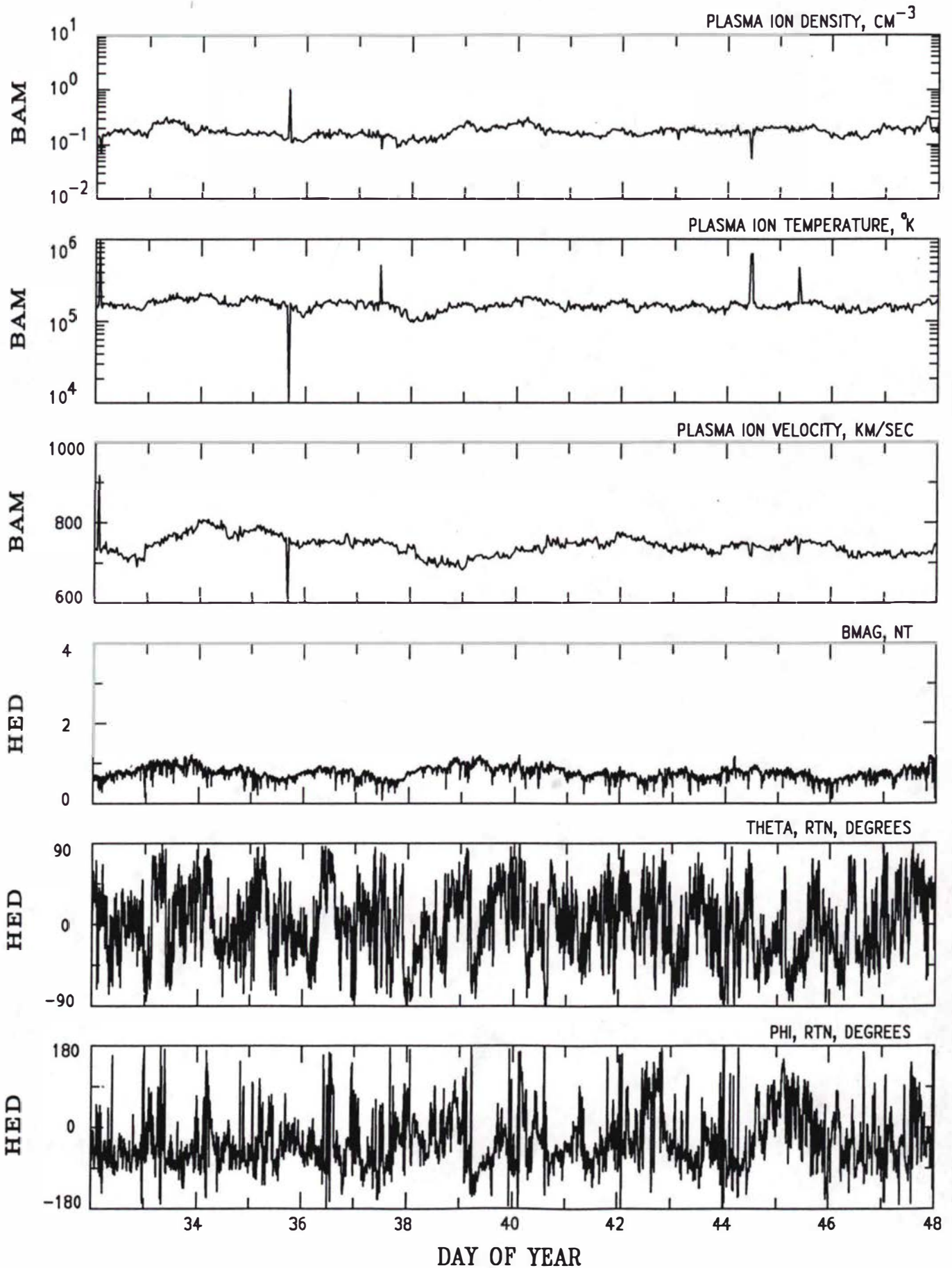


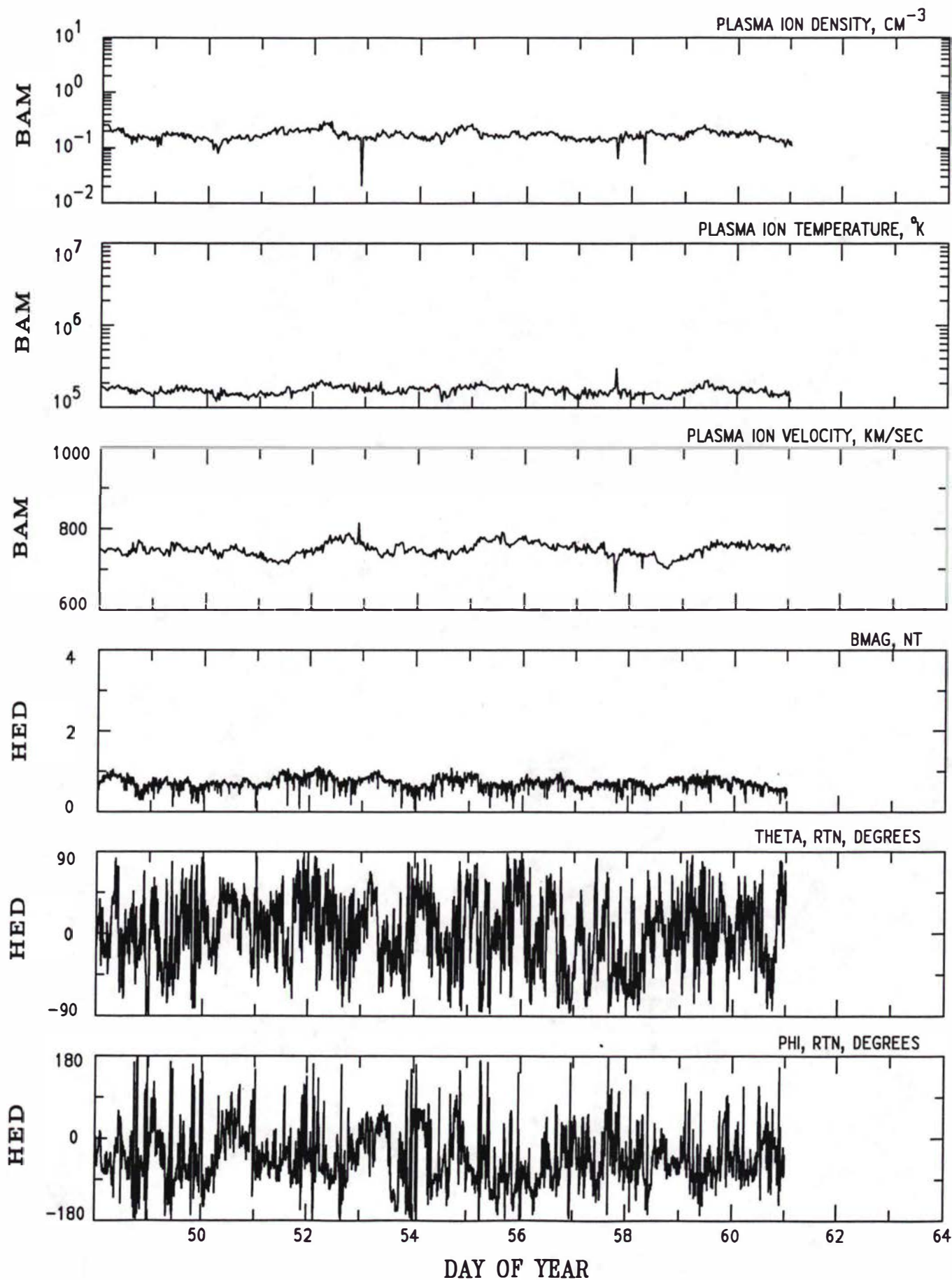
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

96 032 FEB 1 00:00:00.000 - 96 048 FEB 17 00:00:00.000



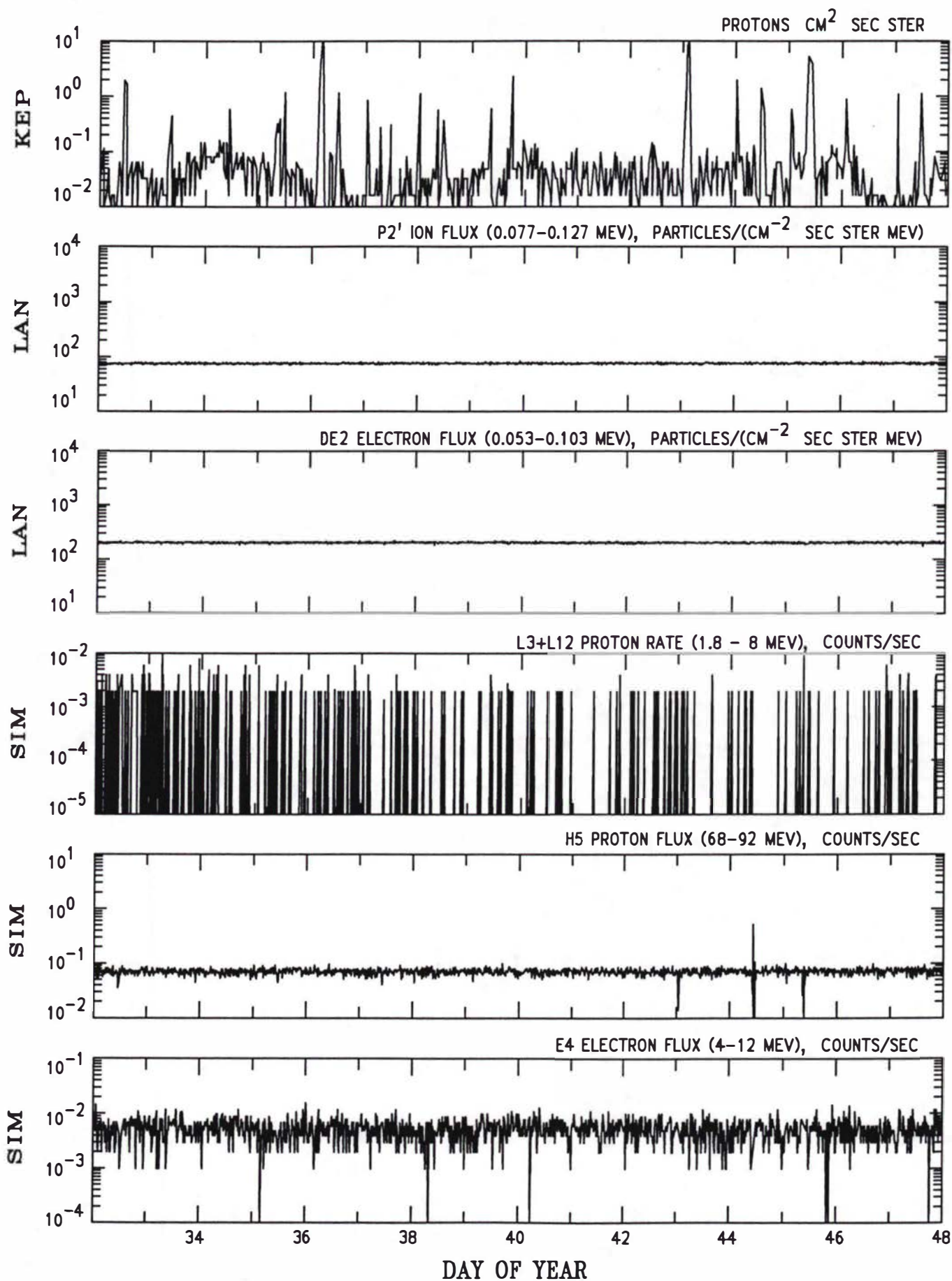
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

96 048 FEB 17 00:00:00.000 - 96 064 MAR 4 00:00:00.000



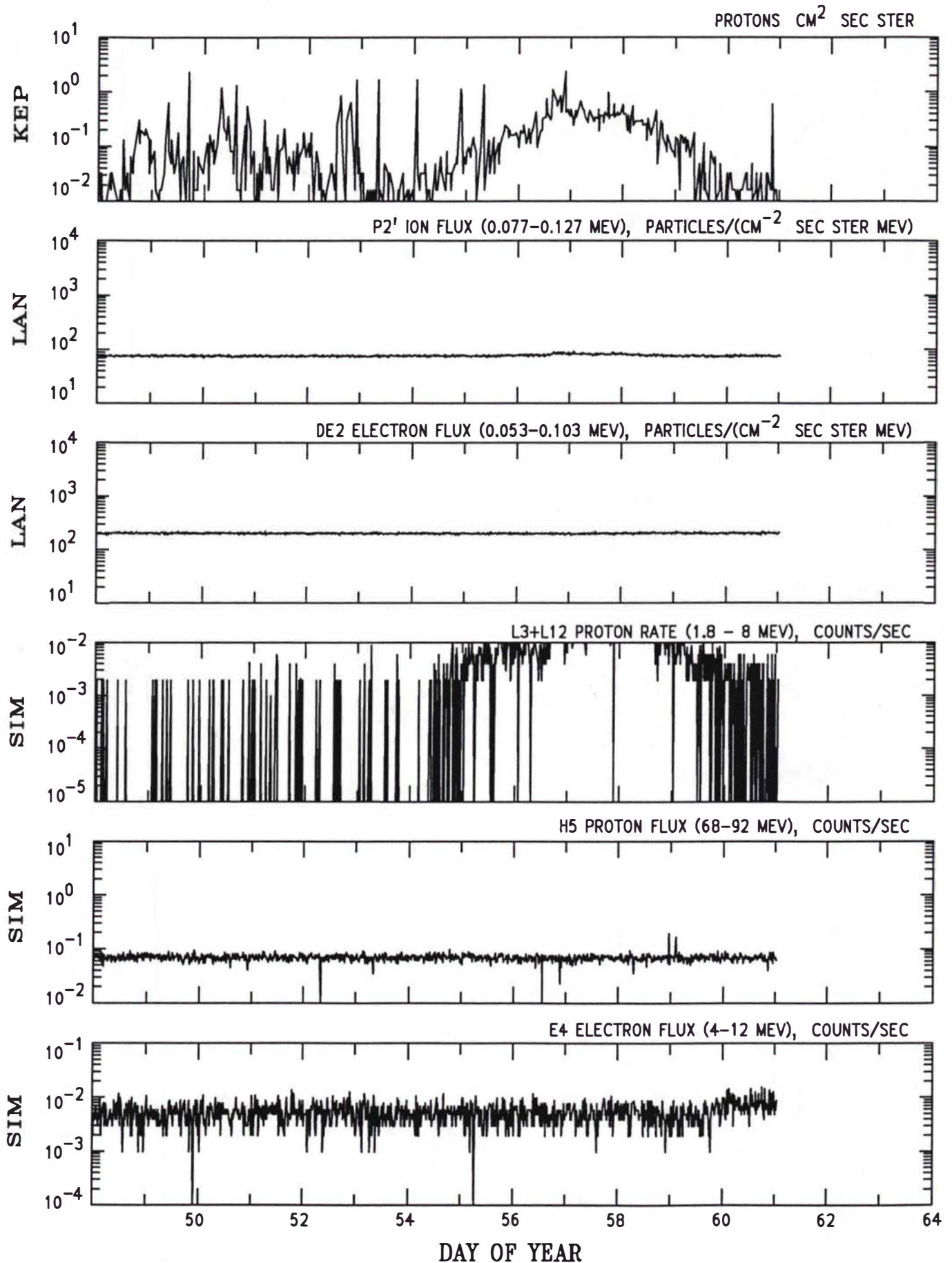
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

96 032 FEB 1 00:00:00.000 - 96 048 FEB 17 00:00:00.000



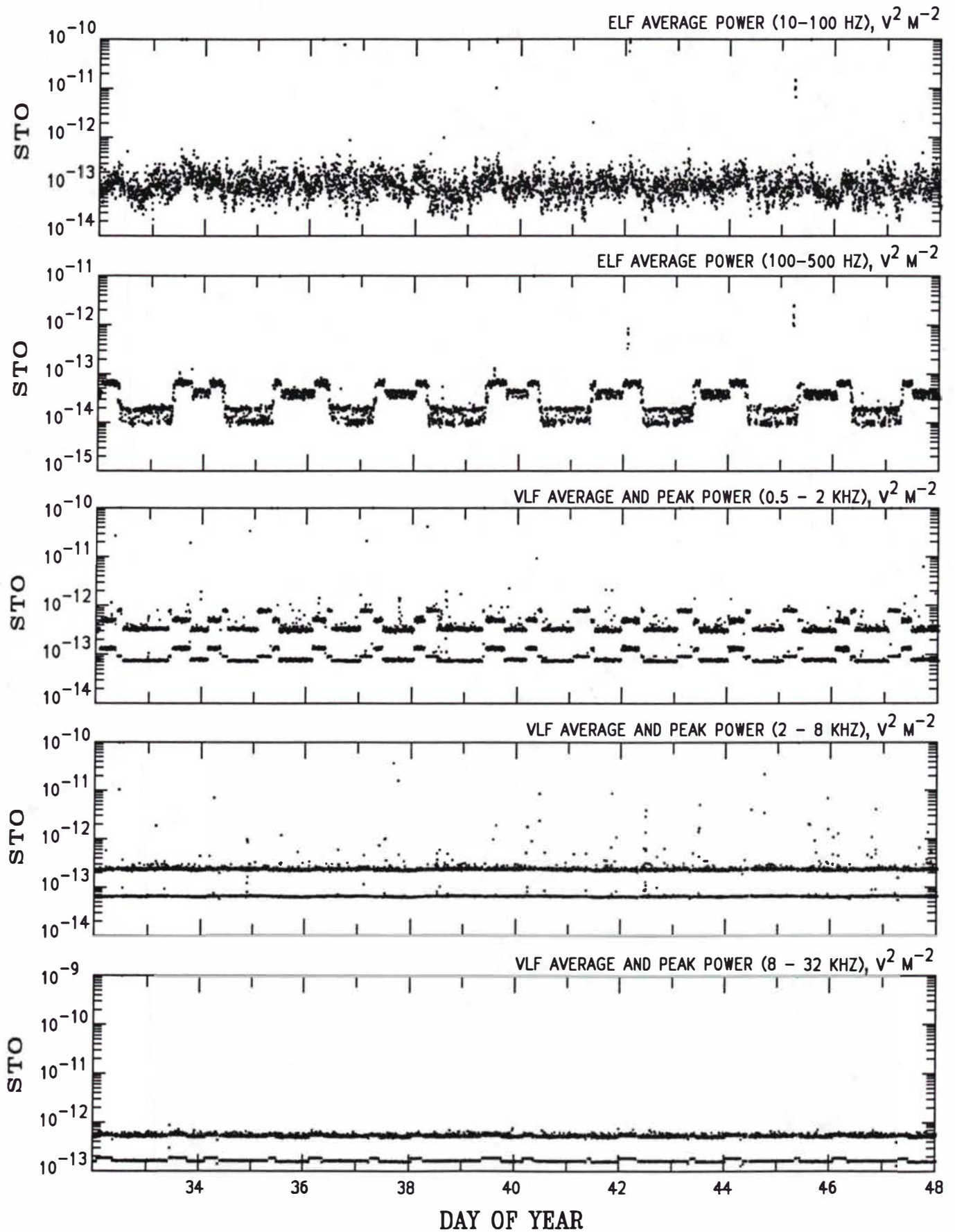
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

96 048 FEB 17 00:00:00.000 - 96 064 MAR 4 00:00:00.000



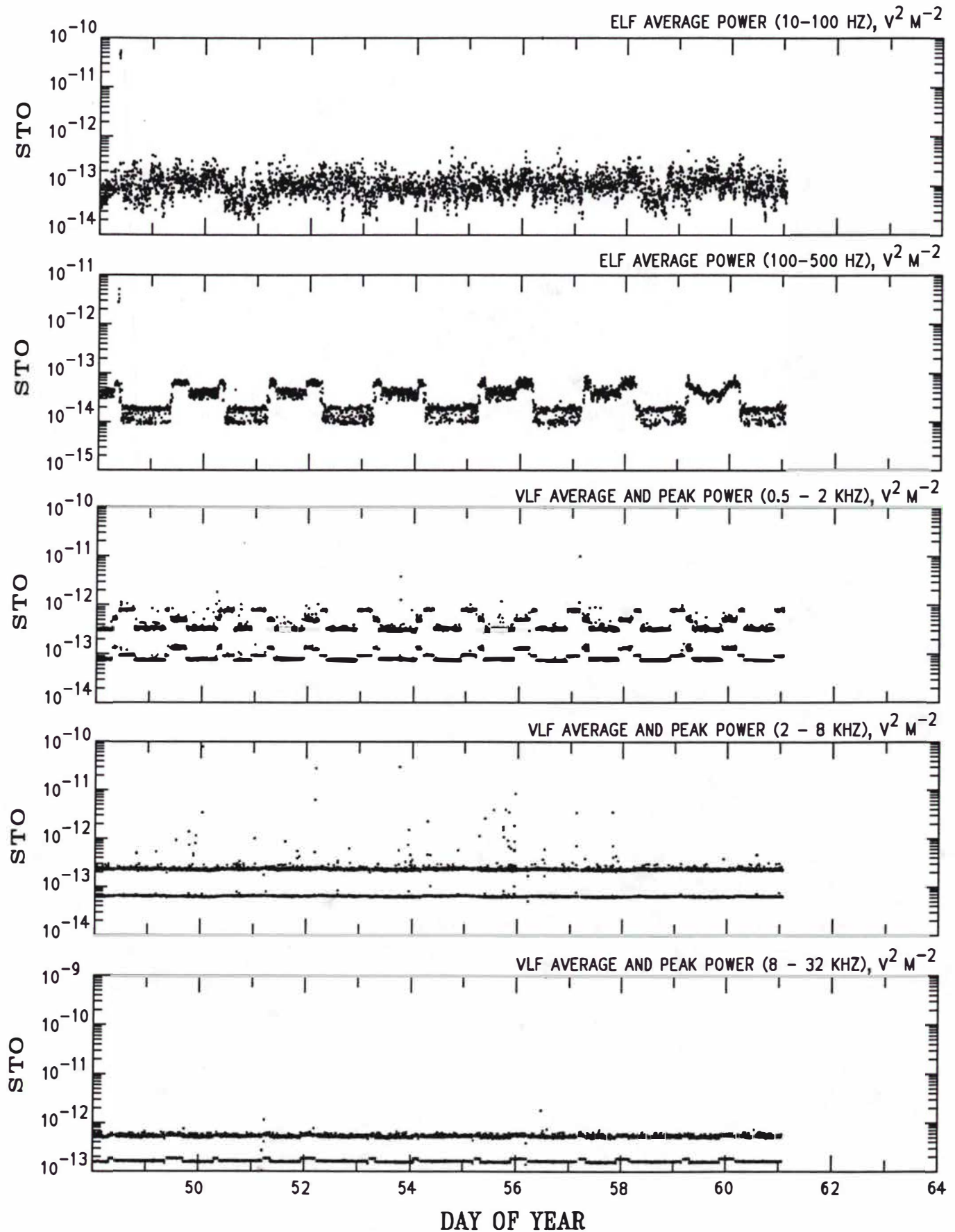
ULYSSES CDR - PLASMA WAVE

96 032 FEB 1 00:00:00.000 - 96 048 FEB 17 00:00:00.000



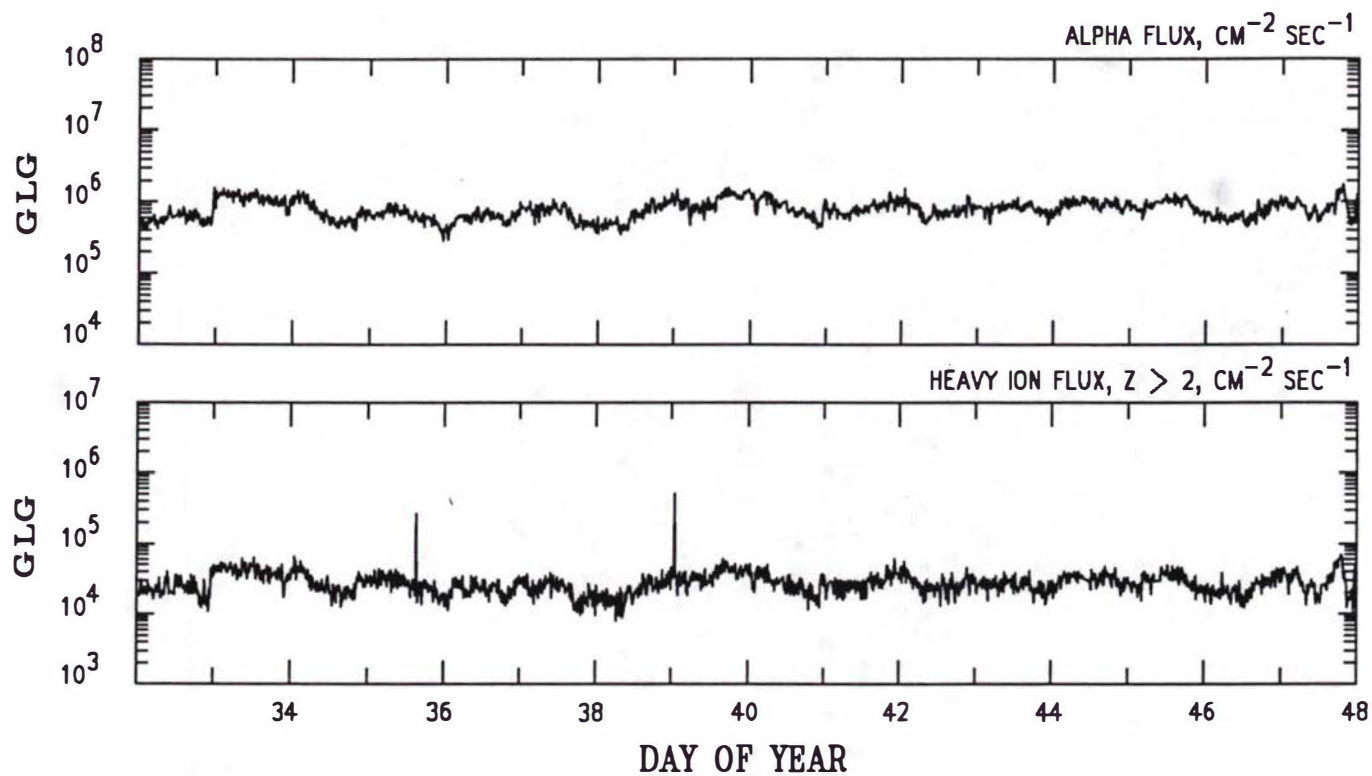
ULYSSES CDR - PLASMA WAVE

96 048 FEB 17 00:00:00.000 - 96 064 MAR 4 00:00:00.000



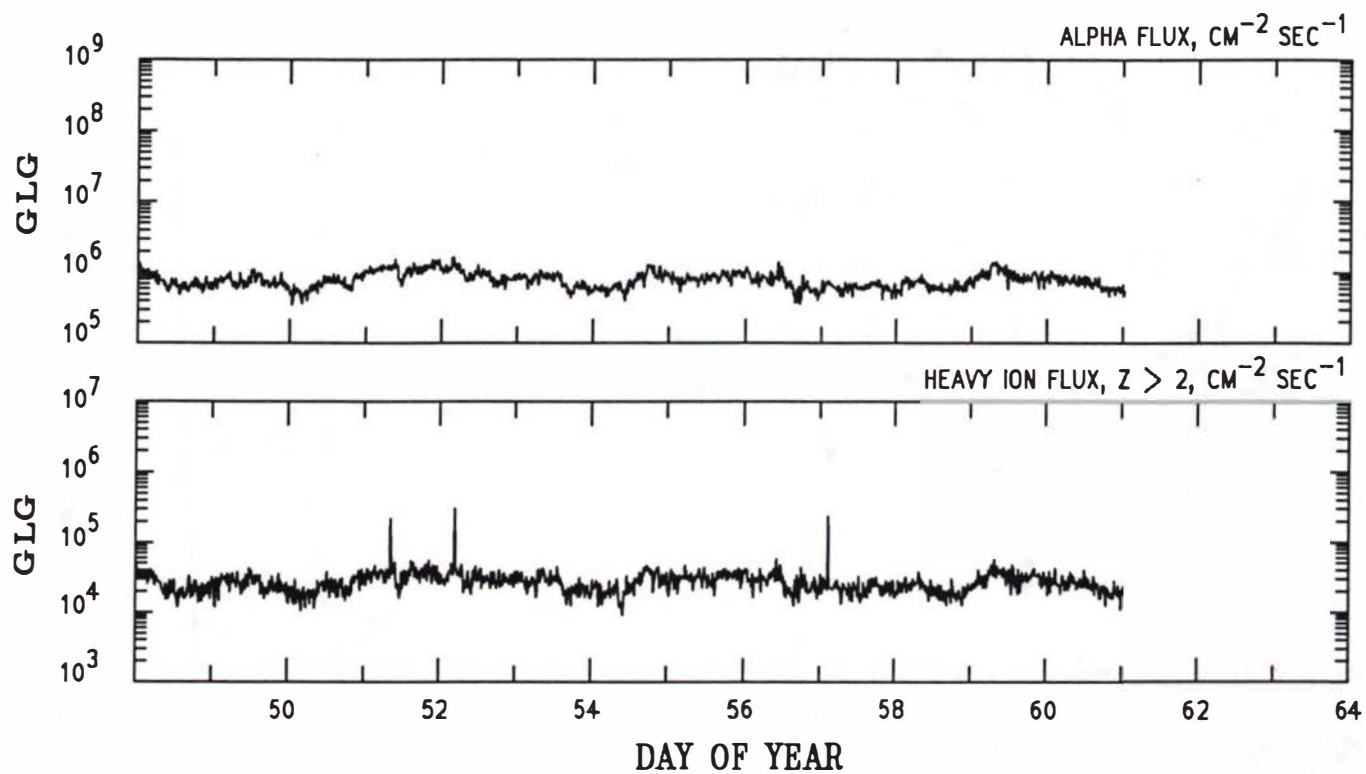
ULYSSES CDR - SOLAR WIND ION COMPOSITION

96 032 FEB 1 00:00:00.000 - 96 048 FEB 17 00:00:00.000



ULYSSES CDR - SOLAR WIND ION COMPOSITION

96 048 FEB 17 00:00:00.000 - 96 064 MAR 4 00:00:00.000



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
~033.19:10 SCET	should be	~032.13:18 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~048.17:29 SCET	should be	~047.13:45 SCET
~054.08:59 SCET	should be	~053.11:46 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~039.18:34 SCET	should be	~038.12:14 SCET

We see data gaps for each of the correct times, so it looks like your theory of AMMOS mis-correcting times when there is carry-over data on the tape is correct.

I hope this is enough information. I would have to do a bit more calculation to get the approximate ERTs. Let me know if you want them.

Best regards,

Nigel

From ulsdmt@jplsp.DNET.NASA.GOV Mon Mar 18 17:13 PST 1996
From: ulsdmt@jplsp.DNET.NASA.GOV
Date: Mon, 18 Mar 96 20:13:12 -0500
To: "khurley@sunspot.ssl.berkeley.edu"@east.DNET.NASA.GOV (SENT TO @LIST1)
Subject: Misplaced Major Frames in EDRs

Greetings,

We have identified an operations technique that produces data that will be improperly time tagged by the MGDS (telemetry system). Instances of EDR errors (major frames out of order) have been found in the CDROM archival products for December 1995 and January 1996. Errors will also be found in the still to be shipped February 1996 data.

When major frames are recorded but not transmitted during the next track, but are eventually downlinked with data from a succeeding day, the embedded SCLKs are 'assumed' to be incorrect by the frame syncer and are re-tagged with SCETs and SCLKs matching the adjacent (but newer) data.

For each major frame processed in this manner, a gap will exist, representing the time the data was actually acquired, and a major frame or realtime data, representing the time period the data now errently represents, will be replaced by the misplaced playback data.

Yes. Confusing. See the attached memo detailing the times involved.

Approximately 17 such instances are known to have occured. The total time involved is about twenty minutes. Because the data loss is small and the cost of reprocessing would be so large, the Project has determined that it would be imprudent to reprocess.

For your information, however, we included a memo from Nigel Angold which itemizes each instance.

We thank Toni Galvin and Nigel for identifying the problem and assisting in the diagnosis.

Regards,

Joe

To: <ulsdmt@jplsp.jpl.nasa.gov>
From: Nigel Angold <nangold@jplsp2.jpl.nasa.gov>
Subject: Mis-corrected S/C clocks / SCETs
Cc: chris.leech@jpl.nasa.gov

I have looked at our recent tape recorder usage and predict that you will see major frames with mis-corrected spacecraft clocks / SCETs at the following times (give or take a few minutes):

1995:

~342.22:59 SCET	should be	~341.17:47 SCET
~347.22:39 SCET	should be	~346.16:46 SCET
~350.21:54 SCET	should be	~349.16:22 SCET
~355.22:14 SCET	should be	~354.15:42 SCET
~359.14:04 SCET	should be	~359.05:36 SCET
~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

From WOODSP@SSLLES.MSFC.NASA.GOV Mon Feb 5 09:46 PST 1996
Date: Mon, 5 Feb 1996 11:45:53 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4701

BATSEARCH PROGRAM

RT

BATSE BURST # 4701
EVENT OF 1996 FEB 1 DAY OF YEAR= 32
EVENT CROSSING TIME AT BATSE : 78523. S. OR 21:48:43.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 358.000 15.000
BATSE PEAK COUNTING RATE: 21500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 1/ 2/ 96 IS:
RA= 220.532 DEC= 68.632 DIST= 2.817 AU
BATSE-ULYSSES DISTANCE = 421420833. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 88.95 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 25.75 SECS.
CROSSING TIME AT ULYSSES IS 78549. S. OR 21:49:08 +/- 294.40 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 1/ 2/ 96 IS:
RA= 321.323 DEC= -16.300 DIST= 2.356 AU
MARS-BATSE DISTANCE = 352459520. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=132.14 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -788.77 SECS.
CROSSING TIME AT MARS IS 77734. S. OR 21:35:34 +/- 139.38 SECONDS

BATSE BURST TRIGGER

NO.: 4701

TIME: TJD=0114 SECONDS=78523

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=160.4 AZIMUTH=63.4 ERROR=0.3 DEGREES

COMMENTS:

GRB LASTING 110 SEC. MULTIPLE EPISODES. VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4701	960201	10114	78523	21500	358	+15	110

RT data files which may contain ~ 0.5 s timing error because they follow a trigger

2 hour time range from beginning of burst that extract falls in: DATA USED ?

b02:0126	extract	beg time:0244	e91270_2A1_02.73_02.84.ascii.Z	N
b03:0219	extract	beg time:0244	e91270_2A1_02.73_02.84.ascii.Z	N
b01:0121	extract	beg time:0310	e91360_2A1_03.16_03.37.ascii.Z	N
0:0932	extract	beg time:1025	e92010_2A1_10.42_10.48.ascii.Z	Y (TRIGGER)
01:0845	extract	beg time:1015	e92058_2A1_10.25_10.75.ascii.Z	N
b01:0609	extract	beg time:0723	e92111_2A1_07.38_07.54.ascii.Z	N
b01:0629	extract	beg time:0634	e92174_2A1_06.57_06.87.ascii.Z	N
b01:0541	extract	beg time:0549	e92190_2A1_5.76_5.90.ascii.Z	Y (SAR 1300)
b02:2032	extract	beg time:2058	e92205_2A1_20.97_22.66.ascii.Z	Y (TRIGGER)
b01:1202	extract	beg time:1240	e92209_2A1_12.67_12.85.ascii.Z	N
b01:1717	extract	beg time:1831	e92213_2A1_18.51_18.82.ascii.Z	N
b01:1142	extract	beg time:1301	e92303_2A1_13.02_13.28.ascii	Y
b03:0736	extract	beg time:0844	q92313_2A1_8.70_8.96.ascii.Z	N
b03:0736	extract	beg time:0844	e92313_2A1_08.74_09.02.ascii.Z	N
b14:1730	extract	beg time:1905	q92314_2A1_19.08_19.30.ascii.Z	N
b15:1825	extract	beg time:1905	q92314_2A1_19.08_19.30.ascii.Z	N
b02:0156	extract	beg time:0344	e92315_2A1_3.10_3.36.ascii.Z	N
b03:0322	extract	beg time:0344	e92315_2A1_3.10_3.36.ascii.Z	N
b06:0819	extract	beg time:0844	e92315_2A1_8.71_8.85.ascii.Z	N
b08:1211	extract	beg time:1340	e92315_2A1_13.66_13.96.ascii.Z	N
b08:1211	extract	beg time:1344	e92315_2A1_13.74_14.03.ascii.Z	N
b02:0600	extract	beg time:0644	e92316_2A1_6.76_7.04.ascii.Z	N
b02:0135	extract	beg time:0329	e93012_2A1_3.50_3.72.ascii.Z	Y
b03:0227	extract	beg time:0329	e93012_2A1_3.50_3.72.ascii.Z	Y
b04:0315	extract	beg time:0329	e93012_2A1_3.50_3.72.ascii.Z	Y
b01:1105	extract	beg time:1150	q93077_2A1_11.83_12.05.ascii.Z	Y
b01:0745	extract	beg time:0756	q93096_2A1_7.71_7.85.ascii.Z	Y (TRIGGER)
b01:0745	extract	beg time:0856	q93096_2A1_8.40_8.50.ascii.Z	N
01:1445	extract	beg time:1530	e93126_2A1_15.50_15.65.ascii.Z	N
01:1445	extract	beg time:1548	e93126_2A1_15.80_15.95.ascii.Z	N
b01:0334	extract	beg time:0434	e93265_2A1_04.56_04.64.ascii.Z	N
b01:0900	extract	beg time:0943	e93272_2A1_09.71_09.98.ascii.Z	Y (SAR 1806)
b01:1654	extract	beg time:1707	e93287_2A1_17.11_17.37.ascii.Z	Y
b01:2215	extract	beg time:2240	e93294_2A1_22.67_22.85.ascii.Z	N
b01:0824	extract	beg time:0840	e93303_2A1_08.66_08.81.ascii.Z	N
b01:0352	extract	beg time:0510	e93318_2A1_05.17_05.42.ascii.Z	N
b01:0641	extract	beg time:0824	e93340_2A1_08.40_08.61.ascii.Z	N
b02:0602	extract	beg time:0733	e94026_2A1_07.55_07.71.ascii.Z	N
b05:1140	extract	beg time:1240	e94044_2A1_12.66_12.76.ascii.Z	Y
b01:0204	extract	beg time:0326	e94047_2A1_03.44_03.62.ascii.Z	N
b01:0113	extract	beg time:0124	e94049_2A1_01.40_02.50.ascii.Z	N
b03:1943	extract	beg time:2123	e94058_2A1_21.38_21.49.ascii.Z	N
b01:0346	extract	beg time:0505	e94061_2A1_05.08_05.25.ascii.Z	Y (Trigger; but RT data probably used)
b01:0047	extract	beg time:0128	e94062_2A1_01.47_01.63.ascii.Z	N
b01:2113	extract	beg time:2142	e94202_2A1_21.70_21.98.ascii.Z	N
b01:2113	extract	beg time:2144	e94202_2A1_21.74_22.14.ascii.Z	N
b01:1047	extract	beg time:1143	e94242_2A1_11.71_11.86.ascii.Z	N
b01:0647	extract	beg time:0728	e94298_2A1_07.47_07.51.ascii.Z	N
b01:0128	extract	beg time:0241	e94299_2A1_02.68_02.80.ascii.Z	Y
b09:1148	extract	beg time:1348	e94321_2A1_13.80_14.47.ascii.Z	N
b10:1238	extract	beg time:1348	e94321_2A1_13.80_14.47.ascii.Z	N
b11:1328	extract	beg time:1348	e94321_2A1_13.80_14.47.ascii.Z	N
b01:1952	extract	beg time:2040	e94326_2A1_20.66_20.78.ascii.Z	N
b01:0223	extract	beg time:0406	e95042_2A1_04.10_04.76.ascii.Z	N
01:0640	extract	beg time:0740	e95072_2A1_07.67_07.81.ascii.Z	N
01:0144	extract	beg time:0158	e95216_2A1_01.96_02.09.ascii.Z	Y (Trigger)
b02:1628	extract	beg time:1718	e95339_2A1_17.30_17.45.ascii.Z	N
b03:1718	extract	beg time:1718	e95339_2A1_17.30_17.45.ascii.Z	N
b01:1124	extract	beg time:1205	e95362_2A1_12.09_12.87.ascii.Z	N

b04:1343	extract	beg	time:1540	e95362_2A1_15.67_15.84.ascii.Z	Y
b04:1343	extract	beg	time:1541	e95362_2A1_15.69_15.85.ascii.Z	Y
b05:1516	extract	beg	time:1540	e95362_2A1_15.67_15.84.ascii.Z	Y
b05:1516	extract	beg	time:1541	e95362_2A1_15.69_15.85.ascii.Z	Y
b01:0053	extract	beg	time:0251	e96002_2A1_02.85_03.62.ascii	Z
b02:0216	extract	beg	time:0251	e96002_2A1_02.85_03.62.ascii	Z
b20:1956	extract	beg	time:2041	e96002_2A1_20.68_20.76.ascii	Z
b20:1956	extract	beg	time:2041	e96002_2A1_20.69_20.76.ascii	Z
b02:0128	extract	beg	time:0305	e96004_2A1_03.09_03.87.ascii.Z	Z
b03:0235	extract	beg	time:0305	e96004_2A1_03.09_03.87.ascii.Z	Z
b05:1621	extract	beg	time:1656	e96006_2A1_16.93_17.08.ascii.Z	Z
b01:0116	extract	beg	time:0150	e96007_2A1_01.84_01.95.ascii	Z
b01:0116	extract	beg	time:0152	e96007_2A1_01.87_01.99.ascii	Z
b01:1819	extract	beg	time:1935	e96028_2A1_19.59_19.87.ascii.Z	Y
b01:0208	extract	beg	time:0233	e96030_2A1_02.55_02.66.ascii.Z	Y
b01:0208	extract	beg	time:0235	e96030_2A1_02.58_02.73.ascii.Z	Y
b01:0208	extract	beg	time:0235	e96030_2A1_02.59_02.73.ascii.Z	Y
b01:0849	extract	beg	time:0949	qp96032_2A1_09.81_09.94.ascii.Z	Y
b02:2011	extract	beg	time:2144	qp96032_2A1_21.74_21.90.ascii.Z	Y
b01:1929	extract	beg	time:2049	qp96051_2A1_20.82_20.85.ascii.Z	N
b01:1929	extract	beg	time:2049	qp96051_2A1_20.82_20.86.ascii.Z	N
b01:1529	extract	beg	time:1719	qp96094_2A1_17.32_17.48.ascii.Z	N
b01:1529	extract	beg	time:1722	qp96094_2A1_17.36_17.52.ascii.Z	N
b01:1652	extract	beg	time:1752	qp96168_2A1_17.87_17.97.ascii.Z	N
b01:1652	extract	beg	time:1755	qp96168_2A1_17.91_18.05.ascii.Z	N

(GR 1744? - MAYBE USED FOR NETSYN?)

"	"	"
"	"	"
"	"	"

* No error in these files

From cline@apache.gsfc.nasa.gov Wed Nov 20 14:32 PST 1996
 Date: Wed, 20 Nov 1996 14:32:12 -0800
 Mime-Version: 1.0
 To: KHURLEY@sunspot.ssl.berkeley.edu
 m: cline@apache.gsfc.nasa.gov (T L Cline)
 Subject: Search for (Konus mini-network) 3-sc triggers

Dear Kevin,

I'm sorry to report that the May 1996 mail from you was a list only to January 1996. If you have another later list, don't go to the trouble of plowing thru all this; I'll do it if you can e-mail/fax something. Thanks.

 SEARCH FOR 3-SC TRIGGERS ONLY -- Konus-W / Ulysses / BATSE or Konus-A

DATE	Konus-W Sensor		Max counts			N(S1)/N(S2)		Duration		Trigger #	
	(UT)		G1	G2	G3	in G2		T<T0	T>T0	KW#	BATSE/KA
94 11 21	62700.945	S1	1652	1656	300	21		3	50	6	3290
94 11 26	44557.952	S1	860	1430	330	4.2		40	45	8	3298
95 2 8	07824.432	S2	1144	1824	670	0.02		1	60	45	3408
95 2 10	08424.148	S1	1350	3900	700	3.2		0.04	0.16	47	3410
95 2 11	08697.749	S2	2750	11630	6560	<0.06		0.03	0.14	48	3412
95 2 11	72469.074	S1	1170	1570	460	60		12	60	50	3415
95 3 25	25841.574	S2	345	1460	1570	0.2		1	230	63	3480
95 3 25	63392.815	S1	1320	2710	900	3.2		1	43	64	3481
95 4 3	47985.179	S1	1030	2840	800	1.0		1	15	71	3491
95 4 3	84828.194	S2	4650	10000	4700	0.06		0.5	60	72	3492
95 4 25	00923.718	S1	1200	2780	1820	4.2		0.5	65	86	3523
95 5 3	66971.838	S1	1140	4200	3140	1.9		0.2	115	88	3537
95 5 13	81706.917	S1	720	1360	520	10		1	30	93	3571
95 7 1	12762.114	S1	340	1400	580	1.3		1	30	116	3657
95 7 1	23737.604	S2	570	1600	700	0.05		1	11	117	3658
95 8 4	07135.704	S2	3000	6650	3340	<0.03		0.2	3.5	131	3734
95 8 18	05065.640	S2	1960	4100	1350	0.05		60	50	137	3765
95 8 22	13751.048	S1	6070	12000	3770	9		0.4	60	140	3767
95 10 16	02484.285	S1	1960	1950	560	5		0.2	7	162	3870
95 12 3	03988.180	S2	260	720	420	0.85		1	16	196	3930
95 12 27	23005.042	S1	420	1200	320	1		1	1.5	218	??? NO
96 1 11	46524.530	S2	1130	1280	190	0.2		0.5	6	222	4312
96 1 13	56024.261	S2	500	450	50	0.3		2	36	228	??? NO
96 1 14	44104.737	S1	4900	7200	1400	1.8		1	60	233	4368, KA

(ABOVE, ALL ARE ULYSSES TRIGGERS - ALL BUT 2 ARE CONFIRMED BATSE TRIGGERS)

 (BELOW, ULYSSES TRIGGERS INCOMPLETE, BUT KNOWN ULYSSES RI'S ARE DELETED:)

BATSE

95 12 31	20231.668	S2	180	320	150	0.07		9	65	219	Search	
96 1 2	11650.996	S1	140	300	80	1		1	0.2	220	NO	
96 1 19	45226.016	S2	210	460	190	0.2		6	85	237	Search	
96 1 30	08756.848	S1	100	470	340	3		0.5	0.2	240	NO	4660
96 2 1	78530.582	S2	400	770	230	0.34		12	70	241	RI KA	4701
96 2 2	50750.813	S1	390	430	180	5		0.5	8	242	RI	4710
96 2 5	34499.021	S1	100	240	80	>15		7	250	243	RI	4745
96 2 6	17898.732	S1	120	520	260	1.05		1	36	244	Trig	4757
96 2 7	65075.063	S2	210	780	200	0.13		32	12	245	Search	NO
96 2 10	35198.959	S2	220	550	360	<0.1		0.5	2	247	RI	4814
96 2 28	85760.241	S1	2360	7360	3350	4.3		0.1	2.5	249	Trig	NO

Helio corr removed

Date: *Mar 5 '98*

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. PVO Data

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

- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

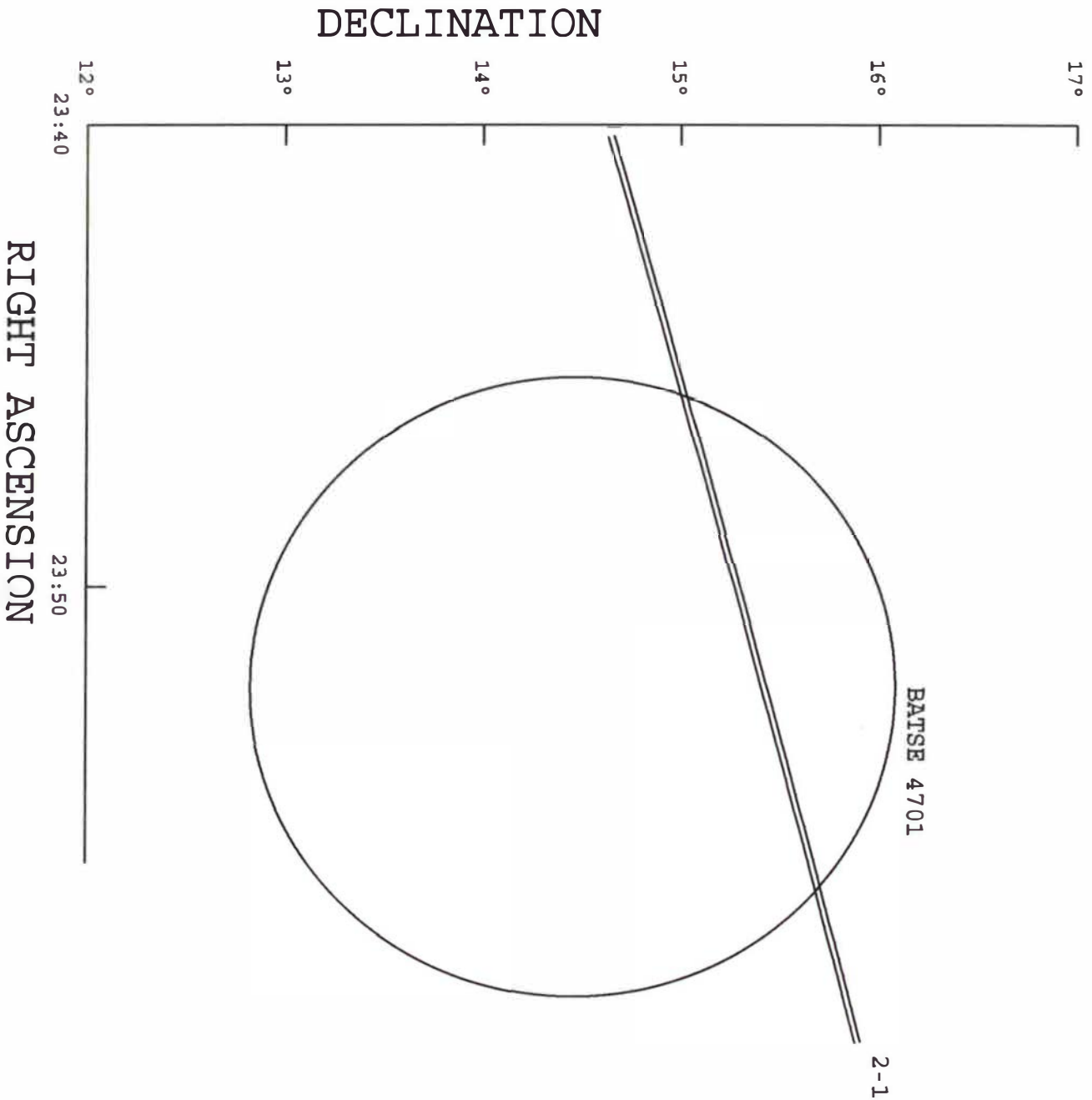
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 1, 1996 21:48

5 / 3/98



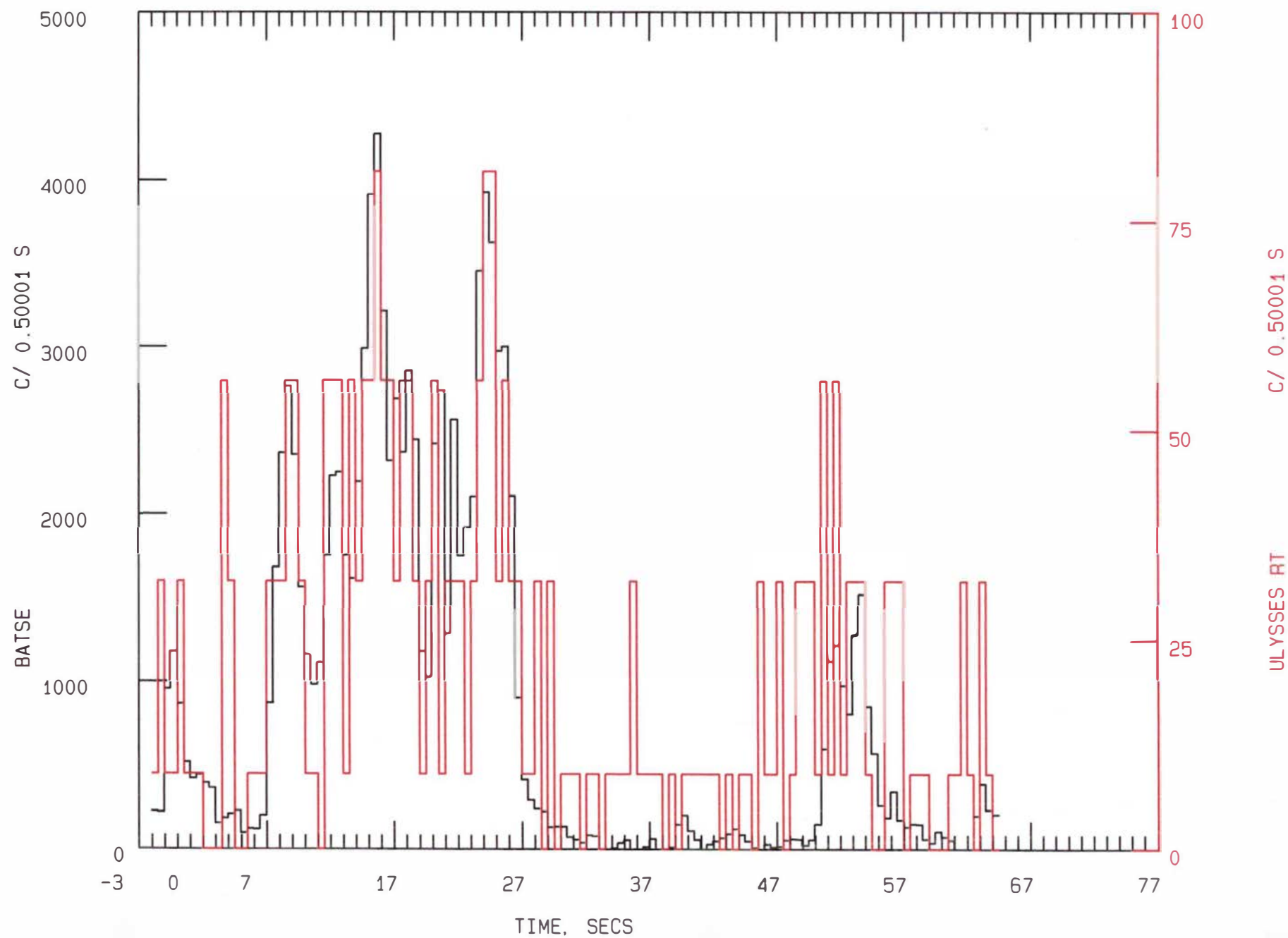
BATSE

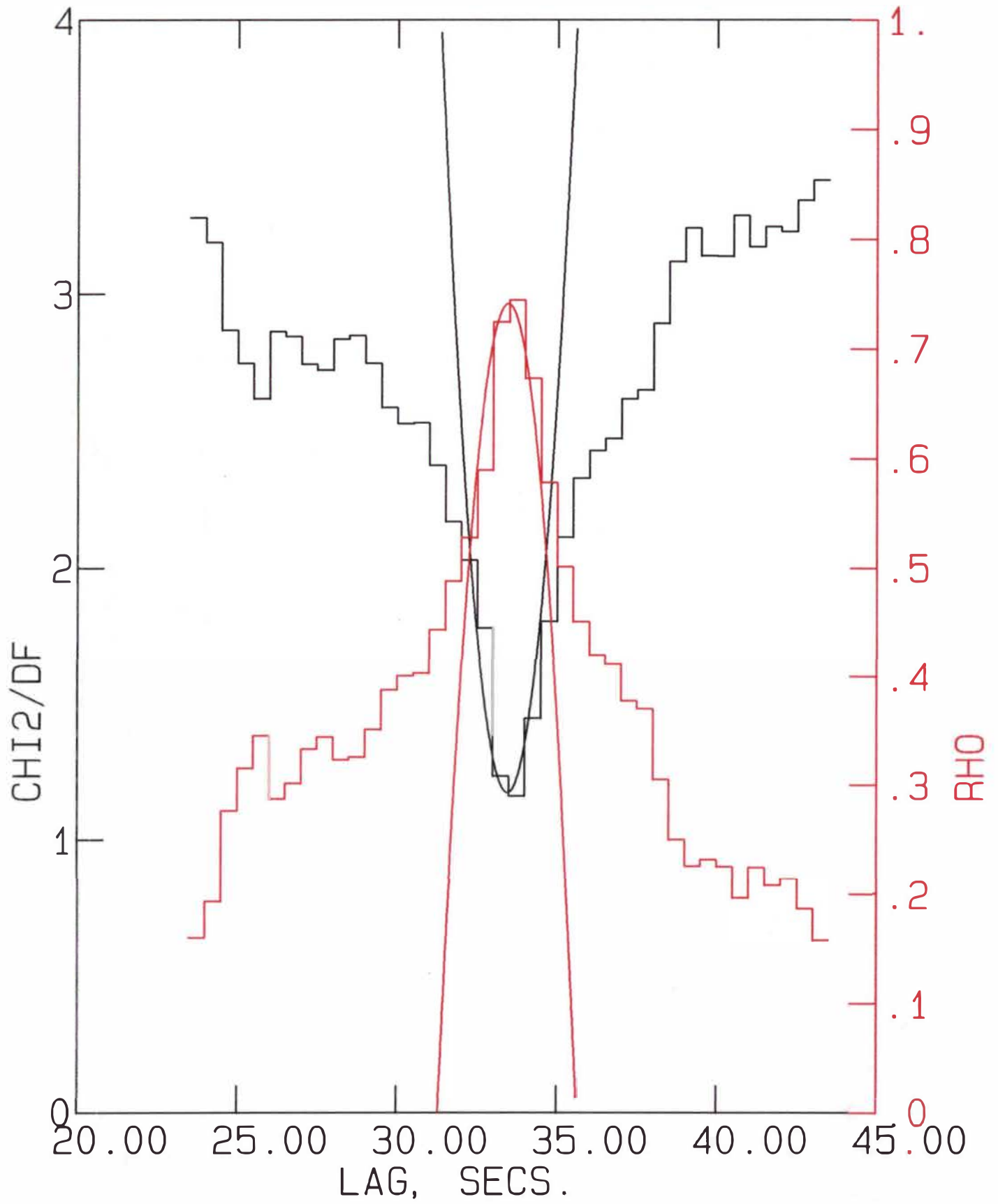
-ULYSSES RT CORRELATION

1/ 2/96

78523.338

5/ 3/98





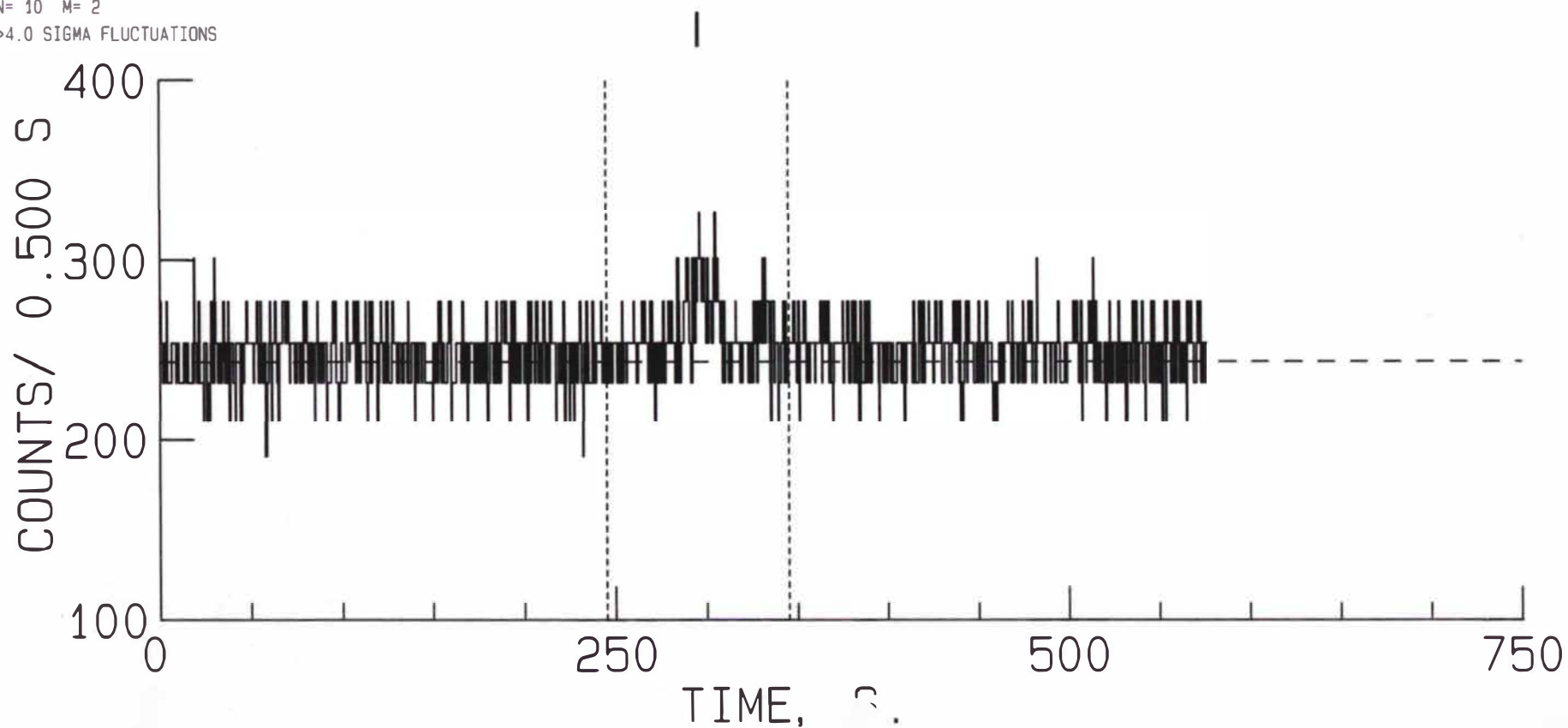
ULYSSES RT

5 / 3 / 98

1 / 2 / 96 78264.077 s

21- 144 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



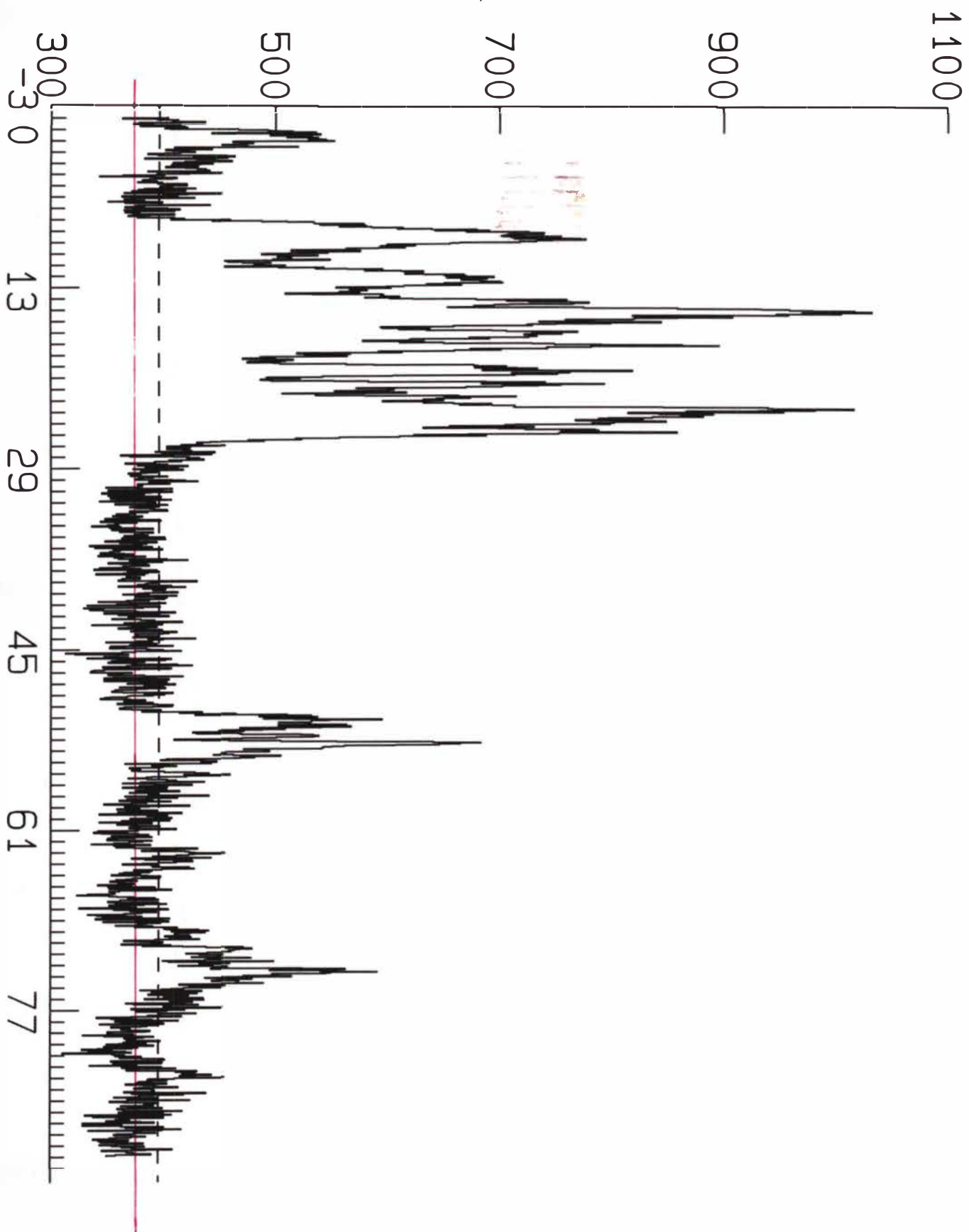
BATSE

01/02/96

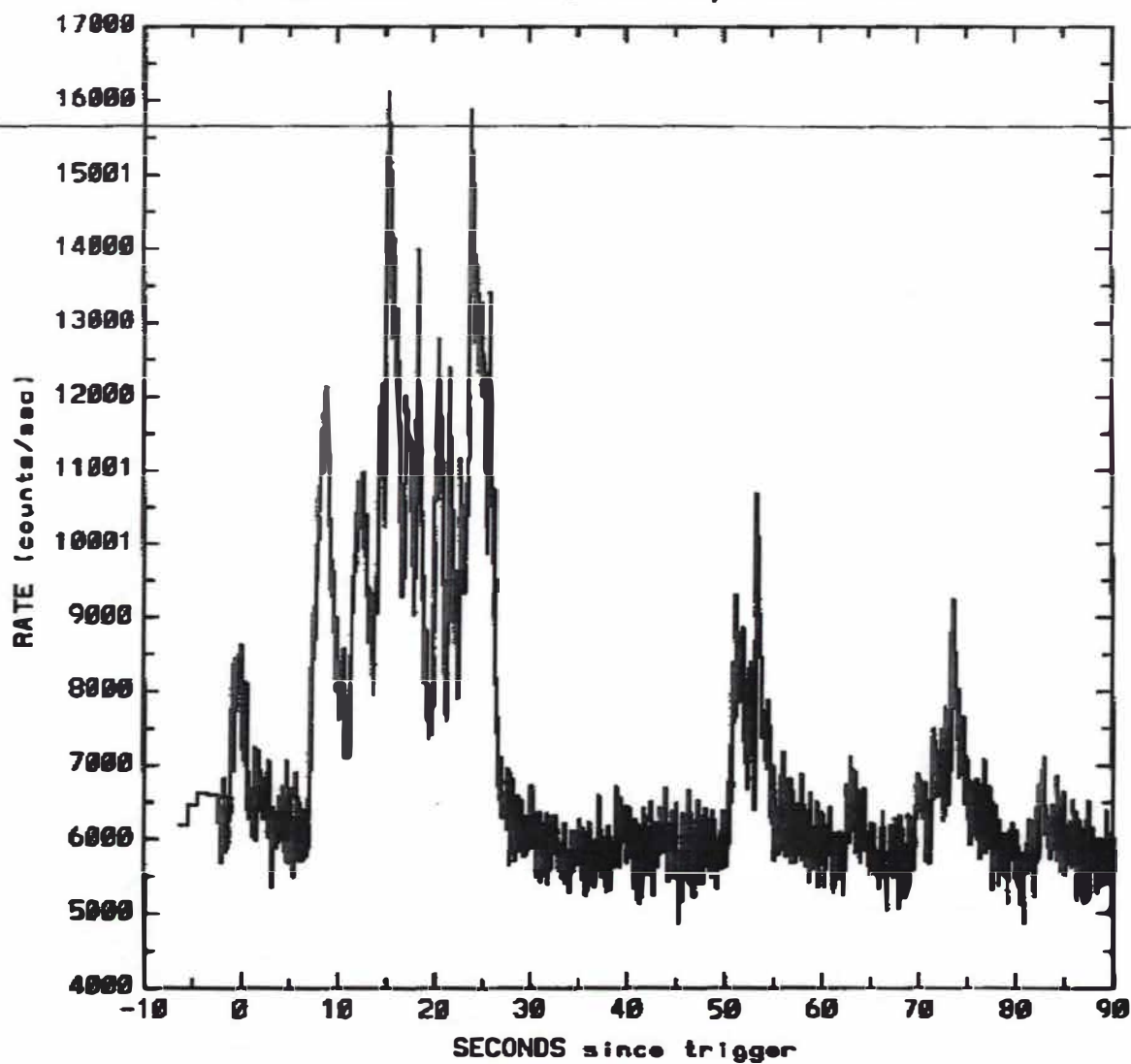
78523.338

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 4701



8-FEB-1996 10:10:26

Created by MOPS BD
(Burst Display)
Version 12.25

Trigger # : 4701

Trigger Time:
10114 / 70523.330Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors [7..0]:
--5--1-Discriminators:
(1 . 2)Quality Mask:
BOTSP1

Date: June 27 2003

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. NEAR Data

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

- ☒ ~~ACCESS~~ database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

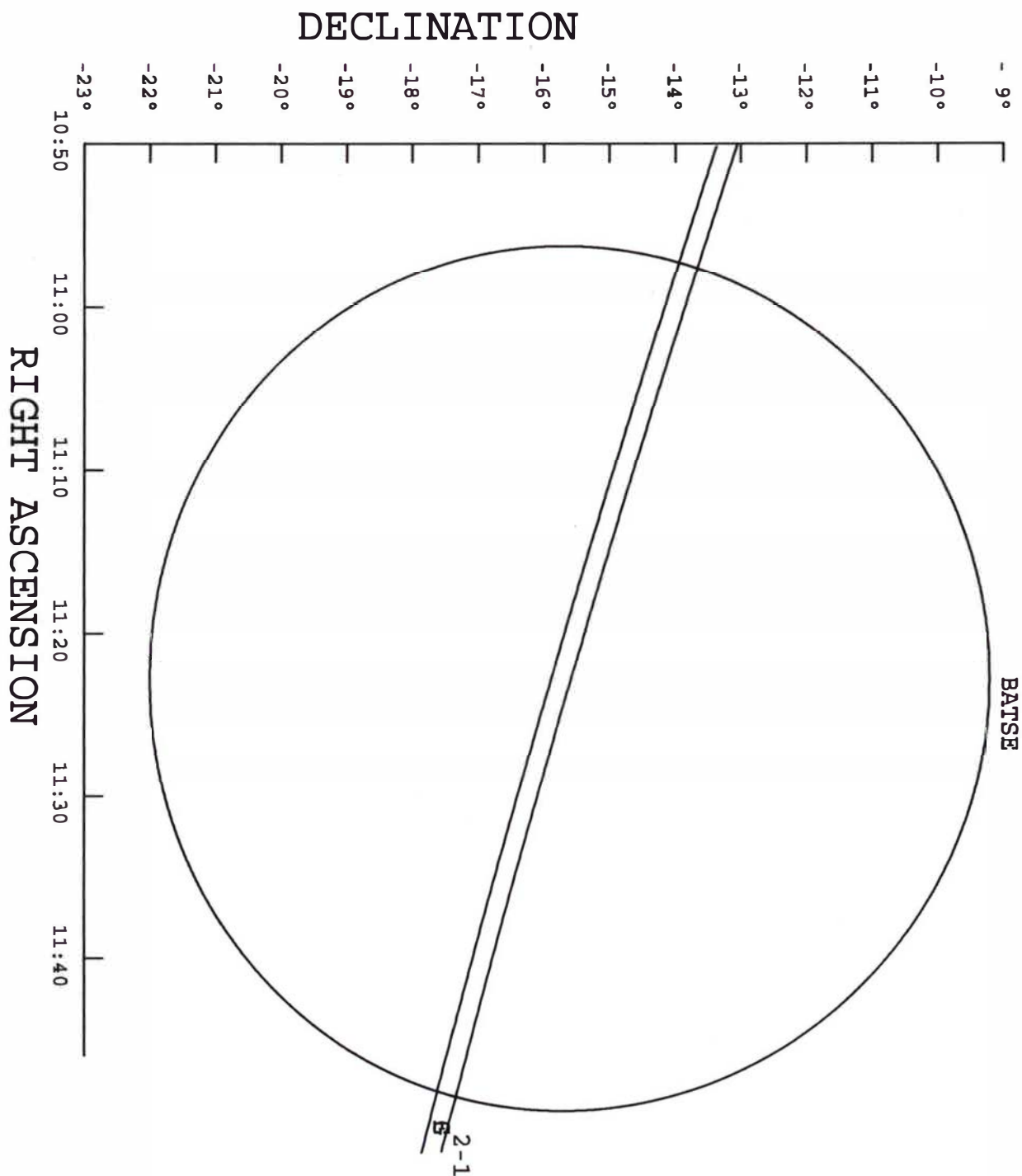
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

EVENT OF FEB 1, 1996 22:49

27 / 6 / 3



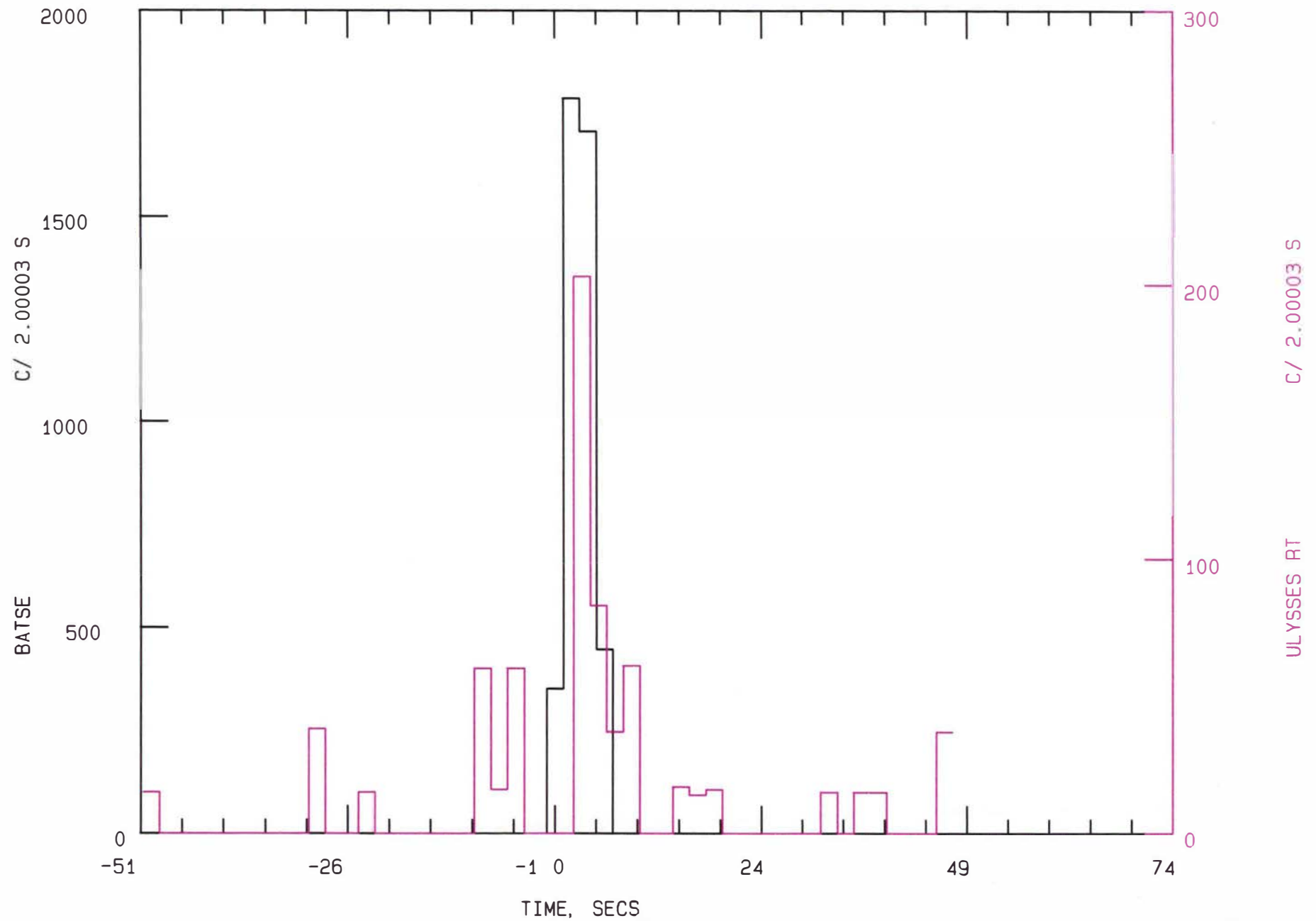
BATSE

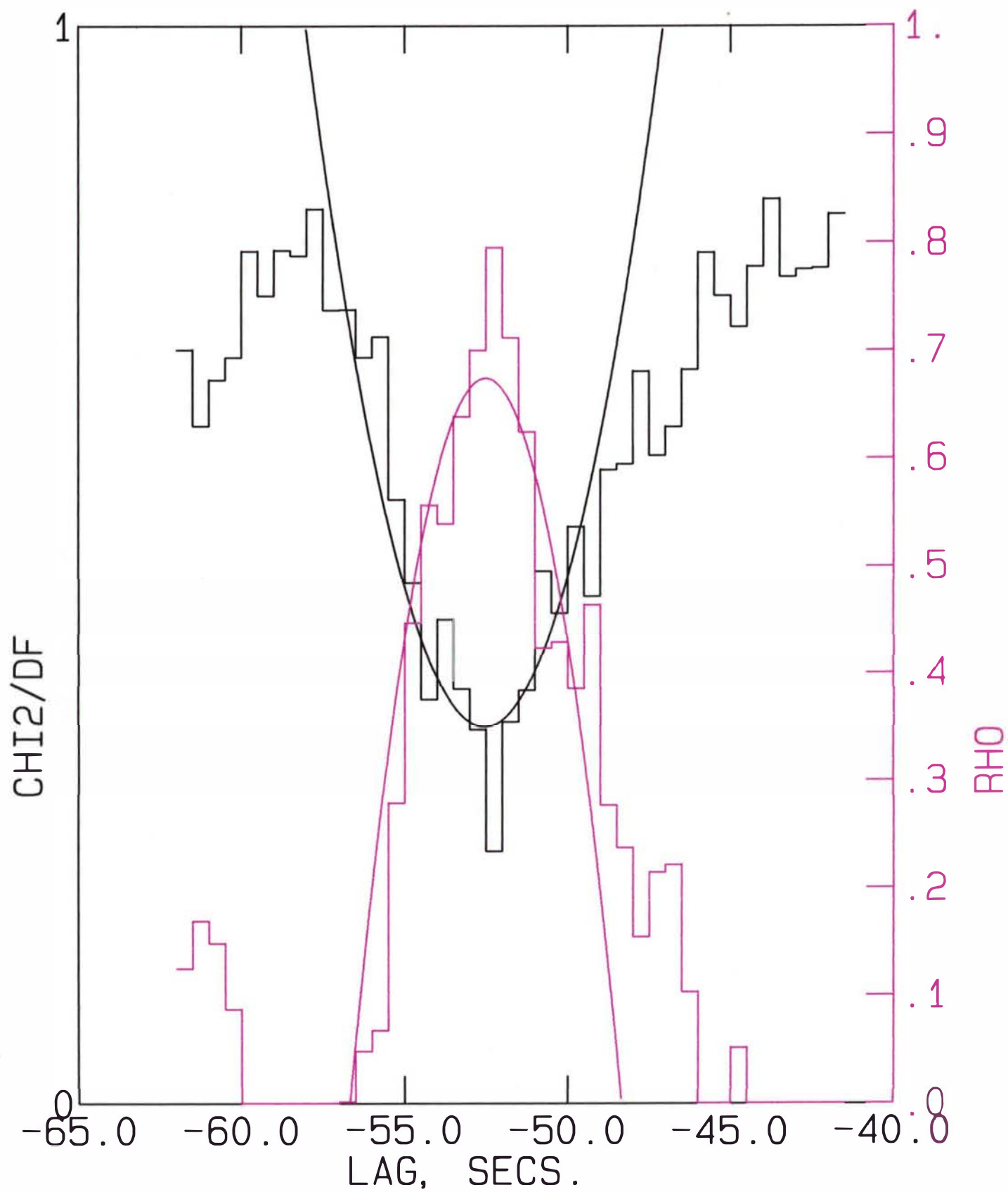
-ULYSSES RT CORRELATION

01/02/96

82194.634

27/ 6/ 3





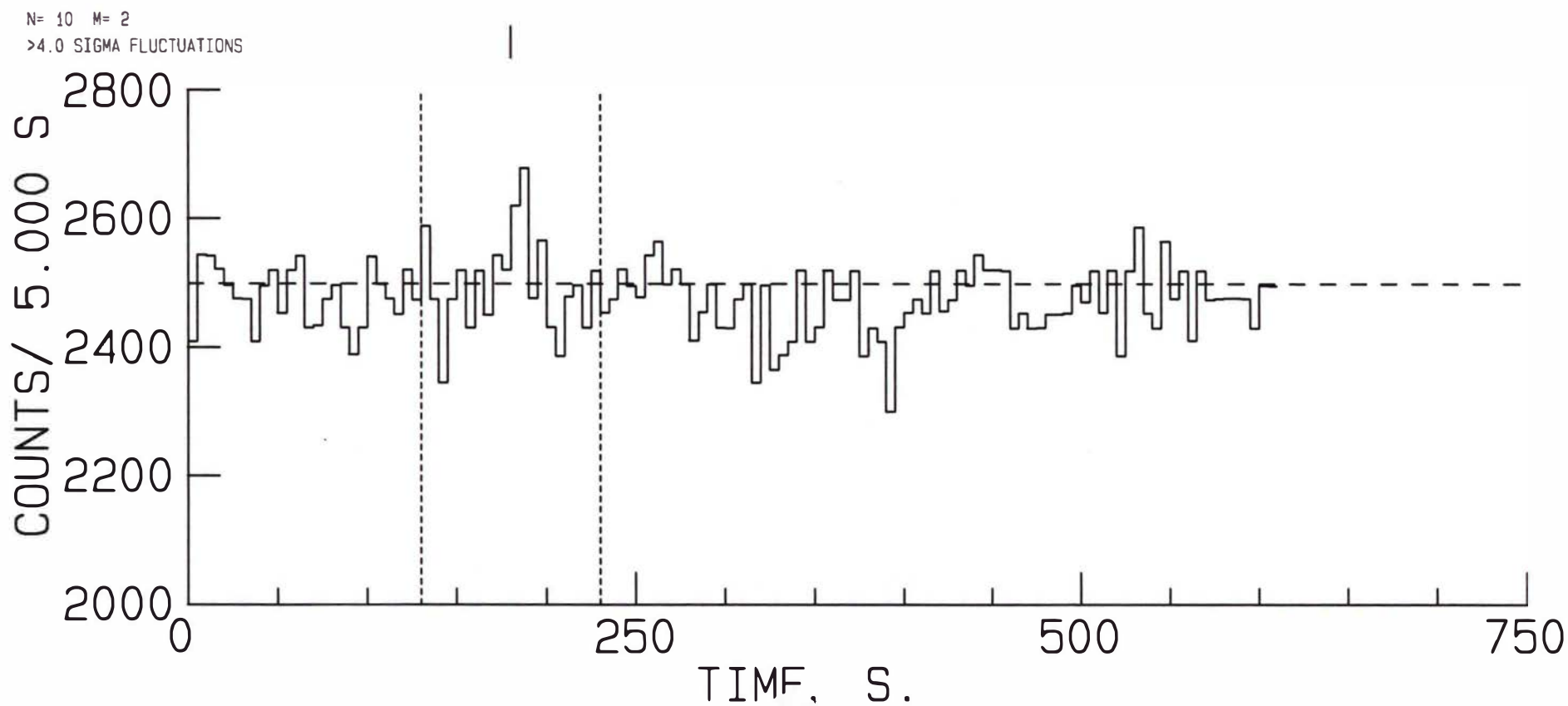
ULYSSES RT

27 / 6 / 3

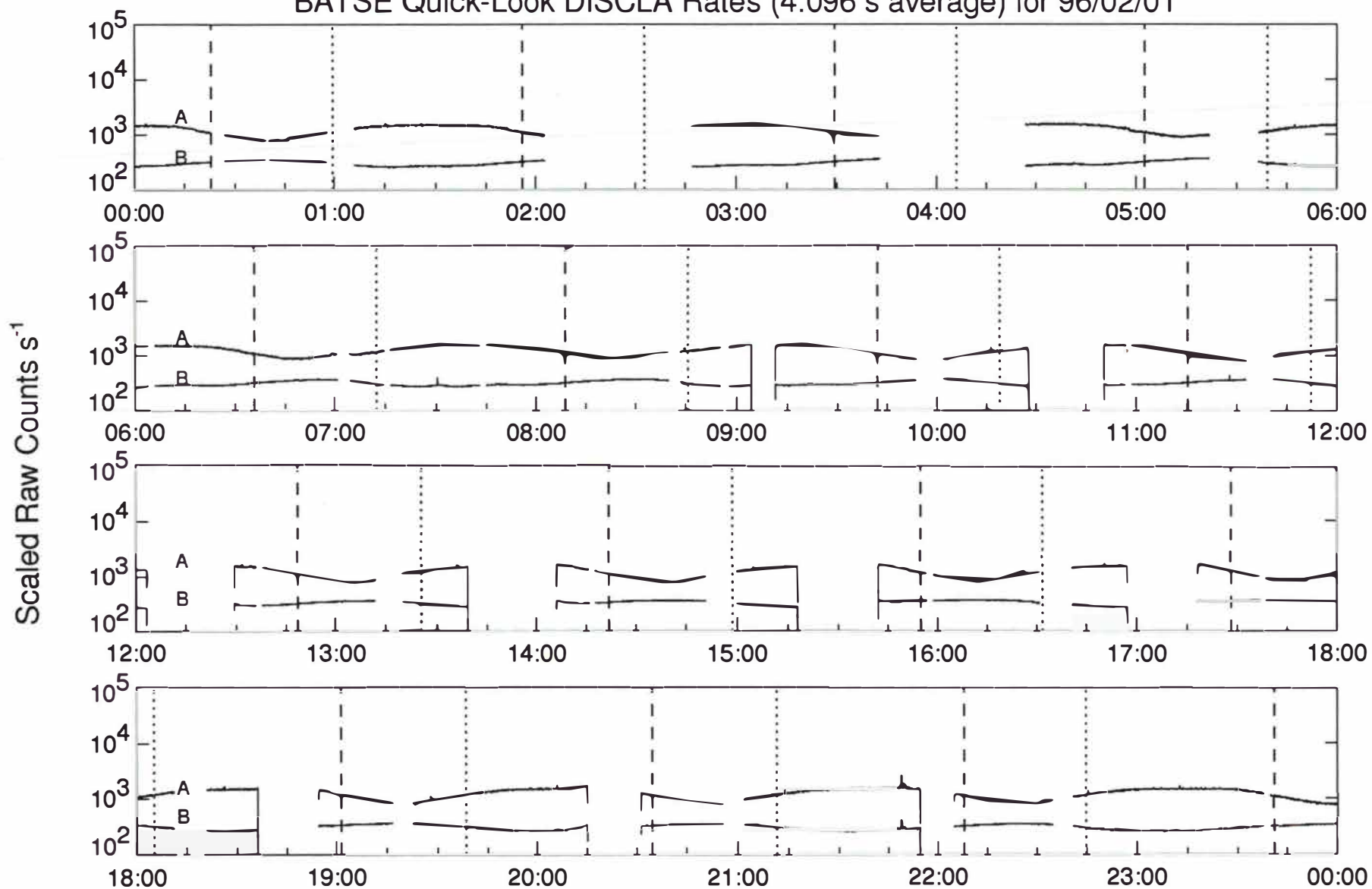
1 / 2 / 96 82044.133 s

0.500 S INTERVALS REGROUPED BY 10

21- 145 keV



BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/01

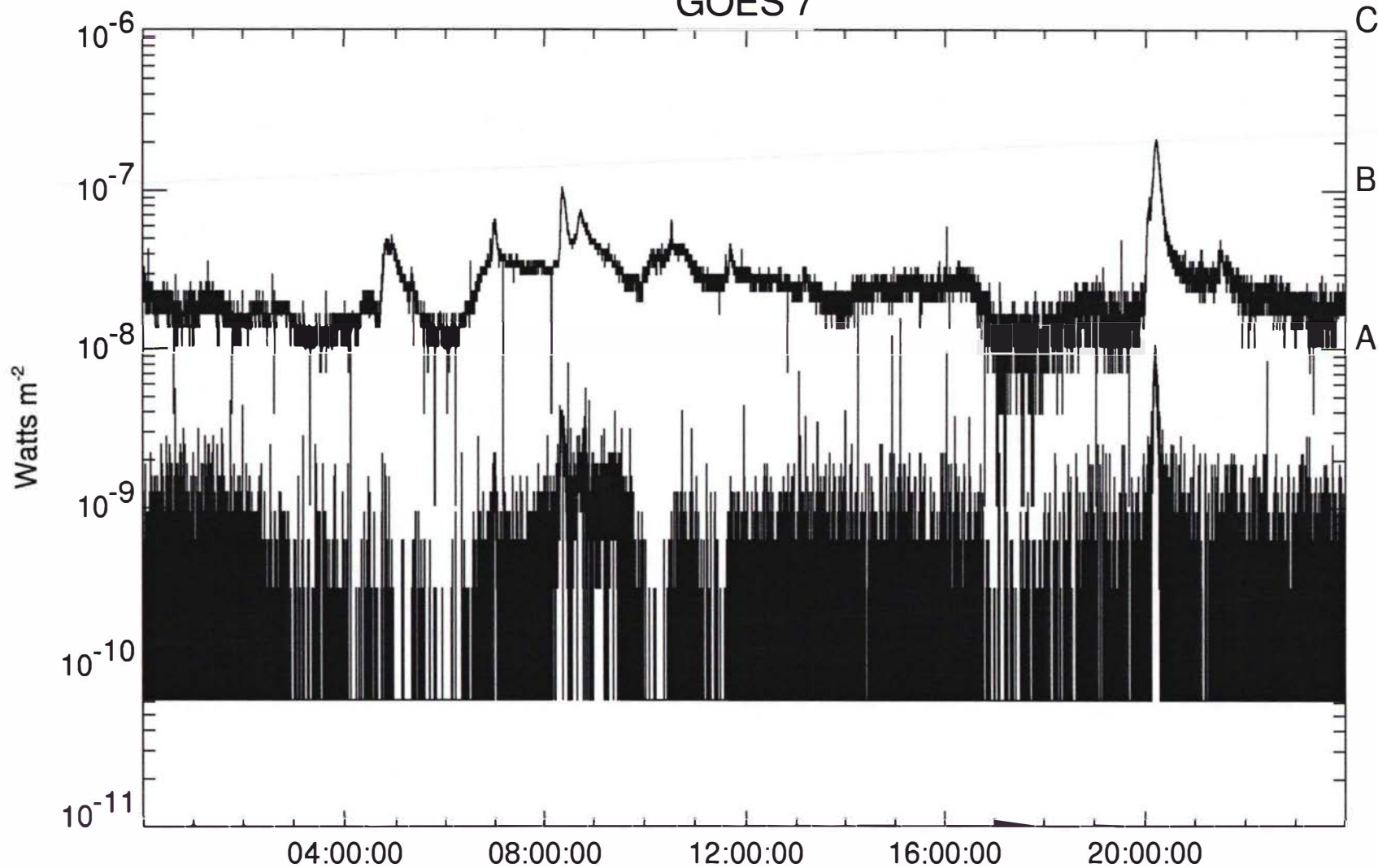


Current Time: 96/02/05, 1511 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 7



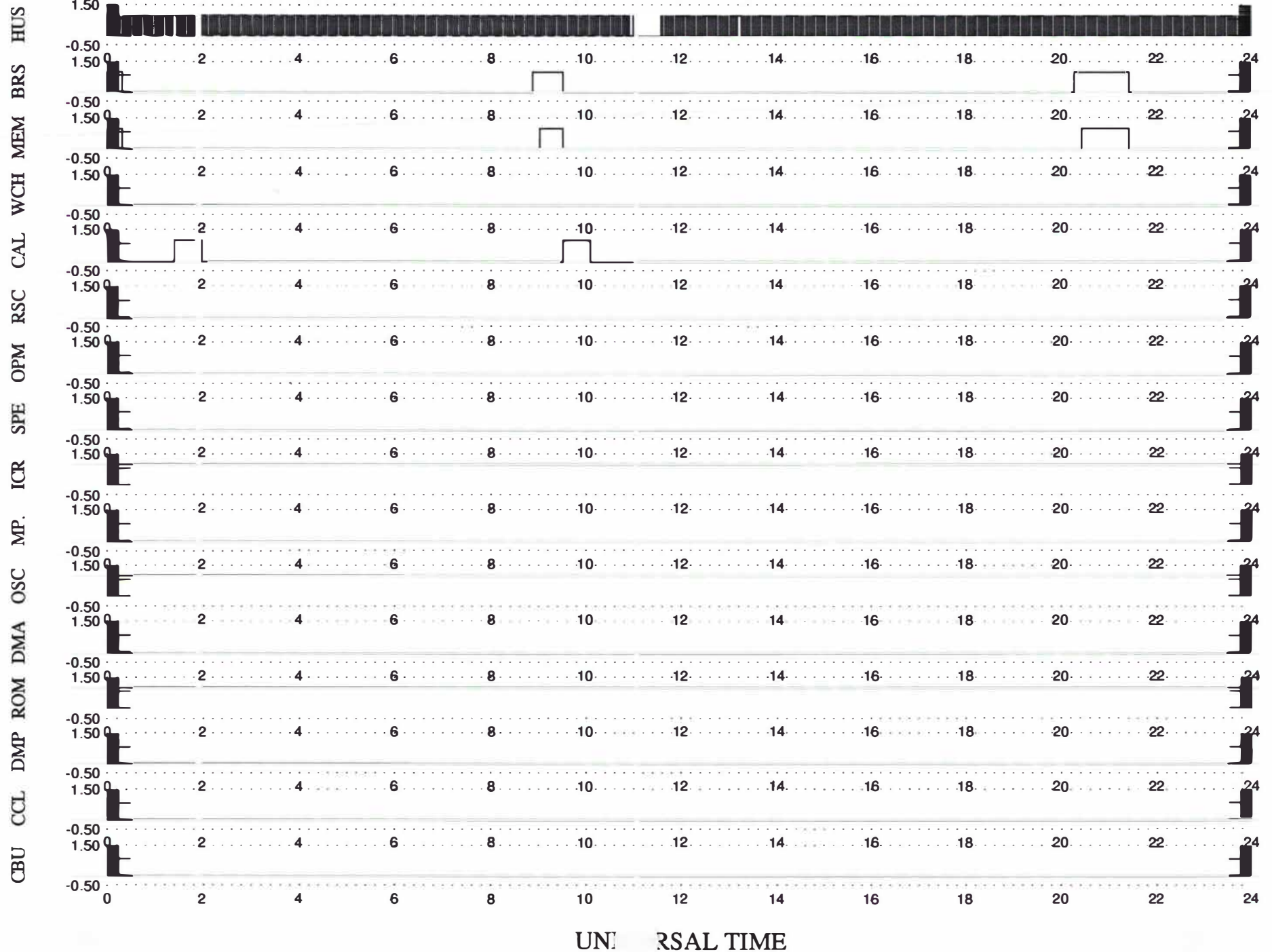
Data Start: 96/02/02, 0000:00

Plot created: 96/02/04, 0654

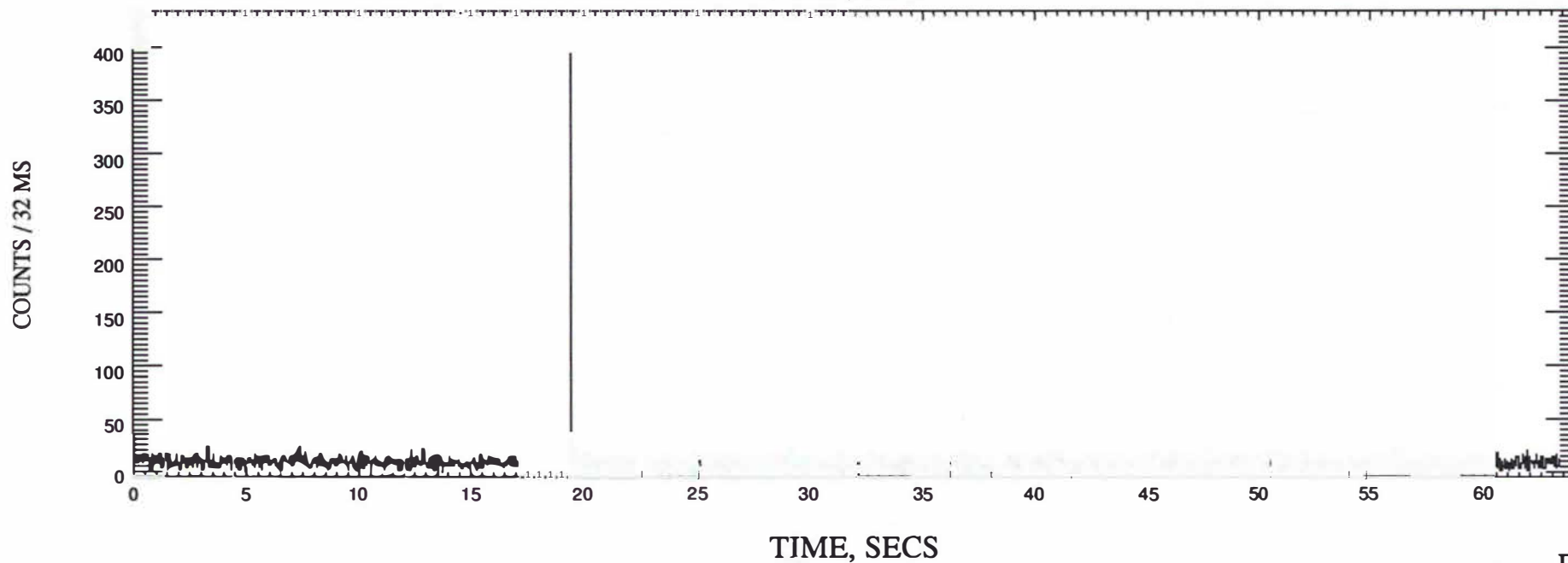
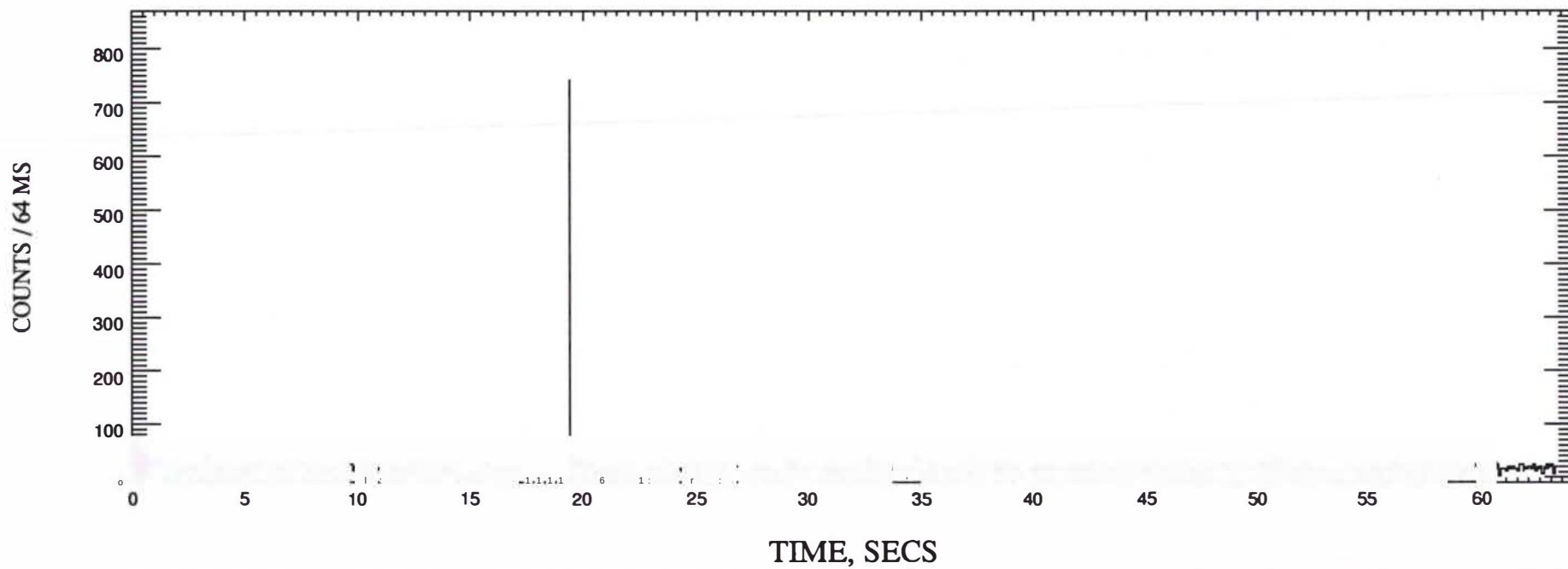
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted

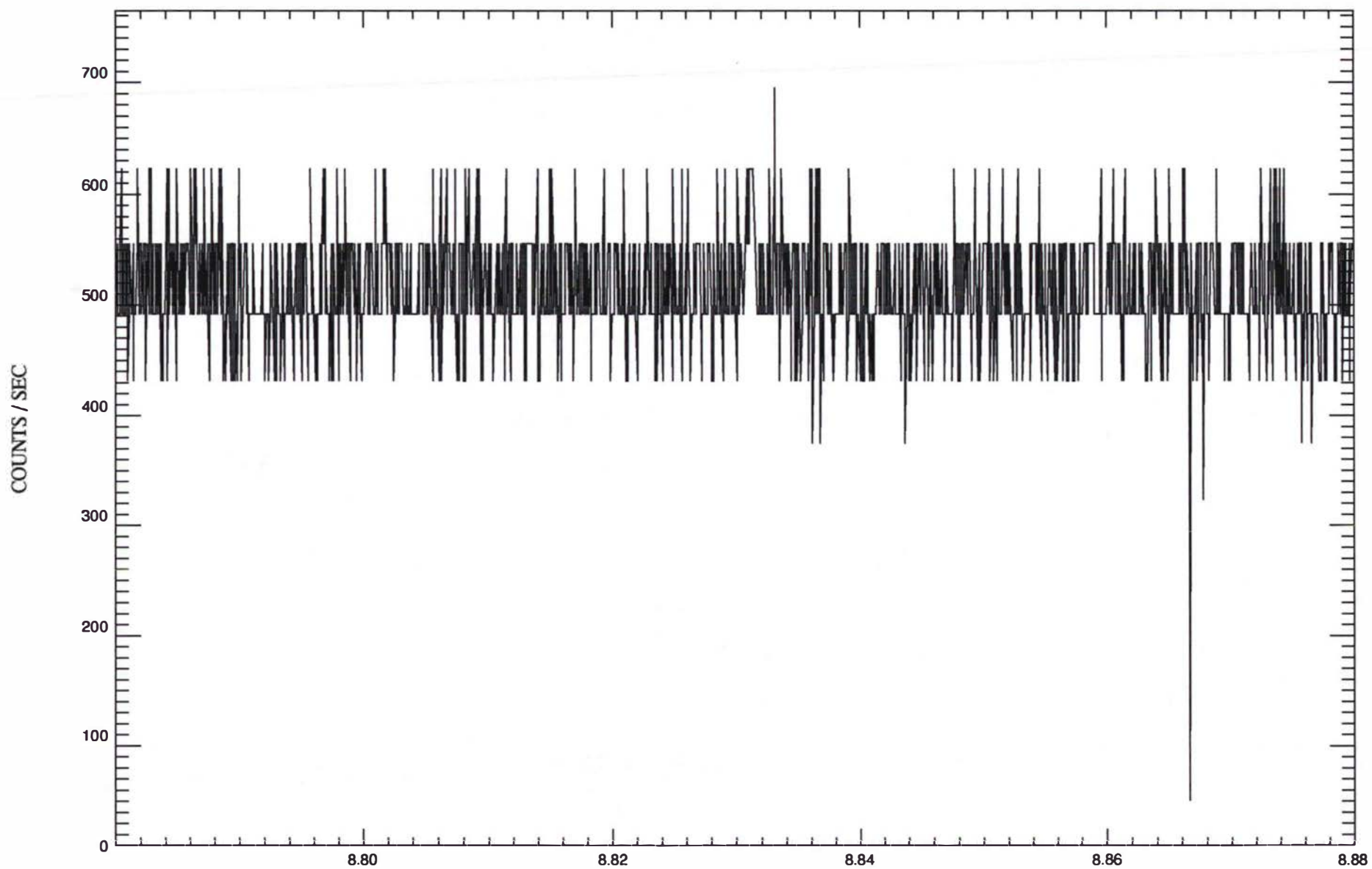
BURST NUMBER 1, 2



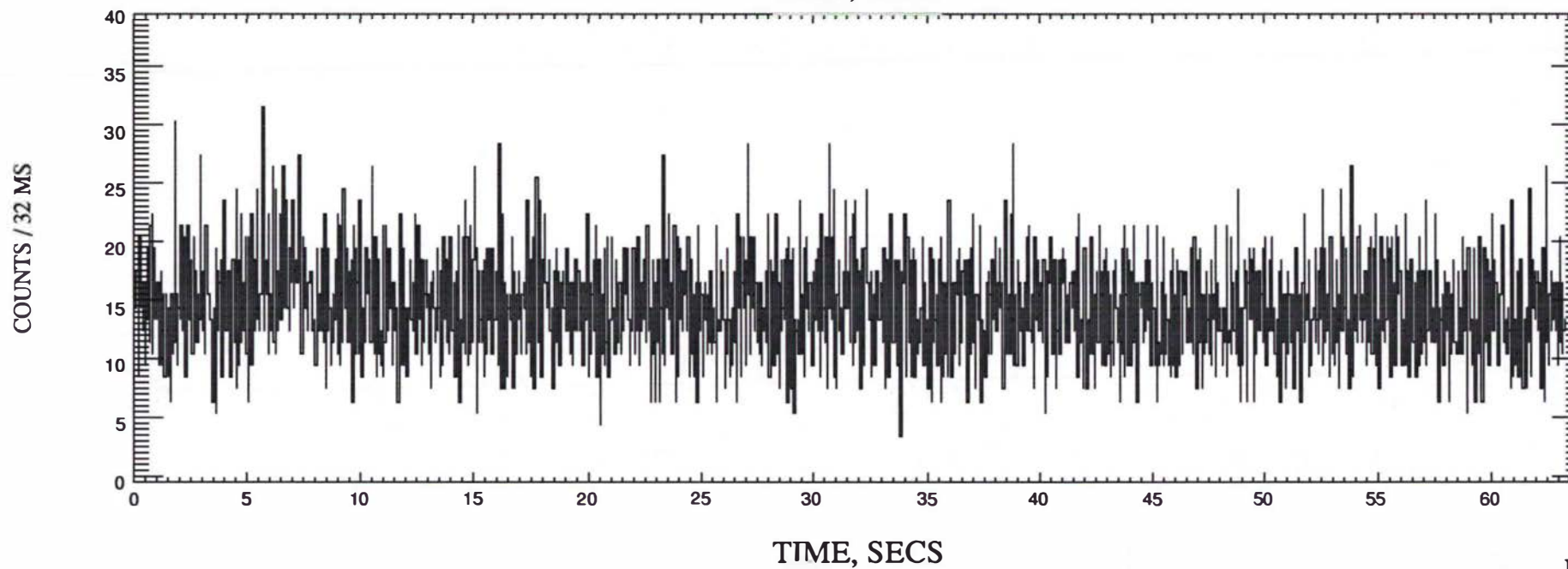
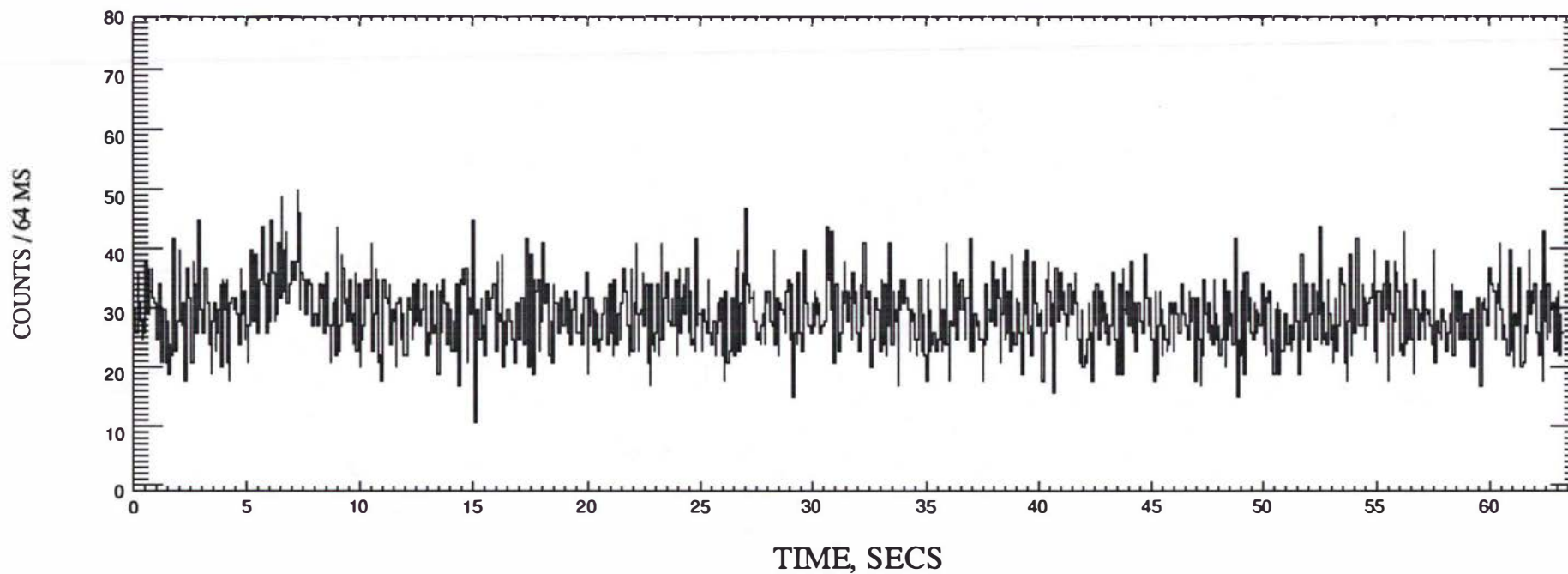
Burst Counter 1 at UT= 8.833199890984 h=31799.520 s 08:49:59.520



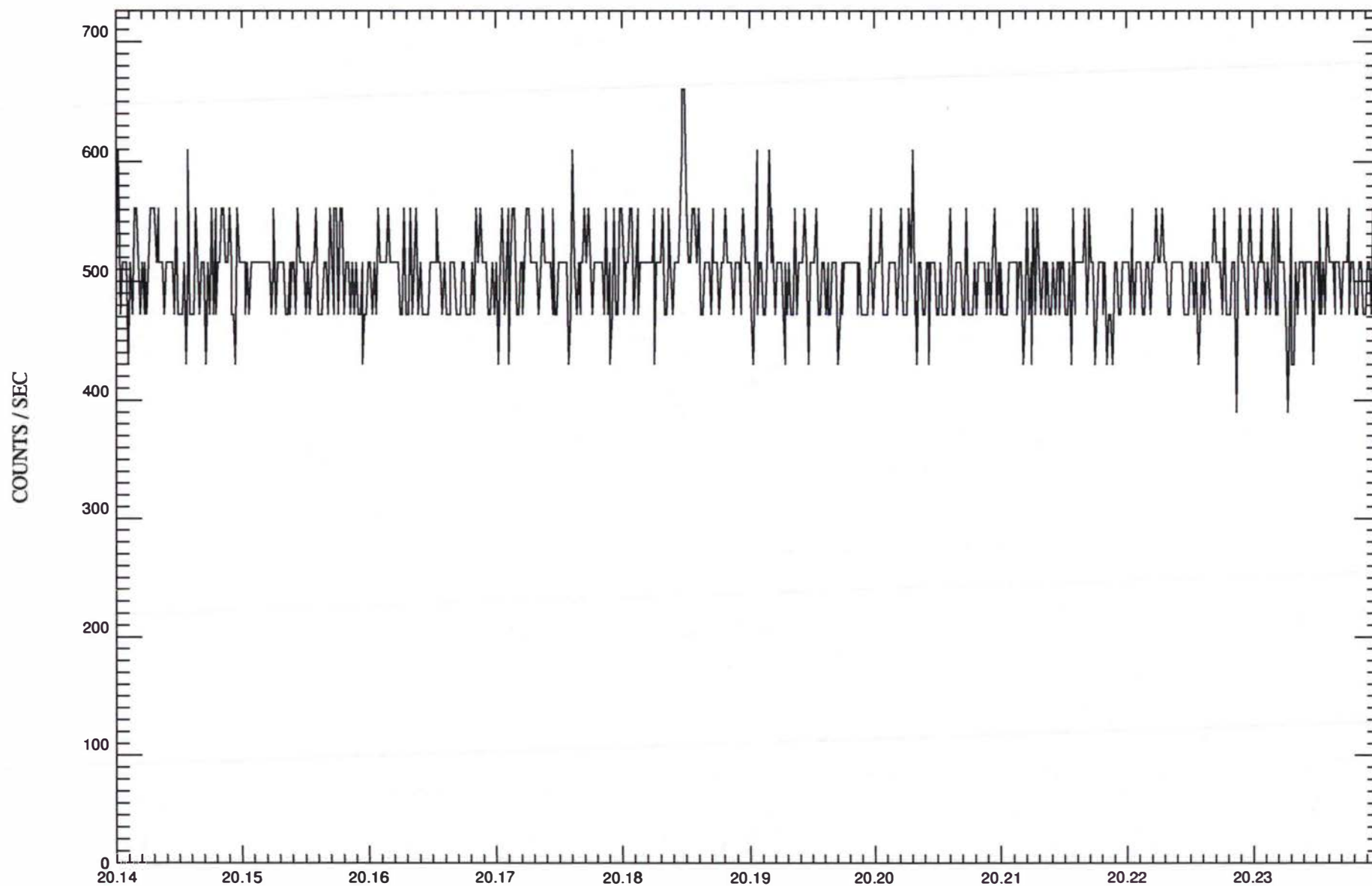
CALIBRATION DATA INCLUDED



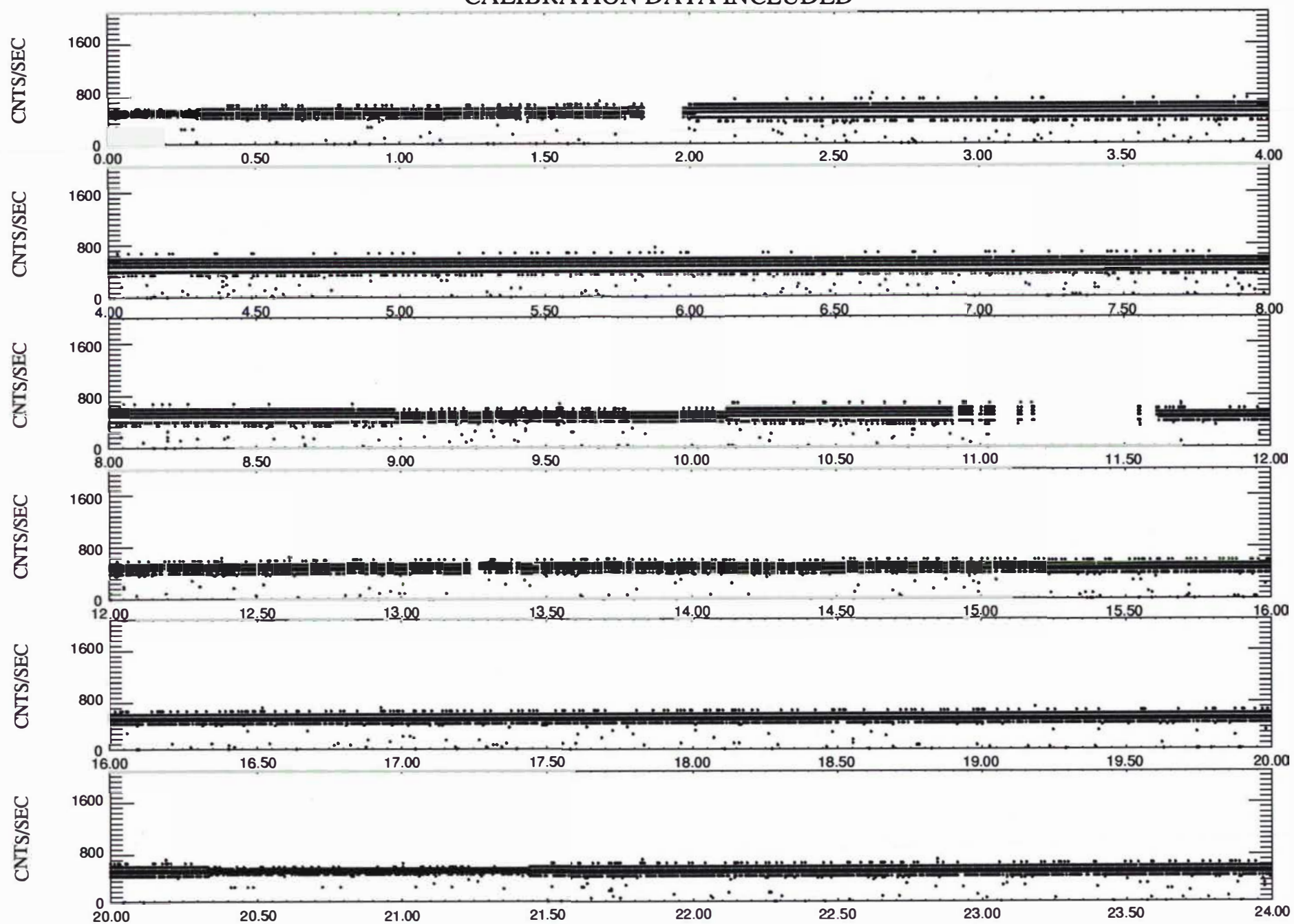
Burst Counter 2 at UT=20.185100822449 h=72666.363 s 20:11:06.363



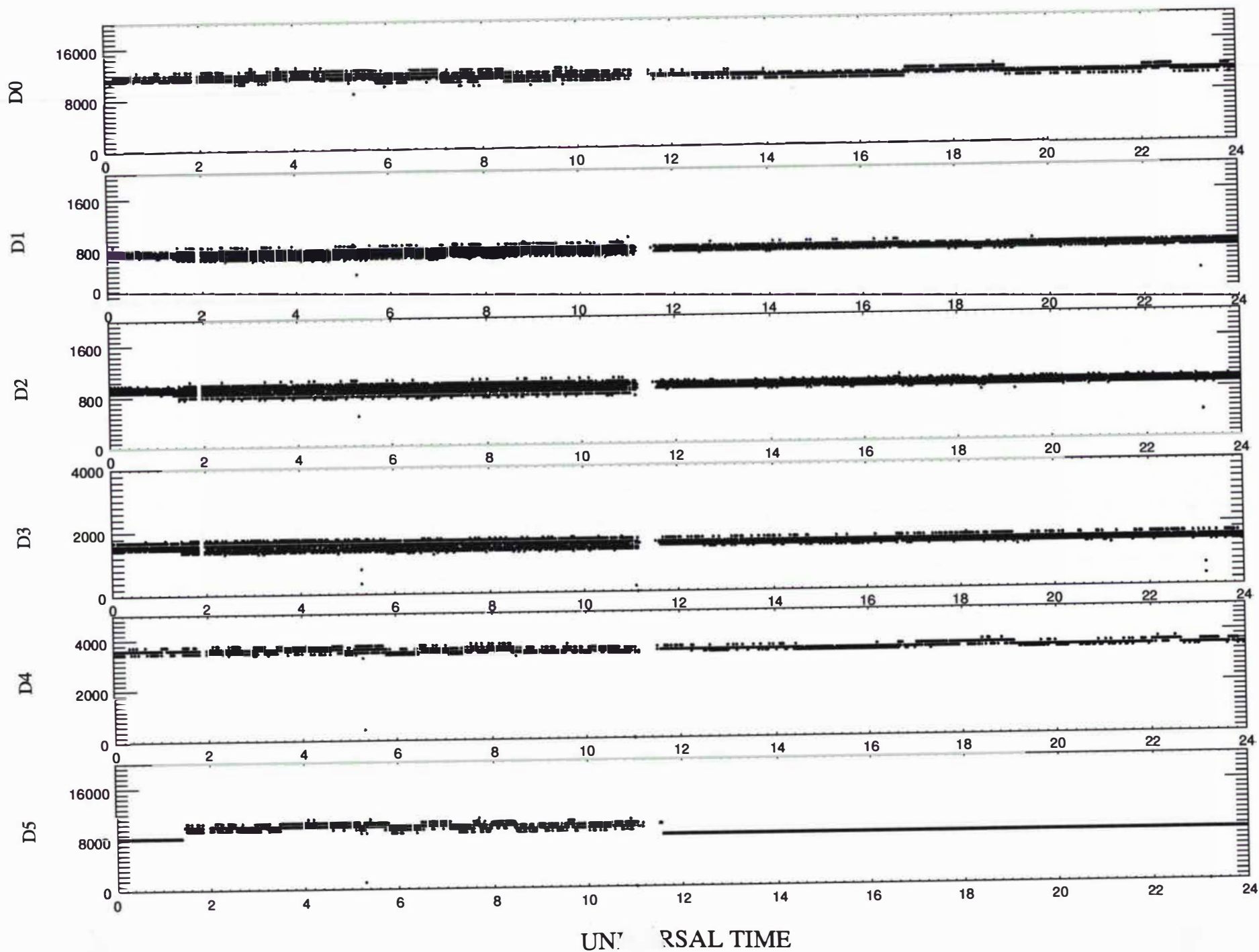
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UNJ RSAL TIME



Date: Oct 2 '02

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

N/A

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

3. NEAR Data

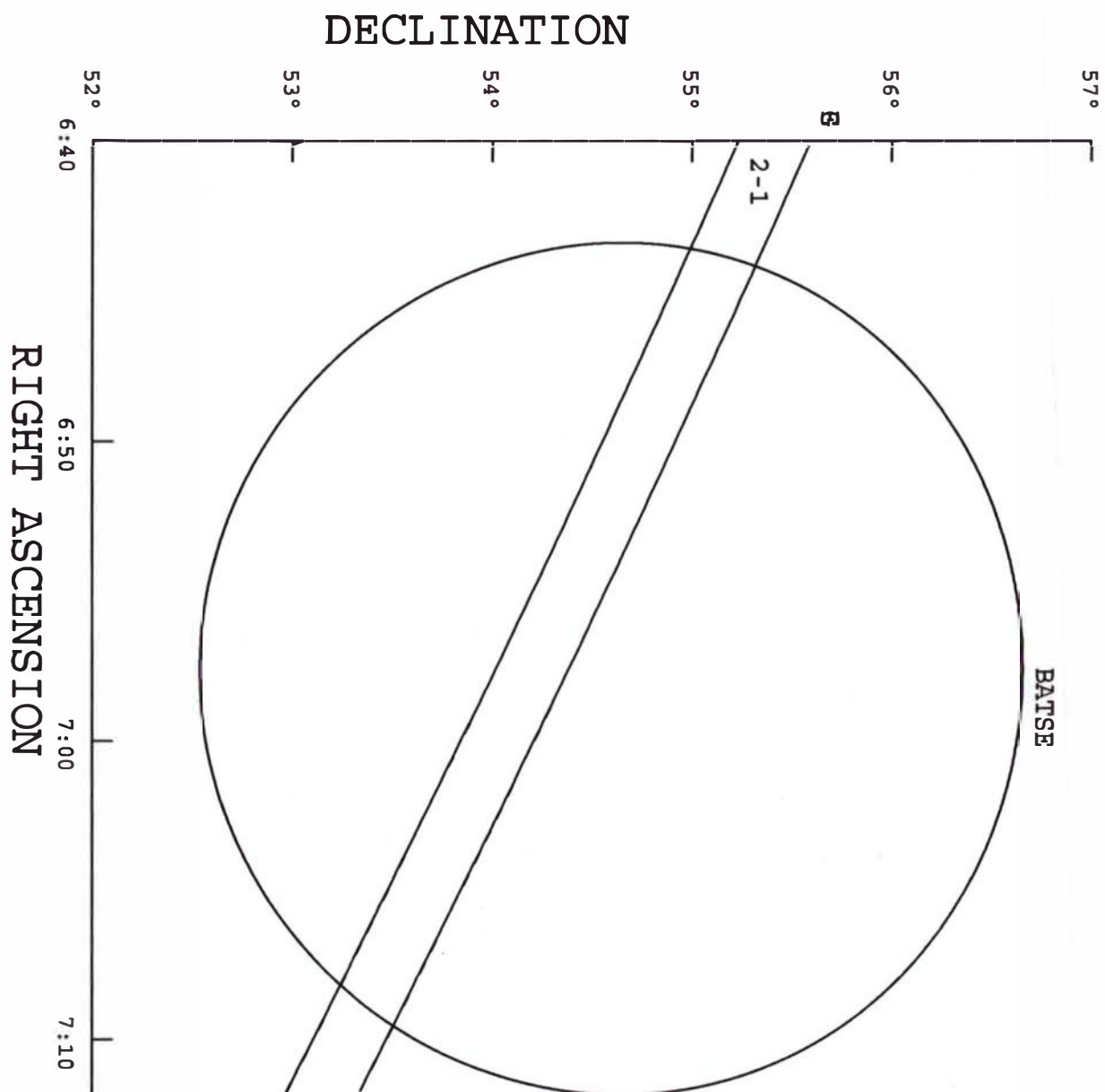
- ☐ Final, correct time used? (Files postmarked `vwx@boccl`, from from Teresa Sheets, postmarked May 2 1999 or later have the correct time; files on website have incorrect times)
- ☐ BATSE >100 keV data used for NEAR correlation?

- ☒ ACCESS database updated?

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

EVENT OF FEB 2, 1996 1:39

2/10/ 2



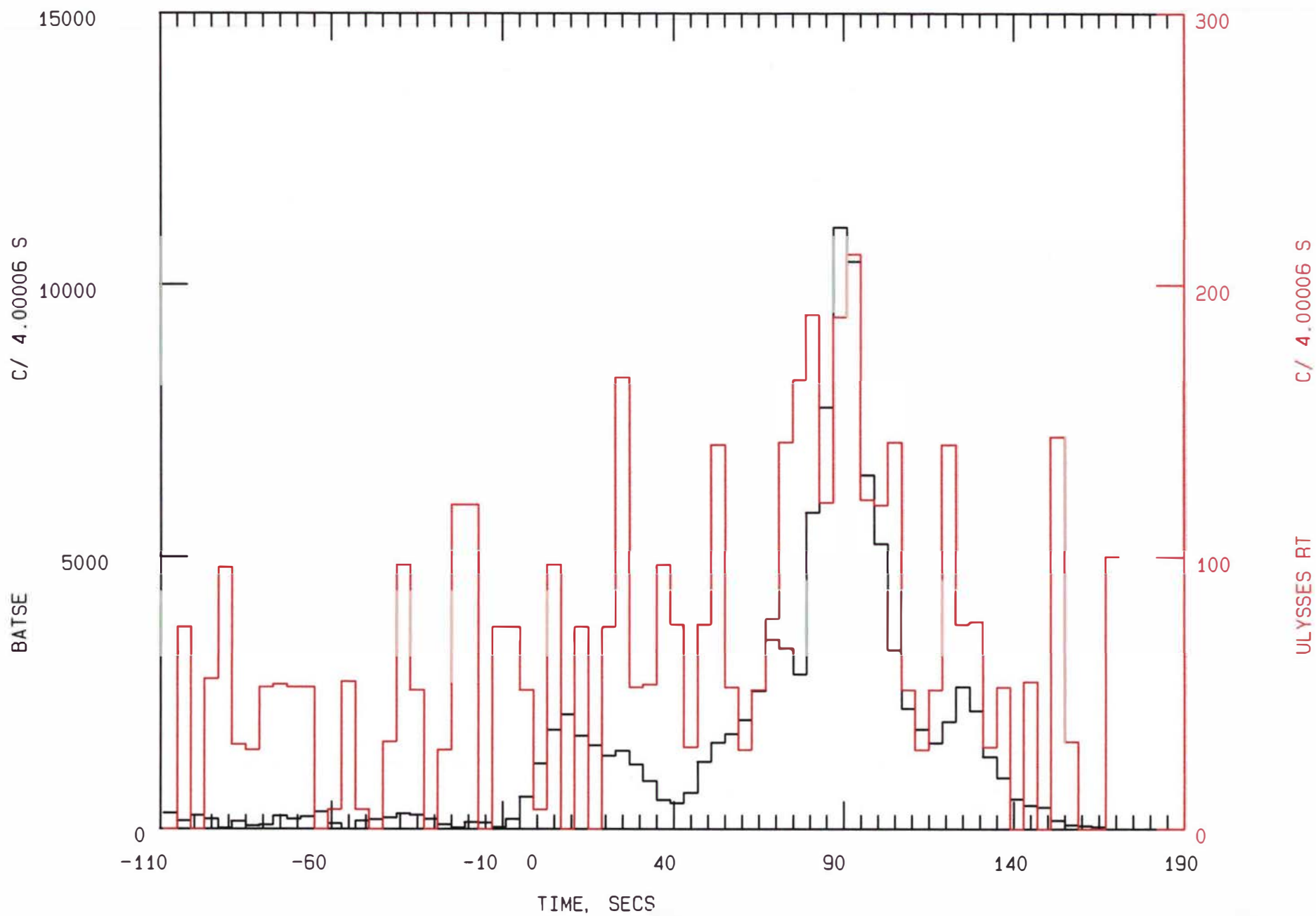
BATSE

-ULYSSES RT CORRELATION

02/02/96

5968.074

2/10/ 2

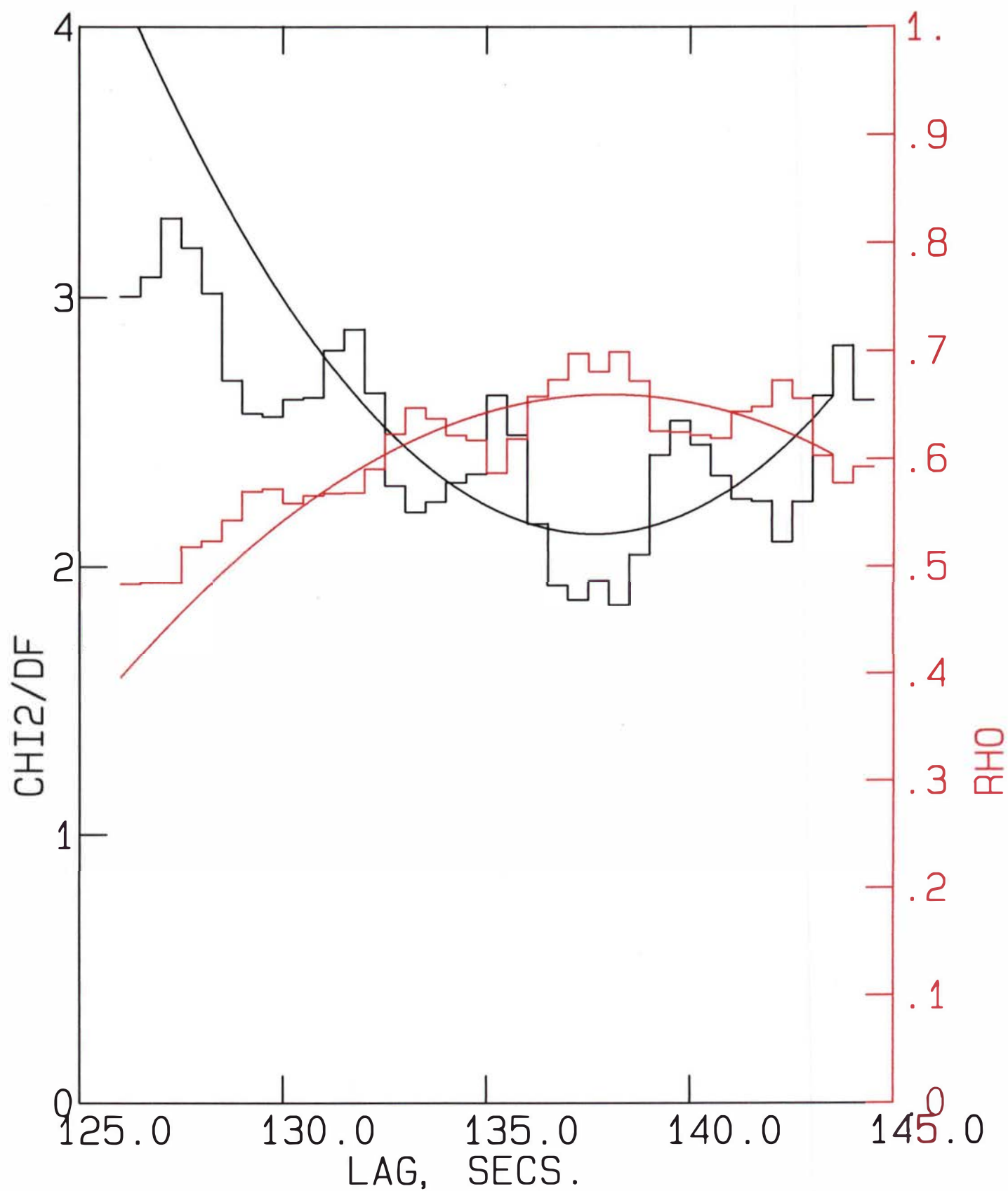


BATSE

-ULYSSES RT CORRELATION

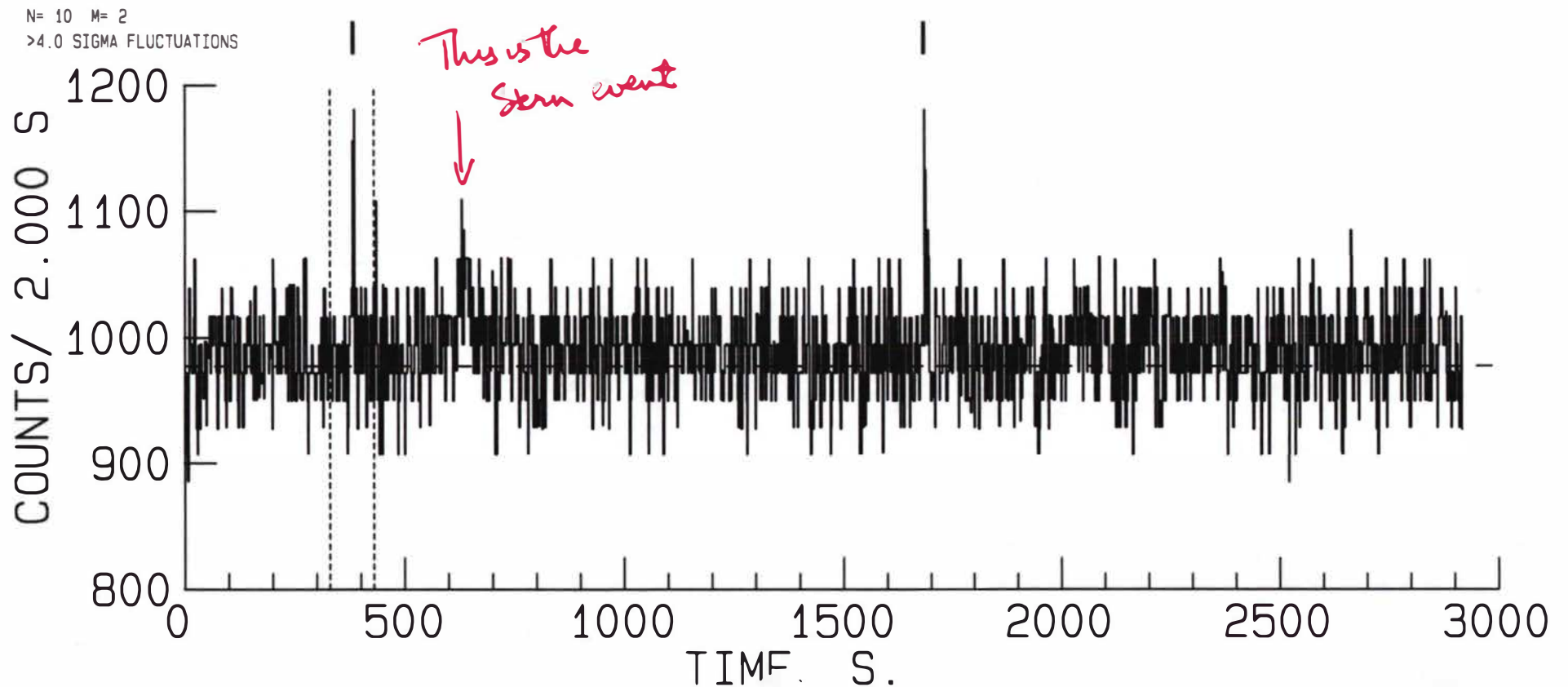
02/02/96

5968.074



ULYSSES RT
2/ 2/96 4500.264 s
0.500 S INTERVALS REGROUPED BY 4
21- 144 keV

2/10/ 2



KONUS

02/02/96 3966.972

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.944 S

4600

3600

2600

1600

600

DETECTOR 1 - S. ECLIPATIC

03/10/02



KONUS

10- 50 keV

02/02/96 3966.972

50- 200 keV 200- 750 keV

COUNTS/2.944 S

4400

DETECTOR 2 - N. ECLIPHTIC

0.0054 cts/s

100 s

← 200 s →

→ 1302
03/10/02

3400

~4520 s

~5720 ~ 5900

7050

2400

1400

400



TIME, SECS

4000 s = 21.8 min

4000 s

stern 19960202 06160

ULYSSES RT

04/10/02

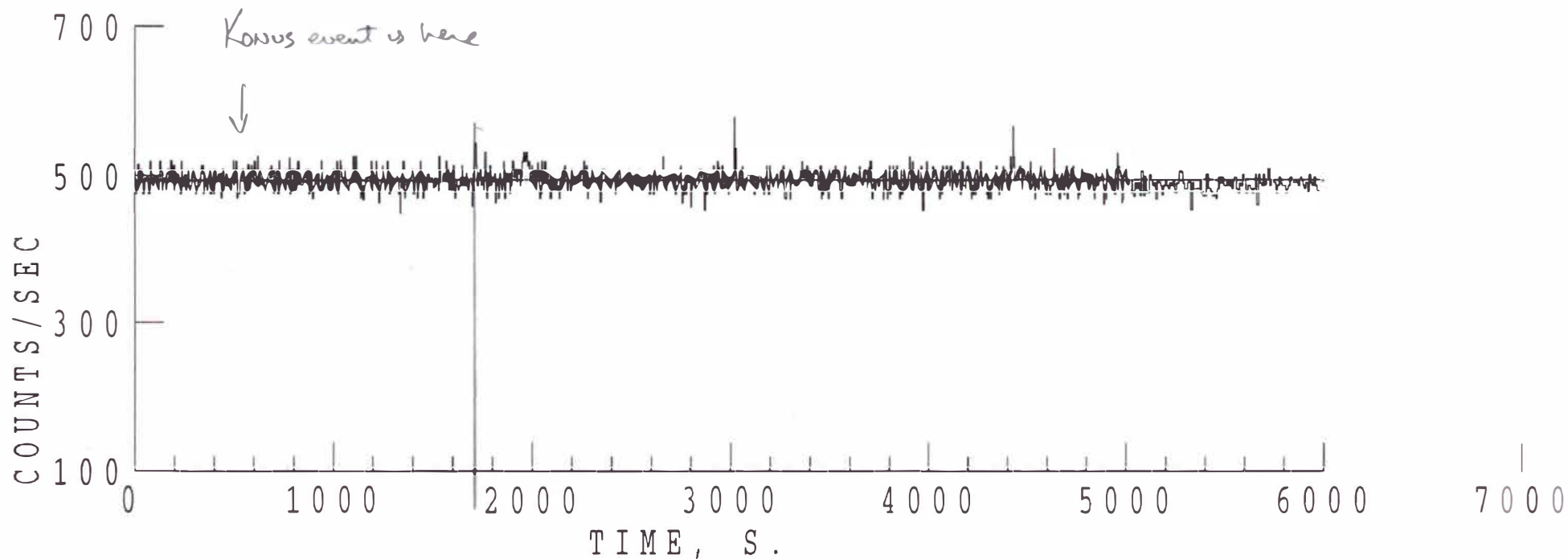
02/02/96 3168.242 s

INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
~033.19:10 SCET	should be	~032.13:18 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~048.17:29 SCET	should be	~047.13:45 SCET
~054.08:59 SCET	should be	~053.11:46 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~039.18:34 SCET	should be	~038.12:14 SCET

We see data gaps for each of the correct times, so it looks like your theory of AMMOS mis-correcting times when there is carry-over data on the tape is correct.

I hope this is enough information. I would have to do a bit more calculation to get the approximate ERTs. Let me know if you want them.

Best regards,

Nigel

From ulsdmt@jplsp.DNET.NASA.GOV Mon Mar 18 17:13 PST 1996
From: ulsdmt@jplsp.DNET.NASA.GOV
Date: Mon, 18 Mar 96 20:13:12 -0500
To: "khurley@sunspot.ssl.berkeley.edu"@east.DNET.NASA.GOV (SENT TO @LIST1)
Subject: Misplaced Major Frames in EDRs

Greetings,

We have identified an operations technique that produces data that will be improperly time tagged by the MGDS (telemetry system). Instances of EDR errors (major frames out of order) have been found in the CDROM archival products for December 1995 and January 1996. Errors will also be found in the still to be shipped February 1996 data.

When major frames are recorded but not transmitted during the next track, but are eventually downlinked with data from a succeeding day, the embedded SCLKs are 'assumed' to be incorrect by the frame syncer and are re-tagged with SCETs and SCLKs matching the adjacent (but newer) data.

For each major frame processed in this manner, a gap will exist, representing the time the data was actually acquired, and a major frame or realtime data, representing the time period the data now errently represents, will be replaced by the misplaced playback data.

Yes. Confusing. See the attached memo detailing the times involved.

Approximately 17 such instances are known to have occured. The total time involved is about twenty minutes. Because the data loss is small and the cost of reprocessing would be so large, the Project has determined that it would be imprudent to reprocess.

For your information, however, we included a memo from Nigel Angold which itemizes each instance.

We thank Toni Galvin and Nigel for identifying the problem and assisting in the diagnosis.

Regards,

Joe

To: <ulsdmt@jplsp.jpl.nasa.gov>
From: Nigel Angold <nangold@jplsp2.jpl.nasa.gov>
Subject: Mis-corrected S/C clocks / SCETs
Cc: chris.leech@jpl.nasa.gov

I have looked at our recent tape recorder usage and predict that you will see major frames with mis-corrected spacecraft clocks / SCETs at the following times (give or take a few minutes):

1995:

~342.22:59 SCET	should be	~341.17:47 SCET
~347.22:39 SCET	should be	~346.16:46 SCET
~350.21:54 SCET	should be	~349.16:22 SCET
~355.22:14 SCET	should be	~354.15:42 SCET
~359.14:04 SCET	should be	~359.05:36 SCET
~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

KONUS

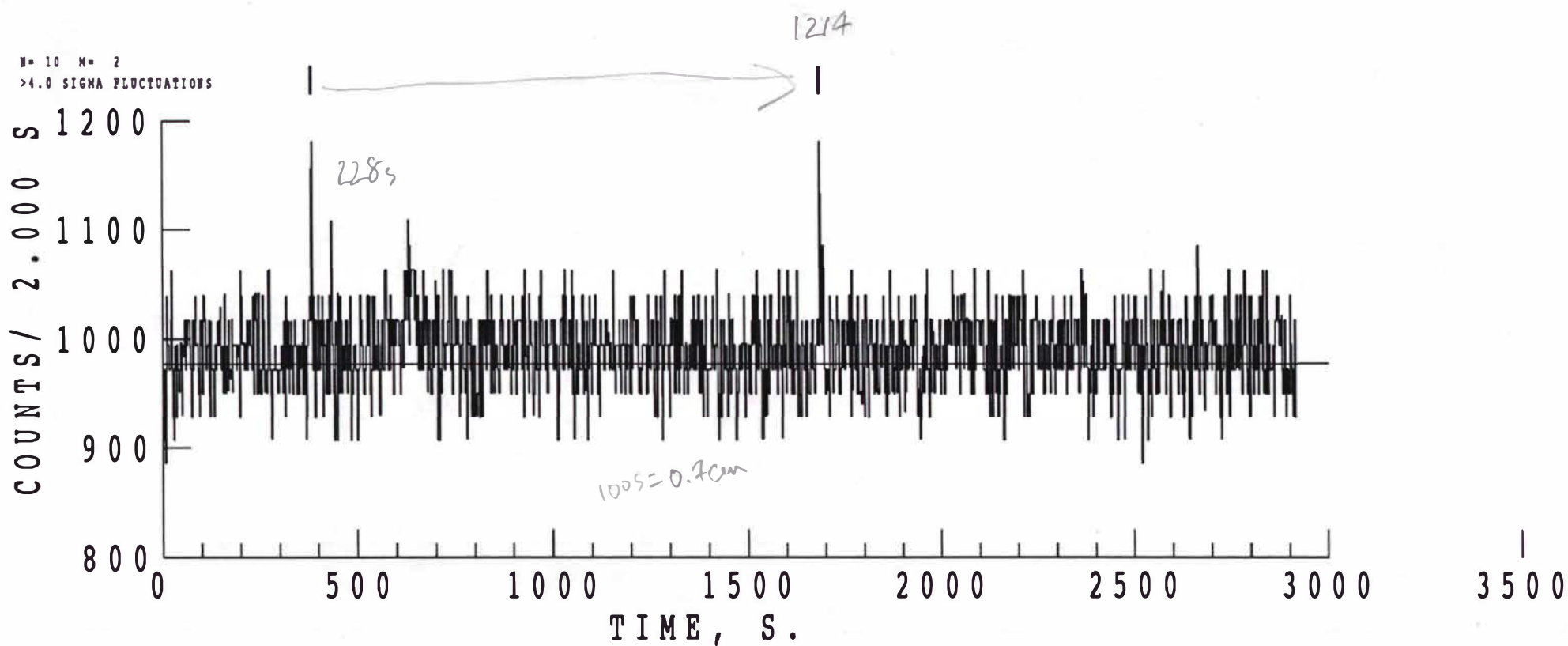
ULYSSES RT

28 / 01 / 00

02 / 02 / 96 4500.264 s

0.500 S INTERVALS REGROUPED BY 4

0 - 0 keV



From WOODSP@ssl.msfc.nasa.gov Mon Feb 5 09:48 PST 1996
From: WOODSP@ssl.msfc.nasa.gov
Date: Mon, 5 Feb 1996 11:48:10 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4710

BATSEARCH PROGRAM

RI

BATSE BURST # 4710
EVENT OF 1996 FEB 2 DAY OF YEAR= 33
EVENT CROSSING TIME AT BATSE : 50751. S. OR 14:05:51.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 215.000 -65.000
BATSE PEAK COUNTING RATE: 10000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 2/ 2/ 96 IS:
RA= 220.220 DEC= 68.821 DIST= 2.818 AU
BATSE-ULYSSES DISTANCE = 421618038. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 46.13 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 974.67 SECS.
CROSSING TIME AT ULYSSES IS 51726. S. OR 14:22:05 +/- 240.82 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 2/ 2/ 96 IS:
RA= 322.105 DEC= -16.052 DIST= 2.357 AU
MARS-BATSE DISTANCE = 352559584. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 97.54 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -154.23 SECS.
CROSSING TIME AT MARS IS 50597. S. OR 14:03:16 +/- 200.07 SECONDS

BATSE BURST TRIGGER

NO.: 4710

TIME: TJD=0115 SECONDS=50751

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=56.5 AZIMUTH=325.7 ERROR=1.5 DEGREES

COMMENTS:

GRB LASTING 15 SEC. FRED STRUCTURE WITH 2ND EPISODE IN TAIL.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4710	960202	10115	50751	10000	215	-65	15

From cline@apache.gsfc.nasa.gov Wed Nov 20 14:32 PST 1996
Date: Wed, 20 Nov 1996 14:32:12 -0800
Mime-Version: 1.0
To: KHURLEY@sunspot.ssl.berkeley.edu
From: cline@apache.gsfc.nasa.gov (T L Cline)
Subject: Search for (Konus mini-network) 3-sc triggers

Dear Kevin,

I'm sorry to report that the May 1996 mail from you was a list only to January 1996. If you have another later list, don't go to the trouble of plowing thru all this; I'll do it if you can e-mail/fax something. Thanks.

SEARCH FOR 3-SC TRIGGERS ONLY -- Konus-W / Ulysses / BATSE or Konus-A

DATE	Konus-W Sensor (UT)	Max counts G1 G2 G3	N(S1)/N(S2) in G2	Duration T<T0 T>T0	Trigger # KW# BATSE/KA
94 11 21	62700.945 S1	1652 1656 300	21	3 50	6 3290
94 11 26	44557.952 S1	860 1430 330	4.2	40 45	8 3298
95 2 8	07824.432 S2	1144 1824 670	0.02	1 60	45 3408
95 2 10	08424.148 S1	1350 3900 700	3.2	0.04 0.16	47 3410
95 2 11	08697.749 S2	2750 11630 6560	<0.06	0.03 0.14	48 3412
95 2 11	72469.074 S1	1170 1570 460	60	12 60	50 3415
95 3 25	25841.574 S2	345 1460 1570	0.2	1 230	63 3480
95 3 25	63392.815 S1	1320 2710 900	3.2	1 43	64 3481
95 4 3	47985.179 S1	1030 2840 800	1.0	1 15	71 3491
95 4 3	84828.194 S2	4650 10000 4700	0.06	0.5 60	72 3492
95 4 25	00923.718 S1	1200 2780 1820	4.2	0.5 65	86 3523
95 5 3	66971.838 S1	1140 4200 3140	1.9	0.2 115	88 3537
95 5 13	81706.917 S1	720 1360 520	10	1 30	93 3571
95 7 1	12762.114 S1	340 1400 580	1.3	1 30	116 3657
95 7 1	23737.604 S2	570 1600 700	0.05	1 11	117 3658
95 8 4	07135.704 S2	3000 6650 3340	<0.03	0.2 3.5	131 3734
95 8 18	05065.640 S2	1960 4100 1350	0.05	60 50	137 3765
95 8 22	13751.048 S1	6070 12000 3770	9	0.4 60	140 3767
95 10 16	02484.285 S1	1960 1950 560	5	0.2 7	162 3870
95 12 3	03988.180 S2	260 720 420	0.85	1 16	196 3930
95 12 27	23005.042 S1	420 1200 320	1	1 1.5	218 ??? NO
96 1 11	46524.530 S2	1130 1280 190	0.2	0.5 6	222 4312
96 1 13	56024.261 S2	500 450 50	0.3	2 36	228 ??? NO
96 1 14	44104.737 S1	4900 7200 1400	1.8	1 60	233 4368, KA

(ABOVE, ALL ARE ULYSSES TRIGGERS - ALL BUT 2 ARE CONFIRMED BATSE TRIGGERS)

(BELOW, ULYSSES TRIGGERS INCOMPLETE, BUT KNOWN ULYSSES RI'S ARE DELETED:)

BATSE

95 12 31	20231.668 S2	180 320 150	0.07	9 65	219	SEARCH	
96 1 2	11650.996 S1	140 300 80	1	1 0.2	220	NO	
96 1 19	45226.016 S2	210 460 190	0.2	6 85	237	SEARCH	
96 1 30	08756.848 S1	100 470 340	3	0.5 0.2	240	NO	4660
96 2 1	78530.582 S2	400 770 230	0.34	12 70	241	RI KA	4701
96 2 2	50750.813 S1	390 430 180	5	0.5 8	242	RI	4710
96 2 5	34499.021 S1	100 240 80	>15	7 250	243	RI	4745
96 2 6	17898.732 S1	120 520 260	1.05	1 36	244	Triq	4757
96 2 7	65075.063 S2	210 780 200	0.13	32 12	245	SEARCH	NO
96 2 10	35198.959 S2	220 550 360	<0.1	0.5 2	247	RI	4814
96 2 28	85760.241 S1	2360 7360 3350	4.3	0.1 2.5	249	Triq	NO

From cline@lheavx.gsfc.nasa.gov Fri Mar 29 08:40 PST 1996
 Date: Fri, 29 Mar 1996 08:40:19 -0800
 Mime-Version: 1.0
 To: KHURLEY@sunspot.ssl.berkeley.edu
 From: cline@lheavx.gsfc.nasa.gov (T L Cline)
 Subject: Konus Event List augmentation

Dear Kevin,

This list includes Sergei's latest Konus-W (GGS-Wind) and Konus-A (Kosmos-2326) events, for comparison with Ulysses, BATSE, TGRS, etc. The times listed are prioritized for Konus-W (i.e., Konus-A time given if Konus-W doesn't trigger).

Yr	Mn	Dy	UT (Konus)	BATSE	Ulysses	Konus	TGRS	Notes
95	11	2	07085.879	?	?	168	no	
95	11	2	21209.015	3891	R I	169	345	
95	11	4	05868.077	3893	R I	170	BGR	
95	11	5	46827.808	?	?	171	no	
95	11	12	66495.244	?	R I	172	no	
95	11	13	84358.872	3906	R I	173	BGR	
95	11	17	10123.762	3909	?	175	no	
95	11	19	29831.402	3912	R I	176	348	
95	11	19	46457.519	?	?	177	BGR	
95	11	22	09841.38	?	?	179	no	
95	11	22	17107.738	?	?	180	349	
95	12	2	39101.744	?	?	195	BGR	
95	12	3	03988.18	?	?	196	360	
	12	8	19617.151	?	?	197	no	
	12	8	39452.057	?	?	198	no	
95	12	8	42467.634	?	?	199	BGR	
95	12	9	31349.607	?	?	200	BGR	
95	12	13	17849.683	?	?	201	362	
95	12	14	08657.847	?	?	202	no	
95	12	19	60679.732	?	?	203	no	
95	12	20	31883.56	?	?	204	BGR	
95	12	22	25203.254	?	?	no	?	= K-A t.
95	12	27	23005.042	?	?	218	375	
96	12	31	20231.668	?	?	219	no	
96	1	2	11650.996	?	?	220	no	
96	1	4	12521.062	?	?	221	no	
96	1	11	46524.53	?	?	222	no	
96	1	13	56024.261	?	?	228	no	
96	1	14	44104.737	?	?	233	384	+ K-A t.
96	1	15	31956.506	?	?	234	BGR	
96	1	17	57371.341	?	?	235	no	
96	1	19	34679.317	?	?	236	no	
96	1	19	45226.016	?	?	237	no	
96	1	20	36768.974	?	?	238	no	
96	1	24	03388.008	?	?	239	385	+ K-A t.
96	1	24	76096.911	?	?	BGR	?	= K-A t.
96	1	30	08756.848	?	?	240	no	
96	2	1	78530.582	?	?	241	?	+ K-A t.
96	2	2	50750.813	?	?	242	?	
96	2	10	35198.959	?	?	247	?	
96	2	16	57796.347	?	?	BGR	?	= K-A t.
96	2	19	20589.684	?	?	BGR	?	= K-A t.
96	2	28	85760.241	?	?	249	?	
96	2	29	22445.141	?	?	250	?	

96	3	5	33645.352	?	?	251	?
96	3	12	35074.697	?	?	252	?
96	3	19	51992.828	?	?	253	?
96	3	21	76321.803	?	?	254	?
96	3	22	19642.728	?	?	255	?
96	3	24	80064.124	?	?	257	?
96	3	25	69892.978	?	?	258	?

--

TLC

-- T. L. Cline ----- LHEAVX::CLINE

Helio corr removed

Date: *Mar 5 '98*

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. PVO Data

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

- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

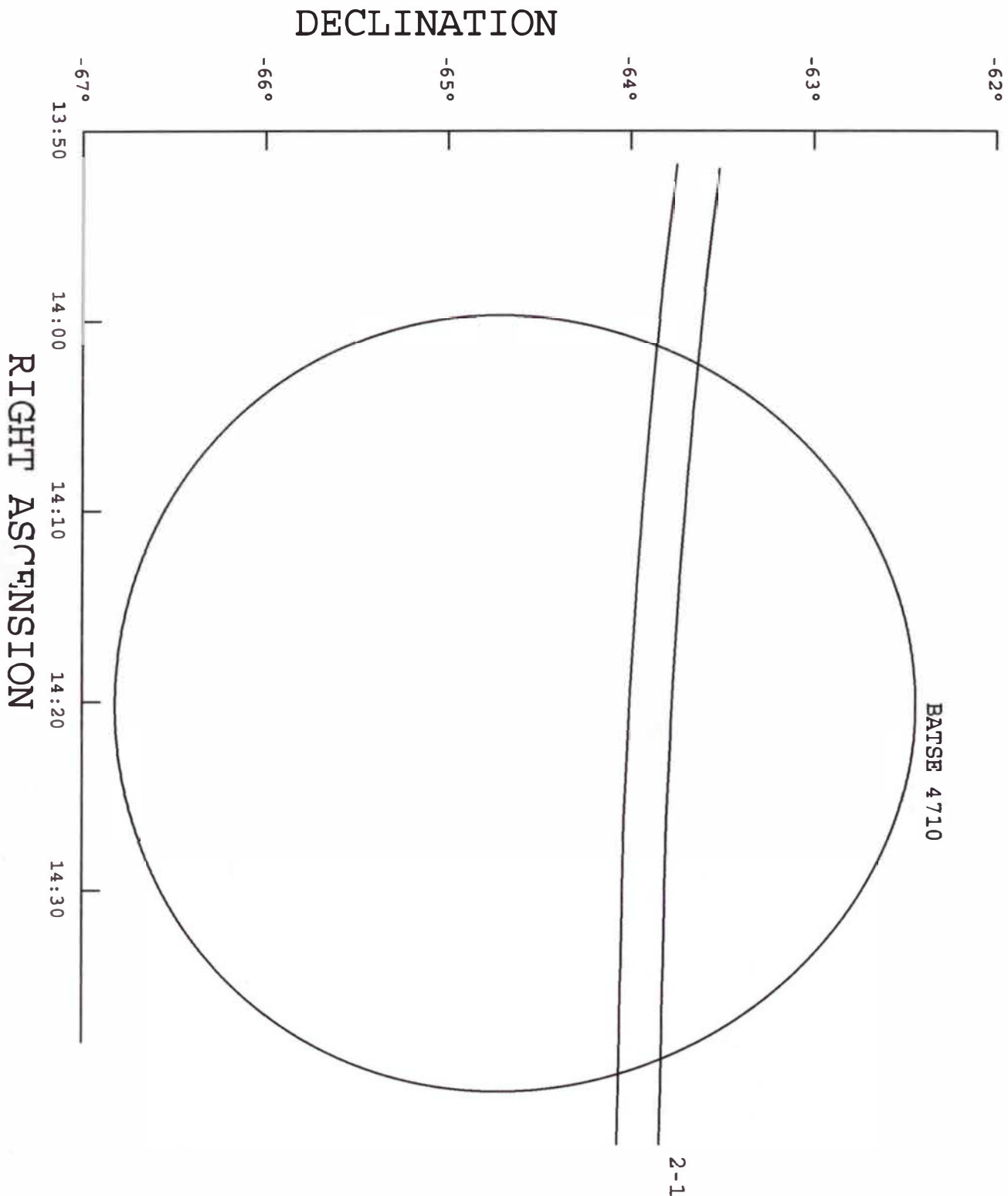
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 2, 1996 14:20

5 / 3/98



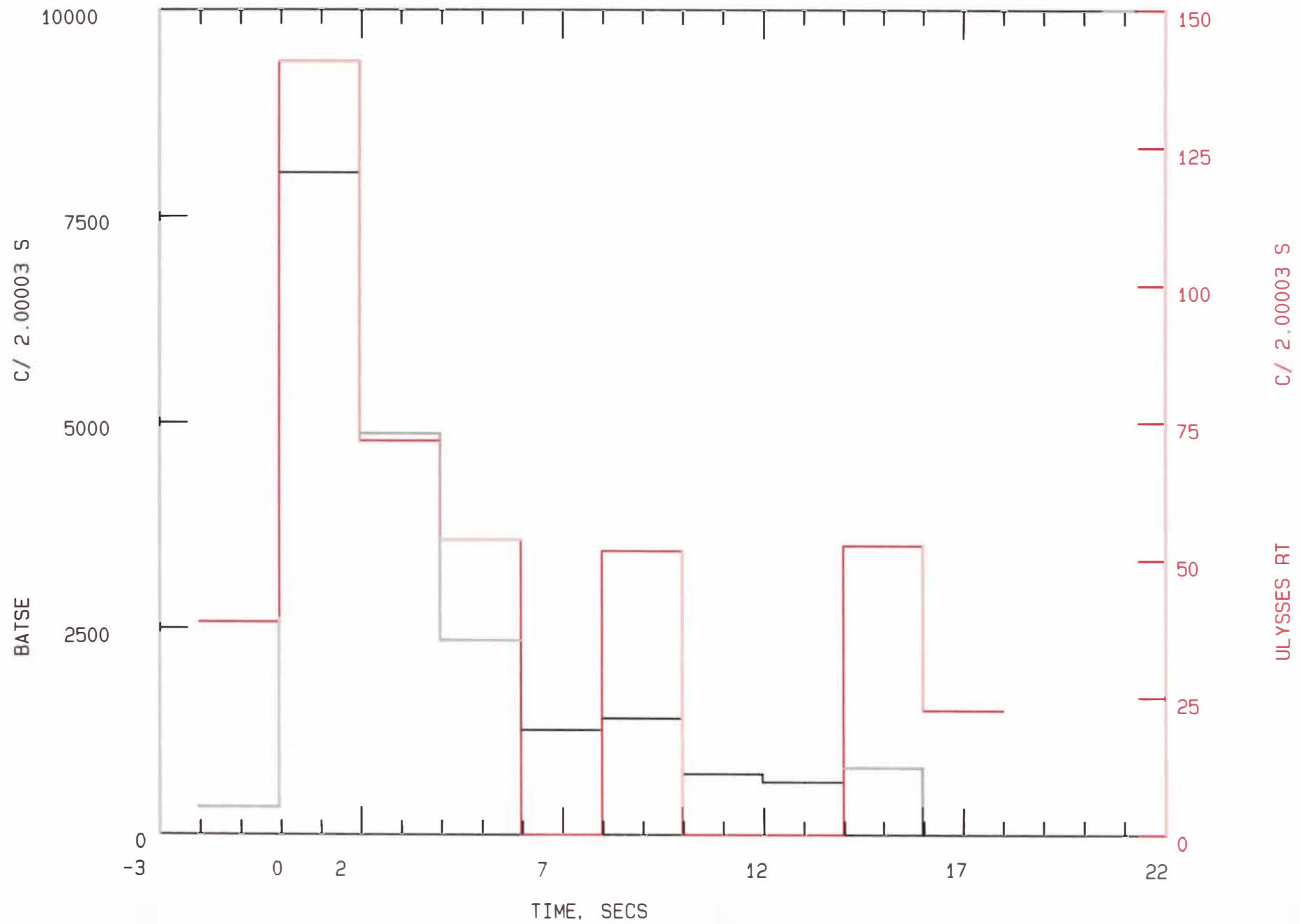
BATSE

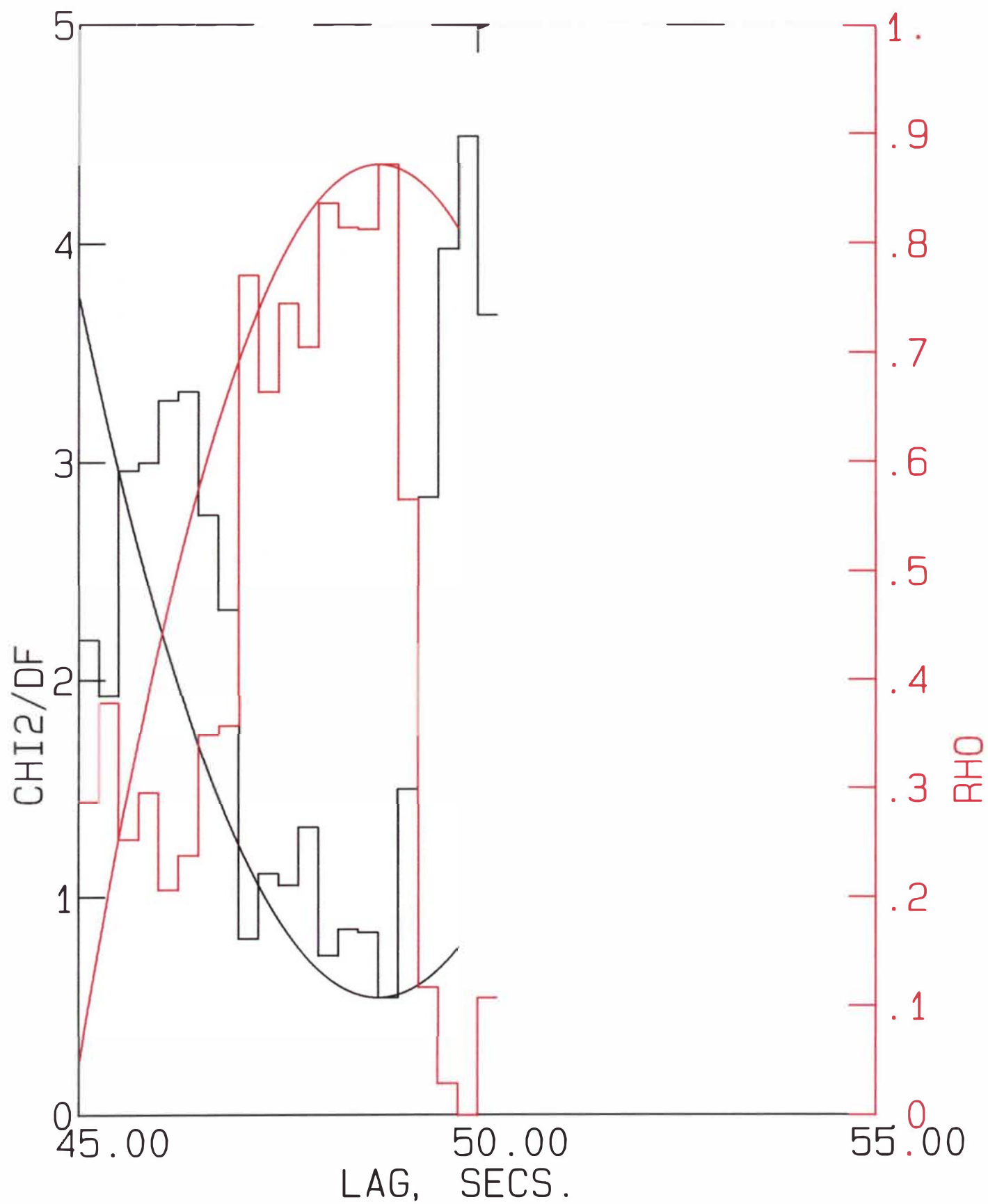
-ULYSSES RT CORRELATION

2/ 2/96

50751.434

5/ 3/98





ULYSSES RT

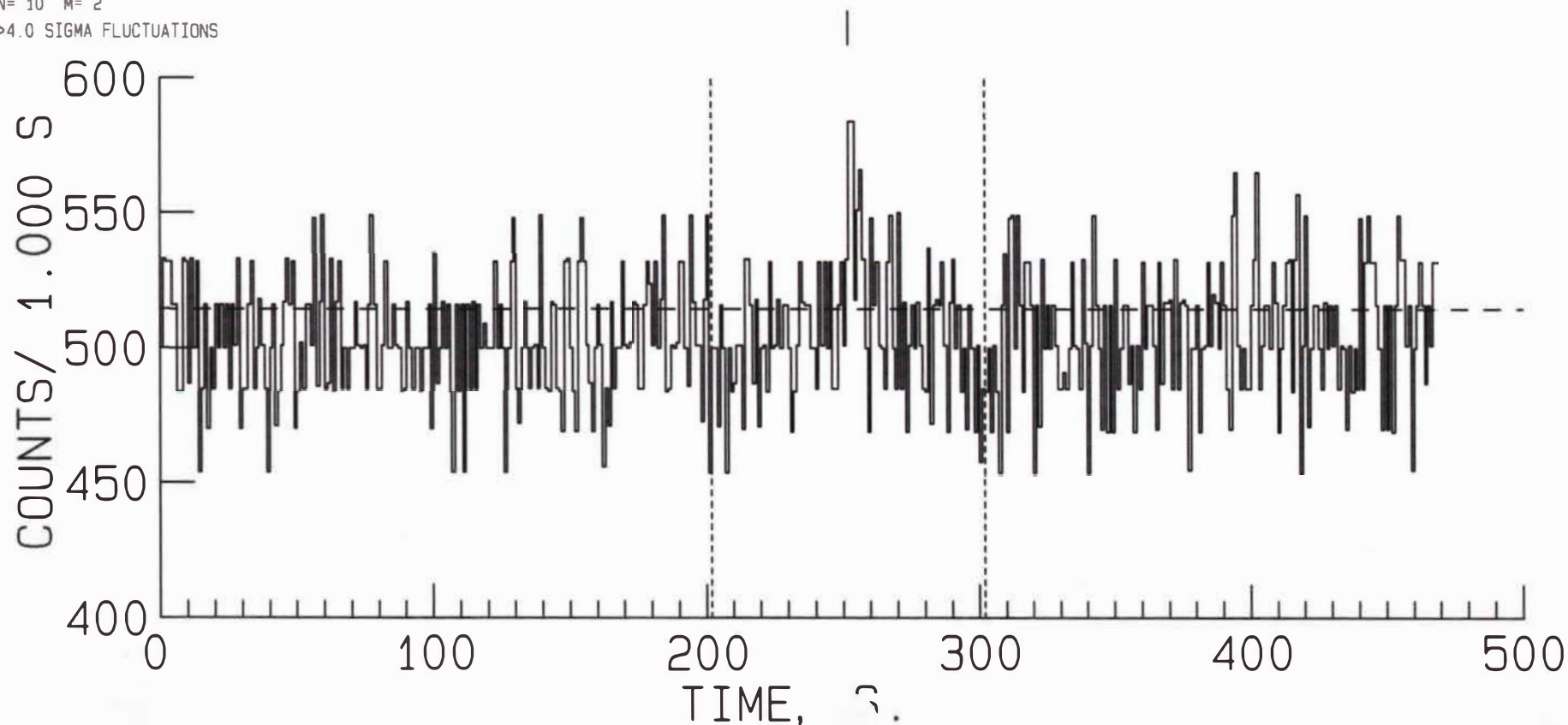
5 / 3 / 98

2 / 2 / 96 51444.199 s

0.250 S INTERVALS REGROUPED BY 4

21- 144 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



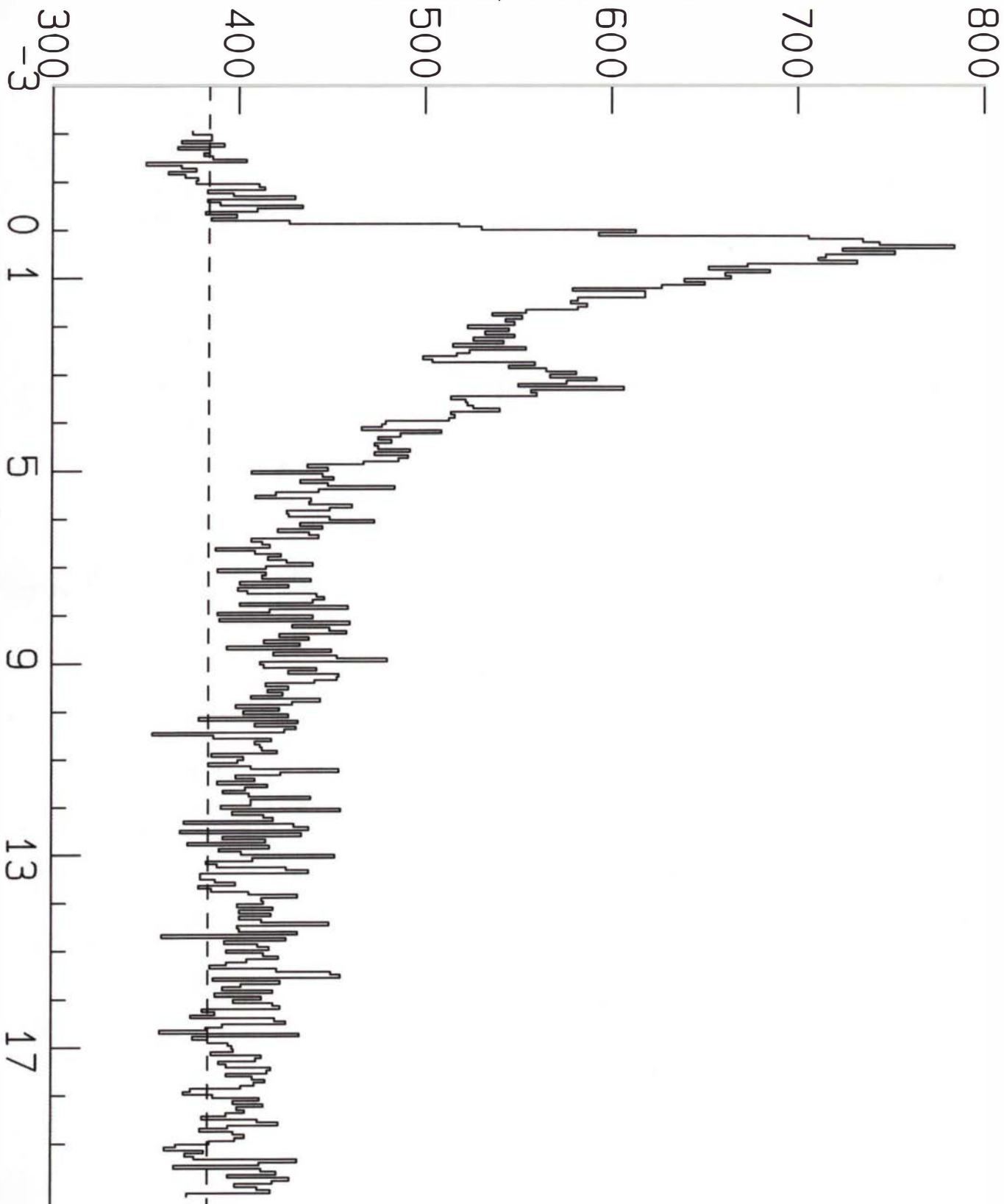
BATSE

02/02/96

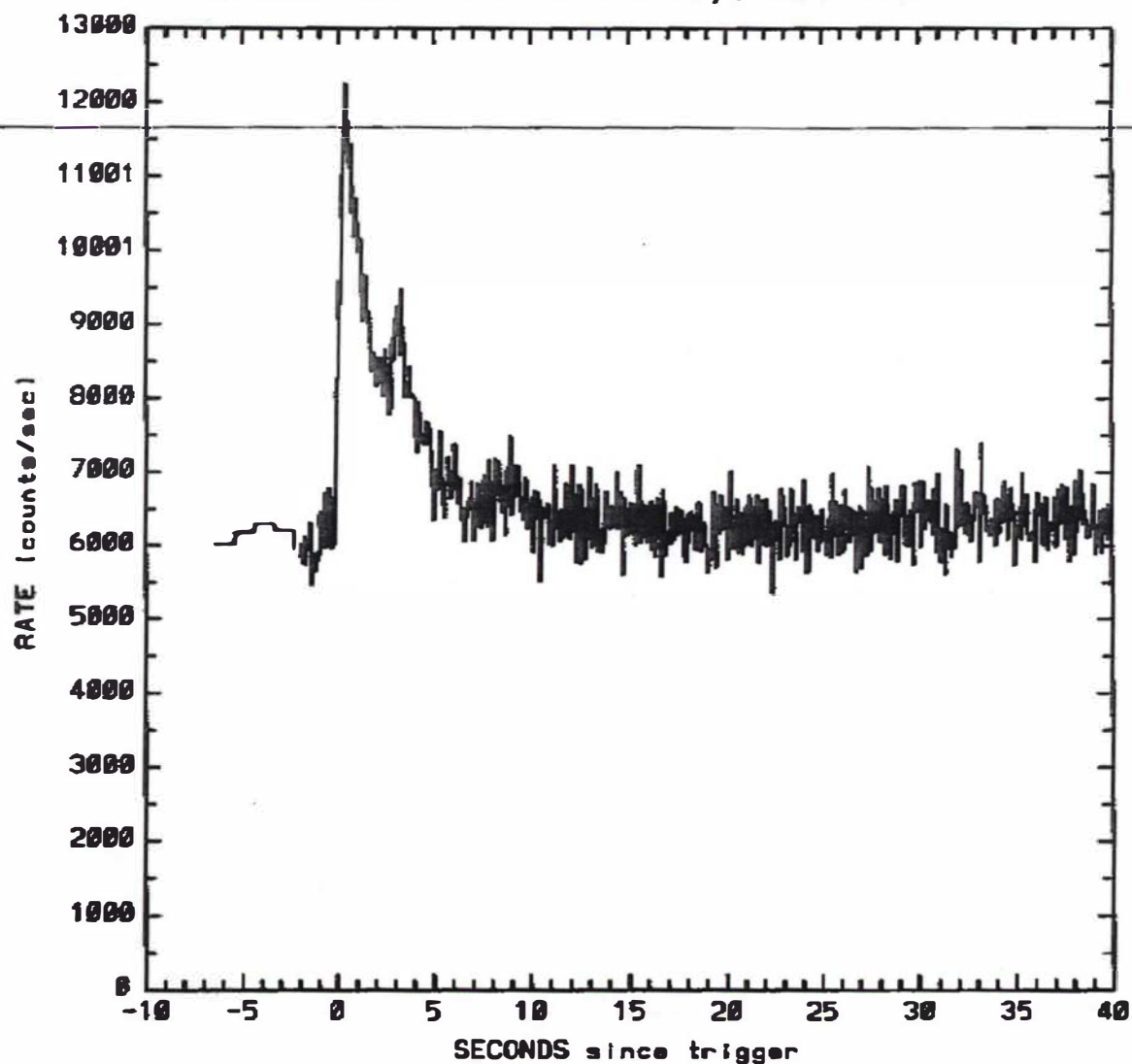
50751.434

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley. No. 4710



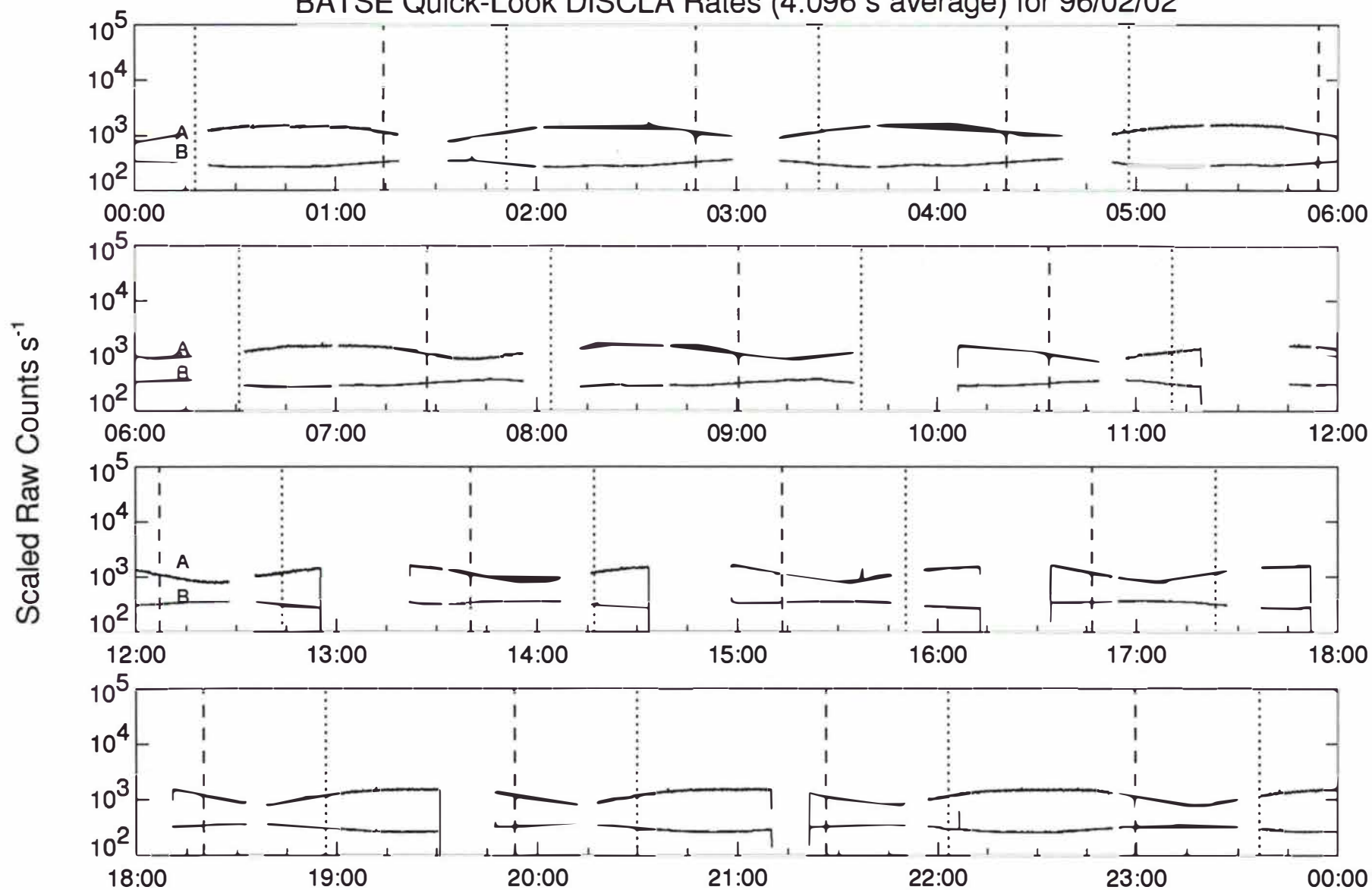
8-FEB-1996 18:14:05

Created by HQPS 80
(Burst Display)
Version 12.25

Trigger = . 4710

Trigger Time:
18115 / 50751.434Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors (7..0):
-----2-0Discriminators:
(1..2)Quality Mask:
BDISP1

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/02



Current Time: 96/02/07, 1317 EDT

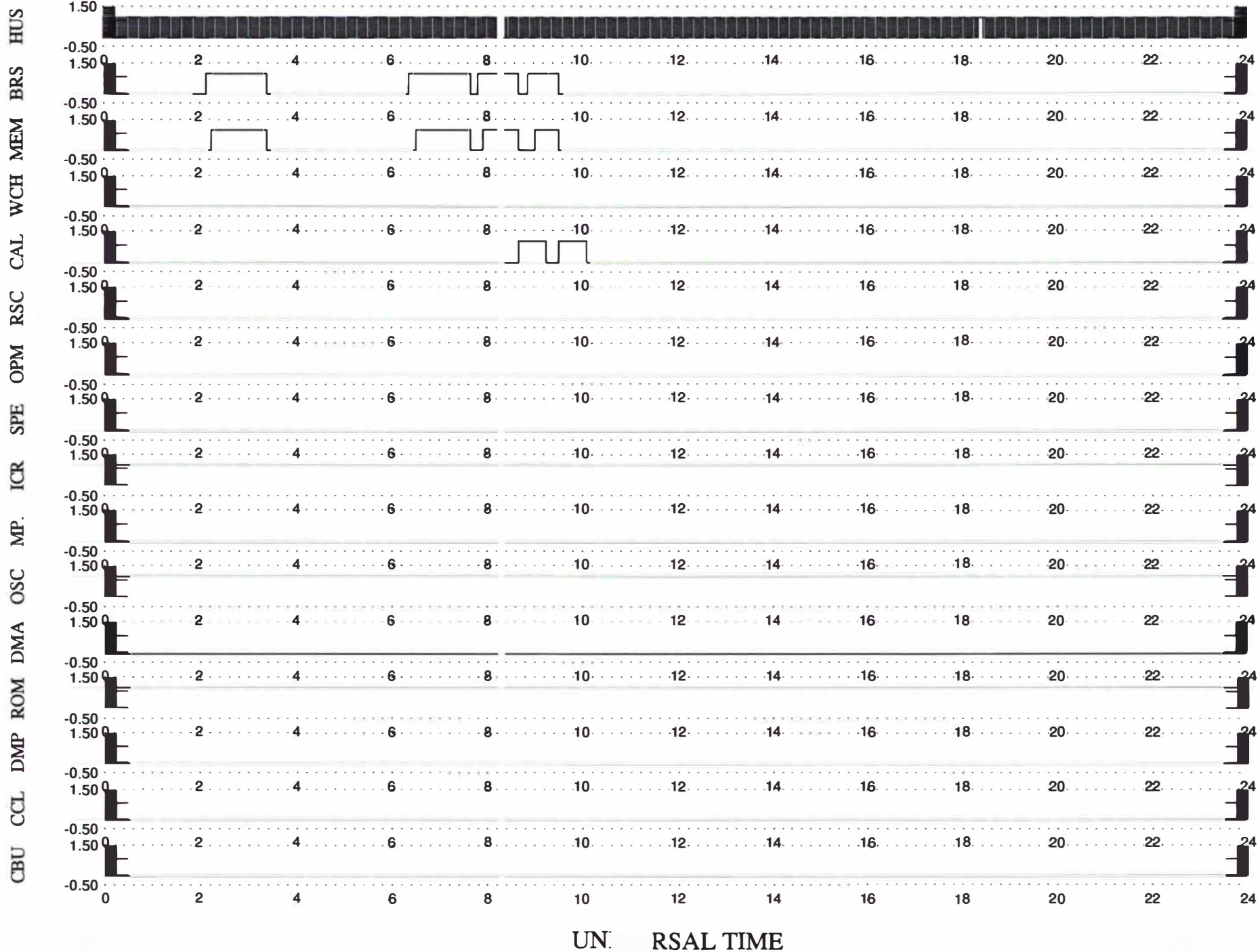
A: Channel 0 Most Sunward LAD

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

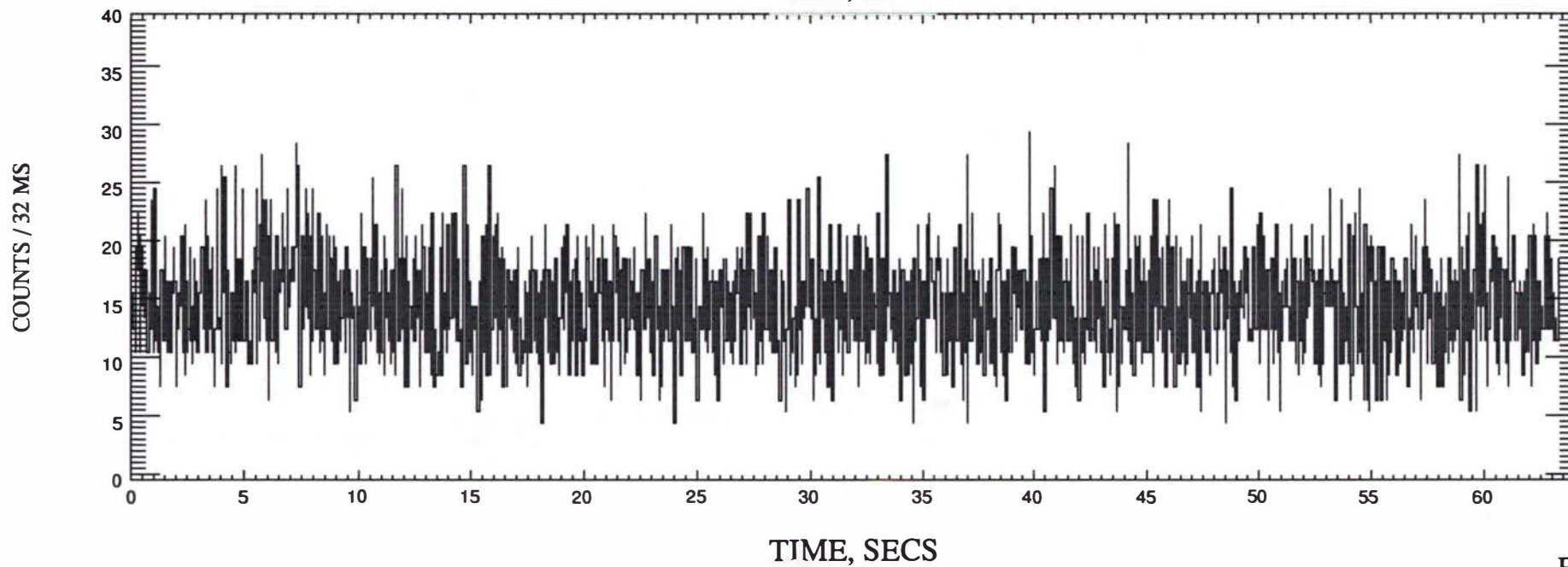
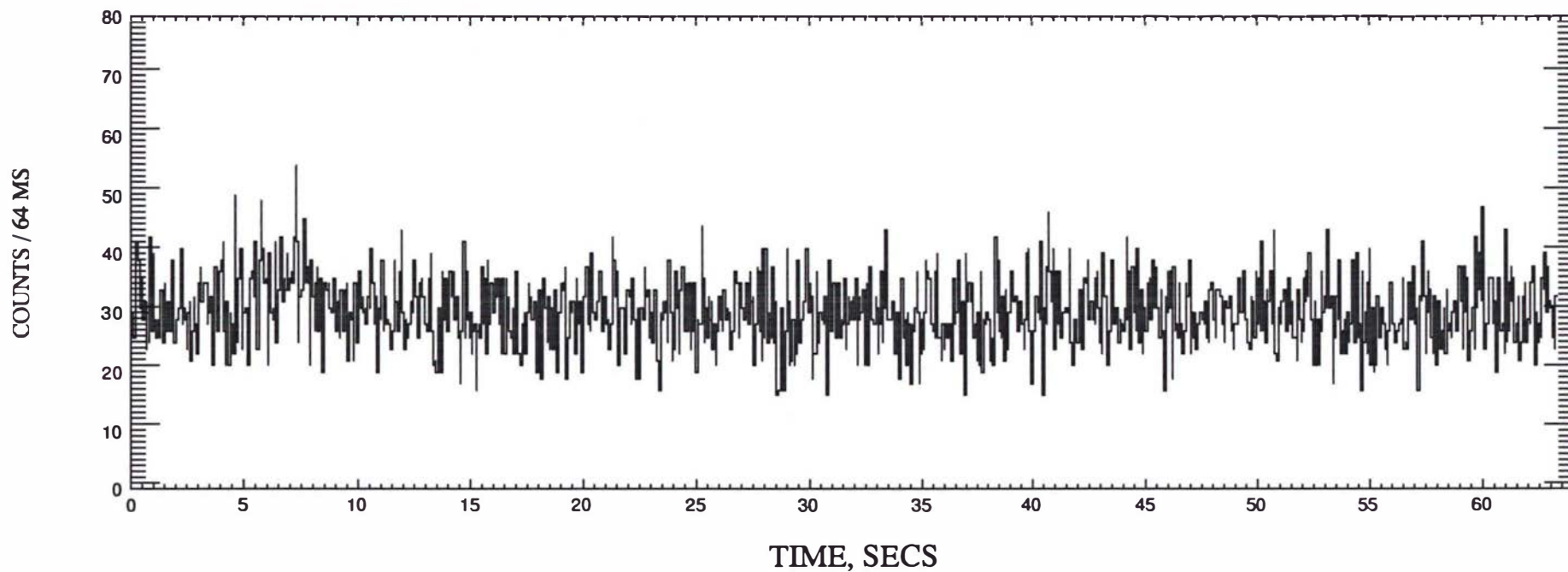
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

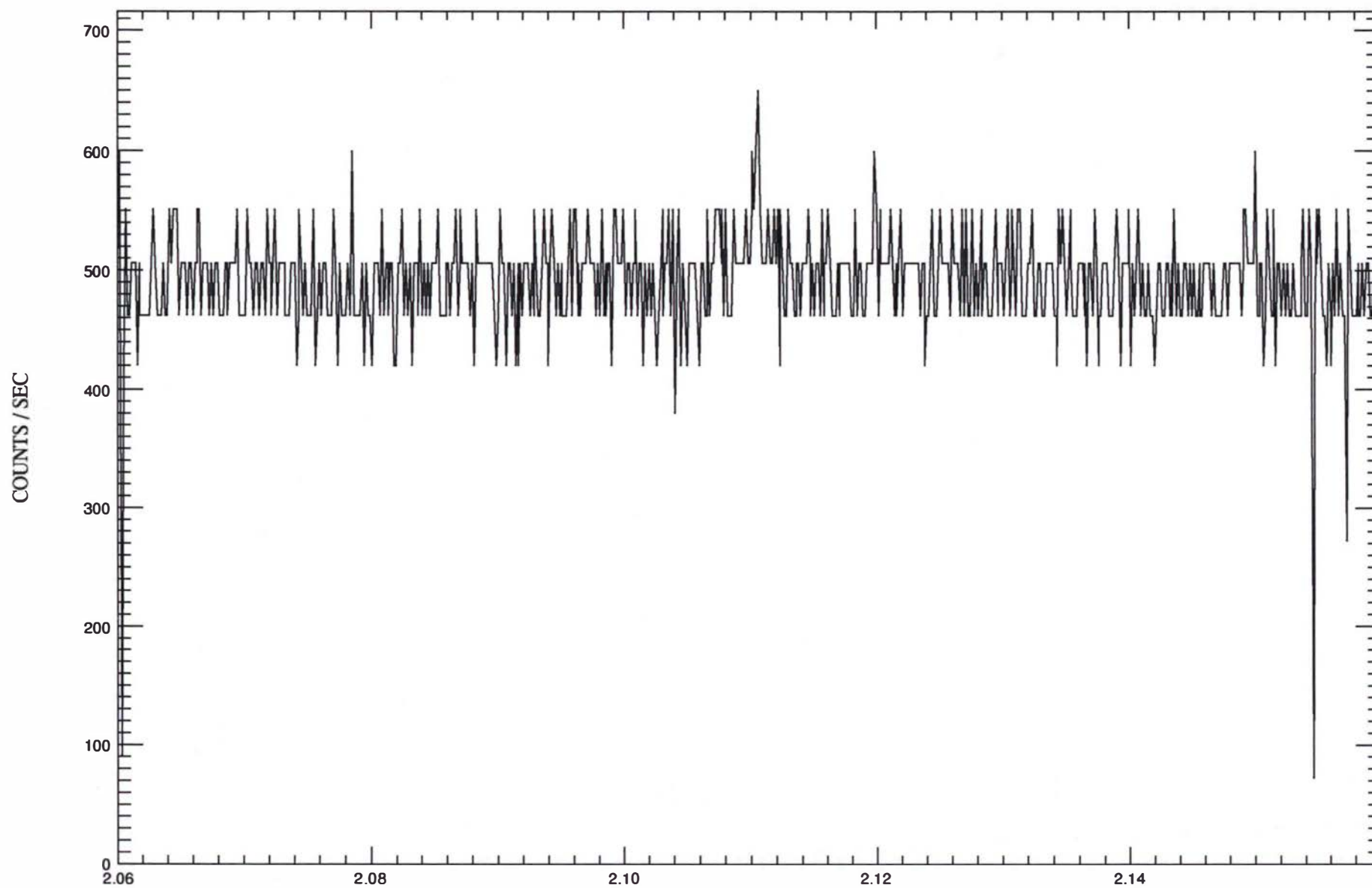
BURST NUMBER 3 - 6



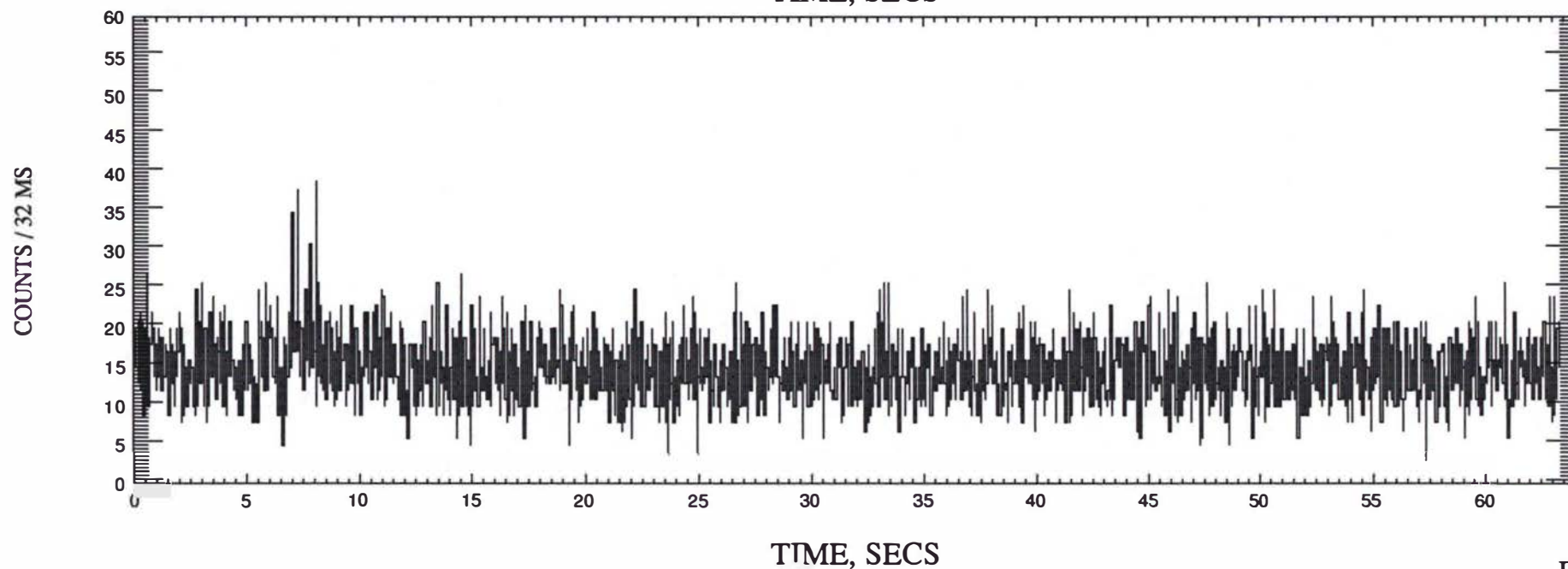
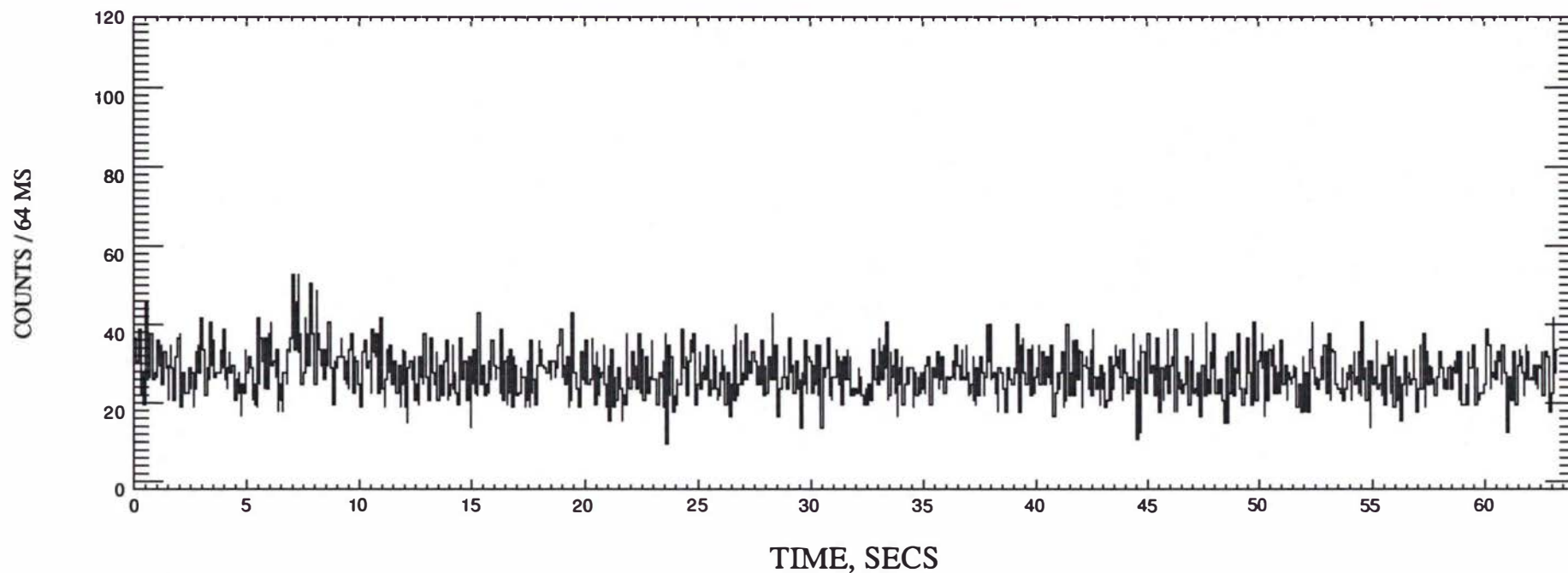
Burst Counter 3 at UT= 2.110669894748 h= 7598.412 s 02:06:38.412



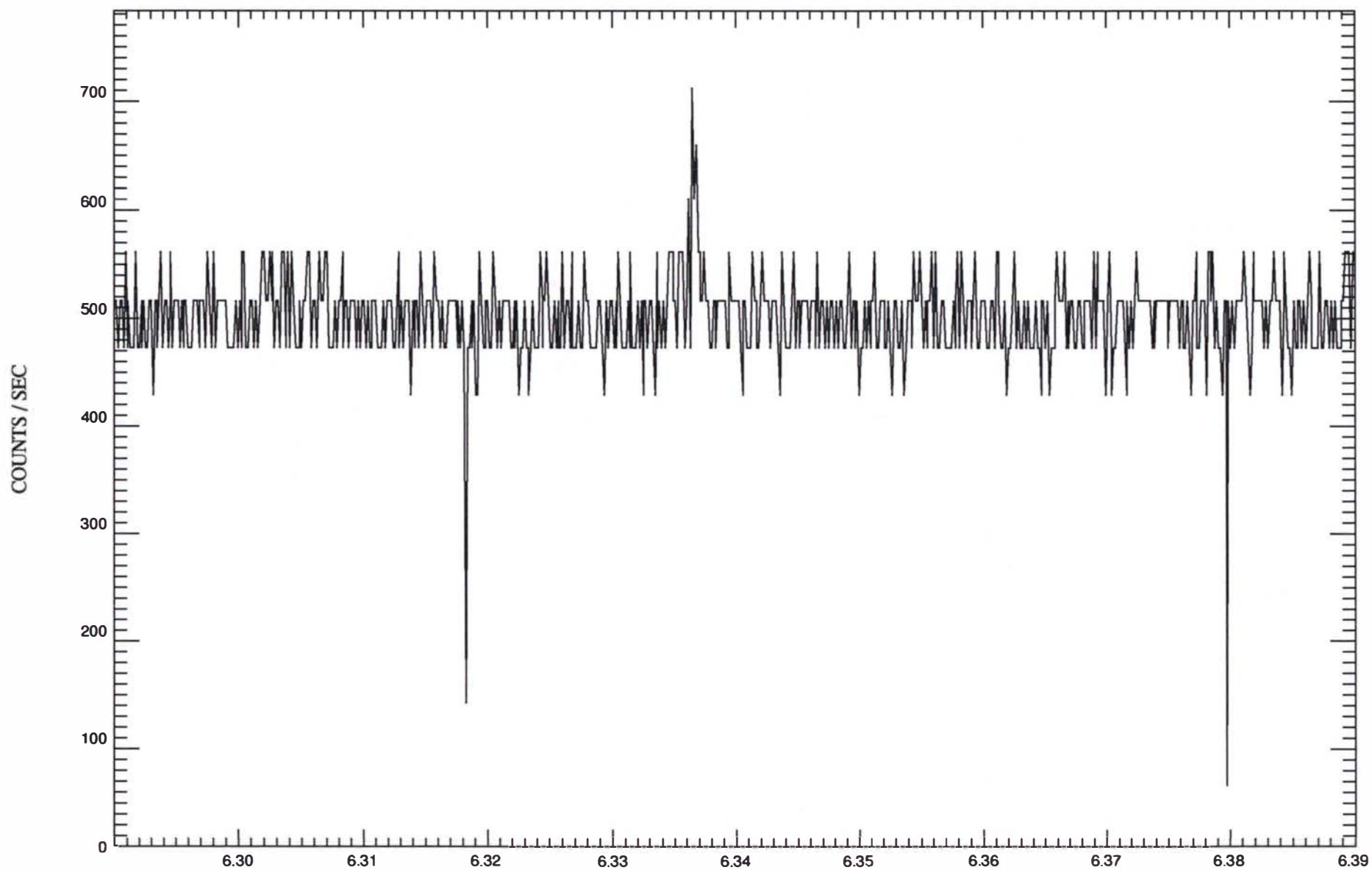
CALIBRATION DATA INCLUDED



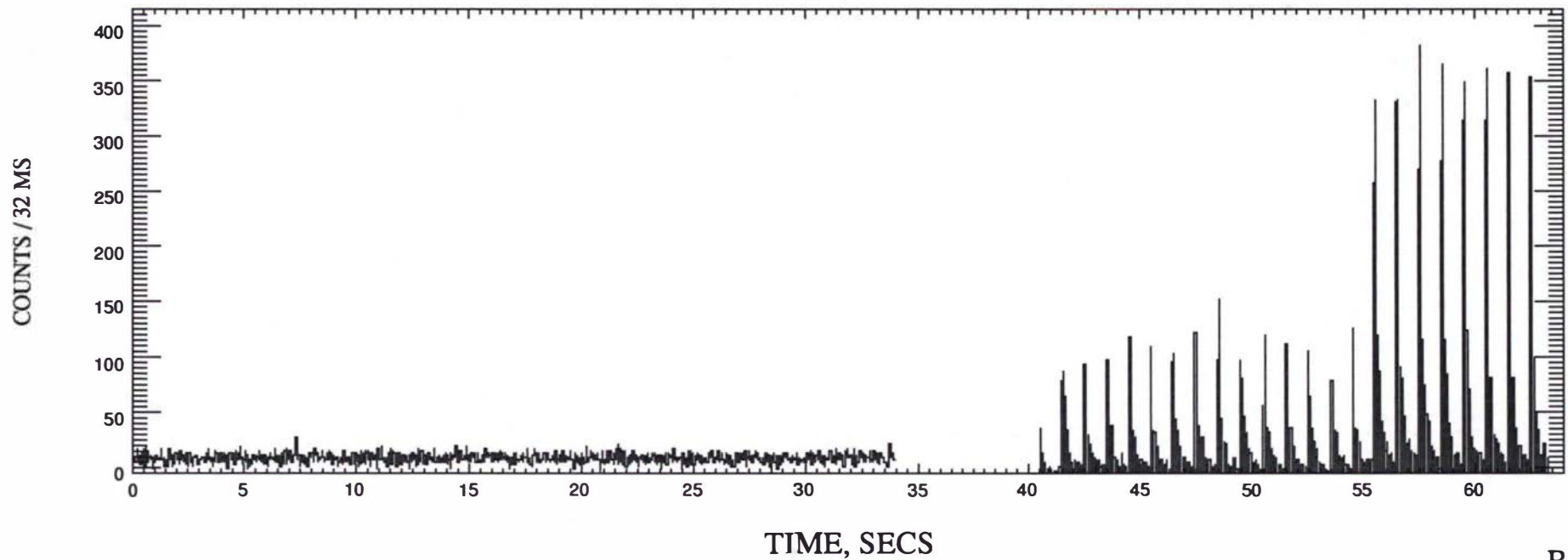
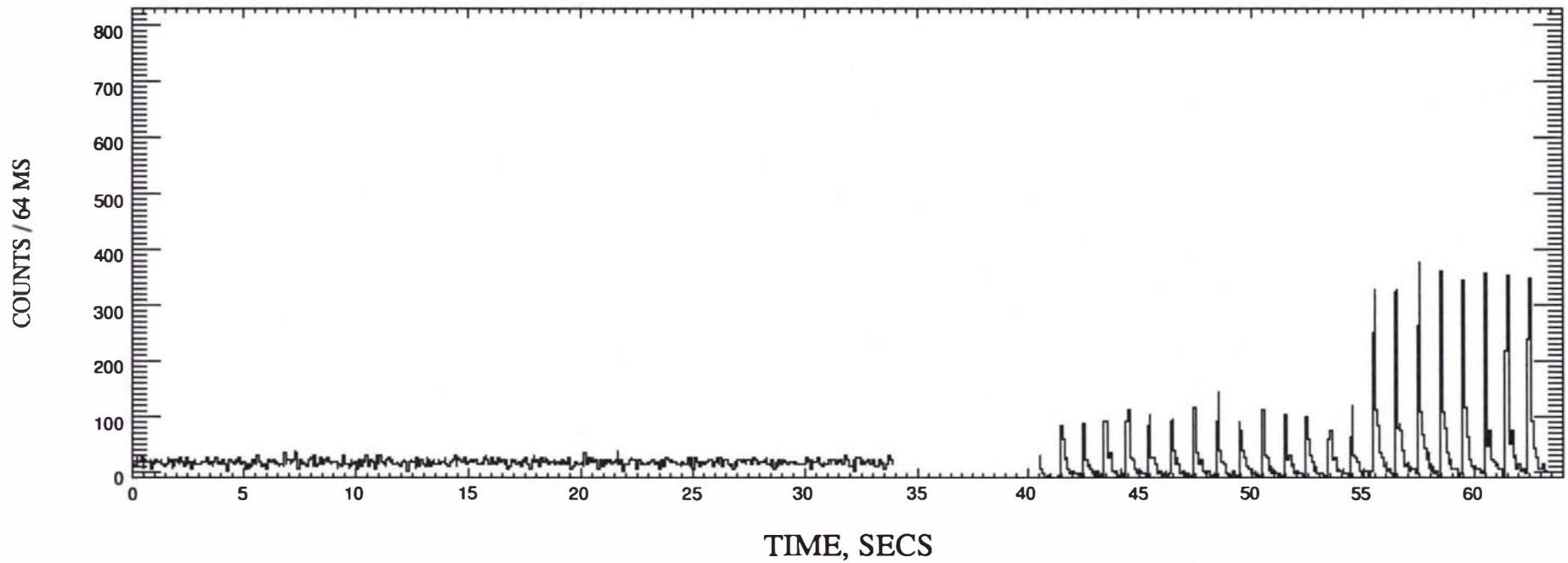
Burst Counter 4 at UT= 6.336671858894 h=22812.019 s 06:20:12.019



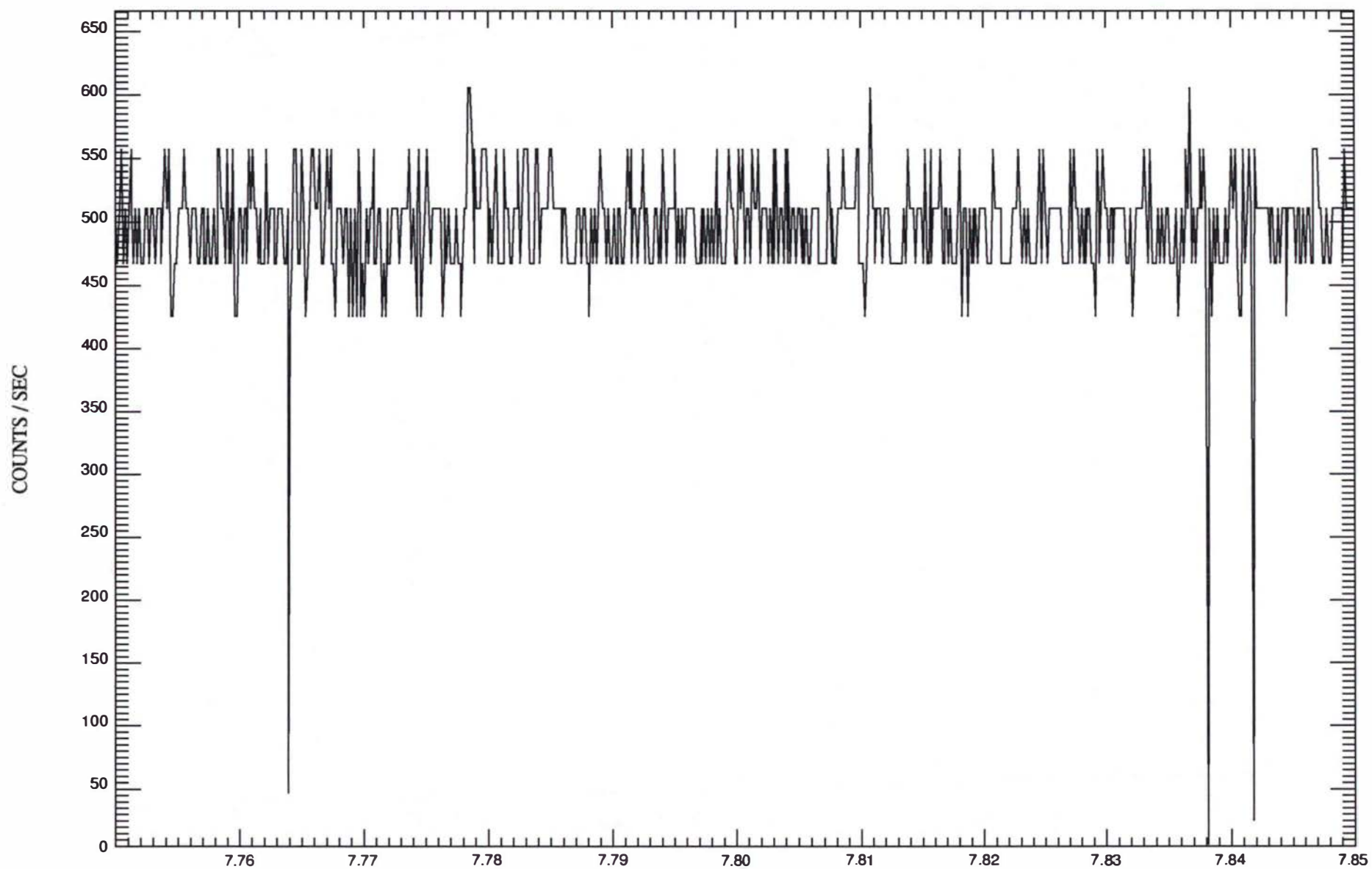
CALIBRATION DATA INCLUDED



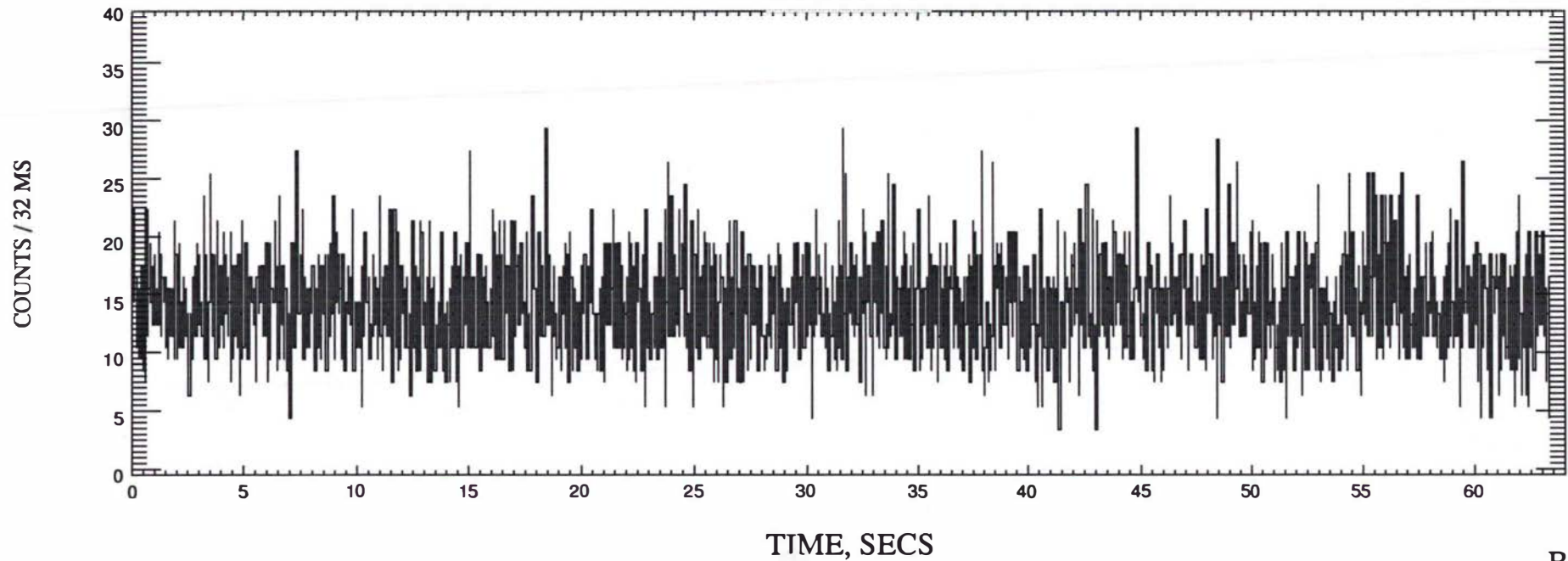
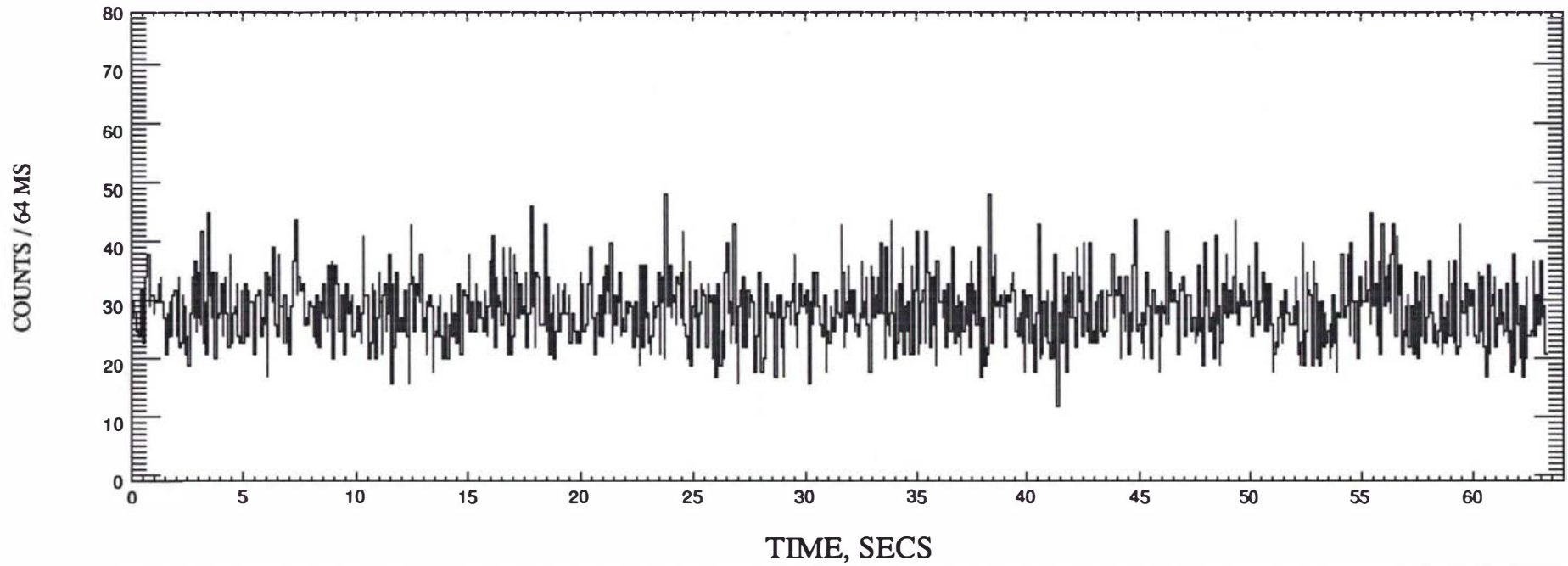
Burst Counter 5 at UT= 7.799505123562 h=28078.218 s 07:47:58.218



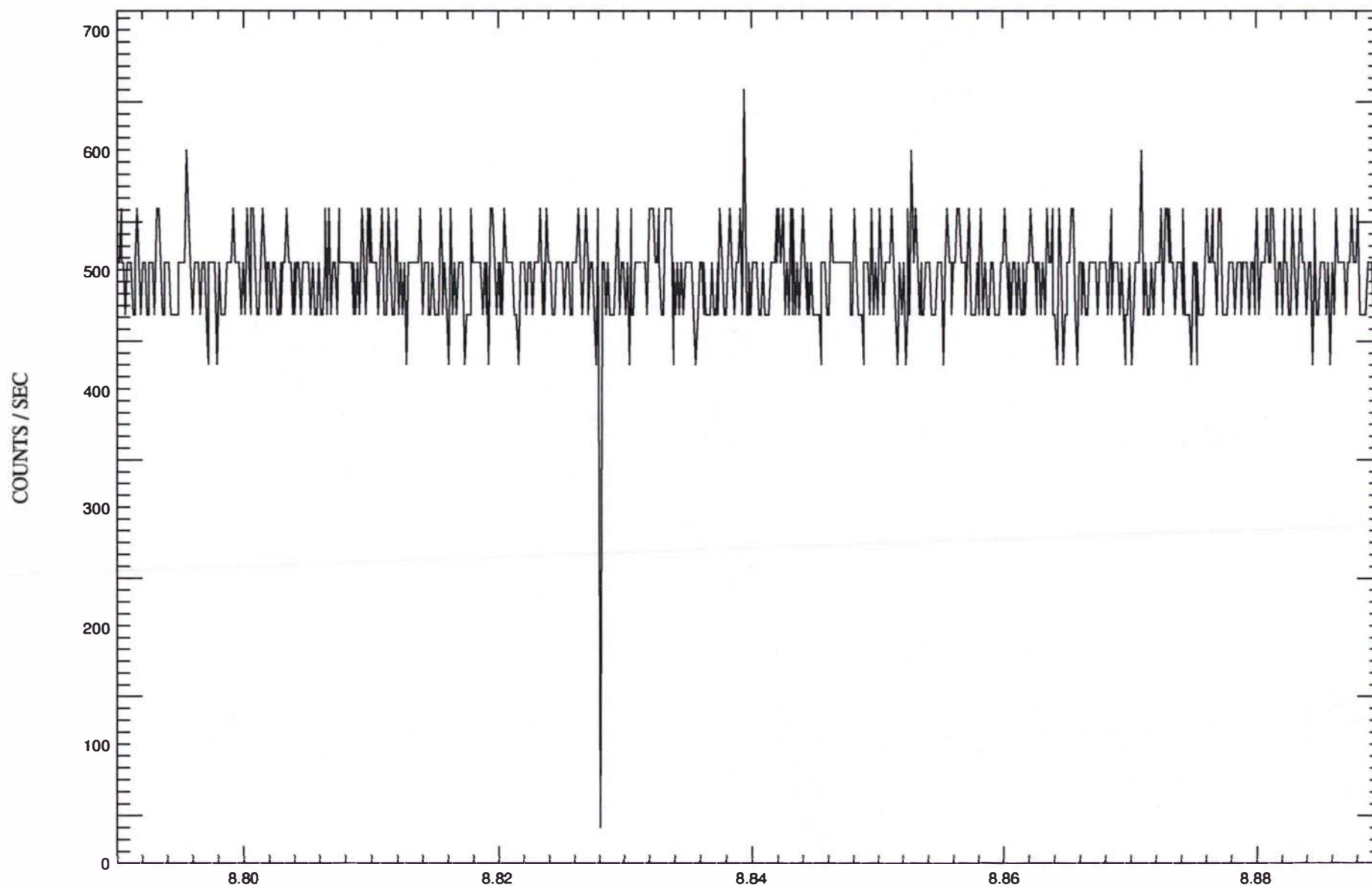
CALIBRATION DATA INCLUDED



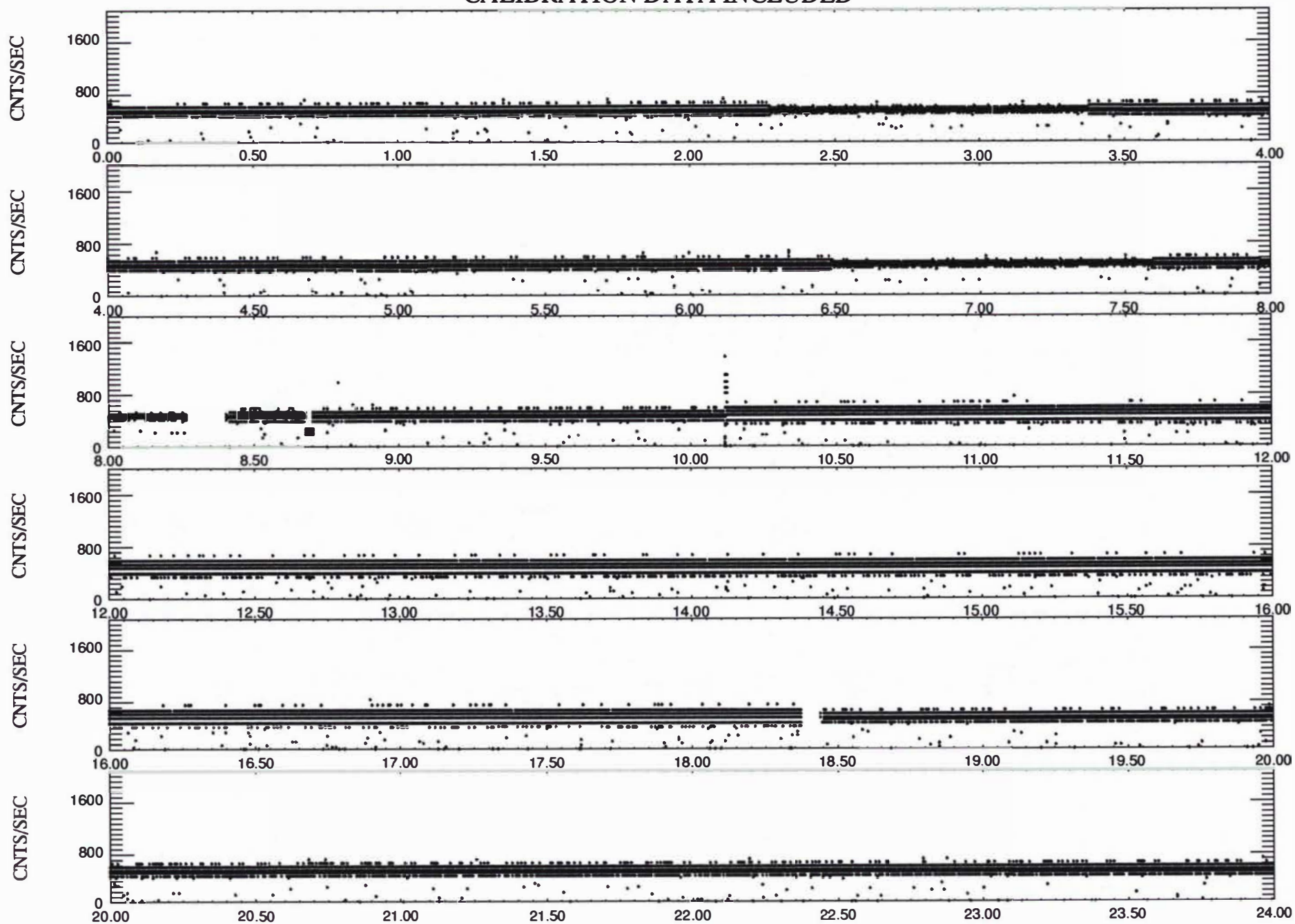
Burst Counter 6 at UT= 8.839557753669 h=31822.408 s 08:50:22.408



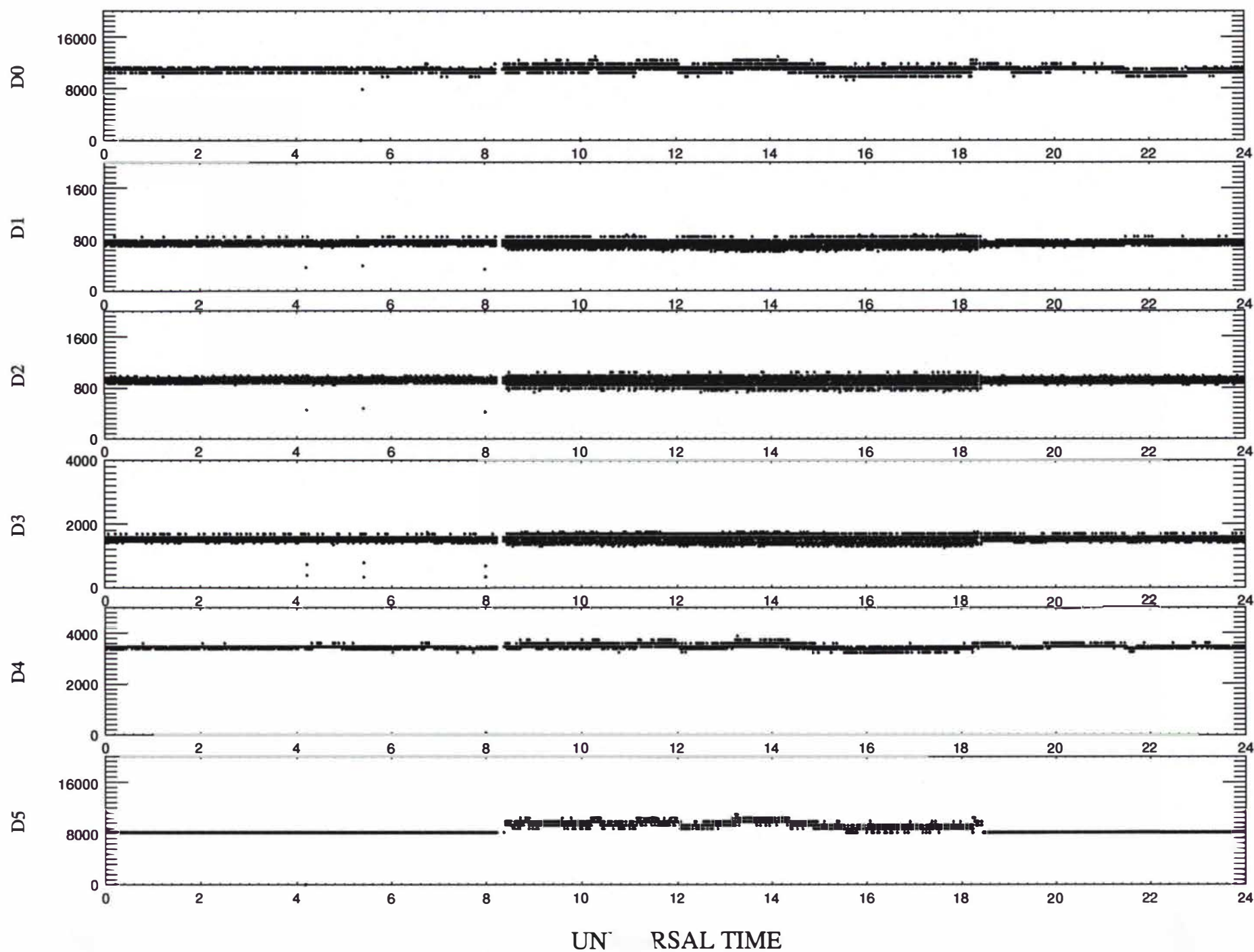
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN RSAL TIME



From WOODSP@SSLLES.MSFC.NASA.GOV Mon Feb 5 09:43 PST 1996
Date: Mon, 5 Feb 1996 11:42:54 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov,
"LHEAVX::BARTHELMY"@ssl.msfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 4719

TIME: TJD=0116 SECONDS=27642

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:Y

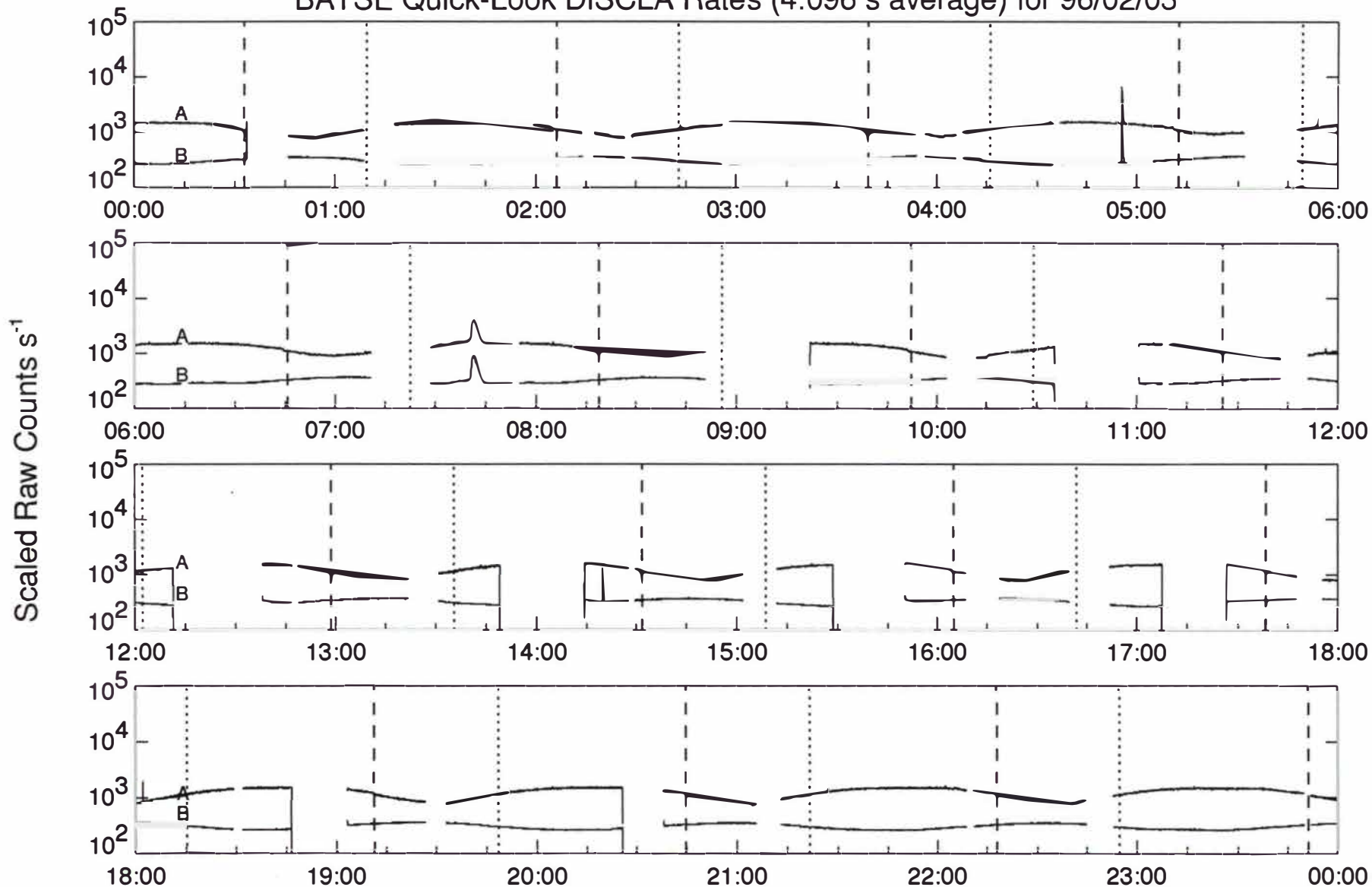
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
SAA ENTRY

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/03

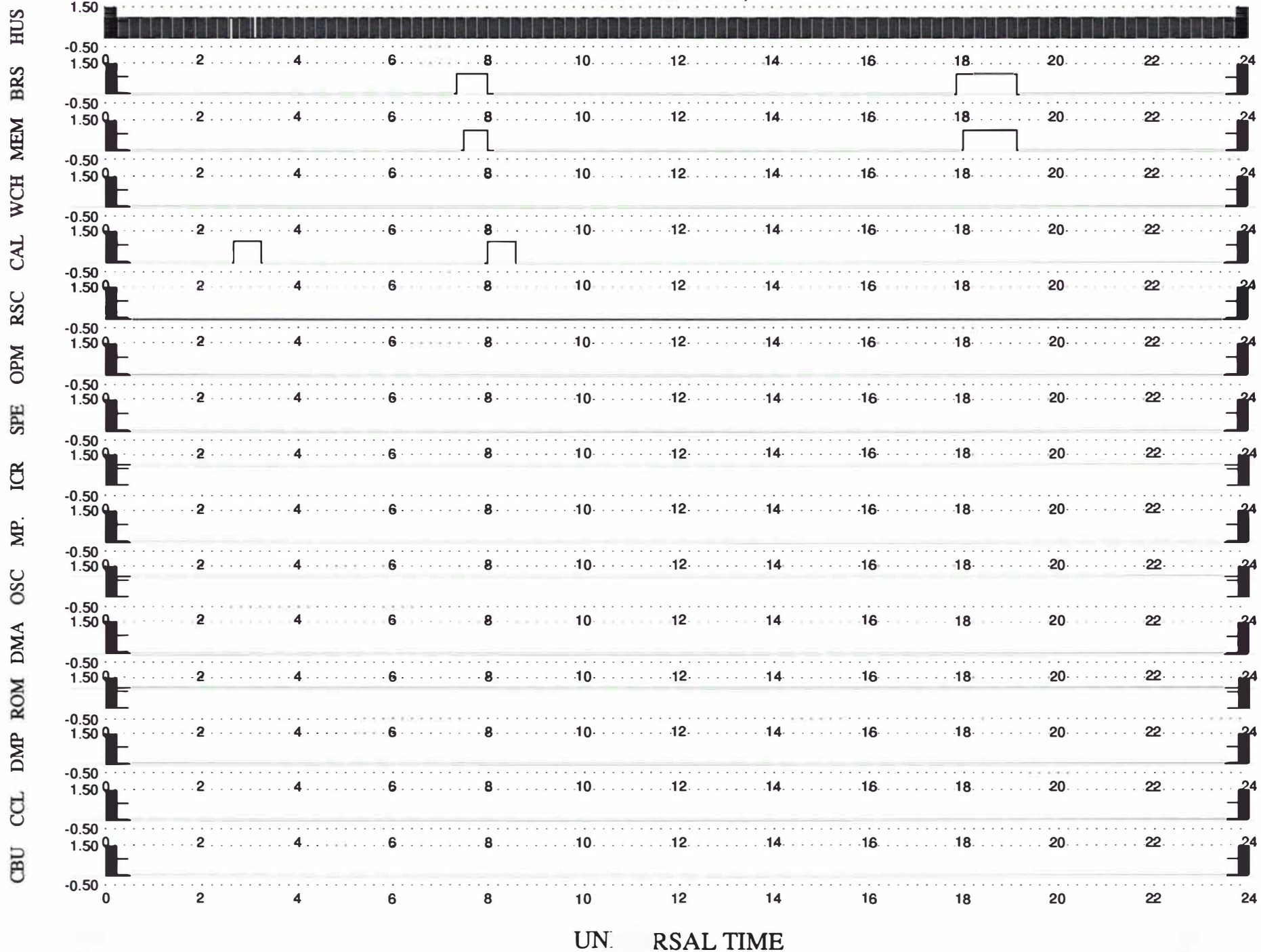


Current Time: 96/02/07, 1330 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

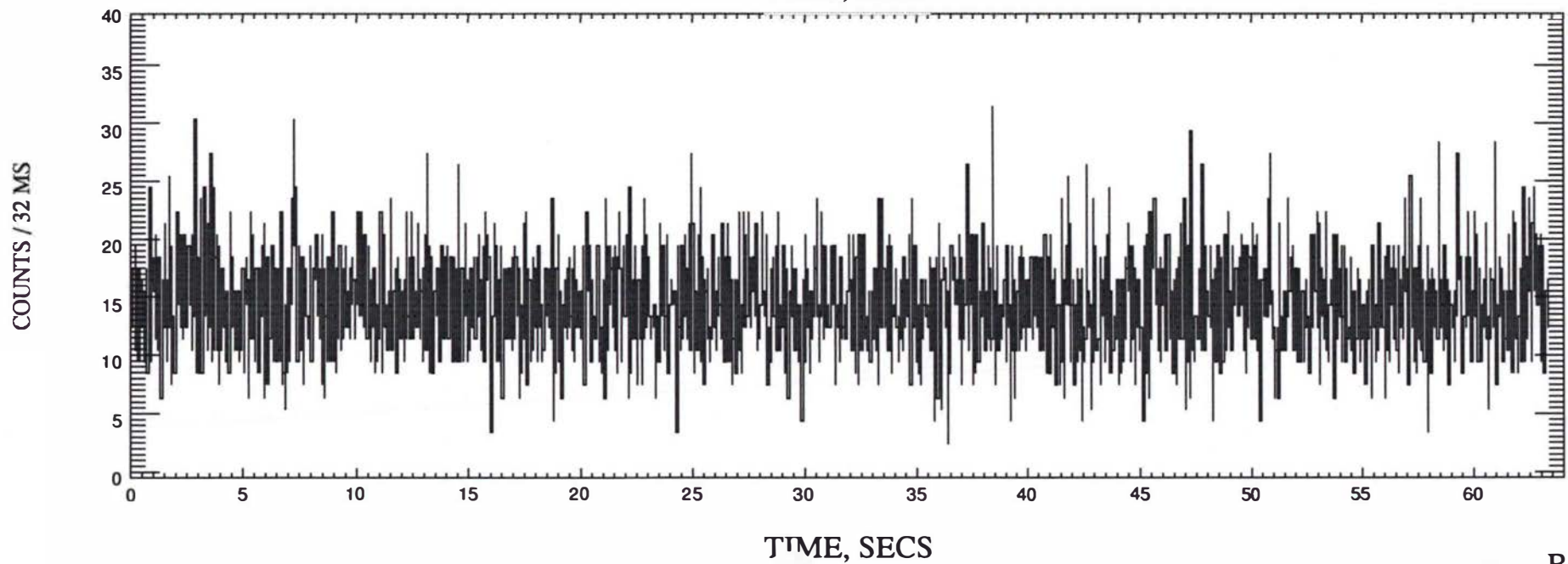
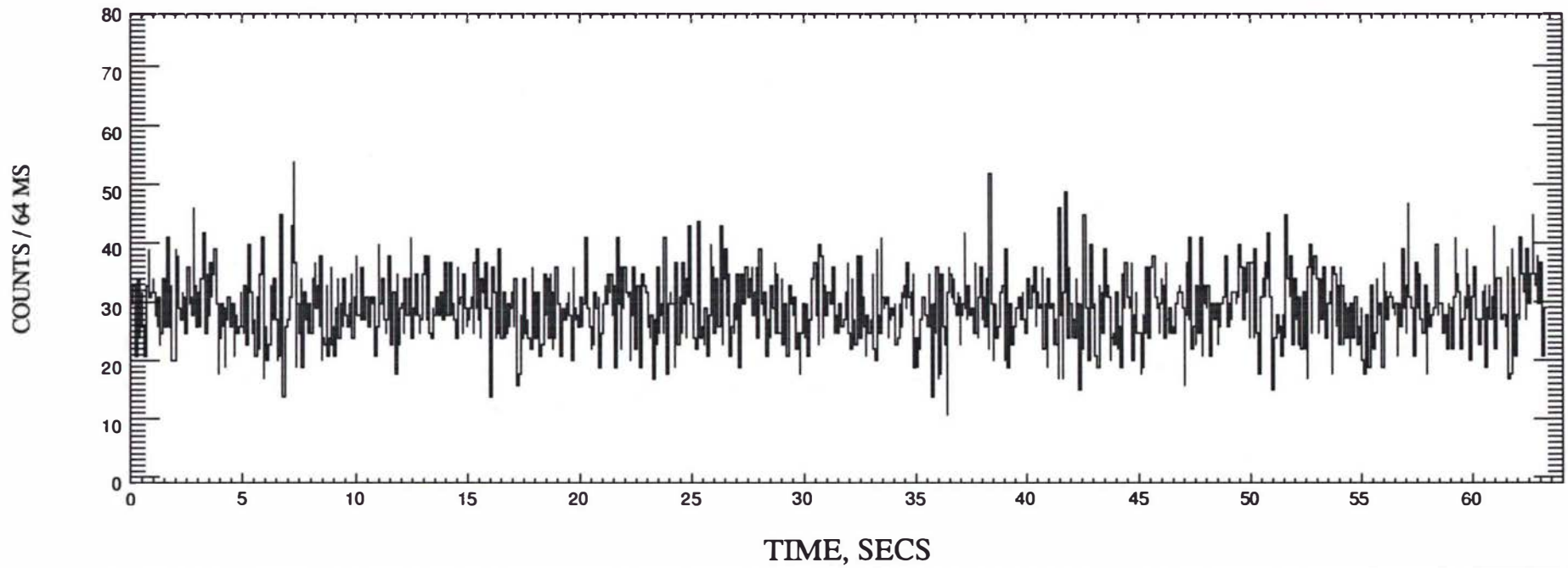
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

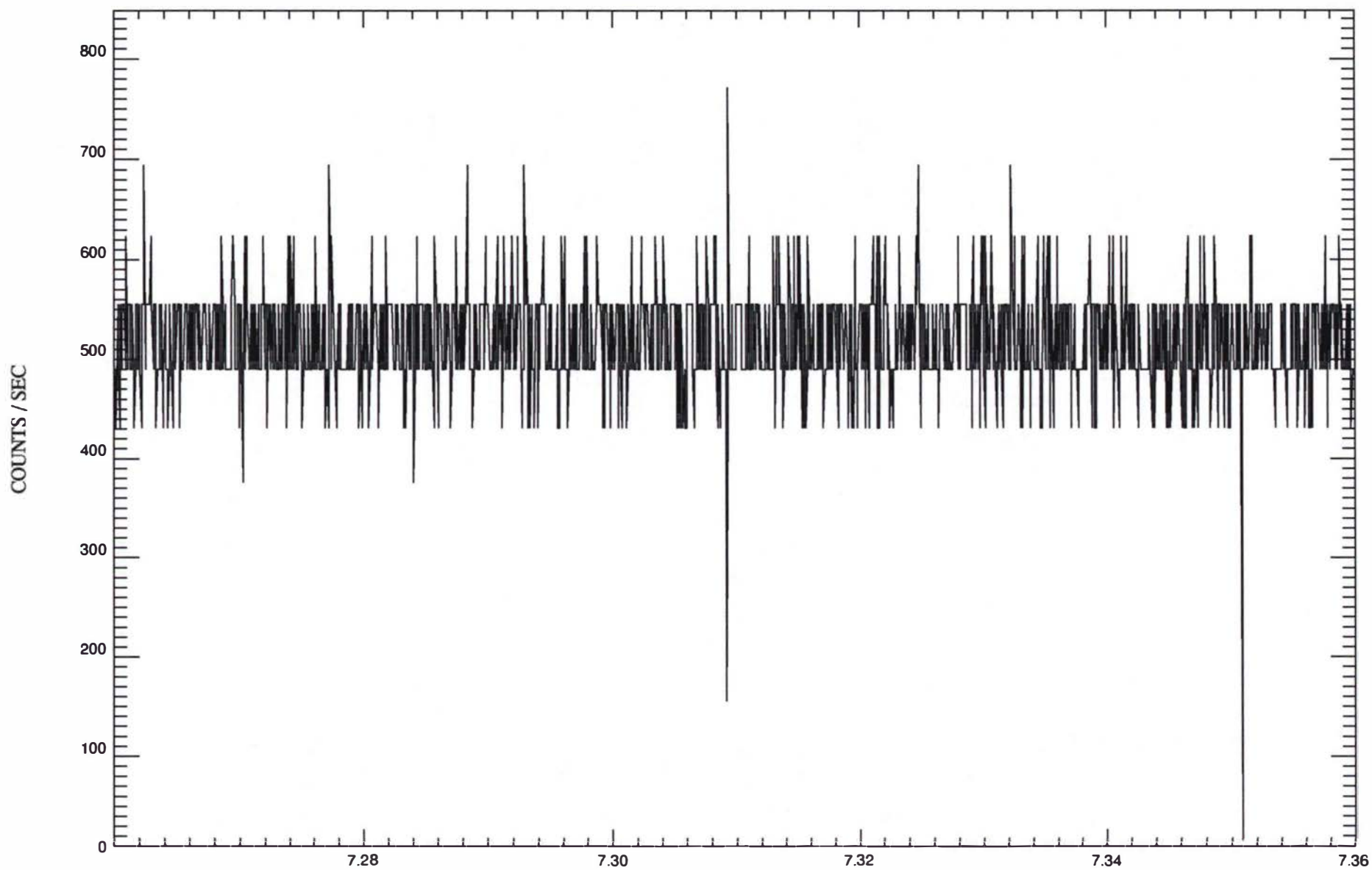
BURST NUMBER 7, 8



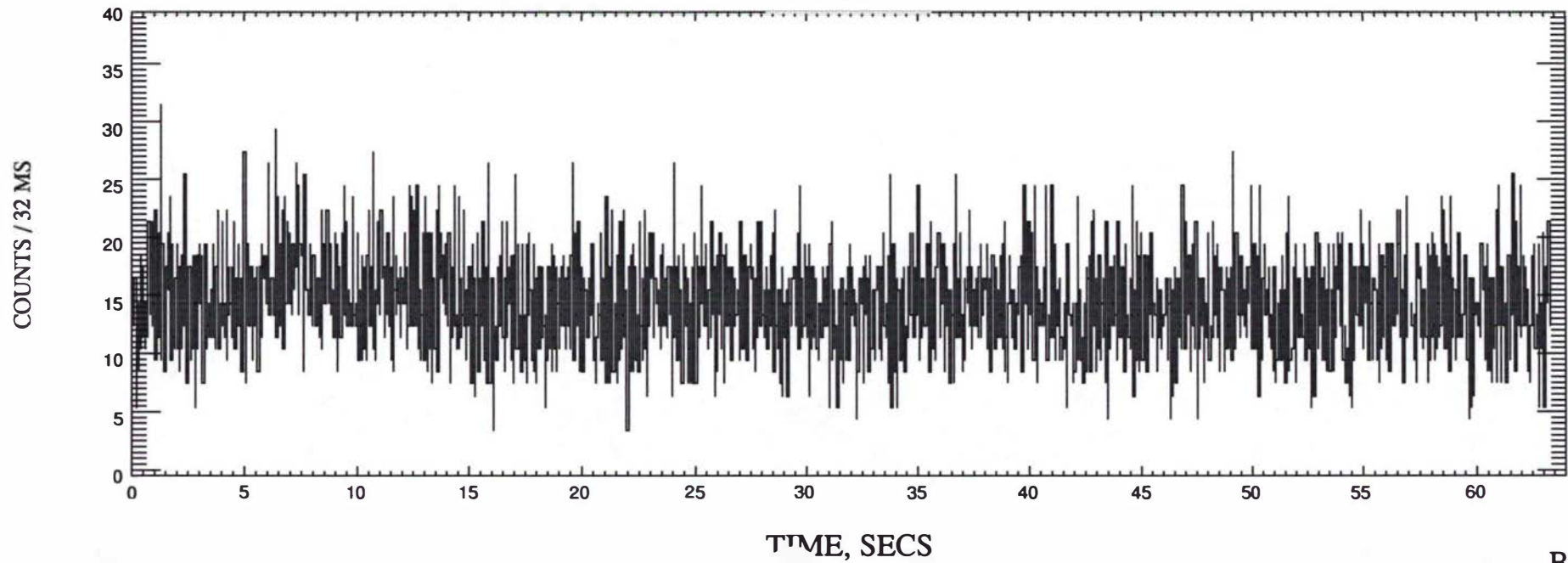
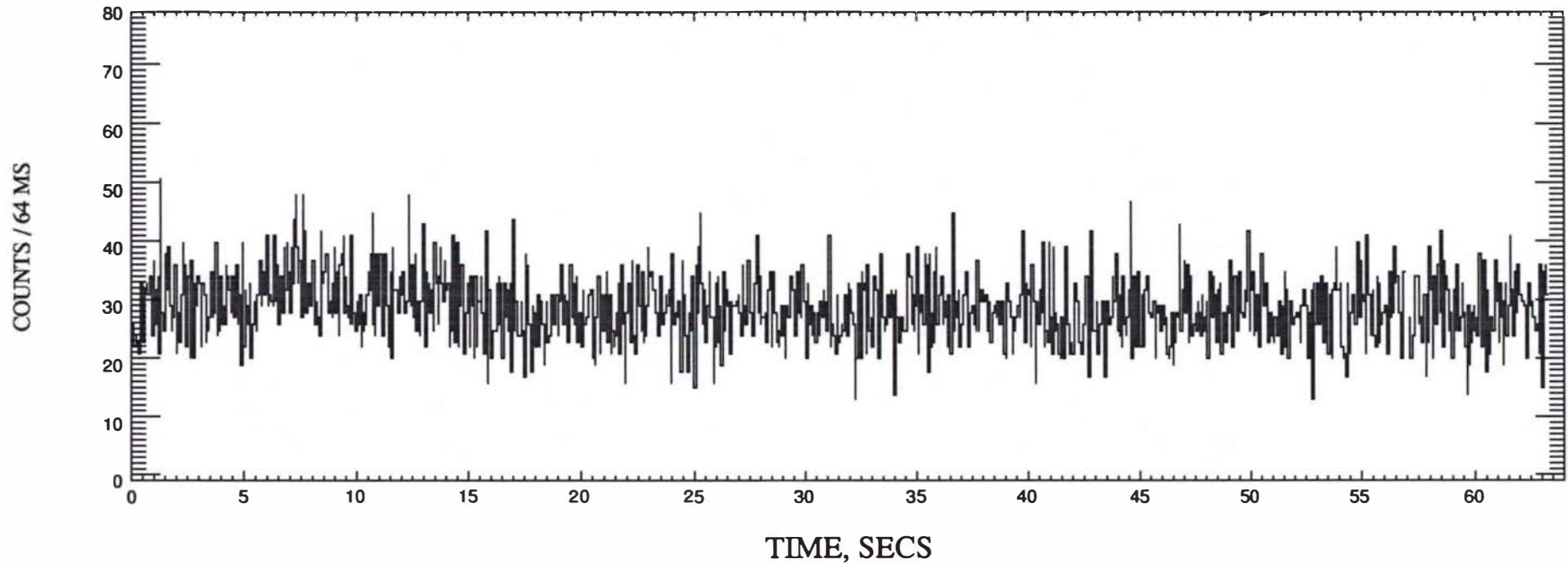
Burst Counter 7 at UT= 7.309468646579 h=26314.087 s 07:18:34.087



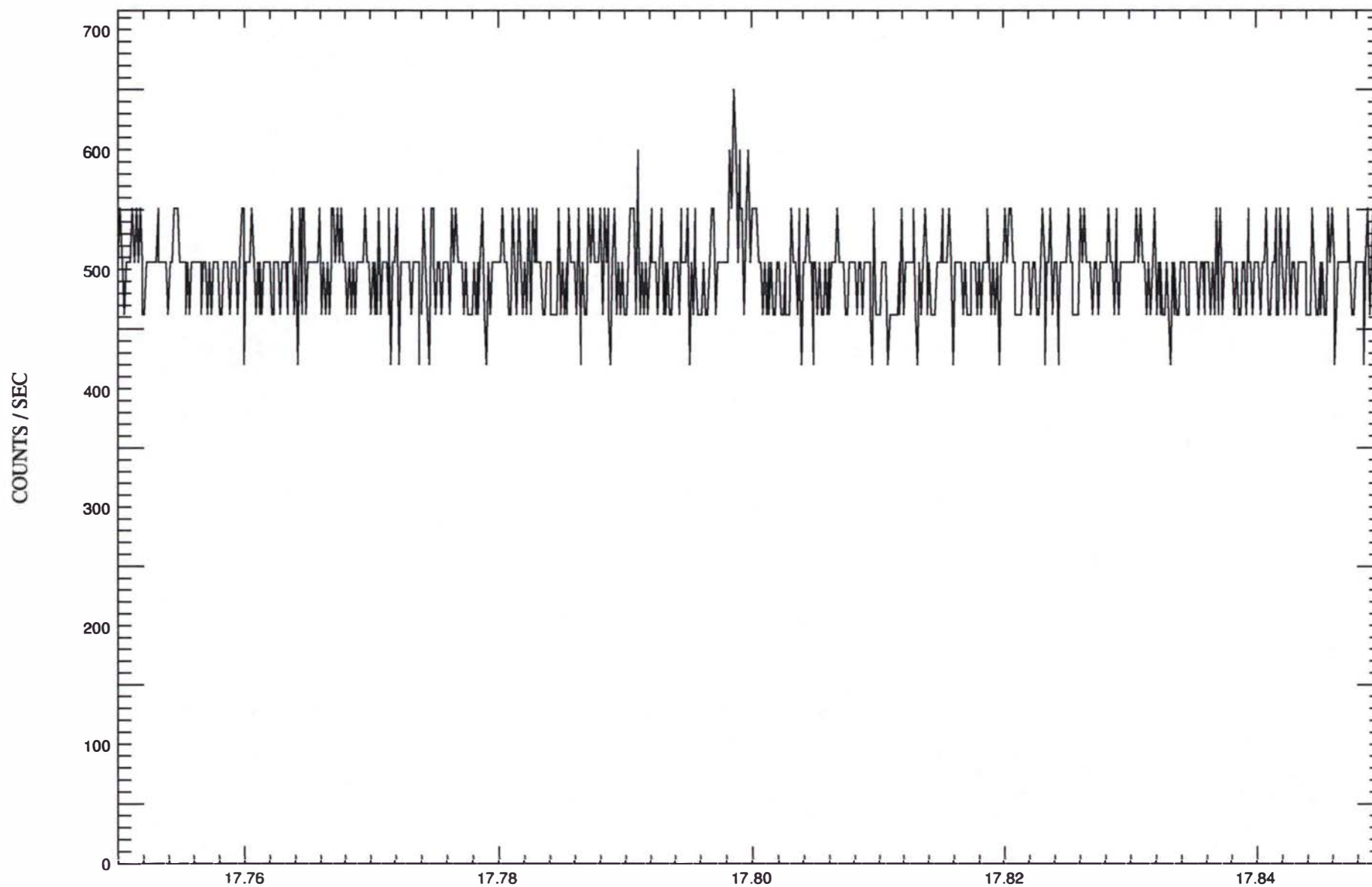
CALIBRATION DATA INCLUDED



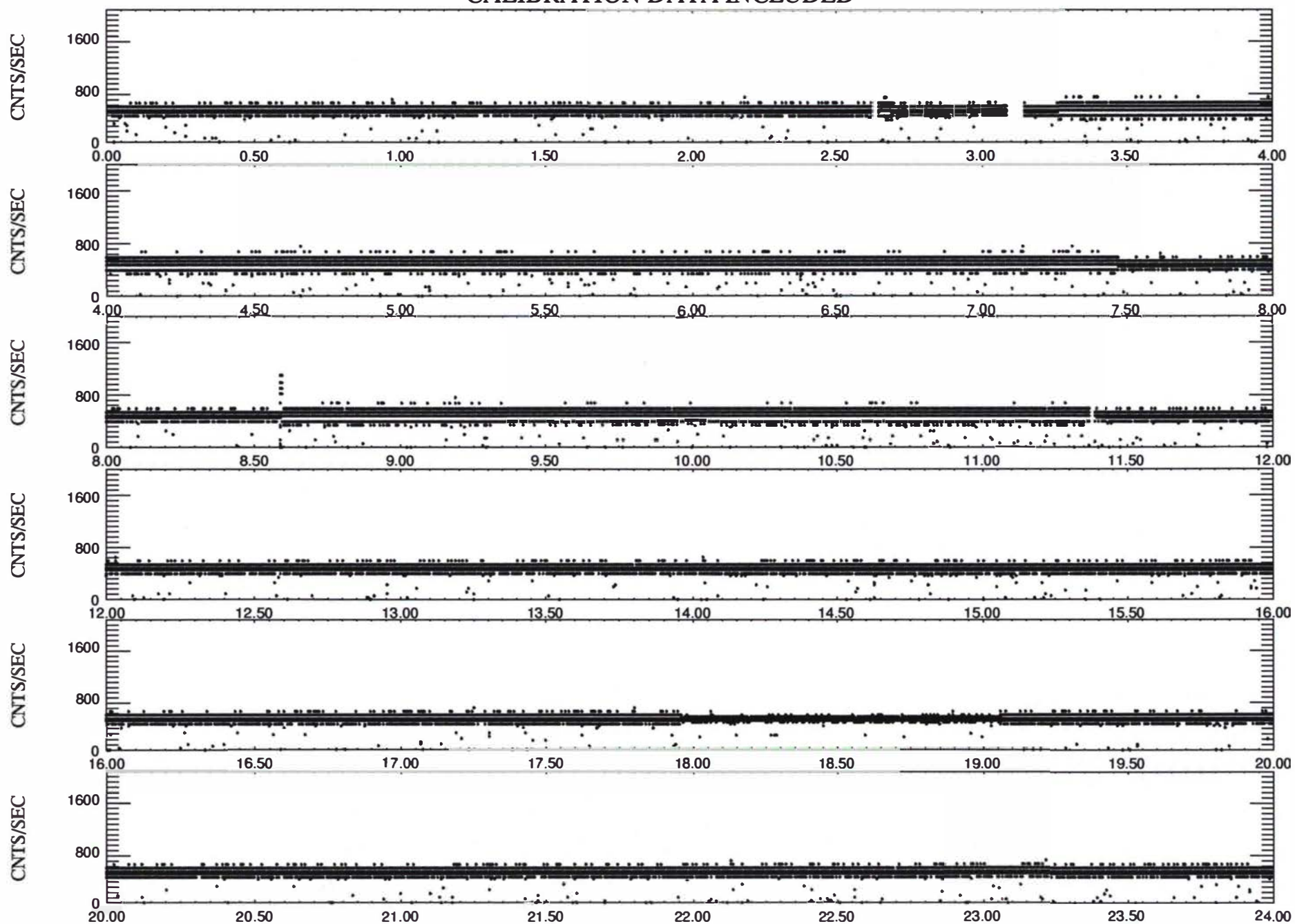
Burst Counter 8 at UT=17.798856078254 h=64075.882 s 17:47:55.882



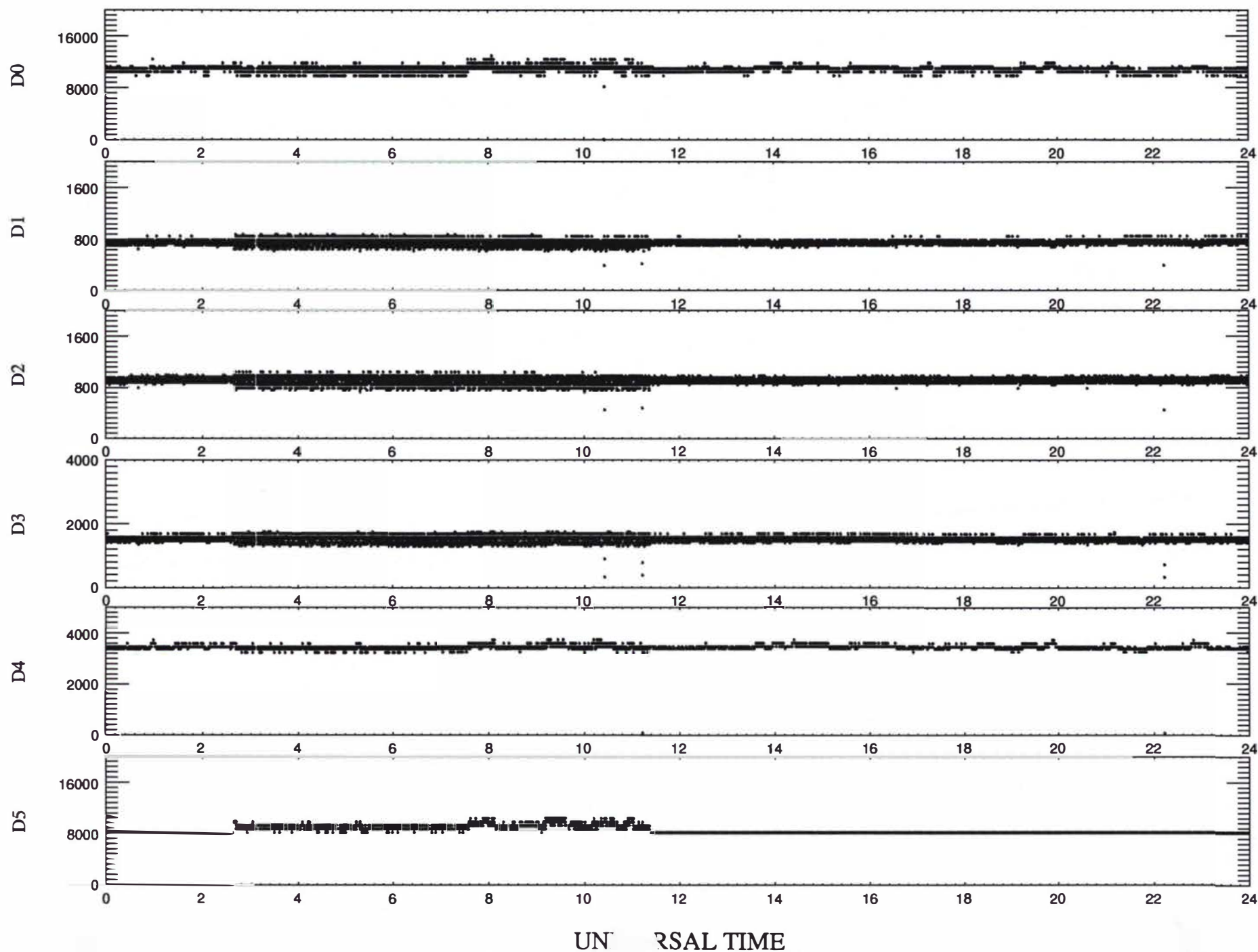
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN' RSAL TIME



From WOODSP@SSLLES.MSFC.NASA.GOV Tue Feb 6 11:36 PST 1996
Date: Tue, 6 Feb 1996 13:34:14 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: burst@comptel.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov,
"LHEAVX::BARTHELMY"@ssl.msfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu,
gruber@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 4731

TIME: TJD=0117 SECONDS=24738

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:Y

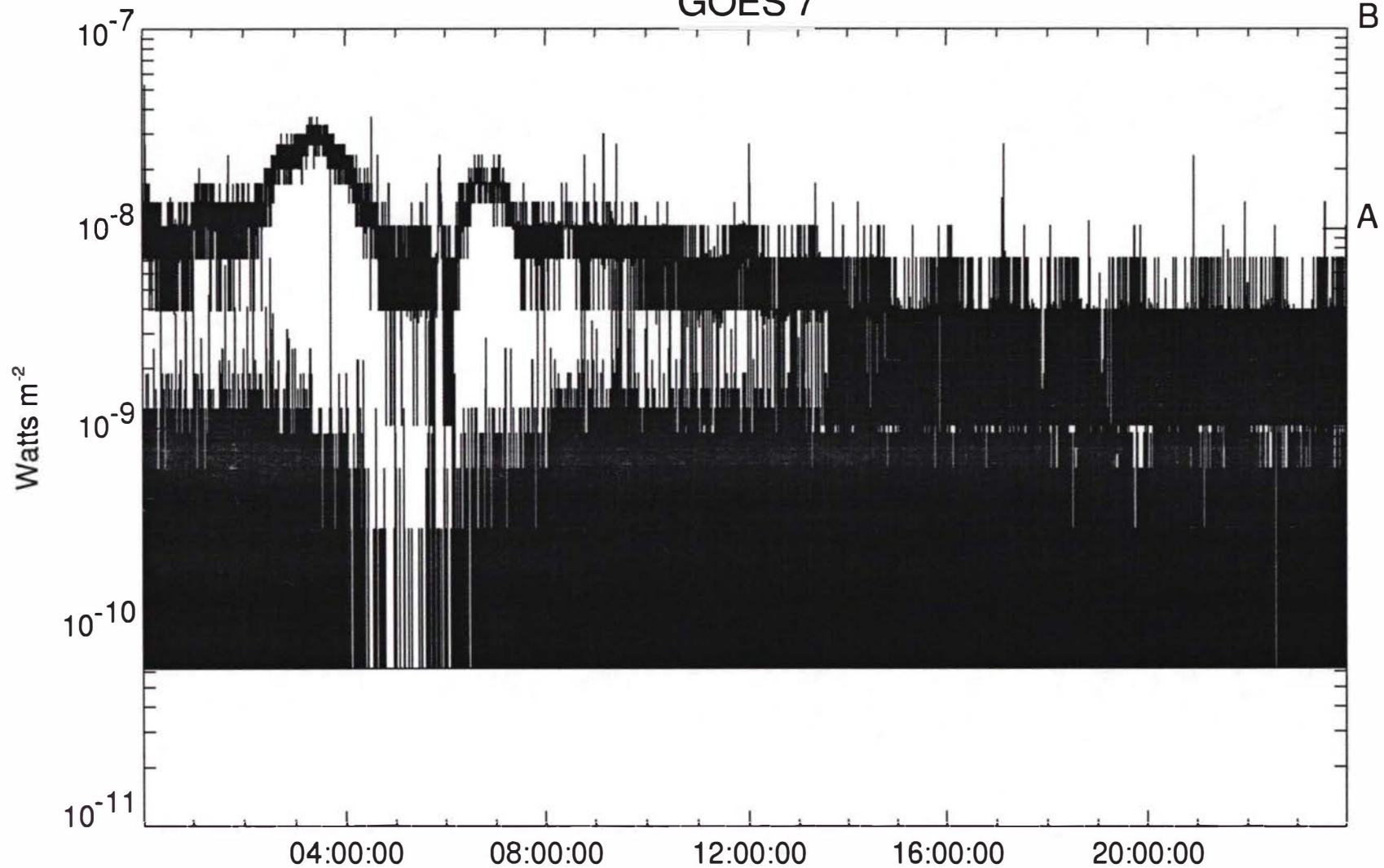
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

GOES 7



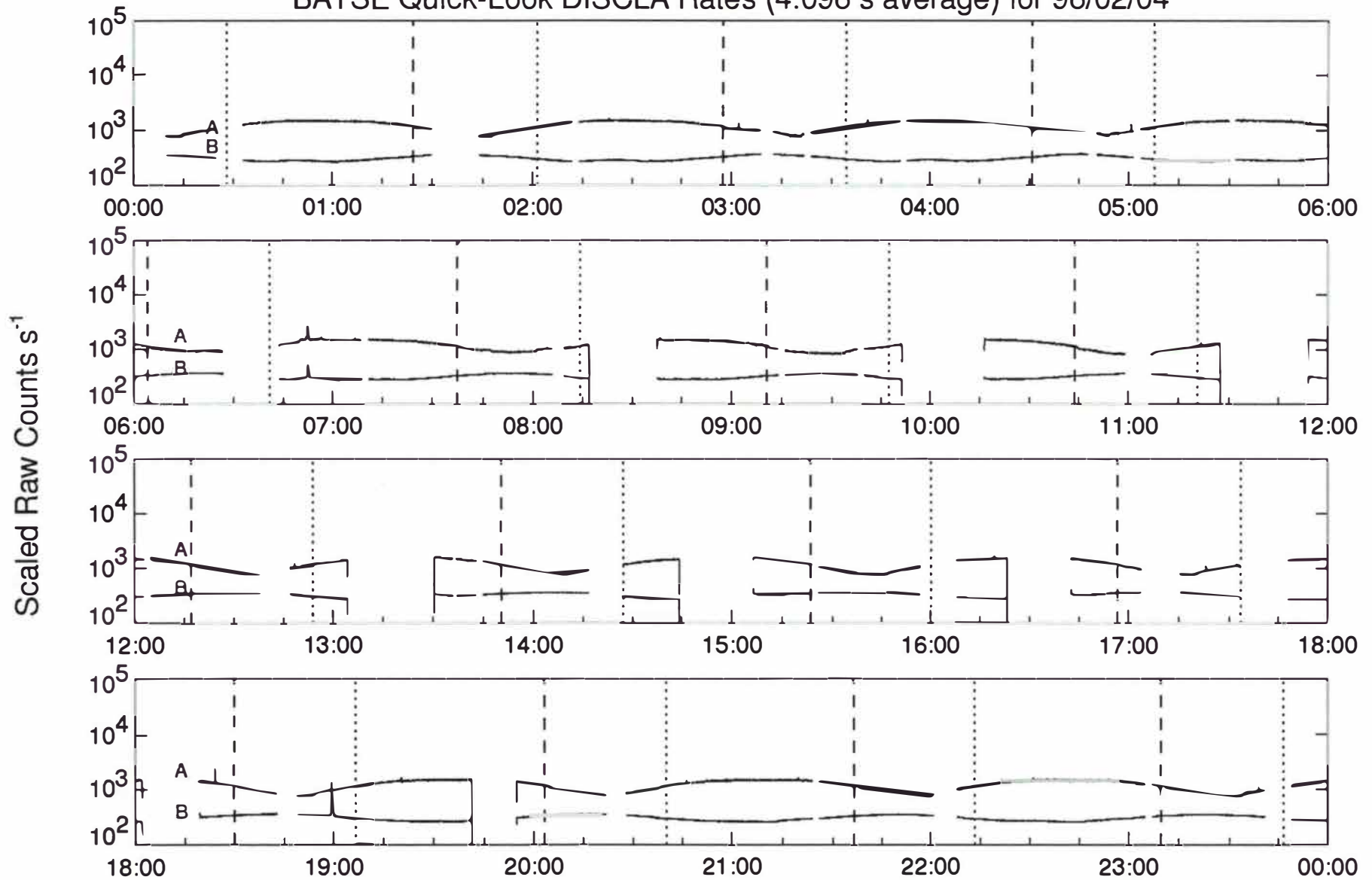
Data Start: 96/02/04, 0000:00

Plot created: 96/02/06, 0654

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/04

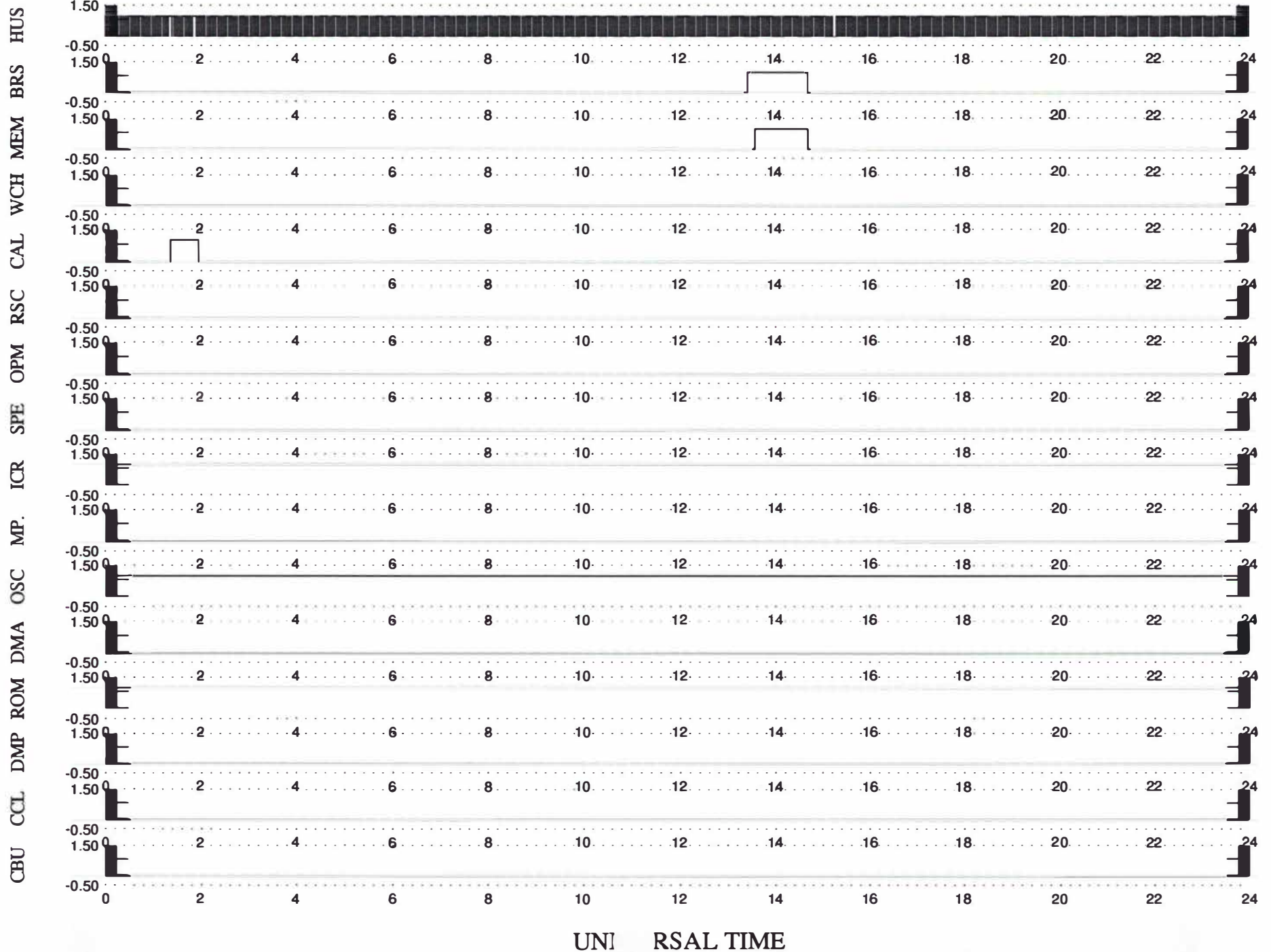


Current Time: 96/02/07, 1335 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

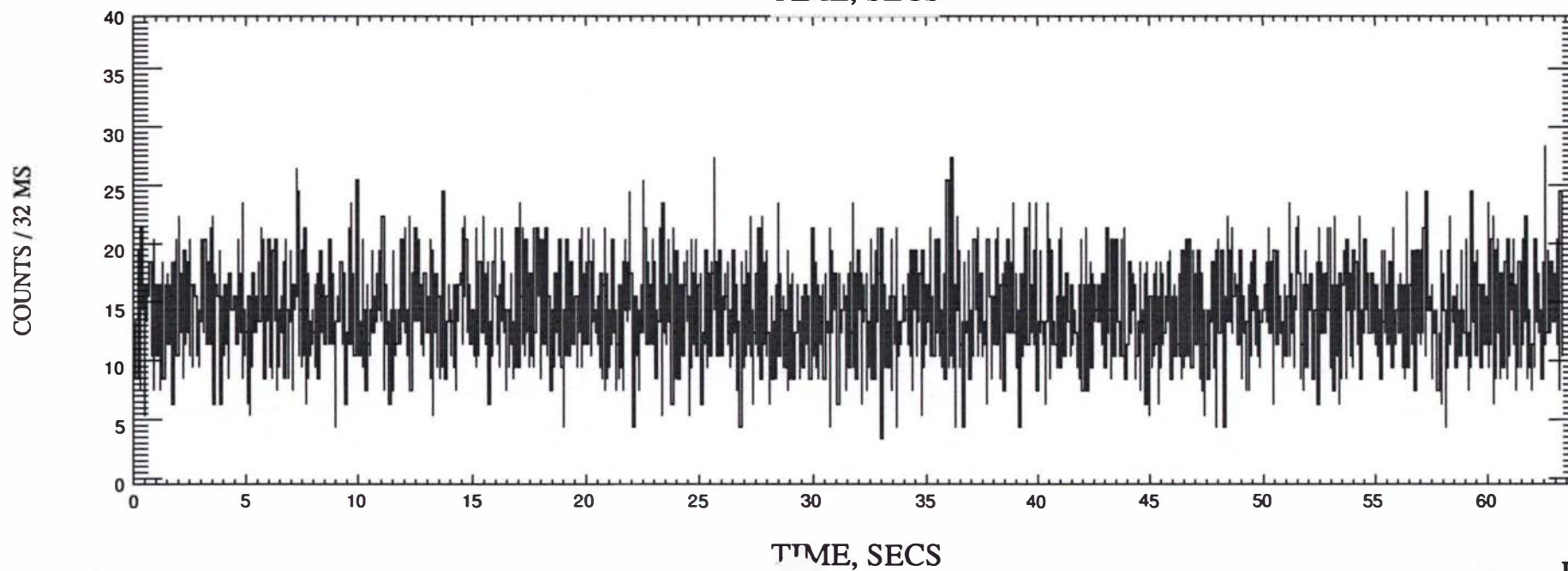
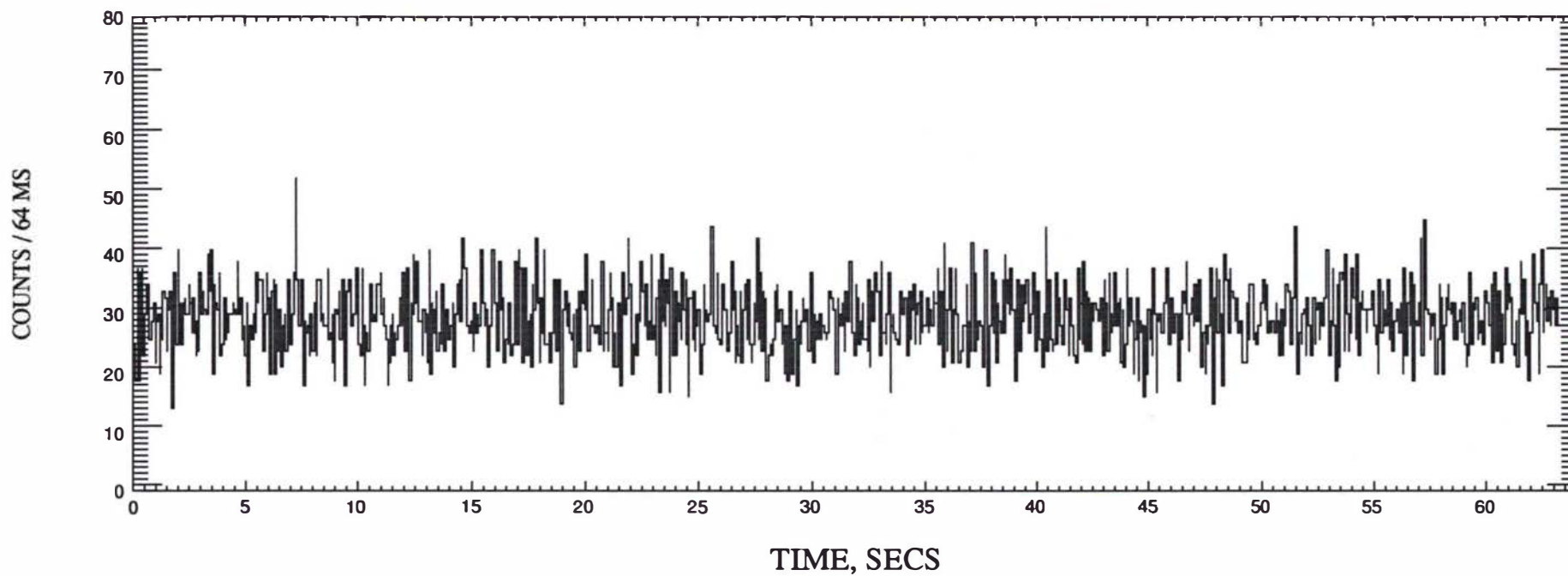
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

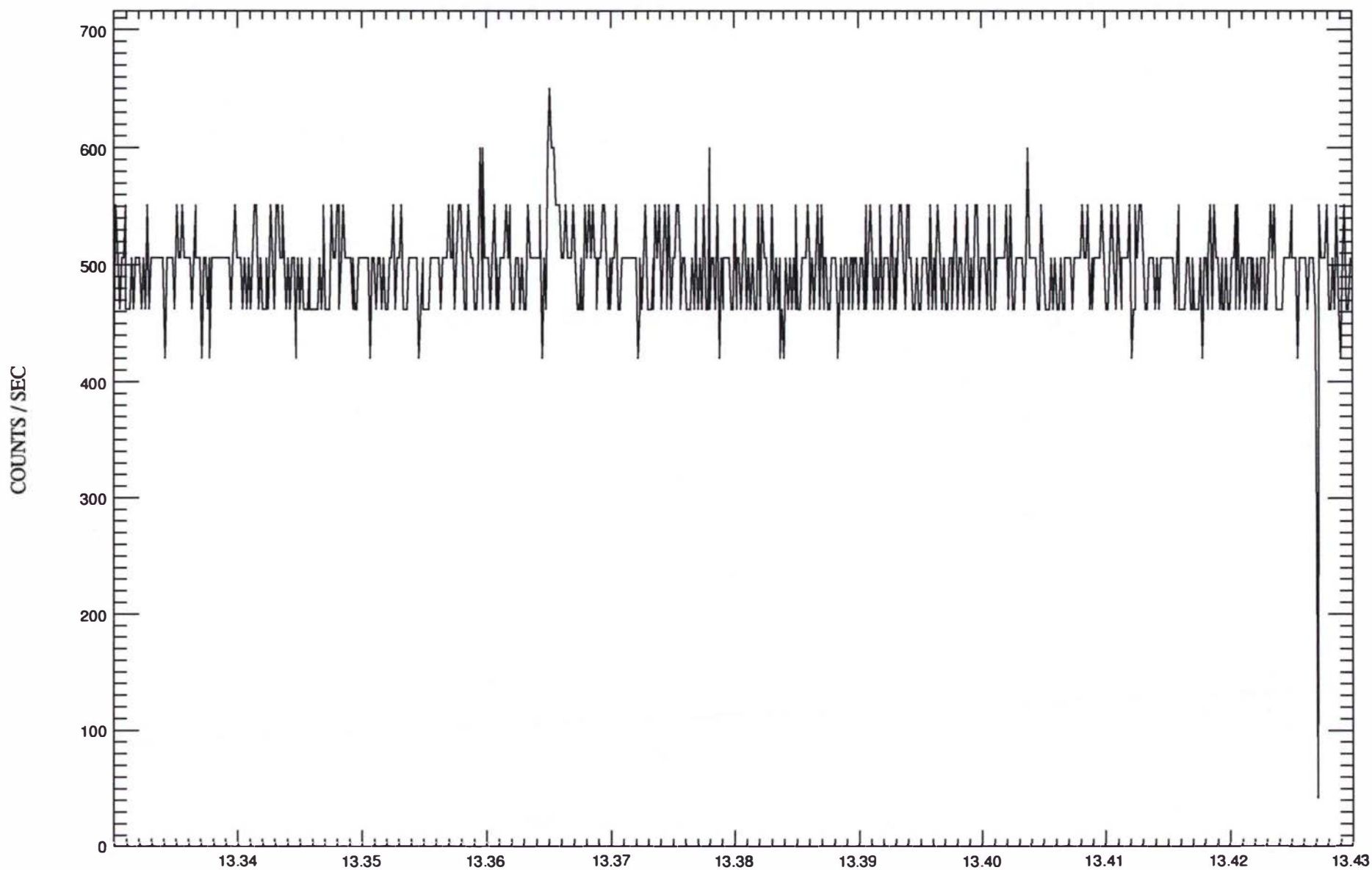
BURST NUMBER 9



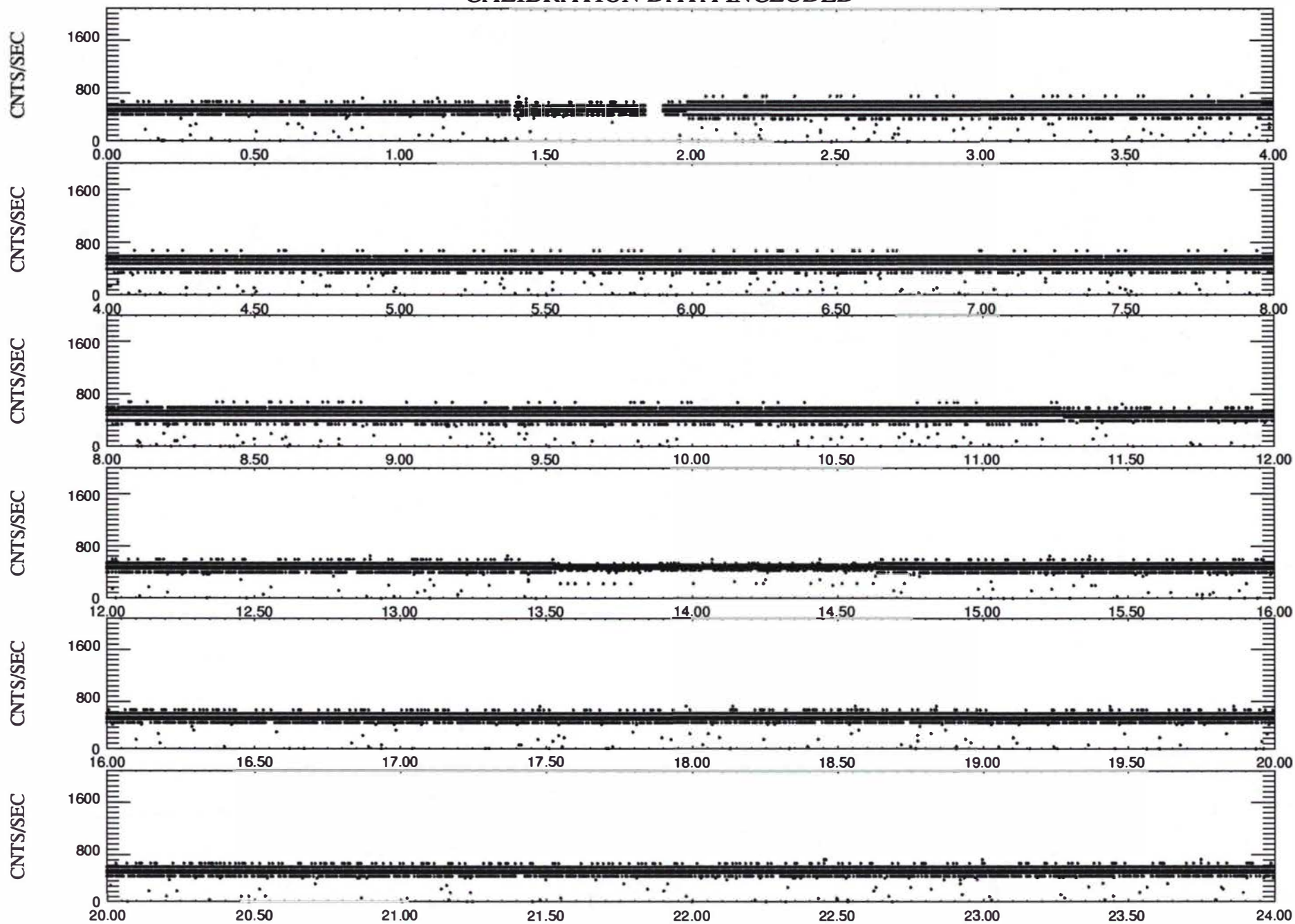
Burst Counter 9 at UT=13.378137855530 h=48161.296 s 13:22:41.296



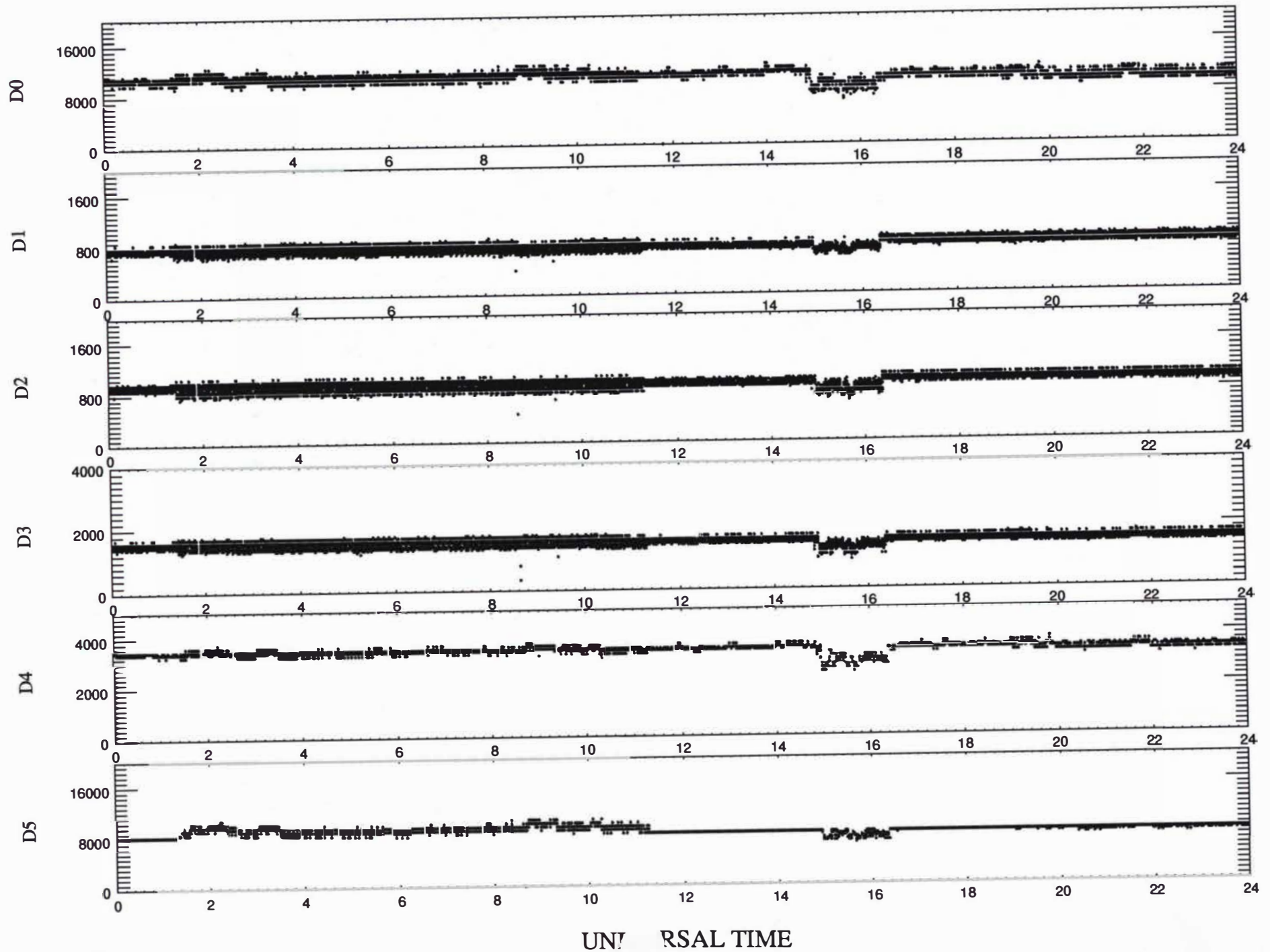
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN RSAL TIME



From WOODSP@ssl.msfc.nasa.gov Wed Feb 7 11:03 PST 1996
From: WOODSP@ssl.msfc.nasa.gov
Date: Wed, 7 Feb 1996 13:03:46 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4744

BATSEARCH PROGRAM

NO

BATSE BURST # 4744
EVENT OF 1996 FEB 5 DAY OF YEAR= 36
EVENT CROSSING TIME AT BATSE : 25802. S. OR 07:10:02.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 72.000 -76.000
BATSE PEAK COUNTING RATE: 7000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 5/ 2/ 96 IS:
RA= 218.852 DEC= 69.573 DIST= 2.824 AU
BATSE-ULYSSES DISTANCE = 422509331. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 11.49 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1381.12 SECS.
CROSSING TIME AT ULYSSES IS 27183. S. OR 07:33:03 +/- 119.70 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 5/ 2/ 96 IS:
RA= 324.437 DEC= -15.291 DIST= 2.359 AU
MARS-BATSE DISTANCE = 352853824. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=100.69 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -218.30 SECS.
CROSSING TIME AT MARS IS 25584. S. OR 07:06:23 +/- 197.48 SECONDS

BATSE BURST TRIGGER

NO.: 4744

TIME: TJD=0118 SECONDS=25802

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=89.1 AZIMUTH=305.2 ERROR=8.4 DEGREES

COMMENTS:

SHORT GRB LASTING ABOUT 0.15 SEC. NOT VISIBLE ABOVE 300 KEV.

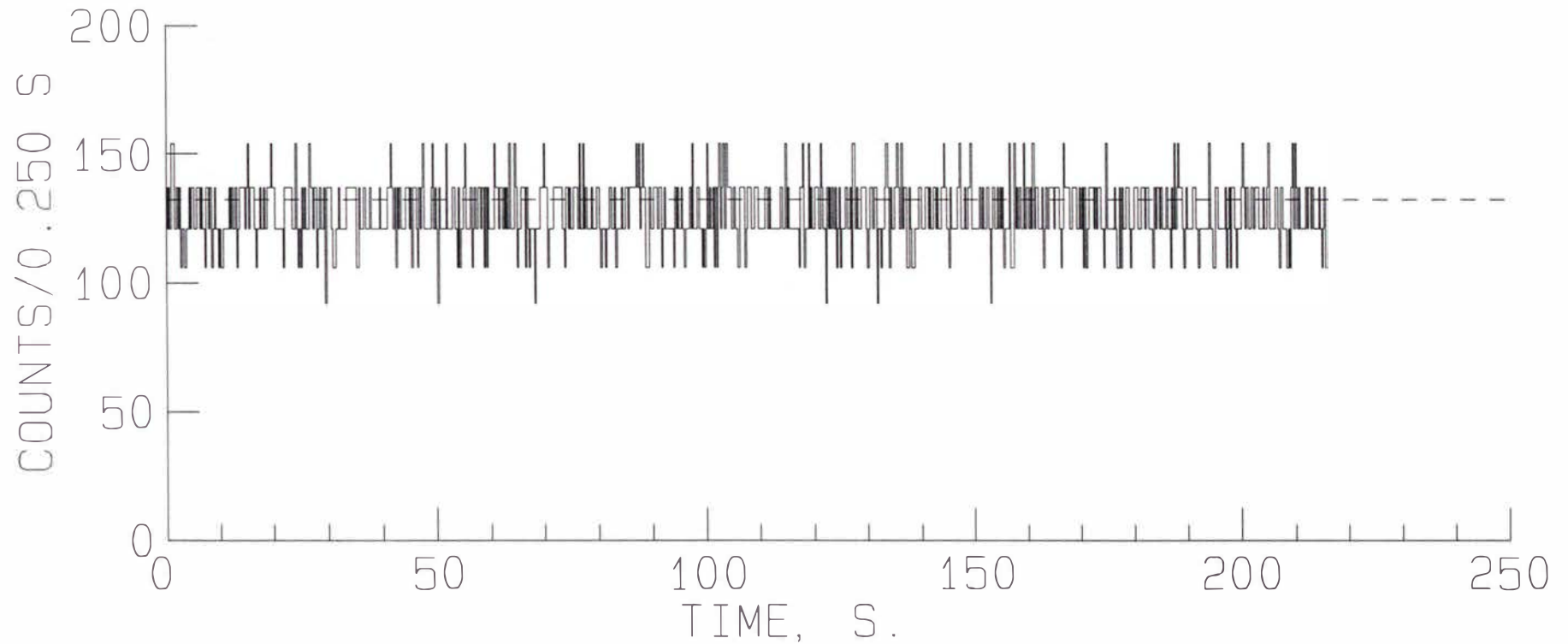
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4744	960205	10118	25802	7000	072	-76	.15

BATSE BURST# 4744

7 / 2 / 96

ULYSSES RT
5 / 2 / 96 27072.129 s
0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From WOODSP@SSLLES.MSFC.NASA.GOV Wed Feb 7 11:06 PST 1996
Date: Wed, 7 Feb 1996 13:05:55 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4745

RI ?

BATSEARCH PROGRAM

BATSE BURST # 4745
EVENT OF 1996 FEB 5 DAY OF YEAR= 36
EVENT CROSSING TIME AT BATSE : 34489. S. OR 09:34:49.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 110.000 -42.000
BATSE PEAK COUNTING RATE: 5500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 5/ 2/ 96 IS:
RA= 218.797 DEC= 69.600 DIST= 2.825 AU
BATSE-ULYSSES DISTANCE = 422546069. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 44.71 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1001.61 SECS.
CROSSING TIME AT ULYSSES IS 35491. S. OR 09:51:30 +/- 237.38 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 5/ 2/ 96 IS:
RA= 324.437 DEC= -15.291 DIST= 2.359 AU
MARS-BATSE DISTANCE = 352853824. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 65.50 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 488.15 SECS.
CROSSING TIME AT MARS IS 34977. S. OR 09:42:57 +/- 193.35 SECONDS

BATSE BURST TRIGGER

NO.: 4745

TIME: TJD=0118 SECONDS=34489

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=81.8 AZIMUTH=268.2 ERROR=1.0 DEGREES

COMMENTS:

GRB WITH 3 PEAKS. PEAKS ARE AT T+0 SEC +240 SEC +320 SEC.
THEY HAVE DURATIONS 30SEC, 40SEC AND 30SEC RESPECTIVELY. AT LEAST
THE FIRST TWO ARE VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4745	960205	10118	34489	5500	110	-42	350

From cline@apache.gsfc.nasa.gov Wed Nov 20 14:32 PST 1996
Date: Wed, 20 Nov 1996 14:32:12 -0800
Mime-Version: 1.0
To: KHURLEY@sunspot.ssl.berkeley.edu
From: cline@apache.gsfc.nasa.gov (T L Cline)
Subject: Search for (Konus mini-network) 3-sc triggers

Dear Kevin,

I'm sorry to report that the May 1996 mail from you was a list only to January 1996. If you have another later list, don't go to the trouble of plowing thru all this; I'll do it if you can e-mail/fax something. Thanks.

SEARCH FOR 3-SC TRIGGERS ONLY -- Konus-W / Ulysses / BATSE or Konus-A

DATE	Konus-W Sensor	Max counts	N(S1)/N(S2)	Duration	Trigger #
	(UT)	G1 G2 G3	in G2	T<T0 T>T0	KW# BATSE/KA
94 11 21	62700.945 S1	1652 1656 300	21	3 50	6 3290
94 11 26	44557.952 S1	860 1430 330	4.2	40 45	8 3298
95 2 8	07824.432 S2	1144 1824 670	0.02	1 60	45 3408
95 2 10	08424.148 S1	1350 3900 700	3.2	0.04 0.16	47 3410
95 2 11	08697.749 S2	2750 11630 6560	<0.06	0.03 0.14	48 3412
95 2 11	72469.074 S1	1170 1570 460	60	12 60	50 3415
95 3 25	25841.574 S2	345 1460 1570	0.2	1 230	63 3480
95 3 25	63392.815 S1	1320 2710 900	3.2	1 43	64 3481
95 4 3	47985.179 S1	1030 2840 800	1.0	1 15	71 3491
95 4 3	84828.194 S2	4650 10000 4700	0.06	0.5 60	72 3492
95 4 25	00923.718 S1	1200 2780 1820	4.2	0.5 65	86 3523
95 5 3	66971.838 S1	1140 4200 3140	1.9	0.2 115	88 3537
95 5 13	81706.917 S1	720 1360 520	10	1 30	93 3571
95 7 1	12762.114 S1	340 1400 580	1.3	1 30	116 3657
95 7 1	23737.604 S2	570 1600 700	0.05	1 11	117 3658
95 8 4	07135.704 S2	3000 6650 3340	<0.03	0.2 3.5	131 3734
95 8 18	05065.640 S2	1960 4100 1350	0.05	60 50	137 3765
95 8 22	13751.048 S1	6070 12000 3770	9	0.4 60	140 3767
95 10 16	02484.285 S1	1960 1950 560	5	0.2 7	162 3870
95 12 3	03988.180 S2	260 720 420	0.85	1 16	196 3930
95 12 27	23005.042 S1	420 1200 320	1	1 1.5	218 ??? NO
96 1 11	46524.530 S2	1130 1280 190	0.2	0.5 6	222 4312
96 1 13	56024.261 S2	500 450 50	0.3	2 36	228 ??? NO
96 1 14	44104.737 S1	4900 7200 1400	1.8	1 60	233 4368, KA

(ABOVE, ALL ARE ULYSSES TRIGGERS - ALL BUT 2 ARE CONFIRMED BATSE TRIGGERS)

(BELOW, ULYSSES TRIGGERS INCOMPLETE, BUT KNOWN ULYSSES RI'S ARE DELETED:)

BATSE

95 12 31	20231.668 S2	180 320 150	0.07	9 65	219	Search	
96 1 2	11650.996 S1	140 300 80	1	1 0.2	220	NO	
96 1 19	45226.016 S2	210 460 190	0.2	6 85	237	Search	
96 1 30	08756.848 S1	100 470 340	3	0.5 0.2	240	NO	4660
96 2 1	78530.582 S2	400 770 230	0.34	12 70	241	RI KA	4701
96 2 2	50750.813 S1	390 430 180	5	0.5 8	242	RI	4710
96 2 5	34499.021 S1	100 240 80	>15	7 250	243	RI	4745
96 2 6	17898.732 S1	120 520 260	1.05	1 36	244	Trig	4757
96 2 7	65075.063 S2	210 780 200	0.13	32 12	245	Search	NO
96 2 10	35198.959 S2	220 550 360	<0.1	0.5 2	247	RI	4814
96 2 28	85760.241 S1	2360 7360 3350	4.3	0.1 2.5	249	Trig	NO

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

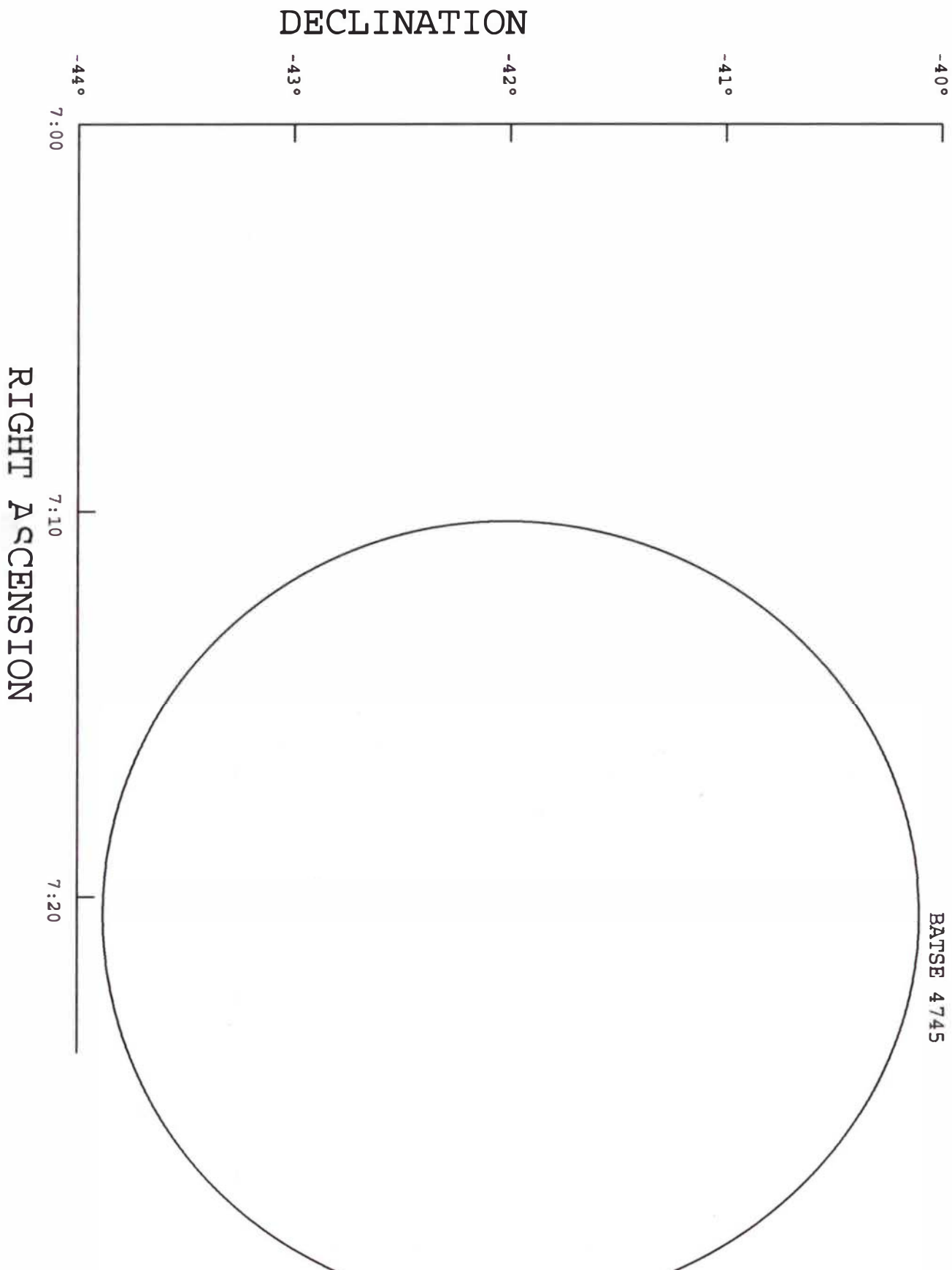
1 ULYSSES

2 BATSE

EVENT OF FEB 5, 1996 9:48

4 / 3 / 98

Definite Ulysses PE, but not related to BATSE burst



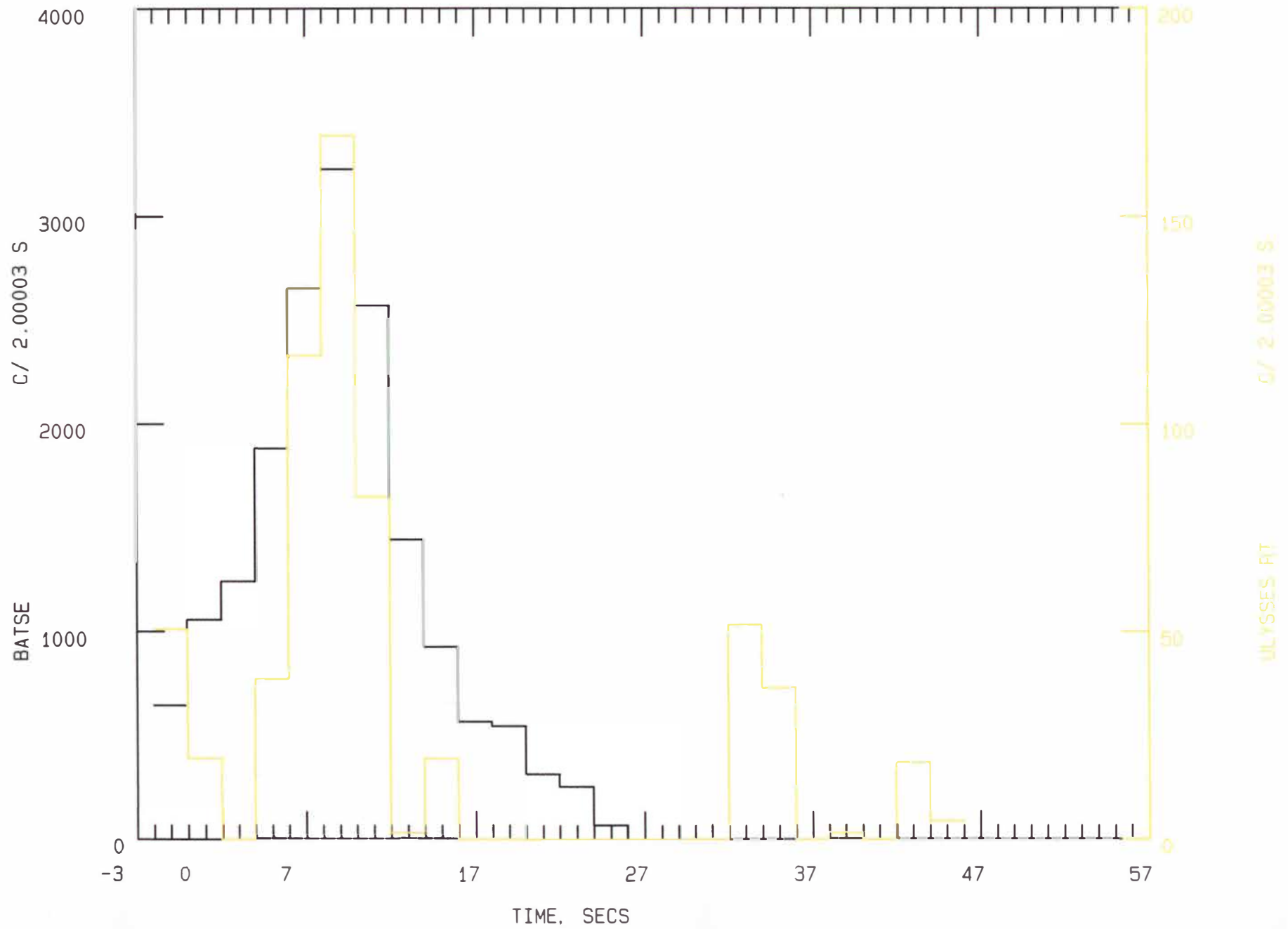
BATSE

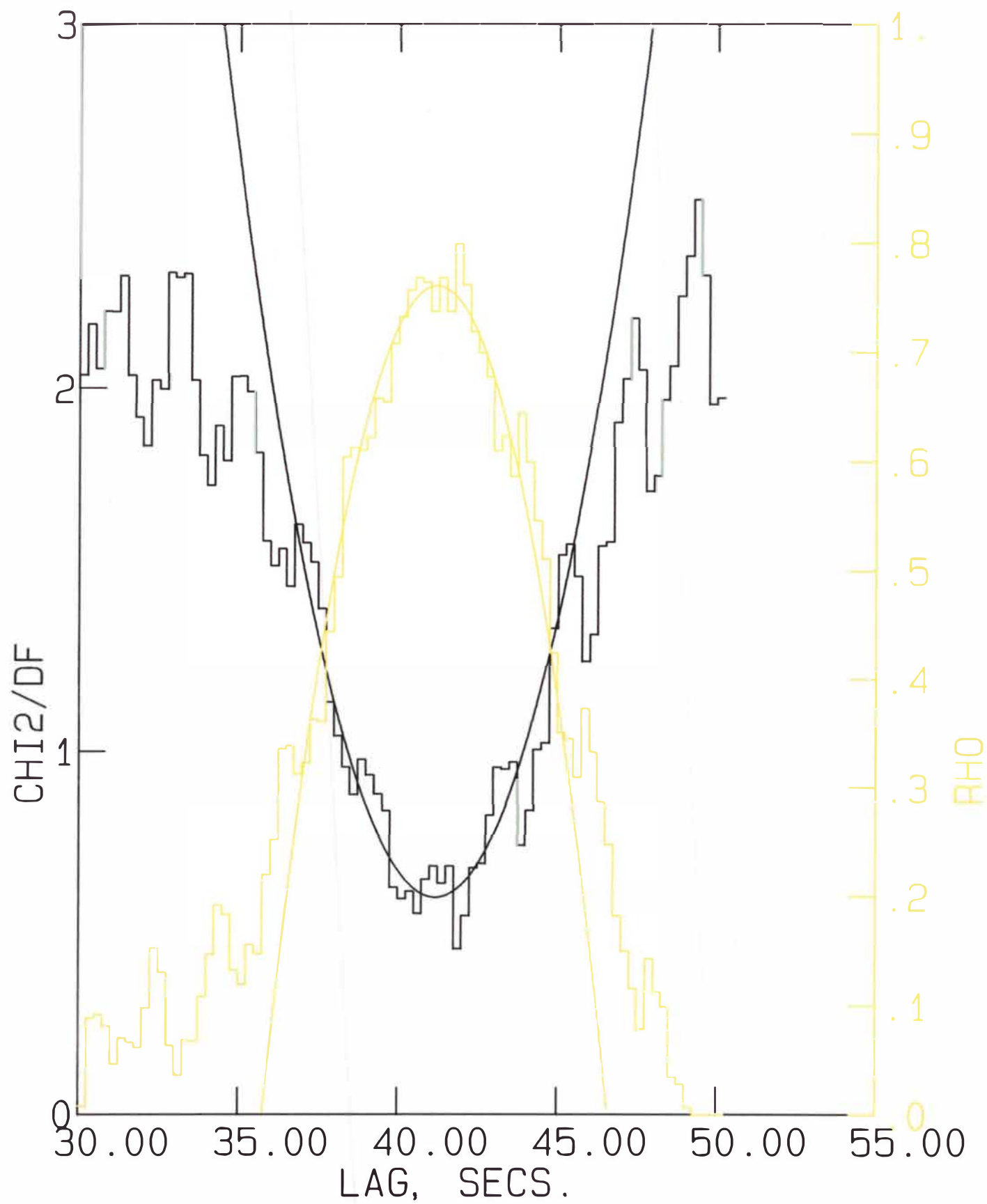
-ULYSSES RT CORRELATION

5/ 2/96

34489.034

4/ 3/98





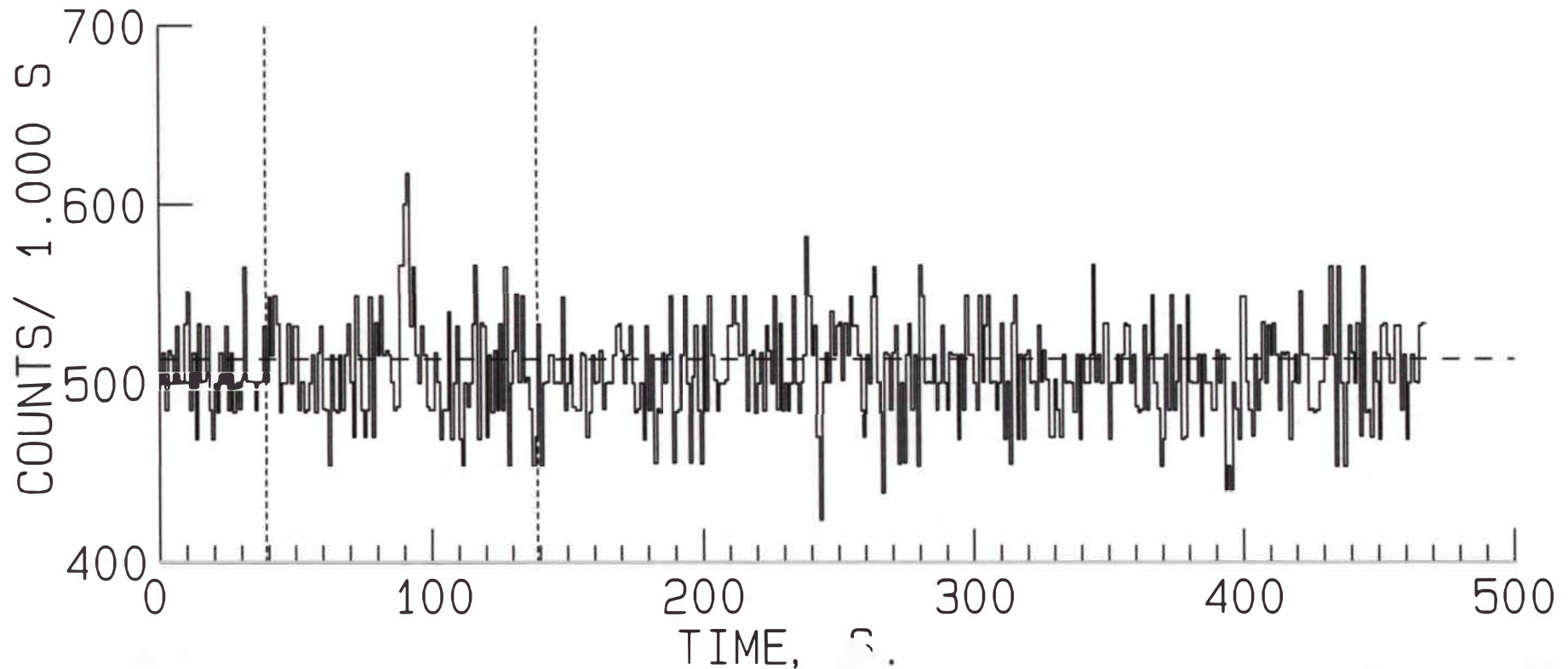
ULYSSES RT

4 / 3 / 98

5 / 2 / 96 35244.248 s

0.250 S INTERVALS REGROUPED BY 4
21- 145 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



HUS DATA

16 / 2 / 96

ULYSSES RT

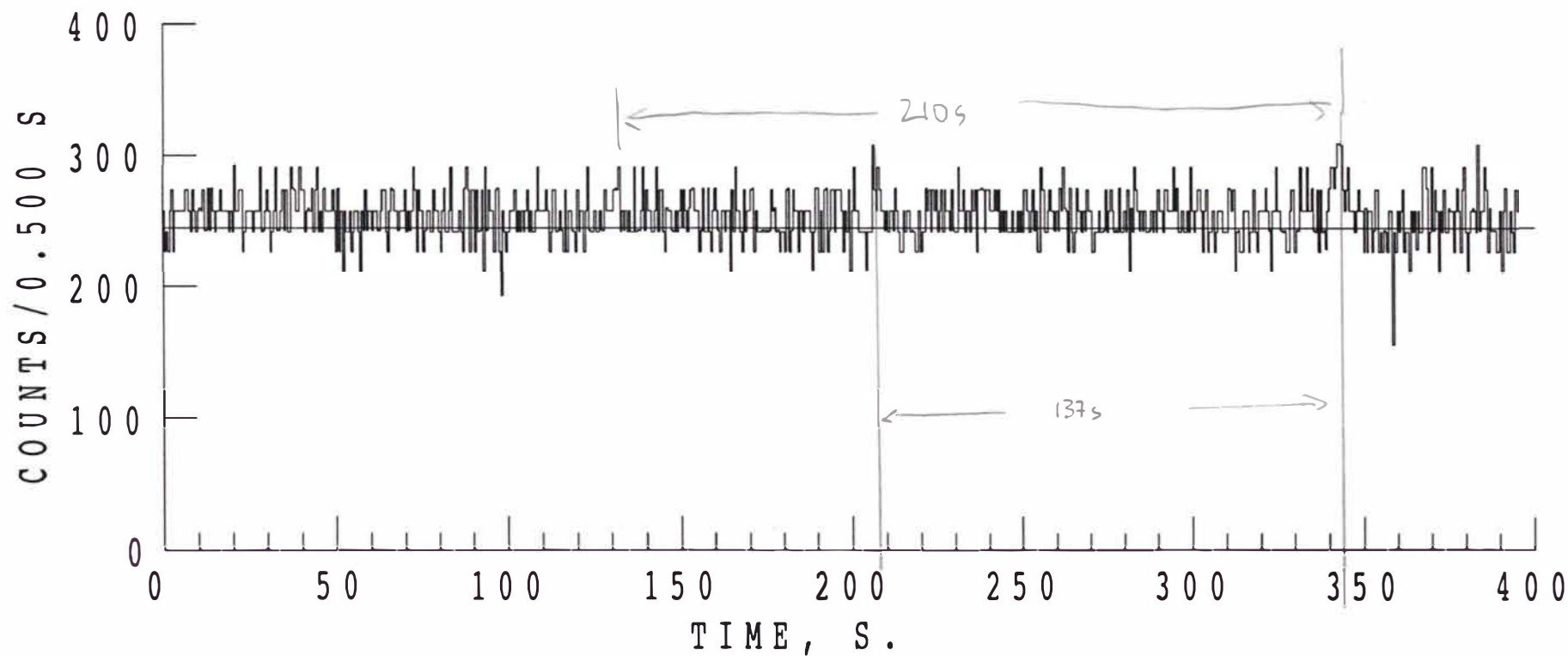
5 / 2 / 96 34992.242 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE BURST# 4745

7 / 2 / 96

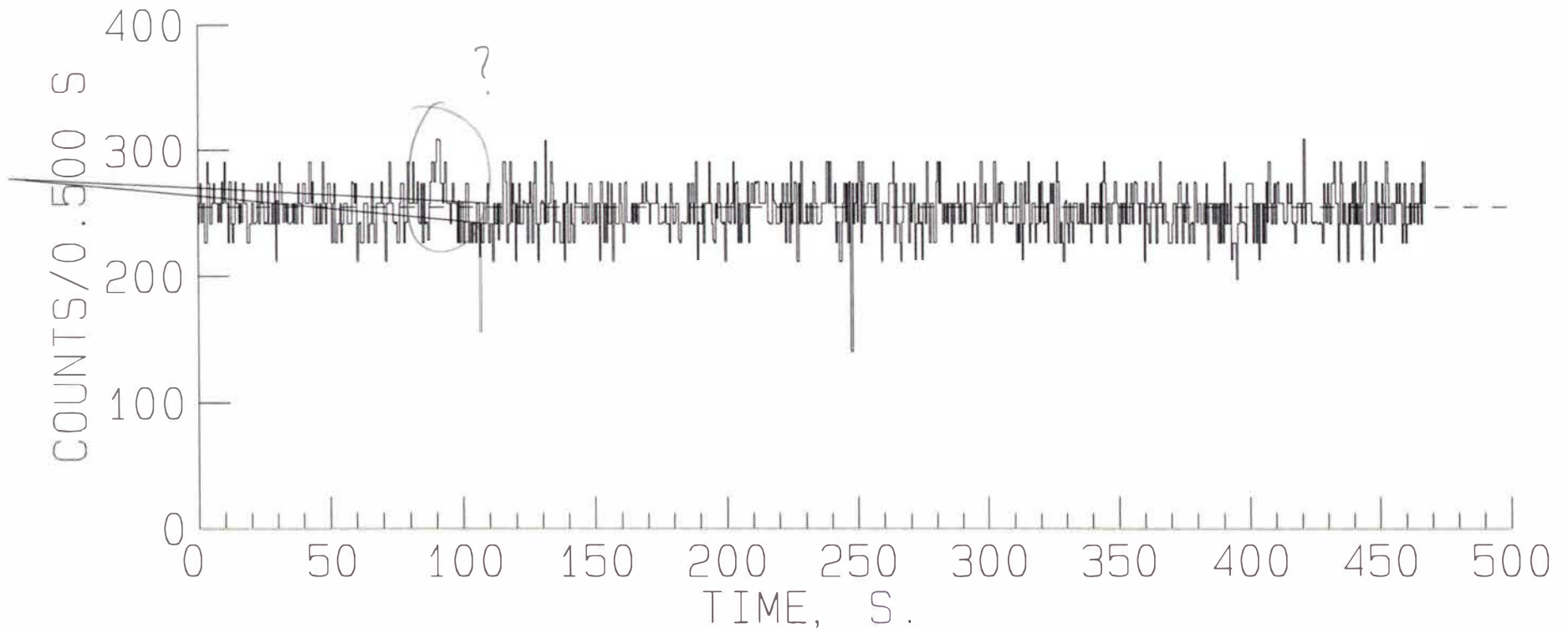
ULYSSES RT

5 / 2 / 96 35244.246 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



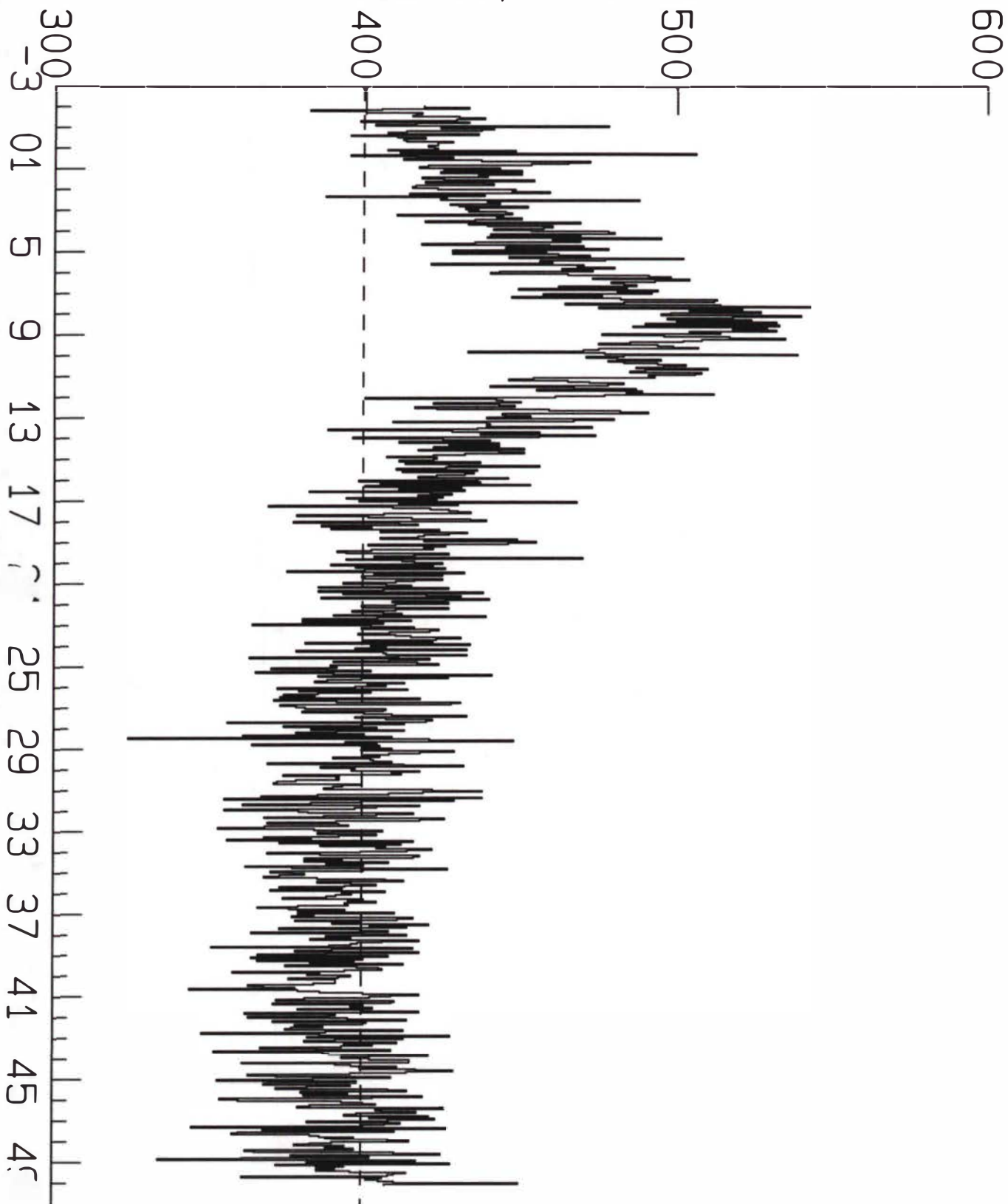
BATSE

05/02/96

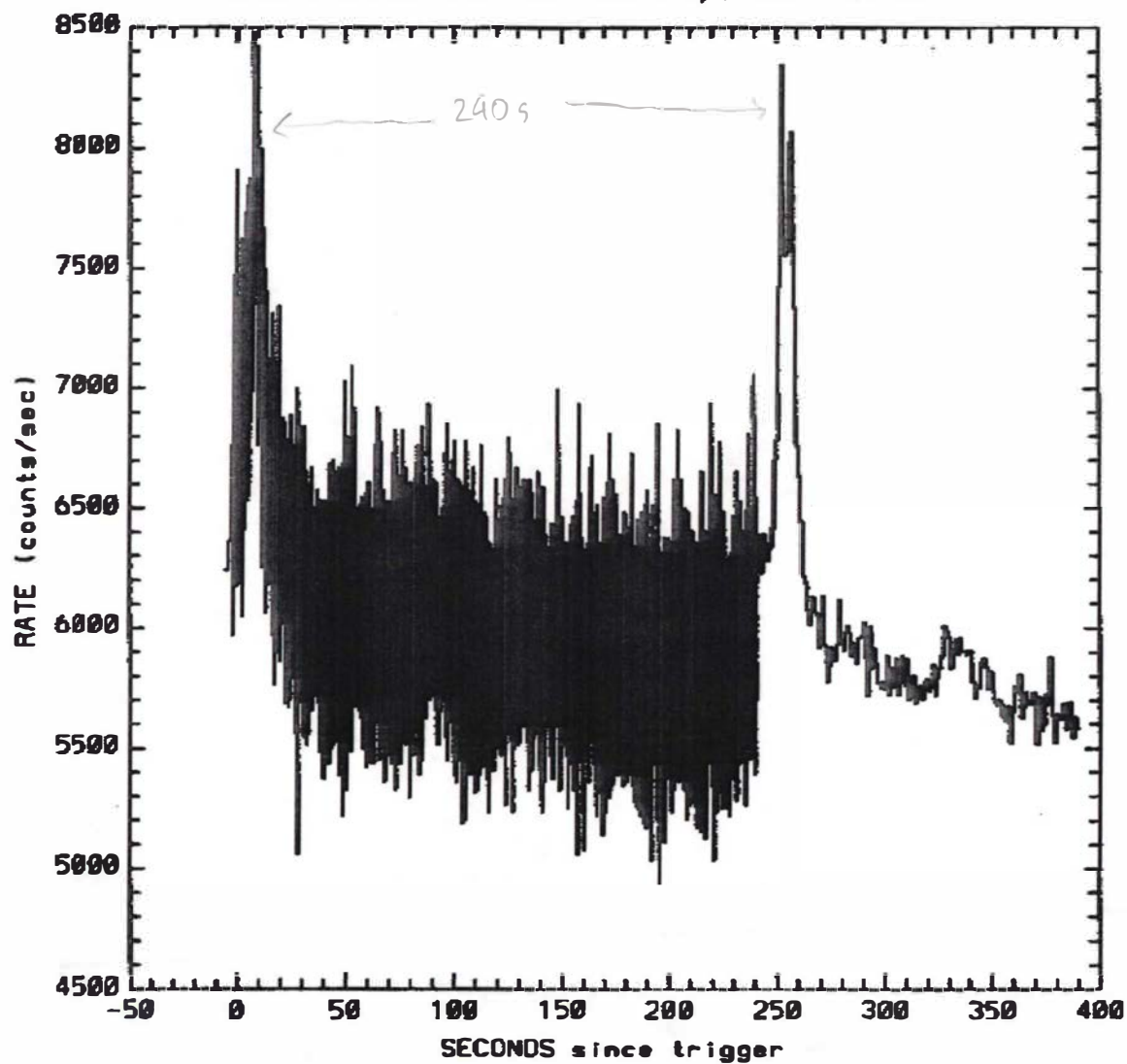
34489.034

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 4745



12-FEB-1996 11:28:03

Created by NOPS 80
(Burst Display)
Version 12.25

Trigger = 4745

Trigger Time:
10110 / 34409.834

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

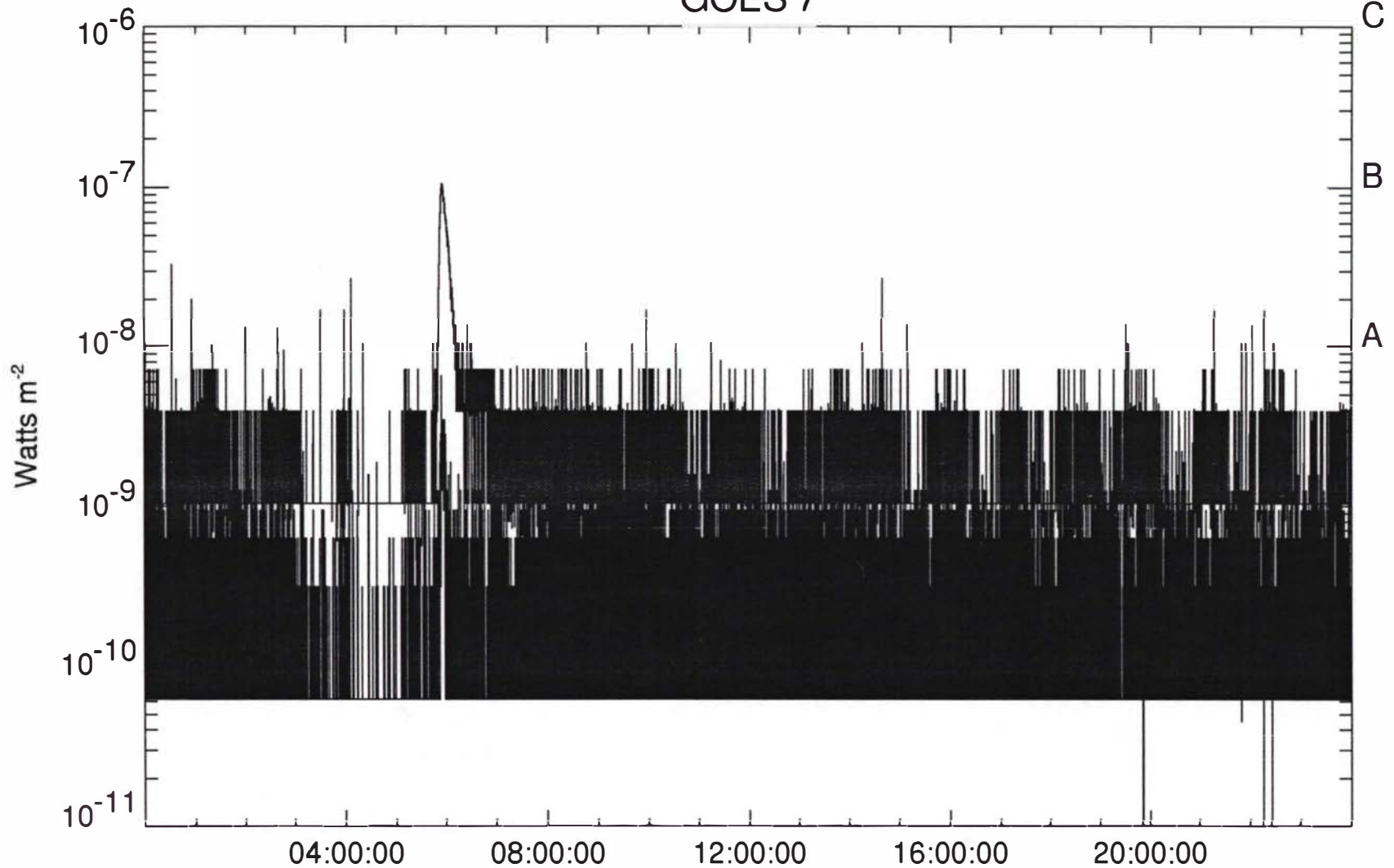
Minimum Integ. Time:
0.004 seconds

Detectors [7..0]:
-6---2-

Discriminators:
(1..2)

Quality Mask:
BDISP1

GOES 7



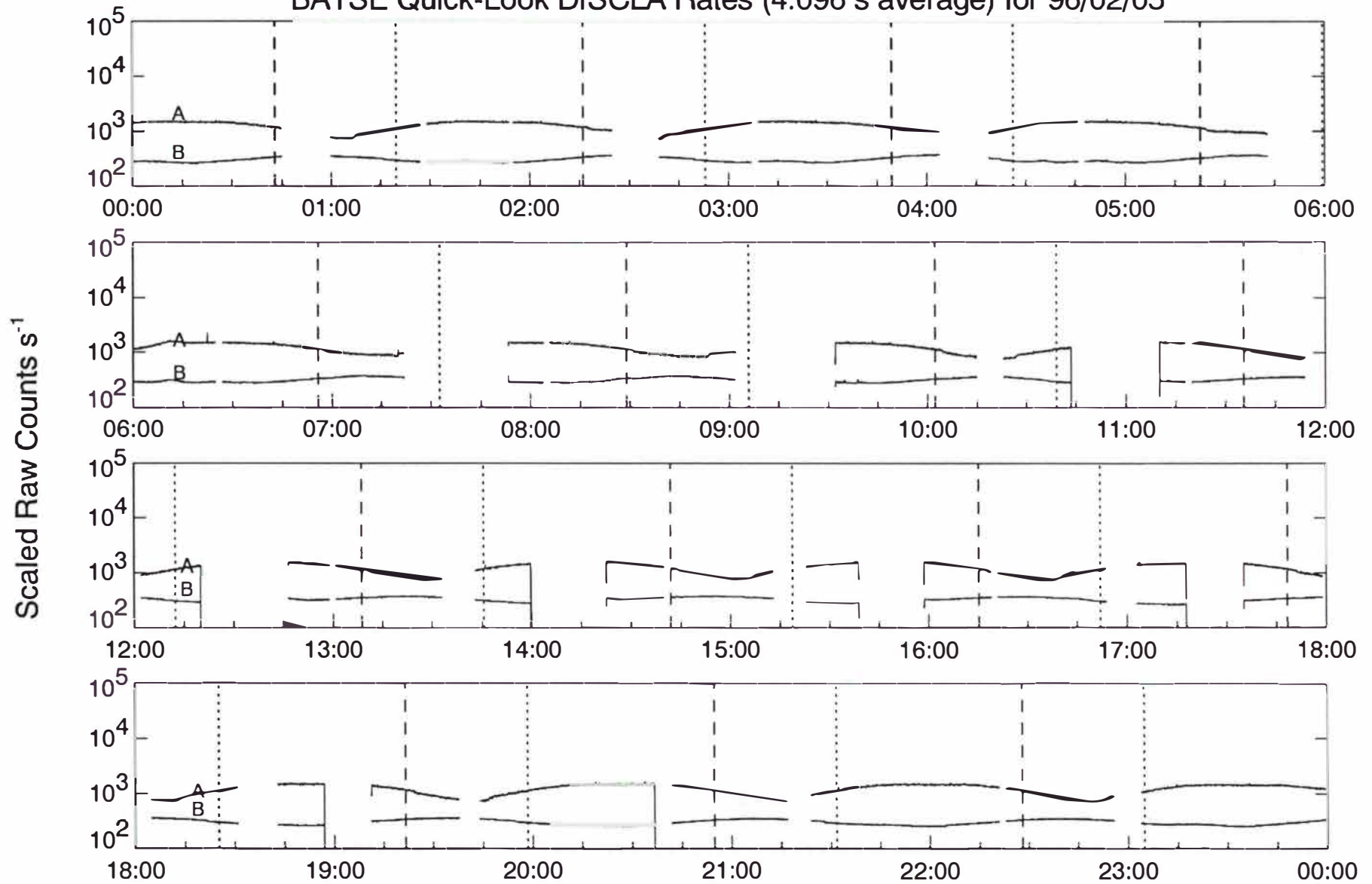
Data Start: 96/02/05, 0000:01

Plot created: 96/02/07, 0654

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/05

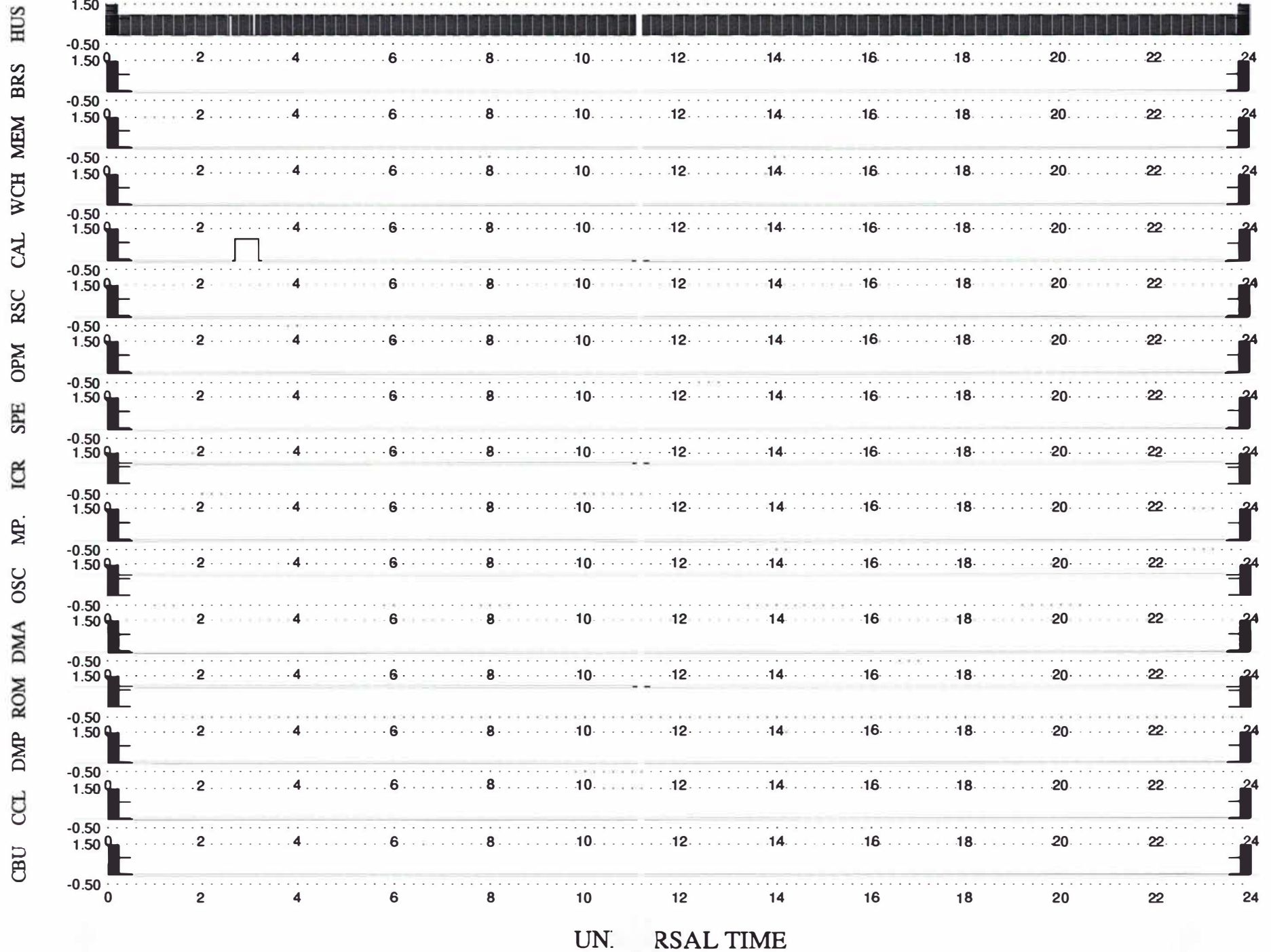


Current Time: 96/02/07, 1759 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

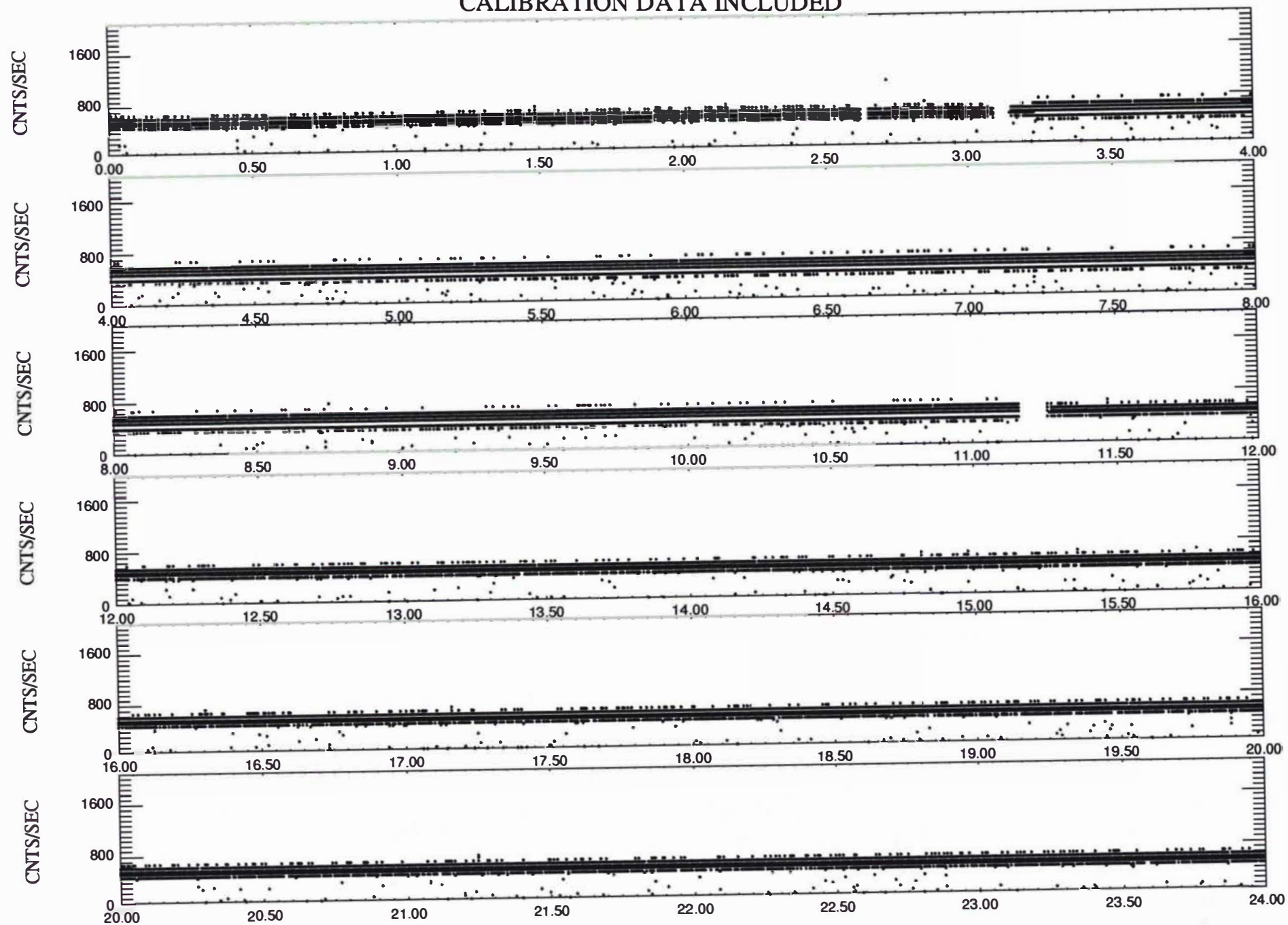
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

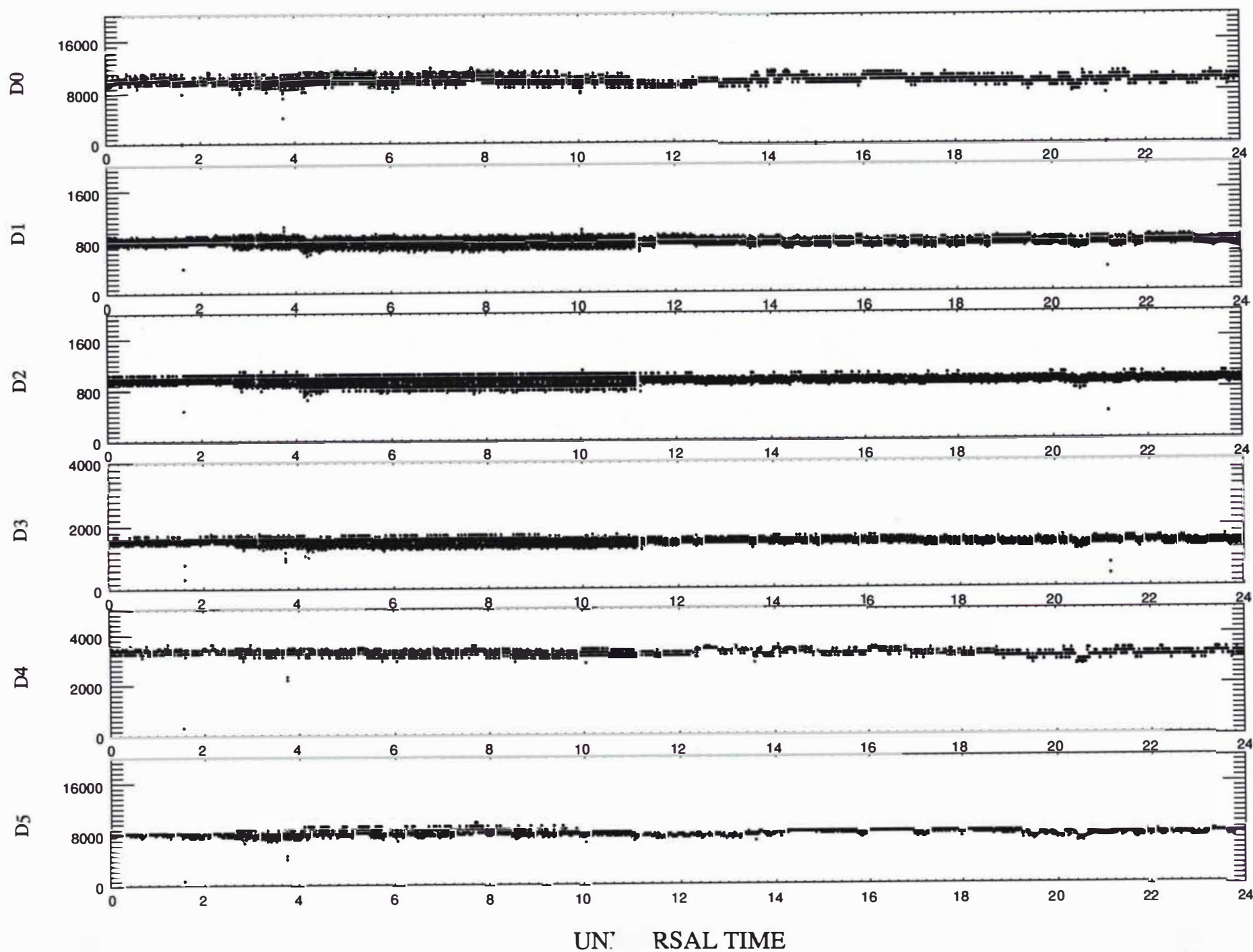
NO BURST (9)



CALIBRATION DATA INCLUDED



UN! RSAL TIME



From DEAL@fender.msfc.nasa.gov Fri Feb 9 10:15 PST 1996
From: DEAL@fender.msfc.nasa.gov
Date: Fri, 9 Feb 1996 12:15:19 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4757

BATSEARCH PROGRAM

TRIGGER

BATSE BURST # 4757
EVENT OF 1996 FEB 6 DAY OF YEAR= 37
EVENT CROSSING TIME AT BATSE : 17897. S. OR 04:58:17.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 196.000 -9.000
BATSE PEAK COUNTING RATE: 25000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 6/ 2/ 96 IS:
RA= 218.348 DEC= 69.821 DIST= 2.827 AU
BATSE-ULYSSES DISTANCE = 422847066. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 99.69 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -237.36 SECS.
CROSSING TIME AT ULYSSES IS 17660. S. OR 04:54:19 +/- 287.78 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 6/ 2/ 96 IS:
RA= 325.211 DEC= -15.032 DIST= 2.359 AU
MARS-BATSE DISTANCE = 352950016. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 55.77 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 662.19 SECS.
CROSSING TIME AT MARS IS 18559. S. OR 05:09:19 +/- 179.06 SECONDS

BATSE BURST TRIGGER

NO.: 4757

TIME: TJD=0119 SECONDS=17897

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=195.5 AZIMUTH=-9.1 ERROR=0.4 DEGREES

COMMENTS:

BURST. MULTI-PEAKED LASTING ~ 90 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4757	960206	10119	17897	25000	196	-09	90

From cline@apache.gsfc.nasa.gov Wed Nov 20 14:32 PST 1996
Date: Wed, 20 Nov 1996 14:32:12 -0800
Mime-Version: 1.0
To: KHURLEY@sunspot.ssl.berkeley.edu
From: cline@apache.gsfc.nasa.gov (T L Cline)
Subject: Search for (Konus mini-network) 3-sc triggers

Dear Kevin,

I'm sorry to report that the May 1996 mail from you was a list only to January 1996. If you have another later list, don't go to the trouble of plowing thru all this; I'll do it if you can e-mail/fax something. Thanks.

SEARCH FOR 3-SC TRIGGERS ONLY -- Konus-W / Ulysses / BATSE or Konus-A

DATE	Konus-W Sensor (UT)	Max counts G1 G2 G3	N(S1)/N(S2) in G2	Duration T<T0 T>T0	Trigger # KW# BATSE/KA
94 11 21	62700.945 S1	1652 1656 300	21	3 50	6 3290
94 11 26	44557.952 S1	860 1430 330	4.2	40 45	8 3298
95 2 8	07824.432 S2	1144 1824 670	0.02	1 60	45 3408
95 2 10	08424.148 S1	1350 3900 700	3.2	0.04 0.16	47 3410
95 2 11	08697.749 S2	2750 11630 6560	<0.06	0.03 0.14	48 3412
95 2 11	72469.074 S1	1170 1570 460	60	12 60	50 3415
95 3 25	25841.574 S2	345 1460 1570	0.2	1 230	63 3480
95 3 25	63392.815 S1	1320 2710 900	3.2	1 43	64 3481
95 4 3	47985.179 S1	1030 2840 800	1.0	1 15	71 3491
95 4 3	84828.194 S2	4650 10000 4700	0.06	0.5 60	72 3492
95 4 25	00923.718 S1	1200 2780 1820	4.2	0.5 65	86 3523
95 5 3	66971.838 S1	1140 4200 3140	1.9	0.2 115	88 3537
95 5 13	81706.917 S1	720 1360 520	10	1 30	93 3571
95 7 1	12762.114 S1	340 1400 580	1.3	1 30	116 3657
95 7 1	23737.604 S2	570 1600 700	0.05	1 11	117 3658
95 8 4	07135.704 S2	3000 6650 3340	<0.03	0.2 3.5	131 3734
95 8 18	05065.640 S2	1960 4100 1350	0.05	60 50	137 3765
95 8 22	13751.048 S1	6070 12000 3770	9	0.4 60	140 3767
95 10 16	02484.285 S1	1960 1950 560	5	0.2 7	162 3870
95 12 3	03988.180 S2	260 720 420	0.85	1 16	196 3930
95 12 27	23005.042 S1	420 1200 320	1	1 1.5	218 ??? NO
96 1 11	46524.530 S2	1130 1280 190	0.2	0.5 6	222 4312
96 1 13	56024.261 S2	500 450 50	0.3	2 36	228 ??? NO
96 1 14	44104.737 S1	4900 7200 1400	1.8	1 60	233 4368, KA

(ABOVE, ALL ARE ULYSSES TRIGGERS - ALL BUT 2 ARE CONFIRMED BATSE TRIGGERS)

(BELOW, ULYSSES TRIGGERS INCOMPLETE, BUT KNOWN ULYSSES RI'S ARE DELETED:)

BATSE

95 12 31	20231.668 S2	180 320 150	0.07	9 65	219	<i>scribble</i>	
96 1 2	11650.996 S1	140 300 80	1	1 0.2	220	NO	
96 1 19	45226.016 S2	210 460 190	0.2	6 85	237	<i>scribble</i>	
96 1 30	08756.848 S1	100 470 340	3	0.5 0.2	240	NO	4660
96 2 1	78530.582 S2	400 770 230	0.34	12 70	241	RI KA	4701
96 2 2	50750.813 S1	390 430 180	5	0.5 8	242	RI	4710
96 2 5	34499.021 S1	100 240 80	>15	7 250	243	RI	4745
96 2 6	17898.732 S1	120 520 260	1.05	1 36	244	Triq	4757
96 2 7	65075.063 S2	210 780 200	0.13	32 12	245	<i>scribble</i>	NO
96 2 10	35198.959 S2	220 550 360	<0.1	0.5 2	247	RI	4814
96 2 28	85760.241 S1	2360 7360 3350	4.3	0.1 2.5	249	Triq	NO

Helio corr removed

Date: Mar 4 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

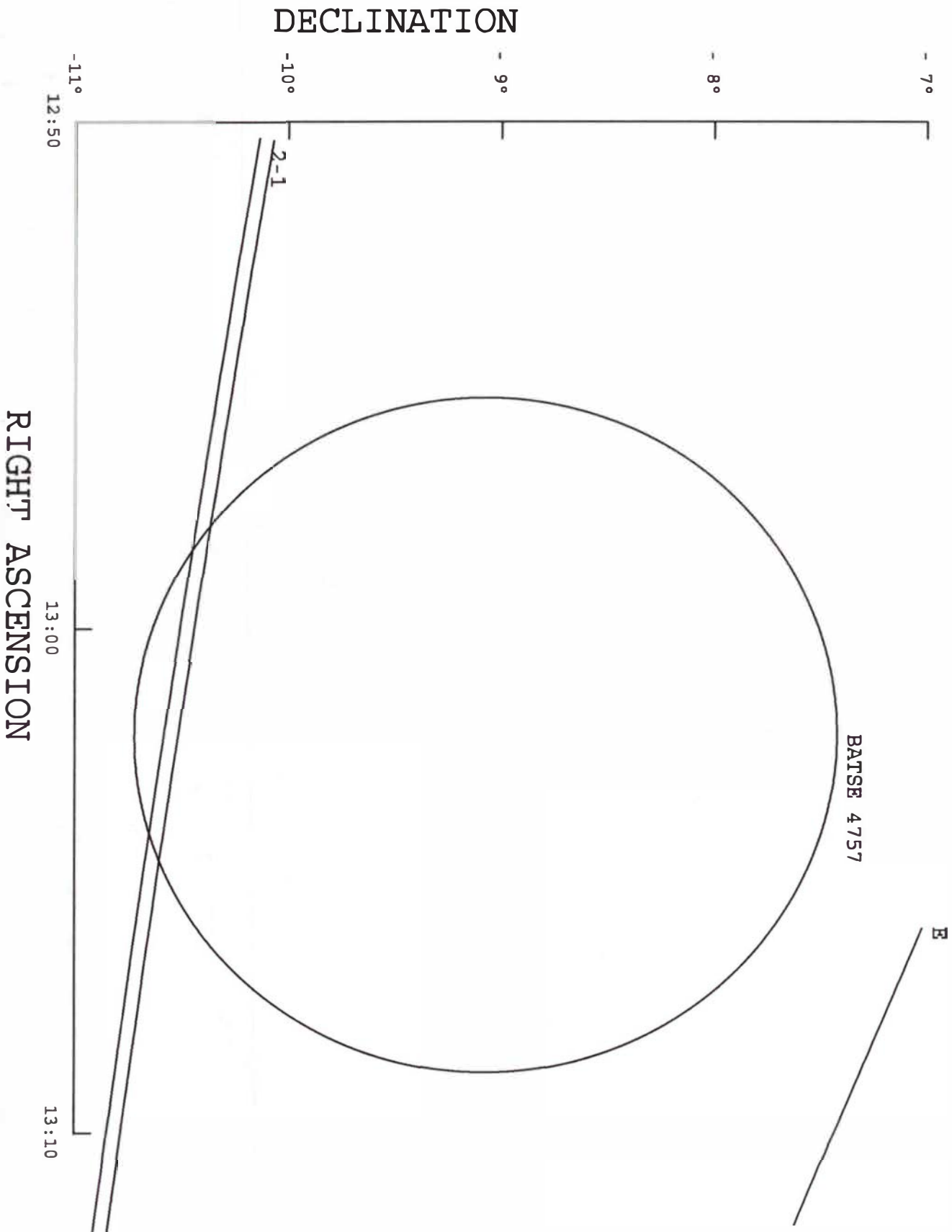
3. PVO Data

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

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

EVENT OF FEB 6, 1996 4:54

4 / 3 / 98



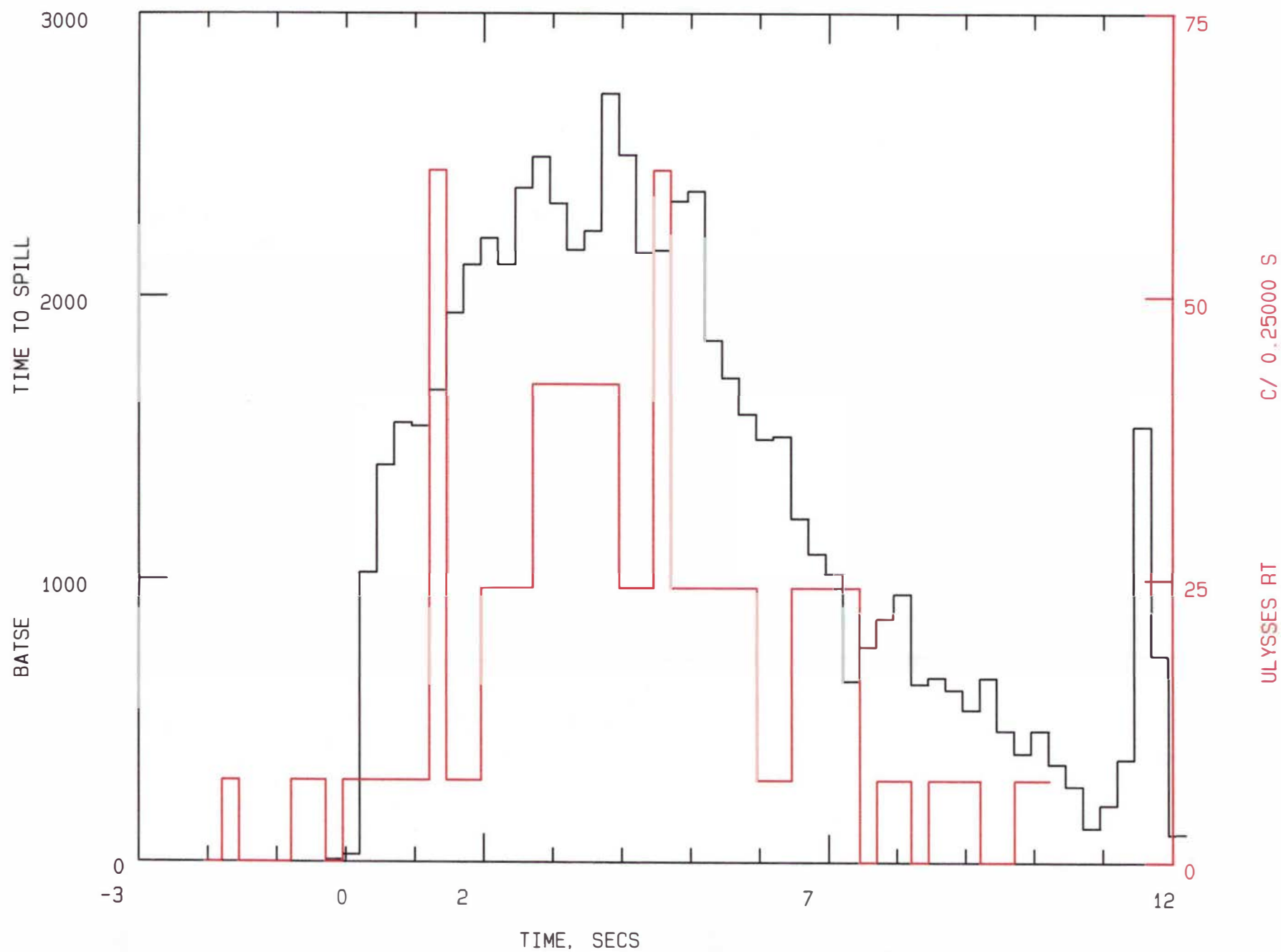
BATSE

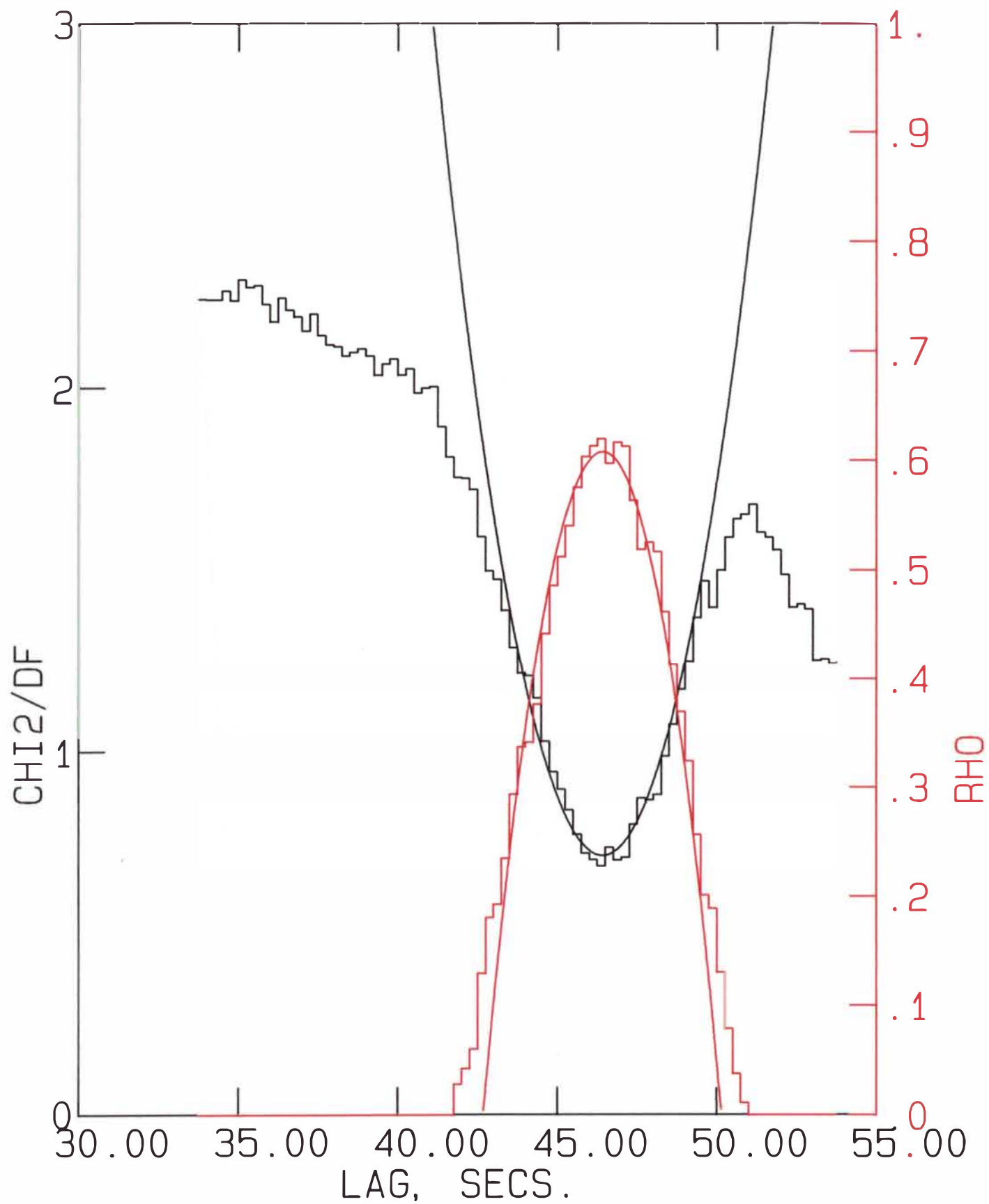
-ULYSSES RT CORRELATION

06/ 2/96

17897.161

4/ 3/98





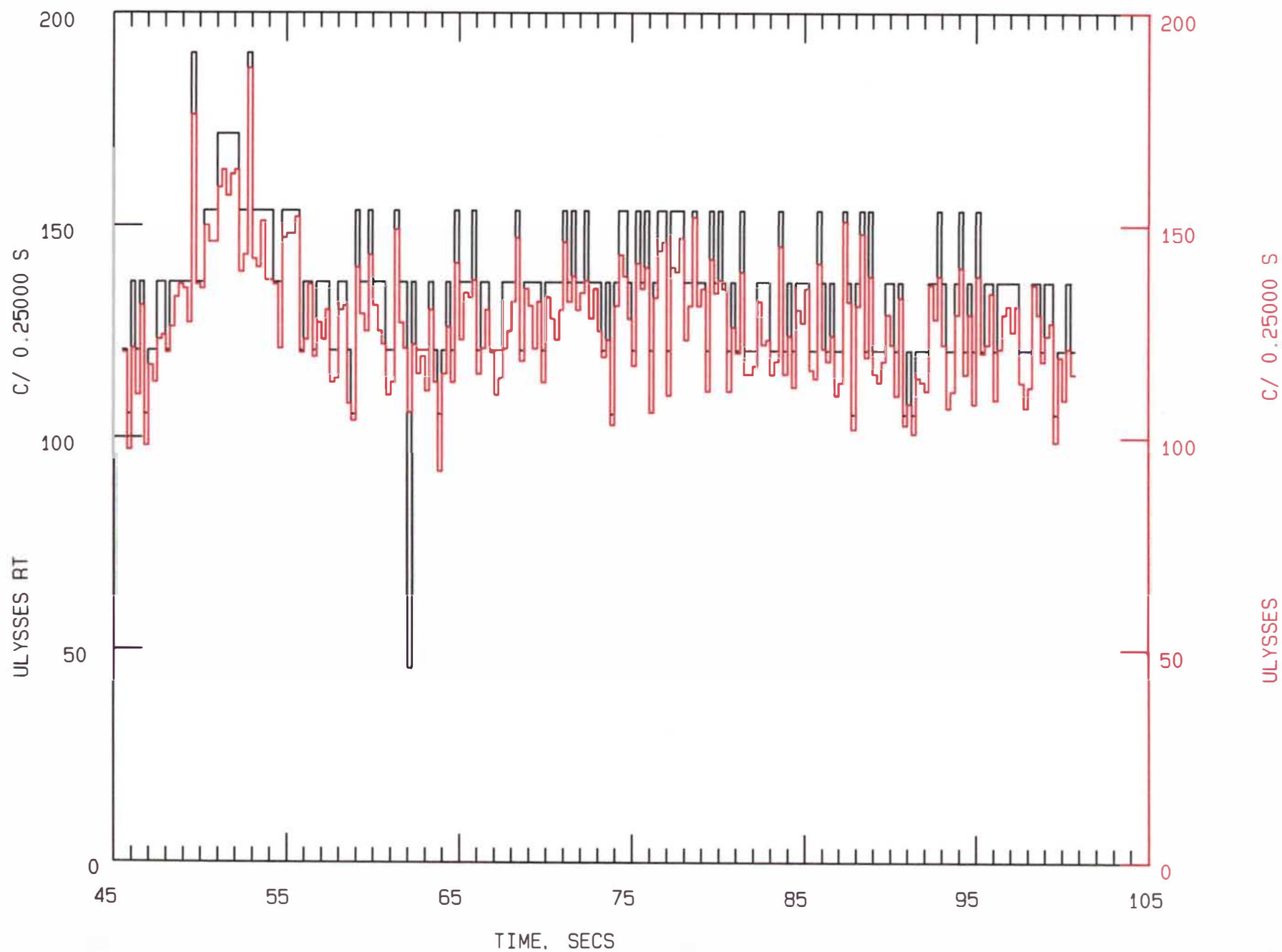
ULYSSES RT-ULYSSES

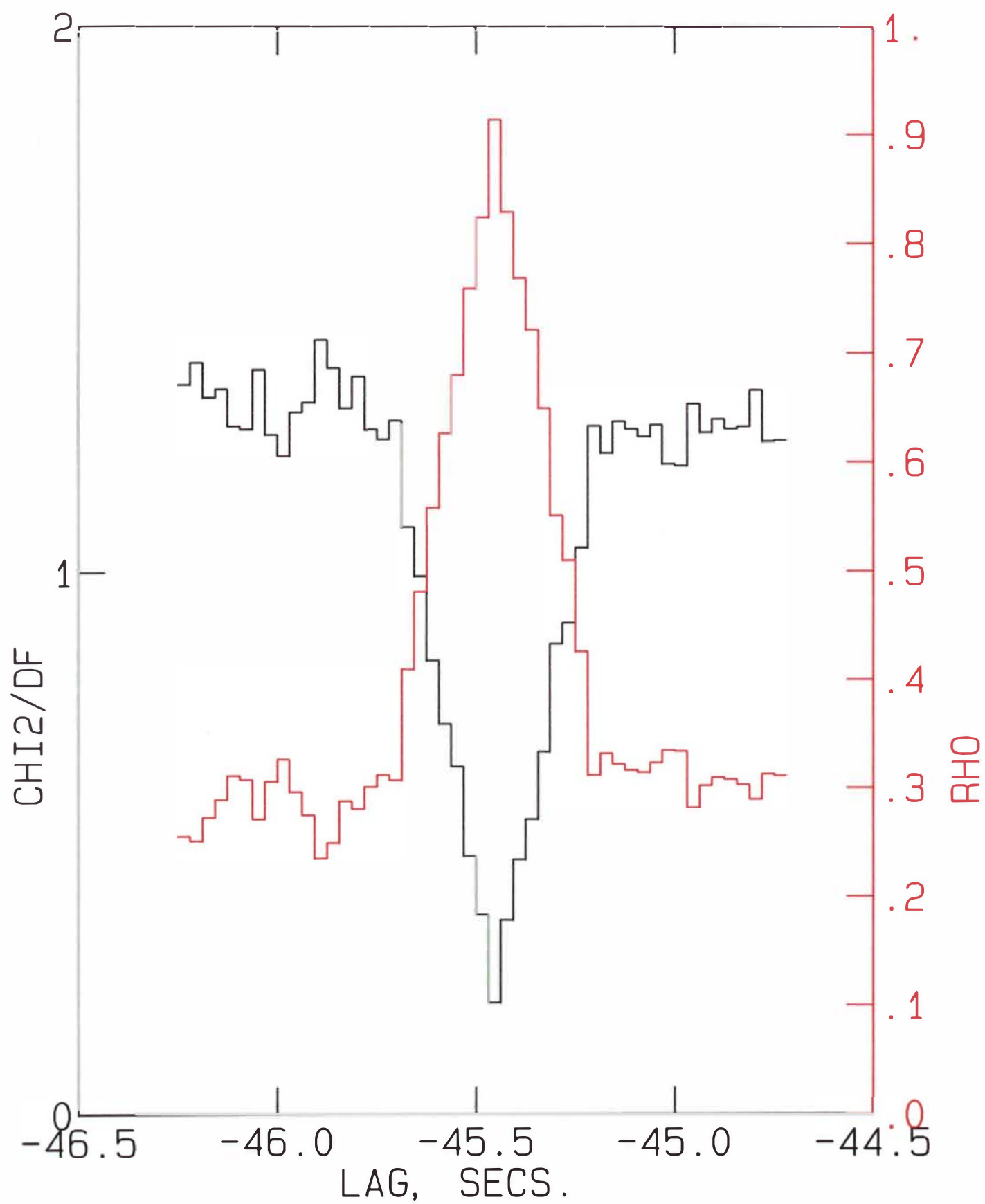
CORRELATION

6/ 2/96

17641.969

4/ 3/98

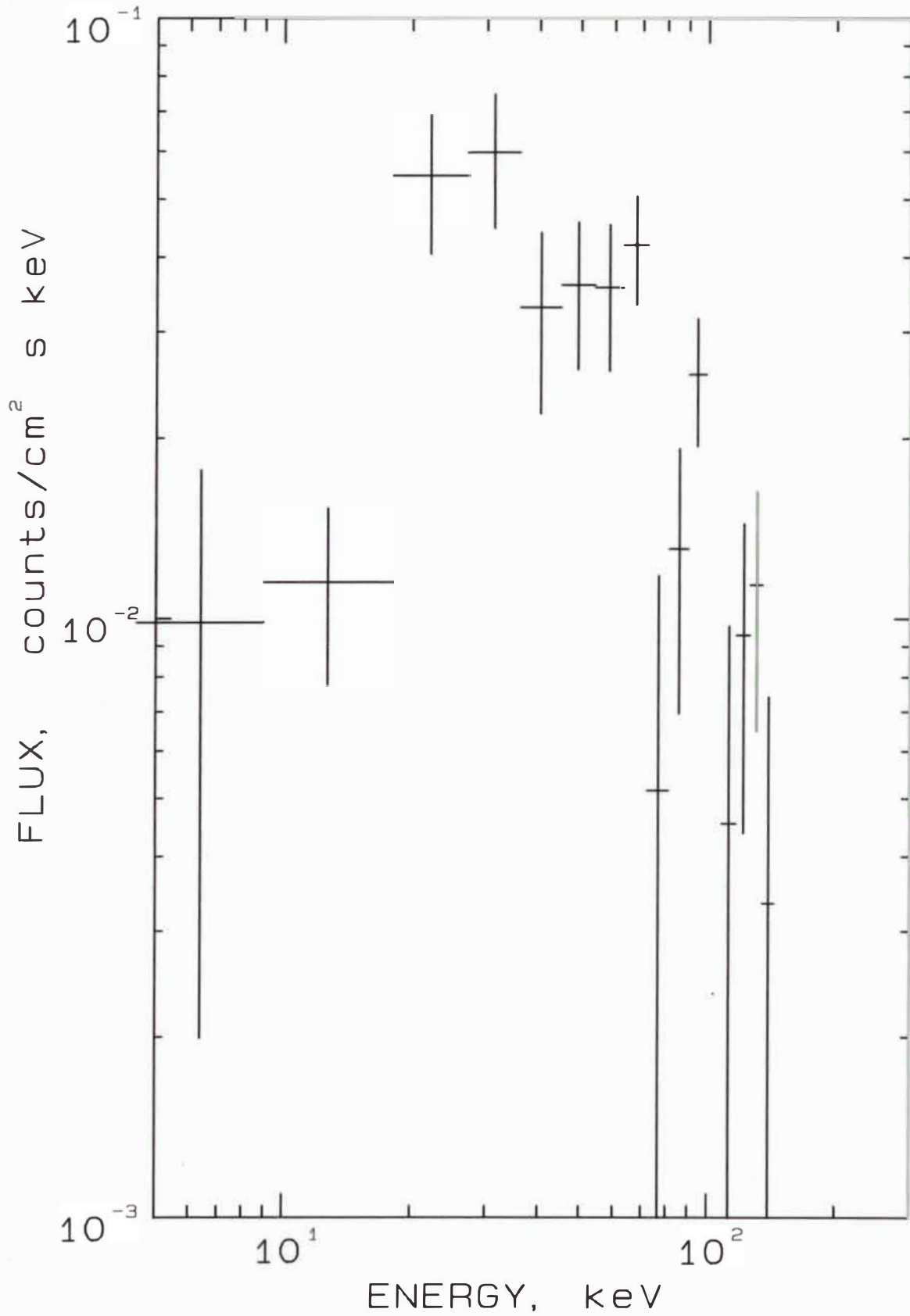




ULYSSES 06/02/96 17694.867

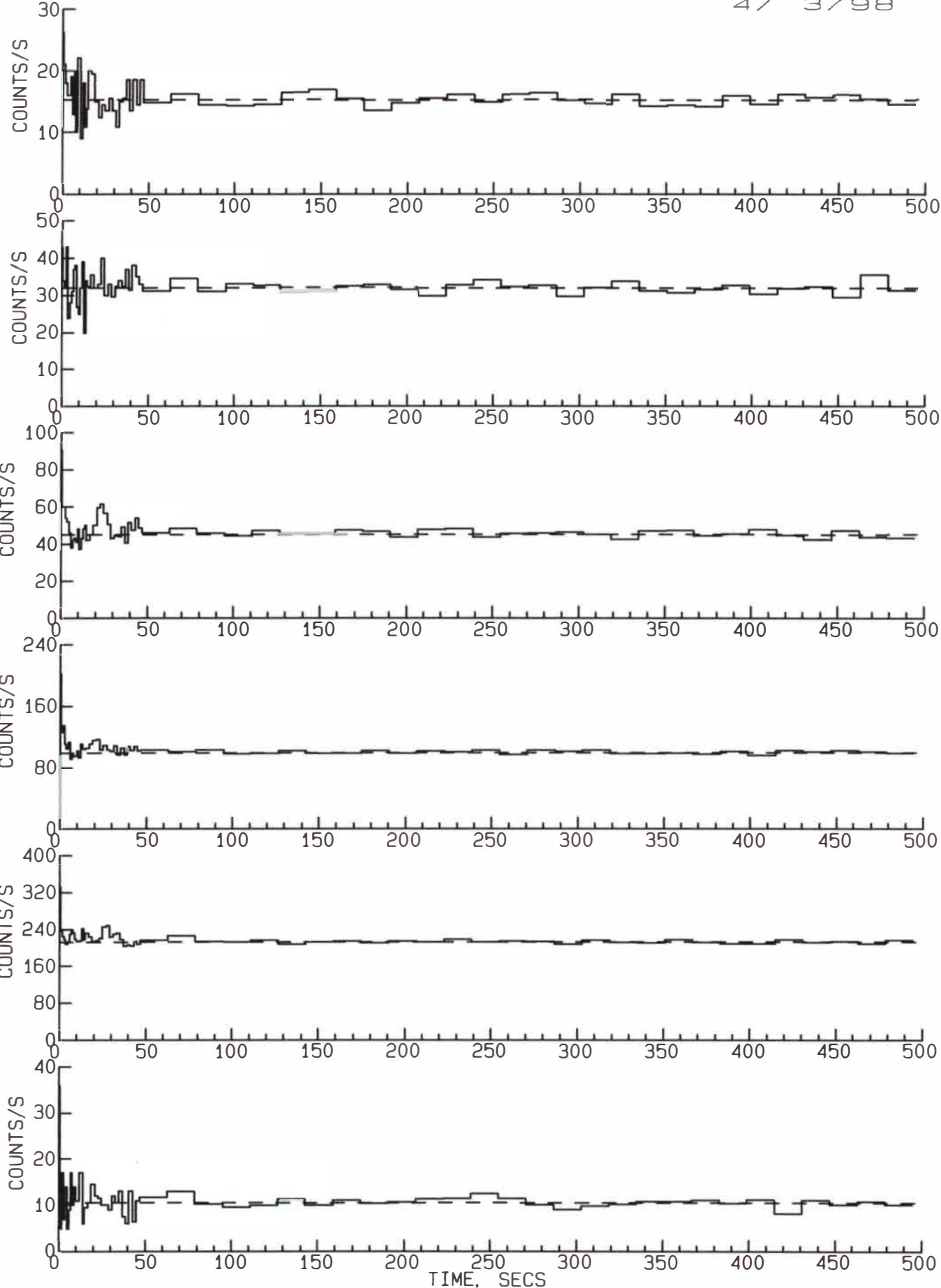
4/ 3/98

SPECTRUM INTEGRATED OVER 20.7 SECONDS, INTERVALS 2 TO 20



ULYSSES 06/02/96 17694.867 BURST SPECTRAL COUNT RATES

4- 18 keV



4 / 3 / 98

ULYSSES

06/02/96

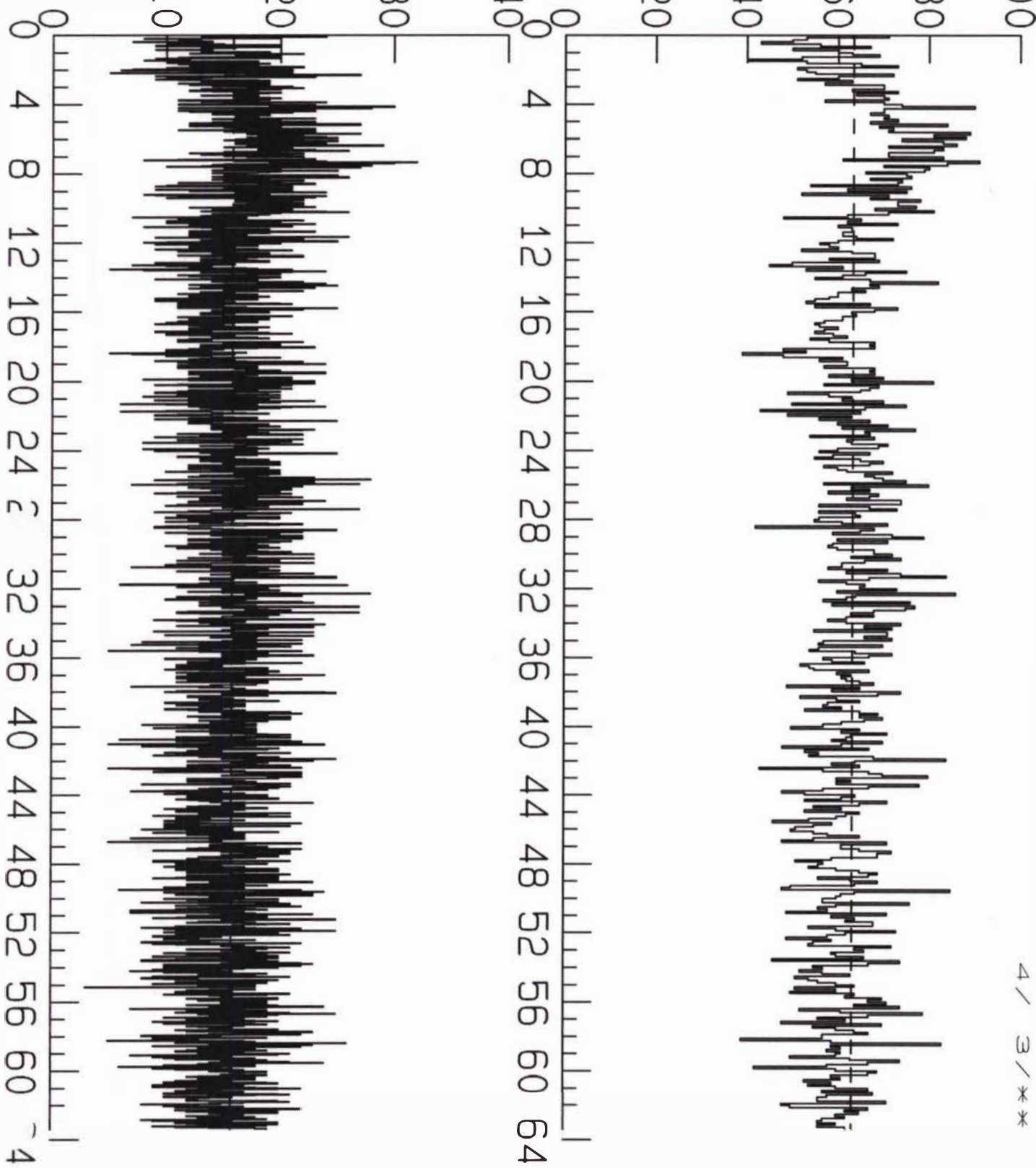
Ttrig=17694.841

0- 0 keV

COUNTS/0.031 S

COUNTS/0.125 S

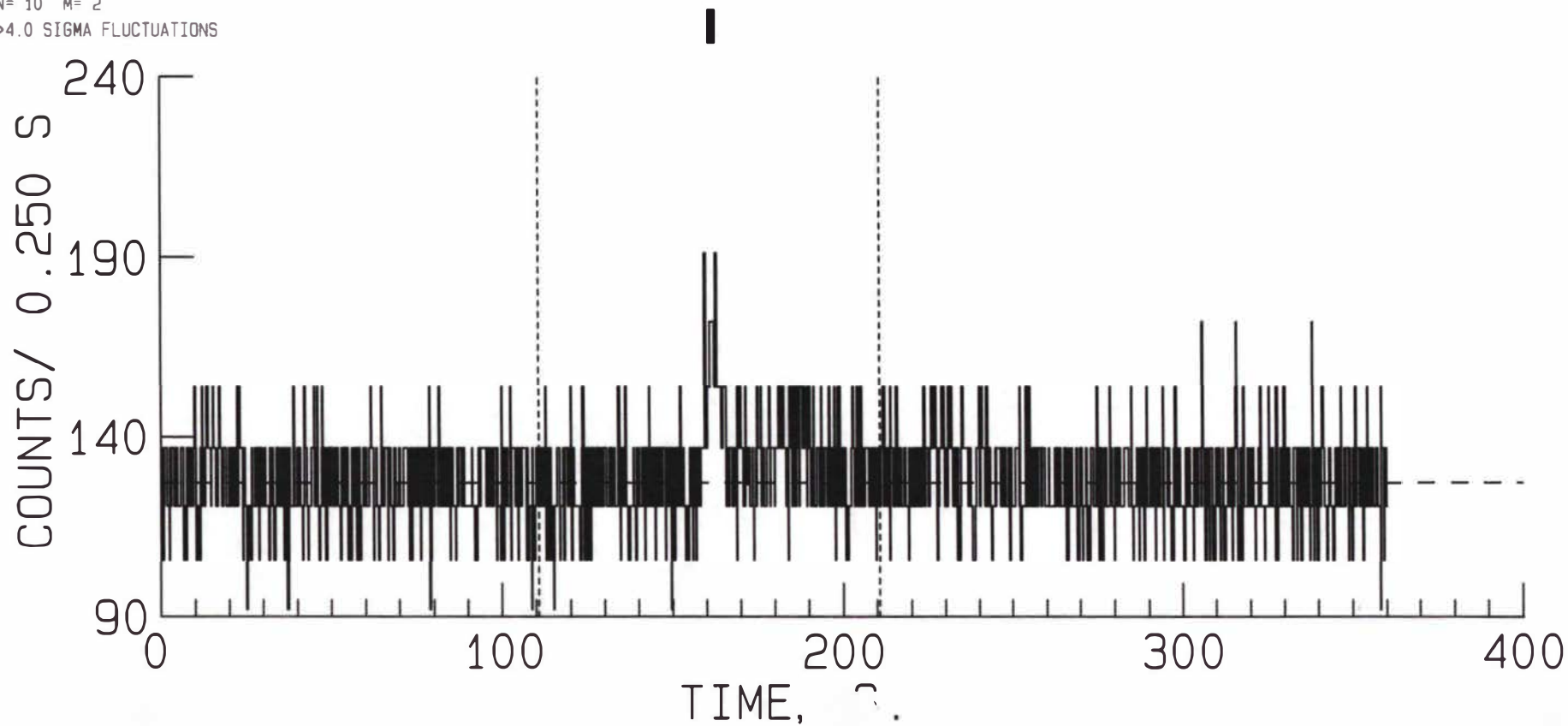
4 / 3 / **



ULYSSES RT
6/ 2/96 17532.003 s
21- 144 keV

4/ 3/98

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE

6

24/02/96

17897.161

25- 100 keV

COUNTS/S TTS

5000

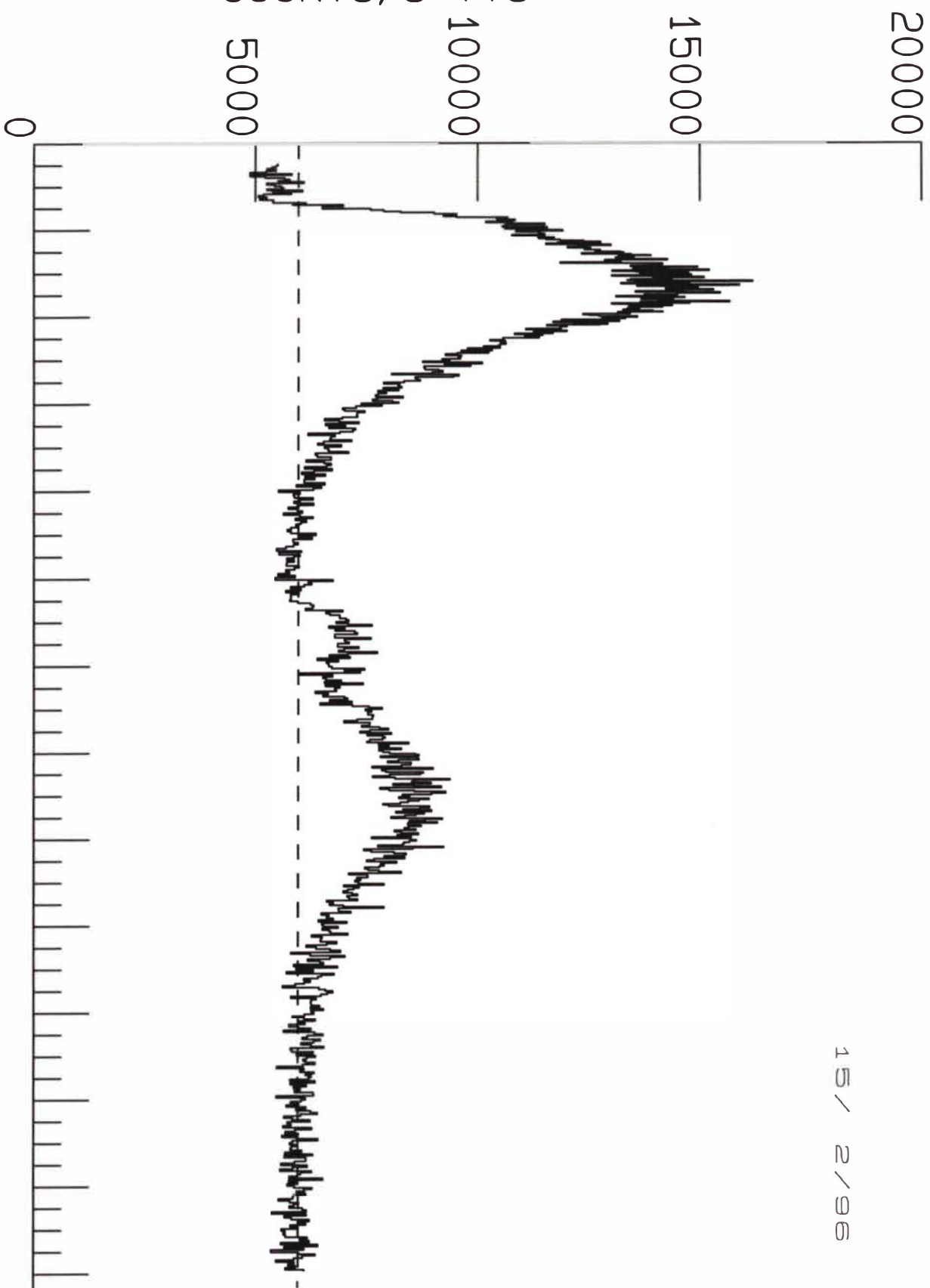
10000

15000

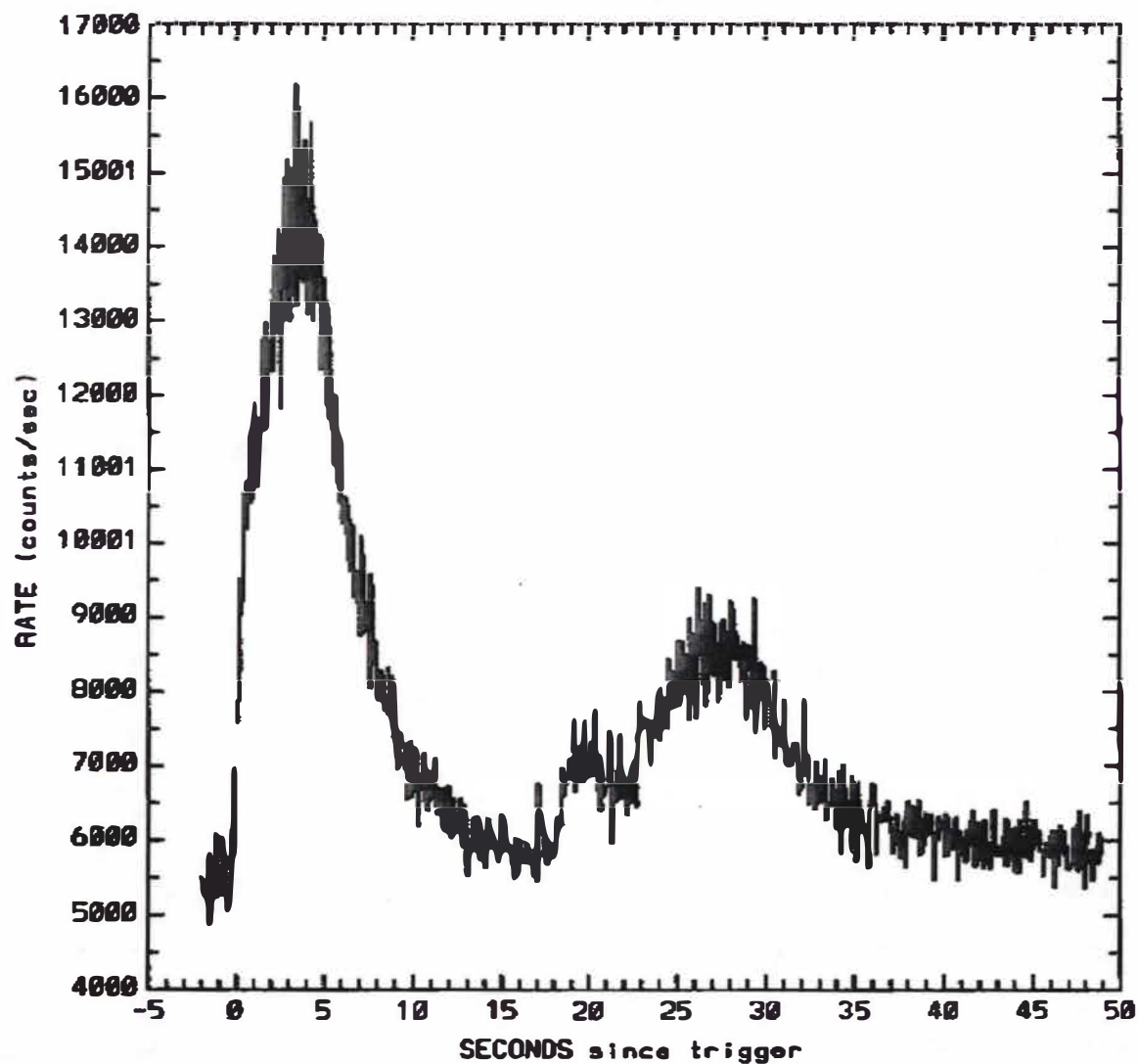
20000

-3 01 5 9 13 17 21 25 29 33 37 41 45 49

TIME, SECS



TTS Data for K. Hurley. No. 4757



12-FEB-1996 11:24:11

Created by MOPS 80
(Burst Display)
Version 12.25

Trigger # = 4757

Trigger Time:
18119 / 17897.162Burst Data Type:
TTS

Time Corrected: Y

Maximum Time Error:
0.87711 second(s)Deadtime
Corrected: NBackground Data
Type: PRED + DISCLA

Bin Count: 8

Detectors (7..8):
-6-4-2-8Discriminators:
(2 . 2)Quality Mask:
BDISP1

From DEAL@fender.msfc.nasa.gov Fri Feb 9 10:13 PST 1996
From: DEAL@fender.msfc.nasa.gov
Date: Fri, 9 Feb 1996 12:13:36 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4761

BATSEARCH PROGRAM

110

BATSE BURST # 4761
EVENT OF 1996 FEB 6 DAY OF YEAR= 37
EVENT CROSSING TIME AT BATSE : 46162. S. OR 12:49:22.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 231.000 21.000
BATSE PEAK COUNTING RATE: 1500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 6/ 2/ 96 IS:
RA= 218.157 DEC= 69.910 DIST= 2.827 AU
BATSE-ULYSSES DISTANCE = 422975433. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=130.48 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -915.98 SECS.
CROSSING TIME AT ULYSSES IS 45246. S. OR 12:34:06 +/- 222.40 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 6/ 2/ 96 IS:
RA= 325.211 DEC= -15.032 DIST= 2.359 AU
MARS-BATSE DISTANCE = 352950016. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 80.84 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 187.38 SECS.
CROSSING TIME AT MARS IS 46349. S. OR 12:52:29 +/- 204.64 SECONDS

BATSE BURST TRIGGER

NO.: 4761

TIME: TJD=0119 SECONDS=46162

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=84.4 AZIMUTH=319.1 ERROR=5.3 DEGREES

COMMENTS:

BURST LASTING ~ 50 MS. VERY HARD. VISIBLE ABOVE 30 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4761	960206	10119	46162	1500	231	+21	.05

BATSE BURST# 4761

ULYSSES RT

4 / 5 / 98

6 / 2 / 96 45036.352 s

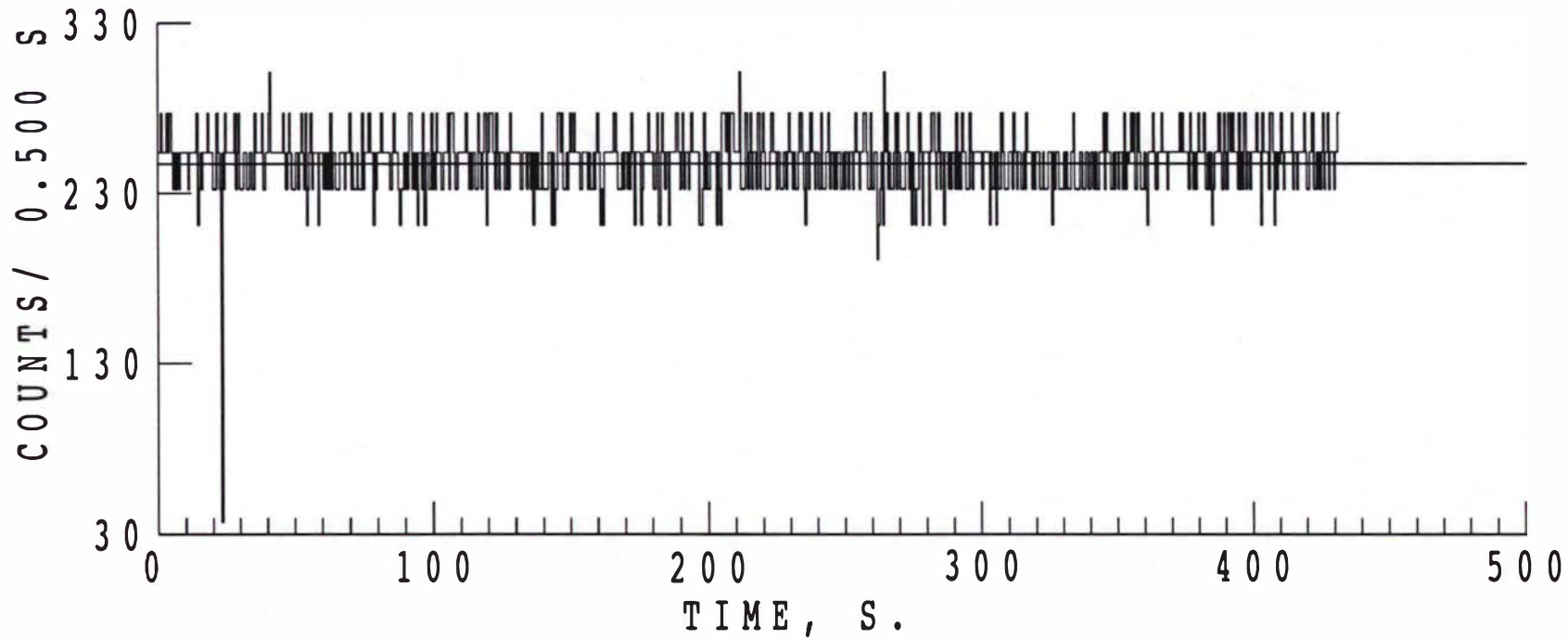
0 - 0 keV

W= 10 M=10

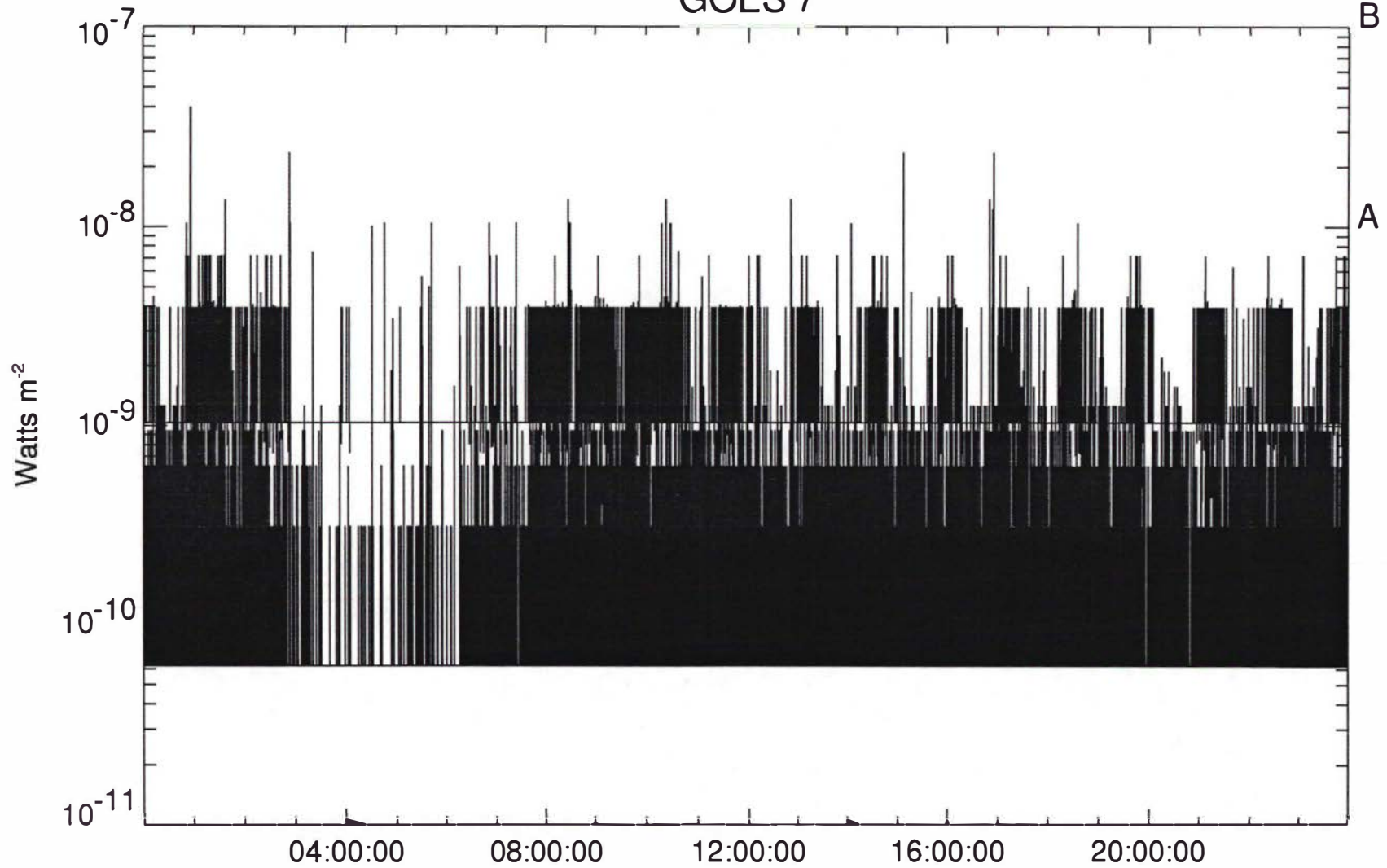
>4.0 SIGMA FLUCTUATIONS ||

W= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



GOES 7



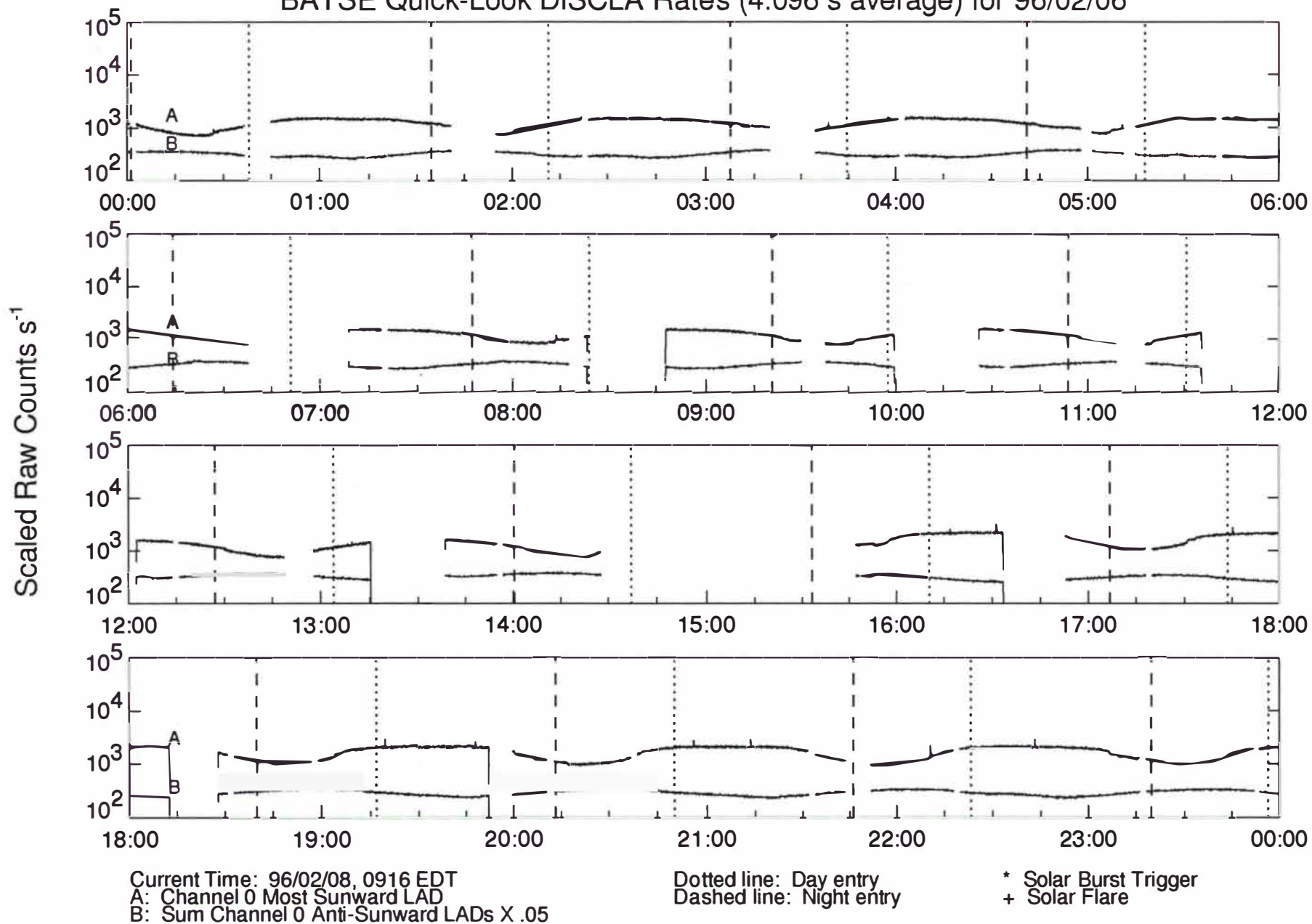
Data Start: 96/02/06, 0000:02

Plot created: 96/02/08, 0915

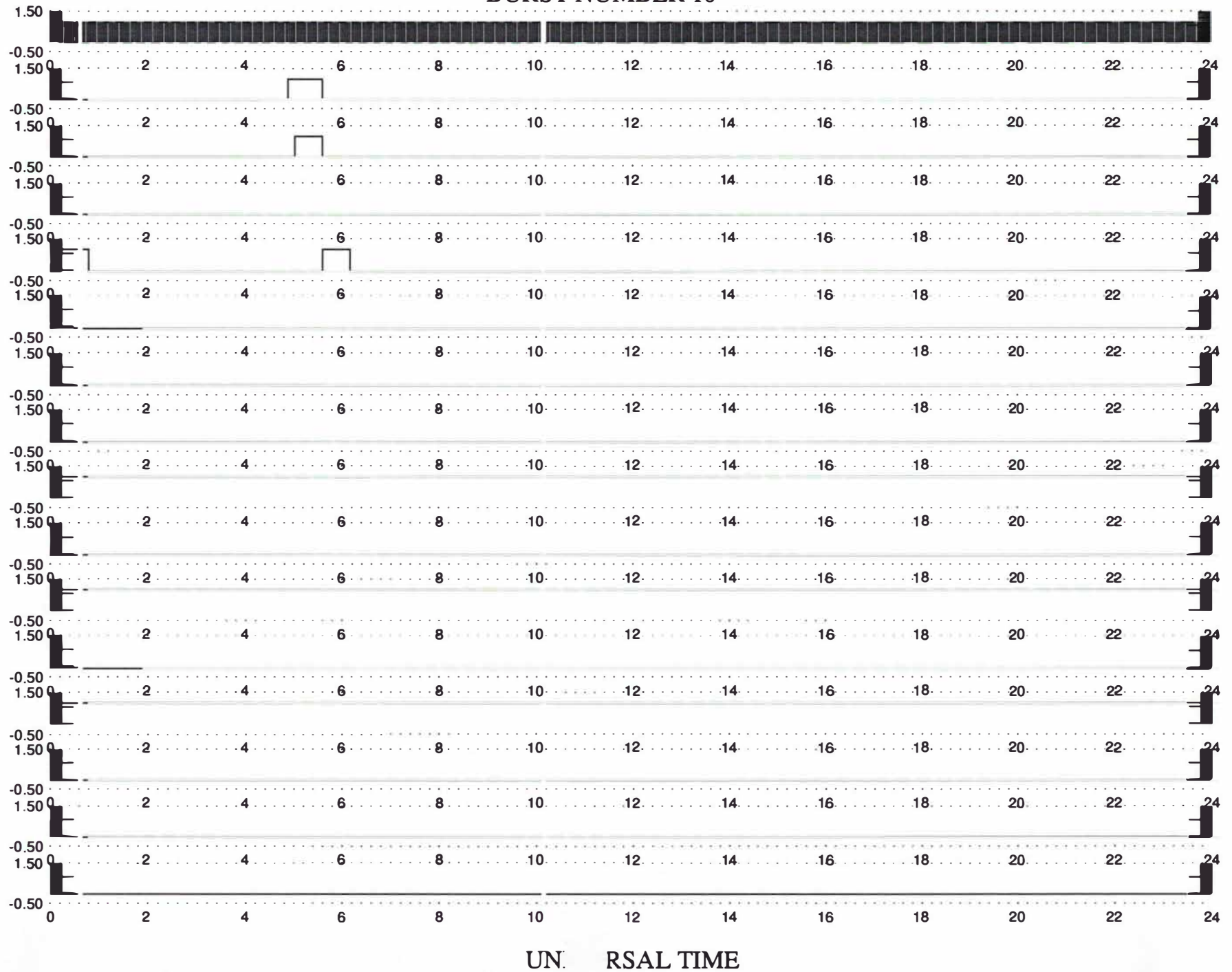
Channel 1 (1.0 - 8.0 Angstroms)
Channel 2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted

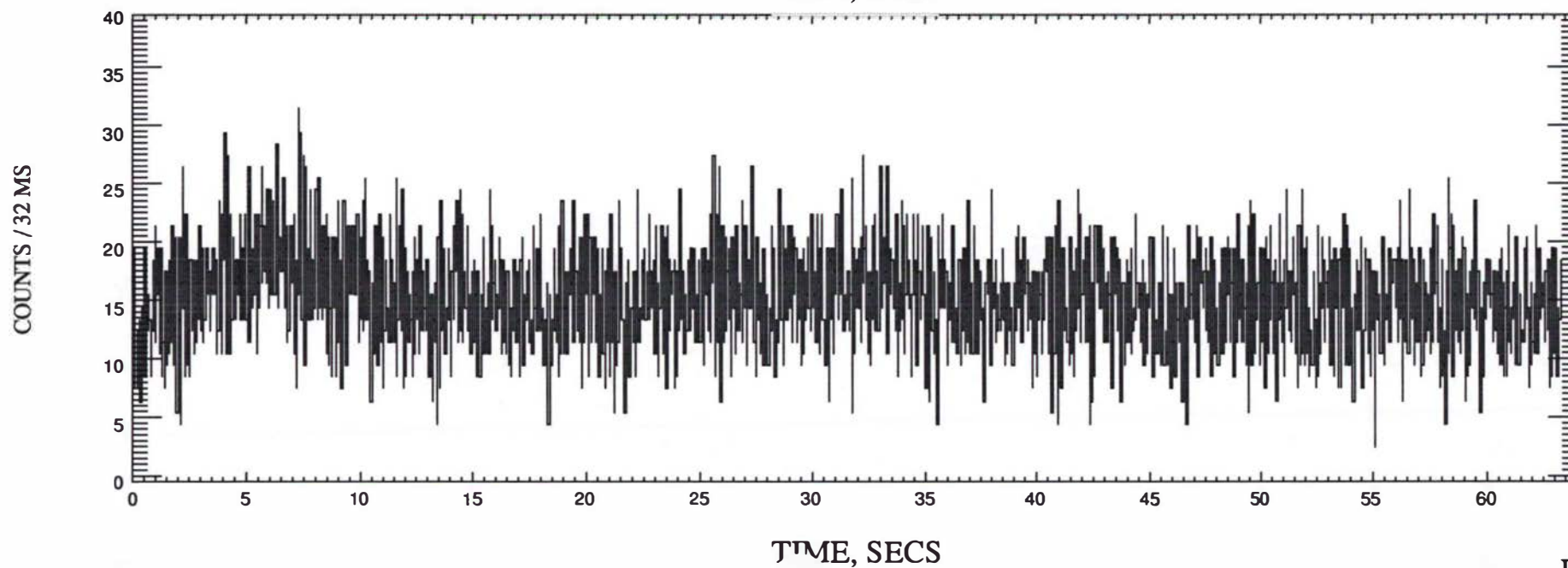
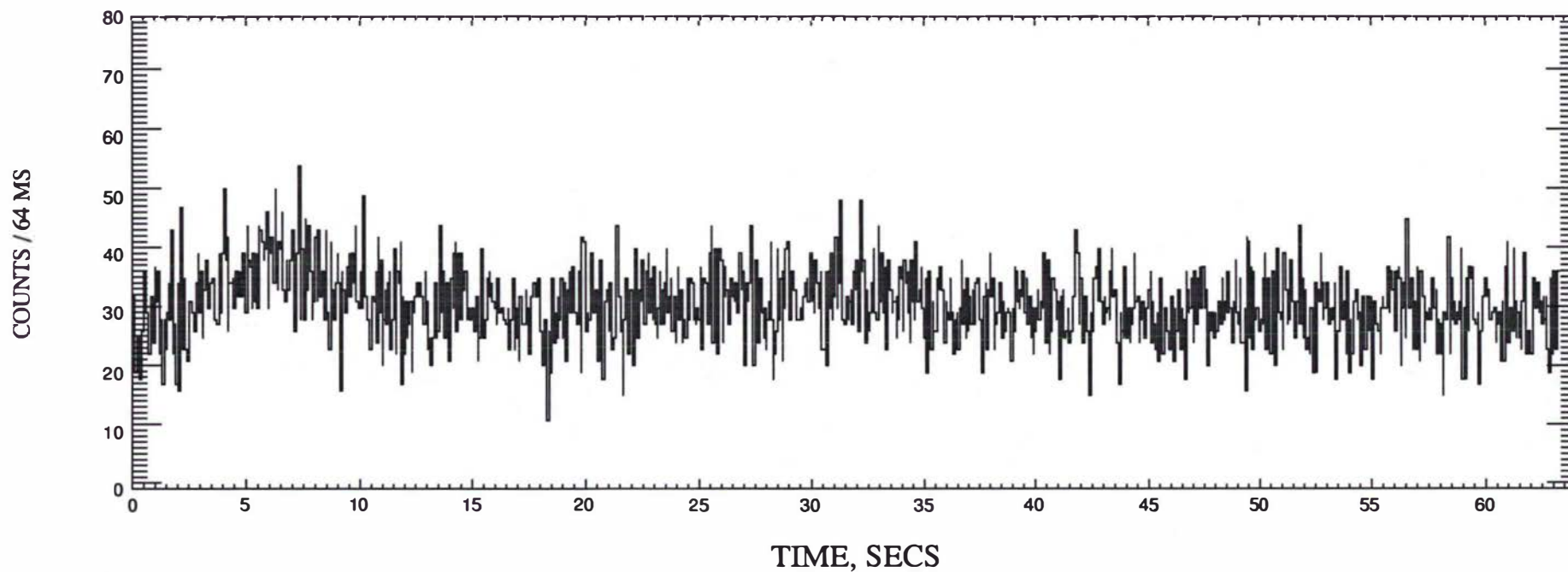
BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/06



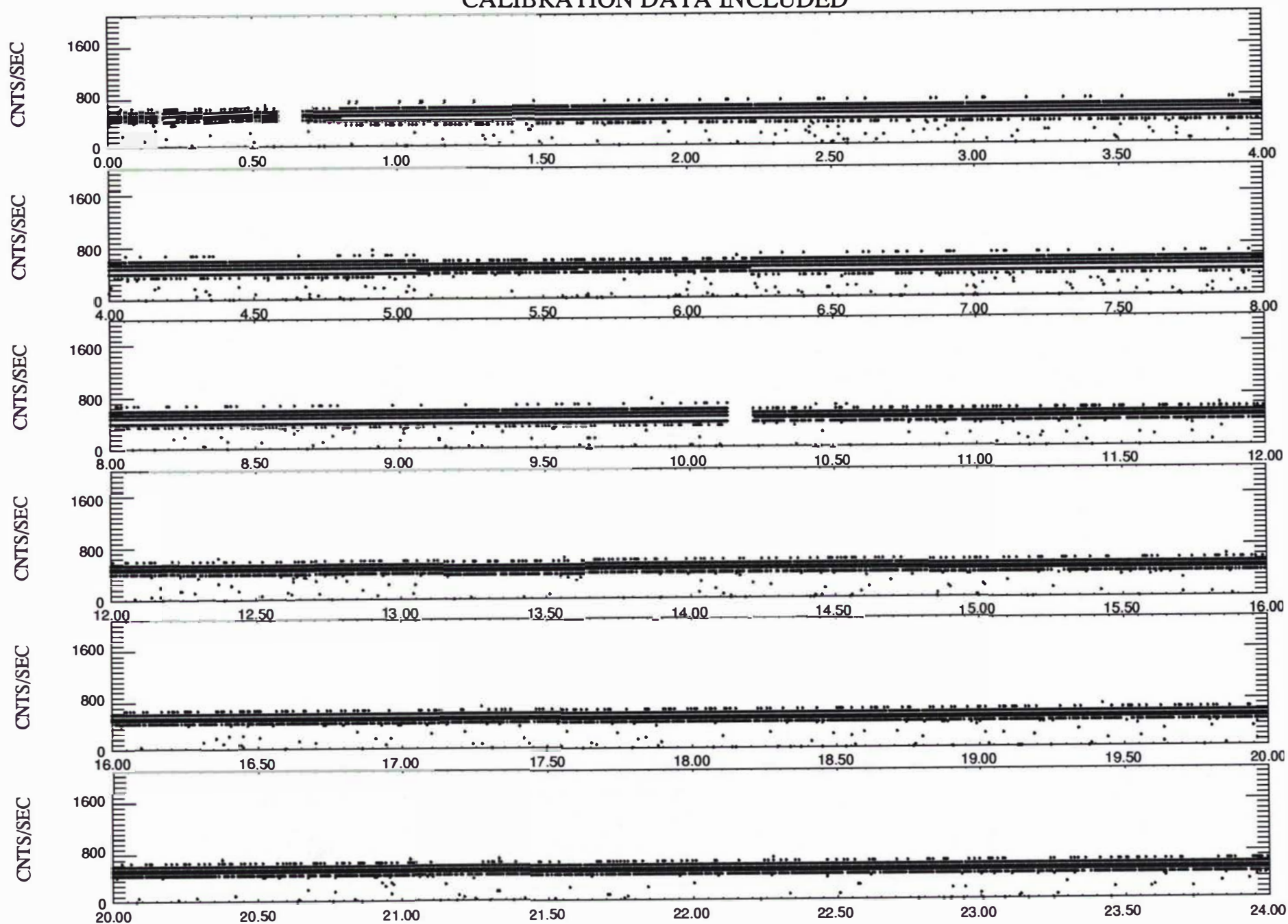
CBU	CCL	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



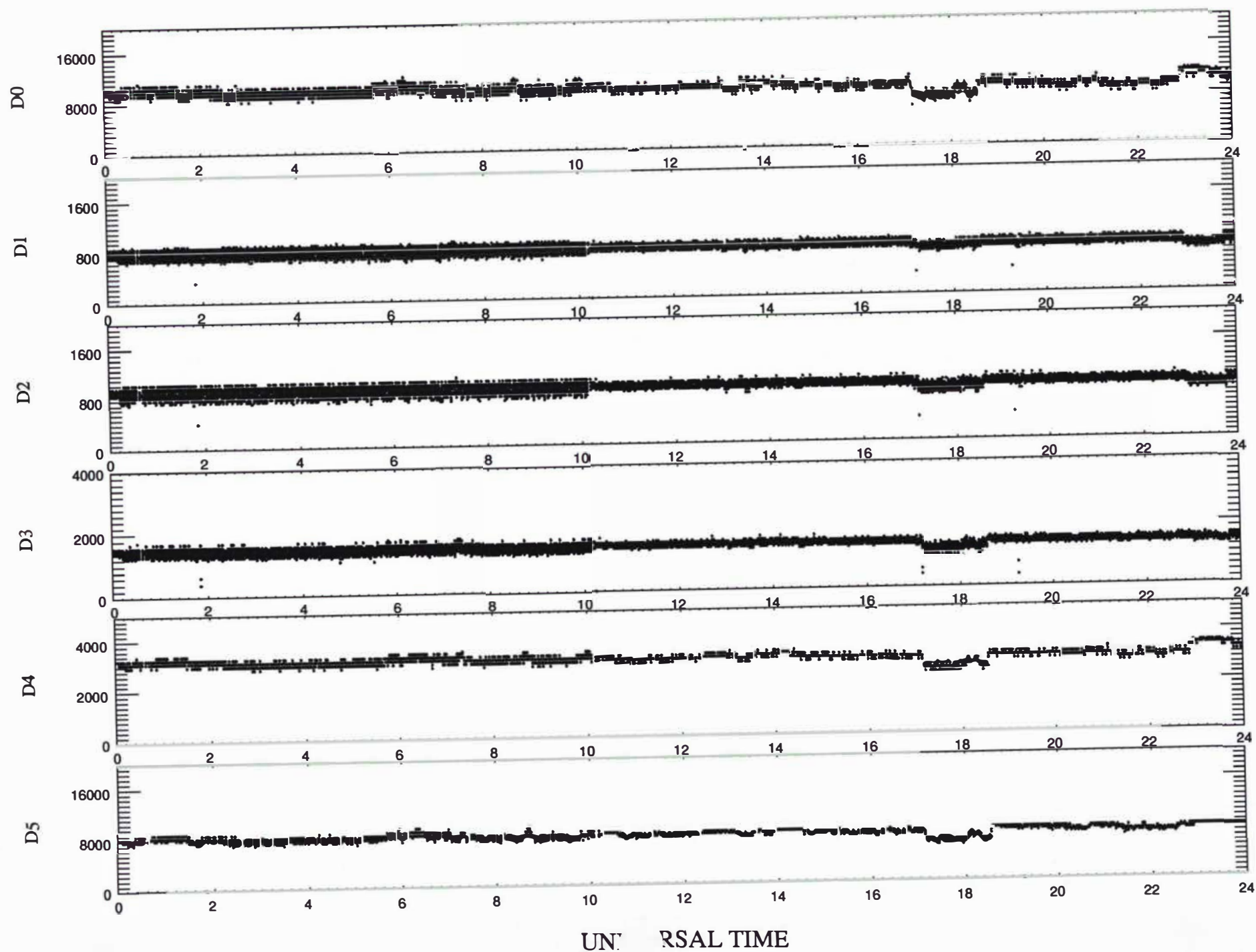
Burst Counter 10 at UT= 4.915240715875 h=17694.867 s 04:54:54.867



CALIBRATION DATA INCLUDED



UN RSAL TIME



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
~033.19:10 SCET	should be	~032.13:18 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~048.17:29 SCET	should be	~047.13:45 SCET
~054.08:59 SCET	should be	~053.11:46 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~039.18:34 SCET	should be	~038.12:14 SCET

We see data gaps for each of the correct times, so it looks like your theory of AMMOS mis-correcting times when there is carry-over data on the tape is correct.

I hope this is enough information. I would have to do a bit more calculation to get the approximate ERTs. Let me know if you want them.

Best regards,

Nigel

From ulsdtmt@jplsp.DNET.NASA.GOV Mon Mar 18 17:13 PST 1996
From: ulsdtmt@jplsp.DNET.NASA.GOV
Date: Mon, 18 Mar 96 20:13:12 -0500
To: "khurley@sunspot.ssl.berkeley.edu"@east.DNET.NASA.GOV (SENT TO @LIST1)
Subject: Misplaced Major Frames in EDRs

Greetings,

We have identified an operations technique that produces data that will be improperly time tagged by the MGDS (telemetry system). Instances of EDR errors (major frames out of order) have been found in the CDROM archival products for December 1995 and January 1996. Errors will also be found in the still to be shipped February 1996 data.

When major frames are recorded but not transmitted during the next track, but are eventually downlinked with data from a succeeding day, the embedded SCLKs are 'assumed' to be incorrect by the frame syncer and are re-tagged with SCETs and SCLKs matching the adjacent (but newer) data.

For each major frame processed in this manner, a gap will exist, representing the time the data was actually acquired, and a major frame or realtime data, representing the time period the data now errently represents, will be replaced by the misplaced playback data.

Yes. Confusing. See the attached memo detailing the times involved.

Approximately 17 such instances are known to have occured. The total time involved is about twenty minutes. Because the data loss is small and the cost of reprocessing would be so large, the Project has determined that it would be imprudent to reprocess.

For your information, however, we included a memo from Nigel Angold which itemizes each instance.

We thank Toni Galvin and Nigel for identifying the problem and assisting in the diagnosis.

Regards,

Joe

To: <ulsdtmt@jplsp.jpl.nasa.gov>
From: Nigel Angold <nangold@jplsp2.jpl.nasa.gov>
Subject: Mis-corrected S/C clocks / SCETs
Cc: chris.leech@jpl.nasa.gov

I have looked at our recent tape recorder usage and predict that you will see major frames with mis-corrected spacecraft clocks / SCETs at the following times (give or take a few minutes):

1995:

~342.22:59 SCET	should be	~341.17:47 SCET
~347.22:39 SCET	should be	~346.16:46 SCET
~350.21:54 SCET	should be	~349.16:22 SCET
~355.22:14 SCET	should be	~354.15:42 SCET
~359.14:04 SCET	should be	~359.05:36 SCET
~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

From HENZE@fender.msfc.nasa.gov Fri Feb 9 09:52 PST 1996
From: HENZE@fender.msfc.nasa.gov
Date: Fri, 9 Feb 1996 11:52:24 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4776

BATSEARCH PROGRAM

NO

BATSE BURST # 4776
EVENT OF 1996 FEB 7 DAY OF YEAR= 38
EVENT CROSSING TIME AT BATSE : 58302. S. OR 16:11:42.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 29.000 -60.000
BATSE PEAK COUNTING RATE: 18000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 7/ 2/ 96 IS:
RA= 217.477 DEC= 70.216 DIST= 2.830 AU
BATSE-ULYSSES DISTANCE = 423438396. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 10.80 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1387.43 SECS.
CROSSING TIME AT ULYSSES IS 59689. S. OR 16:34:49 +/- 117.01 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 7/ 2/ 96 IS:
RA= 325.983 DEC= -14.771 DIST= 2.360 AU
MARS-BATSE DISTANCE = 353045280. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=116.11 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -518.35 SECS.
CROSSING TIME AT MARS IS 57784. S. OR 16:03:03 +/- 175.71 SECONDS

BATSE BURST TRIGGER

NO.: 4776

TIME: TJD=0120 SECONDS=58302

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=049.1 AZIMUTH=187.3 ERROR=002.9 DEGREES

COMMENTS:

SINGLE PULSE, DUR. ~0.7 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4776	960207	10120	58302	18000	029	-60	.7

BATSE #

4776

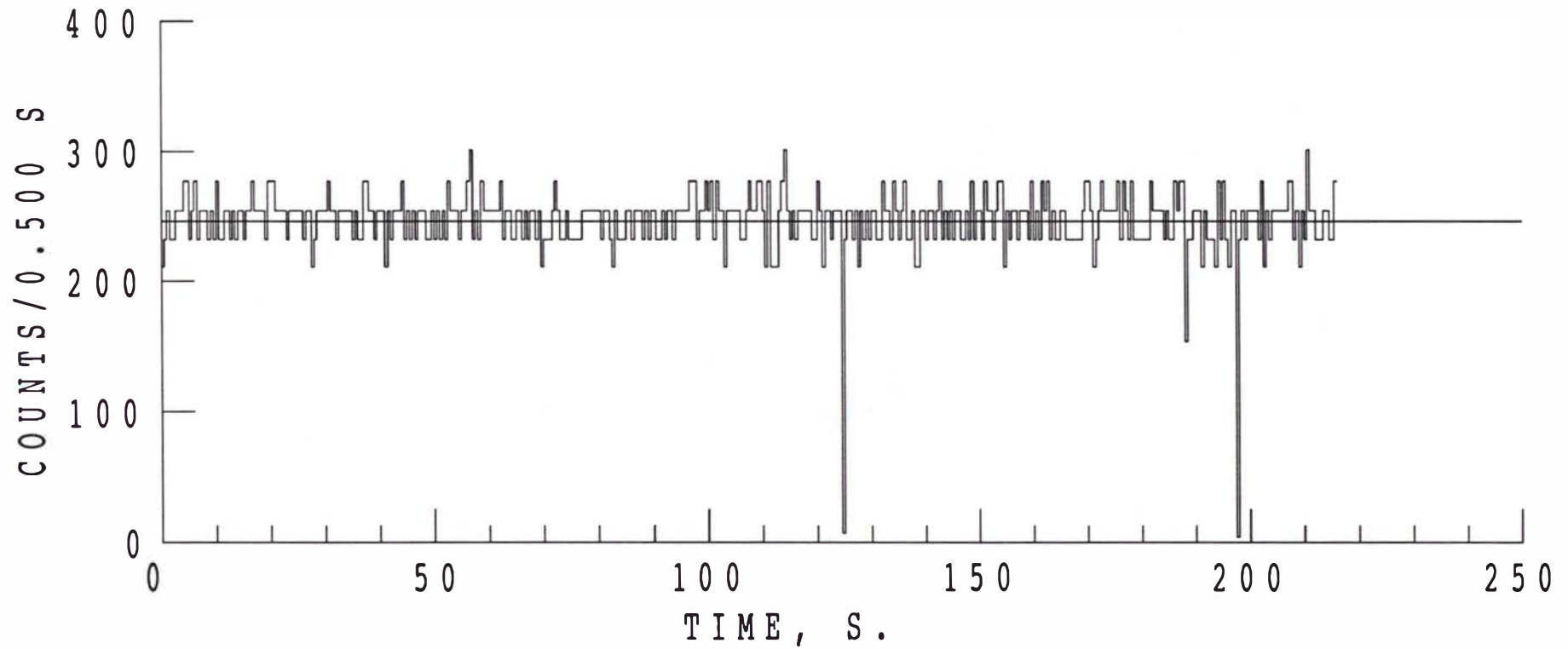
9 / 2 / 96

ULYSSES RT

7 / 2 / 96 59580.297 s

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



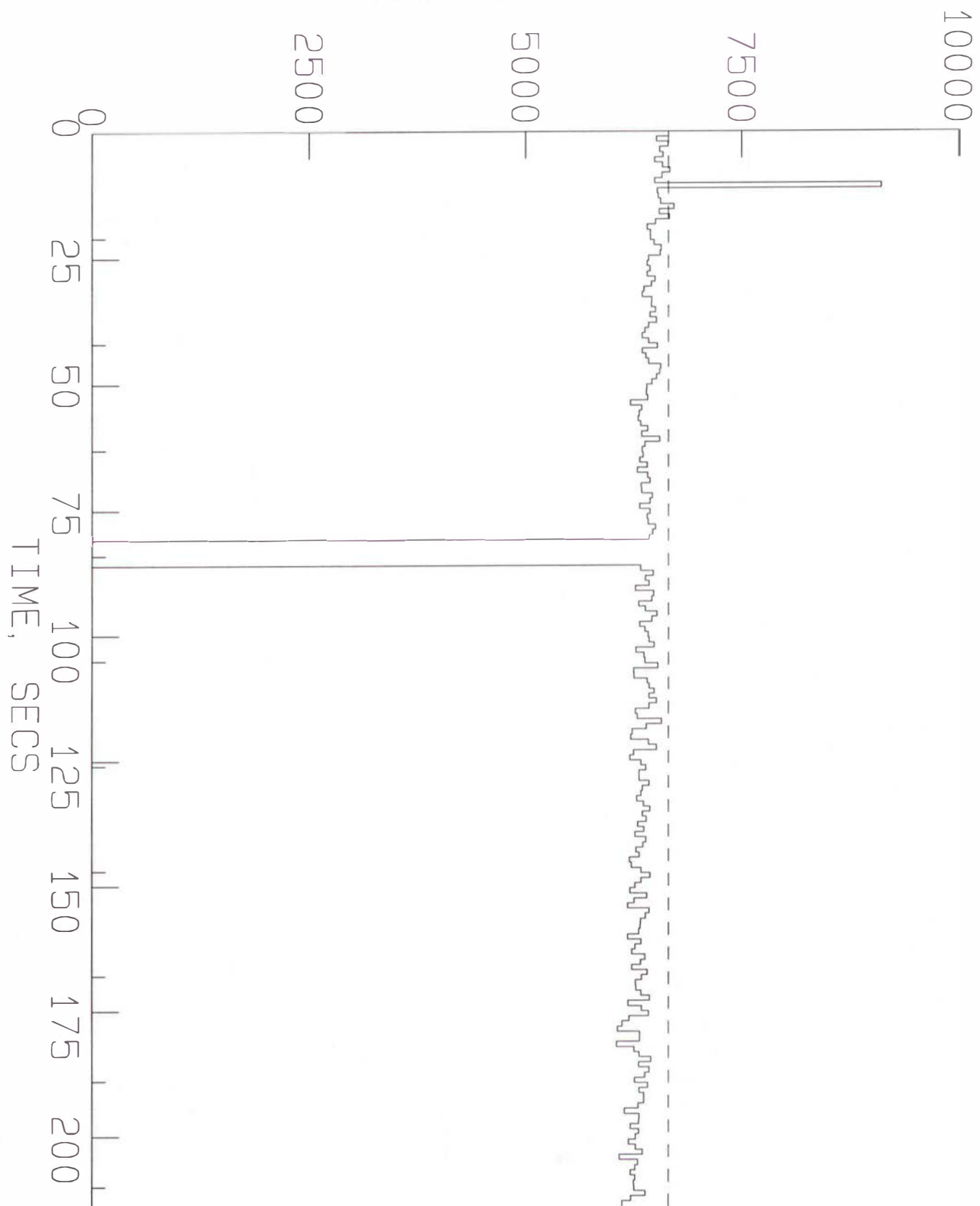
BACODINE

07/02/96

58291.913

25- 100 keV

COUNTS/1.024 S



BATSE time corrected 9/30

Date: June 27 2002

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 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?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

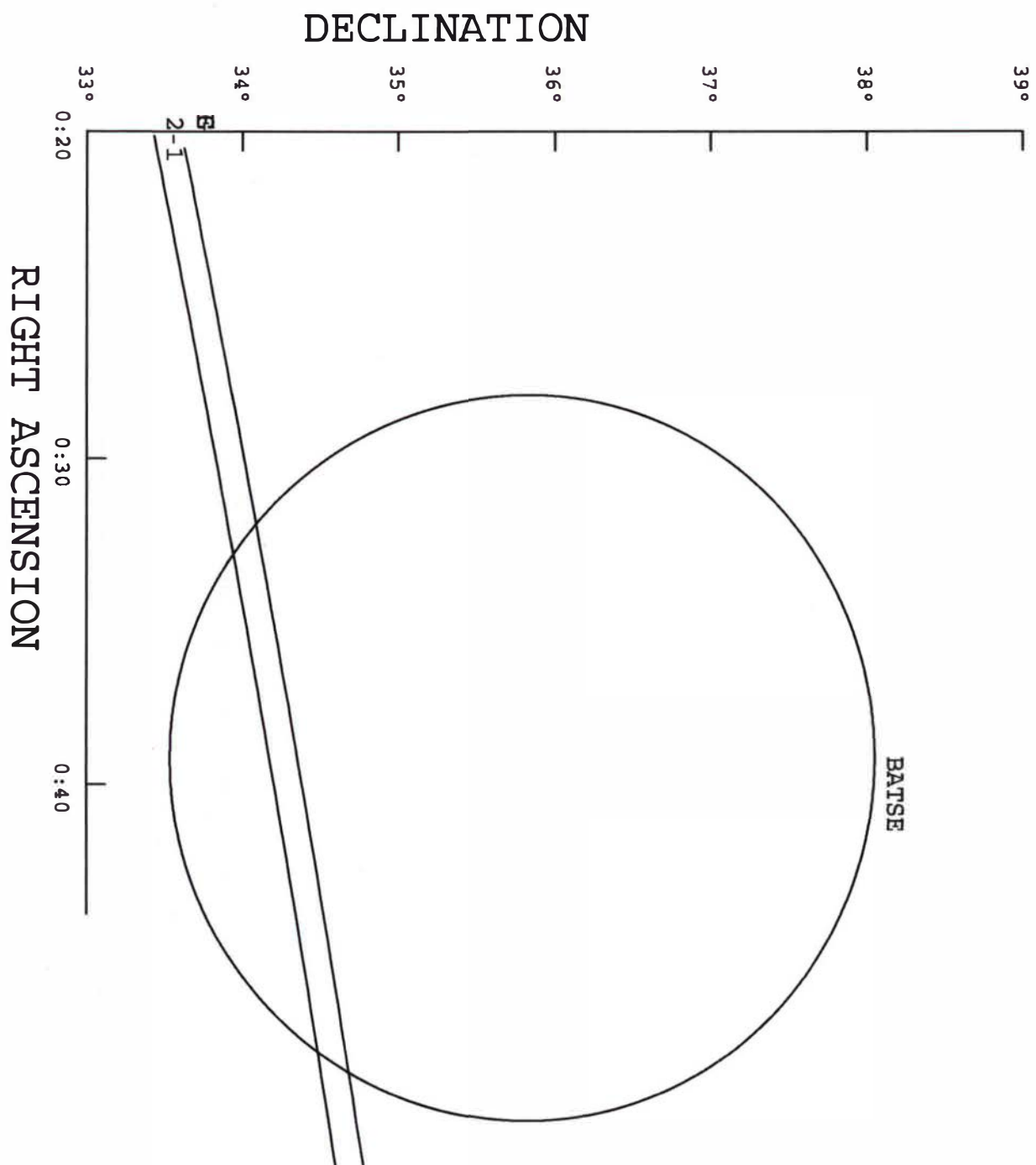
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

EVENT OF FEB 7, 1996 18:03

27/ 6/ 2



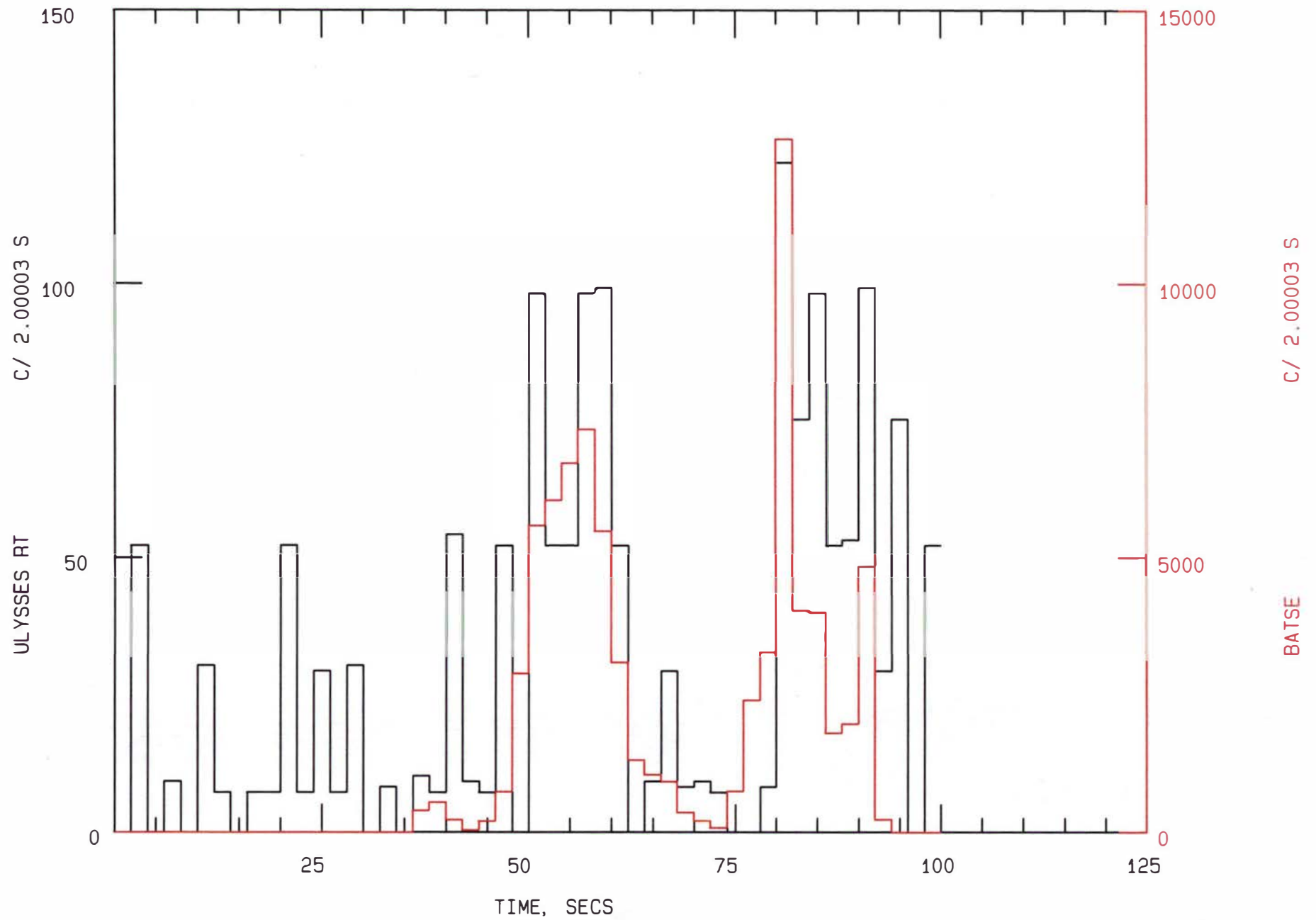
ULYSSES RT-BATSE

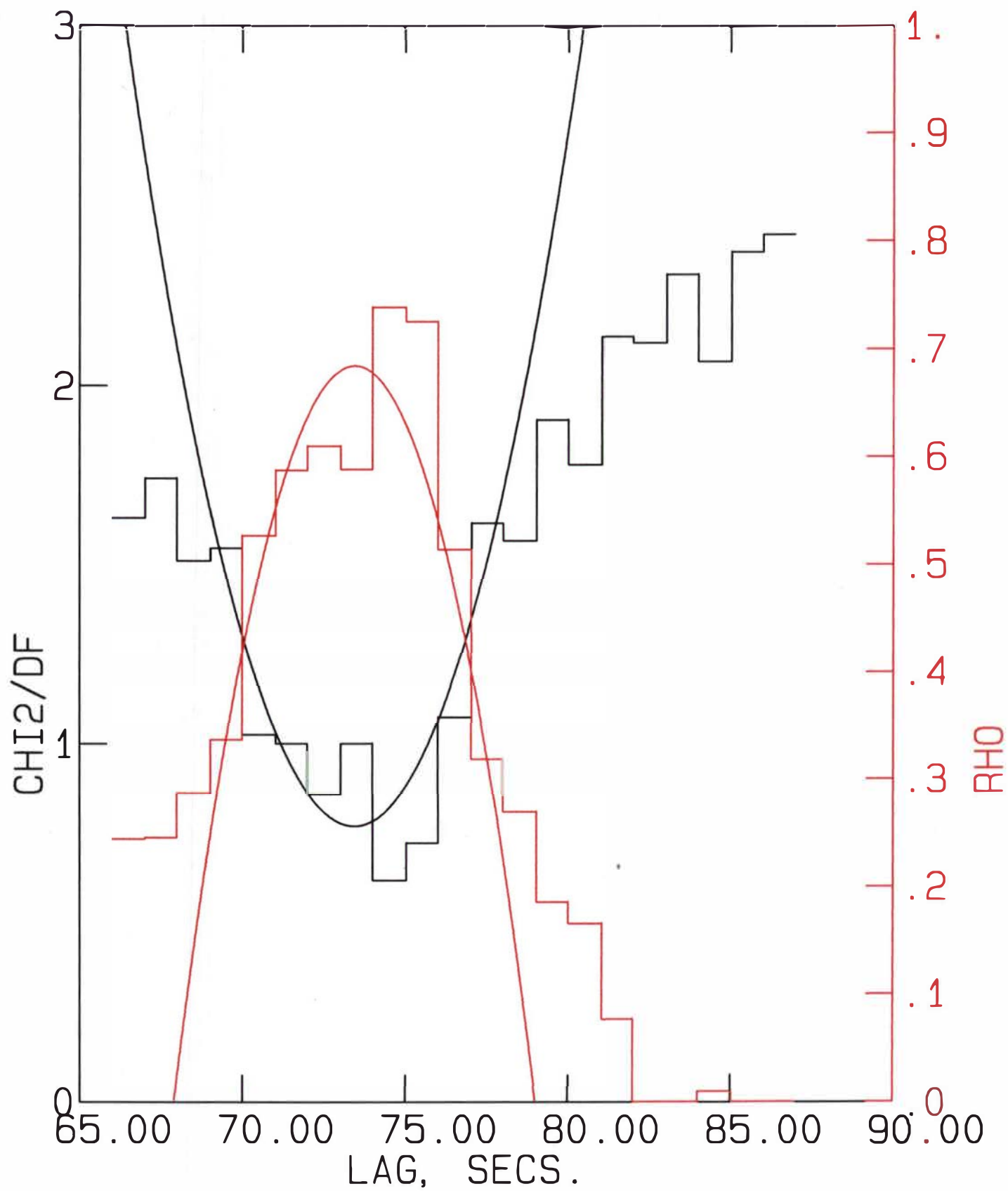
CORRELATION

7/ 2/96

64604.386

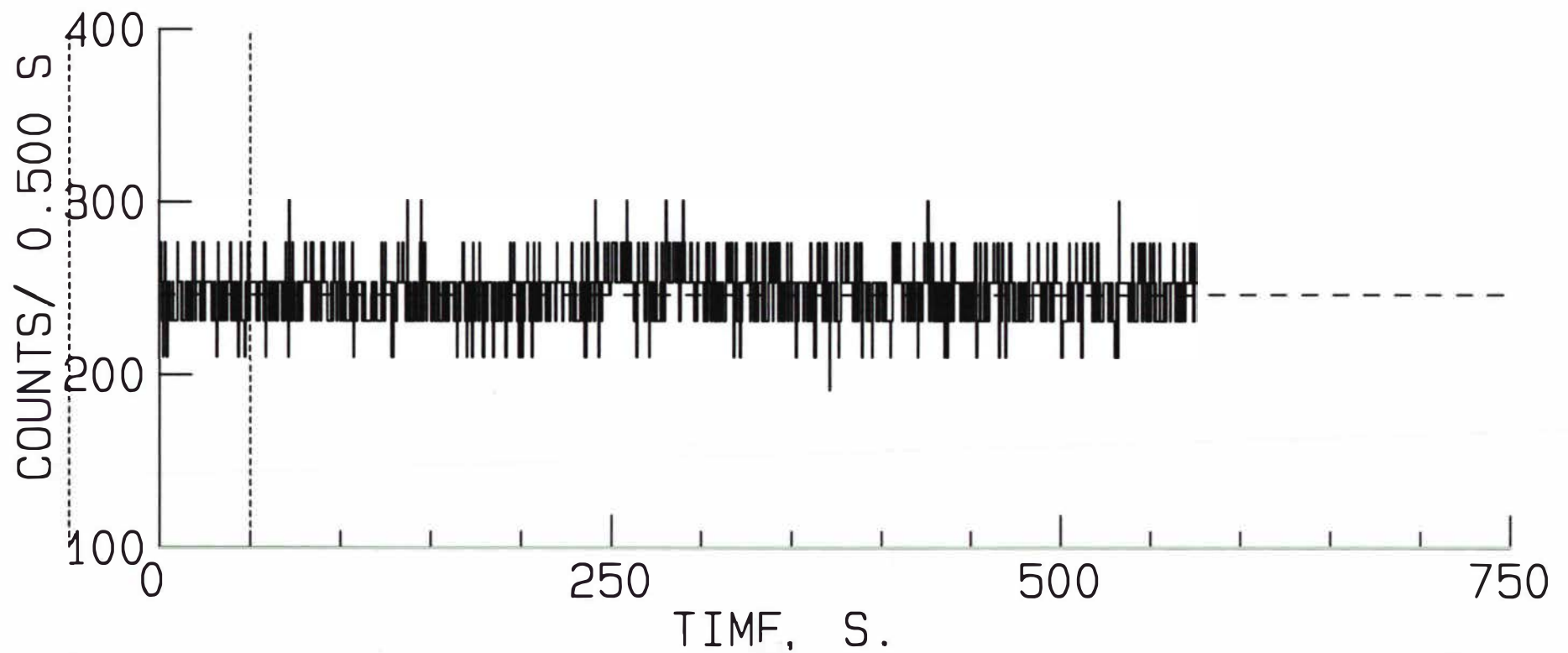
27/ 6/ 2





ULYSSES RT
7/ 2/96 64404.367 s
21- 144 keV

27 / 6 / 2



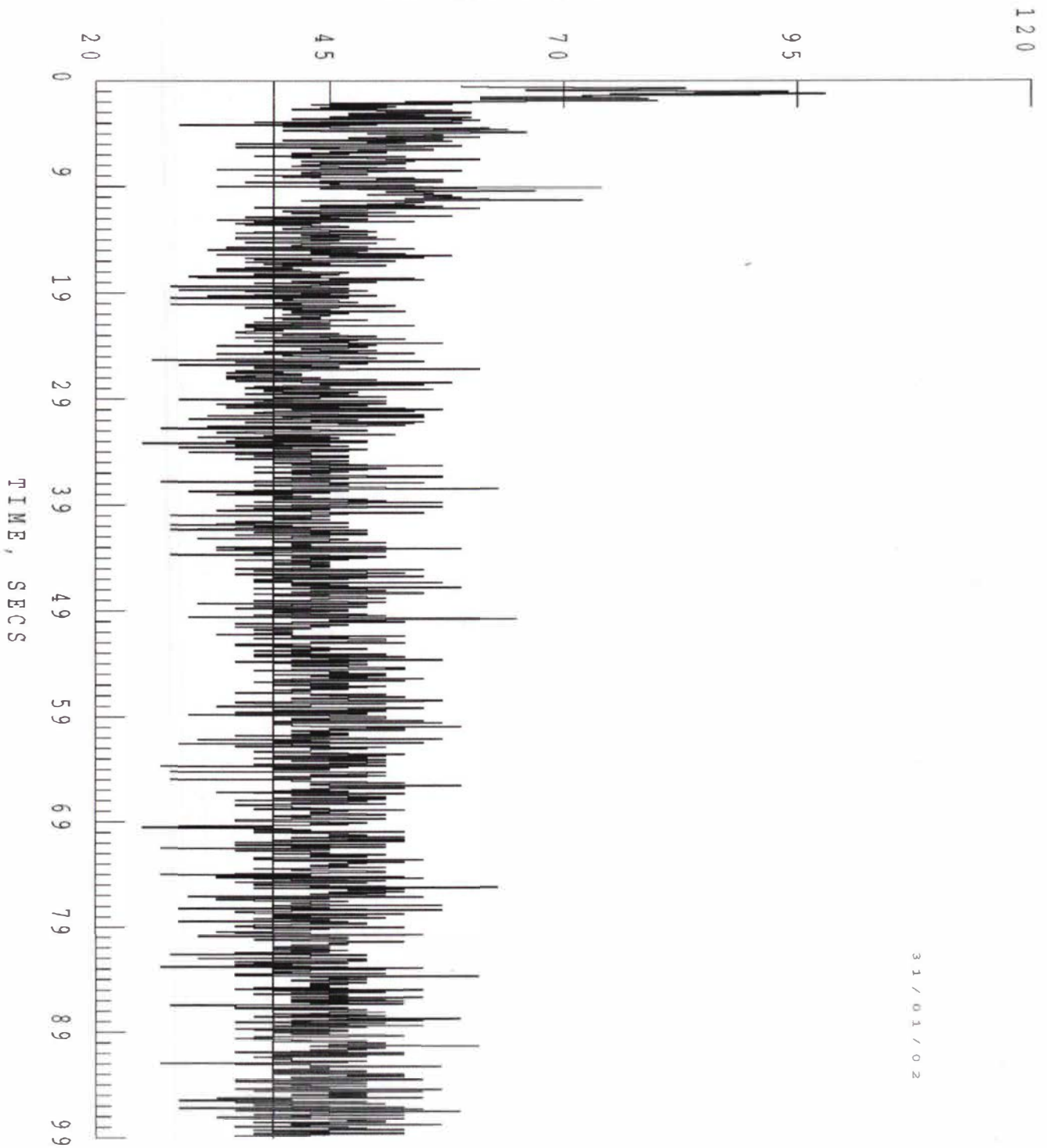
KONUS2

07/02/96

65075.063

50 - 200 keV

COUNTS/0.064 S



31/01/02

KONUS2 19960207 65075

ULYSSES RT

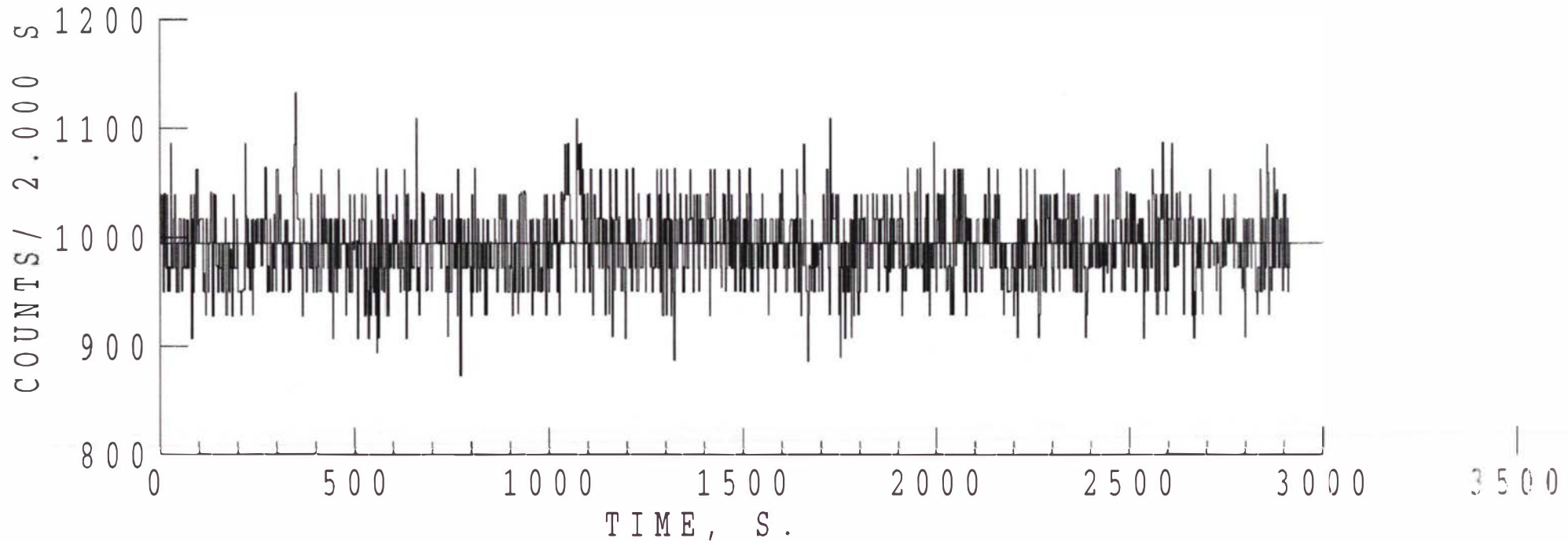
31 / 01 / 02

07/02/96 63612.352 s

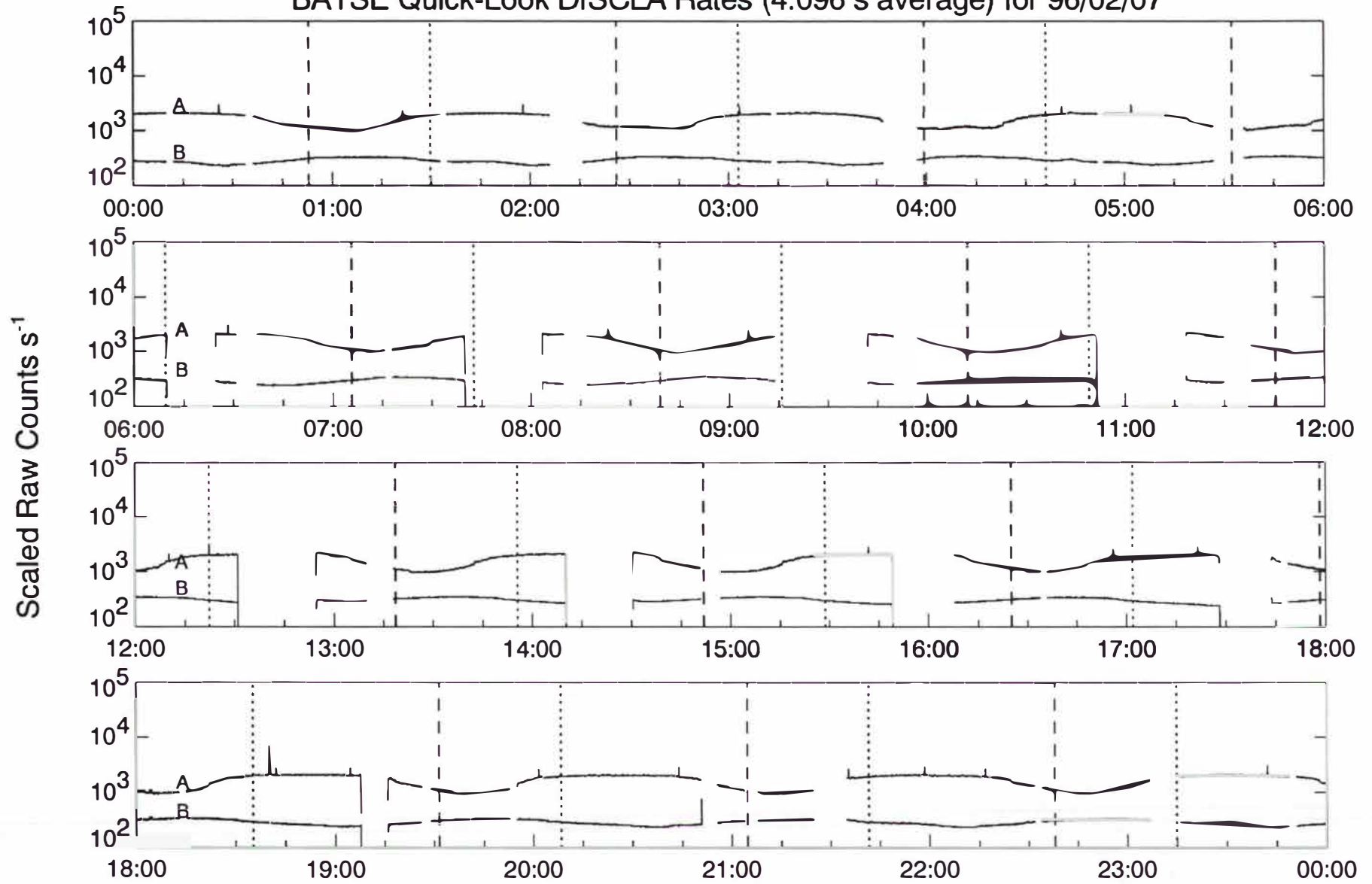
0.500 S INTERVALS REGROUPED BY 4

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



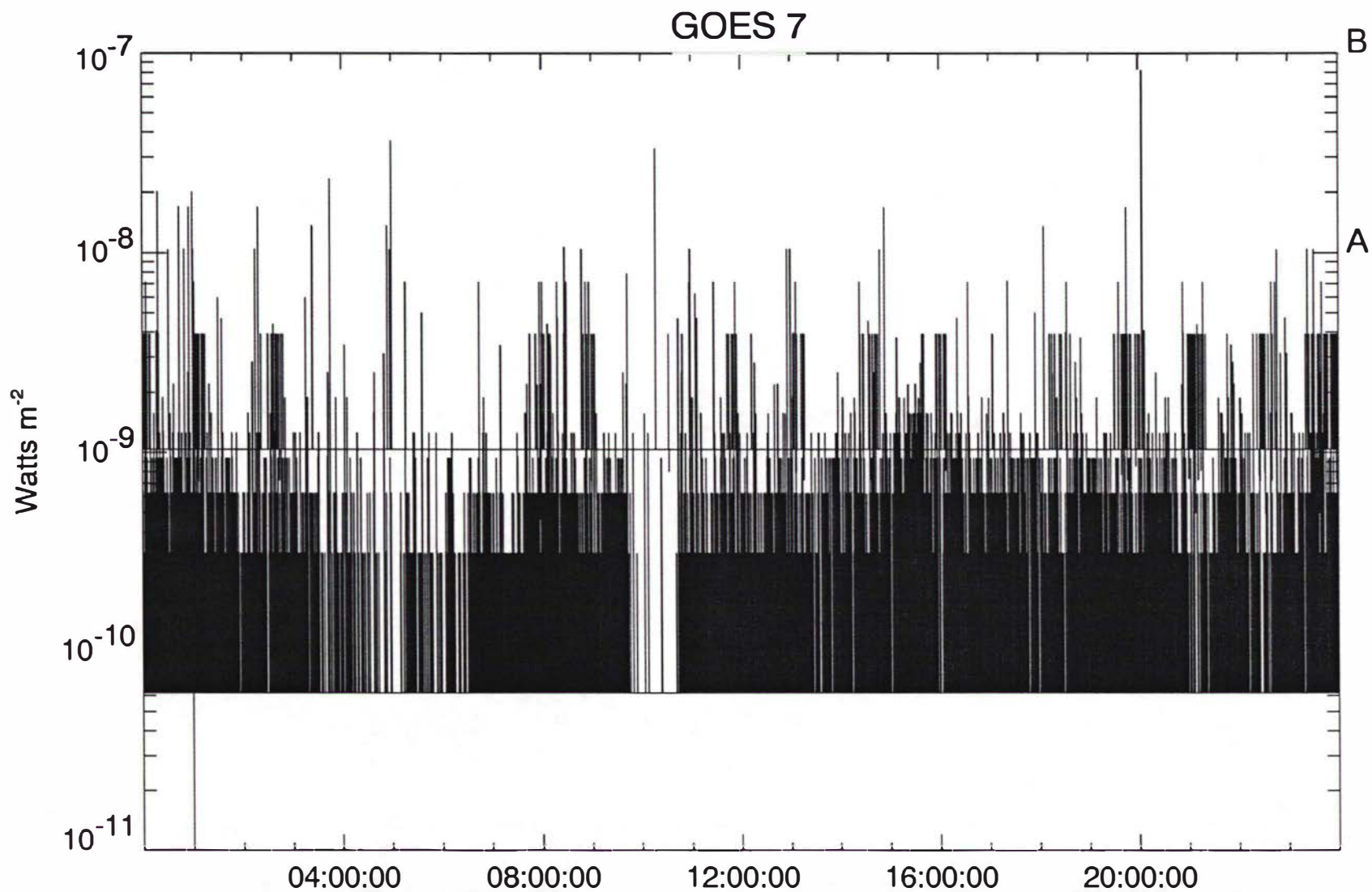
BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/07



Current Time: 96/02/09, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



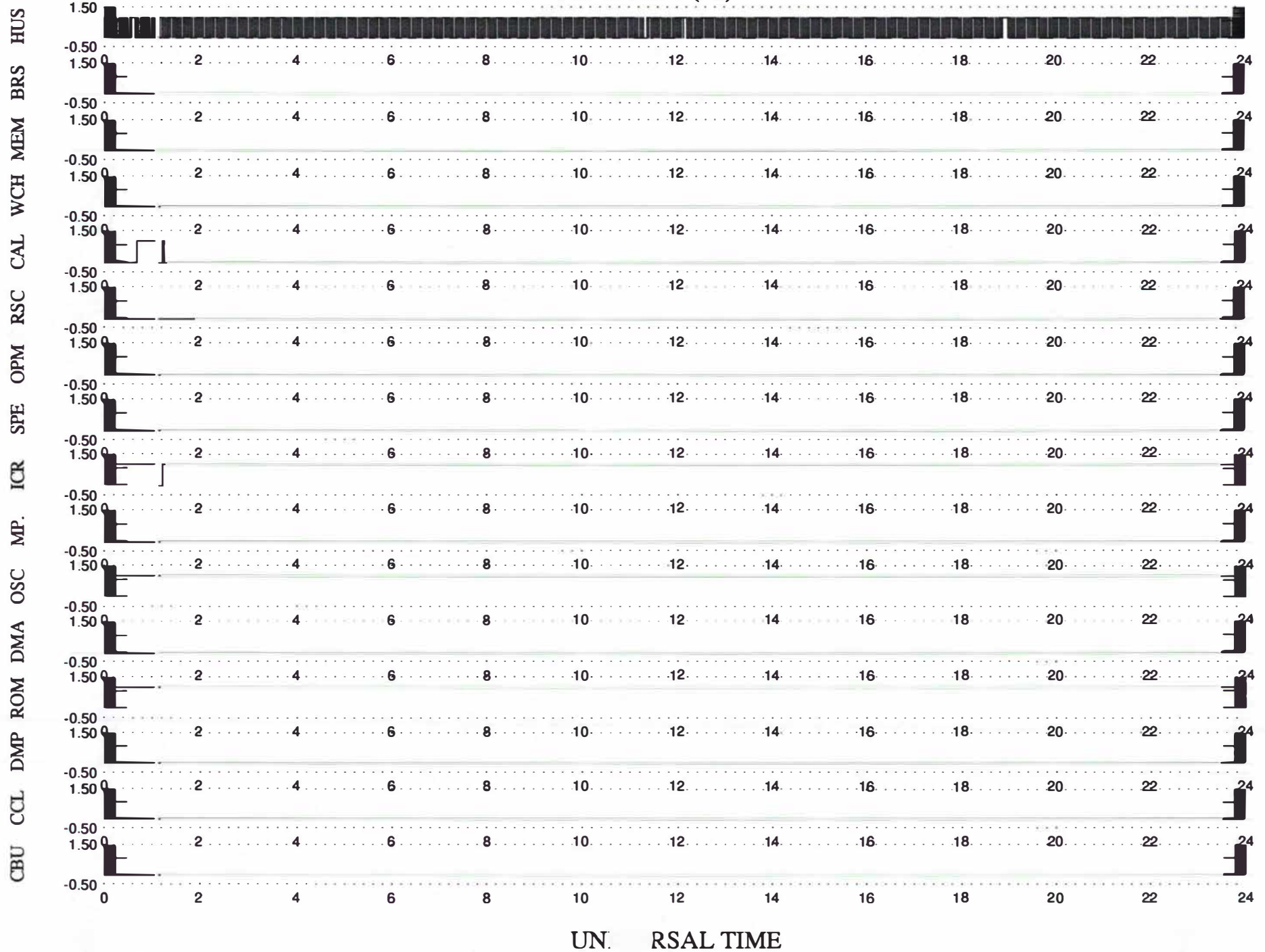
Data Start: 96/02/07, 0000:00

Plot created: 96/02/09, 0854

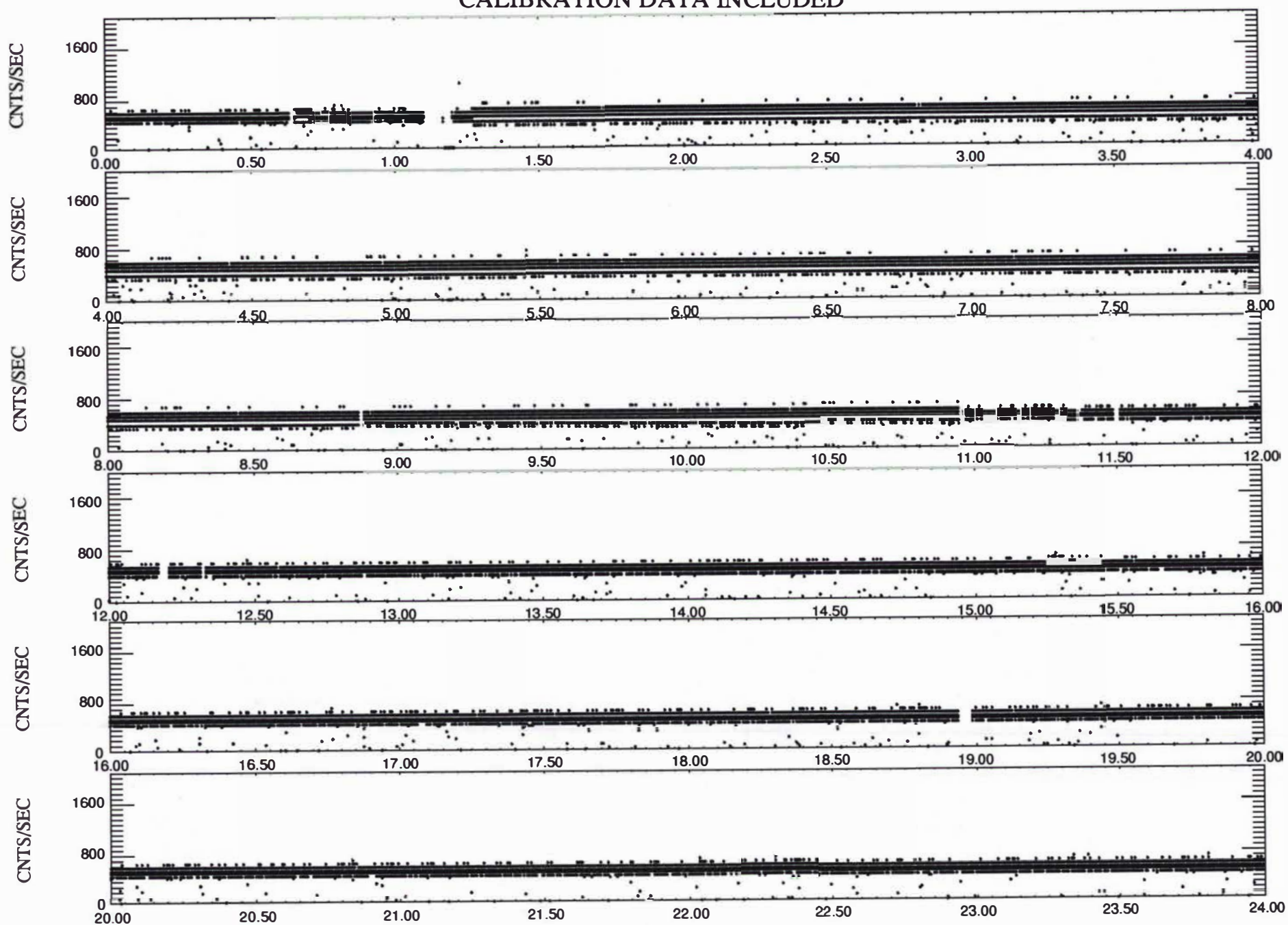
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

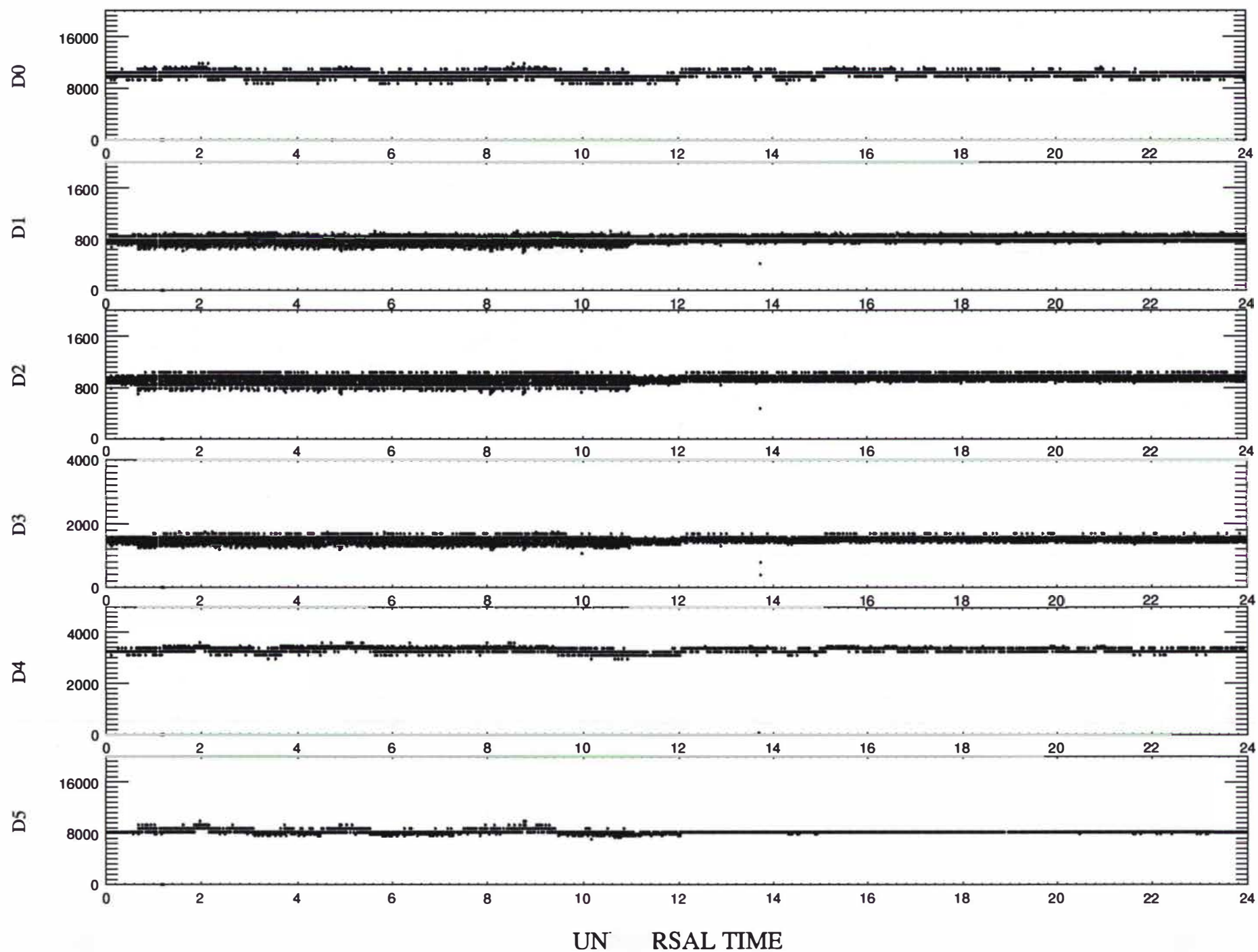
NO BURST (10)



CALIBRATION DATA INCLUDED



UN RSAL TIME



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
~033.19:10 SCET	should be	~032.13:18 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~048.17:29 SCET	should be	~047.13:45 SCET
~054.08:59 SCET	should be	~053.11:46 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
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Cc: chris.leech@jpl.nasa.gov

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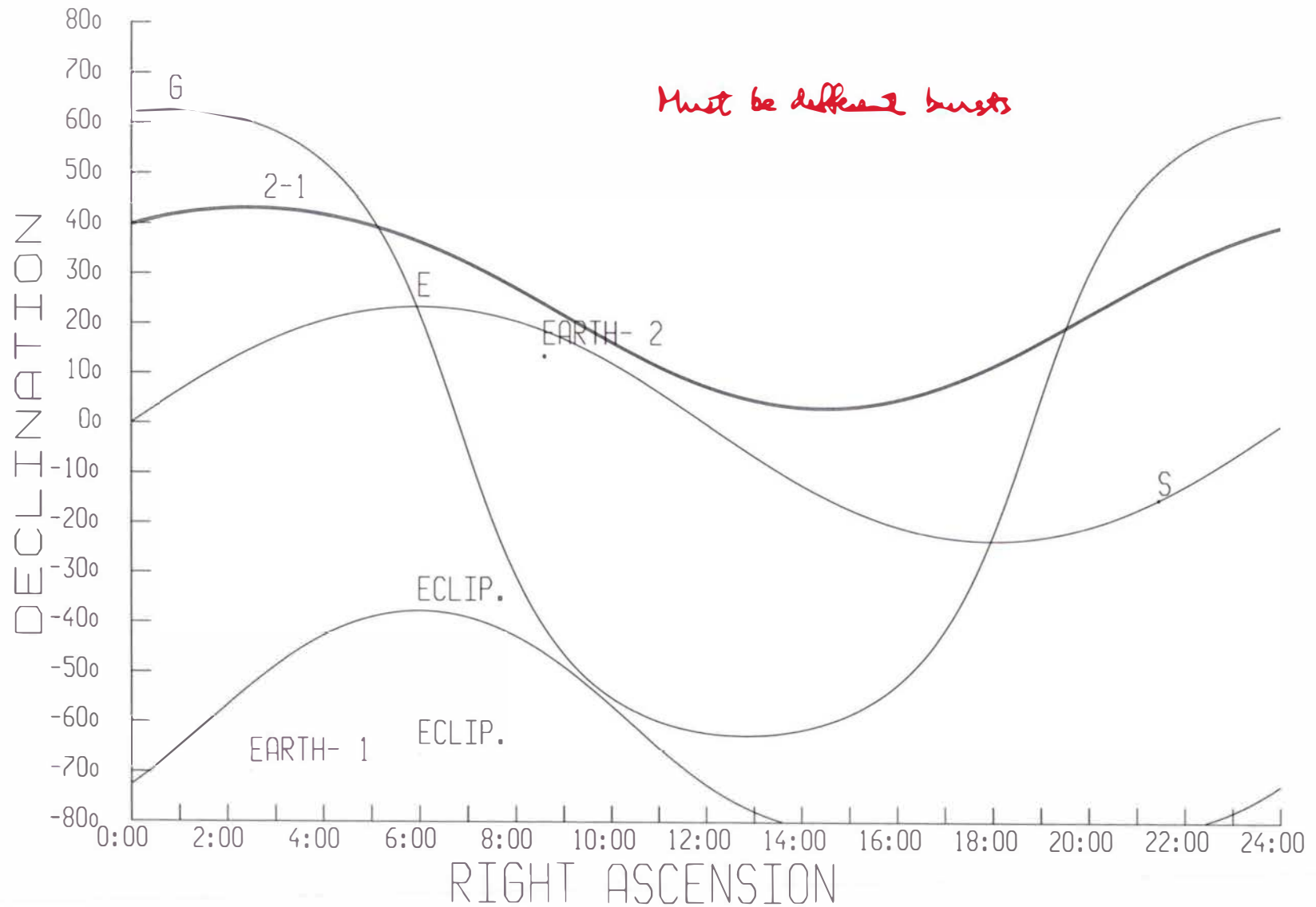
1995:

~342.22:59 SCET	should be	~341.17:47 SCET
~347.22:39 SCET	should be	~346.16:46 SCET
~350.21:54 SCET	should be	~349.16:22 SCET
~355.22:14 SCET	should be	~354.15:42 SCET
~359.14:04 SCET	should be	~359.05:36 SCET
~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

EVENT OF FEB 8, 1996 19:55

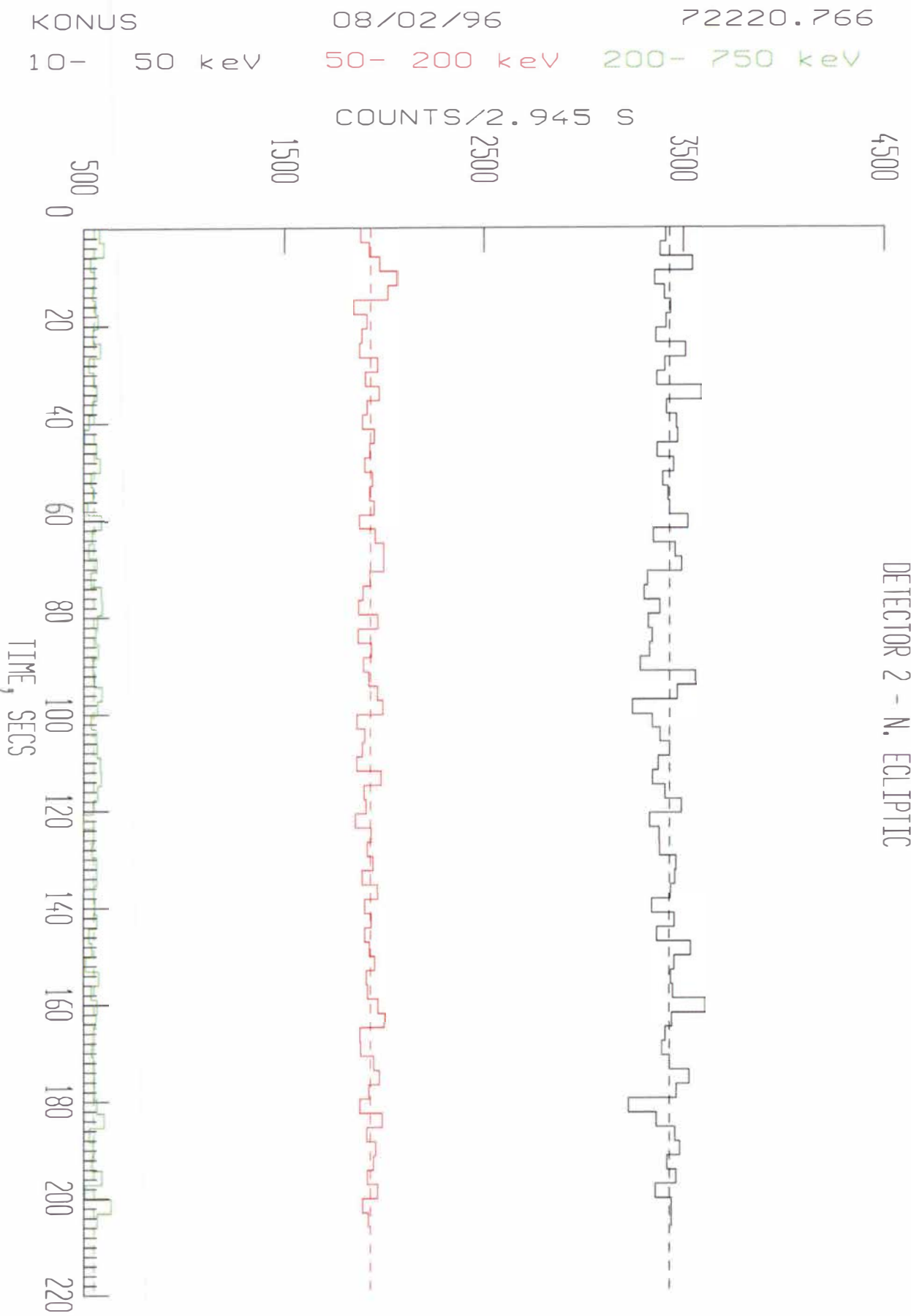
16/09/2011

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



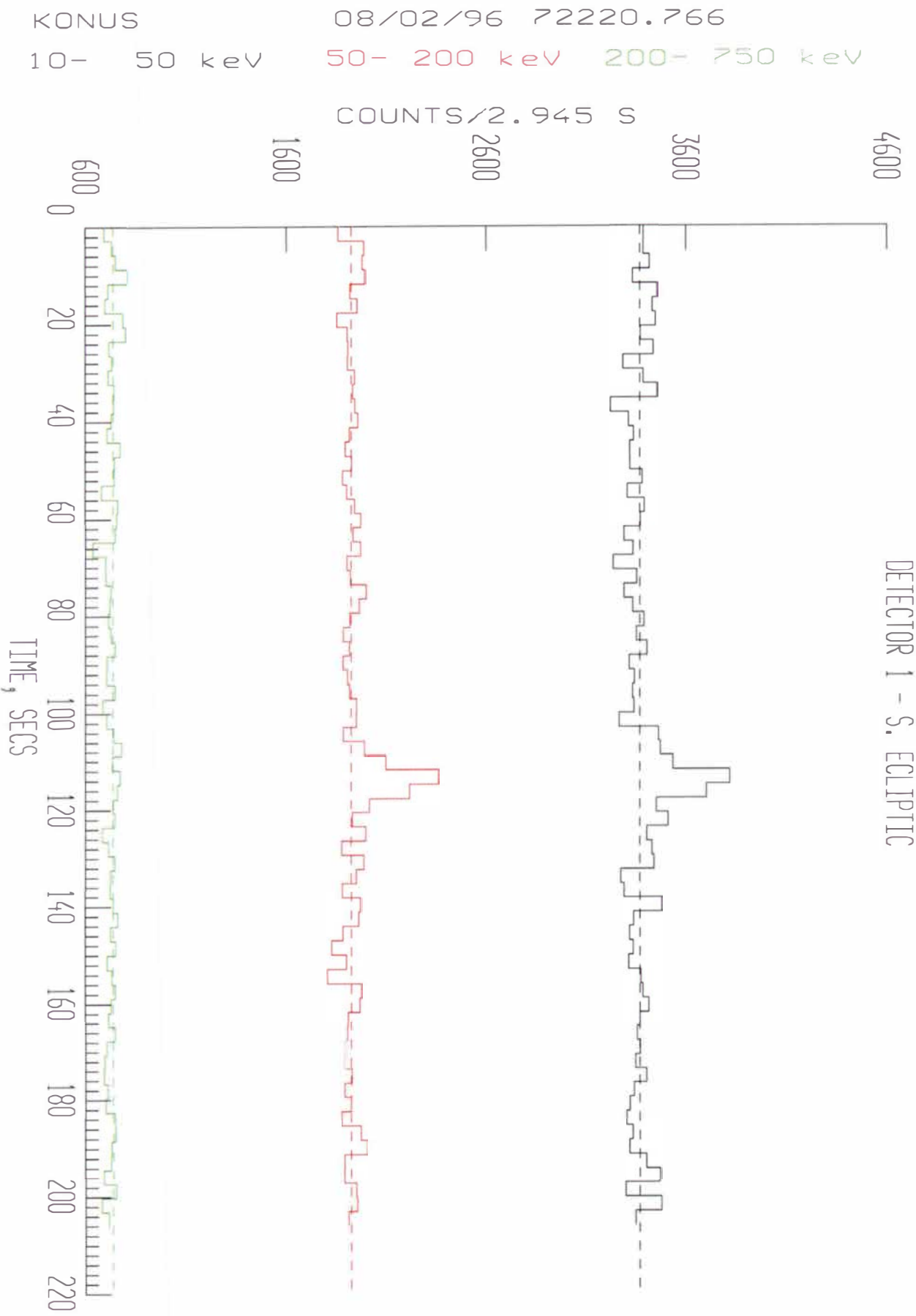
16/09/2011

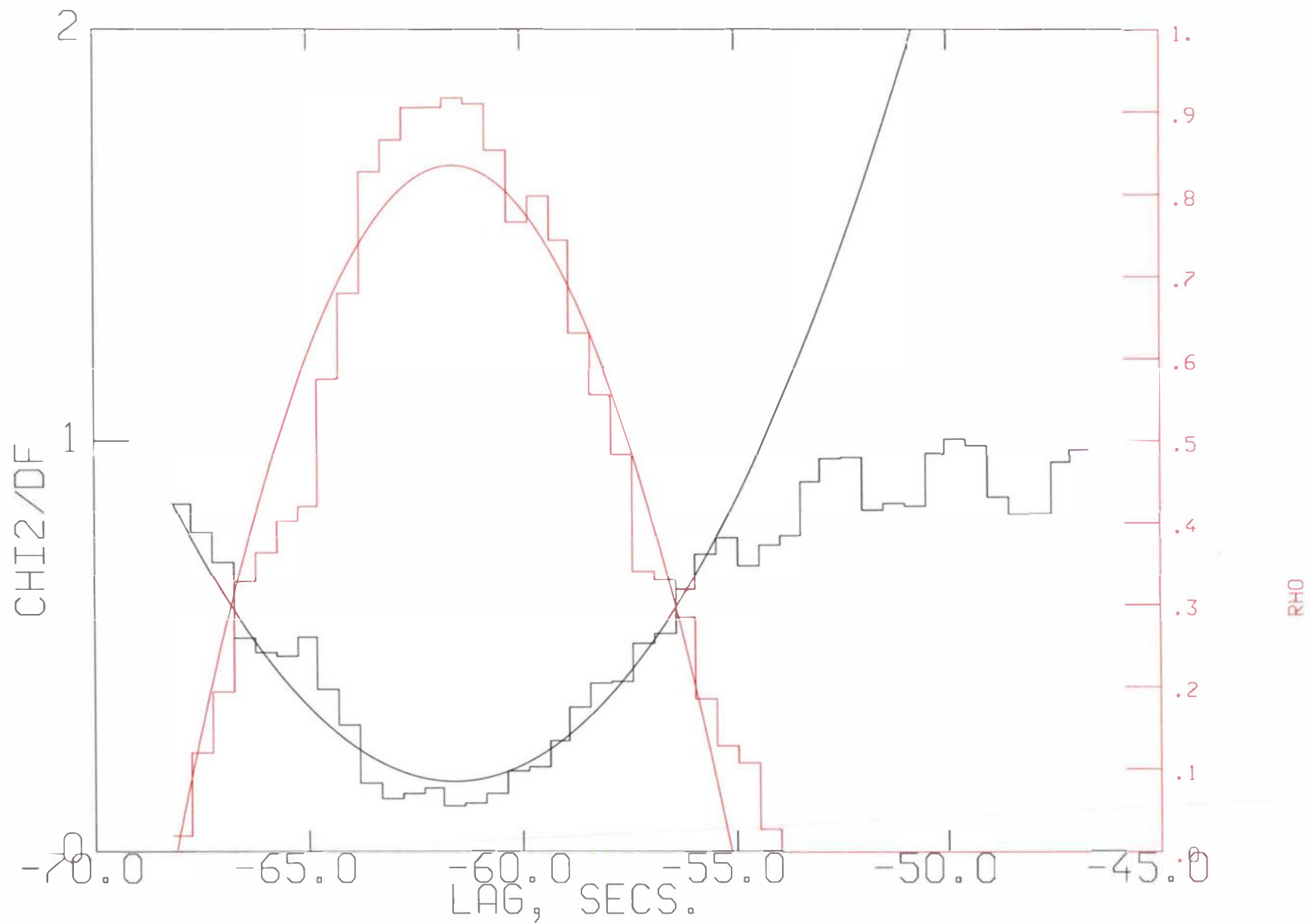
DETECTOR 2 - N. ECLIPIC



16/09/2011

DETECTOR 1 - S. ECLIPSE



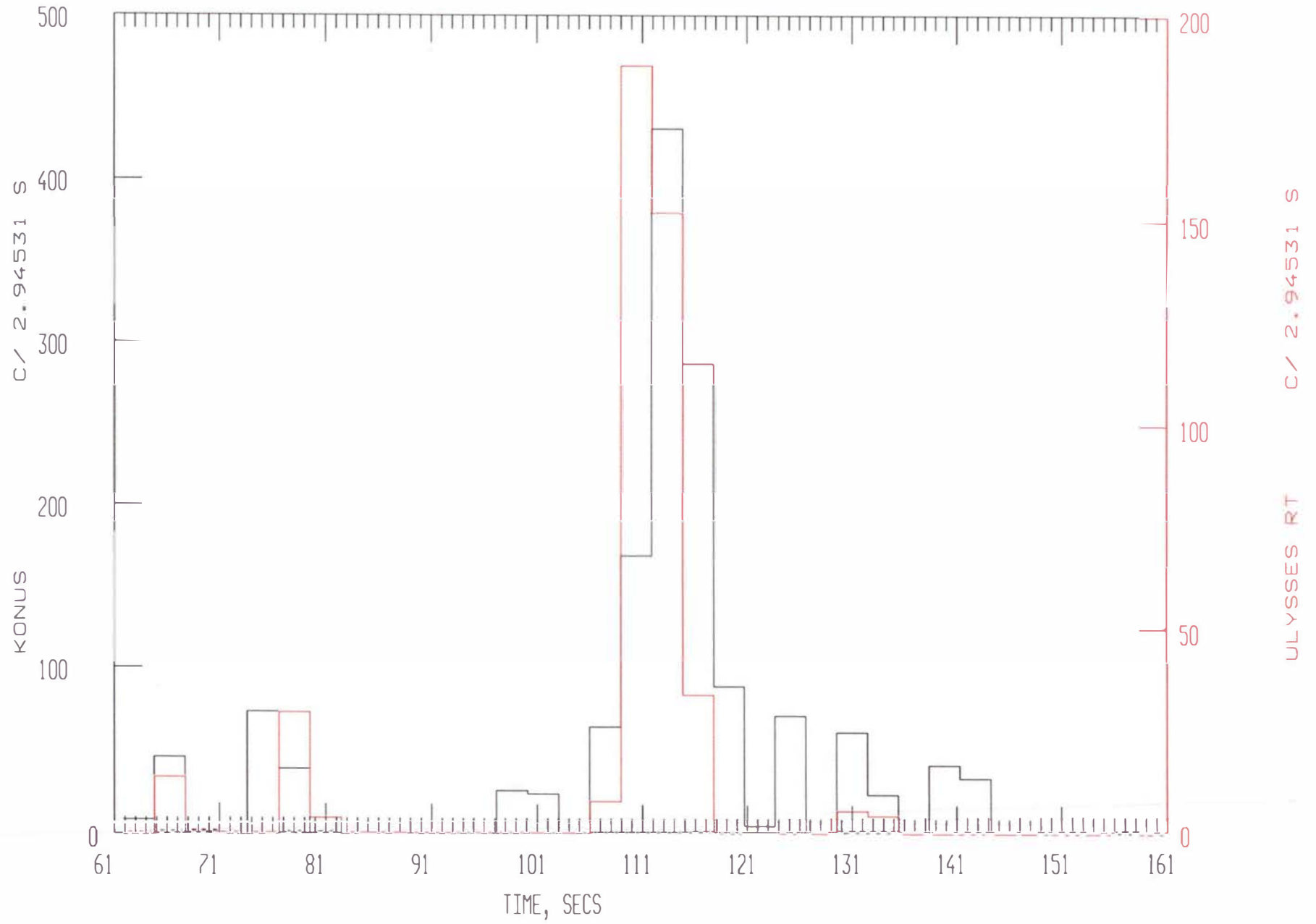


KONUS

-ULYSSES RT CORRELATION

08/02/96 72220.766

16/ 9/11



KONUS 19960208 71784

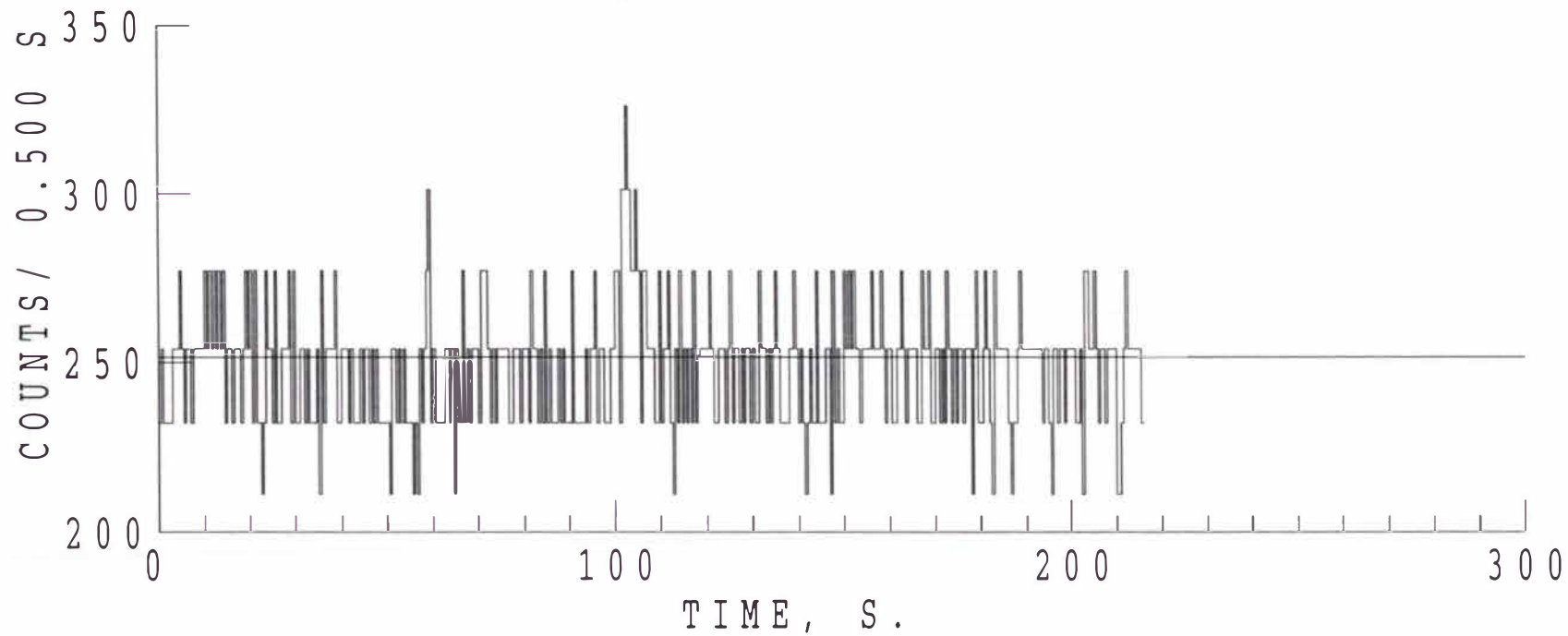
ULYSSES RT

14 / 09 / 11

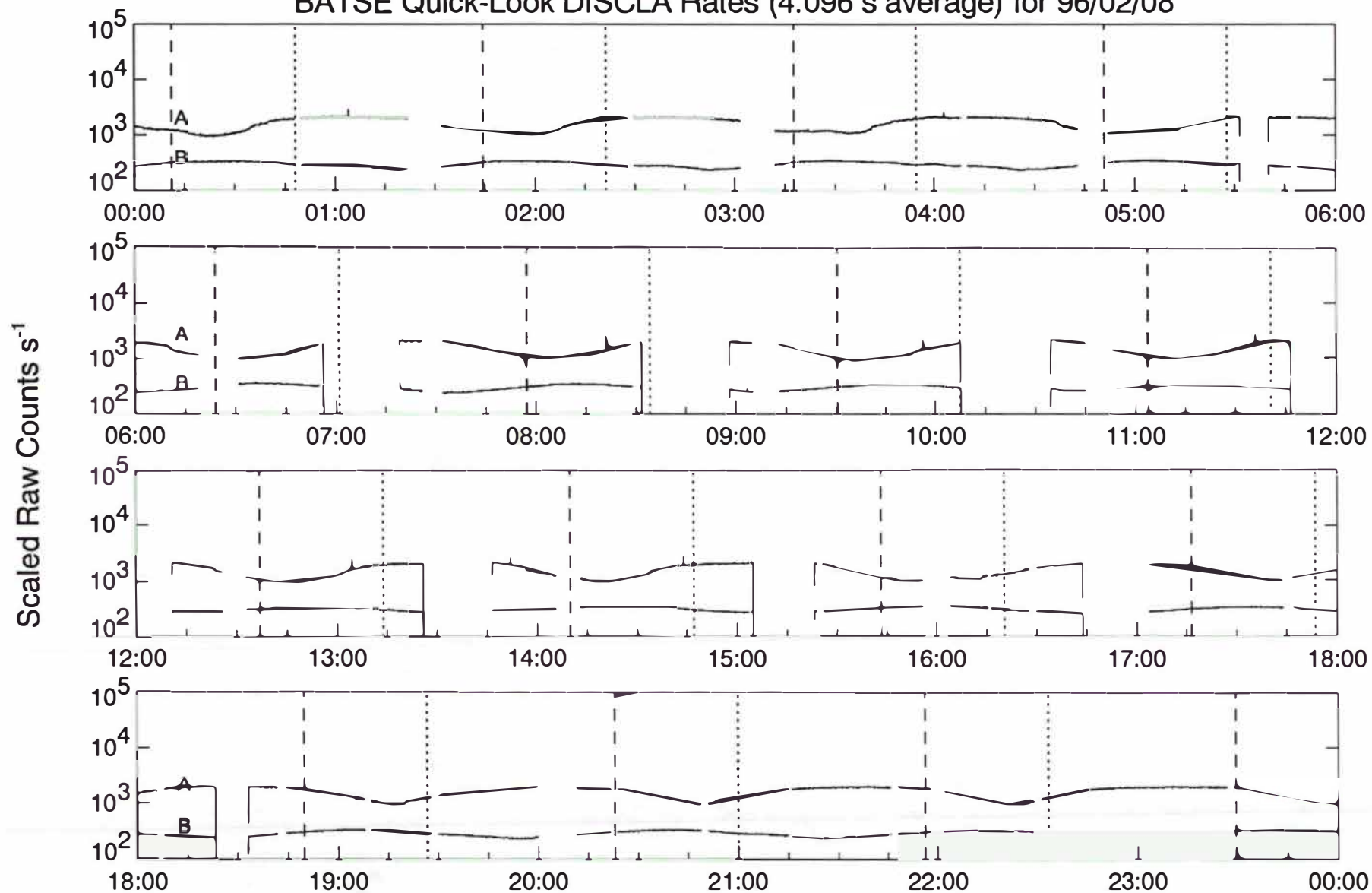
08/02/96 71676.211 s

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/08



Current Time: 96/02/10, 0854 EDT

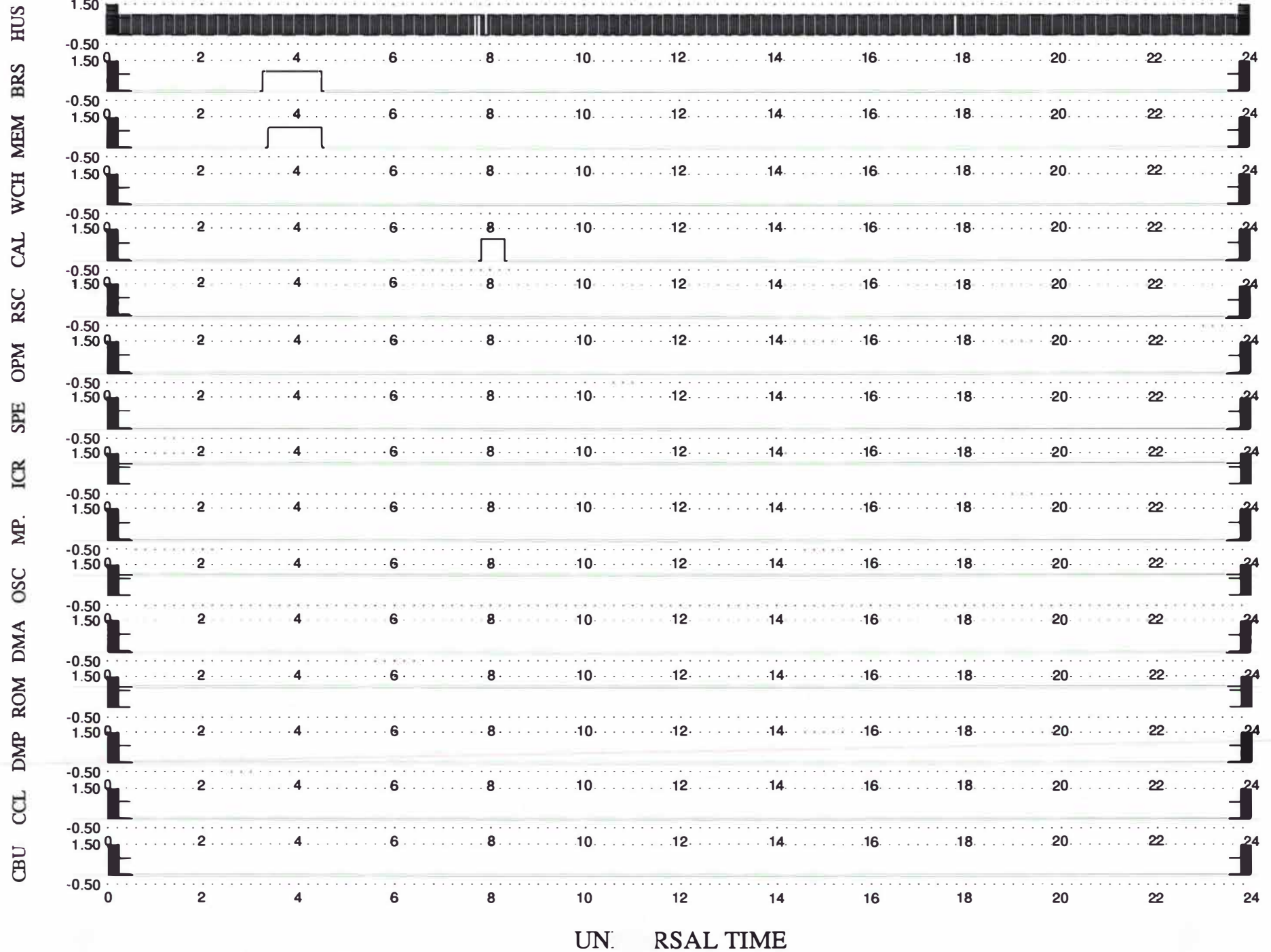
A: Channel 0 Most Sunward LAD

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

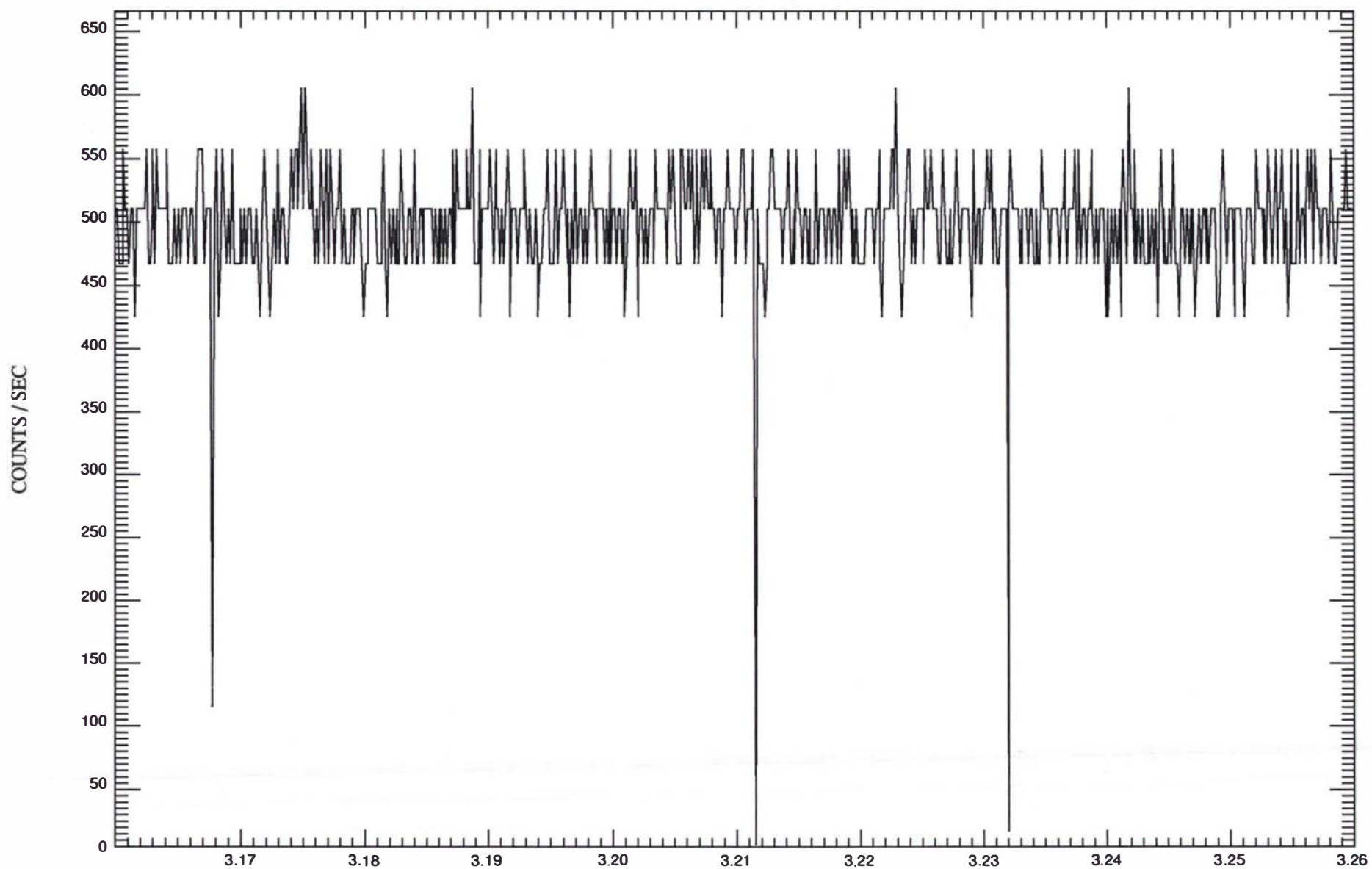
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

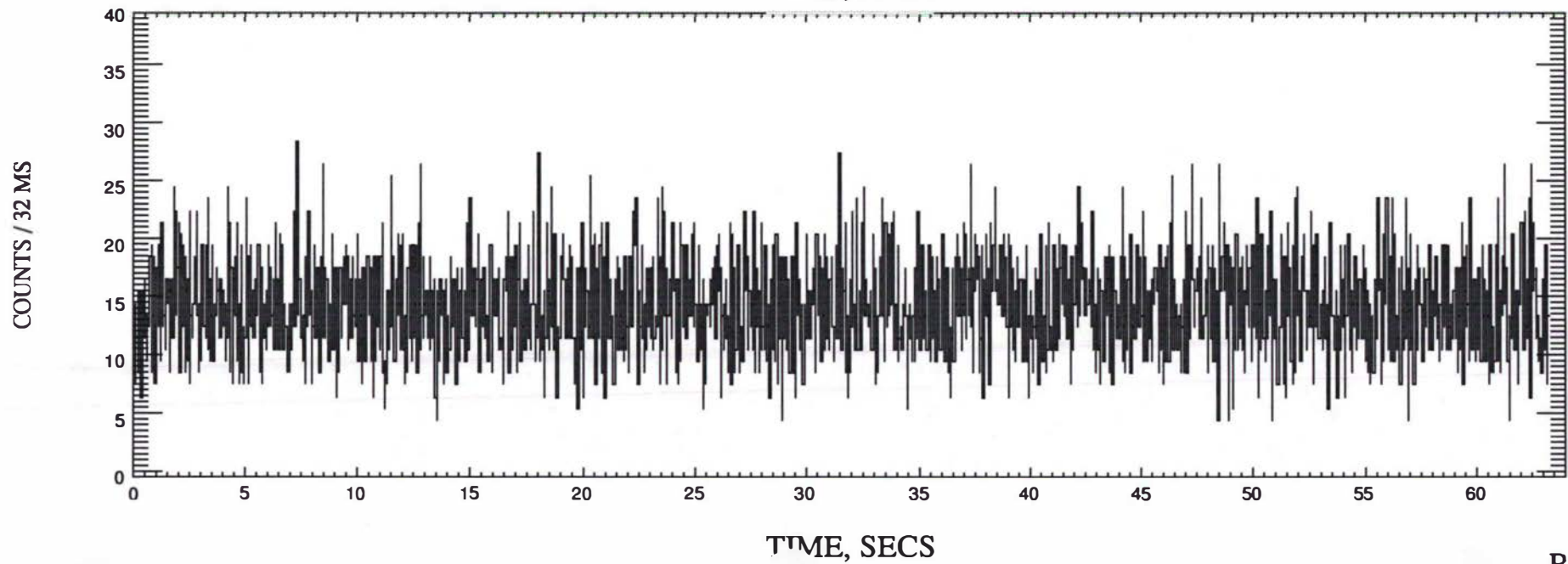
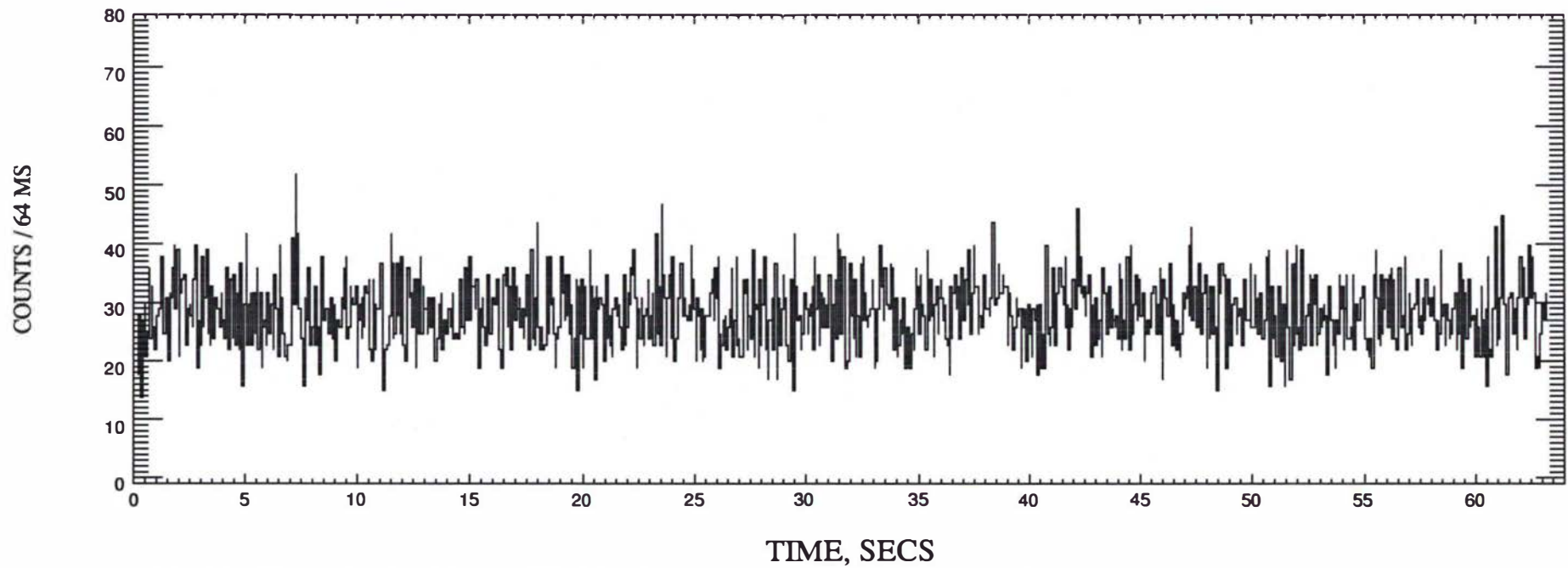
BURST NUMBER 11



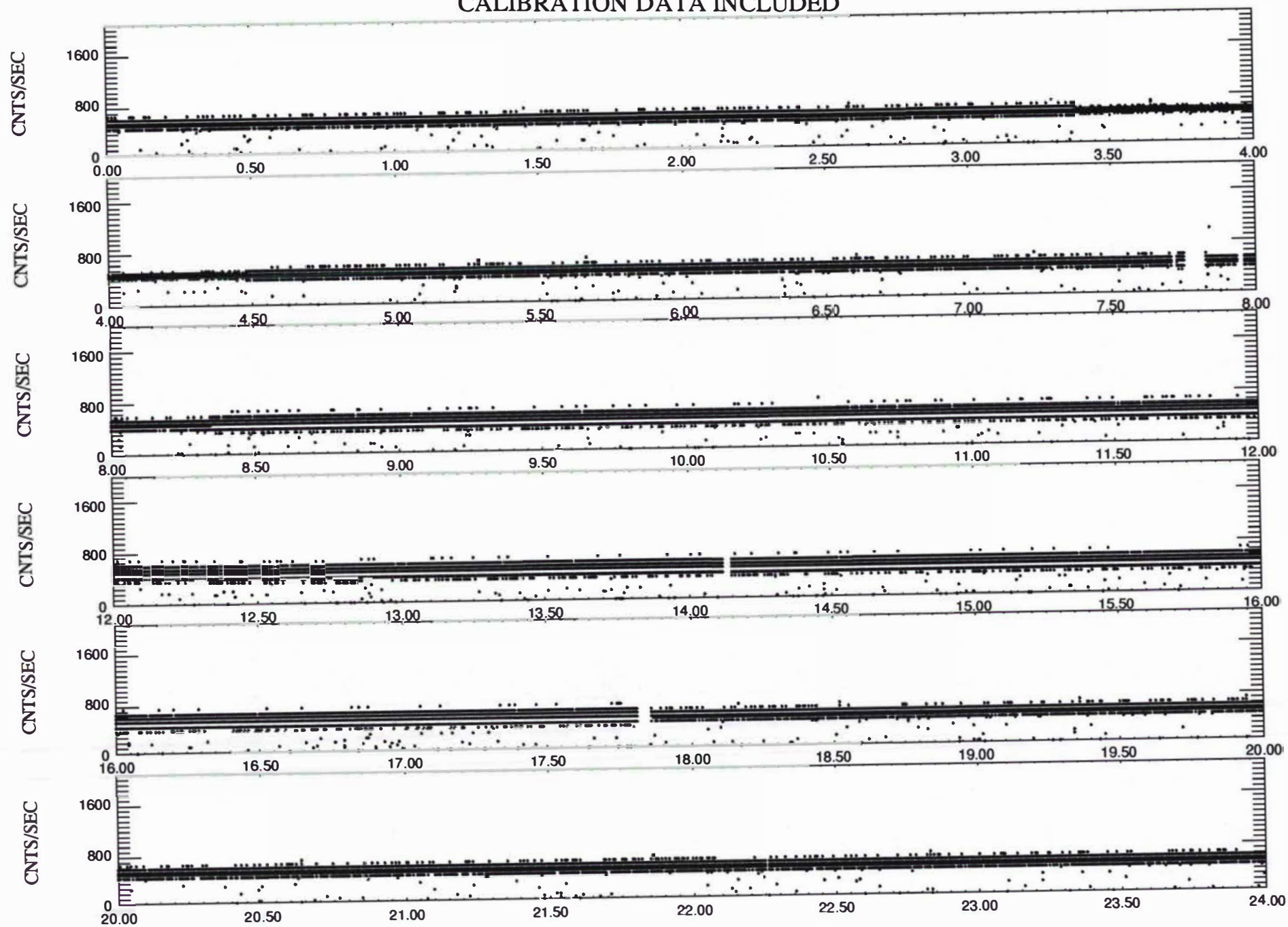
CALIBRATION DATA INCLUDED



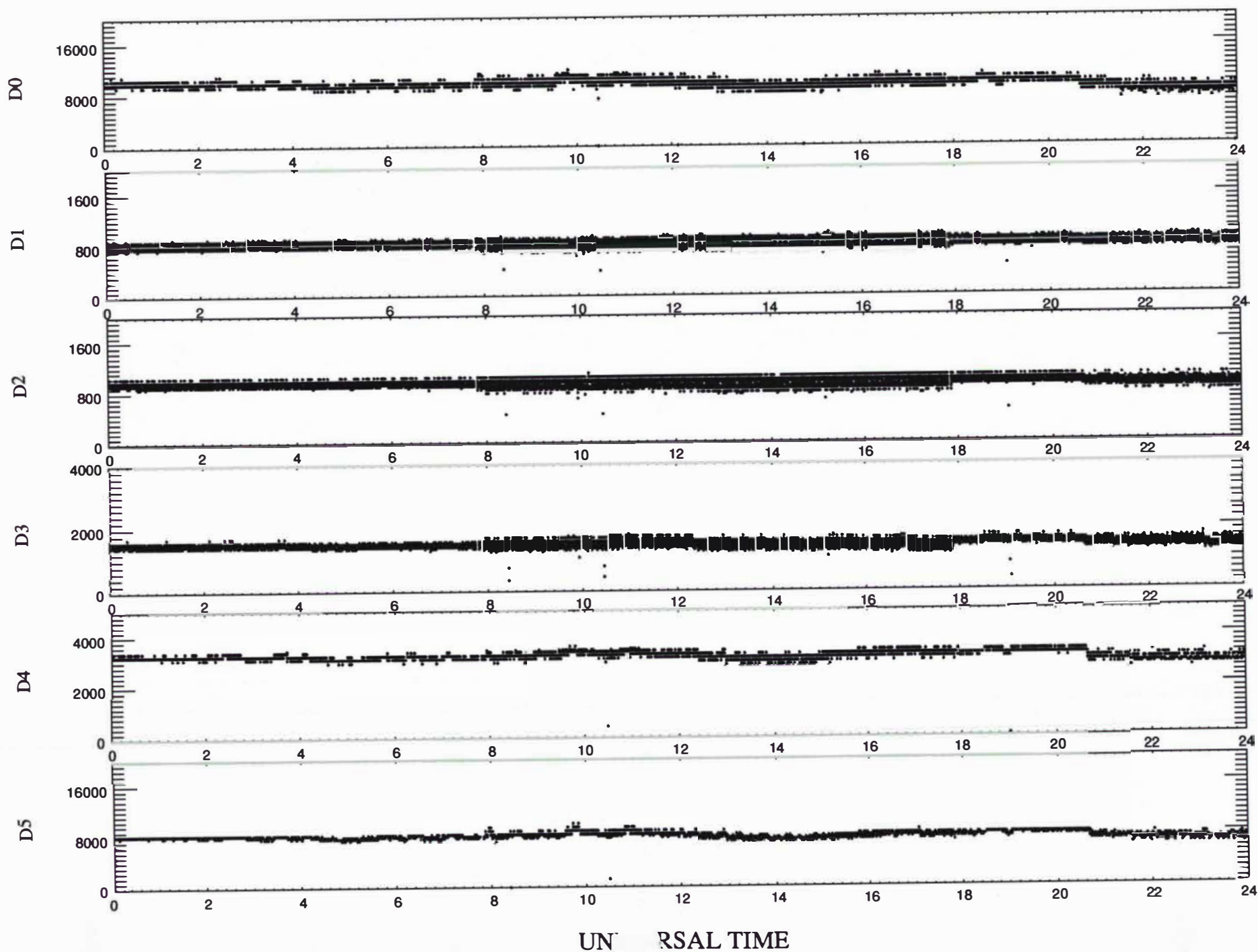
Burst Counter 11 at UT= 3.214398519728 h=11571.835 s 03:12:51.835



CALIBRATION DATA INCLUDED



UN RSAL TIME



From SAHI@SSLLES.MSFC.NASA.GOV Tue Feb 13 11:10 PST 1996
Date: Tue, 13 Feb 1996 13:10:21 -0600 (CST)
From: SAHI@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4807

BATSEARCH PROGRAM

BATSE BURST # 4807
EVENT OF 1996 FEB 9 DAY OF YEAR= 40
EVENT CROSSING TIME AT BATSE : 74627. S. OR 20:43:47.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 358.000 66.000
BATSE PEAK COUNTING RATE: 5000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 9/ 2/ 96 IS:
RA= 216.057 DEC= 70.792 DIST= 2.837 AU
BATSE-ULYSSES DISTANCE = 424420106. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=139.23 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1072.15 SECS.
CROSSING TIME AT ULYSSES IS 73555. S. OR 20:25:54 +/- 194.23 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 9/ 2/ 96 IS:
RA= 327.522 DEC= -14.241 DIST= 2.361 AU
MARS-BATSE DISTANCE = 353232992. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 96.61 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -135.54 SECS.
CROSSING TIME AT MARS IS 74491. S. OR 20:41:31 +/- 201.15 SECONDS

BATSE BURST TRIGGER

NO.: 4807

TIME: TJD=0122 SECONDS=74627

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=99.1 AZIMUTH=321.6 ERROR=9.4 DEGREES

COMMENTS:

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

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4807	960209	10122	74627	5000	358	+66	.2

BATSE #

4807

13 / 2 / 96

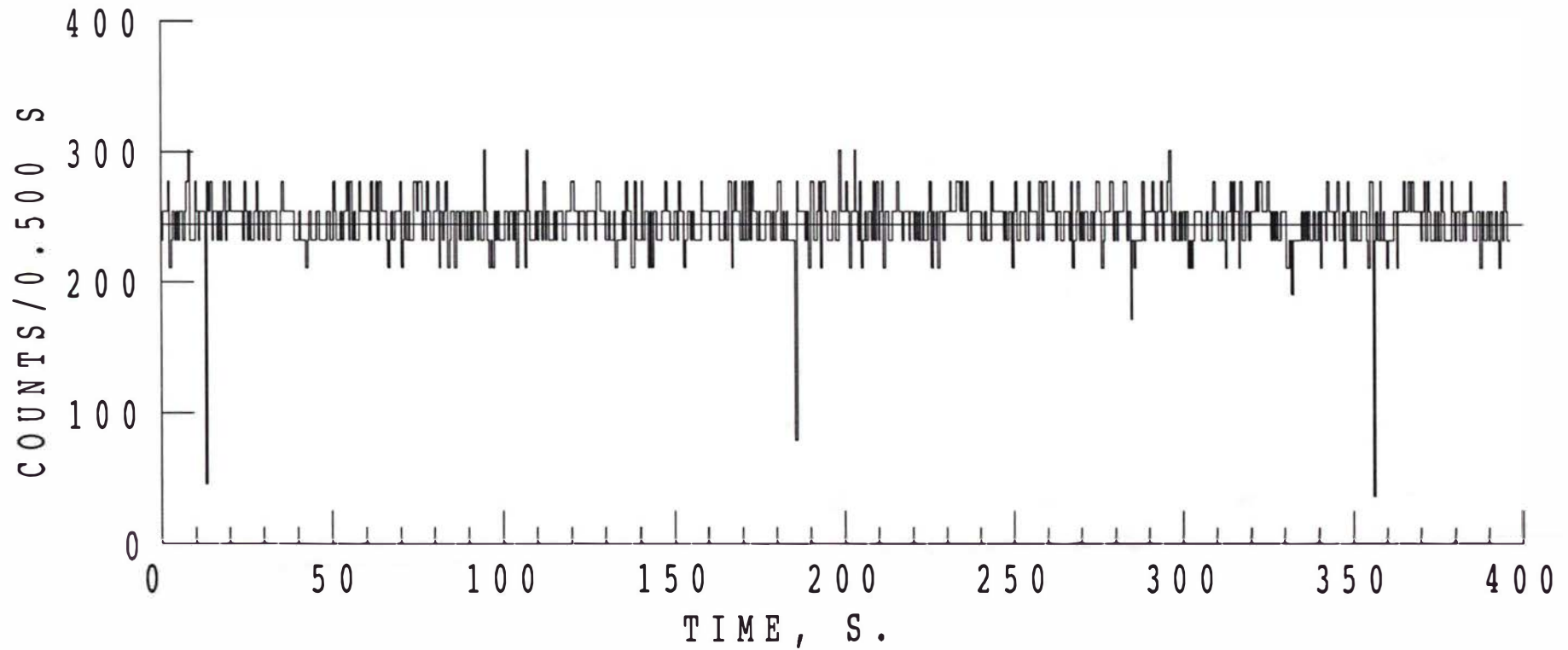
ULYSSES RT

9 / 2 / 96 73368.461 s

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



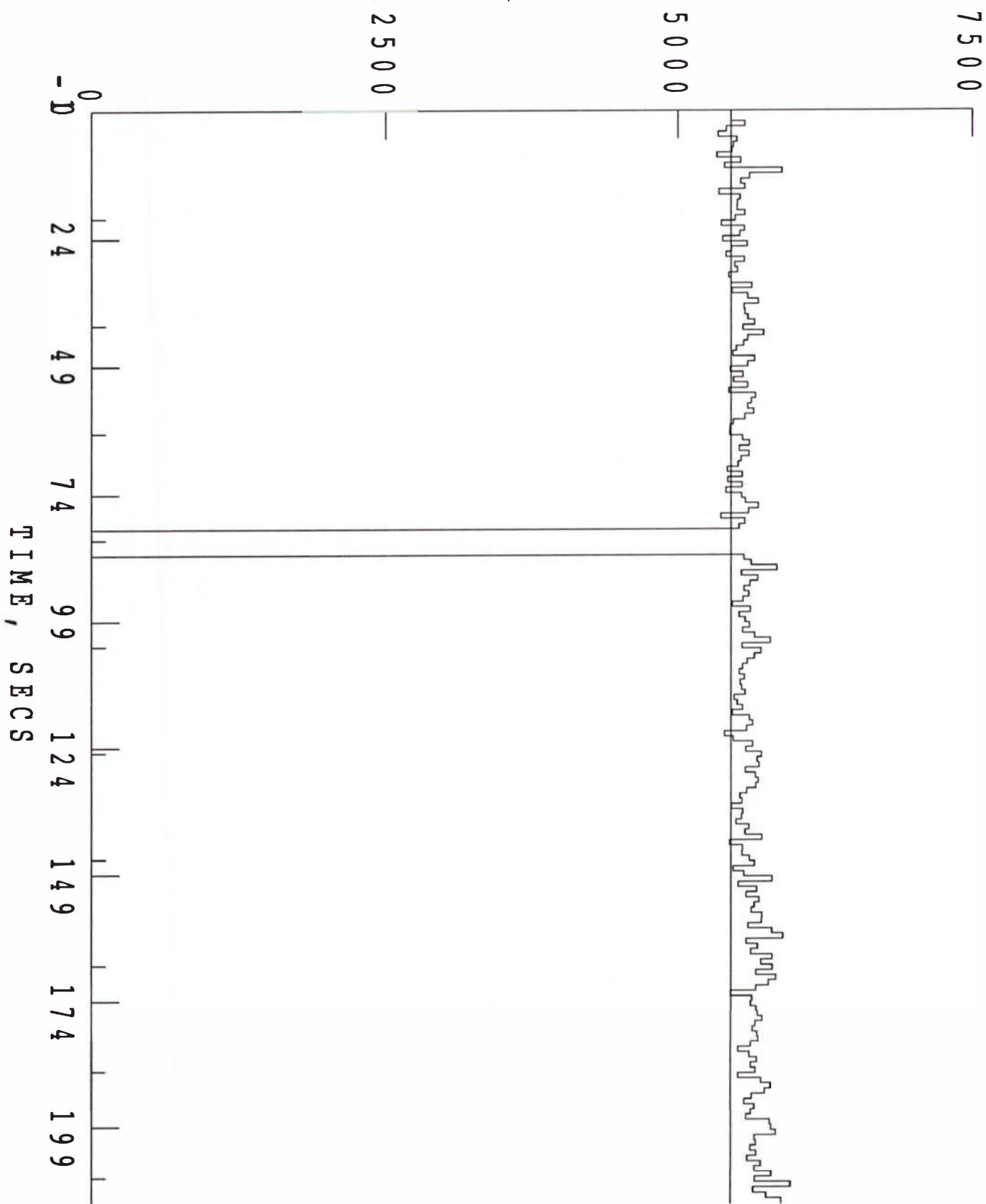
BACODINE

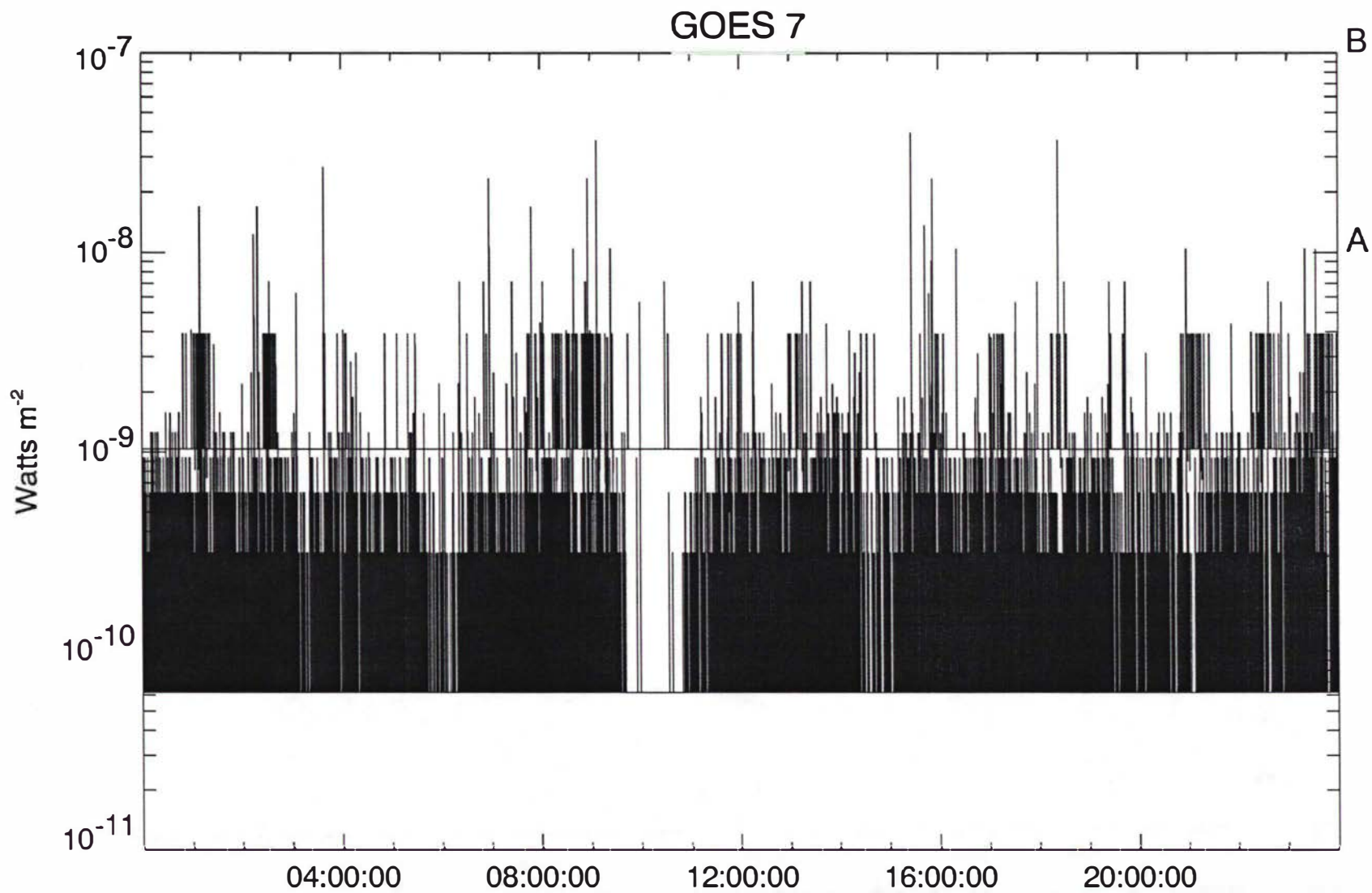
14/02/96

67062.473

25 - 100 keV

COUNTS/1.024 S





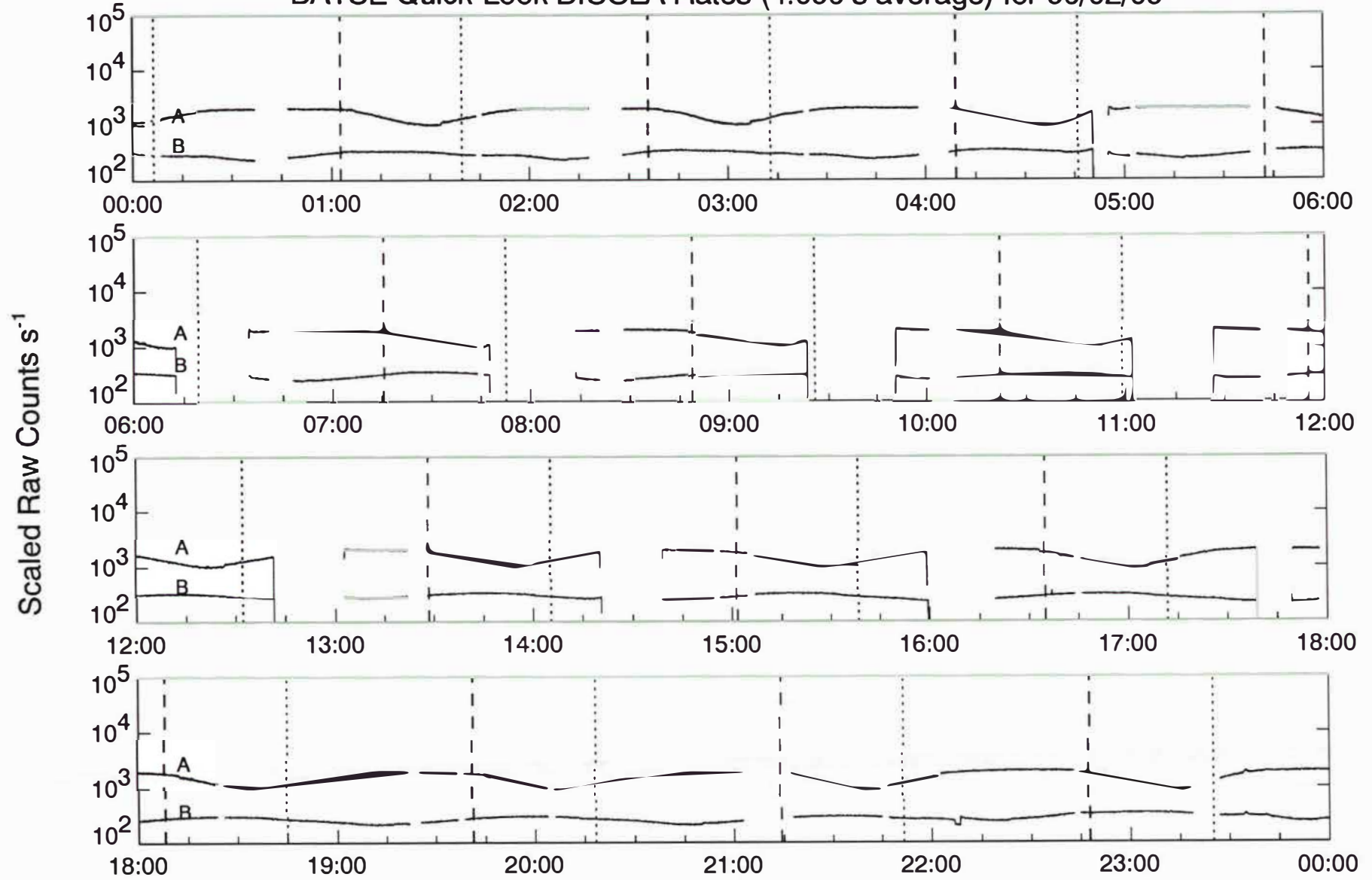
Data Start: 96/02/09, 0000:03

Plot created: 96/02/11, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/09

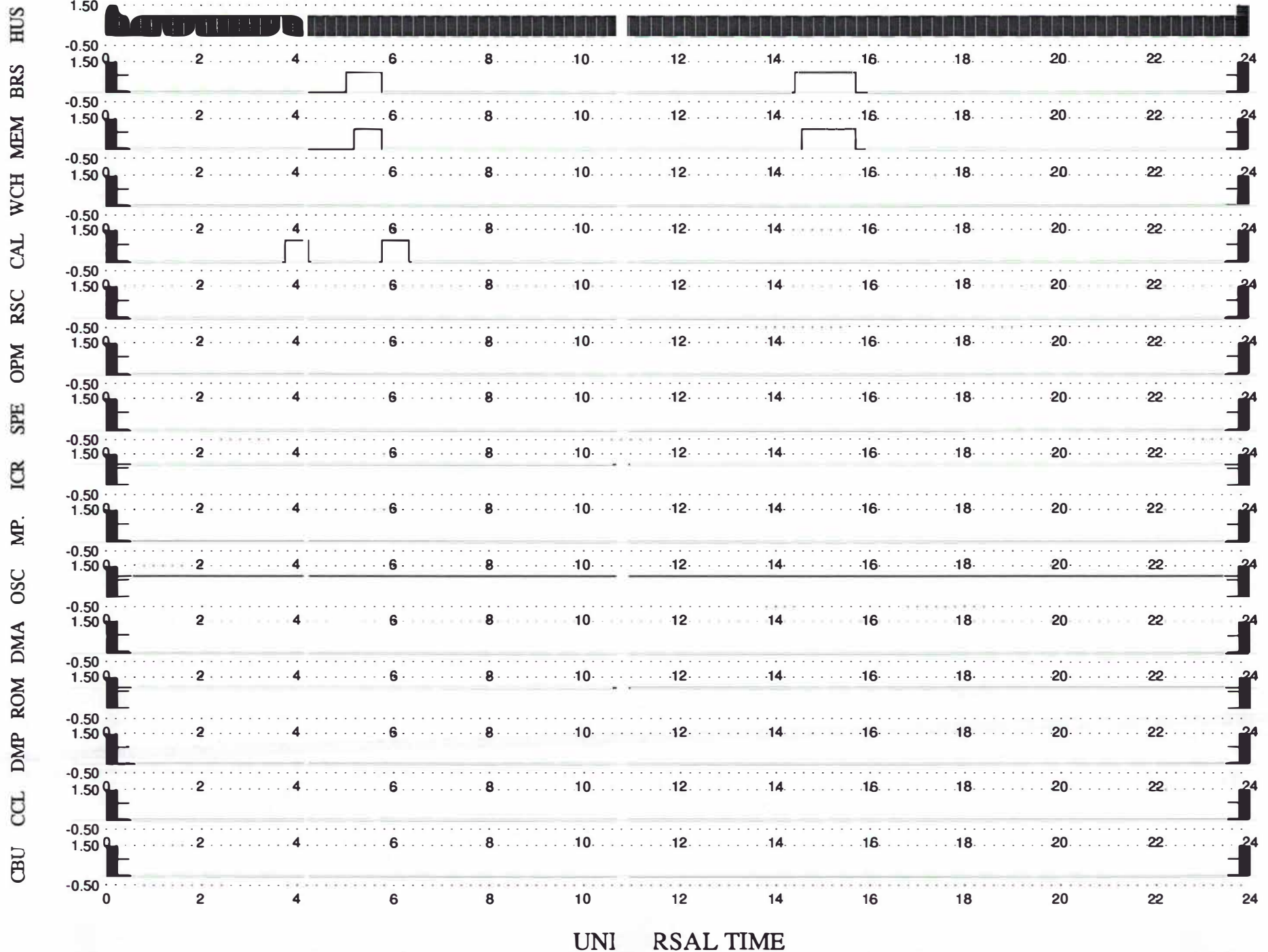


Current Time: 96/02/11, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

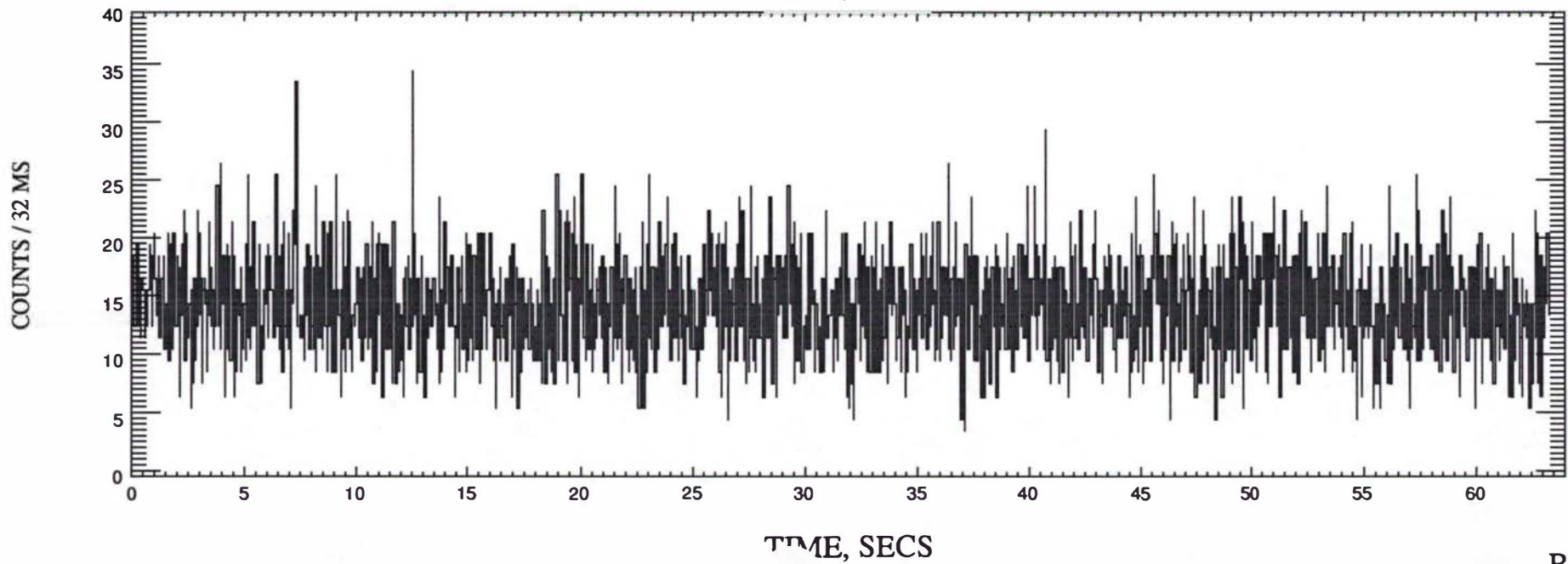
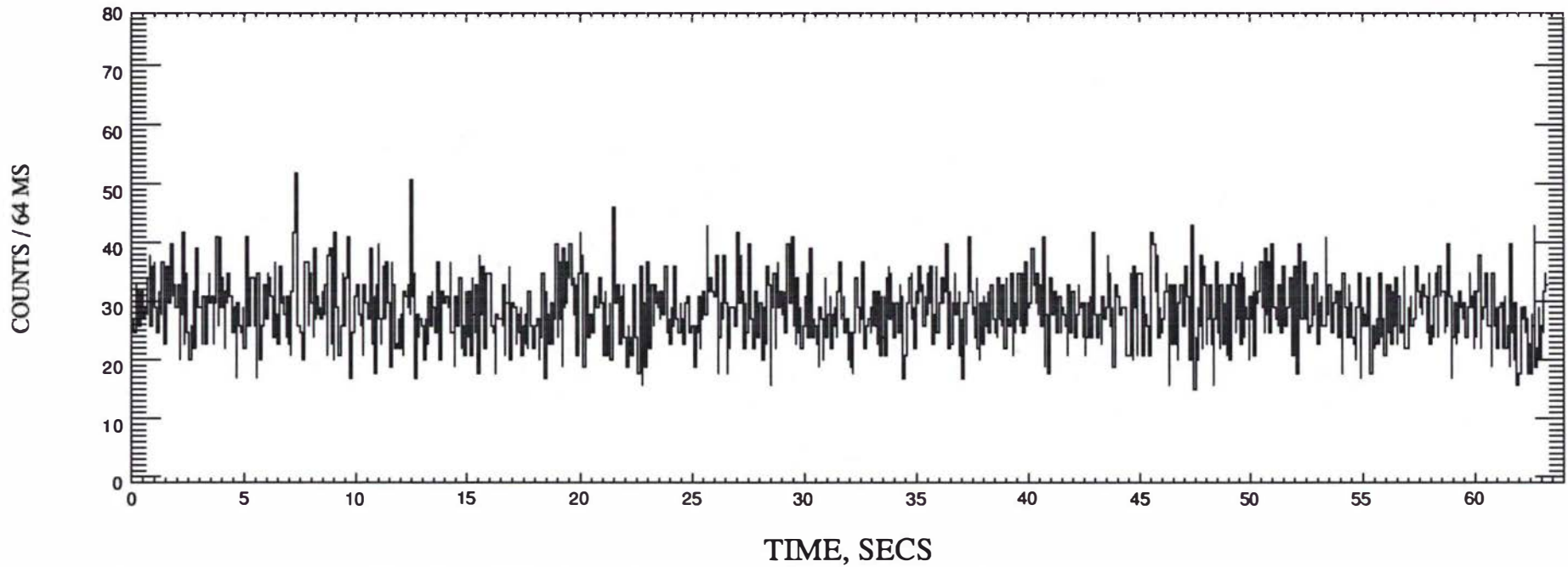
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

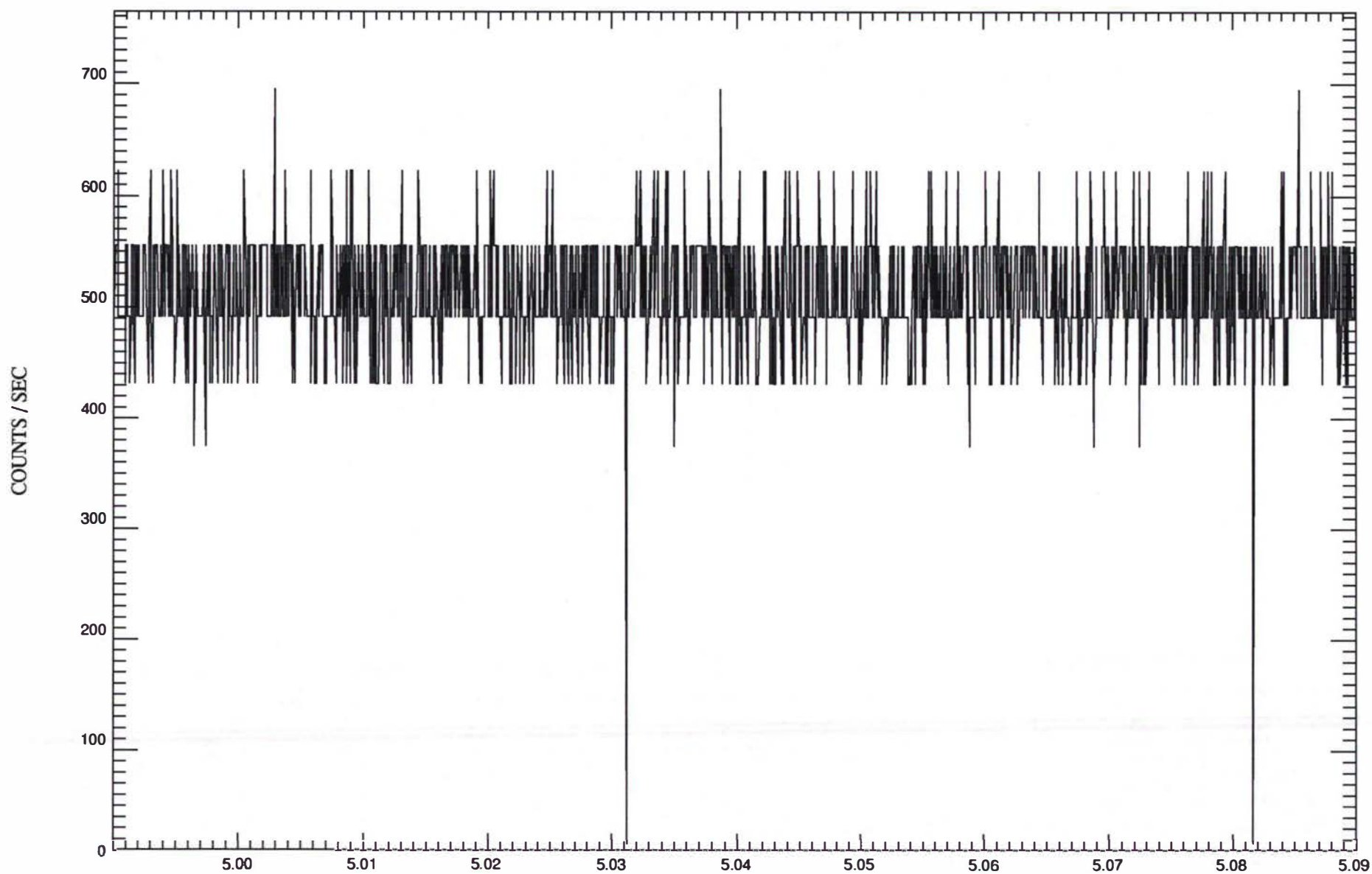
BURST NUMBER 12, 13



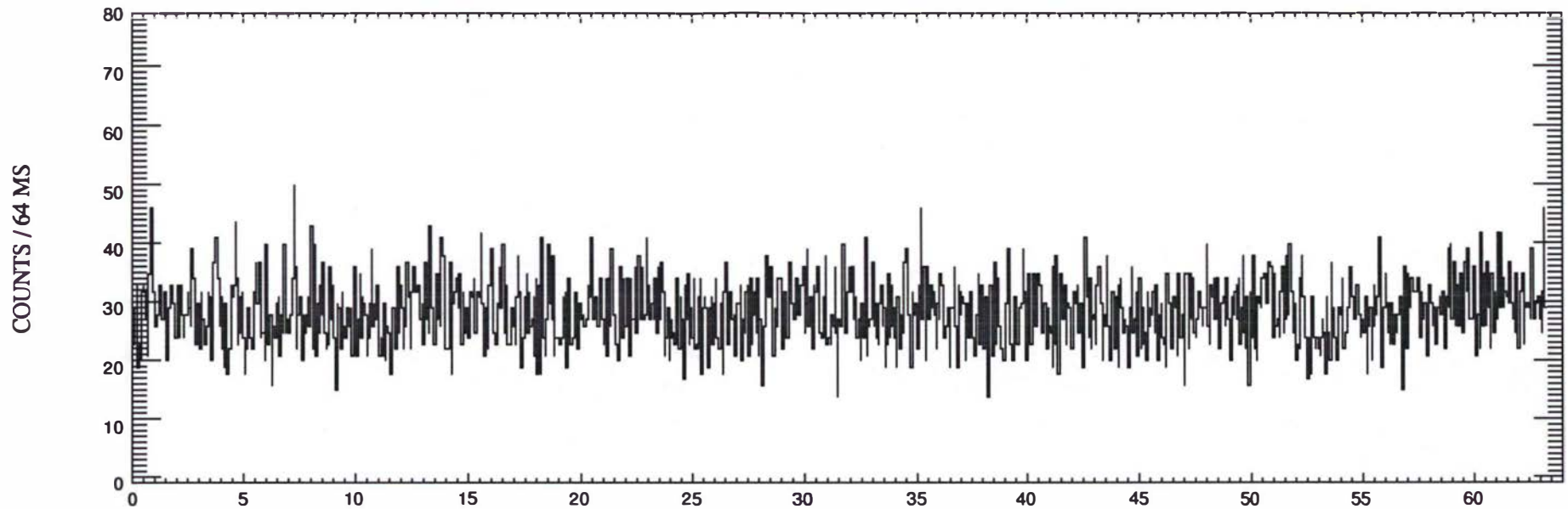
Burst Counter 12 at UT= 5.038830913968 h=18139.791 s 05:02:19.791



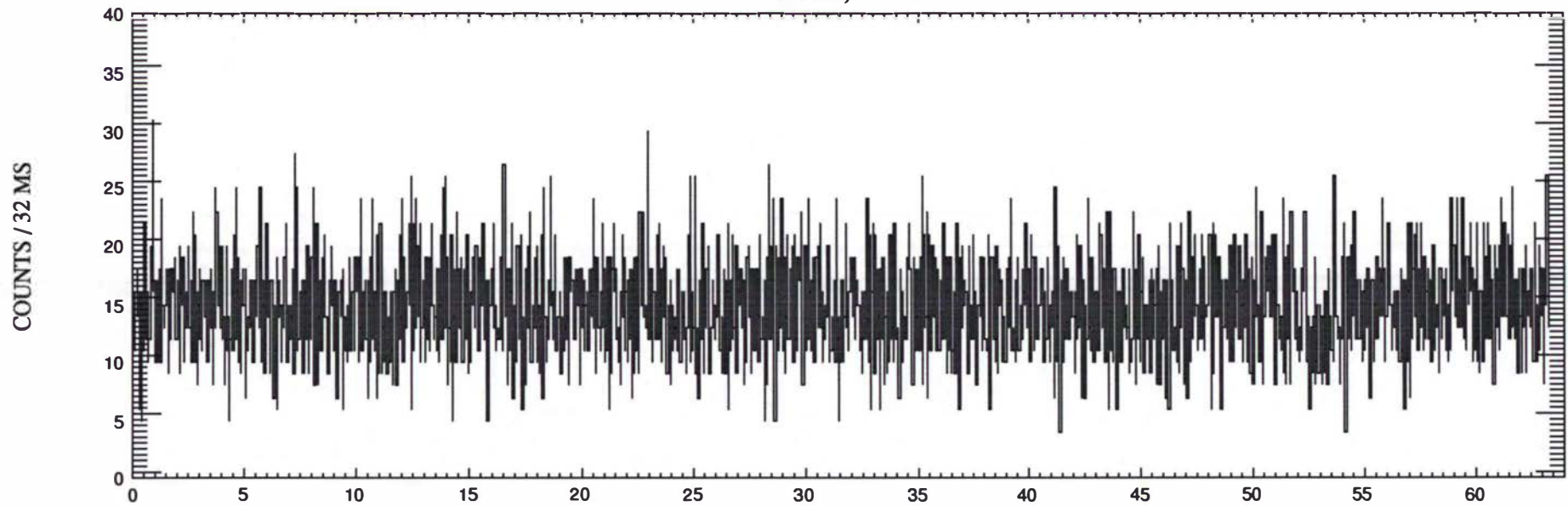
CALIBRATION DATA INCLUDED



Burst Counter 13 at UT=14.441359193590 h=51988.893 s 14:26:28.893

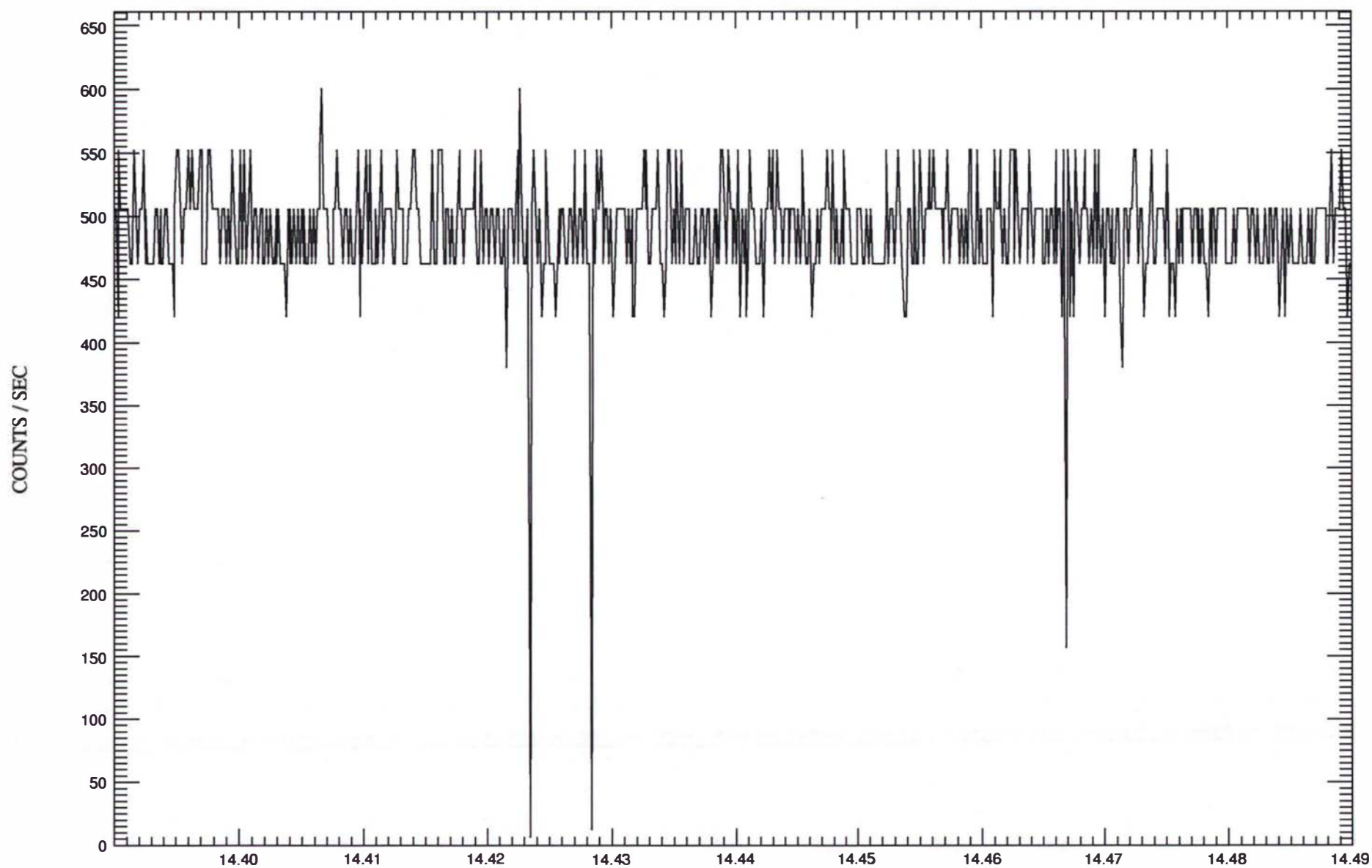


TIME, SECS

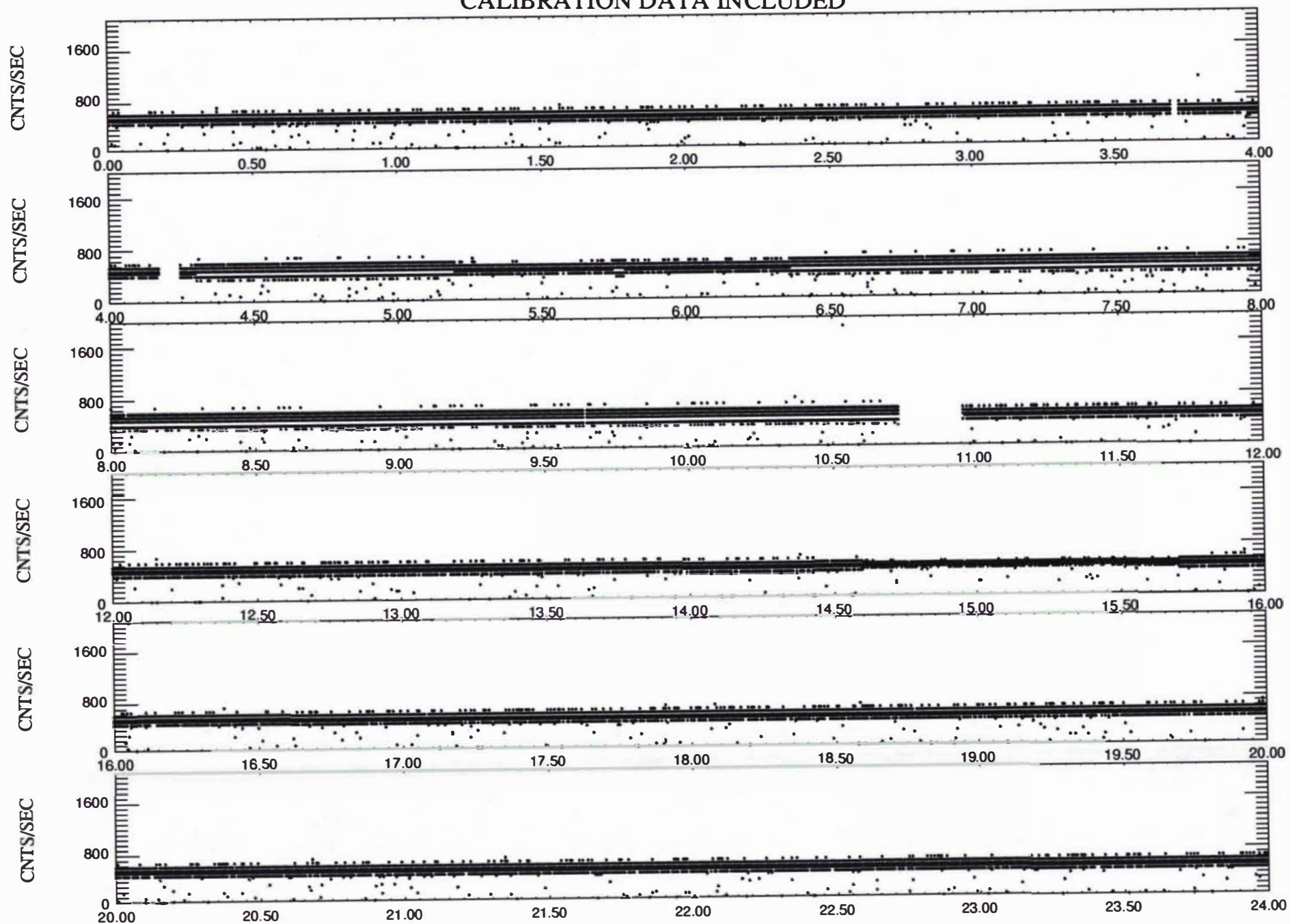


TIME, SECS

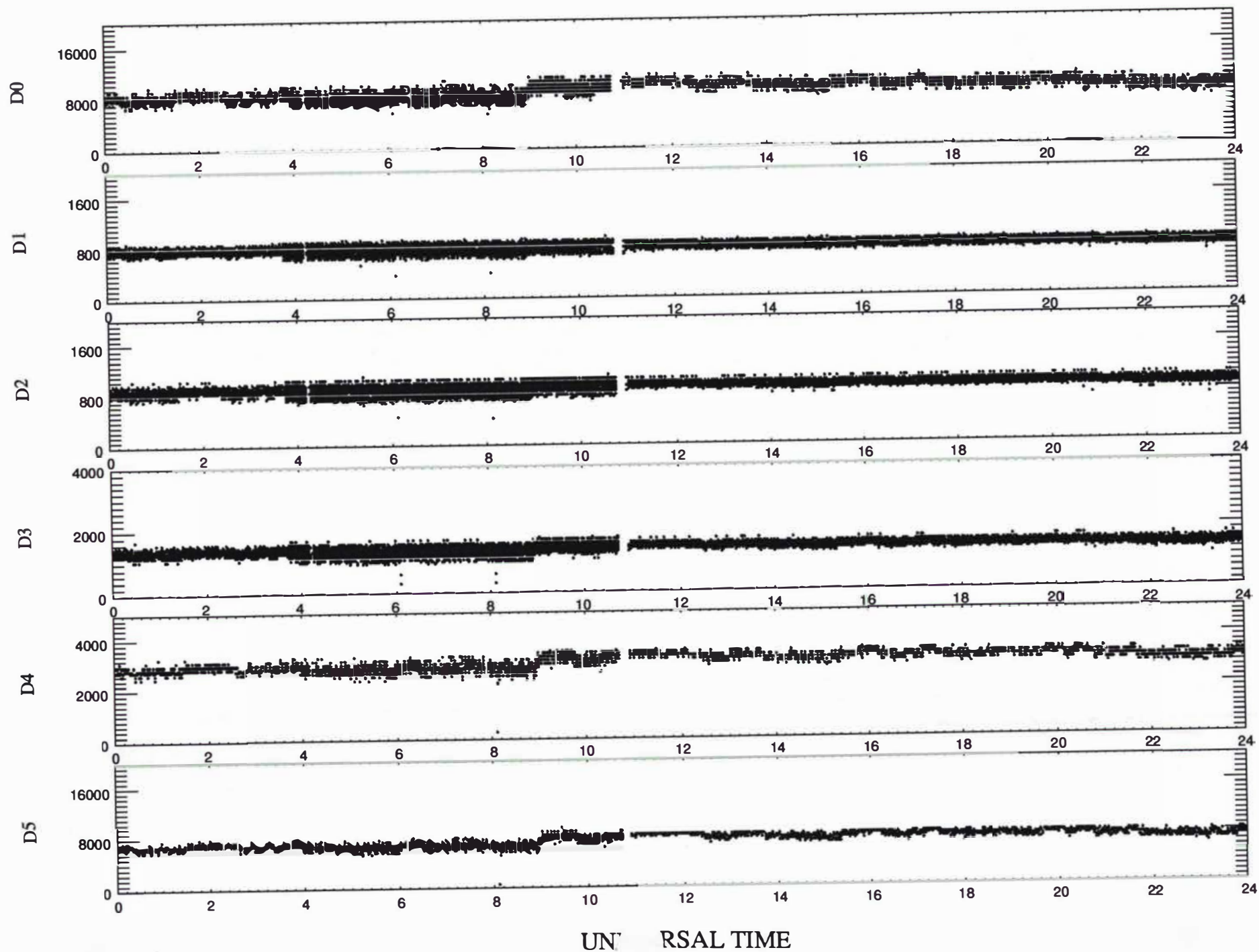
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN RSAL TIME



From WOODSP@SSLLES.MSFC.NASA.GOV Mon Feb 12 07:09 PST 1996
Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id HAA15936; Mon, 12 Feb 1996 07:09:04 -0800
Date: Mon, 12 Feb 1996 9:08:58 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <960212090858.23004553@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 4814
Content-Type: text
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

RI

BATSE BURST # 4814
EVENT OF 1996 FEB 10 DAY OF YEAR= 41
EVENT CROSSING TIME AT BATSE : 35197. S. OR 09:46:37.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 229.000 77.000
BATSE PEAK COUNTING RATE: 14300 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 10/ 2/ 96 IS:
RA= 215.676 DEC= 70.933 DIST= 2.839 AU
BATSE-ULYSSES DISTANCE = 424686791. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=172.94 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1405.86 SECS.
CROSSING TIME AT ULYSSES IS 33791. S. OR 09:23:11 +/- 58.87 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 10/ 2/ 96 IS:
RA= 328.289 DEC= -13.972 DIST= 2.362 AU
MARS-BATSE DISTANCE = 353325408. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 74.31 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 318.80 SECS.
CROSSING TIME AT MARS IS 35516. S. OR 09:51:55 +/- 201.83 SECONDS

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4814	960210	10123	35197	14300	229	+77	4

BATSE BURST TRIGGER

NO.: 4814

TIME: TJD=0123 SECONDS=35197

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=121.8 AZIMUTH=348.0 ERROR=1.6 DEGREES

COMMENTS:

GRB LASTING 4 SEC. DOUBLE PEAKED. GAP SEPARATING PEAKS BECOMES MORE
SIGNIFICANT AT HIGHER ENERGIES. VISIBLE ABOVE 300 KEV.

Hello corr removed

Date: Mar 4 '98

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. PVO Data

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

From cline@apache.gsfc.nasa.gov Wed Nov 20 14:32 PST 1996
 Date: Wed, 20 Nov 1996 14:32:12 -0800
 Mime-Version: 1.0
 To: KHURLEY@sunspot.ssl.berkeley.edu
 m: cline@apache.gsfc.nasa.gov (T L Cline)
 Subject: Search for (Konus mini-network) 3-sc triggers

Dear Kevin,

I'm sorry to report that the May 1996 mail from you was a list only to January 1996. If you have another later list, don't go to the trouble of plowing thru all this; I'll do it if you can e-mail/fax something. Thanks.

 SEARCH FOR 3-SC TRIGGERS ONLY -- Konus-W / Ulysses / BATSE or Konus-A

DATE	Konus-W Sensor (UT)	Max counts G1 G2 G3	N(S1)/N(S2) in G2	Duration T<T0 T>T0	Trigger # KW# BATSE/KA
94 11 21	62700.945 S1	1652 1656 300	21	3 50	6 3290
94 11 26	44557.952 S1	860 1430 330	4.2	40 45	8 3298
95 2 8	07824.432 S2	1144 1824 670	0.02	1 60	45 3408
95 2 10	08424.148 S1	1350 3900 700	3.2	0.04 0.16	47 3410
95 2 11	08697.749 S2	2750 11630 6560	<0.06	0.03 0.14	48 3412
95 2 11	72469.074 S1	1170 1570 460	60	12 60	50 3415
95 3 25	25841.574 S2	345 1460 1570	0.2	1 230	63 3480
95 3 25	63392.815 S1	1320 2710 900	3.2	1 43	64 3481
95 4 3	47985.179 S1	1030 2840 800	1.0	1 15	71 3491
95 4 3	84828.194 S2	4650 10000 4700	0.06	0.5 60	72 3492
95 4 25	00923.718 S1	1200 2780 1820	4.2	0.5 65	86 3523
95 5 3	66971.838 S1	1140 4200 3140	1.9	0.2 115	88 3537
95 5 13	81706.917 S1	720 1360 520	10	1 30	93 3571
95 7 1	12762.114 S1	340 1400 580	1.3	1 30	116 3657
95 7 1	23737.604 S2	570 1600 700	0.05	1 11	117 3658
95 8 4	07135.704 S2	3000 6650 3340	<0.03	0.2 3.5	131 3734
95 8 18	05065.640 S2	1960 4100 1350	0.05	60 50	137 3765
95 8 22	13751.048 S1	6070 12000 3770	9	0.4 60	140 3767
95 10 16	02484.285 S1	1960 1950 560	5	0.2 7	162 3870
95 12 3	03988.180 S2	260 720 420	0.85	1 16	196 3930
95 12 27	23005.042 S1	420 1200 320	1	1 1.5	218 ??? NO
96 1 11	46524.530 S2	1130 1280 190	0.2	0.5 6	222 4312
96 1 13	56024.261 S2	500 450 50	0.3	2 36	228 ??? NO
96 1 14	44104.737 S1	4900 7200 1400	1.8	1 60	233 4368, KA

(ABOVE, ALL ARE ULYSSES TRIGGERS - ALL BUT 2 ARE CONFIRMED BATSE TRIGGERS)

 (BELOW, ULYSSES TRIGGERS INCOMPLETE, BUT KNOWN ULYSSES RI'S ARE DELETED:)

BATSE

95 12 31	20231.668 S2	180 320 150	0.07	9 65	219	<i>scribble</i>	
96 1 2	11650.996 S1	140 300 80	1	1 0.2	220	NO	
96 1 19	45226.016 S2	210 460 190	0.2	6 85	237	<i>scribble</i>	
96 1 30	08756.848 S1	100 470 340	3	0.5 0.2	240	NO	4660
96 2 1	78530.582 S2	400 770 230	0.34	12 70	241	RI KA	4701
96 2 2	50750.813 S1	390 430 180	5	0.5 8	242	RI	4710
96 2 5	34499.021 S1	100 240 80	>15	7 250	243	RI	4745
96 2 6	17898.732 S1	120 520 260	1.05	1 36	244	Triq	4757
96 2 7	65075.063 S2	210 780 200	0.13	32 12	245	<i>scribble</i>	NO
96 2 10	35198.959 S2	220 550 360	<0.1	0.5 2	247	RI	4814
96 2 28	85760.241 S1	2360 7360 3350	4.3	0.1 2.5	249	Triq	NO

From cline@heavx.gsfc.nasa.gov Fri Mar 29 08:40 PST 1996
 Date: Fri, 29 Mar 1996 08:40:19 -0800
 Mime-Version: 1.0
 To: KHURLEY@sunspot.ssl.berkeley.edu
 From: cline@heavx.gsfc.nasa.gov (T L Cline)
 Subject: Konus Event List augmentation

Dear Kevin,

This list includes Sergei's latest Konus-W (GGS-Wind) and Konus-A (Kosmos-2326) events, for comparison with Ulysses, BATSE, TGRS, etc. The times listed are prioritized for Konus-W (i.e., Konus-A time given if Konus-W doesn't trigger).

Yr	Mn	Dy	UT (Konus)	BATSE	Ulysses	Konus	TGRS	Notes
95	11	2	07085.879	?	?	168	no	
95	11	2	21209.015	3891	R I	169	345	
95	11	4	05868.077	3893	R I	170	BGR	
95	11	5	46827.308	?	?	171	no	
95	11	12	66495.244	?	R I	172	no	
95	11	13	84358.872	3906	R I	173	BGR	
95	11	17	10123.762	3909	?	175	no	
95	11	19	29831.402	3912	R I	176	348	
95	11	19	46457.519	?	?	177	BGR	
95	11	22	09841.38	?	?	179	no	
95	11	22	17107.738	?	?	180	349	
95	12	2	39101.744	?	?	195	BGR	
95	12	3	03988.18	?	?	196	360	
	12	8	19617.151	?	?	197	no	
	12	8	39452.057	?	?	198	no	
95	12	8	42467.634	?	?	199	BGR	
95	12	9	31349.607	?	?	200	BGR	
95	12	13	17849.683	?	?	201	362	
95	12	14	08657.847	?	?	202	no	
95	12	19	60679.732	?	?	203	no	
95	12	20	31883.56	?	?	204	BGR	
95	12	22	25203.254	?	?	no	?	= K-A t.
95	12	27	23005.042	?	?	218	375	
96	12	31	20231.668	?	?	219	no	
96	1	2	11650.996	?	?	220	no	
96	1	4	12521.062	?	?	221	no	
96	1	11	46524.53	?	?	222	no	
96	1	13	56024.261	?	?	228	no	
96	1	14	44104.737	?	?	233	384	+ K-A t.
96	1	15	31956.506	?	?	234	BGR	
96	1	17	57371.341	?	?	235	no	
96	1	19	34679.317	?	?	236	no	
96	1	19	45226.016	?	?	237	no	
96	1	20	36768.974	?	?	238	no	
96	1	24	03388.008	?	?	239	385	+ K-A t.
96	1	24	76096.911	?	?	BGR	?	= K-A t.
96	1	30	08756.848	?	?	240	no	
96	2	1	78530.582	?	?	241	?	+ K-A t.
96	2	2	50750.813	?	?	242	?	
	2	10	35198.959	?	?	247	?	
96	2	16	57796.347	?	?	BGR	?	= K-A t.
96	2	19	20589.684	?	?	BGR	?	= K-A t.
96	2	28	85760.241	?	?	249	?	
96	2	29	22445.141	?	?	250	?	

96	3	5	33645.352	?	?	251	?
96	3	12	35074.697	?	?	252	?
96	3	19	51992.828	?	?	253	?
96	3	21	76321.803	?	?	254	?
96	3	22	19642.728	?	?	255	?
96	3	24	80064.124	?	?	257	?
96	3	25	69892.978	?	?	258	?

--

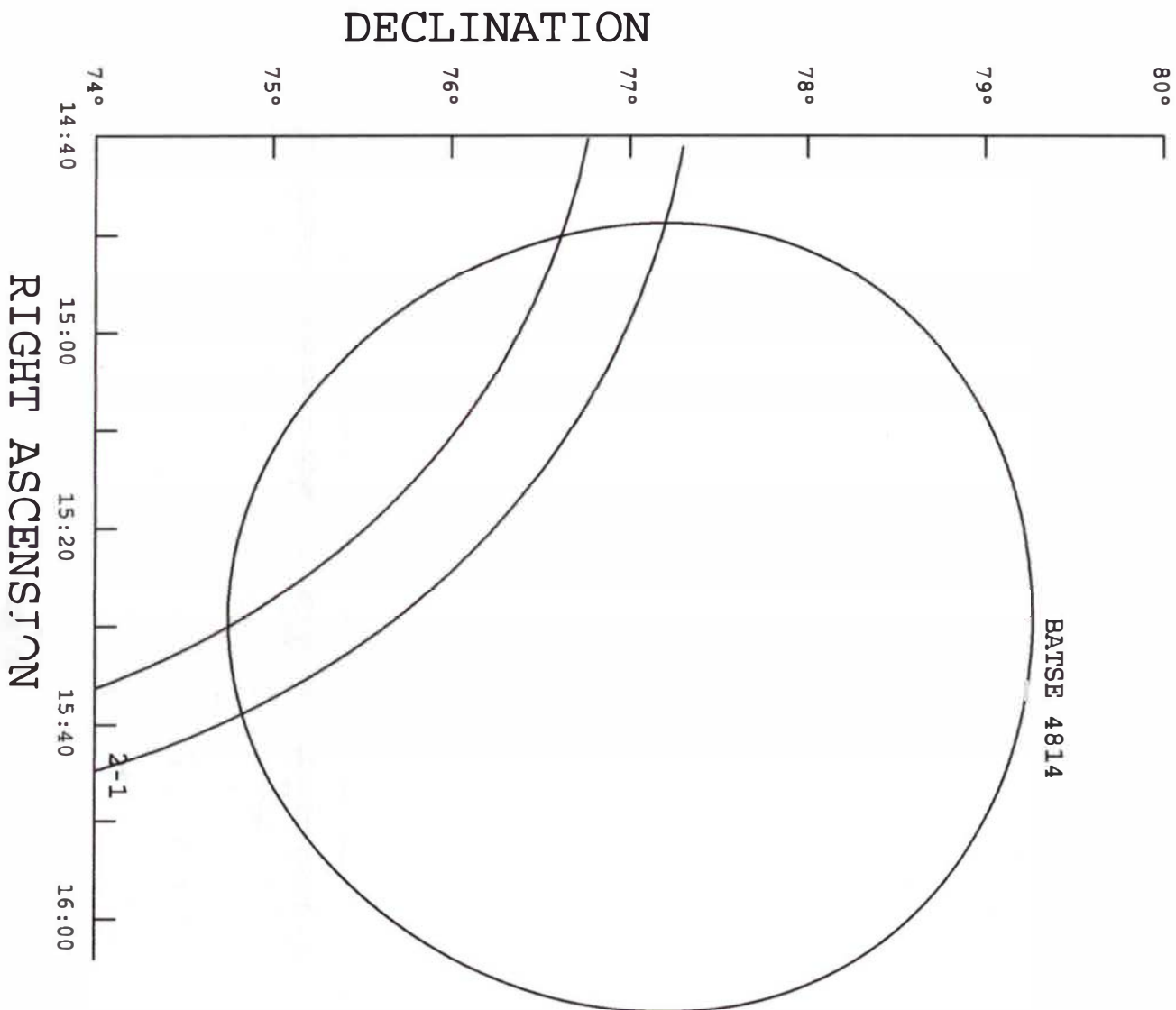
TLC

-- T. L. Cline ----- LHEAVX::CLINE

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

EVENT OF FEB 10, 1996 9:22

4/ 3/98



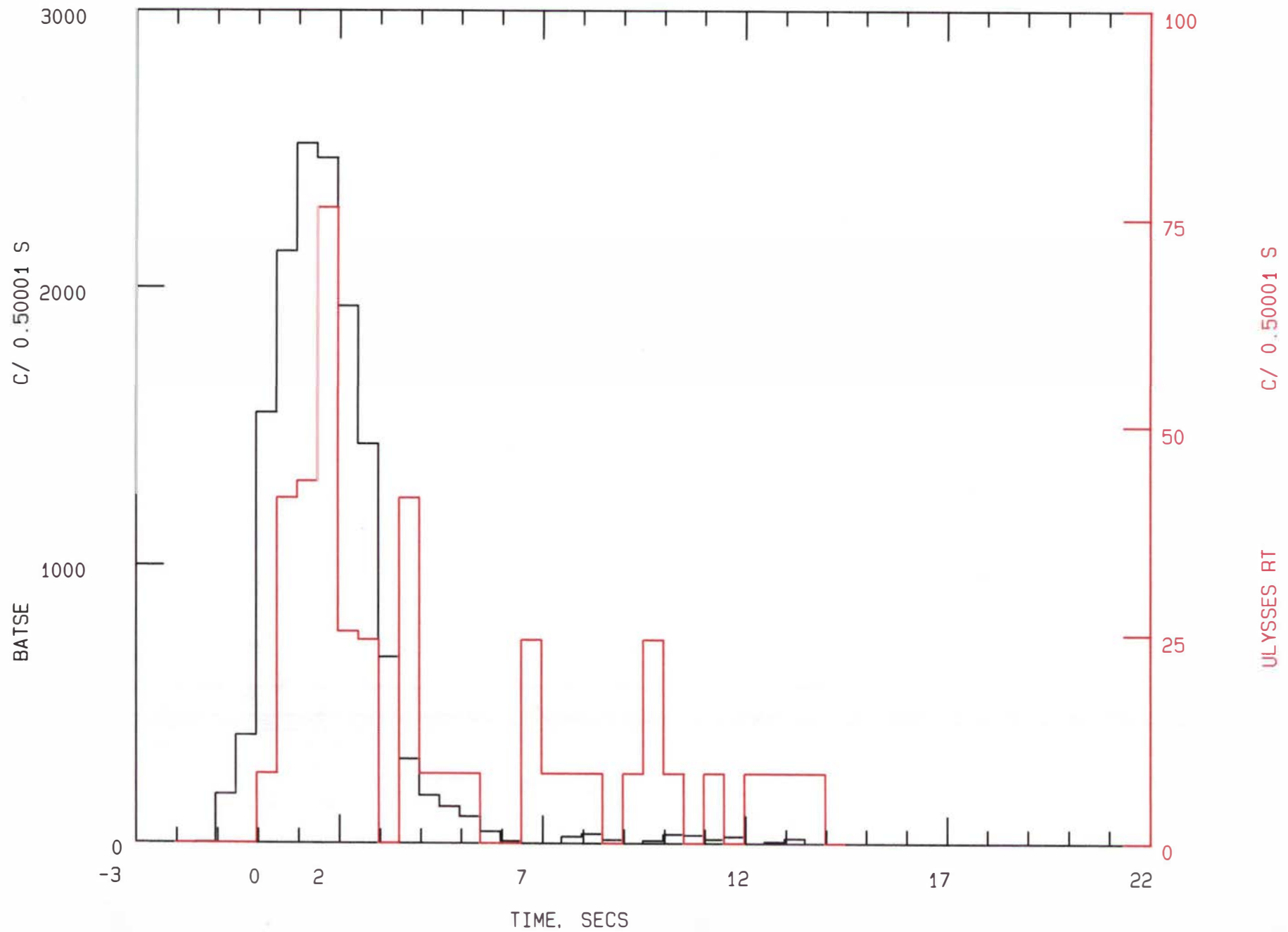
BATSE

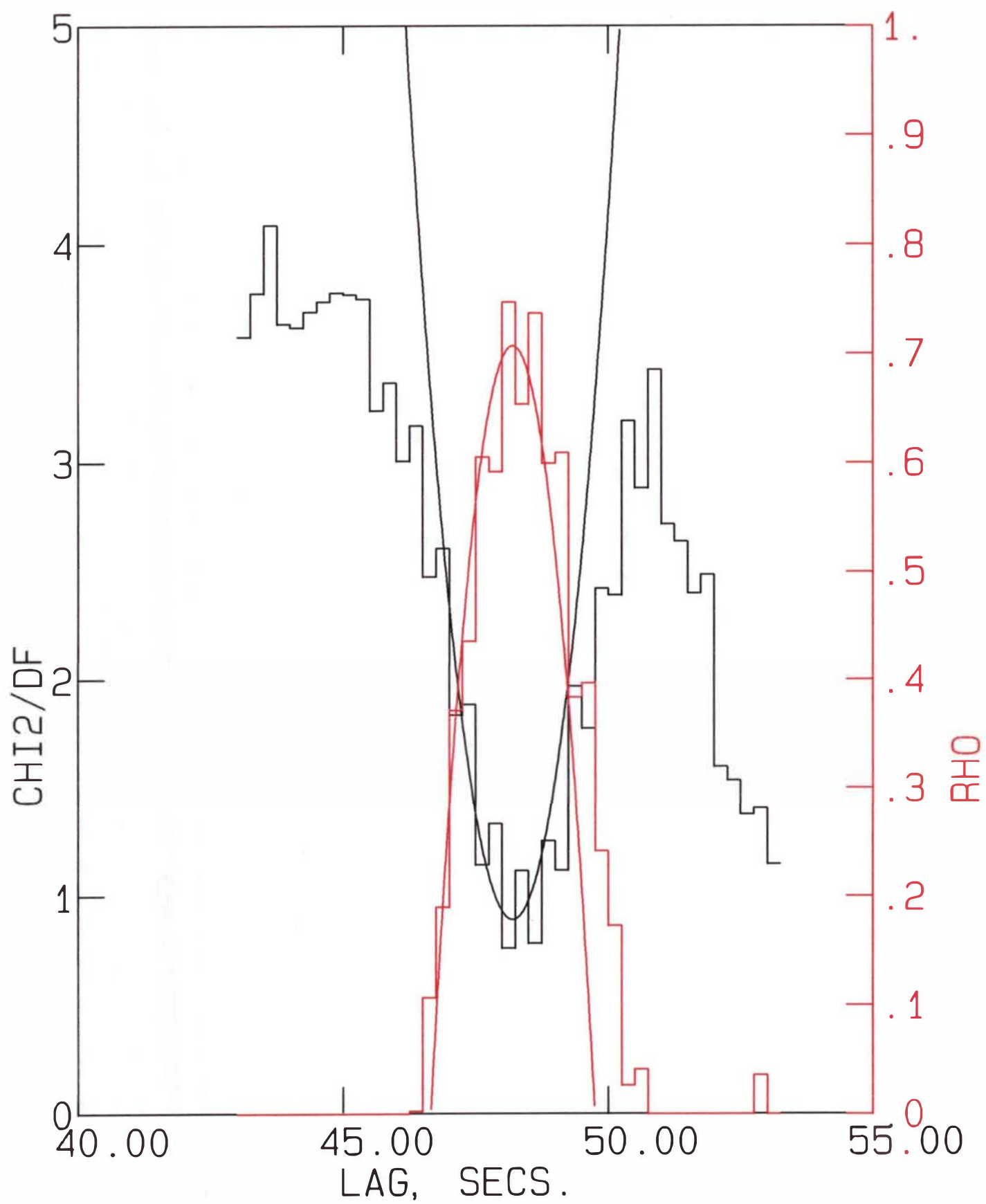
-ULYSSES RT CORRELATION

10/ 2/96

35197.642

4/ 3/98





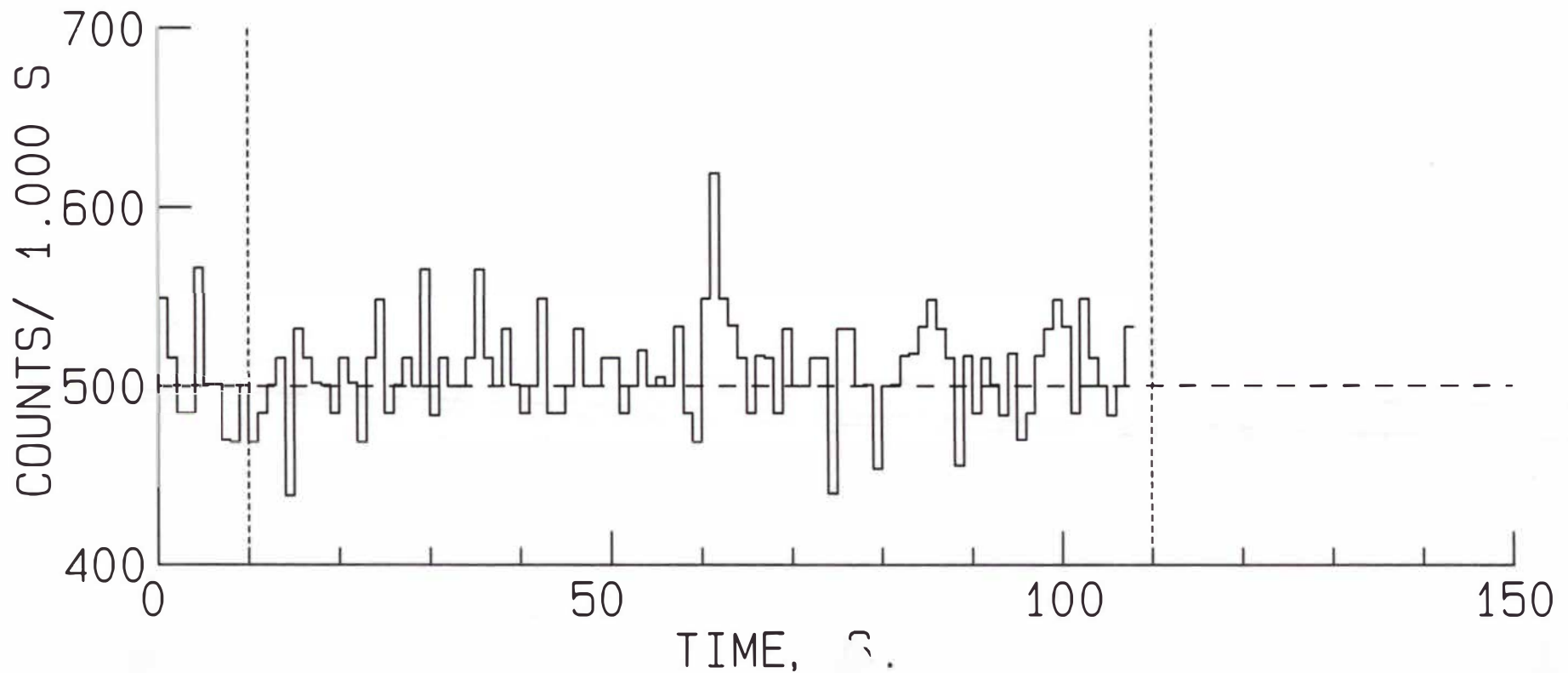
ULYSSES RT

4 / 3 / 98

10 / 2 / 96 33732.135 s

0.250 S INTERVALS REGROUPED BY 4
21- 144 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

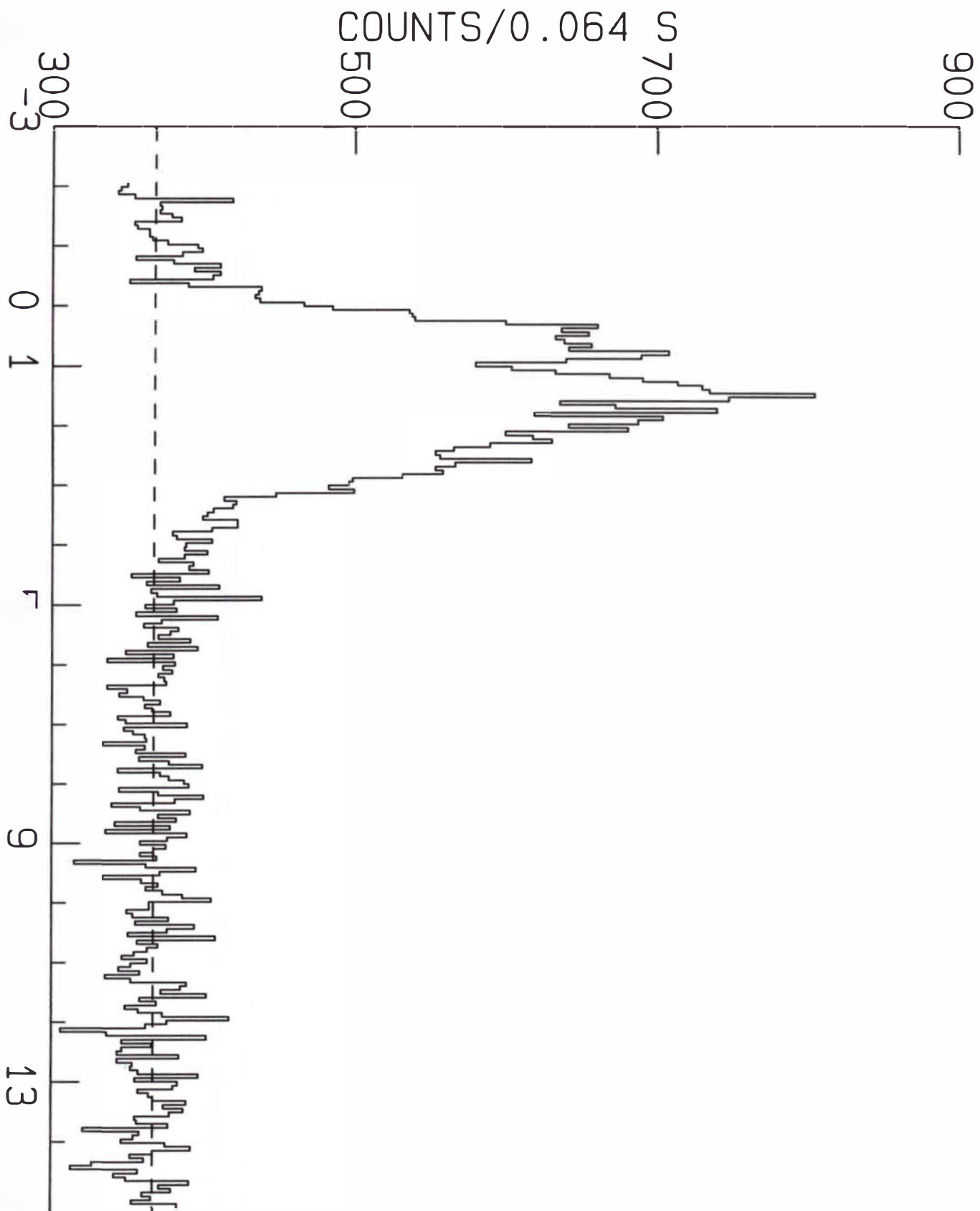


BATSE

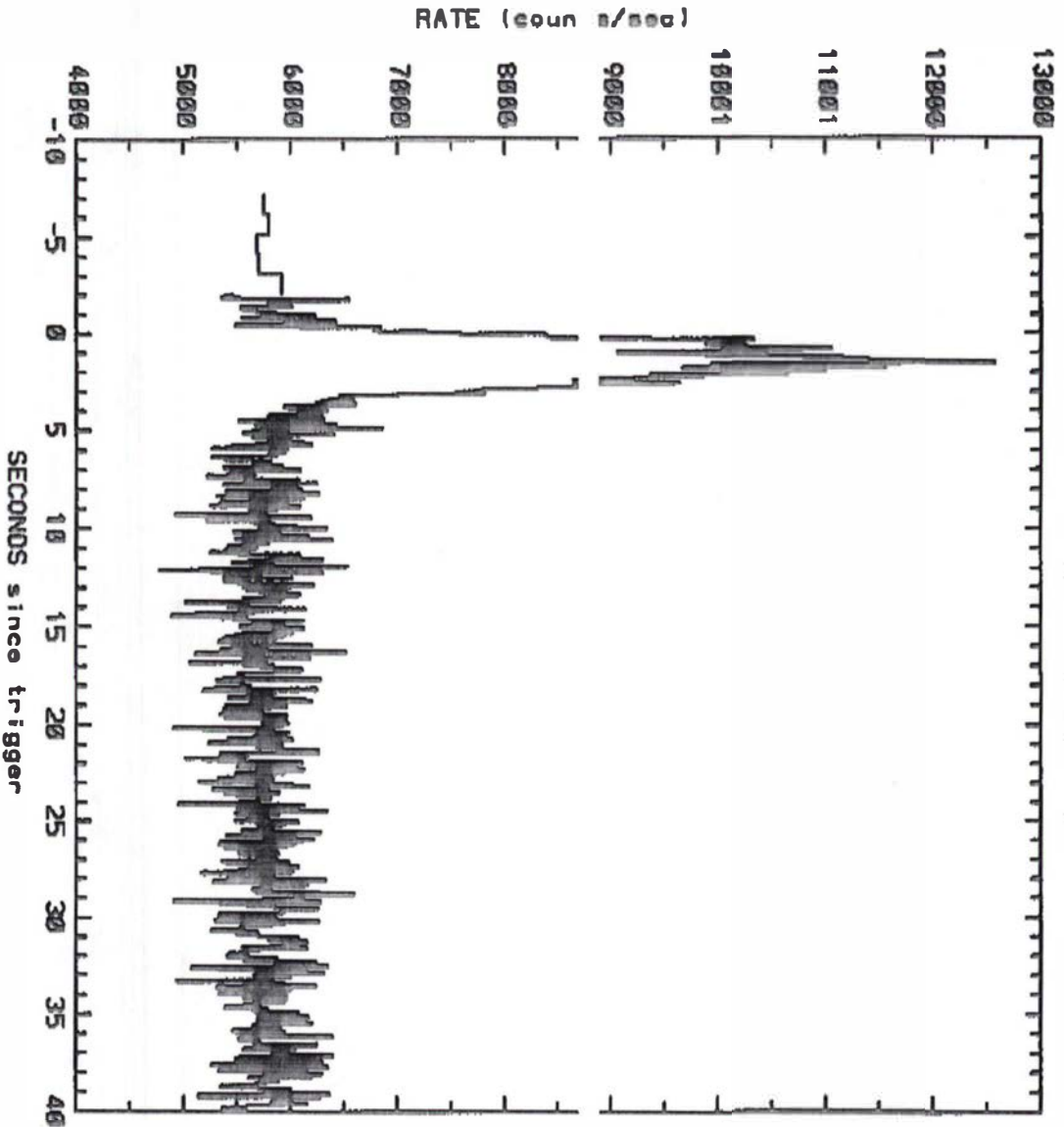
10/02/96

35197.642

25- 100 keV



DISCSC Data for K. Hurley, No. 4814

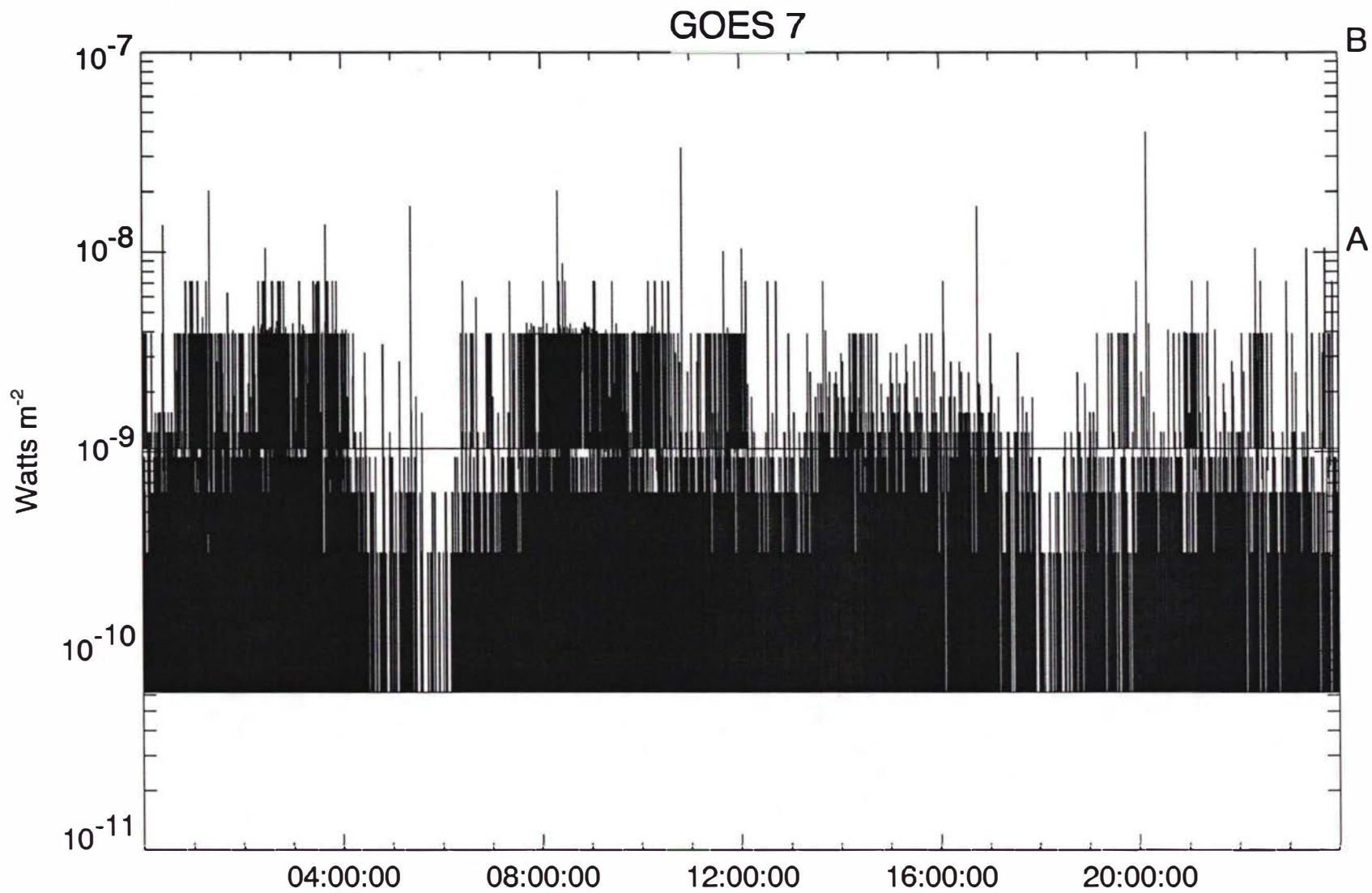


11-MAR-1996 11:10:22

Created by NOPS BD
(Burnt Display)
Version 12.25

Trigger # : 4814

Trigger Time:
10123 / 35197.642Burnt Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.004 second(s)Detector [7..8].
-----3-1-Discriminators:
(1, 2)Quality Mask:
801801



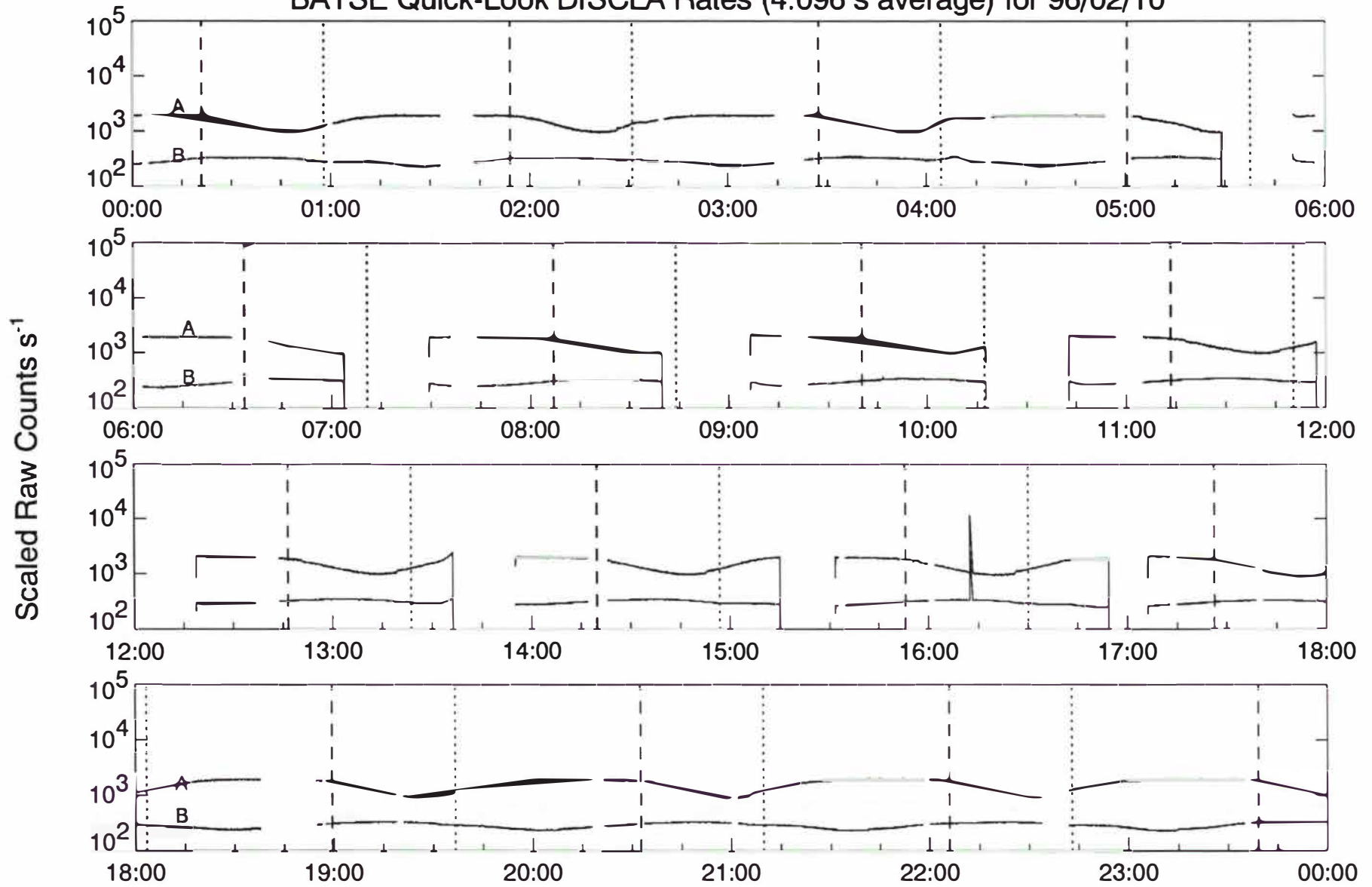
Data Start: 96/02/10, 0000:01

Plot created: 96/02/12, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/10



Current Time: 96/02/12, 0855 EDT

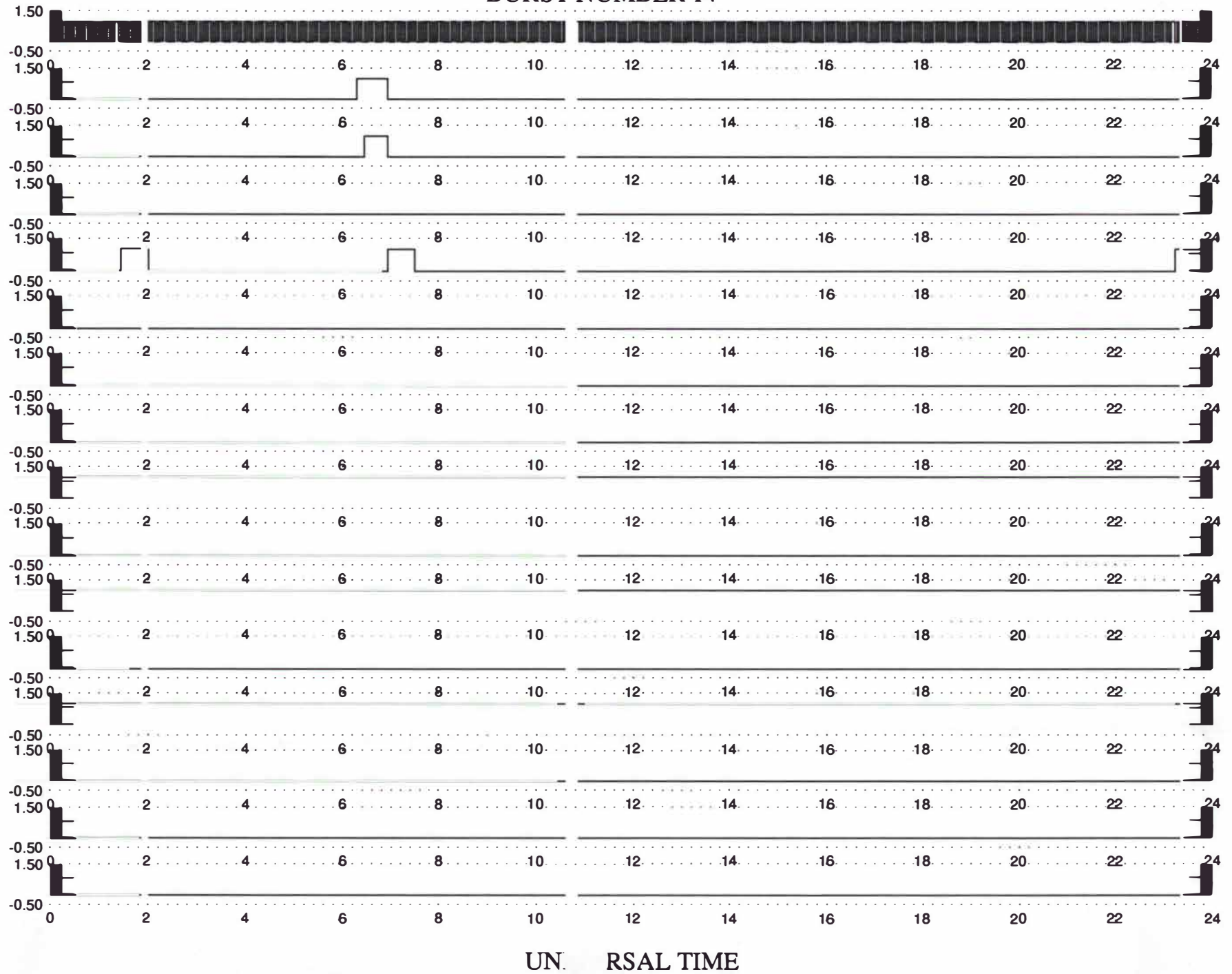
A: Channel 0 Most Sunward LAD

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

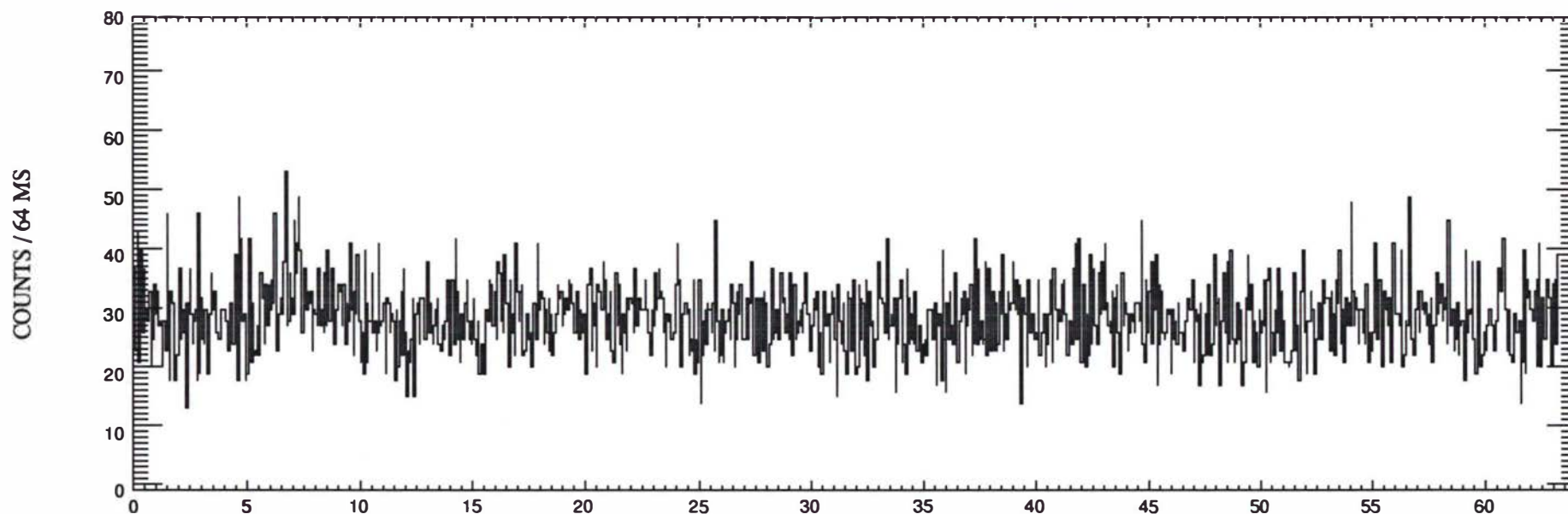
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

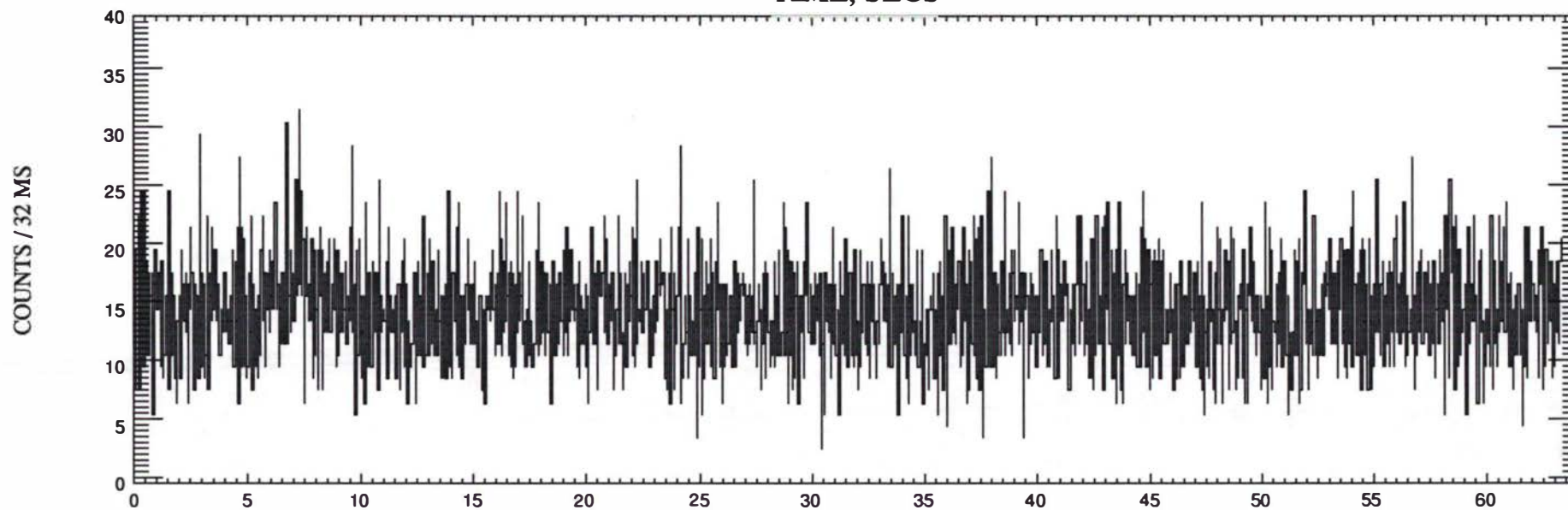
CBU	CCL	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



Burst Counter 14 at UT= 6.244053272671 h=22478.592 s 06:14:38.592

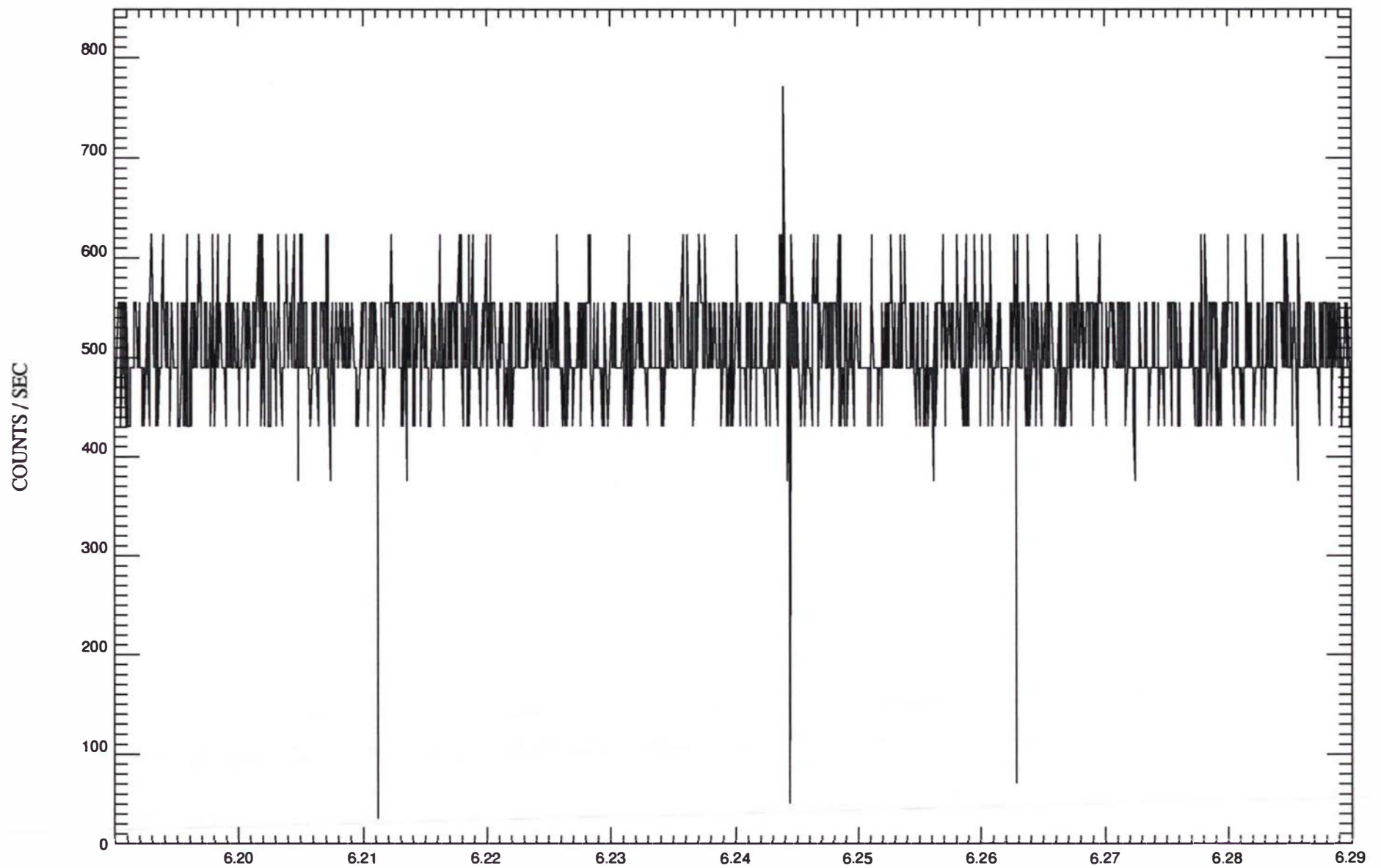


TIME, SECS

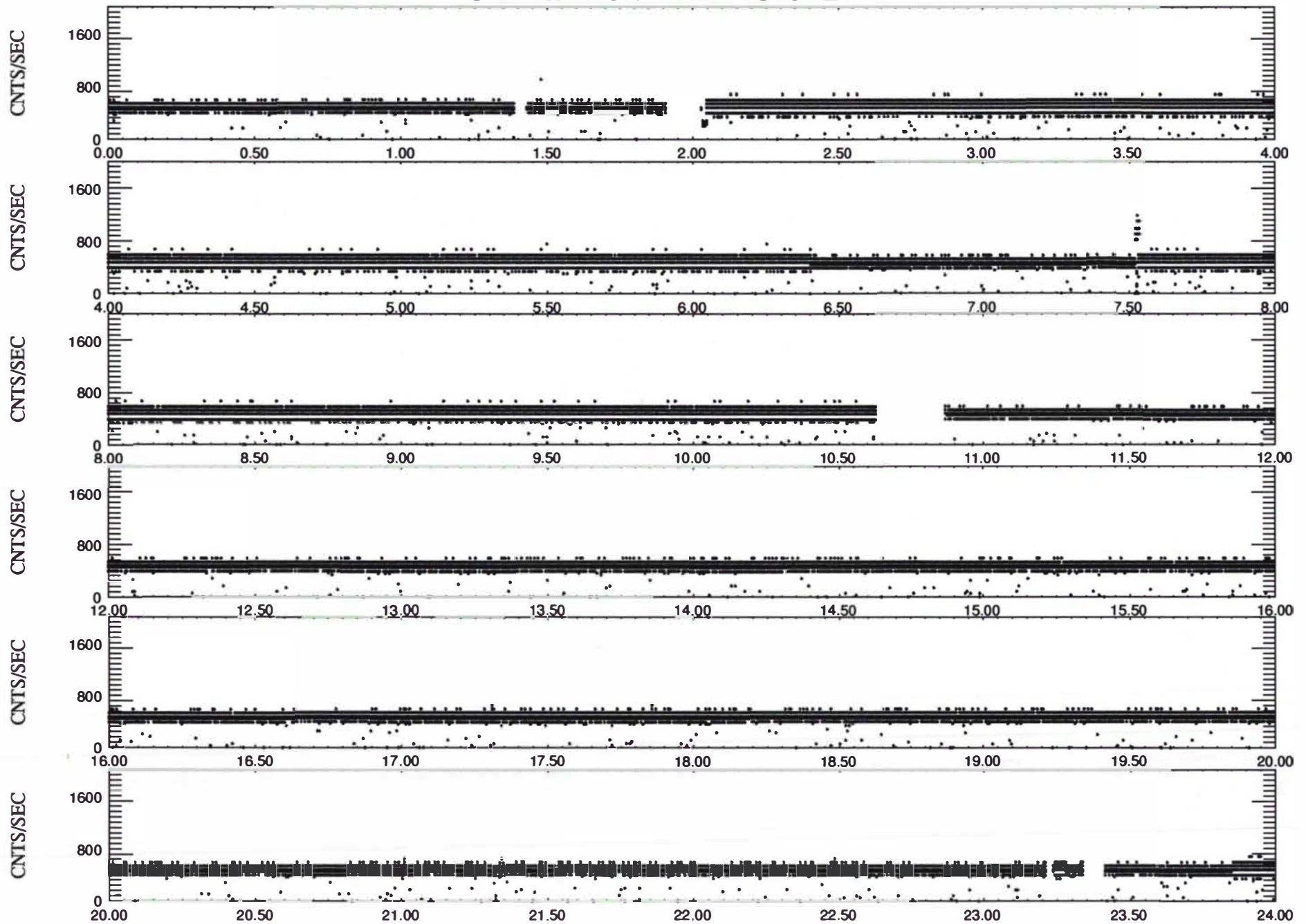


TIME, SECS

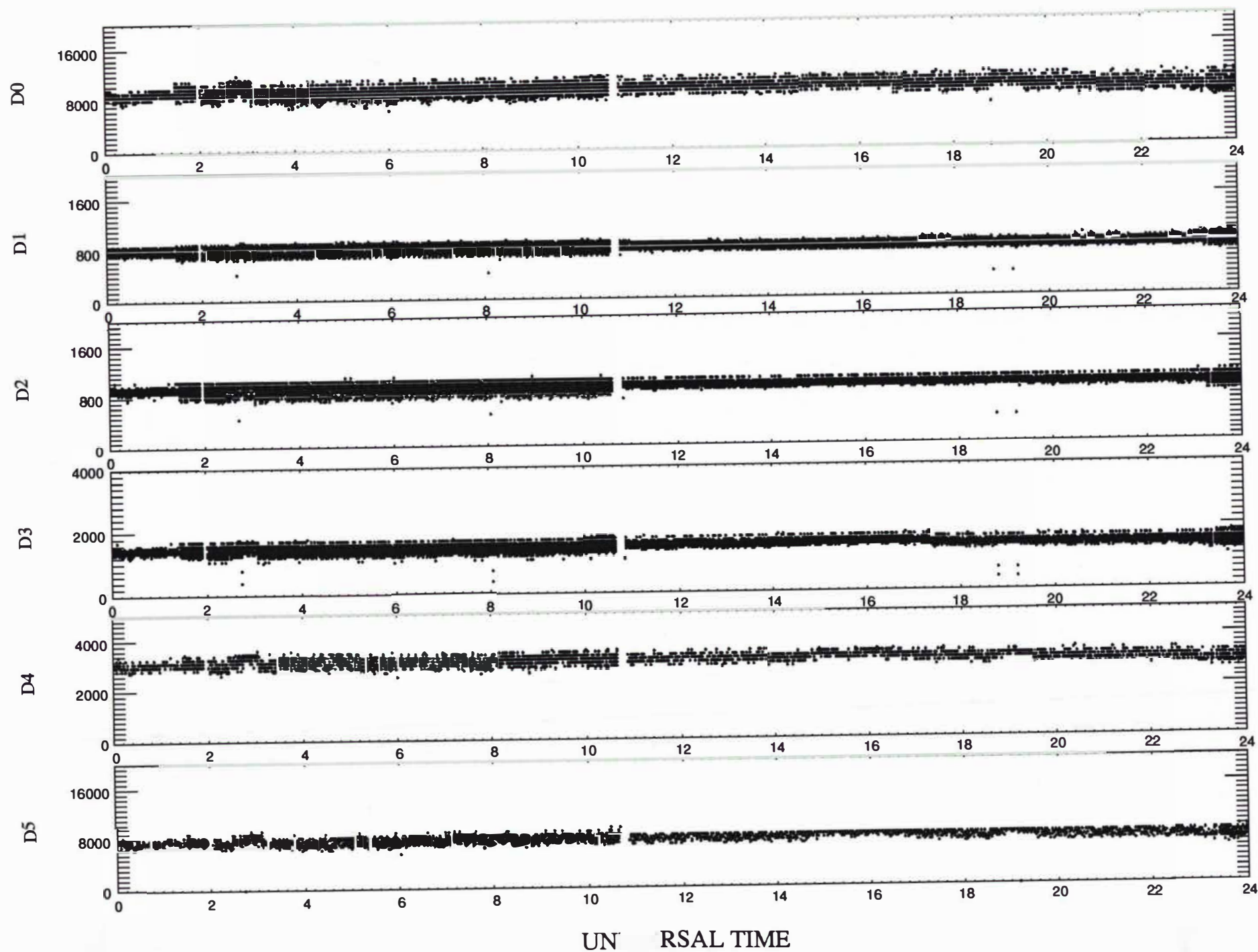
CALIBRATION DATA INCLUDED

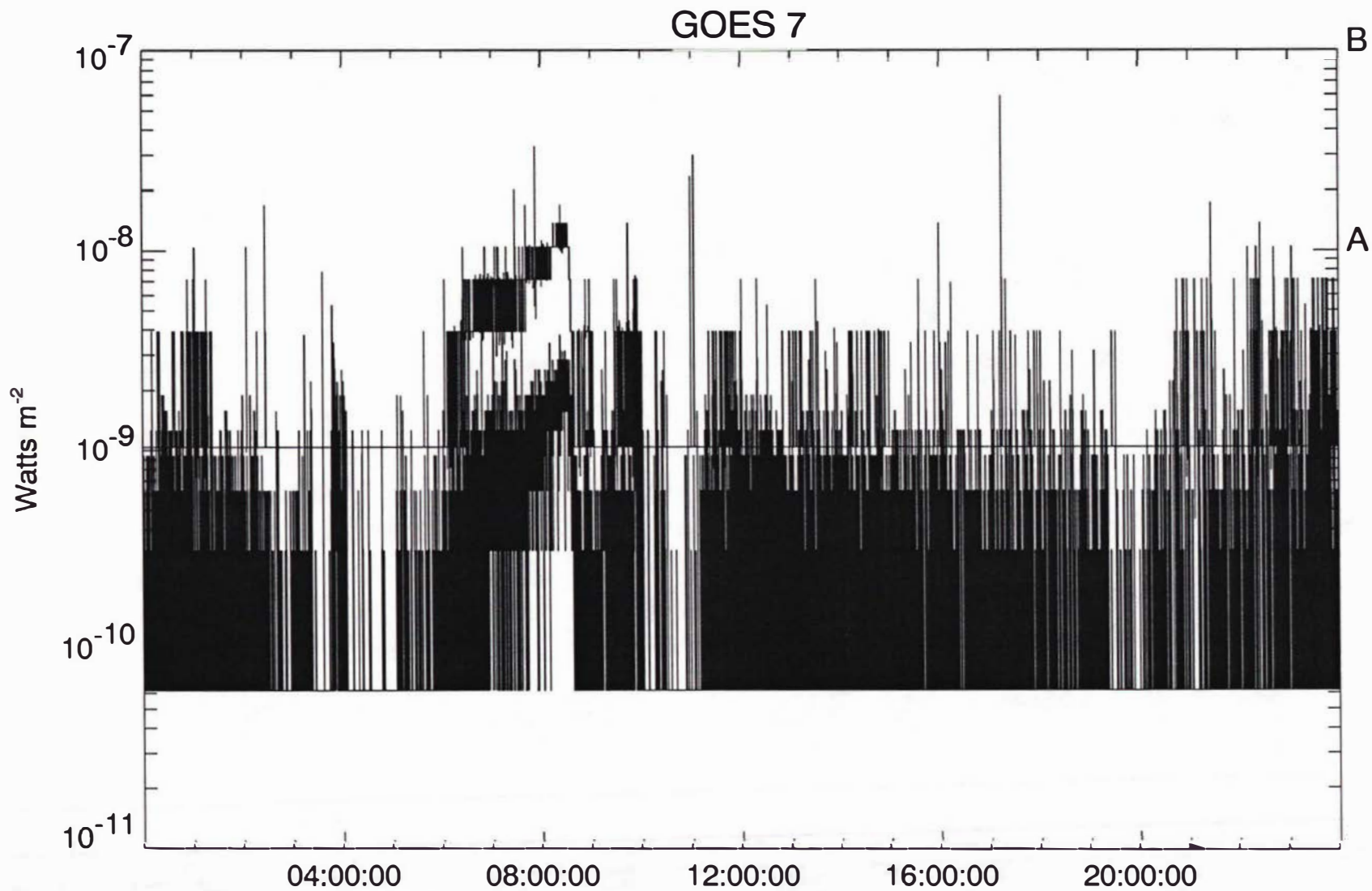


CALIBRATION DATA INCLUDED



UN RSAL TIME





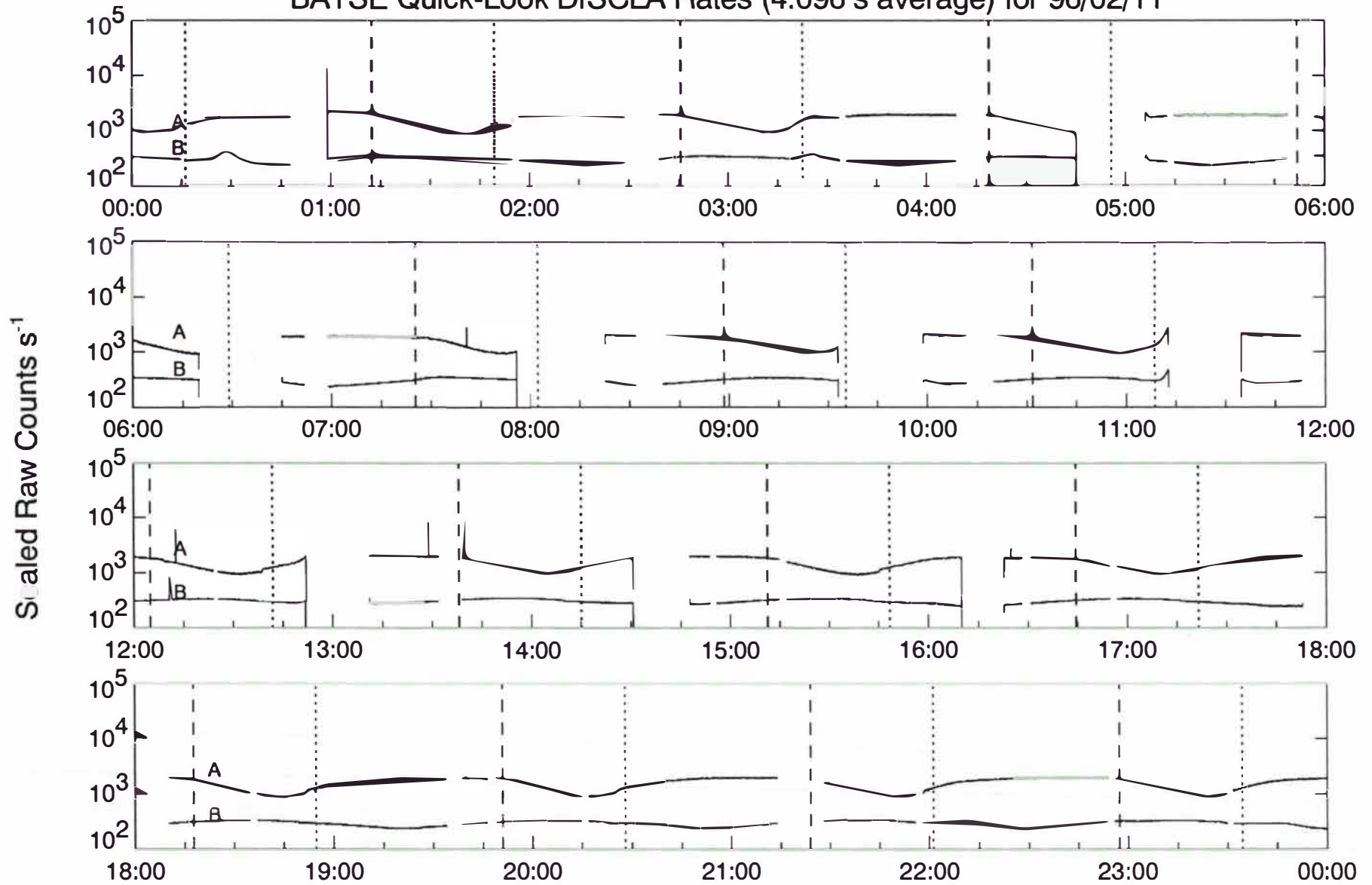
Data Start: 96/02/11, 0000:02

Plot created: 96/02/13, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/11

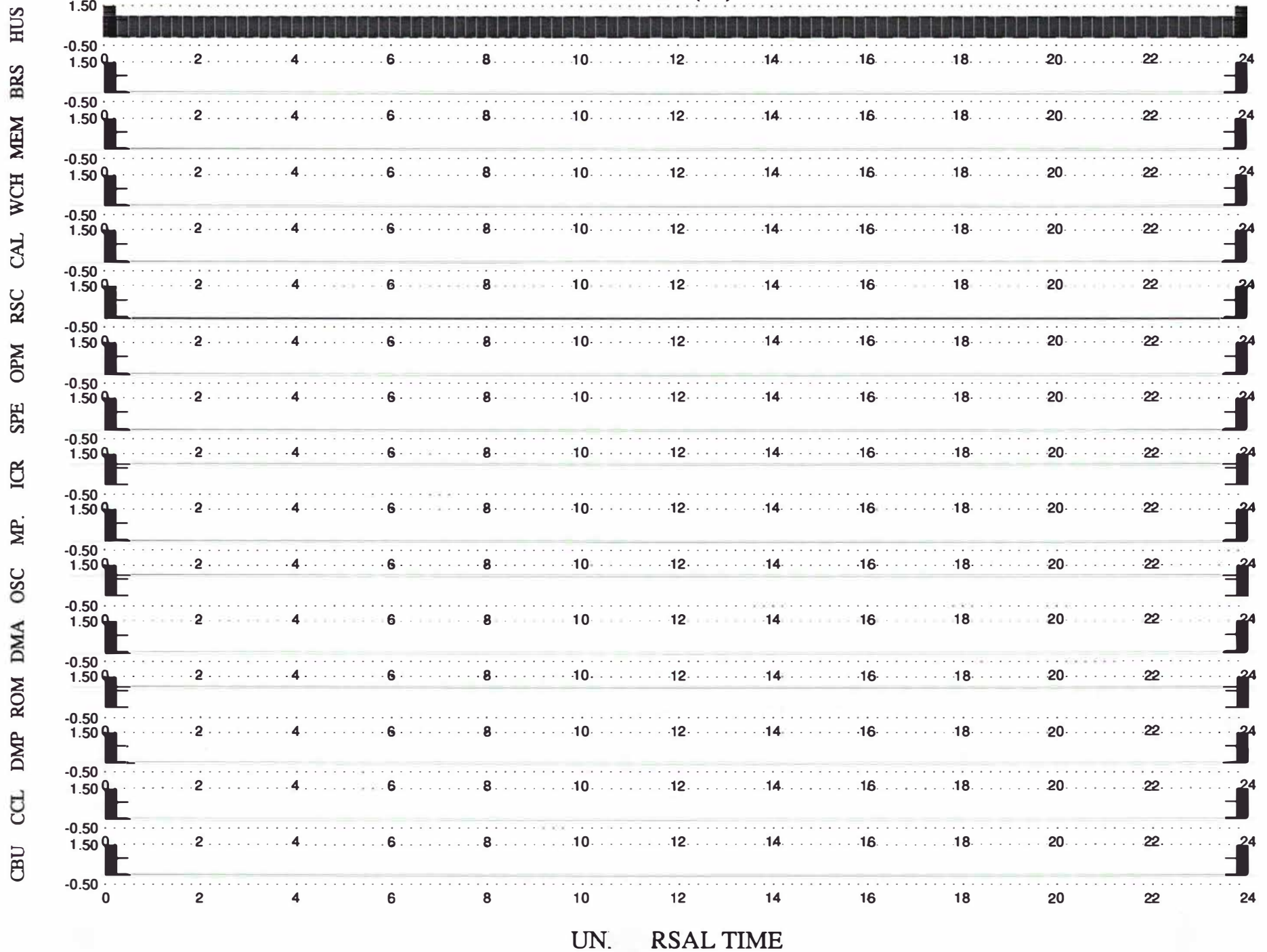


Current Time: 96/02/13, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

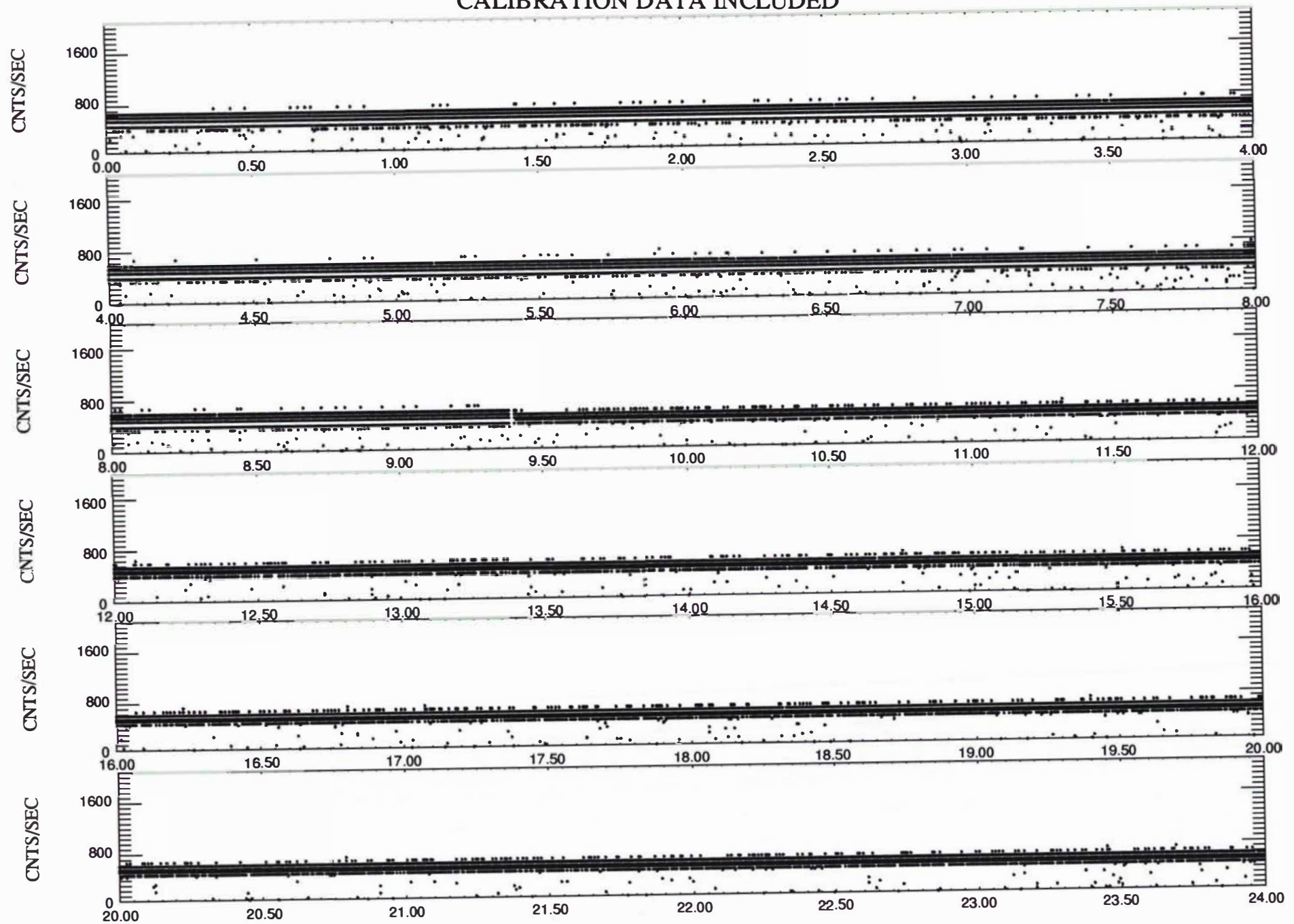
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

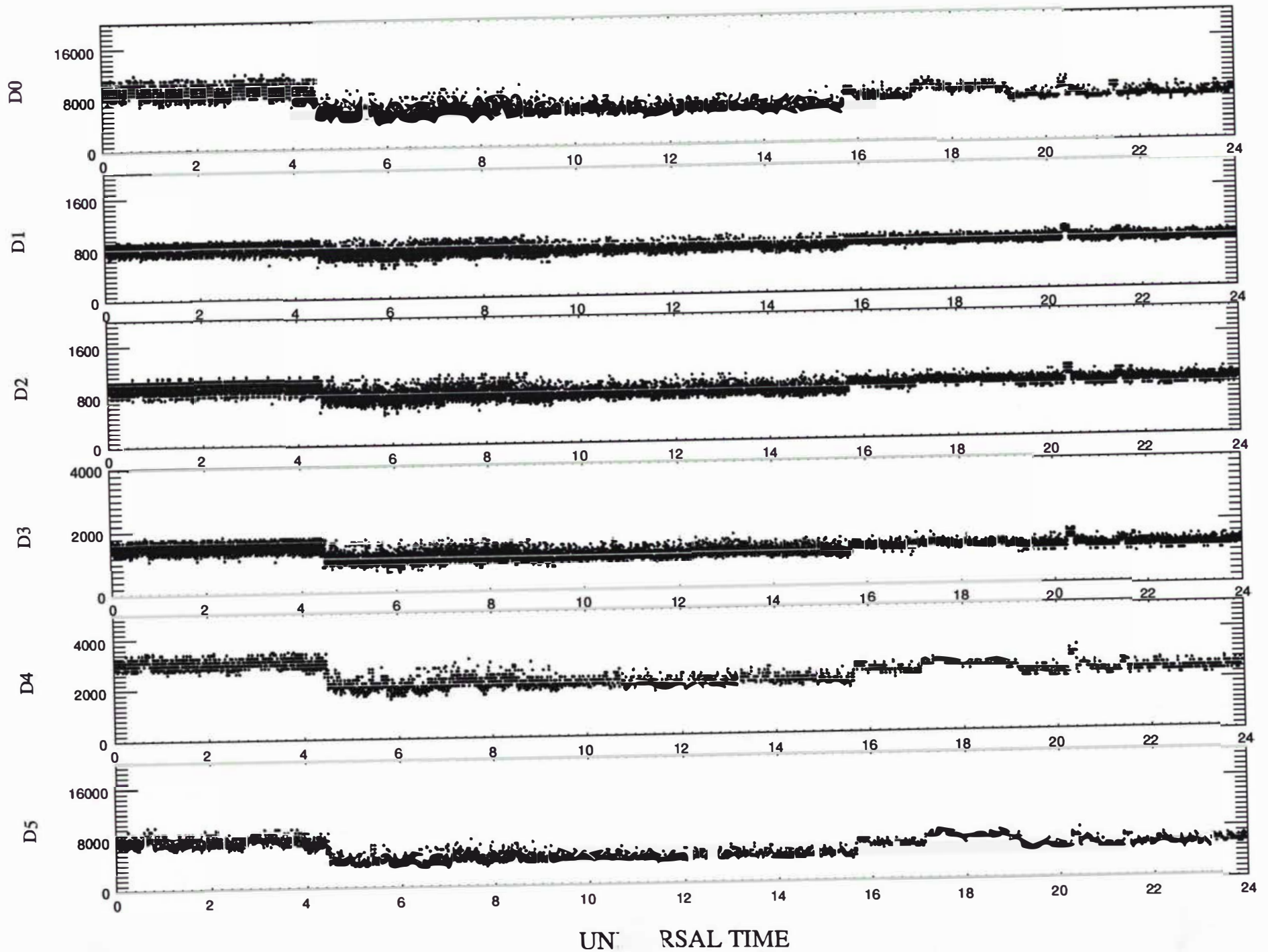
NO BURST (14)



CALIBRATION DATA INCLUDED



UNRSAL TIME



From WOODSP@SSLLES.MSFC.NASA.GOV Wed Feb 14 13:28 PST 1996
From: WOODSP@SSLLES.MSFC.NASA.GOV
Date: Wed, 14 Feb 1996 15:26:49 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 4835

TIME: TJD=0125 SECONDS=9498

TYPE: TRANSIE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

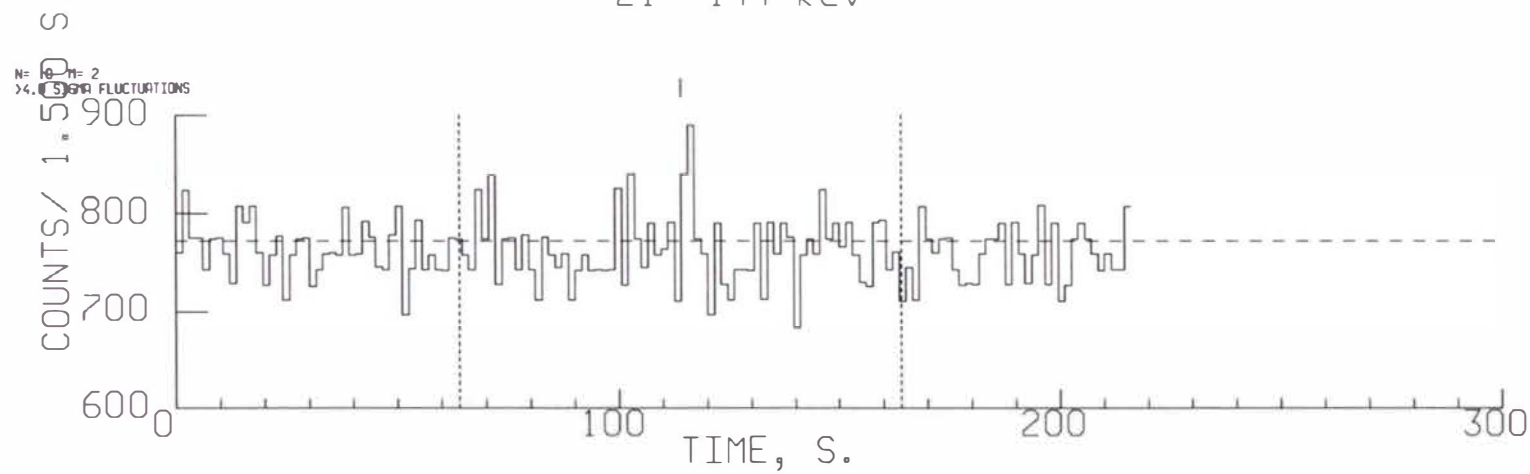
LOCATION: ZENITH=297.6 AZIMUTH=26.6 ERROR=4.6 DEGREES

COMMENTS:

CYGNUS X-1 FLUCTUATION.

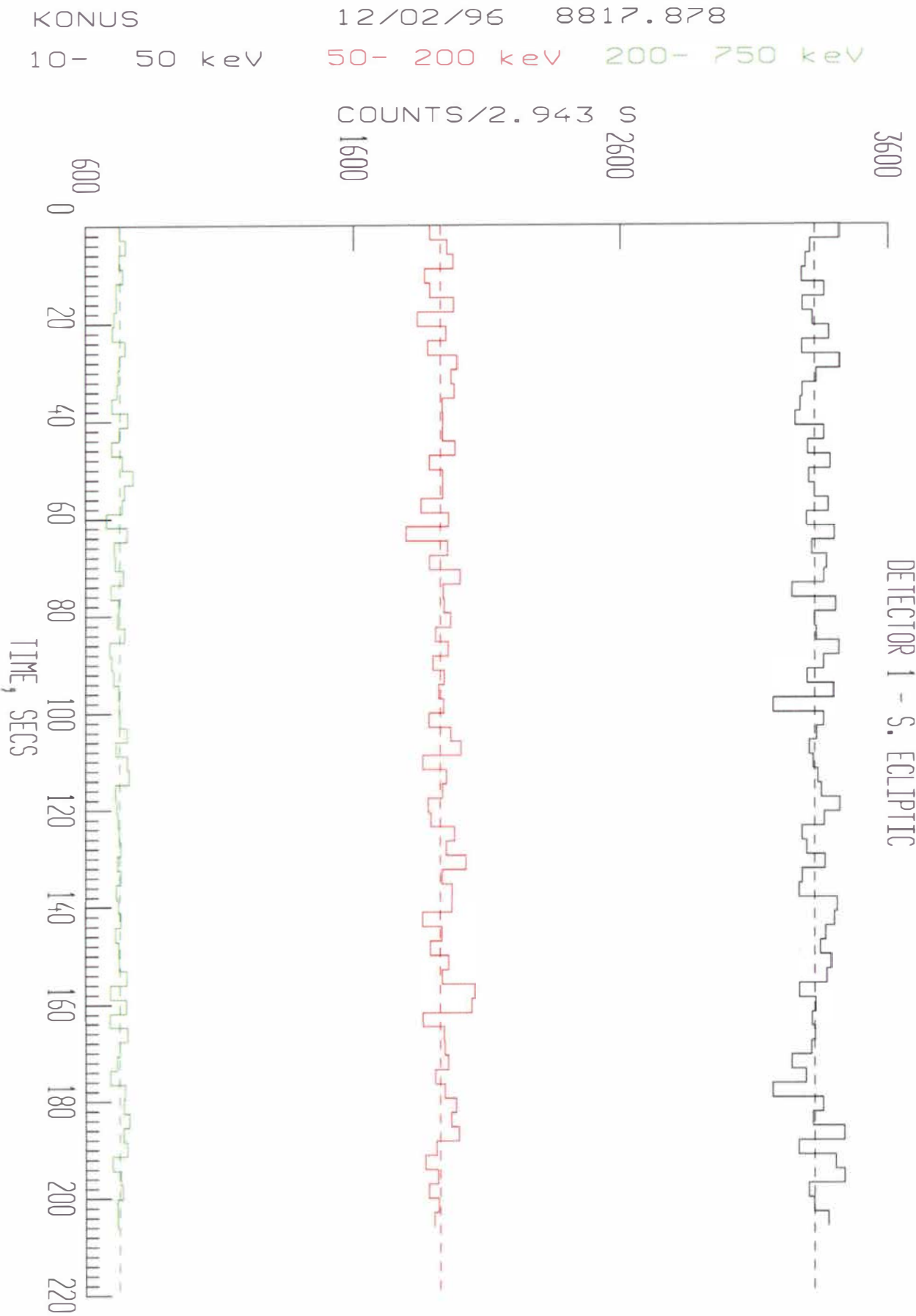
ULYSSES RT
12/ 2/96 7596.230 s
0.250 S INTERVALS REGROUPED BY 6
21- 144 keV

16/ 9/11



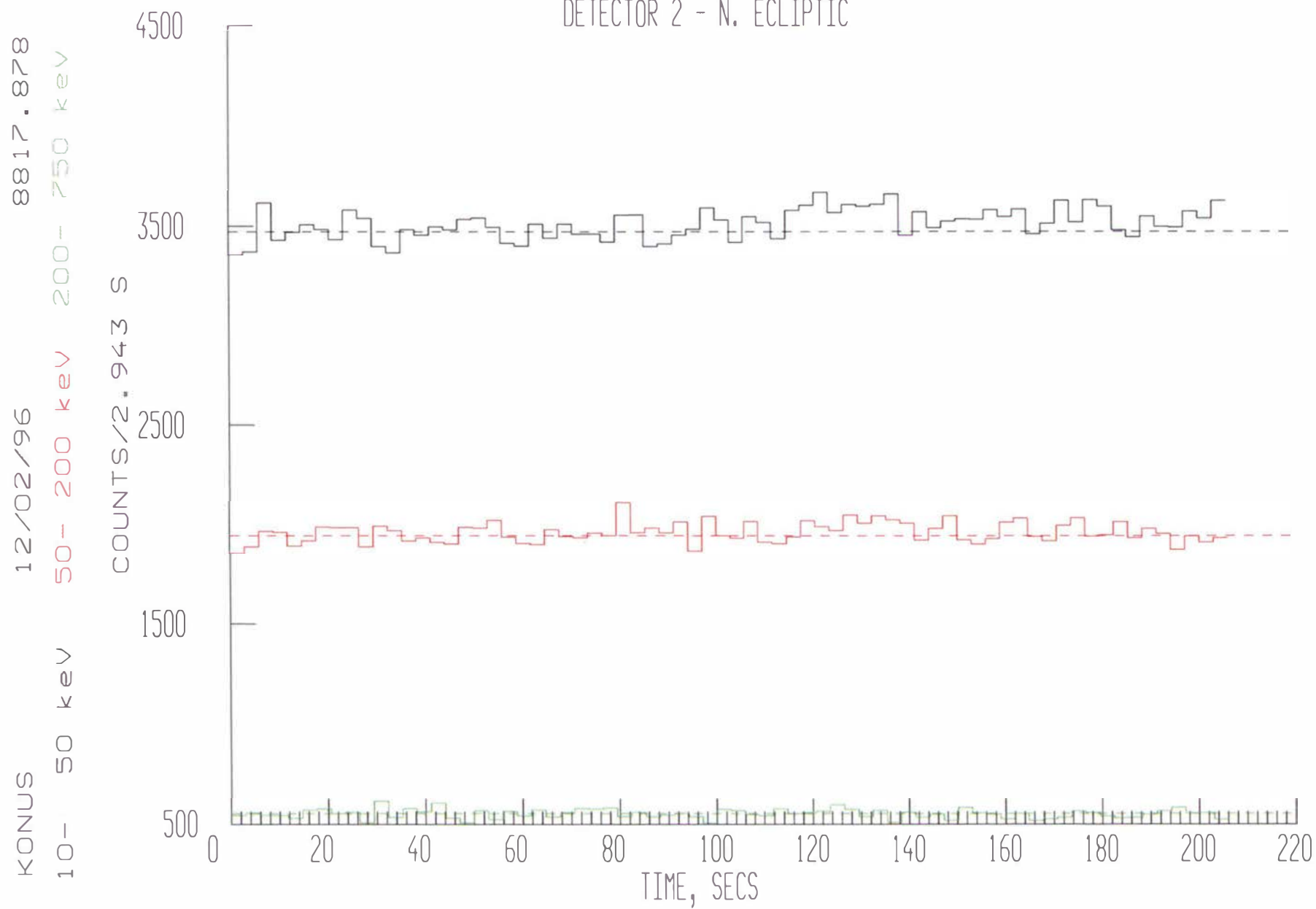
16/09/2011

DETECTOR 1 - S. ECLIPSE



16/09/2011

DETECTOR 2 - N. ECLIPTIC



KONUS 19960212 07702

ULYSSES RT

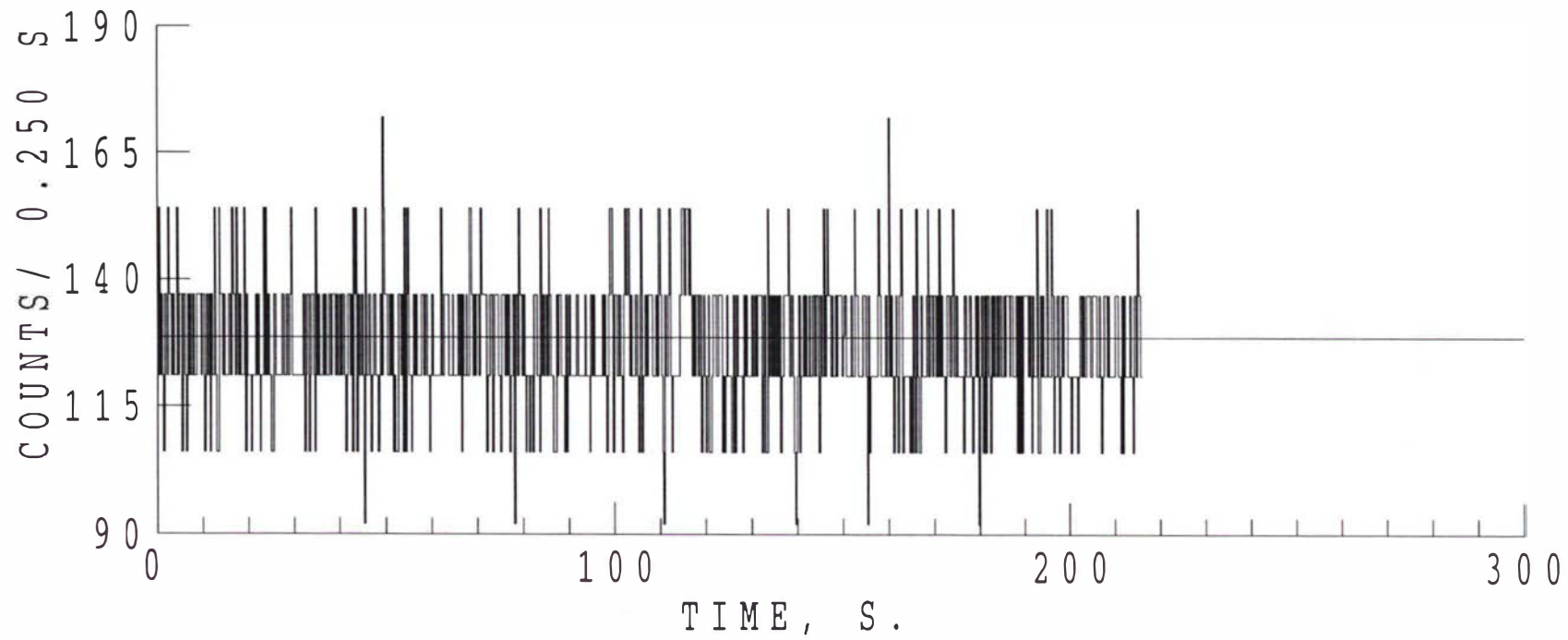
14 / 09 / 11

12 / 02 / 96 7596.230 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS

ULYSSES RT

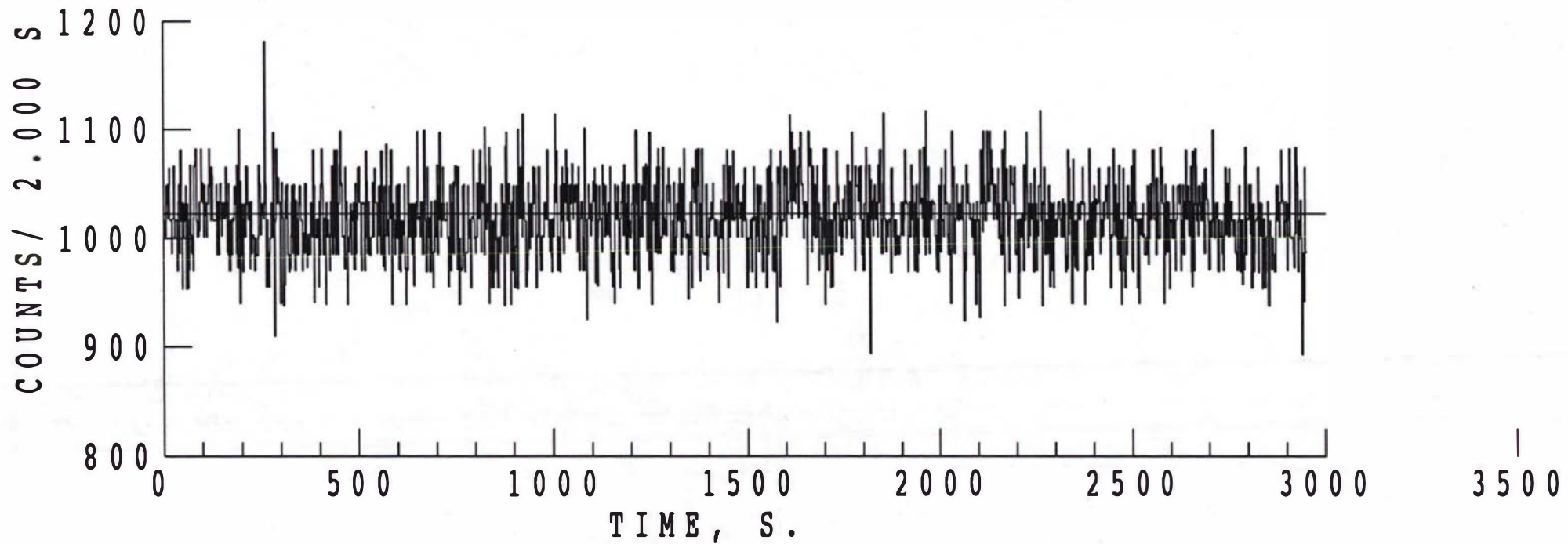
28 / 01 / 00

12/02/96 7452.230 s

0.250 S INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From WOODSP@SSLLES.MSFC.NASA.GOV Wed Feb 14 13:30 PST 1996
From: WOODSP@SSLLES.MSFC.NASA.GOV
Date: Wed, 14 Feb 1996 15:29:54 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 4836

TIME: TJD=0125 SECONDS=15936

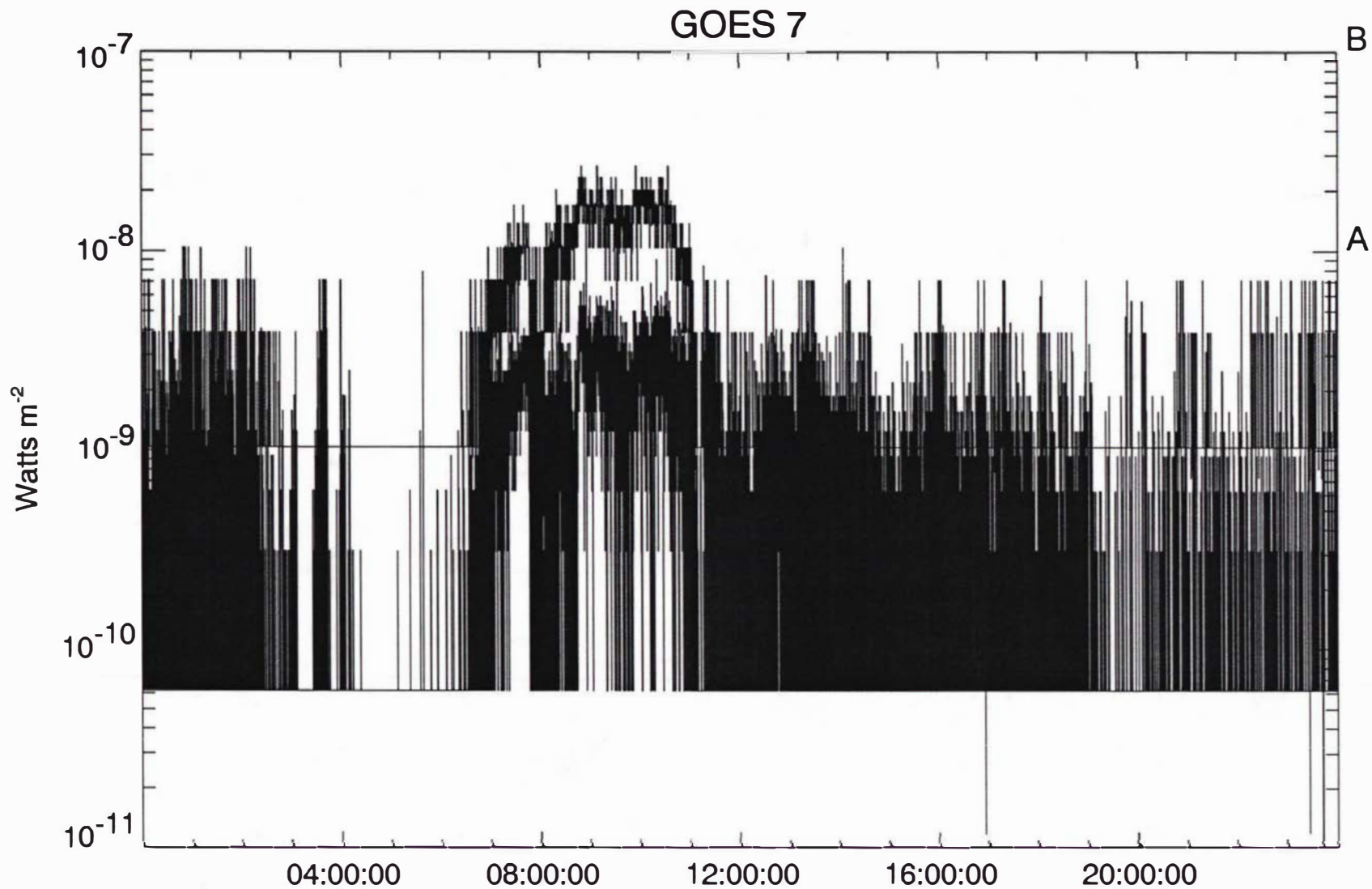
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.



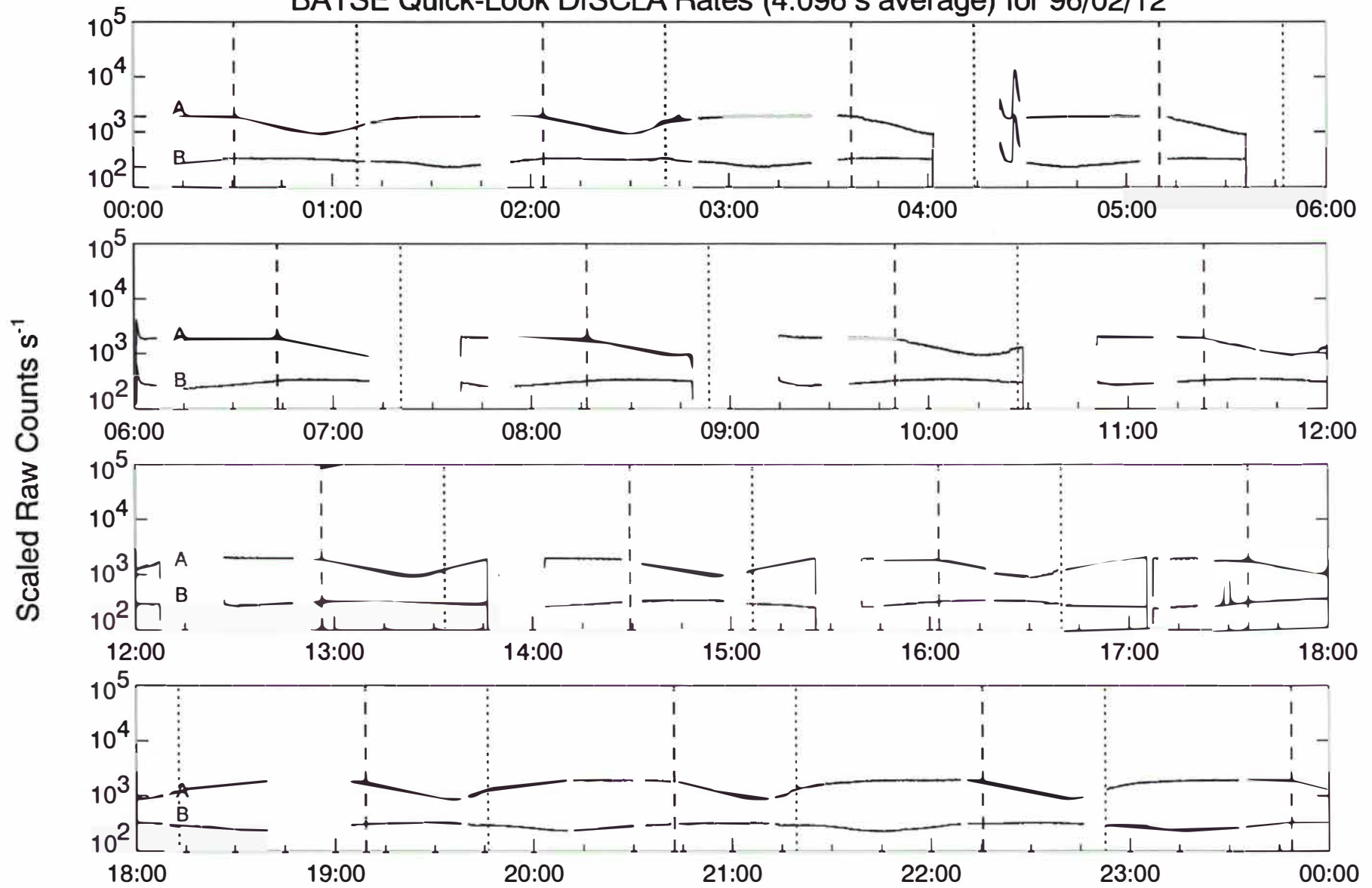
Data Start: 96/02/12, 0000:00

Plot created: 96/02/14, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/12

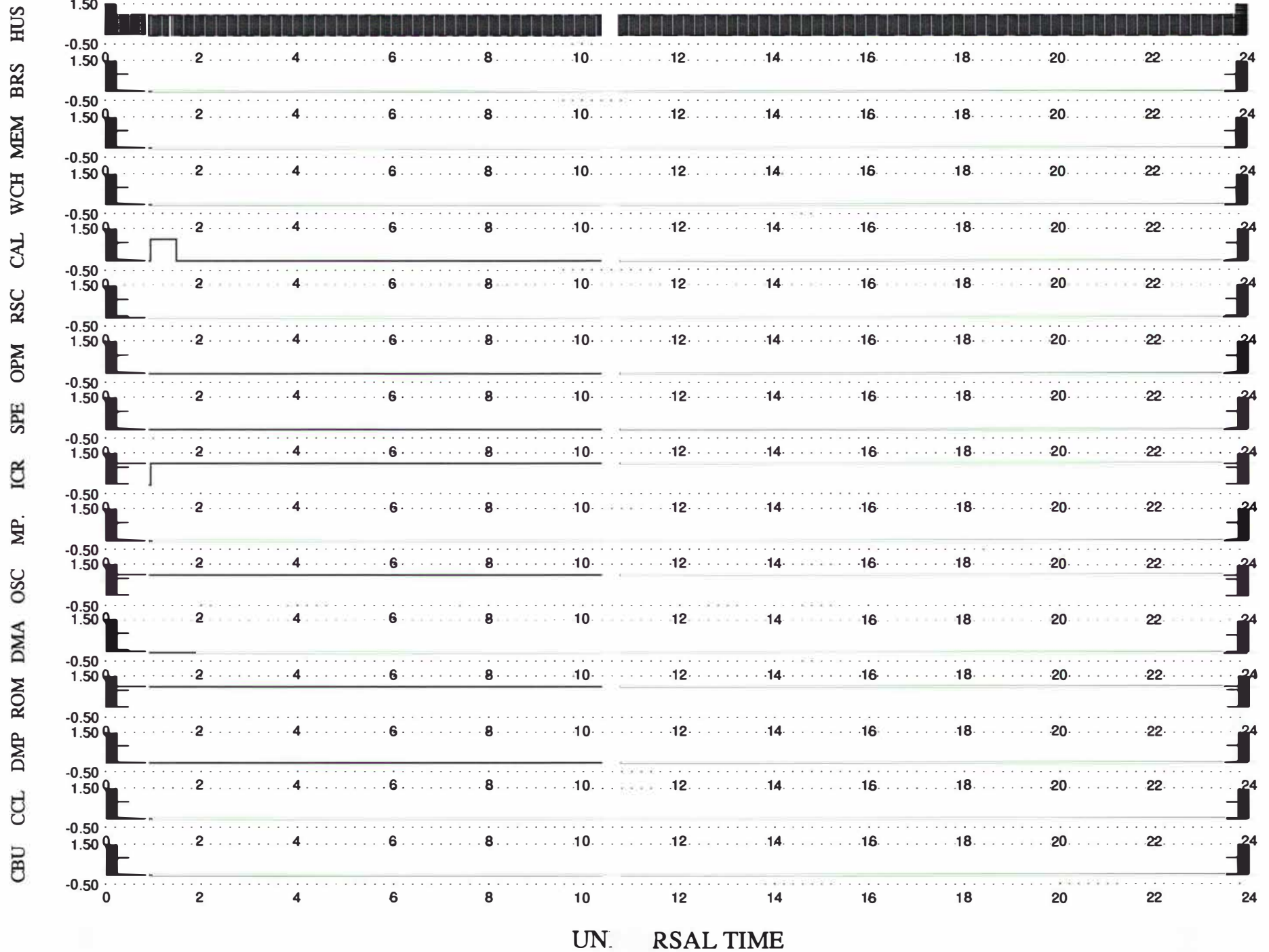


Current Time: 96/02/14, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

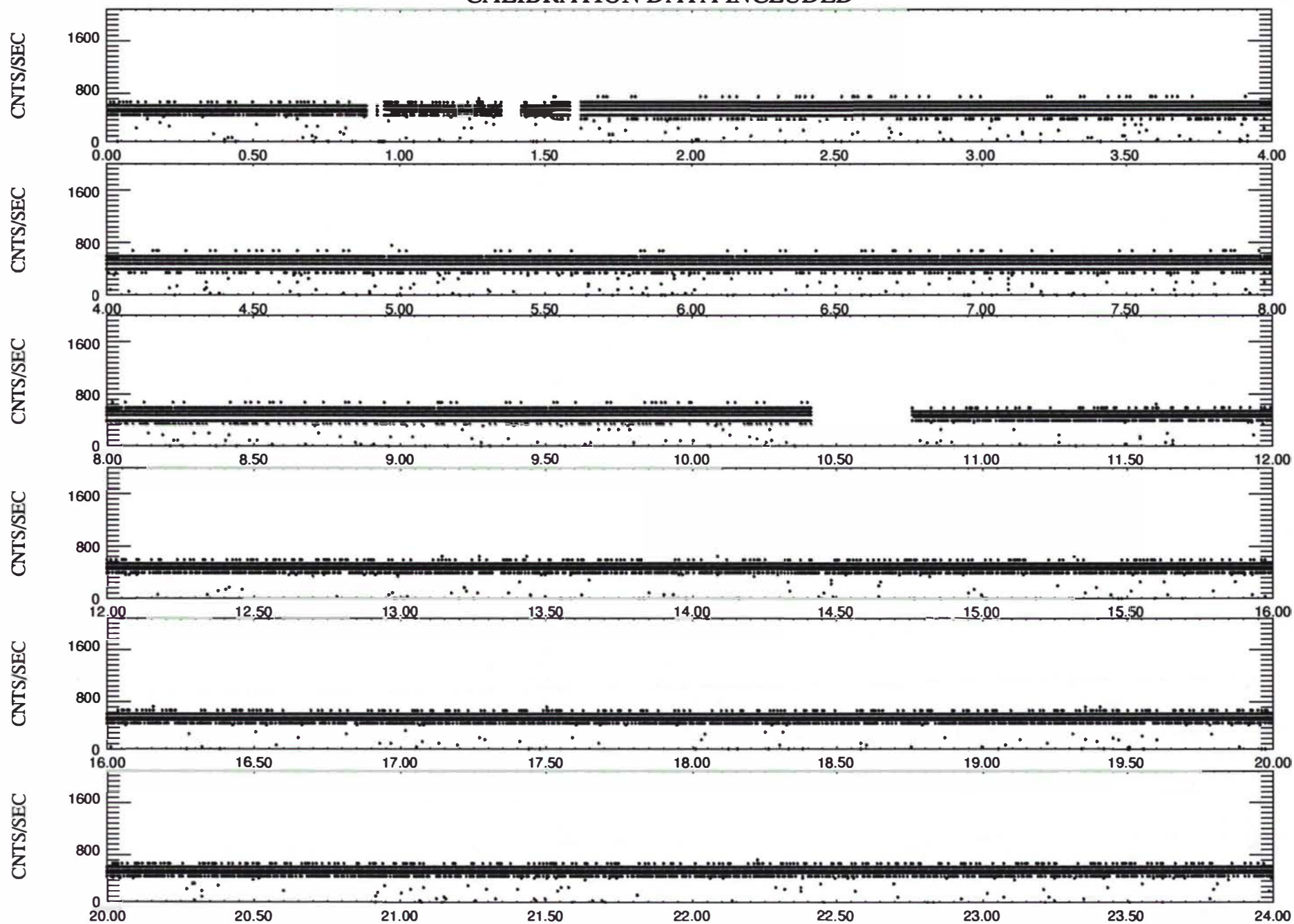
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

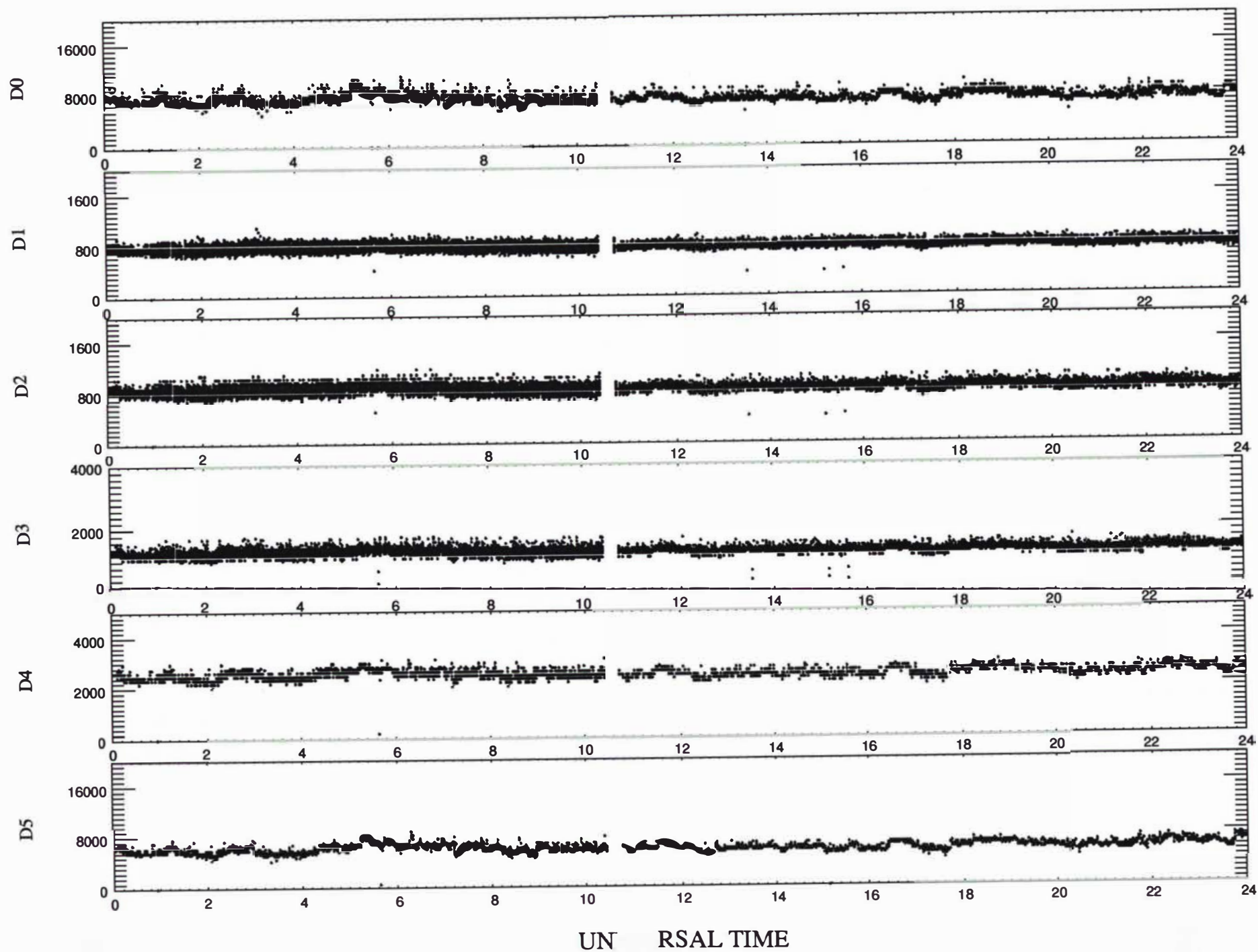
NO BURST (14)



CALIBRATION DATA INCLUDED



UNRSAL TIME



From SURASAK@SSLLES.MSFC.NASA.GOV Mon Feb 19 08:50 PST 1996
Date: Mon, 19 Feb 1996 10:49:41 -0600 (CST)
From: SURASAK@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov,
"LHEAVX::BARTHELMY"@ssl.msfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 04854

TIME: TJD=0126 SECONDS=40593

TYPE: CYGNUS SOLAR FLARE TRIGGER SIGNAL:N

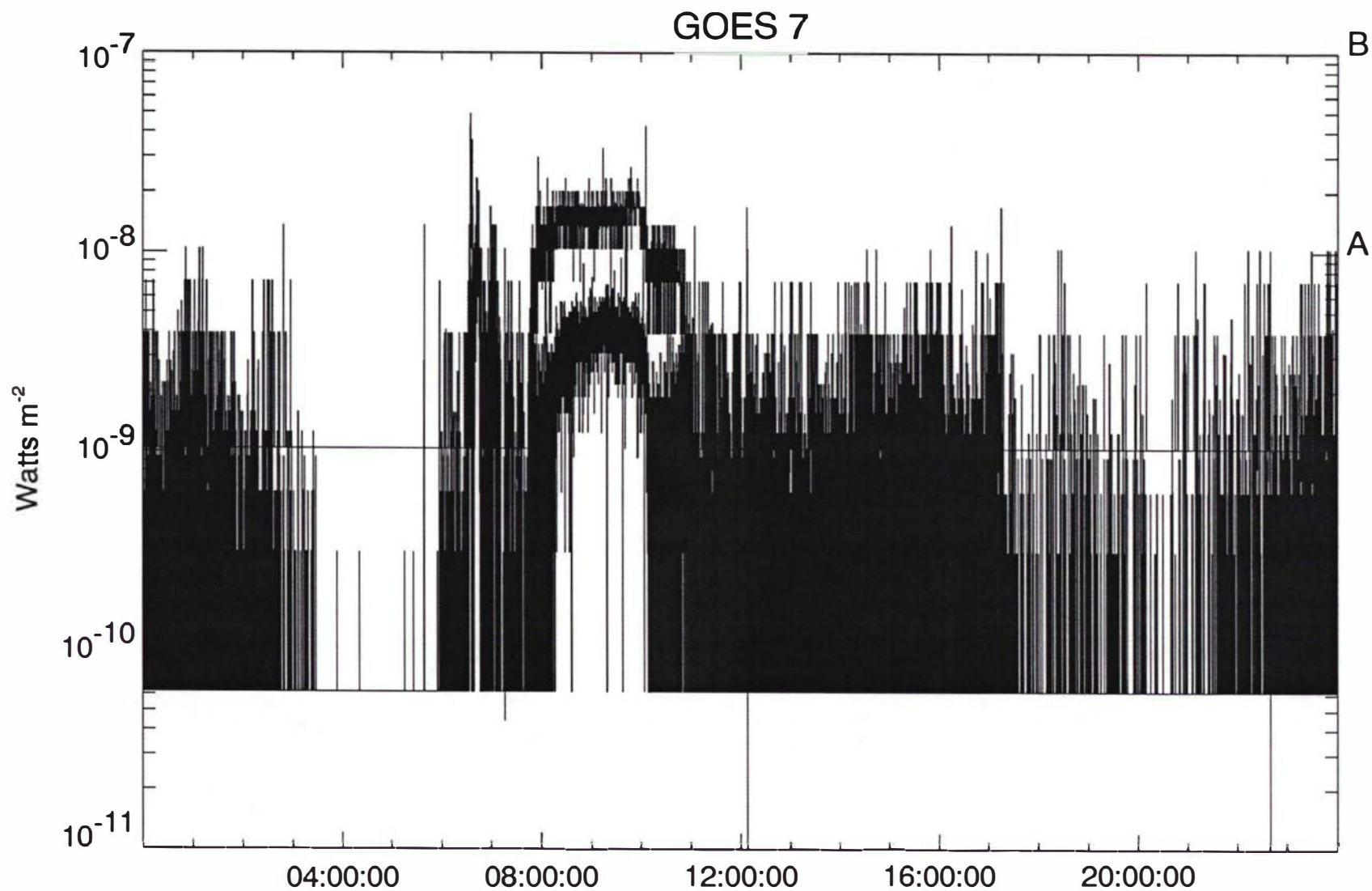
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

CYG X-1 RISE.



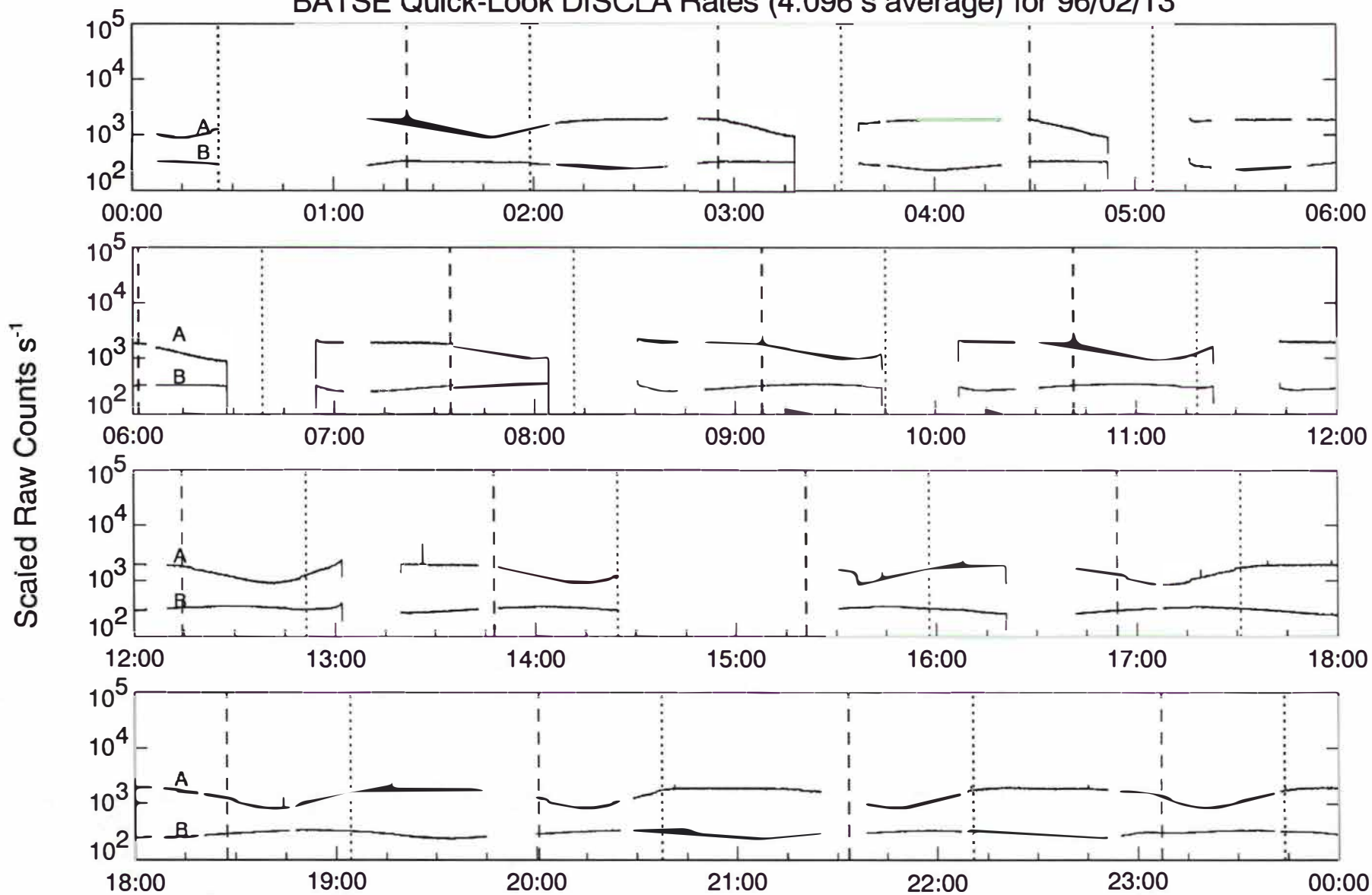
Data Start: 96/02/13, 0000:01

Plot created: 96/02/15, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/13

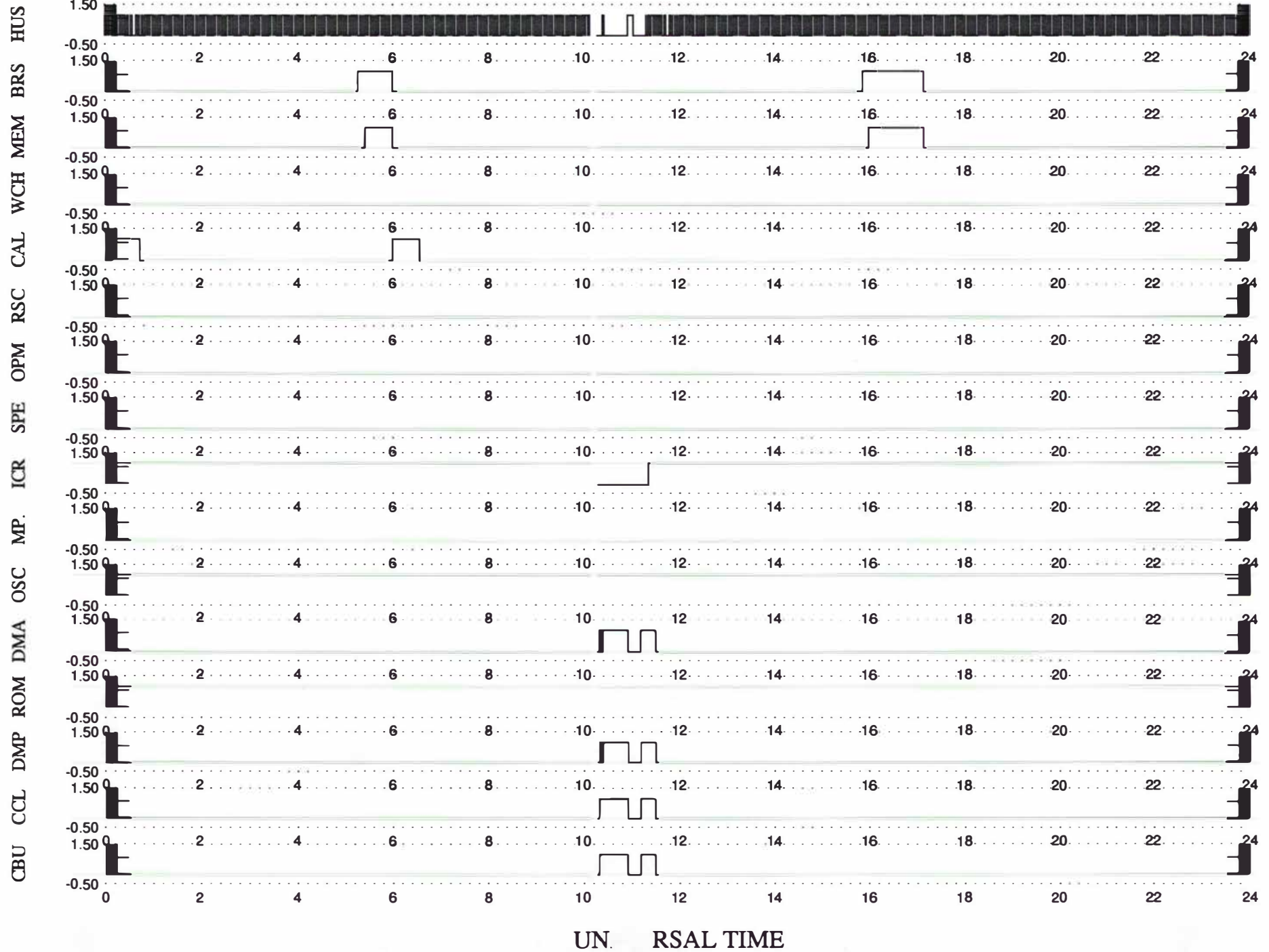


Current Time: 96/02/15, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

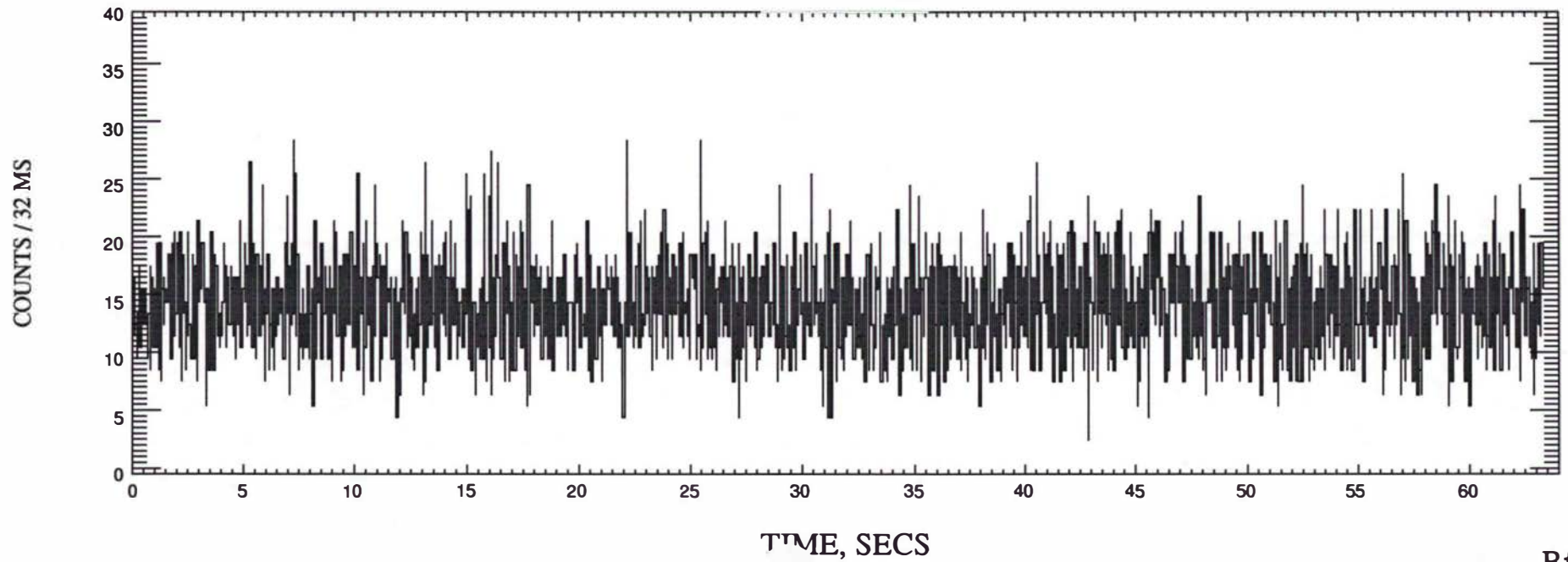
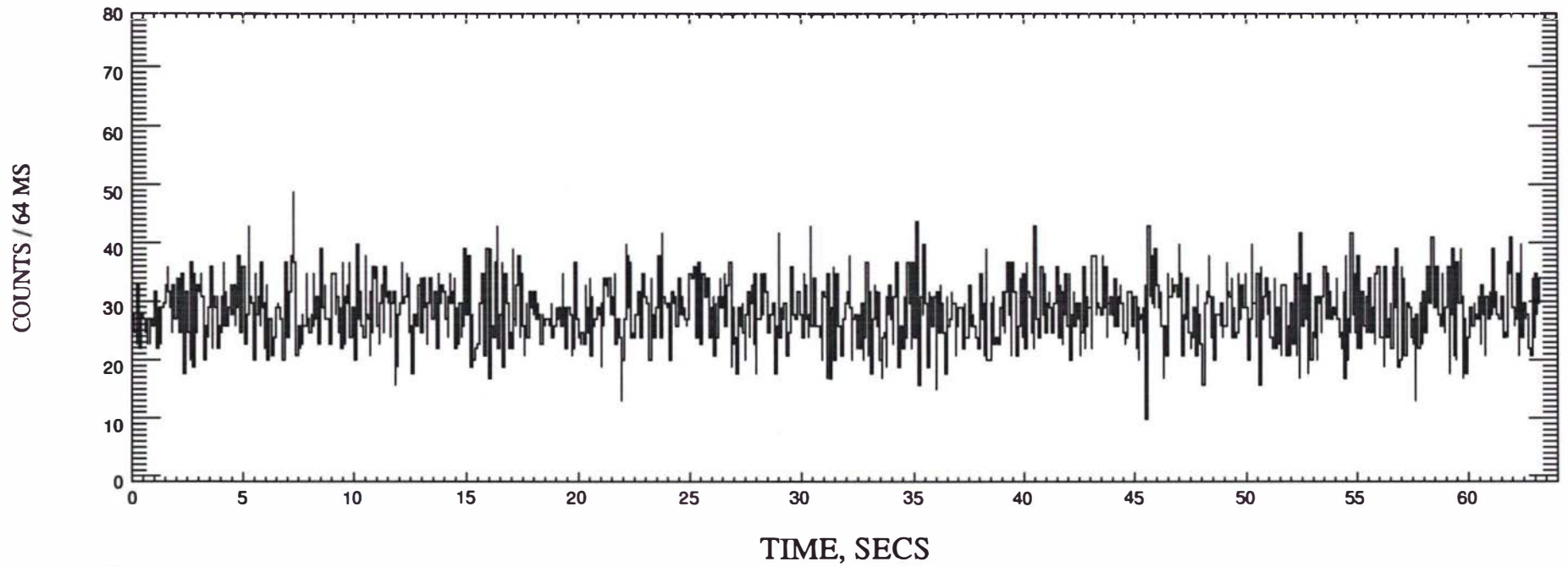
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

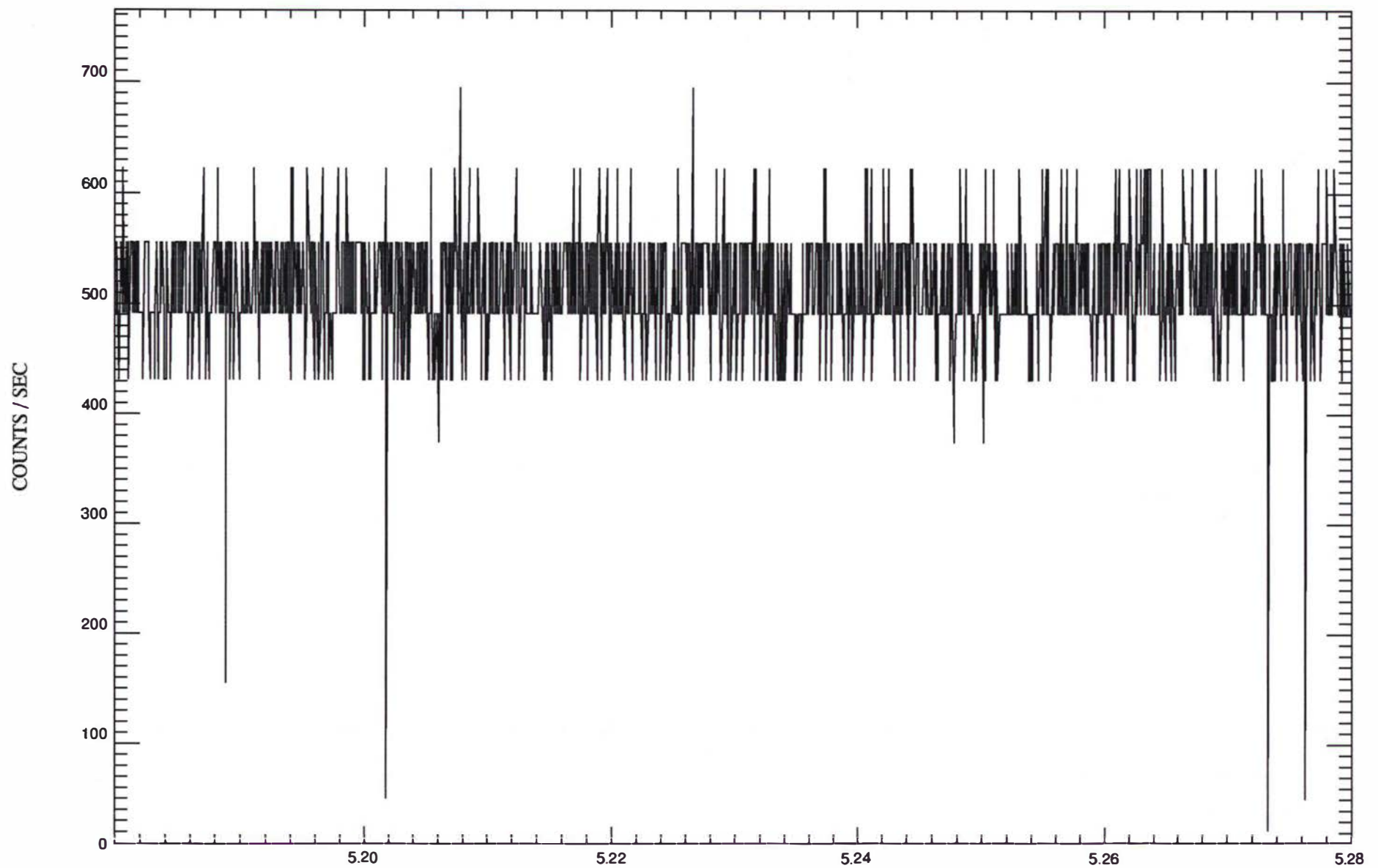
BURST NUMBER 15,0



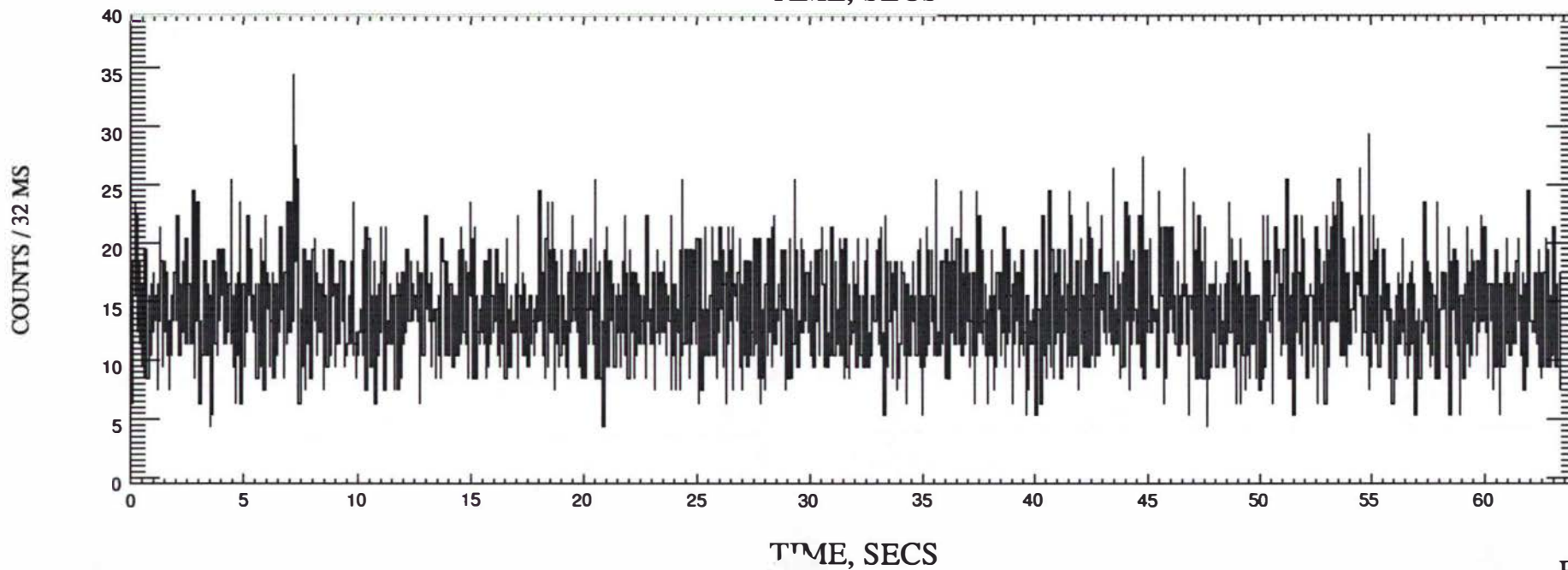
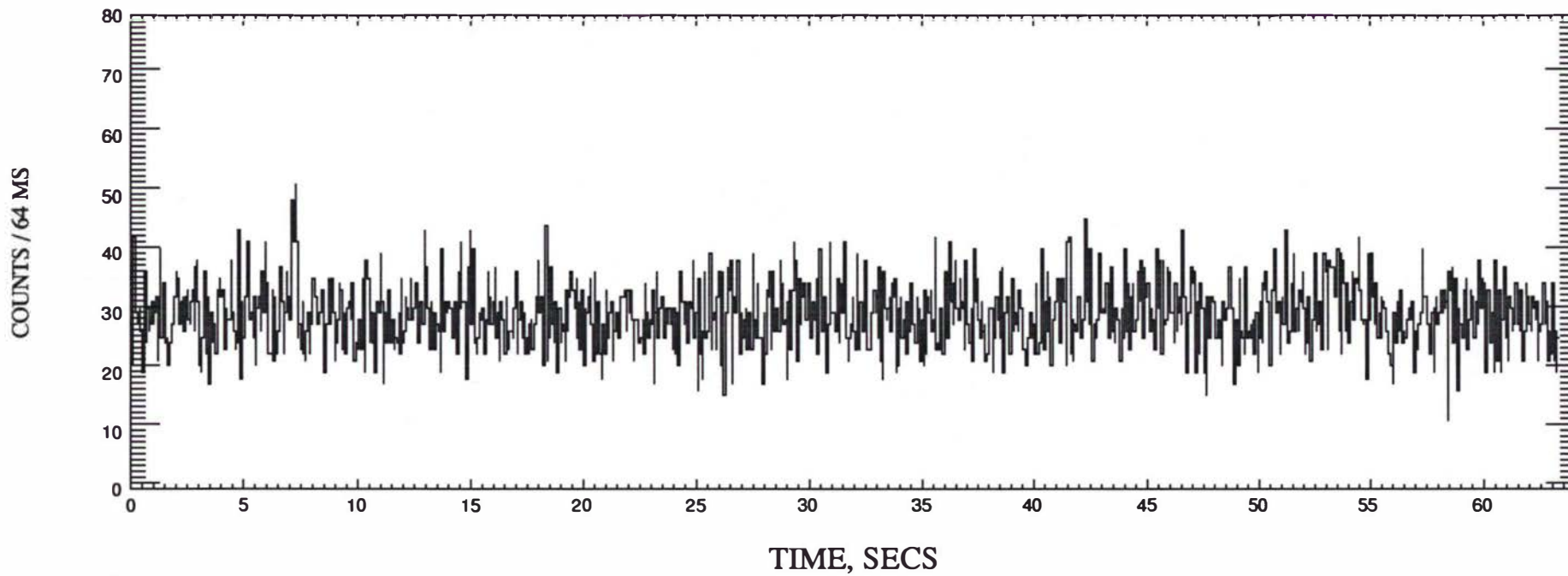
Burst Counter 15 at UT= 5.226665602790 h=18815.996 s 05:13:35.996



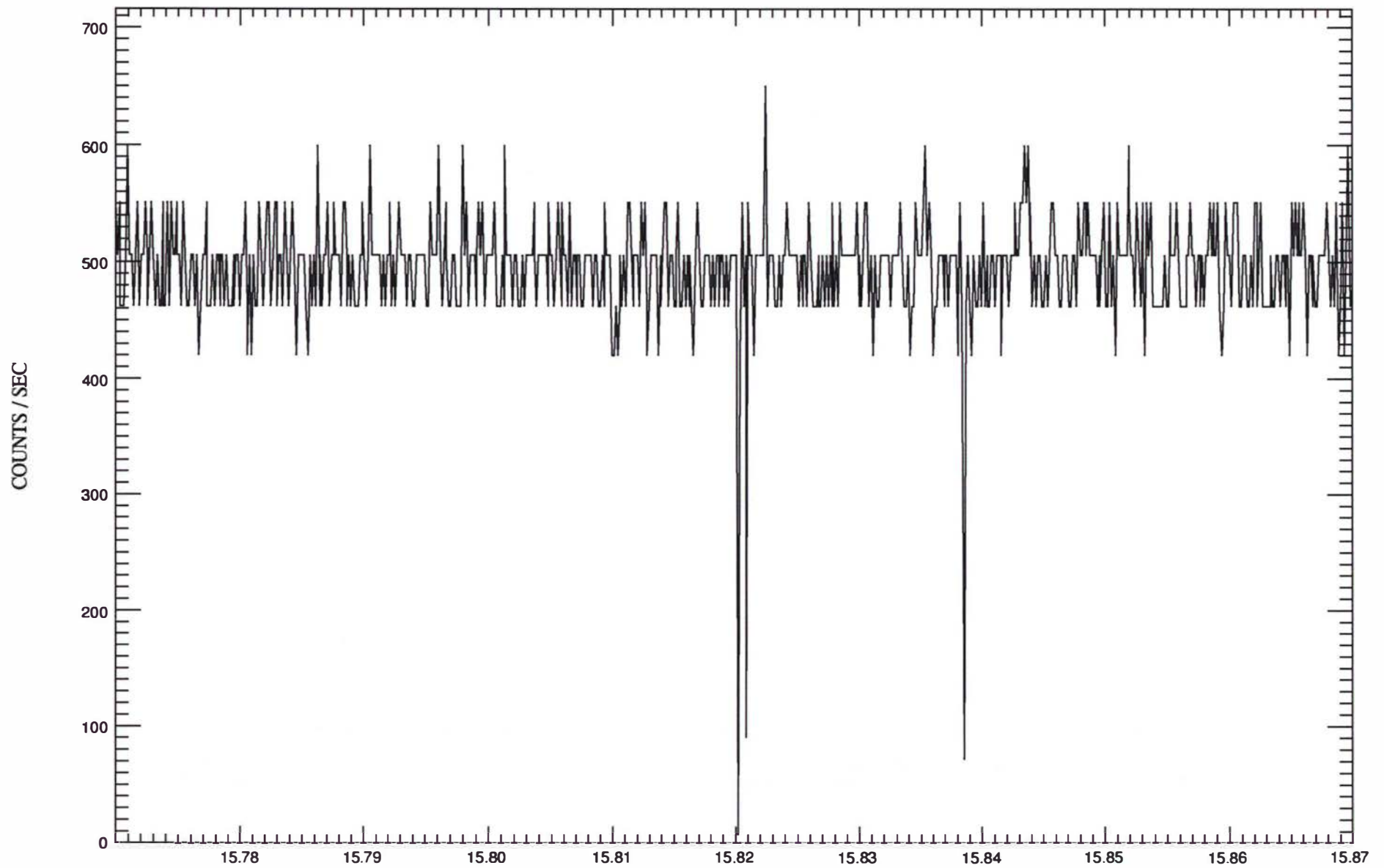
CALIBRATION DATA INCLUDED



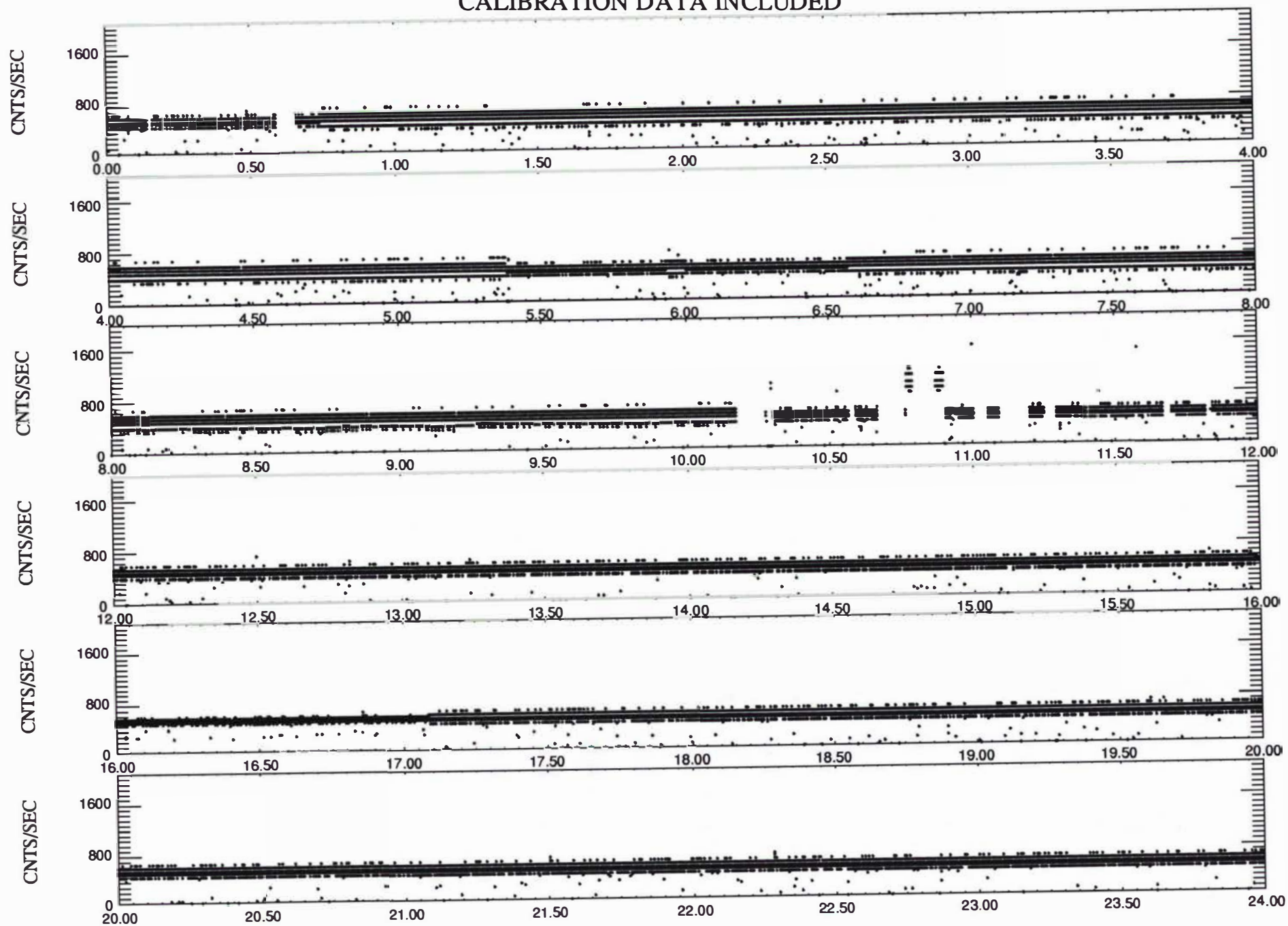
Burst Counter 0 at UT=15.822683397929 h=56961.660 s 15:49:21.660



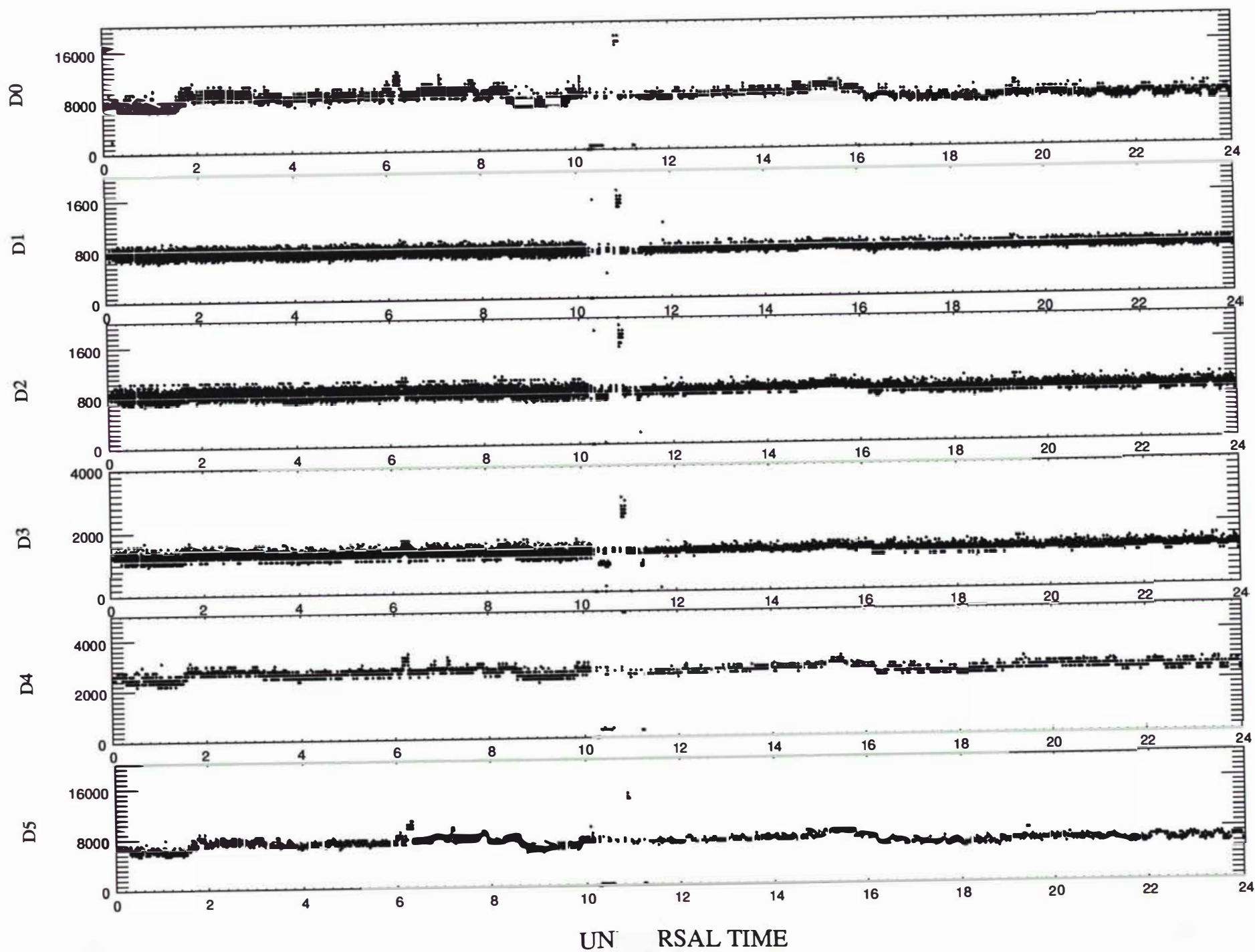
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



From WOODSP@SSLLES.MSFC.NASA.GOV Fri Feb 16 14:44 PST 1996
Date: Fri, 16 Feb 1996 14:36:36 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4871

NO

BATSEARCH PROGRAM

BATSE BURST # 4871
EVENT OF 1996 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 67073. S. OR 18:37:53.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 351.000 -4.000
BATSE PEAK COUNTING RATE: 14500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 2/ 96 IS:
RA= 212.277 DEC= 72.005 DIST= 2.855 AU
BATSE-ULYSSES DISTANCE = 427094485. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 72.66 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 424.48 SECS.
CROSSING TIME AT ULYSSES IS 67497. S. OR 18:44:57 +/- 292.55 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 2/ 96 IS:
RA= 331.339 DEC= -12.874 DIST= 2.364 AU
MARS-BATSE DISTANCE = 353684864. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=158.64 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1098.76 SECS.
CROSSING TIME AT MARS IS 65974. S. OR 18:19:34 +/- 57.90 SECONDS

BATSE BURST TRIGGER

NO.: 4871

TIME: TJD=0127 SECONDS=67073

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=7.1 AZIMUTH=305.5 ERROR=4.9 DEGREES

COMMENTS:

SHORT GRB LASTING 0.2 SEC. WEAKLY VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4871	960214	10127	67073	14500	351	-04	.2

BATSE #

4871

16 / 2 / 96

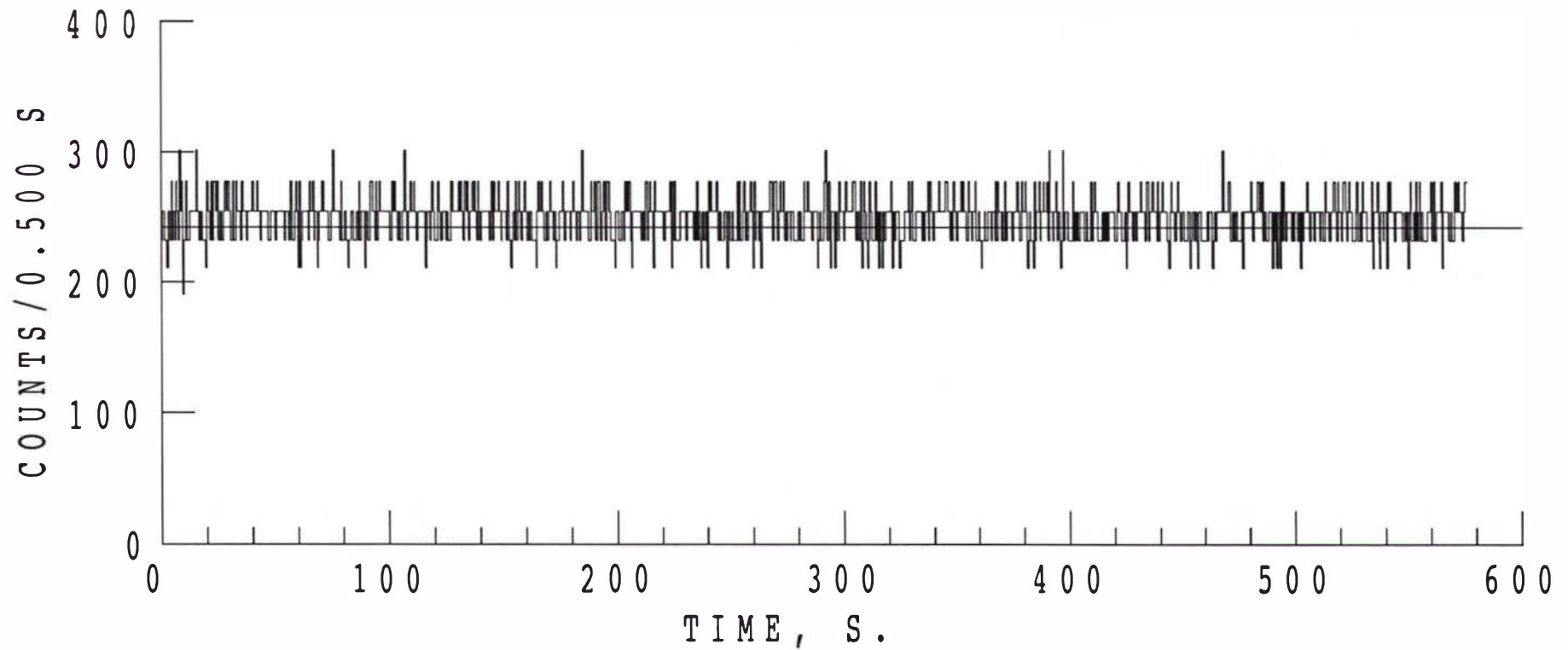
ULYSSES RT

14 / 2 / 96 67212.055 s

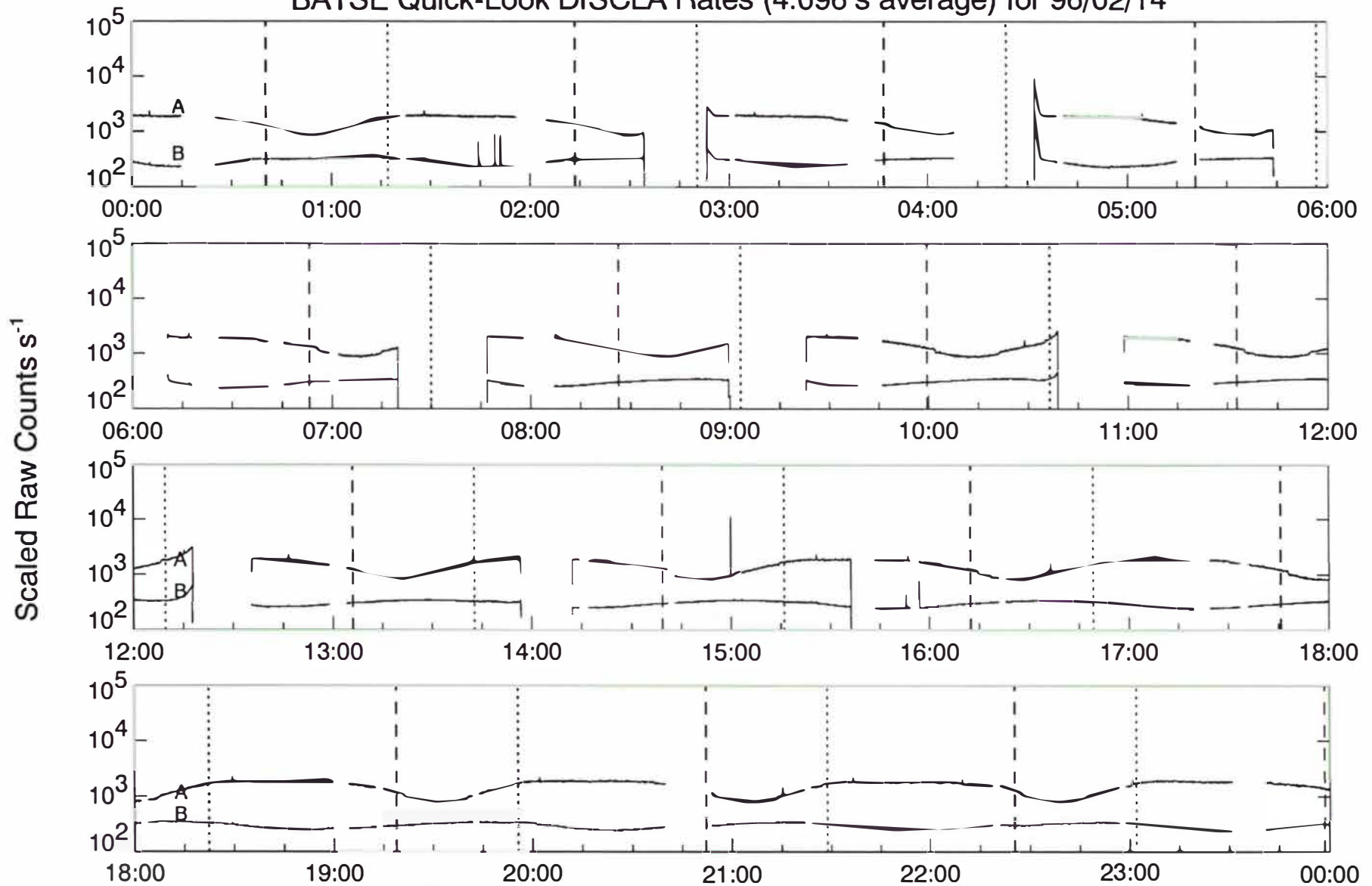
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



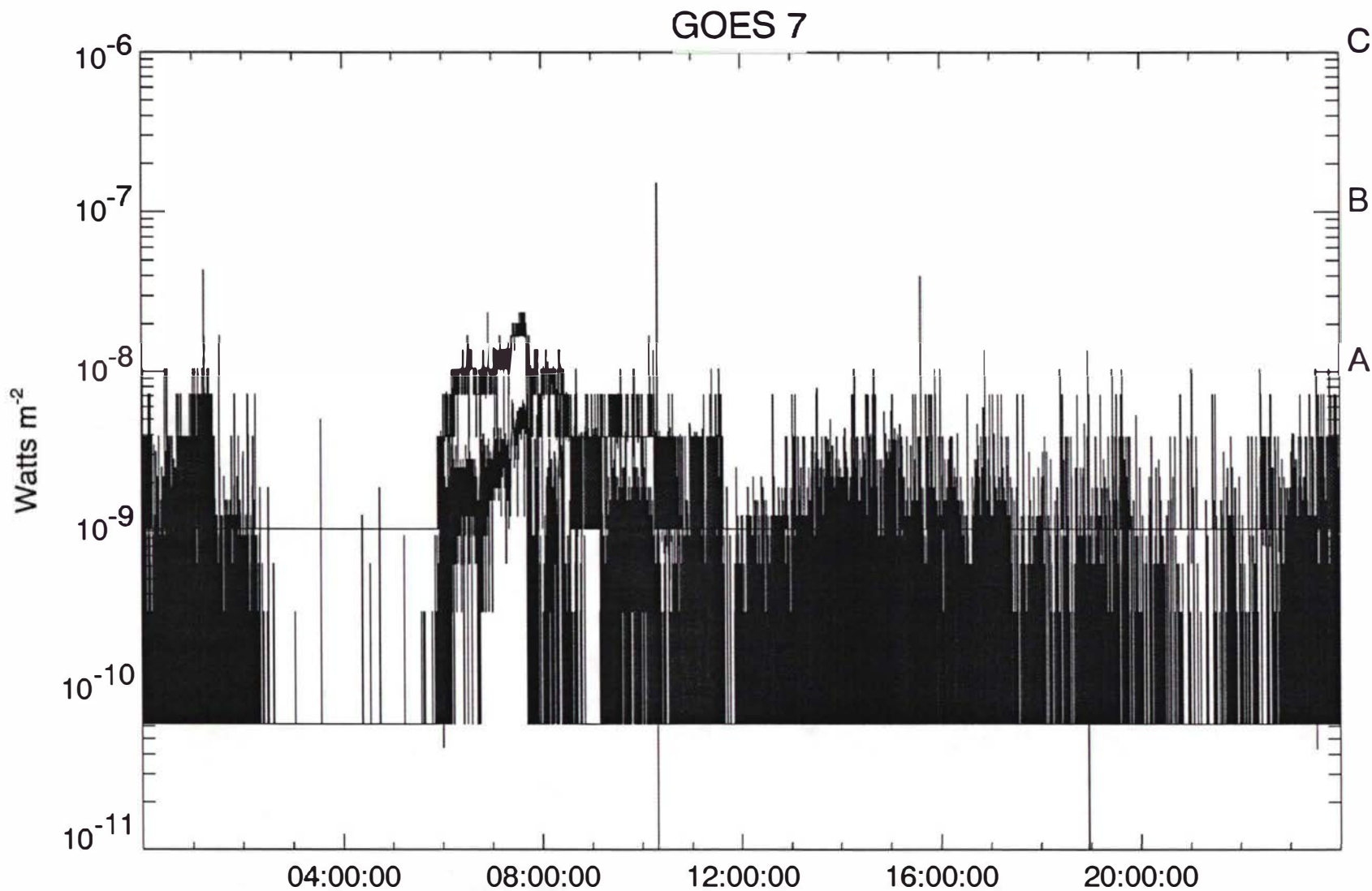
BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/14



Current Time: 96/02/16, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



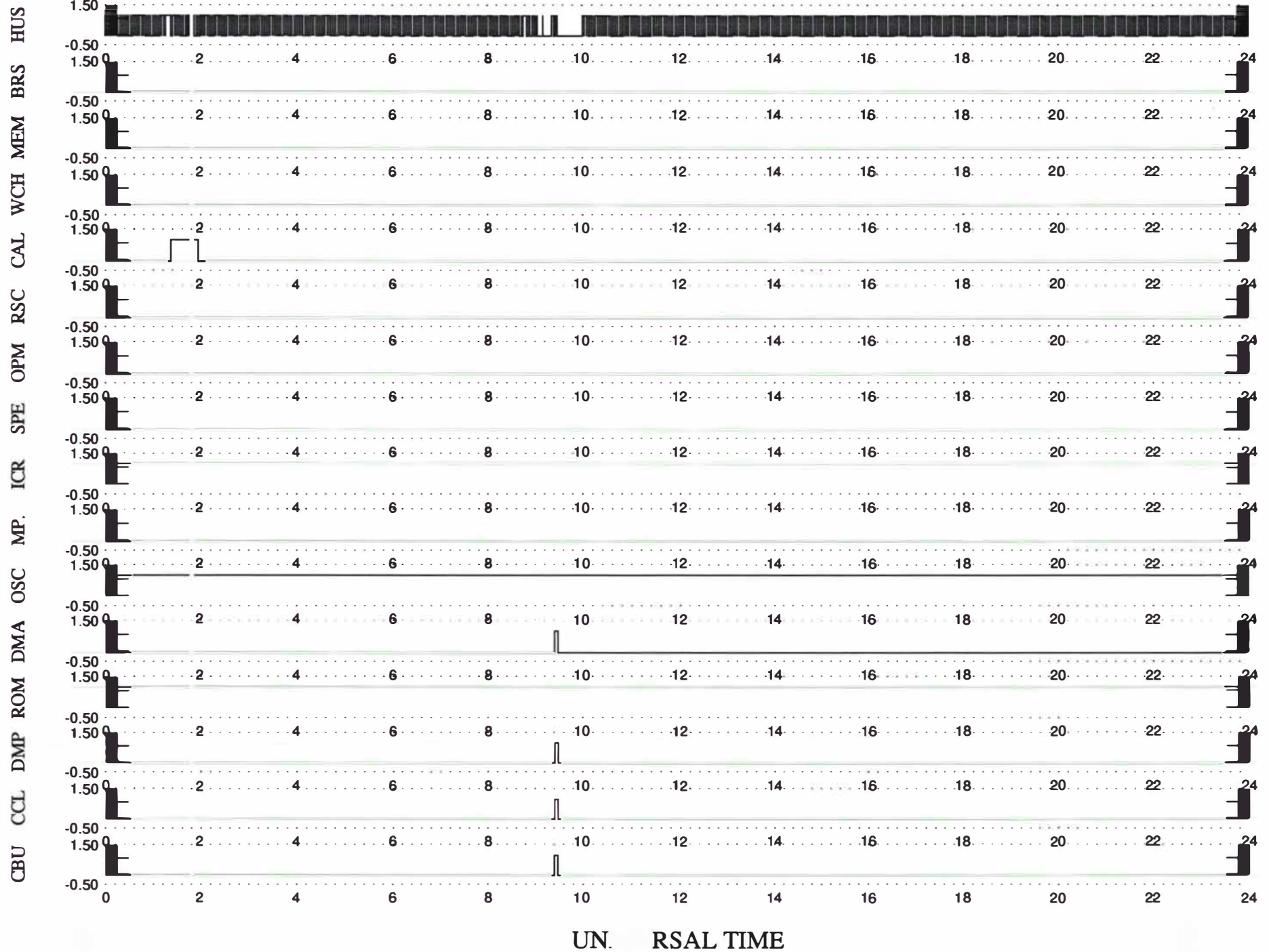
Data Start: 96/02/14, 0000:02

Plot created: 96/02/16, 0854

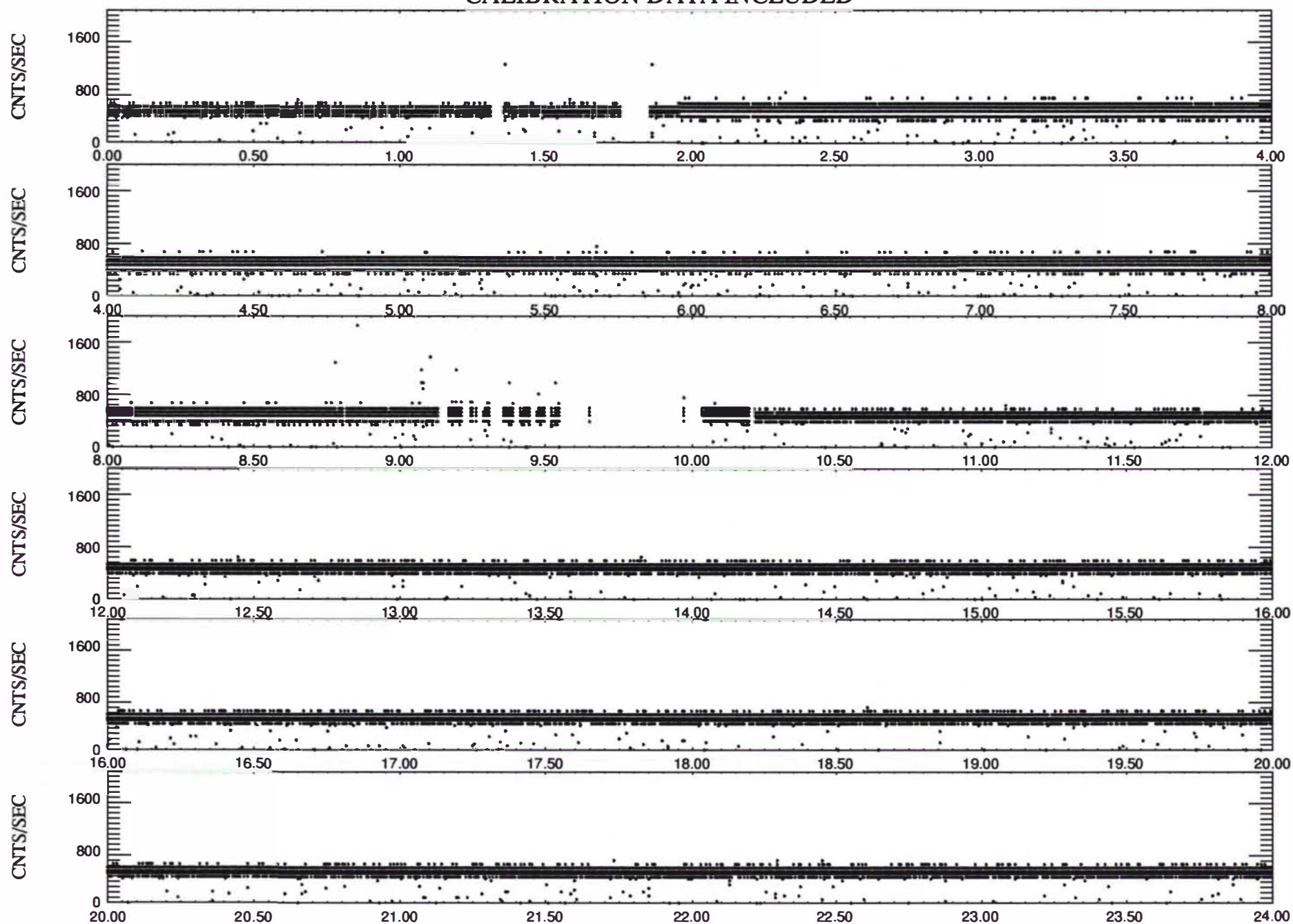
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

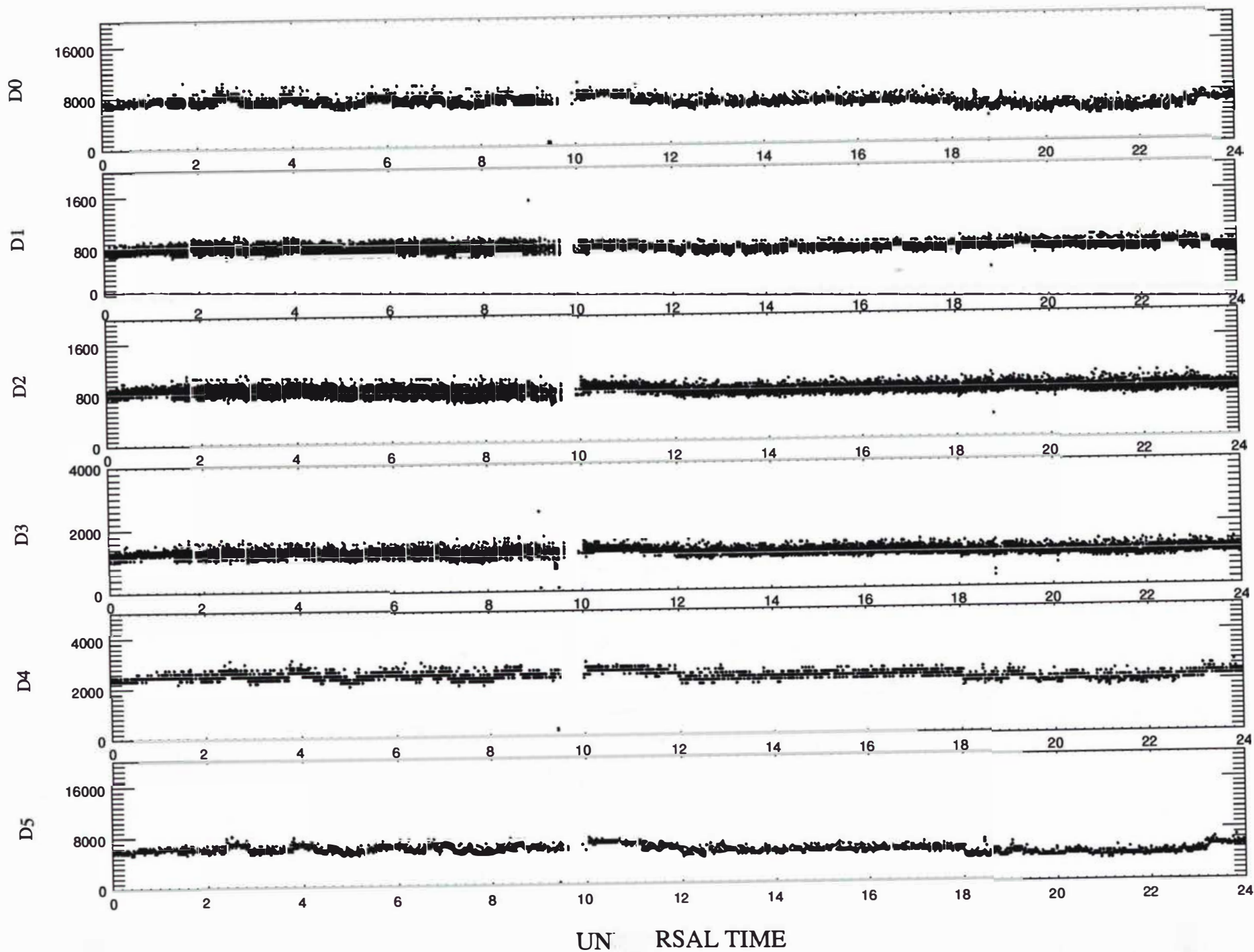
BURST NUMBER 1, 0



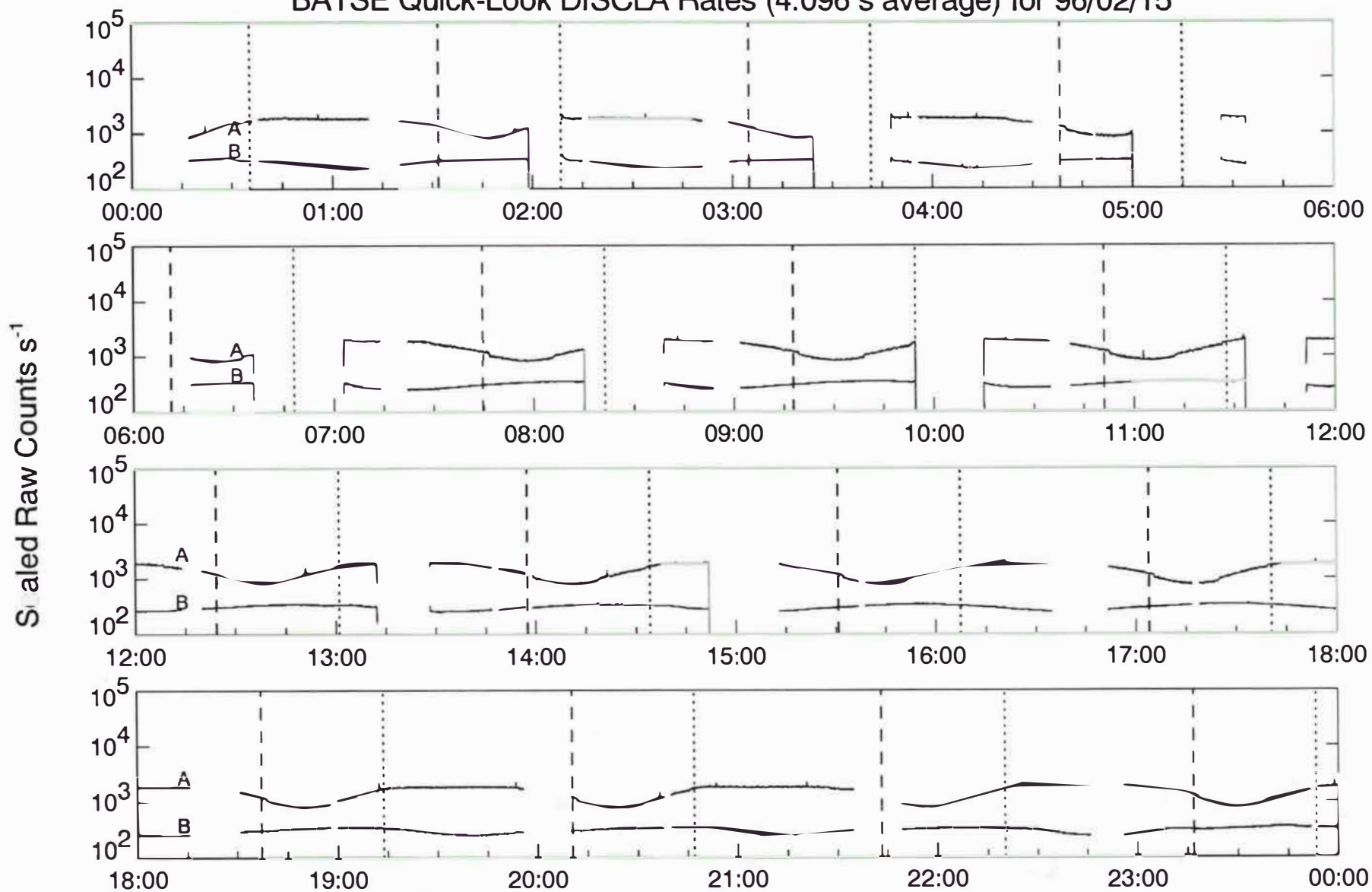
CALIBRATION DATA INCLUDED



UN RSAL TIME



BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/15

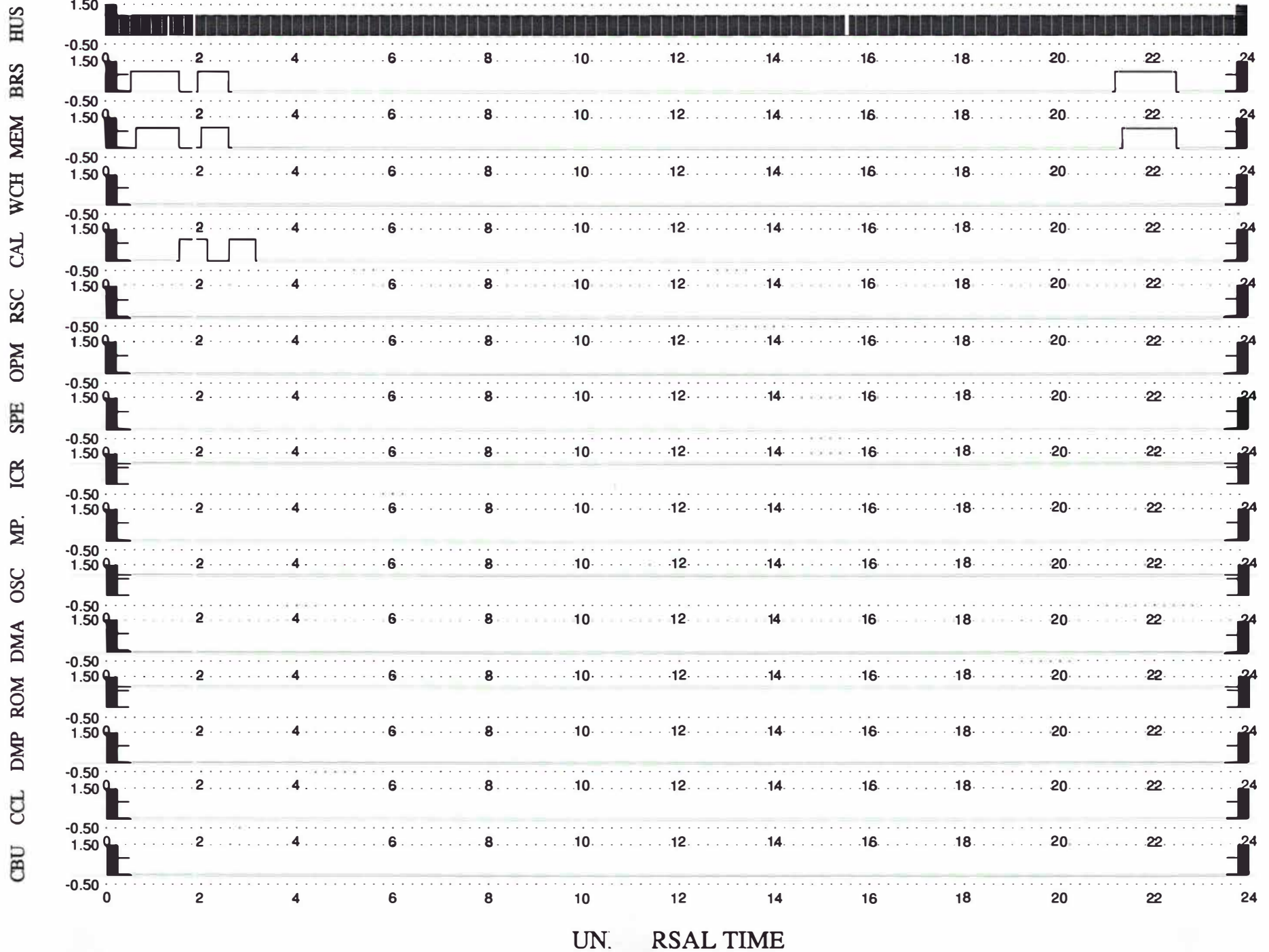


Current Time: 96/02/17, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

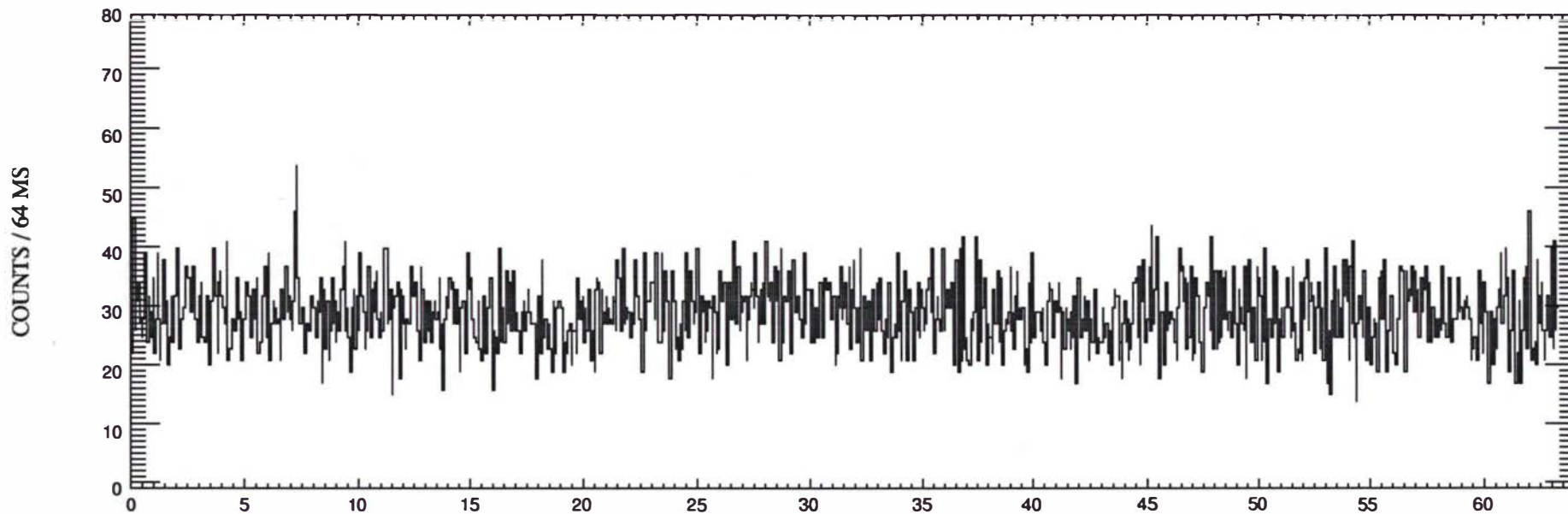
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

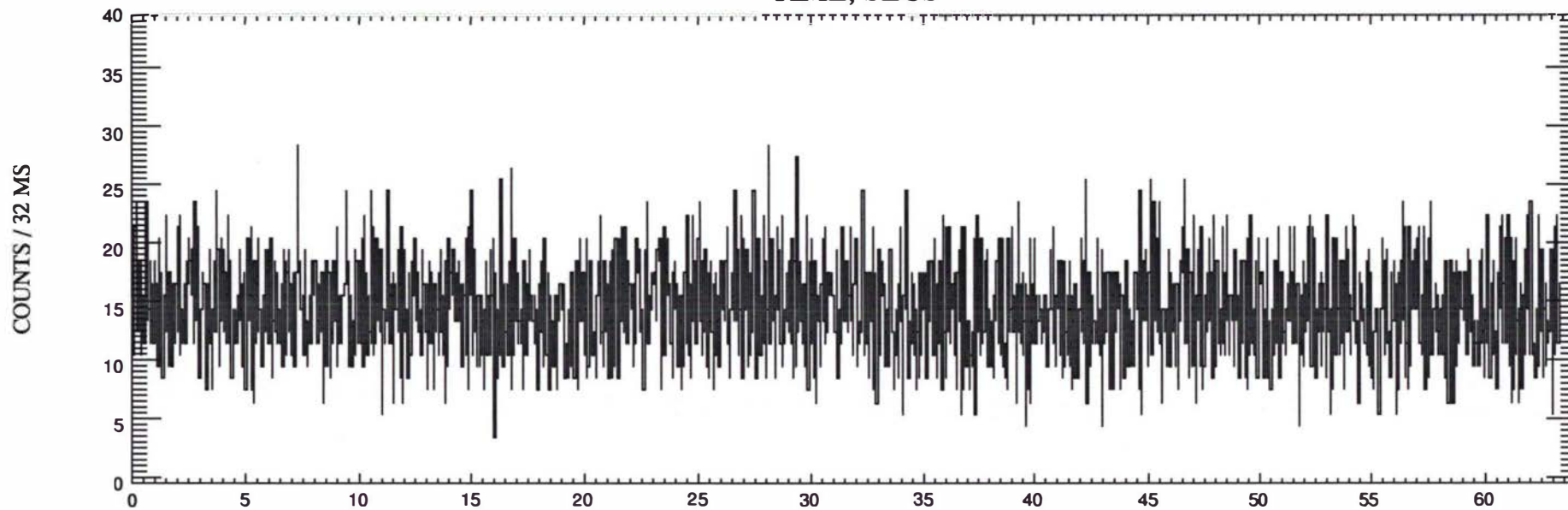
BURST NUMBER 1 - 3



Burst Counter 1 at UT= 0.448288527595 h= 1613.839 s 00:26:53.839

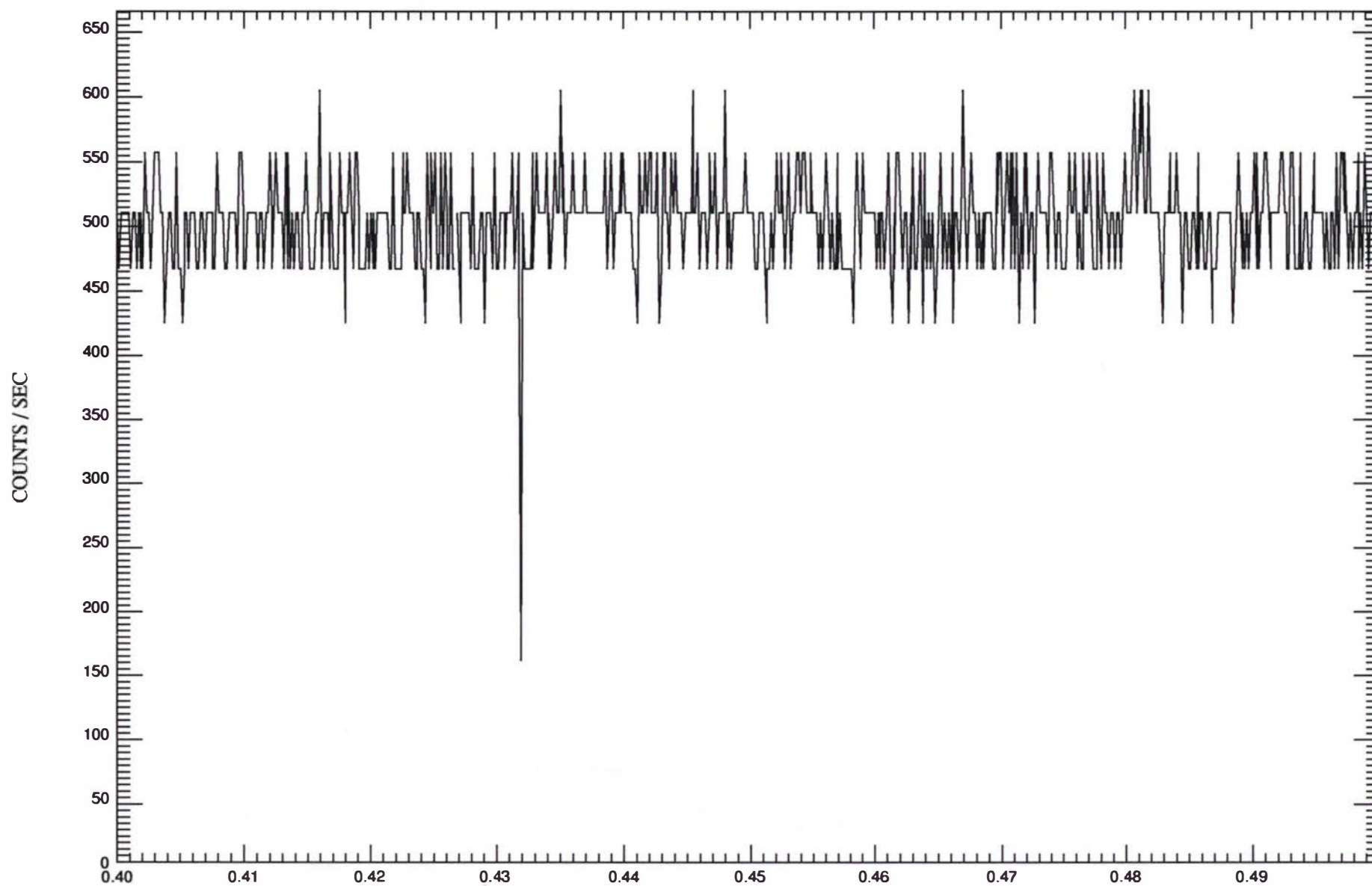


TIME, SECS

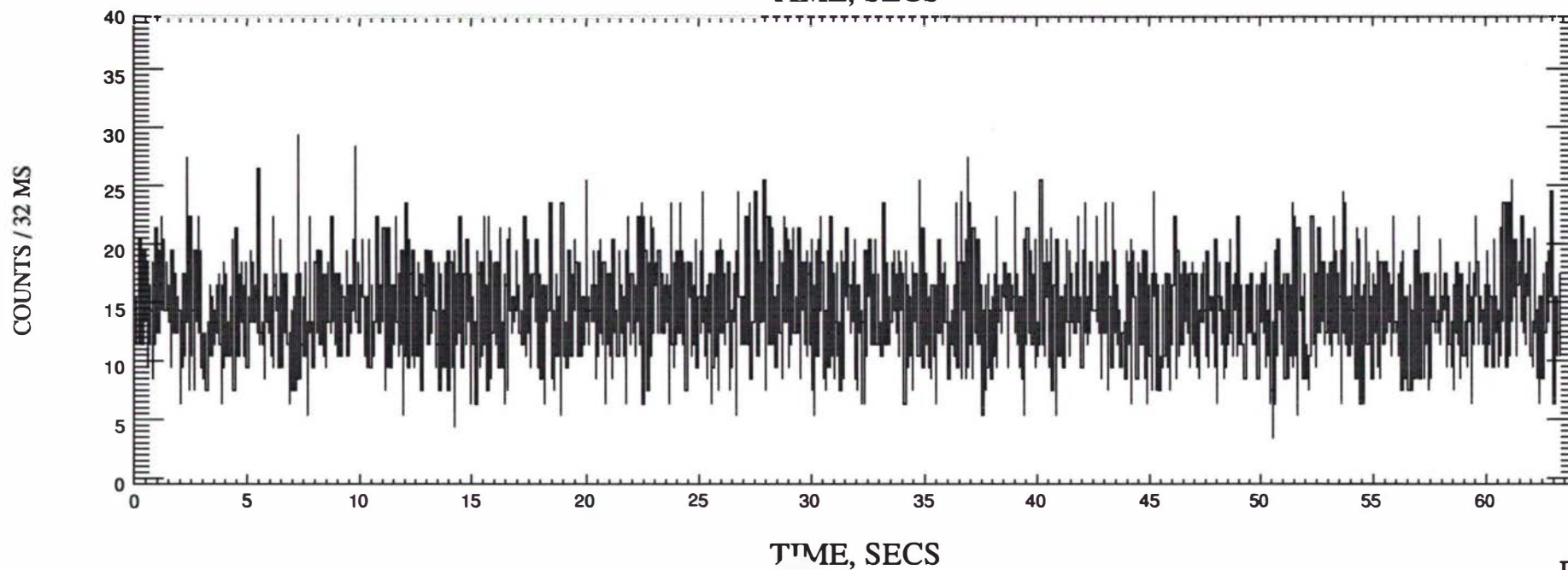
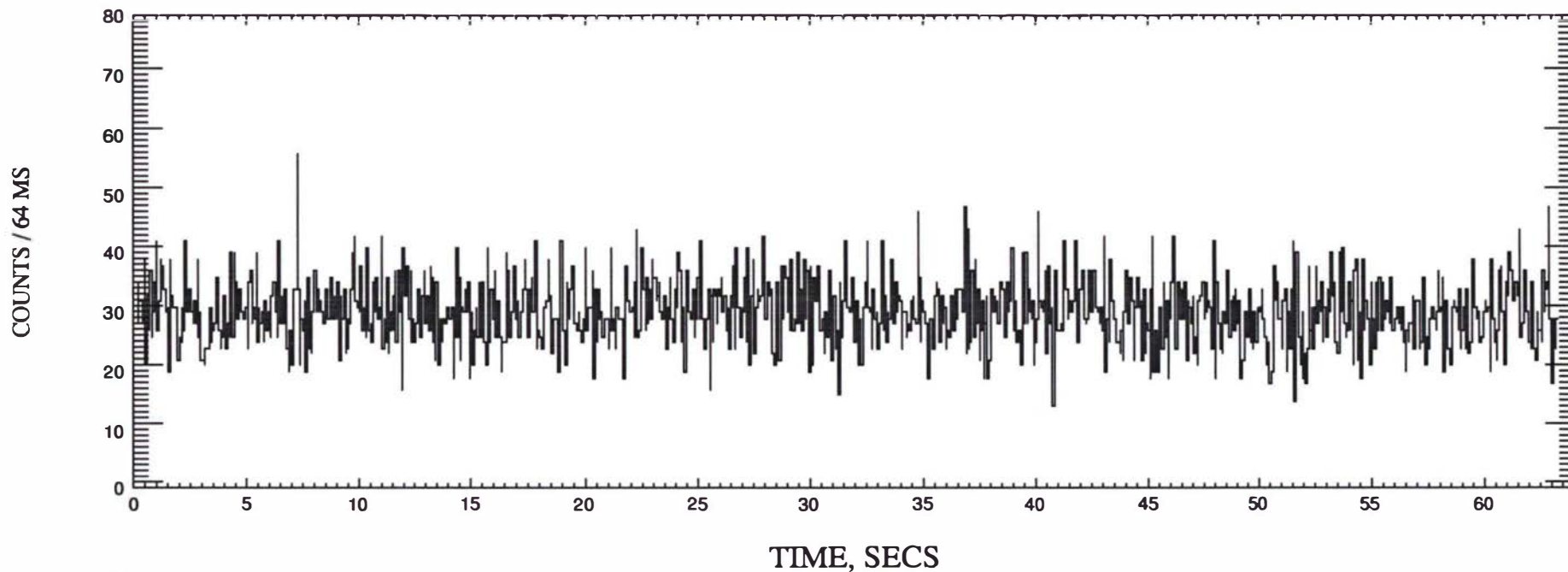


TIME, SECS

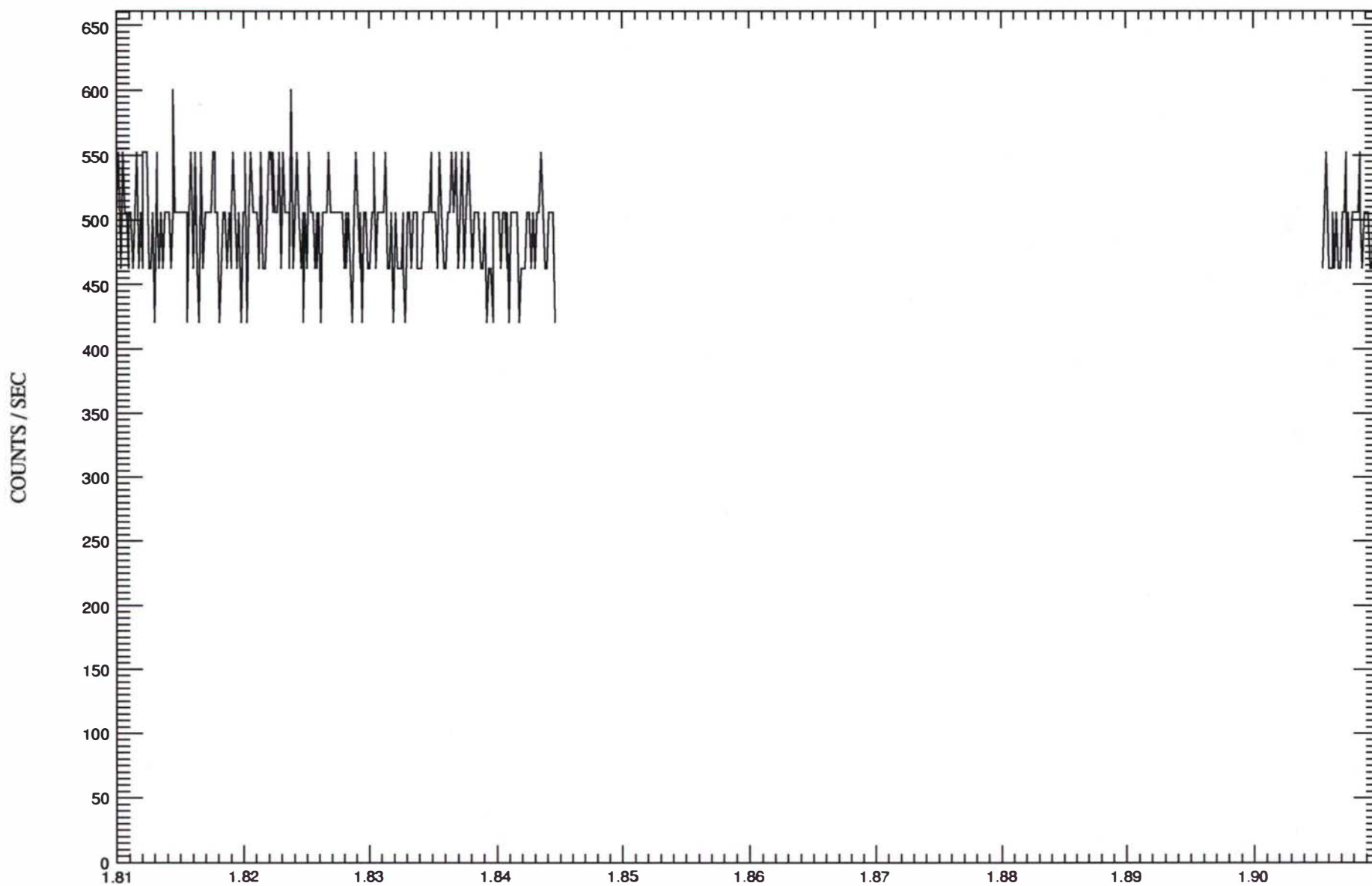
CALIBRATION DATA INCLUDED



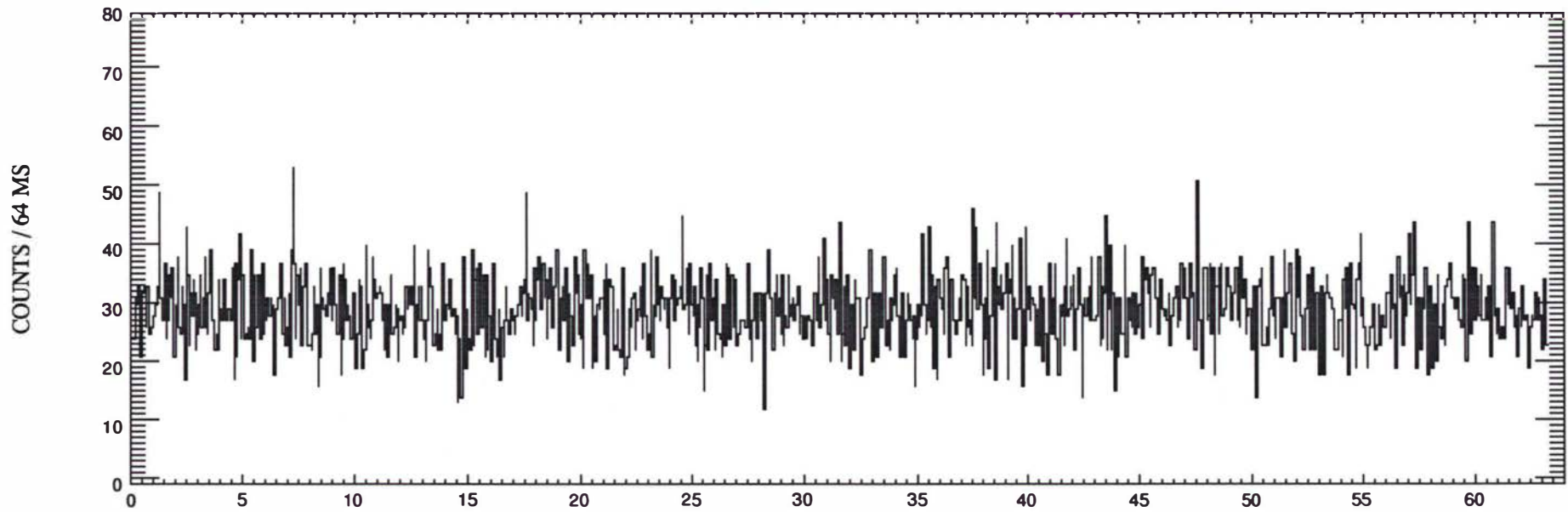
Burst Counter 2 at UT= 1.862858751085 h= 6706.292 s 01:51:46.292



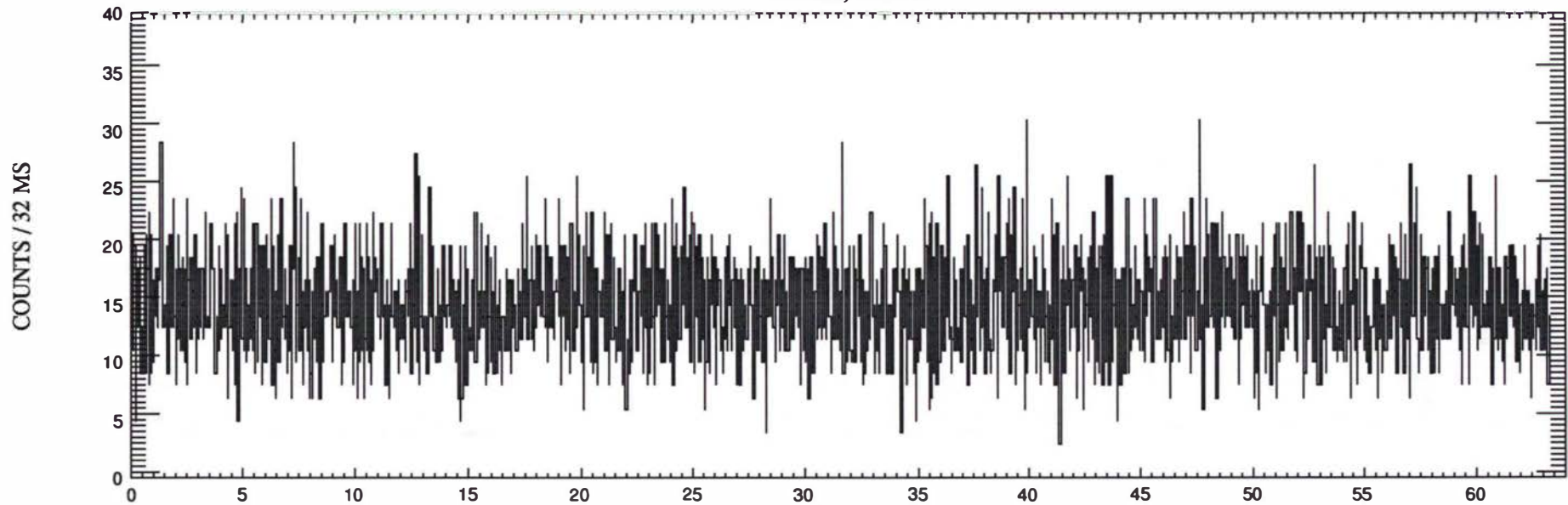
CALIBRATION DATA INCLUDED



Burst Counter 3 at UT=21.133585459391 h=76080.908 s 21:08:00.908

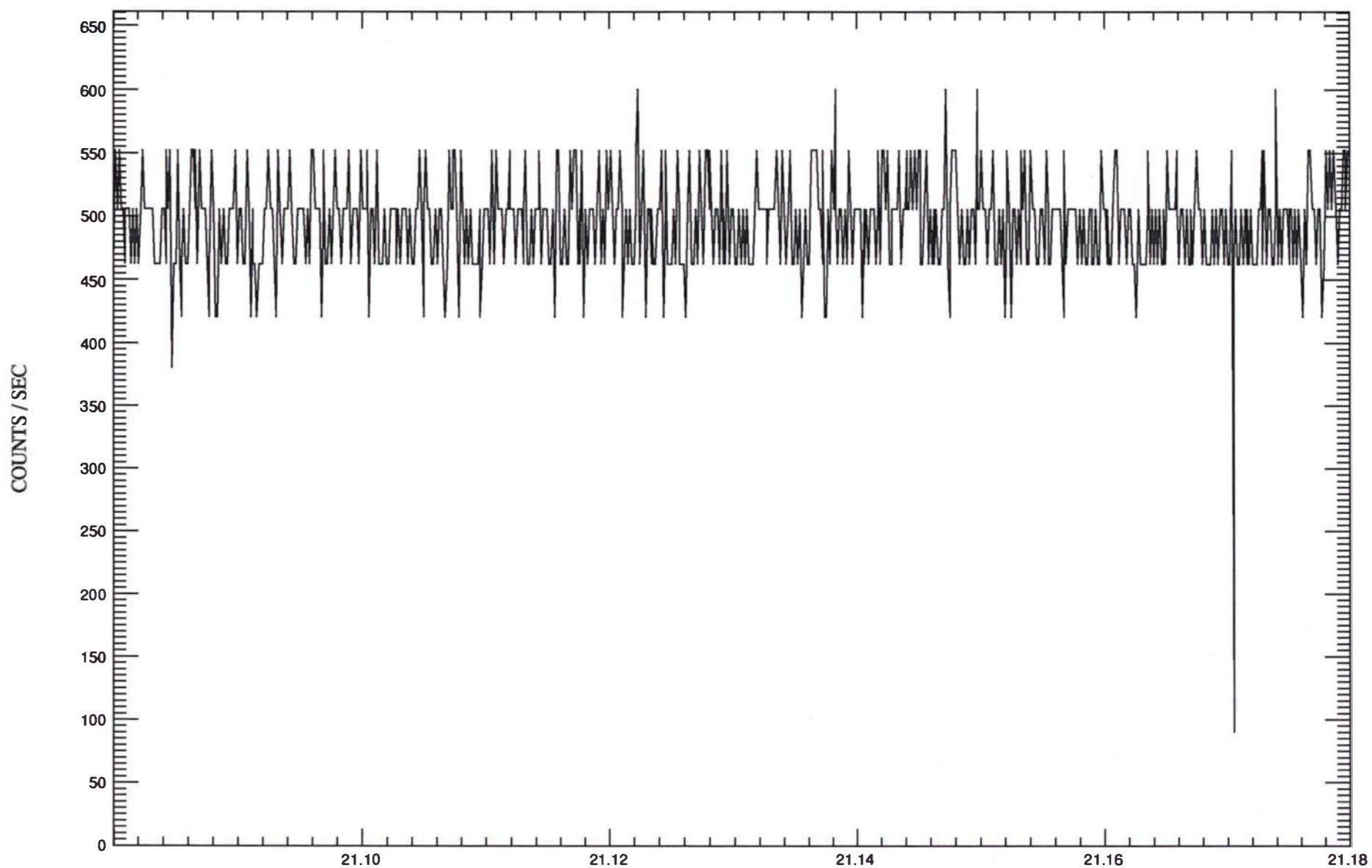


TIME, SECS

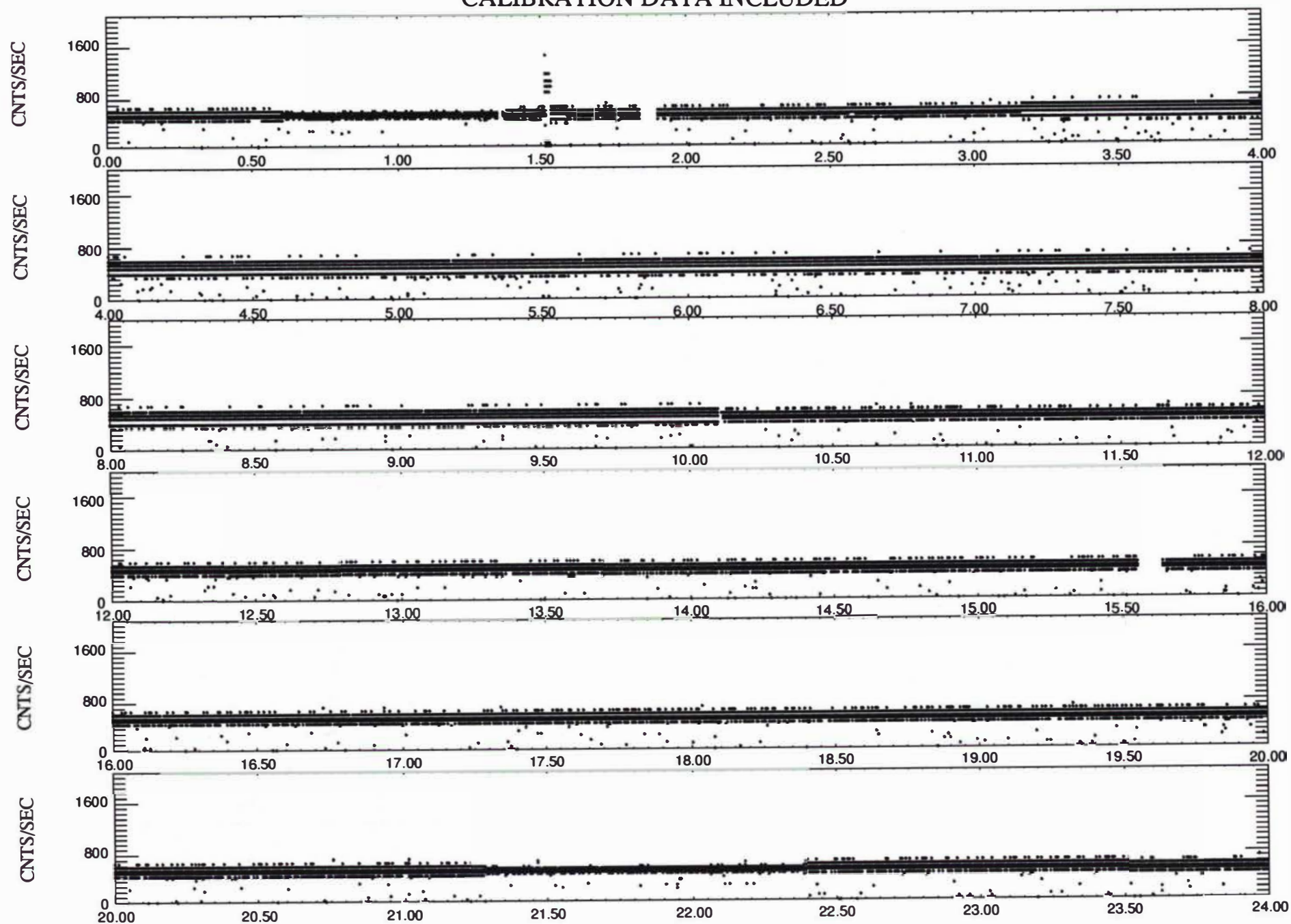


TIME, SECS

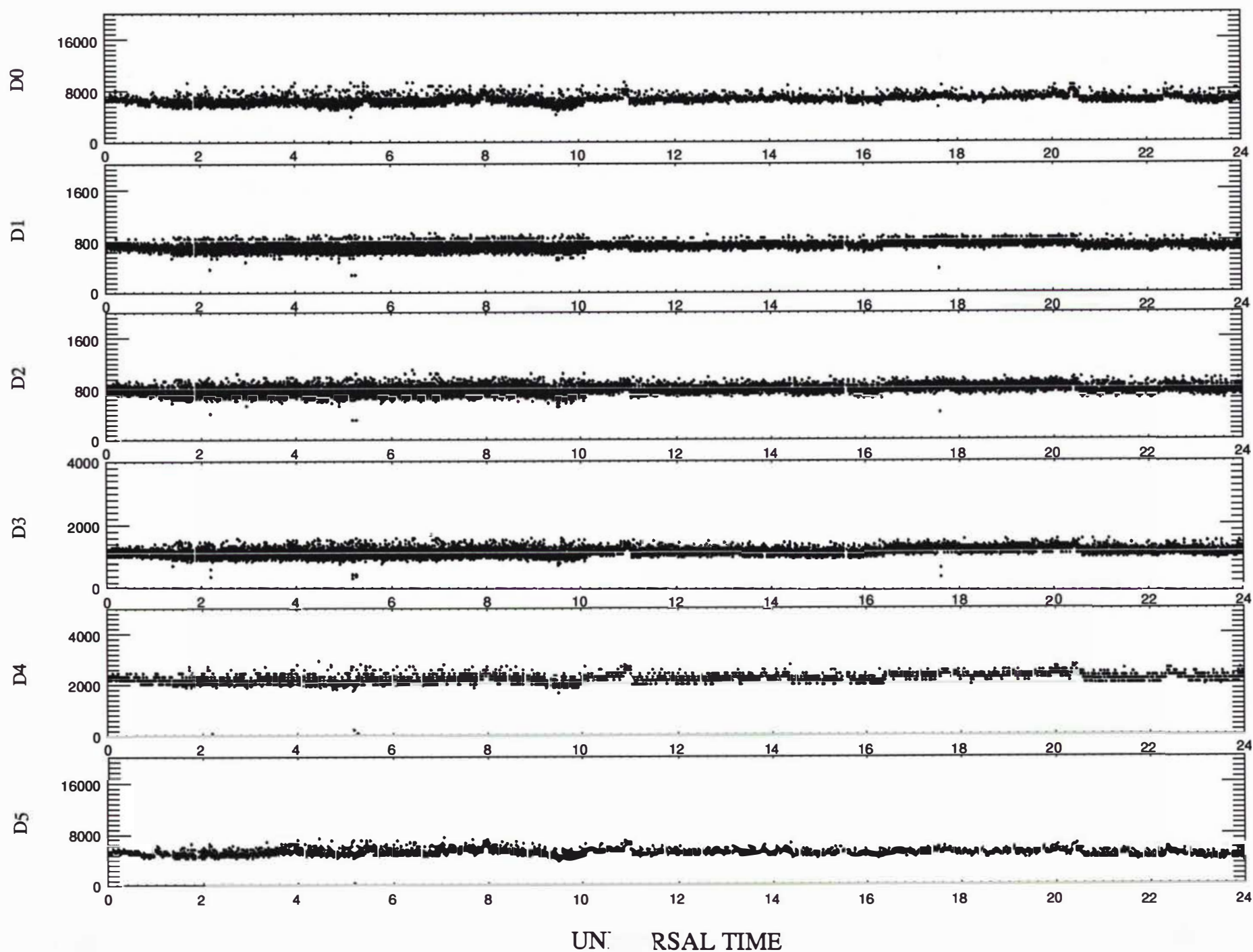
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN RSAL TIME



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
~033.19:10 SCET	should be	~032.13:18 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~048.17:29 SCET	should be	~047.13:45 SCET
~054.08:59 SCET	should be	~053.11:46 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~039.18:34 SCET	should be	~038.12:14 SCET

We see data gaps for each of the correct times, so it looks like your theory of AMMOS mis-correcting times when there is carry-over data on the tape is correct.

I hope this is enough information. I would have to do a bit more calculation to get the approximate ERTs. Let me know if you want them.

Best regards,

Nigel

From ulsdmt@jplsp.DNET.NASA.GOV Mon Mar 18 17:13 PST 1996
From: ulsdmt@jplsp.DNET.NASA.GOV
Date: Mon, 18 Mar 96 20:13:12 -0500
To: "khurley@sunspot.ssl.berkeley.edu"@east.DNET.NASA.GOV (SENT TO @LIST1)
Subject: Misplaced Major Frames in EDRs

Greetings,

We have identified an operations technique that produces data that will be improperly time tagged by the MGDS (telemetry system). Instances of EDR errors (major frames out of order) have been found in the CDROM archival products for December 1995 and January 1996. Errors will also be found in the still to be shipped February 1996 data.

When major frames are recorded but not transmitted during the next track, but are eventually downlinked with data from a succeeding day, the embedded SCLKs are 'assumed' to be incorrect by the frame syncer and are re-tagged with SCETs and SCLKs matching the adjacent (but newer) data.

For each major frame processed in this manner, a gap will exist, representing the time the data was actually acquired, and a major frame or realtime data, representing the time period the data now errently represents, will be replaced by the misplaced playback data.

Yes. Confusing. See the attached memo detailing the times involved.

Approximately 17 such instances are known to have occured. The total time involved is about twenty minutes. Because the data loss is small and the cost of reprocessing would be so large, the Project has determined that it would be imprudent to reprocess.

For your information, however, we included a memo from Nigel Angold which itemizes each instance.

We thank Toni Galvin and Nigel for identifying the problem and assisting in the diagnosis.

Regards,

Joe

To: <ulsdmt@jplsp.jpl.nasa.gov>
From: Nigel Angold <nangold@jplsp2.jpl.nasa.gov>
Subject: Mis-corrected S/C clocks / SCETs
Cc: chris.leech@jpl.nasa.gov

I have looked at our recent tape recorder usage and predict that you will see major frames with mis-corrected spacecraft clocks / SCETs at the following times (give or take a few minutes):

1995:

~342.22:59 SCET	should be	~341.17:47 SCET
~347.22:39 SCET	should be	~346.16:46 SCET
~350.21:54 SCET	should be	~349.16:22 SCET
~355.22:14 SCET	should be	~354.15:42 SCET
~359.14:04 SCET	should be	~359.05:36 SCET
~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

From HAGEDON@fender.msfc.nasa.gov Sat Feb 17 13:44 PST 1996
From: HAGEDON@fender.msfc.nasa.gov
Date: Sat, 17 Feb 1996 15:43:53 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4898

RI

BATSEARCH PROGRAM

BATSE BURST # 4898
EVENT OF 1996 FEB 16 DAY OF YEAR= 47
EVENT CROSSING TIME AT BATSE : 57796. S. OR 16:03:16.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 356.000 17.000
BATSE PEAK COUNTING RATE: 11000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 16/ 2/ 96 IS:
RA= 210.593 DEC= 72.433 DIST= 2.863 AU
BATSE-ULYSSES DISTANCE = 428301542. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 92.36 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -58.77 SECS.
CROSSING TIME AT ULYSSES IS 57737. S. OR 16:02:17 +/- 296.94 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 16/ 2/ 96 IS:
RA= 332.854 DEC= -12.312 DIST= 2.365 AU
MARS-BATSE DISTANCE = 353857920. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=142.82 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -940.45 SECS.
CROSSING TIME AT MARS IS 56856. S. OR 15:47:35 +/- 109.55 SECONDS

BATSE BURST TRIGGER

NO.: 4898

TIME: TJD=0129 SECONDS=57796

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=28.5 AZIMUTH=318.1 ERROR=0.5 DEGREES

COMMENTS:

BURST. 2 PEAKS, FIRST IS MUCH STRONGER AND SHORTER. TOTAL DUR.~12 SEC.
FIRST PEAK VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4898	960216	10129	57796	11000	356	+17	12

From cline@heavx.gsfc.nasa.gov Fri Mar 29 08:40 PST 1996
 Date: Fri, 29 Mar 1996 08:40:19 -0800
 Mime-Version: 1.0
 To: KHURLEY@sunspot.ssl.berkeley.edu
 From: cline@heavx.gsfc.nasa.gov (T L Cline)
 Subject: Konus Event List augmentation

Dear Kevin,

This list includes Sergei's latest Konus-W (GGS-Wind) and Konus-A (Kosmos-2326) events, for comparison with Ulysses, BATSE, TGRS, etc. The times listed are prioritized for Konus-W (i.e., Konus-A time given if Konus-W doesn't trigger).

Yr	Mn	Dy	UT (Konus)	BATSE	Ulysses	Konus	TGRS	Notes
95	11	2	07085.879	?	?	168	no	
95	11	2	21209.015	3891	R I	169	345	
95	11	4	05868.077	3893	R I	170	BGR	
95	11	5	46827.808	?	?	171	no	
95	11	12	66495.244	?	R I	172	no	
95	11	13	84358.872	3906	R I	173	BGR	
95	11	17	10123.762	3909	?	175	no	
95	11	19	29831.402	3912	R I	176	348	
95	11	19	46457.519	?	?	177	BGR	
95	11	22	09841.38	?	?	179	no	
95	11	22	17107.738	?	?	180	349	
95	12	2	39101.744	?	?	195	BGR	
95	12	3	03988.18	?	?	196	360	
	12	8	19617.151	?	?	197	no	
	12	8	39452.057	?	?	198	no	
95	12	8	42467.634	?	?	199	BGR	
95	12	9	31349.607	?	?	200	BGR	
95	12	13	17849.683	?	?	201	362	
95	12	14	08657.847	?	?	202	no	
95	12	19	60679.732	?	?	203	no	
95	12	20	31883.56	?	?	204	BGR	
95	12	22	25203.254	?	?	no	?	= K-A t.
95	12	27	23005.042	?	?	218	375	
96	12	31	20231.668	?	?	219	no	
96	1	2	11650.996	?	?	220	no	
96	1	4	12521.062	?	?	221	no	
96	1	11	46524.53	?	?	222	no	
96	1	13	56024.261	?	?	228	no	
96	1	14	44104.737	?	?	233	384	+ K-A t.
96	1	15	31956.506	?	?	234	BGR	
96	1	17	57371.341	?	?	235	no	
96	1	19	34679.317	?	?	236	no	
96	1	19	45226.016	?	?	237	no	
96	1	20	36768.974	?	?	238	no	
96	1	24	03388.008	?	?	239	385	+ K-A t.
96	1	24	76096.911	?	?	BGR	?	= K-A t.
96	1	30	08756.848	?	?	240	no	
96	2	1	78530.582	?	?	241	?	+ K-A t.
96	2	2	50750.813	?	?	242	?	
	2	10	35198.959	?	?	247	?	
96	2	16	57796.347	?	?	BGR	?	= K-A t.
96	2	19	20589.684	?	?	BGR	?	= K-A t.
96	2	28	85760.241	?	?	249	?	
96	2	29	22445.141	?	?	250	?	

96	3	5	33645.352	?	?	251	?
96	3	12	35074.697	?	?	252	?
96	3	19	51992.828	?	?	253	?
96	3	21	76321.803	?	?	254	?
96	3	22	19642.728	?	?	255	?
96	3	24	80064.124	?	?	257	?
96	3	25	69892.978	?	?	258	?

--

TLC

-- T. L. Cline ----- LHEAVX::CLINE

Helio corr removed

Date: *Oct 23 '98*

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. PVO Data

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

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

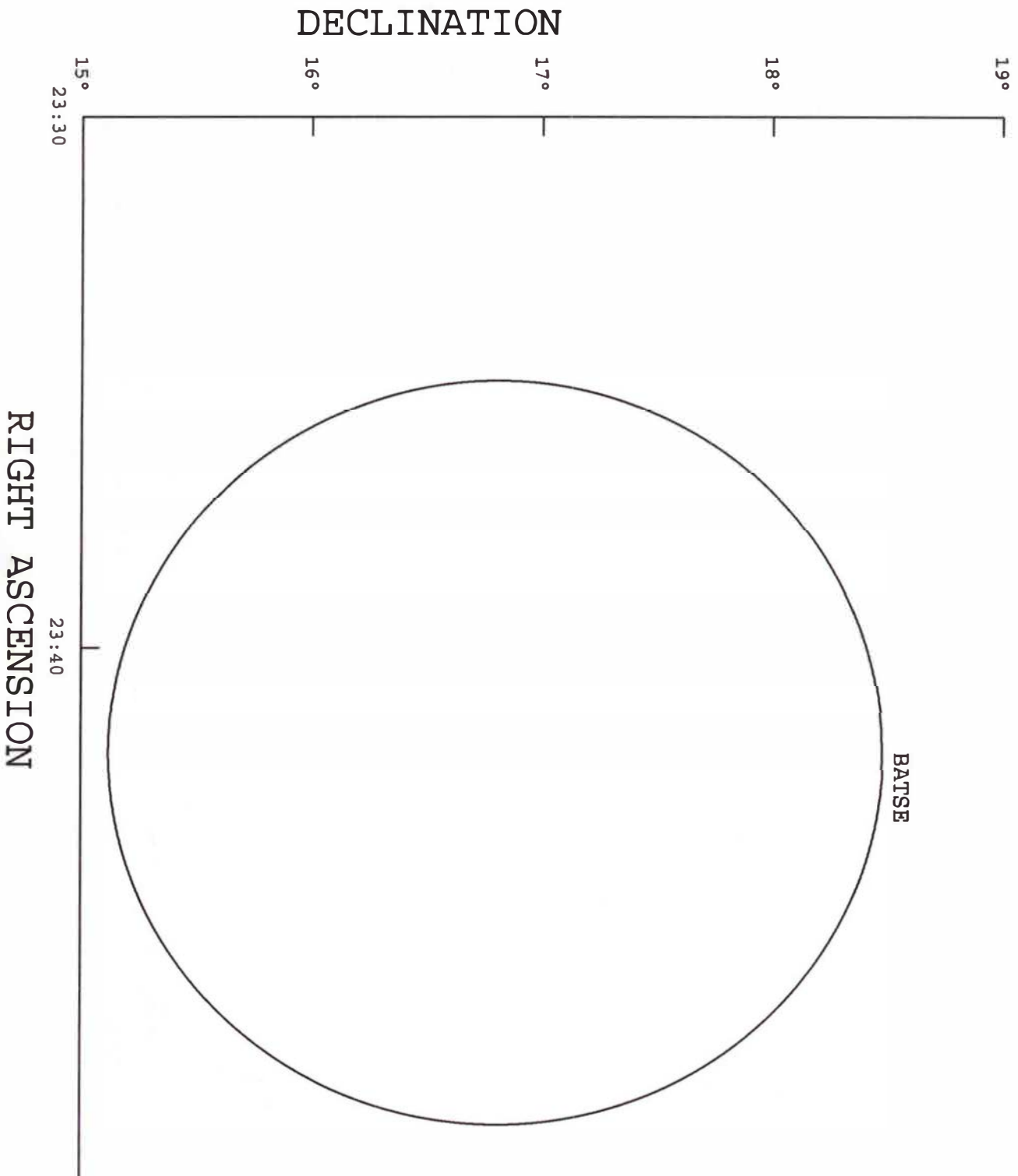
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 16, 1996 15:59

15/10/97



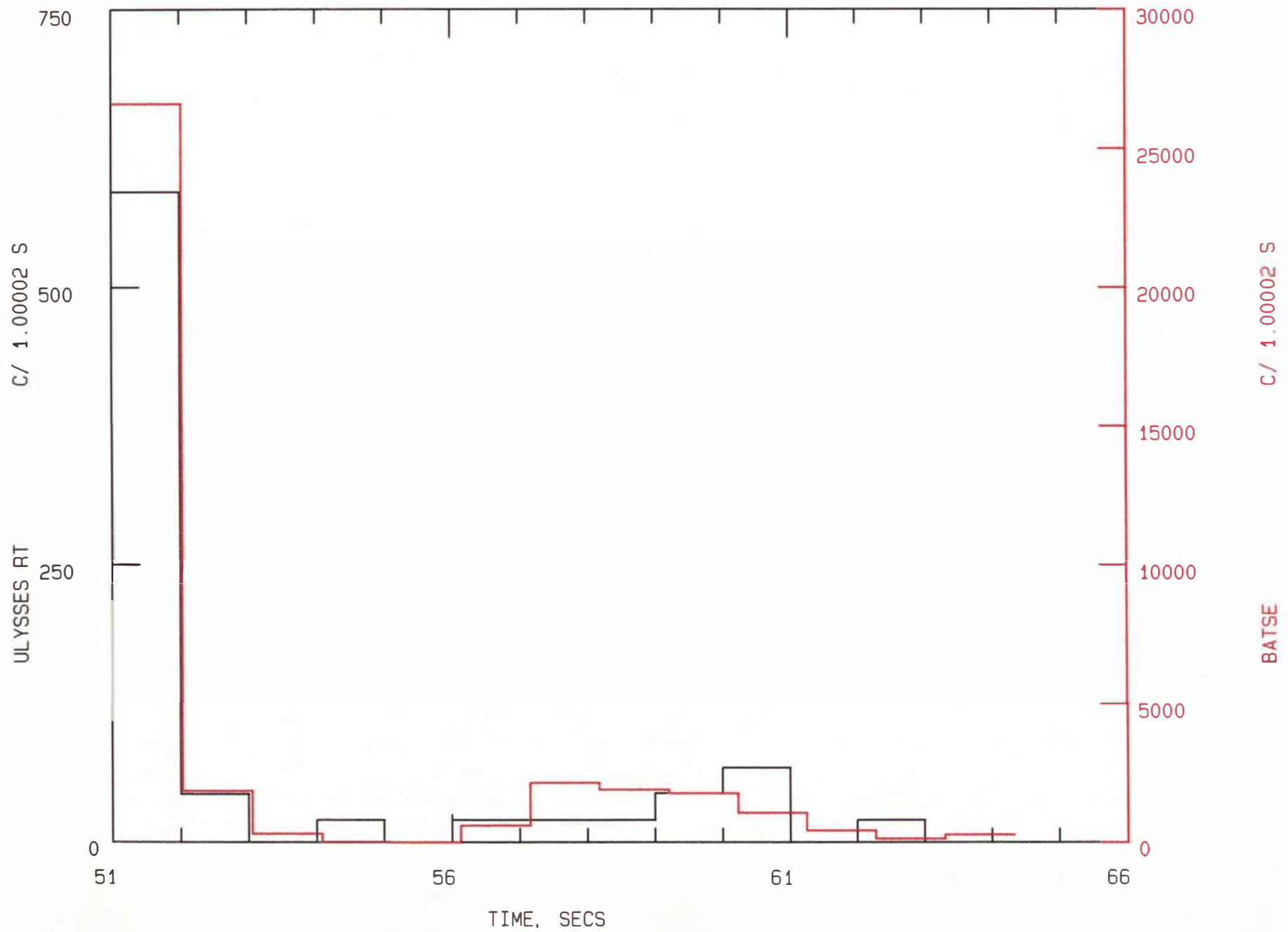
ULYSSES RT-BATSE

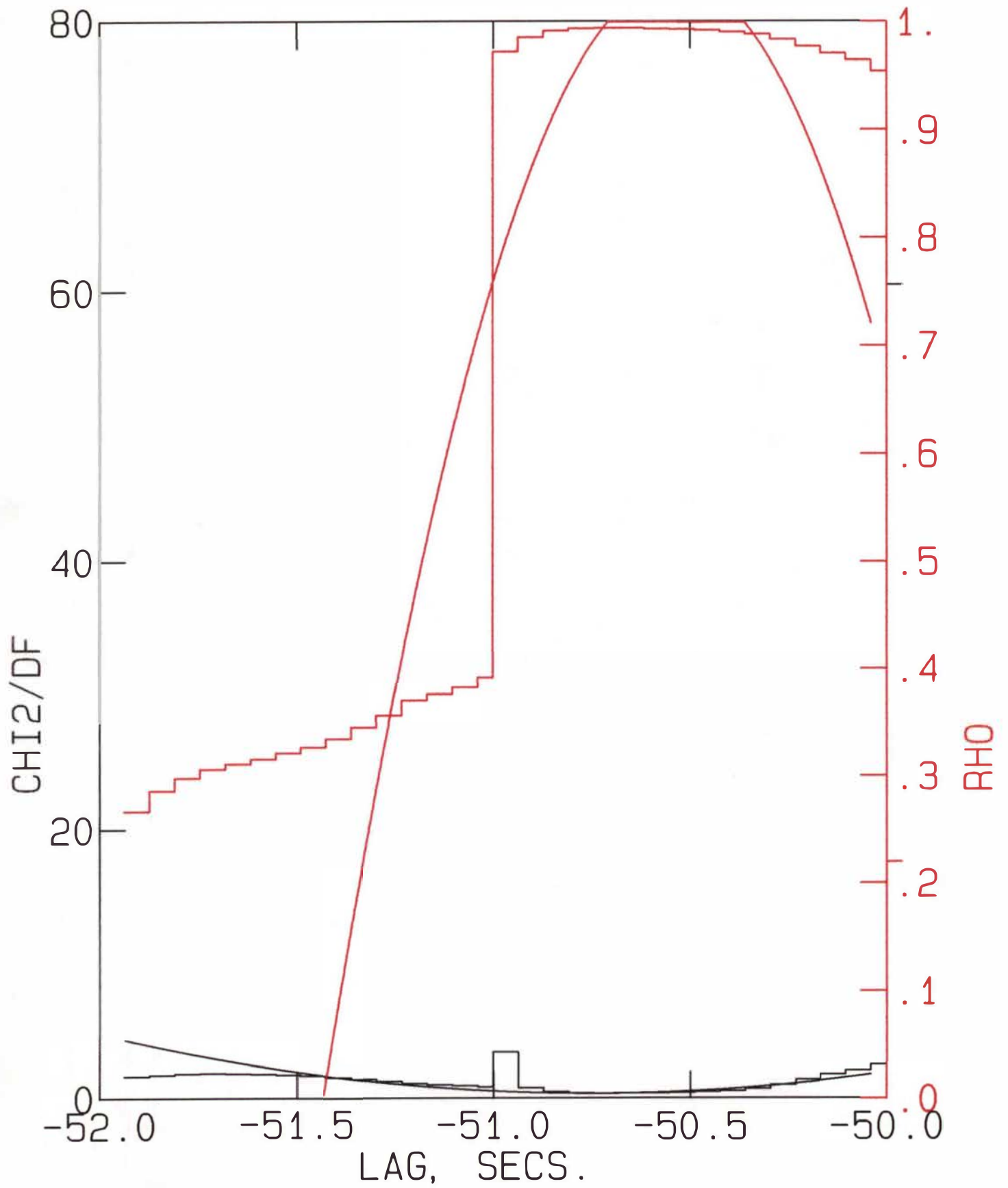
CORRELATION

16/ 2/96

57560.472

15/10/97





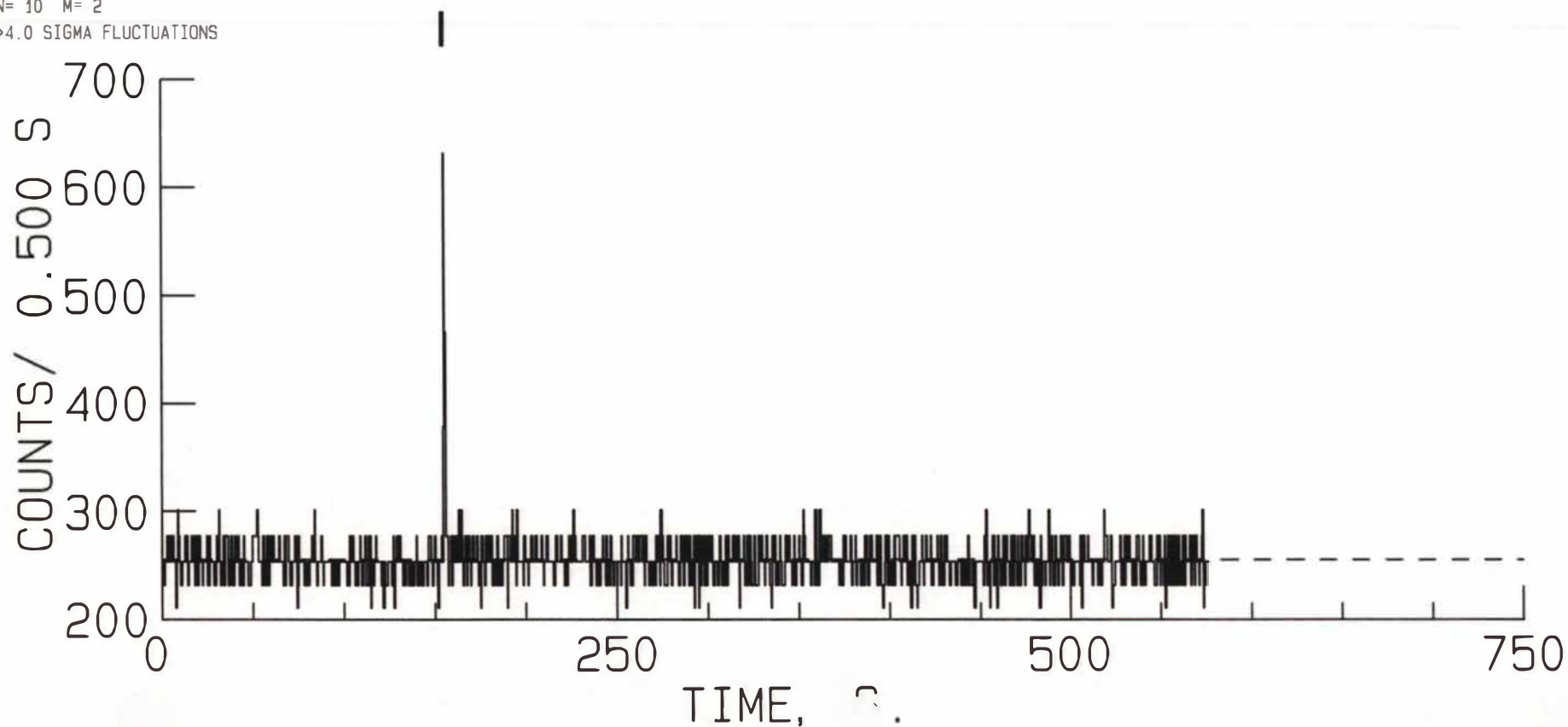
ULYSSES RT

15/10/97

16/ 2/96 57456.385 s

21- 144 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



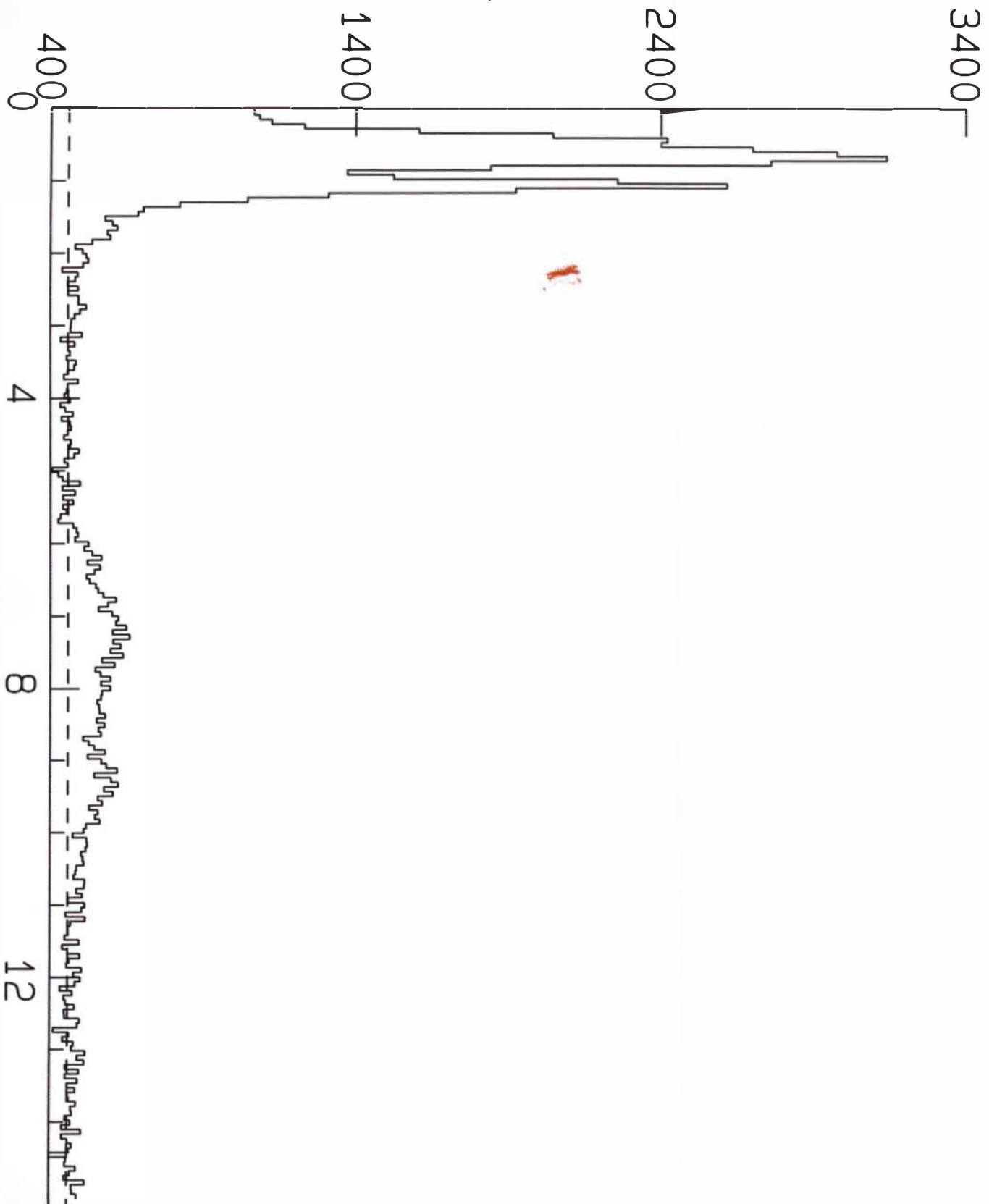
BATSE

16/02/96

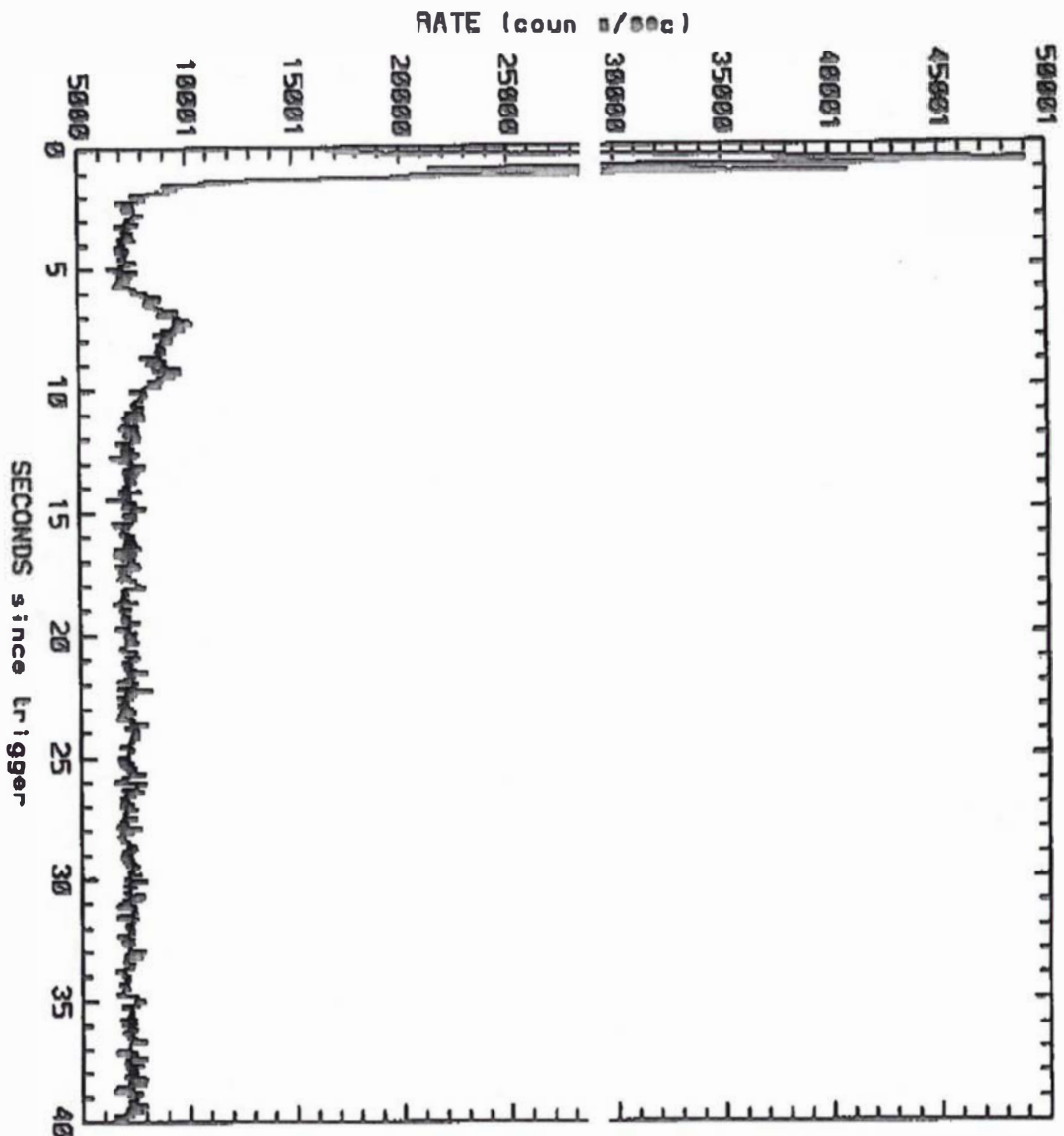
57796.170

25- 100 keV

COUNTS/0.064 S



MER Data for K. Hurley. No. 4898

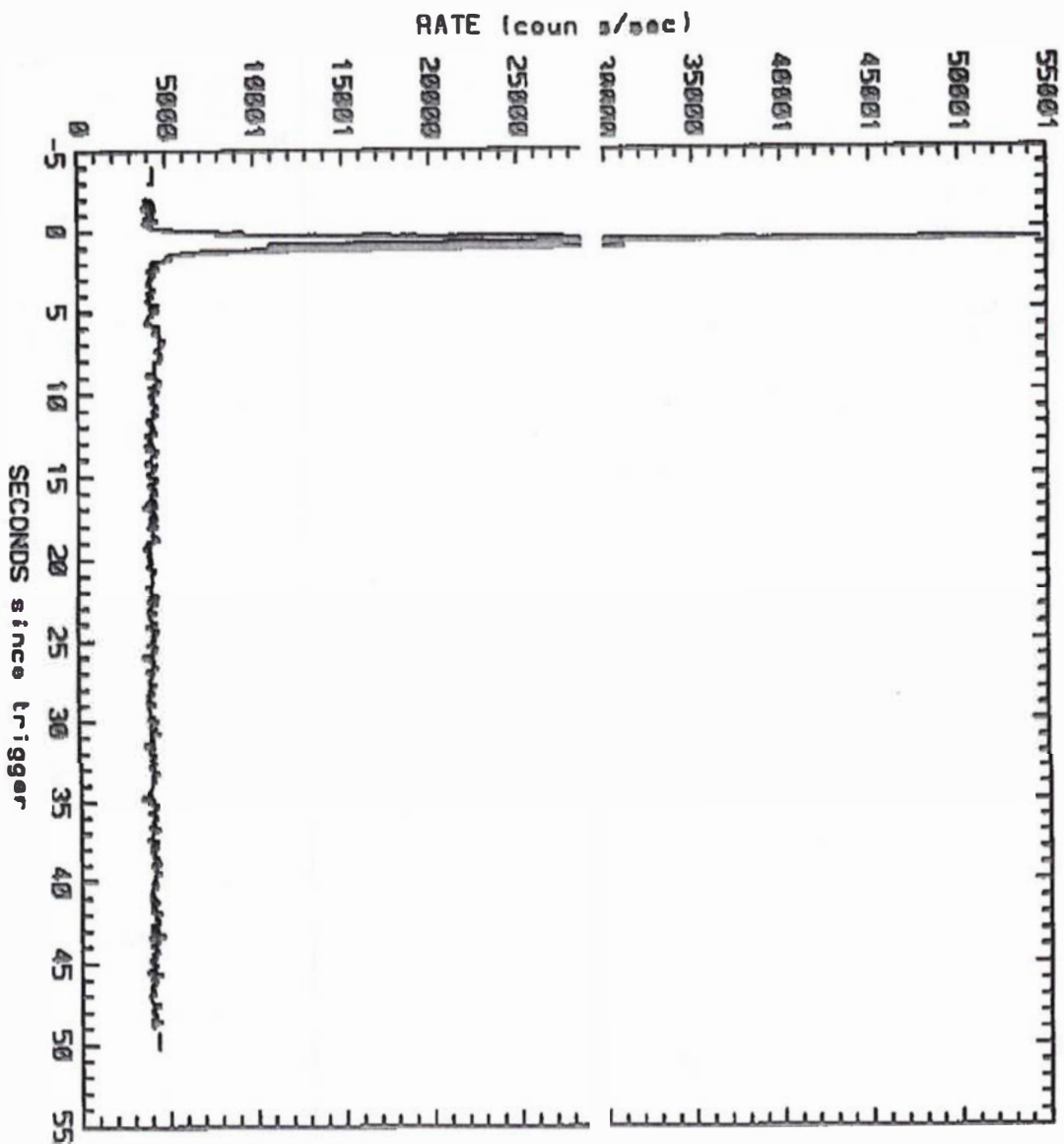


11-MAR-1996 11:15:00
 Created by NPS BD
 (Burst Display)
 Version 12.25

Trigger # : 4098
 Trigger Time:
 10:29 / 57796.170
 Burst Data Type:
 MER

Deadtime
 Corrected: N
 Background Data
 Type: CONT
 Minimum Integ. Time:
 0.064 seconds
 Detectors [7..8]:
 -6--2-8
 Channels:
 (0..6)
 Quality Mask:
 B01SP1

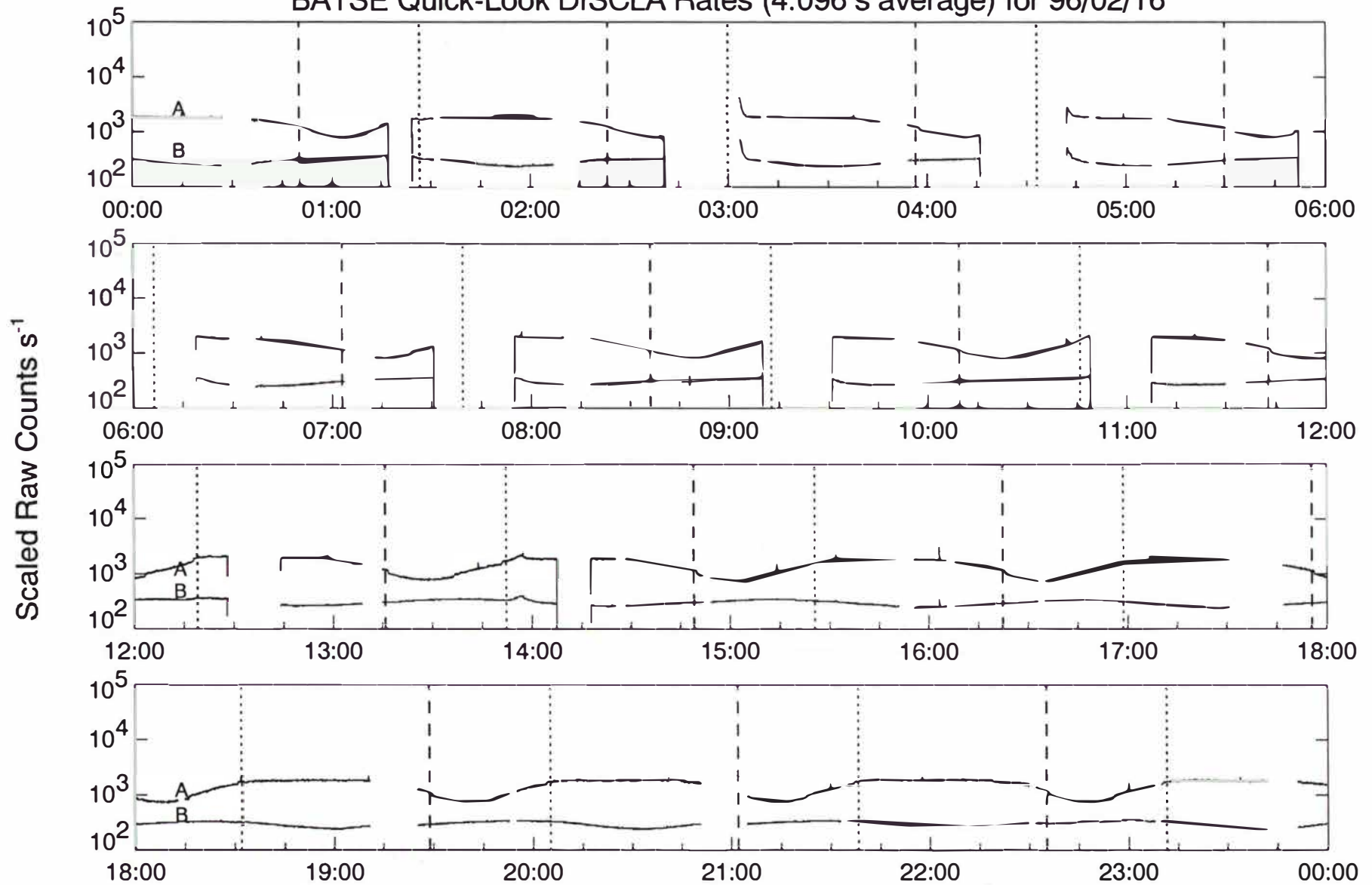
TTS Data for K. Hurley, No. 4898



11-MAR-1996 11:16:12

Created by NOPS 80
(Burst Display)
Version 12.25Trigger = 4898
Trigger Time:
16129 / 57796.176
Burst Data Type:
TTSTree Corrected: Y
Maximum Time Error:DetTime
Corrected: N
Background Data
Type: FREE + DISCLABin Count: 8
Detectors 17.01.
-4---2-8Discriminators:
(2 x 2)Quality Mask:
BOLSP?

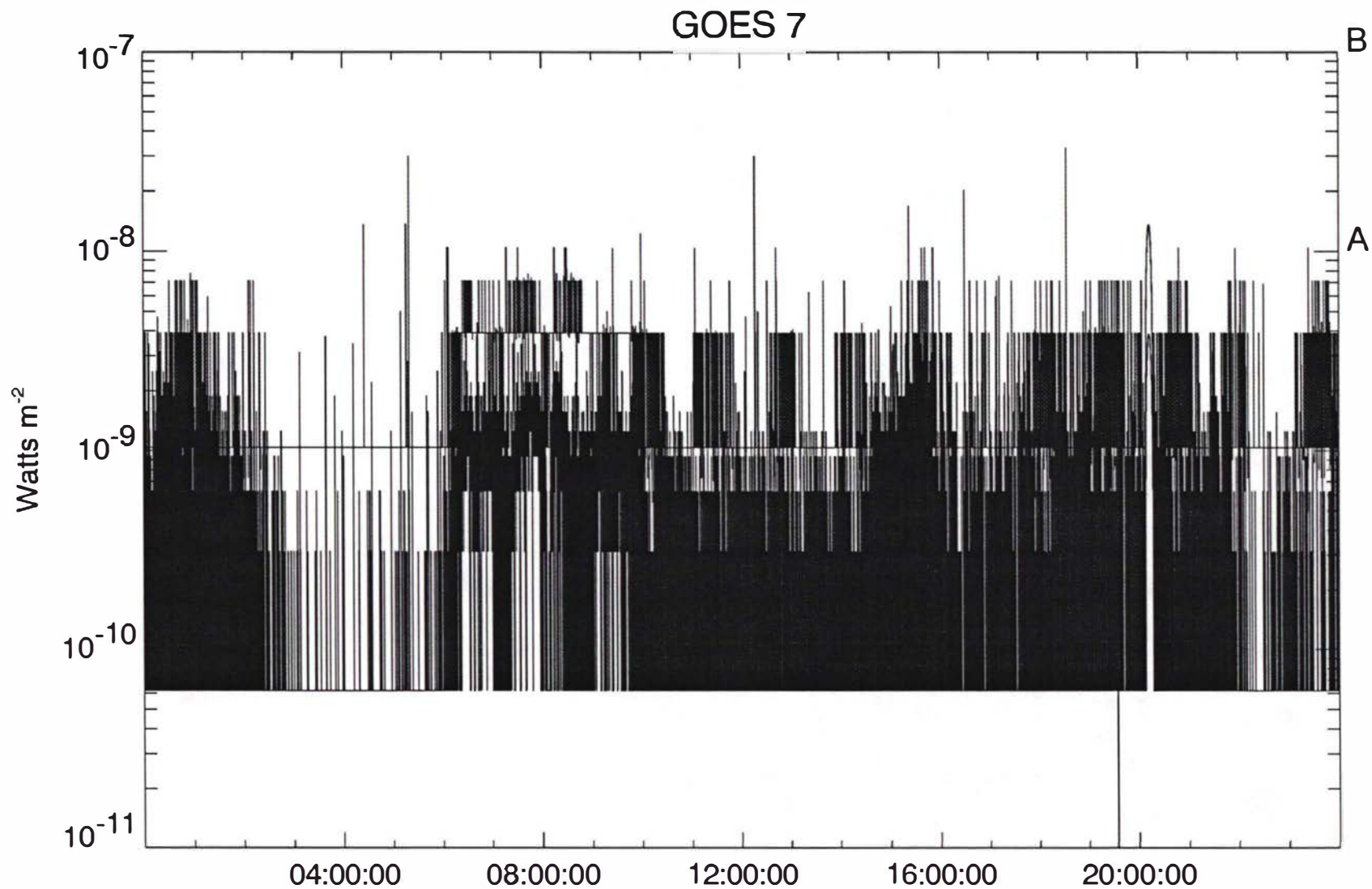
BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/16



Current Time: 96/02/18, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



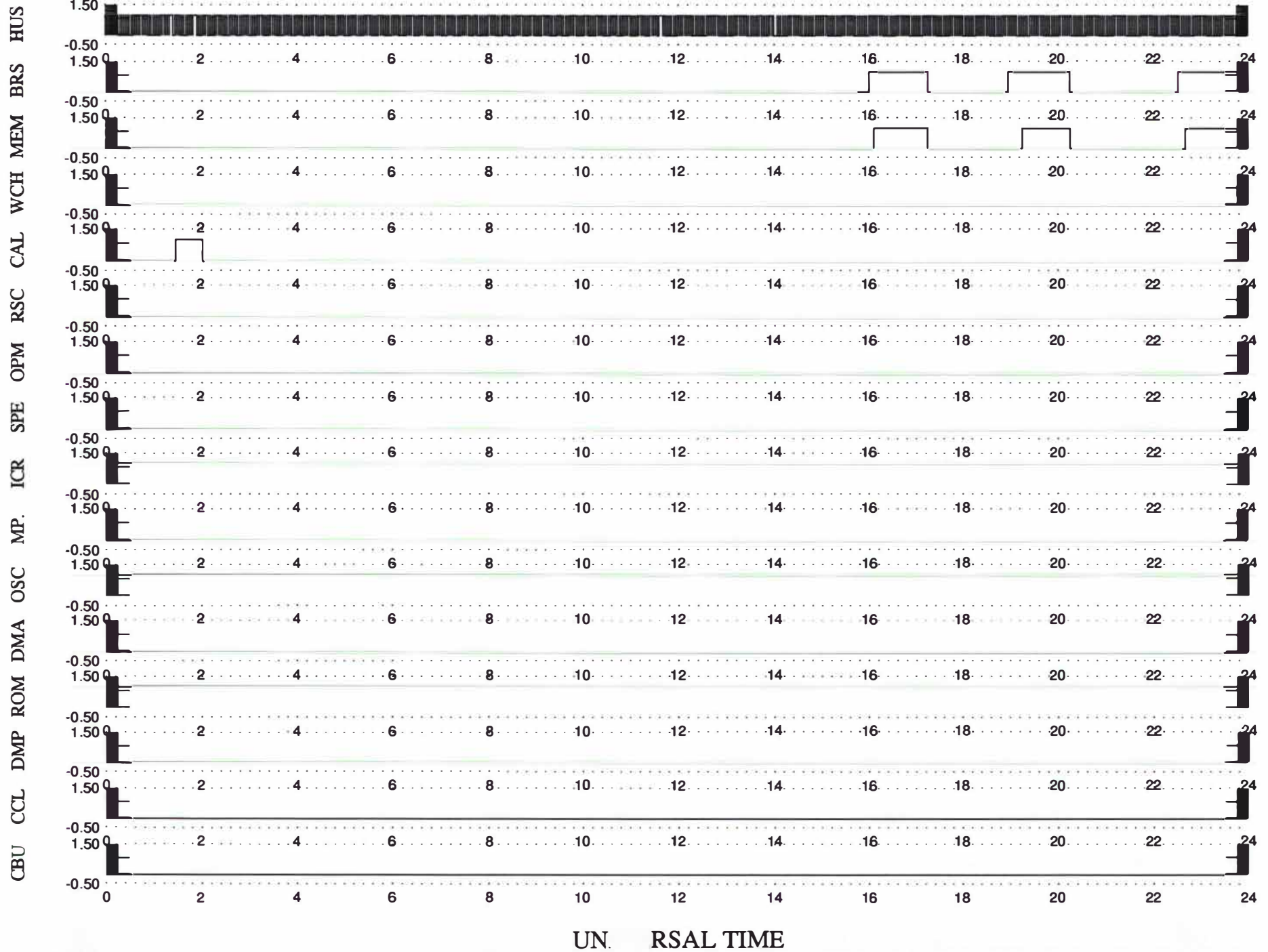
Data Start: 96/02/16, 0000:02

Plot created: 96/02/18, 0854

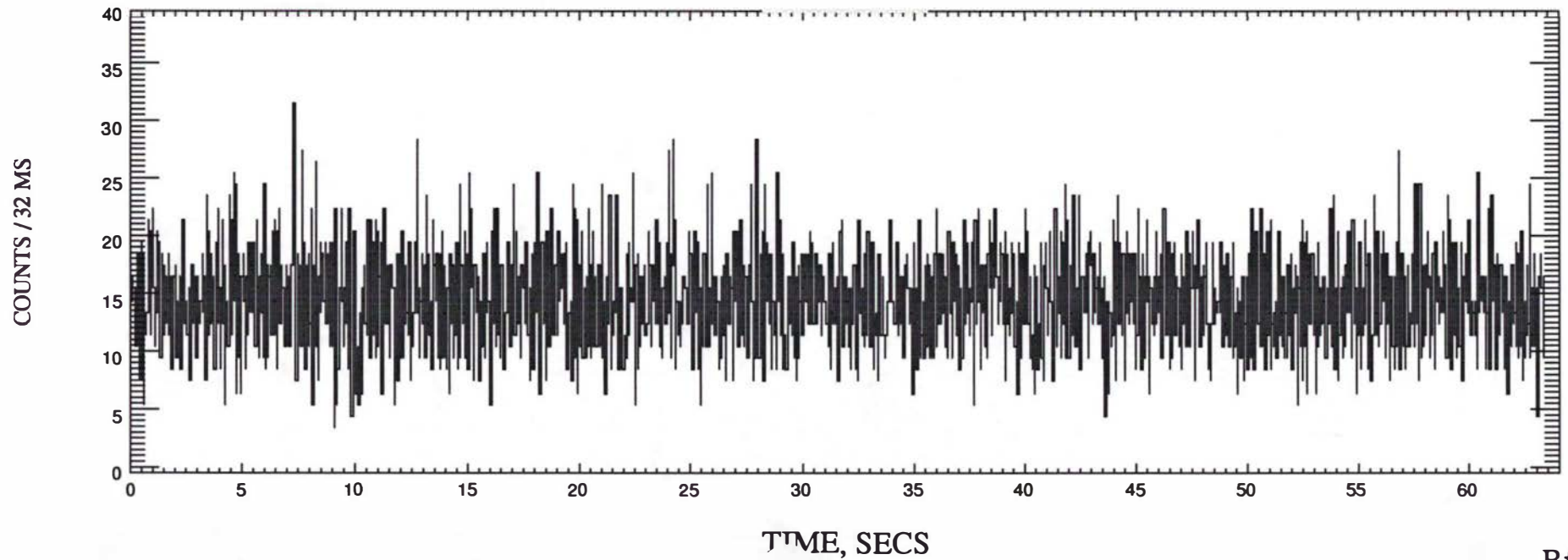
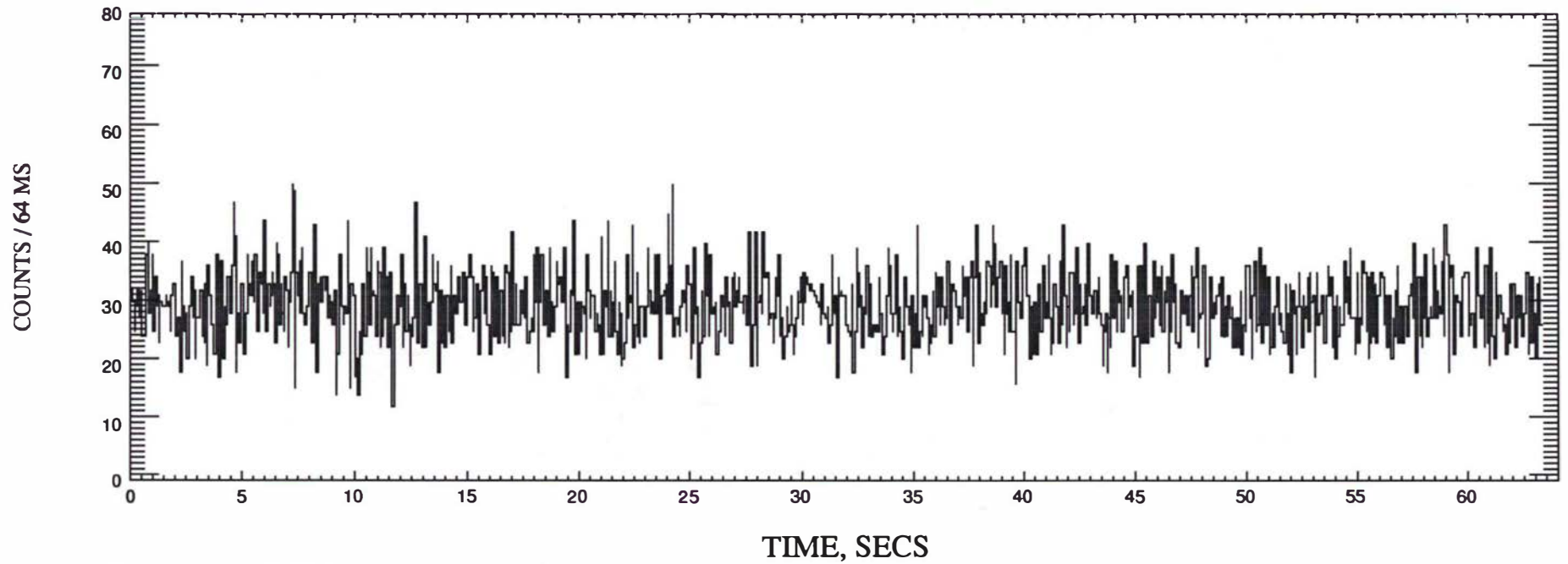
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

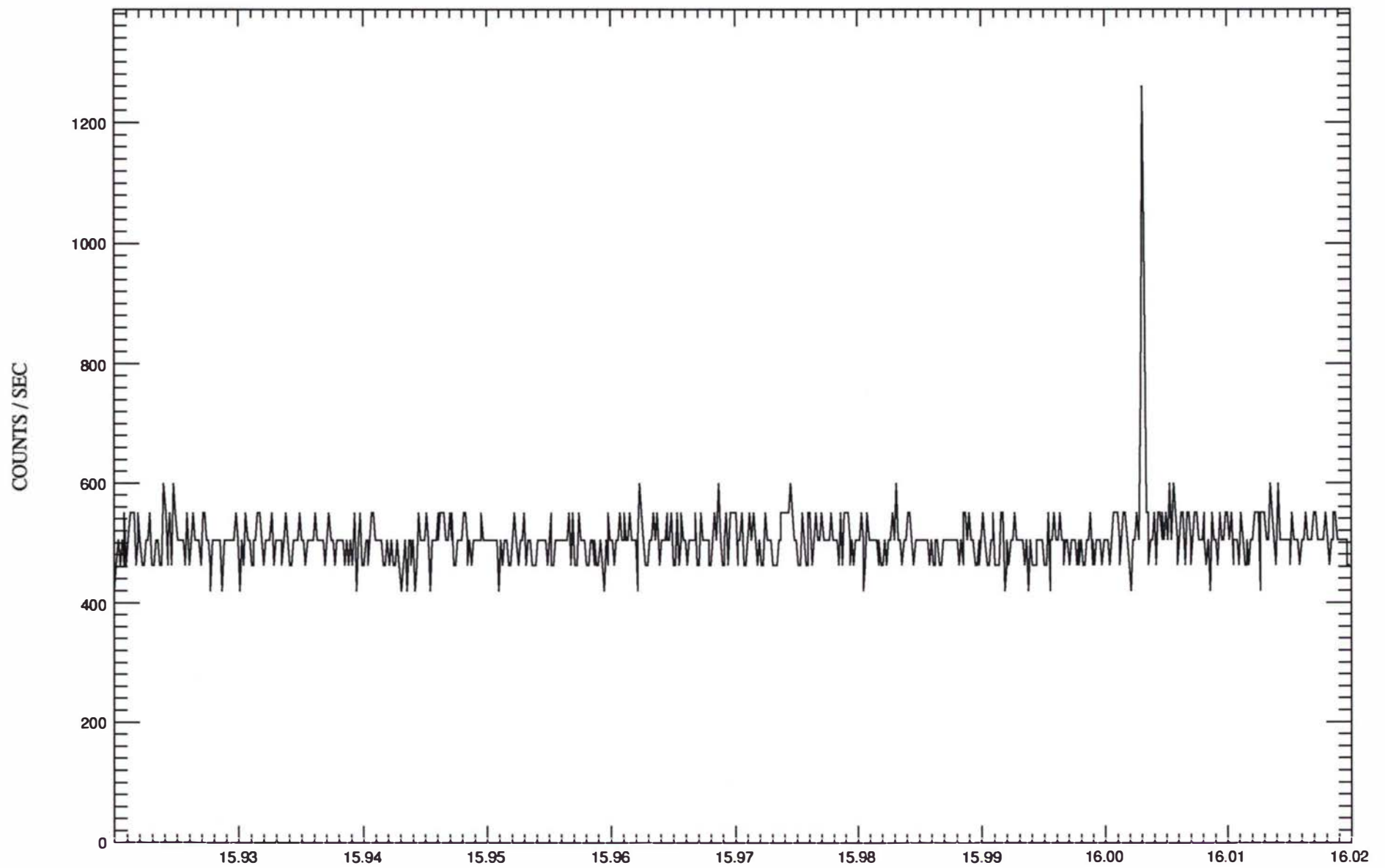
BURST NUMBER 4 - 6



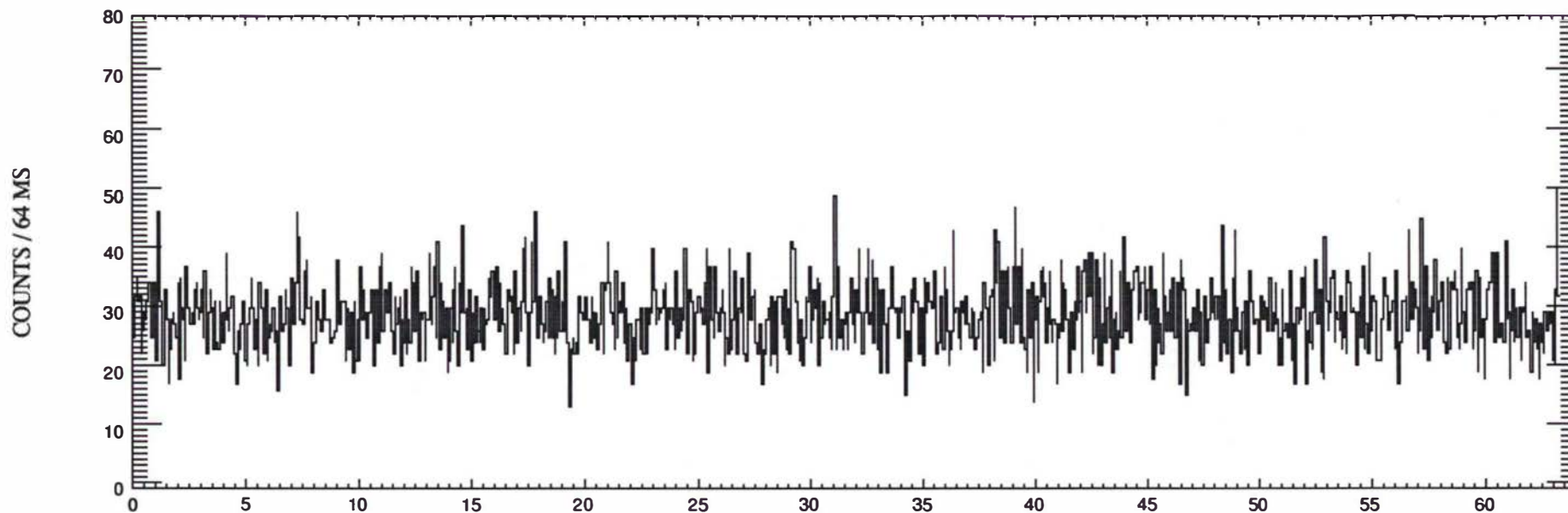
Burst Counter 4 at UT=15.974616792467 h=57508.620 s 15:58:28.620



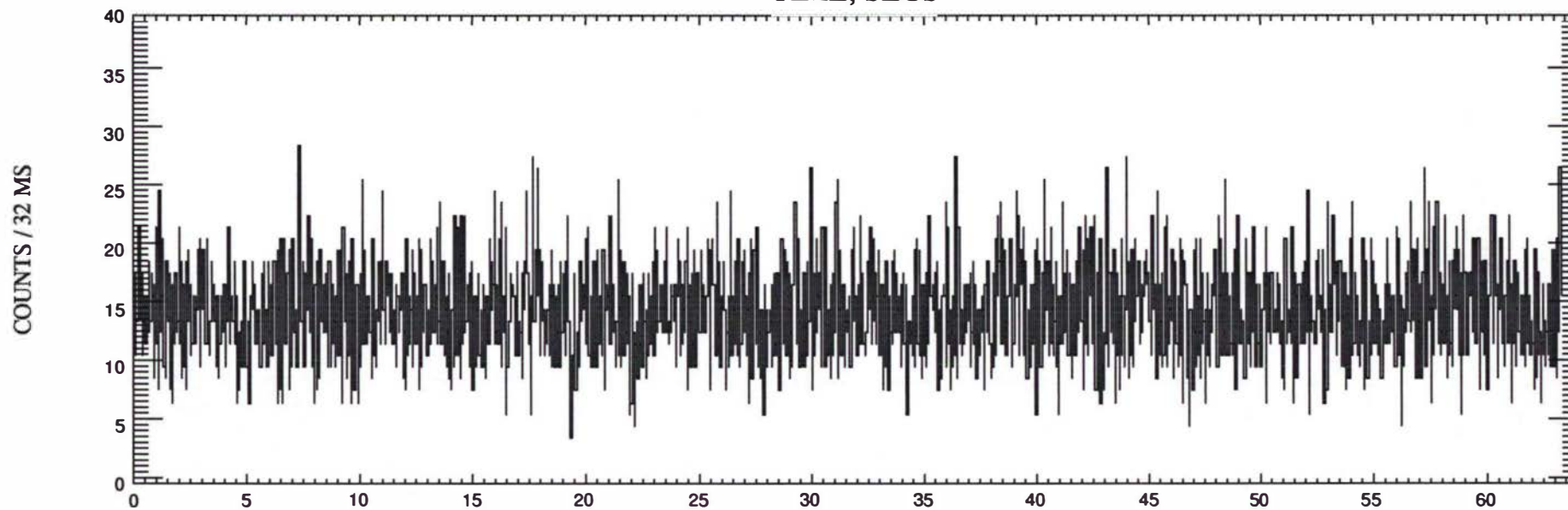
CALIBRATION DATA INCLUDED



Burst Counter 5 at UT=18.987367833455 h=68354.524 s 18:59:14.524

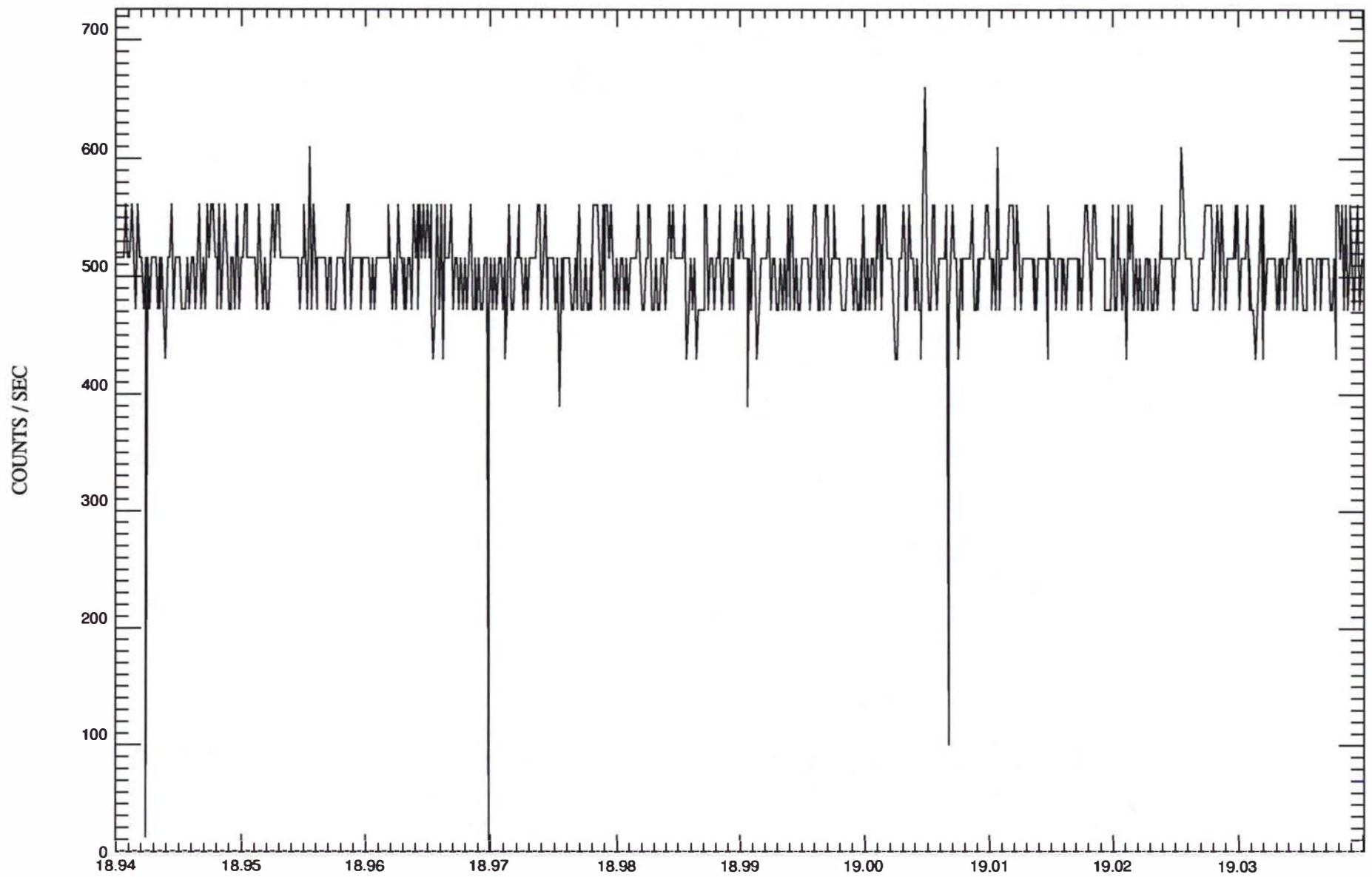


TIME, SECS

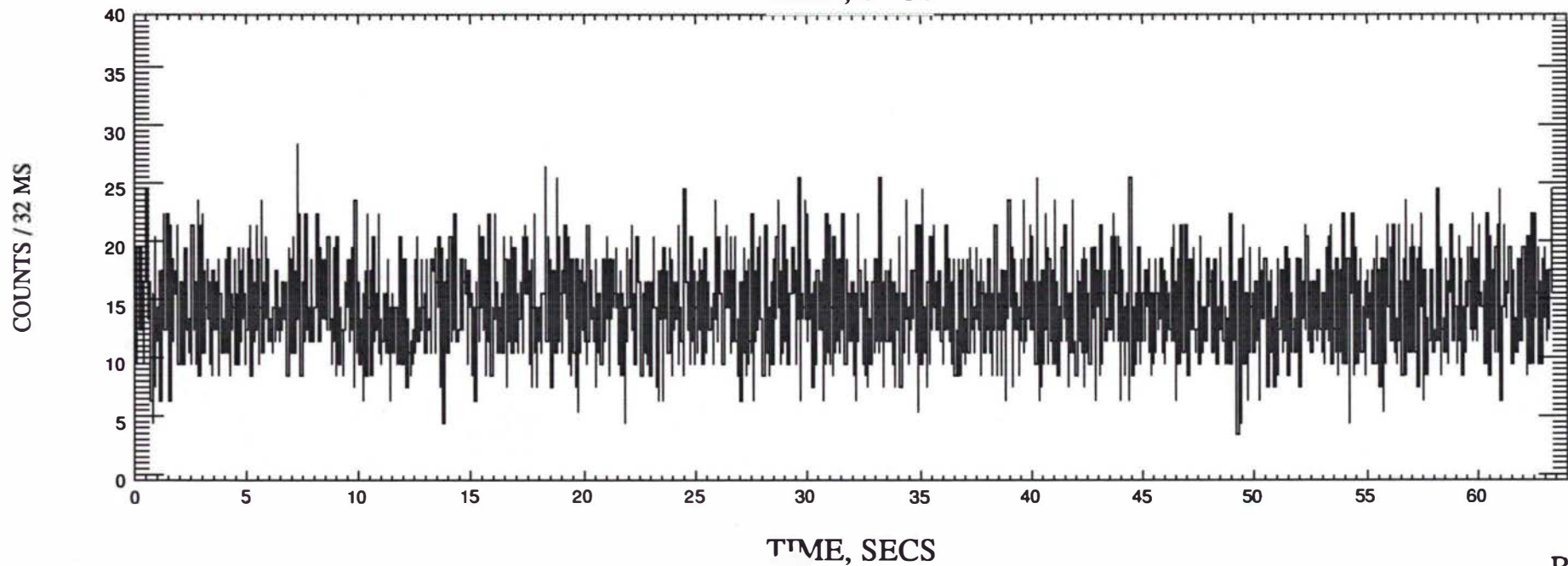
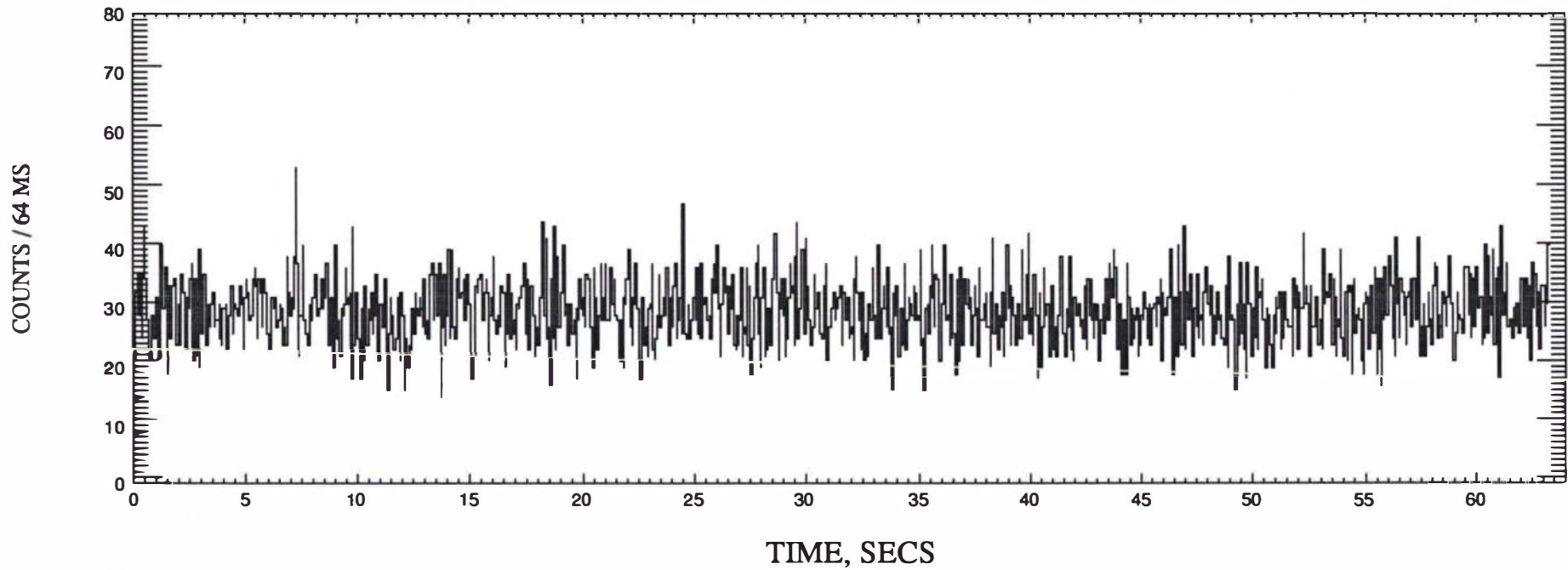


TIME, SECS

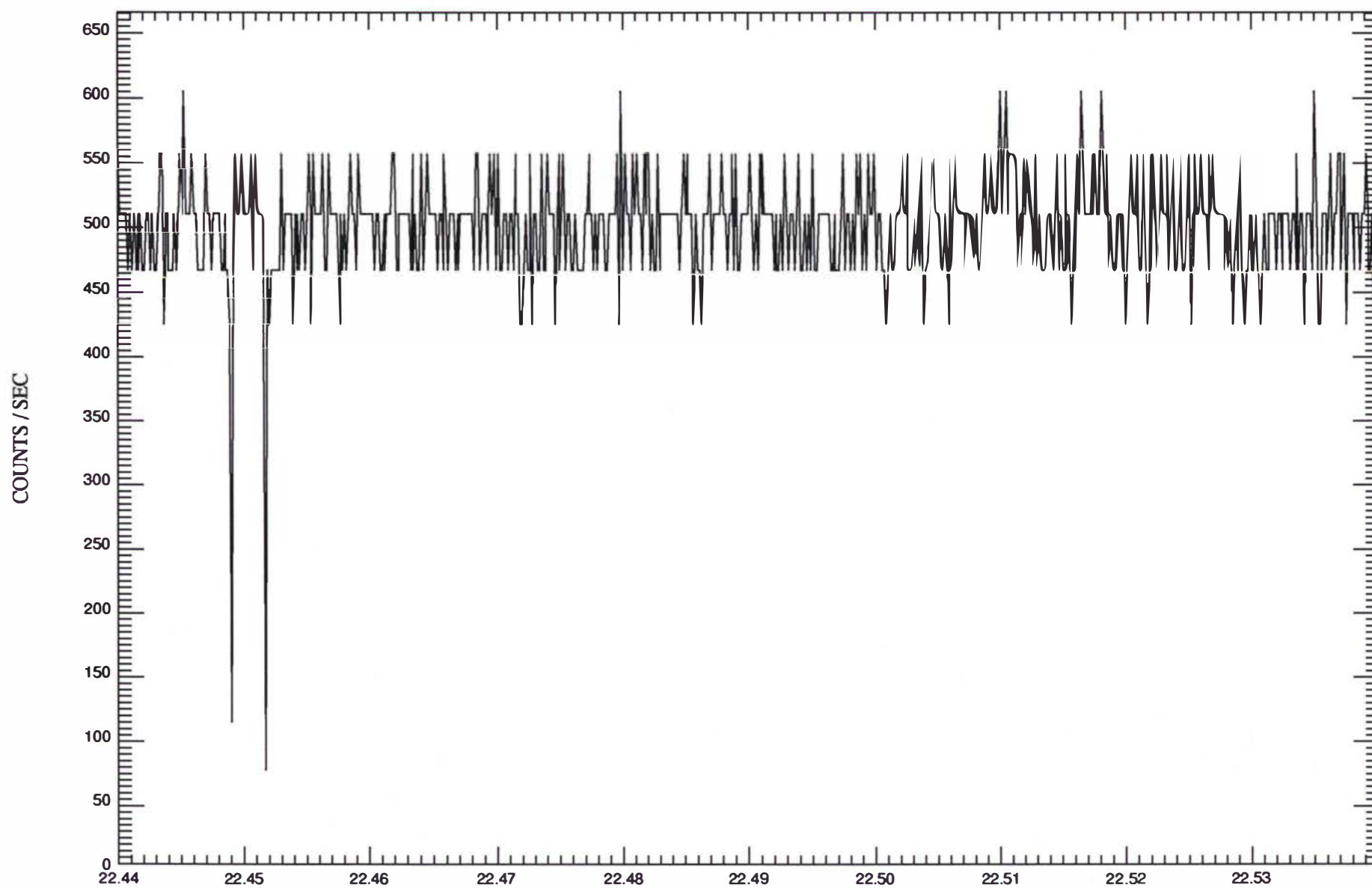
CALIBRATION DATA INCLUDED



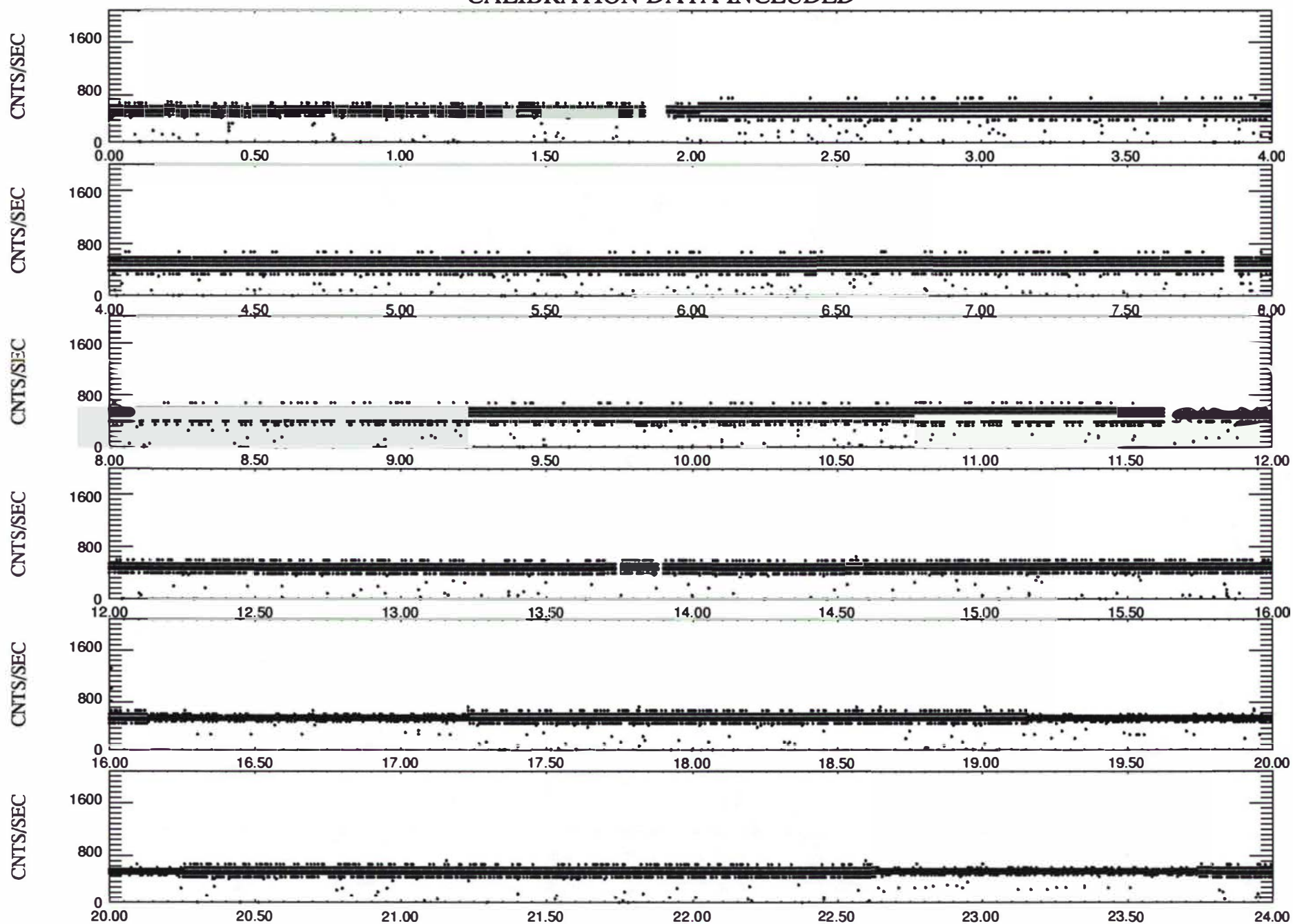
Burst Counter 6 at UT=22.485022845798 h=80946.082 s 22:29:06.082



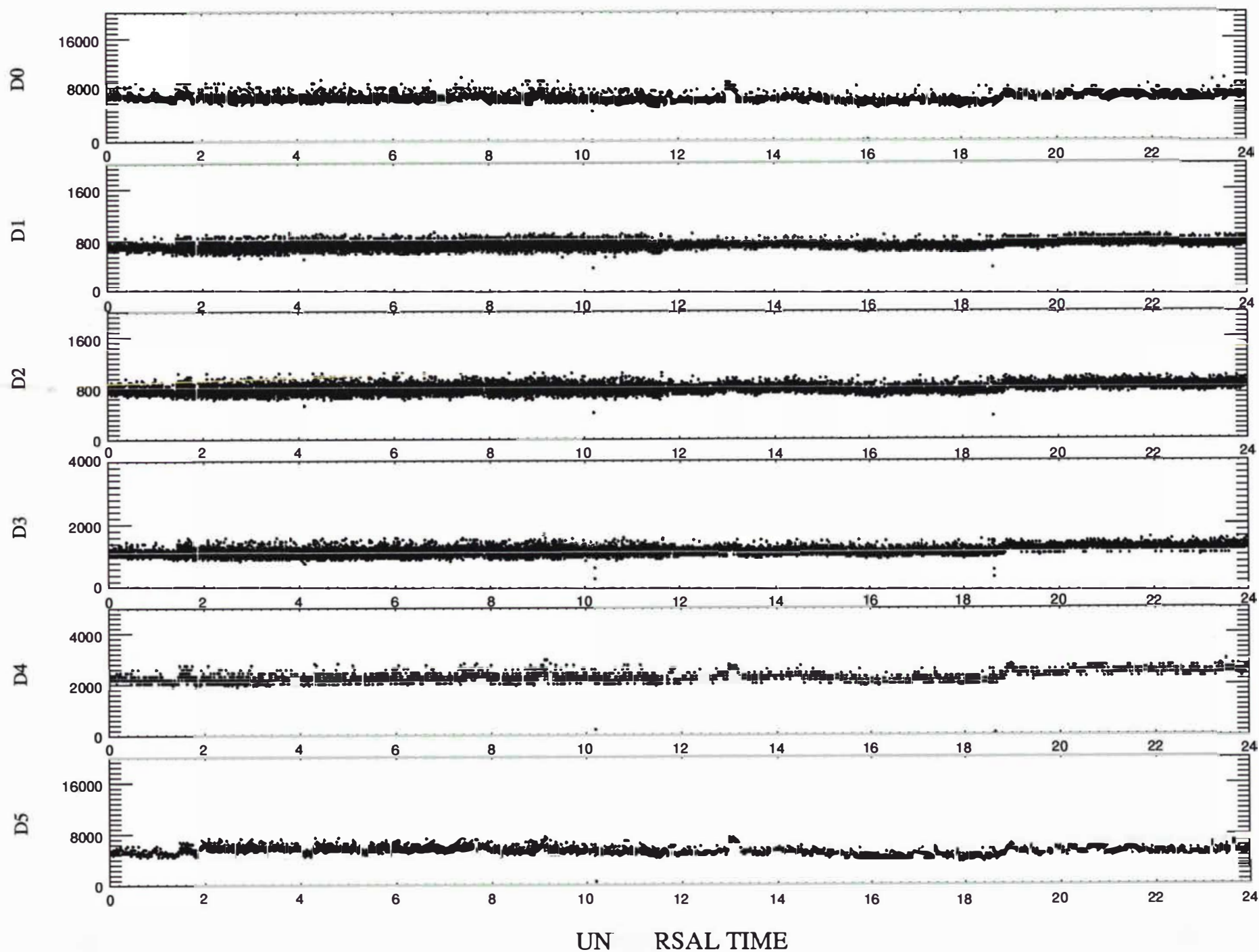
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UNRSAL TIME



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
~033.19:10 SCET	should be	~032.13:18 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~048.17:29 SCET	should be	~047.13:45 SCET
~054.08:59 SCET	should be	~053.11:46 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~039.18:34 SCET	should be	~038.12:14 SCET

We see data gaps for each of the correct times, so it looks like your theory of AMMOS mis-correcting times when there is carry-over data on the tape is correct.

I hope this is enough information. I would have to do a bit more calculation to get the approximate ERTs. Let me know if you want them.

Best regards,

Nigel

From ulsdtm@jplsp.DNET.NASA.GOV Mon Mar 18 17:13 PST 1996
From: ulsdtm@jplsp.DNET.NASA.GOV
Date: Mon, 18 Mar 96 20:13:12 -0500
To: "khurley@sunspot.ssl.berkeley.edu"@east.DNET.NASA.GOV (SENT TO @LIST1)
Subject: Misplaced Major Frames in EDRs

Greetings,

We have identified an operations technique that produces data that will be improperly time tagged by the MGDS (telemetry system). Instances of EDR errors (major frames out of order) have been found in the CDROM archival products for December 1995 and January 1996. Errors will also be found in the still to be shipped February 1996 data.

When major frames are recorded but not transmitted during the next track, but are eventually downlinked with data from a succeeding day, the embedded SCLKs are 'assumed' to be incorrect by the frame syncer and are re-tagged with SCETs and SCLKs matching the adjacent (but newer) data.

For each major frame processed in this manner, a gap will exist, representing the time the data was actually acquired, and a major frame or realtime data, representing the time period the data now errently represents, will be replaced by the misplaced playback data.

Yes. Confusing. See the attached memo detailing the times involved.

Approximately 17 such instances are known to have occured. The total time involved is about twenty minutes. Because the data loss is small and the cost of reprocessing would be so large, the Project has determined that it would be imprudent to reprocess.

For your information, however, we included a memo from Nigel Angold which itemizes each instance.

We thank Toni Galvin and Nigel for identifying the problem and assisting in the diagnosis.

Regards,

Joe

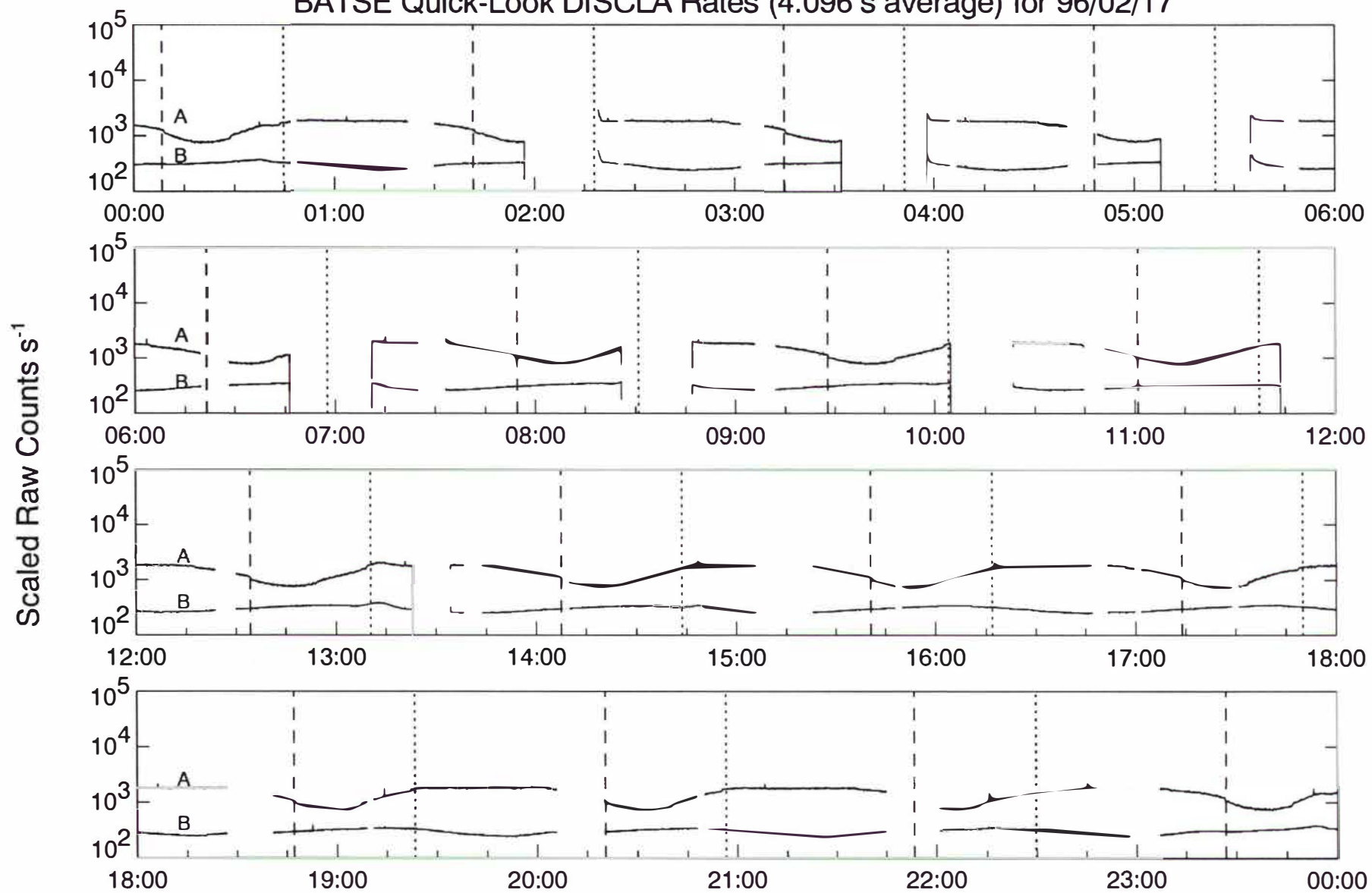
To: <ulsdtm@jplsp.jpl.nasa.gov>
From: Nigel Angold <nangold@jplsp2.jpl.nasa.gov>
Subject: Mis-corrected S/C clocks / SCETs
Cc: chris.leech@jpl.nasa.gov

I have looked at our recent tape recorder usage and predict that you will see major frames with mis-corrected spacecraft clocks / SCETs at the following times (give or take a few minutes):

1995:

~342.22:59 SCET	should be	~341.17:47 SCET
~347.22:39 SCET	should be	~346.16:46 SCET
~350.21:54 SCET	should be	~349.16:22 SCET
~355.22:14 SCET	should be	~354.15:42 SCET
~359.14:04 SCET	should be	~359.05:36 SCET
~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/17



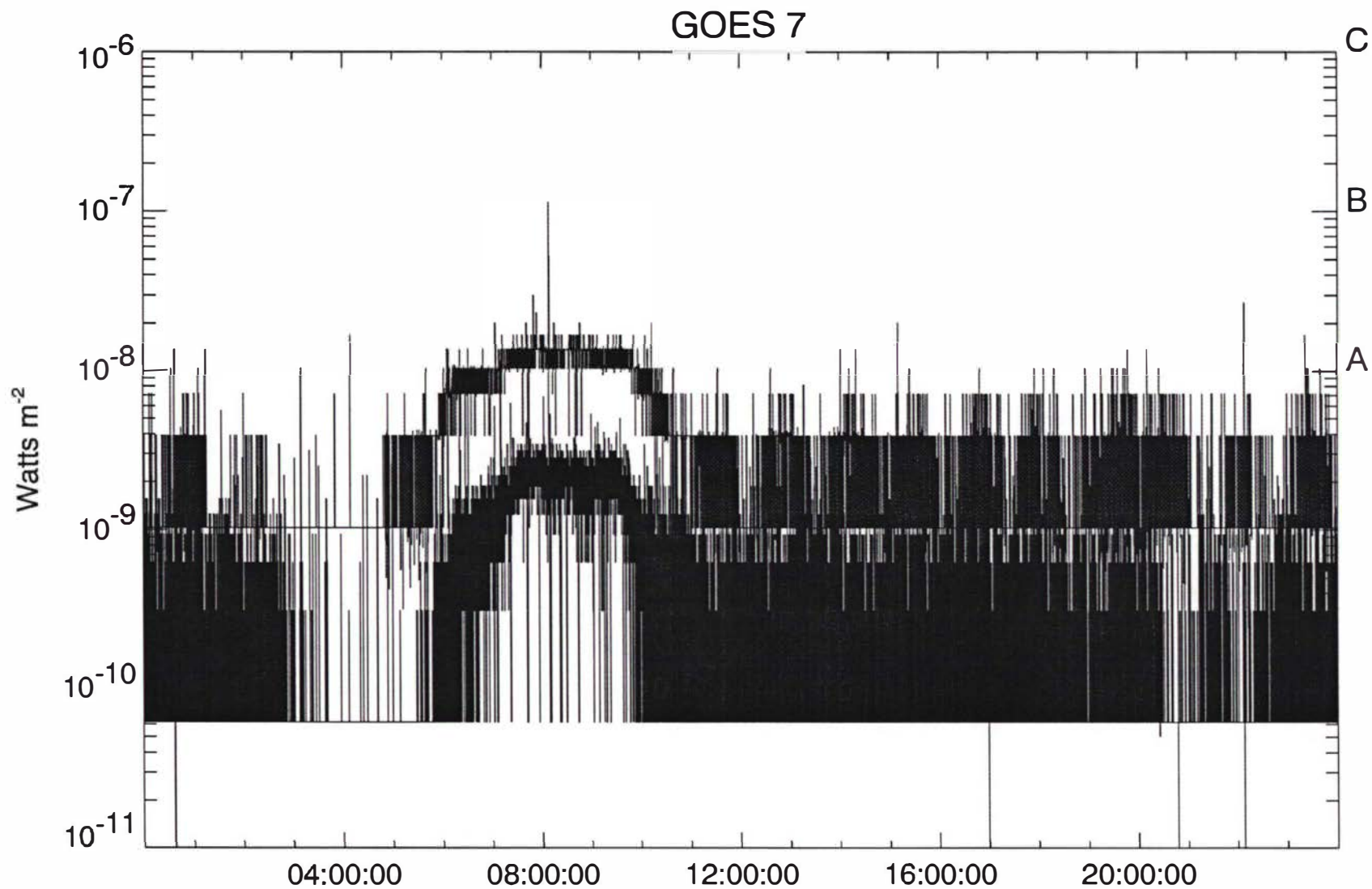
Current Time: 96/02/19, 0855 EDT

A: Channel 0 Most Sunward LAD

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

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



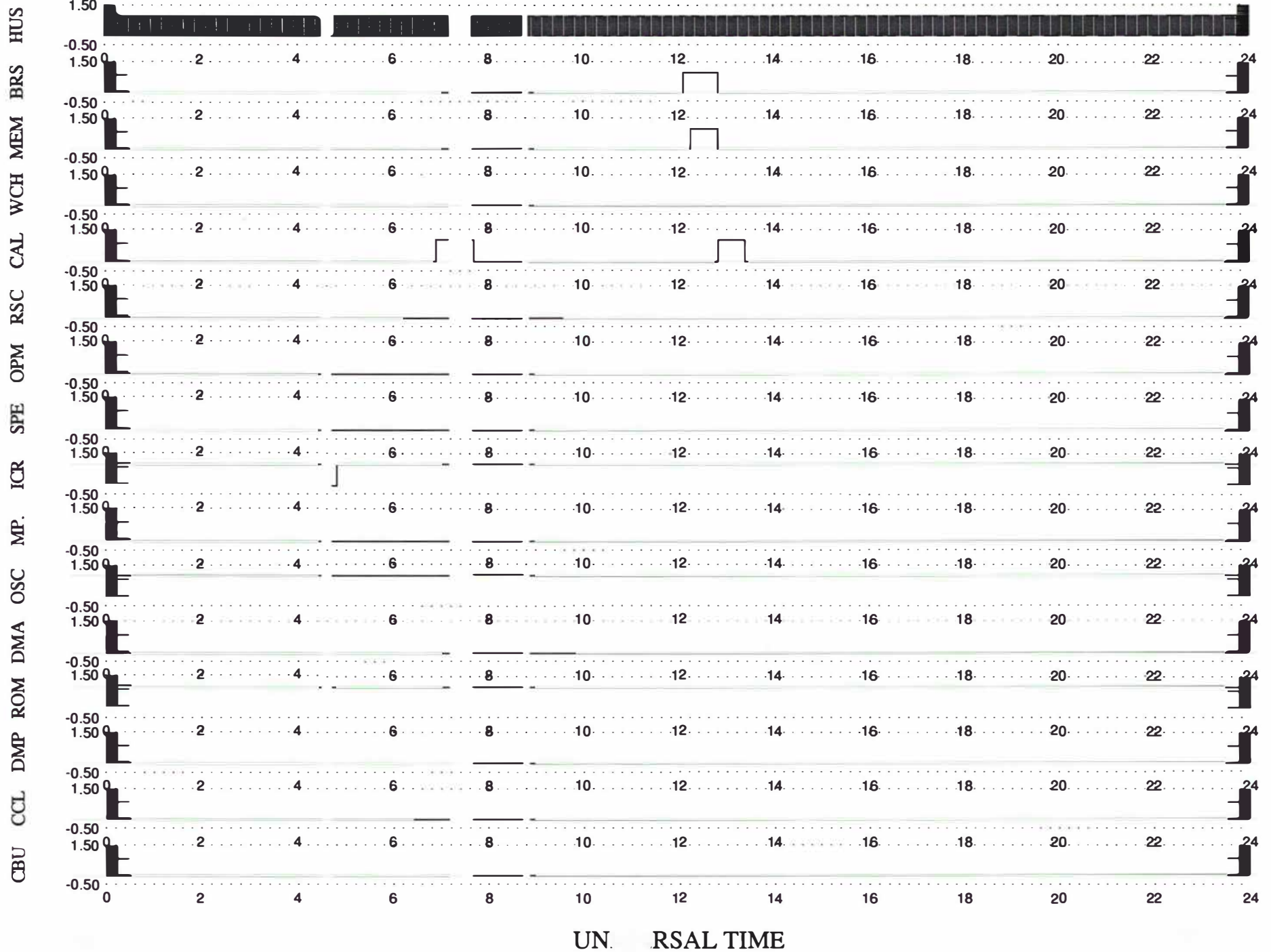
Data Start: 96/02/17, 0000:00

Plot created: 96/02/19, 0854

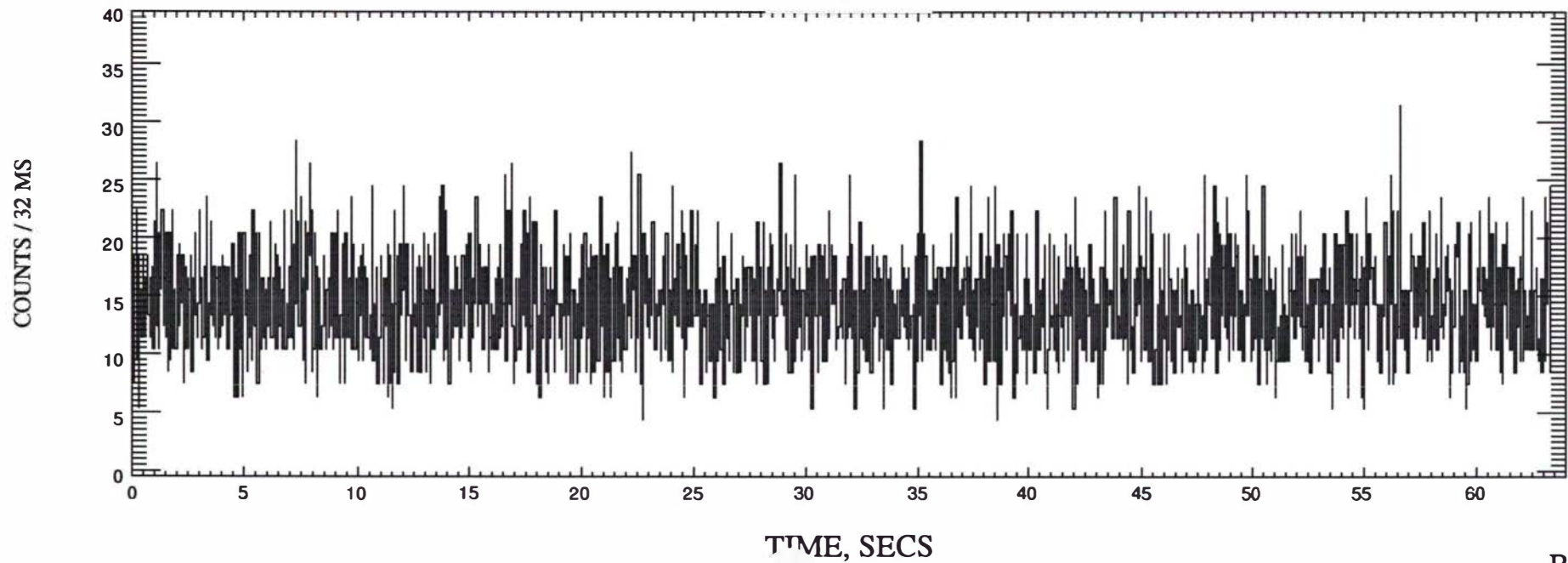
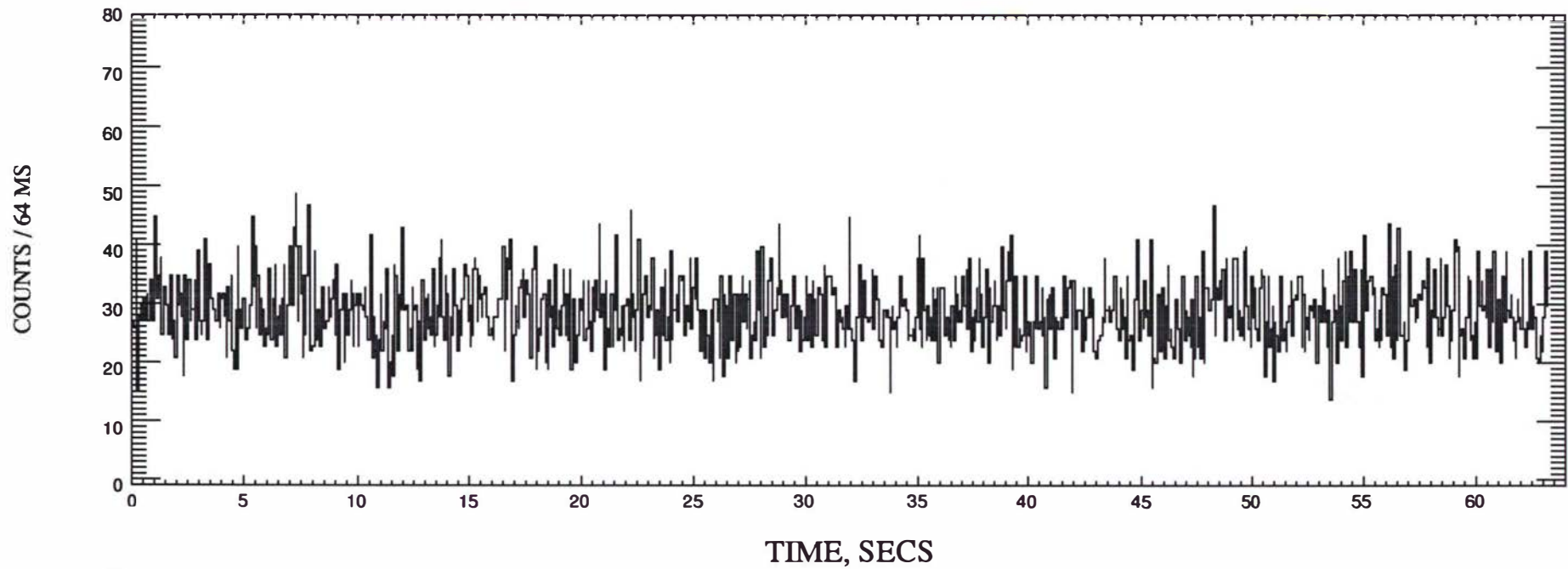
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

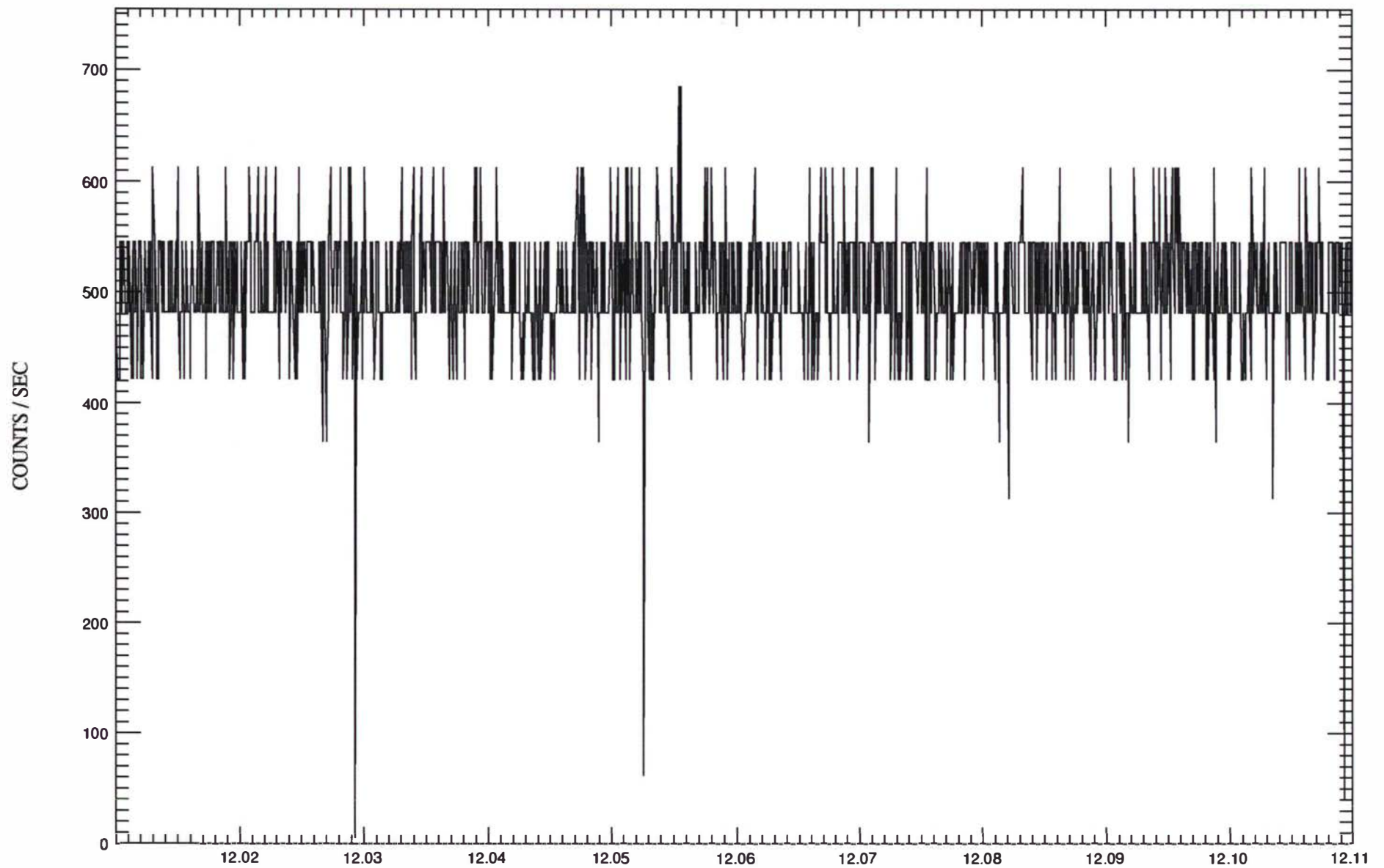
BURST NUMBER 7



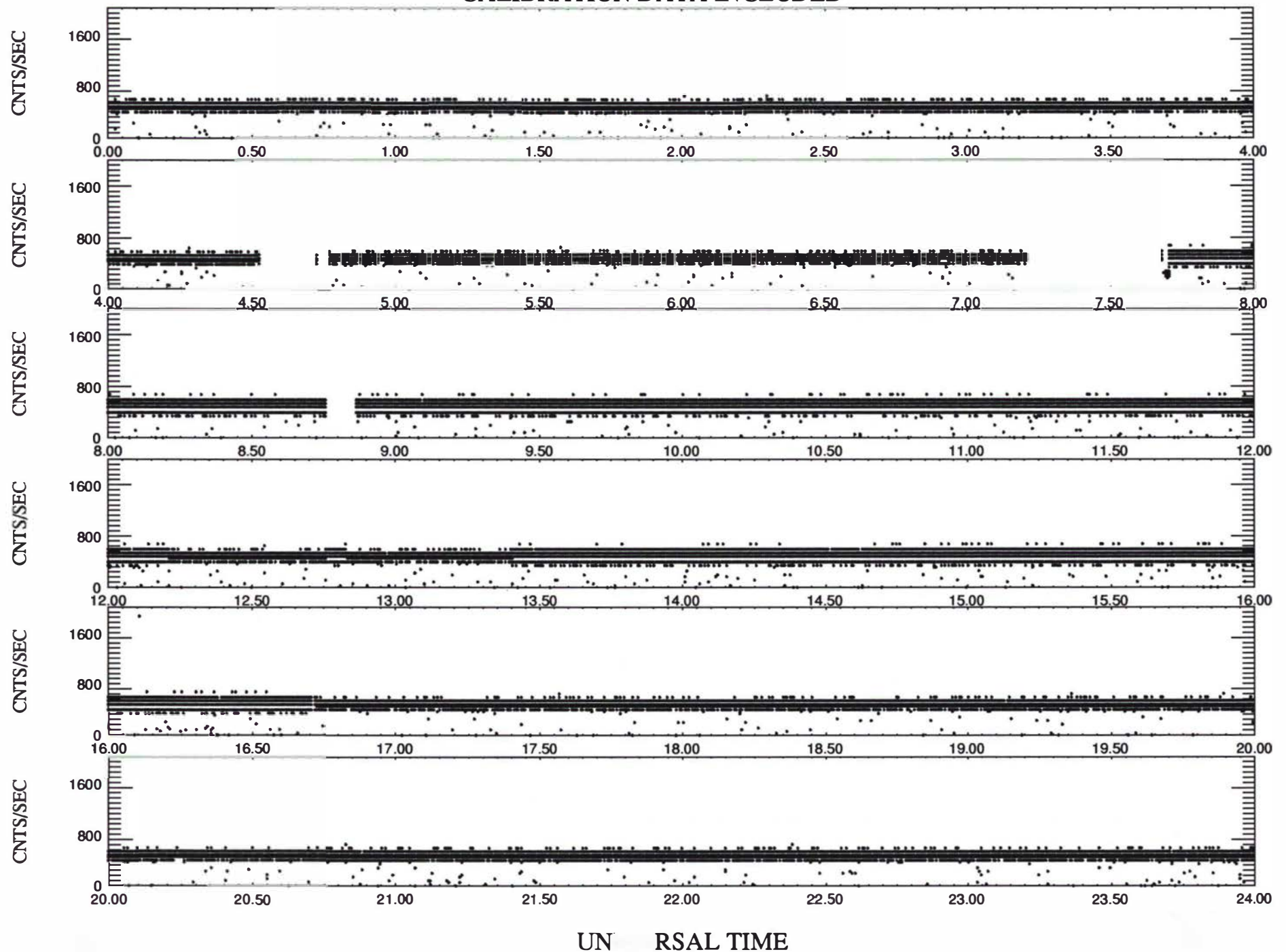
Burst Counter 7 at UT=12.055565817091 h=43400.037 s 12:03:20.037

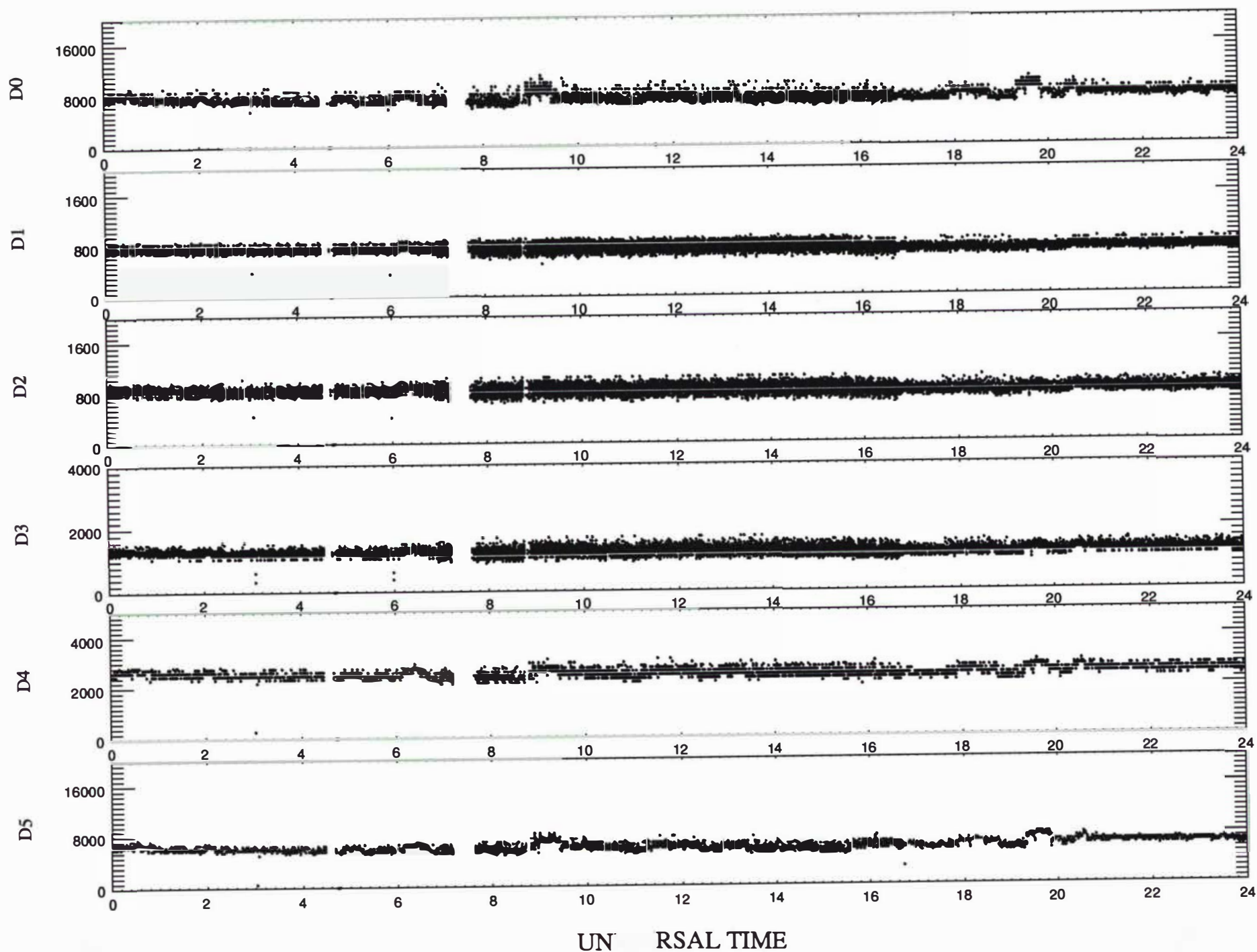


CALIBRATION DATA INCLUDED

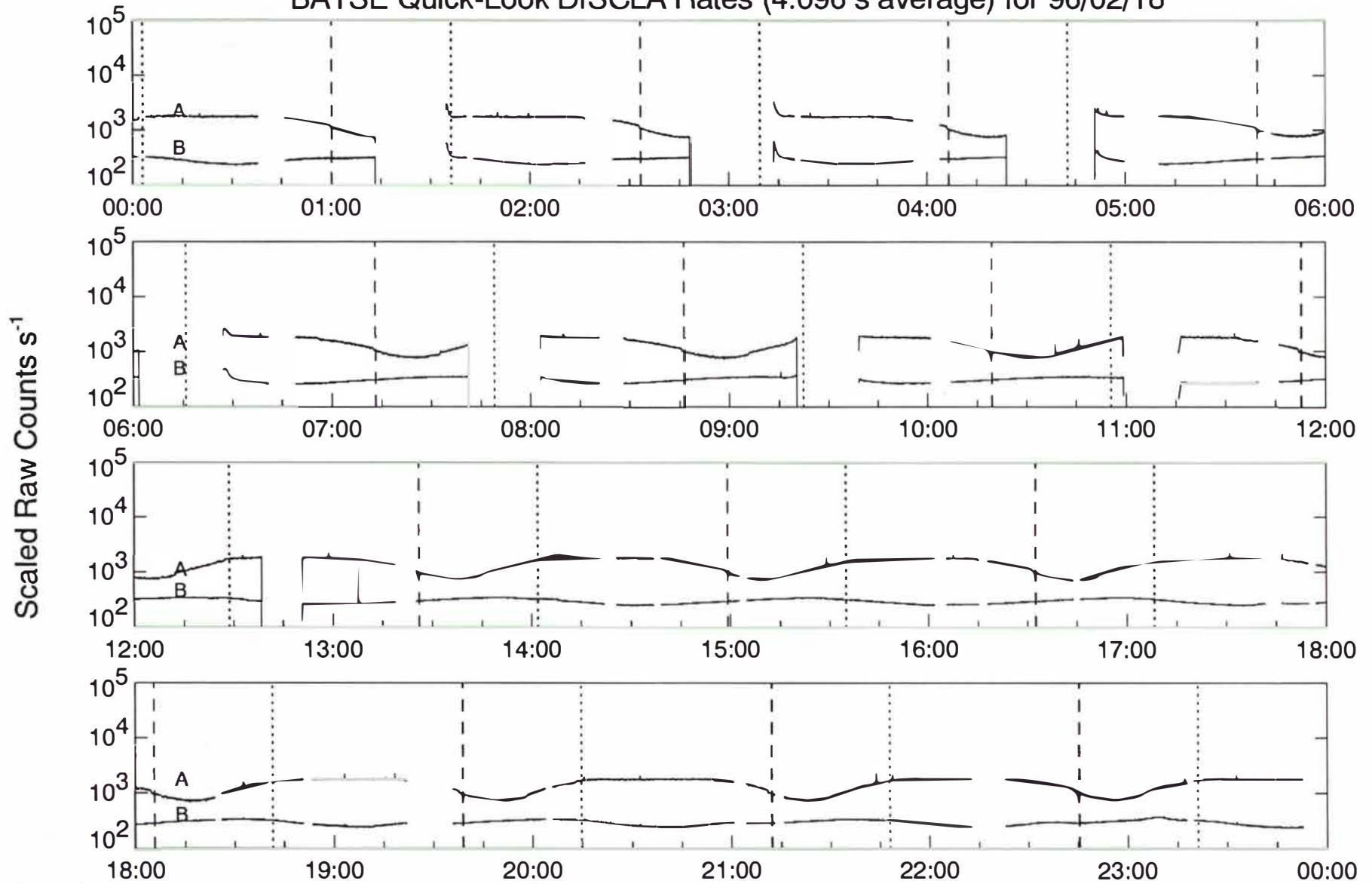


CALIBRATION DATA INCLUDED





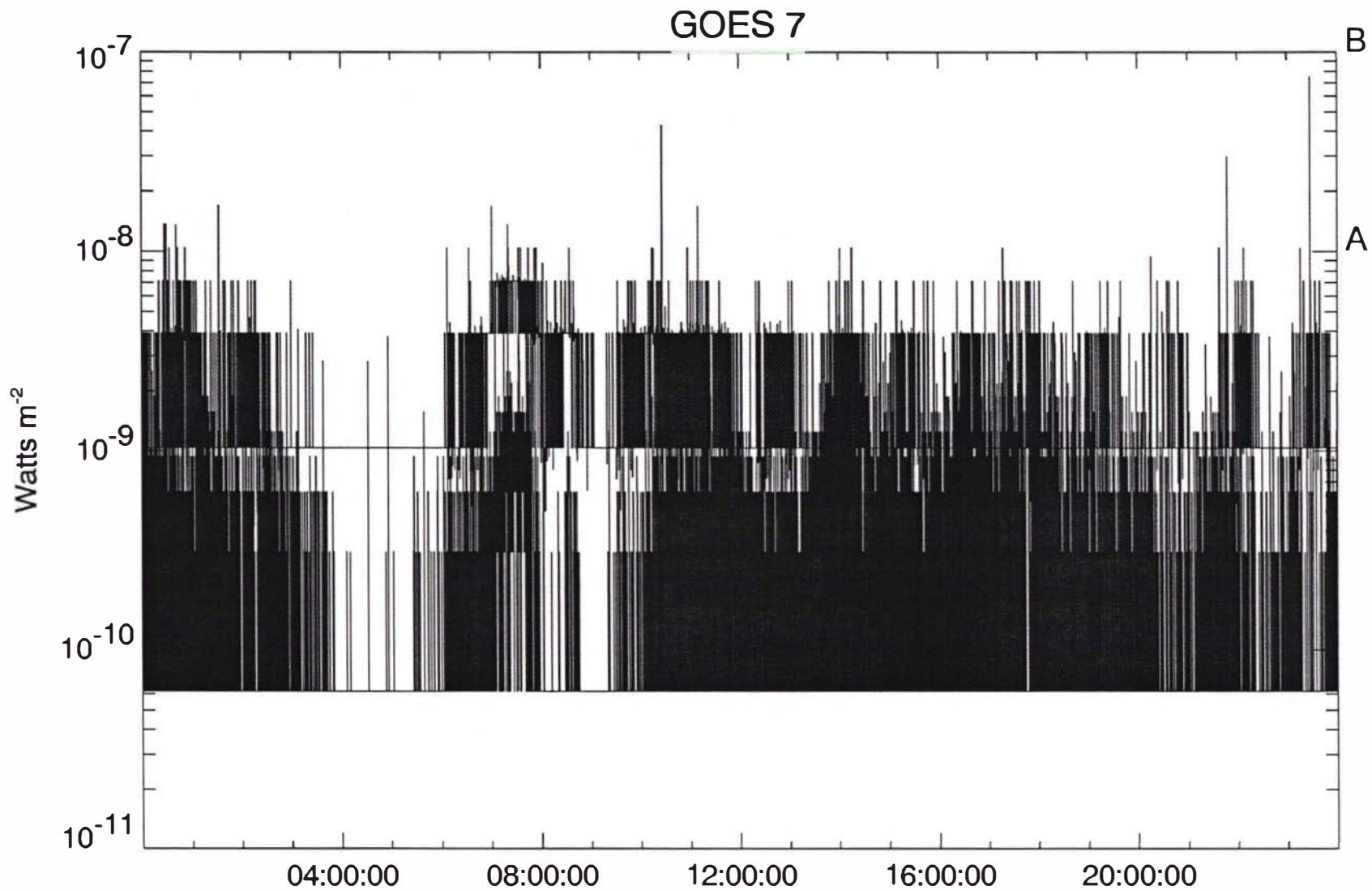
BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/18



Current Time: 96/02/20, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



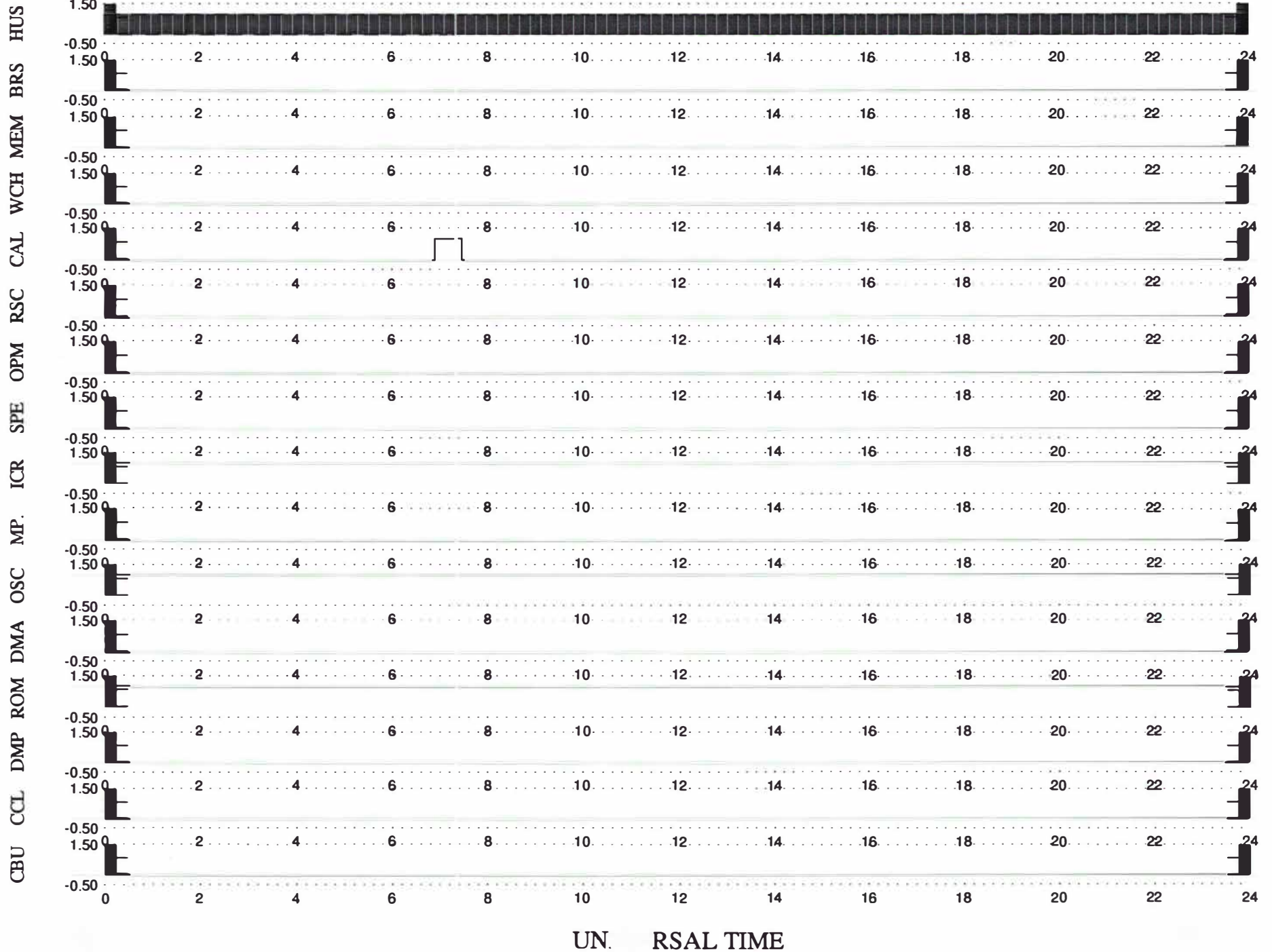
Data Start: 96/02/18, 0000:01

Plot created: 96/02/20, 0854

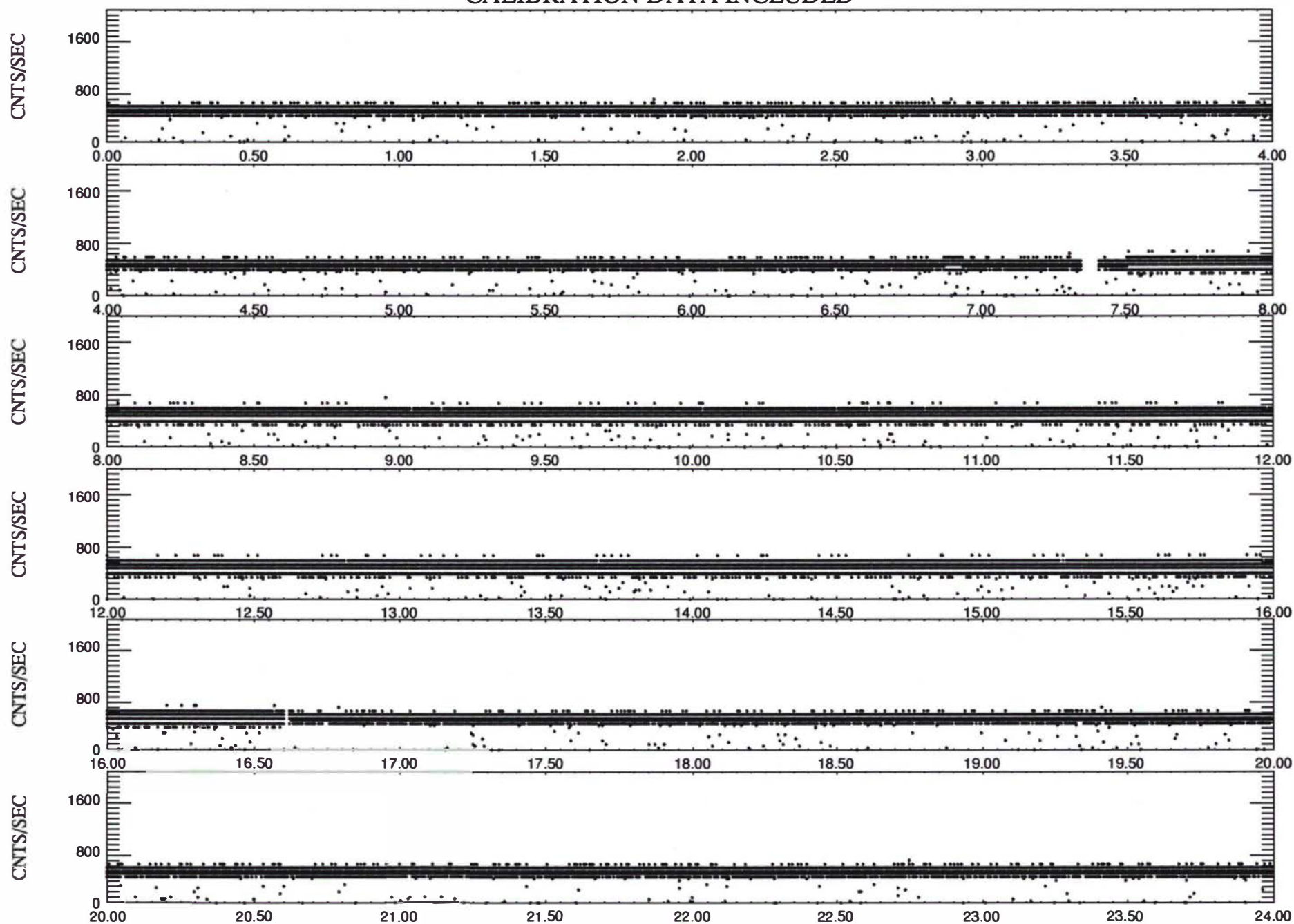
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

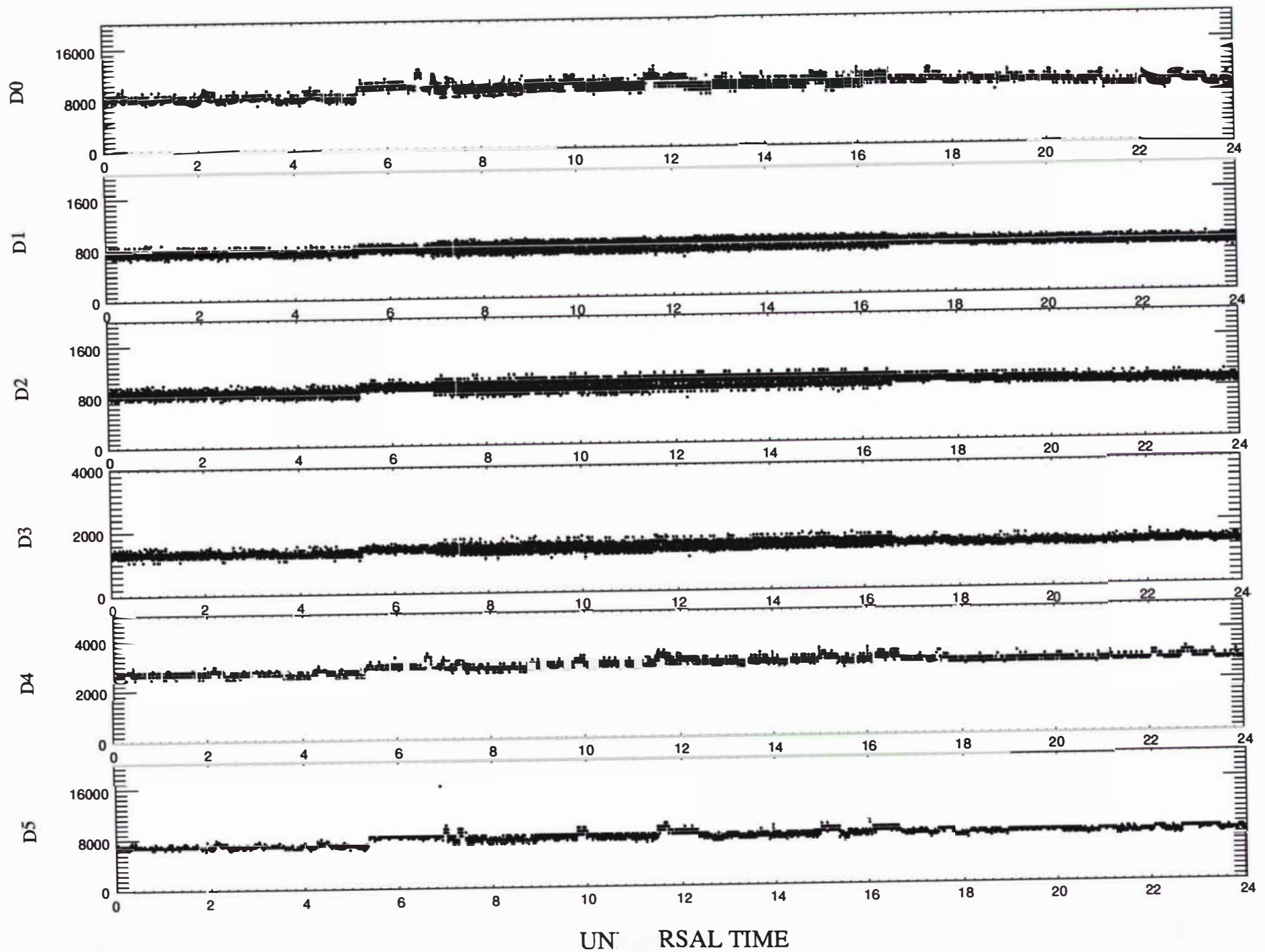
NO BURST (7)



CALIBRATION DATA INCLUDED



UN RSAL TIME



KONUS 19960219 20044

ULYSSES RT

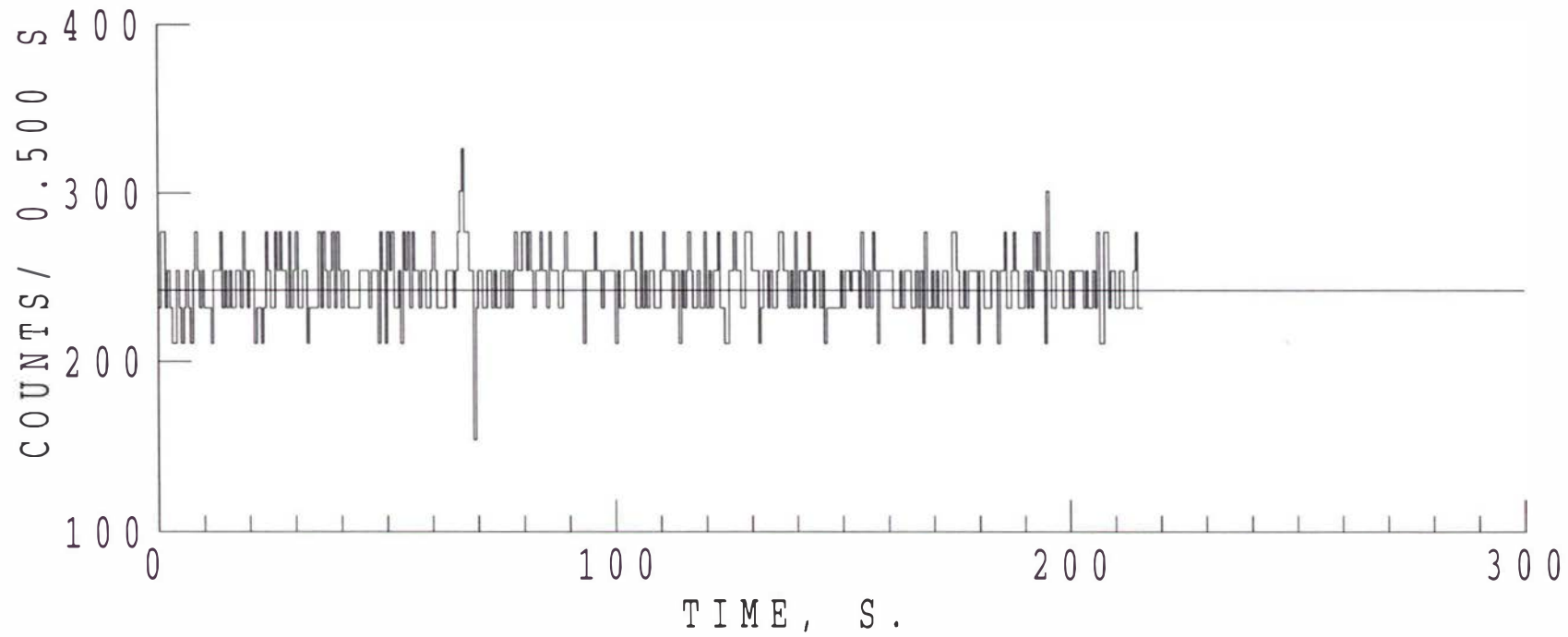
14 / 09 / 11

19 / 02 / 96 19944.053 s

0 - 0 keV

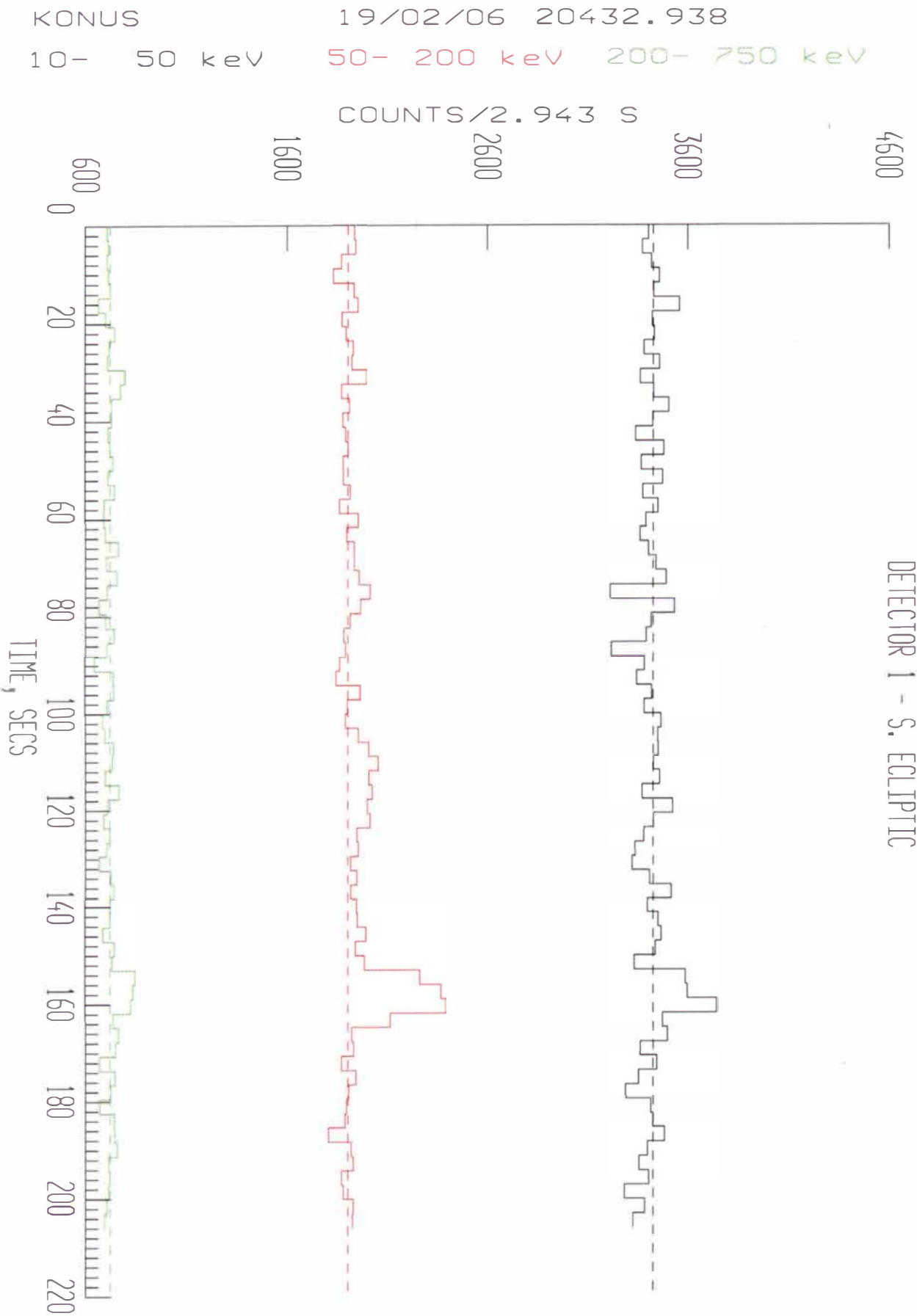
Different bursts

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

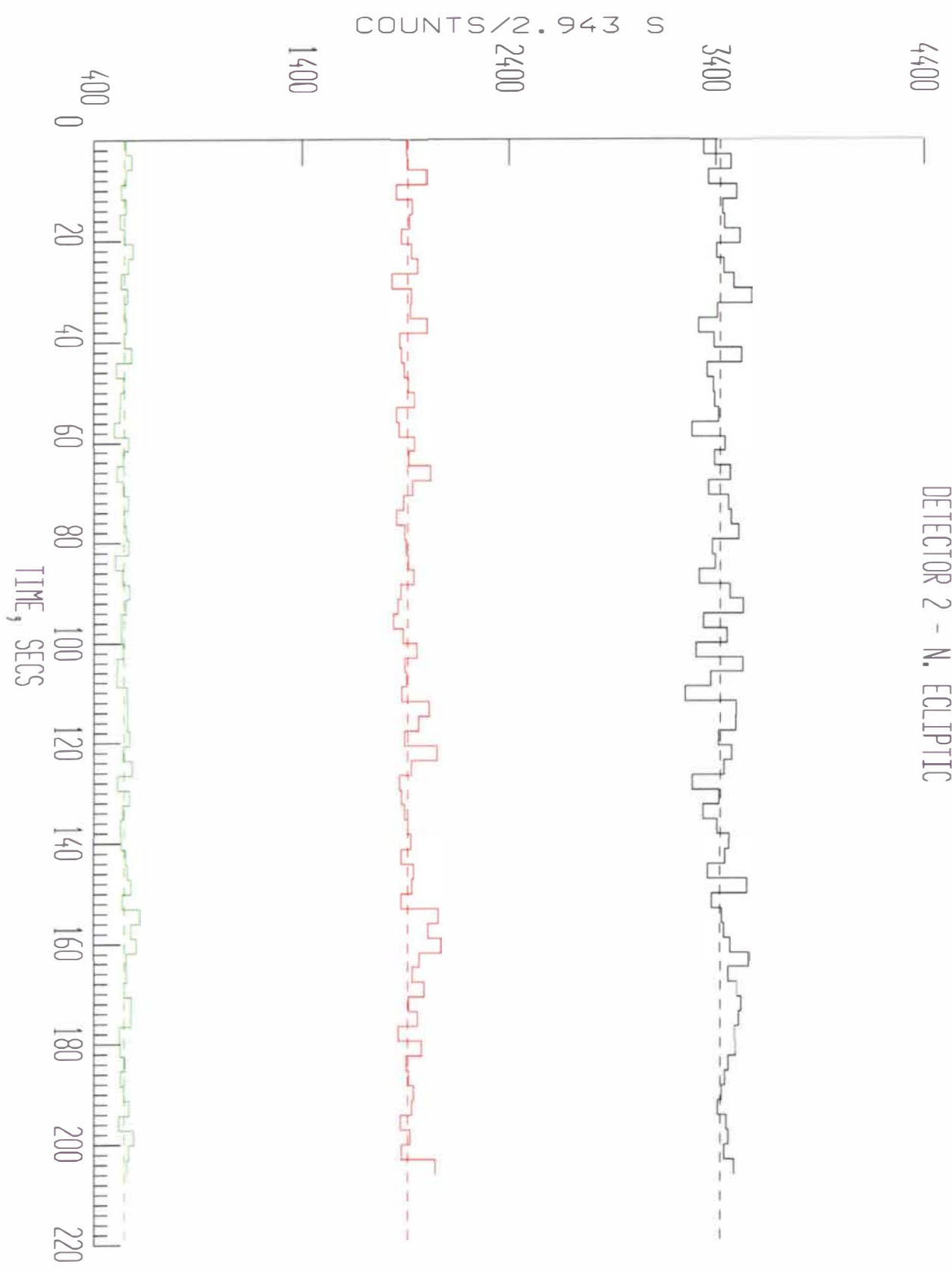


16/09/2011

DETECTOR 1 - S. ECLIPSE



KONUS 19/02/06 20432.938
10- 50 keV 50- 200 keV 200- 750 keV



DETECTOR 2 - N. ECLIPIC

16/09/2011

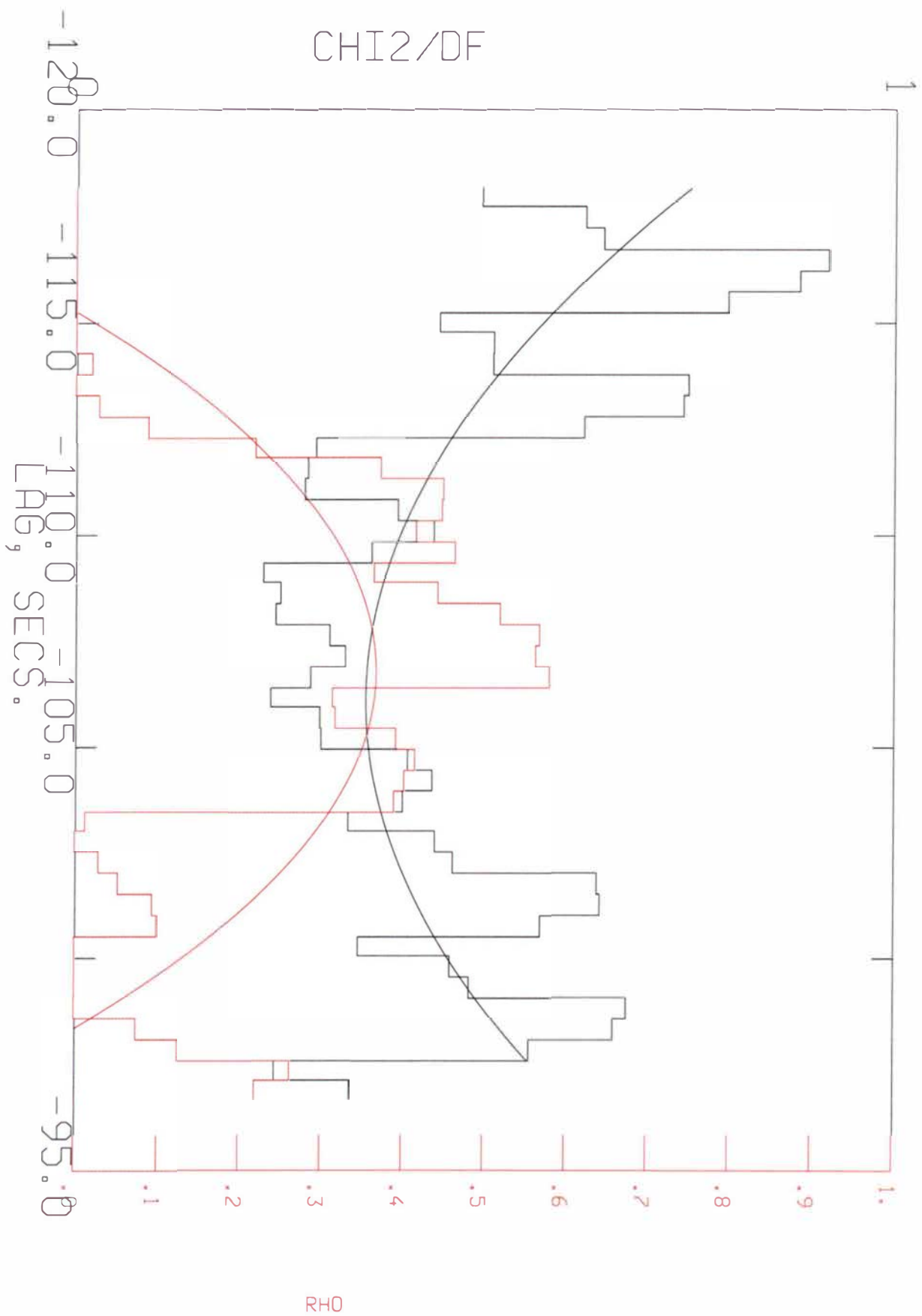
KONUS

-ULYSSES RT CORRELATION

19/02/06

20432.938

16/ 9/11



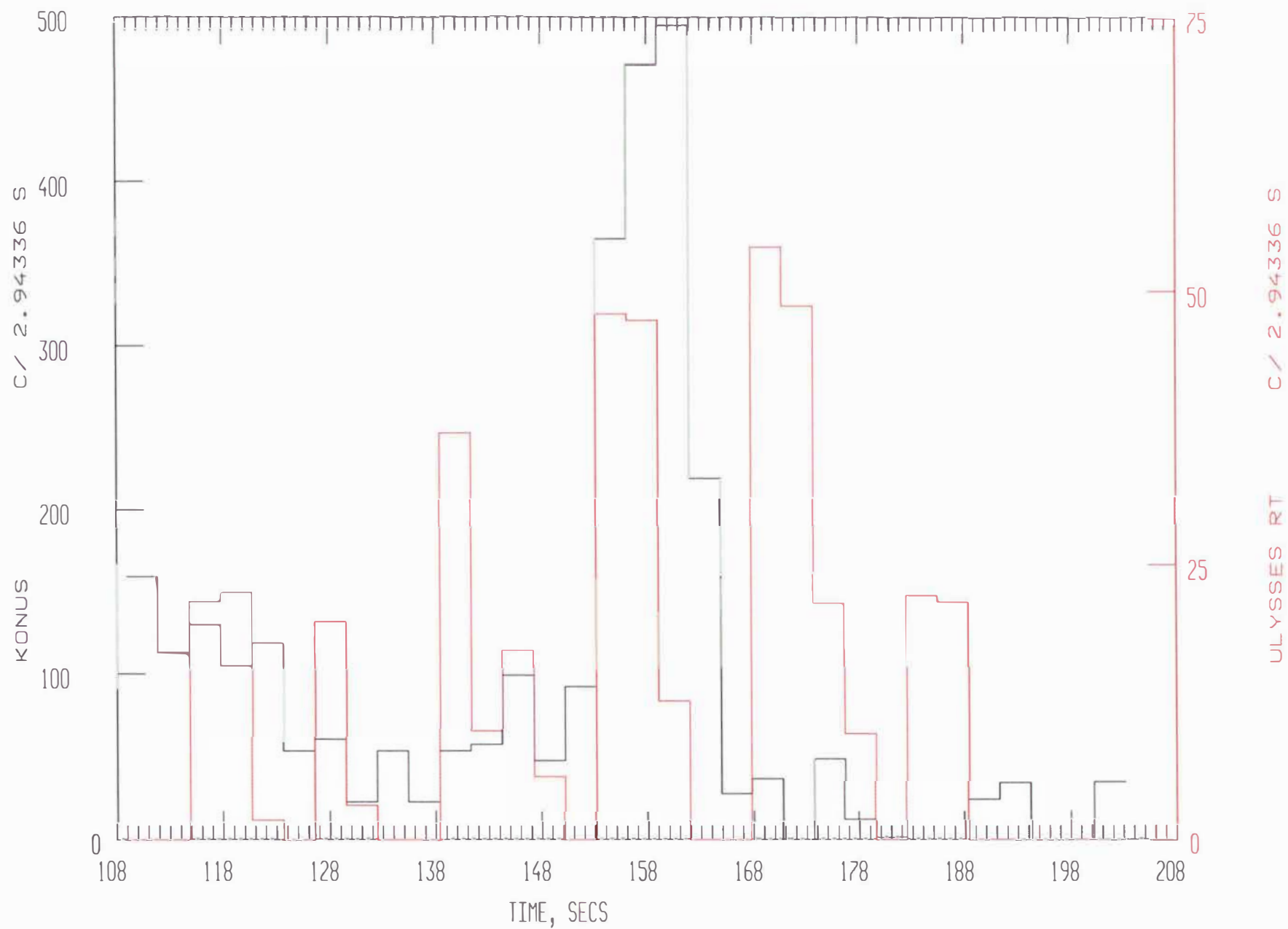
KONUS

-ULYSSES RT CORRELATION

19/02/06

20432.938

16/ 9/11



KONUS

ULYSSES RT

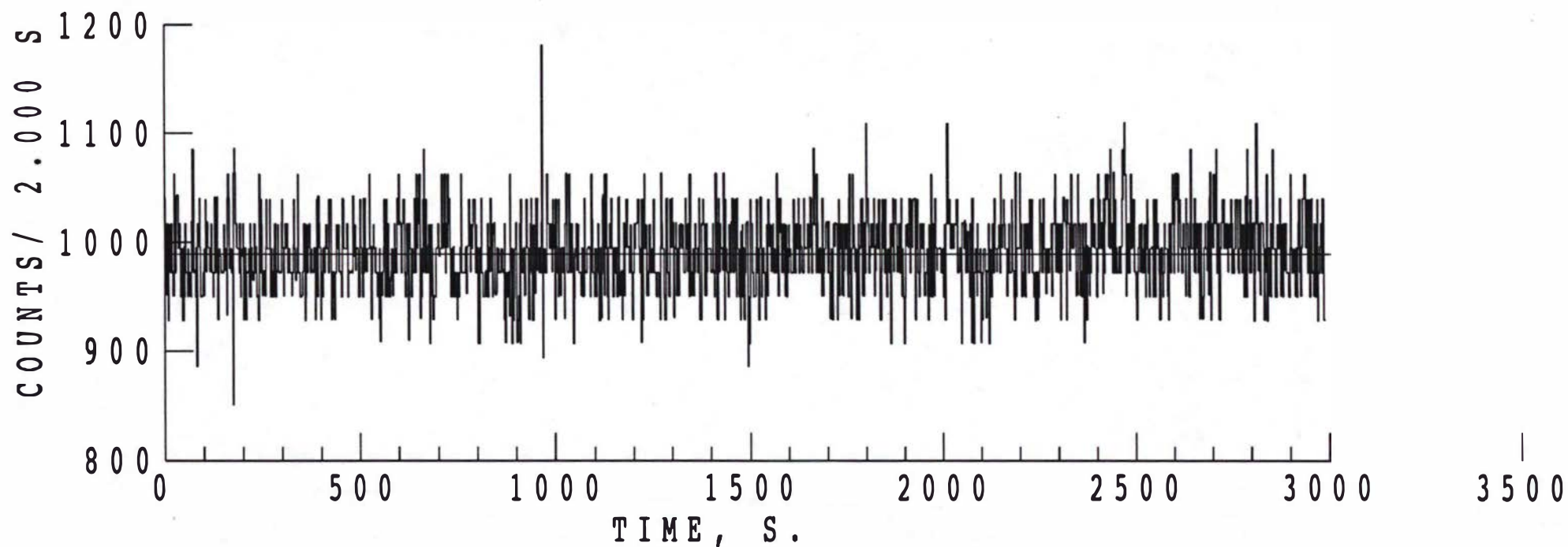
28 / 01 / 00

19 / 02 / 96 19044.045 s

0.500 S INTERVALS REGROUPED BY 4

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From HAGEDON@fender.msfc.nasa.gov Tue Feb 20 12:38 PST 1996
From: HAGEDON@fender.msfc.nasa.gov
Date: Tue, 20 Feb 1996 14:38:00 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4939

BATSEARCH PROGRAM

NO

BATSE BURST # 4939
EVENT OF 1996 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 71540. S. OR 19:52:20.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 256.000 20.000
BATSE PEAK COUNTING RATE: 4500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 19/ 2/ 96 IS:
RA= 207.493 DEC= 73.090 DIST= 2.878 AU
BATSE-ULYSSES DISTANCE = 430546128. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=120.55 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -730.02 SECS.
CROSSING TIME AT ULYSSES IS 70810. S. OR 19:40:09 +/- 253.64 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 19/ 2/ 96 IS:
RA= 335.115 DEC= -11.455 DIST= 2.367 AU
MARS-BATSE DISTANCE = 354108480. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 96.08 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -125.20 SECS.
CROSSING TIME AT MARS IS 71415. S. OR 19:50:14 +/- 202.01 SECONDS

BATSE BURST TRIGGER

NO.: 4939

TIME: TJD=0132 SECONDS=71540

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=94.4 AZIMUTH=46.0 ERROR=2.5 DEGREES

COMMENTS:

BURST. SINGLE PULSE WITH SUBSTRUCTURE. DUR.~40 SEC.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4939	960219	0132	71540	4500	256	+20	40

From cline@lheavx.gsfc.nasa.gov Fri Mar 29 08:40 PST 1996
 Date: Fri, 29 Mar 1996 08:40:19 -0800
 Mime-Version: 1.0
 To: KHURLEY@sunspot.ssl.berkeley.edu
 From: cline@lheavx.gsfc.nasa.gov (T L Cline)
 Subject: Konus Event List augmentation

Dear Kevin,

This list includes Sergei's latest Konus-W (GGS-Wind) and Konus-A (Kosmos-2326) events, for comparison with Ulysses, BATSE, TGRS, etc. The times listed are prioritized for Konus-W (i.e., Konus-A time given if Konus-W doesn't trigger).

Yr	Mn	Dy	UT (Konus)	BATSE	Ulysses	Konus	TGRS	Notes
95	11	2	07085.879	?	?	168	no	
95	11	2	21209.015	3891	R I	169	345	
95	11	4	05868.077	3893	R I	170	BGR	
95	11	5	46827.808	?	?	171	no	
95	11	12	66495.244	?	R I	172	no	
95	11	13	84358.872	3906	R I	173	BGR	
95	11	17	10123.762	3909	?	175	no	
95	11	19	29831.402	3912	R I	176	348	
95	11	19	46457.519	?	?	177	BGR	
95	11	22	09841.38	?	?	179	no	
95	11	22	17107.738	?	?	180	349	
95	12	2	39101.744	?	?	195	BGR	
95	12	3	03988.18	?	?	196	360	
	12	8	19617.151	?	?	197	no	
	12	8	39452.057	?	?	198	no	
95	12	8	42467.634	?	?	199	BGR	
95	12	9	31349.607	?	?	200	BGR	
95	12	13	17849.683	?	?	201	362	
95	12	14	08657.847	?	?	202	no	
95	12	19	60679.732	?	?	203	no	
95	12	20	31883.56	?	?	204	BGR	
95	12	22	25203.254	?	?	no	?	= K-A t.
95	12	27	23005.042	?	?	218	375	
96	12	31	20231.668	?	?	219	no	
96	1	2	11650.996	?	?	220	no	
96	1	4	12521.062	?	?	221	no	
96	1	11	46524.53	?	?	222	no	
96	1	13	56024.261	?	?	228	no	
96	1	14	44104.737	?	?	233	384	+ K-A t.
96	1	15	31956.506	?	?	234	BGR	
96	1	17	57371.341	?	?	235	no	
96	1	19	34679.317	?	?	236	no	
96	1	19	45226.016	?	?	237	no	
96	1	20	36768.974	?	?	238	no	
96	1	24	03388.008	?	?	239	385	+ K-A t.
96	1	24	76096.911	?	?	BGR	?	= K-A t.
96	1	30	08756.848	?	?	240	no	
96	2	1	78530.582	?	?	241	?	+ K-A t.
	2	2	50750.813	?	?	242	?	
	2	10	35198.959	?	?	247	?	
96	2	16	57796.347	?	?	BGR	?	= K-A t.
96	2	19	20589.684	?	?	BGR	?	= K-A t.
96	2	28	85760.241	?	?	249	?	
96	2	29	22445.141	?	?	250	?	

96	3	5	33645.352	?	?	251	?
96	3	12	35074.697	?	?	252	?
96	3	19	51992.828	?	?	253	?
96	3	21	76321.803	?	?	254	?
96	3	22	19642.728	?	?	255	?
96	3	24	80064.124	?	?	257	?
96	3	25	69892.978	?	?	258	?

--

TLC

-- T. L. Cline ----- LHEAVX::CLINE

BATSE #

4939

22 / 2 / 96

ULYSSES RT

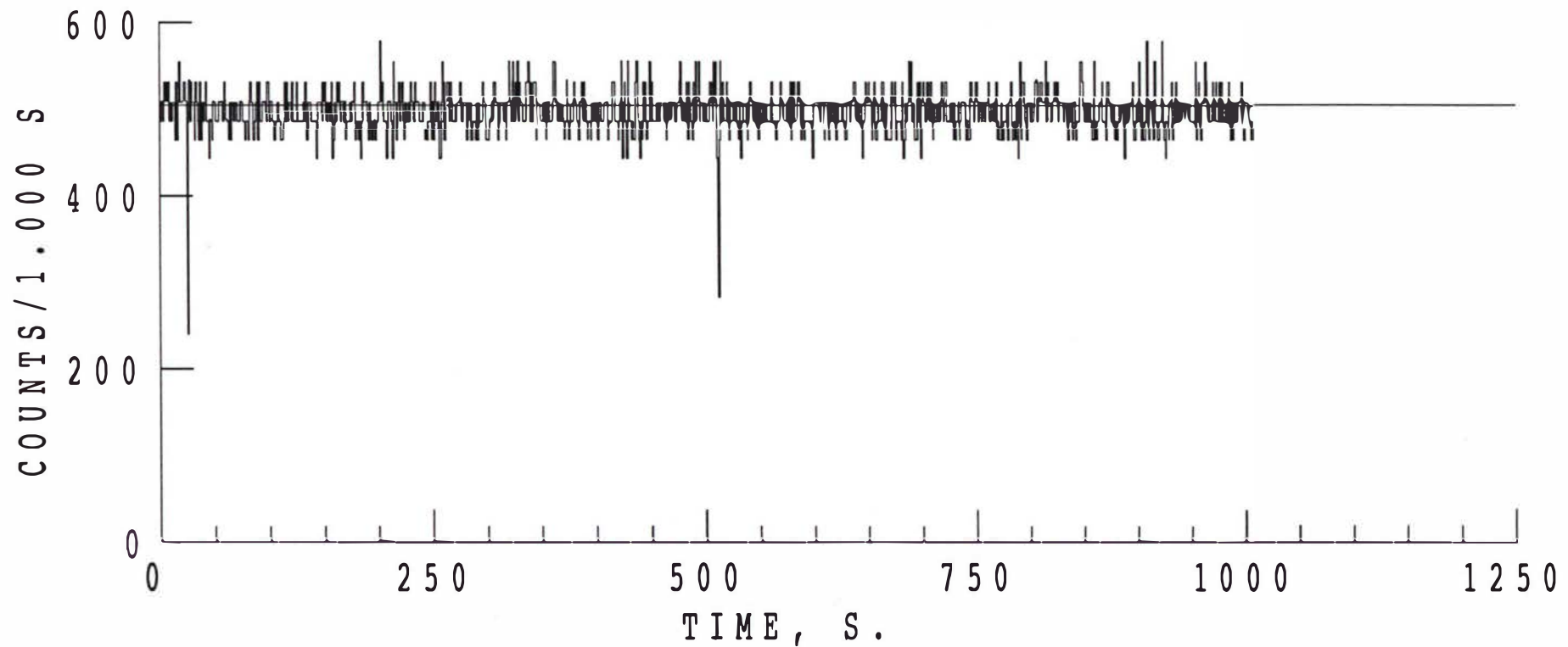
19 / 2 / 96 70560.281 s

0.500 S INTERVALS REGROUPED BY 2

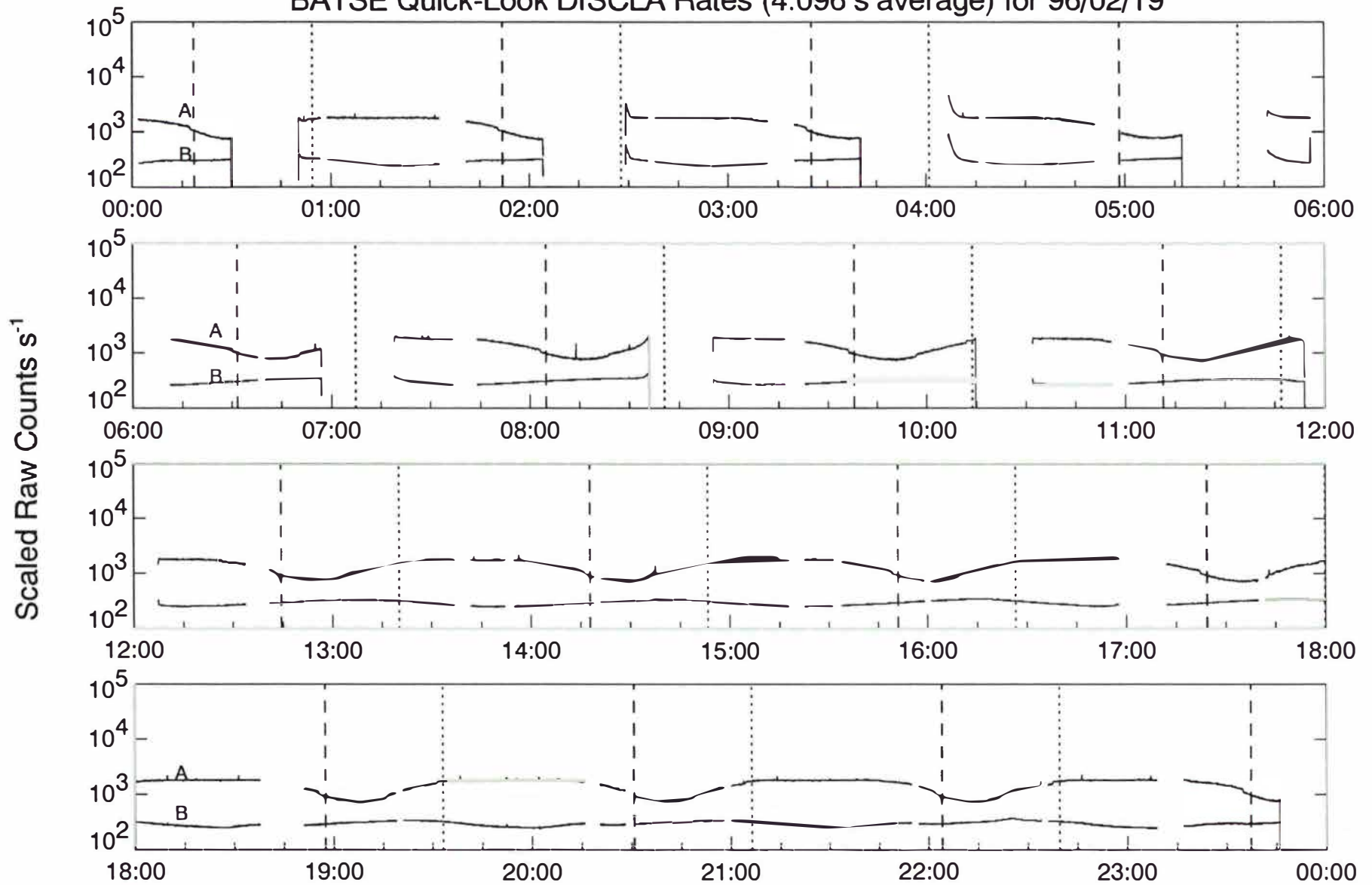
0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/19

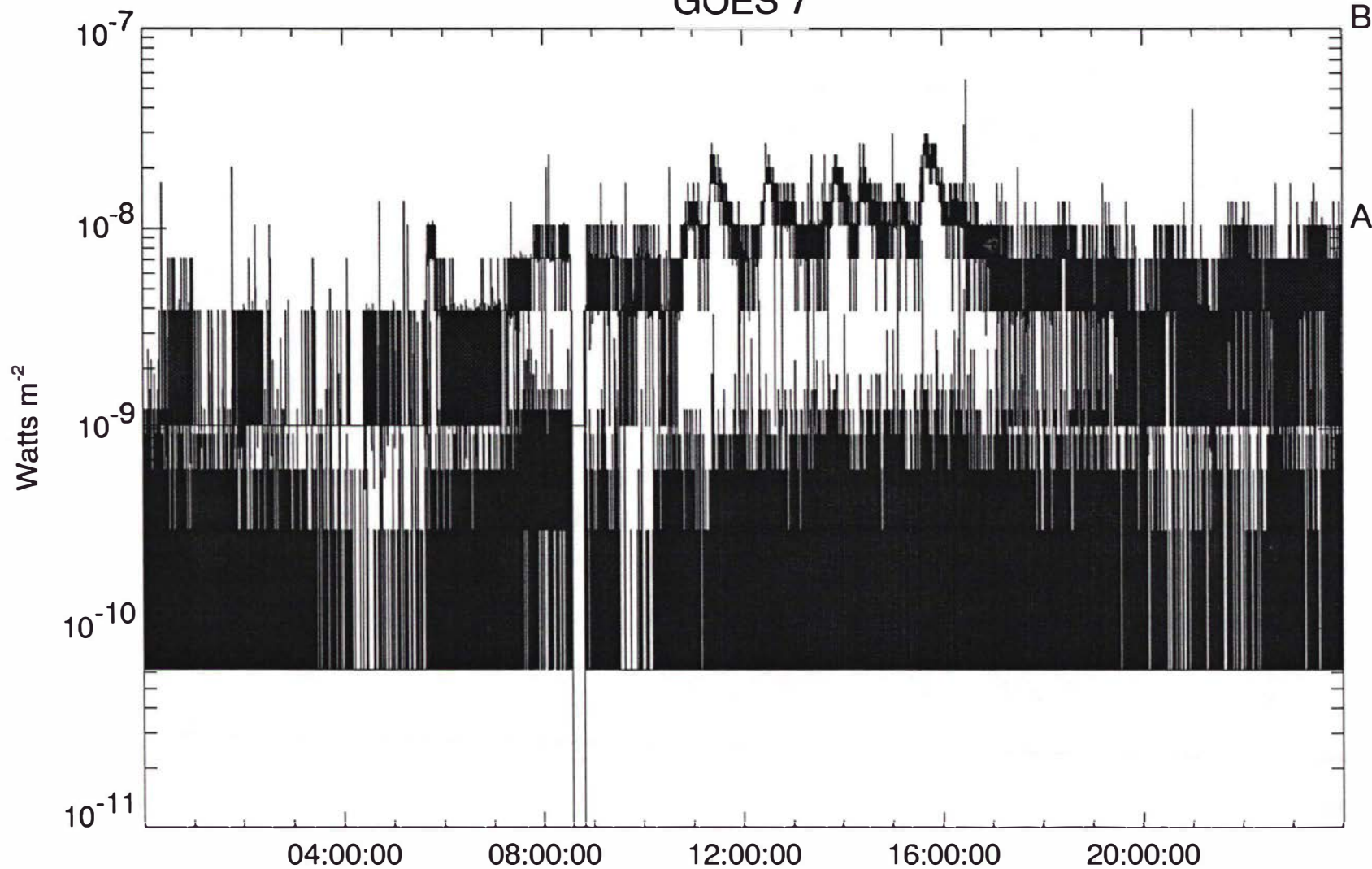


Current Time: 96/02/21, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 7



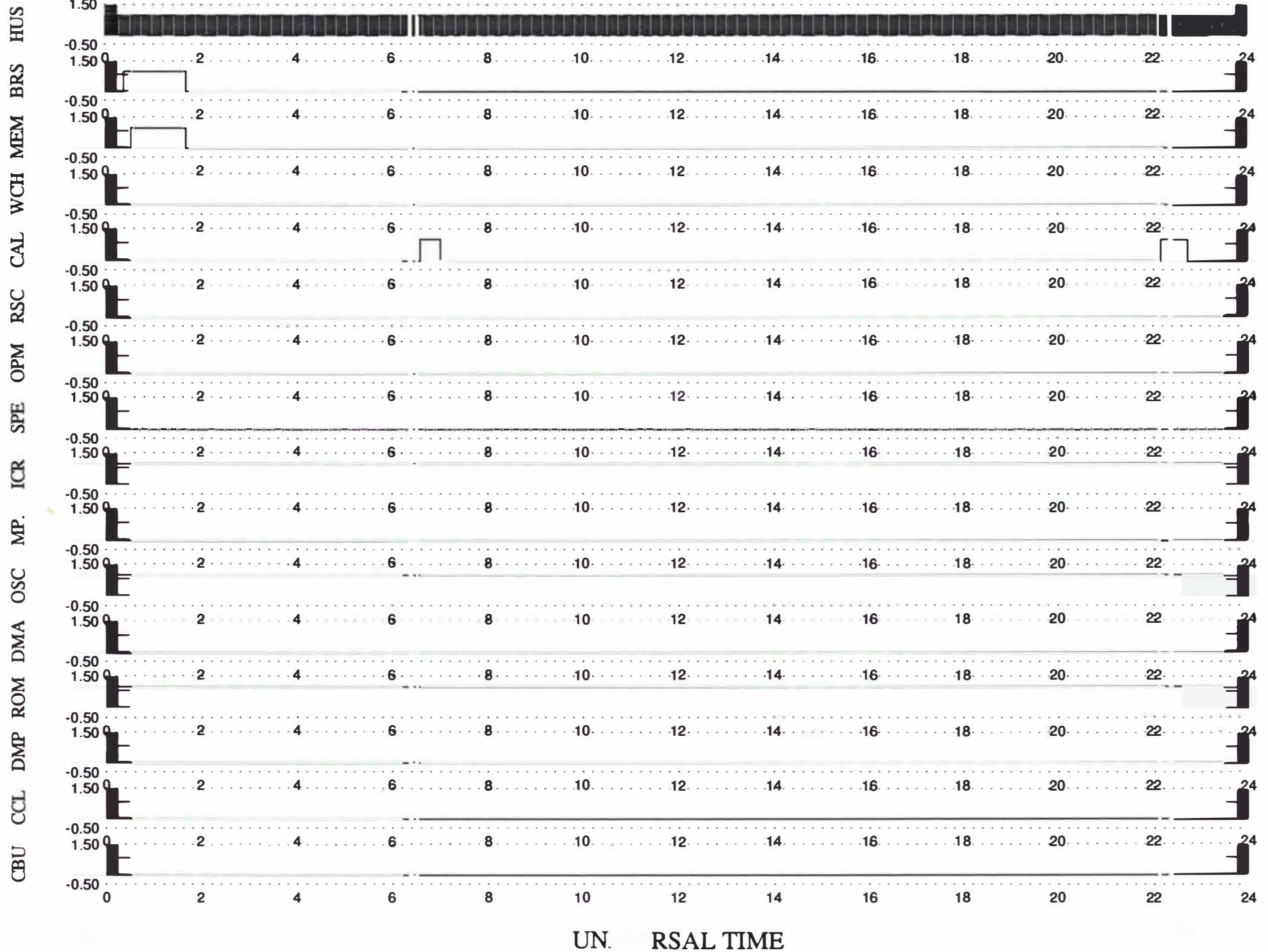
Data Start: 96/02/19, 0000:02

Plot created: 96/02/21, 0854

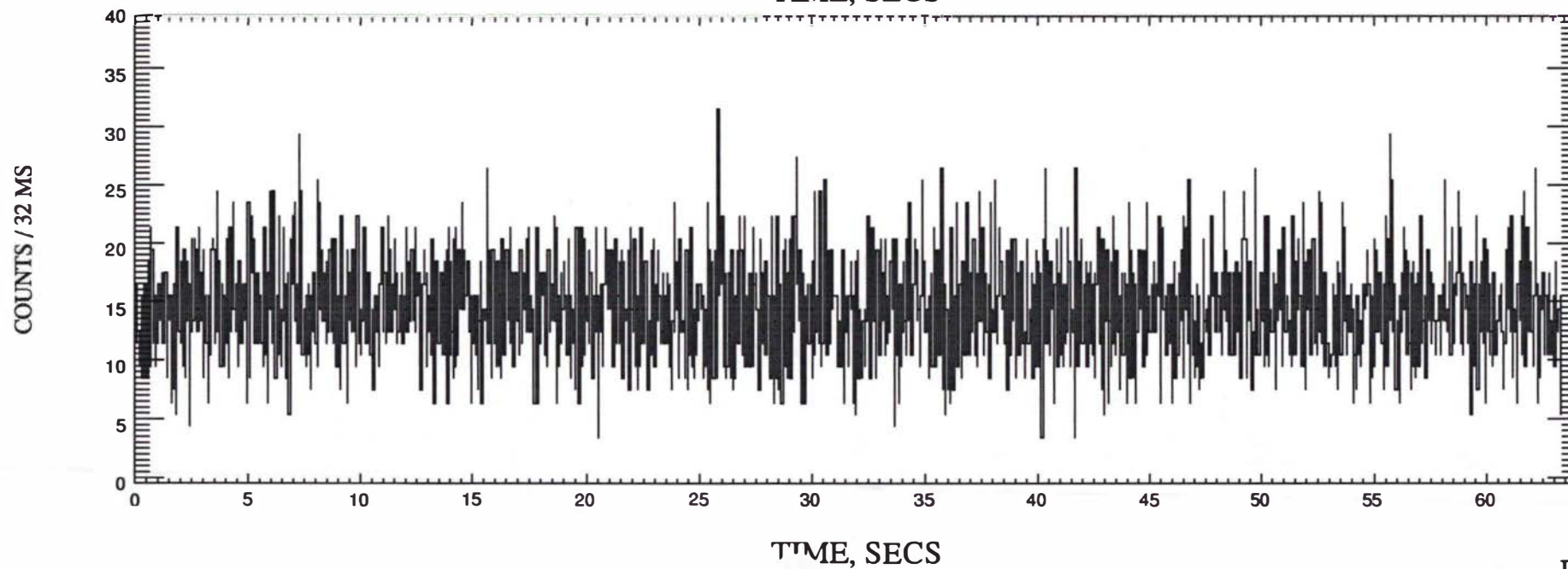
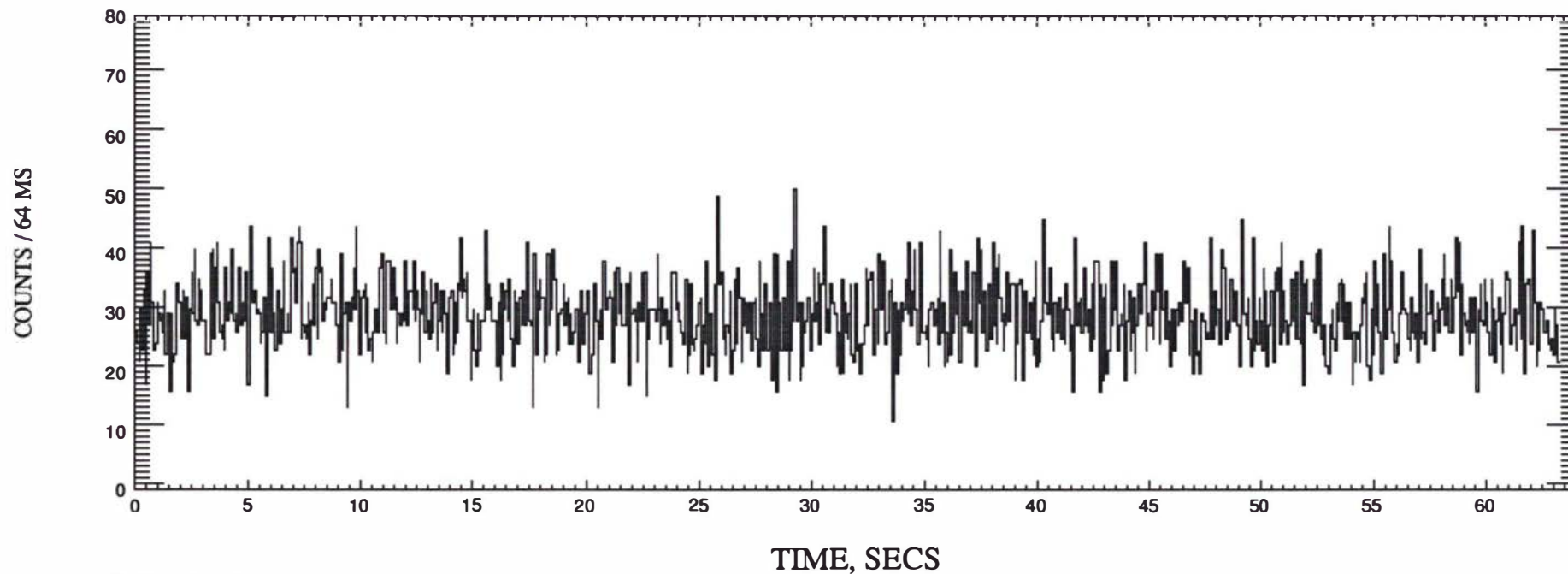
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

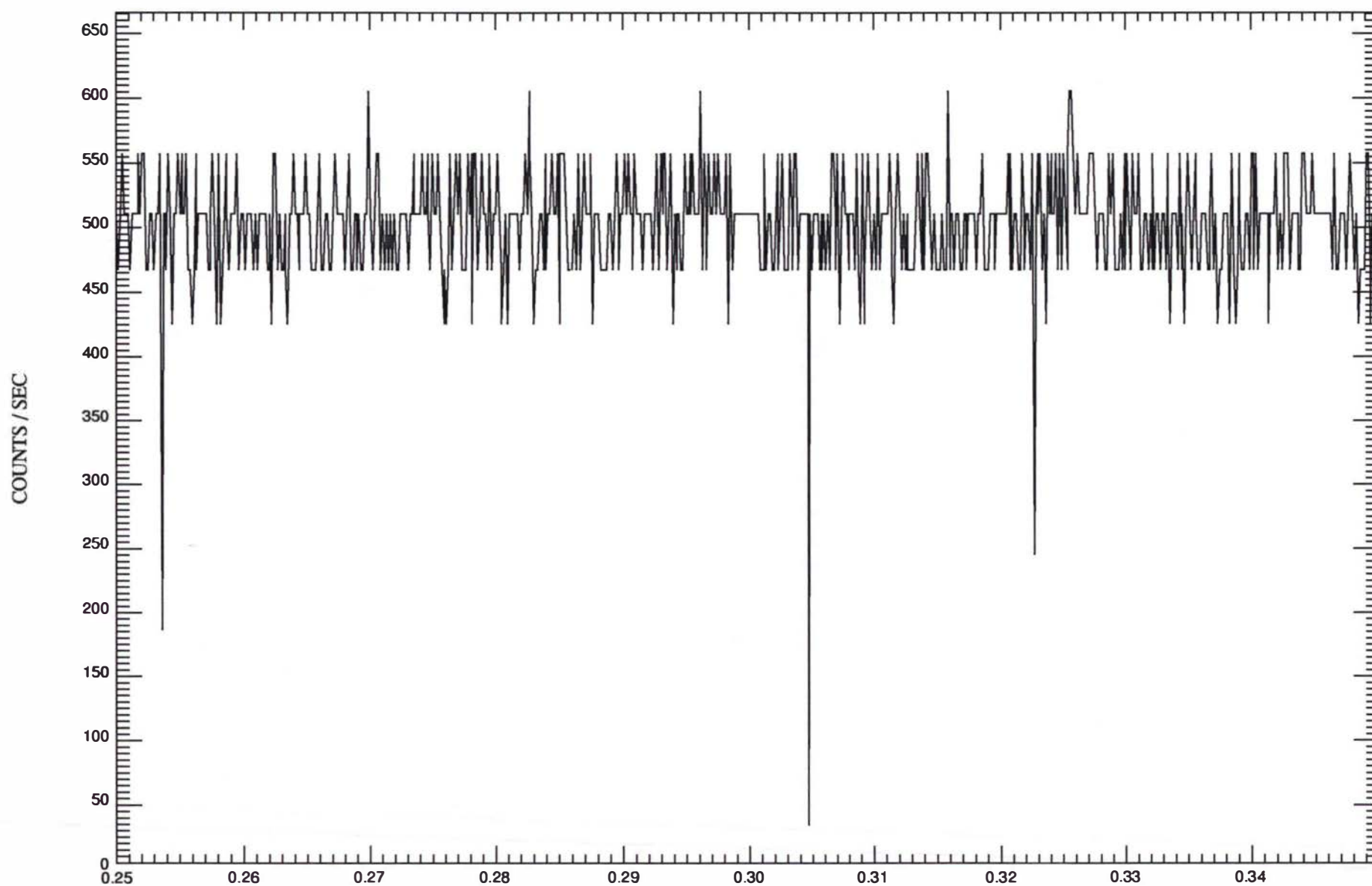
BURST NUMBER 8



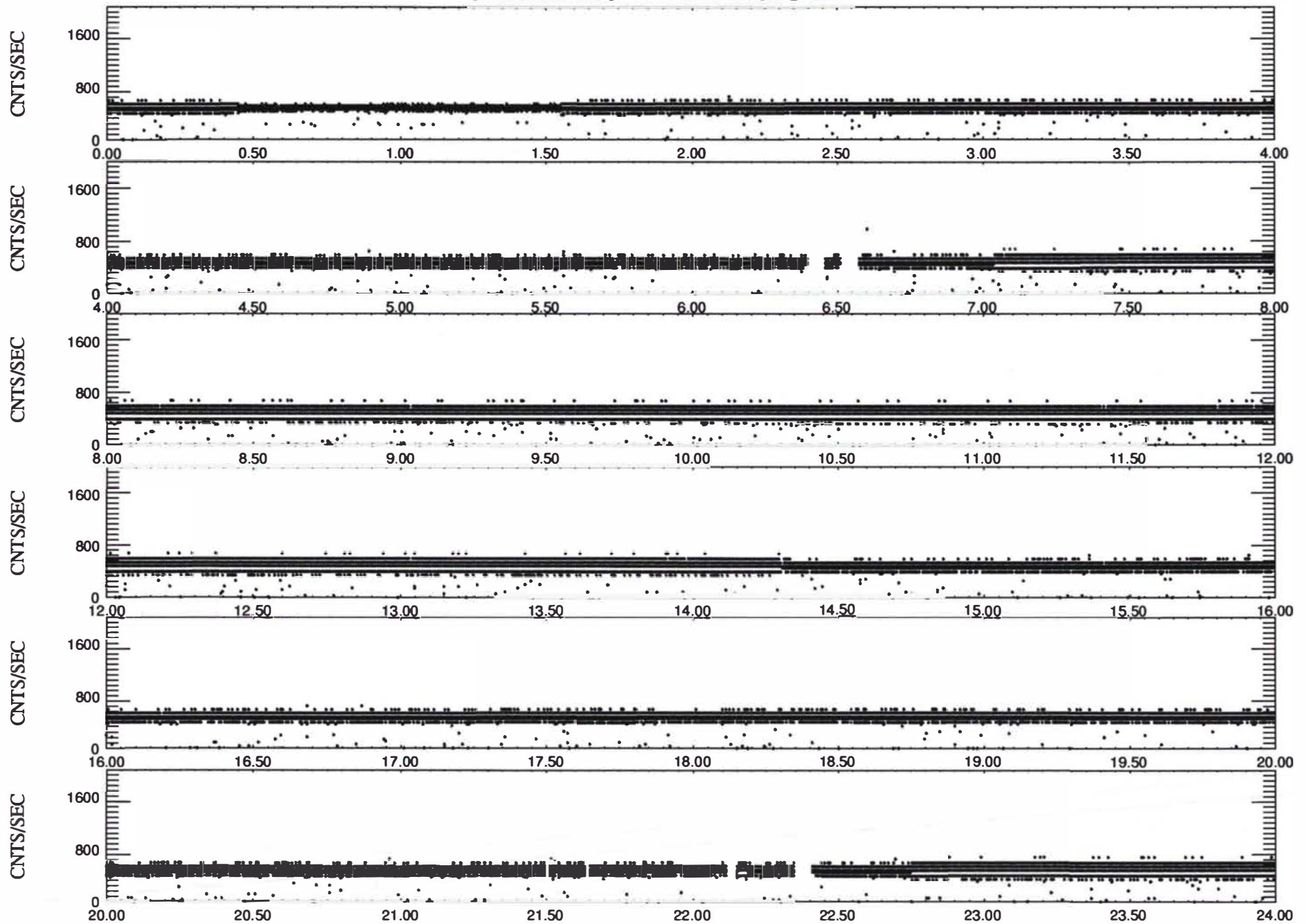
Burst Counter 8 at UT= 0.296291241116 h= 1066.648 s 00:17:46.648



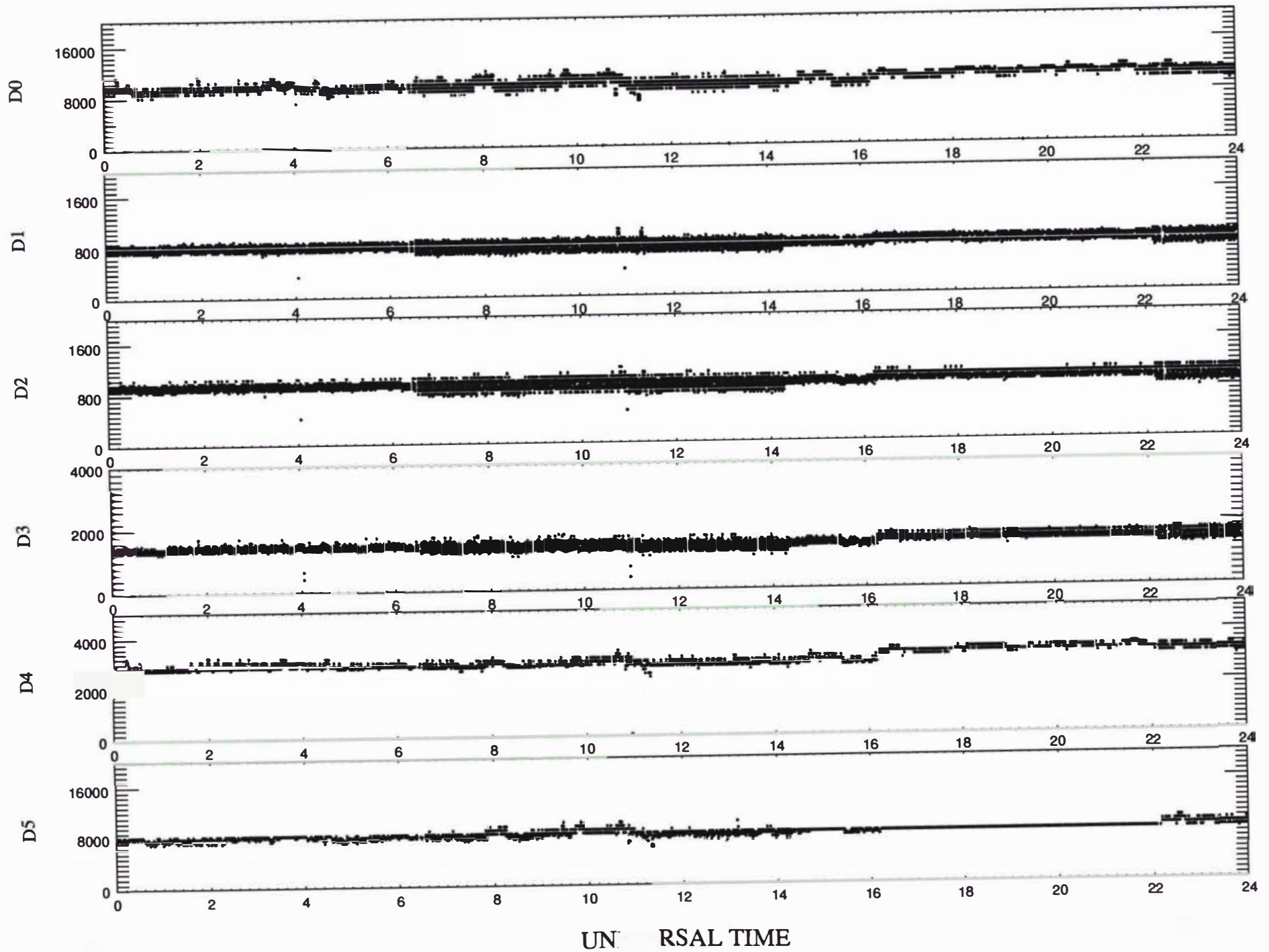
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN RSAL TIME



From DEAL@fender.msfc.nasa.gov Mon Feb 26 12:23 PST 1996
From: DEAL@fender.msfc.nasa.gov
Date: Mon, 26 Feb 1996 14:22:35 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4955

BATSEARCH PROGRAM

NO

BATSE BURST # 4955
EVENT OF 1996 FEB 20 DAY OF YEAR= 51
EVENT CROSSING TIME AT BATSE : 76454. S. OR 21:14:14.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 176.000 80.000
BATSE PEAK COUNTING RATE: 19500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 20/ 2/ 96 IS:
RA= 206.378 DEC= 73.291 DIST= 2.883 AU
BATSE-ULYSSES DISTANCE = 431359417. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=170.50 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1419.15 SECS.
CROSSING TIME AT ULYSSES IS 75035. S. OR 20:50:34 +/- 69.66 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 20/ 2/ 96 IS:
RA= 335.865 DEC= -11.166 DIST= 2.368 AU
MARS-BATSE DISTANCE = 354189568. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 69.47 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 414.28 SECS.
CROSSING TIME AT MARS IS 76868. S. OR 21:21:08 +/- 198.39 SECONDS

BATSE BURST TRIGGER

NO.: 4955

TIME: TJD=0133 SECONDS=76454

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=47.0 AZIMUTH=28.1 ERROR=3.9 DEGREES

COMMENTS:

BURST LASTING ~ 0.4 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4955	960220	10133	76454	19500	176	+80	.4

BATSE #

4955

26 / 2 / 96

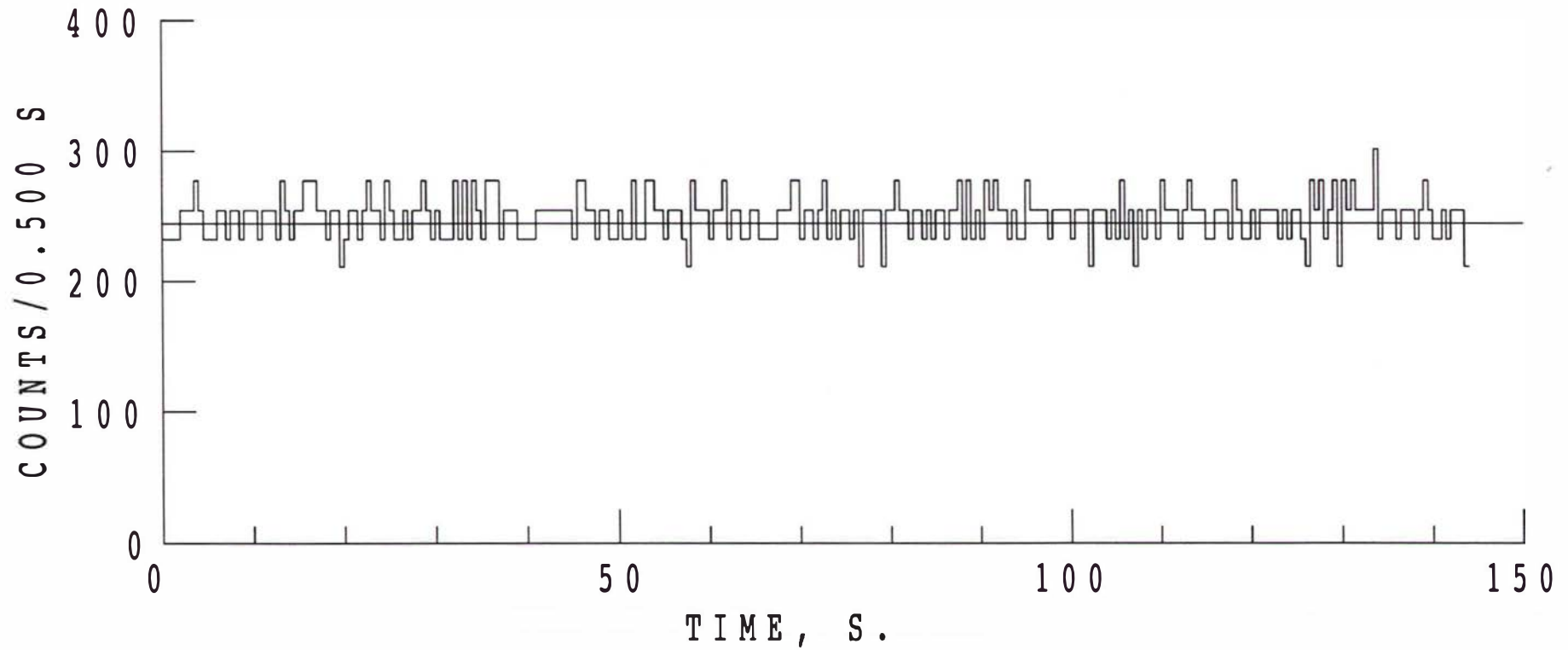
ULYSSES RT

20 / 2 / 96 74952.078 s

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



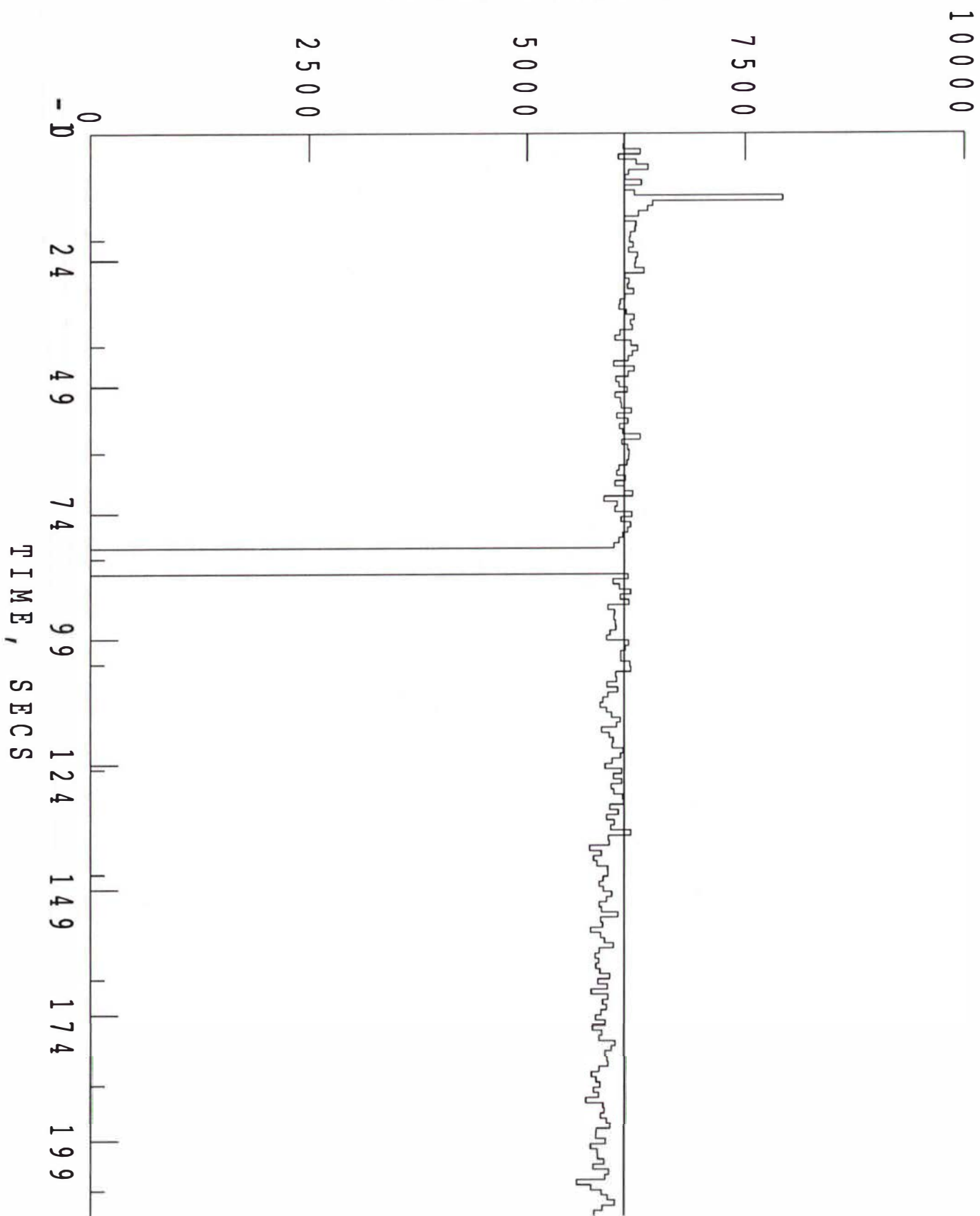
BACODINE

20/02/96

76442.313

25 - 100 keV

COUNTS/1.024 S



BACODINE #

4955

22 / 2 / 96

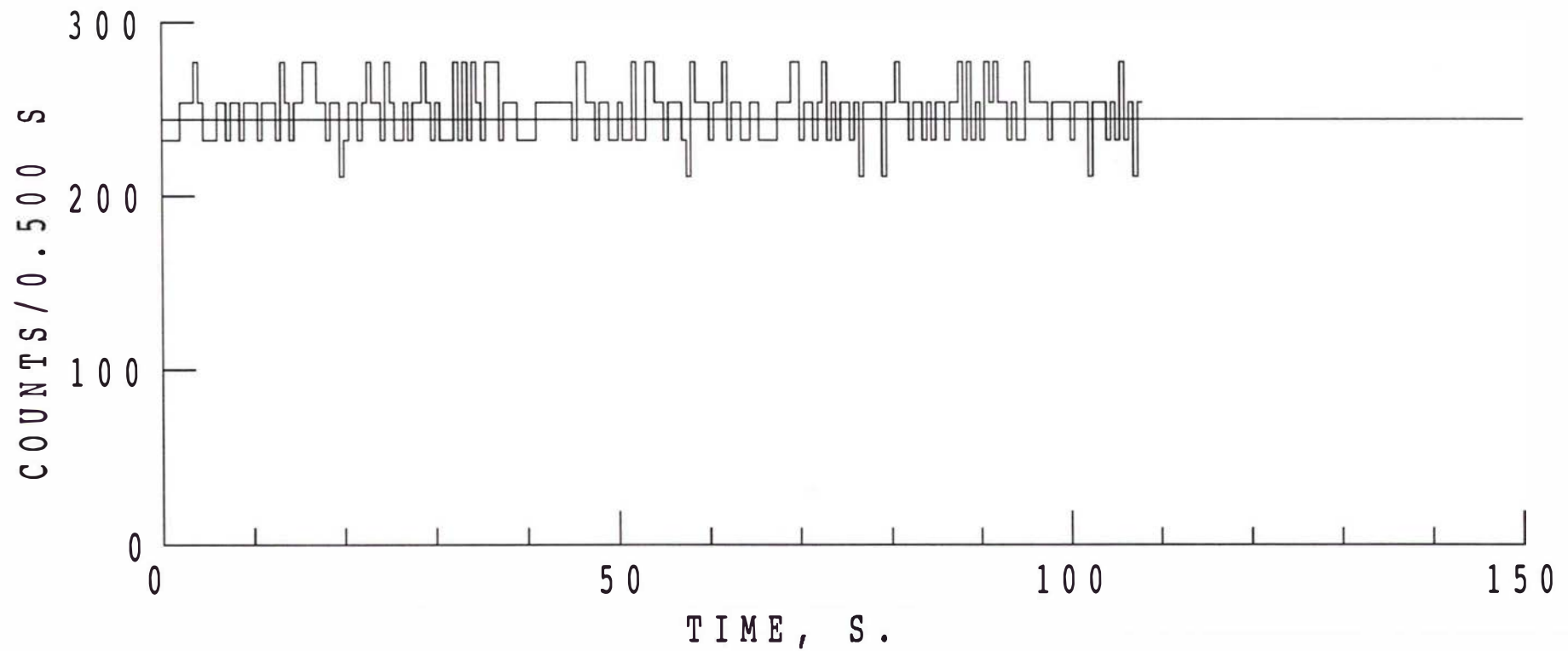
ULYSSES RT

20 / 2 / 96 74952.078 s

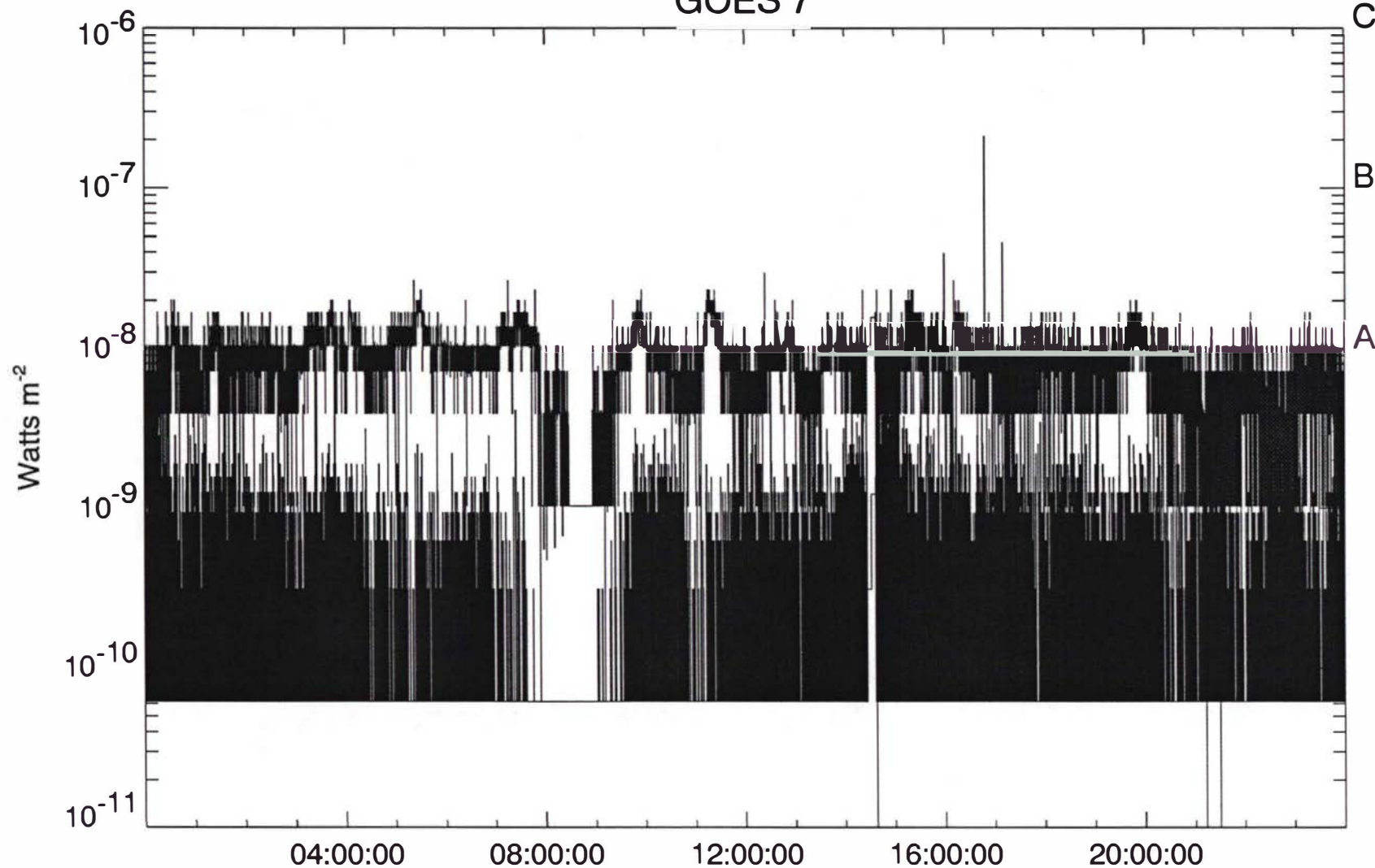
0 - 0 keV

M= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



GOES 7

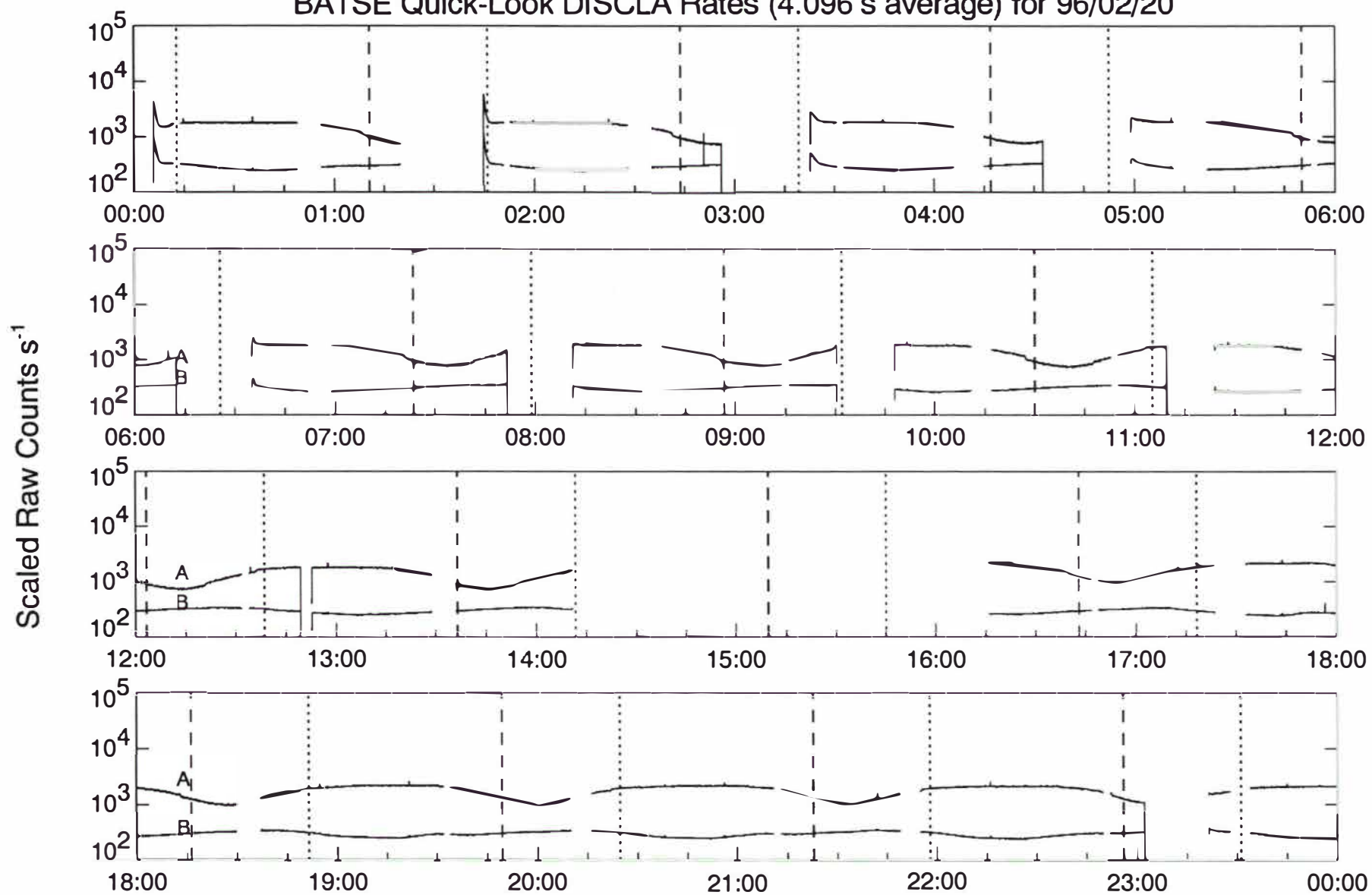


Data Start: 96/02/20, 0000:00

Plot created: 96/02/22, 0854

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

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/20

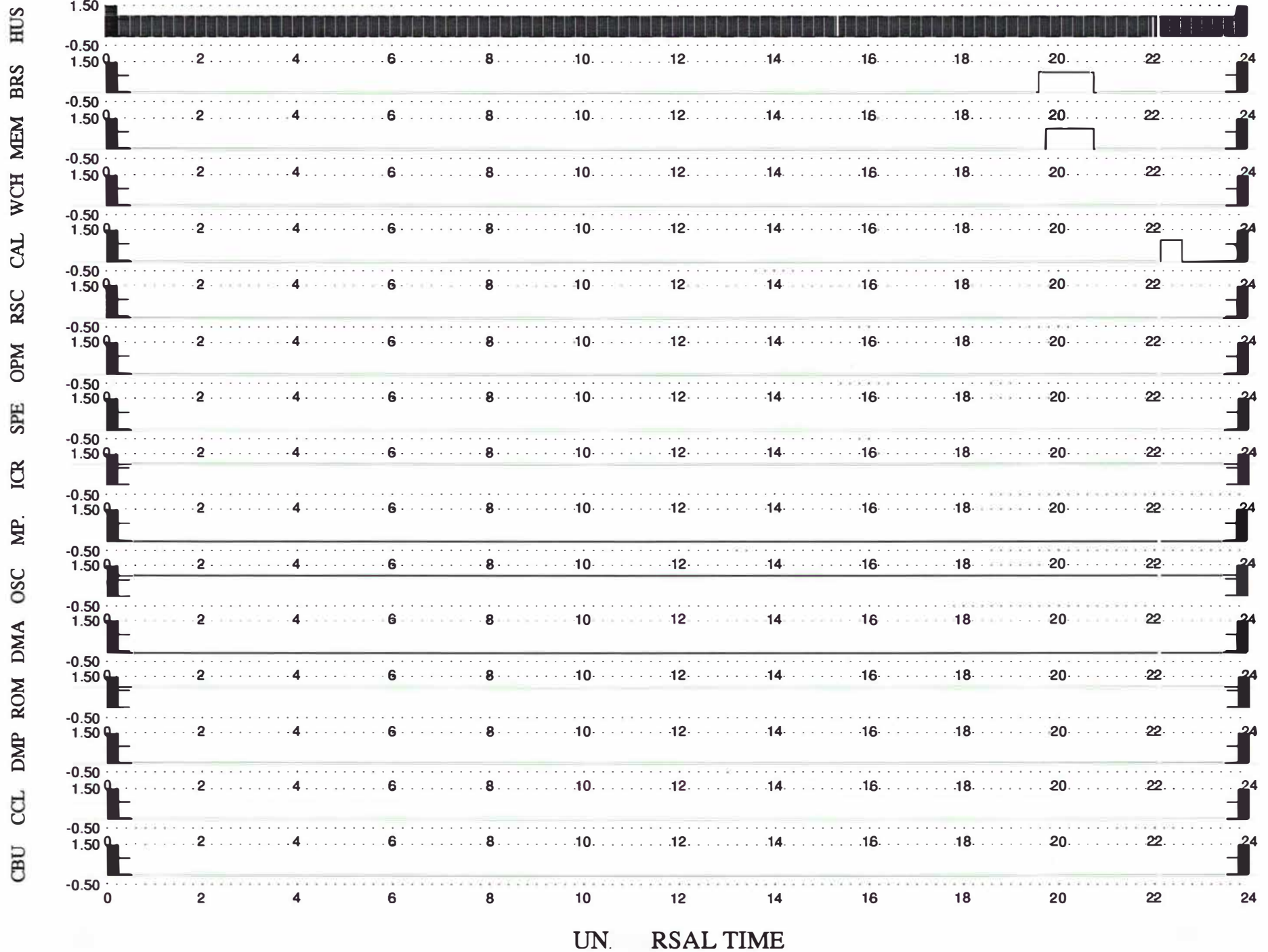


Current Time: 96/02/22, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

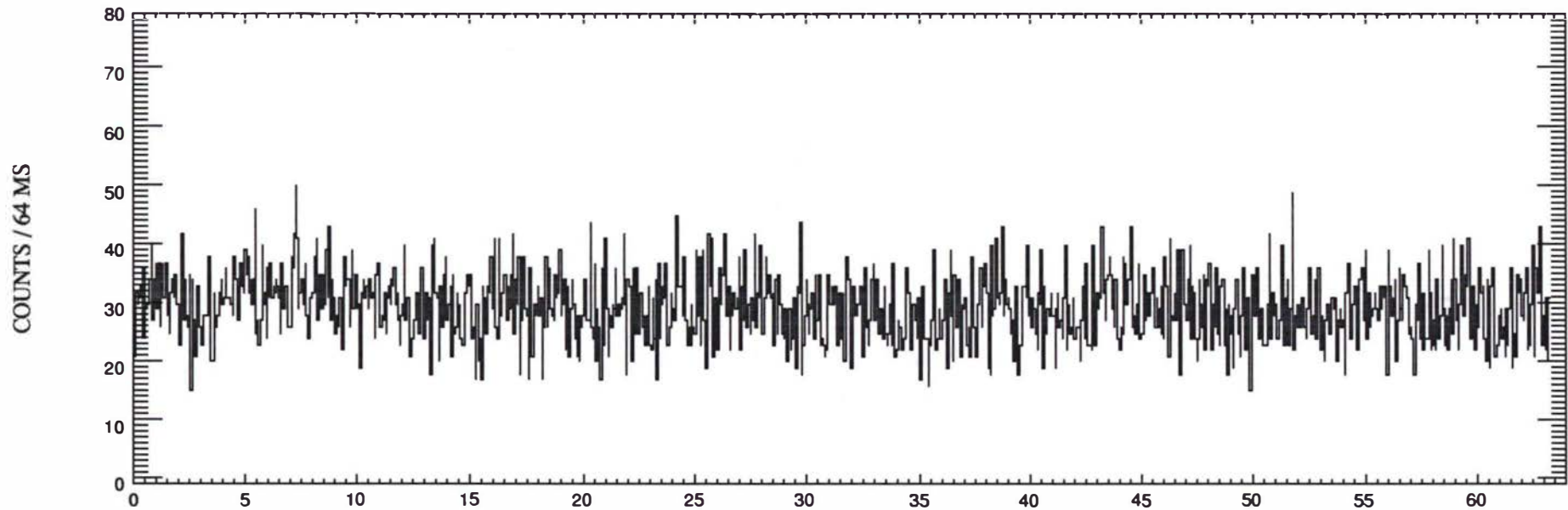
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

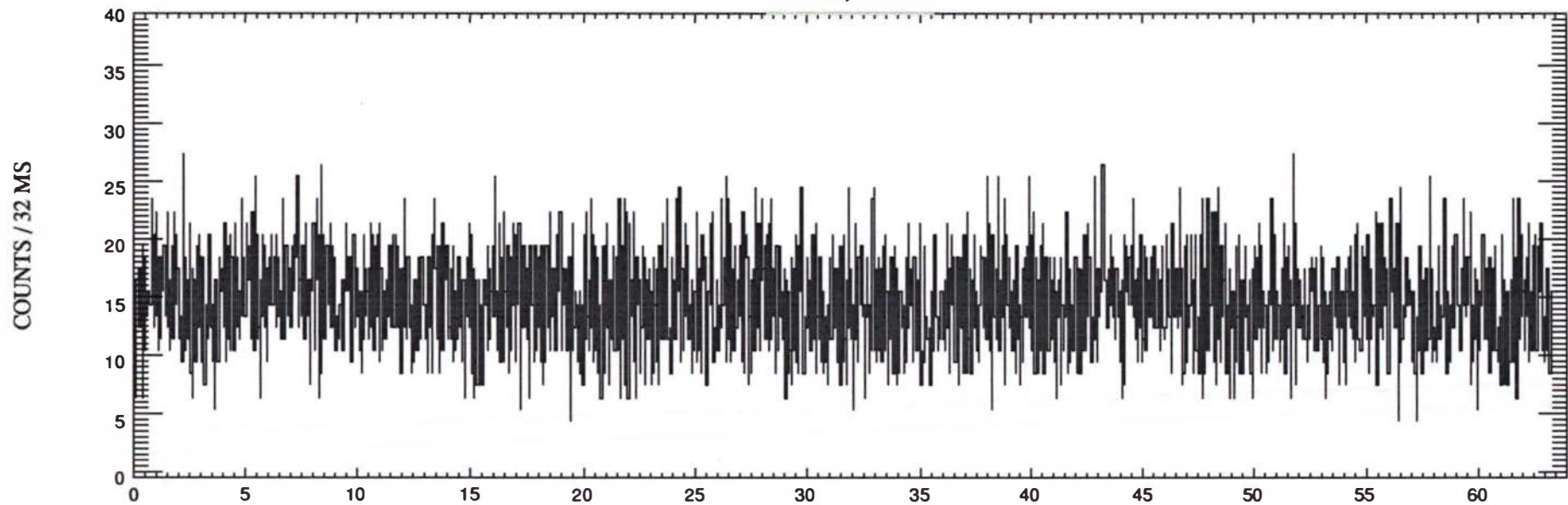
BURST NUMBER 9



Burst Counter 9 at UT=19.490173399183 h=70164.624 s 19:29:24.624

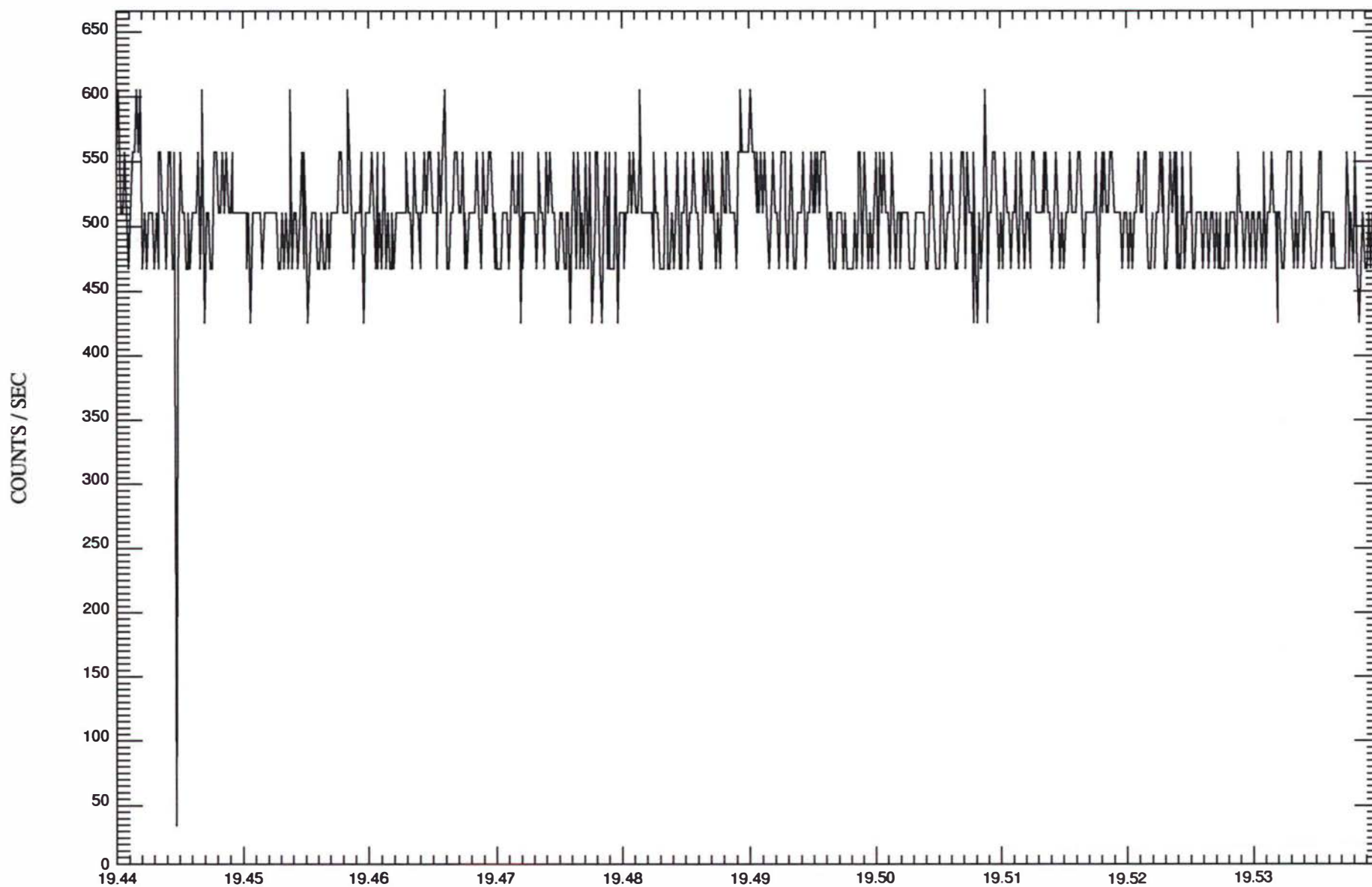


TIME, SECS

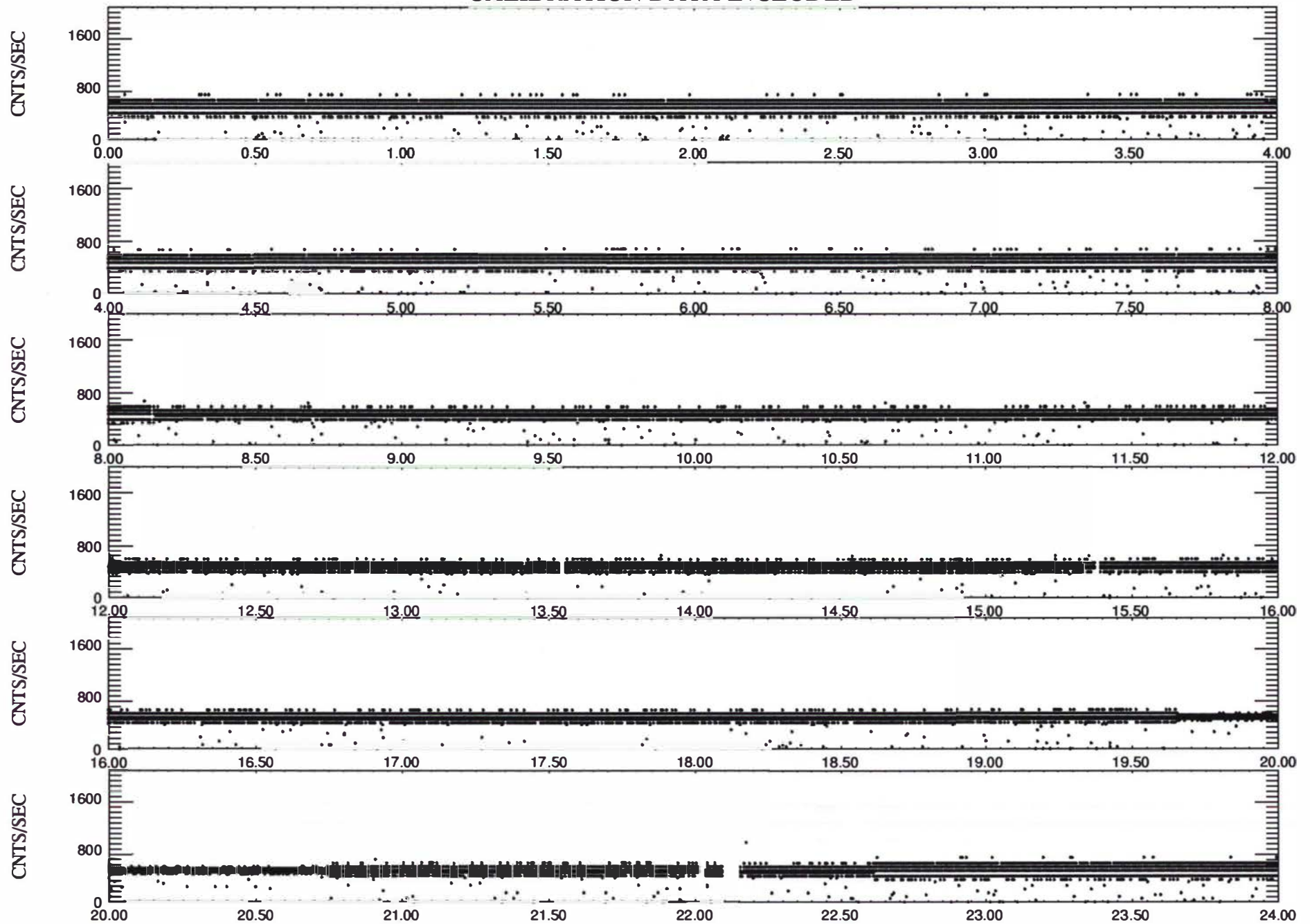


TIME, SECS

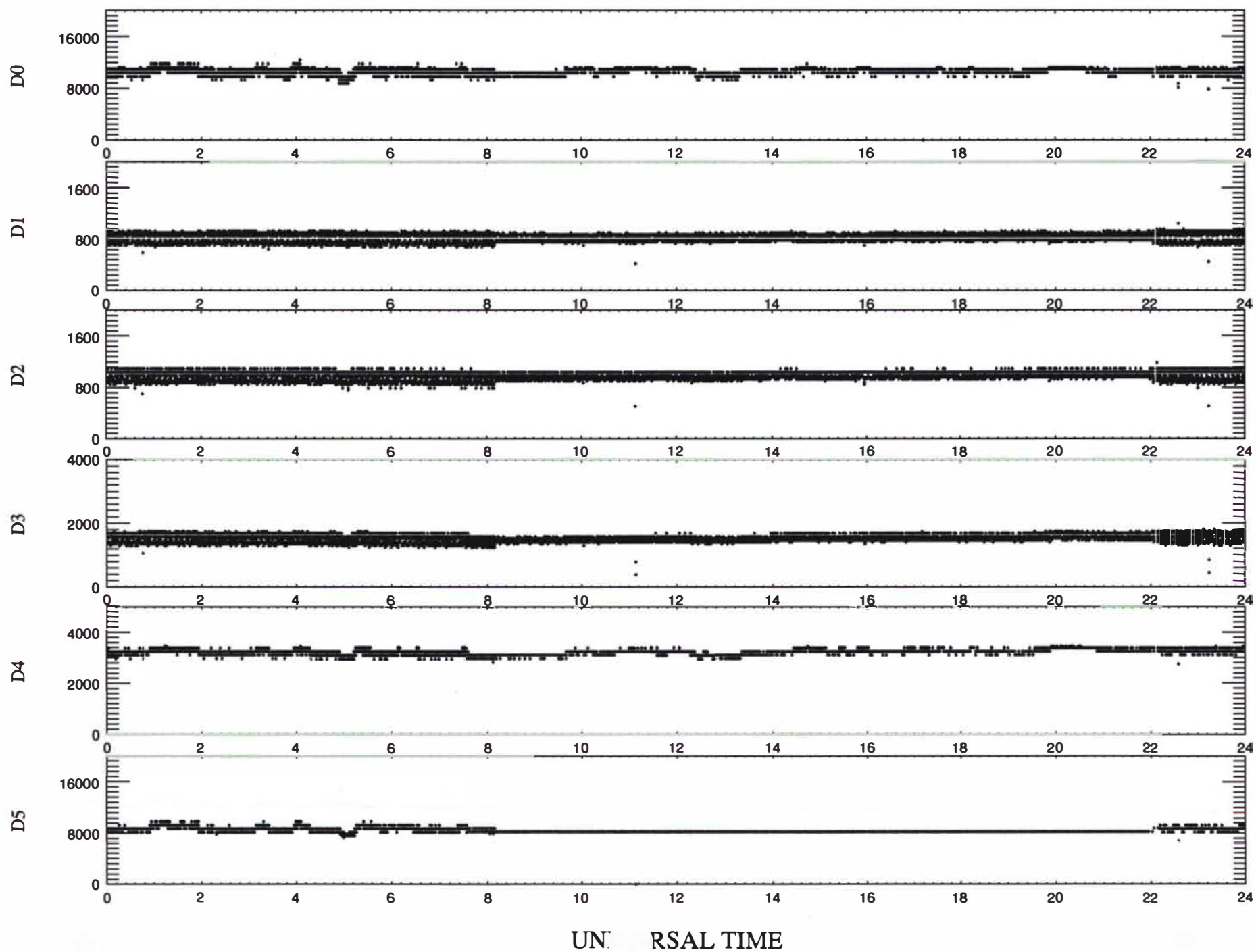
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN RSAL TIME



From RICHARDSON@ssl.msfc.nasa.gov Tue Feb 27 08:19 PST 1996
From: RICHARDSON@ssl.msfc.nasa.gov
Date: Tue, 27 Feb 1996 10:19:10 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 4959

RI
Reject

BATSEARCH PROGRAM

BATSE BURST # 4959
EVENT OF 1996 FEB 21 DAY OF YEAR= 52
EVENT CROSSING TIME AT BATSE : 19307. S. OR 05:21:47.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 51.000 -31.000
BATSE PEAK COUNTING RATE: 2000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 21/ 2/ 96 IS:
RA= 206.010 DEC= 73.353 DIST= 2.885 AU
BATSE-ULYSSES DISTANCE = 431628991. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 44.27 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1030.89 SECS.
CROSSING TIME AT ULYSSES IS 20338. S. OR 05:38:57 +/- 240.15 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 21/ 2/ 96 IS:
RA= 336.614 DEC= -10.874 DIST= 2.368 AU
MARS-BATSE DISTANCE = 354269376. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=108.89 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -382.55 SECS.
CROSSING TIME AT MARS IS 18924. S. OR 05:15:24 +/- 188.31 SECONDS

BATSE BURST TRIGGER

NO.: 4959

TIME: TJD=0134 SECONDS=19307

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=144 AZIMUTH=124.4 ERROR=4.3 DEGREES

COMMENTS:

GRB. SINGLE PULSE, DUR.~80SEC. MARGINALLY VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
4959	960221	10134	19307	2000	051	-31	80

From khurley@sunspot Tue Nov 4 16:58 PST 1997
Return-Path: <khurley@sunspot>
Received: from scylla.berkeley.edu by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id QAA06021; Tue, 4 Nov 1997 16:57:47 -0800
Received: by scylla.berkeley.edu (SMI-8.6/SMI-SVR4)
id QAA00609; Tue, 4 Nov 1997 16:59:32 -0800
Date: Tue, 4 Nov 1997 16:59:32 -0800
From: khurley@sunspot (Kevin Hurley)
Message-Id: <199711050059.QAA00609@scylla.berkeley.edu>
To: briggs@gibson.msfc.nasa.gov, khurley@sunspot, connauv@eagles.msfc.nasa.gov,
lamb@pion.uchicago.edu, carlo@aquila.uchicago.edu
Subject: BATSE 4959
X-Sun-Charset: US-ASCII
Content-Type: text
Content-Length: 670
X-Lines: 11
Status: RO

The Ulysses data show a very clear and strong rate increase, which I had assumed was the BATSE burst. When I went back to do this one again, however, the lags for maximum rho and minimum chisquare disagreed. Also, the U/B ratio was about 5 times as high as the average. Looking at the time history, I found another rate increase 125 s earlier. This one gives an annulus which passes through the BATSE error circle, but the U/B ratio is still rather high, and although the cross-correlation is better, it is still not great. If the BATSE data show strong activity about 125 seconds after the main event, this may be the answer. If not, we should probably reject it.

From connauv@eagles.msfc.nasa.gov Wed Nov 5 16:29 PST 1997
Return-Path: <connauv@eagles.msfc.nasa.gov>
Received: from eagles by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id QAA04294; Wed, 5 Nov 1997 16:29:19 -0800
Date: Wed, 5 Nov 1997 18:19:17 -0600
Message-Id: <97110518191724@eagles.msfc.nasa.gov>
From: connauv@eagles.msfc.nasa.gov (Valerie Connaughton)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Re: BATSE 4959
X-VMS-To: SMTP%"khurley@sunspot.ssl.berkeley.edu"
X-VMS-Cc: BRIGGS, CONNAUV
Content-Type: text
Content-Length: 167
X-Lines: 7
Status: RO

There is no sign of activity from this one at $T_{\text{trig}} + 125$ seconds. And the source was not occulted at that time, nor was it occulted at $T_{\text{trig}} - 125$ seconds.

vc

Reject

From khurley@sunspot Tue Nov 4 16:58 PST 1997
Date: Tue, 4 Nov 1997 16:59:32 -0800
From: khurley@sunspot (Kevin Hurley)
To: briggs@gibson.msfc.nasa.gov, khurley@sunspot, connauv@eagles.msfc.nasa.gov,
lamb@pion.uchicago.edu, carlo@aquila.uchicago.edu
Subject: BATSE 4959

The Ulysses data show a very clear and strong rate increase, which I had assumed was the BATSE burst. When I went back to do this one again, however, the lags for maximum rho and minimum chisquare disagreed. Also, the U/B ratio was about 5 times as high as the average. Looking at the time history, I found another rate increase 125 s earlier. This one gives an annulus which passes through the BATSE error circle, but the U/B ratio is still rather high, and although the cross-correlation is better, it is still not great. If the BATSE data show strong activity about 125 seconds after the main event, this may be the answer. If not, we should probably reject it.

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

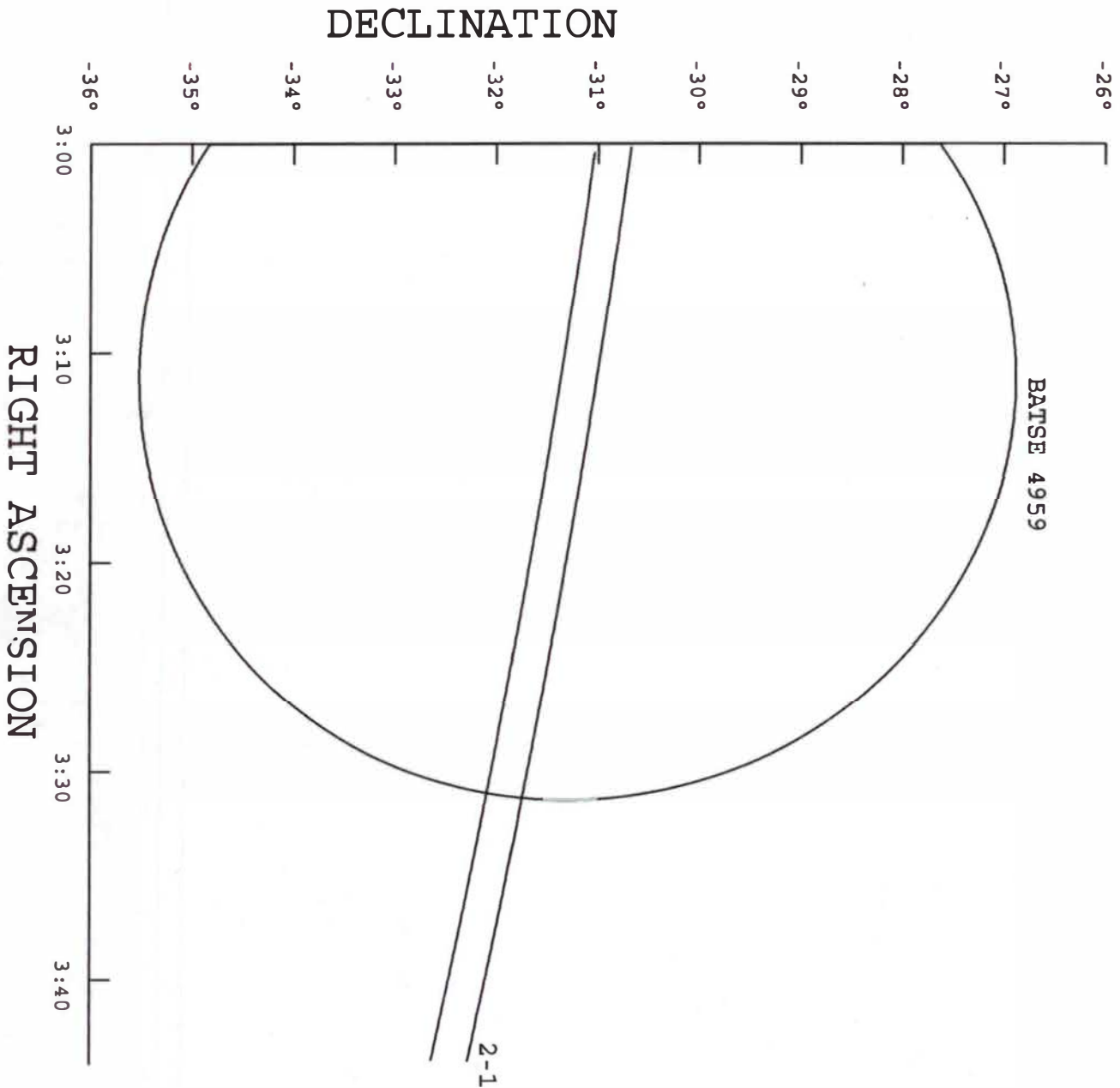
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 21, 1996 5:38

7 / 3/98



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

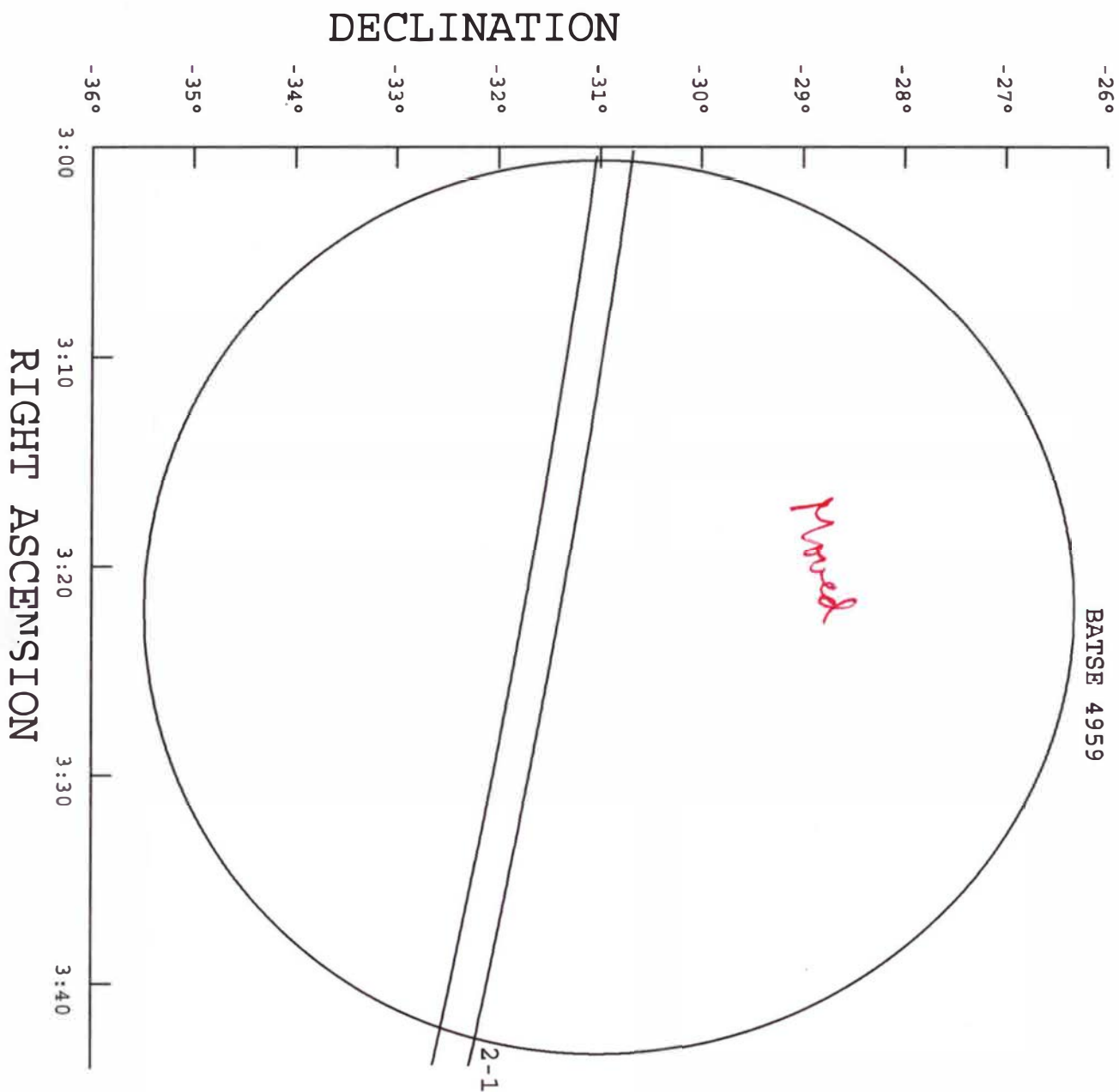
G=GALACTIC EQUATOR

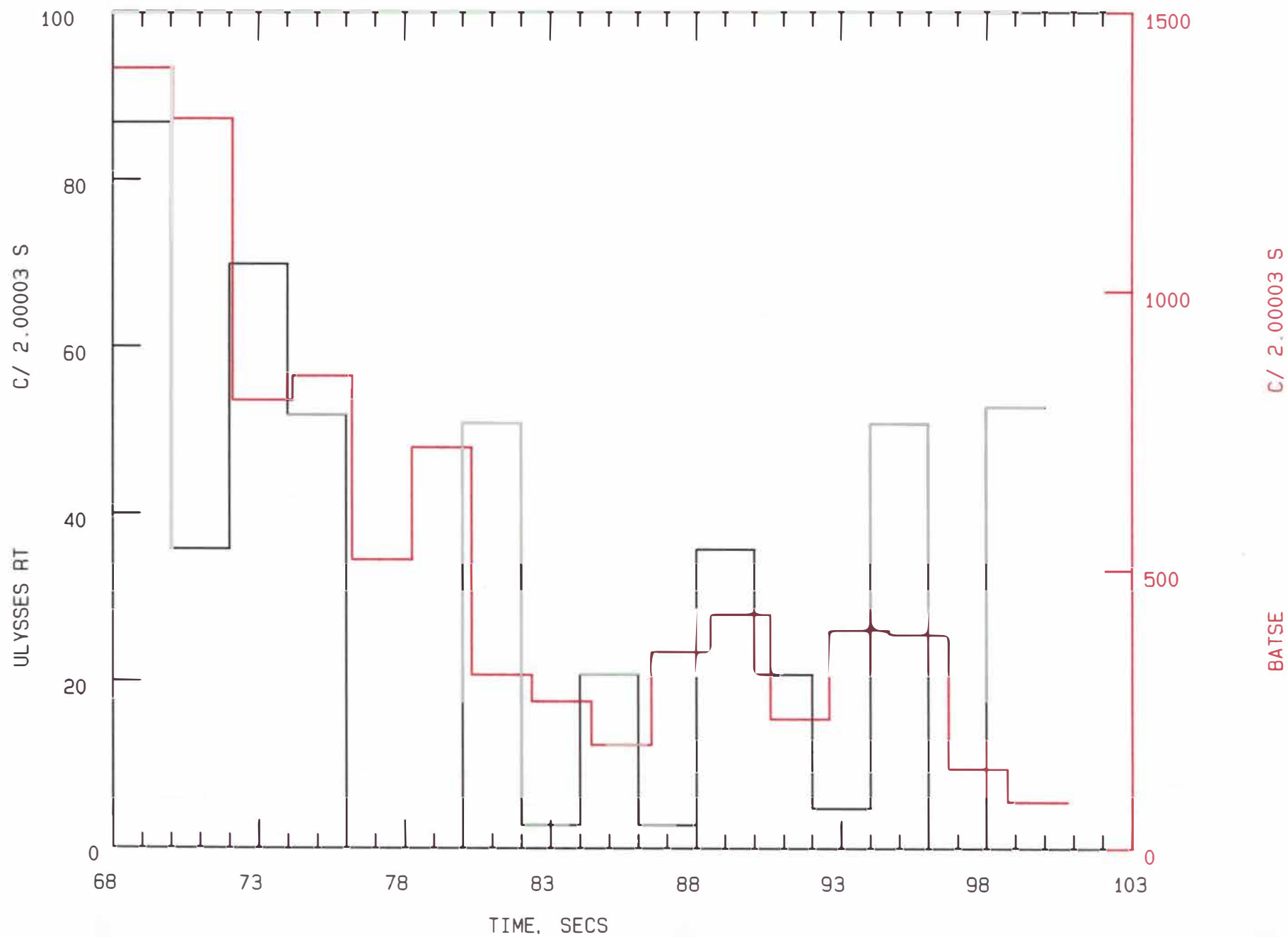
1 ULYSSES

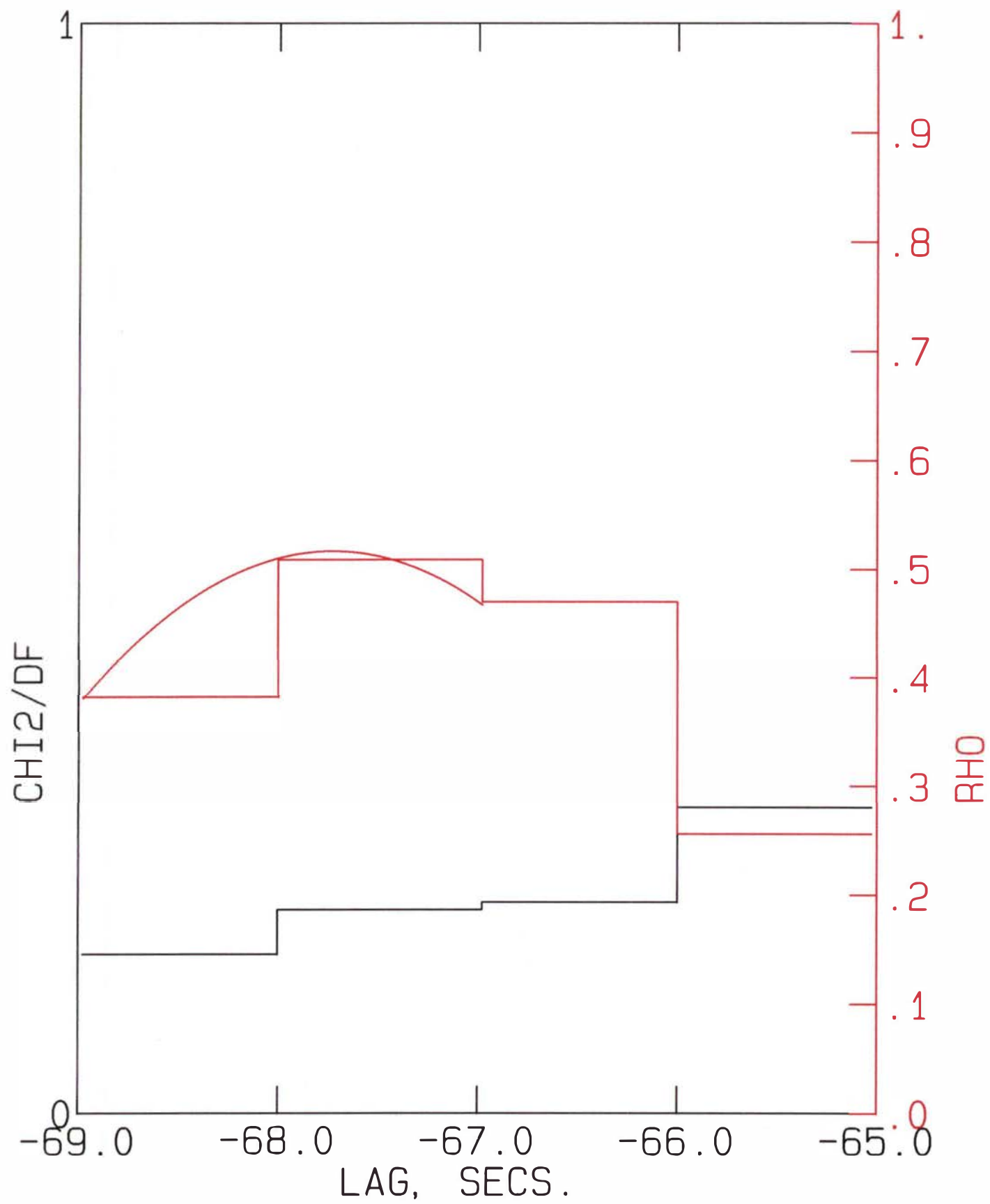
2 BATSE

EVENT OF FEB 21, 1996 5:38

4/11/97







ULYSSES RT

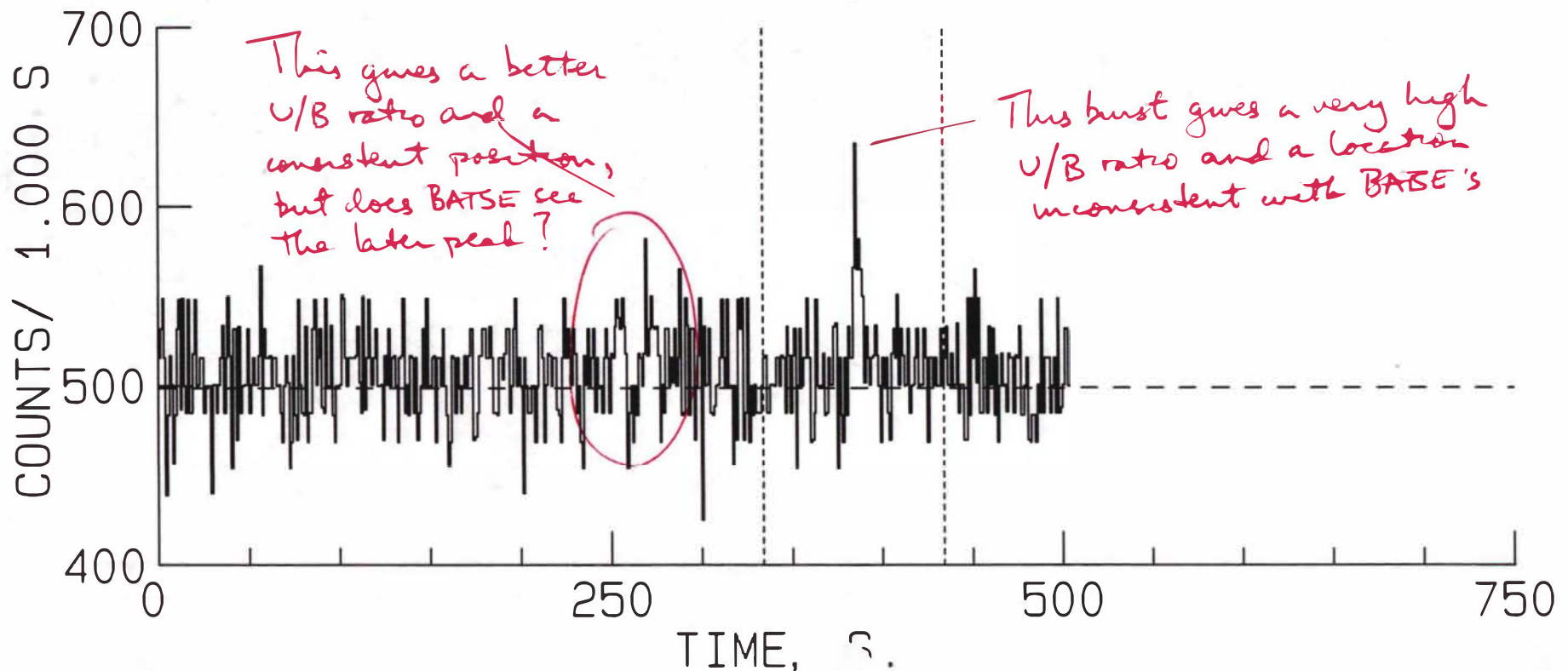
4 / 11 / 97

21/ 2/96 20088.030 s

0.250 S INTERVALS REGROUPED BY 4

21- 144 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

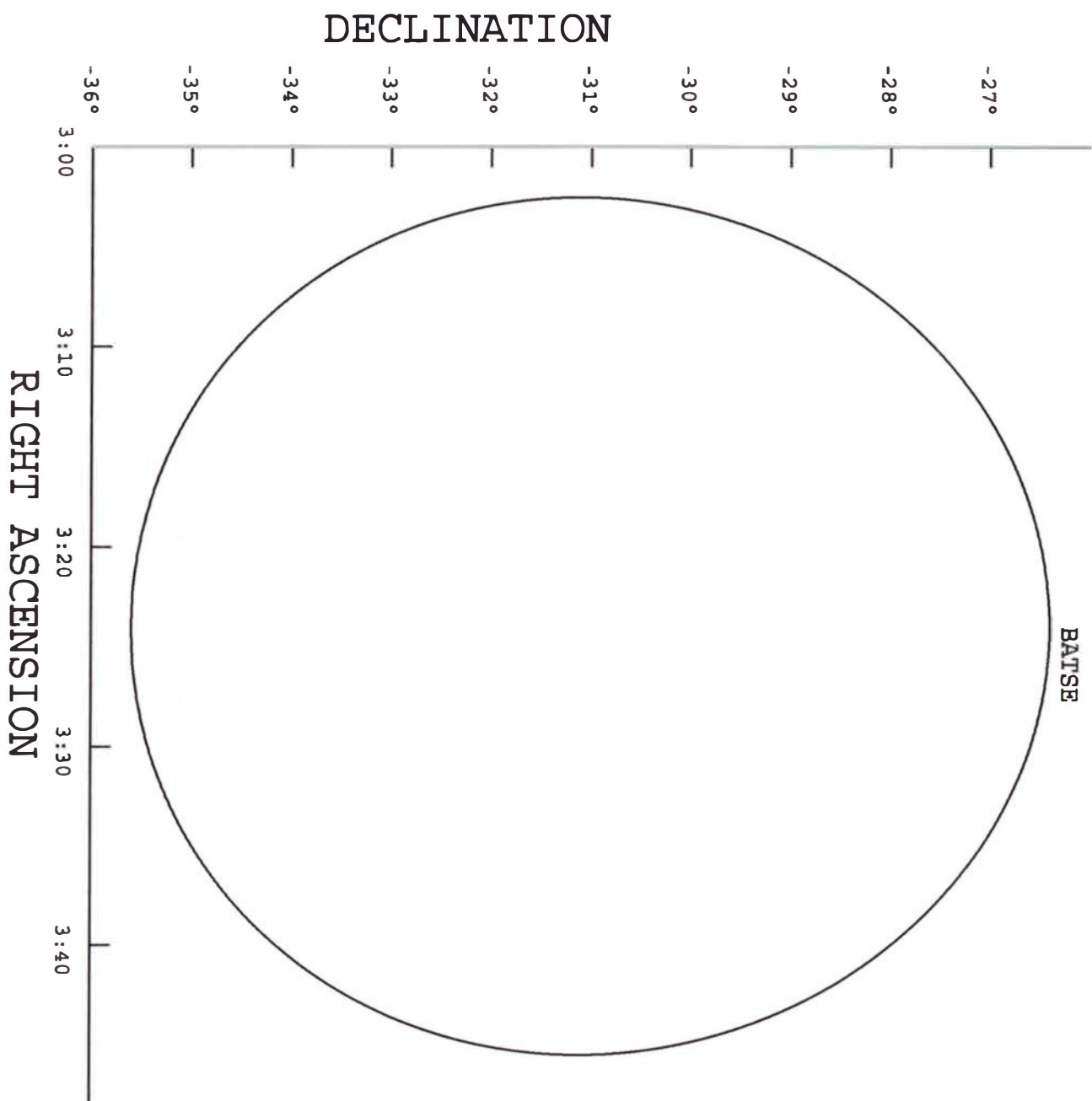
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 21, 1996 5:40

25 / 3 / 96



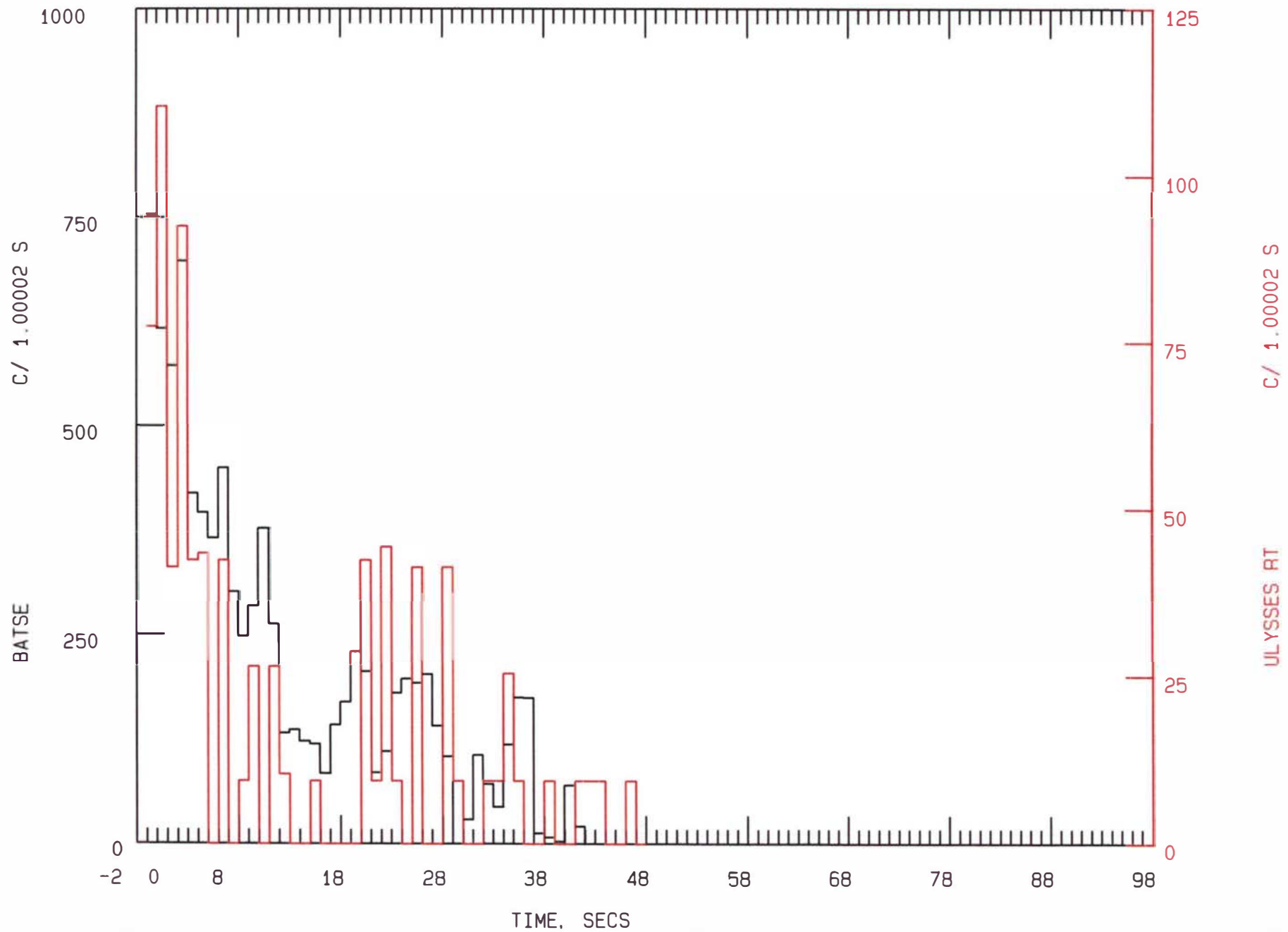
BATSE

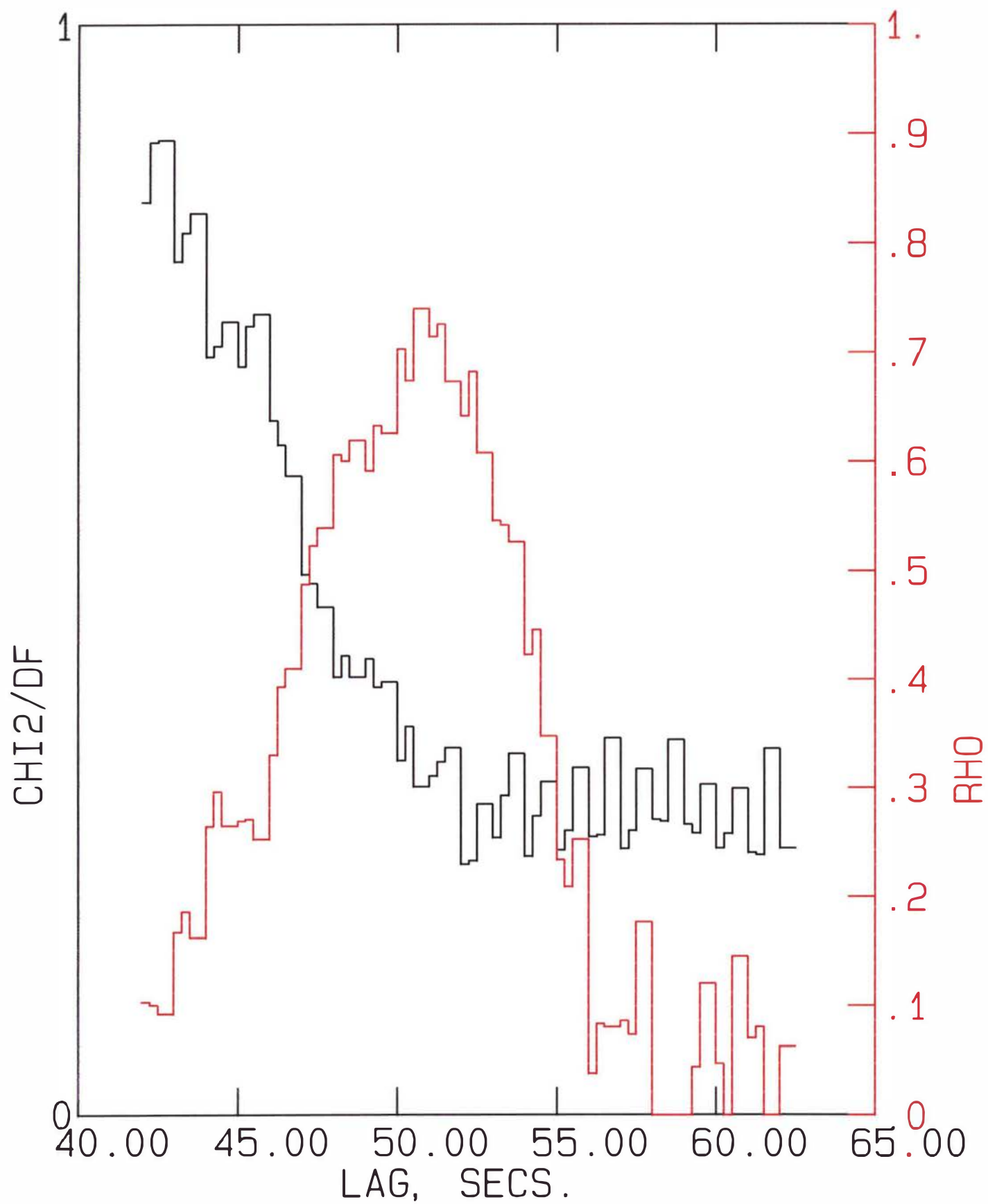
-ULYSSES RT CORRELATION

21/ 2/96

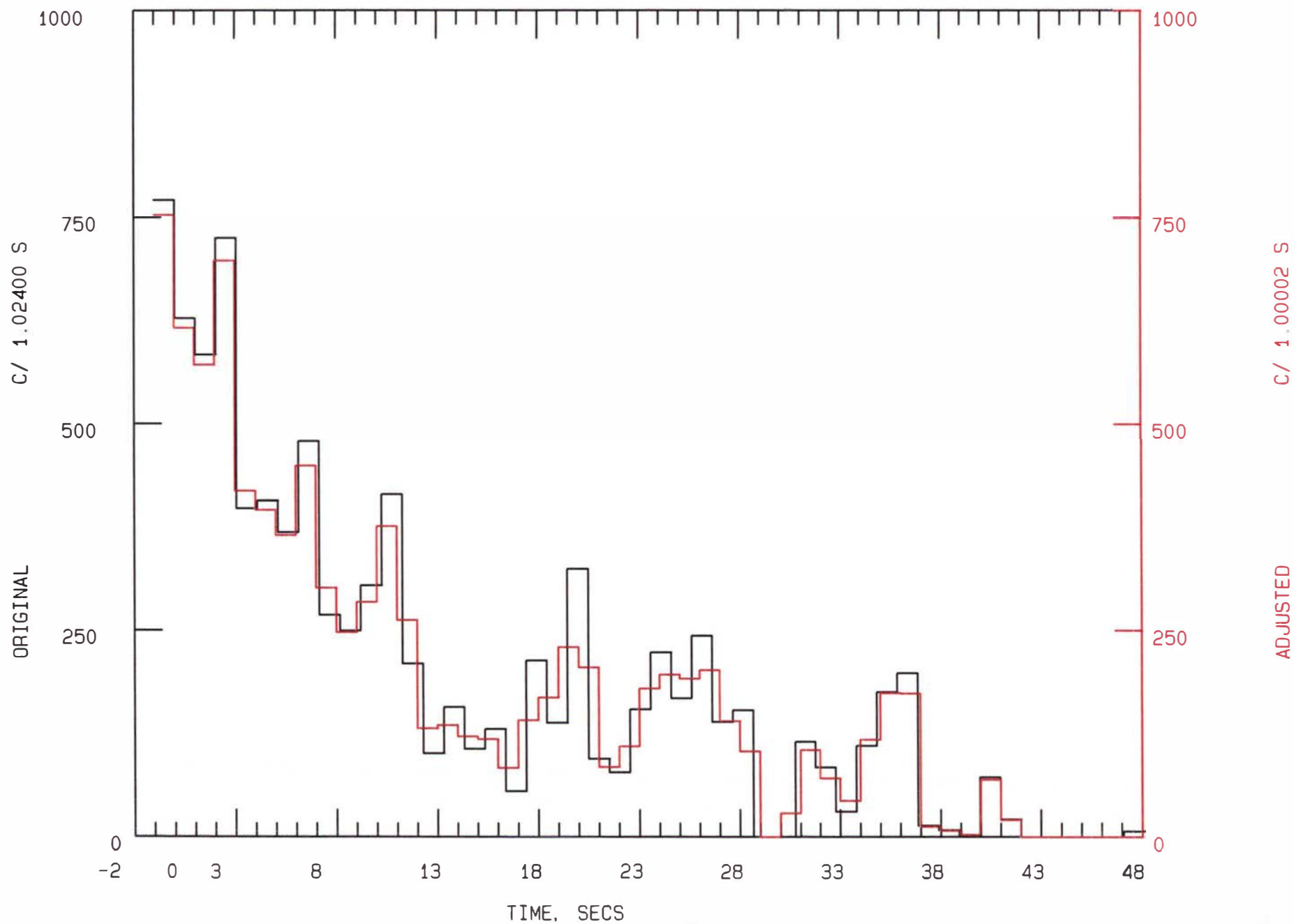
19307.210

25/ 3/96





25/ 3/96



ULYSSES RT

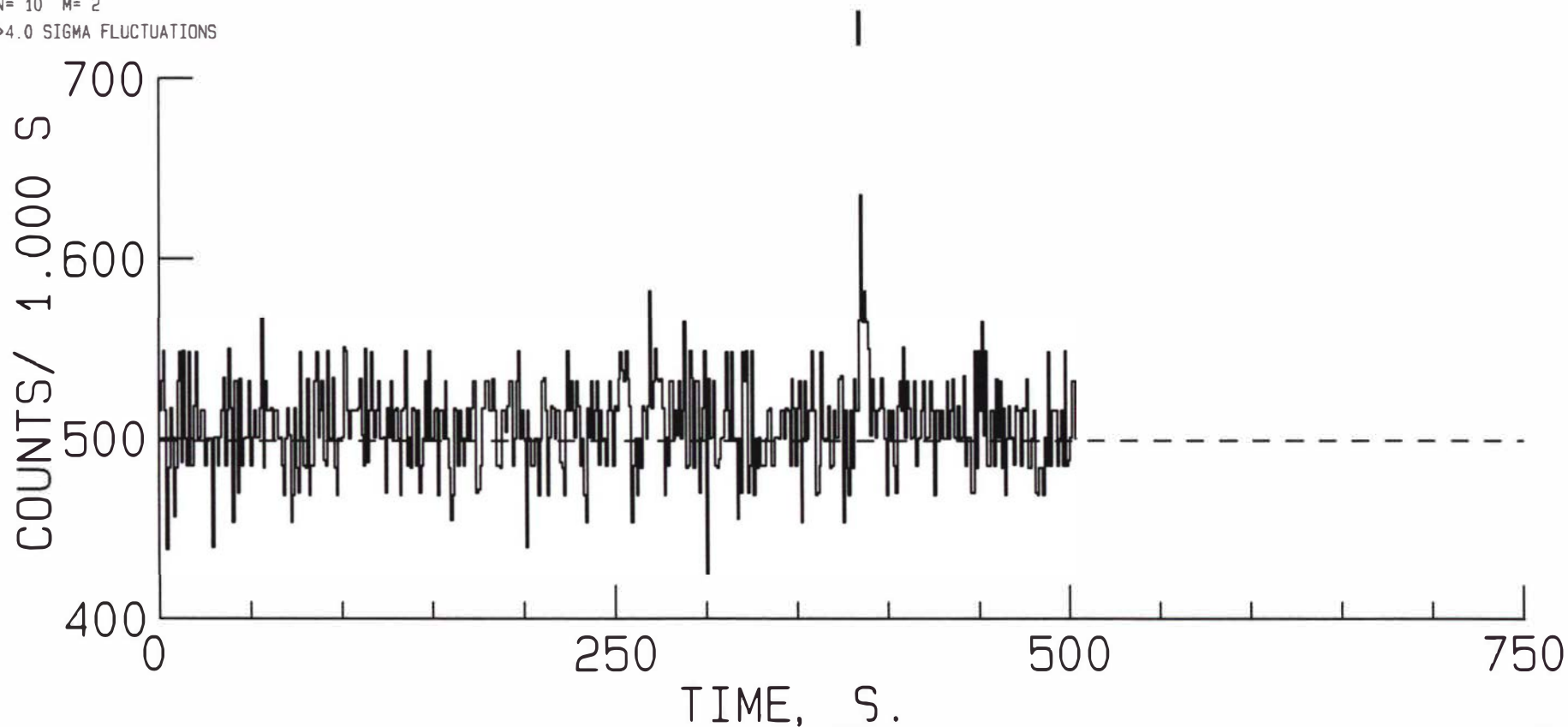
25 / 3 / 96

21 / 2 / 96 20088.031 s

0.250 S INTERVALS REGROUPED BY 4

21- 143 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



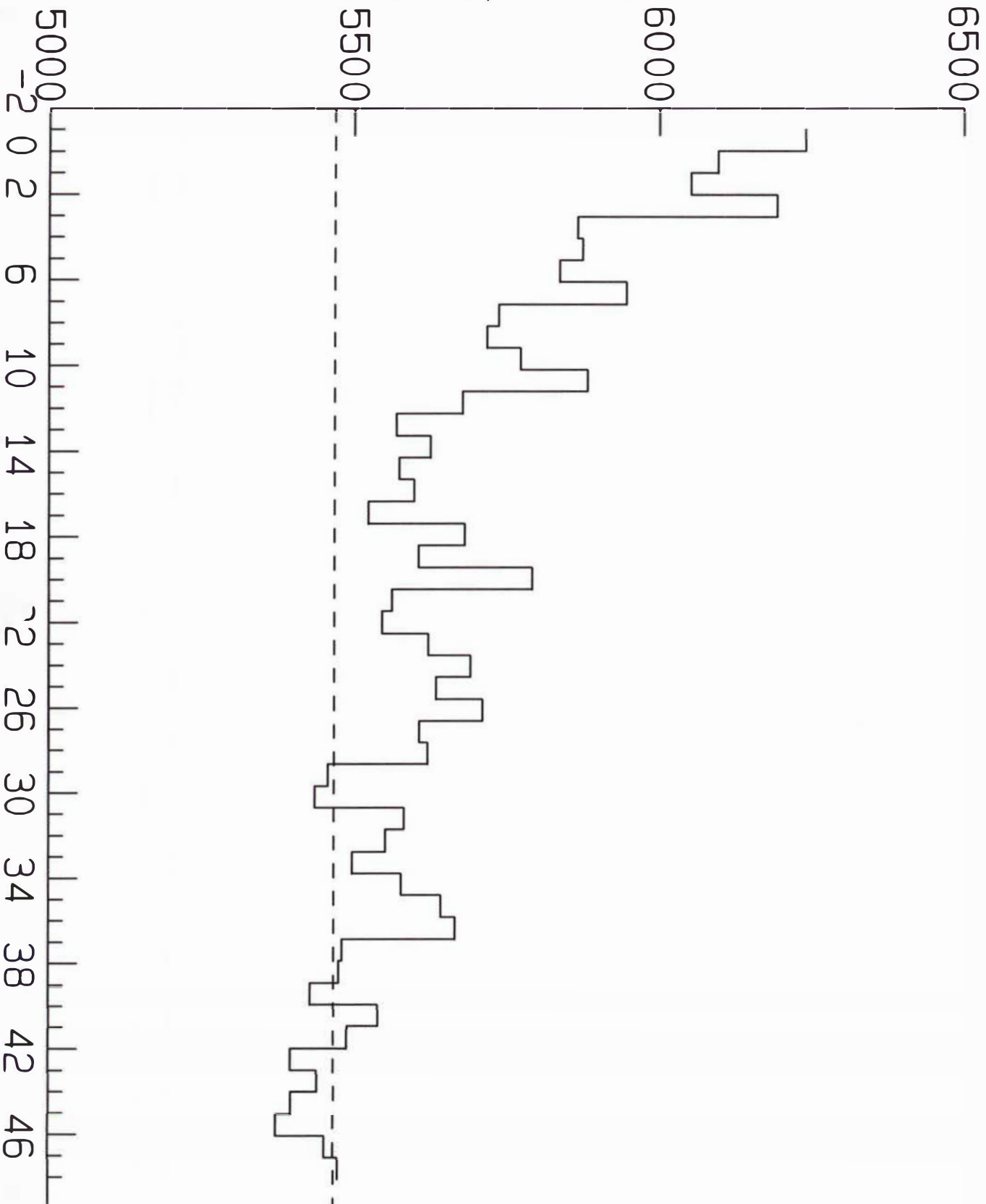
BATSE

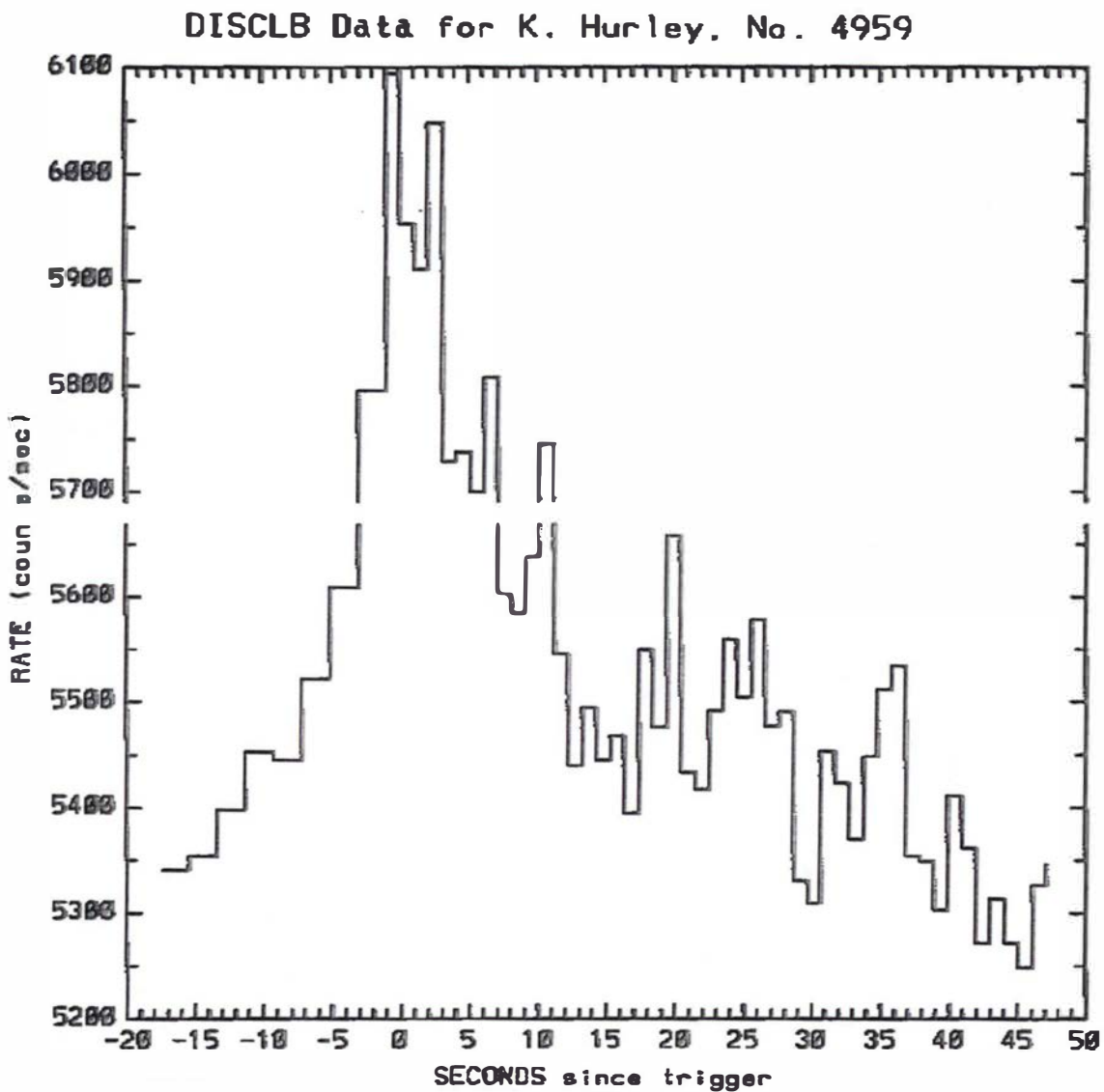
21/02/96

19307.210

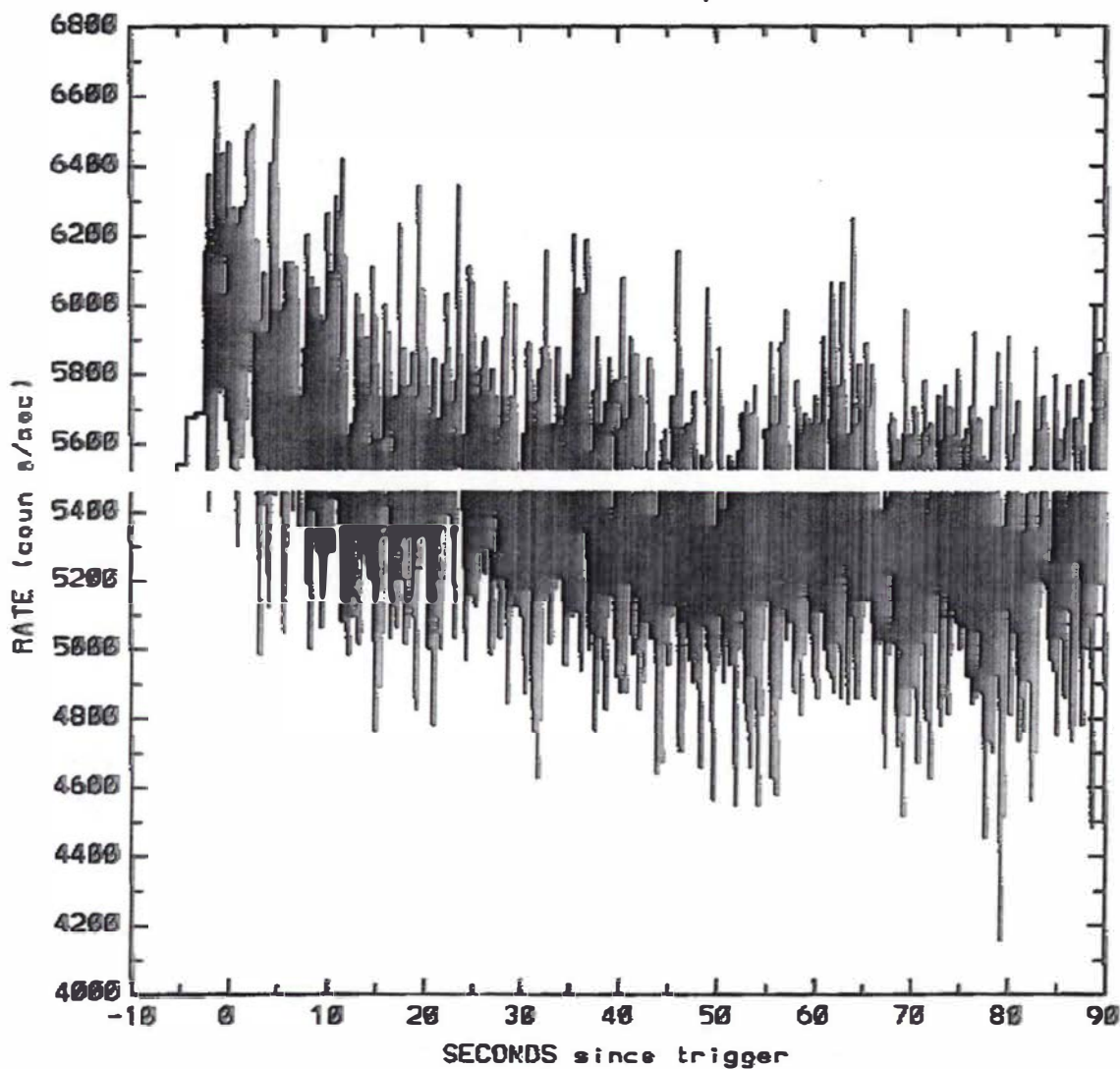
25- 100 keV

COUNTS/1.024 S





DISCSC Data for K. Hurley. No. 4959



11-MAR-1996 11:23:46

Created by MOPS 80
(Burst Display)
Version 12.25

Trigger # : 4959

Trigger Time:
18134 / 19387.210Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.054 secondsDetectors [7..8]:
-5--1-Discriminators:
[1 . 2]Quality Mask:
80ISP1

From RICHARDSON@SSLLES.MSFC.NASA.GOV Tue Feb 27 08:11 PST 1996
Date: Tue, 27 Feb 1996 10:10:27 -0600 (CST)
From: RICHARDSON@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov,
"LHEAVX::BARTHELMY"@ssl.msfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 4960

TIME: TJD=0134 SECONDS=24600

TYPE: NOISE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

ALMOST SIMULTANEOUS PHOSPHORESCENT SPIKES IN DIFFERENT DETECTORS.

KONUS

ULYSSES RT

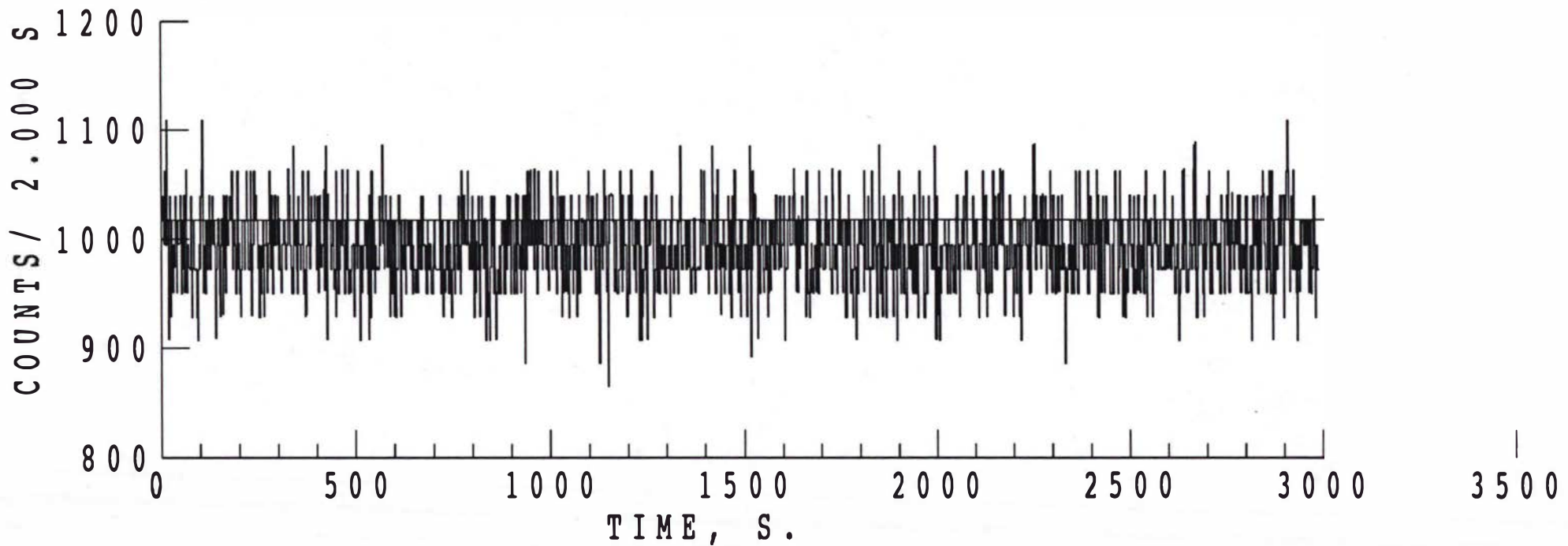
28 / 01 / 00

21 / 02 / 96 36468.266 s

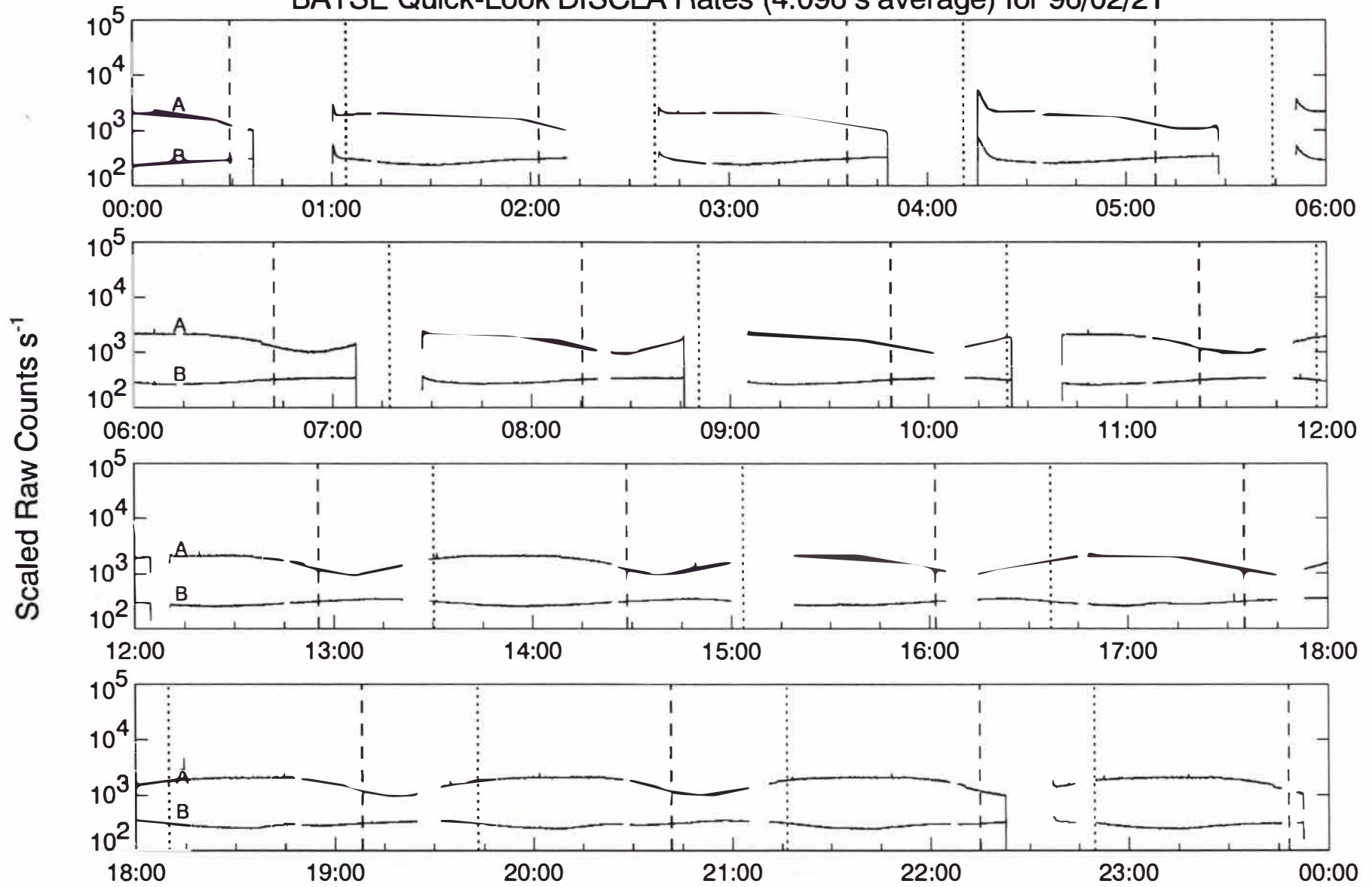
0.500 S INTERVALS REGROUPED BY 4

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/21



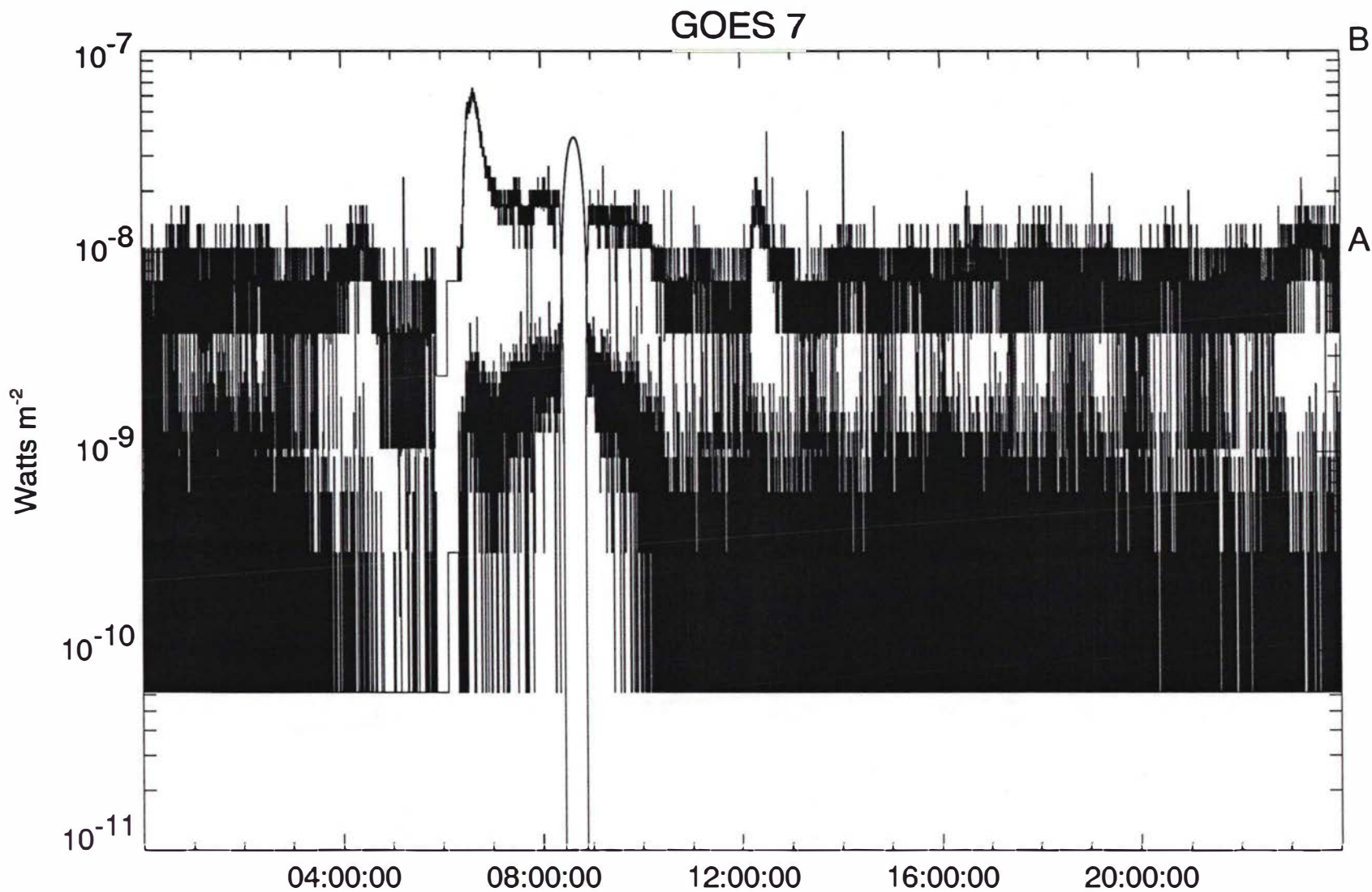
Current Time: 96/02/23, 0916 EDT

A: Channel 0 Most Sunward LAD

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

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

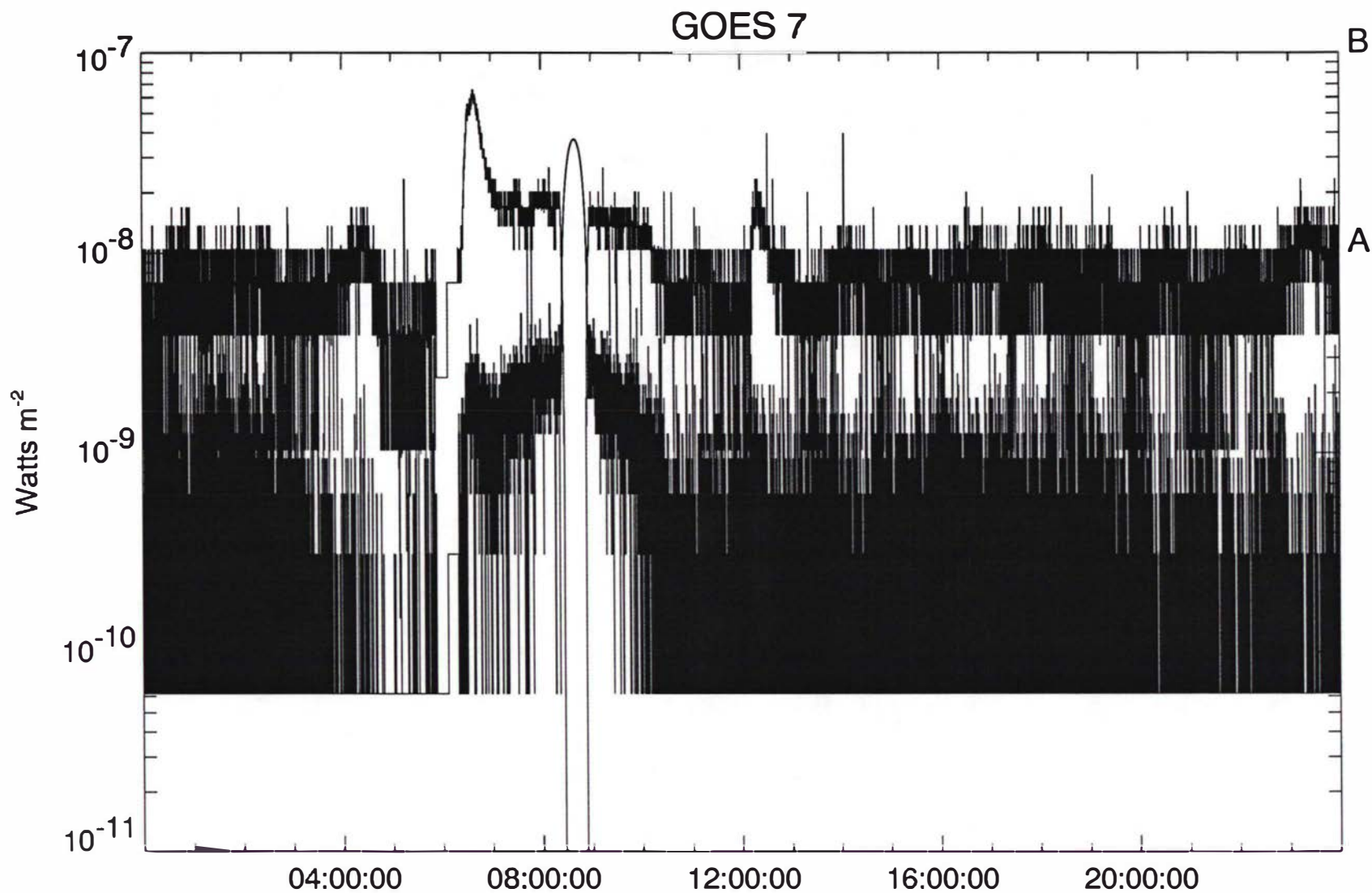


Data Start: 96/02/21, 0000:01

Plot created: 96/02/23, 0915

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

2 (0.5 - 4.0 Angstroms) Background not subtracted



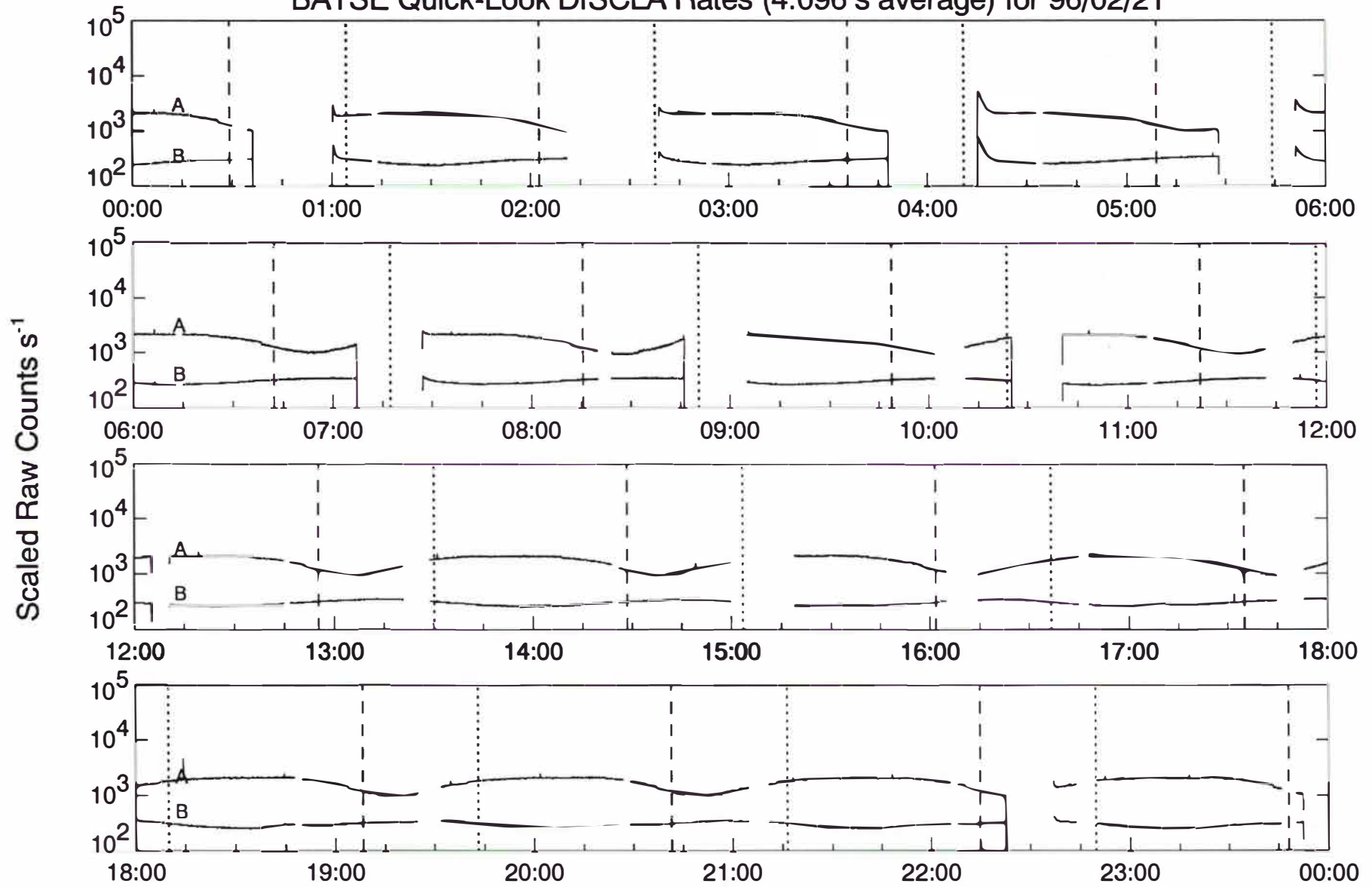
Data Start: 96/02/21, 0000:01

Plot created: 96/02/23, 0915

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/21

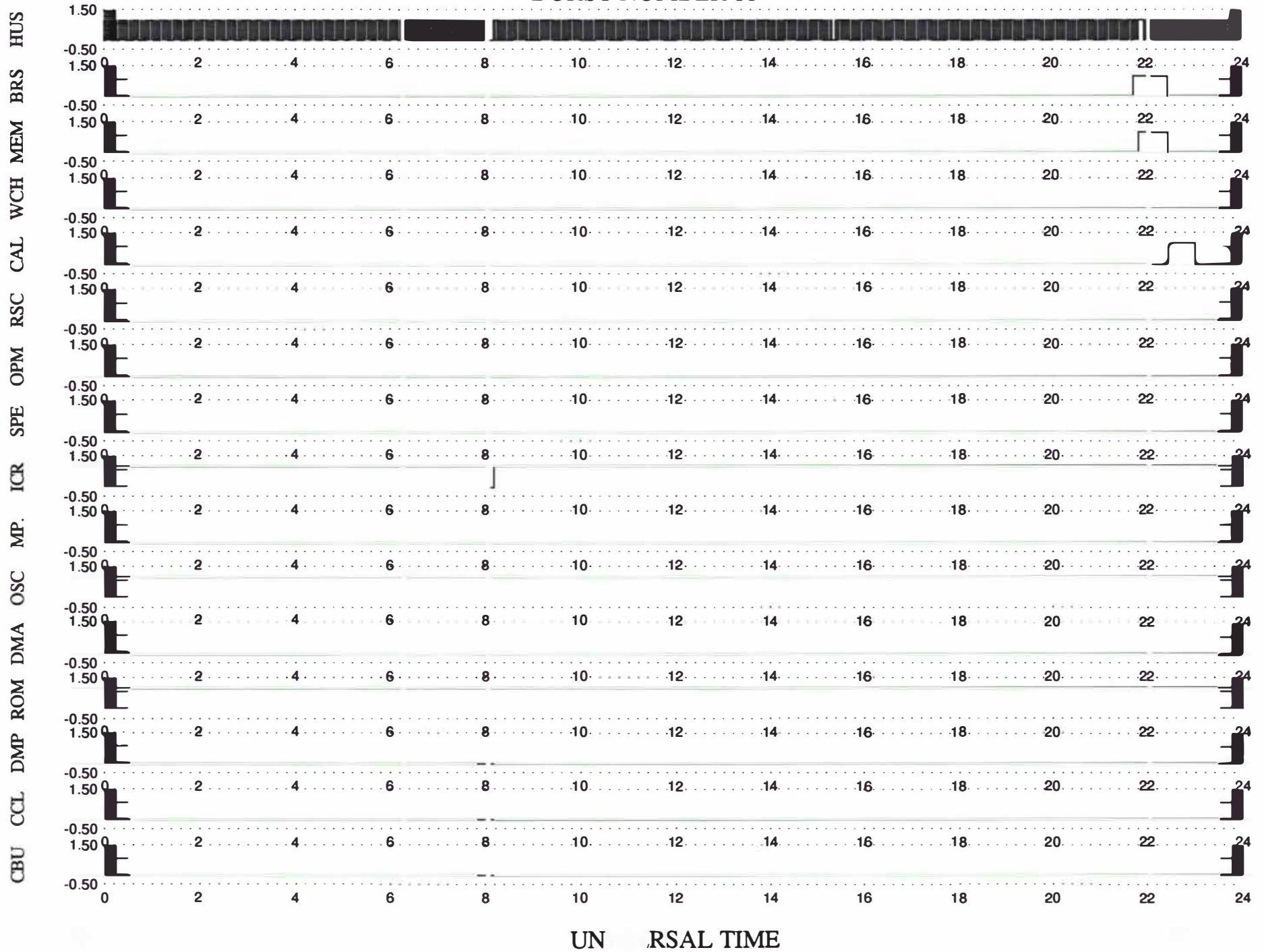


Current Time: 96/02/23, 0916 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

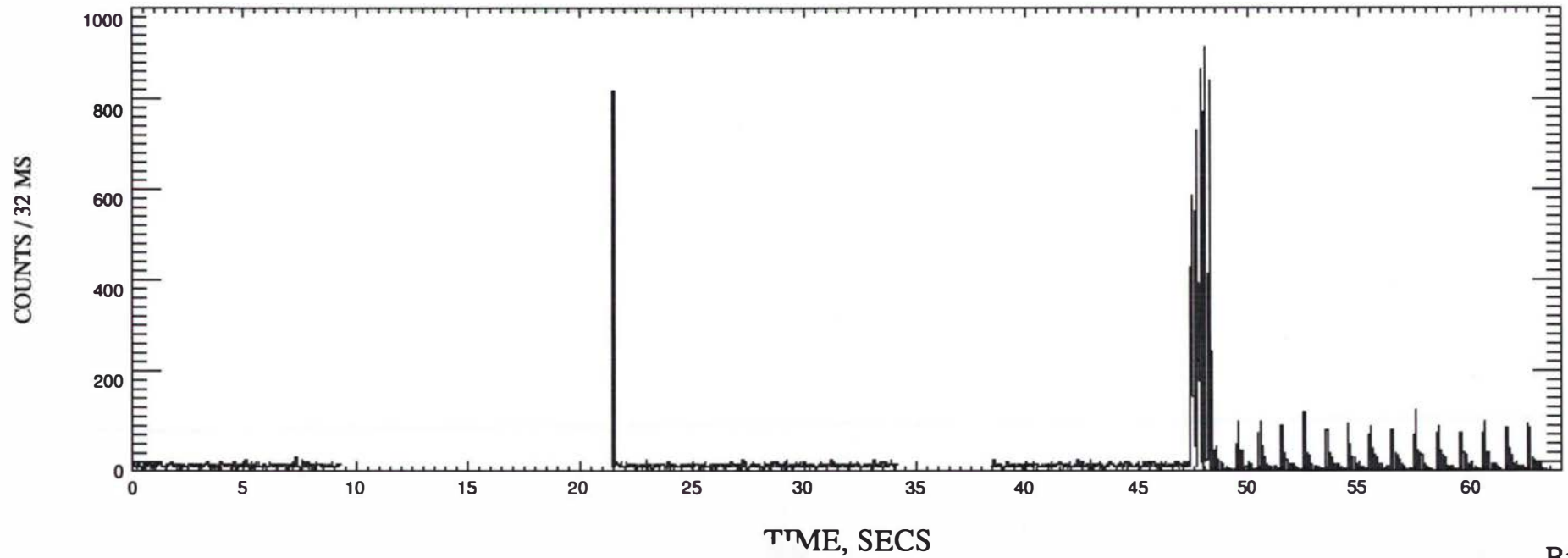
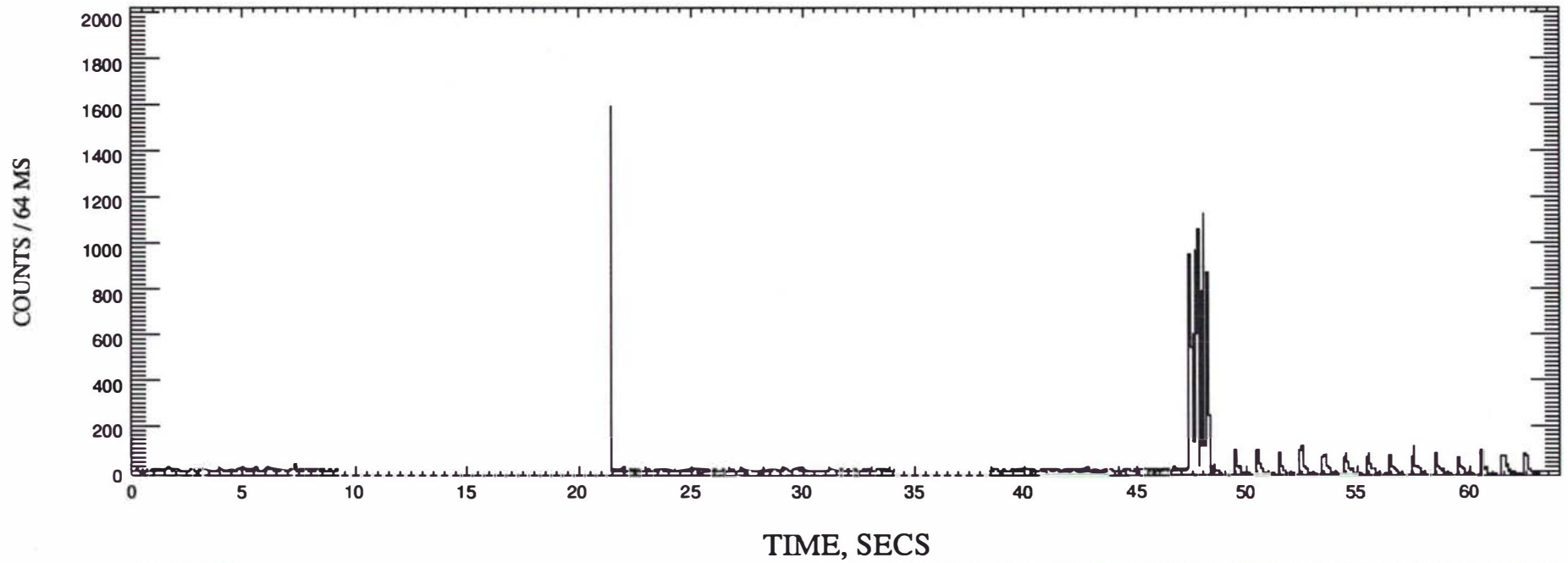
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

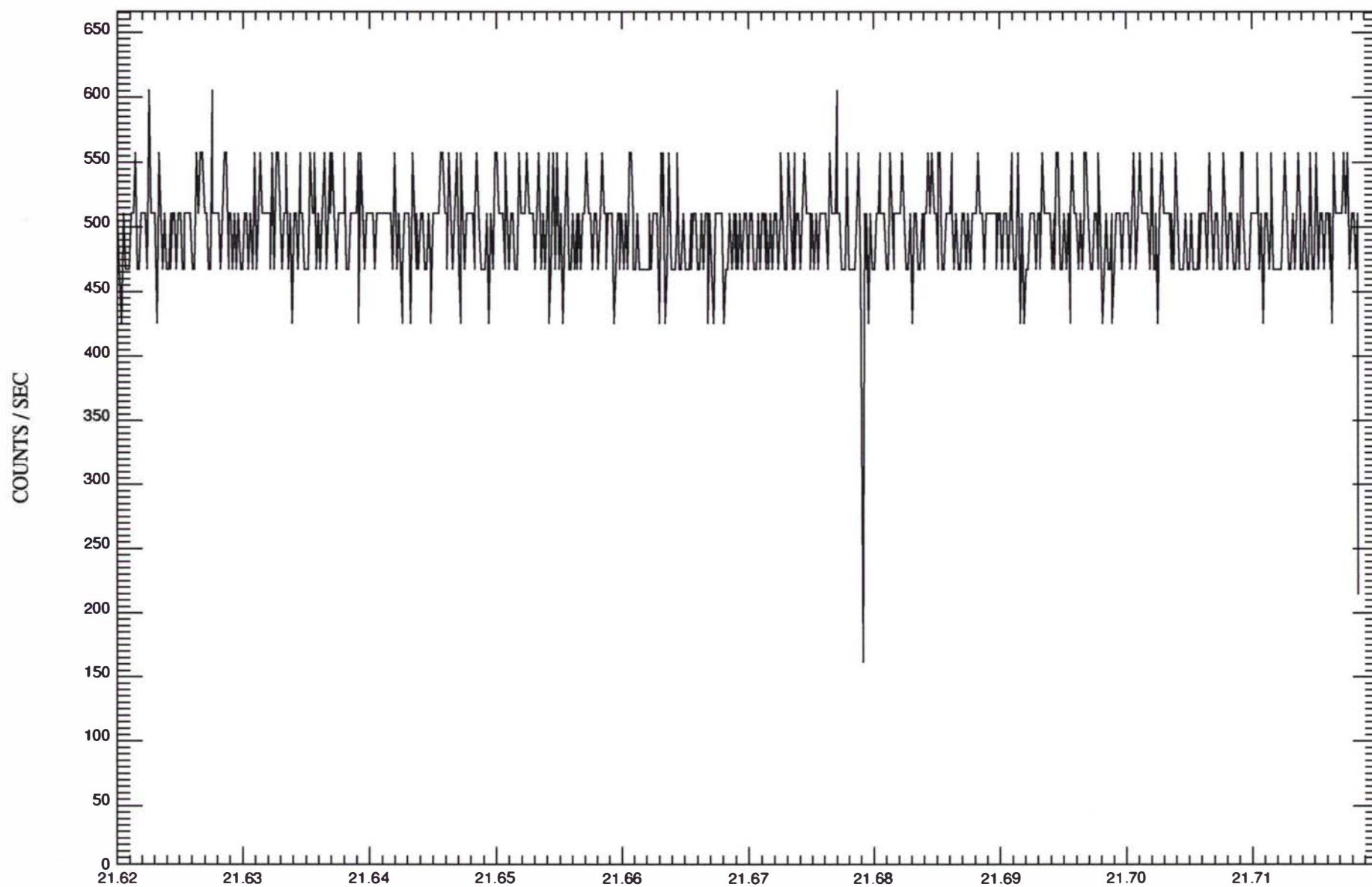
BURST NUMBER 10



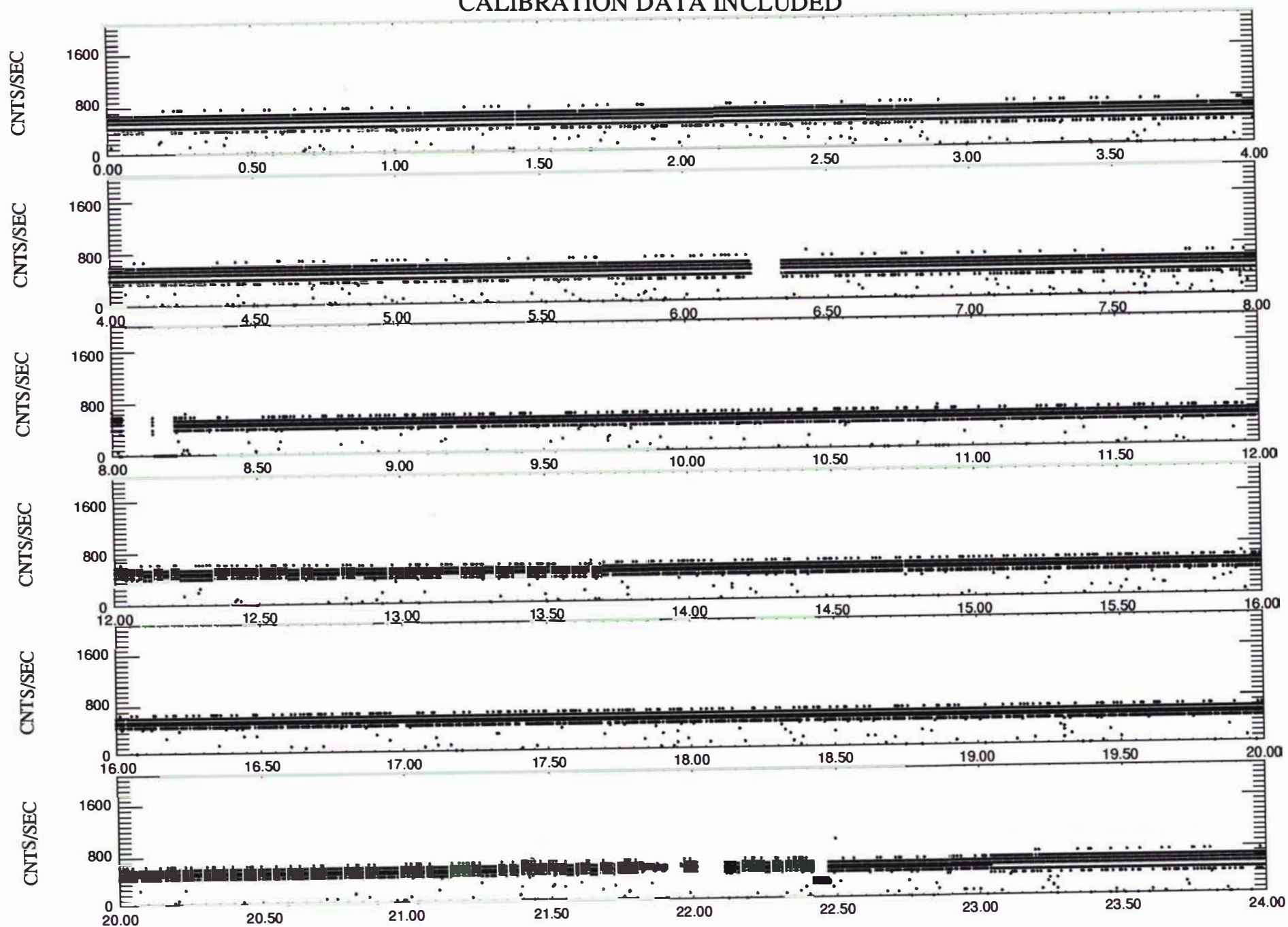
Burst Counter 10 at UT=21.665617565579 h=77996.223 s 21:39:56.223



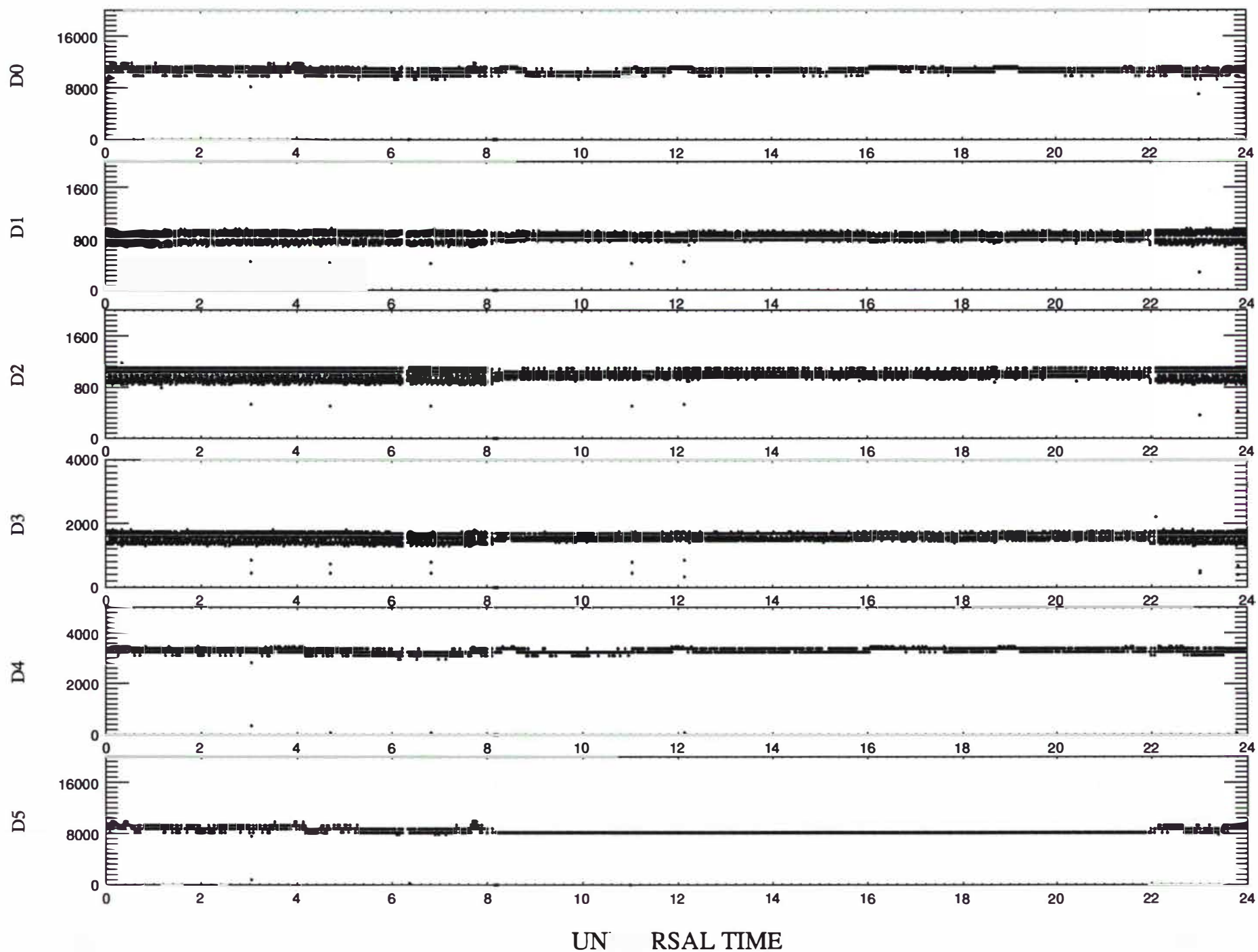
CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED



UN RSAL TIME



From BROCATO@astrte.te.astro.it Wed Aug 7 13:13 PDT 1996
Date: Wed, 7 Aug 1996 22:11:51 +0300 (CET-DST)
From: BROCATO@astrte.te.astro.it (Enzo Brocato *- O.A.C.T. *- 39 861 210490 *-)
Subject: an unlikely possibility...from a stellar photometry group..
khurley@sunspot.ssl.berkeley.edu
X-MSMail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu"

Dear Dr. Hurley,

my name is Enzo Brocato and I work with my colleagues A. Piersimoni and V. Castellani on stellar photometry since several years.
The reason why I am disturbing you concerns a puzzling case of a 'star' image which is present in ONE CCD frame obtained last february at ESO/La Silla (1.54m Danish tel.).

Let me briefly summarize our problem:

1. We observed a field of standard stars (Landolt) in different filters (BVI) for 6 times to calibrate our globular cluster fields
2. During the data reduction we realized that:
 - a. A 'star' several arcsec from one of our target standard is present in the last frame of a sequence but there is nothing in the previous (~3 min before) frames...and nothing in the frames taken 2.5 hour later.
 - b. It is a 'star' in the sense that the PSF of the object (~3 pxl) is just slightly lower than the PSF of the other stars (~3.5 pxl) of the frame...and this should also minimize the possibility of a cosmic ray event.
 - c. This object appears to be inside the error box of a gamma-ray burst (GB 910430).
3. We are rather skeptical, but we also think that if we just forget it and proceed with our reduction would be not scientific at all. So we look around (archives and catalogs...) and we find that a Zwicky cluster is located at the same coordinate.

At this point we decided to speak with some colleagues of Bologna and your name was suggested (Dr. E. Palazzi and Prof. Pizzichini).

Here there are the coordinate and the UT time of our 'star'...

R.A. 09h 21m 36s
Dec. +02d 46' 24" epoch=2000

U.T. 02h 05m 22 february 1996

The main, and obvious, question is if there is any event recorded for this date on the information obtained from satellite experiments (BATSE for example)?

I guess that there is a very little probability that we got an optical counterpart of a gamma-ray burstbut....in case of a very lucky case it would be a pleasure to start at least a collaboration on this....in any other case...

Thank you in advance for your attention and for your time spent in checking is unlikely correlation....

Sincerely,

Enzo Brocato

From BROCATO@astrte.te.astro.it Thu Oct 3 06:38 PDT 1996
Date: Thu, 3 Oct 1996 15:36:31 +0200 (CET)
From: BROCATO@astrte.te.astro.it (Enzo Brocato *- O.A.C.T. *- 39 861 210490 *-)
Subject: Re: an unlikely possibility
khurley@sunspot.ssl.berkeley.edu
X-Vmsmail-To: SMTP%"khurley@sunspot.ssl.berkeley.edu"

Dear Kevin,

concerning the star-like object we found in a CCD frame last
february (JD = 2450135.57222 at R.A.=09 21 36 DEC=+02 46 24 epoch=2000)
we are planning to write a brief report on it.

For this reason, I am writing to you to have some more indication:

- a. do you know if this area was under the view of BATSE at that time?
- b. according to our computation the Ulysses event you reported in the
previous mail seems to be roled out to different timing.
- c. we are still under a preliminar version of this report: would you like
to have a copy of it...and maybe joint us in finishing it or you just
prefer we quote your info as 'private communications'....?

Thank you one more for your kindness for answering to our questions...

ciao ciao
Enzo

H U S D A T A

7 / 1 0 / 9 6

U L Y S S E S R T

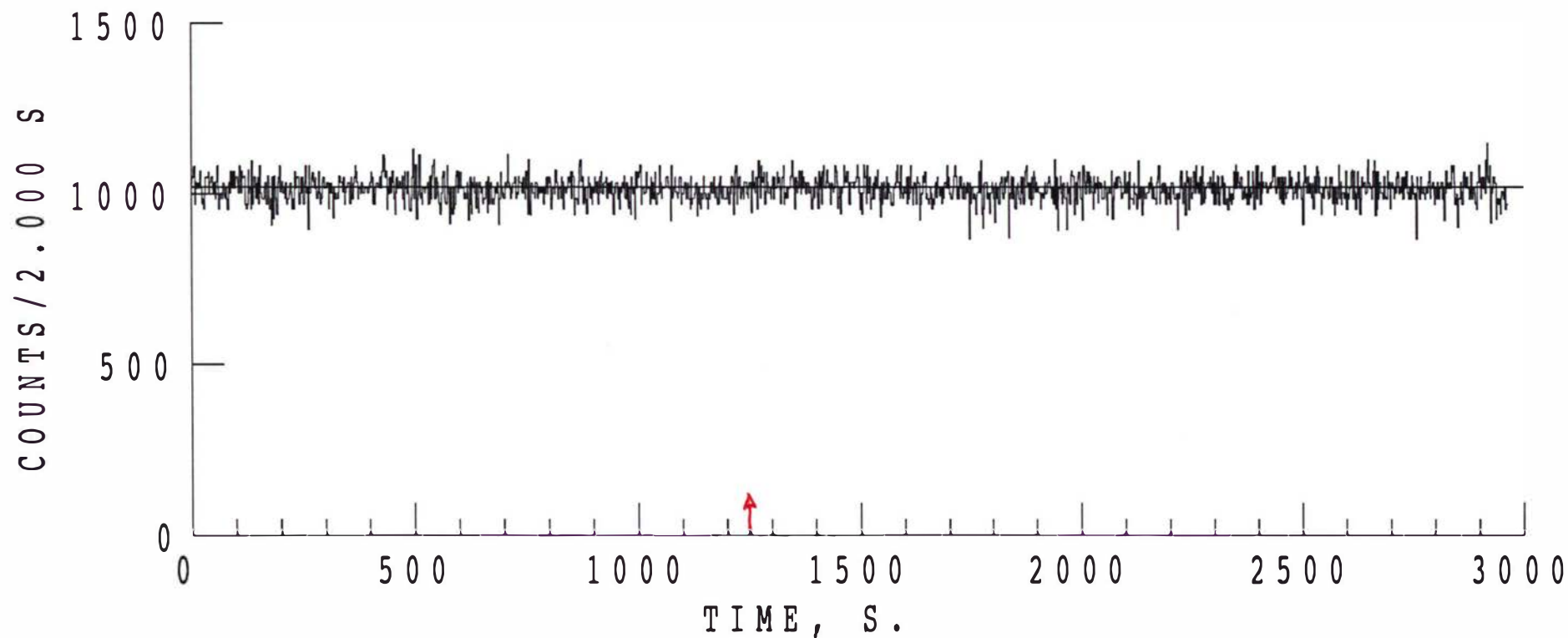
2 2 / 2 / 9 6 6 0 1 2 . 0 6 5 s

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 8

0 - 0 k e V

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



BATSEARCH PROGRAM

SE BURST #

EVENT OF 1996 FEB 22 DAY OF YEAR= 53

EVENT CROSSING TIME AT BATSE : 7500. S. OR 02:05:00.0

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

BURST ARRIVAL DIRECTION: 140.400 2.800

BATSE PEAK COUNTING RATE: 0 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND

INTERPOLATED POSITION OF ULYSSES ON 22/ 2/ 96 IS:

RA= 206.155 DEC= 73.326 DIST= 2.884 AU

BATSE-ULYSSES DISTANCE = 431509190. KM.

ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 99.47 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= -236.74 SECS.

CROSSING TIME AT ULYSSES IS 7263. S. OR 02:01:03 +/- 292.90 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND

POSITION OF MARS ON 22/ 2/ 96 IS:

RA= 337.360 DEC= -10.582 DIST= 2.369 AU

MARS-BATSE DISTANCE = 354348096. KM.

ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 18.54 DEG.

LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1120.62 SECS.

CROSSING TIME AT MARS IS 8621. S. OR 02:23:40 +/- 82.28 SECONDS

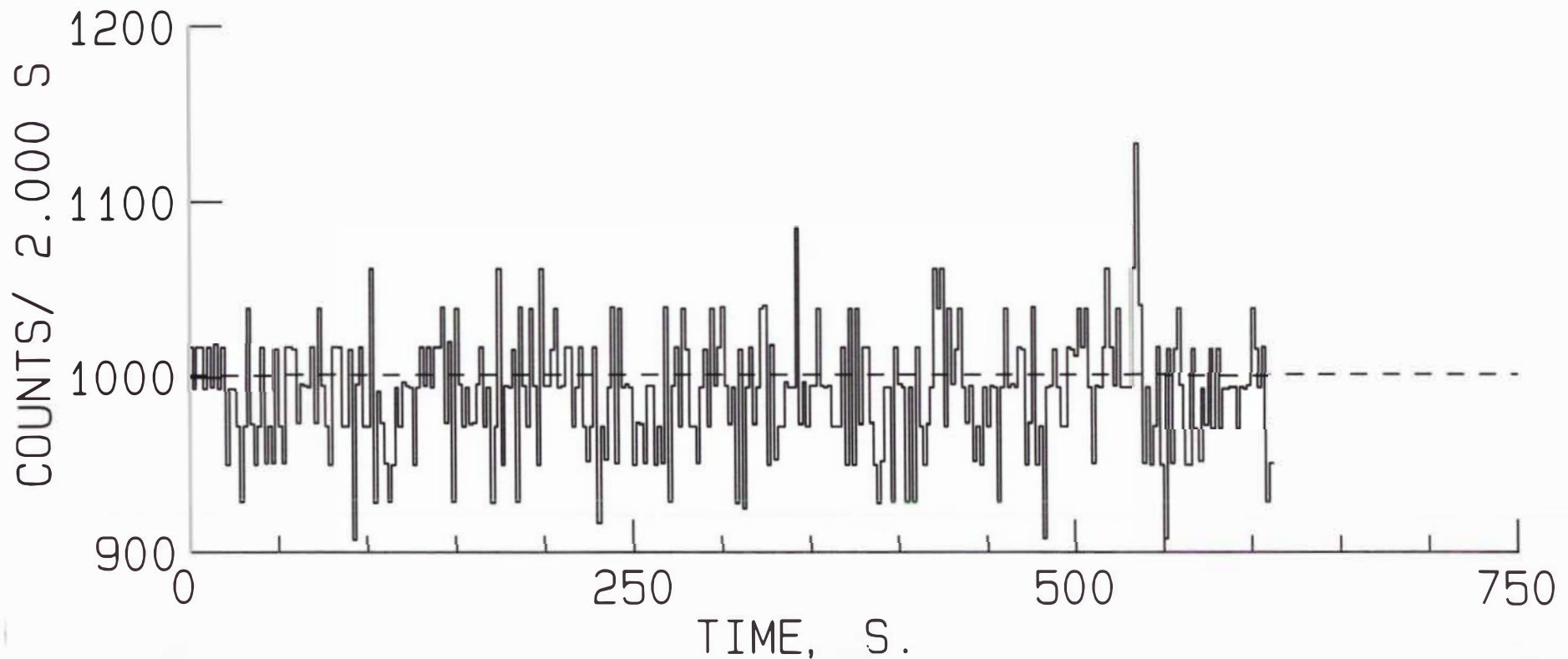
ULYSSES RT

7 / 8 / 96

22 / 2 / 96 72288.107 s

0.500 S INTERVALS REGROUPED BY 4
21- 145 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



H U S D A T A

7 / 8 / 9 6

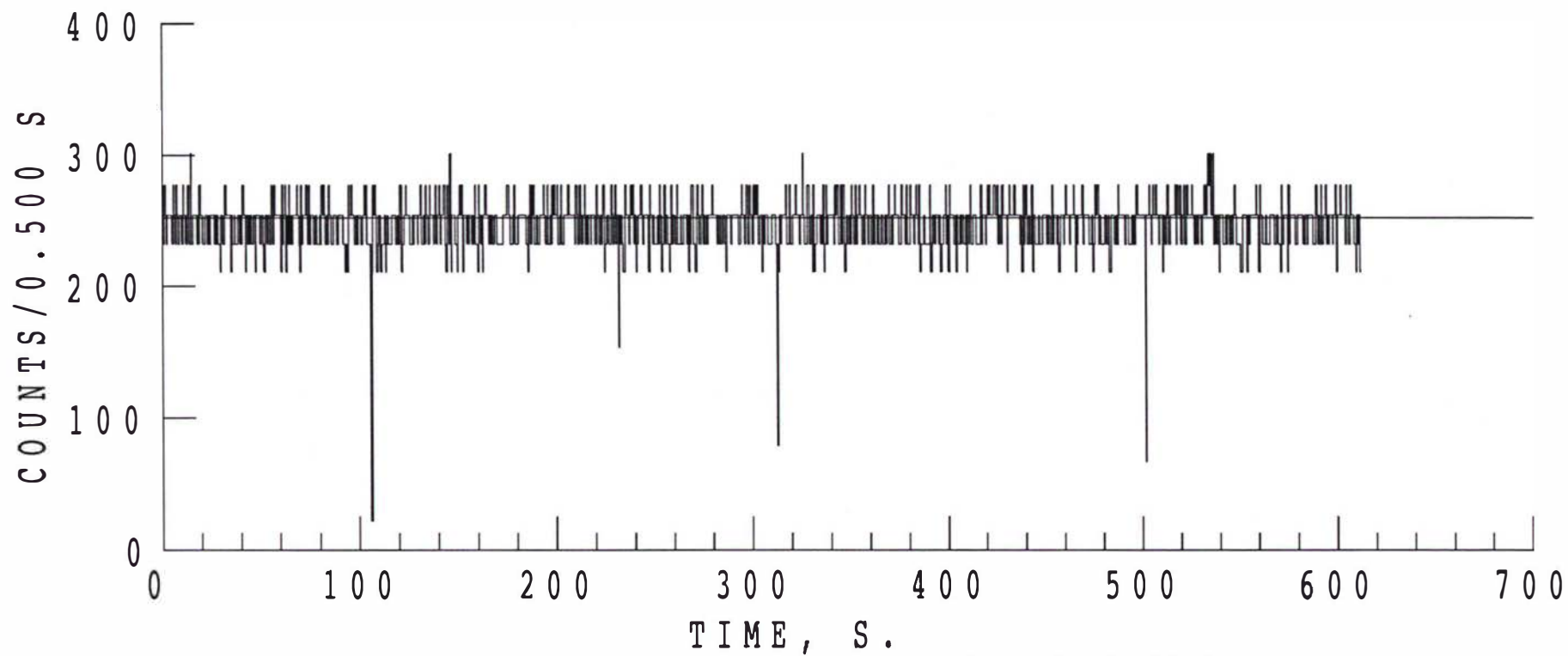
U L Y S S E S R T

2 2 / 2 / 9 6 7 2 2 8 8 . 1 0 2 s

0 - 0 k e V

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
~033.19:10 SCET	should be	~032.13:18 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~048.17:29 SCET	should be	~047.13:45 SCET
~054.08:59 SCET	should be	~053.11:46 SCET
~039.18:34 SCET	should be	~038.12:14 SCET
~039.18:34 SCET	should be	~038.12:14 SCET

We see data gaps for each of the correct times, so it looks like your theory of AMMOS mis-correcting times when there is carry-over data on the tape is correct.

I hope this is enough information. I would have to do a bit more calculation to get the approximate ERTs. Let me know if you want them.

Best regards,

Nigel

From ulsdmt@jplsp.DNET.NASA.GOV Mon Mar 18 17:13 PST 1996
From: ulsdmt@jplsp.DNET.NASA.GOV
Date: Mon, 18 Mar 96 20:13:12 -0500
To: "khurley@sunspot.ssl.berkeley.edu"@east.DNET.NASA.GOV (SENT TO @LIST1)
Subject: Misplaced Major Frames in EDRs

Greetings,

We have identified an operations technique that produces data that will be improperly time tagged by the MGDS (telemetry system). Instances of EDR errors (major frames out of order) have been found in the CDROM archival products for December 1995 and January 1996. Errors will also be found in the still to be shipped February 1996 data.

When major frames are recorded but not transmitted during the next track, but are eventually downlinked with data from a succeeding day, the embedded SCLKs are 'assumed' to be incorrect by the frame syncer and are re-tagged with SCETs and SCLKs matching the adjacent (but newer) data.

For each major frame processed in this manner, a gap will exist, representing the time the data was actually acquired, and a major frame or realtime data, representing the time period the data now errently represents, will be replaced by the misplaced playback data.

Yes. Confusing. See the attached memo detailing the times involved.

Approximately 17 such instances are known to have occured. The total time involved is about twenty minutes. Because the data loss is small and the cost of reprocessing would be so large, the Project has determined that it would be imprudent to reprocess.

For your information, however, we included a memo from Nigel Angold which itemizes each instance.

We thank Toni Galvin and Nigel for identifying the problem and assisting in the diagnosis.

Regards,

Joe

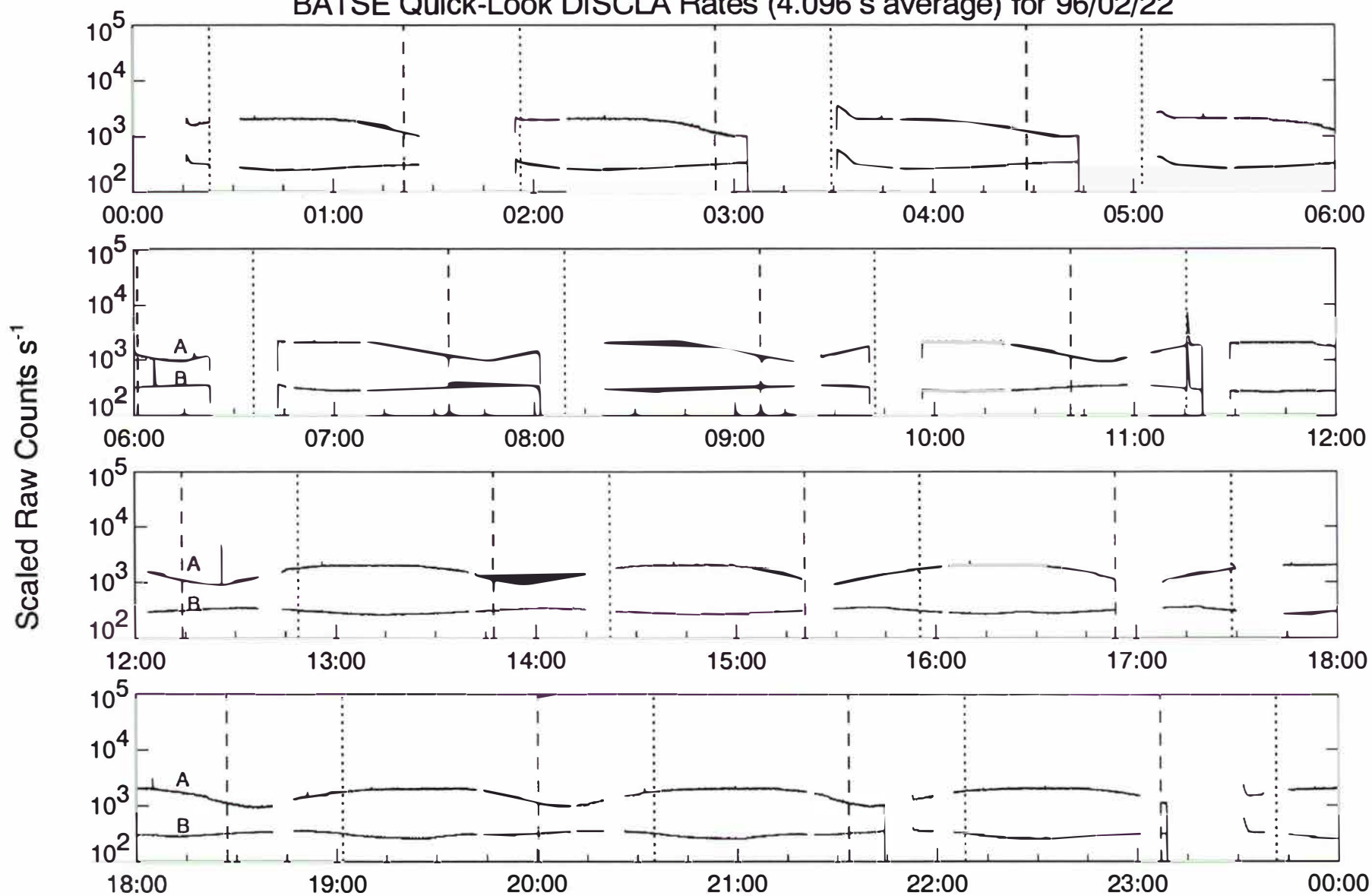
To: <ulsdmt@jplsp.jpl.nasa.gov>
From: Nigel Angold <nangold@jplsp2.jpl.nasa.gov>
Subject: Mis-corrected S/C clocks / SCETs
Cc: chris.leech@jpl.nasa.gov

I have looked at our recent tape recorder usage and predict that you will see major frames with mis-corrected spacecraft clocks / SCETs at the following times (give or take a few minutes):

1995:

~342.22:59 SCET	should be	~341.17:47 SCET
~347.22:39 SCET	should be	~346.16:46 SCET
~350.21:54 SCET	should be	~349.16:22 SCET
~355.22:14 SCET	should be	~354.15:42 SCET
~359.14:04 SCET	should be	~359.05:36 SCET
~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/22



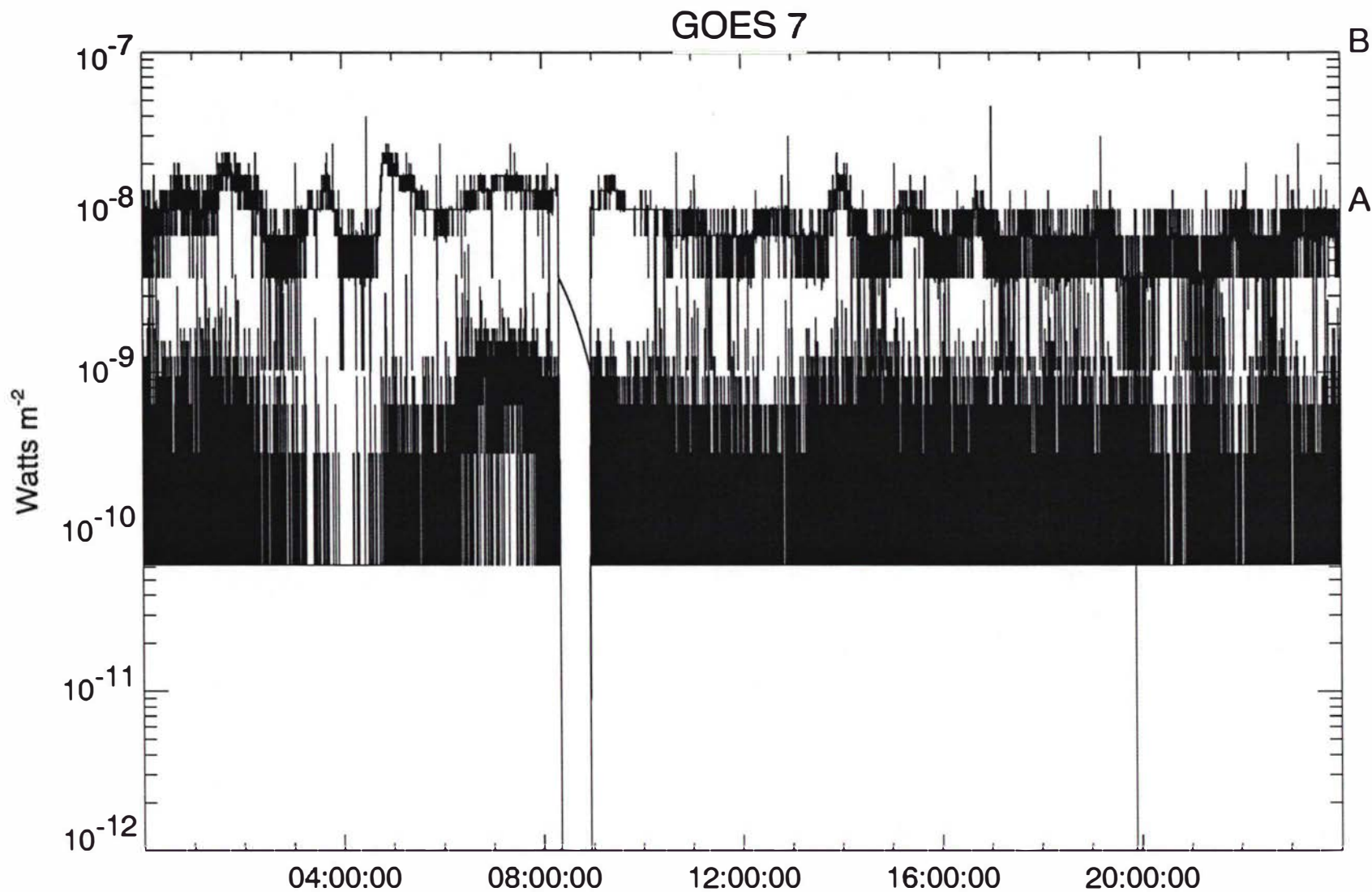
Current Time: 96/02/24, 0855 EDT

A: Channel 0 Most Sunward LAD

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

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



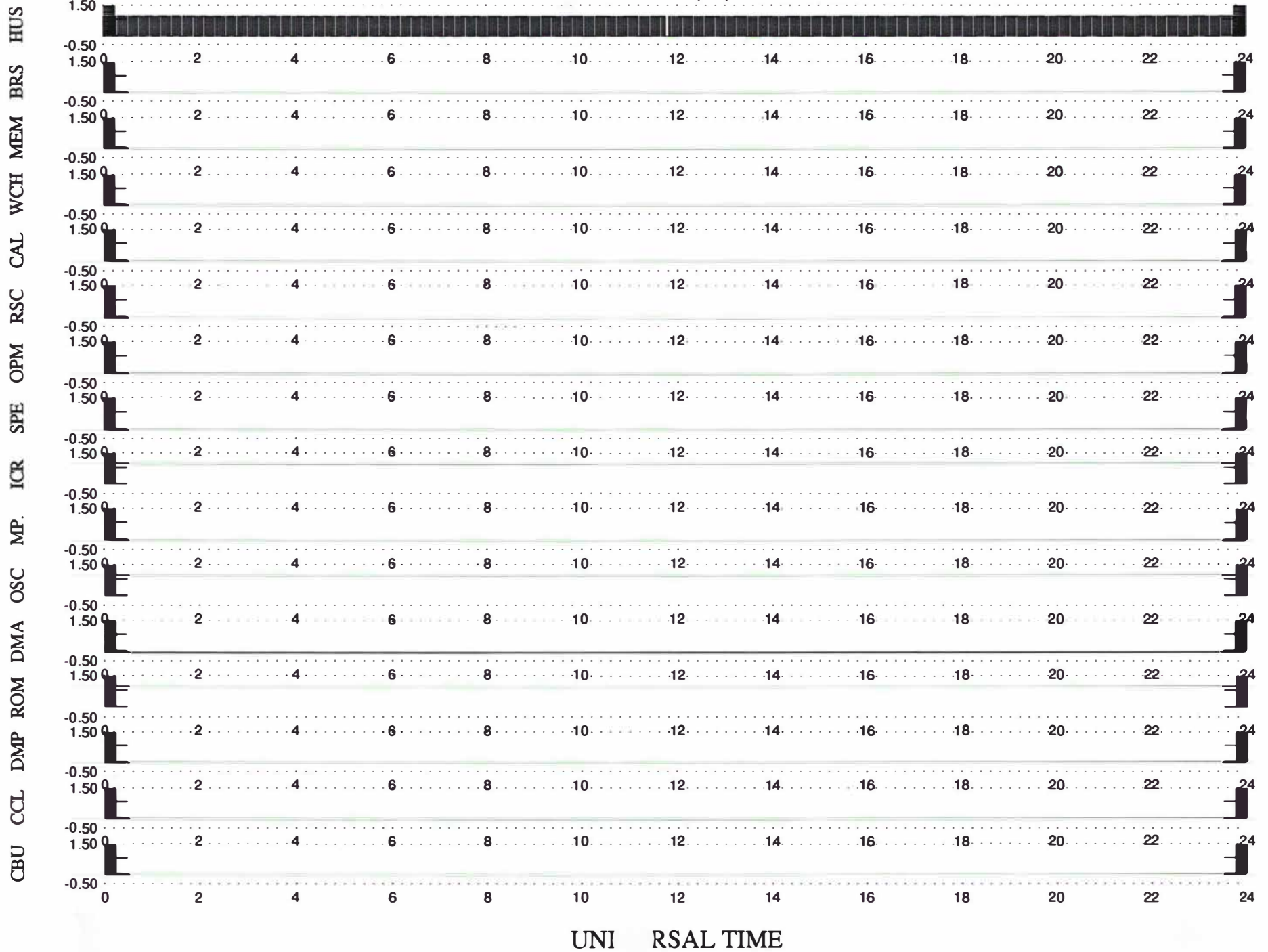
Data Start: 96/02/22, 0000:03

Plot created: 96/02/24, 0854

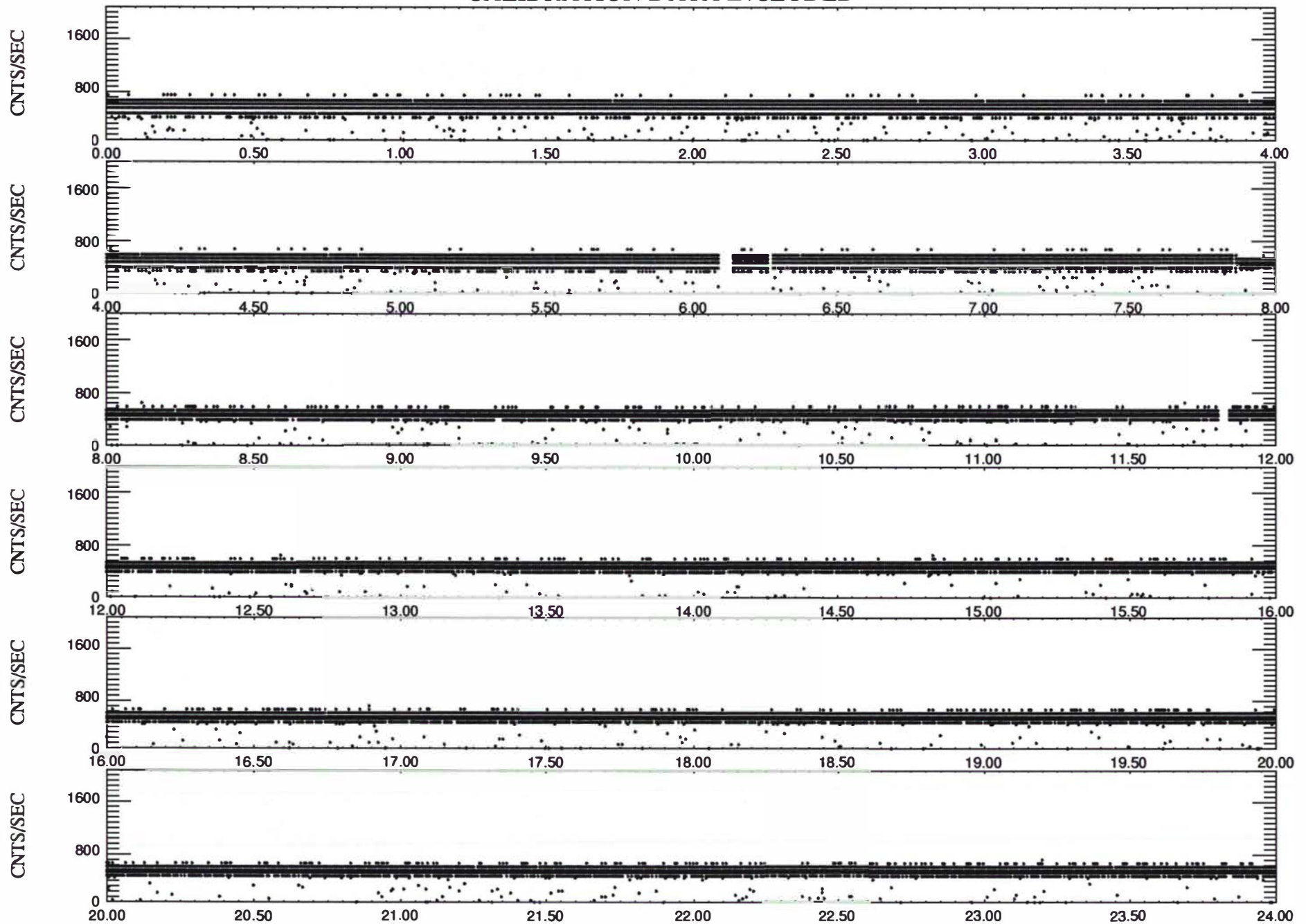
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

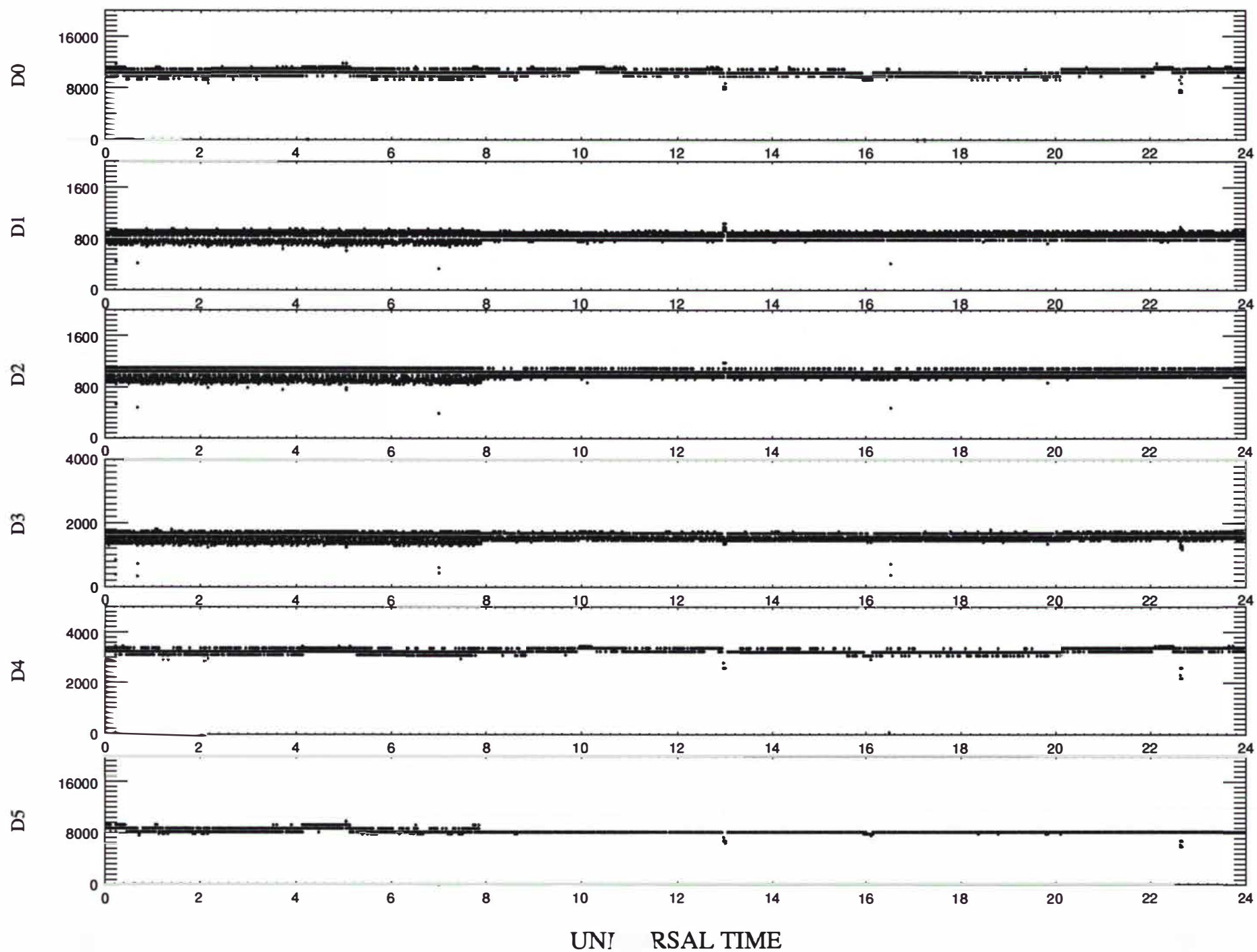
NO BURST (10)



CALIBRATION DATA INCLUDED



UNRSAL TIME



1996:

~001.02:45 SCET	should be	~364.23:12 SCET
~002.14:35 SCET	should be	~001.04:22 SCET
~029.19:35 SCET	should be	~028.13:43 SCET
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Cc: chris.leech@jpl.nasa.gov

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~360.14:59 SCET	should be	~359.00:20 SCET
~362.20:55 SCET	should be	~361.16:06 SCET

From DEAL@fender.msfc.nasa.gov Mon Feb 26 12:08 PST 1996
From: DEAL@fender.msfc.nasa.gov
Date: Mon, 26 Feb 1996 14:06:27 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 4992

TIME: TJD=0136 SECONDS=59674

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

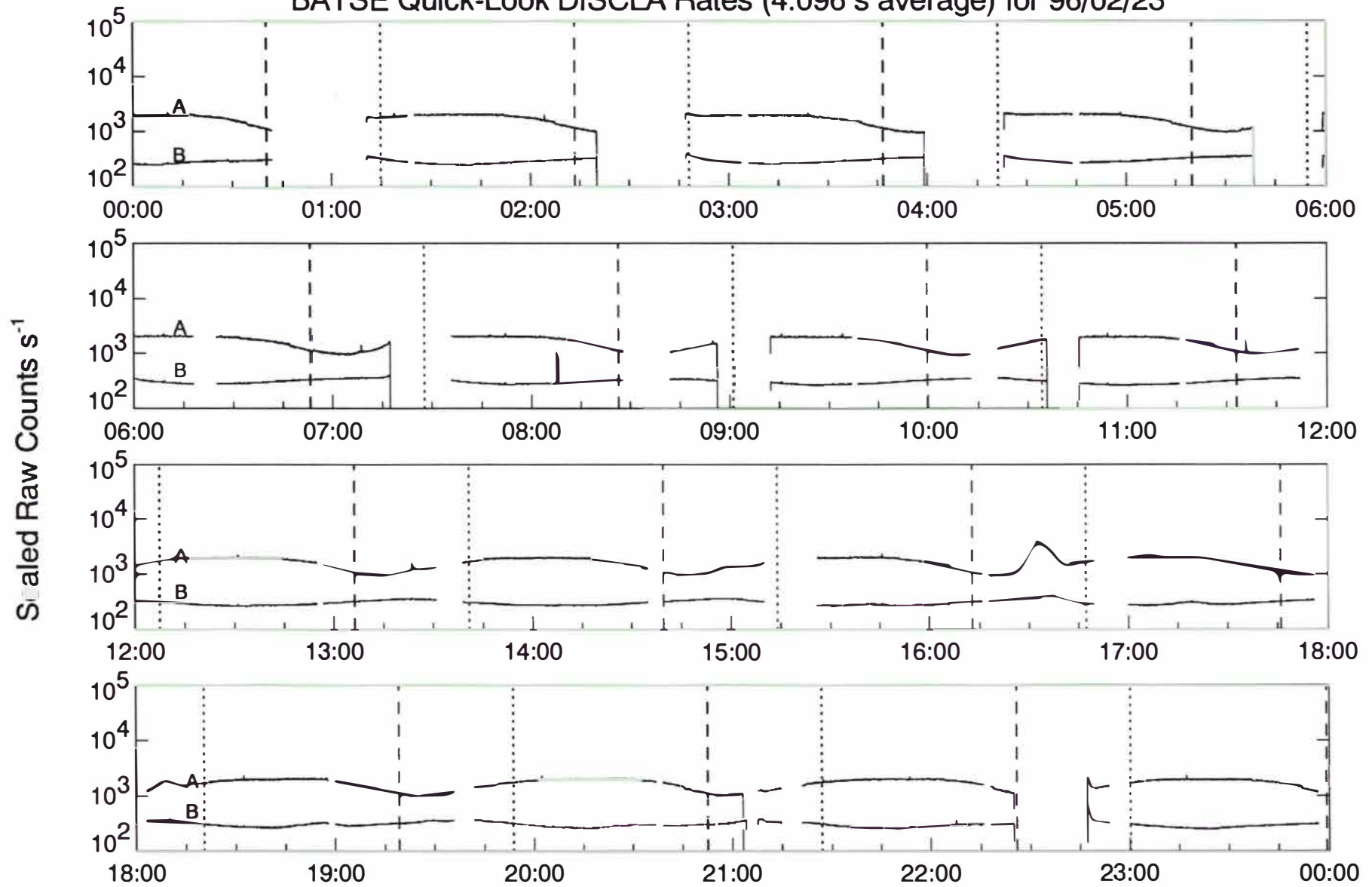
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/23

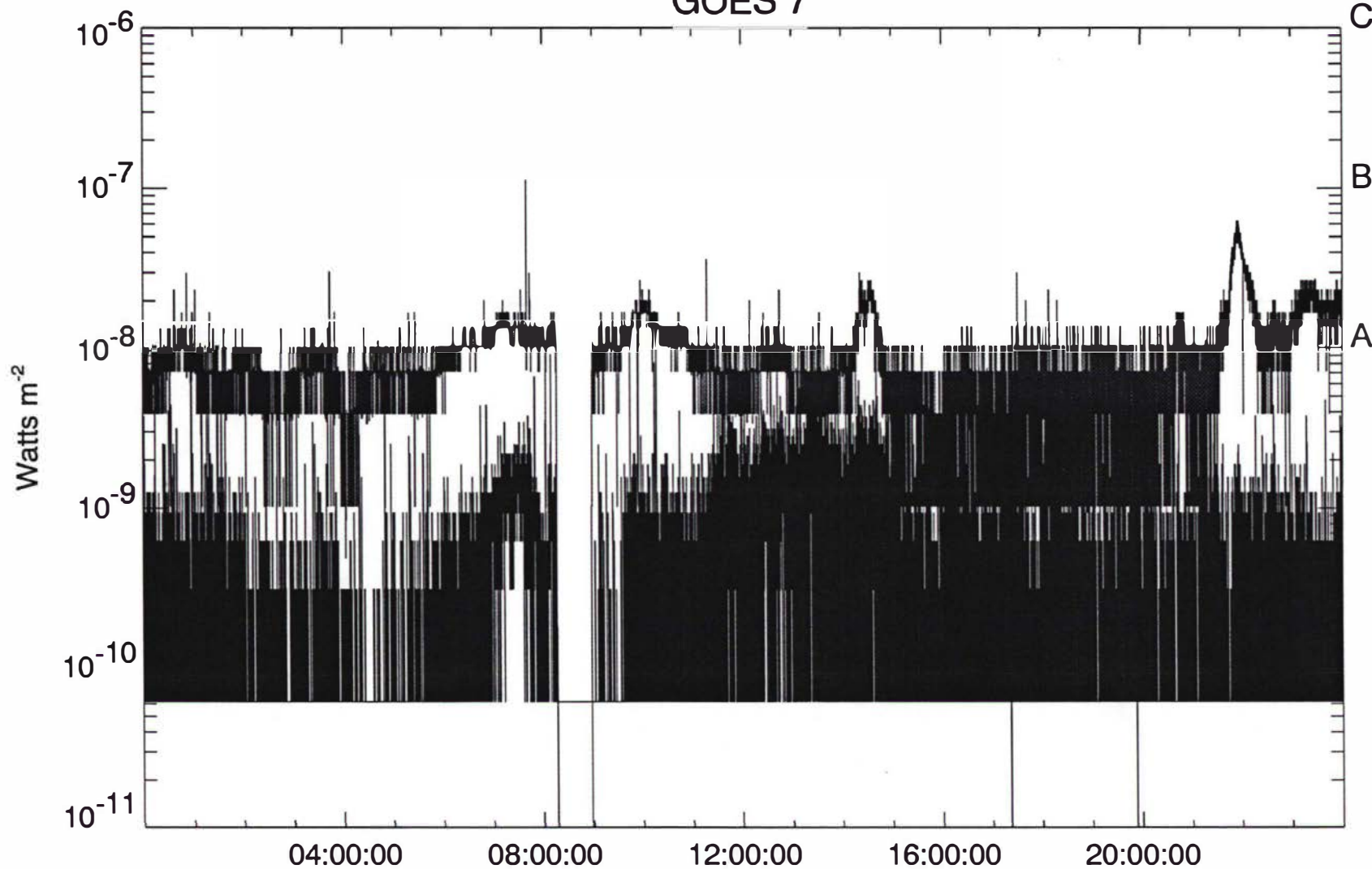


Current Time: 96/02/25, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 7



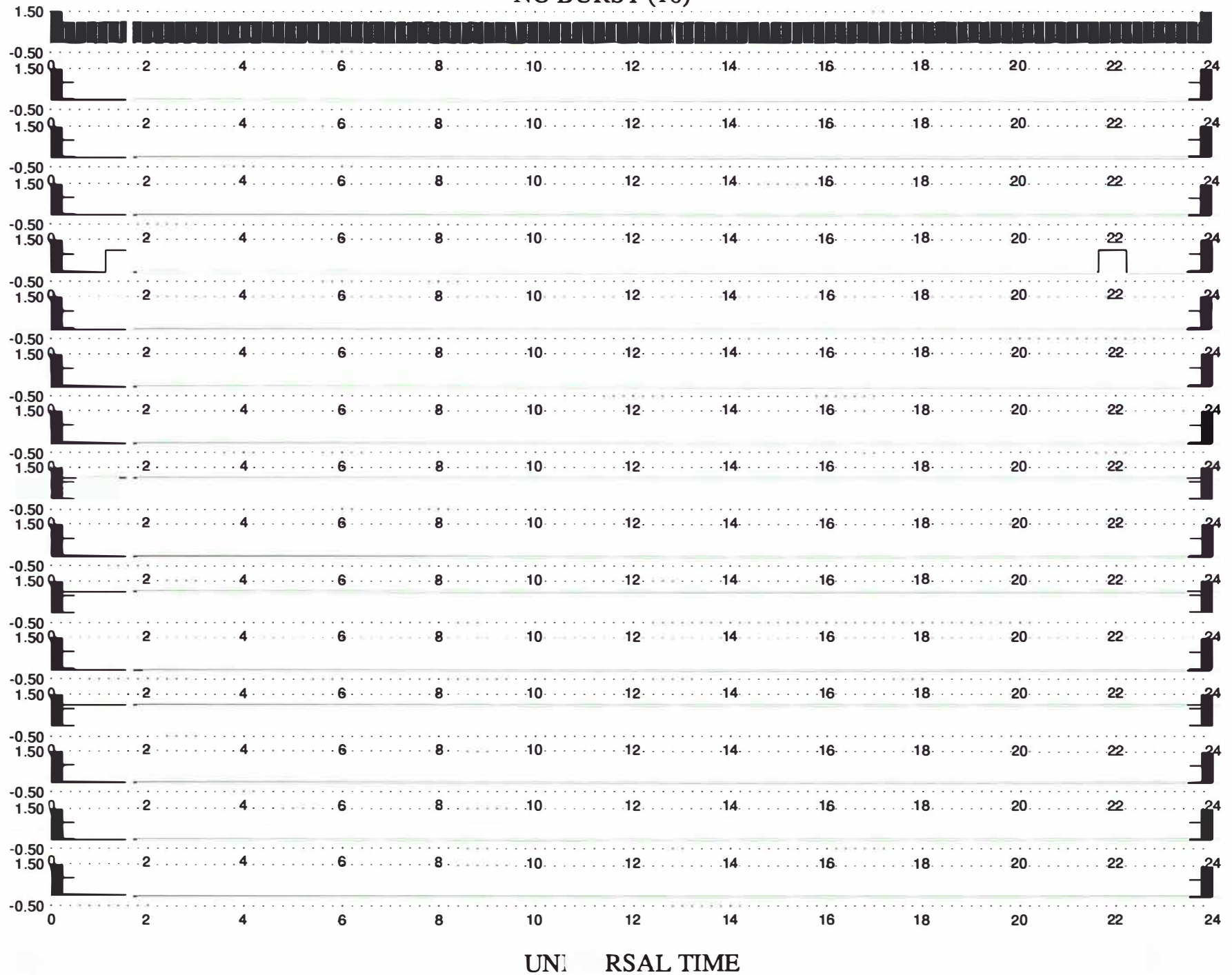
Data Start: 96/02/23, 0000:00

Plot created: 96/02/25, 0854

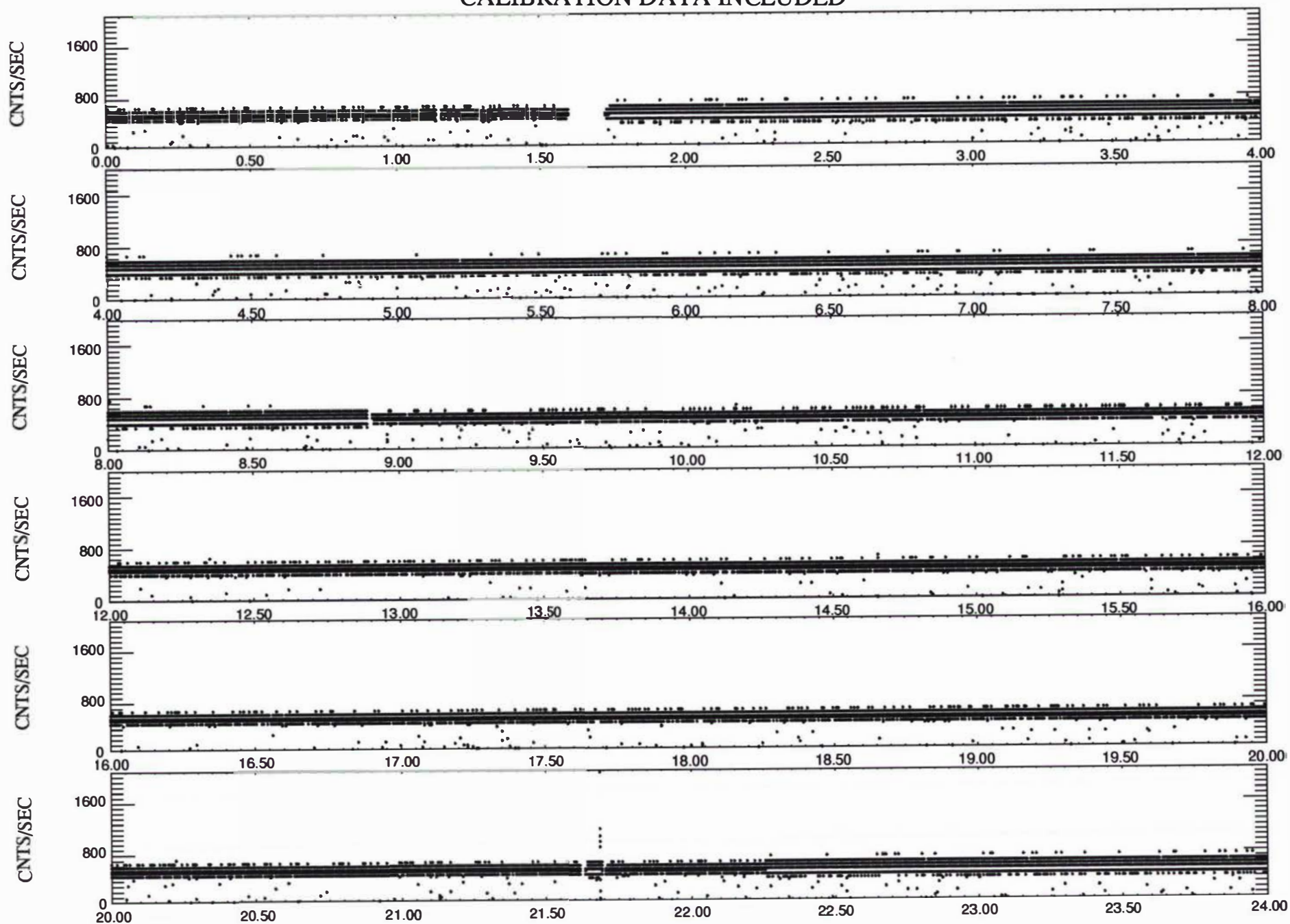
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

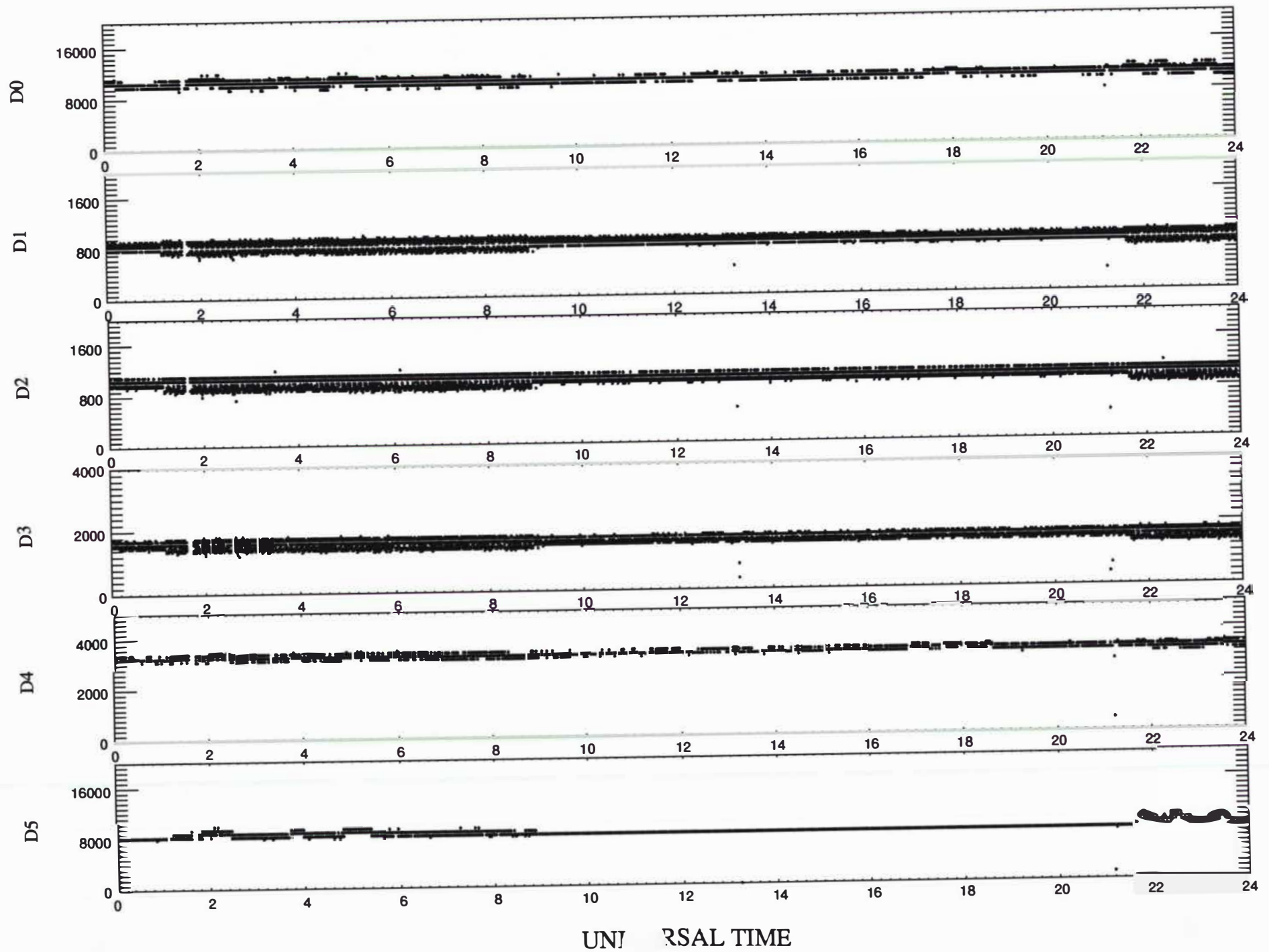
CBU	CCL	DMP	ROM	DMA	OSC	MP.	ICR	SPE	OPM	RSC	CAL	WCH	MEM	BRS	HUS
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



CALIBRATION DATA INCLUDED



UNLabeled TIME



From SURASAK@SSLLES.MSFC.NASA.GOV Mon Feb 26 12:27 PST 1996
From: SURASAK@SSLLES.MSFC.NASA.GOV
Date: Mon, 26 Feb 1996 14:24:13 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 05006

TIME: TJD=0137 SECONDS=67333

TYPE: TGF SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

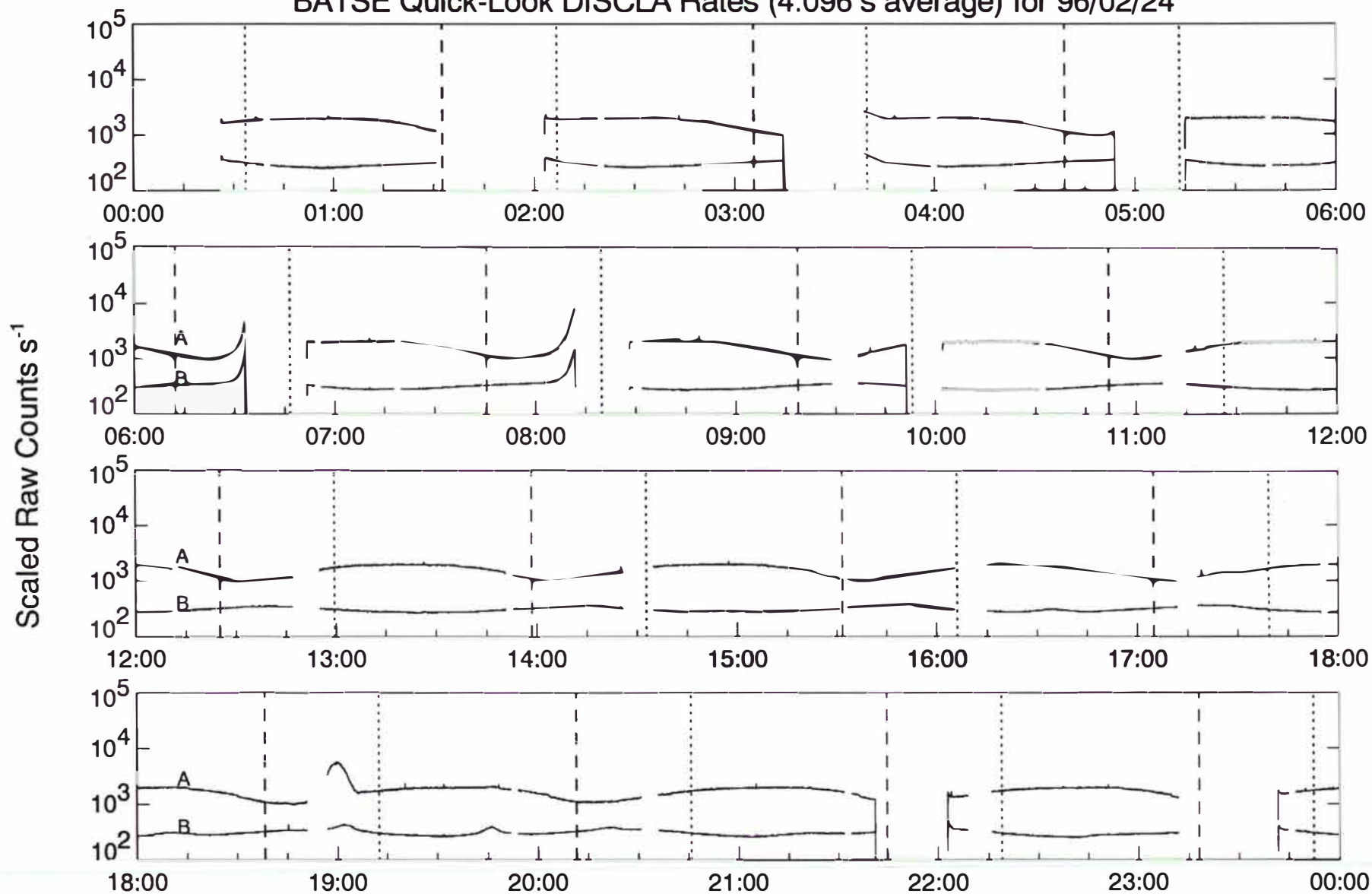
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=95.3 AZIMUTH=288.4 ERROR=008.5 DEGREES

COMMENTS:

TERRESTRIAL GAMMA FLASH. DURATION < 0.064SEC.

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/24



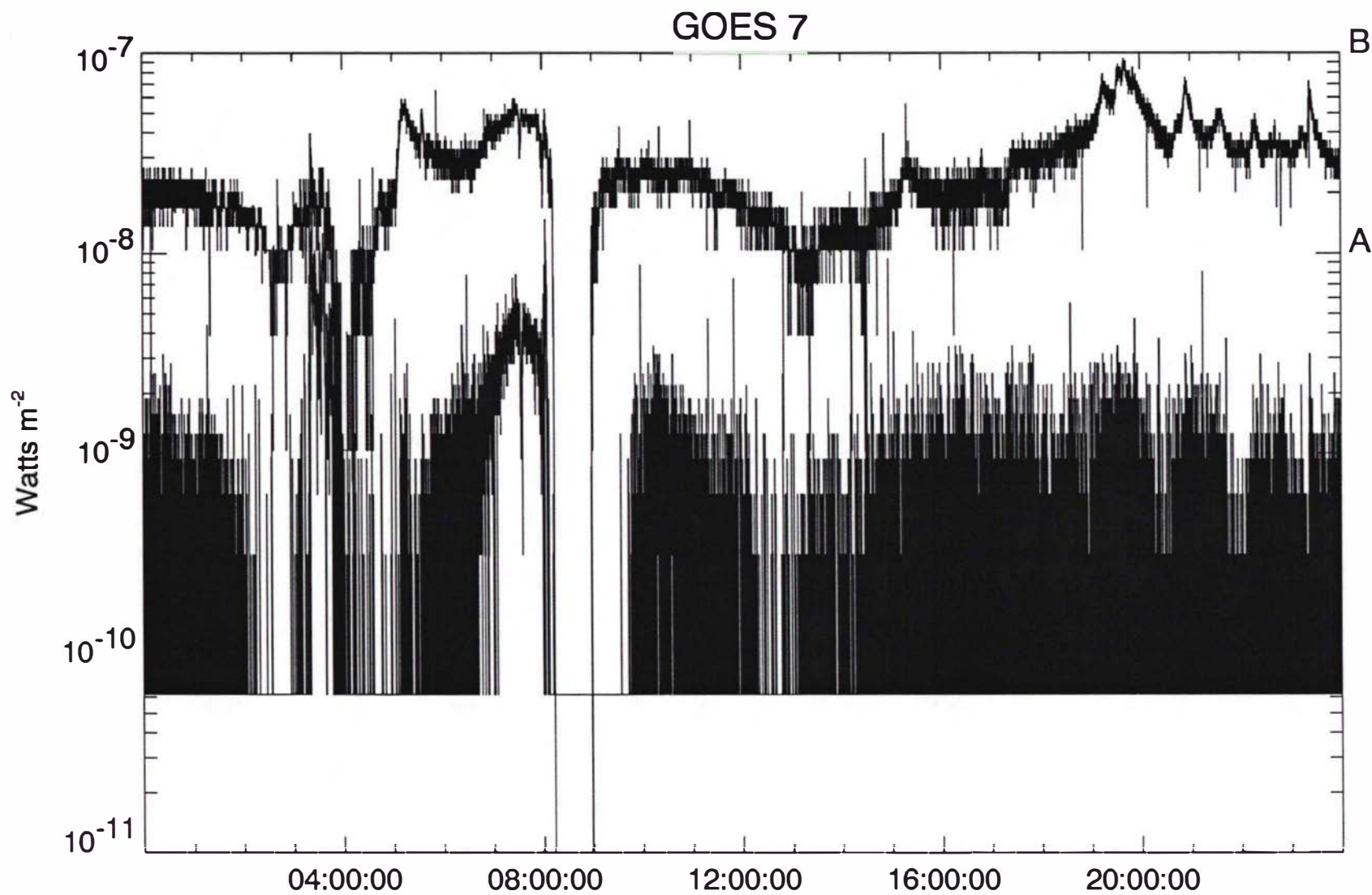
Current Time: 96/02/26, 0855 EDT

A: Channel 0 Most Sunward LAD

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

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



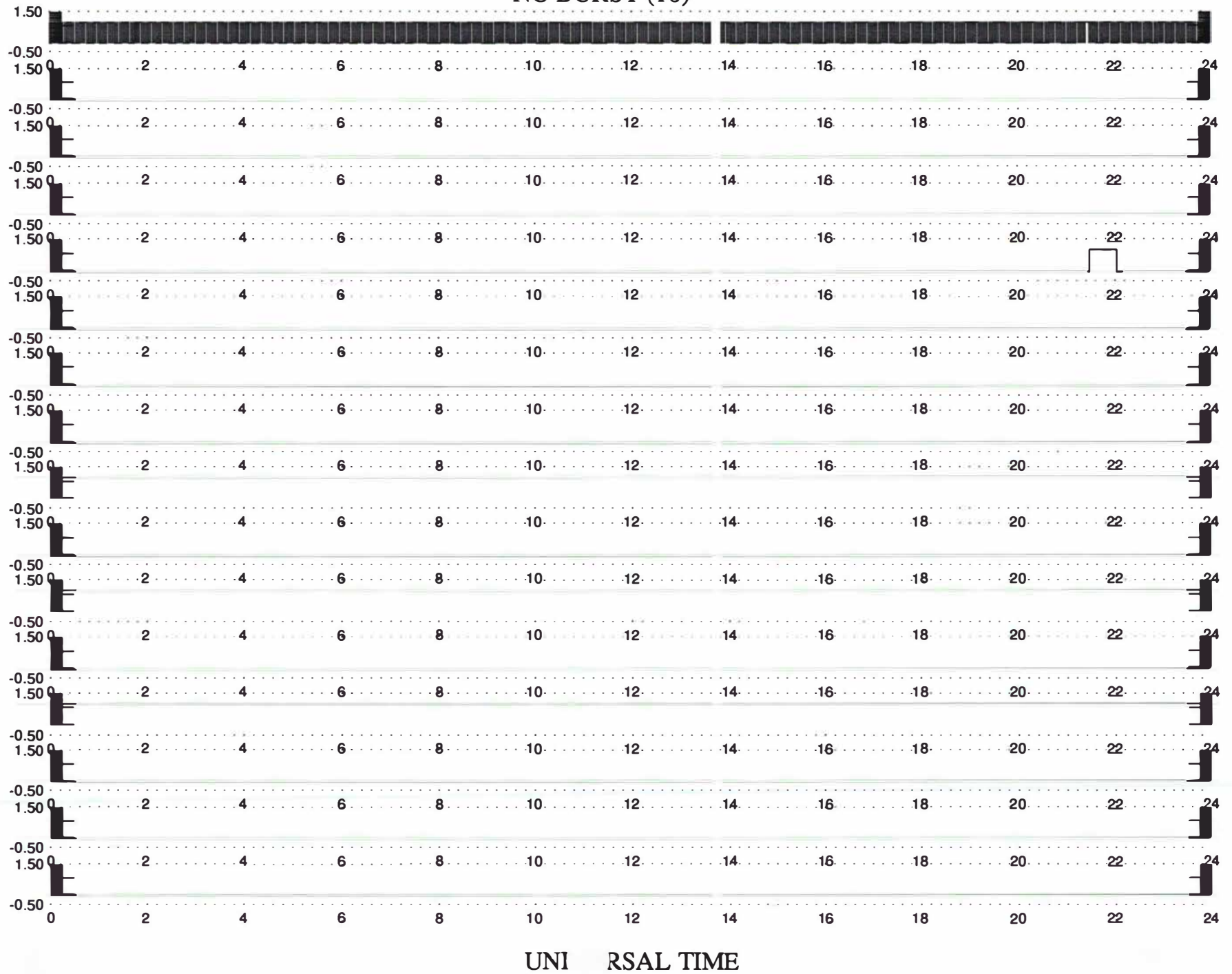
Data Start: 96/02/24, 0000:01

Plot created: 96/02/26, 0854

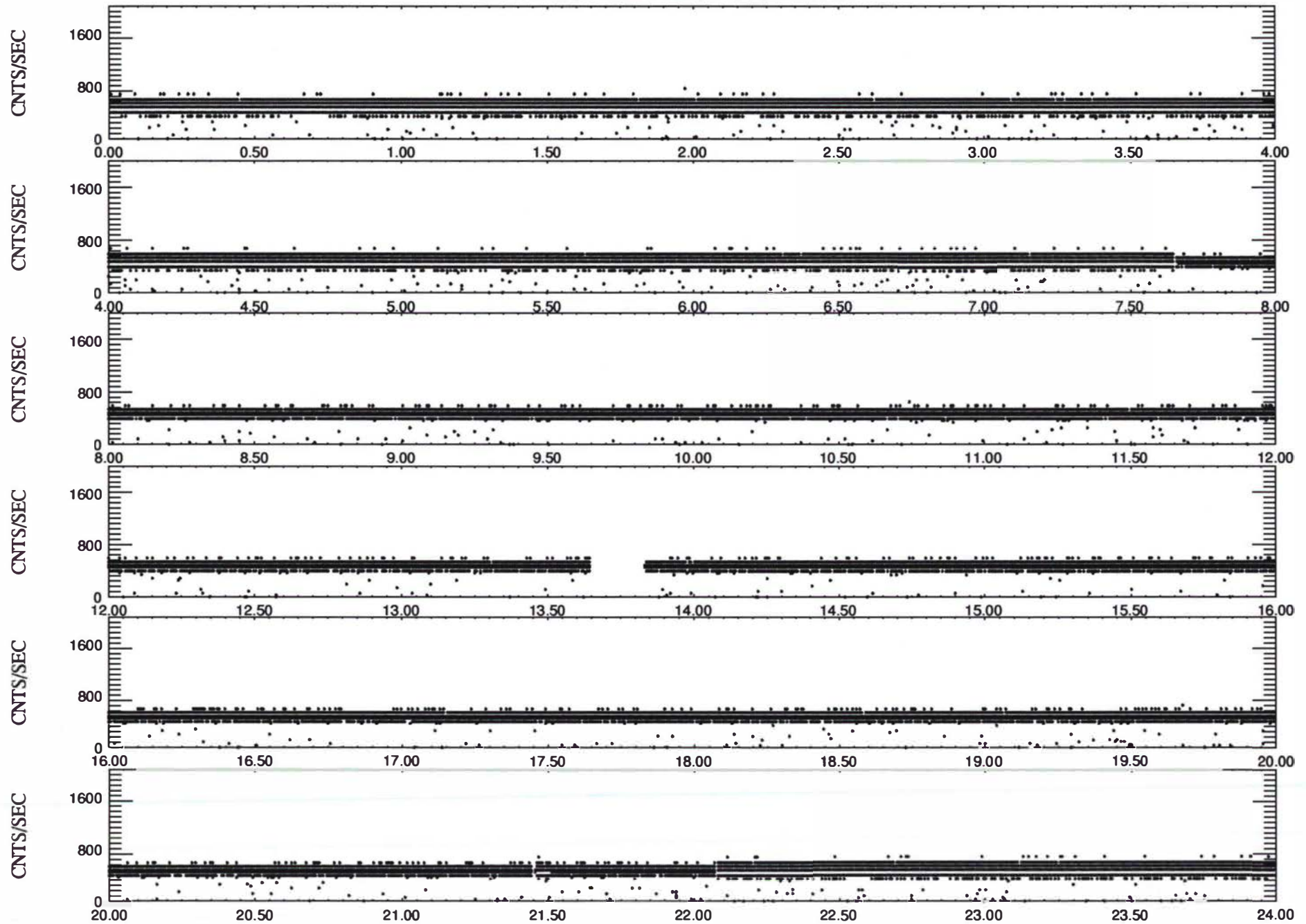
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

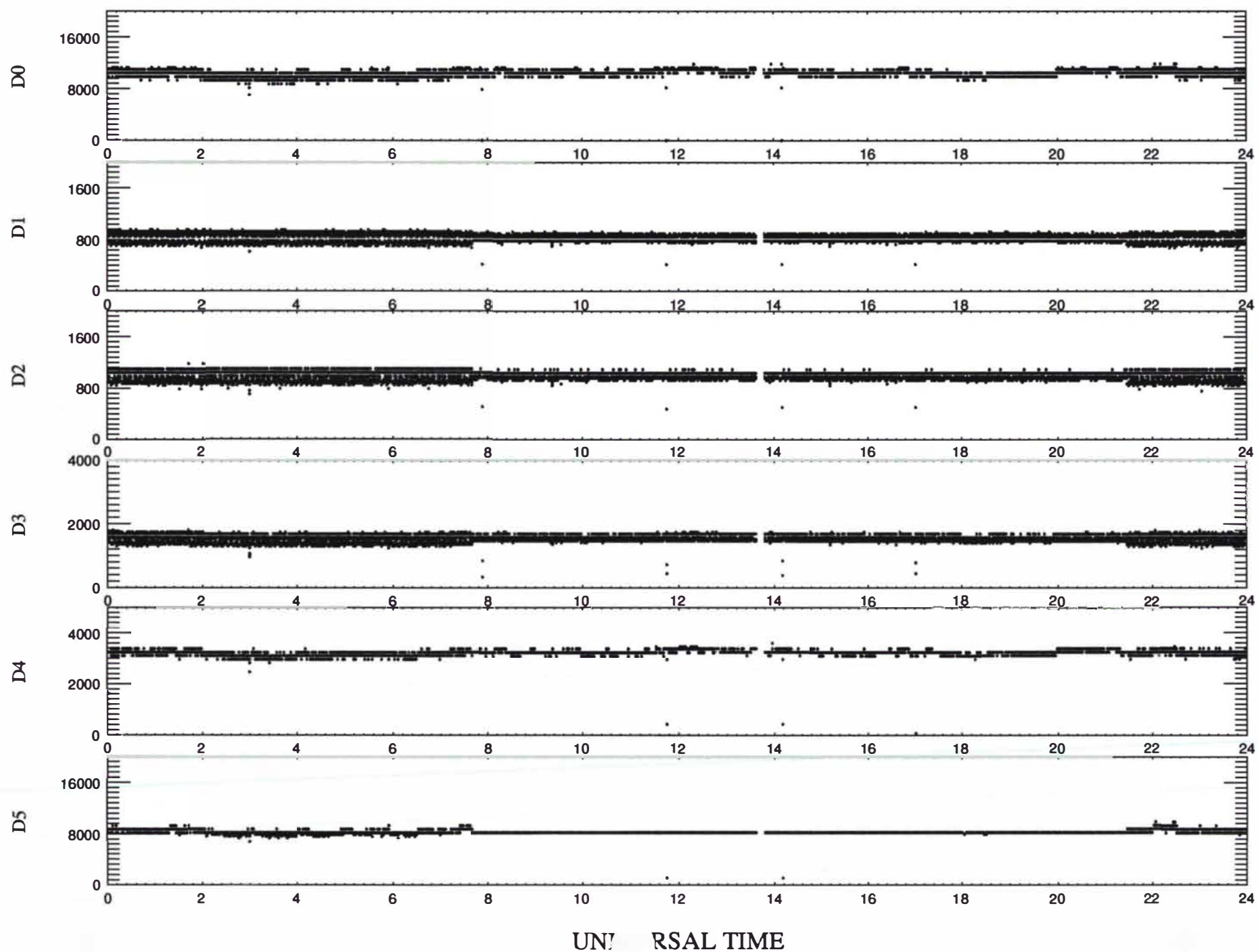
CBU CCL DMP ROM DMA OSC MP. ICR SPE OPM RSC CAL WCH MEM BRS HUS



CALIBRATION DATA INCLUDED



UNRSAL TIME



From DEAL@fender.msfc.nasa.gov Mon Feb 26 12:10 PST 1996
From: DEAL@fender.msfc.nasa.gov
Date: Mon, 26 Feb 1996 14:08:50 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
LHEAVXCLINE@fender.msfc.nasa.gov, LHEAVXBARTHELMY@fender.msfc.nasa.gov,
scott@circe.gsfc.nasa.gov, butterworth@lheavx.gsfc.nasa.gov,
band@cass09.ucsd.edu, gruber@cass09.ucsd.edu, matteson@cass09.ucsd.edu,
PACIESAS@fender.msfc.nasa.gov, HORACK@fender.msfc.nasa.gov,
khurley@sunspot.ssl.berkeley.edu
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 5019

TIME: TJD=0138 SECONDS=59793

TYPE: ELECTRO SOLAR FLARE TRIGGER SIGNAL:N

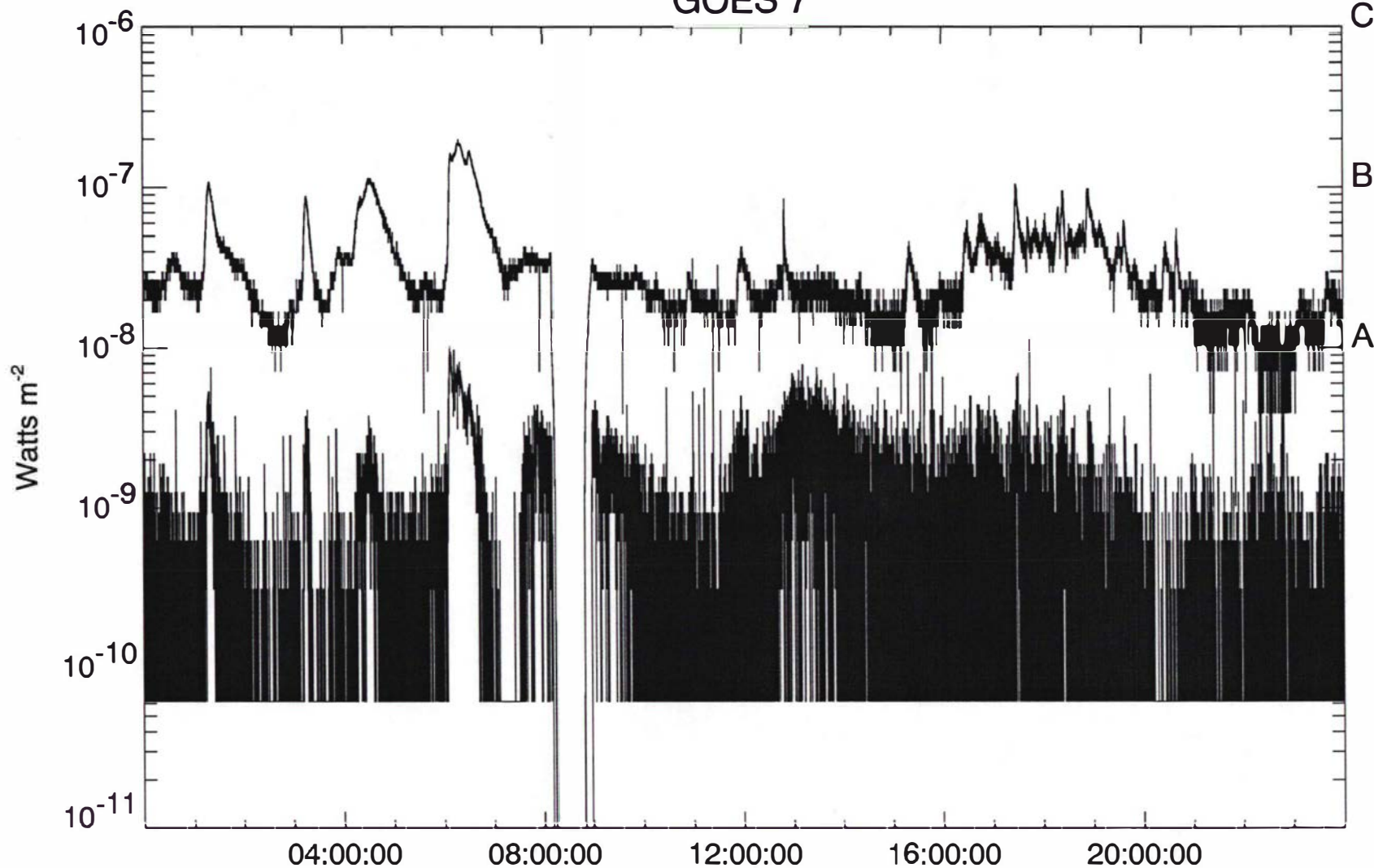
SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
ELECTRON EVENT

GOES 7



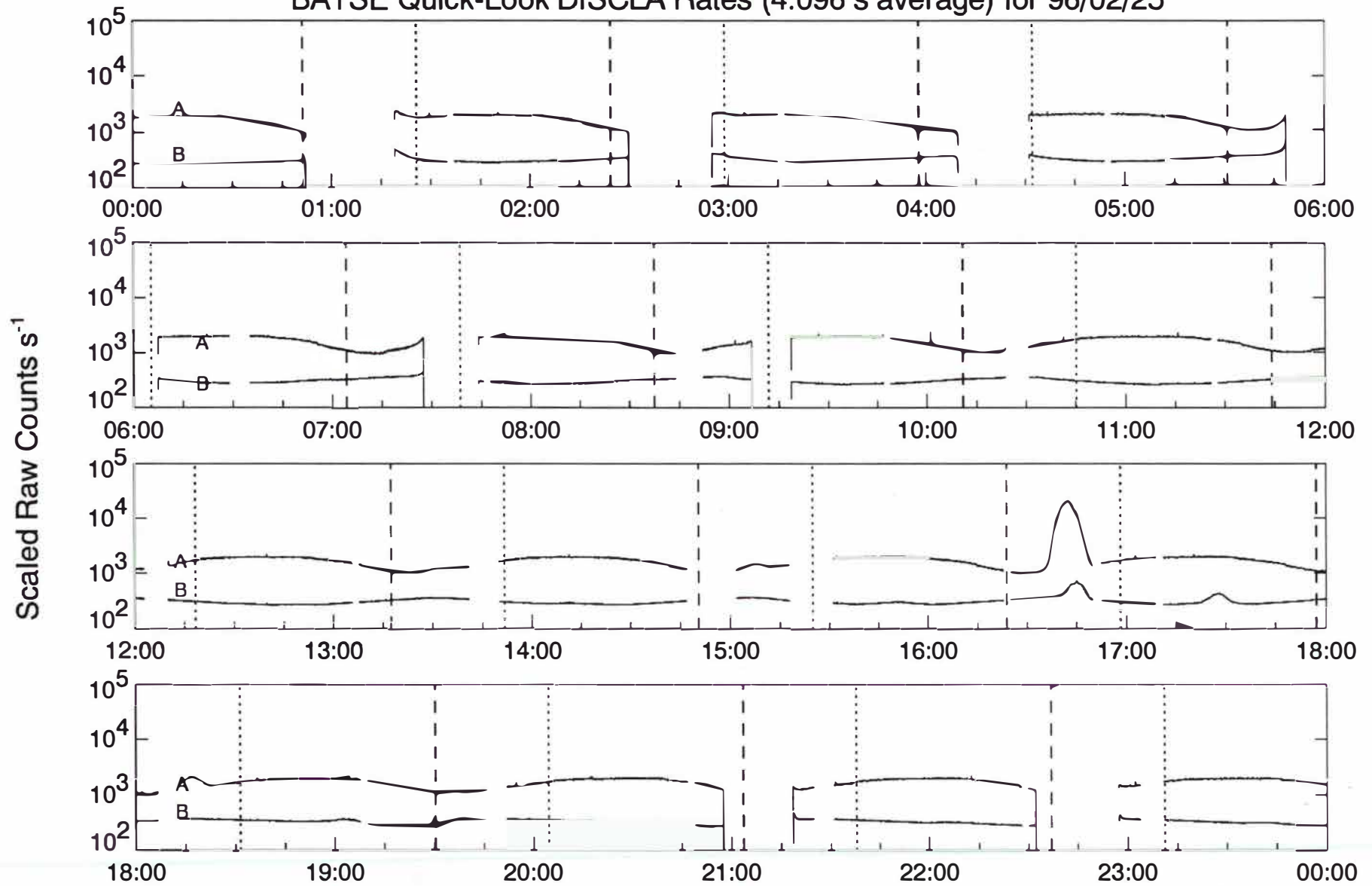
Data Start: 96/02/25, 0000:02

Plot created: 96/02/27, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/25

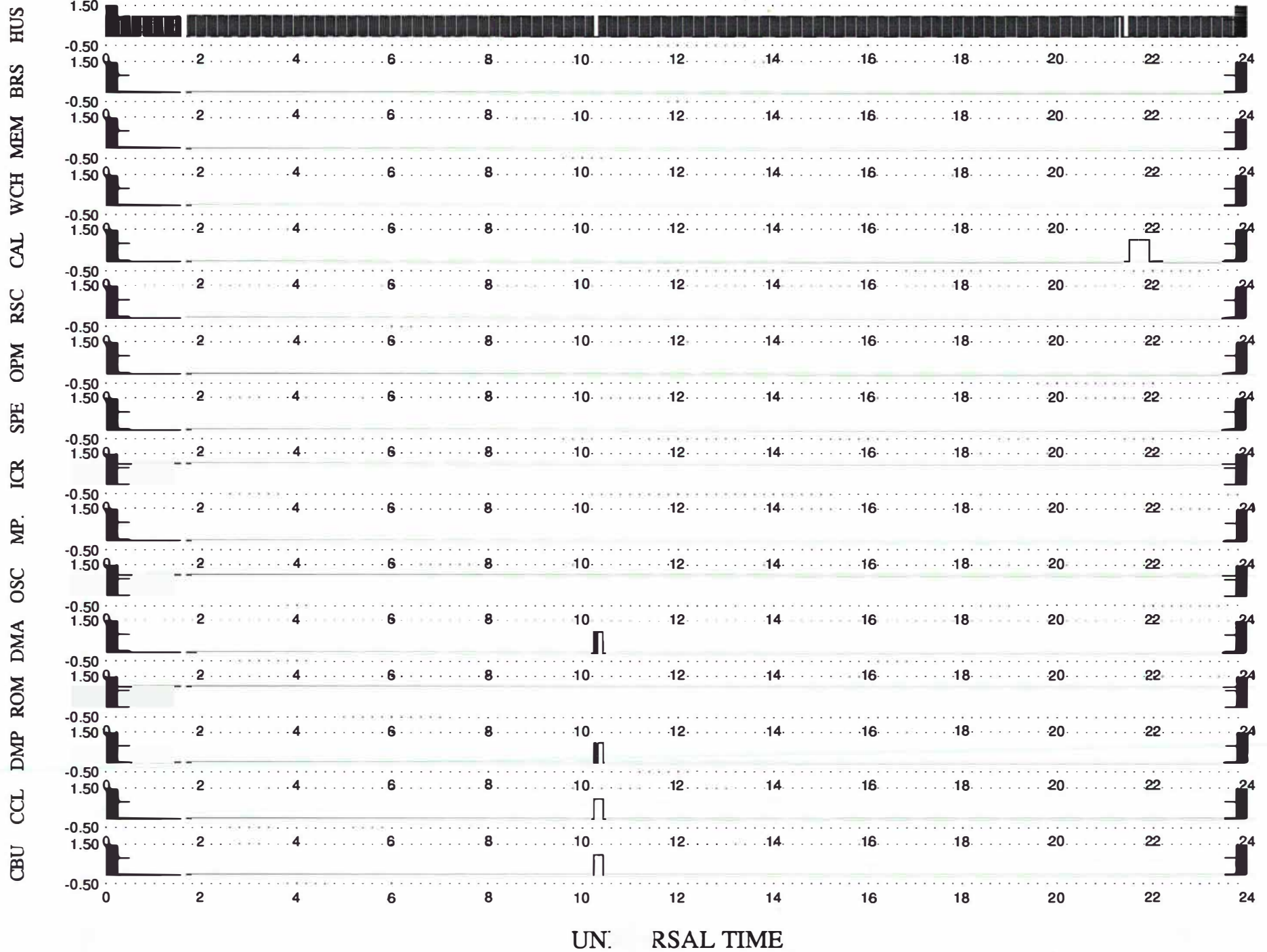


Current Time: 96/02/27, 0855 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

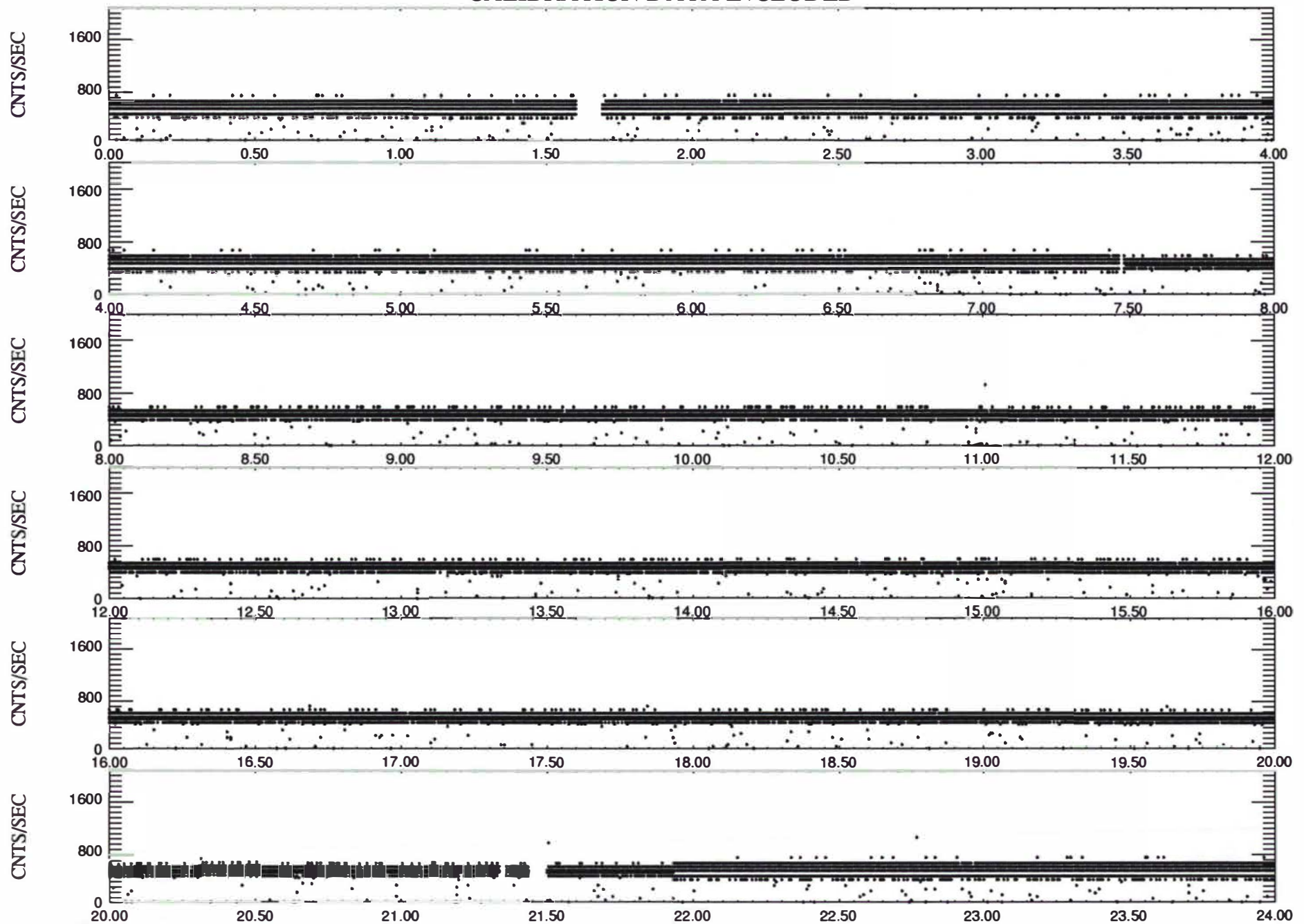
Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

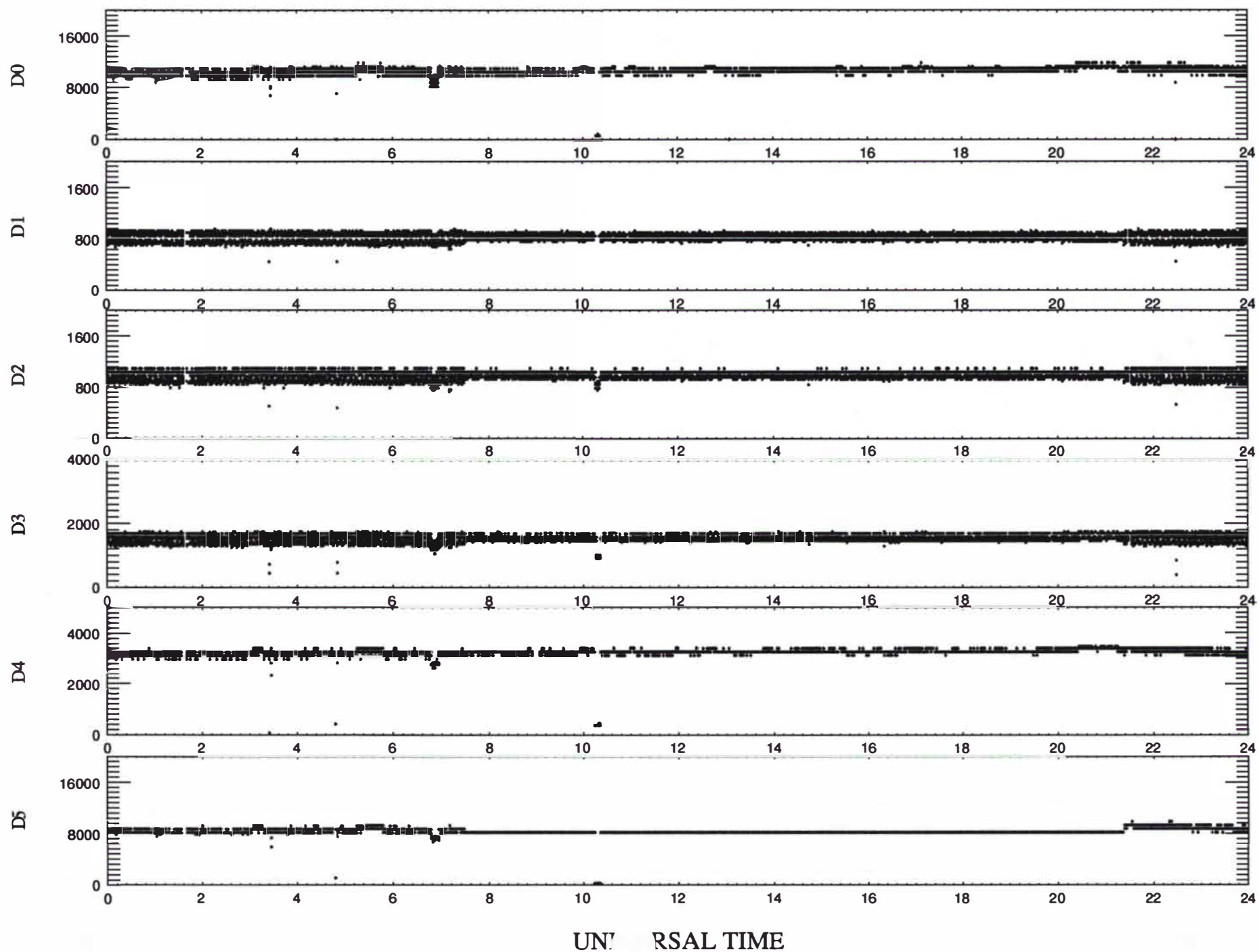
BURST NUMBER 15, 10



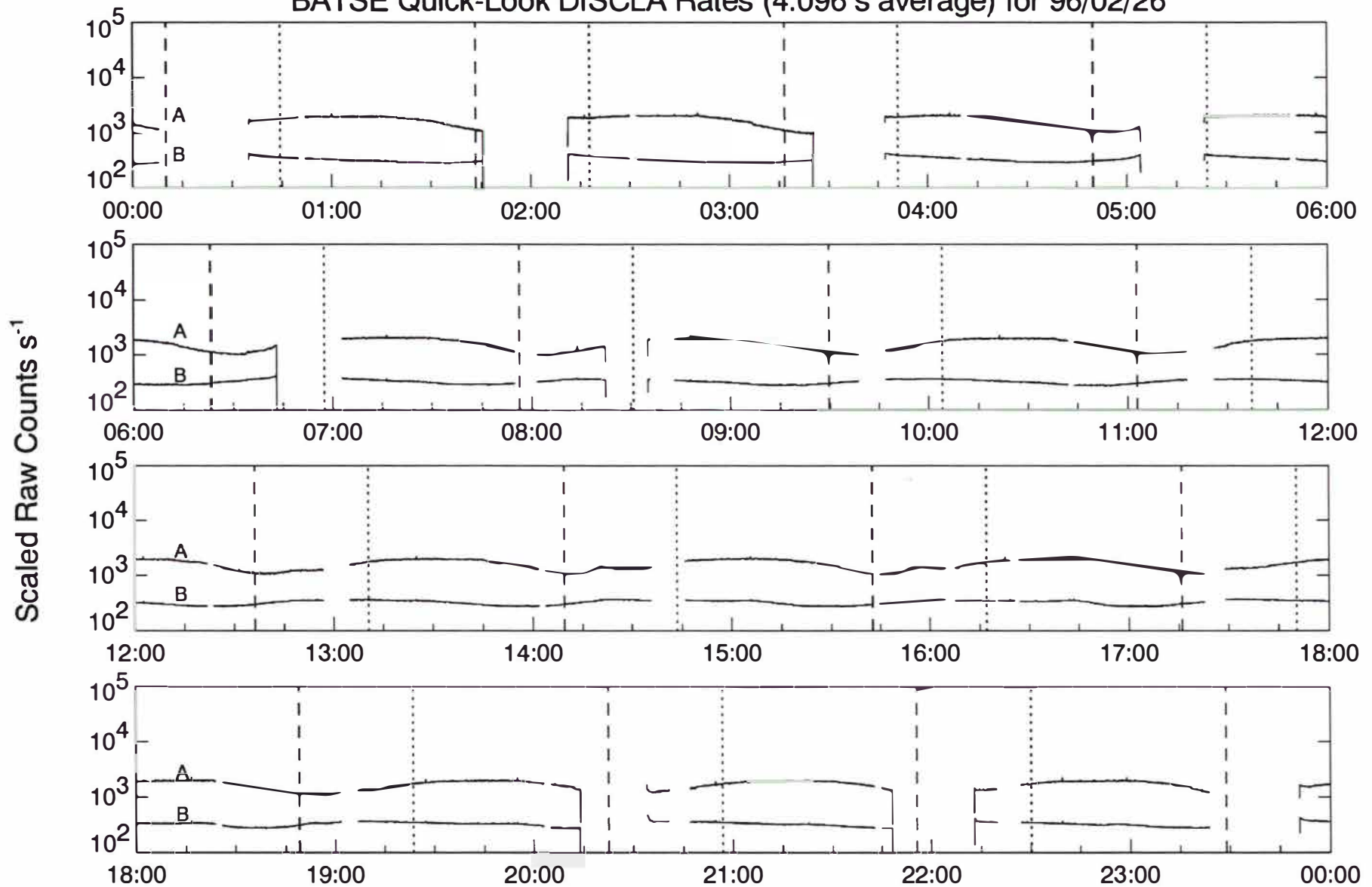
CALIBRATION DATA INCLUDED



UNRSAL TIME



BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/26



Current Time: 96/02/28, 0855 EDT

A: Channel 0 Most Sunward LAD

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

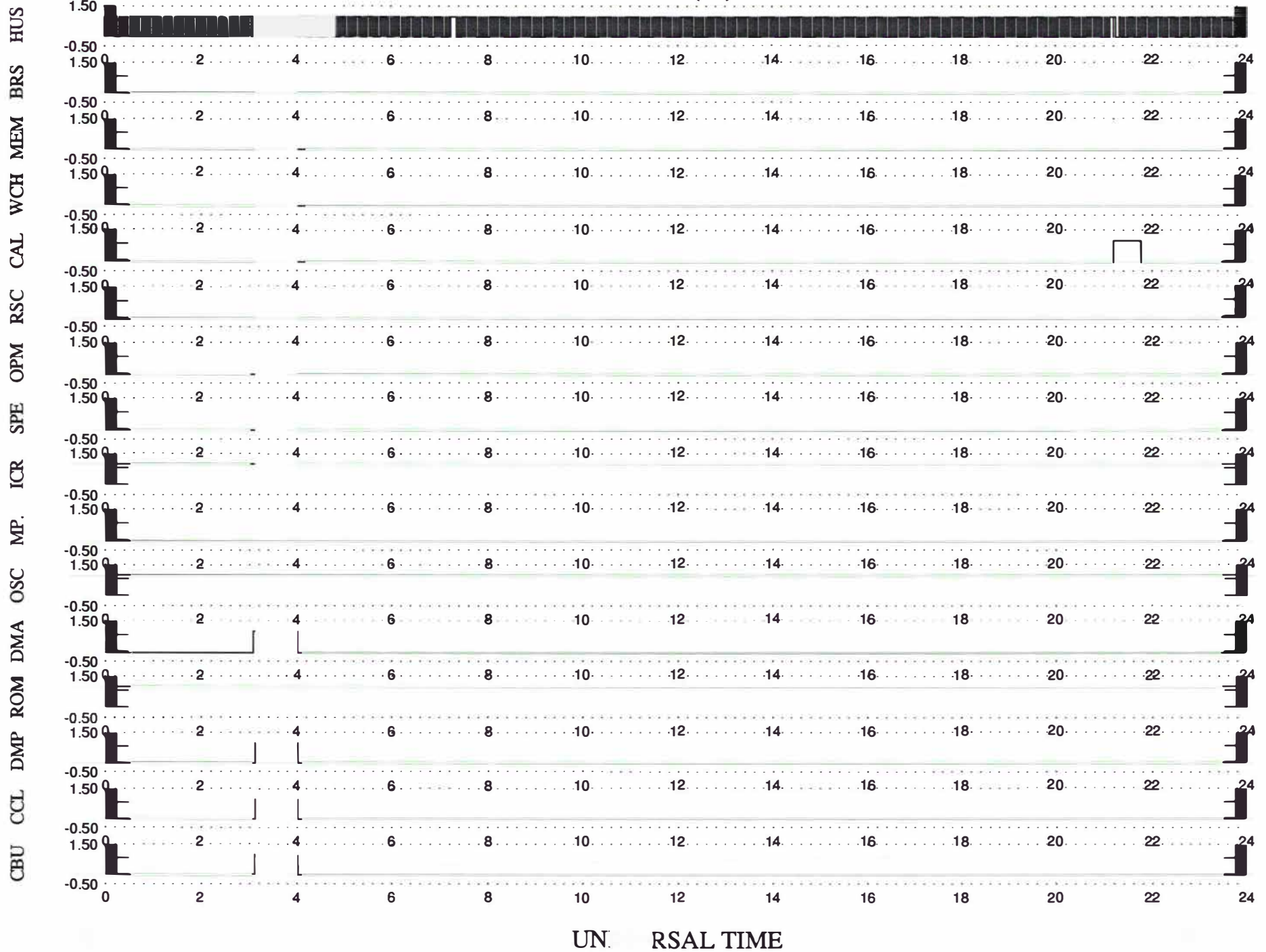
Dotted line: Day entry

Dashed line: Night entry

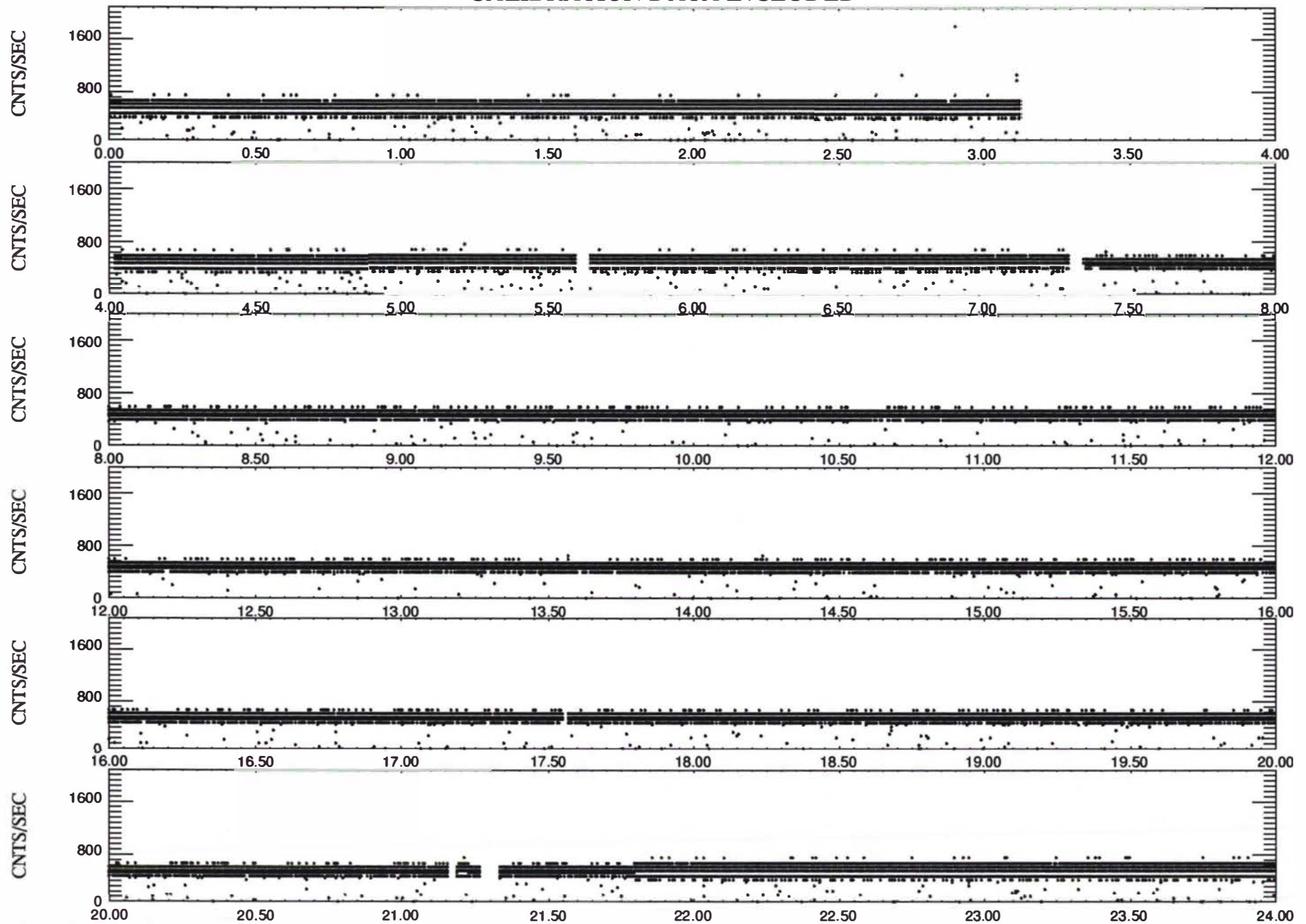
* Solar Burst Trigger

+ Solar Flare

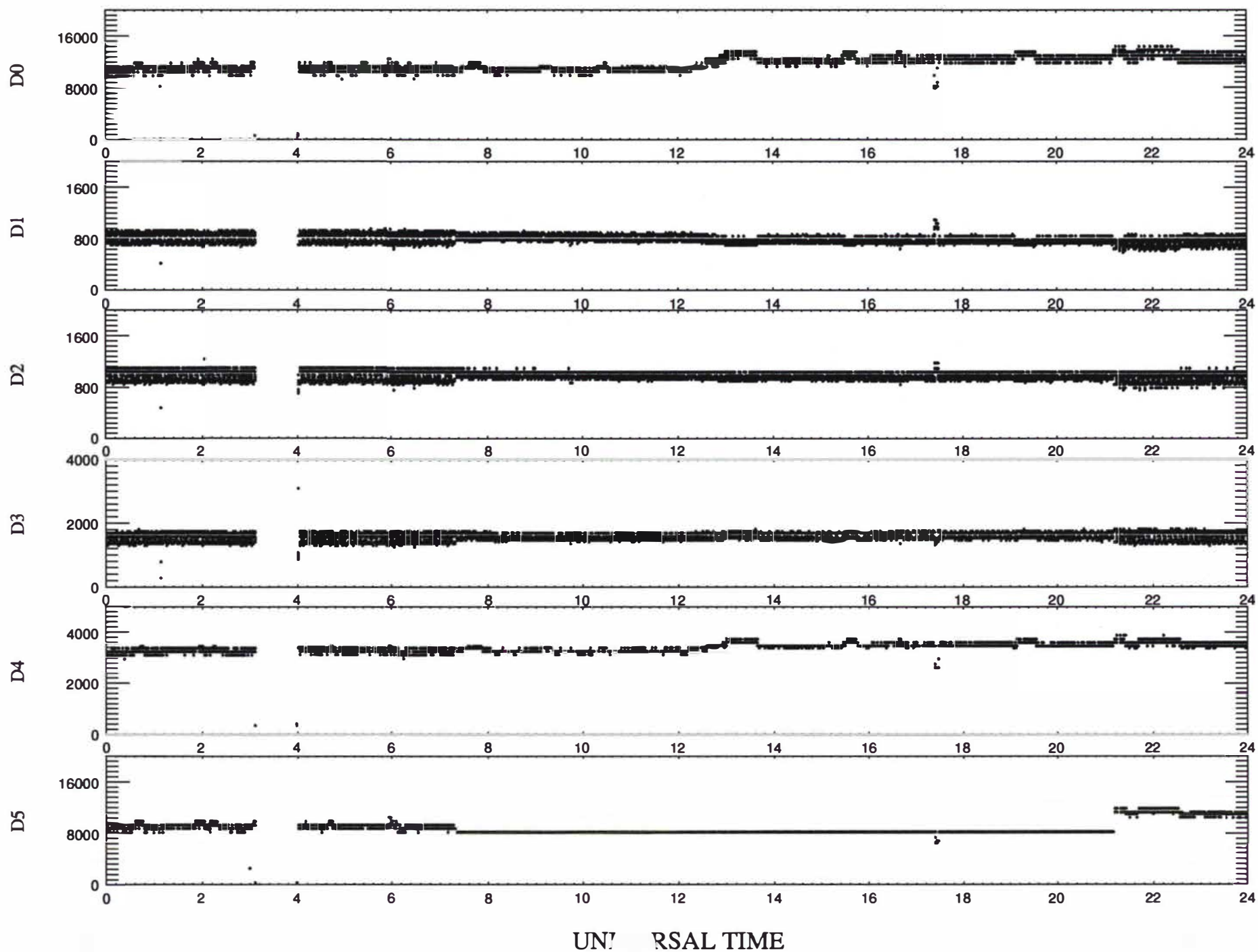
NO BURST (10)



CALIBRATION DATA INCLUDED



UNRSAL TIME



From SURASAK@SSLLES.MSFC.NASA.GOV Thu Feb 29 07:20 PST 1996
Date: Thu, 29 Feb 1996 9:19:28 -0600 (CST)
From: SURASAK@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov,
"LHEAVX::BARTHELMY"@ssl.msfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 05046

TIME: TJD=0140 SECONDS=49027

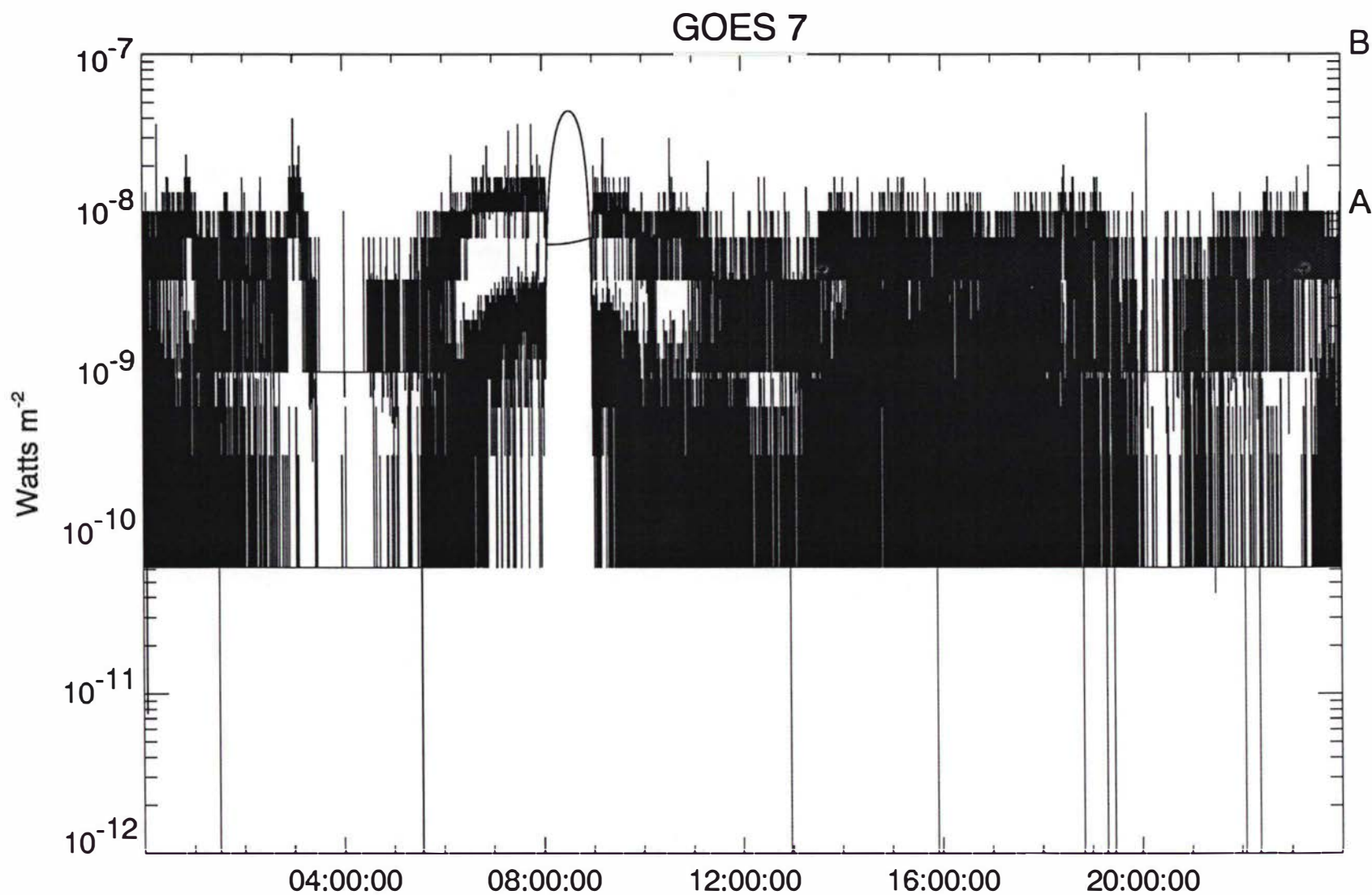
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT



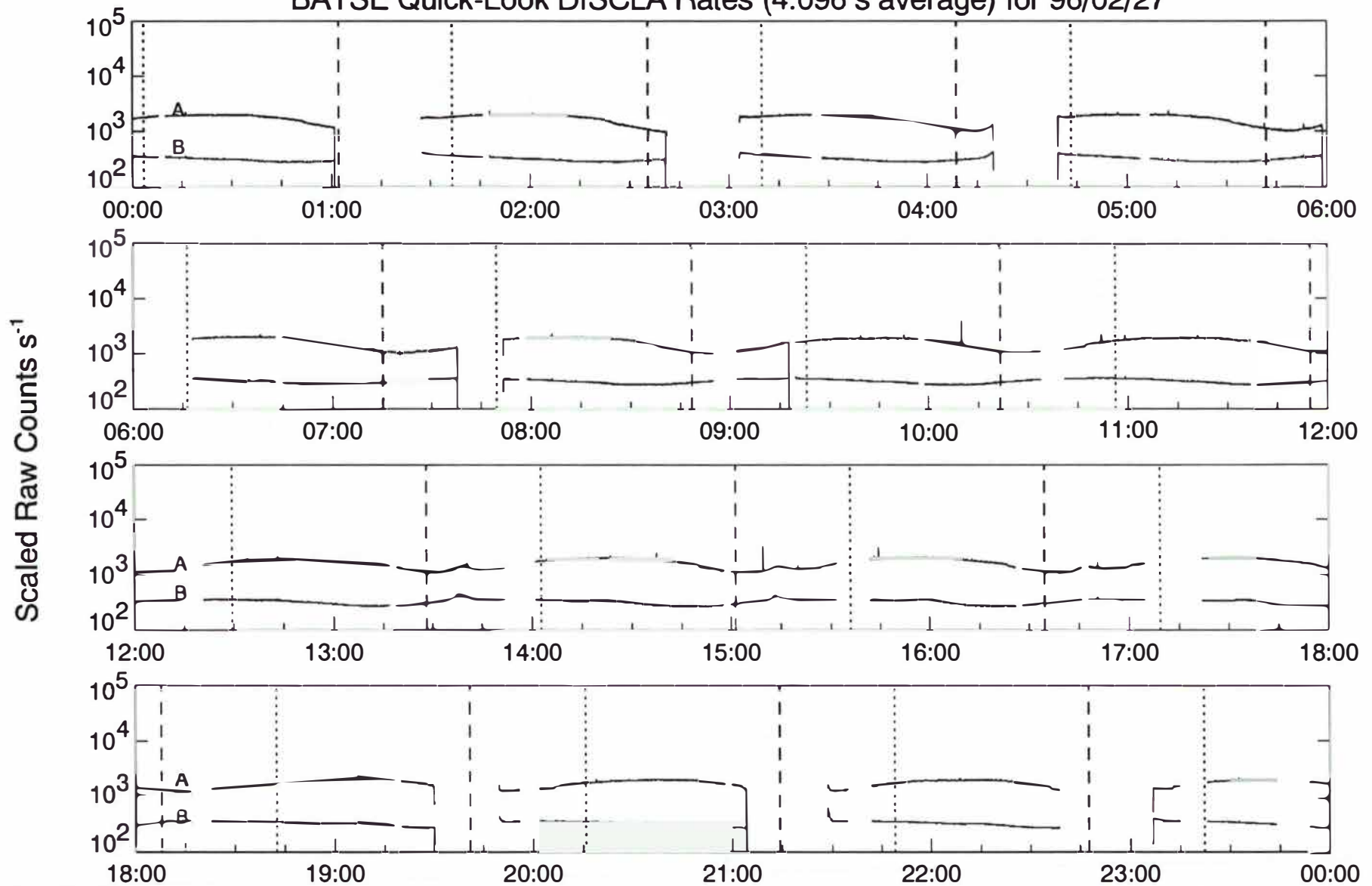
Data Start: 96/02/27, 0000:01

Plot created: 96/02/29, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/27

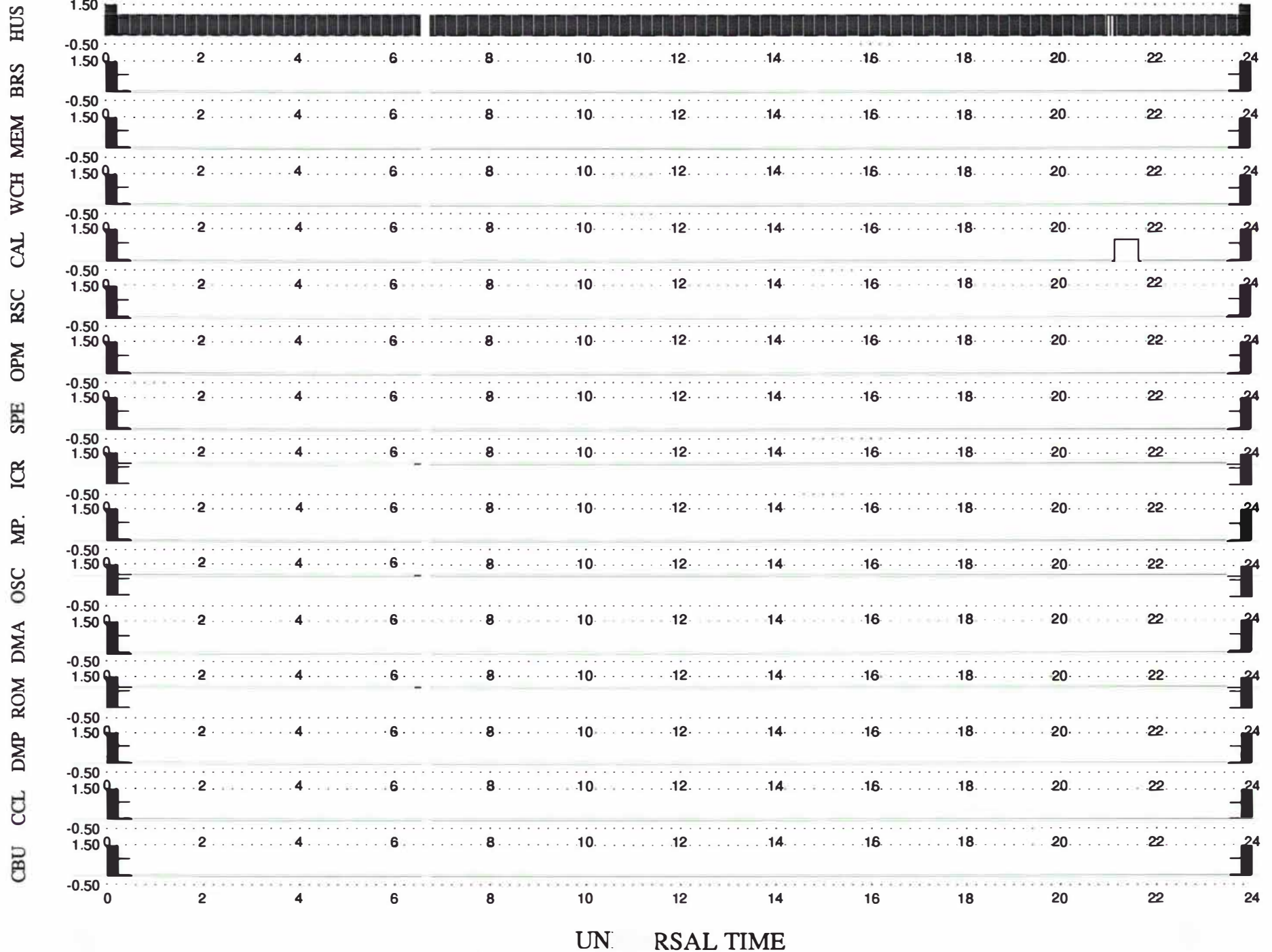


Current Time: 96/02/29, 0855 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

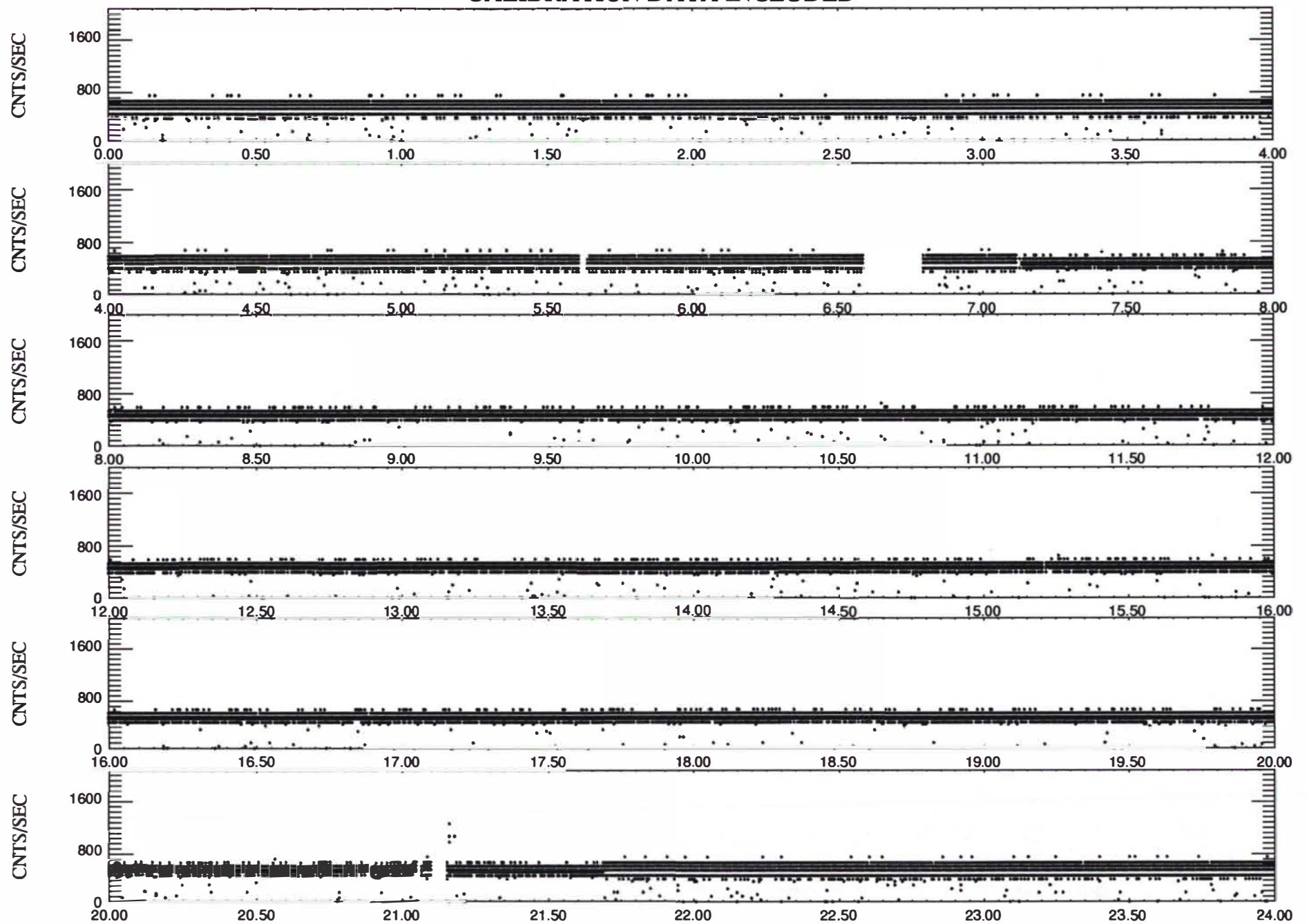
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

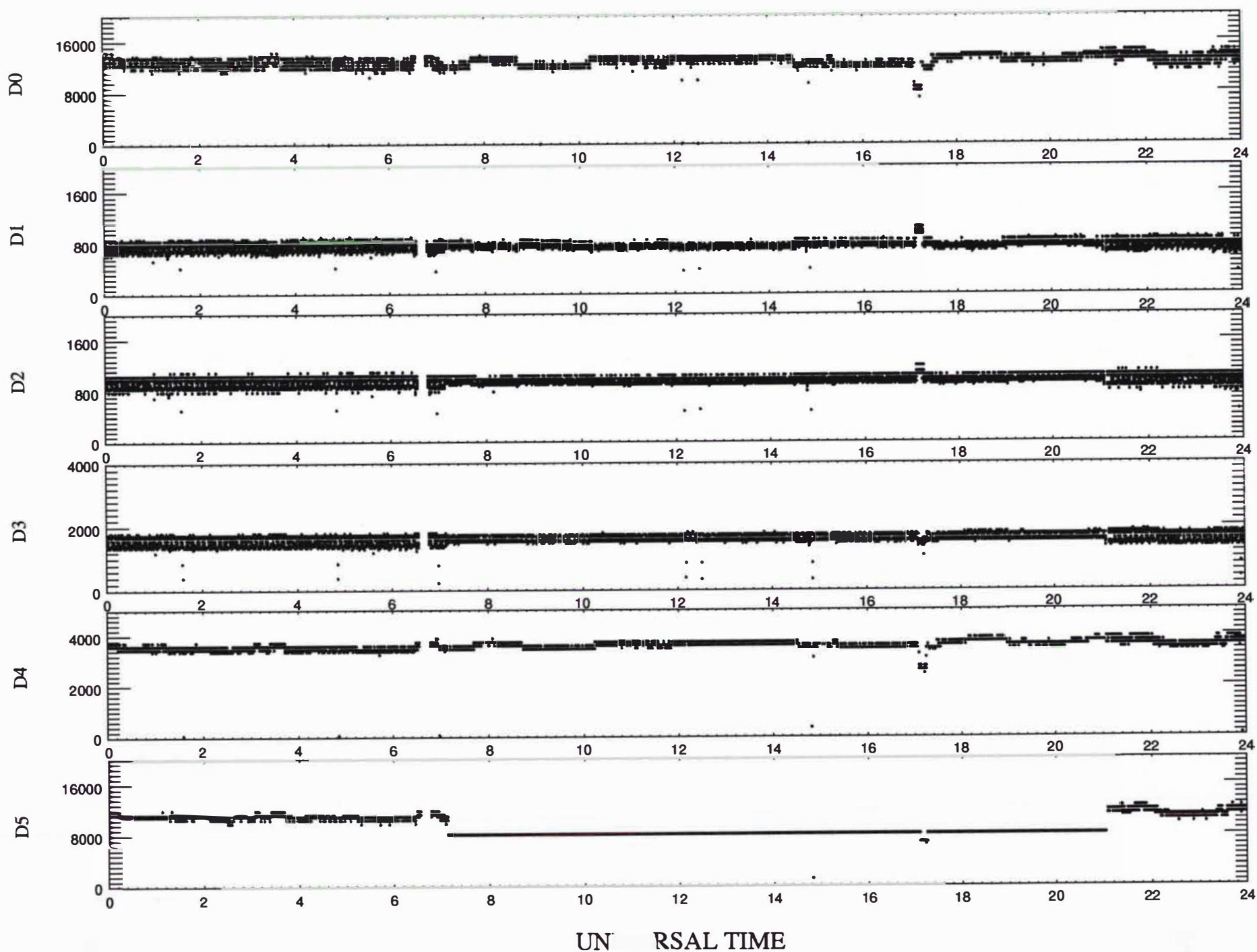
NO BURST (10)



CALIBRATION DATA INCLUDED



UNRSAL TIME



From WOODSP@SSLLES.MSFC.NASA.GOV Thu Feb 29 08:29 PST 1996
Date: Thu, 29 Feb 1996 10:29:19 -0600 (CST)
From: WOODSP@ssl.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@ssl.msfc.nasa.gov,
"LHEAVX::BARTHELMY"@ssl.msfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 5058

TIME: TJD=0141 SECONDS=46311

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From BUTTERWORTH@LHEAVX.GSFC.NASA.GOV Mon Mar 4 14:28 PST 1996
From: BUTTERWORTH@LHEAVX.GSFC.NASA.GOV
Date: Mon, 4 Mar 1996 17:25:36 -0500 (EST)
To: khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, jterrell@lanl.gov,
yosimori@rikkyo.ac.jp, CLINE@LHEAVX.GSFC.NASA.GOV,
scott@rosserv.gsfc.nasa.gov, TEEGARDEN@LHEAVX.GSFC.NASA.GOV
CC: BUTTERWORTH@LHEAVX.GSFC.NASA.GOV
Subject: Konus saw the Ulysses burst of 28 February

Kevin,

I'm sorry this one took me a while to get to. Konus triggered at 23:49:20.241 UT on the 28th. It was an intense hard event lasting 3 seconds, with 8 peaks visible above 50 kev.

Paul.

Date: Sat, 2 Mar 1996 11:57:08 -0800
From: khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
Message-Id: <9603021957.AA08784@charybdis.>
To: butterworth@lheavx.gsfc.nasa.gov, cline@lheavx.gsfc.nasa.gov,
jterrell@lanl.gov, khurley@sunspot.ssl.berkeley.edu,
kmarar@isac.ernet.in, scott@lheamail.gsfc.nasa.gov,
teegarden@lheavx.gsfc.nasa.gov, yosimori@rikkyo.ac.jp

ULYSSES GAMMA-RAY BURST NOT REPORTED BY BATSE:

Ulysses triggered on an intense, 5s long event February 28 1995 around 23:55 UT at Ulysses. The spacecraft was about 1400 light-seconds from Earth.

Was this event detected by anyone else?

CC: ulyssesbursts alias list
(barthelmy, butterworth, cline, marar, teegarden, terrell, yoshimori)

From TERRELL@nisdp0.lanl.gov Wed Apr 17 14:15 PDT 1996
From: TERRELL@nisdp0.lanl.gov
Date: Wed, 17 Apr 1996 15:15:03 -0600 (MDT)
To: khurley@sunspot.ssl.berkeley.edu
Subject: grb960228

From: jterrell@lanl.gov (James Terrell) 960417
To: khurley@sunspot.ssl.berkeley.edu, butterworth@lheavx.gsfc.nasa.gov,
cline@lheavx.gsfc.nasa.gov, kmarar@isac.ernet.in,
scott@rosserv.gsfc.nasa.gov, teegarden@lheavx.gsfc.nasa.gov,
yosimori@rikkyo.ac.jp
Subj: DMSP GRB detections

DMSP 12 and 13 did not detect the ULYSSES grb of Oct 22 1995 at 09:05 UT.
nor the ULYSSES event of Oct 31 at 01:22. In any such case, of course,
a weak detection might be missed, with 2800 seconds of data to scan.

DMSP 13 apparently made a weak detection of the intense ULYSSES event of Dec 12 at
07:54 UT, with a peak 2-sec count of 30/sec at 29651.5 UT, not totally convincing.
DMSP 12 saw nothing of interest here.

DMSP 13 also did not detect the KONUS event of Dec 27 at 23005 UT. DMSP 12 had a
weak (50/sec) peak at 22996.2 UT. Since it was soft (<100 keV) and not quite at the
right time it may be of no interest.

DMSP 12 and 13 both detected the ULYSSES/KONUS event of Feb 28, with peaks at 85762 UT.
The event lasted <2 sec for DMSP 13, and <4 sec for DMSP 12, with a peak counting rate
of more than 1000/sec. The time resolution of 2 sec does not allow further detail in
the time history.

The delay in reporting this last event is partly due to an office move to a different
building, and partly due to a trip to Houston from which I have just returned.--Jim

Date: Sep 16 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

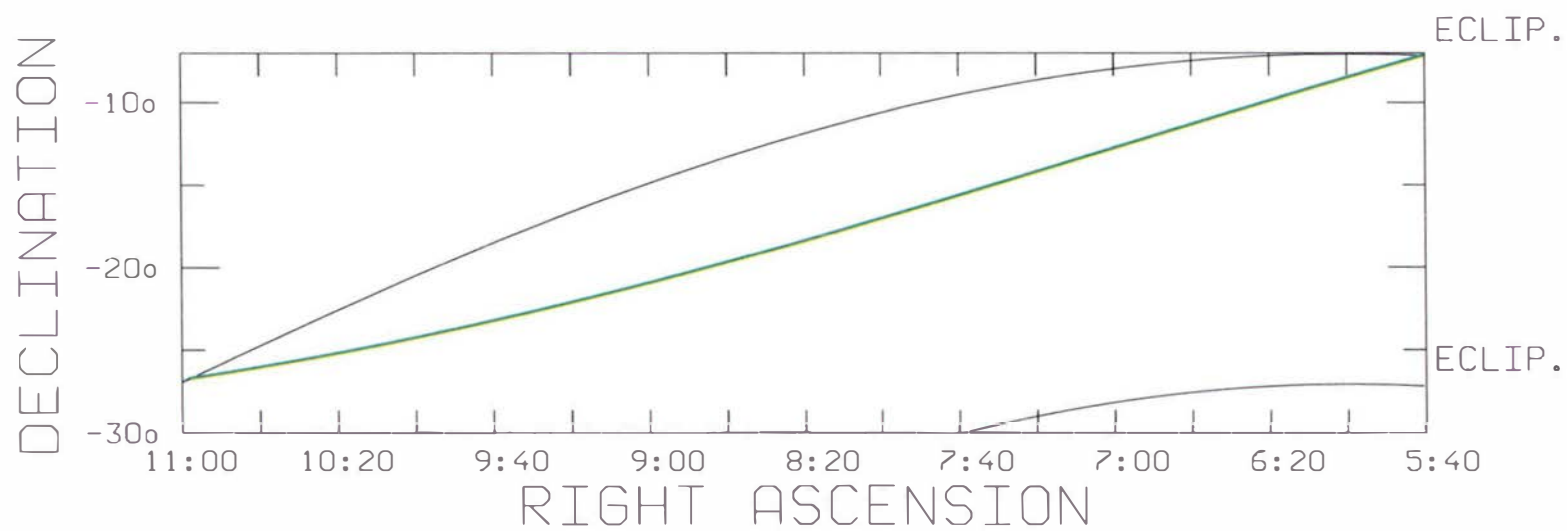
- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☒ Were data checked by Joe Springer for 0.5 s errors?
- ☒ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☒ Is the order of the data in CORREL such that a vernier is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

2. BATSE Data

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

3. PVO Data

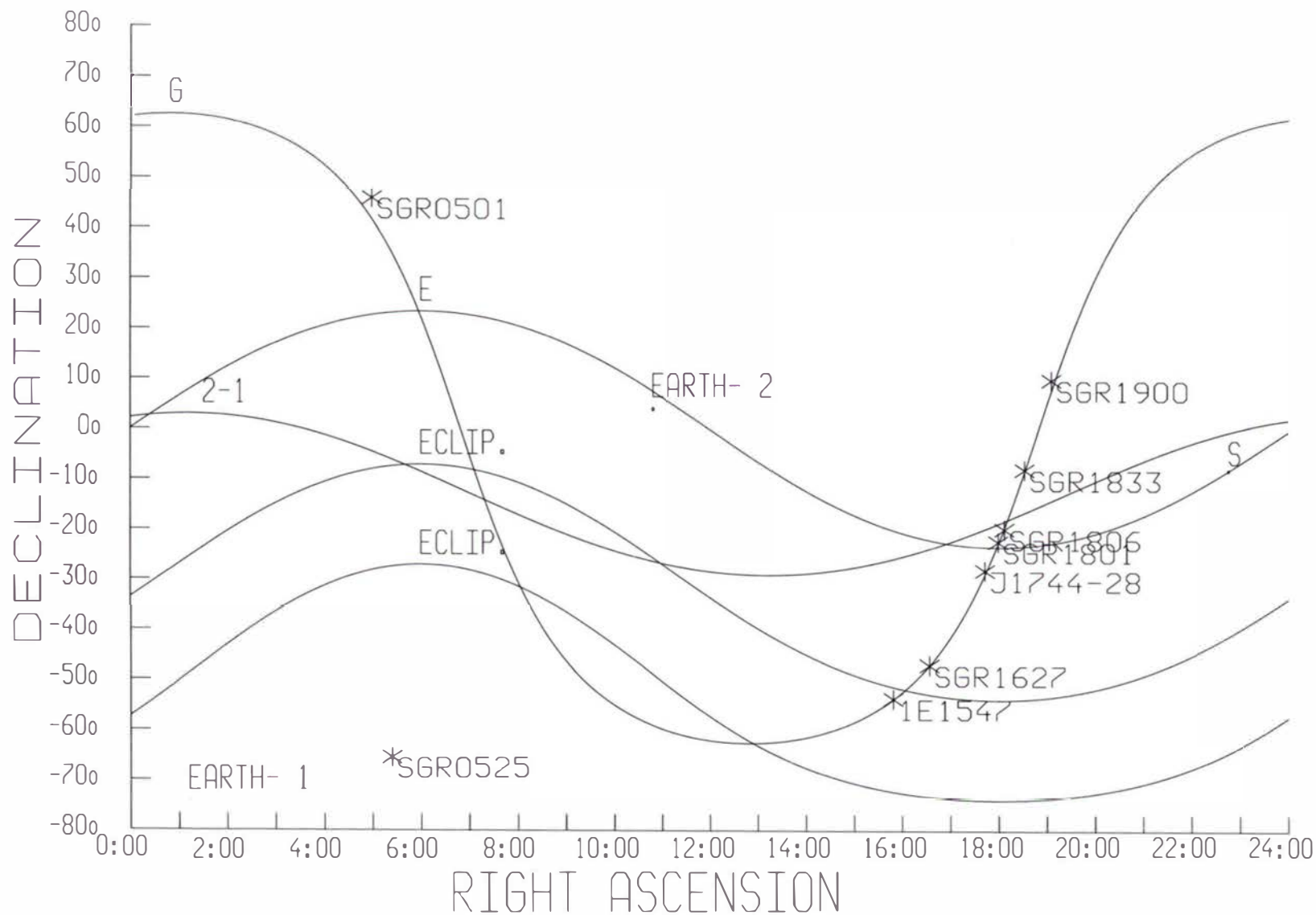
- ☐ Ephemeris of PVO used (not Venus)?
 - ☐ 2000 coordinates used?
 - ☐ Geocentric time used?
-
- ☒ ACCESS and MBL databases updated with identical times?

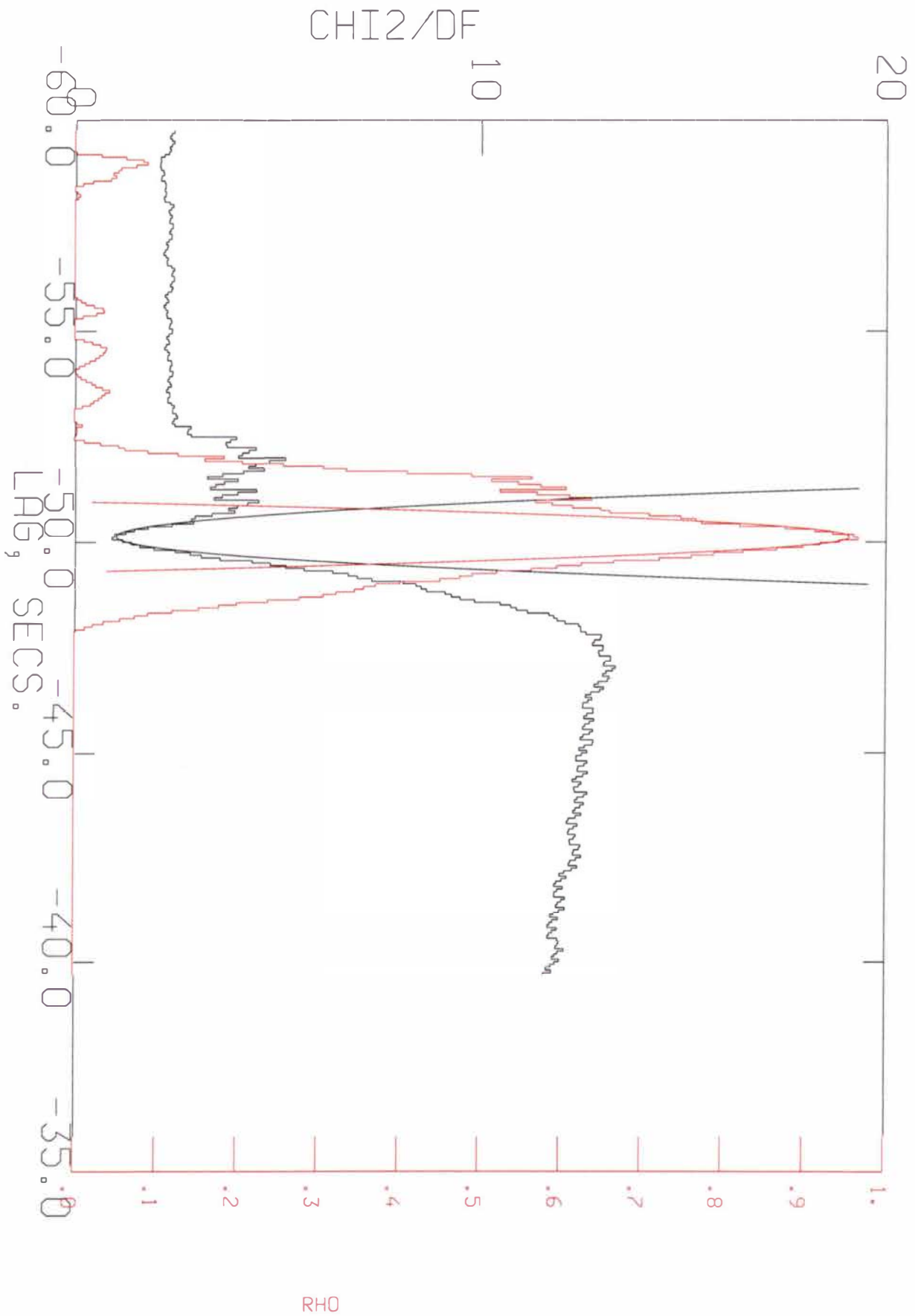


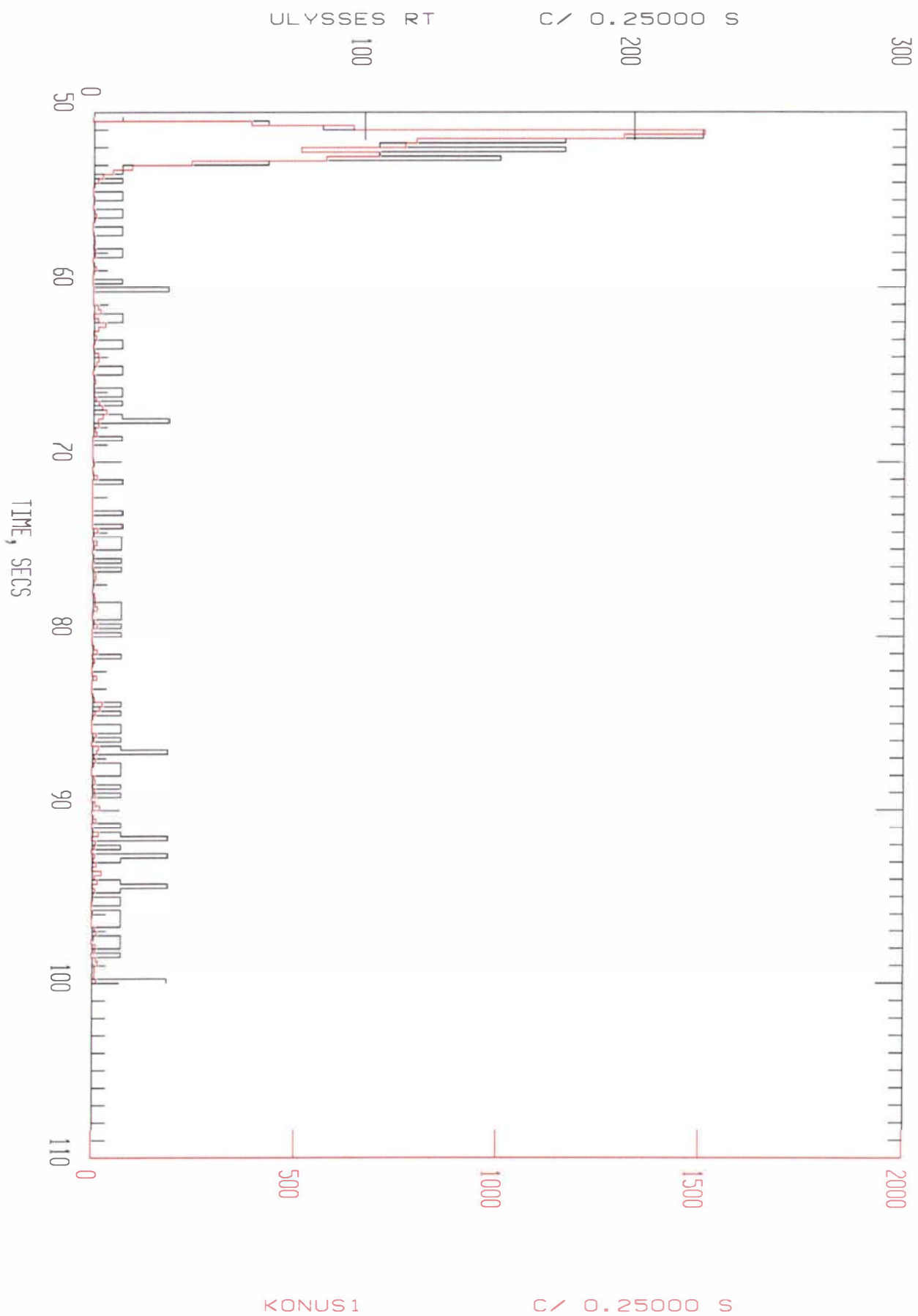
EVENT OF FEB 28, 1996 23:54

16/09/2011

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







KONUS 19960228 86091

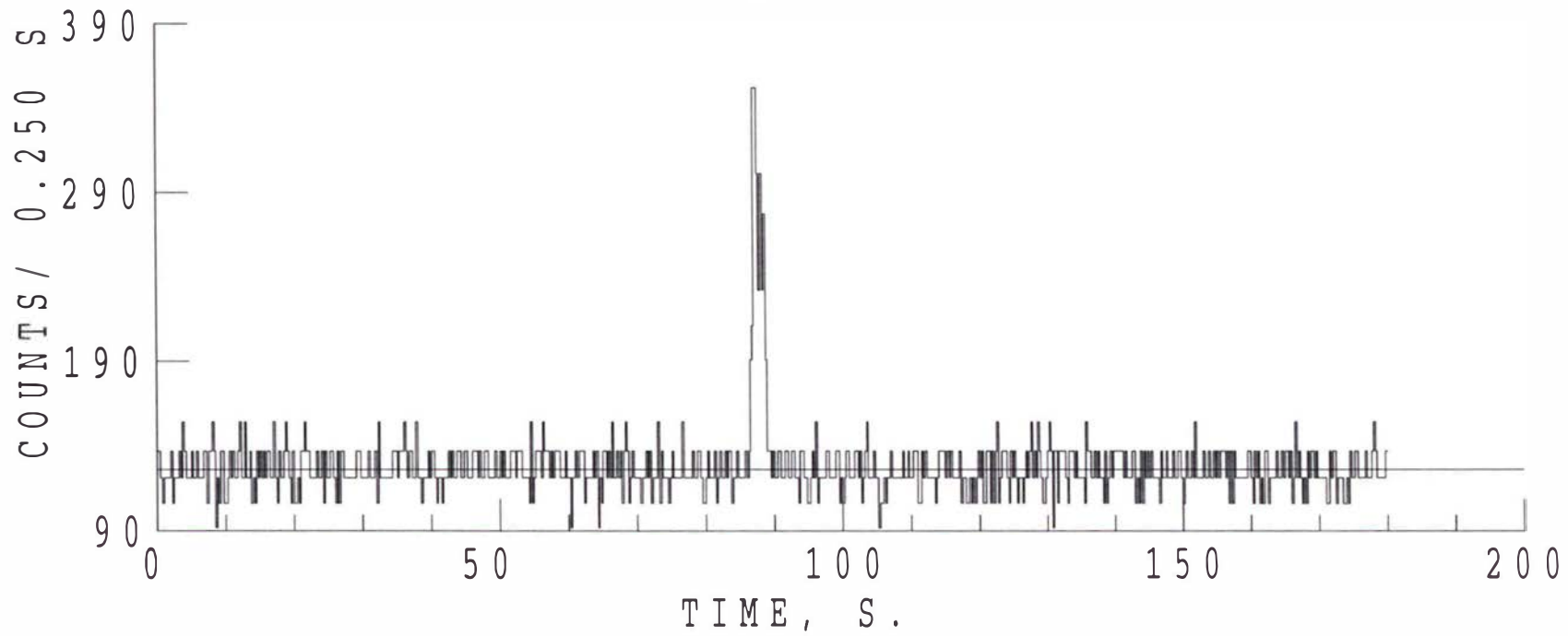
ULYSSES RT

14 / 09 / 11

28/02/96 86004.195 s

0 - 0 keV

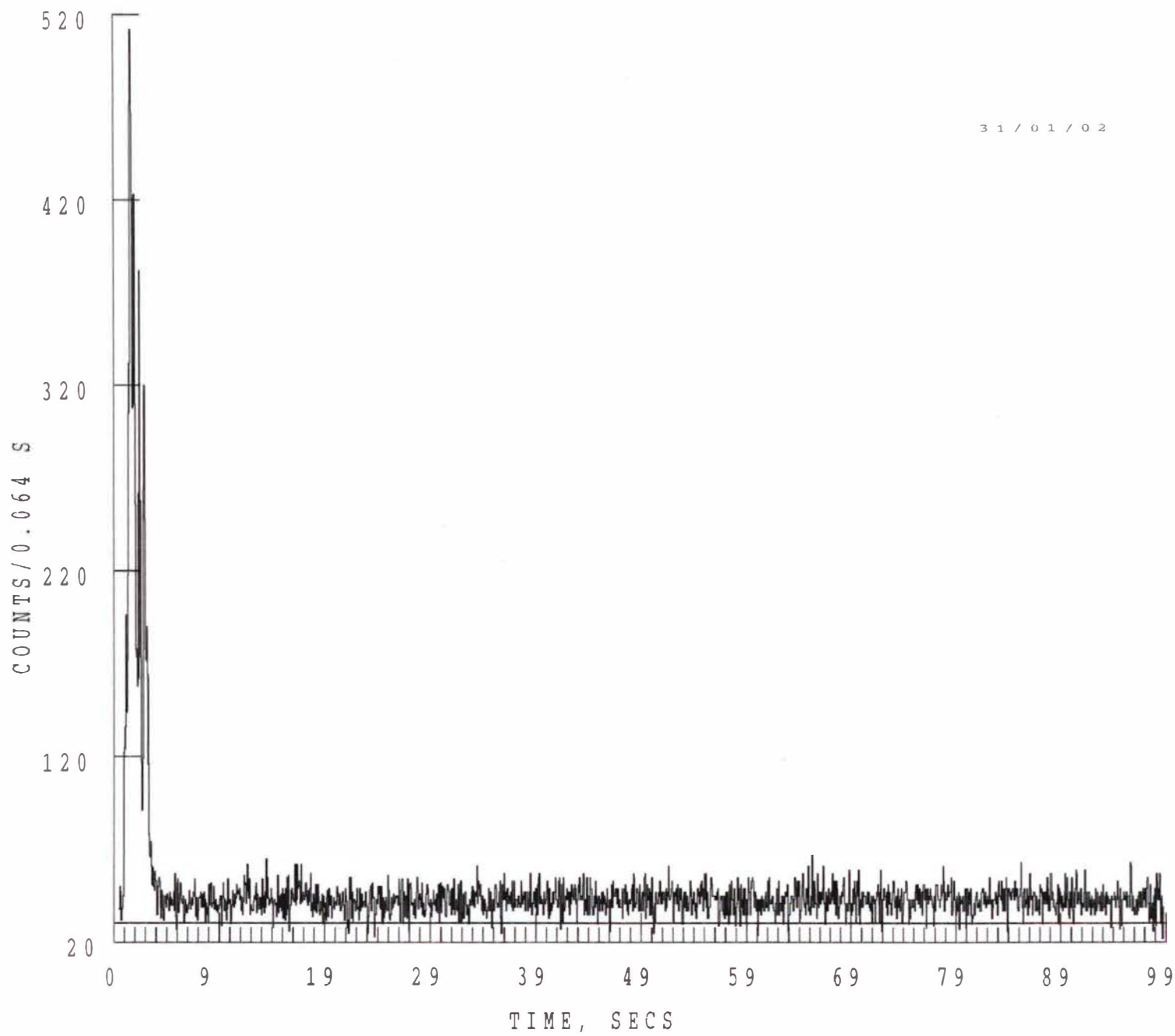
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS1

28/02/96 085760.241

50- 200 keV



KONUS1 19960228 85760

ULYSSES RT

31 / 01 / 02

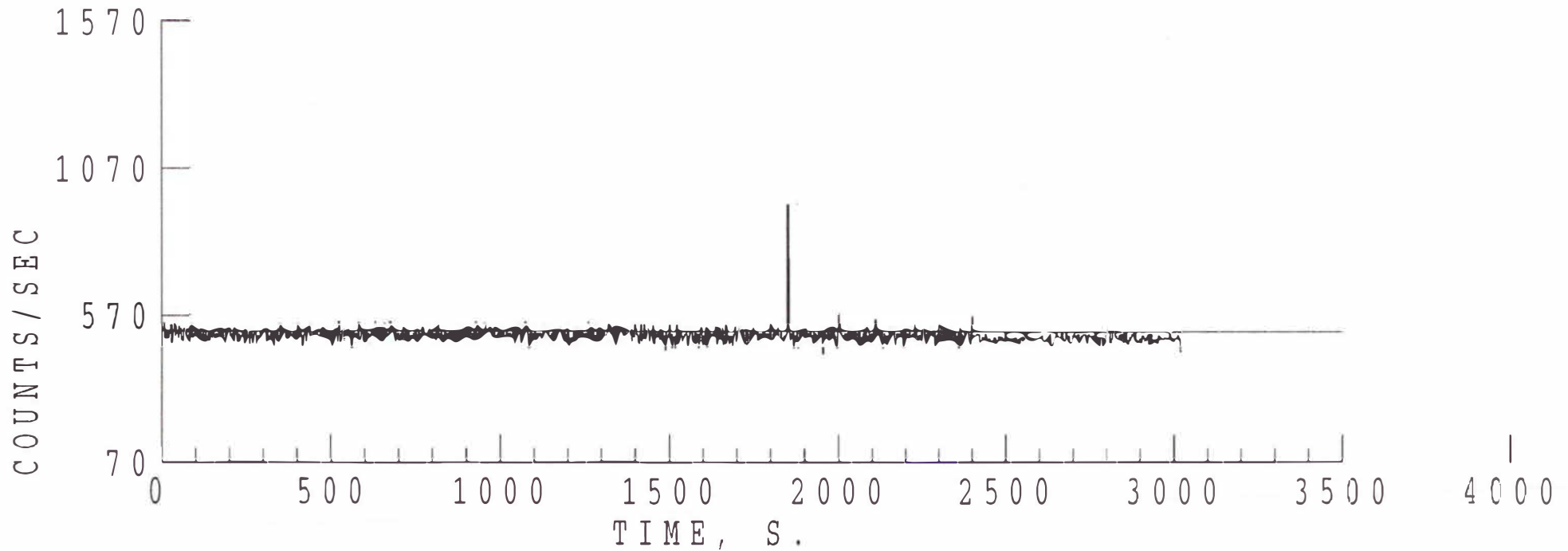
28 / 02 / 96 84240.172 s

INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



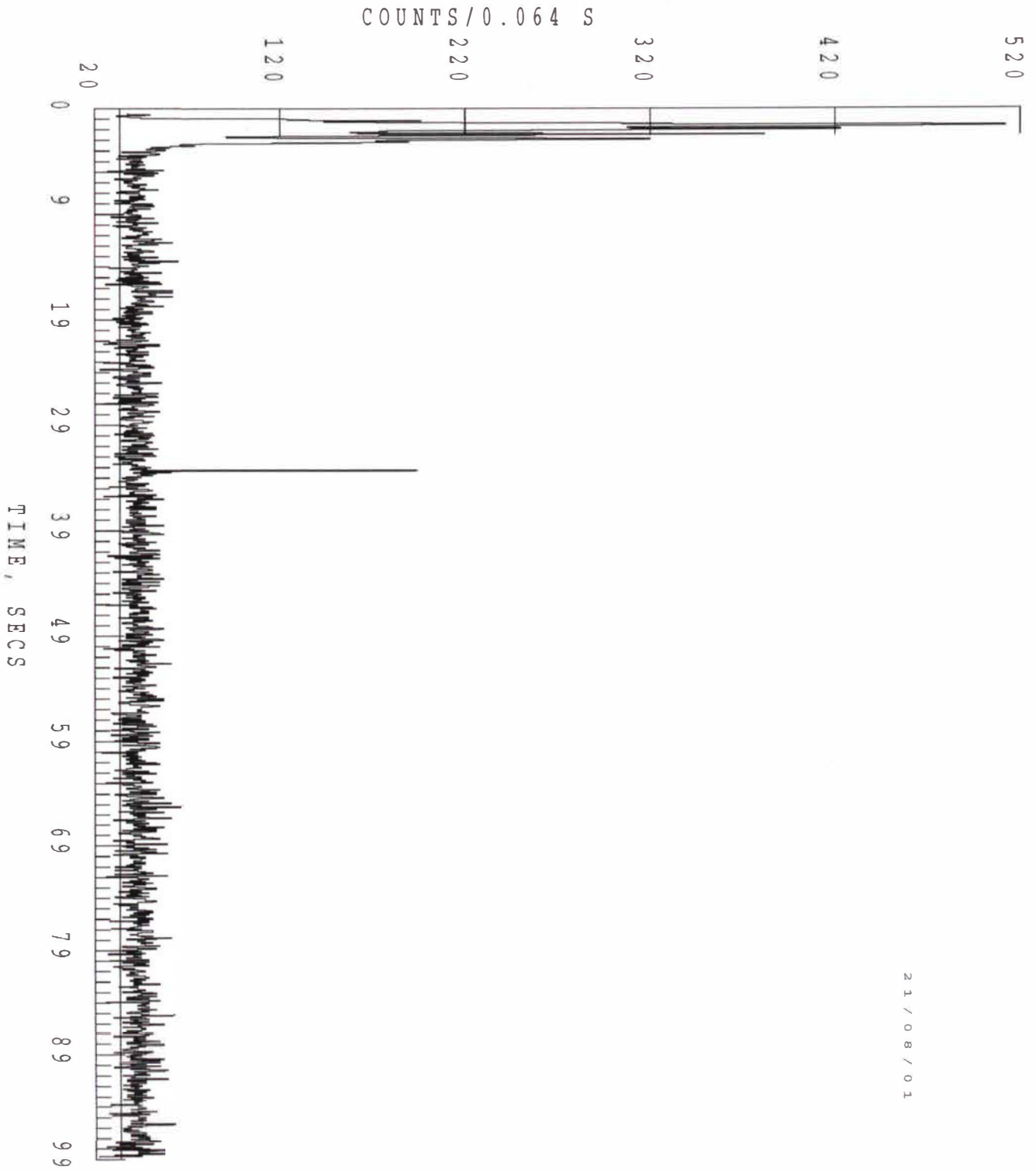
95	12	31	20231.668	S2	180	320	150	0.07	9	65	219	Search	
96	1	2	11650.996	S1	140	300	80	1	1	0.2	220	NO	
96	1	19	45226.016	S2	210	460	190	0.2	6	85	237	Search	
96	1	30	08756.848	S1	100	470	340	3	0.5	0.2	240	NO	4660
96	2	1	78530.582	S2	400	770	230	0.34	12	70	241	RI KA	4701
96	2	2	50750.813	S1	390	430	180	5	0.5	8	242	RI	4710
96	2	5	34499.021	S1	100	240	80	>15	7	250	243	RI	4745
96	2	6	17898.732	S1	120	520	260	1.05	1	36	244	Triq	4757
96	2	7	65075.063	S2	210	780	200	0.13	32	12	245	Search	NO
96	2	10	35198.959	S2	220	550	360	<0.1	0.5	2	247	RI	4814
96	2	28	85760.241	S1	2360	7360	3350	4.3	0.1	2.5	249	Triq	NO

KONUS1

28/02/96

85760.241

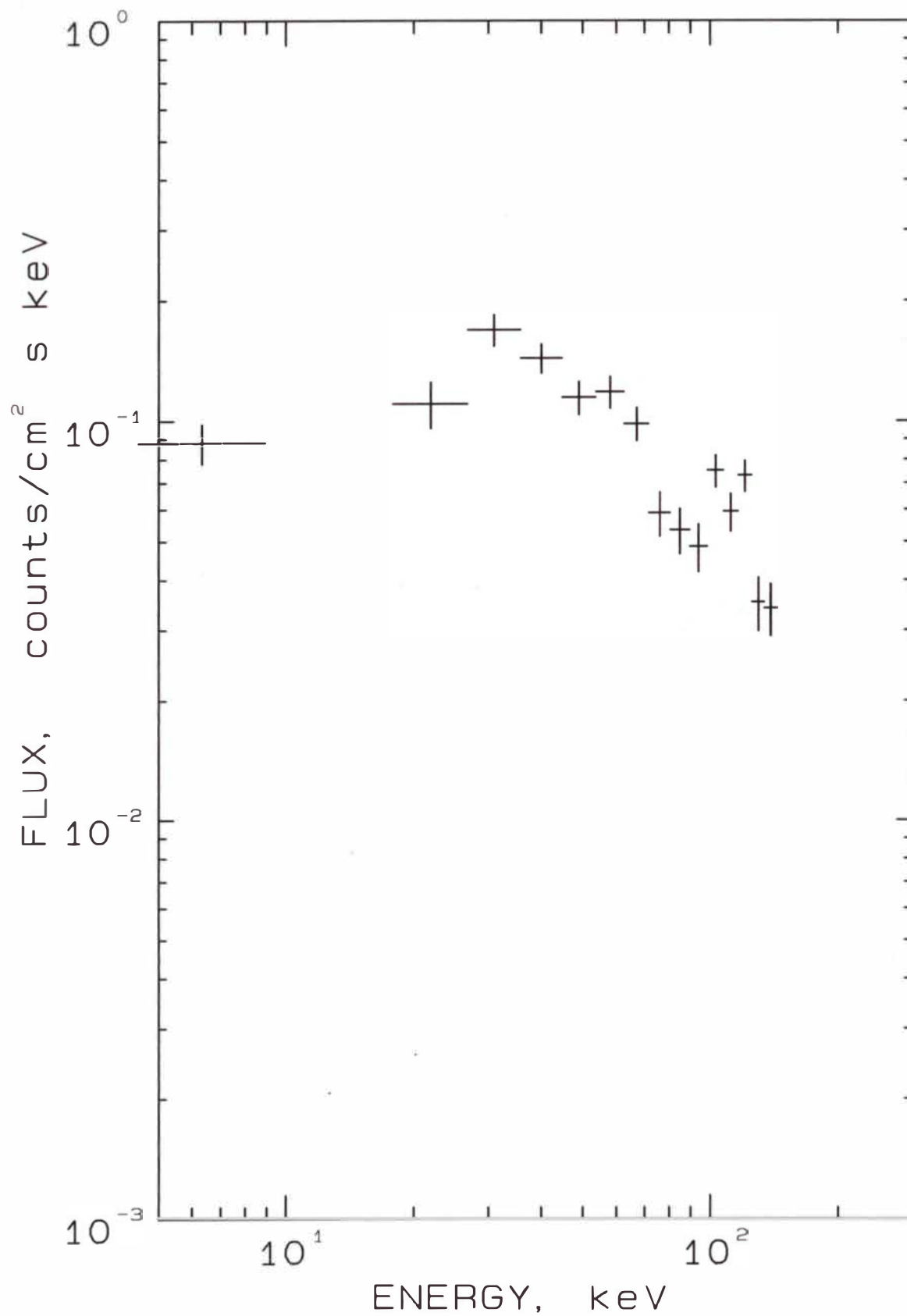
50 - 200 keV



ULYSSES 28/02/96 86091.066

19/11/97

SPECTRUM INTEGRATED OVER 21.7 SECONDS, INTERVALS 2 TO 20



4- 17 keV

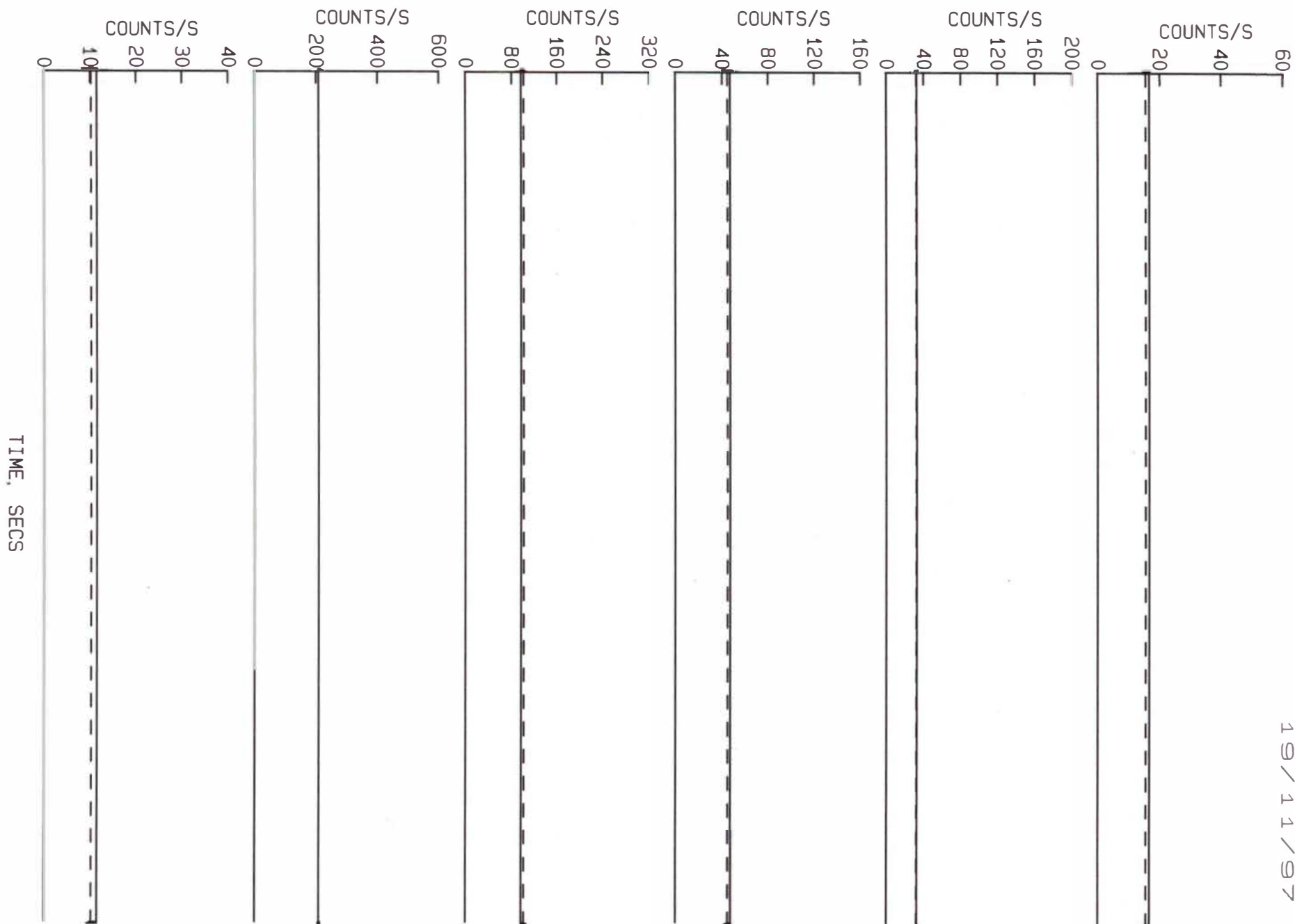
17- 44 keV

44- 71 keV

71- 98 keV

98-125 keV

125-143 keV



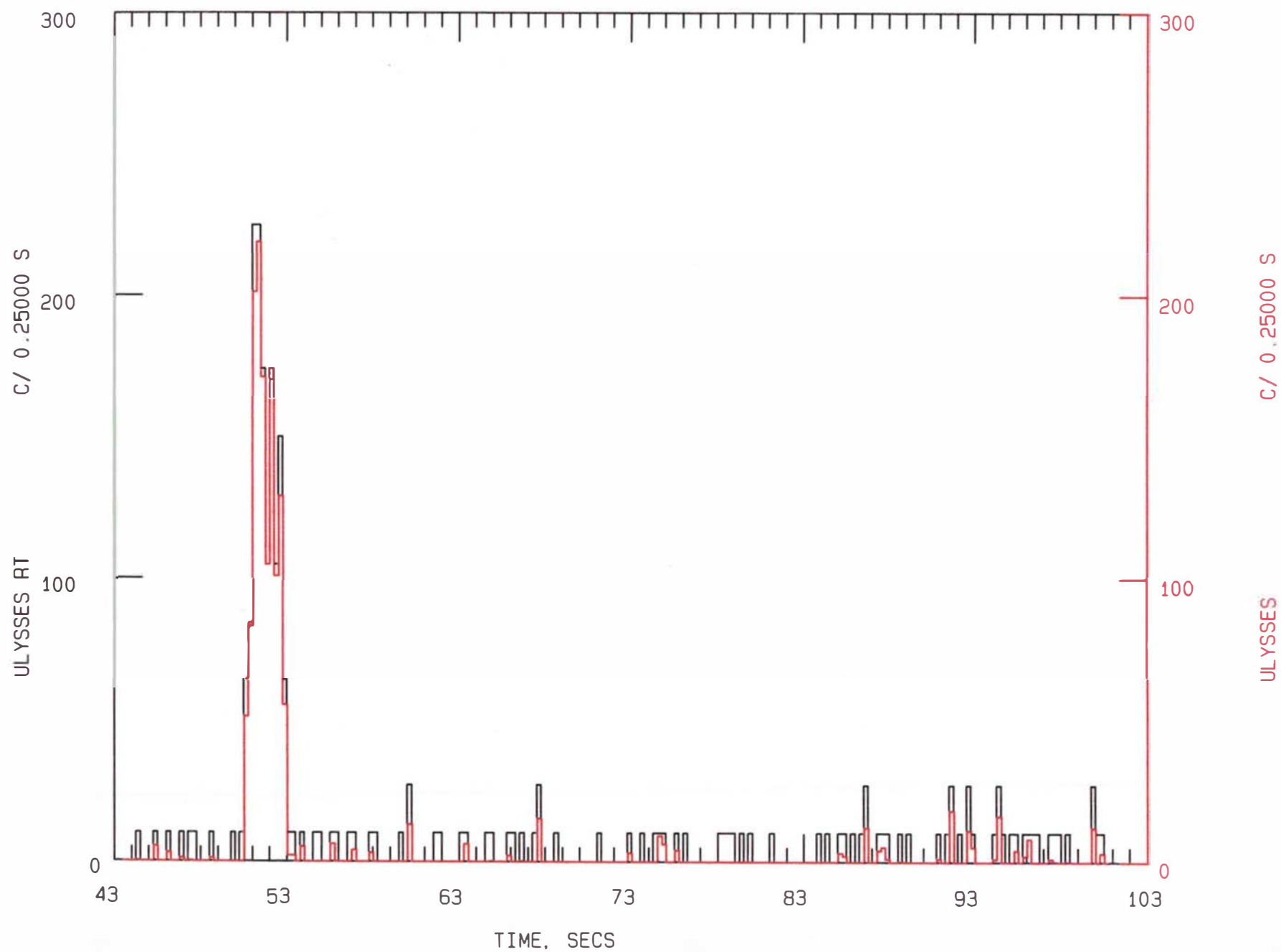
ULYSSES RT-ULYSSES

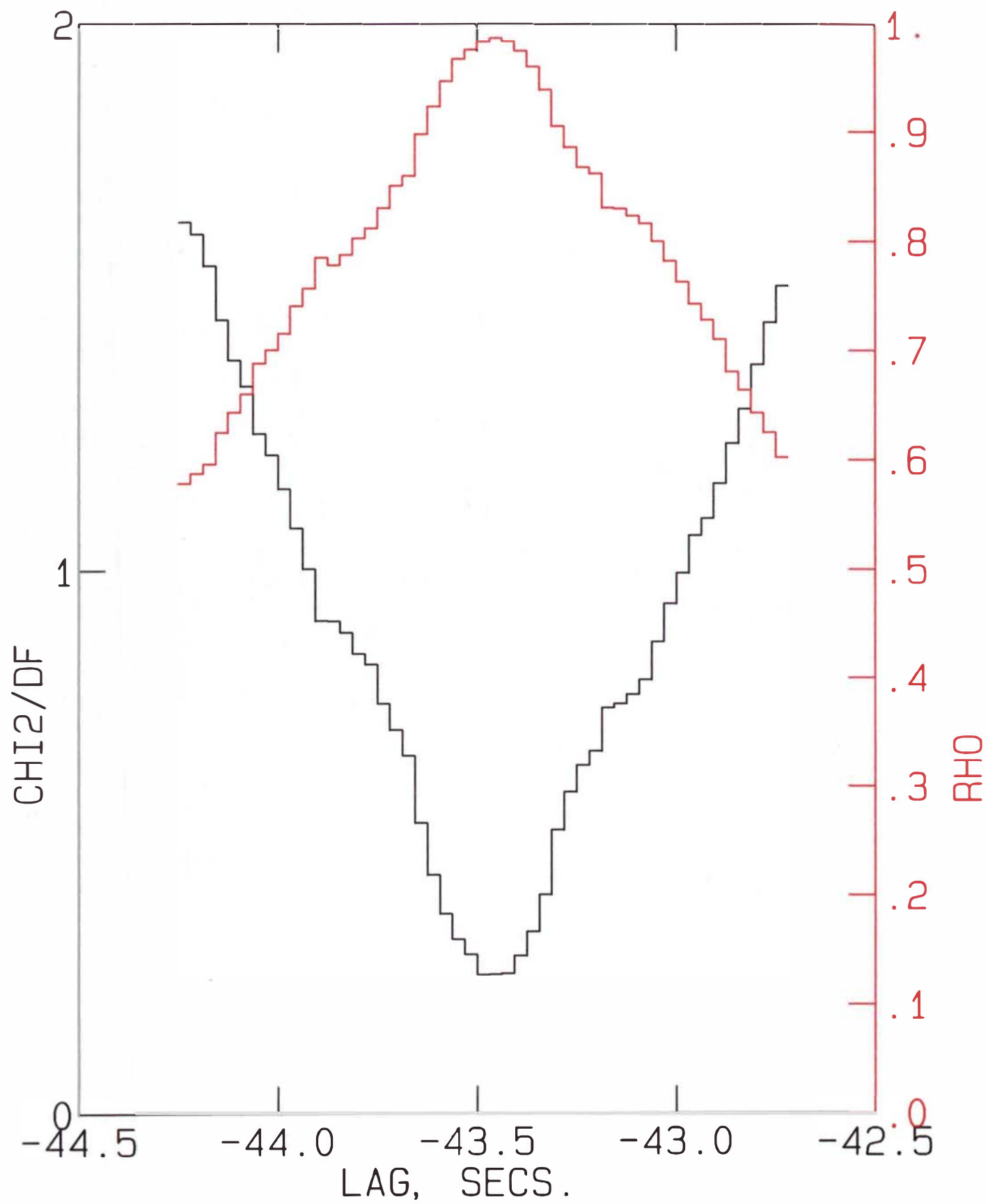
CORRELATION

28/ 2/96

86040.157

19/11/97





ULYSSES

28/02/96

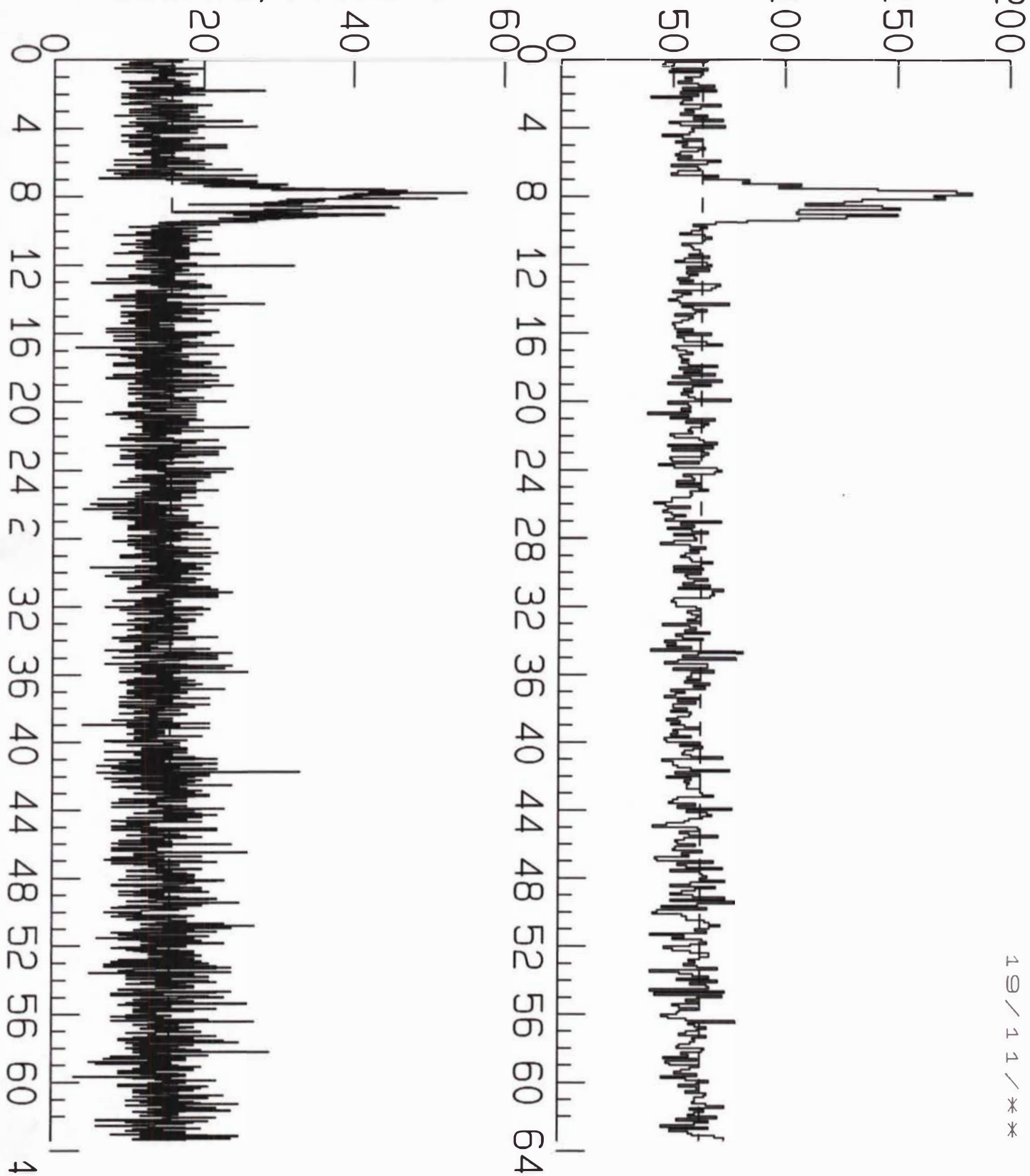
Ttrig=86091.035

0- 0 keV

19/11/96

COUNTS/0.031 S

COUNTS/0.125 S



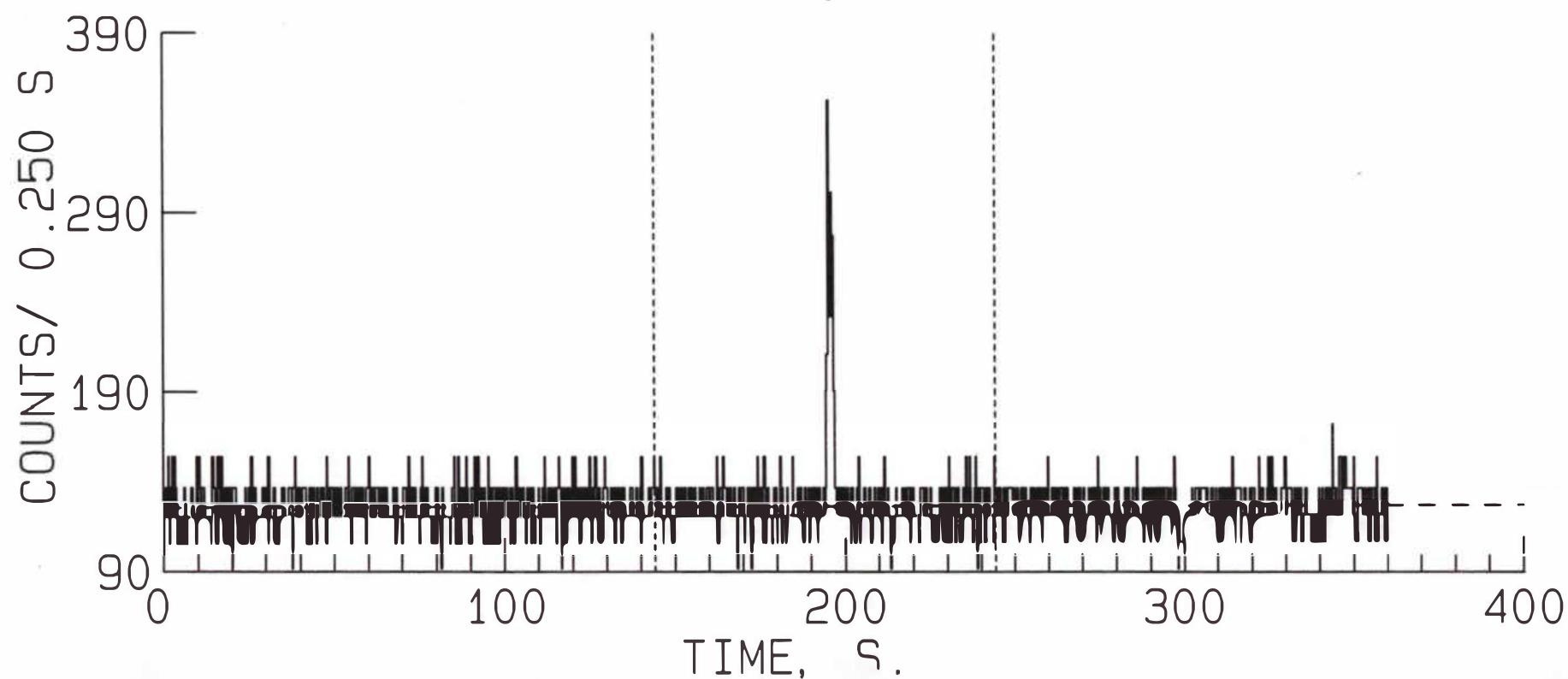
ULYSSES RT

19/11/97

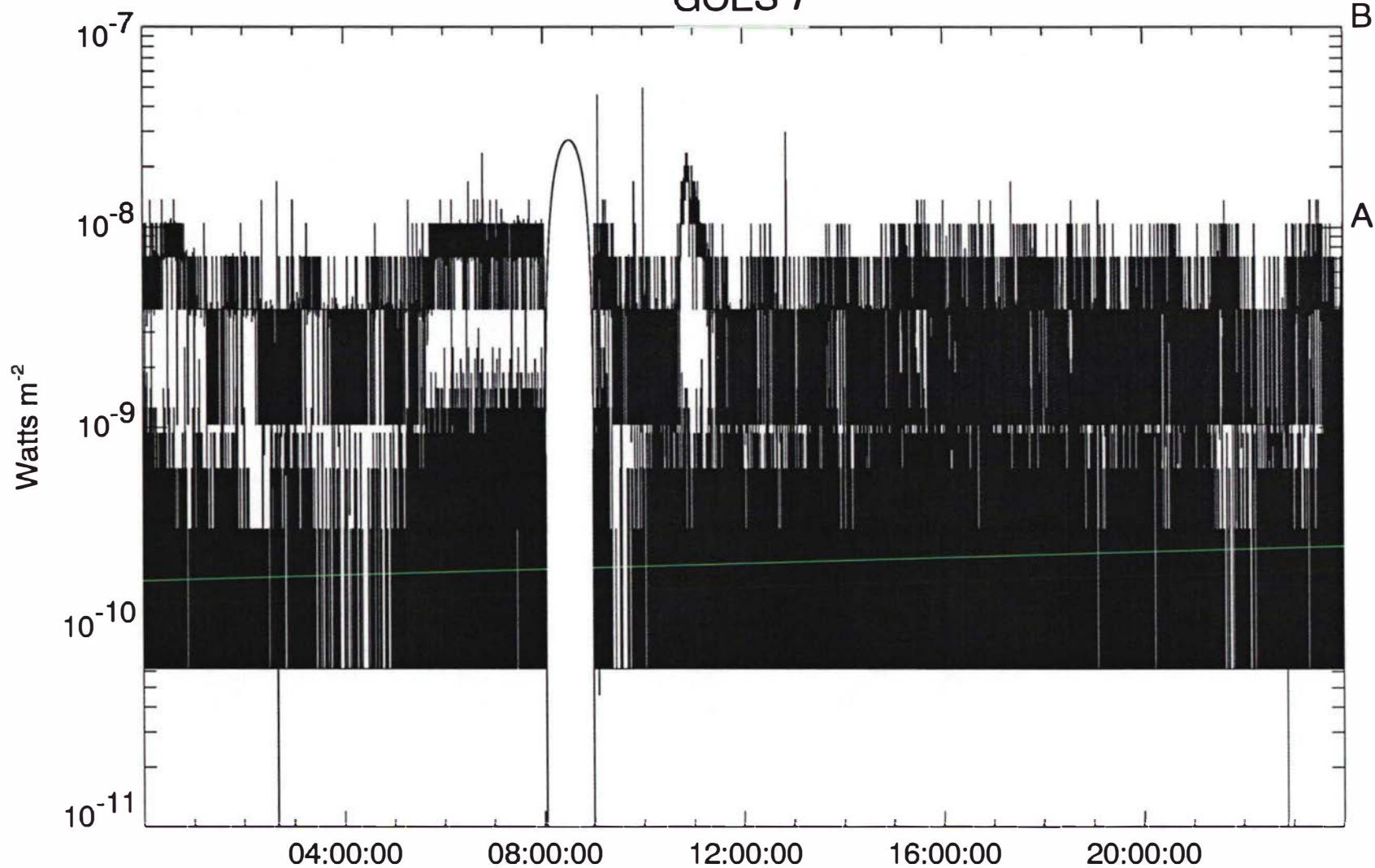
28/ 2/96 85896.191 s

21- 143 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



GOES 7

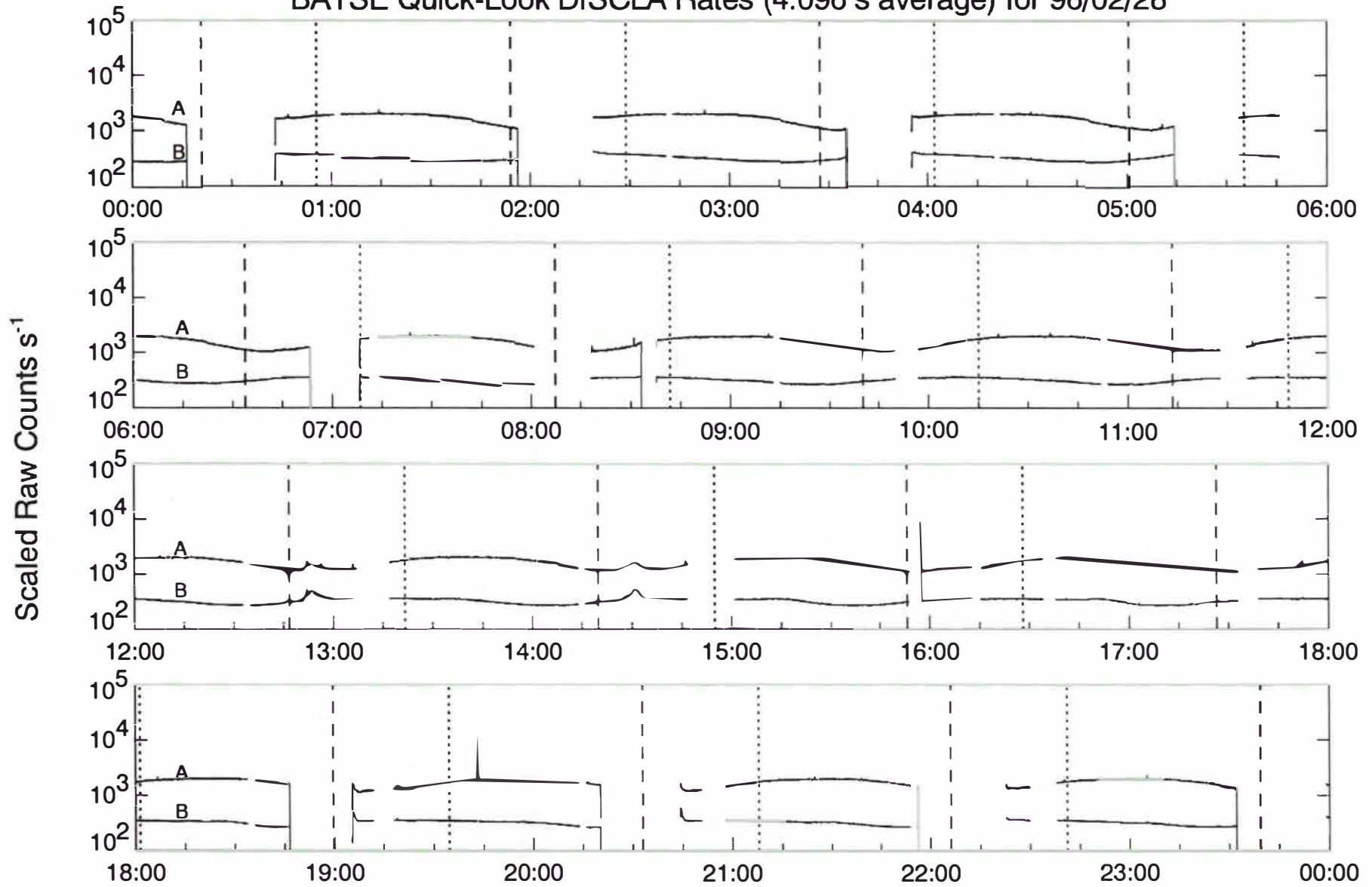


Data Start: 96/02/28, 0000:02

Plot created: 96/03/01, 0854

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

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/28



Current Time: 96/03/01, 0855 EDT

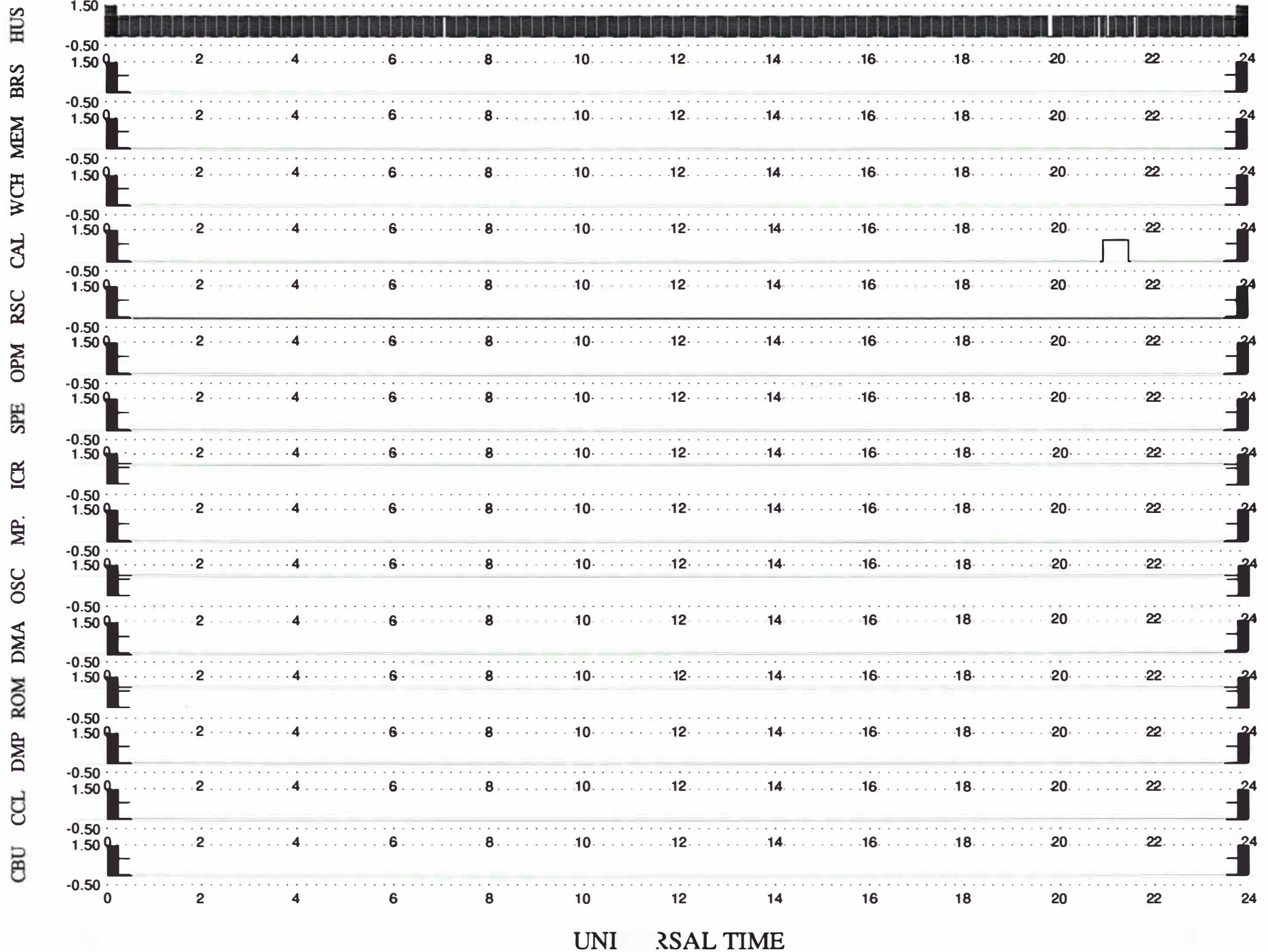
A: Channel 0 Most Sunward LAD

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

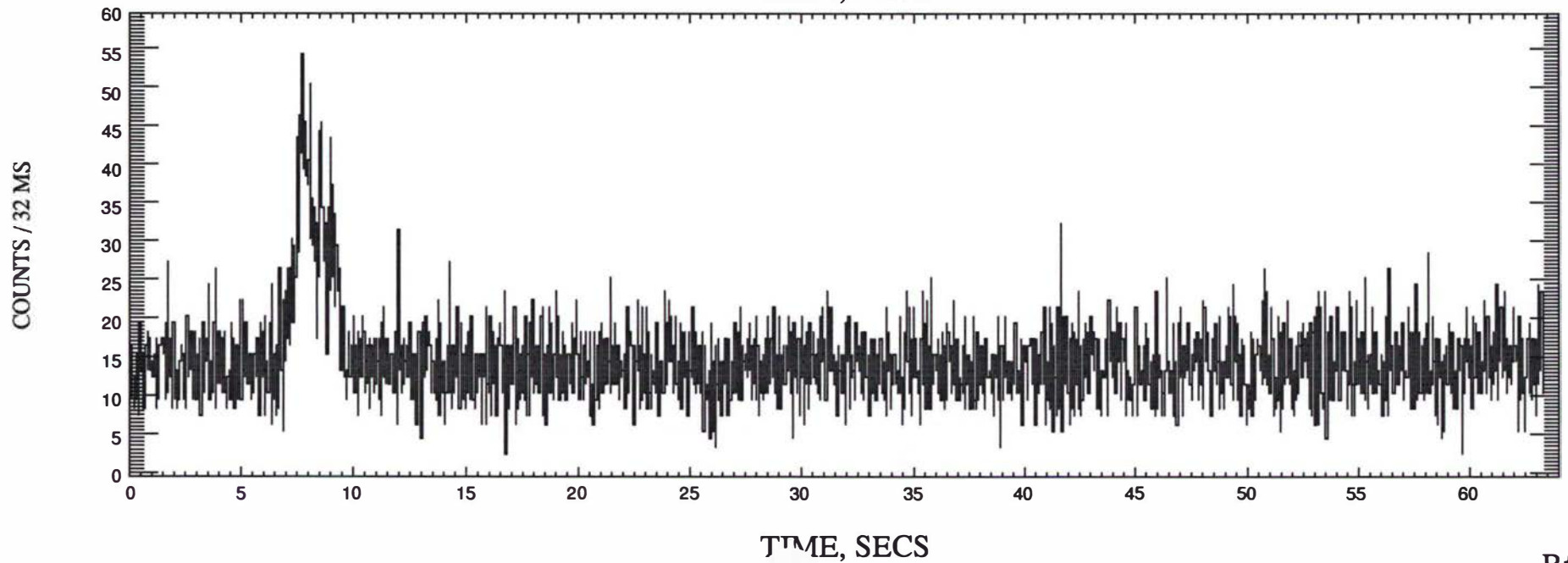
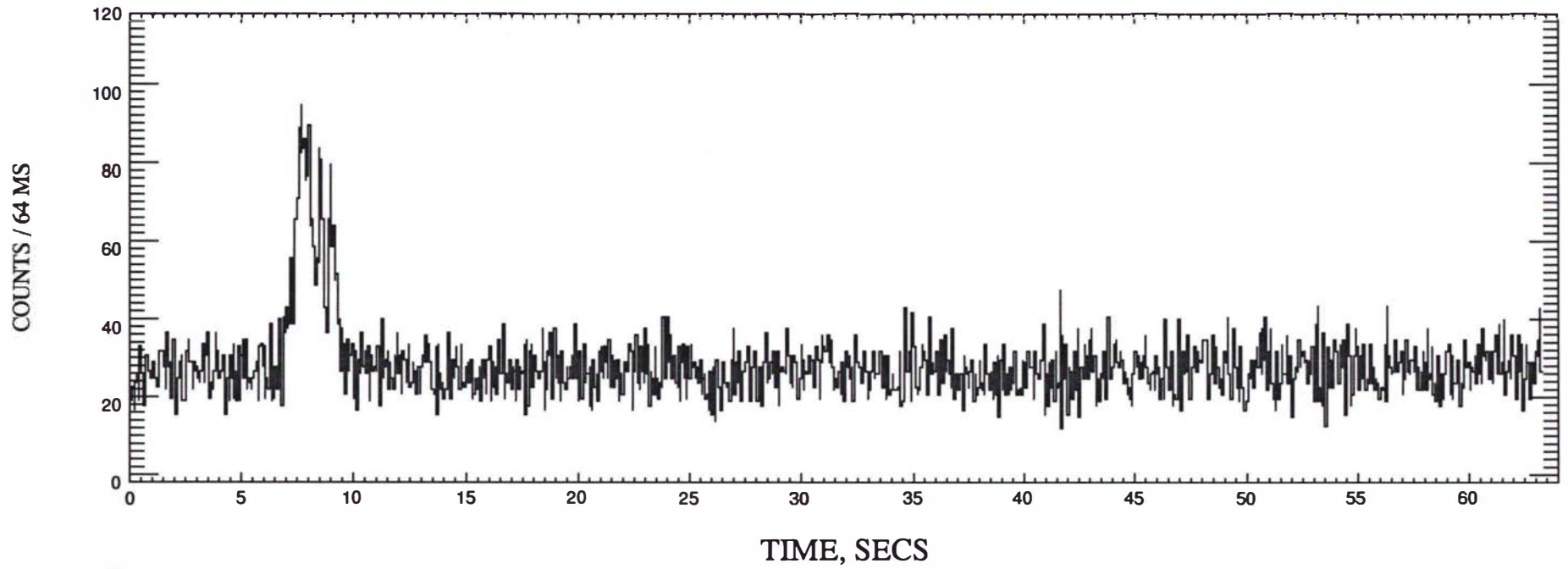
Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

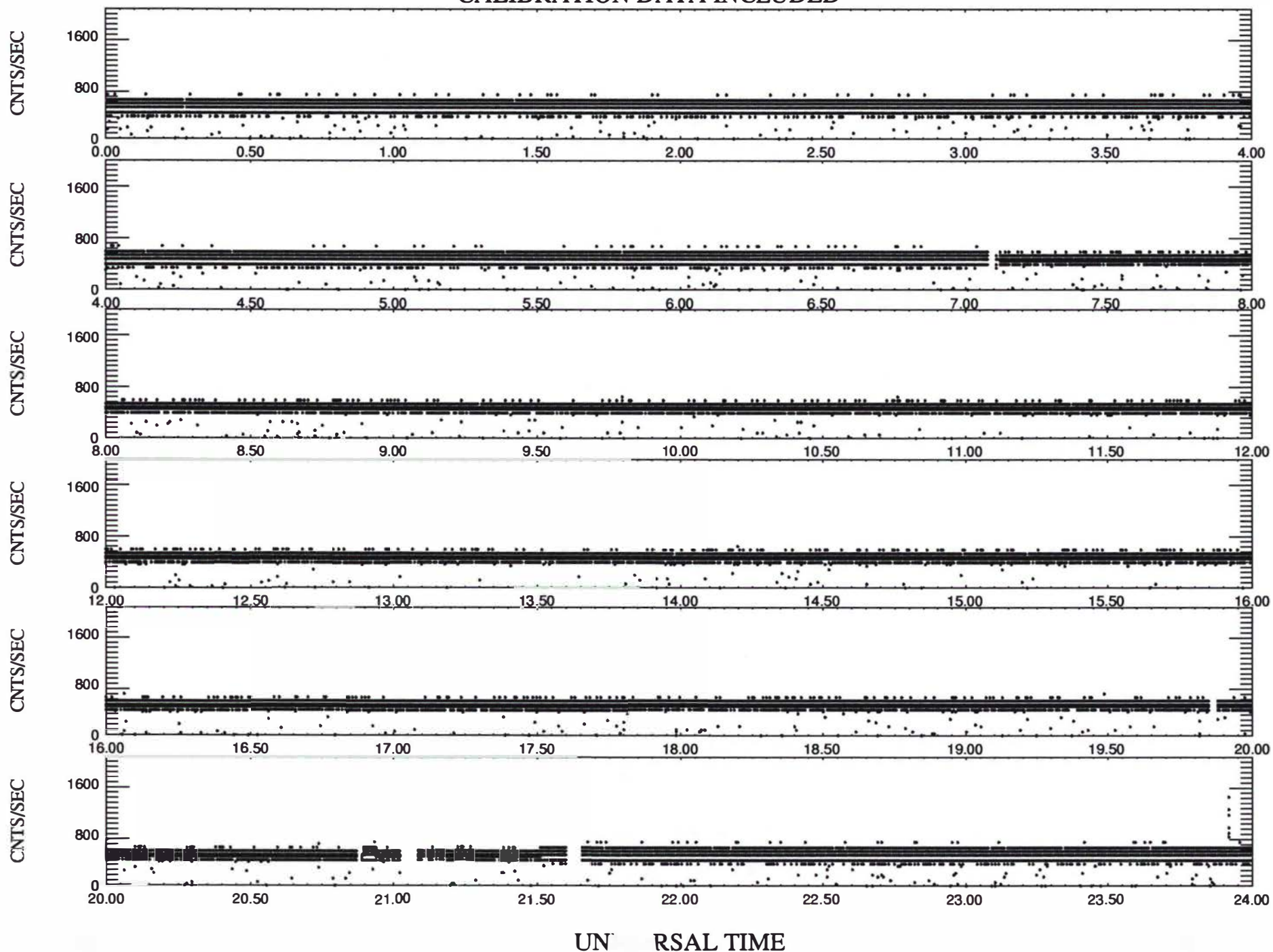
BURST NUMBER 11

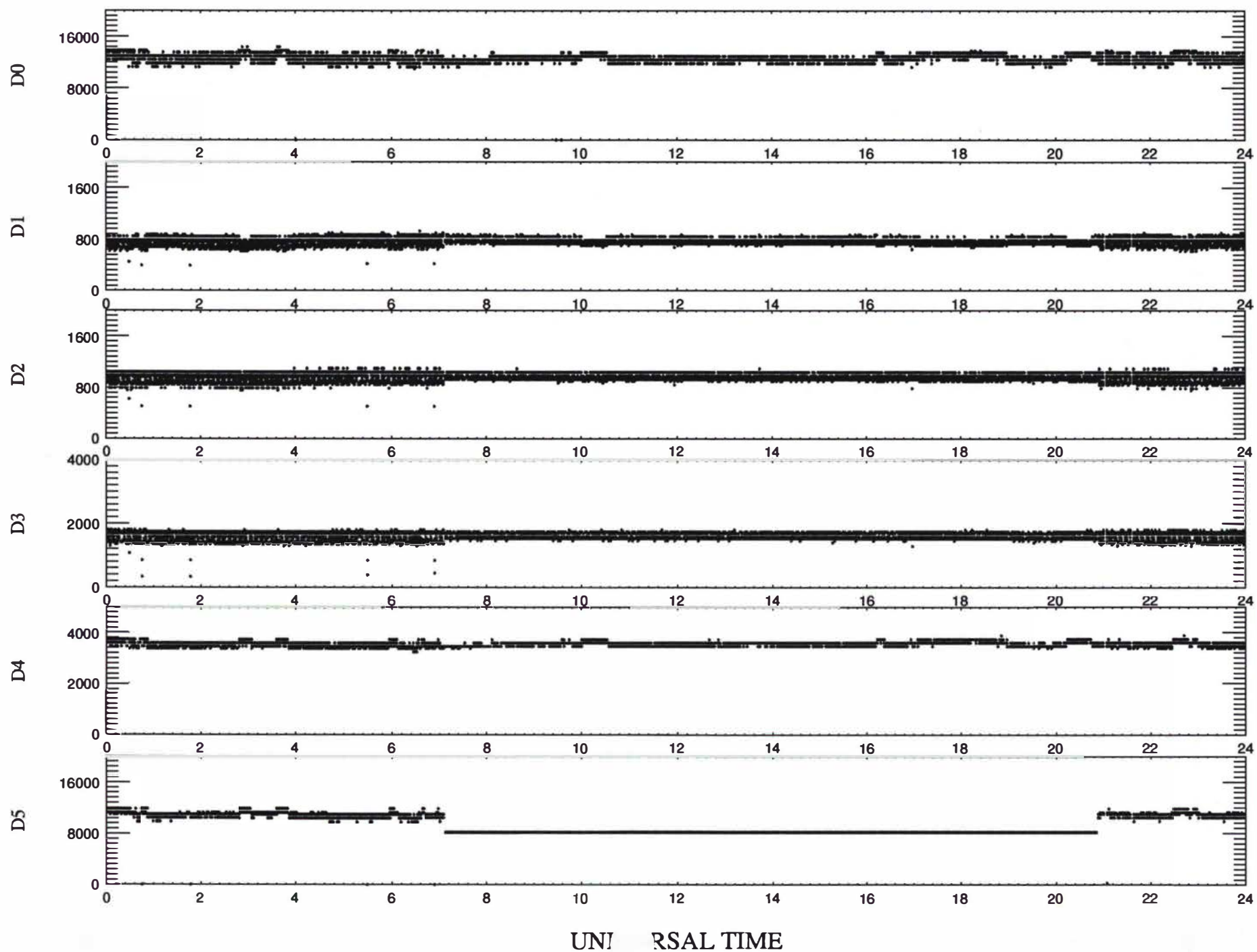


Burst Counter 11 at UT=23.914185104370 h=86091.066 s 23:54:51.066



CALIBRATION DATA INCLUDED





From DEAL@SSLLES.MSFC.NASA.GOV Wed Mar 6 11:21 PST 1996
From: DEAL@SSLLES.MSFC.NASA.GOV
Date: Wed, 6 Mar 1996 13:18:50 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@vmprofs.estec.esa.nl,
"LHEAVX::CLINE"@SSLLES.MSFC.NASA.GOV,
"LHEAVX::BARTHELMY"@SSLLES.MSFC.NASA.GOV, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 5067

TIME: TJD=0142 SECONDS=13677

TYPE: TGF SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=49.0 AZIMUTH=82.9 ERROR=7.03 DEGREES

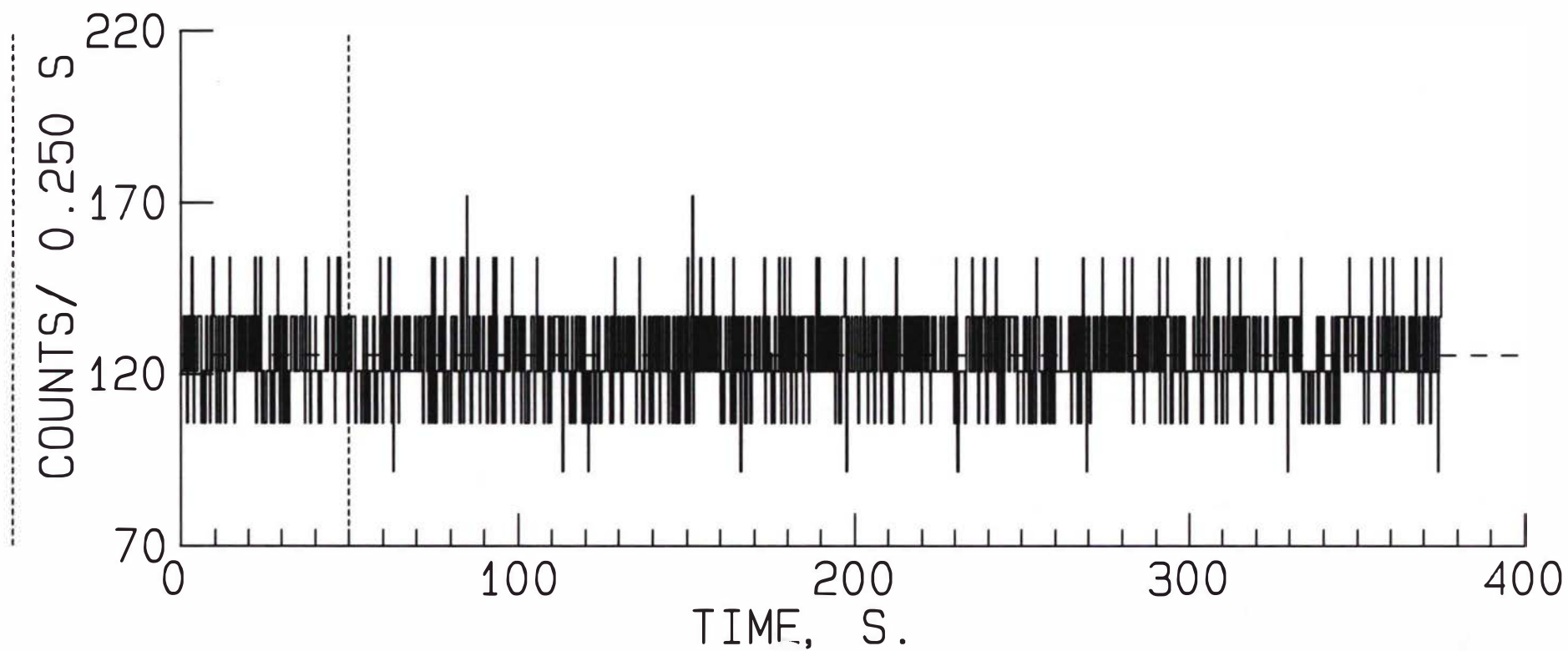
COMMENTS:

TGF LASTING ~ 3 MS.

Reclassified as possible SGR by Biggs 2001

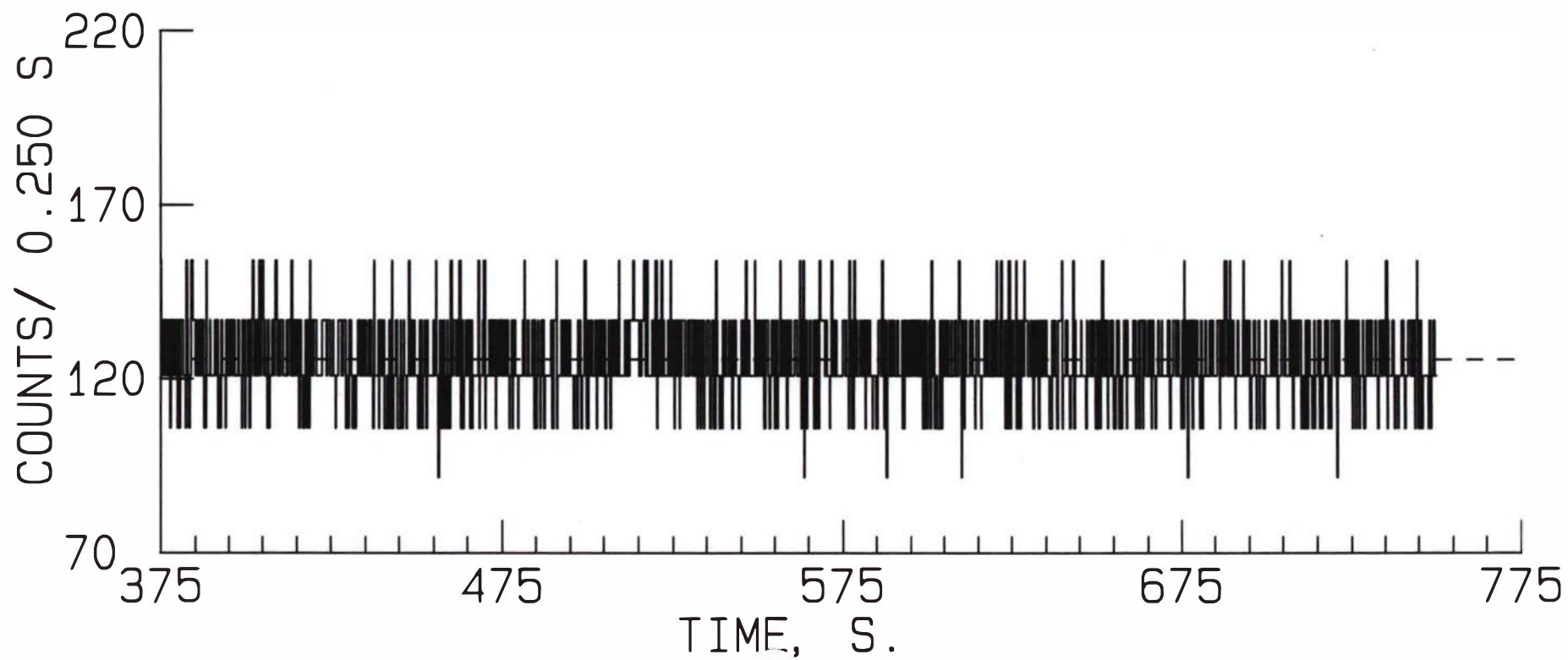
ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

13/11/ 1



ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

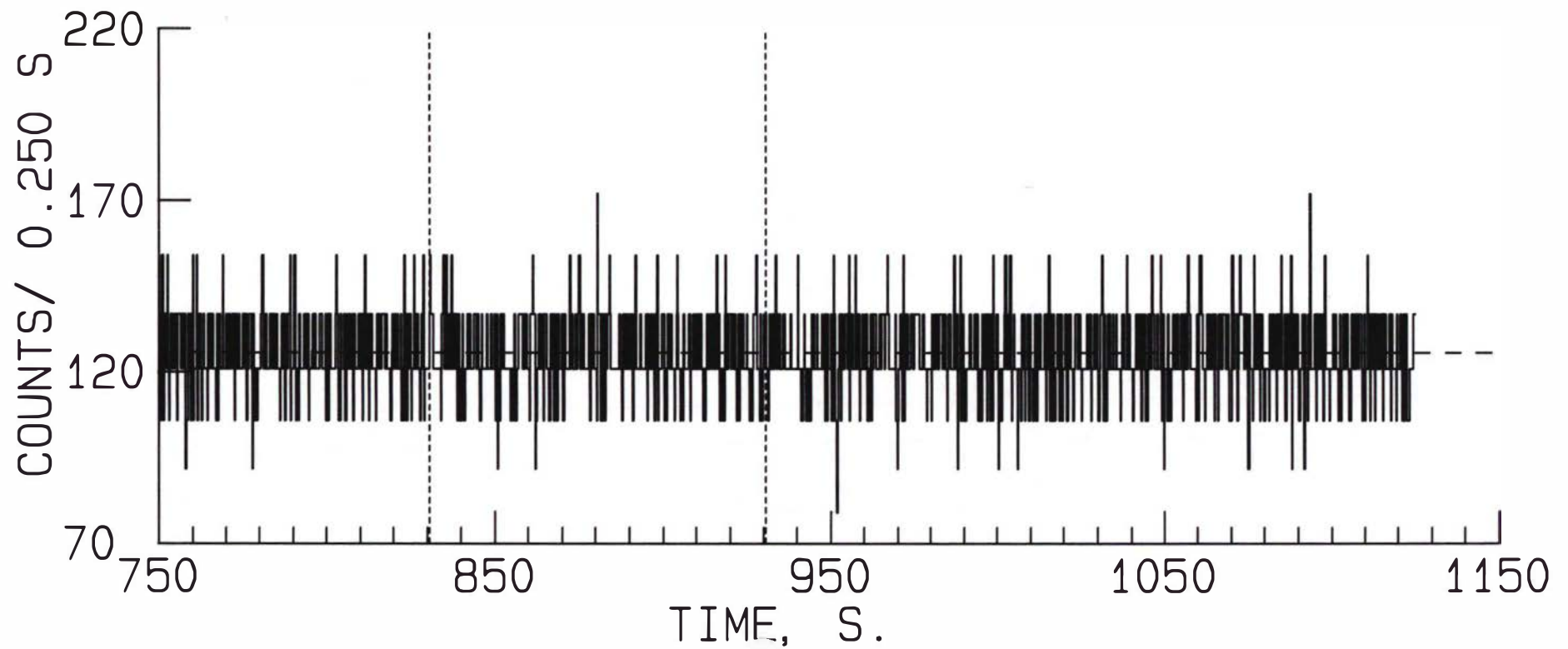
13/11/1



ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

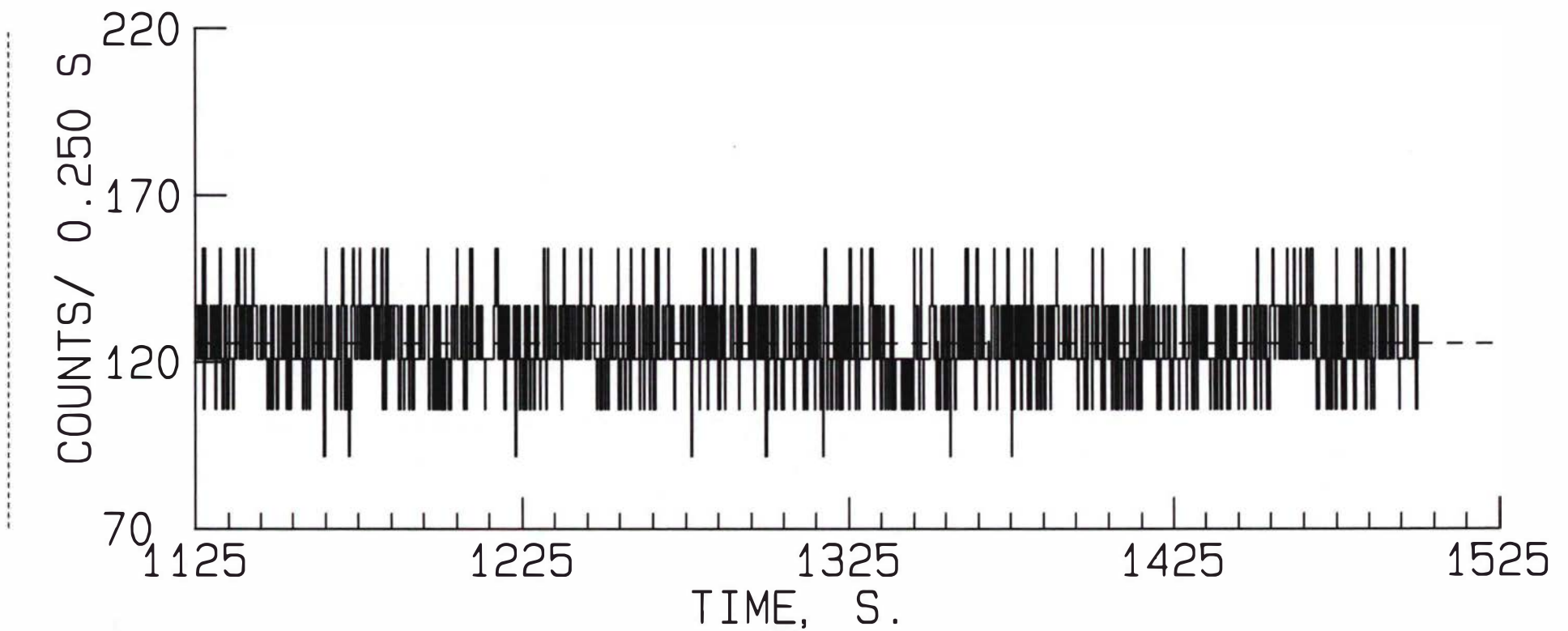
13/11/1

N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS



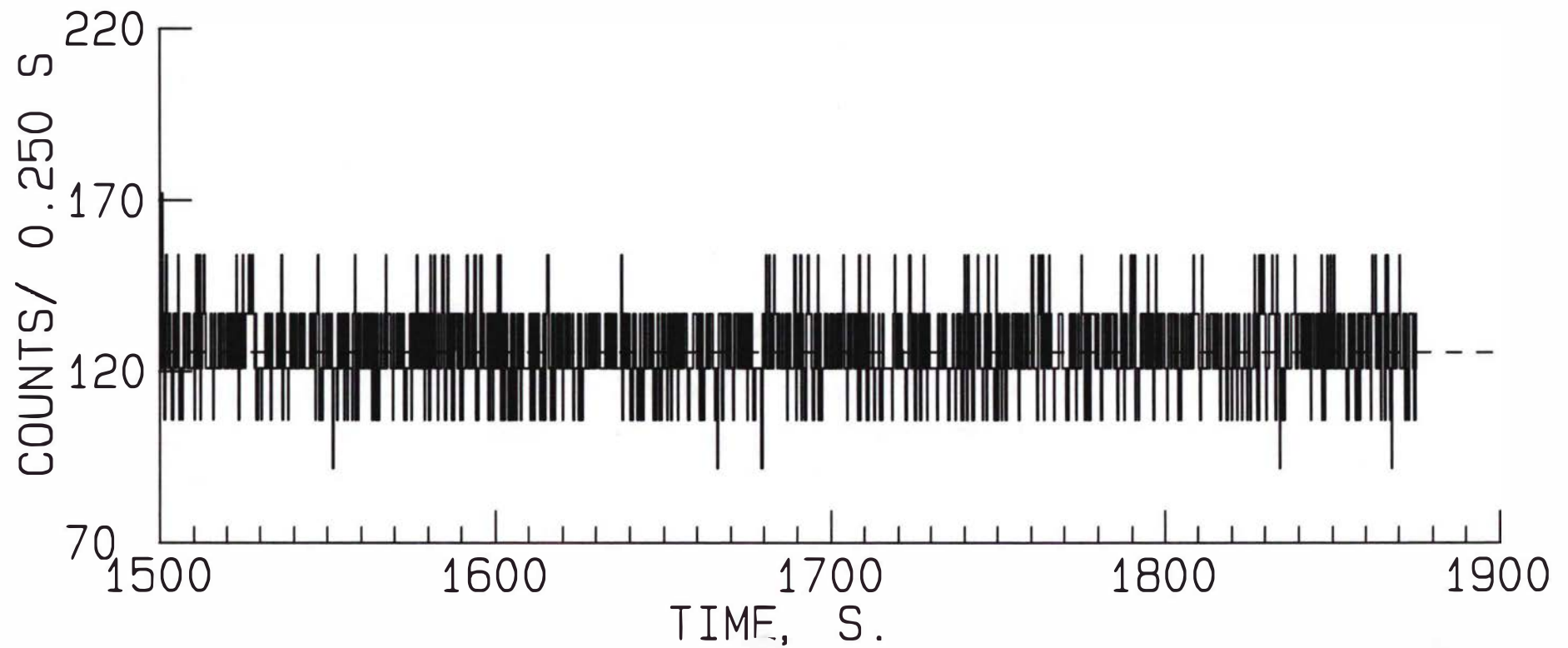
ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

13/11/ 1



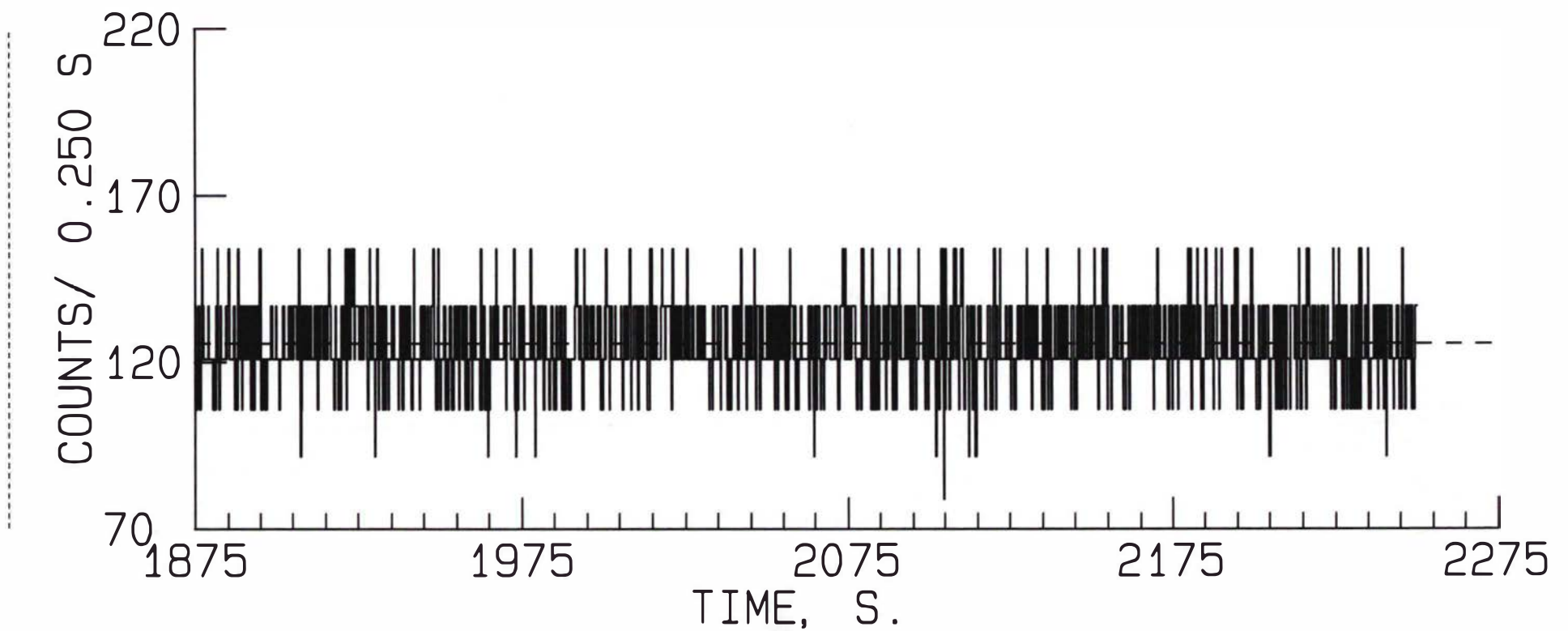
ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

13 / 11 / 1



ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

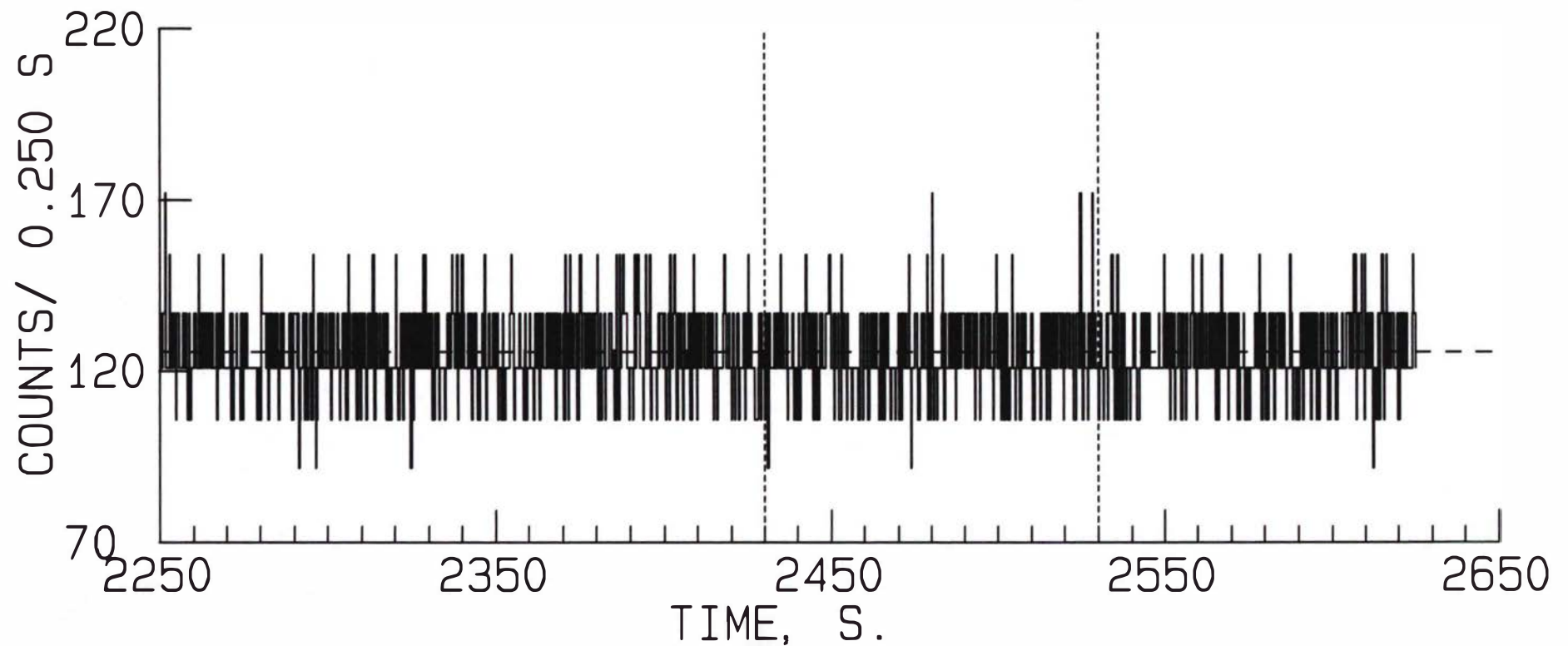
13 / 11 / 1



ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

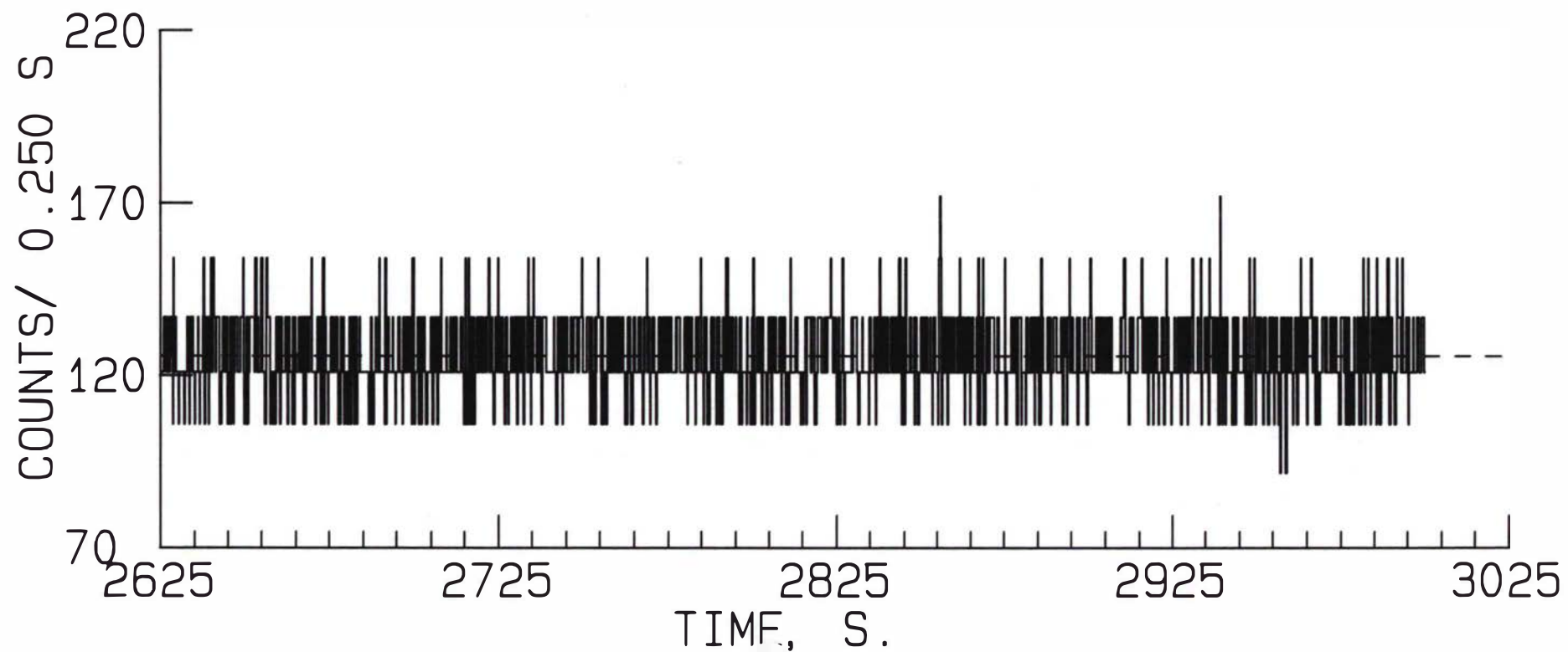
13 / 11 / 1

N= 10 M= 1
>3.5 SIGMA FLUCTUATIONS



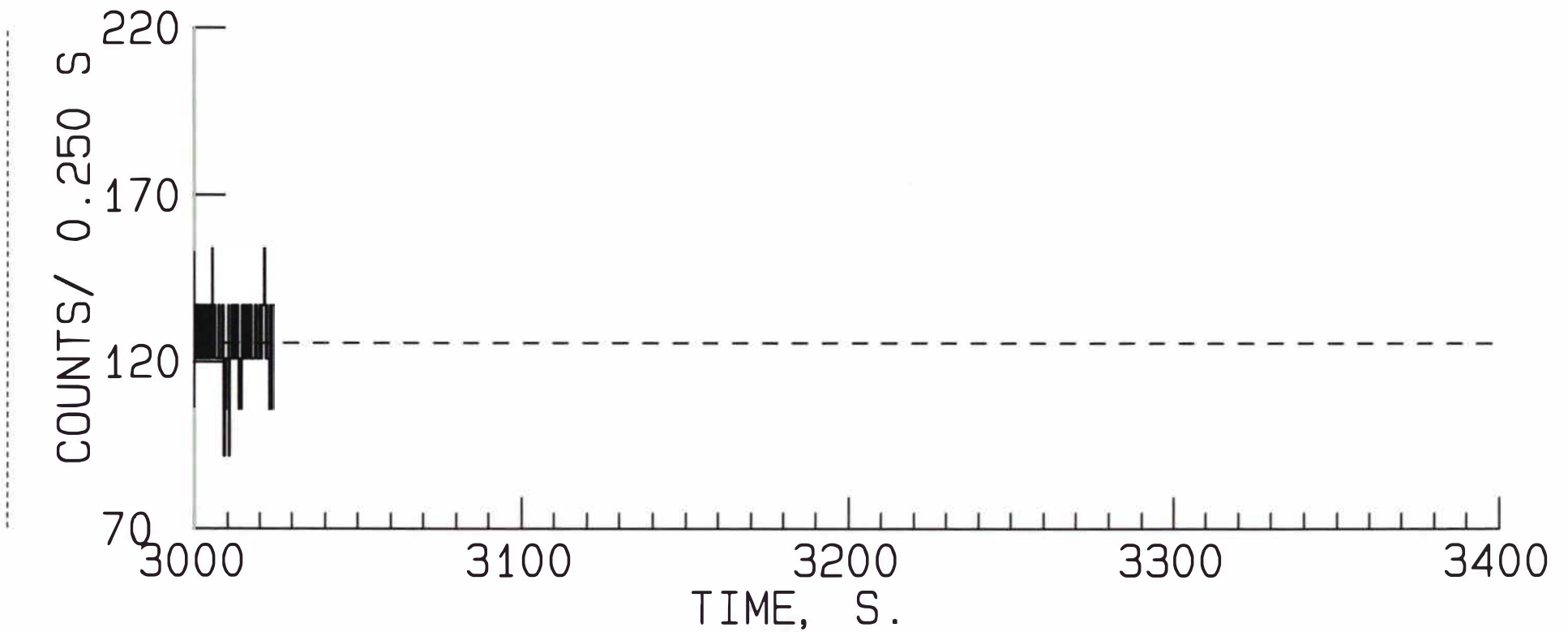
ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

13 / 11 / 1



ULYSSES RT
29/ 2/96 12168.123 s
21- 145 keV

13/11/1



Date: Sep 16 2011

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

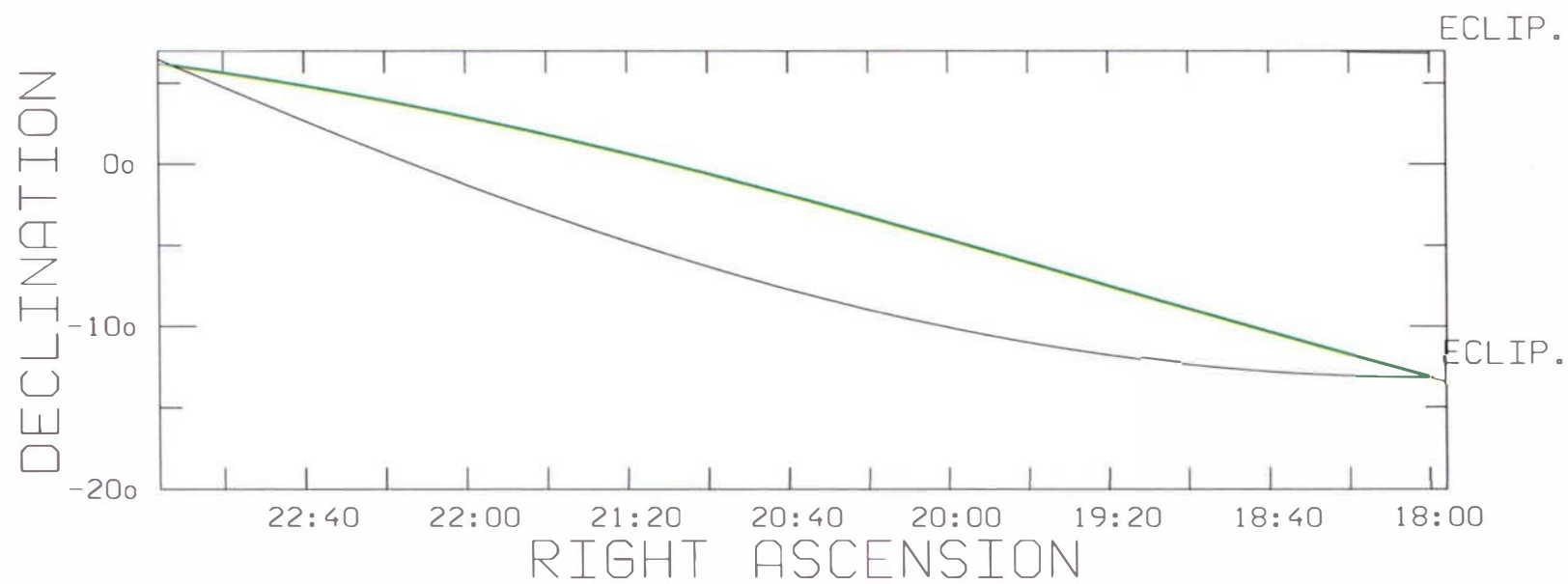
- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used?
- ☒ Final, CDROM data used?
- ☒ Were data checked by Joe Springer for 0.5 s errors?
- ☒ If a 2 spacecraft triangulation, was Ulysses time corrected for aberration?
- ☒ Is the order of the data in CORREL such that a vernier is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

2. BATSE Data

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

3. PVO Data

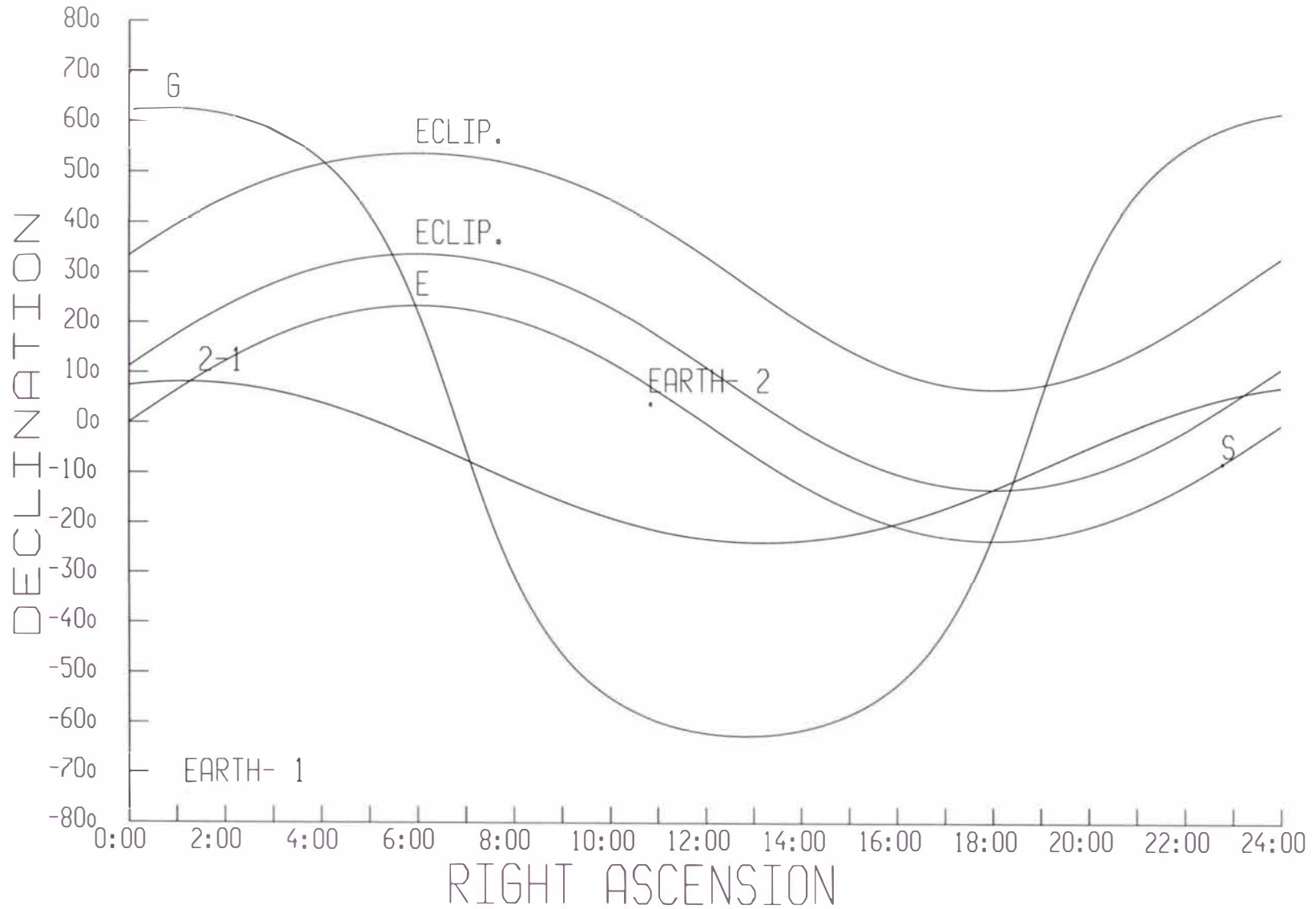
- ☐ Ephemeris of PVO used (not Venus)?
- ☐ 2000 coordinates used?
- ☐ Geocentric time used?
- ☒ ACCESS and MBL databases updated with identical times?

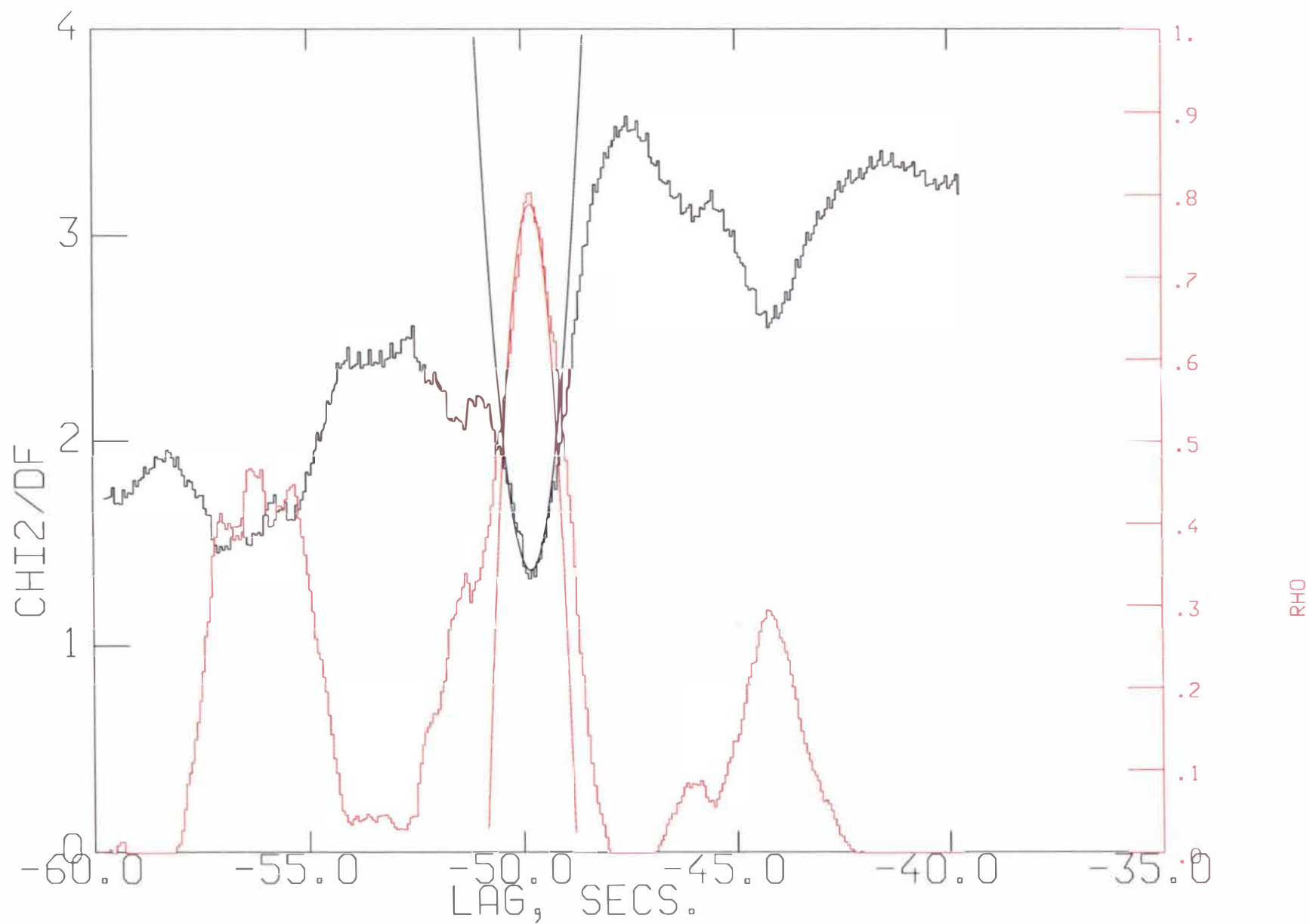


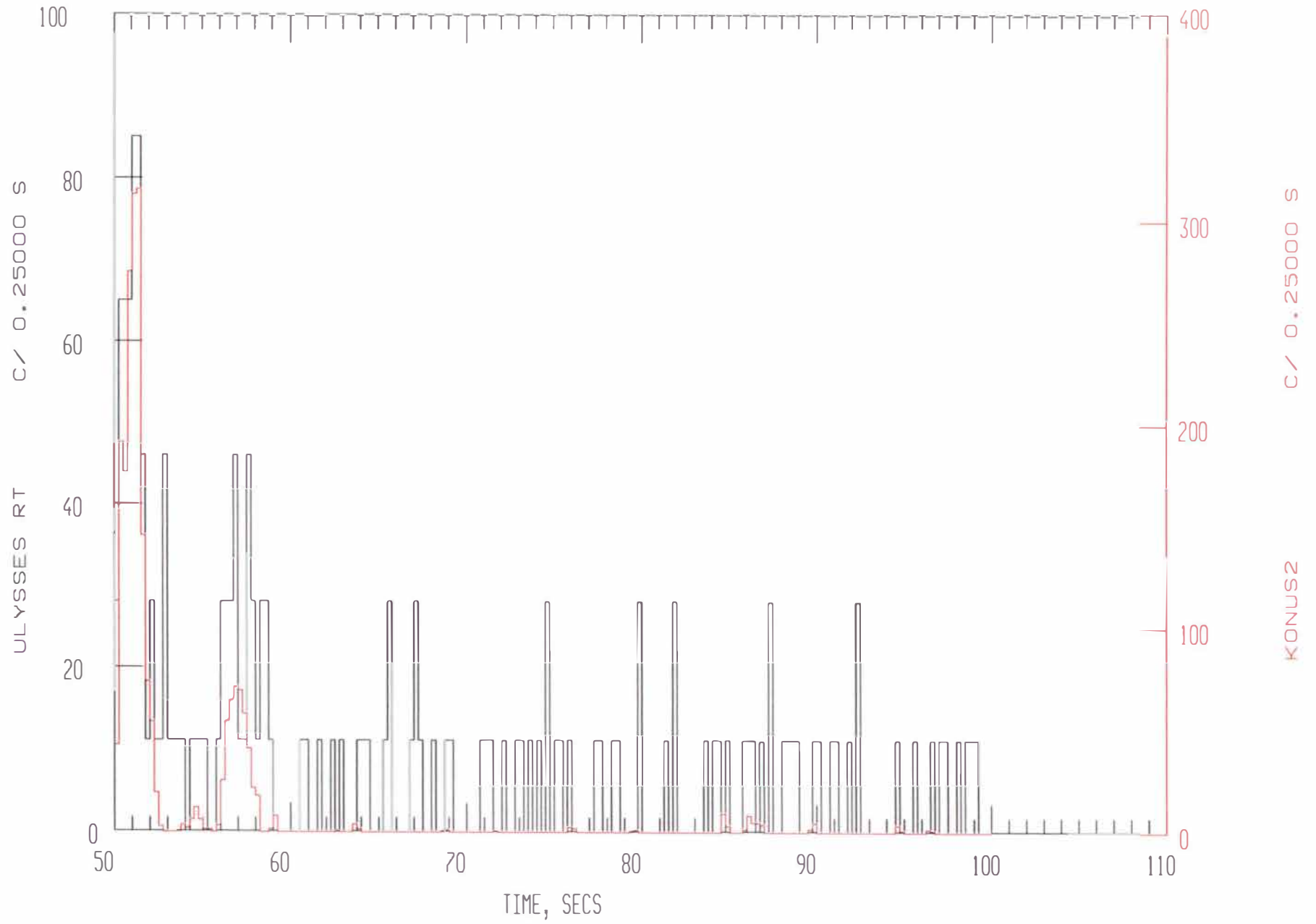
EVENT OF FEB 29, 1996 6:16

16/09/2011

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







KONUS 19960229 22644

ULYSSES RT

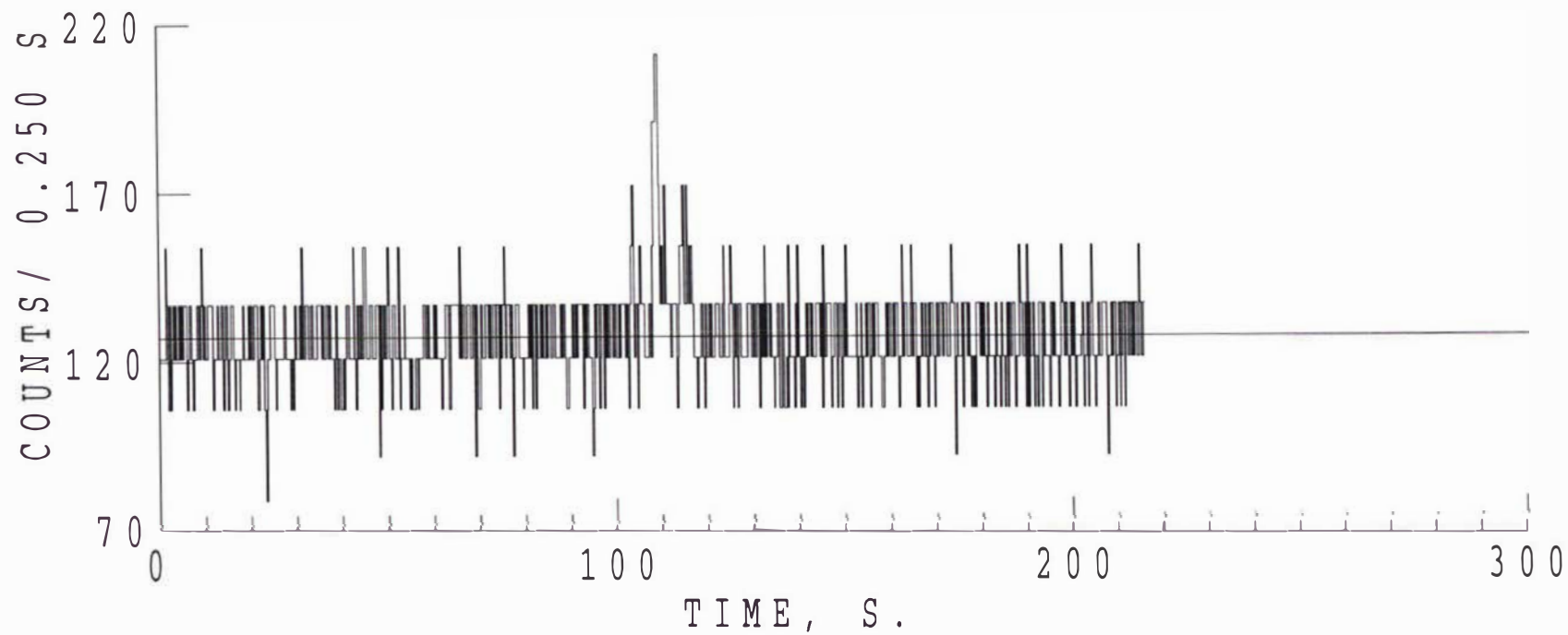
14 / 09 / 11

29 / 02 / 96 22536.020 s

0 - 0 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



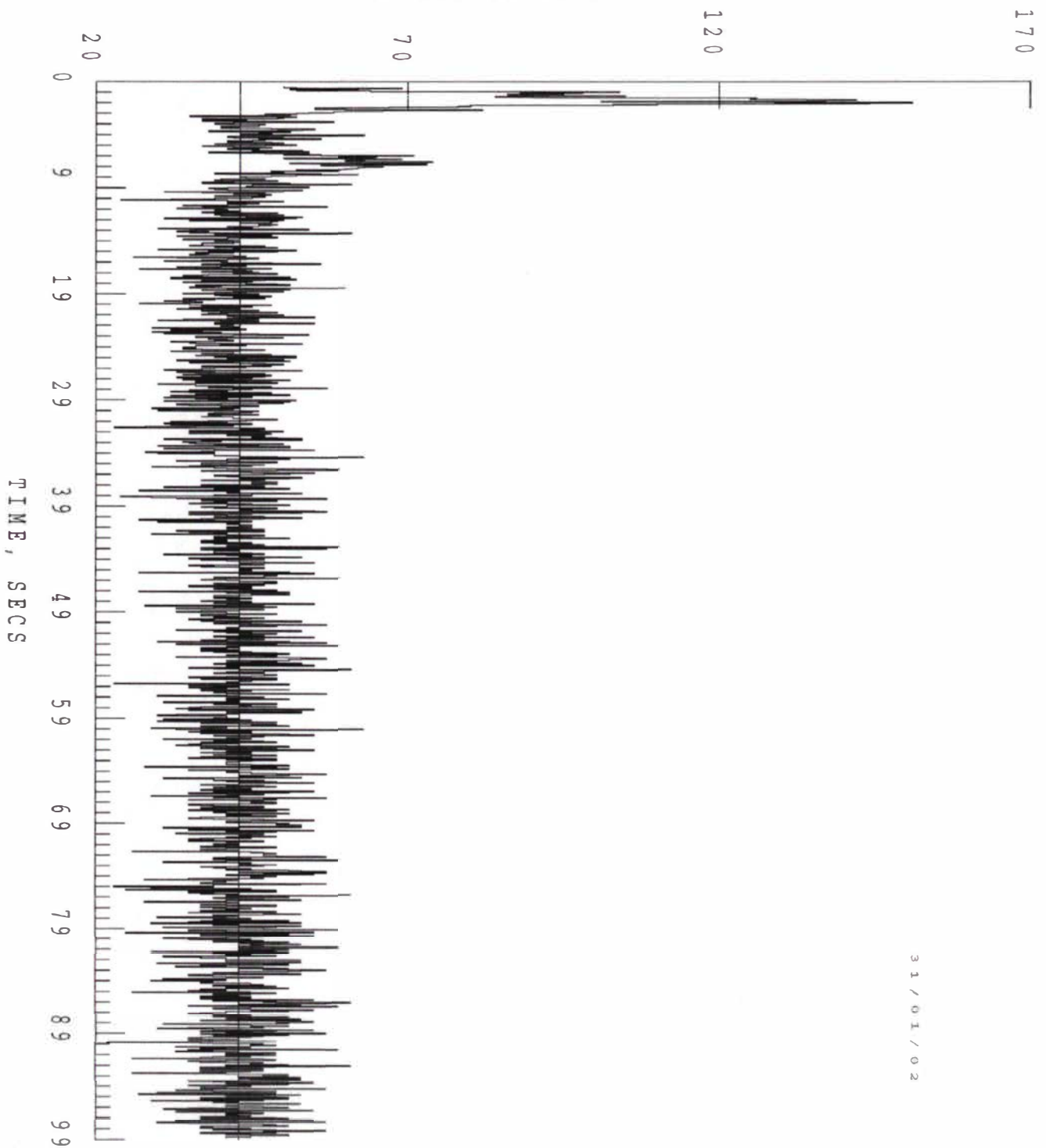
KONUS2

29/02/96

22445.141

50 - 200 keV

COUNTS/0.064 S



KONUS2 19960229 22445

ULYSSES RT

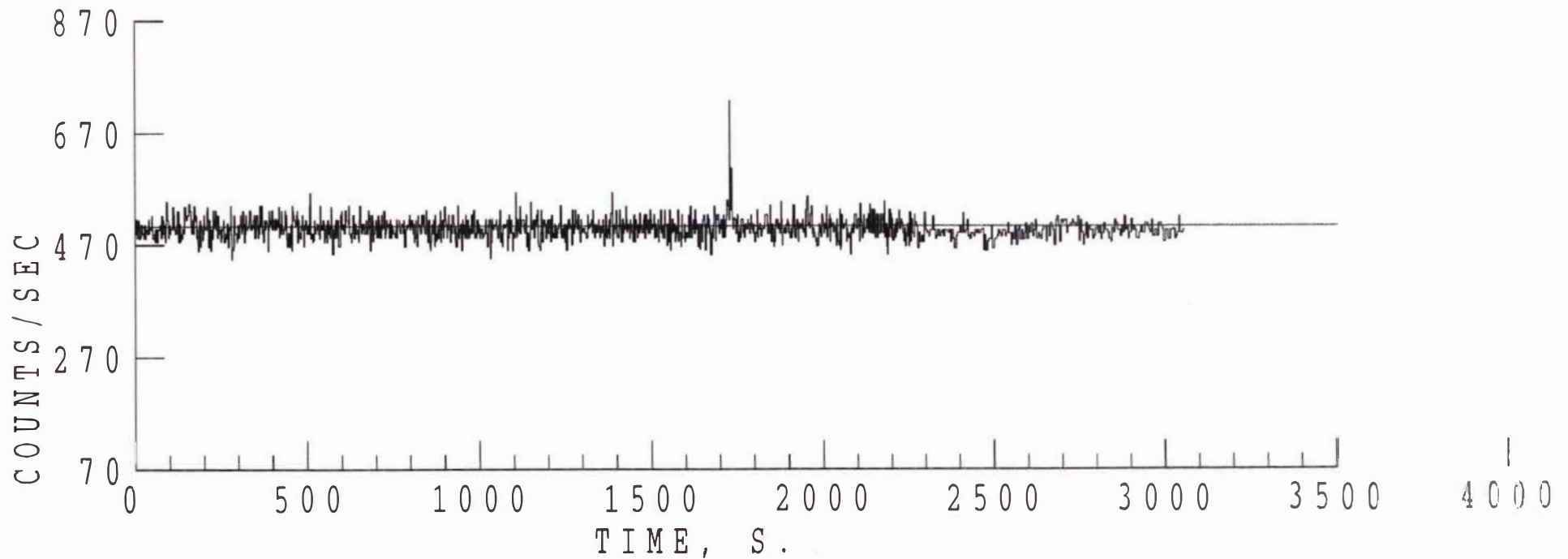
31 / 01 / 02

29/02/96 20916.248 s

INTERVALS REGROUPED BY 8

0 - 0 keV

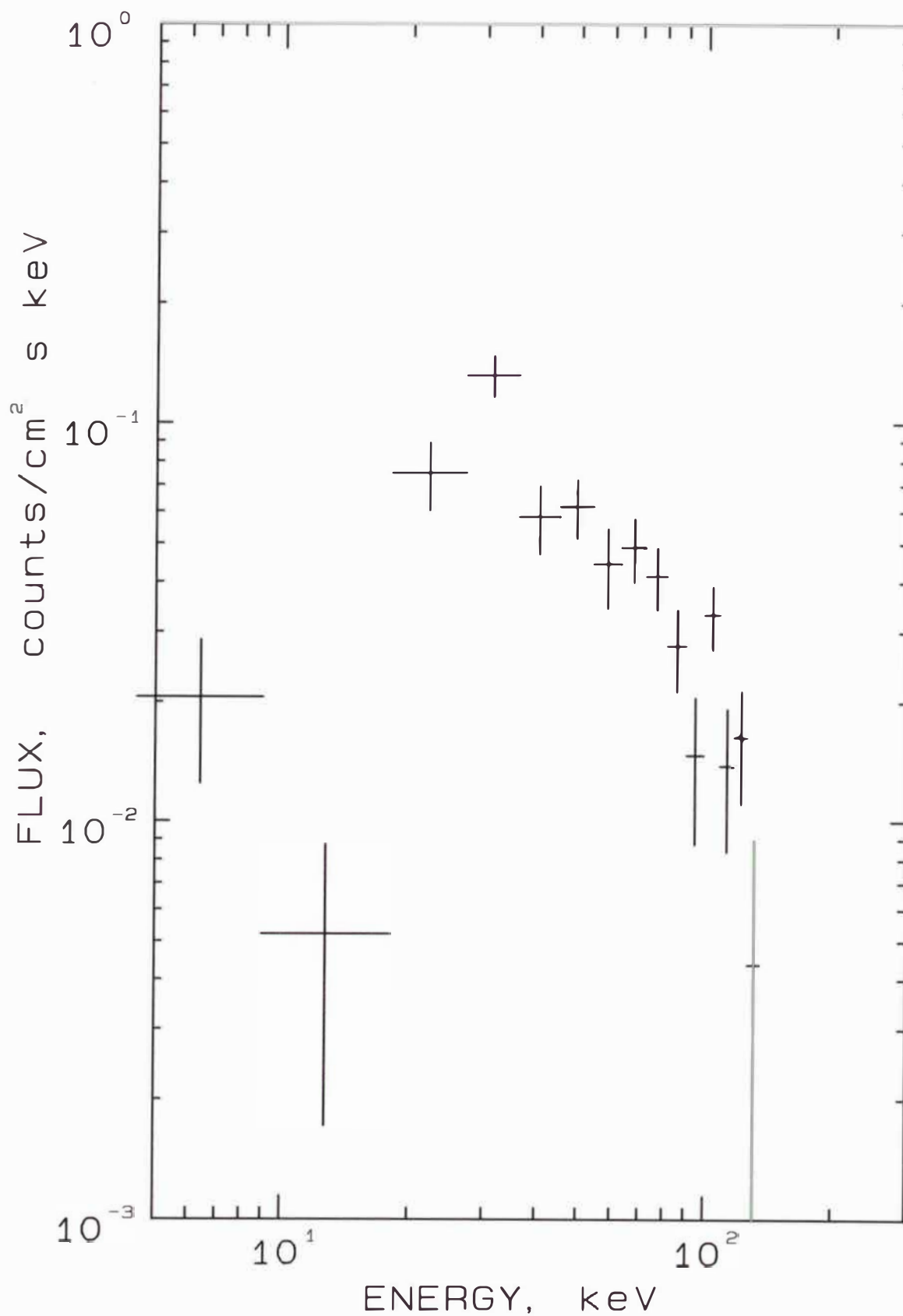
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



ULYSSES 29/02/96 22644.512

19/11/97

SPECTRUM INTEGRATED OVER 20.5 SECONDS, INTERVALS 2 TO 20



ULYSSES 29/02/96 22644.512 BURST SPECTRAL COUNT RATES

4- 18 keV



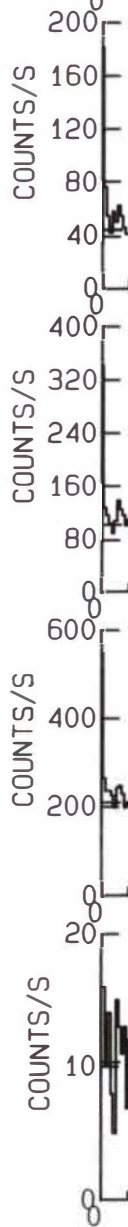
18- 45 keV



45- 72 keV



72- 99 keV



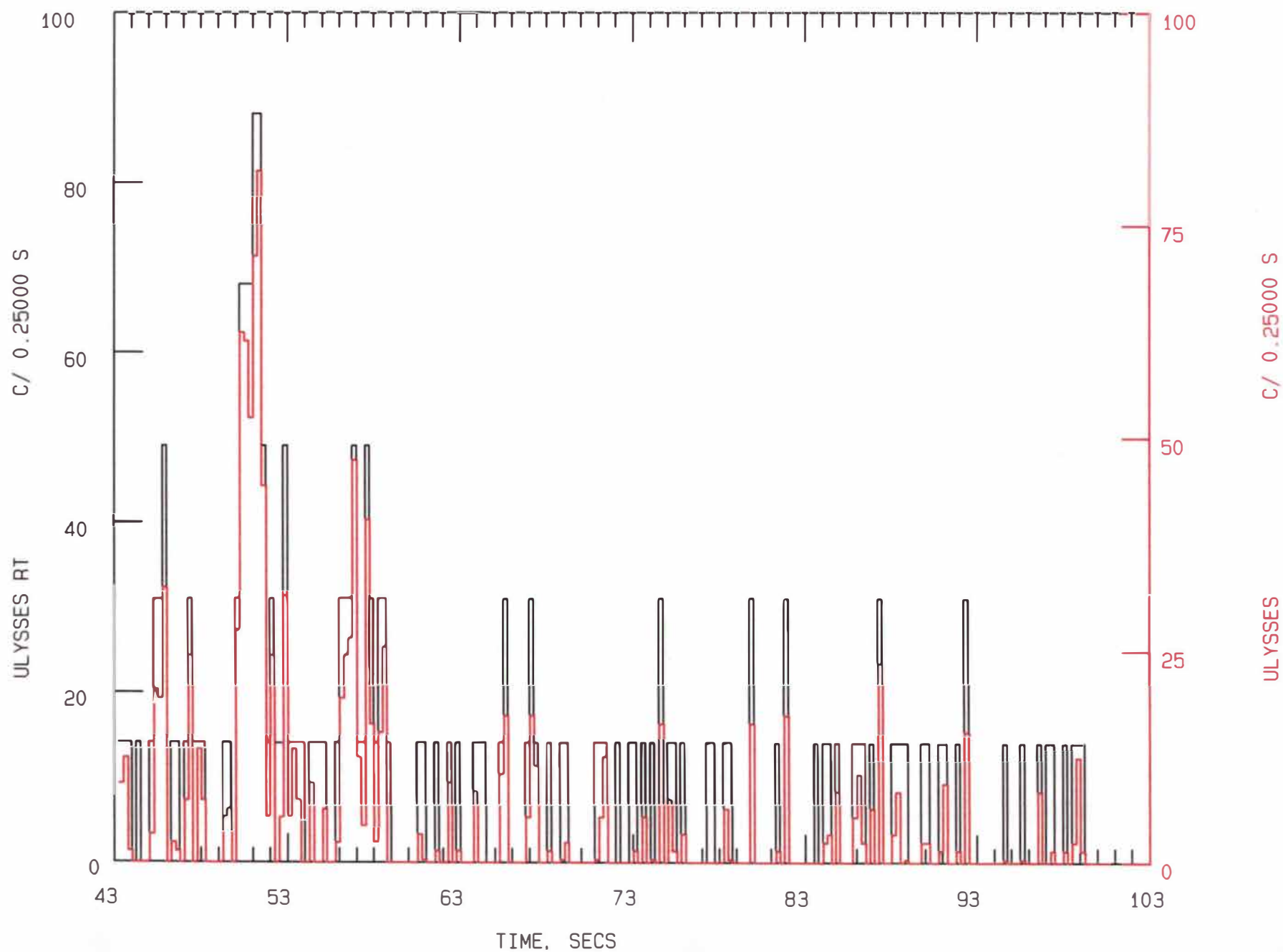
99-126 keV

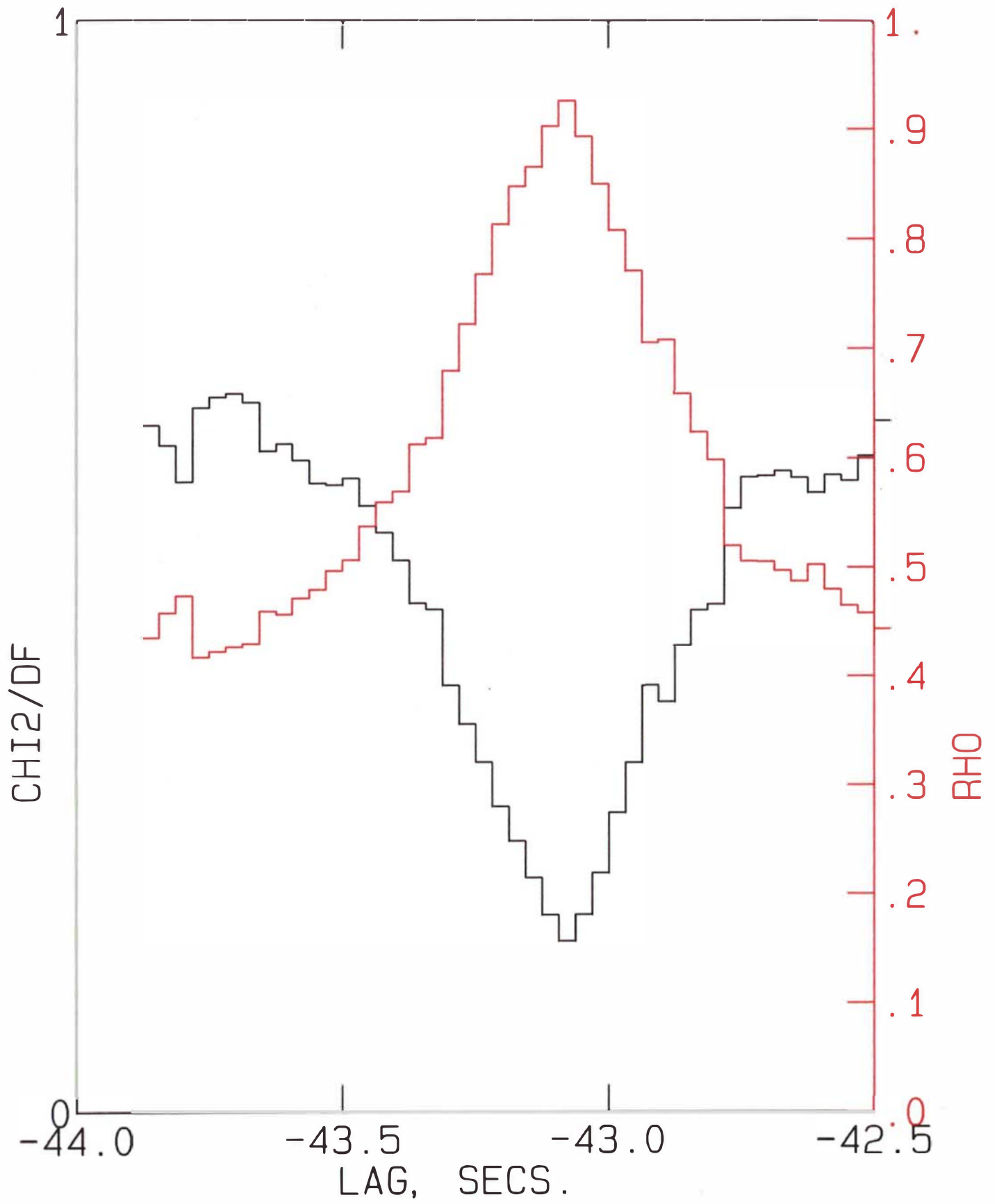


126-144 keV



19/11/97





ULYSSES

29/02/96

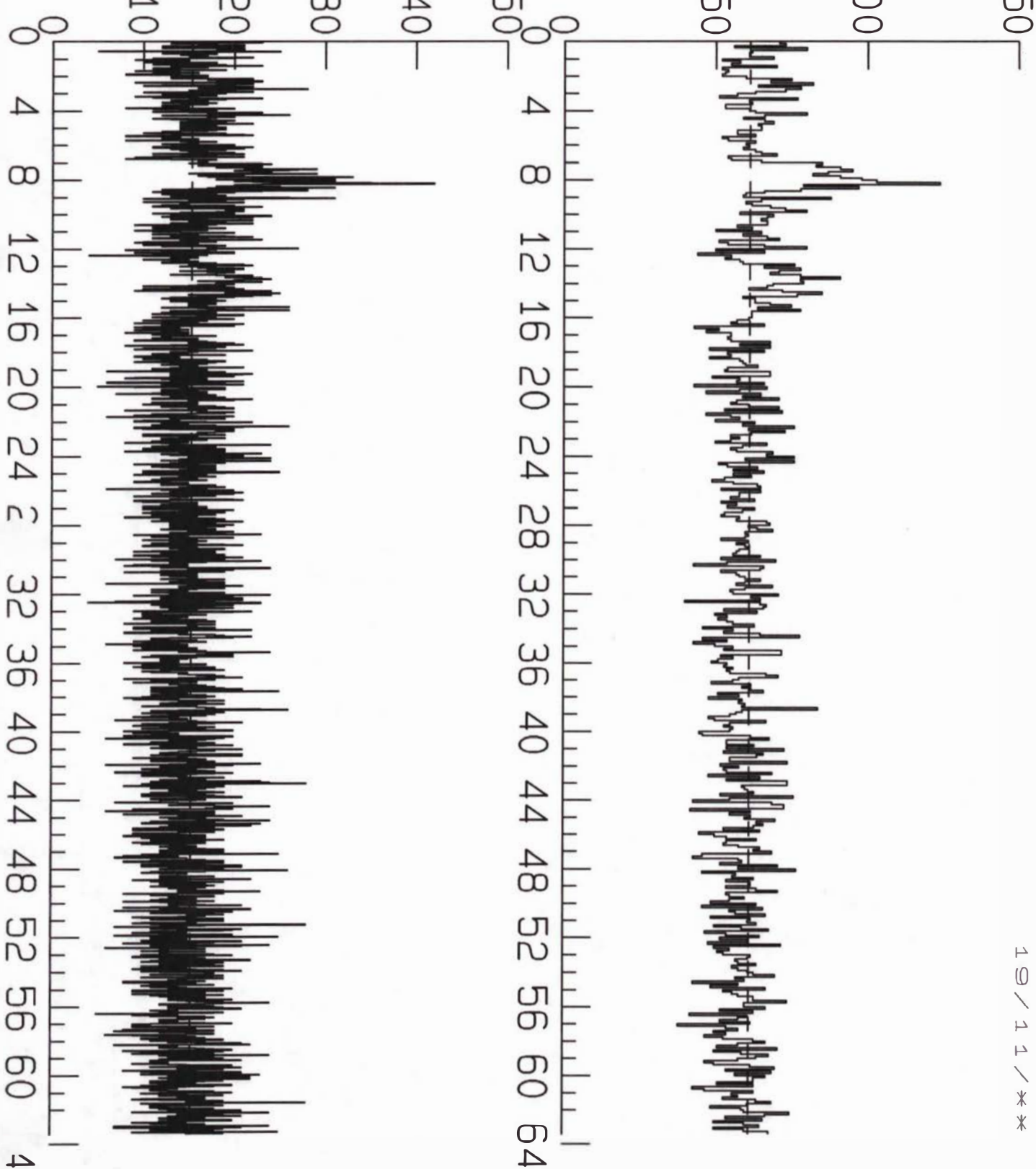
Ttrig=22644.485

0- 0 keV

COUNTS/0.031 S

COUNTS/0.125 S

19/11/88



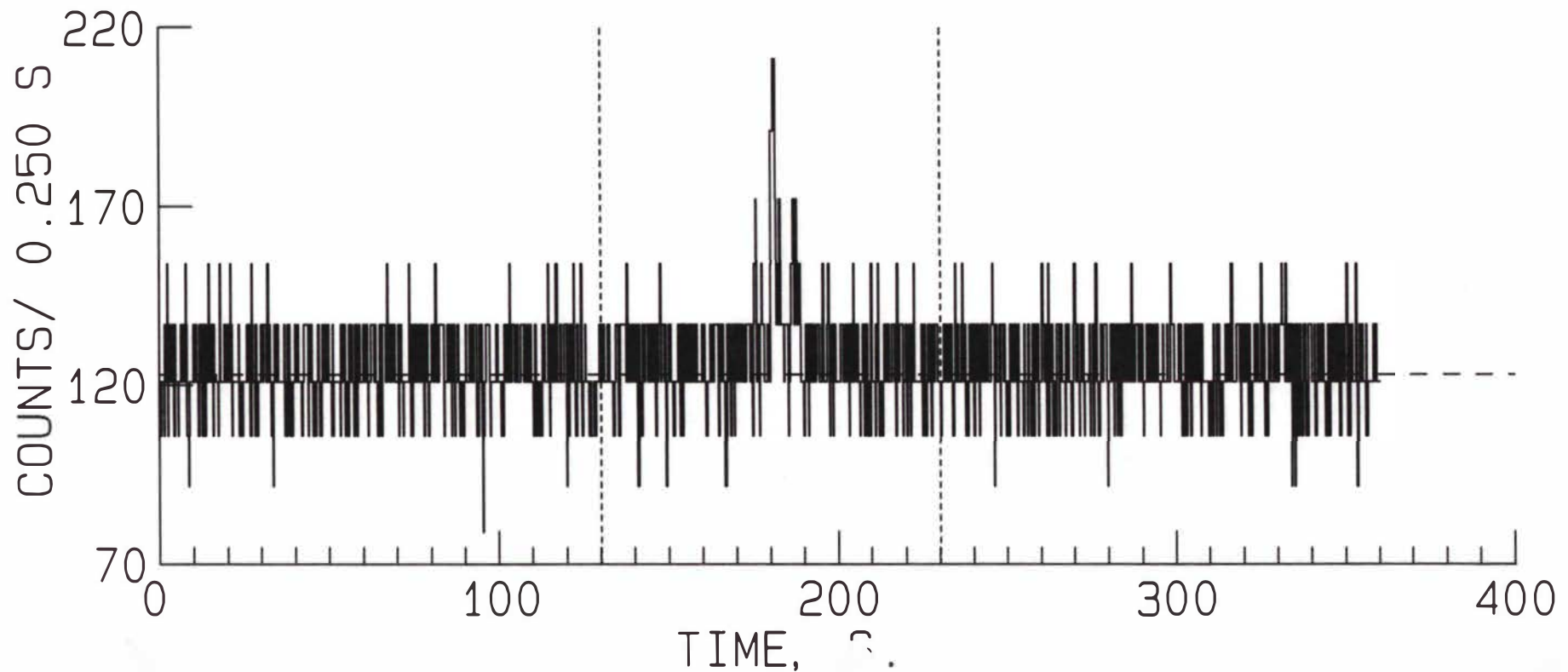
ULYSSES RT

19/11/97

29/ 2/96 22464.019 s

21- 145 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From scott@rosserv.gsfc.nasa.gov Tue Mar 5 10:07 PST 1996
From: Scott Barthelmy <scott@rosserv.gsfc.nasa.gov>
Subject: Re: Ulysses event of 29 Feb - Konus was in readout mode.
To: khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
Date: Tue, 5 Mar 1996 13:07:05 -0500 (EST)
Cc: scott@rosserv.gsfc.nasa.gov (Scott Barthelmy),
butterworth@lheavx.gsfc.nasa.gov (Paul Butterworth),
cline@lheavx.gsfc.nasa.gov (Tom Cline)
MIME-Version: 1.0
Content-Transfer-Encoding: 7bit

Kevin,
BATSE triggered (#5069) at 23,558 sod on 29feb96,
and triggered (#5070) at 30,293 sod on 29feb96. Both of these are outside
the plus/minus 1400 sec window from 25,500 (07:05 UT).
Both triggers look (to the casual inspection) to be the Bursting Pulsar
(ie withing 20 of location and weak and soft).
--scott

> Hi Everyone,
>
> Konus triggered on a moderately-intense, 15s event at 6:14 UT and was in
> consequence in burst-readout mode from 6.18 to 7.18, during which no data
> were recorded. There are no signs of any events in the background data
> recorded after 7.18.
>
> Paul.
>
>
>
> -----
> ULYSSES GAMMA-RAY BURST NOT REPORTED BY BATSE:
>
> Ulysses triggered on an intense, 5s long event February 29
> 1995 around 07:05 UT at Ulysses. The spacecraft was about 1400
> light-seconds from Earth.
>
> Was this event detected by anyone else?
>
> CC: ulyssesbursts alias list
> (barthelmy, butterworth, cline, marar, teegarden, terrell, yoshimori)
>

From cline@heavx.gsfc.nasa.gov Fri Mar 29 08:40 PST 1996

Date: Fri, 29 Mar 1996 08:40:19 -0800

Mime-Version: 1.0

To: KHURLEY@sunspot.ssl.berkeley.edu

From: cline@heavx.gsfc.nasa.gov (T L Cline)

Subject: Konus Event List augmentation

Dear Kevin,

This list includes Sergei's latest Konus-W (GGS-Wind) and Konus-A (Kosmos-2326) events, for comparison with Ulysses, BATSE, TGRS, etc. The times listed are prioritized for Konus-W (i.e., Konus-A time given if Konus-W doesn't trigger).

Yr	Mn	Dy	UT (Konus)	BATSE	Ulysses	Konus	TGRS	Notes
95	11	2	07085.879	?	?	168	no	
95	11	2	21209.015	3891	R I	169	345	
95	11	4	05868.077	3893	R I	170	BGR	
95	11	5	46827.808	?	?	171	no	
95	11	12	66495.244	?	R I	172	no	
95	11	13	84358.872	3906	R I	173	BGR	
95	11	17	10123.762	3909	?	175	no	
95	11	19	29831.402	3912	R I	176	348	
95	11	19	46457.519	?	?	177	BGR	
95	11	22	09841.38	?	?	179	no	
95	11	22	17107.738	?	?	180	349	
95	12	2	39101.744	?	?	195	BGR	
95	12	3	03988.18	?	?	196	360	
	12	8	19617.151	?	?	197	no	
	12	8	39452.057	?	?	198	no	
95	12	8	42467.634	?	?	199	BGR	
95	12	9	31349.607	?	?	200	BGR	
95	12	13	17849.683	?	?	201	362	
95	12	14	08657.847	?	?	202	no	
95	12	19	60679.732	?	?	203	no	
95	12	20	31883.56	?	?	204	BGR	
95	12	22	25203.254	?	?	no	?	= K-A t.
95	12	27	23005.042	?	?	218	375	
96	12	31	20231.668	?	?	219	no	
96	1	2	11650.996	?	?	220	no	
96	1	4	12521.062	?	?	221	no	
96	1	11	46524.53	?	?	222	no	
96	1	13	56024.261	?	?	228	no	
96	1	14	44104.737	?	?	233	384	+ K-A t.
96	1	15	31956.506	?	?	234	BGR	
96	1	17	57371.341	?	?	235	no	
96	1	19	34679.317	?	?	236	no	
96	1	19	45226.016	?	?	237	no	
96	1	20	36768.974	?	?	238	no	
96	1	24	03388.008	?	?	239	385	+ K-A t.
96	1	24	76096.911	?	?	BGR	?	= K-A t.
96	1	30	08756.848	?	?	240	no	
96	2	1	78530.582	?	?	241	?	+ K-A t.
96	2	2	50750.813	?	?	242	?	
	2	10	35198.959	?	?	247	?	
96	2	16	57796.347	?	?	BGR	?	= K-A t.
96	2	19	20589.684	?	?	BGR	?	= K-A t.
96	2	28	85760.241	?	?	249	?	
96	2	29	22445.141	?	?	250	?	

96	3	5	33645.352	?	?	251	?
96	3	12	35074.697	?	?	252	?
96	3	19	51992.828	?	?	253	?
96	3	21	76321.803	?	?	254	?
96	3	22	19642.728	?	?	255	?
96	3	24	80064.124	?	?	257	?
96	3	25	69892.978	?	?	258	?

--

TLC

-- T. L. Cline ----- LHEAVX::CLINE

From cline@lheavx.gsfc.nasa.gov Fri Mar 8 06:03 PST 1996
Date: Fri, 8 Mar 1996 06:03:52 -0800
Mime-Version: 1.0
To: KHURLEY@sunspot.ssl.berkeley.edu
From: cline@lheavx.gsfc.nasa.gov (T L Cline)
Subject: forward from "Zand"

From: Jean in 't Zand <jeanz@tgrosf.gsfc.nasa.gov>
Subject: Re: GRB960229
To: cline@lheavx.gsfc.nasa.gov (T L Cline)
Date: Fri, 8 Mar 1996 08:40:58 -0500 (EST)
X-Mailer: ELM [version 2.4 PL24alpha3]
Mime-Version: 1.0

Tom,

We got the TGRS data this night. There's no trigger and no sign of this event in the background data.

Jean.

-- T. L. Cline ----- LHEAVX::CLINE

From DEAL@ssl.msfc.nasa.gov Wed Mar 6 11:30 PST 1996
Date: Wed, 6 Mar 1996 13:29:51 -0600 (CST)
From: DEAL@SSLLES.MSFC.NASA.GOV
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 5079

BATSEARCH PROGRAM

BATSE BURST # 5079
EVENT OF 1996 FEB 29 DAY OF YEAR= 60
EVENT CROSSING TIME AT BATSE : 81423. S. OR 22:37:03.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 61.000 -15.000
BATSE PEAK COUNTING RATE: 4800 C/S

NO

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 29/ 2/ 96 IS:
RA= 196.081 DEC= 74.483 DIST= 2.935 AU
BATSE-ULYSSES DISTANCE = 439119684. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 64.38 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 633.31 SECS.
CROSSING TIME AT ULYSSES IS 82056. S. OR 22:47:36 +/- 288.92 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 29/ 2/ 96 IS:
RA= 342.548 DEC= -8.490 DIST= 2.372 AU
MARS-BATSE DISTANCE = 354866720. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=103.26 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -271.61 SECS.
CROSSING TIME AT MARS IS 81151. S. OR 22:32:31 +/- 195.90 SECONDS

BATSE BURST TRIGGER

NO.: 5079

TIME: TJD=0142 SECONDS=81423

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=129.3 AZIMUTH=108.6 ERROR=10.3 DEGREES

COMMENTS:

BURST LASTING ~ 2 S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
5079	960229	10142	81423	4800	061	-15	2

BATSE #

5079

6 / 3 / 96

ULYSSES RT

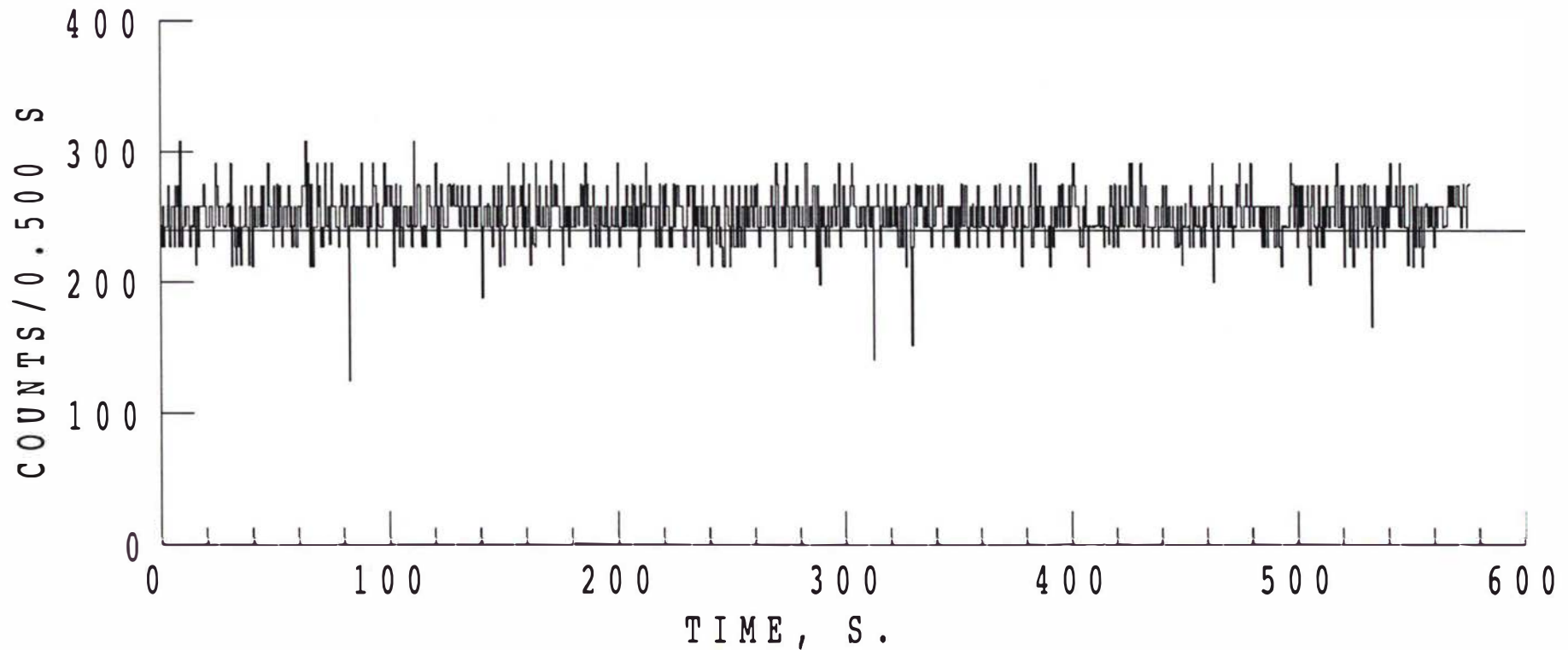
29 / 2 / 96 81756.109 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

M= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From DEAL@fender.msfc.nasa.gov Mon Mar 4 11:42 PST 1996
From: DEAL@fender.msfc.nasa.gov
Date: Mon, 4 Mar 1996 13:41:44 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Subject: Crossing Windows for BATSE Burst 5080

RT?

BATSEARCH PROGRAM

BATSE BURST # 5080
EVENT OF 1996 FEB 29 DAY OF YEAR= 60
EVENT CROSSING TIME AT BATSE : 86164. S. OR 23:56:04.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 358.000 12.000
BATSE PEAK COUNTING RATE: 17500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 29/ 2/ 96 IS:
RA= 196.052 DEC= 74.485 DIST= 2.935 AU
BATSE-ULYSSES DISTANCE = 439142511. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 87.22 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 70.95 SECS.
CROSSING TIME AT ULYSSES IS 86235. S. OR 23:57:14 +/- 305.10 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 29/ 2/ 96 IS:
RA= 342.548 DEC= -8.490 DIST= 2.372 AU
MARS-BATSE DISTANCE = 354866720. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=154.39 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1067.43 SECS.
CROSSING TIME AT MARS IS 85097. S. OR 23:38:16 +/- 72.62 SECONDS

BATSE BURST TRIGGER

NO.: 5080

TIME: TJD=0142 SECONDS=86164

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=133.9 AZIMUTH=12.4 ERROR=2.6 DEGREES

COMMENTS:

BURST LASTING ~ 10 S. MULTI-PULSE EVENT. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
5080	960229	10142	86164	17500	358	+12	10

Helio corr removed

Date: Oct 15 '97

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. BATSE Data

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

3. PVO Data

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

- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

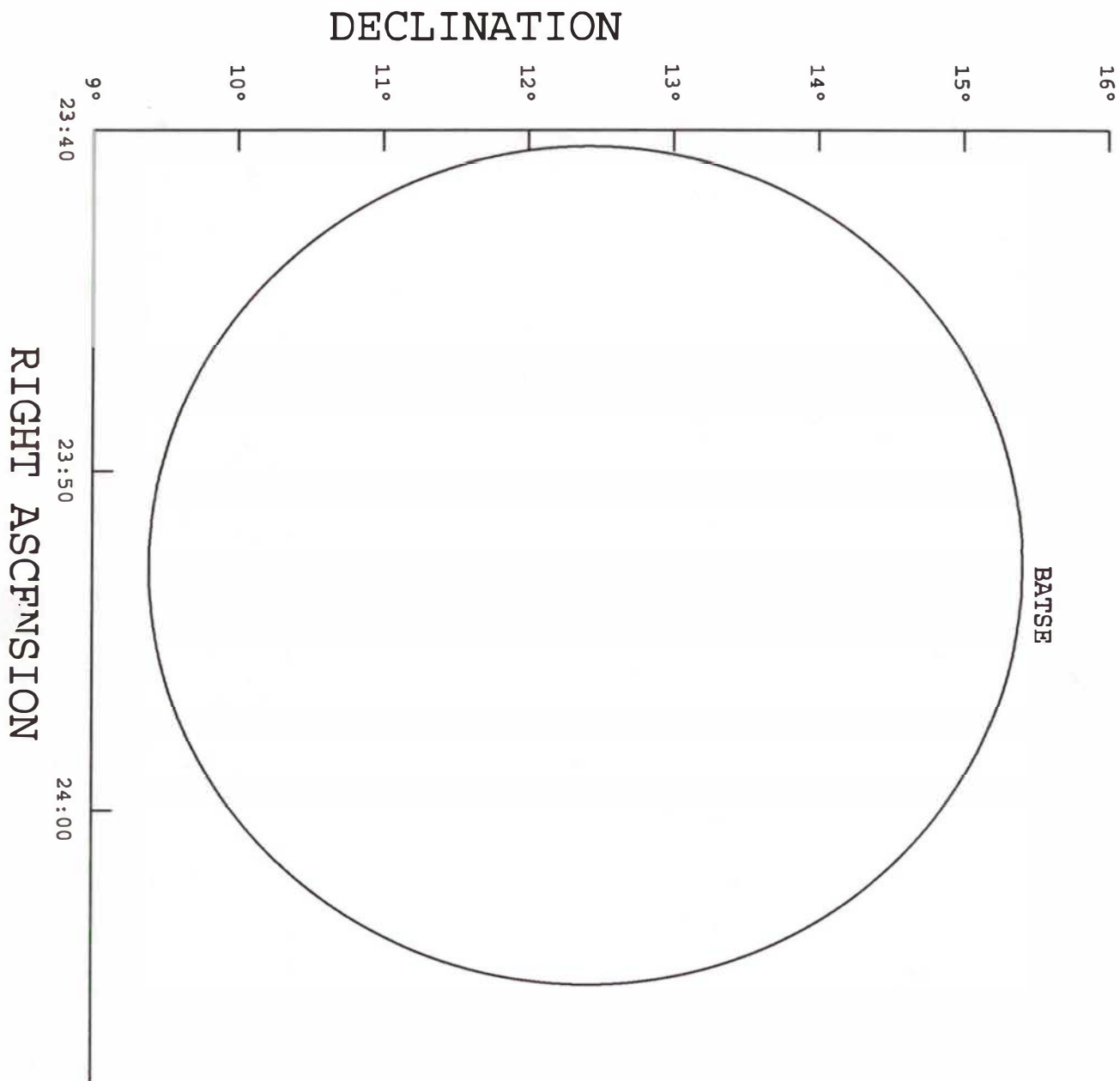
G=GALACTIC EQUATOR

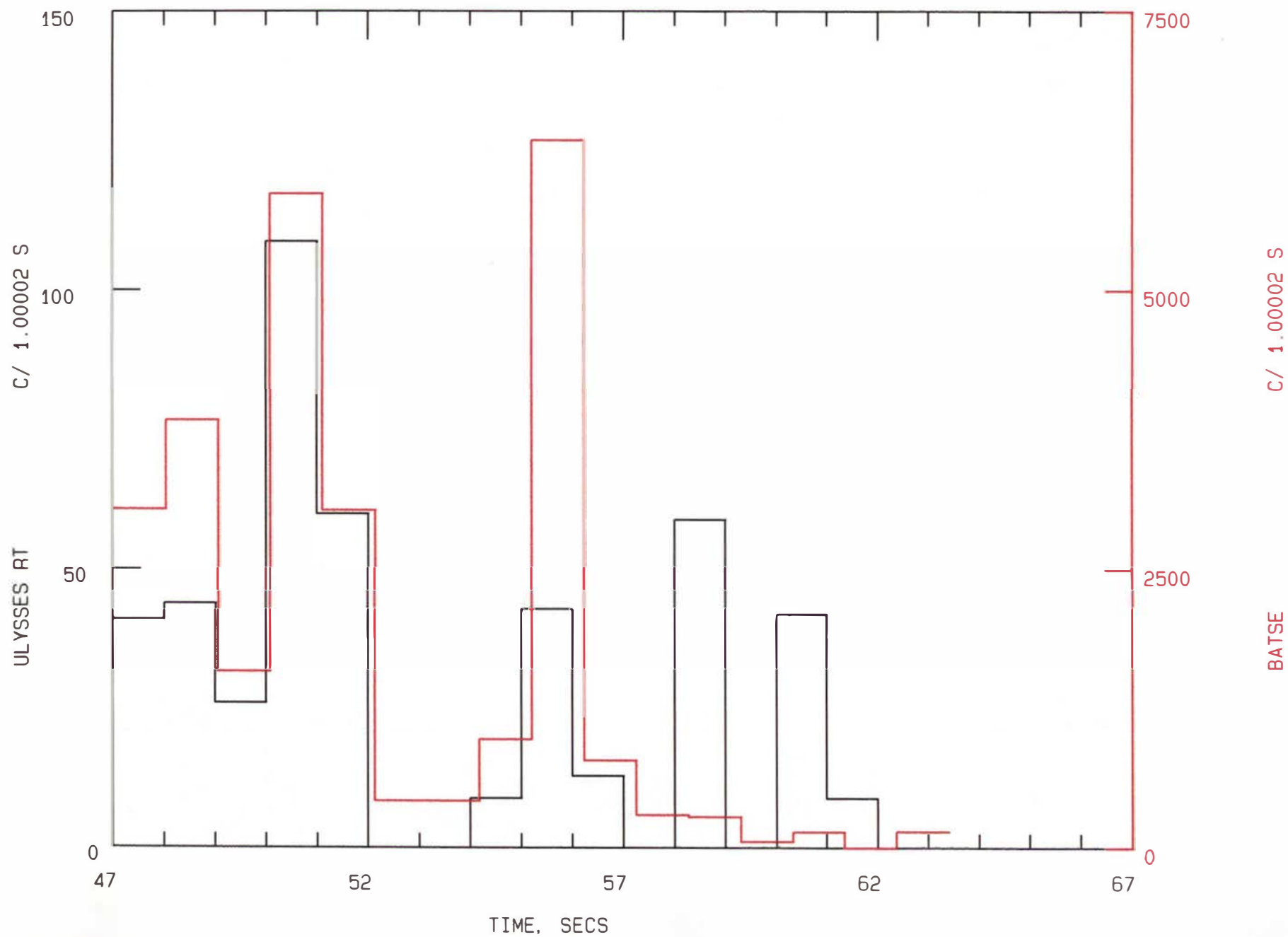
1 ULYSSES

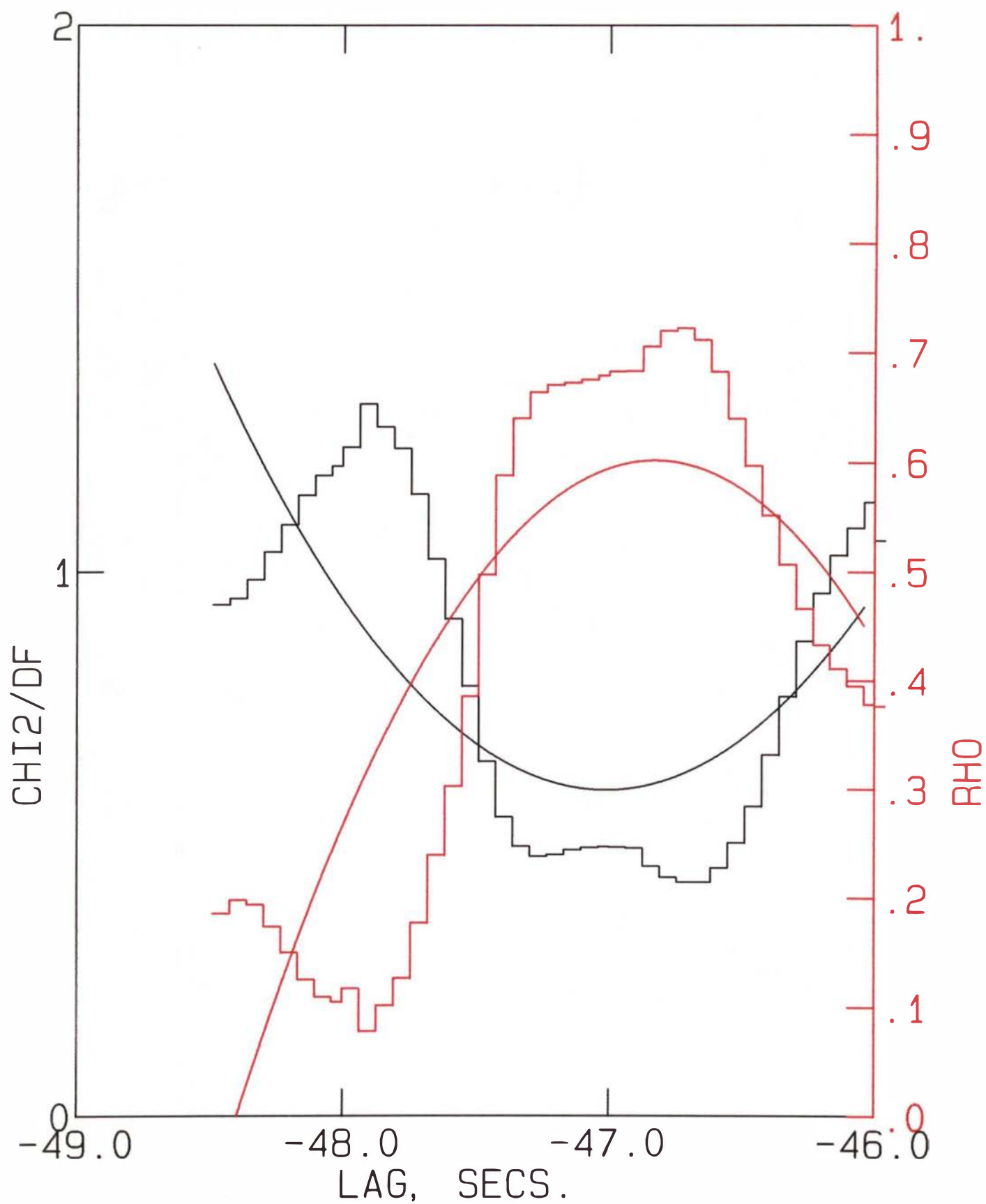
2 BATSE

EVENT OF MAR 1, 1996 0:00

15/10/97







ULYSSES RT

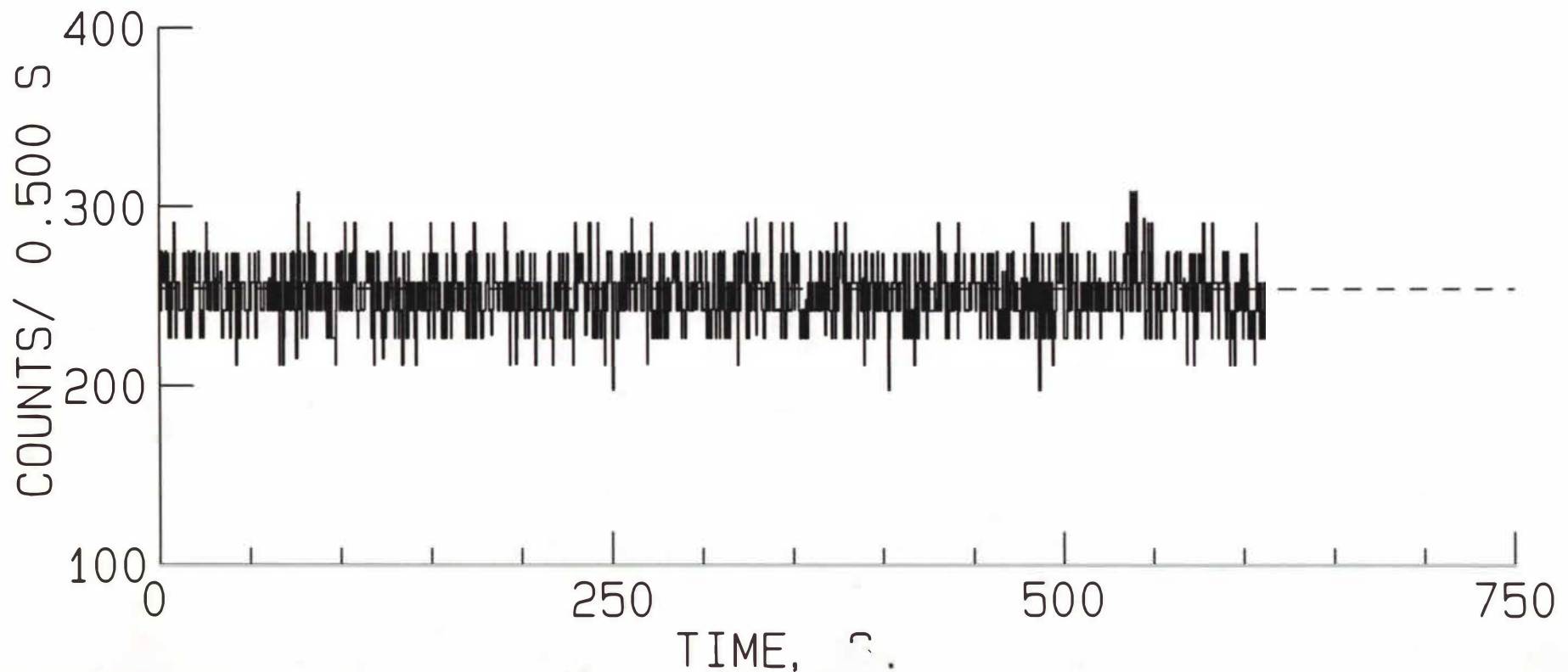
15/10/97

29/ 2/96 85932.174 s

0.250 S INTERVALS REGROUPED BY 2

21- 145 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



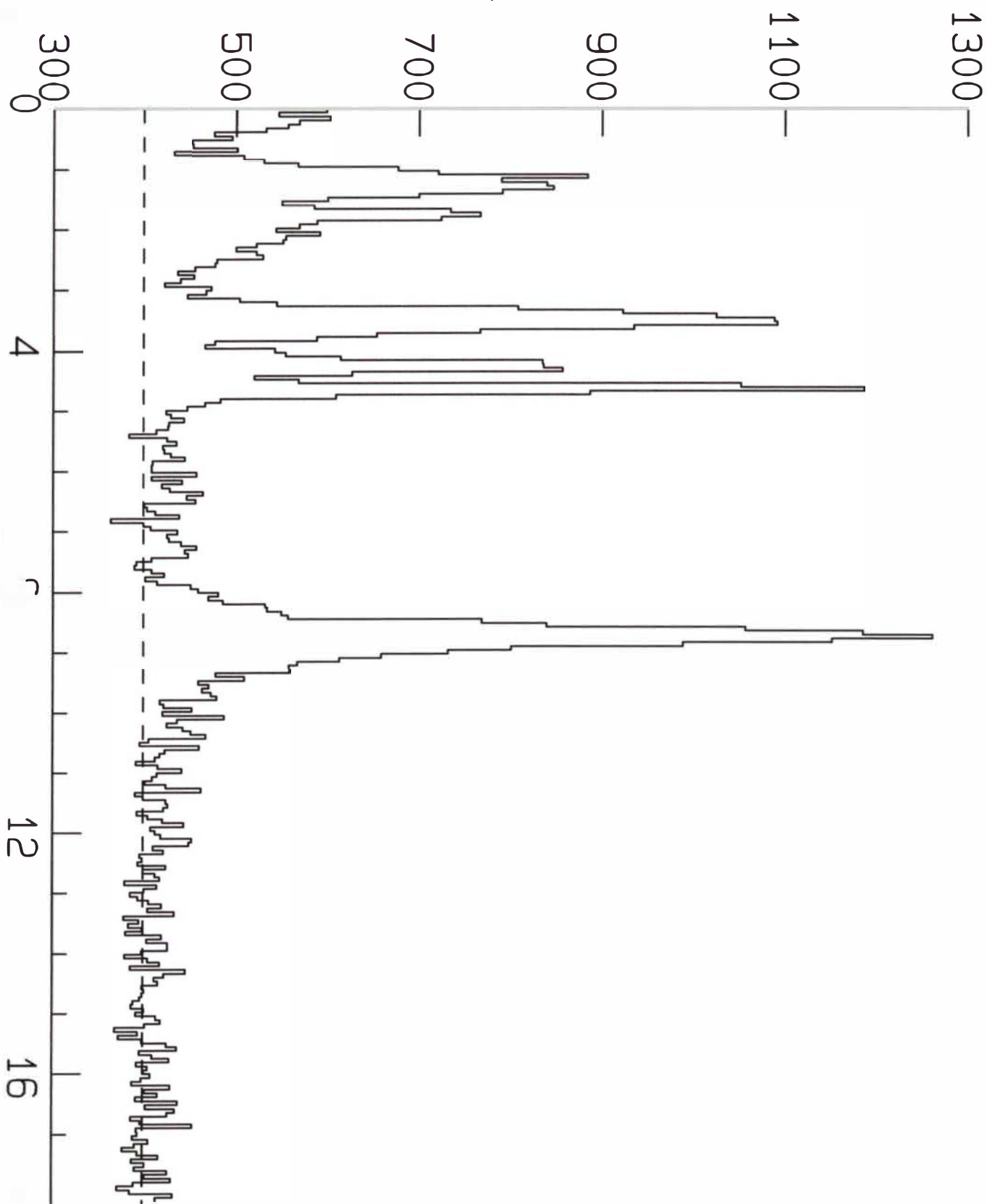
BATSE

29/02/96

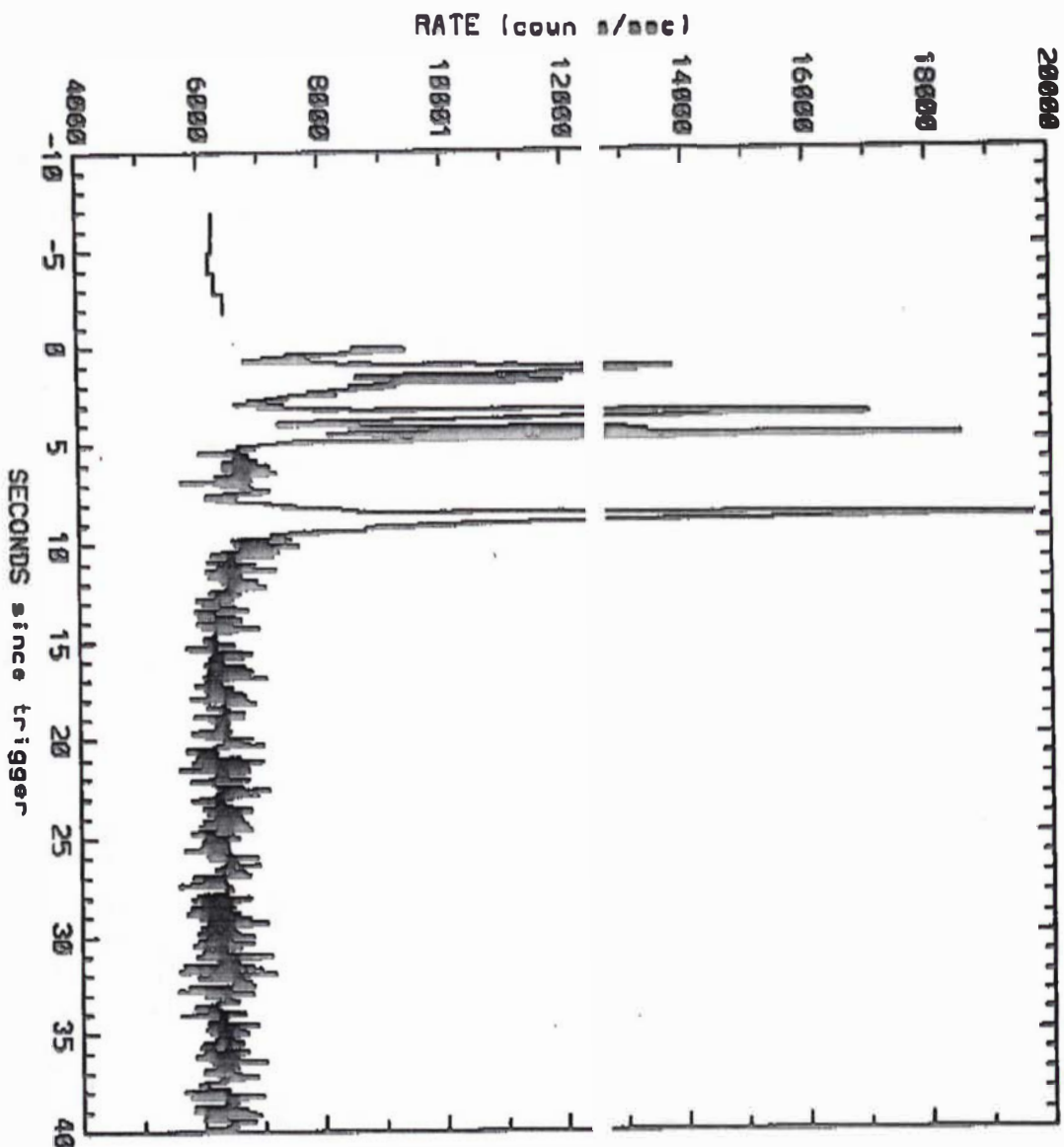
86164.938

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 5080



11-MAR-1996 11:20:19

Created by MOPS 80
(Barrel Display)
Version 12.25Trigger # = 5080
Trigger Time:
10142 / 00164.938
Barrel Data Type:
DISCSCDeadtime
Corrected: N
Background Data
Type: FREE + DISCSC
Minimum Integ. Time:
0.054 seconds
Detectors [7.0]:
---3-1-
Discriminators:
1 1 2)
Quality Mask:
B01SP1

PTAS

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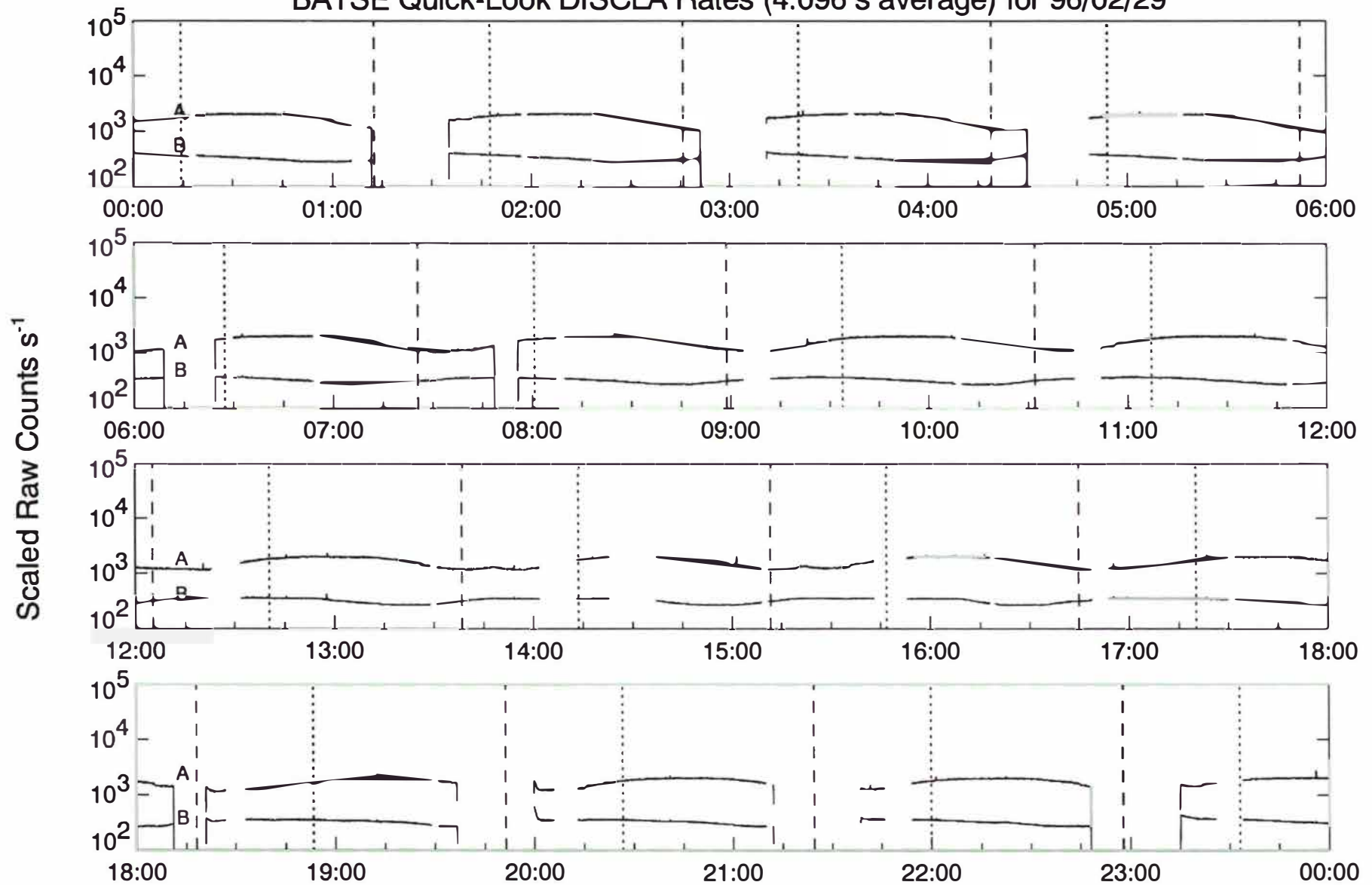
321

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324

BATSE Quick-Look DISCLA Rates (4.096 s average) for 96/02/29



Current Time: 96/03/02, 0855 EDT

A: Channel 0 Most Sunward LAD

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

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare

10

10

8

10

10

10

10

10

10

10

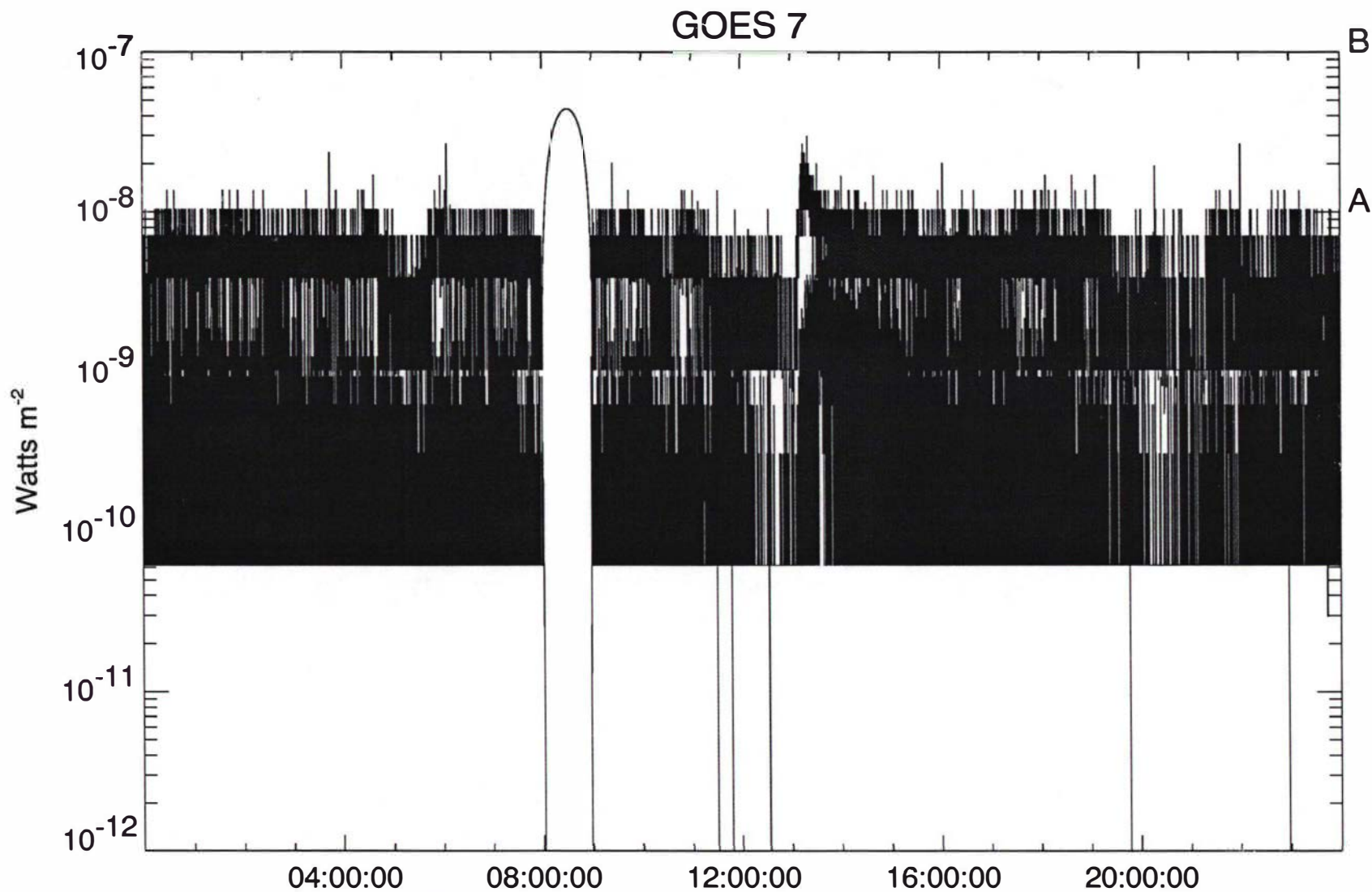
10

10

10

10

10



Data Start: 96/02/29, 0000:00

Plot created: 96/03/02, 0854

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

1000 1000 1000 1000 1000 1000 1000 1000 1000 1000



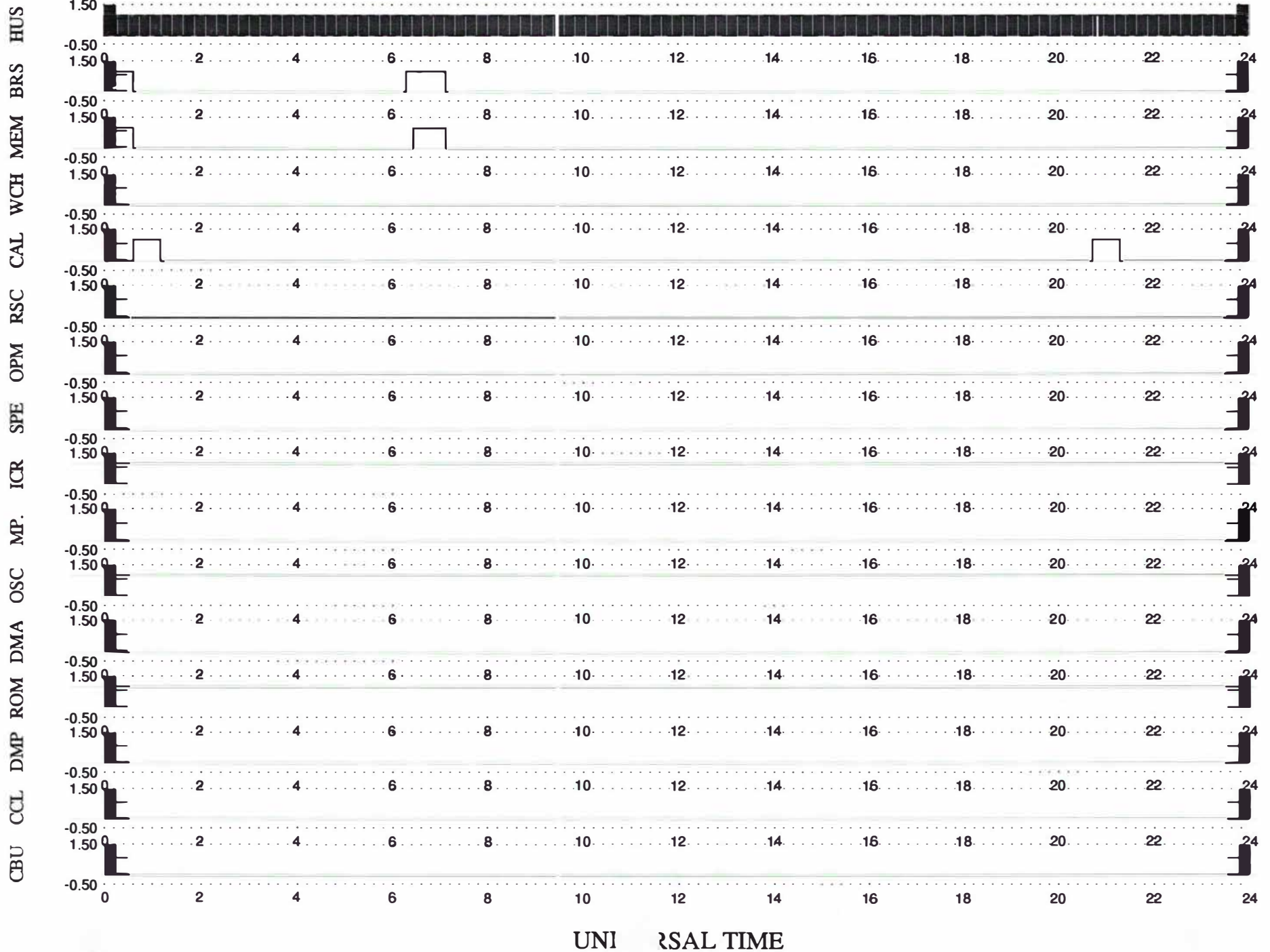
1000 1000 1000 1000 1000 1000 1000 1000 1000 1000

1000 1000 1000 1000 1000 1000 1000 1000 1000 1000

1000 1000 1000 1000 1000 1000 1000 1000 1000 1000

1000 1000 1000 1000 1000 1000 1000 1000 1000 1000

BURST NUMBER 12





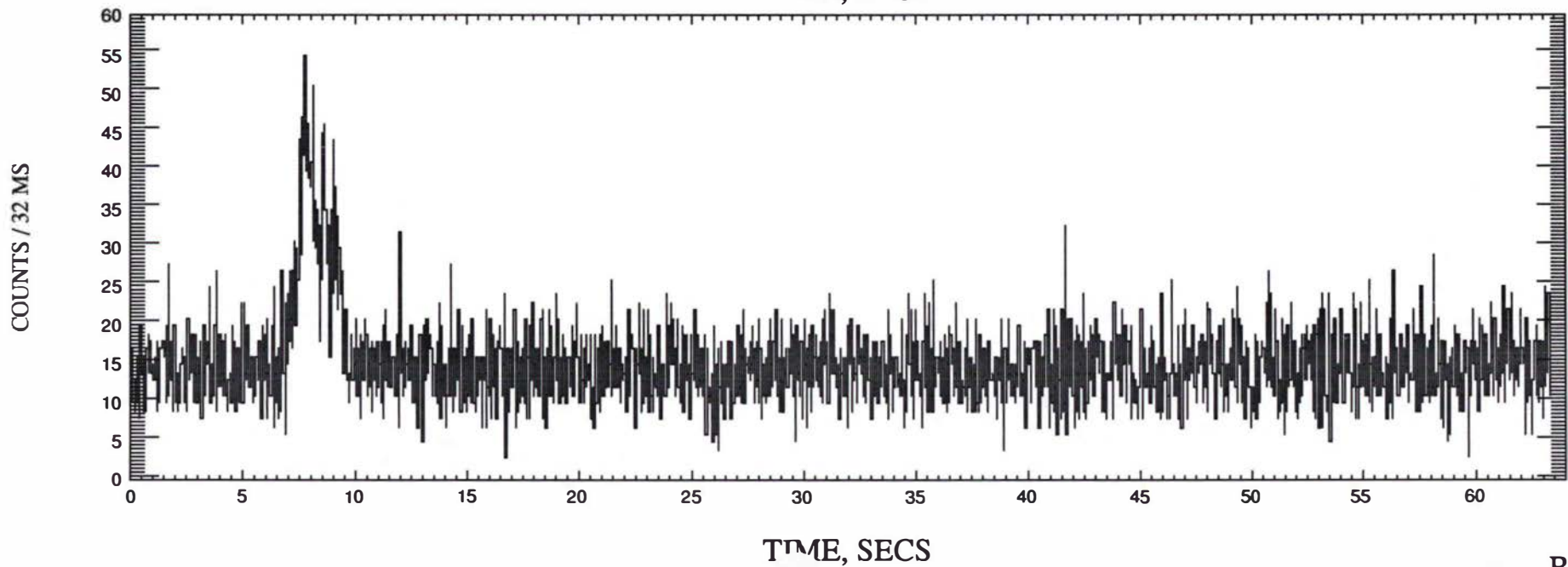
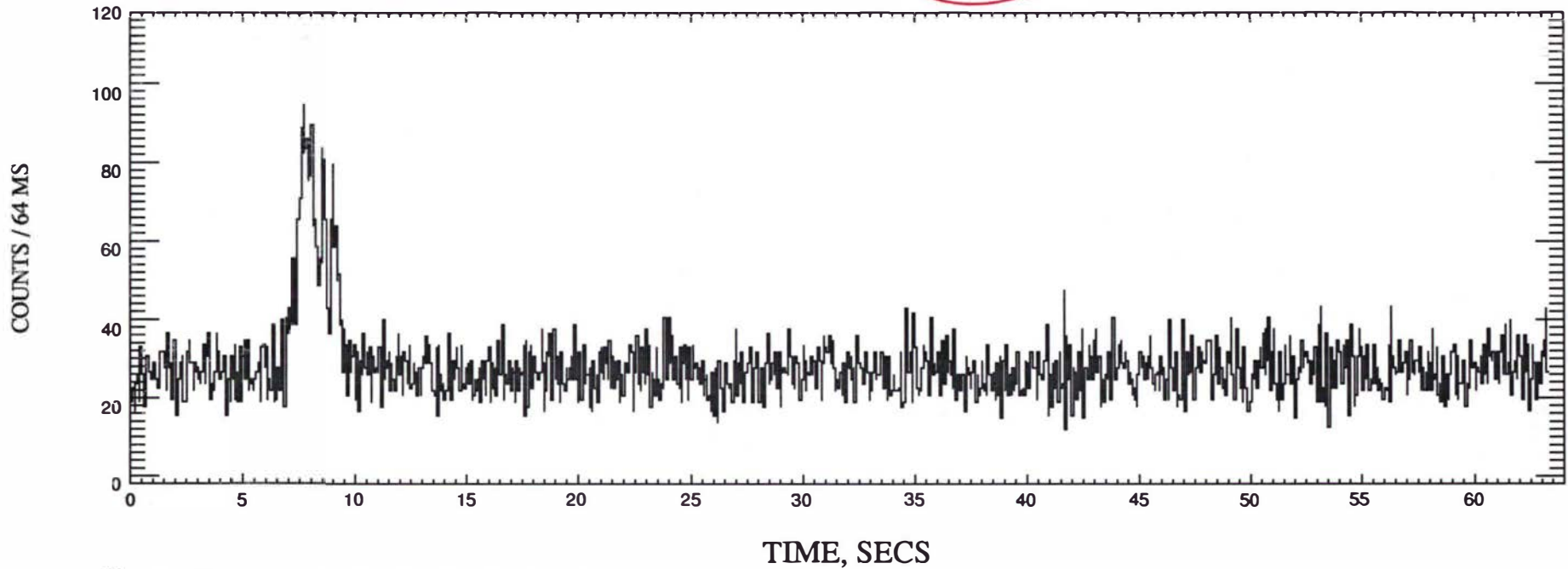
100-100000

100-100000

100-100000

Burst Counter 11 at UT= 7.078731079102 h=25483.432 s 07:04:43.432

22644 !



HURRY WORK - WORKING

EDK

434-601-1000 to 1000-1000

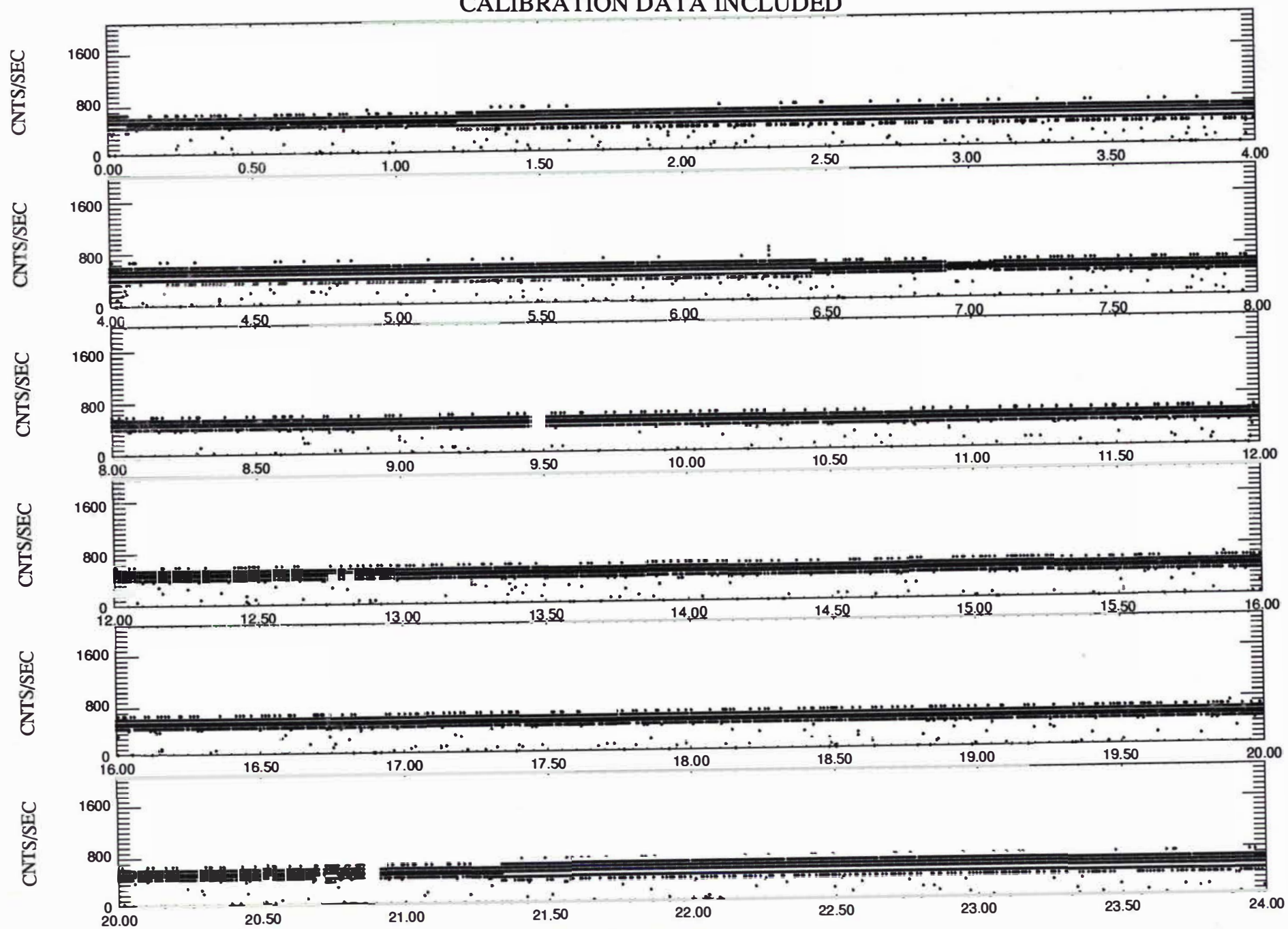
11/21/00



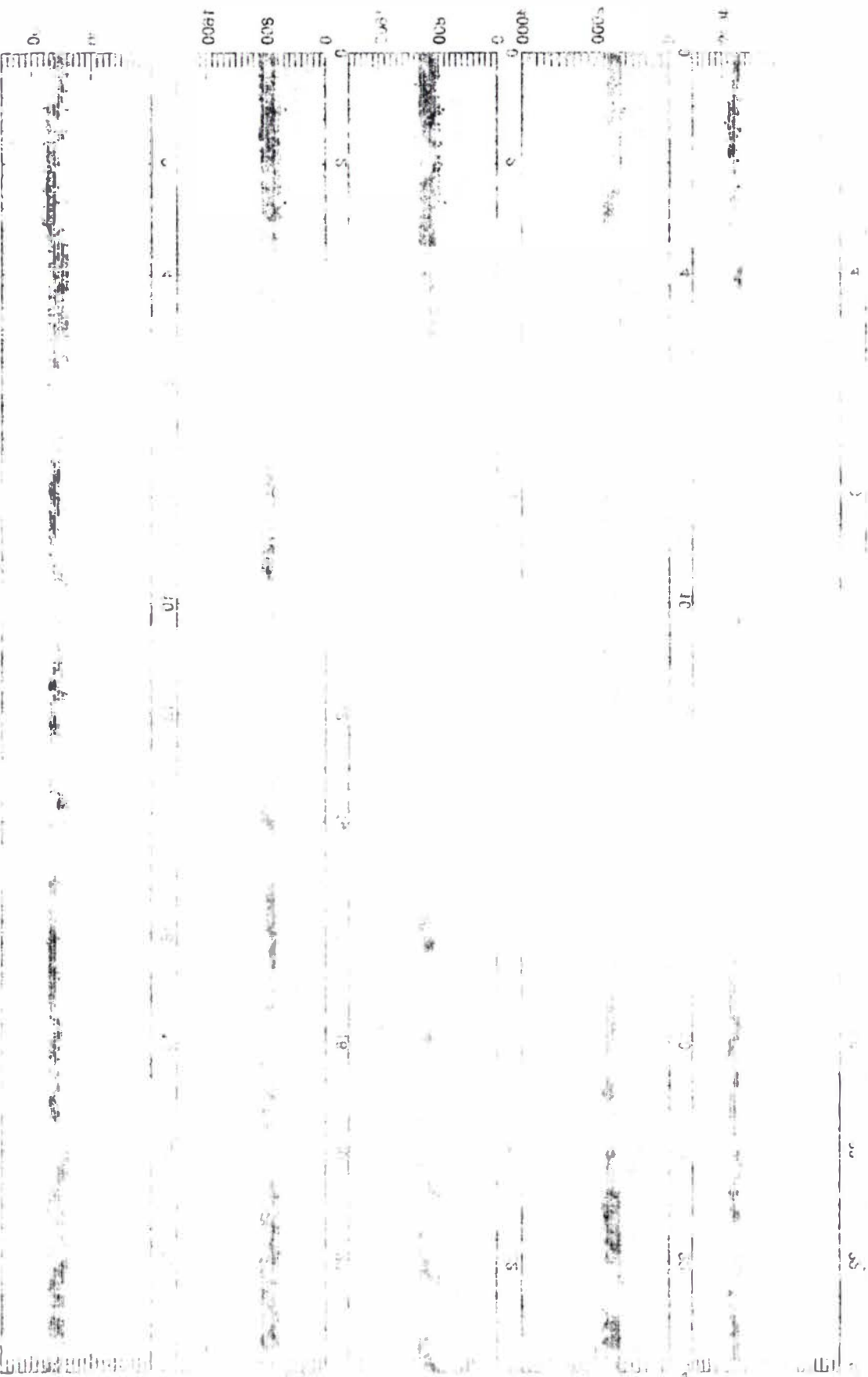
111 111

111 111

CALIBRATION DATA INCLUDED



UNIVERSAL TIME



HM2 SB C-011112FC EDR 27A 00' 00" 1000 10 100 00' 00" 1000 1000

