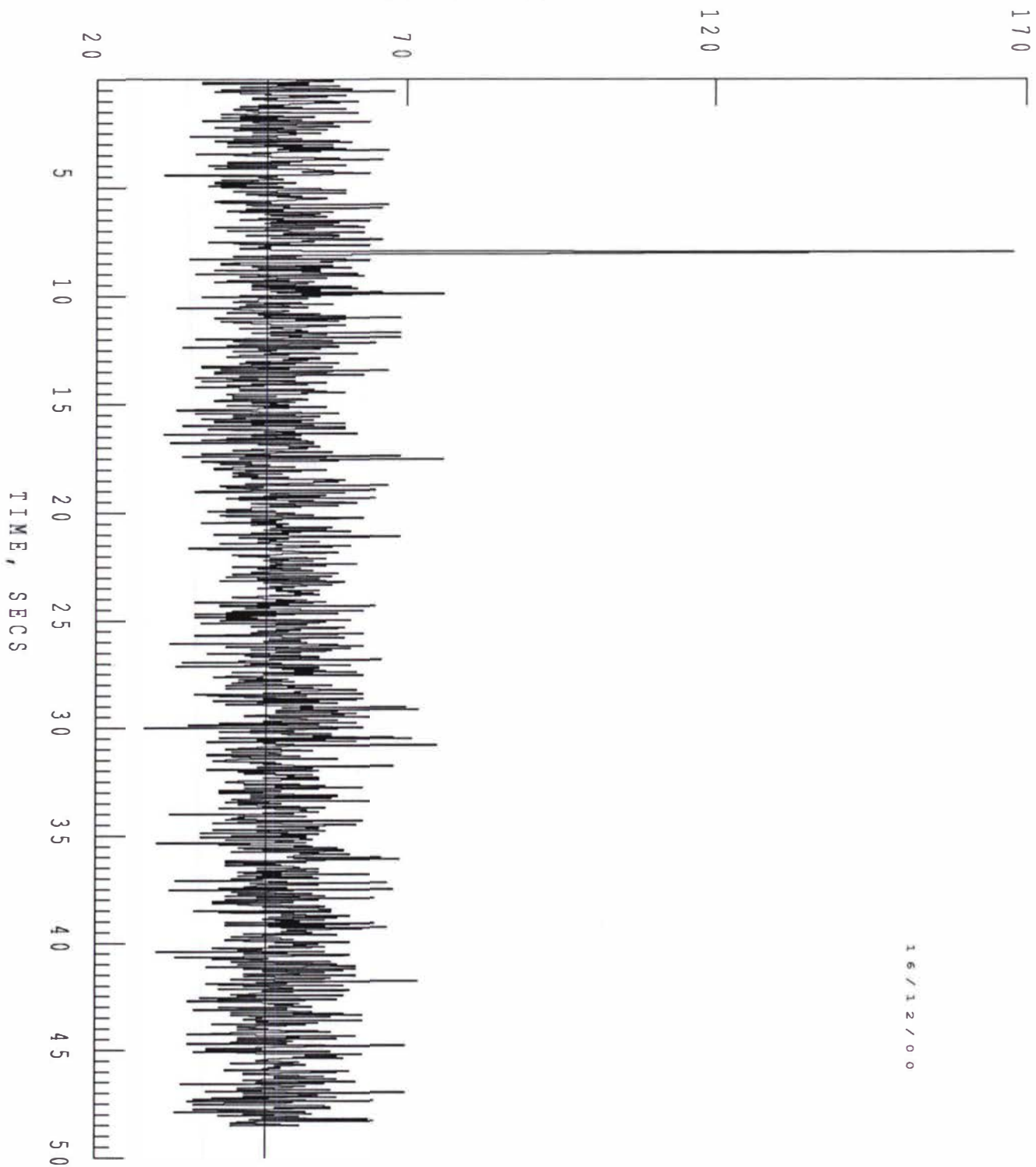
BSAX-GRBM

16/12/00

51195.008

40 - 700 keV

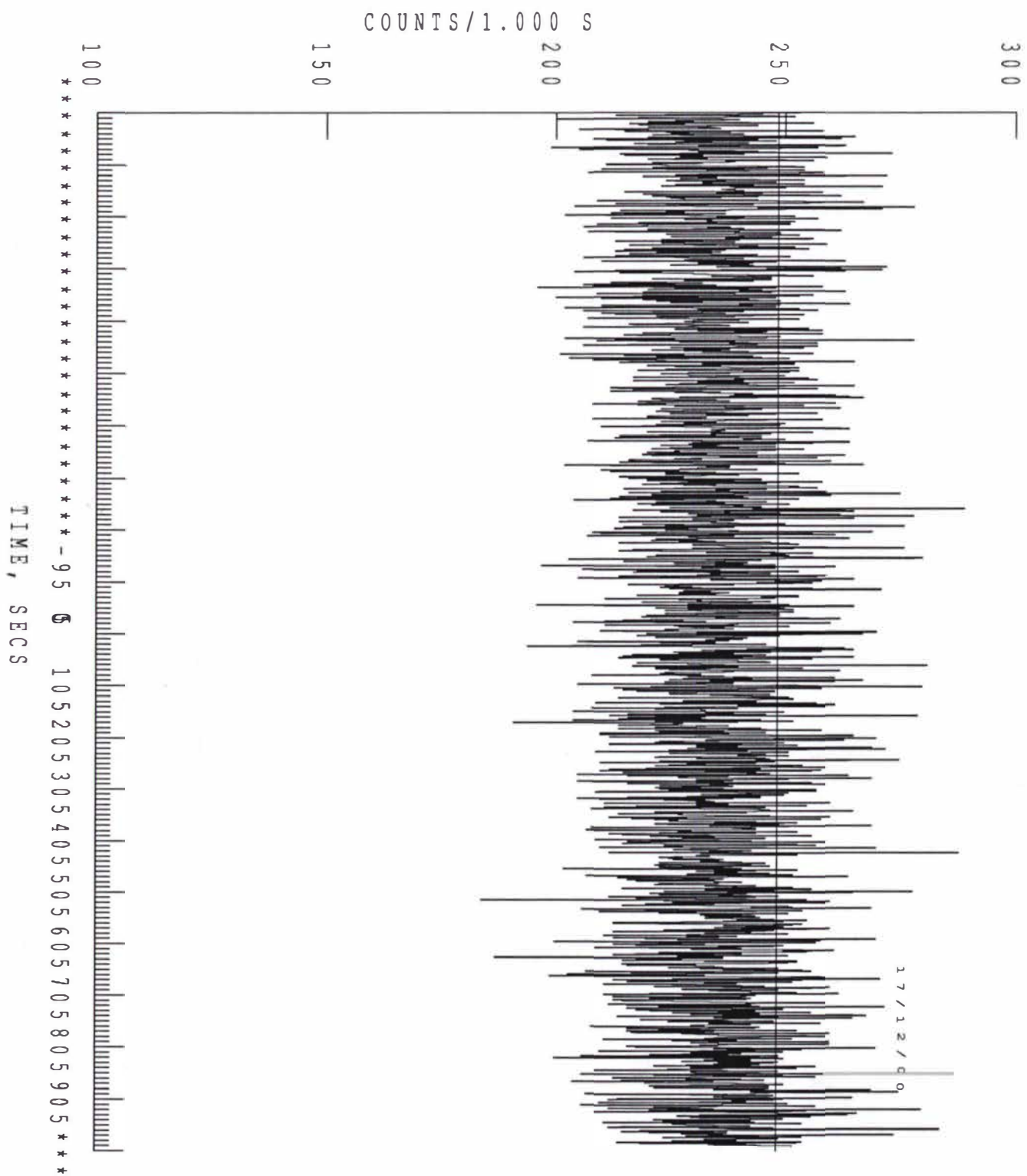
COUNTS/0.031 S



16/12/00

51202.013

100-1000 keV



GRBM 20001216 50686

ULYSSES RT

04/10/07

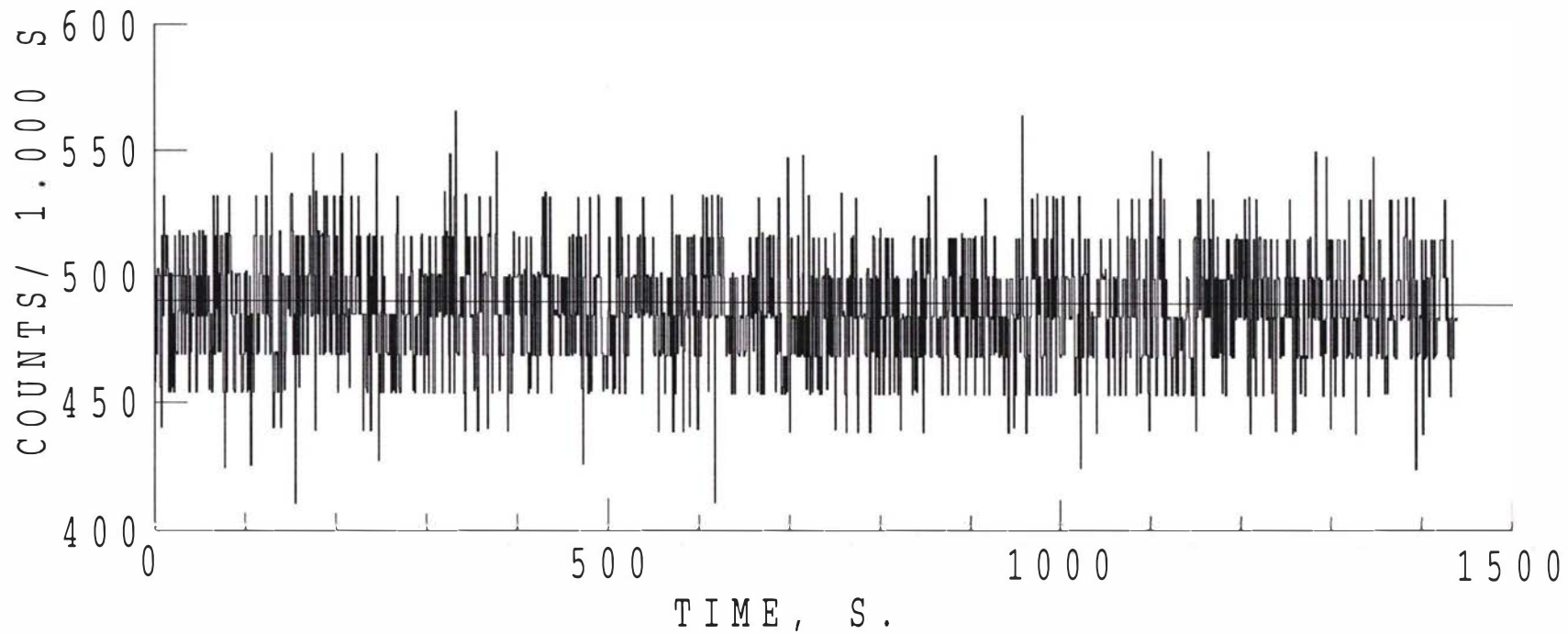
16/12/00 49968.176 s

0.250 S INTERVALS REGROUPED BY 4

0 - 0 keV

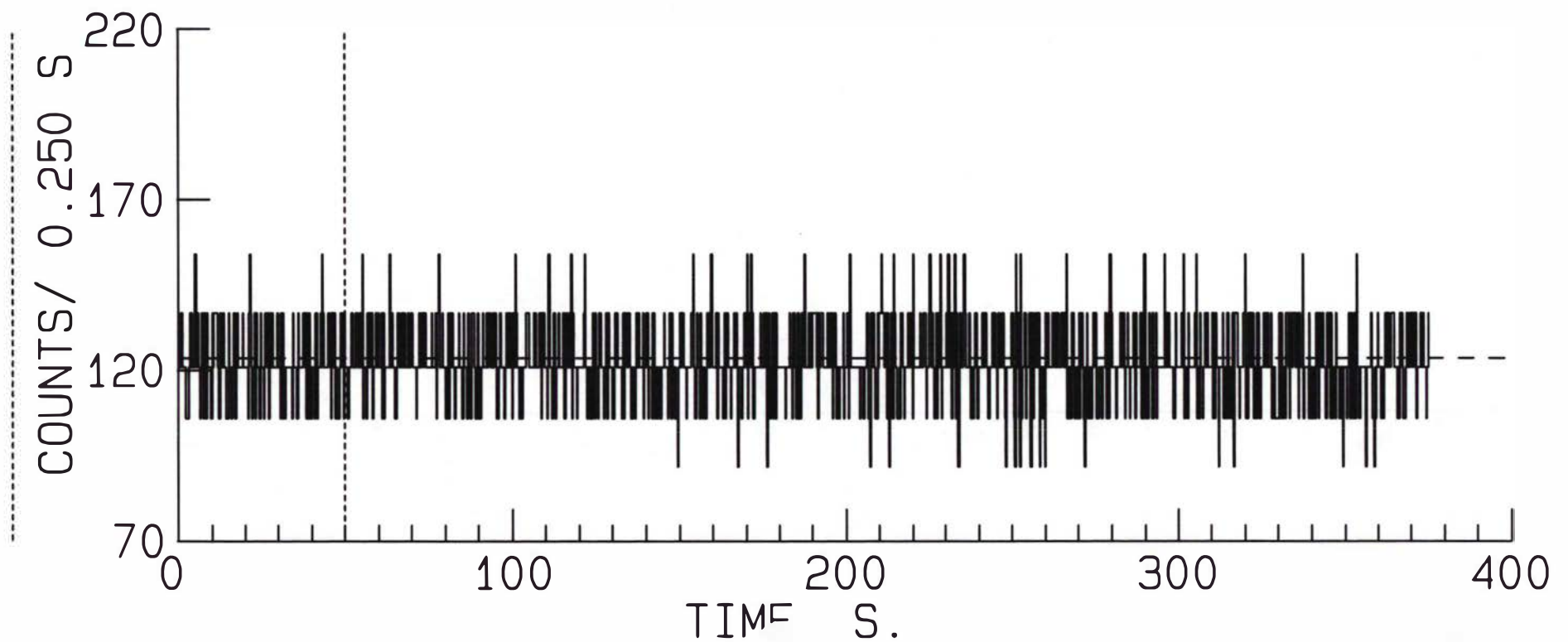
N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



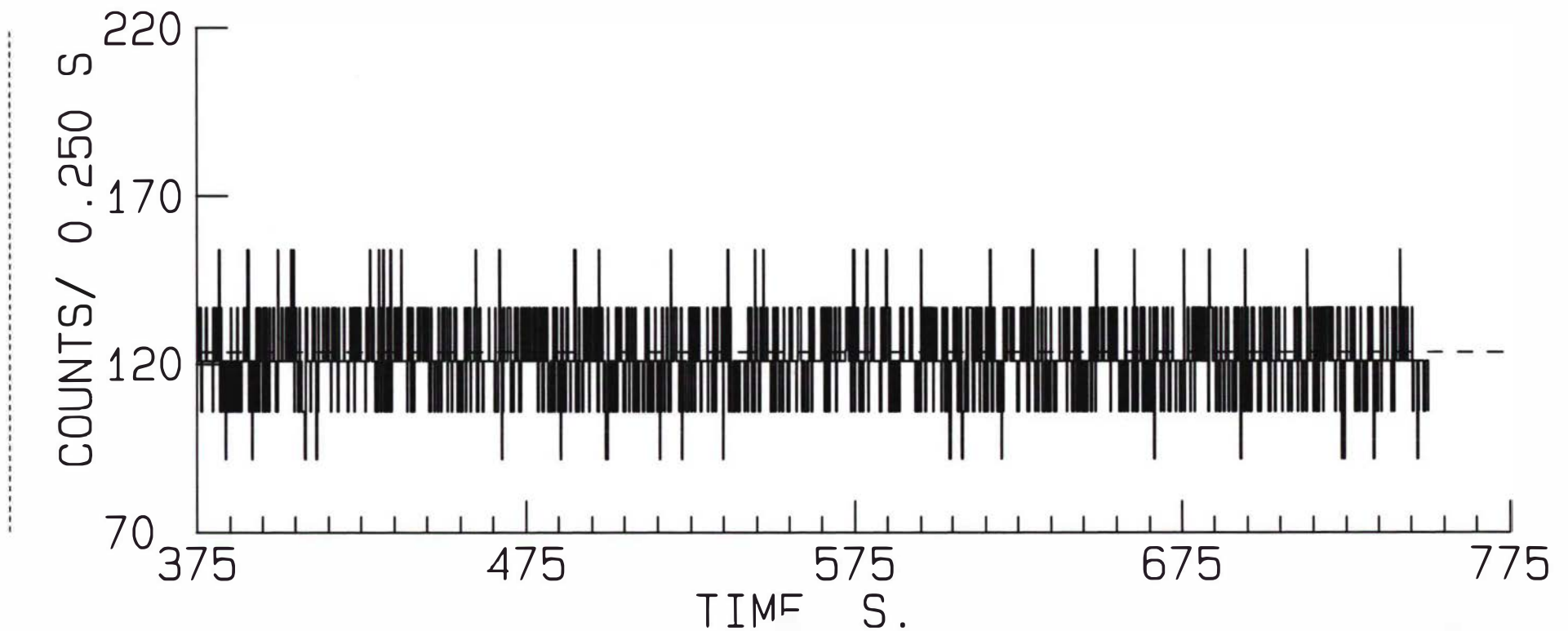
ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

31 / 12 / 0



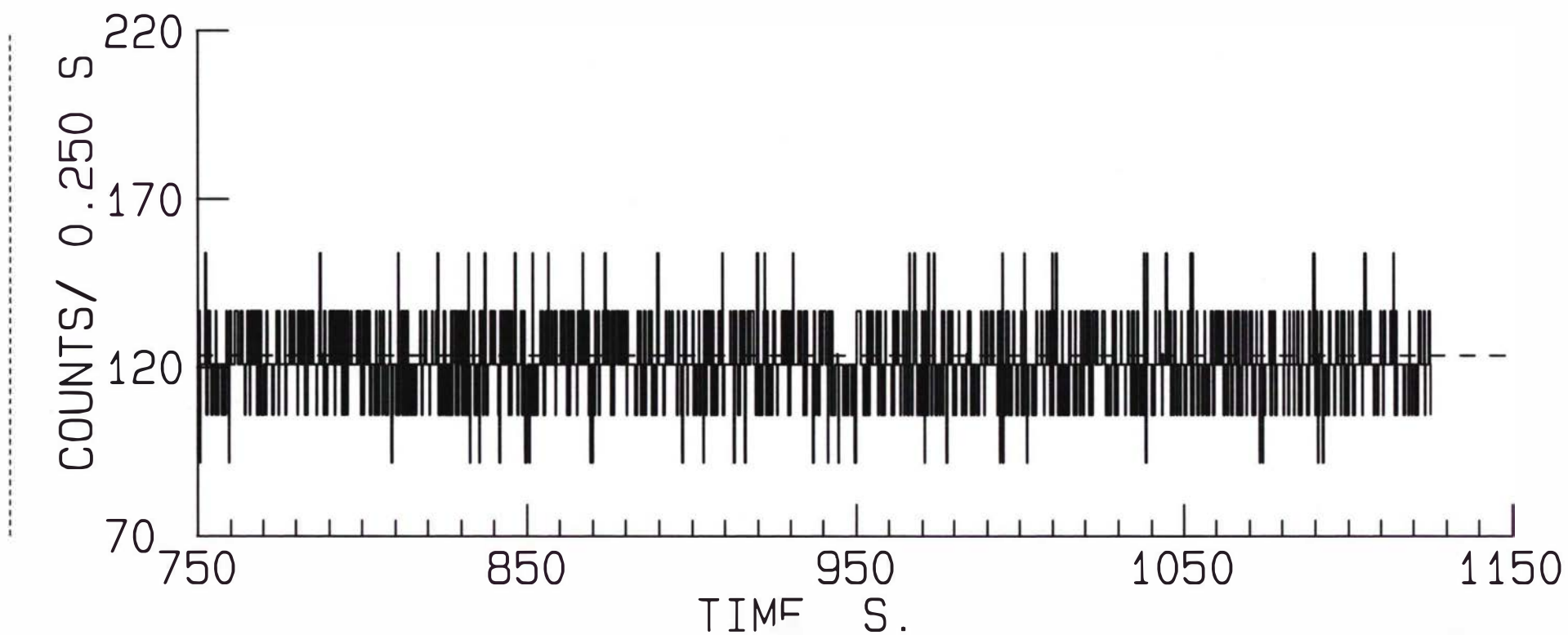
ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

31/12/ 0



ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

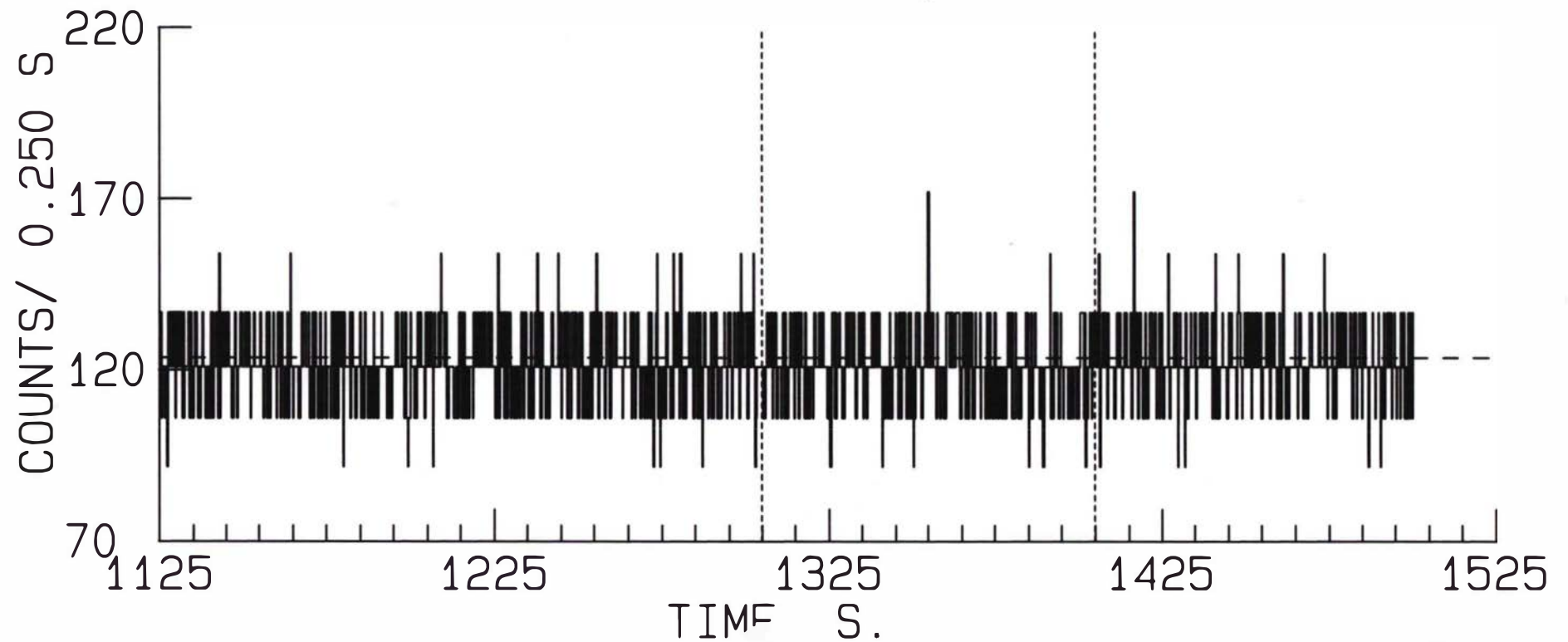
31/12/ 0



ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

31 / 12 / 0

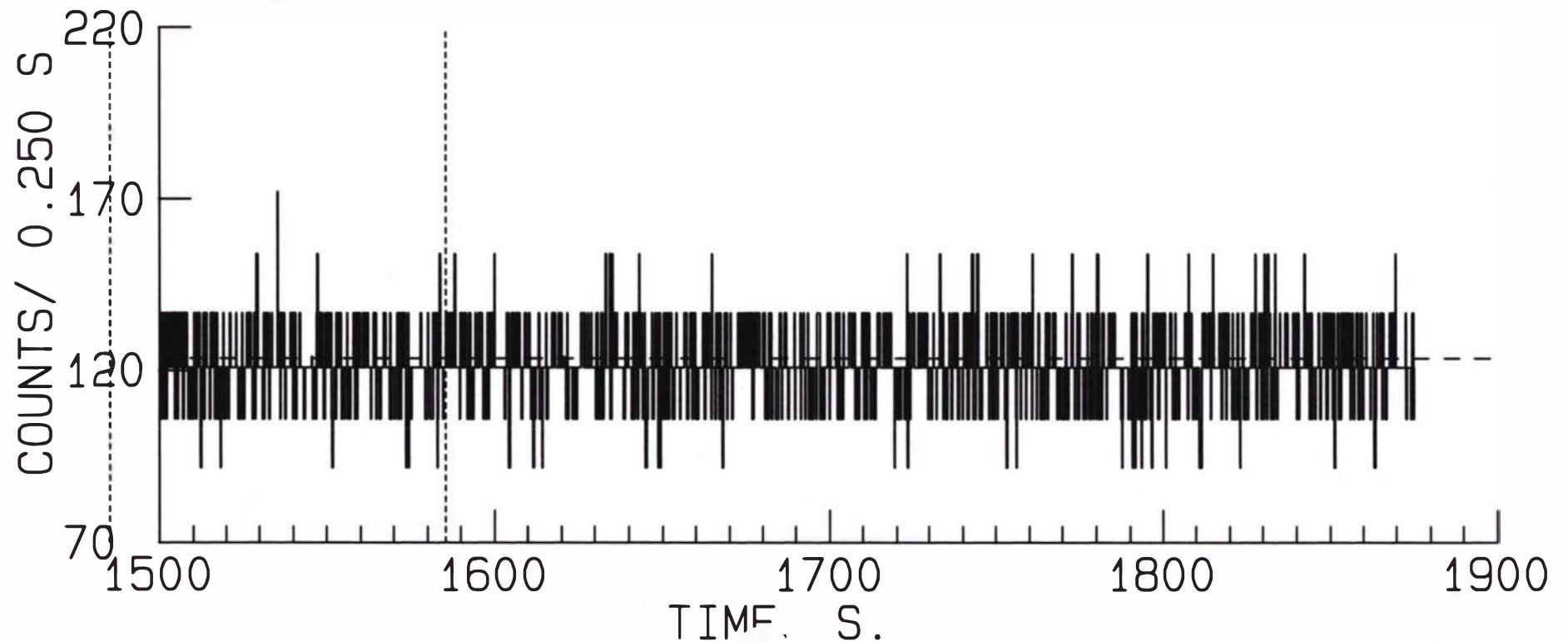
N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS



ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

31/12/ 0

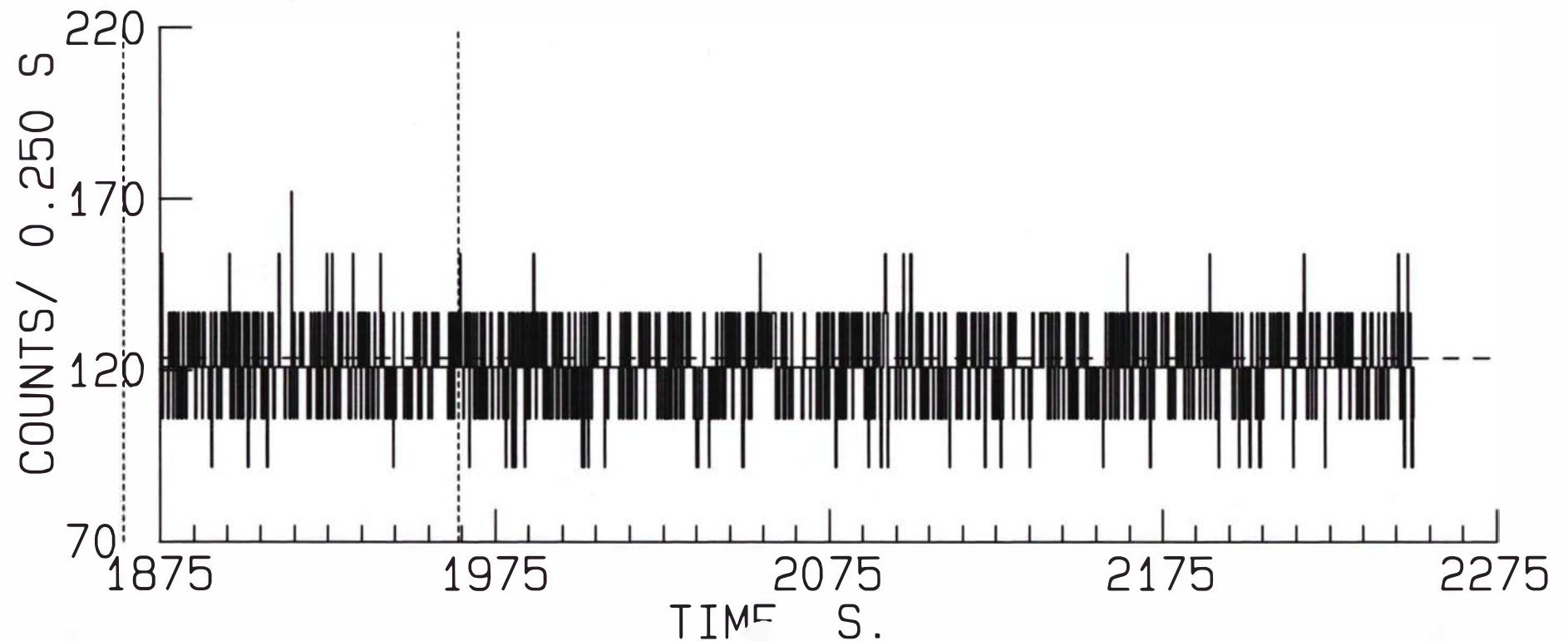
N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS



ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

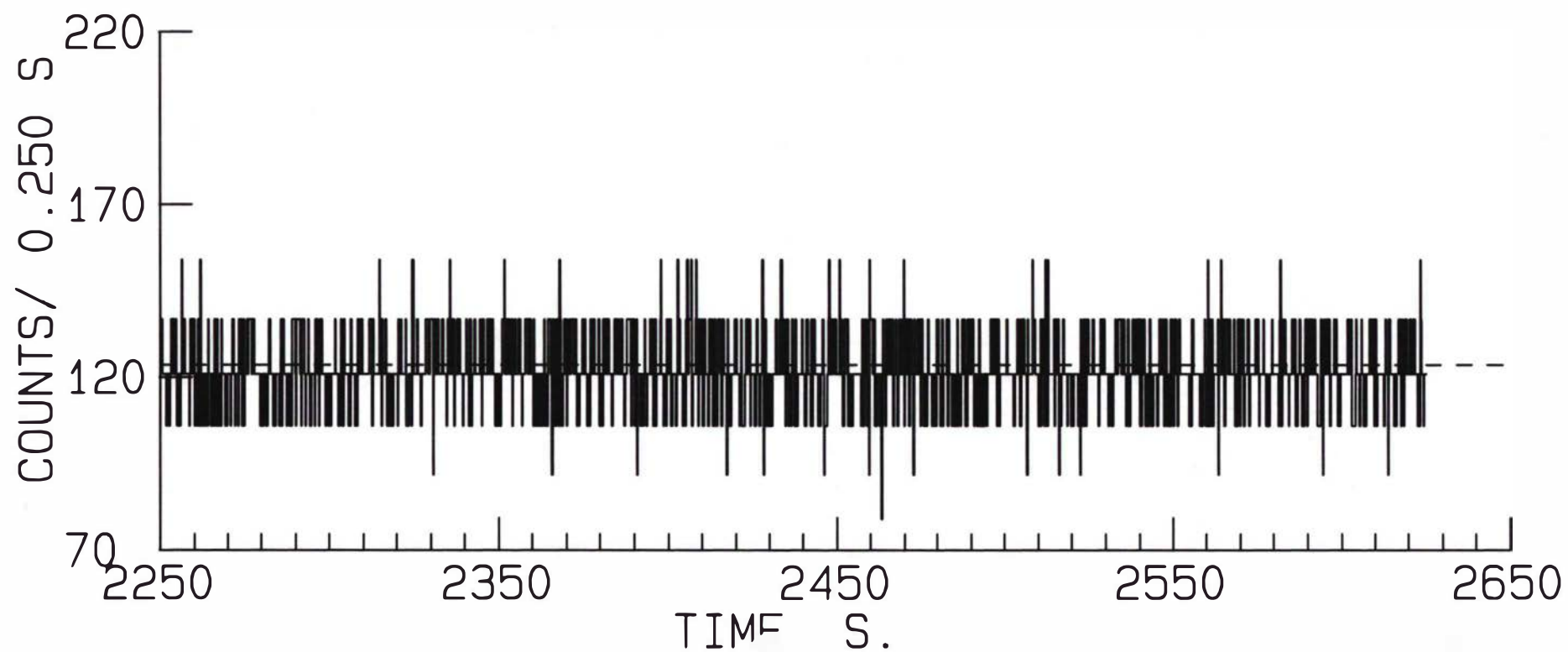
31 / 12 / 0

N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS



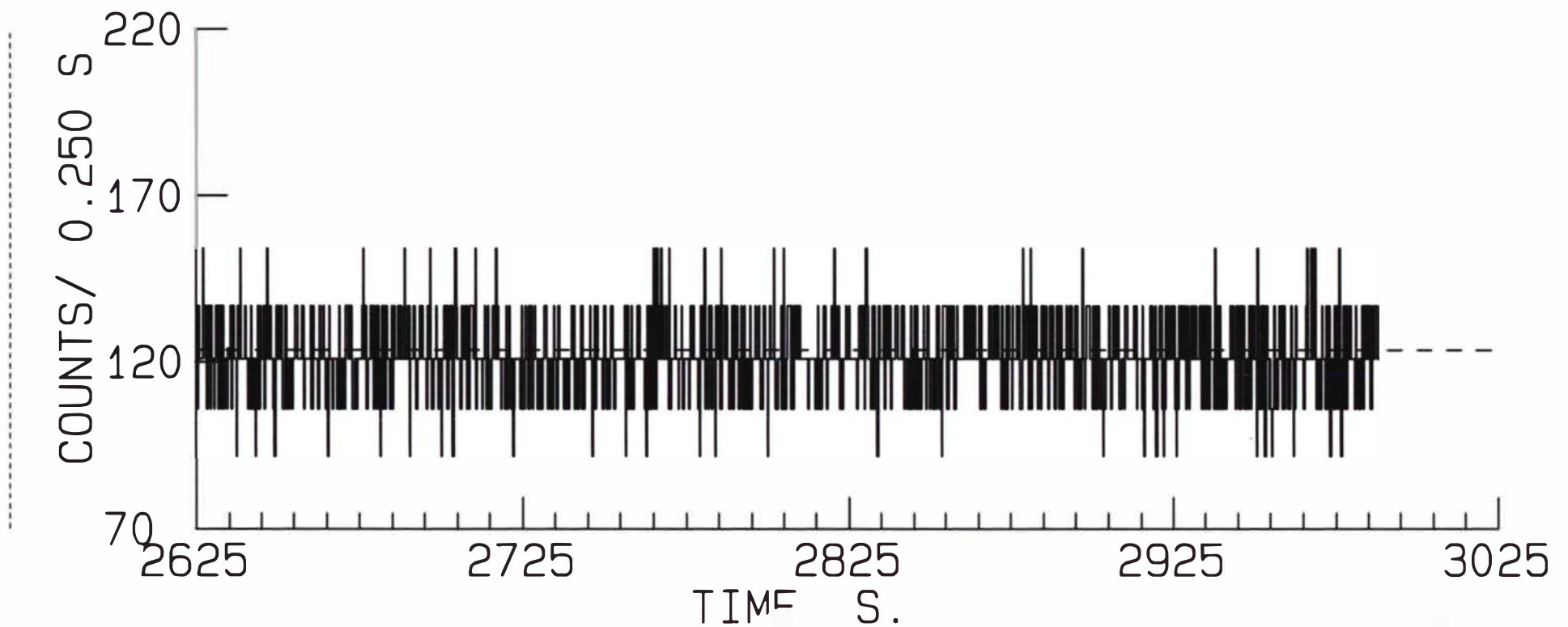
ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

31/12/ 0

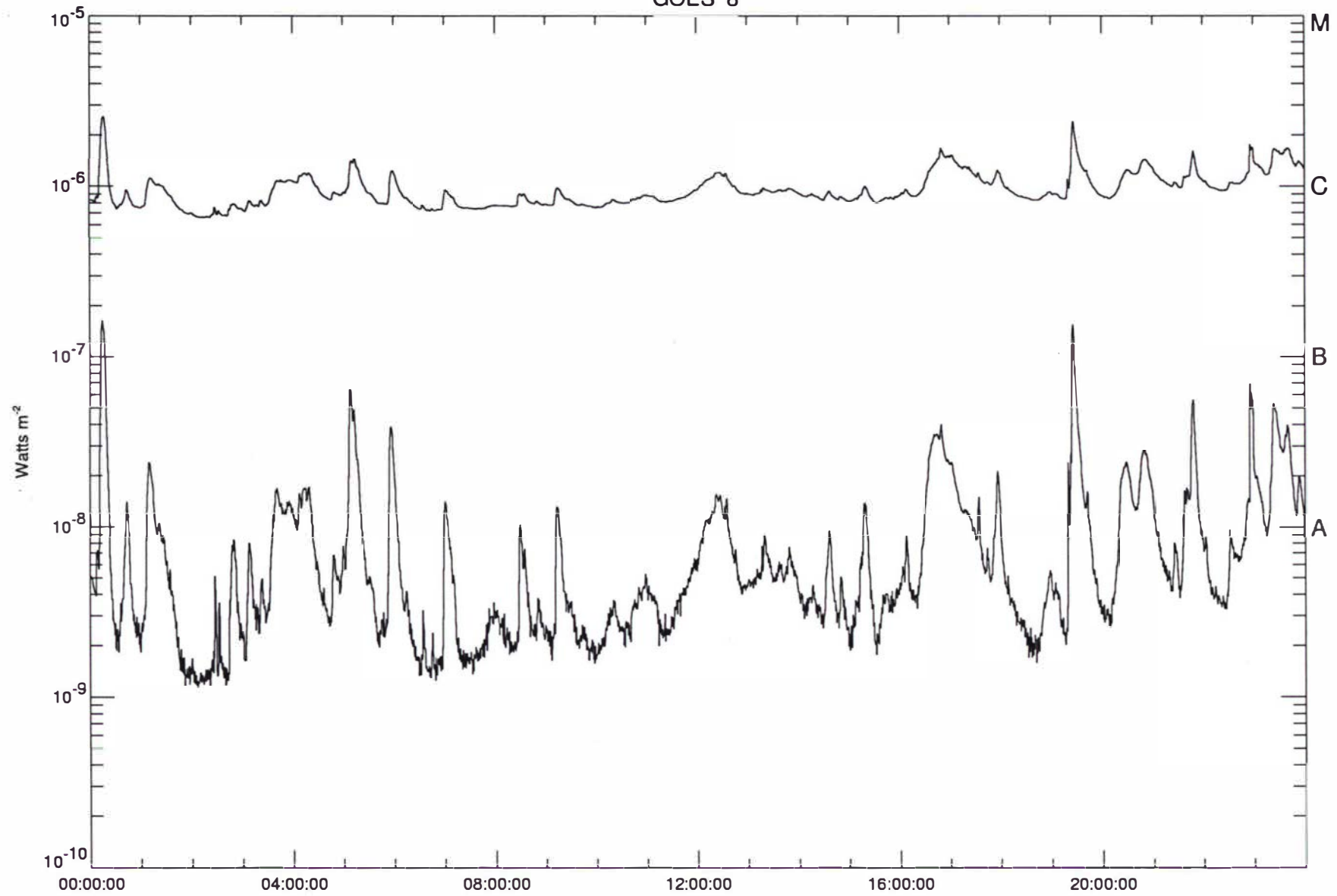


ULYSSES RT
16/12/ 0 49716.171 s
23- 155 keV

31/12/ 0



GOES 8



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

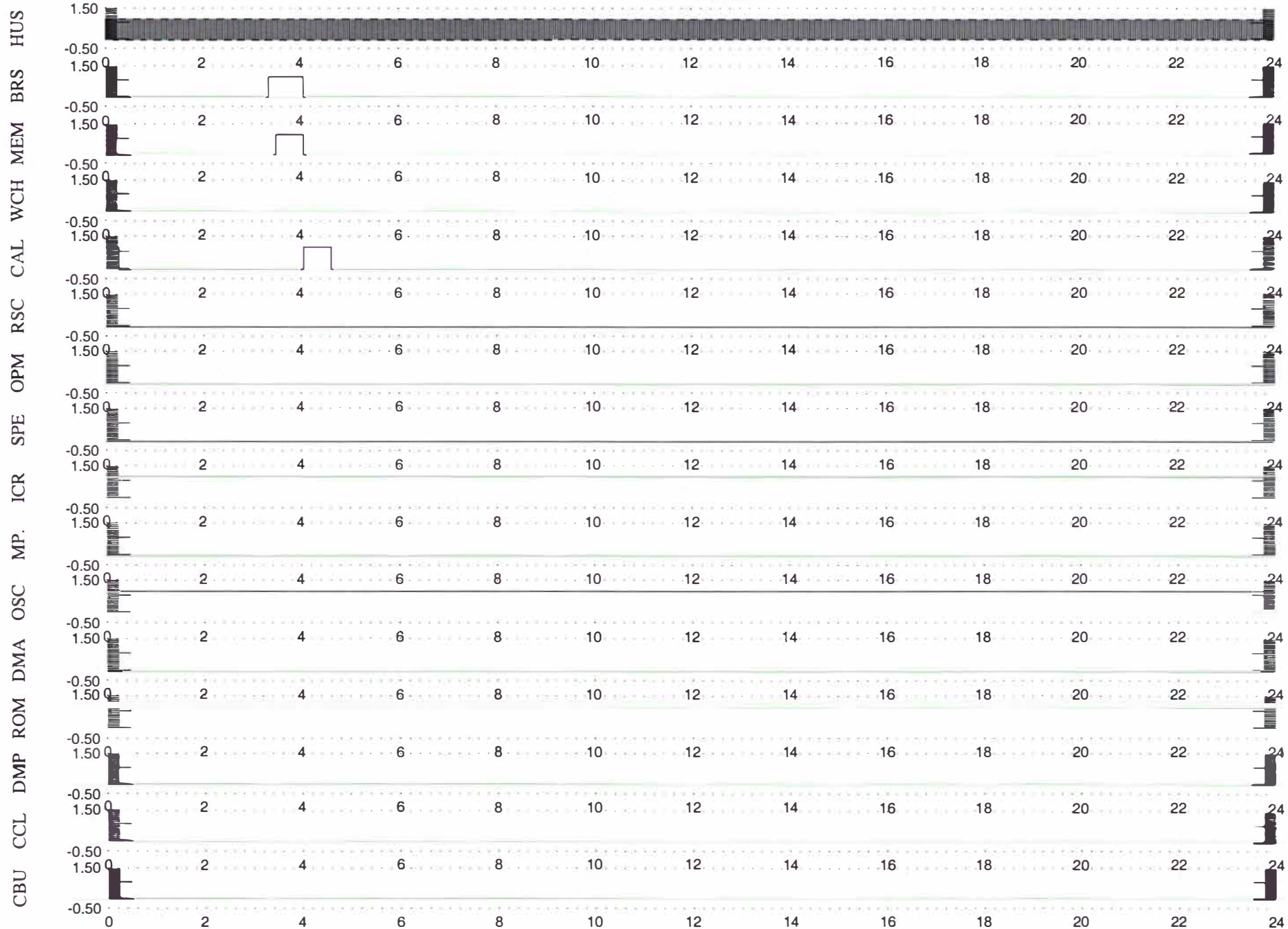
2 (0.5 - 4.0 Angstroms)

Background not subtracted

Plot created: 00/12/20, 1057

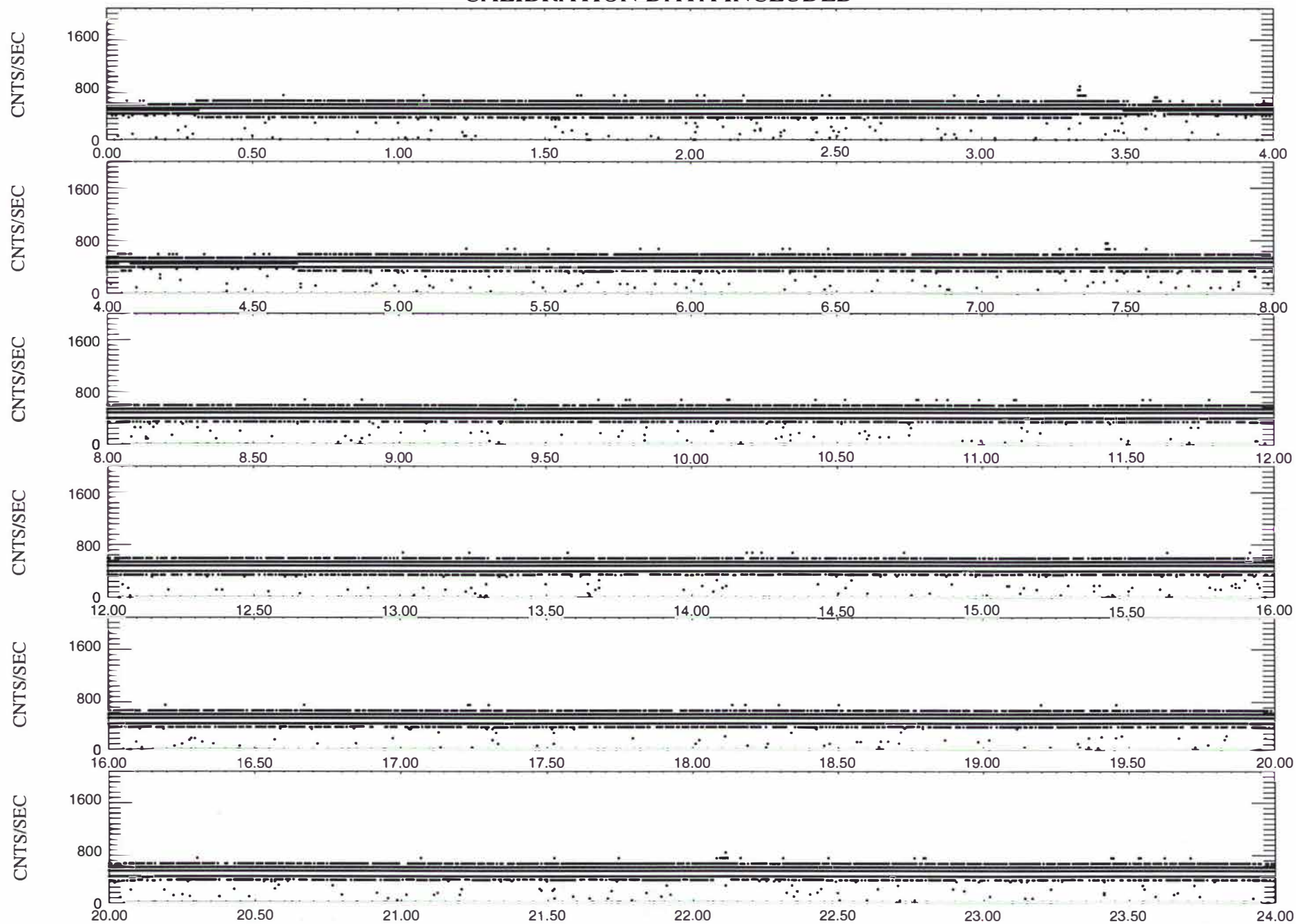
Sample average = 10

BURST NUMBER 4



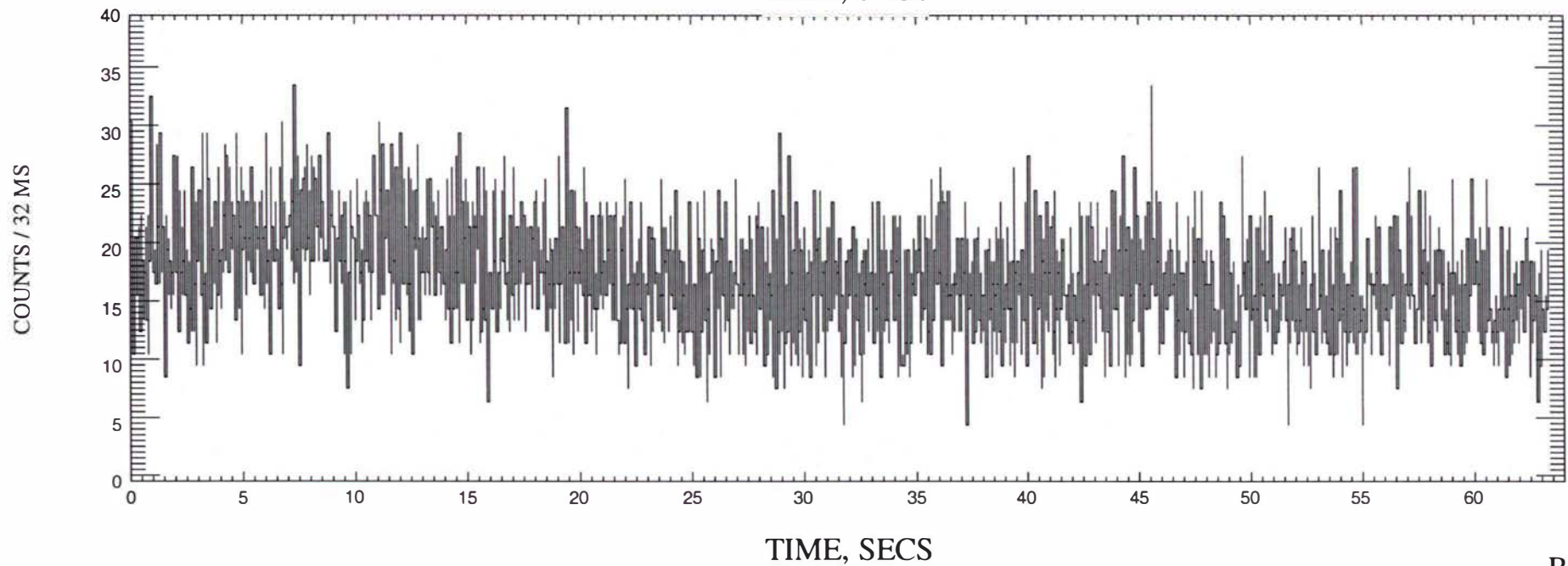
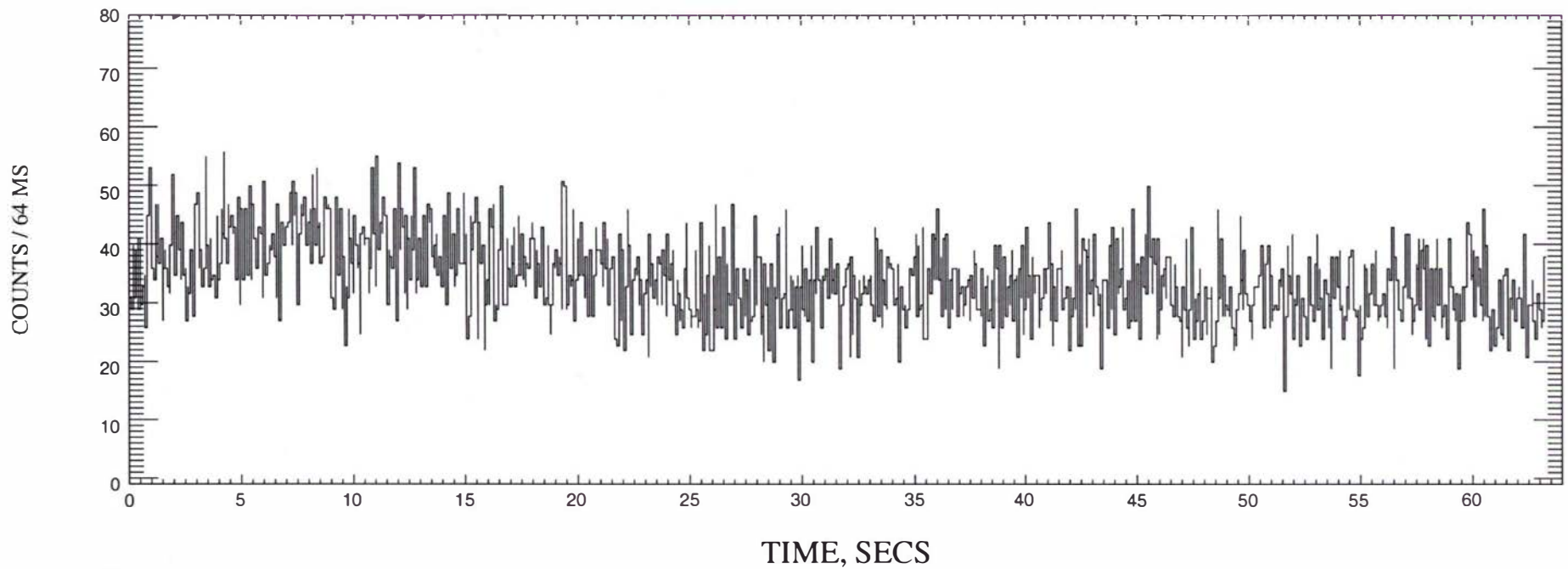
UNIV. SAL TIME

CALIBRATION DATA INCLUDED

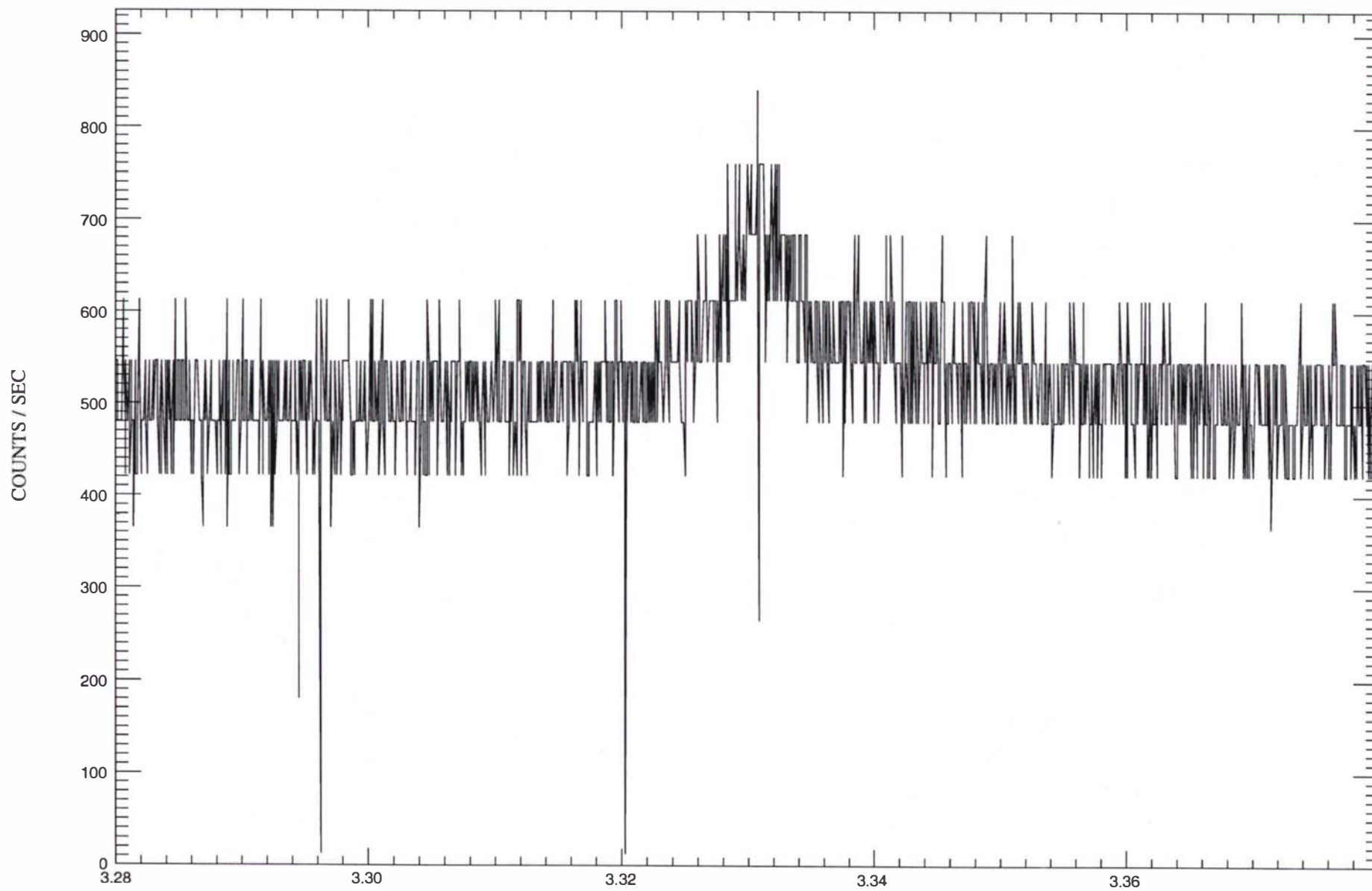


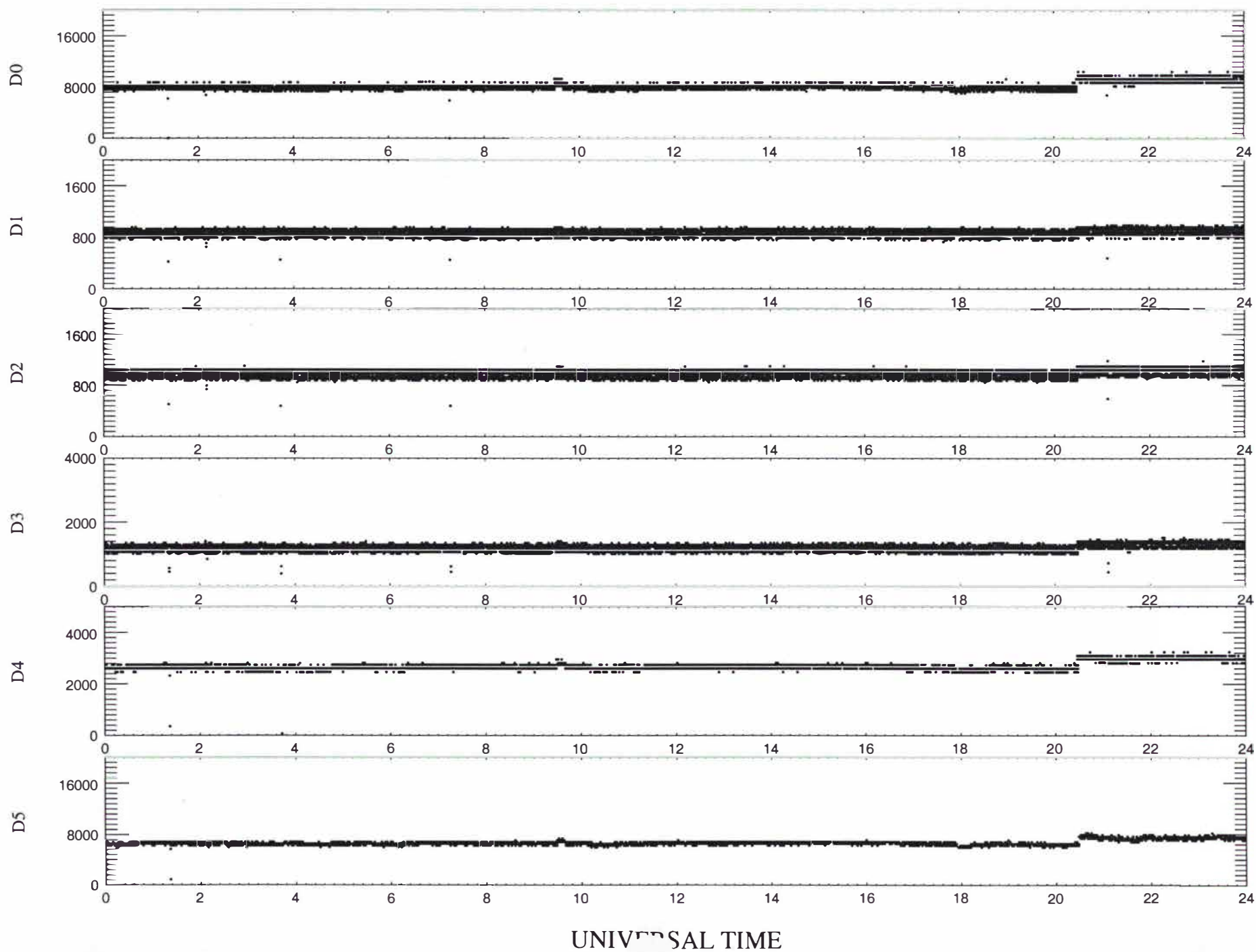
UNIVERSAL TIME

Burst Counter 4 at UT= 3.330857166714 h=11991.086 s 03:19:51.086



CALIBRATION DATA INCLUDED





Date: 23 Oct '07

BURST TRIANGULATION CHECKLIST

1. Ulysses Data N/A

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events N/A

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

2. For 3 or More Spacecraft events N/A

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

3. For INTEGRAL events N/A

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

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

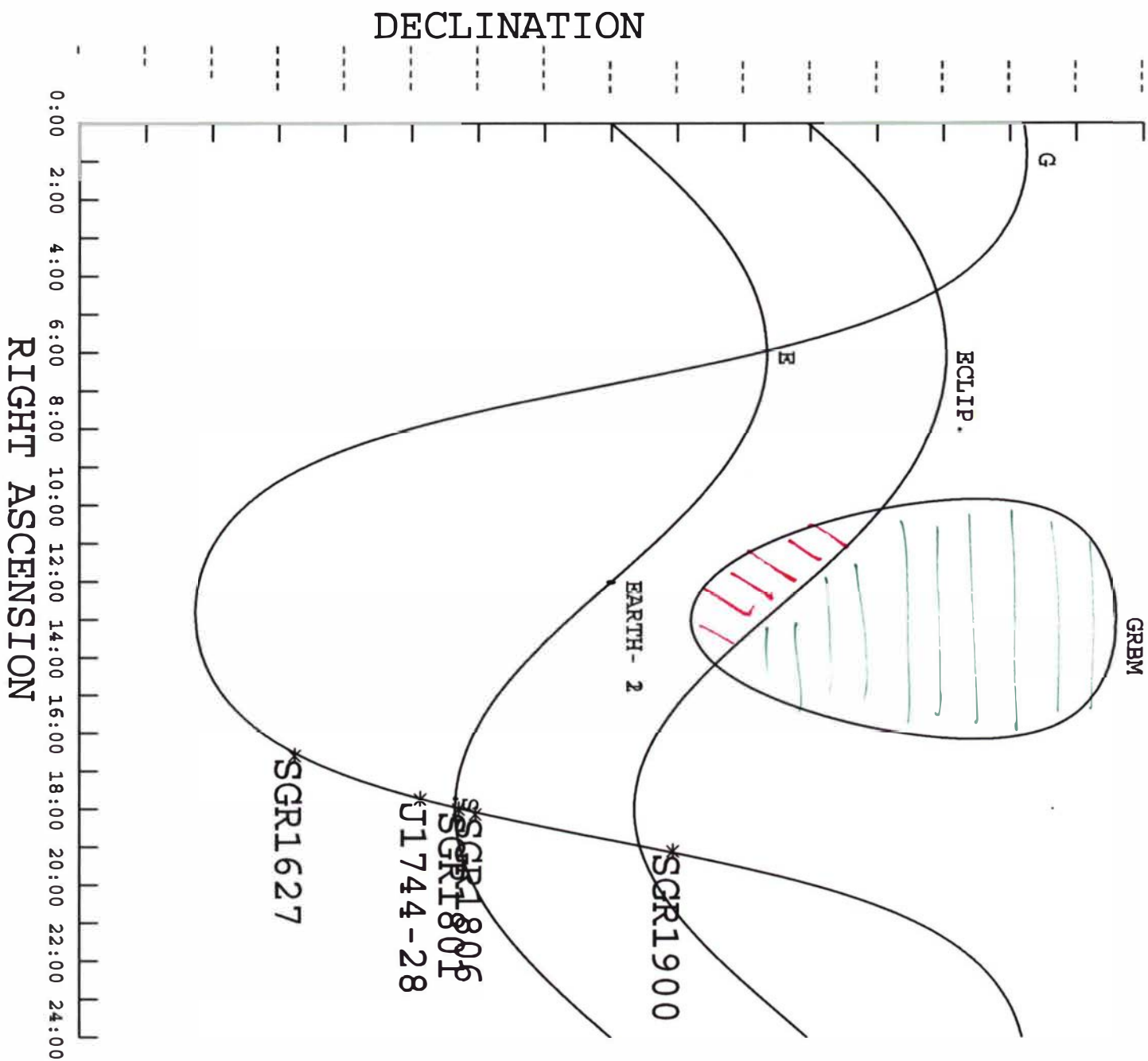
S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 SAX GRBM

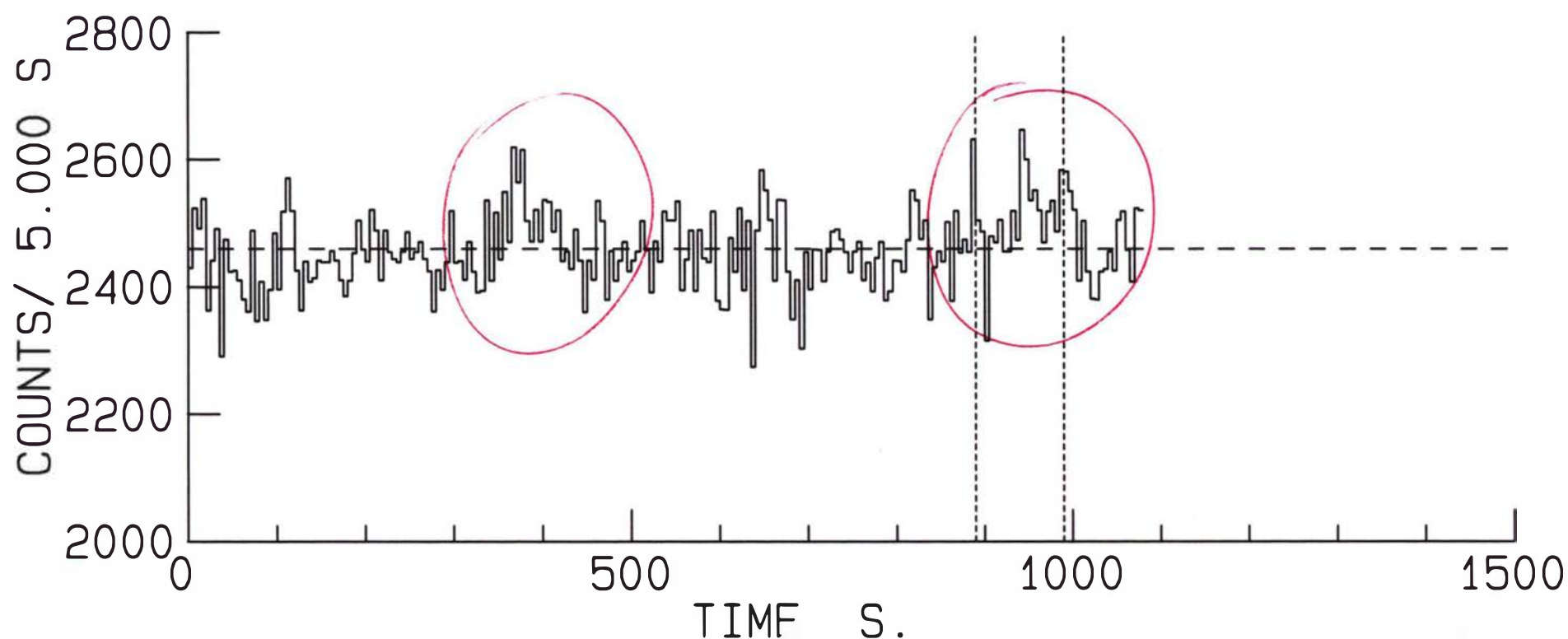
2 KONUS



23/10/7

ULYSSES RT
17/12/ 0 58896.129 s
0.250 S INTERVALS REGROUPED BY 20
23- 157 keV

23/10/ 7



KONUS

00/12/17 58677.980

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.945 S

4300

3300

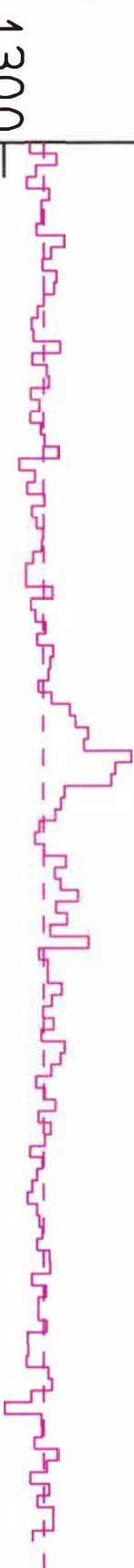
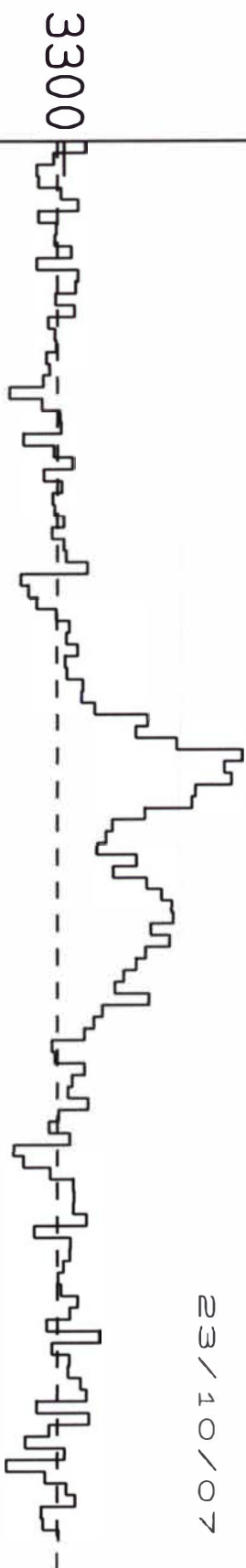
2300

1300

DETECTOR 2 - N. ECLIPTIC

23/10/07

300
0
50
100
150
200
250
300
350
TIME, SECS



KONUS

00/12/17 58677.980

10- 50 keV

50- 200 keV 200- 750 keV

COUNTS/2.945 S

15400

10400

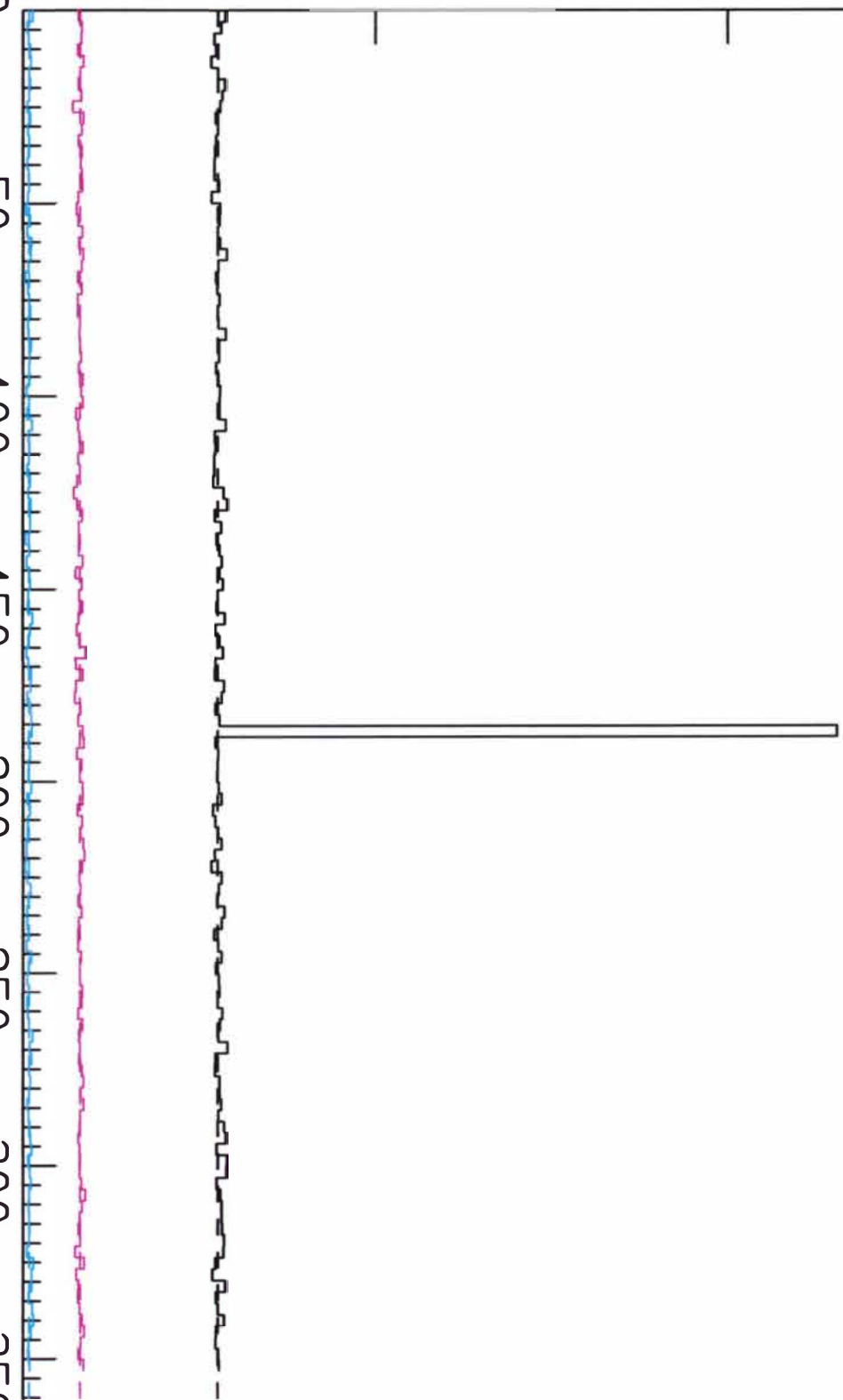
5400

400
0

DETECTOR 1 - S. ECLIPTEIC

23/10/07

50 100 150 200 250 300 350
TIME, SECS



From guidorzi@fe.infn.it Sun Dec 17 11:51 PST 2000

From: Auto_GRB_monitor@fe.infn.it

Subject: GRBM/SAX Trigger S/W Alert

Date: Sun, 17 Dec 2000 20:50:04 +0100 (MET)

1kGRB[149] #LSs: 1 Good HRR: 1

SW Trigger Time (OBT): 42778.908

UTC: Sun, 17 Dec 2000 16:20:30:07403

*****Event 0 triggered on board: ev_time - onbtrig_time = 1.711

Nsig(trg):	0.0	1.7	7.7	4.5	0.0	1.2	4.3	1.8
Nsig(pfl):	0.0	0.0	11.6	4.5	0.0	0.0	6.7	2.1
Bkg lev. :	746	897	790	706	881	896	837	919
ChiSq R. :	1.129	1.106	1.118	1.070	0.972	0.900	0.908	0.882

Peak fl. :	0	0	326	120	0	0	192	64
Error :	0.0	0.0	43.7	39.2	0.0	0.0	43.3	43.7

Fluence :	0	0	2224	250	0	0	1256	168
Error :	0.0	0.0	161.4	67.1	0.0	0.0	162.8	75.5

Dur (s) :	0.00	0.00	47.00	3.00
-----------	------	------	-------	------

Abundance:	0	0	15	3
------------	---	---	----	---

H. Ratio :	-1.000	-1.000	0.565	0.672
------------	--------	--------	-------	-------

HR Ratio :	-1.000	-1.000	-1.000	-1.000	-1.000	0.840
------------	--------	--------	--------	--------	--------	-------

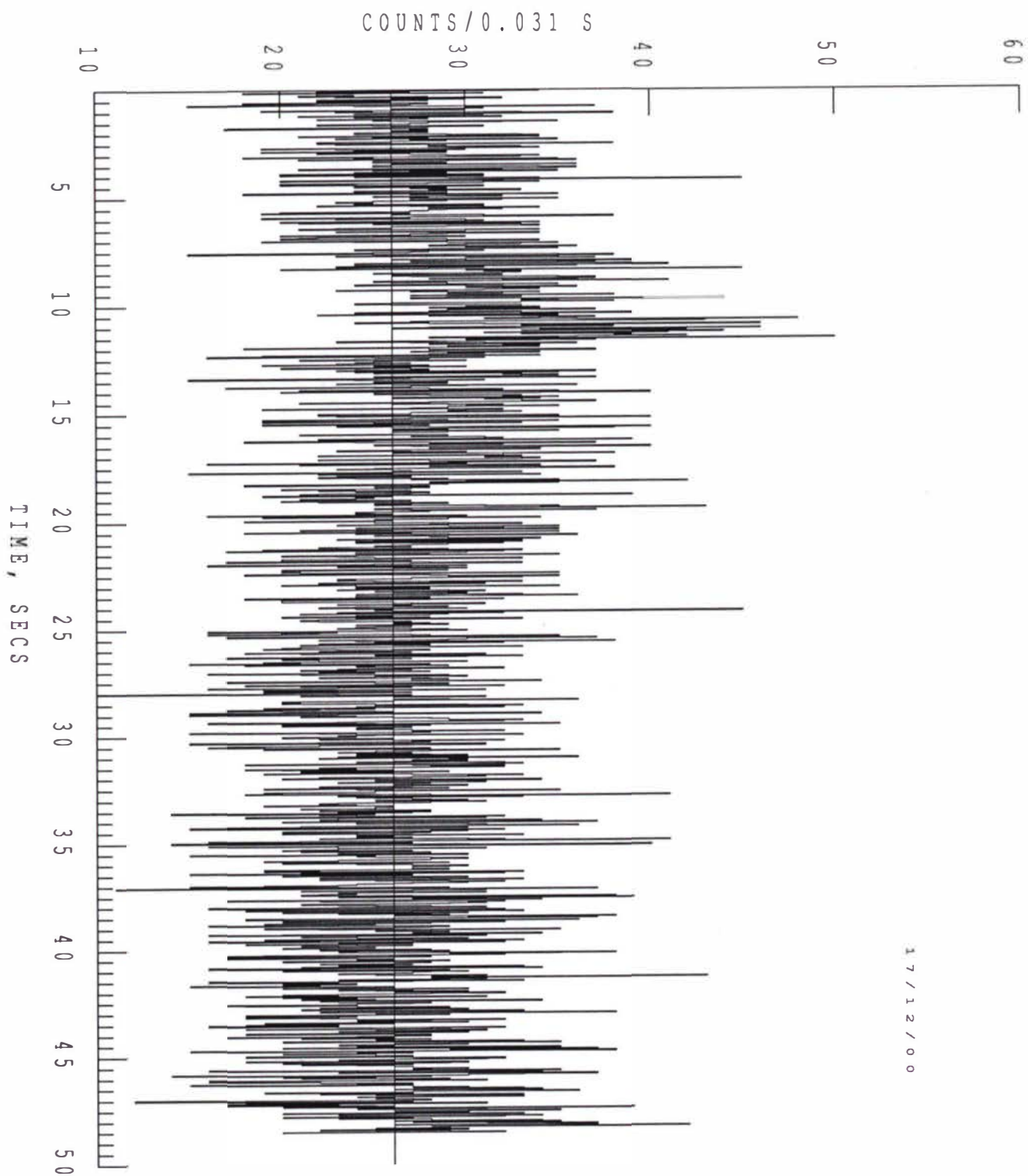
HR W-ave :	0.571	+/-	0.082
------------	-------	-----	-------

BSAX-GRBM

17/12/00

58820.363

40 - 700 keV



KNEAR GRS 20001217 58829

ULYSSES RT

18/12/00

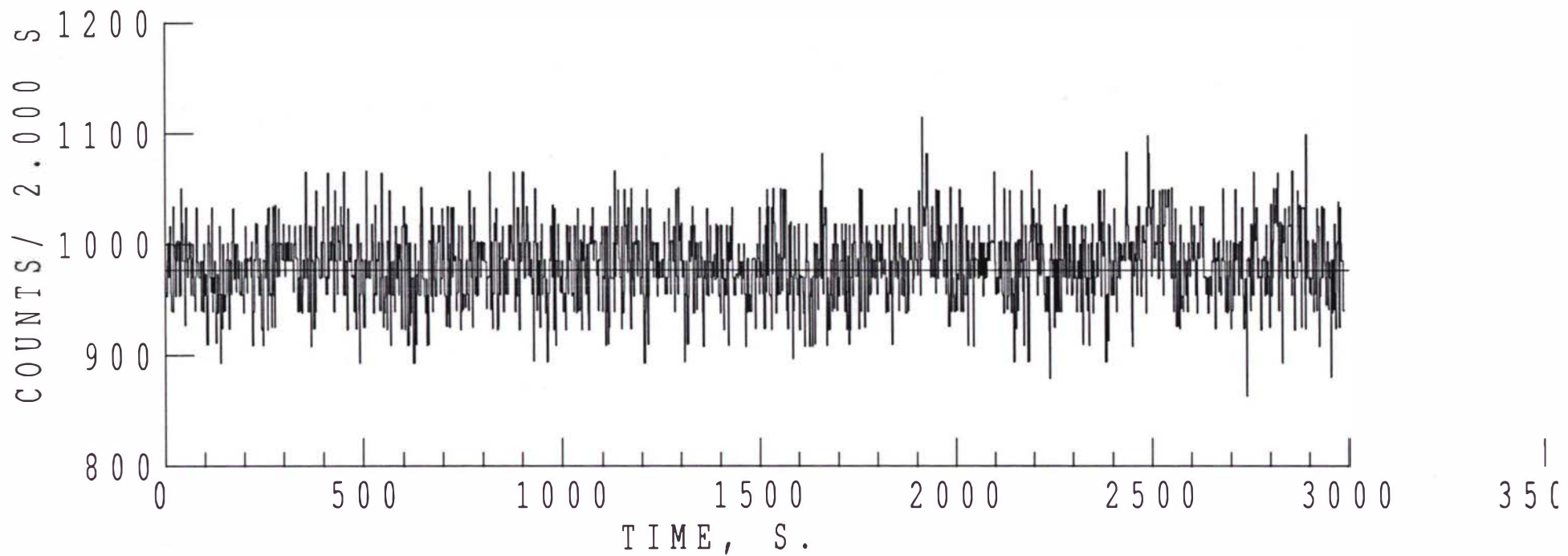
17/12/00 57348.105 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

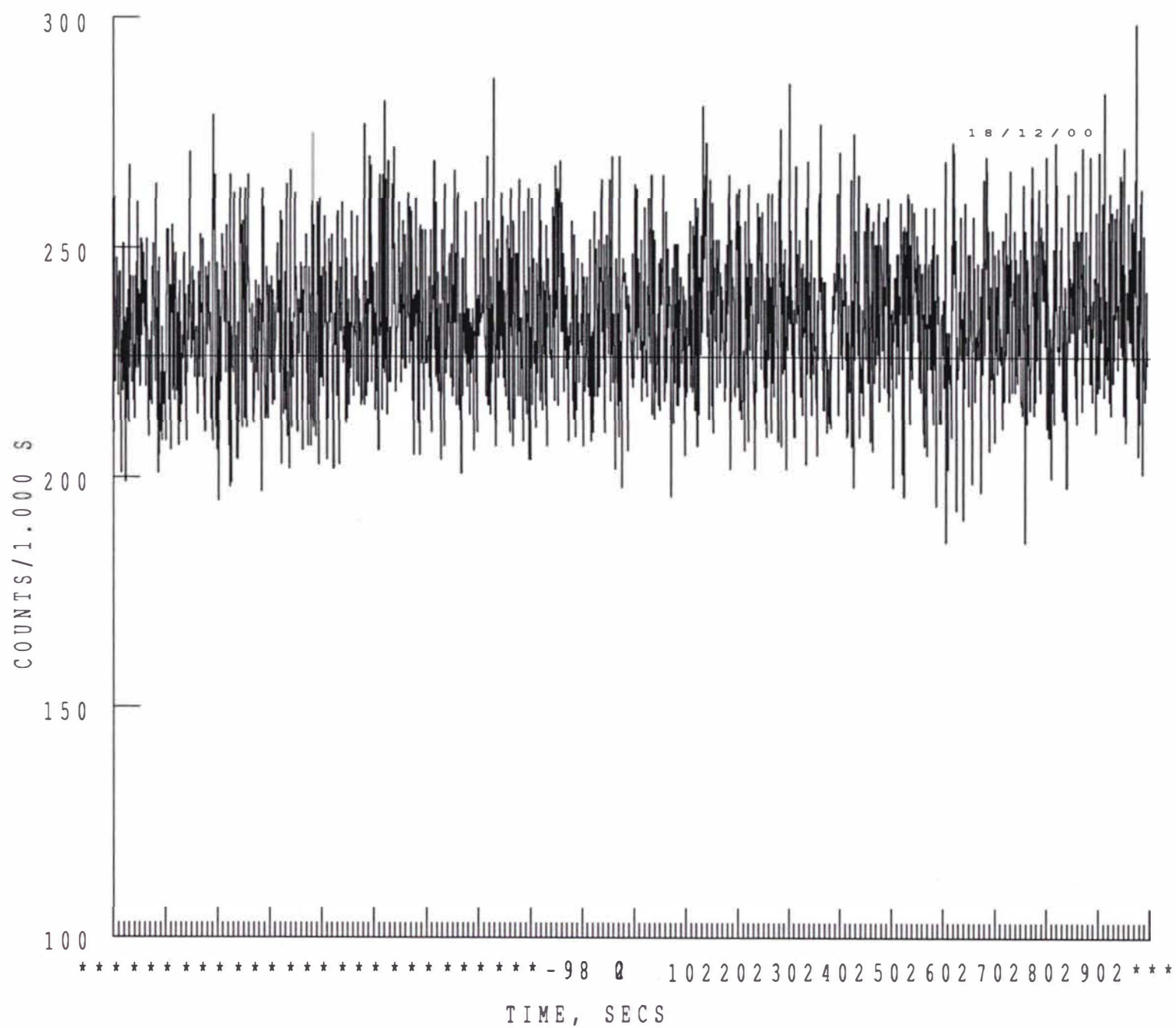
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



NEAR

17/12/00 58829.980

100-1000 keV

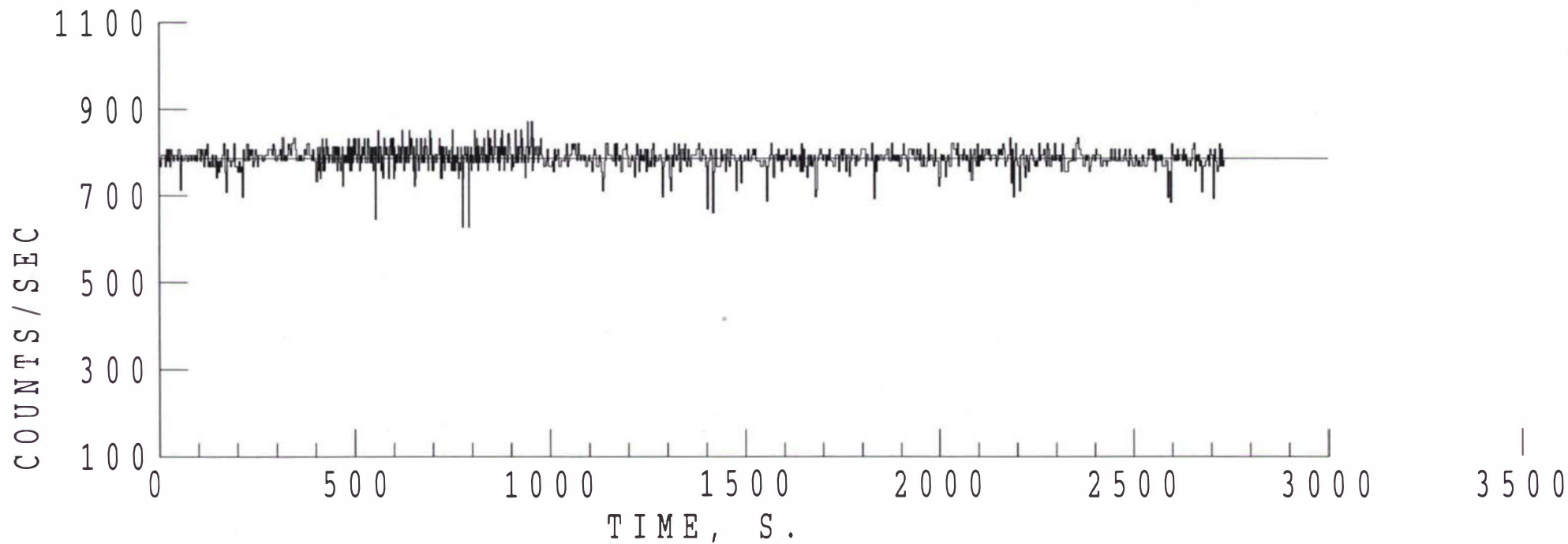


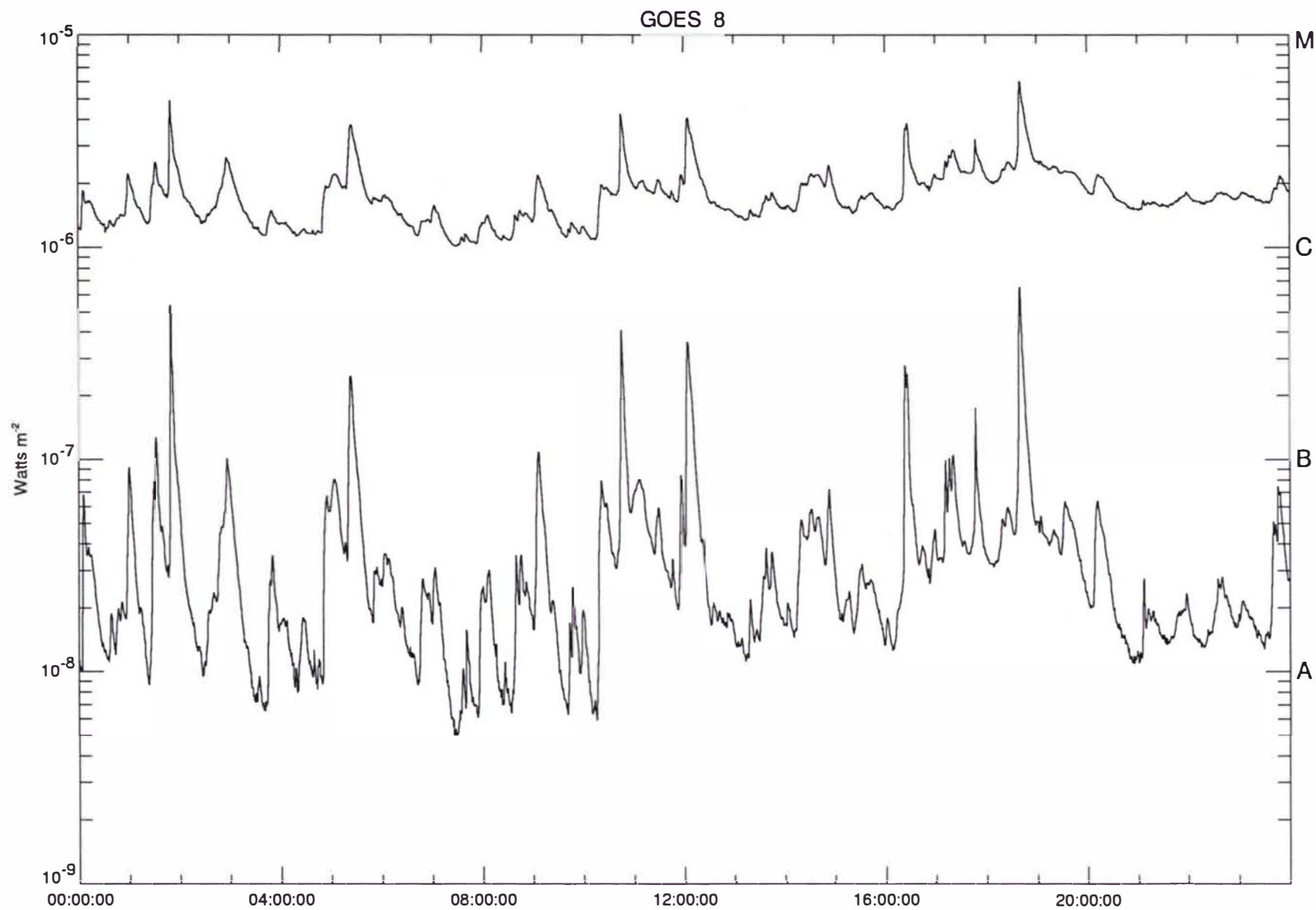
SAX GRBM
HUS DATA

19 / 07 / 05

ULYSSES RT
17 / 11 / 00 64584.879 s
INTERVALS REGROUPED BY 3
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

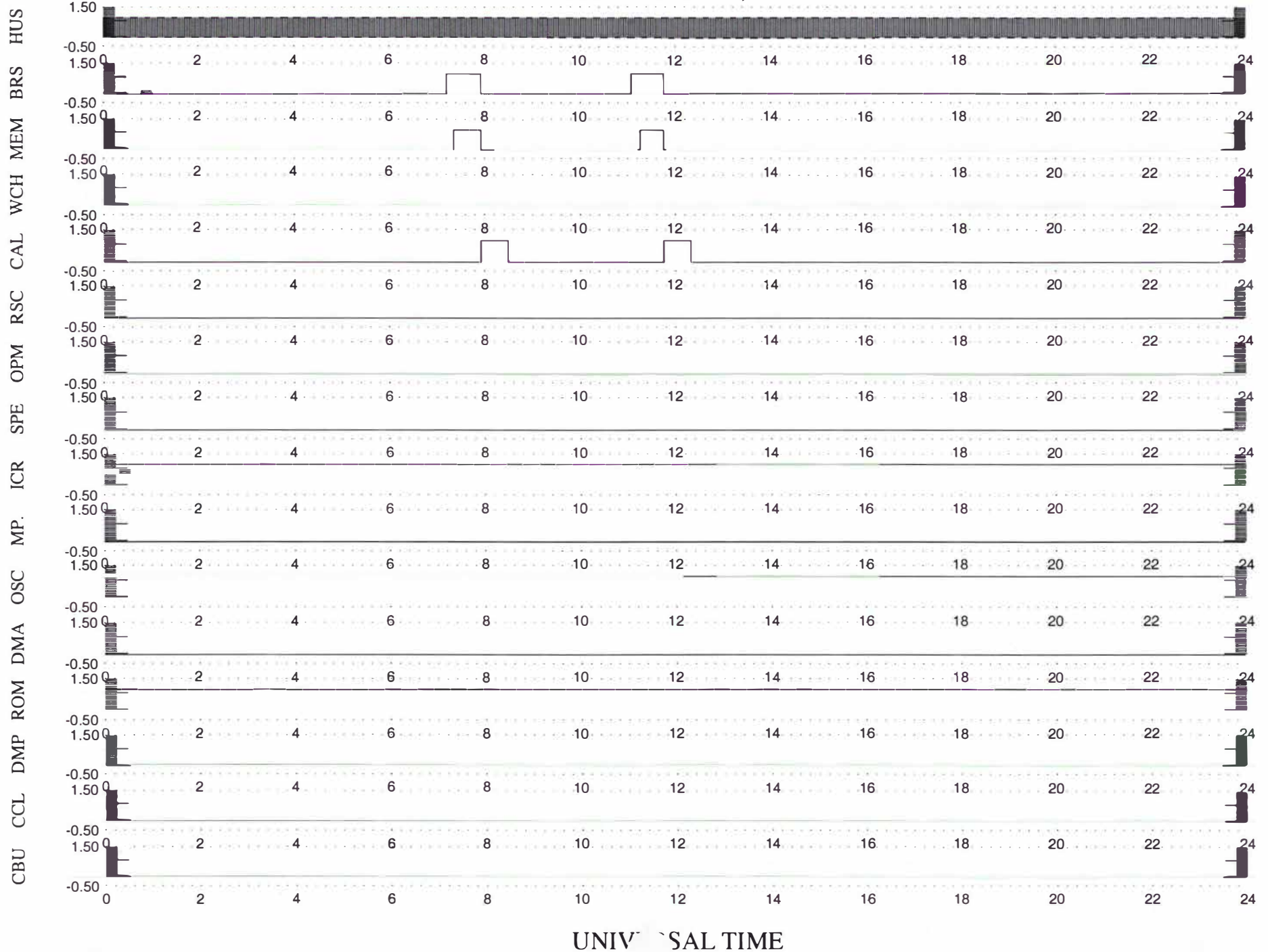
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

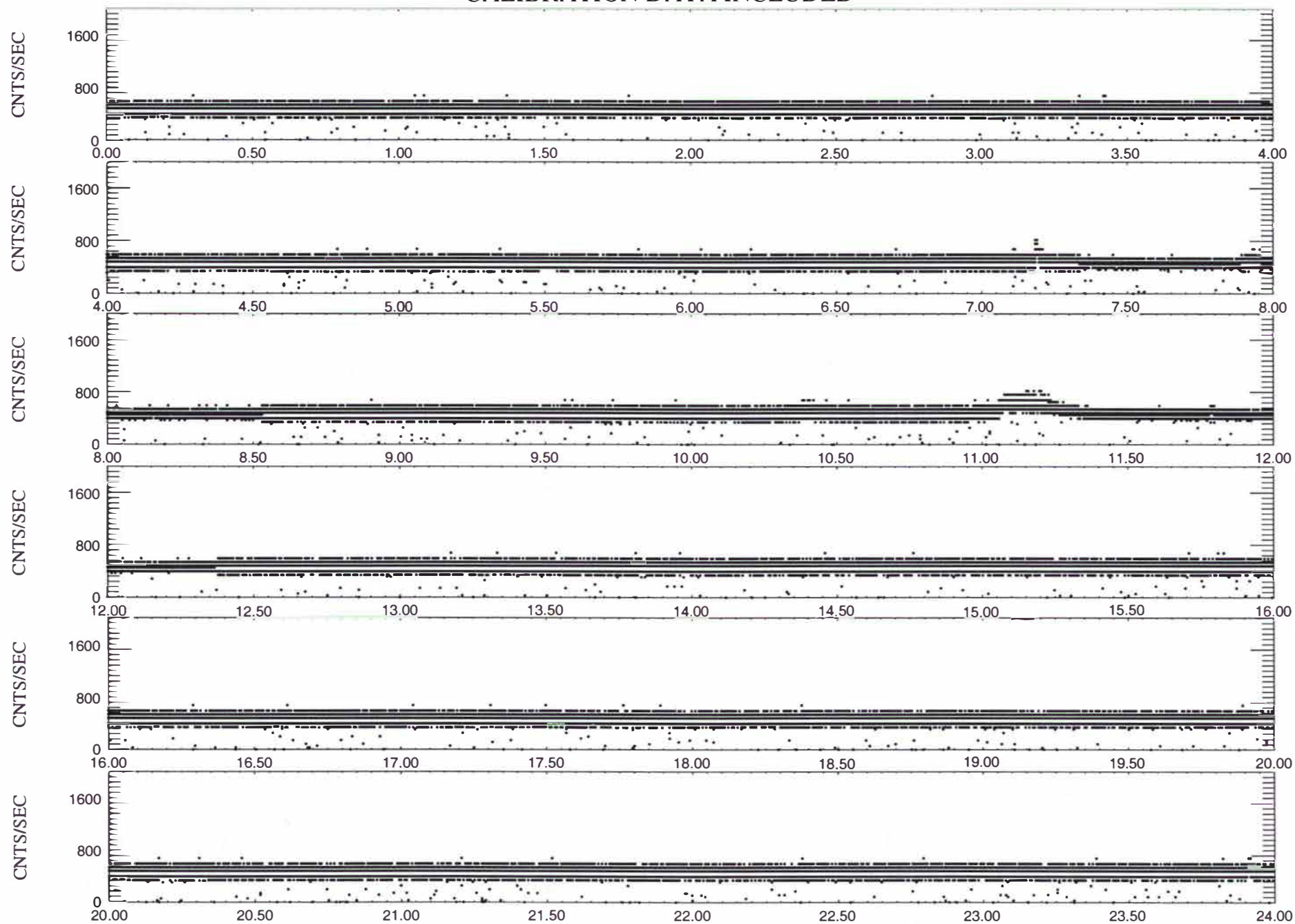
Plot created: 00/12/21, 1057

Sample average = 10

BURST NUMBER 5, 6

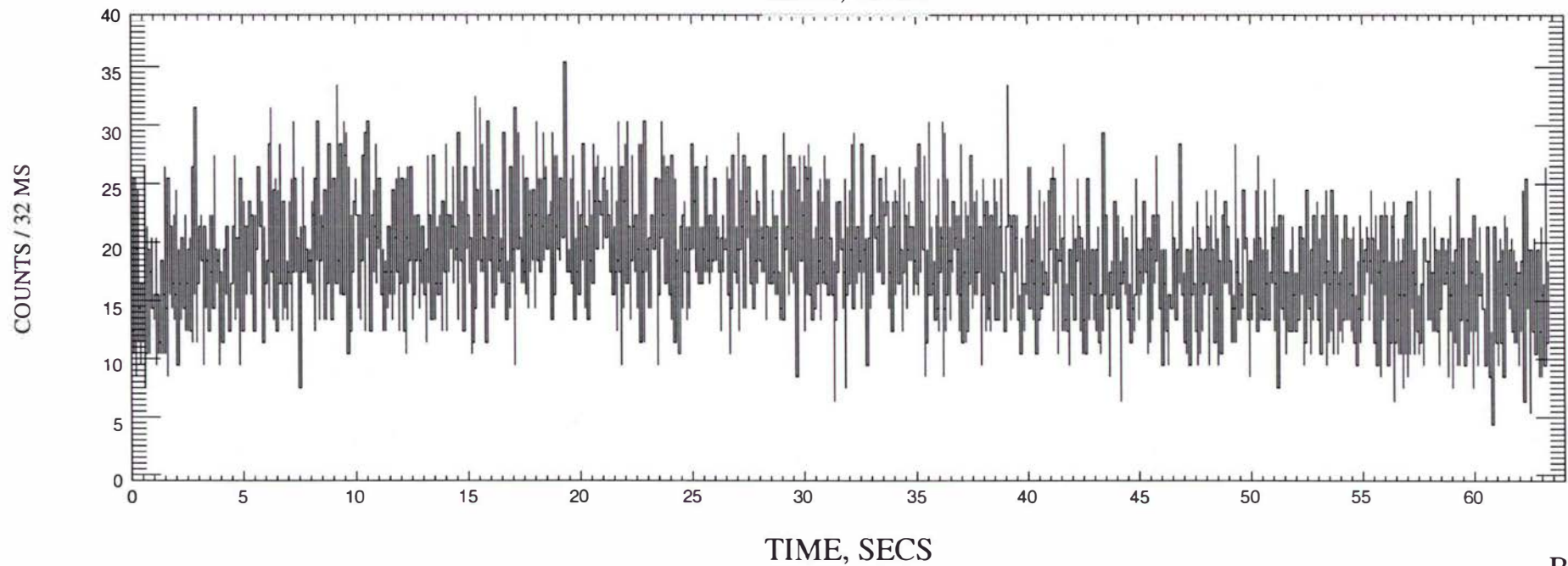
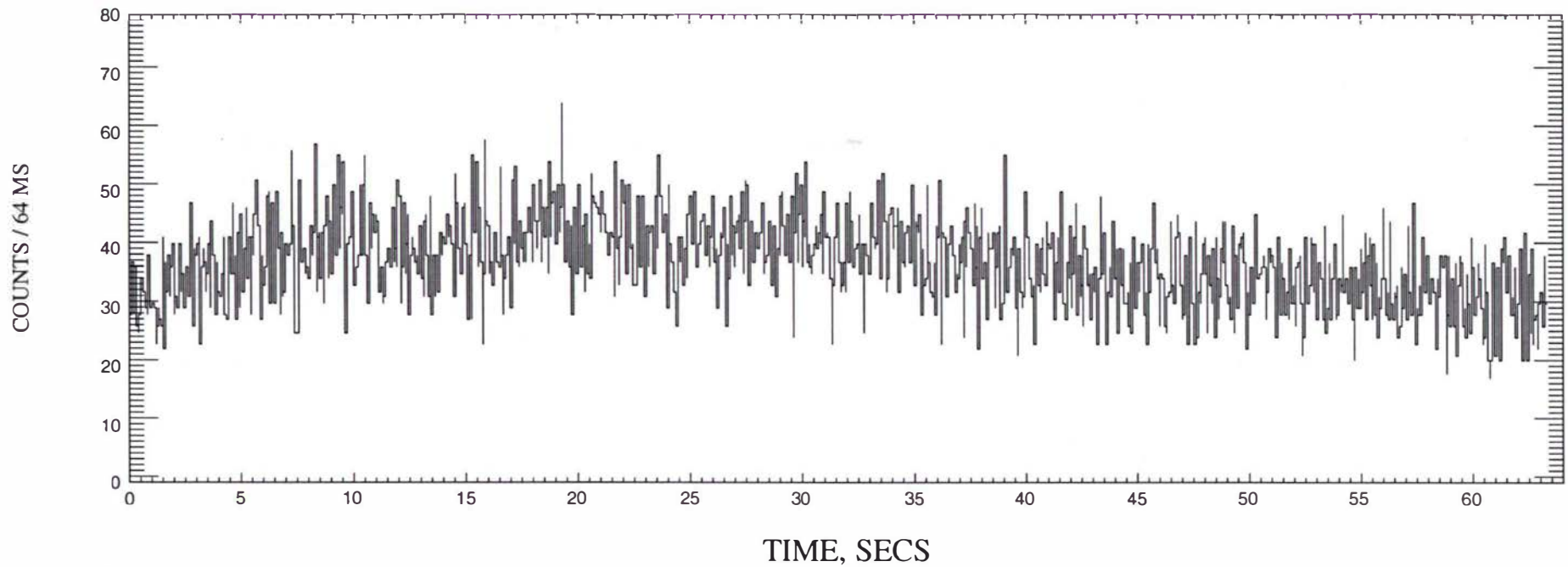


CALIBRATION DATA INCLUDED

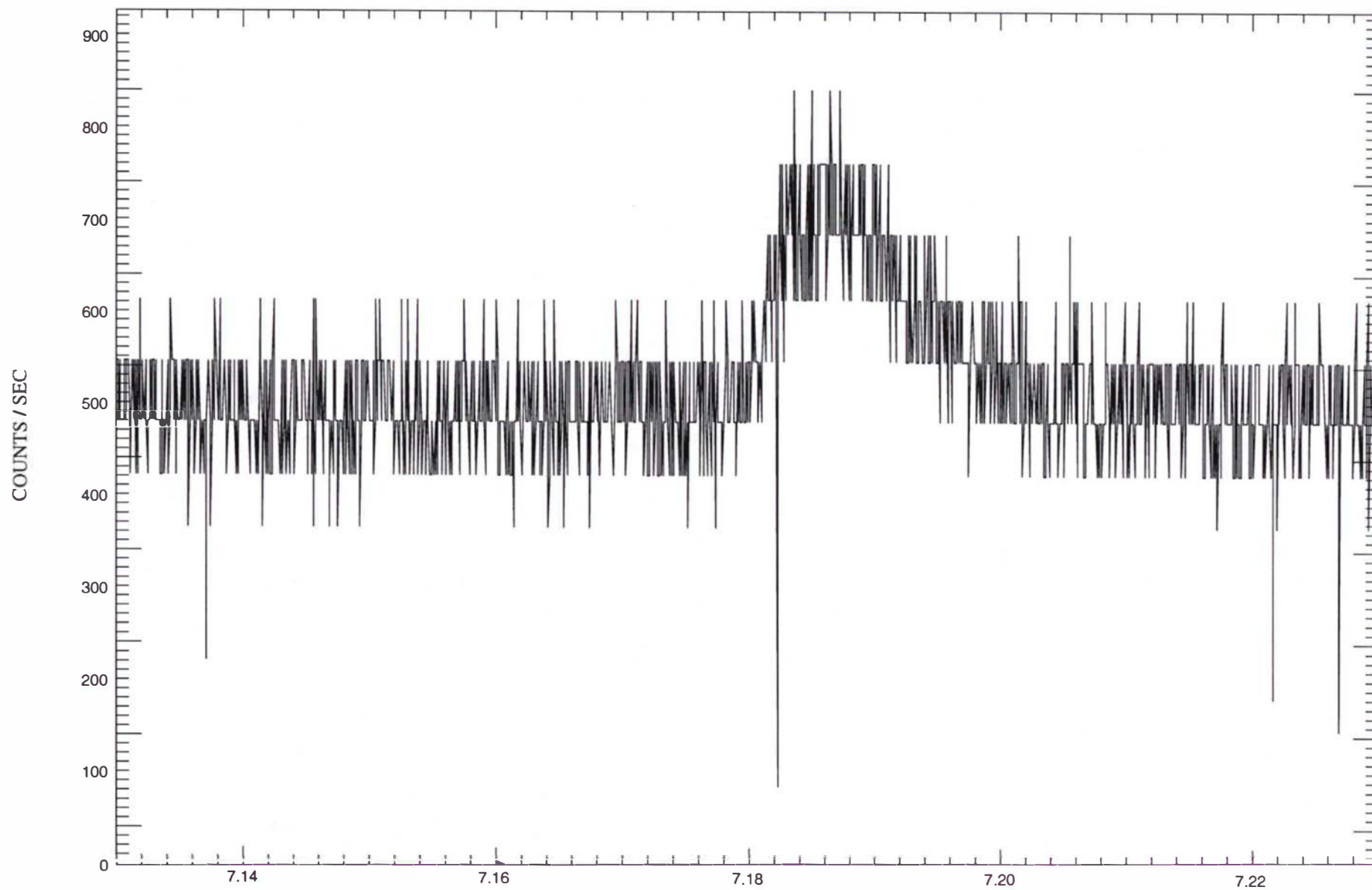


UNIVRSAL TIME

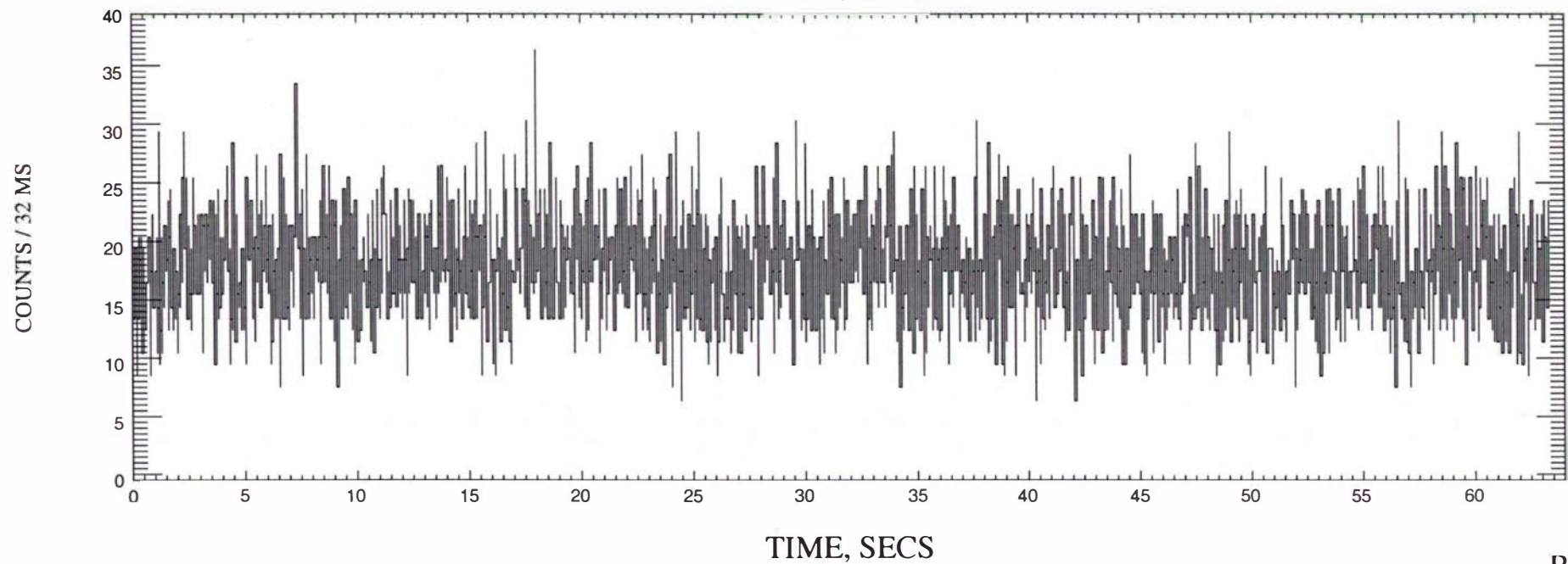
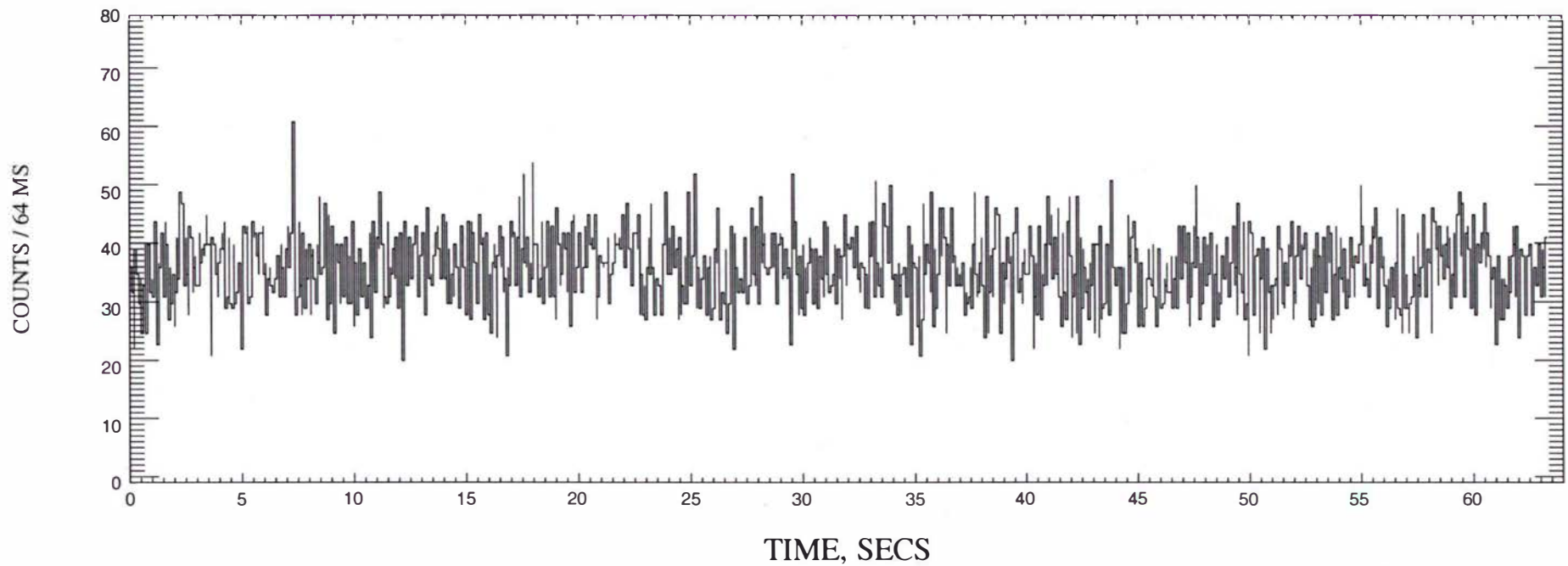
Burst Counter 5 at UT= 7.182810045878 h=25858.116 s 07:10:58.116



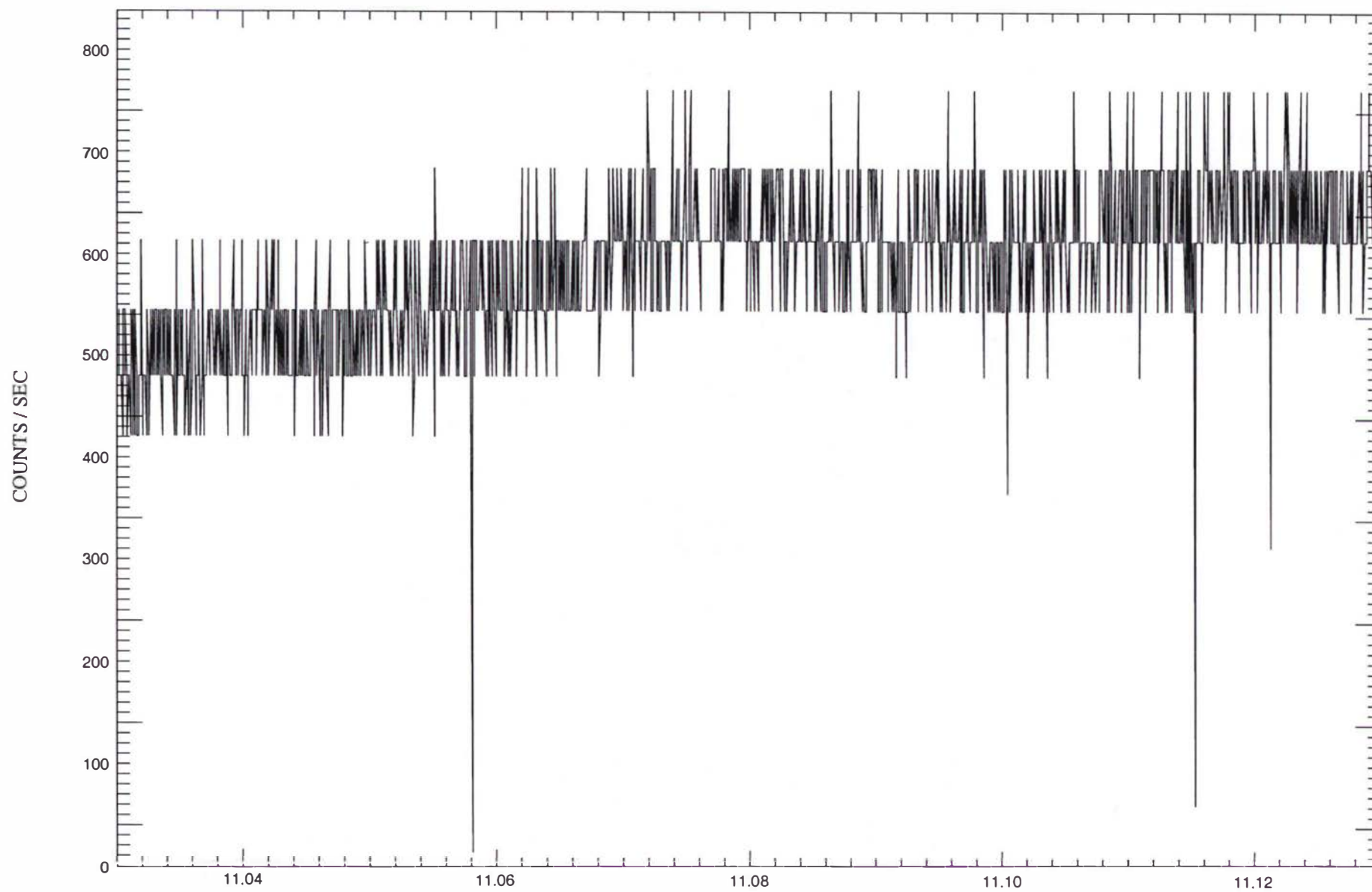
CALIBRATION DATA INCLUDED



Burst Counter 6 at UT=11.075403327942 h=39871.452 s 11:04:31.452



CALIBRATION DATA INCLUDED



GRBM 20001218 07872

ULYSSES RT

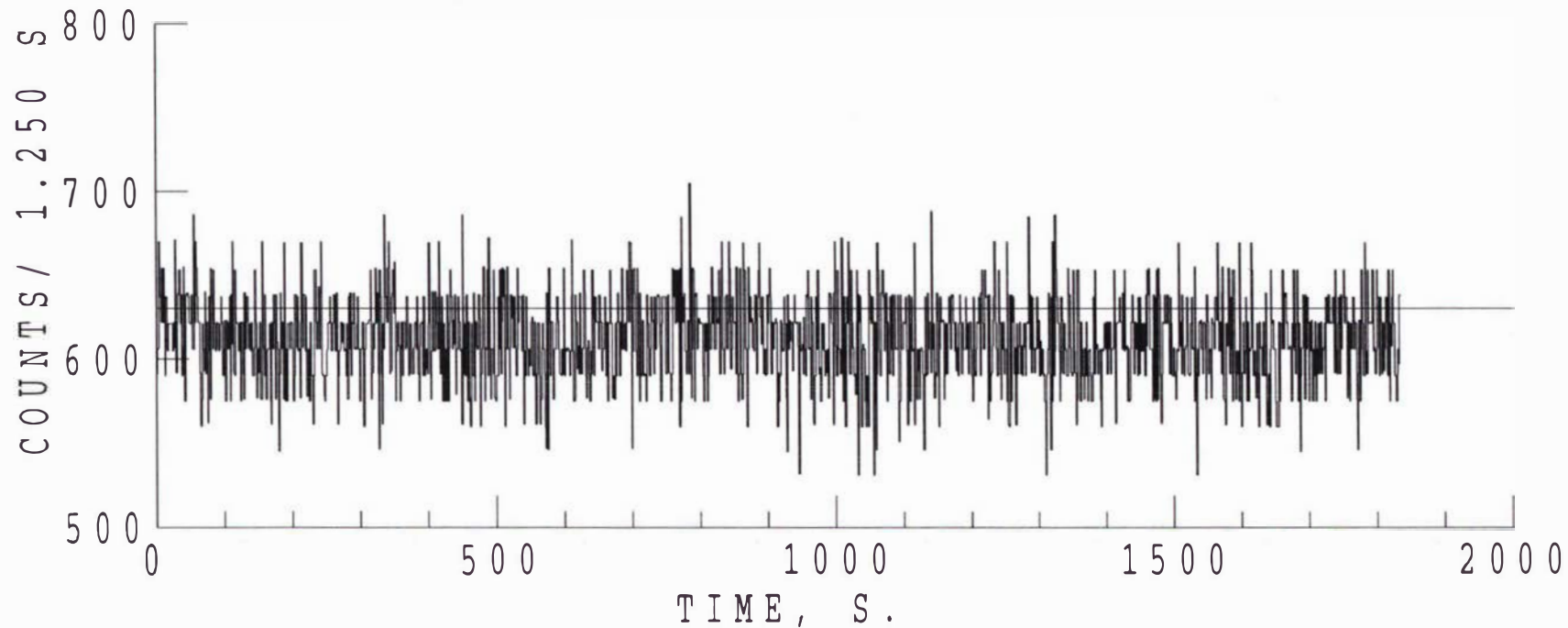
04/10/07

18/12/00 6948.154 s

0.250 S INTERVALS REGROUPED BY 5

0 - 0 keV

N=10 M=2
>4.0 SIGMA FLUCTUATIONS



SAX GRBM
HUS DATA

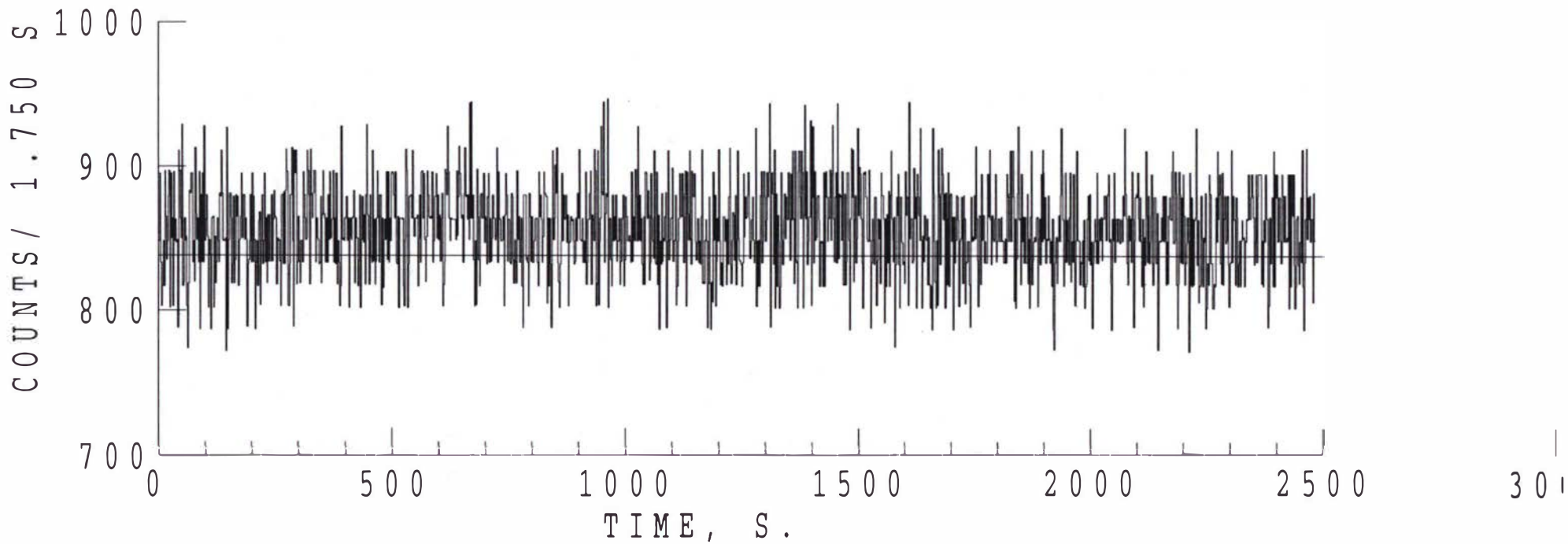
ULYSSES RT

19 / 07 / 05

18 / 12 / 00 6336.142 s
0.250 S INTERVALS REGROUPED BY 7
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



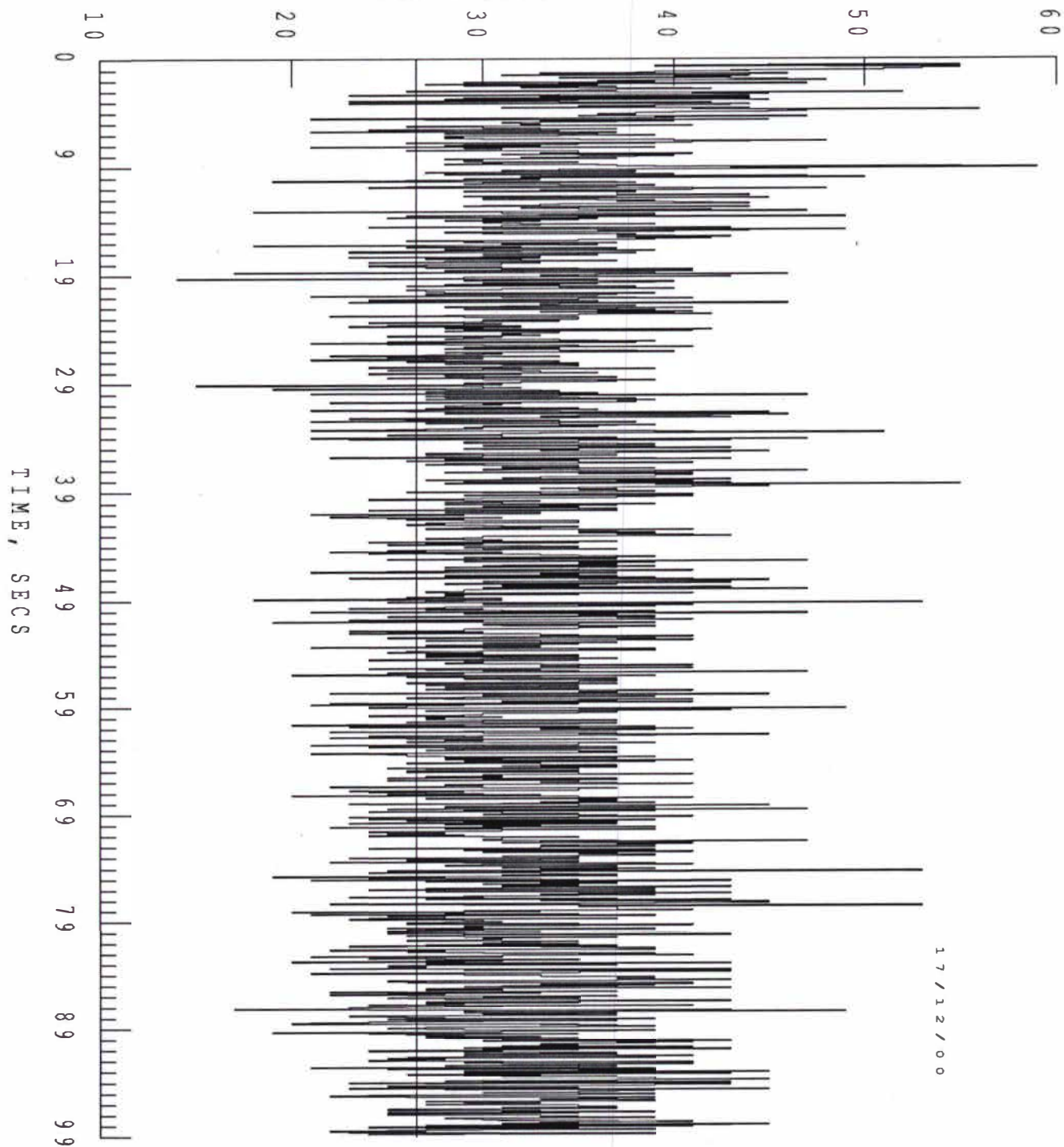
KONUS2

18/12/00

11253.169

50 - 200 keV

COUNTS/0.064 S

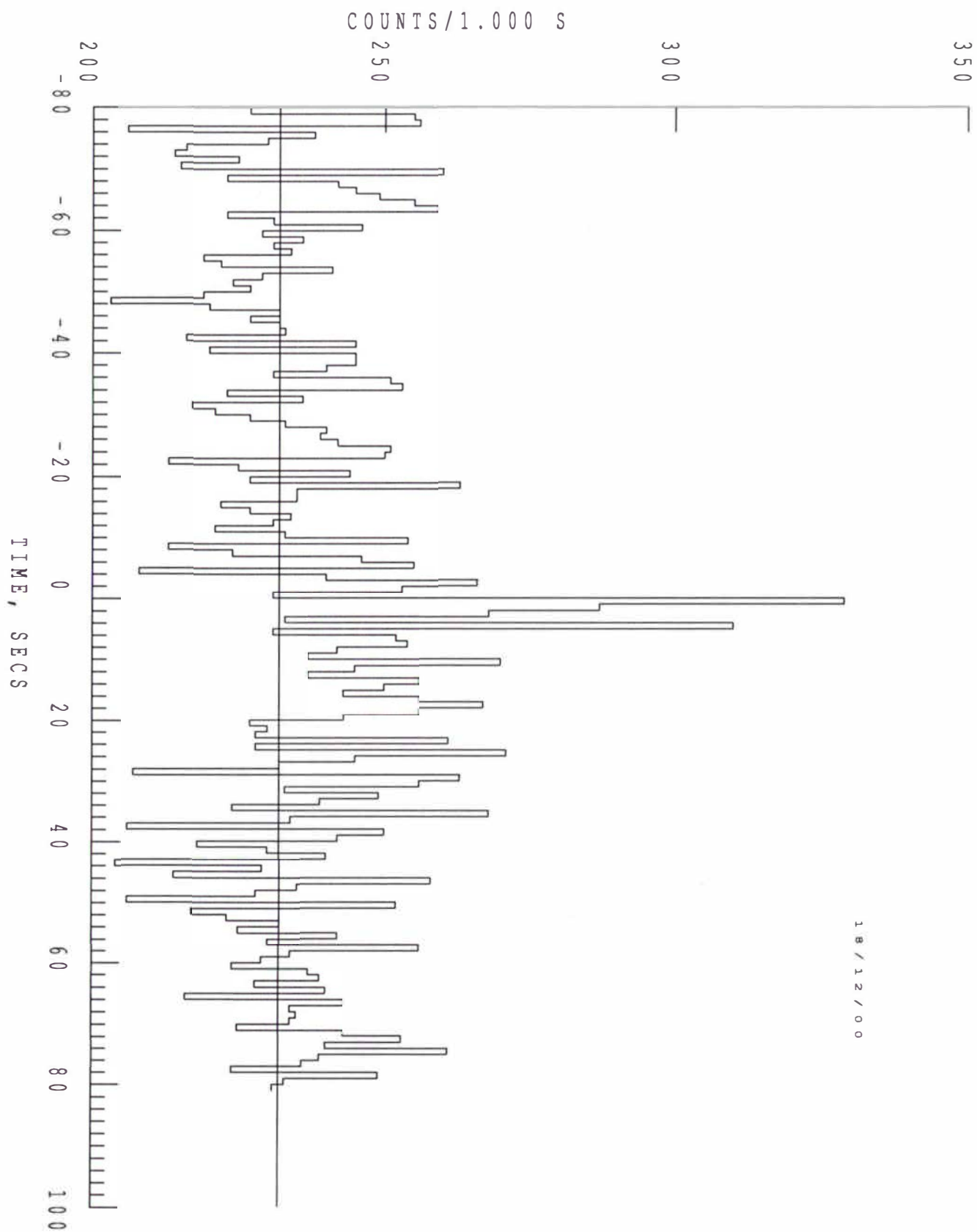


NEAR

18/12/00

10616.966

100-1000 keV



KNEAR GRS 20001218 10616

ULYSSES RT

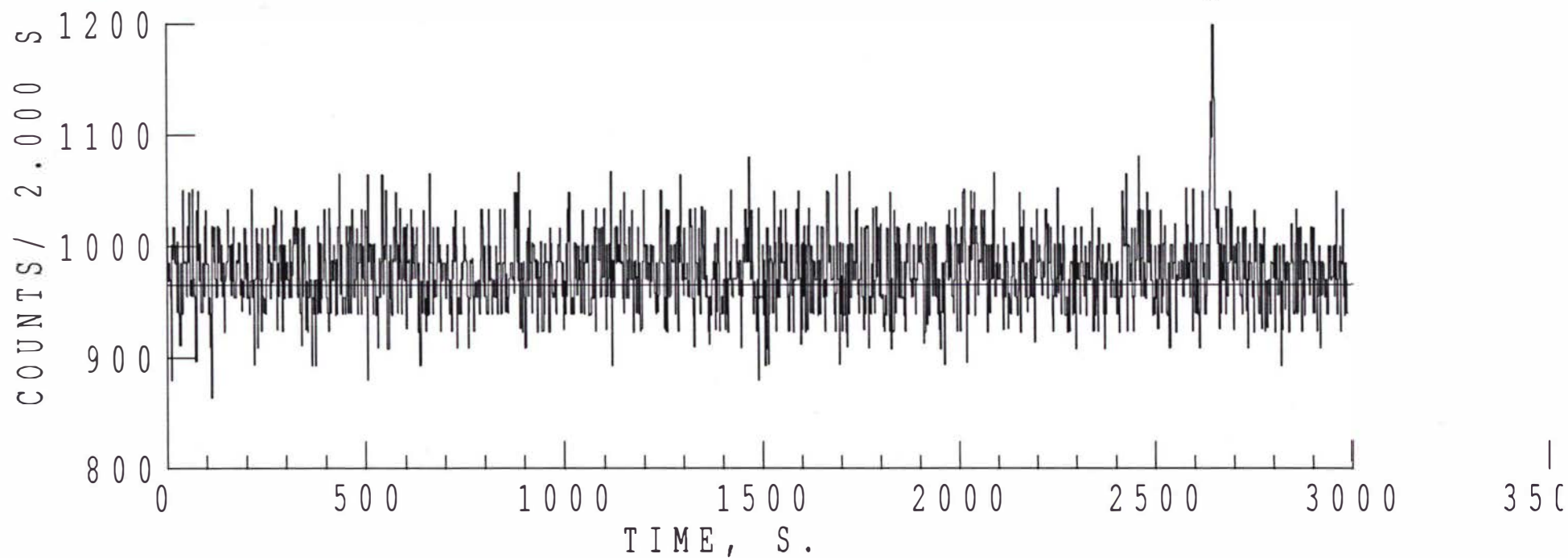
18/12/00

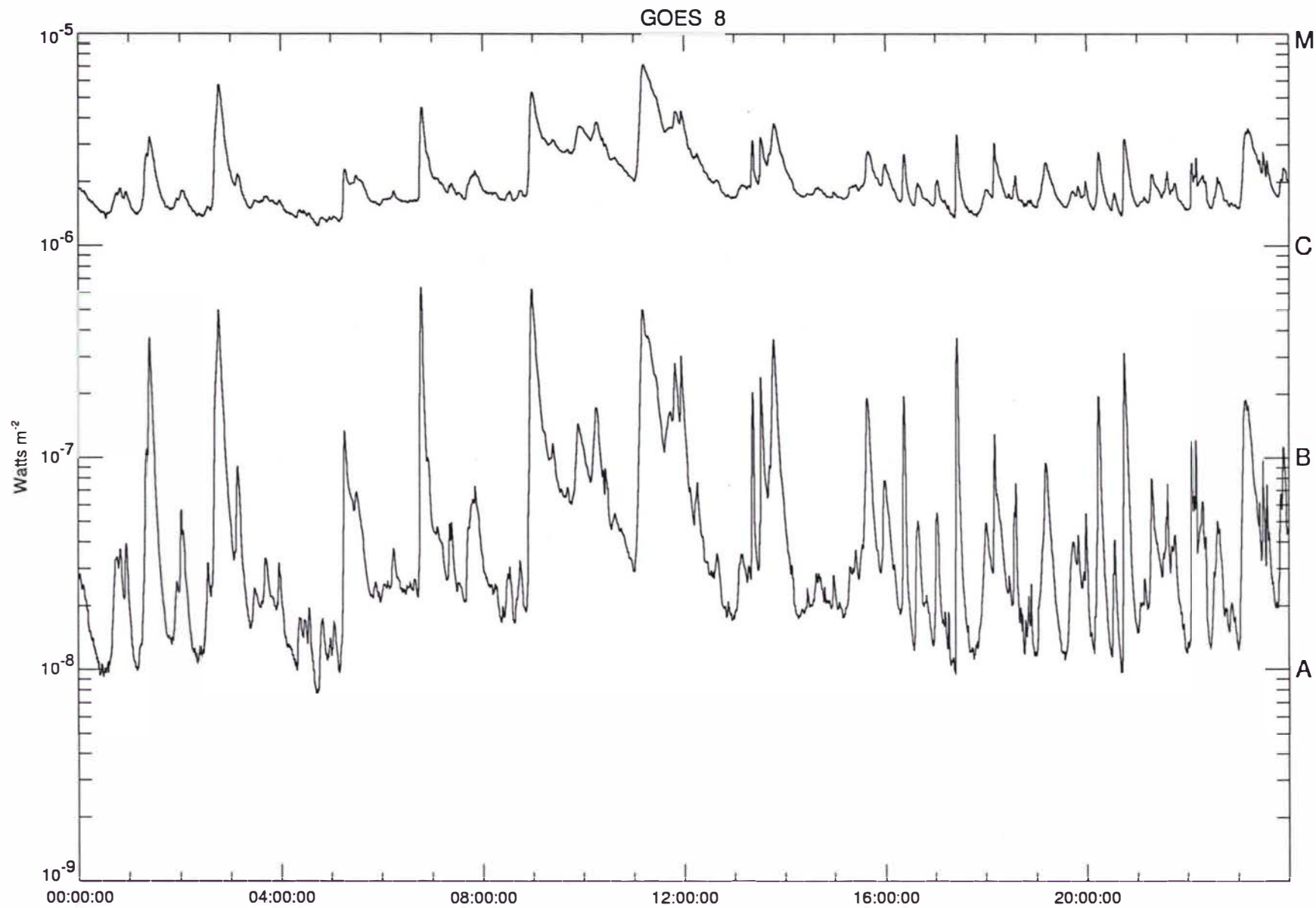
18/12/00 9108.185 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

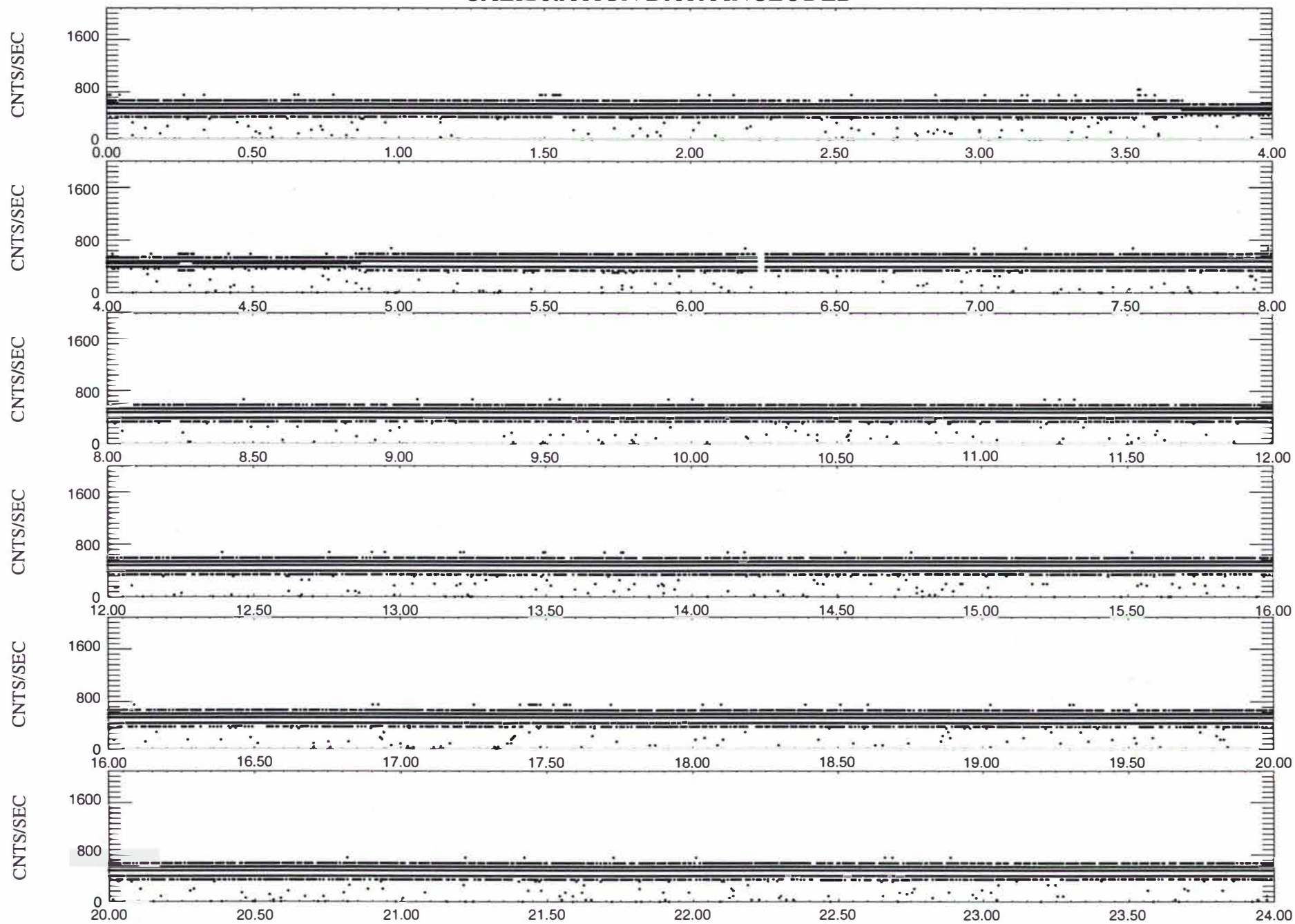
Plot created: 00/12/22, 1057

Sample average = 10

BURST NUMBER 7

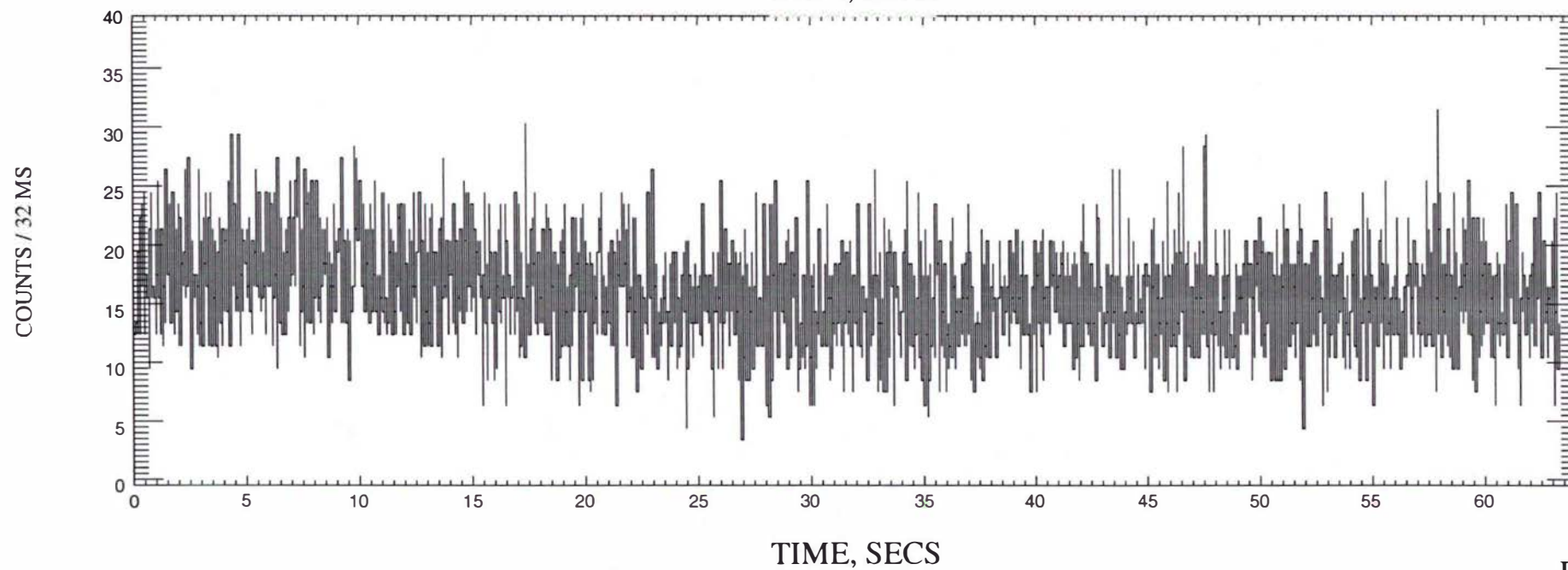
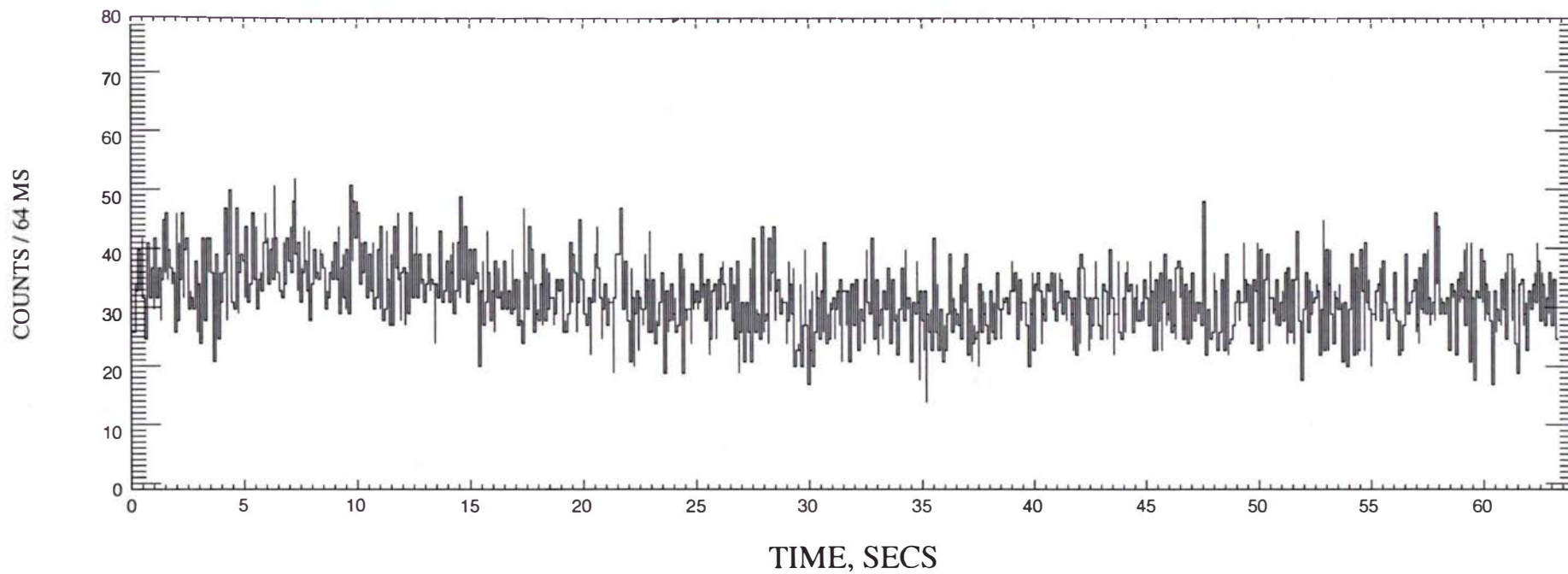


CALIBRATION DATA INCLUDED

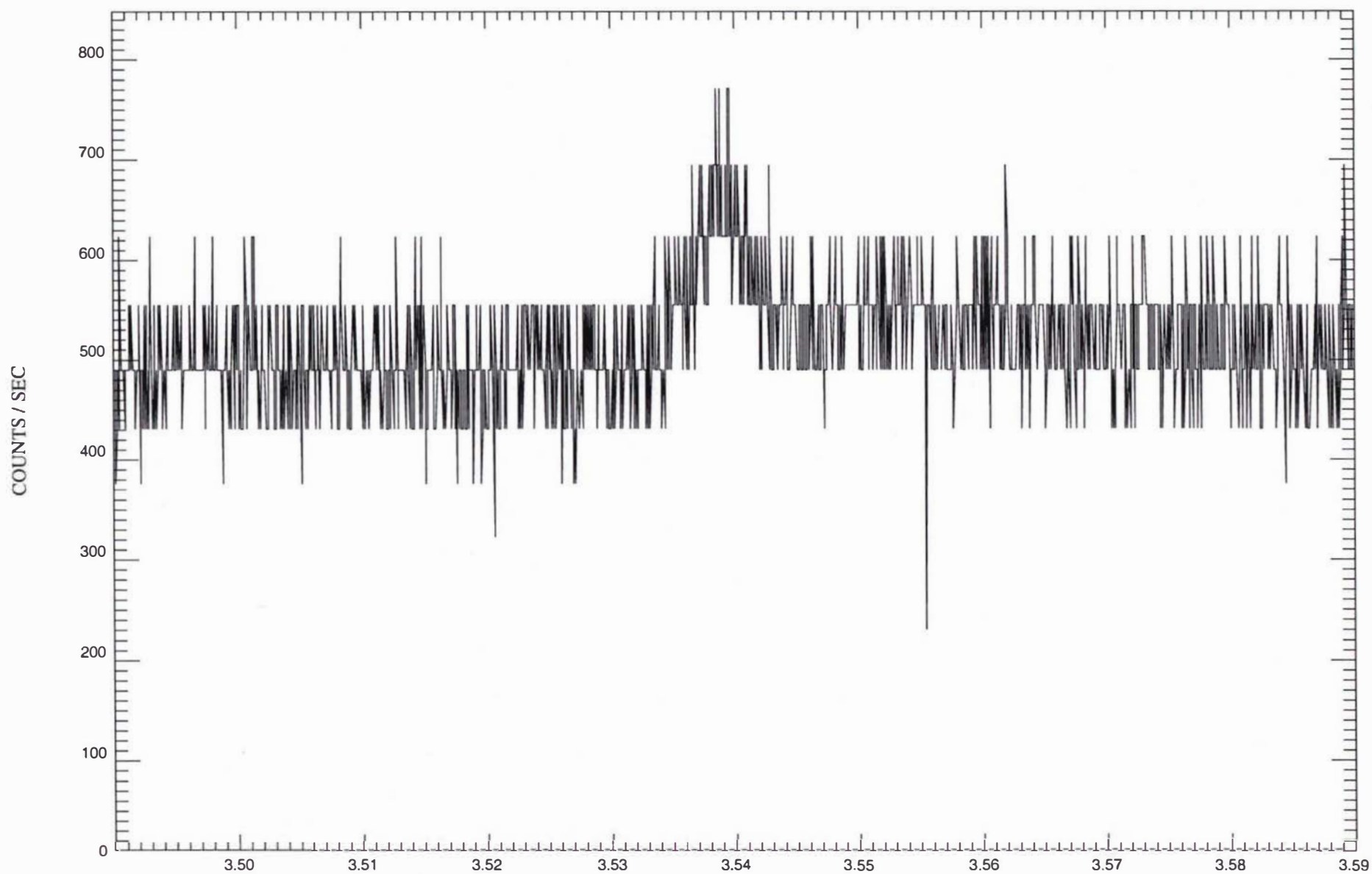


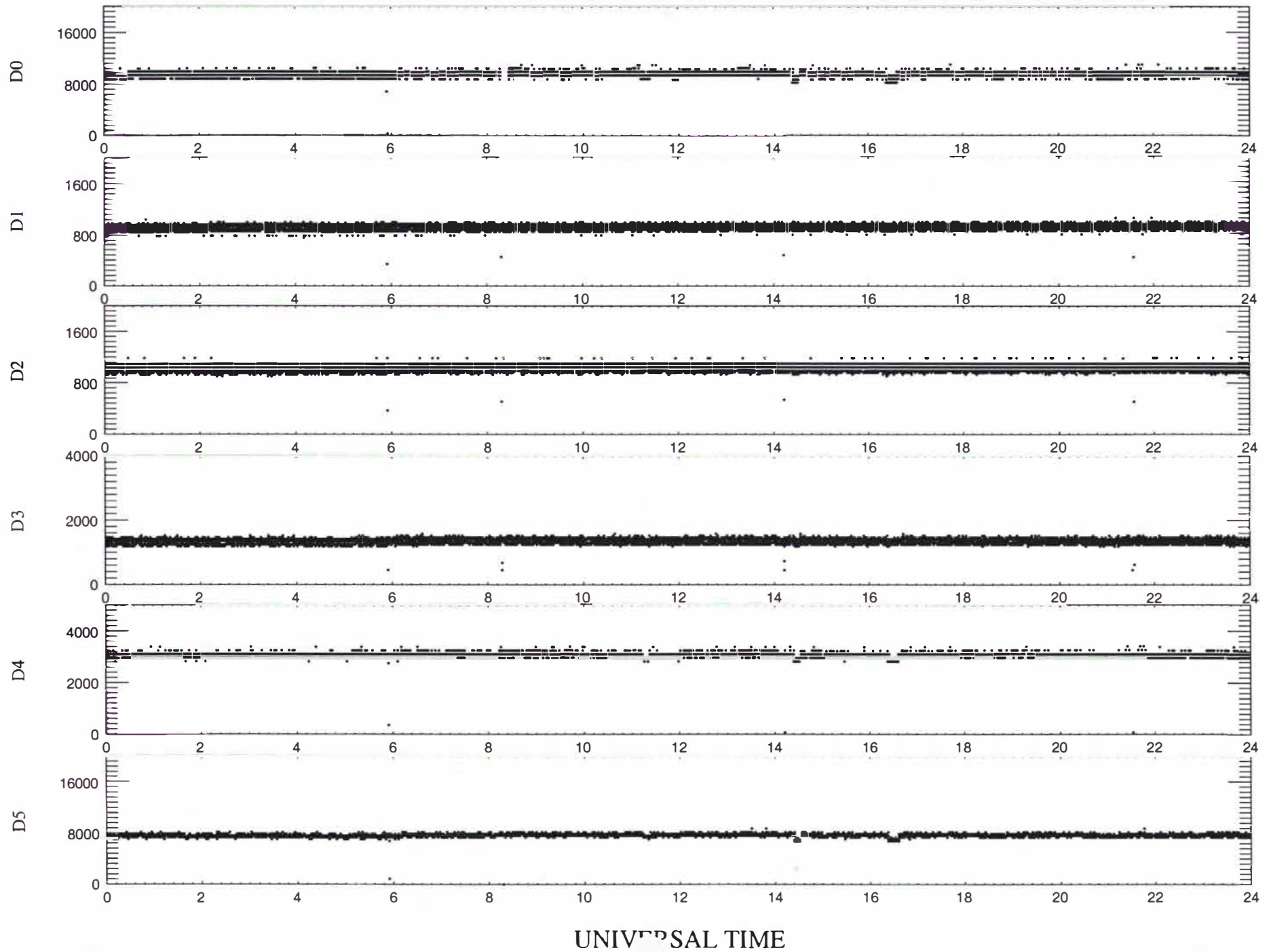
UNIVERSAL TIME

Burst Counter 7 at UT= 3.538918808831 h=12740.108 s 03:32:20.108



CALIBRATION DATA INCLUDED





Date: Nov 12 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

2 KONUS

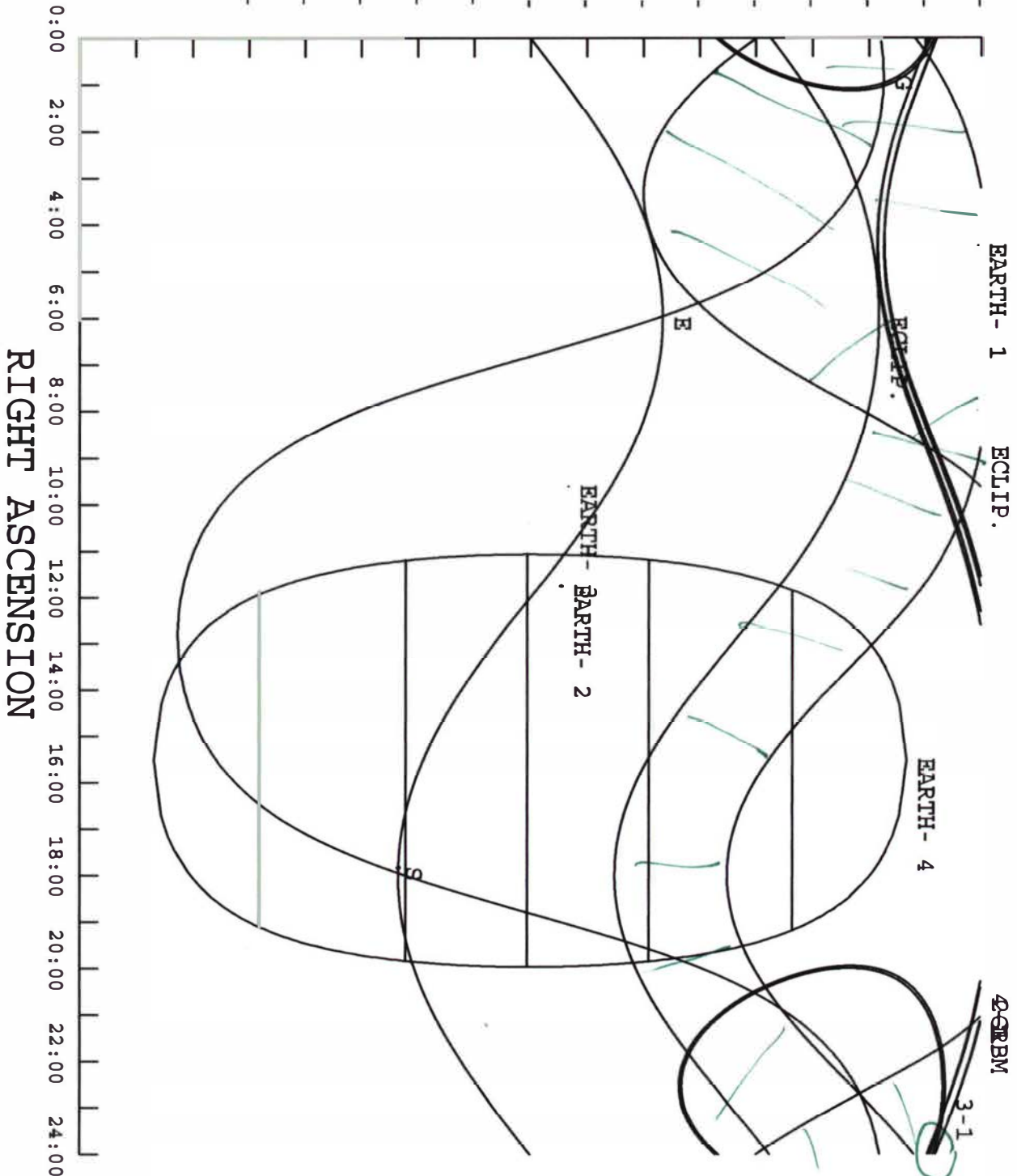
3 NEAR

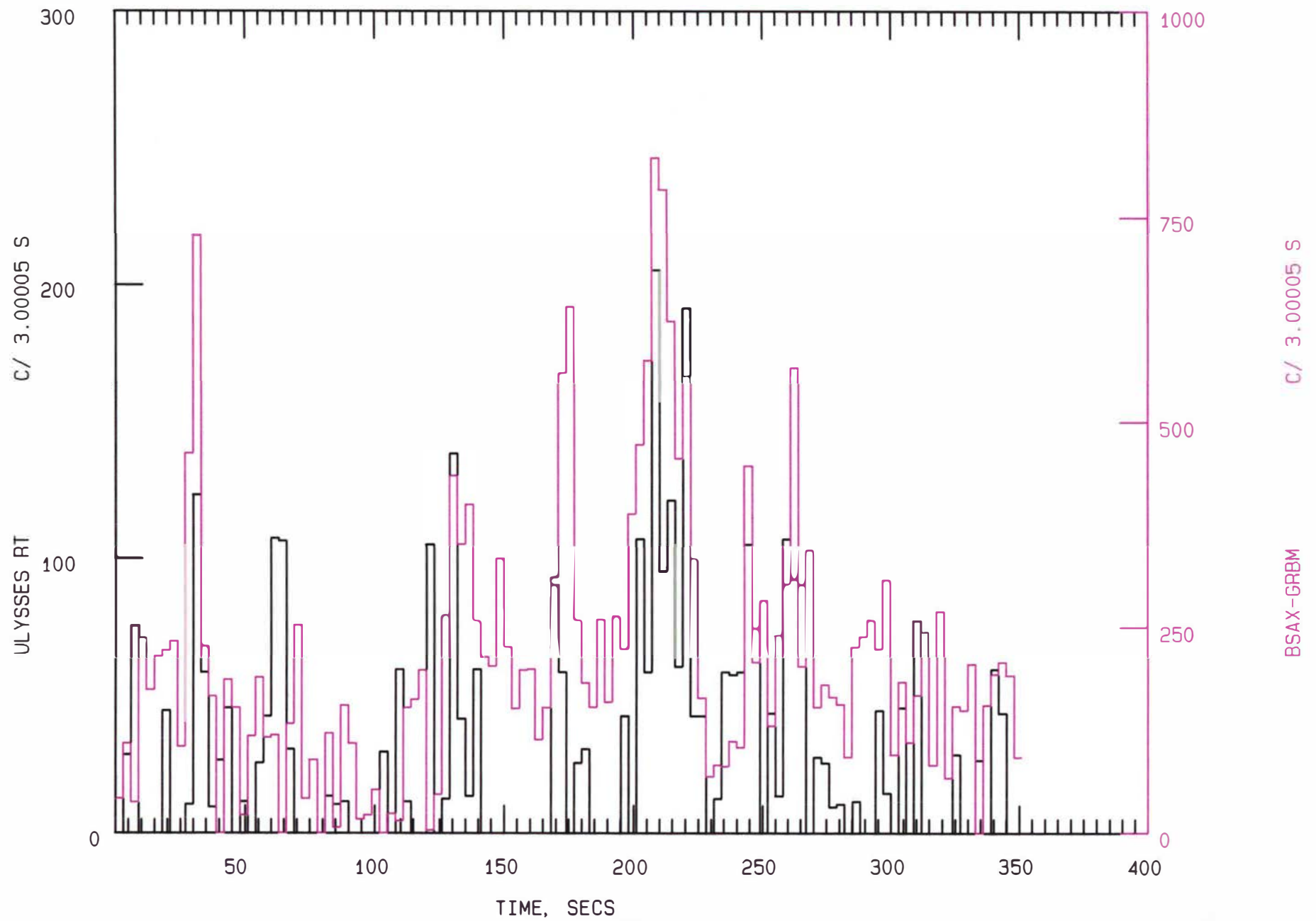
4 SAX

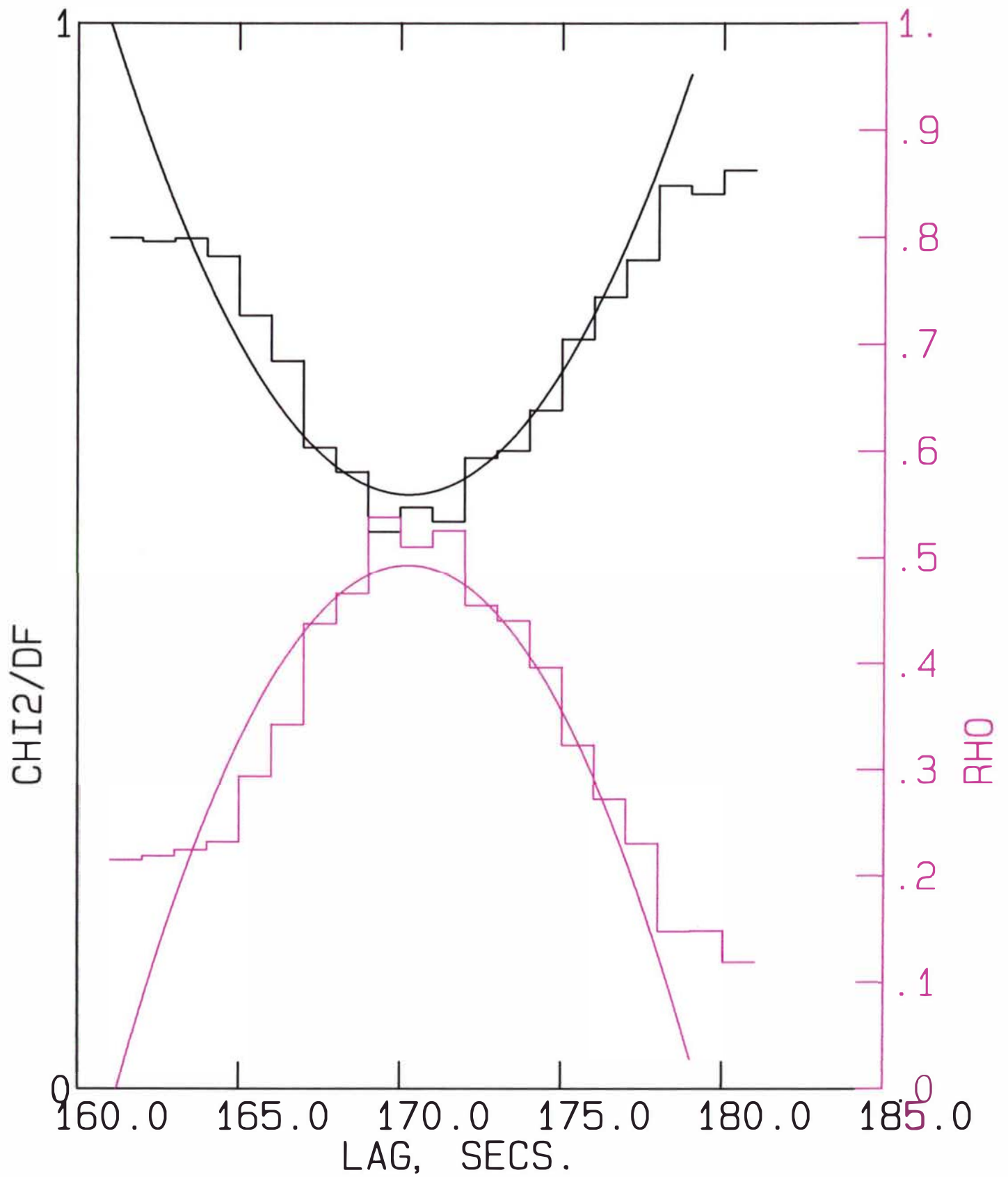
DECLINATION

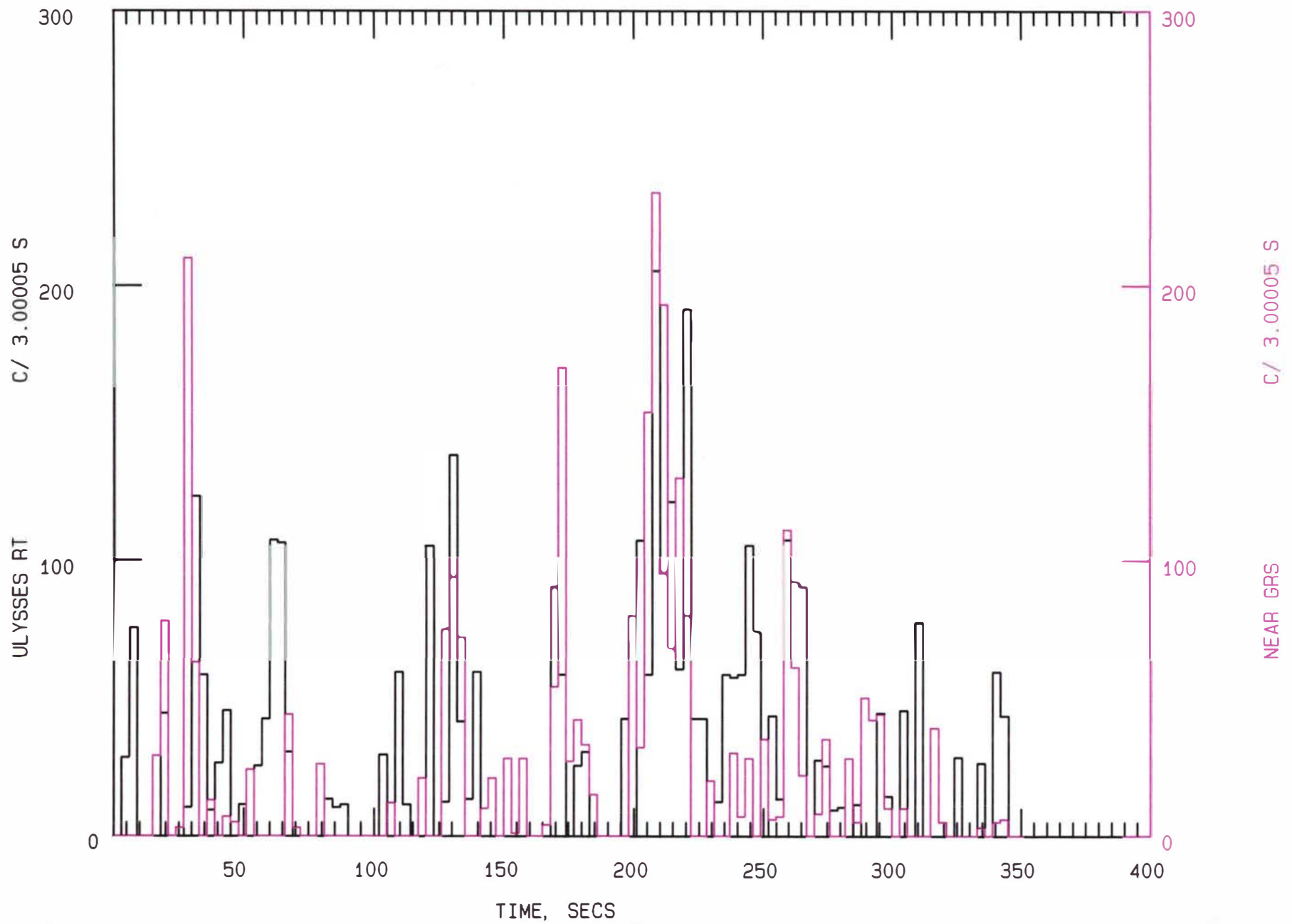
EVENT OF DEC 19, 2000 7:54

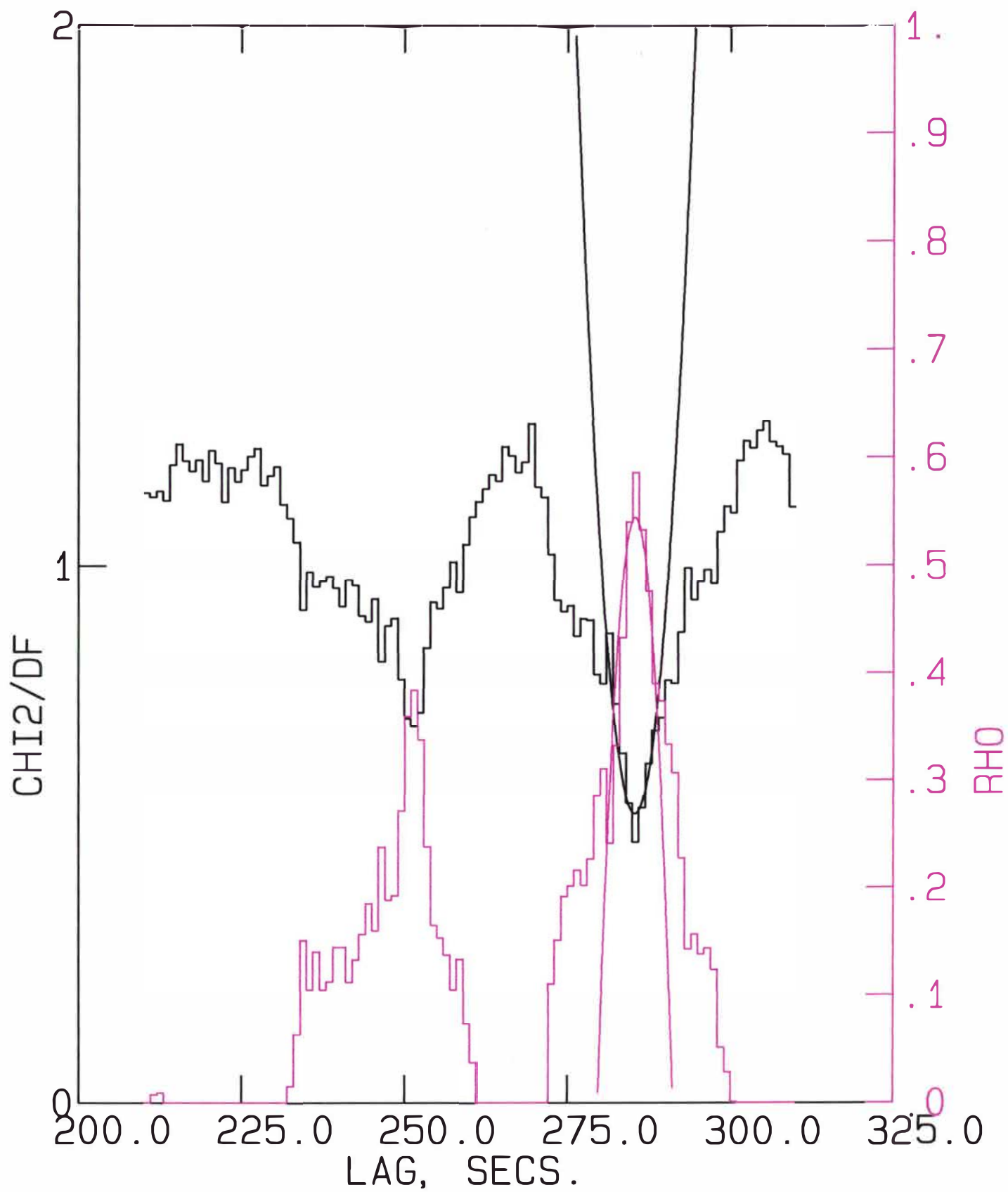
20/11/7

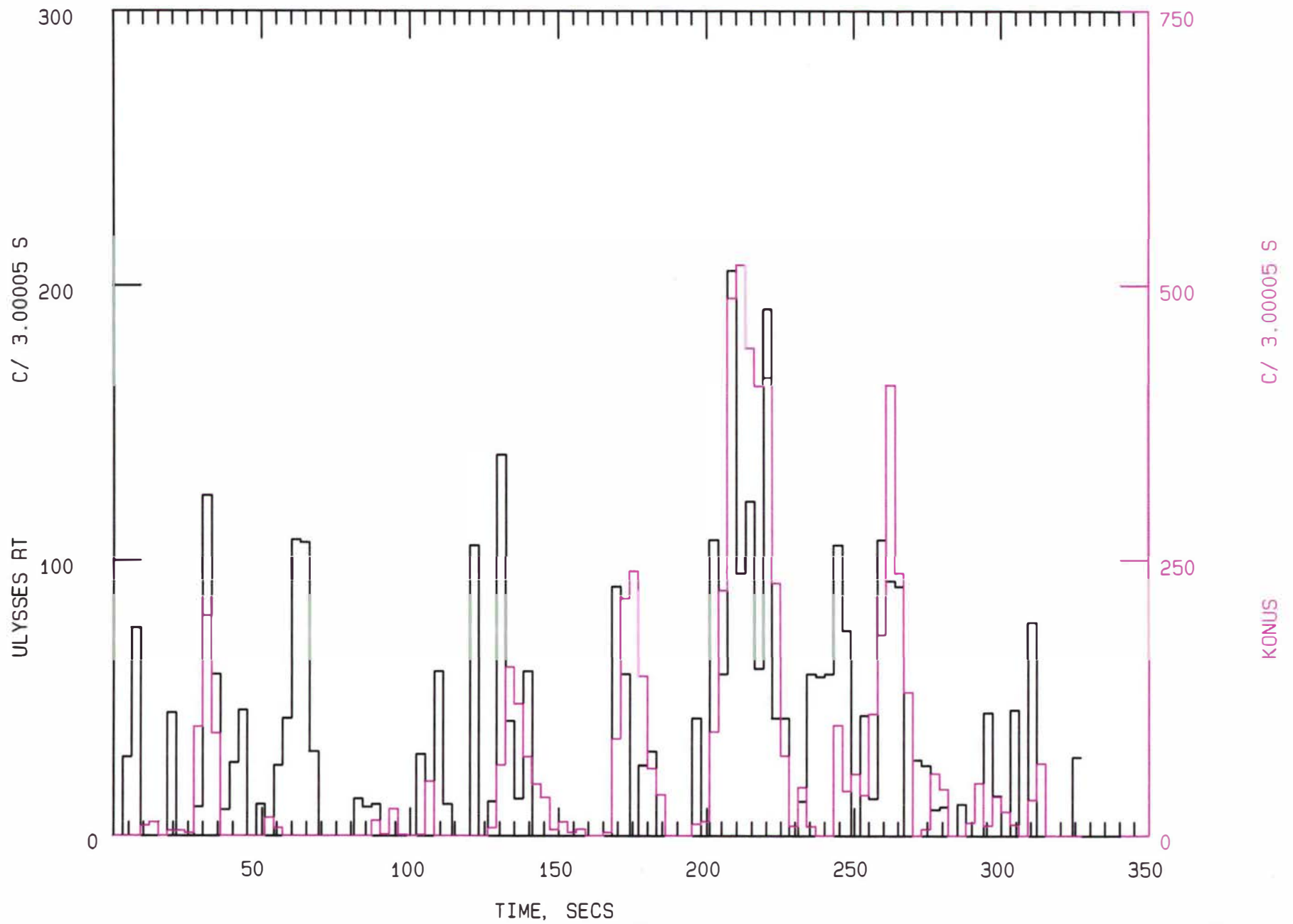


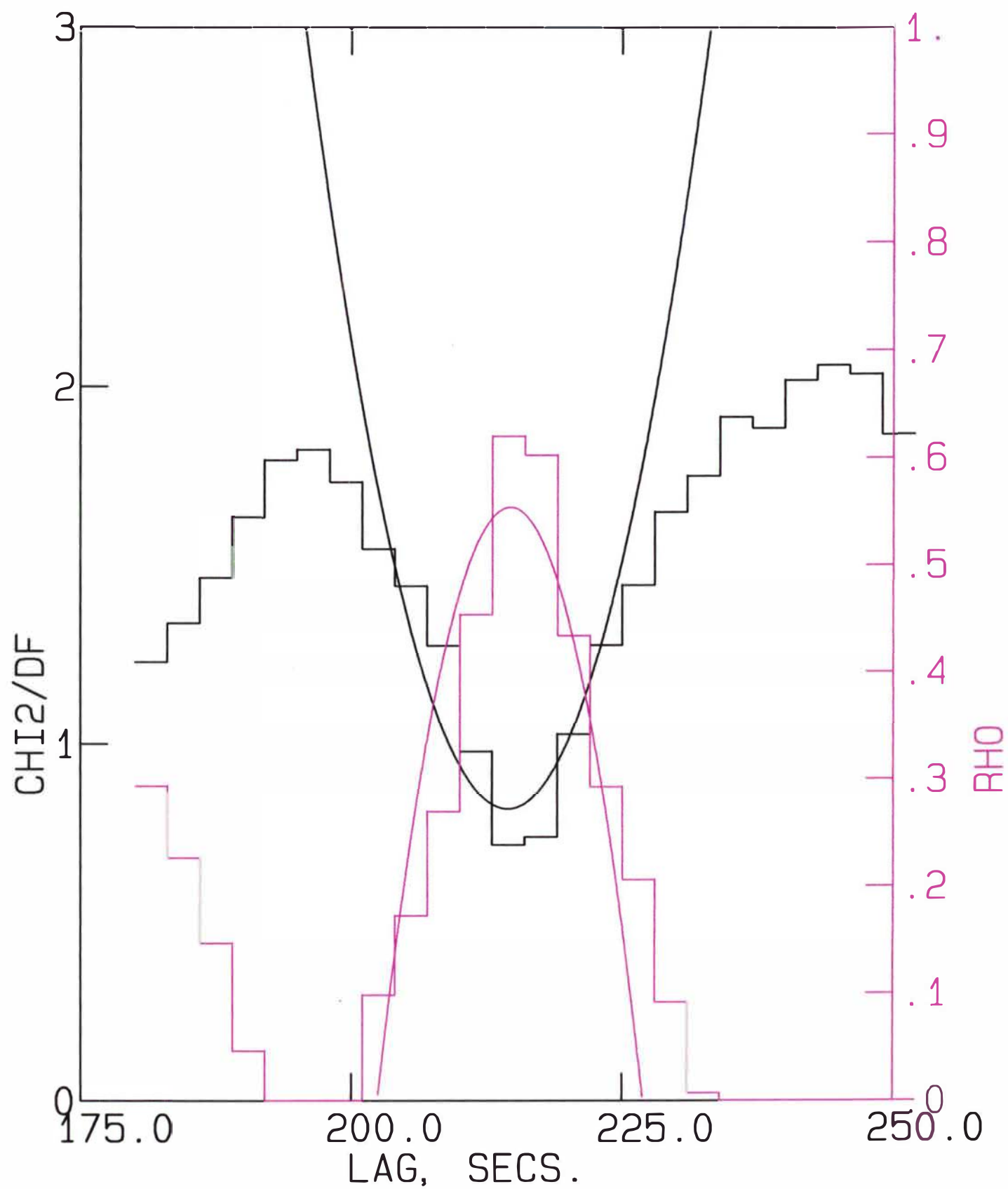












ULYSSES RT

20 / 11 / 7

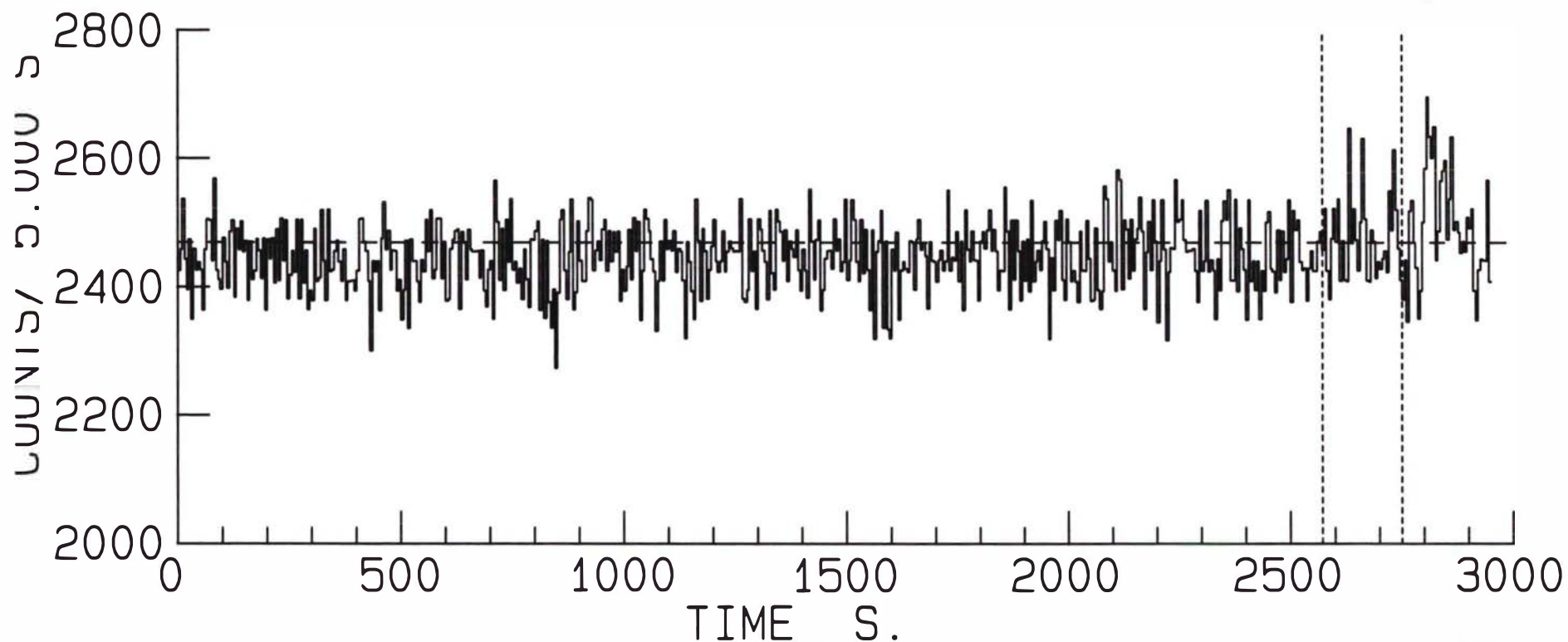
19/12/ 0 25884.008 s

0.250 S INTERVALS REGROUPED BY 20

23- 157 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



KONUS

19/12/00 27083.988

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.943 S

3400

DETECTOR 1 - S. ECLIPSE



2400

1400

400

100

200

300

400

500

TIME, SECS

KONUS

19/12/00 27083.988

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.943 S

4300

3300

2300

1300

300

DETECTOR 2 - N. ECLIPTIC

02
11/07

TIME, SECS

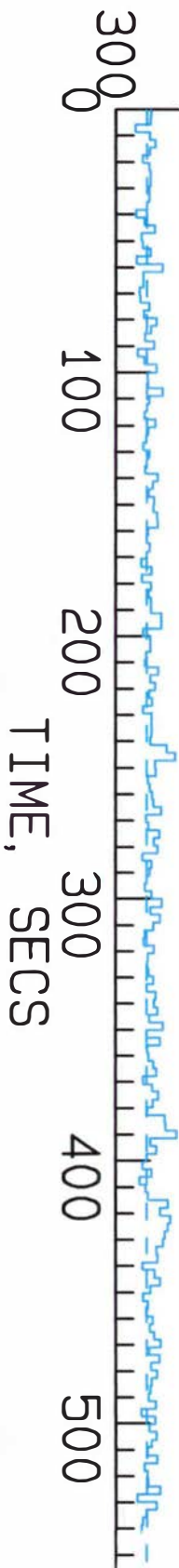
100

200

300

400

500



From guidorzi@fe.infn.it Tue Dec 19 02:51 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Tue, 19 Dec 2000 11:50:04 +0100 (MET)

1KGRB[150] #LSs: 1 Good HRR: 3
SW Trigger Time (OBT): 53150.908
UTC: Tue, 19 Dec 2000 07:37:54:02317

*****Event 0 triggered on board: ev_time - onbtrig_time = 2.634

Nsig(trg):	2.1	2.4	1.4	6.0	2.1	2.5	0.9	4.8
Nsig(pfl):	2.1	2.4	0.0	8.0	2.1	2.5	0.0	6.5
Bkg lev. :	786	910	807	756	919	951	956	987
ChiSq R. :	1.001	0.913	1.037	1.328	1.081	0.874	1.104	0.979

Peak fl. :	58	72	0	219	64	78	0	204
Error :	40.4	43.6	0.0	41.6	43.7	44.6	0.0	46.6

Fluence :	58	72	0	1548	64	78	0	1498
Error :	40.4	43.6	0.0	140.3	43.7	44.6	0.0	158.5

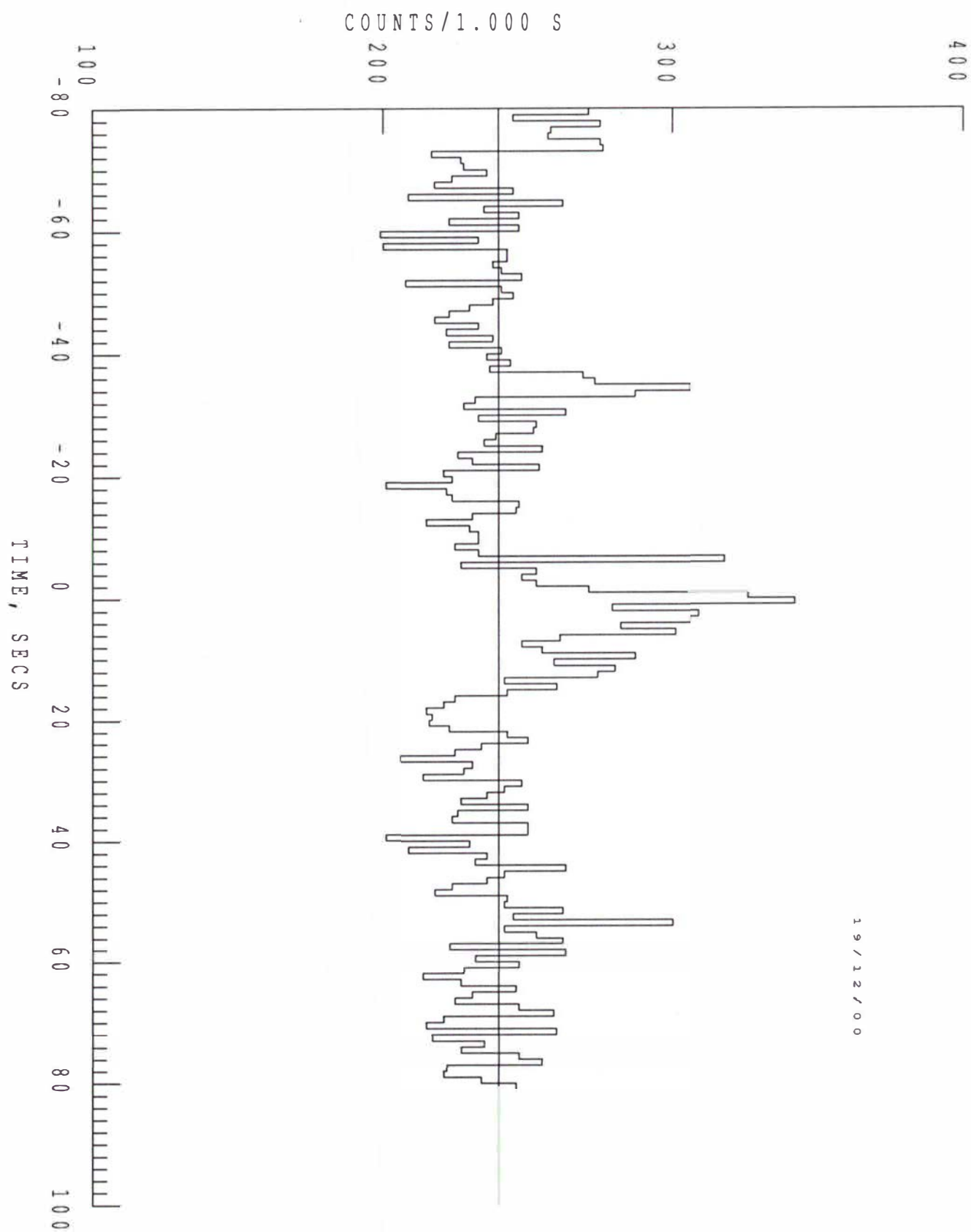
Dur (s) :	1.00	1.00	0.00	42.00				
Abundance:	1	1	0	12				
H. Ratio :	1.110	1.085	-1.000	0.968				
HR Ratio :	1.023	-1.000	1.147	-1.000	1.121	-1.000		
HR W-ave :	0.973	+/-	0.132					

NEAR

19/12/00

27367.929

100-1000 keV



KONUS2

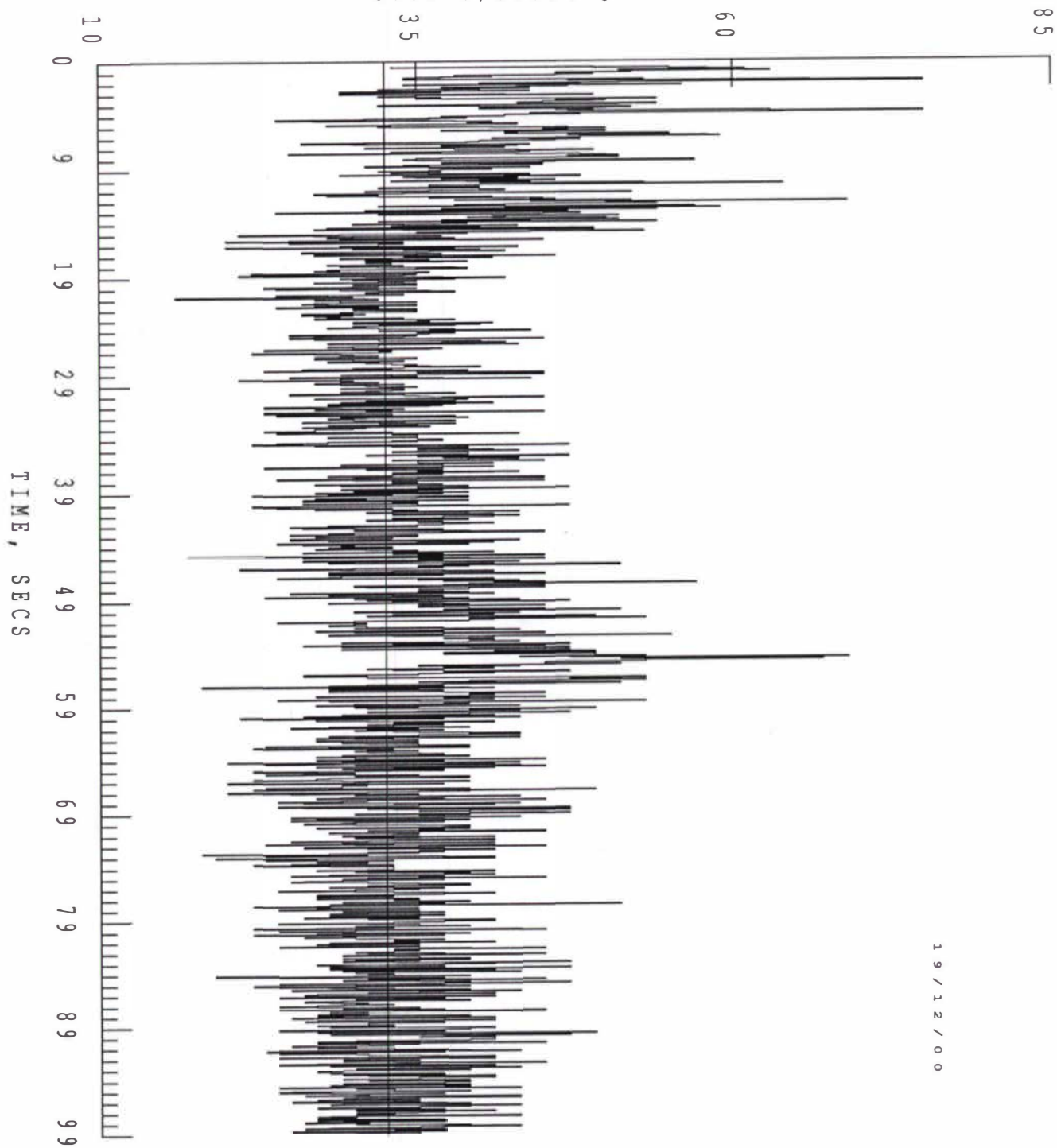
19/12/00

27506.265

50 - 200 keV

7:38:26

COUNTS/0.064 S



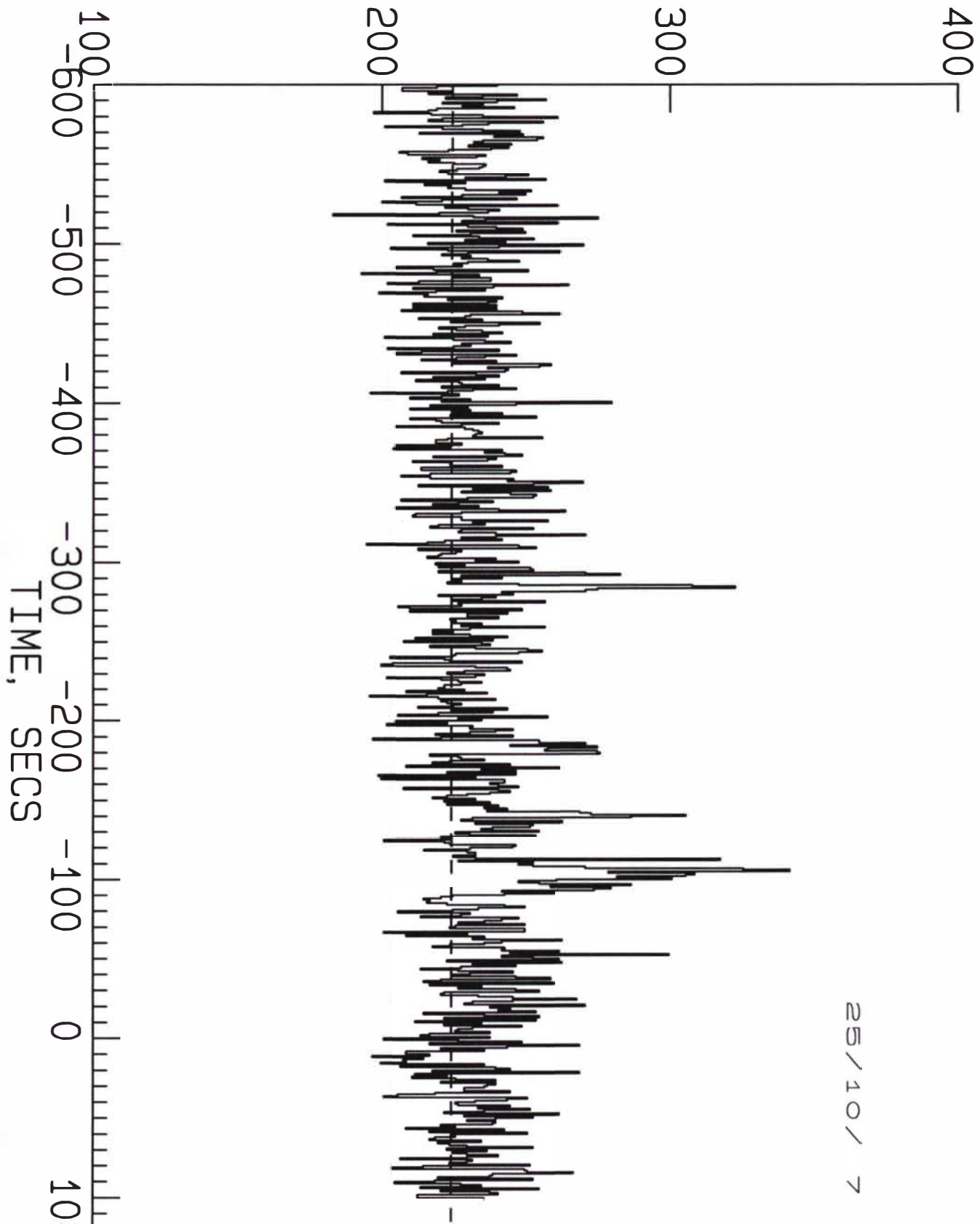
19/12/00

NEAR

19/12/00 27473.929

100-1000 keV

COUNTS/1.000 S



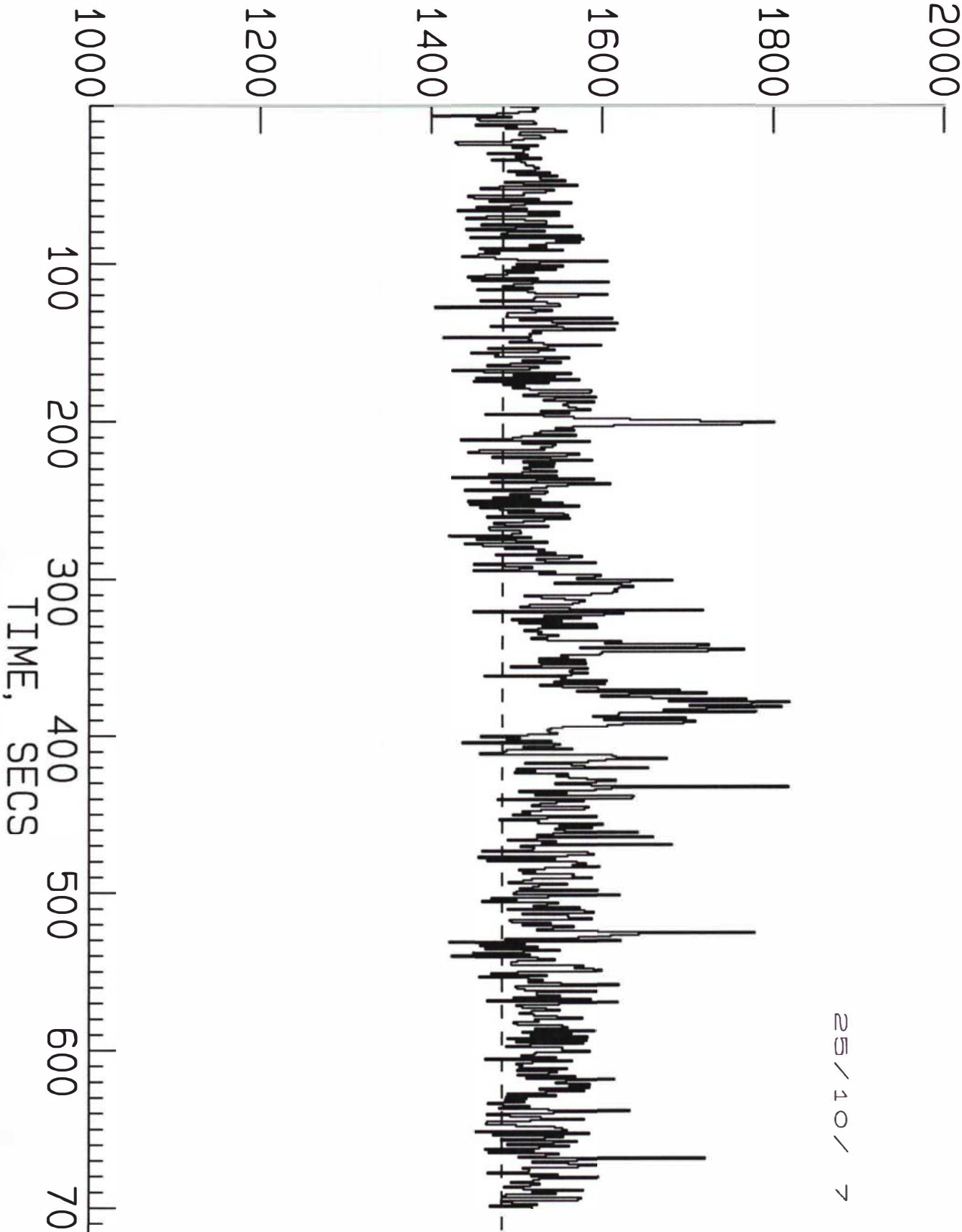
25/10/7

SAX GRBM

19/12/00 27129.026

40- 700 keV

COUNTS/1.000 S



GRBM 20001219 28248

ULYSSES RT

23 / 10 / 07

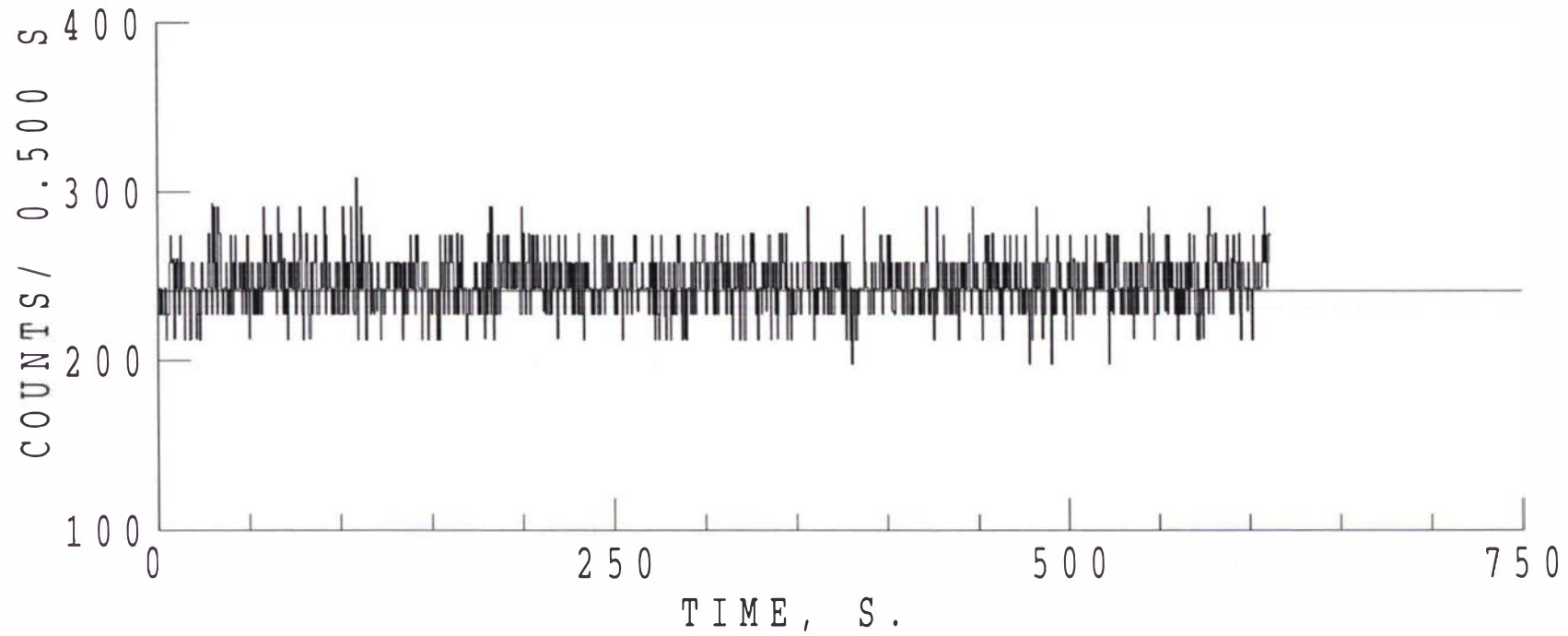
19/12/00 27936.039 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

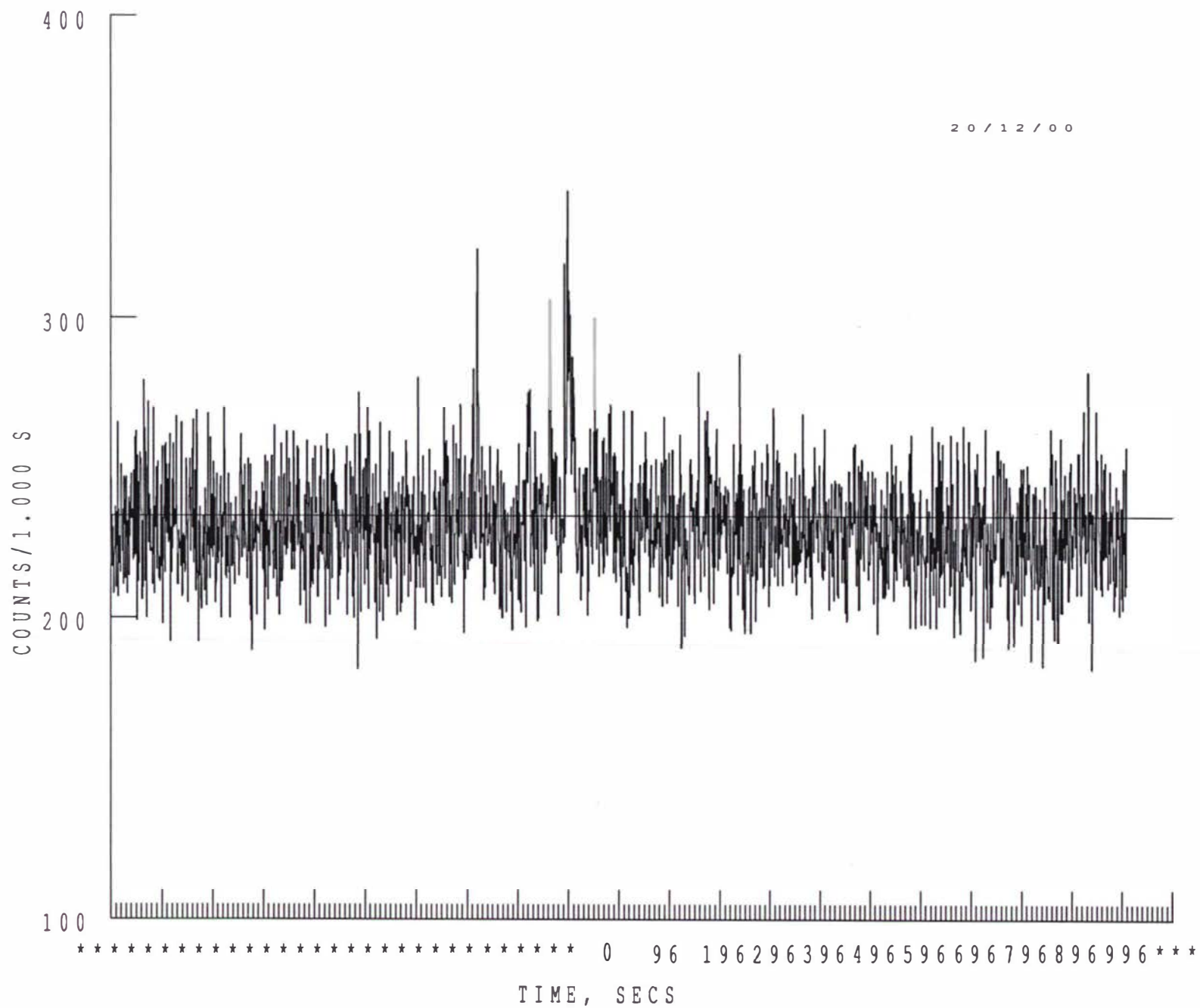
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



NEAR

19/12/00 27473.929

100-1000 keV



KNEAR GRS 20001219 27367

ULYSSES RT

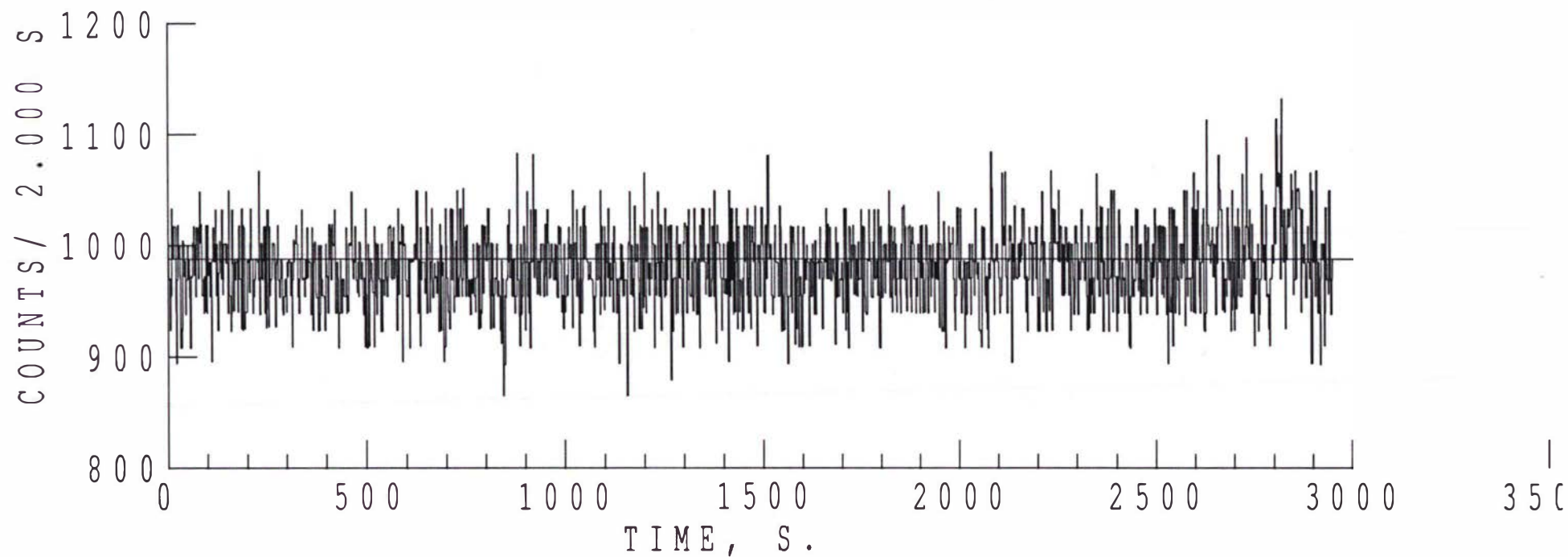
20/12/00

19/12/00 25884.008 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

11= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From guidorzi@fe.infn.it Tue Dec 19 06:21 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Tue, 19 Dec 2000 15:20:05 +0100 (MET)

Solar

1kGRB[151] #LSs: 2 Good HRR: 3
SW Trigger Time (OBT): 63068.908
UTC: Tue, 19 Dec 2000 10:23:12:01879

*****Event 0 triggered on board: ev_time - onbtrig_time = 1.280

Nsig(trg):	1.9	11.5	9.9	1.6	0.0	3.1	2.7	1.6
Nsig(pfl):	6.4	25.2	21.7	3.0	2.4	9.5	9.5	1.1
Bkg lev. :	753	905	767	688	889	894	863	914
ChiSq R. :	1.157	1.498	1.103	1.260	1.152	0.999	0.967	1.255

Peak fl. :	176	759	601	79	70	283	278	35
Error :	41.1	50.7	46.3	38.2	43.1	45.6	44.8	43.2

Fluence :	634	12874	8740	151	192	4533	3713	37
Error :	90.5	315.9	265.2	54.0	95.4	301.1	270.0	60.9

Dur (s) :	5.00	69.00	63.00	2.00				
Abundance:	5	48	40	2				
H. Ratio :	0.303	0.352	0.425	0.247				
HR Ratio :	0.860	0.713	1.225	0.829	1.424	1.719		
HR W-ave :	0.377	+/-	0.020					

SAX GRBM

19/12/00 37382.740

40- 700 keV

Solar

COUNTS/0.031 S

33

58

83

TIME, SECS

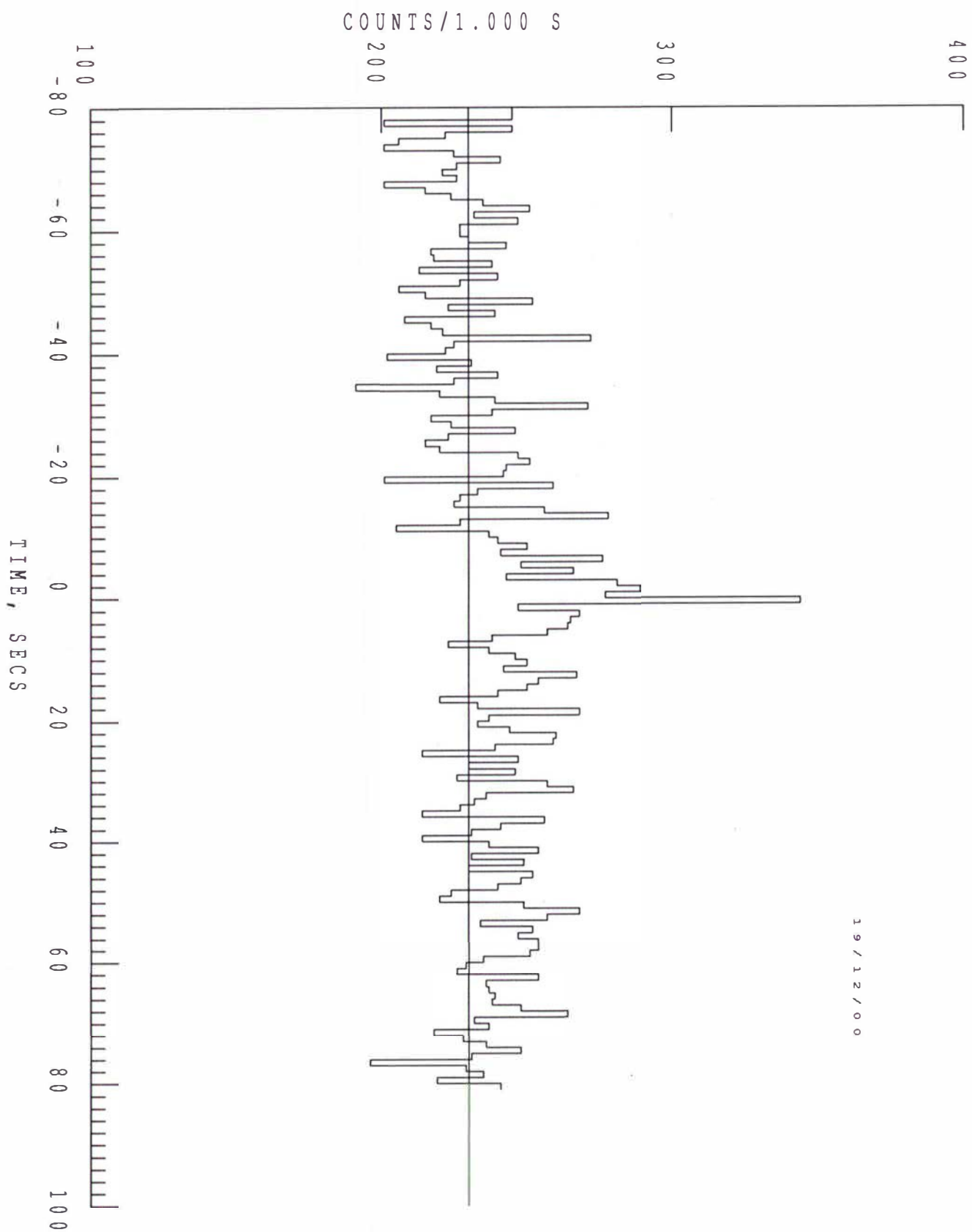
1 / 11 / 7

NEAR

19/12/00

37706.926

100-1000 keV



SAX 20001219 37392

ULYSSES RT

19/12/00

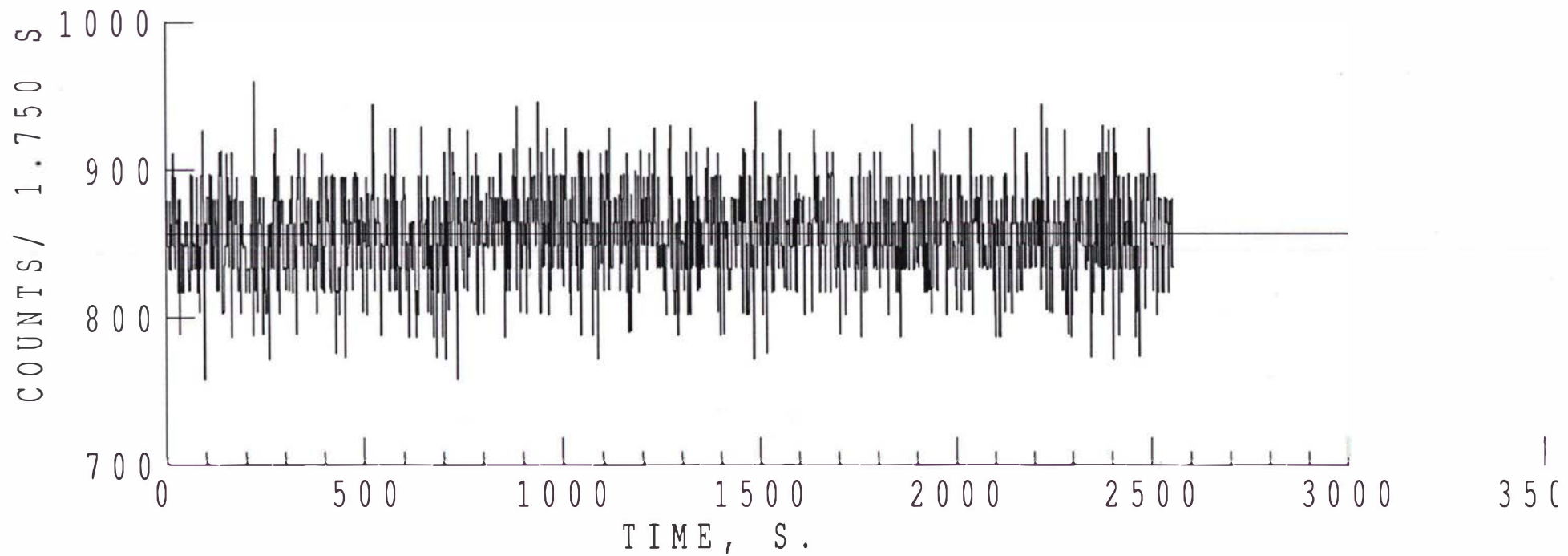
19/12/00 36108.164 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS2

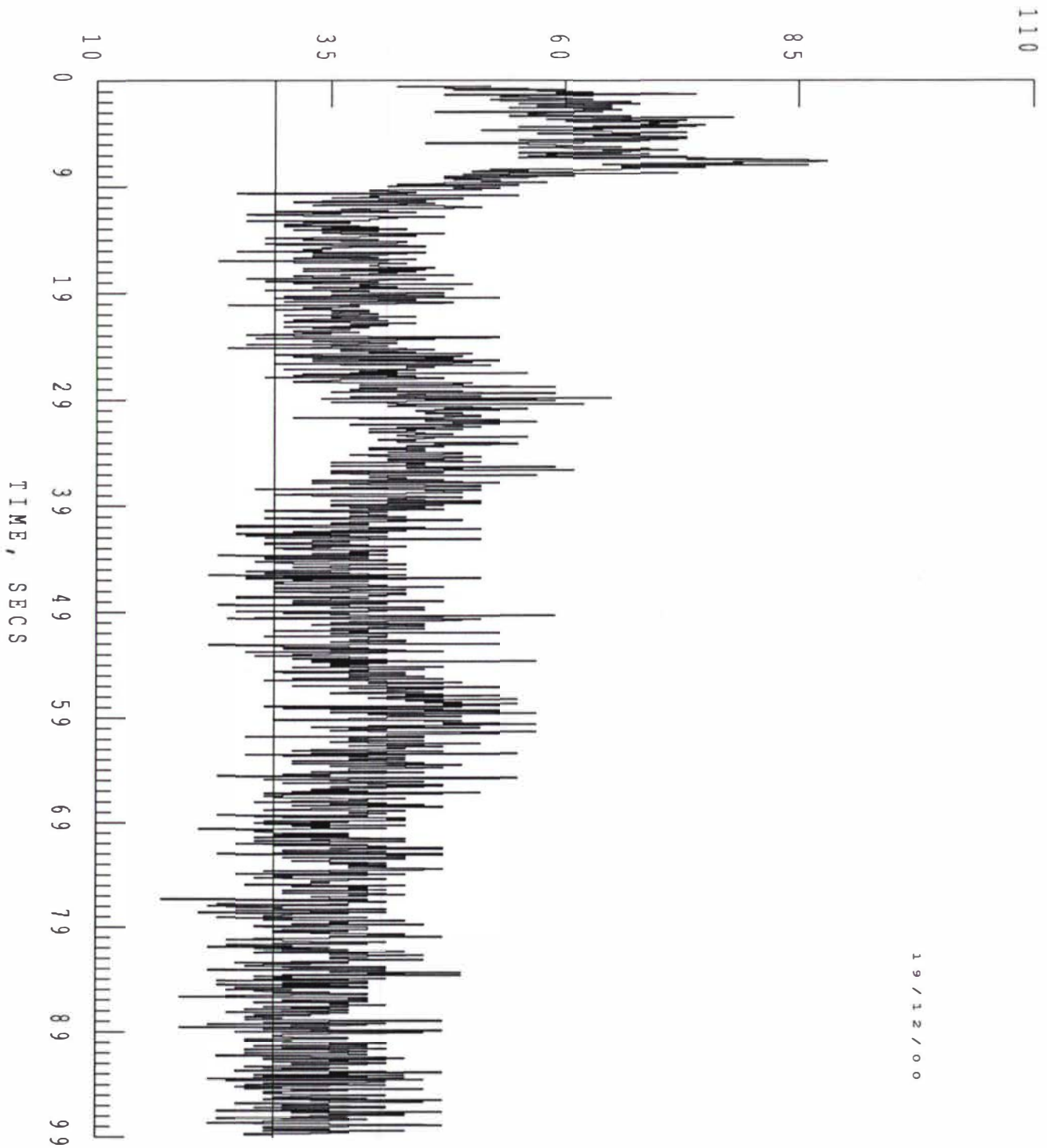
19/12/00

37391.698

50 - 200 keV

SOLAR

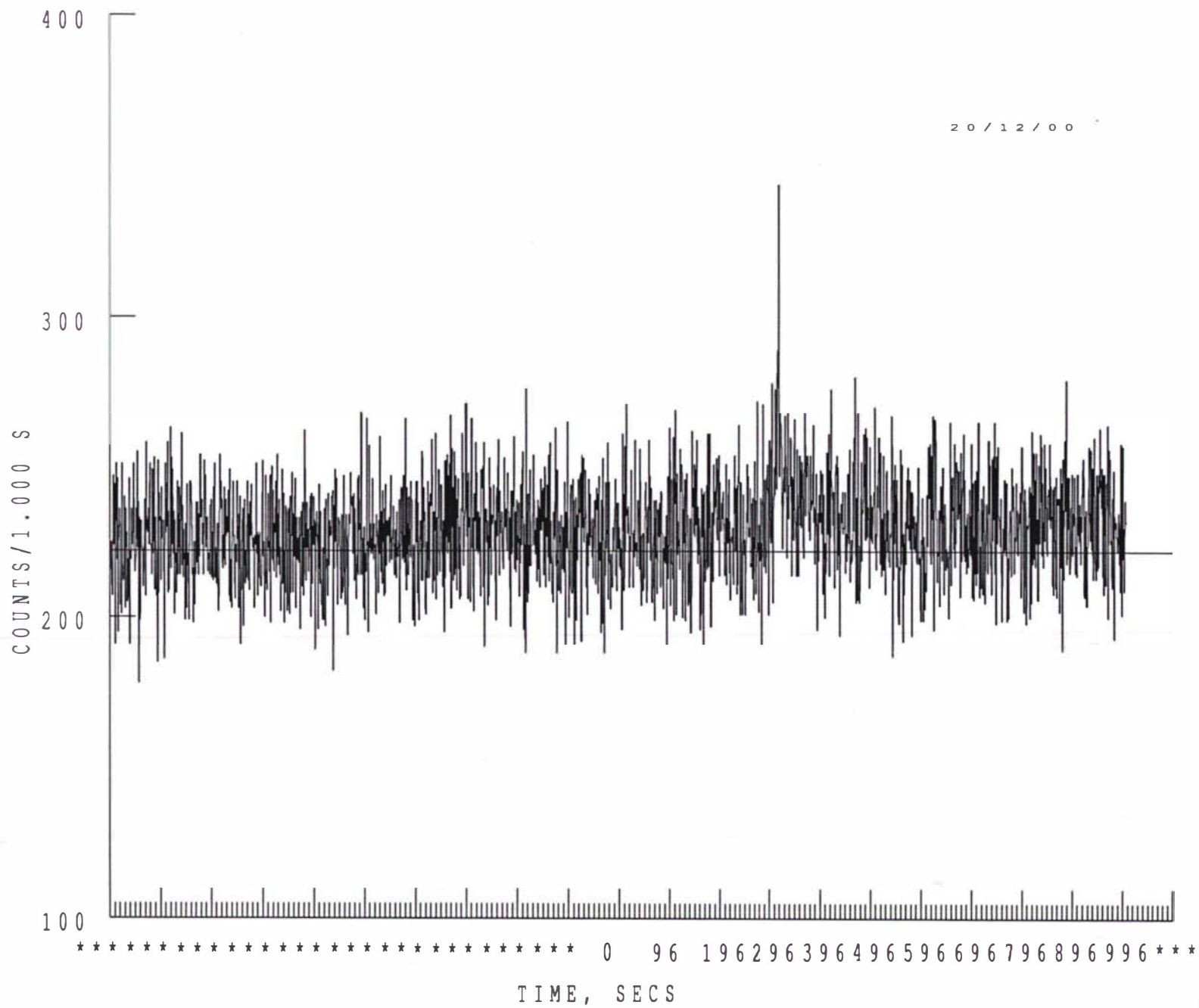
COUNTS/0.064 S



NEAR

19/12/00 37391.926

100-1000 keV



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN E=ECLIPTIC G=GALACTIC EQUATOR

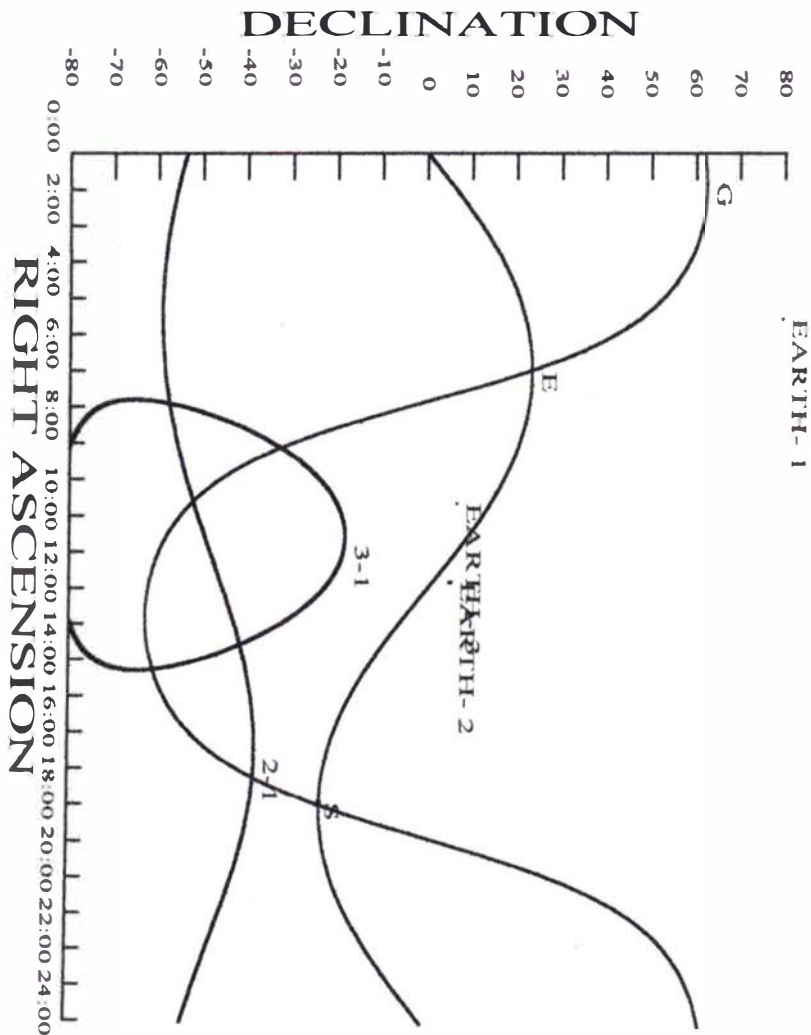
1 ULYSSES

2 KONUSI

3 NEAR

EVENT OF DEC 19, 2000 14:47

20/12/0



SATELLITE POSITIONAL INFORMATION AND BURST ARRIVAL TIMES (UT)

NO NAME DIST. FROM EARTH, KM. ALPHA, DEG. DELTA, DEG. YEAR MO D HR M S MICROSEC.

1 ULYSSES 372240307./+/-500. 247.93030+/- .005 -79.49820+/- .005 2000 12 19 14 47 26 175000
 2 KONUS1 1447554./+/-100. 356.52780+/- .001 -5.35340+/- .001 2000 12 19 15 02 57 200000
 3 NEAR 286774215./+/-100. 324.24570+/- .001 -6.75990+/- .001 2000 12 19 15 07 48 170000

JULIAN DAY NUMBER IS 36878.12 DAYS SINCE 1900 JAN 0.5

10.44 BY 15.00 CM MAP FOR RA= .00 TO 360.00, DEC= -80.00 TO 80.00

INTERSATELLITE CORRELATIONS

ABERRATION CORRECTION WILL BE APPLIED TO THIS ANNULUS

1- 2 SEPARATION IS 1241.50140 LIGHT SECONDS. TIME DELAY IS 931.025 SECONDS

CORRELATION BETWEEN ULYSSES AND KONUS1

GIVES A CIRCLE OF RADIUS 41.416672 DEG.

CENTERED AT ALPHA=246.806412 DEG. =16.H27.M13.54S DELTA=-79.424272 DEG. =-79.D-25.M-27.38S

ERROR IN DETERMINATION OF RADIUS IS +/- .063551 DEGREES OR 7.626080 ' TOTAL WIDTH

(.007709 DUE TO POSITION, .055841 DEGREES DUE TO TIMING)

INTERSATELLITE TIMING ERROR IS 800000 MICROSECONDS

ABERRATION CORRECTION WILL BE APPLIED TO THIS ANNULUS

1- 3 SEPARATION IS 1442.18556 LIGHT SECONDS. TIME DELAY IS 1221.995 SECONDS

CORRELATION BETWEEN ULYSSES AND NEAR

GIVES A CIRCLE OF RADIUS 32.078462 DEG.

CENTERED AT ALPHA=158.026010 DEG. =10.H32.M 6.24S DELTA=-50.216036 DEG. =-50.D-12.M-57.73S

ERROR IN DETERMINATION OF RADIUS IS +/- .103631 DEGREES OR 12.435742 ' TOTAL WIDTH

(.010001 DUE TO POSITION, .093631 DEGREES DUE TO TIMING)

INTERSATELLITE TIMING ERROR IS 1250000 MICROSECONDS

ULYSSES TO NEAR CIRCLE AND KONUS1 TO ULYSSES CIRCLE INTERSECT AT

RA=103.434639 DEGREES, OR 6.H53.M44.31S DEC=-57.499400 DEGREES, OR -57.D-29.M-57.84S

ECLIPTIC LATITUDE -79.013308 AND AT

RA=203.096253 DEGREES, OR 13.H32.M23.10S , DEC=-41.428686 DEGREES, OR -41.D-25.M-43.27S

ECLIPTIC LATITUDE -29.346678

CORNERS OF ERROR BOXES

RA(2000)	DEC(2000)
103.255739= 6 h 53 m 1.38 s	-57.451064=-57 o 27 ' 3.83 "
103.661110= 6 h 54 m 38.67 s	-57.414466=-57 o 24 ' 52.08 "
103.207597= 6 h 52 m 49.82 s	-57.584244=-57 o 35 ' 3.28 "
103.614004= 6 h 54 m 27.36 s	-57.547634=-57 o 32 ' 51.48 "

203.193713=13 h 32 m 46.49 s	-41.349678=-41 ° 20 ' 58.84 "
202.904347=13 h 31 m 37.04 s	-41.392079=-41 ° 23 ' 31.48 "
203.288200=13 h 33 m 9.17 s	-41.465363=-41 ° 27 ' 55.31 "
202.998634=13 h 31 m 59.67 s	-41.507753=-41 ° 30 ' 27.91 "

EARTH CROSSING TIMES FOR THESE INTERSECTIONS ARE 54176.829 SECS AND 54174.274 SECS

AT SATELLITE 1, EARTH SUBTENDS .000980 DEGREES HALF ANGLE CENTERED AT
 ALPHA= 67.930300 DEGREES, DELTA= 79.498200 DEGREES
 AT SATELLITE 2, EARTH SUBTENDS .252014 DEGREES HALF ANGLE CENTERED AT
 ALPHA=176.527800 DEGREES, DELTA= 5.353400 DEGREES
 AT SATELLITE 3, EARTH SUBTENDS .001272 DEGREES HALF ANGLE CENTERED AT
 ALPHA=144.245700 DEGREES, DELTA= 6.759900 DEGREES
 SPACECRAFT 1 IS 1054.276 L-S FROM SUN
 SPACECRAFT 2 IS 498.748 L-S FROM SUN
 SPACECRAFT 2 IS -555.528 L-S FROM SPACECRAFT 1 MEASURED FROM SUN
 SPACECRAFT 3 IS 798.738 L-S FROM SUN
 SPACECRAFT 3 IS -255.538 L-S FROM SPACECRAFT 1 MEASURED FROM SUN
 SUN IS AT ALPHA=267.844931 DEGREES, DELTA=-23.424365 DEGREES
 ANGLE BETWEEN SUN AND FIRST AND SECOND ERROR BOX= 98.0 AND 56.2 DEG.
 THE AREA OF THE ERROR BOX IS 1.01E+02 SQ. ARCMIN.

TODAY IS 20/12/ 0

K. Hurley, on behalf of the Ulysses GRB team,
T. Cline, on behalf of the Konus-Wind and NEAR GRB teams,
and E. Mazets, and S. Golenetskii, on behalf of the KONUS-WIND GRB team, report:

Ulysses, NEAR, and KONUS-WIND observed this GRB at 54229 seconds.
As observed by Ulysses, it had a duration of approximately 8.
seconds, a 25-100 keV fluence of approximately $-2.7\text{E-}07$ erg/cm²,
and a peak flux of approximately $9.1\text{E-}07$ erg/cm² s over .25 seconds

We have triangulated it to two alternate, preliminary, 3 sigma error boxes each
with approximate area 101. sq. arcmin. whose coordinates are:

ERROR BOX CENTER:	6 h 53 m 44.31 s	-57 o 29 ' 57.84 "
ERROR BOX CORNER 1:	6 h 53 m 1.38 s	-57 o 27 ' 3.83 "
ERROR BOX CORNER 2:	6 h 54 m 38.67 s	-57 o 24 ' 52.08 "
ERROR BOX CORNER 3:	6 h 52 m 49.82 s	-57 o 35 ' 3.28 "
ERROR BOX CORNER 4:	6 h 54 m 27.36 s	-57 o 32 ' 51.48 "

There is a chance that the ambiguity can be resolved by further processing
within about 8 hours.

IPN BURST POSITION

TITLE: IPN BURST POSITION MESSAGE # 74
NOTICE TYPE: DOUBLE ERROR BOX
APPROXIMATE EARTH-CROSSING TIME (DD MM YYYY UT): 19 12 2000 15:03:49
APPROXIMATE 25-100 keV FLUENCE (ERG/CM²): <unknown>
APPROXIMATE 25-100 keV PEAK FLUX (ERG/CM²/SEC): 9.1E-07 IN A .25 SEC INTERVAL
APPROXIMATE T90 DURATION (S): <unknown>
ERROR BOX CENTER: 6 h 53 m 44.31 s -57 o 29 ' 57.84 "
ERROR BOX CORNER 1: 6 h 53 m 1.38 s -57 o 27 ' 3.83 "
ERROR BOX CORNER 2: 6 h 54 m 38.67 s -57 o 24 ' 52.08 "
ERROR BOX CORNER 3: 6 h 52 m 49.82 s -57 o 35 ' 3.28 "
ERROR BOX CORNER 4: 6 h 54 m 27.36 s -57 o 32 ' 51.48 "
ERROR BOX CENTER: 13 h 32 m 23.10 s -41 o 25 ' 43.27 "
ERROR BOX CORNER 1: 13 h 32 m 46.49 s -41 o 20 ' 58.84 "
ERROR BOX CORNER 2: 13 h 31 m 37.04 s -41 o 23 ' 31.48 "
ERROR BOX CORNER 3: 13 h 33 m 9.17 s -41 o 27 ' 55.31 "
ERROR BOX CORNER 4: 13 h 31 m 59.67 s -41 o 30 ' 27.91 "

APPROXIMATE ERROR BOX AREA (SQ. ARCMIN.): 1.01E+02
COMMENTS: This is a preliminary, 3 sigma error box.
COMMENTS: GCN message is being issued.

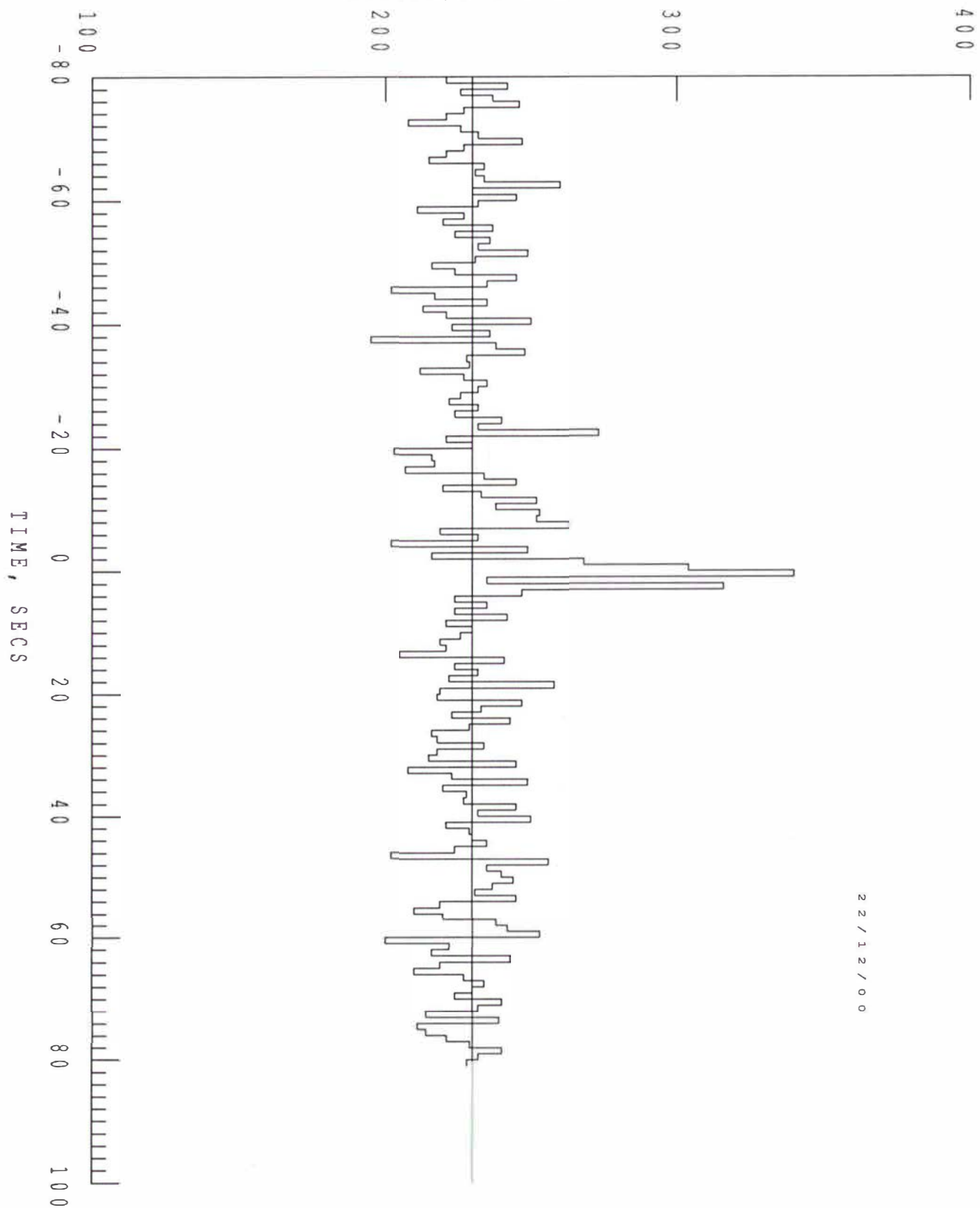
NEAR

19/12/00

54520.920

100-1000 keV

COUNTS/1.000 S



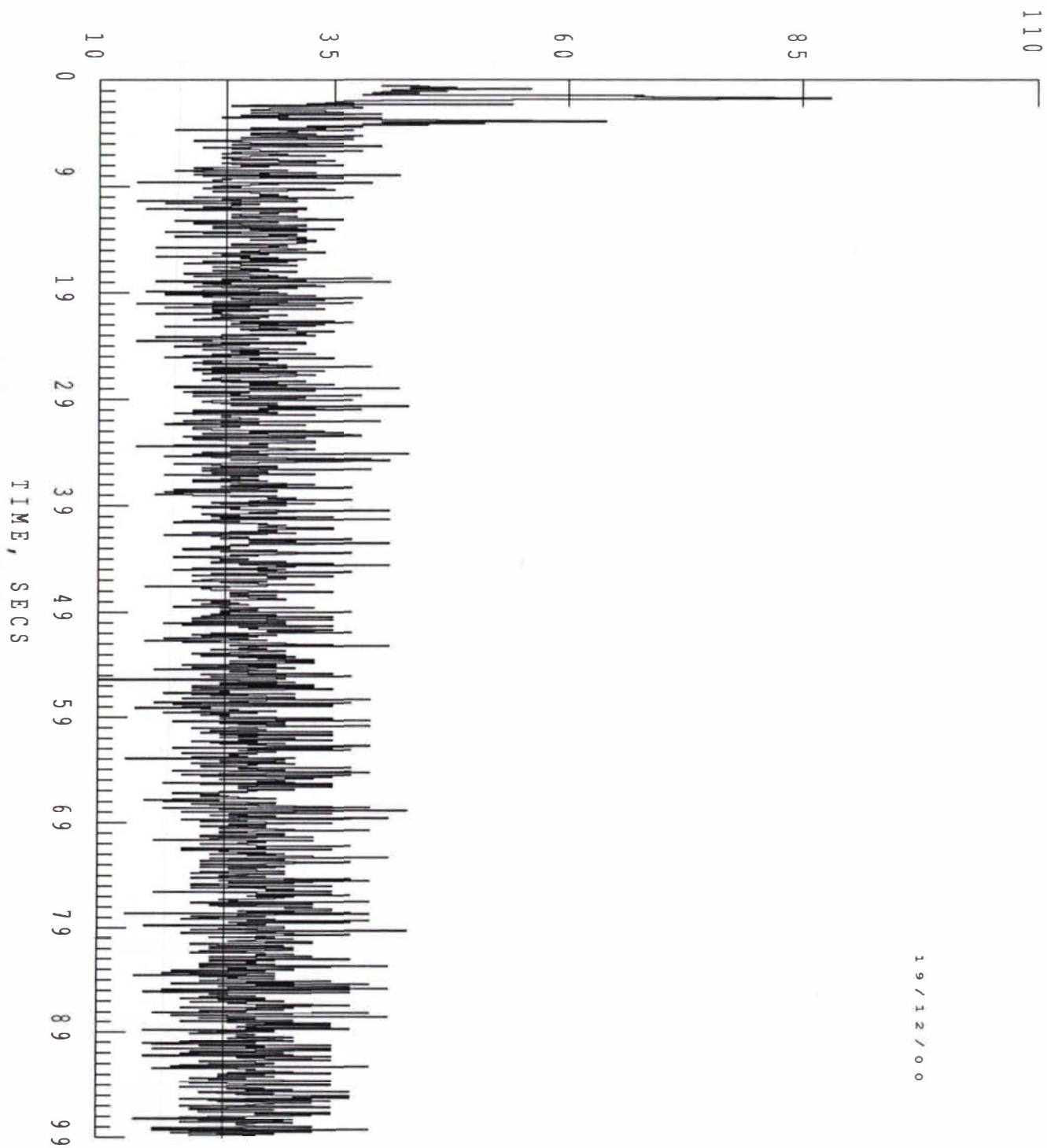
KONUS1

19/12/00

54229.399

50 - 200 keV

COUNTS/0.064 S



19/12/00

KNEAR GRS 20001219 54520

ULYSSES RT

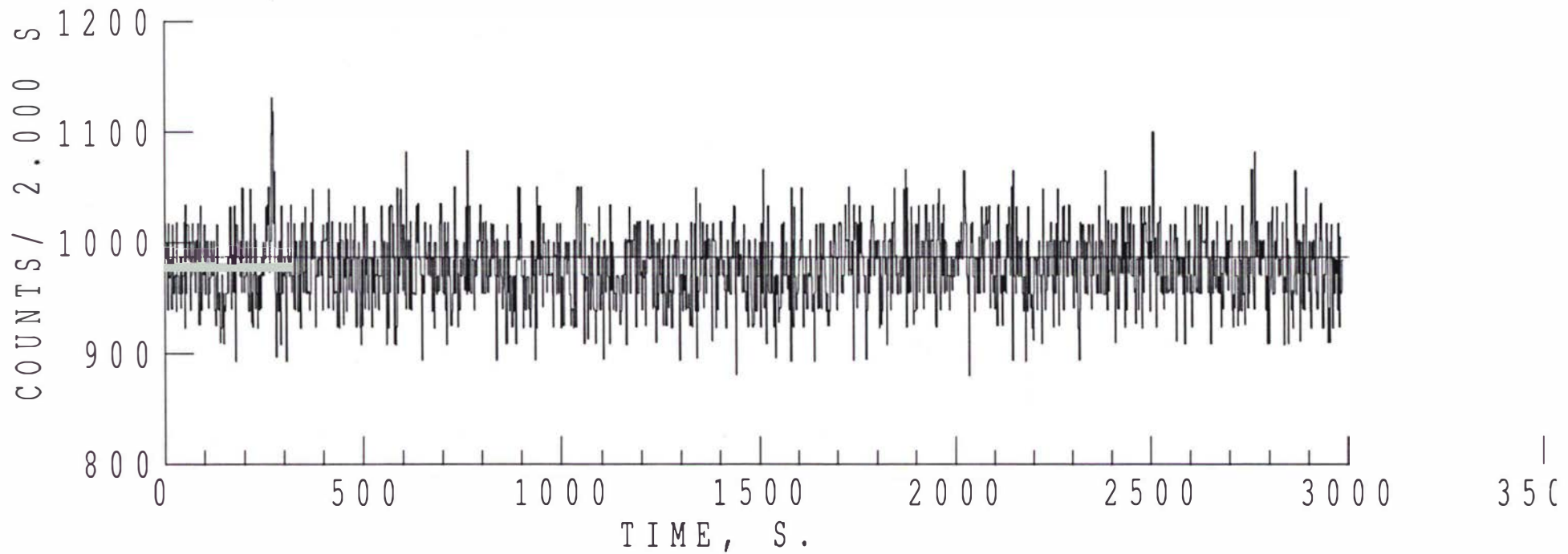
22/12/00

19/12/00 53028.172 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From guidorzi@fe.infn.it Tue Dec 19 13:21 PST 2000
From: Auto GRB monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Tue, 19 Dec 2000 22:20:05 +0100 (MET)

1kGRB[152] #LSs: 2 Good HRR: 1
SW Trigger Time (OBT): 21944.908
UTC: Tue, 19 Dec 2000 17:10:04:00886 *6180A*

*****Event 0 triggered on board: ev_time - onbtrig_time = 0.018

Nsig(trg):	0.4	1.3	7.4	4.6	0.4	1.3	6.7	4.7
Nsig(pfl):	0.0	0.0	7.4	4.6	0.0	0.0	6.7	4.7
Bkg lev. :	703	832	766	664	850	839	820	857
ChiSq R. :	1.117	1.014	0.883	0.981	1.146	0.917	0.877	1.095

Peak fl. :	0	0	205	119	0	0	193	139
Error :	0.0	0.0	41.7	38.1	0.0	0.0	42.9	43.1

Fluence :	0	0	804	255	0	0	659	202
Error :	0.0	0.0	107.6	65.2	0.0	0.0	110.4	73.2

Dur (s) :	0.00	0.00	7.00	3.00
-----------	------	------	------	------

Abundance:	0	0	7	3
------------	---	---	---	---

H. Ratio :	-1.000	-1.000	0.819	0.793
------------	--------	--------	-------	-------

HR Ratio :	-1.000	-1.000	-1.000	-1.000	-1.000	1.034
------------	--------	--------	--------	--------	--------	-------

HR W-ave :	0.814	+/-	0.157
------------	-------	-----	-------

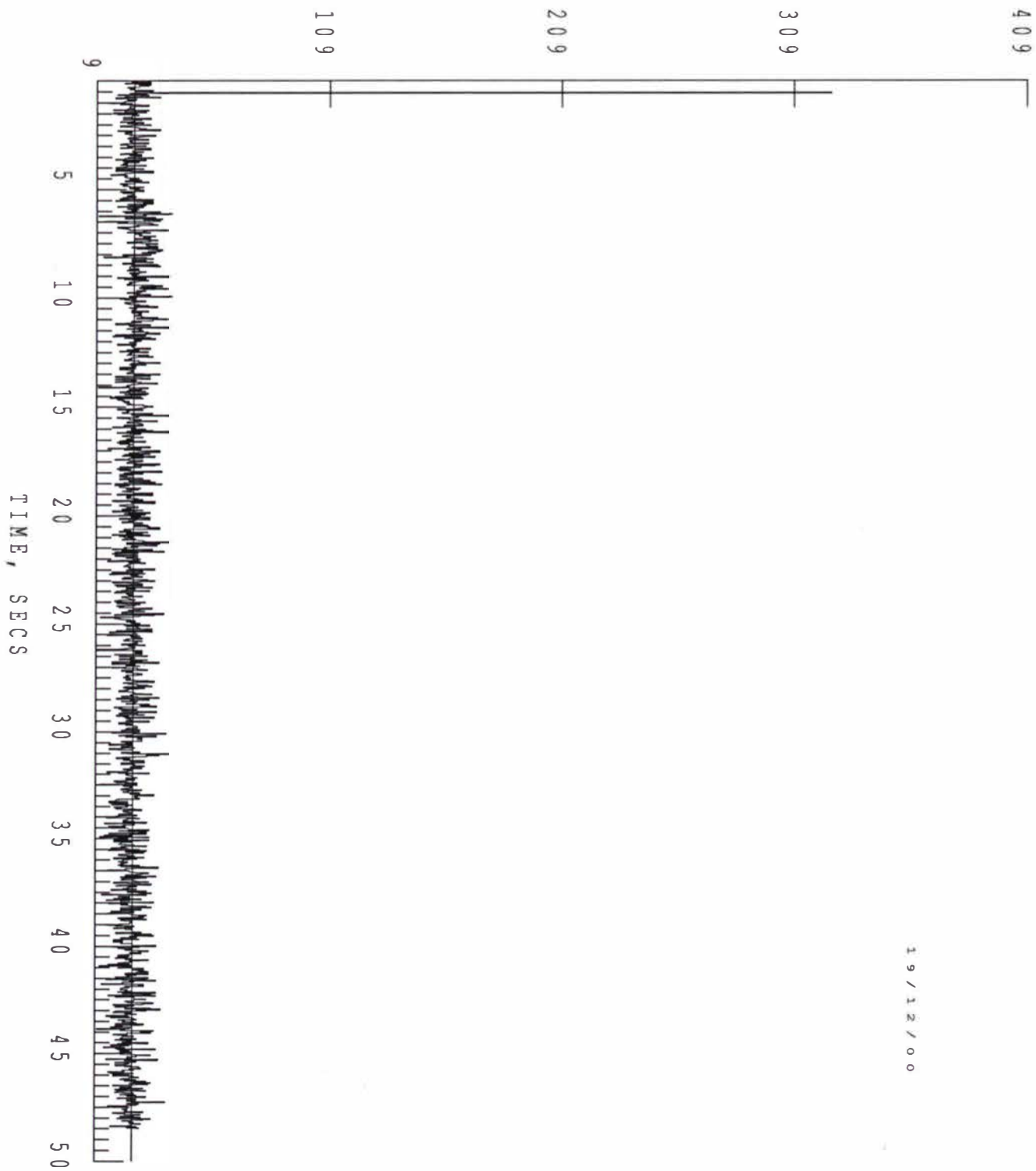
BSAX-GRBM

19/12/00

61795.991

40- 700 keV

COUNTS/0.031 S



19/12/00

From BUTTERWORTH@tgrs3.gsfc.nasa.gov Wed Dec 20 12:23 PST 2000
From: BUTTERWORTH@tgrs3.gsfc.nasa.gov
Date: Wed, 20 Dec 2000 15:23:55 -0500
To: khurley@sunspot.ssl.berkeley.edu
Cc: BUTTERWORTH@tgrs3.gsfc.nasa.gov, cline@apache.gsfc.nasa.gov
Subject: events on 001219

Dear Kevin,

For the event near sod=27506 I get ecl_lat > 30N.

For the event near sod=37391 I get ecl_lat = 5N +/-5.

For the event near sod=54229 I get ecl_lat > 30S. The Konus data are slightly more consistent with your more southerly box but they can't rule out the other one.

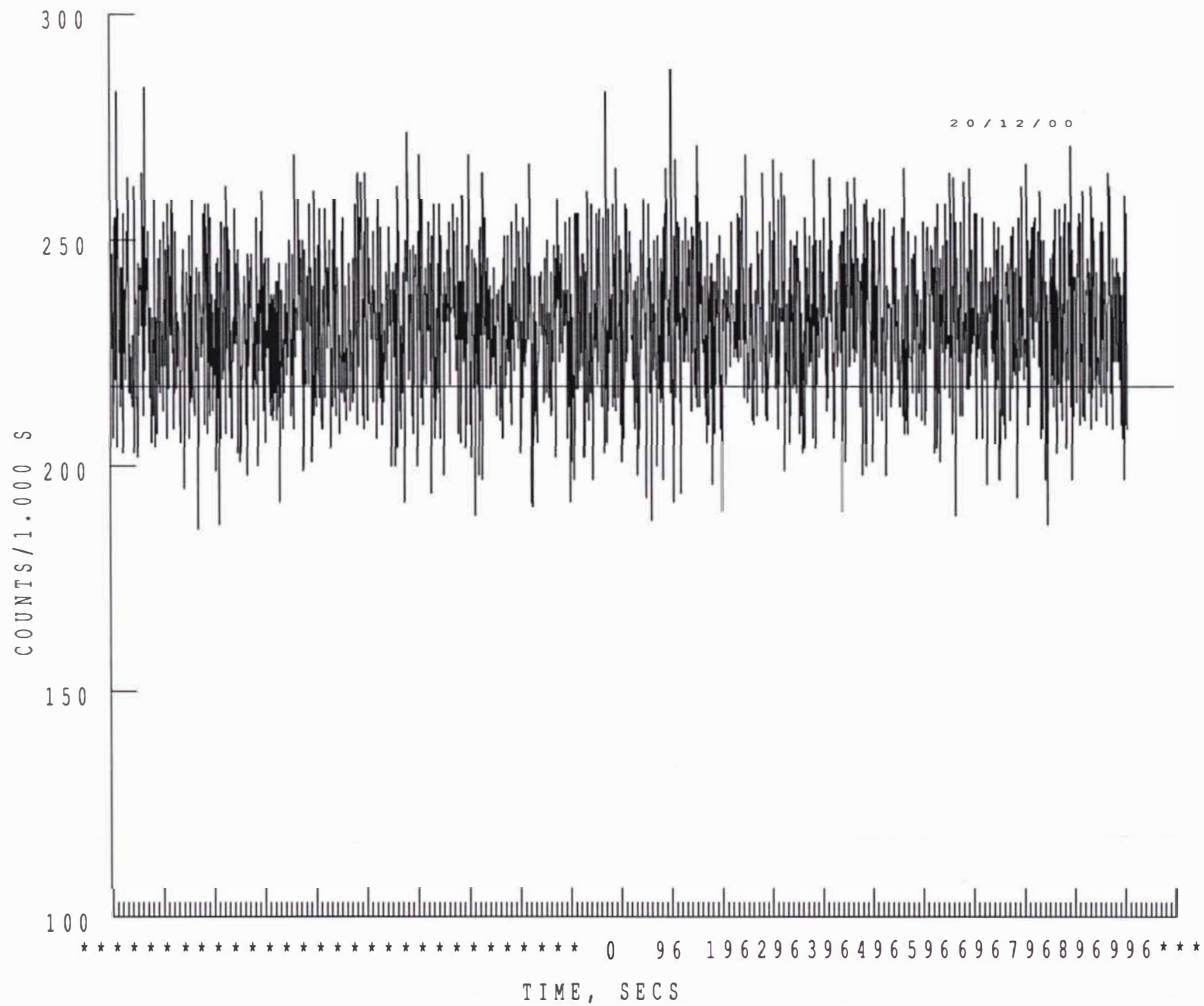
We didn't see anything near sod=61795.

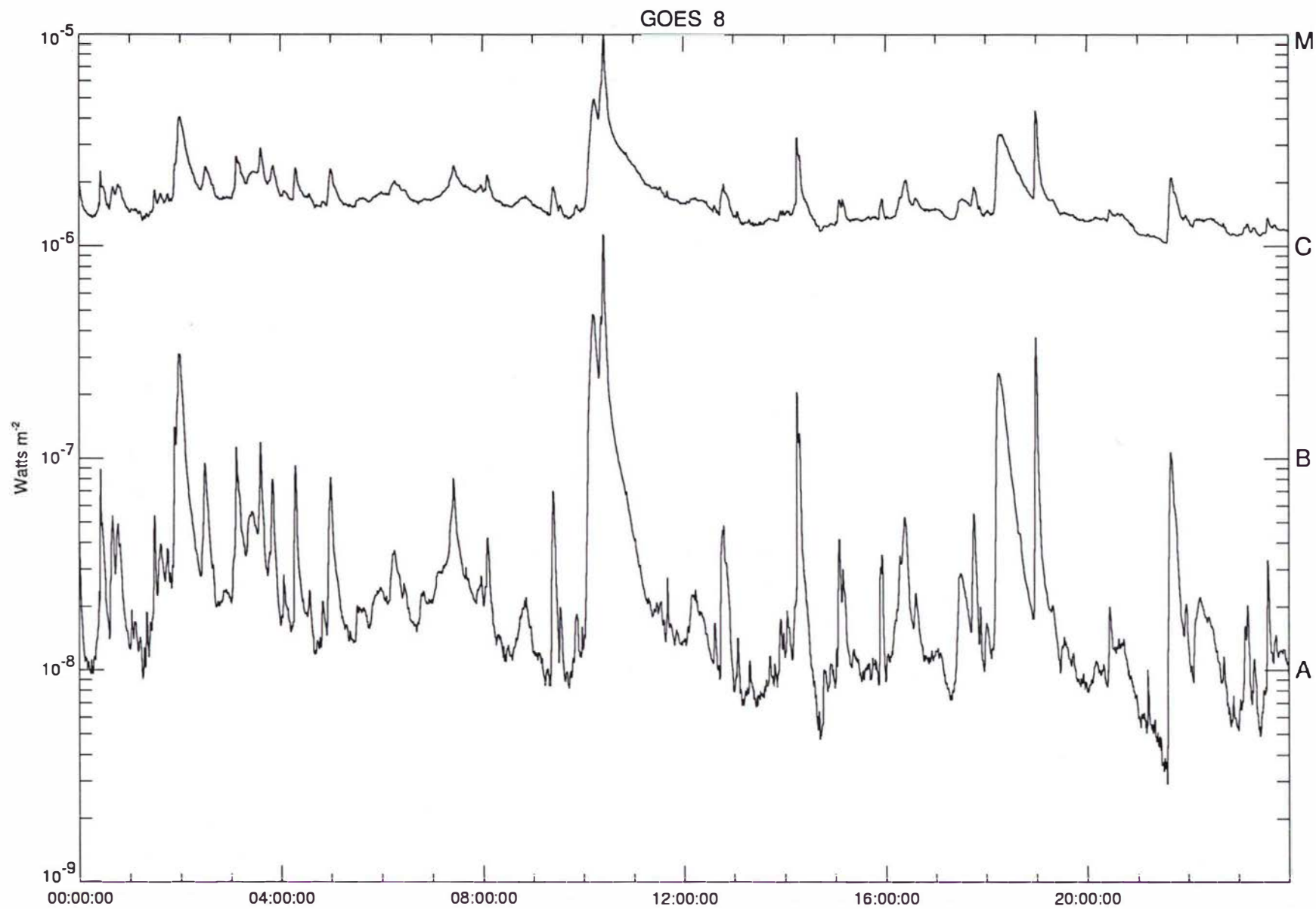
Paul.

NEAR

19/12/00 61803.917

100-1000 keV





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

Channel

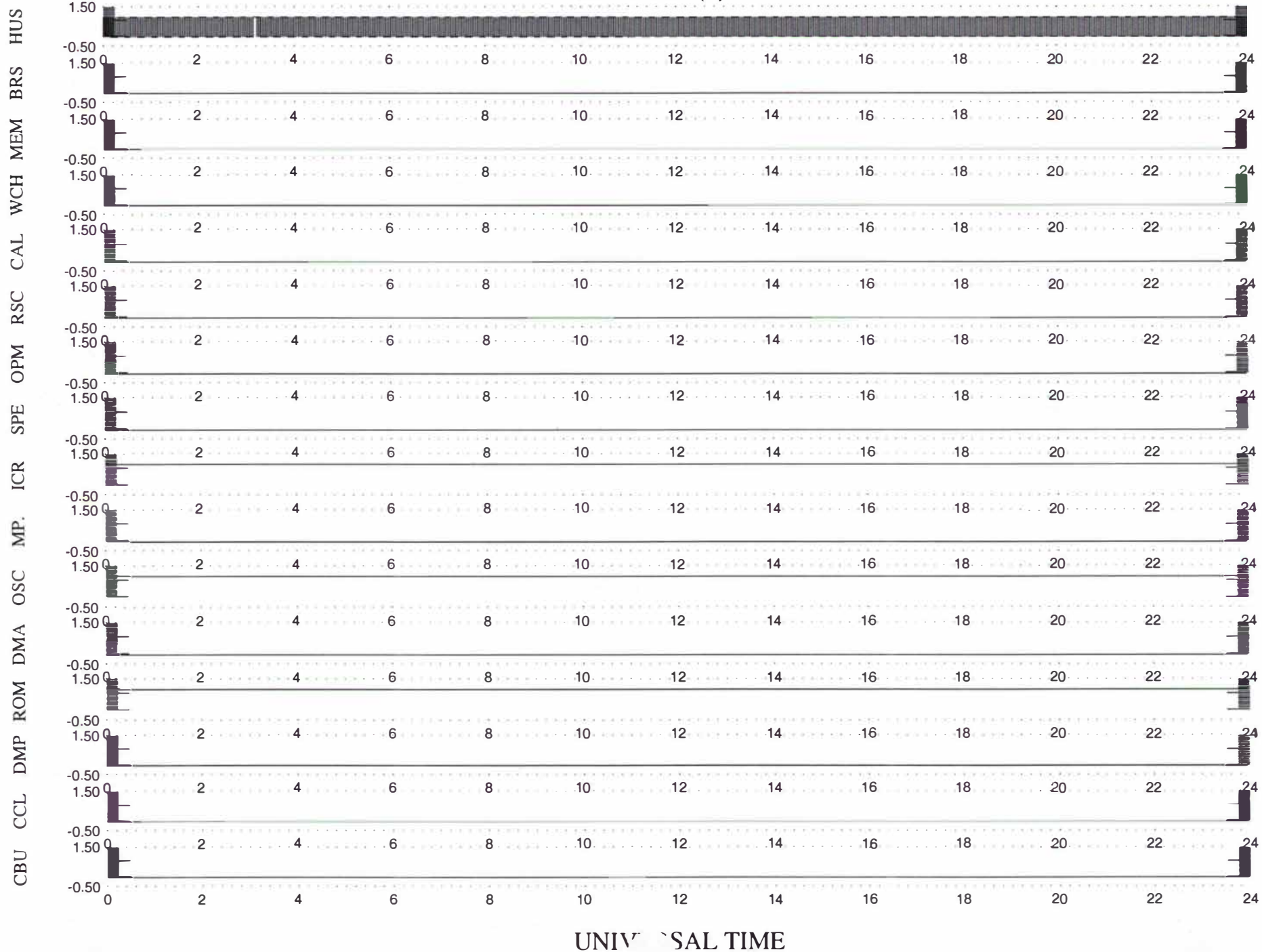
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

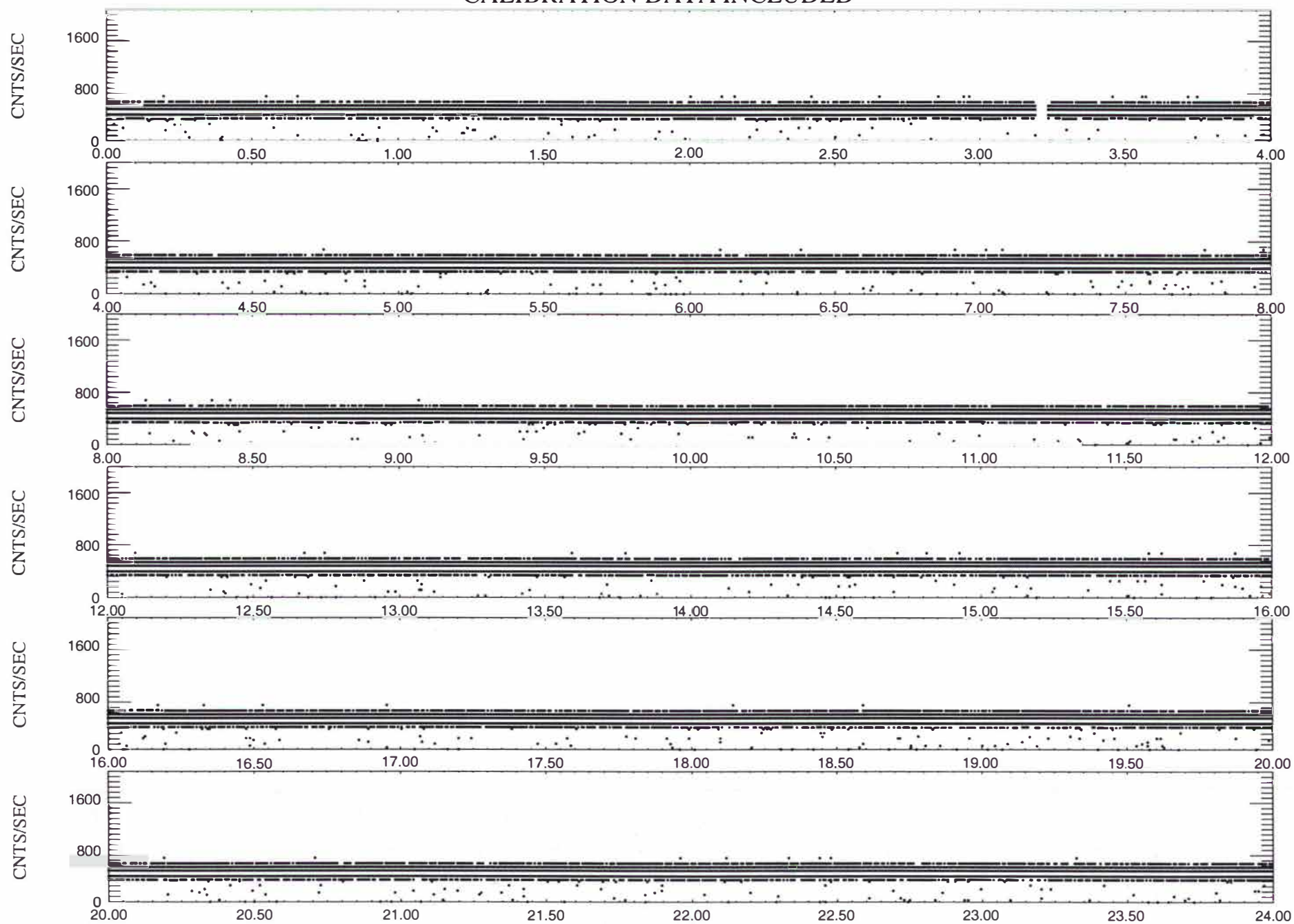
Plot created: 00/12/23, 1056

Sample average = 10

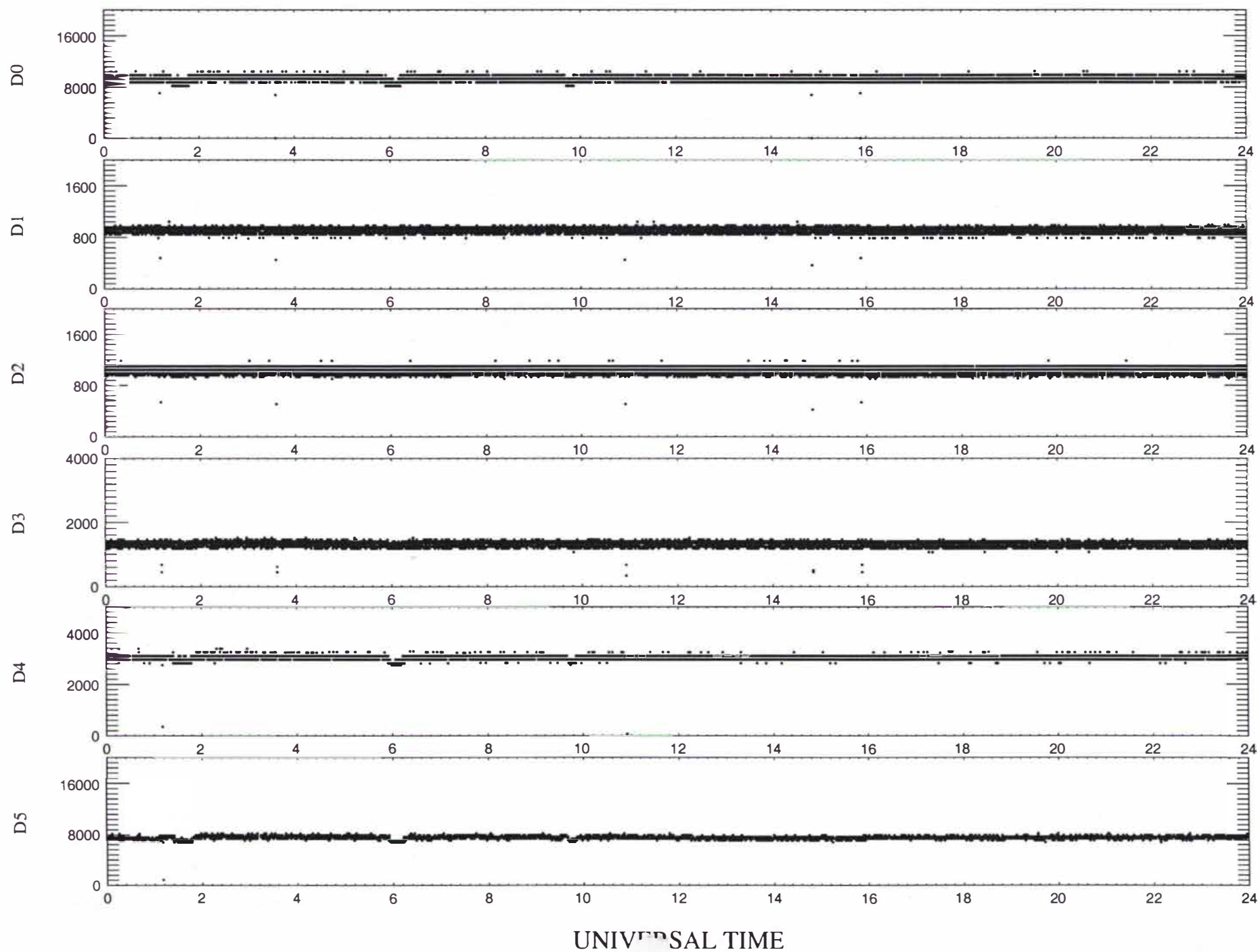
NO BURST (7)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



From guidorzi@fe.infn.it Wed Dec 20 07:51 PST 2000
From: Auto GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Wed, 20 Dec 2000 16:50:04 +0100 (MET)

1kGRB[153] #LSs: 1 Good HRR: 2
SW Trigger Time (OBT): 25739.908
UTC: Wed, 20 Dec 2000 12:25:34:98417

Nsig(trg):	2.3	2.6	2.1	3.5	2.6	3.2	3.6	5.1
Nsig(pfl):	2.3	2.6	2.1	3.5	2.6	3.2	3.6	5.1
Bkg lev. :	726	862	773	681	854	875	843	869
ChiSq R. :	0.966	0.971	1.215	1.019	0.926	0.944	1.110	1.055

Peak fl. :	63	77	58	91	76	95	105	151
Error :	39.0	42.5	40.1	38.2	42.3	43.0	42.4	43.5

Fluence :	63	77	58	91	76	95	105	151
Error :	39.0	42.5	40.1	38.2	42.3	43.0	42.4	43.5

Dur (s) :	1.00	1.00	1.00	1.00				
Abundance:	1	1	1	1				
H. Ratio :	1.213	1.235	1.801	1.663				
HR Ratio :	0.983	0.674	0.730	0.685	0.742	1.083		
HR W-ave :	1.439	+/-	0.491					

SAX 20001220 44734

ULYSSES RT

20/12/00

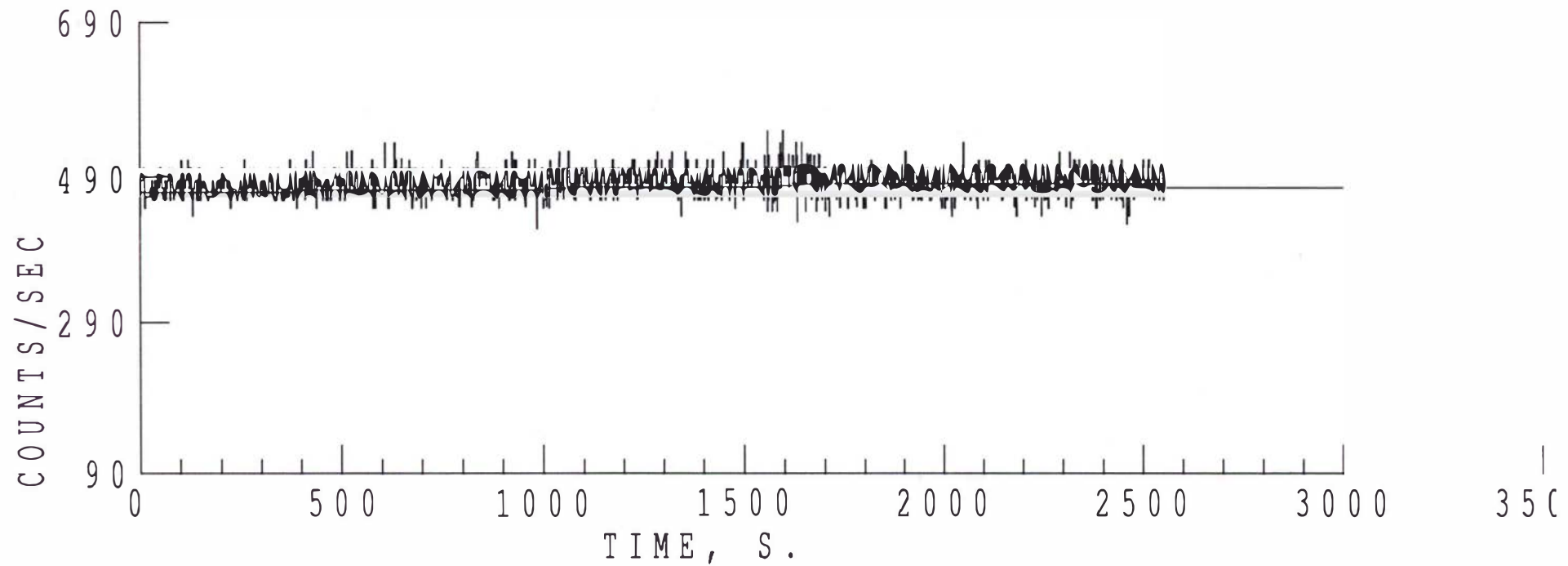
20/12/00 43452.098 s

INTERVALS REGROUPED BY 4

0 - 0 keV

H= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

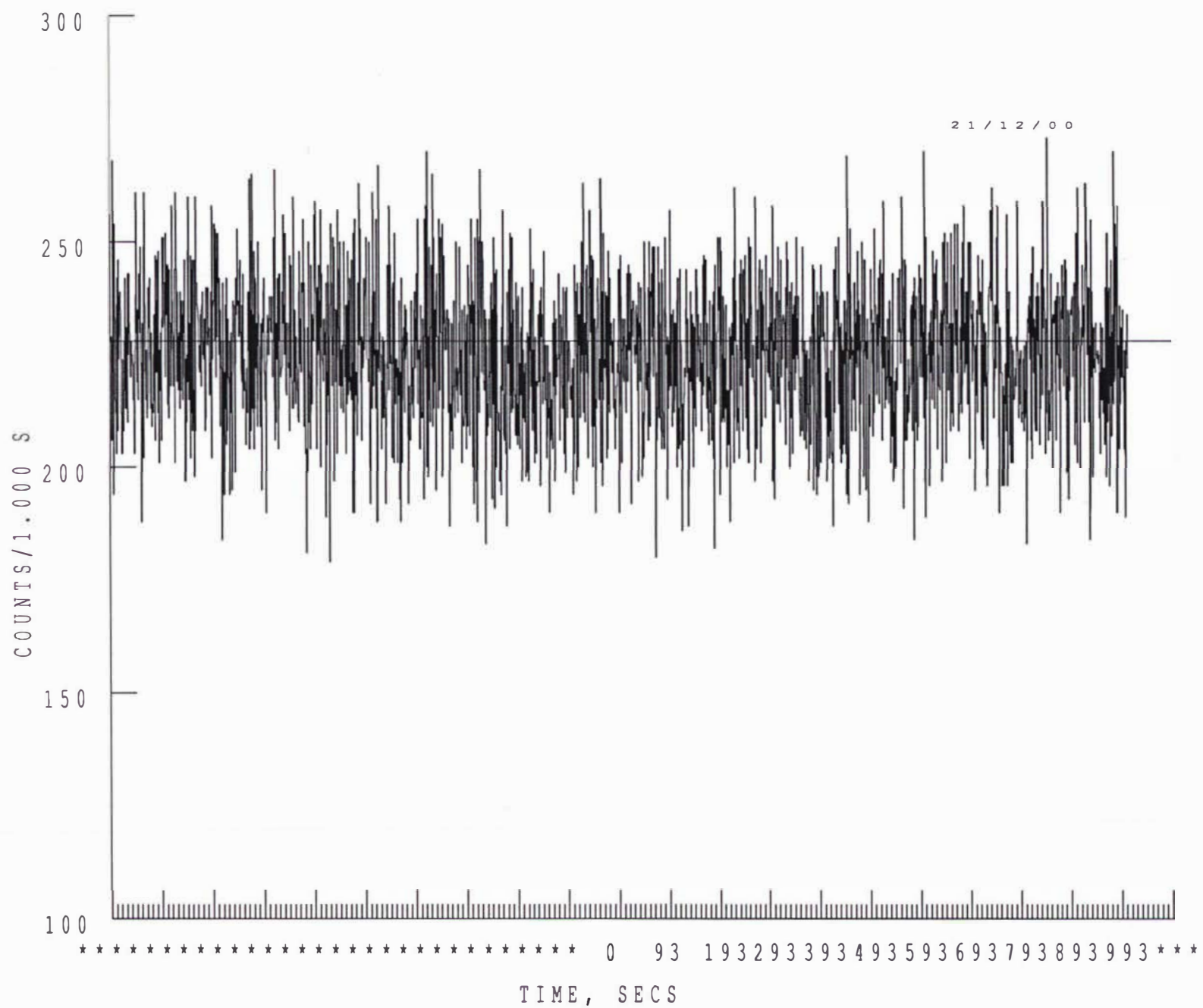
H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

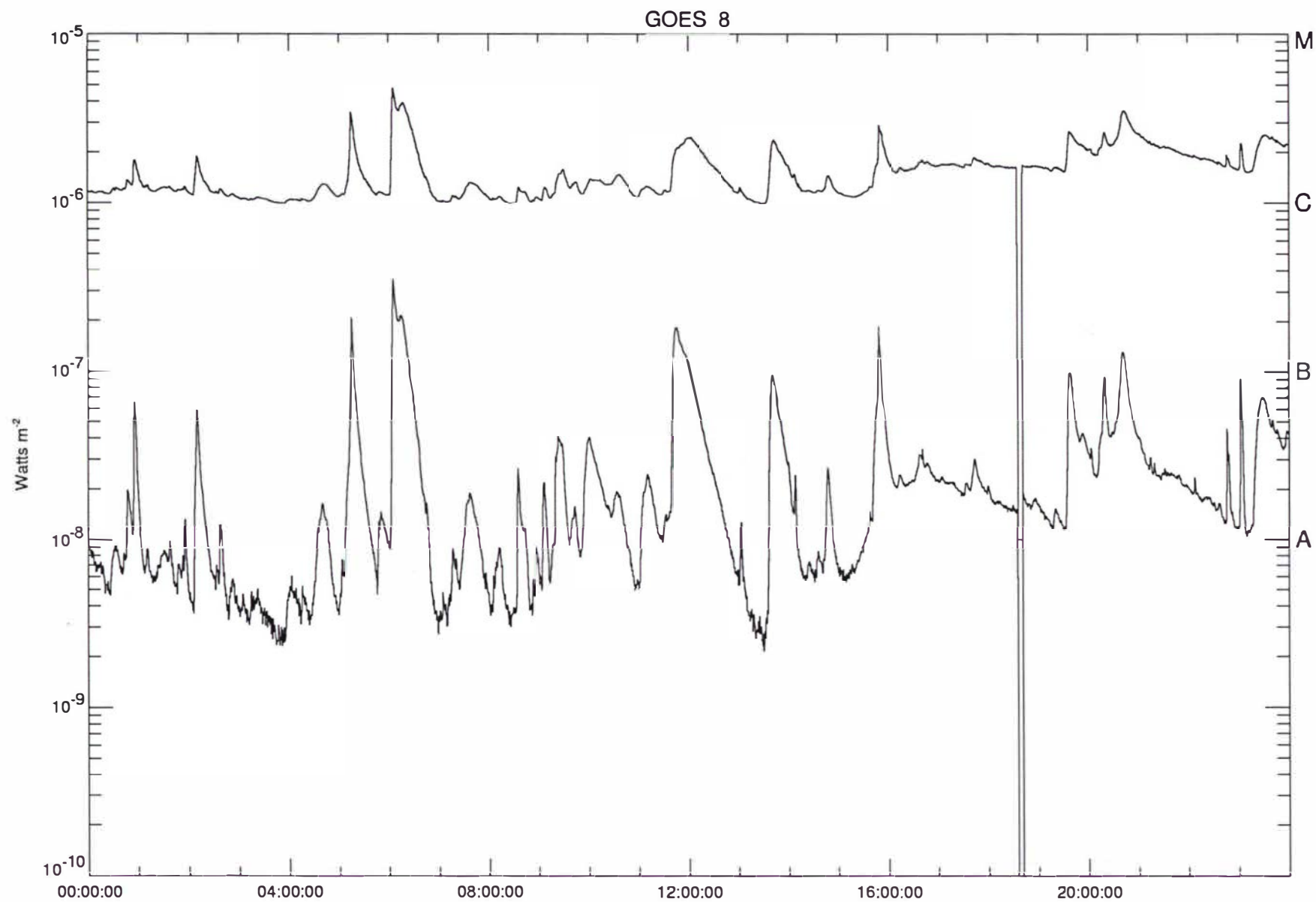


NEAR

20/12/00 44733.892

100-1000 keV





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

Channel

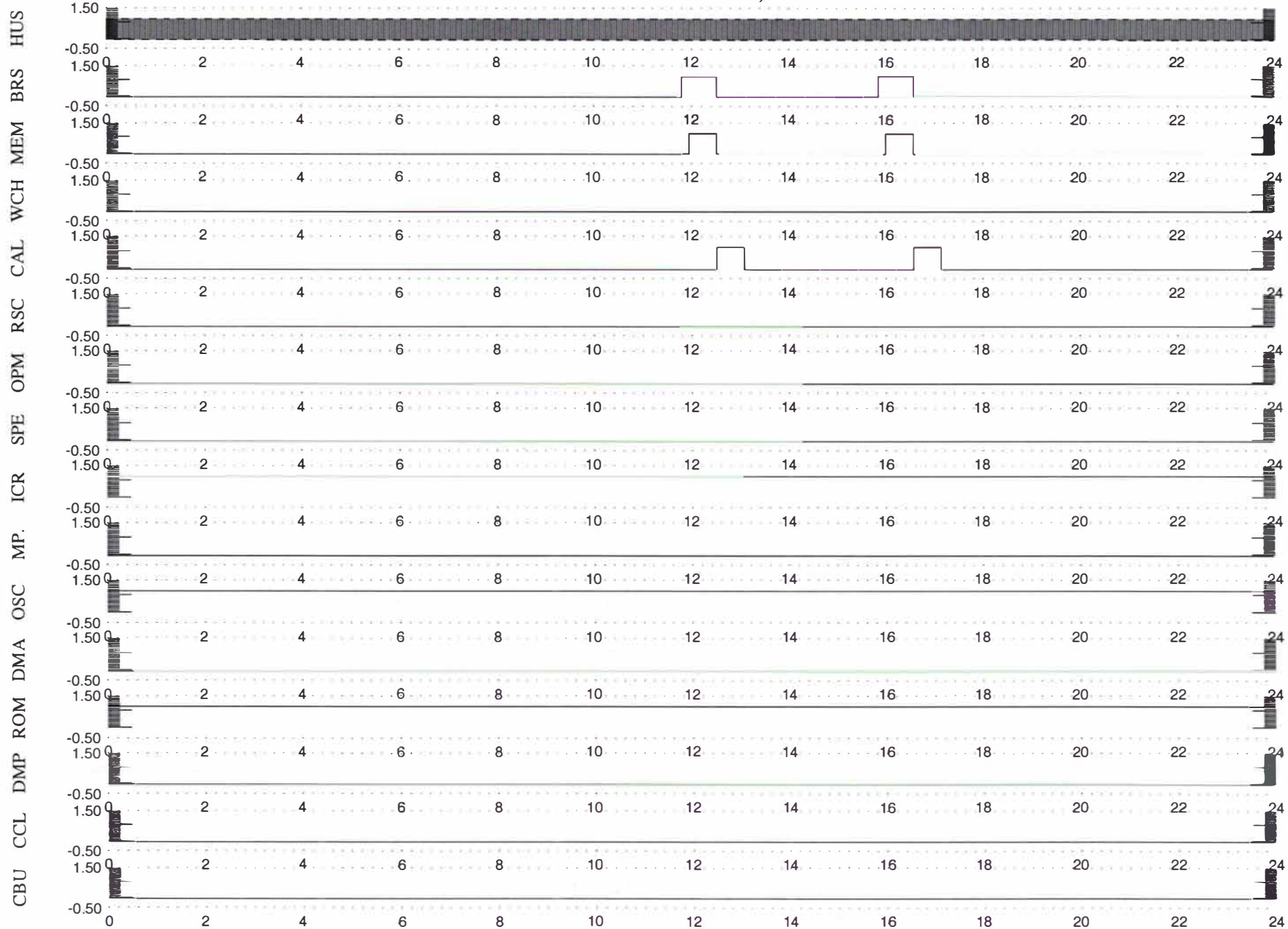
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

Plot created: 00/12/24, 1057

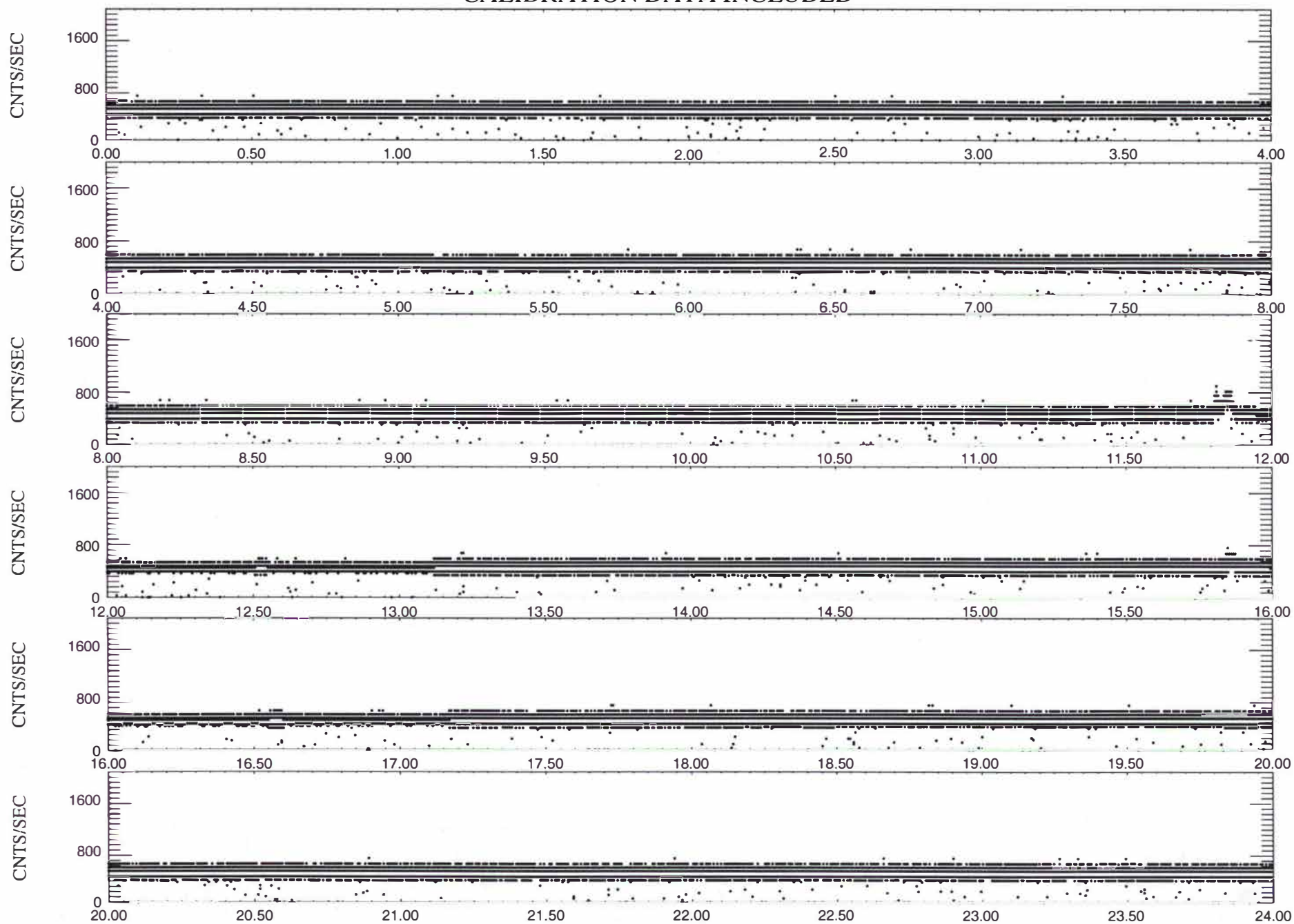
Sample average = 10

BURST NUMBER 8, 9



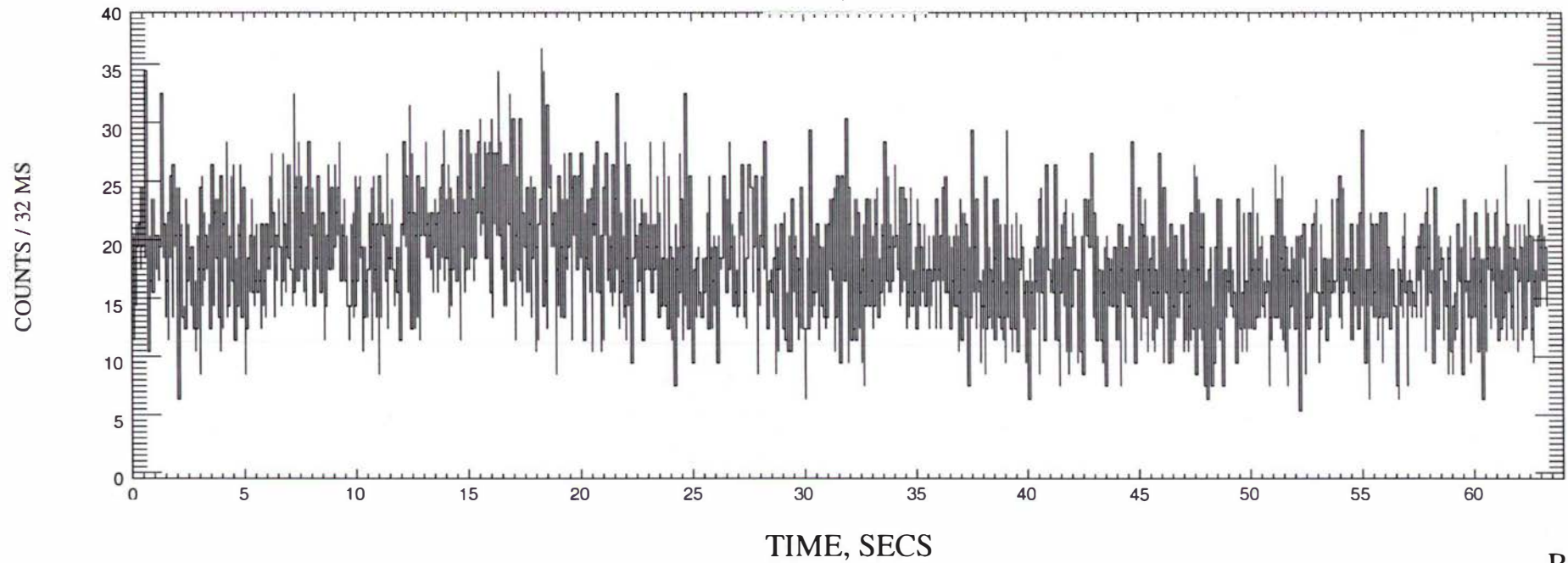
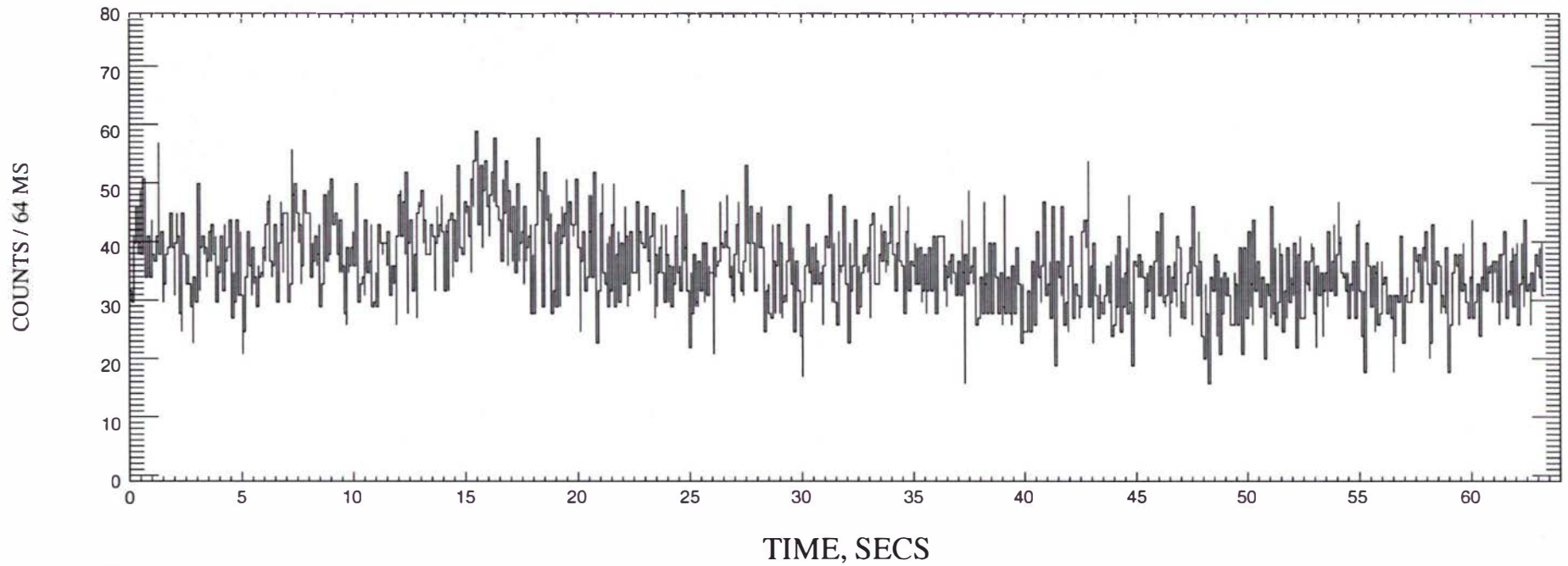
UNIVERSAL TIME

CALIBRATION DATA INCLUDED

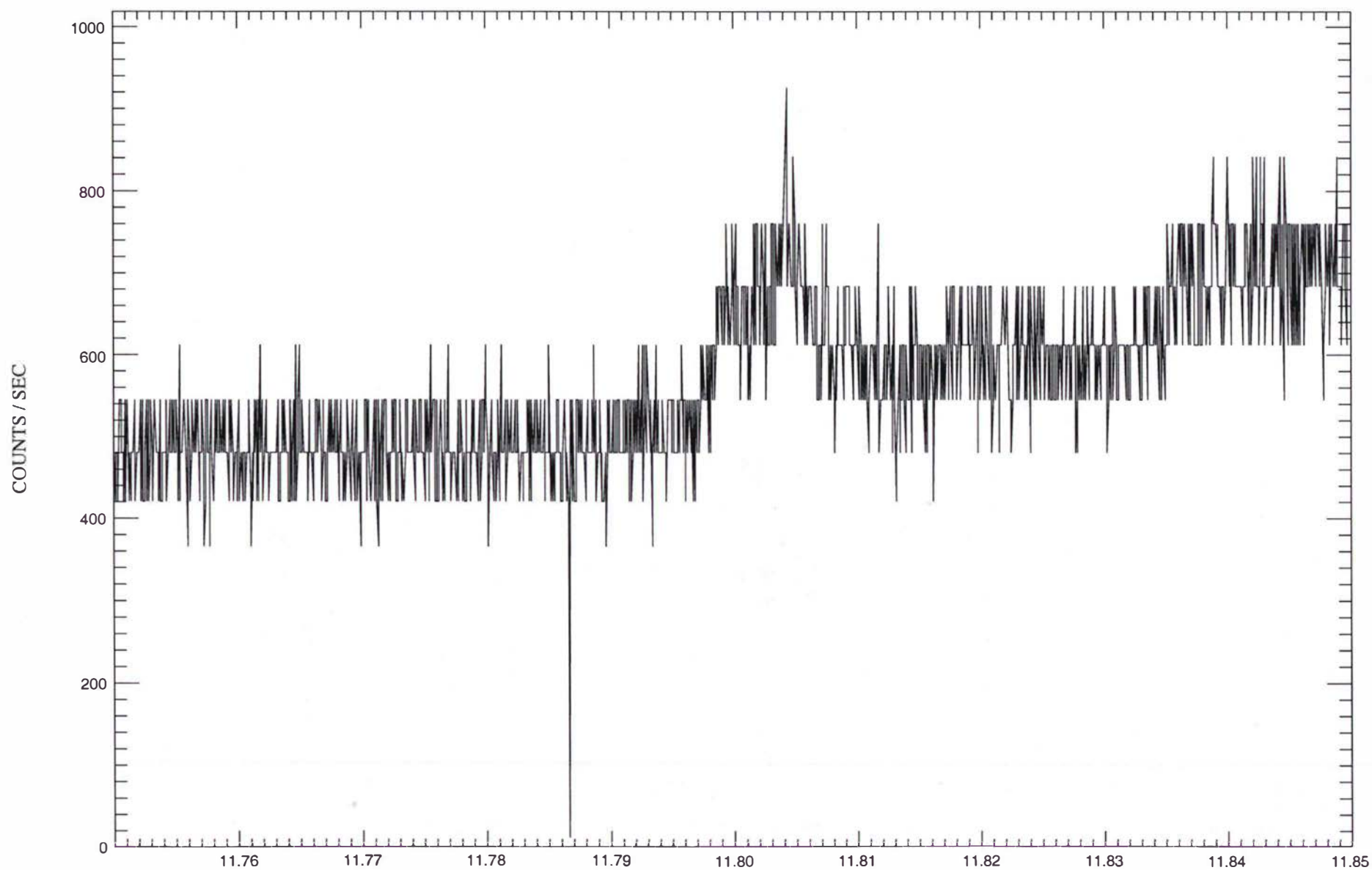


UNIVRSAL TIME

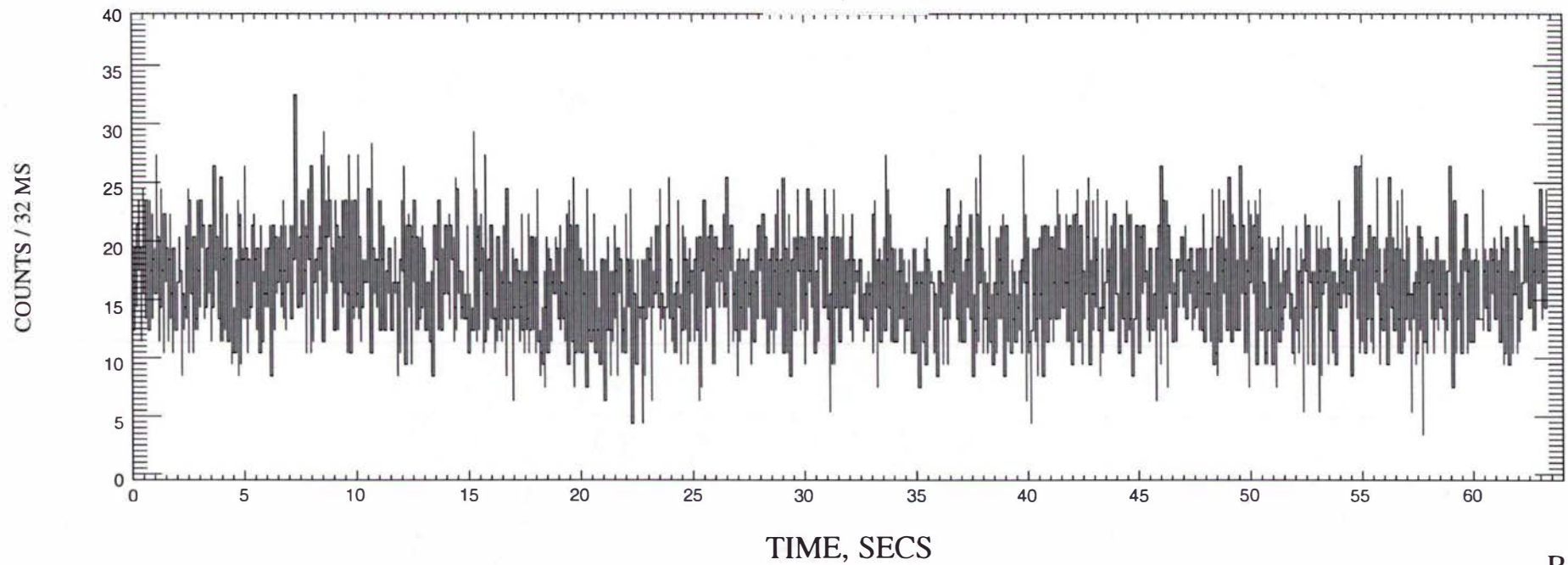
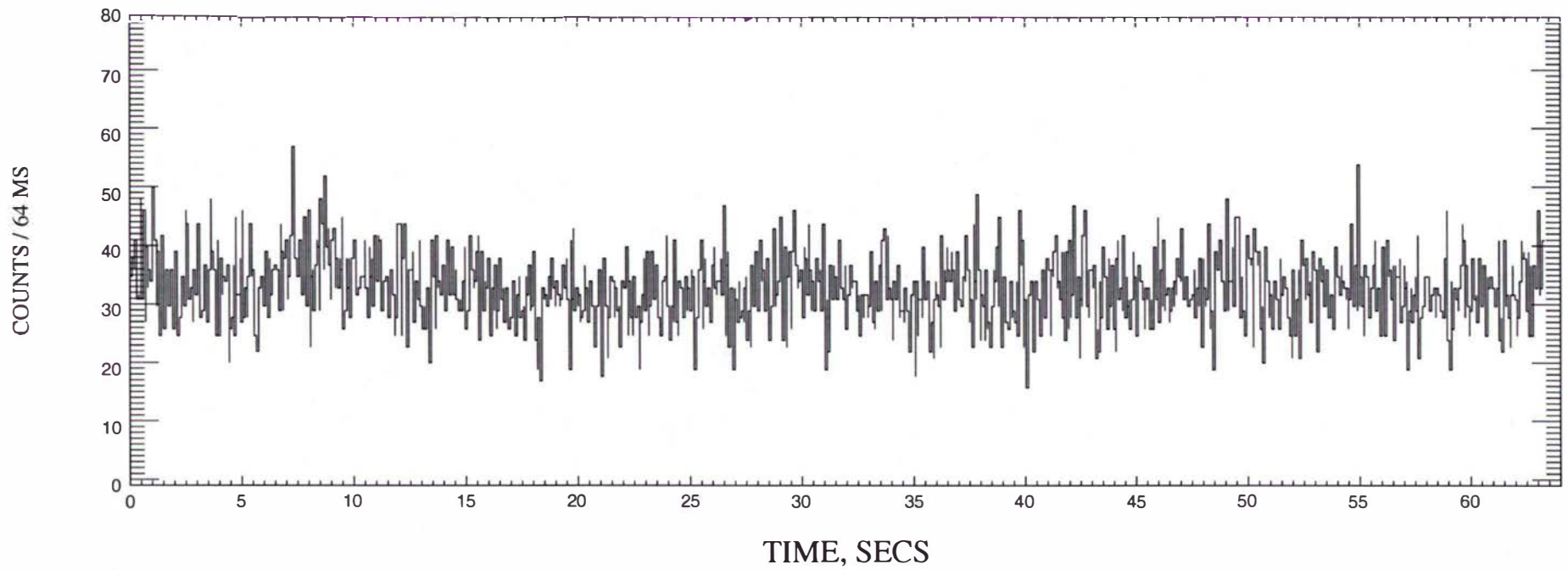
Burst Counter 8 at UT=11.801943808662 h=42486.998 s 11:48:06.998



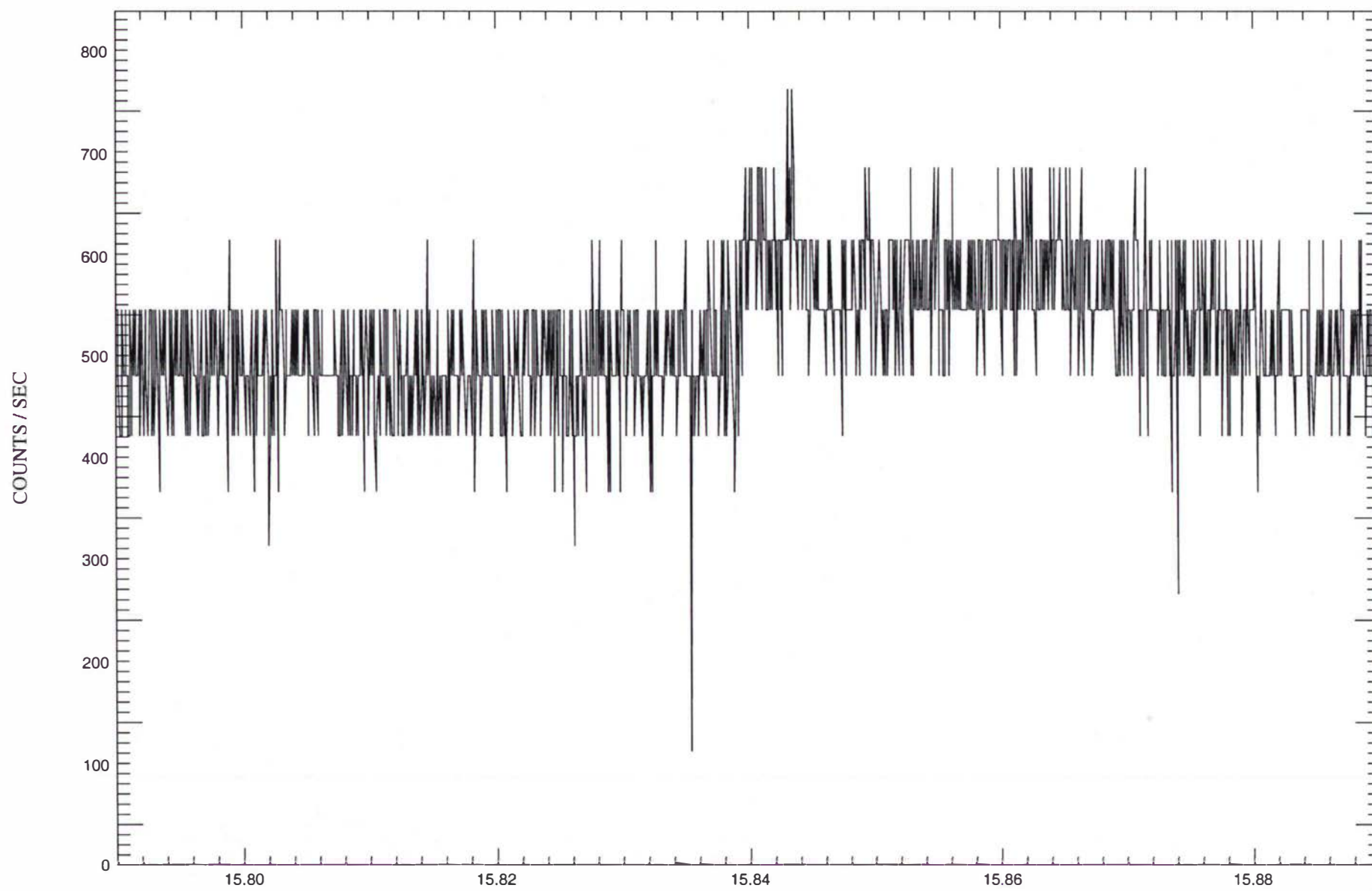
CALIBRATION DATA INCLUDED

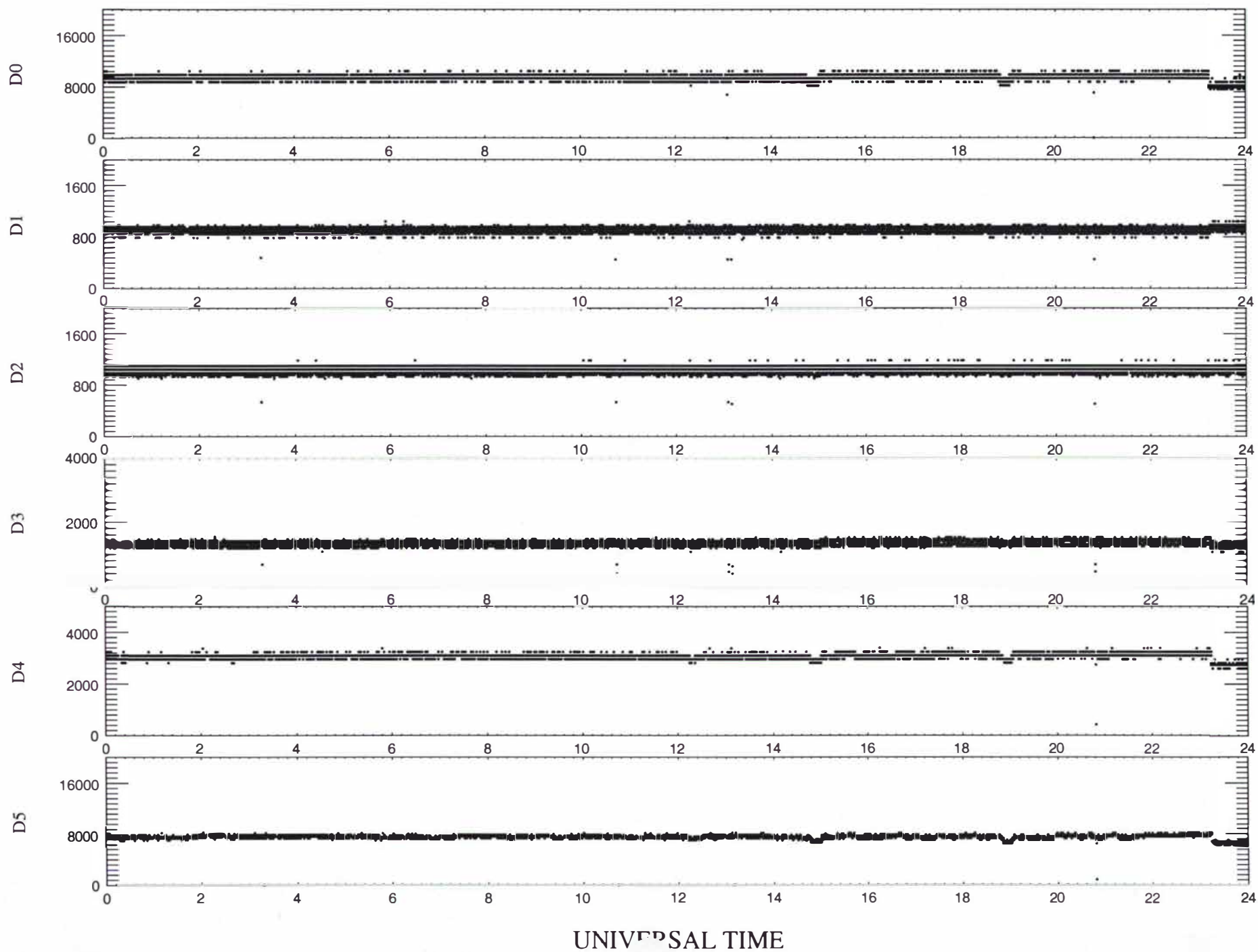


Burst Counter 9 at UT=15.843152470059 h=57035.349 s 15:50:35.349



CALIBRATION DATA INCLUDED





KONUS RI 20001221 80124

ULYSSES RT

02/05/01

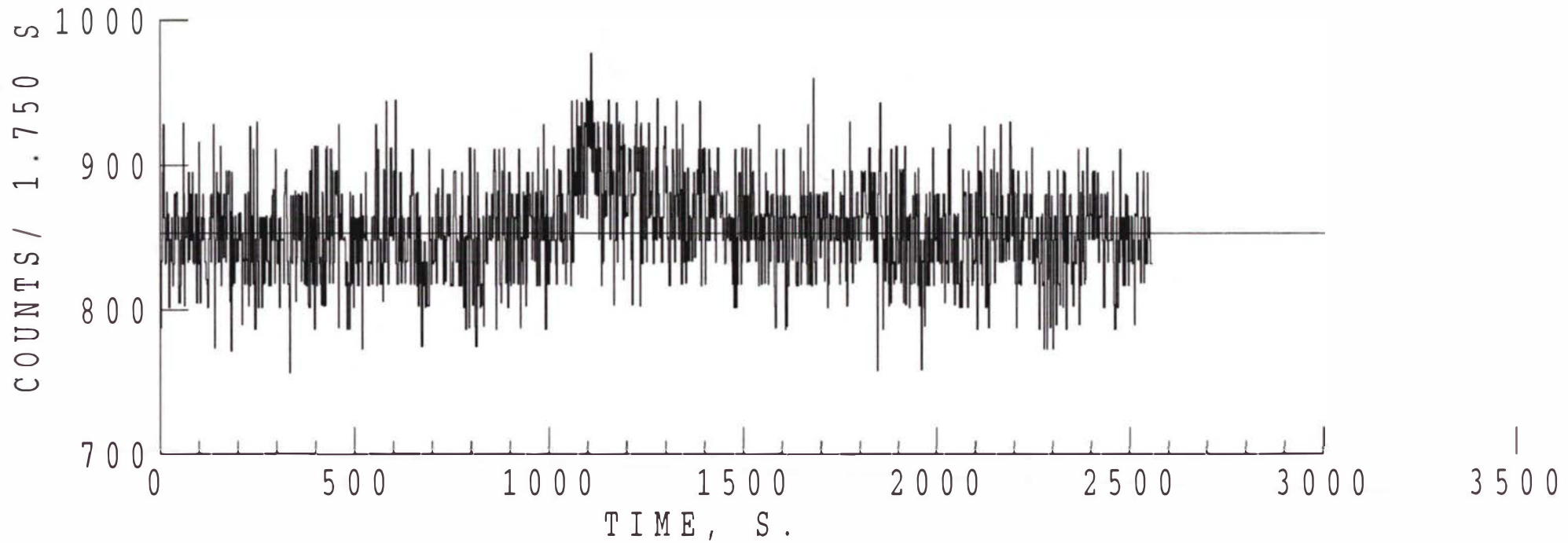
21/12/00 78840.031 s

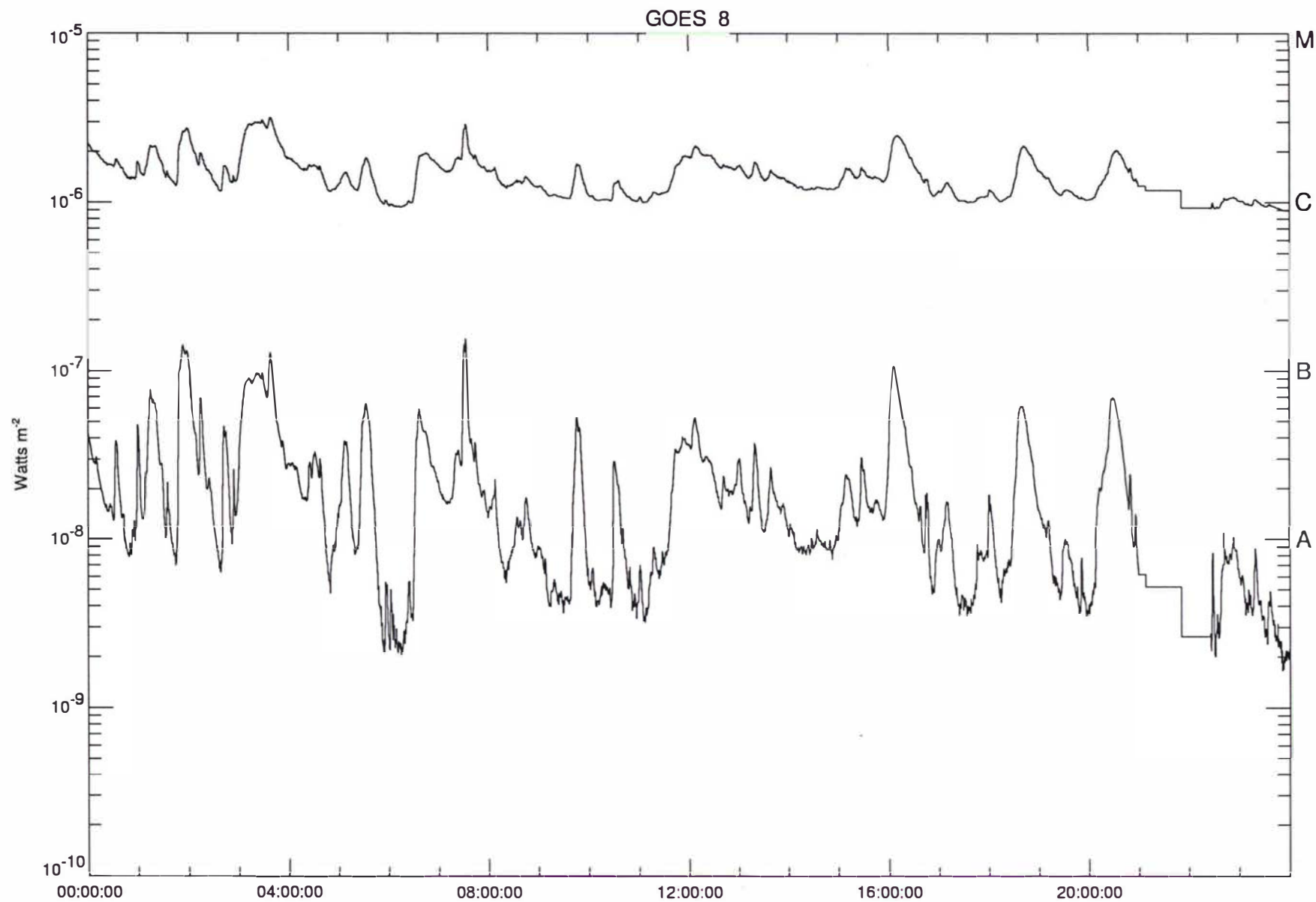
0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

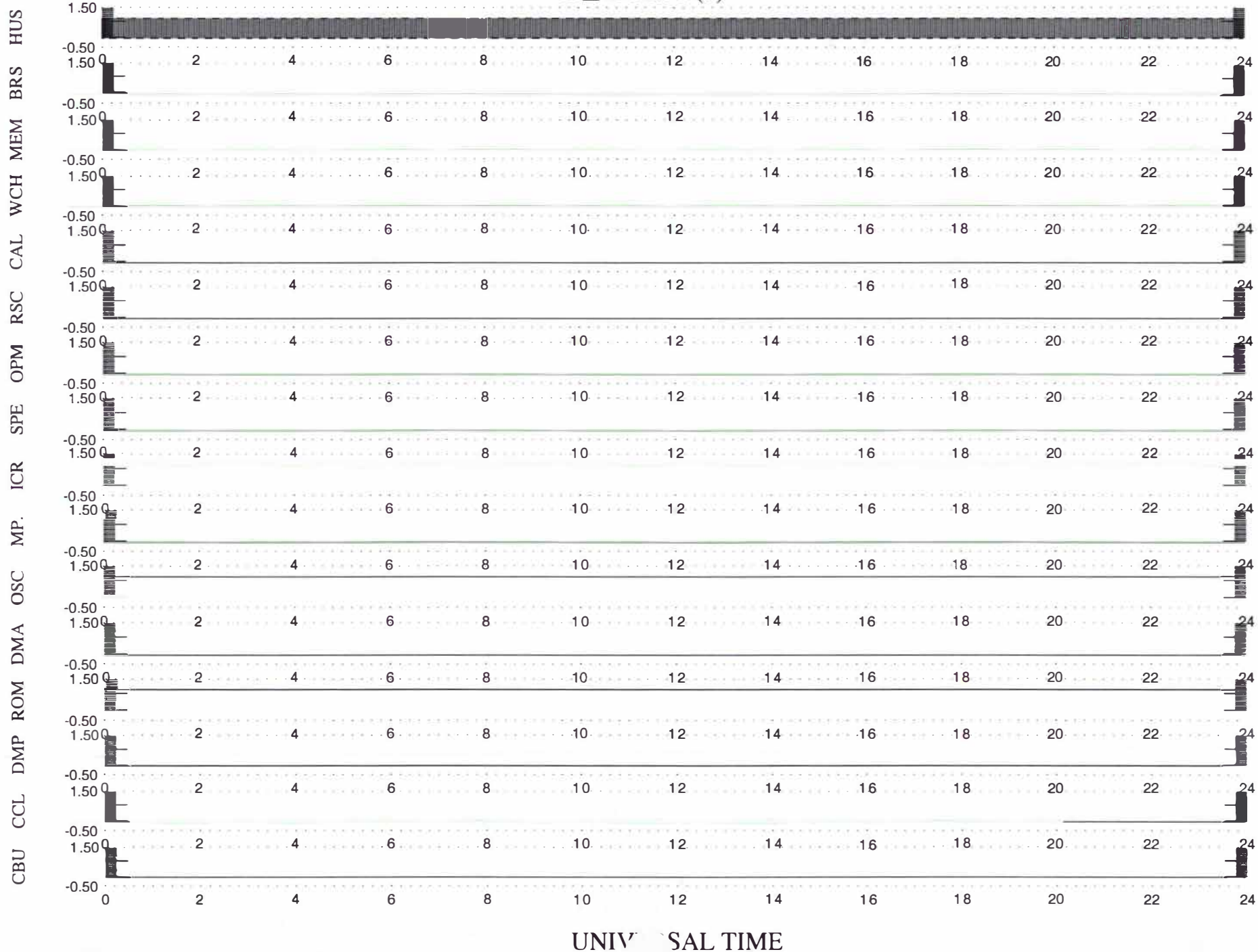
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

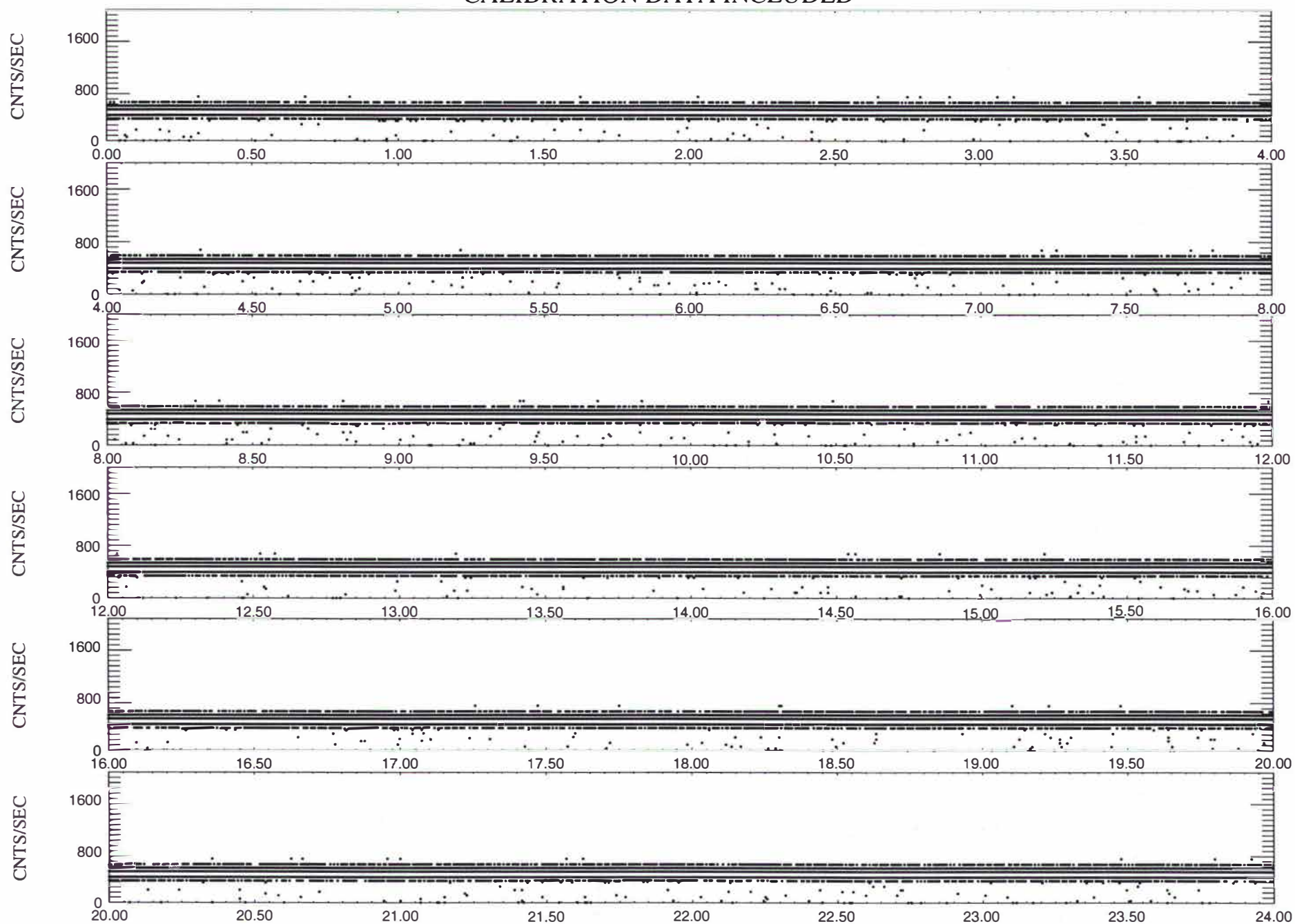
Plot created: 00/12/25, 1056

Sample average = 10

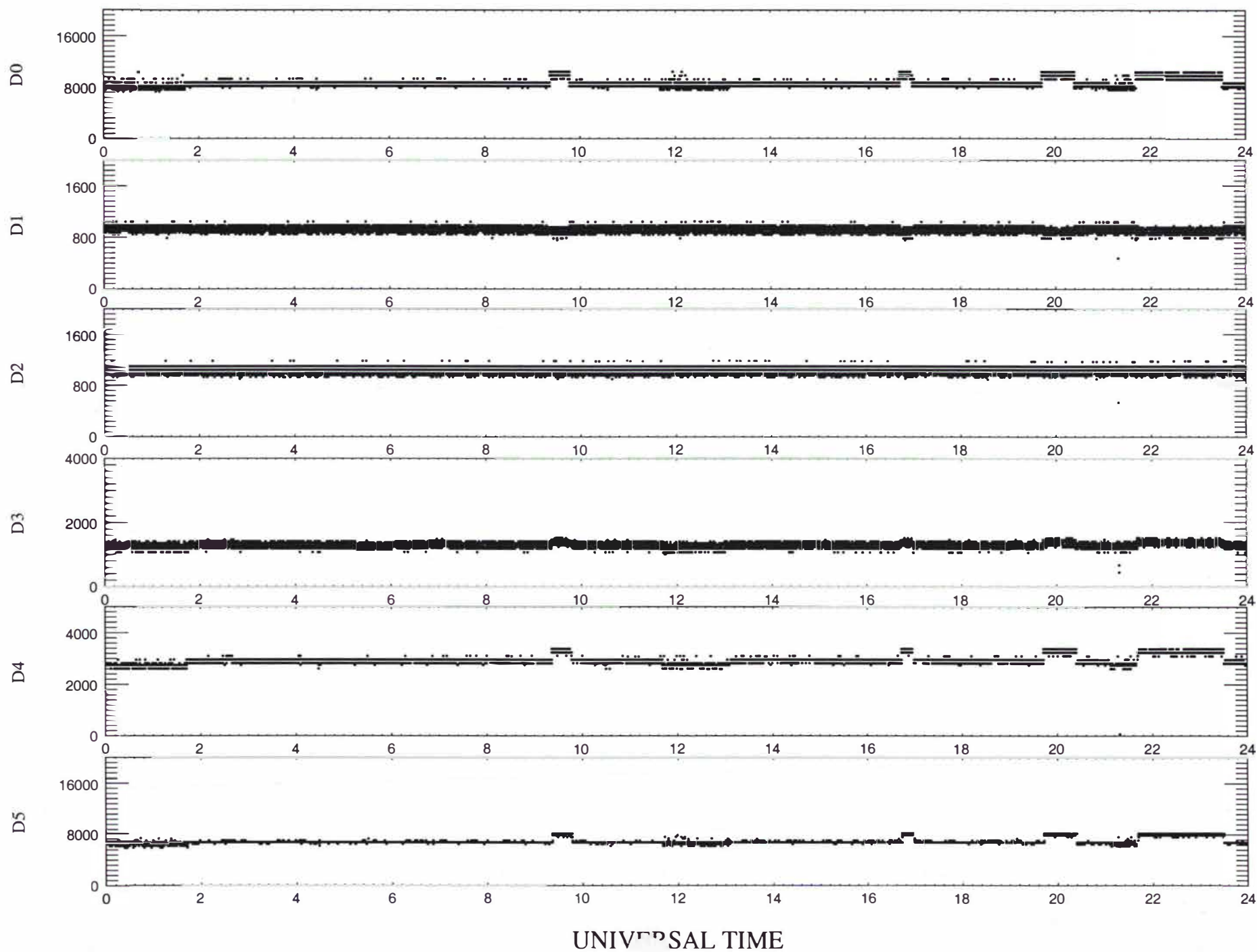
NO BURST (9)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



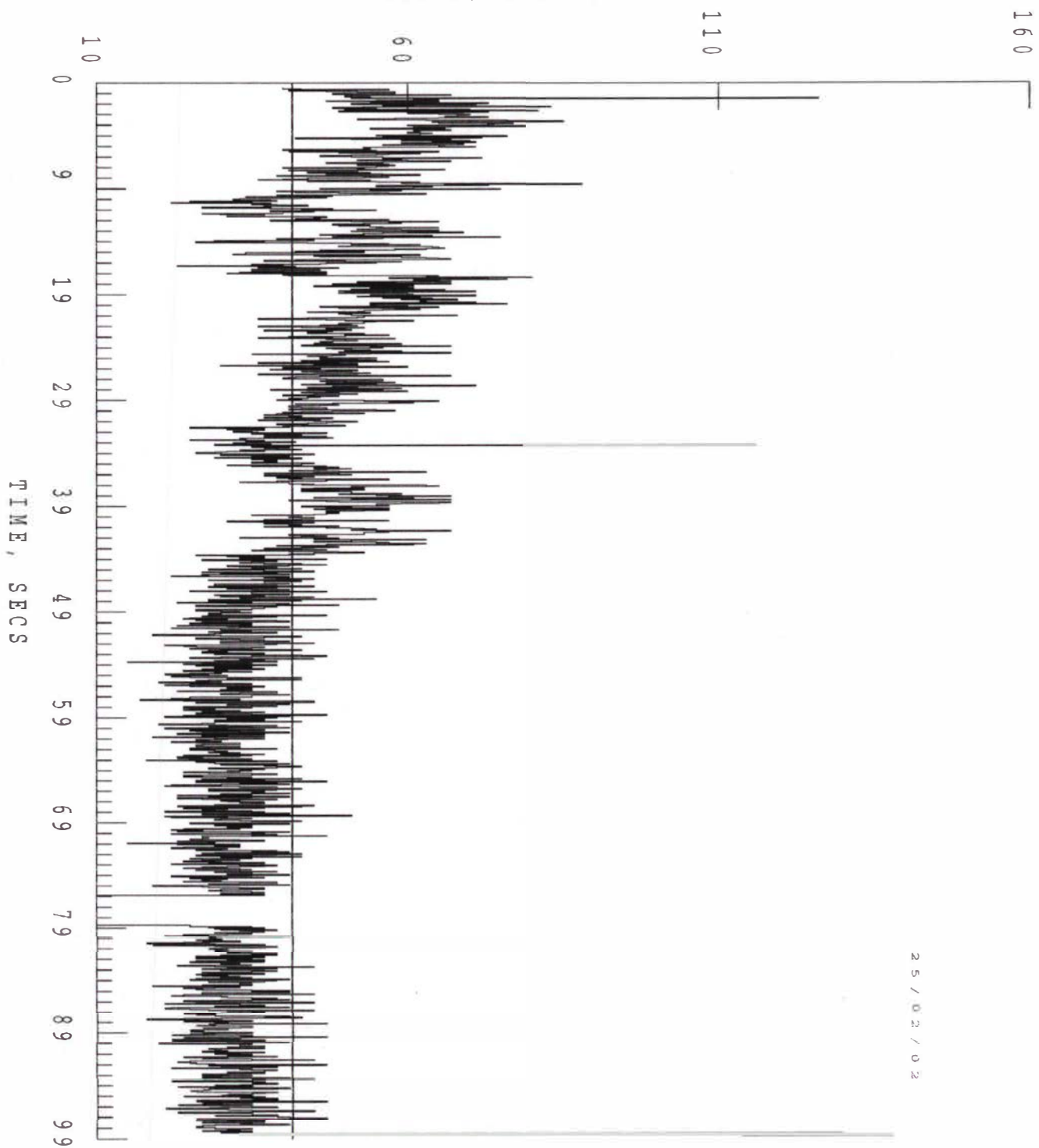
KONUS2

22/12/00

7131.483

50 - 200 keV

COUNTS/0.064 S



KONUS2 20001222 0713 L

ULYSSES RT

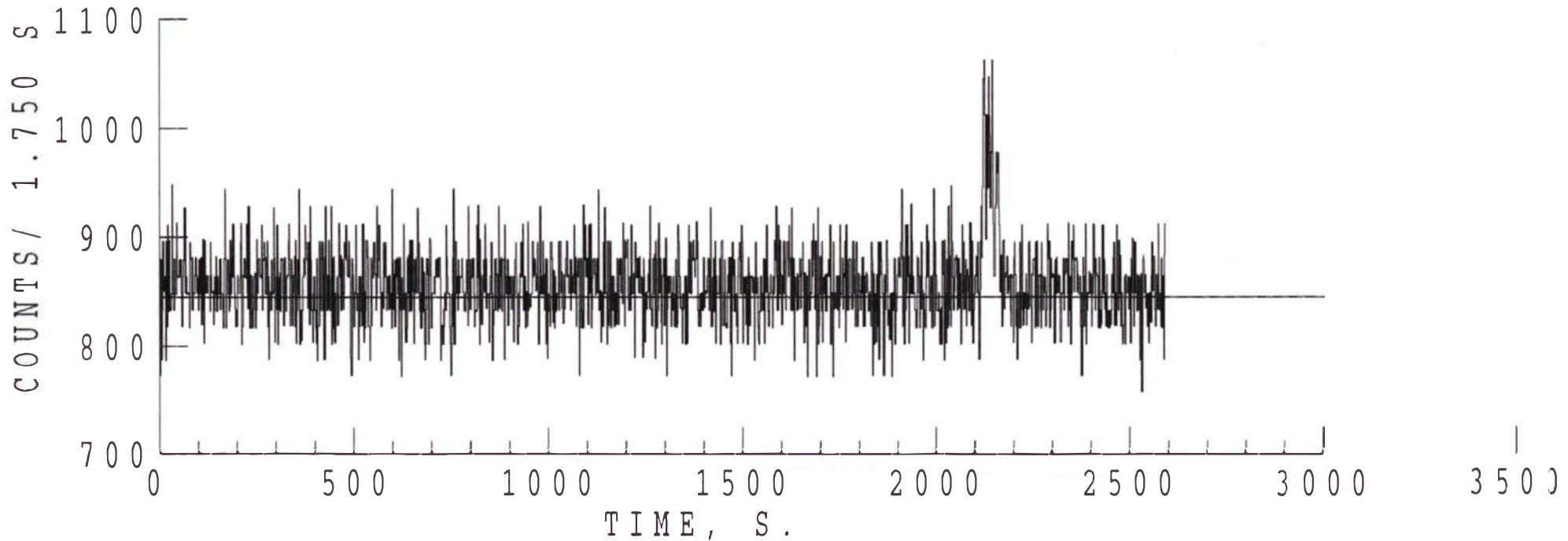
25 / 02 / 02

22 / 12 / 00 5832.241 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 W= 2
>4.0 SIGMA FLUCTUATIONS

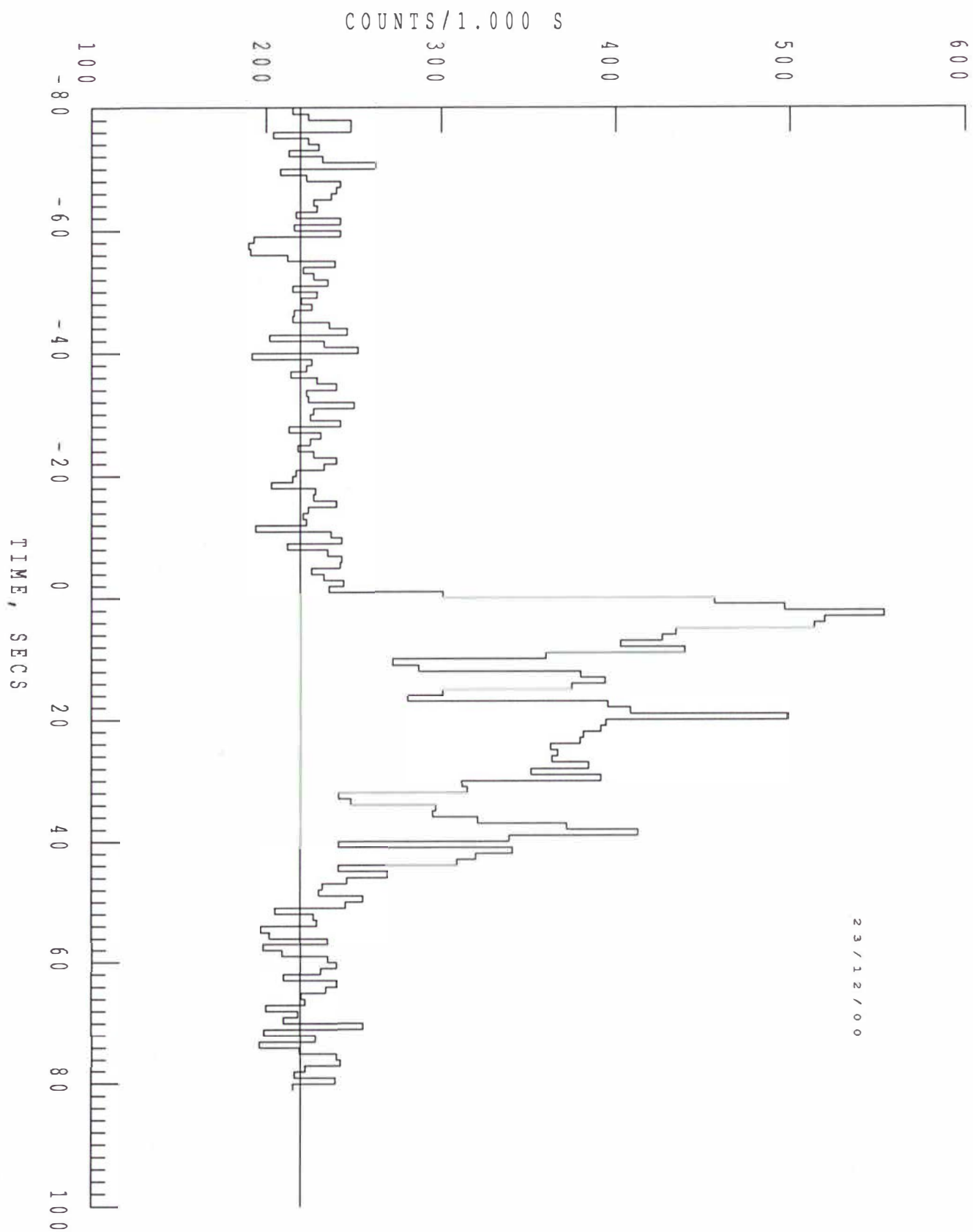


NEAR

22/12/00

7945.844

100-1000 keV



HETE RI 20001222 64620

ULYSSES RT

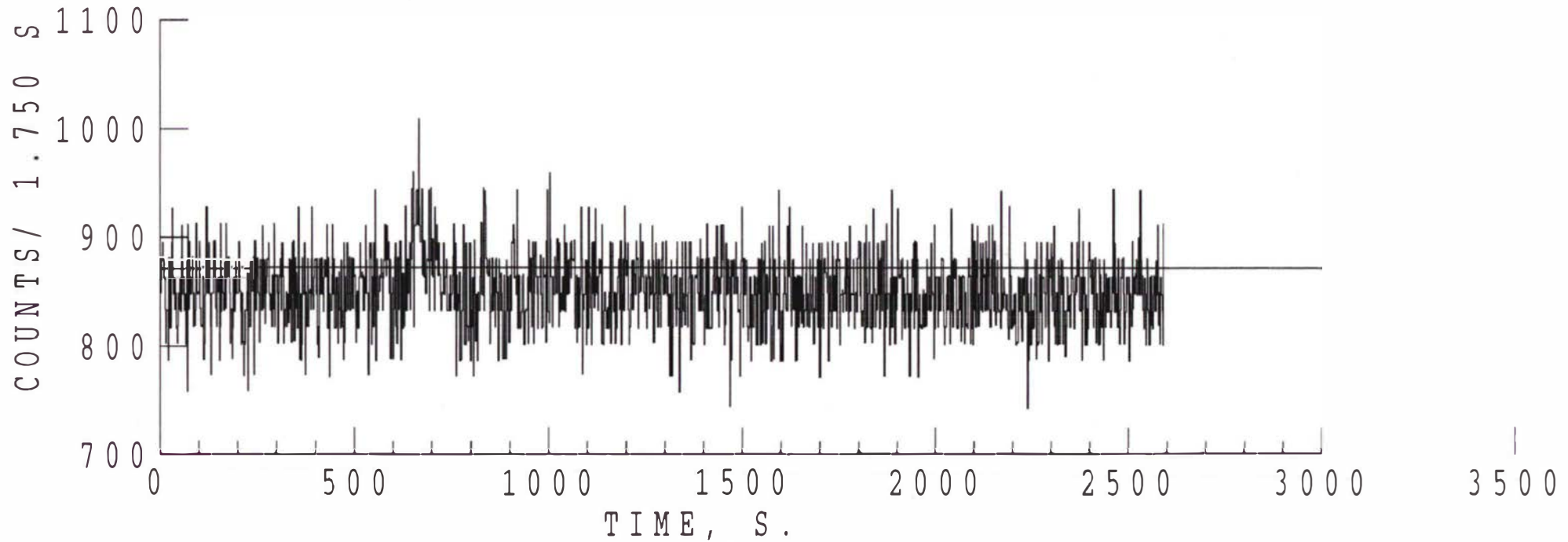
03 / 05 / 01

22 / 12 / 00 63324.137 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



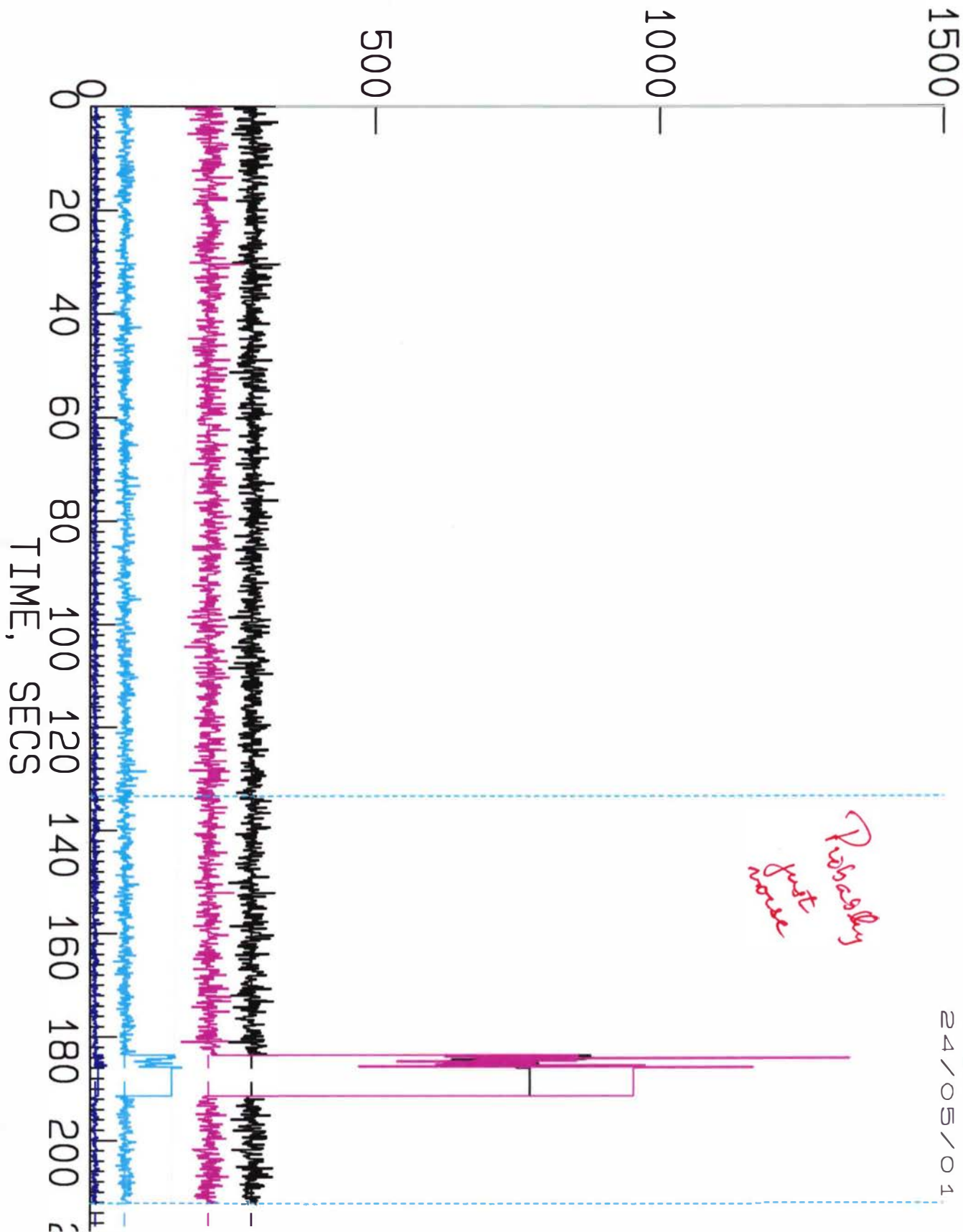
HETE-II

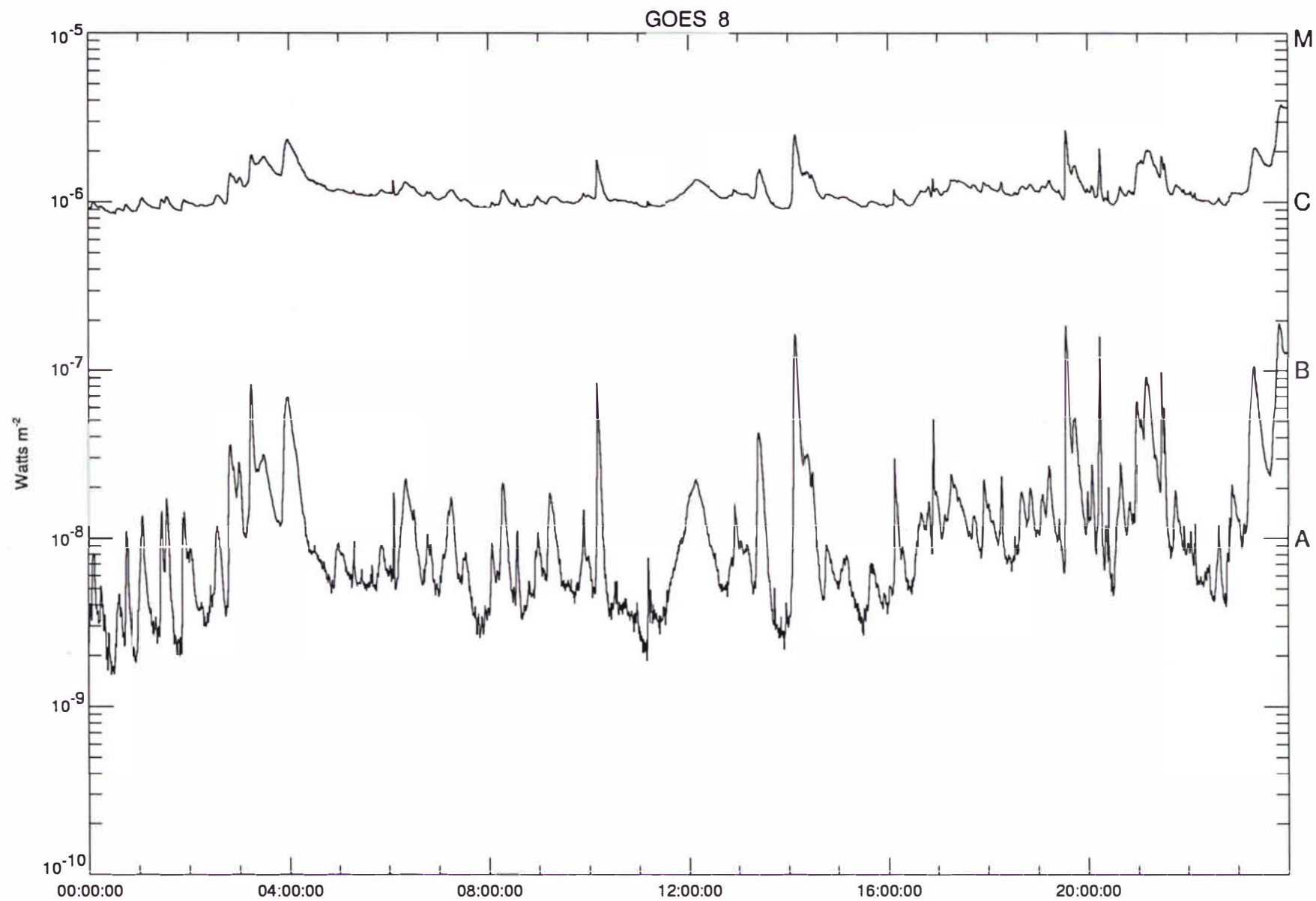
22/12/00 64329.894

18- 103 keV 18- 78 keV 20- 510 keV 510-1000 keV

COUNTS/0.164 S

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

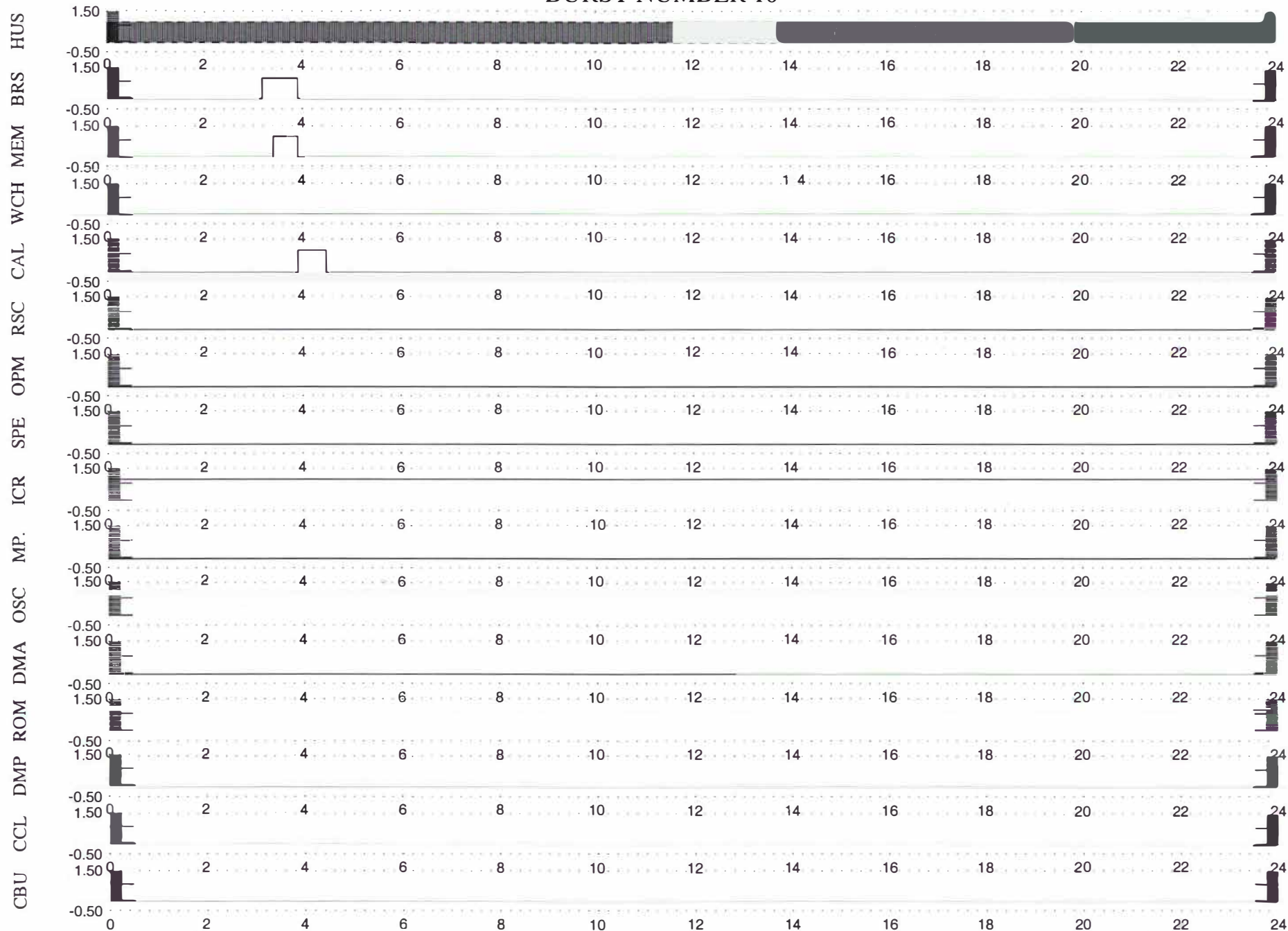
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

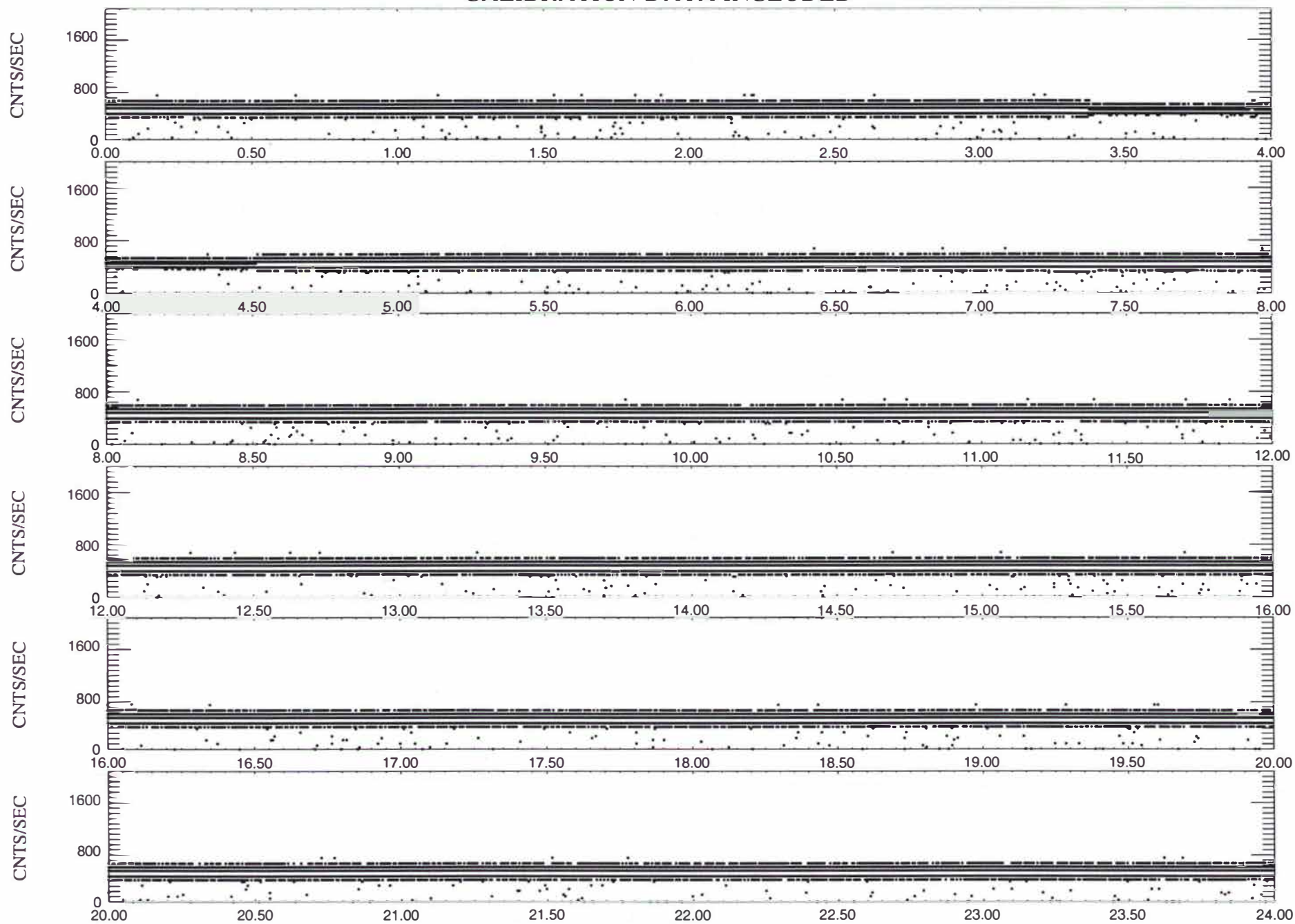
Plot created: 00/12/26, 1057

Sample average = 10

UNIVERSAL TIME

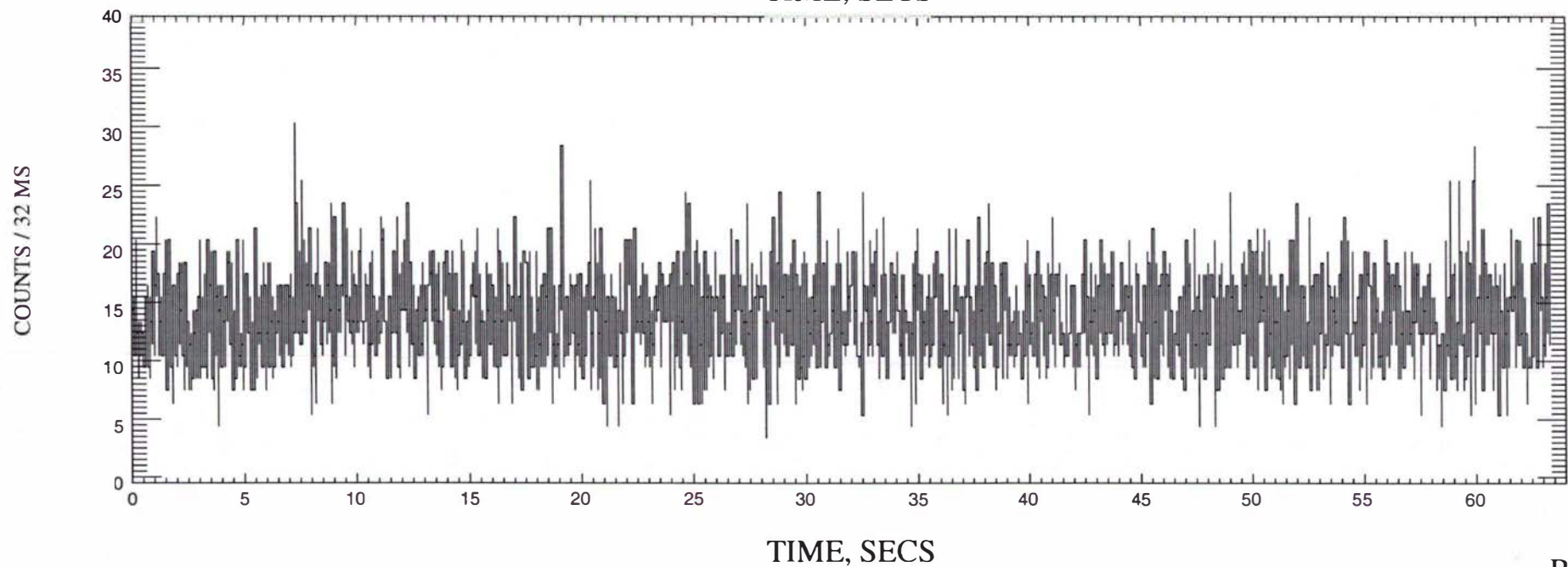
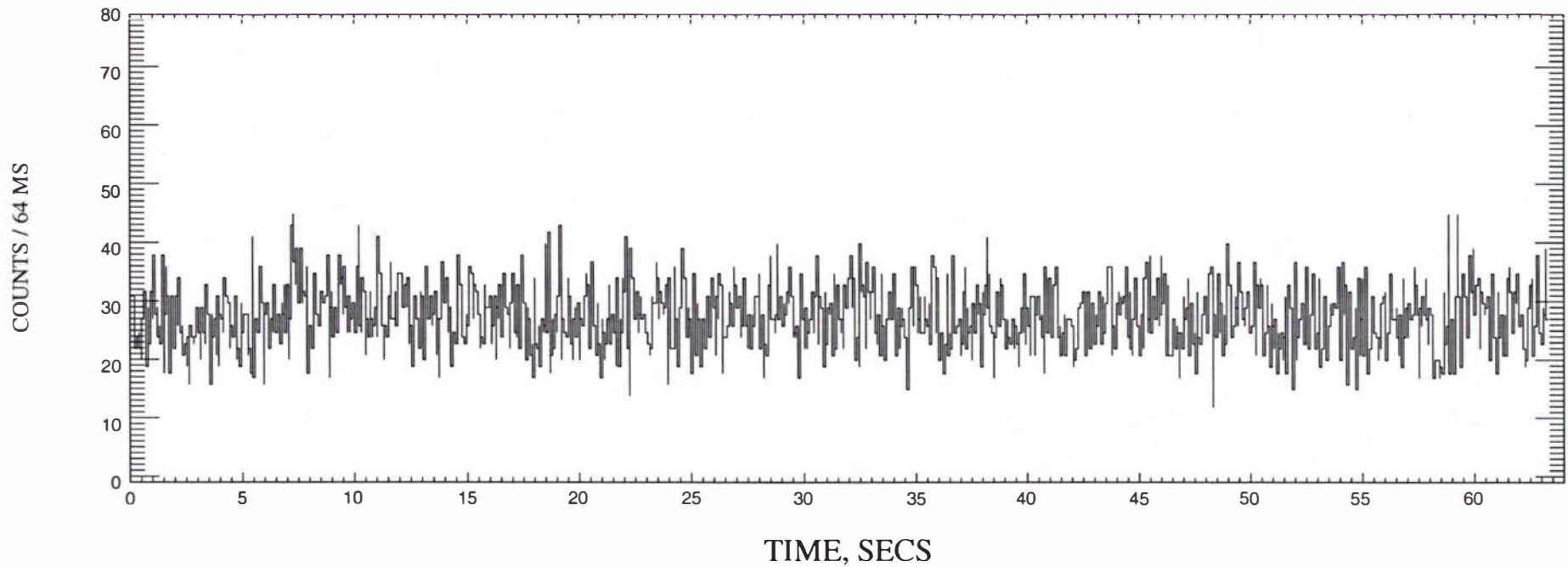


CALIBRATION DATA INCLUDED

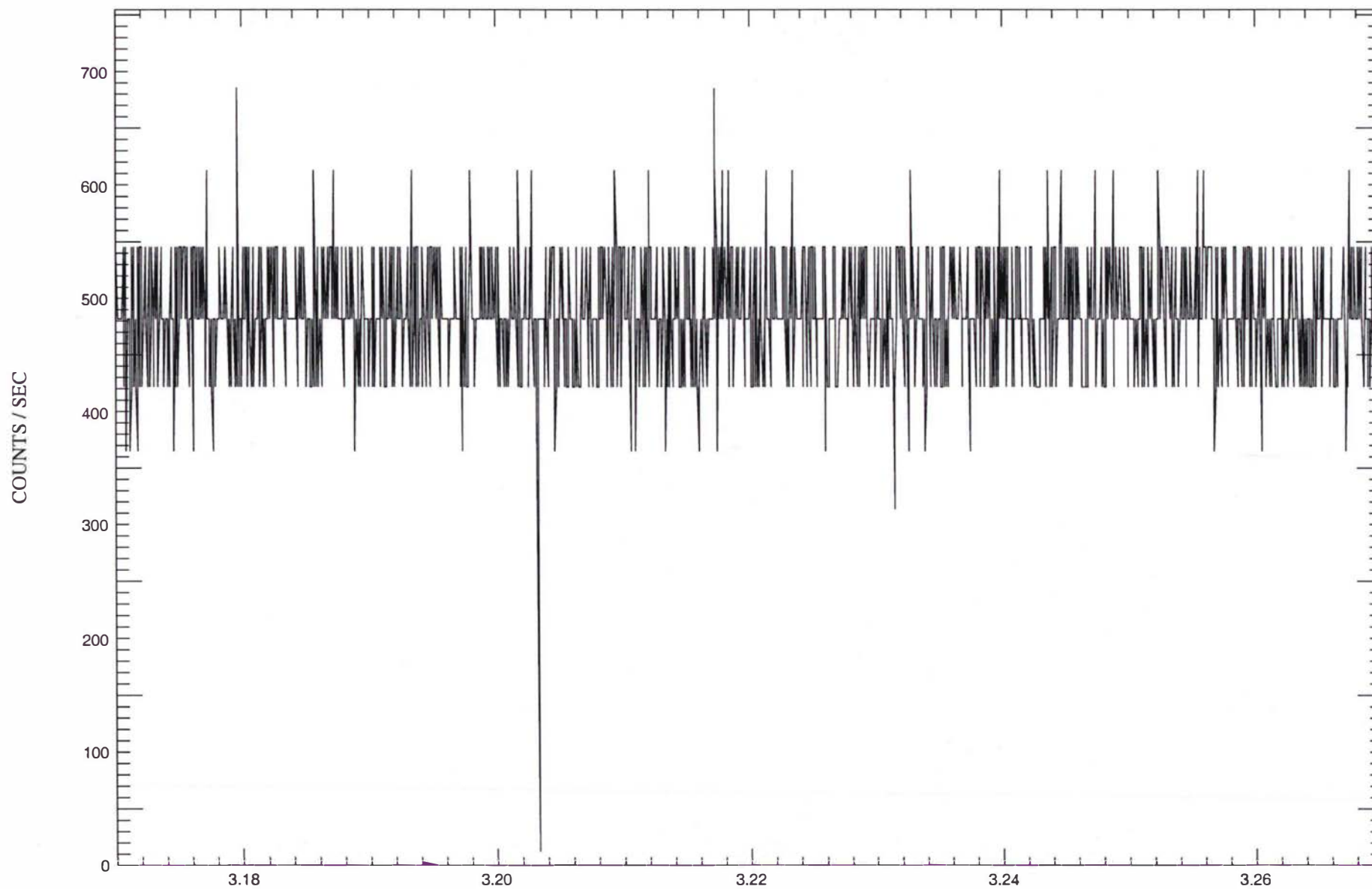


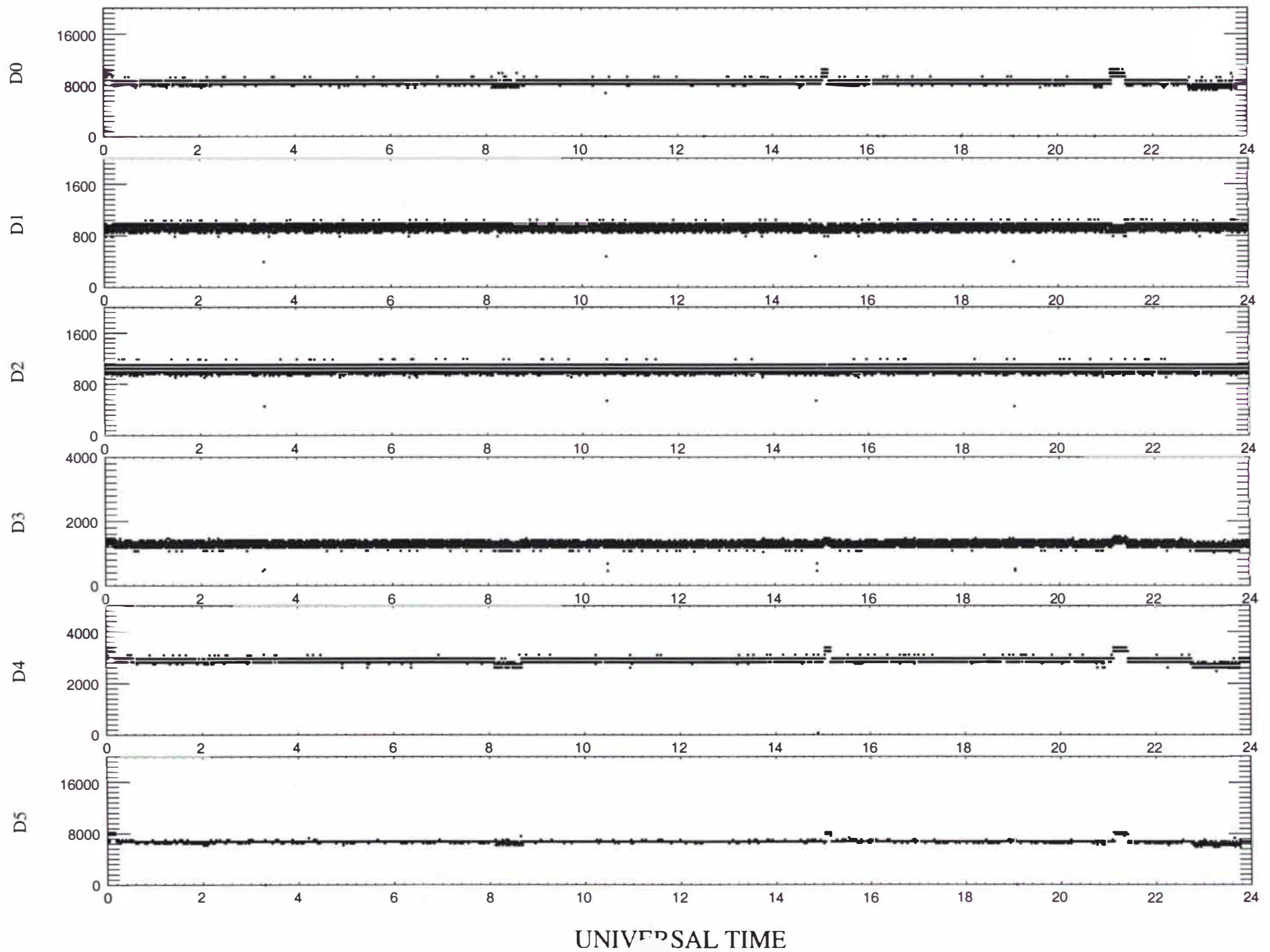
UNIVERSAL TIME

Burst Counter 10 at UT= 3.217346106635 h=11582.446 s 03:13:02.446



CALIBRATION DATA INCLUDED



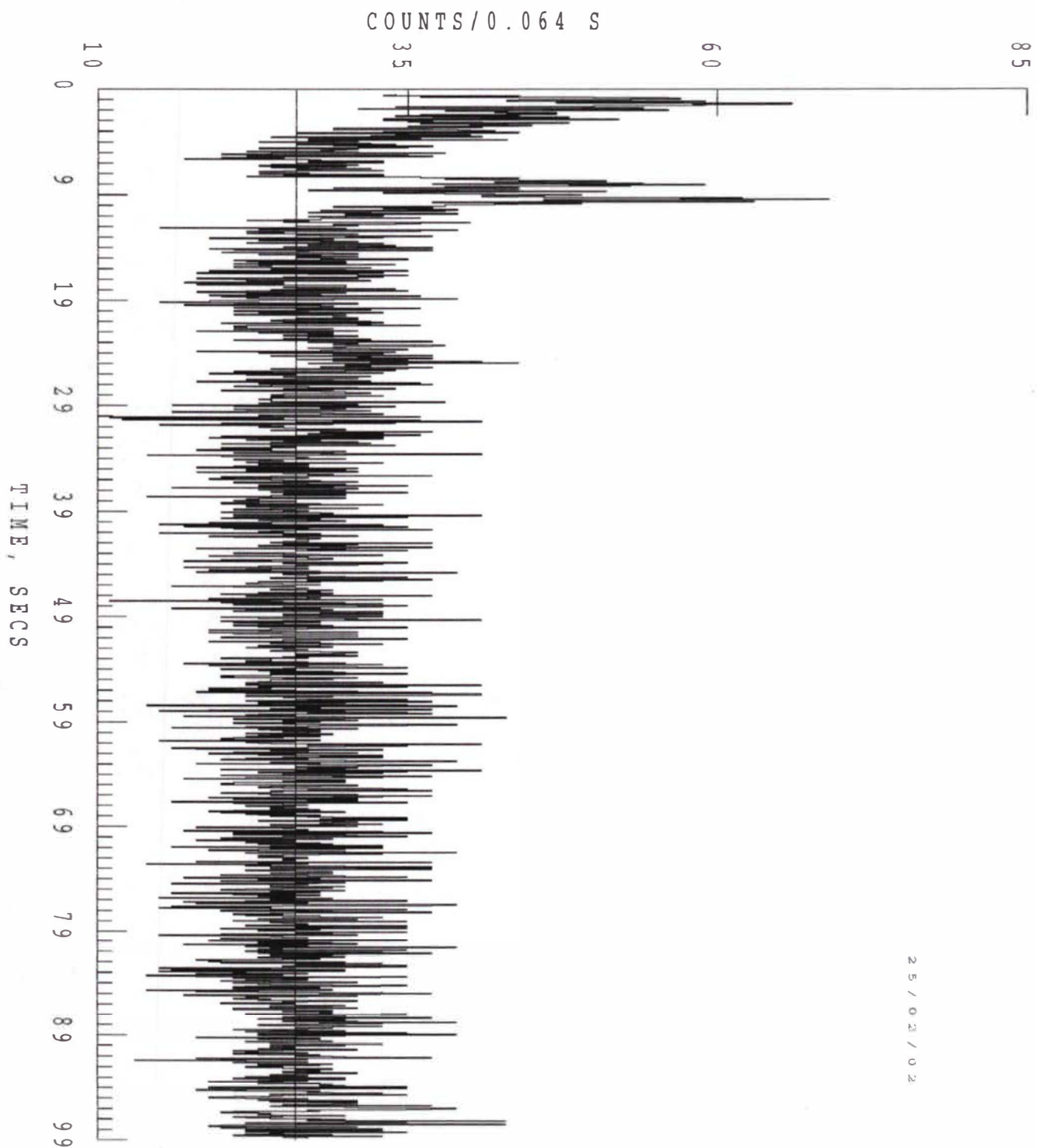


KONUS1

23/12/00

51723.645

50 - 200 keV



KONUS1 20001223 51723

ULYSSES RT

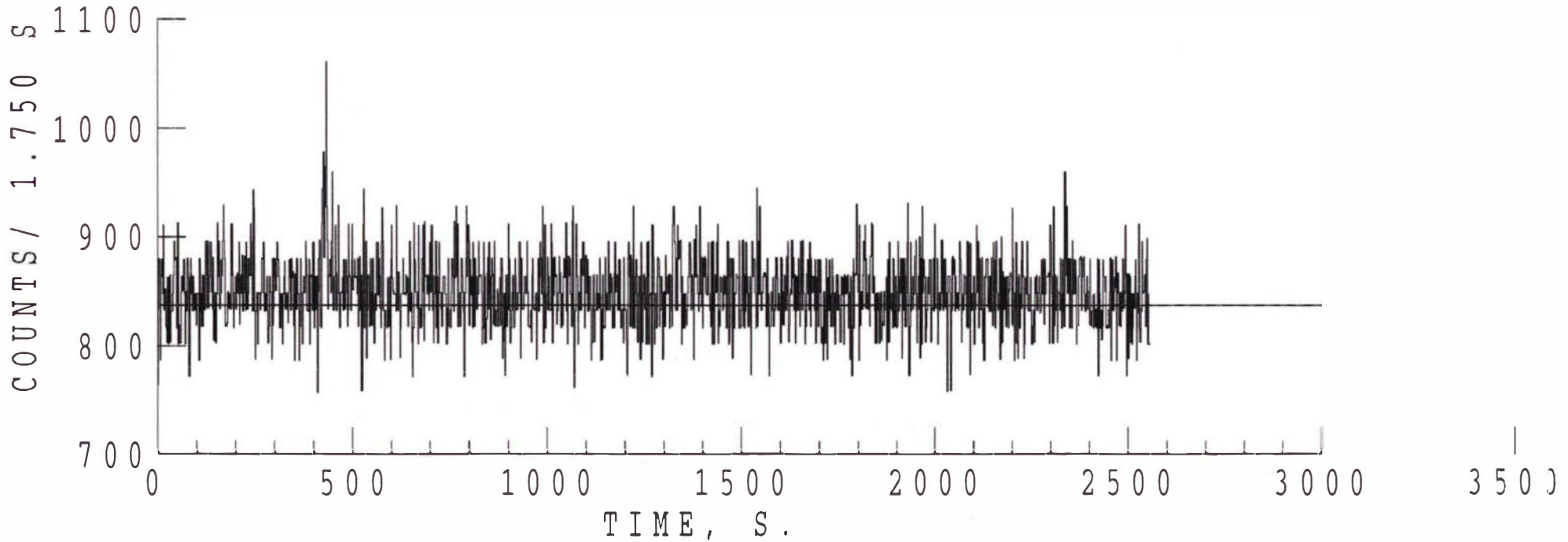
25 / 02 / 02

23 / 12 / 00 50436.023 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



FREGATE SURVEY (TH) TIME HISTORY (AVG x1) -- DETECTORS 1-4 SUMMED (KONUS_20001223_51723)

BEG TIME: 23/12/00 DOY 358 Julian 2451903.08375 UT = 14.010 14:00:36 (50436.000 secs) [sct = 0019 36bf ede3 7c26]
 END TIME: 23/12/00 DOY 358 Julian 2451903.11333 UT = 14.720 14:43:12 (52992.000 secs) [sct = 0019 36c0 863d 27fc]

Chan 1:[E1=18 E2=103]

Chan 2:[E3=18 E4=78]

Chan 3:[E5=20 E6=510]

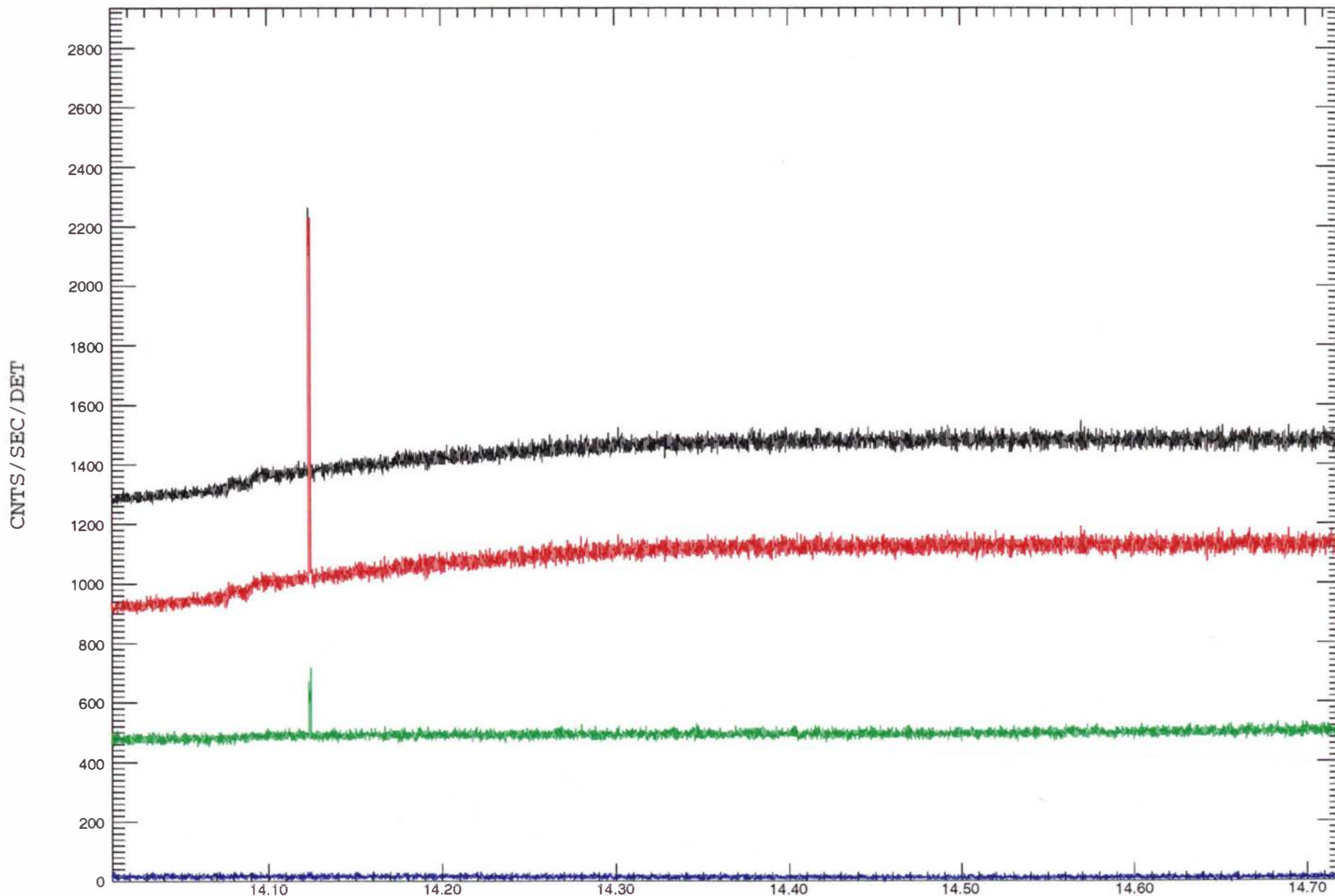
Chan 4:[E6=510 ->]

Channel 1 + 1200

Channel 2 + 800

Channel 3 + 400

Channel 4 + 0



From guidorzi@fe.infn.it Sat Dec 23 17:51 PST 2000
 From: Auto GRB monitor@fe.infn.it
 Subject: GRBM/SAX Trigger S/W Alert
 Date: Sun, 24 Dec 2000 02:50:04 +0100 (MET)

1kGRB[154] #LSs: 1 Good HRR: 0
 SW Trigger Time (OBT): 61261.903
 UTC: Sat, 23 Dec 2000 23:06:40:87075

Nsig(trg):	3.4	2.4	4.3	0.2	3.1	0.8	3.1	0.0
Nsig(pfl):	3.4	0.0	4.3	0.0	3.1	0.0	3.1	0.0
Bkg lev. :	790	900	803	728	980	975	927	972
ChiSq R. :	0.978	1.019	0.937	0.915	1.073	0.853	0.872	0.817

Peak fl. :	96	0	123	0	97	0	93	0
Error :	41.0	0.0	41.7	0.0	45.4	0.0	44.2	0.0

Fluence :	96	0	123	0	97	0	93	0
Error :	41.0	0.0	41.7	0.0	45.4	0.0	44.2	0.0

Dur (s) :	1.00	0.00	1.00	0.00				
Abundance:	1	0	1	0				
H. Ratio :	1.013	-1.000	0.761	-1.000				
HR Ratio :	-1.000	1.331	-1.000	-1.000	-1.000	-1.000		
HR W-ave :	0.842	+/-	0.365					

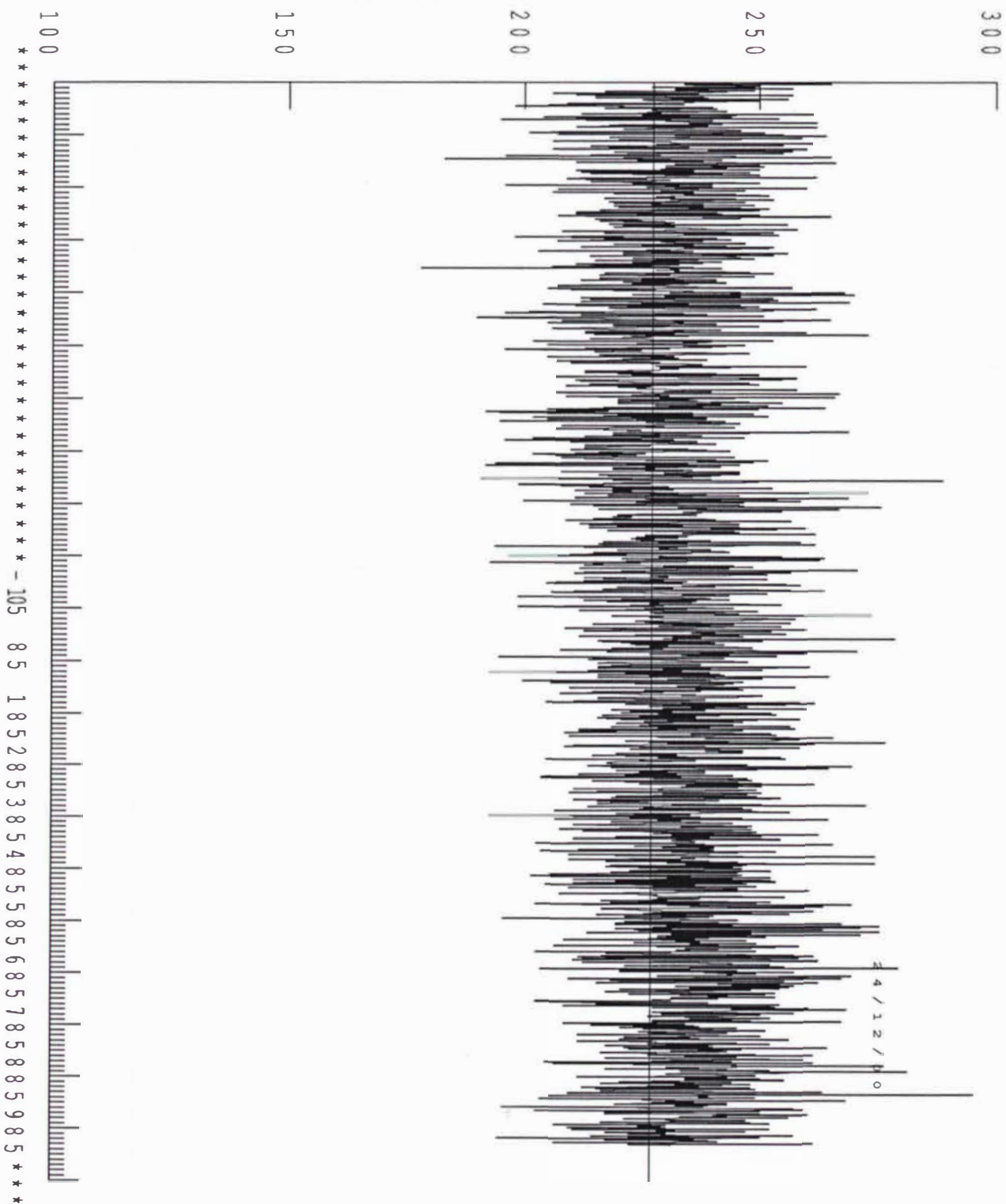
NEAR

23/12/00

83199.787

100-1000 keV

COUNTS/1.000 S



TIME, SECS

SAX 20001223 83200

ULYSSES RT

27/12/00

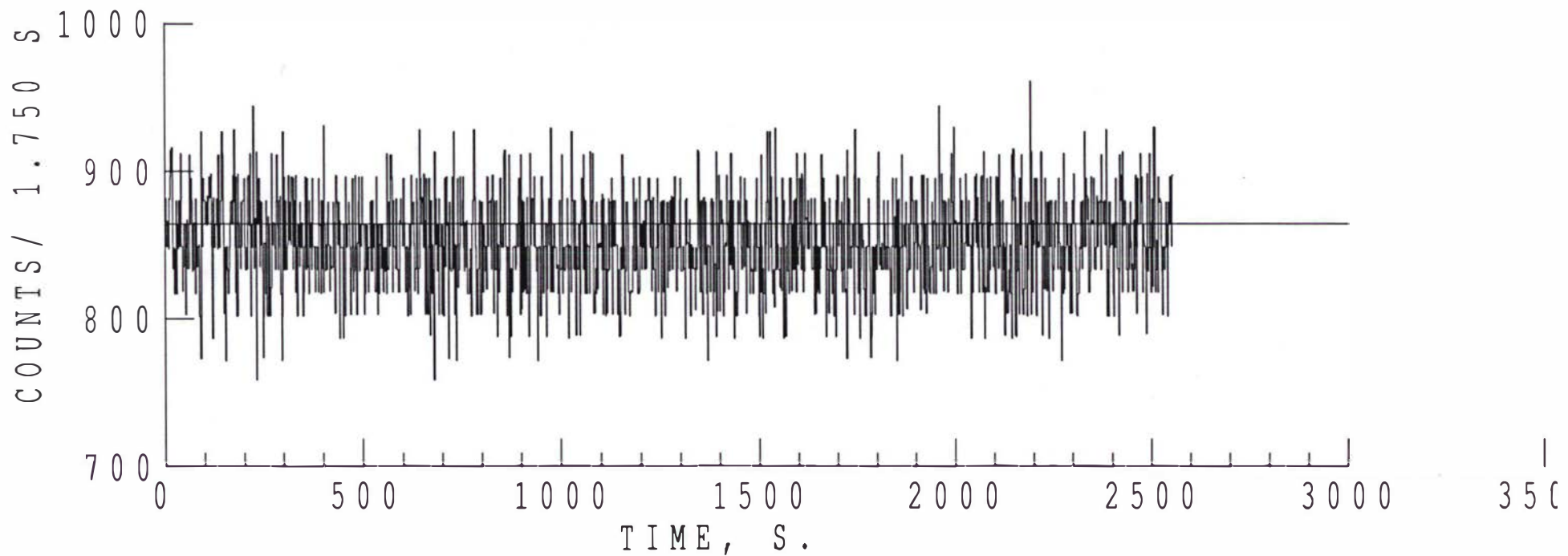
23/12/00 81936.016 s

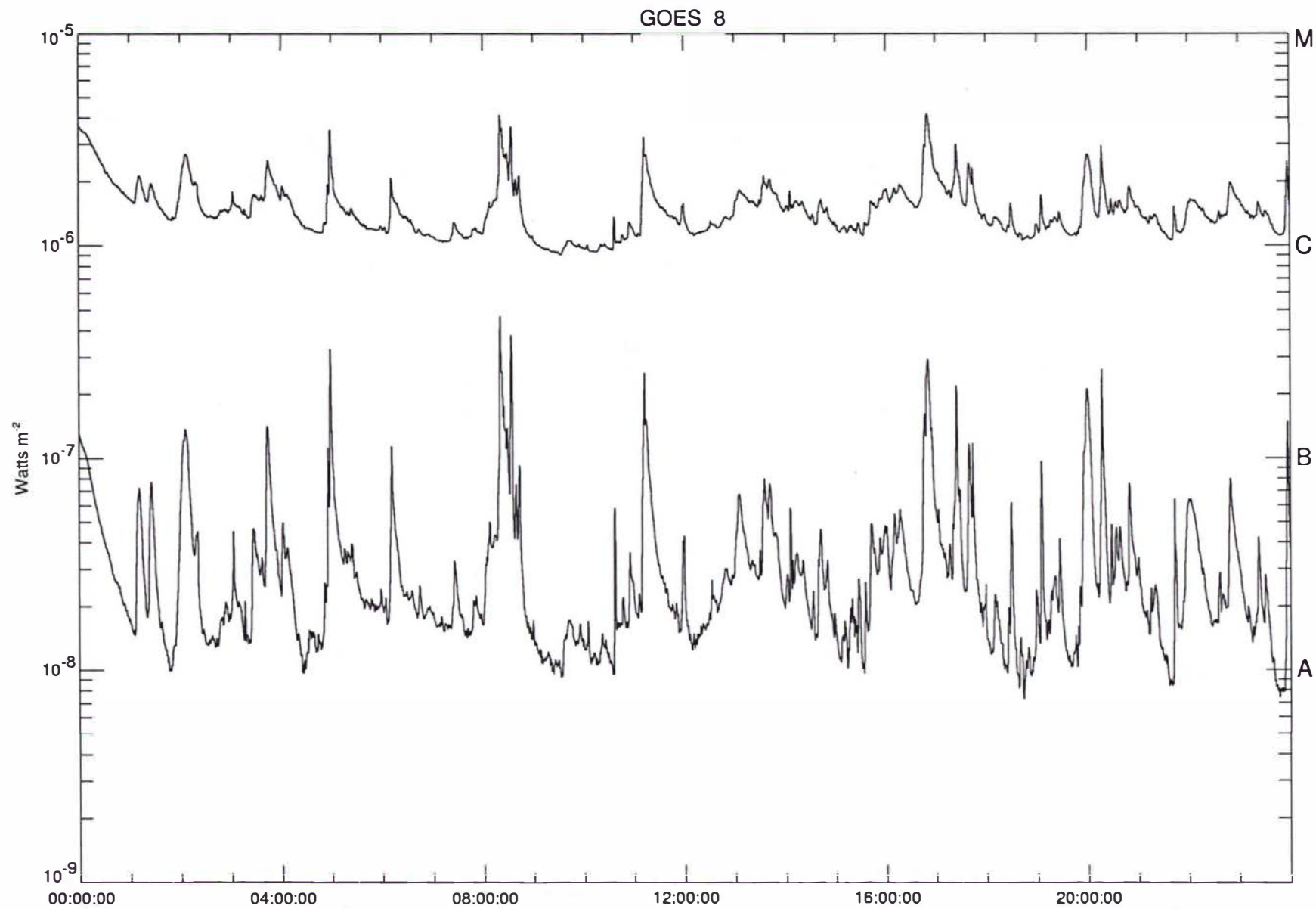
0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

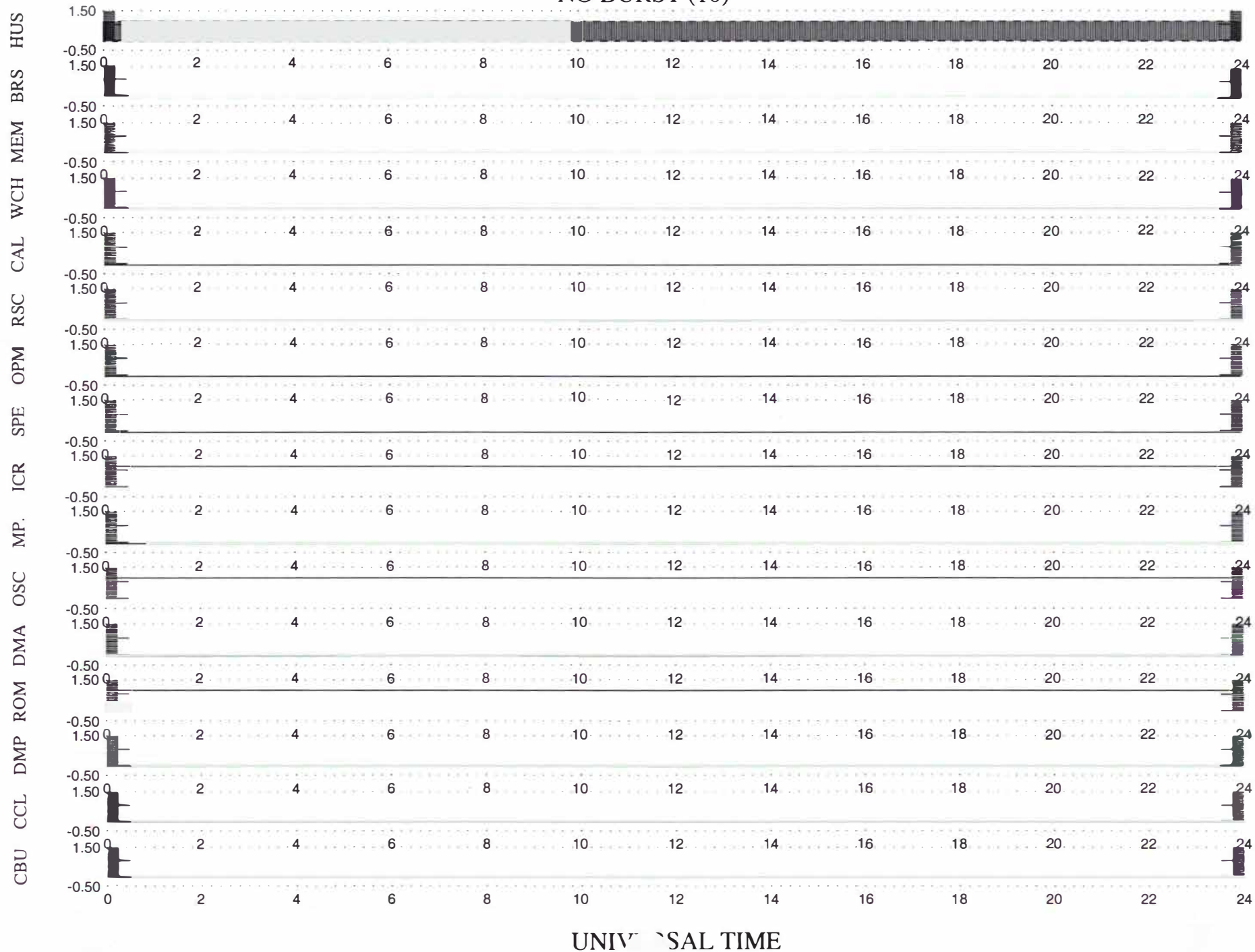
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

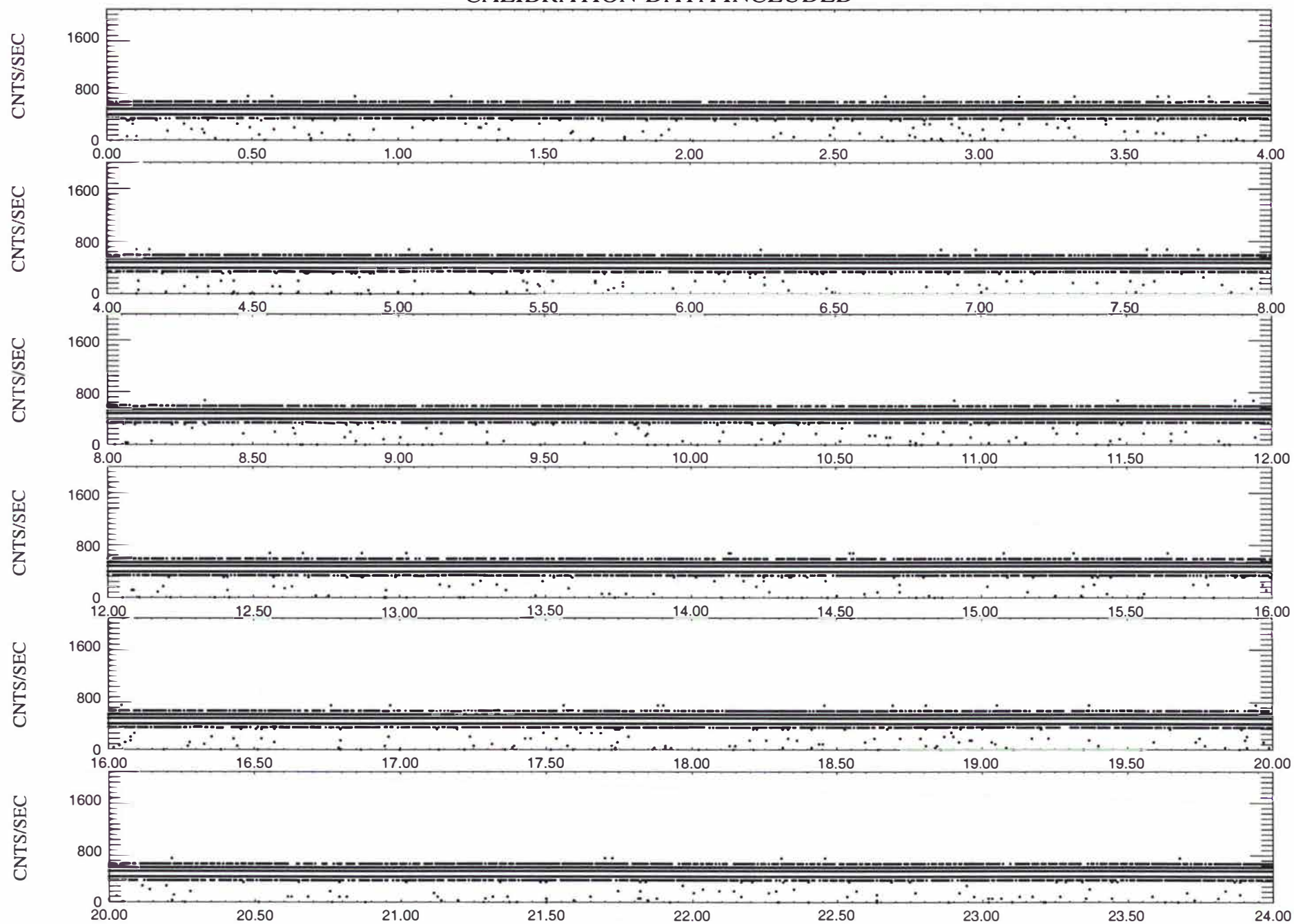
Plot created: 01/01/06, 1632

Sample average = 10

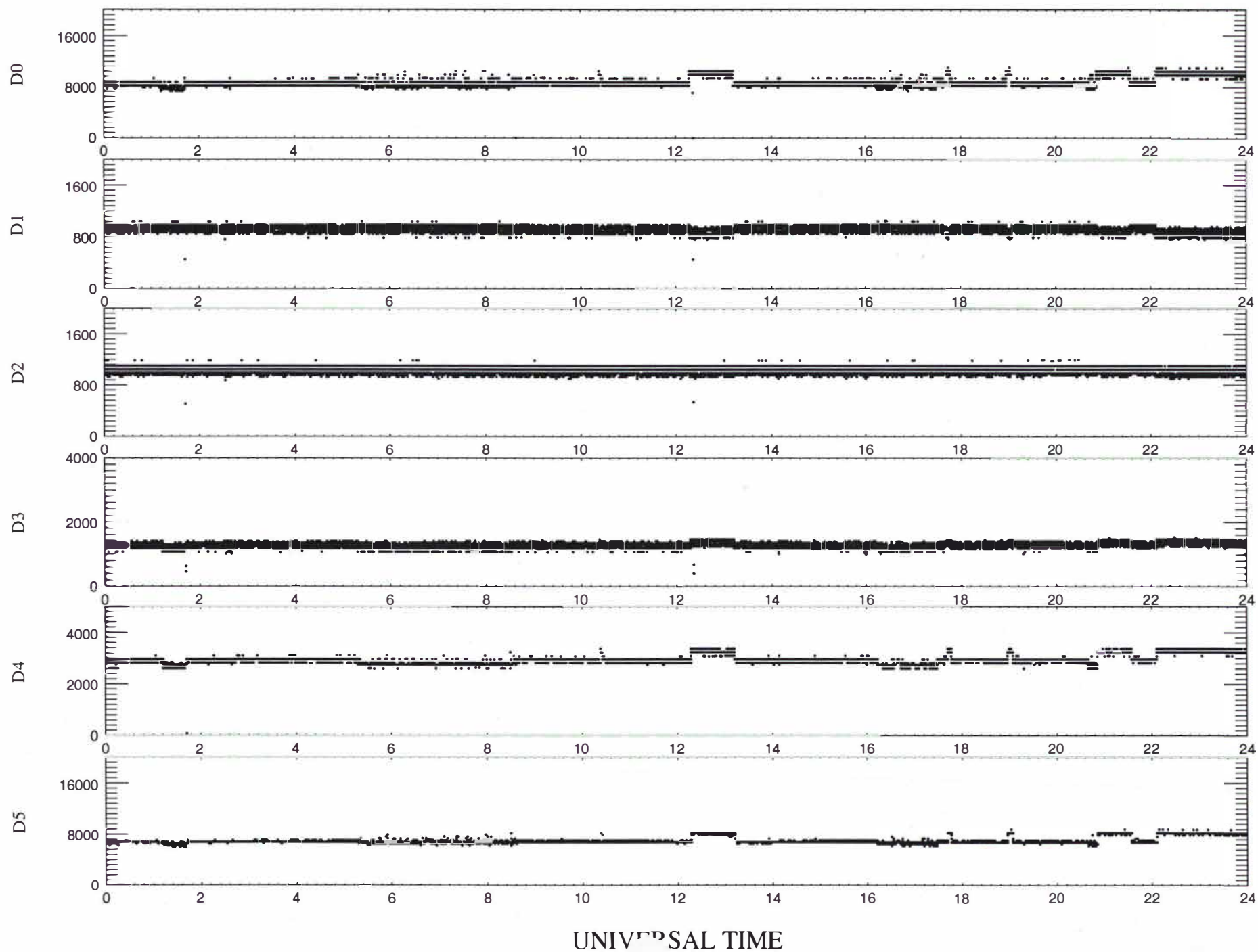
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIVRSAL TIME



KONUS RI 20001224 60183

ULYSSES RT

02/05/01

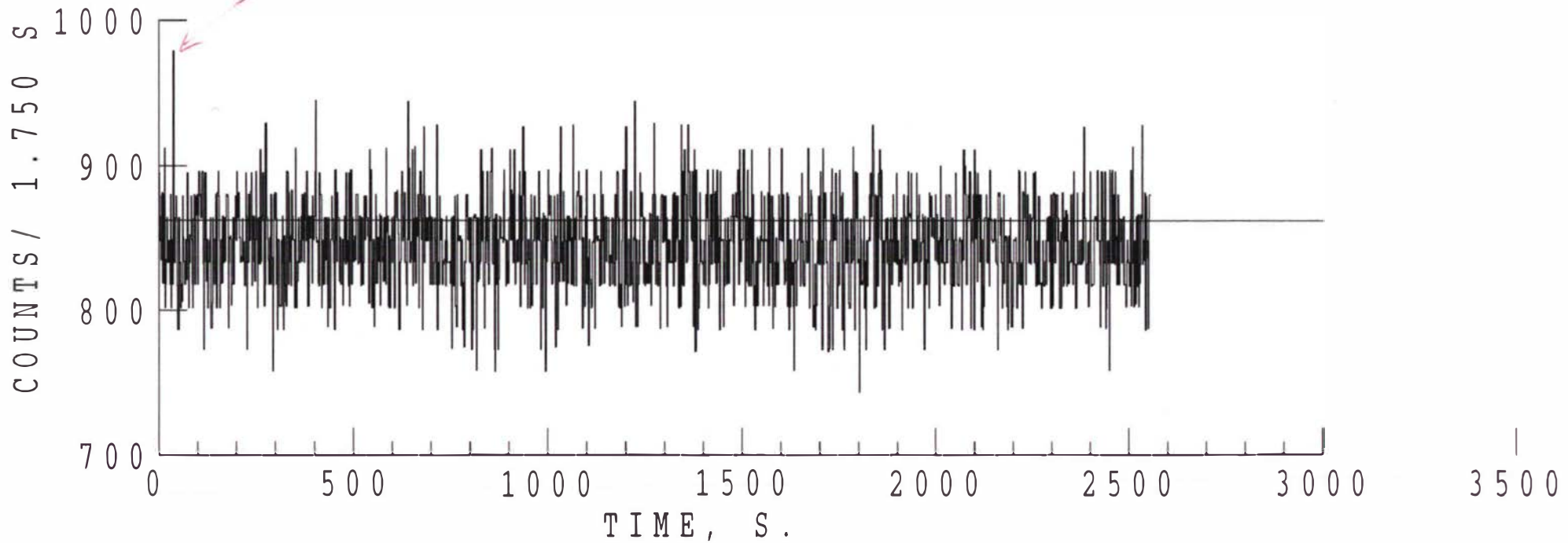
24/12/00 58896.242 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



FREGATE SURVEY (TH) TIME HISTORY (AVG x1) -- DETECTORS 1-4 SUMMED (KONUS_RI_20001224_60183)

BEG TIME: 24/12/00 DOY 359 Julian 2451904.18167 UT = 16.360 16:21:36 (58896.000 secs) [sct = 0019 36d6 03fd 74e4]
 END TIME: 24/12/00 DOY 359 Julian 2451904.21125 UT = 17.070 17:04:12 (61452.000 secs) [sct = 0019 36d6 9c56 f33a]

Chan 1:[E1=18 E2=103]

Chan 2:[E3=18 E4=78]

Chan 3:[E5=20 E6=510]

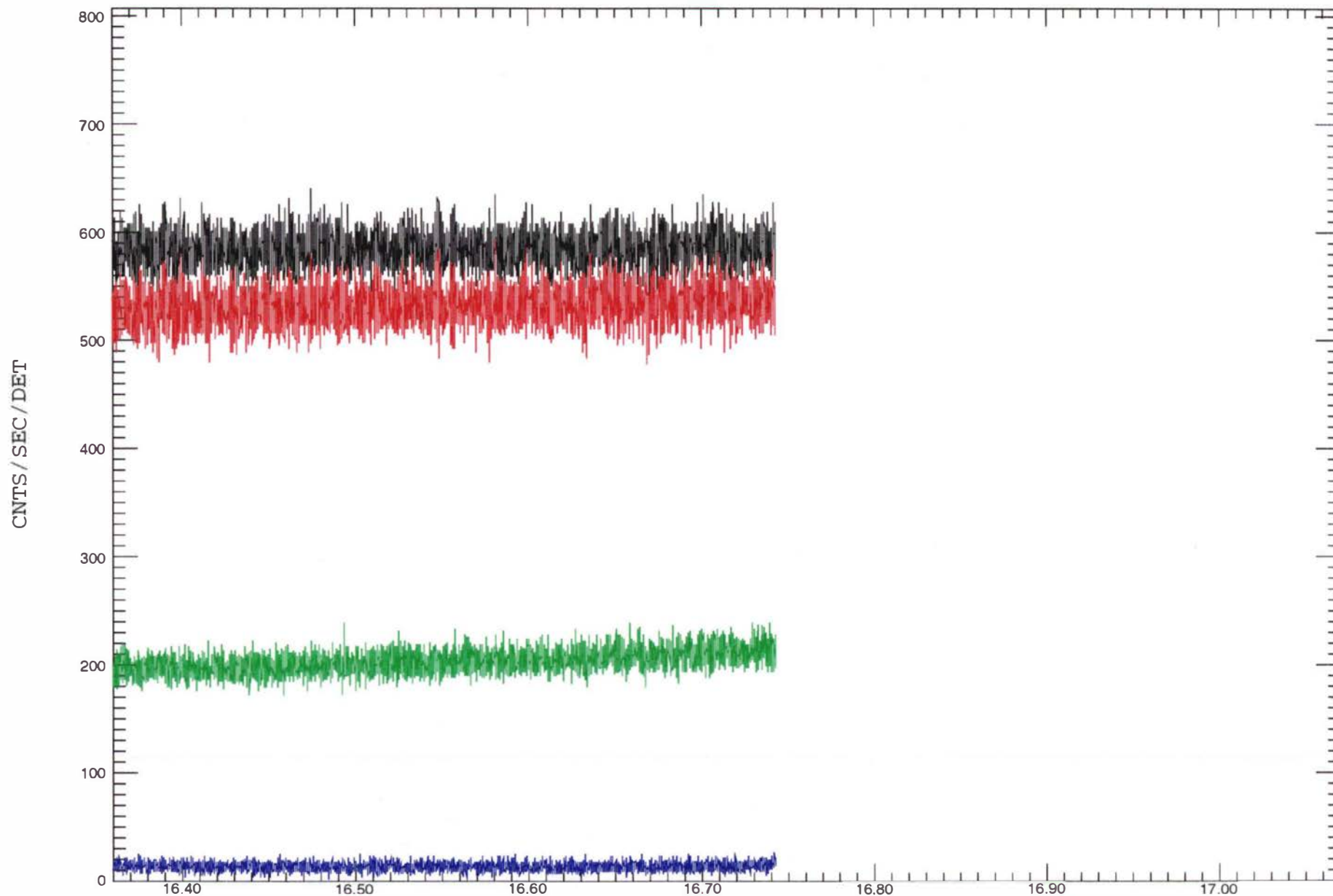
Chan 4:[E6=510 ->]

Channel 1 + 300

Channel 2 + 200

Channel 3 + 100

Channel 4 + 0



RS UT

From guidorzi@fe.infn.it Sun Dec 24 16:21 PST 2000

From: Auto GRB monitor@fe.infn.it

Subject: GRBM/SAX Trigger S/W Alert

Date: Mon, 25 Dec 2000 01:20:04 +0100 (MET)

1kGRB[155] #LSs: 1 Good HRR: 1

SW Trigger Time (OBT): 71800.902

UTC: Sun, 24 Dec 2000 20:14:35:83990

Nsig(trg):	2.7	3.5	4.0	2.1	2.6	1.9	2.2	2.9
Nsig(pfl):	2.7	3.5	4.0	2.1	2.6	1.9	2.2	2.9
Bkg lev. :	746	905	748	695	857	912	876	917
ChiSq R. :	1.015	0.972	1.061	1.012	1.092	0.783	0.944	1.015

Peak fl. :	74	106	109	56	76	57	66	88
Error :	39.6	43.9	40.1	38.1	42.4	43.4	42.7	43.9

Fluence :	74	106	109	56	76	57	66	88
Error :	39.6	43.9	40.1	38.1	42.4	43.4	42.7	43.9

Dur (s) :	1.00	1.00	1.00	1.00
-----------	------	------	------	------

Abundance:	1	1	1	1
------------	---	---	---	---

H. Ratio :	1.032	0.543	0.601	1.577
------------	-------	-------	-------	-------

HR Ratio :	1.900	1.719	0.655	0.905	0.344	0.381
------------	-------	-------	-------	-------	-------	-------

HR W-ave :	0.684	+/-	0.293
------------	-------	-----	-------

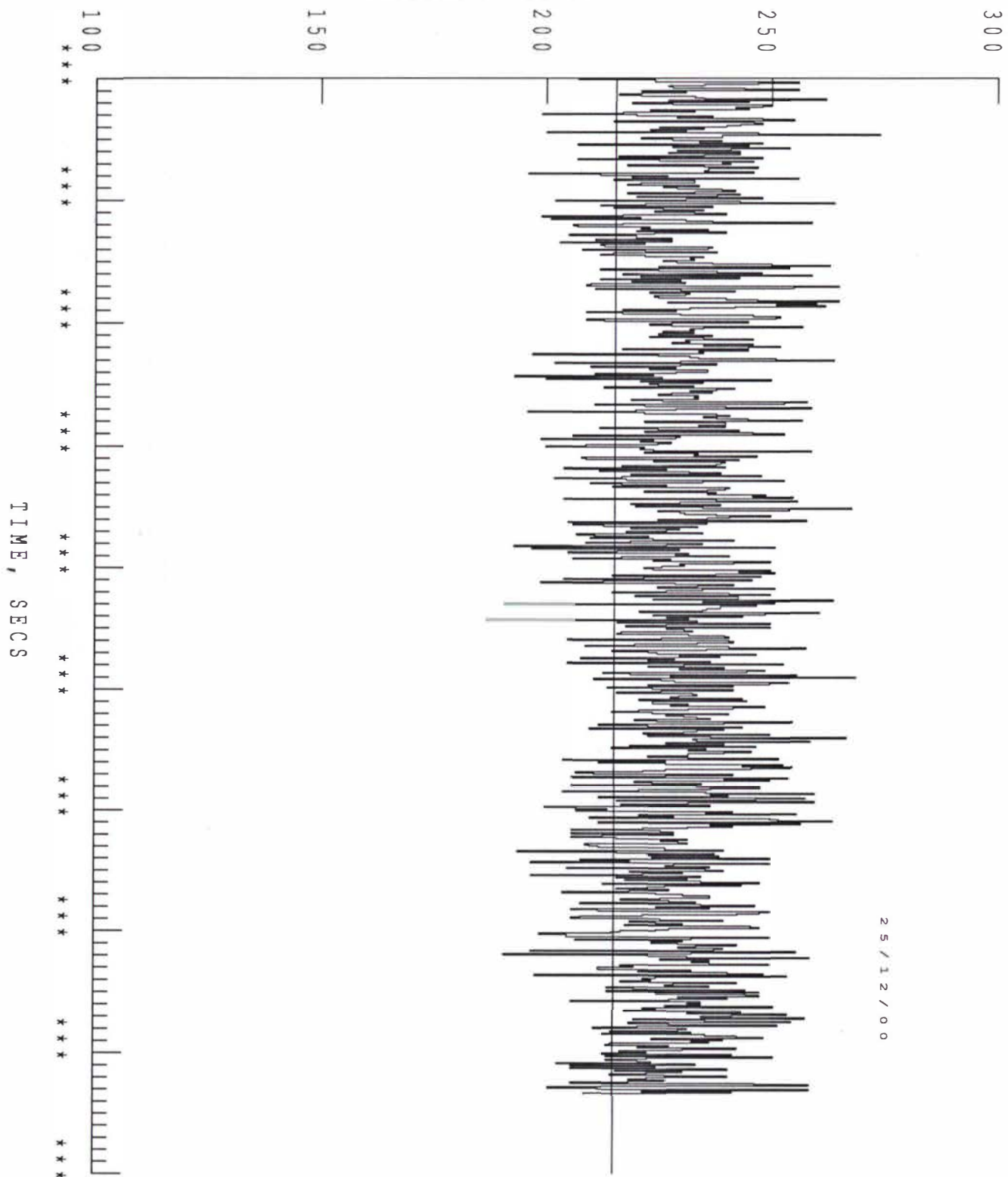
NEAR

24/12/00

72874.760

100-1000 keV

COUNTS/1.000 S



SAX 20001224 72875

ULYSSES RT

27/12/00

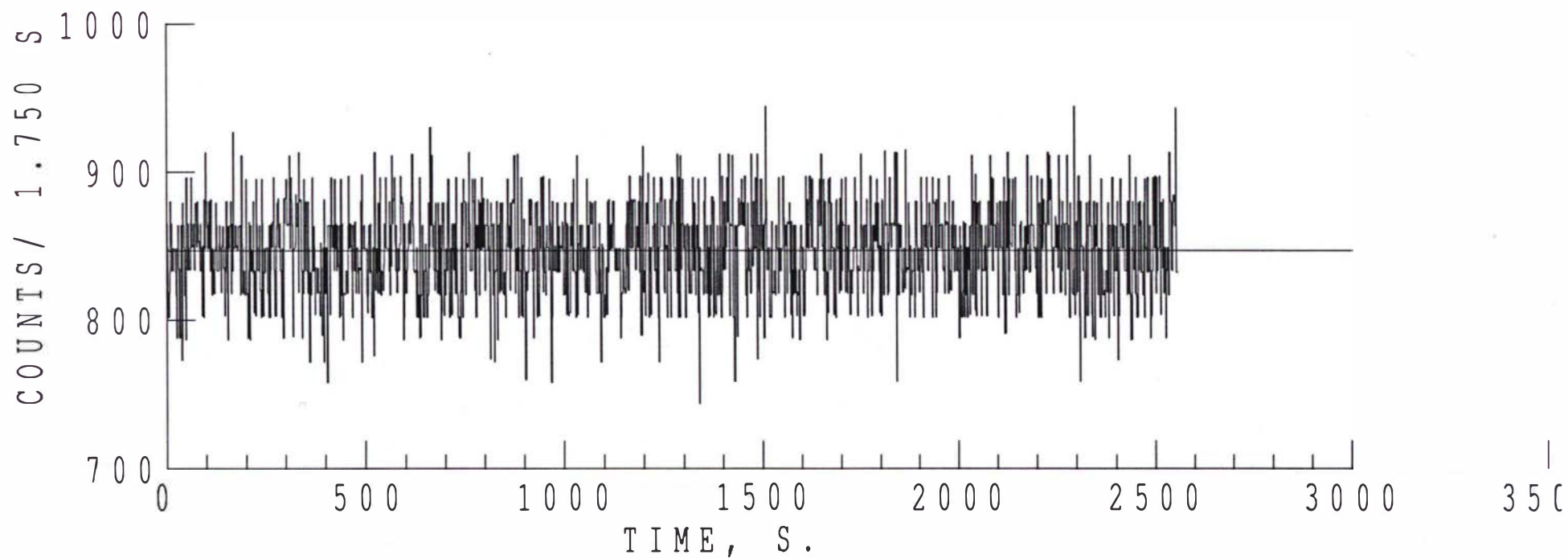
24/12/00 71604.195 s

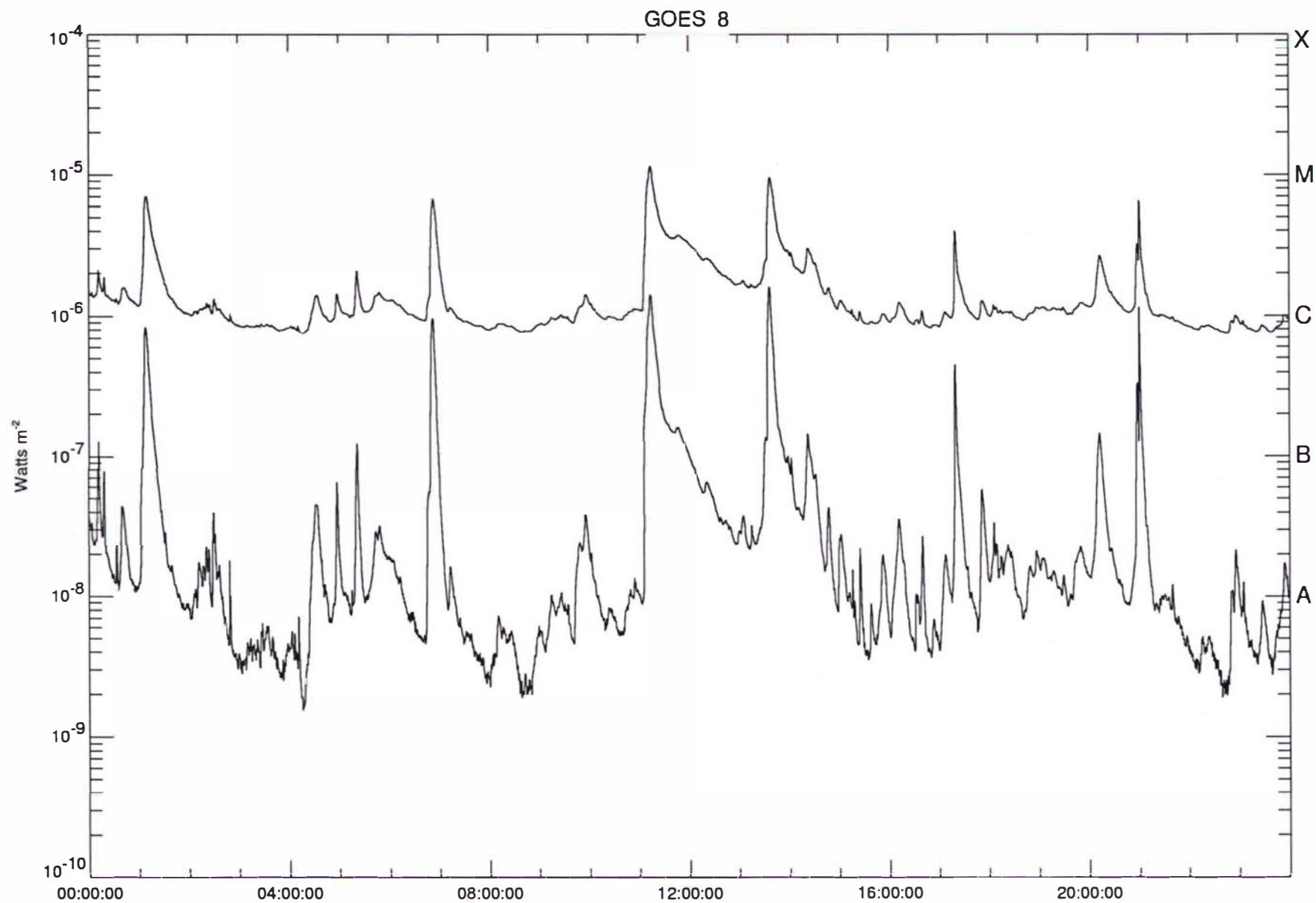
0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

H= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





Data Start: 00/12/24, 0000:00

Channel

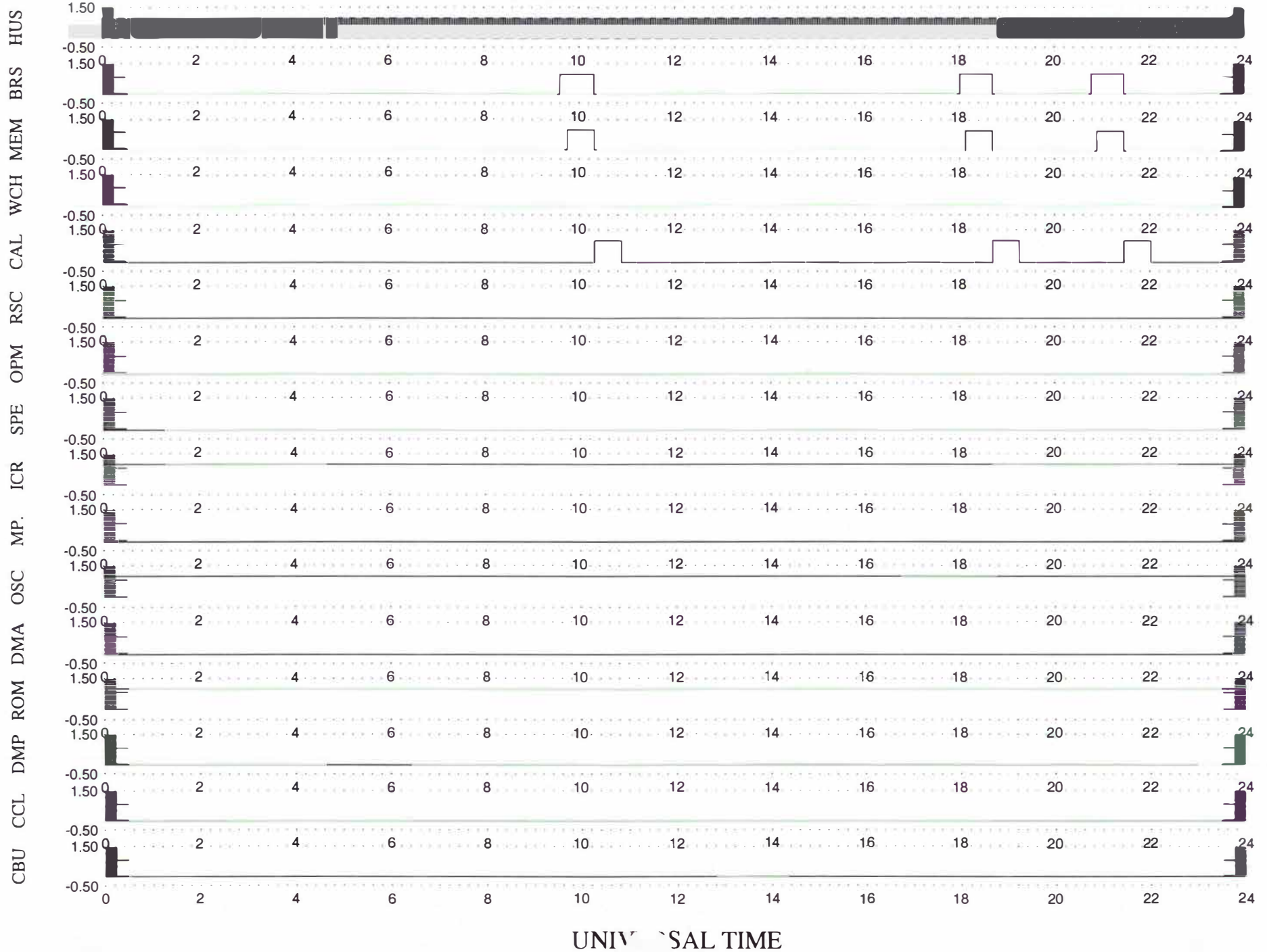
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

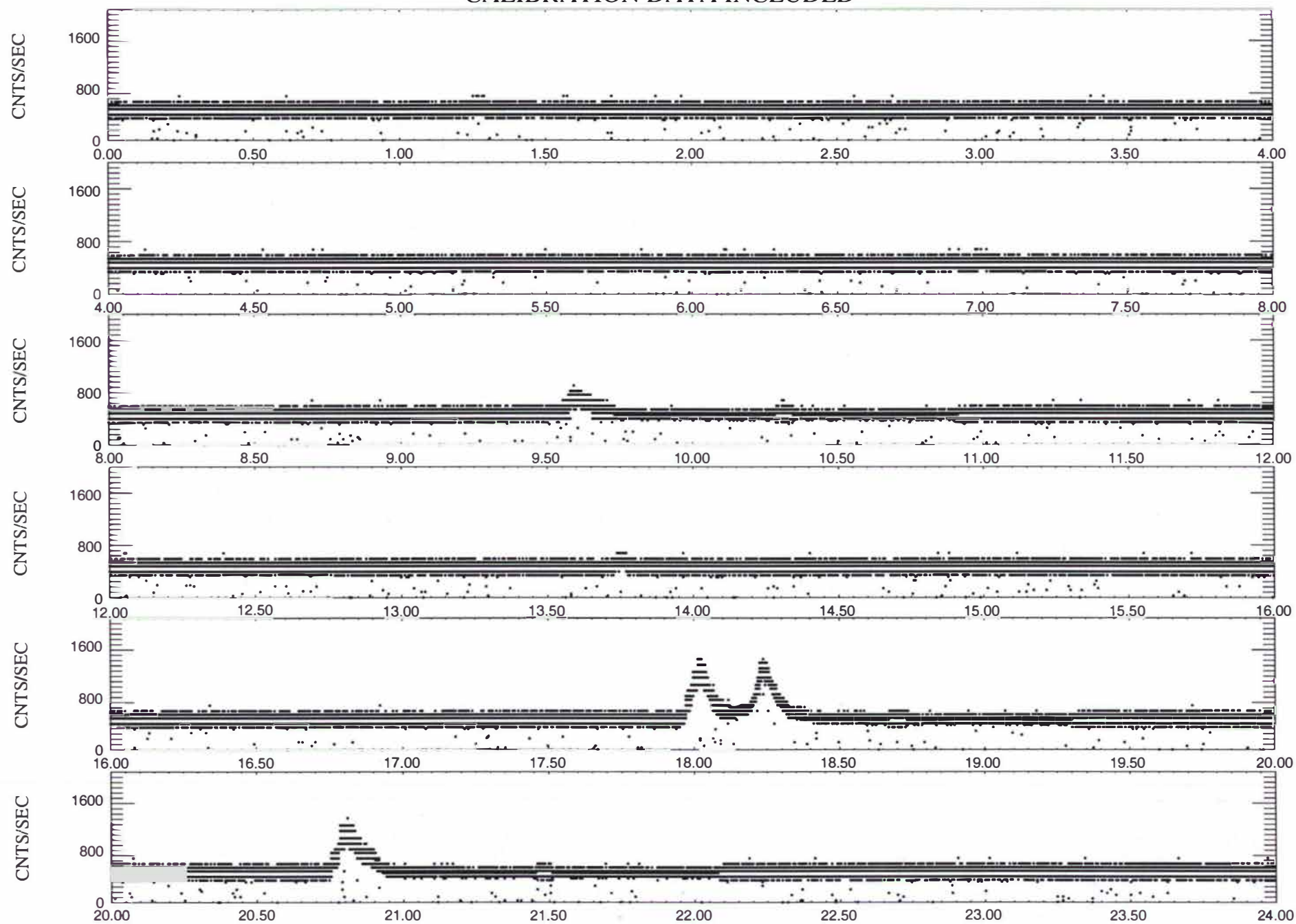
Plot created: 00/12/28, 1056

Sample average = 10

BURST NUMBER 11 - 13

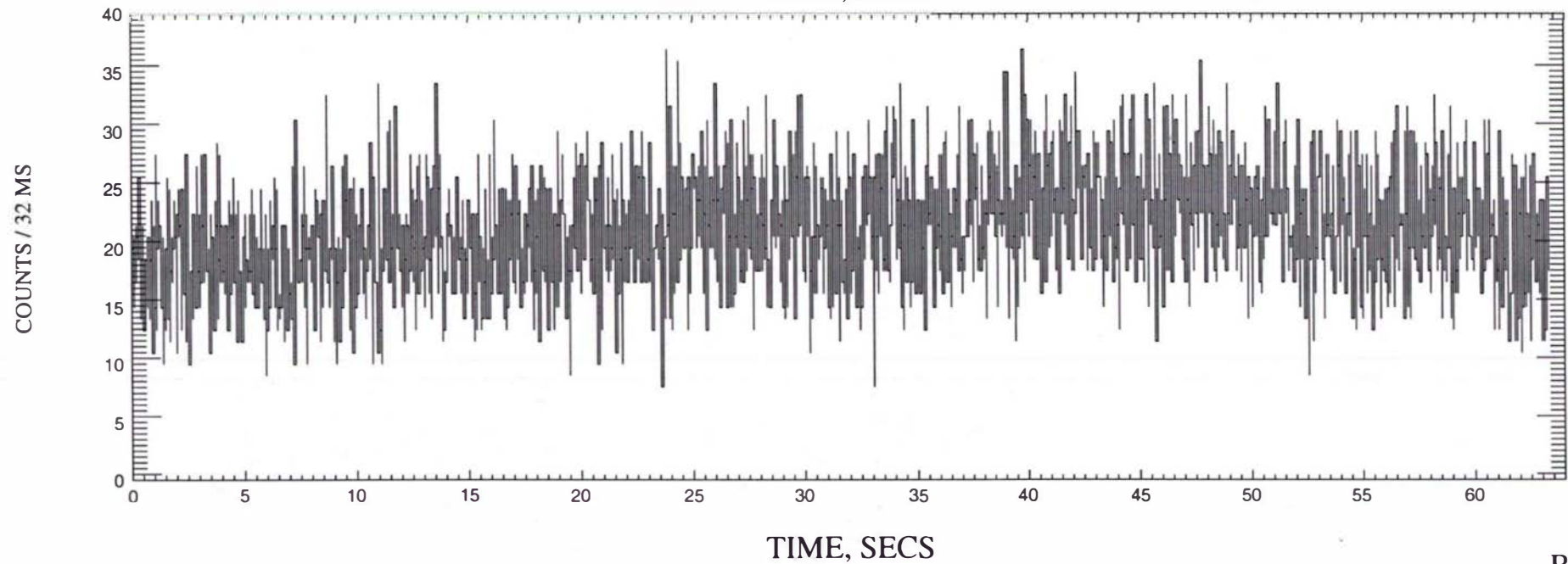
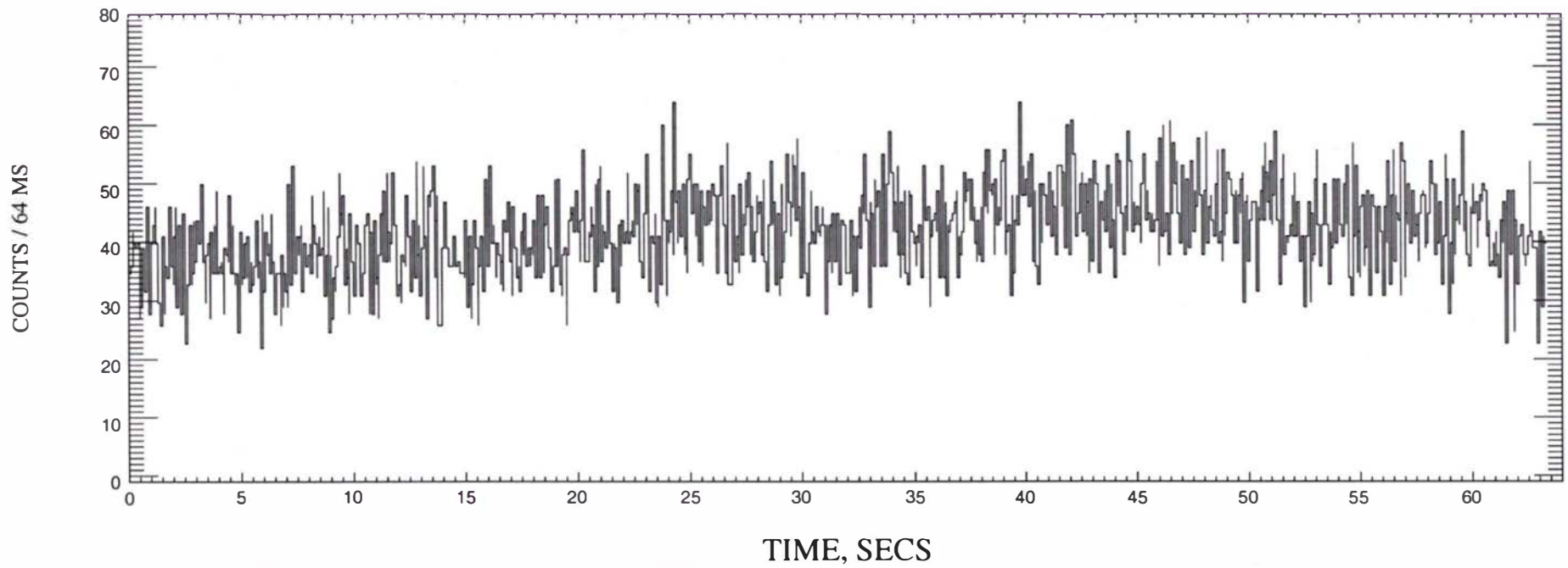


CALIBRATION DATA INCLUDED

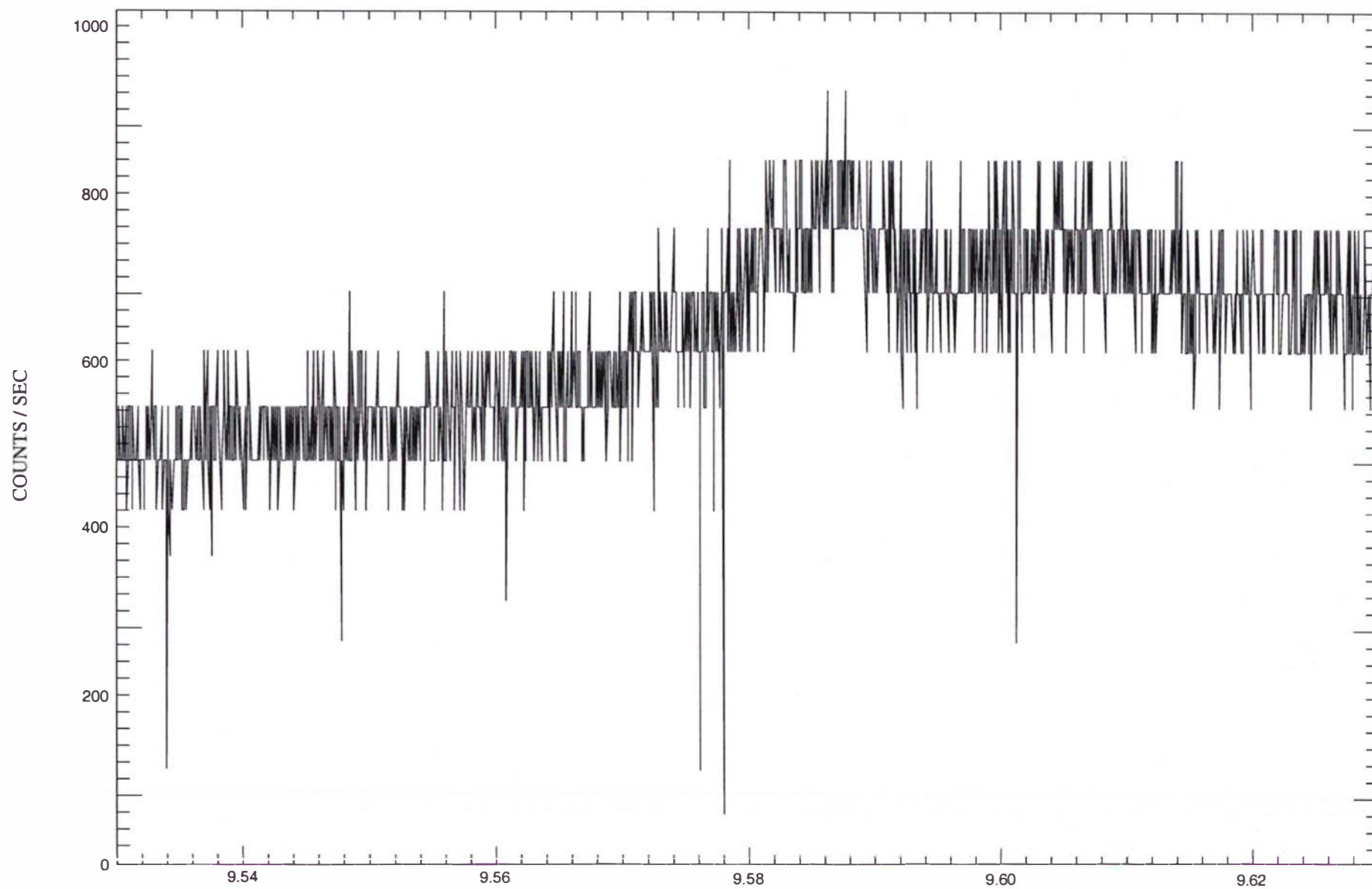


UNIVRSAL TIME

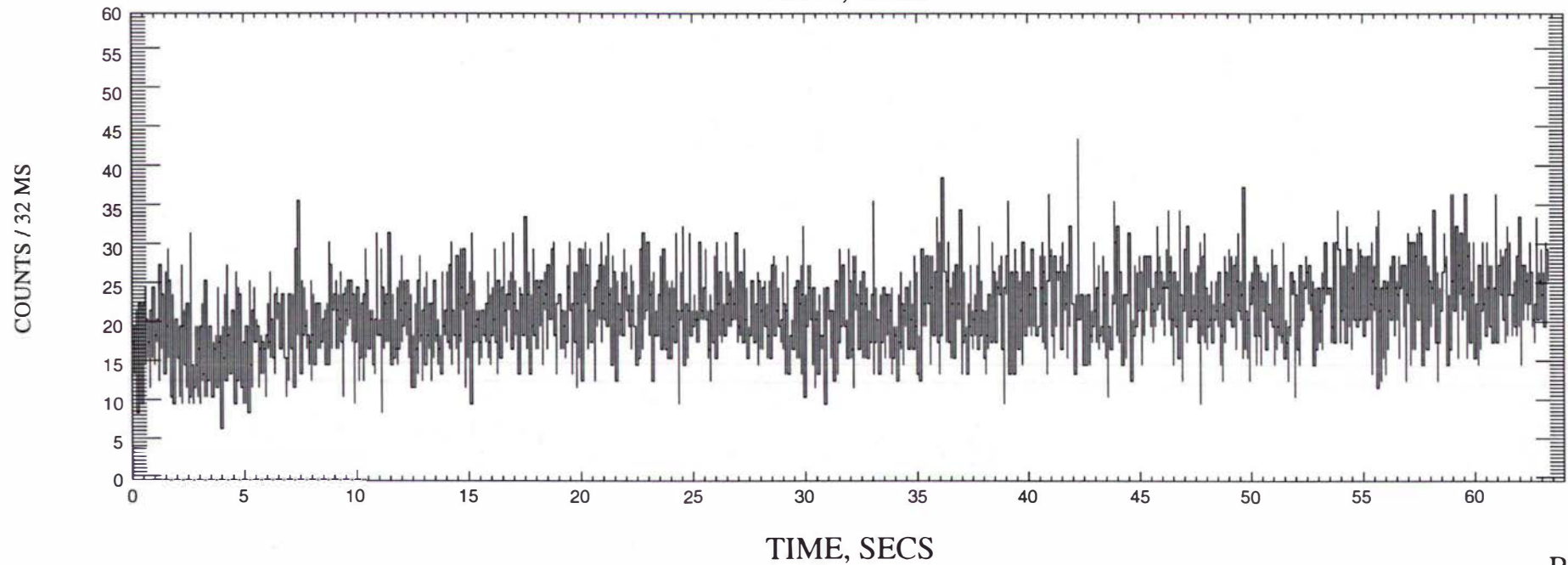
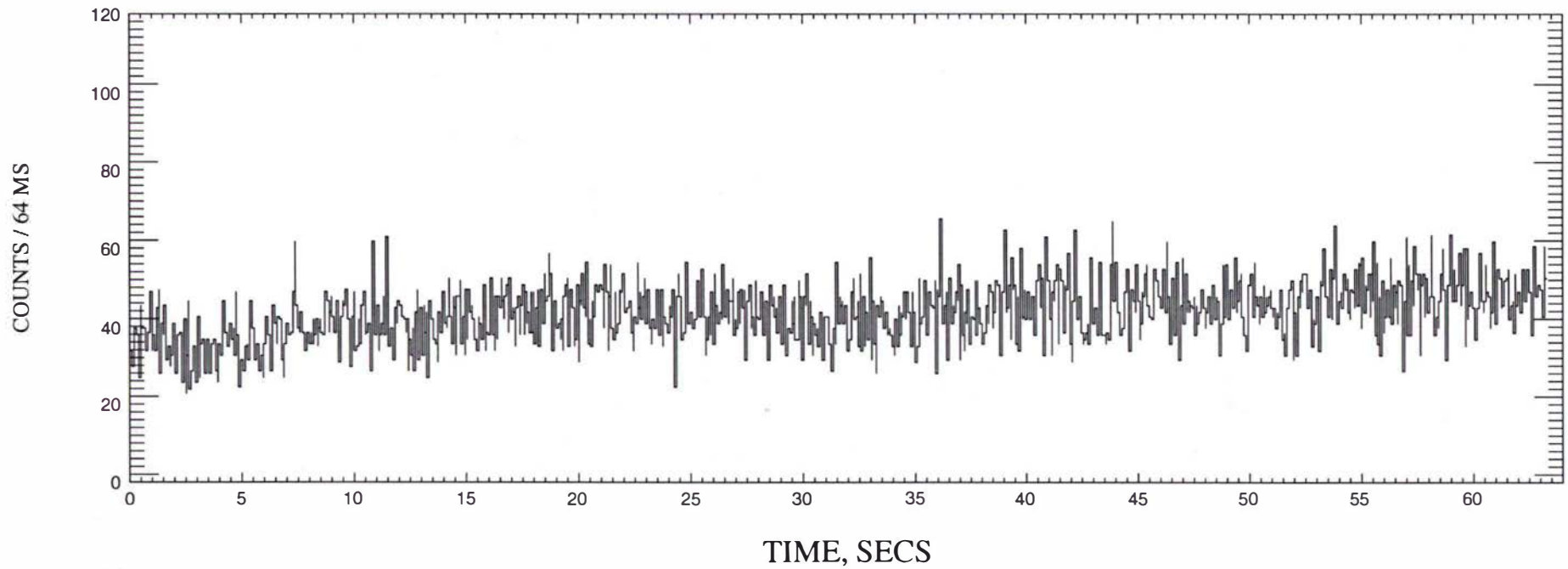
Burst Counter 11 at UT= 9.576800418430 h=34476.482 s 09:34:36.482



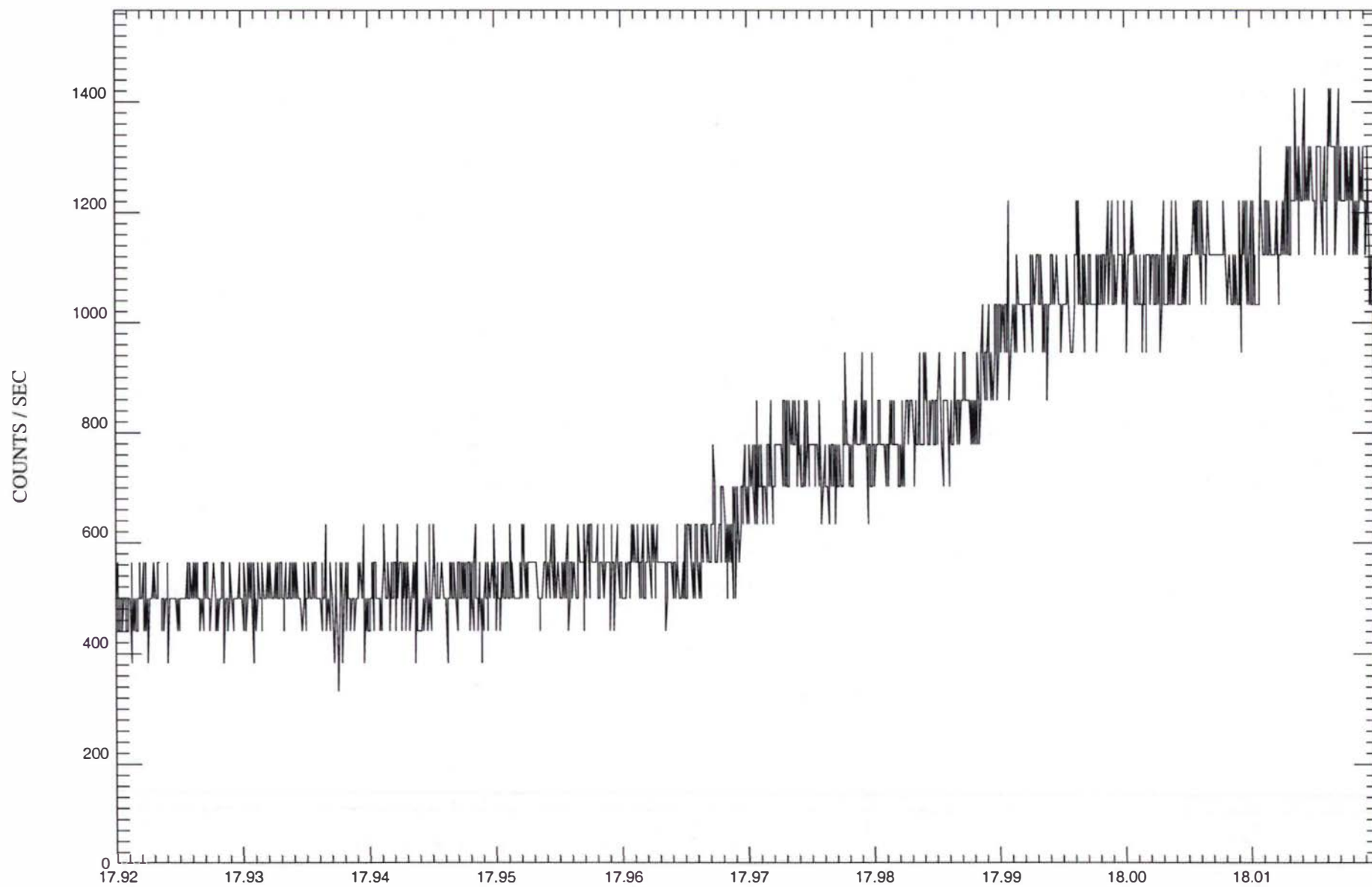
CALIBRATION DATA INCLUDED



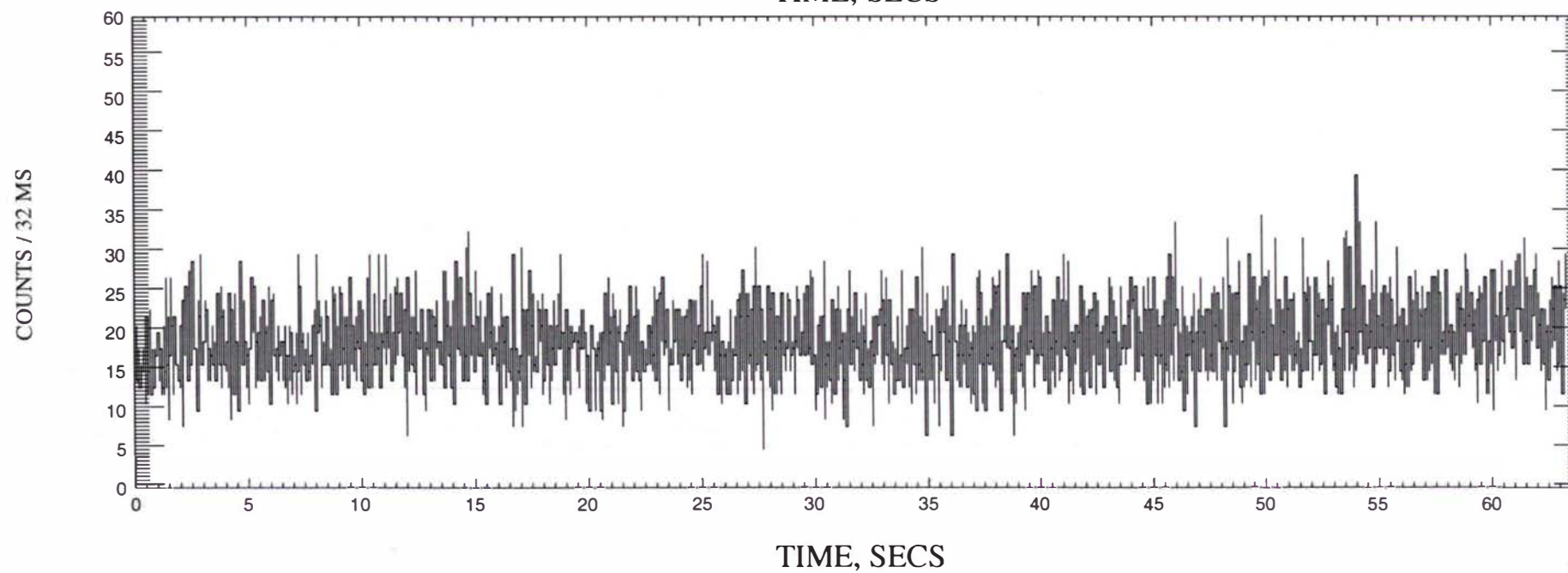
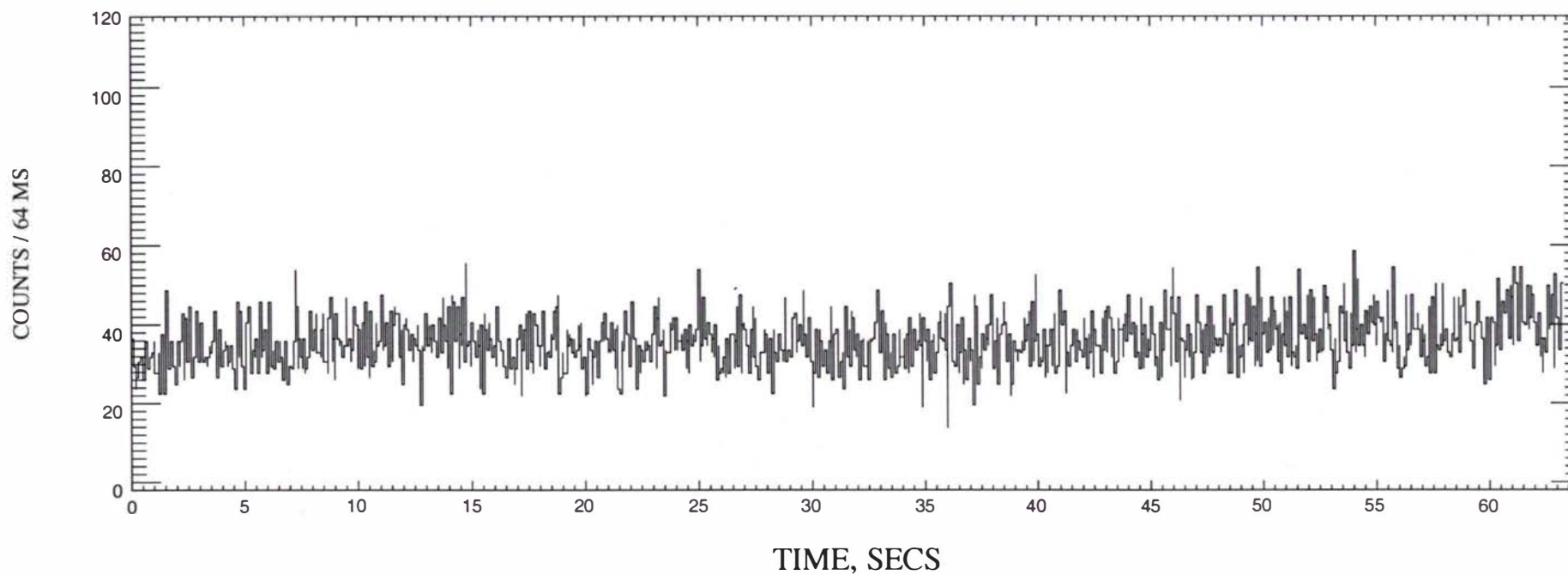
Burst Counter 12 at UT=17.969812427097 h=64691.325 s 17:58:11.325



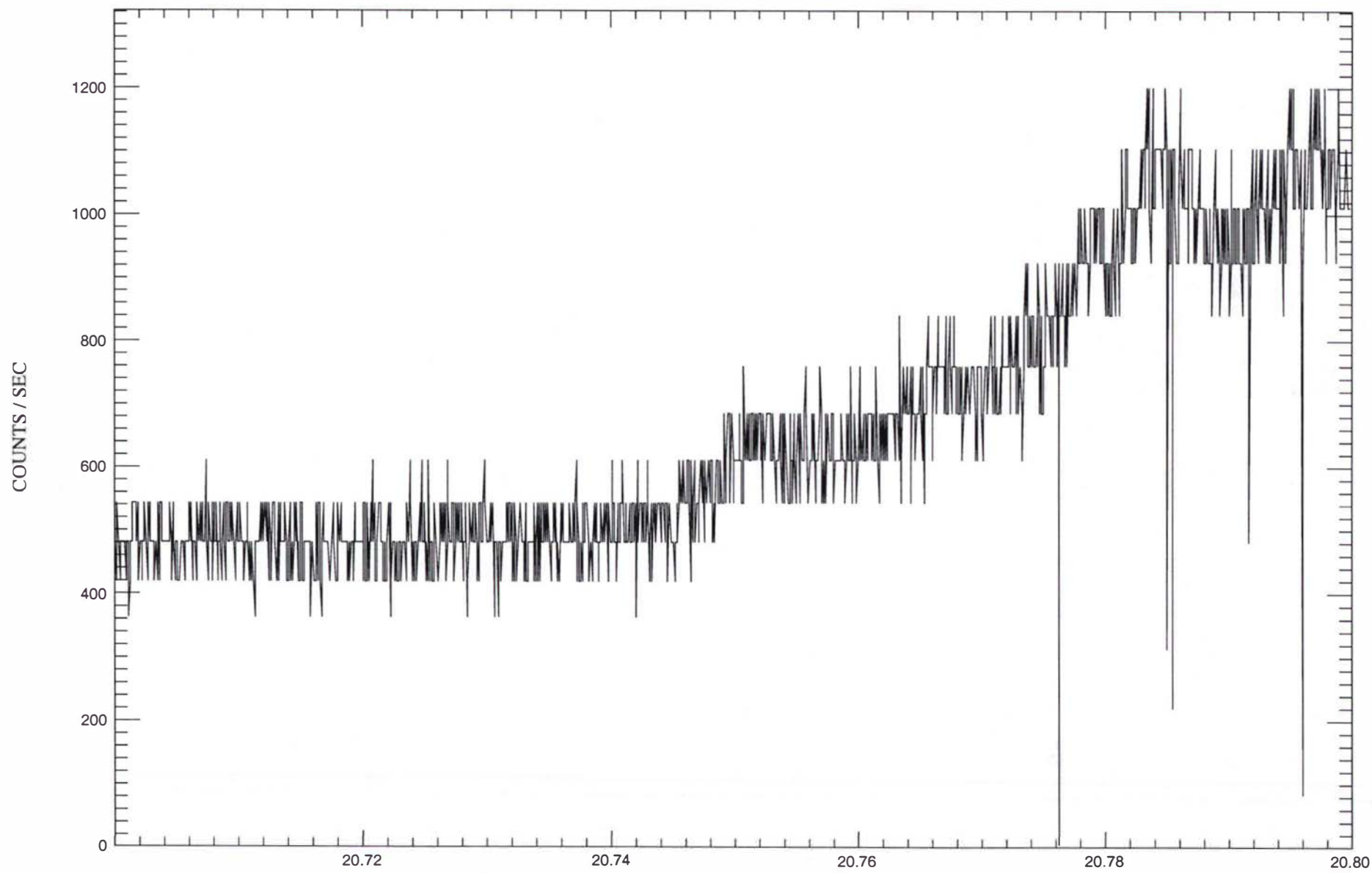
CALIBRATION DATA INCLUDED

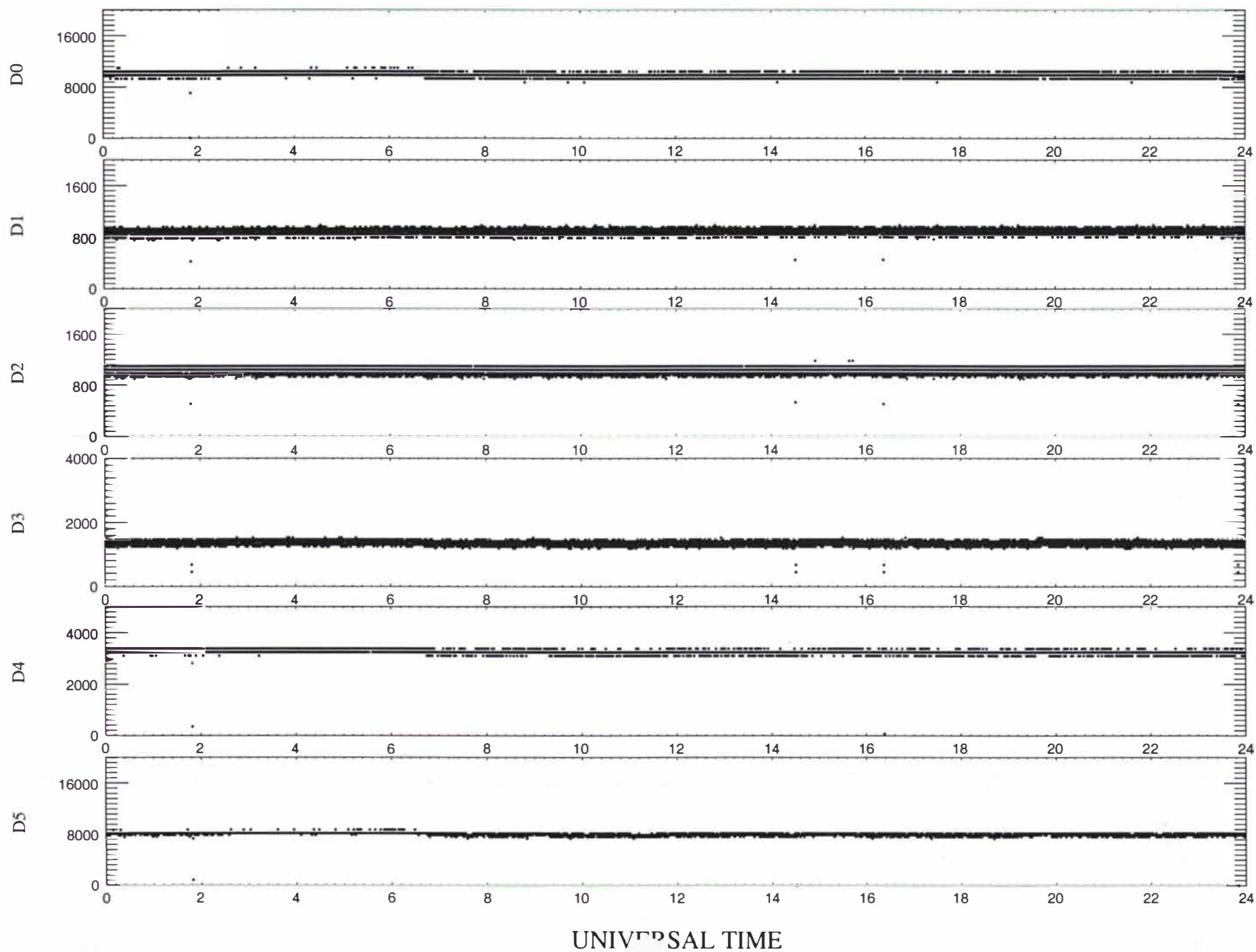


Burst Counter 13 at UT=20.750862354702 h=74703.104 s 20:45:03.104



CALIBRATION DATA INCLUDED





Date: Jul 31 '07

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data *N/A*

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

3. NEAR Data

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

4. For Konus events

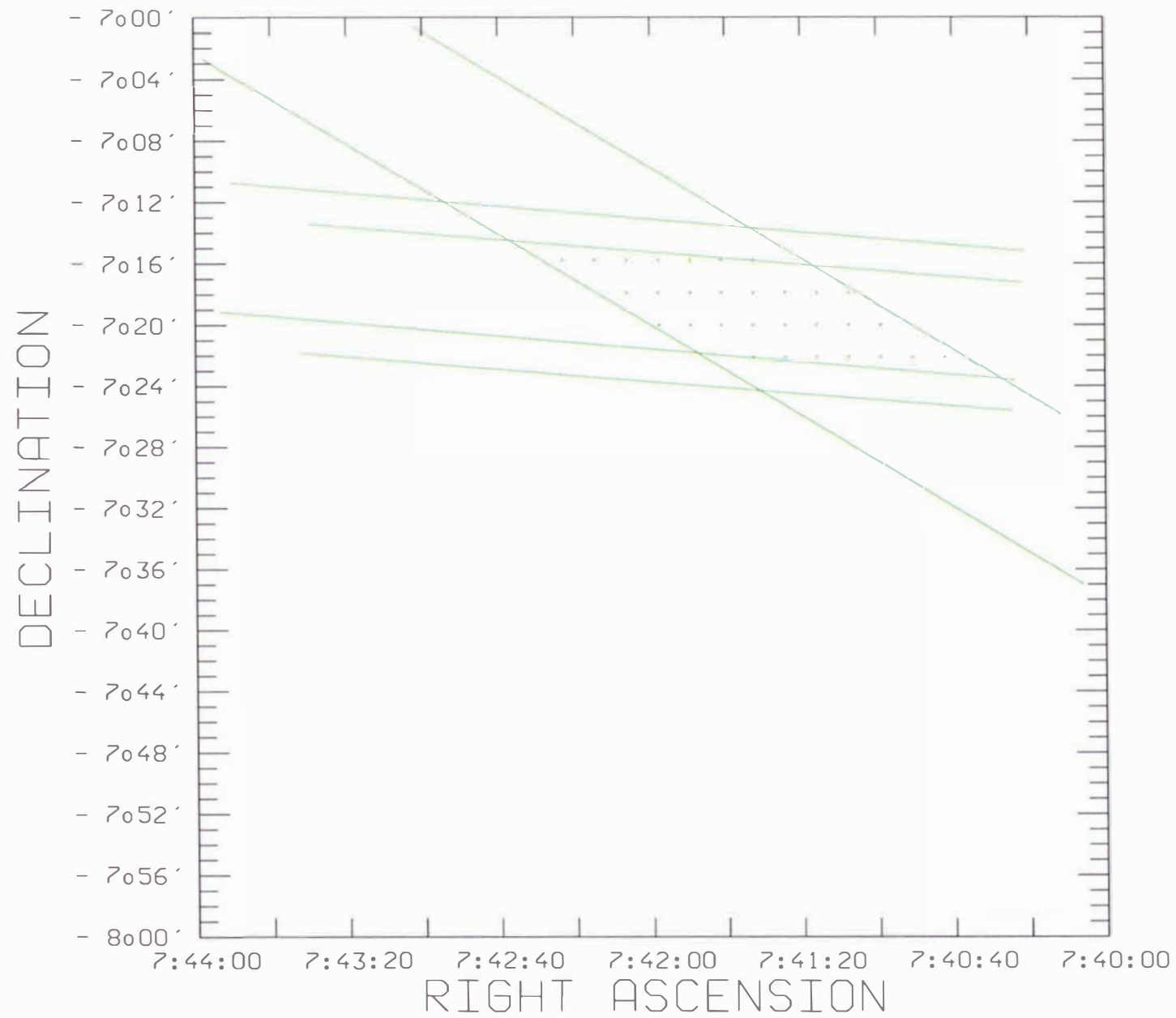
- ☒ Konus ecliptic latitude used with latest calibration?

5. For 3 Spacecraft events

- ☐ $\Sigma 3\Delta t$'s calculated?

- ☒ ACCESS database updated?

*Very high χ^2 for Ulysses
cross-correlations*



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

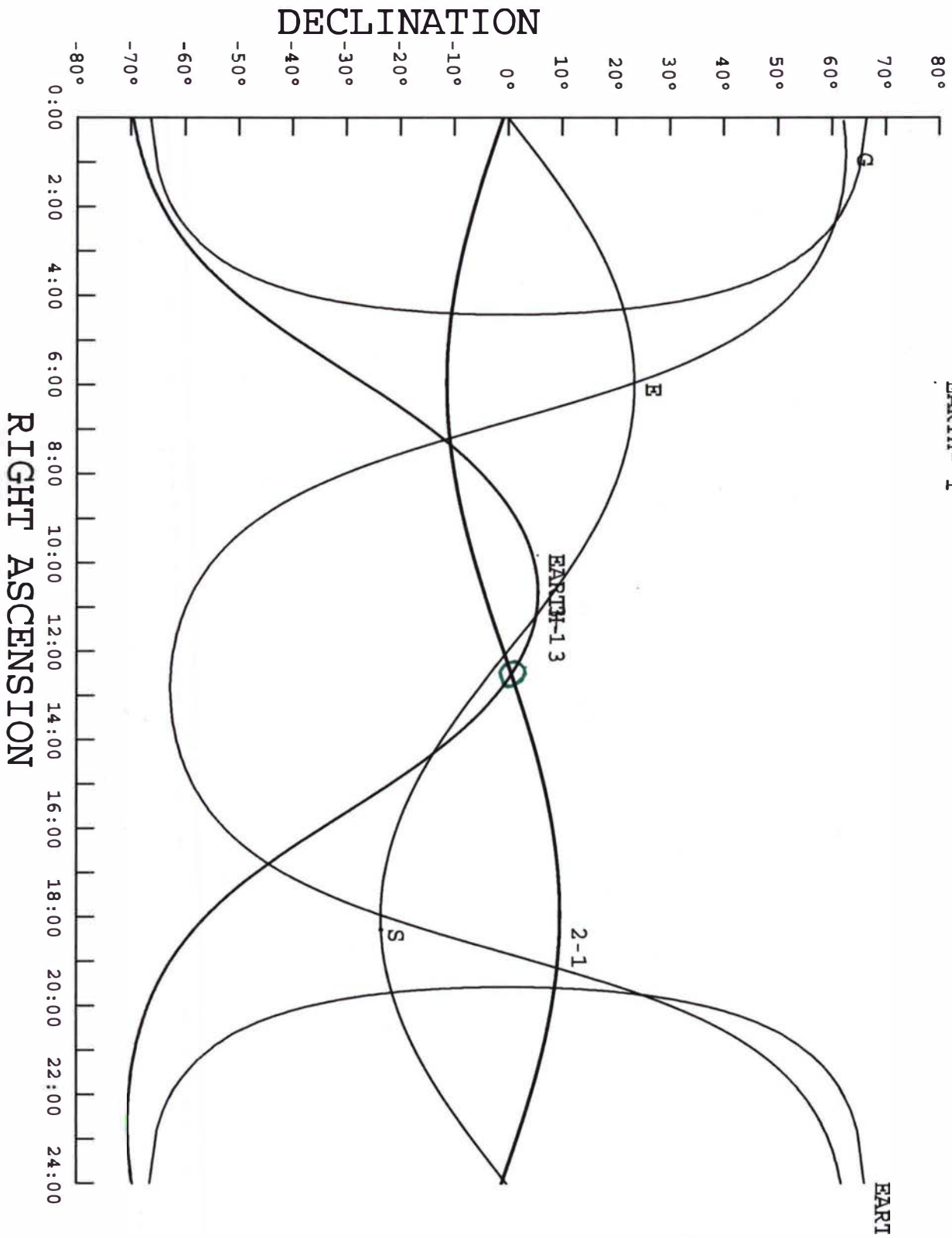
2 SAX

3 NEAR

EVENT OF DEC 25, 2000 7:10

EARTH- 1

12/ 1/ 1



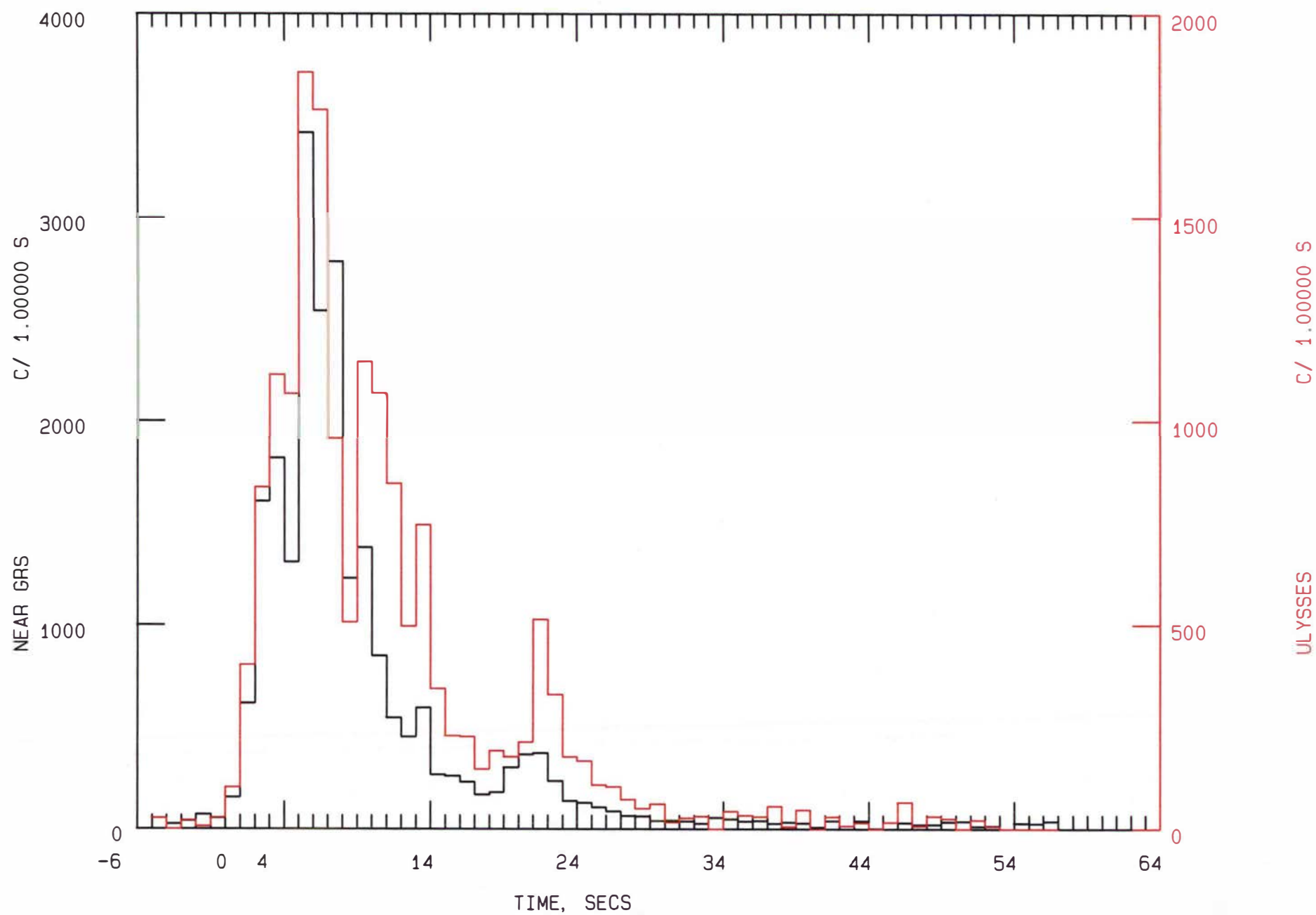
NEAR GRS -ULYSSES

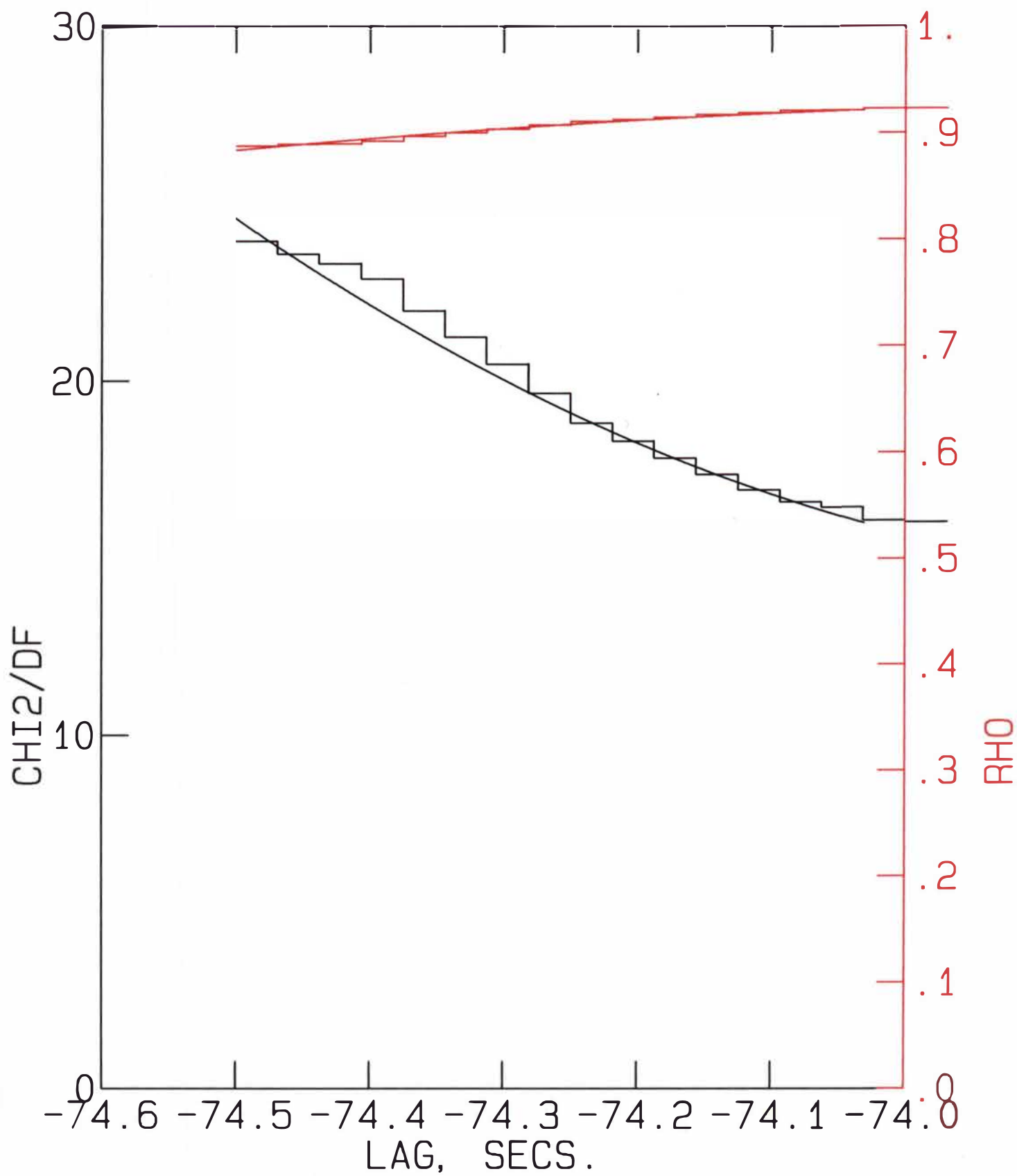
CORRELATION

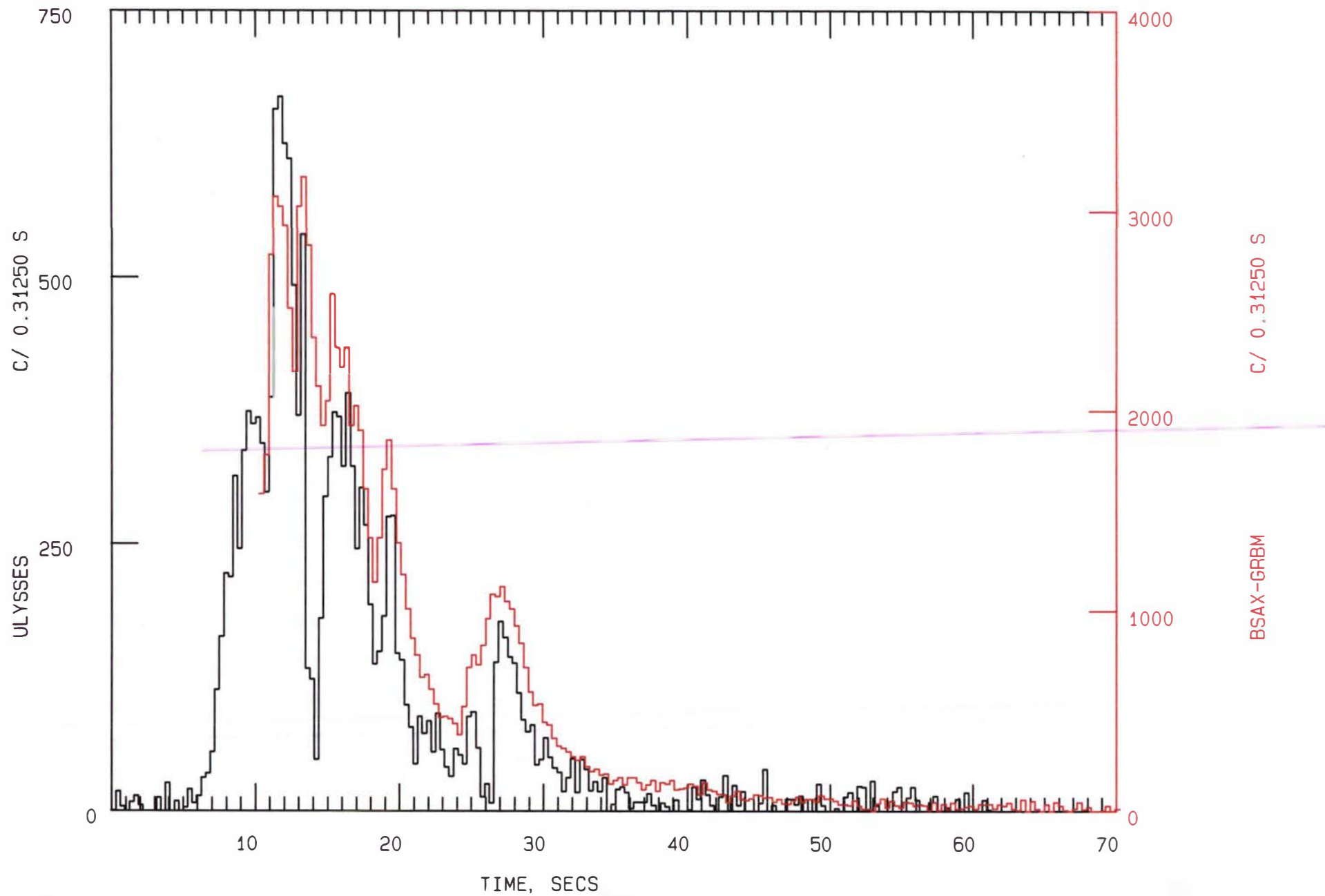
25/12/00

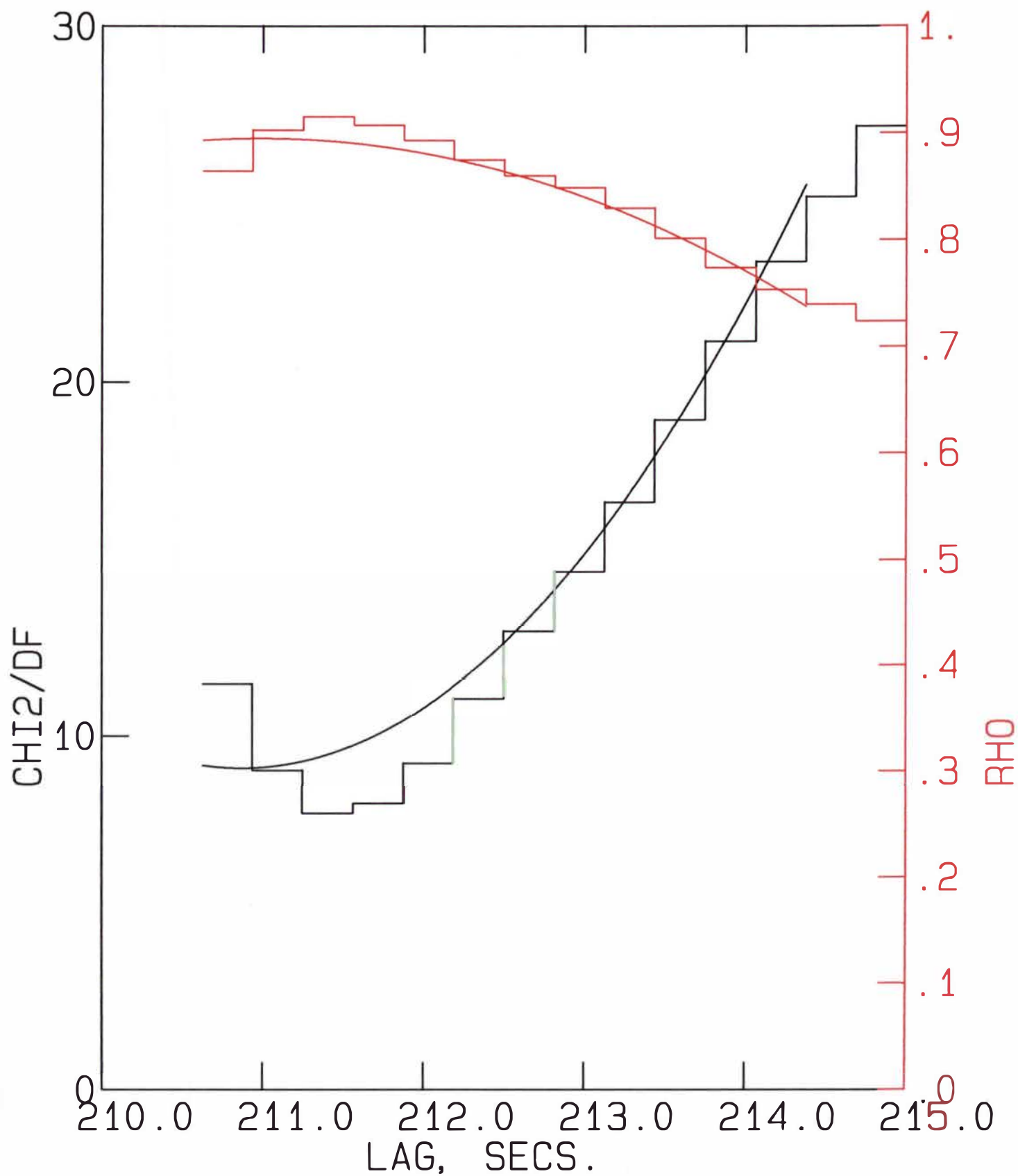
26560.745

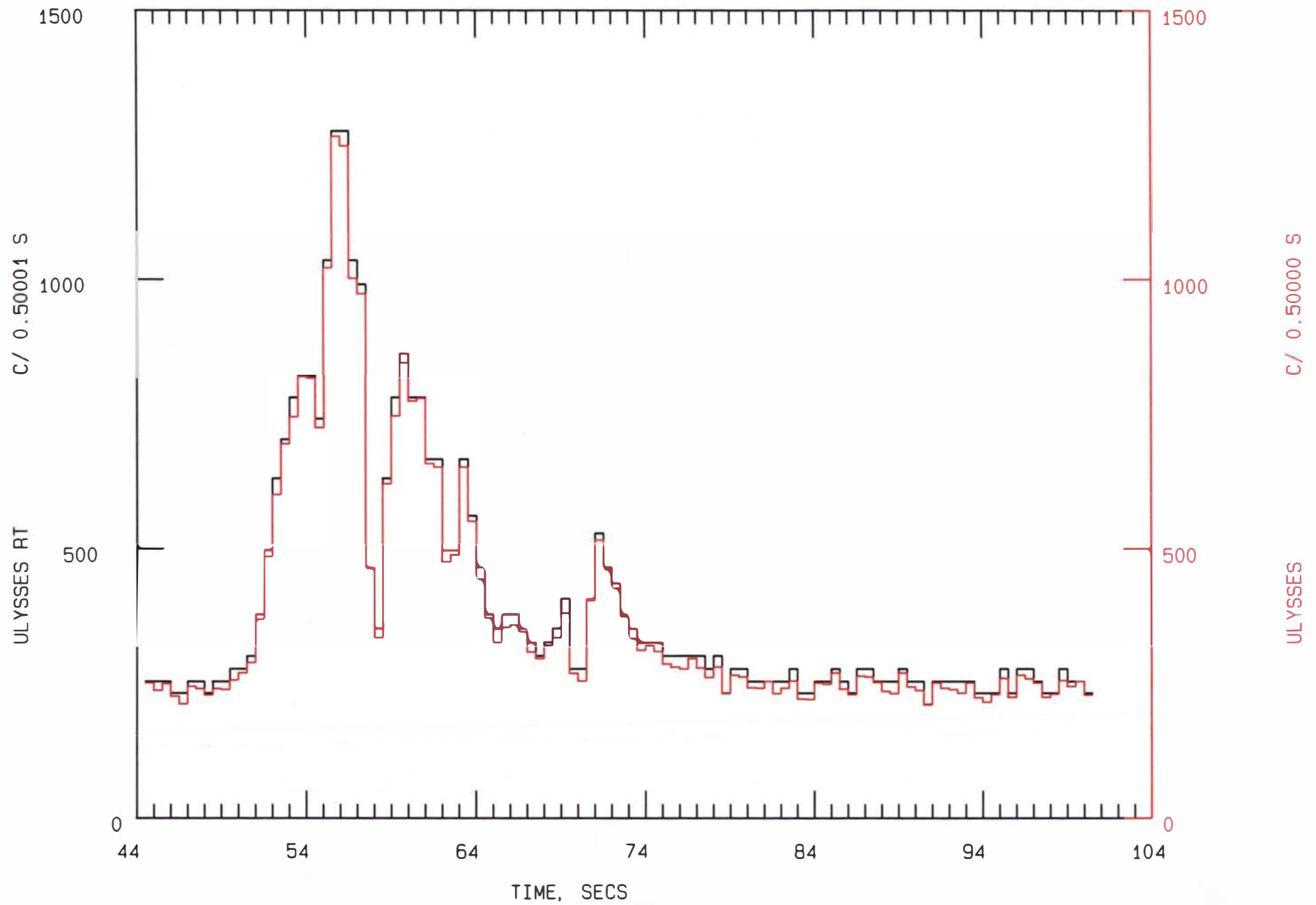
12/ 1/ 1

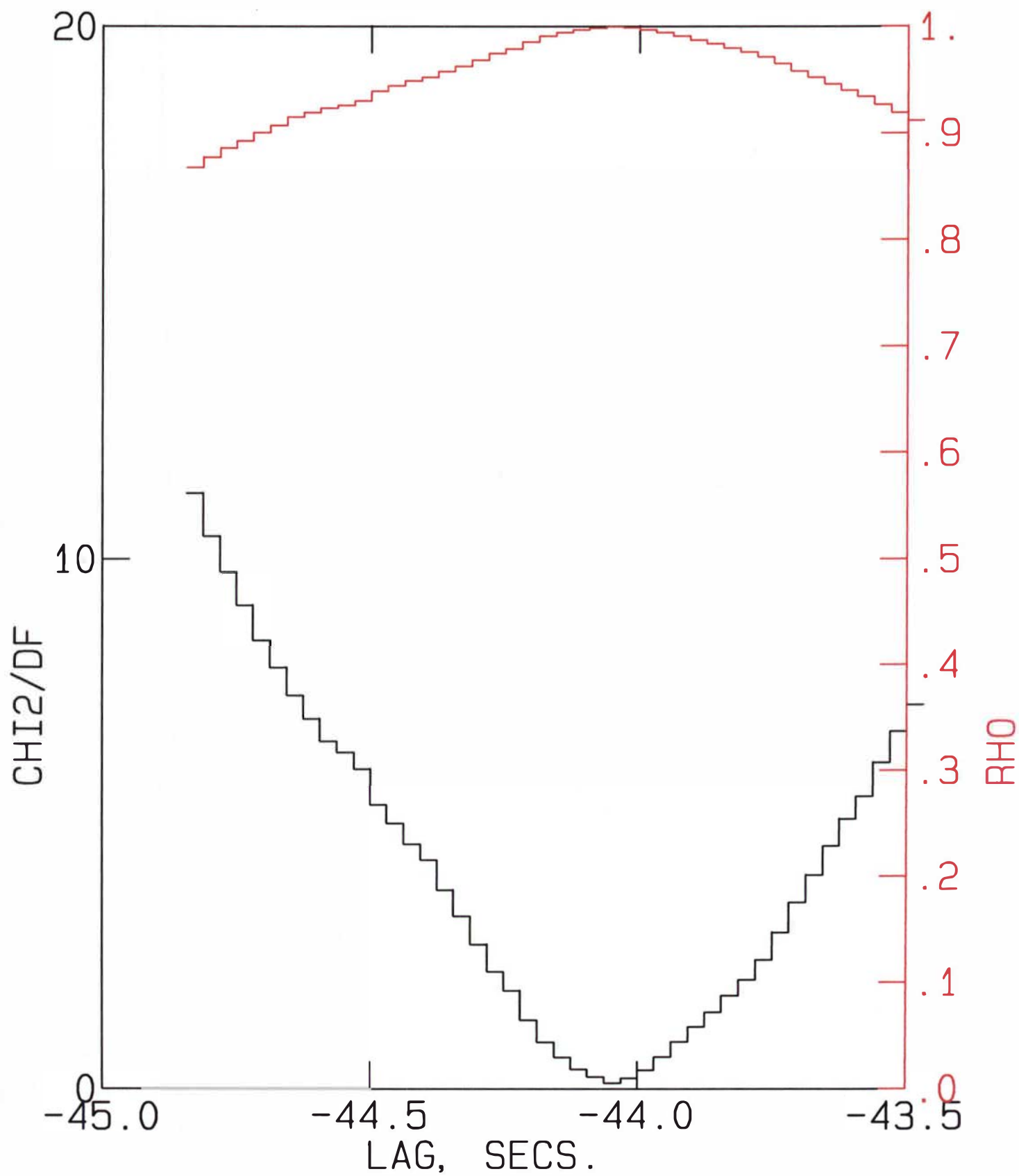








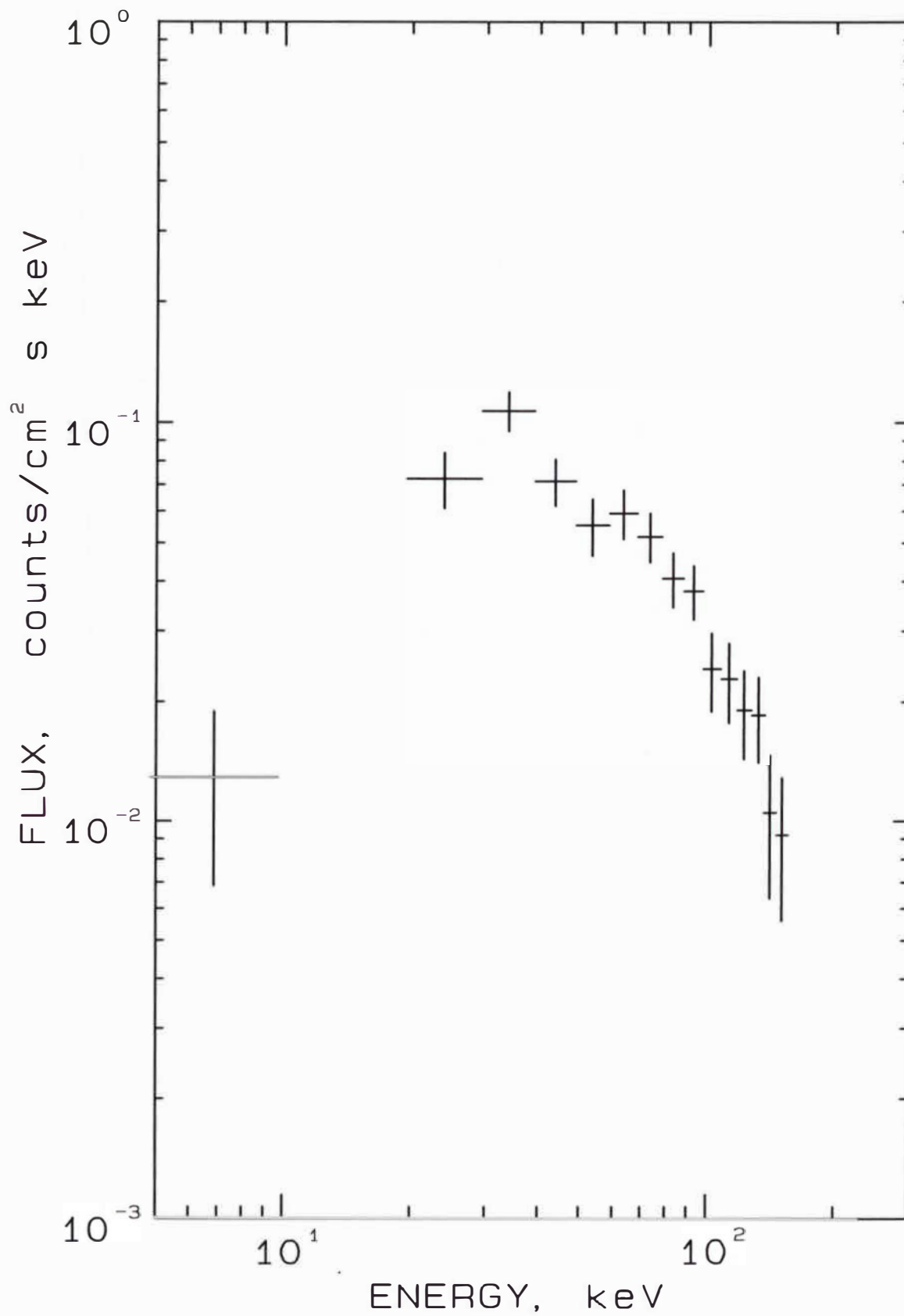




ULYSSES 25/12/00 25806.527

12/ 1/ 1

SPECTRUM INTEGRATED OVER 174.0 SECONDS, INTERVALS 2 TO 40



BURST SPECTRAL COUNT RATES

25806.527

25/12/00

LLSSES

135-155 keV

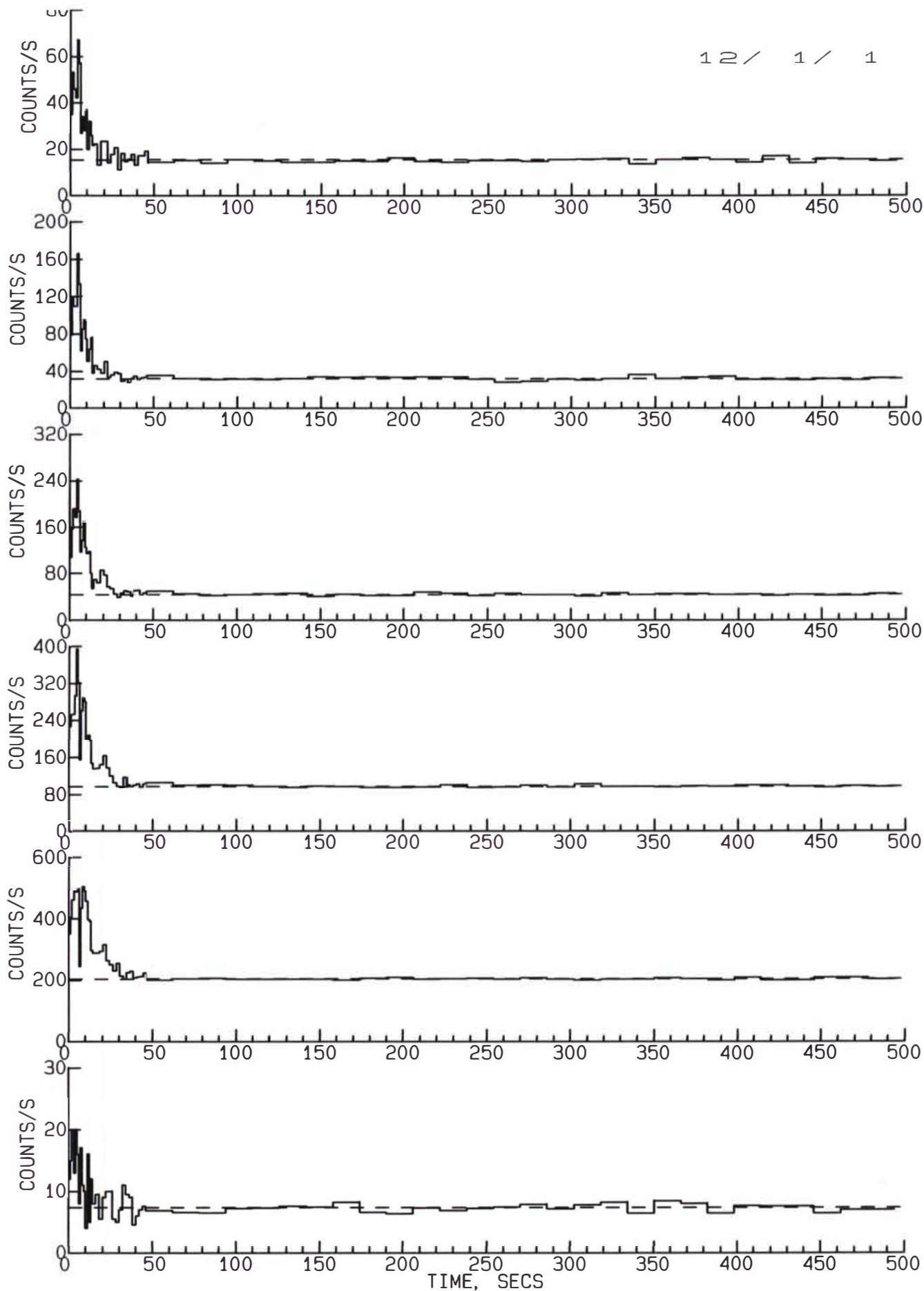
106-135 keV

77-106 keV

48- 77 keV

19- 48 keV

4- 19 keV

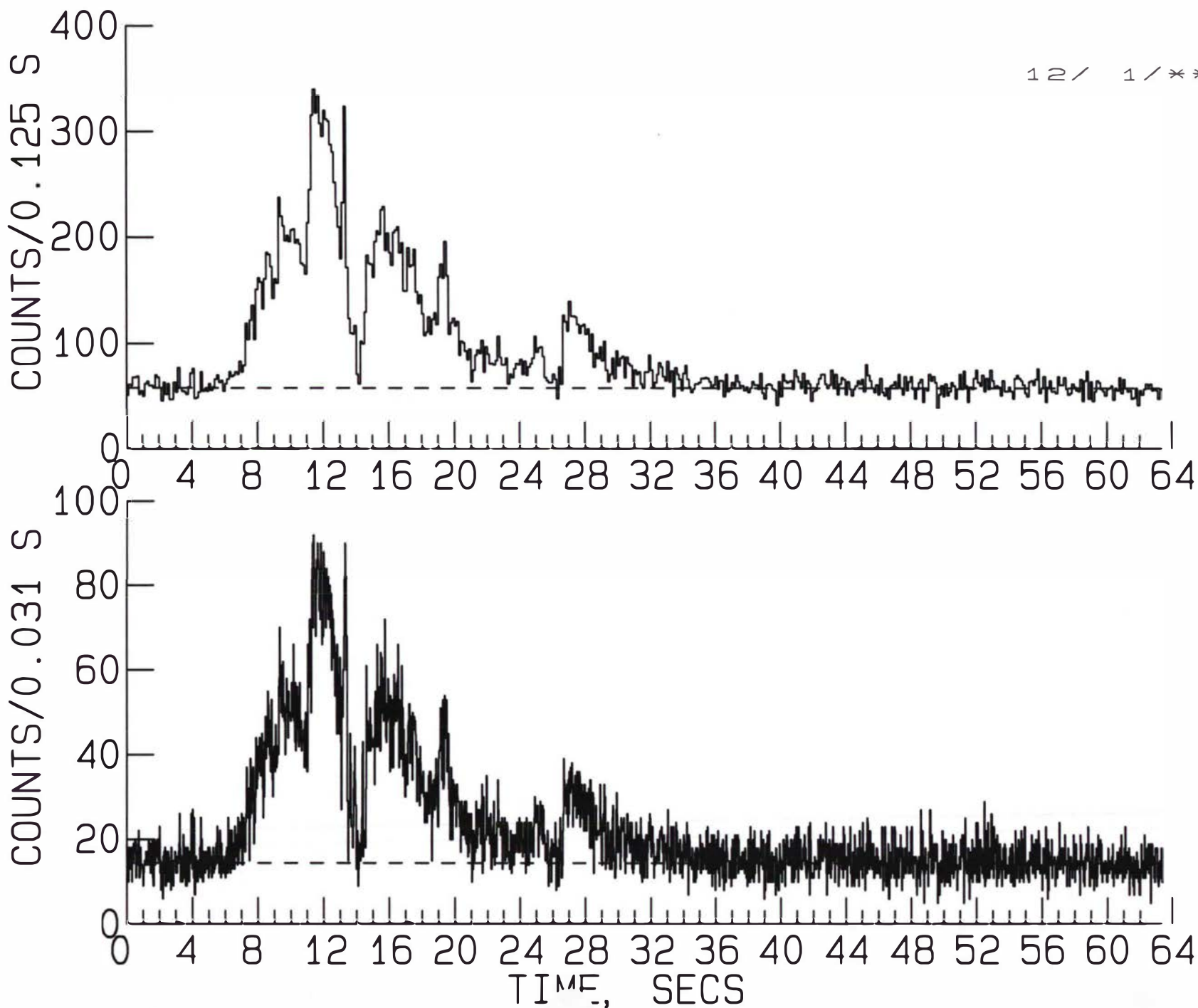


ULYSSES

25/12/00

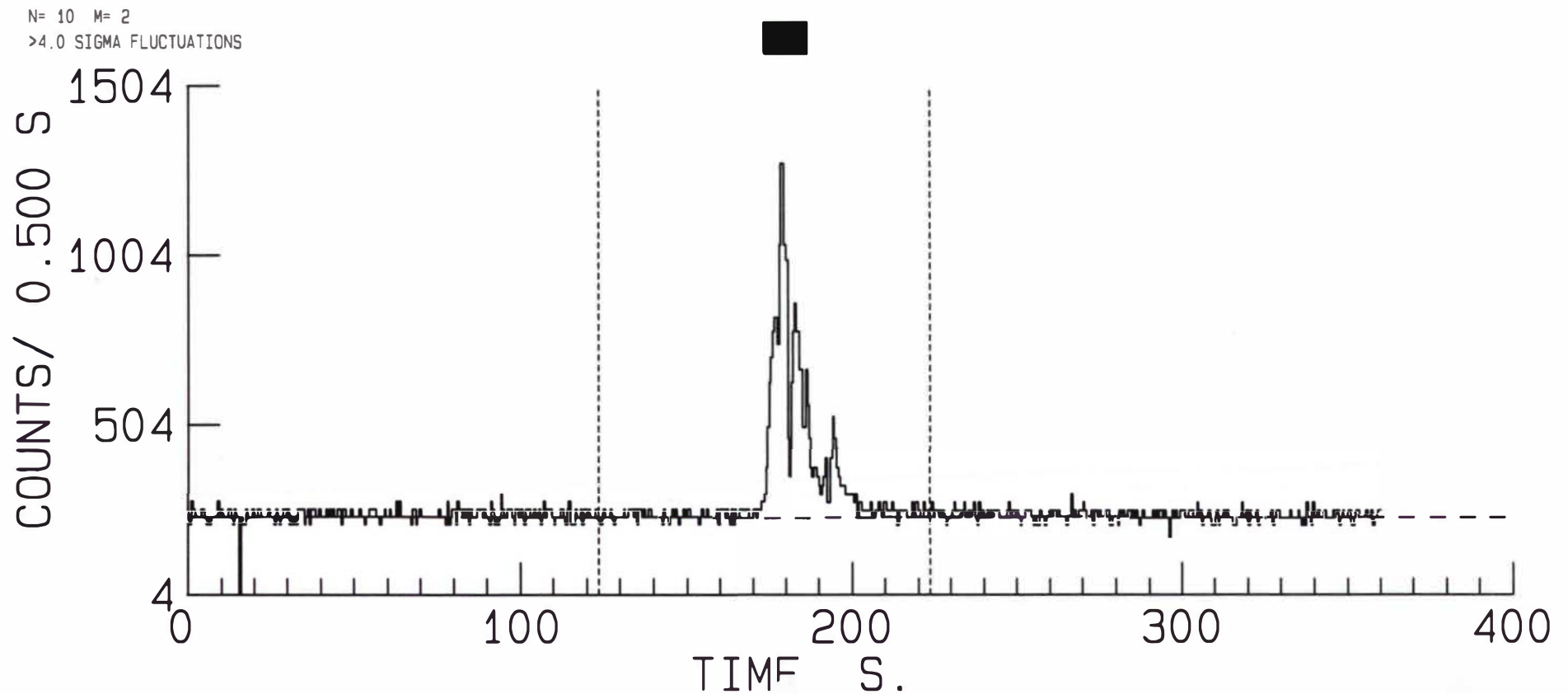
Ttrig=25806.539

0- 0 keV



ULYSSES RT
25/12/ 0 25632.065 s
23- 155 keV

12 / 1 / 1

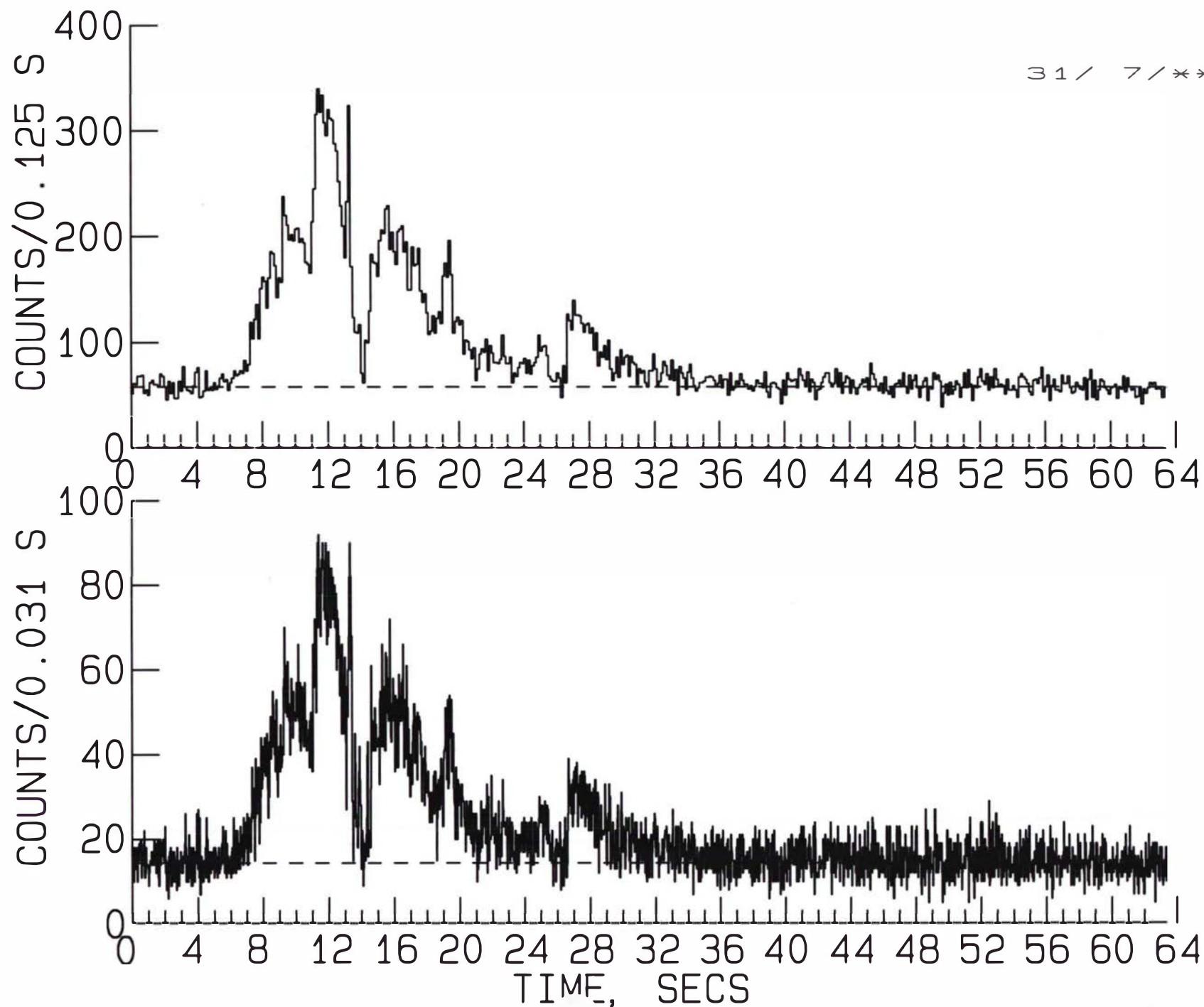


ULYSSES

25/12/00

Ttrig=25806.570

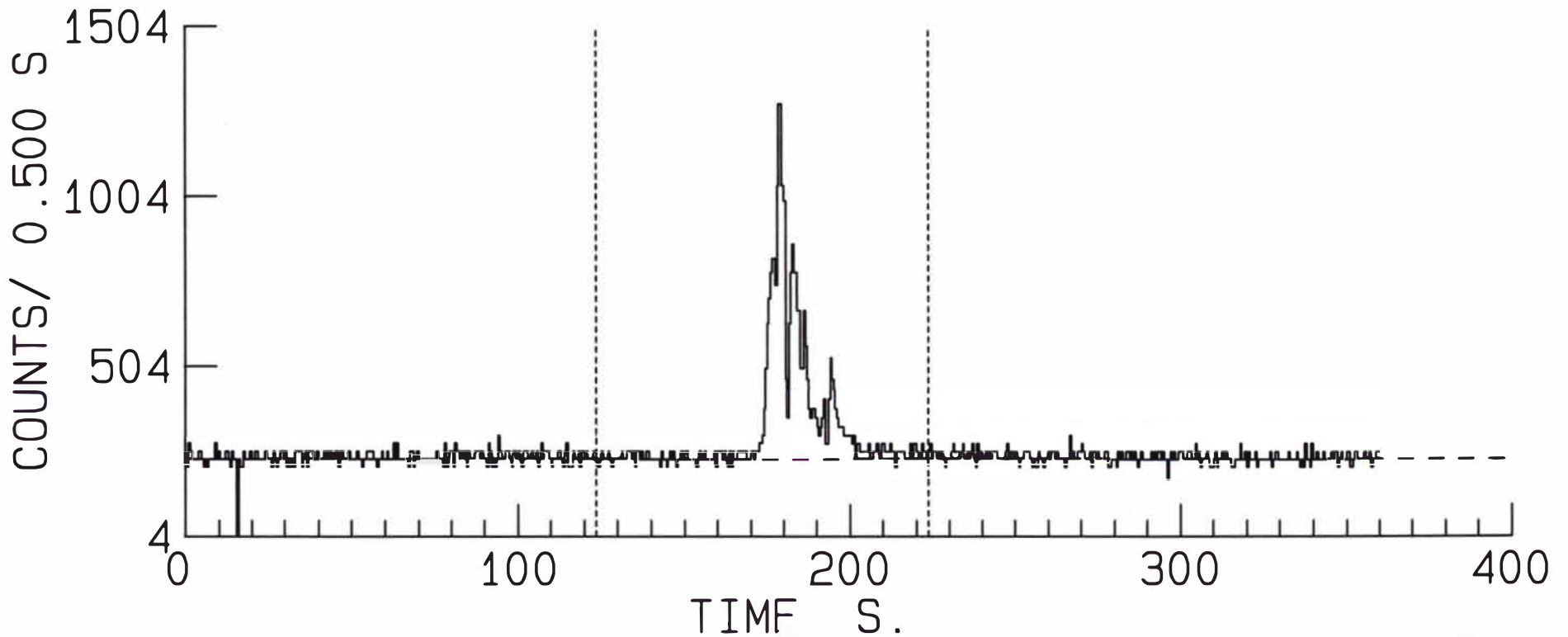
23- 156 keV



ULYSSES RT
25/12/ 0 25632.066 s
23- 156 keV

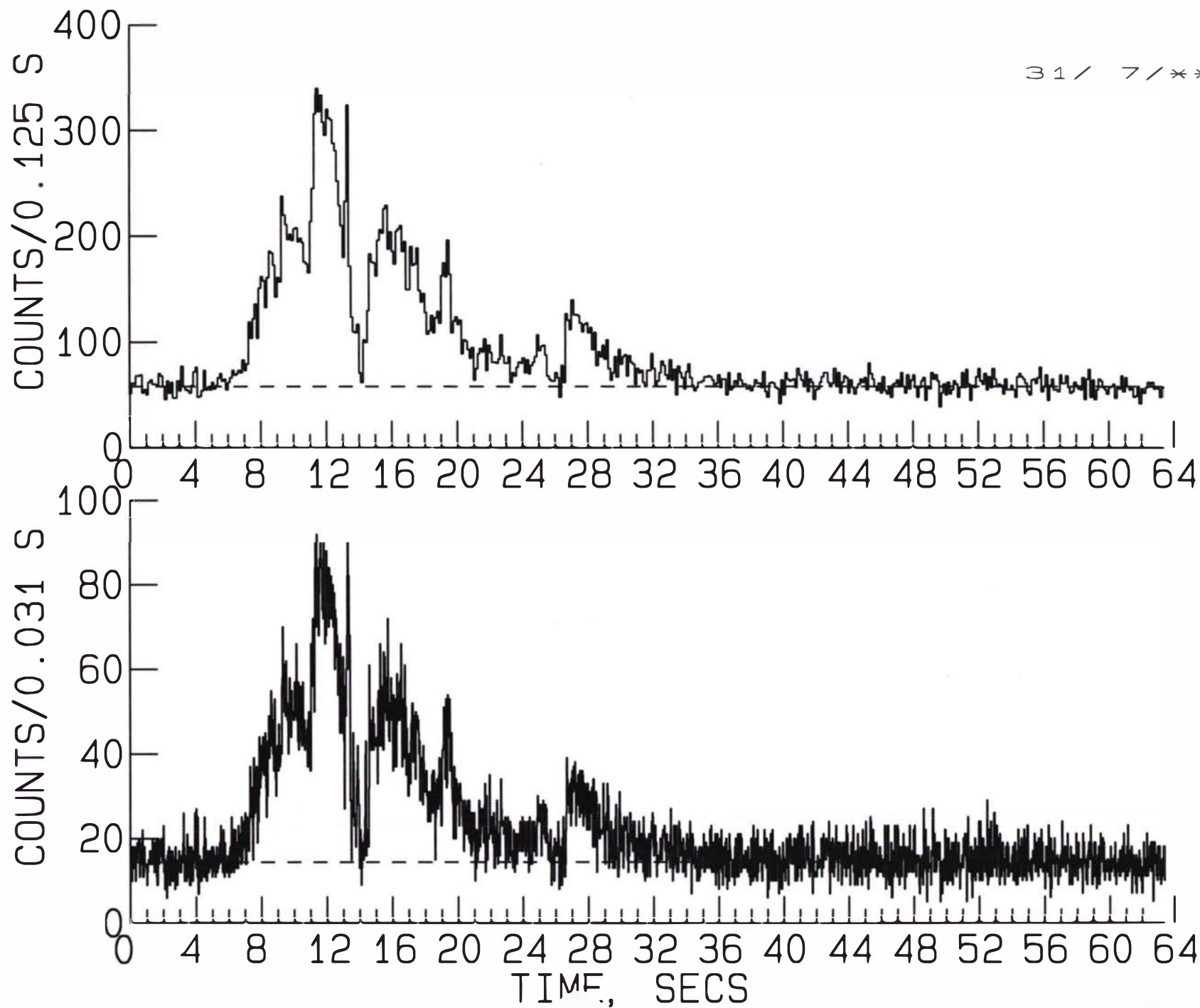
31 / 7 / 7

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



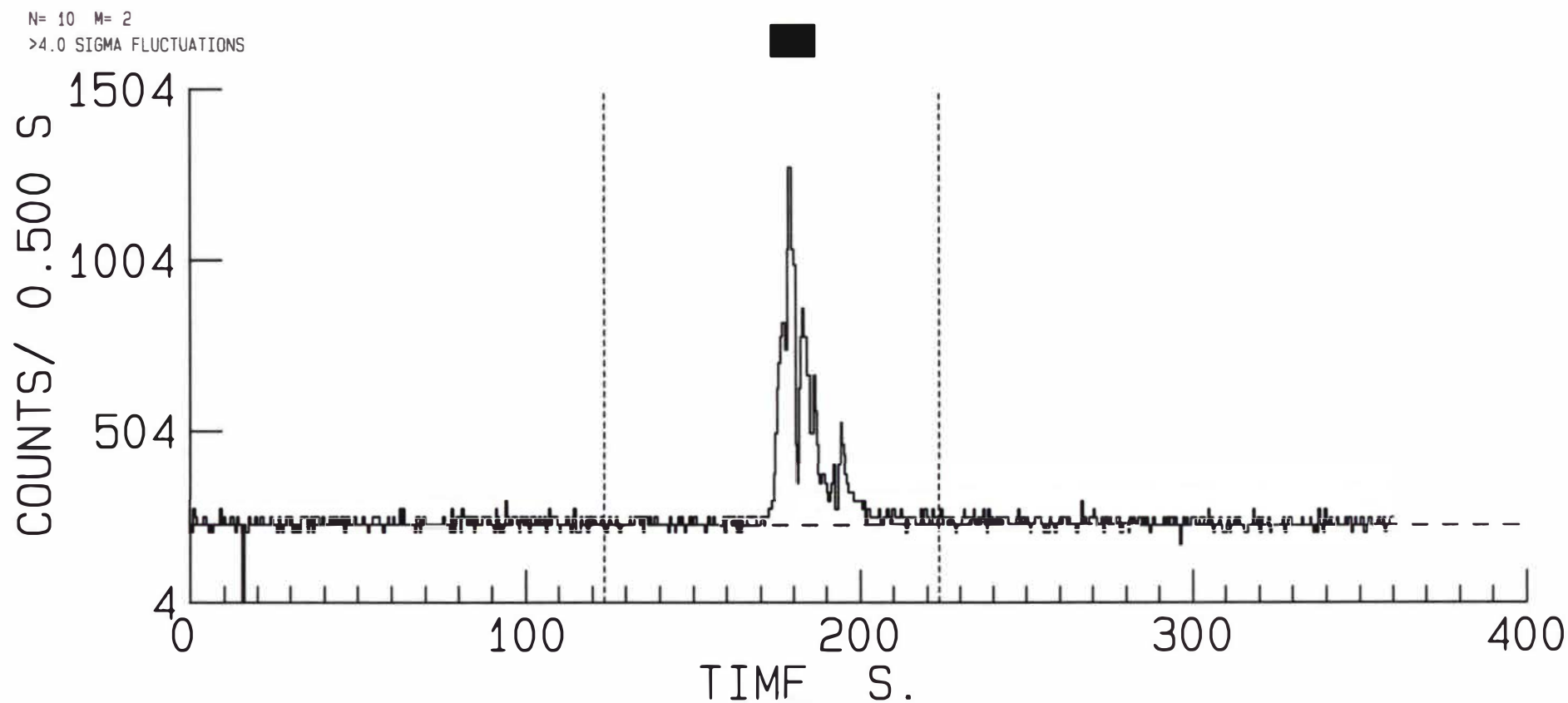
ULYSSES 25/12/00 Ttrig=25806.570

23- 156 keV



ULYSSES RT
25/12/ 0 25632.066 s
23- 156 keV

31 / 7 / 7

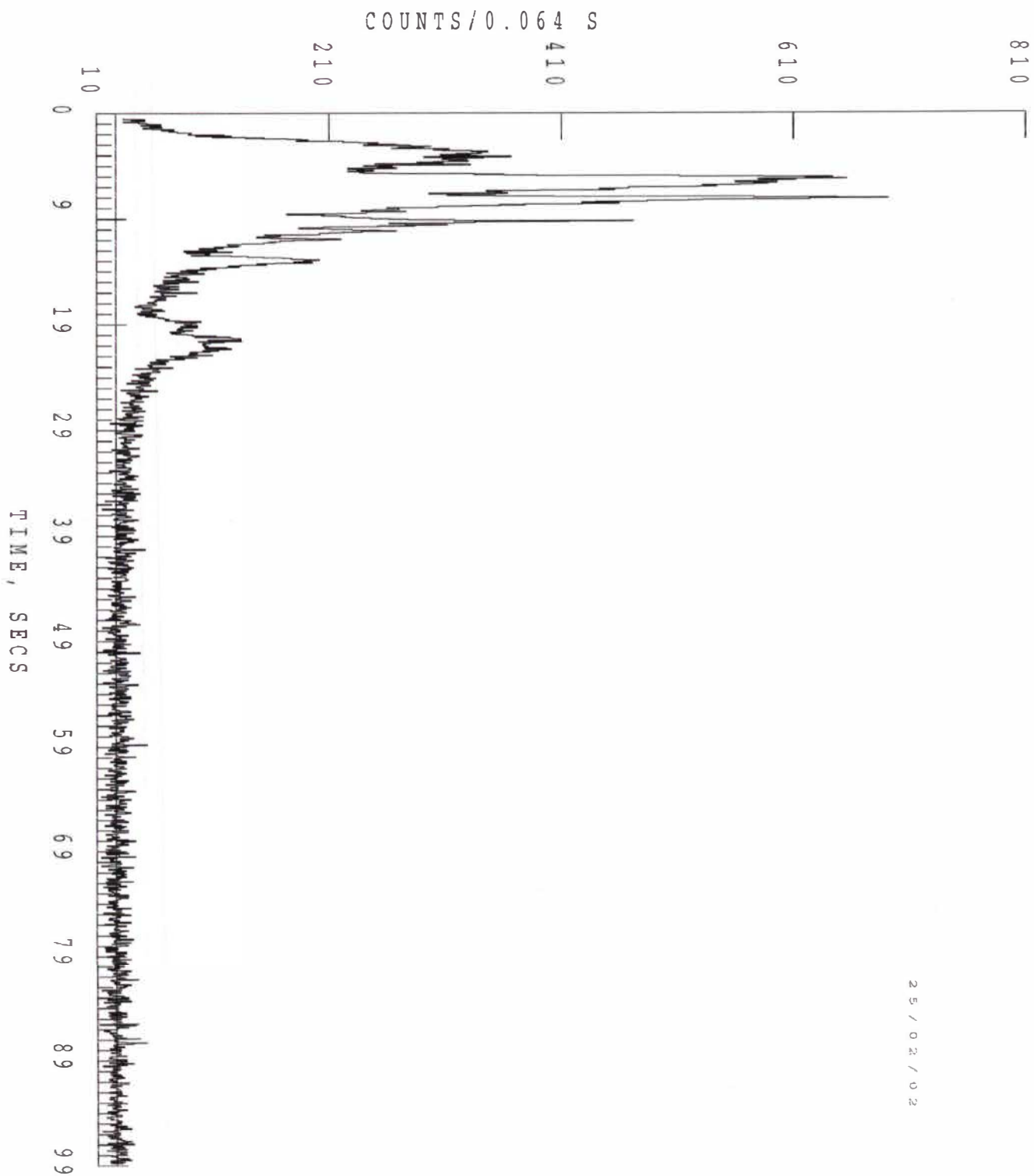


KONUS1

25/12/00

25760.336

50 - 200 keV

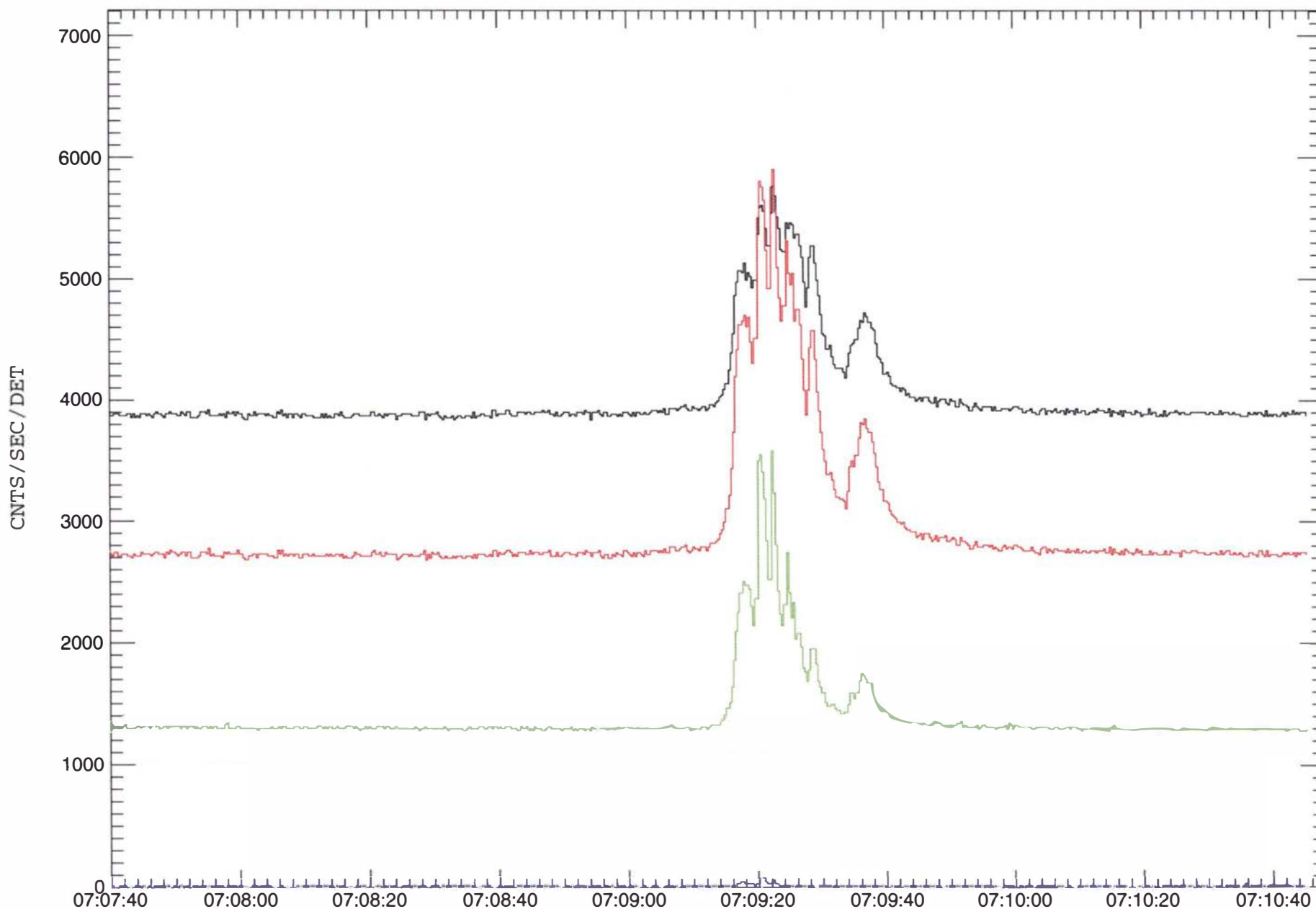


25 / 02 / 02

FREGATE SURVEY (TH) TIME HISTORY (AVG x1) -- DETECTORS 1-4 SUMMED (fregate_20001225_25759)

BEG TIME: 25/12/00 DOY 360 Julian 2451904.79708 UT = 07.130 07:07:48 (25668.000 secs) [sct = 0019 36e2 654a 627d]
 END TIME: 25/12/00 DOY 360 Julian 2451904.79917 UT = 07.180 07:10:48 (25848.000 secs) [sct = 0019 36e2 7004 f803]

Chan 1:[E1=18 E2=103] Chan 2:[E3=18 E4=78] Chan 3:[E5=20 E6=510] Chan 4:[E6=510 ->]
 Channel 1 + 3600 Channel 2 + 2400 Channel 3 + 1200 Channel 4 + 0



From grr@space.mit.edu Wed Dec 27 05:09 PST 2000
Mime-Version: 1.0
X-Sender: grr@space.mit.edu (Unverified)
Date: Wed, 27 Dec 2000 08:07:12 -0500
To: khurley@ssl.berkeley.edu (Kevin Hurley), grr@space.mit.edu,
nkawai@postman.riken.go.jp
From: "George R. Ricker" <grr@space.mit.edu>
Subject: Re: Christmas Burst from HETE?
Cc: aml@space.mit.edu, atteia@cesr.fr, ayoshida@postman.riken.go.jp,
boer@cesr.fr, carlo@oddjob.uchicago.edu, couteret@cesr.fr,
crc@space.mit.edu, dezalay@cesr.fr, ebg@space.mit.edu,
efenimore@lanl.gov, farewell@space.mit.edu, fjlarosa@space.mit.edu,
fm@space.mit.edu, francis.cotin@cesr.fr, frd@space.mit.edu,
gbc@space.mit.edu, gmh@space.mit.edu, graziella@tesre.bo.cnr.it,
gyp@space.mit.edu, harch-all@space.mit.edu,
hatukade@astro.miyazaki-u.ac.jp, hete-ops@space.mit.edu,
hete-science@space.mit.edu, jbr@pobox.com, jean-luc.issler@cnes.fr,
jgj@sunspot.ssl.berkeley.edu, jpd@space.mit.edu, jsvilla@space.mit.edu,
khurley@sunspot.ssl.berkeley.edu, lamb@oddjob.uchicago.edu,
matsuoka@postman.riken.go.jp, monnelly@space.mit.edu,
nrbutler@space.mit.edu, olive@cesr.fr, pgf@space.mit.edu,
pwyong@mit.edu, rickf@space.mit.edu, roland@space.mit.edu,
rosalia@lanl.gov, sek@space.mit.edu, tye@space.mit.edu,
wfm@space.mit.edu, williams@sunspot.ssl.berkeley.edu,
woosley@ucolick.org

Kevin,

Because the Earth-Sun-Eros angle was fortuitously close to a right angle on December 25, the geometry for the annulus is rather easy (and fun!) to work out manually.

The estimate I came up with is that the cone angle for the annulus is about 40 degrees. The Eros-Earth line defines the central axis of the cone, and points to a location in the sky that was at HETE's zenith about 30 degrees in longitude prior to sunrise.

Since HETE was situated about 45 degrees before sunrise at the time of the event, the satellite zenith was only about 15 degrees away from the annulus center.

If I got all this right, the bottom line is that about 50% of the annulus was within 45 degrees of HETE's zenith, and 100% of the annulus was within 75 degrees of HETE's zenith.

This geometry is consistent with the fact that the FREGATE signal from even the low energy channels was virtually identical in all 4 detectors.

I am trying to reach Jean-Luc in Spain, and will be emailing .ps files with the light curves tomorrow.

--George

CC: BeppoSAX was near the mouth of the Amazon at the time of the event, and at 2.3 degrees S latitude, so they may have been close enough to the SAA that they may have shut down their HV. They have not yet responded to my email.

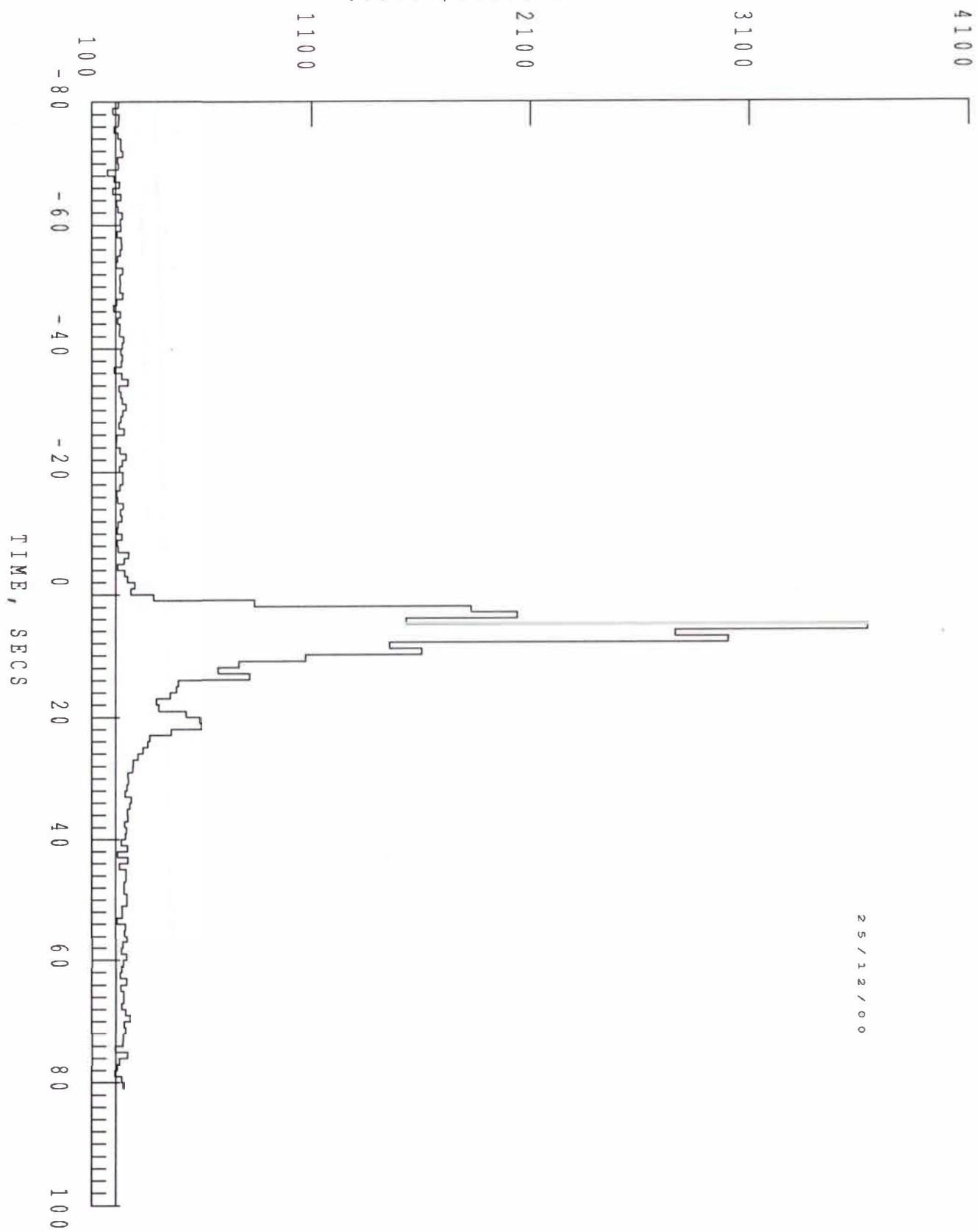
NEAR

25/12/00

26560.745

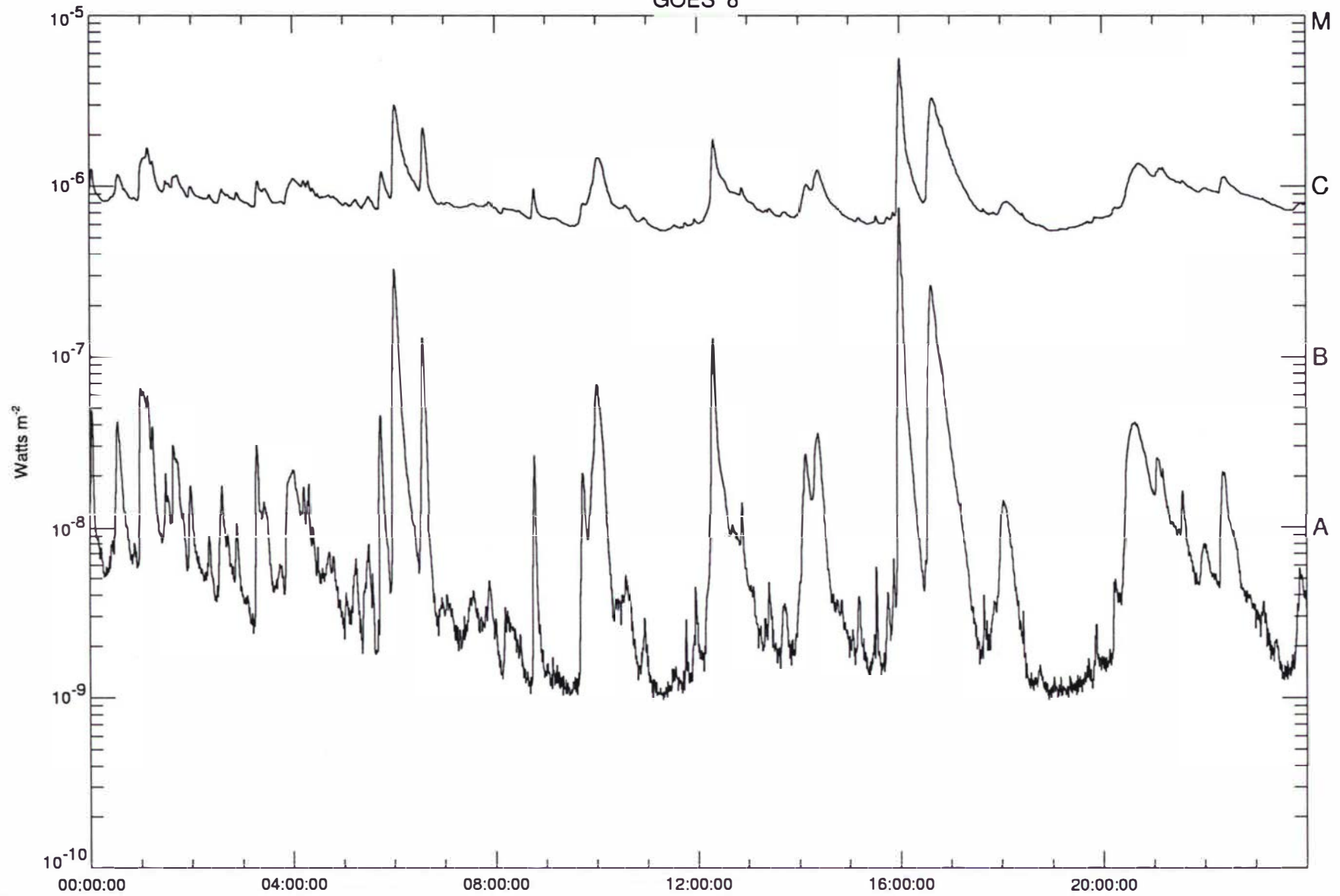
100-1000 keV

COUNTS/1.000 S



25/12/00

GOES 8



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

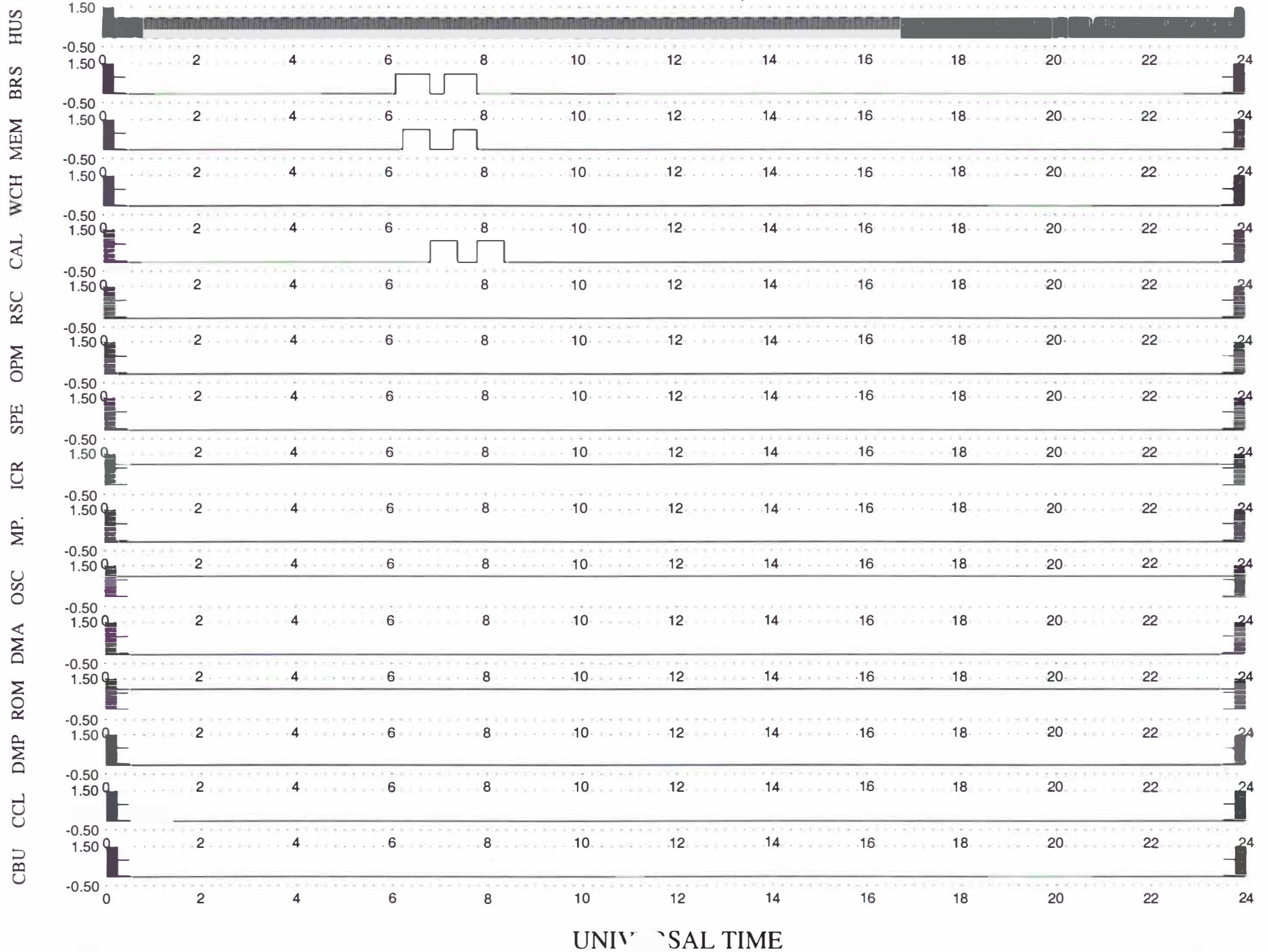
2 (0.5 - 4.0 Angstroms)

Background not subtracted

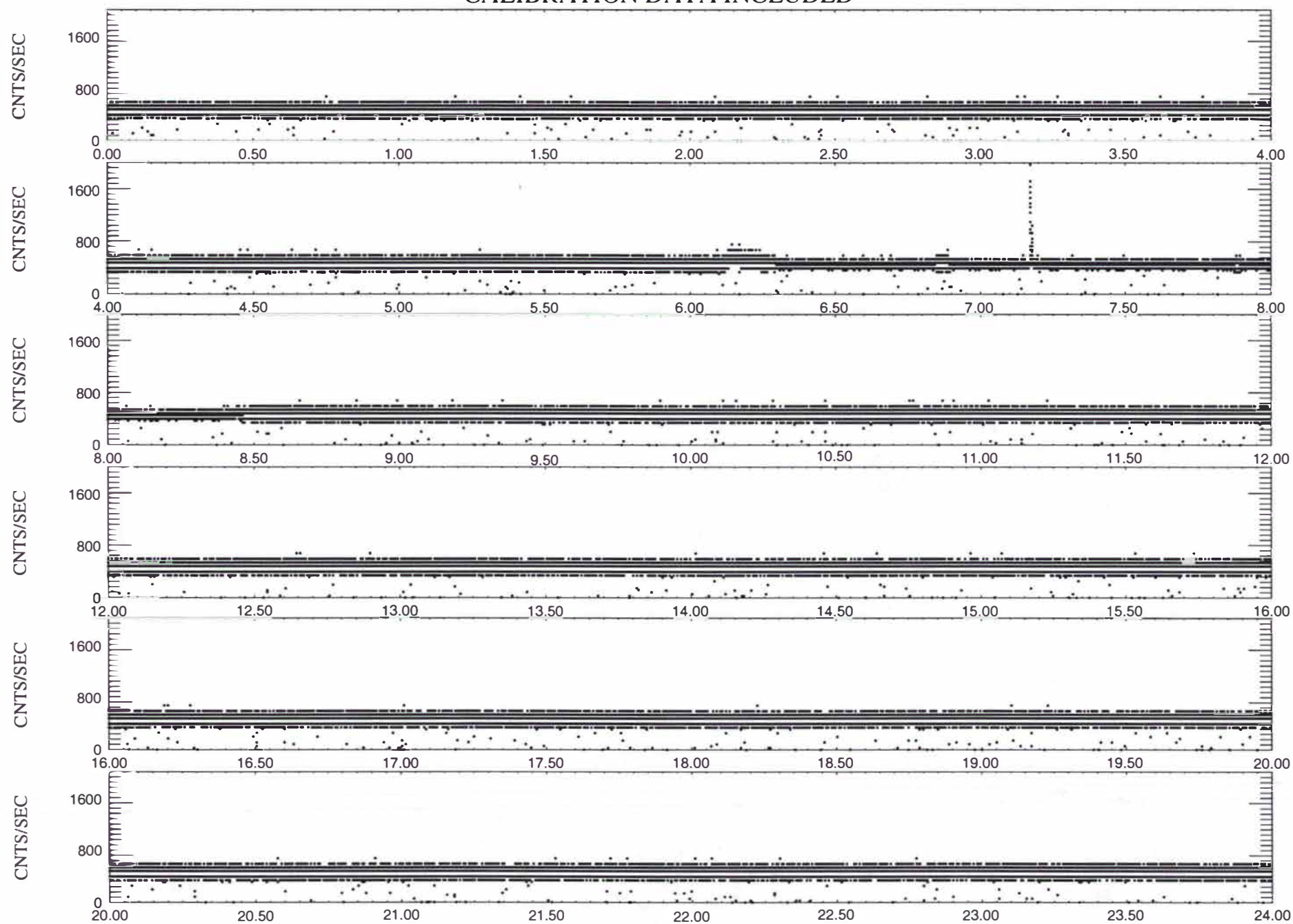
Plot created: 00/12/29, 1056

Sample average = 10

BURST NUMBER 14, 15

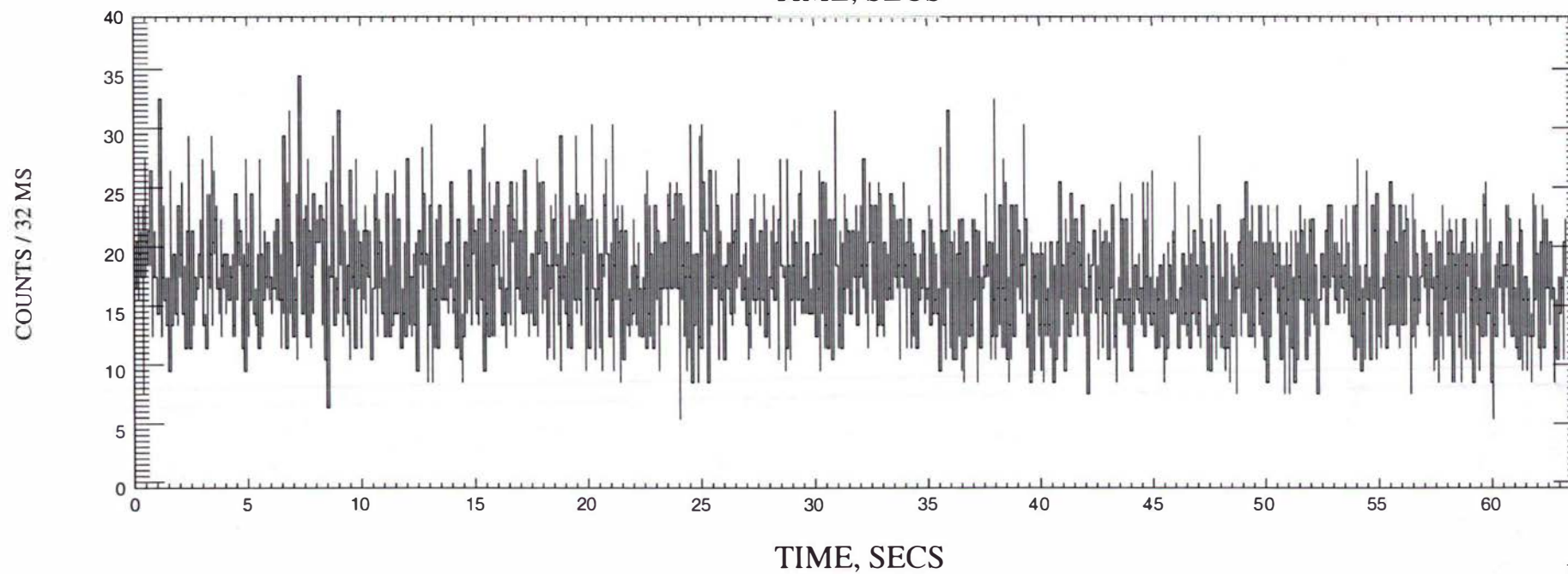
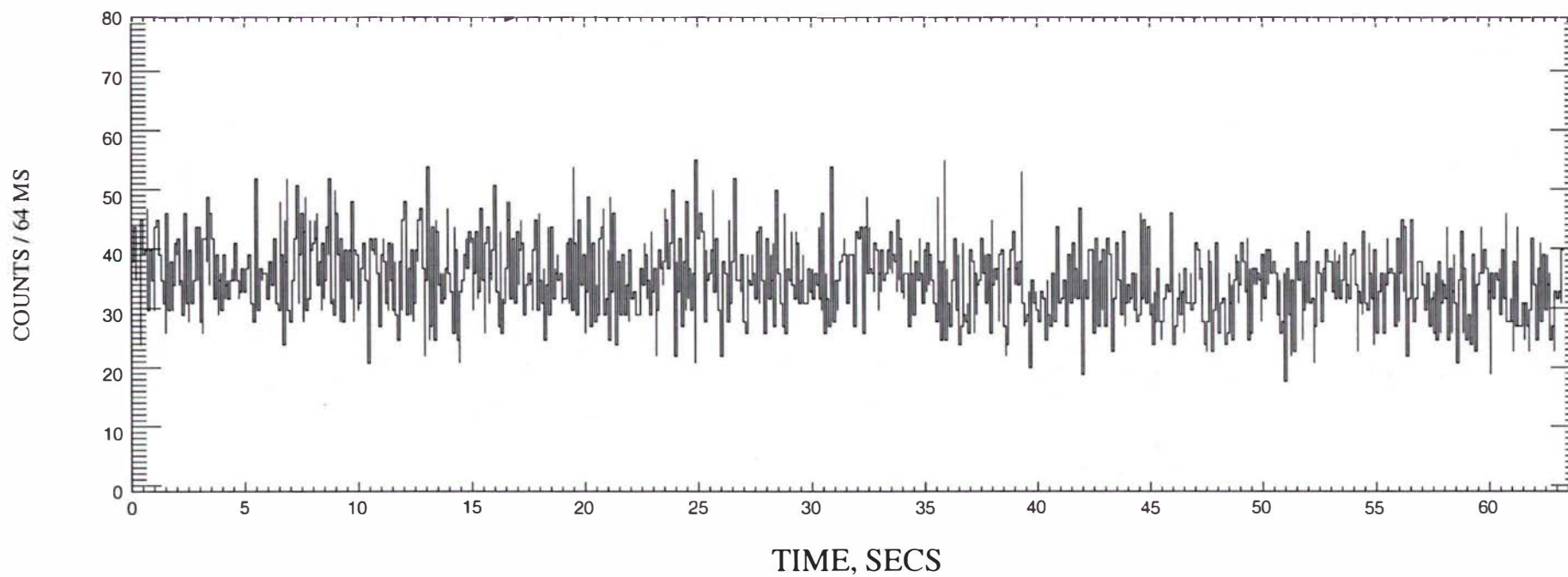


CALIBRATION DATA INCLUDED

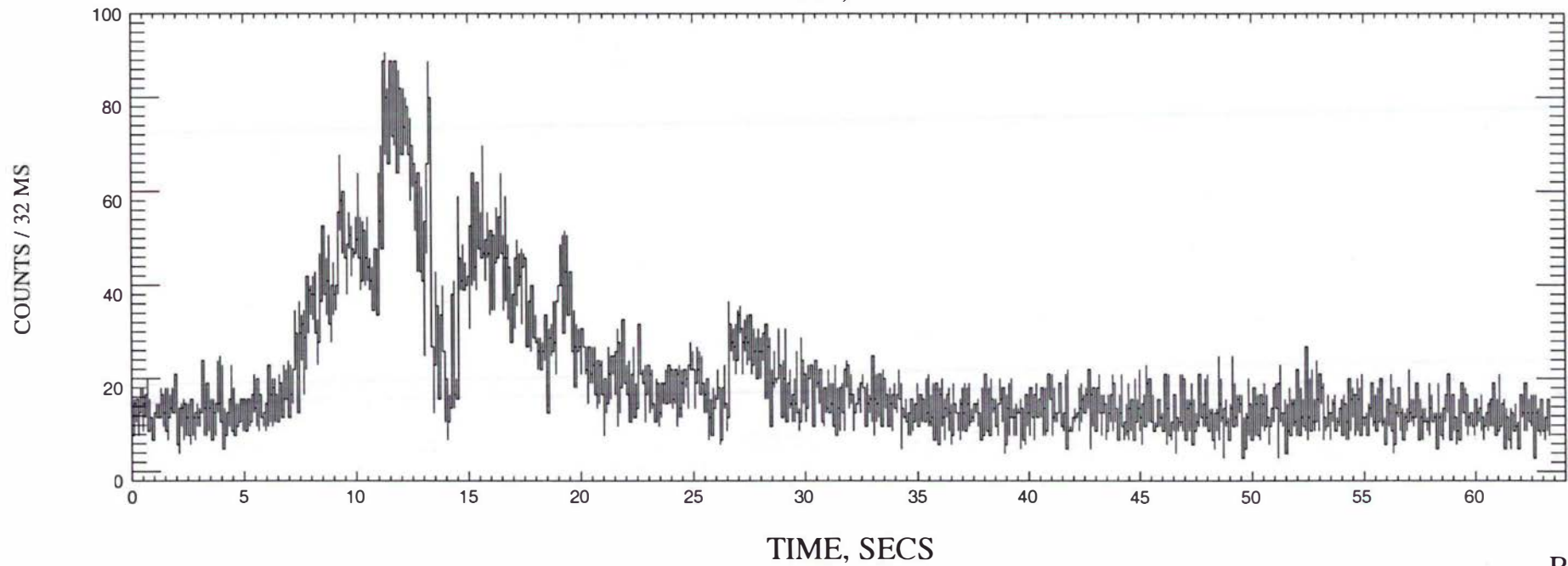
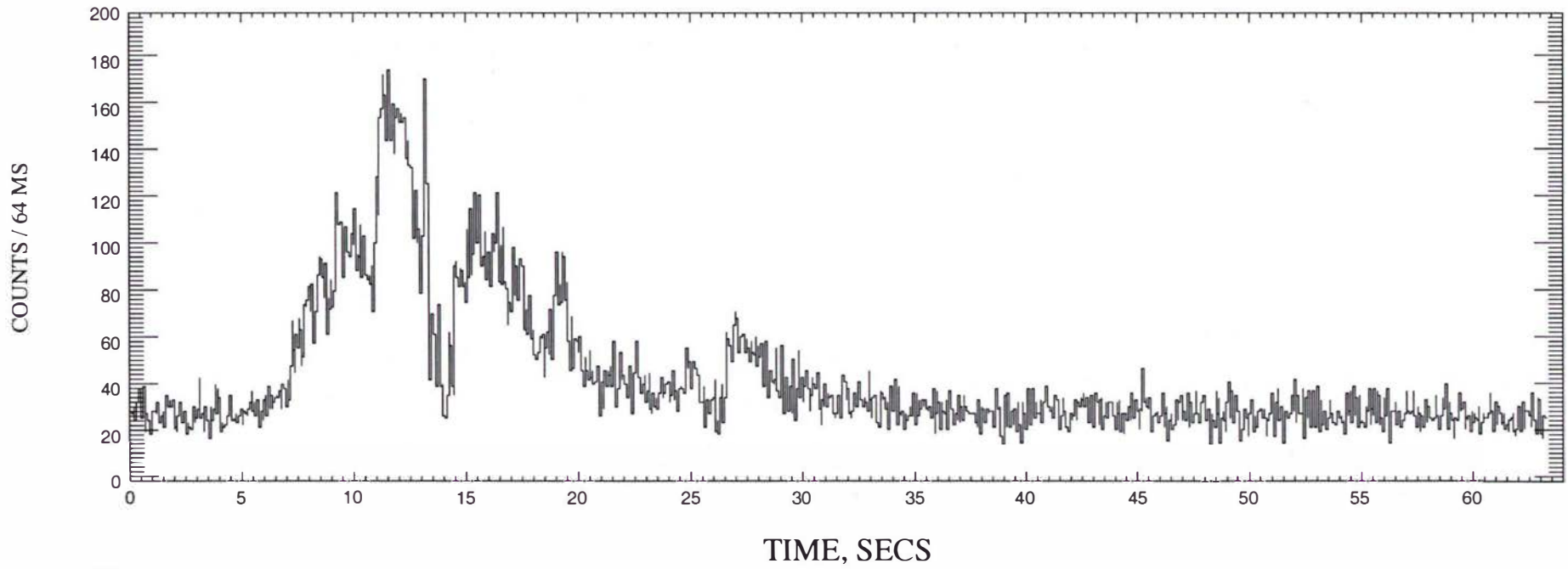


UNIVERSAL TIME

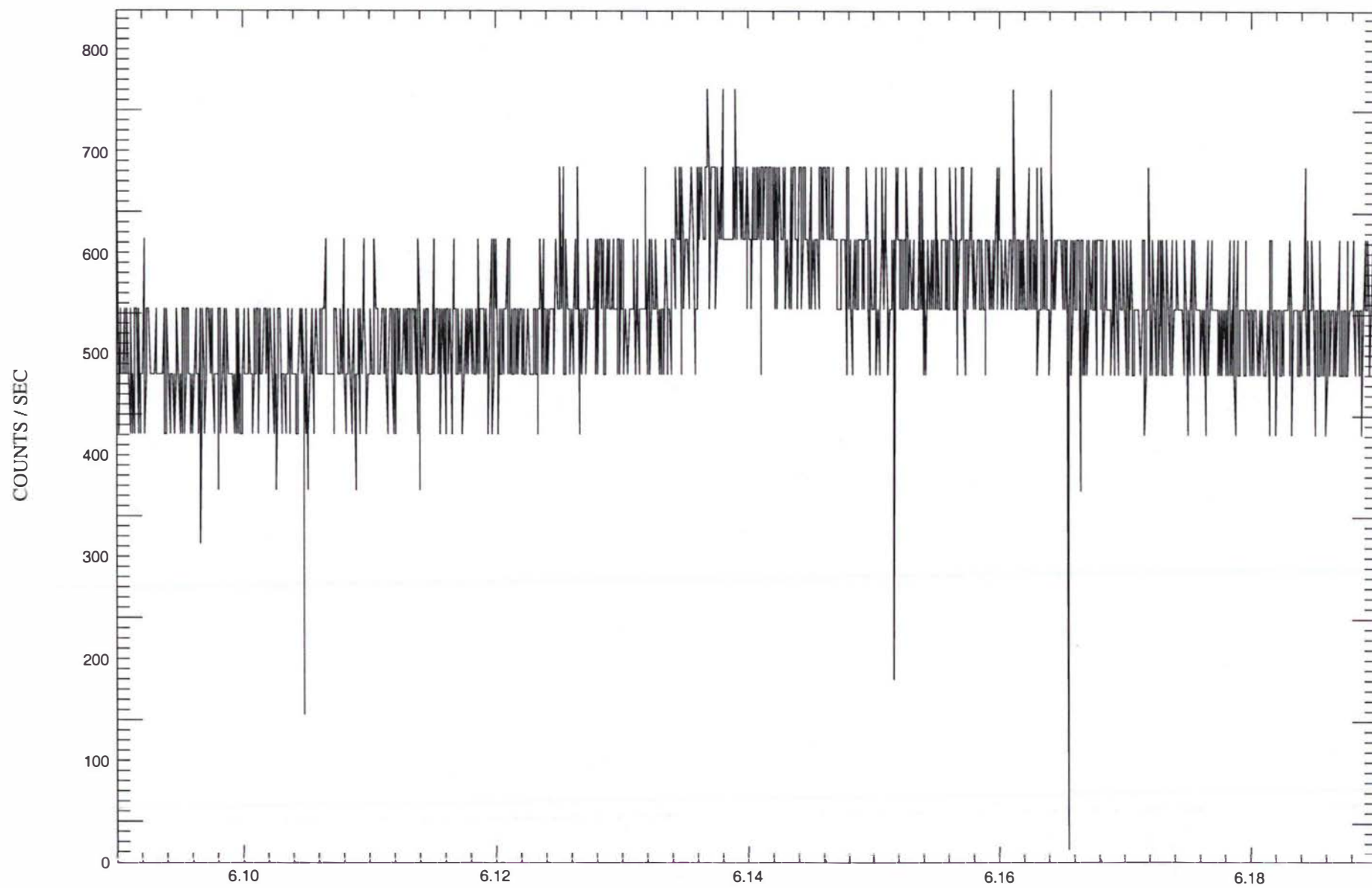
Burst Counter 14 at UT= 6.139167573717 h=22101.003 s 06:08:21.003



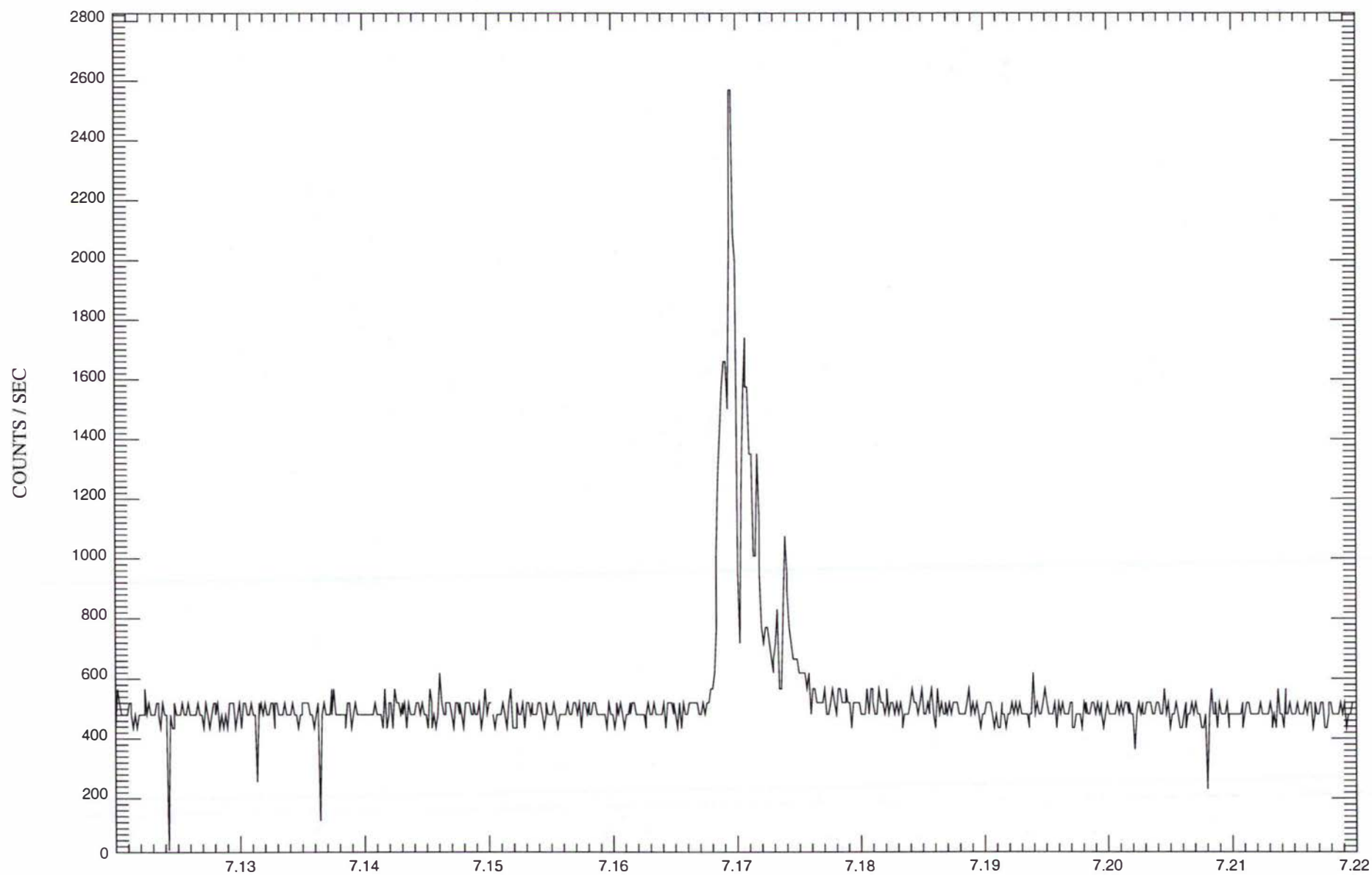
Burst Counter 15 at UT= 7.168479877048 h=25806.528 s 07:10:06.528

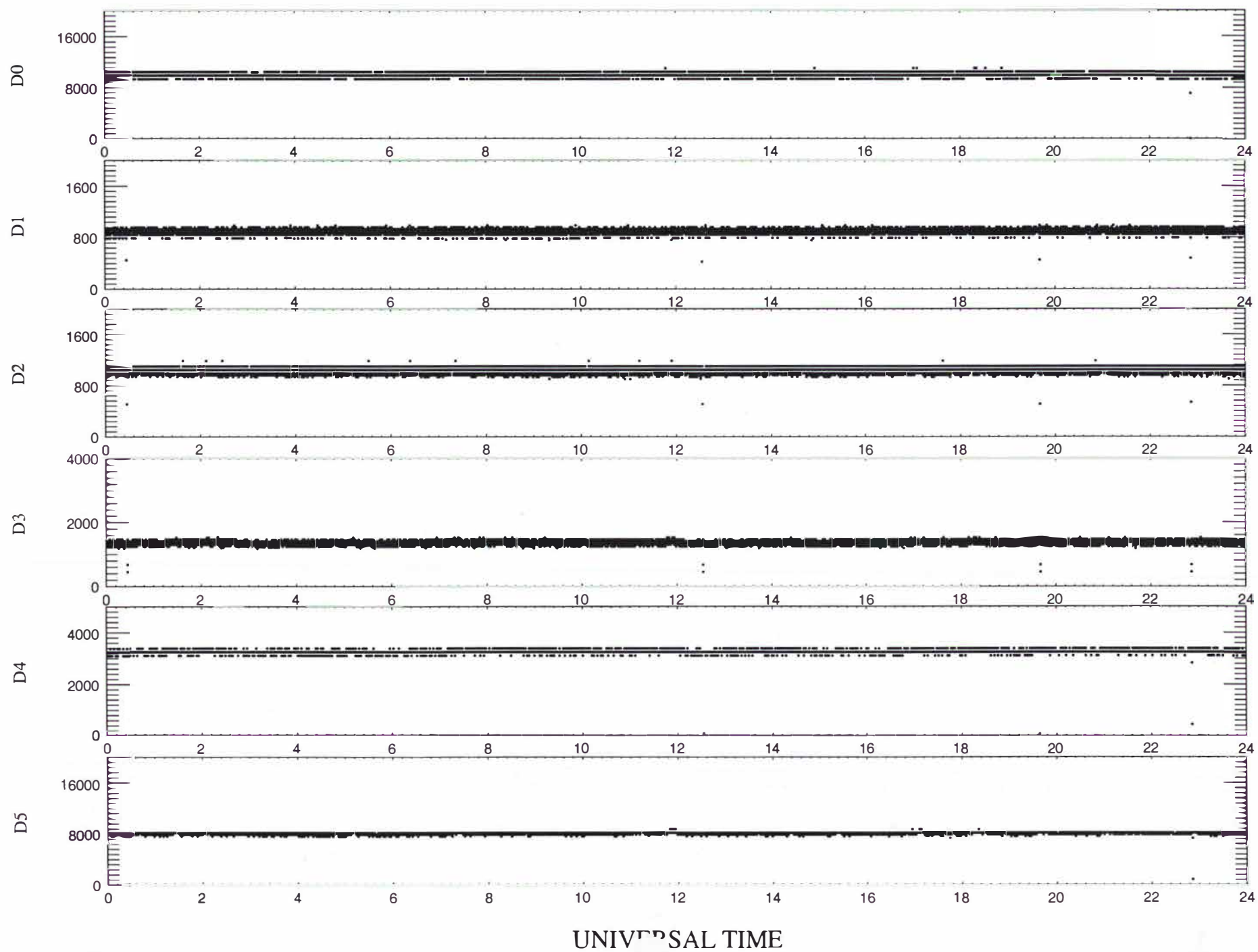


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





FREGATE SURVEY (TH) TIME HISTORY (AVG x1) -- DETECTORS 1-4 SUMMED

BEG TIME: 26/12/00 DOY 361 Julian 2451905.58720 UT = 02.093 02:05:33 (07534.00 secs) [sct = 0019 36f2 467e 3823]
 END TIME: 26/12/00 DOY 361 Julian 2451905.61093 UT = 02.662 02:39:43 (09583.97 secs) [sct = 0019 36f2 c0ae 3823]

Chan 1:[E1=18 E2=103]

Chan 2:[E3=18 E4=78]

Chan 3:[E5=19 E6=510]

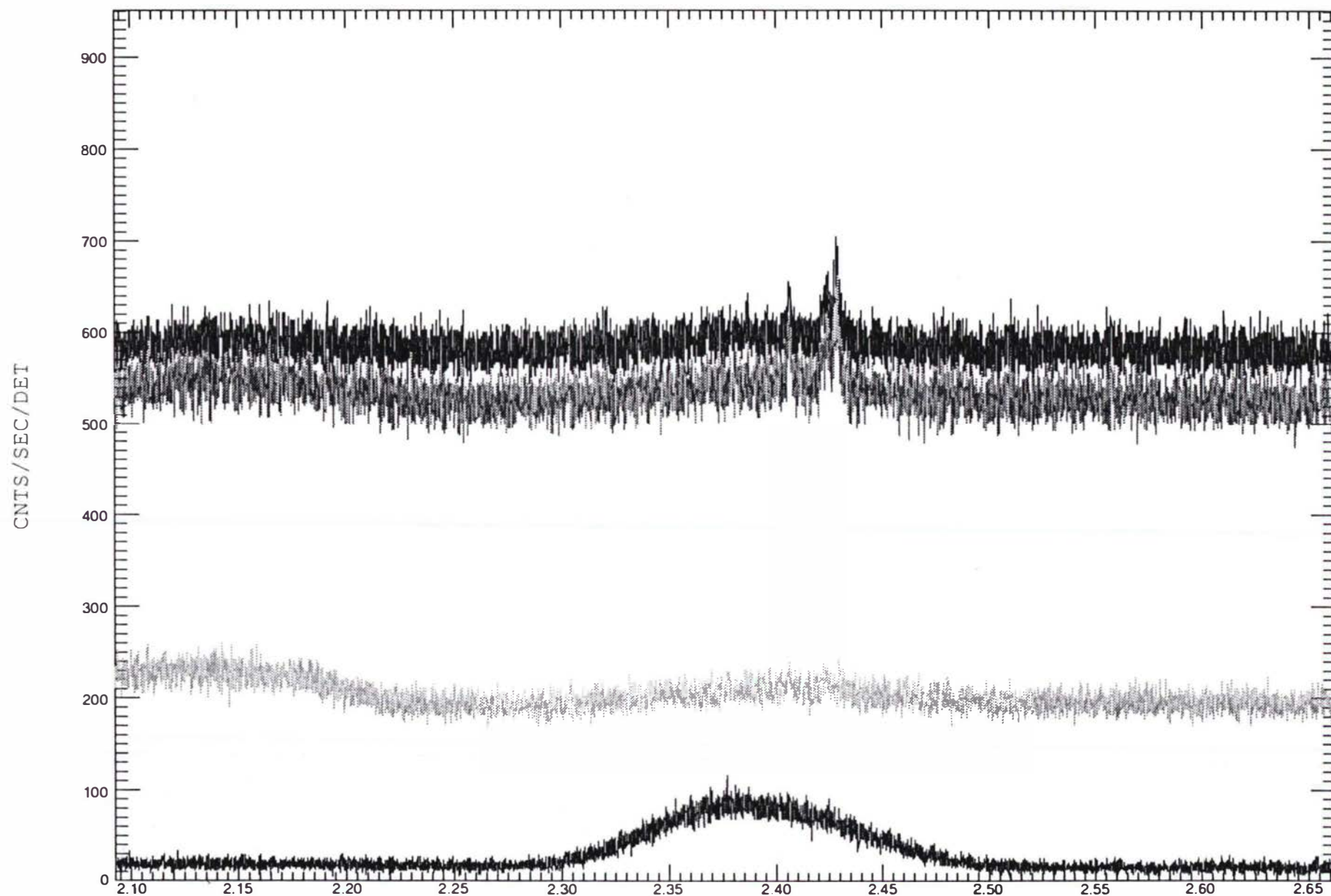
Chan 4:[E6=510 ->]

Channel 1 + 300

Channel 2 + 200

Channel 3 + 100

Channel 4 + 0



OURS UT

H E T E

U L Y S S E S R T

0 5 / 0 1 / 0 1

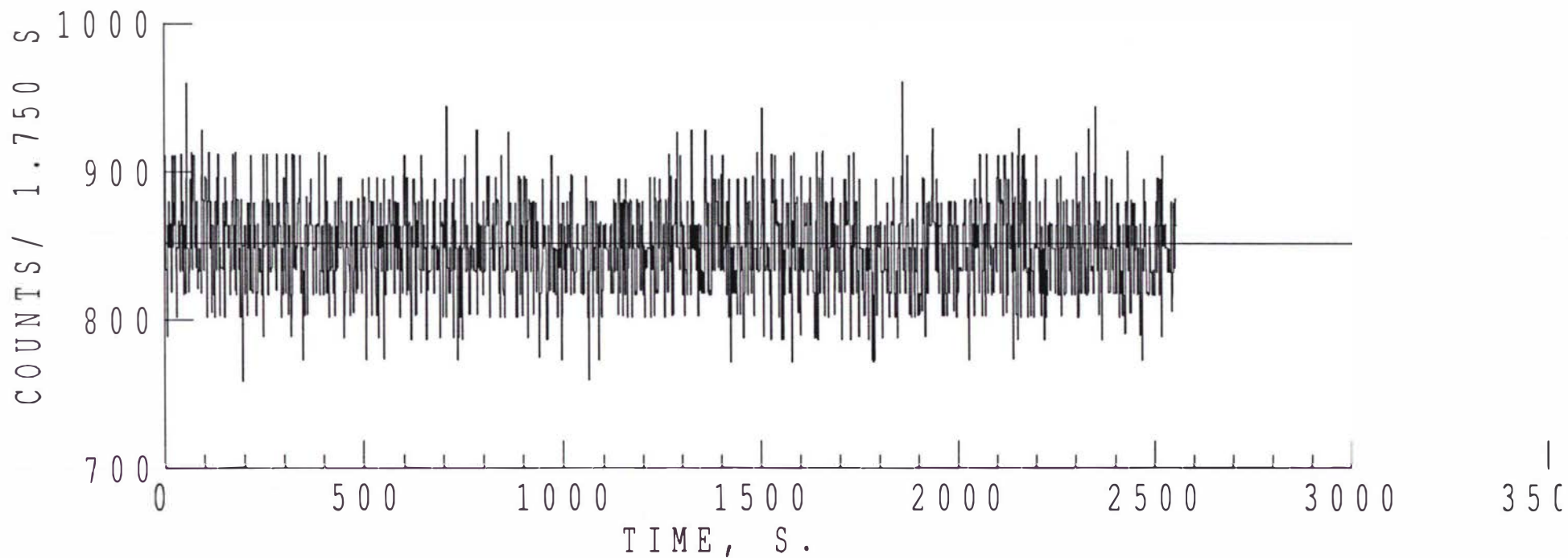
2 6 / 1 2 / 0 0 7 4 5 2 . 1 2 5 s

0 . 2 5 0 s I N T E R V A L S R E G R O U P E D B Y 7

0 - 0 k e V

H= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From guidorzi@fe.infn.it Tue Dec 26 05:21 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Tue, 26 Dec 2000 14:20:05 +0100 (MET)

1kGRB[156] #LSs: 1 Good HRR: 1
SW Trigger Time (OBT): 9002.900
UTC: Tue, 26 Dec 2000 09:24:45:78661

*****Event 0 triggered on board: ev_time - onbtrig_time = 78.031

Nsig(trg):	2.8	7.1	3.5	1.5	2.9	5.7	3.5	1.4
Nsig(pfl):	2.8	7.1	3.5	0.0	2.9	5.7	3.5	0.0
Bkg lev. :	704	855	742	680	824	842	787	878
ChiSq R. :	0.860	1.149	1.013	0.972	0.953	1.043	0.944	0.931

Peak fl. :	75	208	94	0	83	164	97	0
Error :	38.6	43.9	39.8	0.0	41.7	43.1	40.9	0.0

Fluence :	75	208	94	0	83	164	97	0
Error :	38.6	43.9	39.8	0.0	41.7	43.1	40.9	0.0

Dur (s) :	1.00	1.00	1.00	0.00				
Abundance:	1	1	1	0				
H. Ratio :	1.101	0.789	1.026	-1.000				
HR Ratio :	1.394	1.073	-1.000	0.769	-1.000	-1.000		
HR W-ave :	0.851	+/-	0.233					

SAX GRBM
HUS DATA

ULYSSES RT

19 / 07 / 05

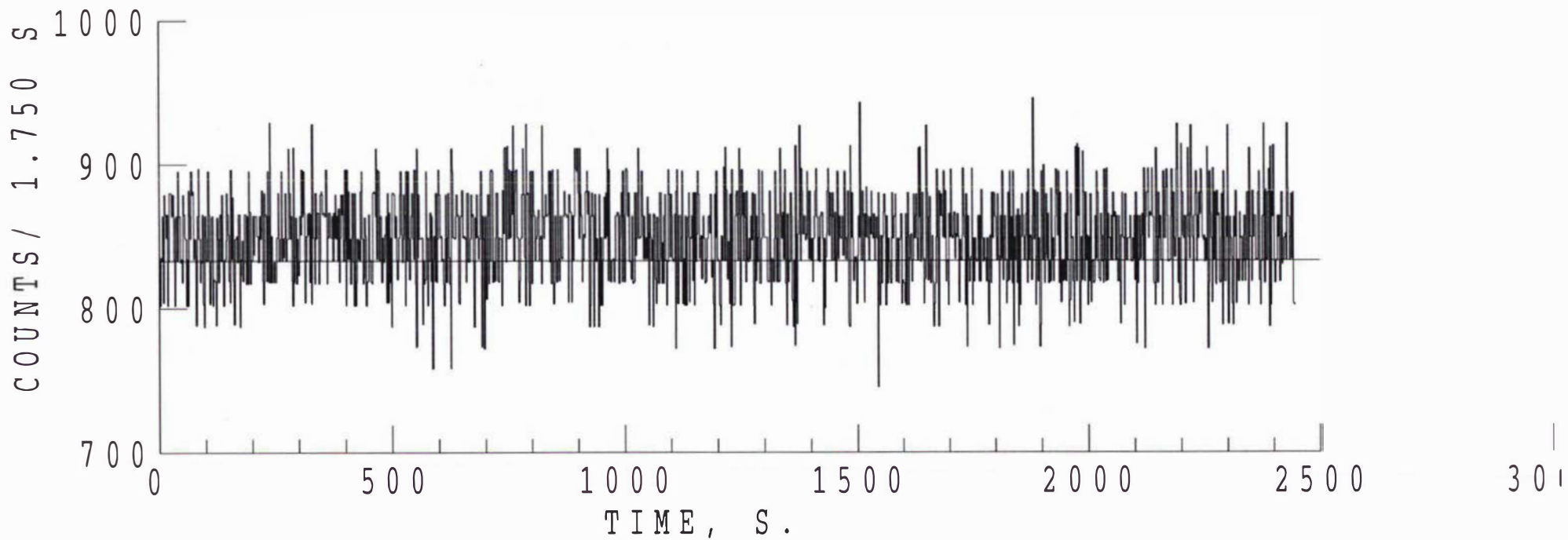
26 / 12 / 00 32652.014 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

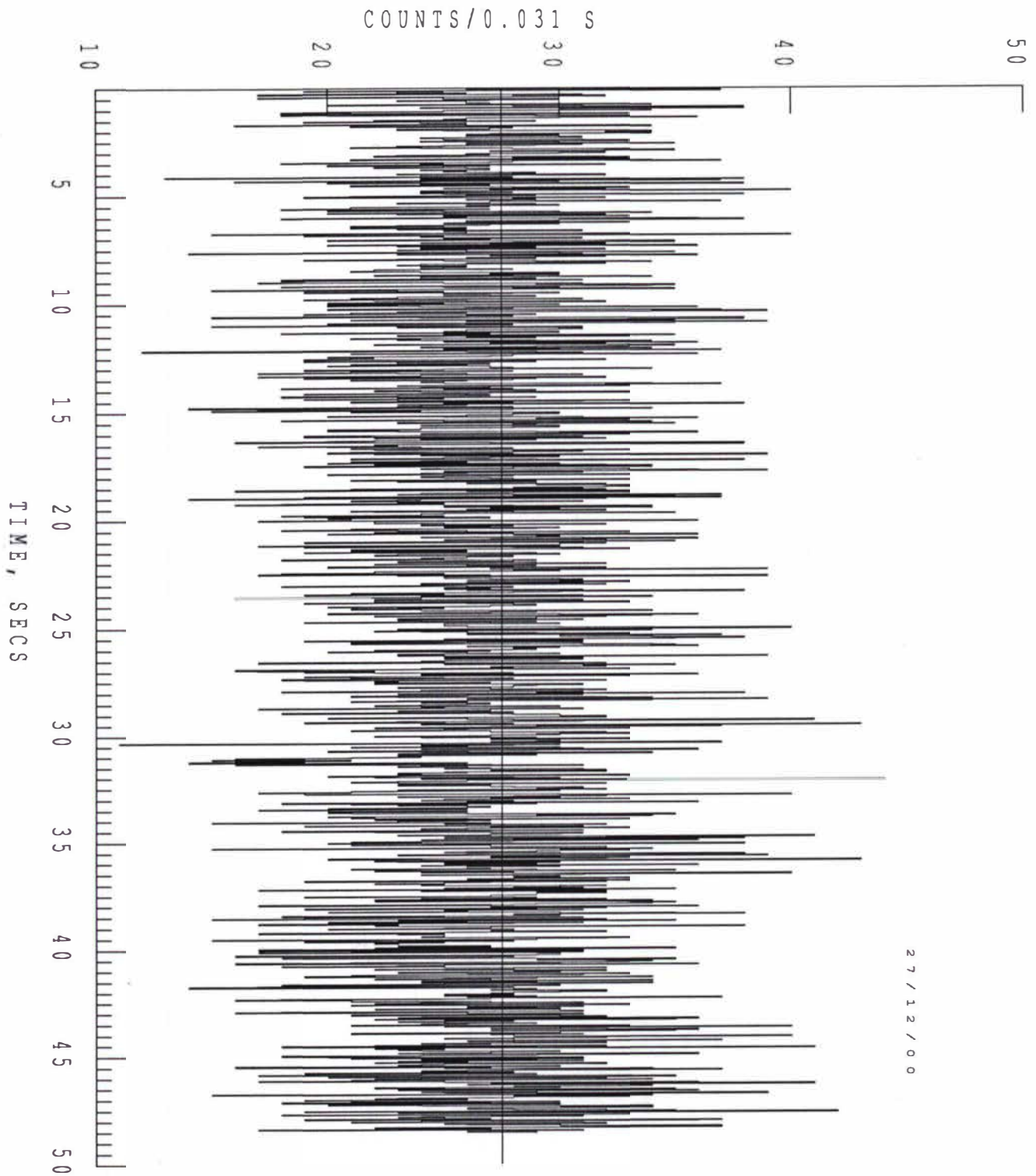


BSAX-GRBM

26/12/00

33799.755

40 - 700 keV



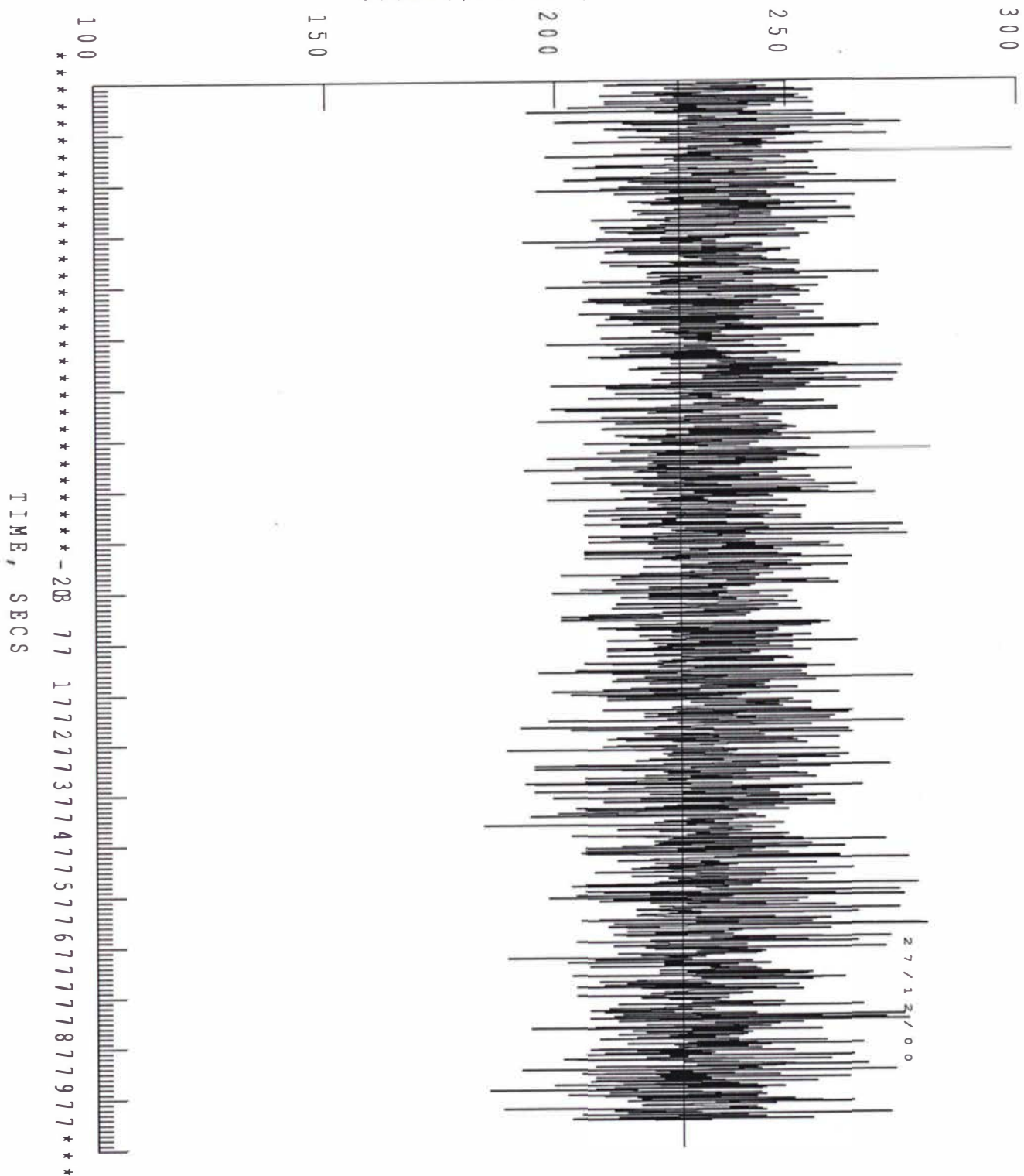
NEAR

26/12/00

33884.712

100-1000 keV

COUNTS/1.000 S



GRBM 20001226 33217

ULYSSES RT

23 / 10 / 07

26 / 12 / 00 32688.014 s

0.250 S INTERVALS REGROUPED BY 3

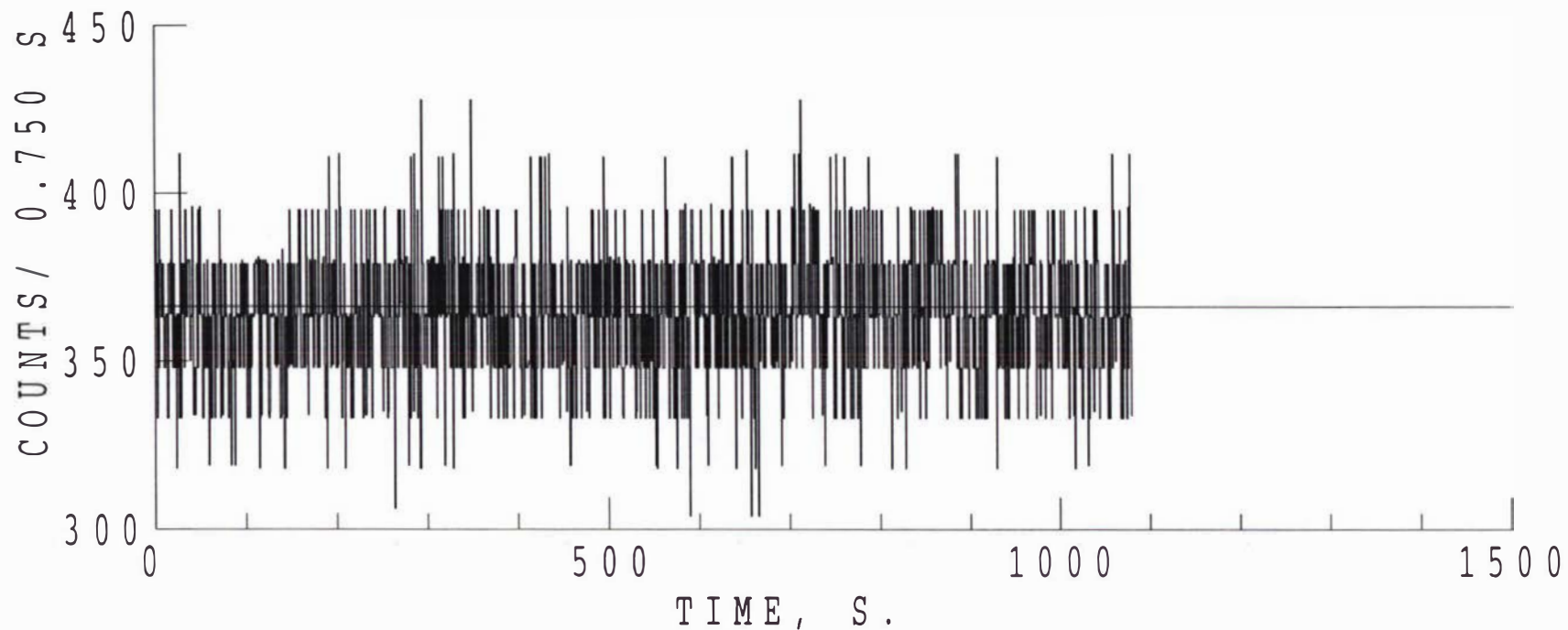
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



Date: Nov 2 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data N/A

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

2. For Konus events N/A

- ☐ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events N/A

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

2. For 3 or More Spacecraft events N/A

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

3. For INTEGRAL events N/A

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

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

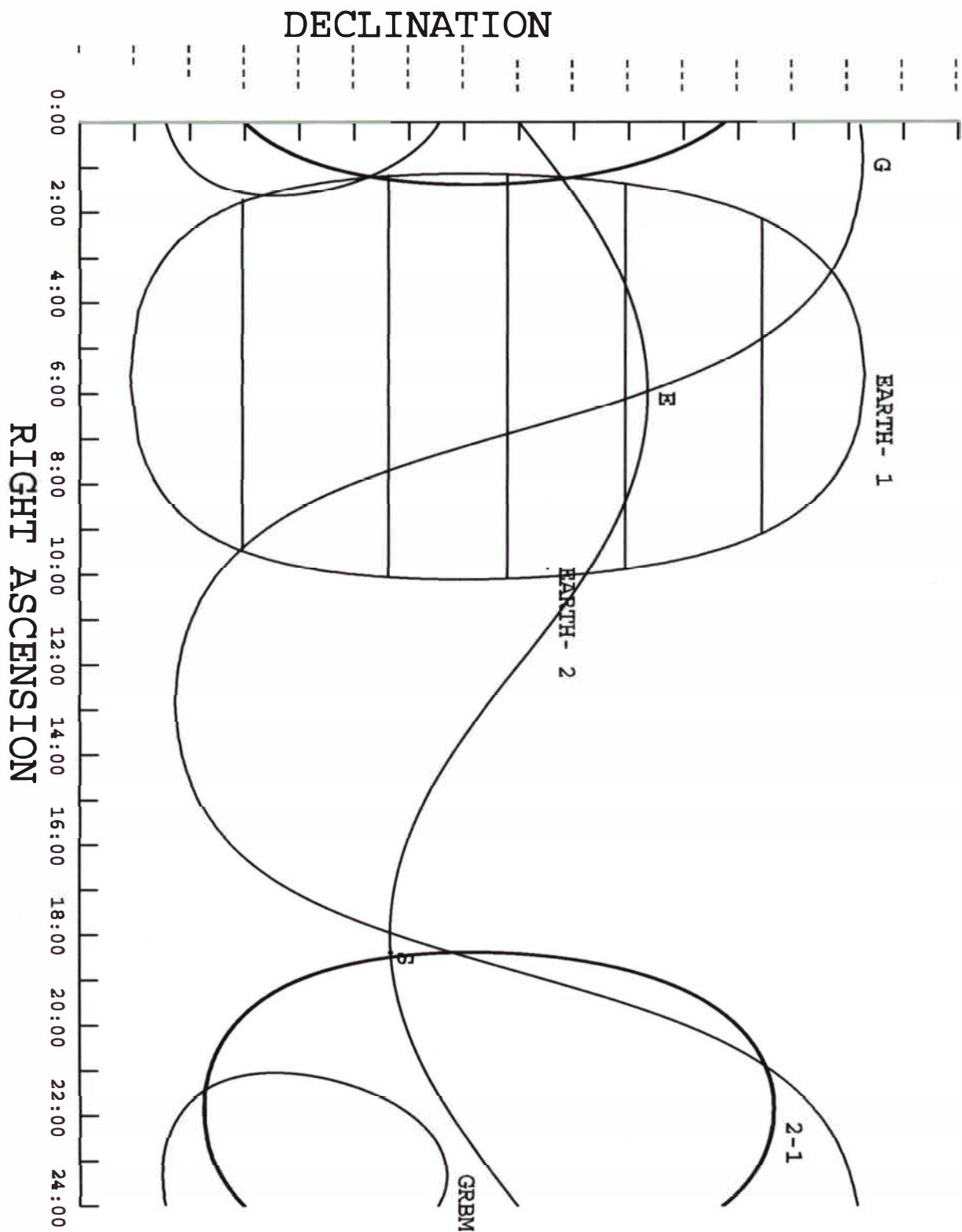
G=GALACTIC EQUATOR

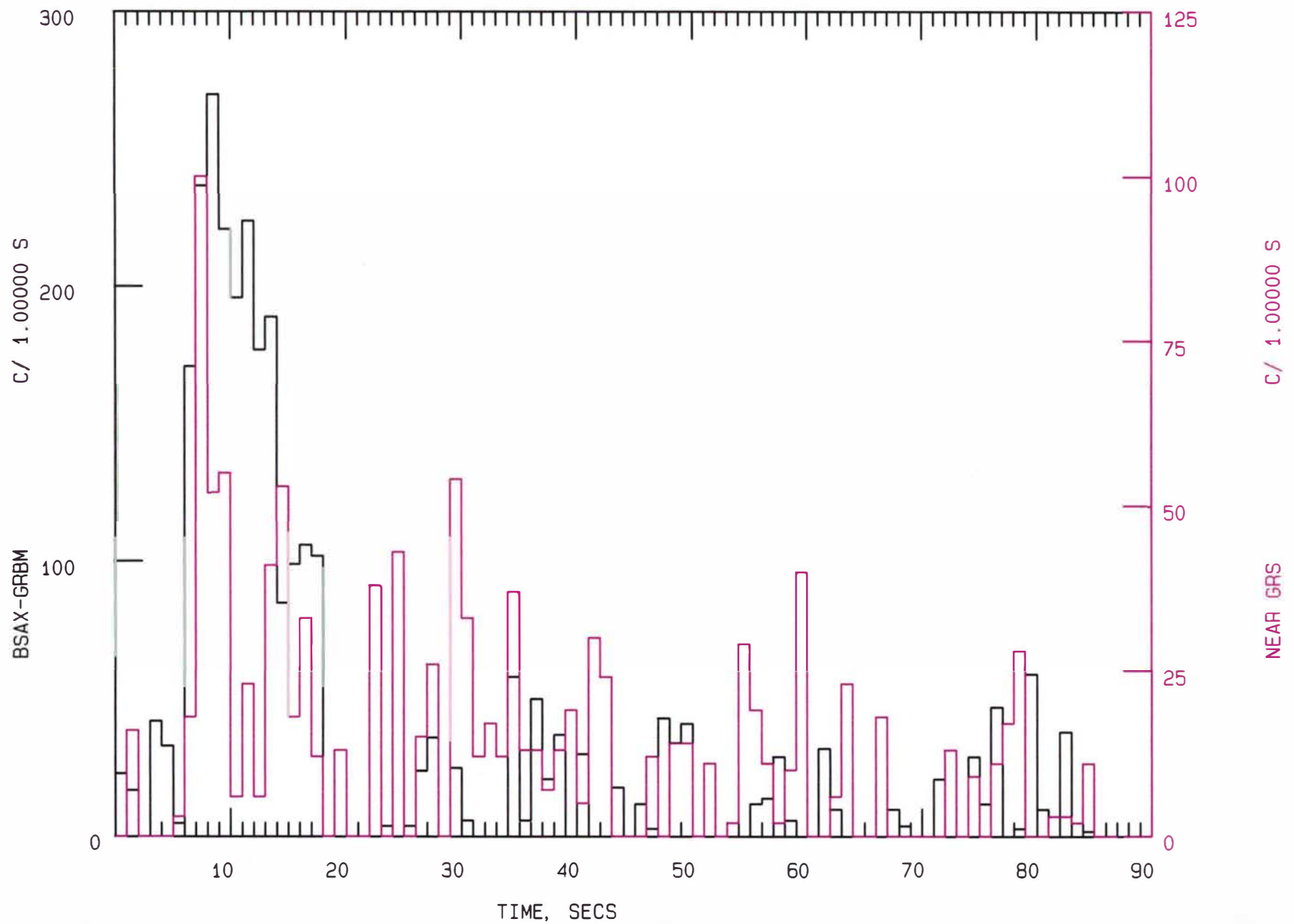
1 SAX

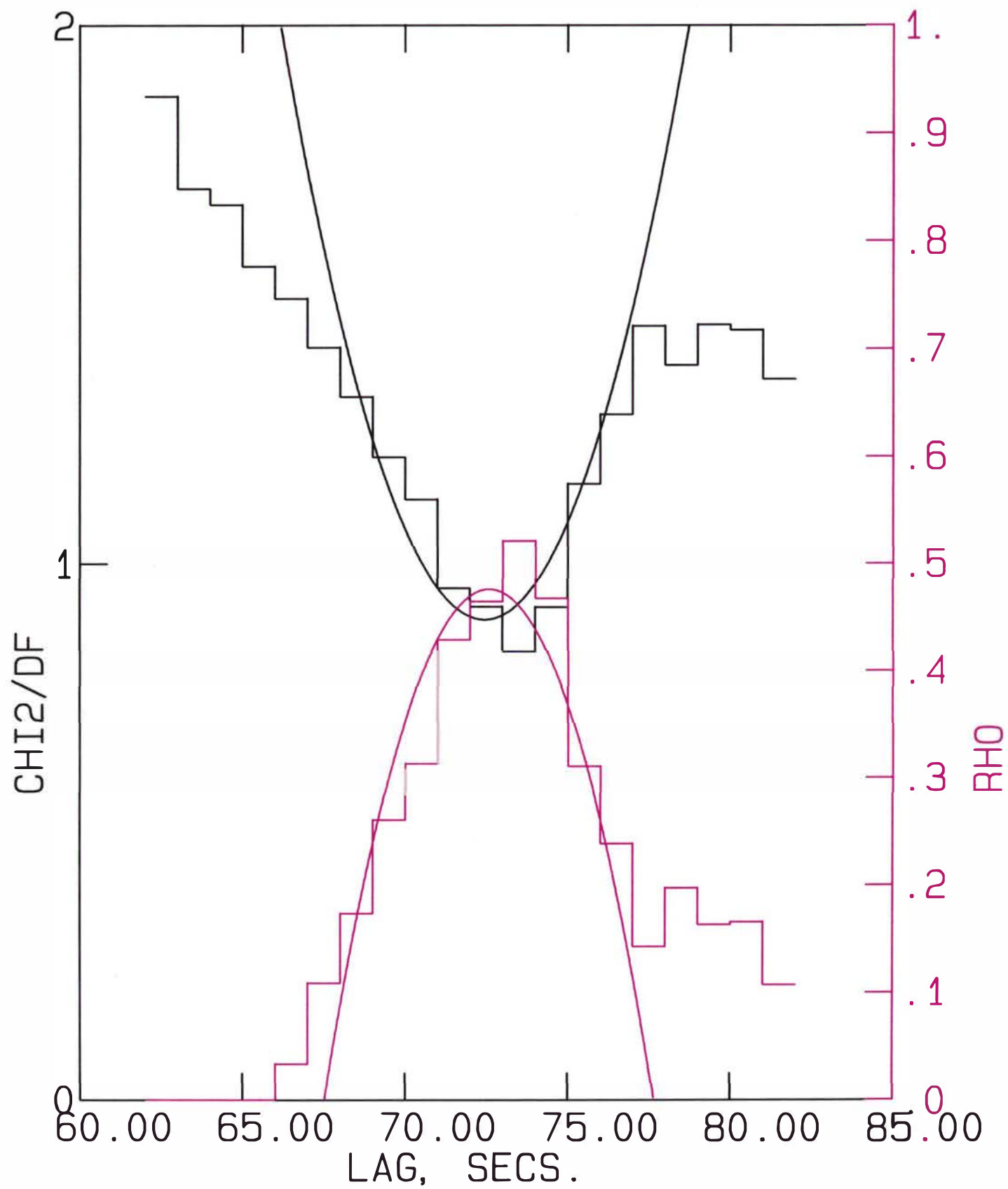
2 NEAR

EVENT OF DEC 26, 2000 20:14

1/11/ 7







From guidorzi@fe.infn.it Tue Dec 26 15:51 PST 2000
From: Auto GRB monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Wed, 27 Dec 2000 00:50:04 +0100 (MET)

1kGRB[157] #LSs: 2 Good HRR: 1
SW Trigger Time (OBT): 48002.899
UTC: Tue, 26 Dec 2000 20:14:45:77167 72886

*****Event 0 triggered on board: ev_time - onbtrig_time = -0.266

Nsig(trg):	0.4	3.0	9.0	2.1	0.1	2.8	7.9	1.9
Nsig(pfl):	0.0	4.9	9.5	3.5	0.0	5.6	8.1	3.8
Bkg lev. :	765	908	803	730	896	912	924	975
ChiSq R. :	1.019	1.214	1.034	0.993	0.834	1.143	0.844	0.943

Peak fl. :	0	148	268	95	0	168	245	119
Error :	0.0	44.4	43.4	39.5	0.0	44.7	45.8	45.6

Fluence :	0	555	2691	152	0	515	2298	177
Error :	0.0	98.4	195.4	55.5	0.0	98.3	207.7	64.0

Dur (s) :	0.00	5.00	26.00	2.00
-----------	------	------	-------	------

Abundance:	0	5	22	2
------------	---	---	----	---

H. Ratio :	-1.000	0.927	0.854	1.161
------------	--------	-------	-------	-------

HR Ratio :	-1.000	-1.000	-1.000	1.086	0.798	0.735
------------	--------	--------	--------	-------	-------	-------

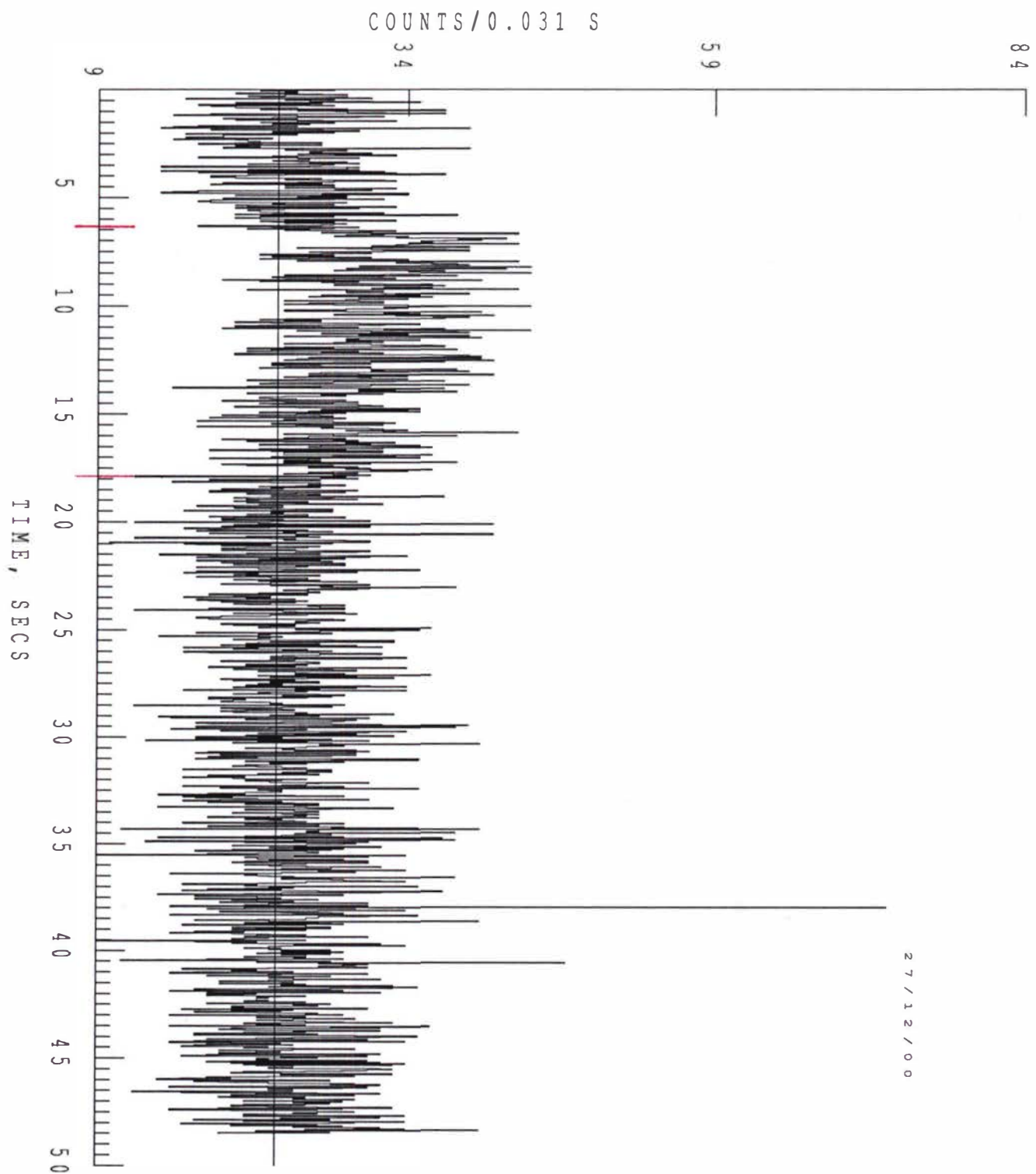
HR W-ave :	0.871	+/-	0.091
------------	-------	-----	-------

BSAX-GRBM

26/12/00

72878.038

40 - 700 keV



GRBM 20001226 72169

ULYSSES RT

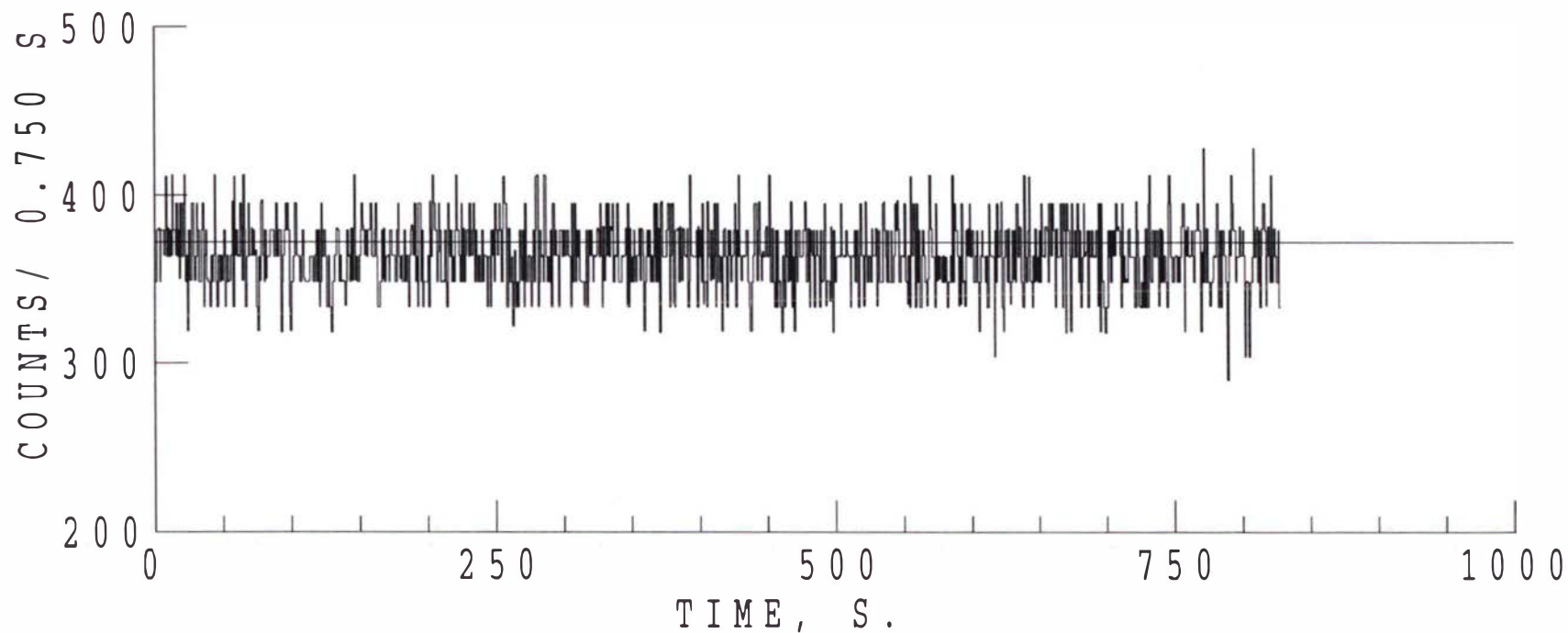
23 / 10 / 07

26/12/00 71748.180 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



NEAR

26/12/00

72884.698

100-1000 keV

COUNTS/1.000 S

100

200

300

400



TIME, SECS

-28 77 177277377477577677777877977

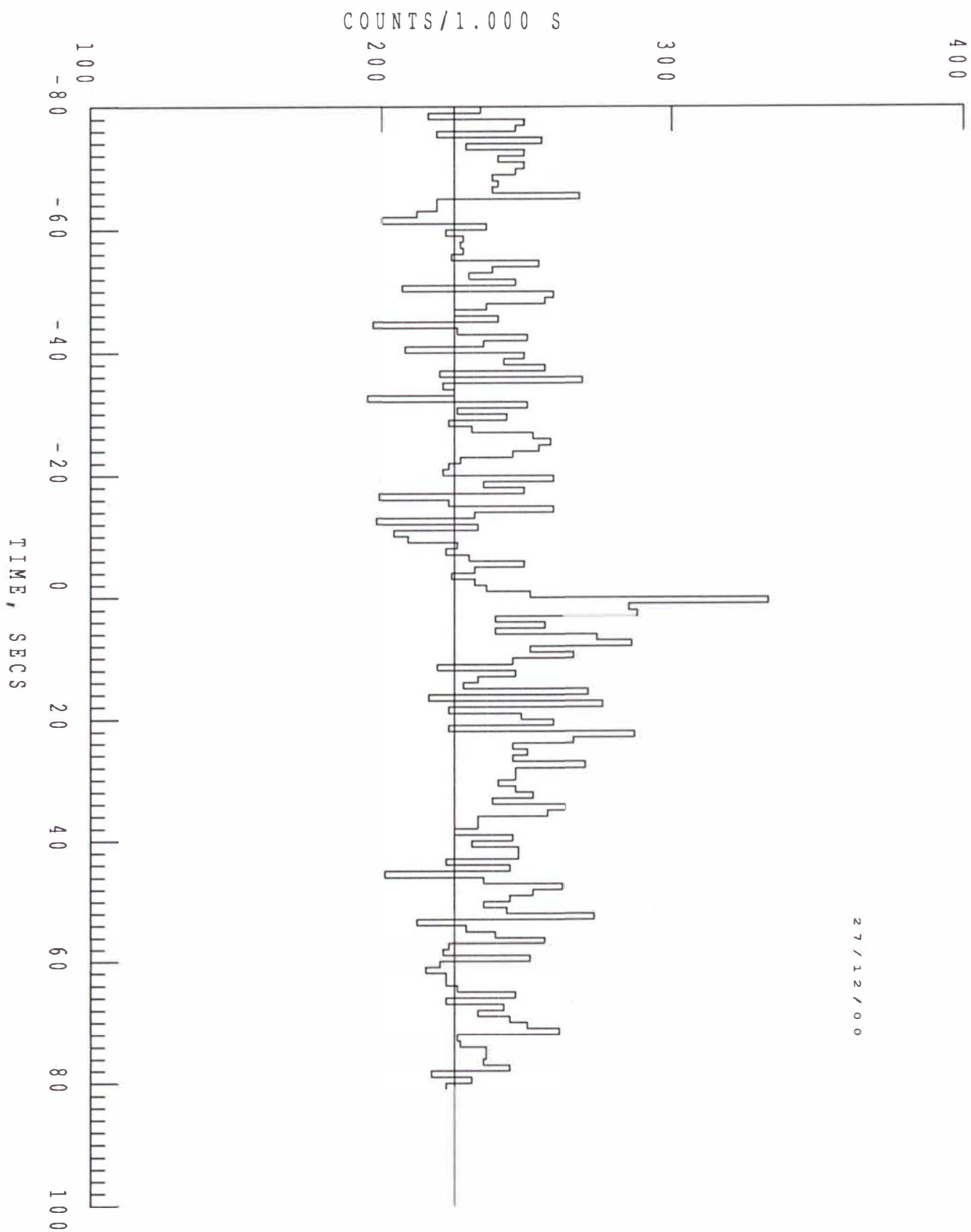
28/12/00

NEAR

26/12/00

72250.698

100-1000 keV



KNEAR GRS 20001226 72250

ULYSSES RT

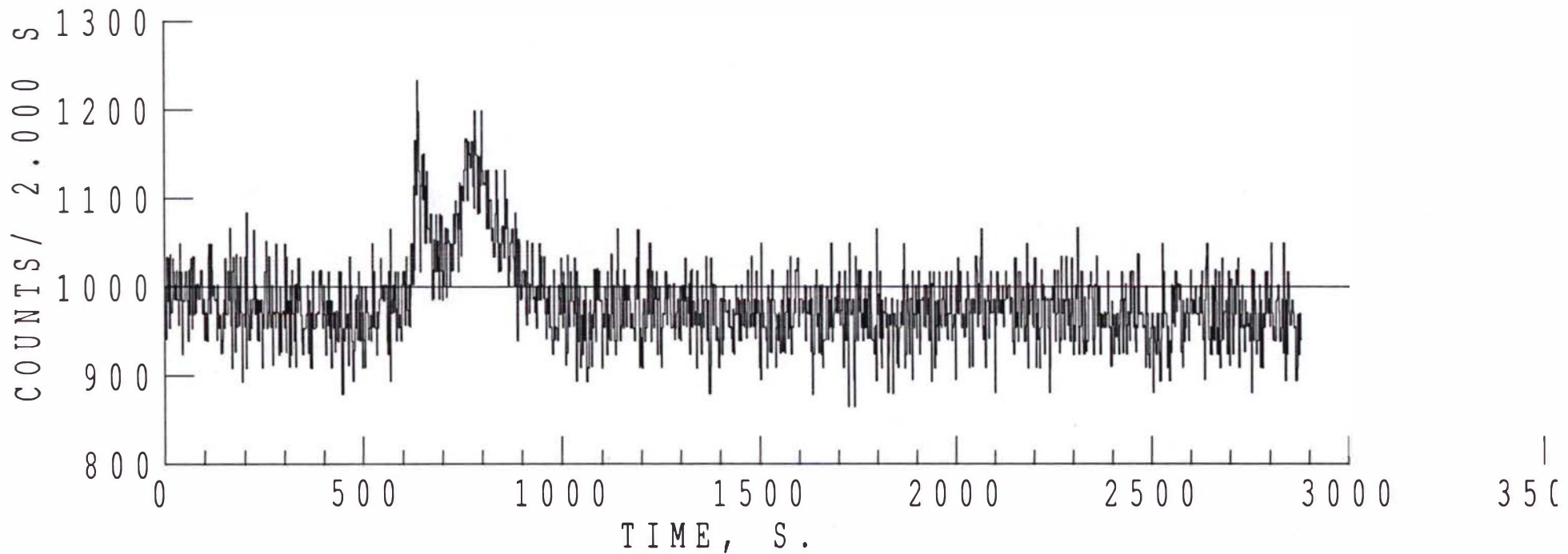
28 / 12 / 00

26 / 12 / 00 70812.156 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS1

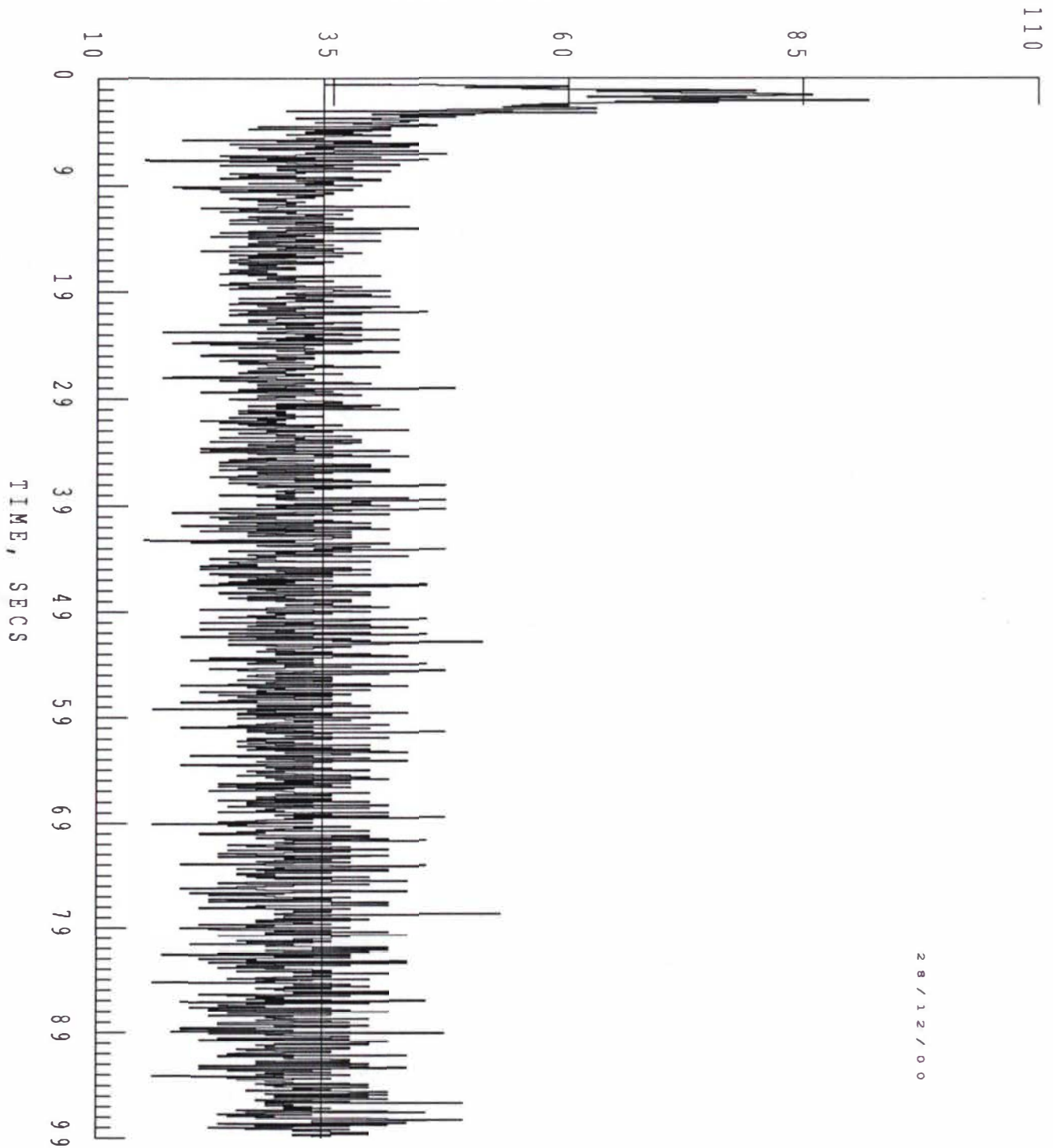
28/12/00

75964.375

21:06:04

50 - 200 keV

COUNTS/0.064 S

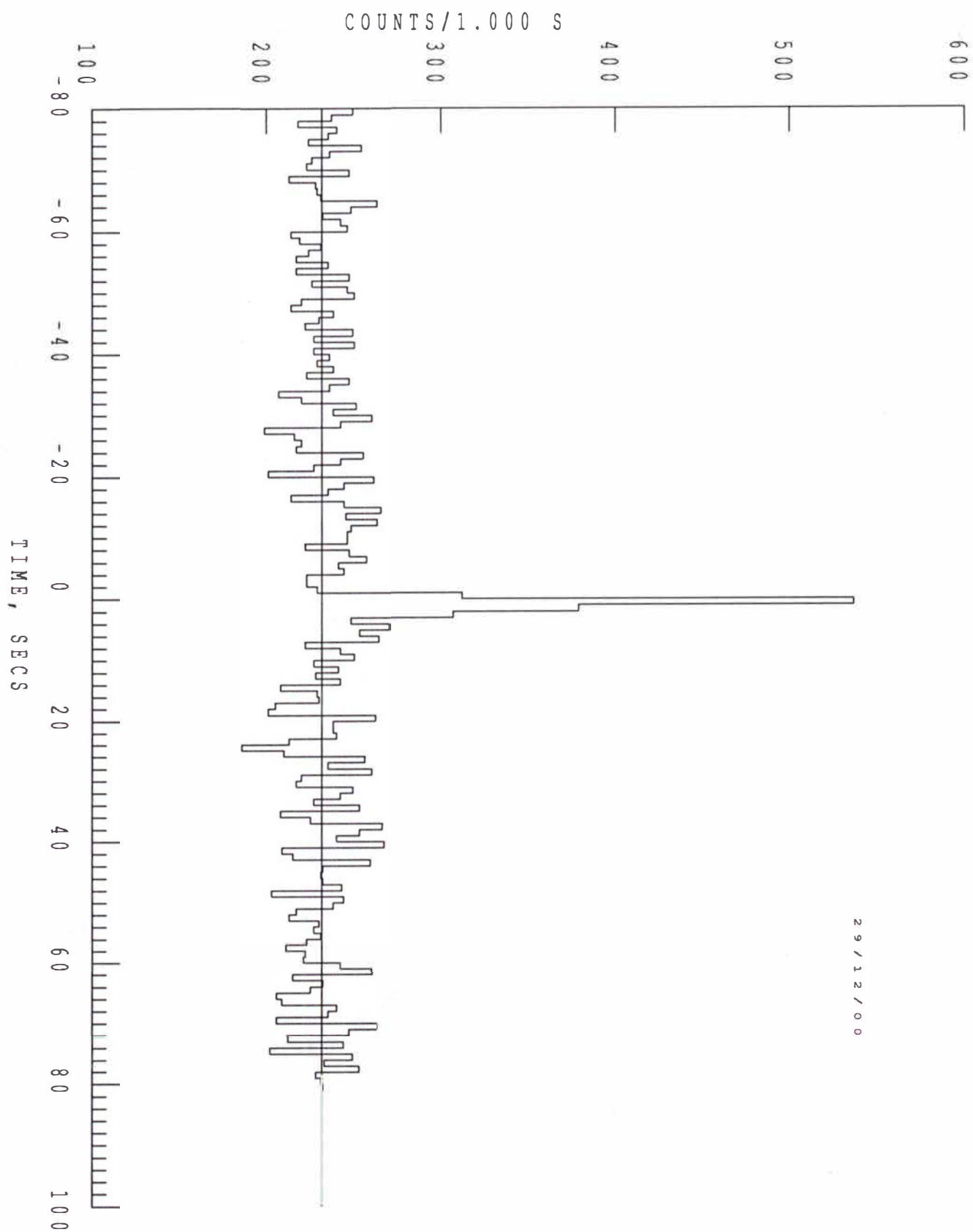


NEAR

28/12/00

75117.636

100-1000 keV



KONUS1 20001228 75964

ULYSSES RT

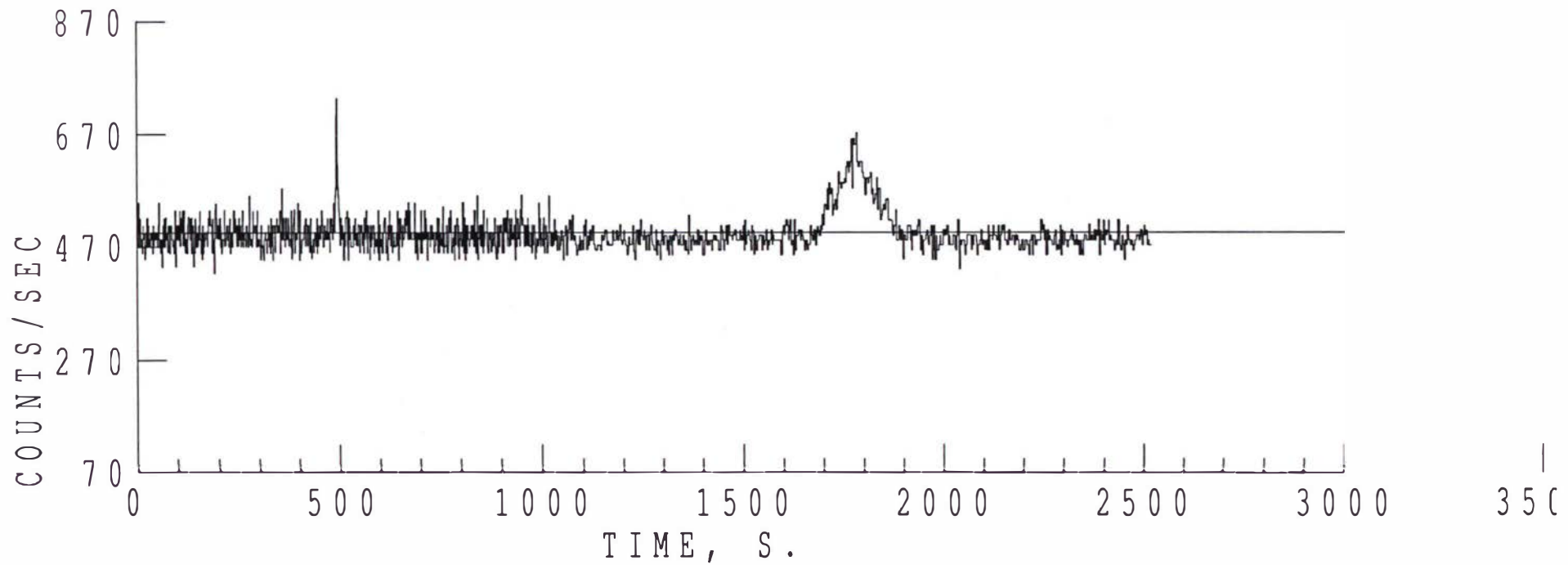
31 / 12 / 00

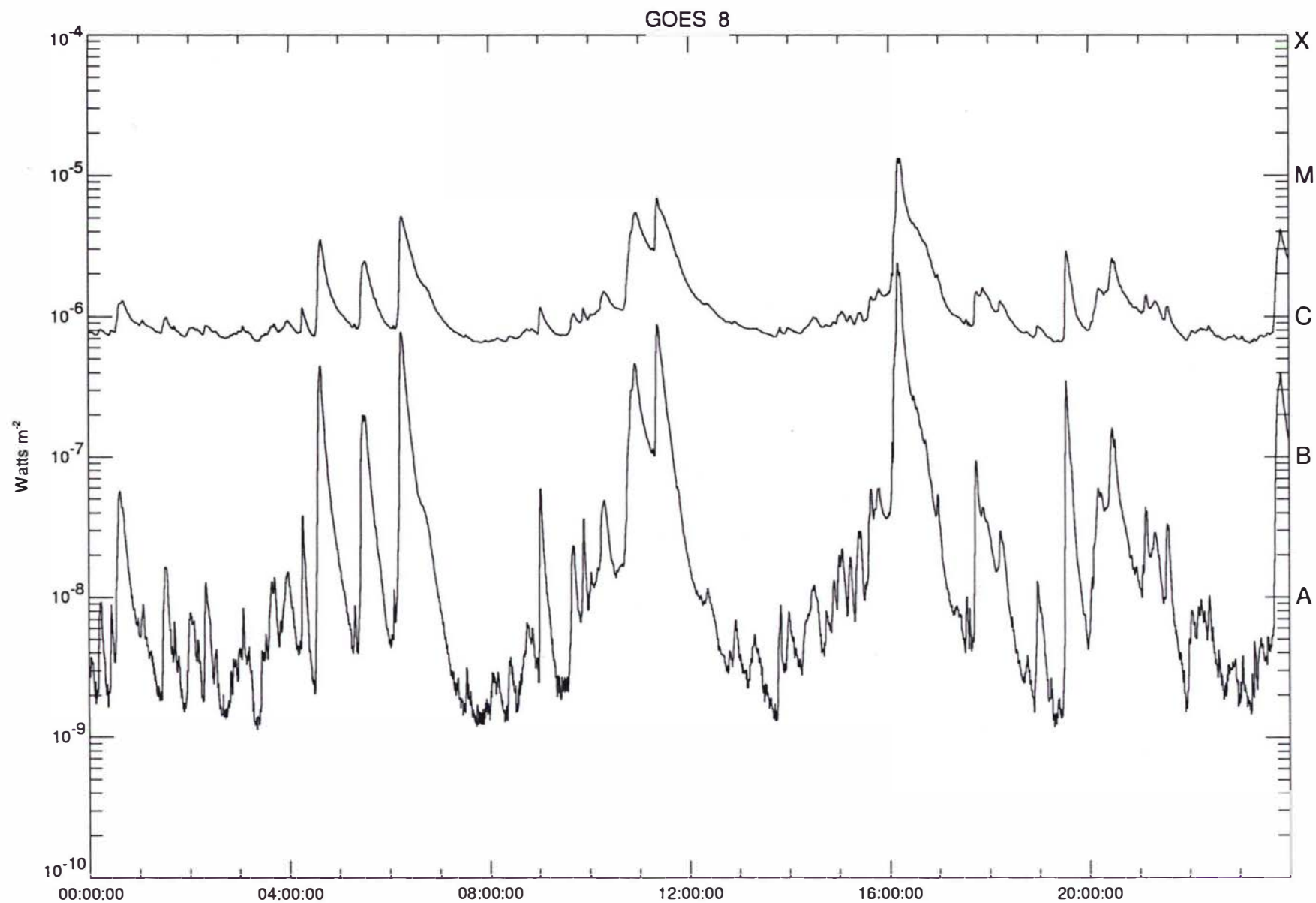
28/12/00 74700.180 s

INTERVALS REGROUPED BY 5

0 - 0 keV

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

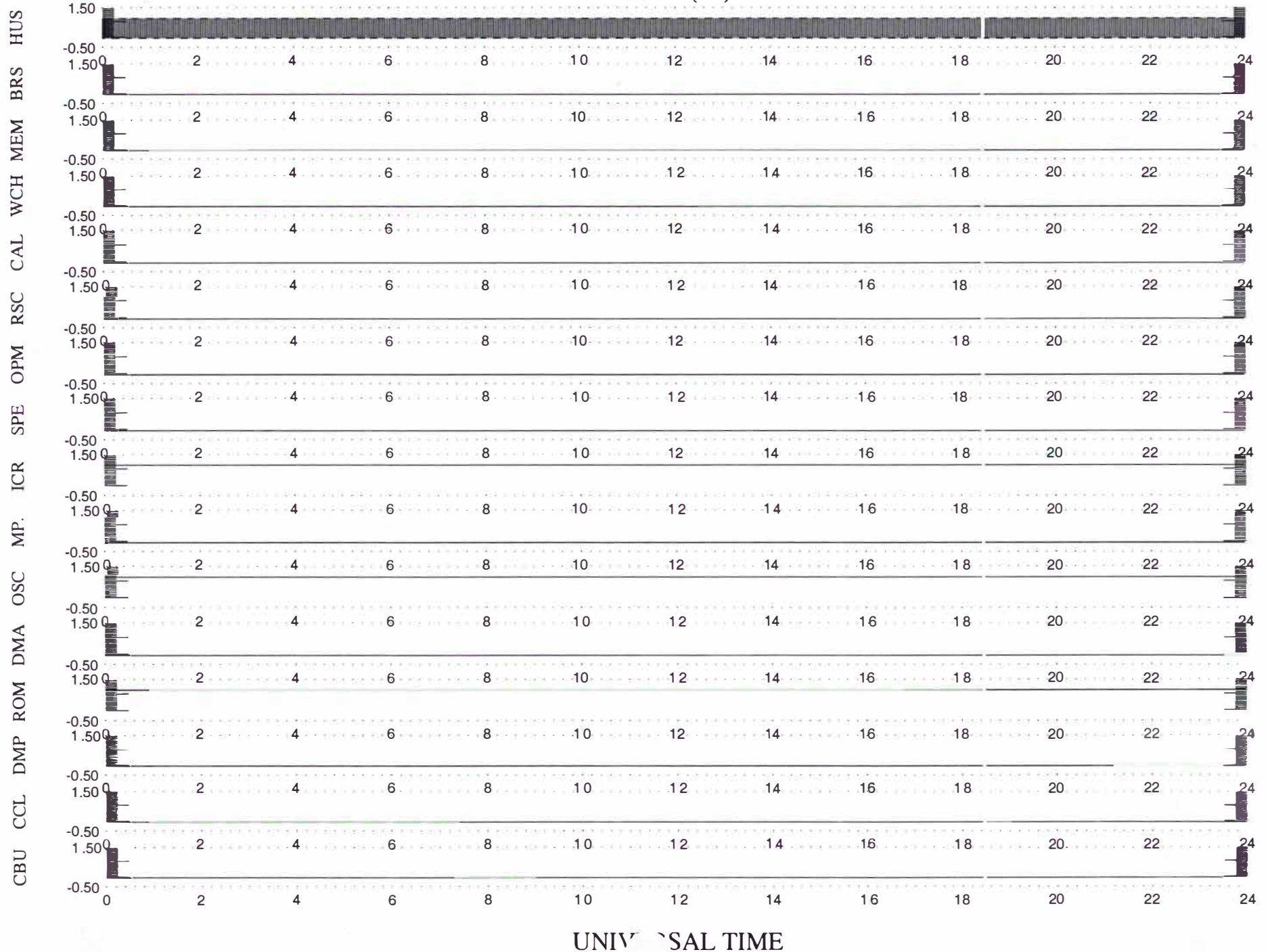
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

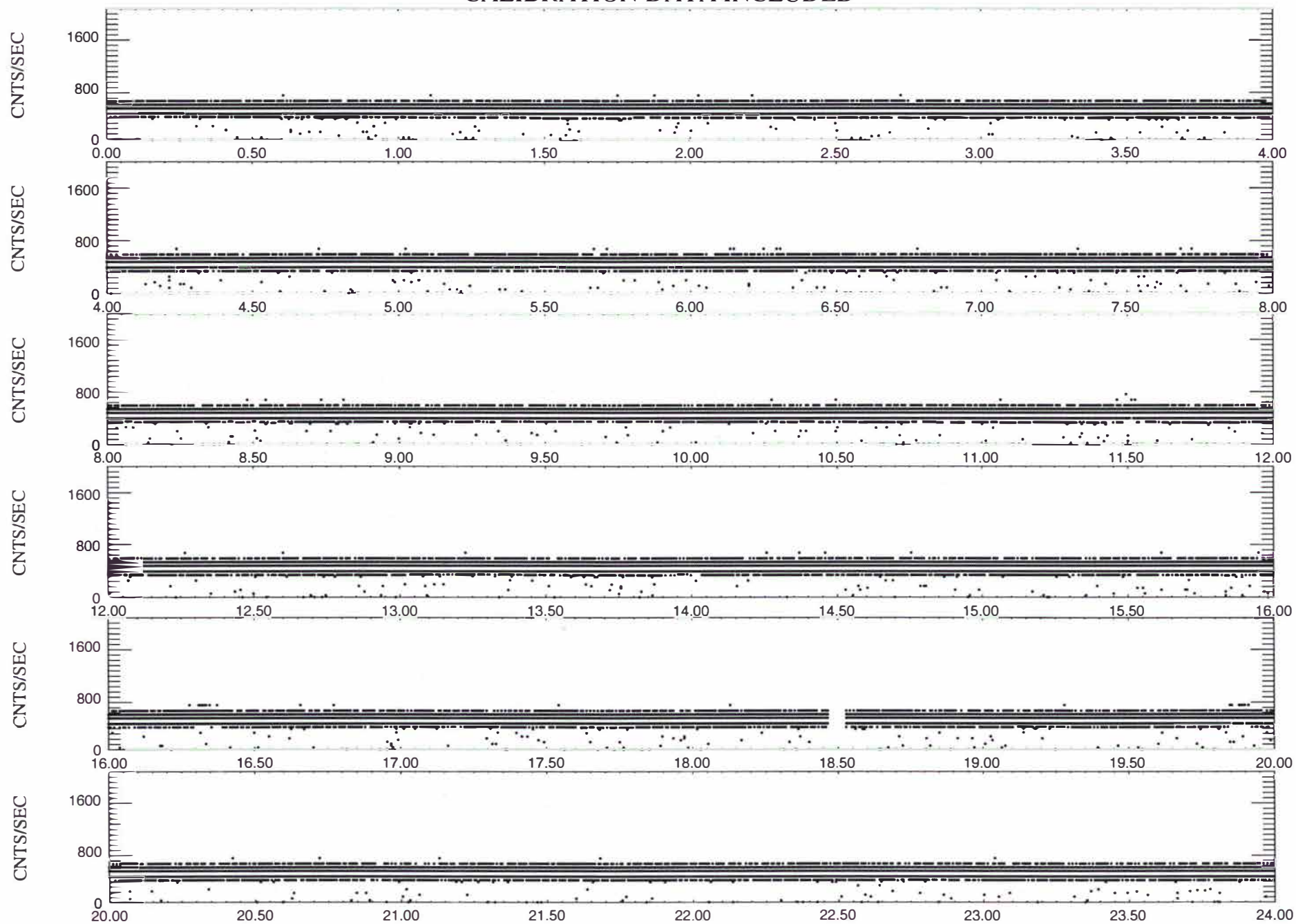
Plot created: 00/12/30, 1056

Sample average = 10

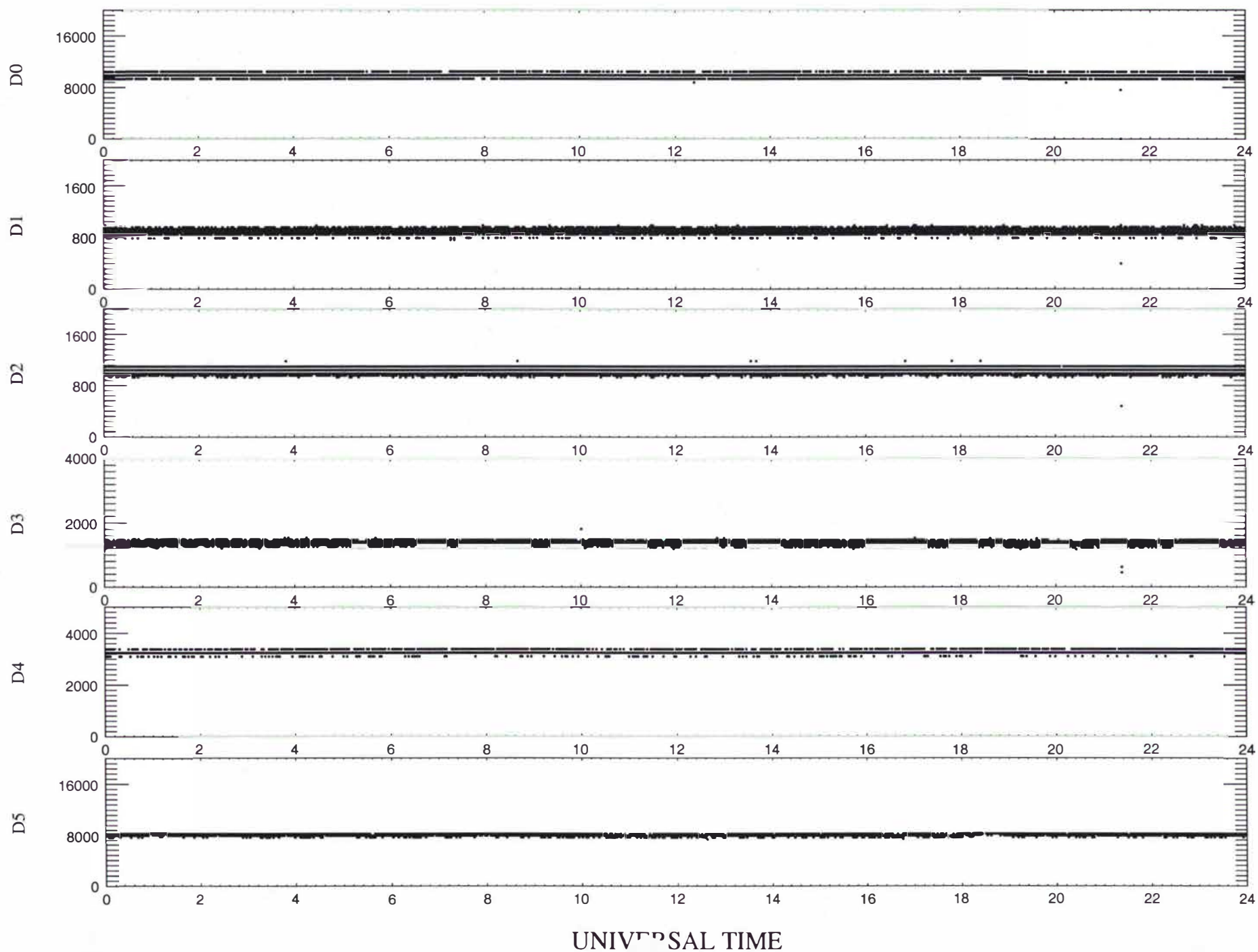
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



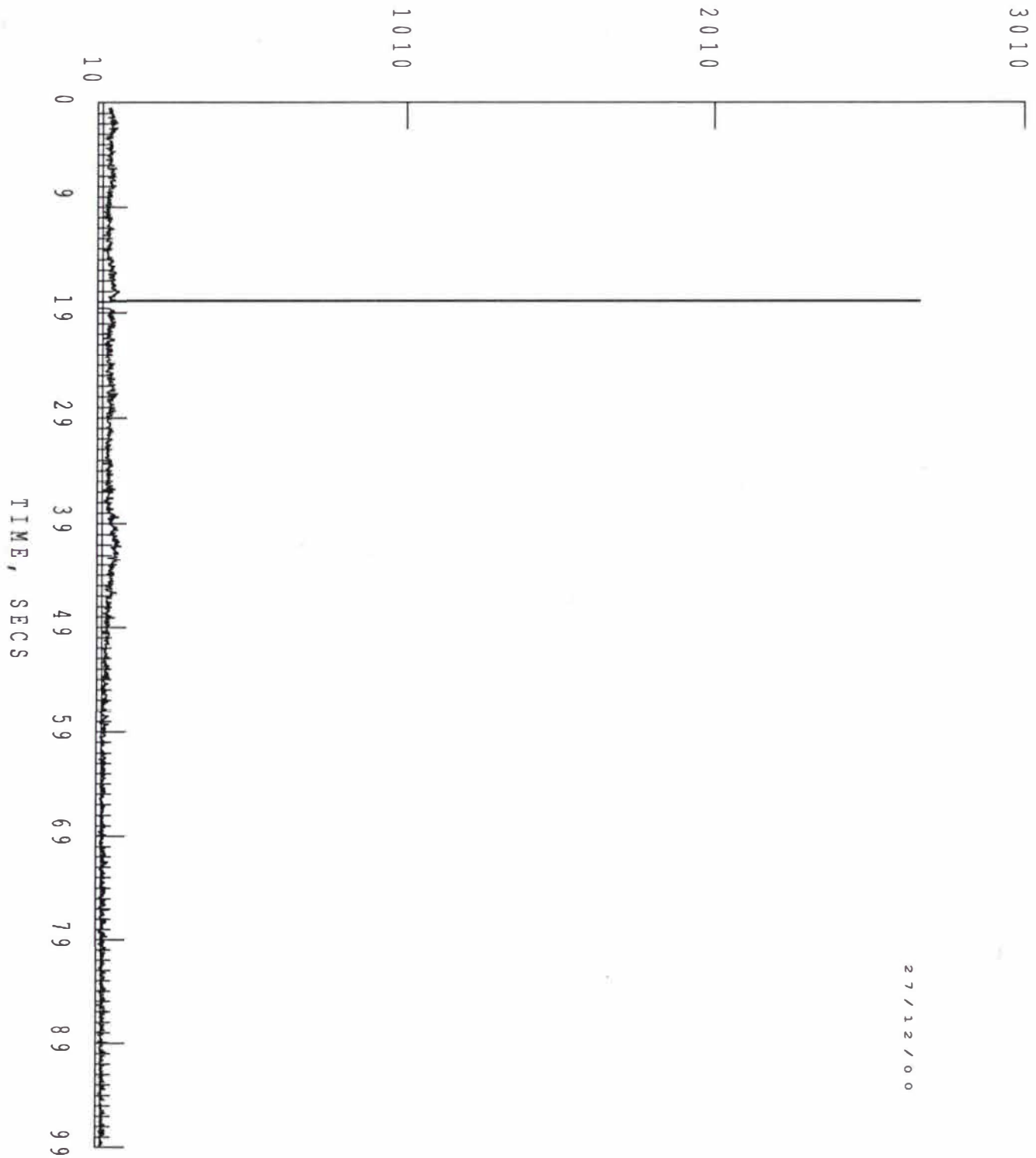
KONUS2

27/12/00

56373.211

50 - 200 keV

COUNTS/0.064 S



KONUS2 20001227 56373

ULYSSES RT

28/12/00

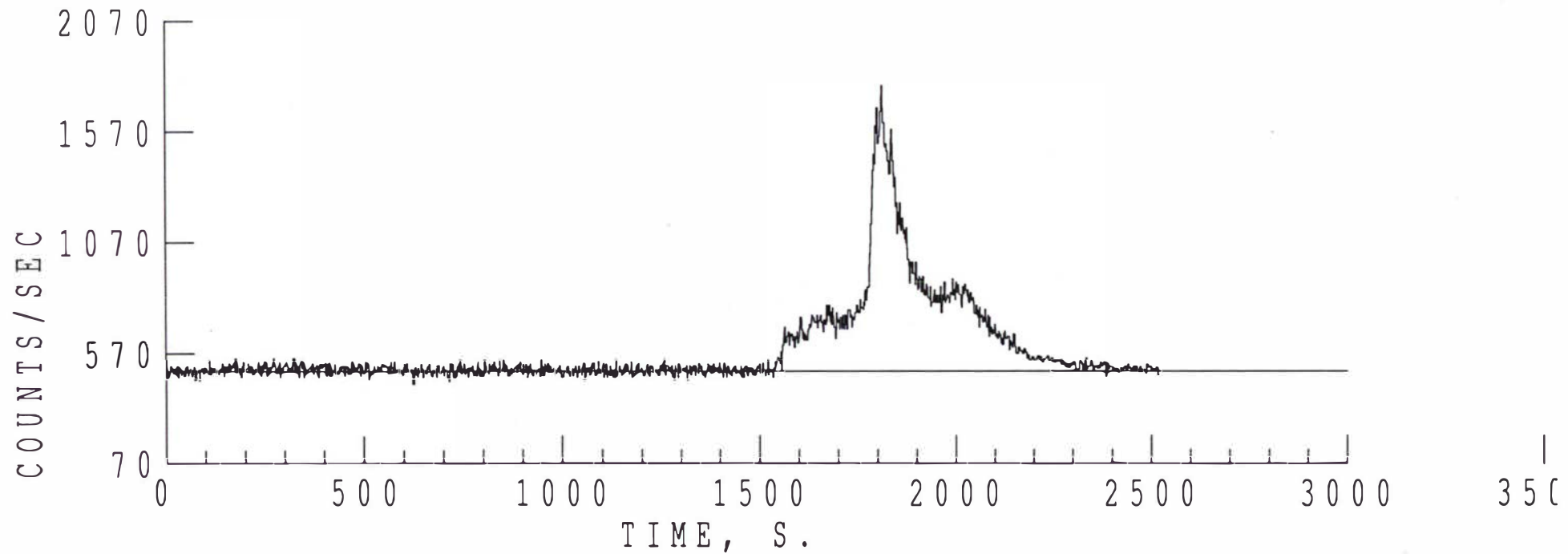
27/12/00 55116.016 s

INTERVALS REGROUPED BY 7

0 - 0 keV

H= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

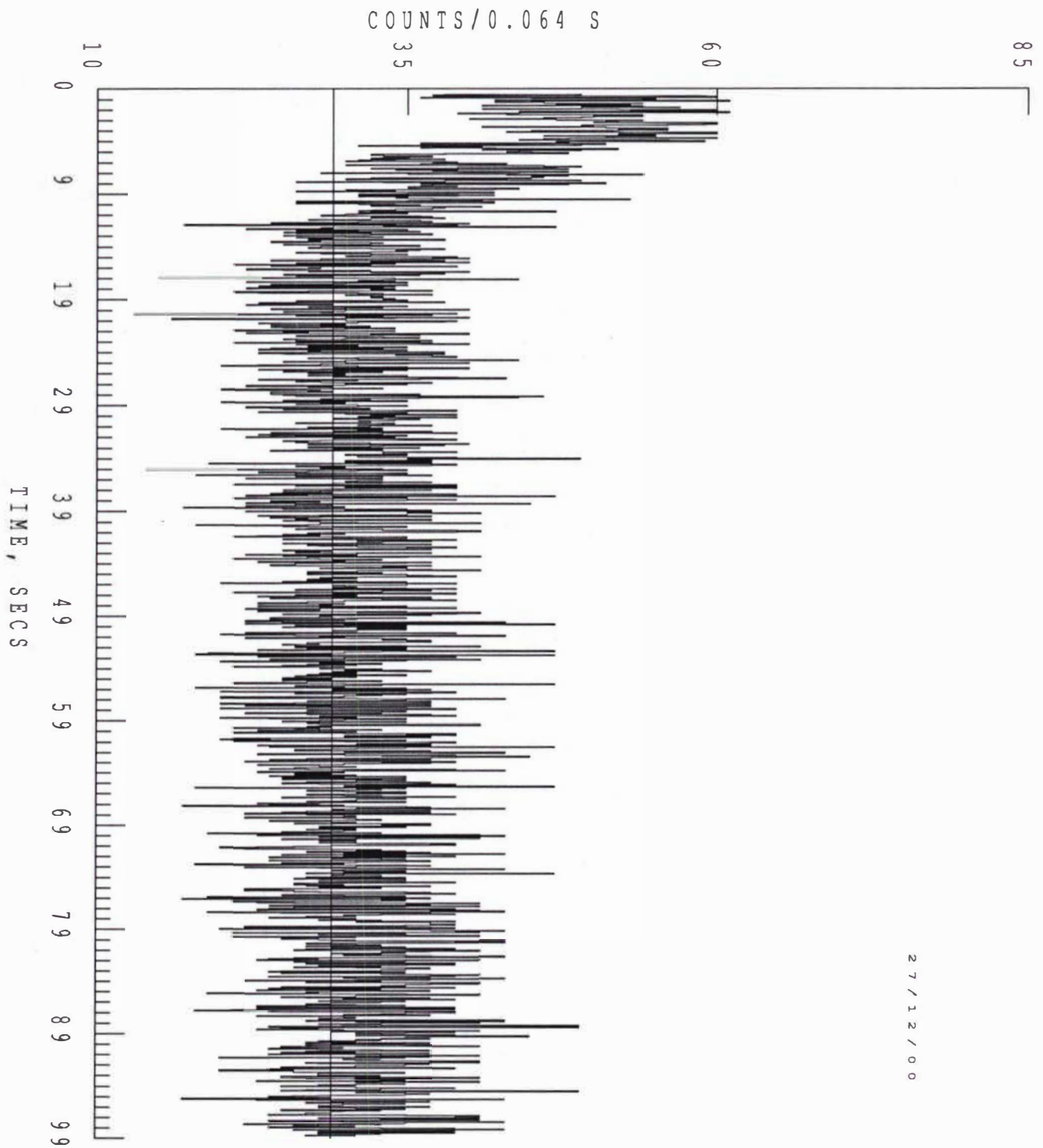


KONUS2

27/12/00

63473.976 17:37:53

50 - 200 keV



27/12/00

KONUS2 20001227 63473

ULYSSES RT

28/12/00

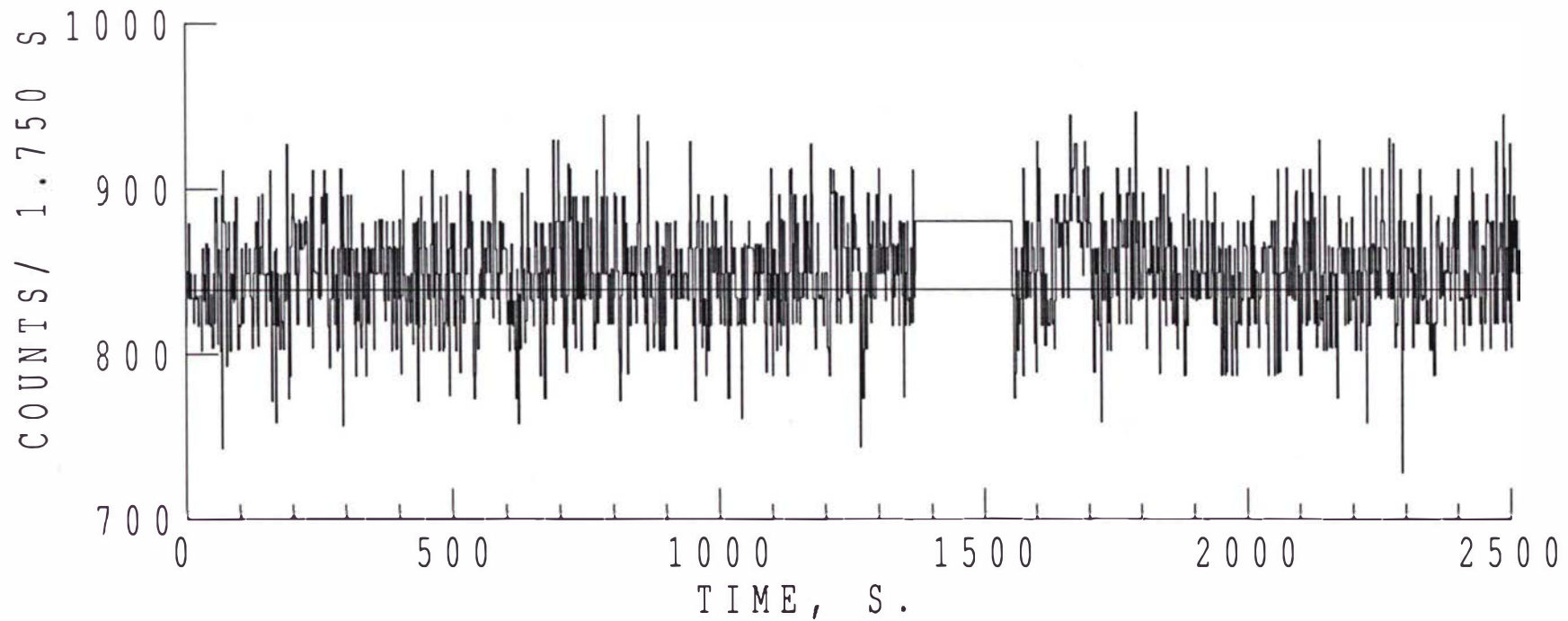
27/12/00 62208.129 s

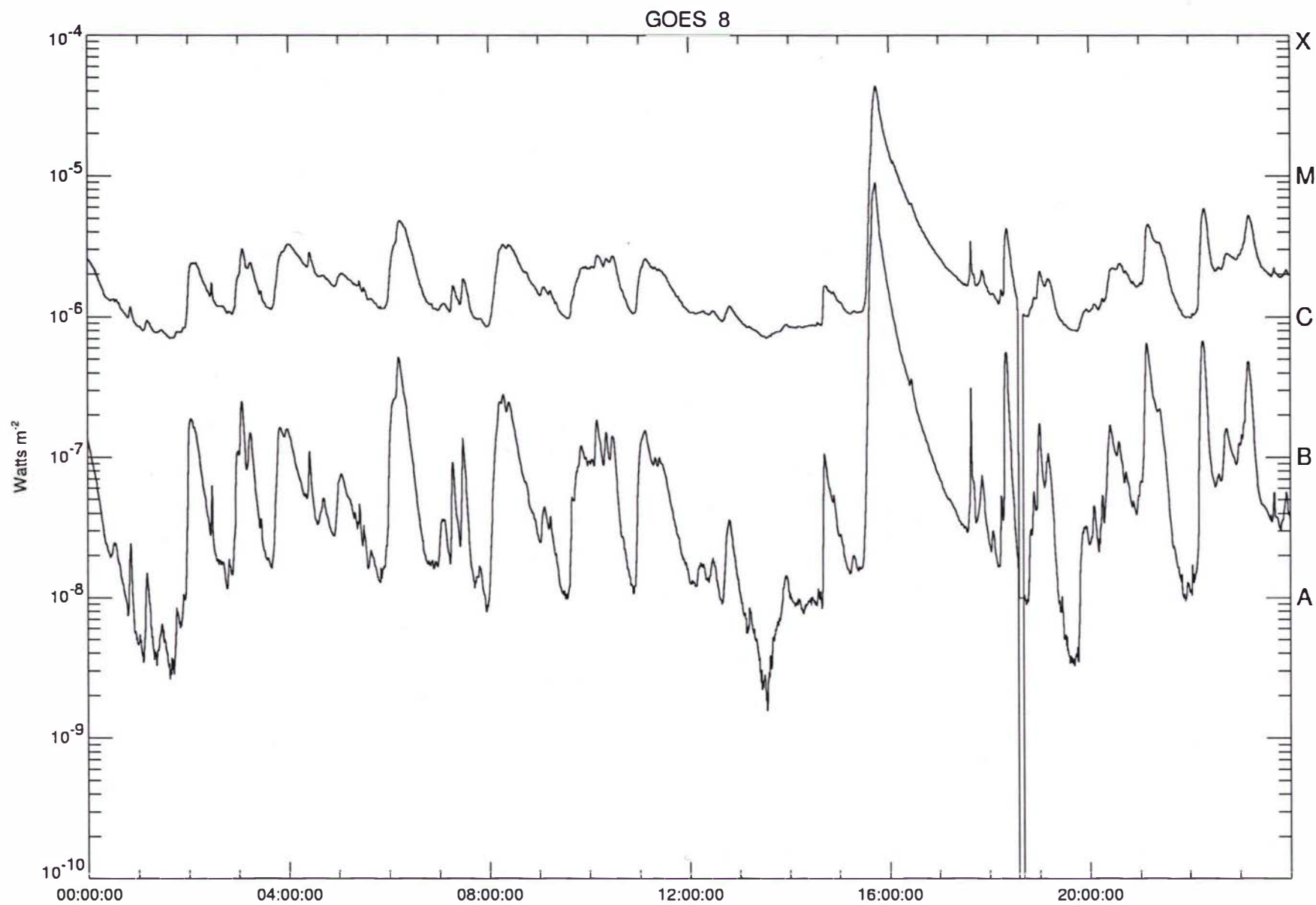
0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





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

Channel

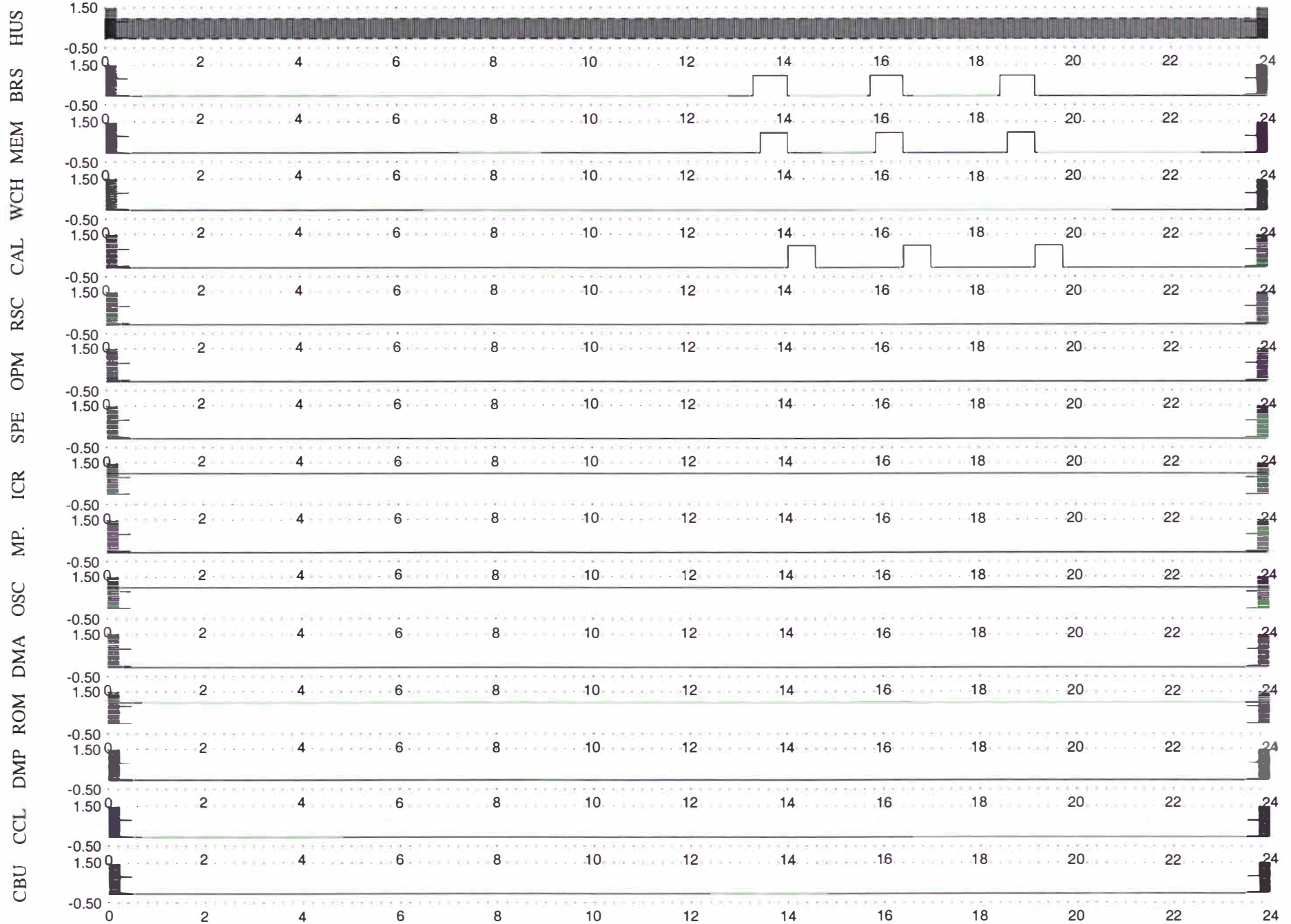
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

Plot created: 00/12/31, 1056

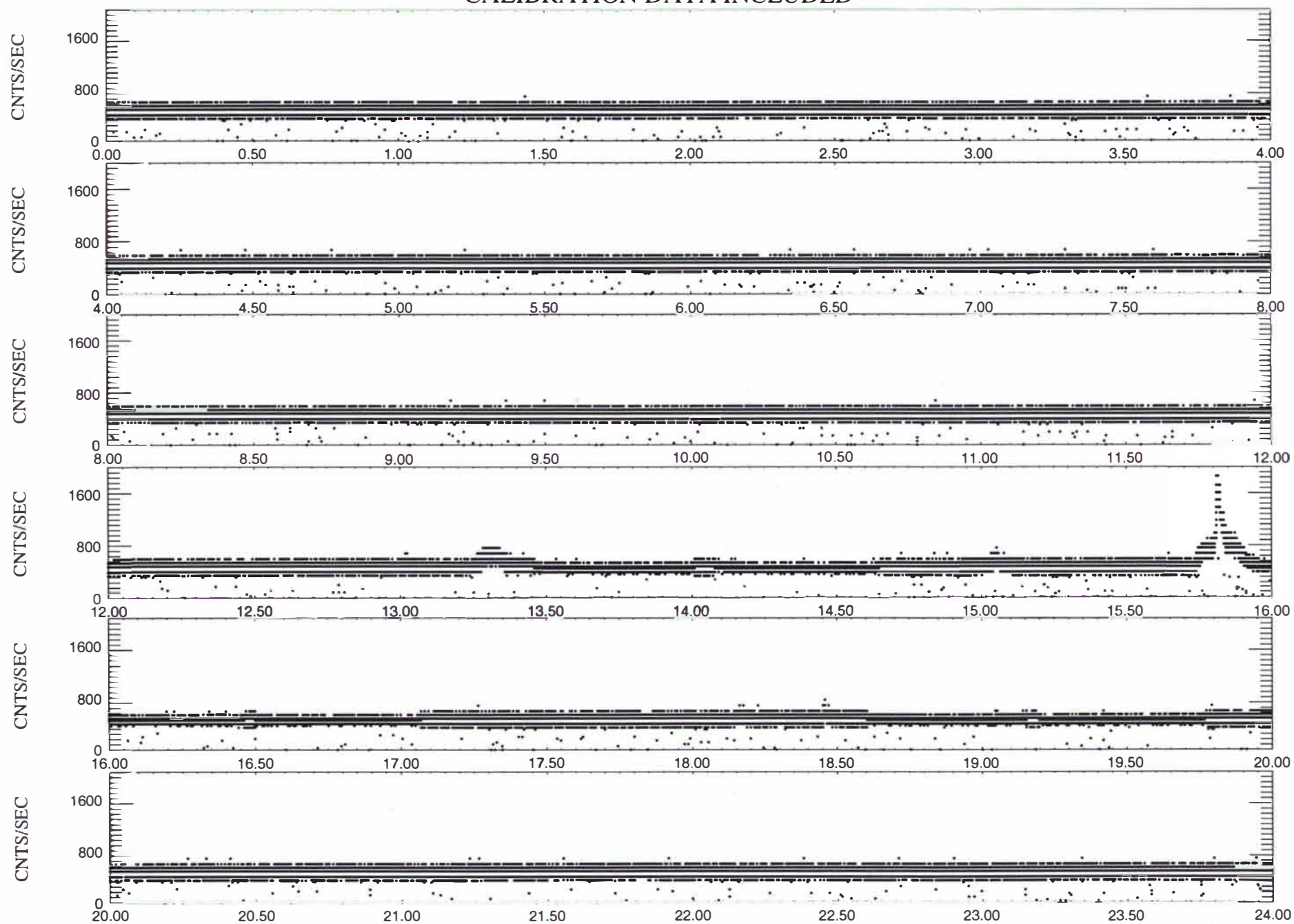
Sample average = 10

BURST NUMBER 0 - 2



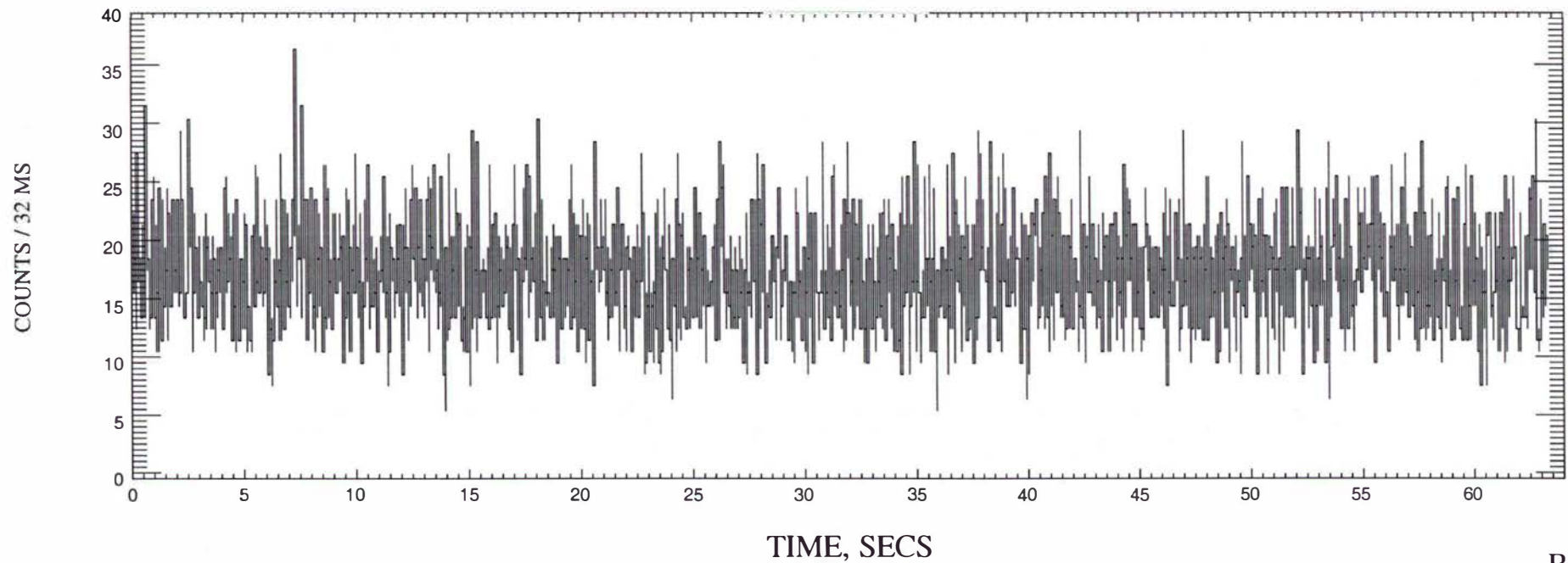
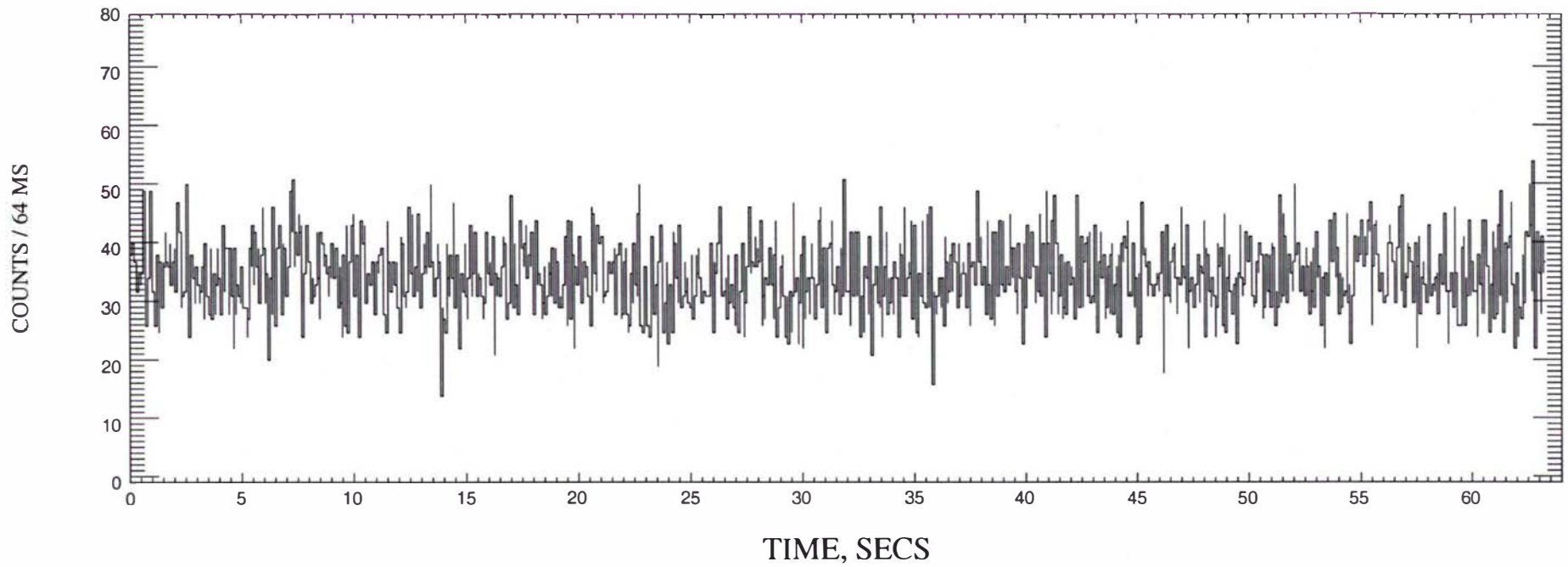
UNIV. SAL TIME

CALIBRATION DATA INCLUDED

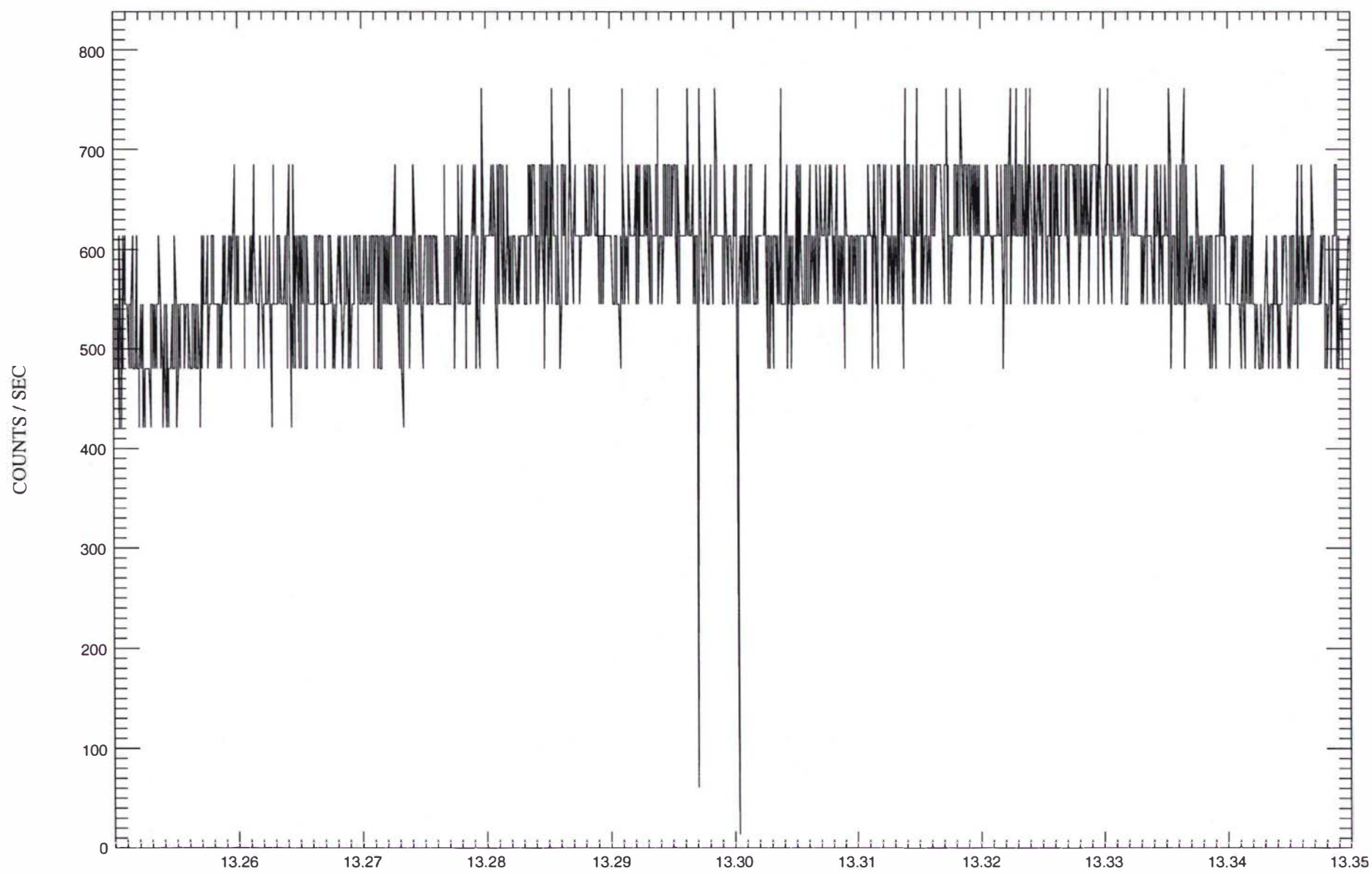


UNIVERSAL TIME

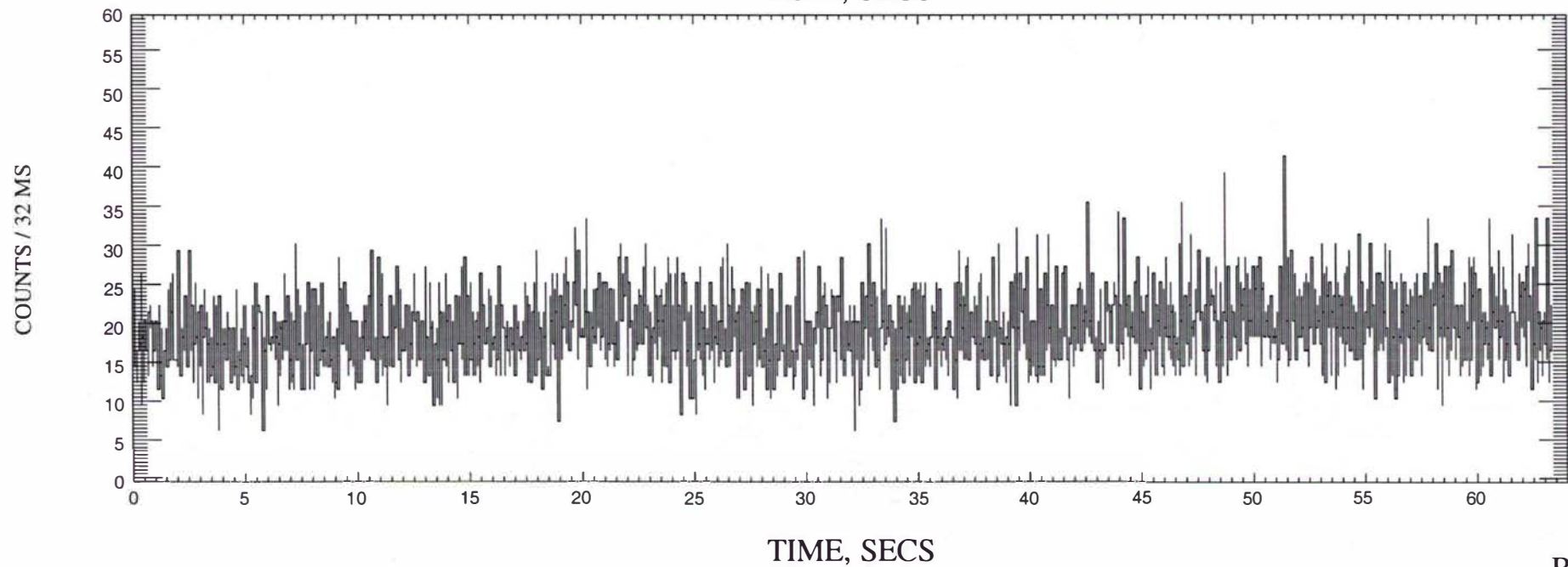
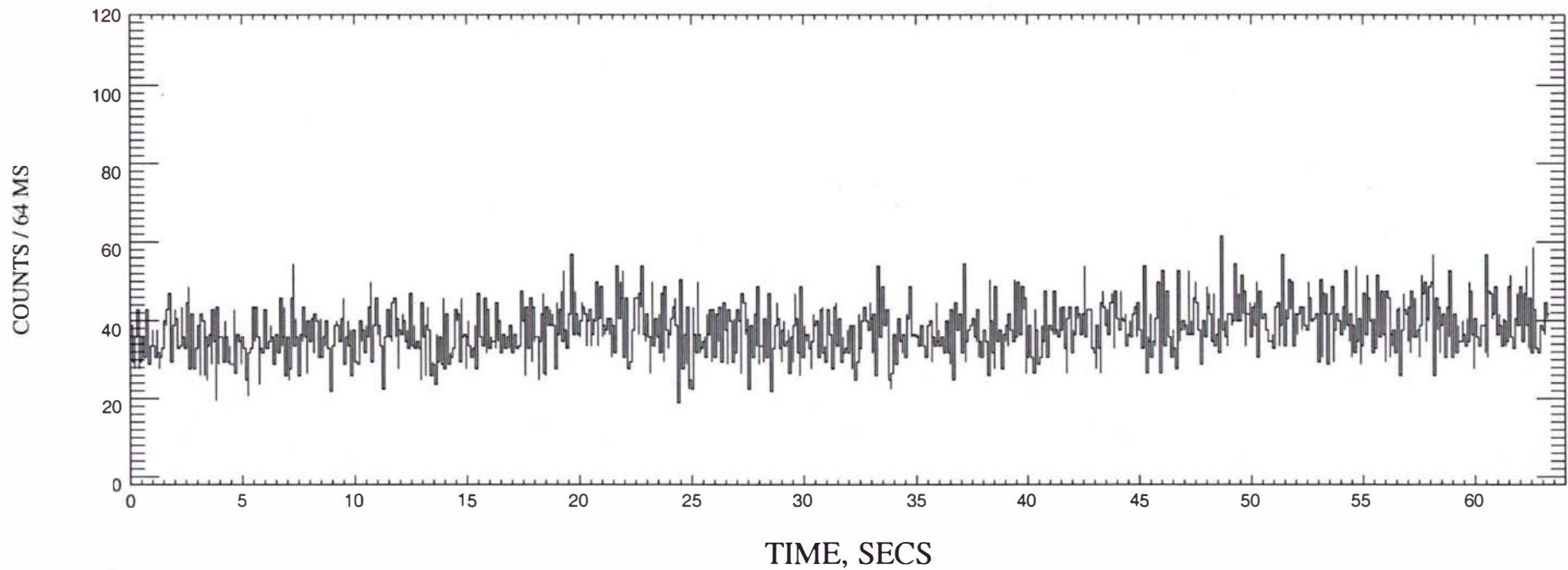
Burst Counter 0 at UT=13.298683772617 h=47875.262 s 13:17:55.262



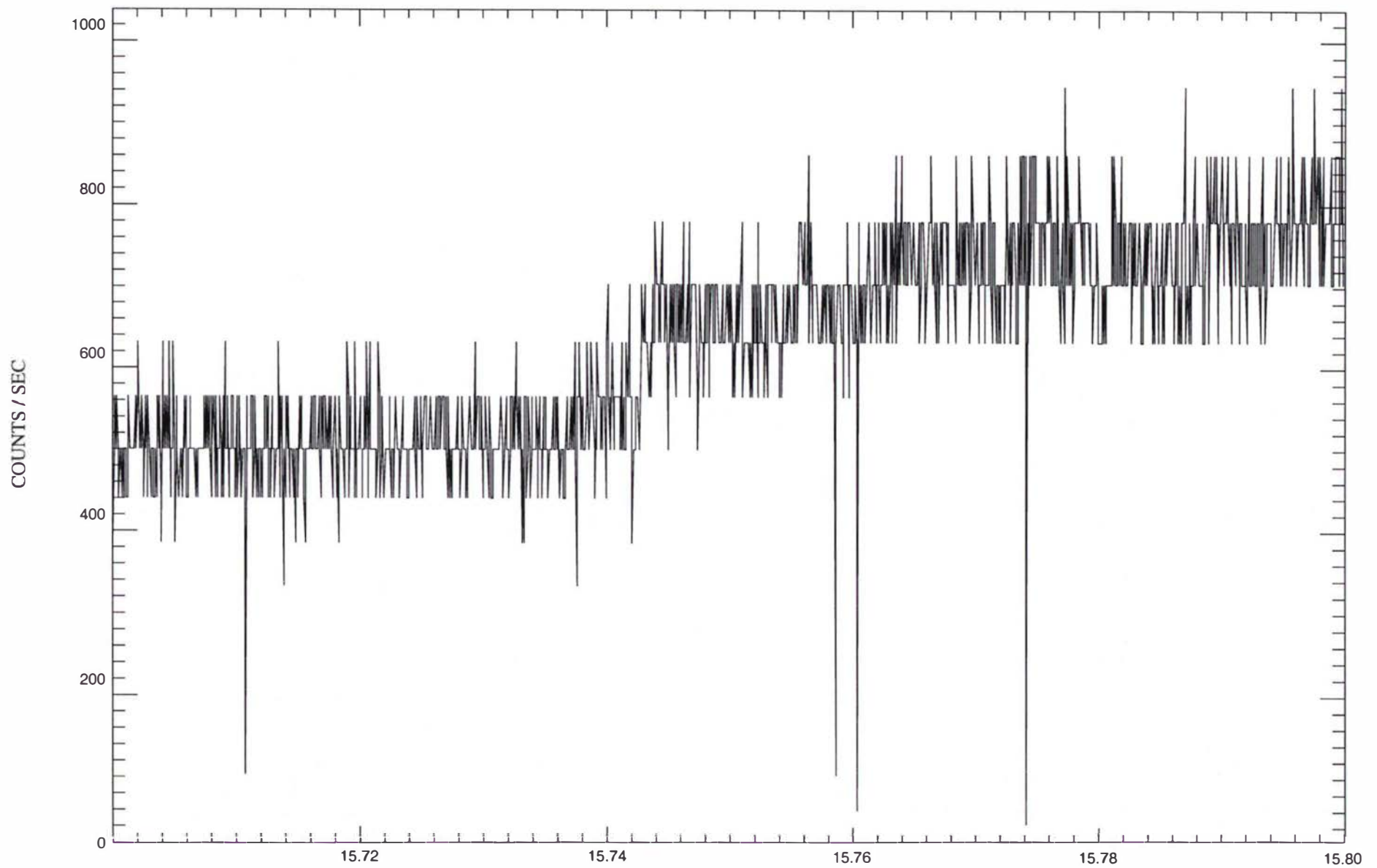
CALIBRATION DATA INCLUDED



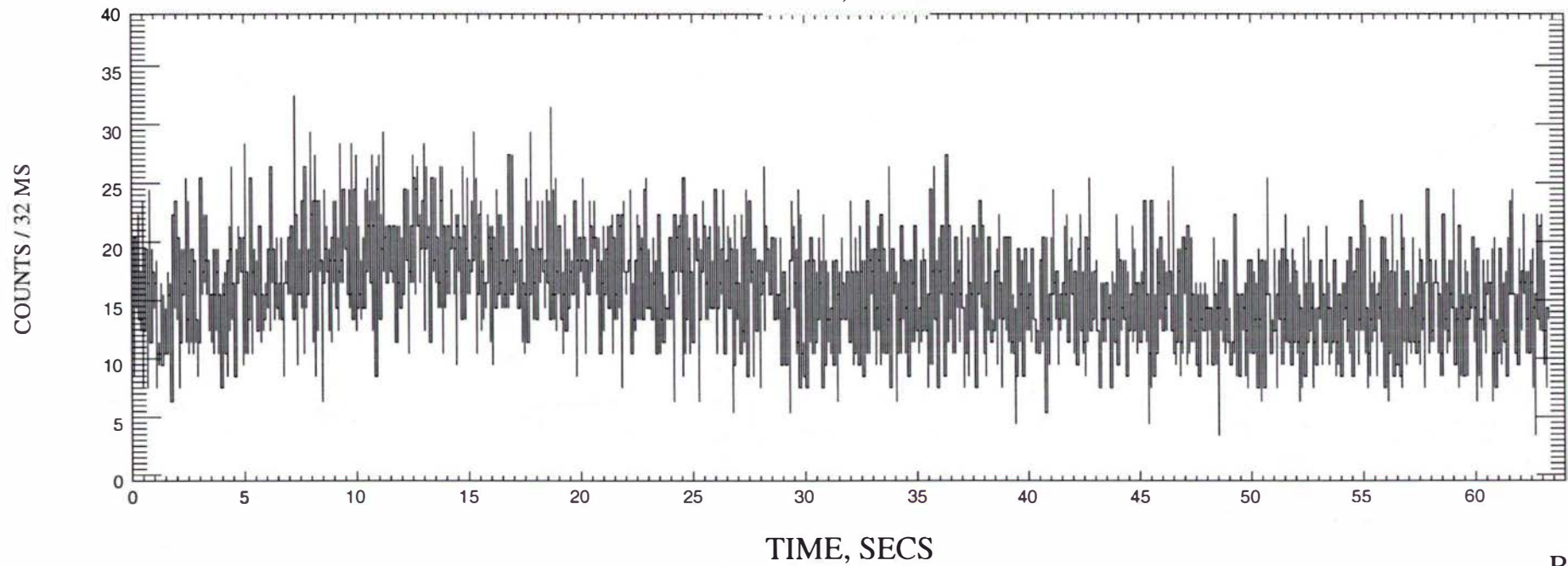
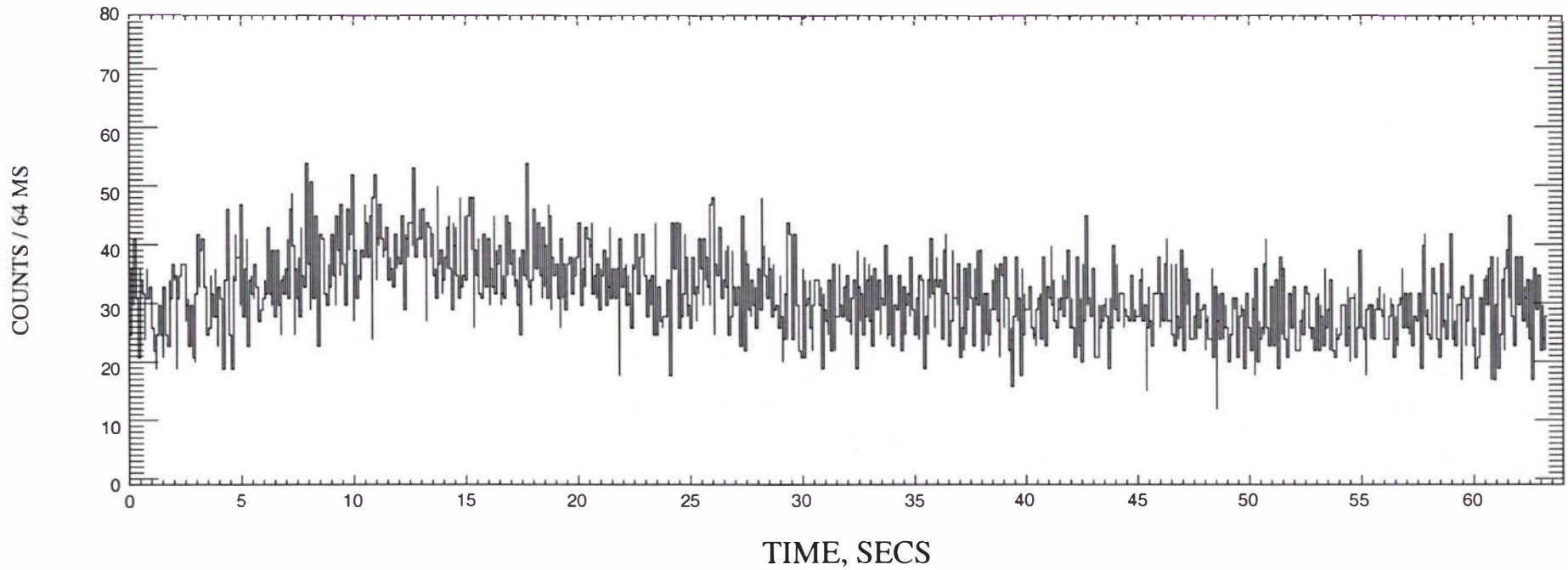
Burst Counter 1 at UT=15.752404433356 h=56708.656 s 15:45:08.656



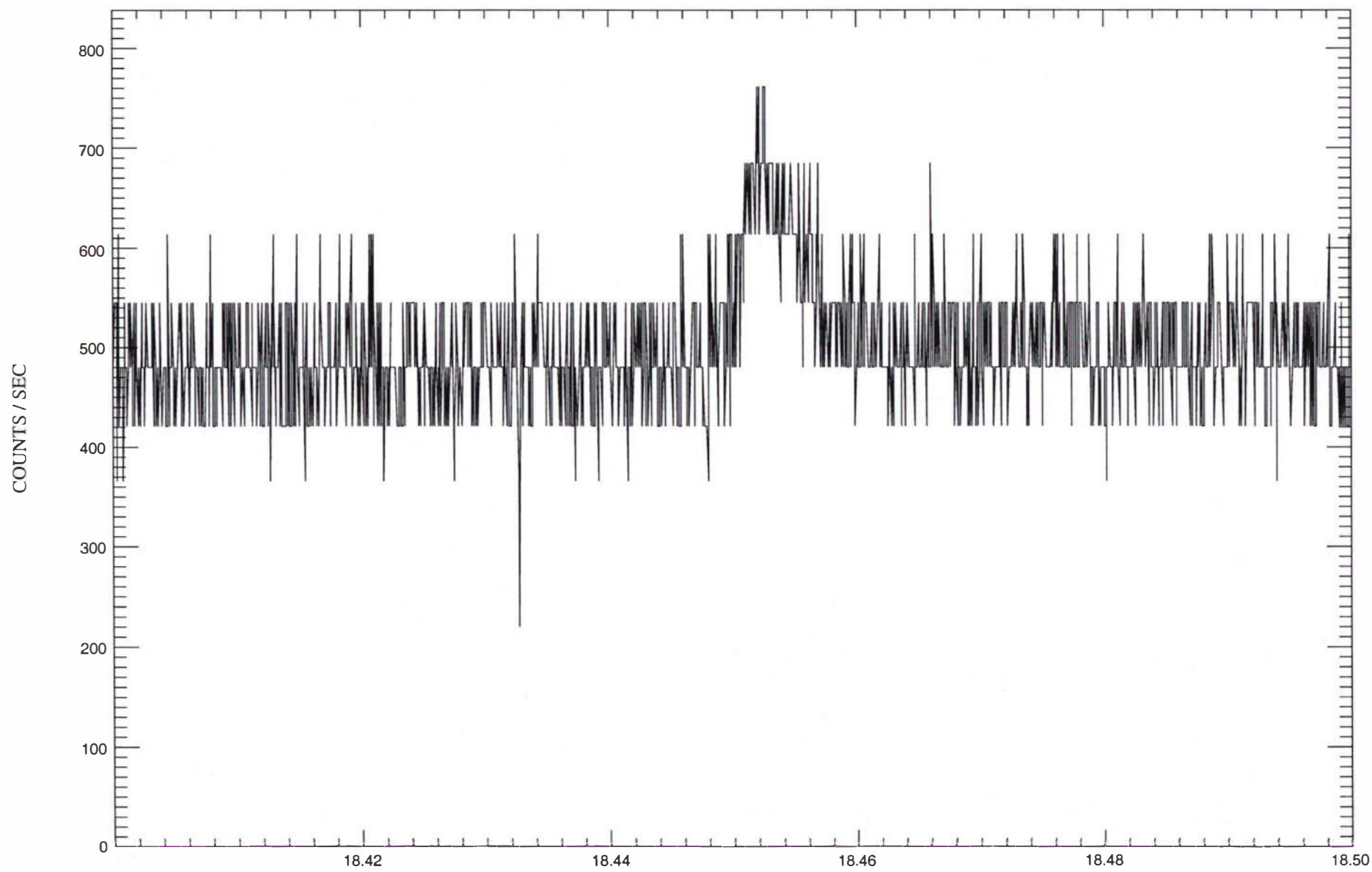
CALIBRATION DATA INCLUDED

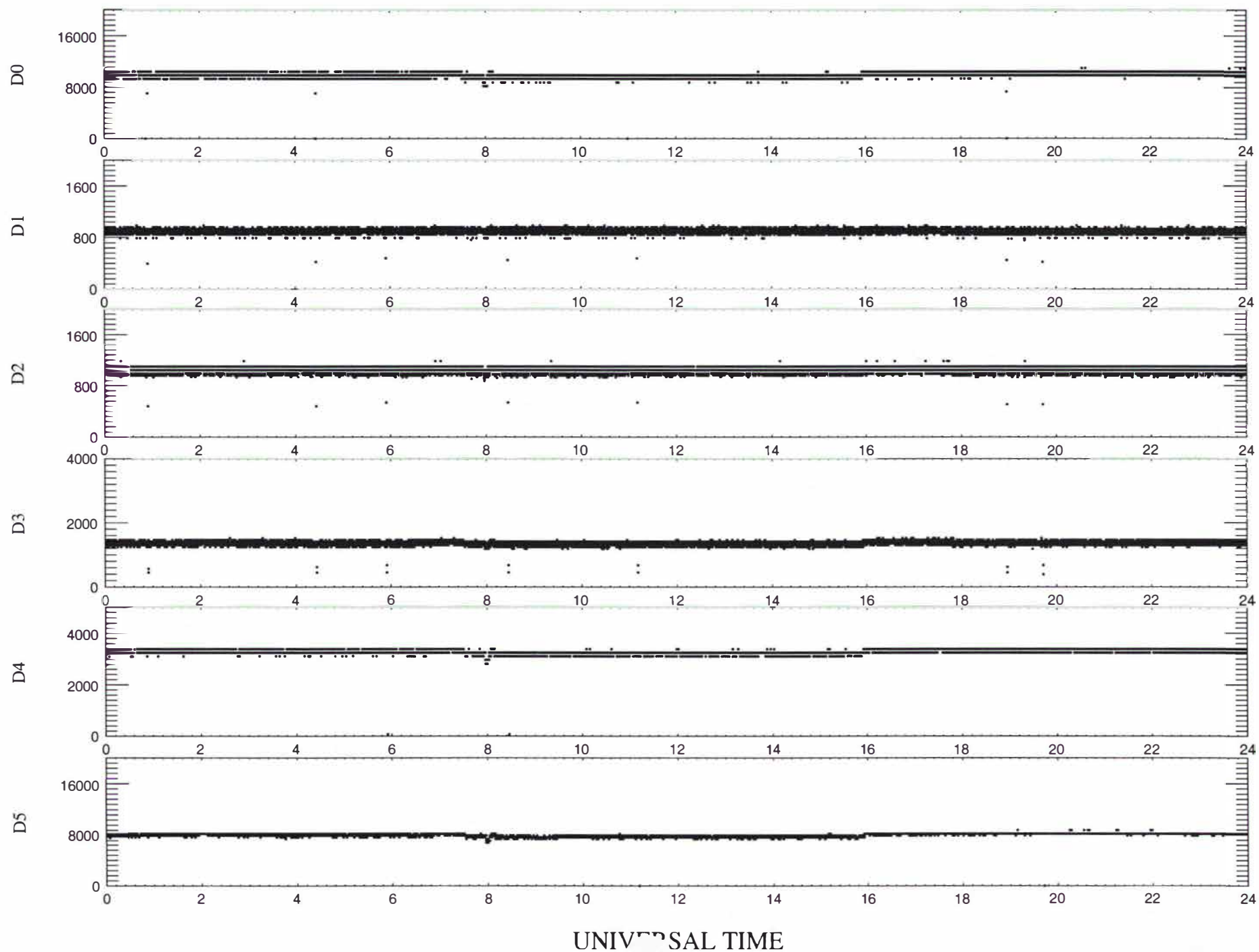


Burst Counter 2 at UT=18.451127387153 h=66424.059 s 18:27:04.059



CALIBRATION DATA INCLUDED





KONUS RI 20001228 29992

ULYSSES RT

02 / 05 / 01

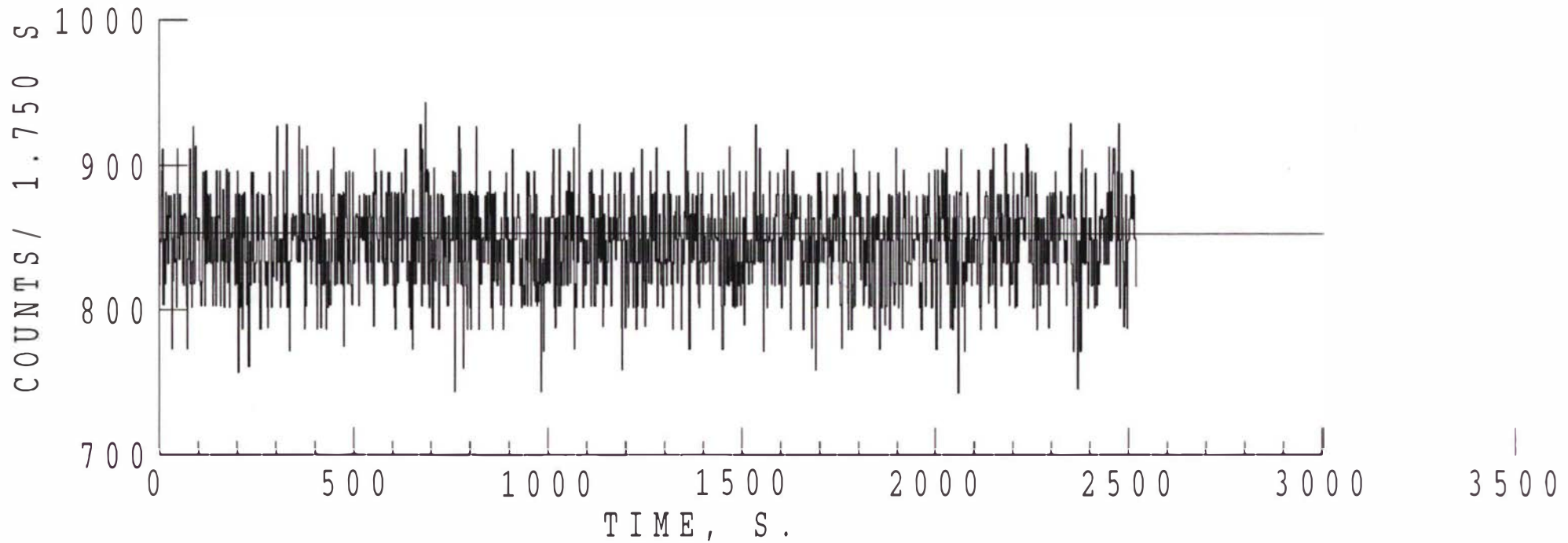
28 / 12 / 00 28728.207 s

0.250 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



Date: Nov 19, 2008

BURST TRIANGULATION CHECKLIST

1. Ulysses Data N/A

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

2. For 3 or More Spacecraft events

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

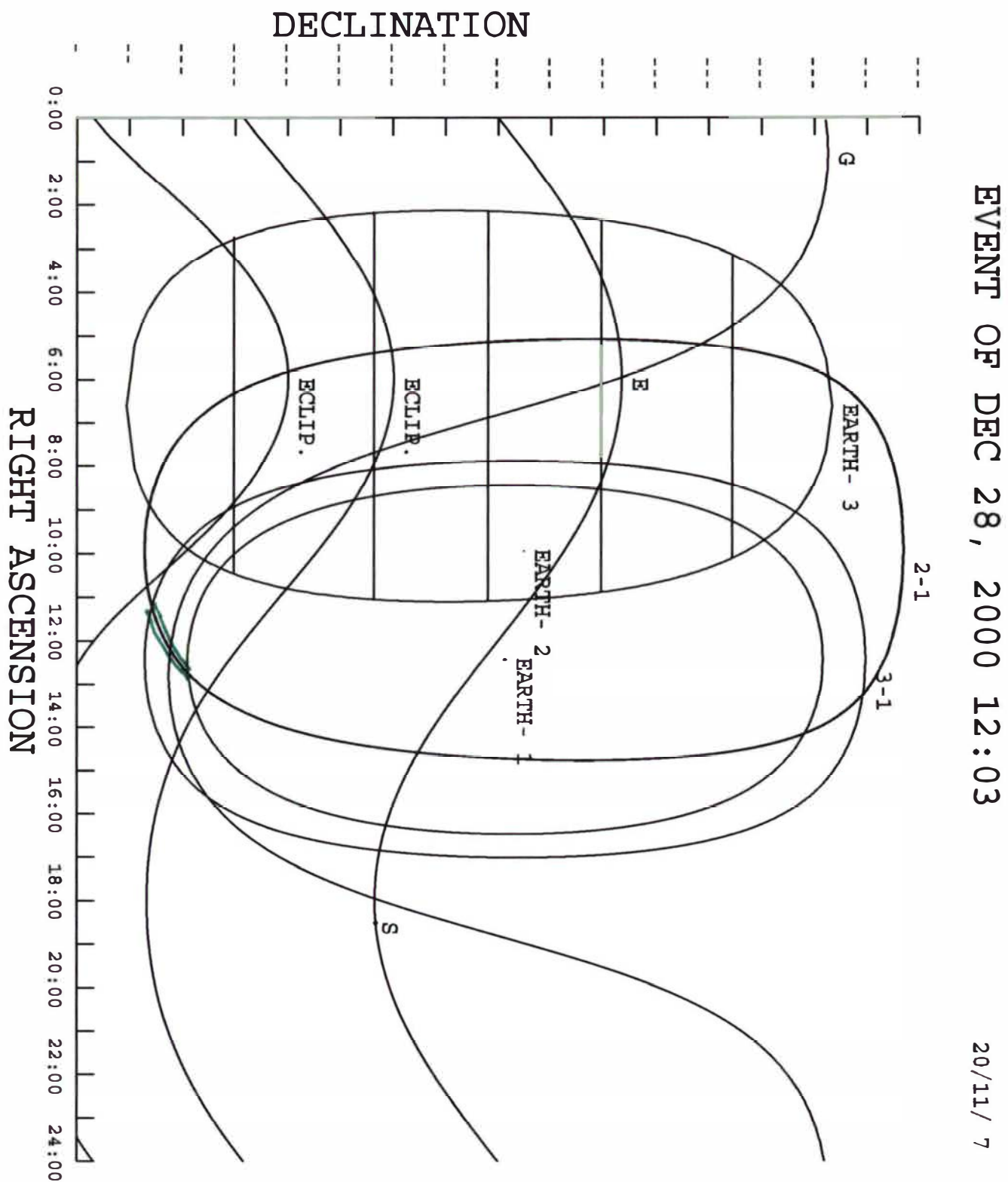
3. For INTEGRAL events

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

-
- ☒ ACCESS and MBL4 databases updated?

G=GALACTIC EQUATOR

3 SAX



KONUS1

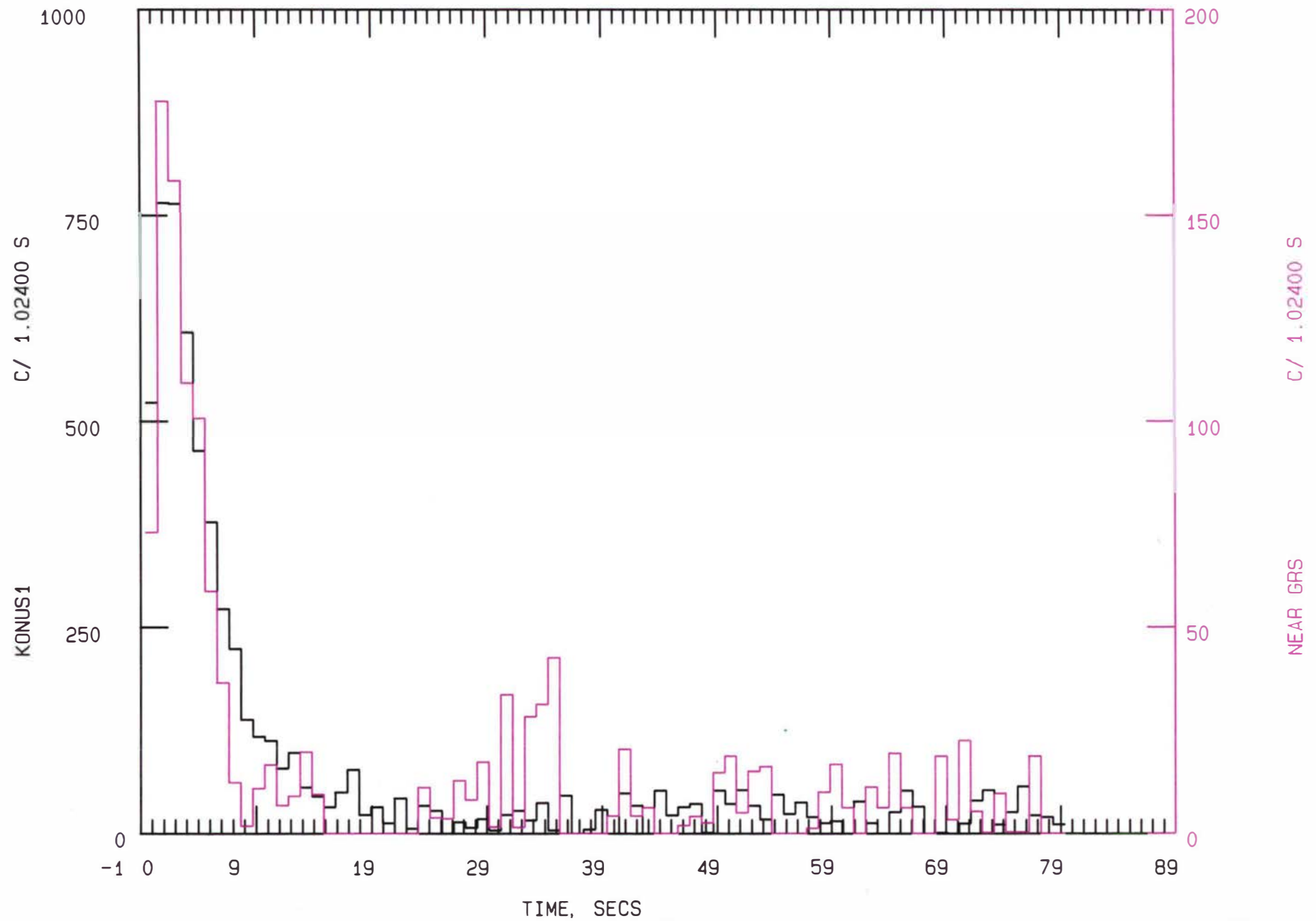
-NEAR GRS

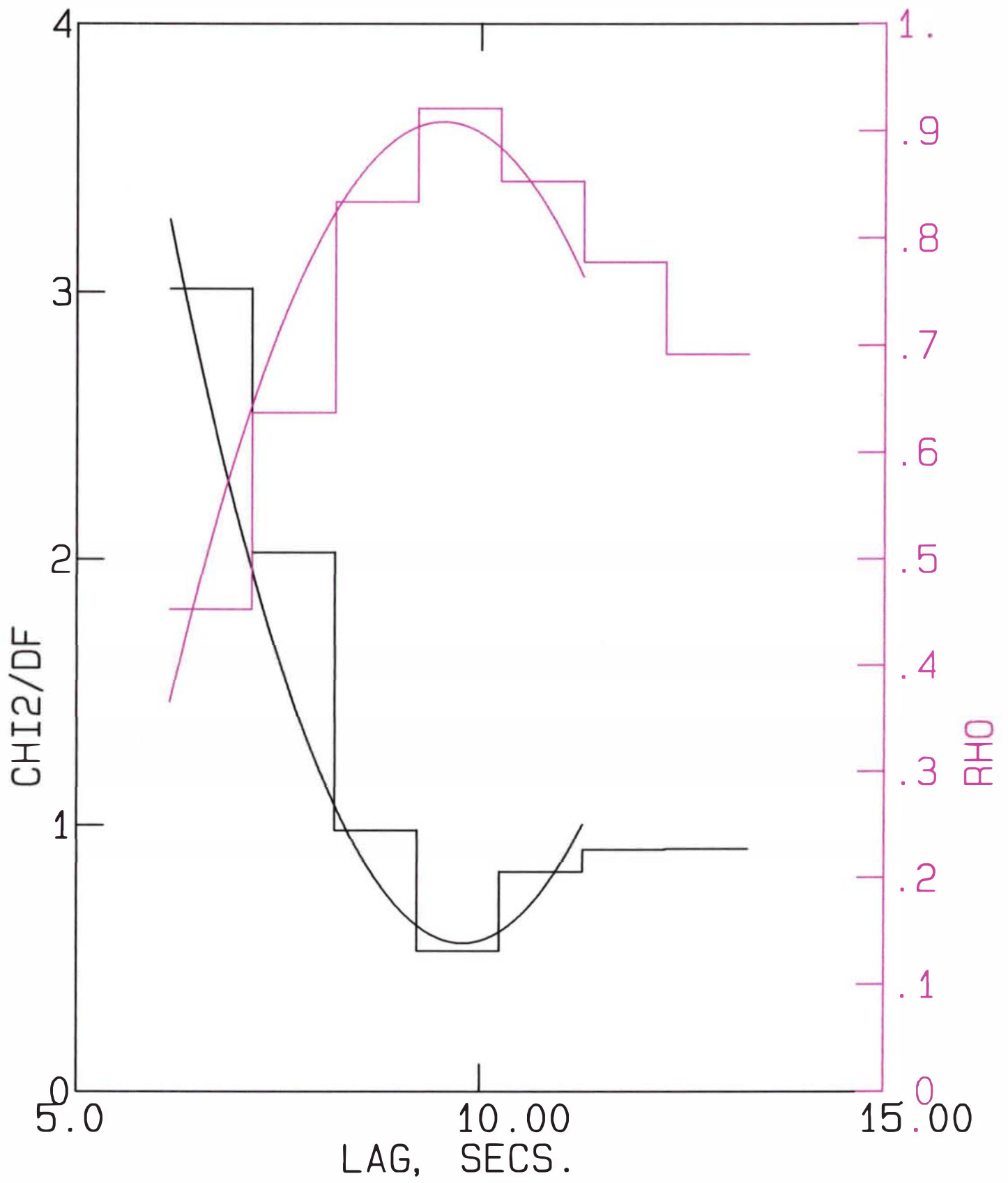
CORRELATION

28/12/00

43397.236

20/11/ 7





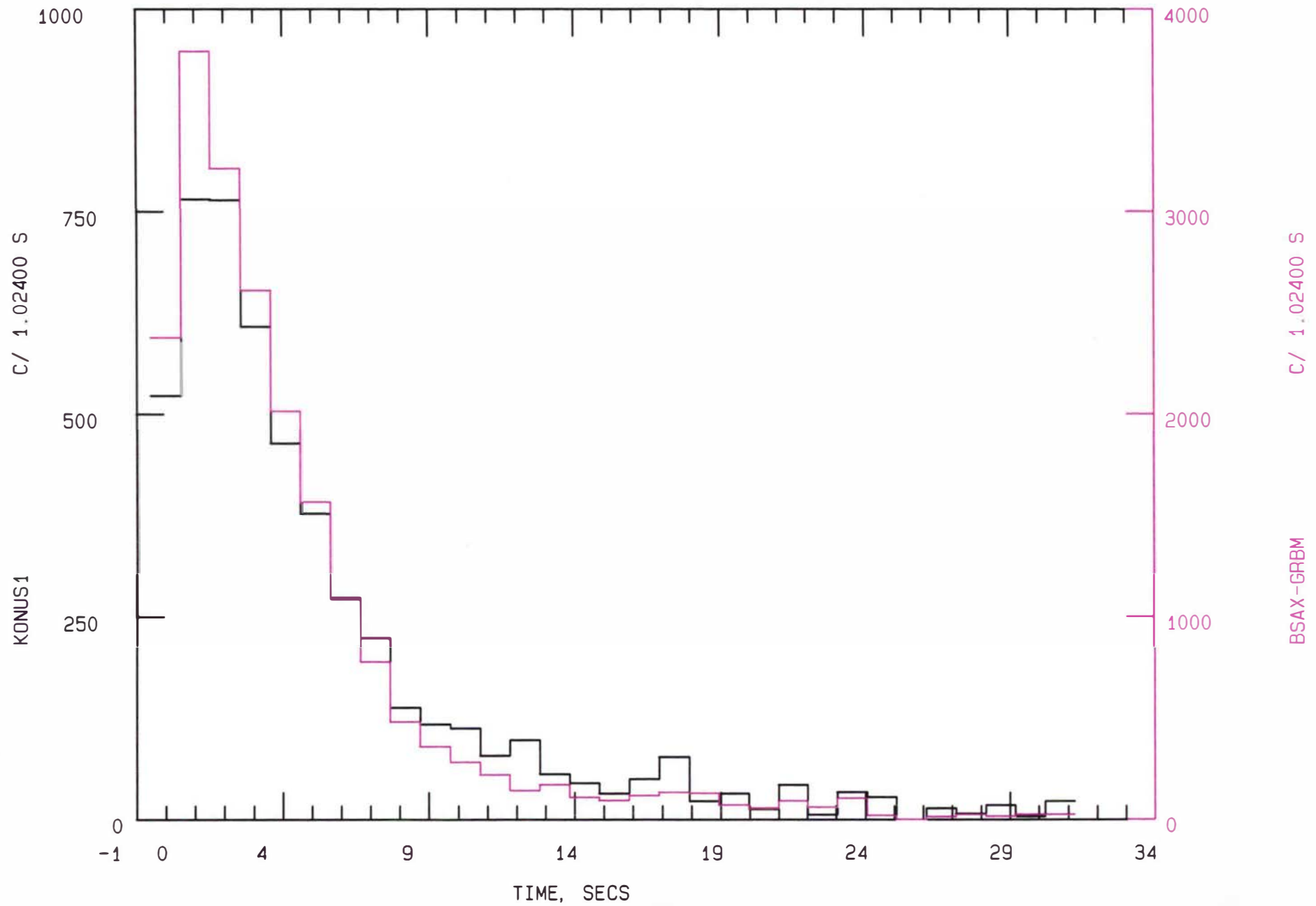
KONUS1

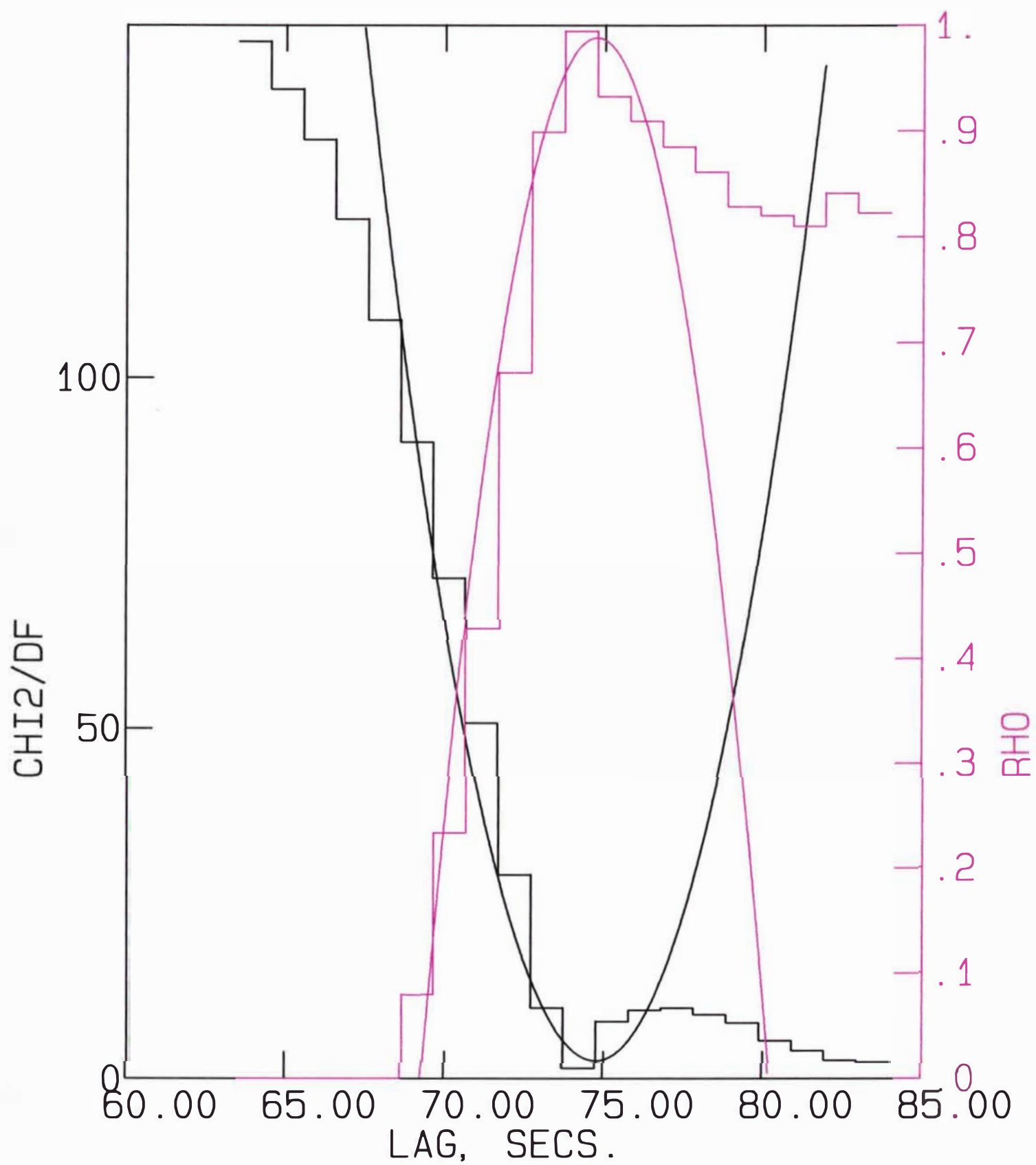
-BSAX-GRBM CORRELATION

28/12/00

43397.236

20/11/ 7





From guidorzi@fe.infn.it Thu Dec 28 06:52 PST 2000
From: Auto_GRB_monitor@fe.infn.it
Subject: GRBM/SAX Trigger S/W Alert
Date: Thu, 28 Dec 2000 15:50:04 +0100 (MET)

1kGRB[158] #LSs: 4 Good HRR: 6
SW Trigger Time (OBT): 60239.897
UTC: Thu, 28 Dec 2000 12:03:14:71878 43395

Nsig(trg):	6.2	4.2	2.7	3.9	5.2	3.7	1.6	3.3
Nsig(pfl):	72.3	63.9	18.5	20.8	52.6	50.6	12.9	13.8
Bkg lev. :	750	907	814	706	928	930	886	980
ChiSq R. :	0.991	1.295	0.888	1.395	0.978	1.212	0.972	0.989

Peak fl. :	1980	1925	529	552	1602	1541	384	431
Error :	59.0	61.2	46.5	44.4	58.9	58.4	46.5	49.0

Fluence :	9308	9964	2590	2595	7102	7107	1709	1907
Error :	178.6	193.1	137.6	129.5	187.2	187.3	139.6	146.9

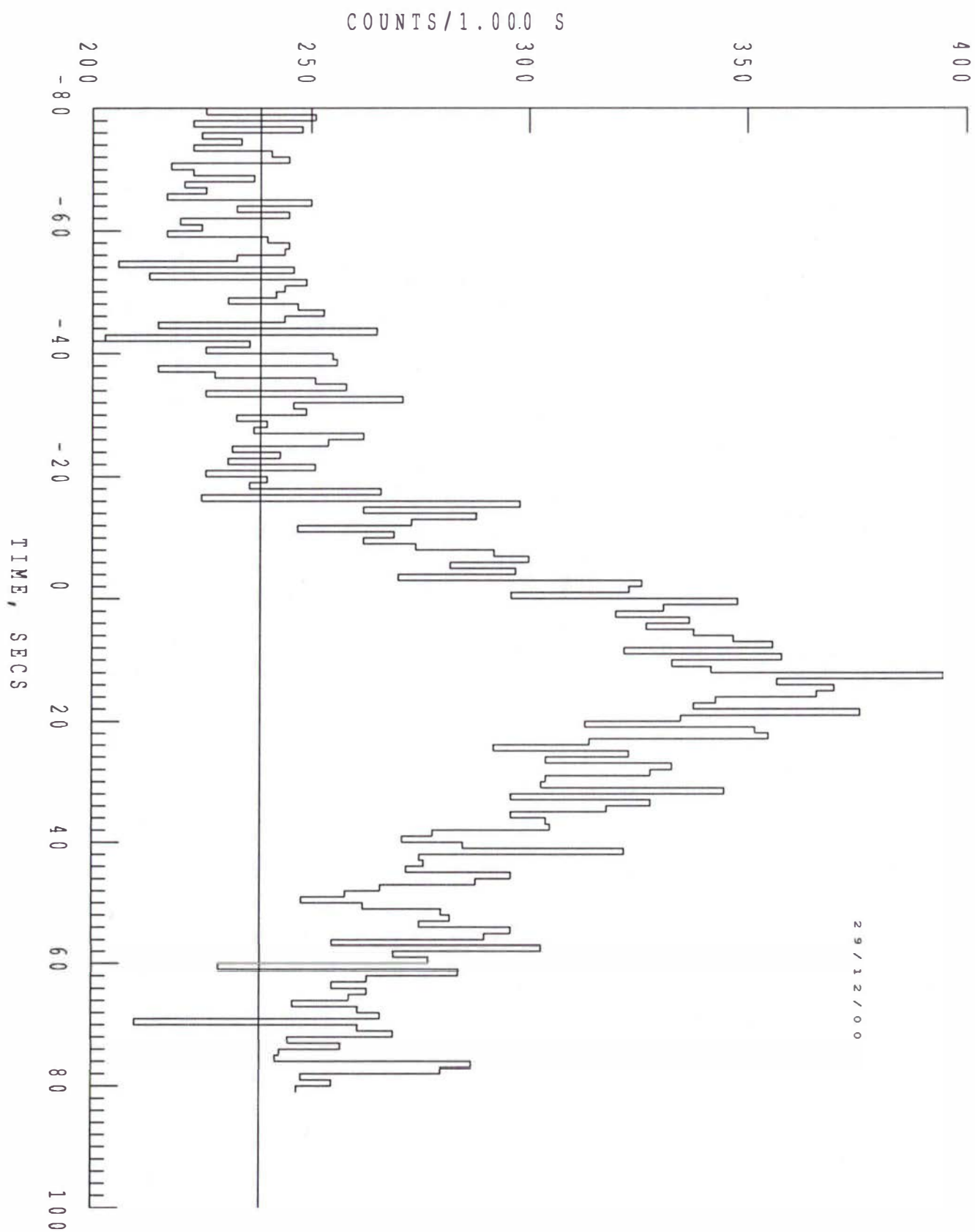
Dur (s) :	21.00	15.00	10.00	10.00				
Abundance:	15	15	10	10				
H. Ratio :	0.763	0.713	0.660	0.735				
HR Ratio :	1.070	1.156	1.038	1.081	0.970		0.898	
HR W-ave :	0.732	+/-	0.016					

NEAR

28/12/00

43581.647

100-1000 keV

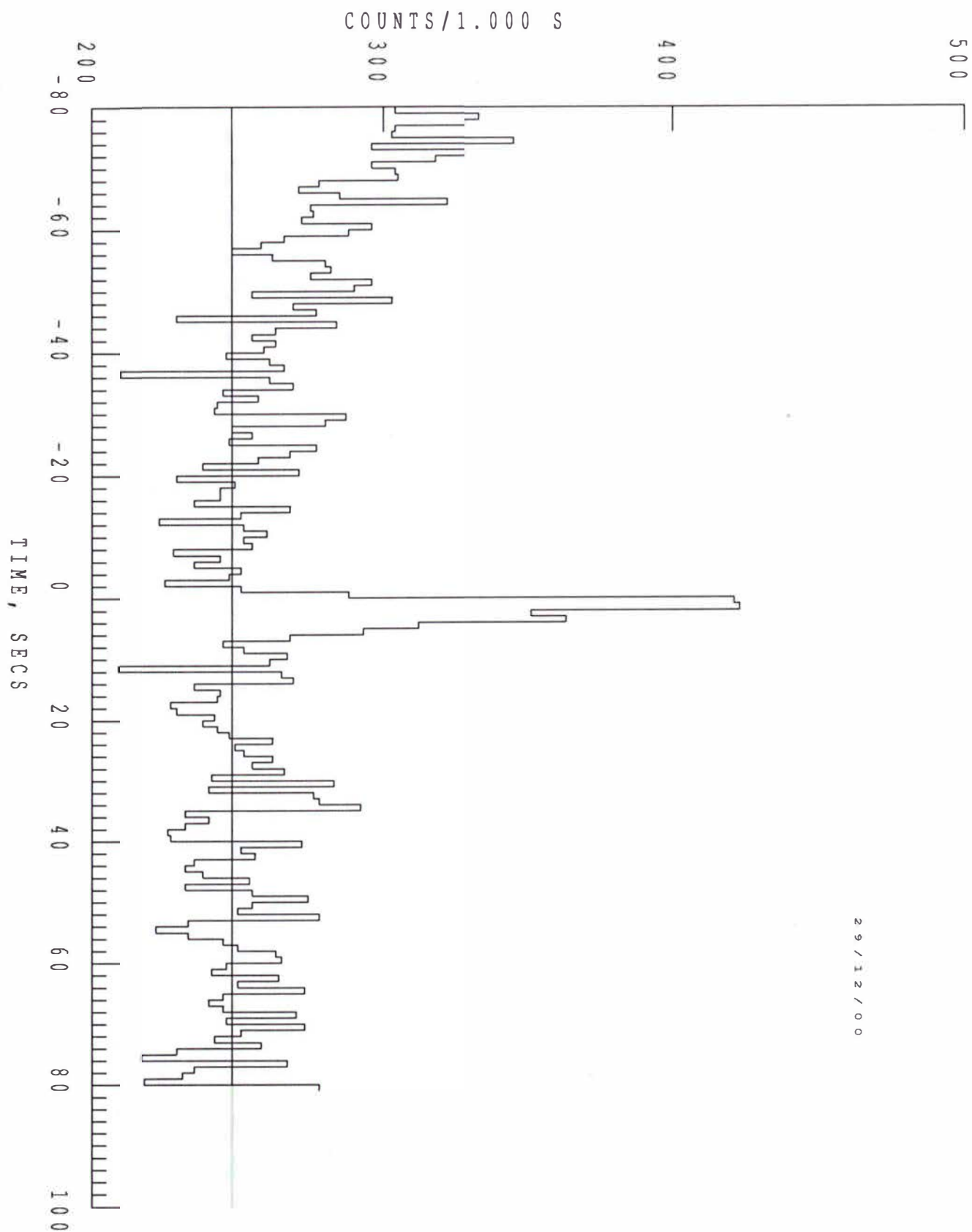


NEAR

28/12/00

43687.647

100-1000 keV



KNEAR GRS 20001228 43581

ULYSSES RT

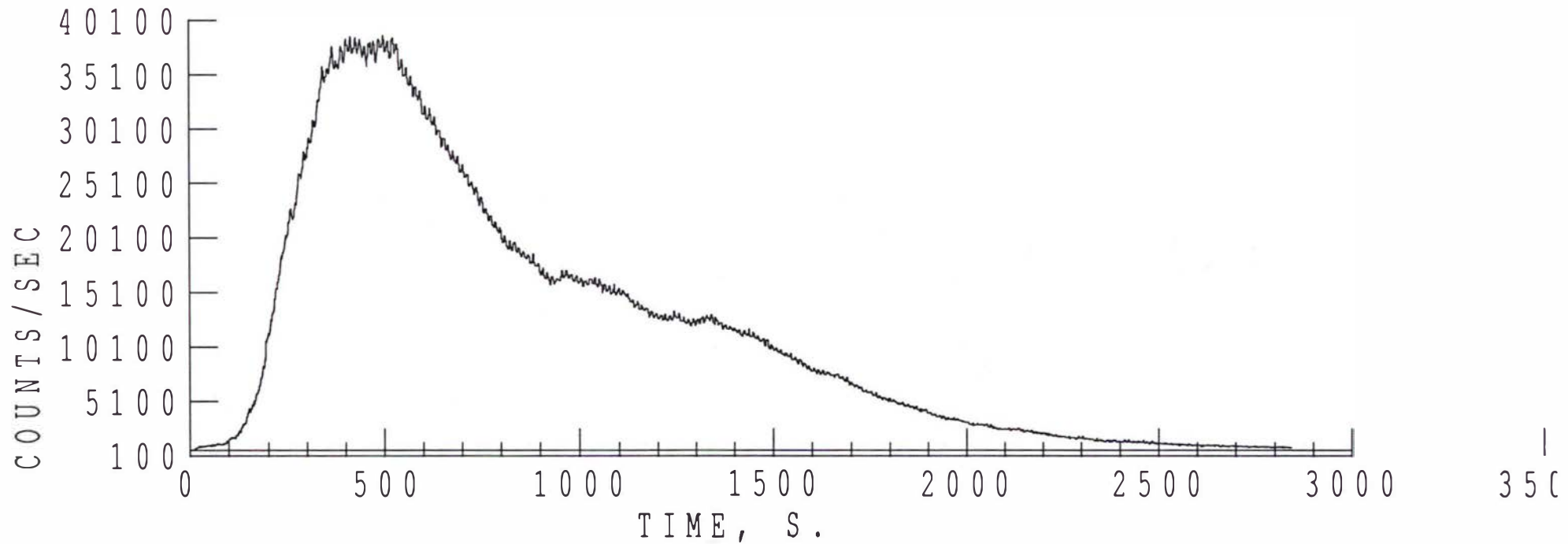
29/12/00

28/12/00 42156.172 s

INTERVALS REGROUPED BY 5

0 - 0 keV

H= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

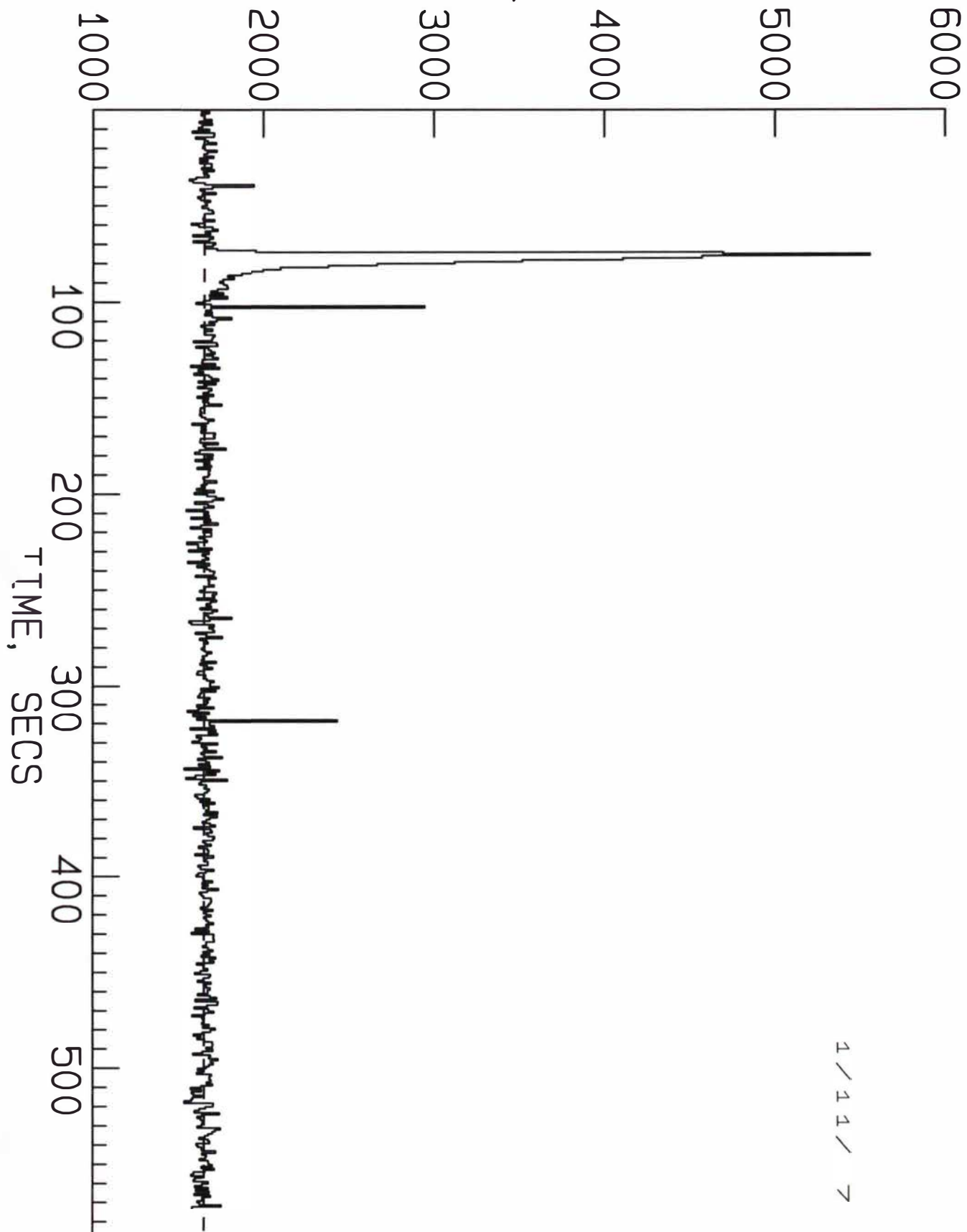


SAX GRBM

28/12/00 43320.724

40- 700 keV

COUNTS/1.000 S



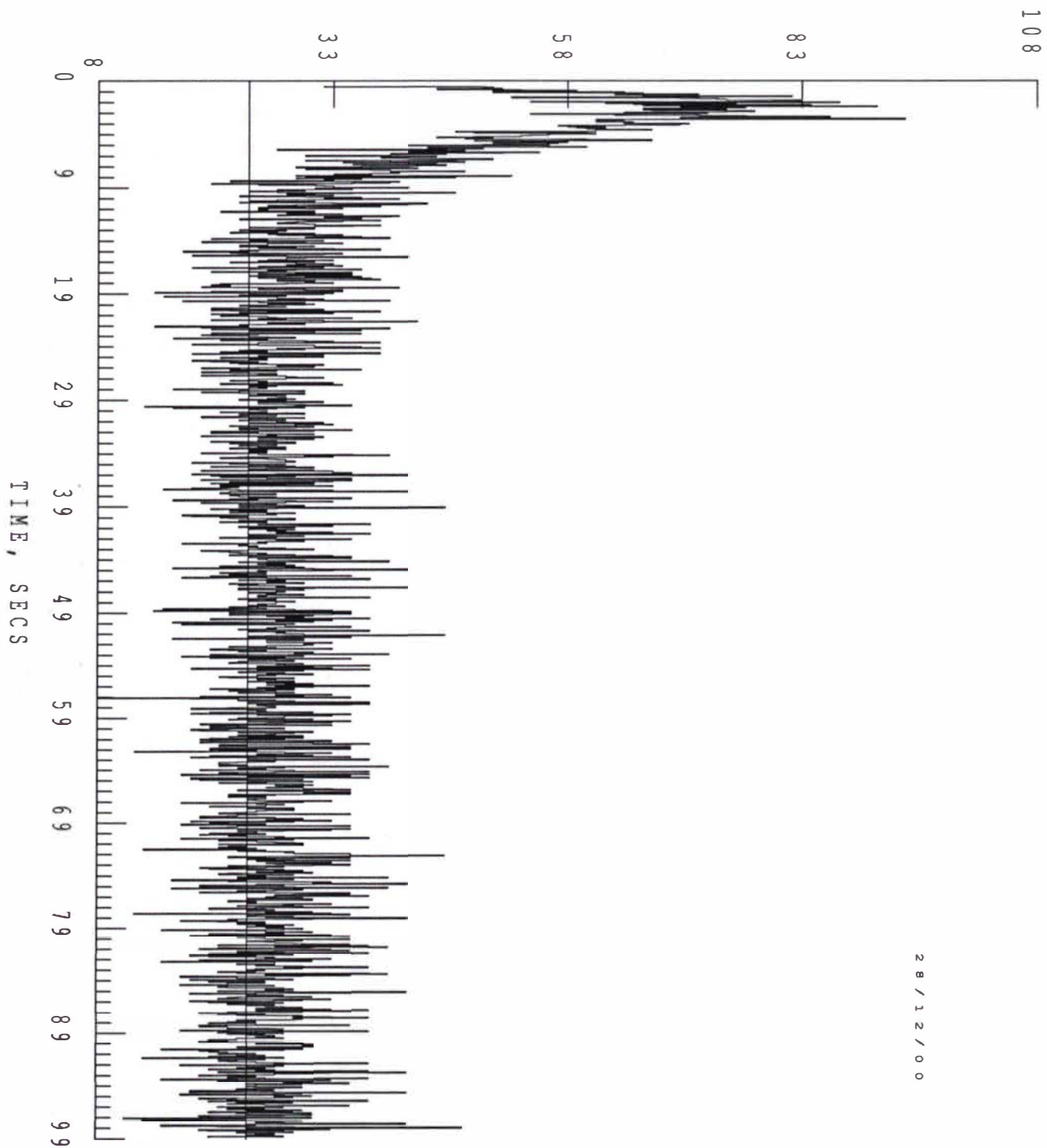
KONUS1

28/12/00

43397.236

50 - 200 keV

COUNTS/0.064 S



28/12/00

Date: Aug 1 2017

BURST TRIANGULATION CHECKLIST

1. Suzaku Data

- ☐ 1 second timing error corrected? (Jan 1 – Apr 24 2009, and July 1 – August 20, 2012 – leap sec.)

2. AGILE Data

- ☐ 1 second timing error corrected?

3. MESSENGER Data

- ☐ Coarse or Precision oscillator (C or P bronte.jhuapl.edu/spice/kernels/sclk/timekeeping/OPS_TIME_ENGR.txt)?
- ☐ Timing checked after ~ 1 week?

4. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

5. 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). For later data, was timing checked after ~1 week?
- ☐ 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?

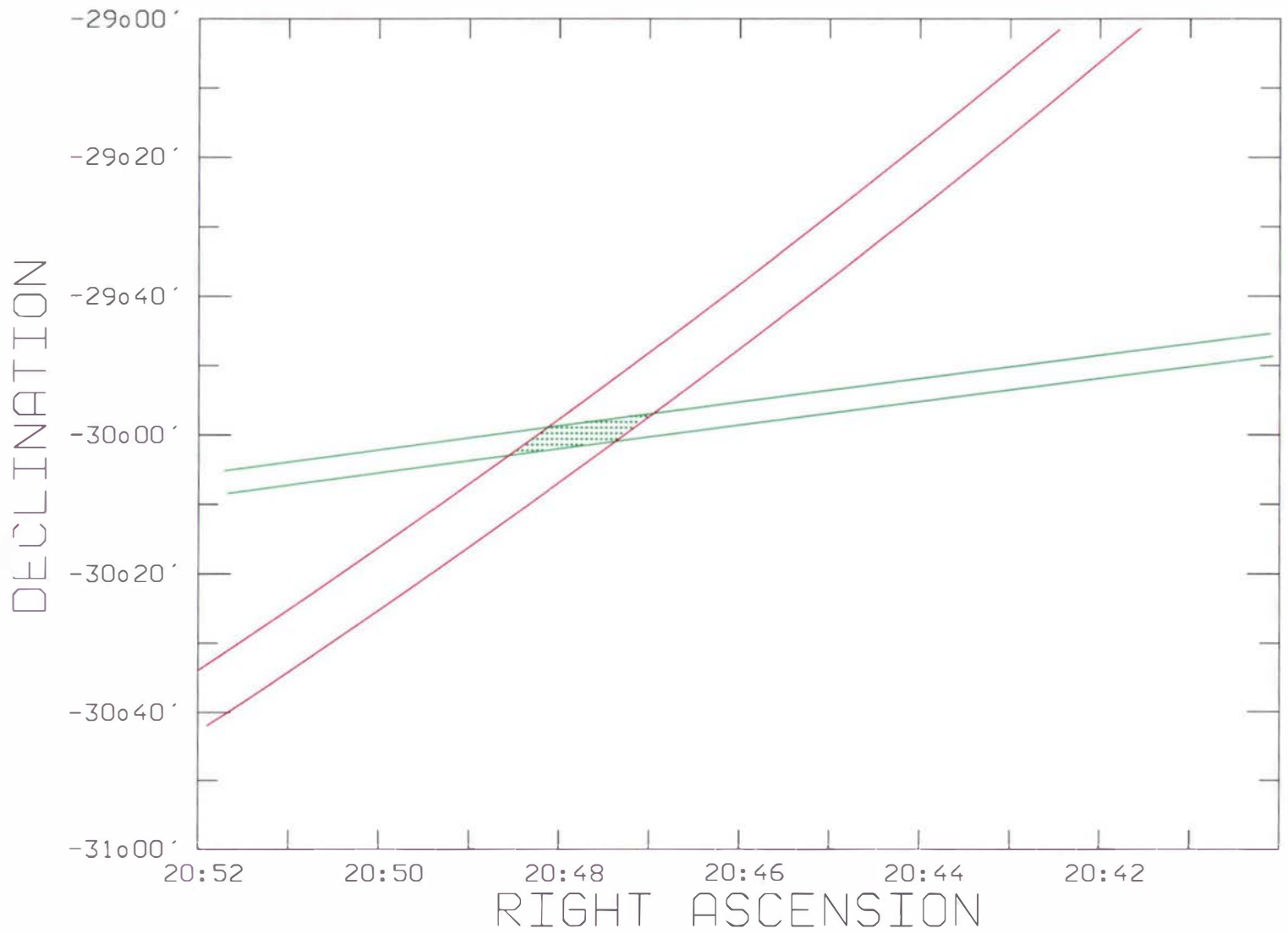
6. For 3 or More Spacecraft events

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

7. 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?
- ☐ Hand-extracted data used (record starts at -30.000 s)?
- ☐ Volodymyr's website checked ? (<http://isdc.unige.ch/~savchenk/spiaccs-online/spiaccs-ipnlc.pl>)

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

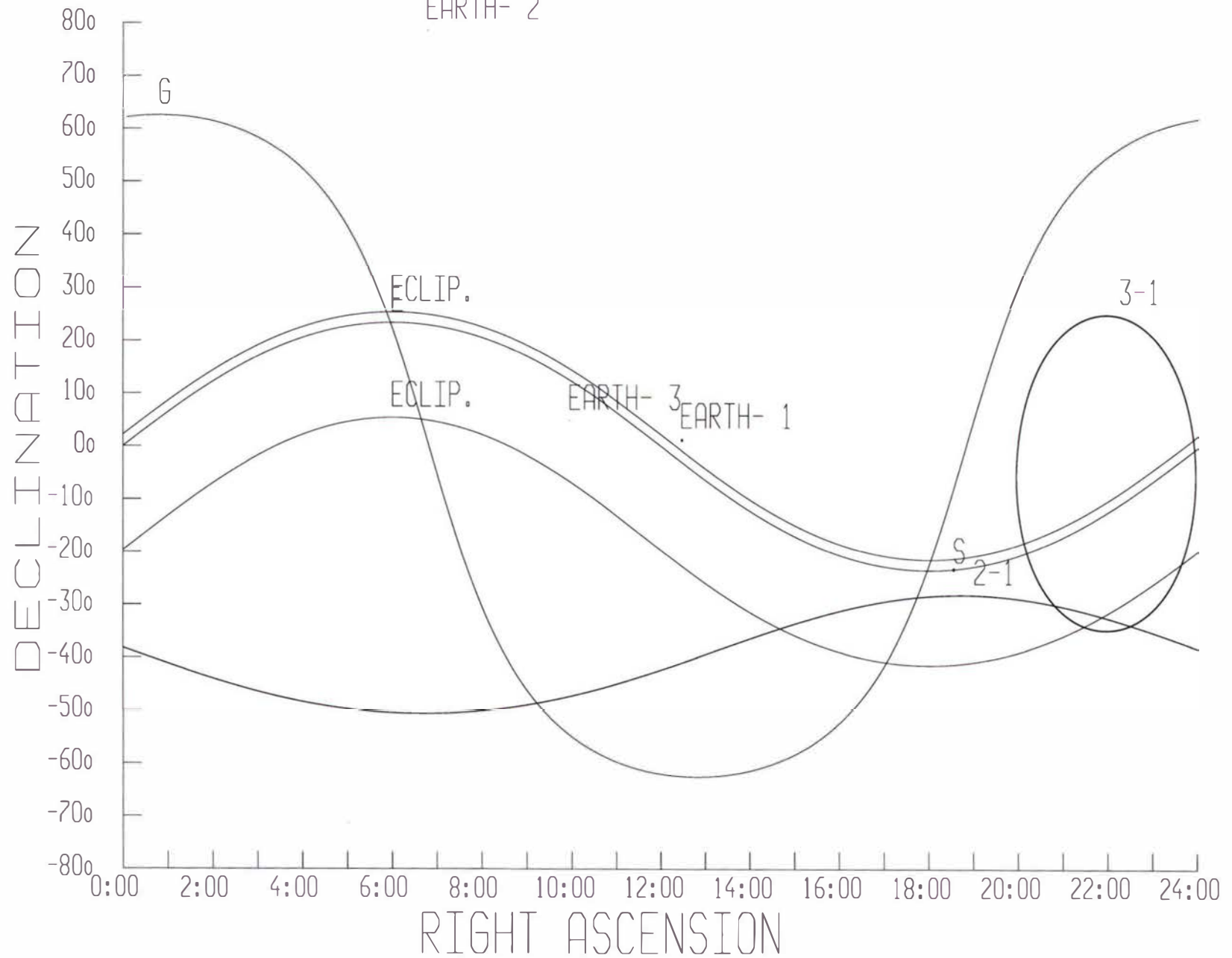


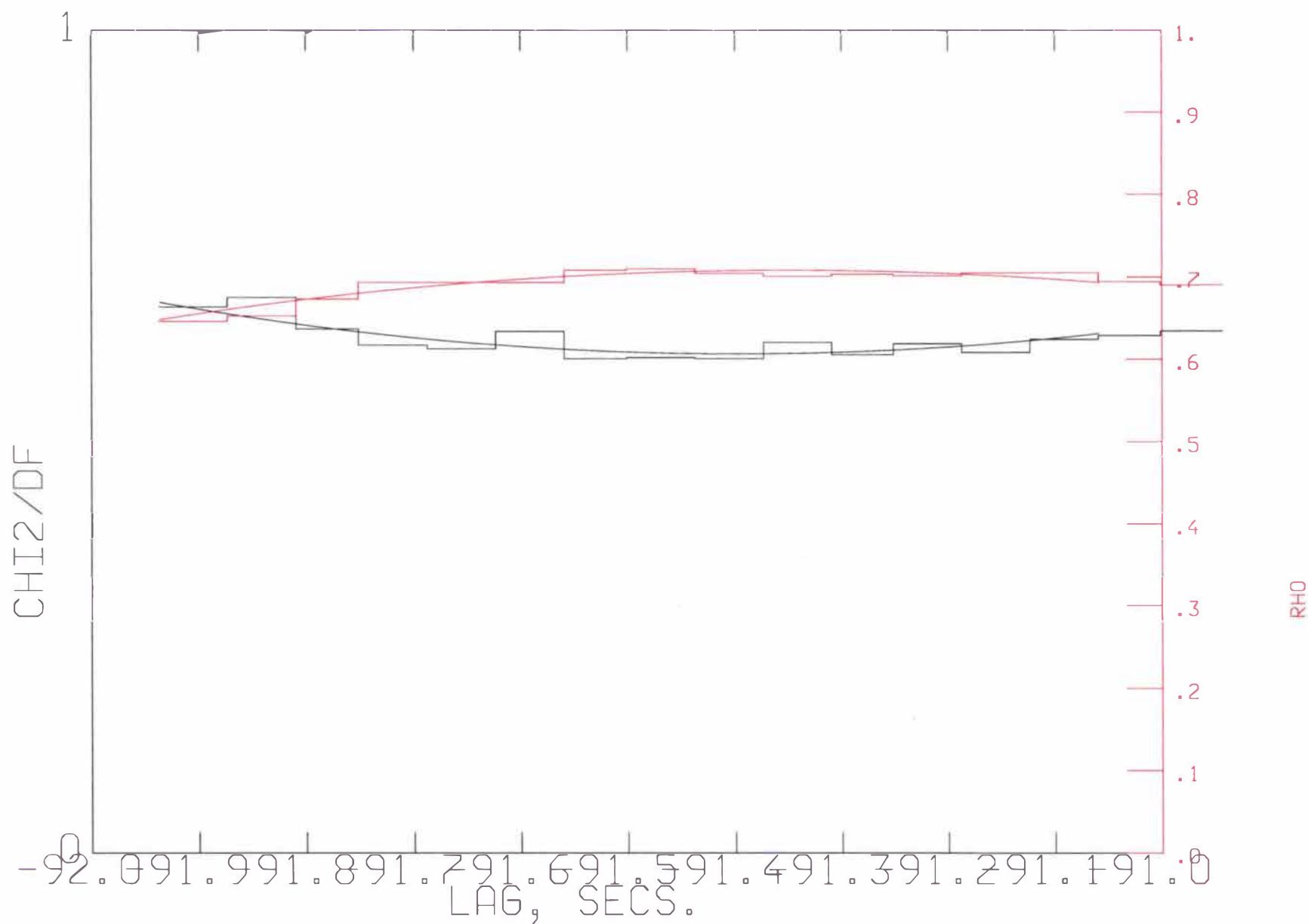
EVENT OF DEC 28, 2000 21:06

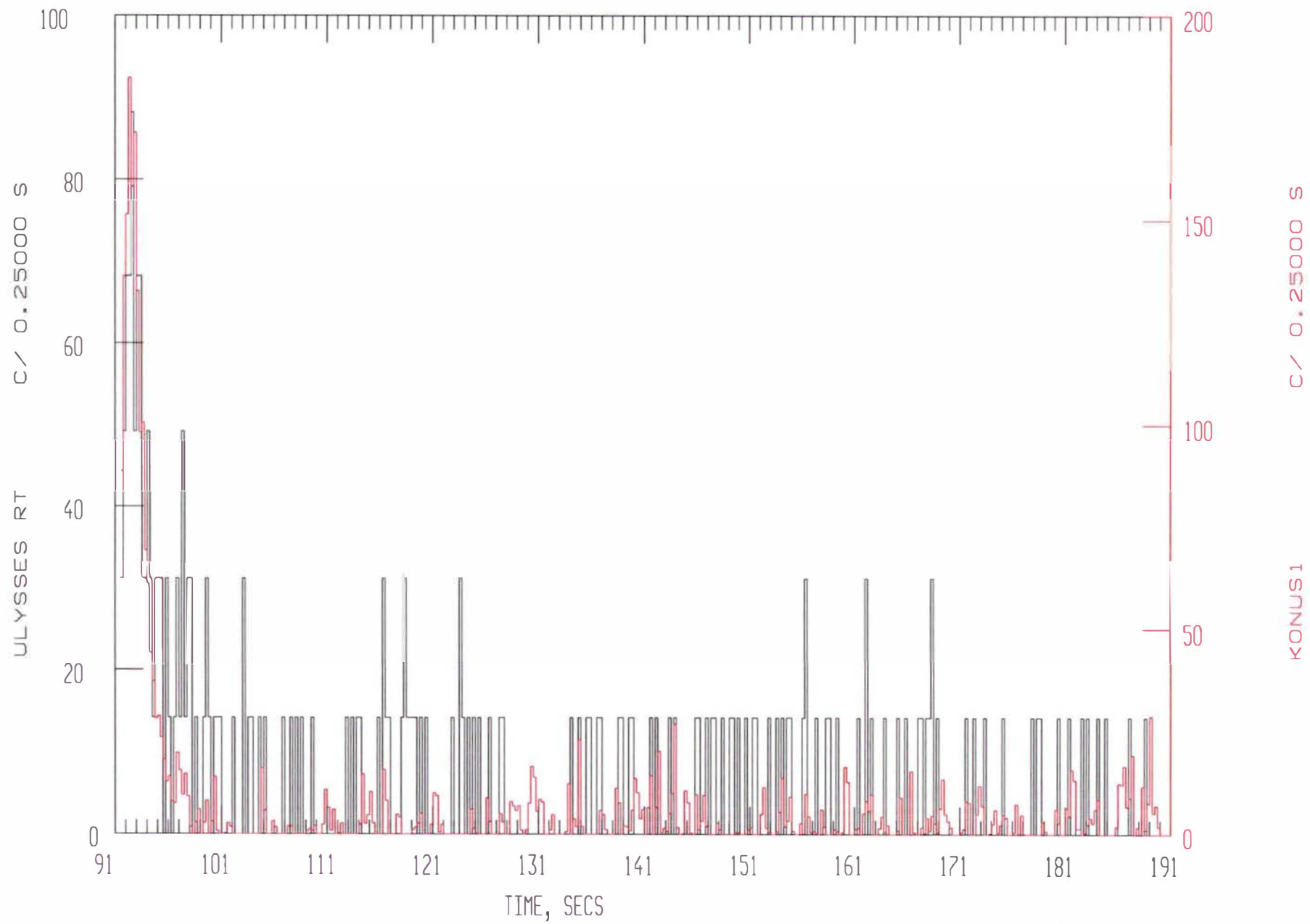
01/08/2017

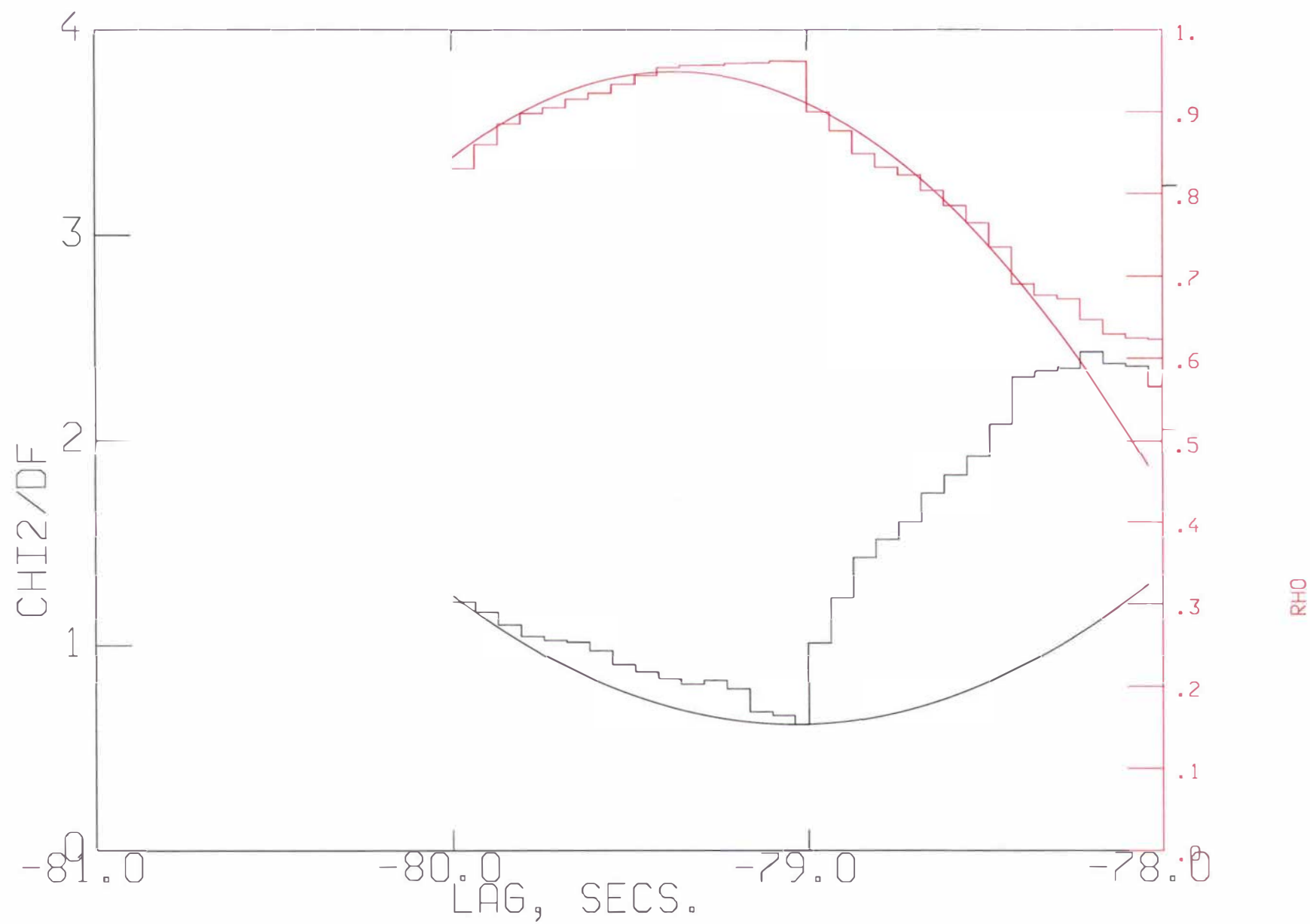
EARTH- 2

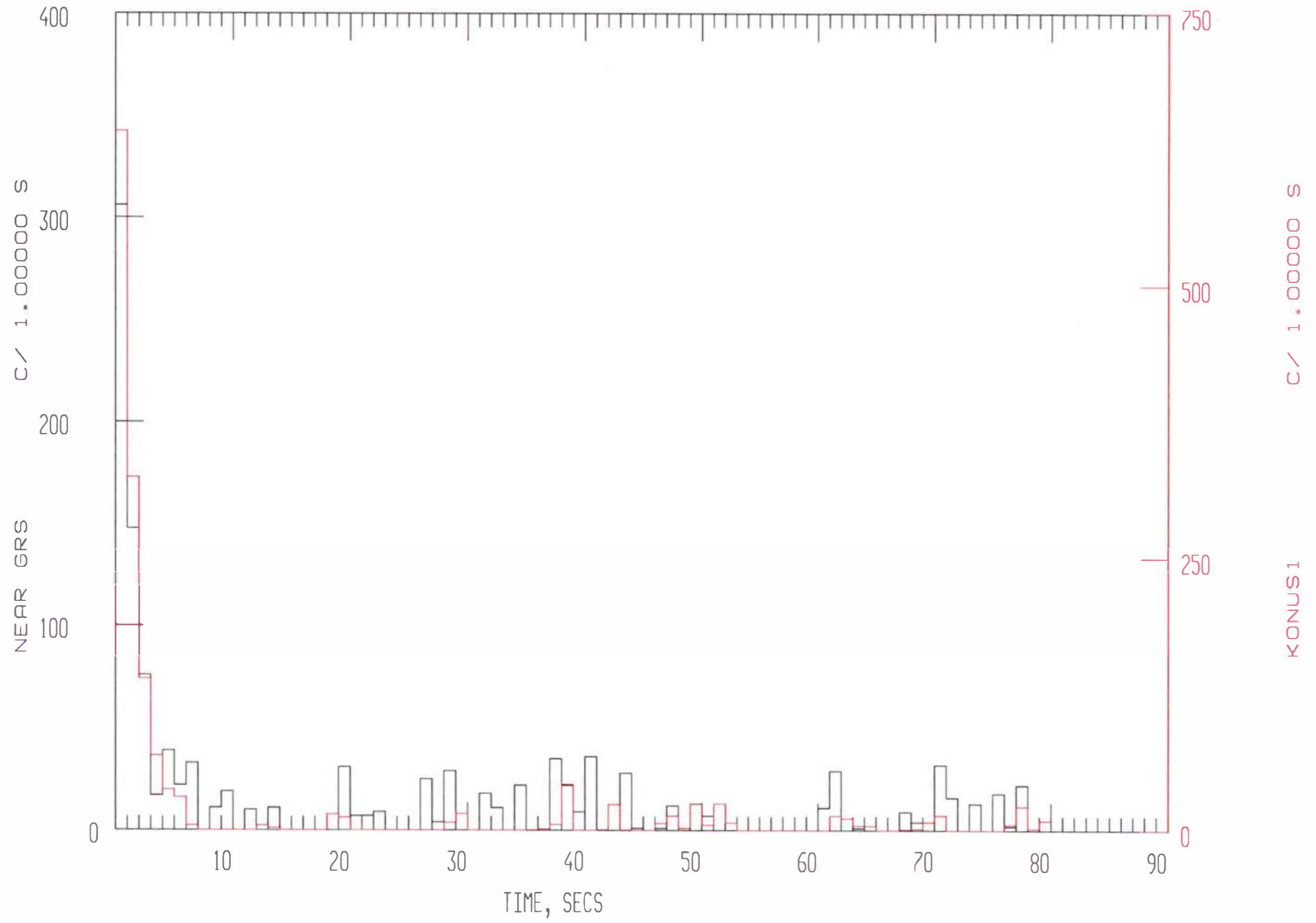
Z-N = CORRELATION BETWEEN SATELLITES Z AND N
EARTH-N = EARTH AS SEEN FROM SATELLITE N
S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
1 KONUS1 2 ULYSSES 3 NEAR







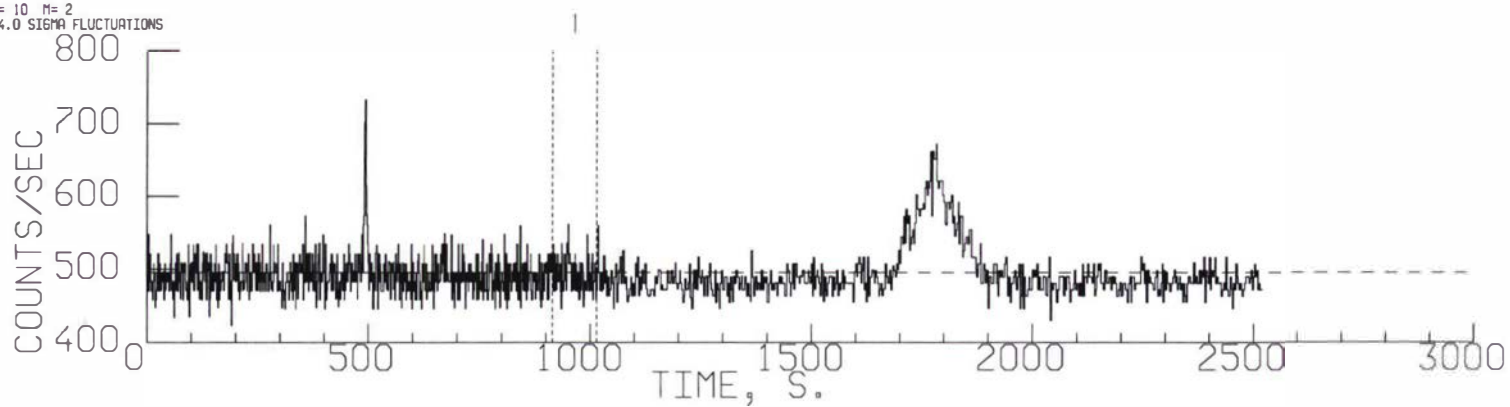




ULYSSES RT
28/12/ 0 74700.188 s
INTERVALS REGROUPED BY 5
23- 157 keV

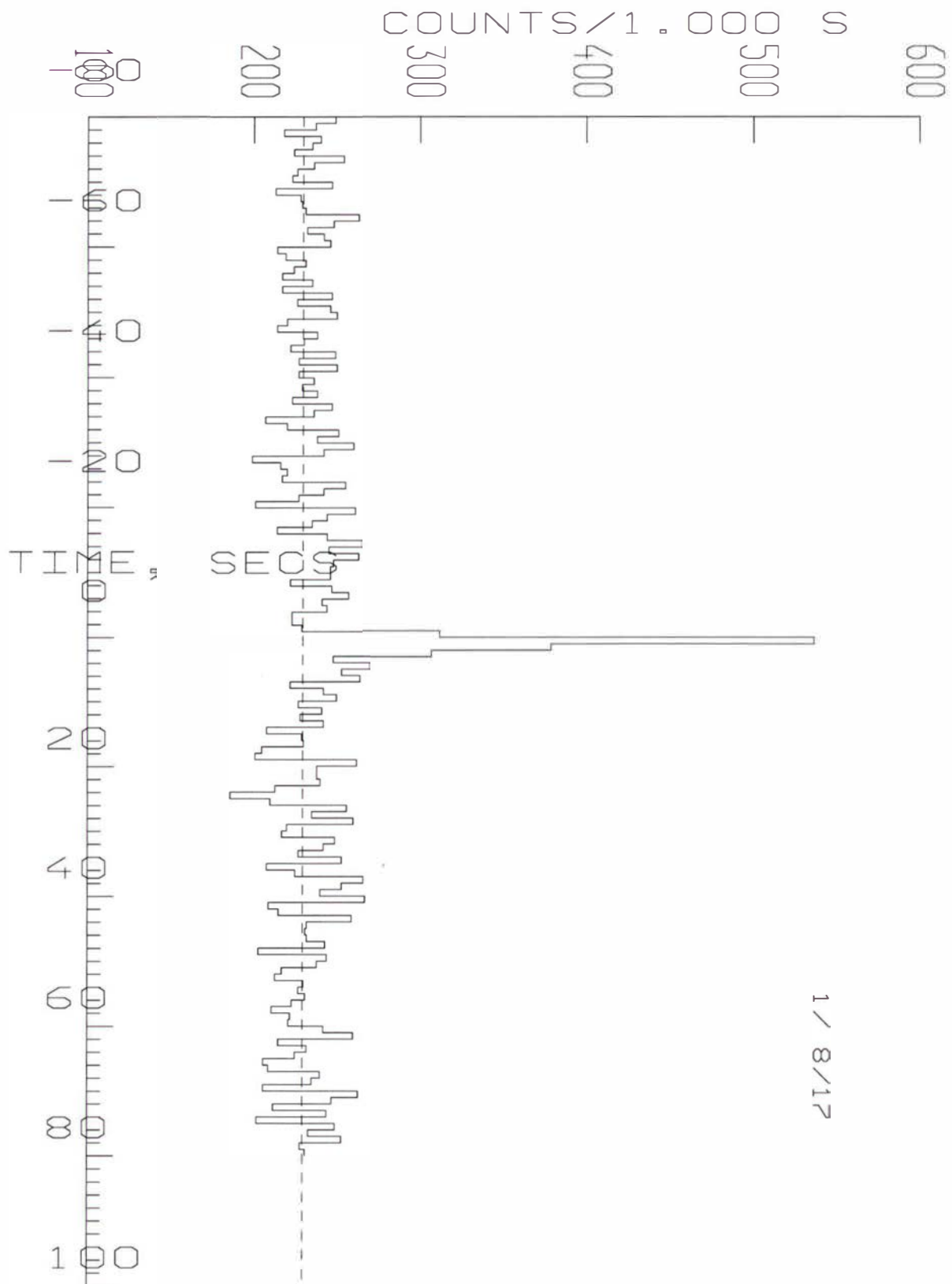
1 / 8 / 17

N= 10. M= 2
>4.0 SIGMA FLUCTUATIONS



NEAR

28/12/05 17.636
100-1000 keV



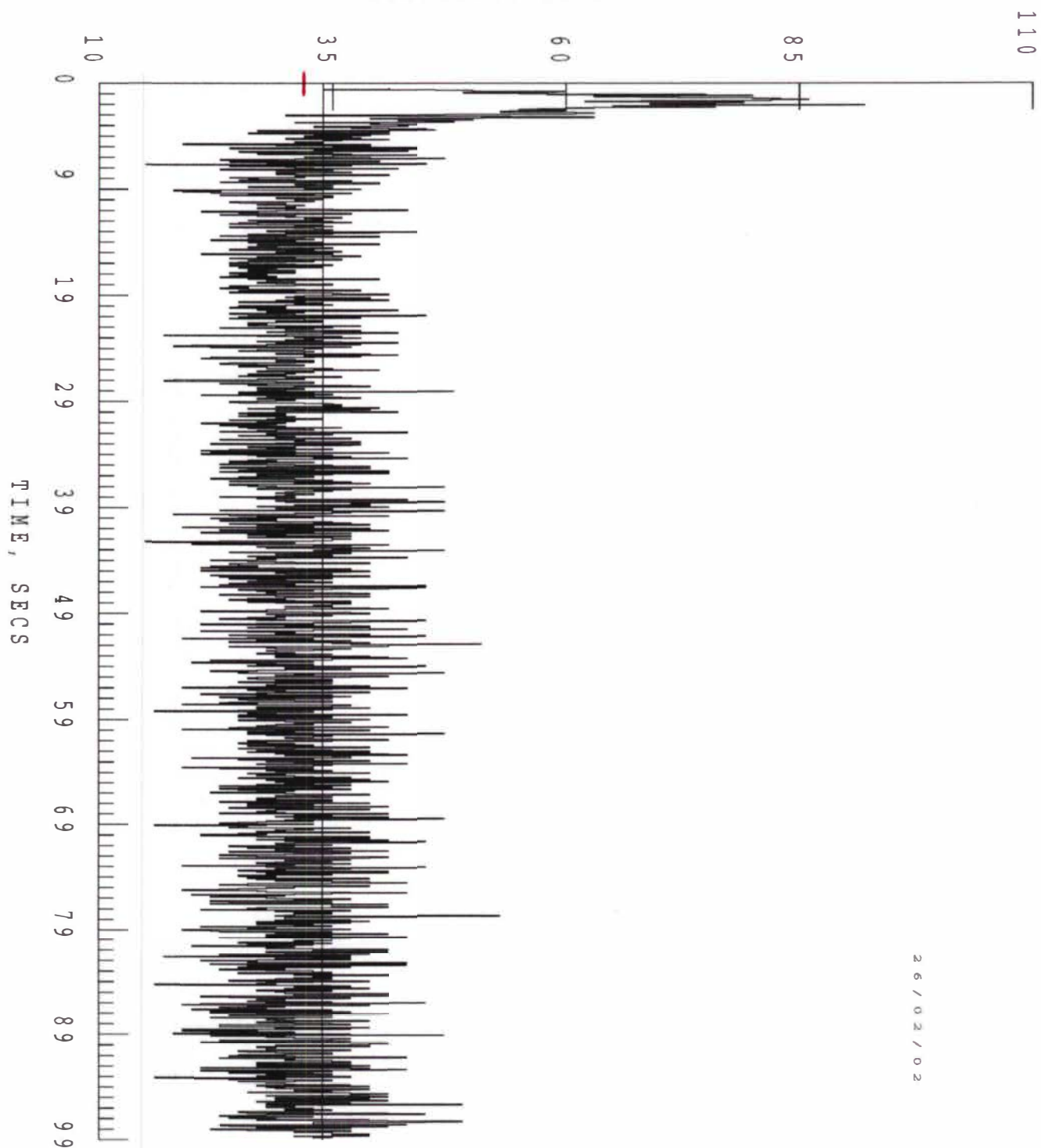
KONUS1

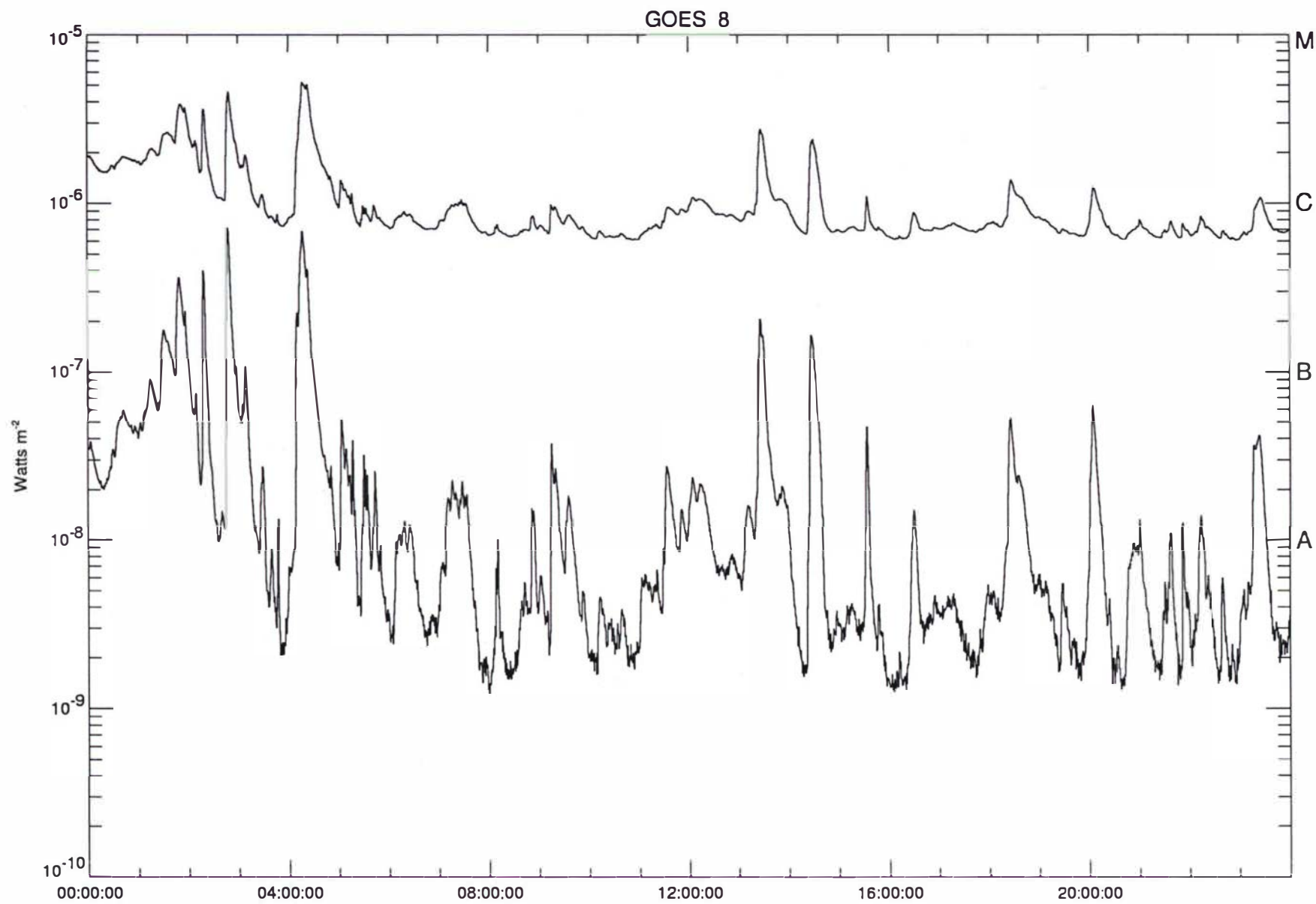
28/12/00

75964.375

50 - 200 keV

COUNTS/0.064 S





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

Channel

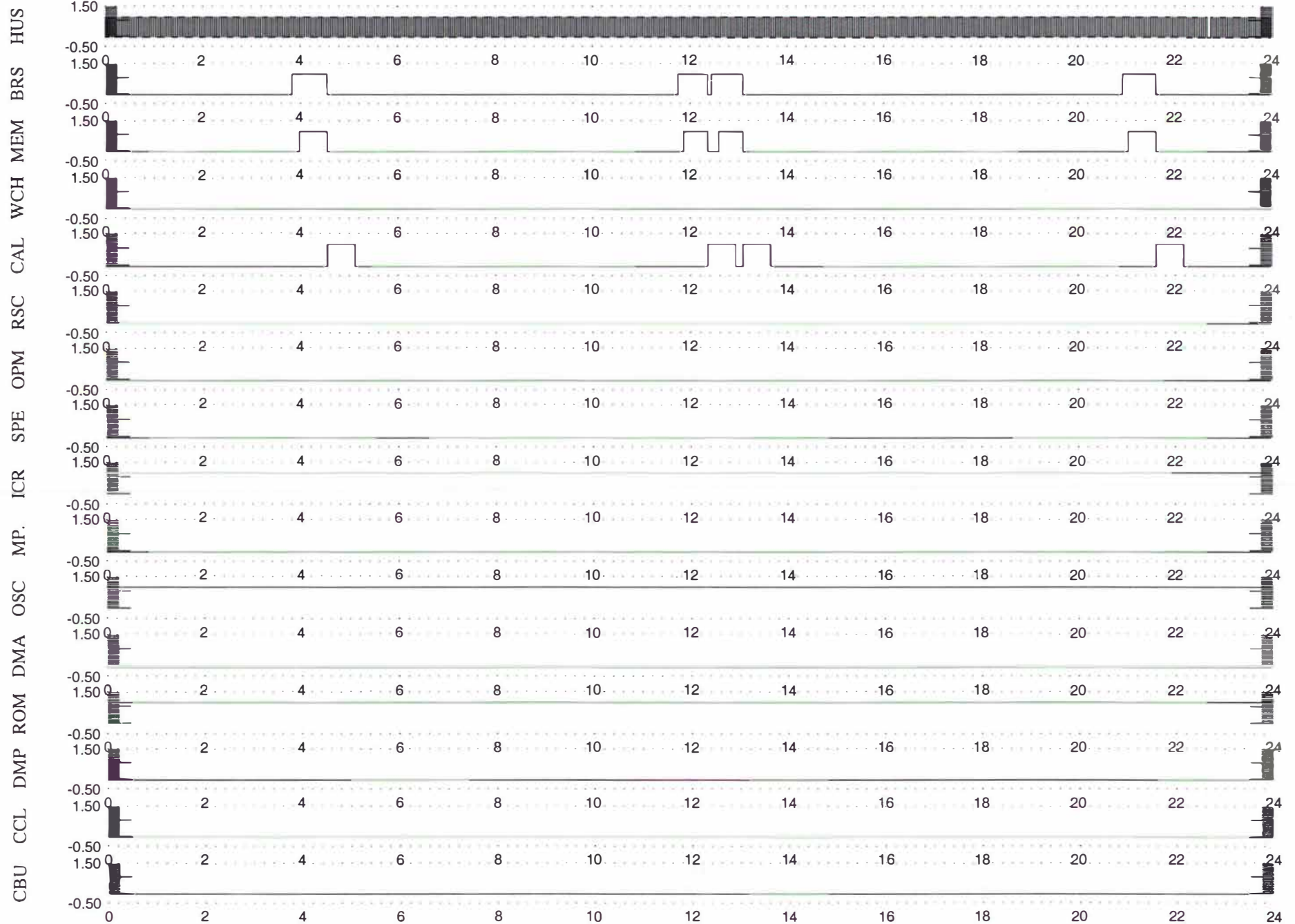
1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

Plot created: 01/01/01, 1004

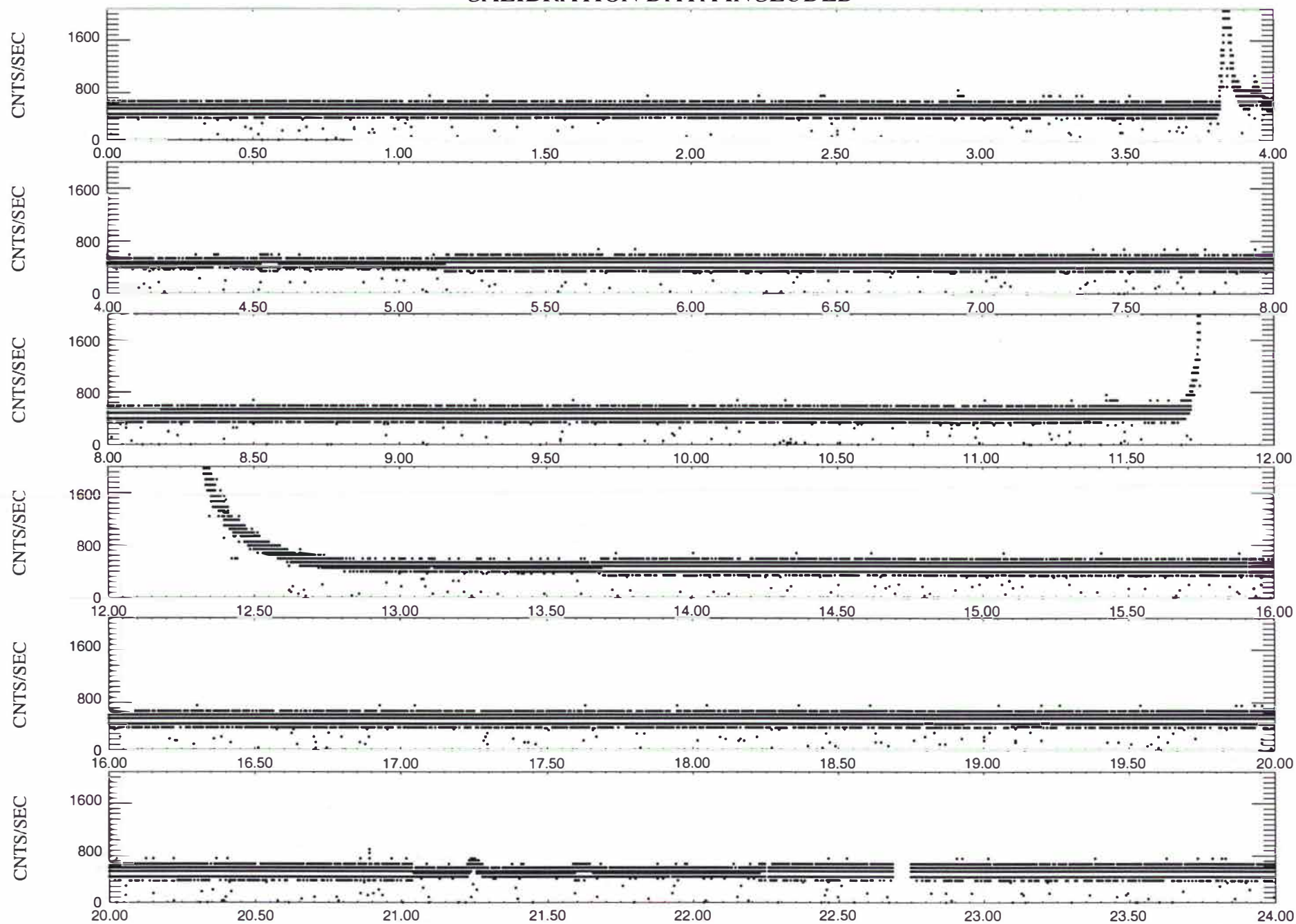
Sample average = 10

BURST NUMBER 3 - 6



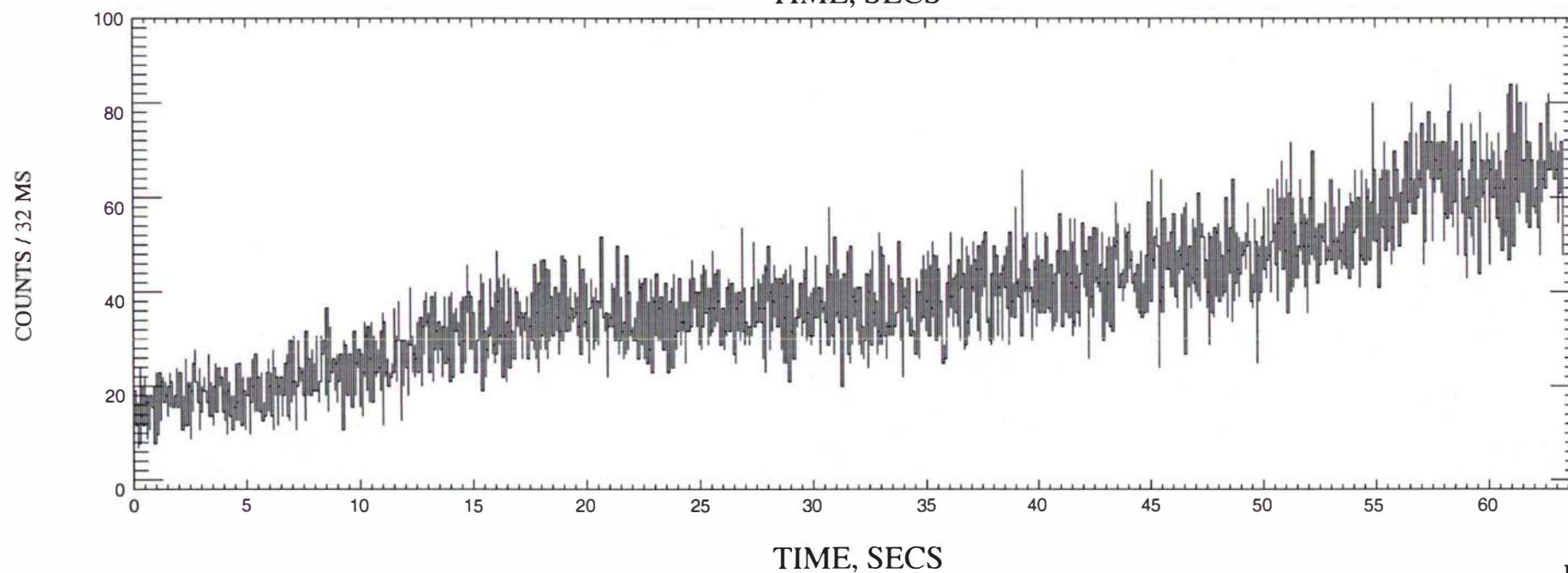
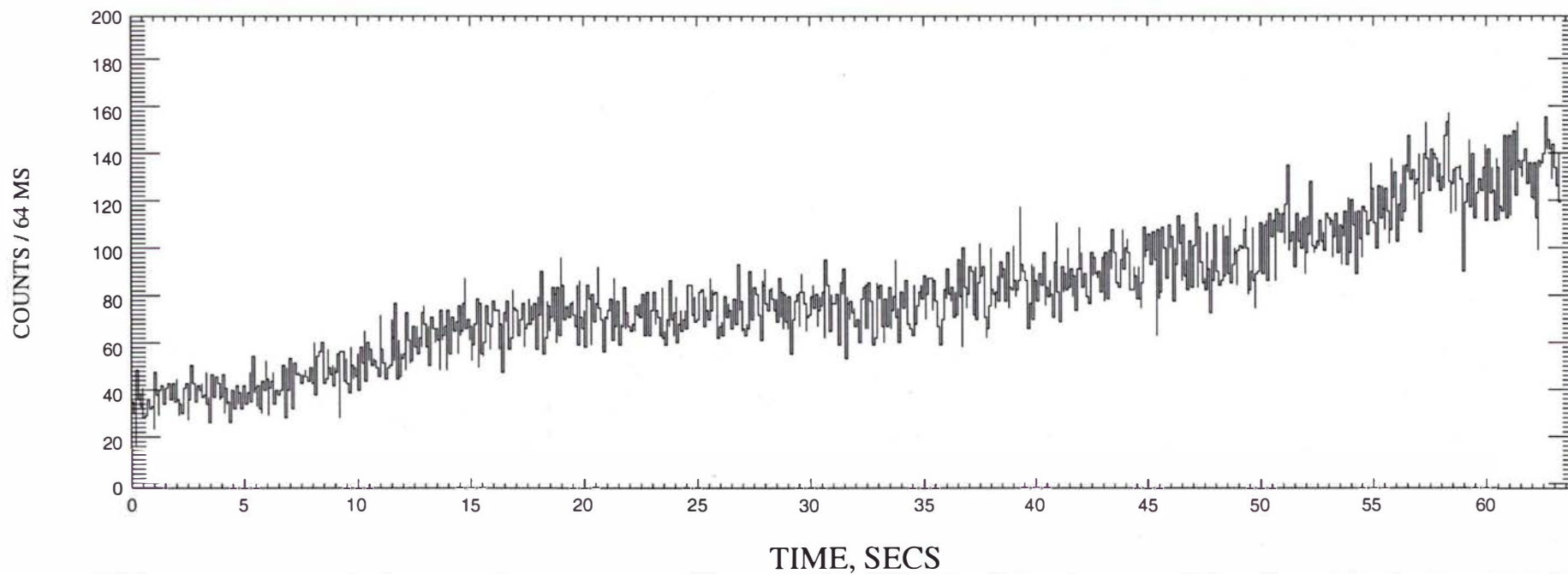
UNIVERSAL TIME

CALIBRATION DATA INCLUDED

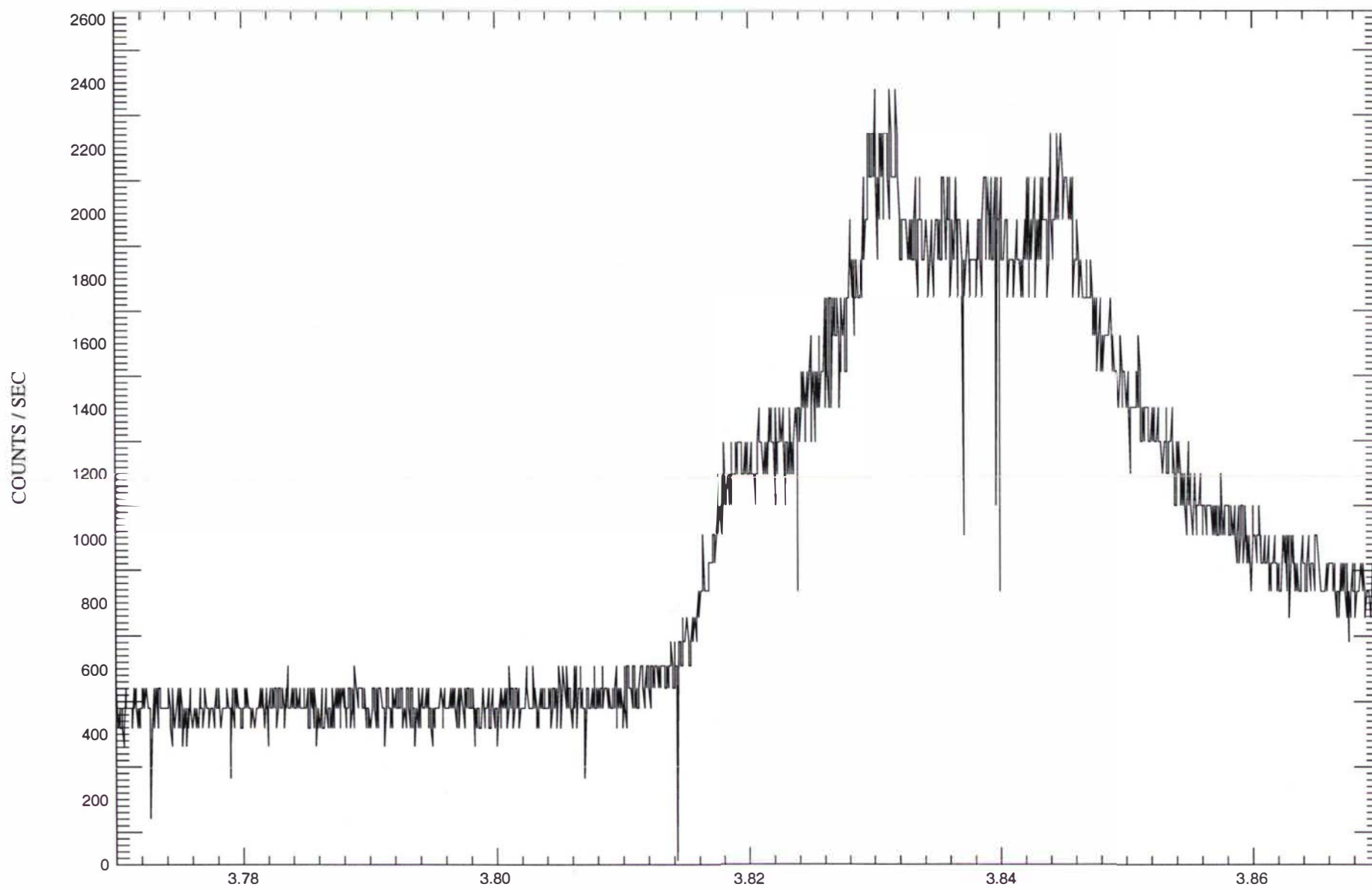


UNIVERSAL TIME

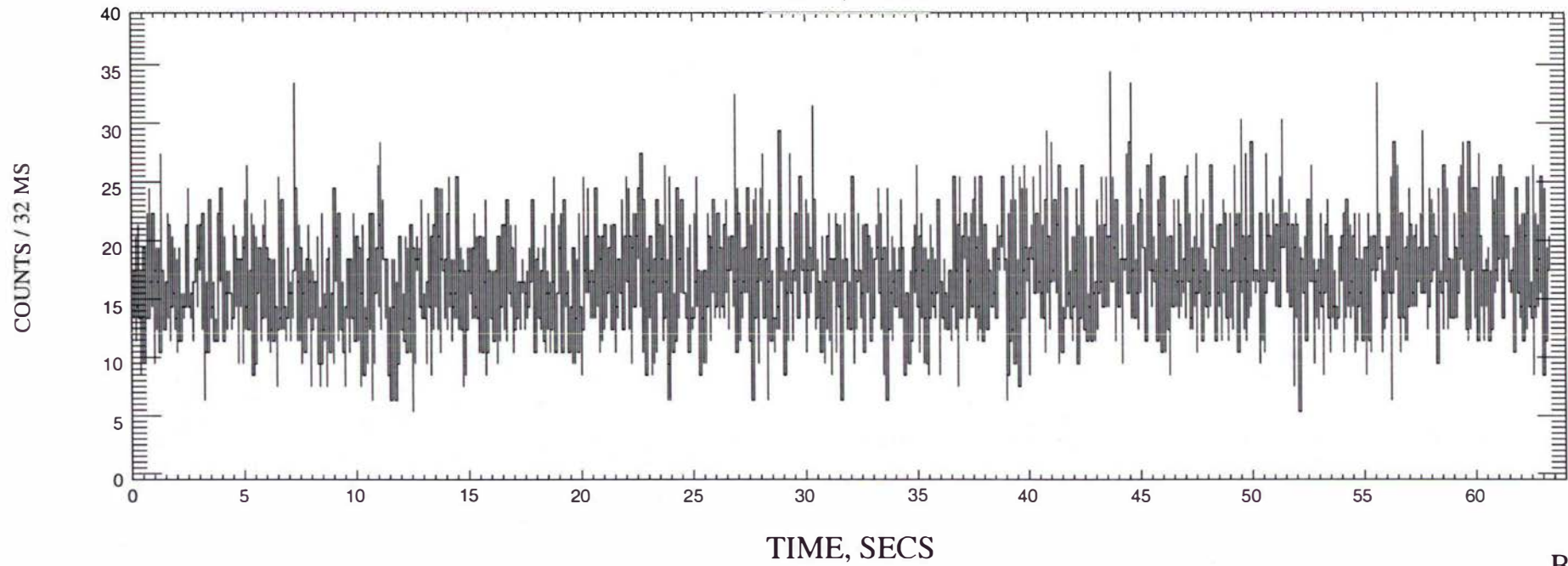
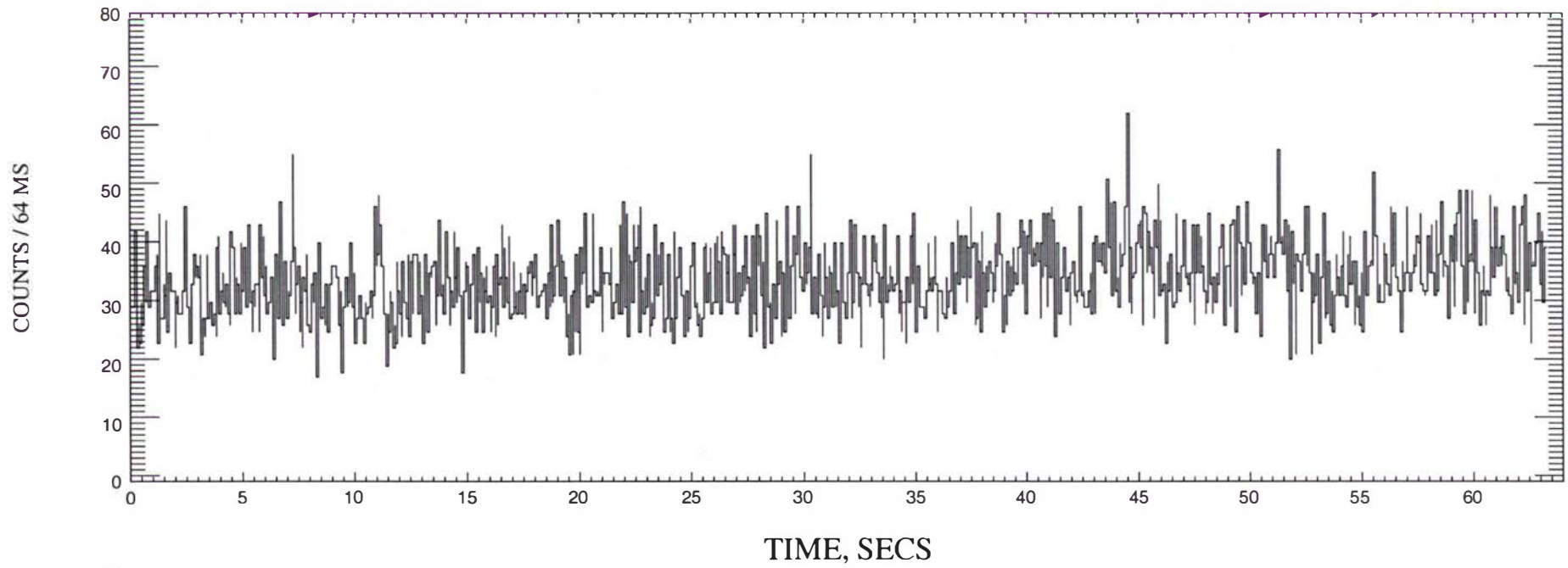
Burst Counter 3 at UT= 3.816096712748 h=13737.948 s 03:48:57.948



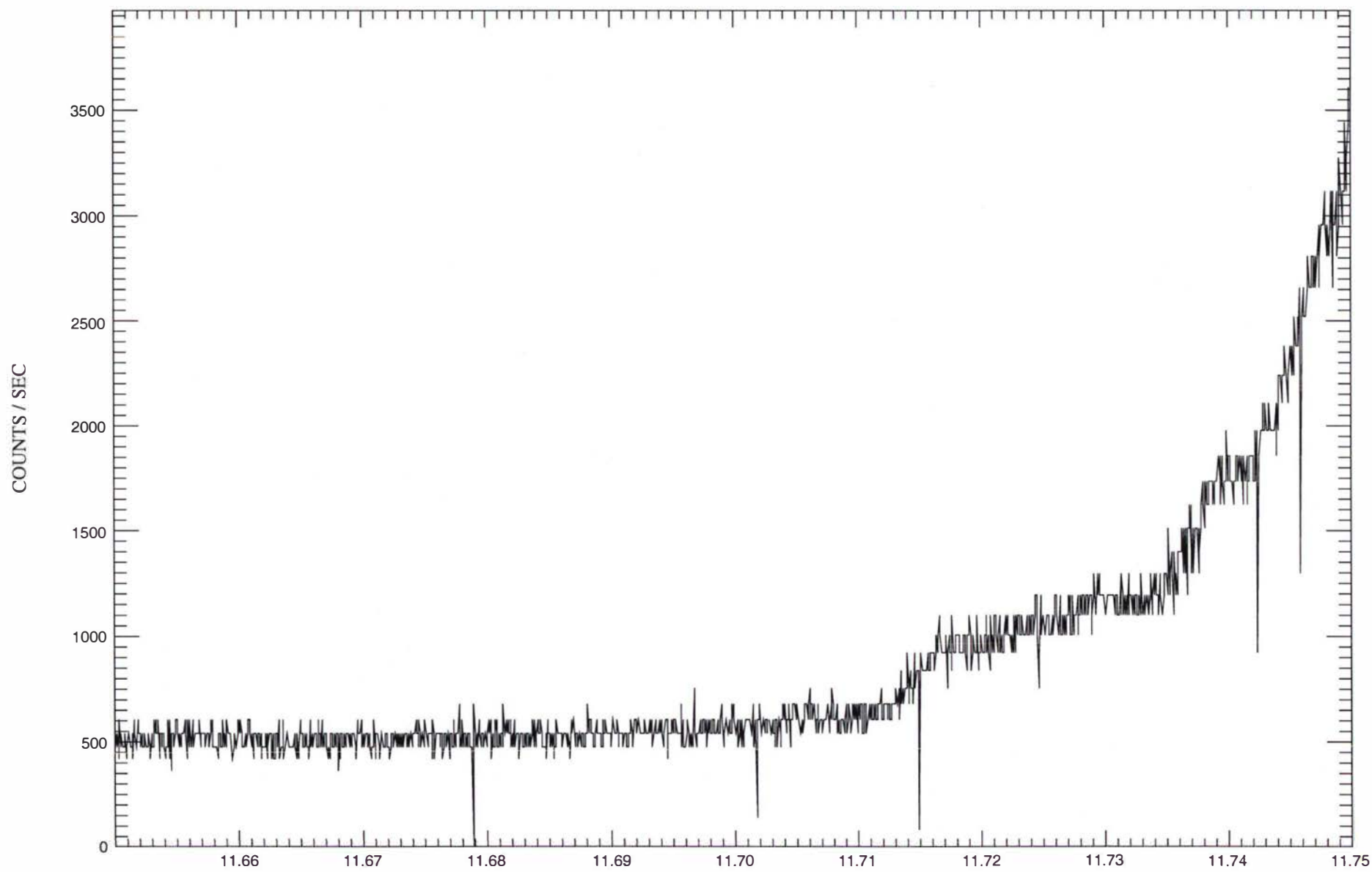
CALIBRATION DATA INCLUDED



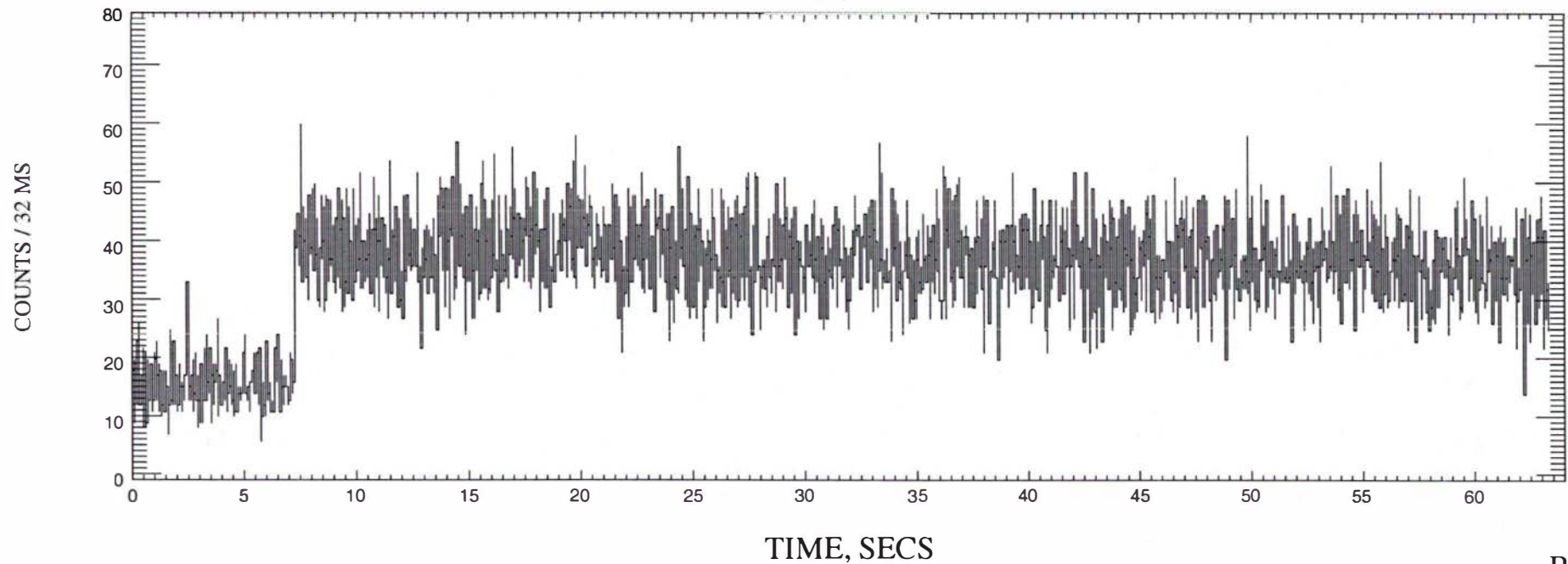
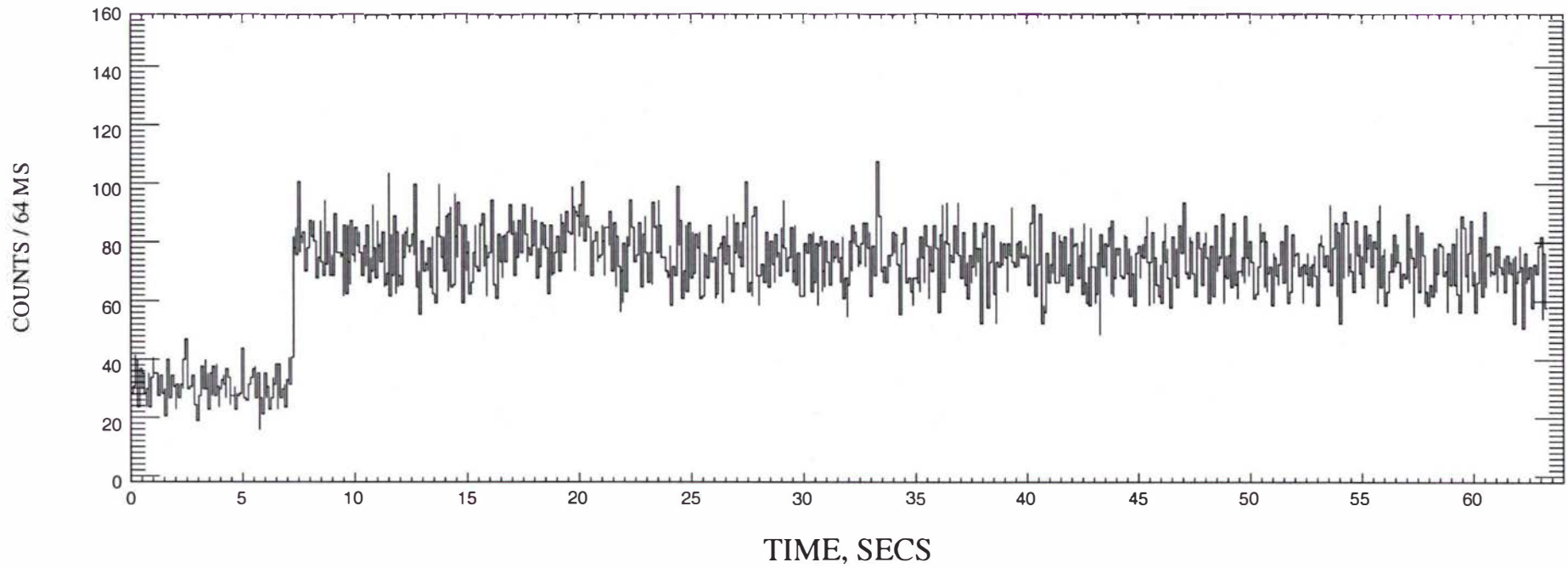
Burst Counter 4 at UT=11.695773510403 h=42104.785 s 11:41:44.785



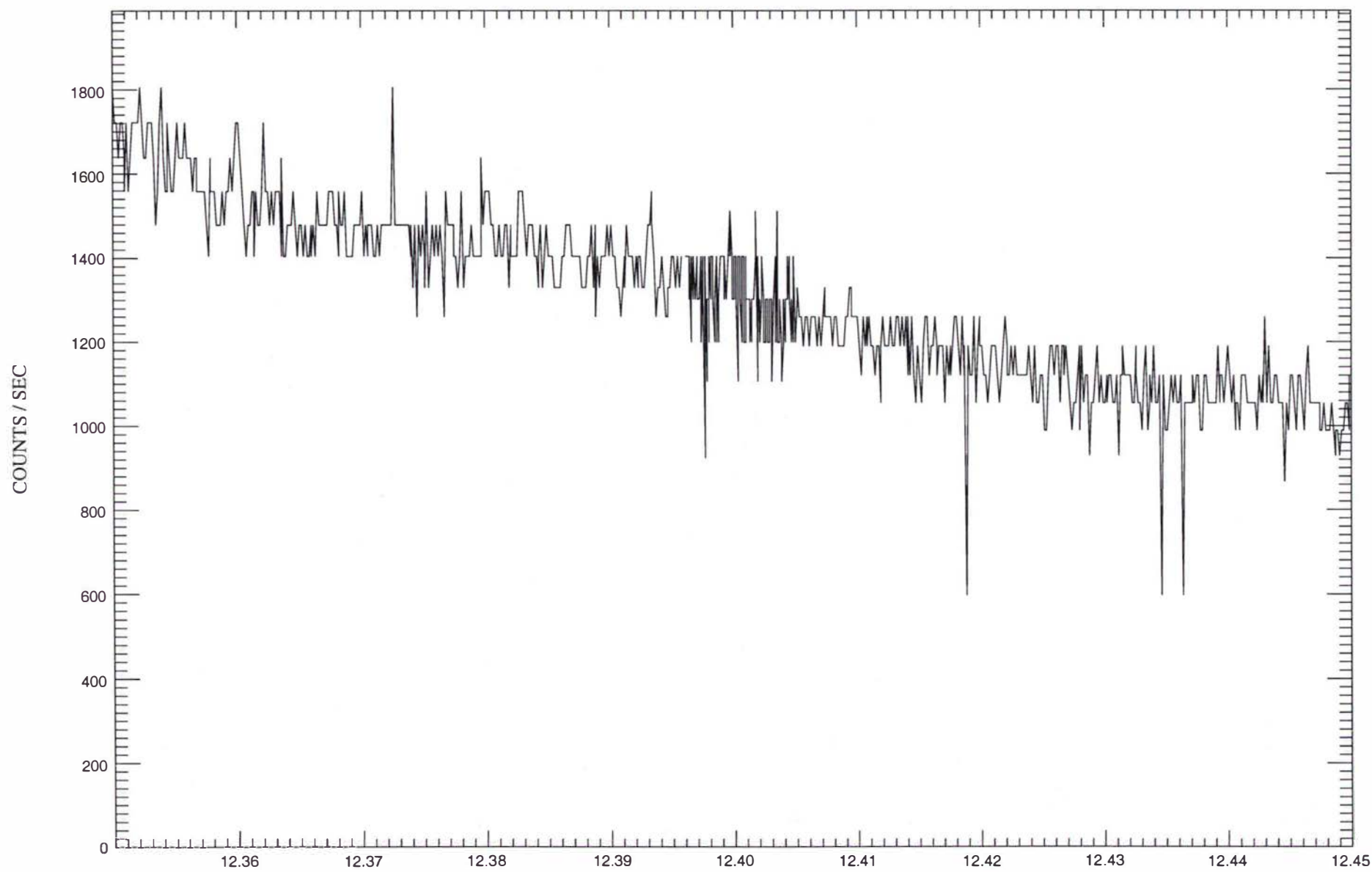
CALIBRATION DATA INCLUDED



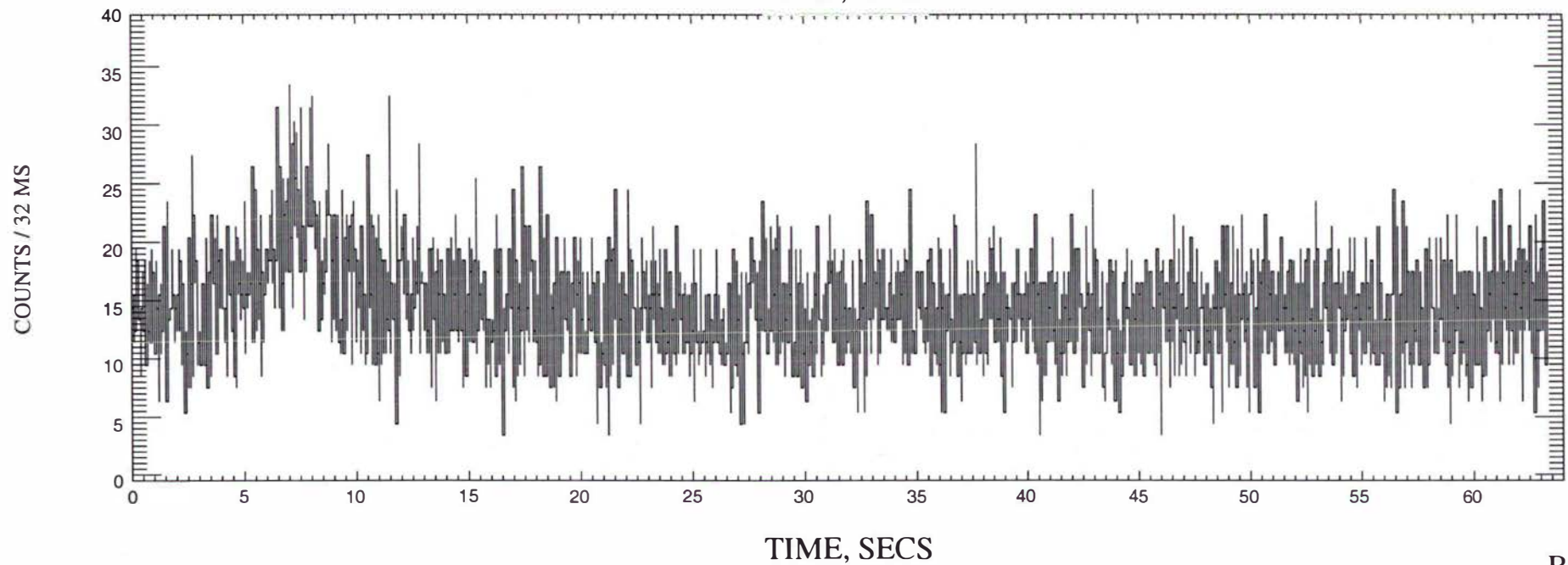
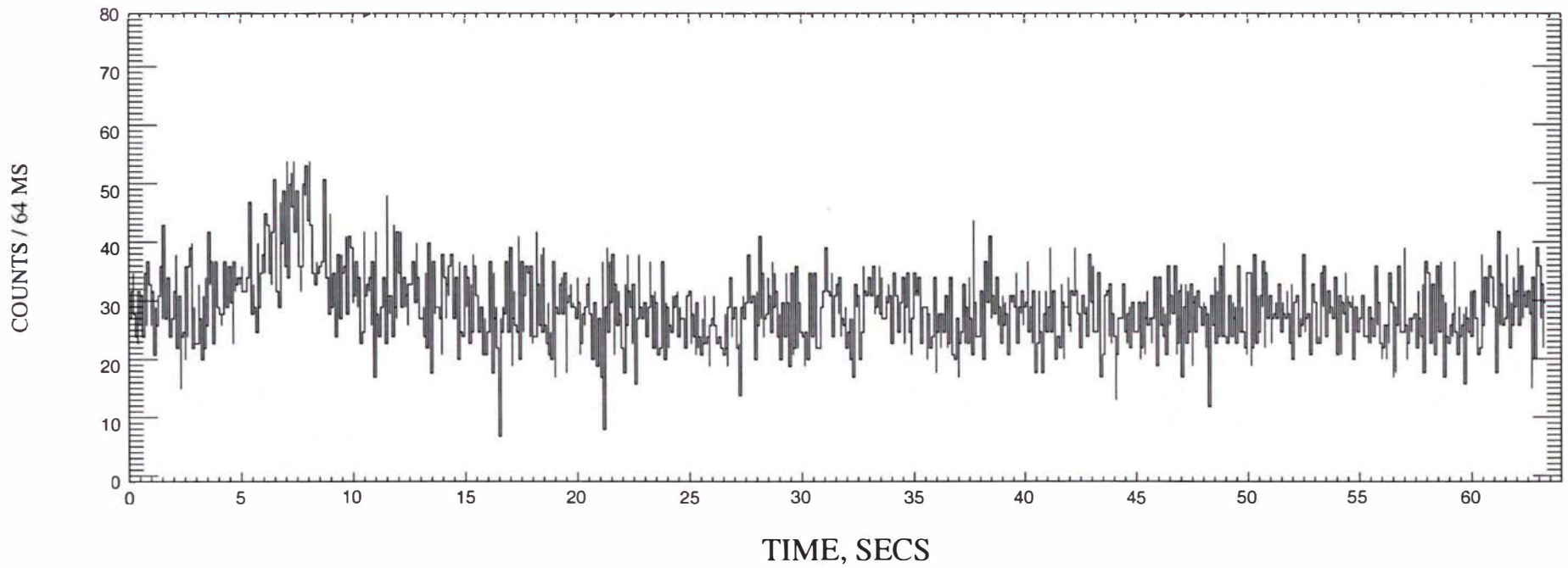
Burst Counter 5 at UT=12.396396645440 h=44627.028 s 12:23:47.028



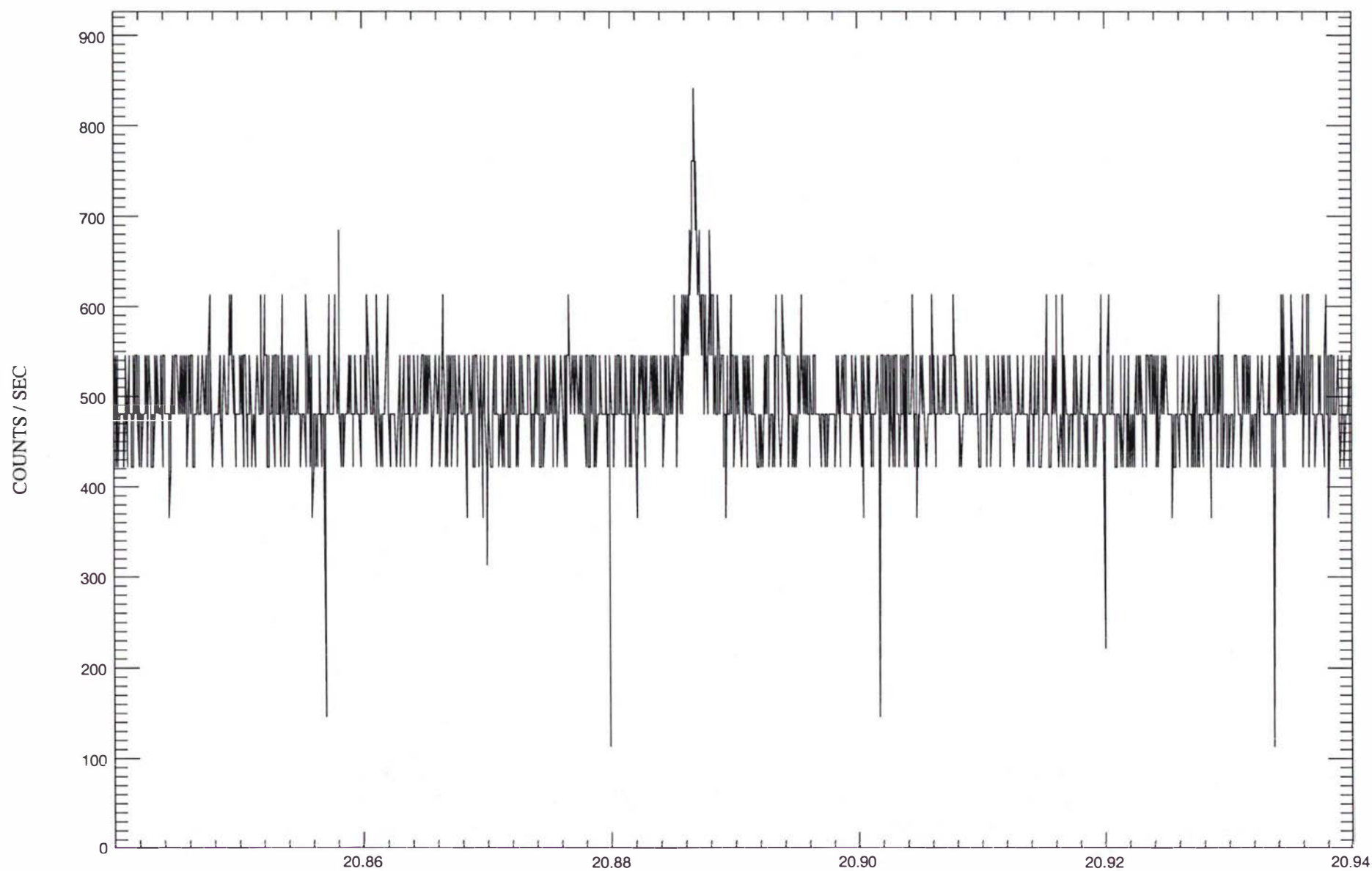
CALIBRATION DATA INCLUDED

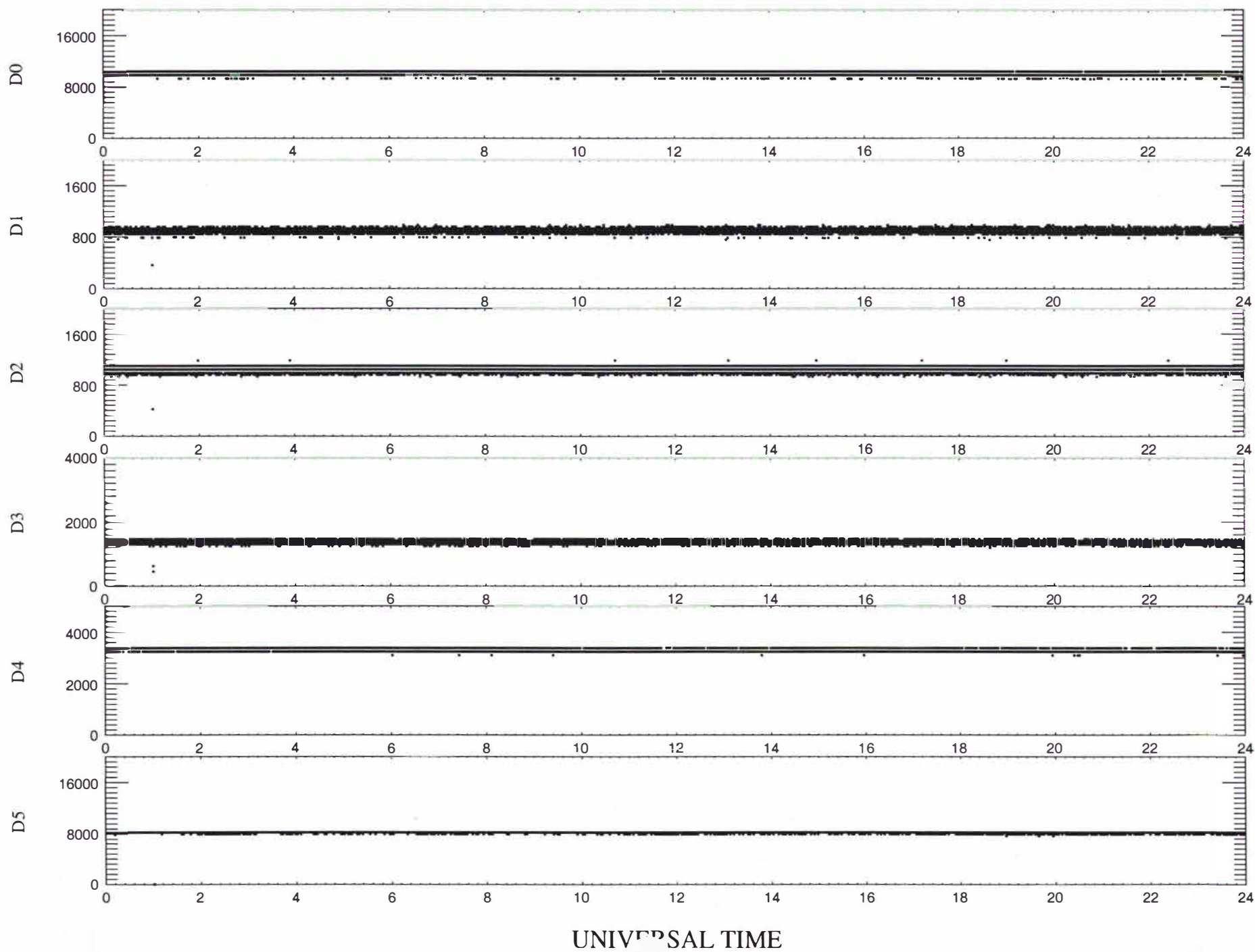


Burst Counter 6 at UT=20.886889661153 h=75192.803 s 20:53:12.803

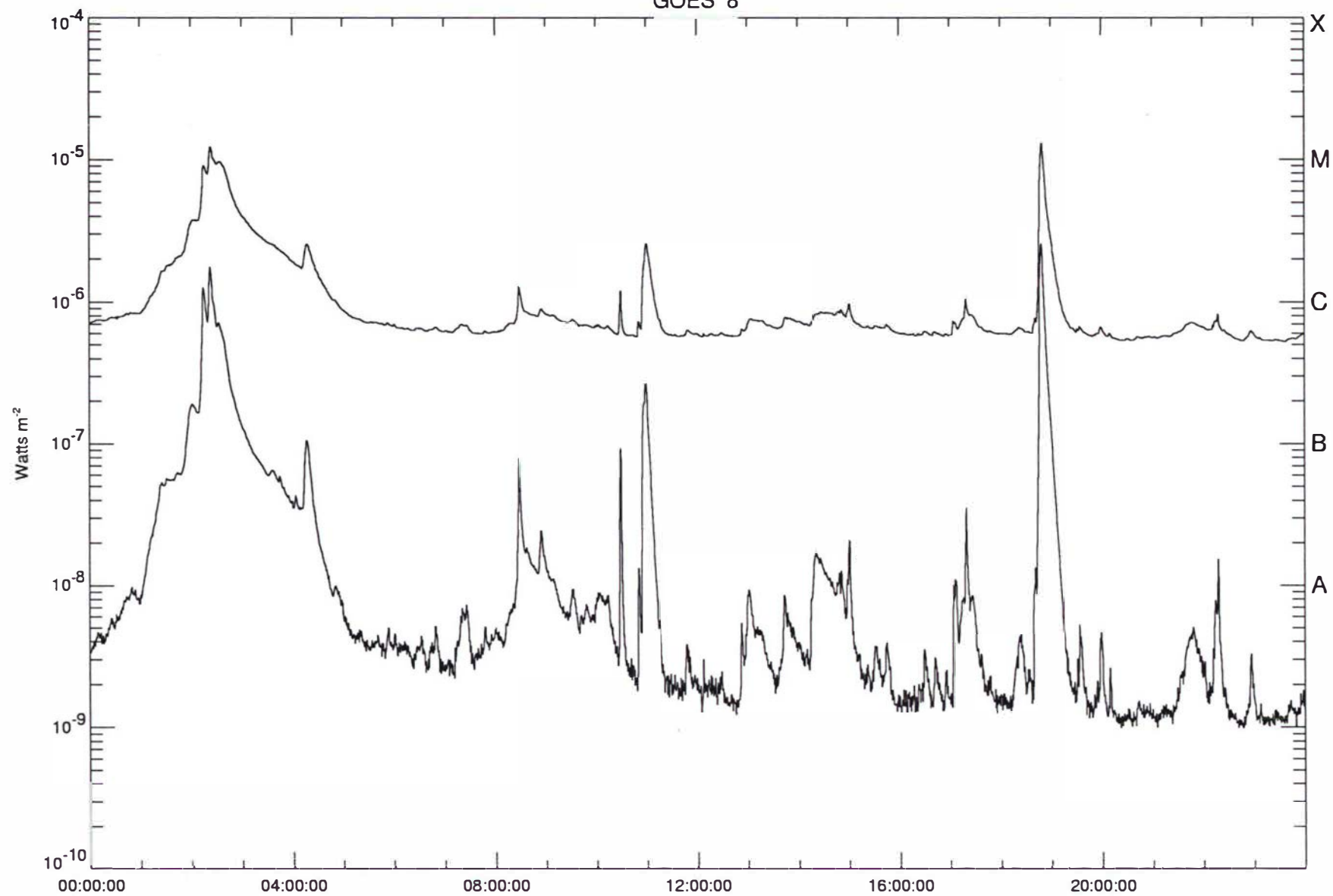


CALIBRATION DATA INCLUDED





GOES 8



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

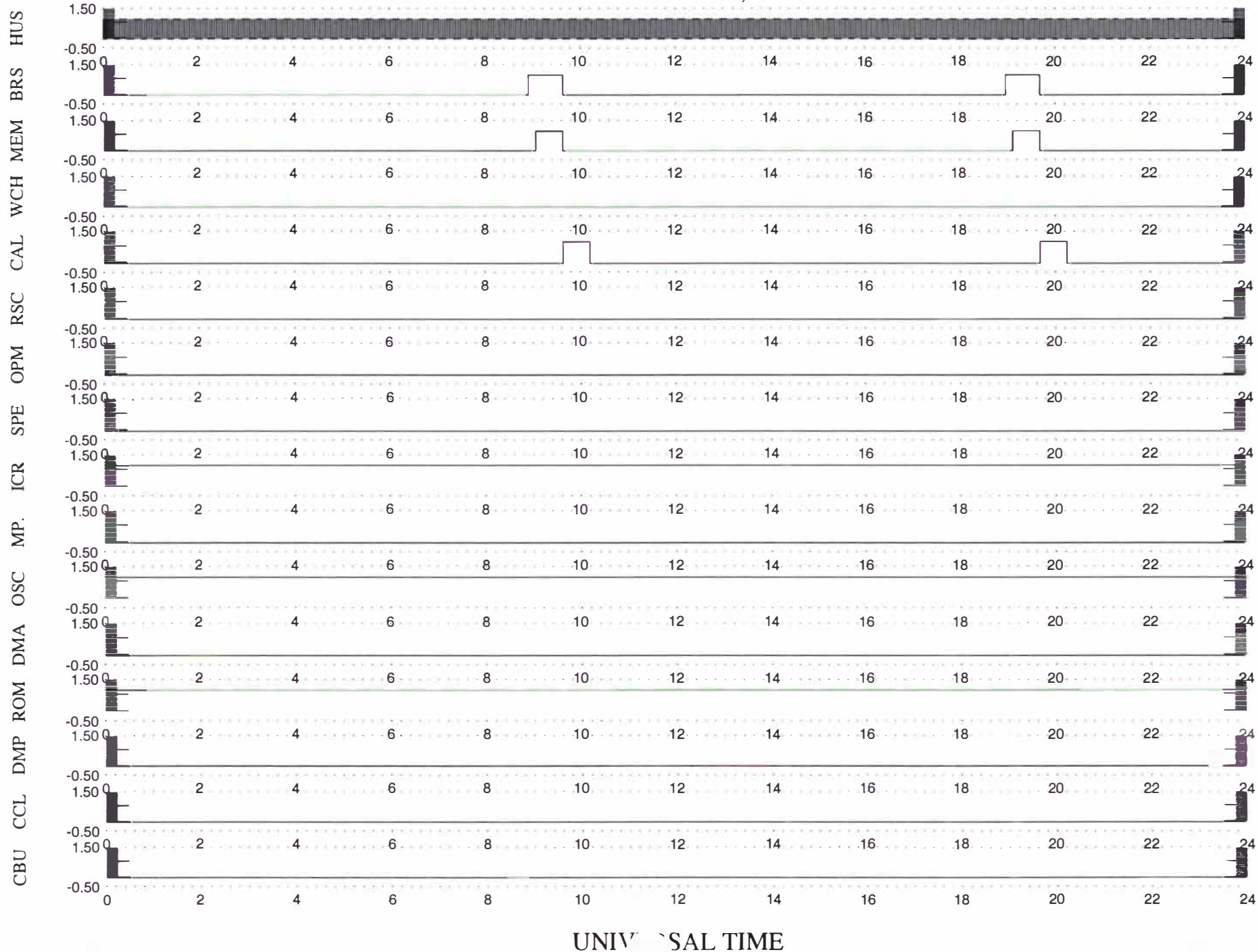
2 (0.5 - 4.0 Angstroms)

Background not subtracted

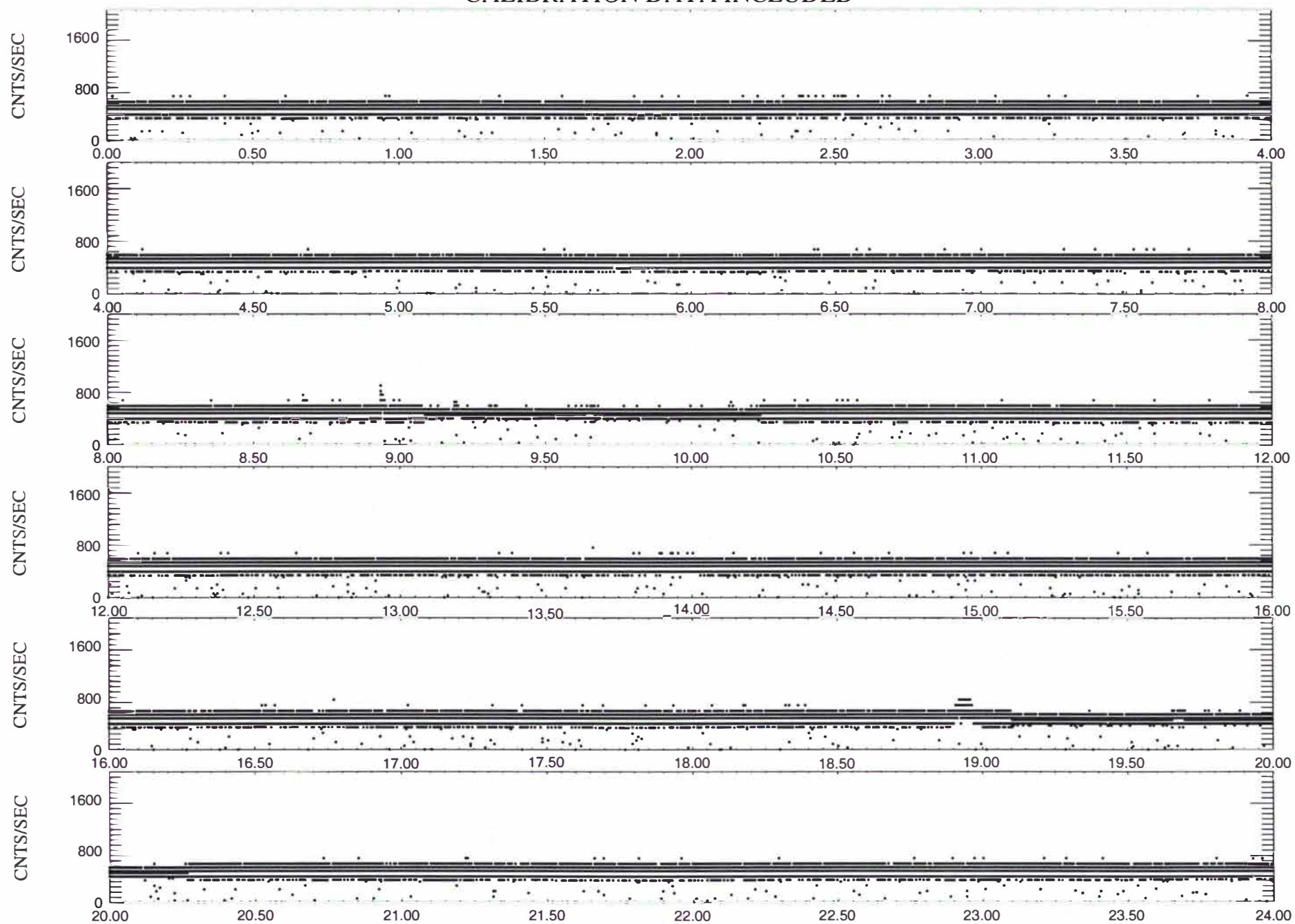
Plot created: 01/01/02, 1004

Sample average = 10

BURST NUMBER 7, 8



CALIBRATION DATA INCLUDED



UNIVERSAL TIME

KONUS2

29/12/00

16530.191

50 - 200 keV

COUNTS/0.064 S

26/07/10

TIME, SECS

KONUS2 20001229 16530

ULYSSES RT

26/07/10

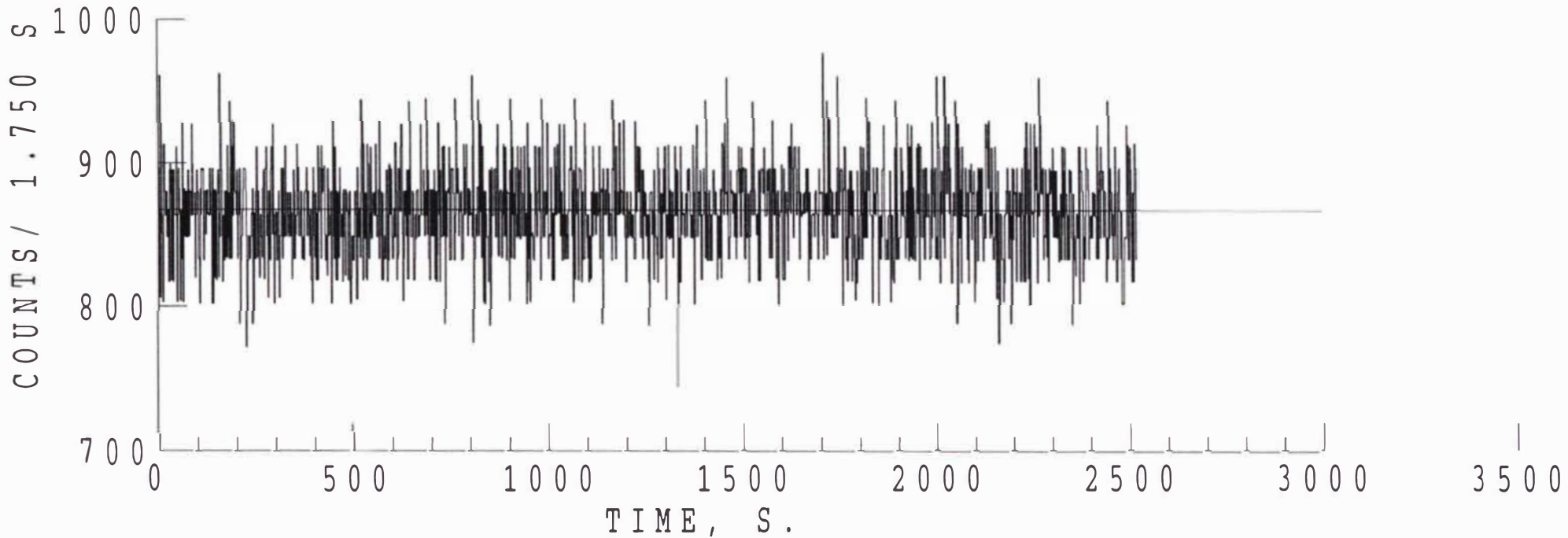
29/12/00 15264.104 s

0.250 S INTERVALS REGROUPED BY 7

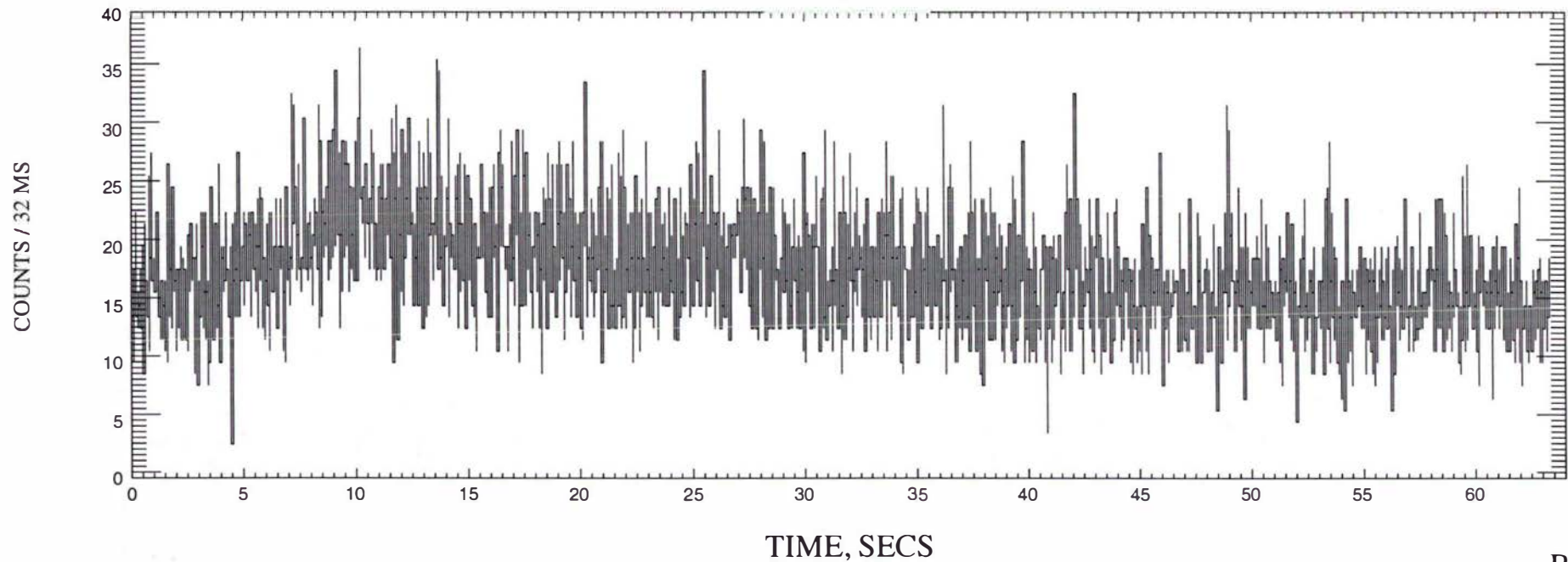
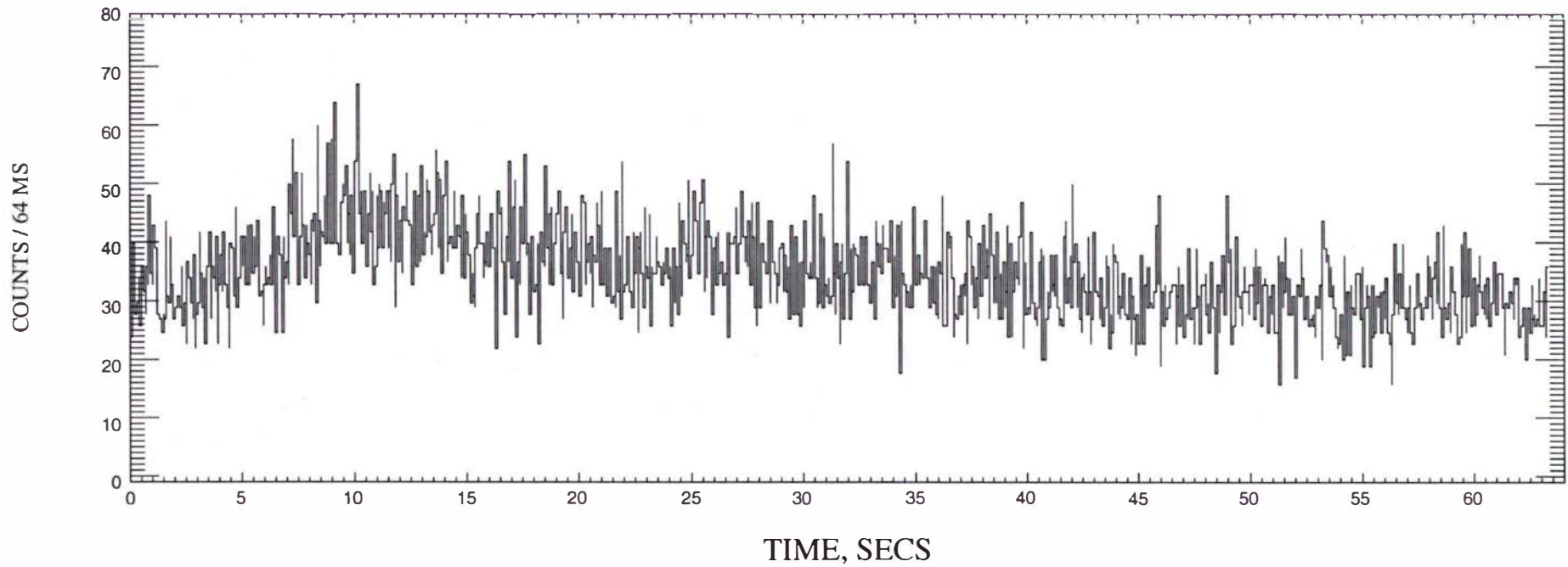
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

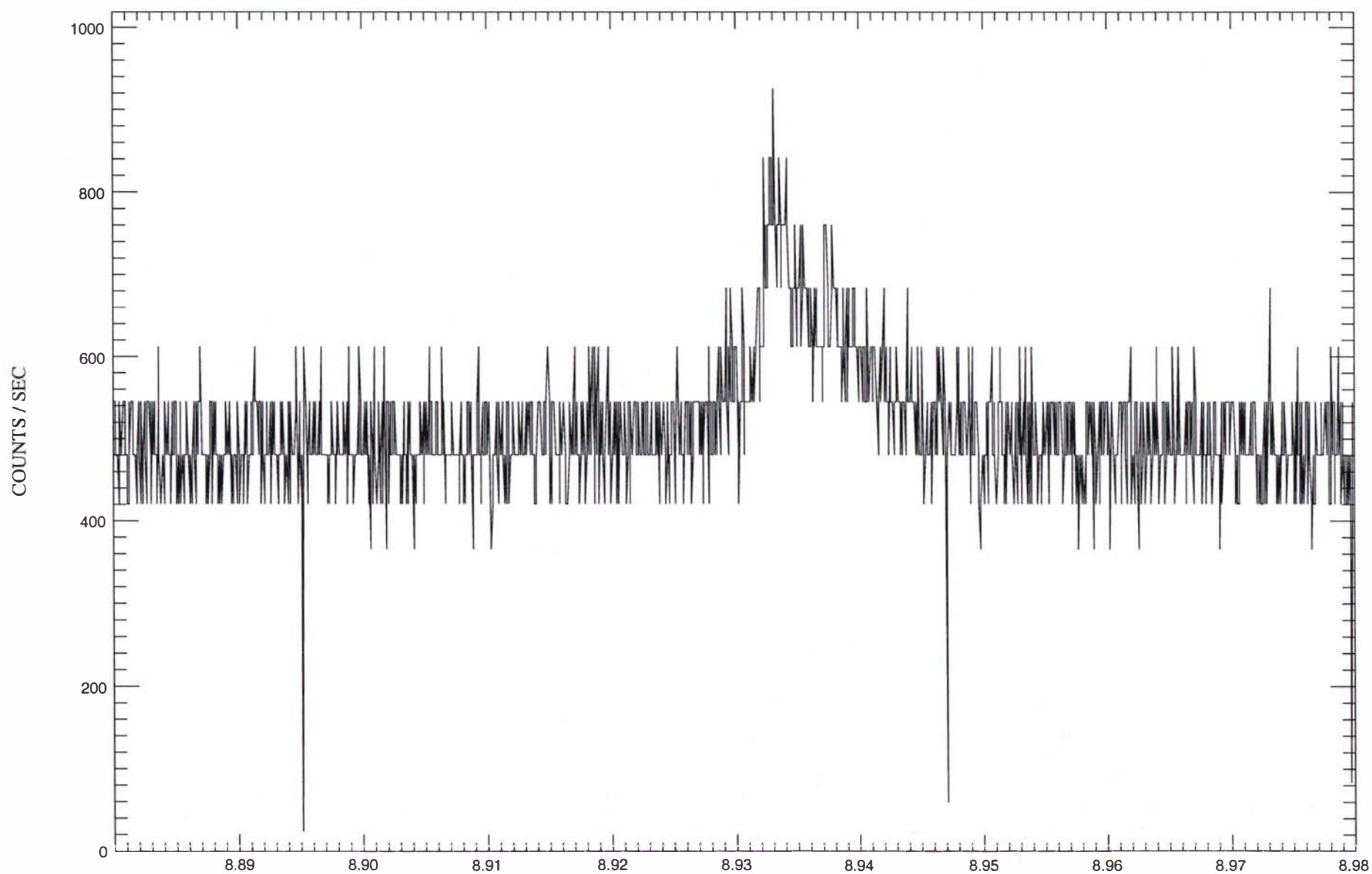
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



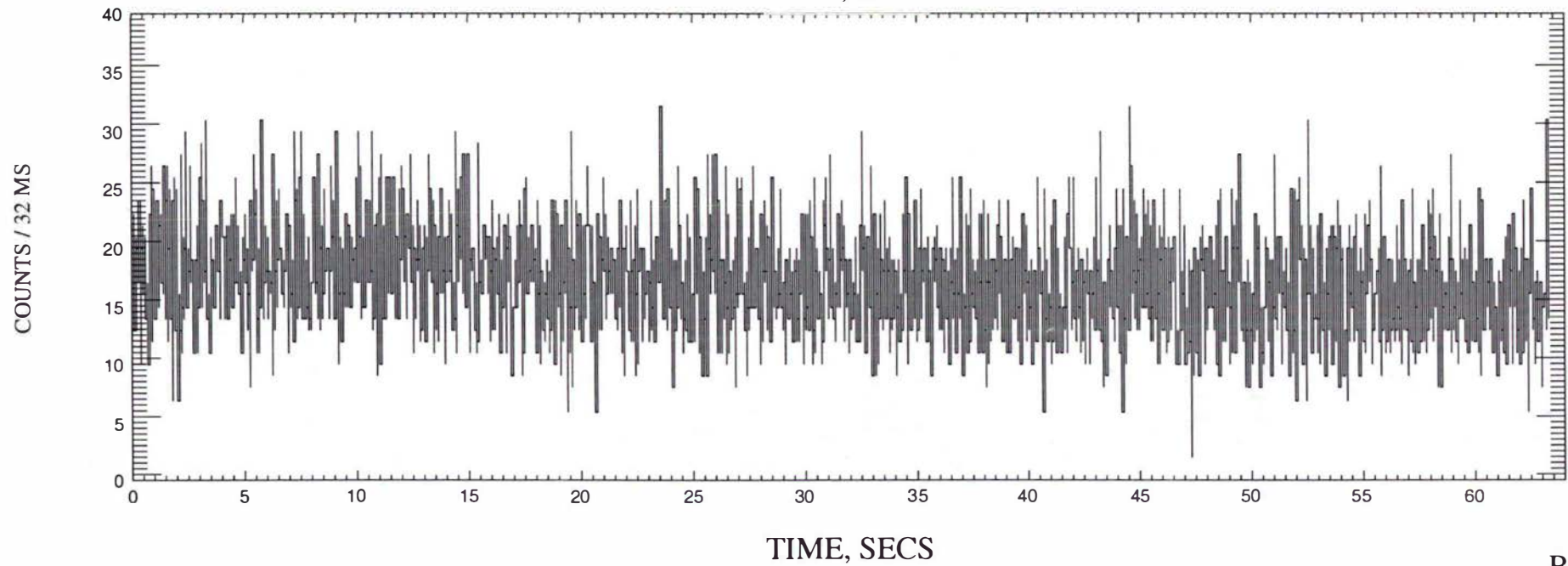
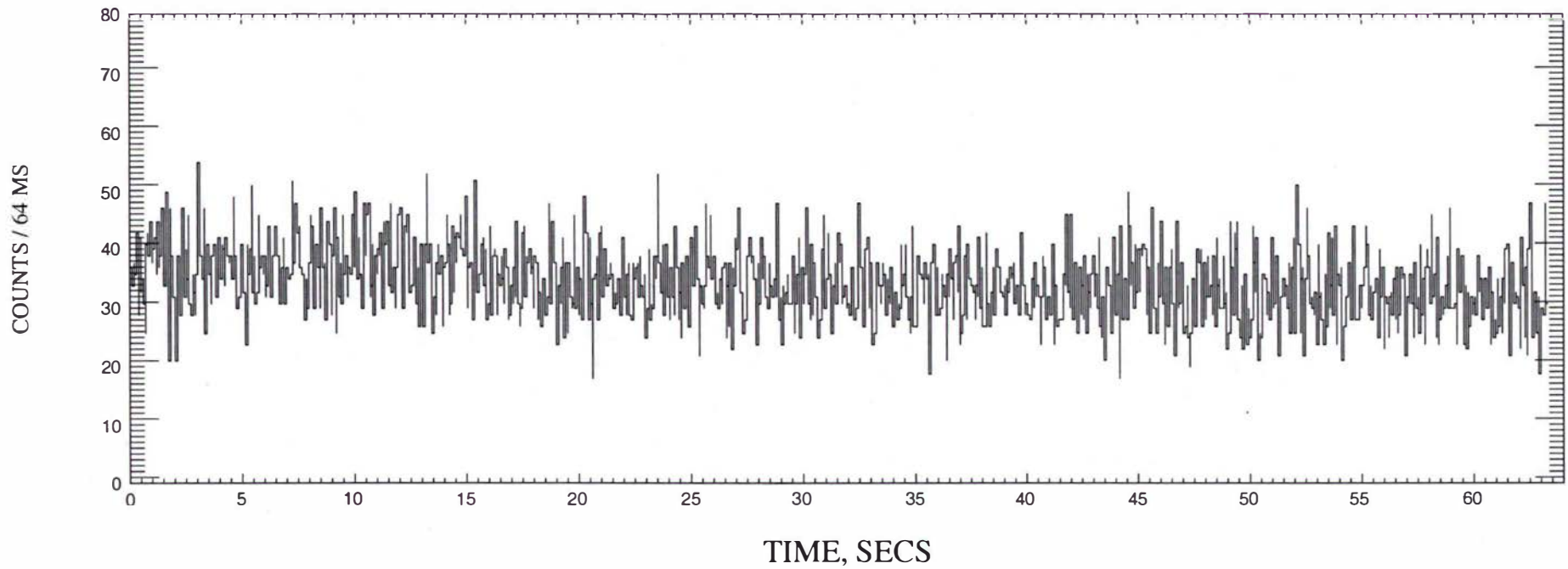
Burst Counter 7 at UT= 8.932458275689 h=32156.850 s 08:55:56.850



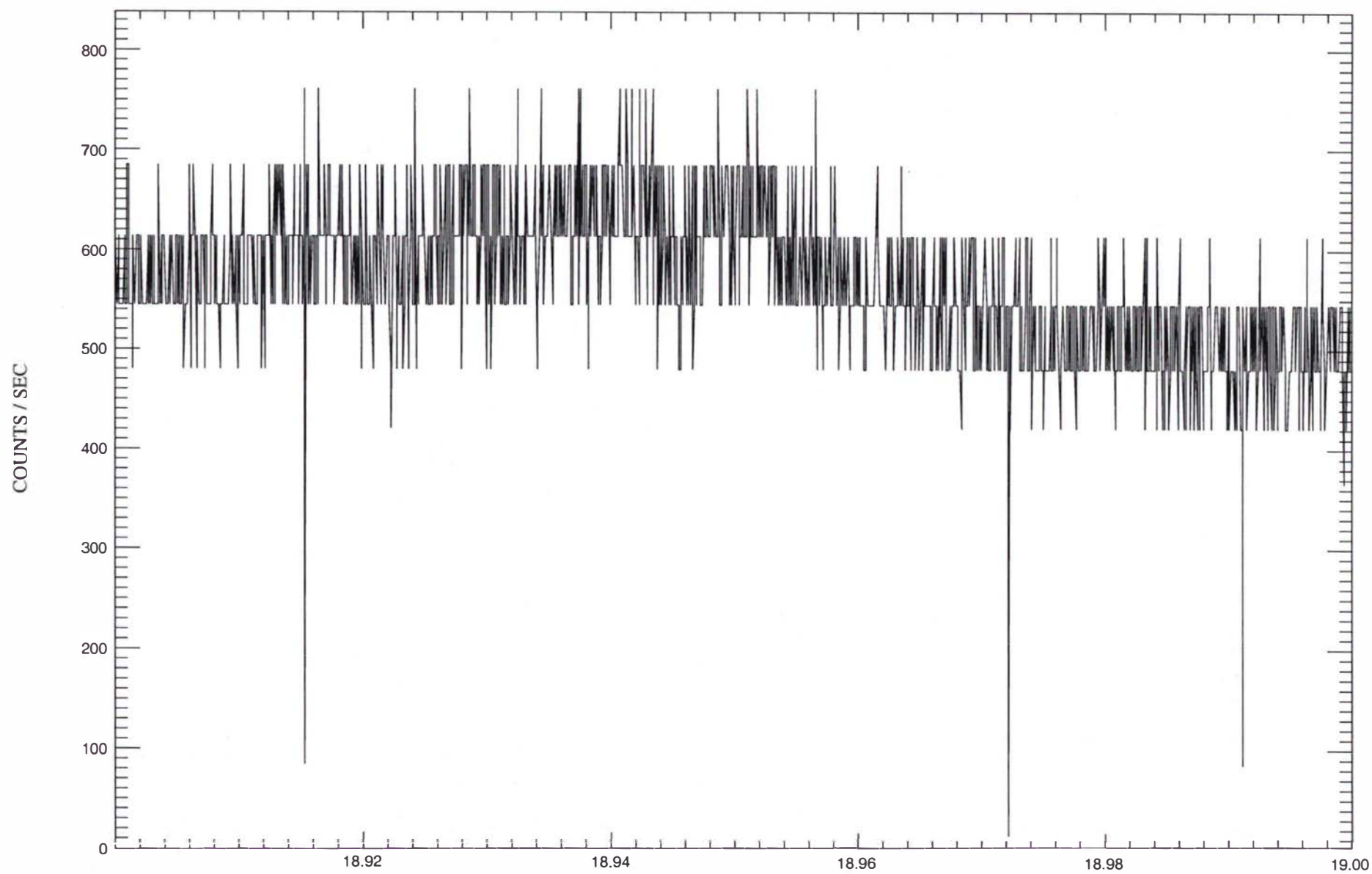
CALIBRATION DATA INCLUDED

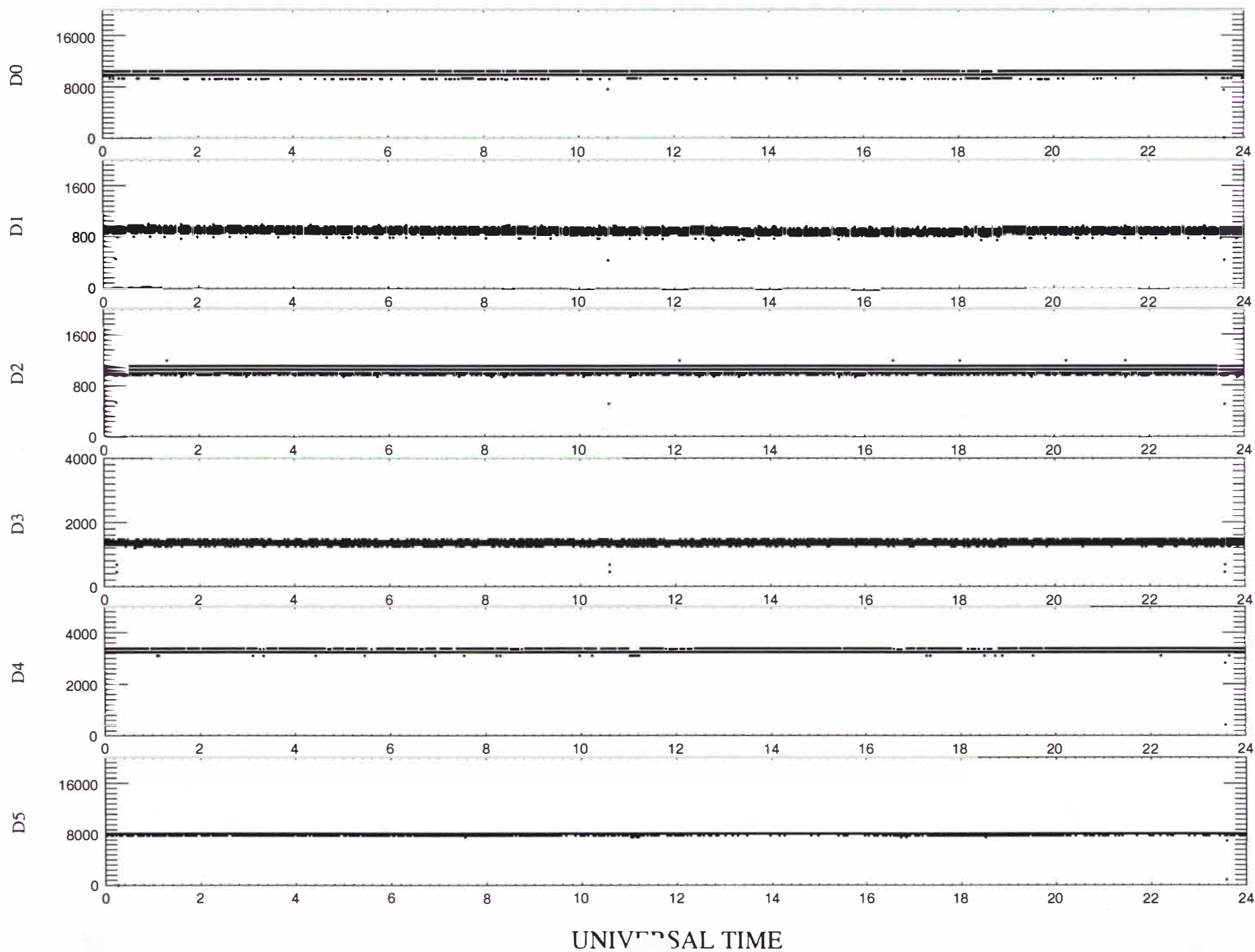


Burst Counter 8 at UT=18.951196322971 h=68224.307 s 18:57:04.307



CALIBRATION DATA INCLUDED





Date: Dec 14 2017

BURST TRIANGULATION CHECKLIST

1. Suzaku Data

- ☐ 1 second timing error corrected? (Jan 1 – Apr 24 2009, and July 1 – August 20, 2012 – leap sec.)

2. AGILE Data

- ☐ 1 second timing error corrected?

3. MESSENGER Data

- ☐ Coarse or Precision oscillator (C or P bronte.jhuapl.edu/spice/kernels/sclk/timekeeping/OPS_TIME_ENGR.txt)?
- ☐ Timing checked after ~ 1 week?

4. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

5. 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). For later data, was timing checked after ~1 week?
- ☐ 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?

6. For 3 or More Spacecraft events

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

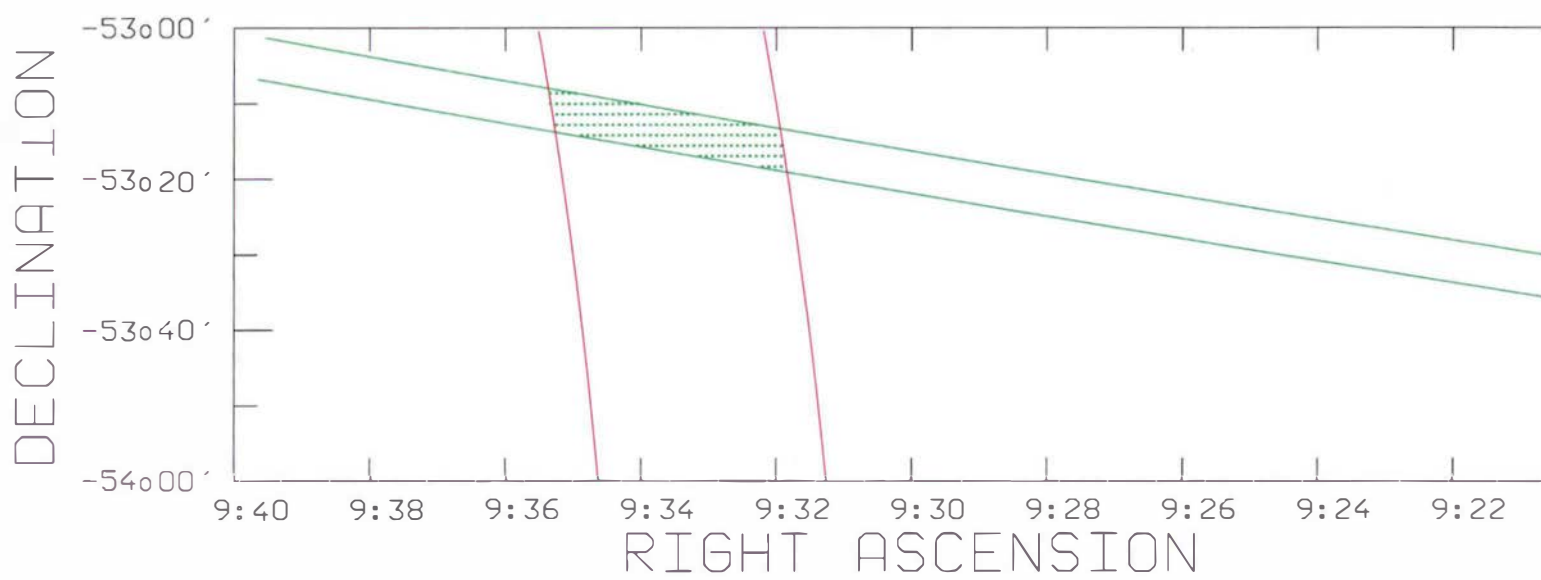
7. For INTEGRAL events

- ☐ 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?
- ☐ Hand-extracted data used (record starts at -30.000 s)?
- ☐ Volodymyr's website checked ? (<http://isdc.unige.ch/~savchenk/spiacs-online/spiacs-ipnlc.pl>)

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

GRB001230 ~36762 S

14/12/20

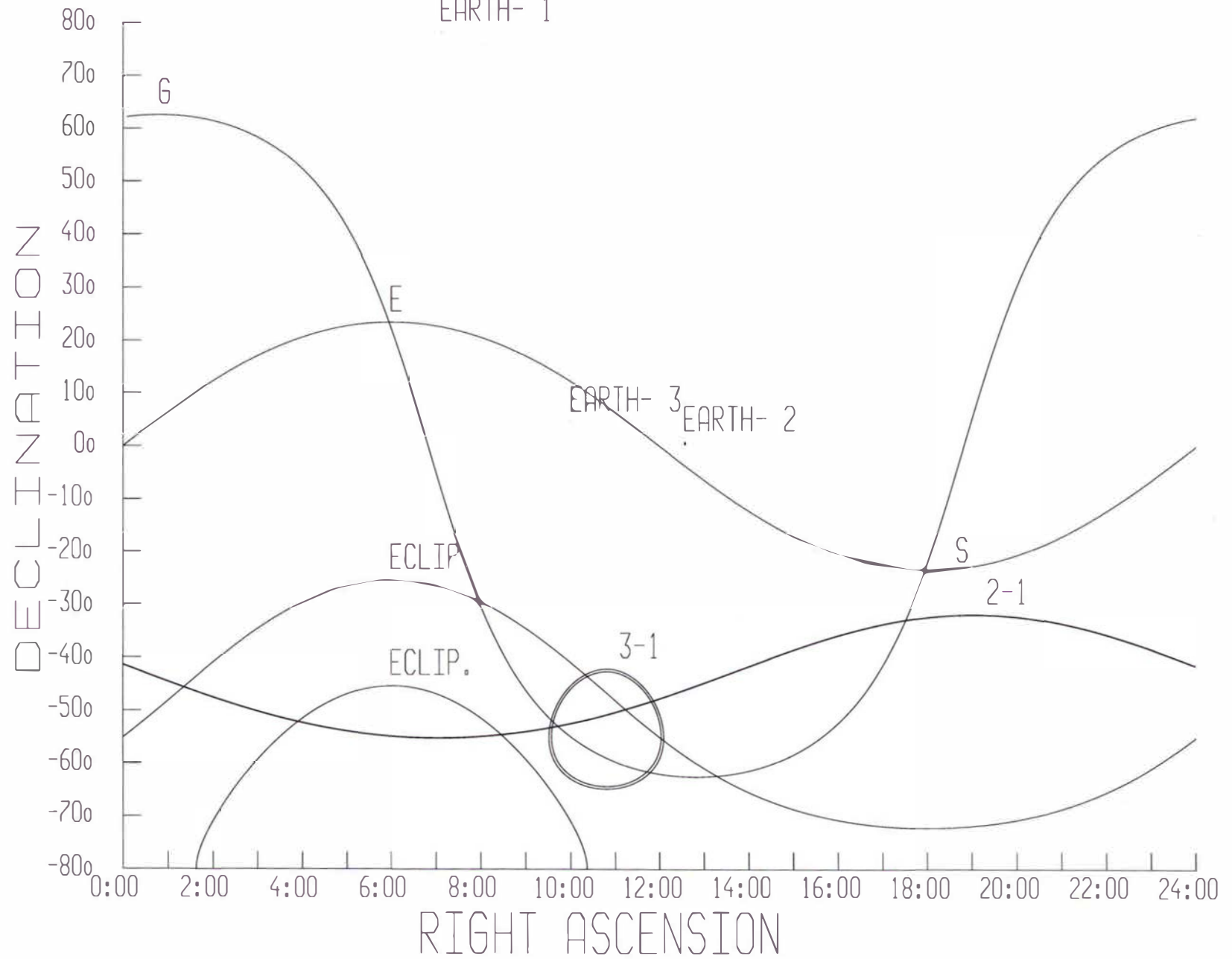


EVENT OF DEC 30, 2000 9:58

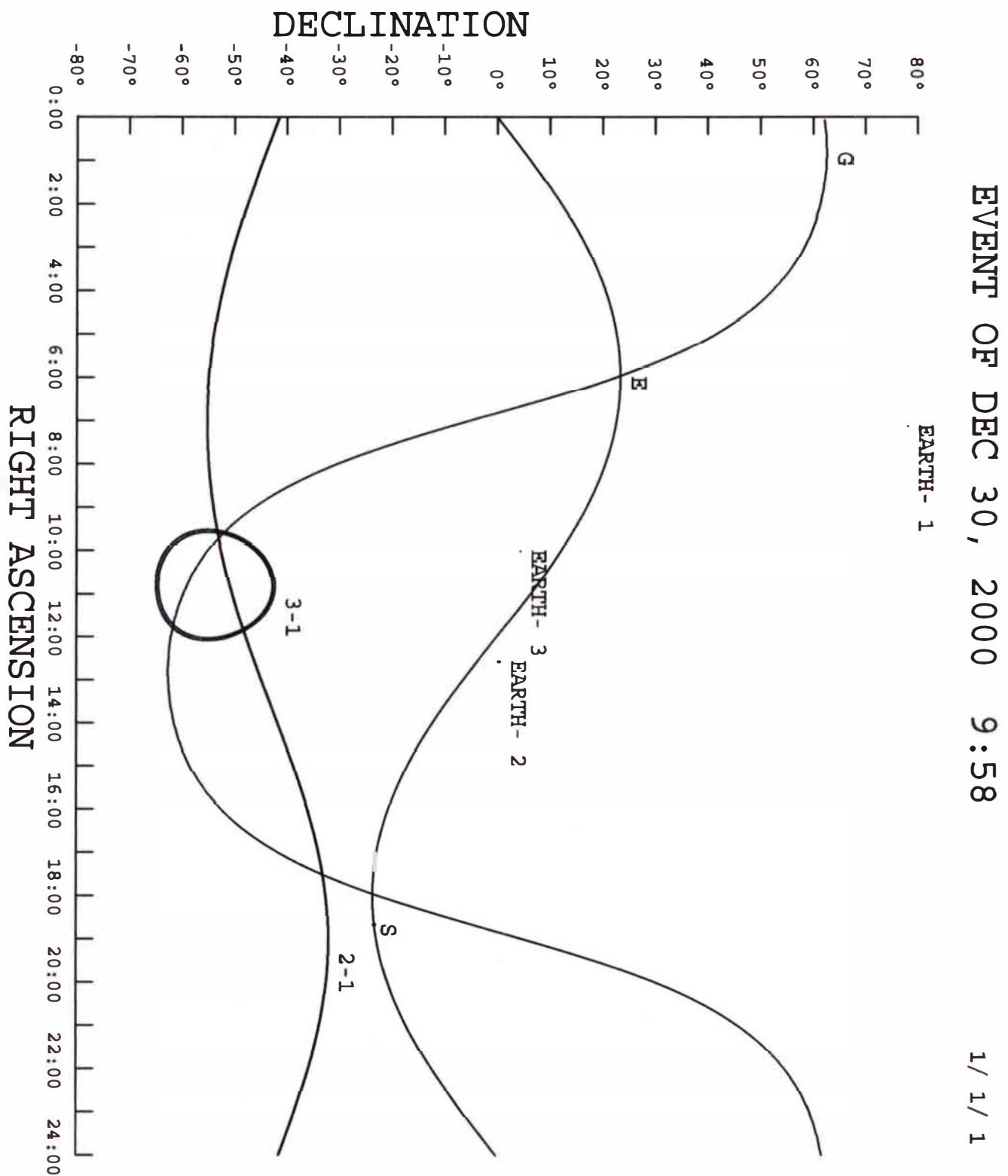
14/12/2017

EARTH- 1

Z-Z = CORRELATION BETWEEN SATELLITES Z AND Z
 EARTH-Z = EARTH AS SEEN FROM SATELLITE Z
 S=SUN
 1 ULYSSES 2 KONUS1 3 NEAR
 E=ECLIPIC G=GALACTIC EQUATOR



3 NEAR



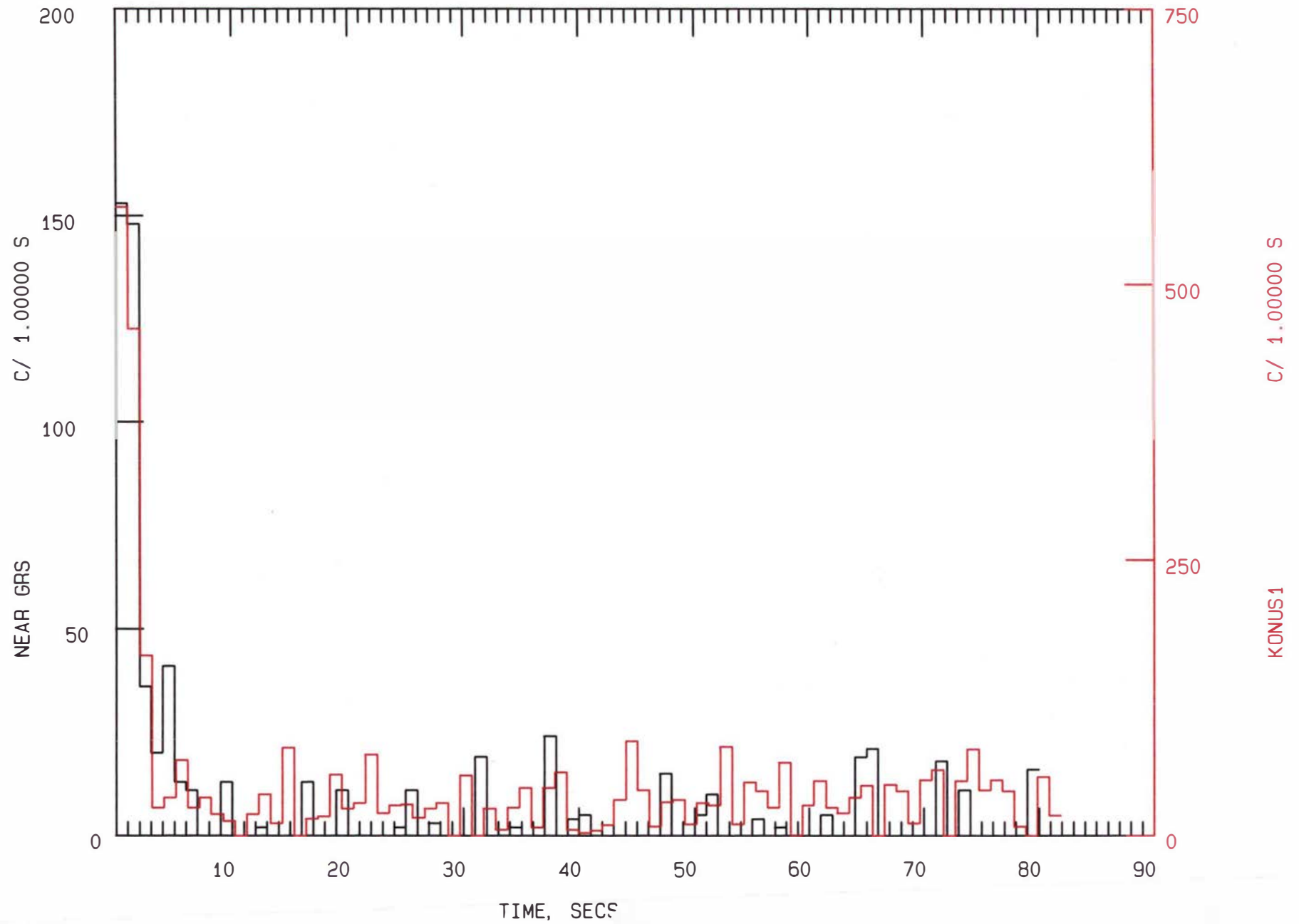
NEAR GRS -KONUS1

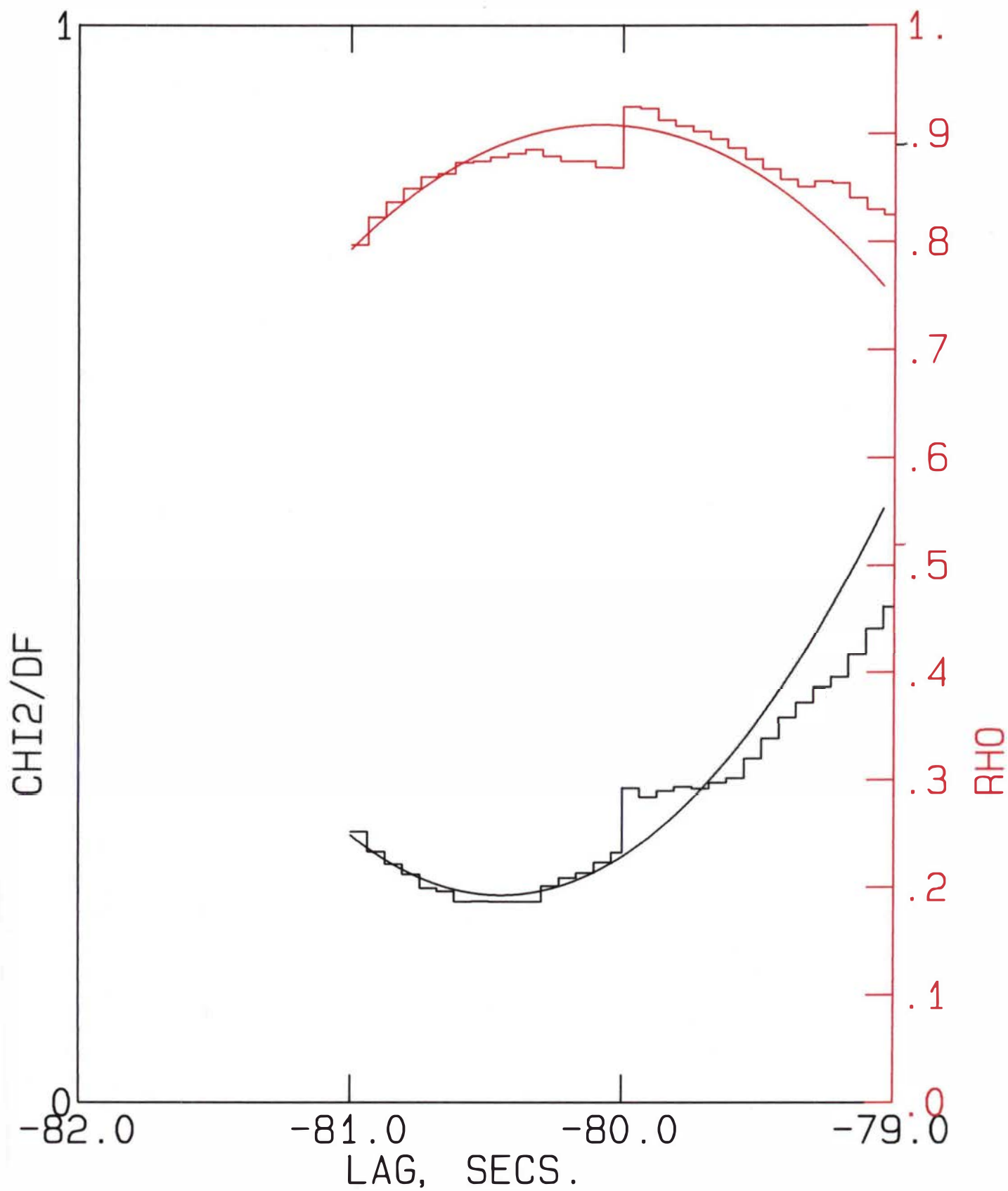
CORRELATION

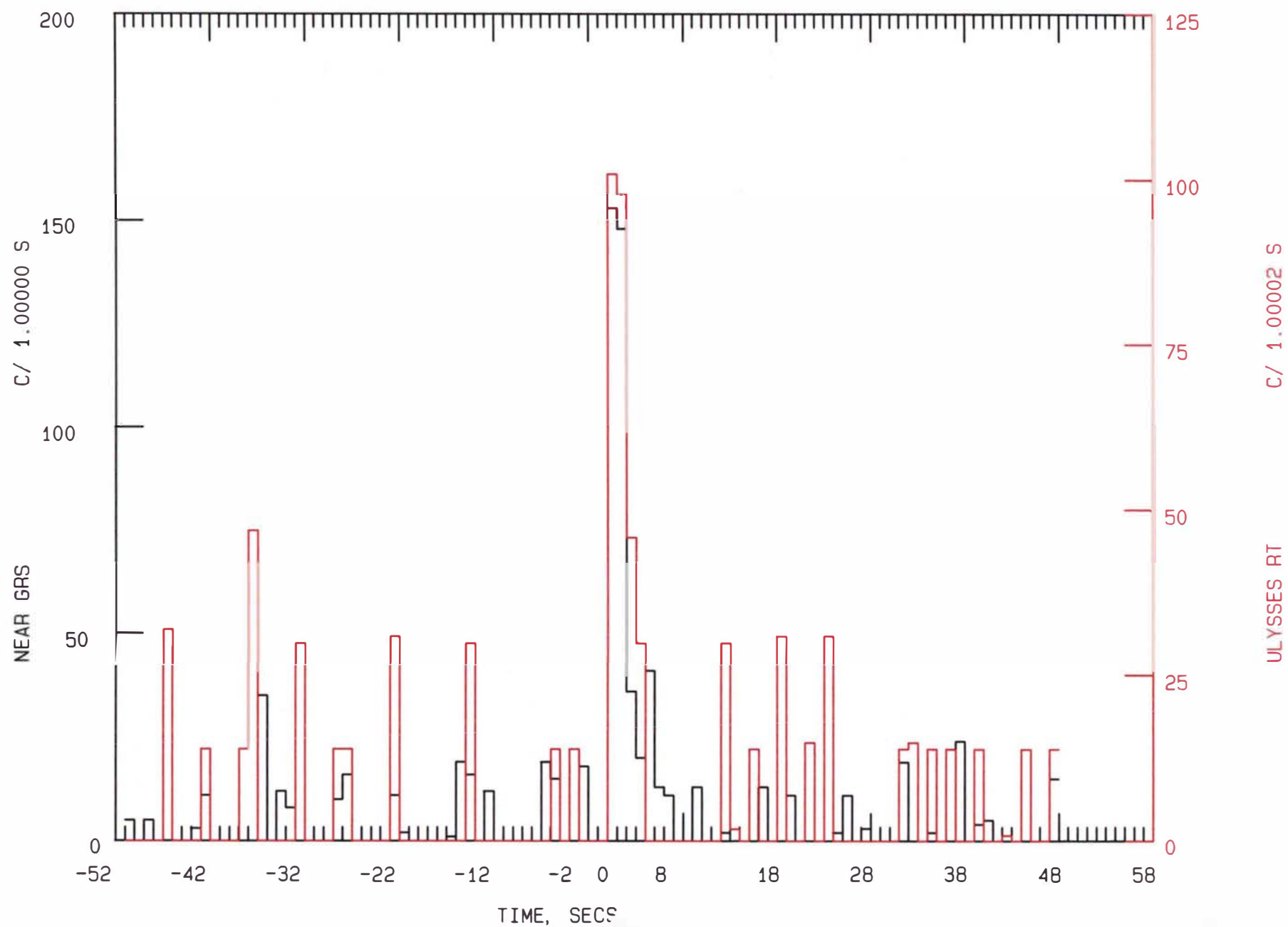
30/12/00

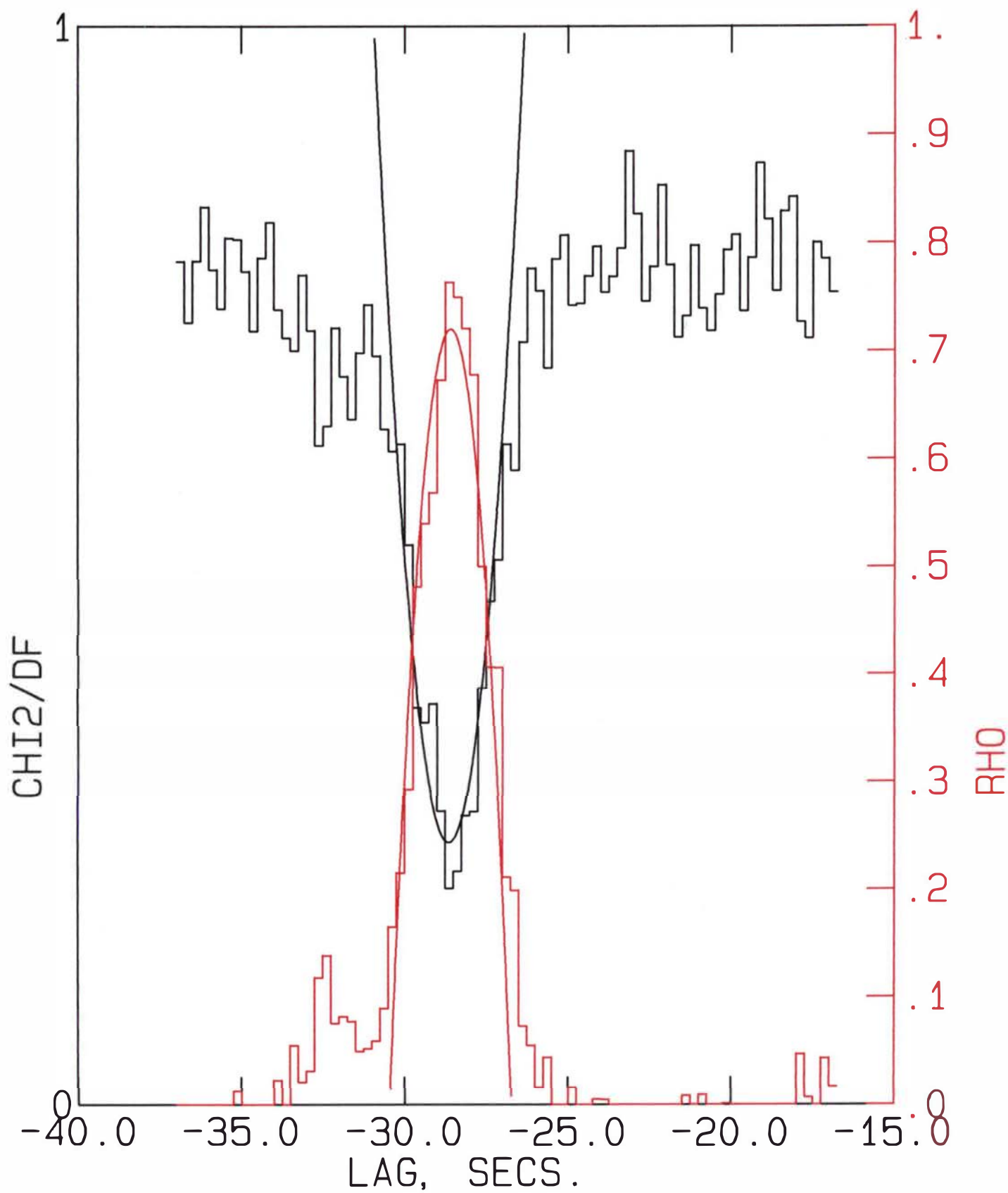
37335.588

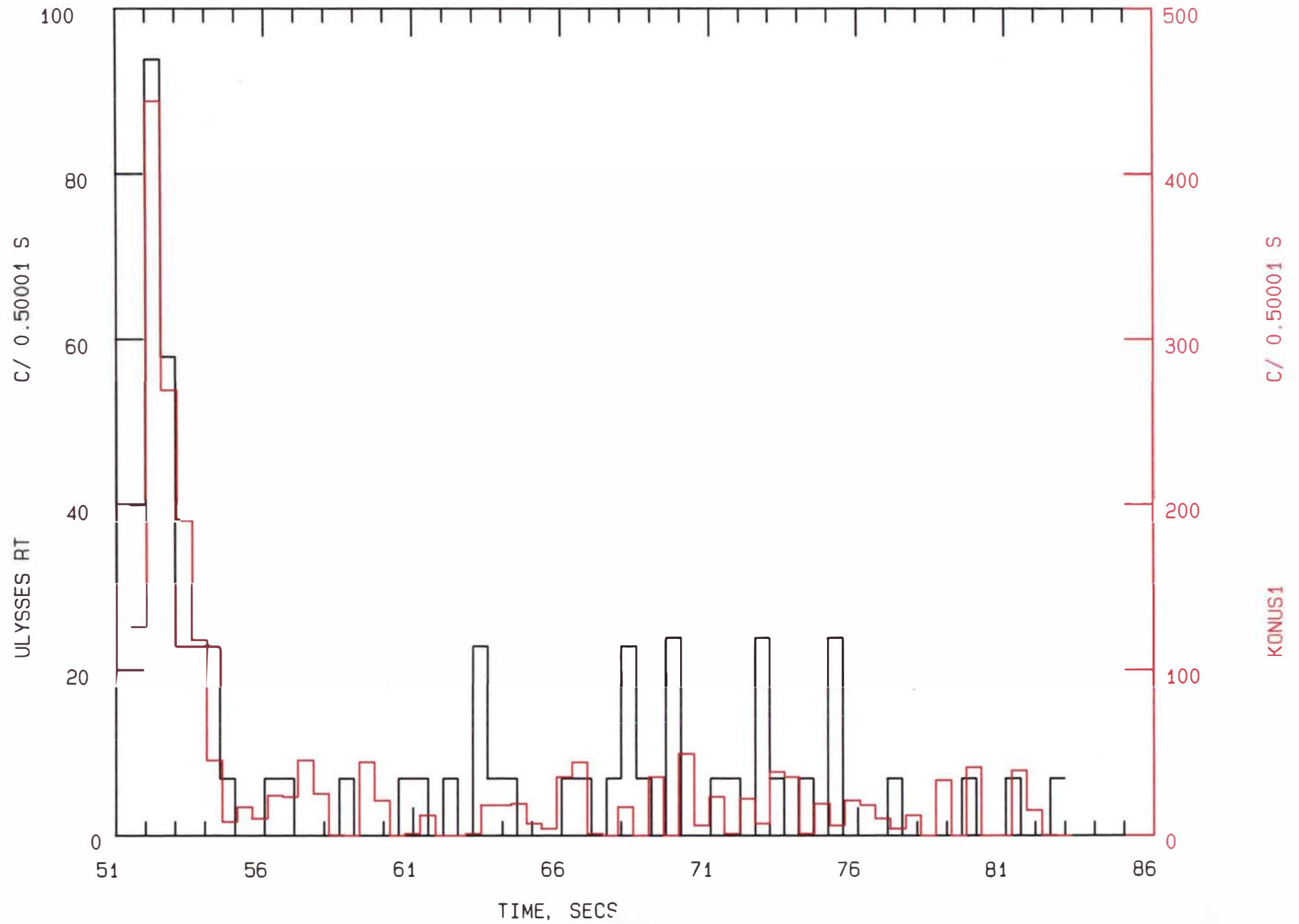
1/ 1/ 1

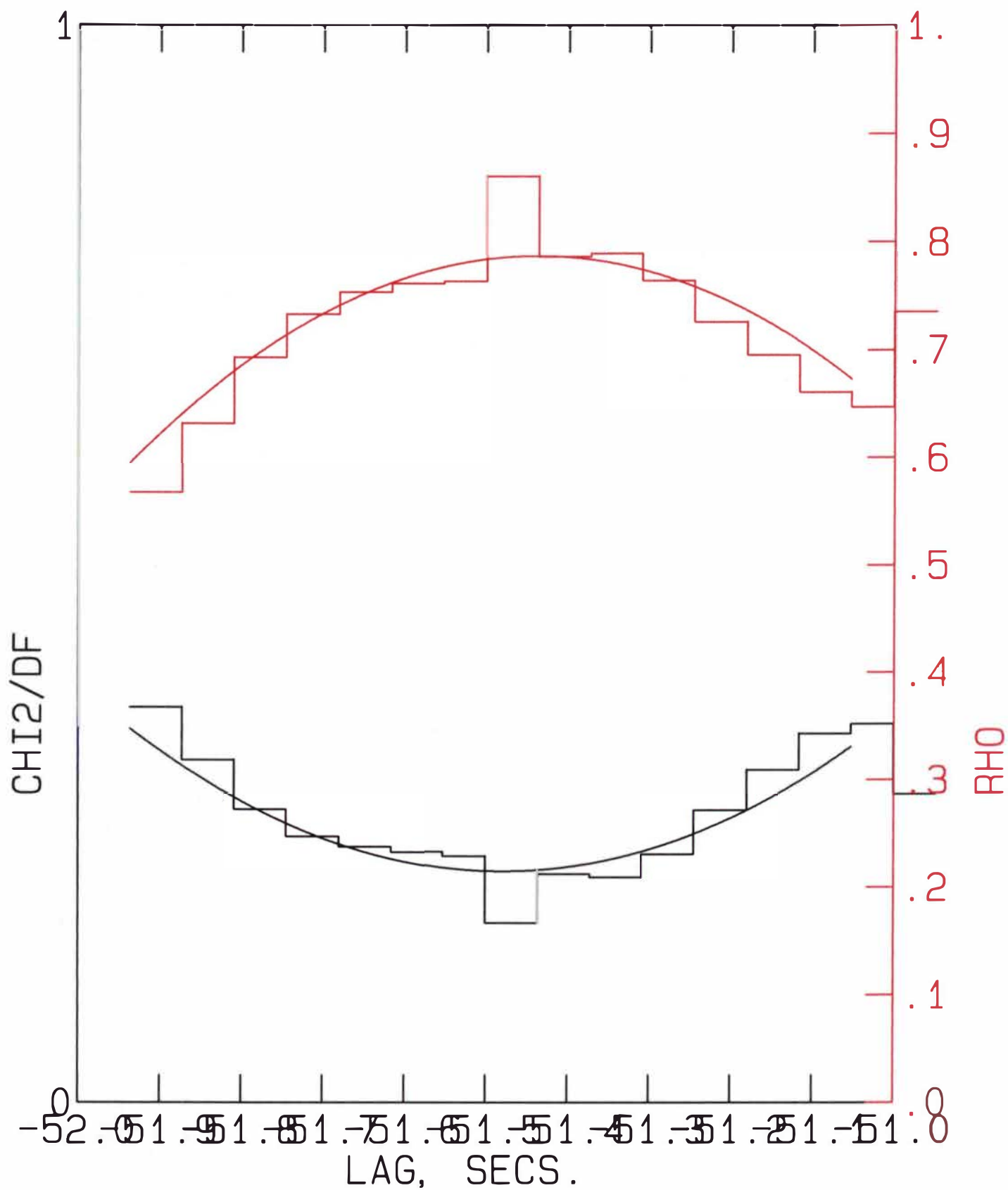






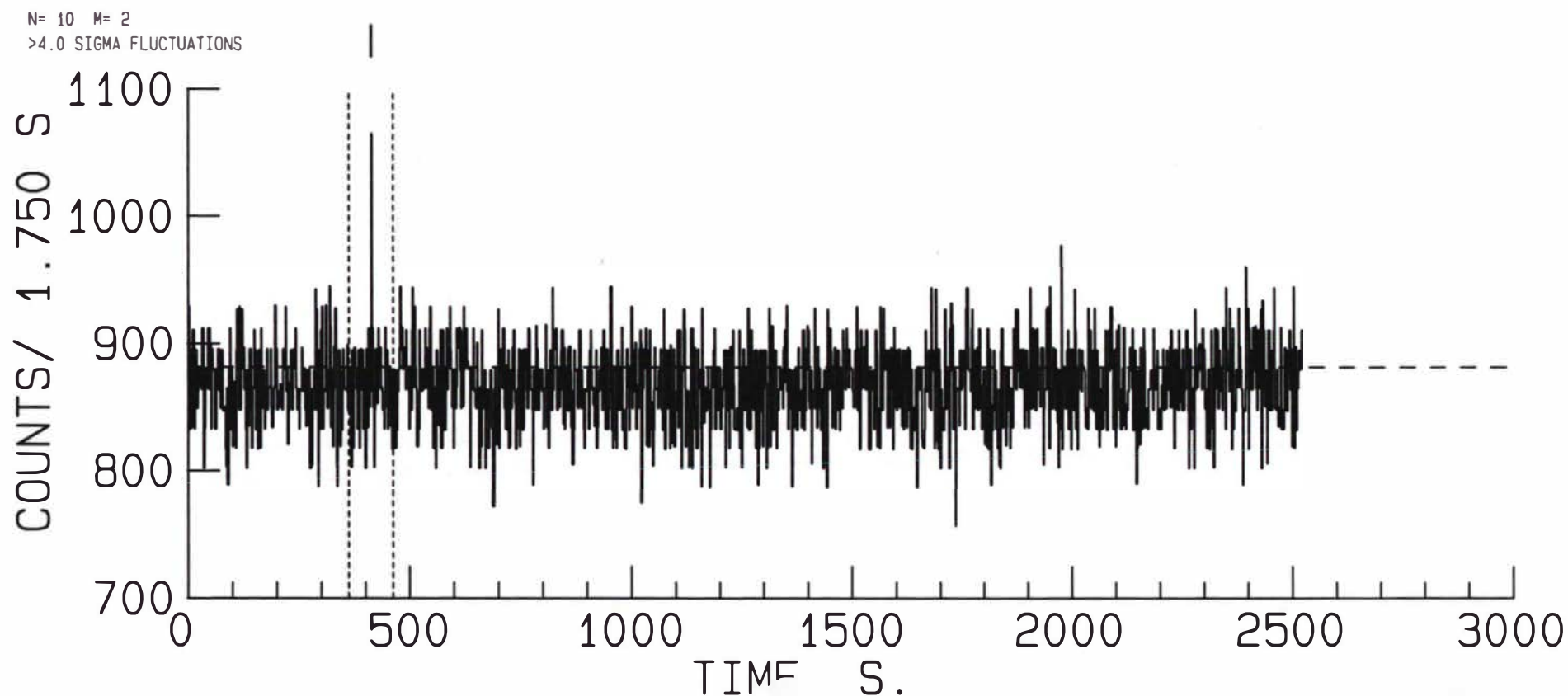






ULYSSES RT
30/12/ 0 35568.029 s
0.250 S INTERVALS REGROUPED BY 7
23- 155 keV

1 / 1 / 1



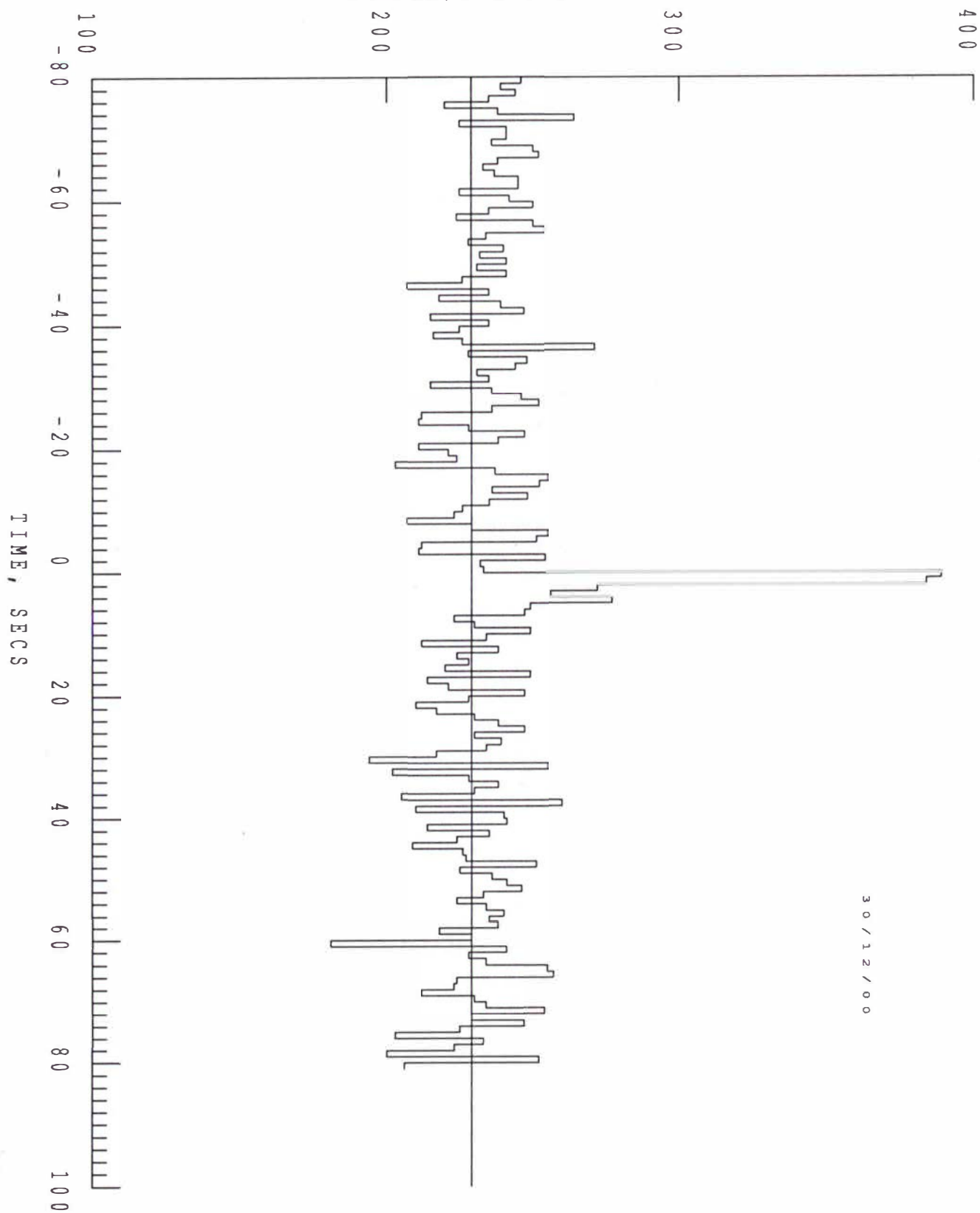
NEAR

30/12/00

37335.588

100-1000 keV

COUNTS/1.000 S



30/12/00

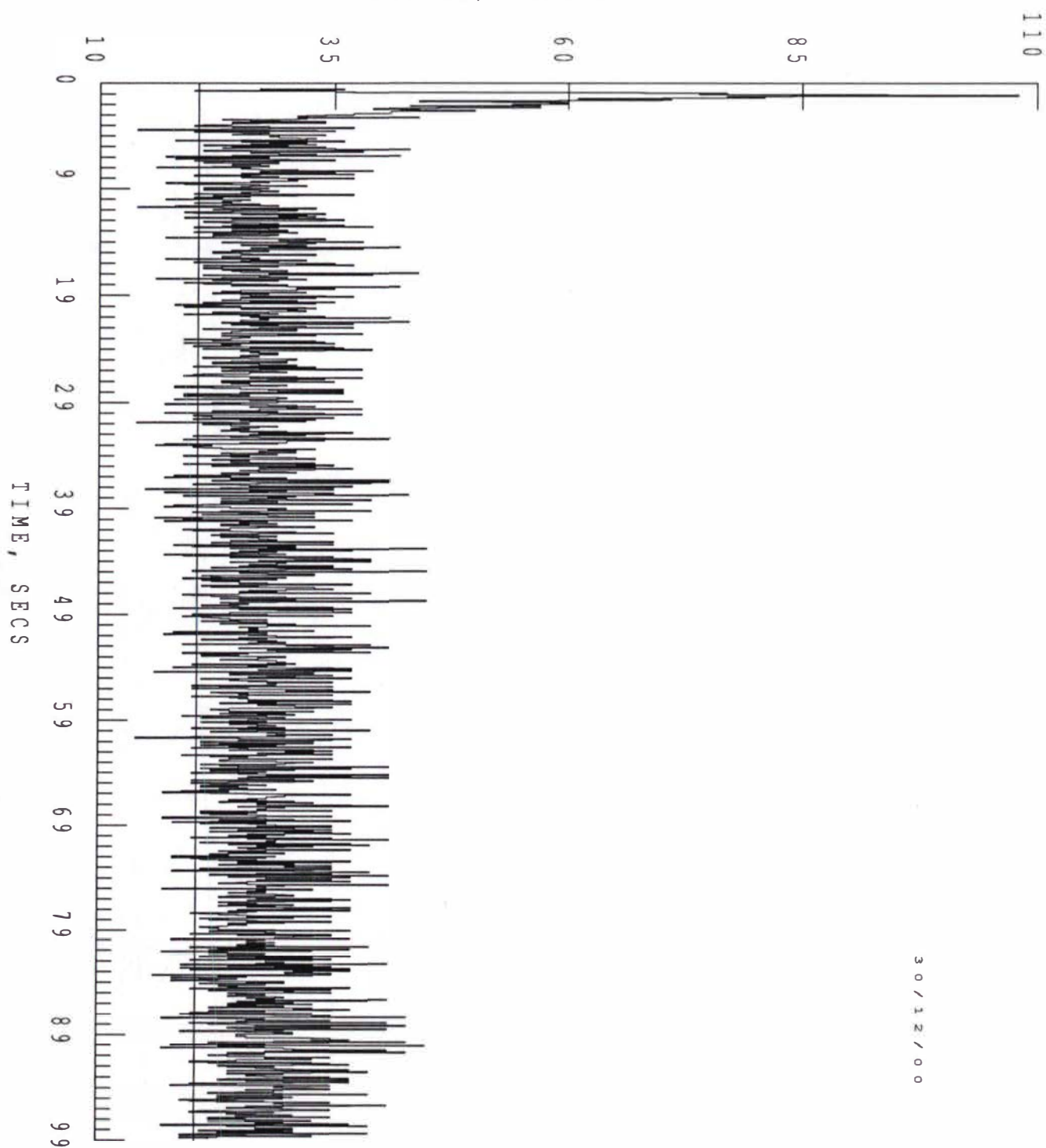
KONUS1

30/12/00

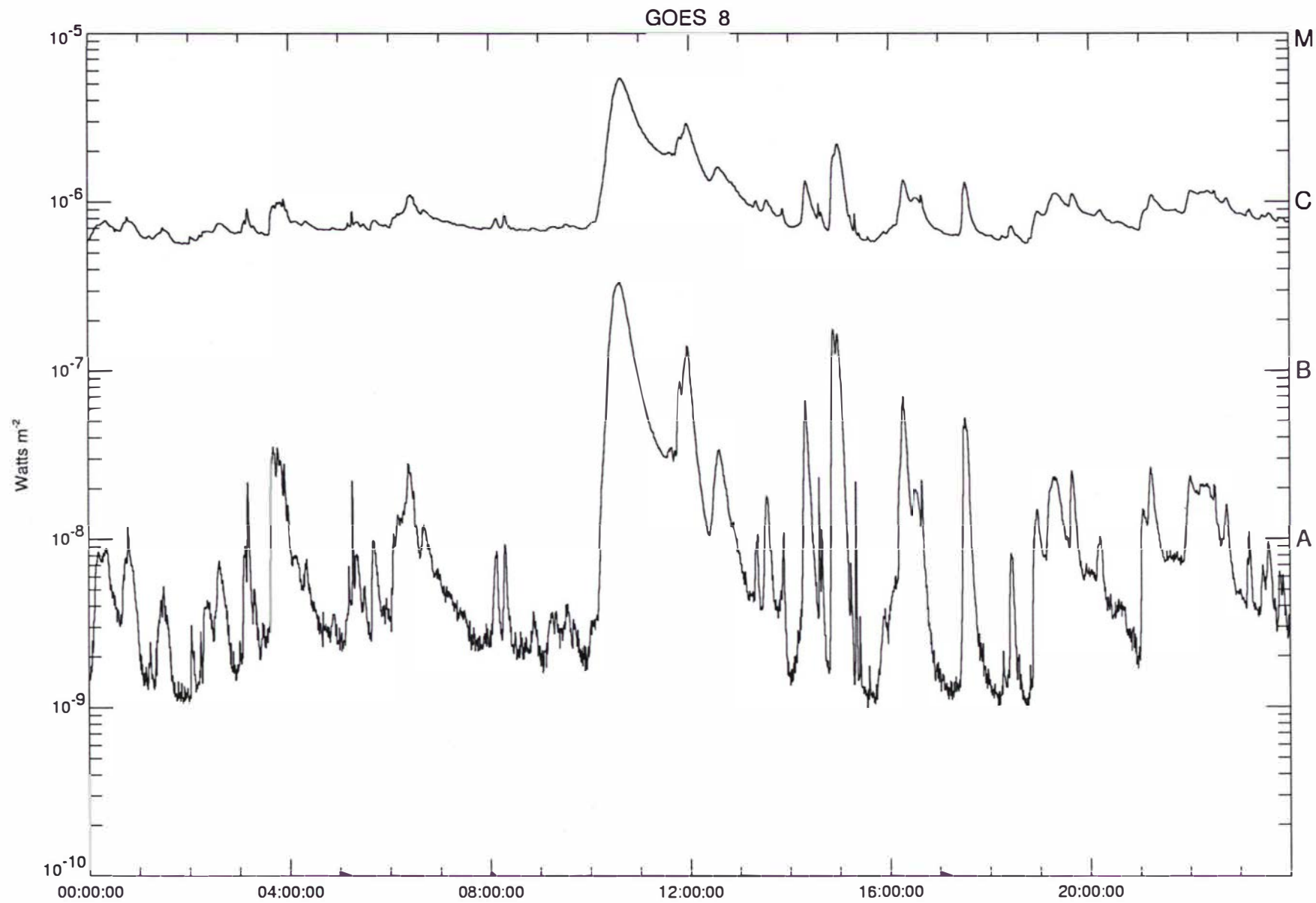
36817.130

50 - 200 keV

COUNTS/0.064 S



30/12/00



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

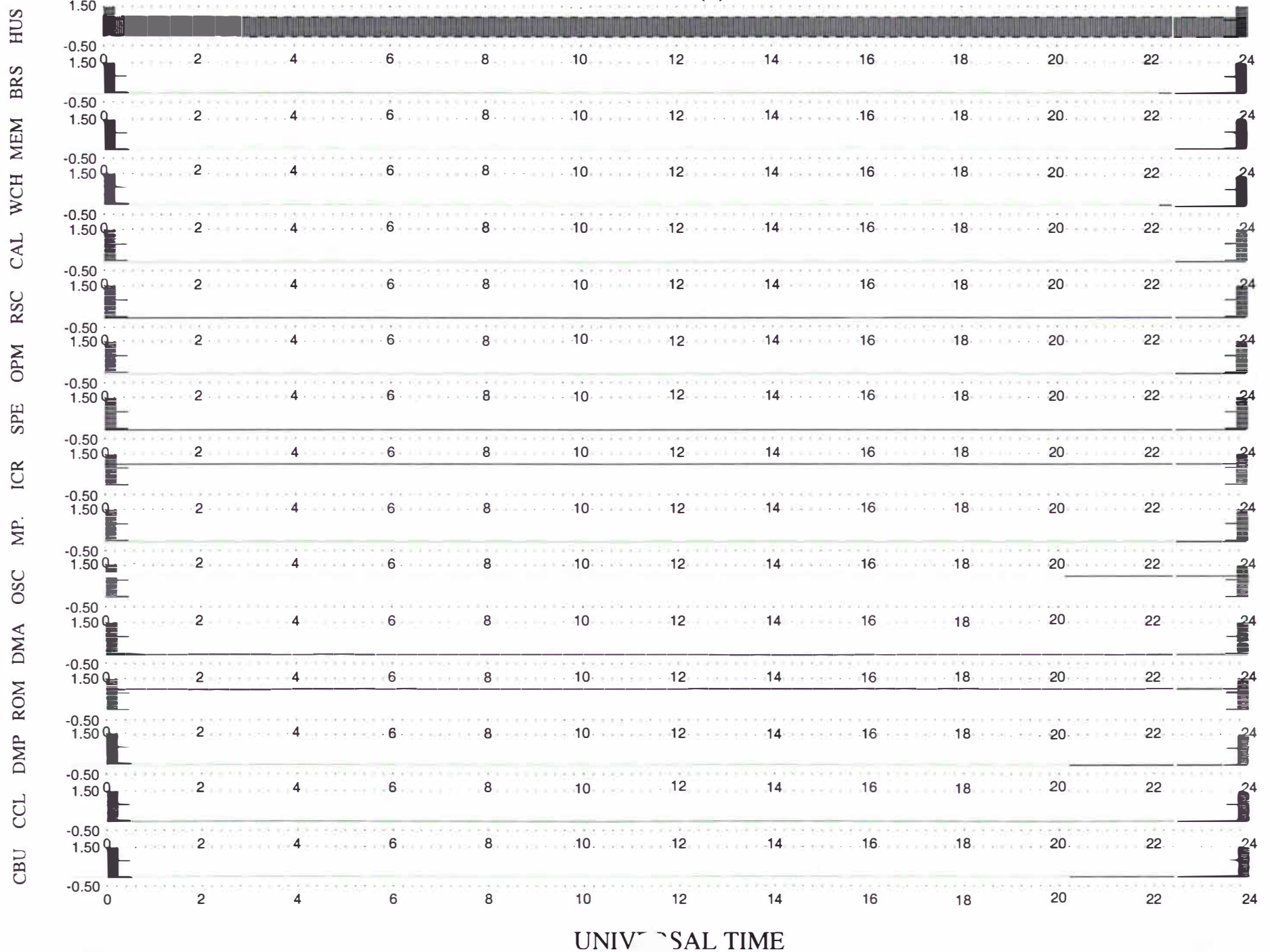
2 (0.5 - 4.0 Angstroms)

Background not subtracted

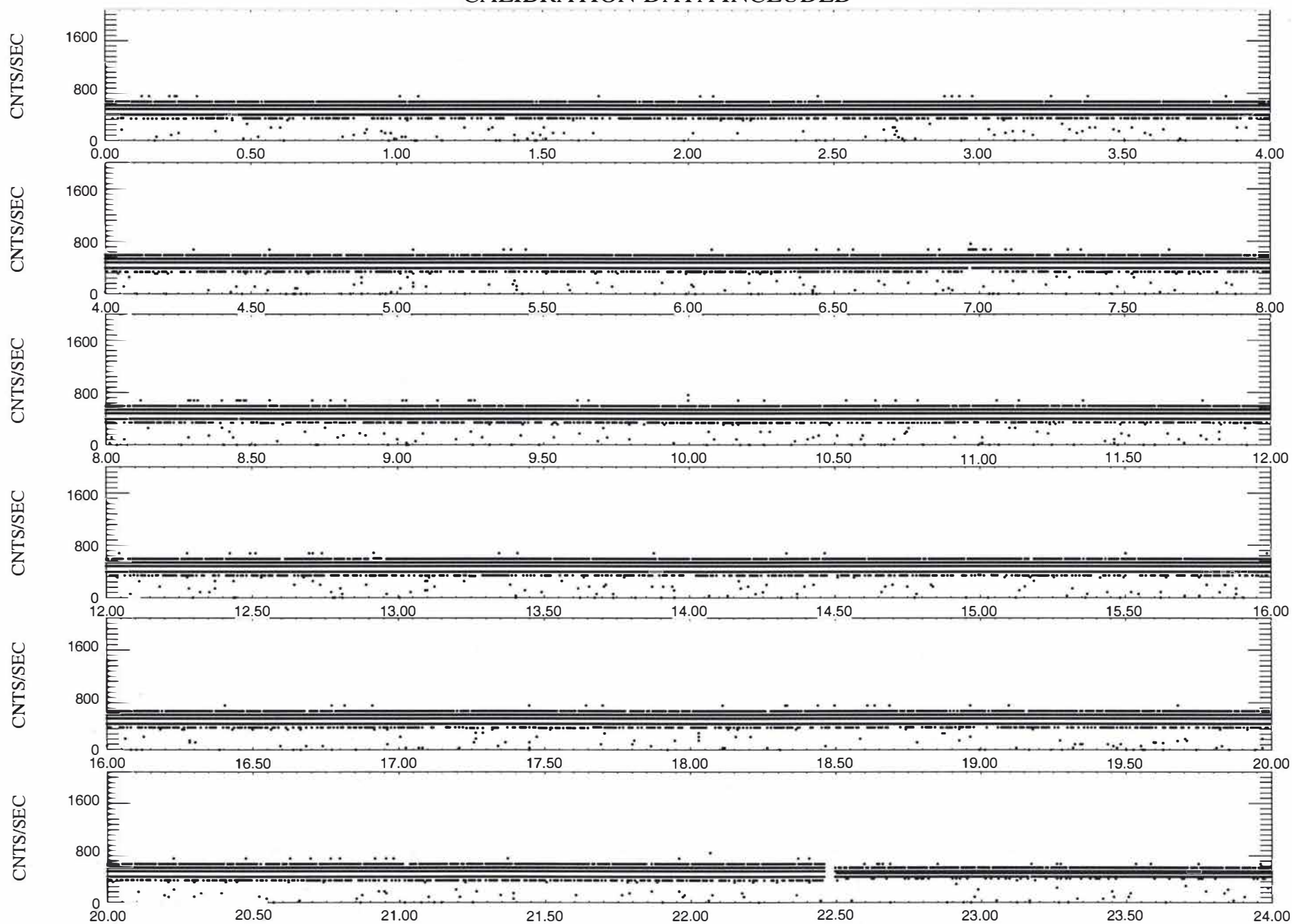
Plot created: 01/01/06, 1636

Sample average = 10

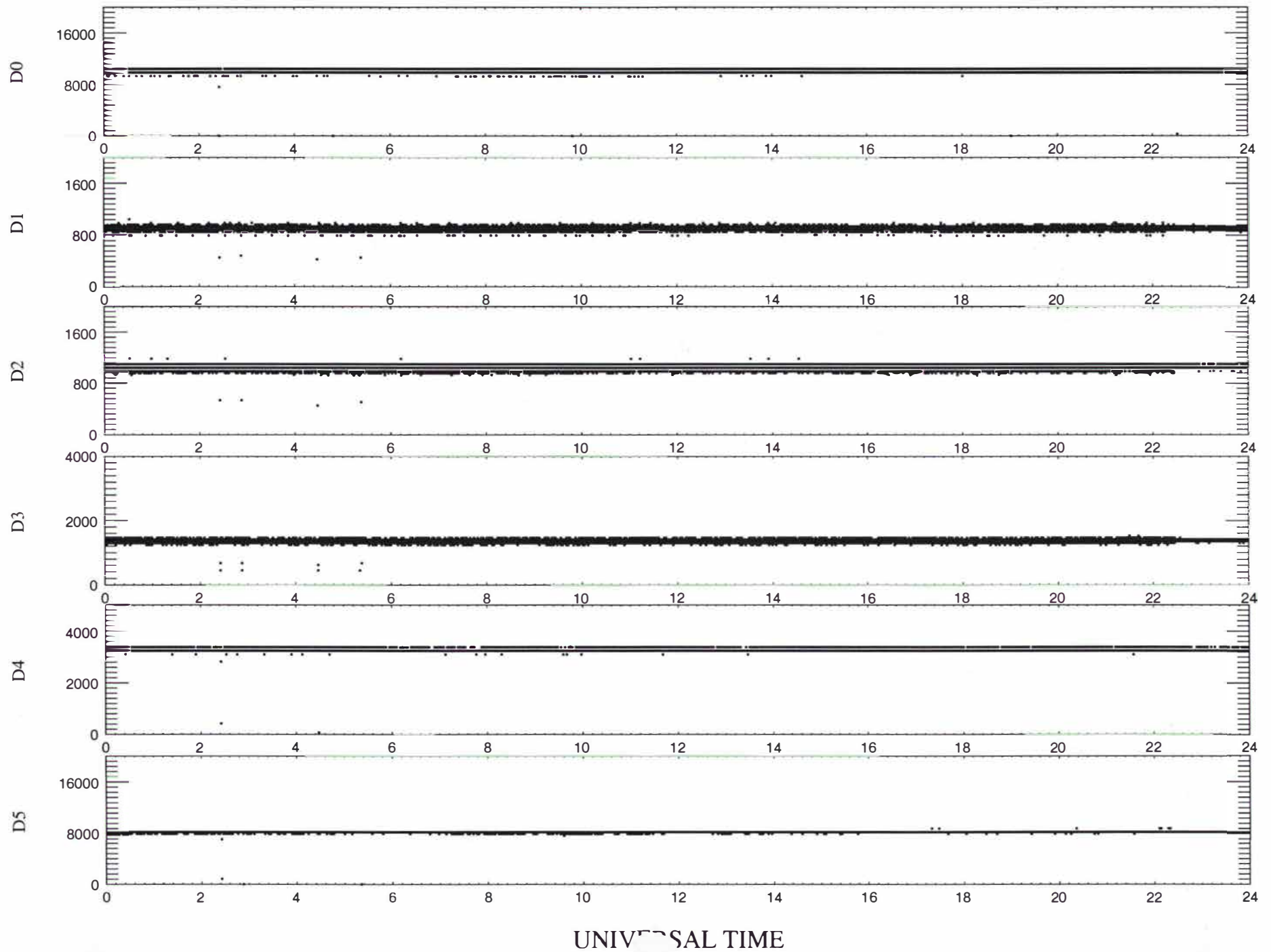
NO BURST (8)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



From Cheryl.Musselman@jhuapl.edu Wed Jan 3 04:53 PST 2001
From: "Musselman, Cheryl" <Cheryl.Musselman@jhuapl.edu>
To: "'Richard Starr'" <rstarr@lepvax.gsfc.nasa.gov>
Cc: +NEAR-s-sdcnotice <NEAR-s-sdcnotice@SPACEMSG.JHUAPL.edu>
Subject: RE: XGRS data loss
Date: Wed, 3 Jan 2001 07:53:45 -0500
MIME-Version: 1.0

>From the Mission Operations SSR Lost Data Log:

DATE: 01/01/01
Record Start Time: 001231-181129
Record End Time: 010101-043501
Start MET: 153695537
End MET: 153733937
SSR: 1
Seg: 0
Slices Lost Start: 0
Slices Lost End: 237
Notes: Data Lost due to heavy rain at DSS-63, DR# L04944

Cheryl Musselman

> -----Original Message-----

> From: Richard Starr [SMTP:rstarr@lepvax.gsfc.nasa.gov]

> Sent: Tuesday, January 02, 2001 11:10 AM

> To: near-s-dataloss@hurlbut.jhuapl.edu

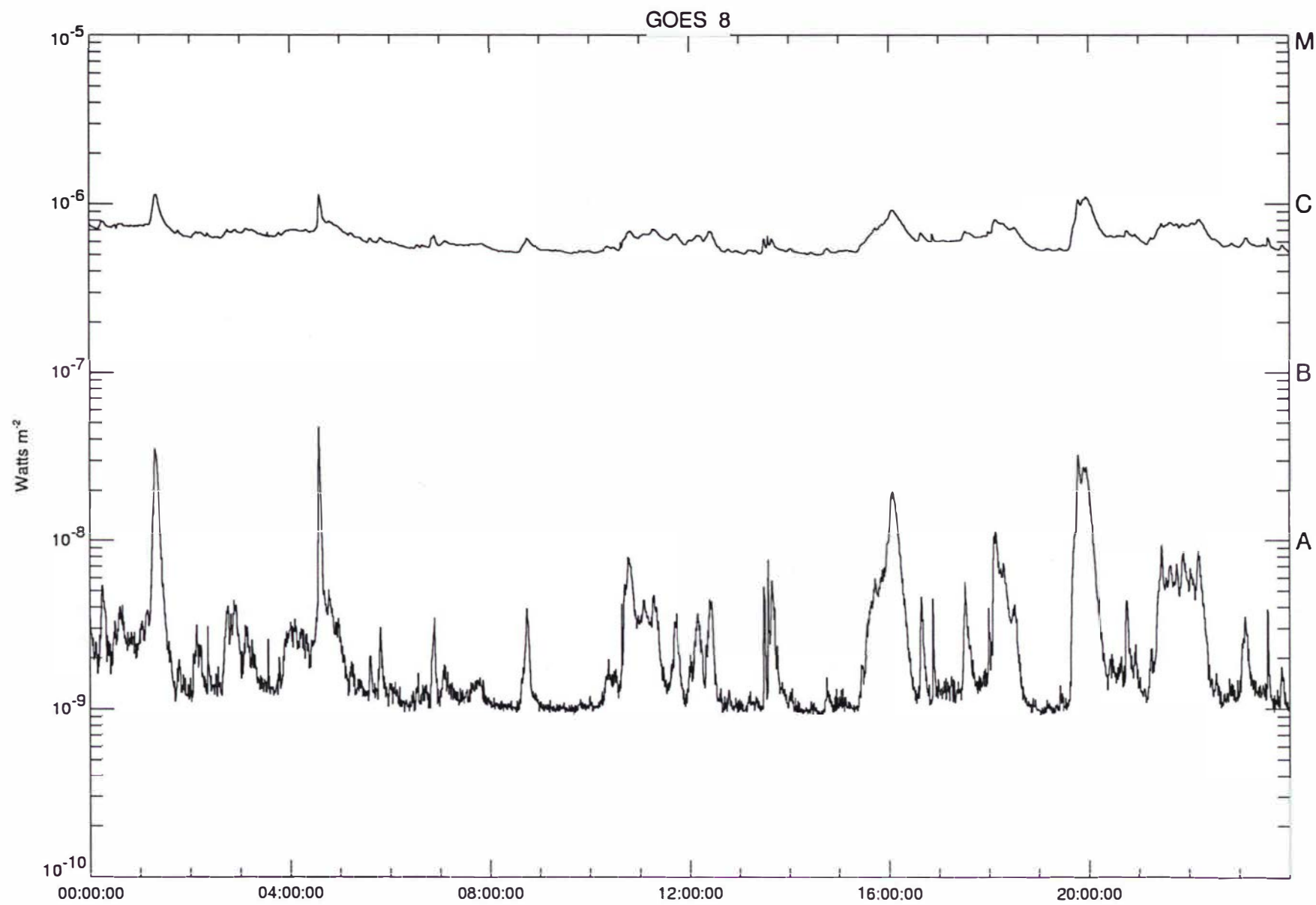
> Subject: XGRS data loss

>

Data for 31 December 2000 stops at MET 153672592. This represents a little less than half the data for that day.

>

> Richard Starr



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

Channel

1 (1.0 - 8.0 Angstroms)

Background not subtracted

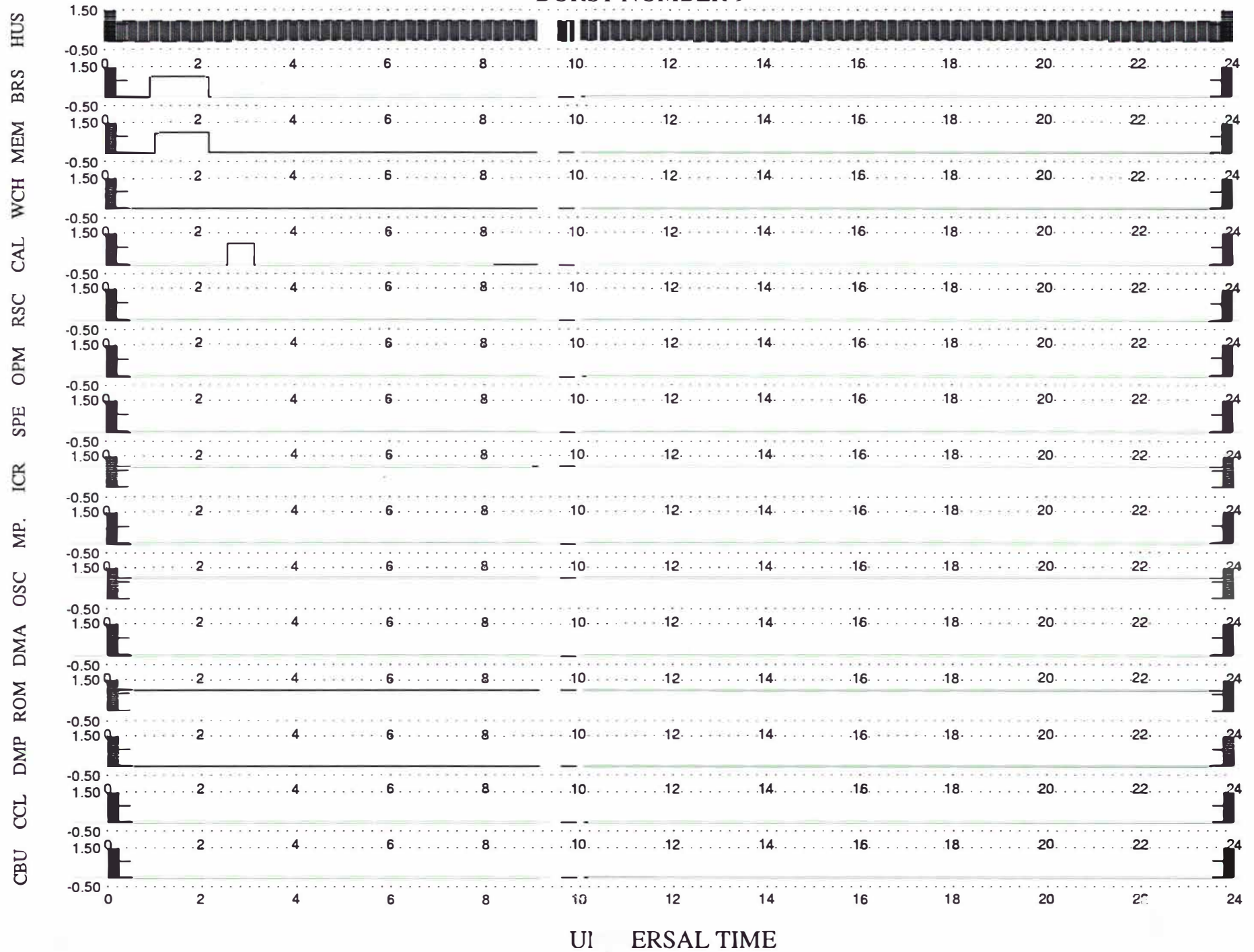
2 (0.5 - 4.0 Angstroms)

Background not subtracted

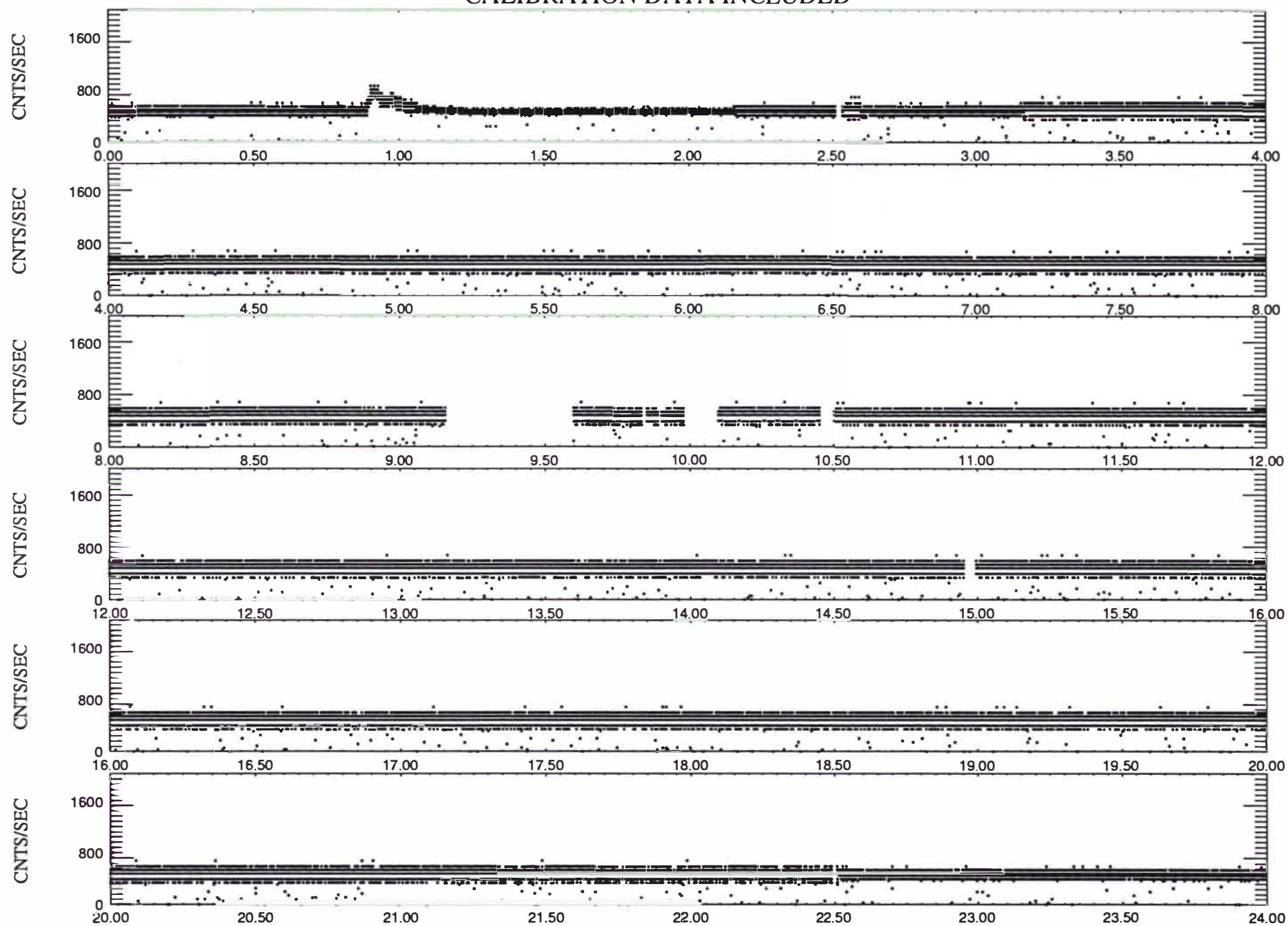
Plot created: 01/01/04, 1004

Sample average = 10

BURST NUMBER 9

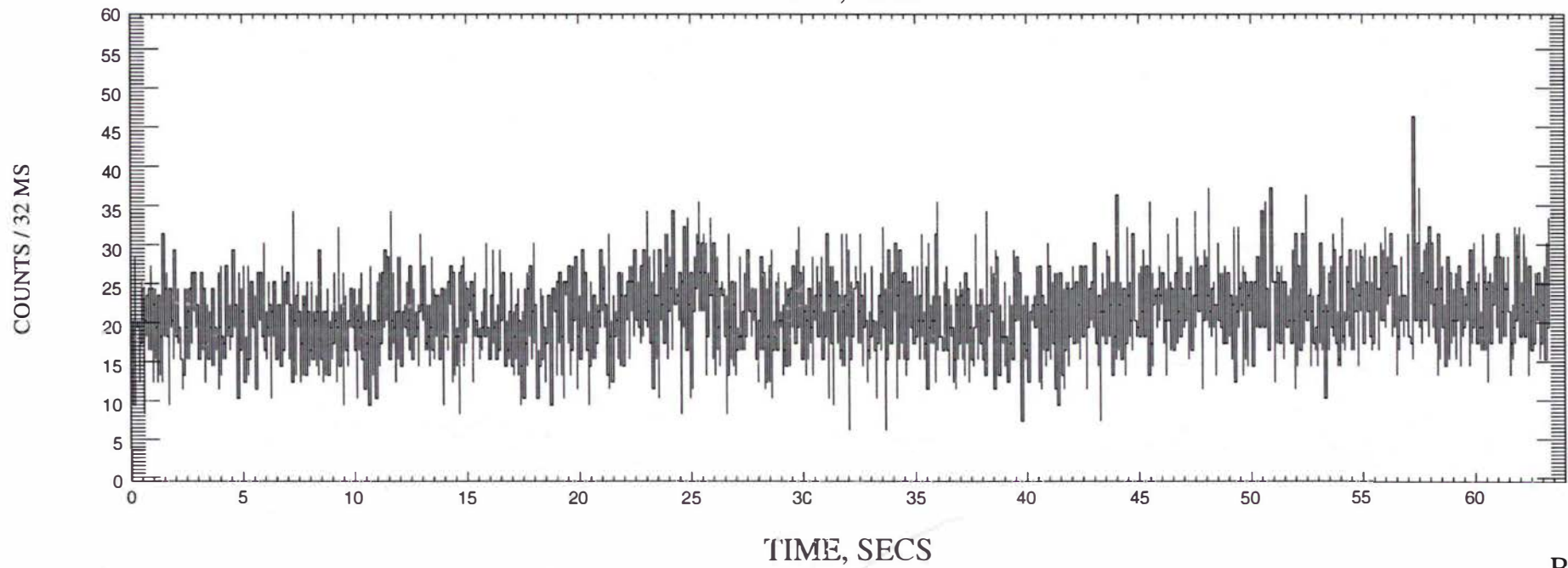
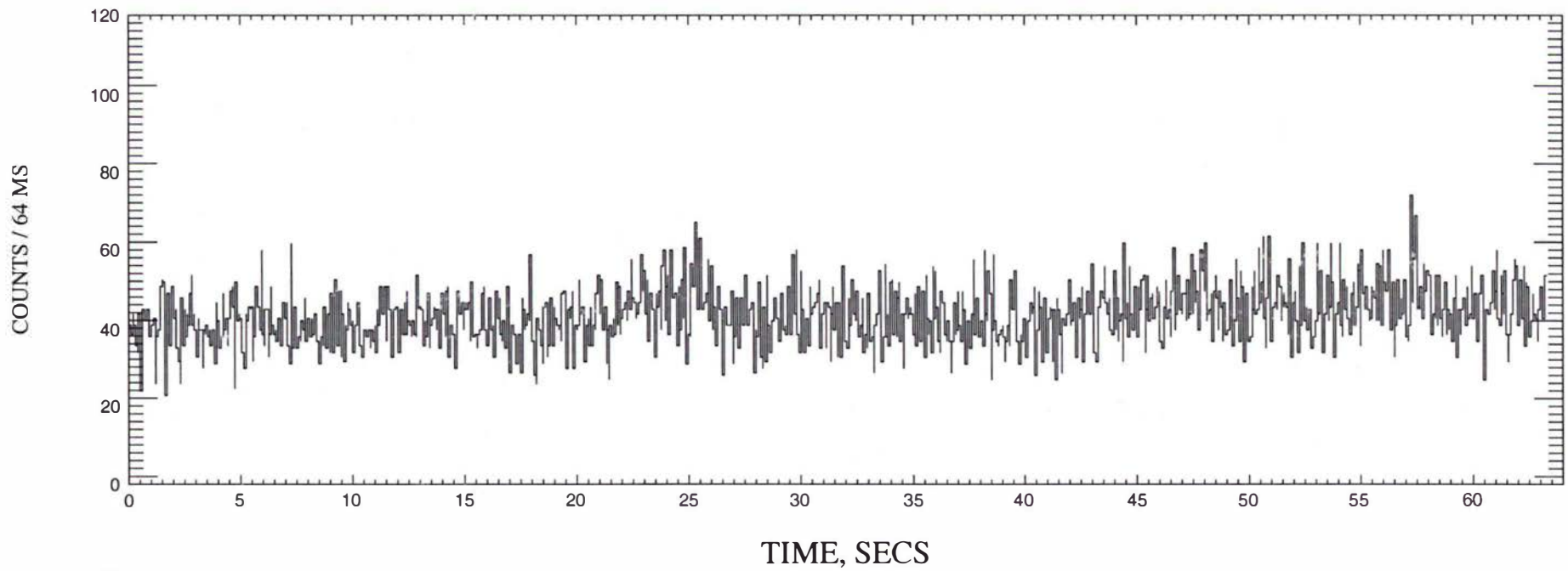


CALIBRATION DATA INCLUDED



UNIVERSAL TIME

Burst Counter 9 at UT= 0.896975818210 h= 3229.113 s 00:53:49.113



CALIBRATION DATA INCLUDED

