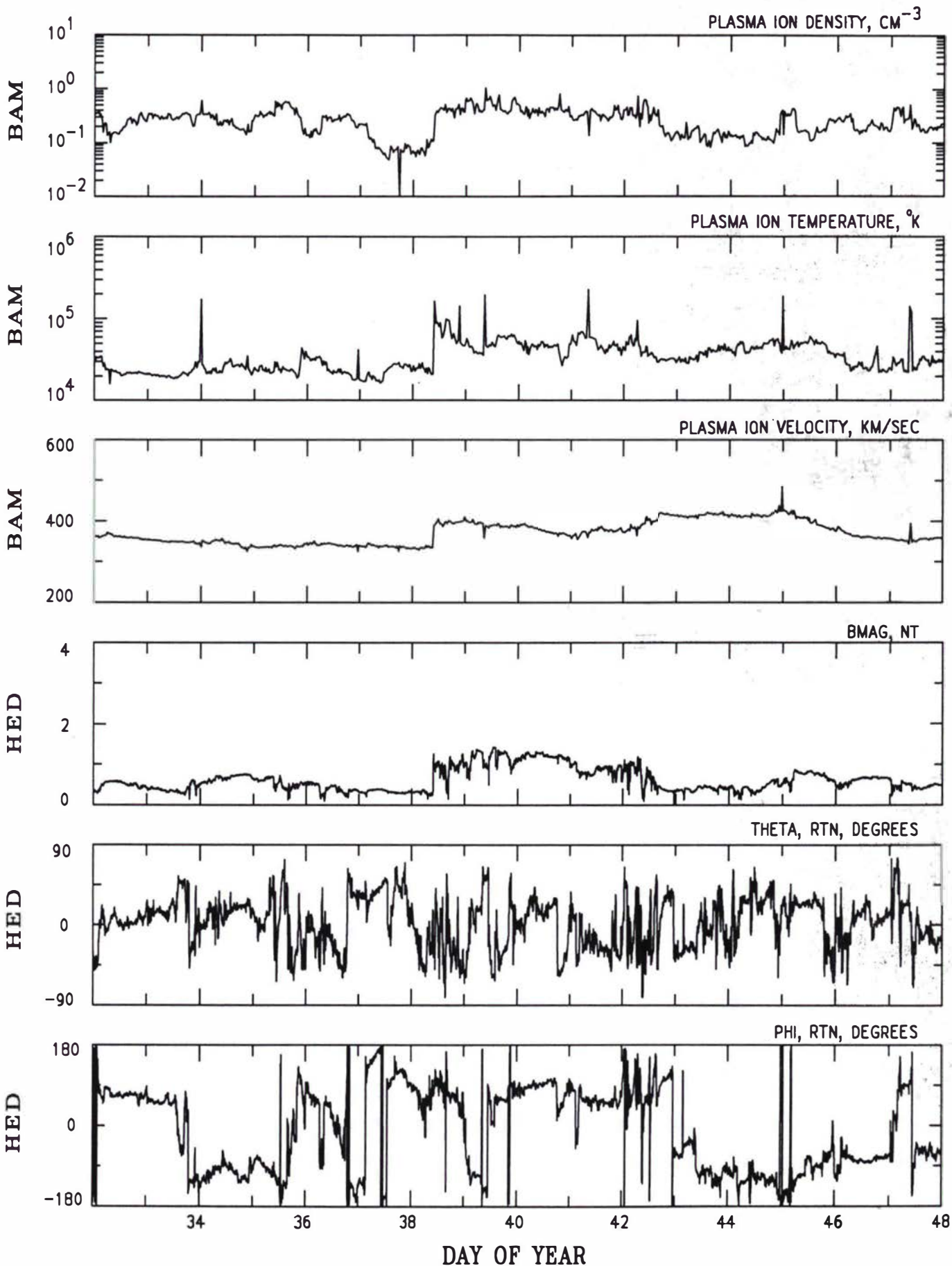


ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

98 032 FEB 1 00:00:00.000 - 98 048 FEB 17 00:00:00.000



1. The first part of the document is a letter from the President of the United States to the Congress, dated March 3, 1807.

2. The second part is a report from the Secretary of the Treasury, dated March 3, 1807.

3. The third part is a report from the Secretary of the Navy, dated March 3, 1807.

4. The fourth part is a report from the Secretary of the War, dated March 3, 1807.

5. The fifth part is a report from the Secretary of the Interior, dated March 3, 1807.

6. The sixth part is a report from the Secretary of the State, dated March 3, 1807.

7. The seventh part is a report from the Secretary of the War, dated March 3, 1807.

8. The eighth part is a report from the Secretary of the Navy, dated March 3, 1807.

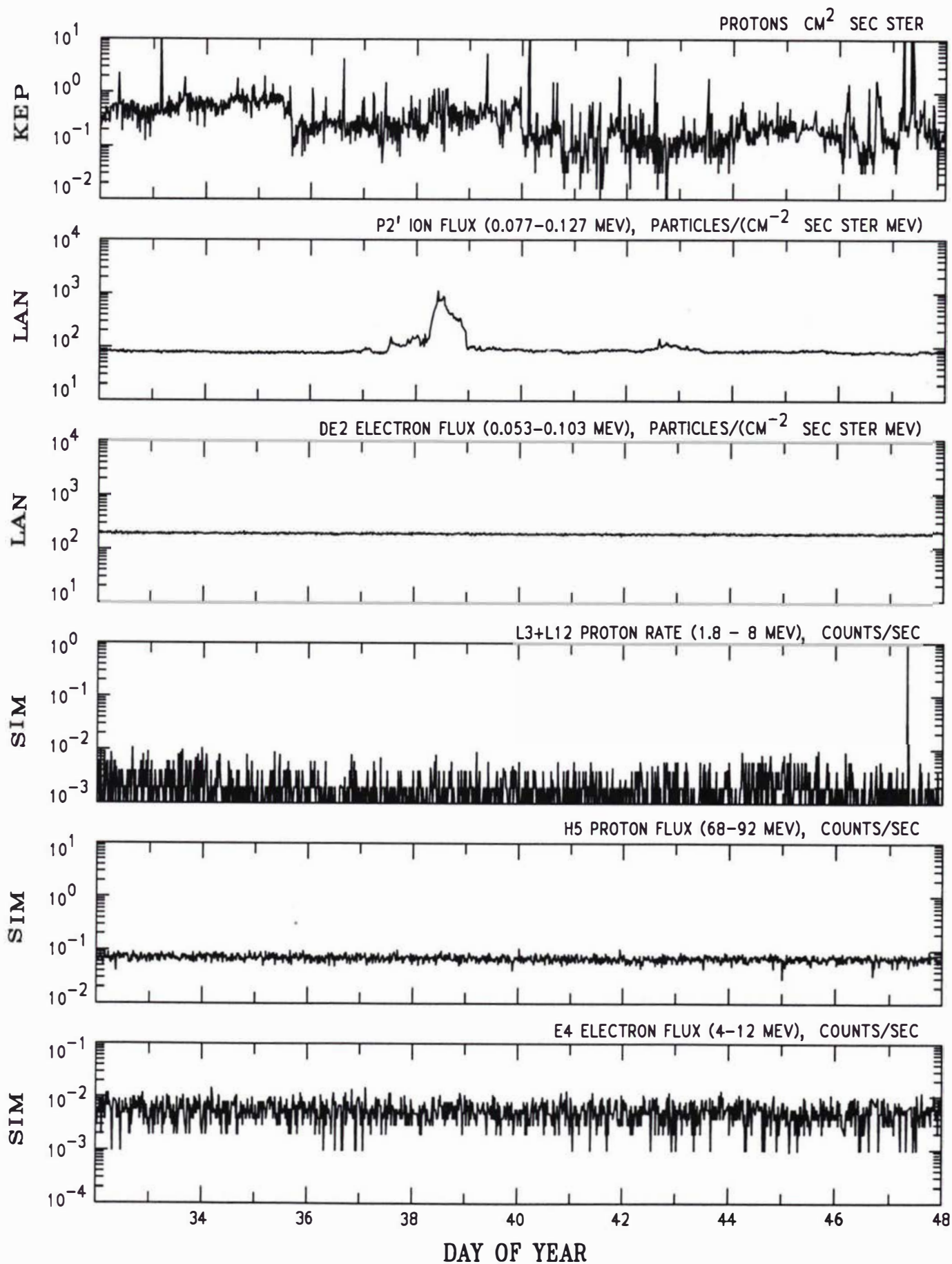
9. The ninth part is a report from the Secretary of the War, dated March 3, 1807.

10. The tenth part is a report from the Secretary of the Navy, dated March 3, 1807.

11. The eleventh part is a report from the Secretary of the War, dated March 3, 1807.

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

98 032 FEB 1 00:00:00.000 - 98 048 FEB 17 00:00:00.000



1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 2679, 26

[illegible]

1000

$\frac{d}{dt} \left(\frac{\partial L}{\partial \dot{x}} \right) = \frac{\partial L}{\partial x}$

22-0

10

[illegible]

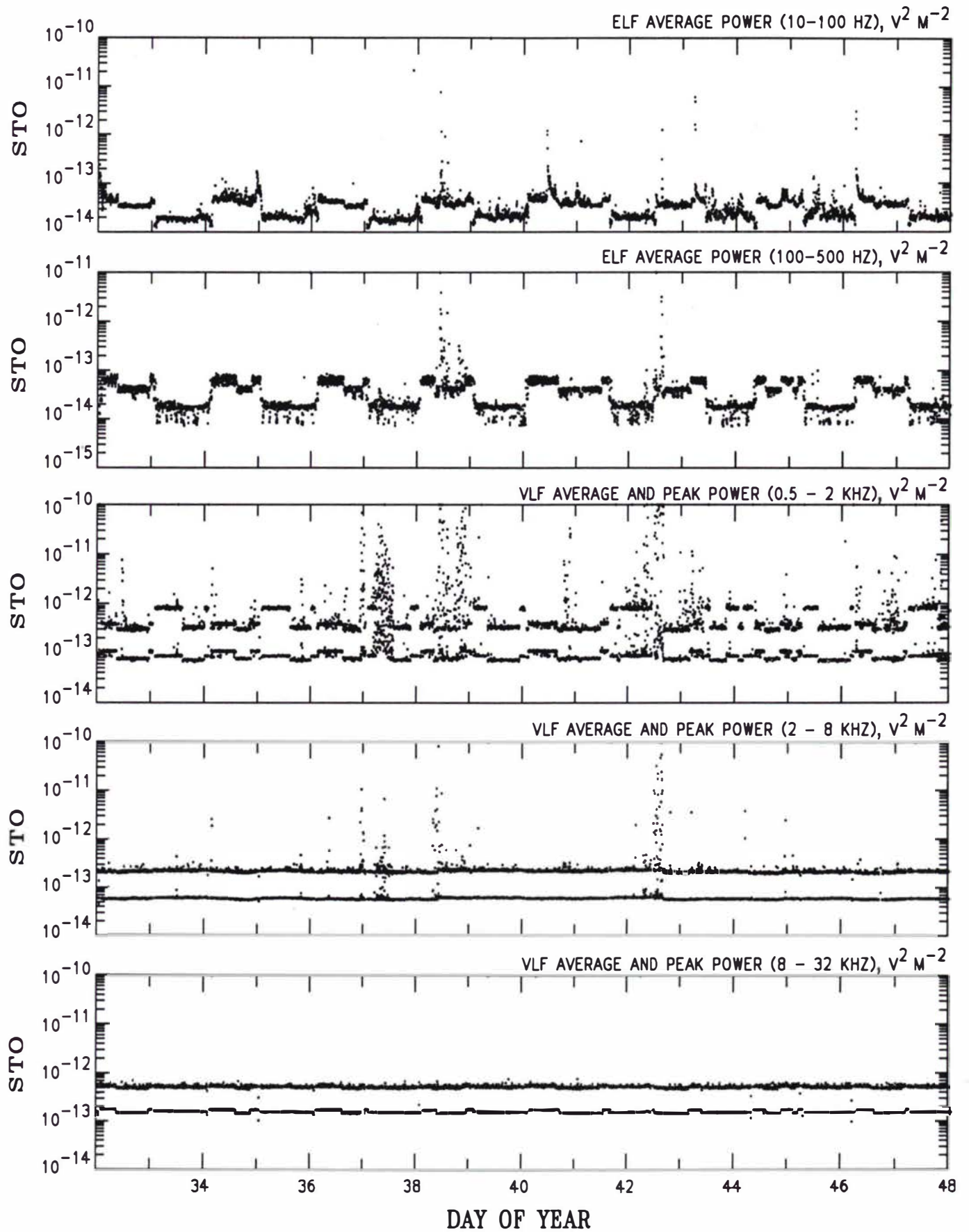
Journal of Management Inquiry 20(4) 401-417

Downloaded At: 11:53 11 September 2009

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ULYSSES CDR - PLASMA WAVE

98 032 FEB 1 00:00:00.000 - 98 048 FEB 17 00:00:00.000



Feb. 2, 1907

W. H. H. H.

My dear Mr. H. H.

I have just received your letter of the 1st inst.

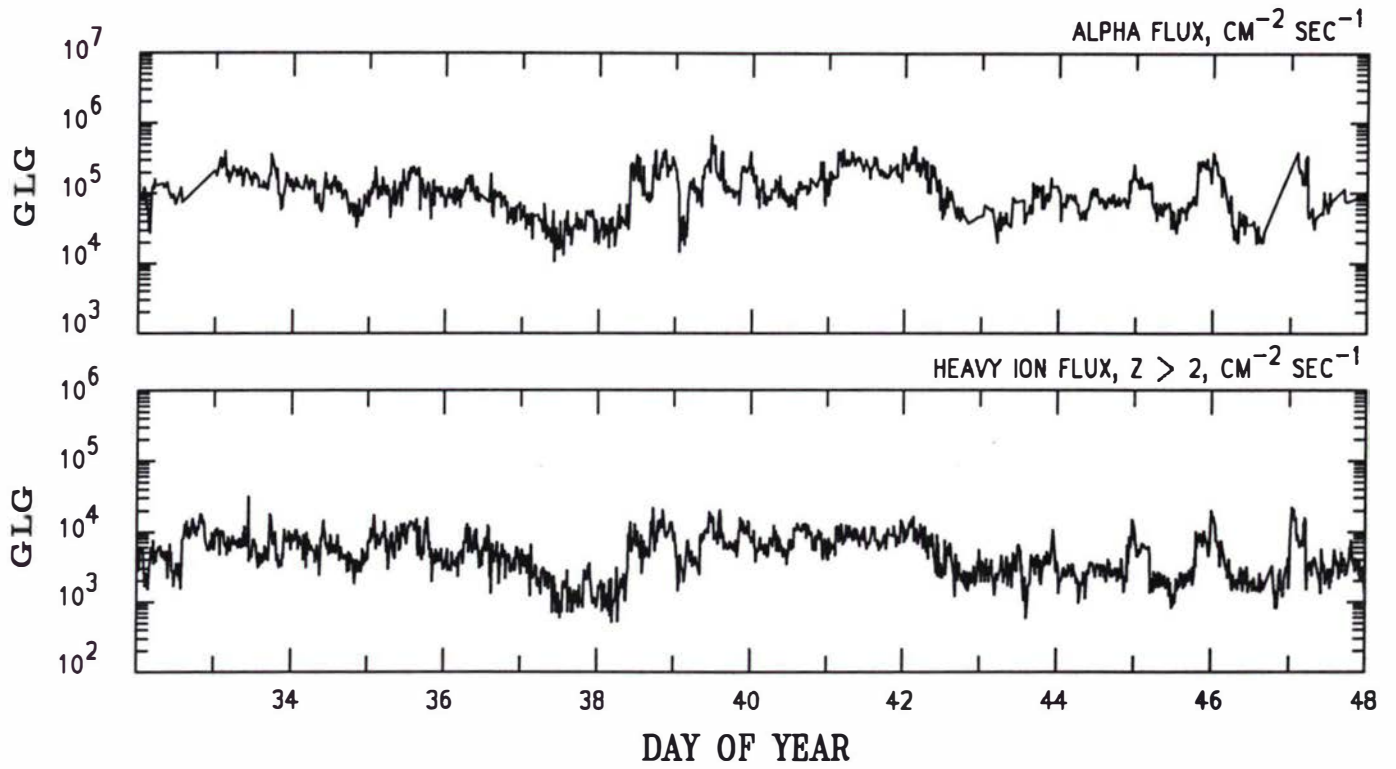
and am glad to hear that you are well.

I am very sorry to hear that you are ill.

Yours truly,

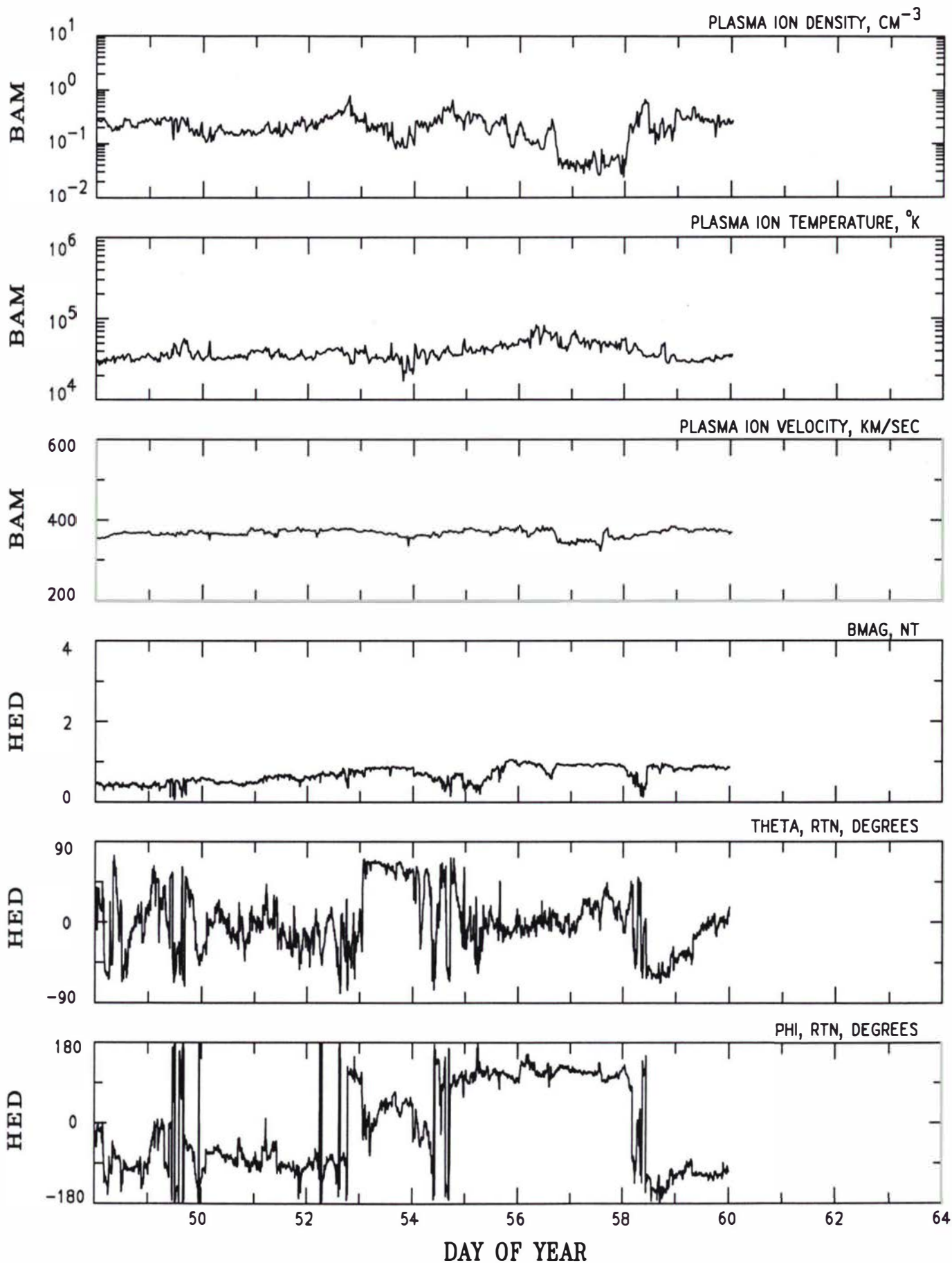
ULYSSES CDR - SOLAR WIND ION COMPOSITION

98 032 FEB 1 00:00:00.000 - 98 048 FEB 17 00:00:00.000



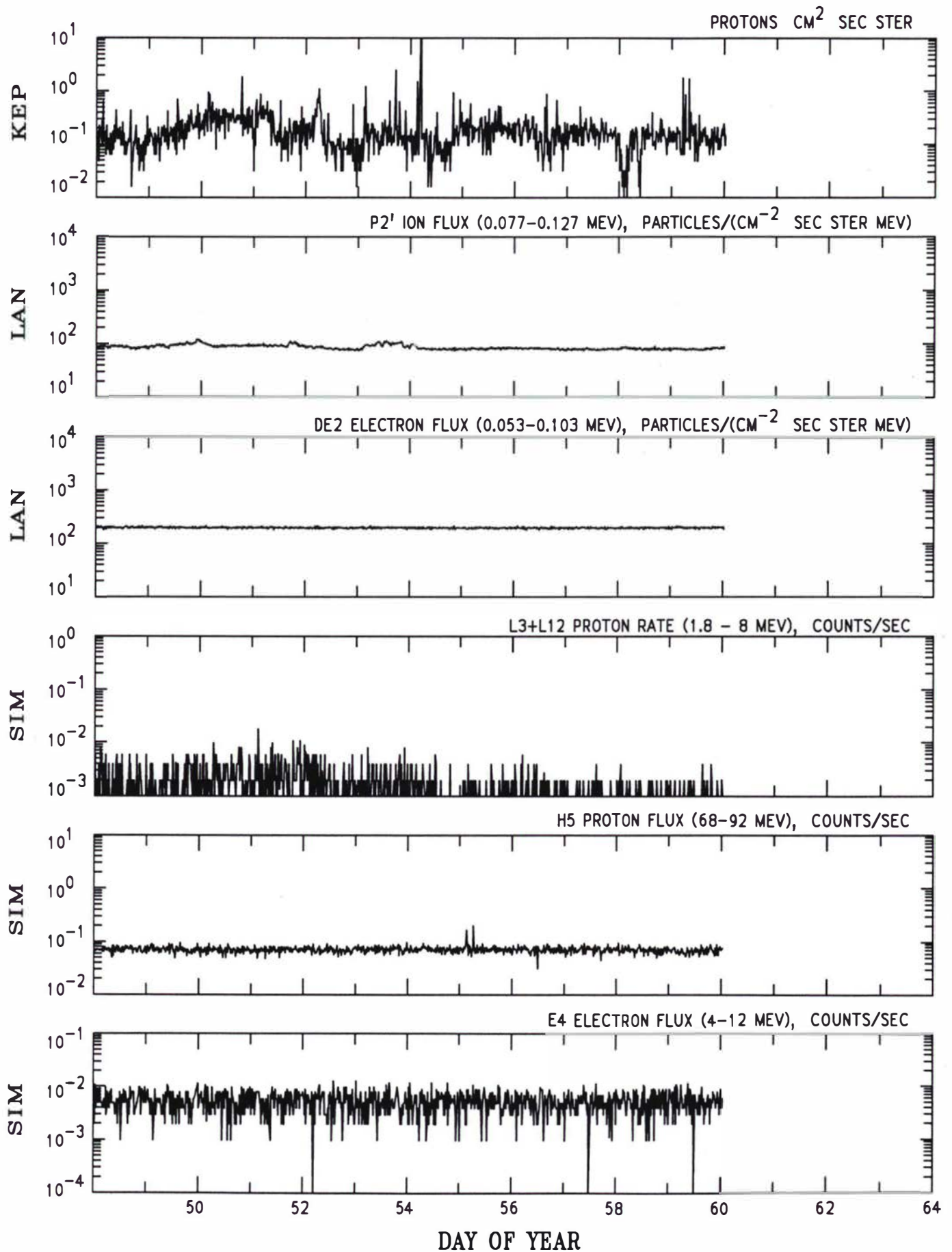
ULYSSES CDR - SOLAR WIND PLASMA AND MAGNETIC FIELD

98 048 FEB 17 00:00:00.000 - 98 064 MAR 5 00:00:00.000



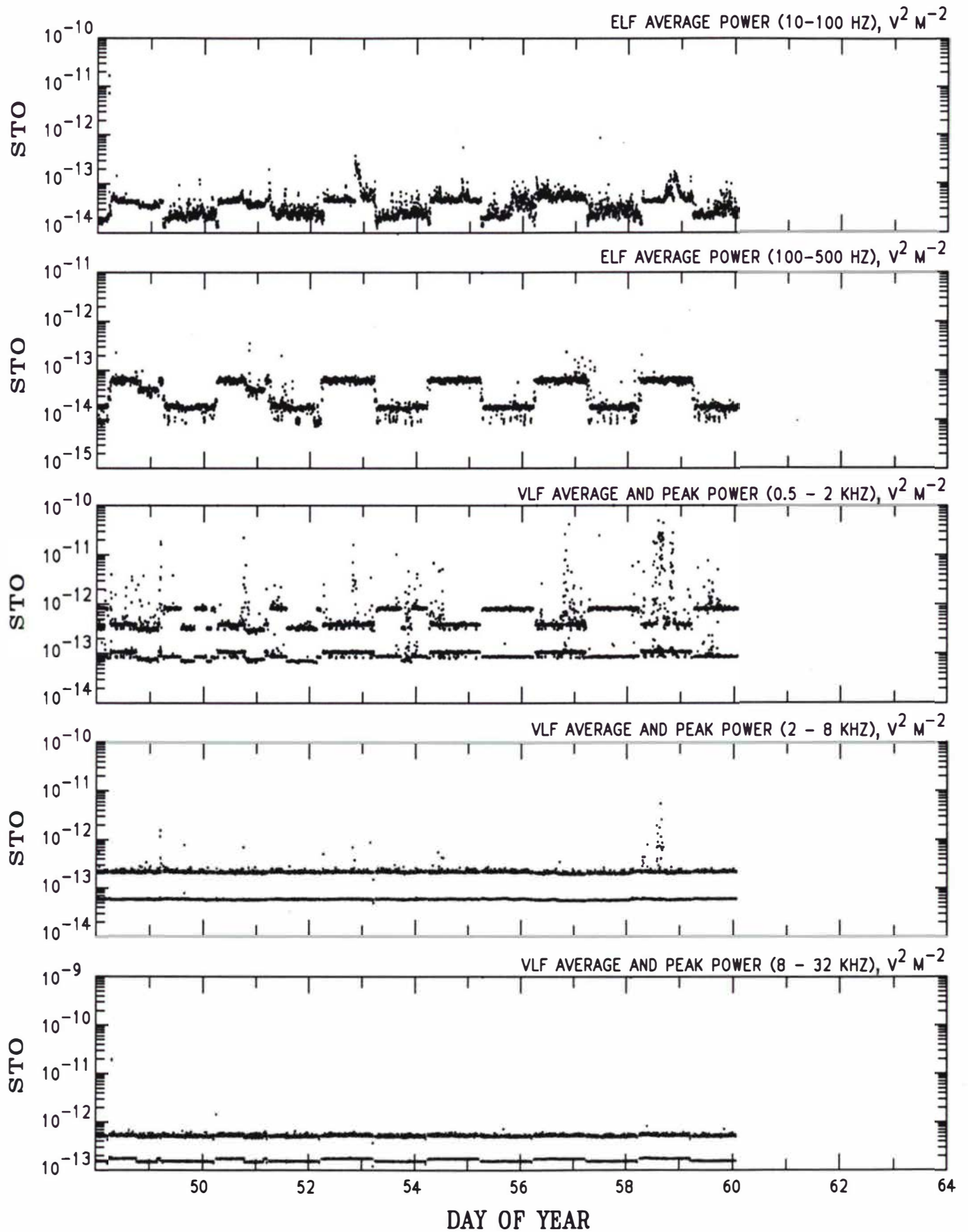
ULYSSES CDR - ENERGETIC PARTICLES, LOW ENERGY IONS AND COSMIC RAY

98 048 FEB 17 00:00:00.000 - 98 064 MAR 5 00:00:00.000



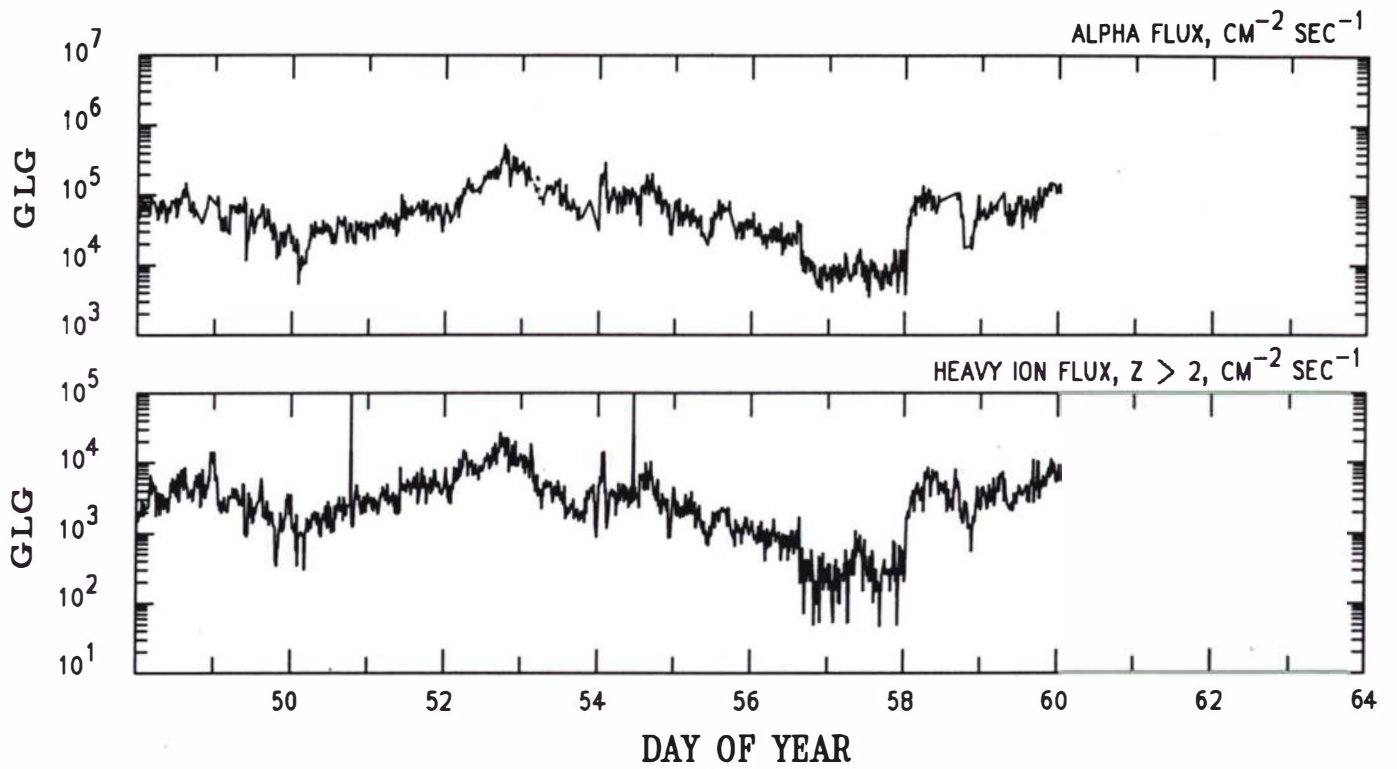
ULYSSES CDR - PLASMA WAVE

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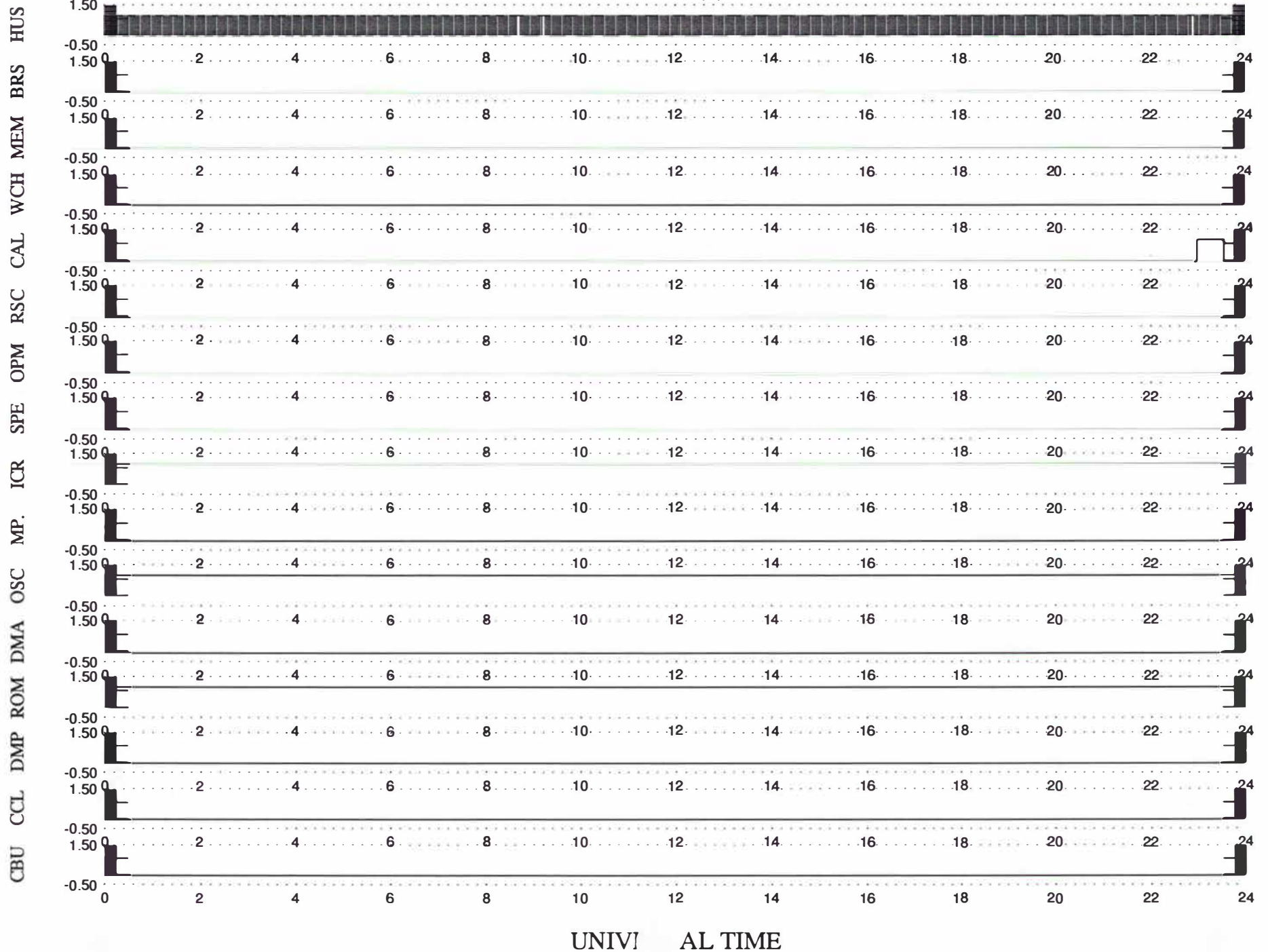


ULYSSES CDR - SOLAR WIND ION COMPOSITION

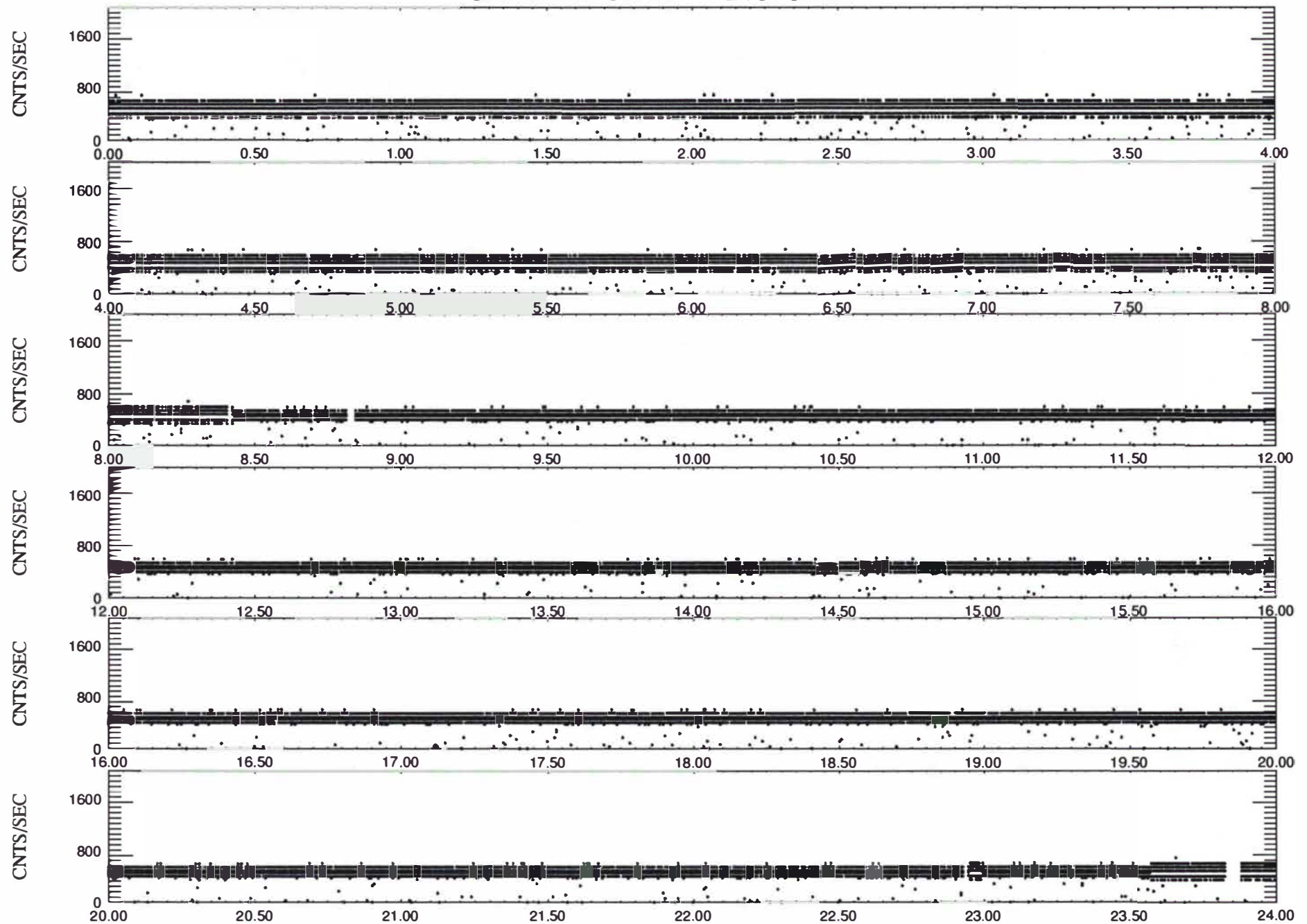
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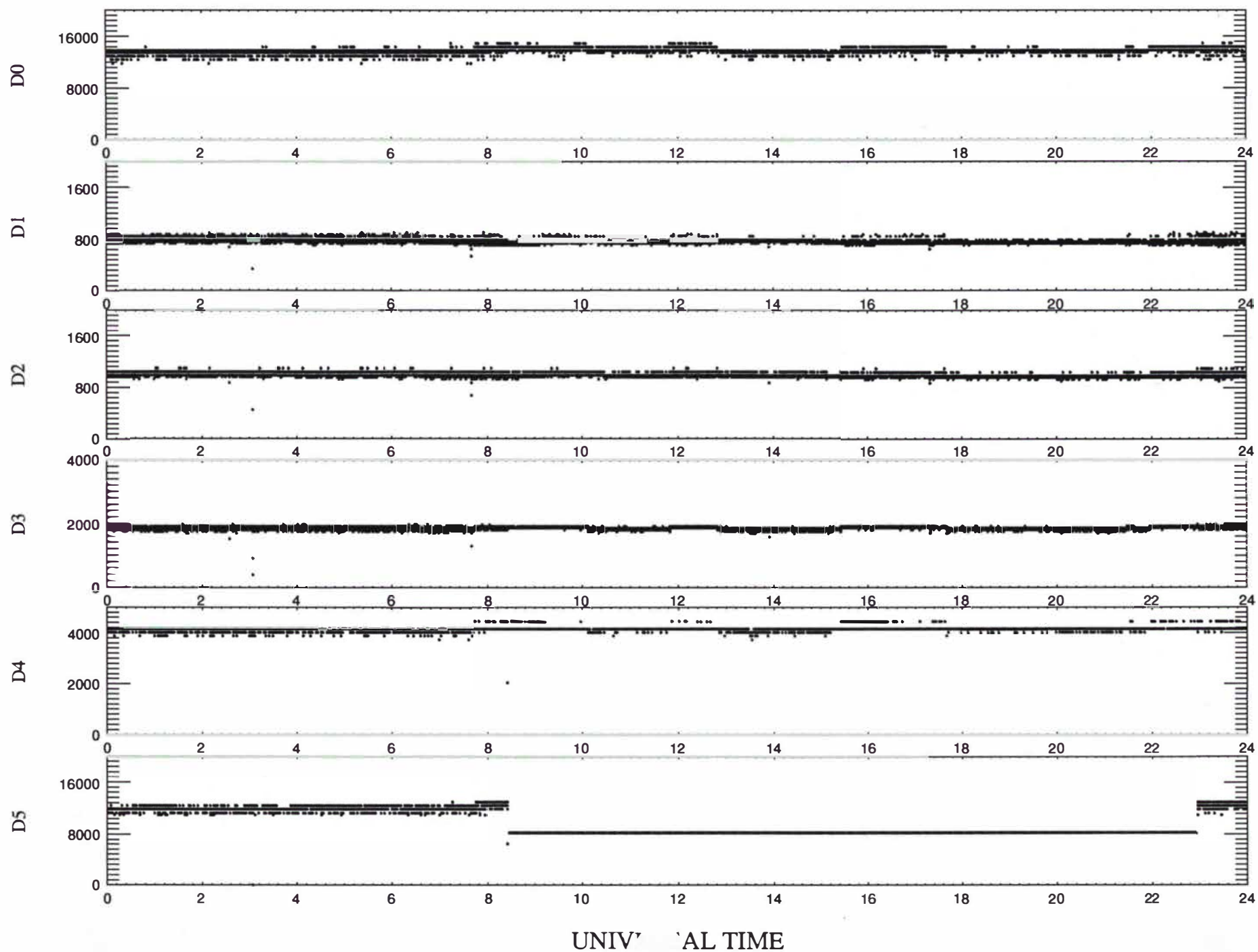
NO BURST (8)



CALIBRATION DATA INCLUDED



UNIV' AL TIME



Date: Jan 31 2012

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

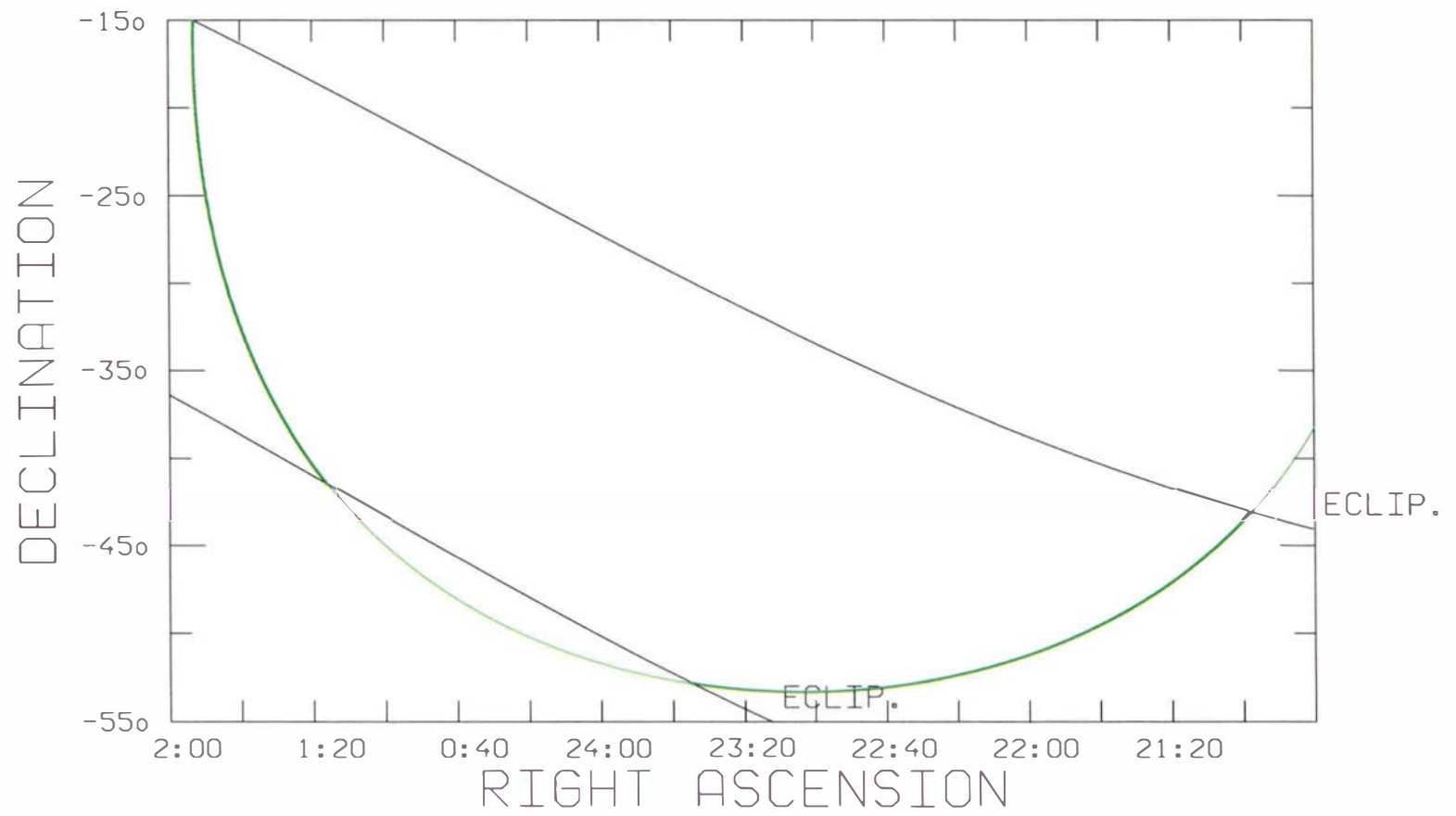
2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

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



k o n u s 1 9 9 8 0 2 0 2 3 7 4 0 5

U L Y S S E S R T

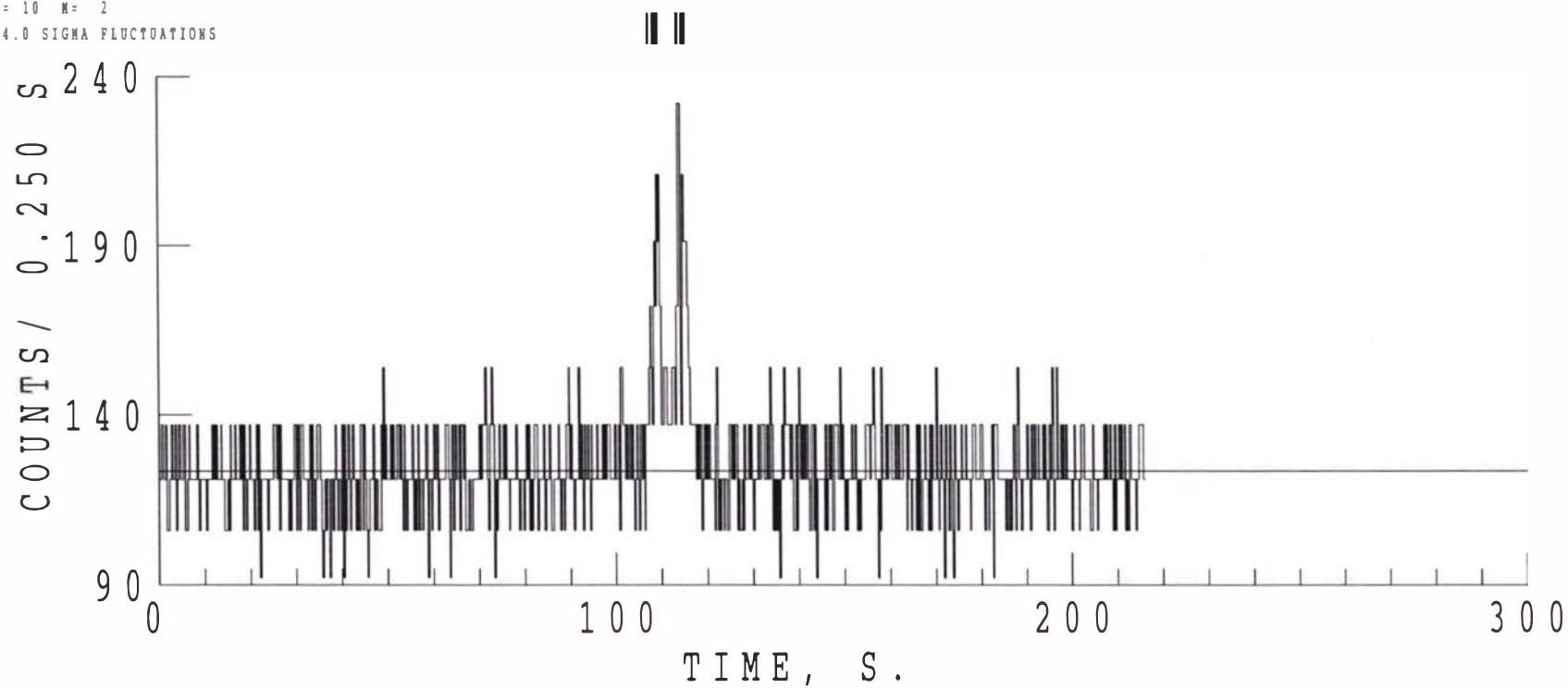
2 5 / 0 1 / 1 2

0 2 / 0 2 / 9 8 3 7 2 9 6 . 0 6 6 s

0 - 0 k e V

N= 10 M= 2

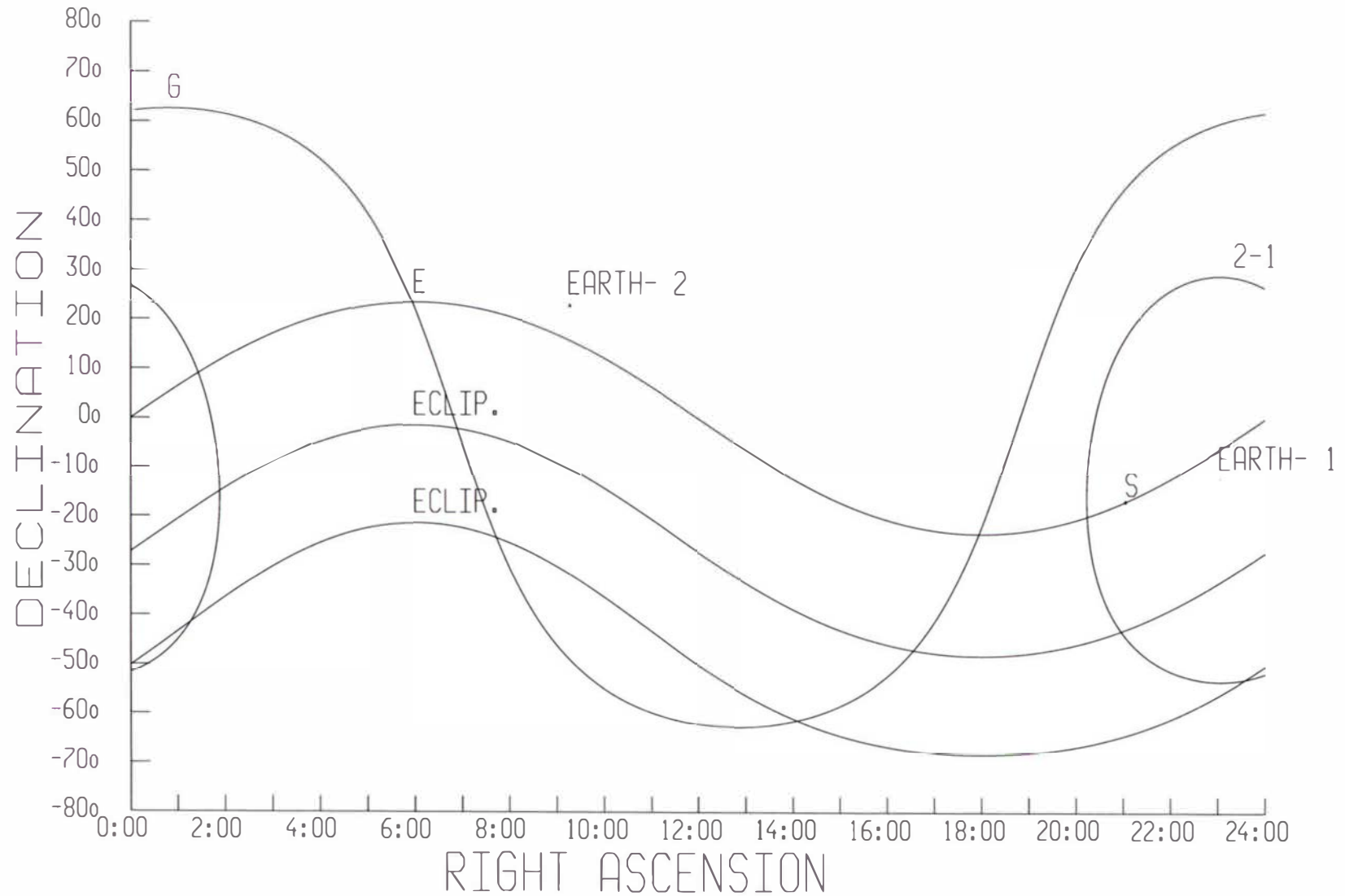
>4.0 SIGMA FLUCTUATIONS

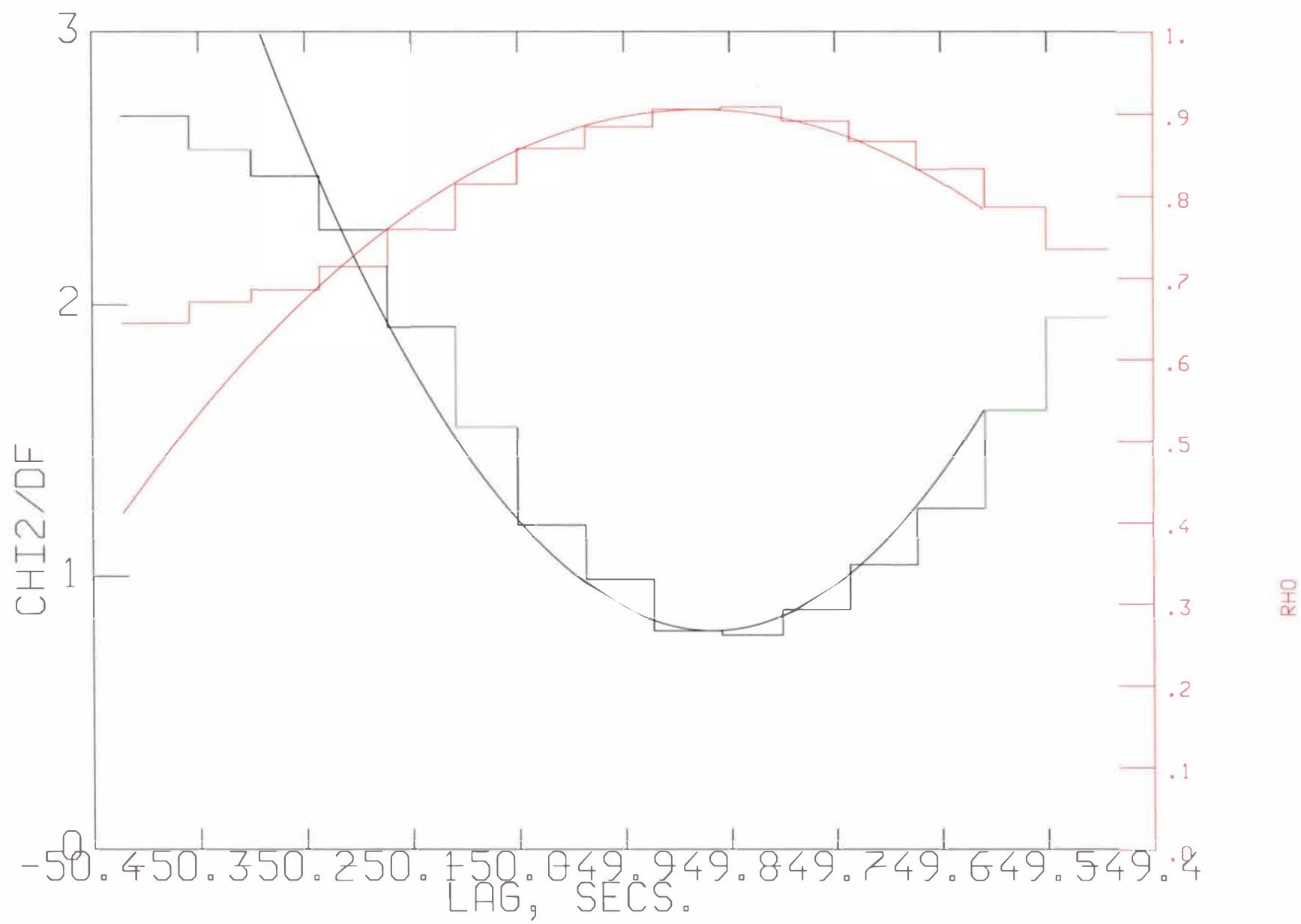


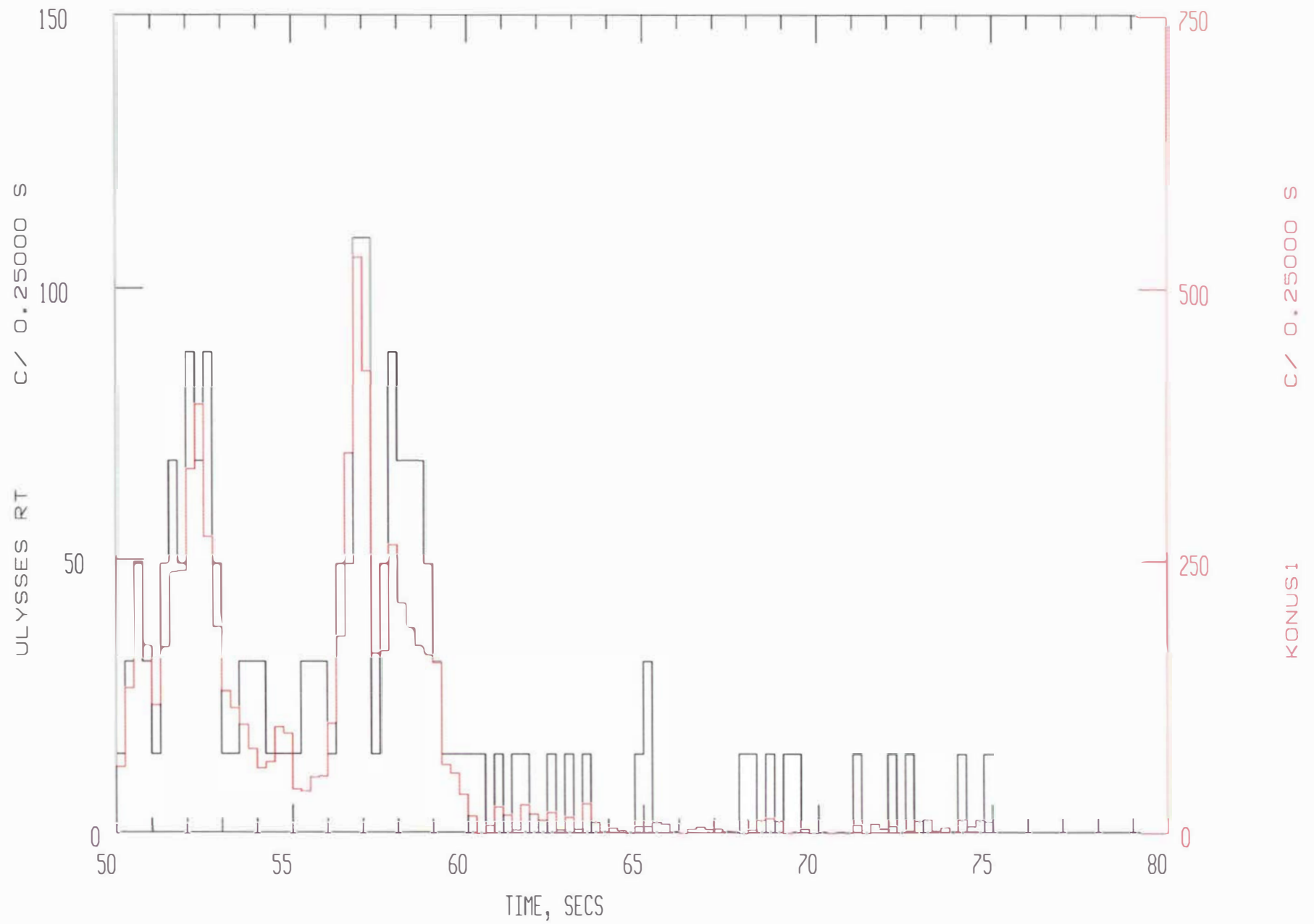
EVENT OF FEB 2, 1998 10:22

31/01/2012

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







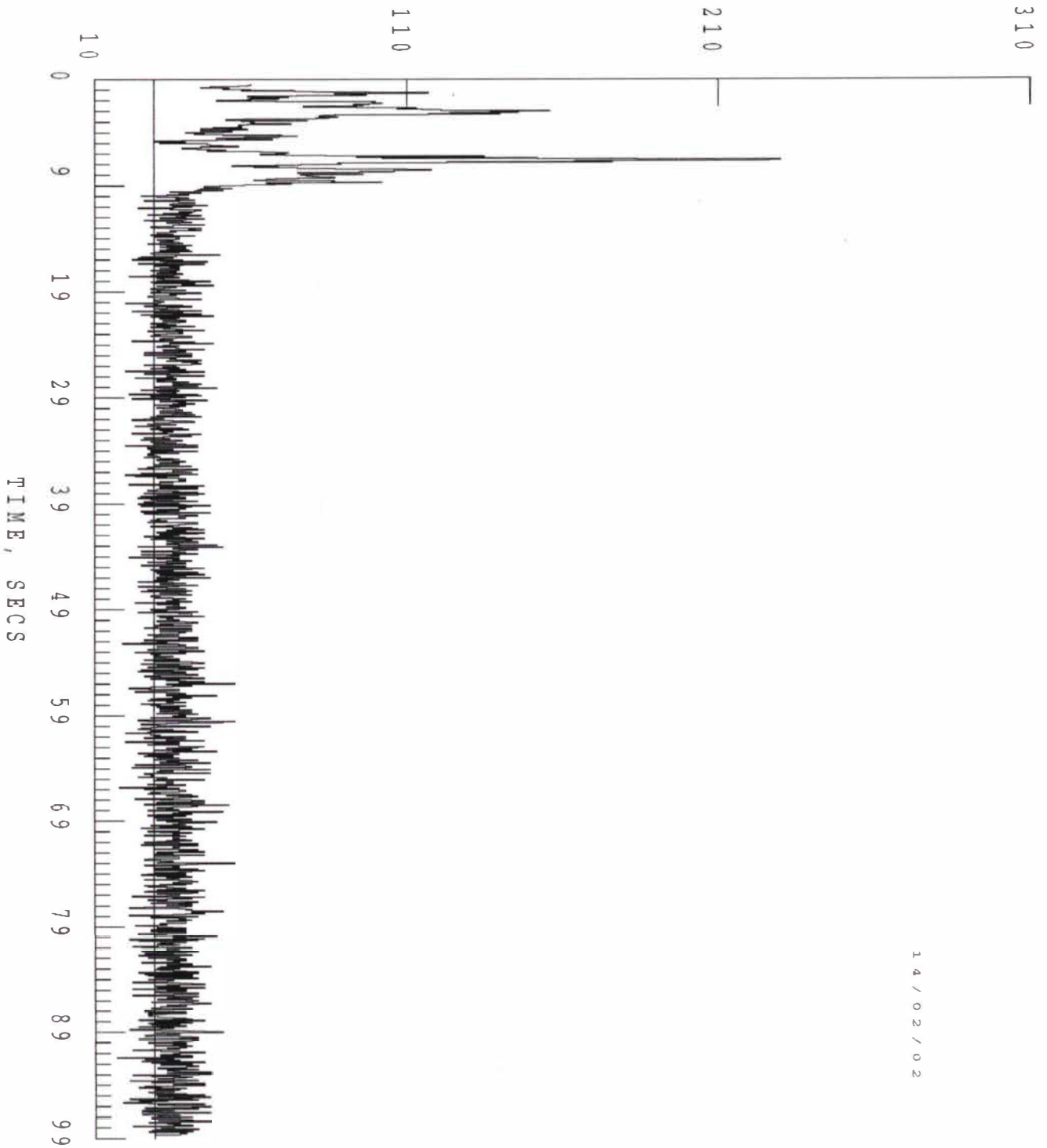
KONUS1

02/02/98

35706.894

50 - 200 keV

COUNTS/0.064 S



14/02/02

KONUS1 19980202 35706

ULYSSES RT

14 / 02 / 02

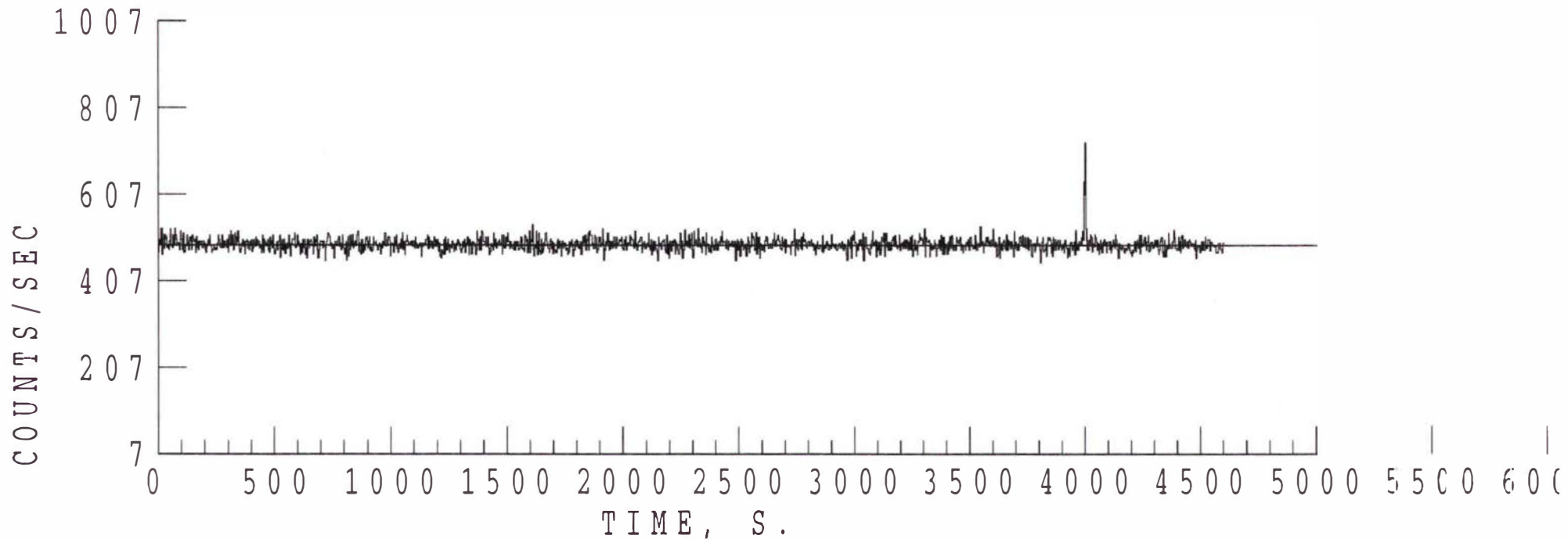
02/02/98 33408.027 s

INTERVALS REGROUPED BY 13

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From BUTTERWORTH@heavx.gsfc.nasa.gov Tue Mar 3 08:02 PST 1998

From: BUTTERWORTH@heavx.gsfc.nasa.gov

Date: Tue, 3 Mar 1998 10:58:57 -0500 (EST)

To: khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, vnp@isac.ernet.in,
jterrell@lanl.gov, yosimori@rikkyo.ac.jp,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov

CC: BUTTERWORTH@heavx.gsfc.nasa.gov

X-Vmsmail-To: @ULYSSES

X-Vmsmail-Cc: BUTTERWORTH

Subject: KONUS FEB98 REPORT FOR ULYSSES GAMMA-RAY EVENTS NOT REPORTED BY BATSE

Hi Everyone,

Here is the Konus report for those events seen by Ulysses in February, but not reported by BATSE.

Paul.

Ulysses event - February 2 1998 10:23 Ulysses time; moderate burst, 10 s long

Konus triggered at 09:55:06.894 in the South-facing detector. The event was moderately intense, and consisted of two broad and irregular peaks. The first peak was ~2 seconds after the trigger. The second peak, which was stronger and sharper, came ~6.5 seconds after the trigger. The event lasted about 12 seconds in total.

Ulysses event - February 3 1998 06:27 Ulysses time; weak burst, 32 ms long

Ulysses event - February 5 1998 23:48 Ulysses time; weak burst, 64 ms long

Ulysses event - February 11 1998 04:40 Ulysses time; weak burst, 64 ms long

None of these events were detected by Konus.

From kraken@rosserv.gsfc.nasa.gov Thu Feb 12 08:30 PST 1998
X-Sender: kraken@kangaroo.gsfc.nasa.gov
Disposition-Notification-To: <kraken@rosserv.gsfc.nasa.gov>
Message-Version: 1.0
Date: Thu, 12 Feb 1998 11:33:53 -0500
To: khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
From: Peter Kurczynski <kraken@rosserv.gsfc.nasa.gov>
Subject: recent Ulysses bursts

Hi Kevin,

TGRS sees your Feb 2 burst, but most likely has missed your
Feb 3 burst. Still waiting for Feb 5 data... Details follow.

Pete

February 2 1998 10:23 Ulysses time; moderate burst, 10 s long

TGRS sees this burst: trigger time 35708s 286 cts/s peak (100-300 keV)
12.5 s duration (T90)

February 3 1998 06:27 Ulysses time; weak burst, 32 ms long

TGRS does not see this burst "officially." BUT there is a single channel
130 cts/s above background in 35-100 keV range at 23750 s. It is not
seen at higher energies, in more than one data type.

February 5 1998 23:48 Ulysses time; weak burst, 64 ms long

TGRS data from Feb. 5 is not yet available.

KONUS

07/02/00

ULYSSES RT

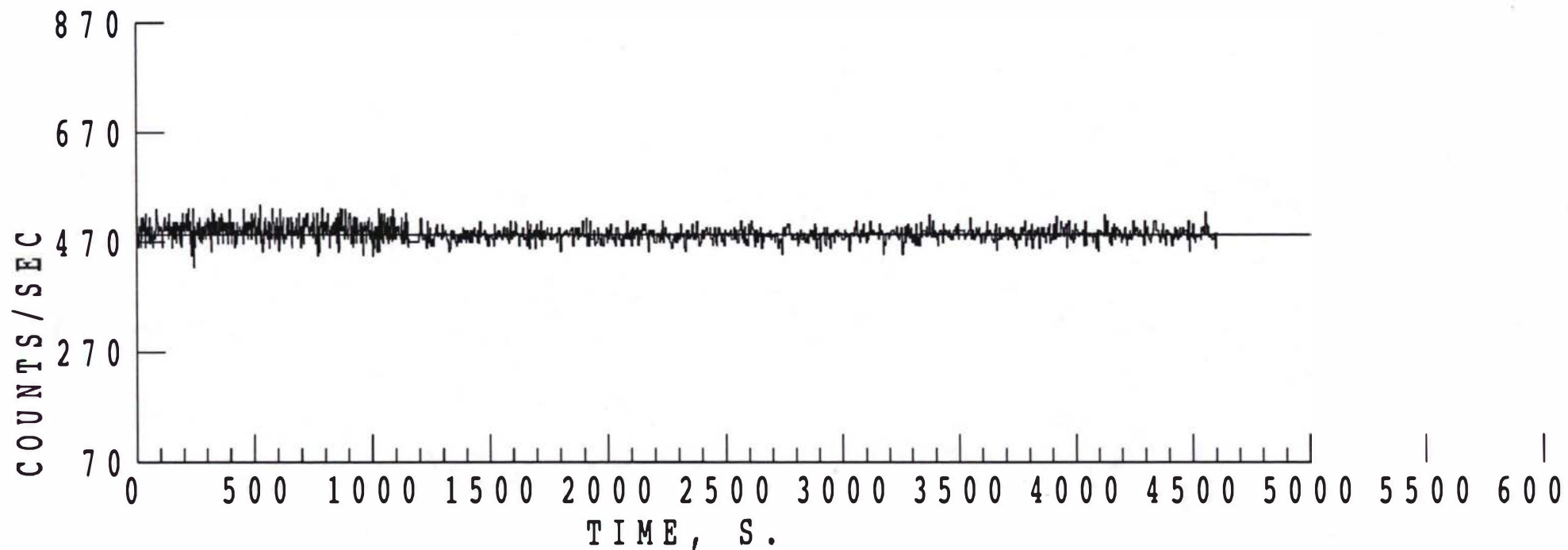
02/02/98 48492.191 s

INTERVALS REGROUPED BY 8

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From SURASAK@SSLMOR.msfc.nasa.gov Tue Feb 3 14:26:39 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA16978; Tue, 3 Feb 1998 14:26:37 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA24578; Tue, 3 Feb 1998 14:26:35 -0800
Date: Tue, 3 Feb 1998 16:26:32 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980203162632.21elfile@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6585
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6585
EVENT OF 1998 FEB 2 DAY OF YEAR= 33
EVENT CROSSING TIME AT BATSE : 50788. S. OR 14:06:28.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 46.000 -53.000
BATSE PEAK COUNTING RATE: 4210 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 2/ 2/ 98 IS:
RA= 165.028 DEC= 12.356 DIST= 4.502 AU
BATSE-ULYSSES DISTANCE = 673510378. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 62.86 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1024.80 SECS.
CROSSING TIME AT ULYSSES IS 51813. S. OR 14:23:32 +/- 412.66 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 2/ 2/ 98 IS:
RA= 338.143 DEC= -10.207 DIST= 2.238 AU
MARS-BATSE DISTANCE = 334743360. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=111.39 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -407.30 SECS.
CROSSING TIME AT MARS IS 50381. S. OR 13:59:40 +/- 174.31 SECONDS

BATSE BURST TRIGGER

NO.: 6585

TIME: TJD=0846 SECONDS=50788

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=126.4 AZIMUTH=323.0 ERROR=1.386 DEGREES

COMMENTS:

GAMMA RAY BURST. SINGLE PULSE. DURATION ABOUT 20S. STARTS AT ABOUT T-5S.
NOT VISIBLE ABOVE 300 KEV.

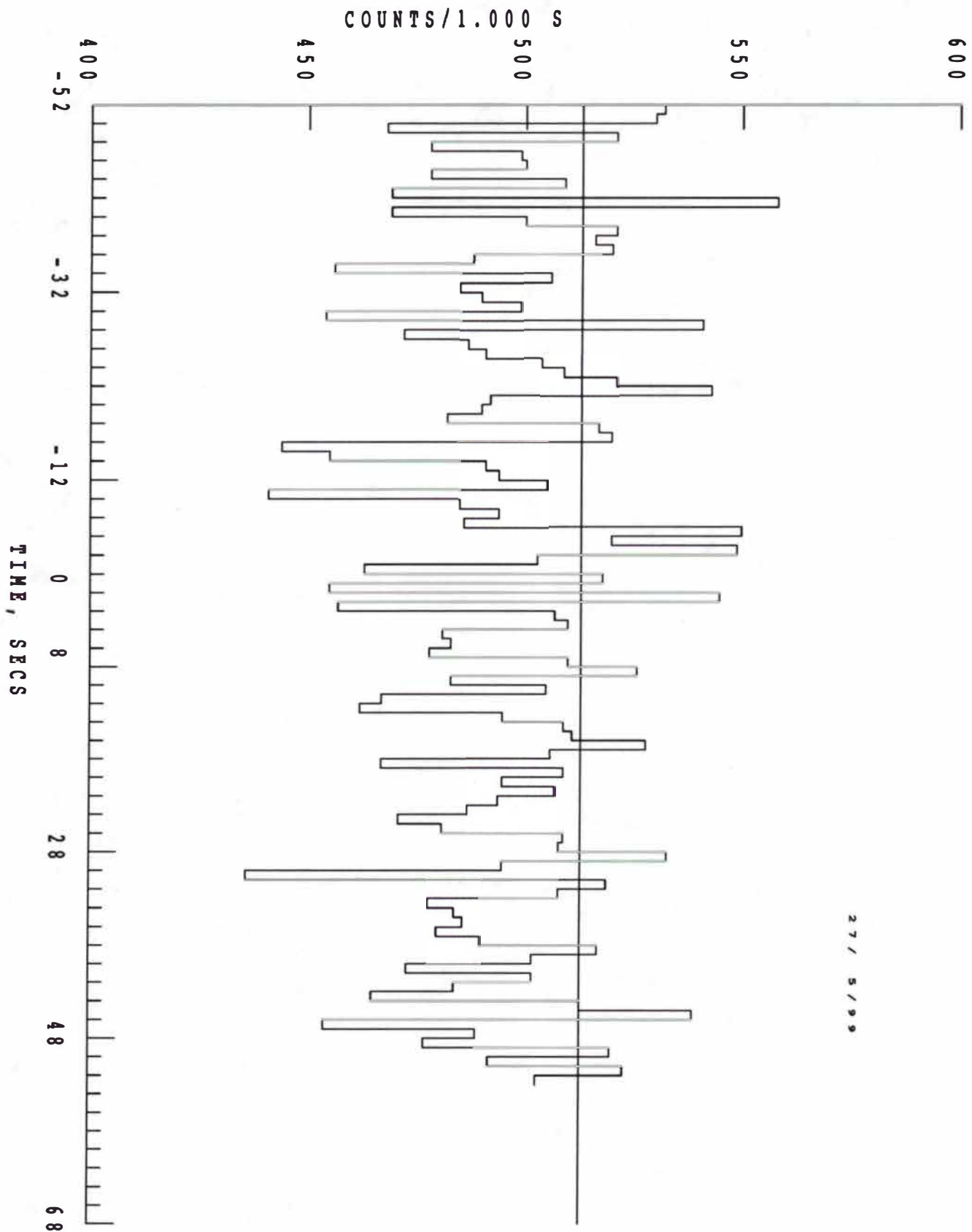
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6585	980202	10846	50788	4210	046	-53	20

NEAR

02/02/98

50774.574

100-1000 keV



BATSE BURST# 6585

ULYSSES RT

3 / 2 / 98

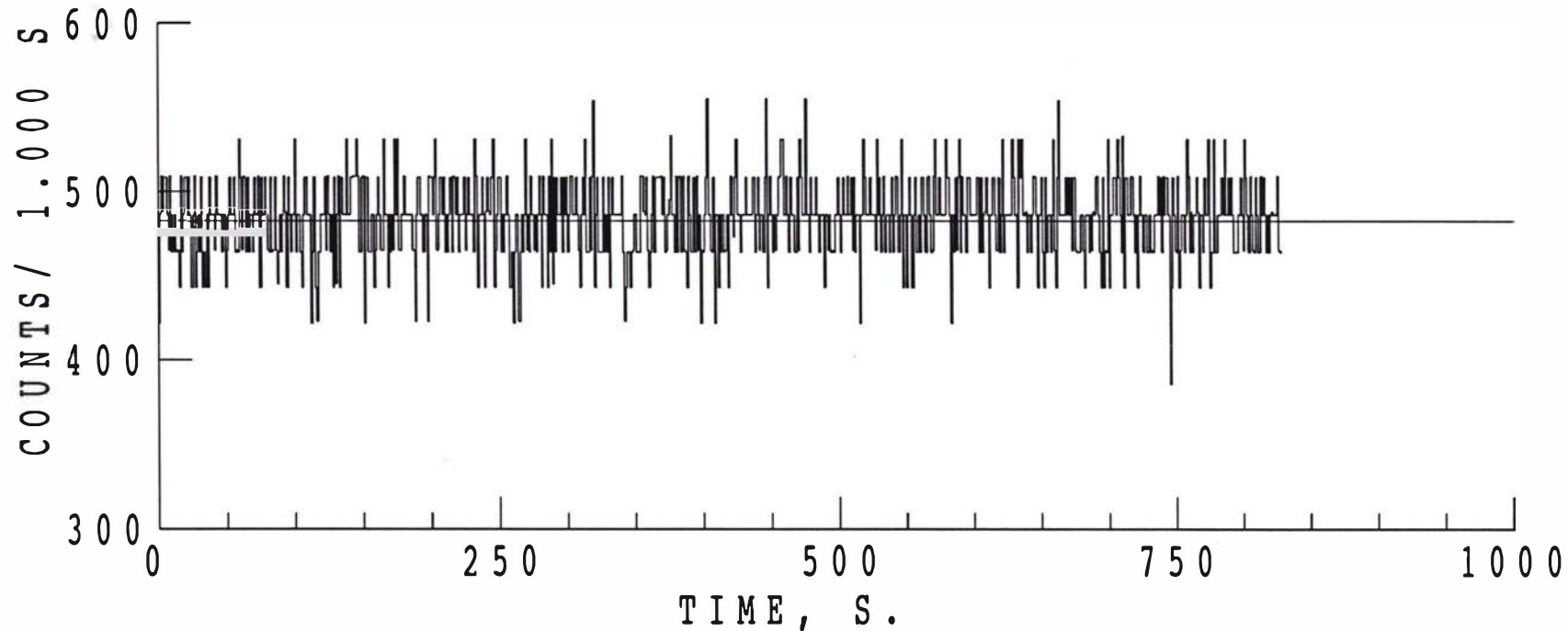
2 / 2 / 98 51408.469 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

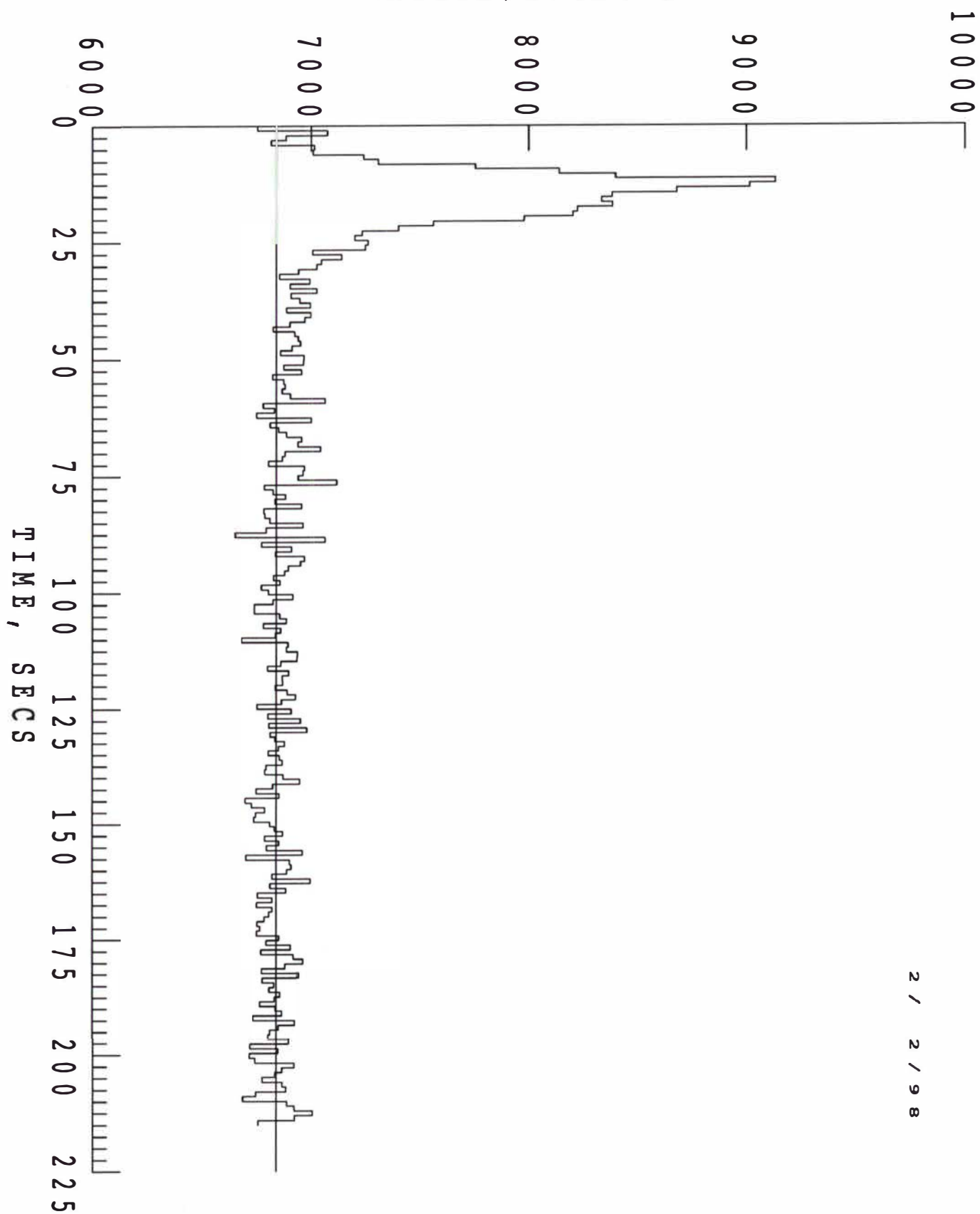
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



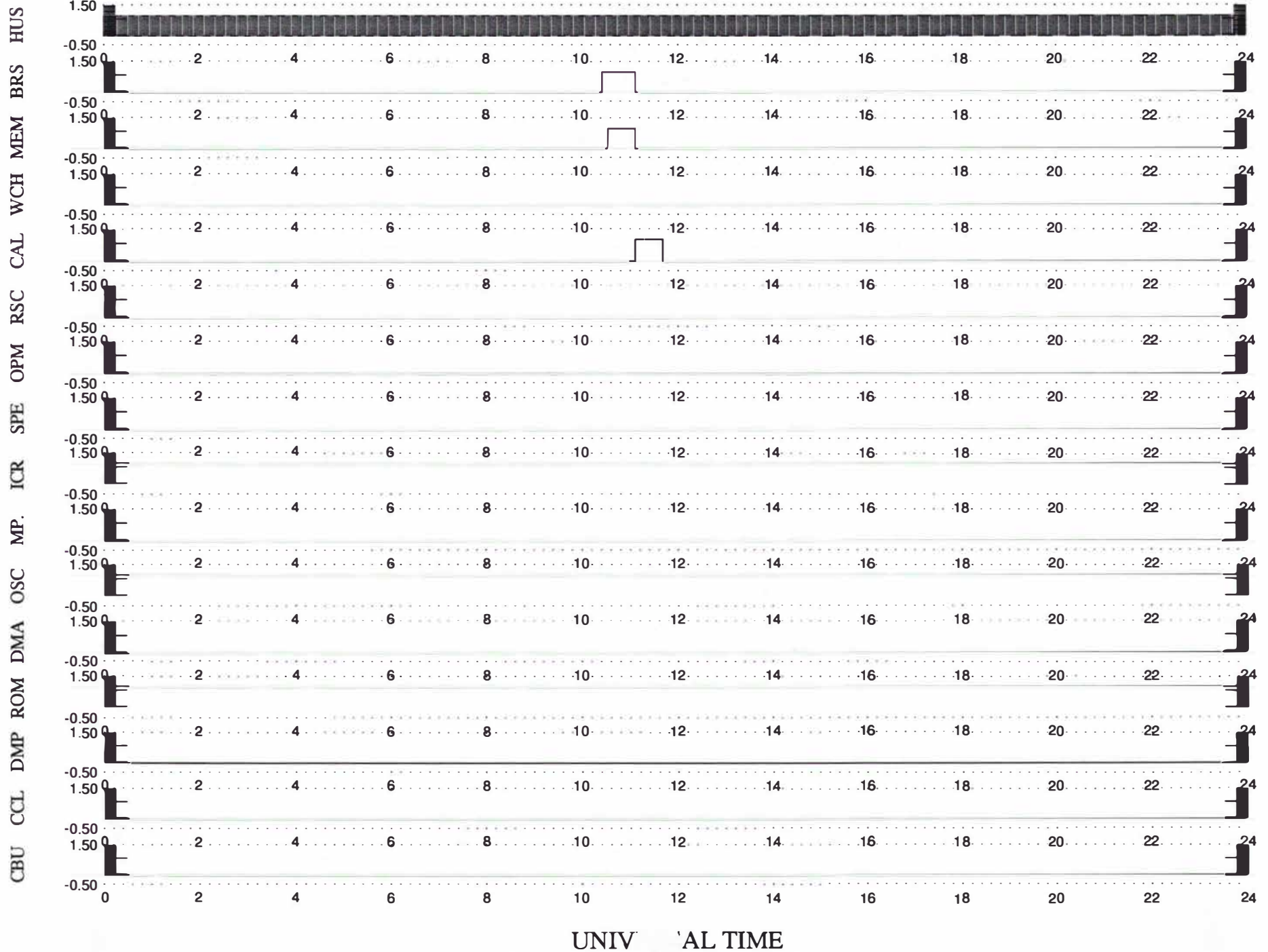
BACODINE 6585 02/02/98 50776.801

25 - 100 keV

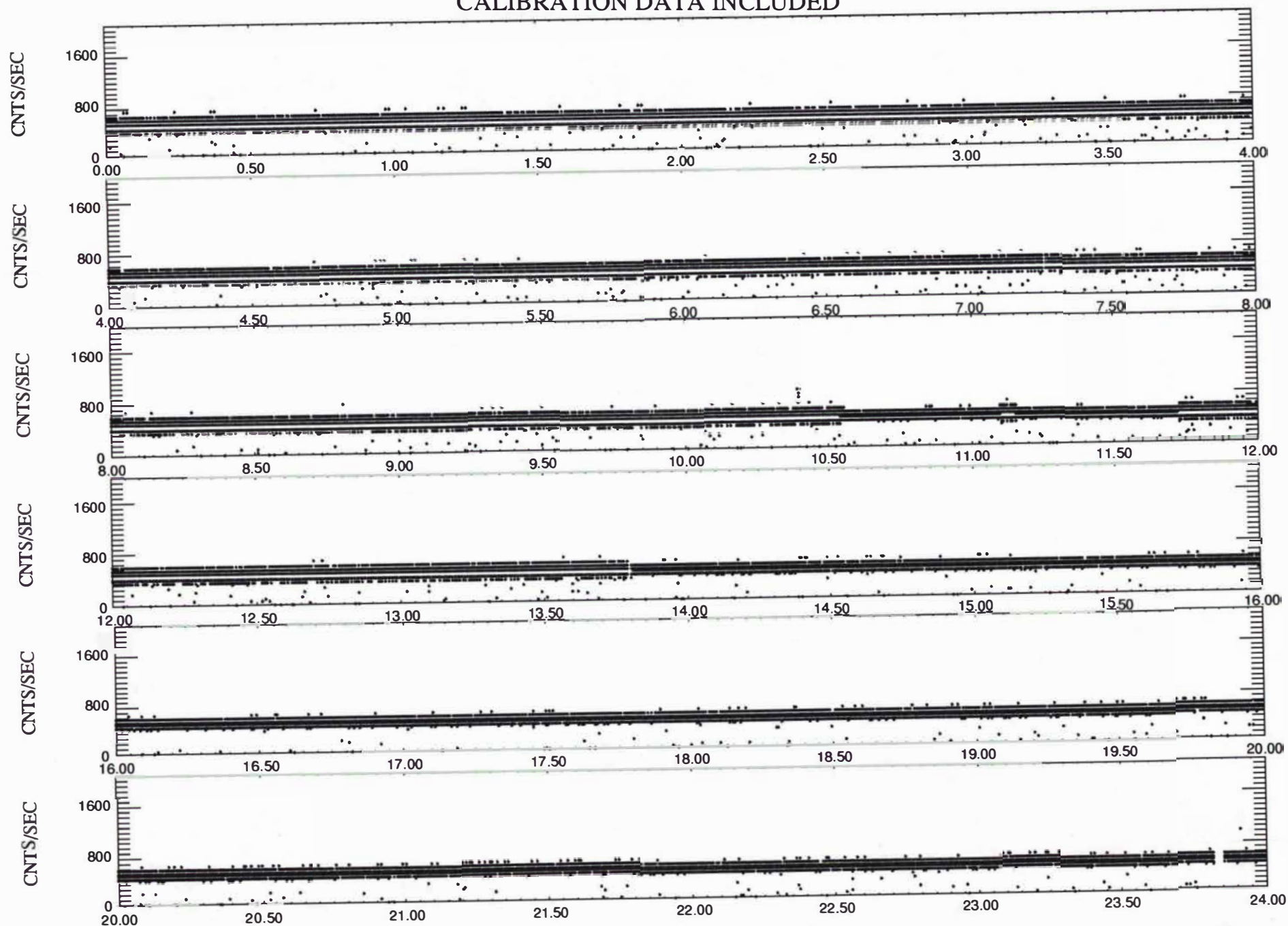
COUNTS/1.024 S



BURST NUMBER 9

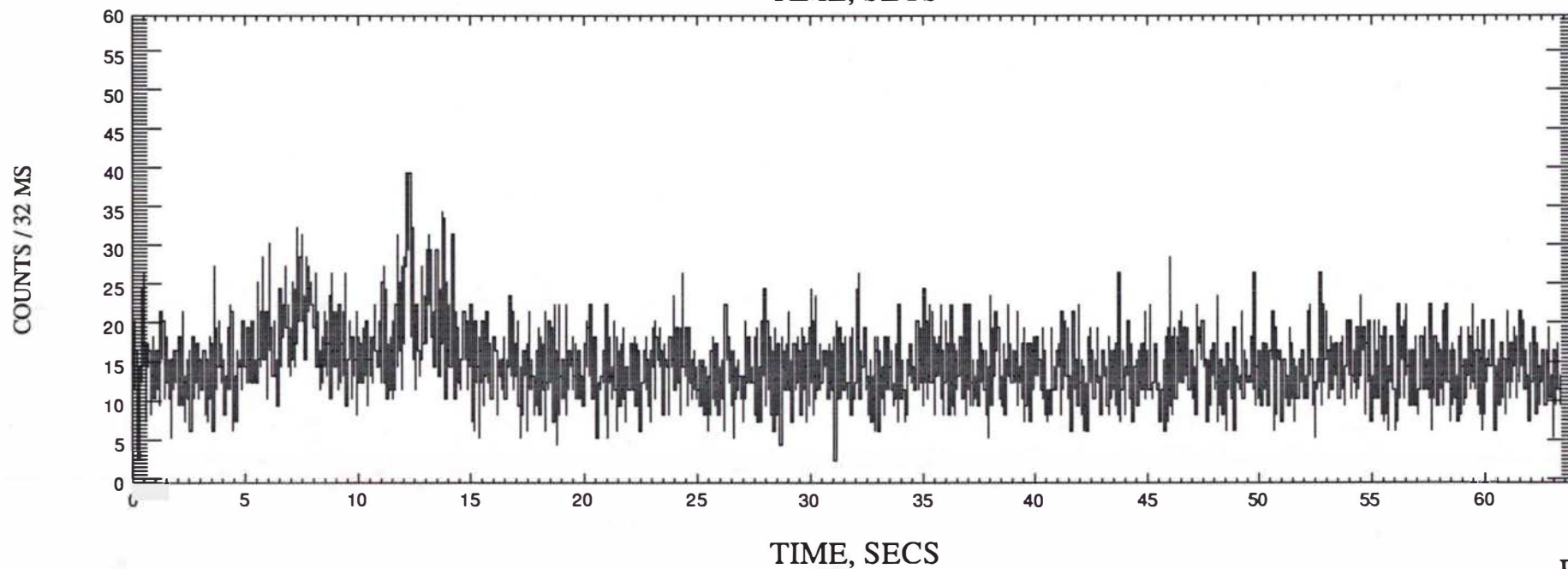
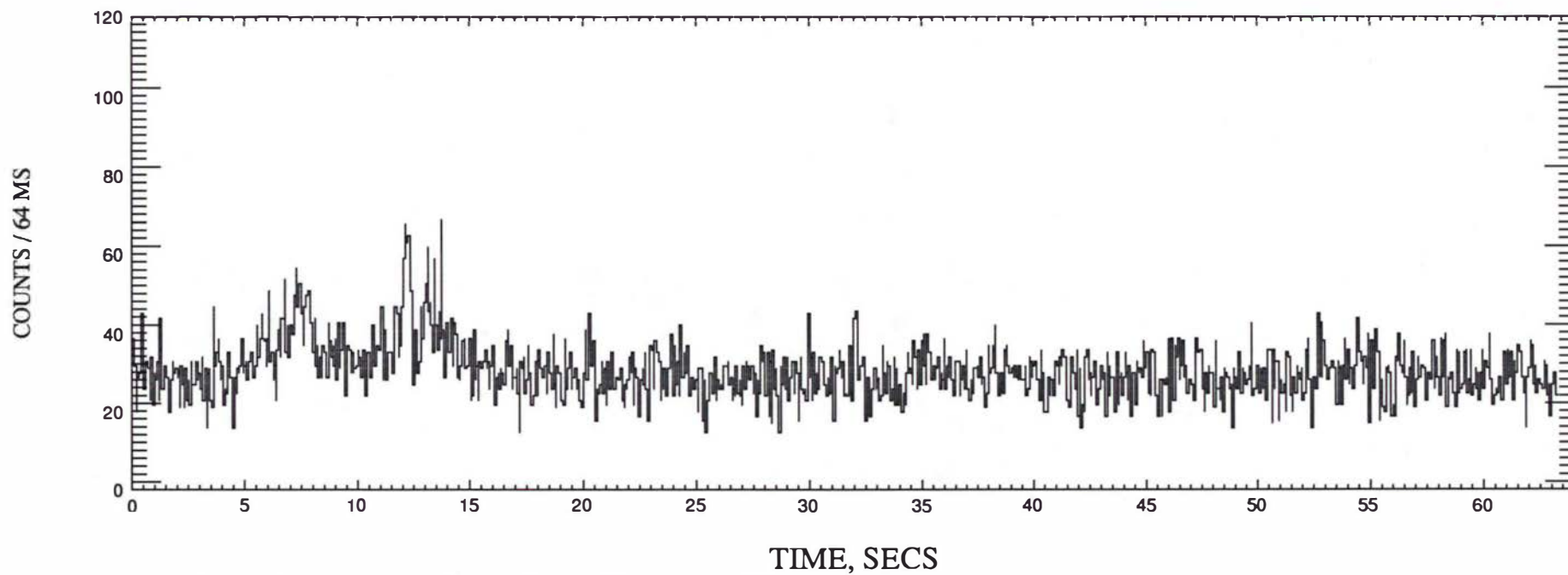


CALIBRATION DATA INCLUDED

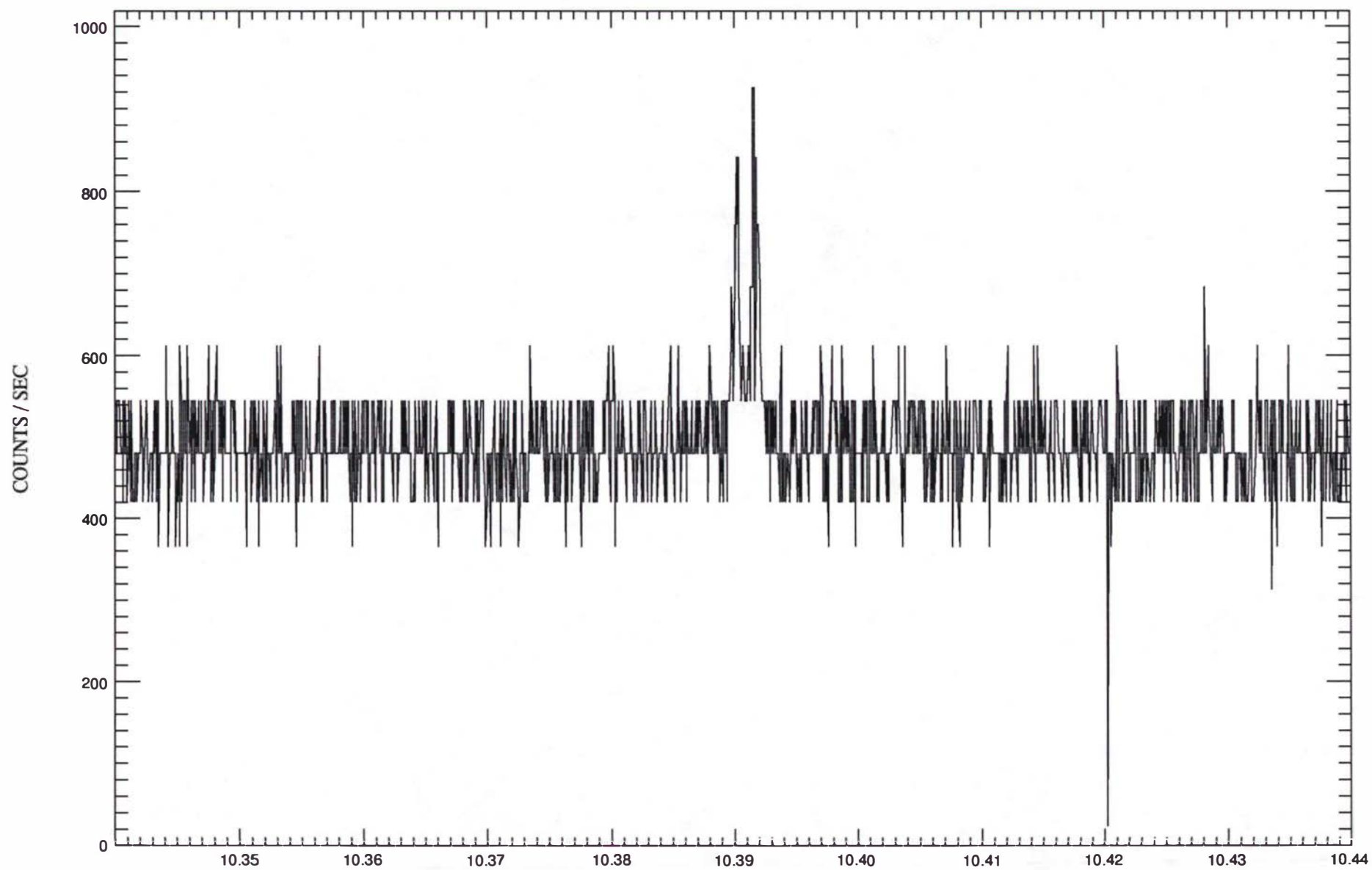


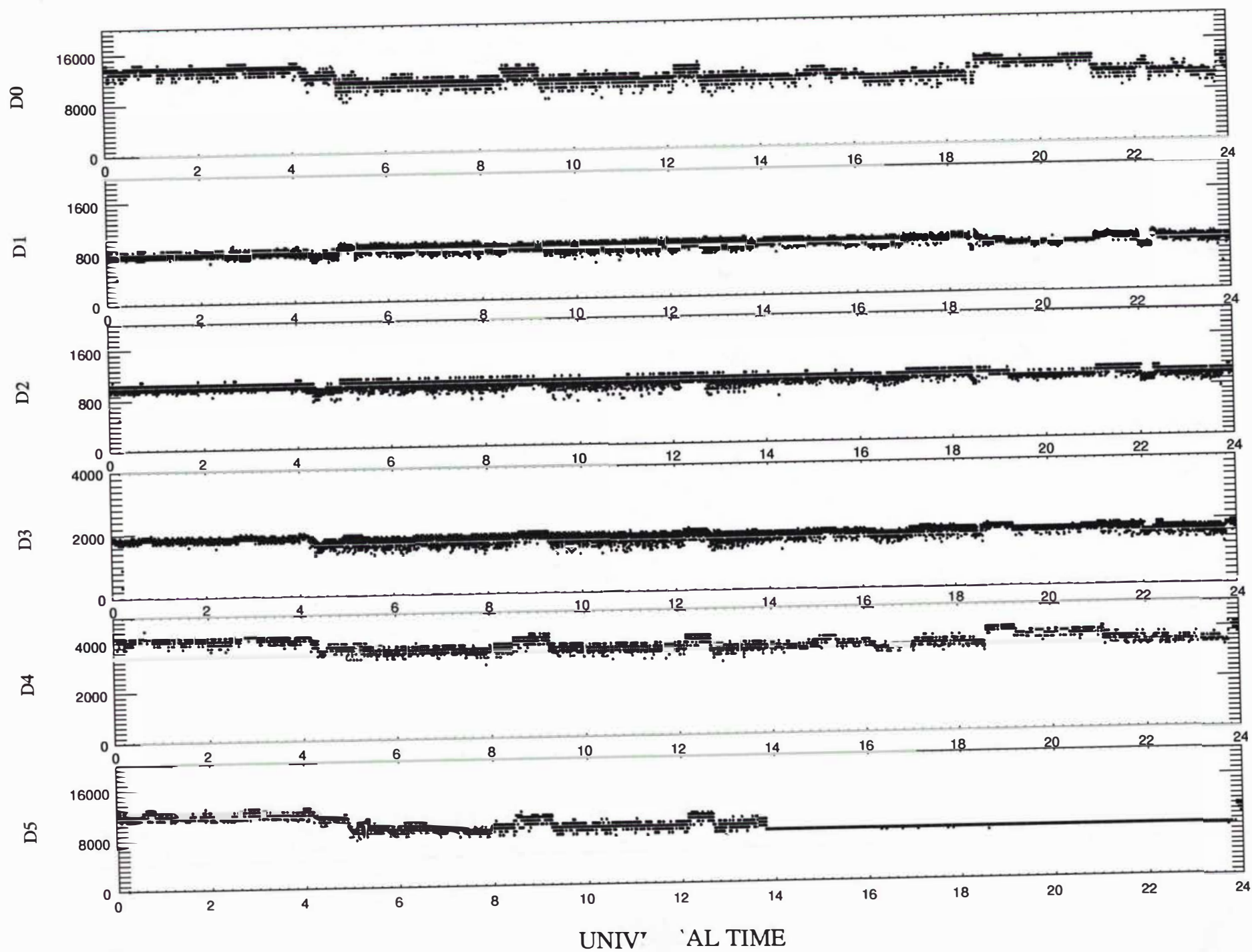
UNIV. TIME

Burst Counter 9 at UT=10.390329505073 h=37405.186 s 10:23:25.186



CALIBRATION DATA INCLUDED





From RICHARDSON@SSLMOR.msfc.nasa.gov Thu Feb 5 11:31:05 1998
Return-Path: <RICHARDSON@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA07292; Thu, 5 Feb 1998 11:30:59 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA08533; Thu, 5 Feb 1998 11:30:52 -0800
Date: Thu, 5 Feb 1998 13:29:47 -0600 (CST)
From: RICHARDSON@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980205132947.21e20b55@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6586
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6586
EVENT OF 1998 FEB 3 DAY OF YEAR= 34
EVENT CROSSING TIME AT BATSE : 20961. S. OR 05:49:21.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 333.000 50.000
BATSE PEAK COUNTING RATE: 4750 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 3/ 2/ 98 IS:
RA= 164.900 DEC= 12.374 DIST= 4.497 AU
BATSE-ULYSSES DISTANCE = 672762717. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 63.24 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1010.32 SECS.
CROSSING TIME AT ULYSSES IS 21971. S. OR 06:06:11 +/- 413.23 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 3/ 2/ 98 IS:
RA= 338.883 DEC= -9.908 DIST= 2.241 AU
MARS-BATSE DISTANCE = 335201856. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=119.87 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -556.87 SECS.
CROSSING TIME AT MARS IS 20404. S. OR 05:40:04 +/- 159.88 SECONDS

BATSE BURST TRIGGER

NO.: 6586

TIME: TJD=0847 SECONDS=20961

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=69.4 AZIMUTH=74.9 ERROR=6.8 DEGREES

COMMENTS:

THIS EVENT IS PROBABLY A BURST, BUT THERE IS A SMALL POSSIBILITY OF IT BEING
A CYG X-1 EVENT. TWO SHORT SPIKES. DURATION APPROX. = 0.9 SEC.
NOT VISIBLE ABOVE 300KEV.

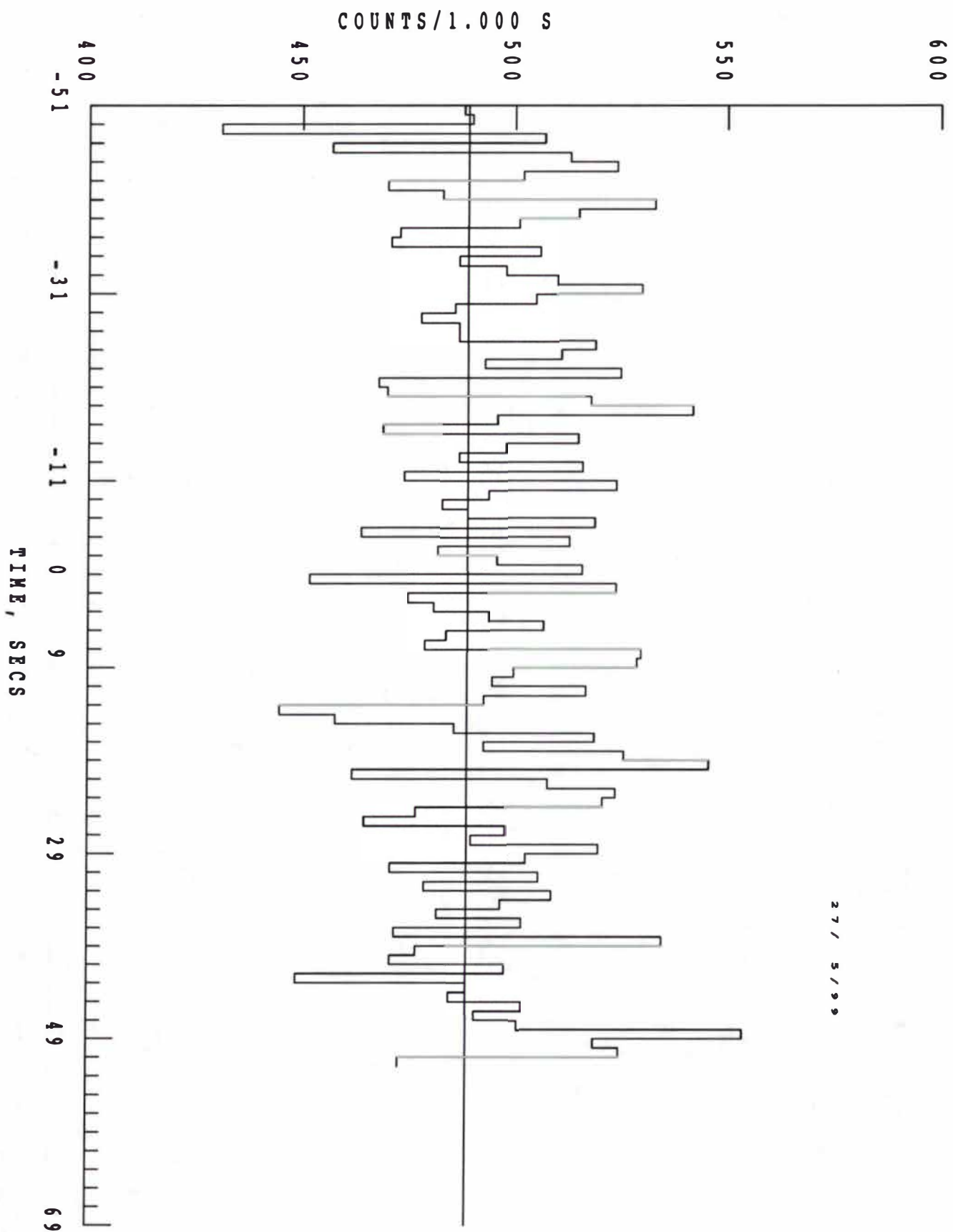
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6586	980203	10847	20961	4750	333	+50	.9

NEAR

03/02/98

20980.555

100-1000 keV



BATSE BURST# 6586

ULYSSES RT

5 / 2 / 98

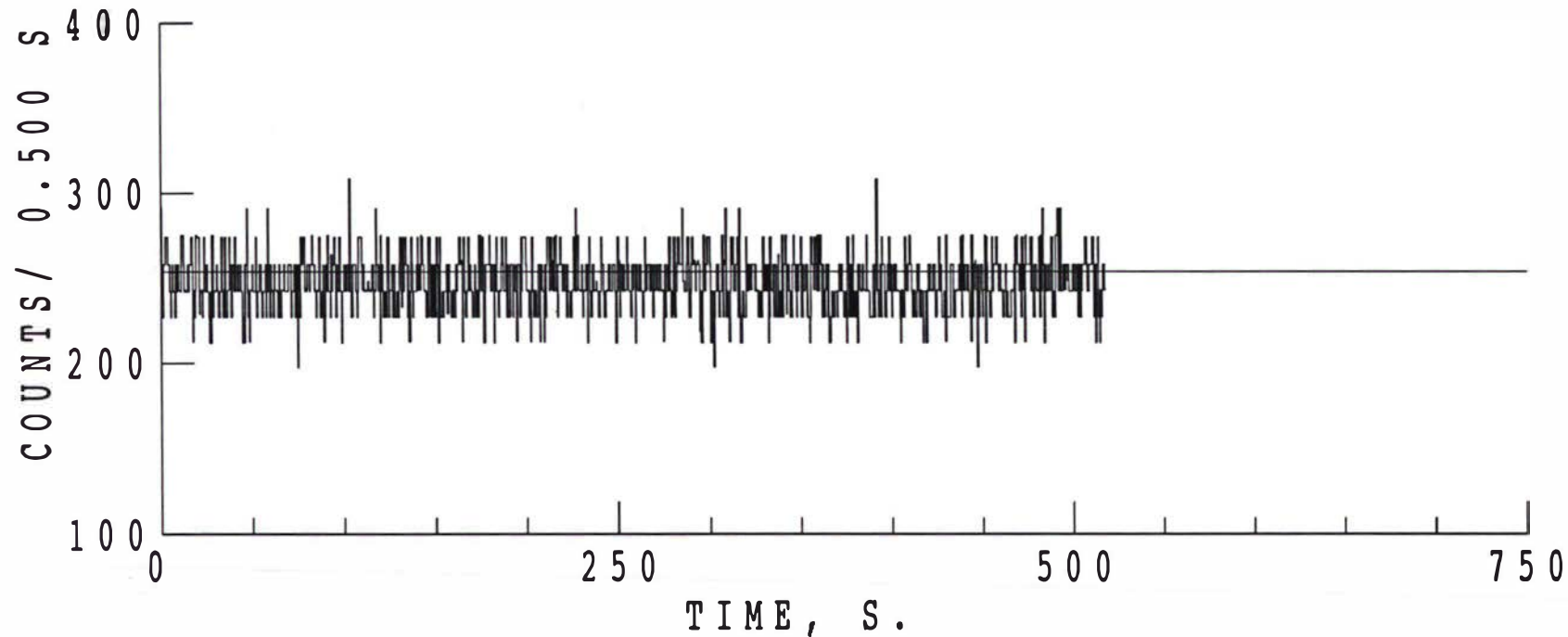
3 / 2 / 98 21874.344 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From BUTTERWORTH@lheavx.gsfc.nasa.gov Tue Mar 3 08:02 PST 1998

From: BUTTERWORTH@lheavx.gsfc.nasa.gov

Date: Tue, 3 Mar 1998 10:58:57 -0500 (EST)

To: khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, vnp@isac.ernet.in,
jterrell@lanl.gov, yosimori@rikkyo.ac.jp,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov

CC: BUTTERWORTH@lheavx.gsfc.nasa.gov

X-Vmsmail-To: @ULYSSES

X-Vmsmail-Cc: BUTTERWORTH

Subject: KONUS FEB98 REPORT FOR ULYSSES GAMMA-RAY EVENTS NOT REPORTED BY BATSE

Hi Everyone,

Here is the Konus report for those events seen by Ulysses in February, but not reported by BATSE.

Paul.

Ulysses event - February 2 1998 10:23 Ulysses time; moderate burst, 10 s long

Konus triggered at 09:55:06.894 in the South-facing detector. The event was moderately intense, and consisted of two broad and irregular peaks. The first peak was ~2 seconds after the trigger. The second peak, which was stronger and sharper, came ~6.5 seconds after the trigger. The event lasted about 12 seconds in total.

Ulysses event - February 3 1998 06:27 Ulysses time; weak burst, 32 ms long

Ulysses event - February 5 1998 23:48 Ulysses time; weak burst, 64 ms long

Ulysses event - February 11 1998 04:40 Ulysses time; weak burst, 64 ms long

None of these events were detected by Konus.

From kraken@rosserv.gsfc.nasa.gov Thu Feb 12 08:30 PST 1998
X-Sender: kraken@kangaroo.gsfc.nasa.gov
Disposition-Notification-To: <kraken@rosserv.gsfc.nasa.gov>
Mime-Version: 1.0
Date: Thu, 12 Feb 1998 11:33:53 -0500
To: khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
From: Peter Kurczynski <kraken@rosserv.gsfc.nasa.gov>
Subject: recent Ulysses bursts

Hi Kevin,

TGRS sees your Feb 2 burst, but most likely has missed your
Feb 3 burst. Still waiting for Feb 5 data... Details follow.

Pete

February 2 1998 10:23 Ulysses time; moderate burst, 10 s long

TGRS sees this burst: trigger time 35708s 286 cts/s peak (100-300 keV)
12.5 s duration (T90)

February 3 1998 06:27 Ulysses time; weak burst, 32 ms long

TGRS does not see this burst "officially." BUT there is a single channel
130 cts/s above background in 35-100 keV range at 23750 s. It is not
seen at higher energies, in more than one data type.

February 5 1998 23:48 Ulysses time; weak burst, 64 ms long

TGRS data from Feb. 5 is not yet available.

Date: Oct 26 '09

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

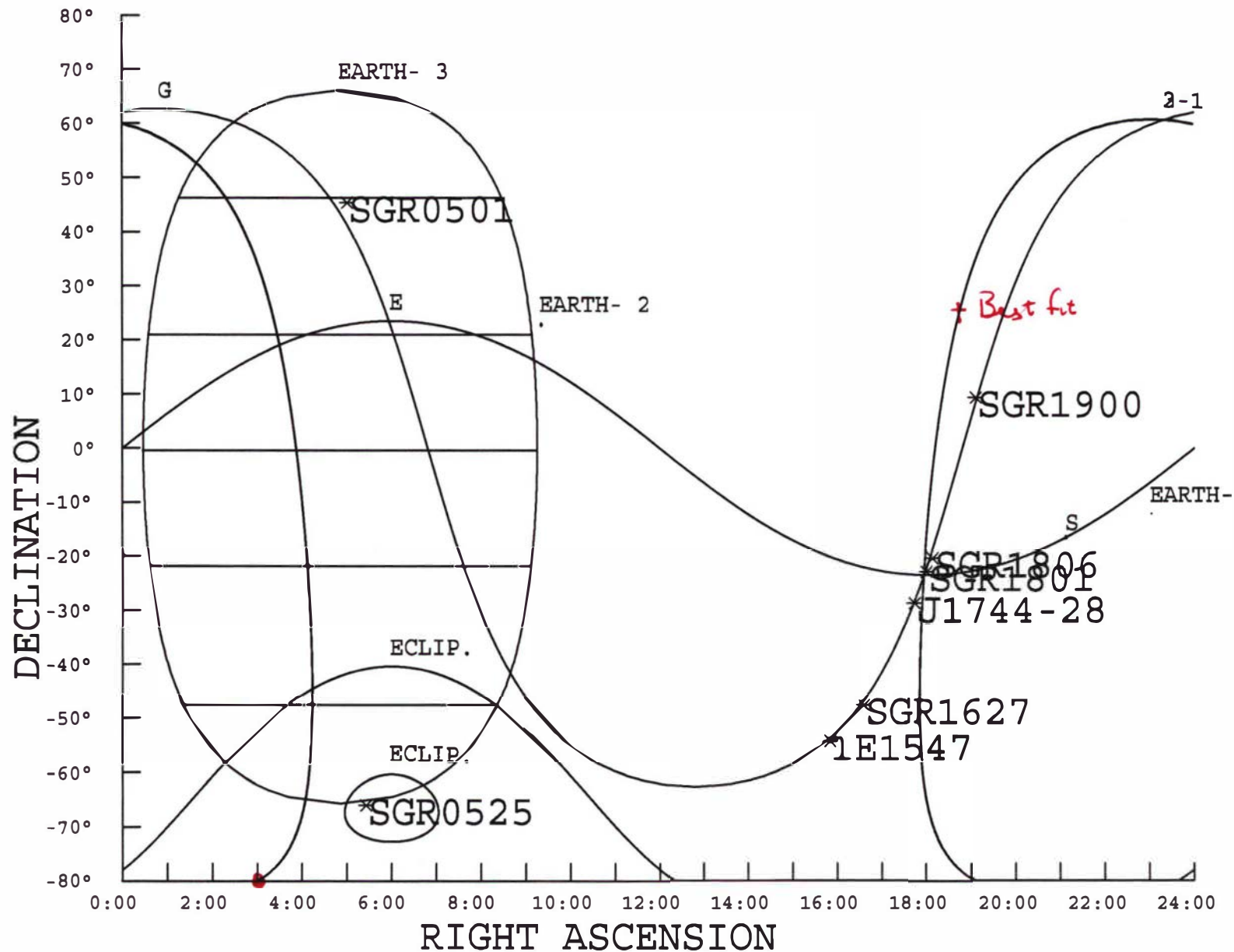
-
- ☒ ACCESS and MBL4 databases updated?

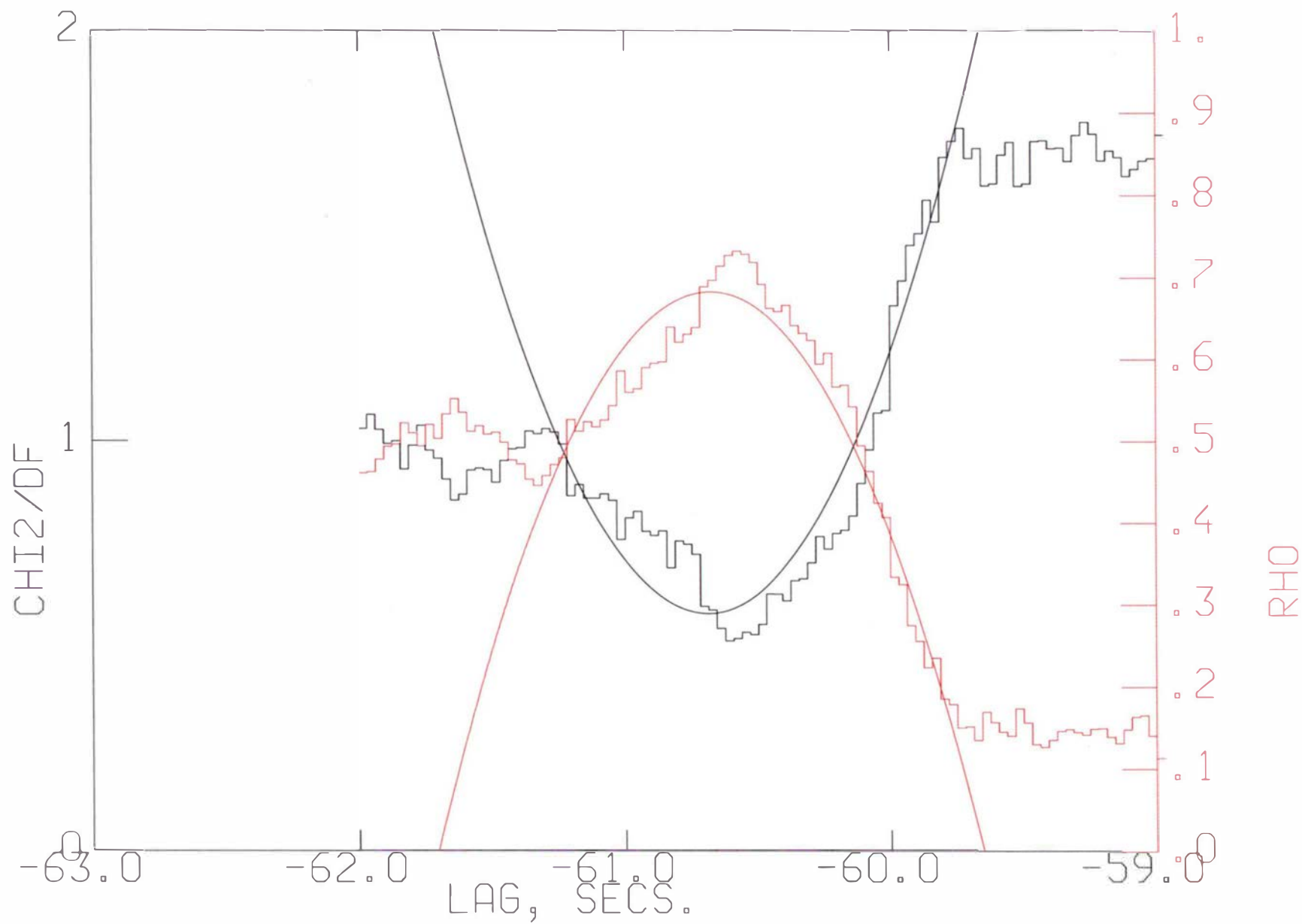
SAX added Jan 8

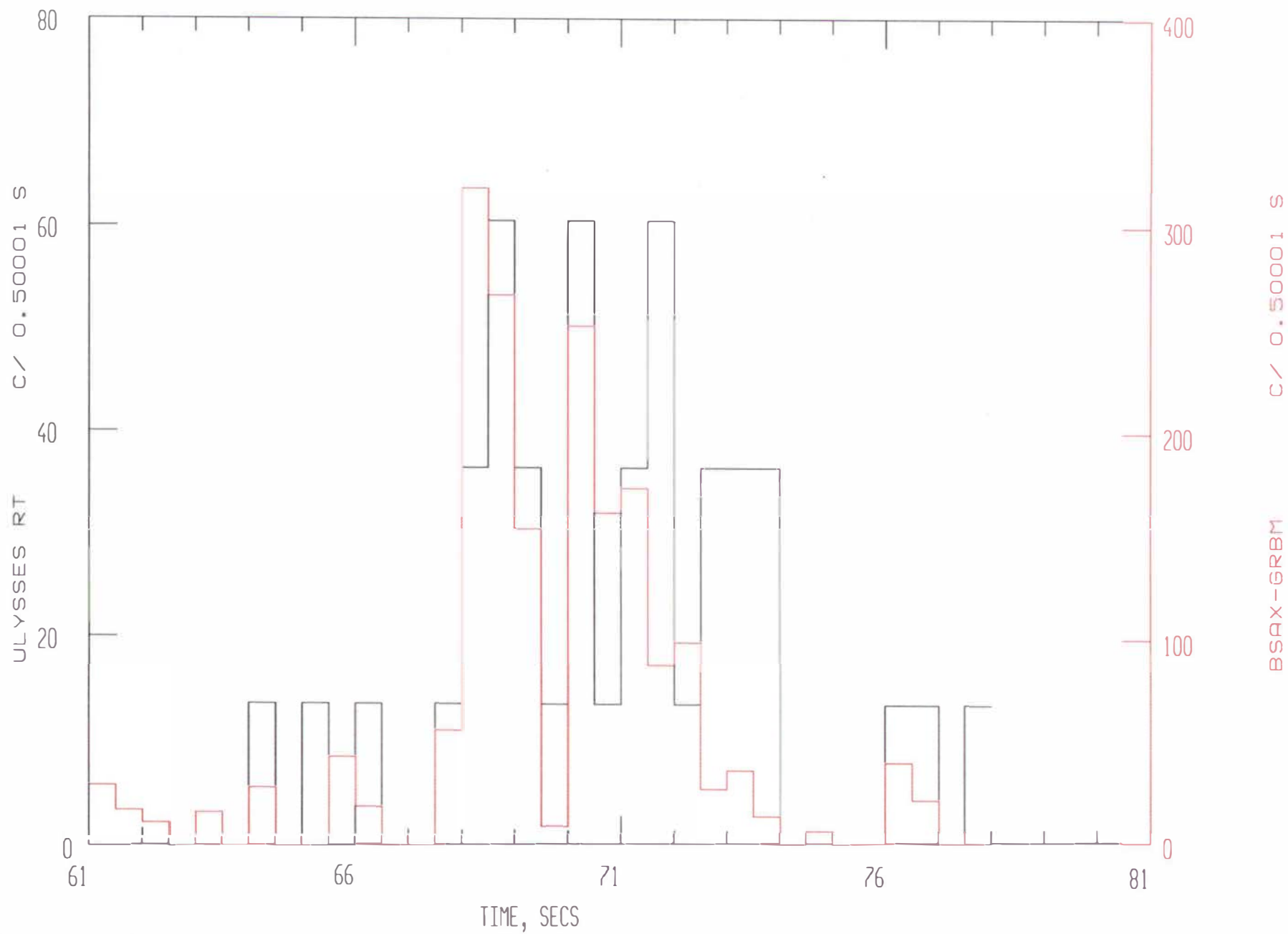
EVENT OF FEB 3, 1998 14:30

8/ 1/10

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





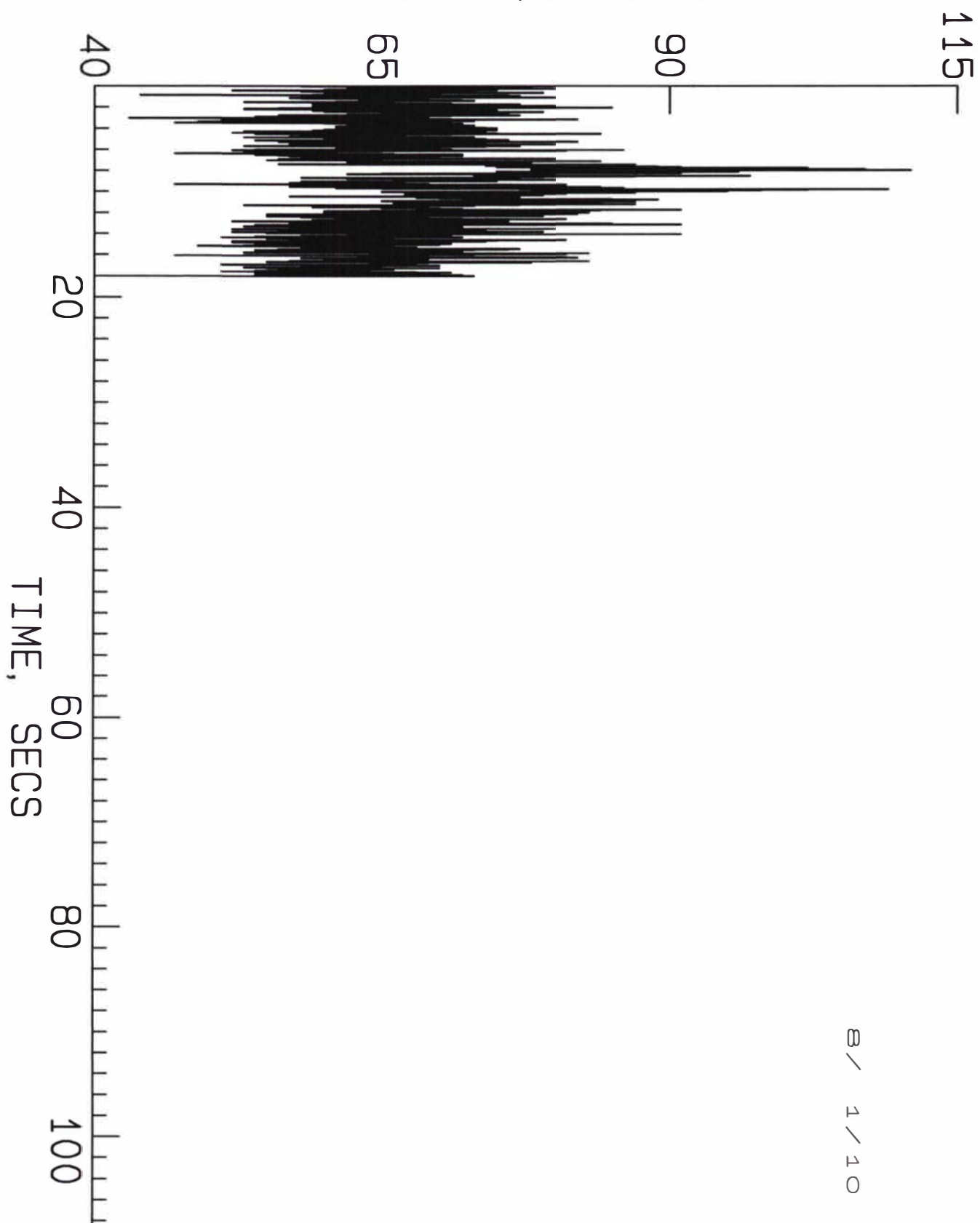


SAX GRBM

03/02/98 51658.762

40- 700 keV

COUNTS/0.031 S

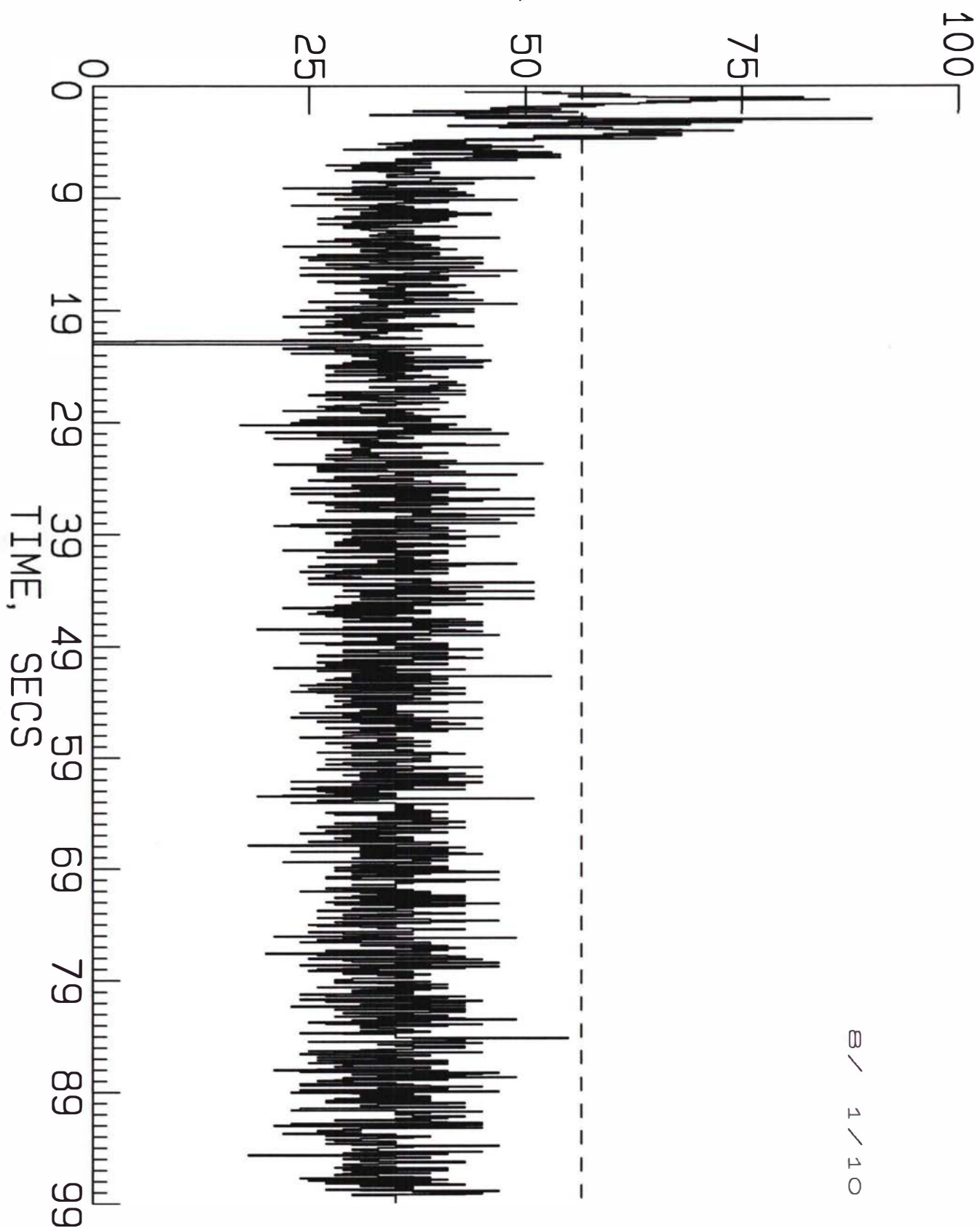


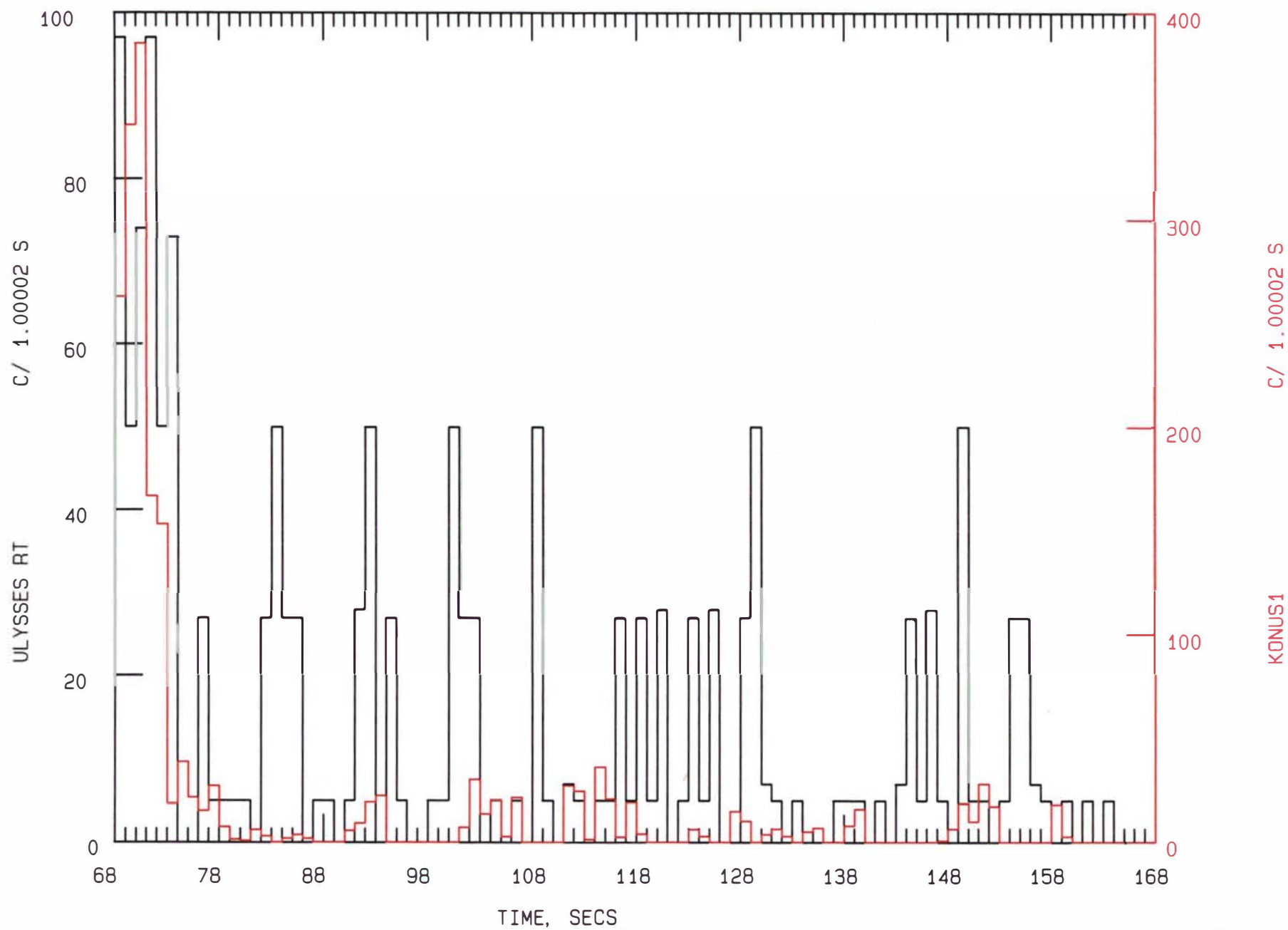
KONUS

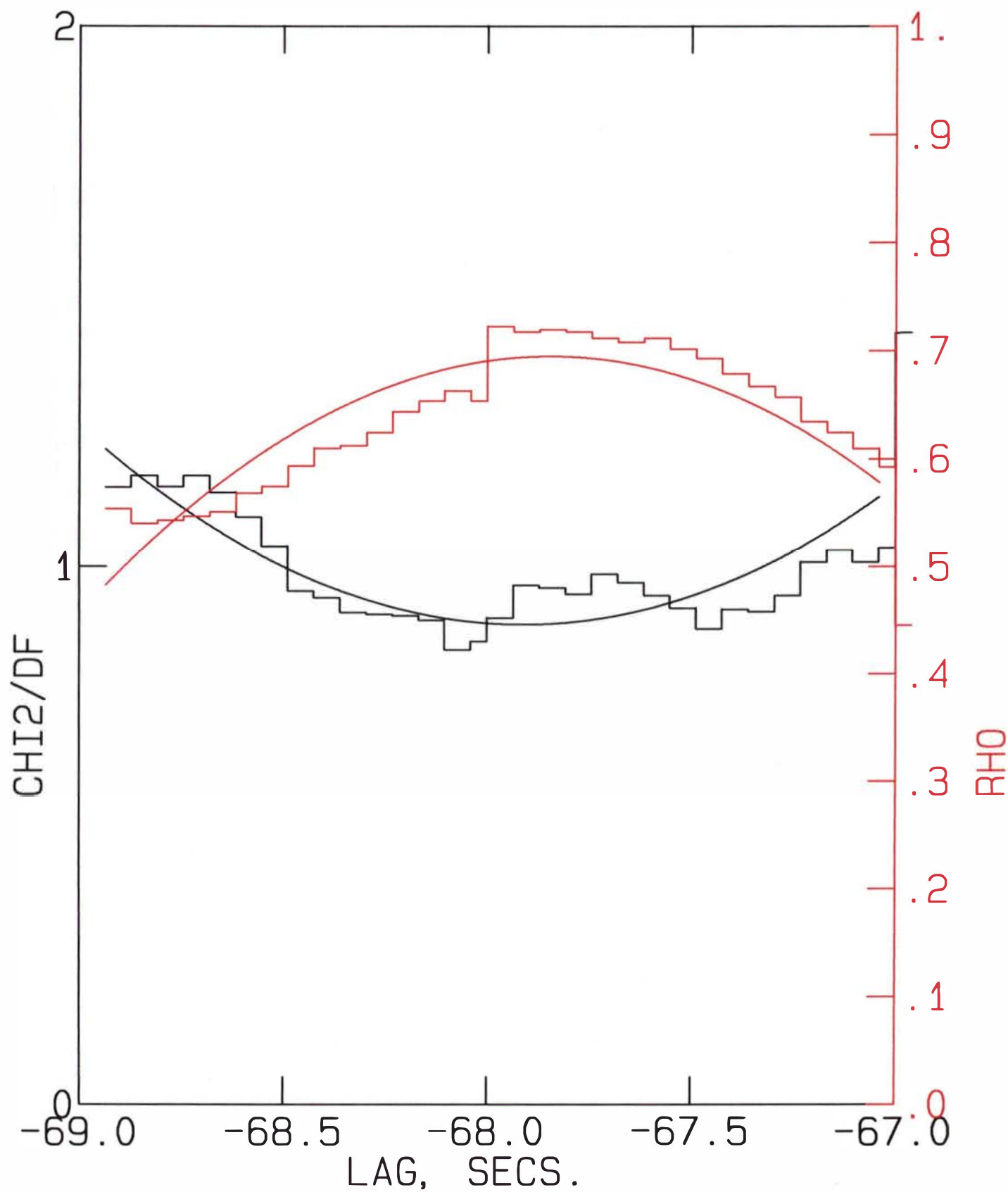
03/02/98 51664.220

50- 200 keV

COUNTS/0.064 S

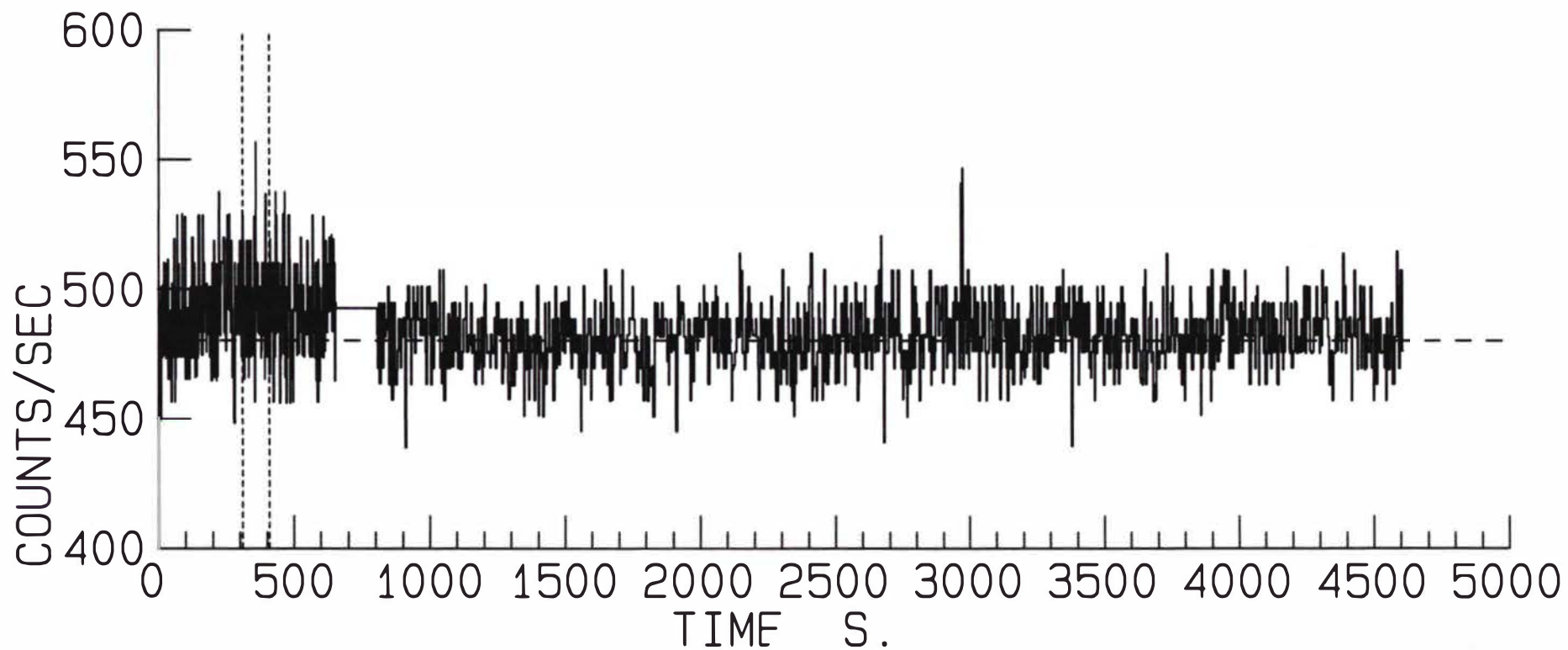






ULYSSES RT
3/ 2/98 49356.141 s
INTERVALS REGROUPED BY 7
22- 148 keV

26/10/ 9



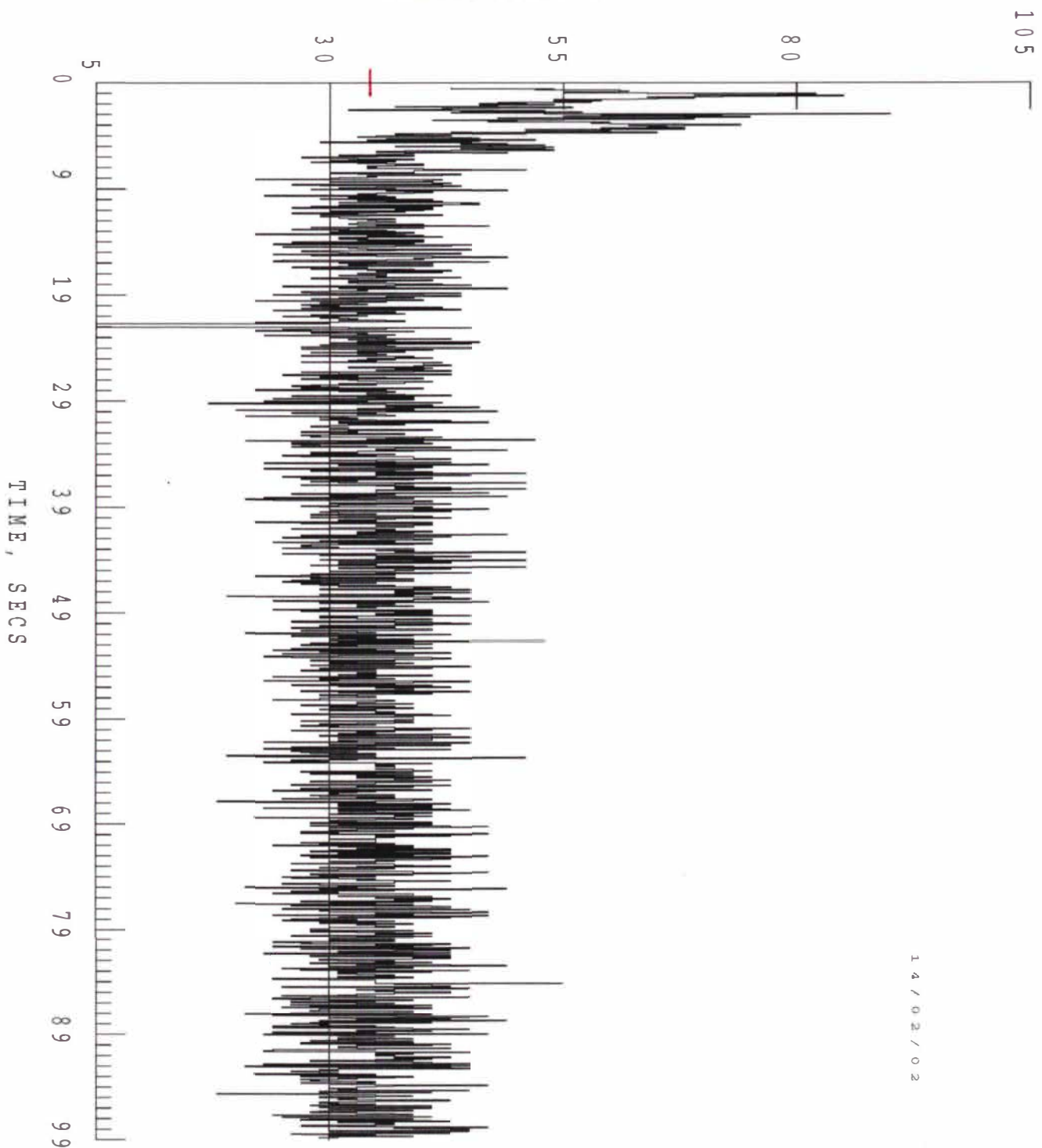
KONUS1

03/02/98

51664.225

50 - 200 keV

COUNTS/0.064 S



KONUS1 19980203 51664

ULYSSES RT

14 / 02 / 02

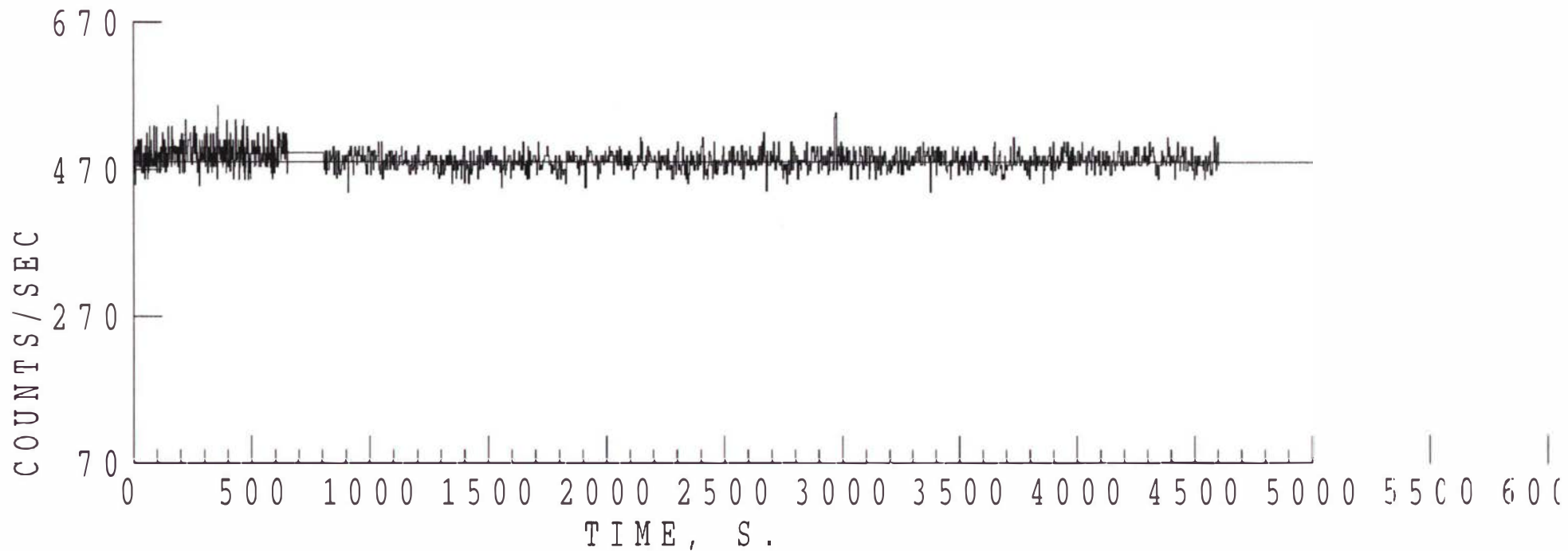
03 / 02 / 98 49356.141 s

INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



NEAR

ULYSSES RT

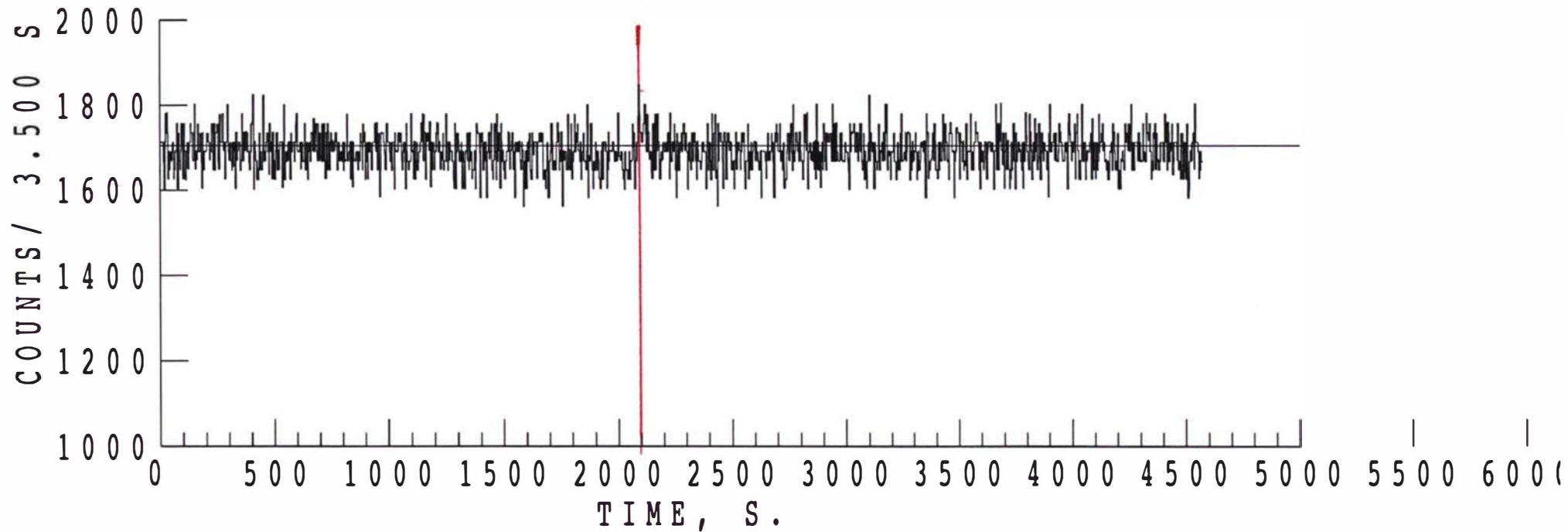
8 / 7 / 98

3 / 2 / 98 57708.480 s

0.500 S INTERVALS REGROUPED BY 7

0 - 0 keV

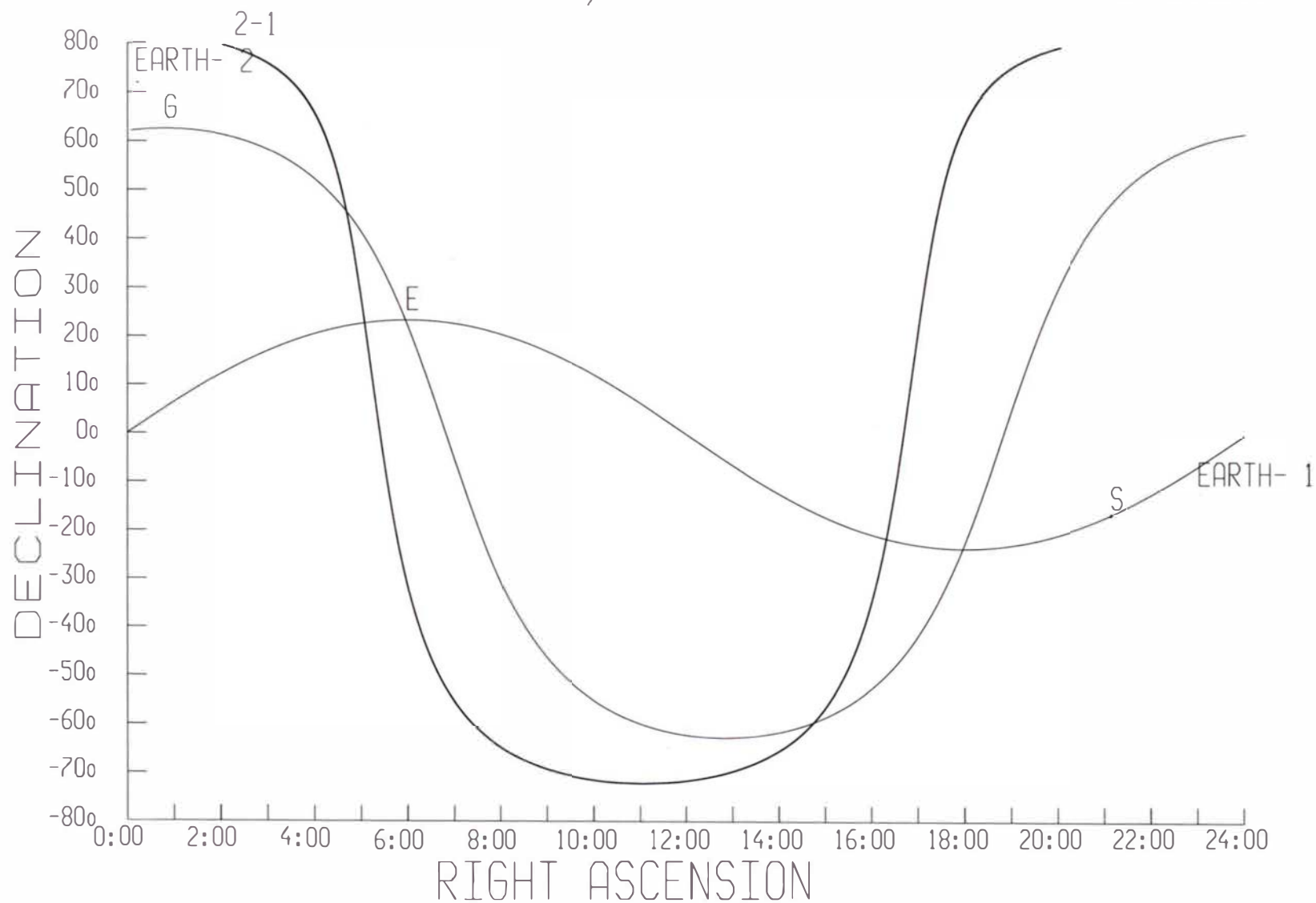
W= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

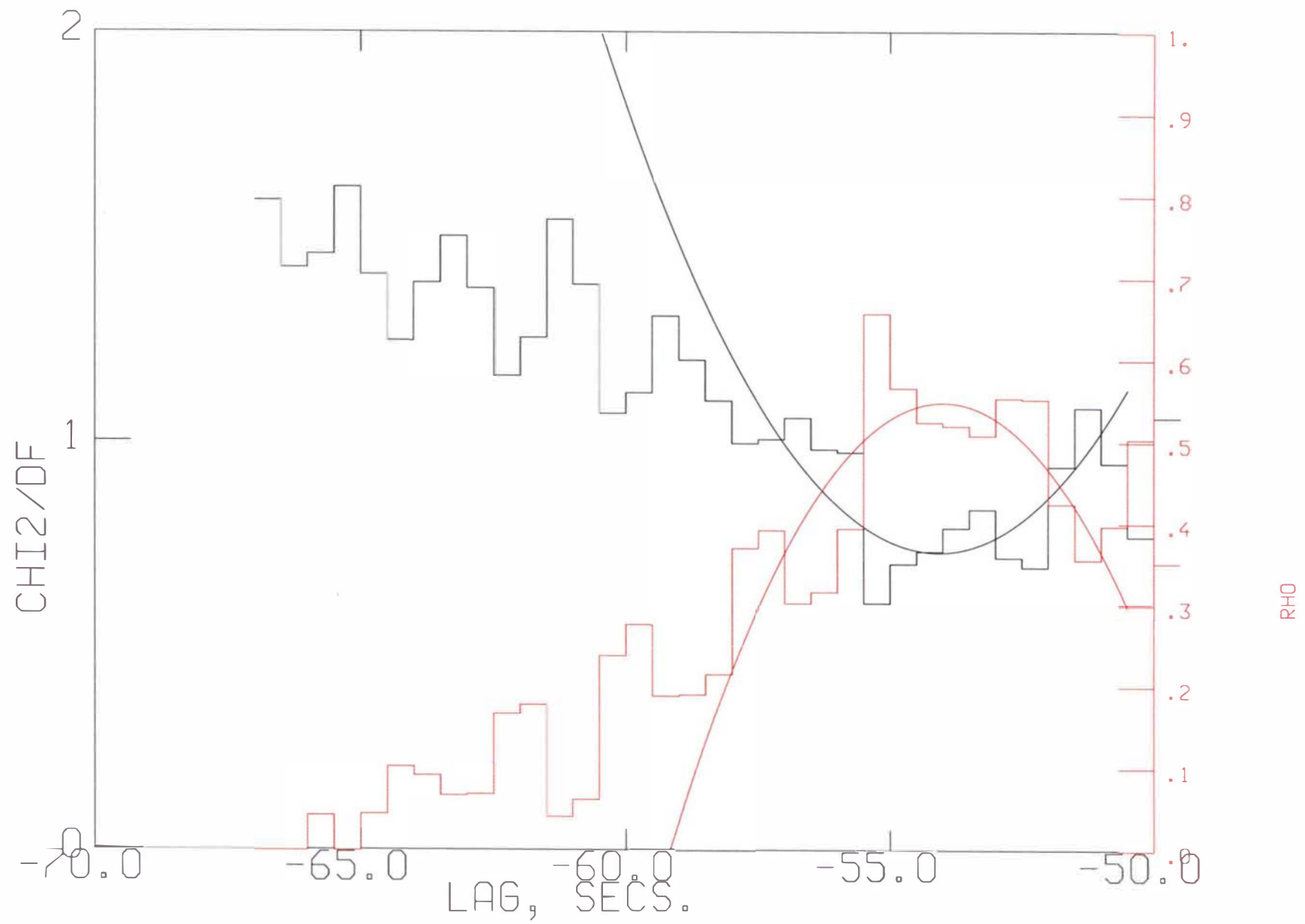


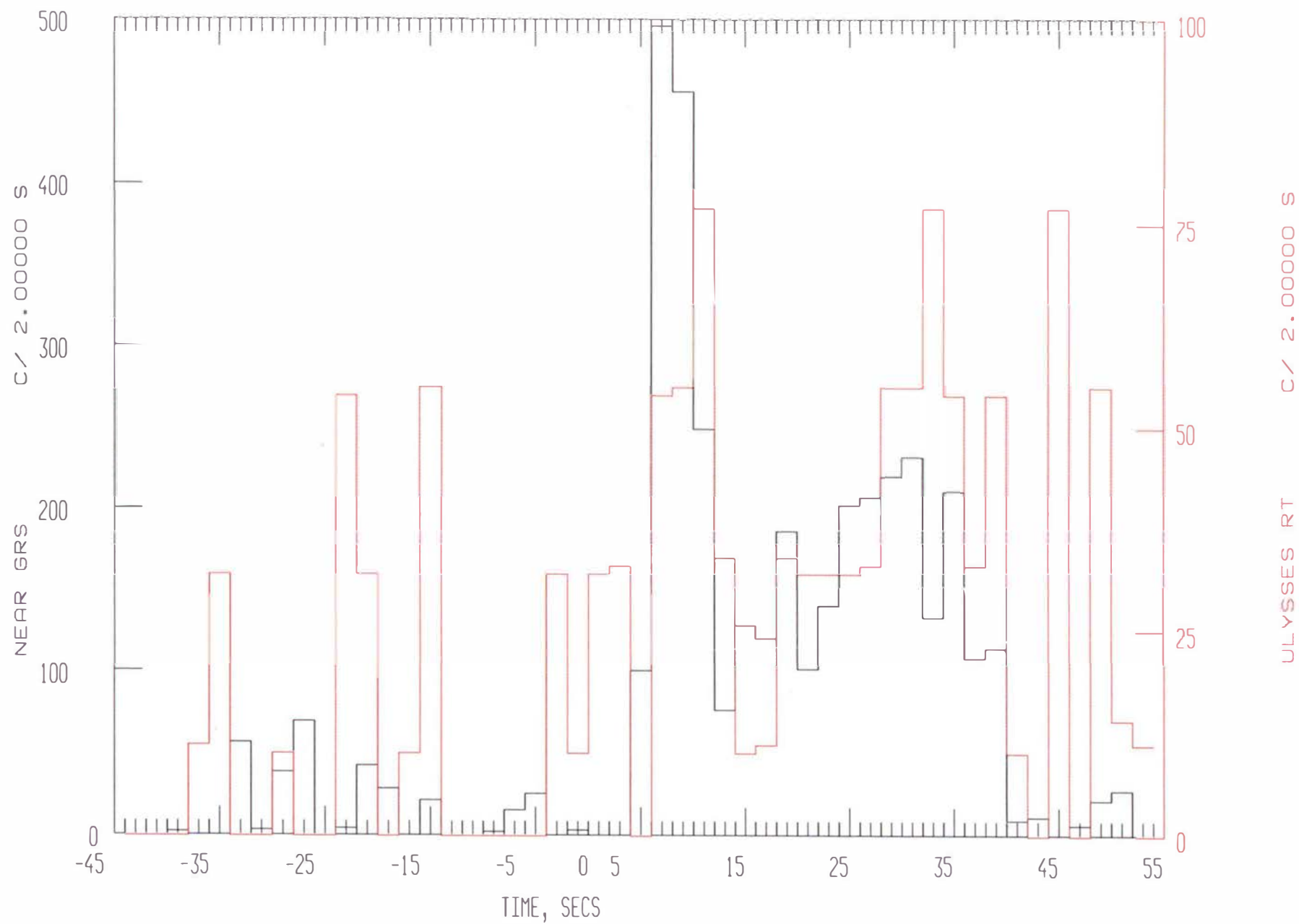
EVENT OF FEB 3, 1998 16:35

07/02/2012

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







Date: Feb 27 2012

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

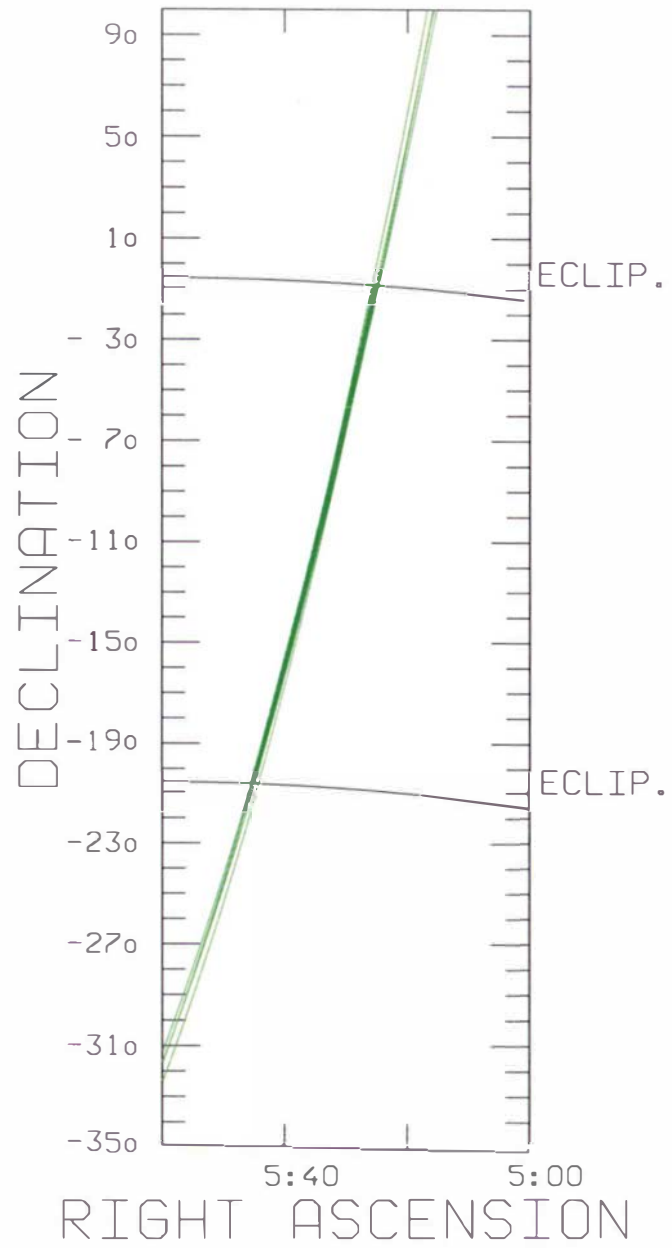
2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

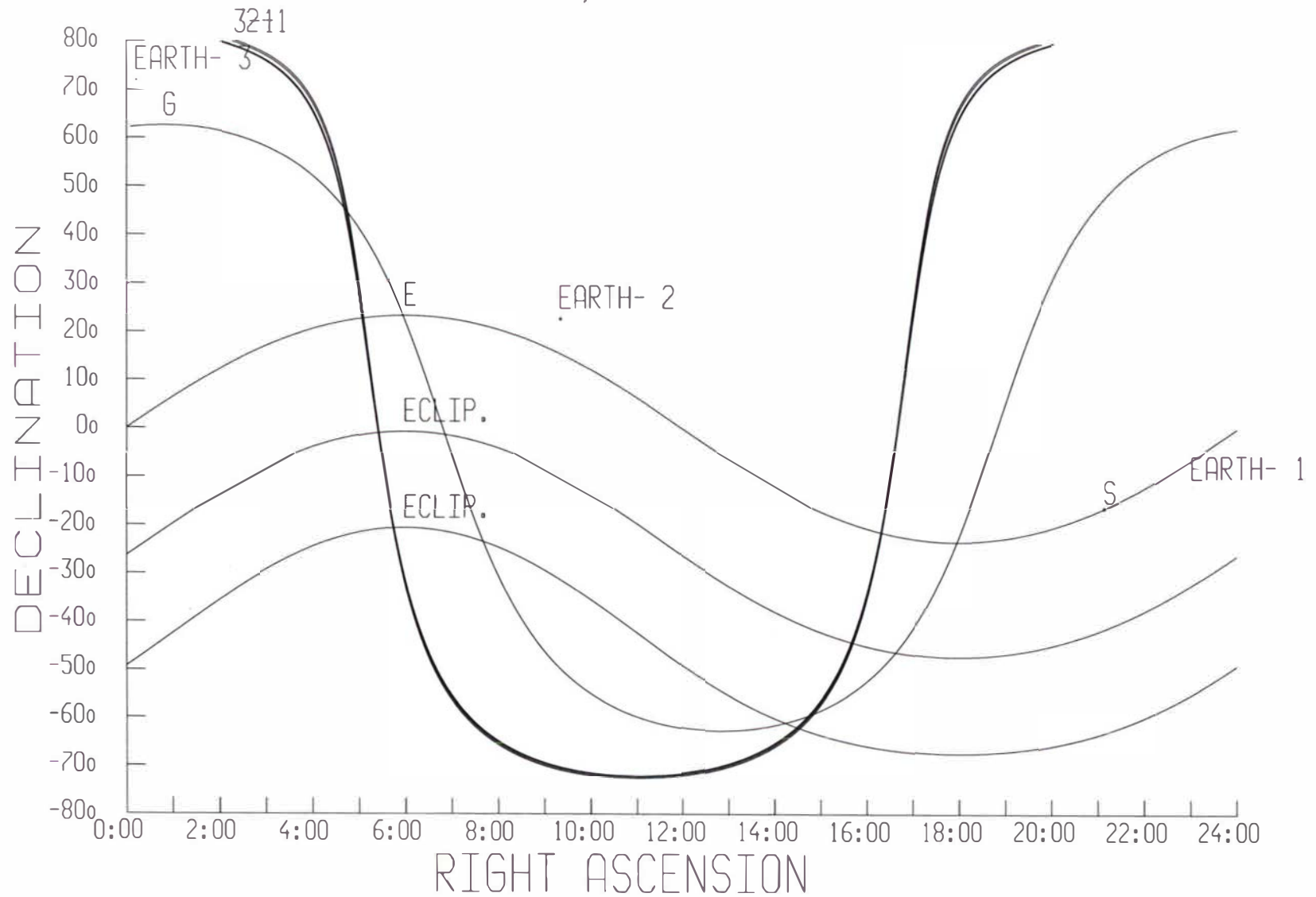
-
- ☒ ACCESS and MBL4 databases updated with identical times?

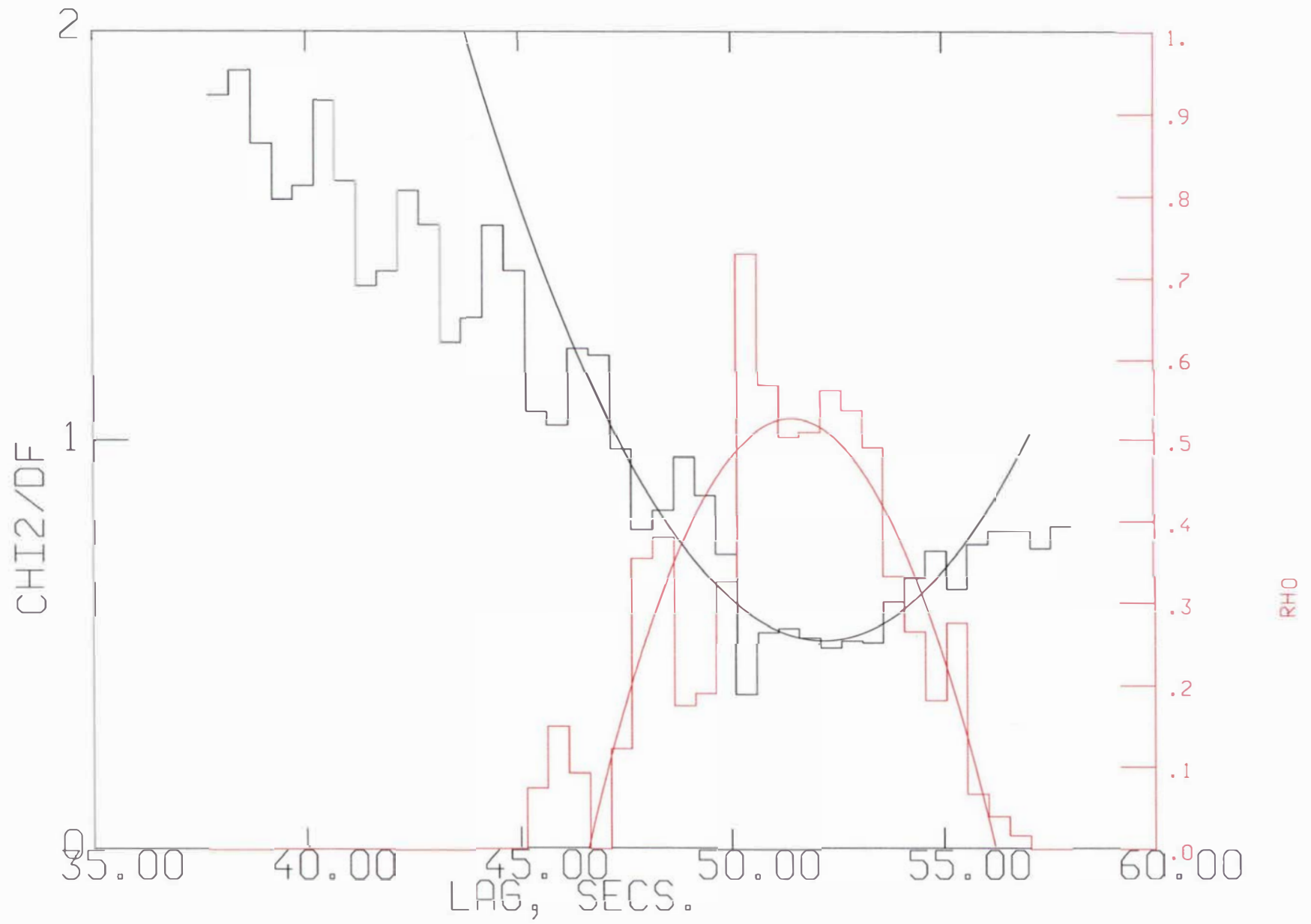


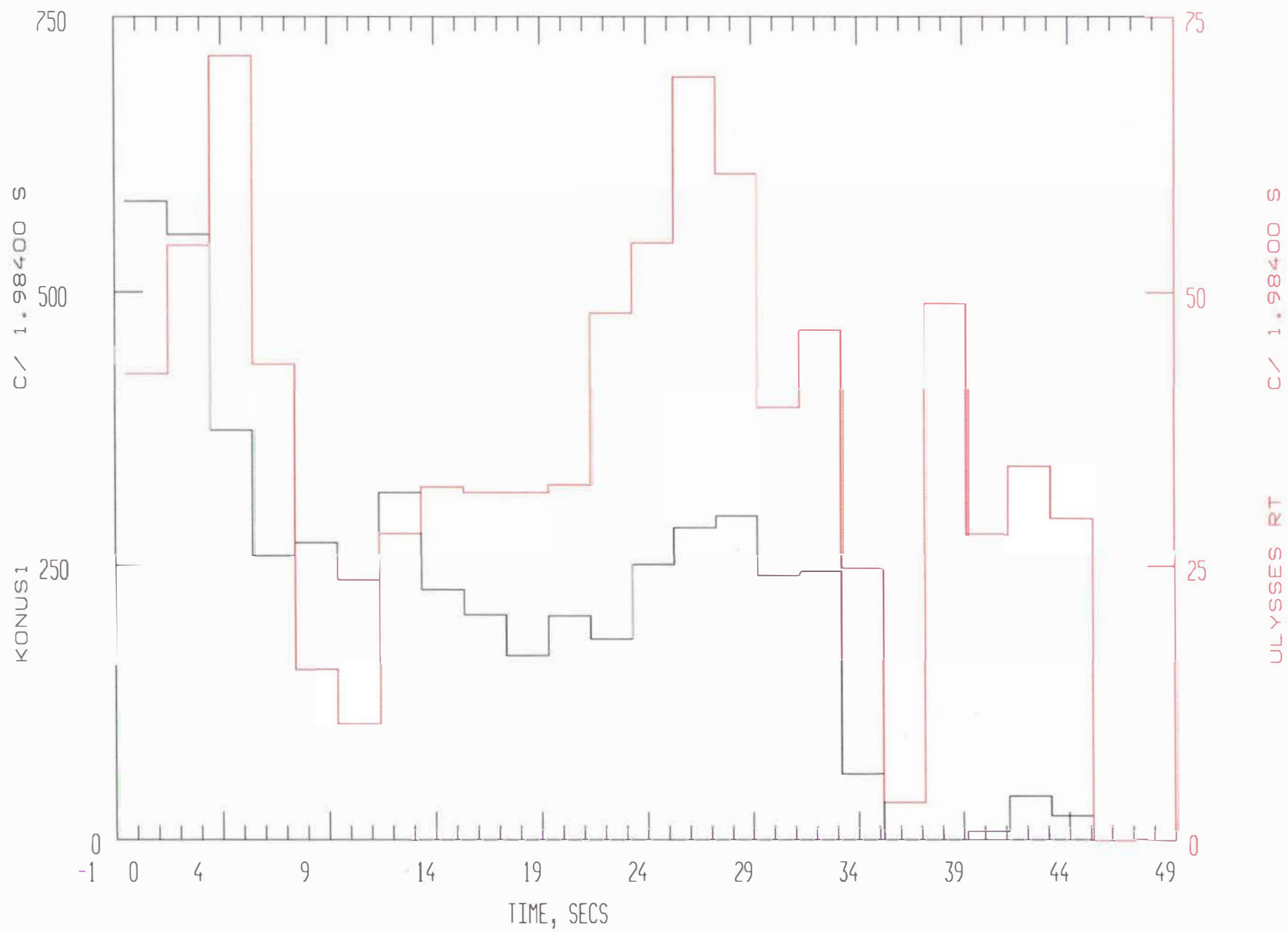
EVENT OF FEB 3, 1998 16:35

27/02/2012

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







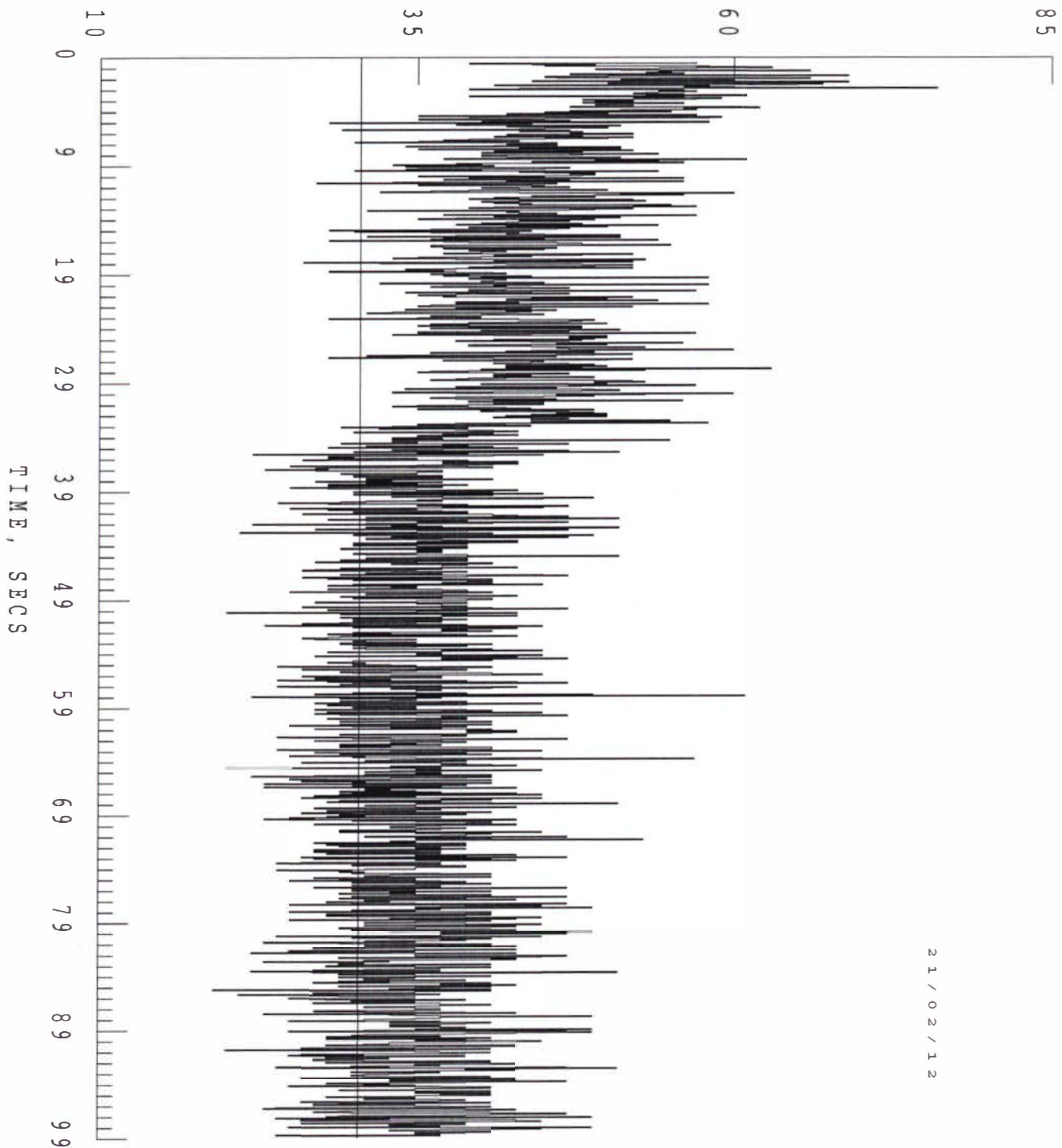
KONUS1

03/02/98

60010.671

50 - 200 keV

COUNTS/0.064 S



21/02/12

KONUS 19980203 59808

ULYSSES RT

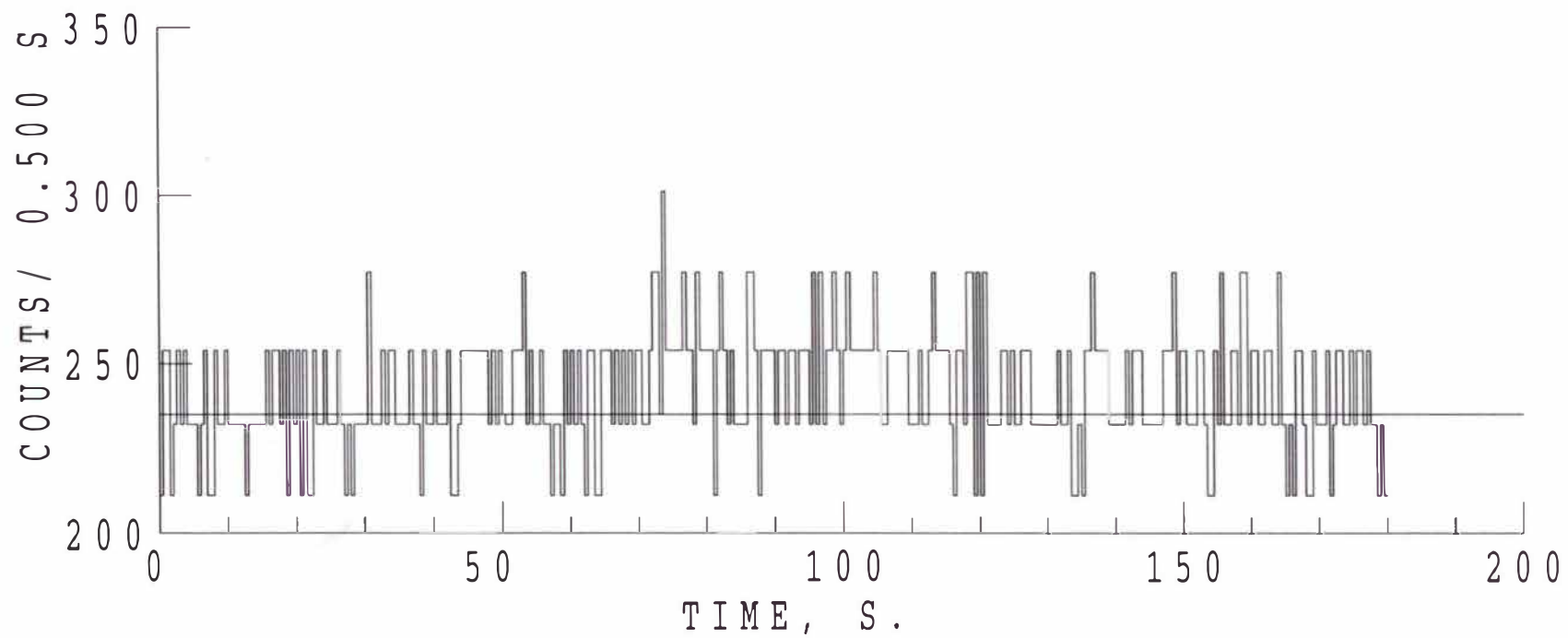
25 / 01 / 12

03 / 02 / 98 59724.000 s

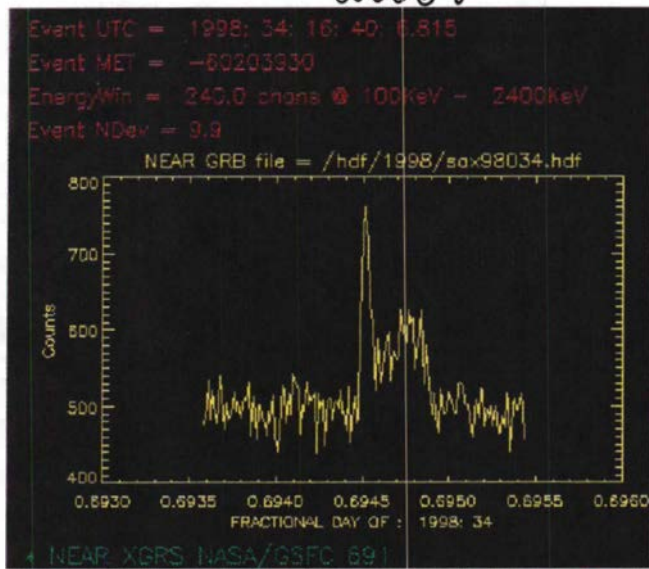
0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLOCTOATIONS

N= 10 M= 2
>4.0 SIGMA FLOCTOATIONS

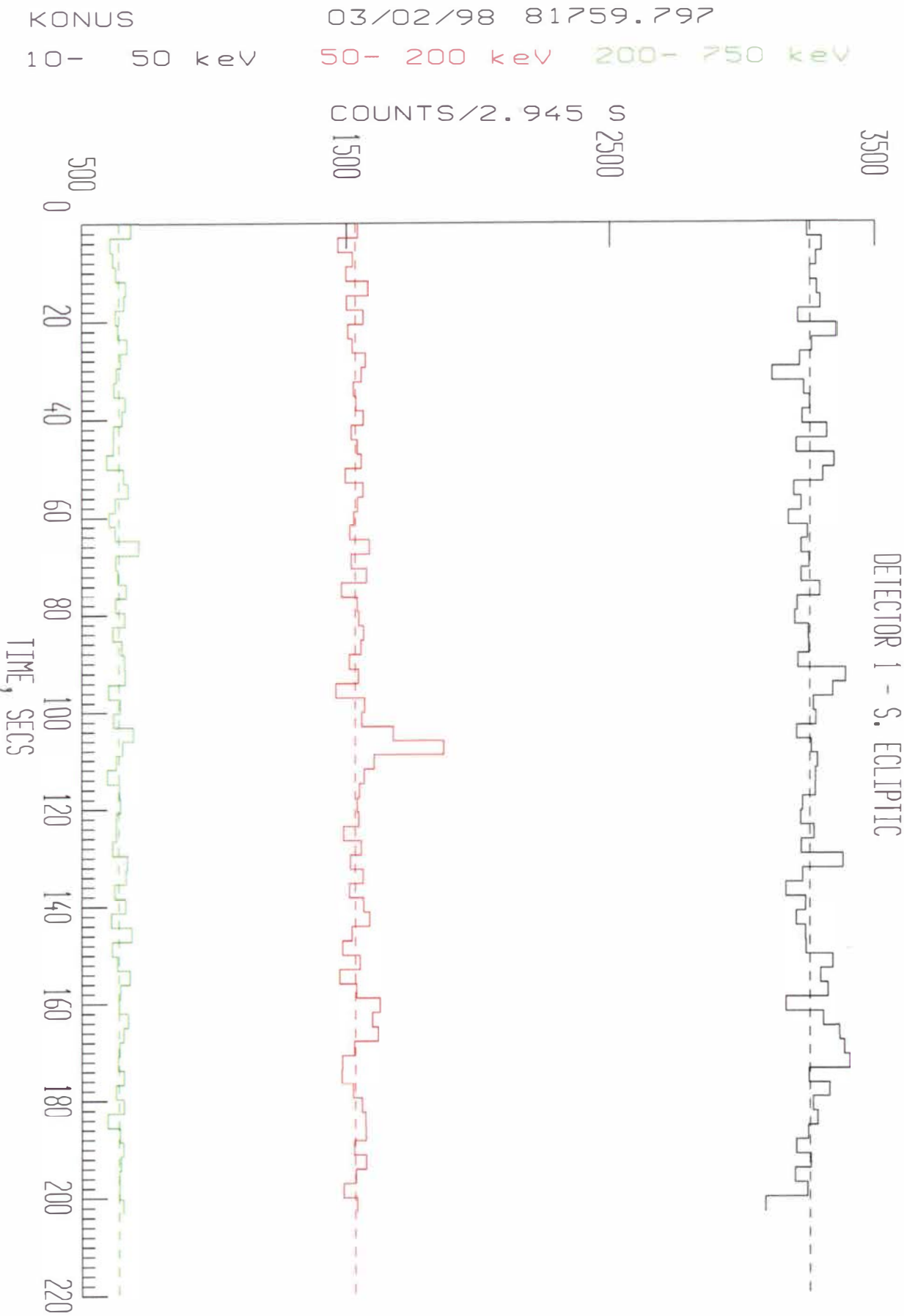


60006 s



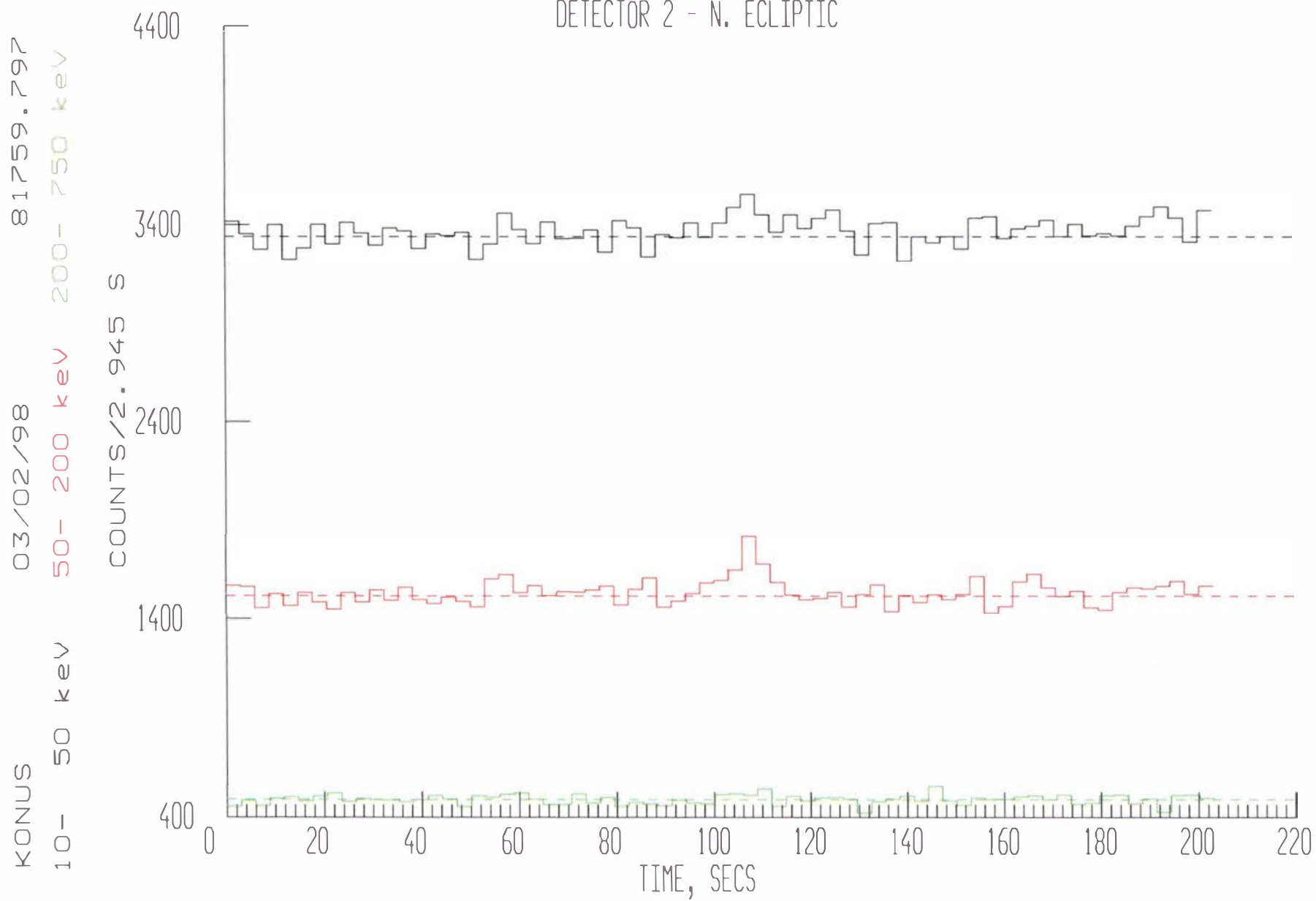
31/01/2012

DETECTOR 1 - S. ECLIPSE



31/01/2012

DETECTOR 2 - N. ECLIPTIC



KONUS 19980203 81864

ULYSSES RT

25 / 01 / 12

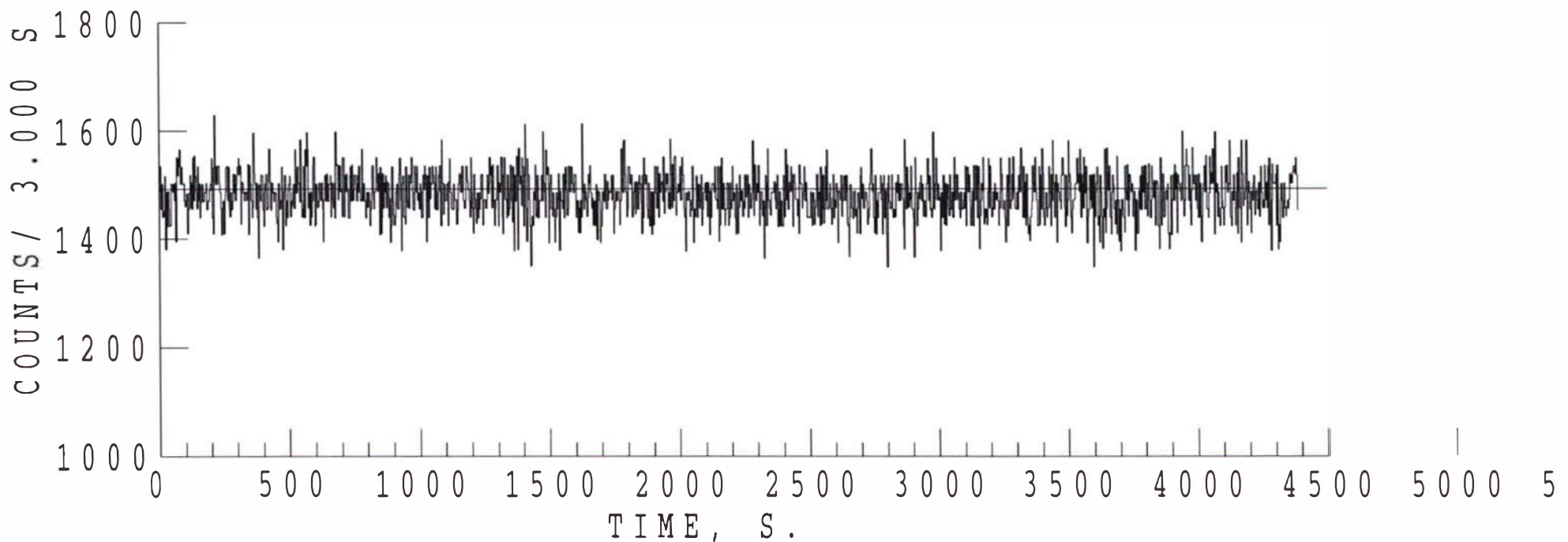
03 / 02 / 98 79668.227 s

0.250 S INTERVALS REGROUPED BY 12

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS

ULYSSES RT

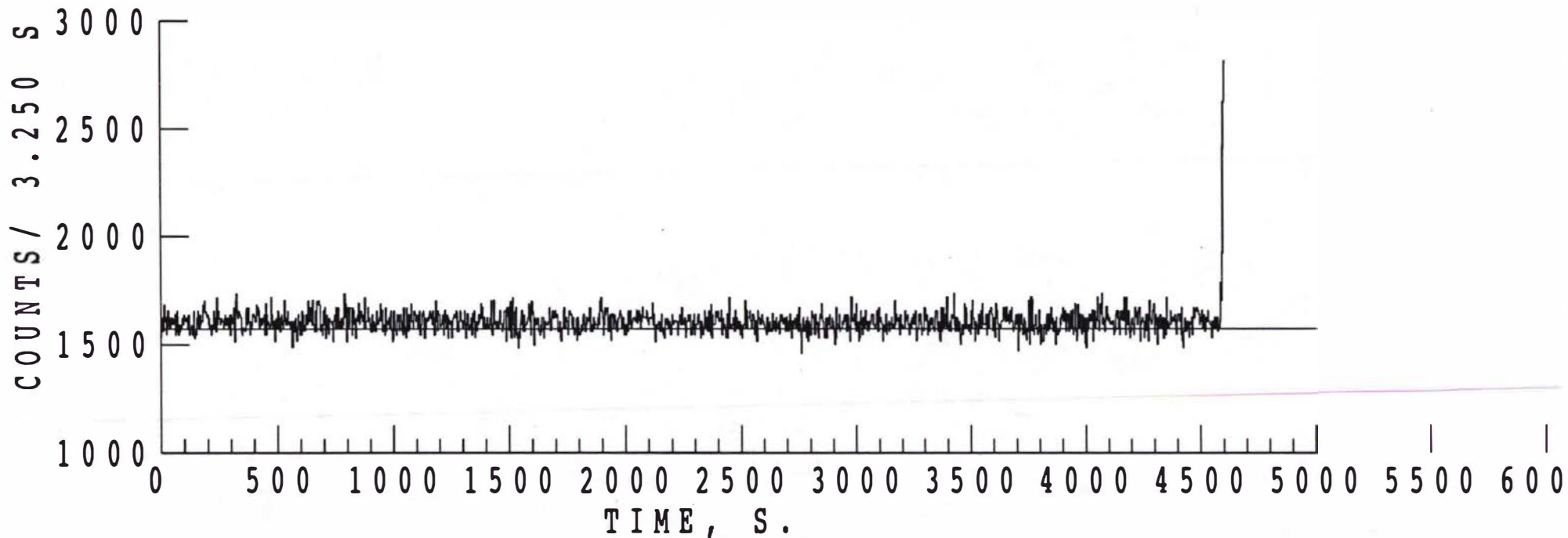
07/02/00

03/02/98 79560.219 s

0.250 S INTERVALS REGROUPED BY 13

0 - 0 keV

W=10 N=2
>4.0 SIGMA FLUCTUATIONS



From RICHARDSON@SSLMOR.msfc.nasa.gov Thu Feb 5 11:18:46 1998
Return-Path: <RICHARDSON@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA07159; Thu, 5 Feb 1998 11:18:43 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA08385; Thu, 5 Feb 1998 11:18:35 -0800
Date: Thu, 5 Feb 1998 13:18:15 -0600 (CST)
From: RICHARDSON@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980205131815.21e20b55@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6587
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6587
EVENT OF 1998 FEB 3 DAY OF YEAR= 34
EVENT CROSSING TIME AT BATSE : 82028. S. OR 22:47:08.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 4.000 -18.000
BATSE PEAK COUNTING RATE: 95000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 3/ 2/ 98 IS:
RA= 164.762 DEC= 12.393 DIST= 4.492 AU
BATSE-ULYSSES DISTANCE = 671975181. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 19.38 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2114.47 SECS.
CROSSING TIME AT ULYSSES IS 84142. S. OR 23:22:22 +/- 211.24 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 3/ 2/ 98 IS:
RA= 338.883 DEC= -9.908 DIST= 2.241 AU
MARS-BATSE DISTANCE = 335201856. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=154.35 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1007.93 SECS.
CROSSING TIME AT MARS IS 81020. S. OR 22:30:20 +/- 68.72 SECONDS

BATSE BURST TRIGGER

NO.: 6587

TIME: TJD=0847 SECONDS=82028

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=101.1 AZIMUTH=8.7 ERROR=0.3 DEGREES

COMMENTS:

GRB STRONG EVENT WITH LOTS OF STRUCTURE. DURATION APPROX. = 40 SEC.
VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6587	980203	10847	82028	95000	004	-18	40

Date: Feb 11 00

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☐ Jim Schmidling's stat file correction applied?
- ☐ Final ephemeris used? *Helio corr removed*
- ☐ Final, CDROM data used?
- ☐ 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

- ☐ 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, or from Teresa Sheets, have the correct time; files on website have incorrect times)
- ☒ BATSE >100 keV data used for NEAR correlation?
- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

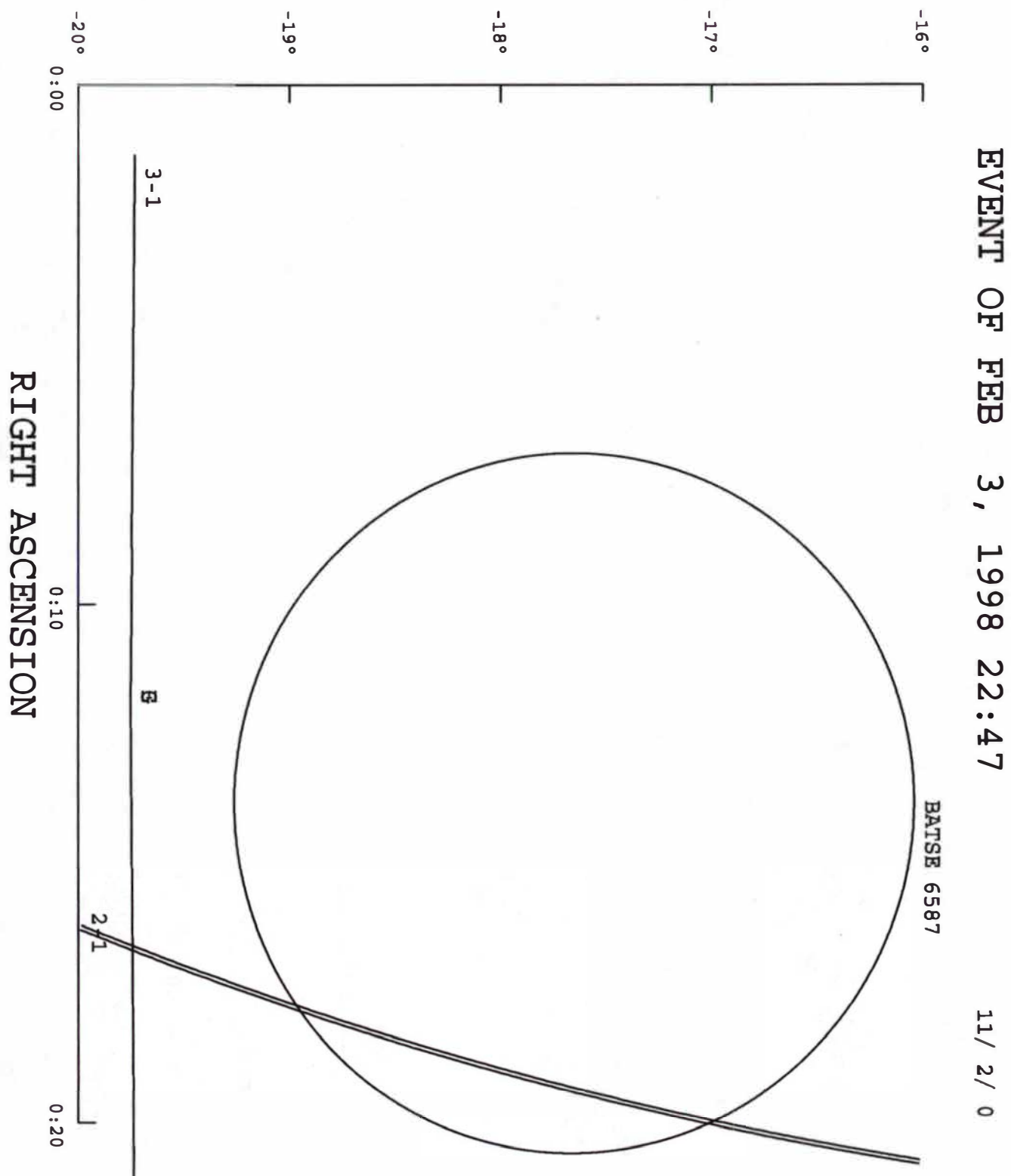
G=GALACTIC EQUATOR

1 BATSE

2 ULYSSES

3 NEAR

DECLINATION



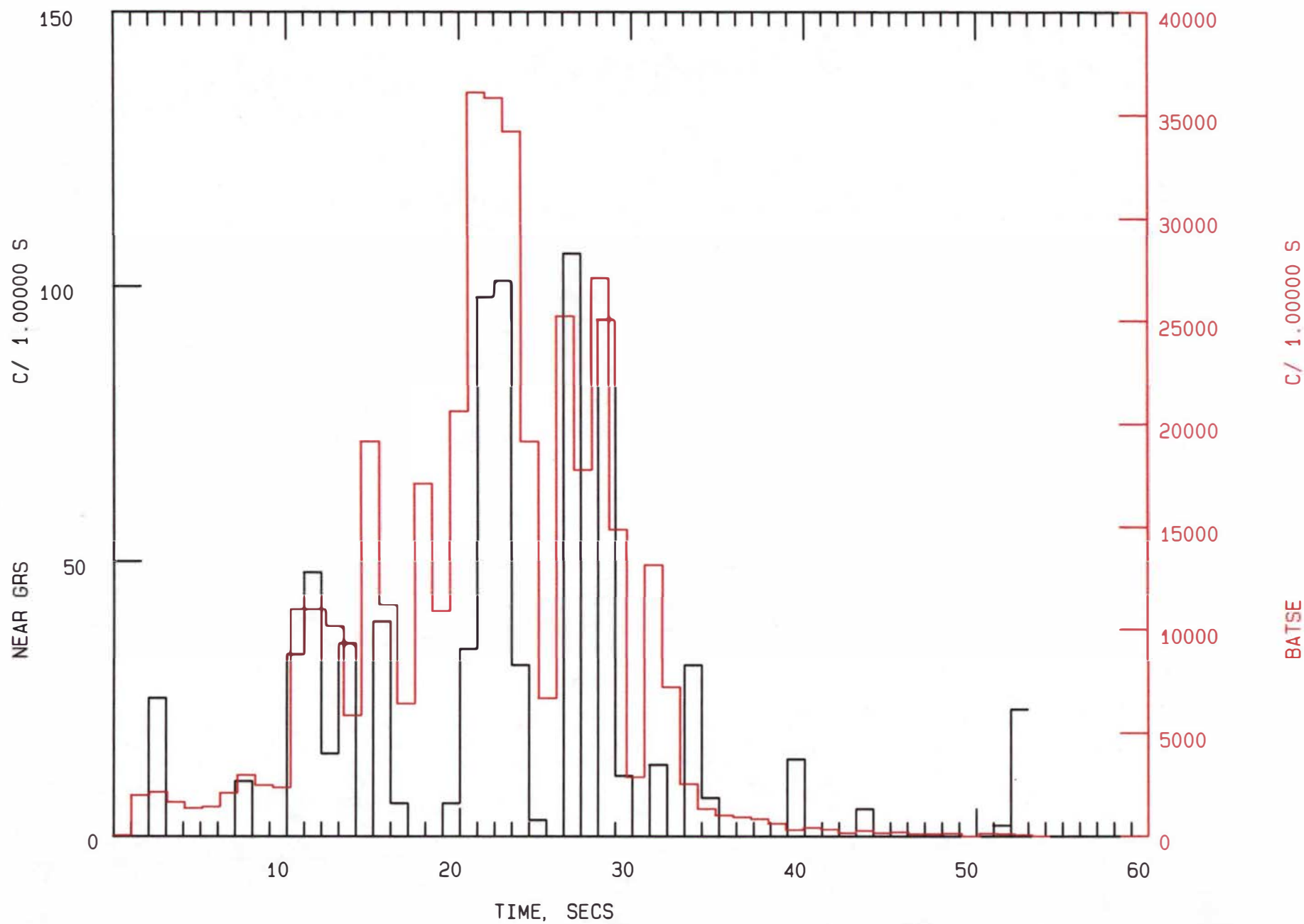
NEAR GRS -BATSE

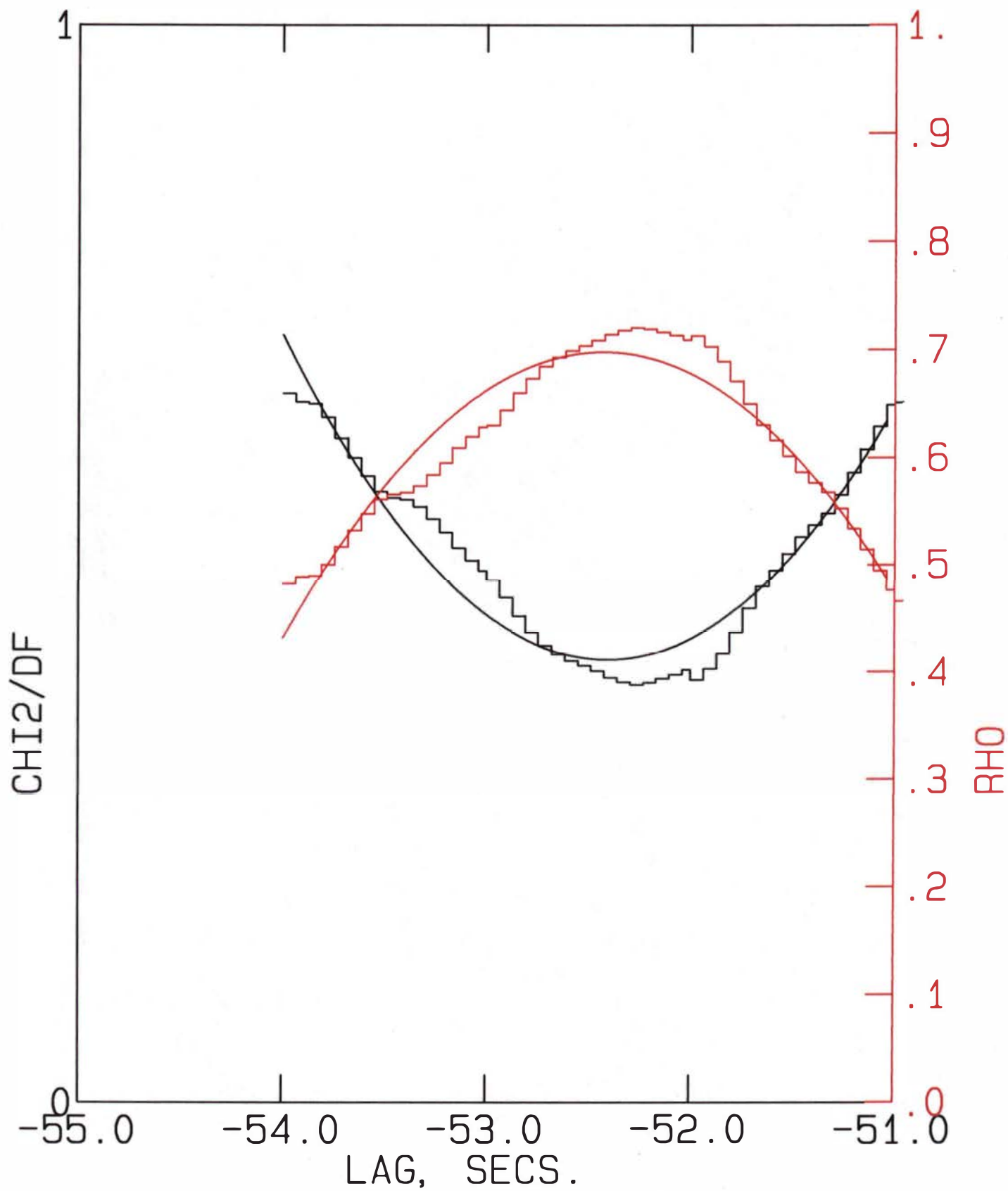
CORRELATION

03/02/98

82027.534

11/ 2/ 0





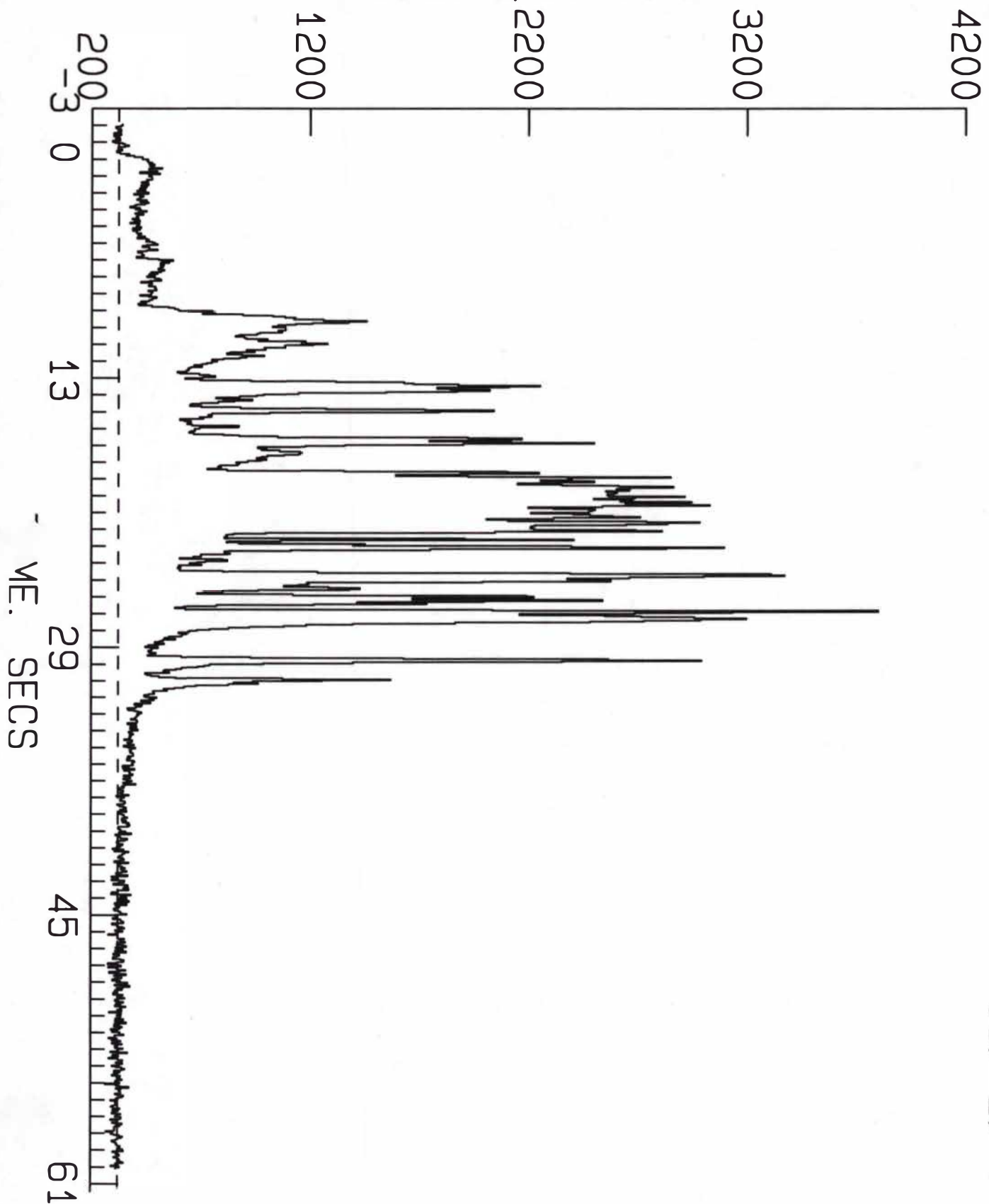
BATSE

03/02/98

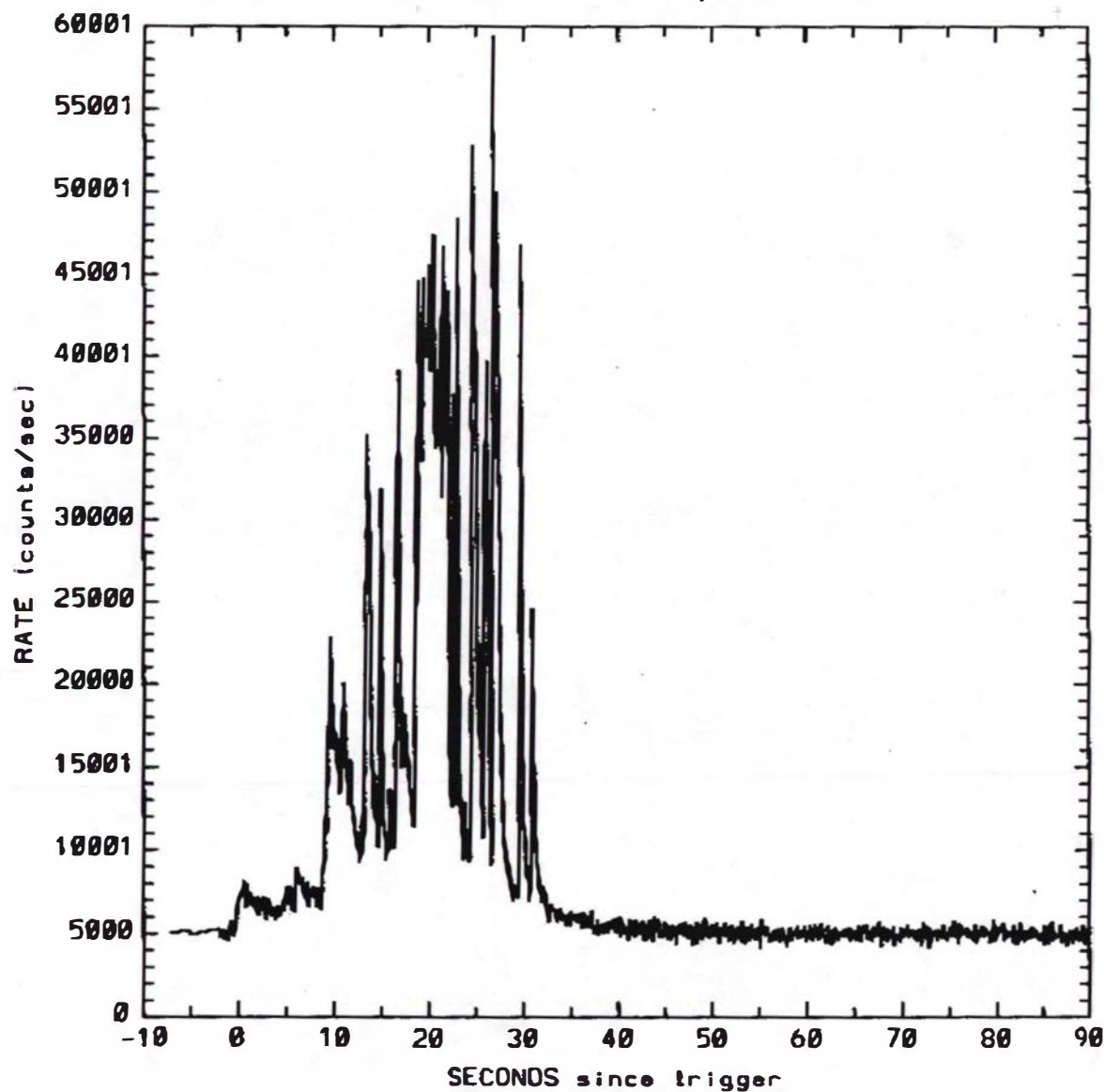
82028.258

100-1000 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 6587



9-FEB-2000 08:58.20

Created by MOPS 80
(Burst Display)
Version 12.26

Trigger # : 6587

Trigger Time:
10847 / 82828.257Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8].
-----10Discriminators:
(3 . 4)Quality Mask:
BOISP1

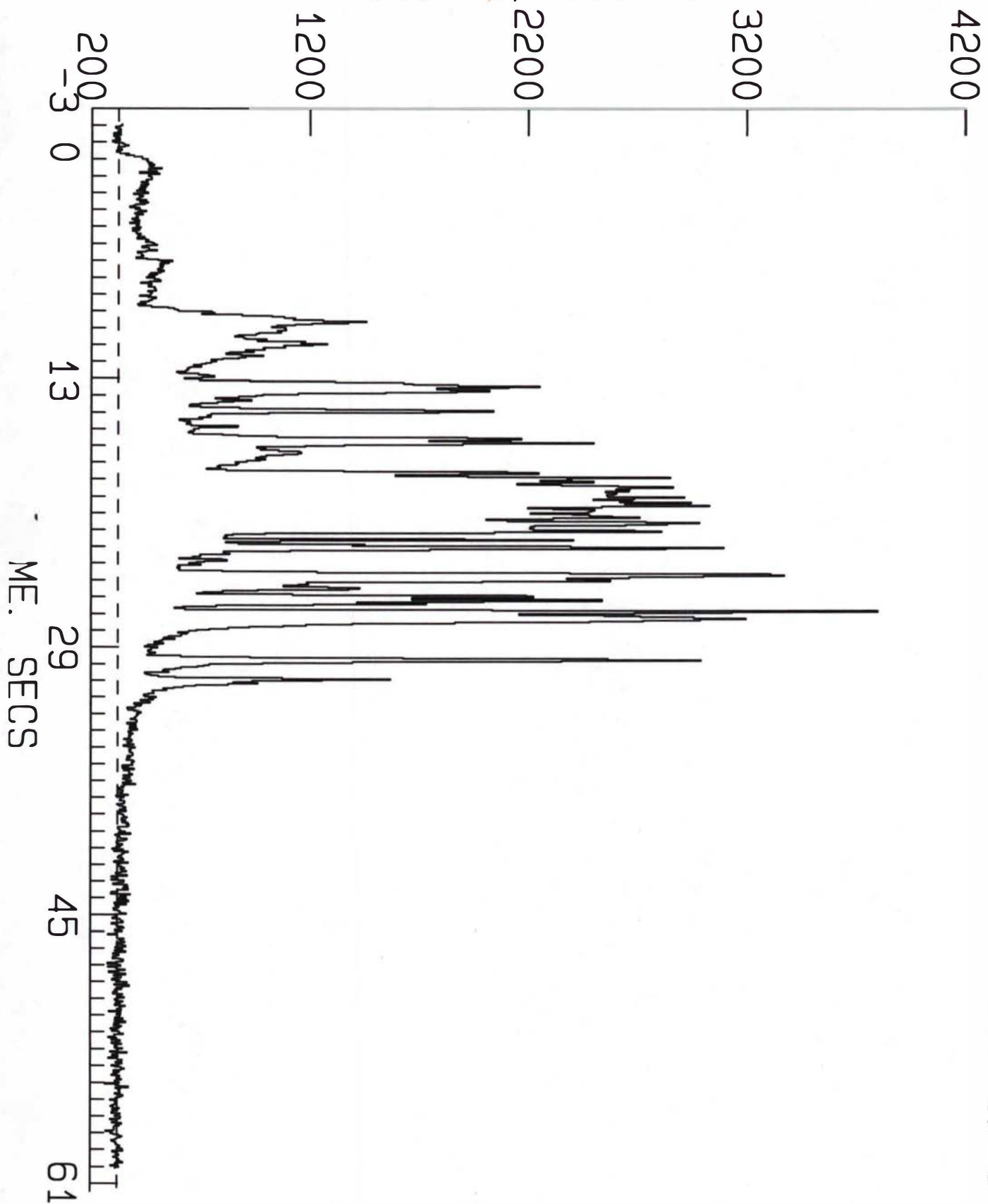
BATSE

03/02/98

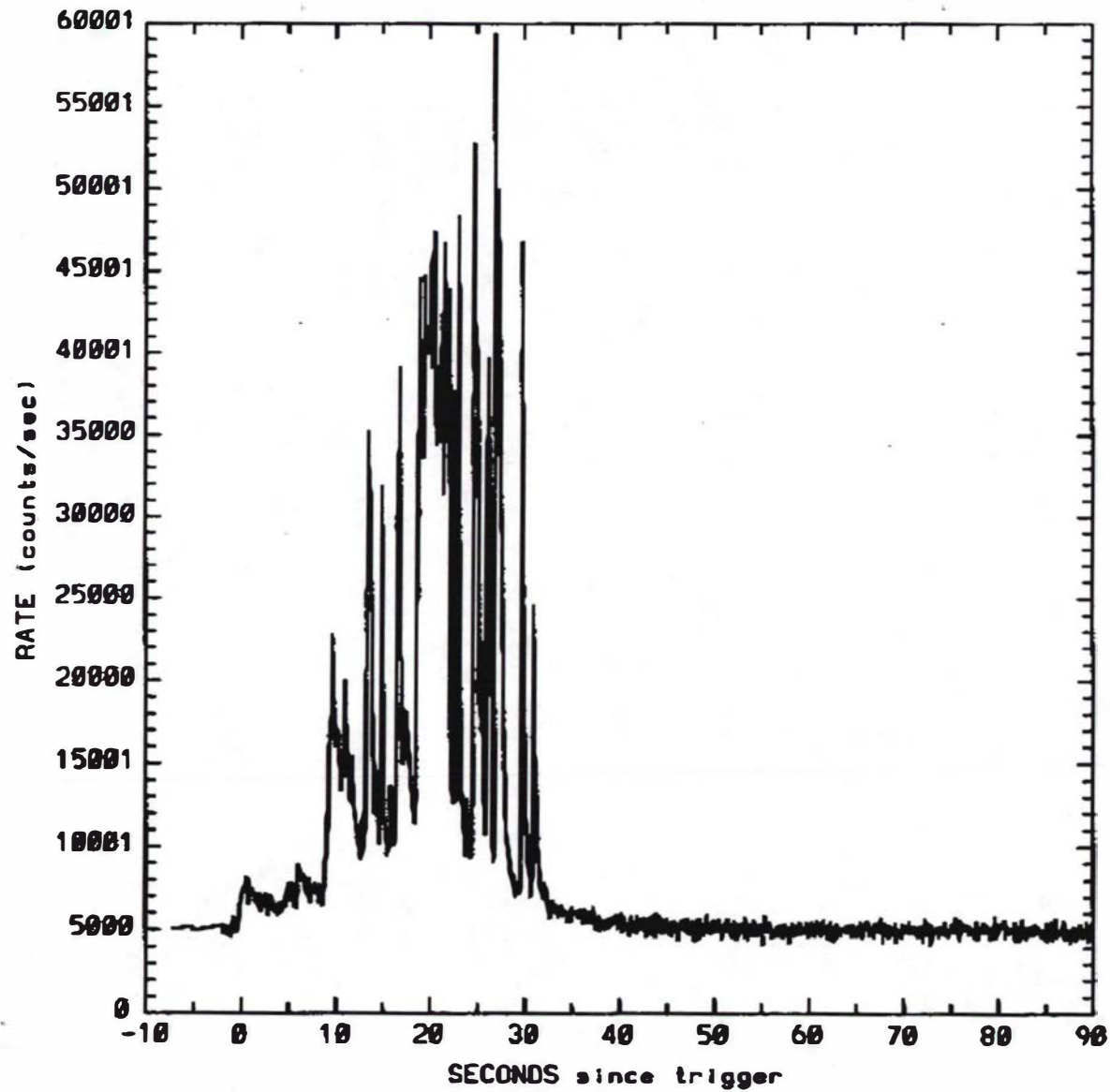
82028.258

100-1000 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 6587



21-JAN-2000 15:32:07

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

Trigger # : 6587

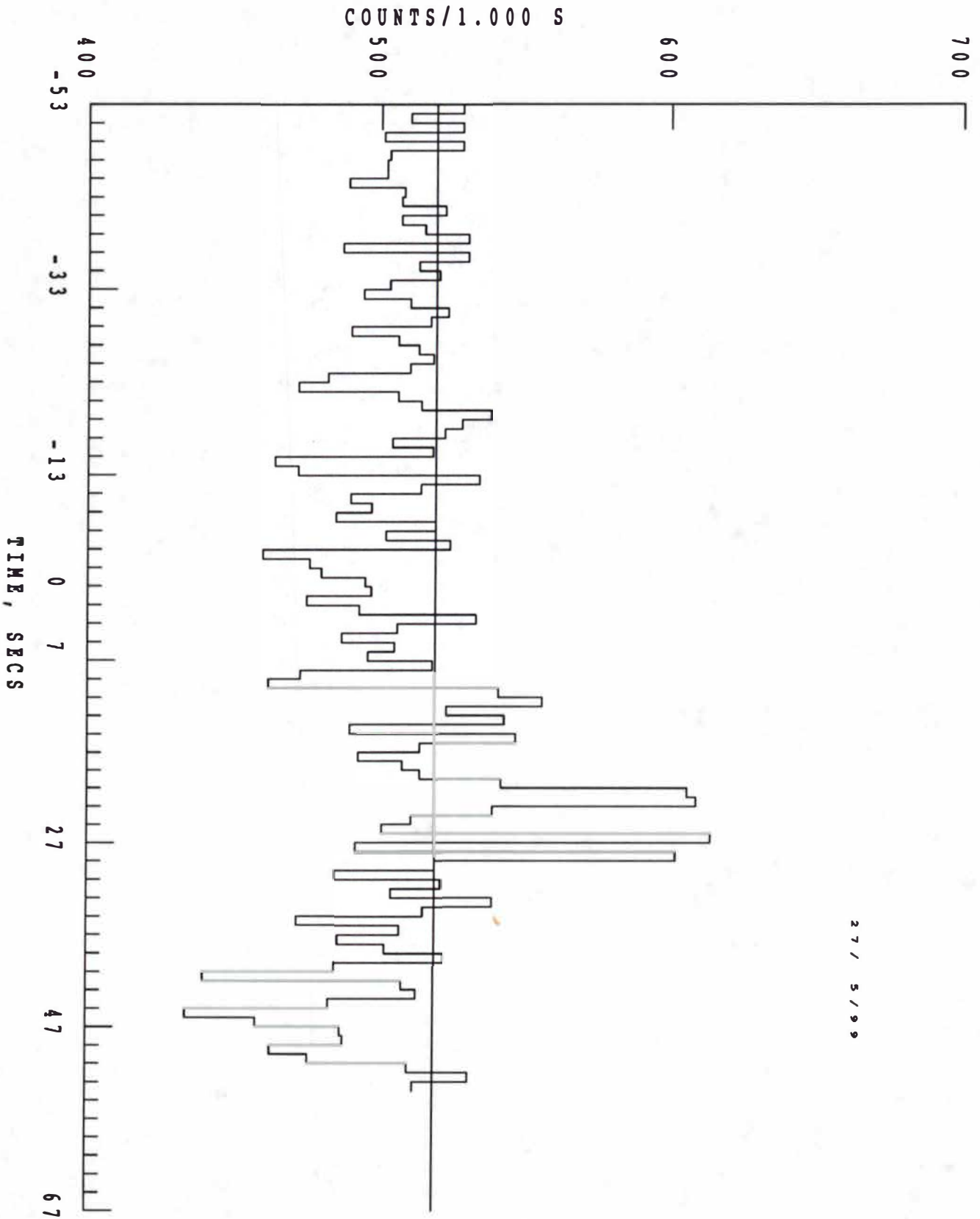
Trigger Time:
18847 / 82828.257Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 second(s)Detectors [7..8]:
-----10Discriminators:
[3 . 4]Quality Mask:
BDISP1

NEAR

03/02/98

82027.534

100-1000 keV



Date: May 7 '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? 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)? 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

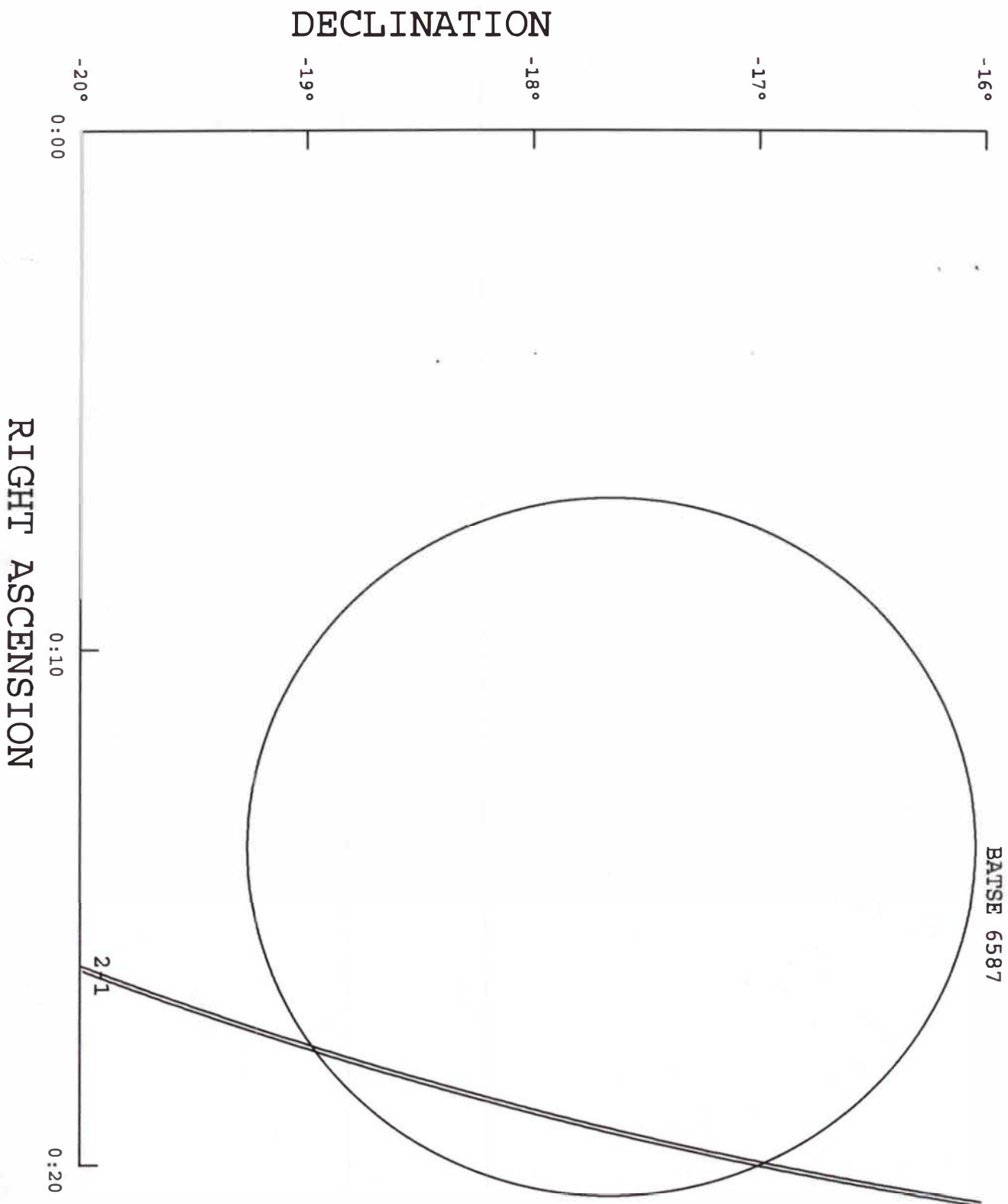
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 3, 1998 23:22

7 / 5/98



BATSE

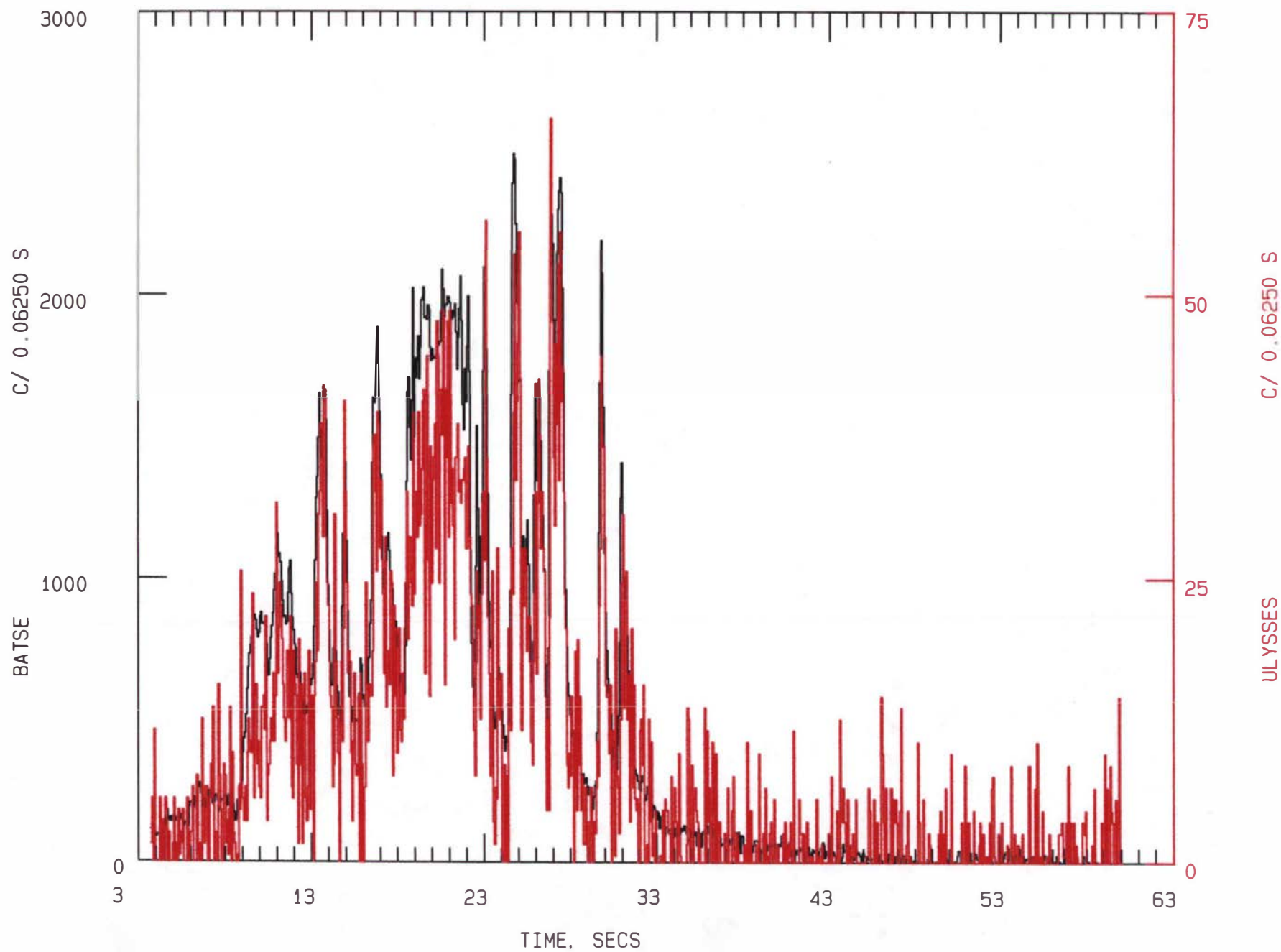
-ULYSSES

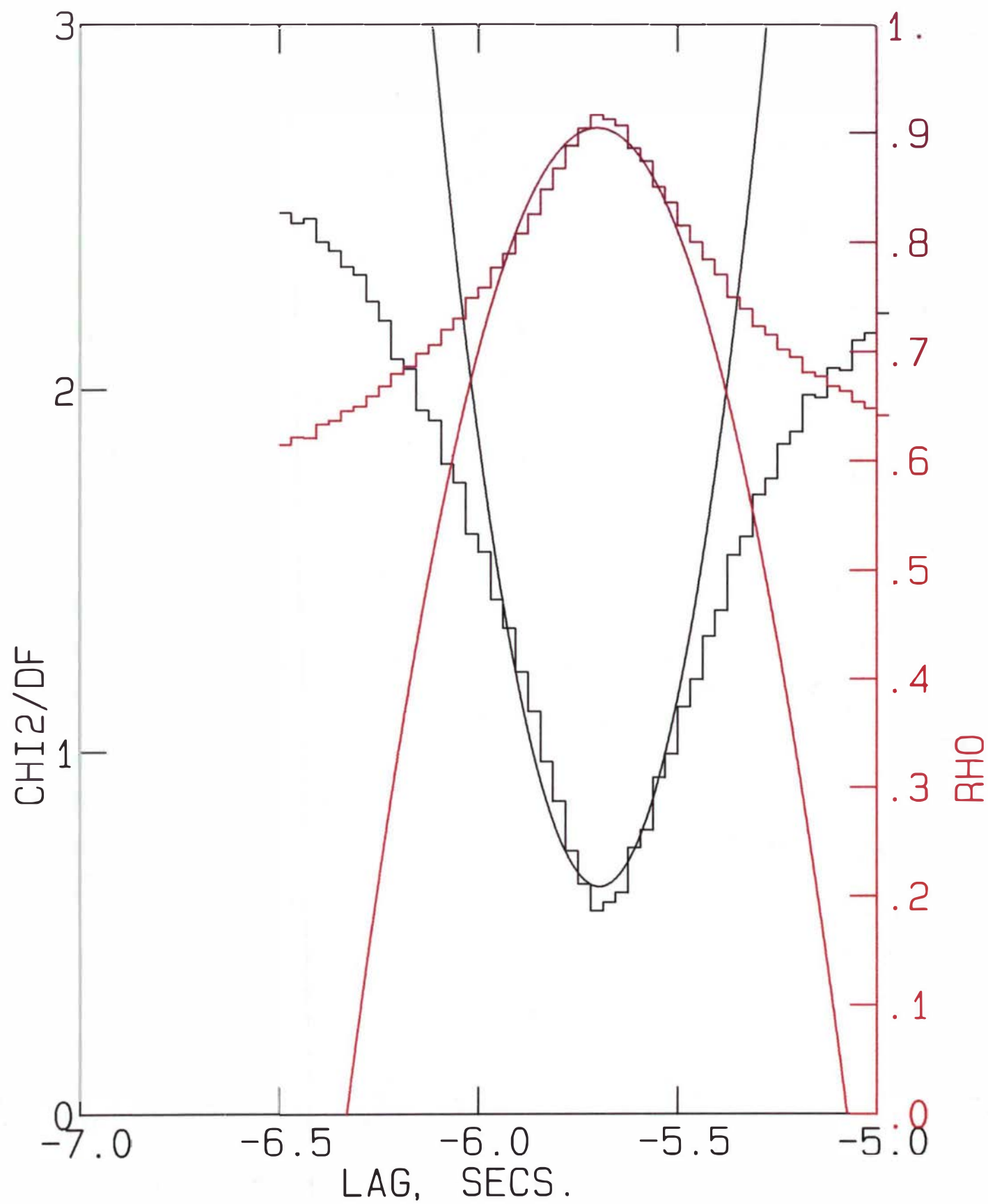
CORRELATION

3/ 2/98

82028.258

7/ 5/98





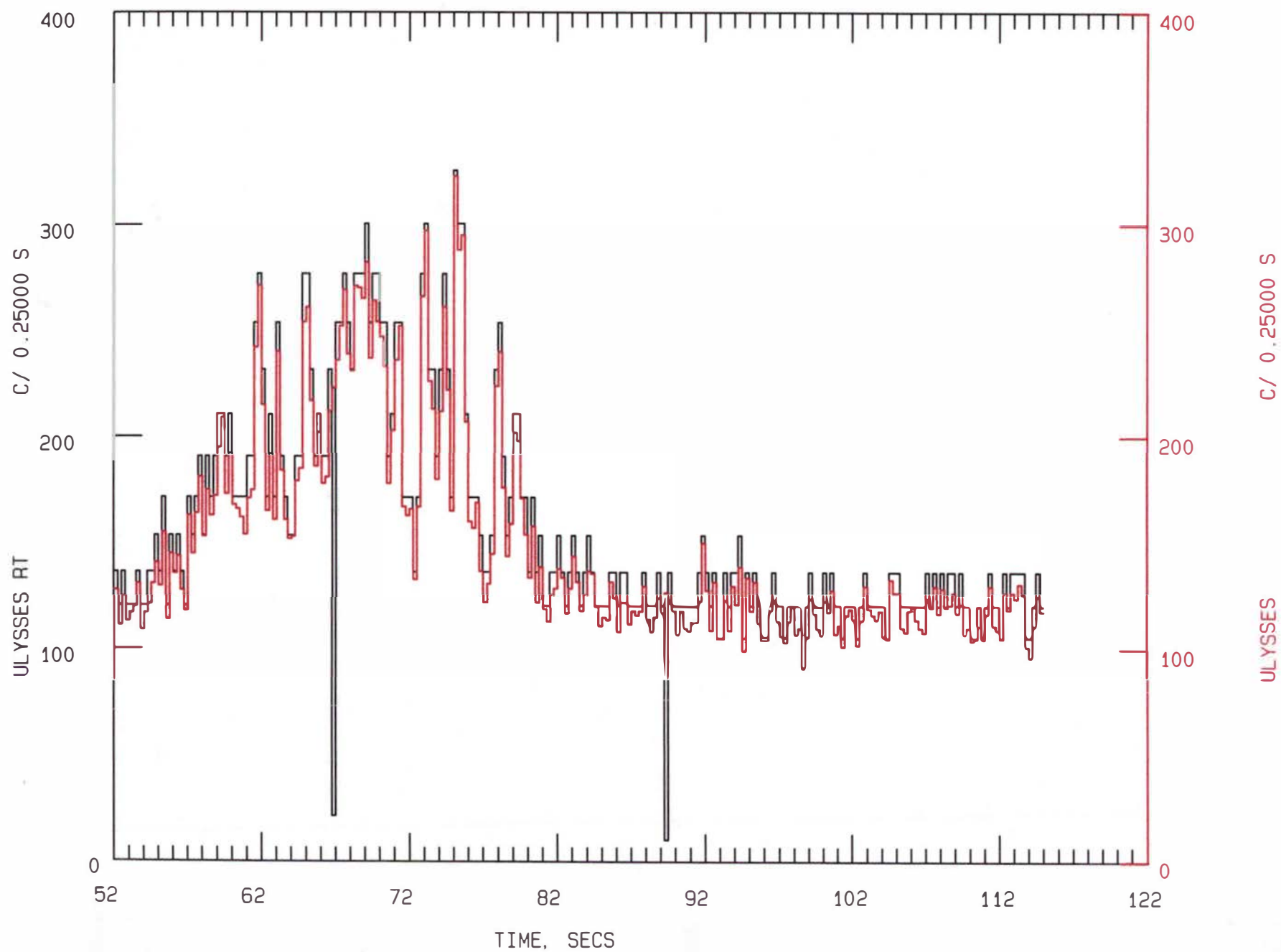
ULYSSES RT-ULYSSES

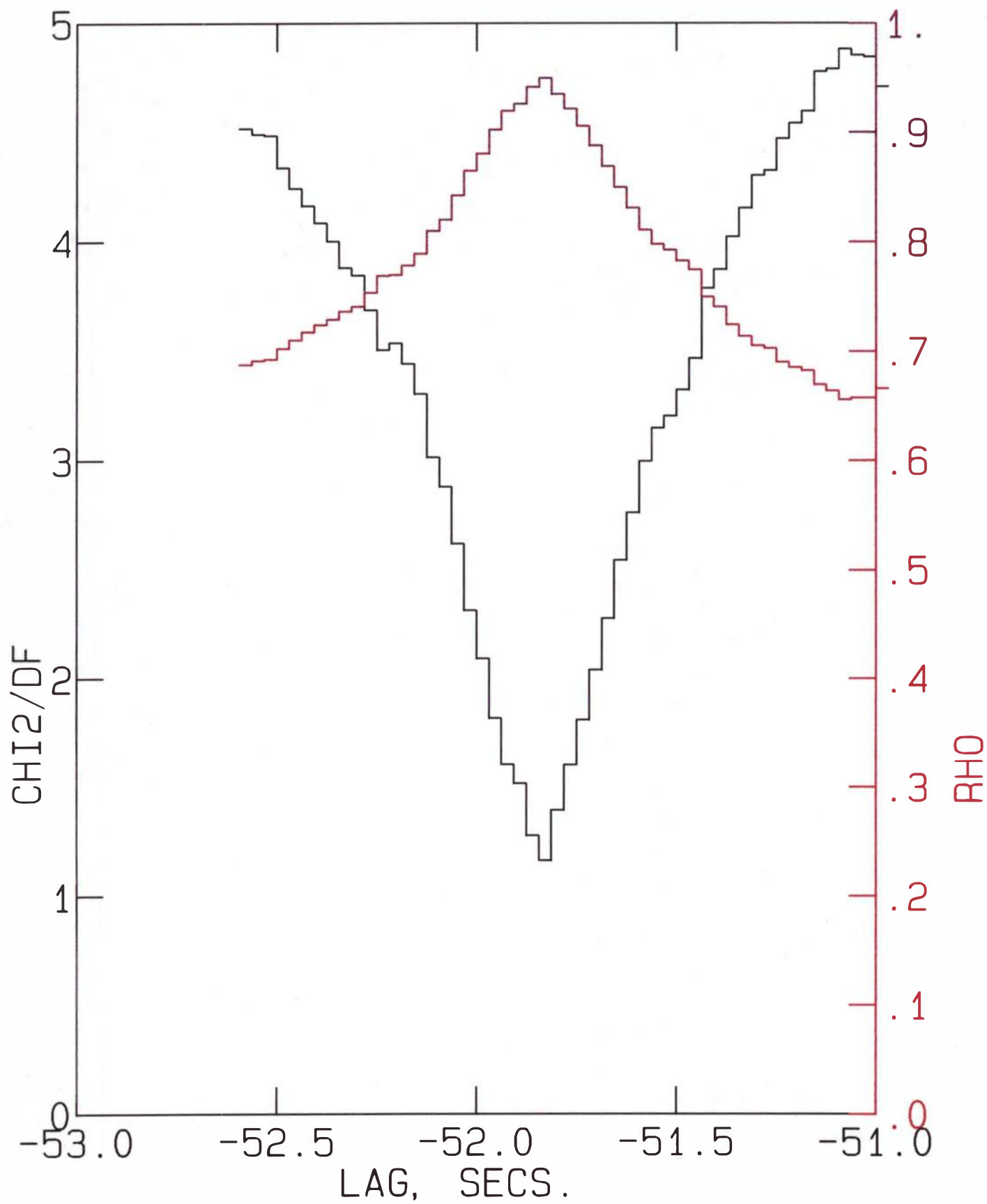
CORRELATION

3/ 2/98

84098.133

7/ 5/98

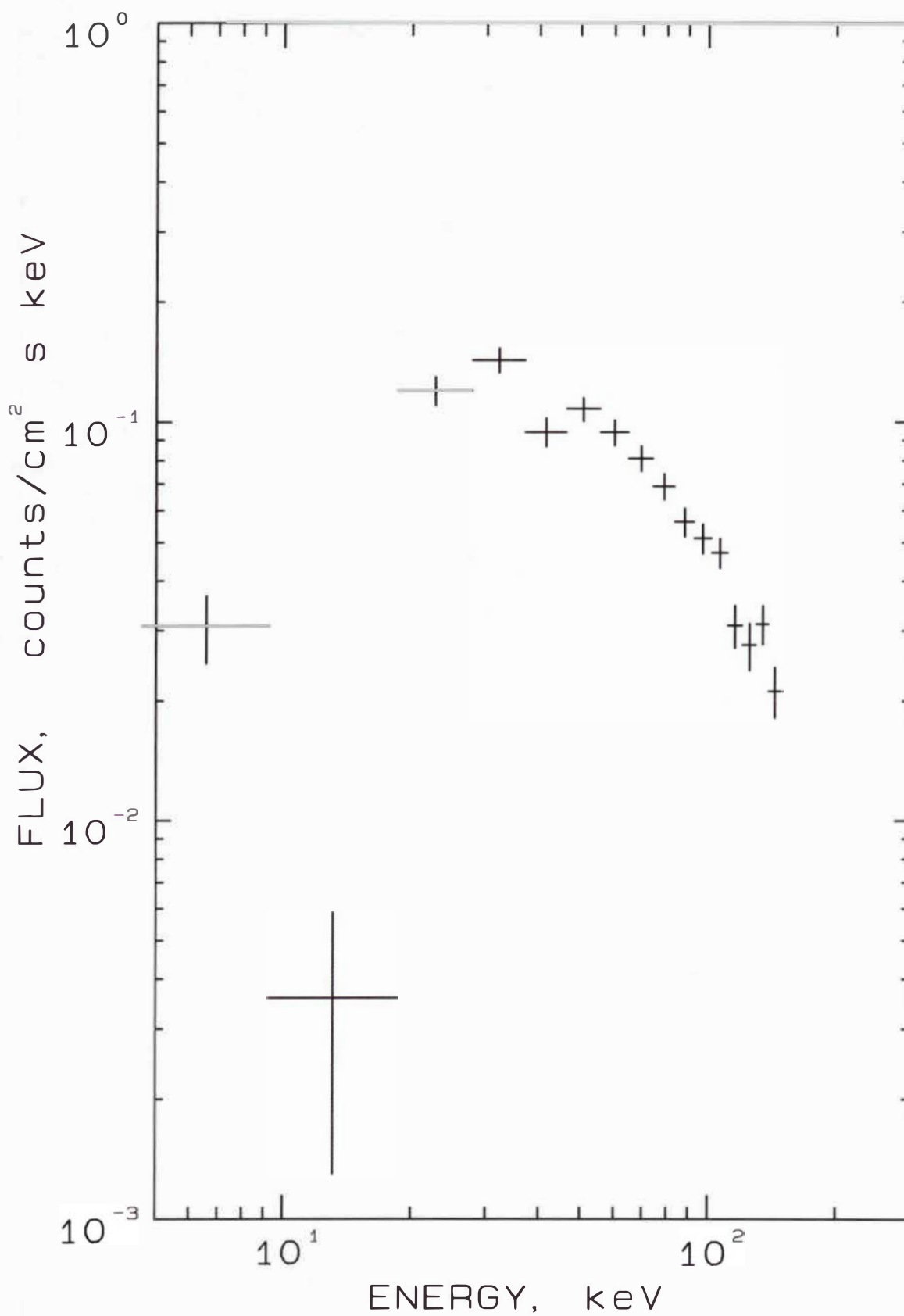




ULYSSES 03/02/98 84157.246

7/ 5/98

SPECTRUM INTEGRATED OVER 63.5 SECONDS, INTERVALS 2 TO 34



ULYSSES 03/02/98 84157.246 BURST SPECTRAL COUNT RATES

4- 18 keV

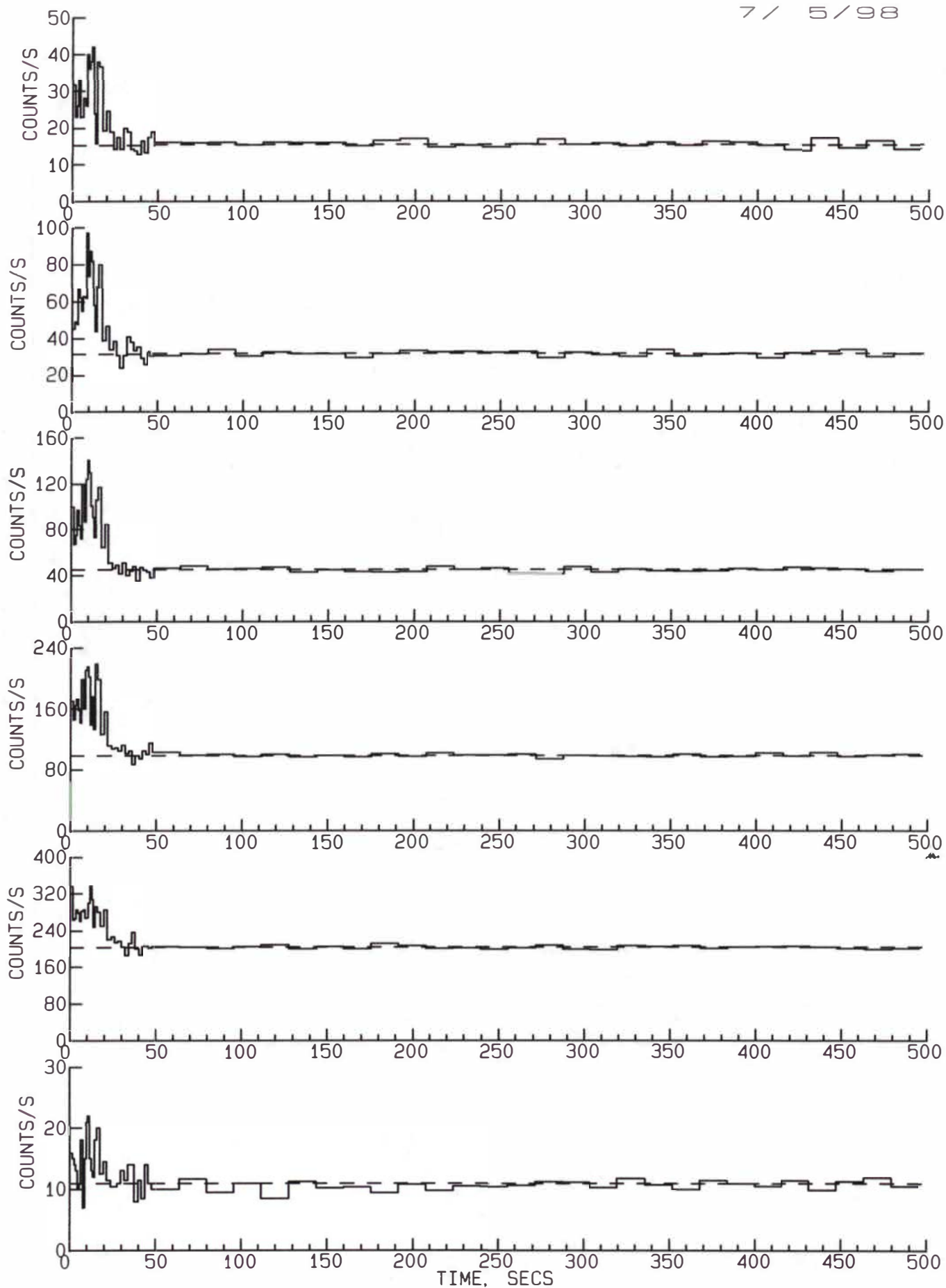
18- 46 keV

46- 74 keV

74-102 keV

102-130 keV

130-148 keV



ULYSSES

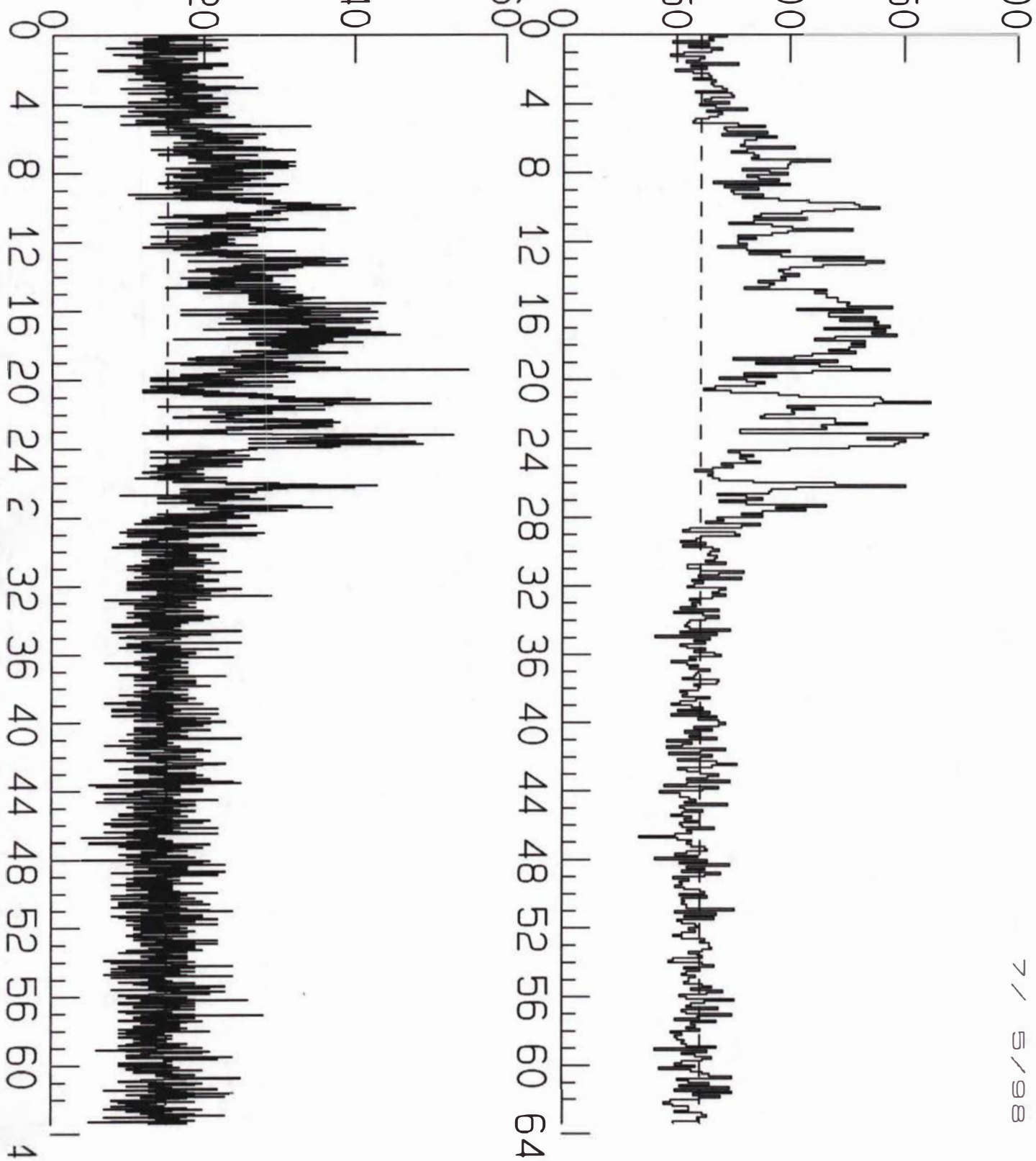
03/02/98

Ttrig=84157.362

22- 148 keV

COUNTS/0.031 S

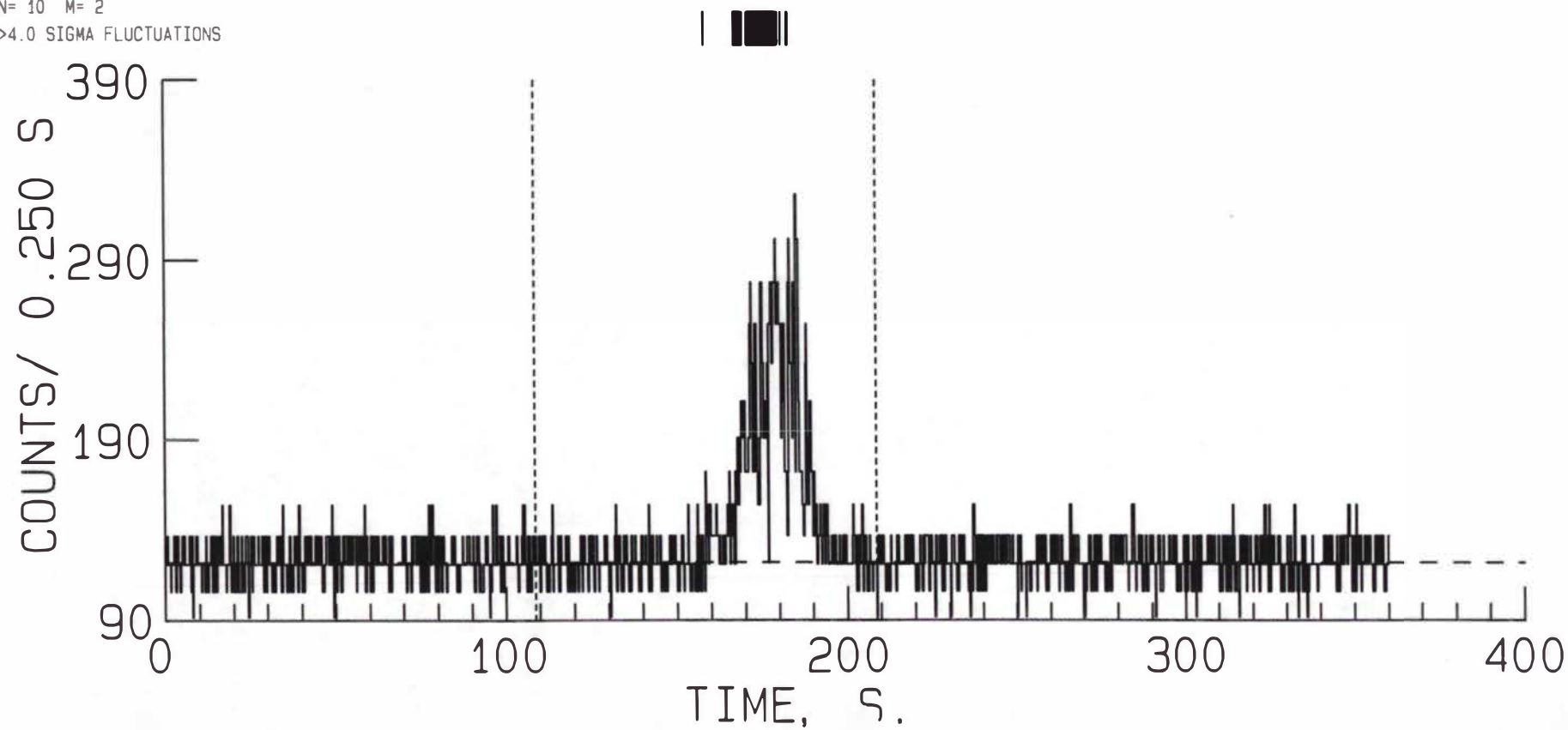
COUNTS/0.125 S



ULYSSES RT
3/ 2/98 83988.019 s
22- 148 keV

7/ 5/98

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



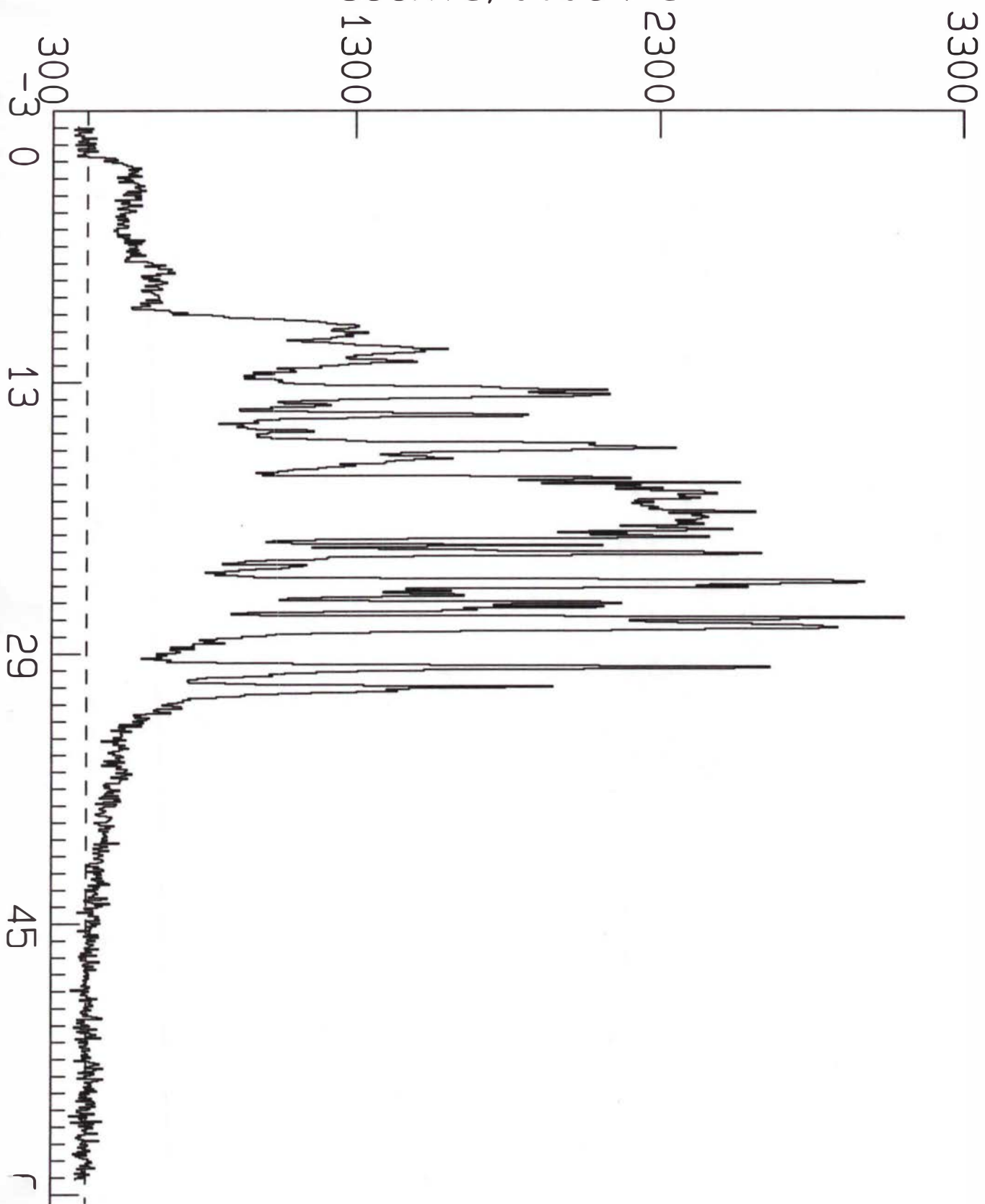
BATSE

03/02/98

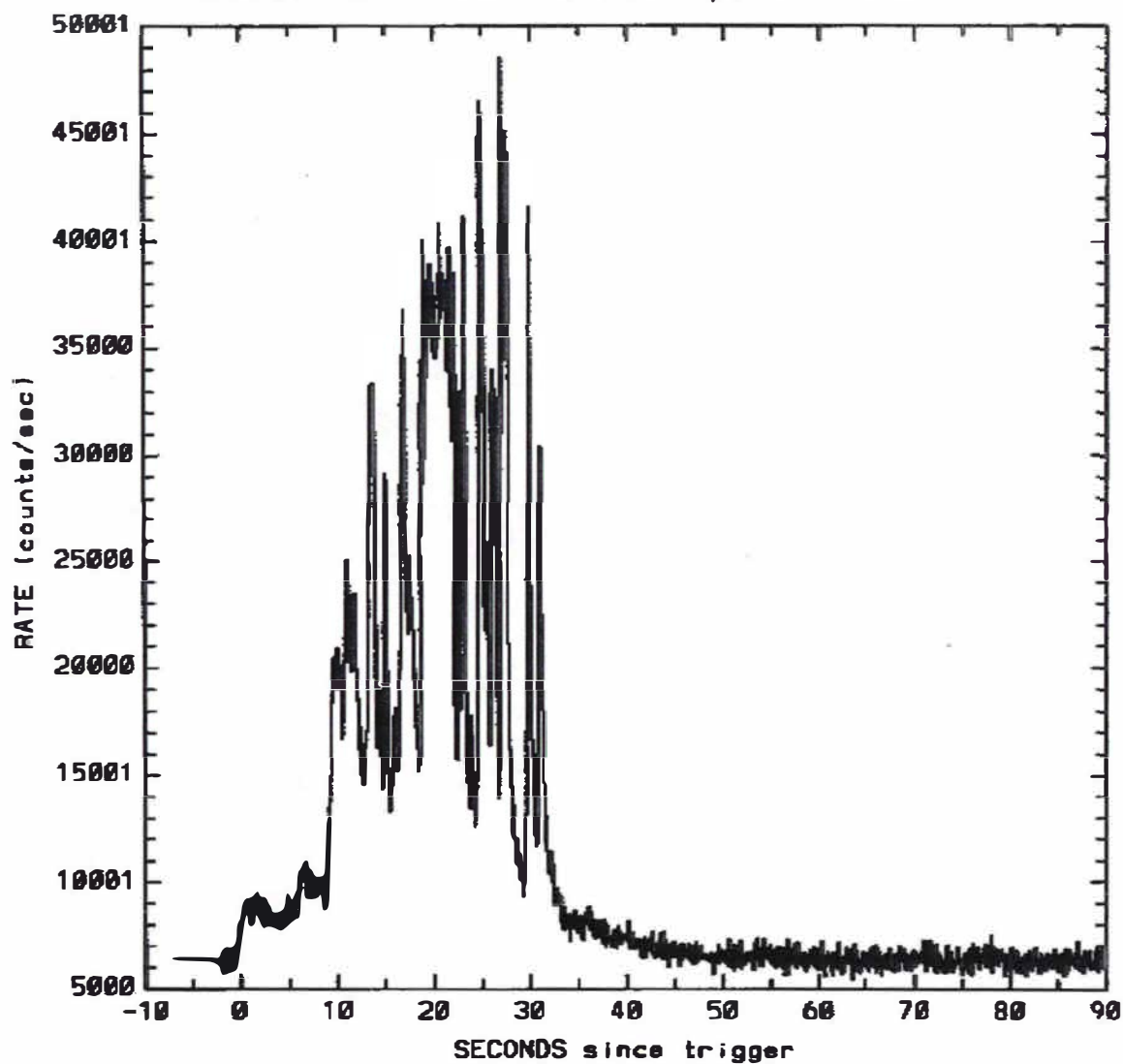
82028.258

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 6587



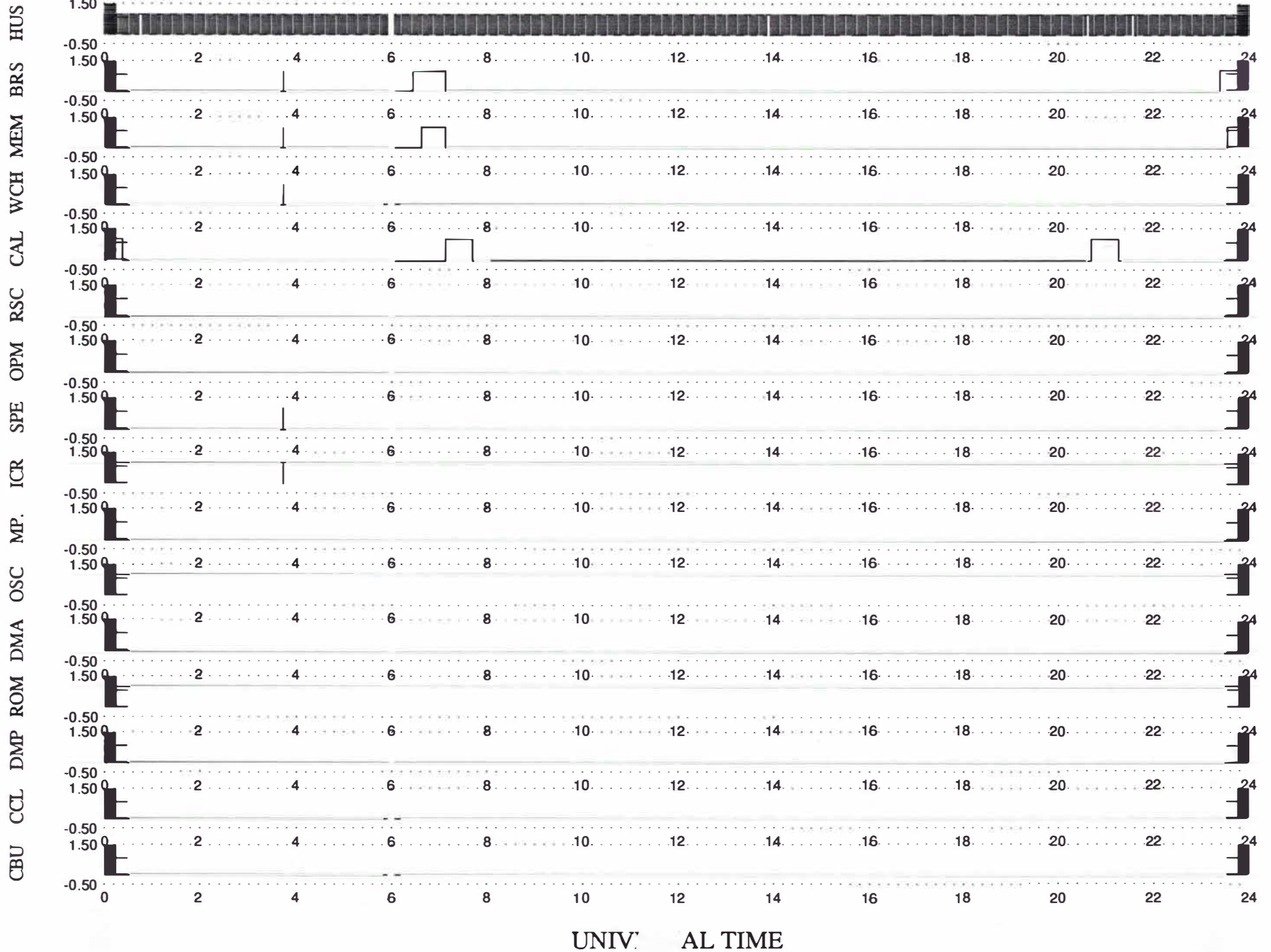
5-FEB-1998 13:27:22

Created by NOPS 80
(Burst Display)
Version 12.25

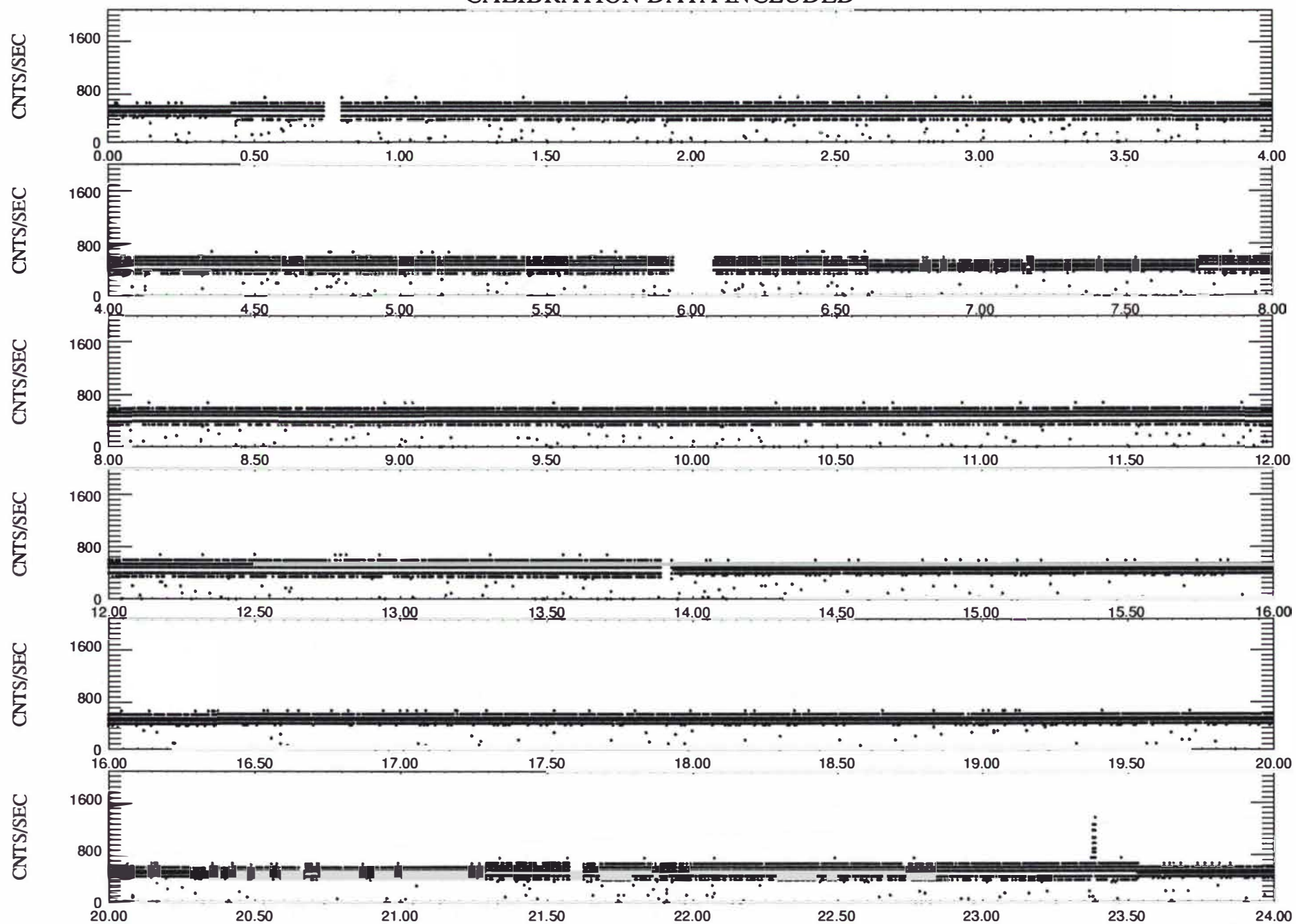
Trigger # : 6587

Trigger Time:
10847 / 82028.257Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.064 secondsDetectors [7..8]:
-----18Discriminators:
[1 , 2]Quality Mask:
80ISP1

BURST NUMBER 10, 11

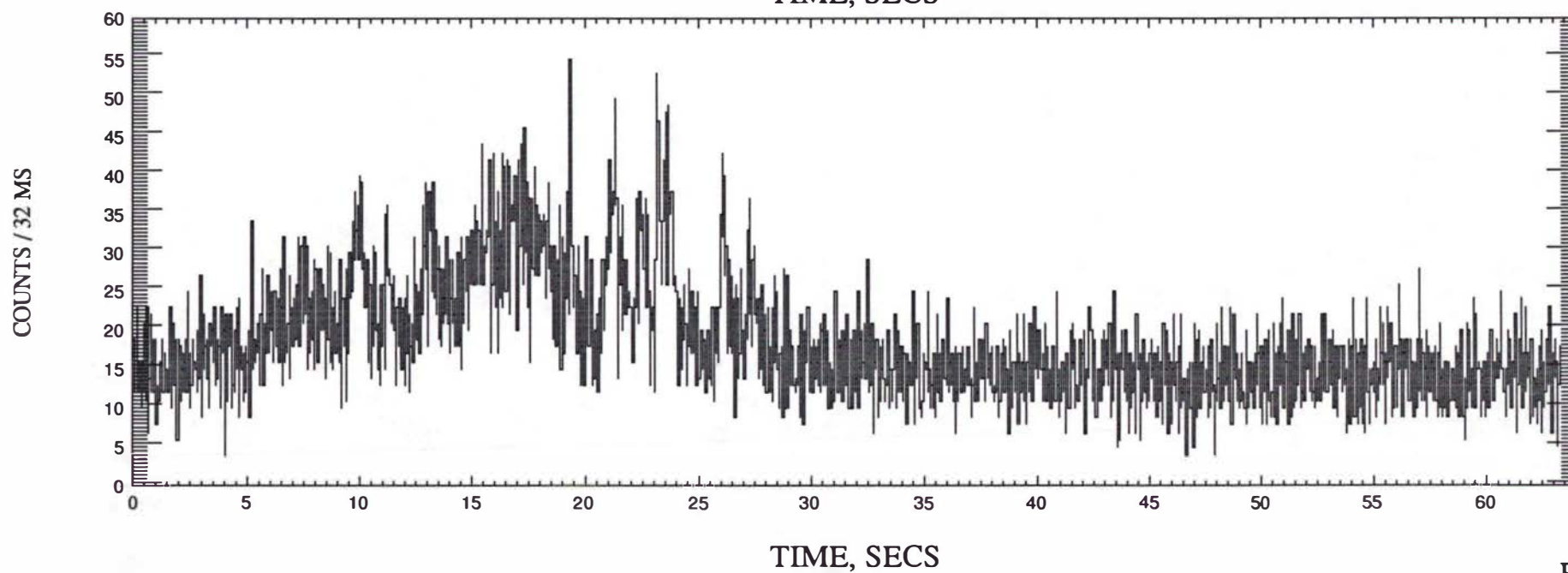
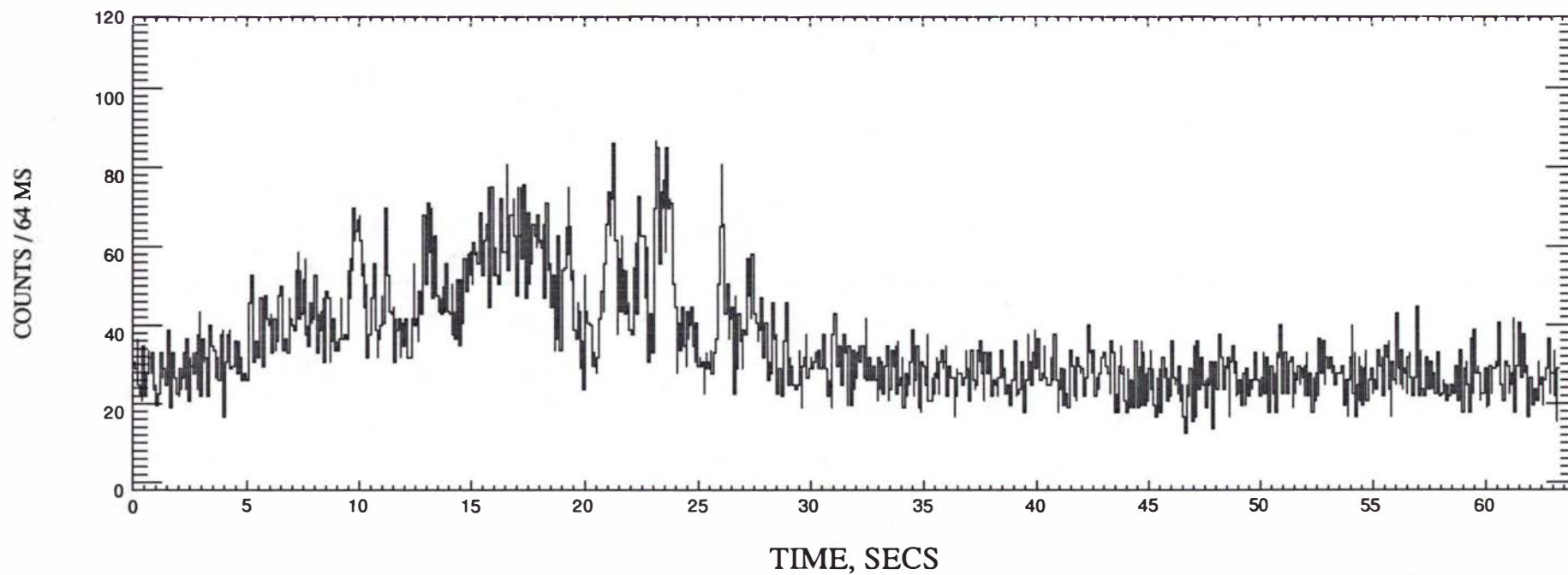


CALIBRATION DATA INCLUDED

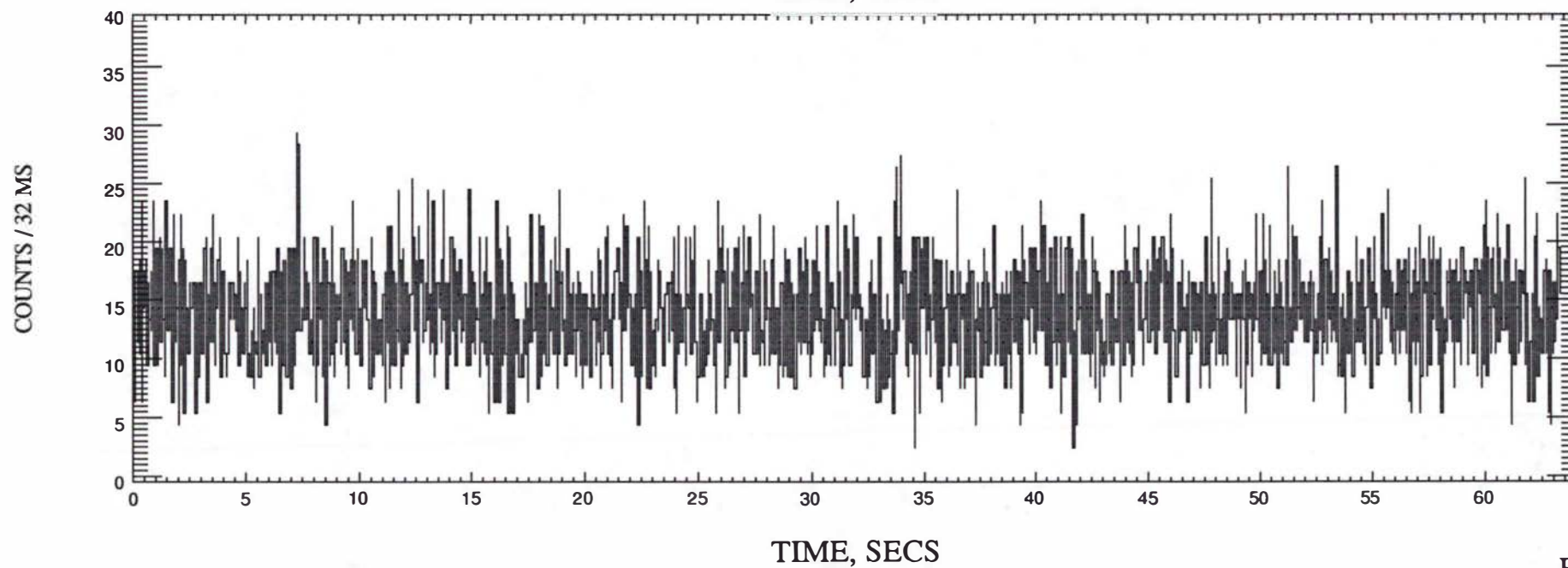
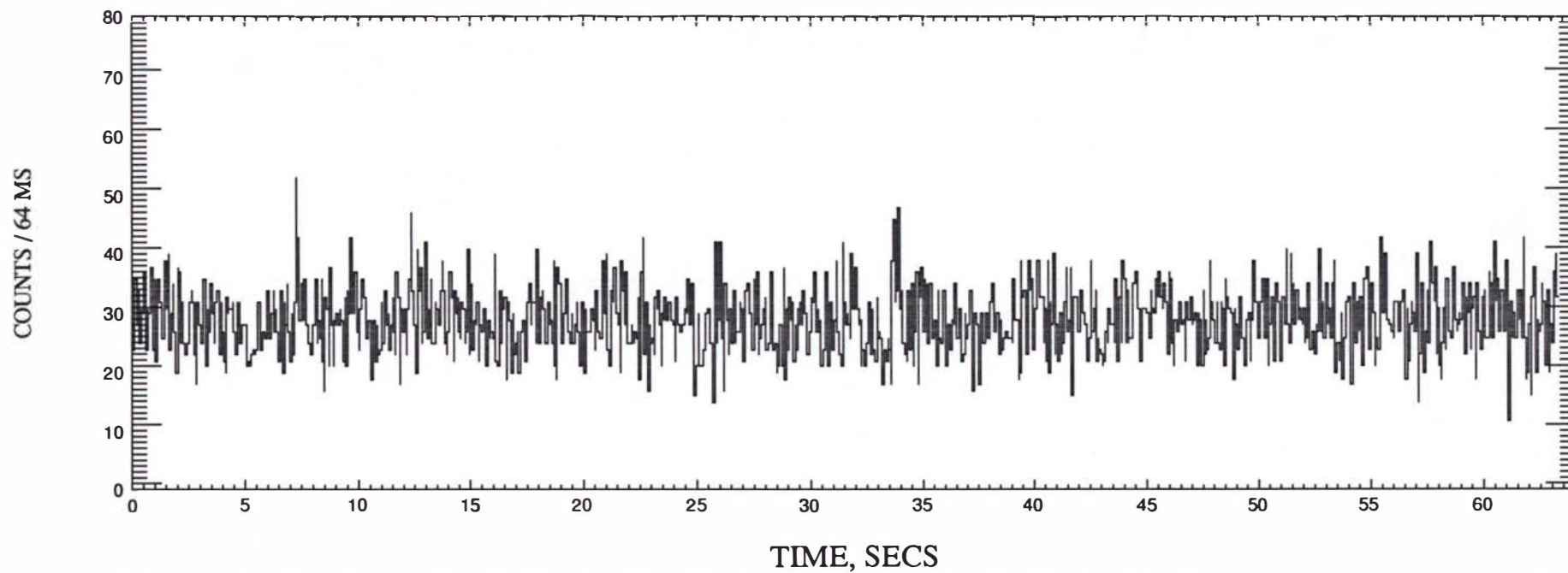


UNIV AL TIME

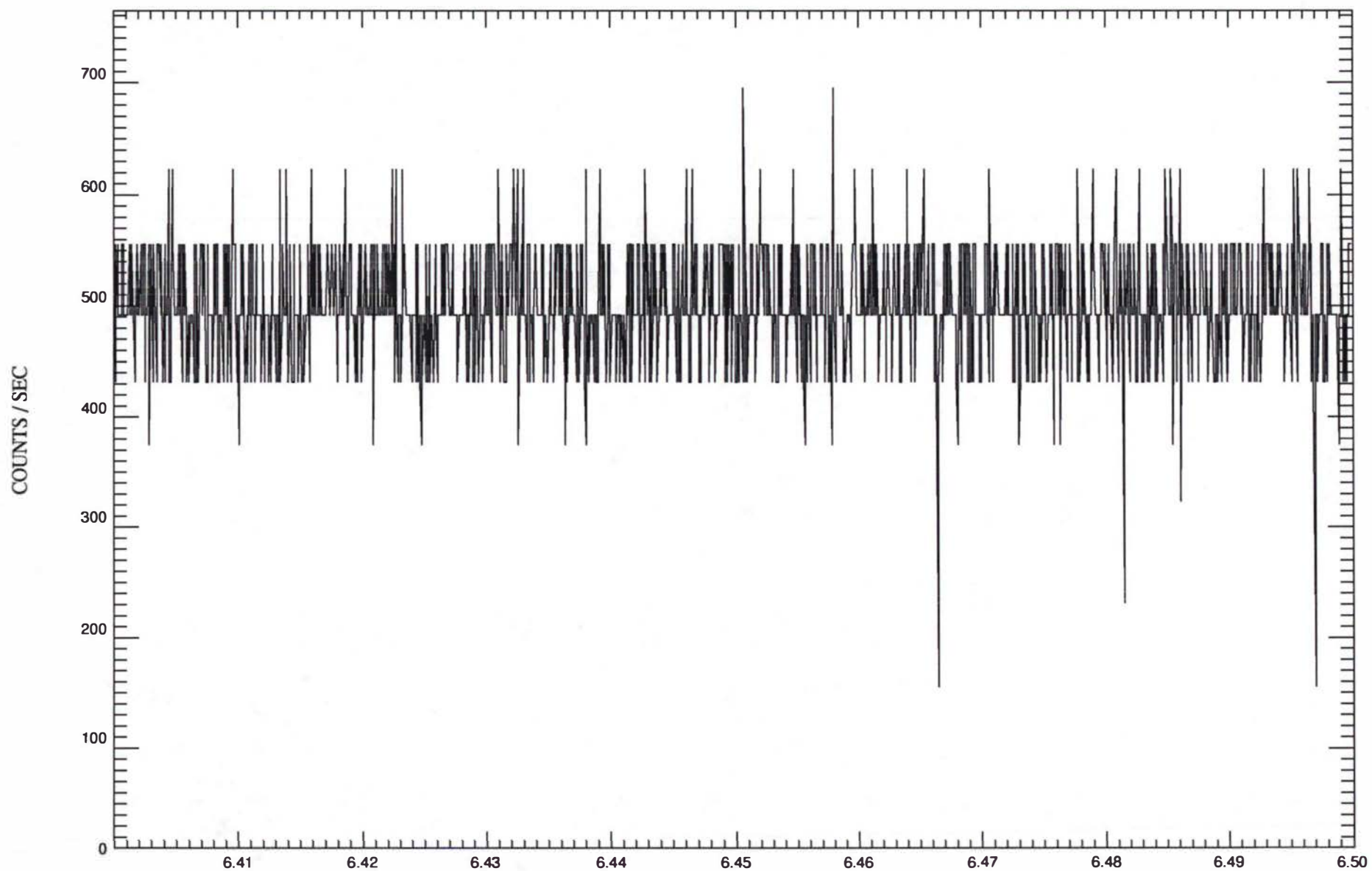
Burst Counter 11 at UT=23.377012880113 h=84157.246 s 23:22:37.246

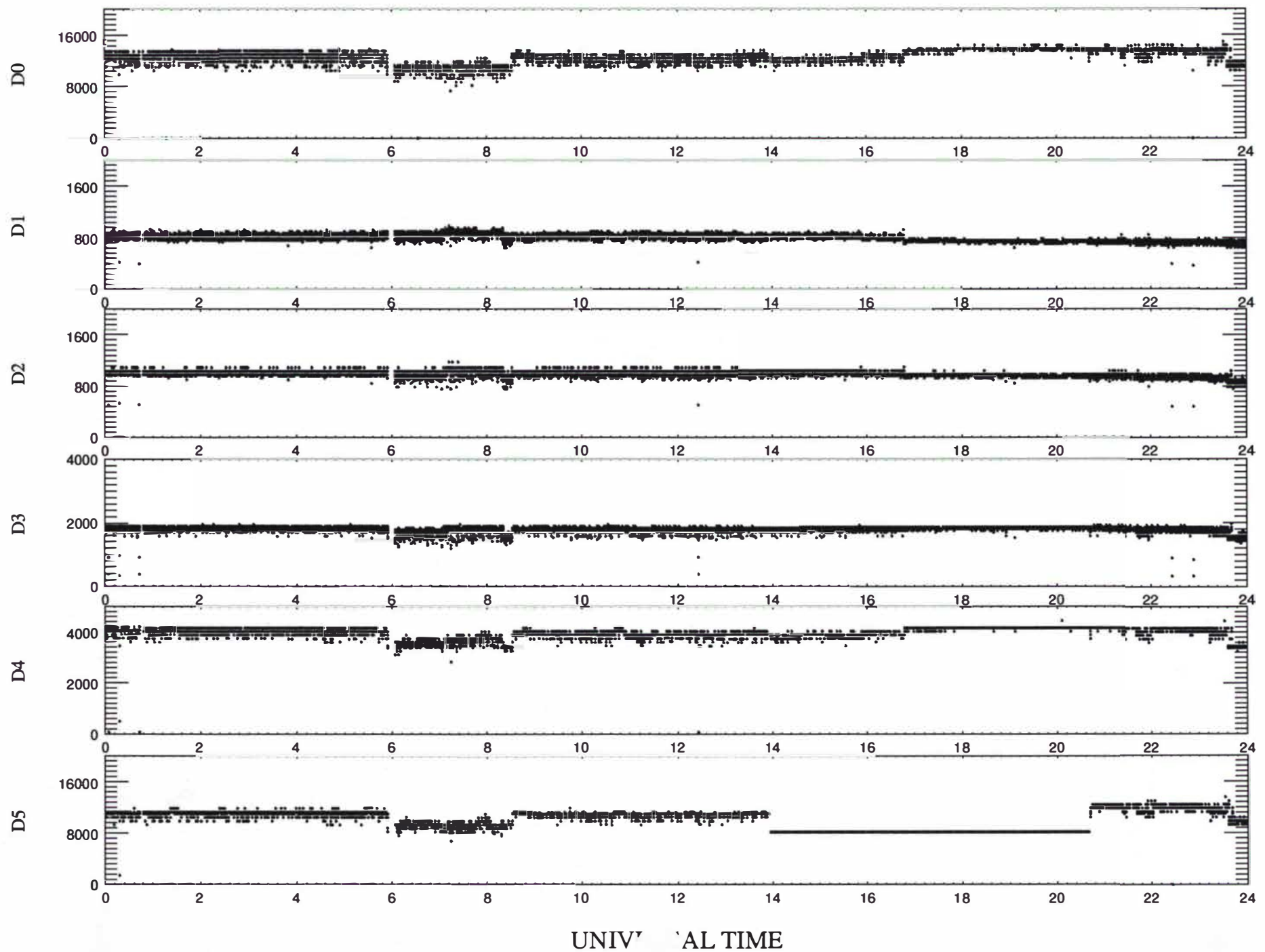


Burst Counter 10 at UT= 6.450686446296 h=23222.471 s 06:27:02.471

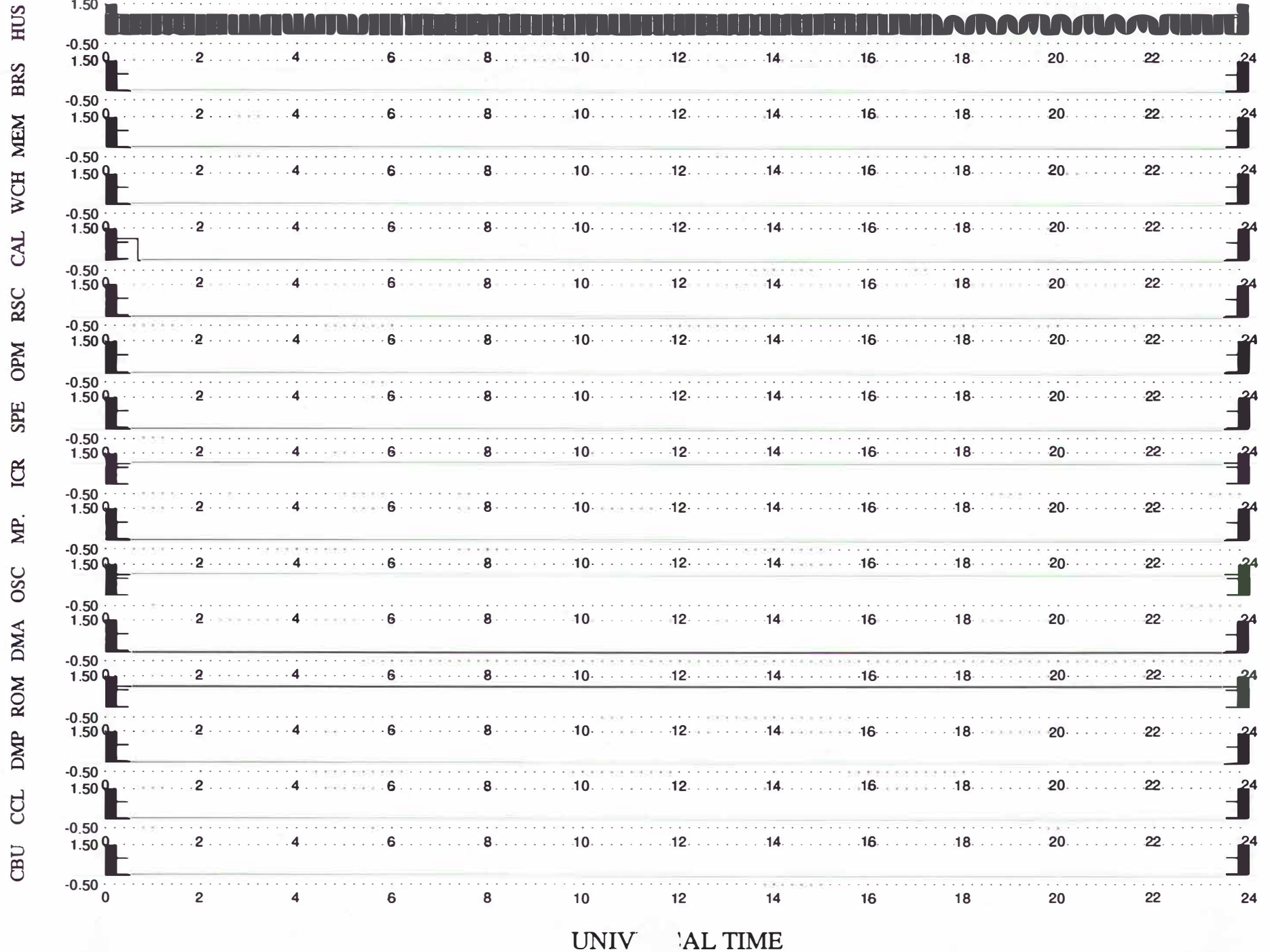


CALIBRATION DATA INCLUDED

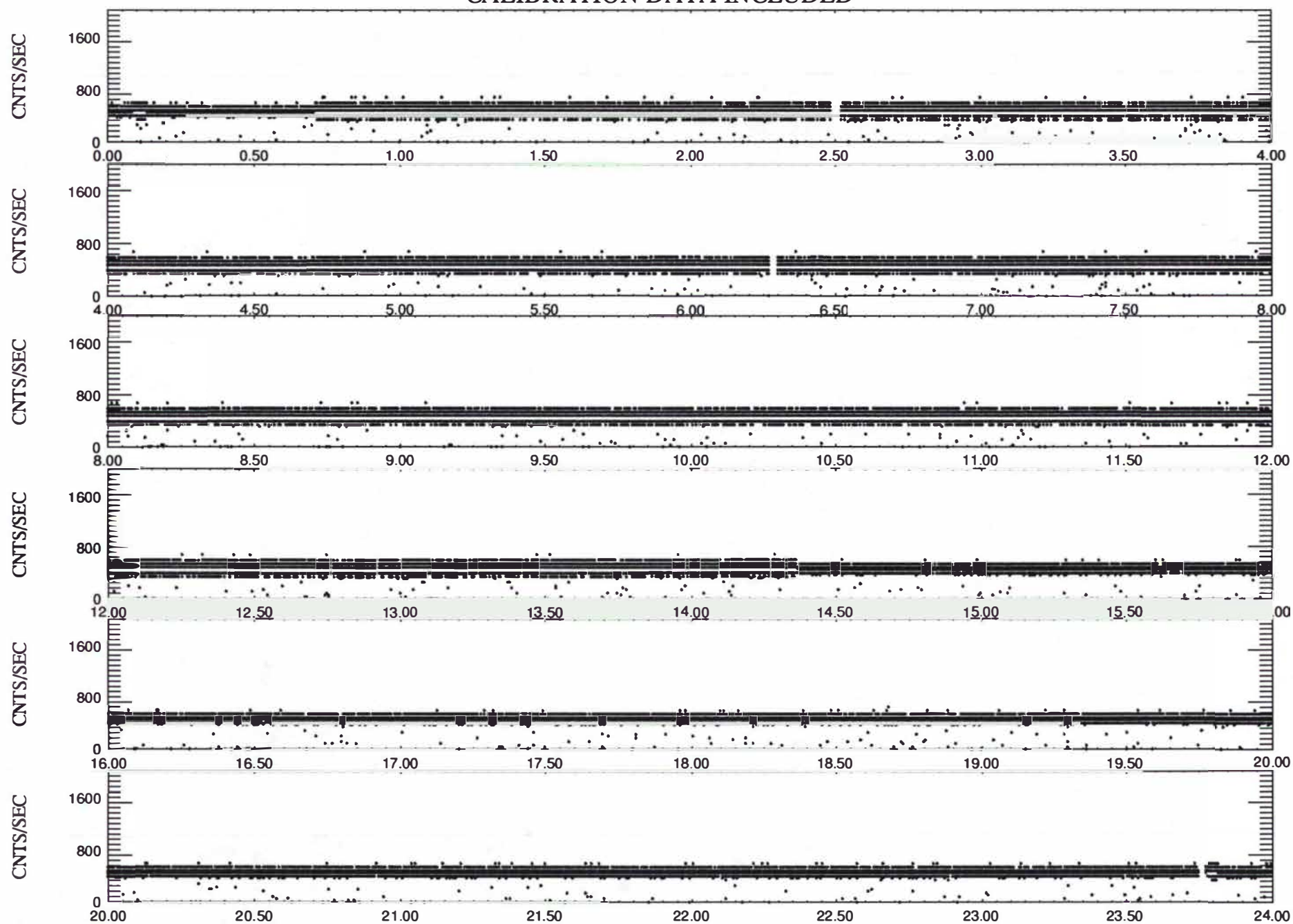




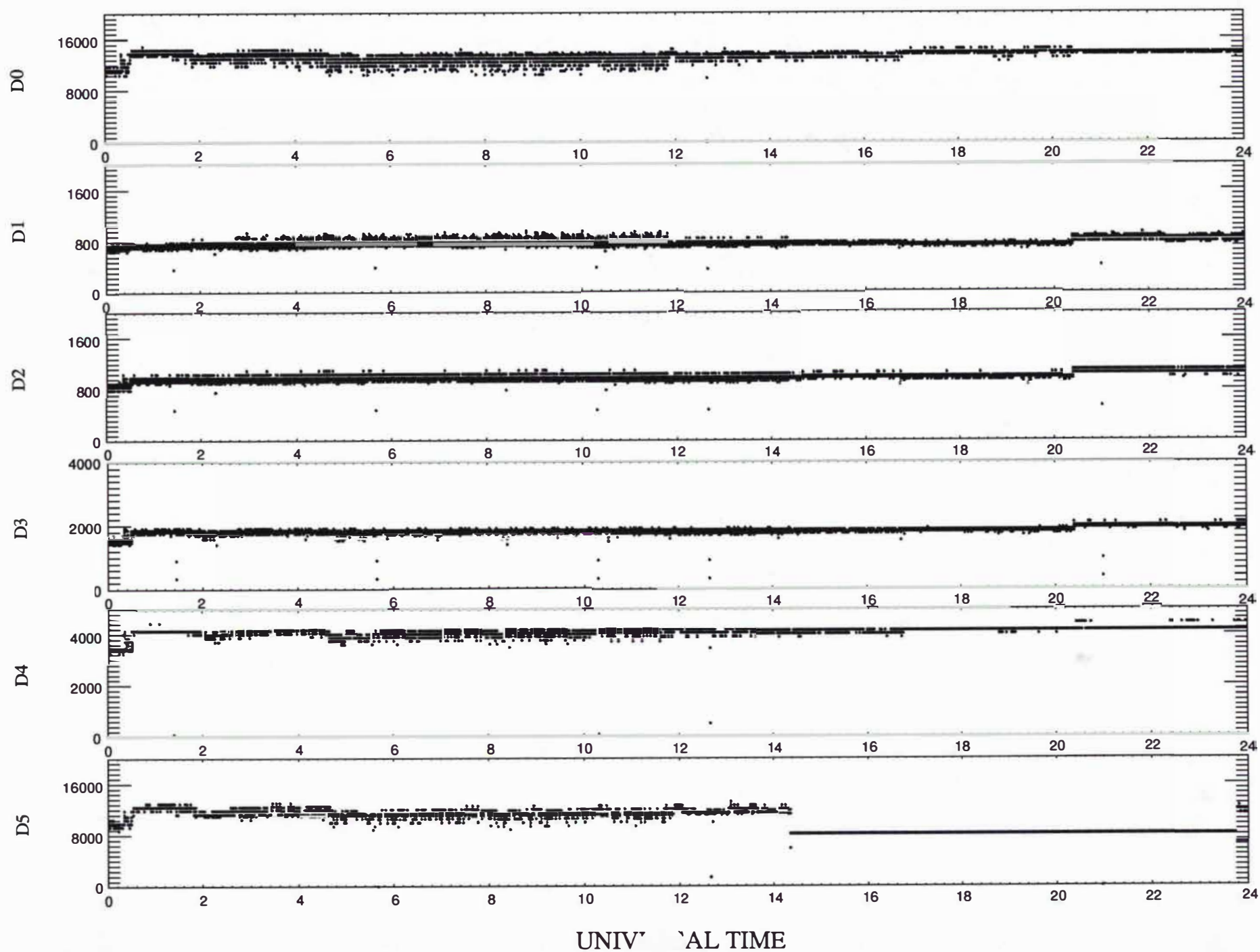
NO BURST (11)



CALIBRATION DATA INCLUDED



UNIV 'AL TIME



Apparently done
with old data!

Date: Feb 11 00 Redone Jul 23 '09

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

- ☒ Jim Schmidling's stat file correction applied?
- ☒ Final ephemeris used? *Helio corr removed*
- ☒ Final, CDROM data used?
- ☒ 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 - just done roughly - this is a BATSE untriggered event with 1s res.*

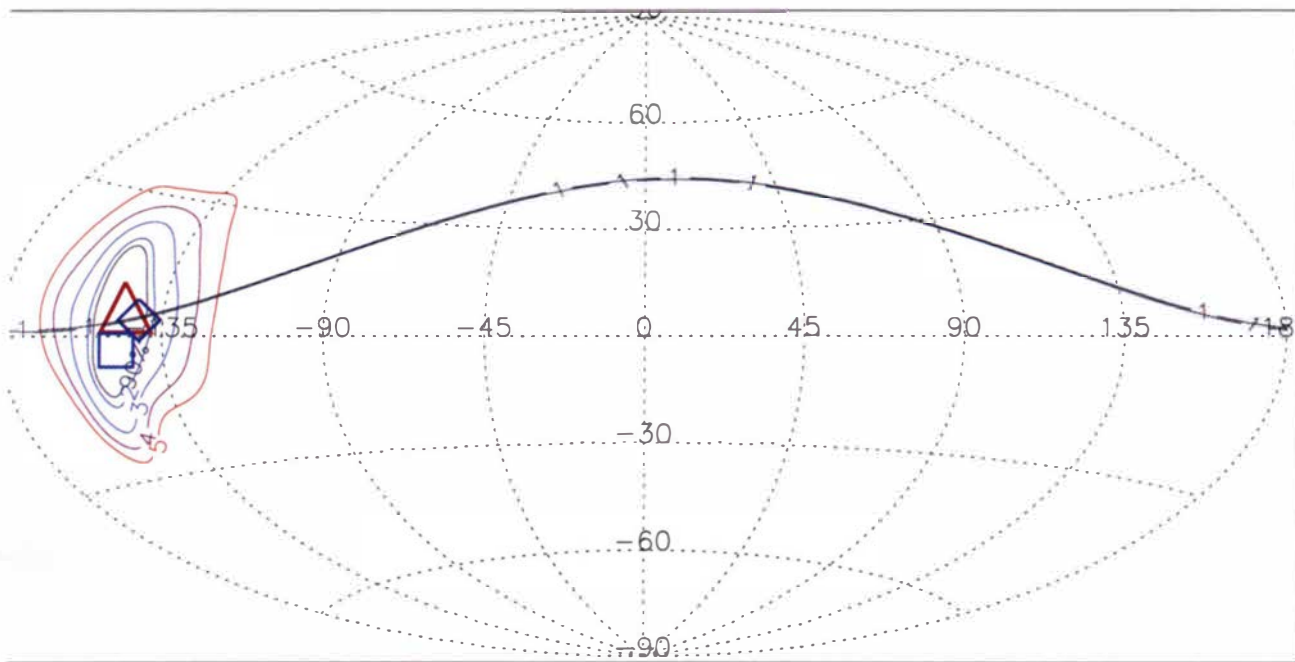
2. BATSE Data

- ☒ BATSE ephemeris for T_0 ?
- ☐ Error circle position and radius from public catalog used? *No - N/A*
- ☐ If MER data were used, is a 30 ms systematic error included?

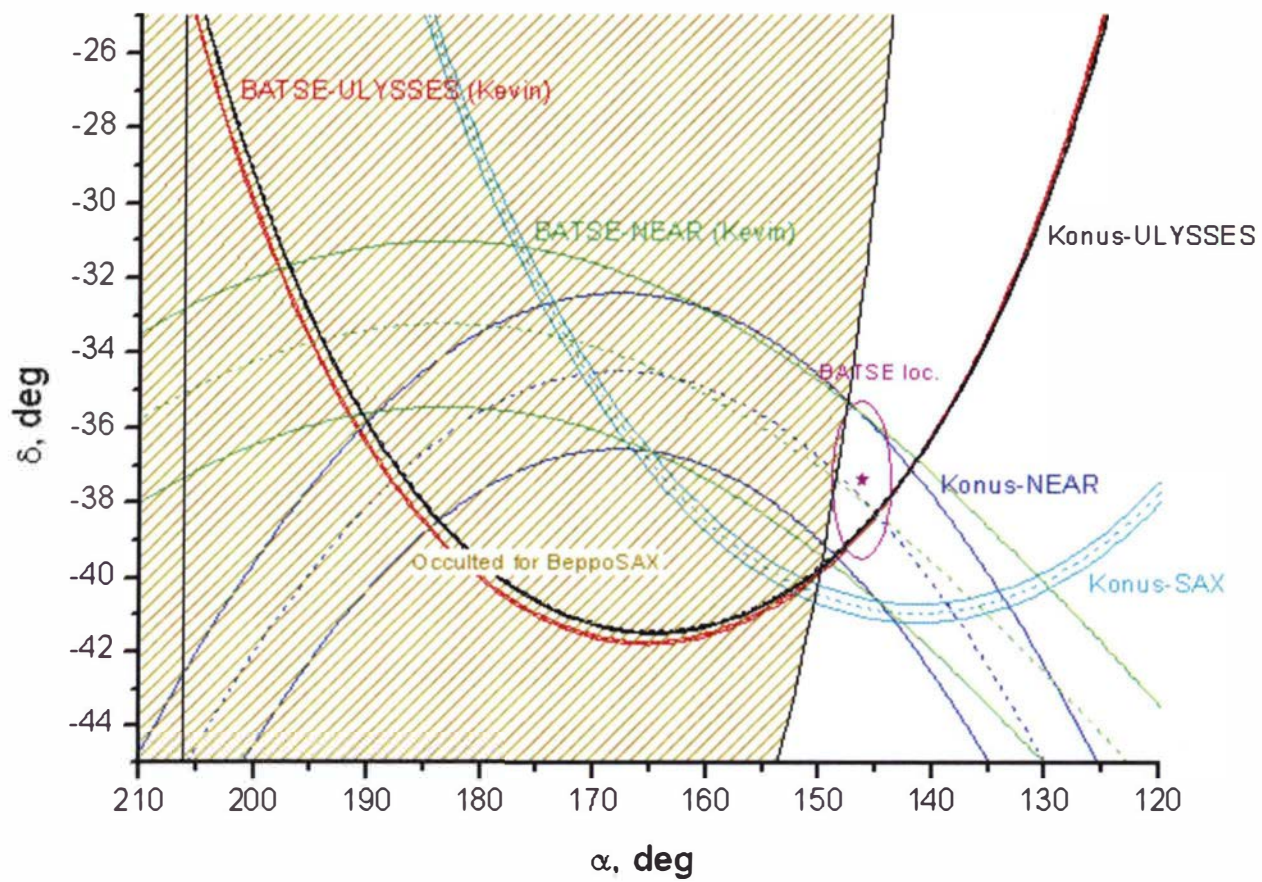
3. NEAR Data

- ☒ Final, correct time used? (Files postmarked `vwx@bocc1`, or from Teresa Sheets, have the correct time; files on website have incorrect times)
- ☒ BATSE >100 keV data used for NEAR correlation?
- ☒ ACCESS database updated? *No - no integ. events in database
Added June 24 2002*

BeppoSAX Local Sky



GRB 19980205_T19785



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

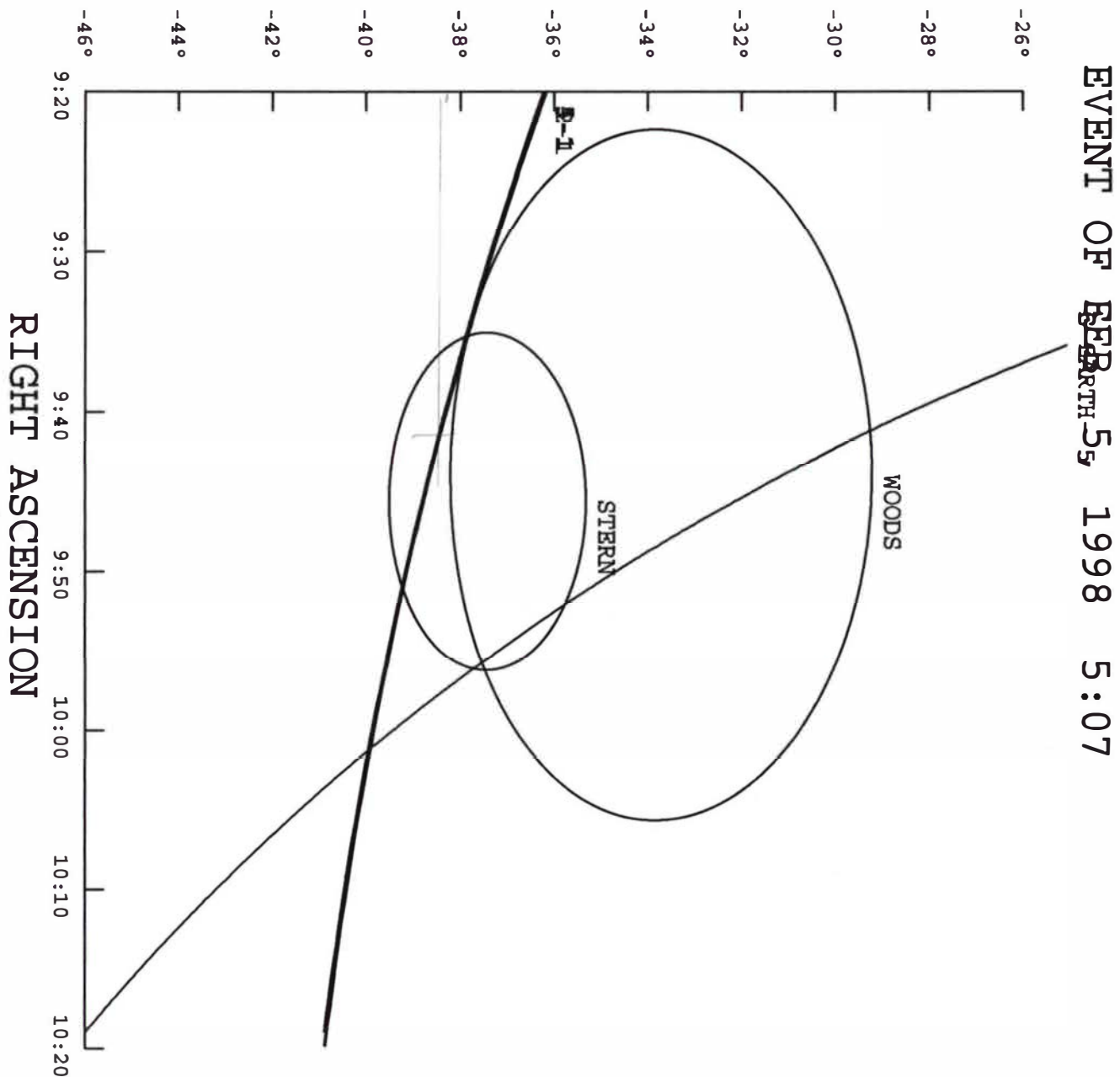
2 KONUS

3 NEAR

4 BATSE

5 SAX

DECLINATION



21/ 7/ 9

BATSE

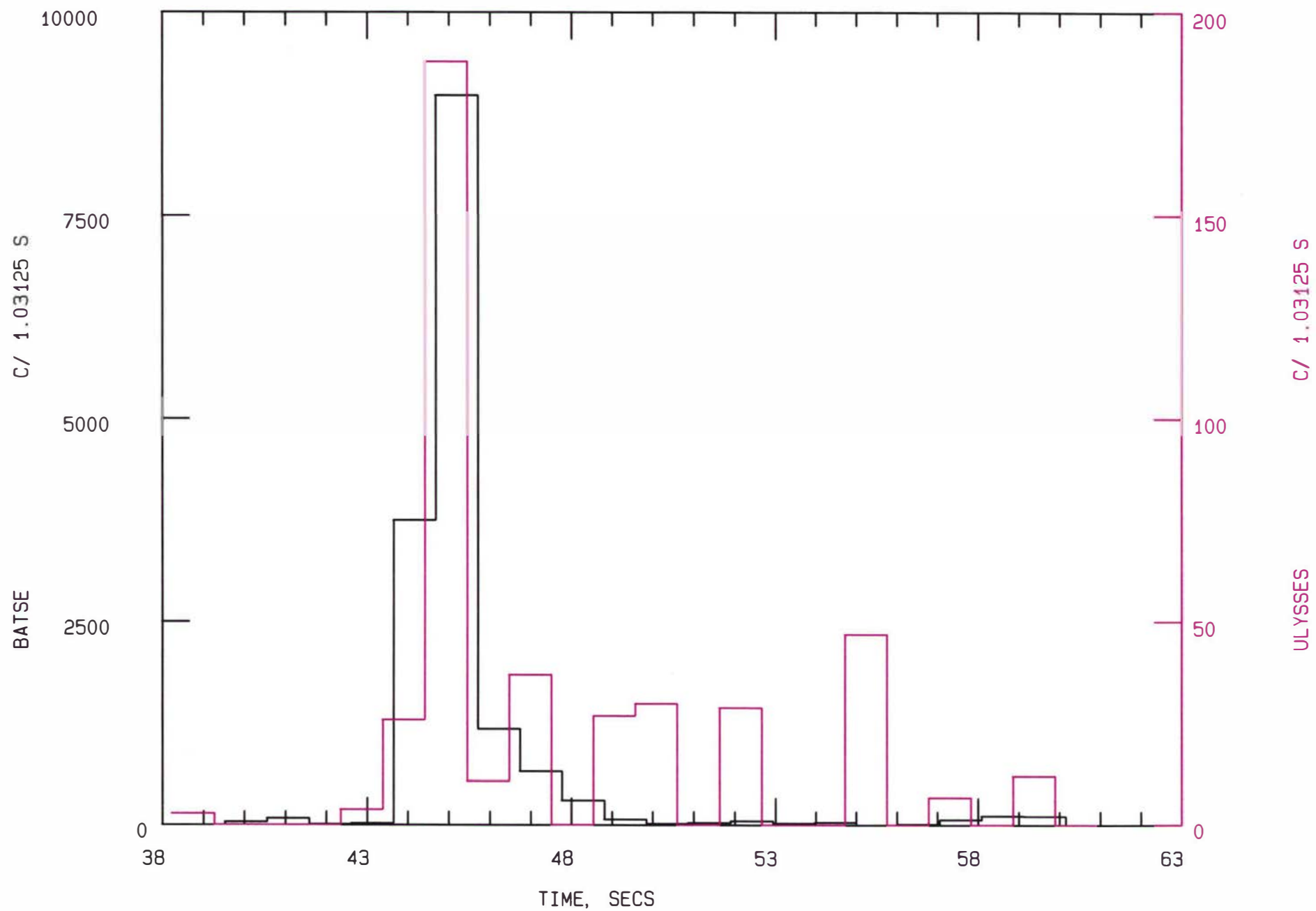
-ULYSSES

CORRELATION

05/02/98

19738.000

21/ 7/ 9



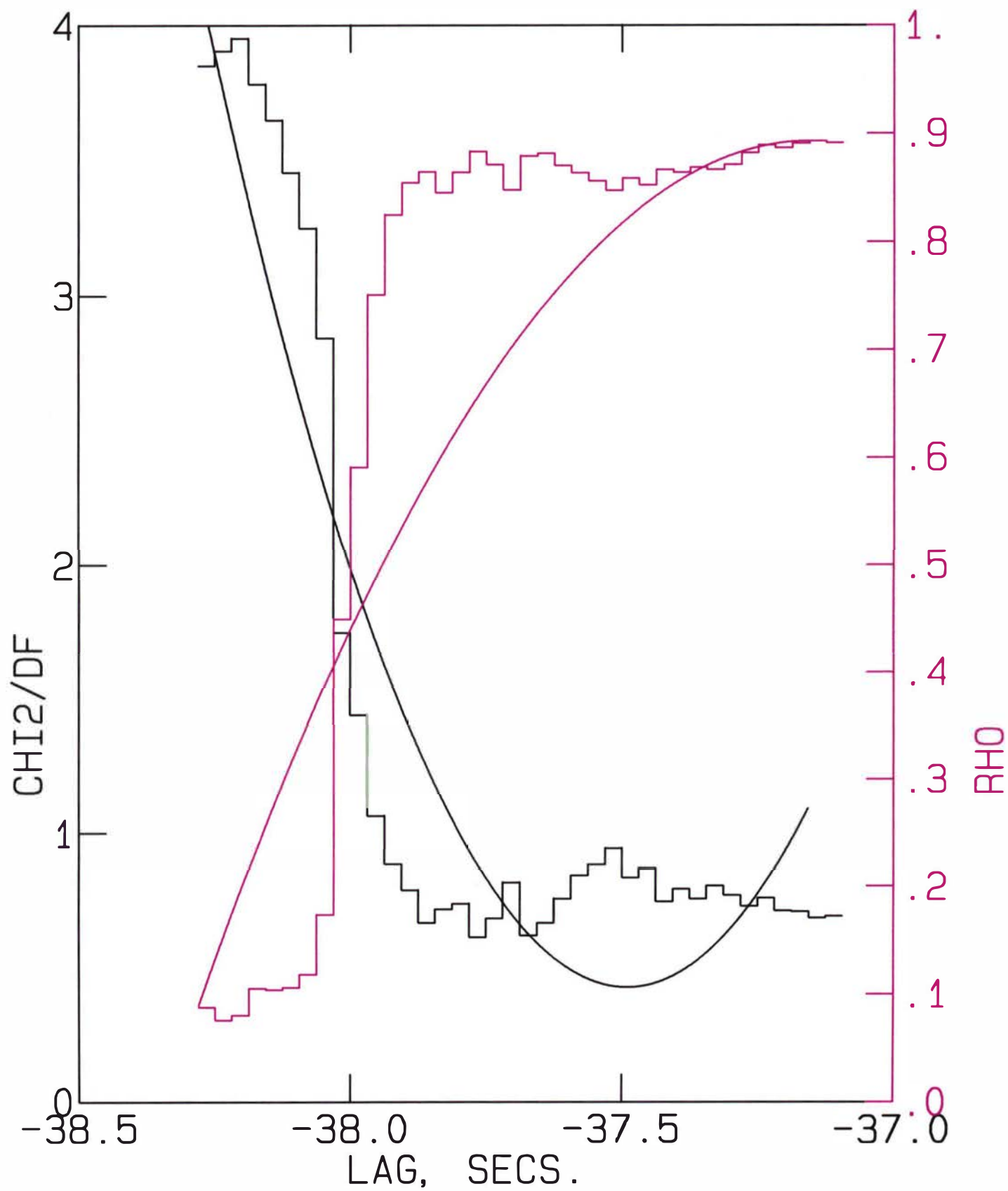
BATSE

-ULYSSES

CORRELATION

05/02/98

19738.000



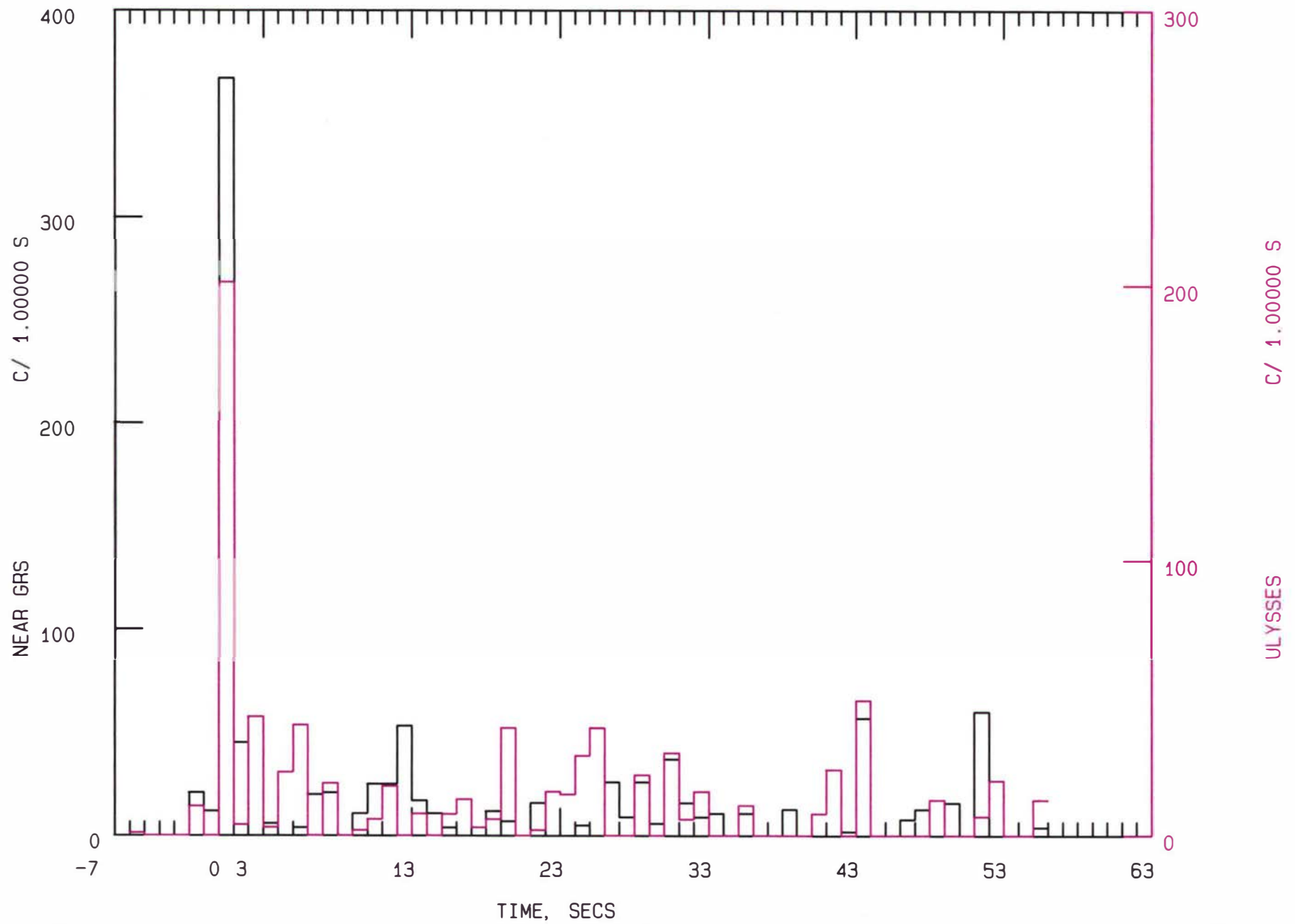
NEAR GRS -ULYSSES

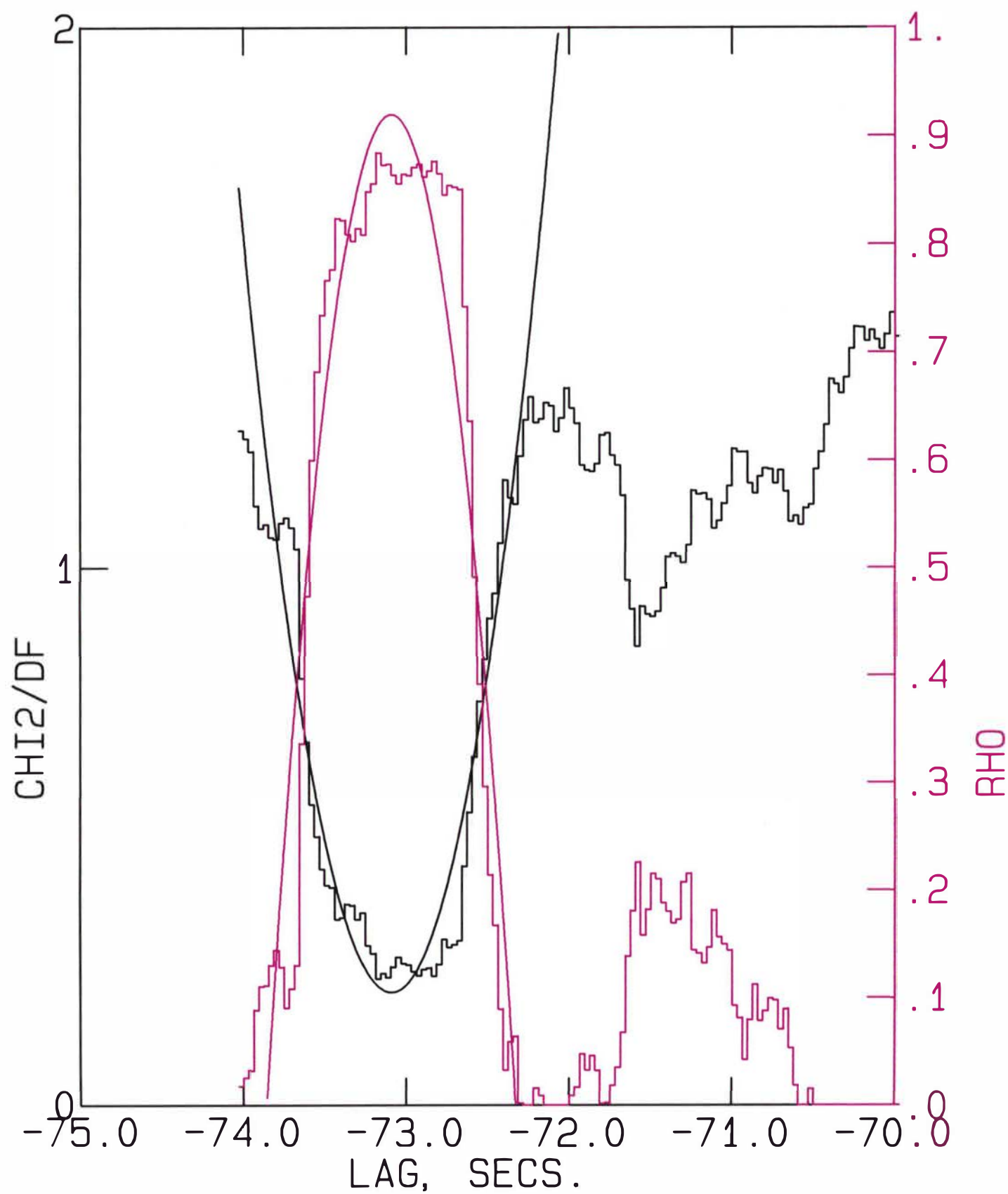
CORRELATION

05/02/98

19762.497

21/ 7/ 9





ULYSSES

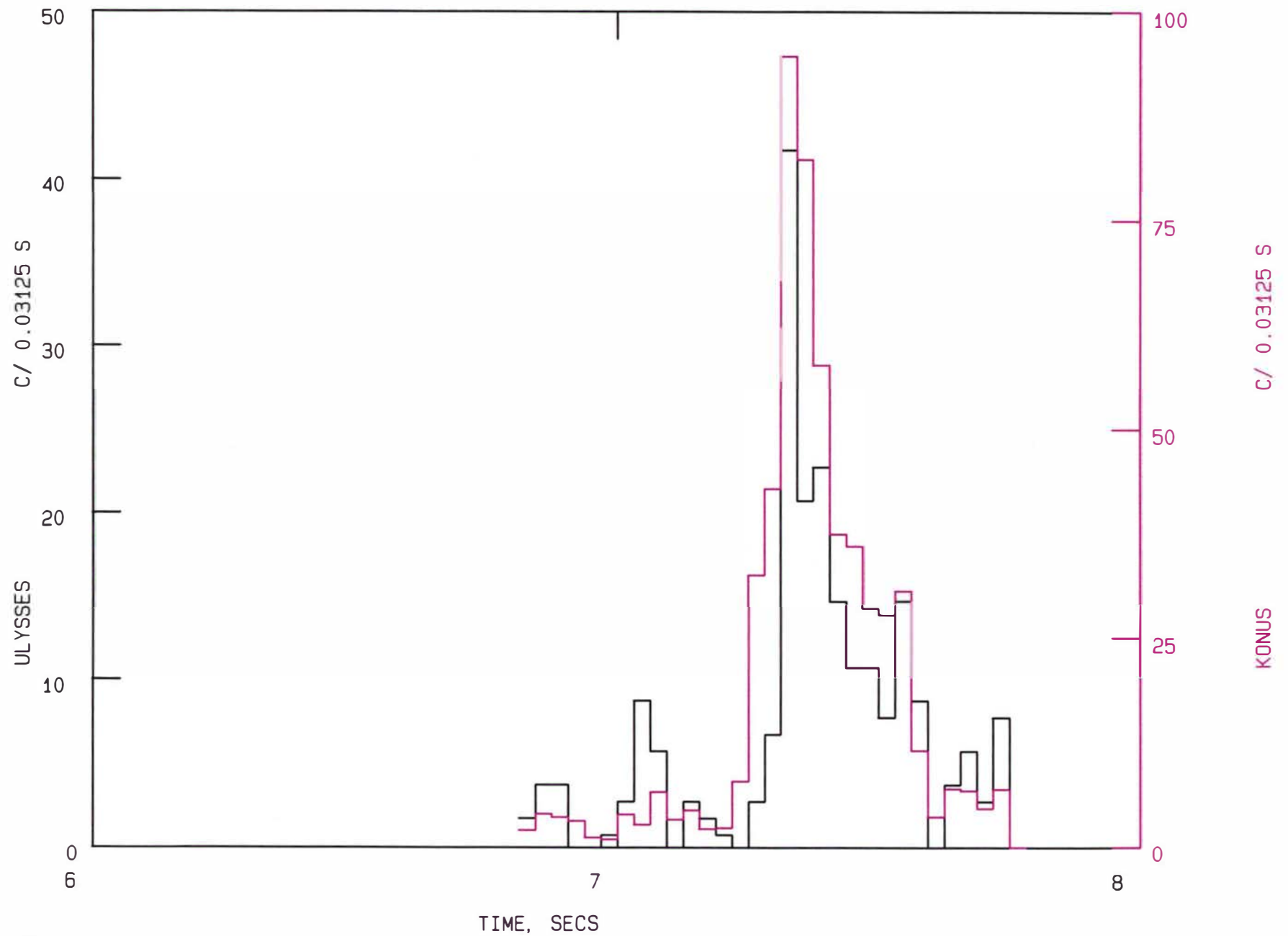
-KONUS

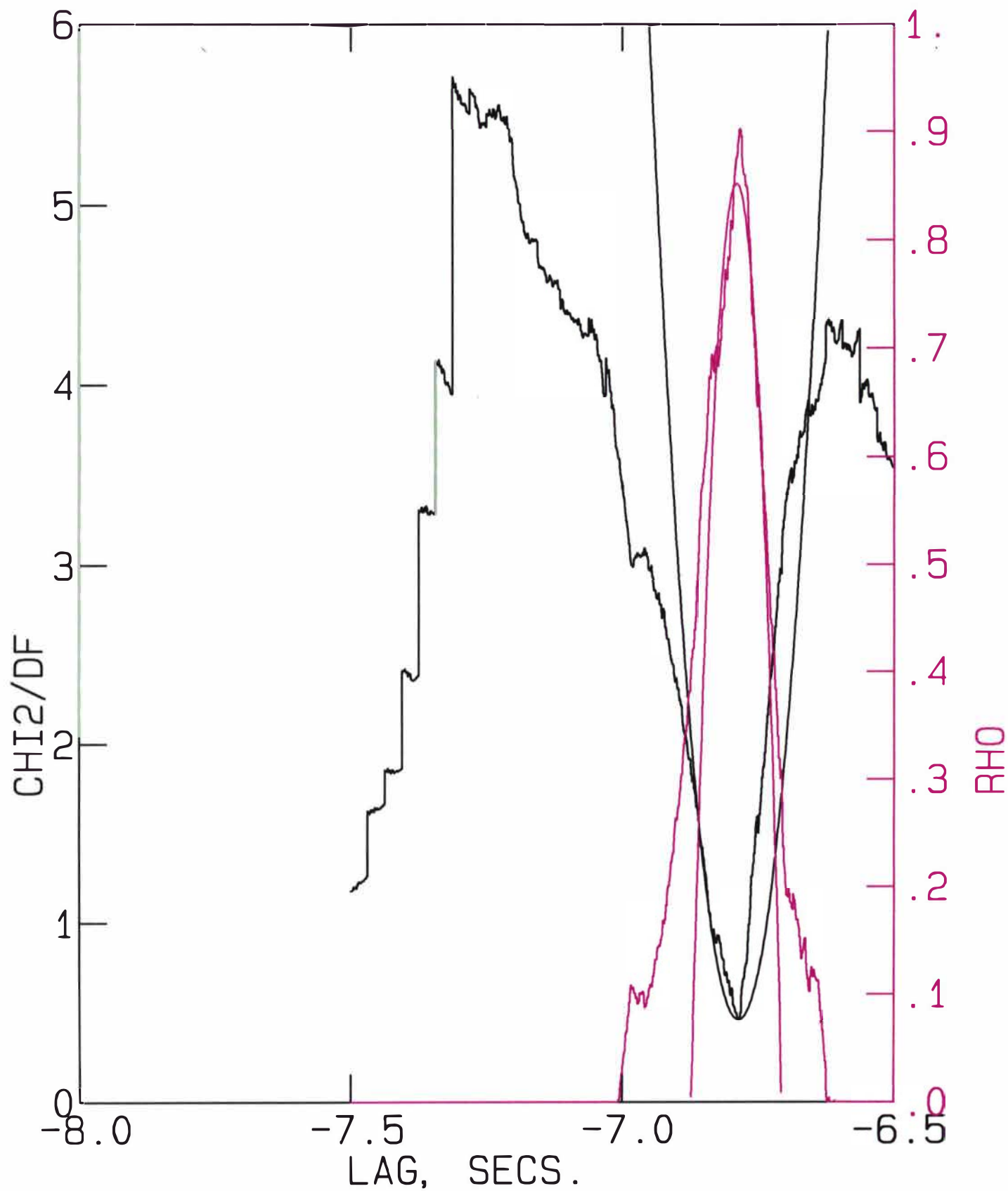
CORRELATION

05/02/98

18463.144

21/ 7/ 9





BATSE

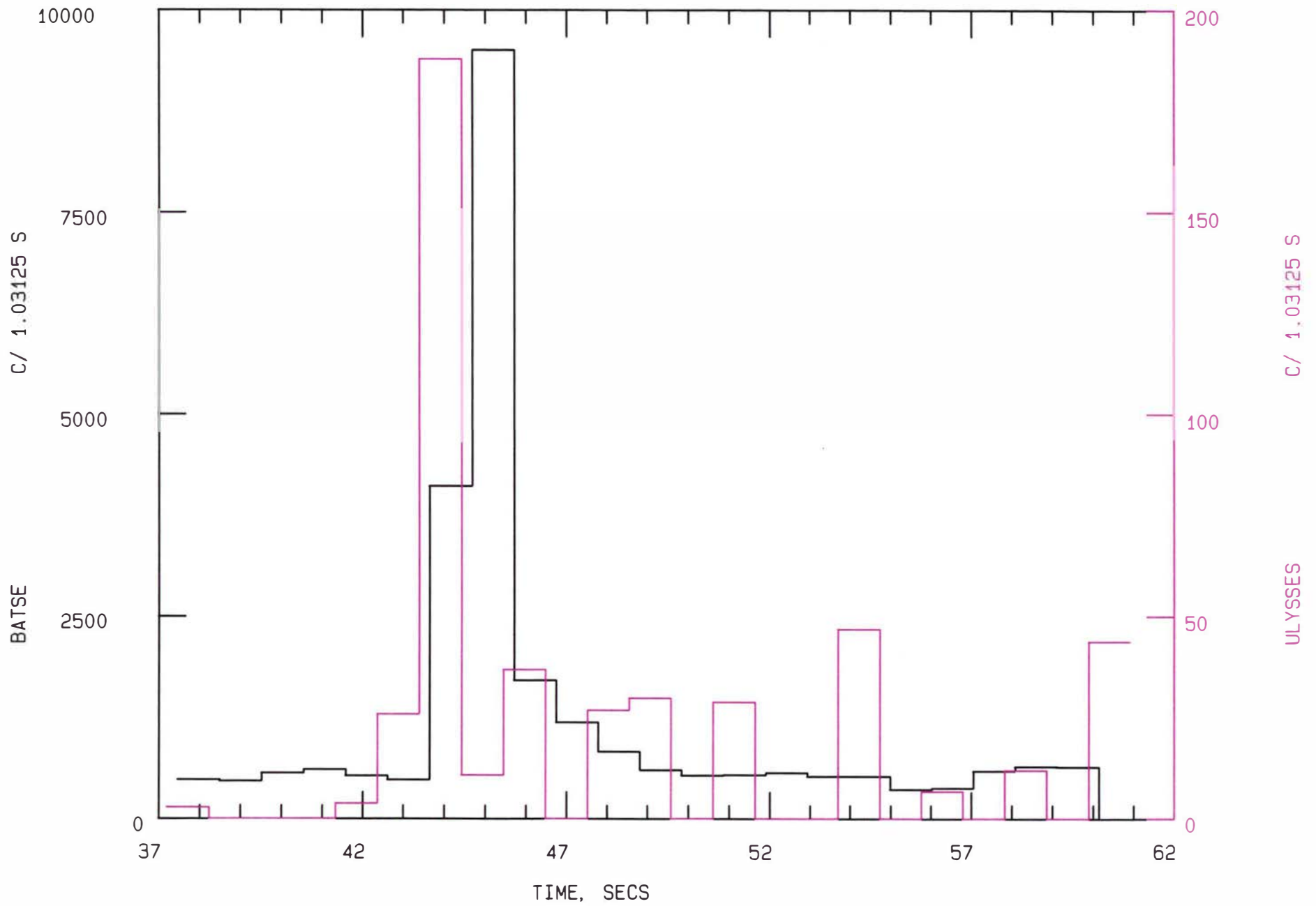
-ULYSSES

CORRELATION

05/02/98

19738.000

21/ 7/ 9



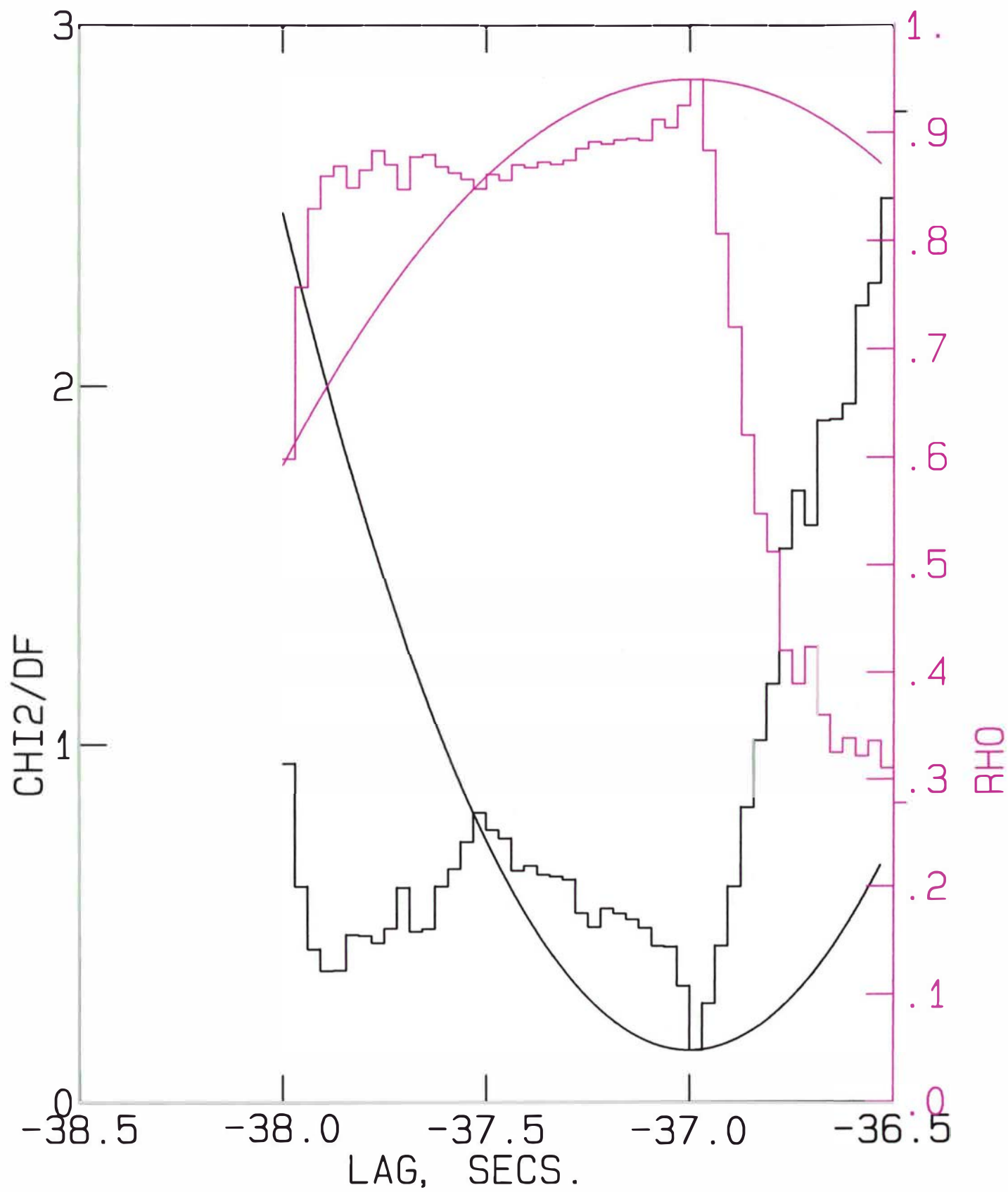
BATSE

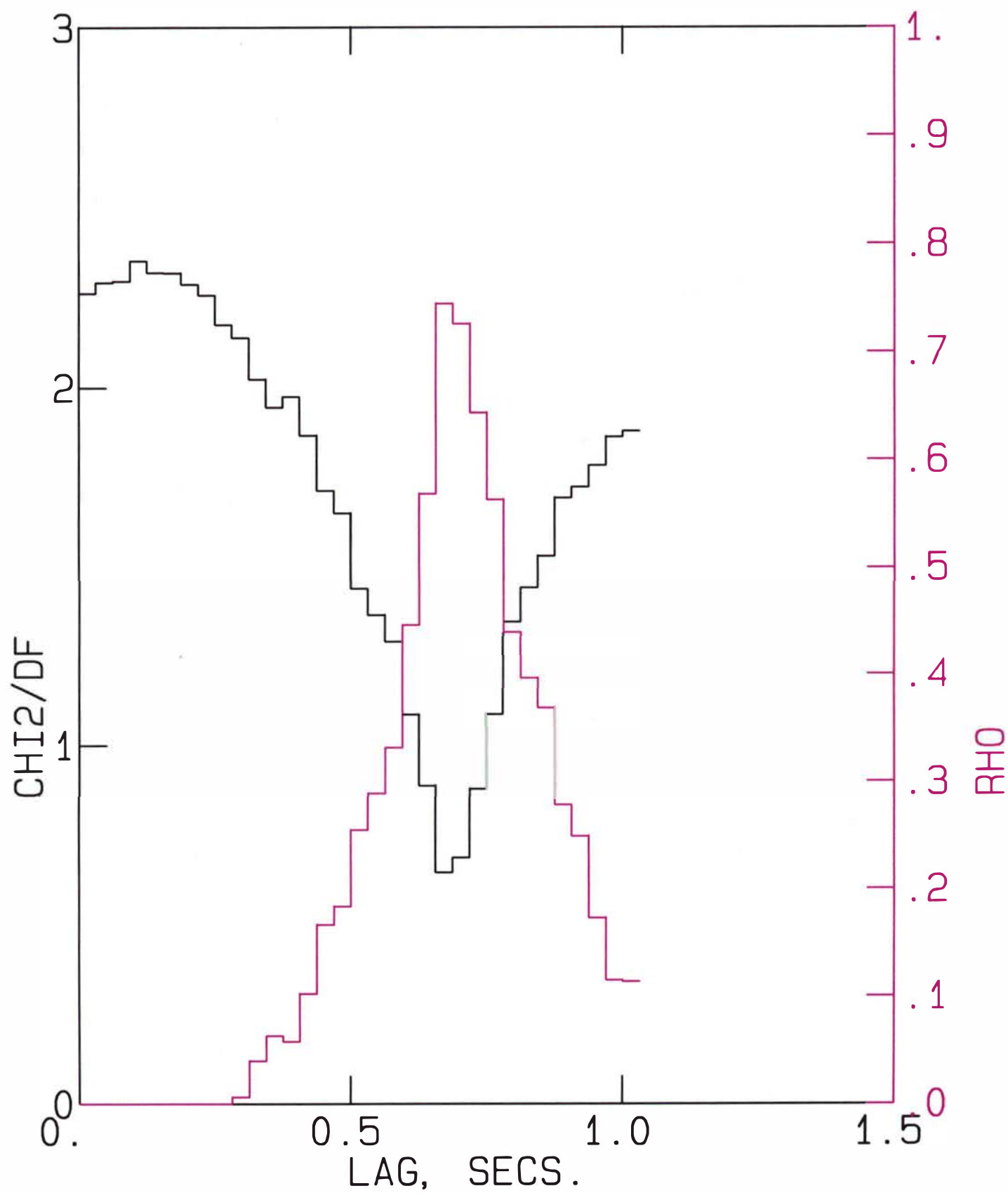
-ULYSSES

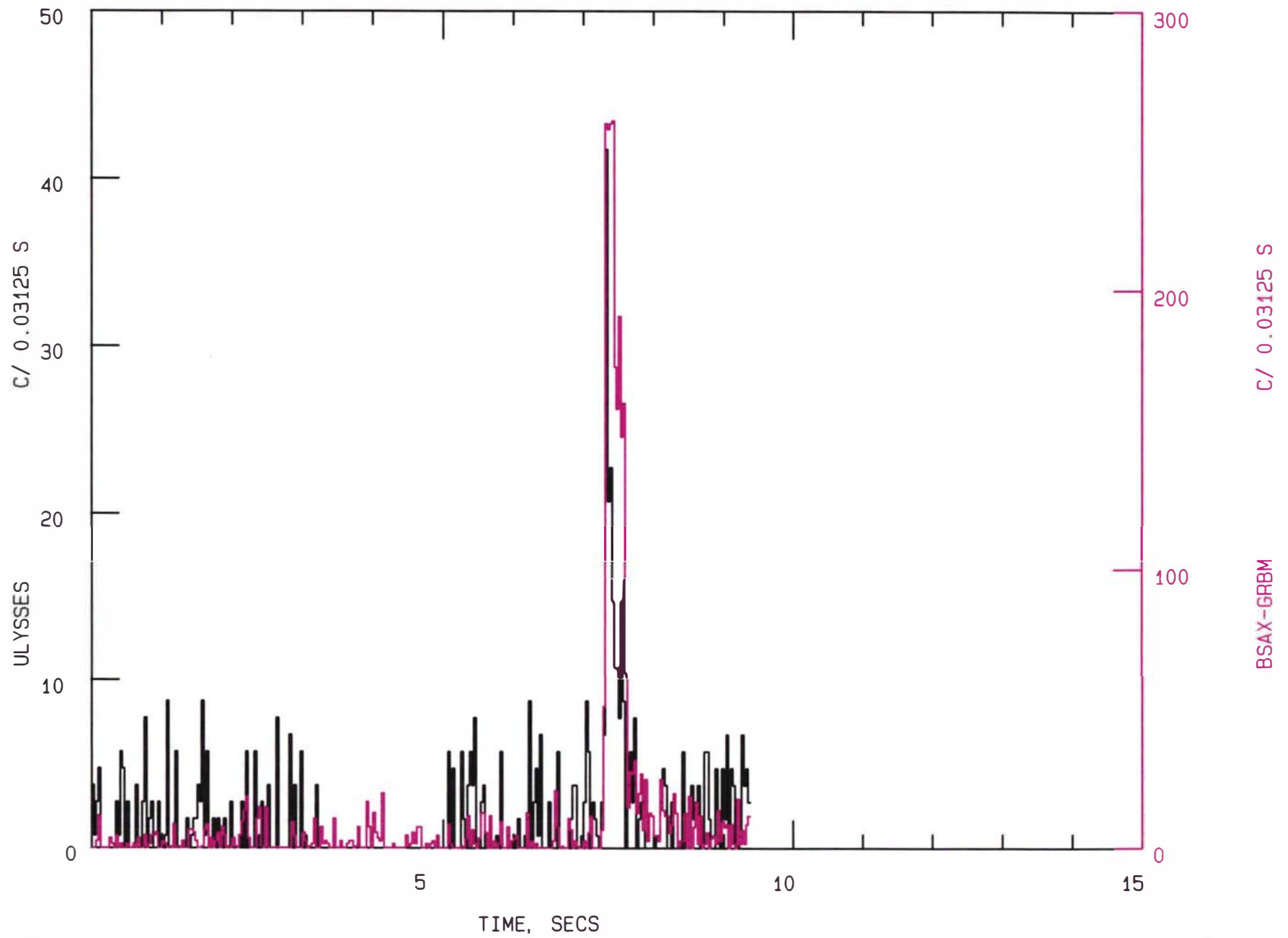
CORRELATION

05/02/98

19738.000







N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

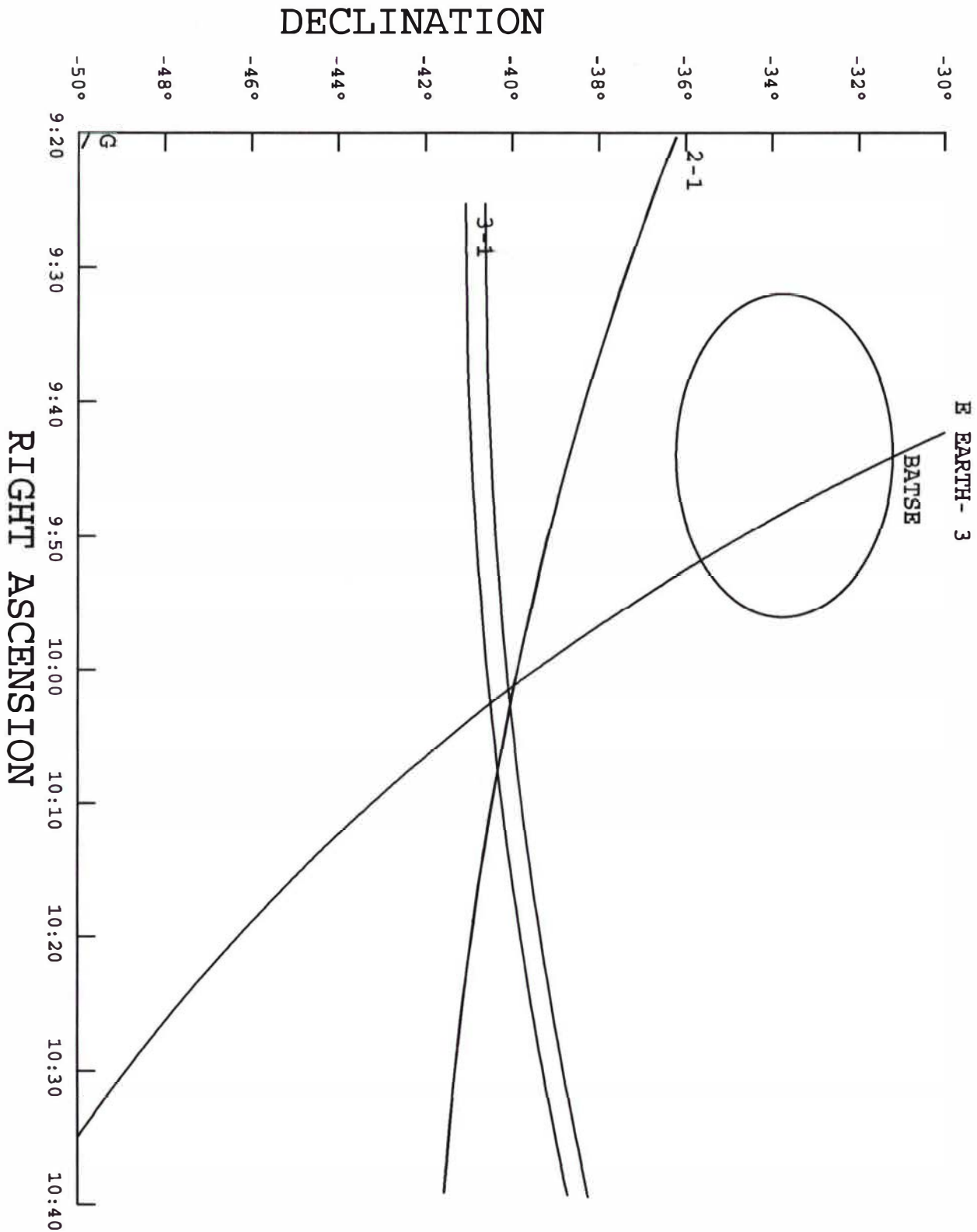
1 KONUS

2 ULYSSES

3 SAX

EVENT OF FEB 5, 1998 5:29

15 / 7 / 9



N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

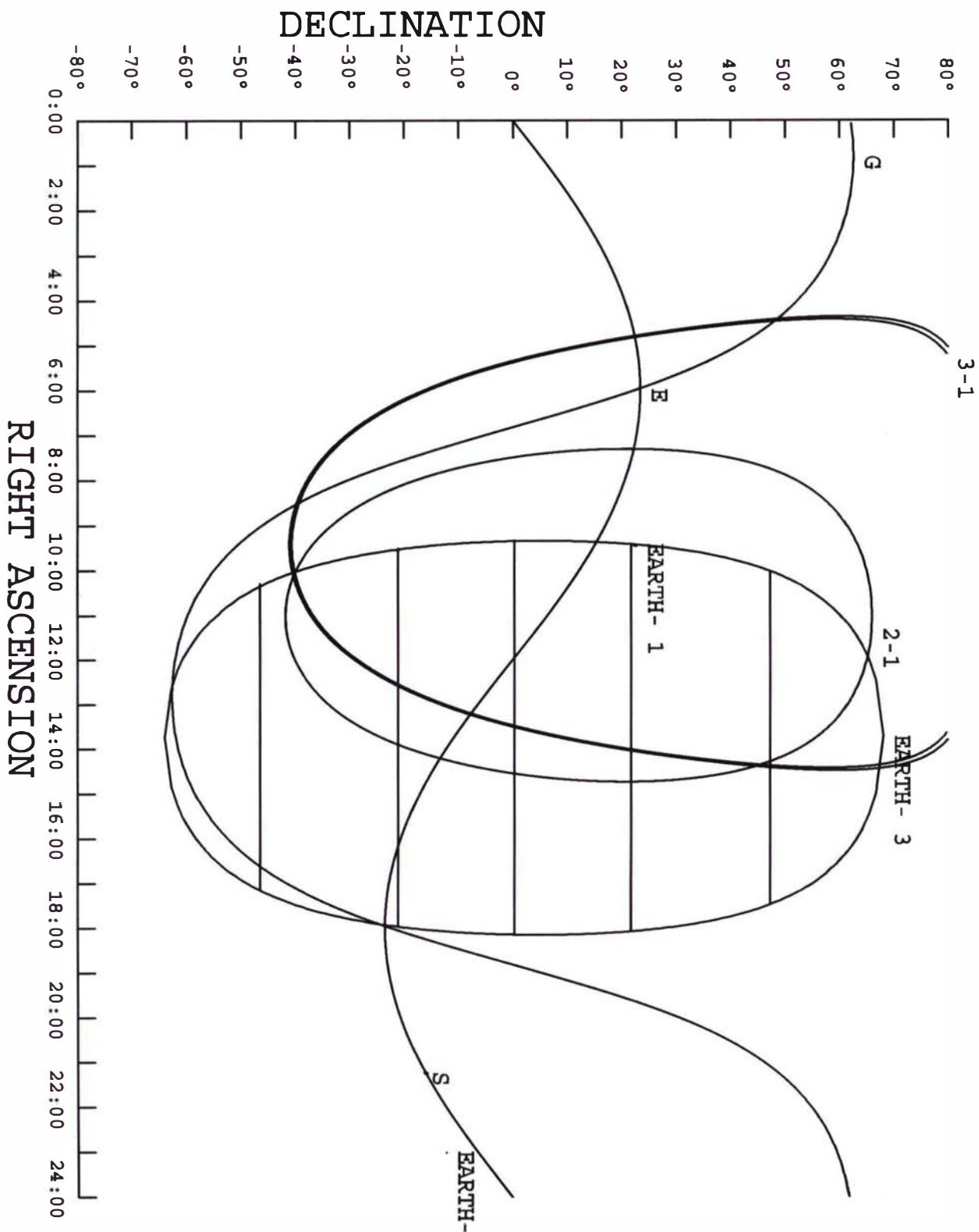
1 KONUS

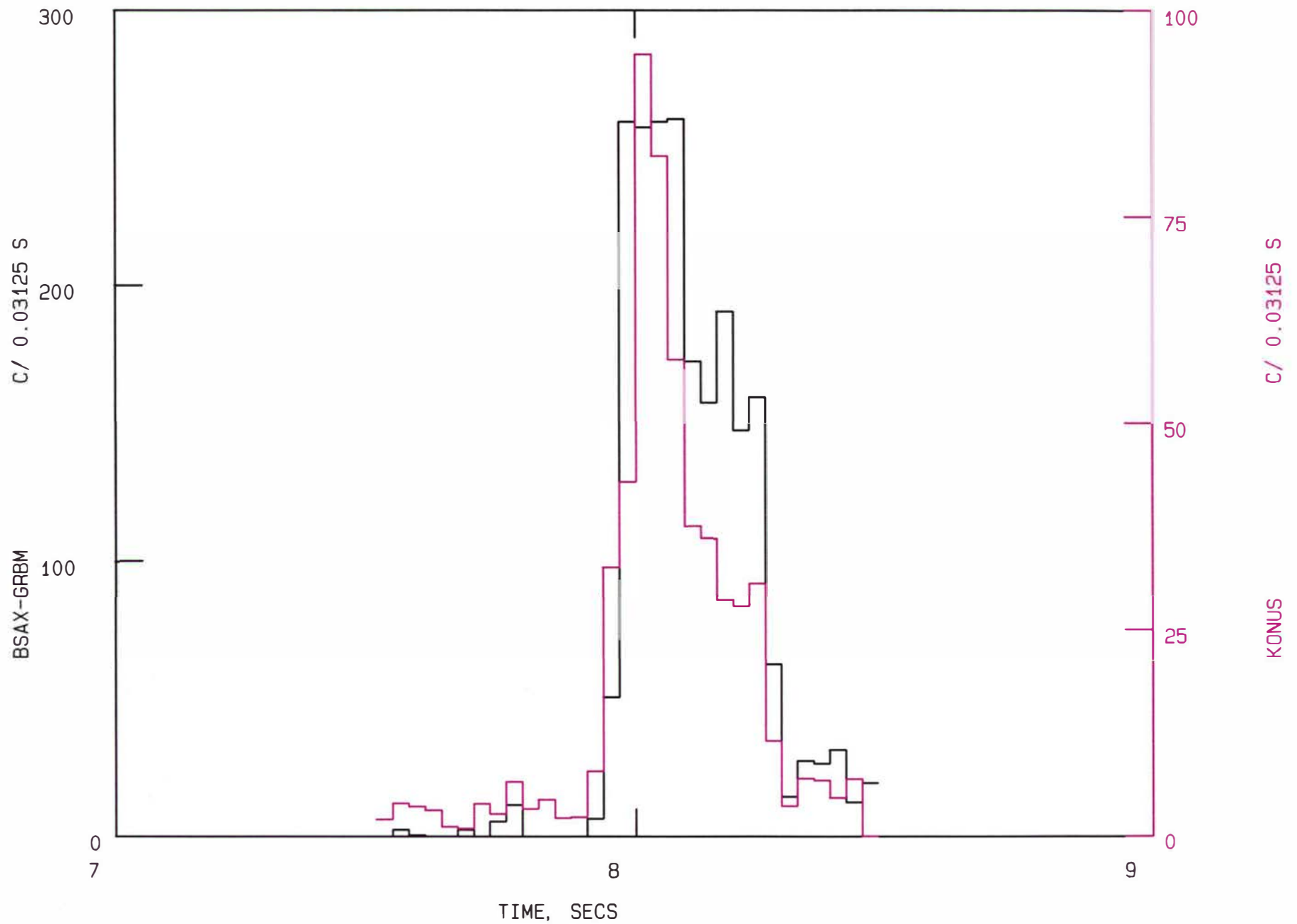
2 ULYSSES

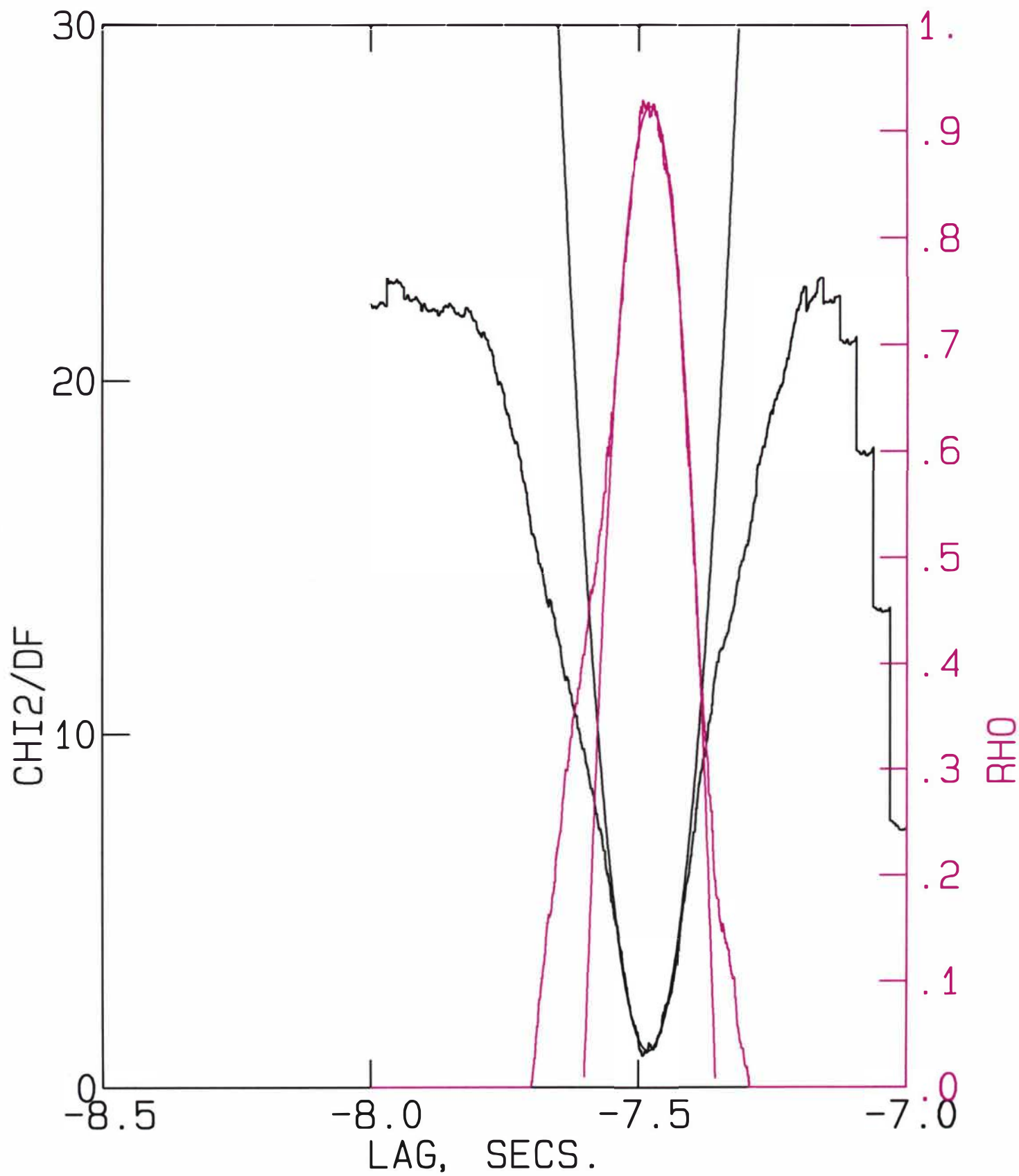
3 SAX

EVENT OF FEB 5, 1998 5:29

15 / 7 / 9







ULYSSES

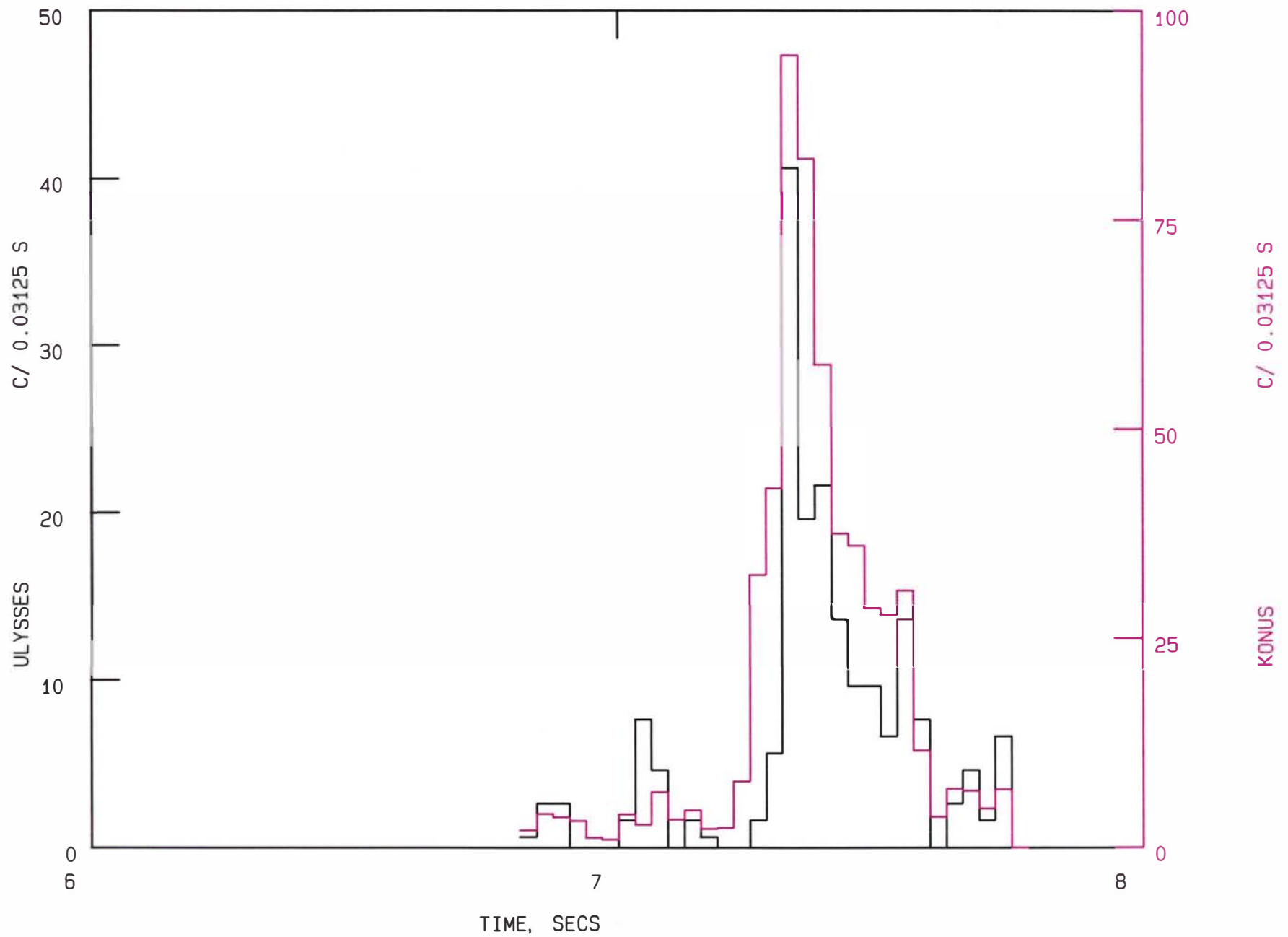
-KONUS

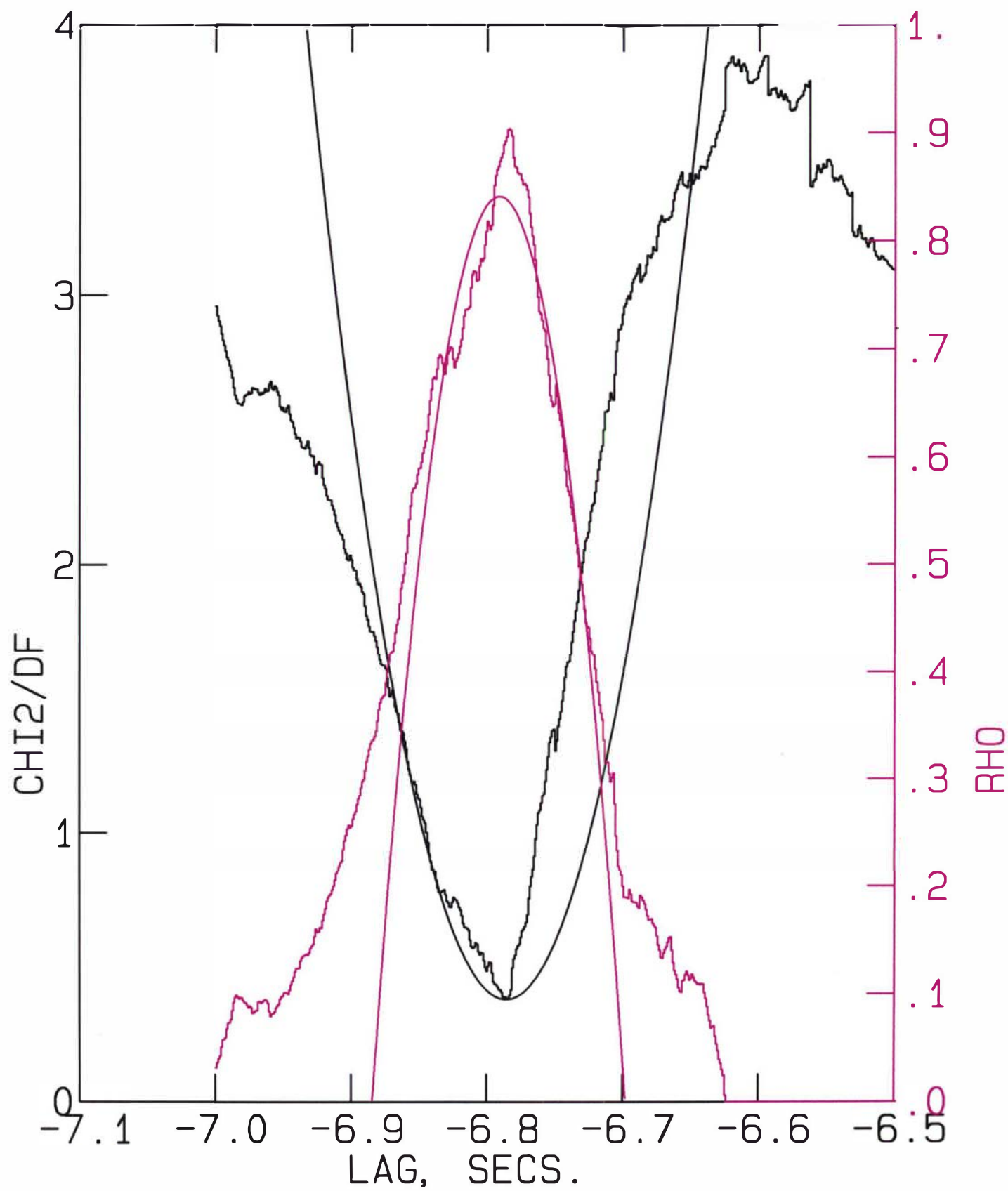
CORRELATION

05/02/98

18463.144

15/ 7/ 9





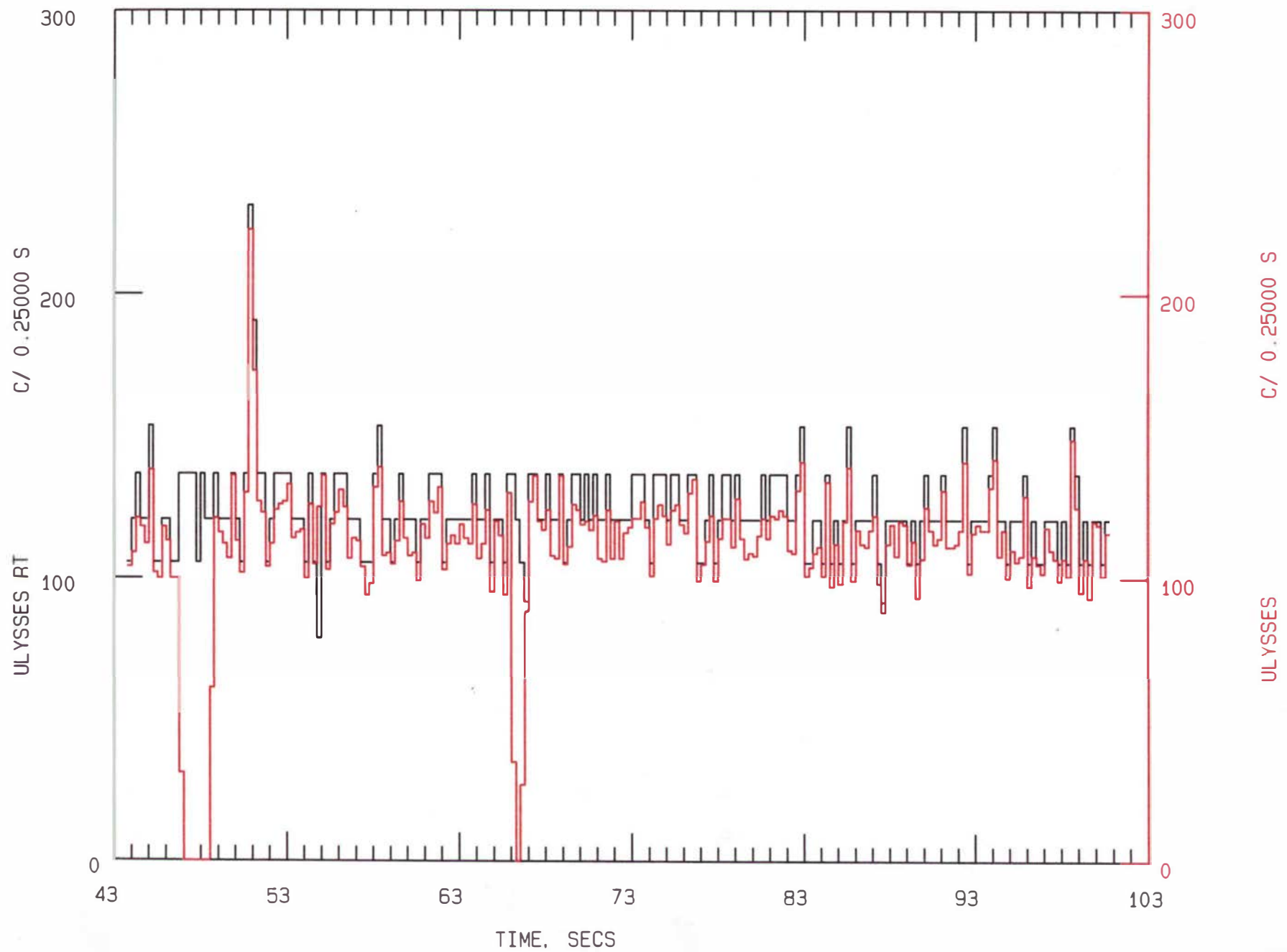
ULYSSES RT-ULYSSES

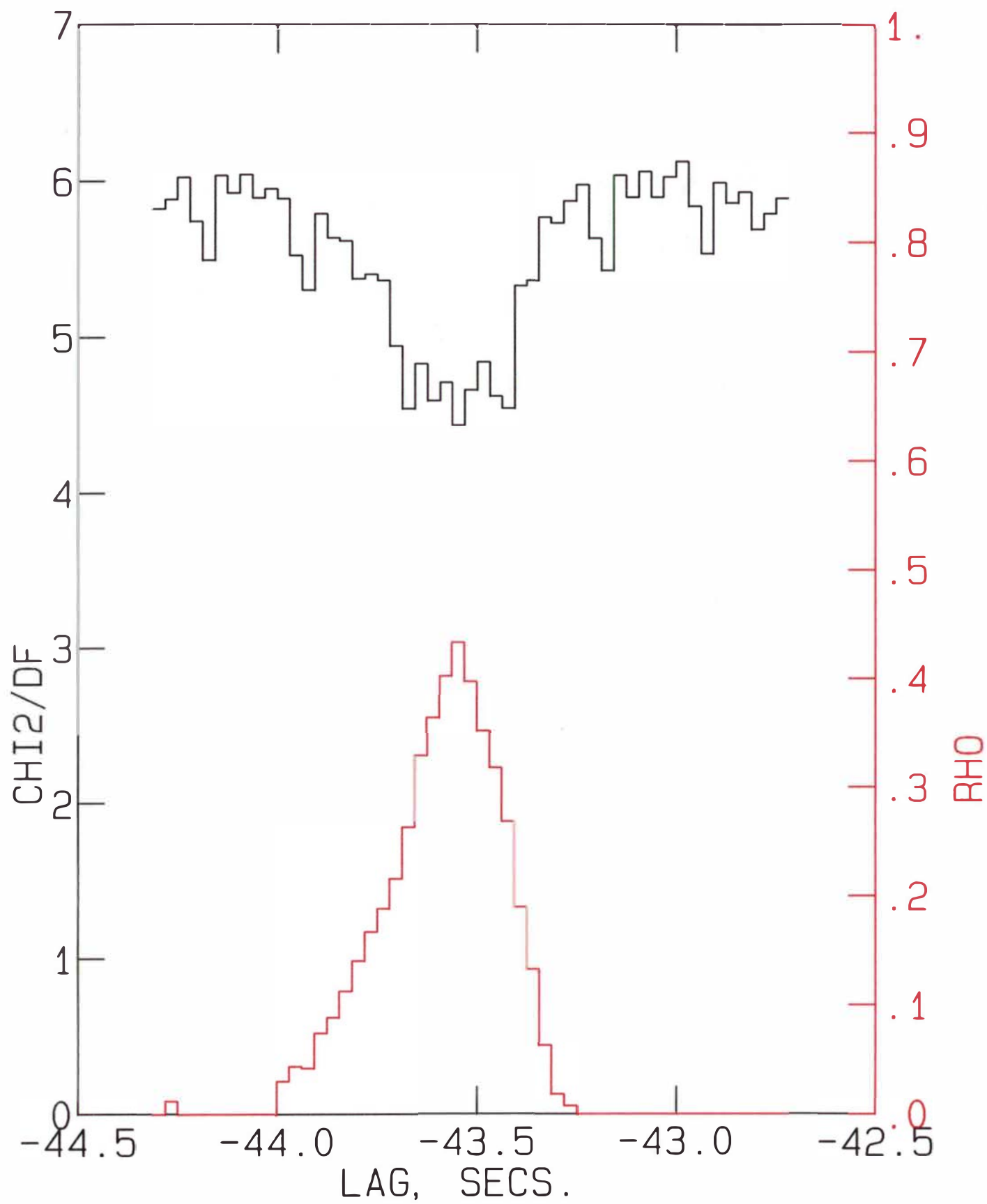
CORRELATION

5/ 2/98

18412.282

10/ 2/98

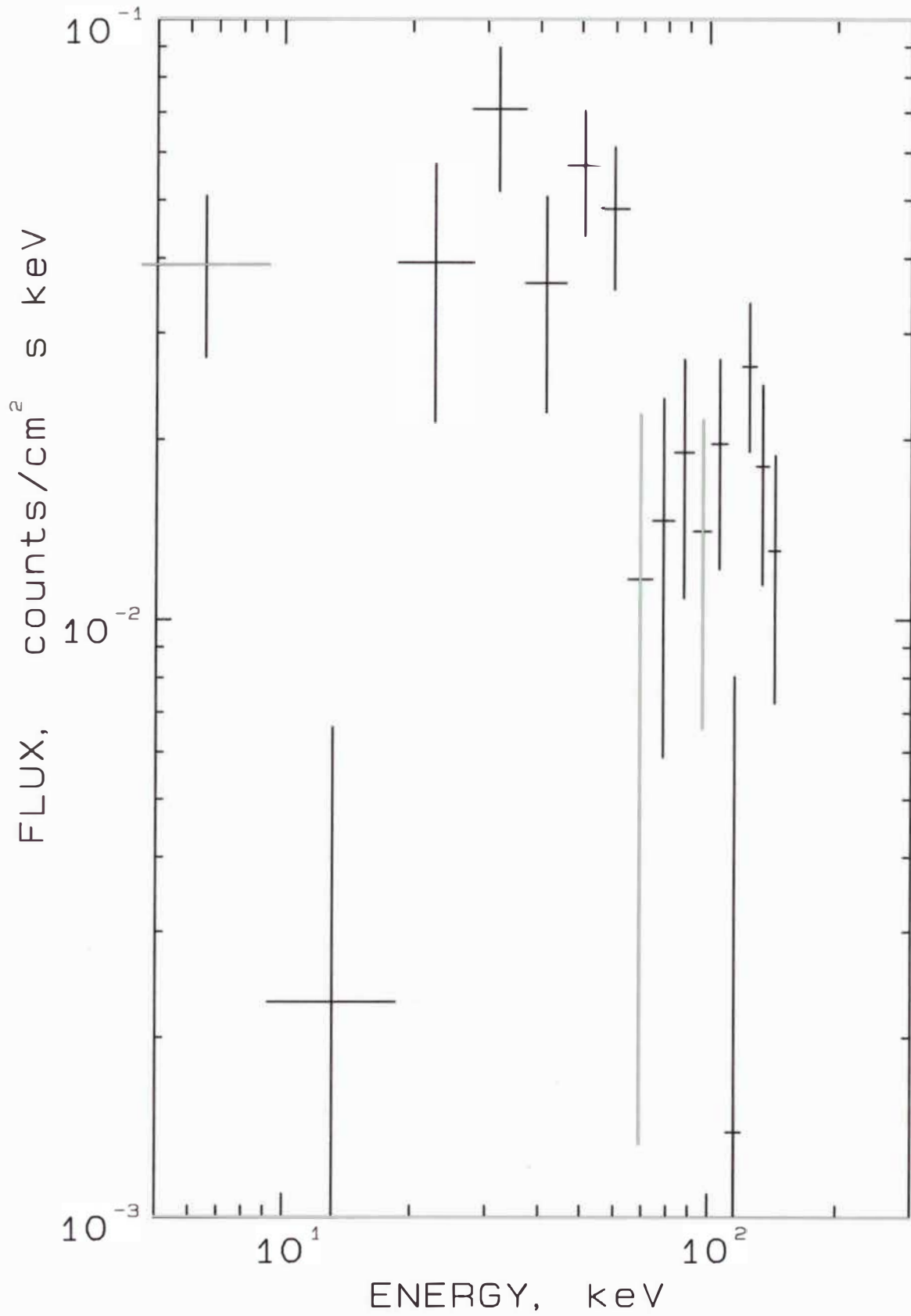




ULYSSES 05/02/98 18463.123

10/ 2/98

SPECTRUM INTEGRATED OVER 10.8 SECONDS, INTERVALS 2 TO 12



ULYSSES 05/02/98 18463.123 BURST SPECTRAL COUNT RATES

4- 18 keV

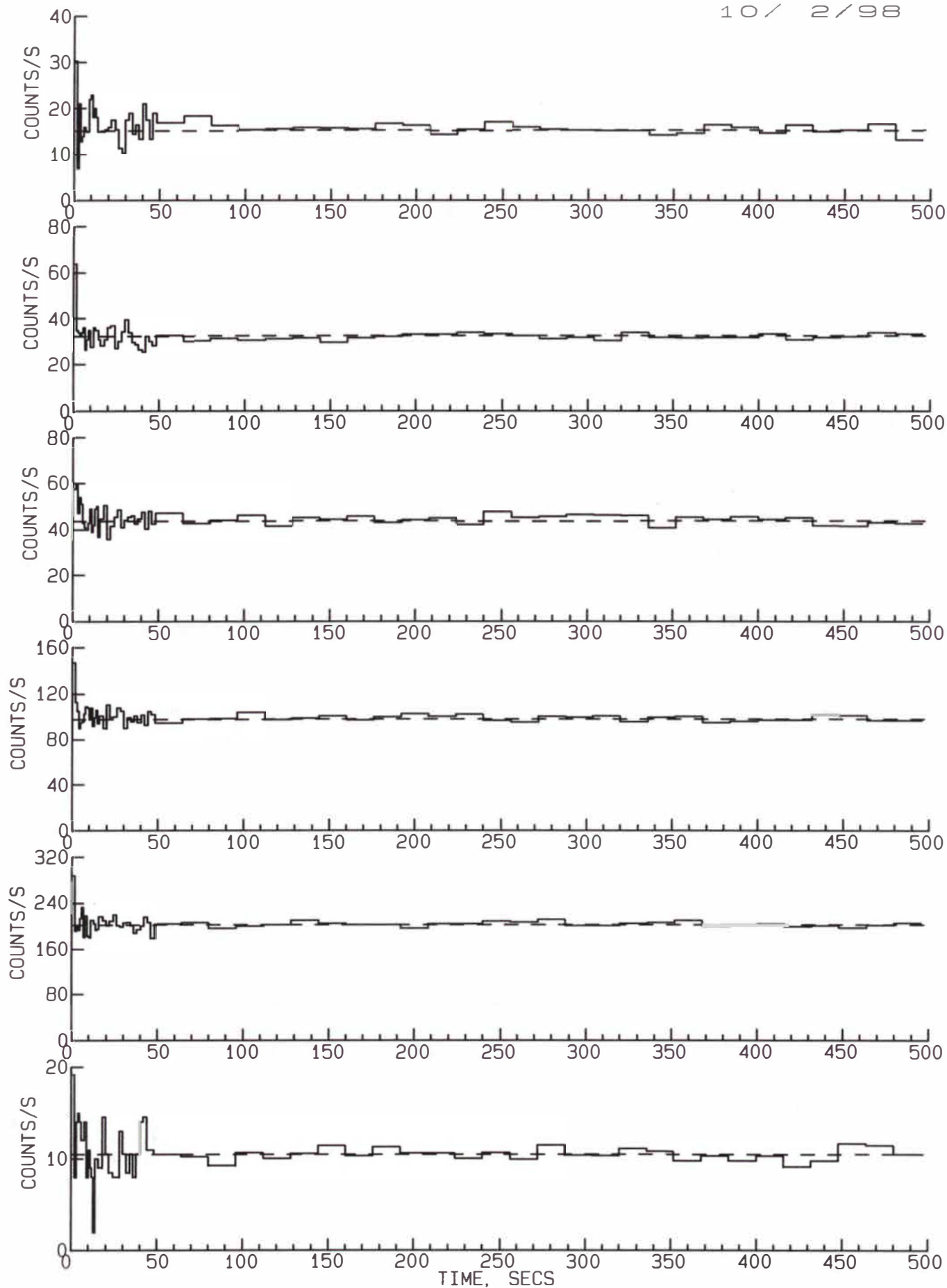
18- 46 keV

46- 73 keV

73-101 keV

101-129 keV

129-147 keV



10 / 2 / 98

ULYSSES

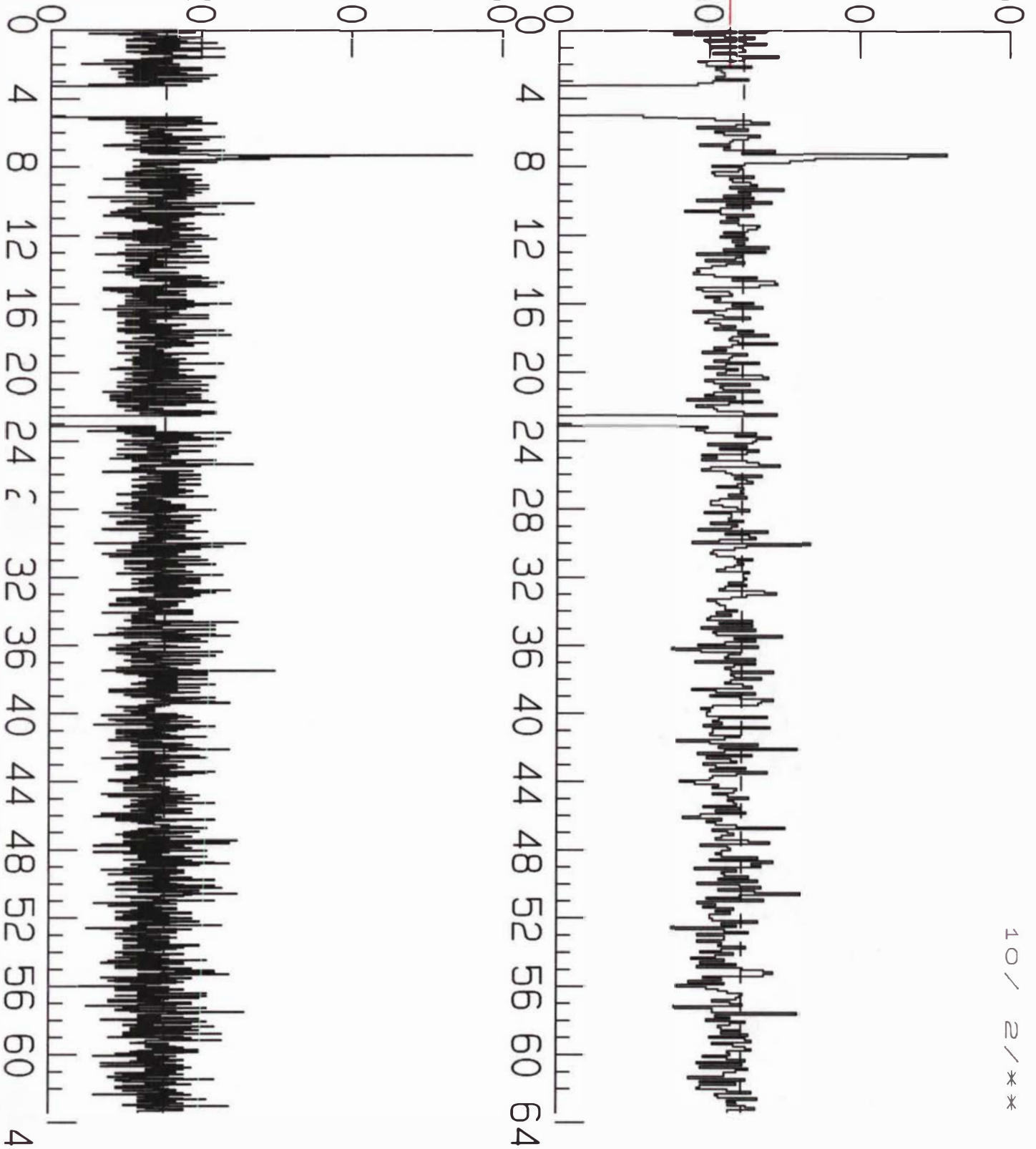
05/02/98

Ttrig=18463.228

0- 0 keV

COUNTS/0.031 S

COUNTS/0.125 S



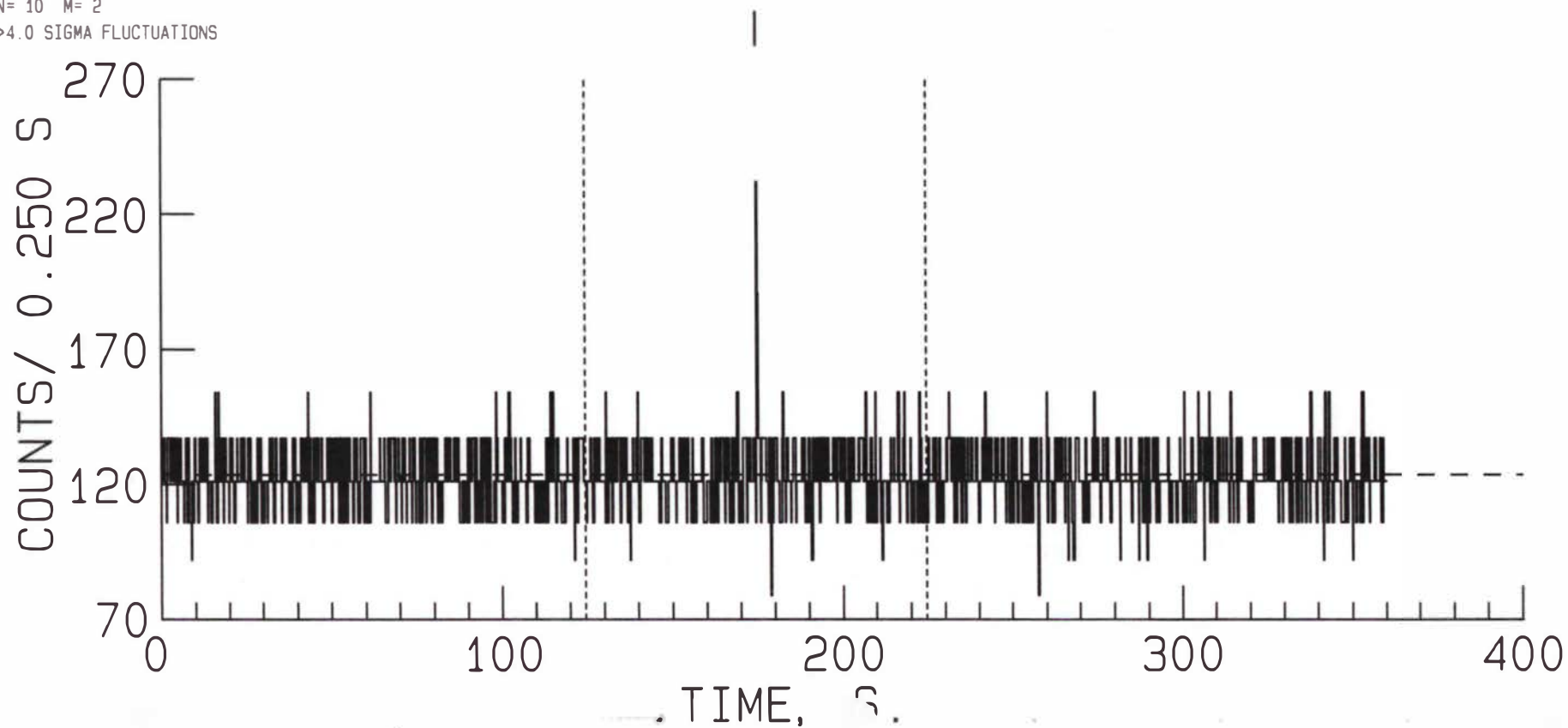
ULYSSES RT

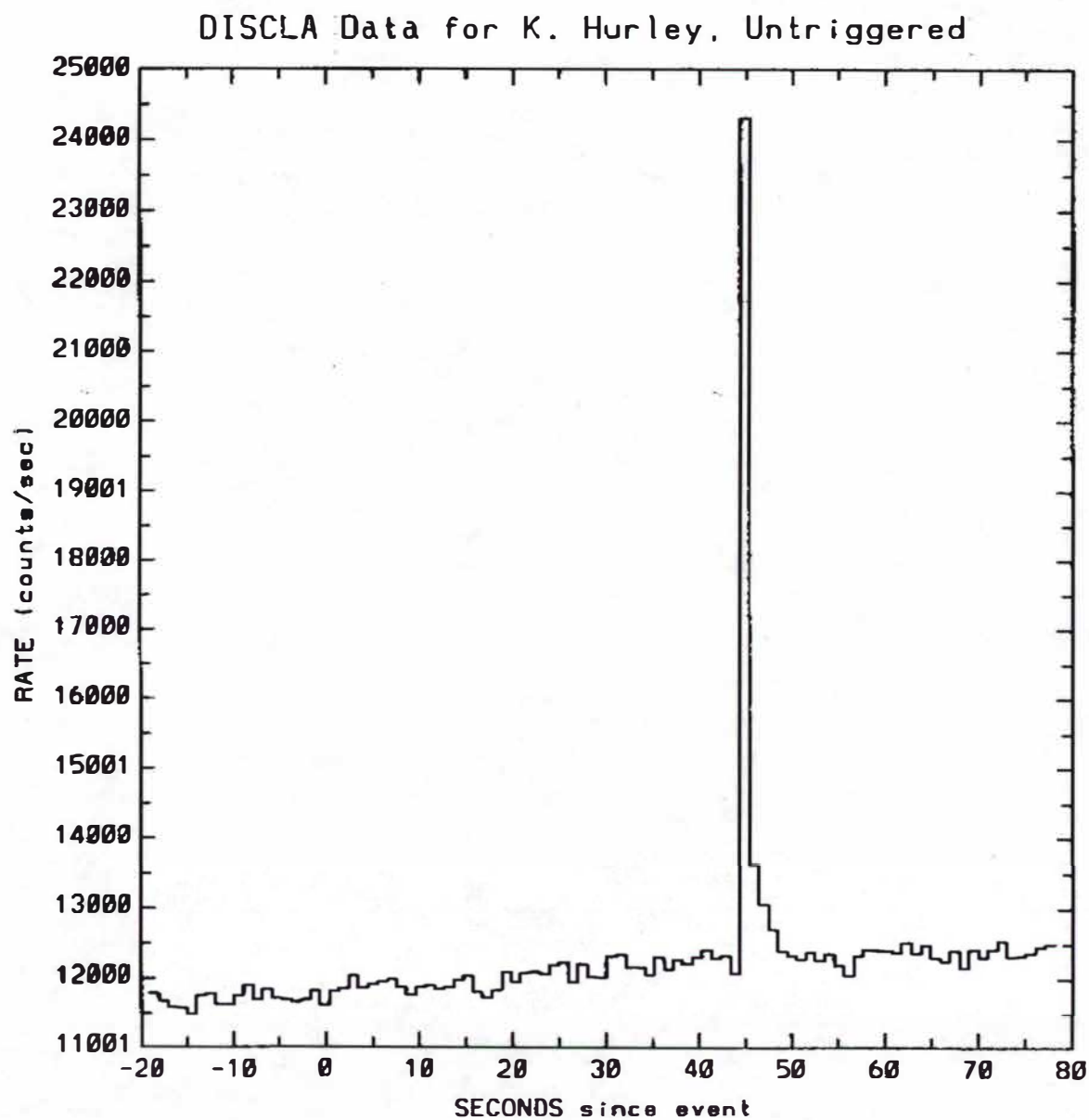
10 / 2 / 98

5 / 2 / 98 18288.185 s

22- 147 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS





9-FEB-2000 10:59:10

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

User Input Time:
10049 / 19738.000

Data Type: DISCLA

Deadtime
Corrected: N

Integration Time:
1.024 second(s)

Detectors [7..8].
76--32--

Discriminators:
(3 . 4)

Quality Mask:
BDISP1

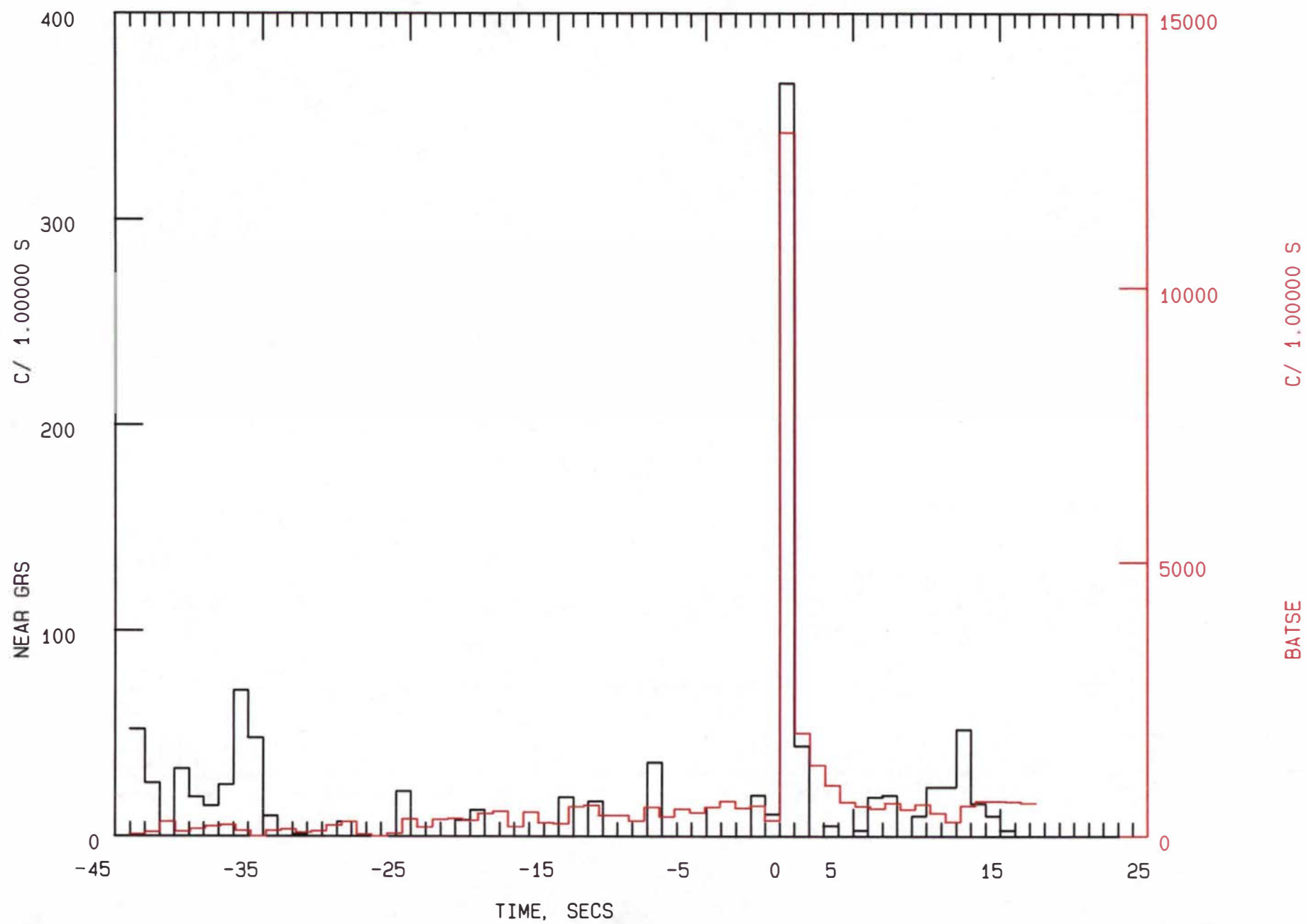
NEAR GRS -BATSE

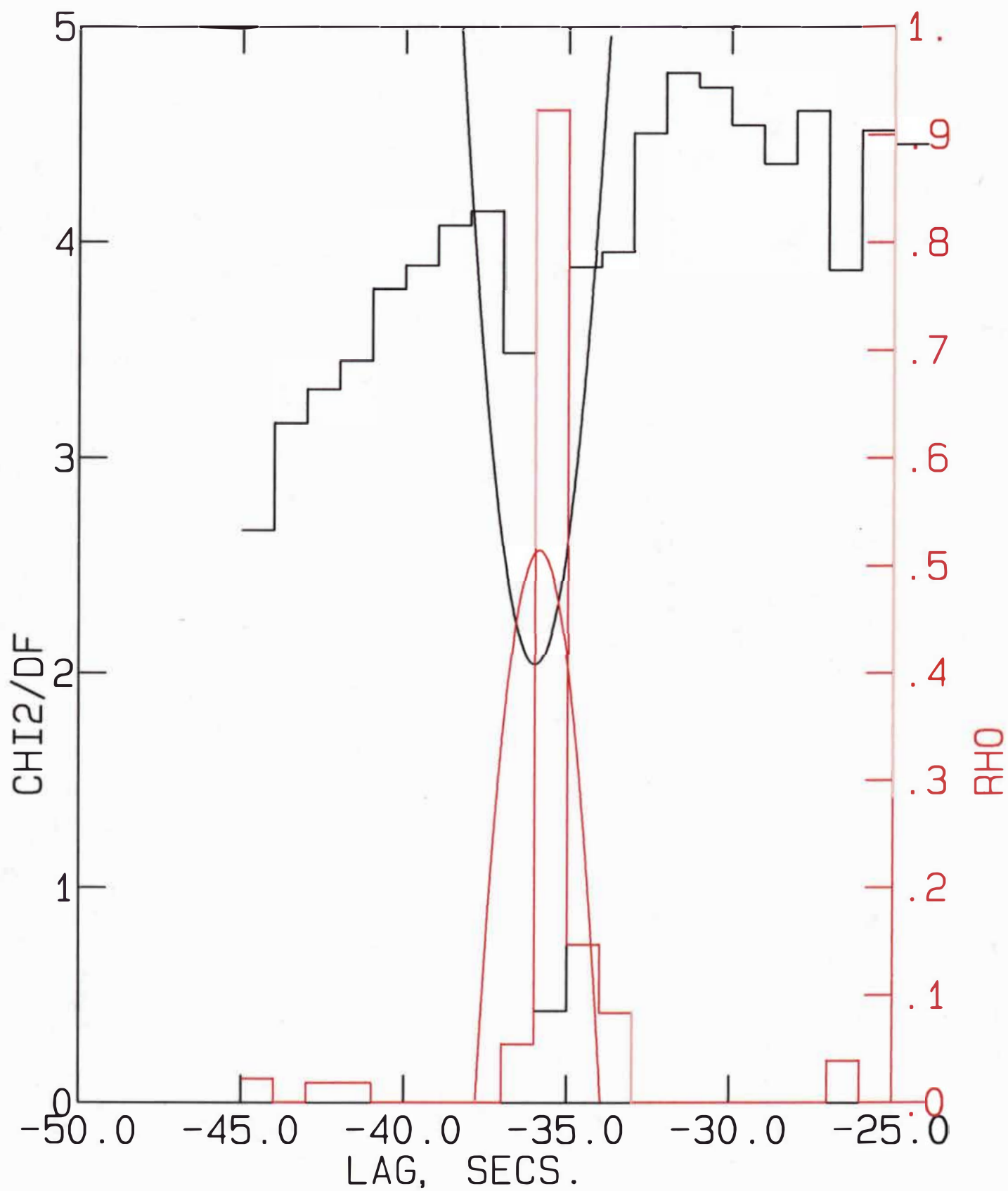
CORRELATION

05/02/98

19761.815

11/ 2/ 0





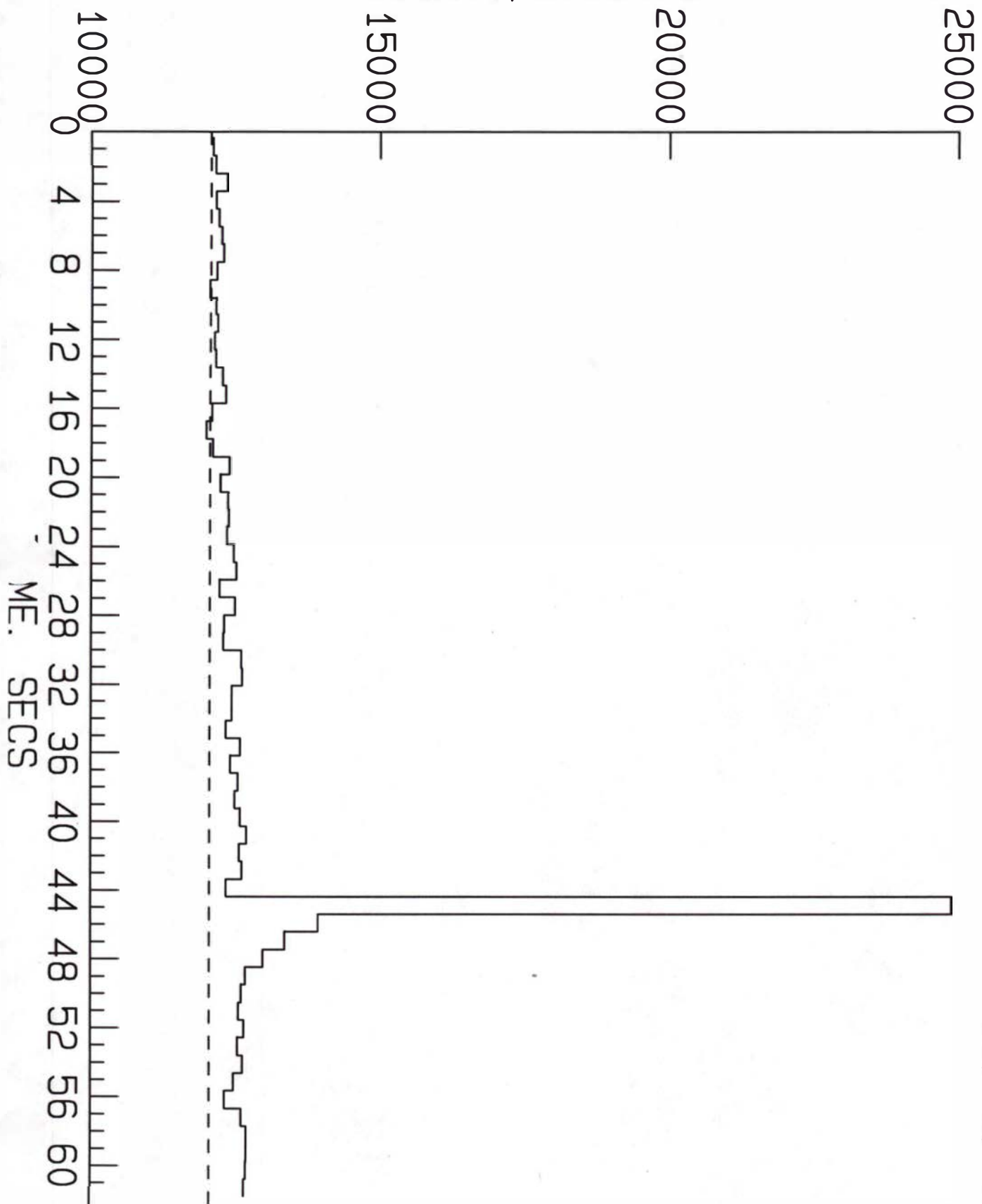
BATSE

05/02/98

19738.000

25- 100 keV

COUNTS/1.024 S



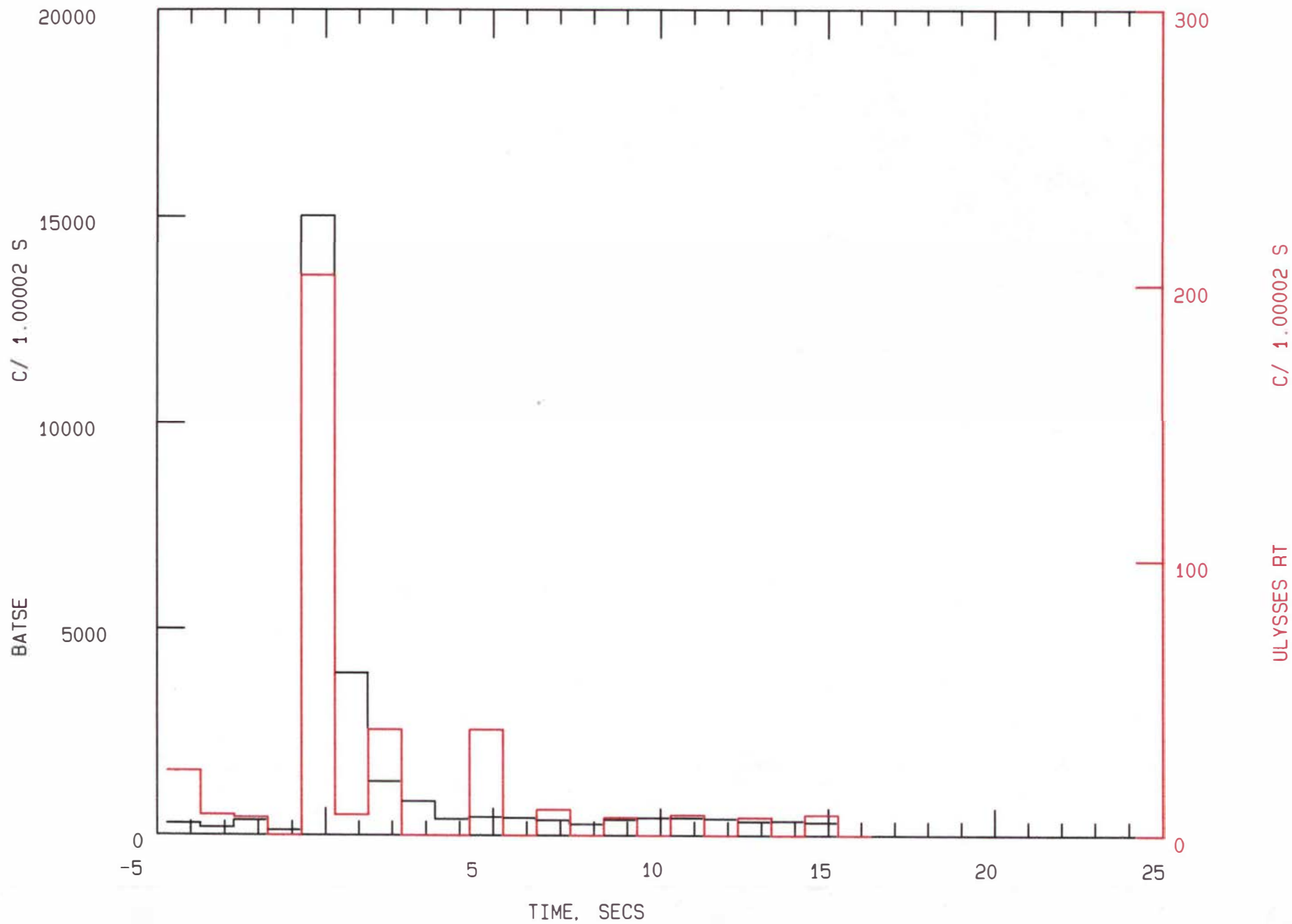
BATSE

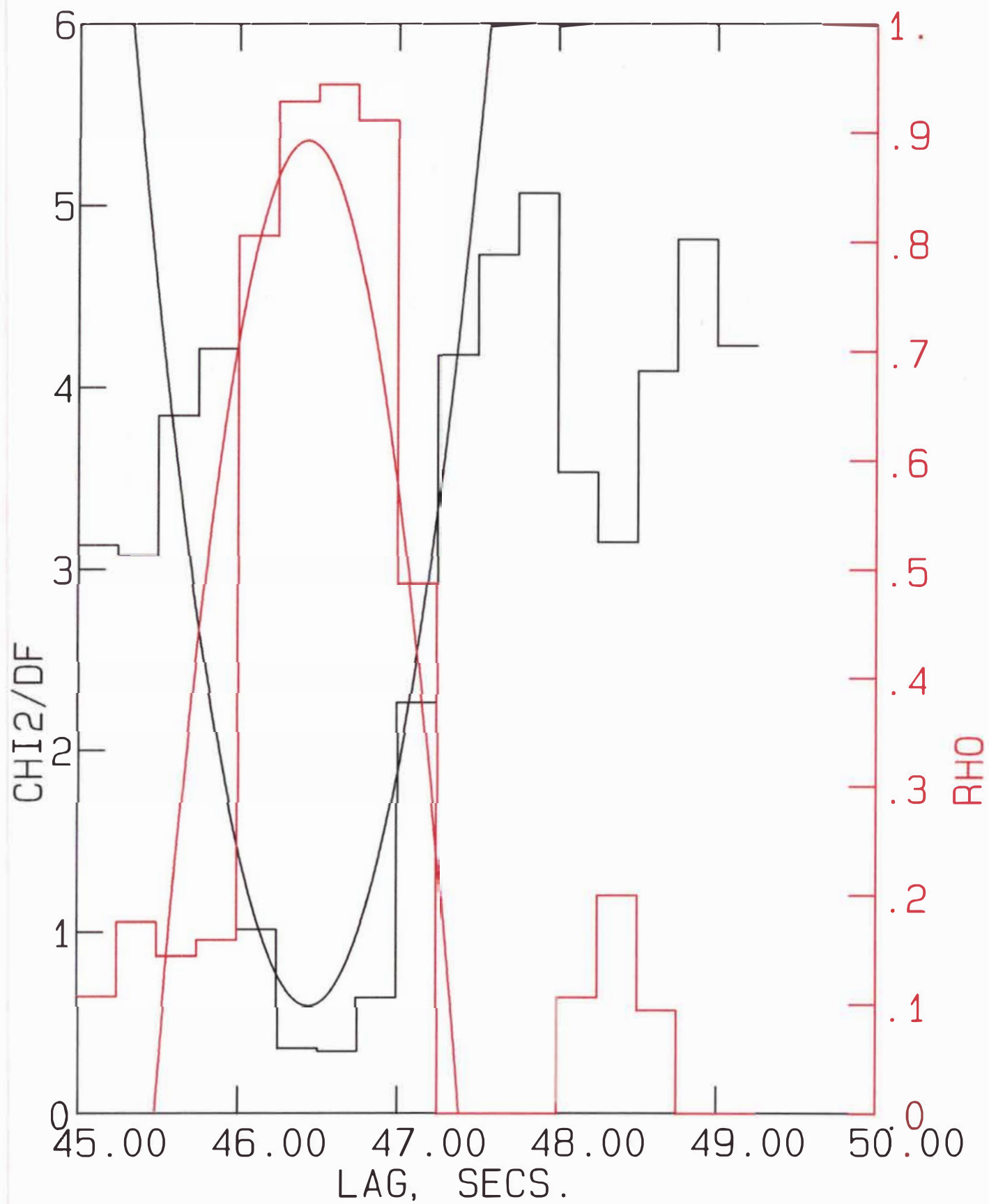
-ULYSSES RT CORRELATION

5/ 2/98

19783.000

10/ 2/98





JAX GRDM

03/02/90 15:14.511

40- 700 keV

COUNTS/0.031 S

120

220

320

20

20

40

60

80

100

TIME, SECS

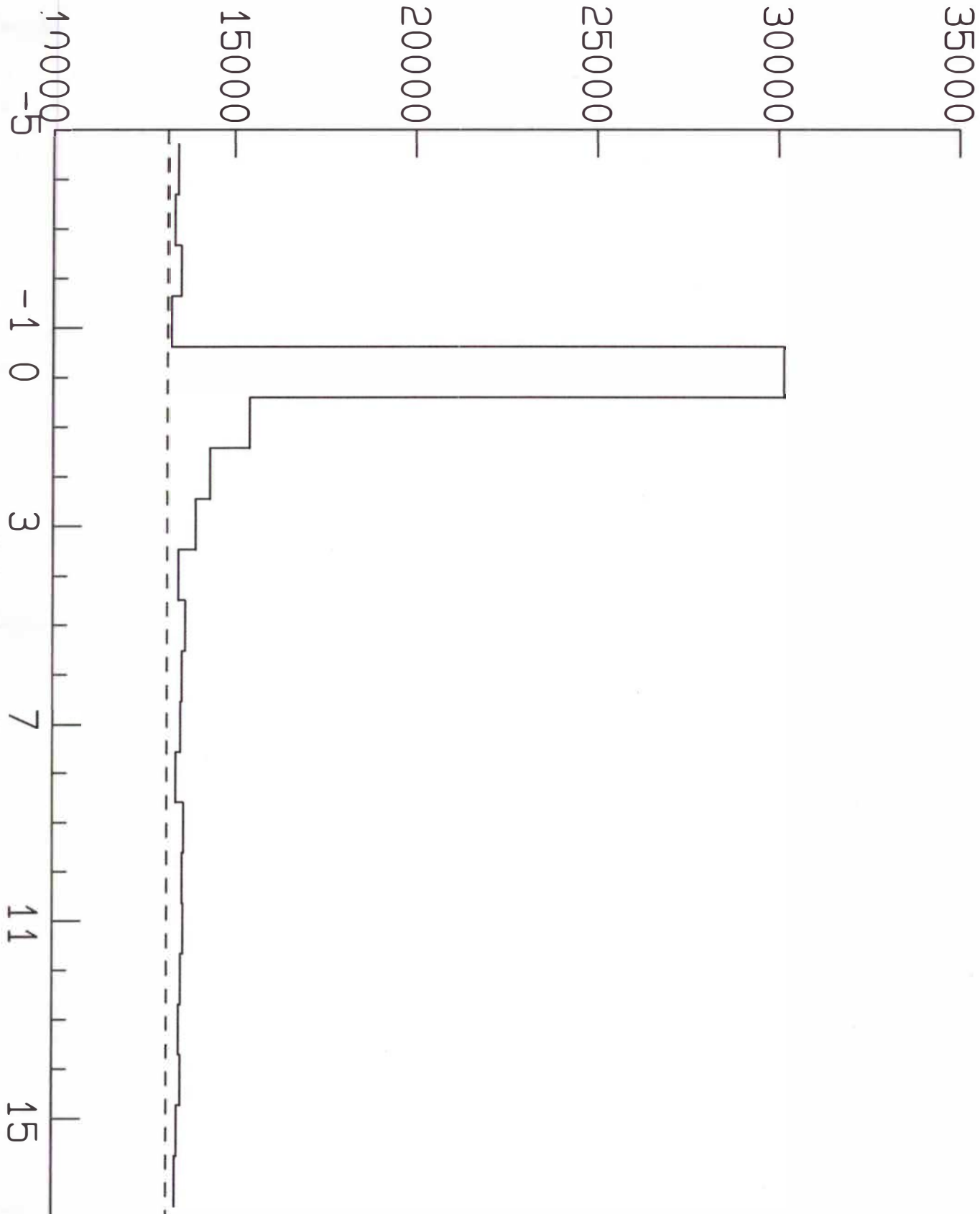
14 / 7 / 9

BATSE

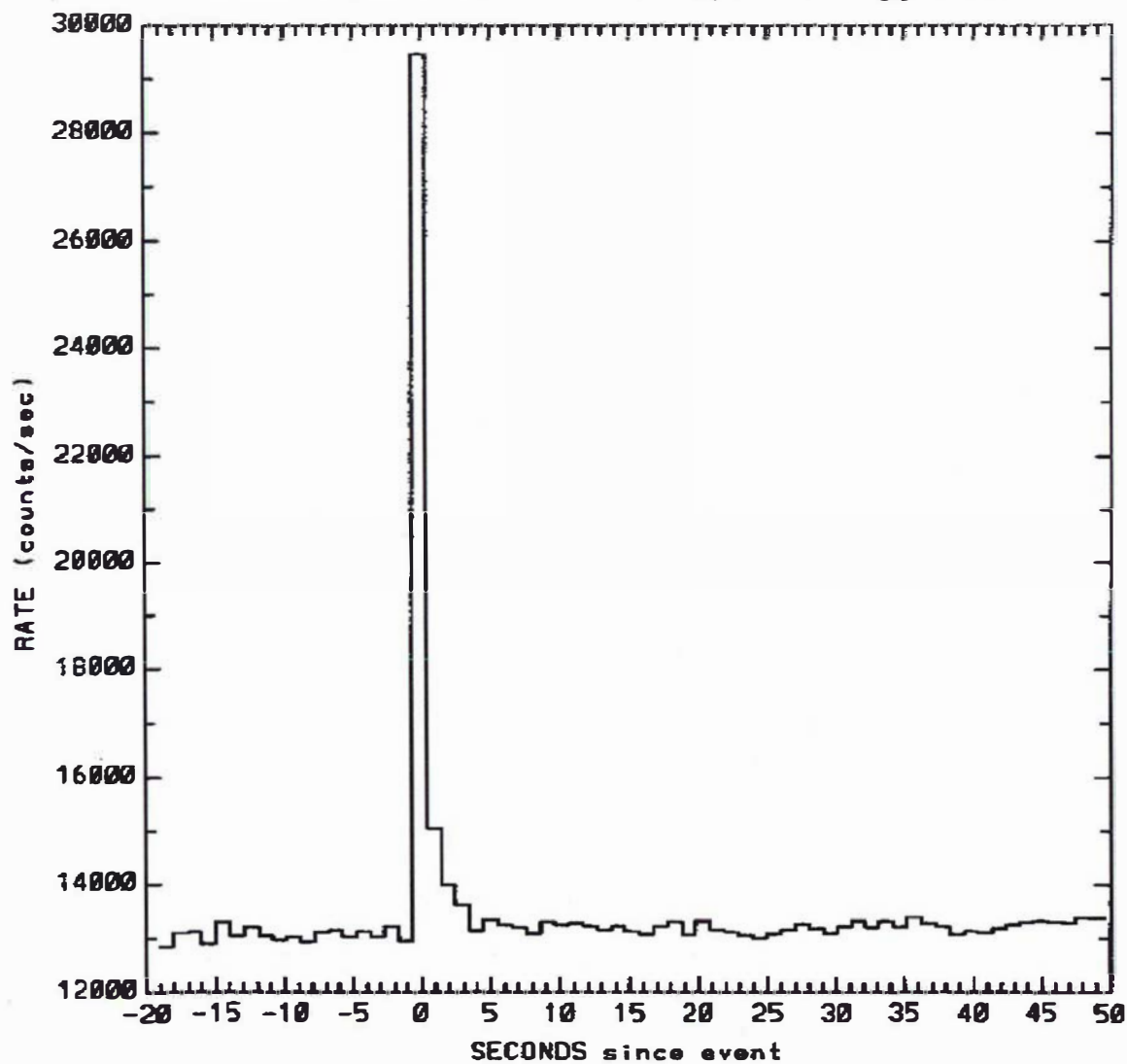
05/02/98

19783.000

25- 100 keV
COUNTS/1.024 S



DISCLA Data for K. Hurley, Untriggered



18-FEB-1998 18:44.27

Created by MOPS BD
(Burst Display)
Version t2.25User Input Time:
18849 / 19783.000

Data Type: DISCLA

Deadtime
Corrected: NIntegration Time:
1.824 second(s)Detectors [7..8]:
76--32--Discriminators:
(1..2)Quality Mask:
80ISP1

From BUTTERWORTH@lheavx.gsfc.nasa.gov Tue Mar 3 08:02 PST 1998

From: BUTTERWORTH@lheavx.gsfc.nasa.gov

Date: Tue, 3 Mar 1998 10:58:57 -0500 (EST)

To: khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, vnp@isac.ernet.in,
jterrell@lanl.gov, yosimori@rikkyo.ac.jp,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov

CC: BUTTERWORTH@lheavx.gsfc.nasa.gov

X-Vmsmail-To: @ULYSSES

X-Vmsmail-Cc: BUTTERWORTH

Subject: KONUS FEB98 REPORT FOR ULYSSES GAMMA-RAY EVENTS NOT REPORTED BY BATSE

Hi Everyone,

Here is the Konus report for those events seen by Ulysses in February, but not reported by BATSE.

Paul.

Ulysses event - February 2 1998 10:23 Ulysses time; moderate burst, 10 s long

Konus triggered at 09:55:06.894 in the South-facing detector. The event was moderately intense, and consisted of two broad and irregular peaks. The first peak was ~2 seconds after the trigger. The second peak, which was stronger and sharper, came ~6.5 seconds after the trigger. The event lasted about 12 seconds in total.

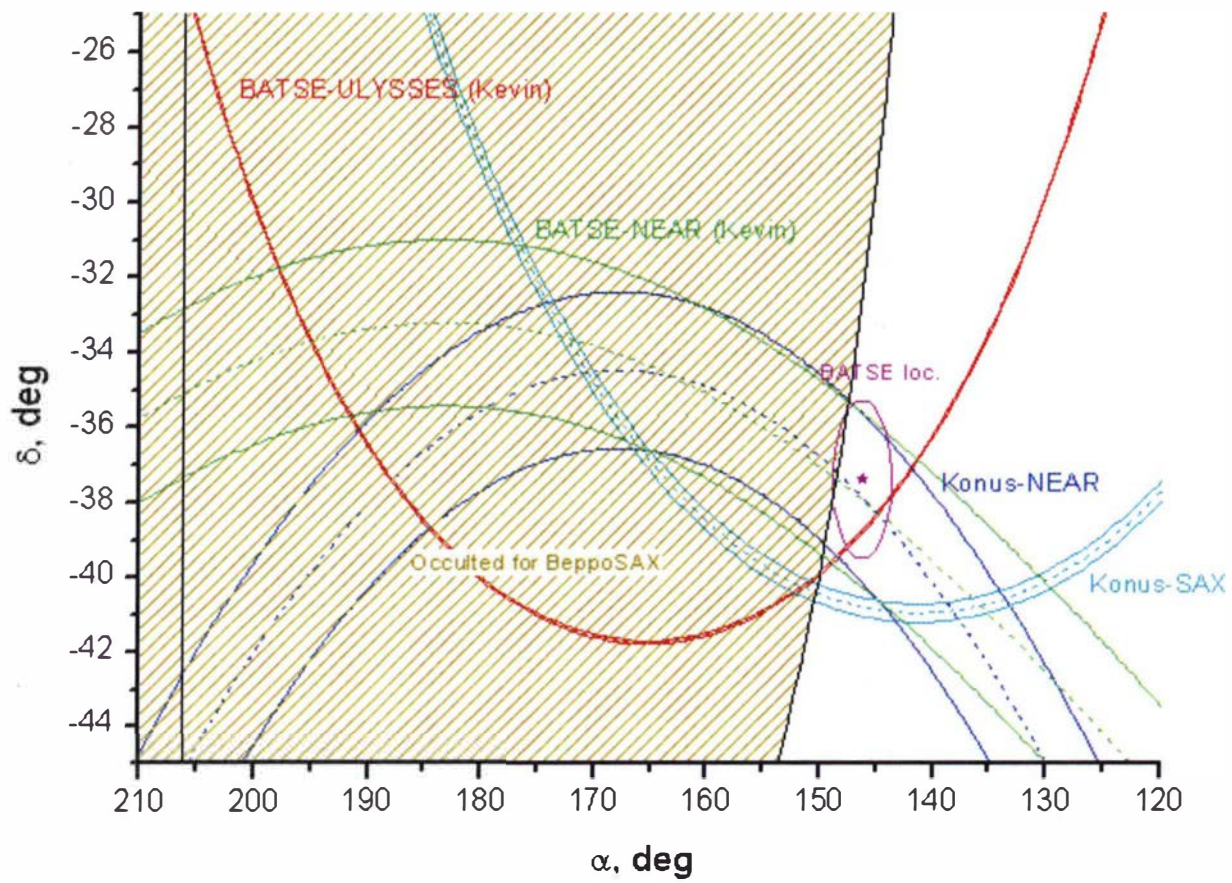
Ulysses event - February 3 1998 06:27 Ulysses time; weak burst, 32 ms long

Ulysses event - February 5 1998 23:48 Ulysses time; weak burst, 64 ms long

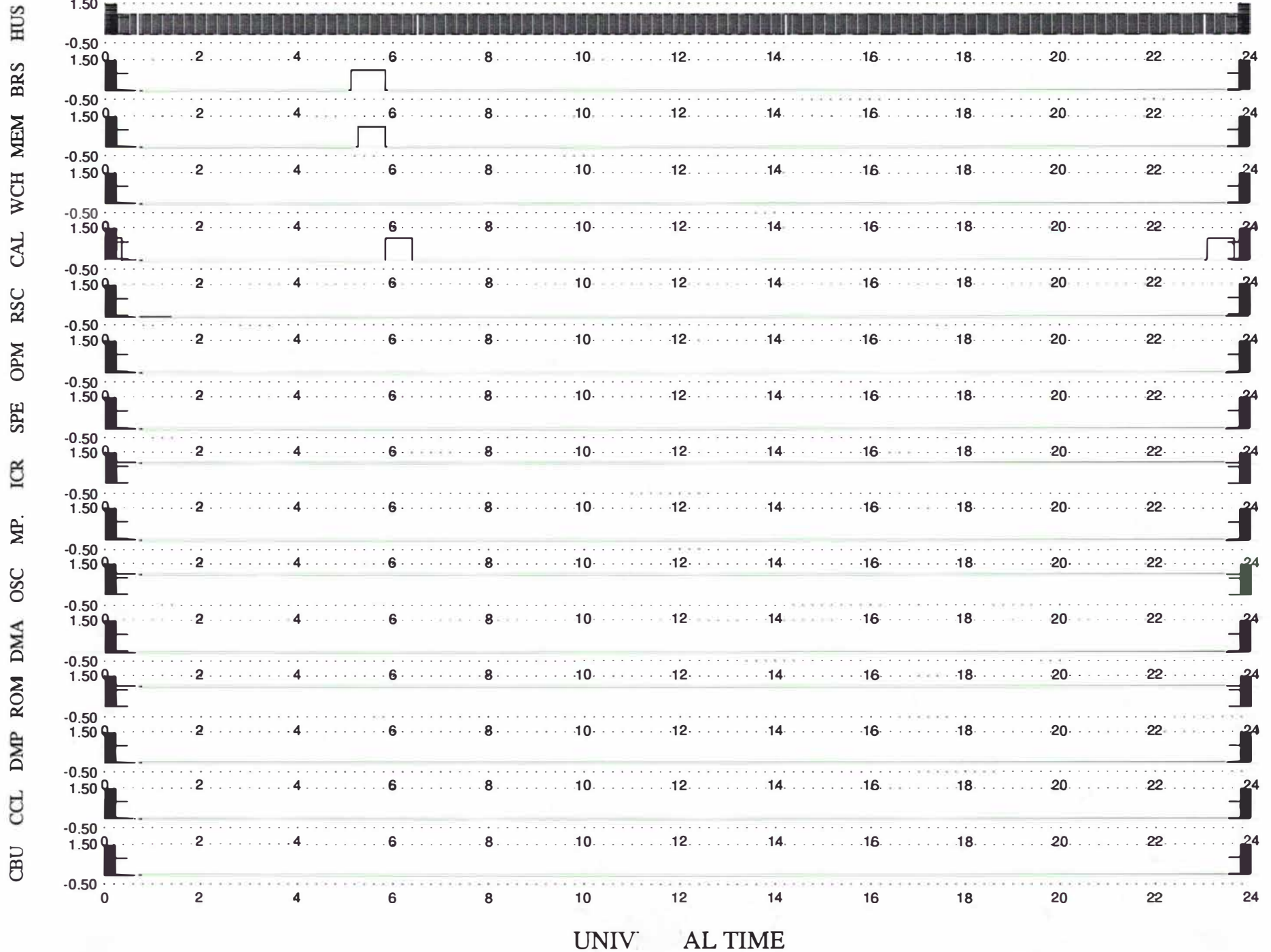
Ulysses event - February 11 1998 04:40 Ulysses time; weak burst, 64 ms long

None of these events were detected by Konus.

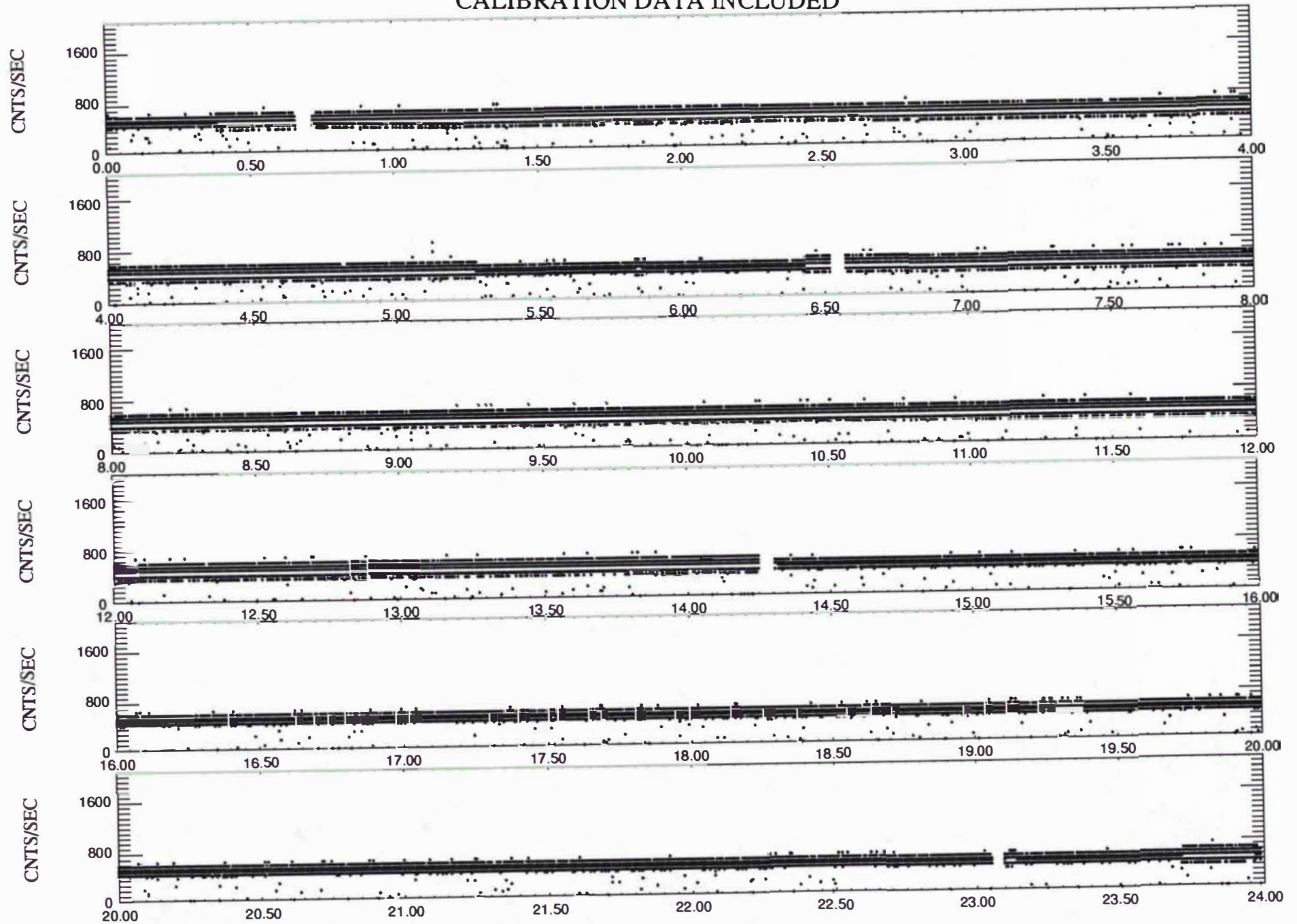
GRB 19980205_T19785



BURST NUMBER 12, 13

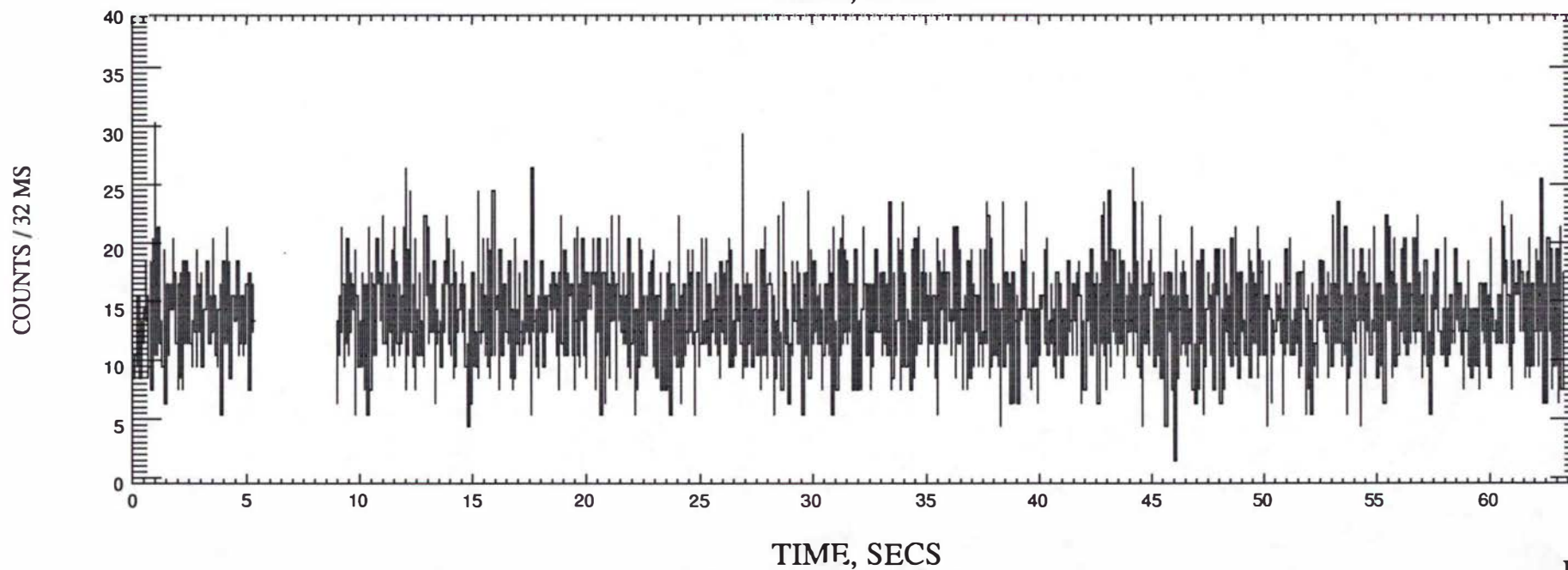
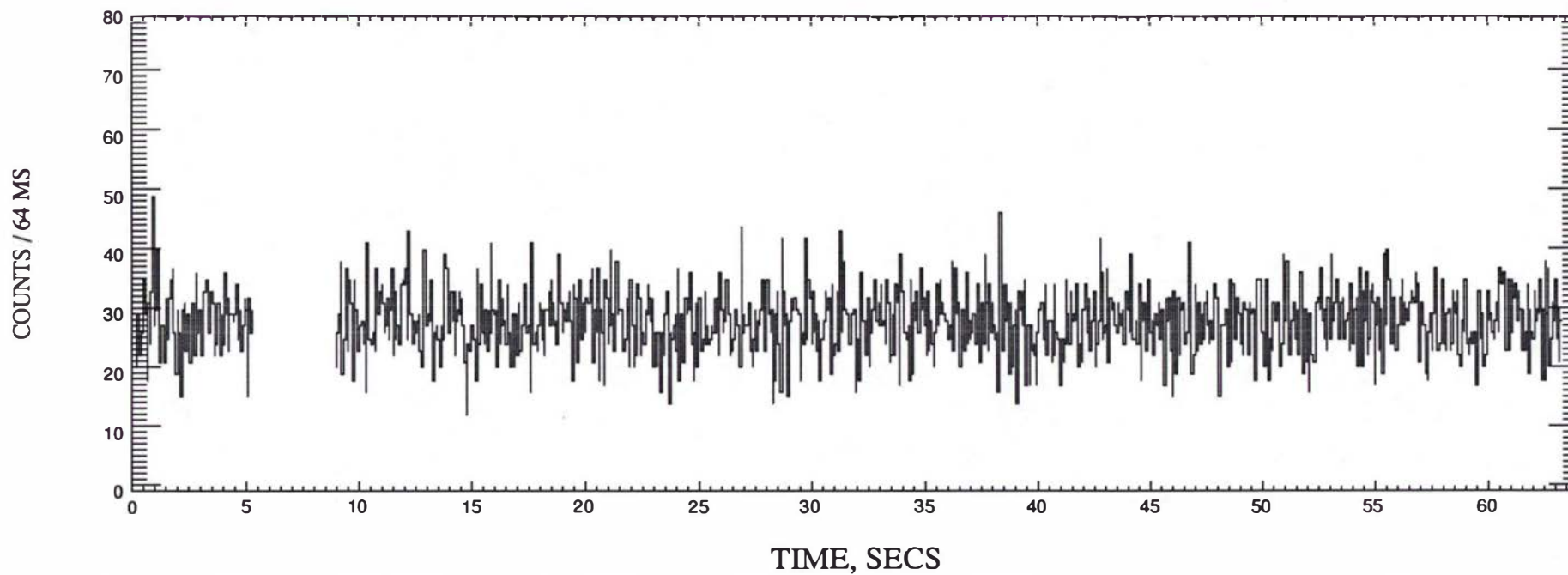


CALIBRATION DATA INCLUDED

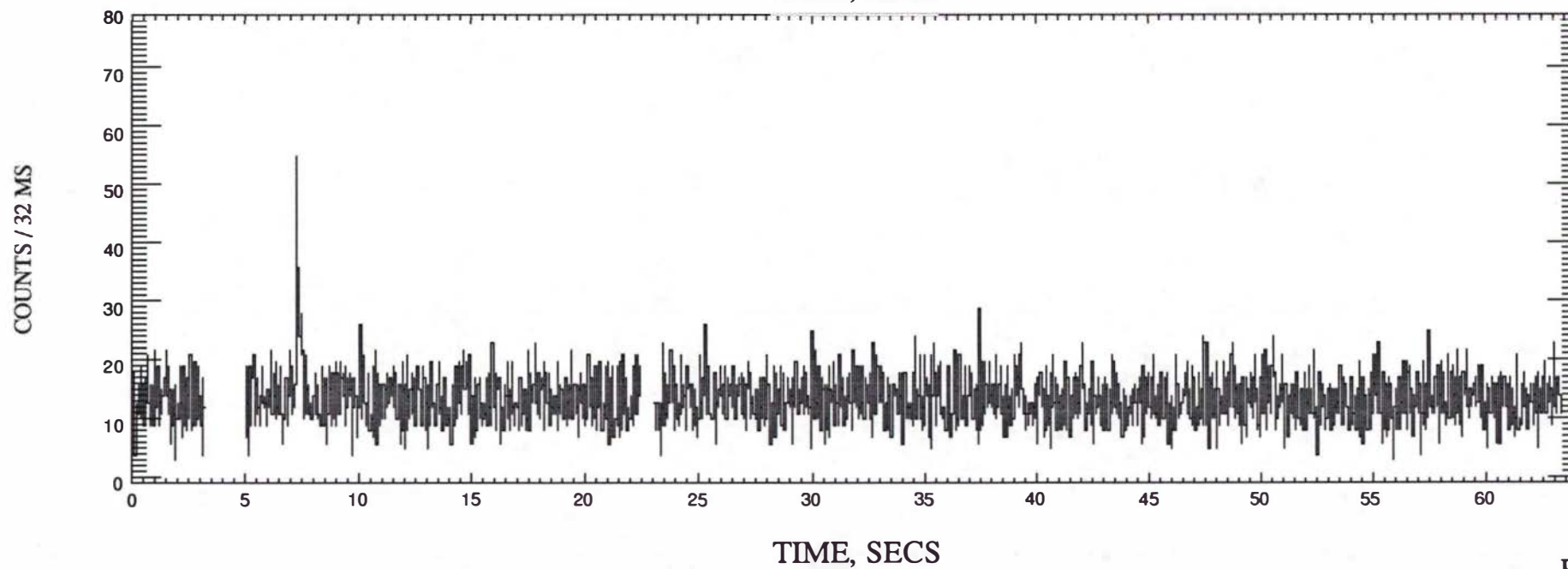
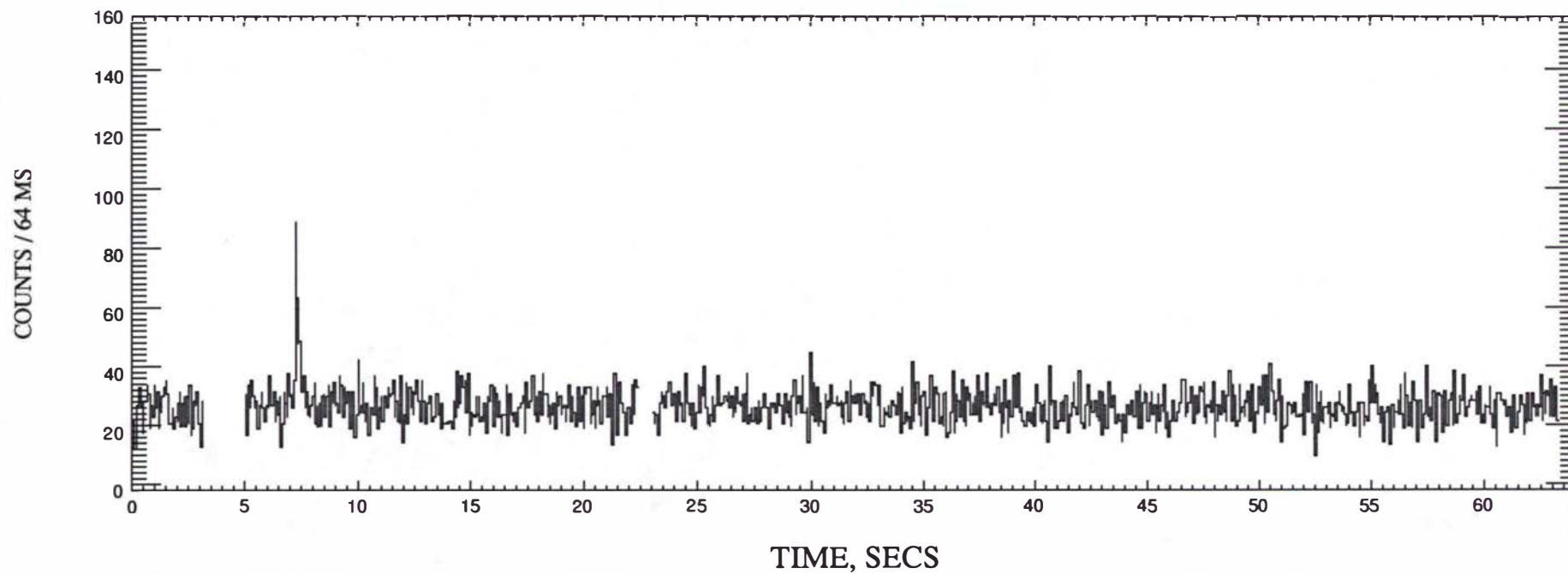


UNIV 'AL TIME

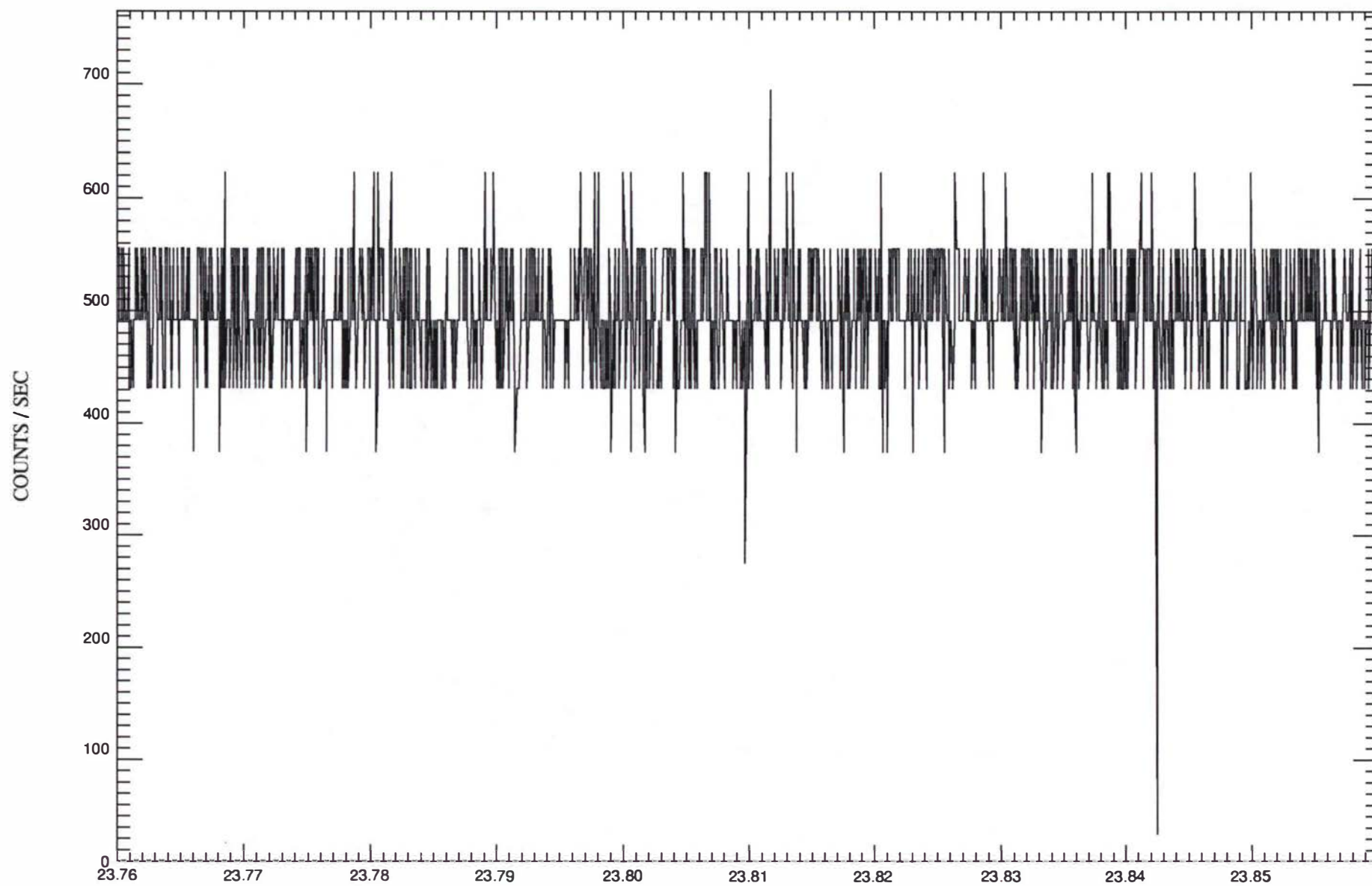
Burst Counter 13 at UT=23.811745927599 h=85722.285 s 23:48:42.285



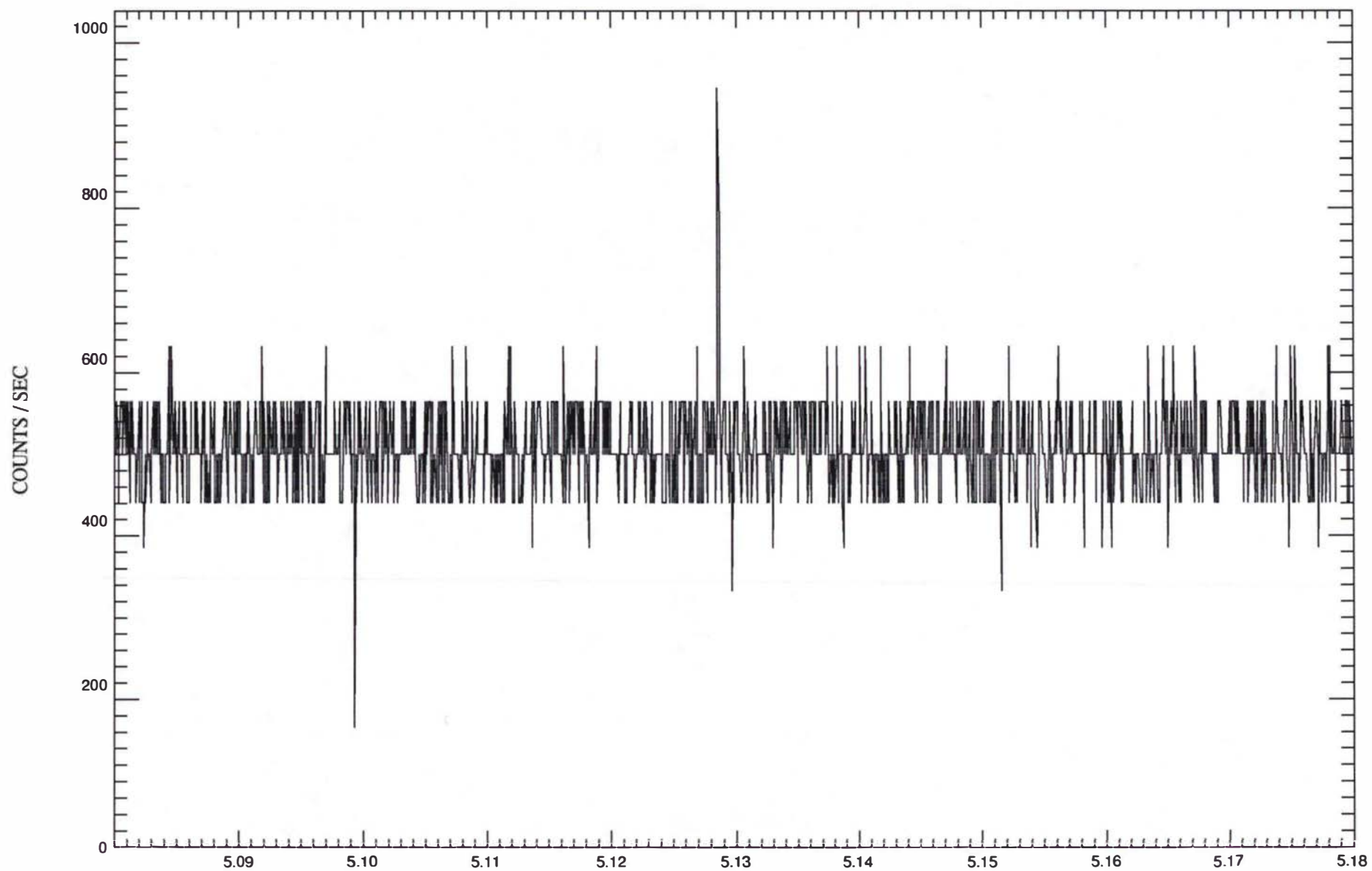
Burst Counter 12 at UT= 5.128645261129 h=18463.123 s 05:07:43.123

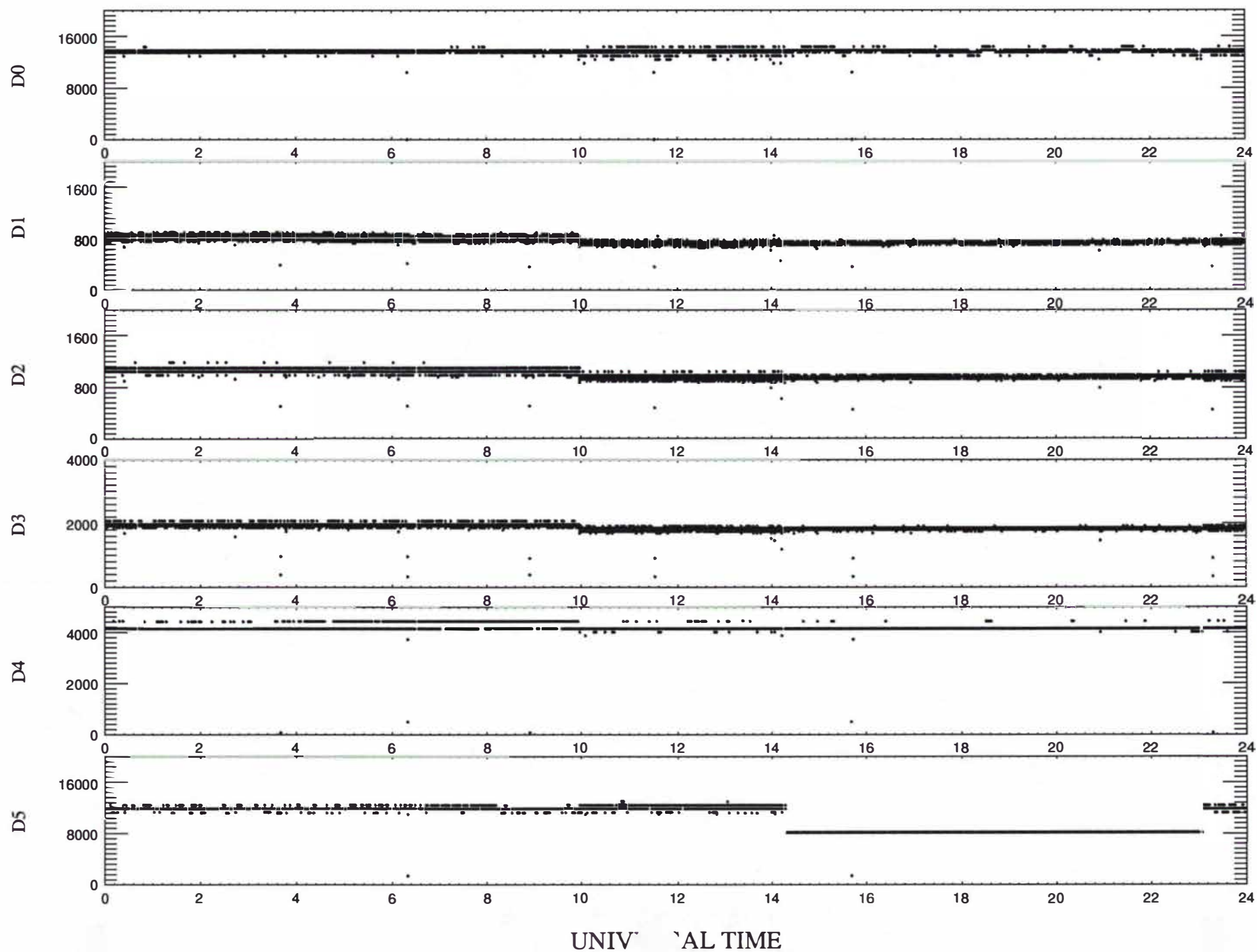


CALIBRATION DATA INCLUDED



CALIBRATION DATA INCLUDED





From RICHARDSON@SSLMOR.msfc.nasa.gov Tue Feb 10 14:25:47 1998
Date: Tue, 10 Feb 1998 16:24:49 -0600 (CST)
From: RICHARDSON@SSLMOR.msfc.nasa.gov
To: burst@compTEL.sr.unh.edu, grobad@estsA2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6588

TIME: TJD=0850 SECONDS=27071

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

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=46.0 AZIMUTH=51.4 ERROR=5.9 DEGREES

COMMENTS:
CYG X-1 EVENT

From RICHARDSON@SSLMOR.msfc.nasa.gov Tue Feb 10 05:49:19 1998
Return-Path: <RICHARDSON@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id FAA28325; Tue, 10 Feb 1998 05:49:18 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id FAA17483; Tue, 10 Feb 1998 05:49:17 -0800
Date: Tue, 10 Feb 1998 7:49:05 -0600 (CST)
From: RICHARDSON@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980210074905.21e20a89@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6589
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6589
EVENT OF 1998 FEB 6 DAY OF YEAR= 37
EVENT CROSSING TIME AT BATSE : 34396. S. OR 09:33:16.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 15.000 46.000
BATSE PEAK COUNTING RATE: 1500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 6/ 2/ 98 IS:
RA= 164.270 DEC= 12.460 DIST= 4.475 AU
BATSE-ULYSSES DISTANCE = 669449357. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 64.67 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 955.40 SECS.
CROSSING TIME AT ULYSSES IS 35351. S. OR 09:49:11 +/- 414.92 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 6/ 2/ 98 IS:
RA= 341.094 DEC= -9.003 DIST= 2.250 AU
MARS-BATSE DISTANCE = 336571552. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=117.18 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -512.90 SECS.
CROSSING TIME AT MARS IS 33883. S. OR 09:24:43 +/- 165.60 SECONDS

BATSE BURST TRIGGER

NO.: 6589

TIME: TJD=0850 SECONDS=34396

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=97.0 AZIMUTH=74.2 ERROR=3.8 DEGREES

COMMENTS:

GRB TWO PULSES. DURATION APPROX. = 65 SEC. NOT VISIBLE ABOVE 300KEV.

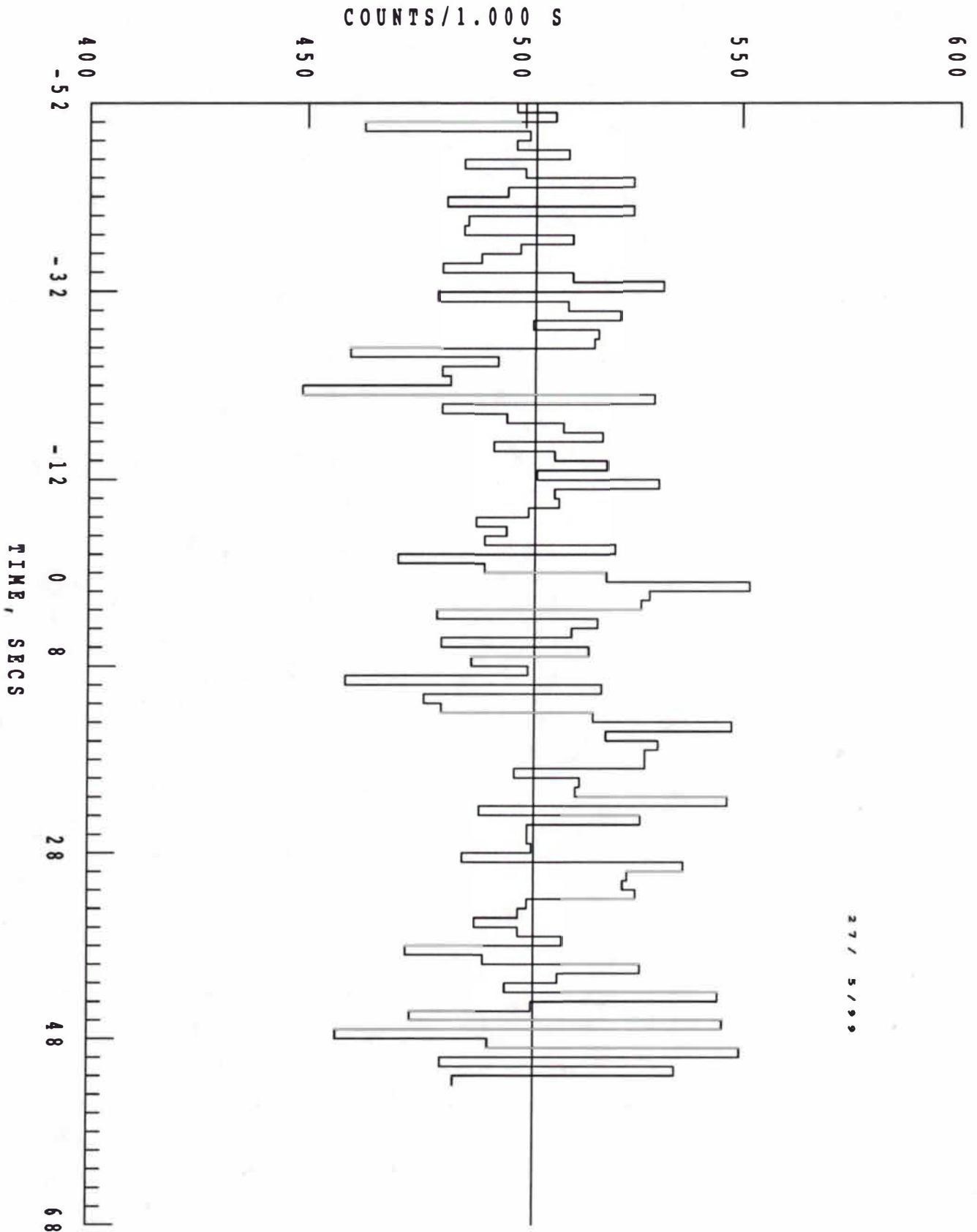
BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6589	980206	10850	34396	1500	015	+46	65

NEAR

06/02/98

34420.463

100-1000 keV



BATSE BURST# 6589

ULYSSES RT

10 / 2 / 98

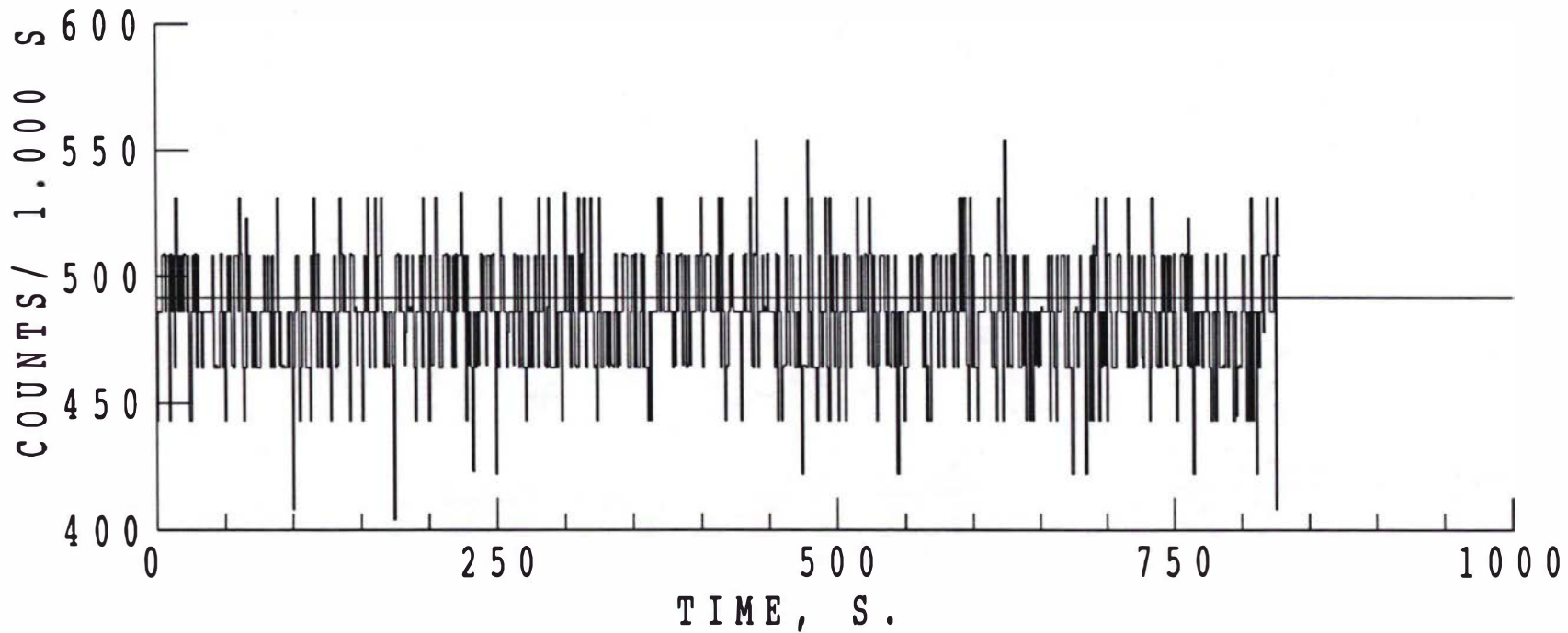
6 / 2 / 98 34920.055 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

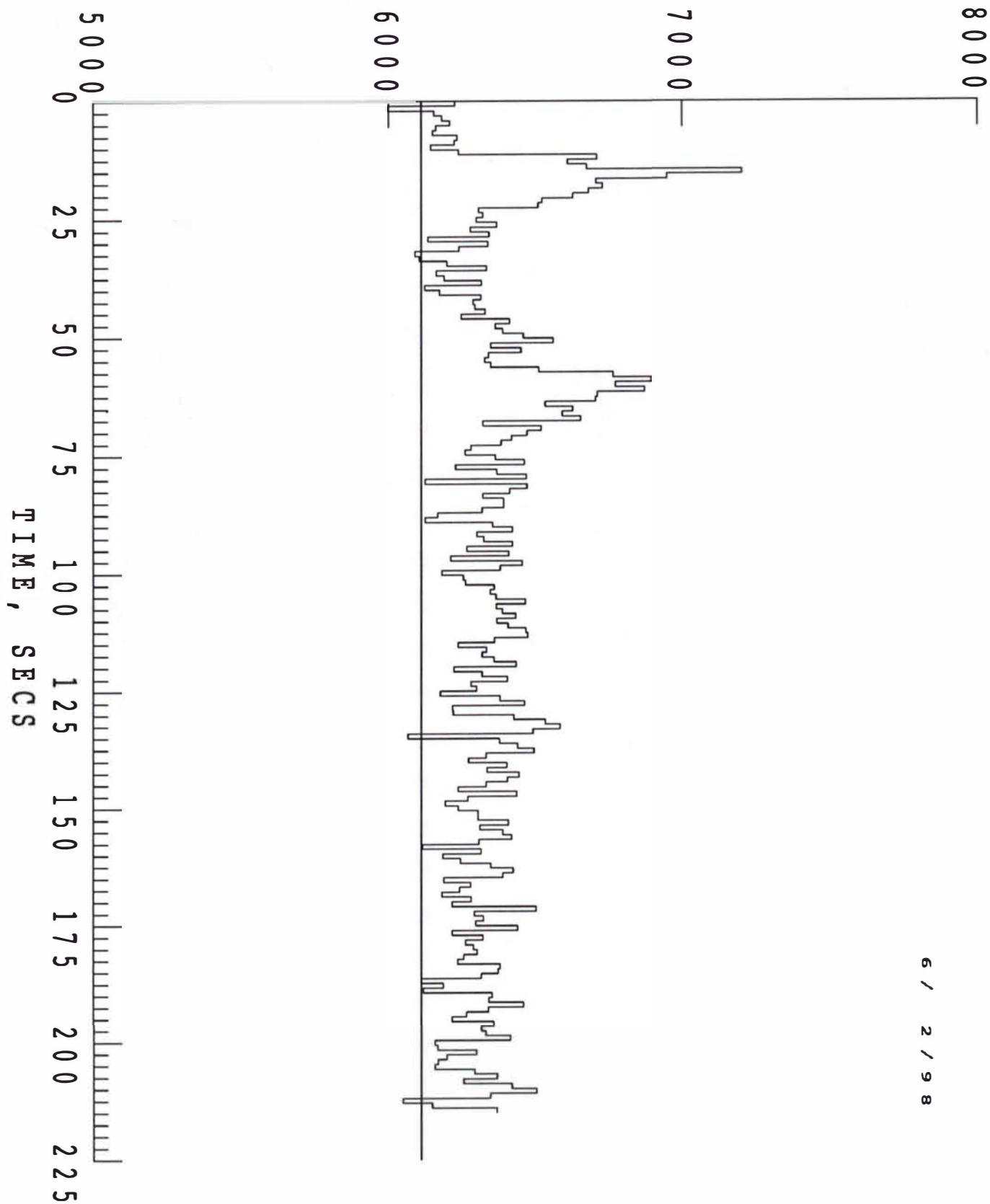
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



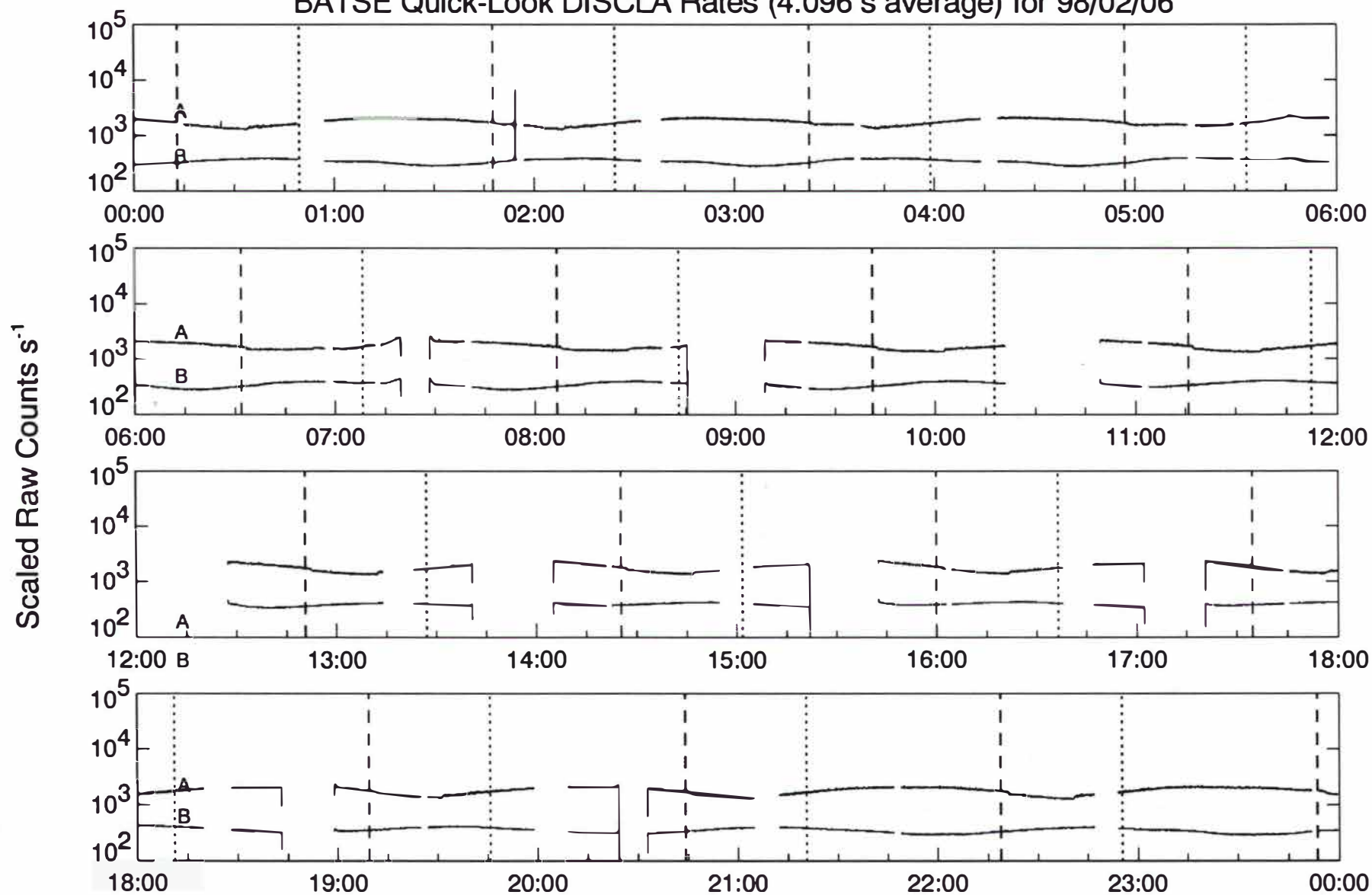
BACODINE 6589 06/02/98 34384.609

25 - 100 keV

COUNTS/1.024 S



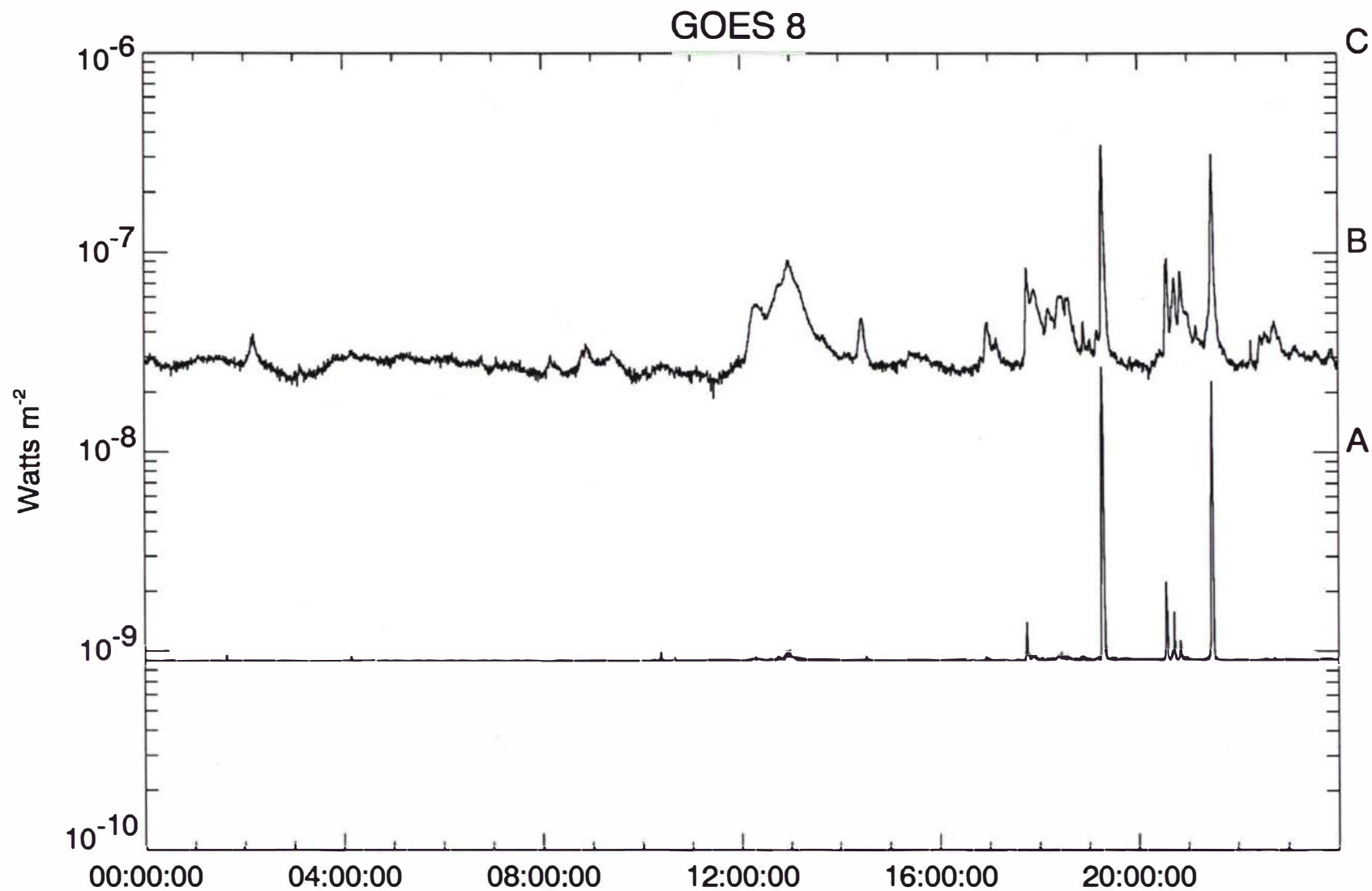
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/06



Current Time: 98/02/10, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/06, 0000:00

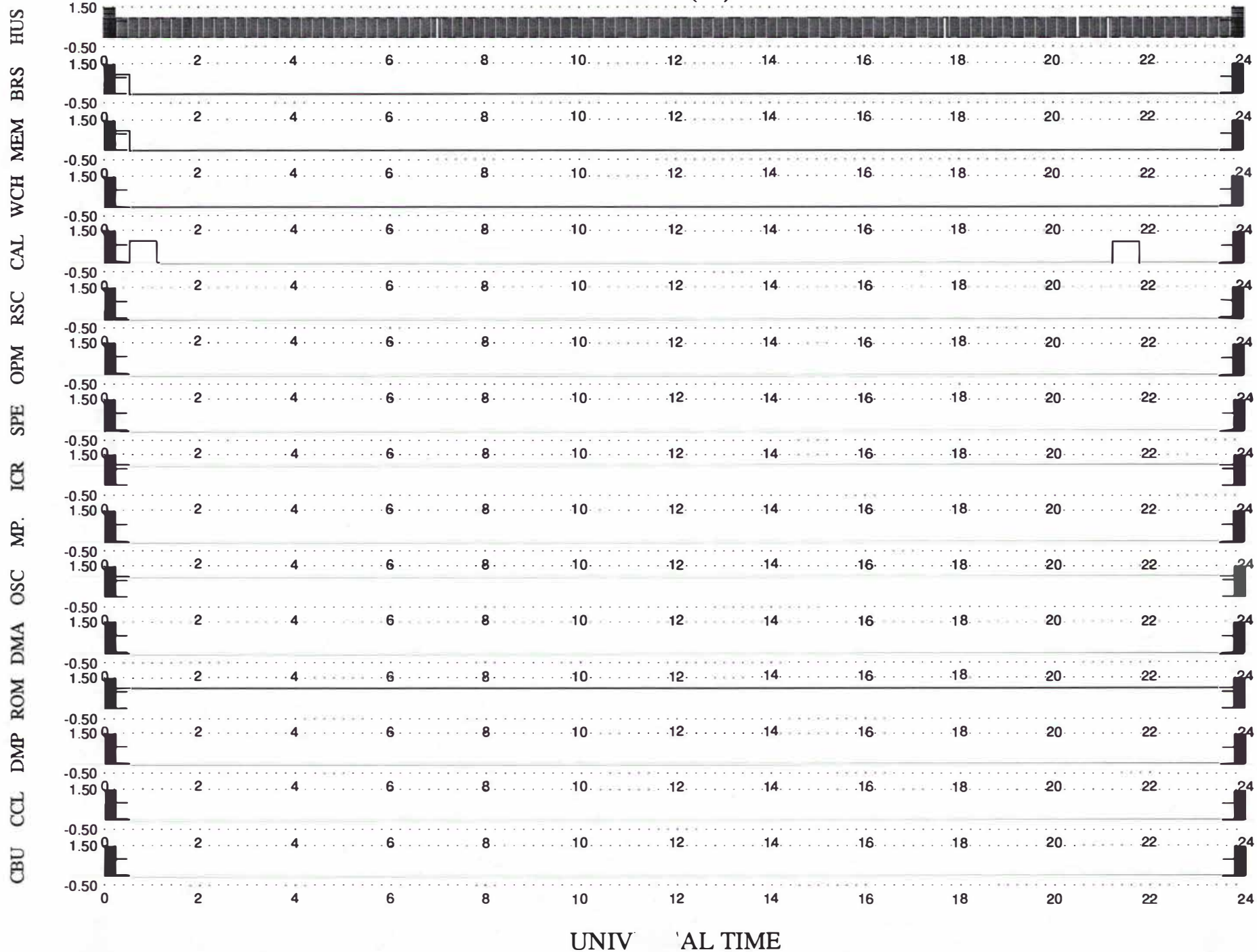
Plot created: 98/02/10, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

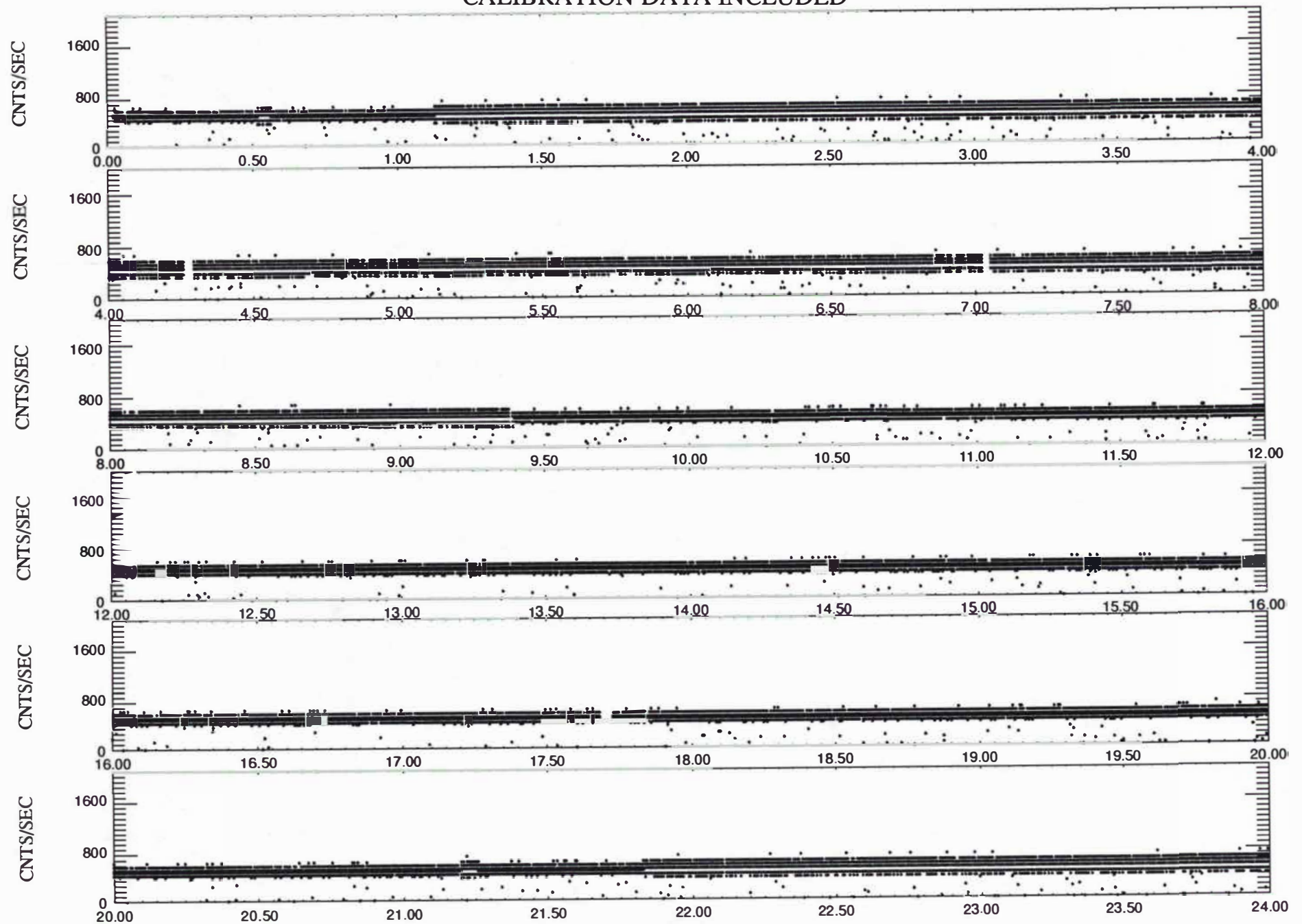
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

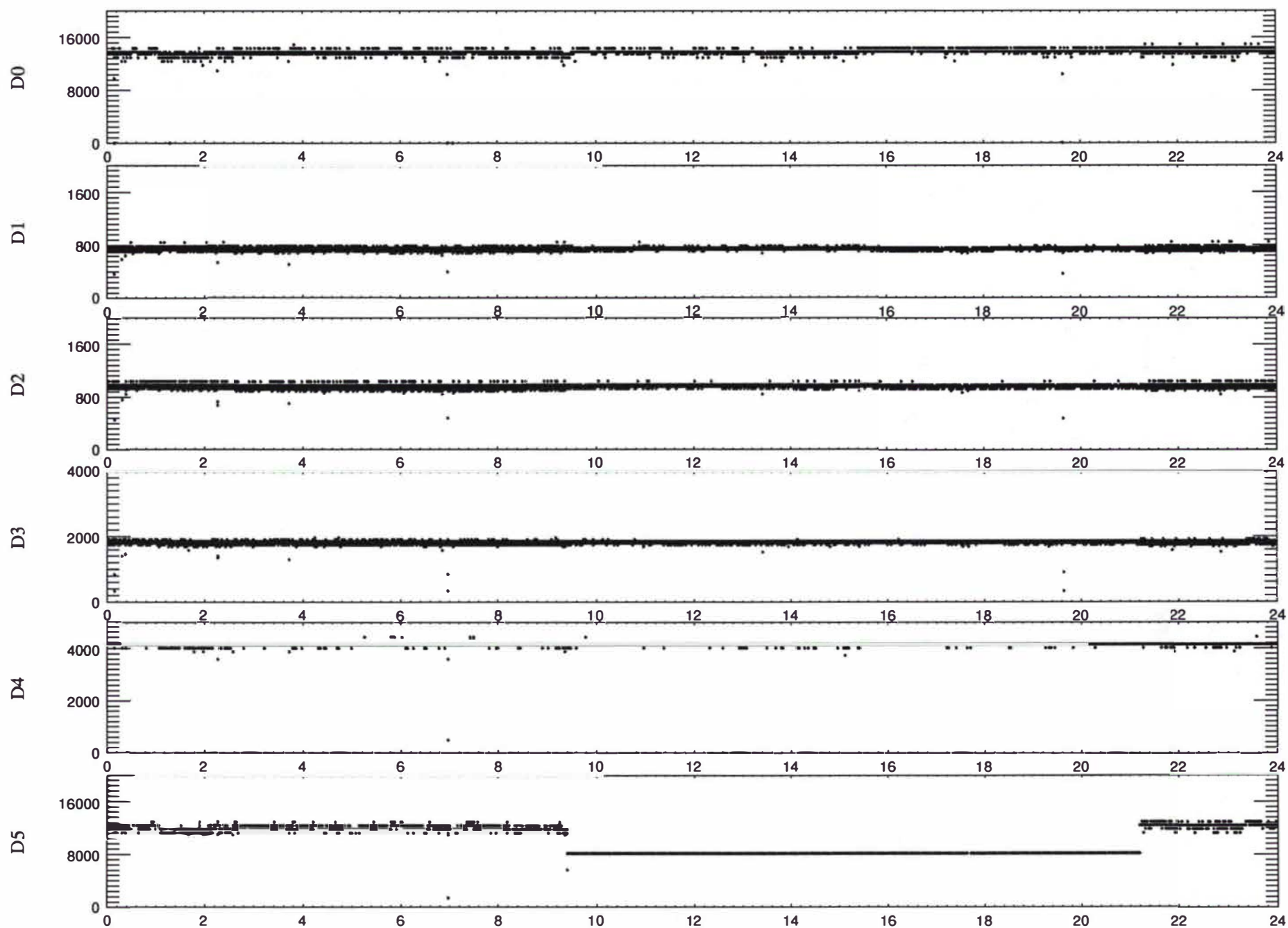
NO BURST(13)



CALIBRATION DATA INCLUDED



UNIV AL TIME



UNIV 'AL TIME

From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 9 14:42:24 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA22171; Mon, 9 Feb 1998 14:42:09 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA12947; Mon, 9 Feb 1998 14:42:01 -0800
Date: Mon, 9 Feb 1998 16:41:45 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980209164145.21e20adc@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6590
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6590
EVENT OF 1998 FEB 7 DAY OF YEAR= 38
EVENT CROSSING TIME AT BATSE : 17052. S. OR 04:44:12.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 101.000 6.000
BATSE PEAK COUNTING RATE: 5500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 7/ 2/ 98 IS:
RA= 164.106 DEC= 12.483 DIST= 4.470 AU
BATSE-ULYSSES DISTANCE = 668683863. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=117.50 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1030.08 SECS.
CROSSING TIME AT ULYSSES IS 16022. S. OR 04:27:01 +/- 377.84 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 7/ 2/ 98 IS:
RA= 341.828 DEC= -8.699 DIST= 2.253 AU
MARS-BATSE DISTANCE = 337026304. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 60.33 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 556.48 SECS.
CROSSING TIME AT MARS IS 17608. S. OR 04:53:28 +/- 178.04 SECONDS

BATSE BURST TRIGGER

NO.: 6590

TIME: TJD=0851 SECONDS=17052

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=157.8 AZIMUTH=164.3 ERROR=1.537 DEGREES

COMMENTS:

GRB. TRIPLE PULSE. DUR ABOUT 150S. SECOND PULSE STARTS AT ABOUT T+80S LATER
FOLLOWED BY THE THIRD. THE THIRD PULSE IS THE STRONGEST. NOT VISIBLE ABOVE
300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6590	980207	10851	17052	5500	101	+06	120

BATSE BURST# 6590

ULYSSES RT

9 / 2 / 98

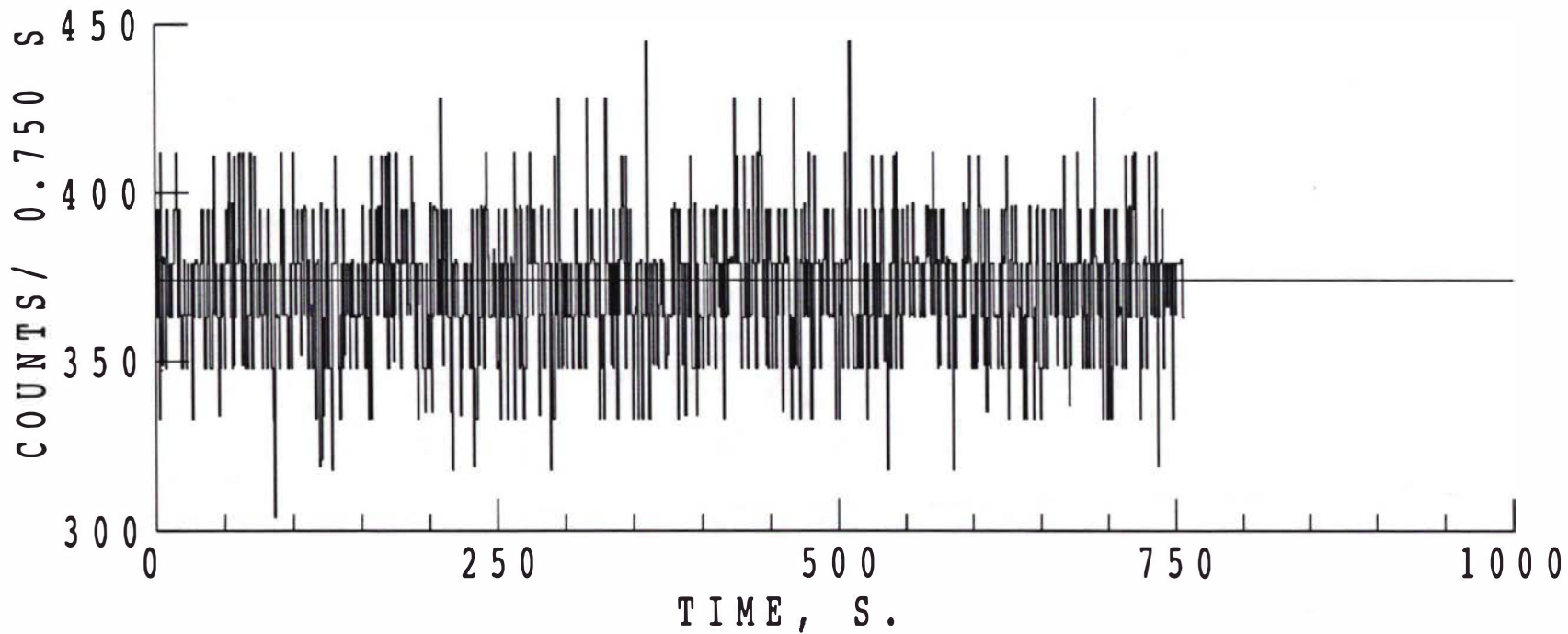
7 / 2 / 98 15660.038 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS

ULYSSES RT

07 / 02 / 00

07 / 02 / 98 55944.223 s

0.500 S INTERVALS REGROUPED BY 7

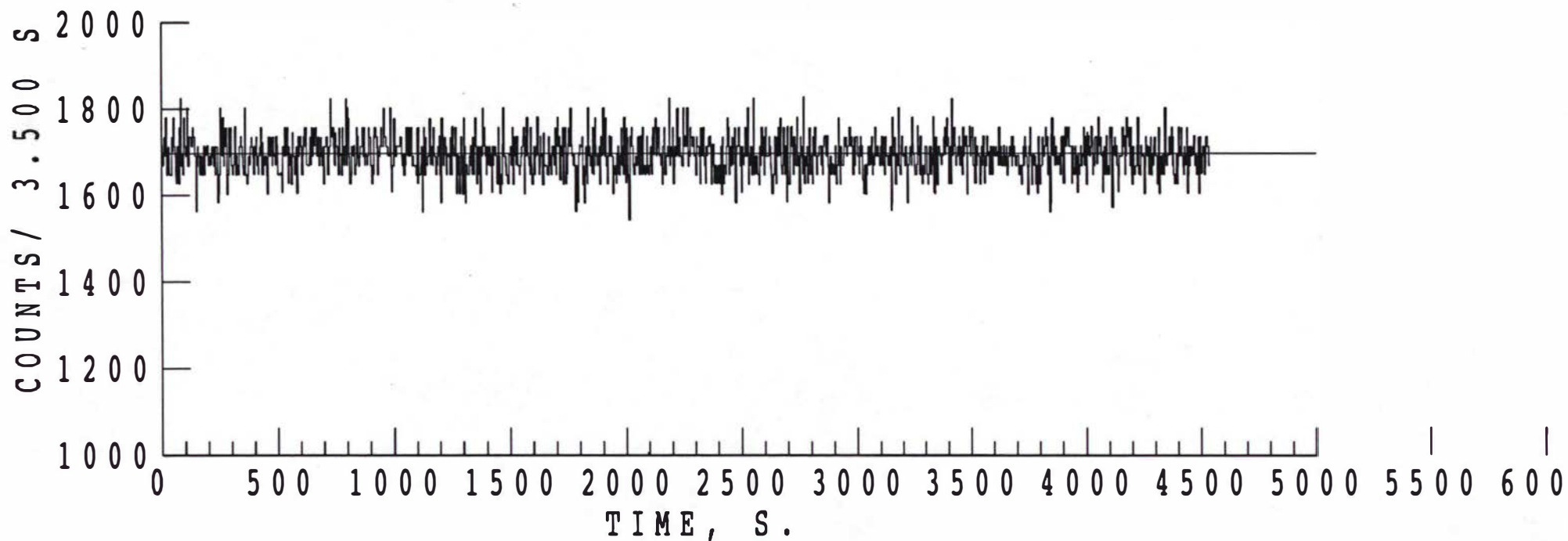
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 9 14:41:02 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA22157; Mon, 9 Feb 1998 14:40:56 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA12922; Mon, 9 Feb 1998 14:40:50 -0800
Date: Mon, 9 Feb 1998 16:40:19 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980209164019.21e20adc@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6591
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6591
EVENT OF 1998 FEB 7 DAY OF YEAR= 38
EVENT CROSSING TIME AT BATSE : 65504. S. OR 18:11:44.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 319.000 -12.000
BATSE PEAK COUNTING RATE: 6600 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 7/ 2/ 98 IS:
RA= 163.991 DEC= 12.498 DIST= 4.466 AU
BATSE-ULYSSES DISTANCE = 668167898. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 24.42 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2029.41 SECS.
CROSSING TIME AT ULYSSES IS 67533. S. OR 18:45:33 +/- 240.78 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 7/ 2/ 98 IS:
RA= 341.828 DEC= -8.699 DIST= 2.253 AU
MARS-BATSE DISTANCE = 337026304. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=157.31 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1037.19 SECS.
CROSSING TIME AT MARS IS 64467. S. OR 17:54:26 +/- 59.54 SECONDS

BATSE BURST TRIGGER

NO.: 6591

TIME: TJD=0851 SECONDS=65504

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=57.6 AZIMUTH=5.0 ERROR=11.83 DEGREES

COMMENTS:

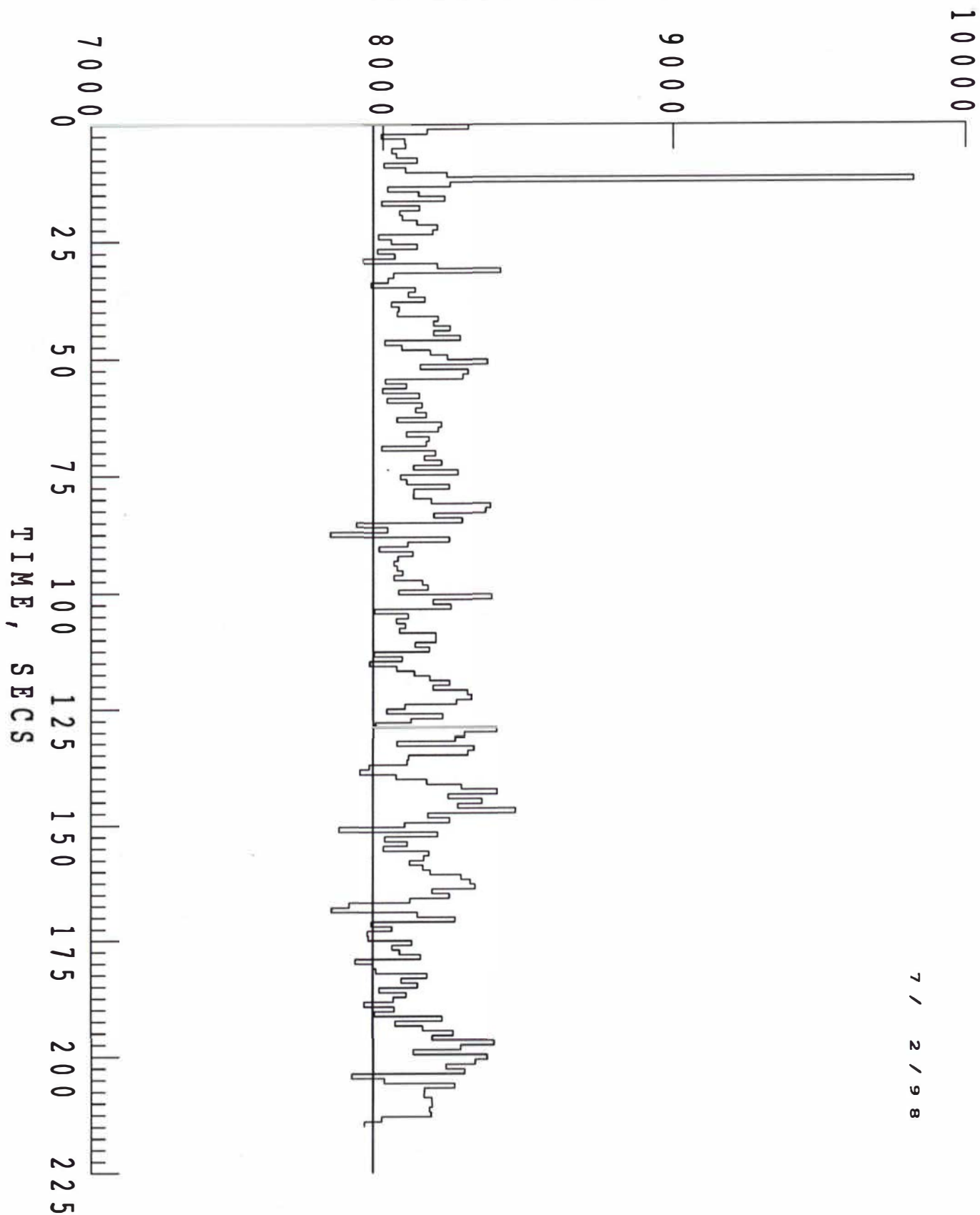
GRB. SINGLE PULSE. DURATION ABOUT 0.5S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6591	980207	10851	65504	6600	319	-12	.5

BACODINE 6591 07/02/98 65492.705

25 - 100 keV

COUNTS/1.024 S



BATSE BURST# 6591

ULYSSES RT

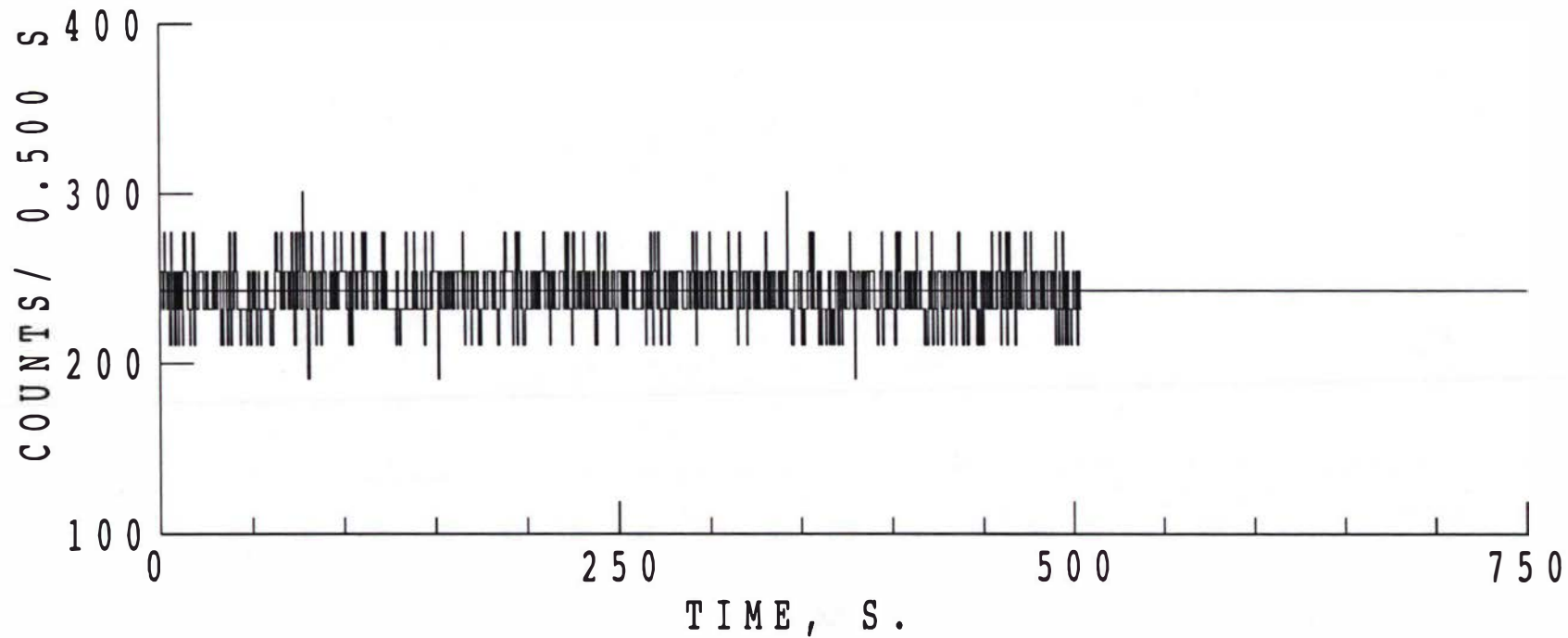
9 / 2 / 98

7 / 2 / 98 67284.352 s

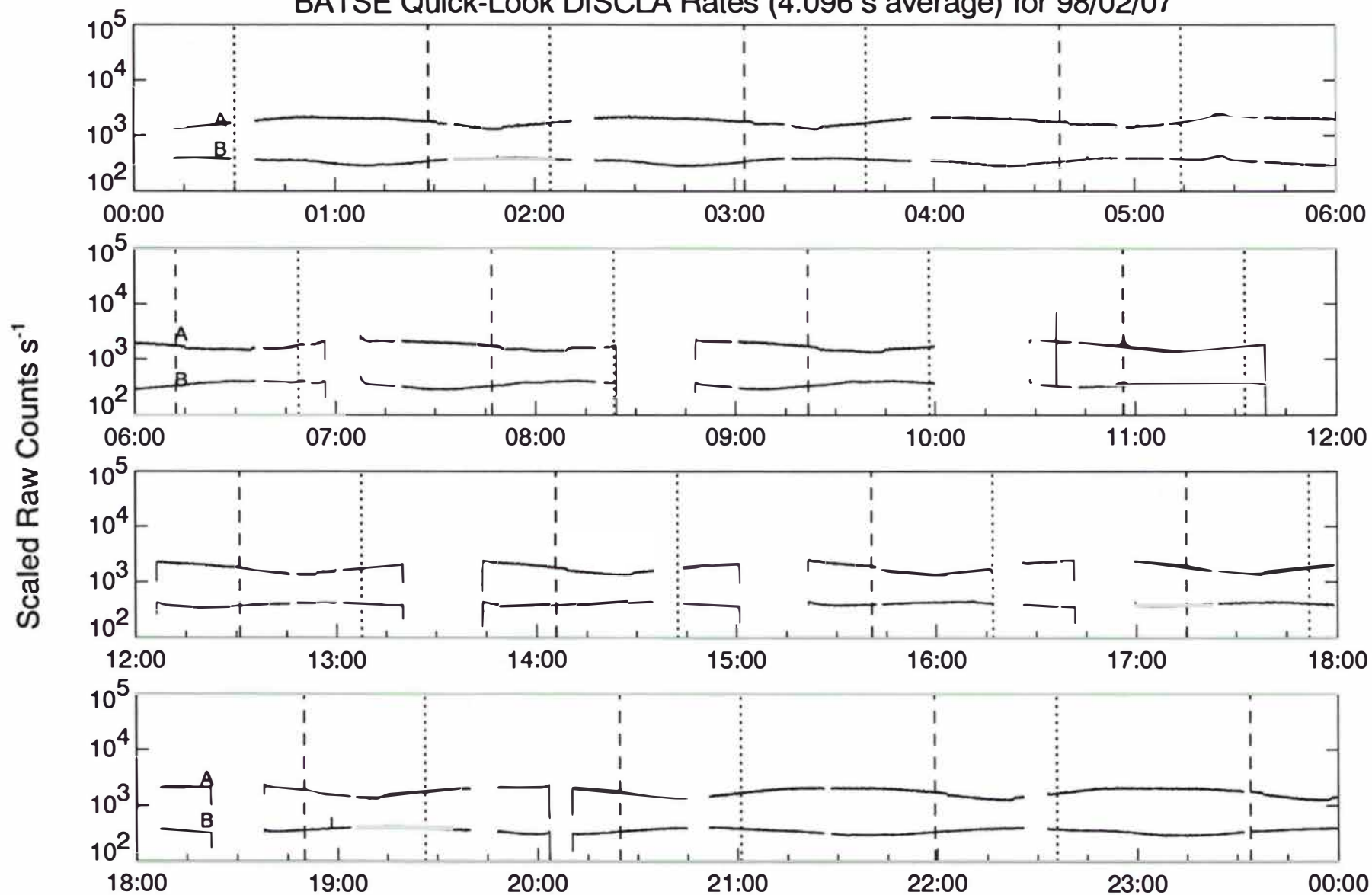
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



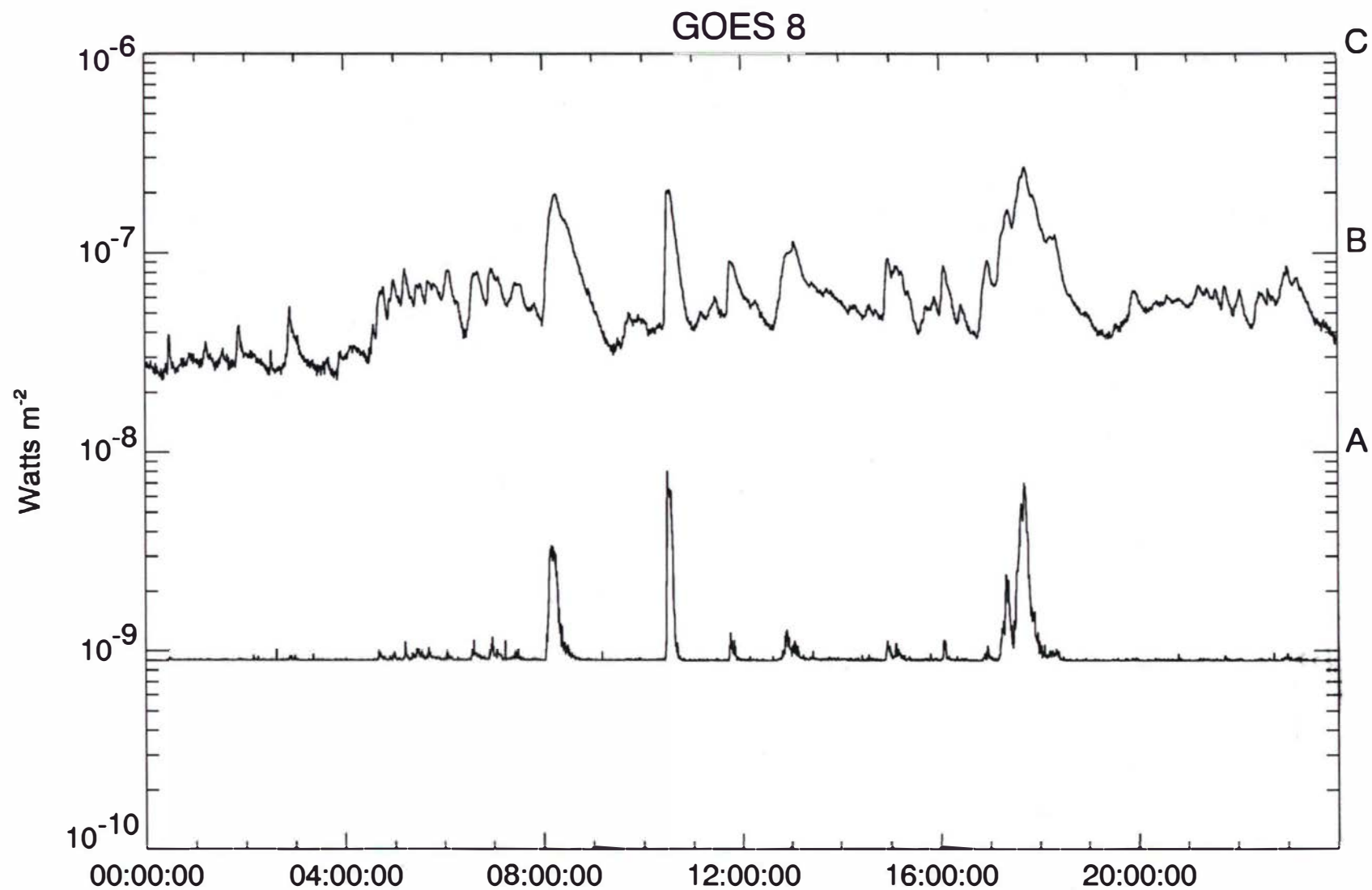
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/07



Current Time: 98/02/11, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/07, 0000:00

Plot created: 98/02/11, 1007

Channel 1 (1.0 - 8.0 Angstroms)

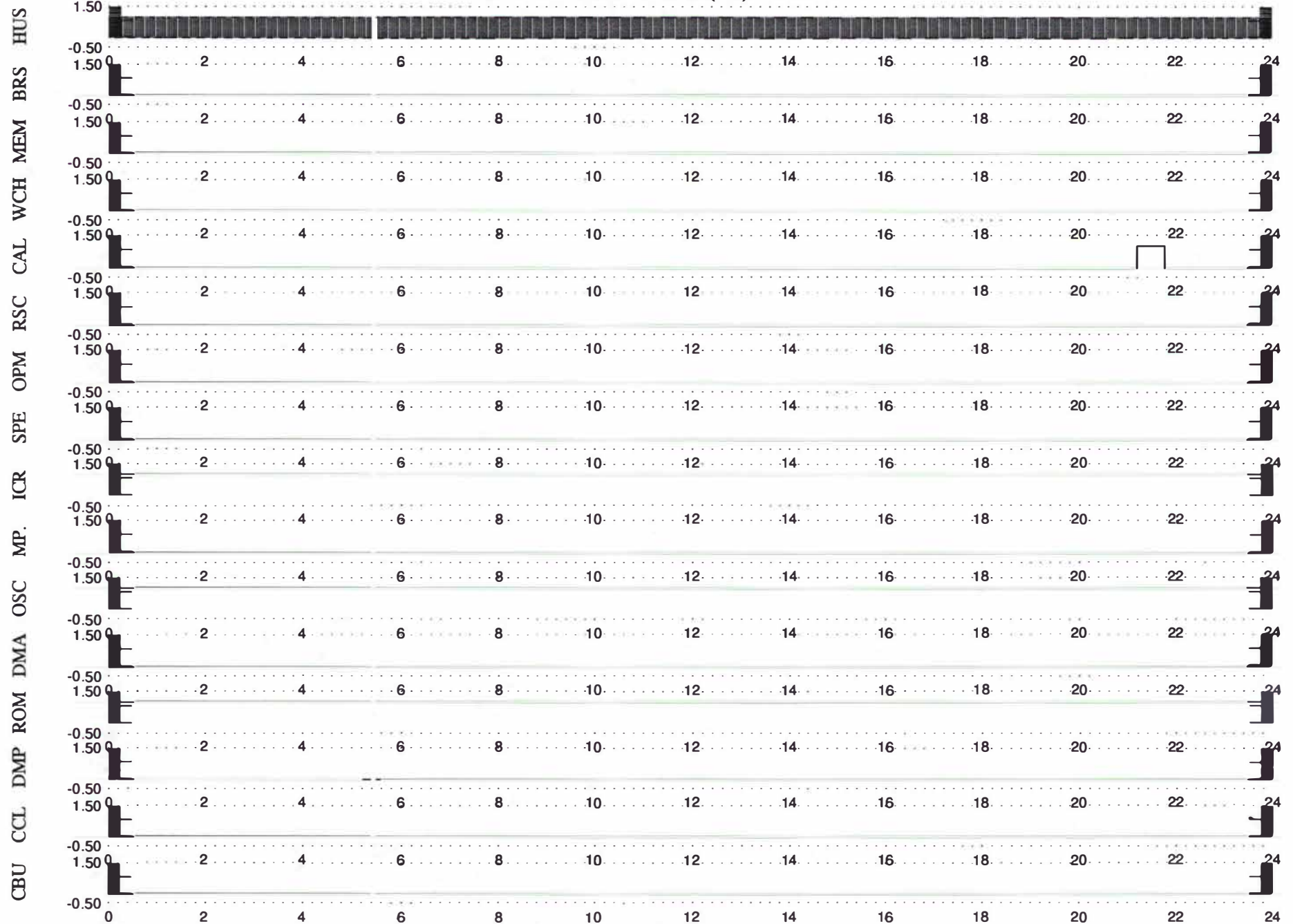
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

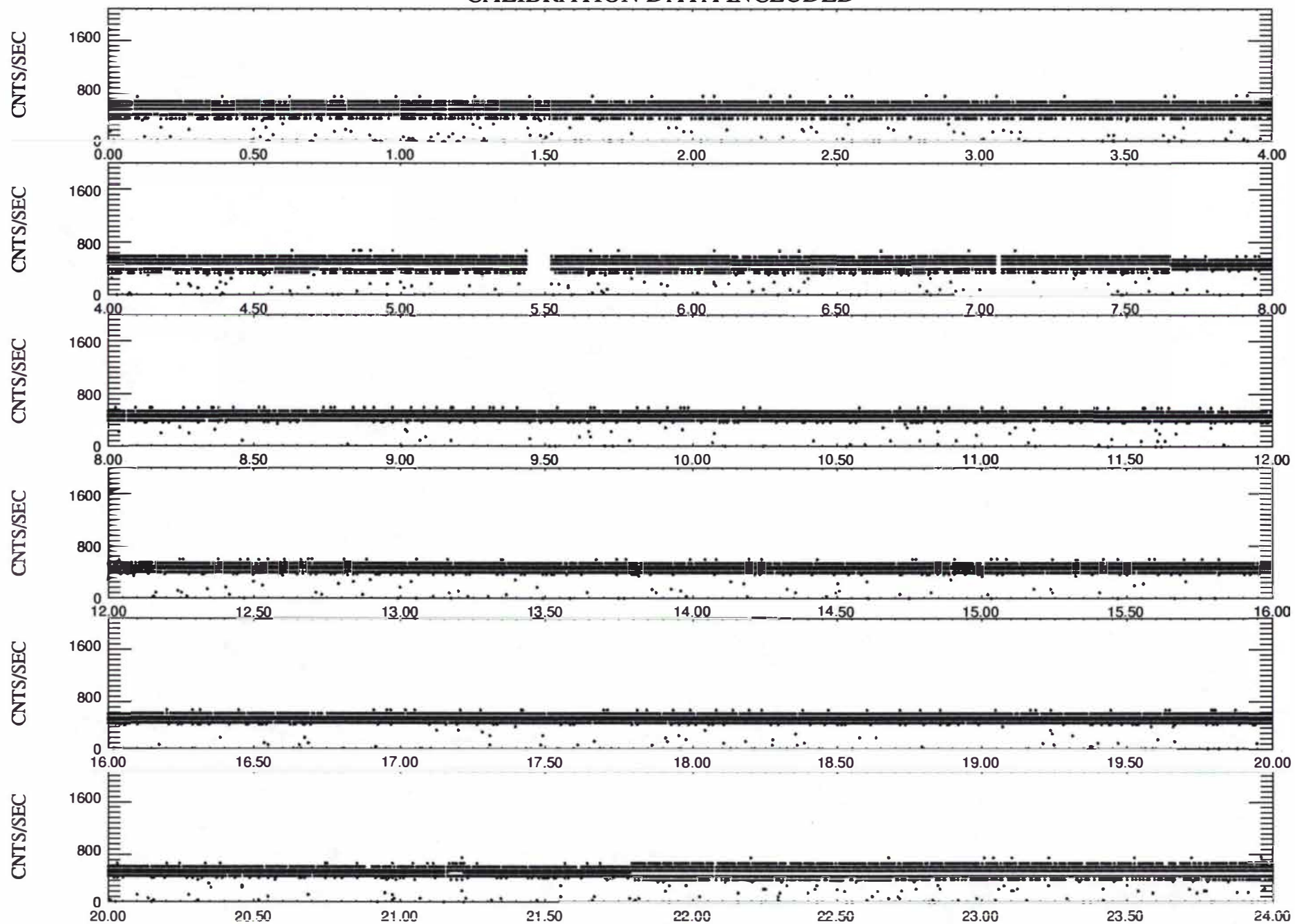
Background not subtracted

Sample average = 10

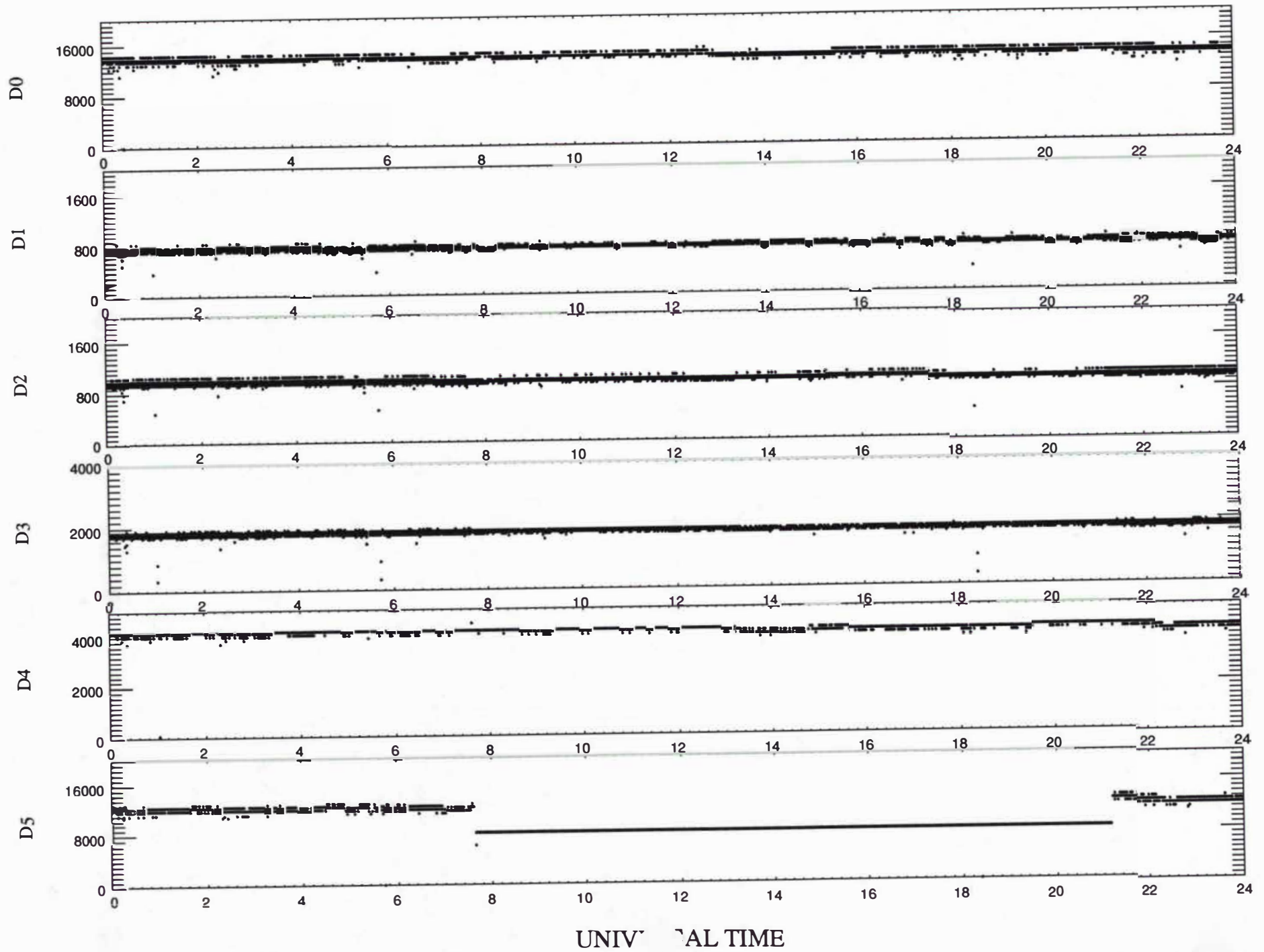
UNIVERSAL TIME



CALIBRATION DATA INCLUDED



UNIV AL TIME



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 9 14:39:21 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA22137; Mon, 9 Feb 1998 14:39:17 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA12871; Mon, 9 Feb 1998 14:39:15 -0800
Date: Mon, 9 Feb 1998 16:38:41 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980209163841.21e20adc@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6592
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6592
EVENT OF 1998 FEB 8 DAY OF YEAR= 39
EVENT CROSSING TIME AT BATSE : 45203. S. OR 12:33:23.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 76.000 -32.000
BATSE PEAK COUNTING RATE: 4800 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 8/ 2/ 98 IS:
RA= 163.833 DEC= 12.520 DIST= 4.462 AU
BATSE-ULYSSES DISTANCE = 667487863. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 85.21 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 186.07 SECS.
CROSSING TIME AT ULYSSES IS 45389. S. OR 12:36:29 +/- 438.03 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 8/ 2/ 98 IS:
RA= 342.561 DEC= -8.394 DIST= 2.256 AU
MARS-BATSE DISTANCE = 337480224. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 91.55 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -30.41 SECS.
CROSSING TIME AT MARS IS 45173. S. OR 12:32:52 +/- 194.91 SECONDS

BATSE BURST TRIGGER

NO.: 6592

TIME: TJD=0852 SECONDS=45203

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=155.4 AZIMUTH=312.8 ERROR=2.067 DEGREES

COMMENTS:

GRB. SINGLE PULSE WITH TWO PEAKS. TOTAL DURATION ABOUT 40S. START AT ABOUT
T-10S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6592	980208	10852	45203	4800	076	-32	40

BATSE BURST# 6592

ULYSSES RT

9 / 2 / 98

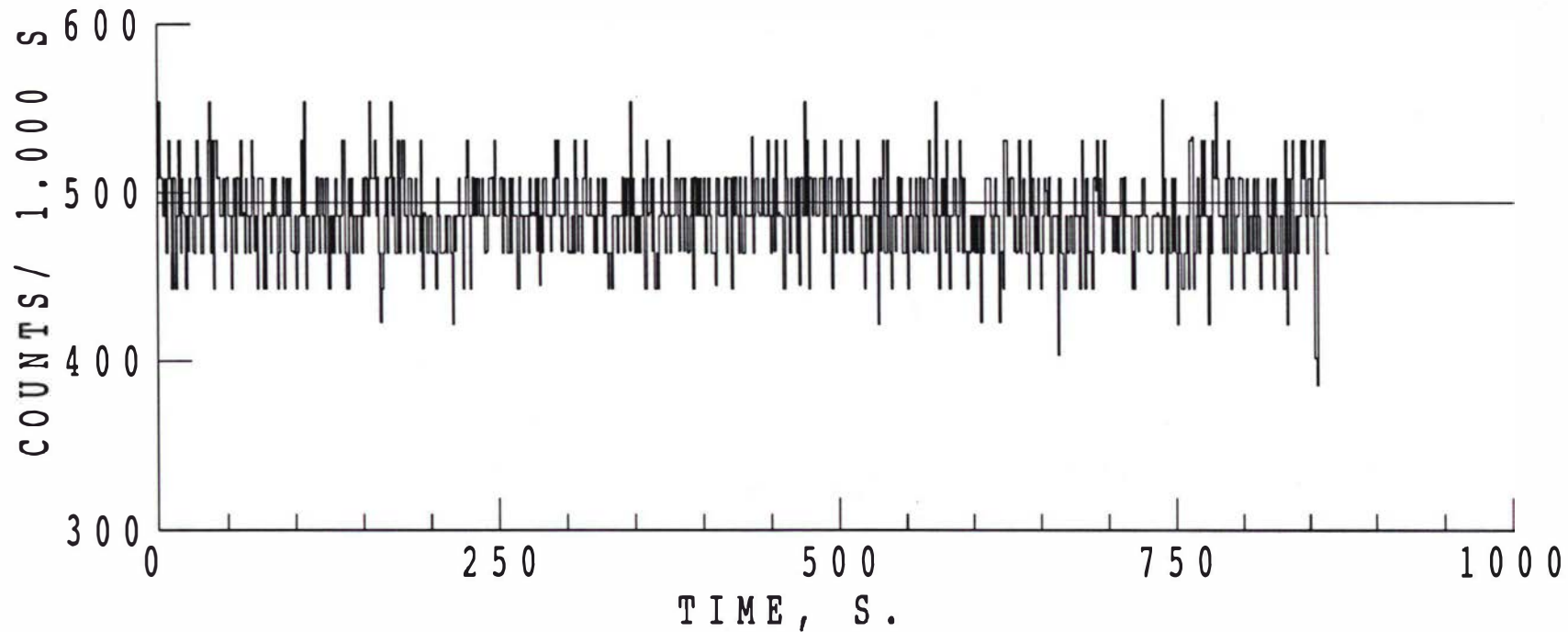
8 / 2 / 98 44964.047 s

0.500 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 9 14:38:08 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA22118; Mon, 9 Feb 1998 14:38:07 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA12833; Mon, 9 Feb 1998 14:38:05 -0800
Date: Mon, 9 Feb 1998 16:37:42 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980209163742.21e20adc@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6593
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6593
EVENT OF 1998 FEB 8 DAY OF YEAR= 39
EVENT CROSSING TIME AT BATSE : 46259. S. OR 12:50:59.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 61.000 -75.000
BATSE PEAK COUNTING RATE: 38000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 8/ 2/ 98 IS:
RA= 163.830 DEC= 12.521 DIST= 4.462 AU
BATSE-ULYSSES DISTANCE = 667478090. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 74.60 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 591.15 SECS.
CROSSING TIME AT ULYSSES IS 46850. S. OR 13:00:50 +/- 431.65 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 8/ 2/ 98 IS:
RA= 342.561 DEC= -8.394 DIST= 2.256 AU
MARS-BATSE DISTANCE = 337480224. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=101.09 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -216.49 SECS.
CROSSING TIME AT MARS IS 46043. S. OR 12:47:22 +/- 188.51 SECONDS

BATSE BURST TRIGGER

NO.: 6593

TIME: TJD=0852 SECONDS=46259

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=112.2 AZIMUTH=301.3 ERROR=0.288 DEGREES

COMMENTS:

GRB. SINGLE PULSE. COMPLEX. STARTS AT ABOUT T-10S. DURATION ABOUT 50S.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6593	980208	10852	46259	38000	061	-75	50

Helio corr removed 18/2/00

Date: *May 7 '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? *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)? *N/A*
- ☐ BATSE ephemeris for T_0 ? *~ 50s off*
- ☒ 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

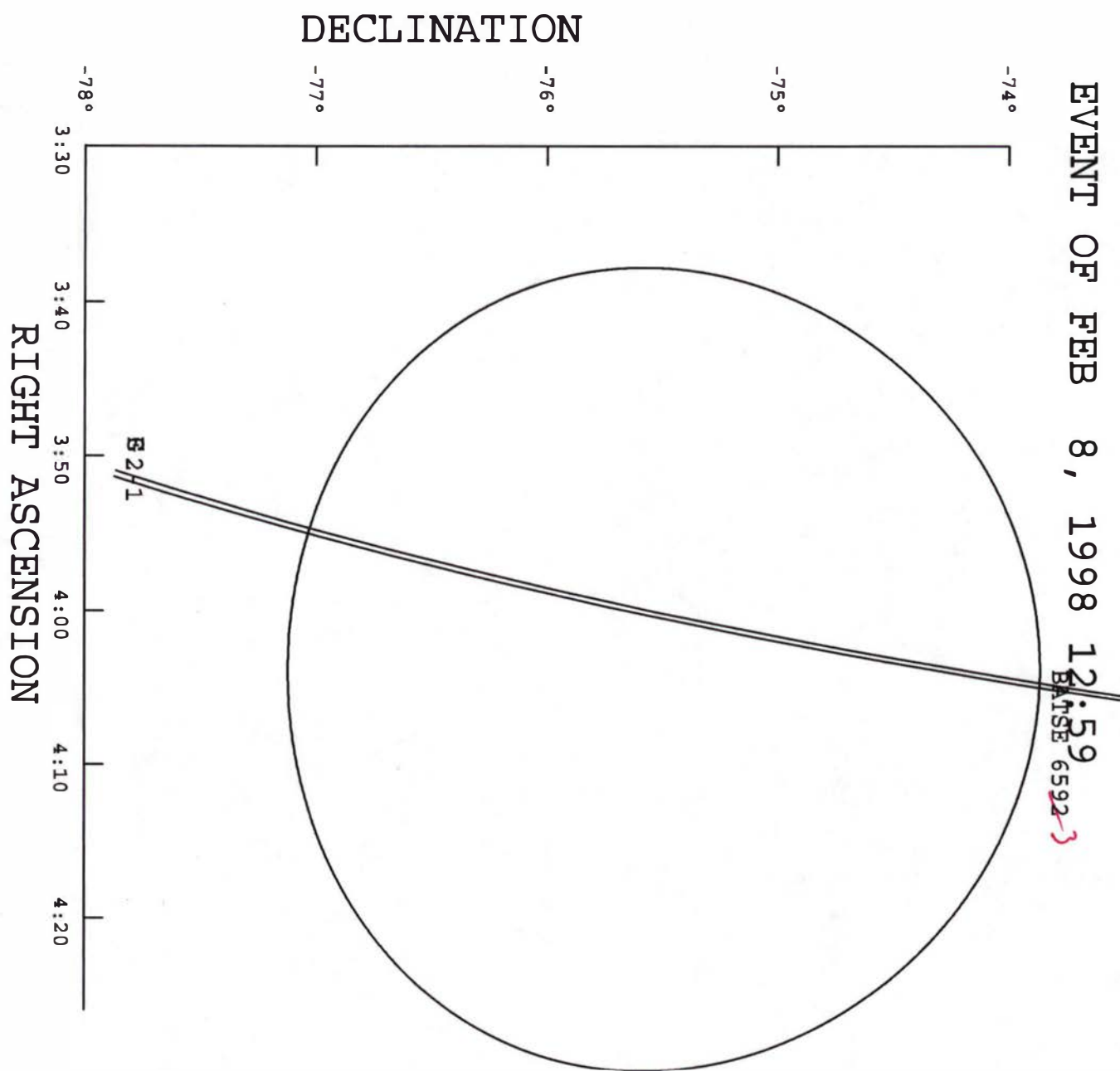
S=SUN

E=ECLIPTIC

G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE



18 / 2 / 0

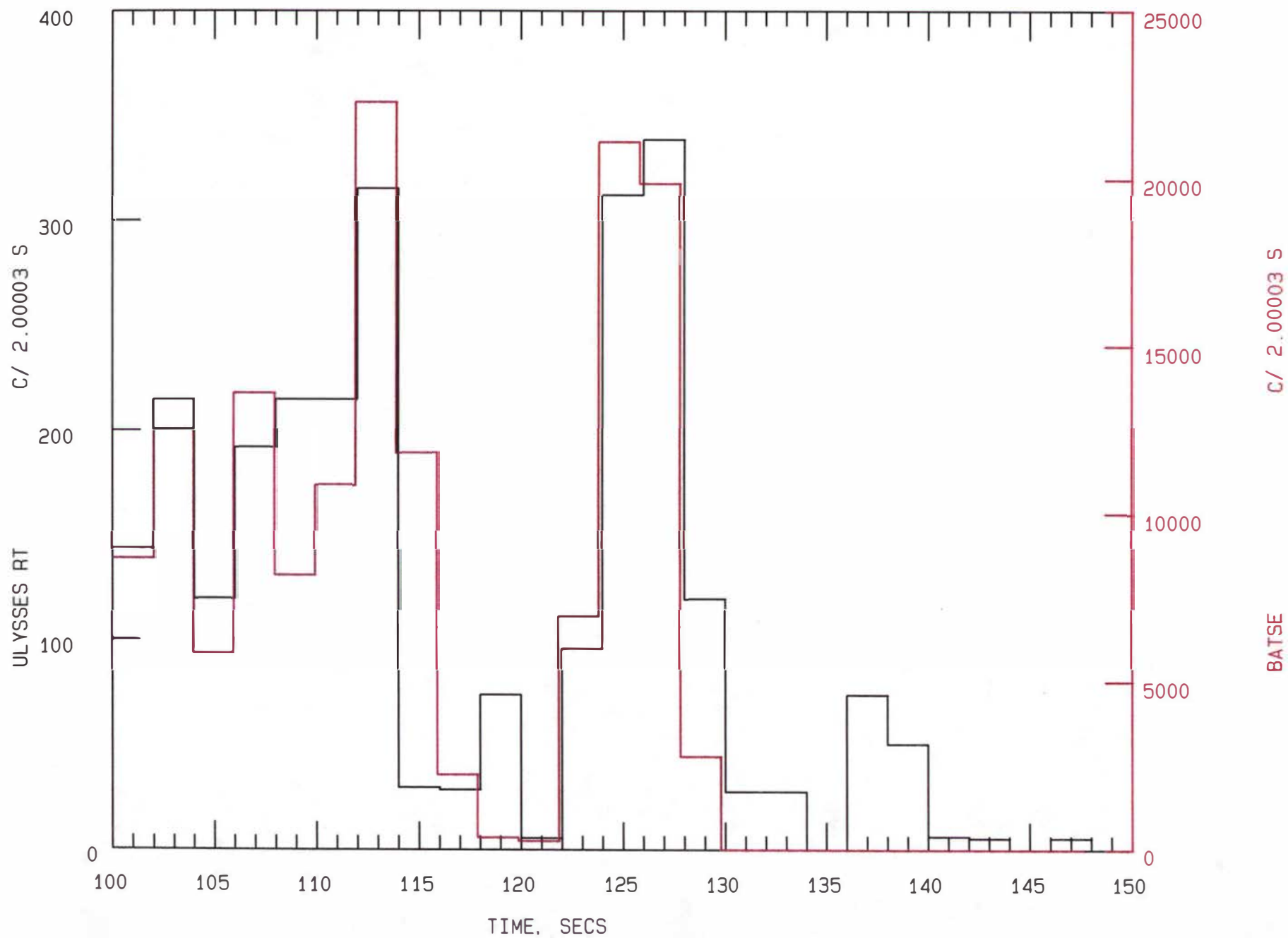
ULYSSES RT-BATSE

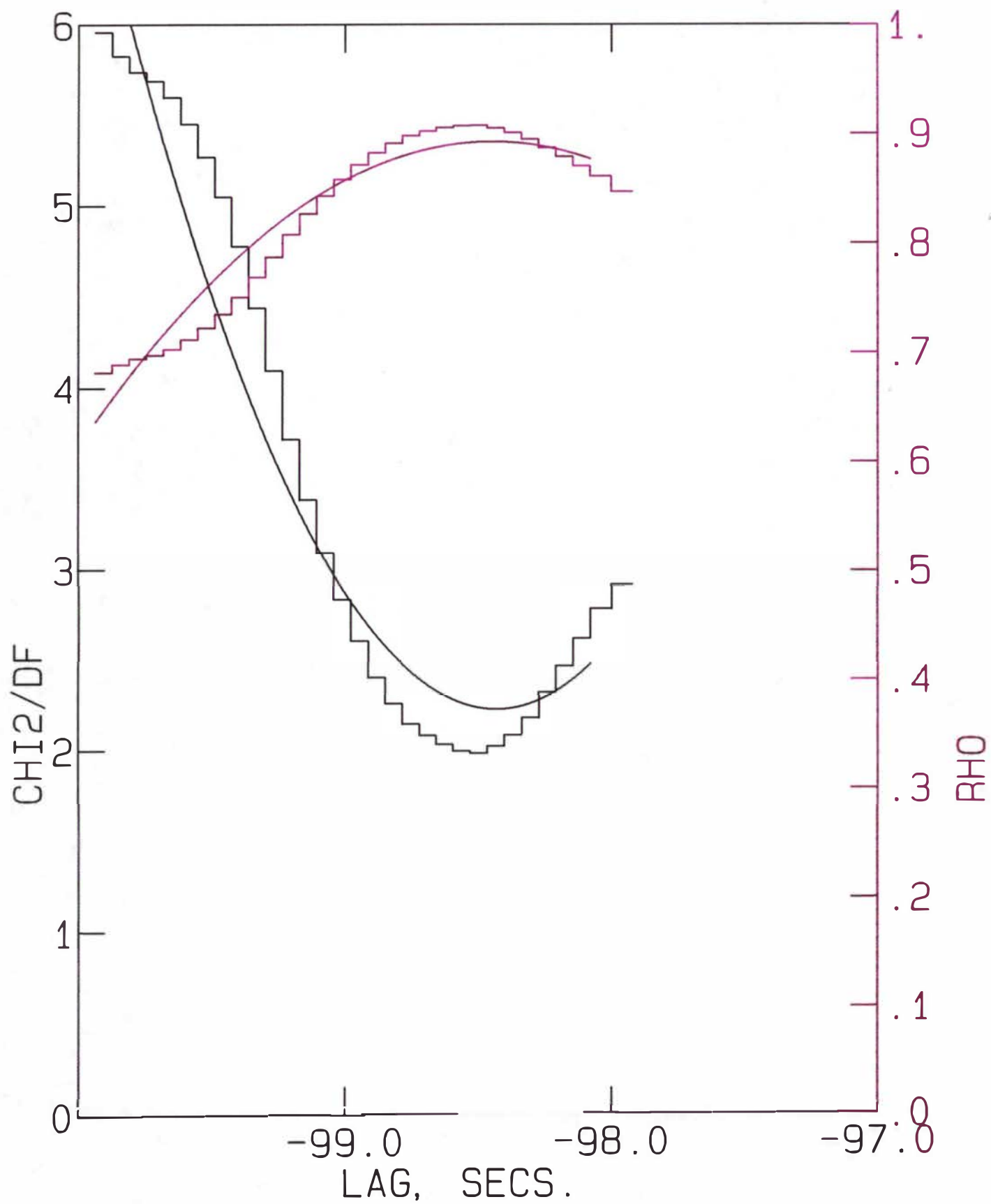
CORRELATION

8/ 2/98

46754.153

7/ 5/98





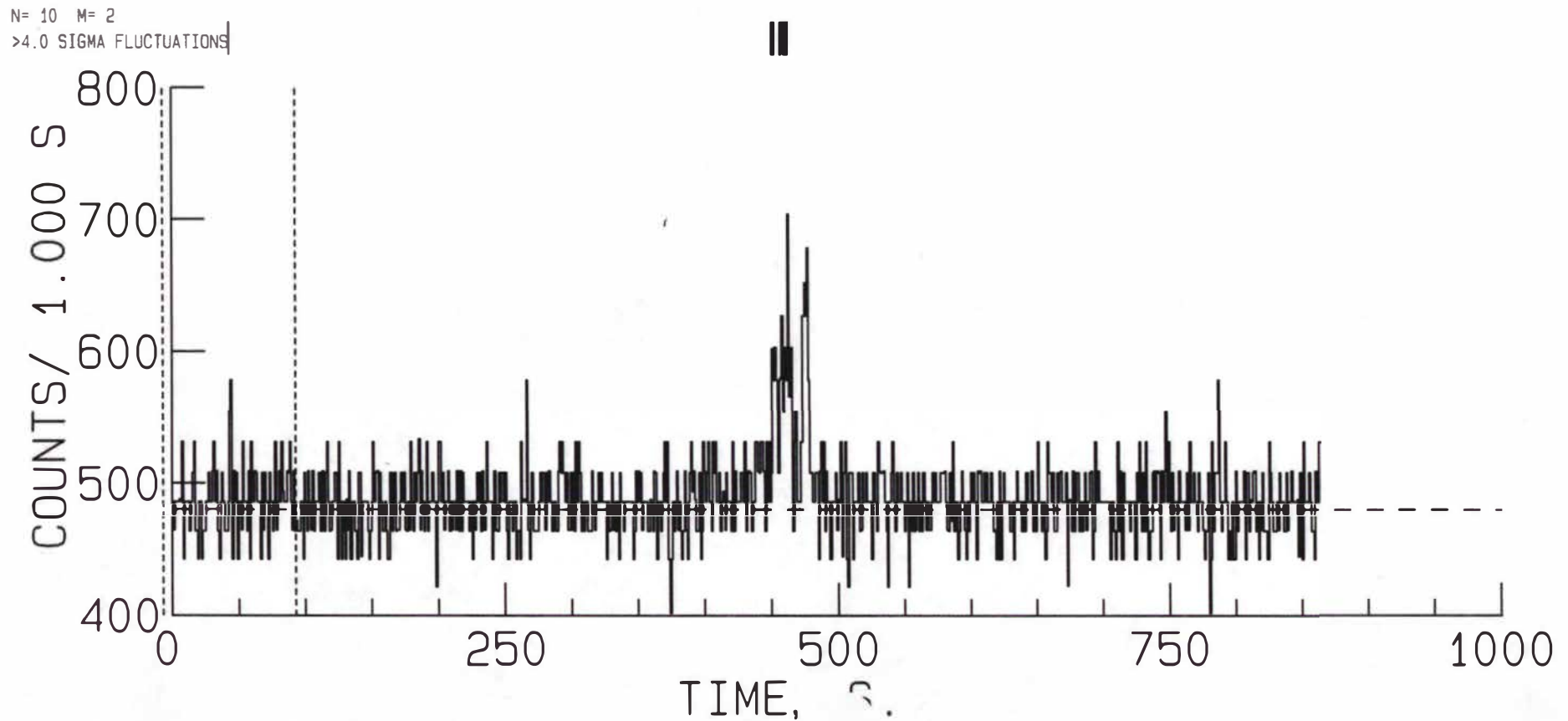
ULYSSES RT

7 / 5 / 98

8 / 2 / 98 46404.061 s

0.500 S INTERVALS REGROUPED BY 2

22- 149 keV



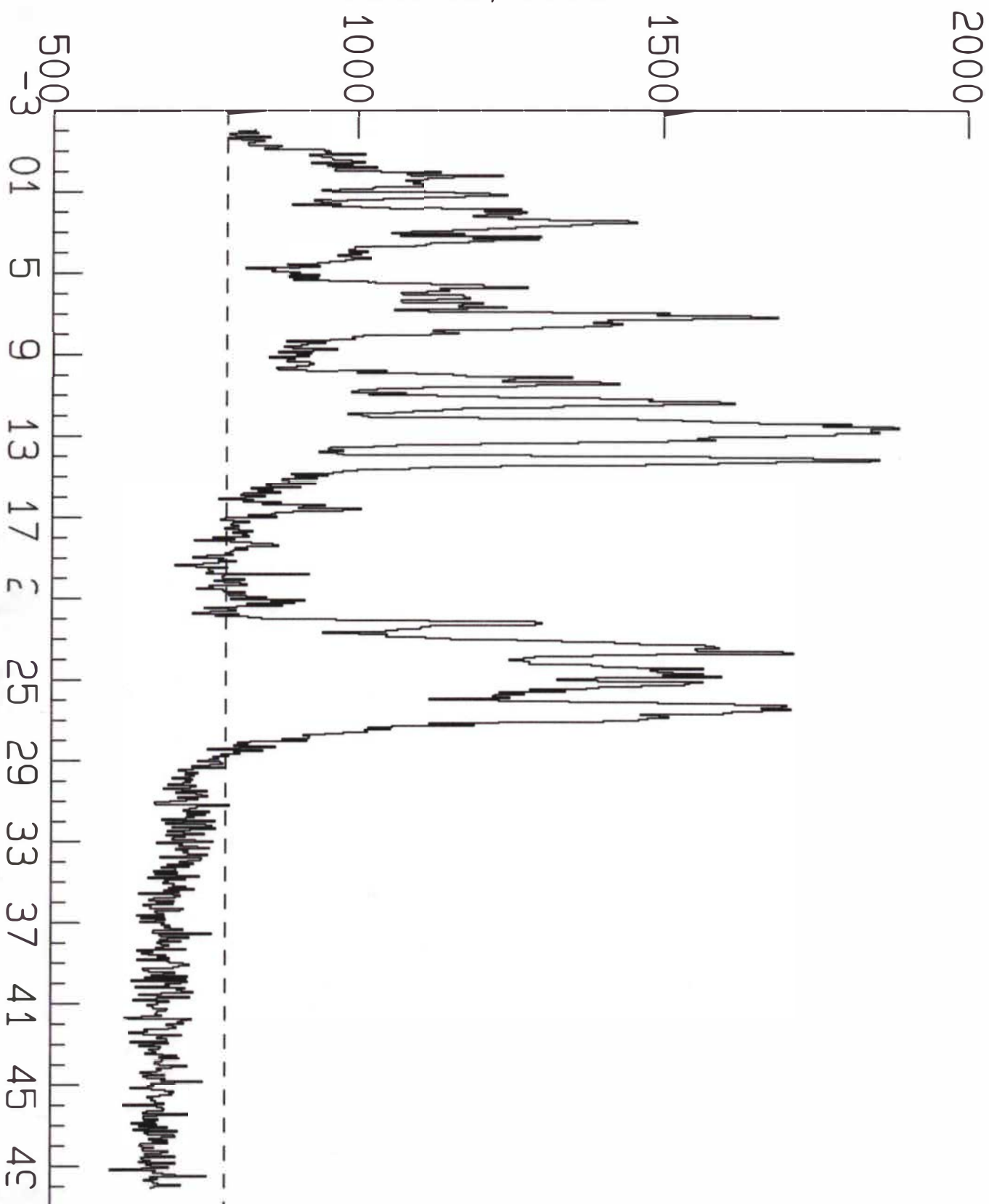
BATSE

08/02/98

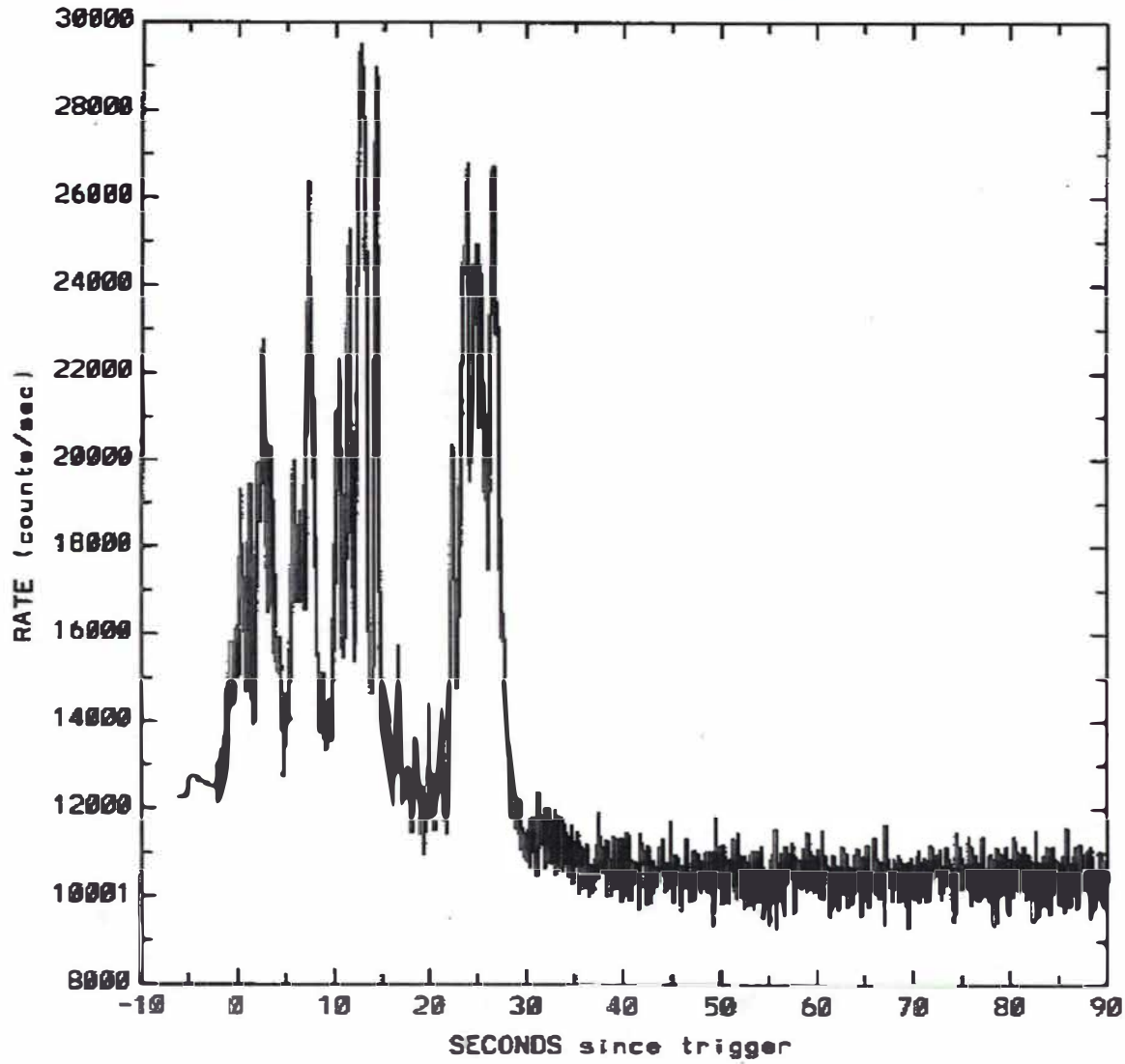
46259.938

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 6593



12-FEB-1998 08:58.47

Created by MOPS 8D
(Burst Display)
Version t2.25

Trigger = 6593

Trigger Time:
18852 / 46259.937

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

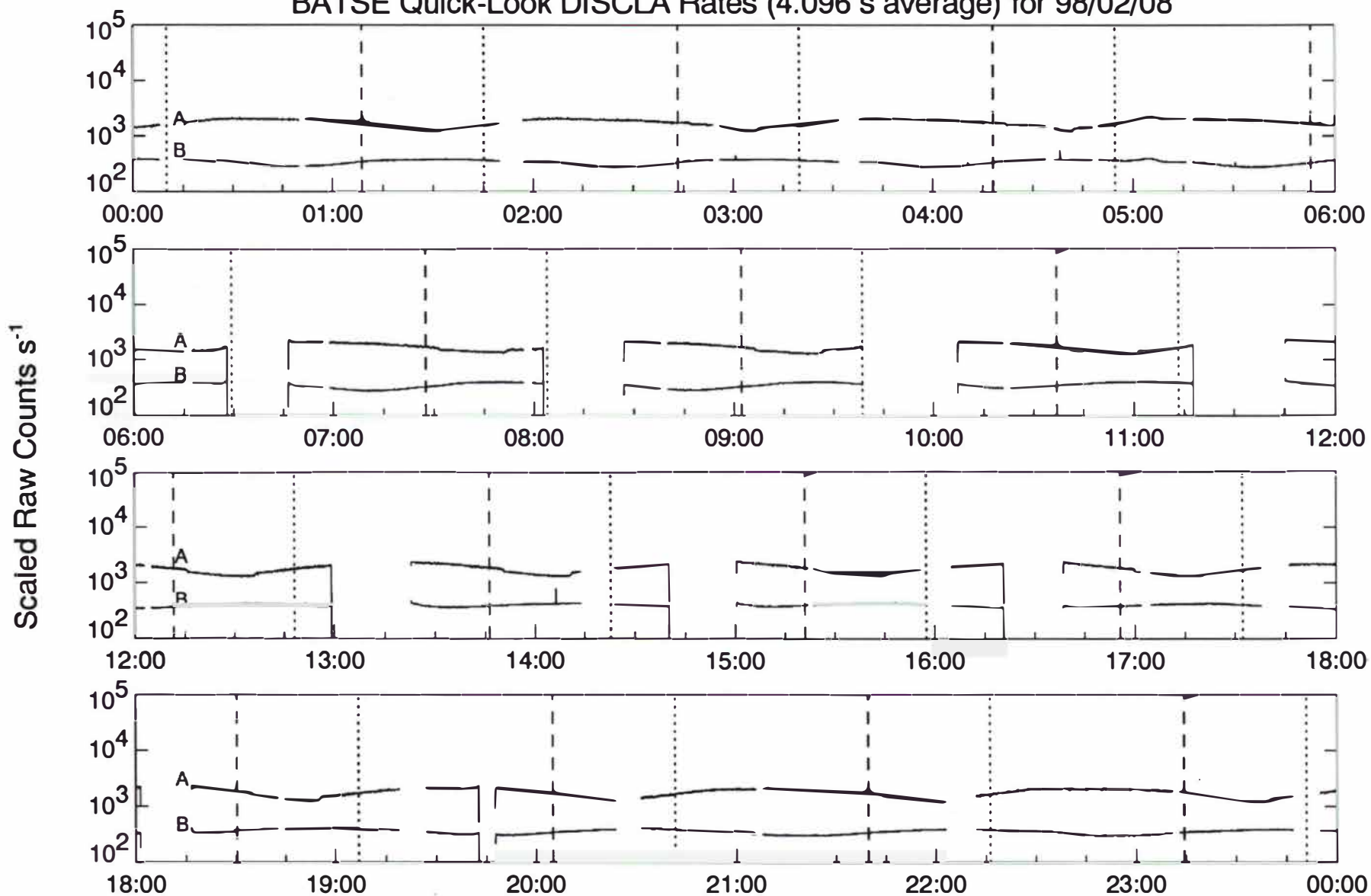
Minimum Integ. Time:
0.064 second(s)

Detectors [7..8]:
7---32---

Discriminators:
(1, 2)

Quality Mask:
801SP1

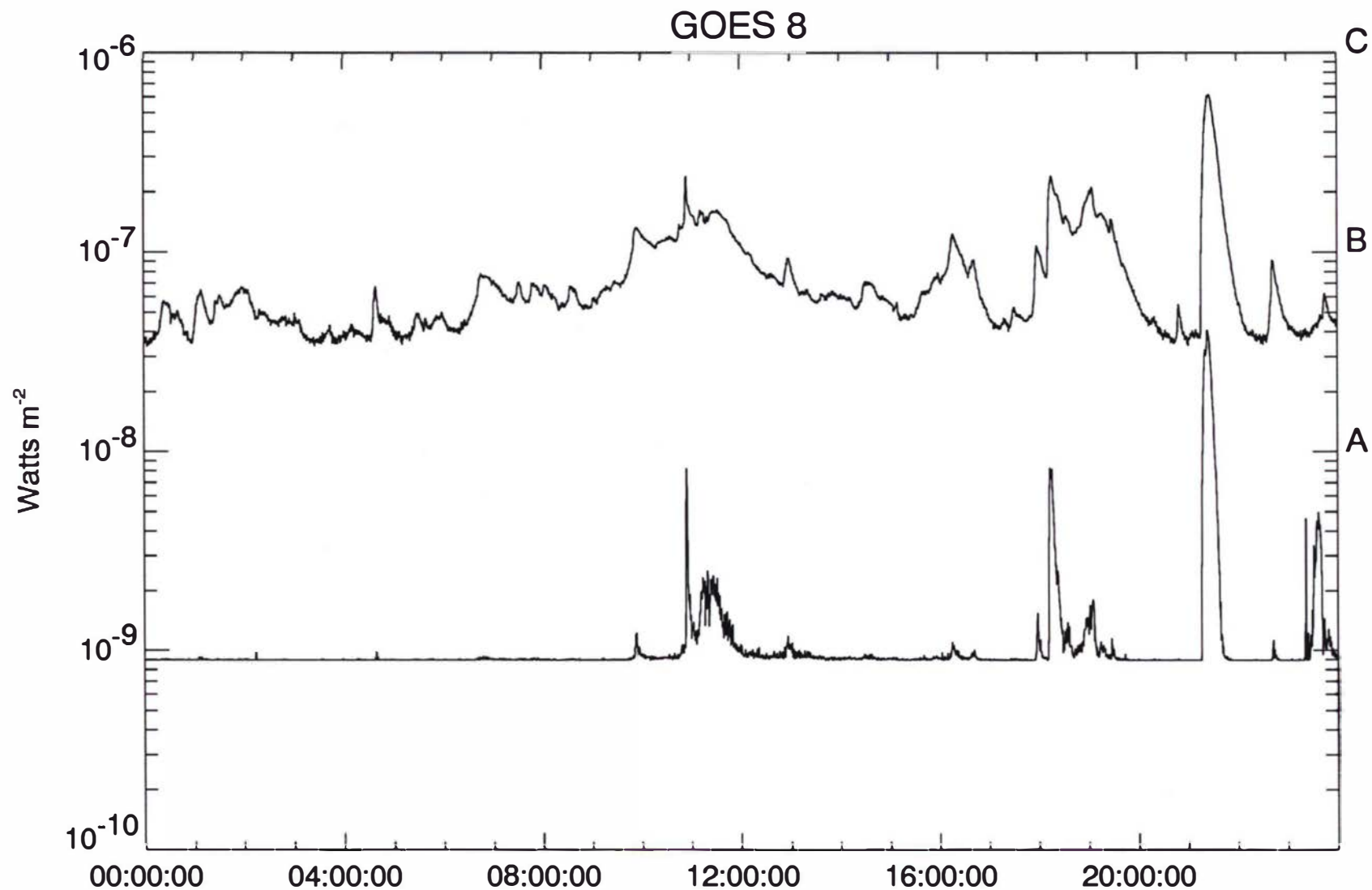
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/08



Current Time: 98/02/12, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/08, 0000:00

Plot created: 98/02/12, 1007

Channel 1 (1.0 - 8.0 Angstroms)

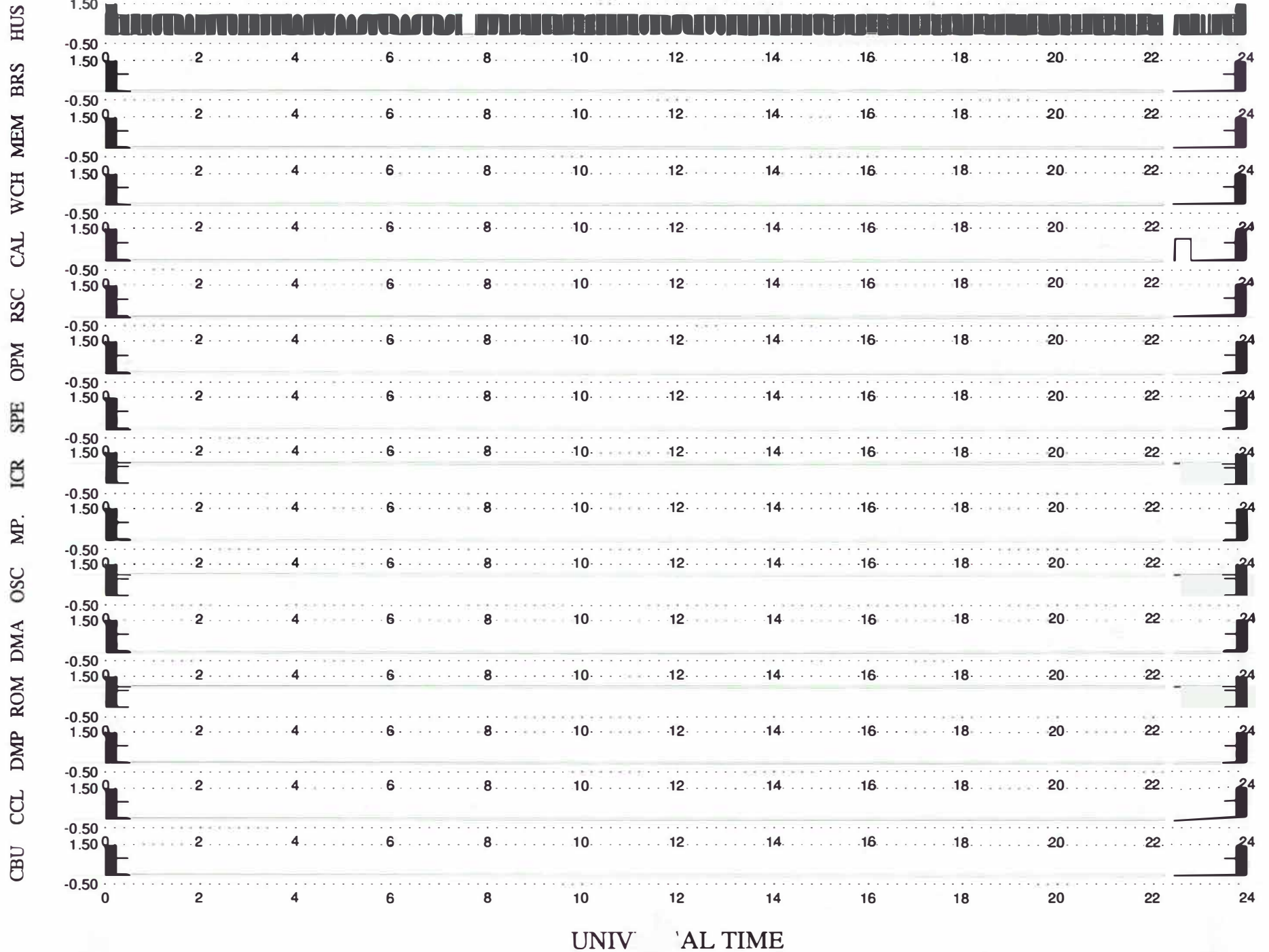
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

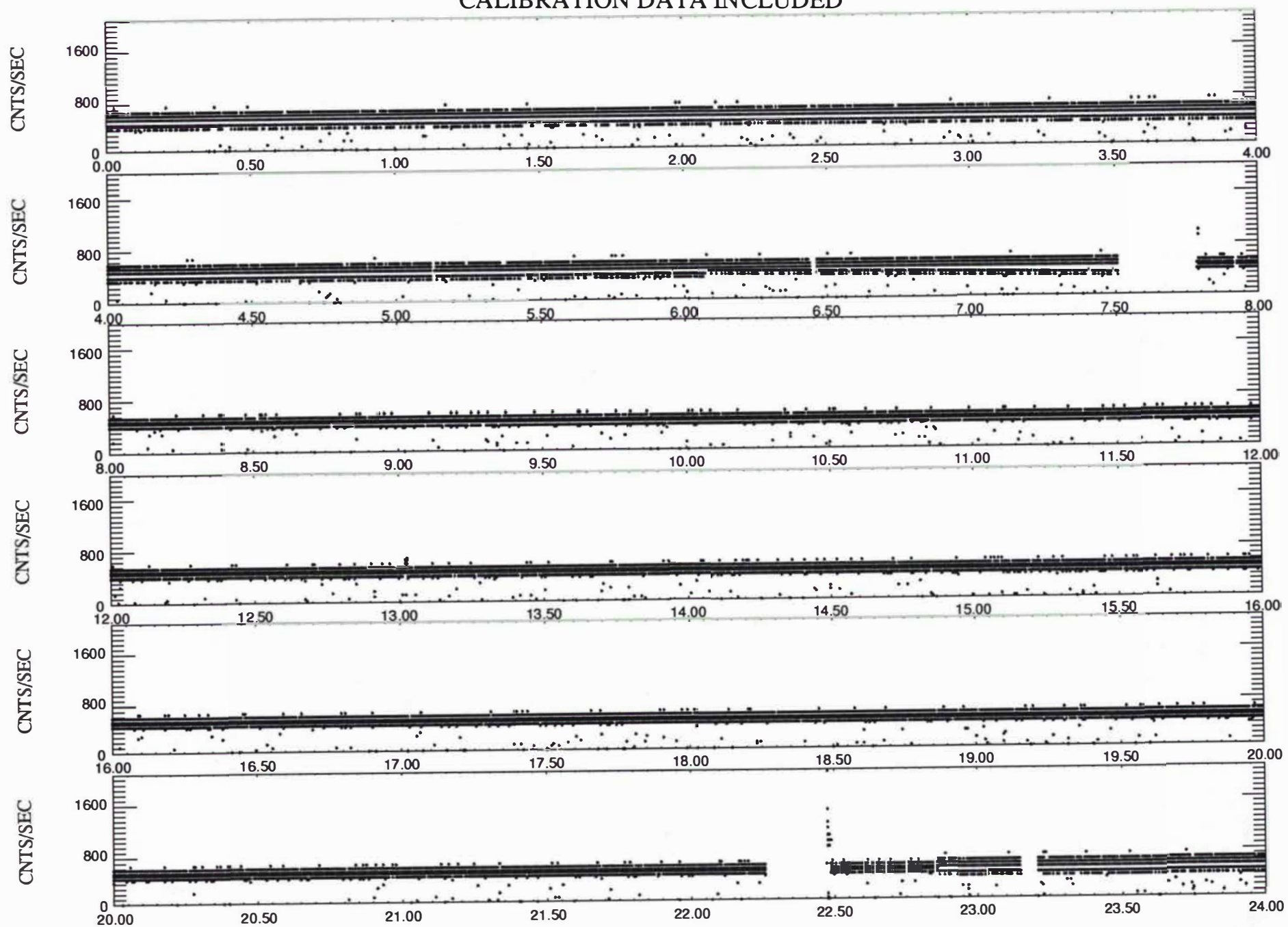
Background not subtracted

Sample average = 10

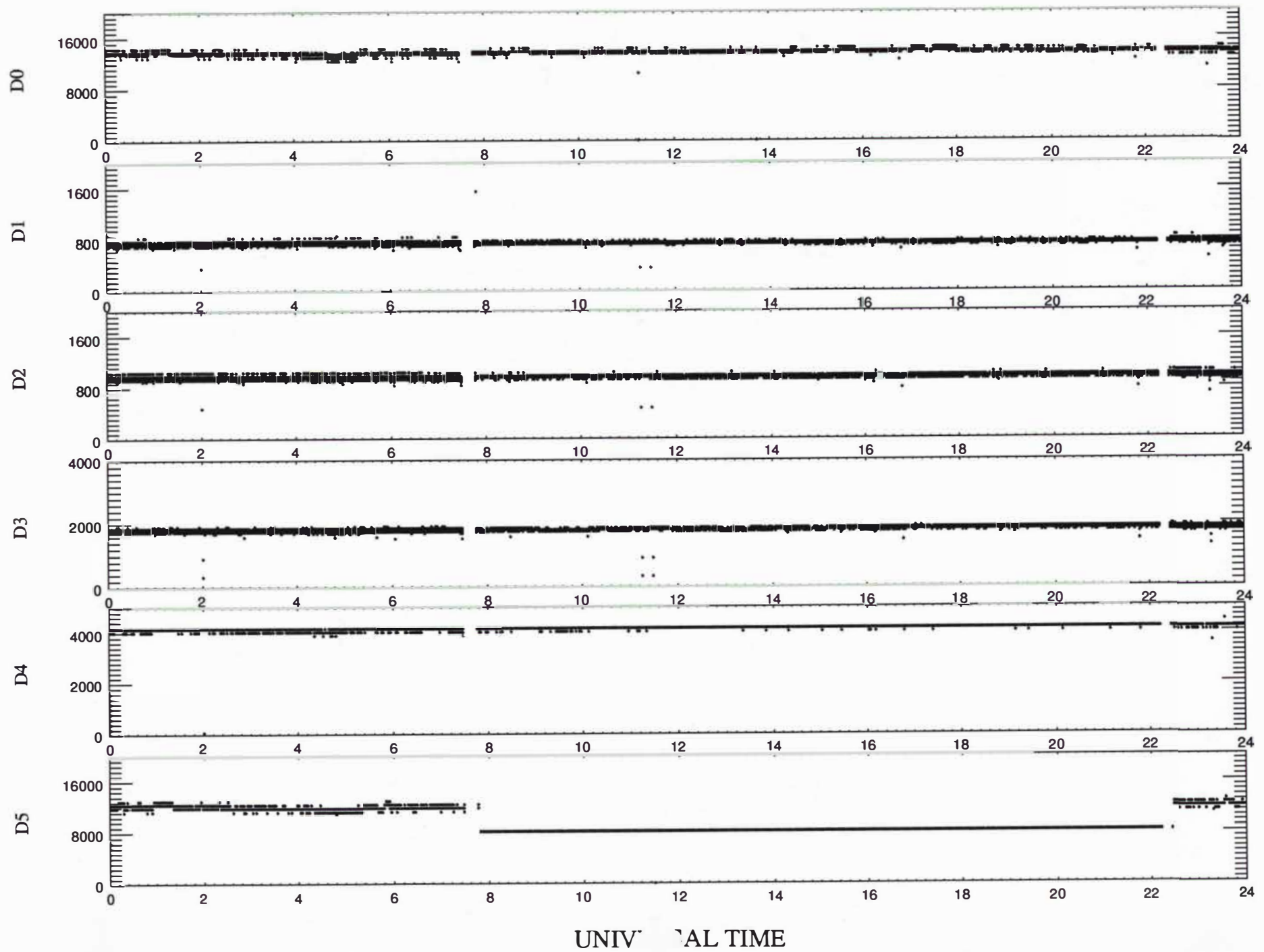
NO BURST (13)



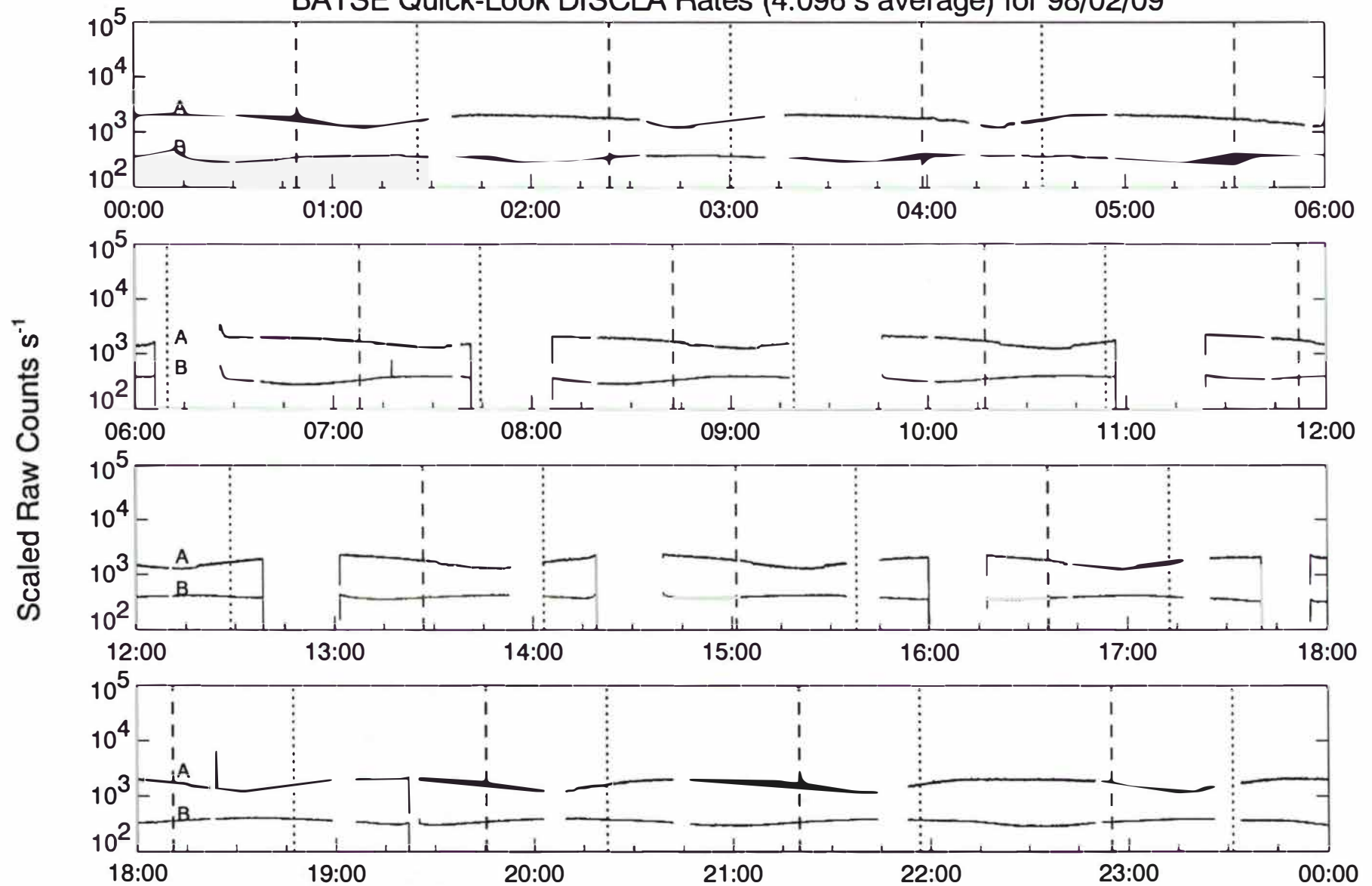
CALIBRATION DATA INCLUDED



UNIV AL TIME



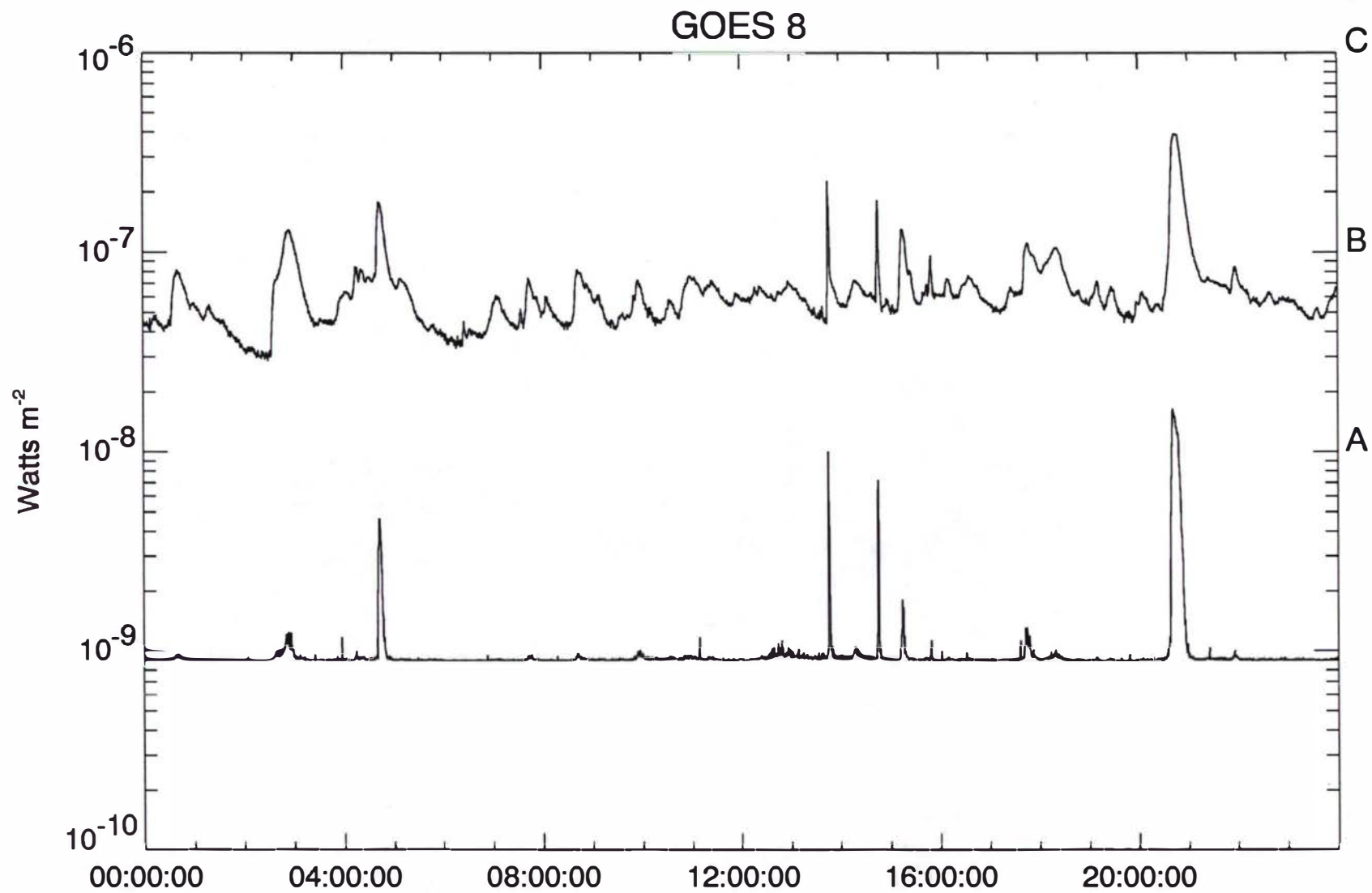
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/09



Current Time: 98/02/13, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/09, 0000:00

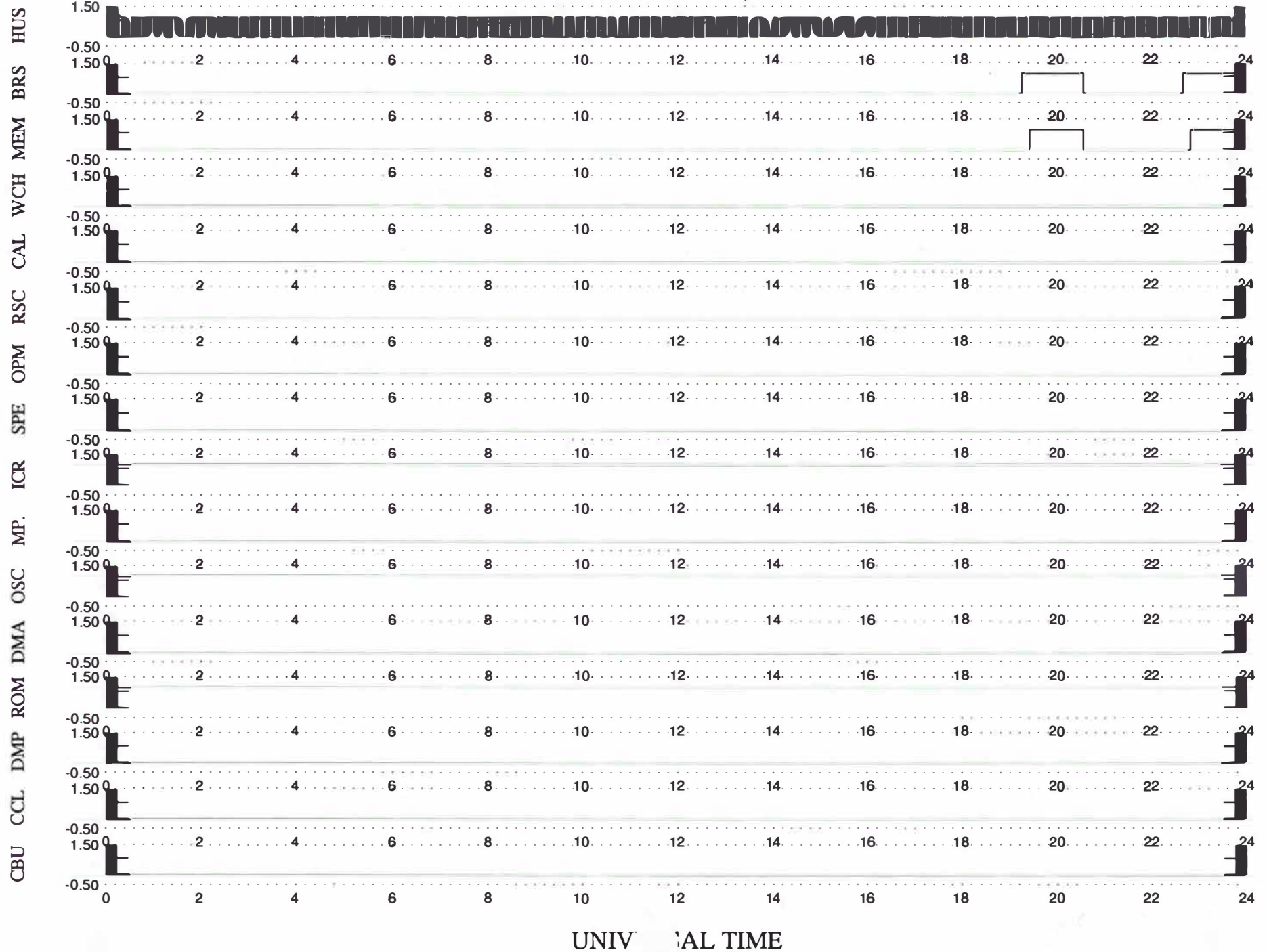
Plot created: 98/02/13, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

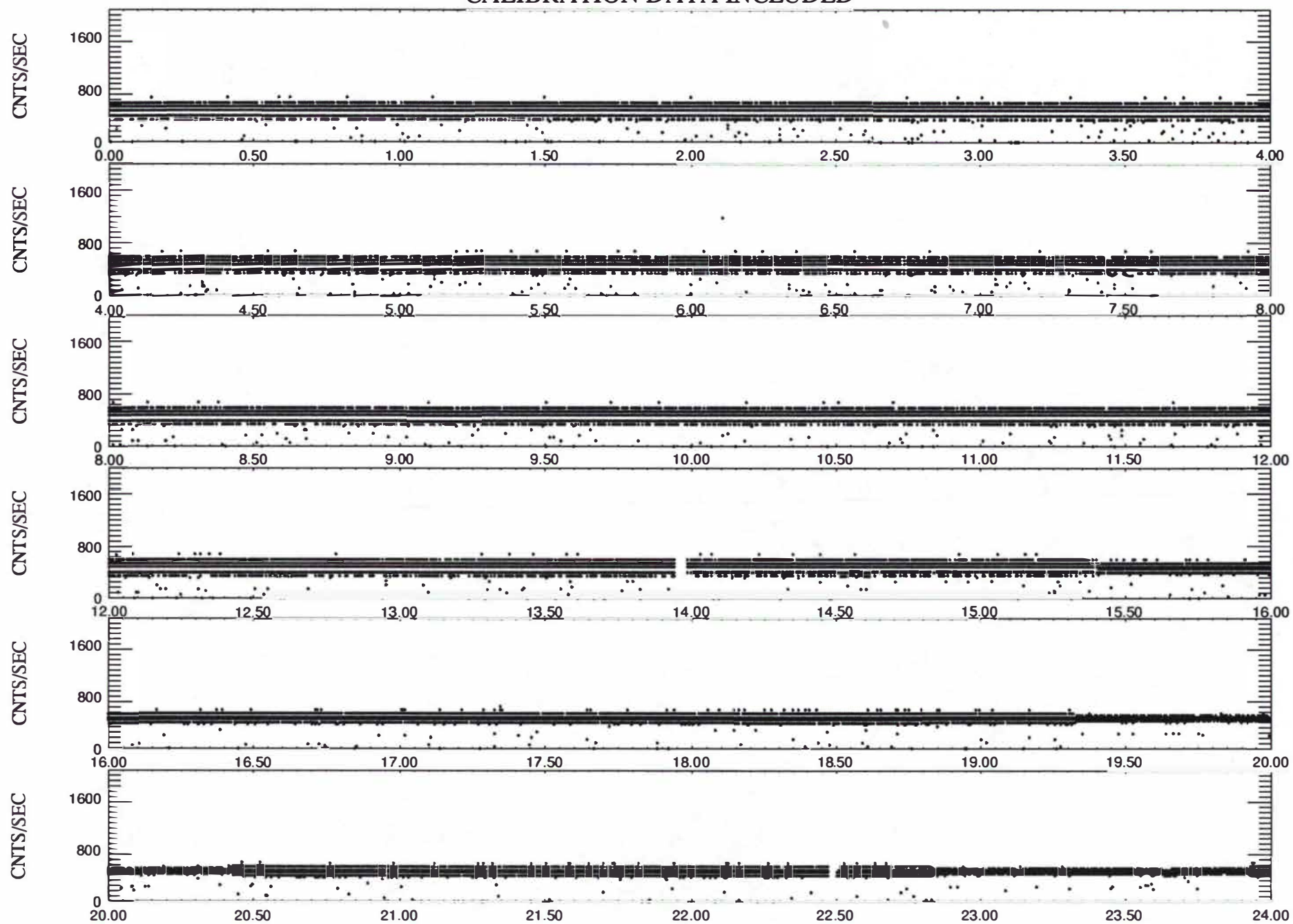
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

BURST NUMBER 14, 15

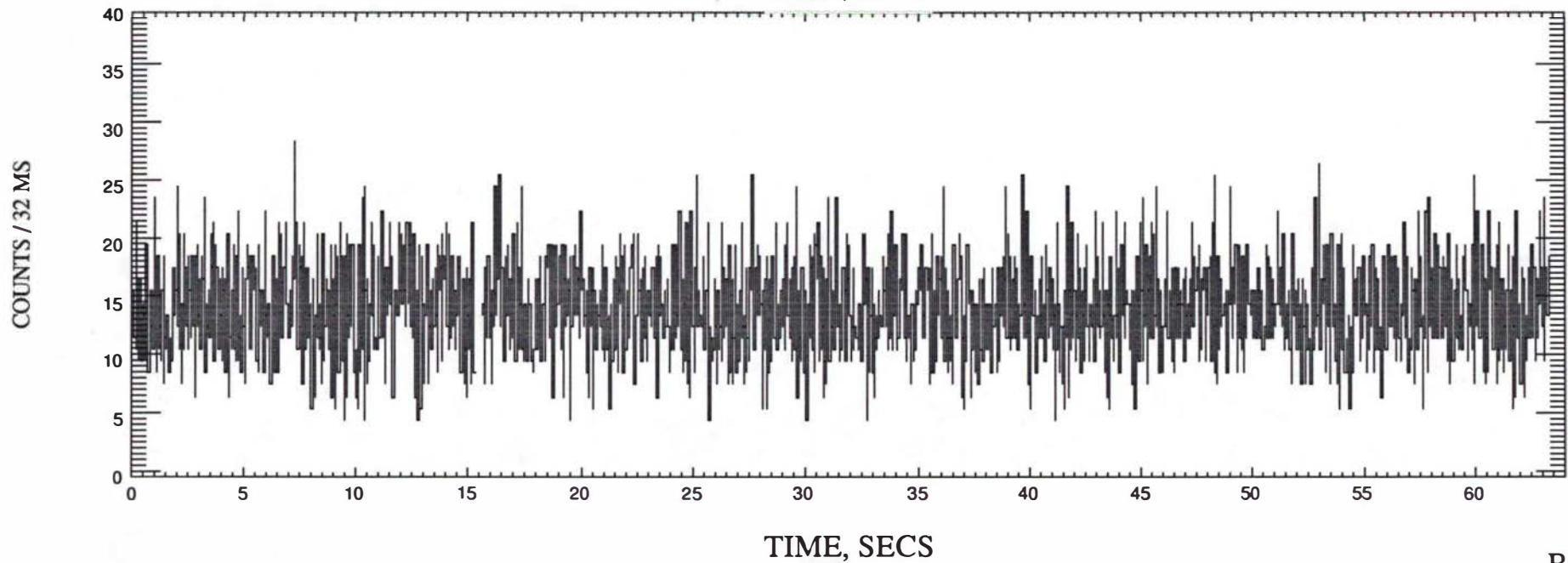
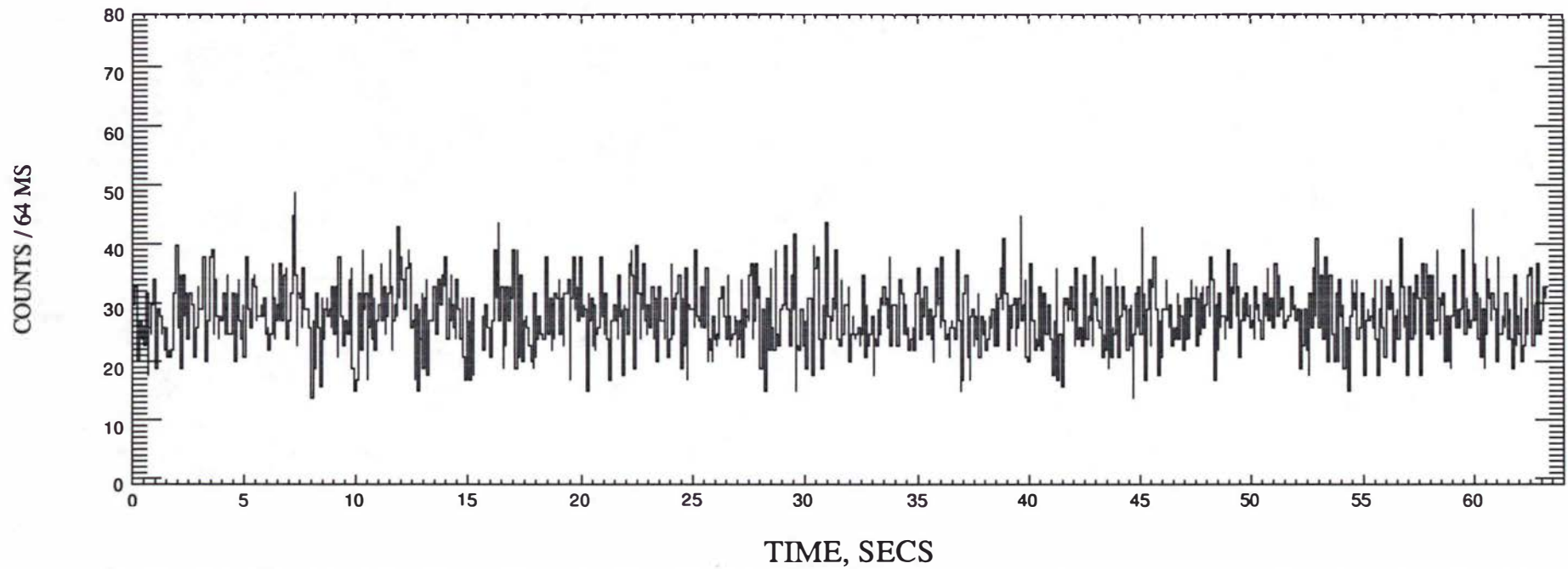


CALIBRATION DATA INCLUDED

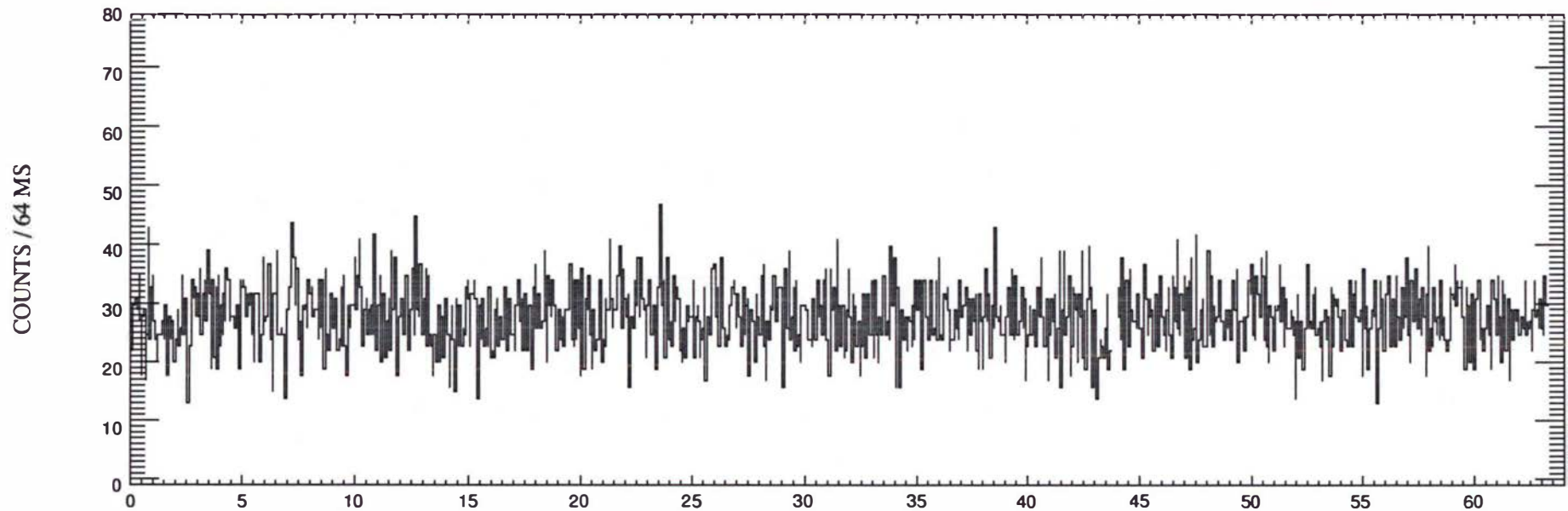


UNIV 'AL TIME

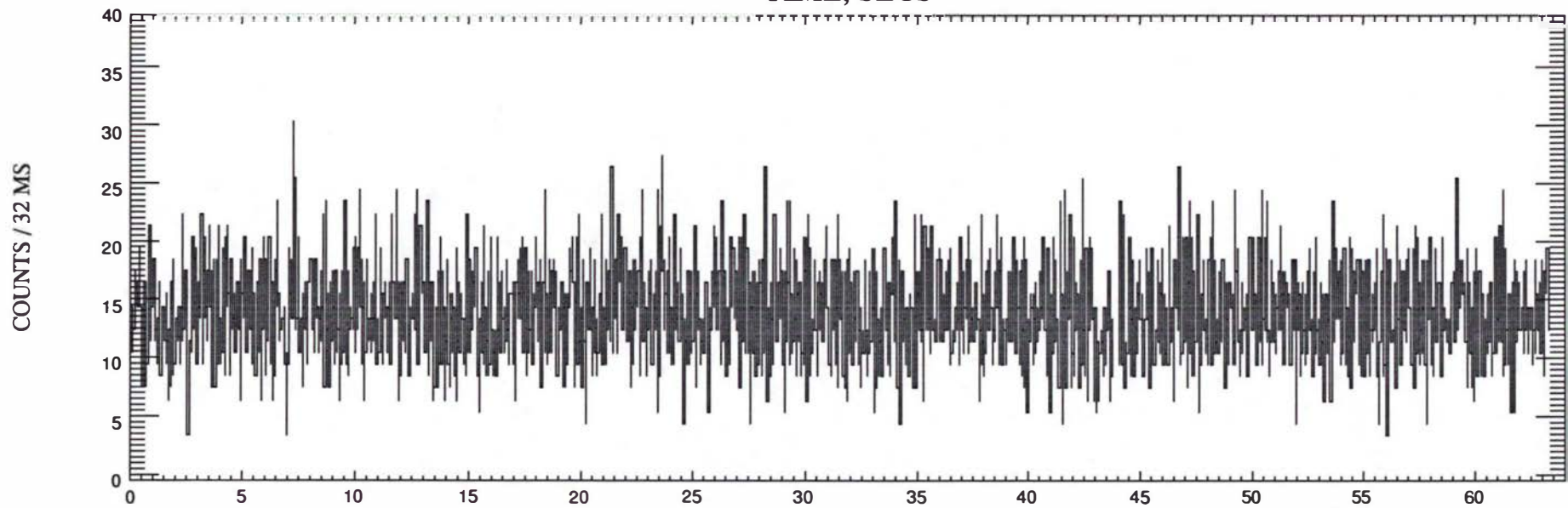
Burst Counter 14 at UT=19.162118280199 h=68983.626 s 19:09:43.626



Burst Counter 15 at UT=22.667259631687 h=81602.135 s 22:40:02.135

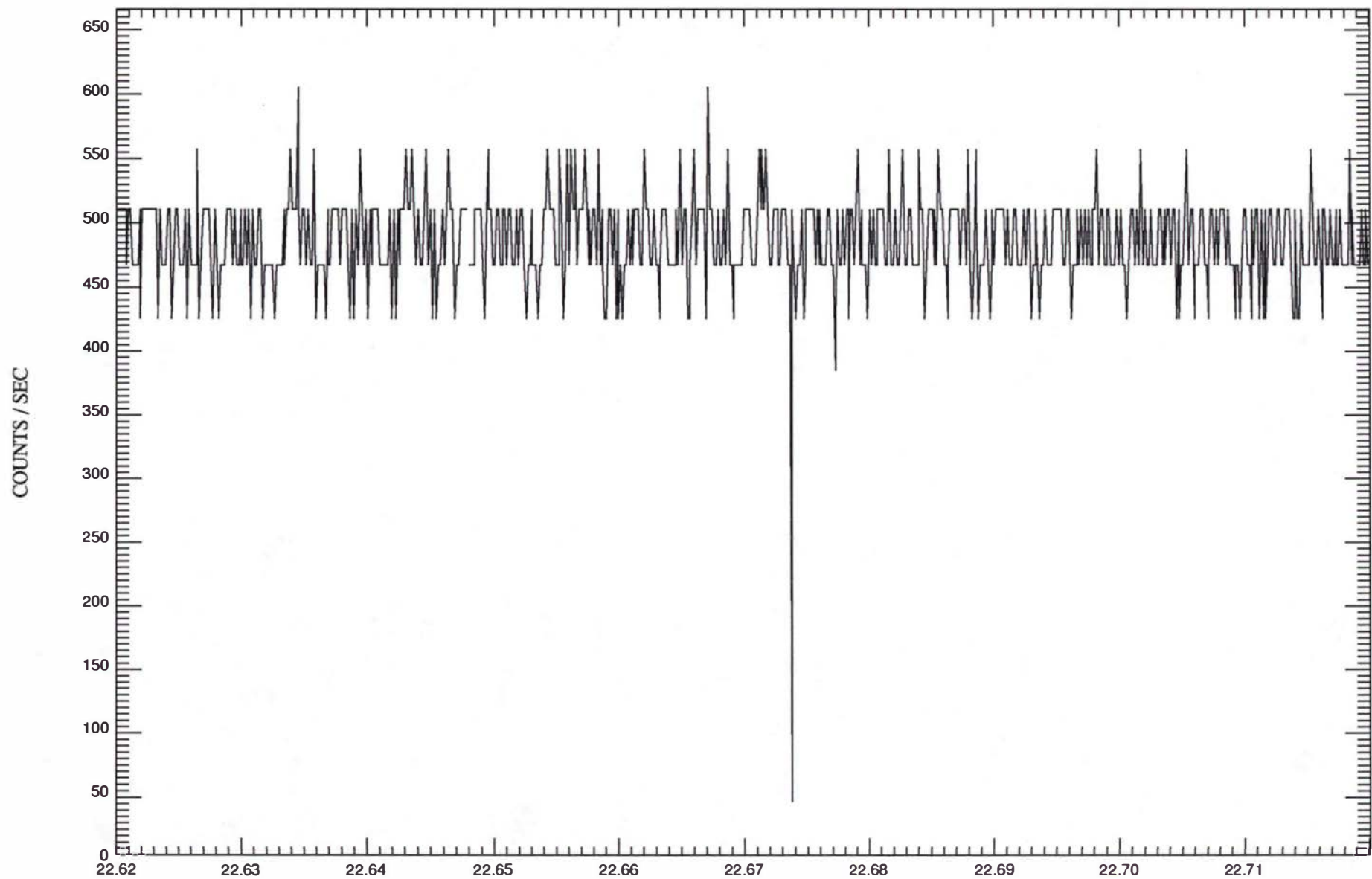


TIME, SECS

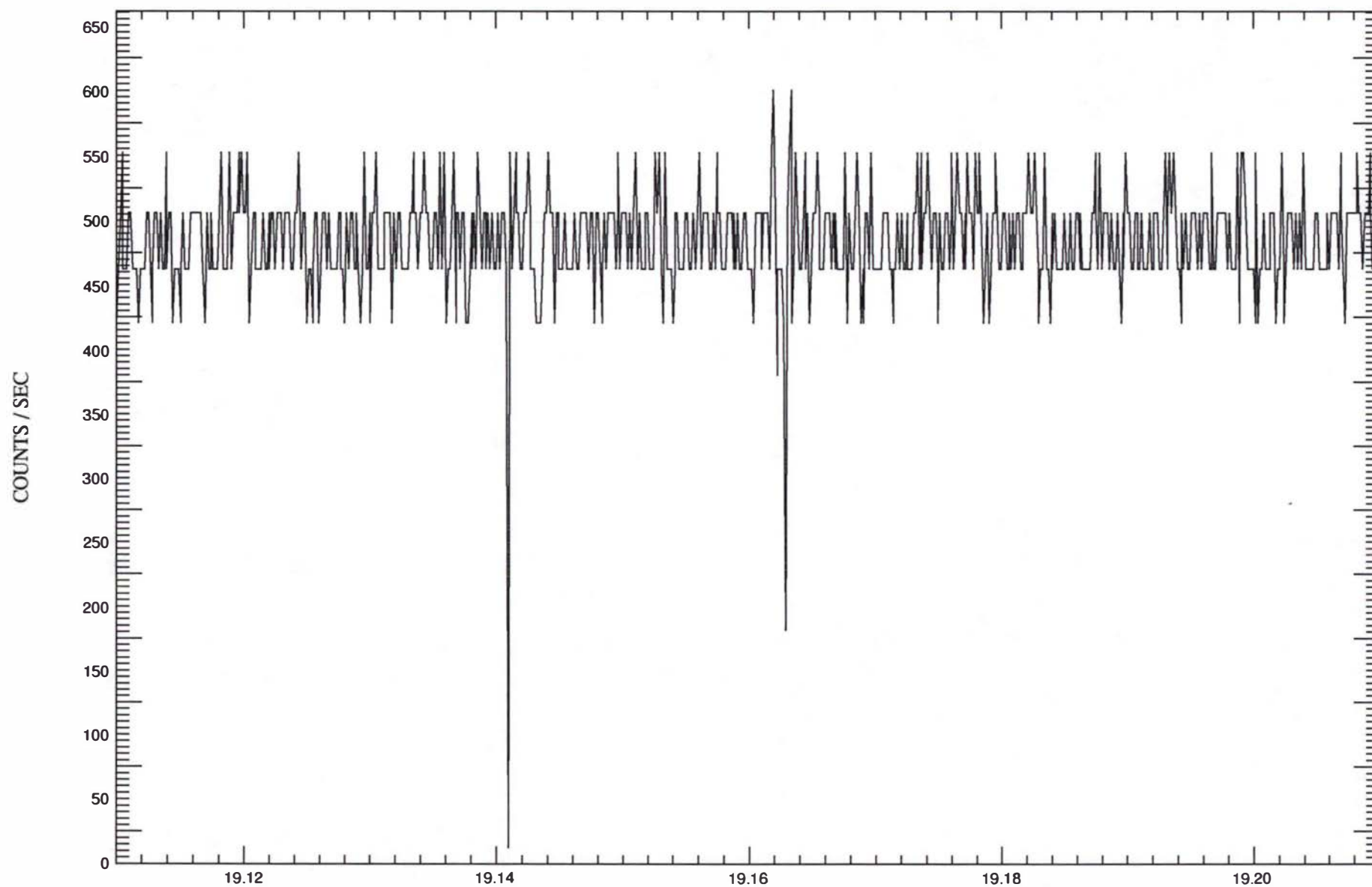


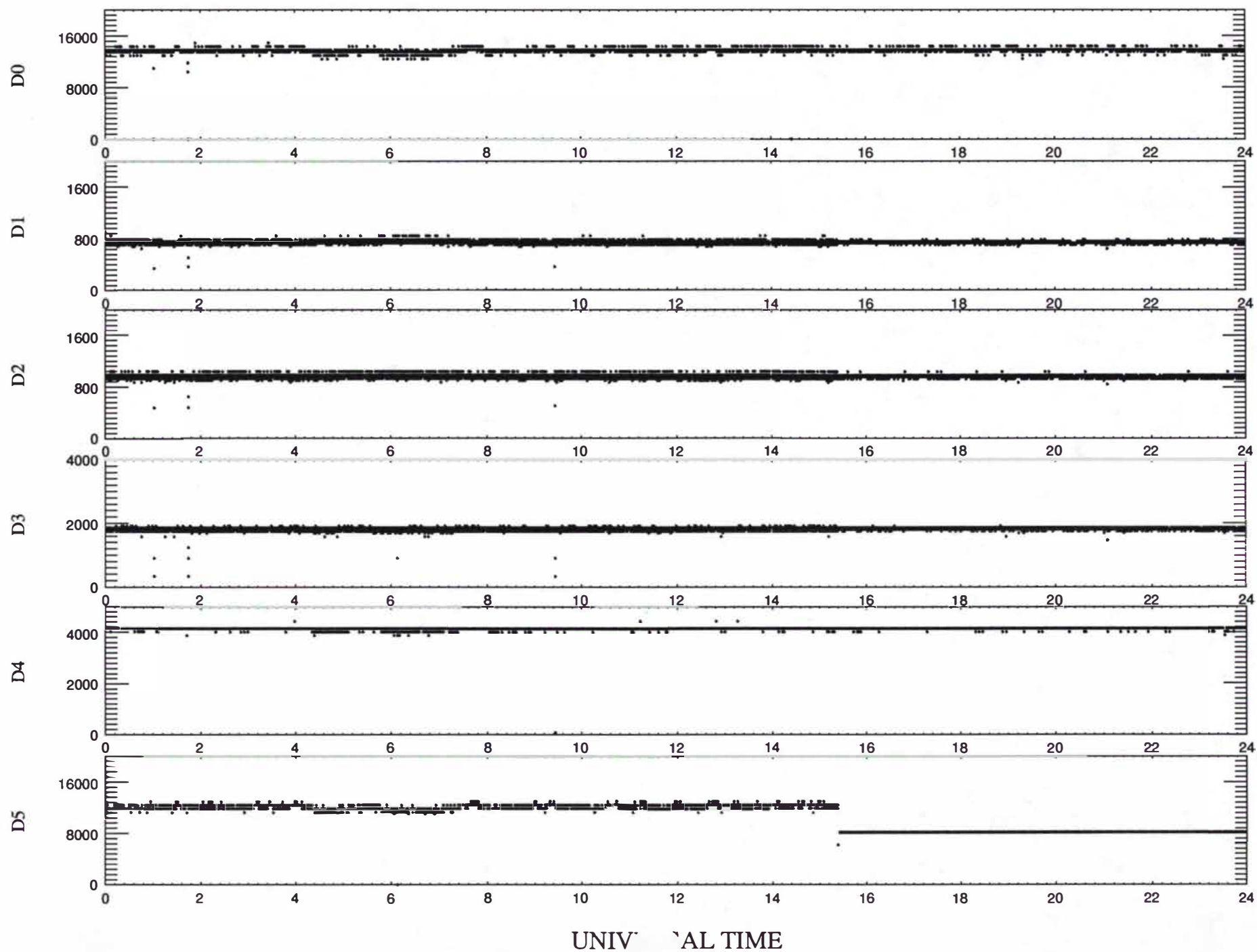
TIME, SECS

CALIBRATION DATA INCLUDED

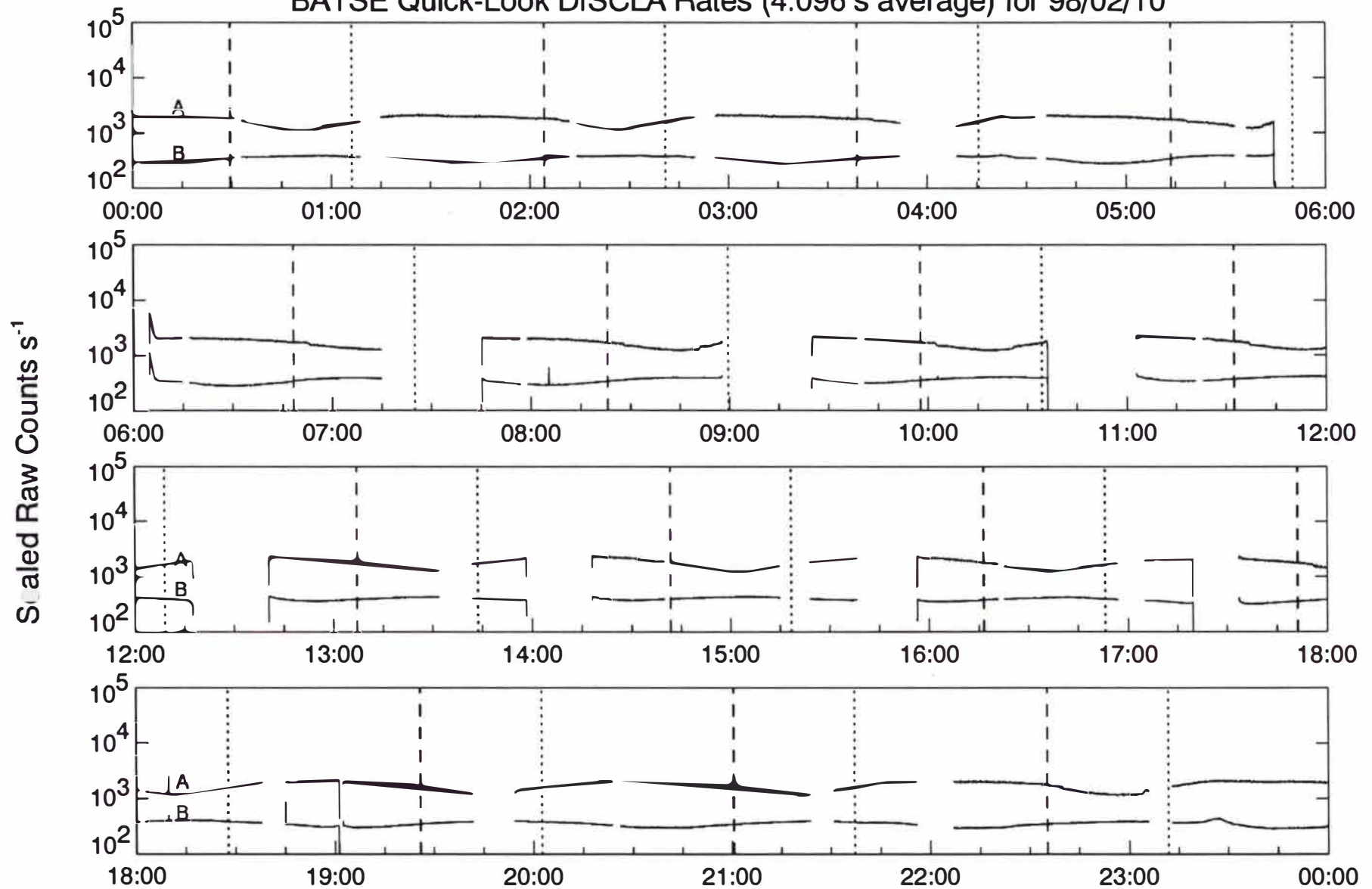


CALIBRATION DATA INCLUDED





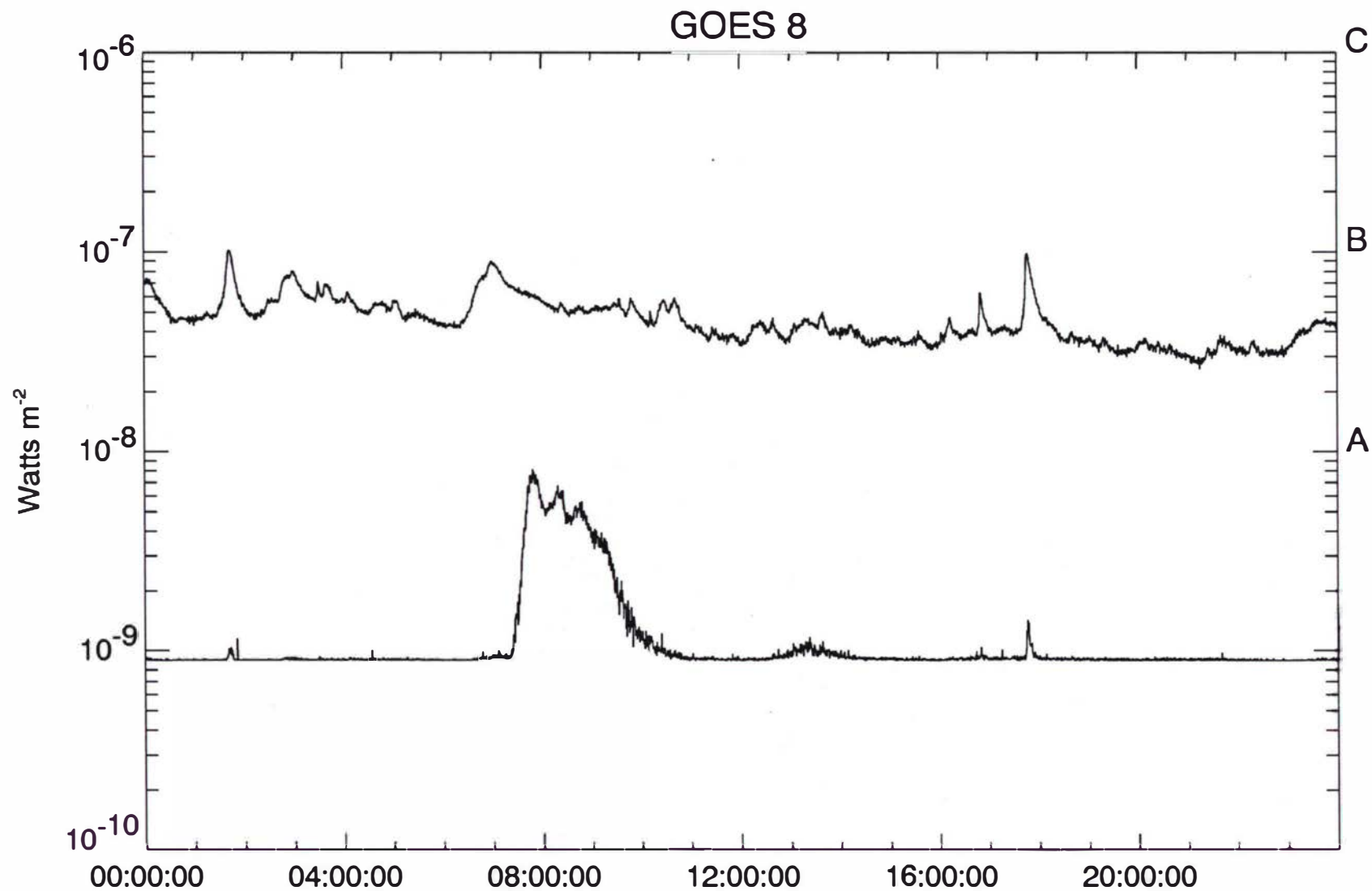
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/10



Current Time: 98/02/14, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/10, 0000:00

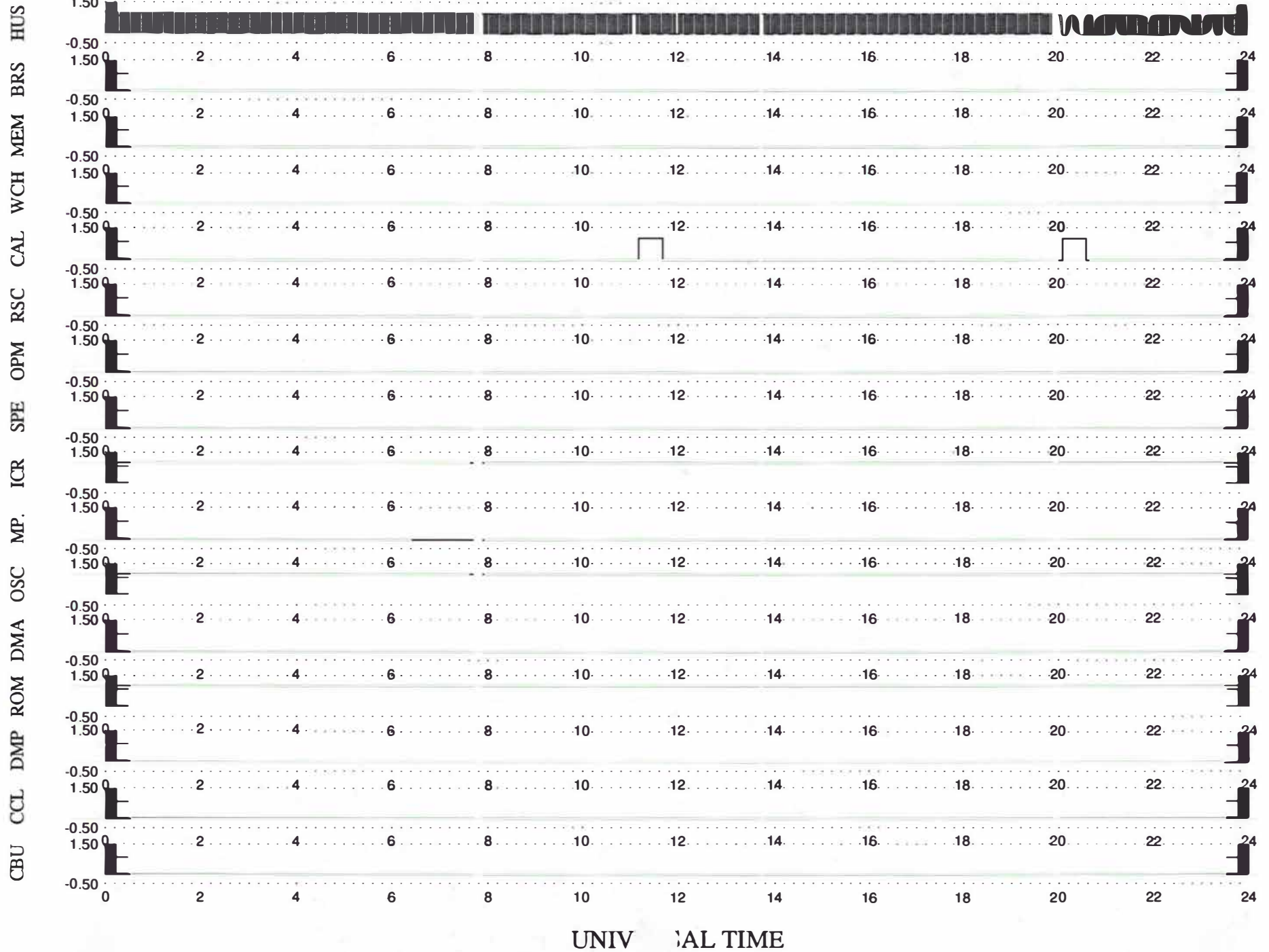
Plot created: 98/02/14, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

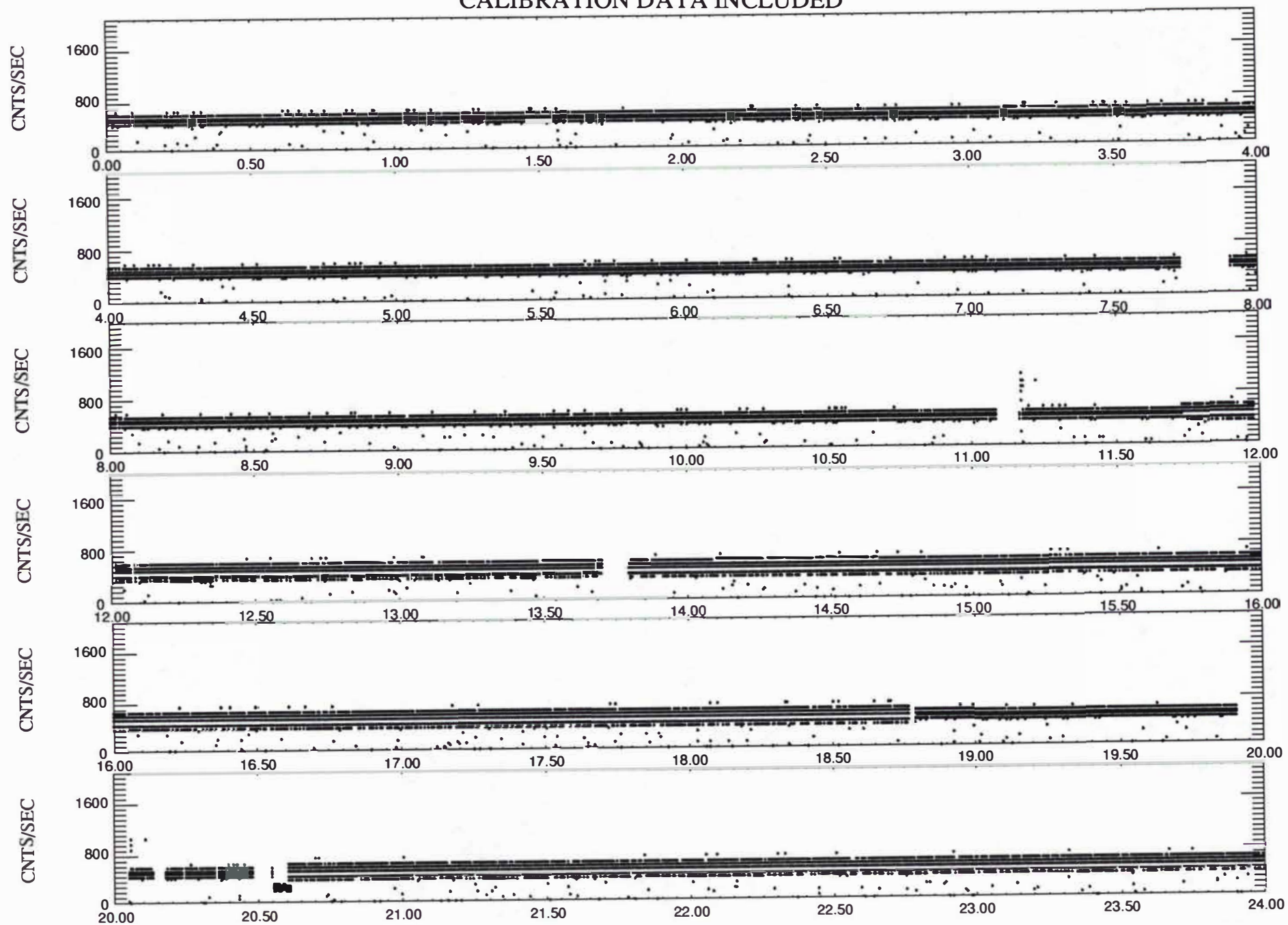
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

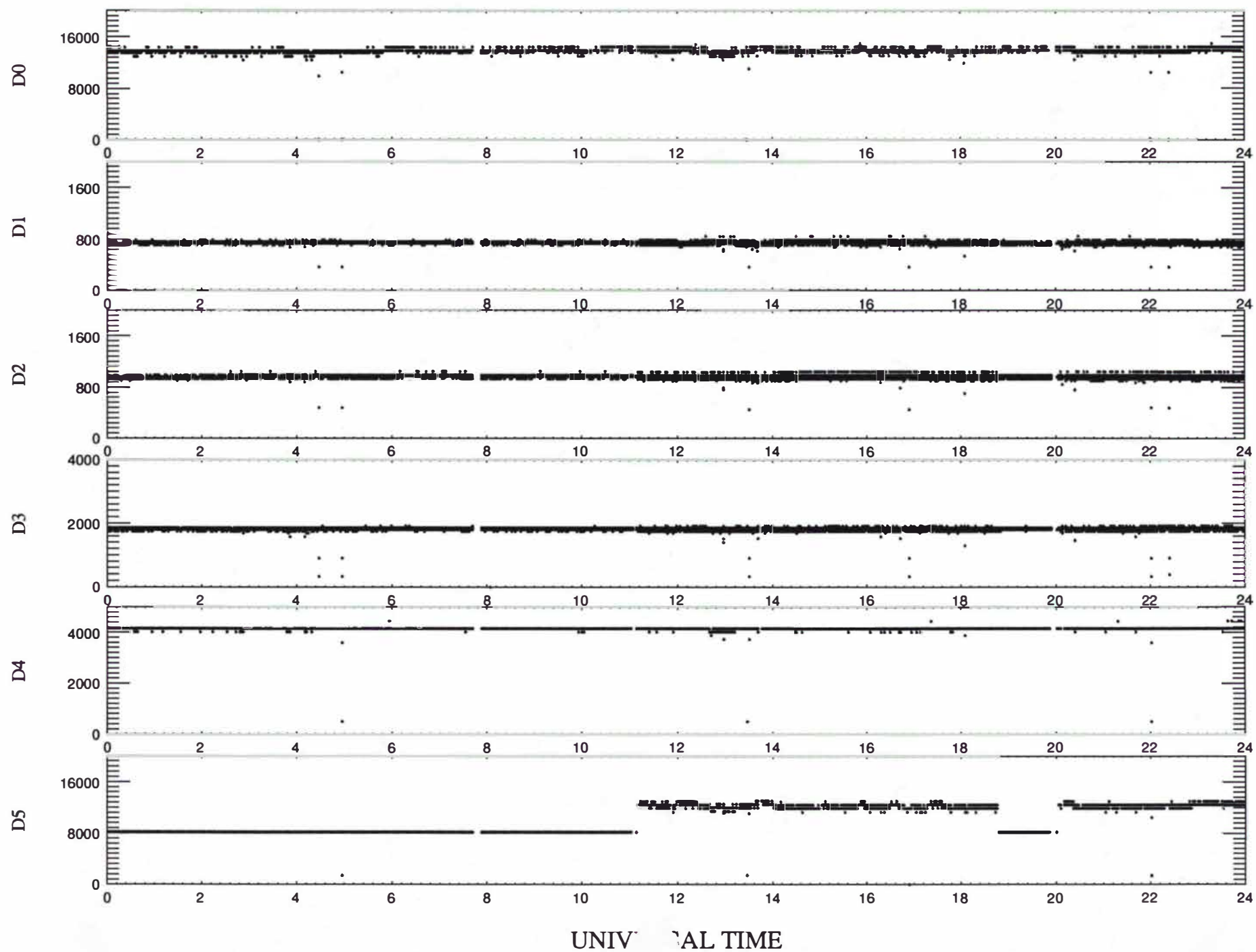
NO BURST (15)



CALIBRATION DATA INCLUDED



UNIV. TIME



From kraken@rosserv.gsfc.nasa.gov Fri Mar 13 08:50 PST 1998
X-Sender: kraken@kangaroo.gsfc.nasa.gov
Mime-Version: 1.0
Date: Fri, 13 Mar 1998 11:56:53 -0500
khurley@sunspot.ssl.berkeley.edu (Kevin Hurley)
From: Peter Kurczynski <kraken@rosserv.gsfc.nasa.gov>
Subject: bursts not seen by TGRS
Cc: TEEGARDEN@tgrs2.gsfc.nasa.gov

Hi Kevin,

The bursts listed below were not seen by TGRS as triggered events, or in waiting mode data. My apologies for the late reporting of the second burst.

Pete

March 4 1998 02:36 Ulysses time; weak burst, 64 ms long
February 11 1998 04:40 Ulysses time; weak burst, 64 ms long

From BUTTERWORTH@lheavx.gsfc.nasa.gov Tue Mar 3 08:02 PST 1998
From: BUTTERWORTH@lheavx.gsfc.nasa.gov
Date: Tue, 3 Mar 1998 10:58:57 -0500 (EST)
To: khurley@sunspot.ssl.berkeley.edu, kmarar@isac.ernet.in, vnp@isac.ernet.in,
jterrell@lanl.gov, yosimori@rikkyo.ac.jp,
filippo@botes1.tesre.bo.cnr.it, henze@fender.msfc.nasa.gov,
kraken@rosserv.gsfc.nasa.gov
CC: BUTTERWORTH@lheavx.gsfc.nasa.gov
X-Vmsmail-To: @ULYSSES
X-Vmsmail-Cc: BUTTERWORTH
Subject: KONUS FEB98 REPORT FOR ULYSSES GAMMA-RAY EVENTS NOT REPORTED BY BATSE

Hi Everyone,

Here is the Konus report for those events seen by Ulysses in February, but not reported by BATSE.

Paul.

Ulysses event - February 2 1998 10:23 Ulysses time; moderate burst, 10 s long

Konus triggered at 09:55:06.894 in the South-facing detector. The event was moderately intense, and consisted of two broad and irregular peaks. The first peak was ~2 seconds after the trigger. The second peak, which was stronger and sharper, came ~6.5 seconds after the trigger. The event lasted about 12 seconds in total.

Ulysses event - February 3 1998 06:27 Ulysses time; weak burst, 32 ms long

Ulysses event - February 5 1998 23:48 Ulysses time; weak burst, 64 ms long

Ulysses event - February 11 1998 04:40 Ulysses time; weak burst, 64 ms long

None of these events were detected by Konus.

From HENZE@SSLMOR.msfc.nasa.gov Fri Feb 13 16:12:38 1998
Date: Fri, 13 Feb 1998 18:10:06 -0600 (CST)
From: Bill Henze (205-544-7616) <HENZE@SSLMOR.msfc.nasa.gov>
To: burst@comptel.sr.unh.edu, grobad@ests2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6594

TIME: TJD=0855 SECONDS=77325

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

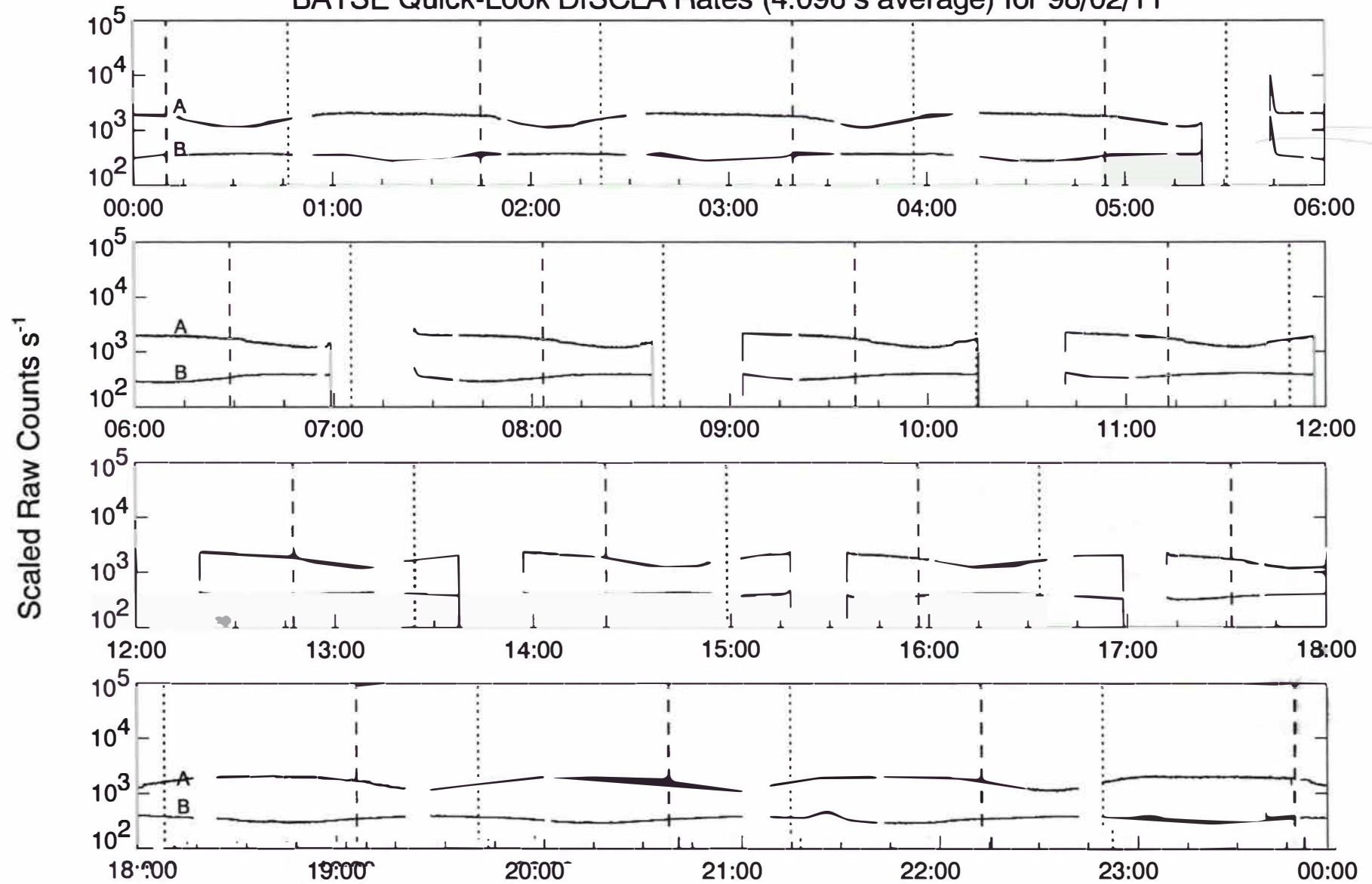
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

PARTICLE EVENT

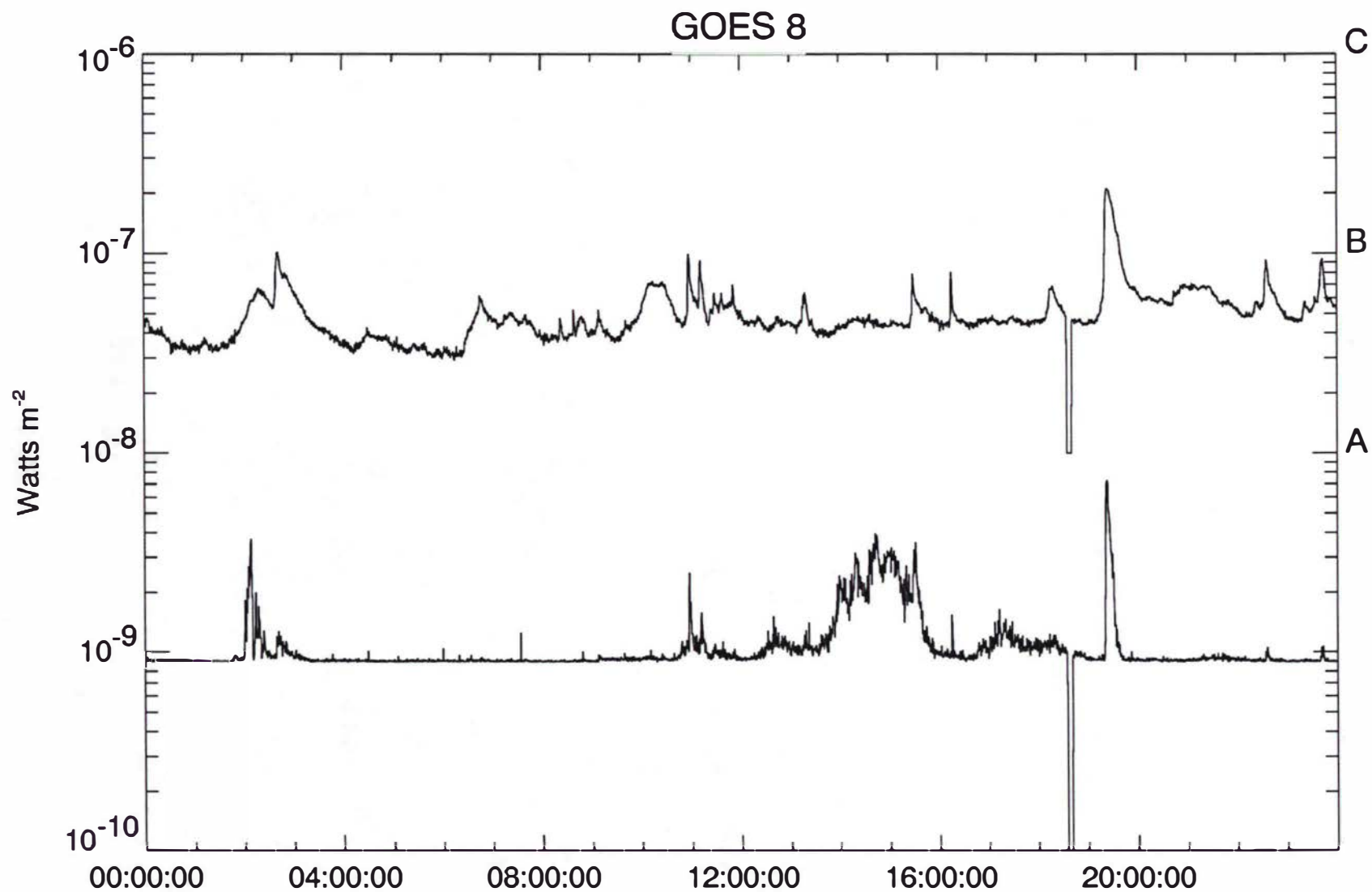
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/11



Current Time: 98/02/15, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/11, 0000:00

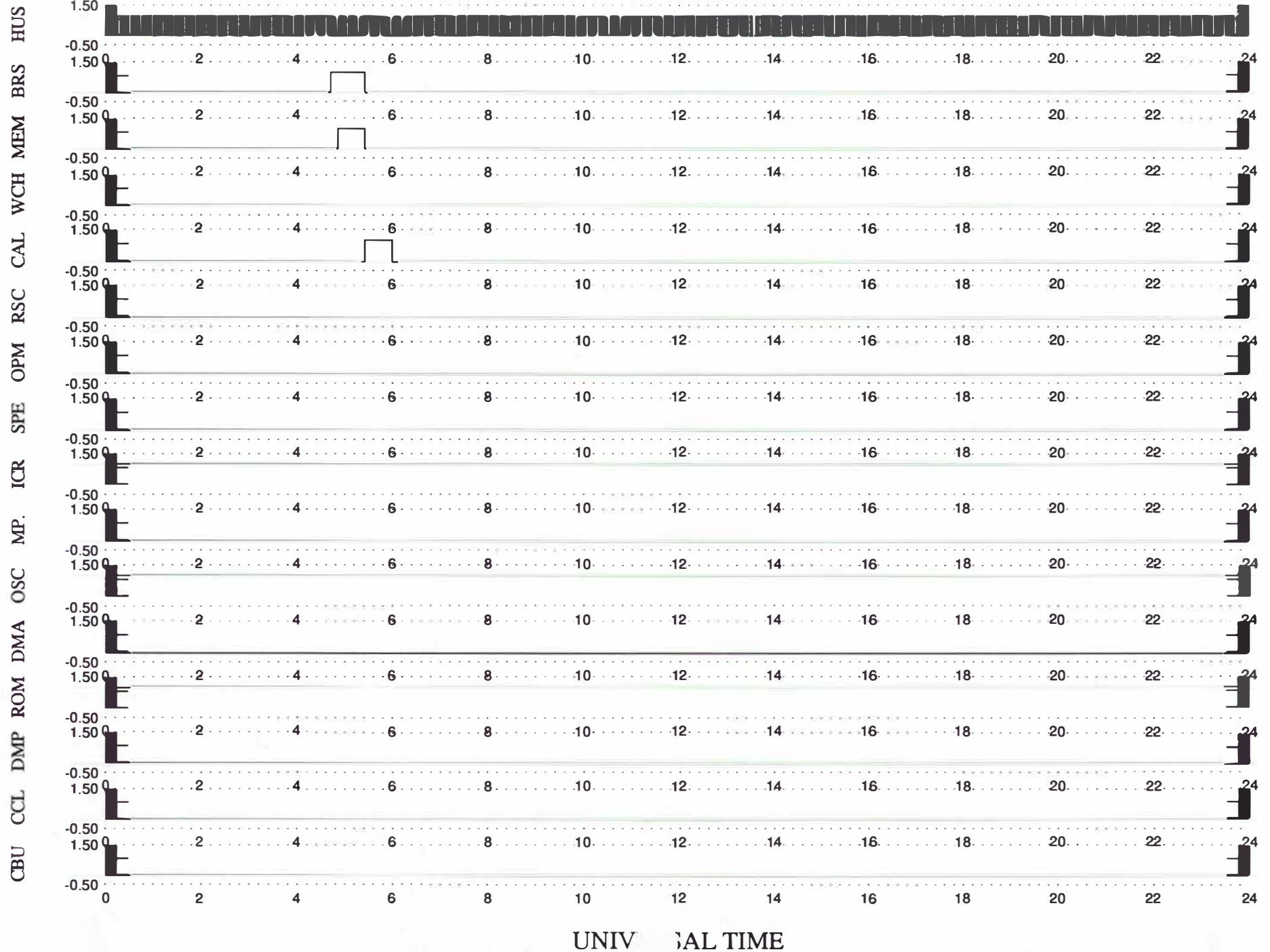
Plot created: 98/02/15, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

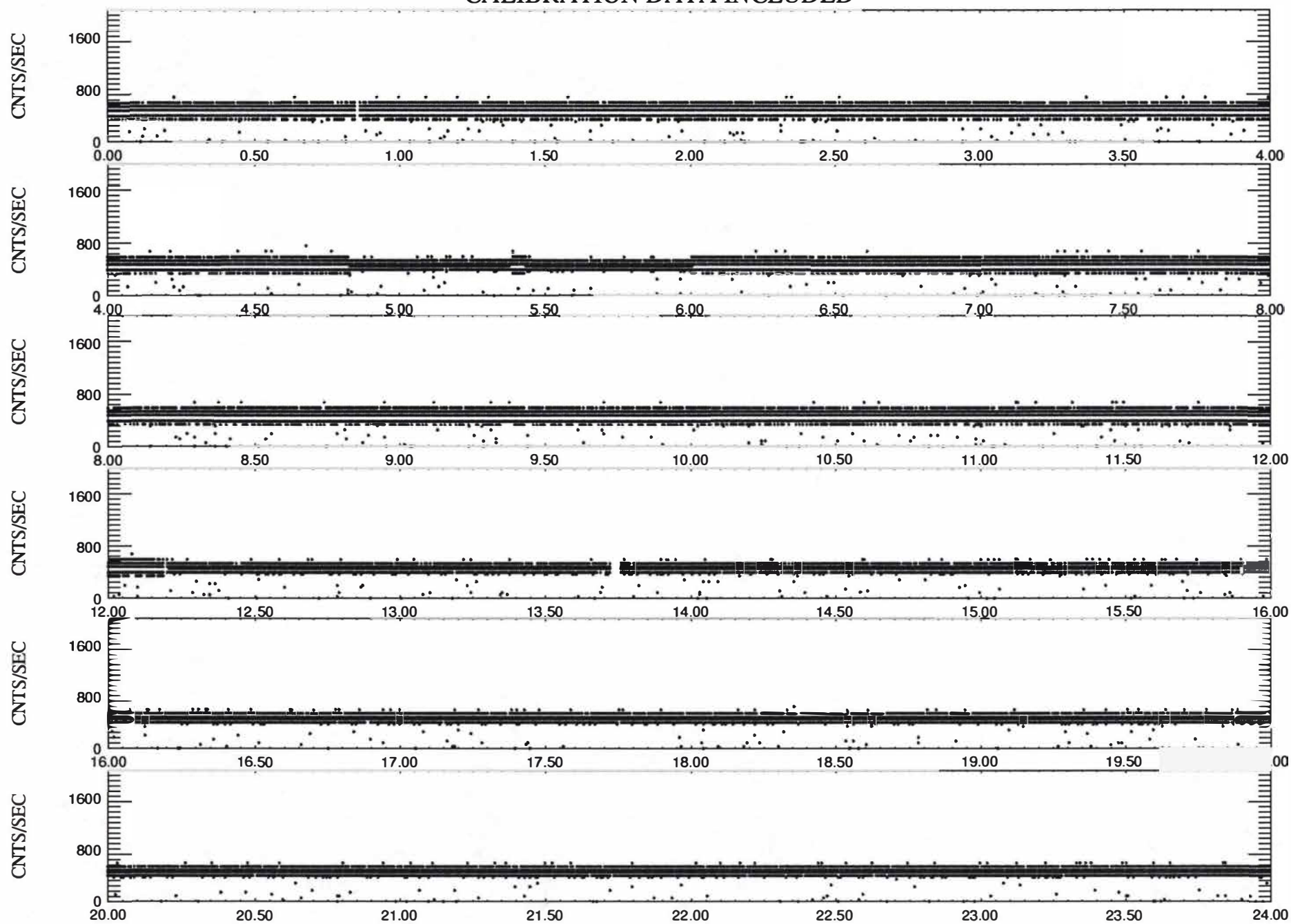
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

BURST NUMBER 0

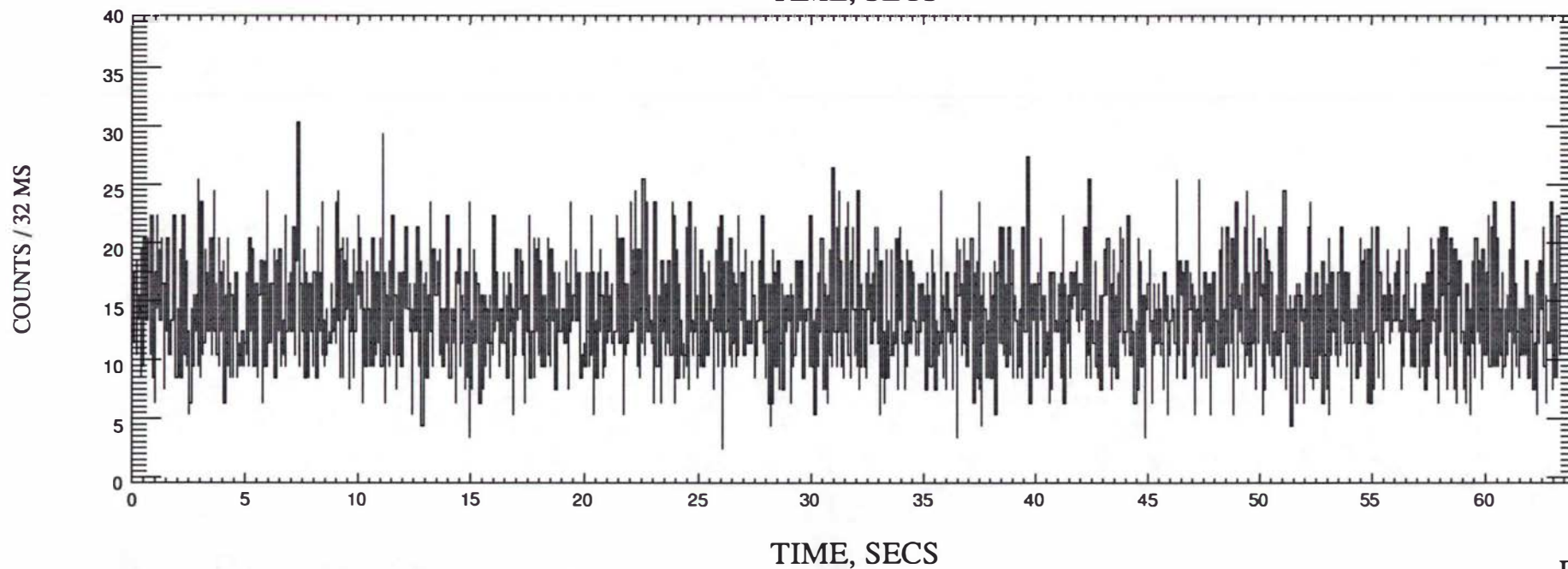
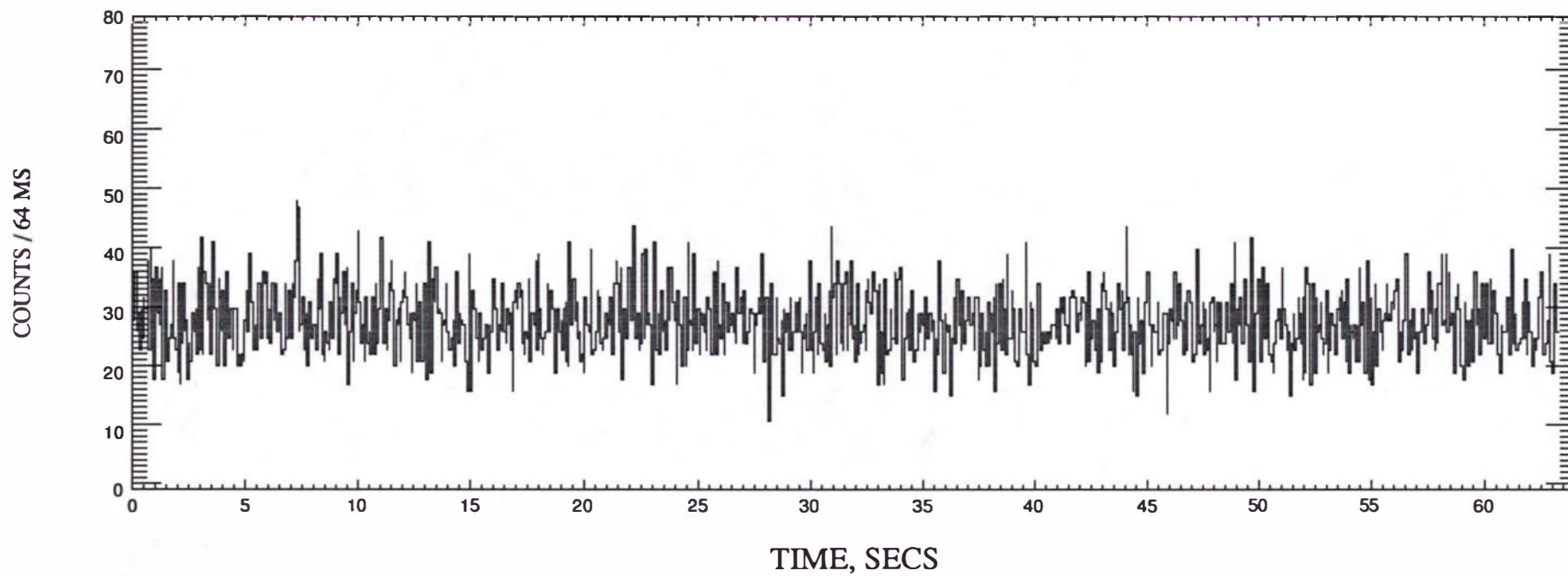


CALIBRATION DATA INCLUDED

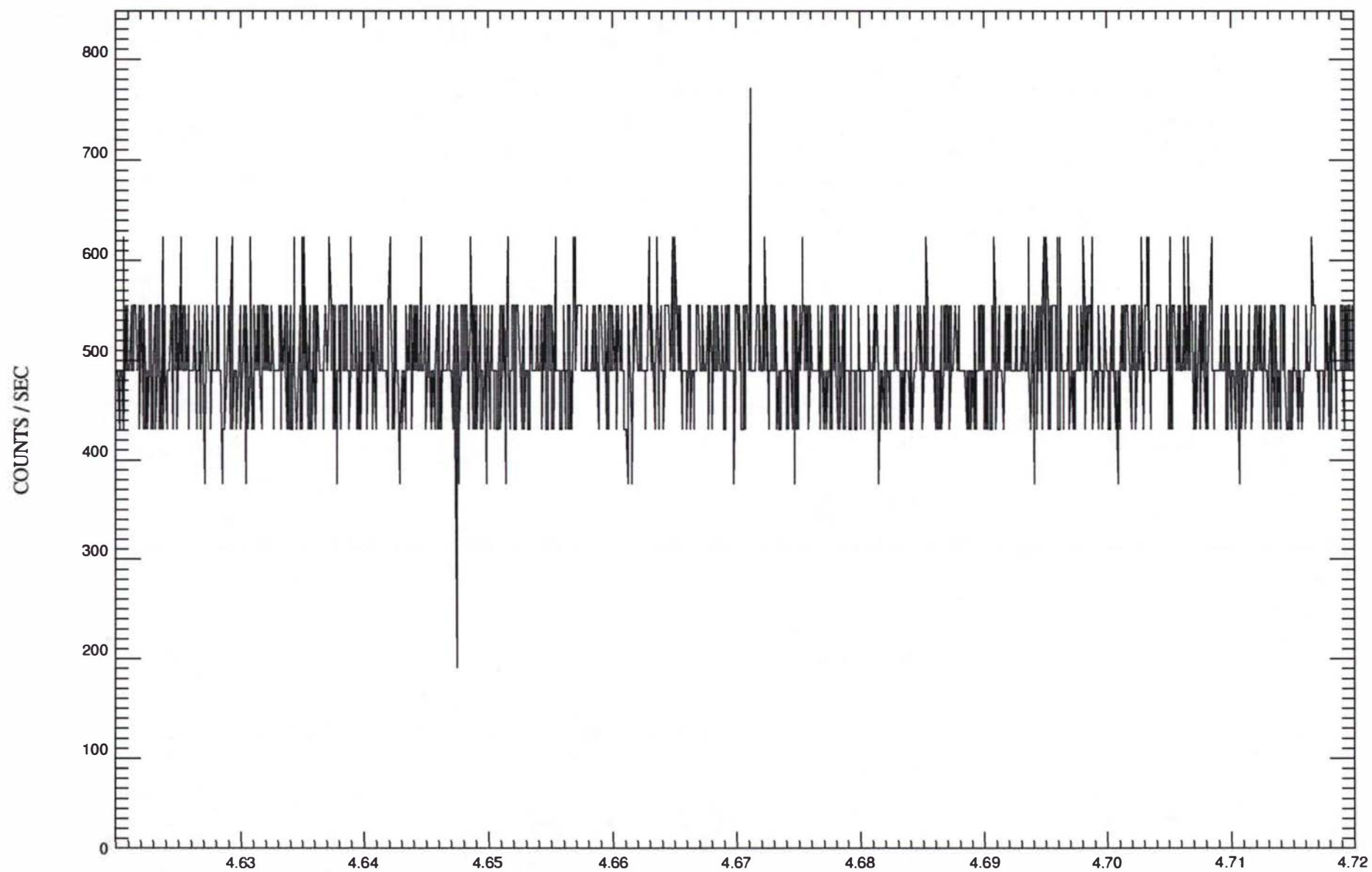


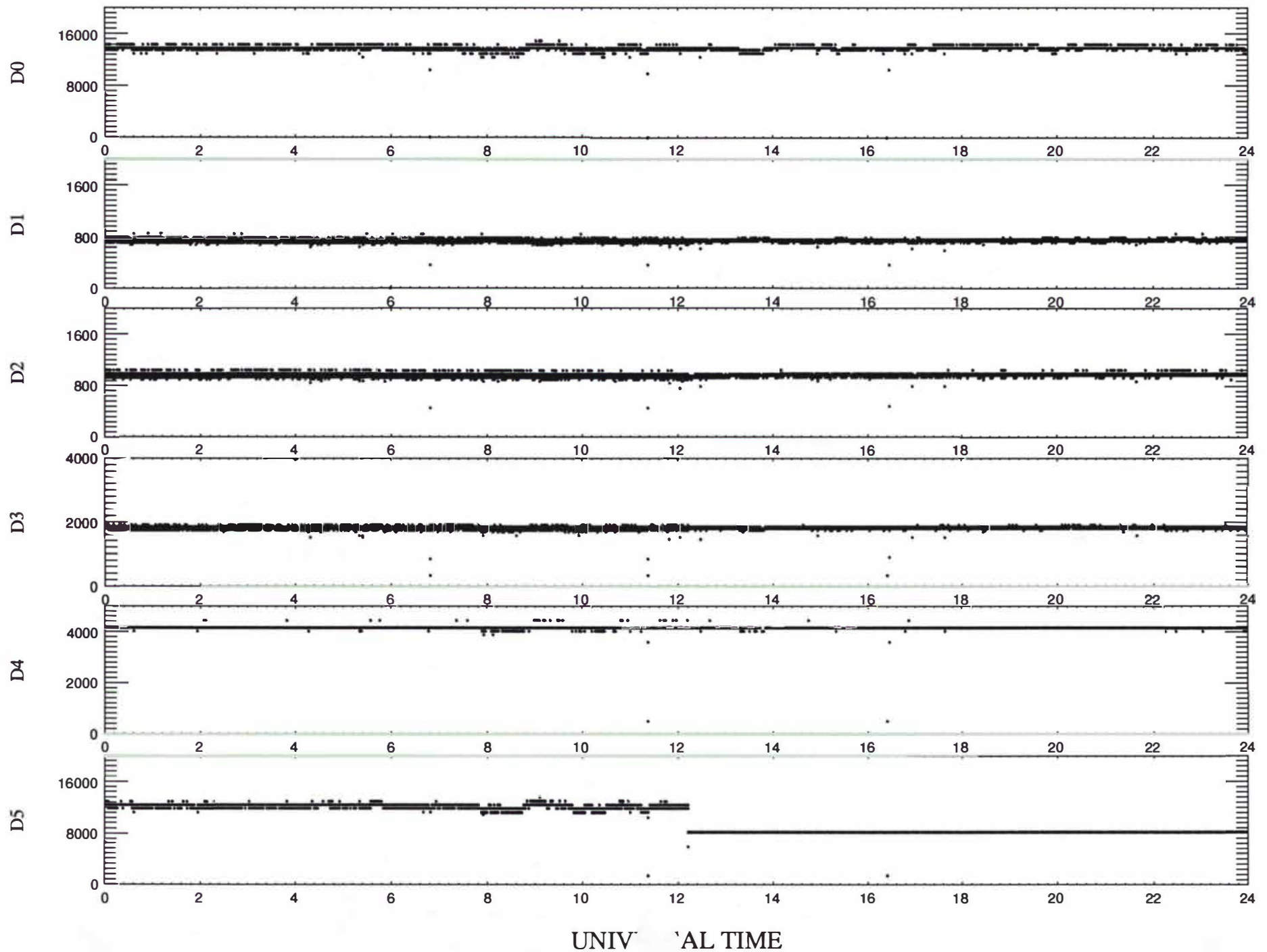
UNIV TIME

Burst Counter 0 at UT= 4.671266259087 h=16816.559 s 04:40:16.559



CALIBRATION DATA INCLUDED





From WOODSP@SSLMOR.msfc.nasa.gov Fri Feb 13 09:16:37 1998
Date: Fri, 13 Feb 1998 11:15:48 -0600 (CST)
From: WOODSP@SSLMOR.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6595

TIME: TJD=0856 SECONDS=2646

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From WOODSP@SSLMOR.msfc.nasa.gov Fri Feb 13 09:17:06 1998
Date: Fri, 13 Feb 1998 11:16:45 -0600 (CST)
From: WOODSP@SSLMOR.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6596

TIME: TJD=0856 SECONDS=13157

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From WOODSP@SSLMOR.msfc.nasa.gov Fri Feb 13 09:18:30 1998
Date: Fri, 13 Feb 1998 11:18:02 -0600 (CST)
From: WOODSP@SSLMOR.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6597

TIME: TJD=0856 SECONDS=69505

TYPE: CYGX-1 SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

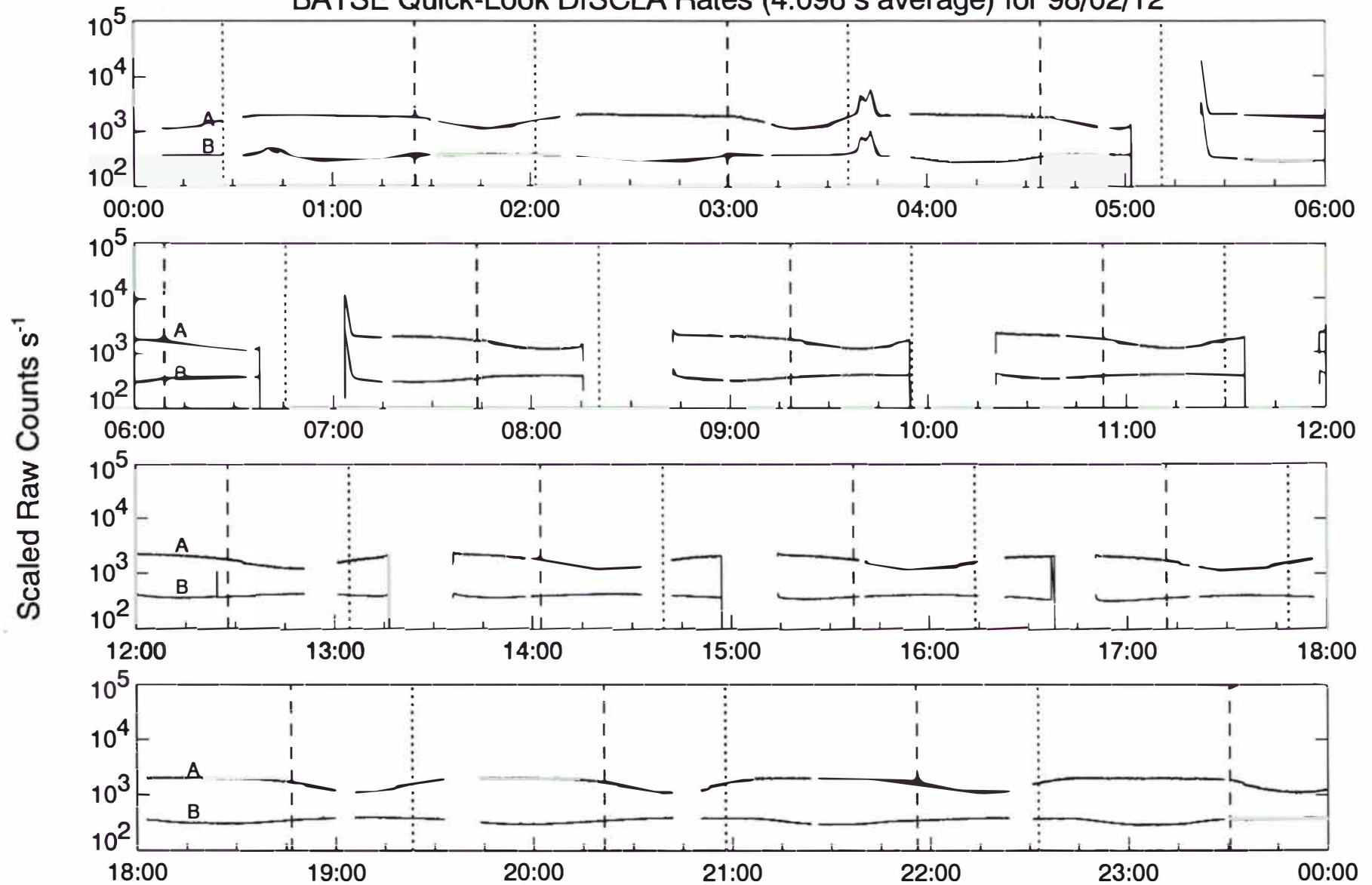
INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

CYG X-1 OCCULTATION RISE.

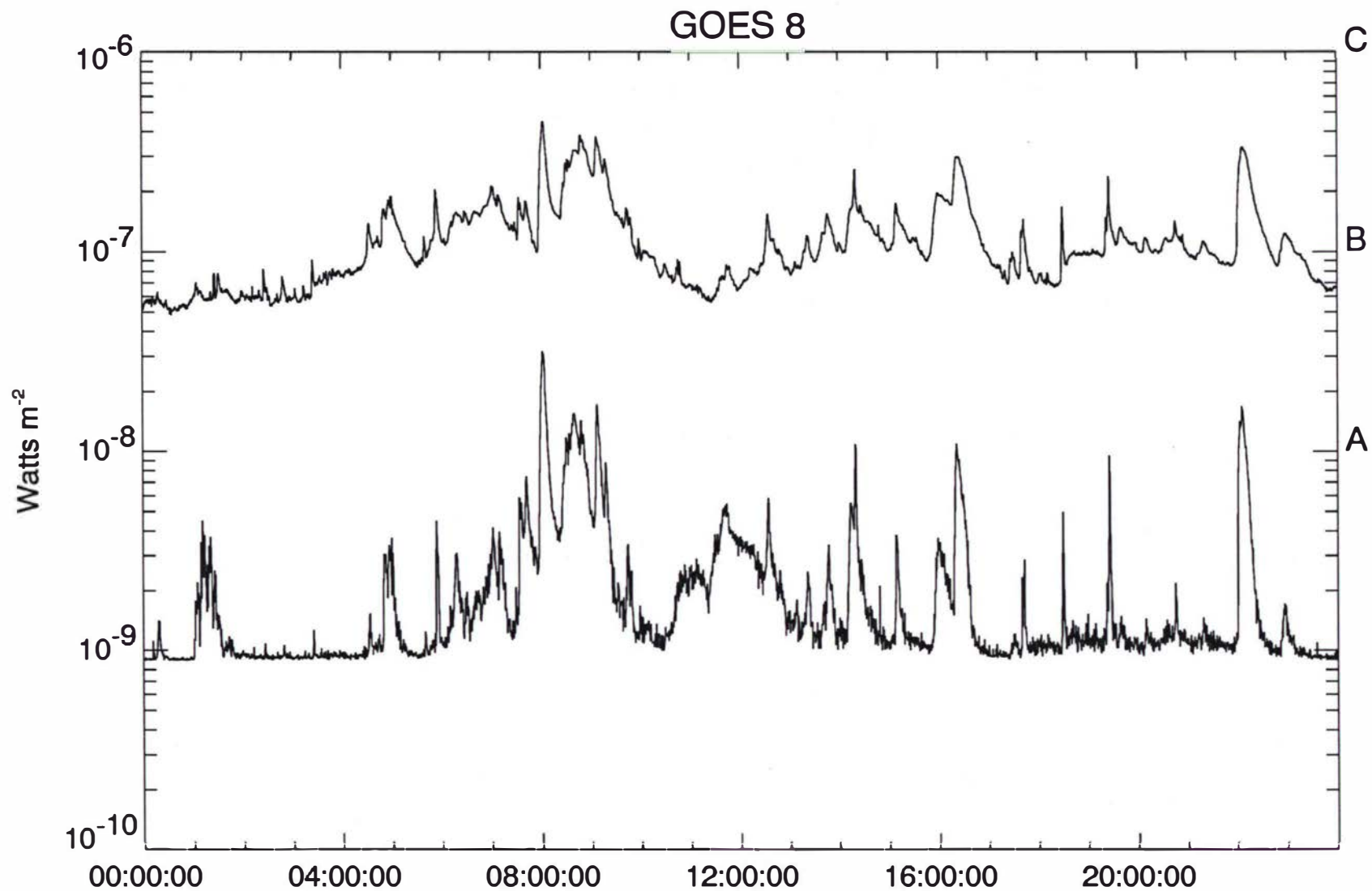
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/12



Current Time: 98/02/16, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



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

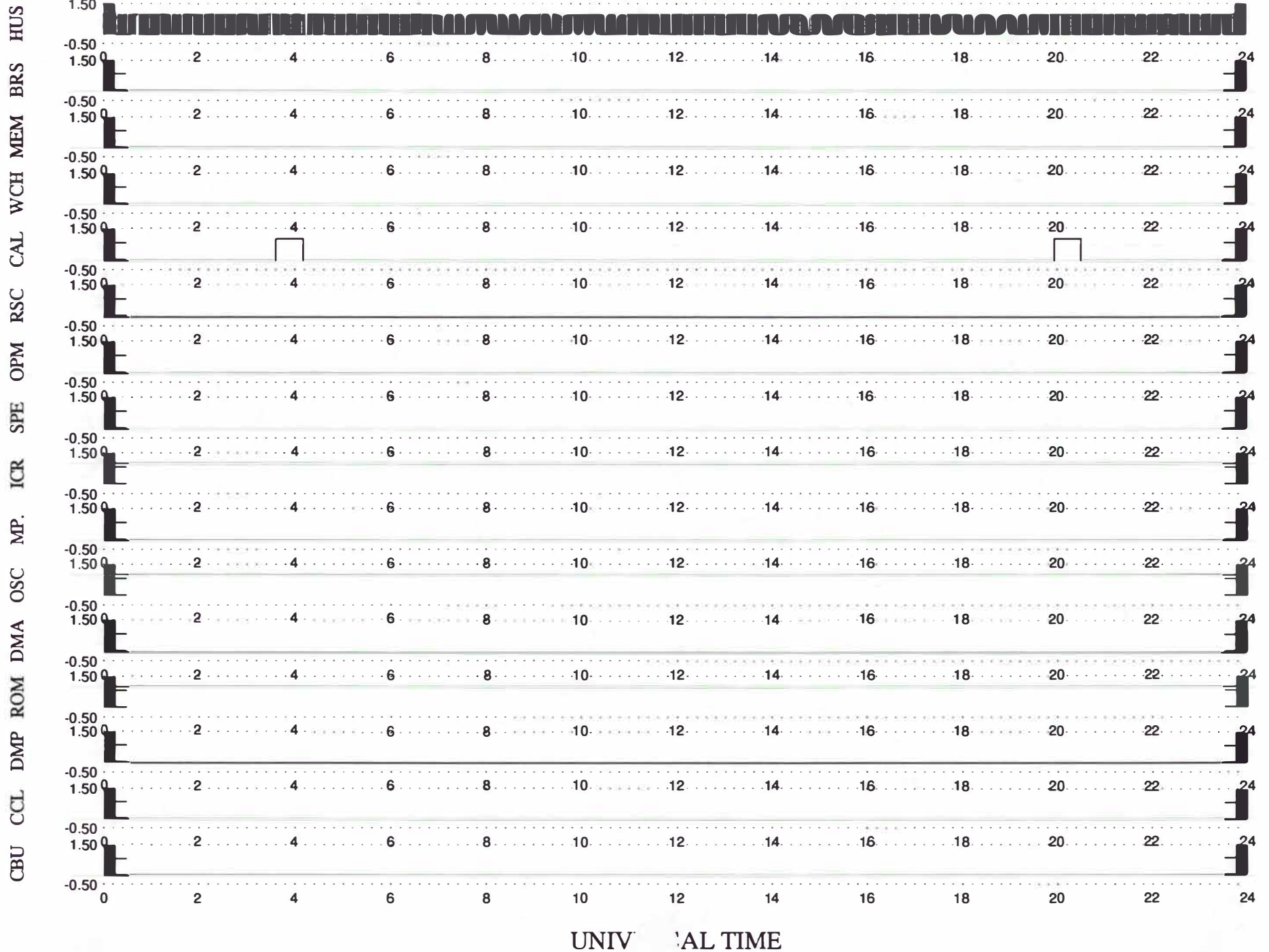
Plot created: 98/02/16, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

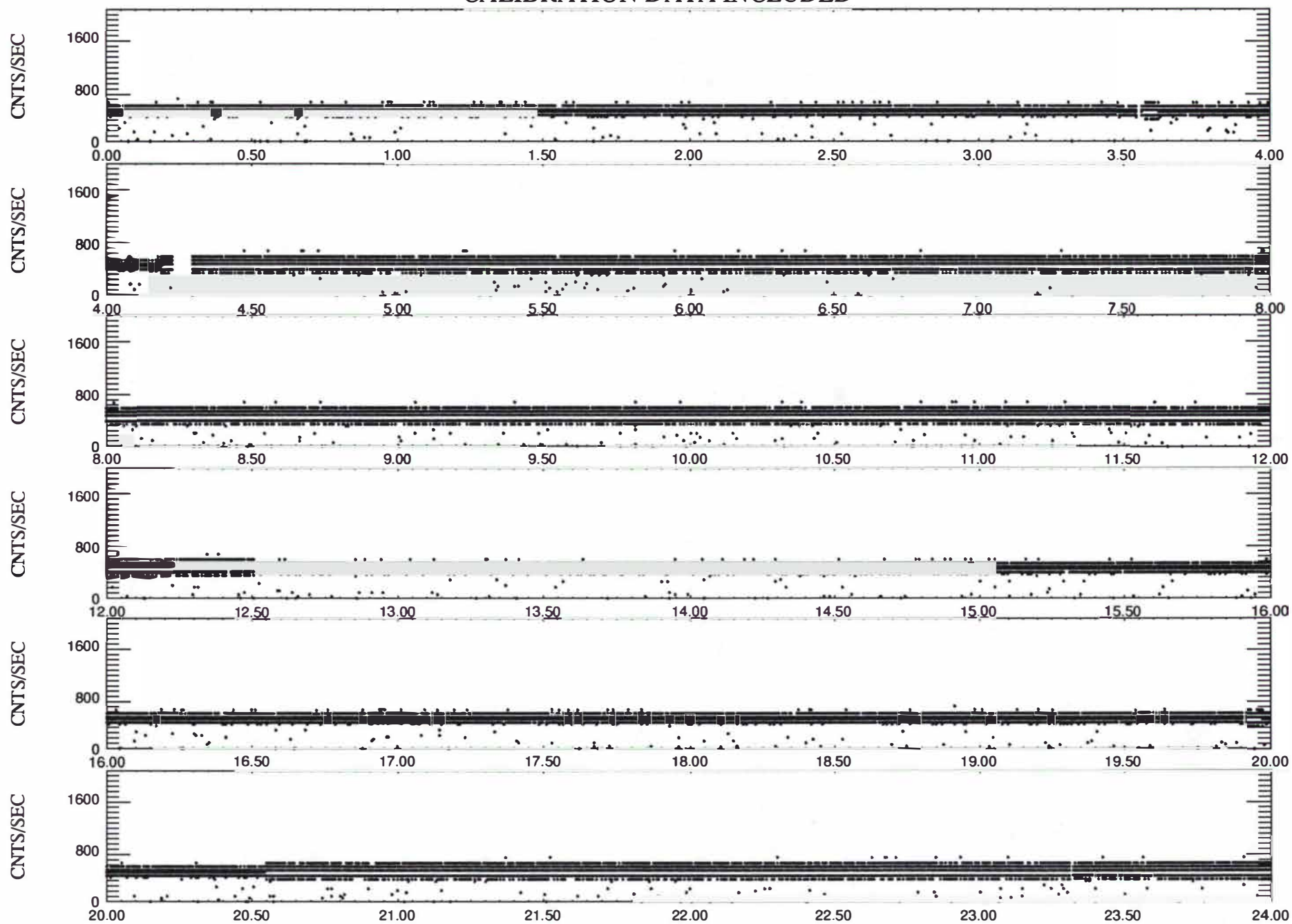
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

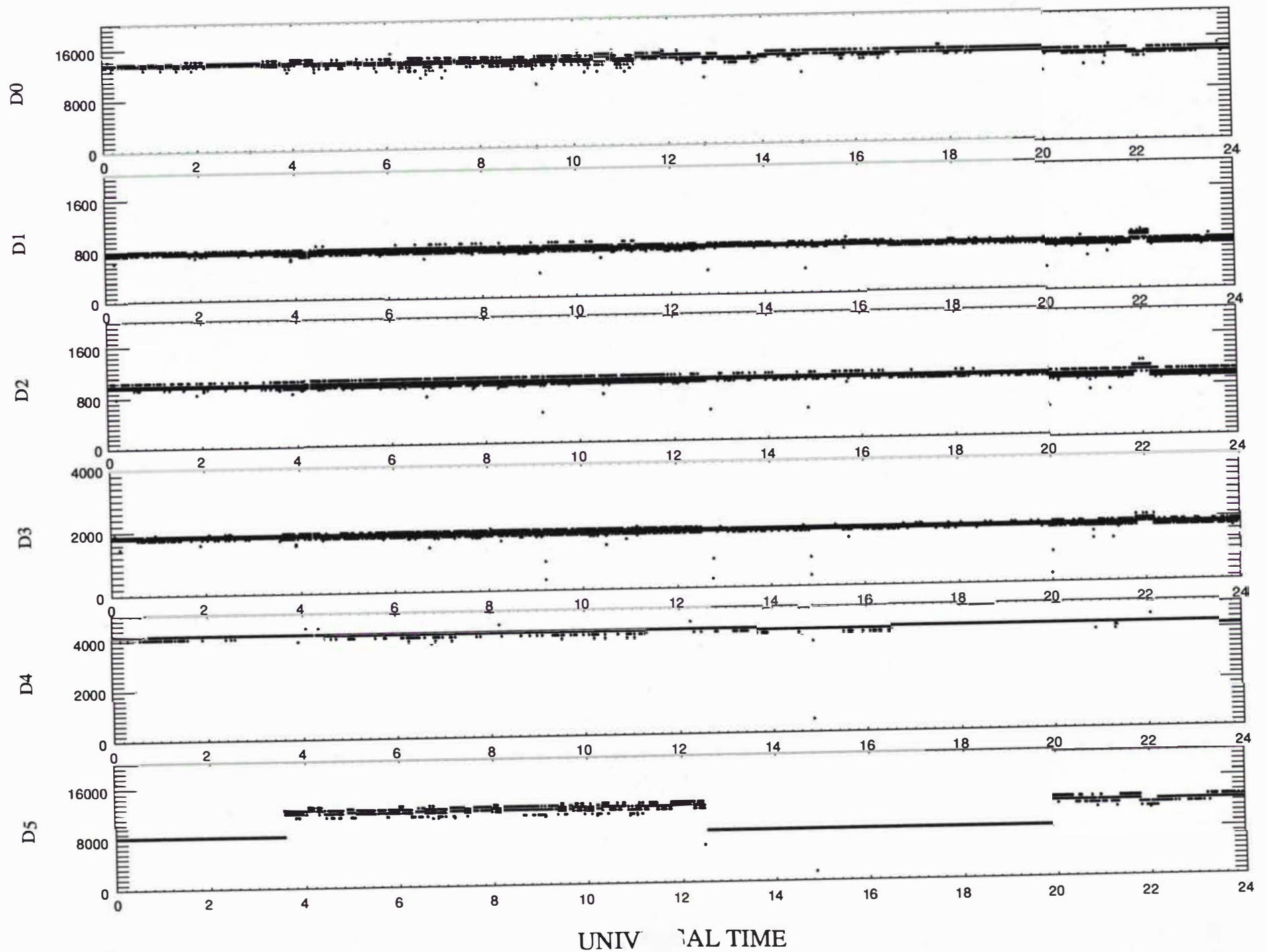
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIV. TIME



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 16 19:33:47 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id TAA01840; Mon, 16 Feb 1998 19:33:46 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id TAA23727; Mon, 16 Feb 1998 19:33:45 -0800
Date: Mon, 16 Feb 1998 21:33:31 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980216213331.21e208cc@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6598
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6598
EVENT OF 1998 FEB 13 DAY OF YEAR= 44
EVENT CROSSING TIME AT BATSE : 1064. S. OR 00:17:44.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 239.000 -38.000
BATSE PEAK COUNTING RATE: 5400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 13/ 2/ 98 IS:
RA= 162.882 DEC= 12.647 DIST= 4.439 AU
BATSE-ULYSSES DISTANCE = 664076488. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 92.85 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -110.02 SECS.
CROSSING TIME AT ULYSSES IS 954. S. OR 00:15:53 +/- 432.43 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 13/ 2/ 98 IS:
RA= 346.202 DEC= -6.851 DIST= 2.271 AU
MARS-BATSE DISTANCE = 339737824. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 80.91 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 179.00 SECS.
CROSSING TIME AT MARS IS 1243. S. OR 00:20:43 +/- 197.00 SECONDS

BATSE BURST TRIGGER

NO.: 6598

TIME: TJD=0857 SECONDS=01064

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=52.8 AZIMUTH=270.2 ERROR=1.84 DEGREES

COMMENTS:

GRB. SINGLE PULSE. DURATION ABOUT 40S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6598	980213	10857	01064	5400	239	-38	40

BATSE BURST# 6598

ULYSSES RT

16 / 2 / 98

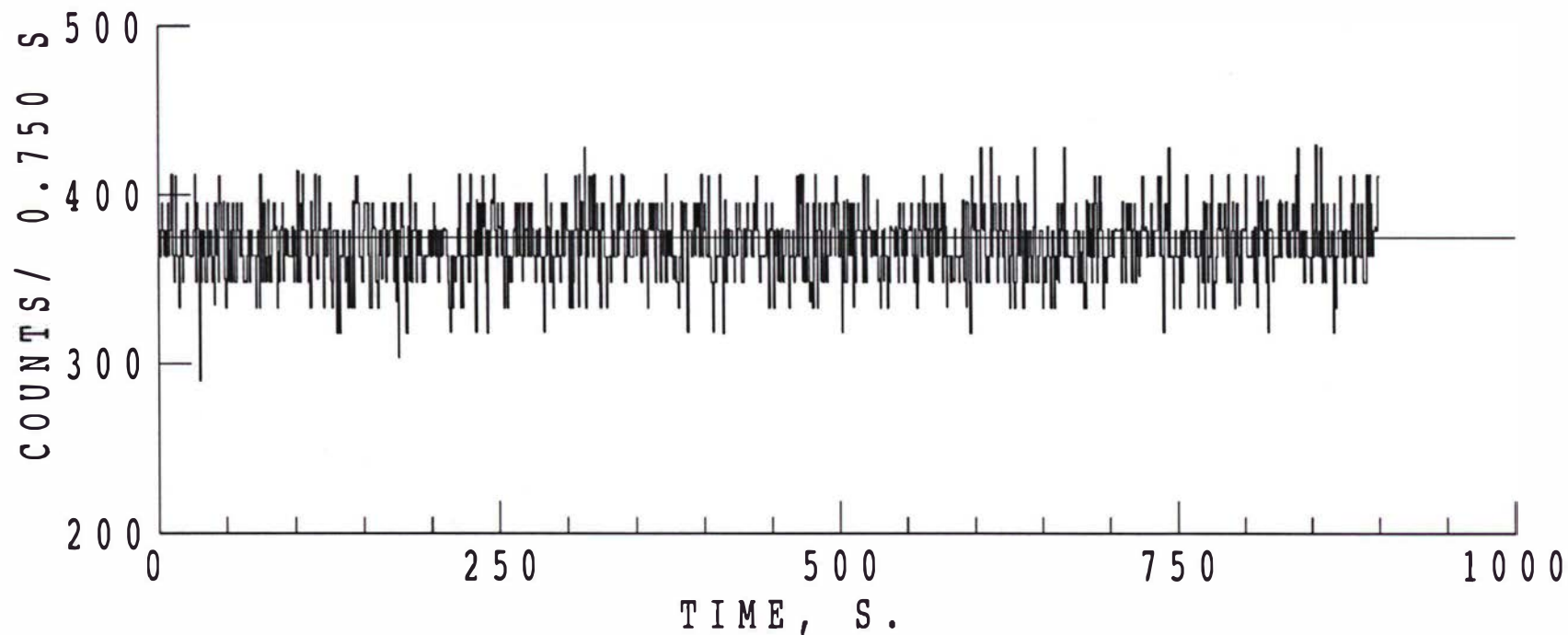
13 / 2 / 98 504.020 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

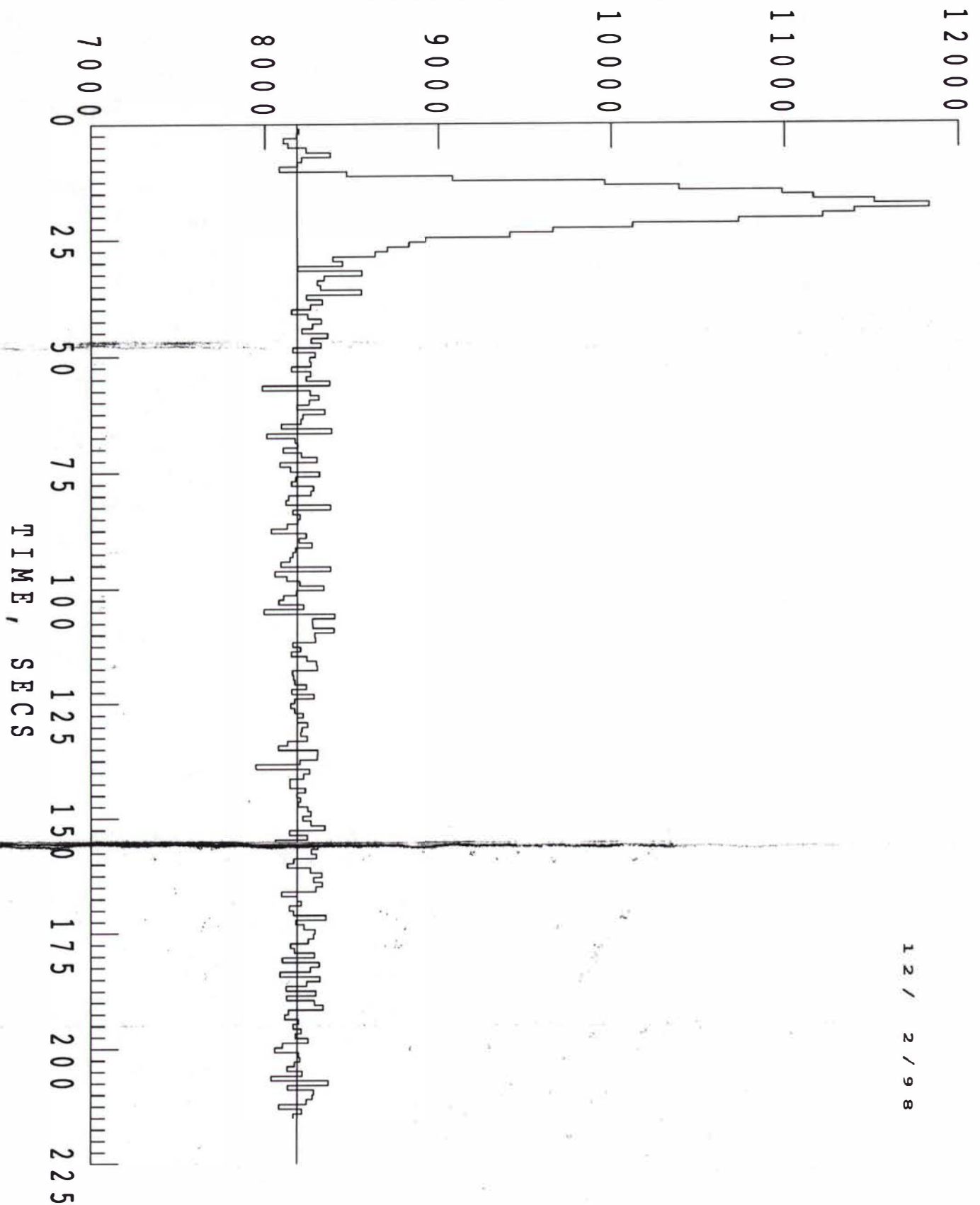
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BACODINE 6598 13/02/98 1052.385

25 - 100 keV

COUNTS/1.024 S



12 / 2 / 98

From SURASAK@SSLMOR.msfc.nasa.gov Tue Feb 17 09:18:13 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA06796; Tue, 17 Feb 1998 09:18:04 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA26188; Tue, 17 Feb 1998 09:17:57 -0800
Date: Tue, 17 Feb 1998 11:15:43 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980217111543.21e22ebd@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6599
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6599
EVENT OF 1998 FEB 13 DAY OF YEAR= 44
EVENT CROSSING TIME AT BATSE : 60363. S. OR 16:46:03.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 252.000 68.000
BATSE PEAK COUNTING RATE: 6100 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 13/ 2/ 98 IS:
RA= 162.732 DEC= 12.667 DIST= 4.436 AU
BATSE-ULYSSES DISTANCE = 663649264. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=102.00 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -460.43 SECS.
CROSSING TIME AT ULYSSES IS 59903. S. OR 16:38:22 +/- 418.94 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 13/ 2/ 98 IS:
RA= 346.202 DEC= -6.851 DIST= 2.271 AU
MARS-BATSE DISTANCE = 339737824. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 82.08 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 156.22 SECS.
CROSSING TIME AT MARS IS 60519. S. OR 16:48:39 +/- 197.24 SECONDS

BATSE BURST TRIGGER

NO.: 6599

TIME: TJD=0857 SECONDS=60363

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=59.7 AZIMUTH=120.6 ERROR=3.026 DEGREES

COMMENTS:

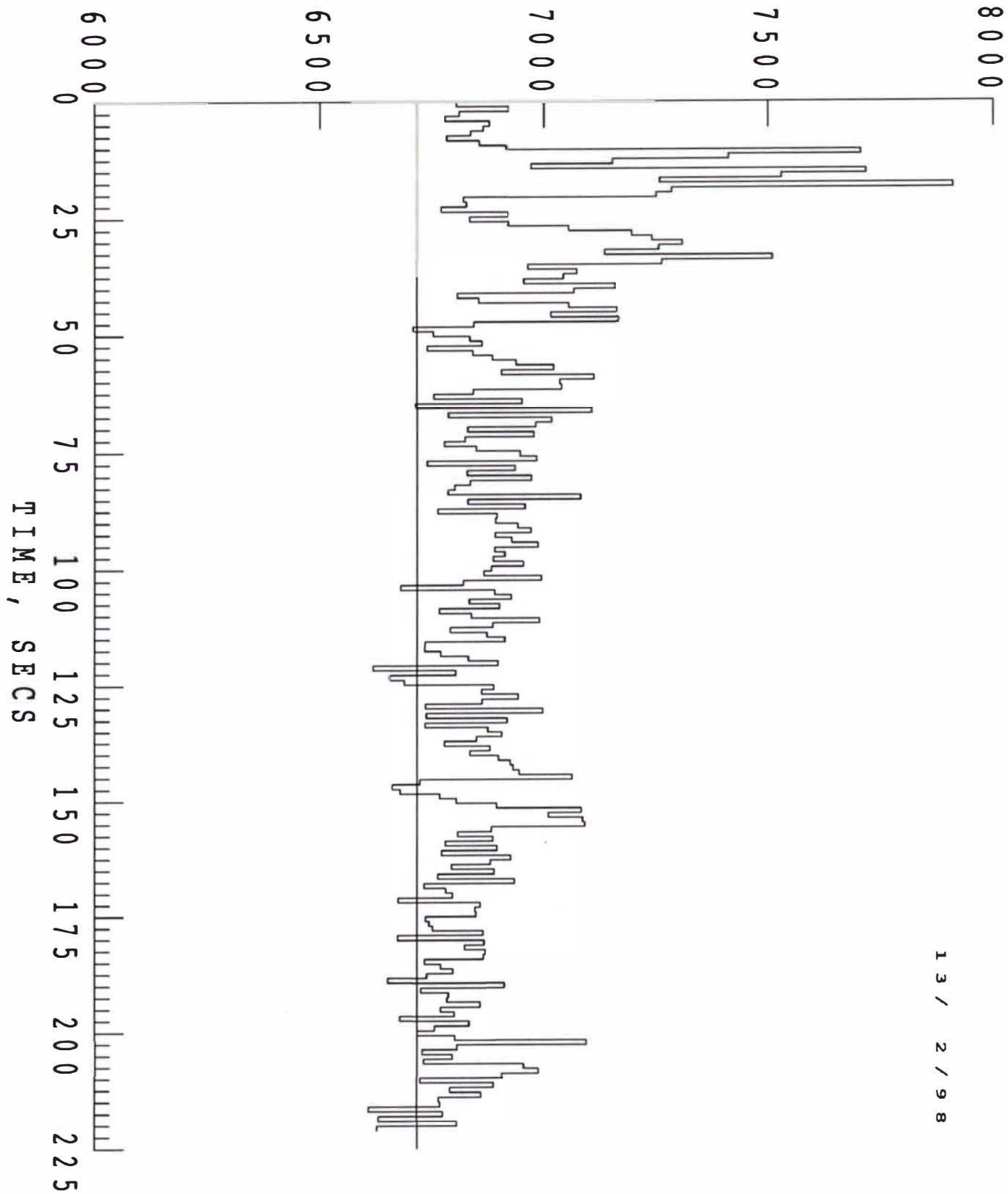
GRB. COMPLEX. DURATION ABOUT 50S. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6599	980213	10857	60363	6100	252	+68	50

BACODINE 6599 13/02/98 60352.225

25 - 100 keV

COUNTS/1.024 S



BATSE BURST# 6599

ULYSSES RT

17 / 2 / 98

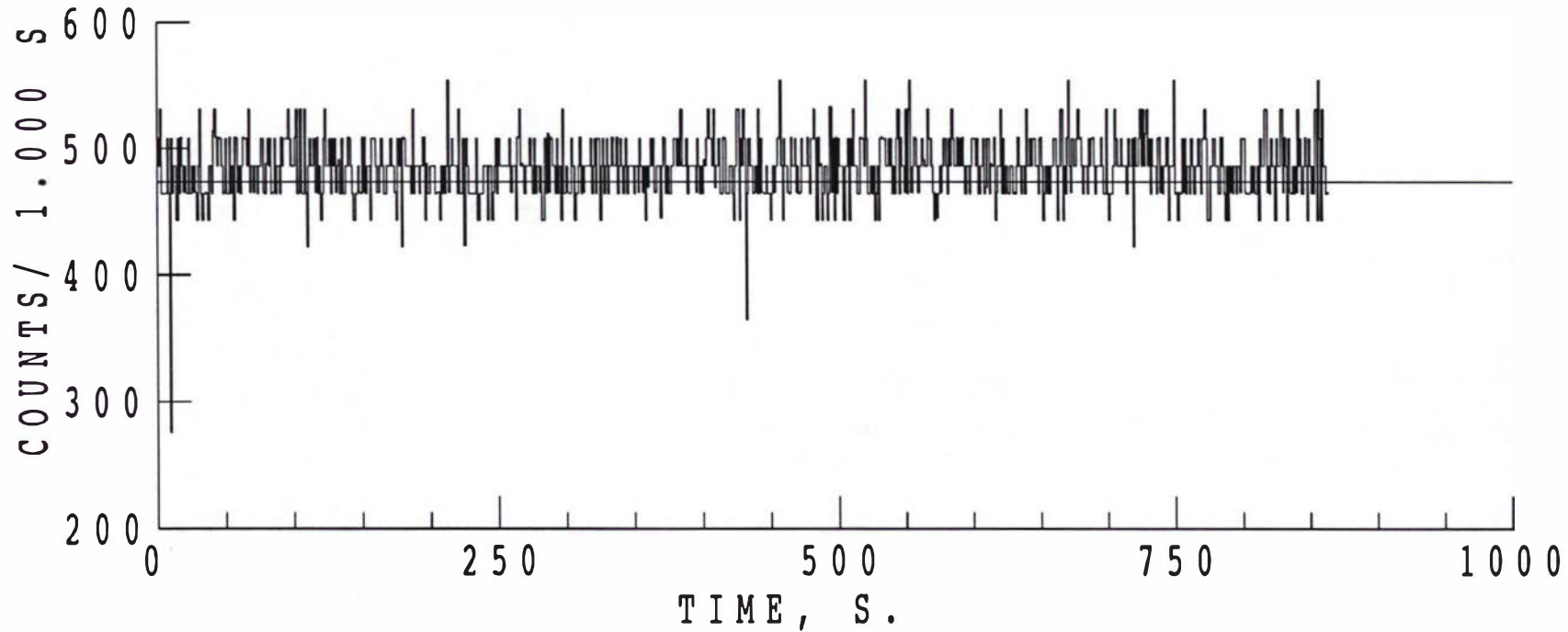
13 / 2 / 98 59472.410 s

0.500 S INTERVALS REGROUPED BY 2

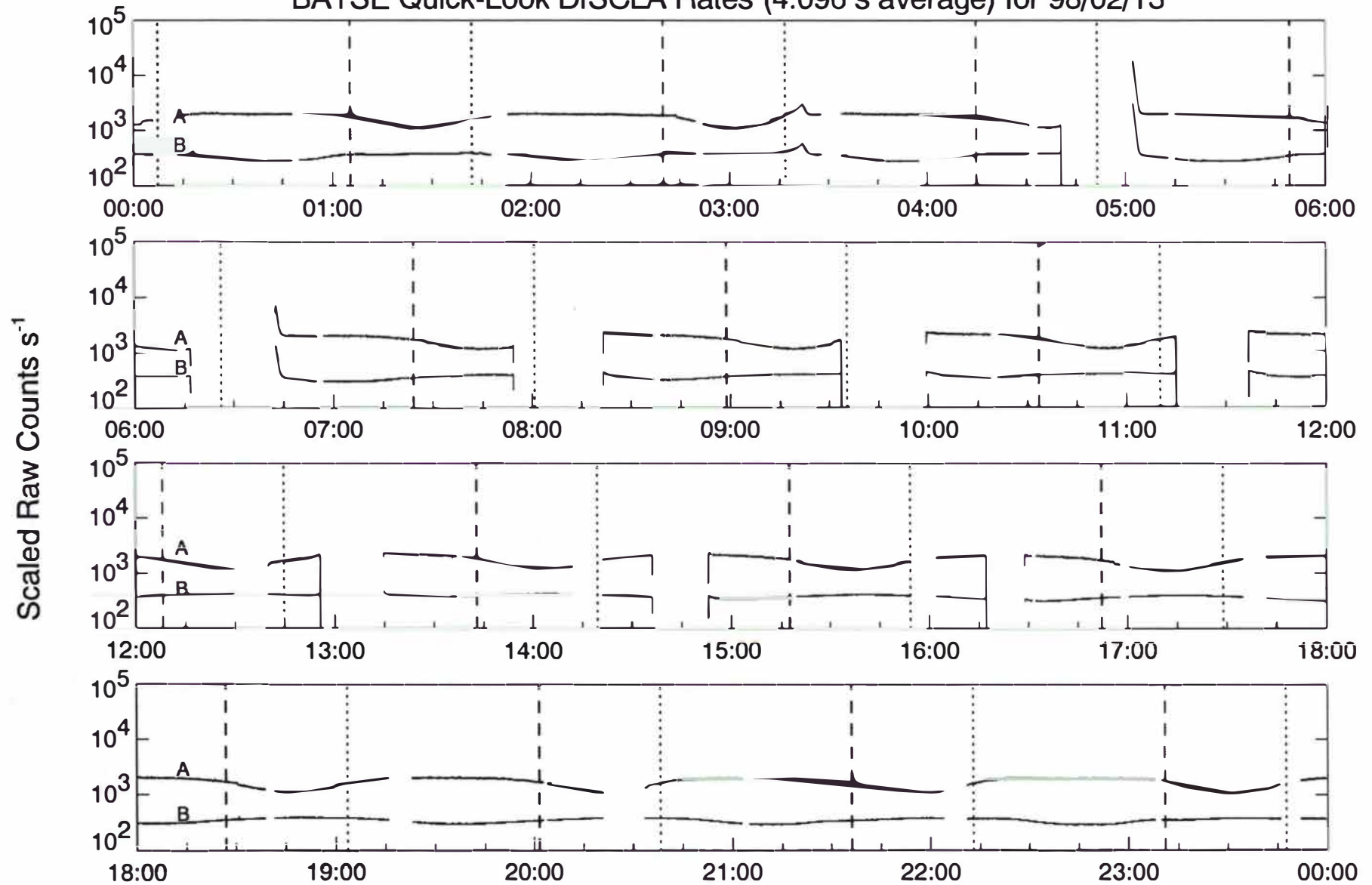
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



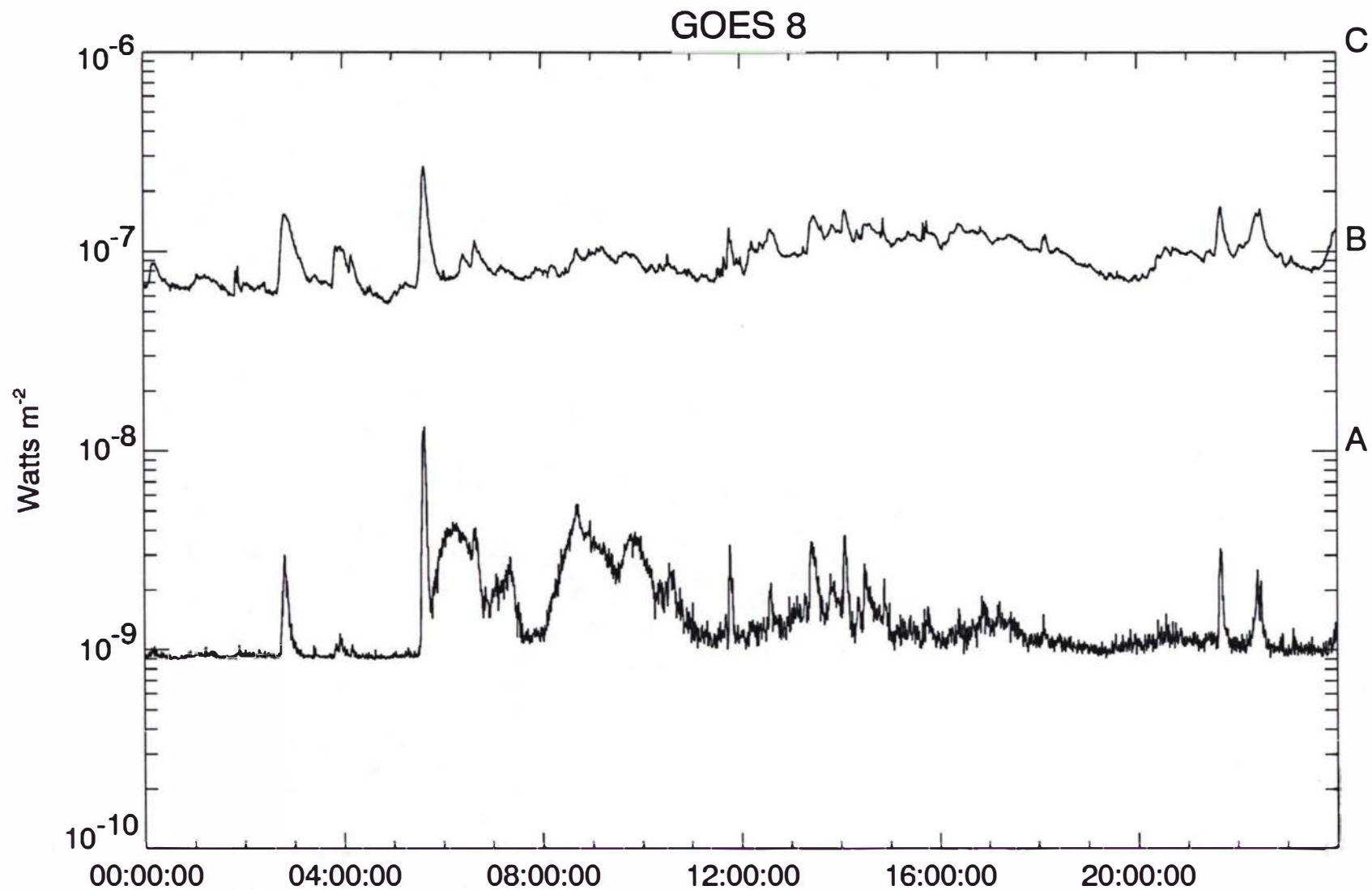
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/13



Current Time: 98/02/17, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/13, 0000:00

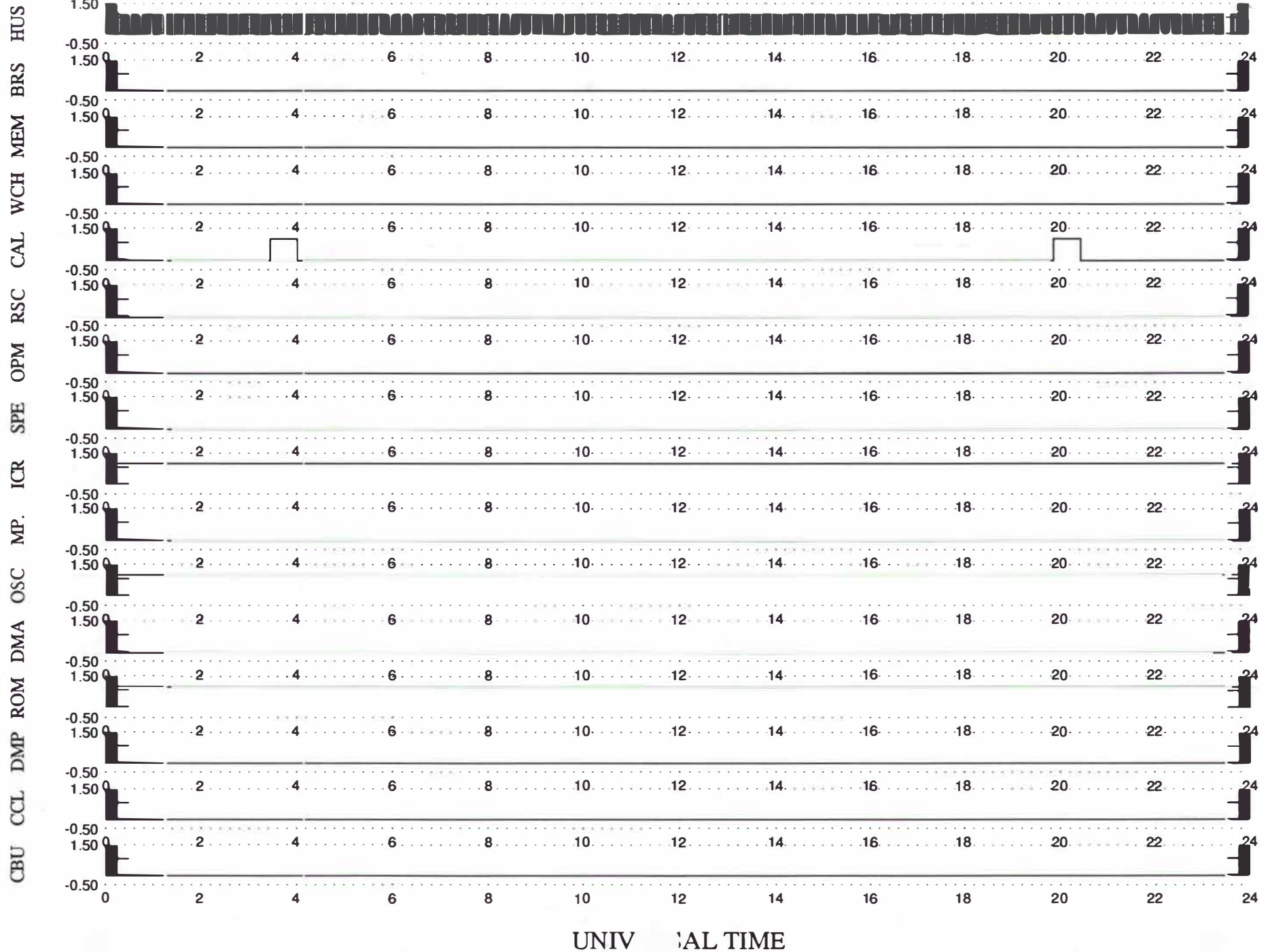
Plot created: 98/02/17, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

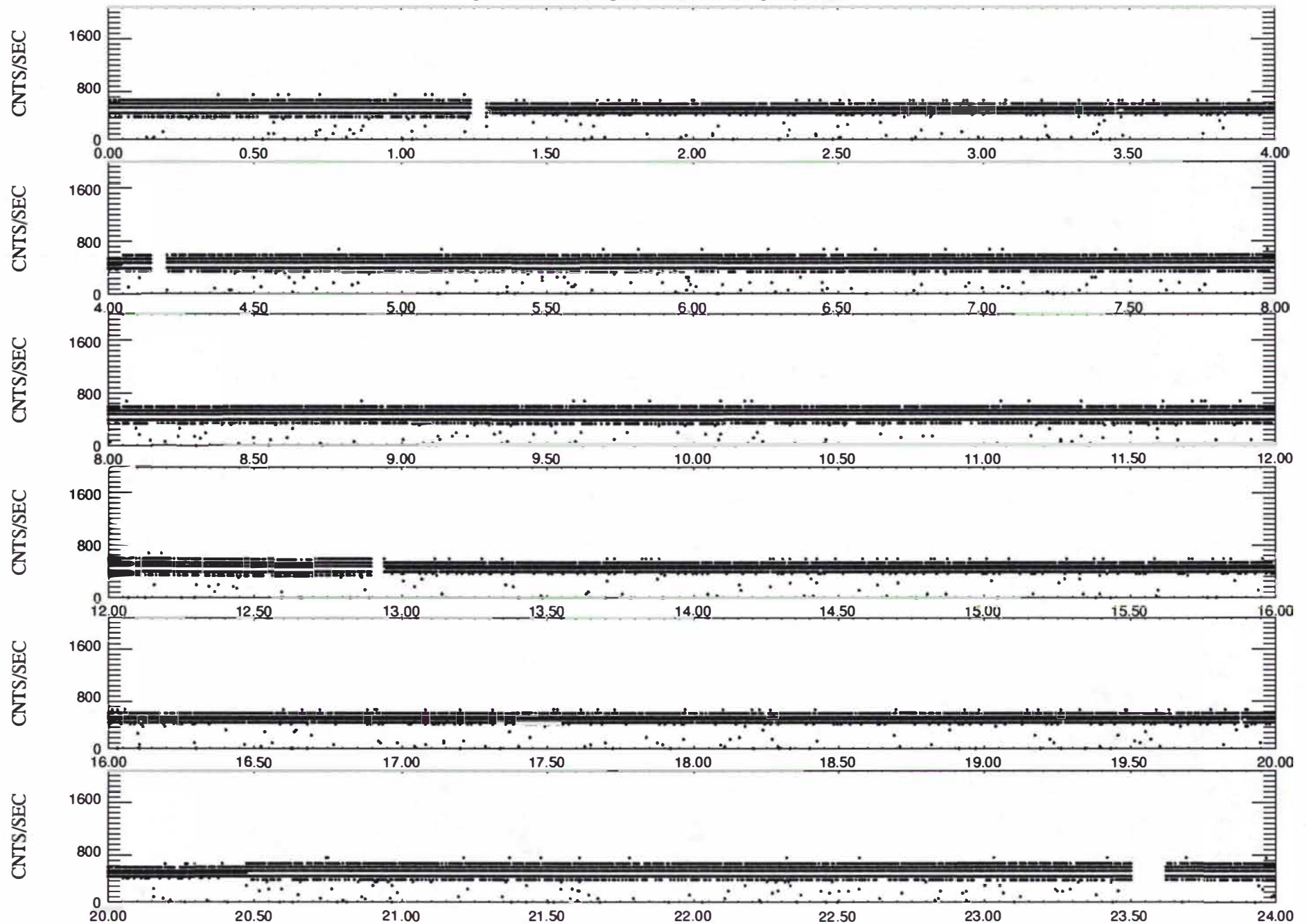
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

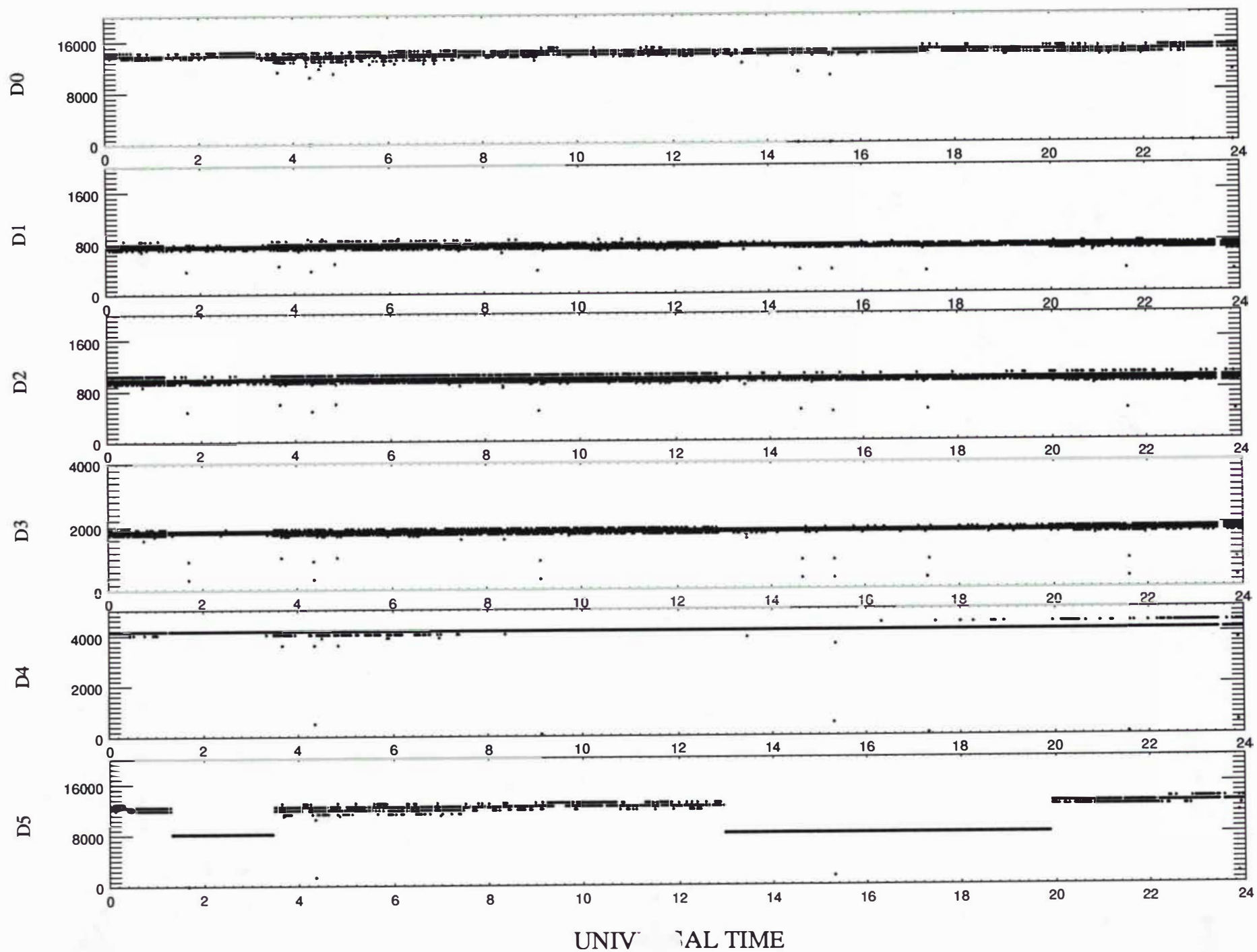
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIV UNIV TIME



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 16 19:02:25 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id TAA01745; Mon, 16 Feb 1998 19:02:24 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id TAA23605; Mon, 16 Feb 1998 19:02:16 -0800
Date: Mon, 16 Feb 1998 21:02:01 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980216210201.21e208cc@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6600
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6600
EVENT OF 1998 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 23240. S. OR 06:27:20.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 355.000 -32.000
BATSE PEAK COUNTING RATE: 14800 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 2/ 98 IS:
RA= 162.609 DEC= 12.683 DIST= 4.434 AU
BATSE-ULYSSES DISTANCE = 663310067. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 22.42 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 2045.37 SECS.
CROSSING TIME AT ULYSSES IS 25285. S. OR 07:01:25 +/- 227.55 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 2/ 98 IS:
RA= 346.927 DEC= -6.539 DIST= 2.274 AU
MARS-BATSE DISTANCE = 340187008. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=153.45 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1015.06 SECS.
CROSSING TIME AT MARS IS 22225. S. OR 06:10:24 +/- 72.65 SECONDS

BATSE BURST TRIGGER

NO.: 6600

TIME: TJD=0858 SECONDS=23240

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:Y

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=94.9 AZIMUTH=353.1 ERROR=2.427 DEGREES

COMMENTS:

GRB. SINGLE PULSE. DURATION ABOUT 3.5S. NOT VISIBLE ABOVE 300 KEV.
START AT ABOUT T-0.5S.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6600	980214	10858	23240	14800	355	-32	3.5

Helio corr removed 18/2/00

Date: May 7 '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? *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)? *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*

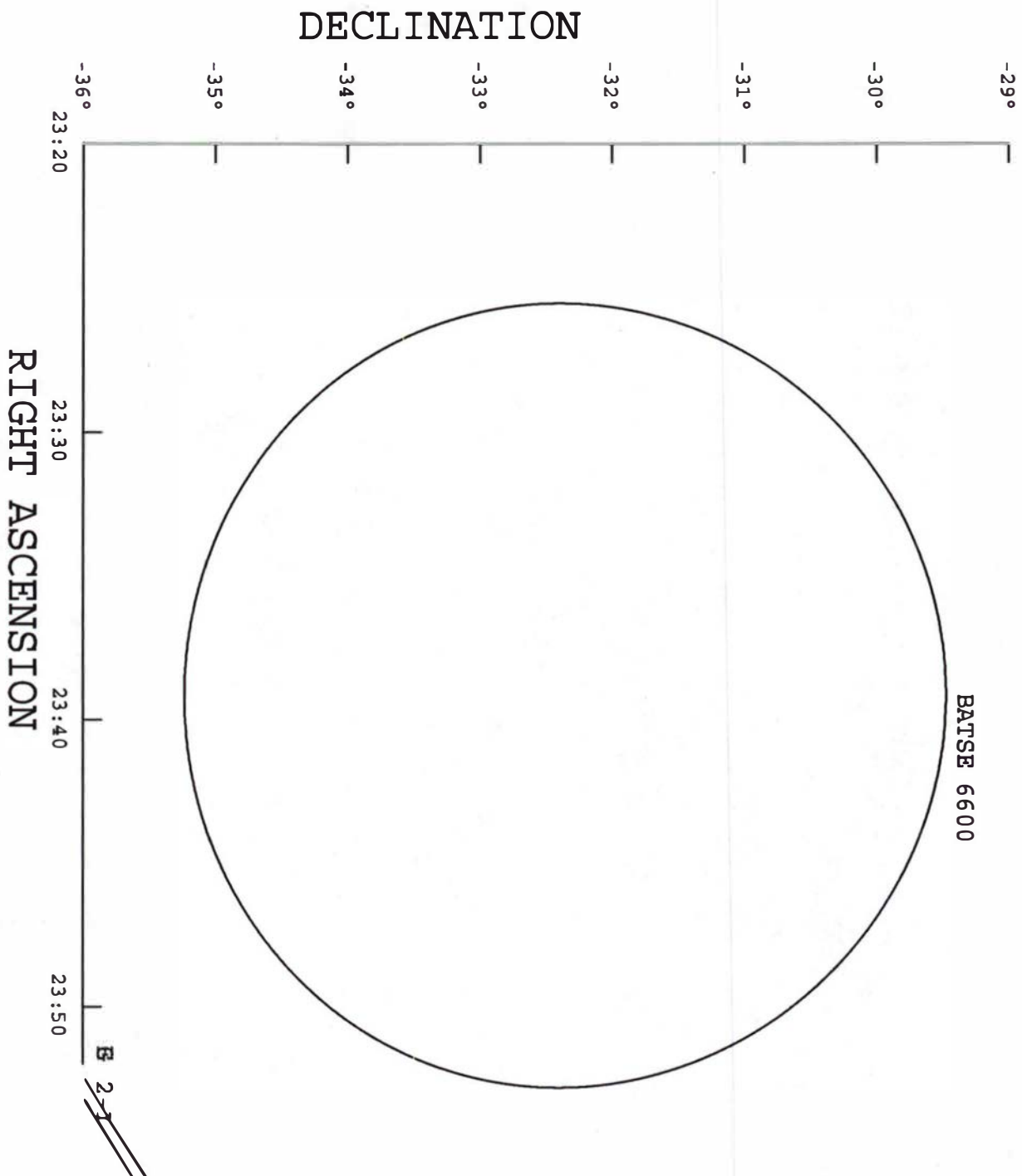
3. PVO Data

- ☐ 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 14, 1998 6:59

18/ 2/ 0



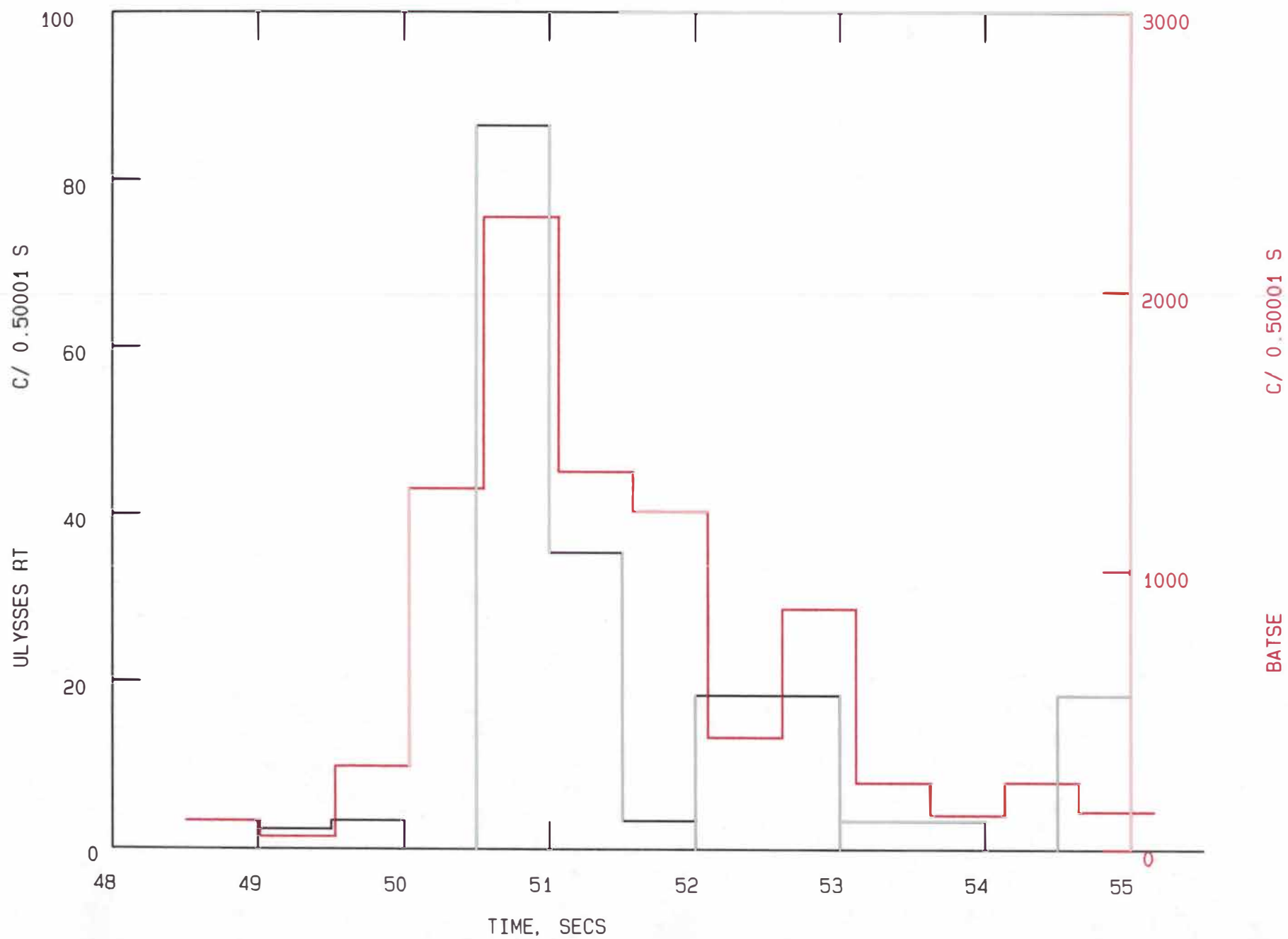
ULYSSES RT-BATSE

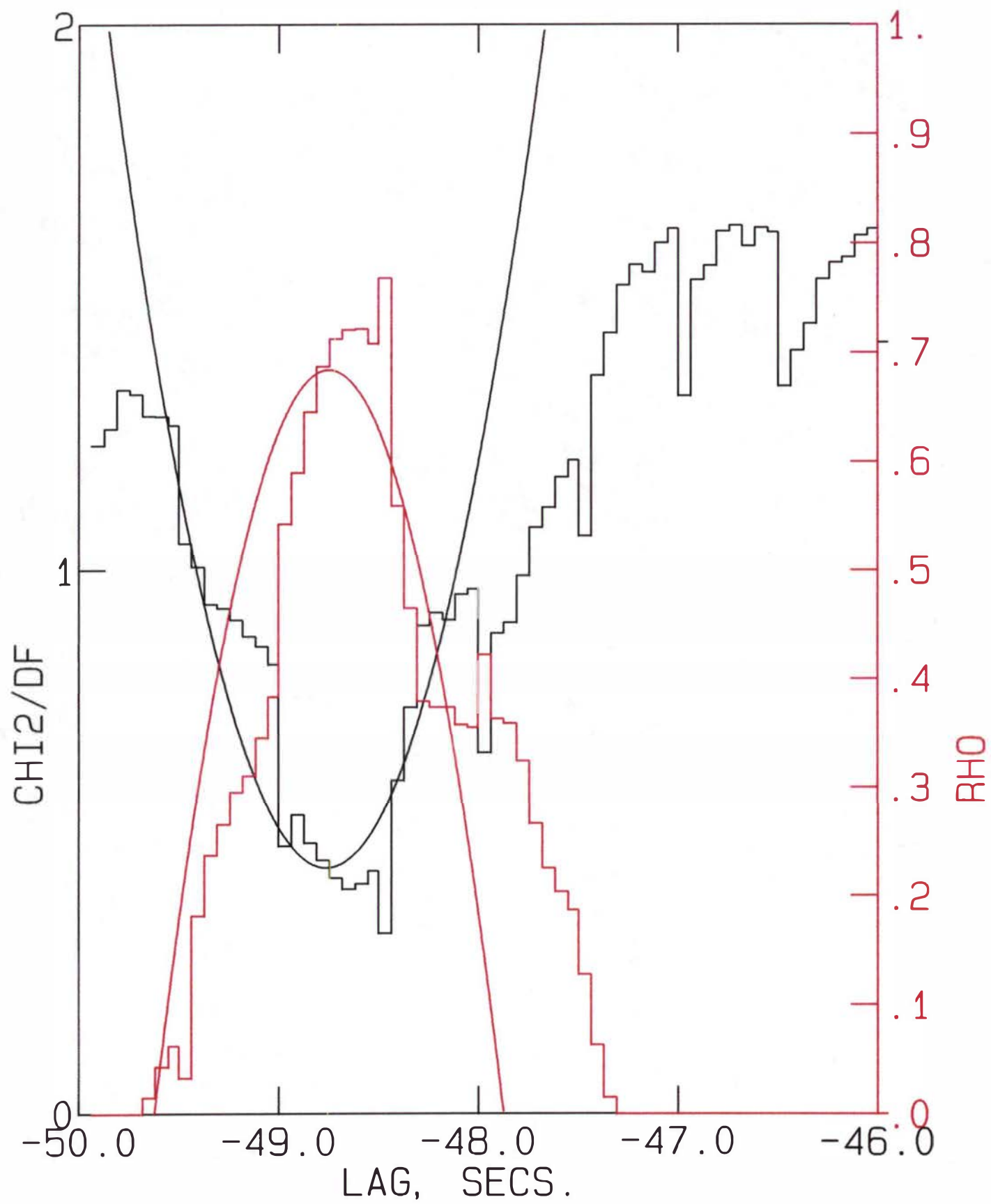
CORRELATION

14/ 2/98

25162.287

7/ 5/98







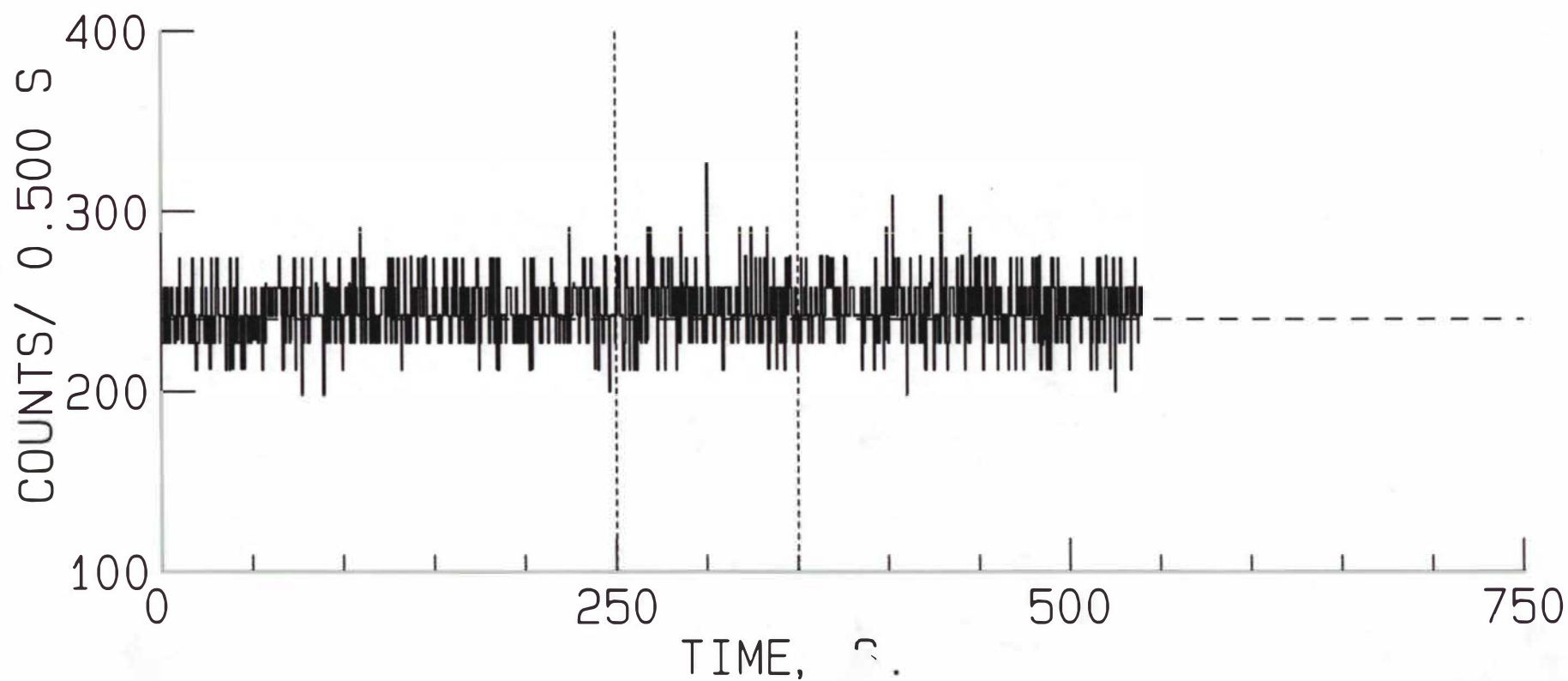
ULYSSES RT

7 / 5 / 98

14 / 2 / 98 24912.228 s

0.250 S INTERVALS REGROUPED BY 2

22- 148 keV



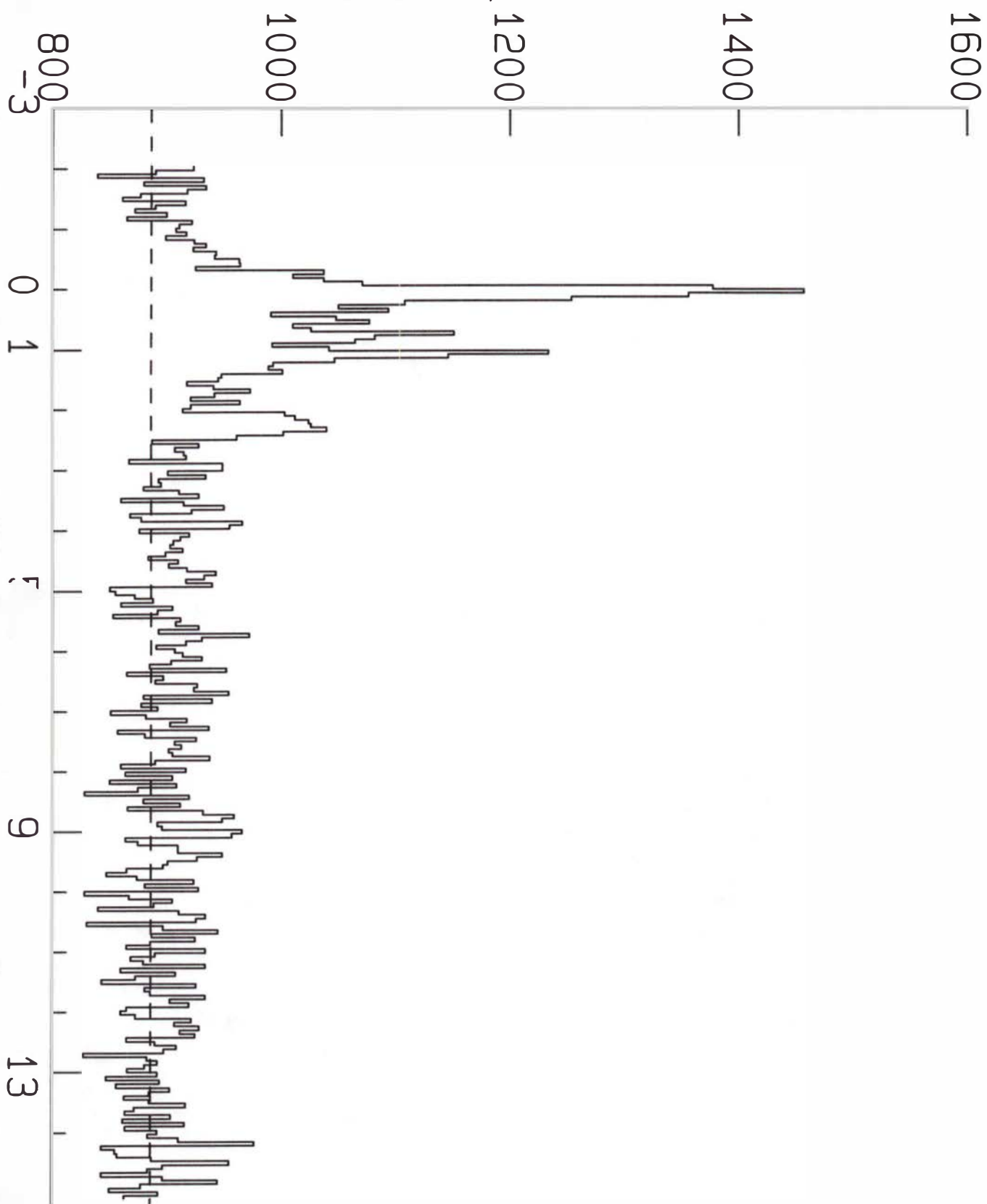
BATSE

14/02/98

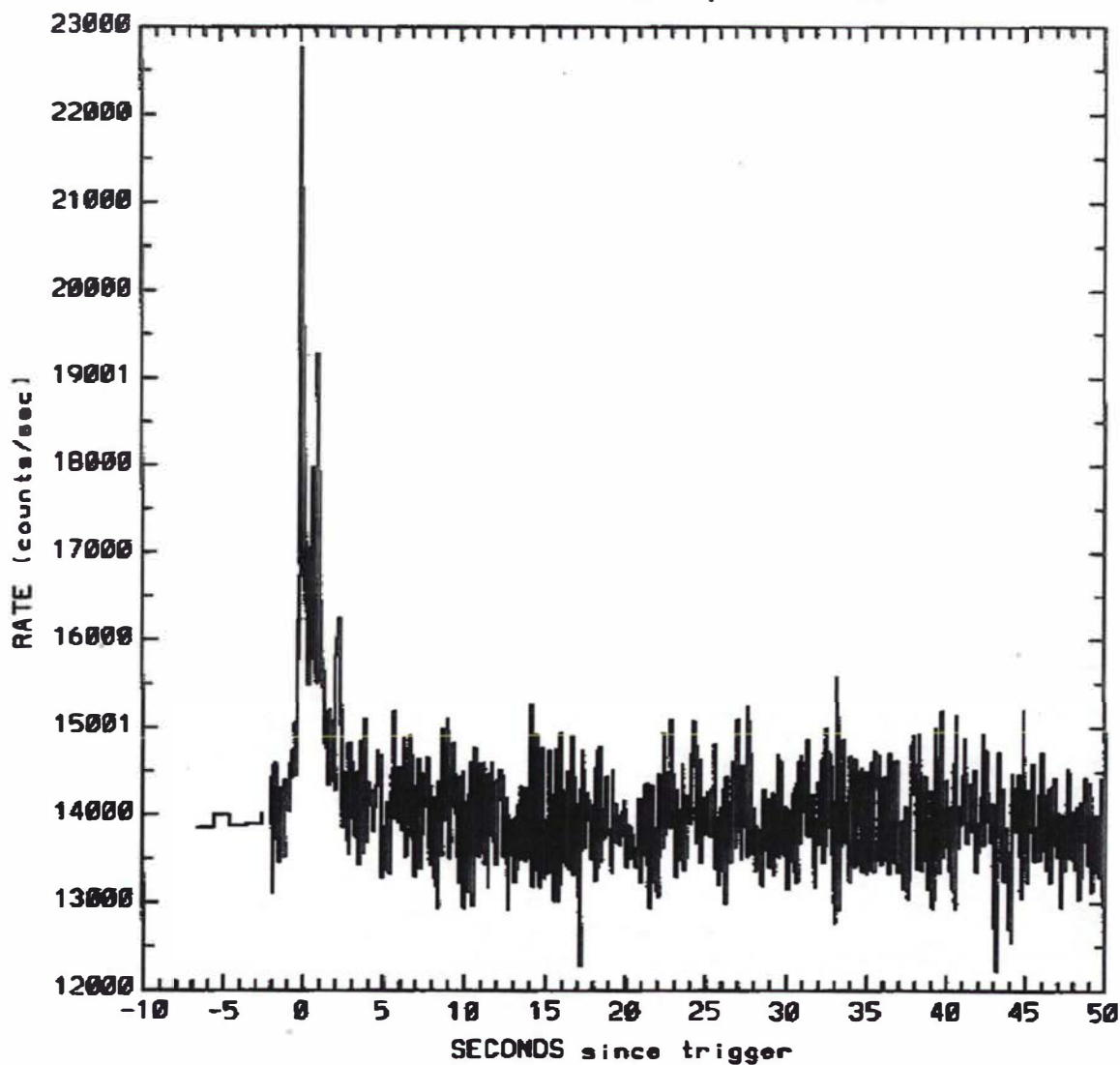
23240.929

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 6600



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 16 19:30:25 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id TAA01825; Mon, 16 Feb 1998 19:30:24 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id TAA23699; Mon, 16 Feb 1998 19:30:24 -0800
Date: Mon, 16 Feb 1998 21:30:11 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980216213011.21e208cc@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6601
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6601
EVENT OF 1998 FEB 14 DAY OF YEAR= 45
EVENT CROSSING TIME AT BATSE : 44074. S. OR 12:14:34.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 229.000 2.000
BATSE PEAK COUNTING RATE: 5230 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 14/ 2/ 98 IS:
RA= 162.556 DEC= 12.690 DIST= 4.433 AU
BATSE-ULYSSES DISTANCE = 663171962. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=113.41 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -878.89 SECS.
CROSSING TIME AT ULYSSES IS 43195. S. OR 11:59:55 +/- 389.10 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 14/ 2/ 98 IS:
RA= 346.927 DEC= -6.539 DIST= 2.274 AU
MARS-BATSE DISTANCE = 340187008. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 62.03 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 532.18 SECS.
CROSSING TIME AT MARS IS 44606. S. OR 12:23:26 +/- 182.08 SECONDS

BATSE BURST TRIGGER

NO.: 6601

TIME: TJD=0858 SECONDS=44074

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=36.0 AZIMUTH=214.5 ERROR=2.0 DEGREES

COMMENTS:

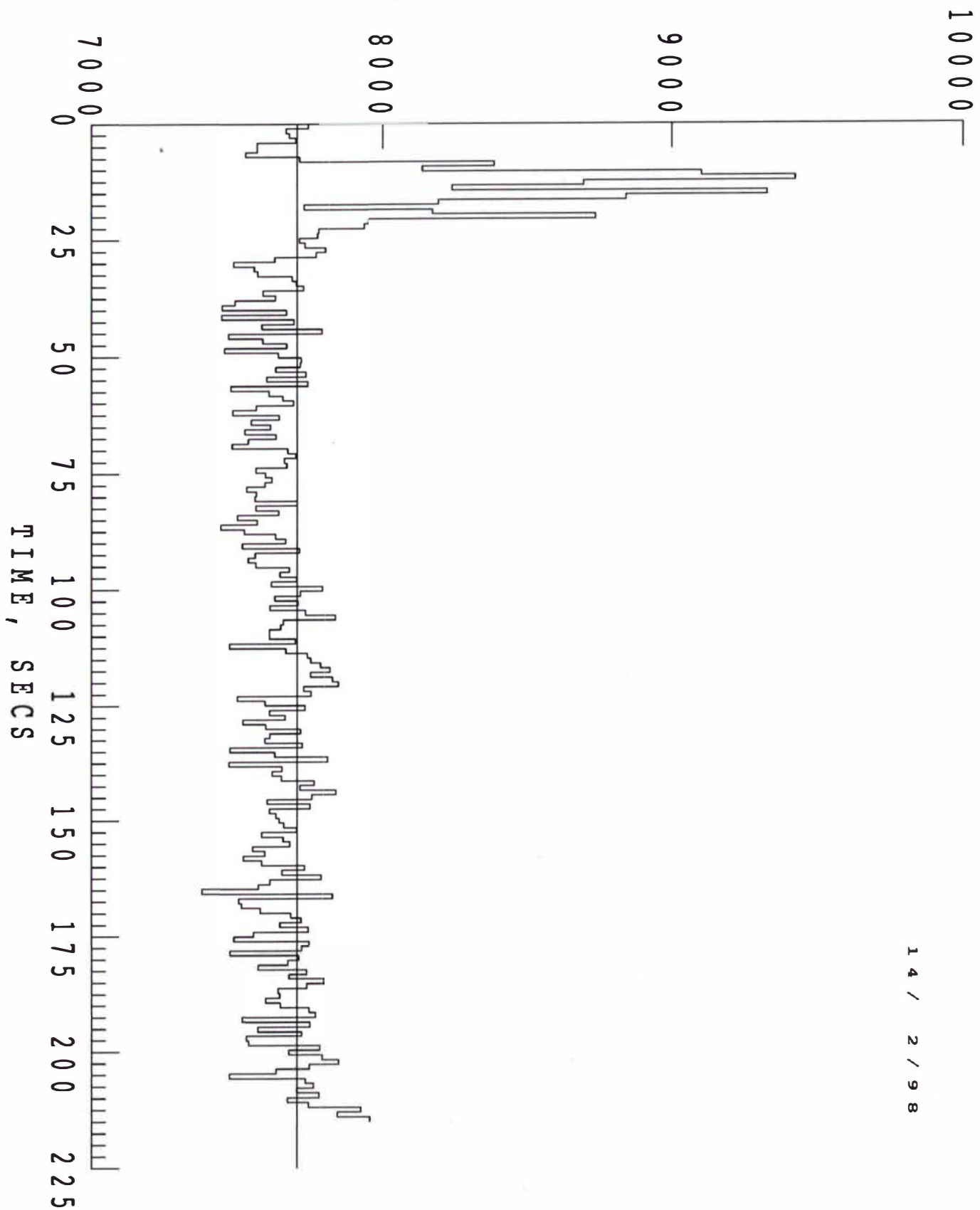
GRB. DOUBLE PULSE. FIRST PULSE LAST ABOUT 13 S. THE STRONGER SECOND PULSE
STARTS AT ABOUT T+237S LATER. SECOND PULSE LASTS ABOUT 20S WITH 3 PEAKS.
TOTAL DURATION IS ABOUT 260S. WEAKLY VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6601	980214	10858	44074	5230	229	+02	260

BACODINE 6601 14/02/98 44063.457

25- 100 keV

COUNTS/1.024 S



BATSE BURST# 6601

ULYSSES RT

17 / 2 / 98

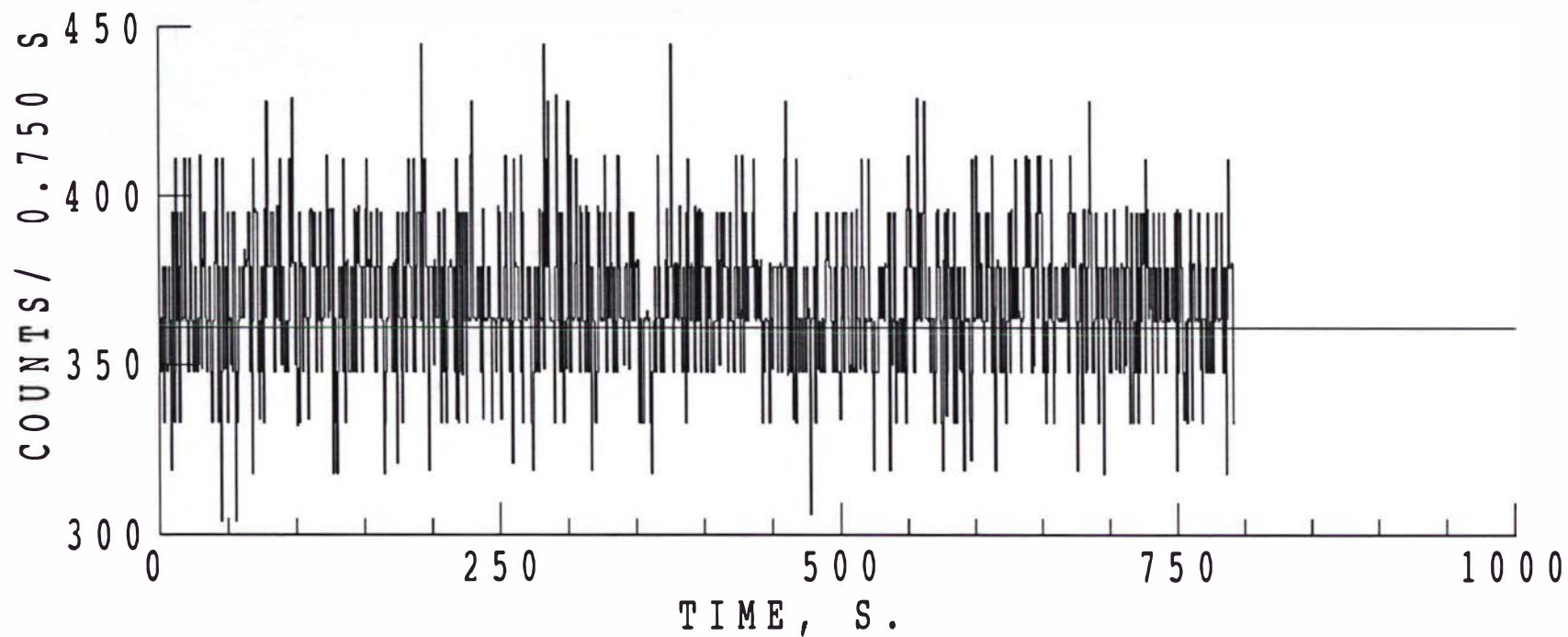
14 / 2 / 98 42804.172 s

0.250 S INTERVALS REGROUPED BY 3

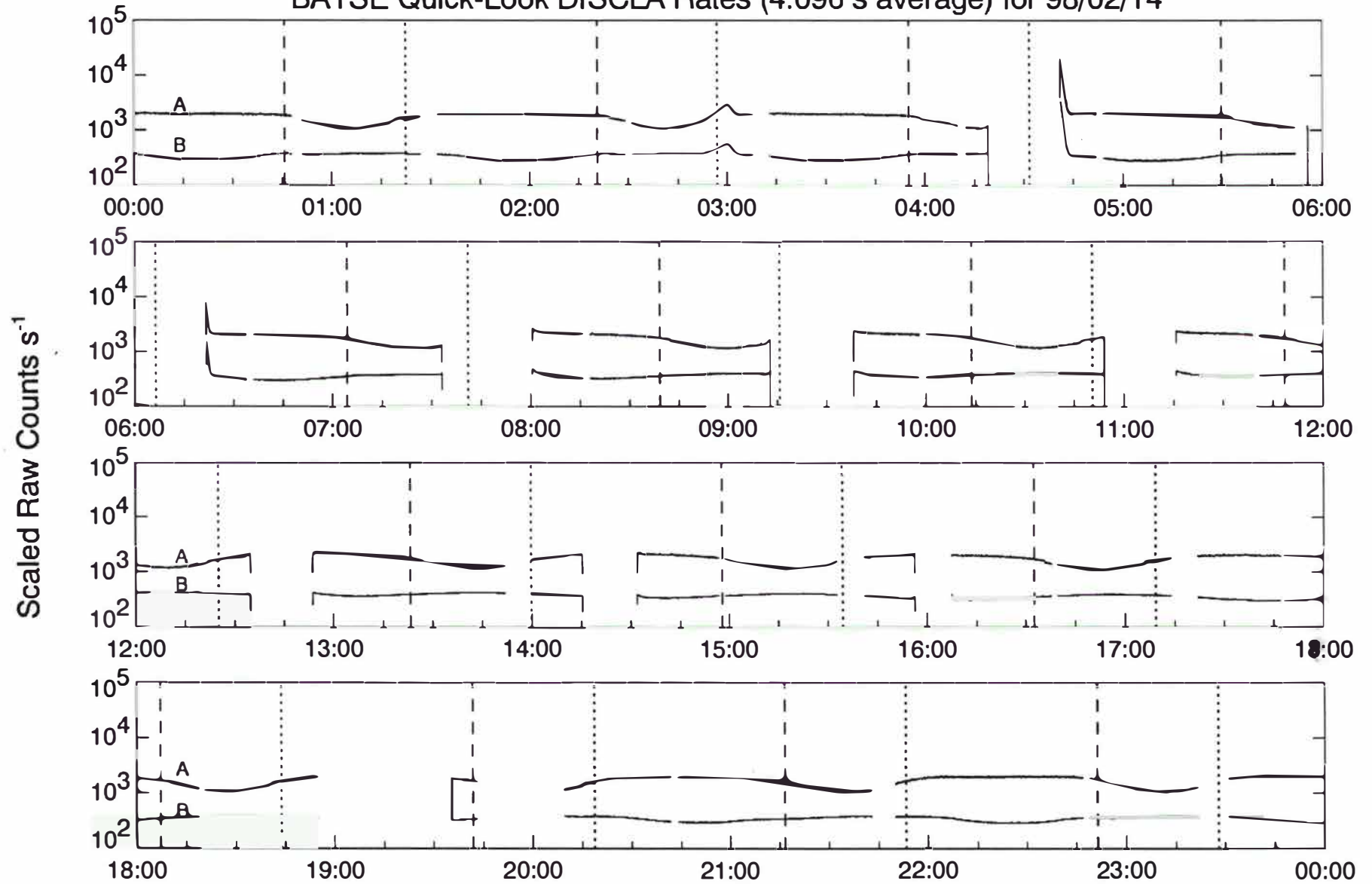
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



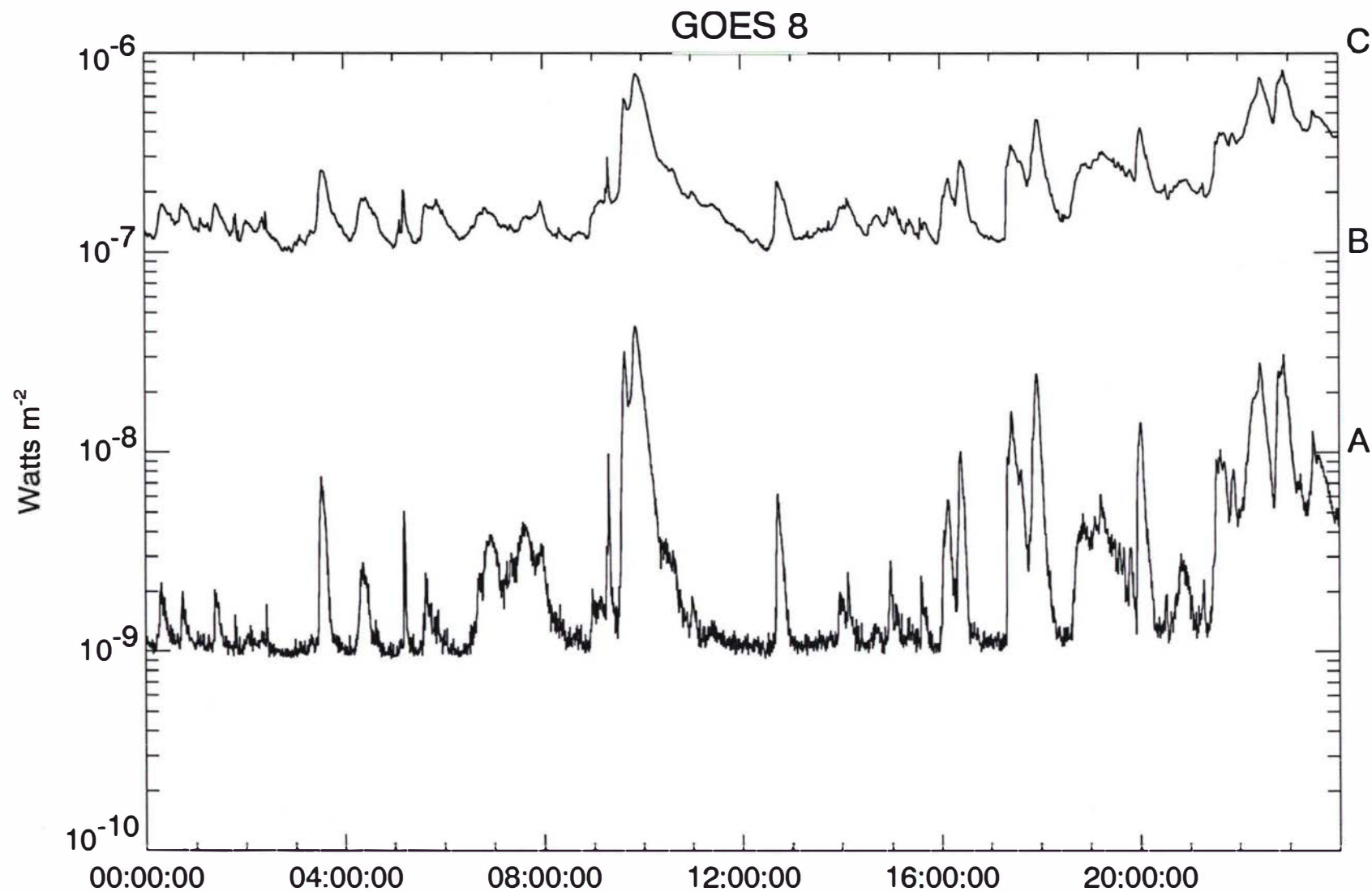
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/14



Current Time: 98/02/18, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/14, 0000:00

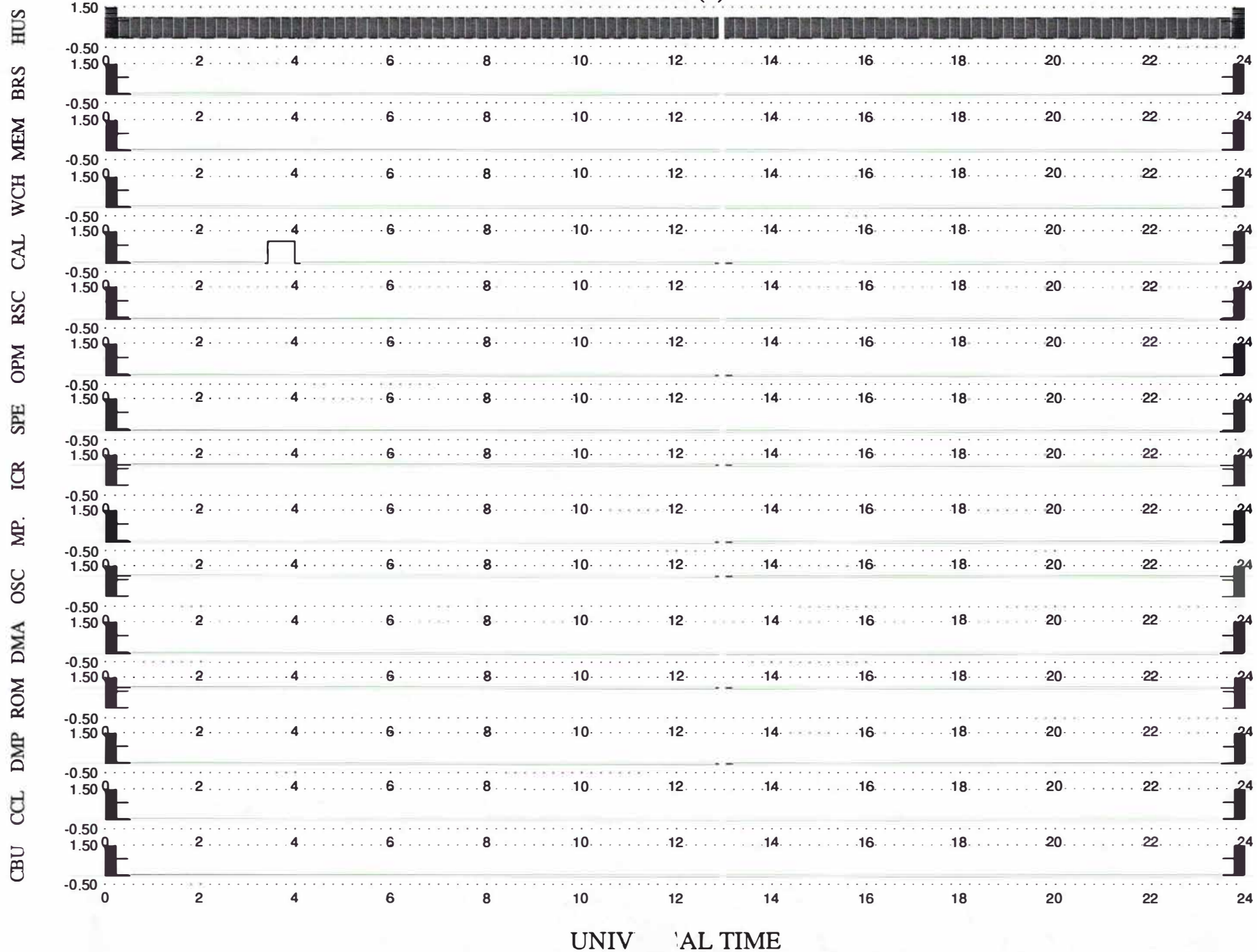
Plot created: 98/02/18, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

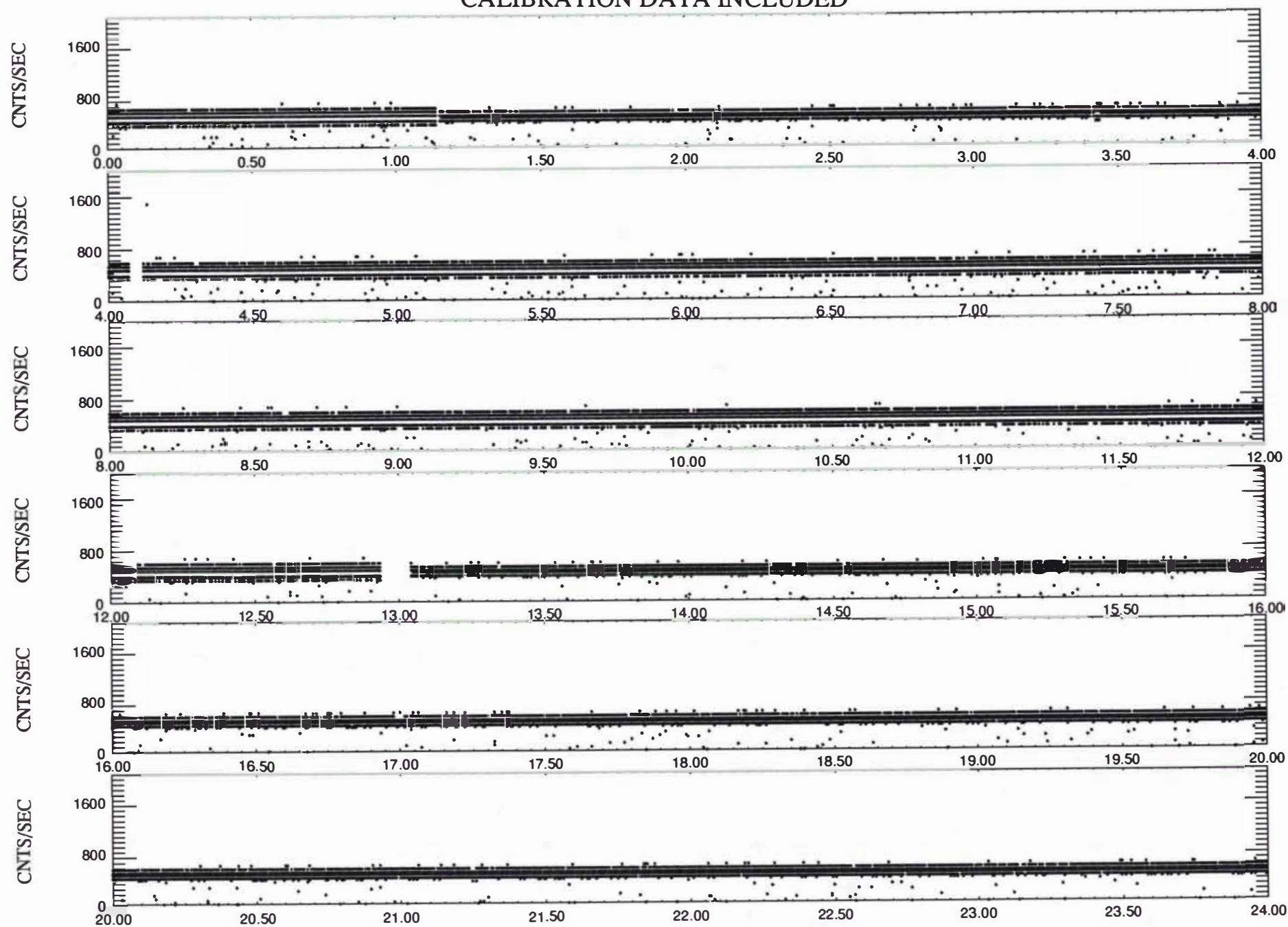
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

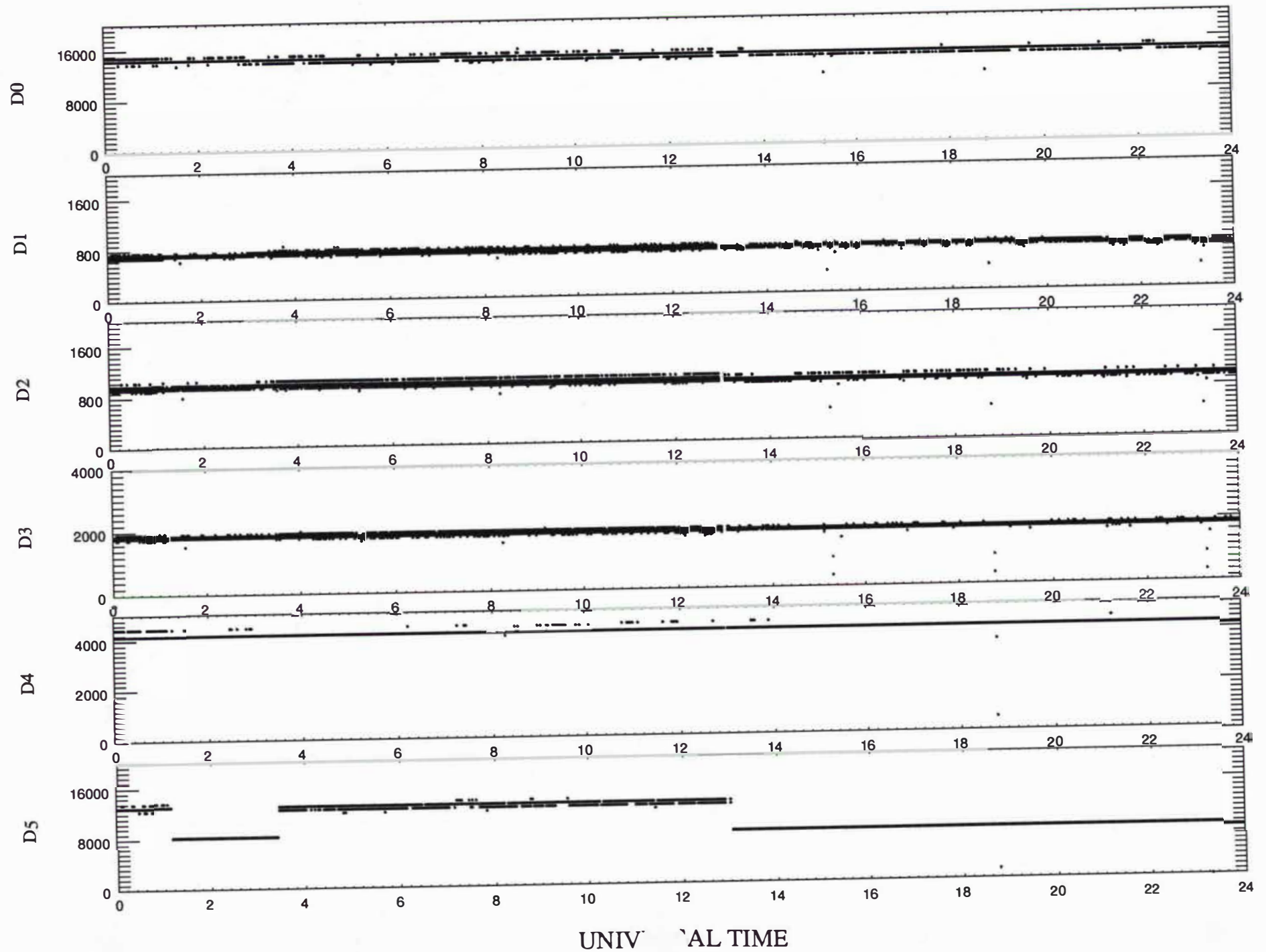
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIV 'AL TIME



Date: Jan 31 2012

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

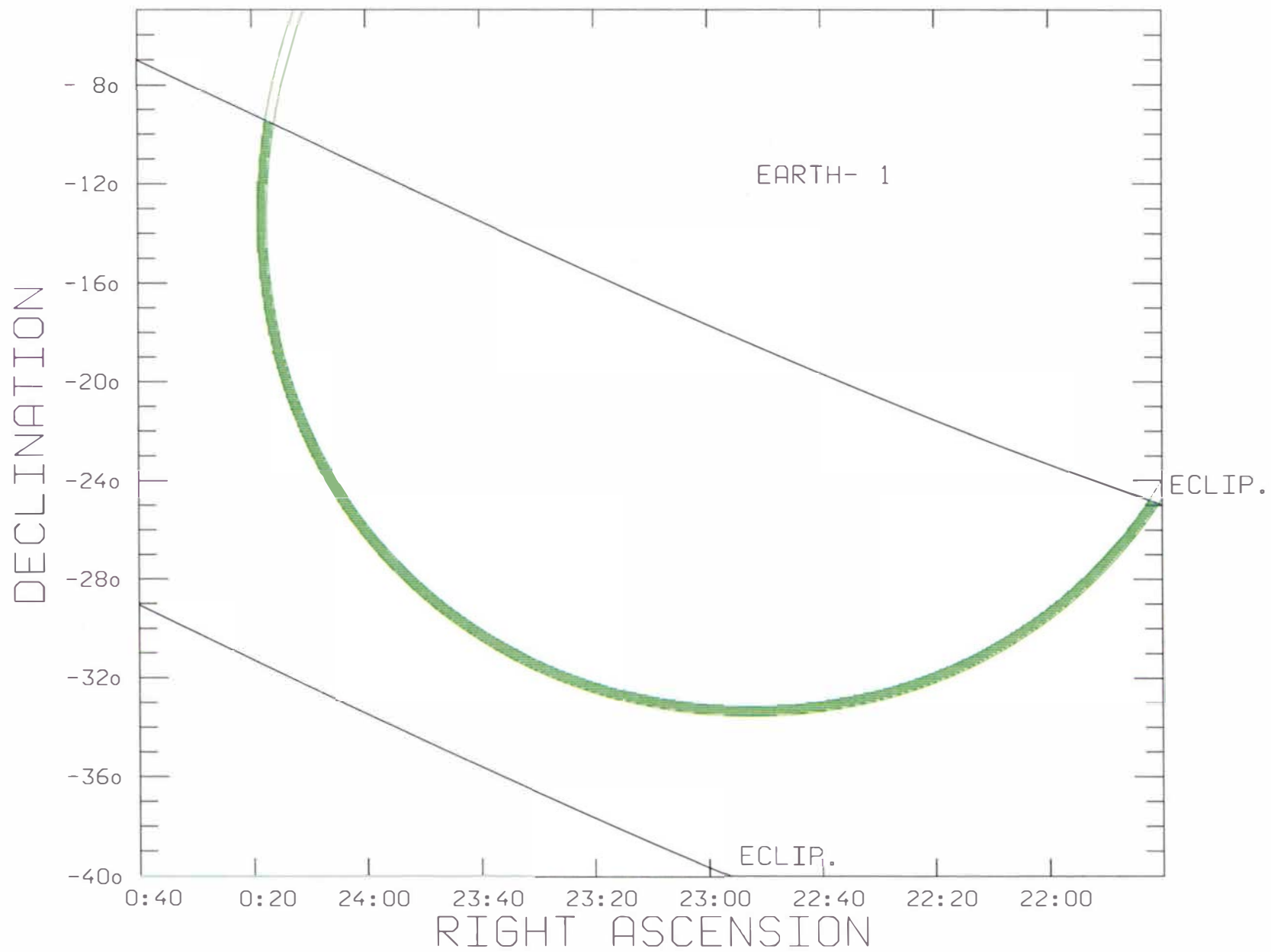
2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

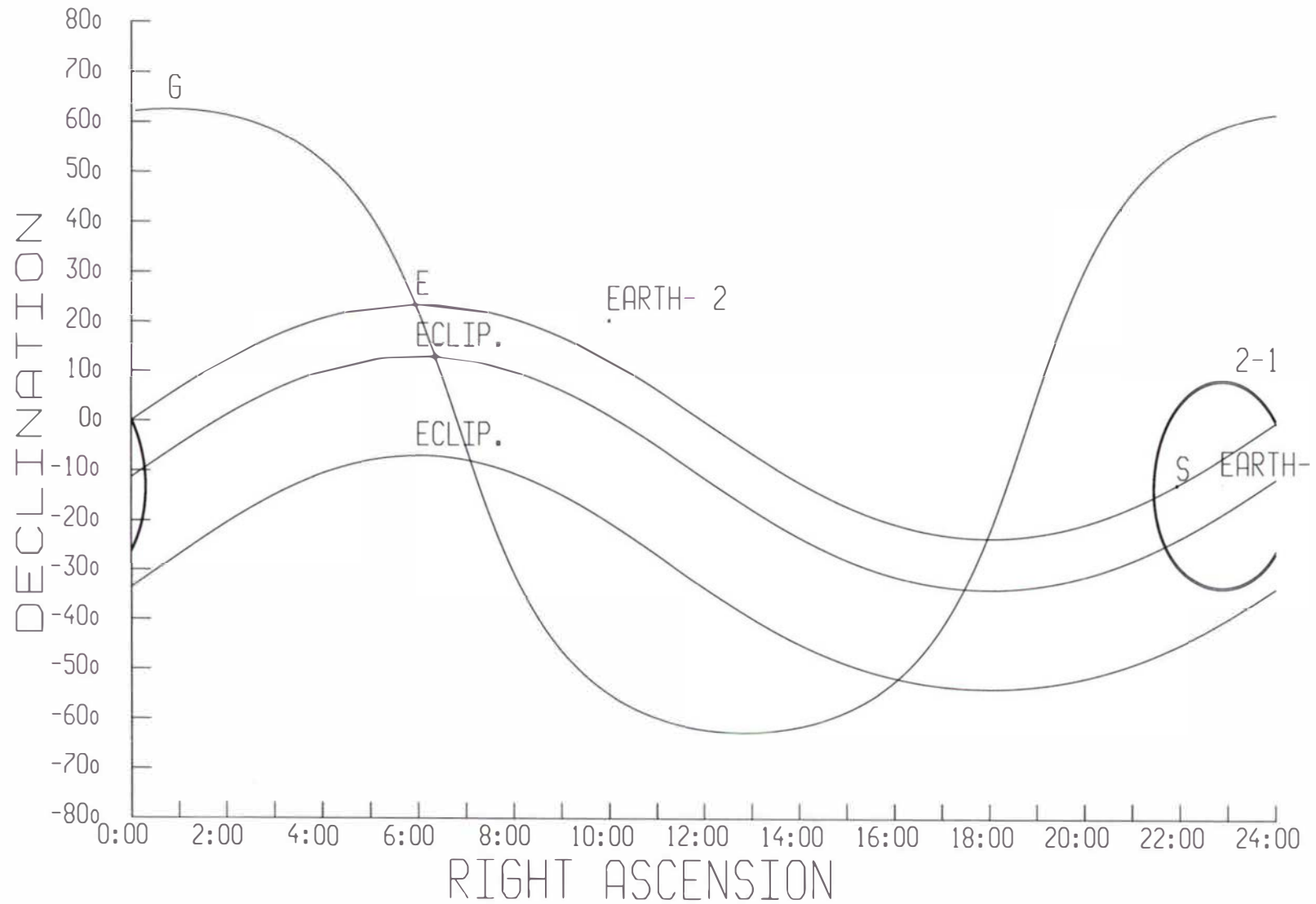
-
- ☒ ACCESS and MBL4 databases updated with identical times?



EVENT OF FEB 15, 1998 15:34

31/01/2012

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



KONUS 19980215 56129

ULYSSES RT

25 / 01 / 12

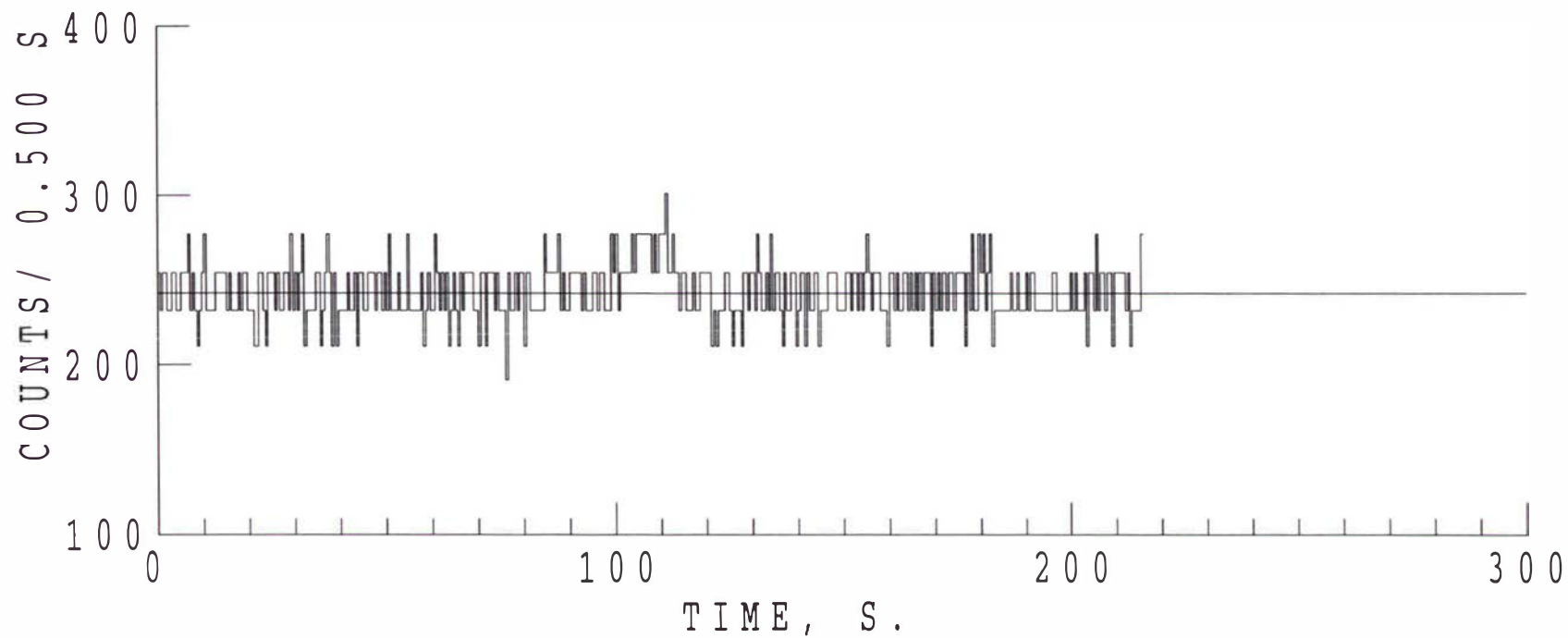
15 / 02 / 98 56016.258 s

0 - 0 keV

N= 10 M= 10
>4.0 SIGMA FLUCTUATIONS

||

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS

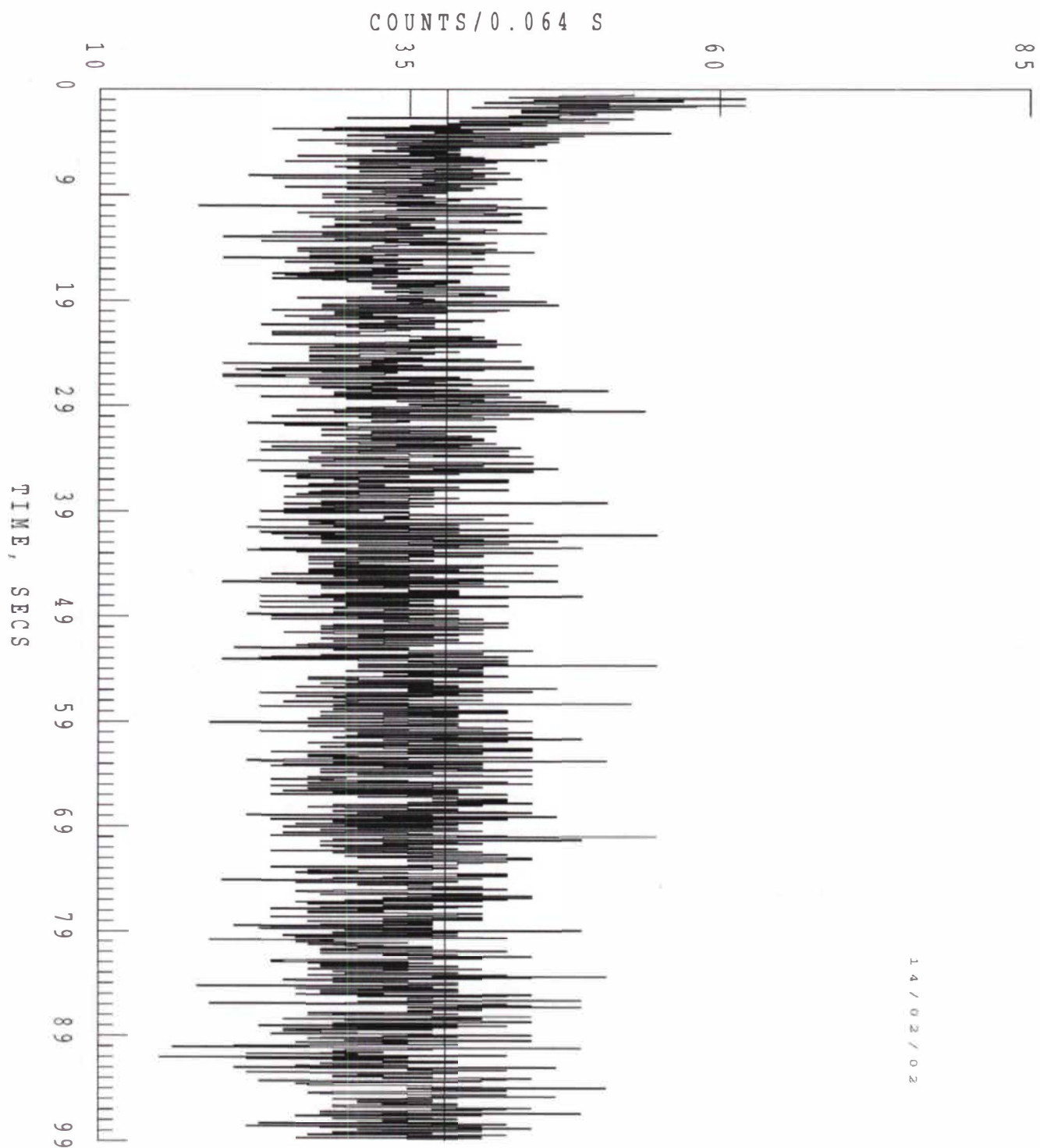


KONUS1

15/02/98

54055.404

50 - 200 keV



KONUS1 19980215 54055

ULYSSES RT

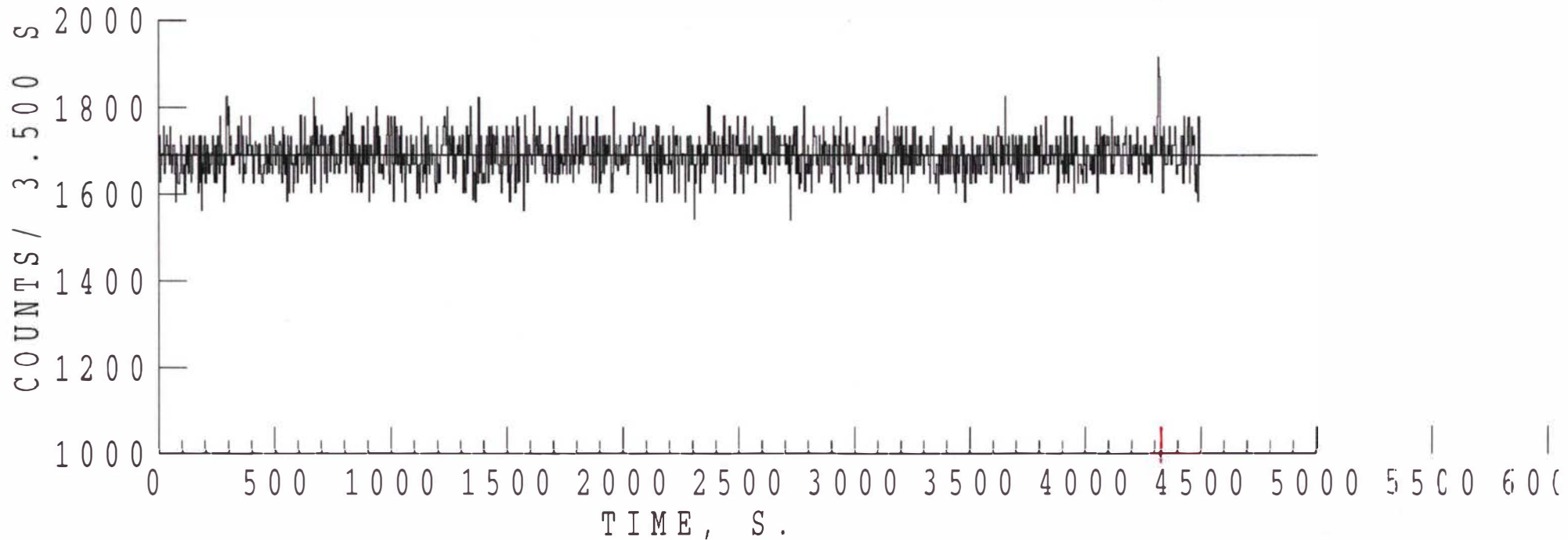
14 / 02 / 02

15 / 02 / 98 51804.207 s

0.500 S INTERVALS REGROUPED BY 7

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



From WOODSP@SSLMOR.msfc.nasa.gov Tue Feb 17 14:43:52 1998
Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA12026; Tue, 17 Feb 1998 14:43:51 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA29087; Tue, 17 Feb 1998 14:43:49 -0800
Date: Tue, 17 Feb 1998 16:40:12 -0600 (CST)
From: WOODSP@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980217164012.21e1c704@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6602
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6602
EVENT OF 1998 FEB 15 DAY OF YEAR= 46
EVENT CROSSING TIME AT BATSE : 66278. S. OR 18:24:38.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 342.000 -53.000
BATSE PEAK COUNTING RATE: 4300 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 15/ 2/ 98 IS:
RA= 162.281 DEC= 12.725 DIST= 4.428 AU
BATSE-ULYSSES DISTANCE = 662496065. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 40.28 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1686.01 SECS.
CROSSING TIME AT ULYSSES IS 67964. S. OR 18:52:44 +/- 323.63 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 15/ 2/ 98 IS:
RA= 347.650 DEC= -6.227 DIST= 2.277 AU
MARS-BATSE DISTANCE = 340635392. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=133.00 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -774.89 SECS.
CROSSING TIME AT MARS IS 65503. S. OR 18:11:43 +/- 132.51 SECONDS

BATSE BURST TRIGGER

NO.: 6602

TIME: TJD=0859 SECONDS=66278

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=89.5 AZIMUTH=331.4 ERROR=3.0 DEGREES

COMMENTS:

GRB LASTING ABOUT 50 SEC. SINGLE PULSE WITH SUBSTRUCTURE.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6602	980215	10859	66278	4300	342	-53	50

BATSE BURST# 6602

ULYSSES RT

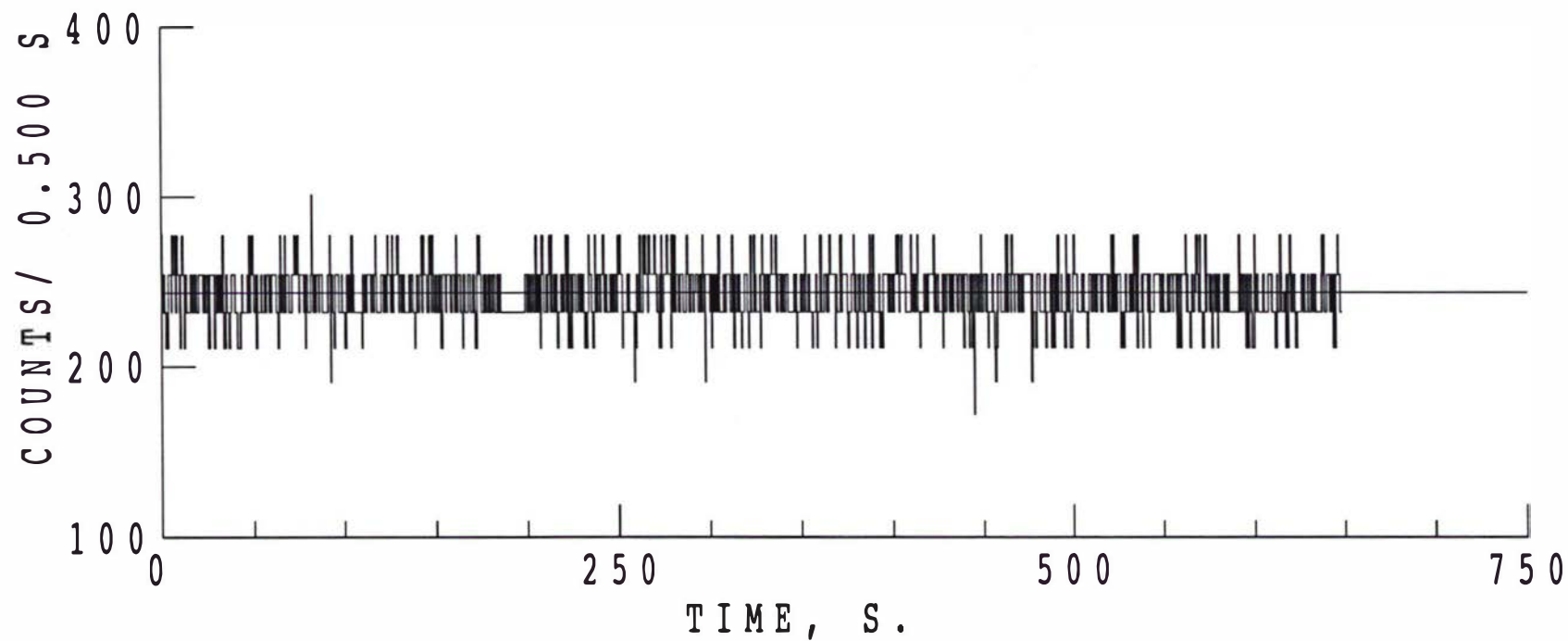
17 / 2 / 98

15 / 2 / 98 67644.383 s

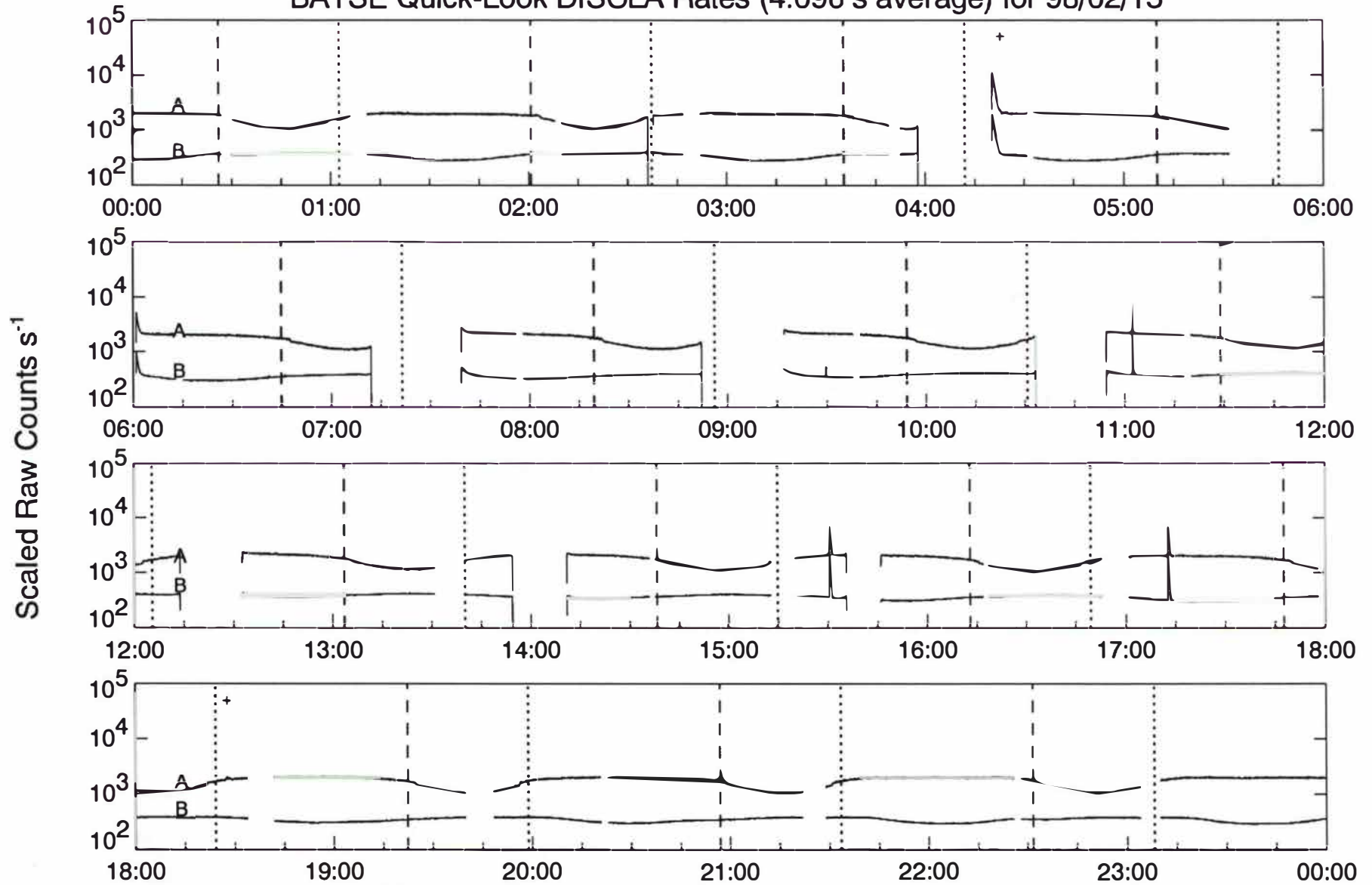
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



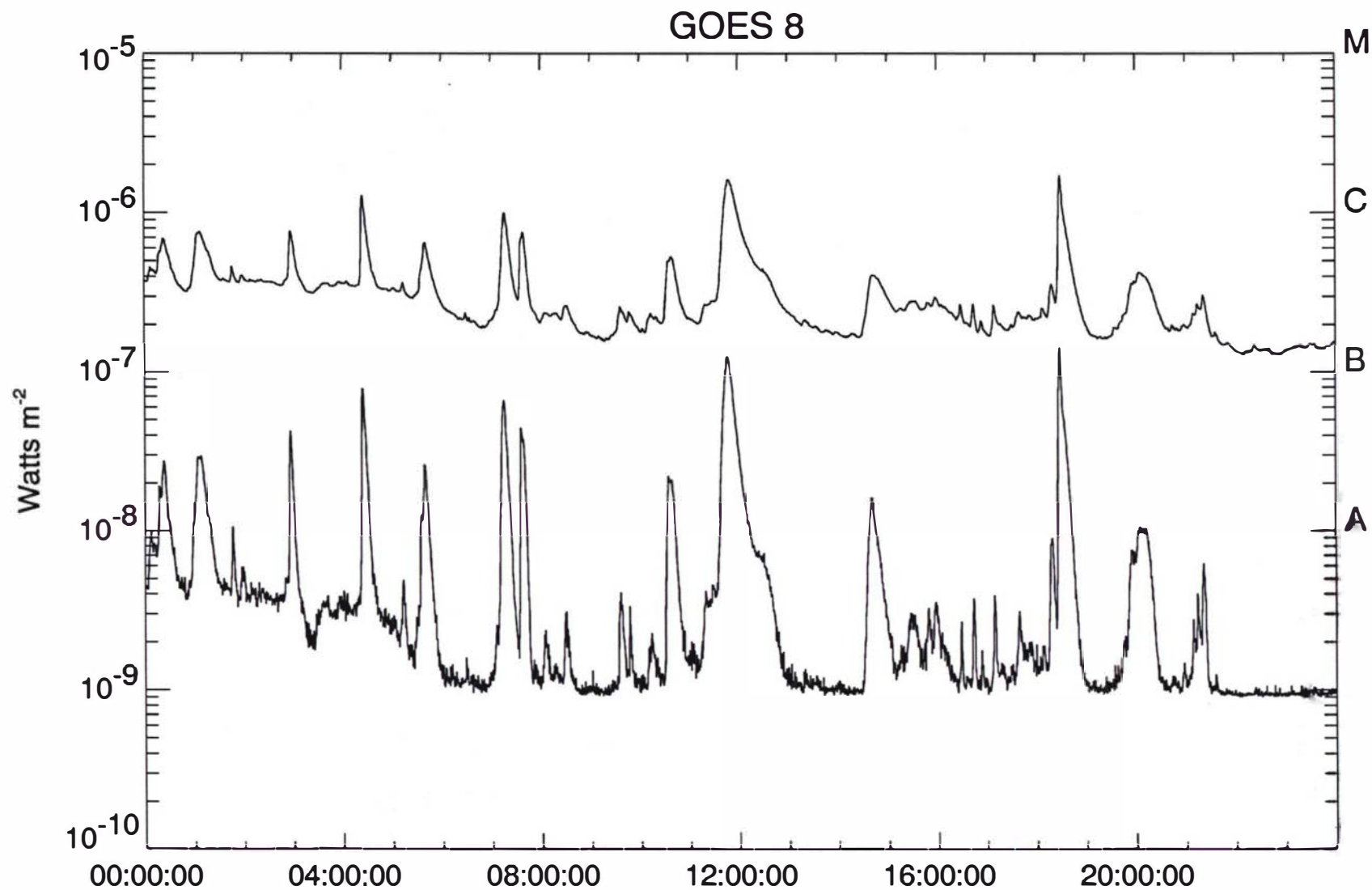
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/15



Current Time: 98/02/19, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/15, 0000:00

Plot created: 98/02/19, 1007

Channel 1 (1.0 - 8.0 Angstroms)

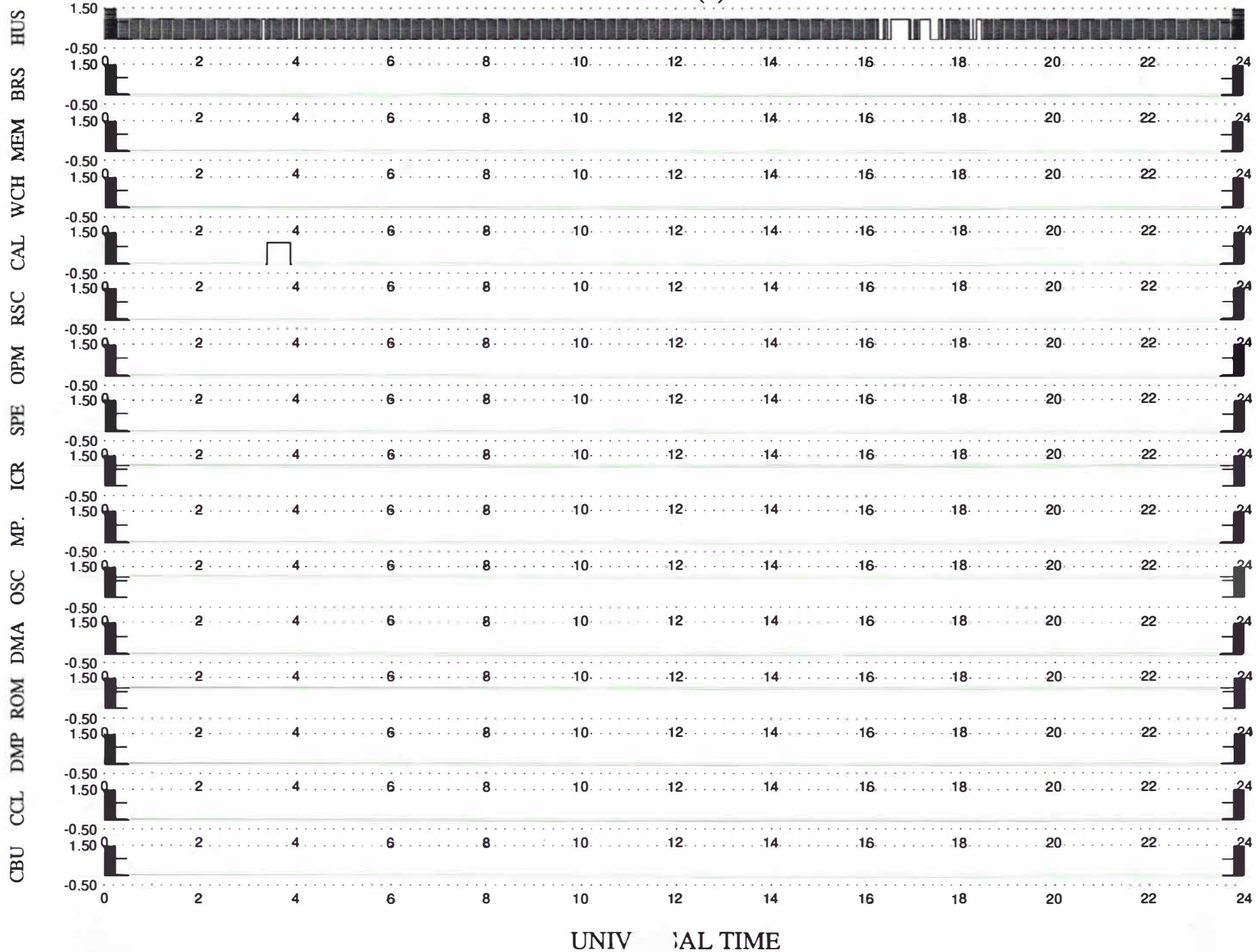
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

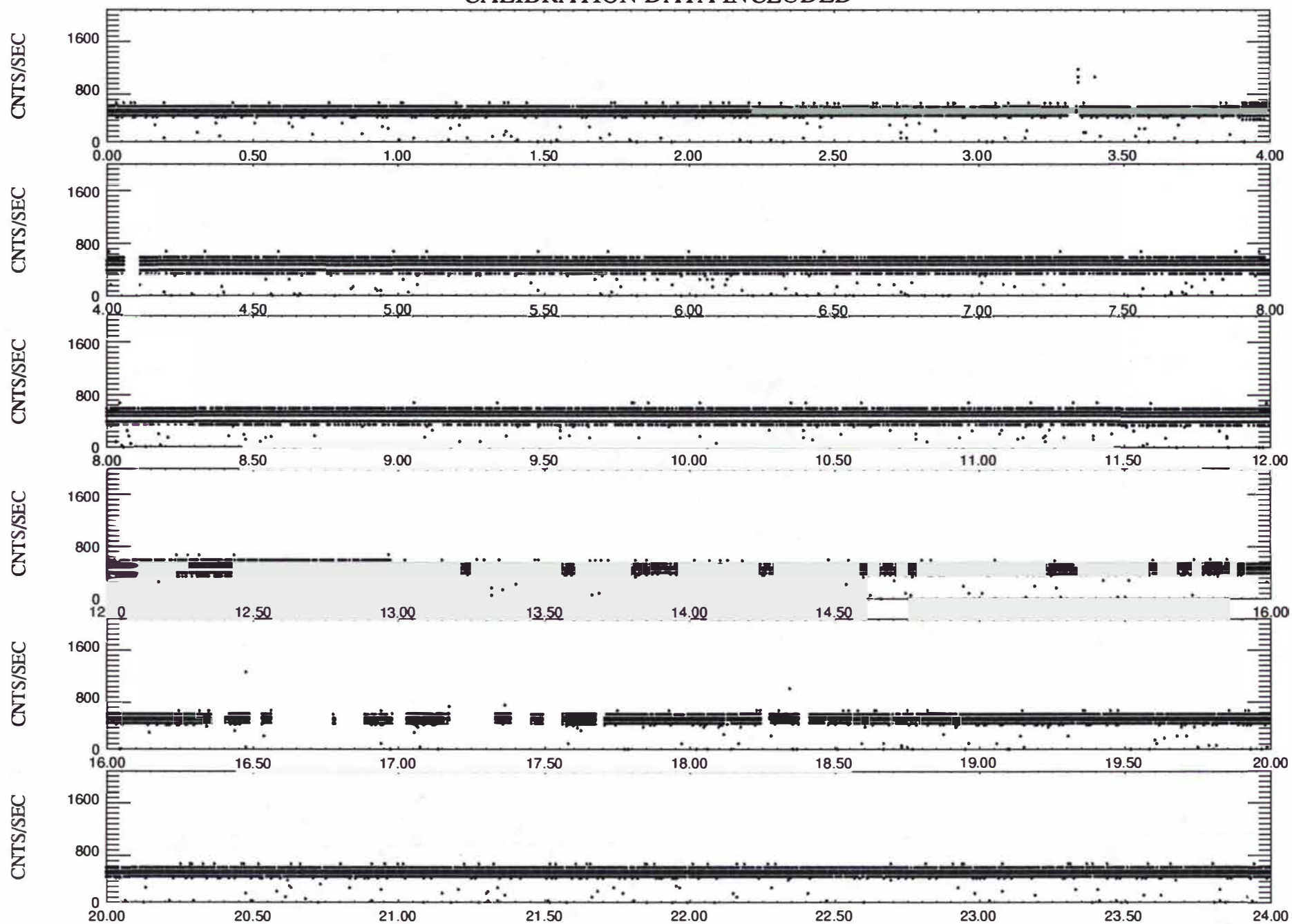
Background not subtracted

Sample average = 10

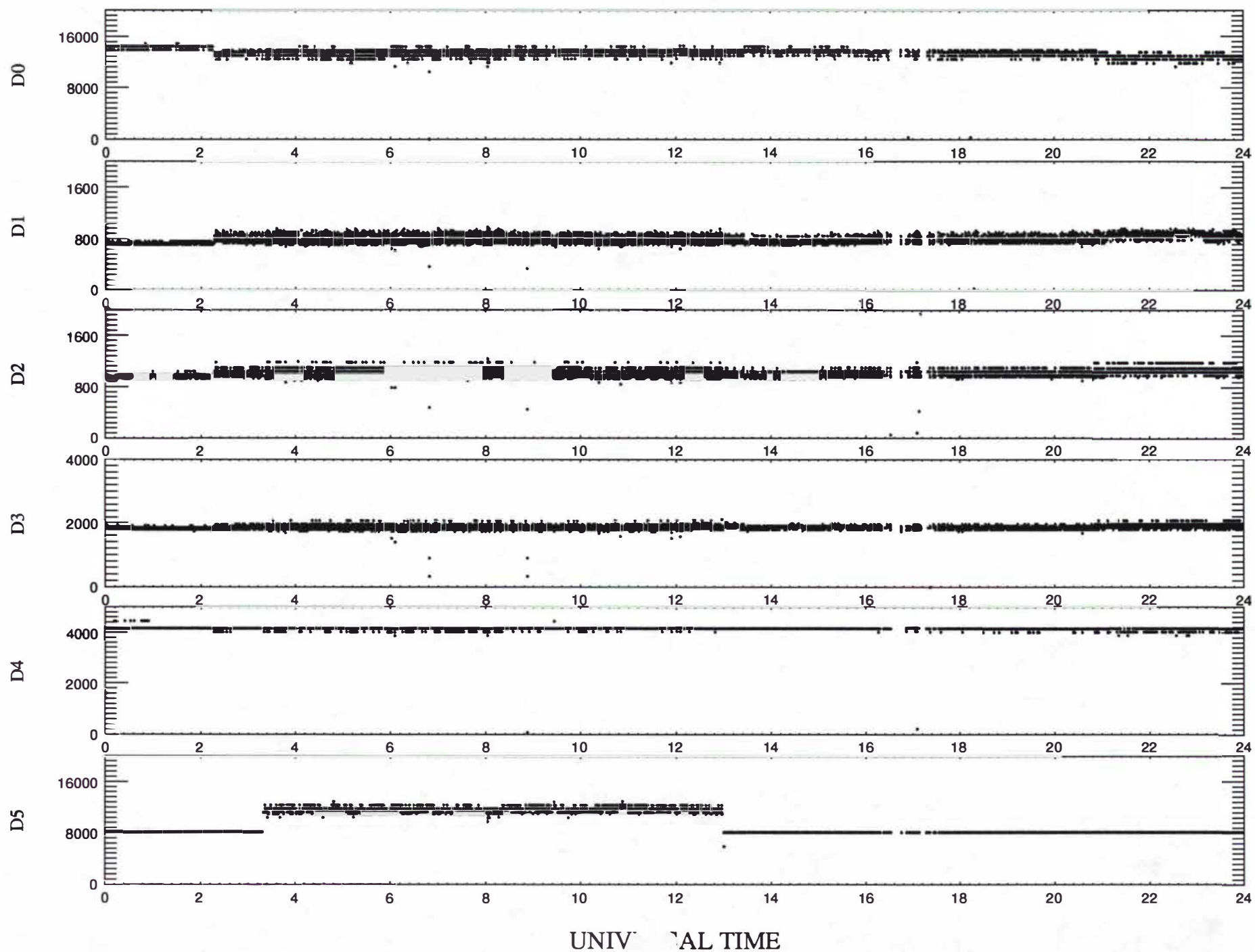
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



From SAHI@fender.msfc.nasa.gov Wed Feb 18 14:31:54 1998
From: SAHI@fender.msfc.nasa.gov
Date: Wed, 18 Feb 1998 16:31:14 -0600 (CST)
To: burst@comptel.sr.unh.edu, grobad@ests2.estec.esa.nl,
cline@lhev.gsfc.nasa.gov, barthelmy@lhev.gsfc.nasa.gov,
bacodine@lhev.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lhev.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, park@kabul.llnl.gov
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6603

TIME: TJD=0861 SECONDS=16119

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

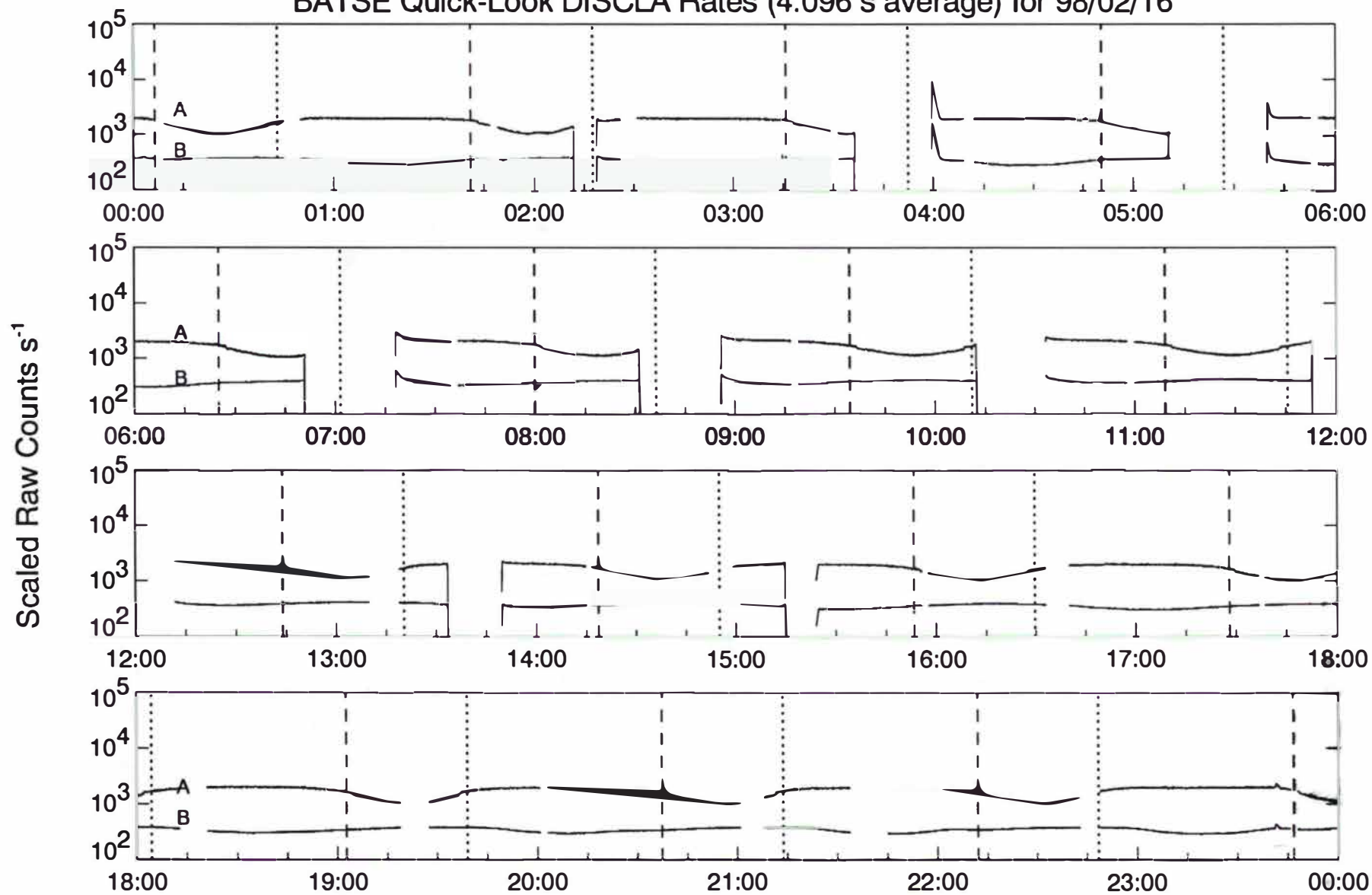
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=68.6 AZIMUTH=5.0 ERROR=0.87 DEGREES

COMMENTS:

GOES. B4.0, NO OPTICAL ID. SINGLE PULSE WITH SUBSTRUCTURE, DUR. APPROX. 140 SECS
STARTS AT APPROX. T-10 SECS. NOT VISIBLE ABOVE 100 KEV.

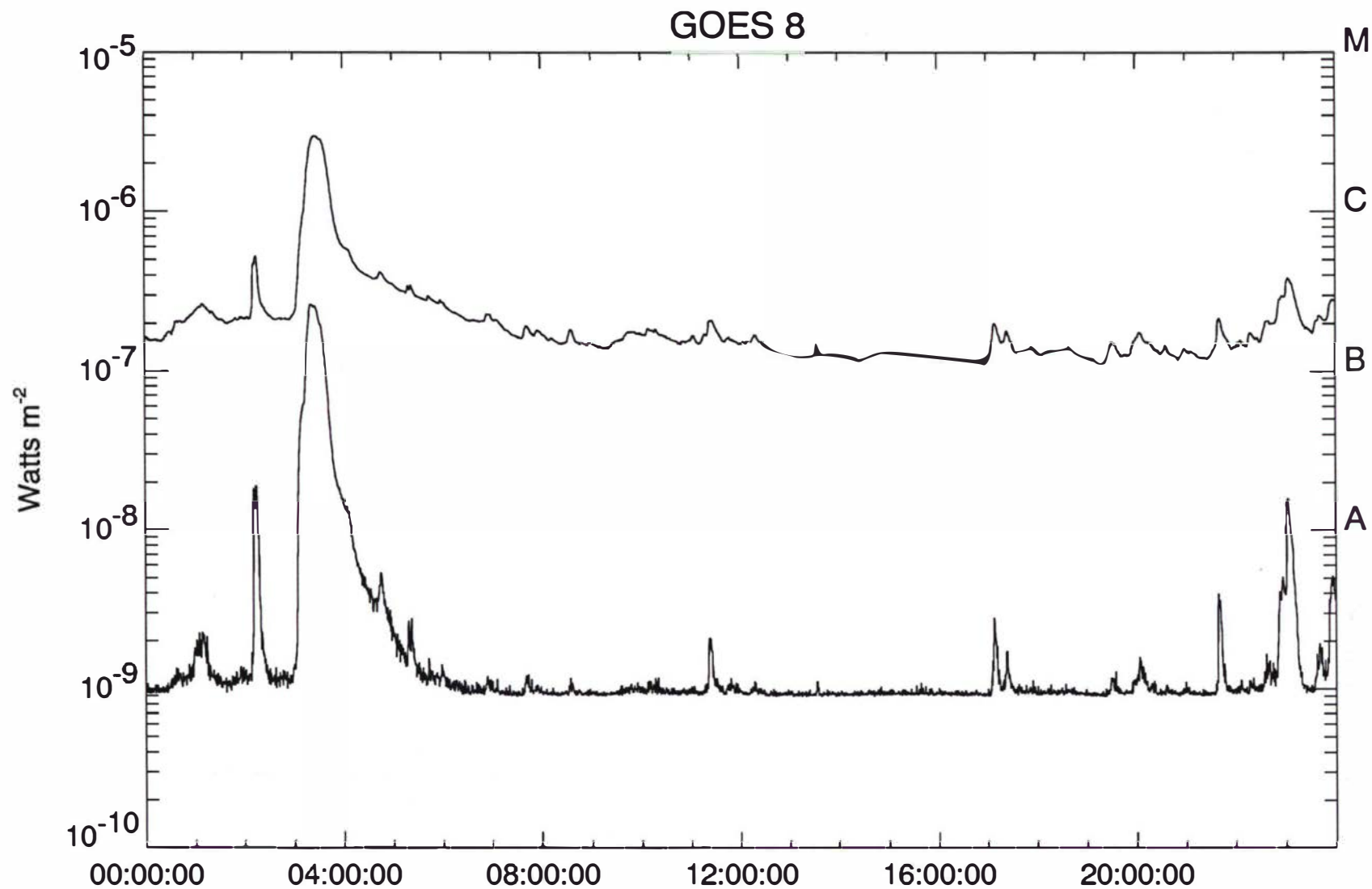
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/16



Current Time: 98/02/20, 1013 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/16, 0000:00

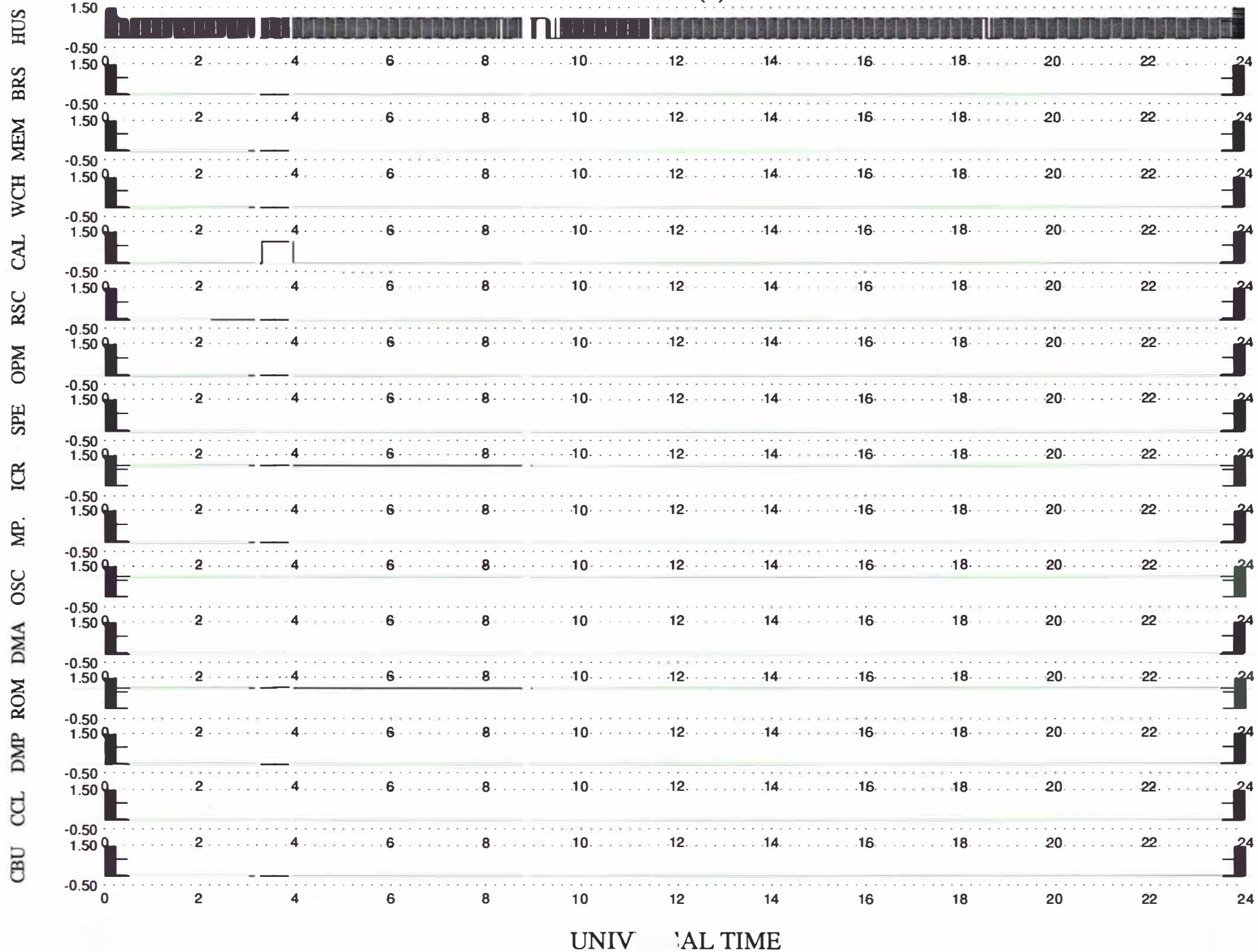
Plot created: 98/02/20, 1008

Channel

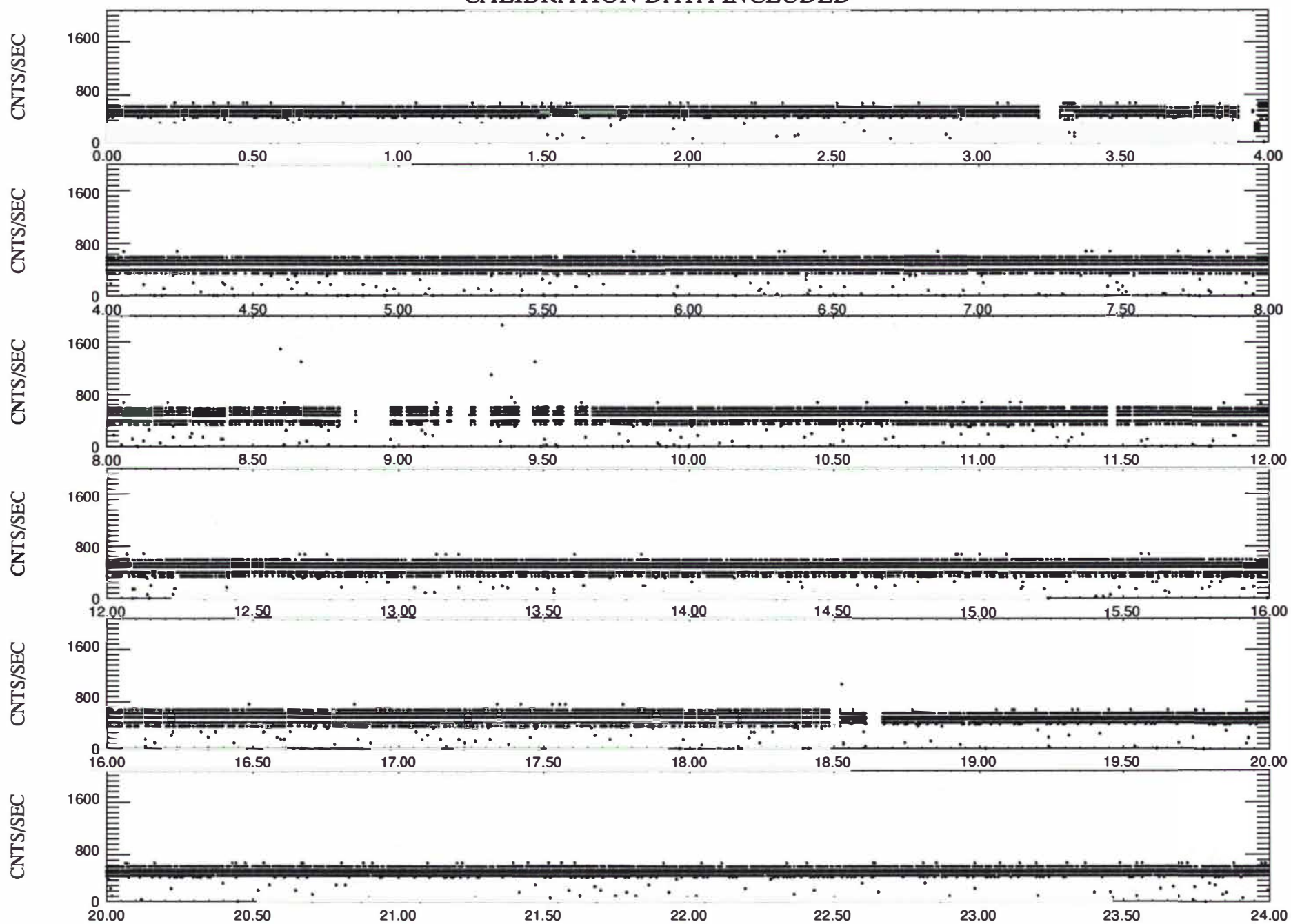
1 (1.0 - 8.0 Angstroms)
2 (0.5 - 4.0 Angstroms)

Background not subtracted
Background not subtracted
Sample average = 10

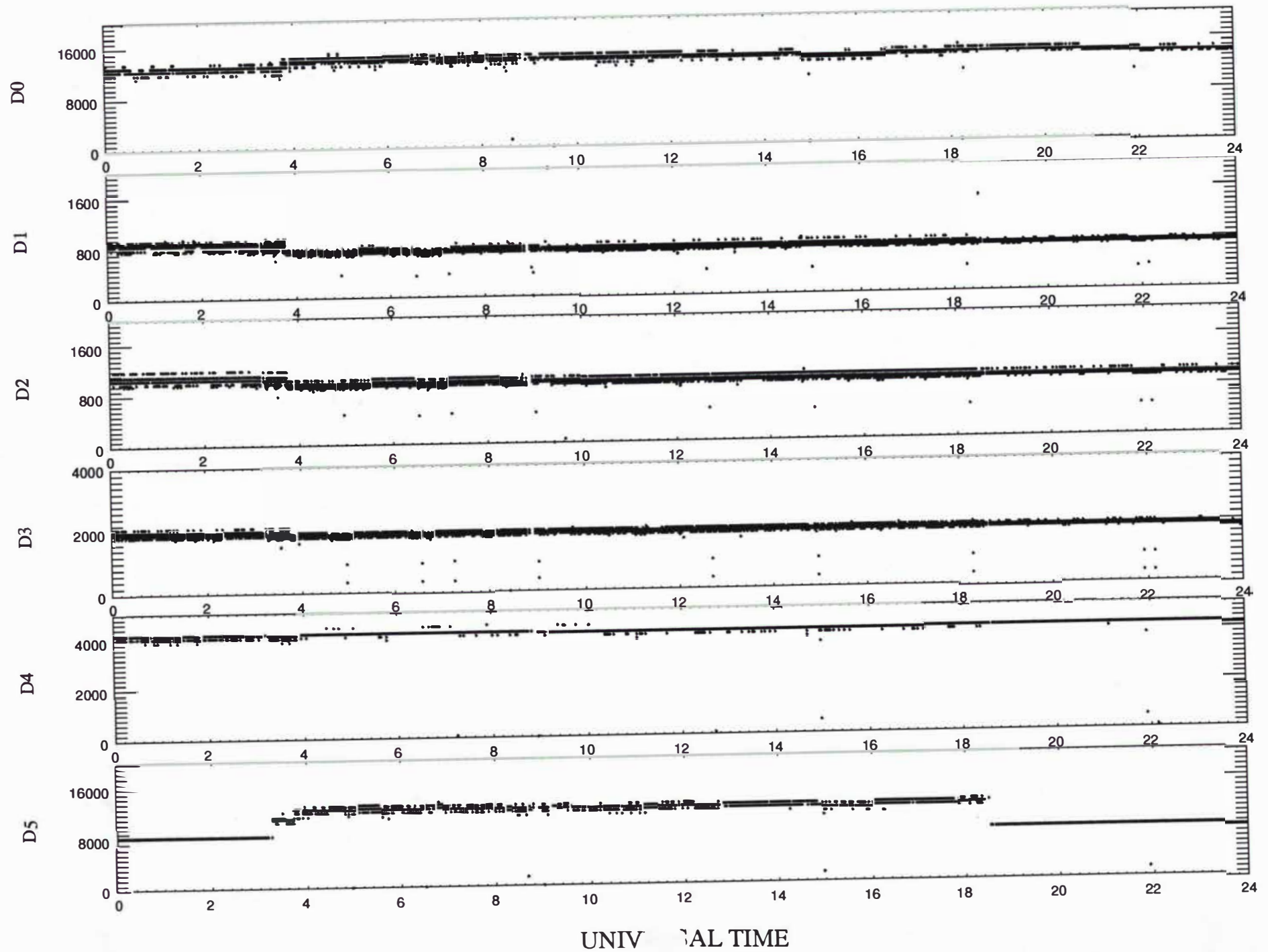
NO BURST (0)



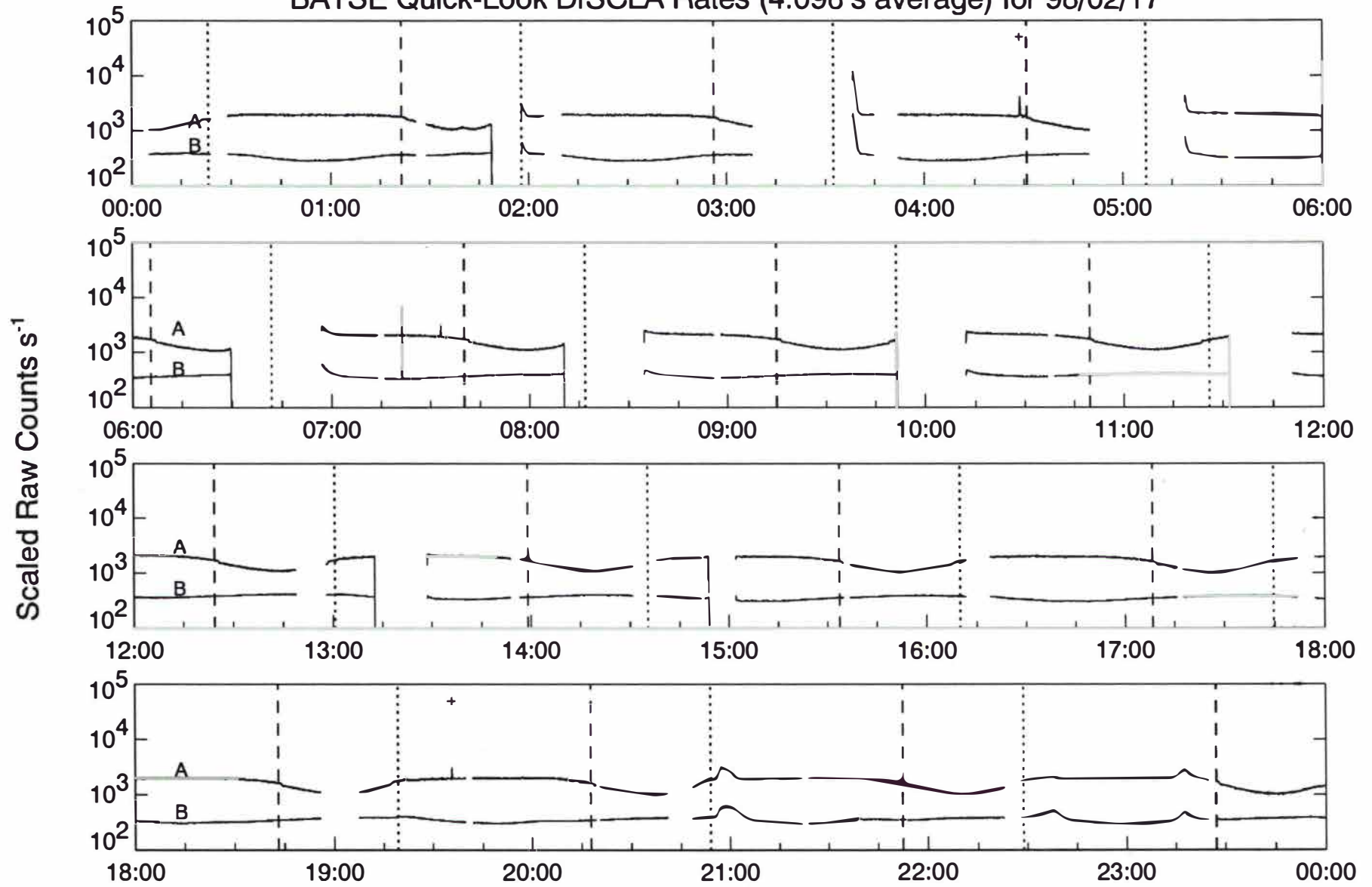
CALIBRATION DATA INCLUDED



UNIVERSAL TIME



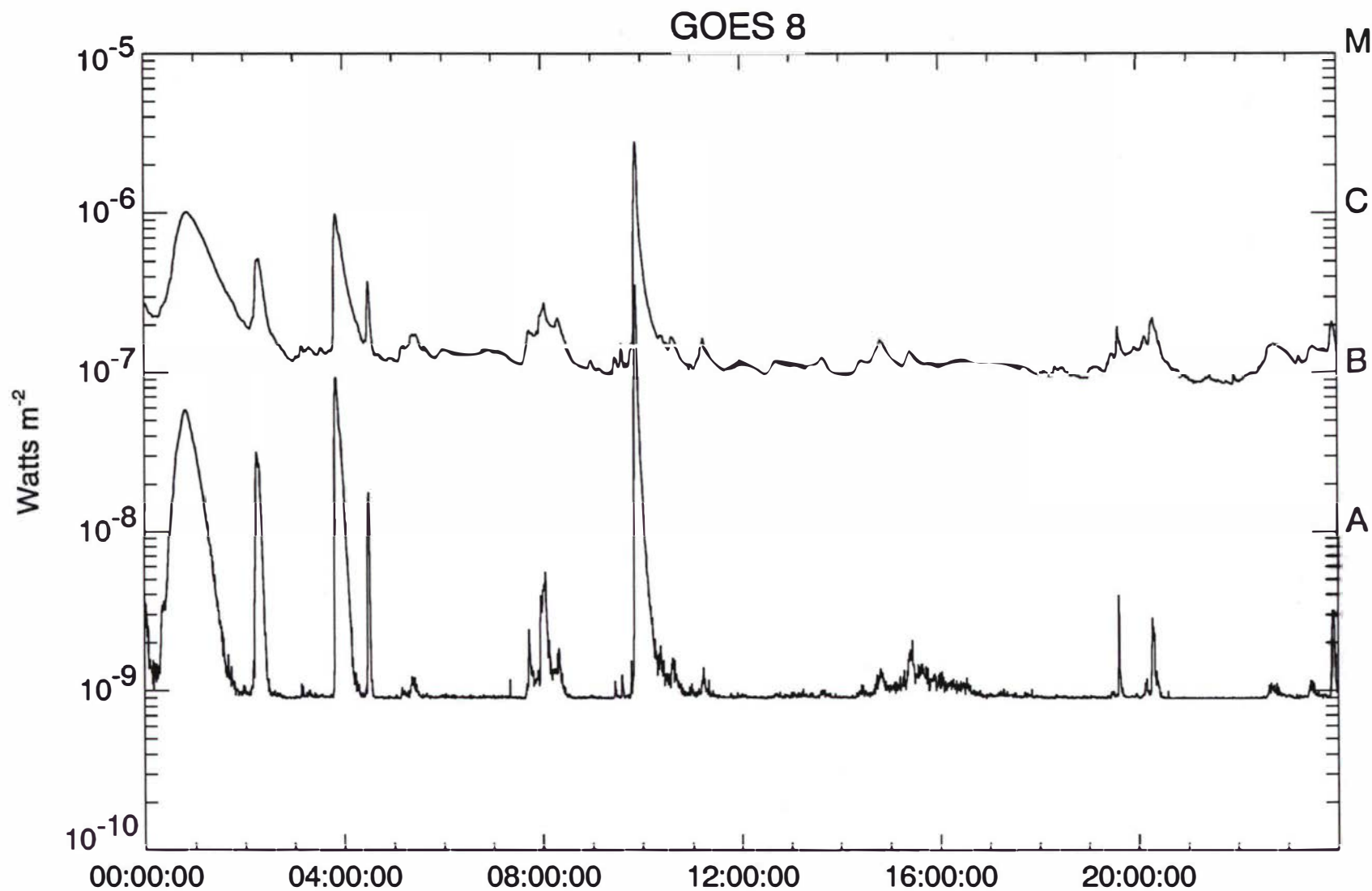
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/17



Current Time: 98/02/21, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/17, 0000:00

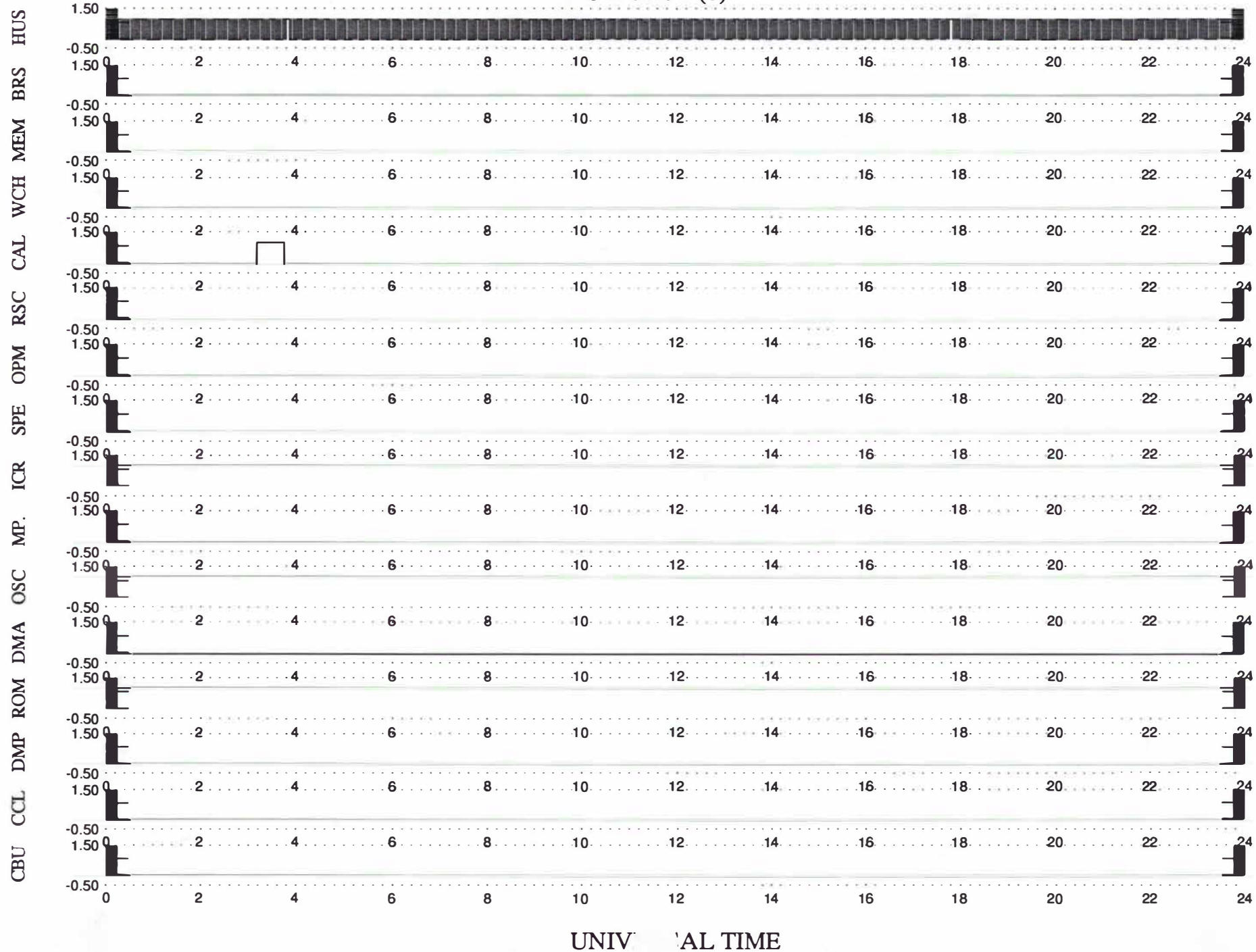
Plot created: 98/02/21, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

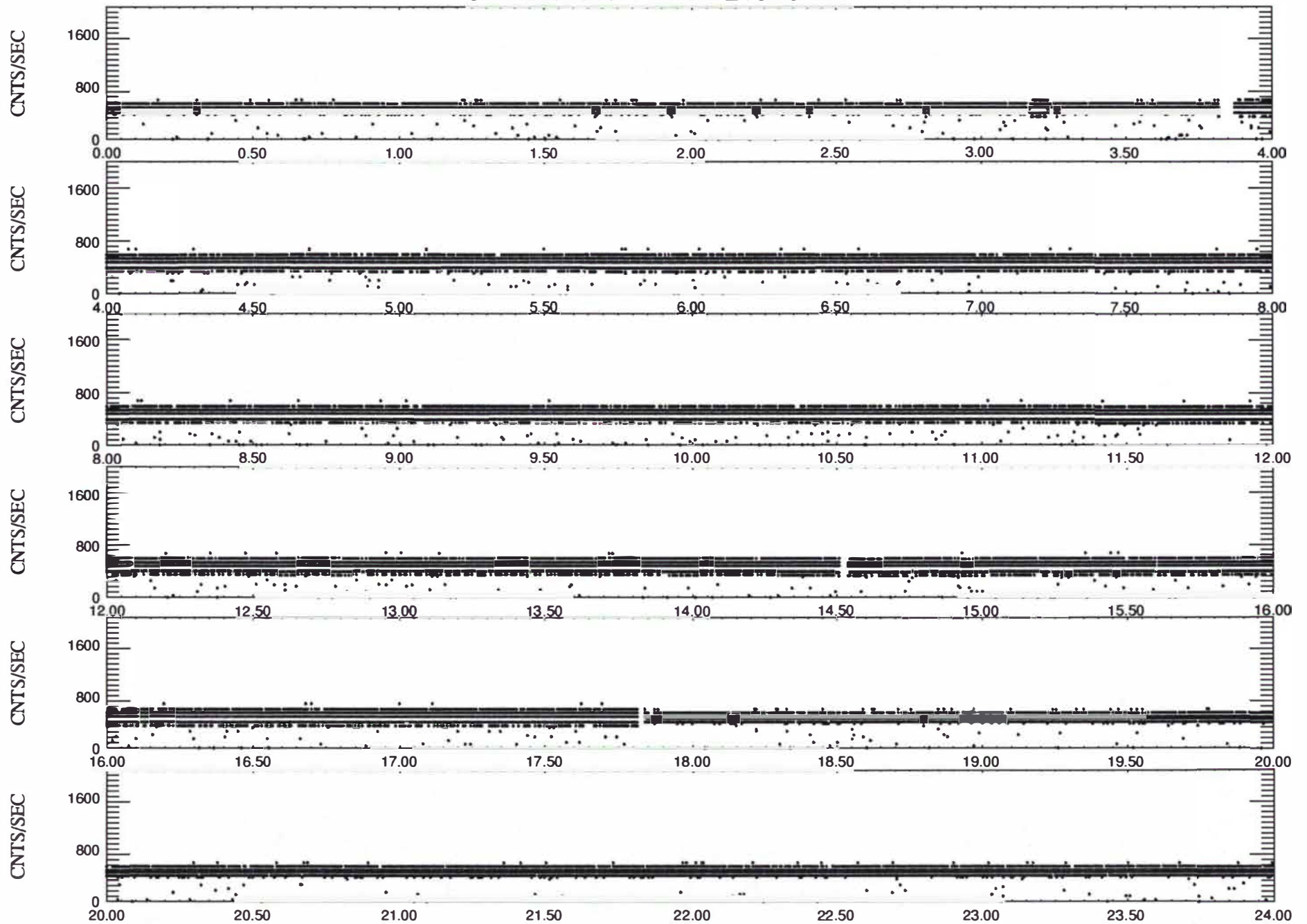
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

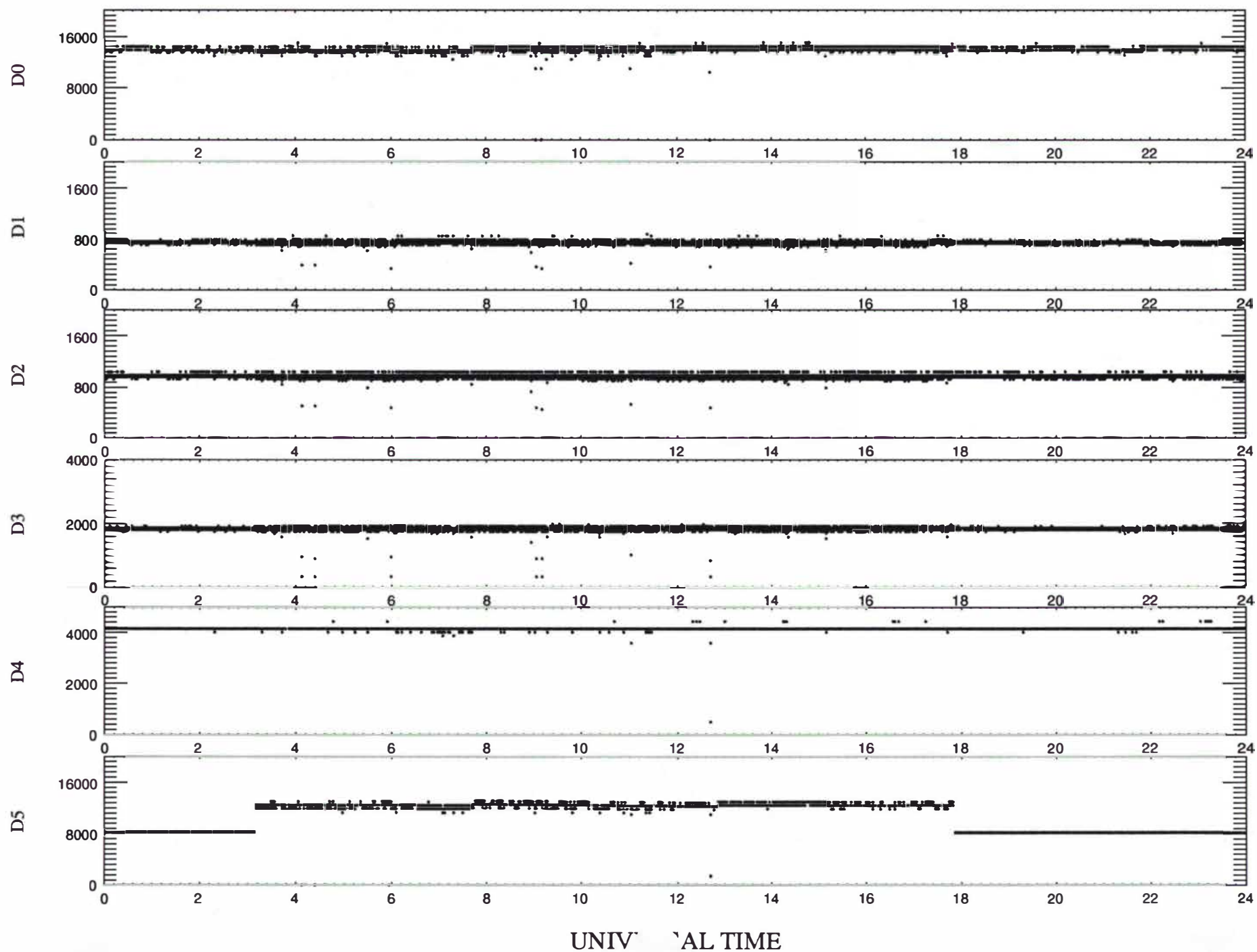
NO BURST (0)



CALIBRATION DATA INCLUDED



UNIV AL TIME



From WOODSP@SSLMOR.msfc.nasa.gov Fri Feb 20 13:38:36 1998
Date: Fri, 20 Feb 1998 15:37:11 -0600 (CST)
From: WOODSP@SSLMOR.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6604

TIME: TJD=0862 SECONDS=254

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:

PARTICLES AT A DISTANCE.

From WOODSP@SSLMOR.msfc.nasa.gov Fri Feb 20 13:47:44 1998
Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id NAA09863; Fri, 20 Feb 1998 13:47:43 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id NAA01437; Fri, 20 Feb 1998 13:47:40 -0800
Date: Fri, 20 Feb 1998 15:43:27 -0600 (CST)
From: WOODSP@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980220154327.21e24c88@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6605
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6605
EVENT OF 1998 FEB 18 DAY OF YEAR= 49
EVENT CROSSING TIME AT BATSE : 13523. S. OR 03:45:23.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 183.000 57.000
BATSE PEAK COUNTING RATE: 8600 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 18/ 2/ 98 IS:
RA= 161.752 DEC= 12.792 DIST= 4.421 AU
BATSE-ULYSSES DISTANCE = 661440594. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=132.90 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1501.87 SECS.
CROSSING TIME AT ULYSSES IS 12021. S. OR 03:20:21 +/- 307.80 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 18/ 2/ 98 IS:
RA= 349.814 DEC= -5.286 DIST= 2.286 AU
MARS-BATSE DISTANCE = 341975424. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 52.75 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 690.46 SECS.
CROSSING TIME AT MARS IS 14213. S. OR 03:56:53 +/- 168.13 SECONDS

BATSE BURST TRIGGER

NO.: 6605

TIME: TJD=0862 SECONDS=13523

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=77.8 AZIMUTH=148.9 ERROR=1. DEGREES

COMMENTS:

GRB LASTING ABOUT 22 SEC. SINGLE PULSE WITH SUBSTRUCTURE.
VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6605	980218	10862	13523	8600	183	+57	22

Helio corr removed 18/2/00

Date: May 7 '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? *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? *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*

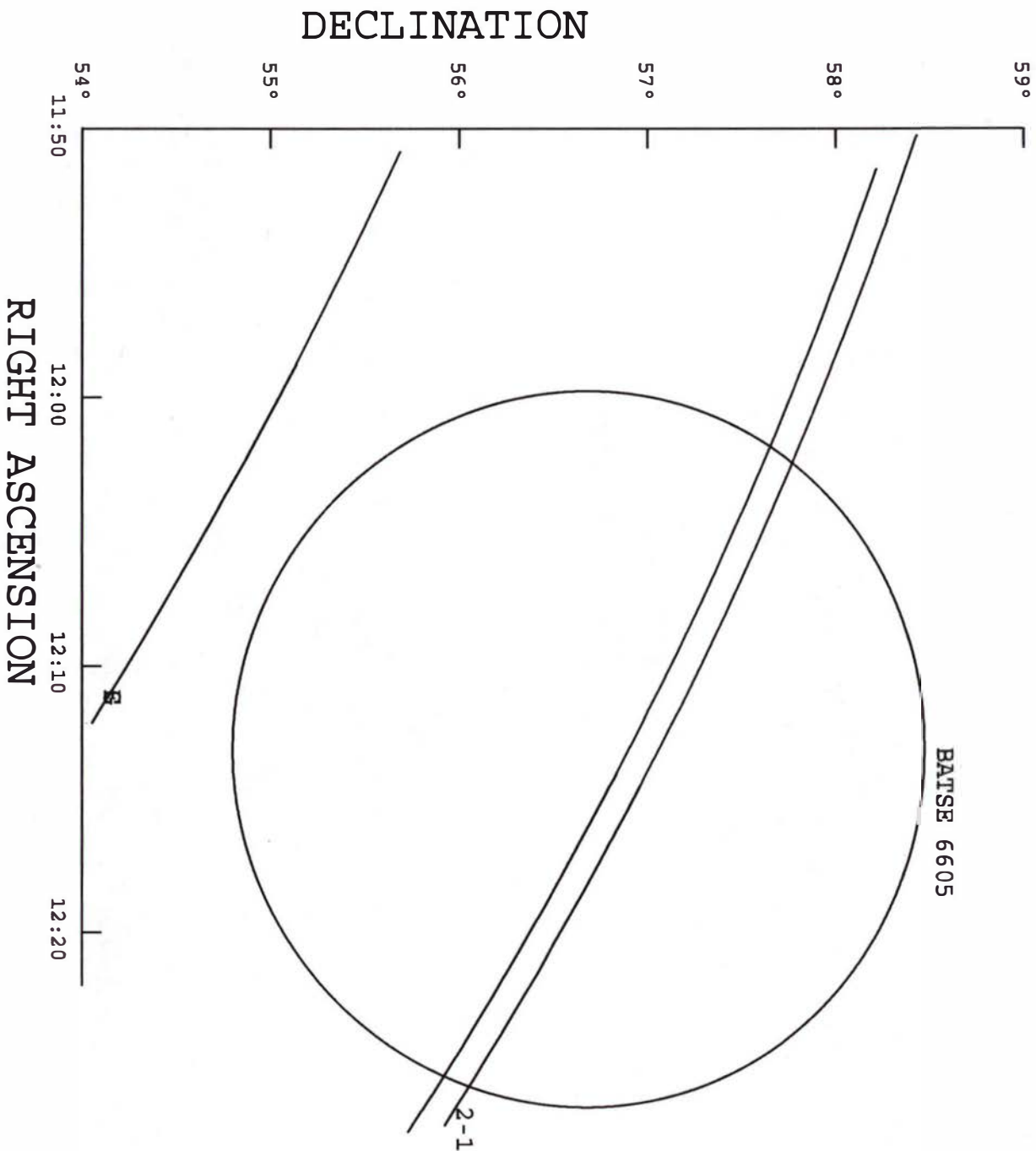
3. PVO Data

- ☐ 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 18, 1998 3:19

18/ 2/ 0



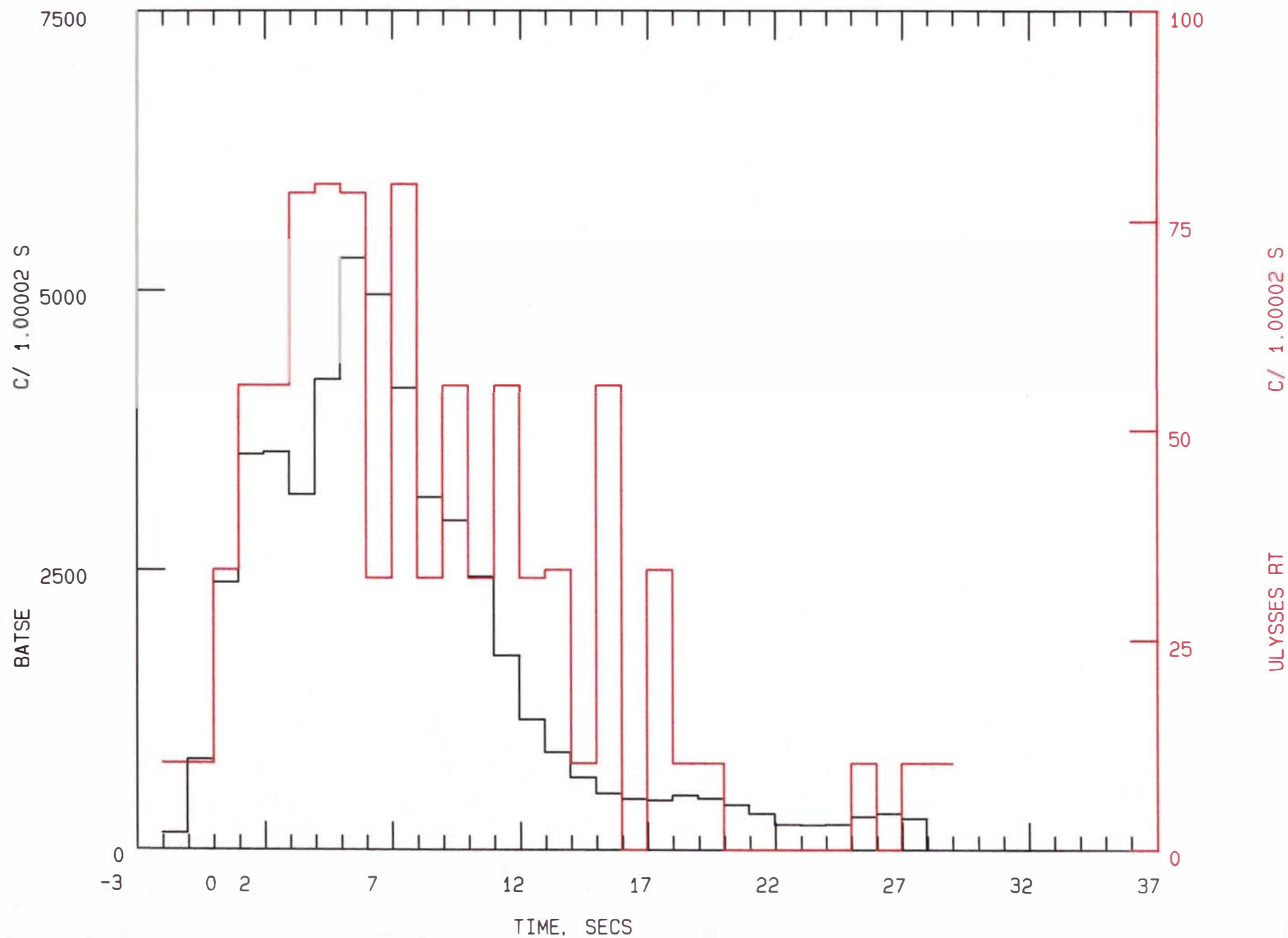
BATSE

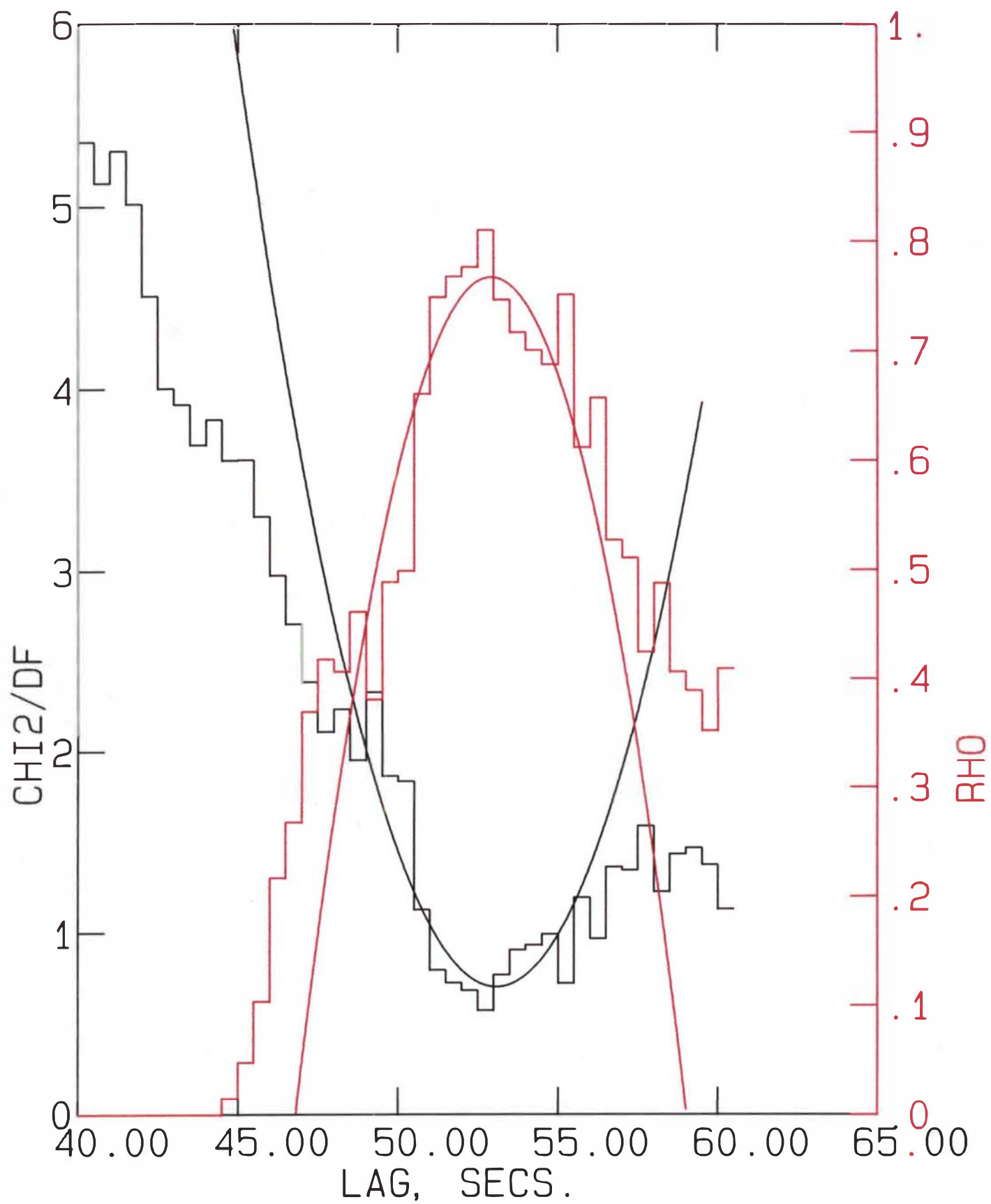
-ULYSSES RT CORRELATION

18/ 2/98

13523.169

7/ 5/98





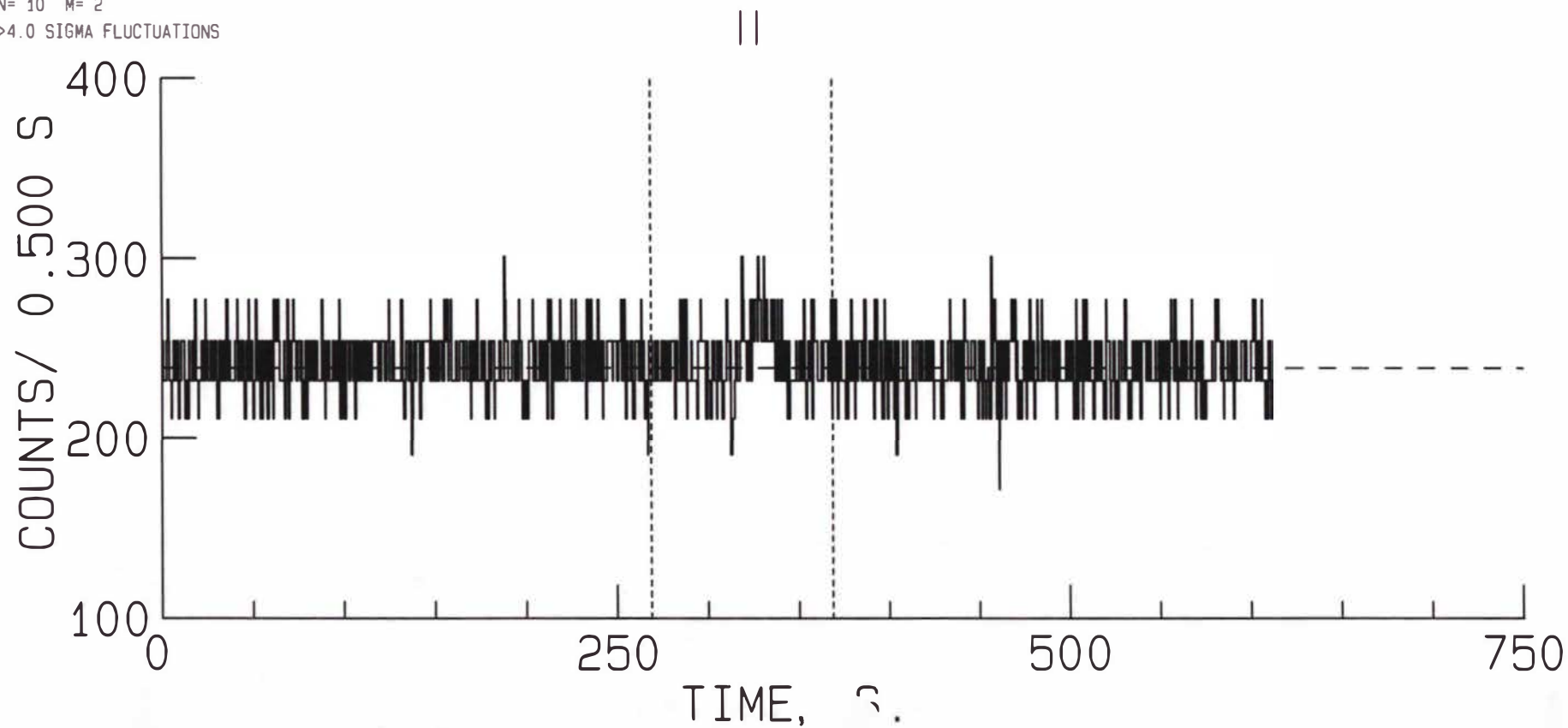
ULYSSES RT

7 / 5 / 98

18 / 2 / 98 11700.097 s

22 - 149 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



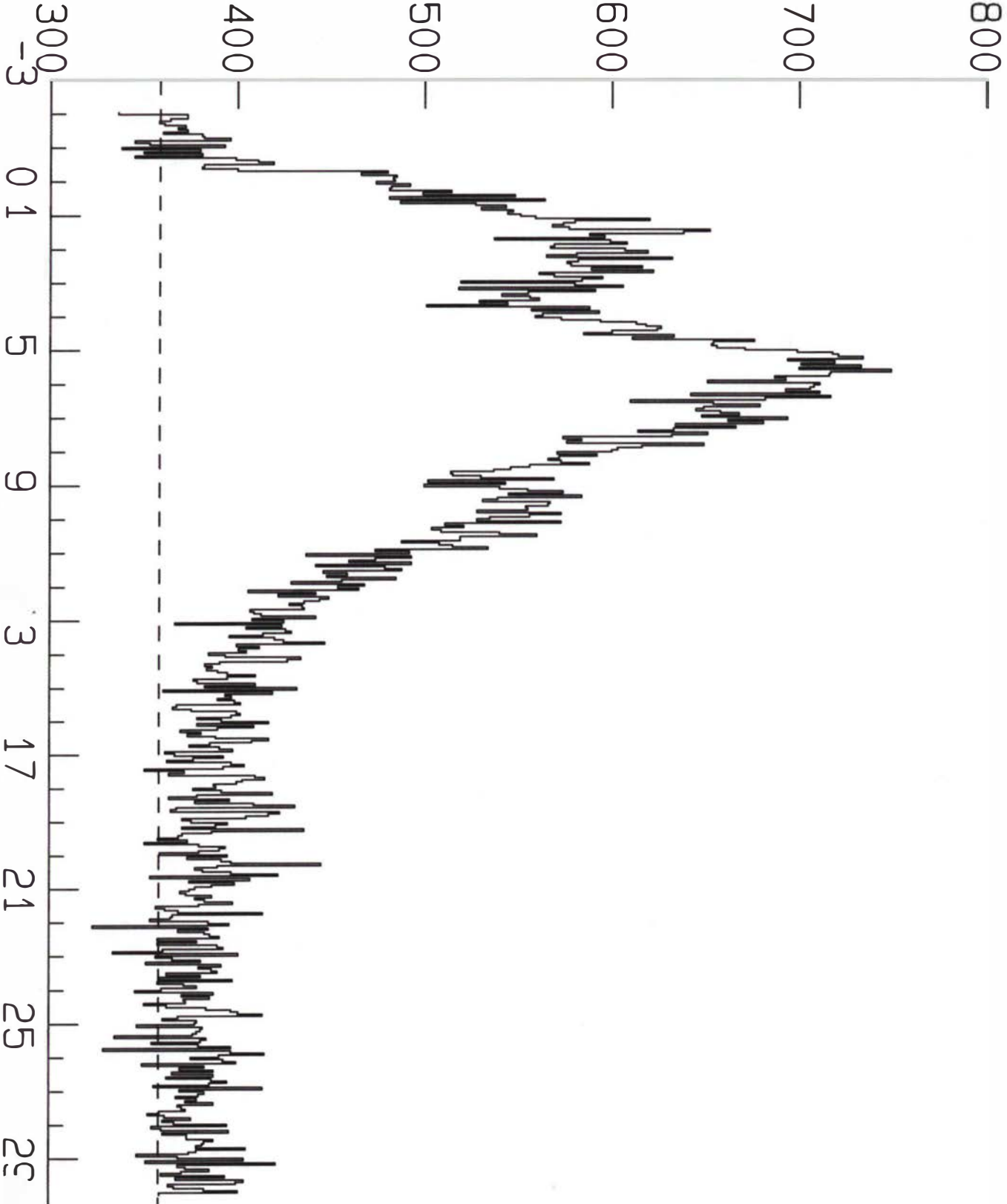
BATSE

18/02/98

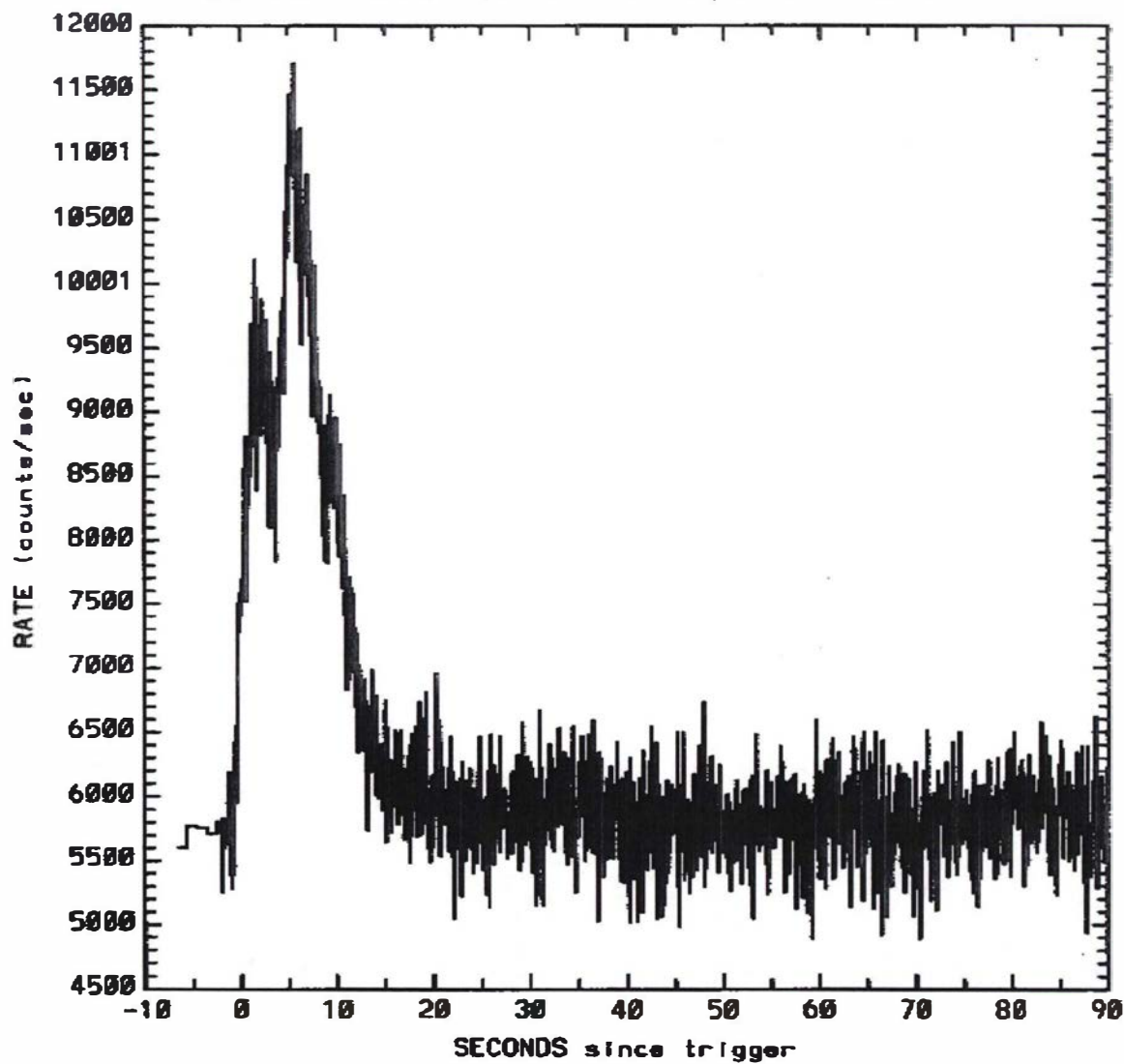
13523.169

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 6605



25-FEB-1998 10:35:17

Created by MOPS 80
(Burst Display)
Version 12.25

Trigger # . 6605

Trigger Time:
10062 / 13523.169Burst Data Type:
DISCSCDeadtime
Corrected: NBackground Data
Type: PREB + DISCLAMinimum Integ. Time:
0.004 secondsDetectors [7..8],
--54--Discriminators:
(1 : 2)Quality Mask:
001SP1

From WOODSP@SSLMOR.msfc.nasa.gov Fri Feb 20 13:48:35 1998
 Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
 Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
 id NAA09891; Fri, 20 Feb 1998 13:48:30 -0800
 Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
 id NAA01461; Fri, 20 Feb 1998 13:48:19 -0800
 Date: Fri, 20 Feb 1998 15:45:12 -0600 (CST)
 From: WOODSP@SSLMOR.msfc.nasa.gov
 To: khurley@sunspot.ssl.berkeley.edu
 Message-Id: <980220154512.21e24c88@ssl.msfc.nasa.gov>
 Subject: Crossing Windows for BATSE Burst 6606
 Content-Length: 1135
 X-Lines: 26
 Status: RO

 BATSEARCH PROGRAM

BATSE BURST # 6606
 EVENT OF 1998 FEB 18 DAY OF YEAR= 49
 EVENT CROSSING TIME AT BATSE : 54766. S. OR 15:12:46.0
 COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 91.000 -10.000
 BATSE PEAK COUNTING RATE: 33500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON 18/ 2/ 98 IS:
 RA= 161.645 DEC= 12.806 DIST= 4.420 AU
 BATSE-ULYSSES DISTANCE = 661267822. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=106.25 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= -617.11 SECS.
 CROSSING TIME AT ULYSSES IS 54149. S. OR 15:02:28 +/- 408.29 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
 POSITION OF MARS ON 18/ 2/ 98 IS:
 RA= 349.814 DEC= -5.286 DIST= 2.286 AU
 MARS-BATSE DISTANCE = 341975424. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 79.97 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= 198.77 SECS.
 CROSSING TIME AT MARS IS 54965. S. OR 15:16:04 +/- 198.03 SECONDS

BATSE BURST TRIGGER

NO.: 6606

TIME: TJD=0862 SECONDS=54766

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=173.8 AZIMUTH=216.5 ERROR=2.1 DEGREES

COMMENTS:

GRB LASTING ABOUT 0.35 SEC. SINGLE SPIKE WITH NO SIGNIFICANT
 SUBSTRUCTURE. VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6606	980218	10862	54766	33500	091	-10	.35

BATSE BURST# 6606

ULYSSES RT

20 / 2 / 98

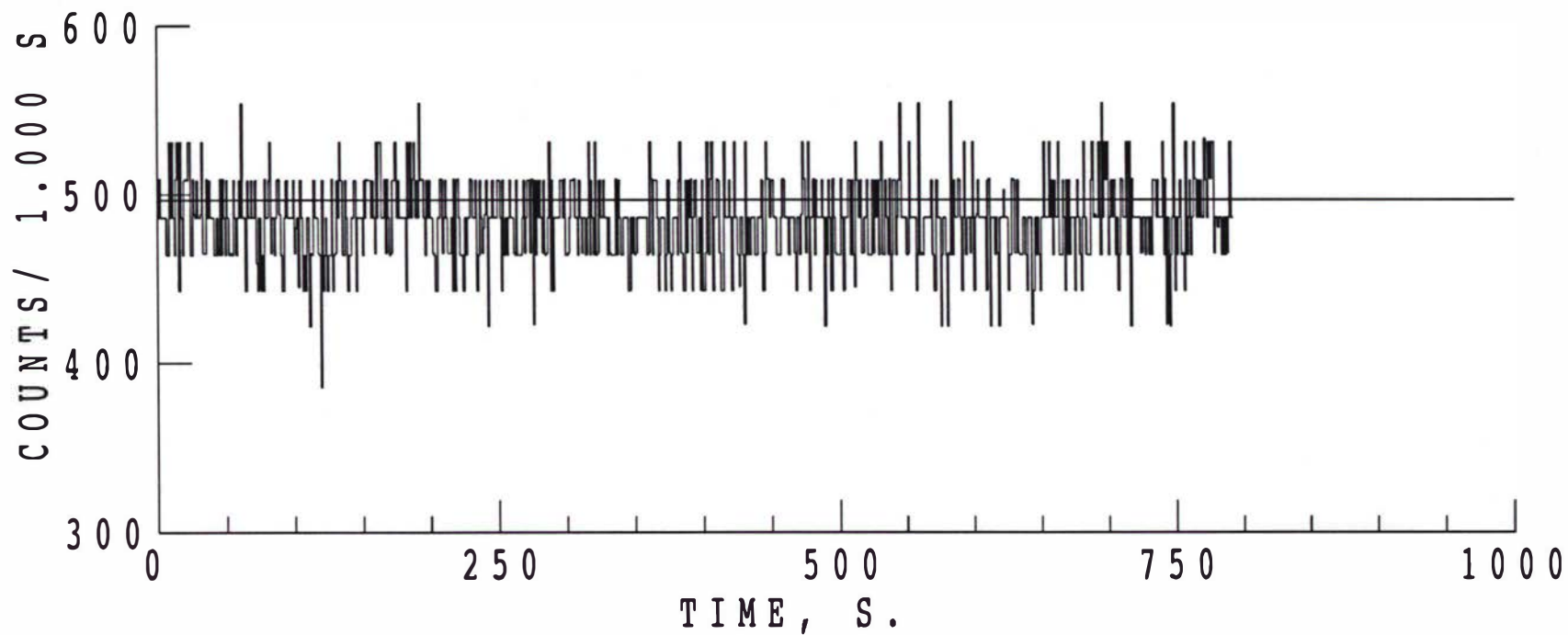
18 / 2 / 98 53748.051 s

0.500 S INTERVALS REGROUPED BY 2

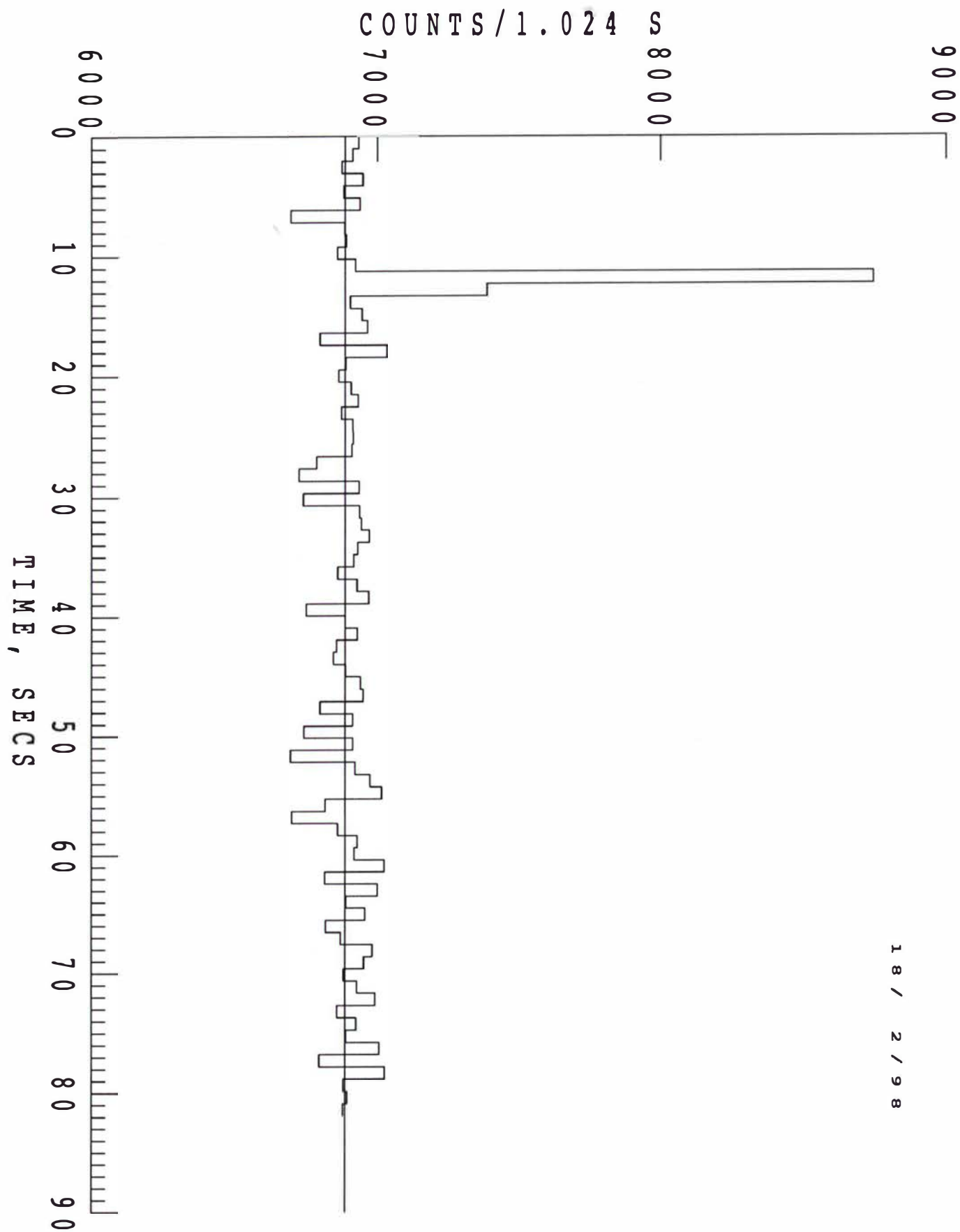
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BACODINE 6606 18/02/98 54754.017
25 - 100 keV



From WOODSP@SSLMOR.msfc.nasa.gov Thu Feb 19 14:17:04 1998
Date: Thu, 19 Feb 1998 16:14:56 -0600 (CST)
From: WOODSP@SSLMOR.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@estsa2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6607

TIME: TJD=0862 SECONDS=80285

TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.

From WOODSP@SSLMOR.msfc.nasa.gov Fri Feb 20 13:49:09 1998
 Return-Path: <WOODSP@SSLLES.MSFC.NASA.GOV>
 Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
 id NAA09900; Fri, 20 Feb 1998 13:49:04 -0800
 Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
 id NAA01473; Fri, 20 Feb 1998 13:48:57 -0800
 Date: Fri, 20 Feb 1998 15:47:13 -0600 (CST)
 From: WOODSP@SSLMOR.msfc.nasa.gov
 To: khurley@sunspot.ssl.berkeley.edu
 Message-Id: <980220154713.21e24c88@ssl.msfc.nasa.gov>
 Subject: Crossing Windows for BATSE Burst 6608
 Content-Length: 1135
 X-Lines: 26
 Status: RO

 BATSEARCH PROGRAM

BATSE BURST # 6608
 EVENT OF 1998 FEB 18 DAY OF YEAR= 49
 EVENT CROSSING TIME AT BATSE : 85663. S. OR 23:47:43.0
 COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
 BURST ARRIVAL DIRECTION: 217.000 -66.000
 BATSE PEAK COUNTING RATE: 2000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
 INTERPOLATED POSITION OF ULYSSES ON 18/ 2/ 98 IS:
 RA= 161.566 DEC= 12.816 DIST= 4.419 AU
 BATSE-ULYSSES DISTANCE = 661139276. KM.
 ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 91.28 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= -49.34 SECS.
 CROSSING TIME AT ULYSSES IS 85614. S. OR 23:46:53 +/- 432.03 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
 POSITION OF MARS ON 18/ 2/ 98 IS:
 RA= 349.814 DEC= -5.286 DIST= 2.286 AU
 MARS-BATSE DISTANCE = 341975424. KM.
 ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 78.98 DEG.
 LIGHT TRAVEL TIME ALONG PROJECTED PATH= 217.98 SECS.
 CROSSING TIME AT MARS IS 85881. S. OR 23:51:20 +/- 197.71 SECONDS

BATSE BURST TRIGGER

NO.: 6608

TIME: TJD=0862 SECONDS=85663

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=82.4 AZIMUTH=277.4 ERROR=5 DEGREES

COMMENTS:

GRB LASTING ABOUT 20 SEC. LITTLE DATA AVAILABLE. NOT VISIBLE
 ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6608	980218	10862	85663	2000	217	-66	20

BATSE BURST# 6608

ULYSSES RT

20 / 2 / 98

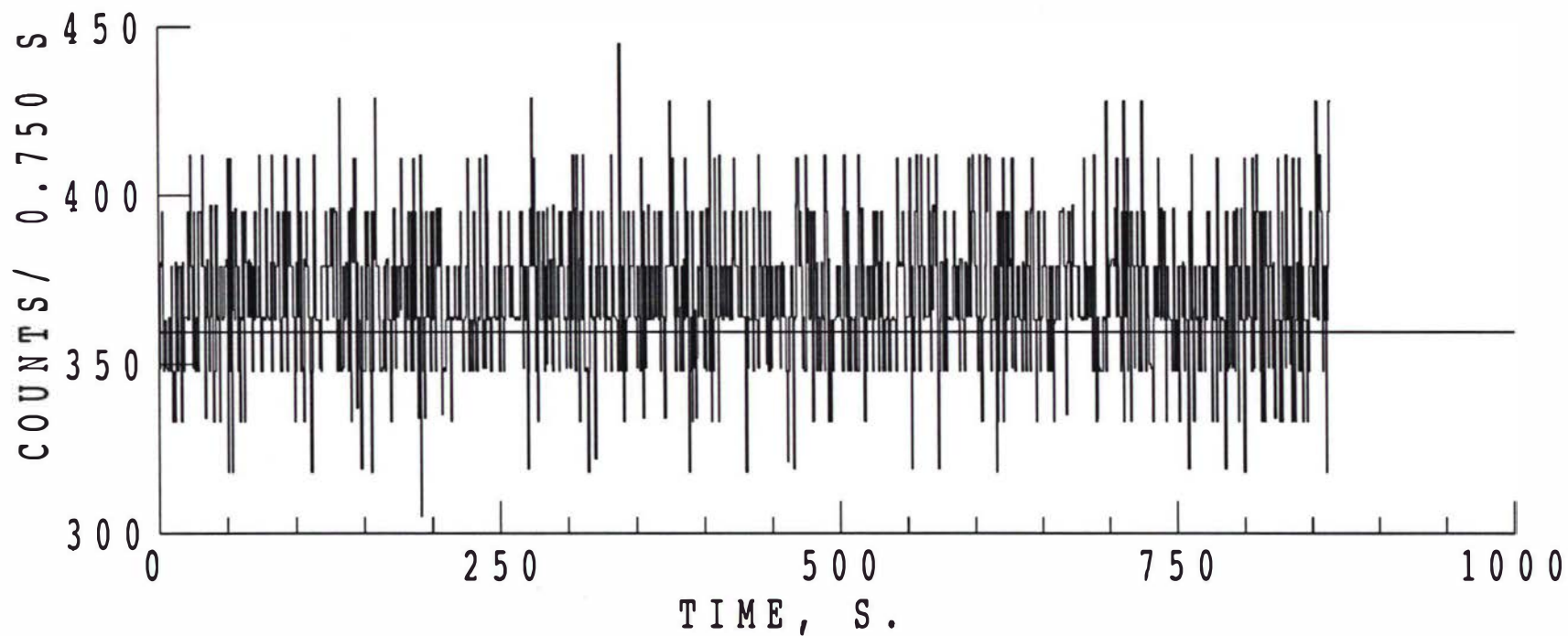
18 / 2 / 98 85176.148 s

0.250 S INTERVALS REGROUPED BY 3

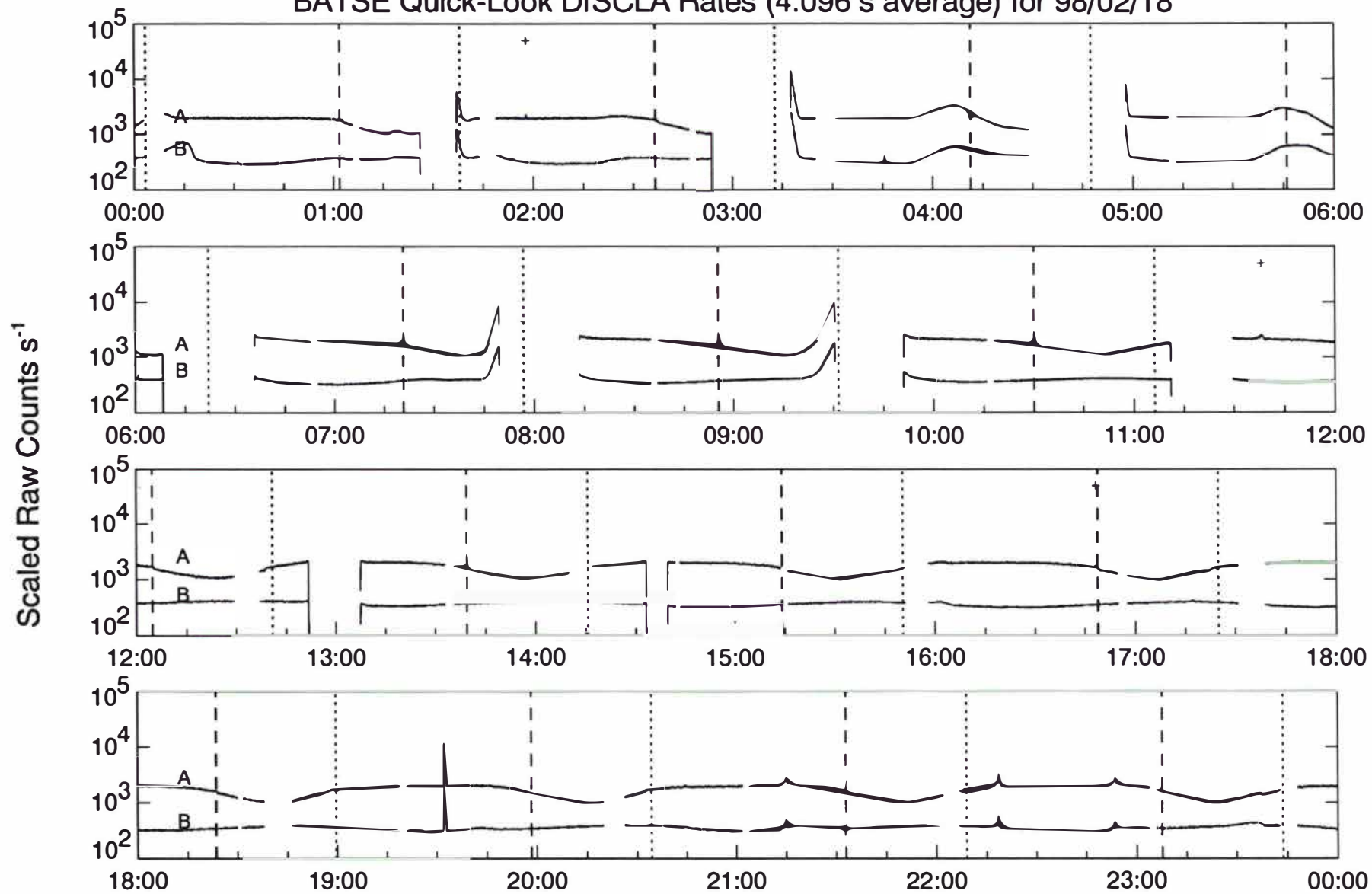
0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



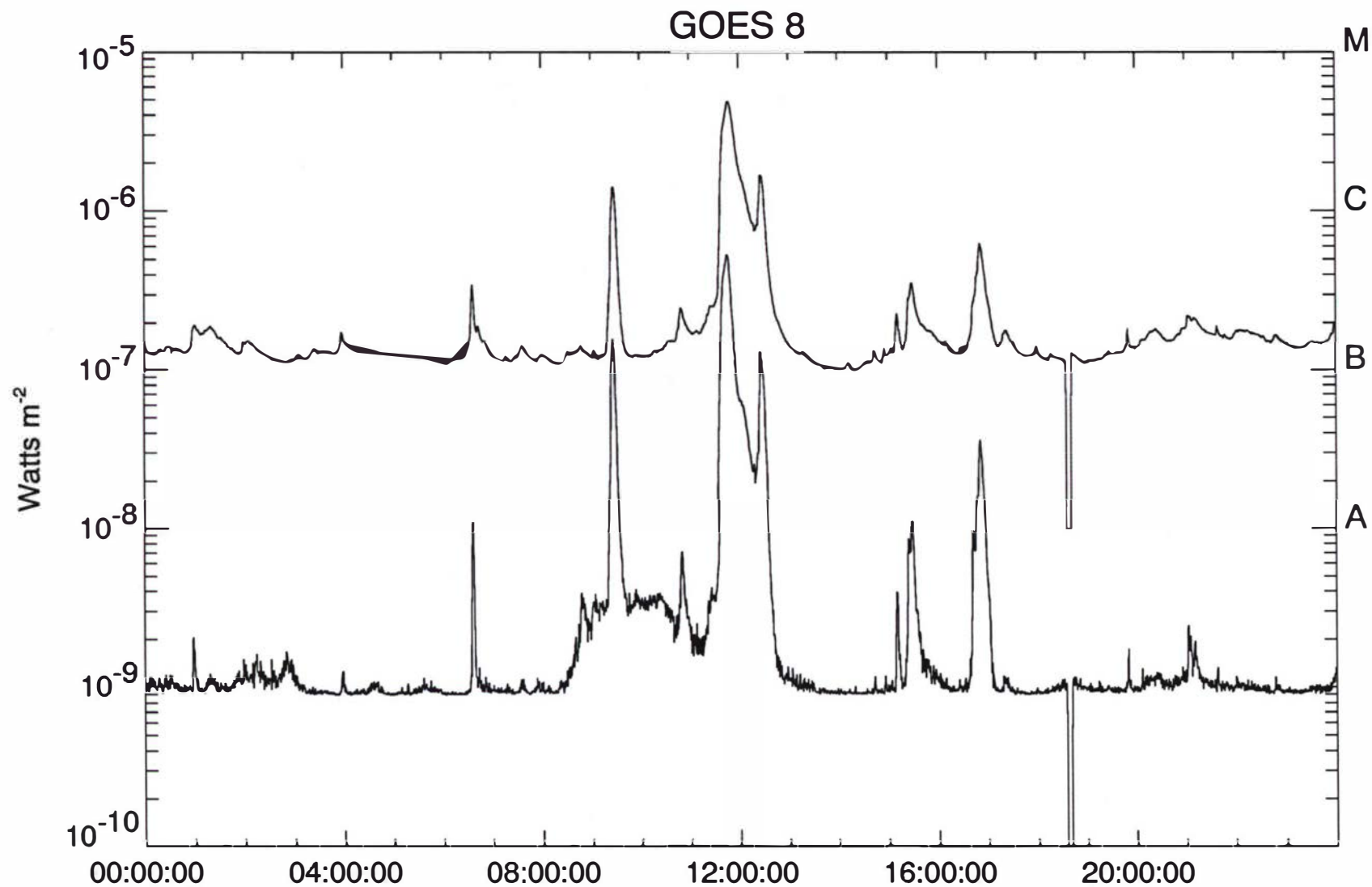
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/18



Current Time: 98/02/22, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/18, 0000:00

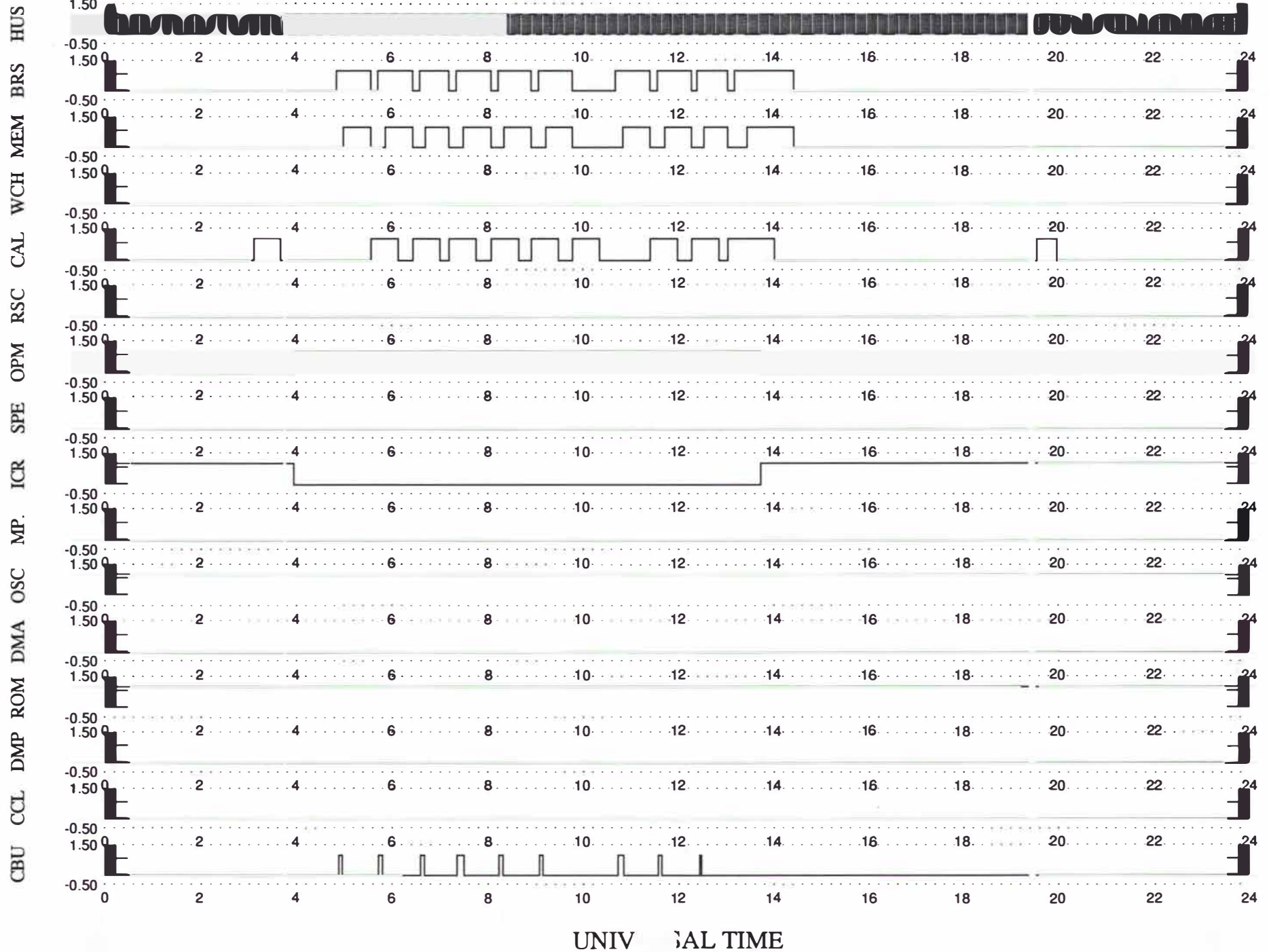
Plot created: 98/02/22, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

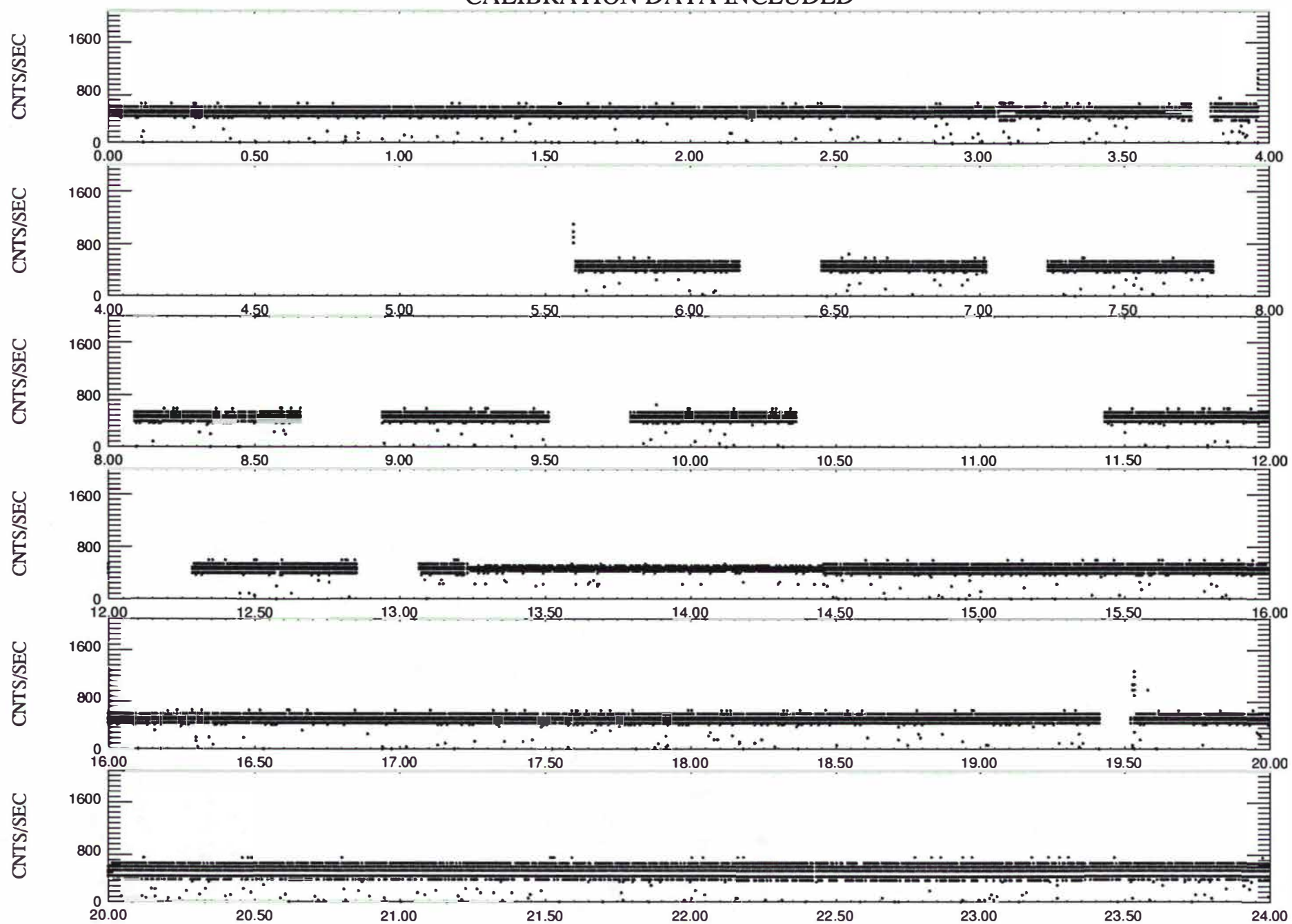
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

BURST NUMBER 1 - 10

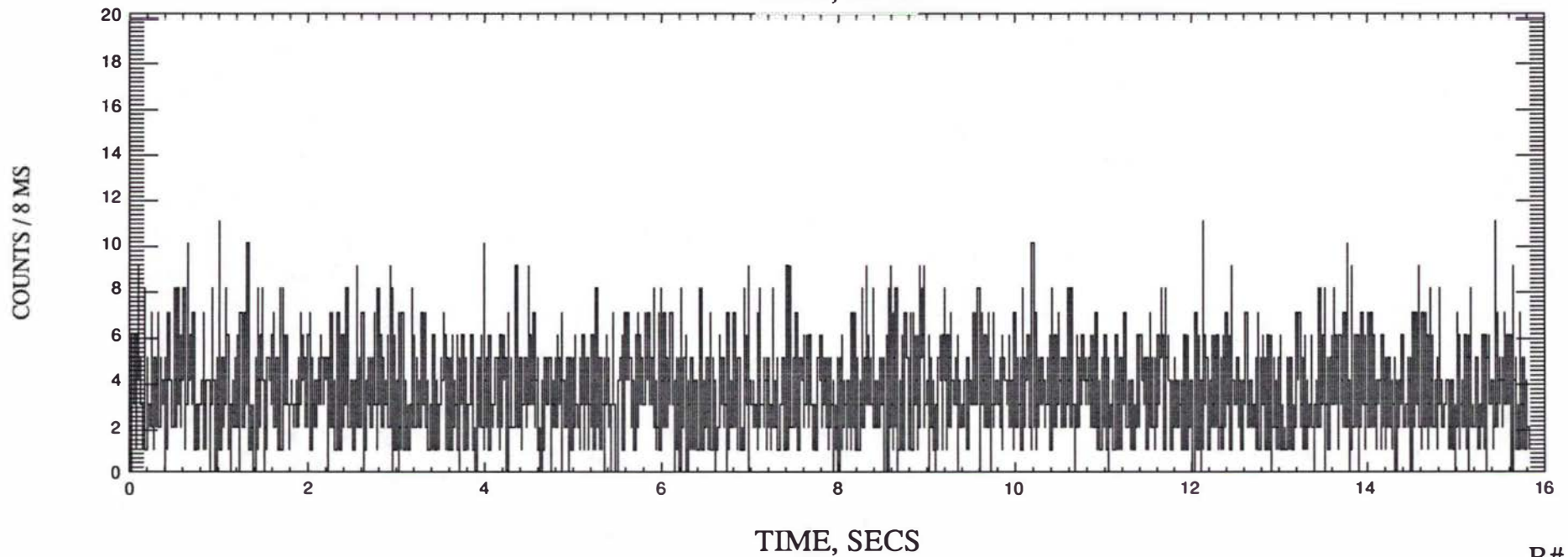
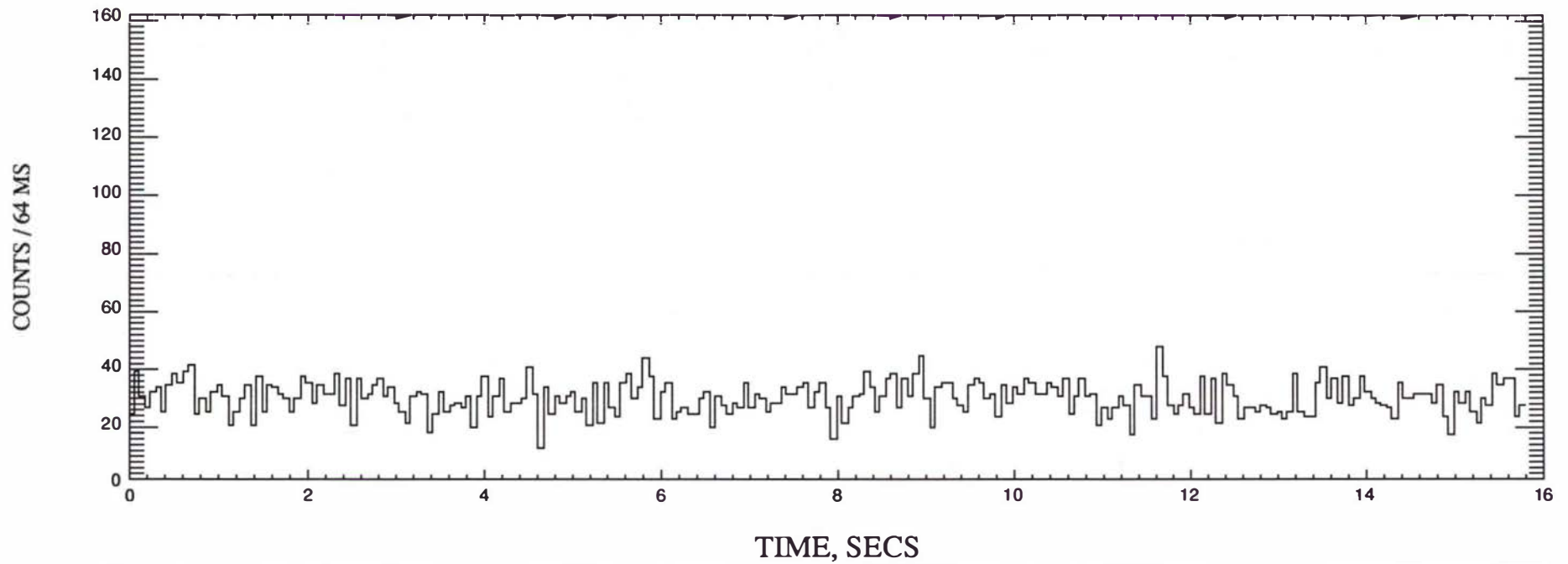


CALIBRATION DATA INCLUDED

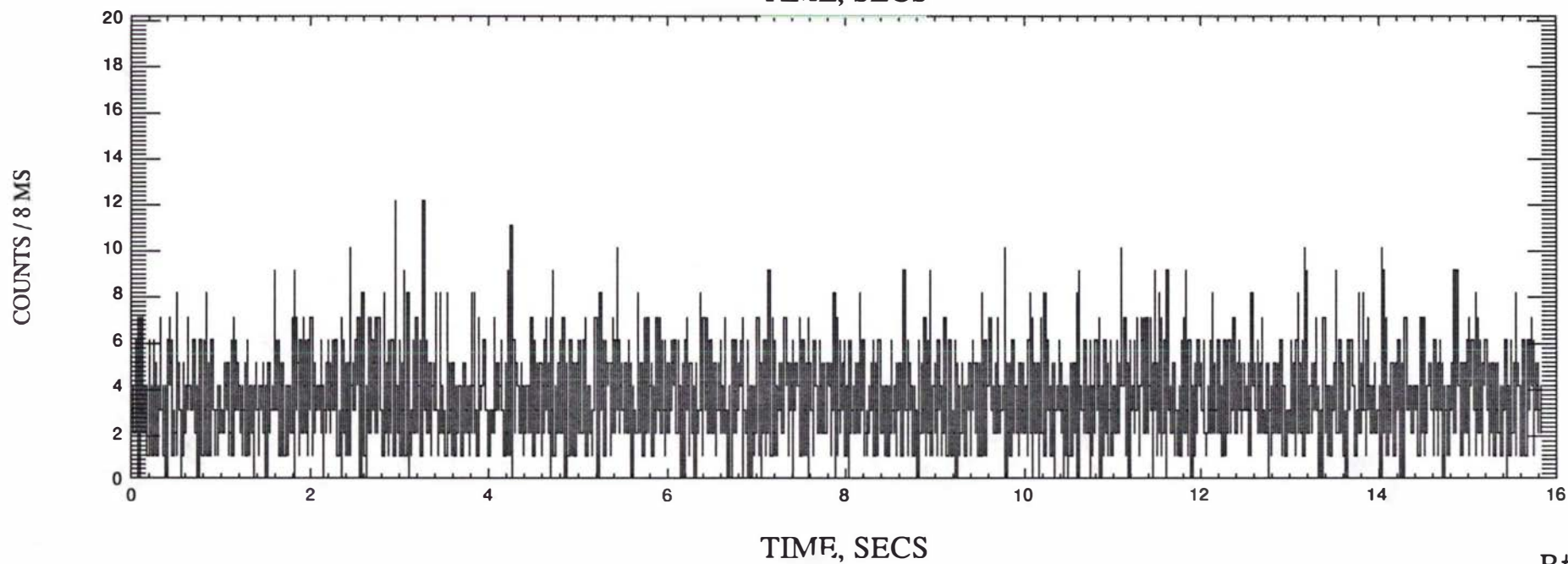
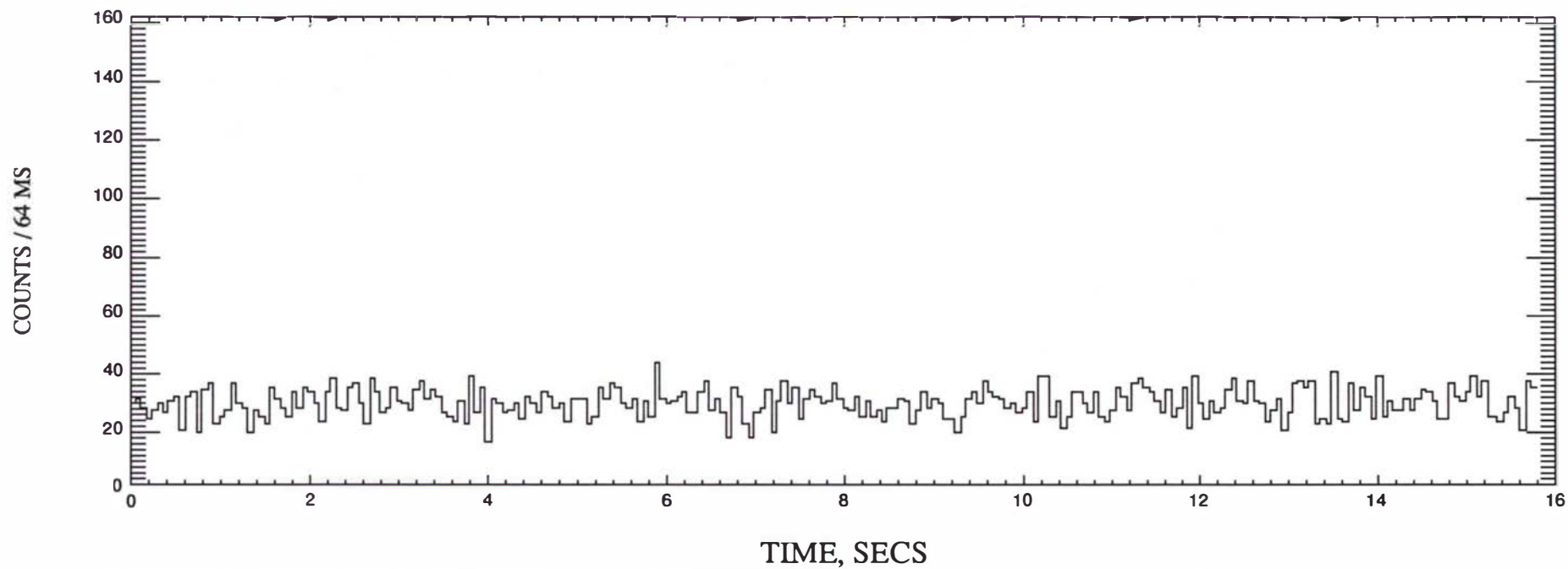


UNIV UNIV TIME

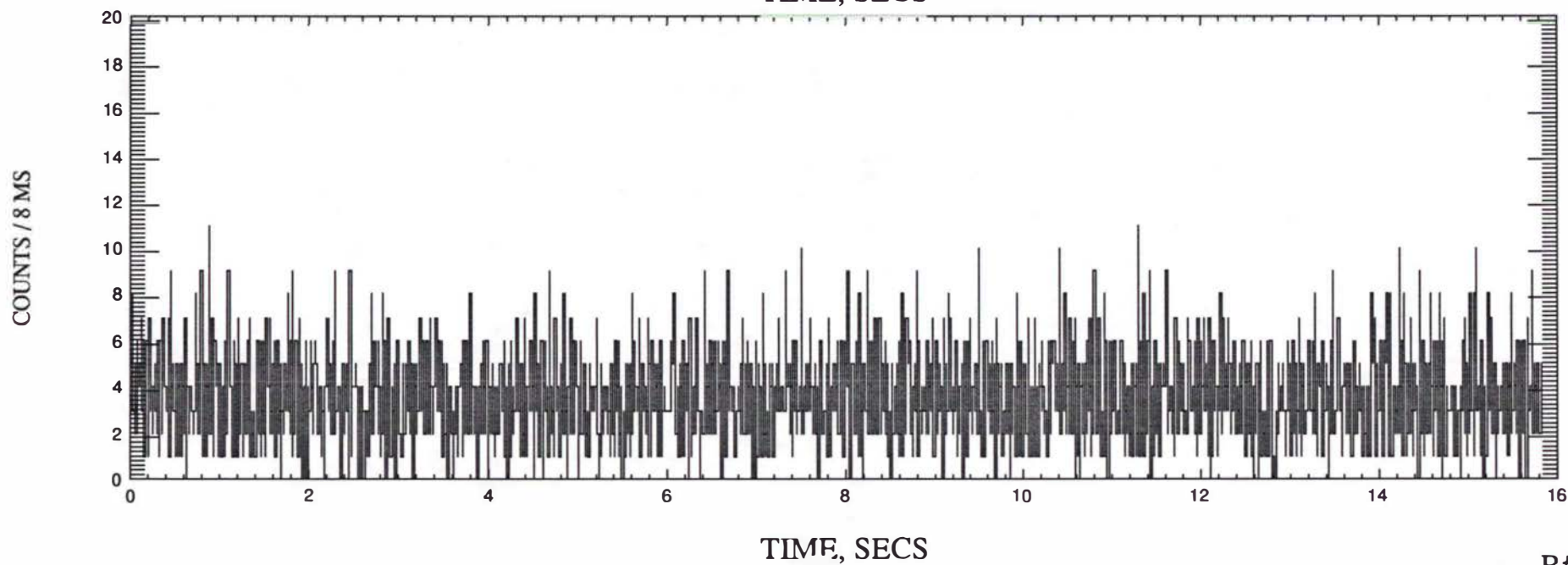
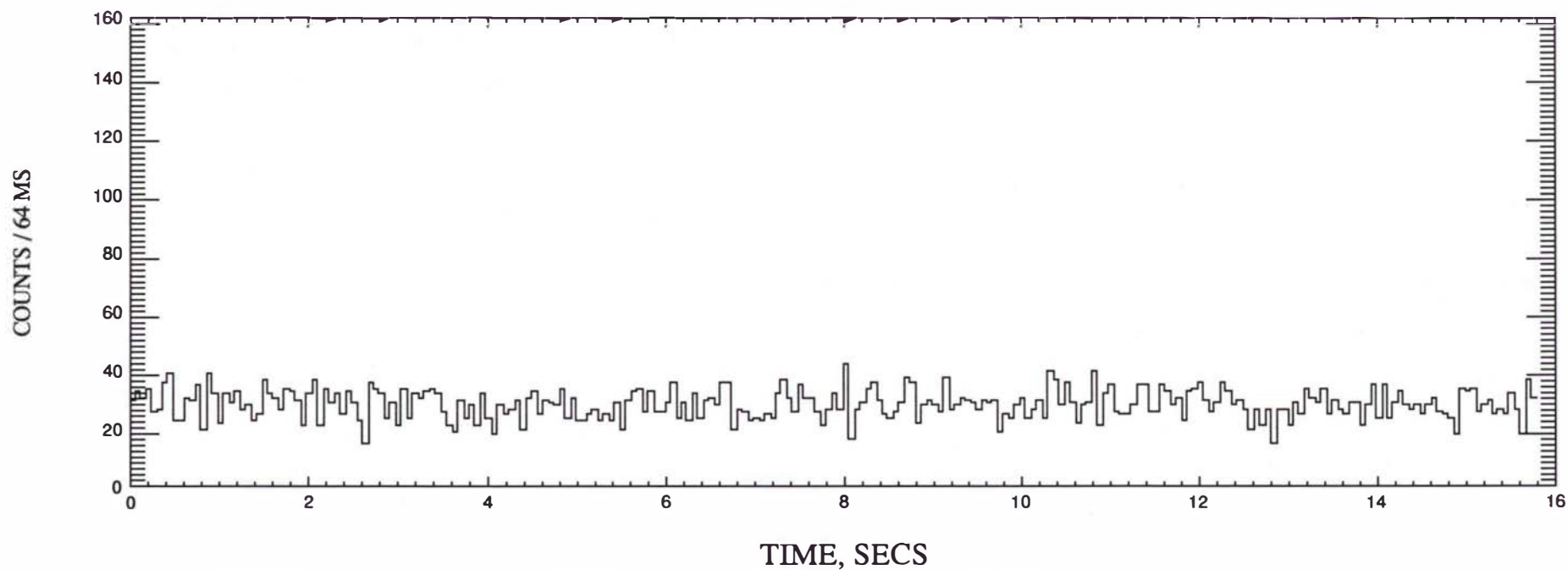
Burst Counter 1 at UT= 4.867518403795 h=17523.066 s 04:52:03.066



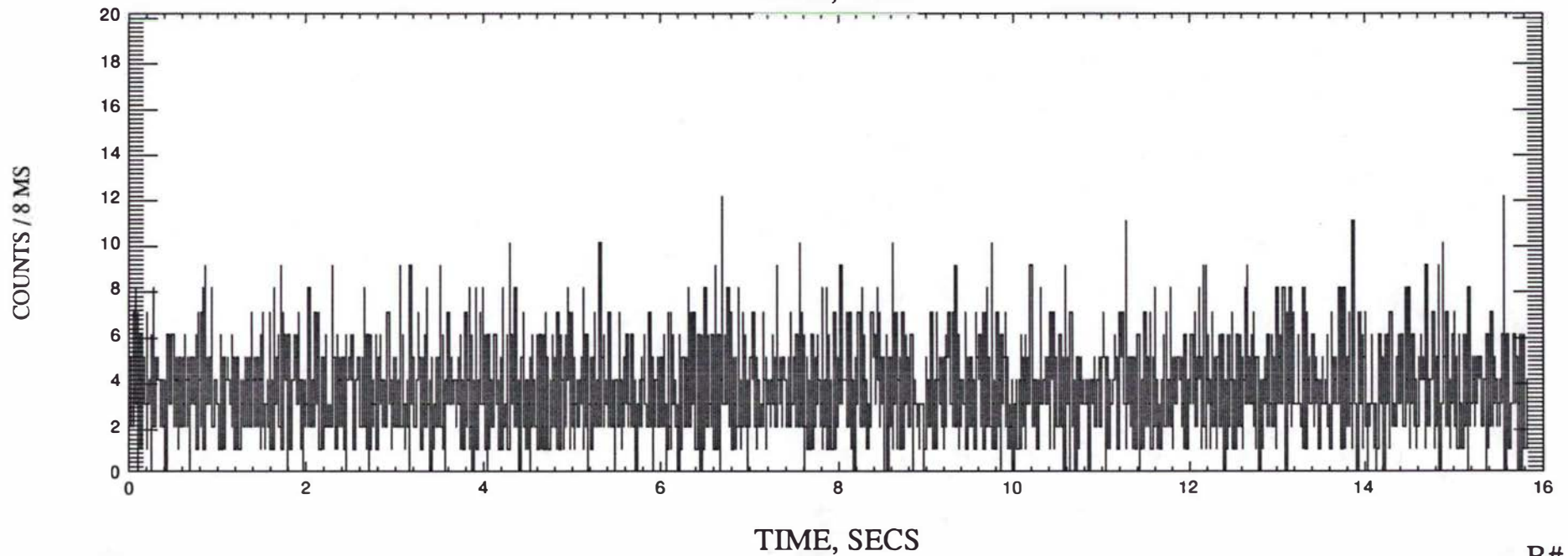
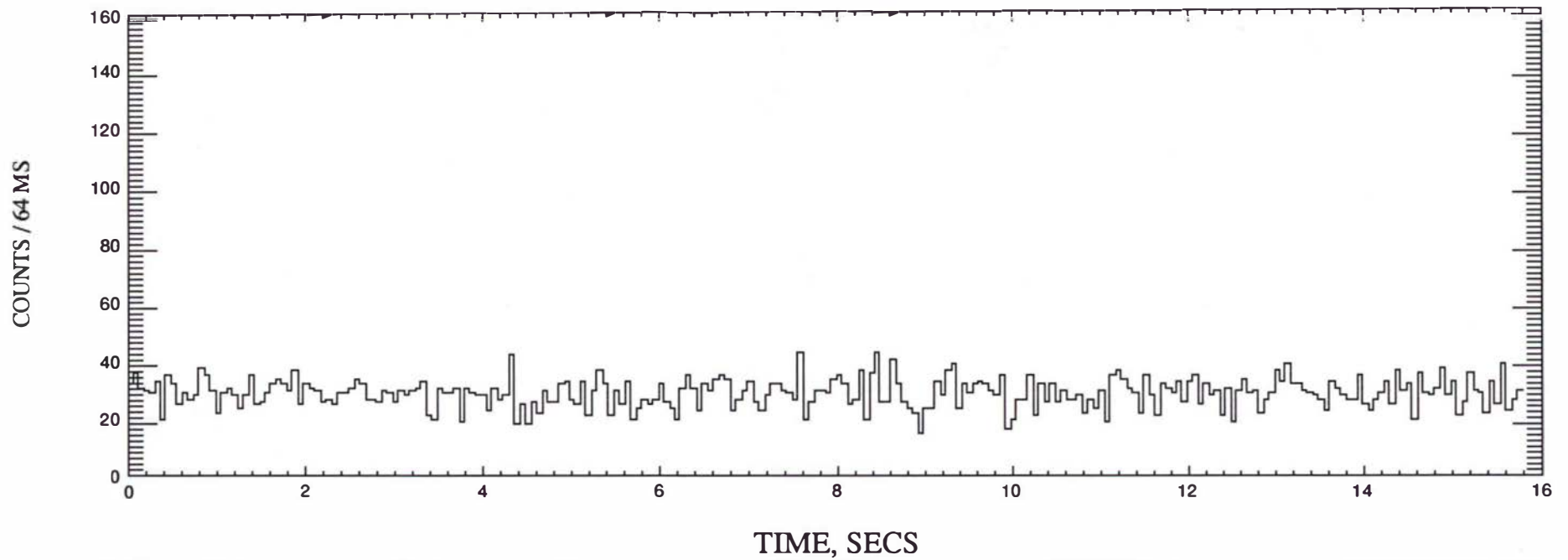
Burst Counter 2 at UT= 5.700861032274 h=20523.100 s 05:42:03.100



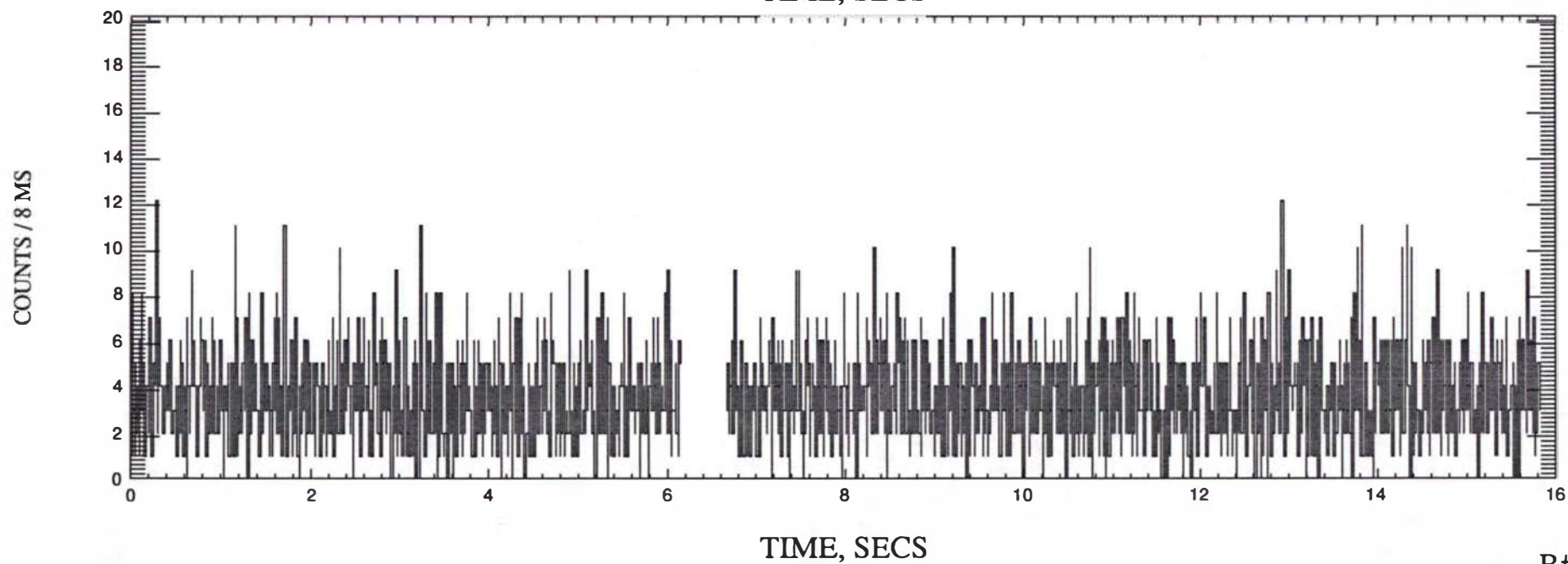
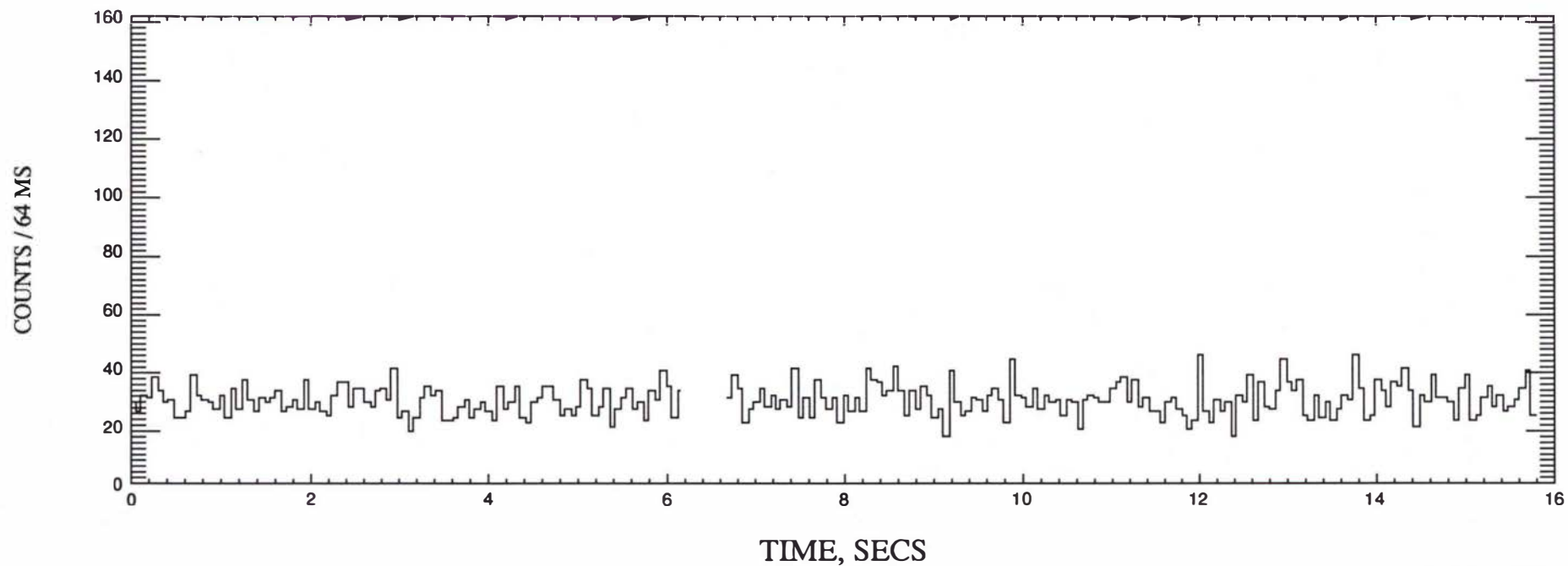
Burst Counter 3 at UT= 6.534168938531 h=23523.008 s 06:32:03.008



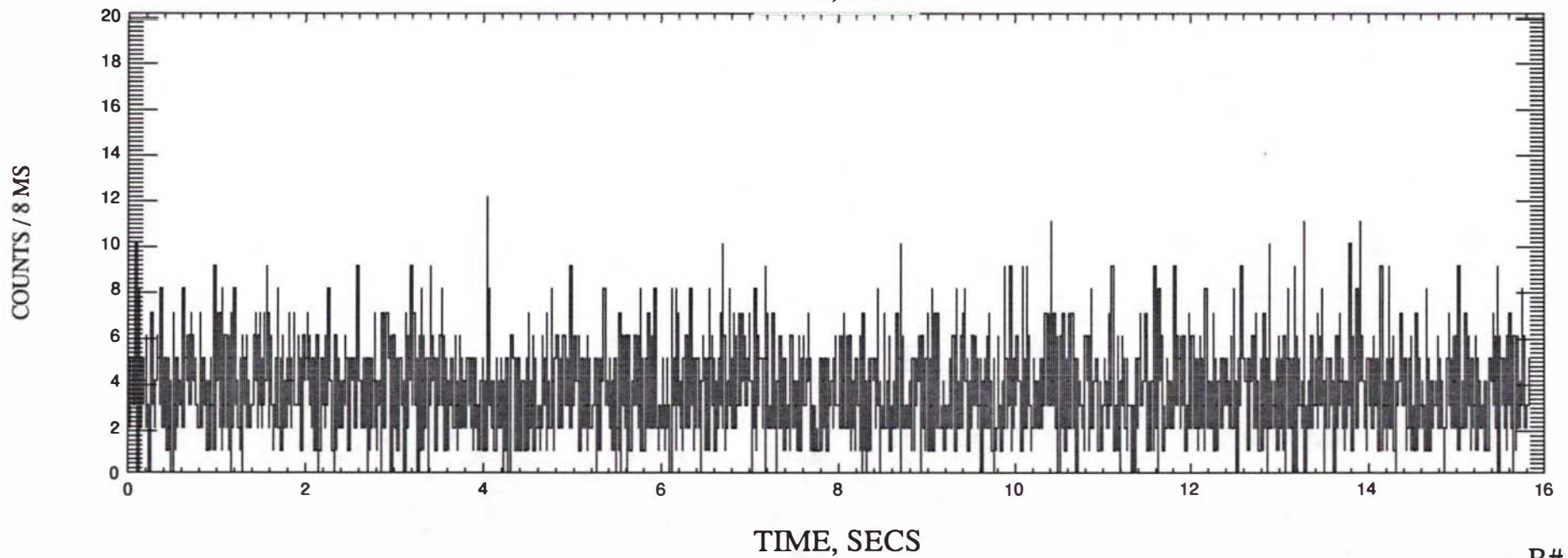
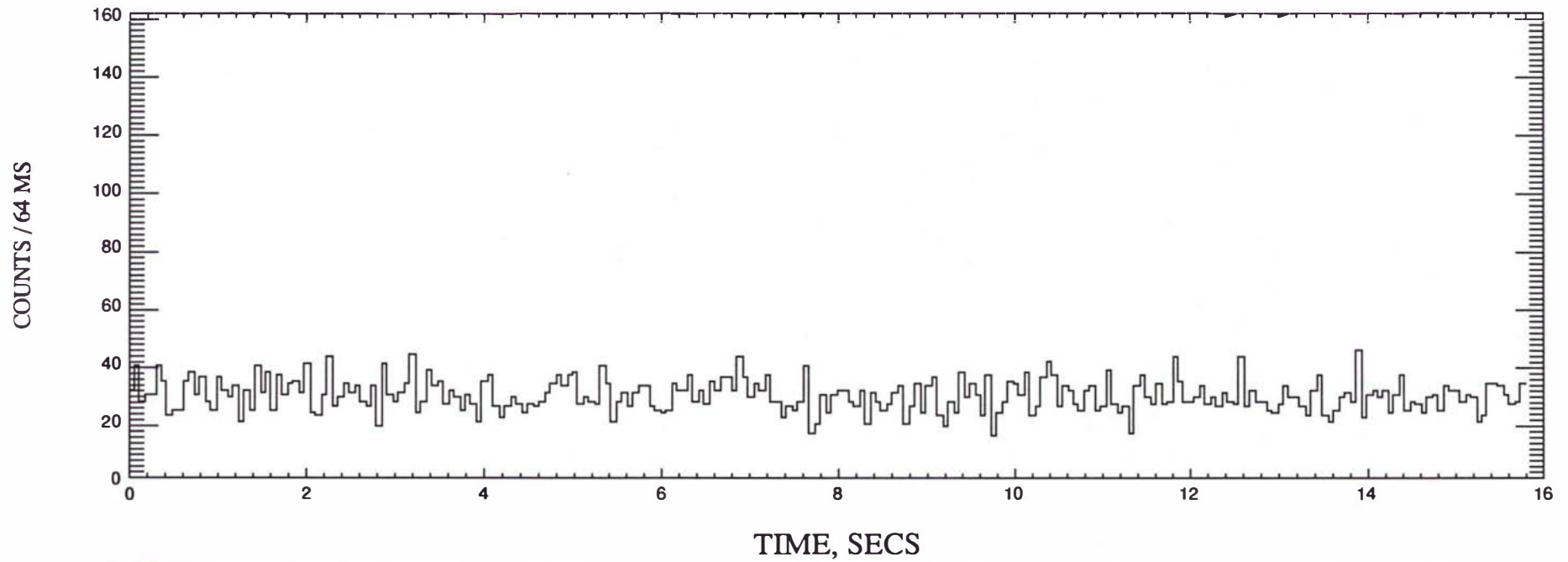
Burst Counter 4 at UT= 7.367476069132 h=26522.914 s 07:22:02.914



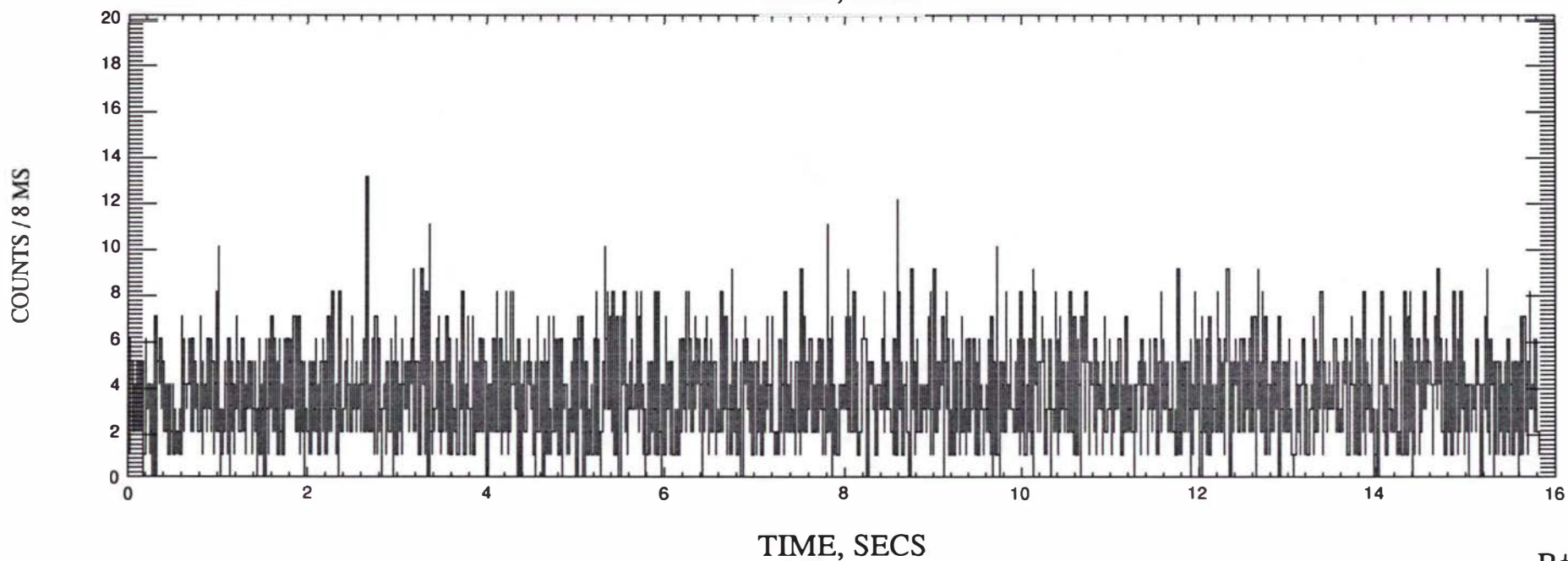
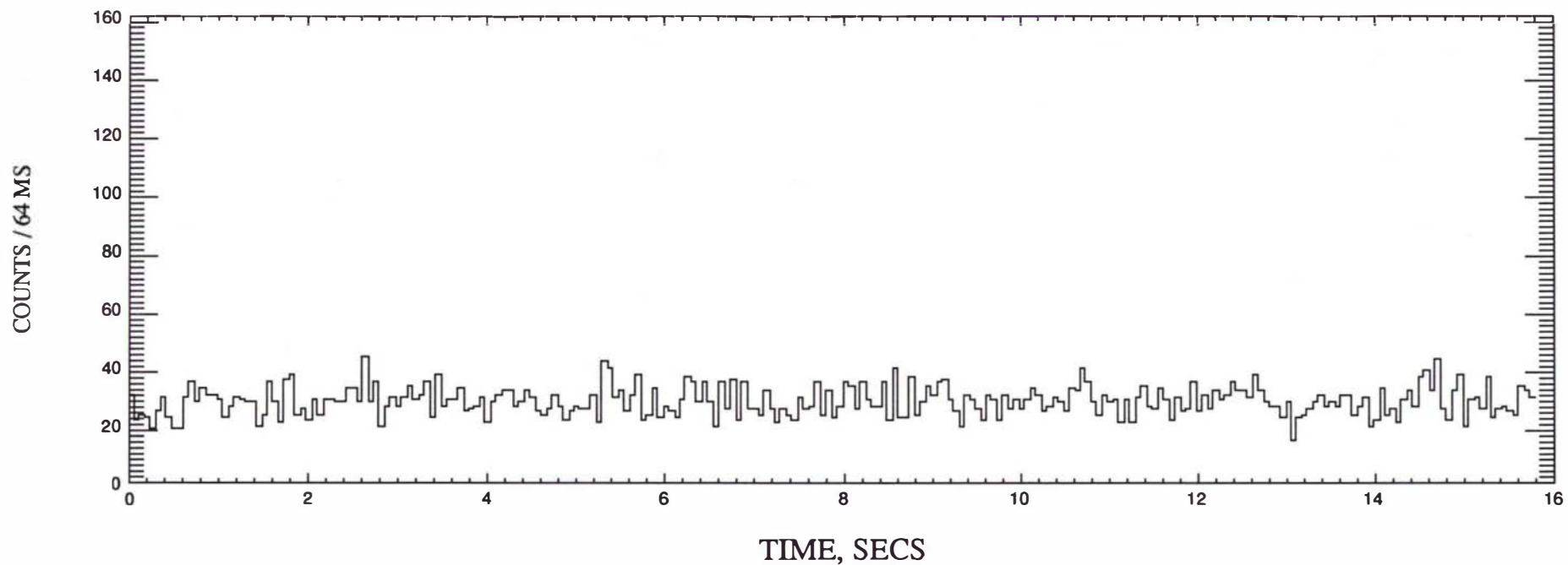
Burst Counter 5 at UT= 8.200818697611 h=29522.947 s 08:12:02.947



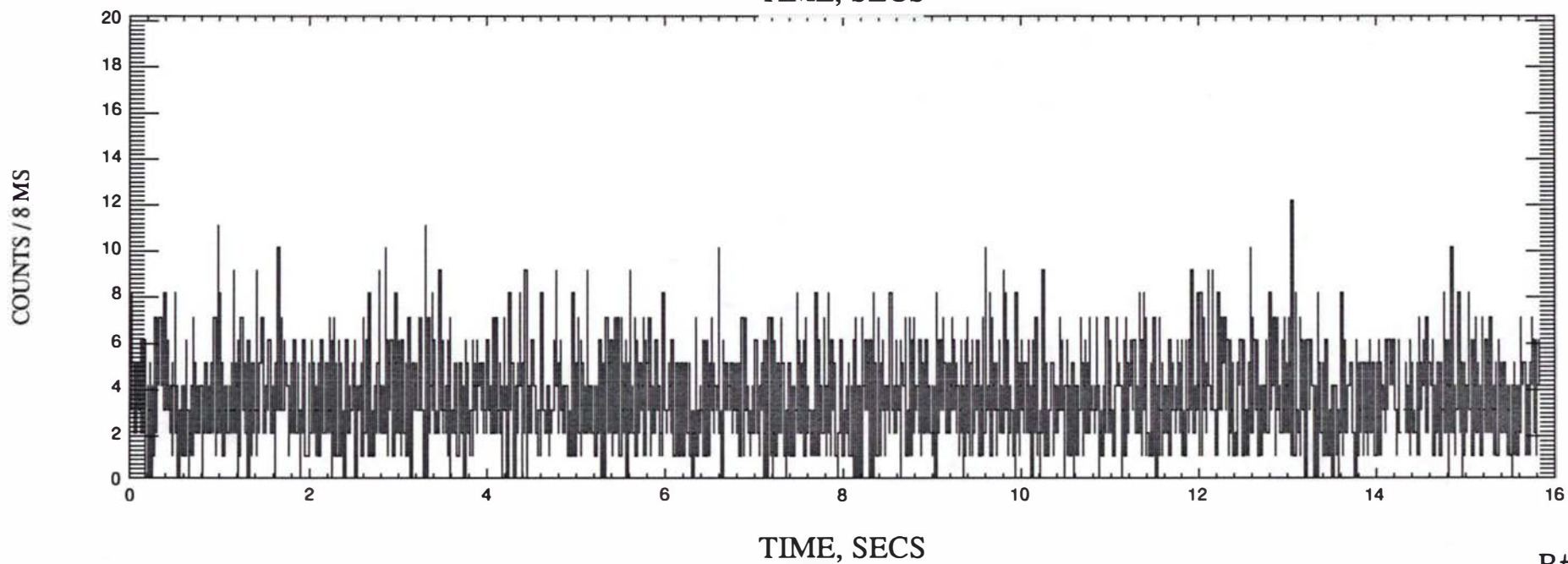
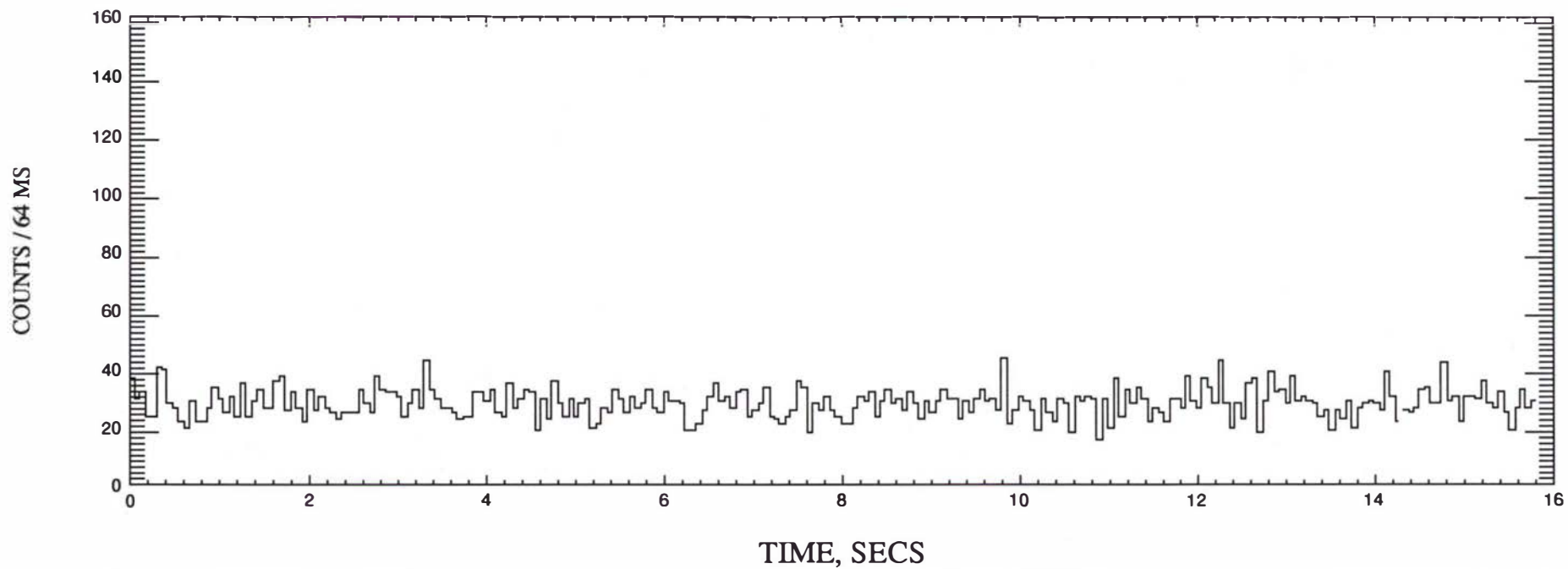
Burst Counter 6 at UT= 9.034126608107 h=32522.856 s 09:02:02.856



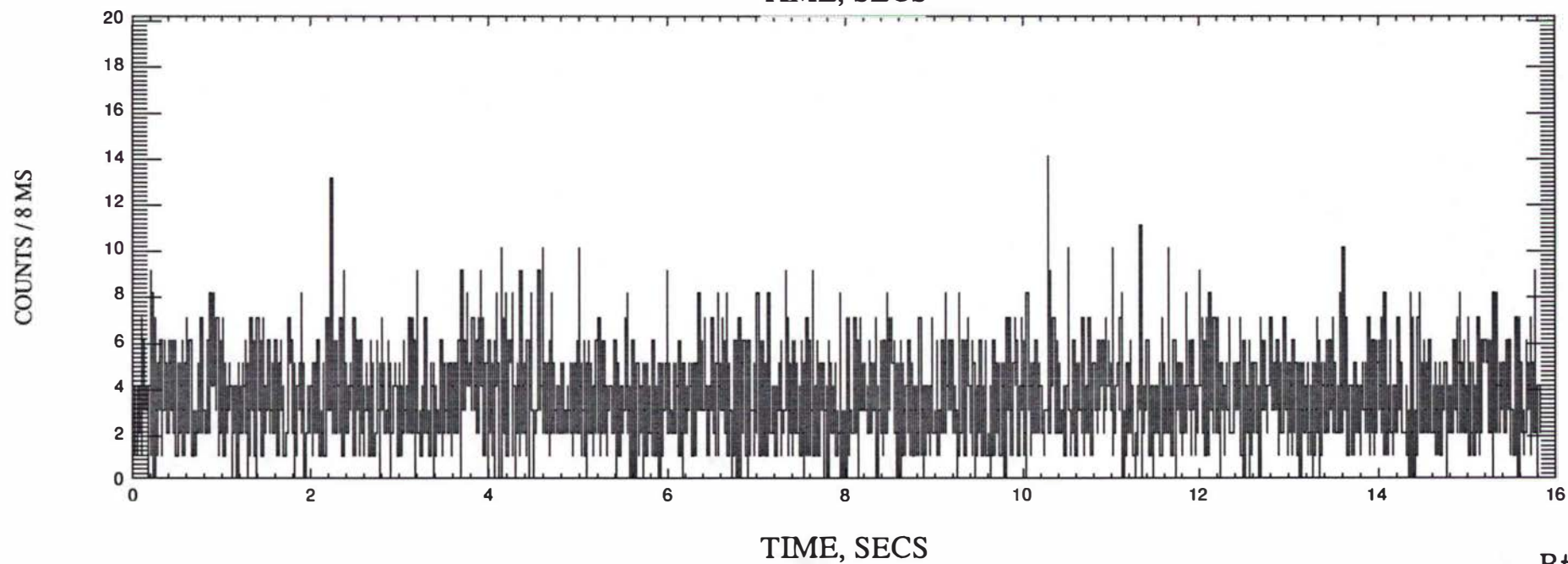
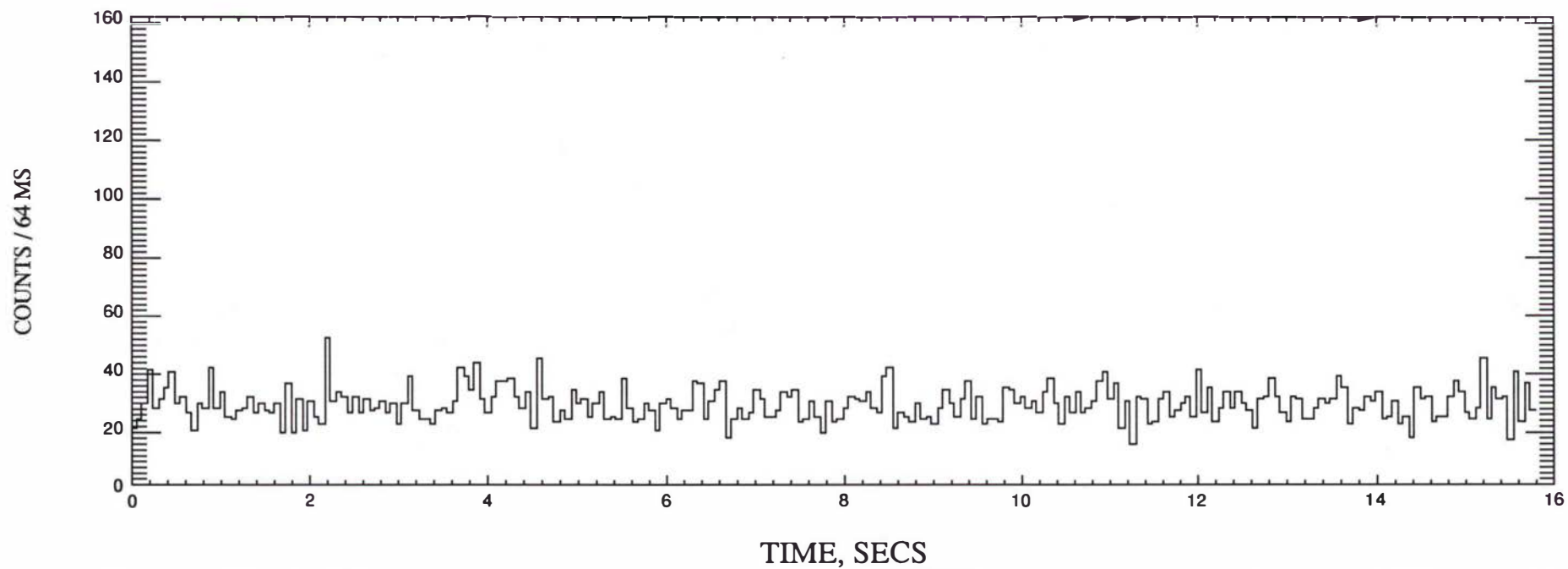
Burst Counter 7 at UT=10.700776367187 h=38522.795 s 10:42:02.795



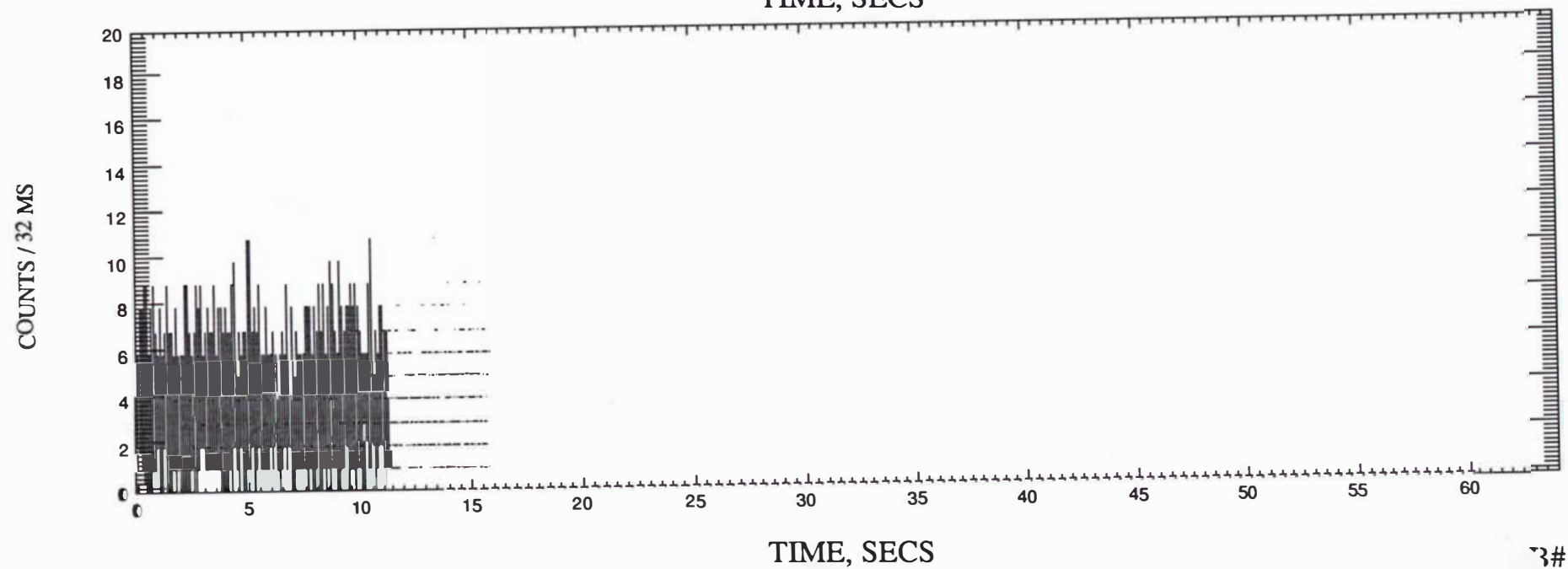
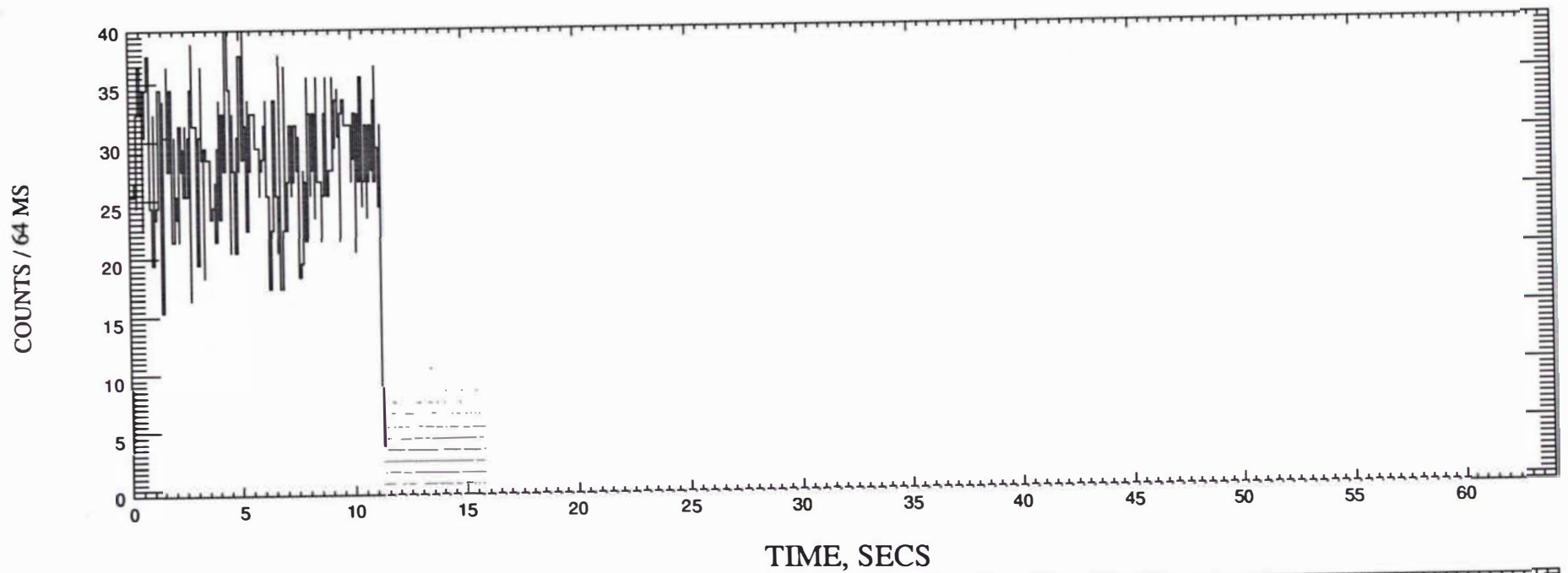
Burst Counter 8 at UT=11.534084273444 h=41522.703 s 11:32:02.703

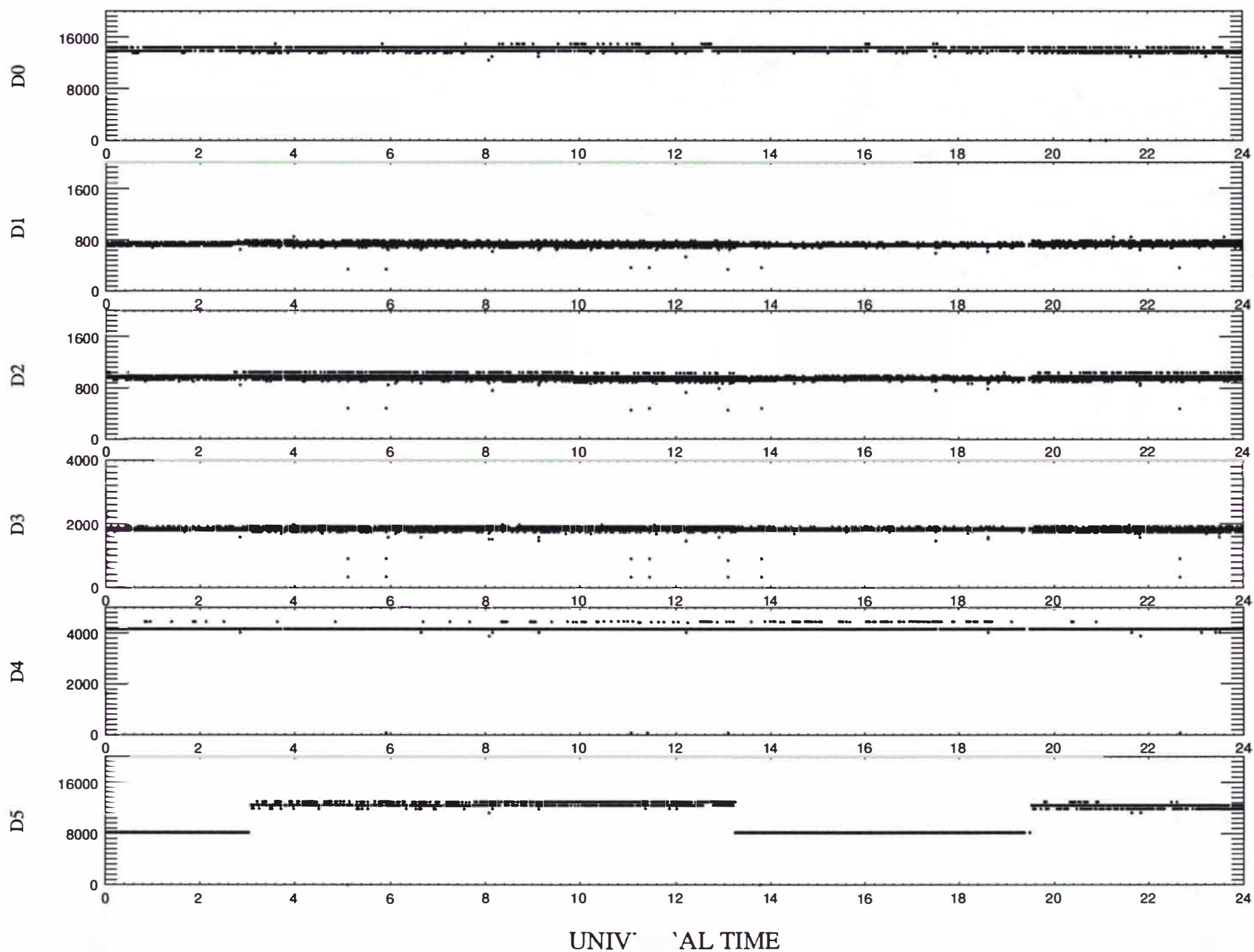


Burst Counter 9 at UT=12.367392179701 h=44522.612 s 12:22:02.612



Burst Counter 10 at UT=13.200734032525 h=47522.643 s 13:12:02.643





From RICHARDSON@SSLMOR.msfc.nasa.gov Mon Feb 23 09:58:41 1998
Return-Path: <RICHARDSON@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA00941; Mon, 23 Feb 1998 09:58:41 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA02948; Mon, 23 Feb 1998 09:58:41 -0800
Date: Mon, 23 Feb 1998 11:58:27 -0600 (CST)
From: RICHARDSON@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980223115827.21e218f4@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6609
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6609
EVENT OF 1998 FEB 19 DAY OF YEAR= 50
EVENT CROSSING TIME AT BATSE : 49963. S. OR 13:52:43.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 251.000 -55.000
BATSE PEAK COUNTING RATE: 29000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 19/ 2/ 98 IS:
RA= 161.435 DEC= 12.832 DIST= 4.418 AU
BATSE-ULYSSES DISTANCE = 660958585. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 79.76 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 391.75 SECS.
CROSSING TIME AT ULYSSES IS 50355. S. OR 13:59:14 +/- 432.63 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 19/ 2/ 98 IS:
RA= 350.533 DEC= -4.971 DIST= 2.289 AU
MARS-BATSE DISTANCE = 342420192. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 88.64 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 27.02 SECS.
CROSSING TIME AT MARS IS 49990. S. OR 13:53:10 +/- 198.66 SECONDS

BATSE BURST TRIGGER

NO.: 6609

TIME: TJD=0863 SECONDS=49963

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=64.7 AZIMUTH=286.4 ERROR=0.5 DEGREES

COMMENTS:

GRB. LOTS OF STRUCTURE. EMISSION RETURNS TO BACKGROUND BETWEEN SOME PULSES.
TOTAL DURATION APPROX. = 110SEC. VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6609	980219	10863	49963	29000	251	-55	110

Helio corr removed 18/2/00

Date: May 7 '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? **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)? **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**

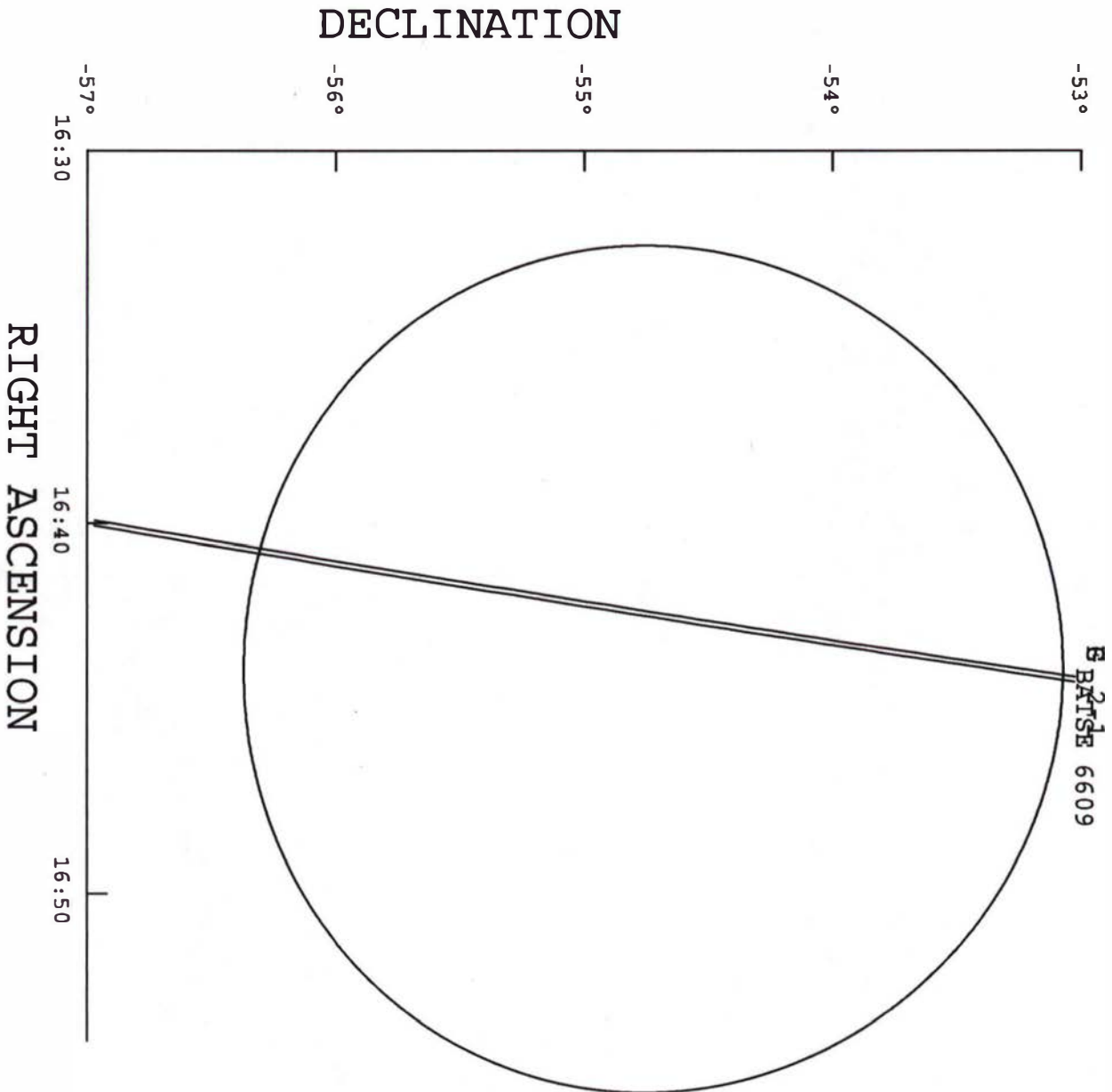
3. PVO Data

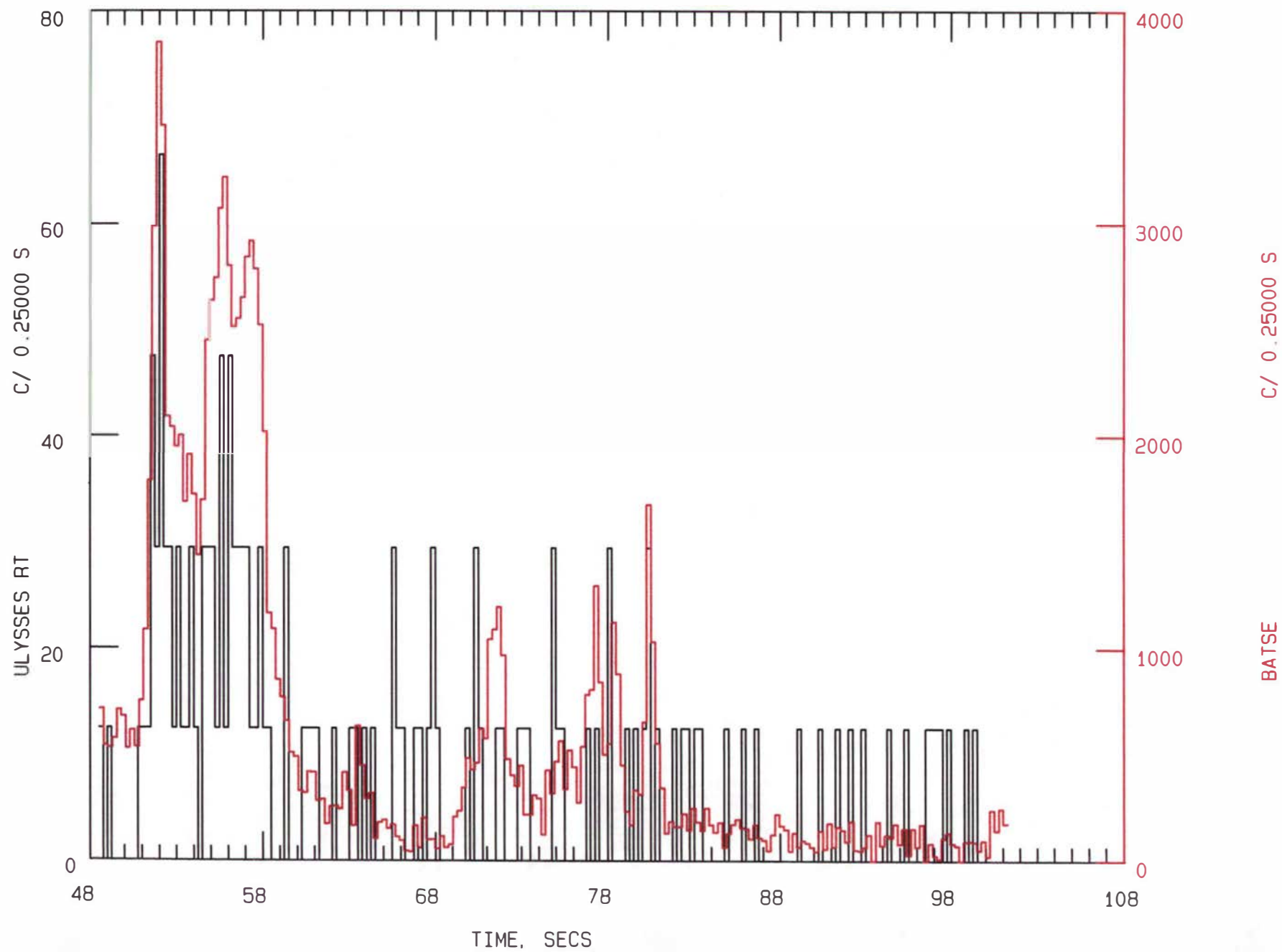
- ☐ Ephemeris of PVO used (not Venus)?
- ☐ 2000 coordinates used?
- ☐ Geocentric time used?
- ☒ ACCESS database updated?

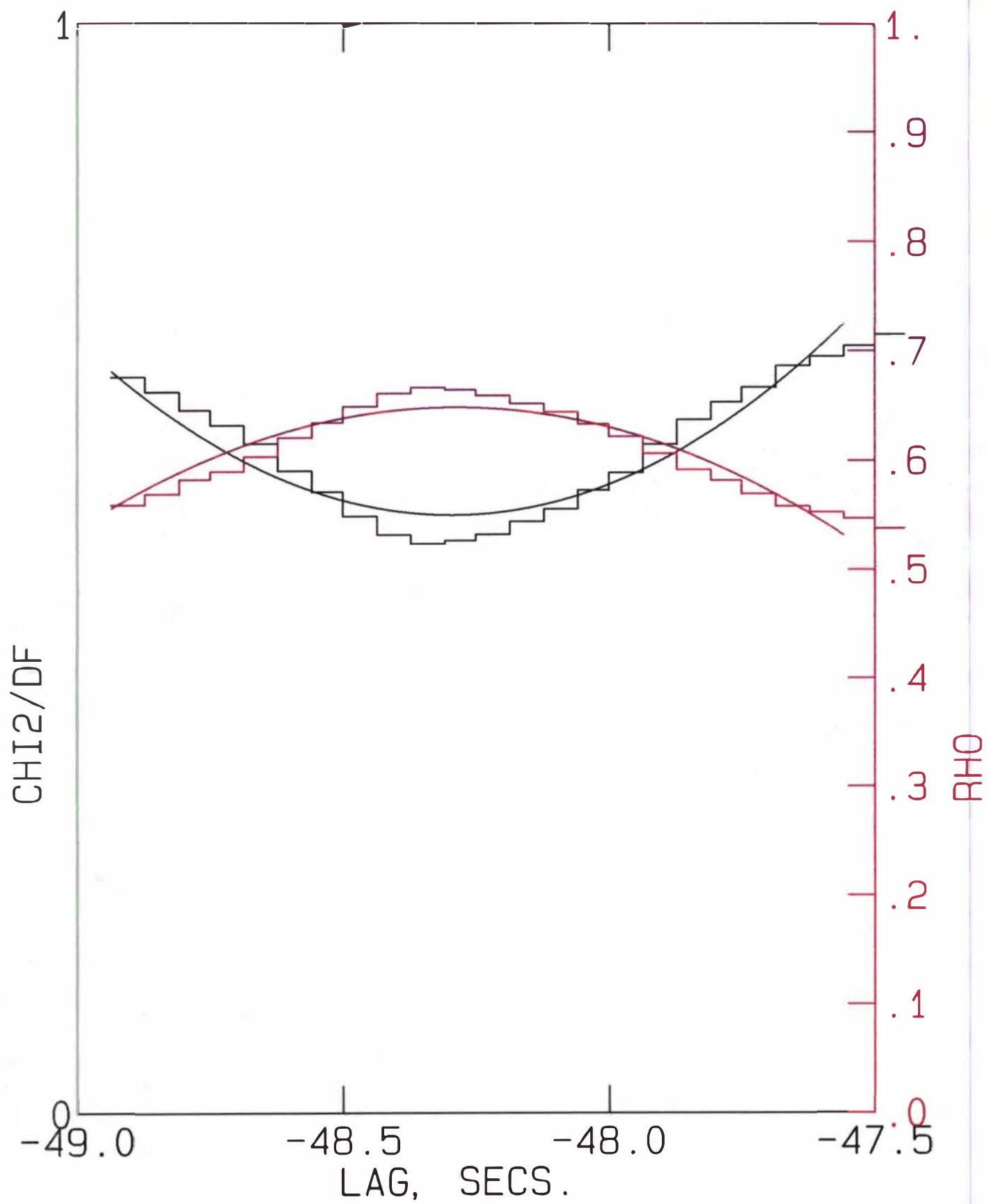
N-M = CORRELATION BETWEEN SATELLITES N AND M
 EARTH-N = EARTH AS SEEN FROM SATELLITE N
 S=SUN E=ECLIPTIC G=GALACTIC EQUATOR
 1 ULYSSES 2 BATSE

EVENT OF FEB 19, 1998 13:57

18 / 2 / 0







ULYSSES RT

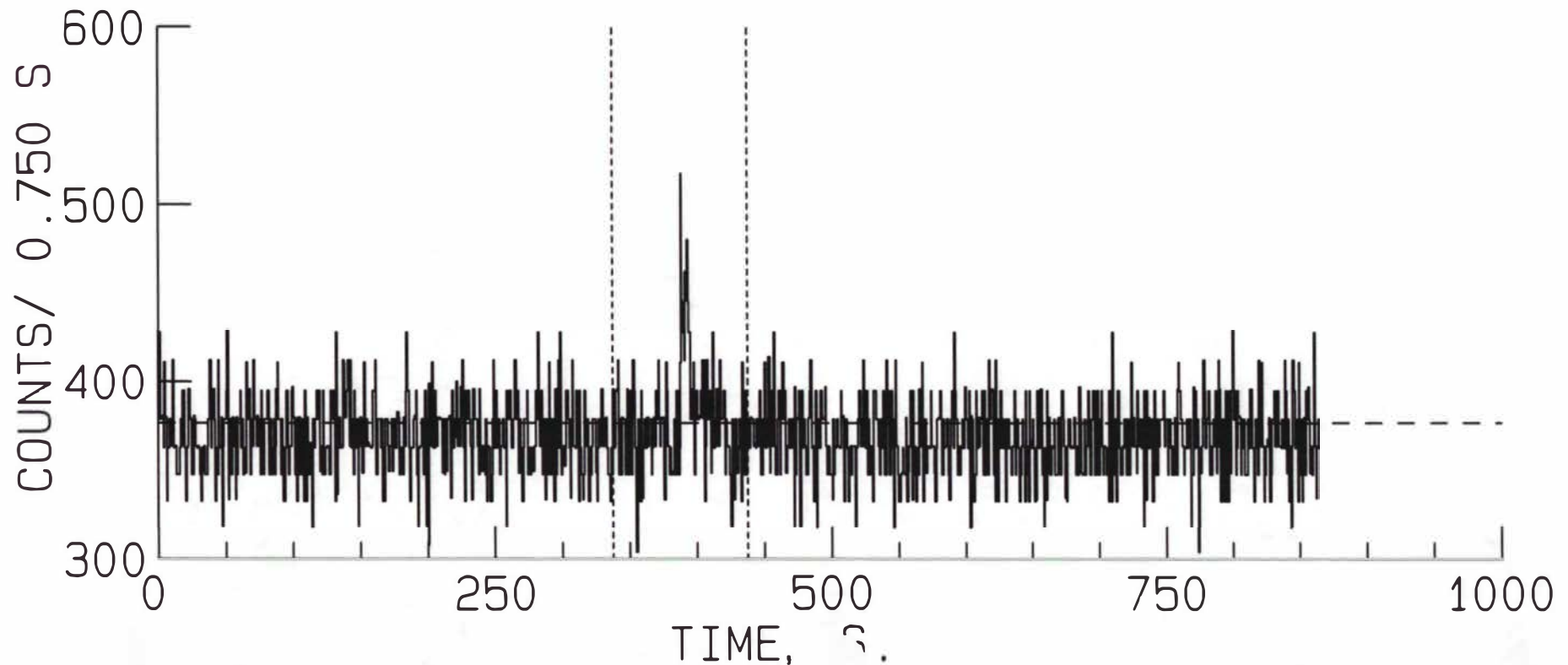
7 / 5 / 98

19 / 2 / 98 49932.206 s

0.250 S INTERVALS REGROUPED BY 3

22- 148 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



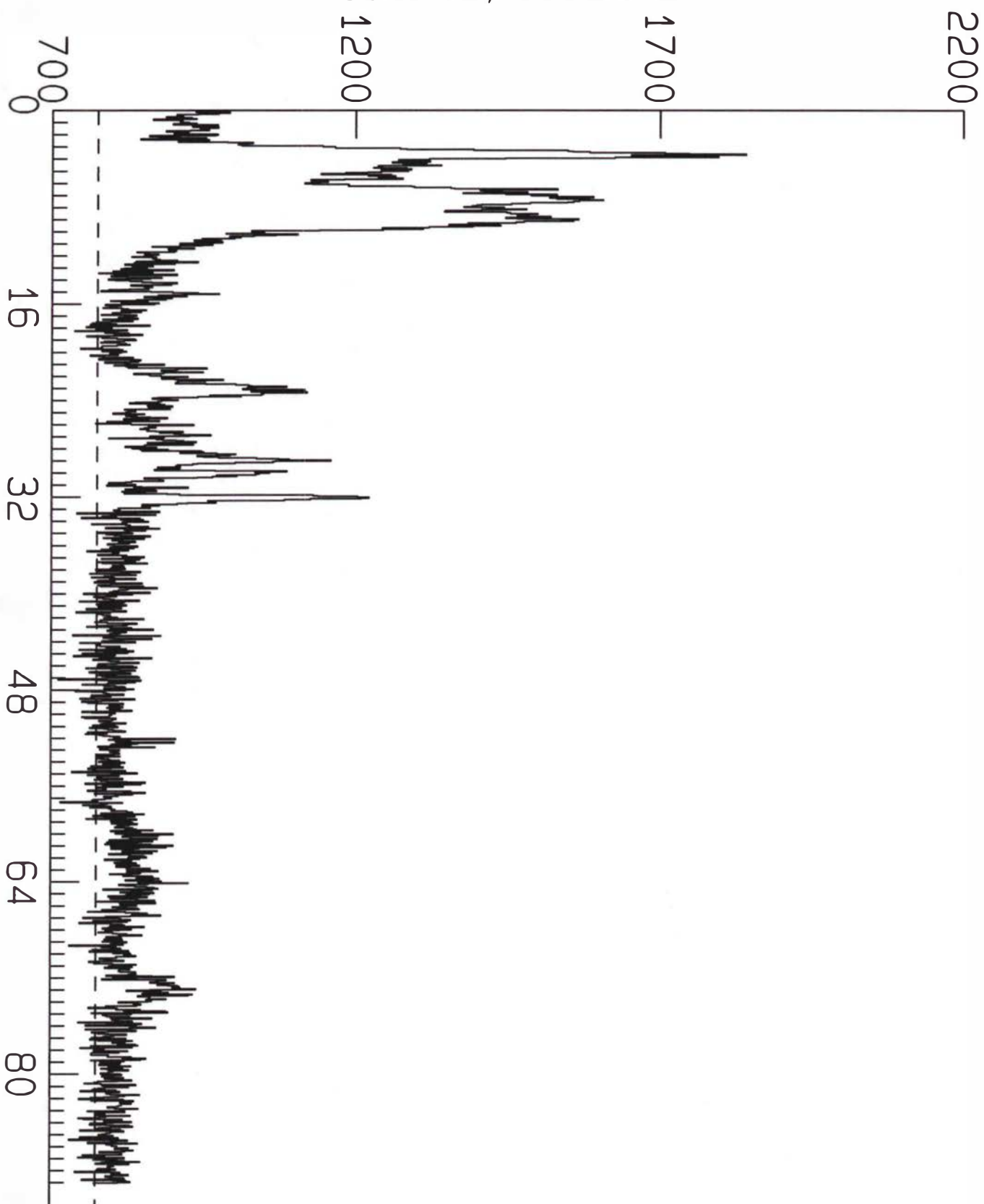
BATSE

19/02/98

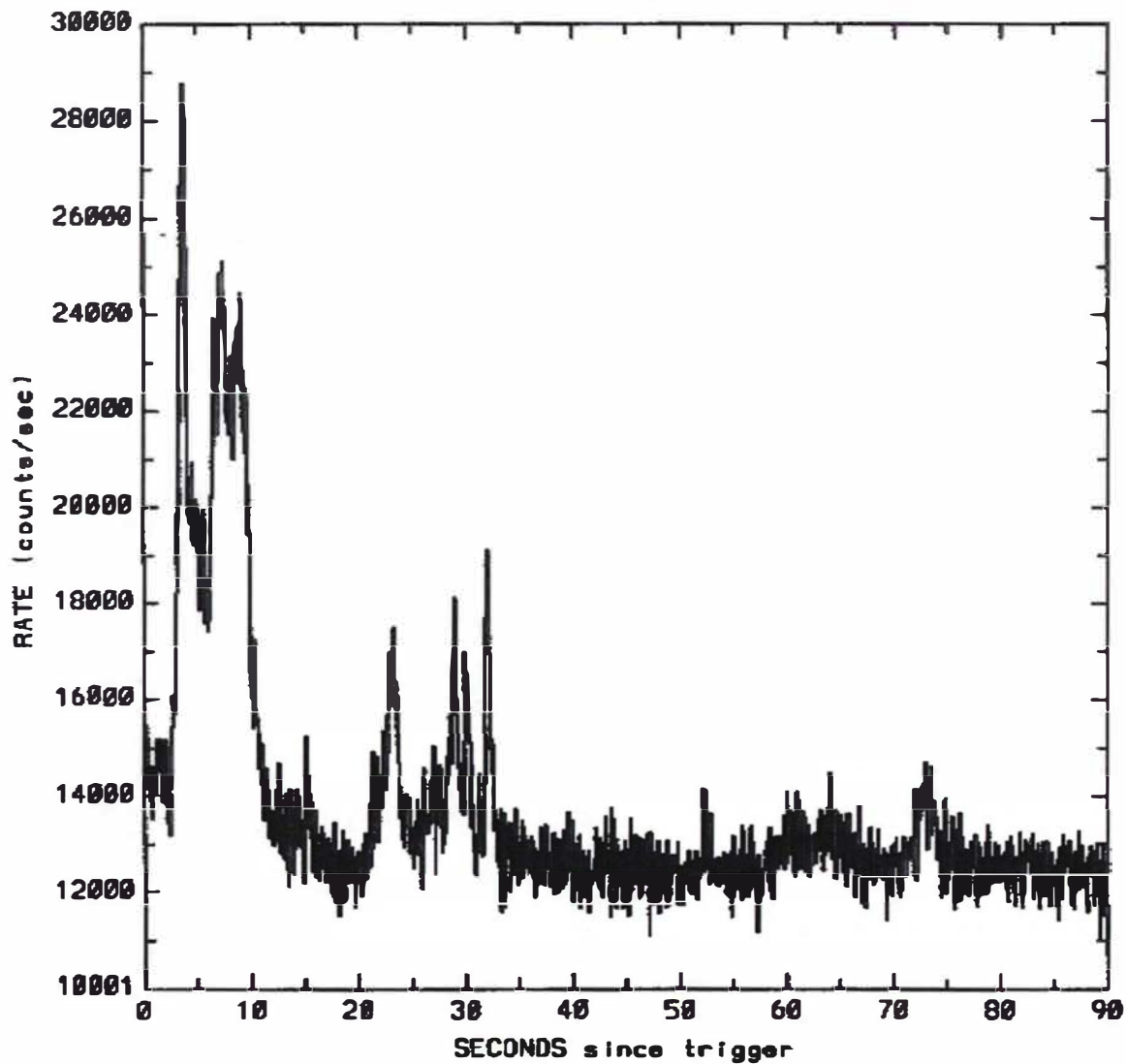
49963.490

25- 100 keV

COUNTS/0.064 S



MER Data for K. Hurley. No. 6609



25-FEB-1998 10:38:46

Created by MOPS 80
(Burst Display)
Version 12.25

Trigger * . 6609

Trigger Time:
10063 / 49963.489

Burst Data Type:
MER

Deadtime
Corrected: N

Background Data
Type: CONT

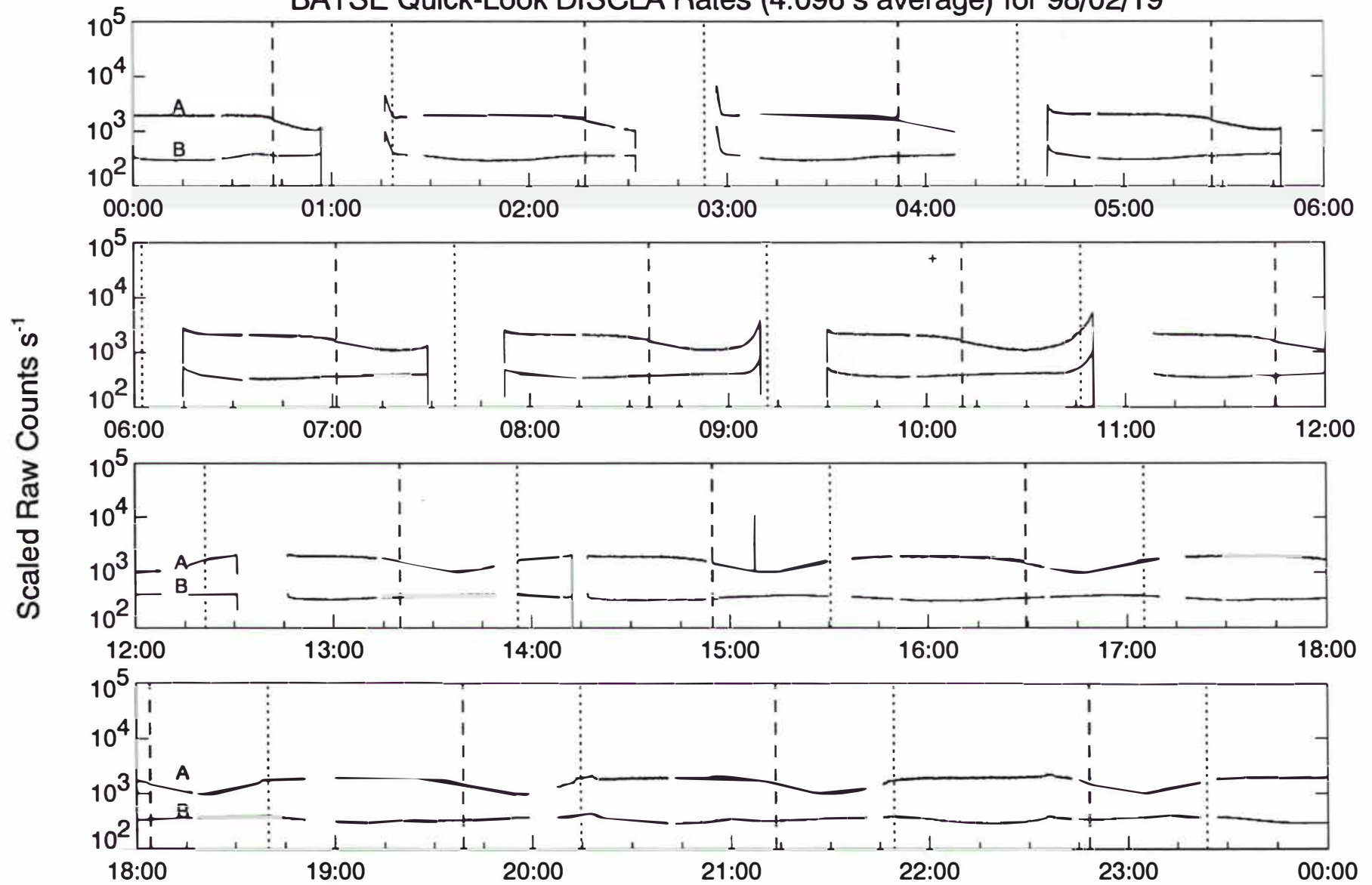
Minimum Integ. Time:
0.004 seconds

Detectors [7..8].
-6--32--

Channels:
[0 : 6]

Quality Mask:
801SP1

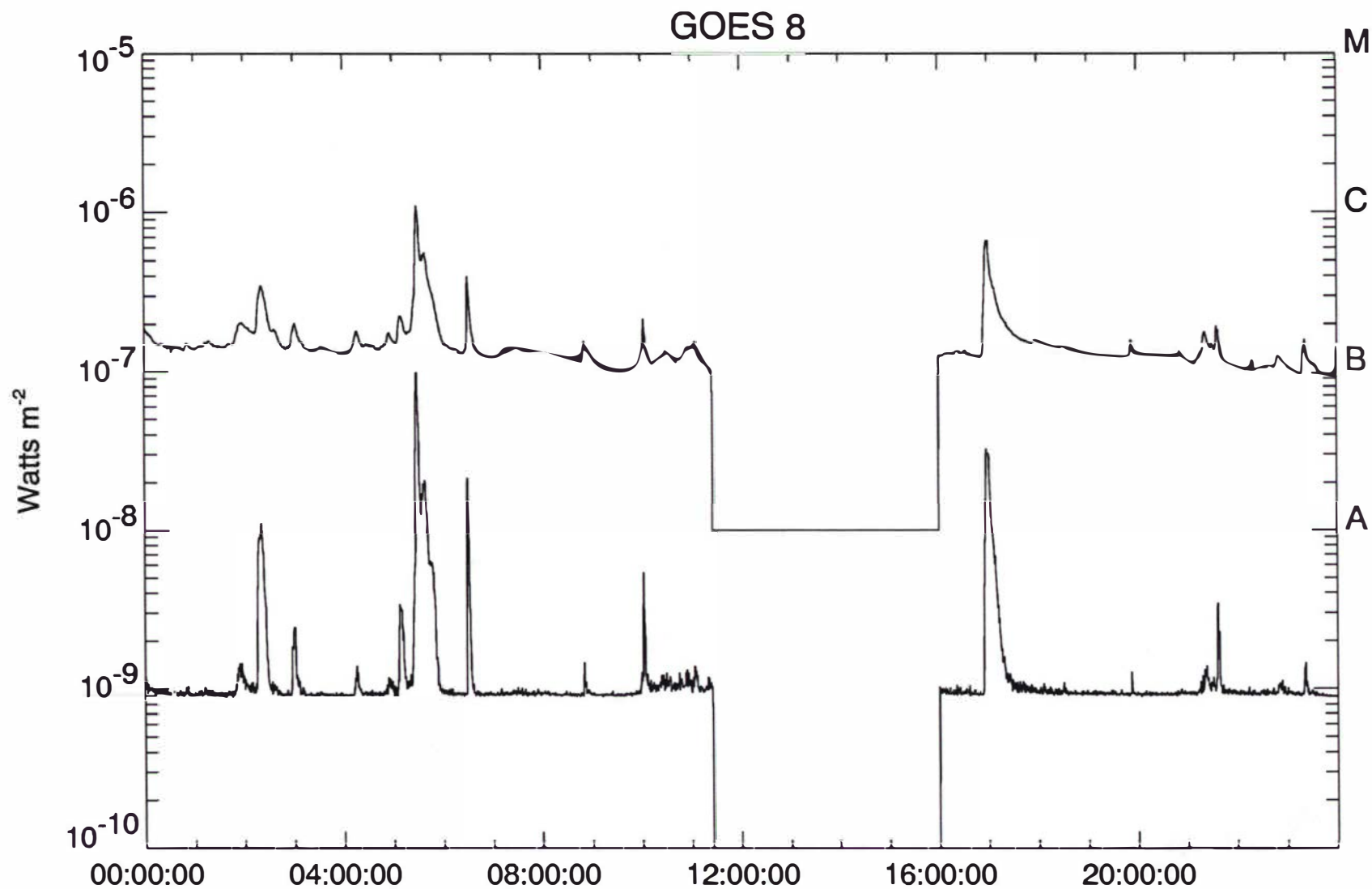
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/19



Current Time: 98/02/23, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/19, 0000:00

Plot created: 98/02/23, 1007

Channel 1 (1.0 - 8.0 Angstroms)

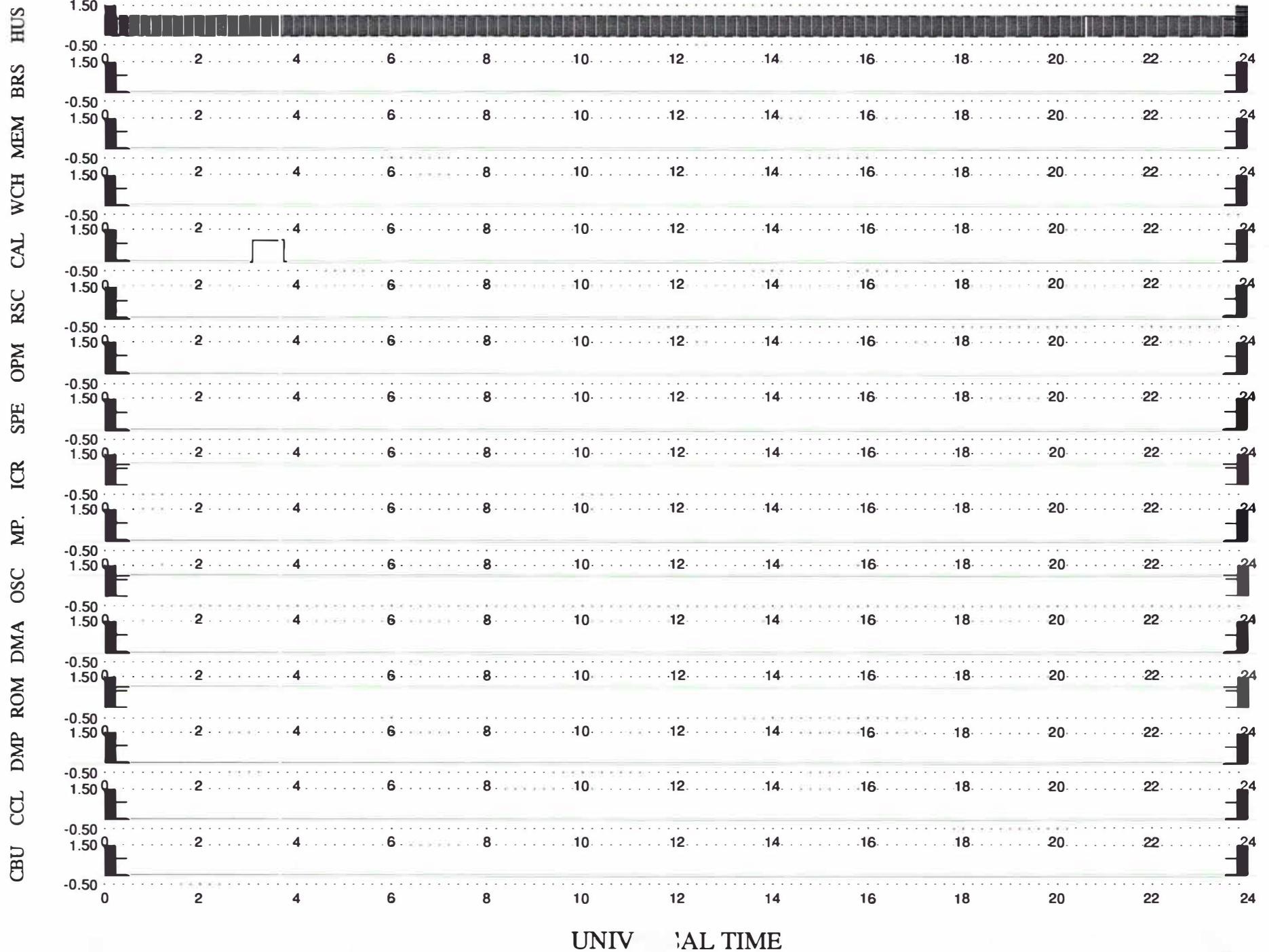
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

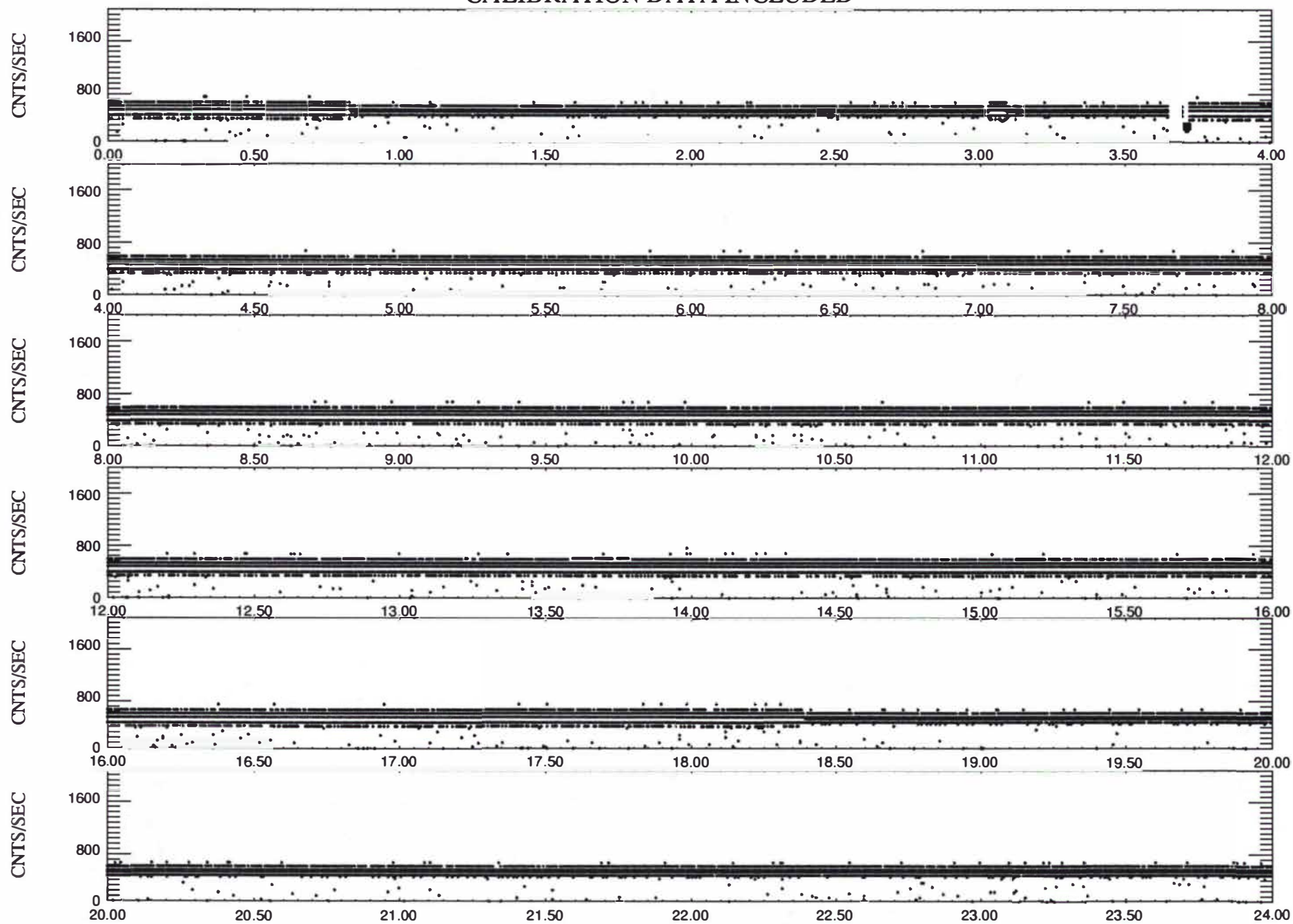
Background not subtracted

Sample average = 10

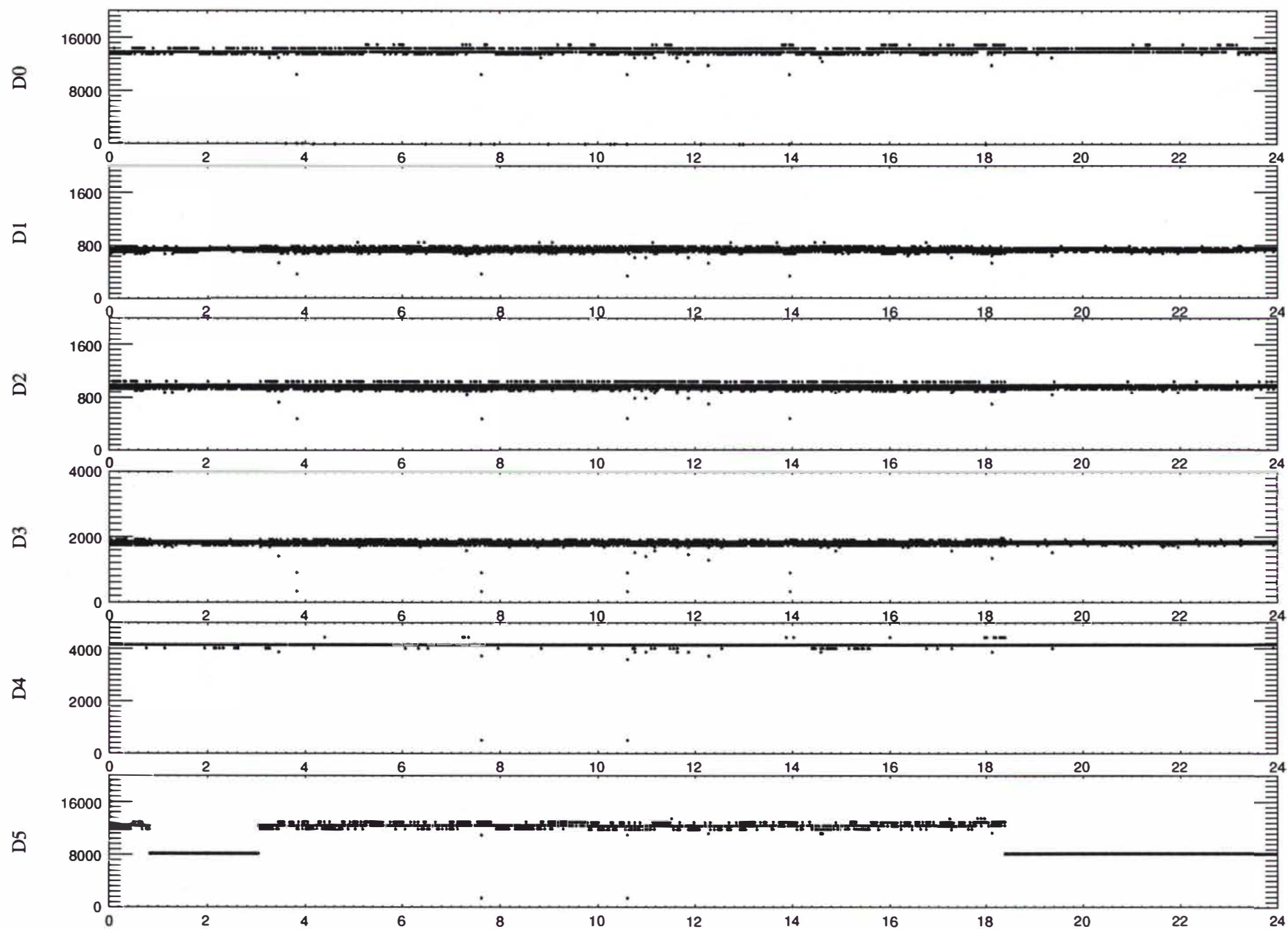
NO BURST (10)



CALIBRATION DATA INCLUDED

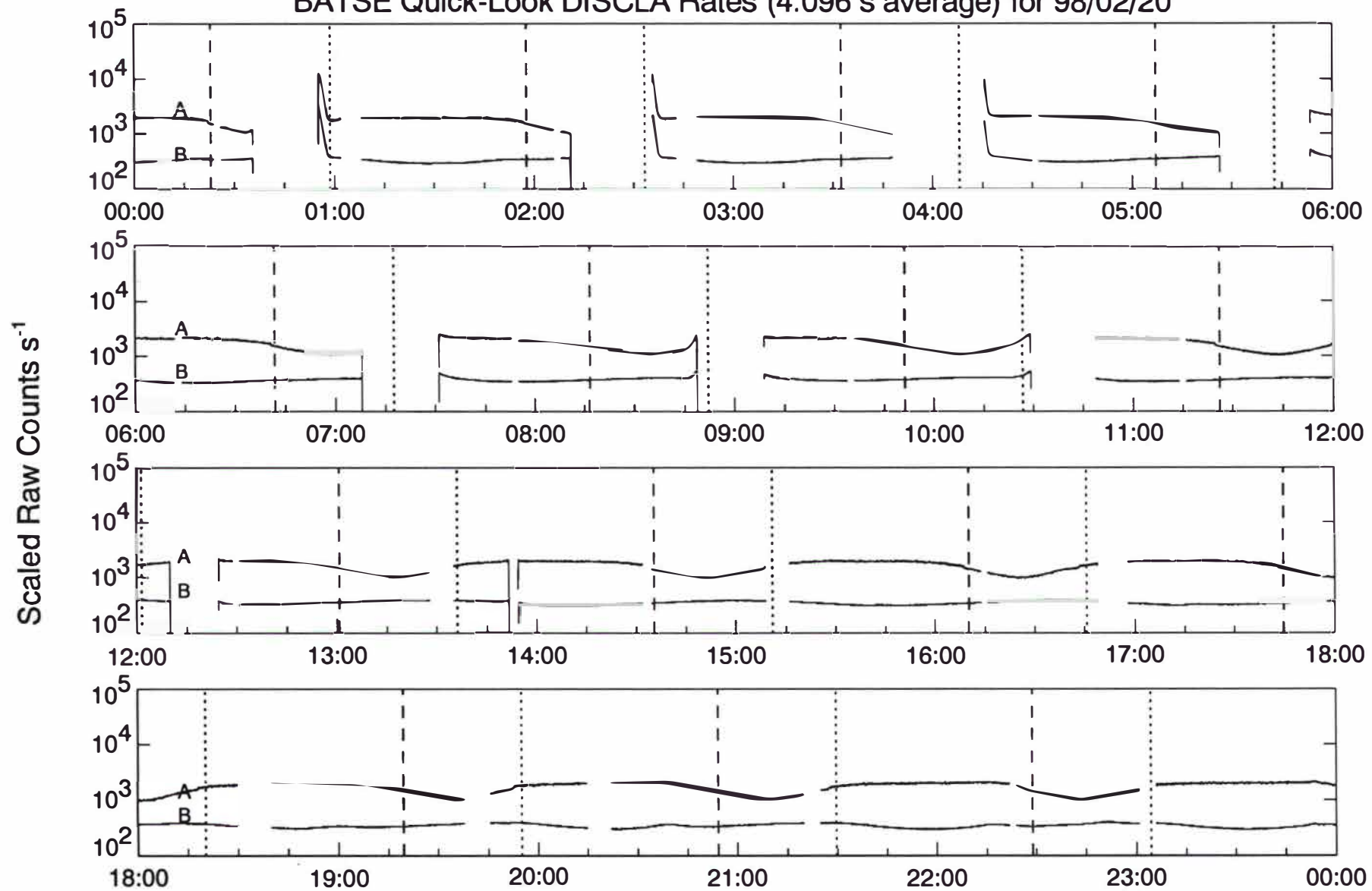


UNIVERSAL TIME



UNIV. CAL TIME

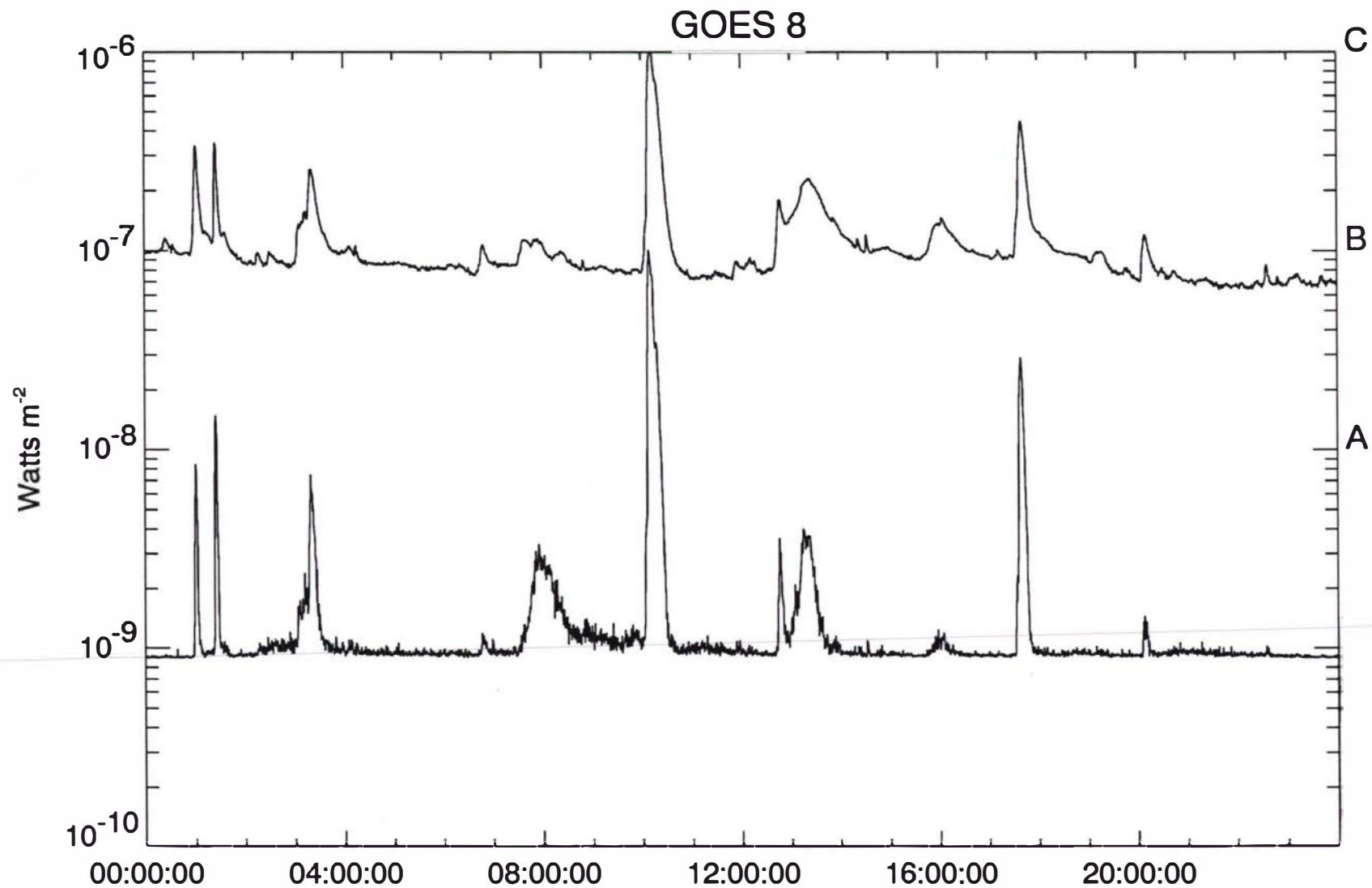
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/20



Current Time: 98/02/24, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/20, 0000:00

Plot created: 98/02/24, 1007

Channel 1 (1.0 - 8.0 Angstroms)

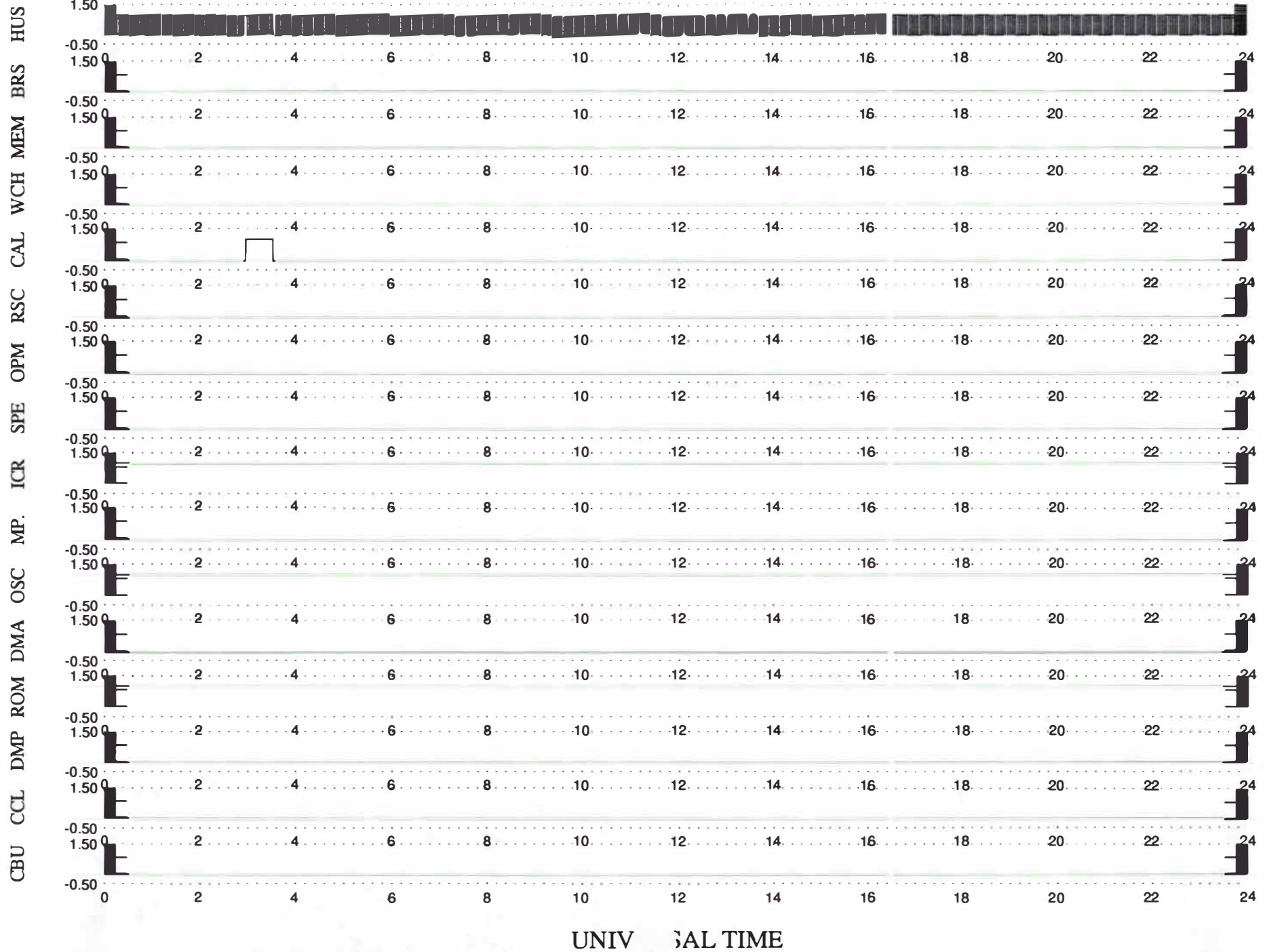
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

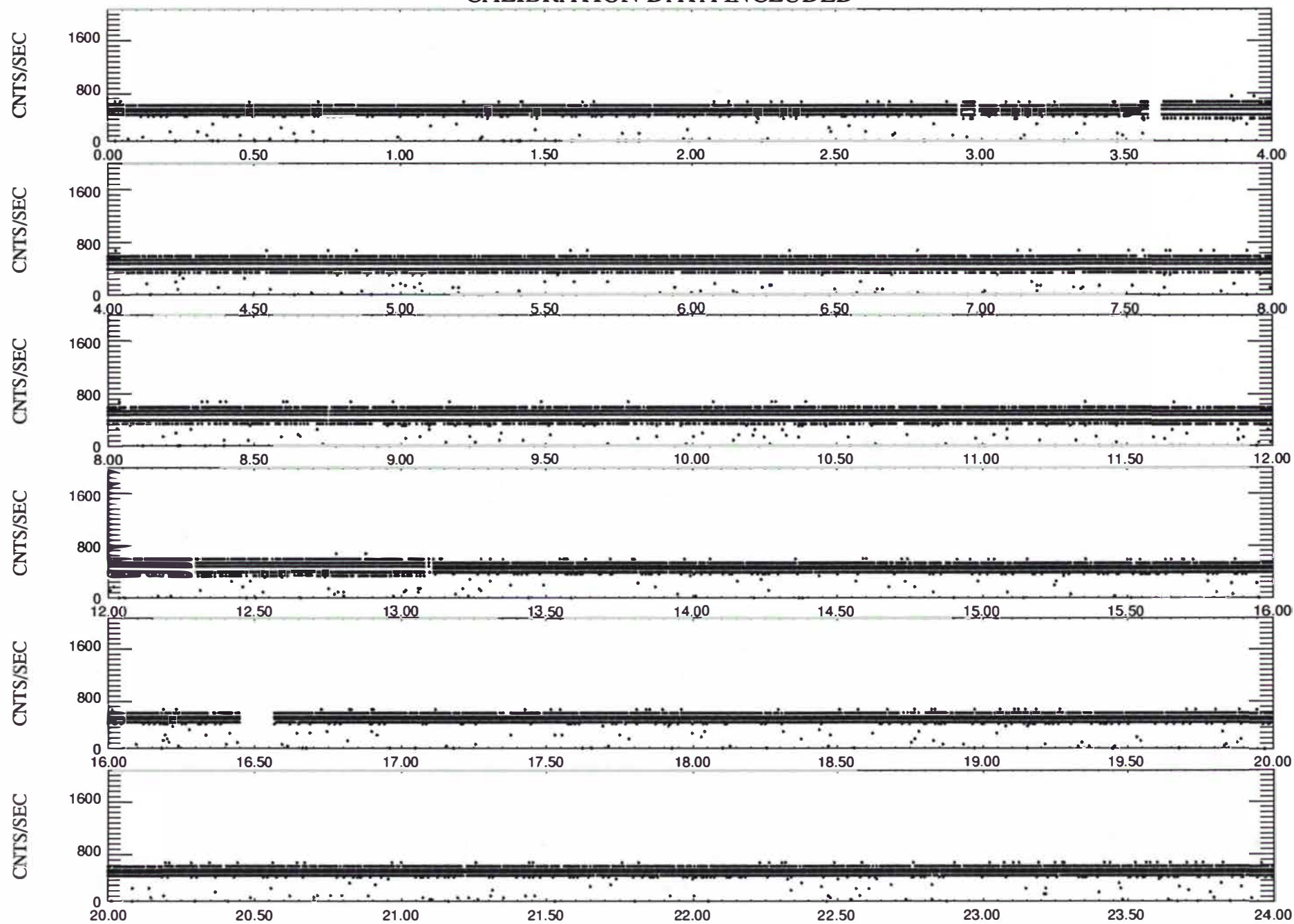
Background not subtracted

Sample average = 10

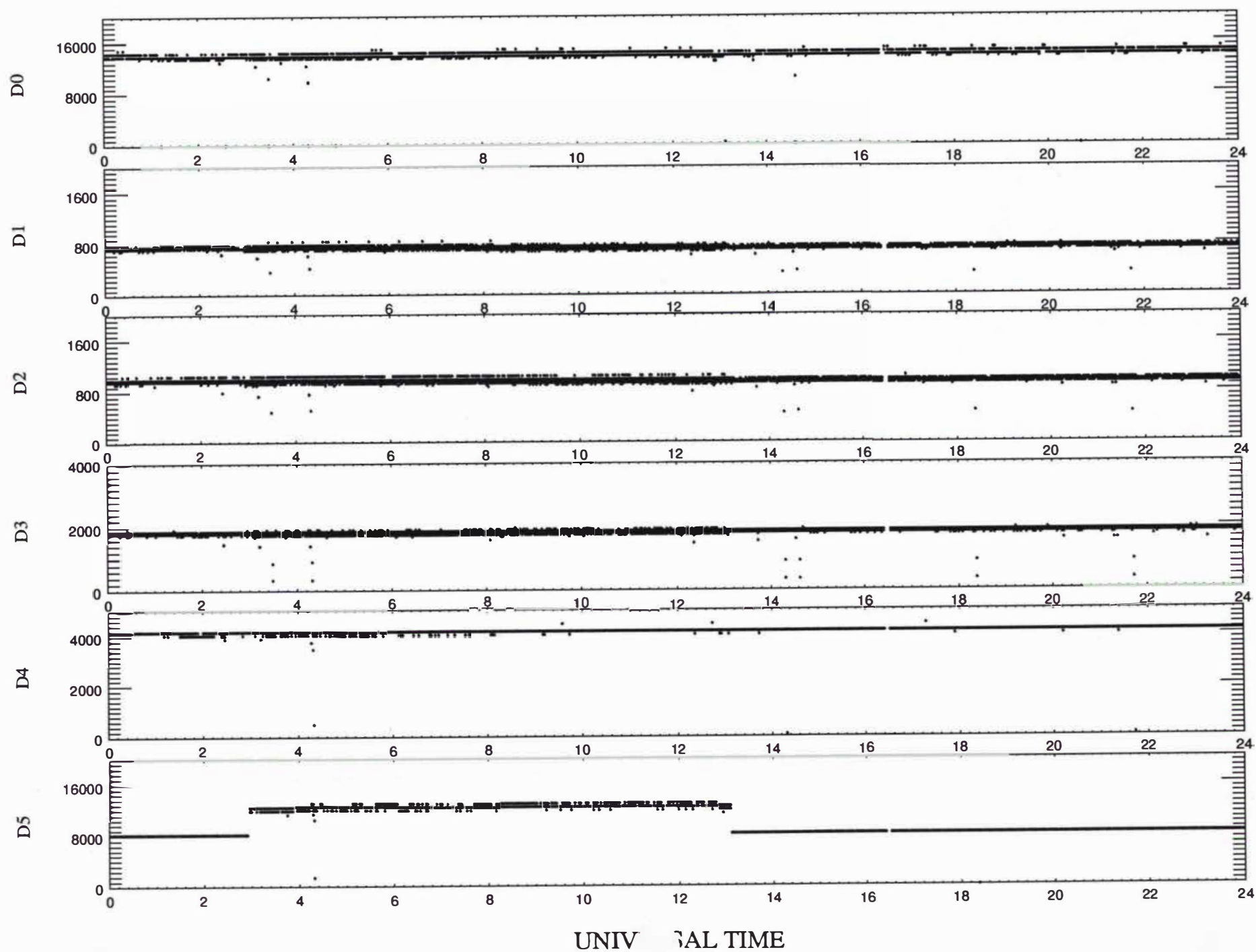
NO BURST (10)



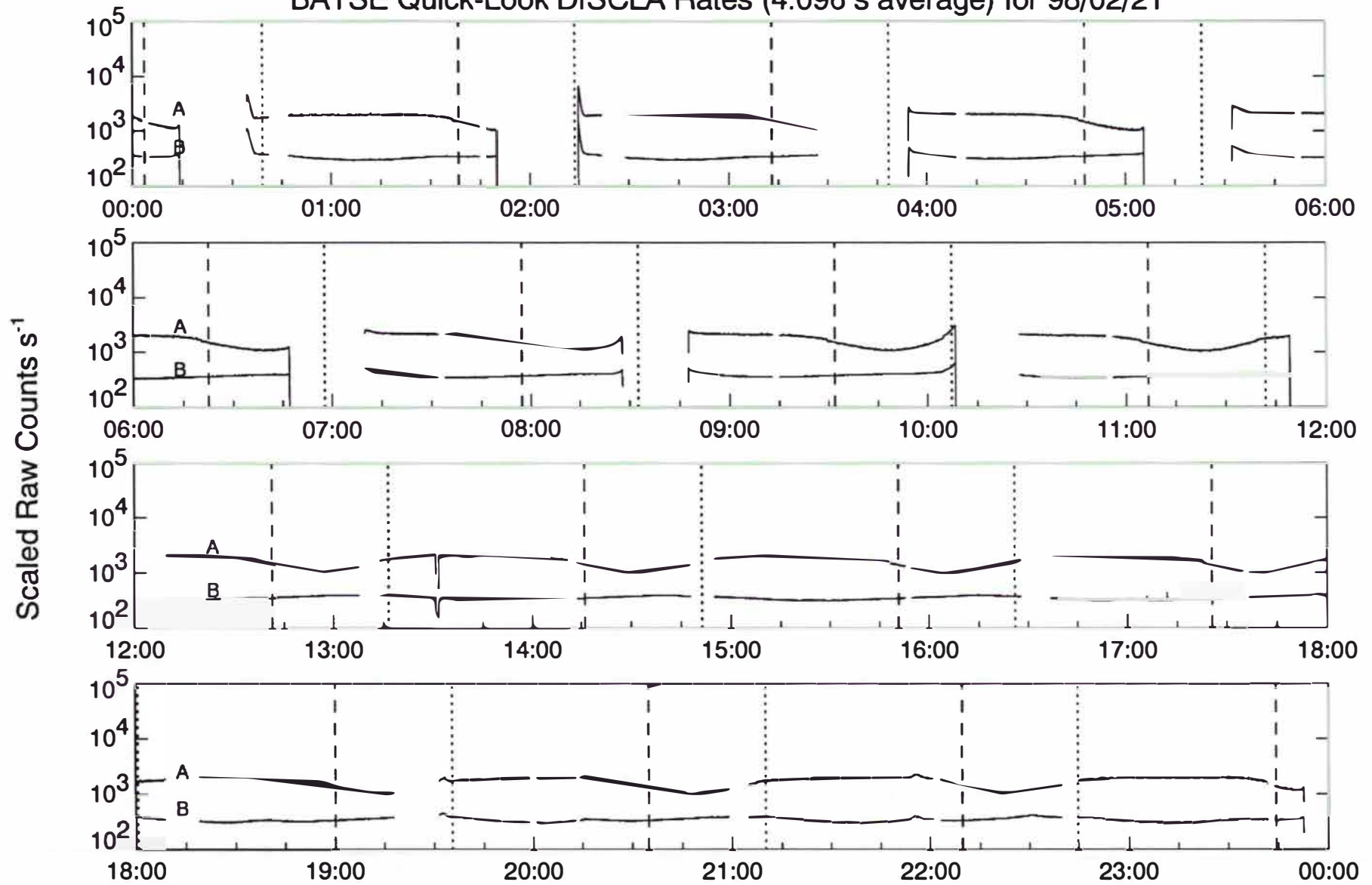
CALIBRATION DATA INCLUDED



UNIV 3AL TIME



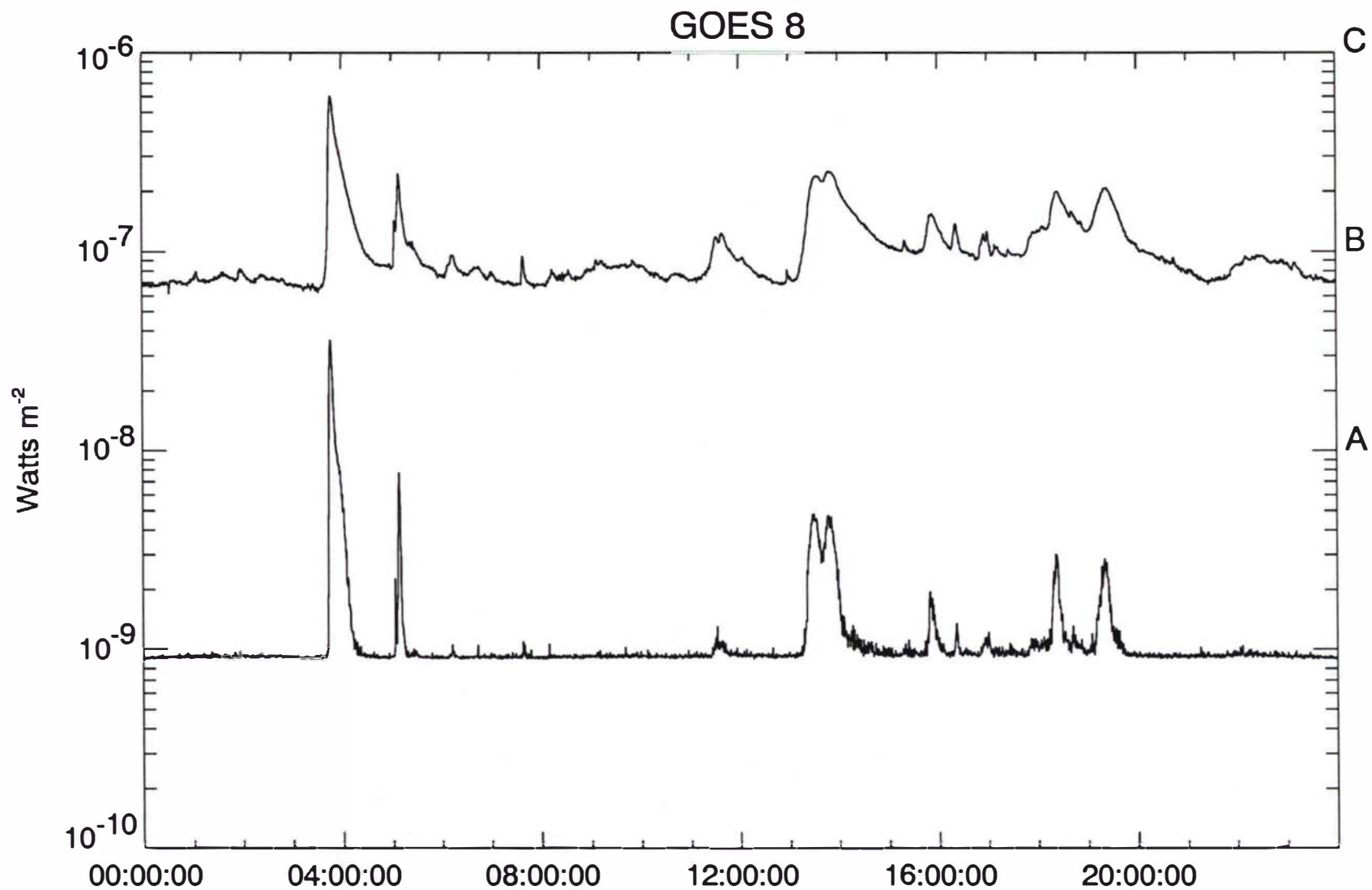
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/21



Current Time: 98/02/25, 1009 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/21, 0000:00

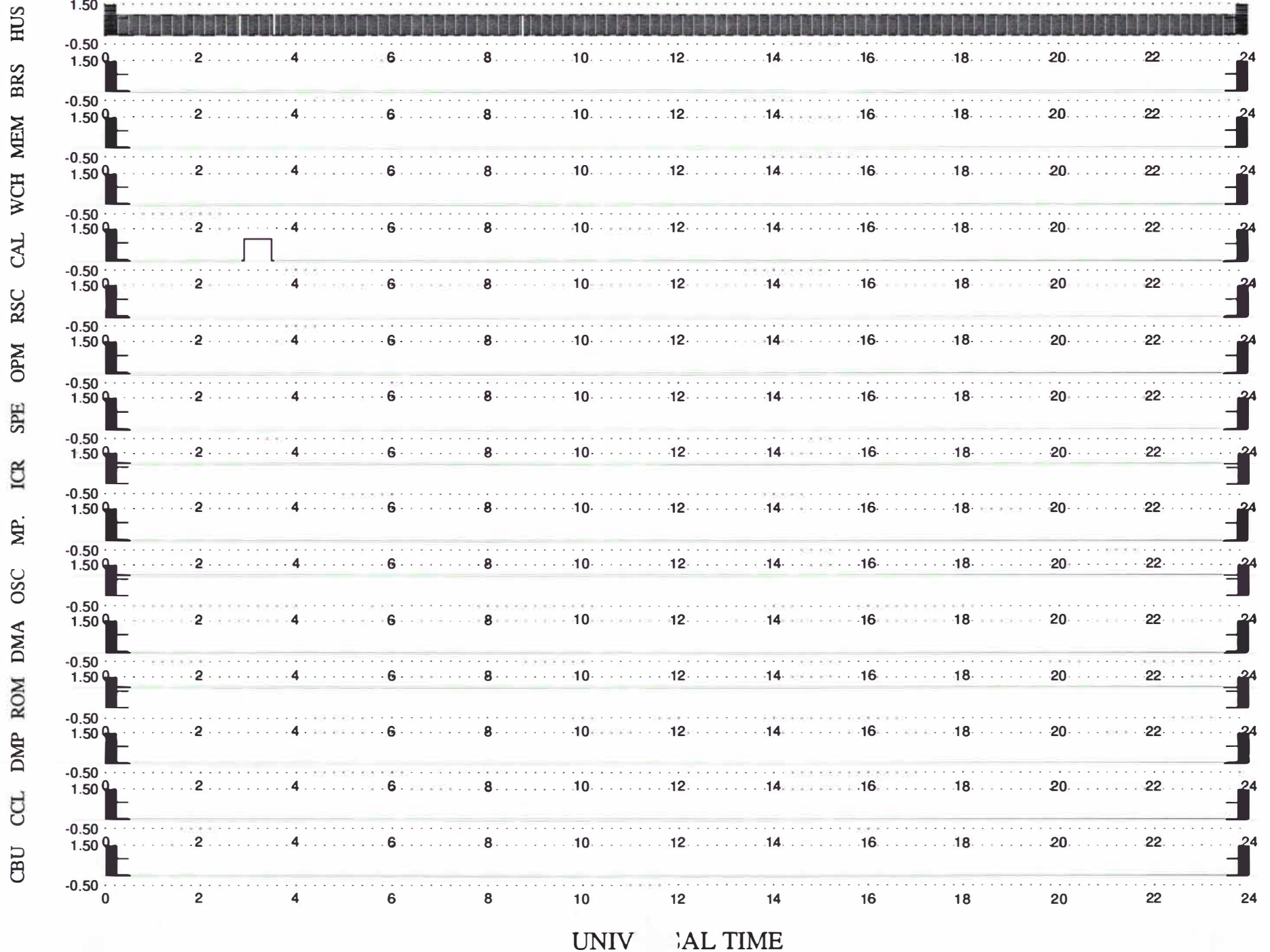
Plot created: 98/02/25, 1008

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

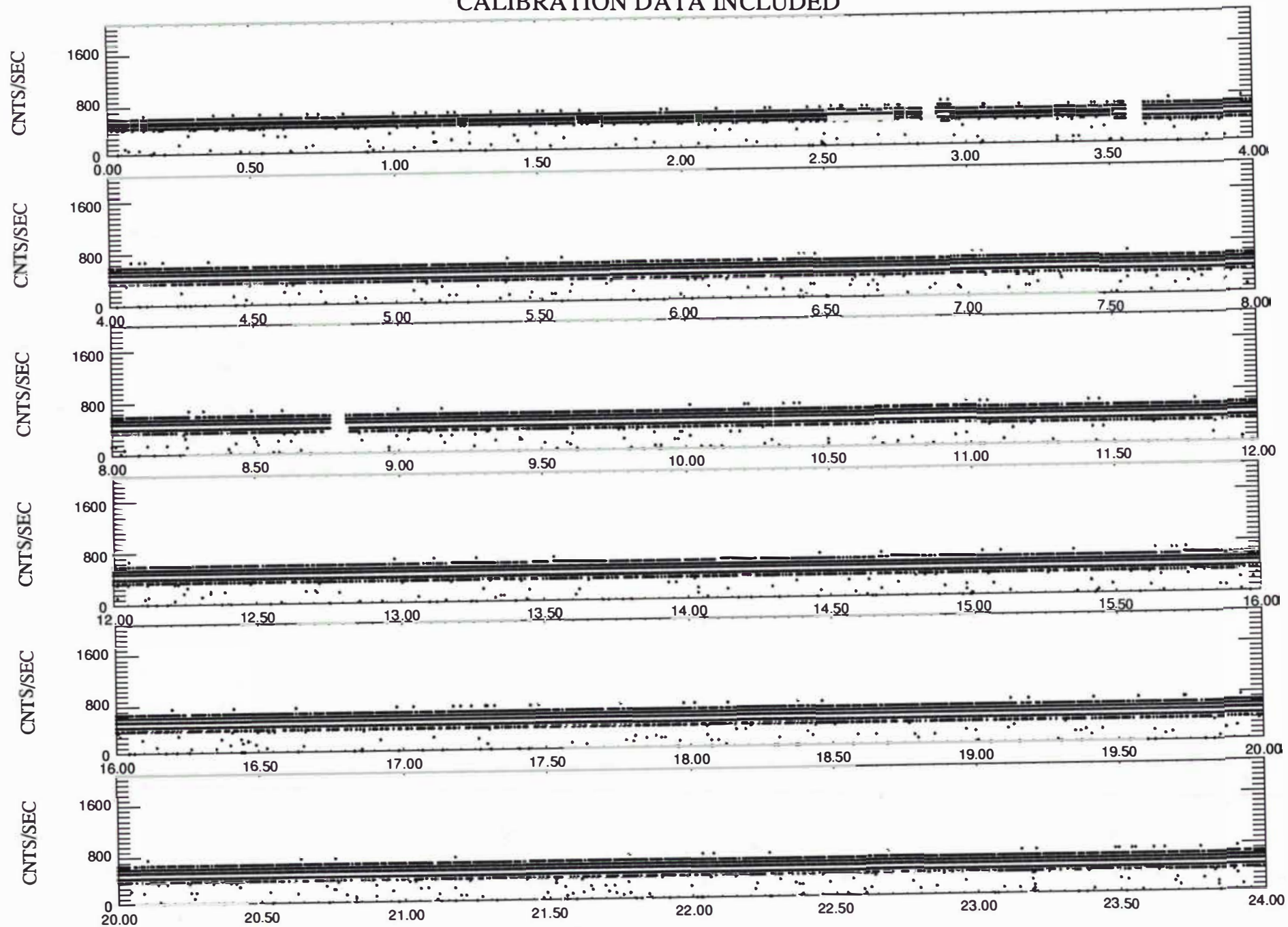
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

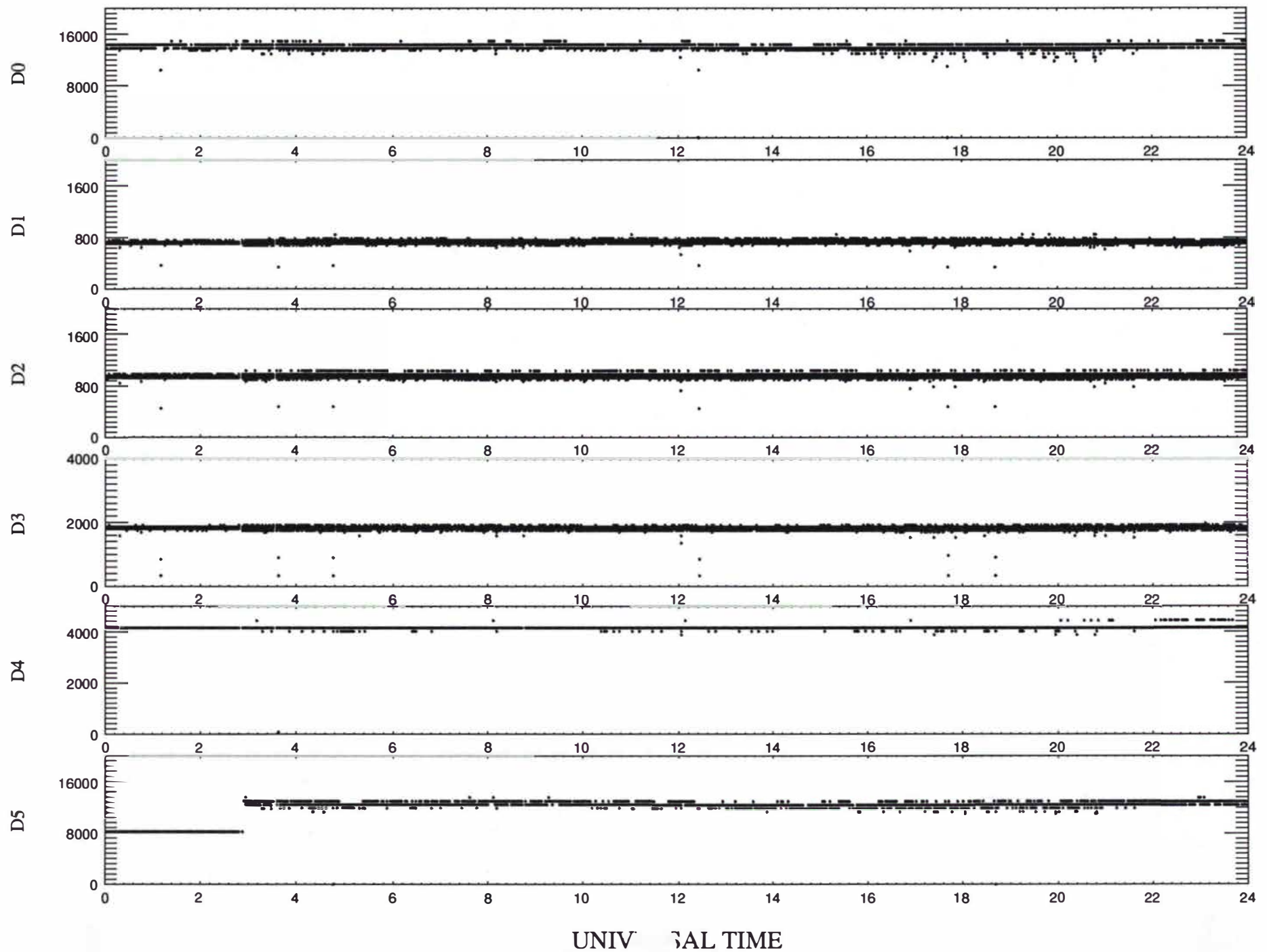
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIV UNIV TIME



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 23 12:19:09 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA02580; Mon, 23 Feb 1998 12:19:08 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA04558; Mon, 23 Feb 1998 12:19:04 -0800
Date: Mon, 23 Feb 1998 14:16:51 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980223141651.21e250bd@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6610
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6610
EVENT OF 1998 FEB 22 DAY OF YEAR= 53
EVENT CROSSING TIME AT BATSE : 8734. S. OR 02:25:34.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 31.000 28.000
BATSE PEAK COUNTING RATE: 6100 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 22/ 2/ 98 IS:
RA= 160.868 DEC= 12.901 DIST= 4.414 AU
BATSE-ULYSSES DISTANCE = 660358588. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 63.46 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 984.38 SECS.
CROSSING TIME AT ULYSSES IS 9718. S. OR 02:41:58 +/- 407.06 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 22/ 2/ 98 IS:
RA= 352.684 DEC= -4.023 DIST= 2.298 AU
MARS-BATSE DISTANCE = 343747968. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=131.16 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -754.60 SECS.
CROSSING TIME AT MARS IS 7979. S. OR 02:12:59 +/- 138.42 SECONDS

BATSE BURST TRIGGER

NO.: 6610

TIME: TJD=0866 SECONDS=8734

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=116.3 AZIMUTH=63.1 ERROR=1.208 DEGREES

COMMENTS:

GRB. SINGLE PULSE WITH SUBSTRUCTURE, DUR ABOUT 50S. PROBABLE PRECURSOR AT ABOUT T-38S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6610	980222	10866	08734	6100	031	+28	50

Helio corr removed 18/2/00

Date: May 7 '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? *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? *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

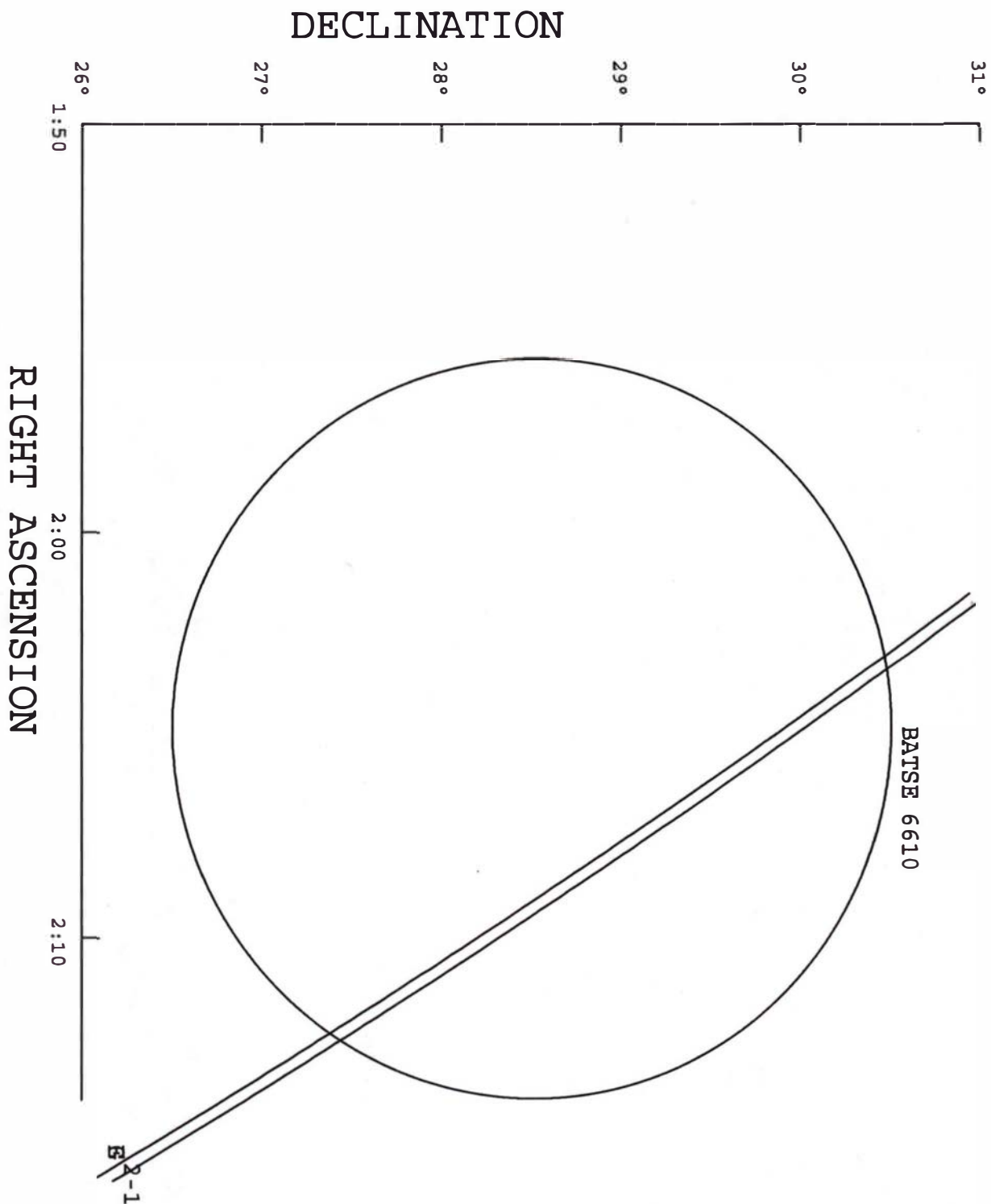
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 22, 1998 2:41

18 / 2 / 0



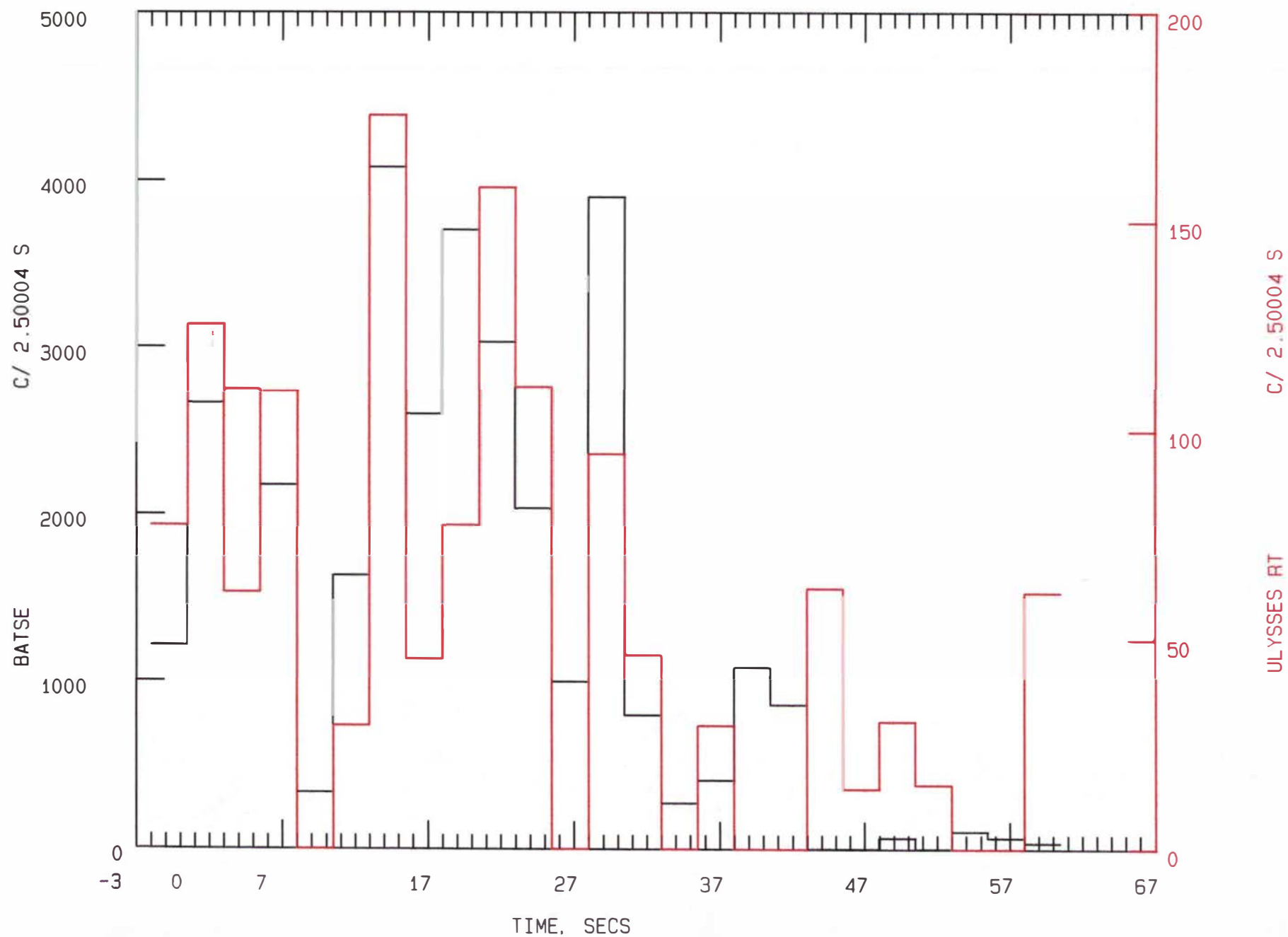
BATSE

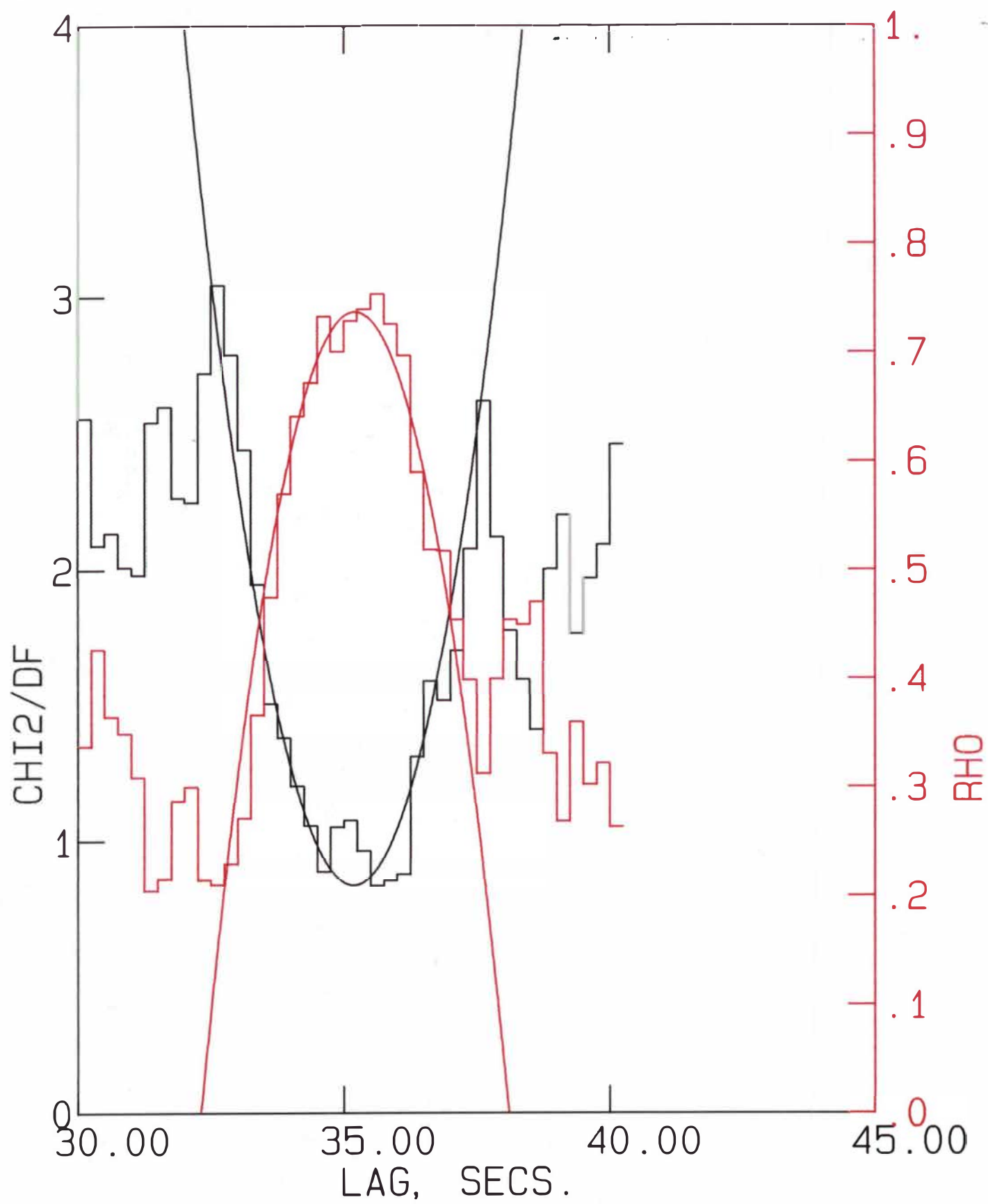
-ULYSSES RT CORRELATION

22/ 2/98

8734.945

7/ 5/98





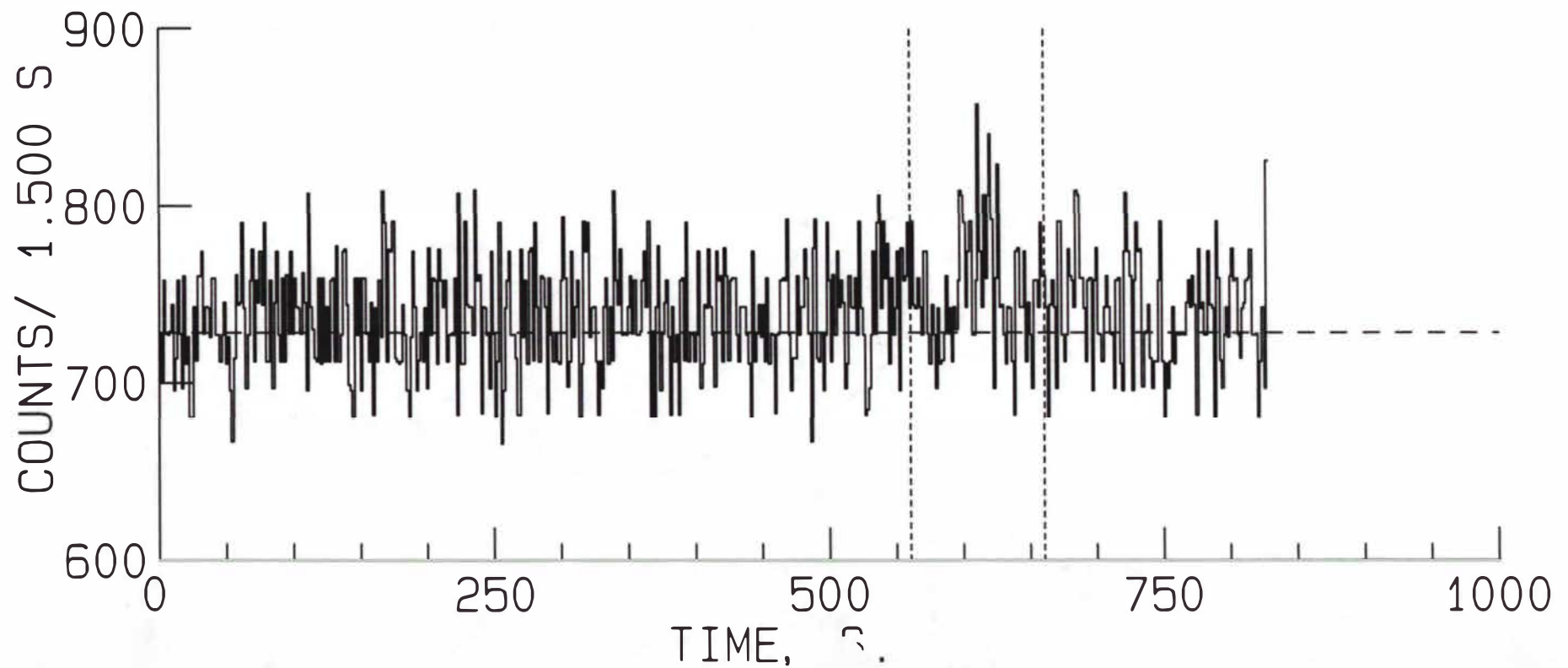
ULYSSES RT

7 / 5 / 98

22 / 2 / 98 9108.086 s

0.250 S INTERVALS REGROUPED BY 6

22- 149 keV



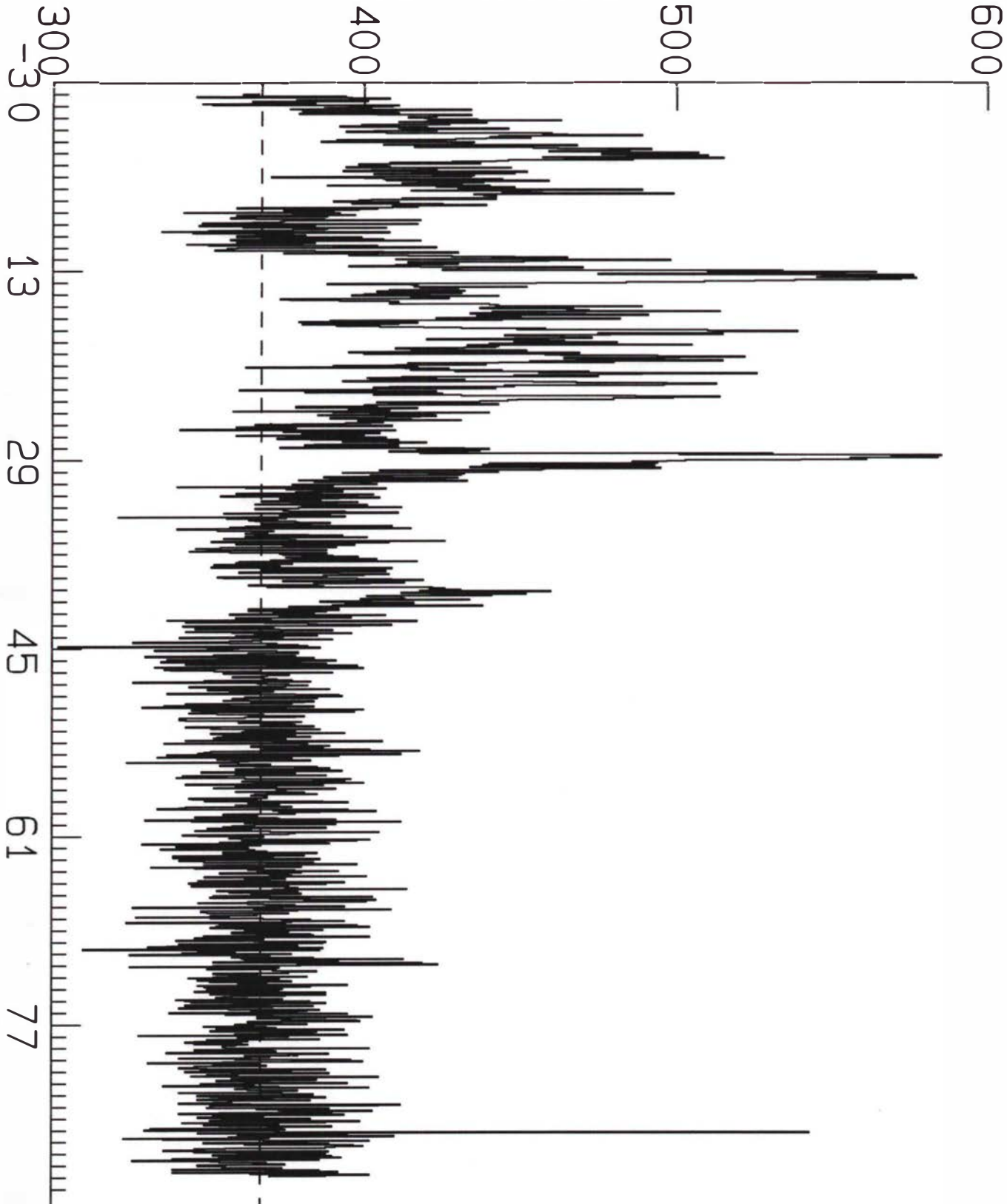
BATSE

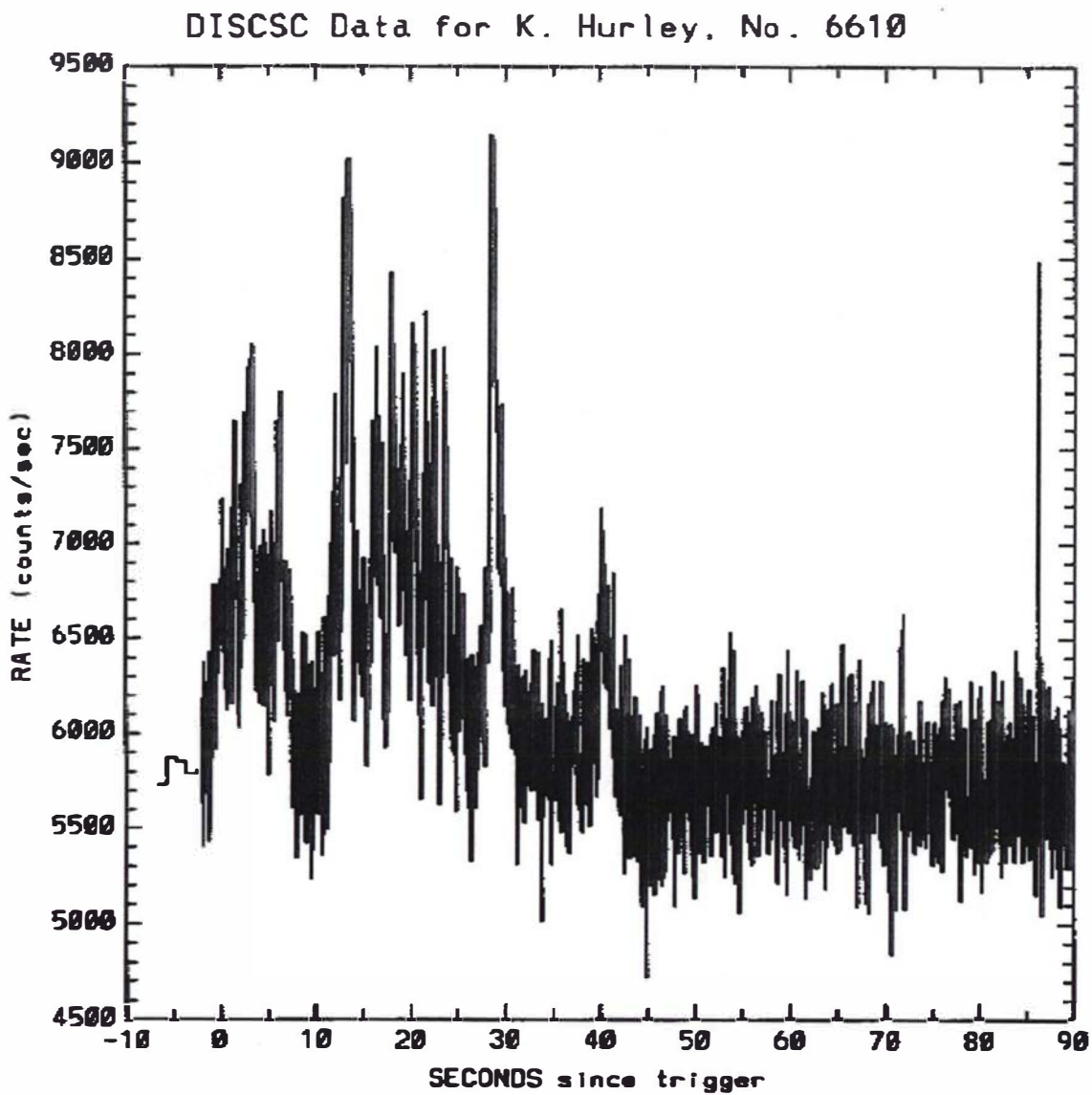
22/02/98

8734.945

25- 100 keV

COUNTS/0.064 S





25-FEB-1998 10:41:30

Created by NOPS BD
(Burst Display)
Version 12.25

Trigger # : 6610

Trigger Time:
10866 / 8734.945

Burst Data Type:
DISCSC

Deadtime
Corrected: N

Background Data
Type: PREB + DISCLA

Minimum Integ. Time:
0.064 second(s)

Detectors [7..8]:
--5--1-

Discriminators:
[1 , 2]

Quality Mask:
BDISP1

From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 23 12:22:32 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA02614; Mon, 23 Feb 1998 12:22:31 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA04608; Mon, 23 Feb 1998 12:22:27 -0800
Date: Mon, 23 Feb 1998 14:19:52 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980223141952.21e250bd@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6611
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6611
EVENT OF 1998 FEB 22 DAY OF YEAR= 53
EVENT CROSSING TIME AT BATSE : 34356. S. OR 09:32:36.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 190.000 -29.000
BATSE PEAK COUNTING RATE: 4800 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 22/ 2/ 98 IS:
RA= 160.802 DEC= 12.908 DIST= 4.414 AU
BATSE-ULYSSES DISTANCE = 660315287. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=129.49 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1400.59 SECS.
CROSSING TIME AT ULYSSES IS 32955. S. OR 09:09:15 +/- 323.86 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 22/ 2/ 98 IS:
RA= 352.684 DEC= -4.023 DIST= 2.298 AU
MARS-BATSE DISTANCE = 343747968. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 36.97 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 916.05 SECS.
CROSSING TIME AT MARS IS 35272. S. OR 09:47:52 +/- 133.64 SECONDS

BATSE BURST TRIGGER

NO.: 6611

TIME: TJD=0866 SECONDS=34356

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=81.4 AZIMUTH=236.7 ERROR=3.697 DEGREES

COMMENTS:

GRB. SINGLE PULSE. DUR ABOUT 11S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6611	980222	10866	34356	4800	190	-29	11

BATSE BURST# 6611

ULYSSES RT

23 / 2 / 98

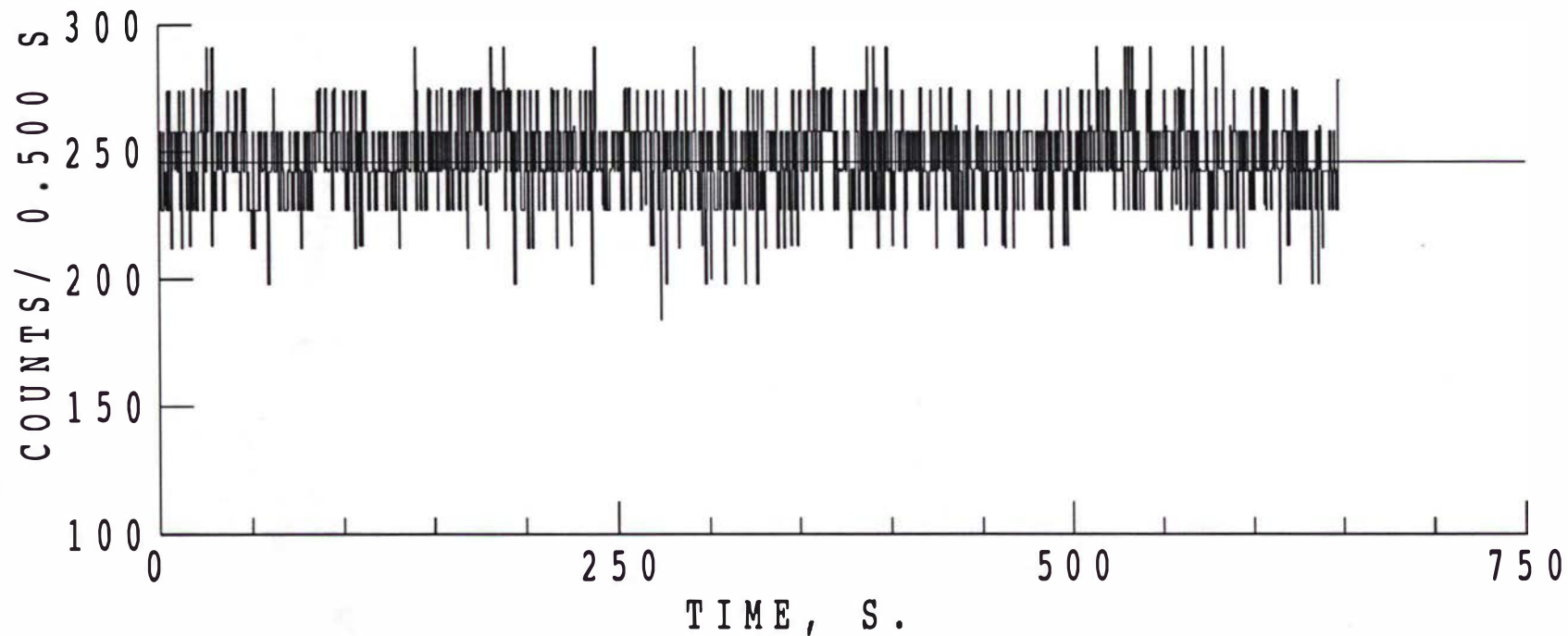
22 / 2 / 98 32616.090 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

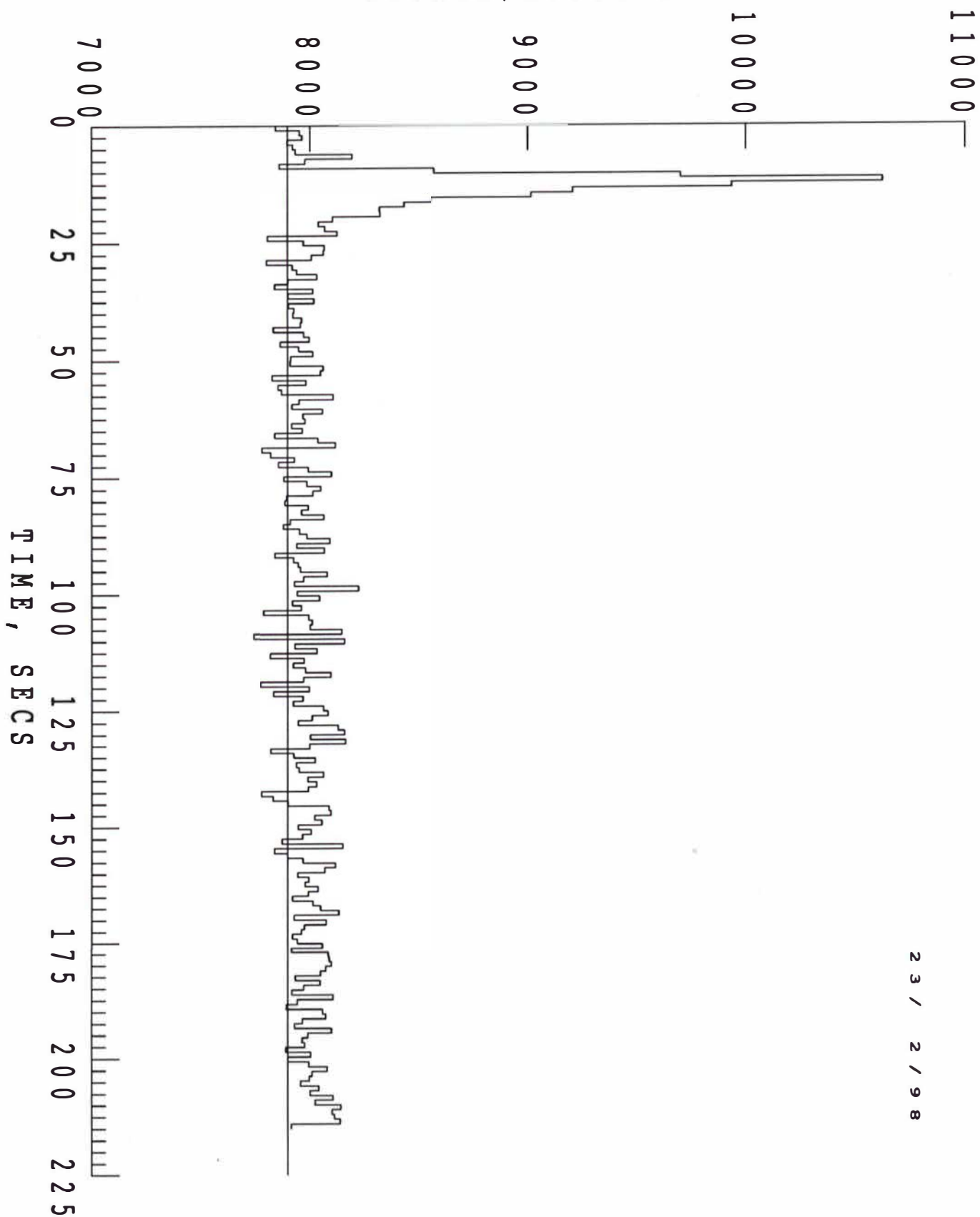
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



BACODINE 6611 22/02/98 34345.697

25 - 100 keV

COUNTS/1.024 S



From SURASAK@SSLMOR.msfc.nasa.gov Mon Feb 23 12:08:12 1998
Date: Mon, 23 Feb 1998 14:07:57 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@ests2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6612

TIME: TJD=0866 SECONDS=60126

TYPE: FLARE SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

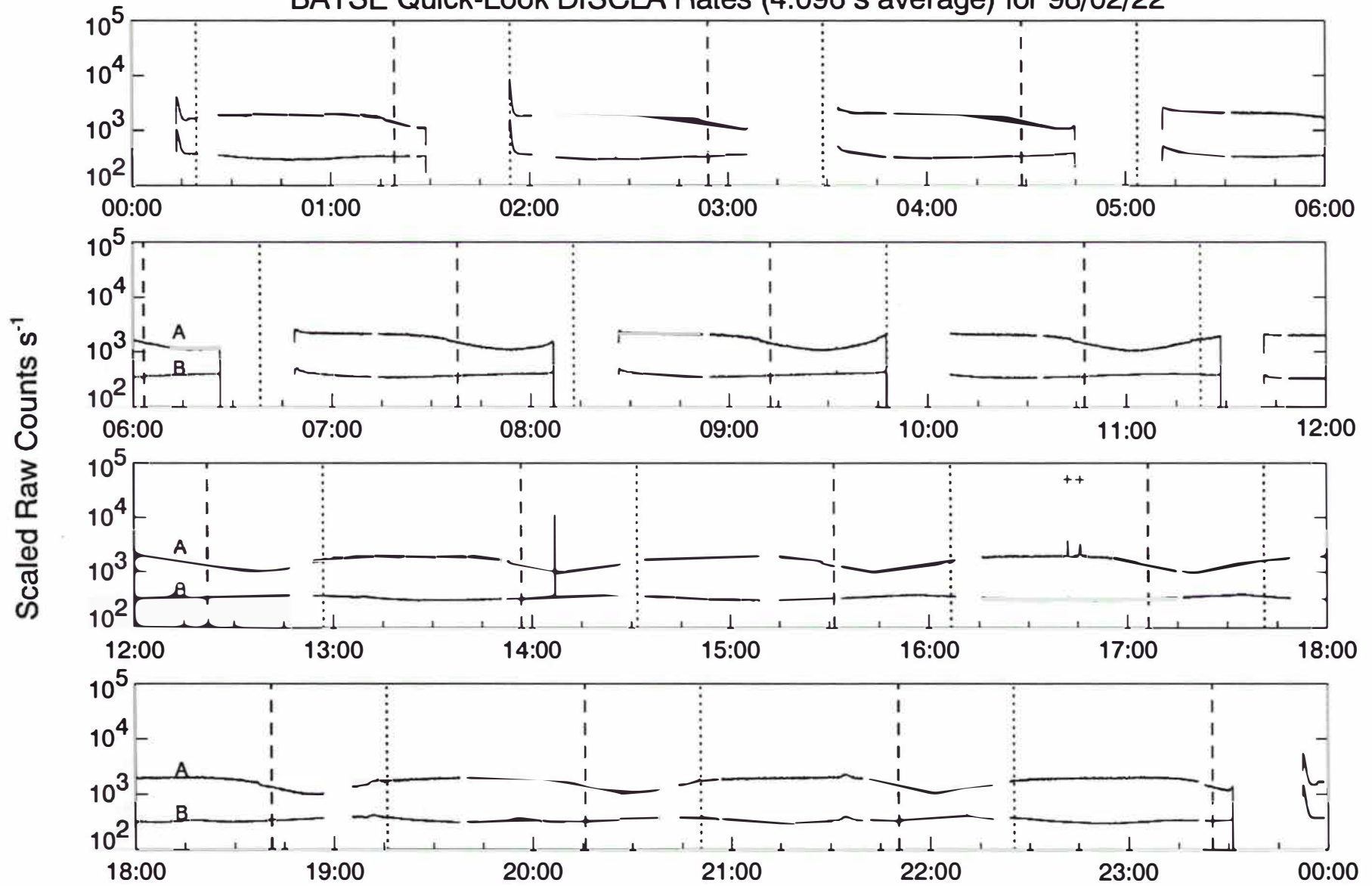
INTENSITY: COUNTS/CM2

LOCATION: ZENITH=71.7 AZIMUTH=12.7 ERROR=1.394 DEGREES

COMMENTS:

GOES C1.4, NO OPTICAL I.D. MULTI-PEAKED, DUR ABOUT 250S, STARTS AT ABOUT T-10S.
MAGINALLY VISIBLE ABOVE 100 KEV.

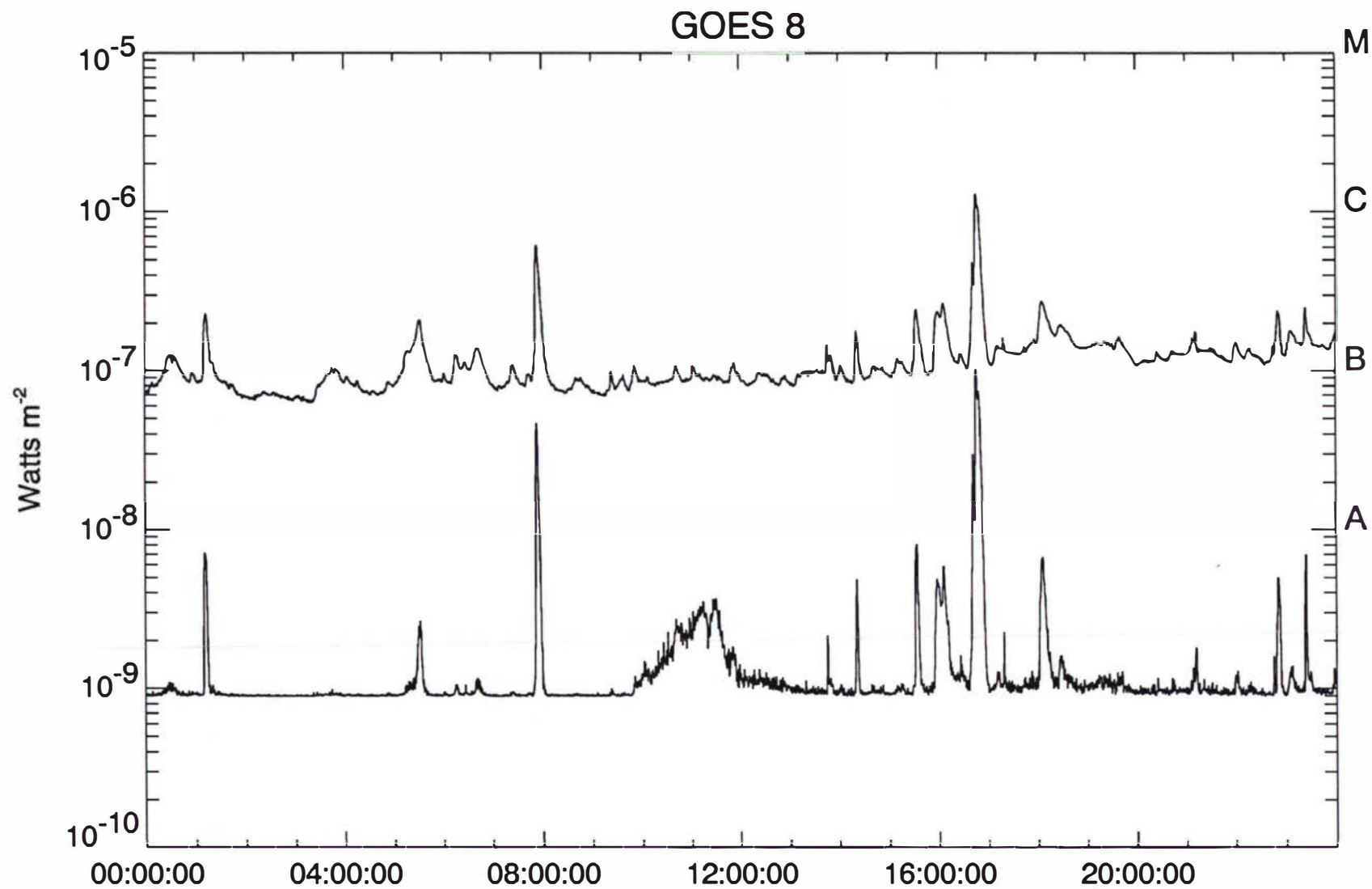
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/22



Current Time: 98/02/26, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/22, 0000:00

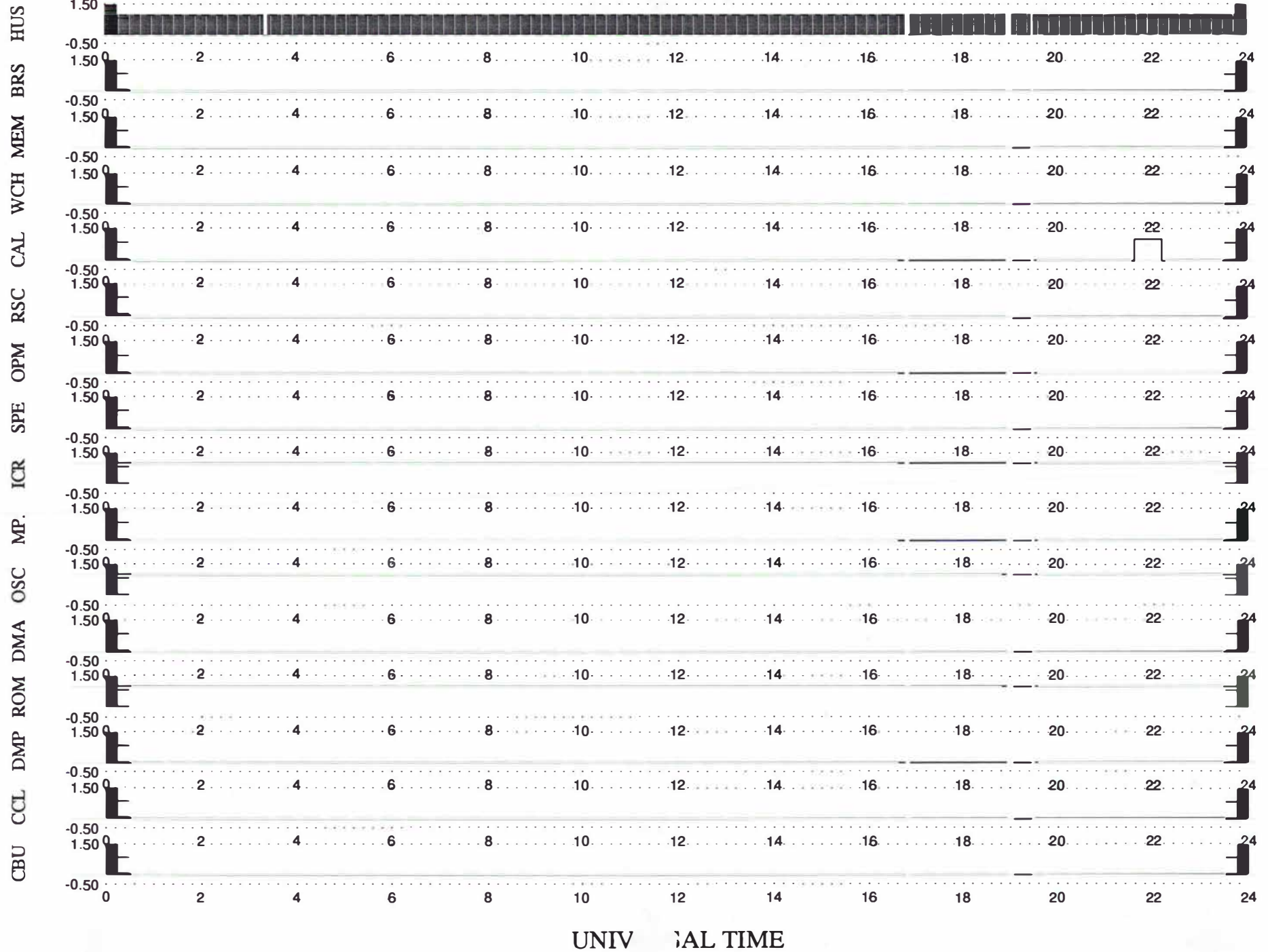
Plot created: 98/02/26, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

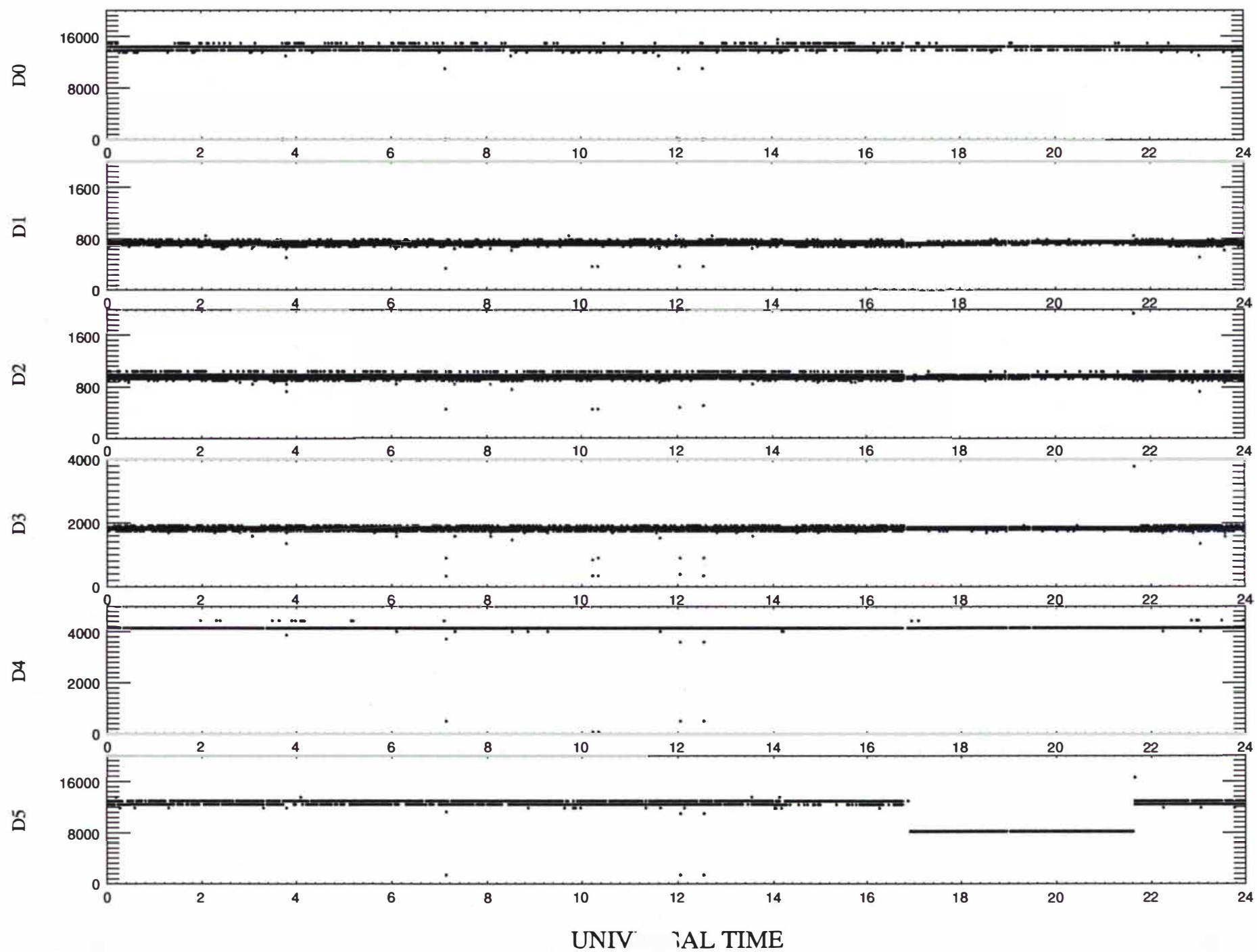
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIV TIME



From RICHARDSON@SSLMOR.msfc.nasa.gov Wed Feb 25 11:59:22 1998
Return-Path: <RICHARDSON@SSLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA19944; Wed, 25 Feb 1998 11:59:21 -0800
Received: from SSLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id LAA14518; Wed, 25 Feb 1998 11:59:09 -0800
Date: Wed, 25 Feb 1998 13:58:03 -0600 (CST)
From: RICHARDSON@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980225135803.21e2648f@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6613
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6613
EVENT OF 1998 FEB 23 DAY OF YEAR= 54
EVENT CROSSING TIME AT BATSE : 45882. S. OR 12:44:42.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 220.000 28.000
BATSE PEAK COUNTING RATE: 2500 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 23/ 2/ 98 IS:
RA= 160.545 DEC= 12.938 DIST= 4.413 AU
BATSE-ULYSSES DISTANCE = 660176826. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=122.85 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1194.54 SECS.
CROSSING TIME AT ULYSSES IS 44687. S. OR 12:24:47 +/- 353.04 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 23/ 2/ 98 IS:
RA= 353.399 DEC= -3.706 DIST= 2.301 AU
MARS-BATSE DISTANCE = 344188160. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 50.53 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 729.87 SECS.
CROSSING TIME AT MARS IS 46612. S. OR 12:56:51 +/- 164.95 SECONDS

BATSE BURST TRIGGER

NO.: 6613

TIME: TJD=0867 SECONDS=45882

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=46.2 AZIMUTH=174.7 ERROR=7.5 DEGREES

COMMENTS:

GRB SINGLE PULSE WITH STRUCTURE. DURATION APPROX. = 12 SEC.
NOT VISIBLE ABOVE 300KEV

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6613	980223	10867	45882	2500	220	+28	12

BATSE BURST# 6613

ULYSSES RT

25 / 2 / 98

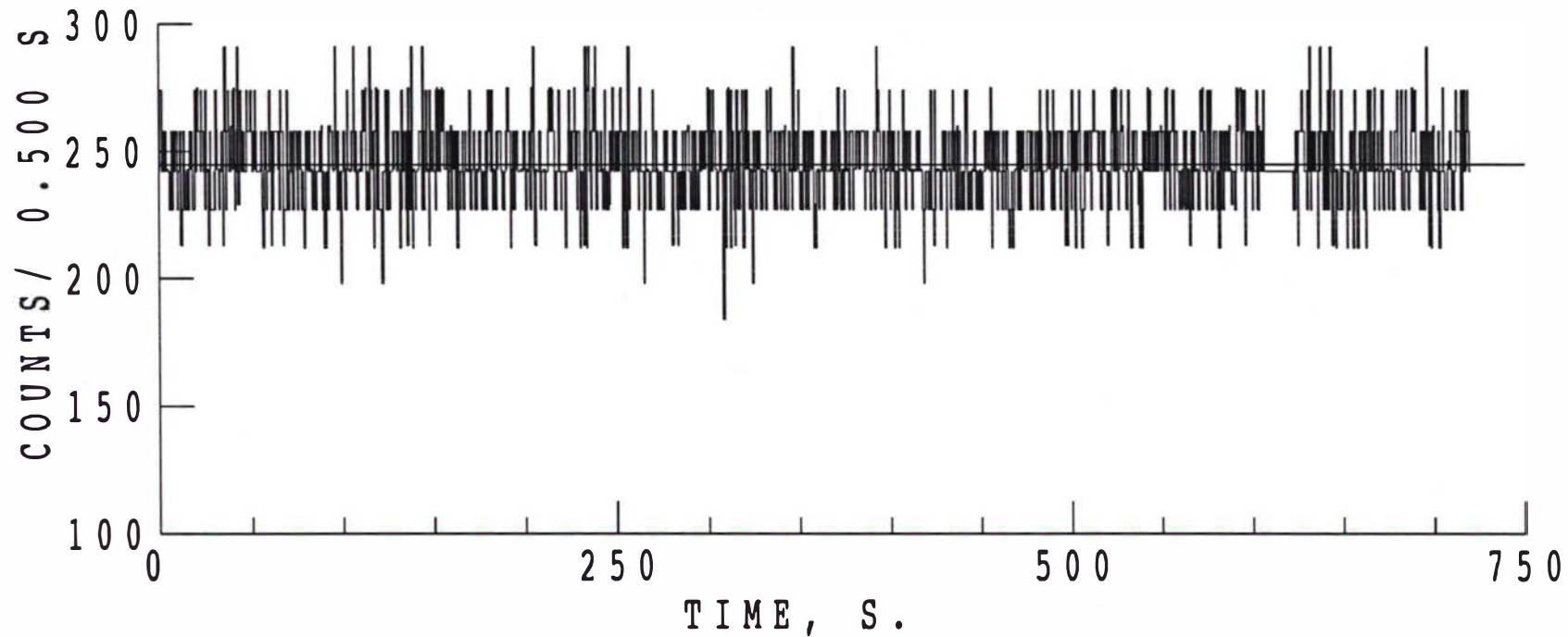
23 / 2 / 98 44316.160 s

0.250 S INTERVALS REGROUPED BY 2

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

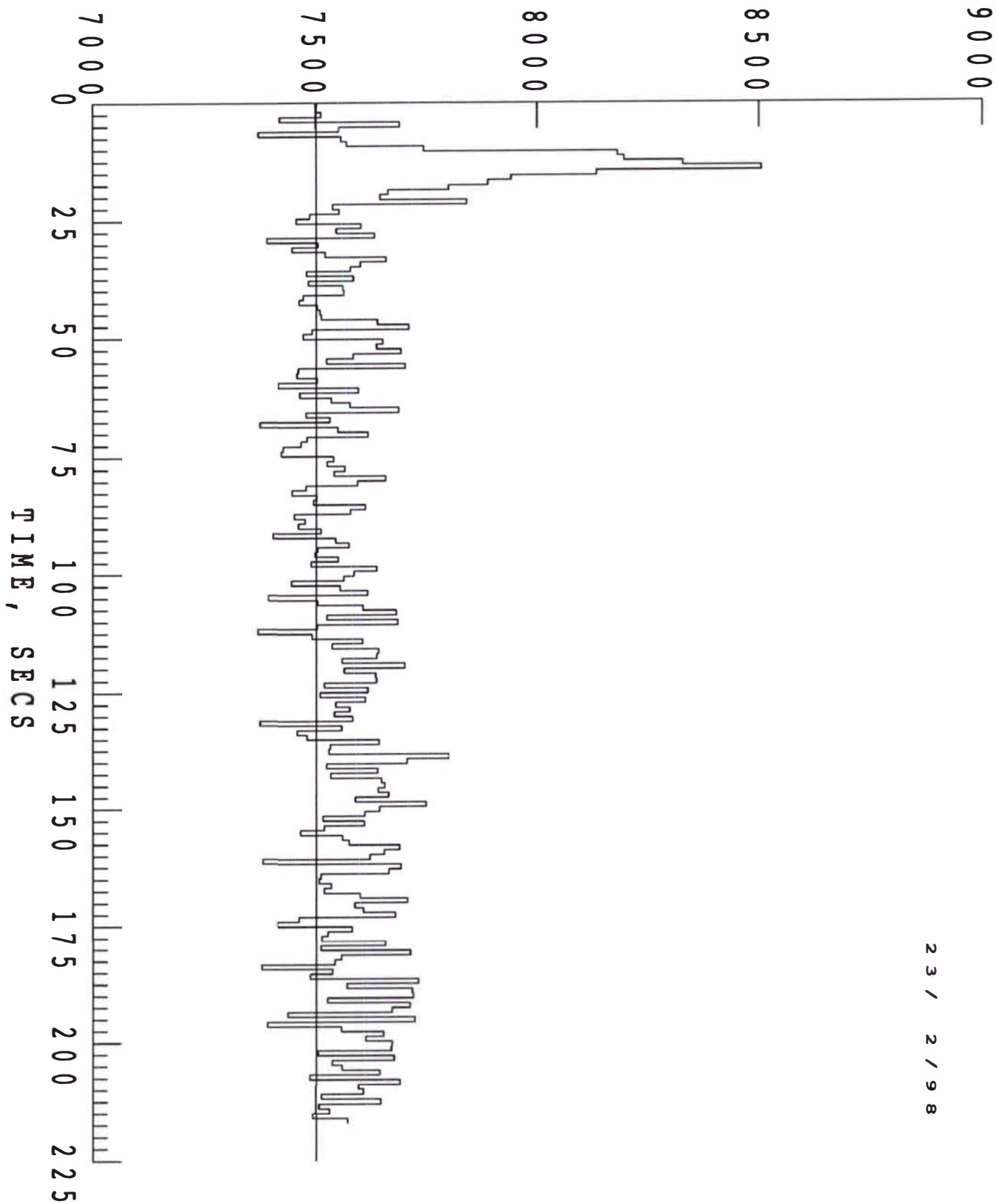
N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



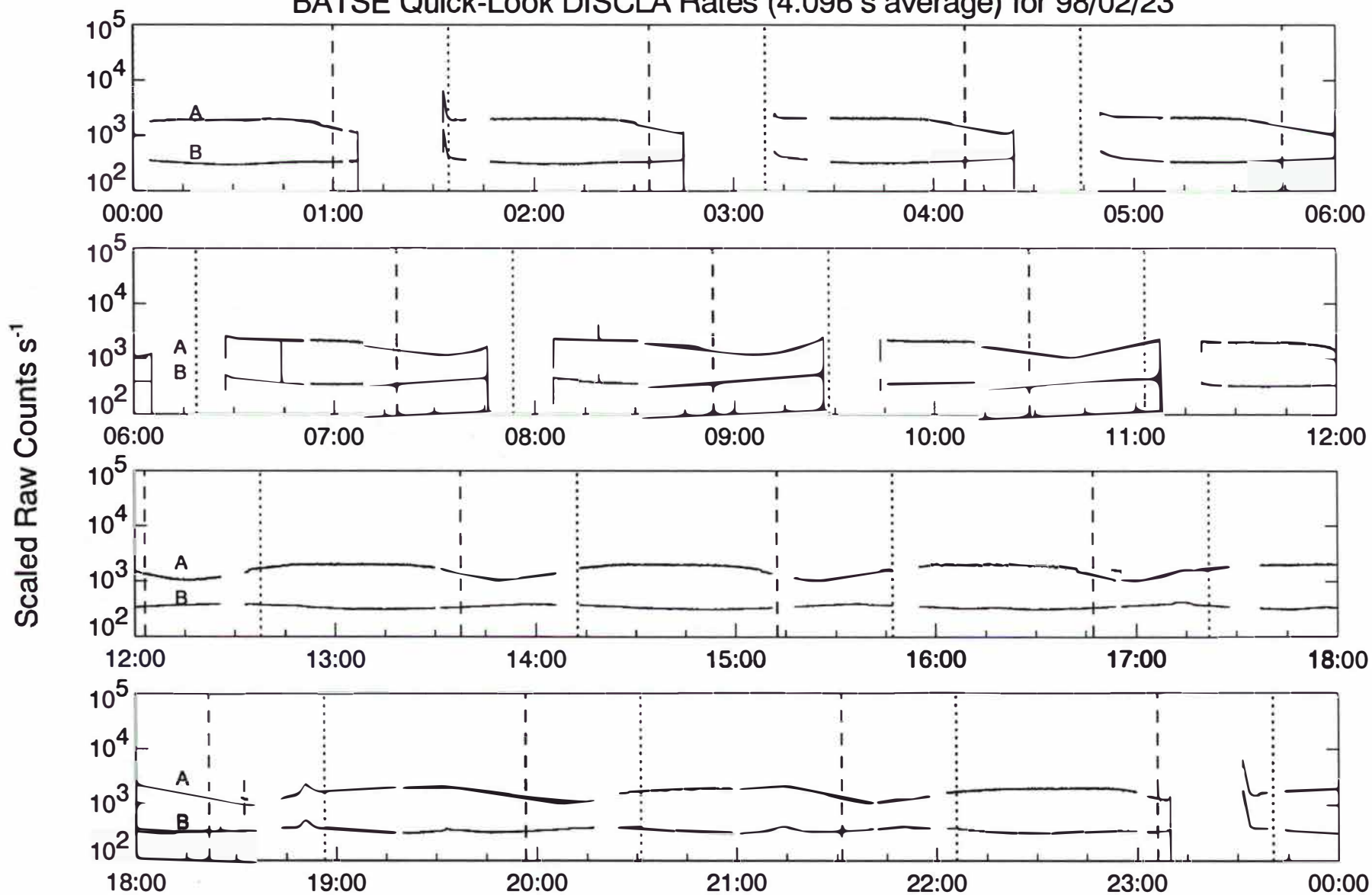
BACODINE 6613 23/02/98 45870.817

25- 100 keV

COUNTS/1.024 S



BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/23

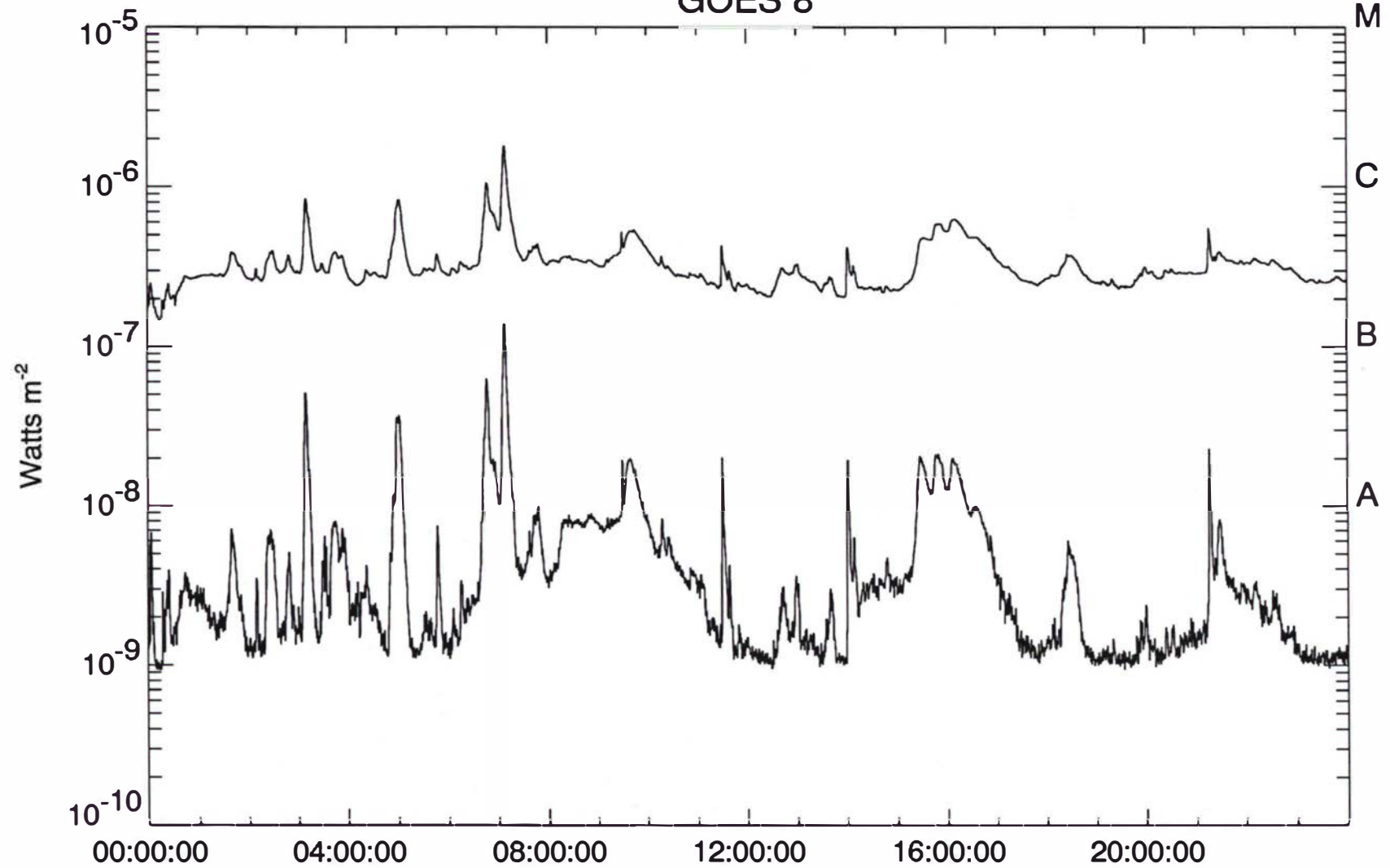


Current Time: 98/02/27, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare

GOES 8



Data Start: 98/02/23, 0000:00

Plot created: 98/02/27, 1007

Channel 1 (1.0 - 8.0 Angstroms)

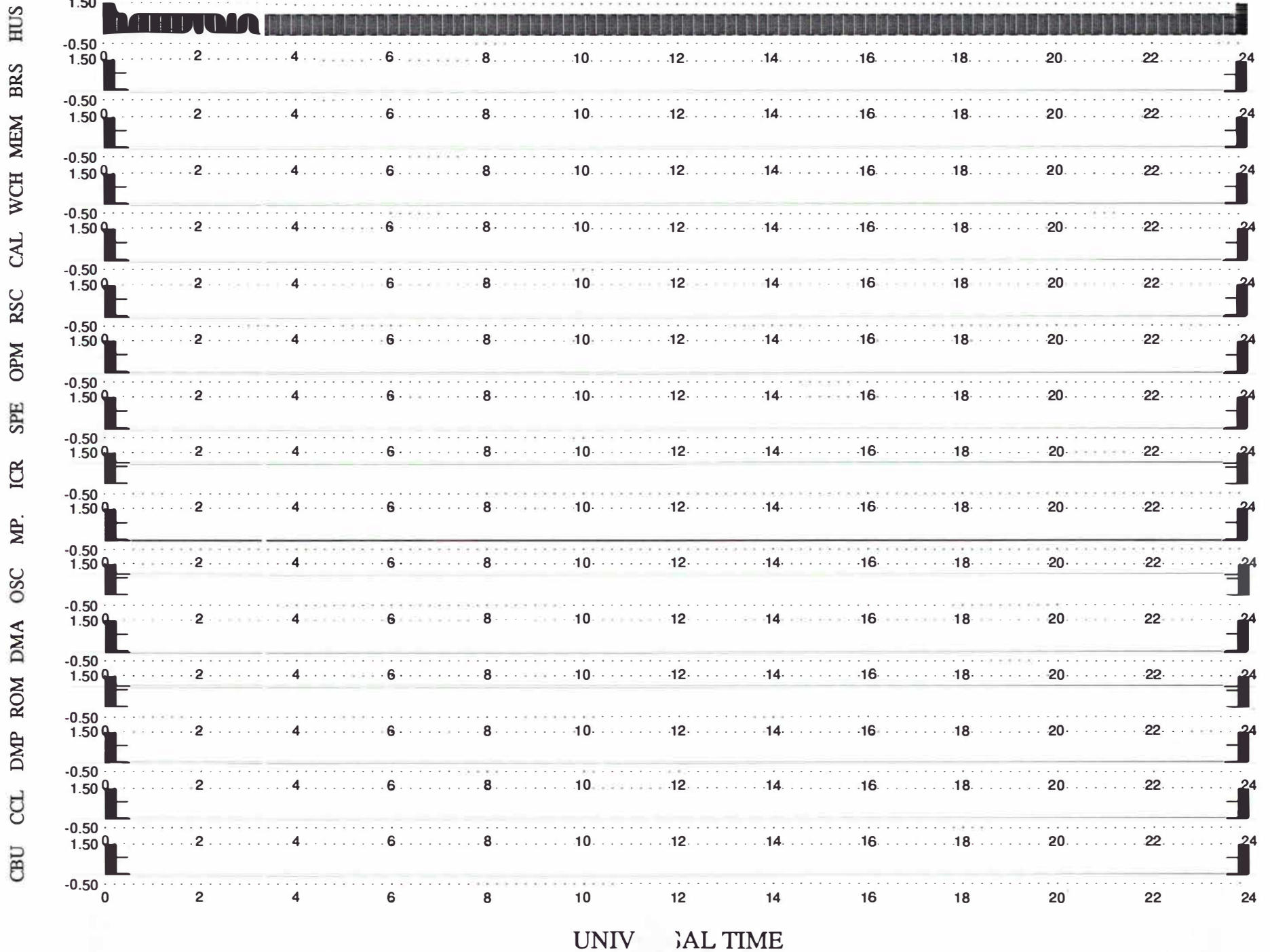
Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms)

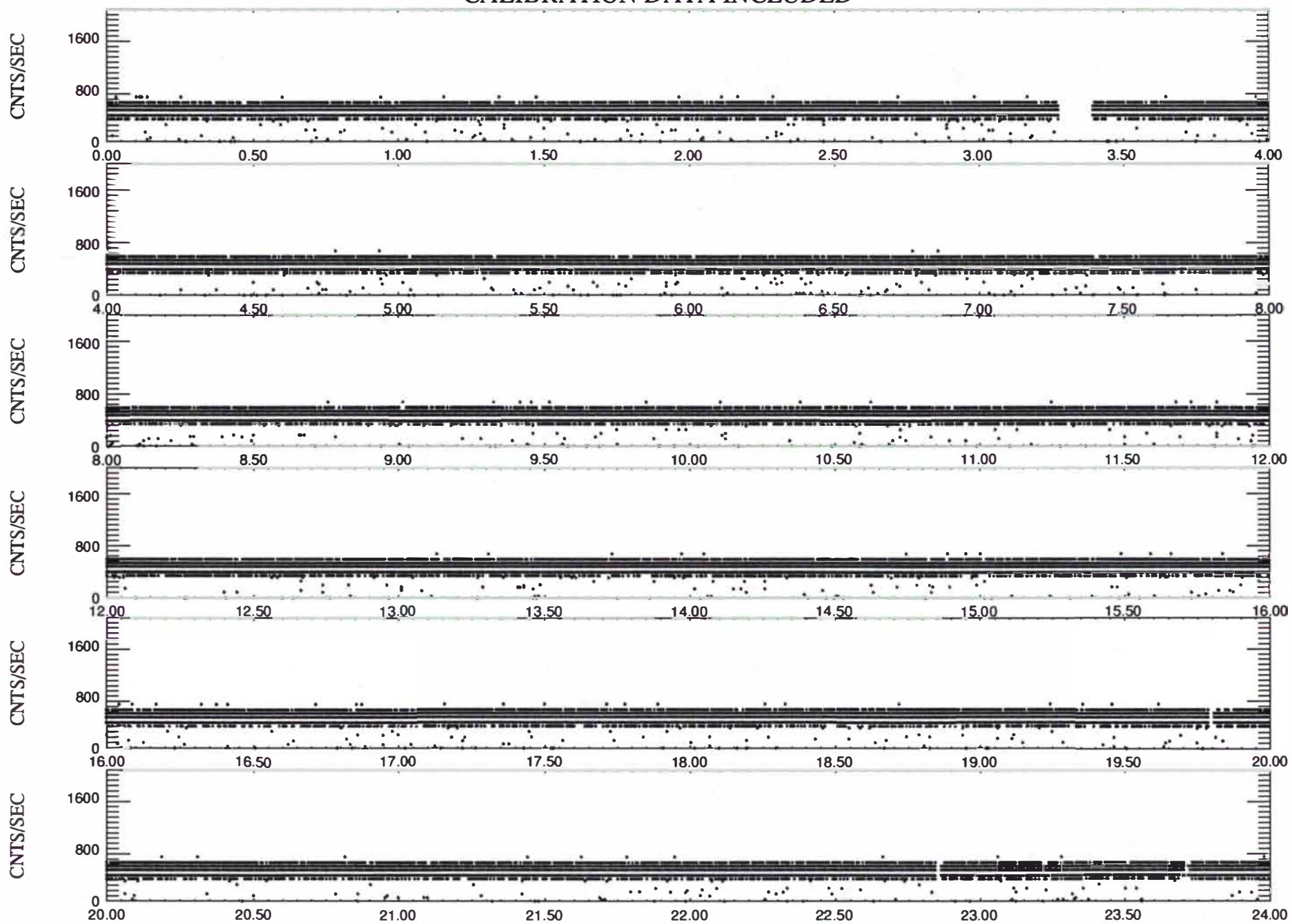
Background not subtracted

Sample average = 10

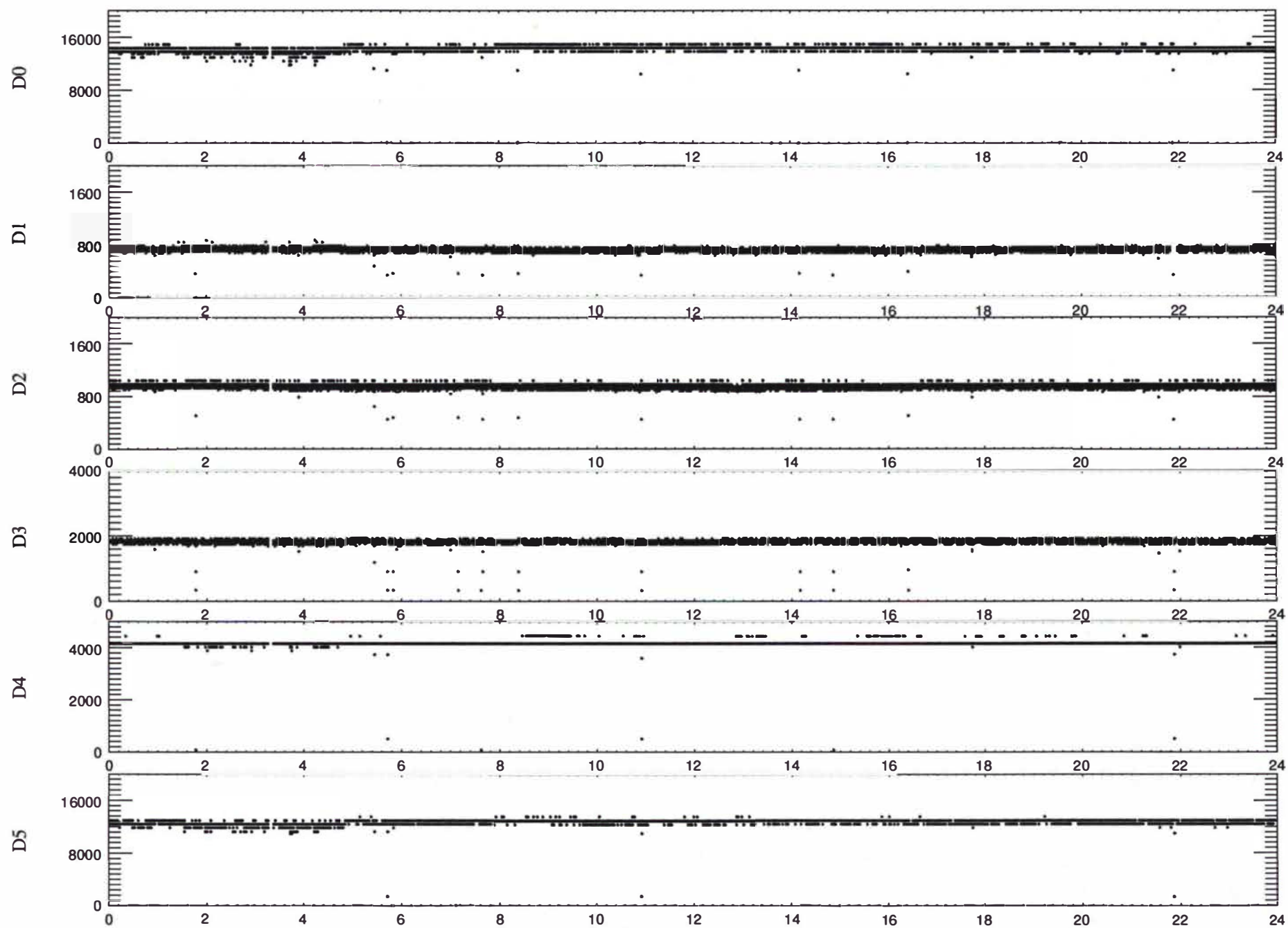
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIVERSAL TIME



UNIV 3AL TIME

From SURASAK@SSLMOR.msfc.nasa.gov Wed Feb 25 14:25:29 1998
Date: Wed, 25 Feb 1998 16:22:23 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: burst@comptel.sr.unh.edu, grobad@ests2.estec.esa.nl,
cline@lheavx.gsfc.nasa.gov, barthelmy@lheavx.gsfc.nasa.gov,
bacodine@lheawww.gsfc.nasa.gov, scott@circe.gsfc.nasa.gov,
butterworth@lheavx.gsfc.nasa.gov, band@cass09.ucsd.edu
X-Vmsmail-To: @mops\$send_msg:BURST_SPAN.DIS
Subject: Burst Trigger Message

BATSE BURST TRIGGER

NO.: 6614

TIME: TJD=0868 SECONDS=60697

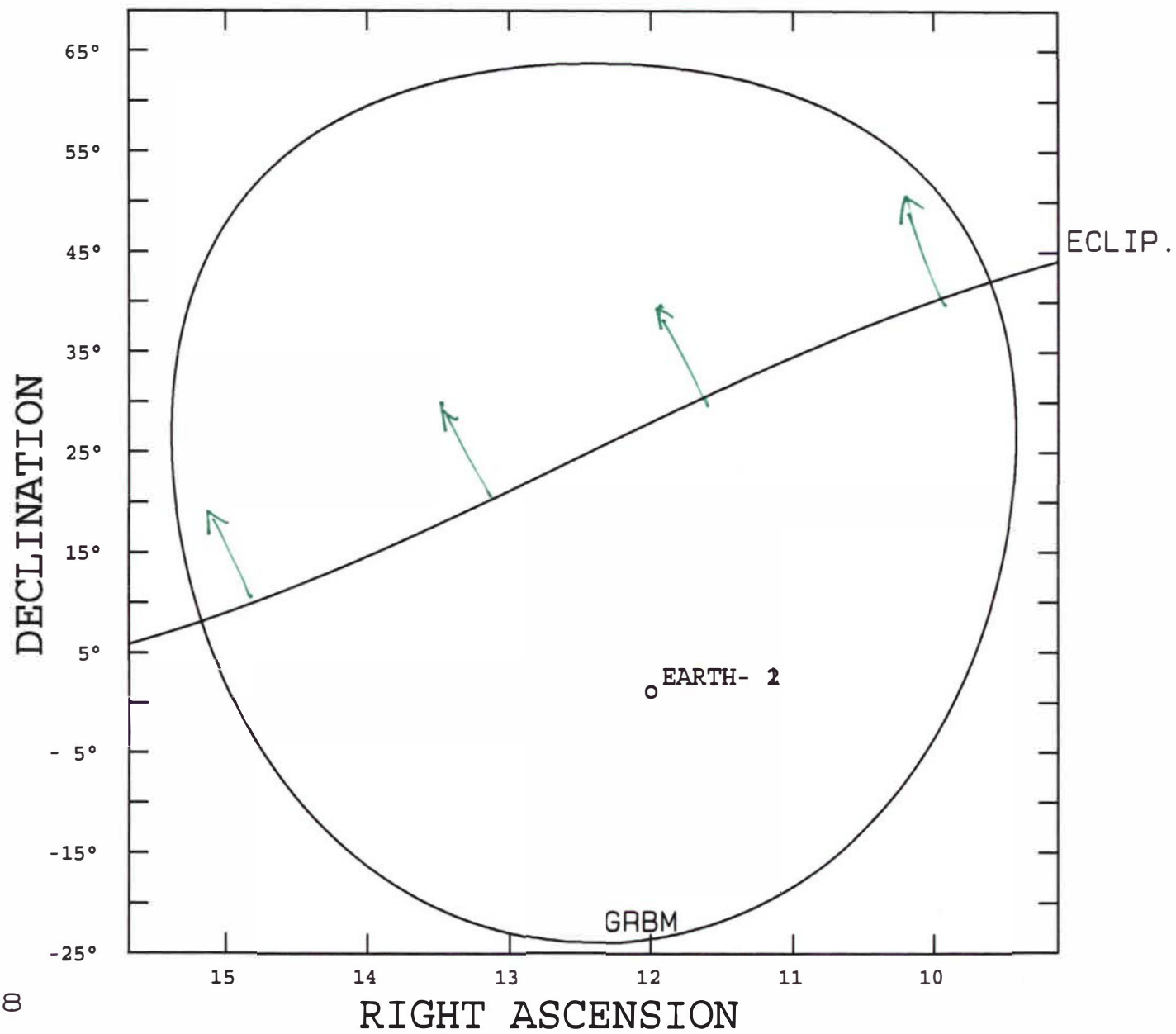
TYPE: PARTICL SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH= AZIMUTH= ERROR= DEGREES

COMMENTS:
PARTICLE EVENT.



306
1801

744-28

KONUS

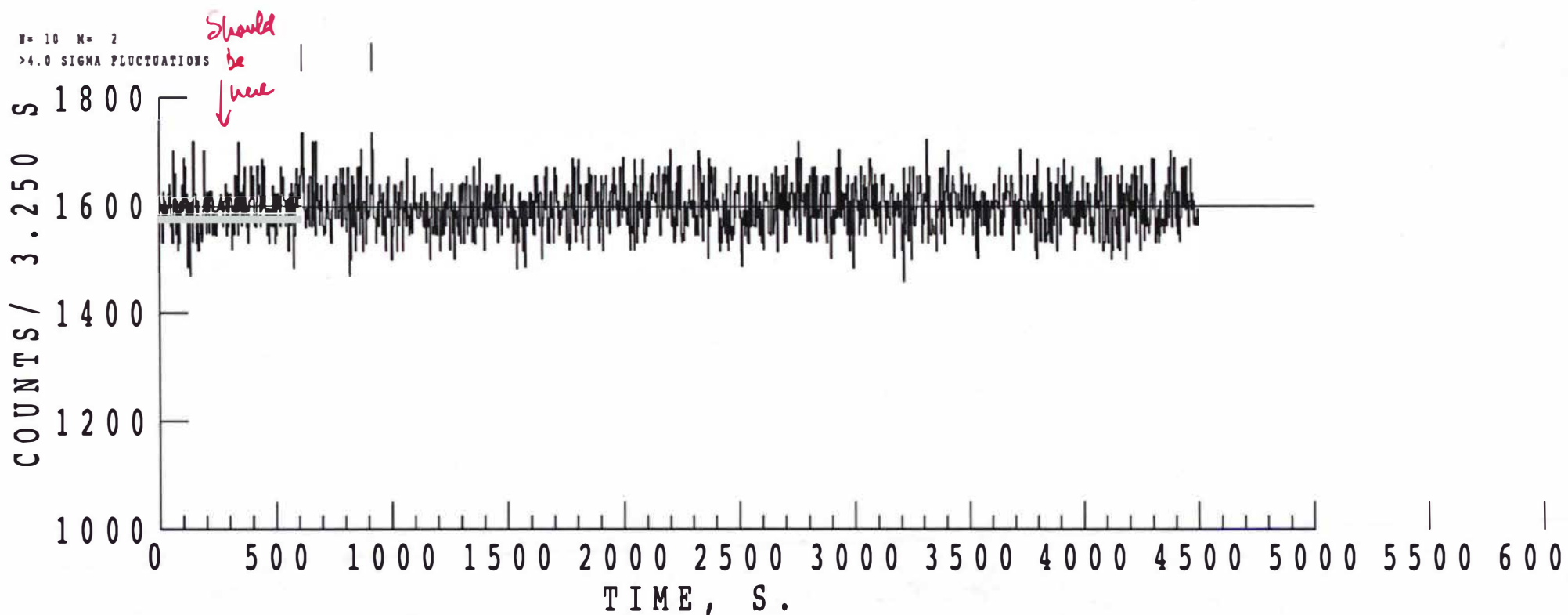
ULYSSES RT

07/02/00

24/02/98 73008.156 s

0.250 S INTERVALS REGROUPED BY 13

0 - 0 keV

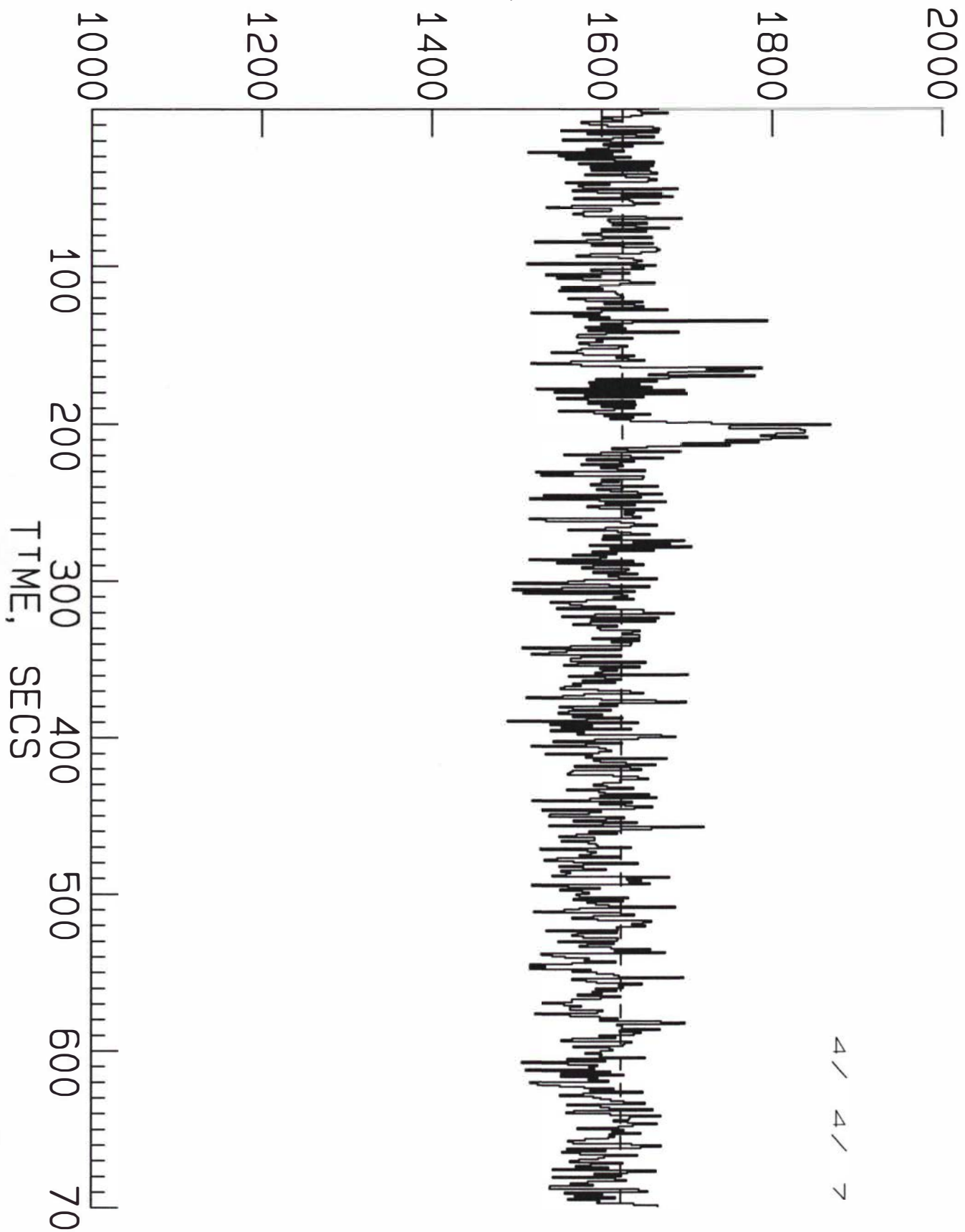


SAX GRBM

24/02/98 75054.203

40- 700 keV

COUNTS/1.000 S



KONUS

24/02/98 75208.281

10- 50 keV

50- 200 keV 200- 750 keV

COUNTS/2.938 S

3500 -

DETECTOR 1 - S. ECLIPPTIC

02/04/07

2500 -

1500 -

500 -

20

40

60

80

100

120

140

TIME, SECS

KONUS

24/02/98 75208.281

10- 50 keV

50- 200 keV

200- 750 keV

COUNTS/2.938 S

4400

DETECTOR 2 - N. ECLIPHTIC

02/04/07

3400

2400

1400

400

20

40

60

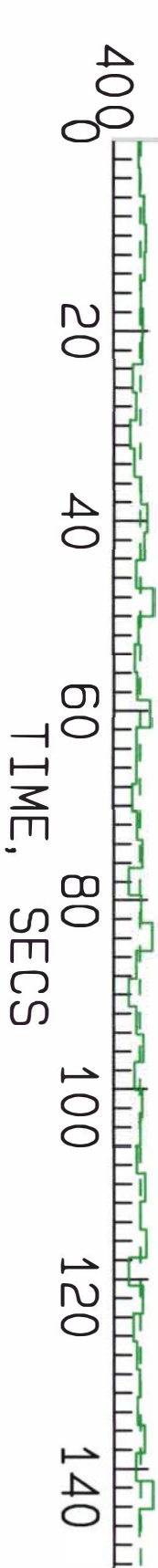
80

100

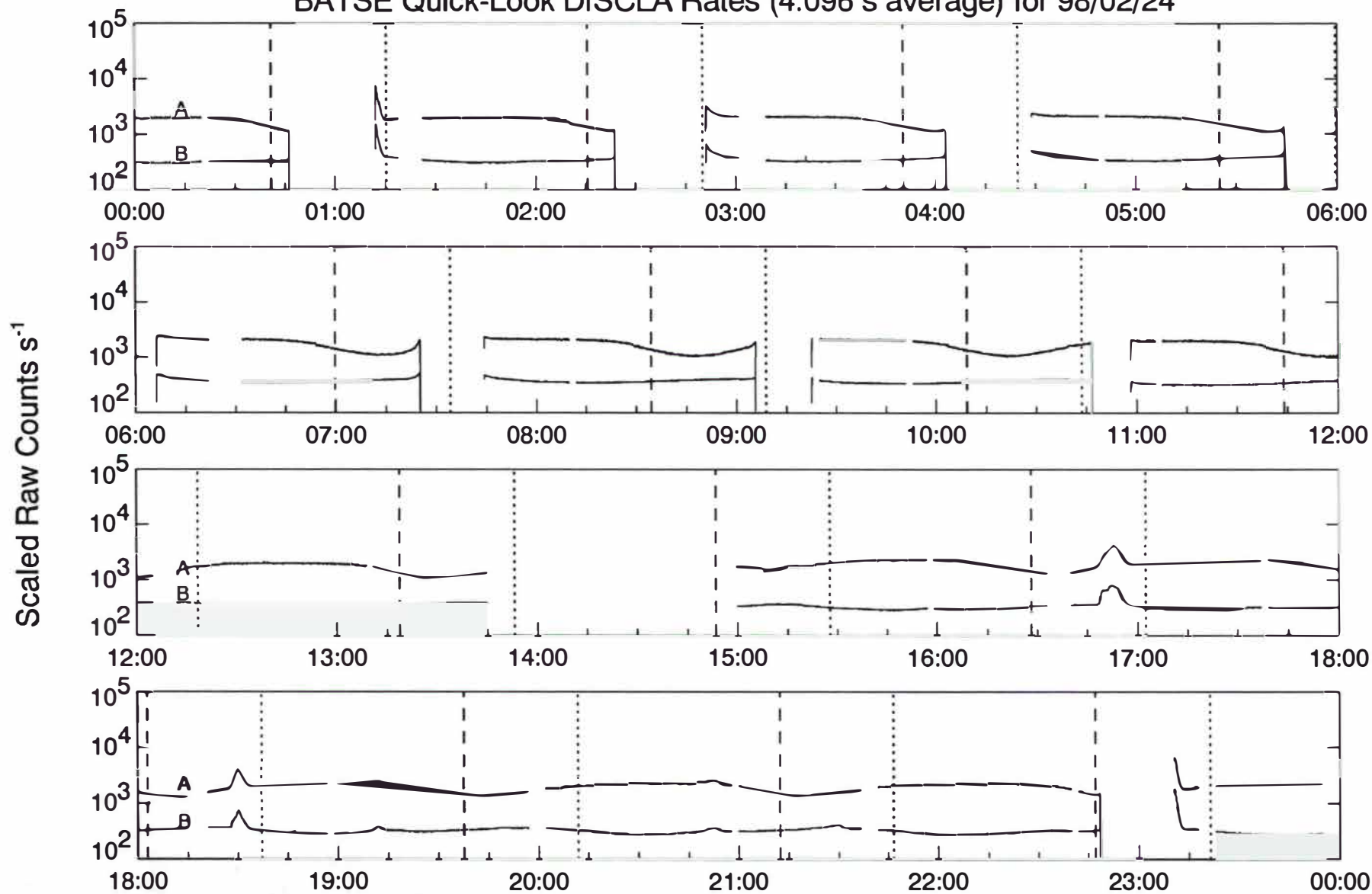
120

140

TIME, SECS



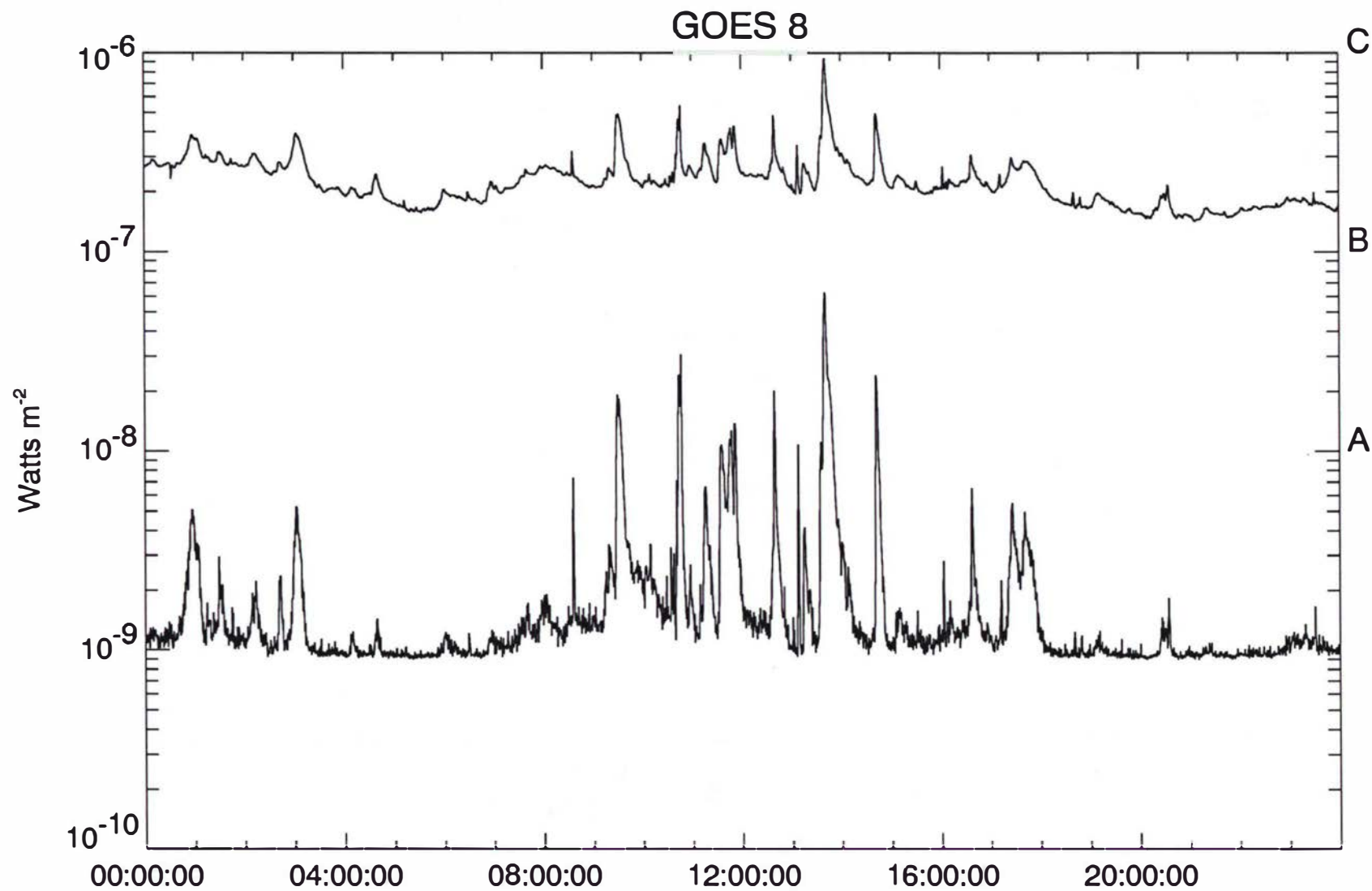
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/24



Current Time: 98/02/28, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/24, 0000:00

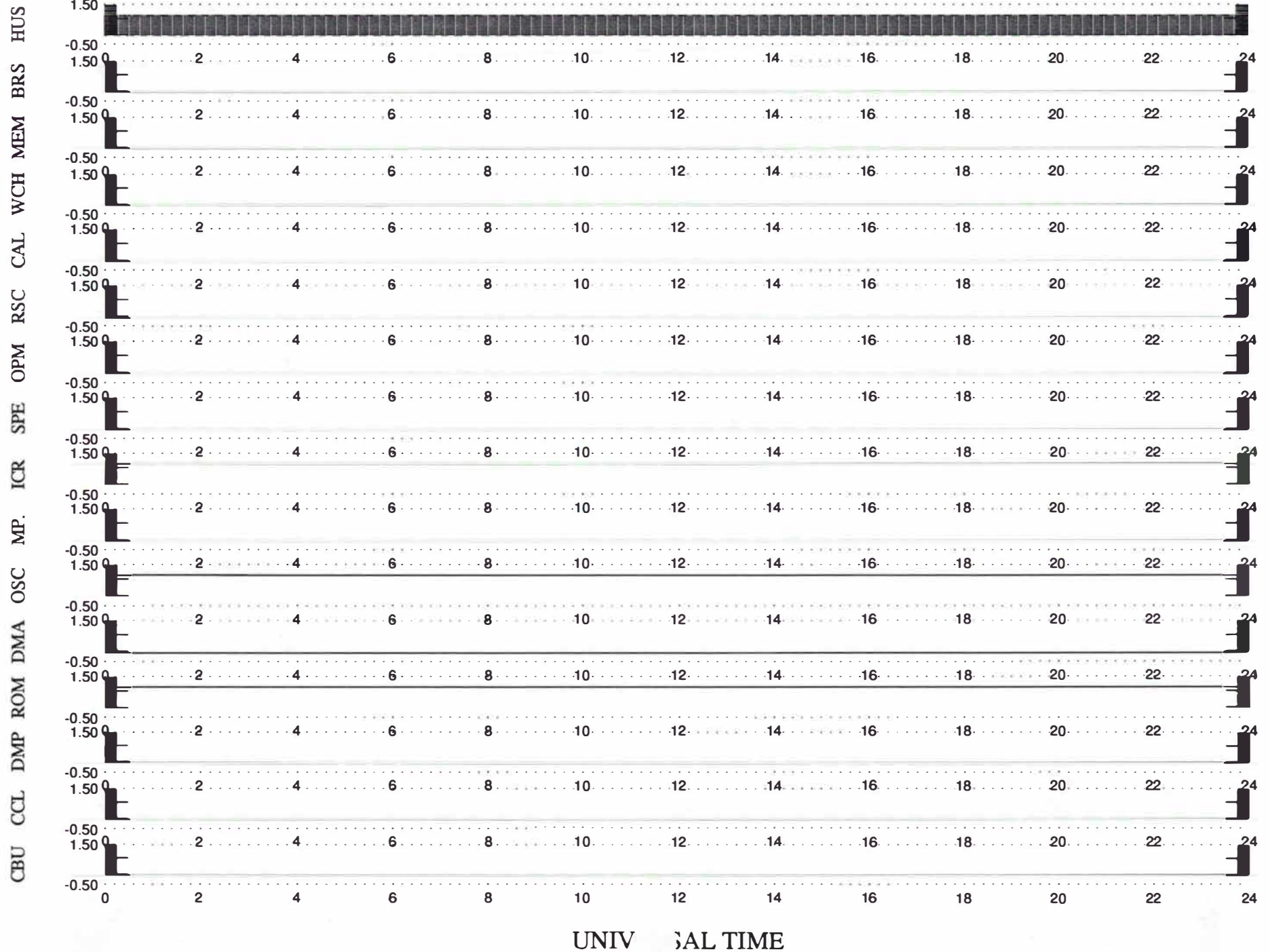
Plot created: 98/02/28, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

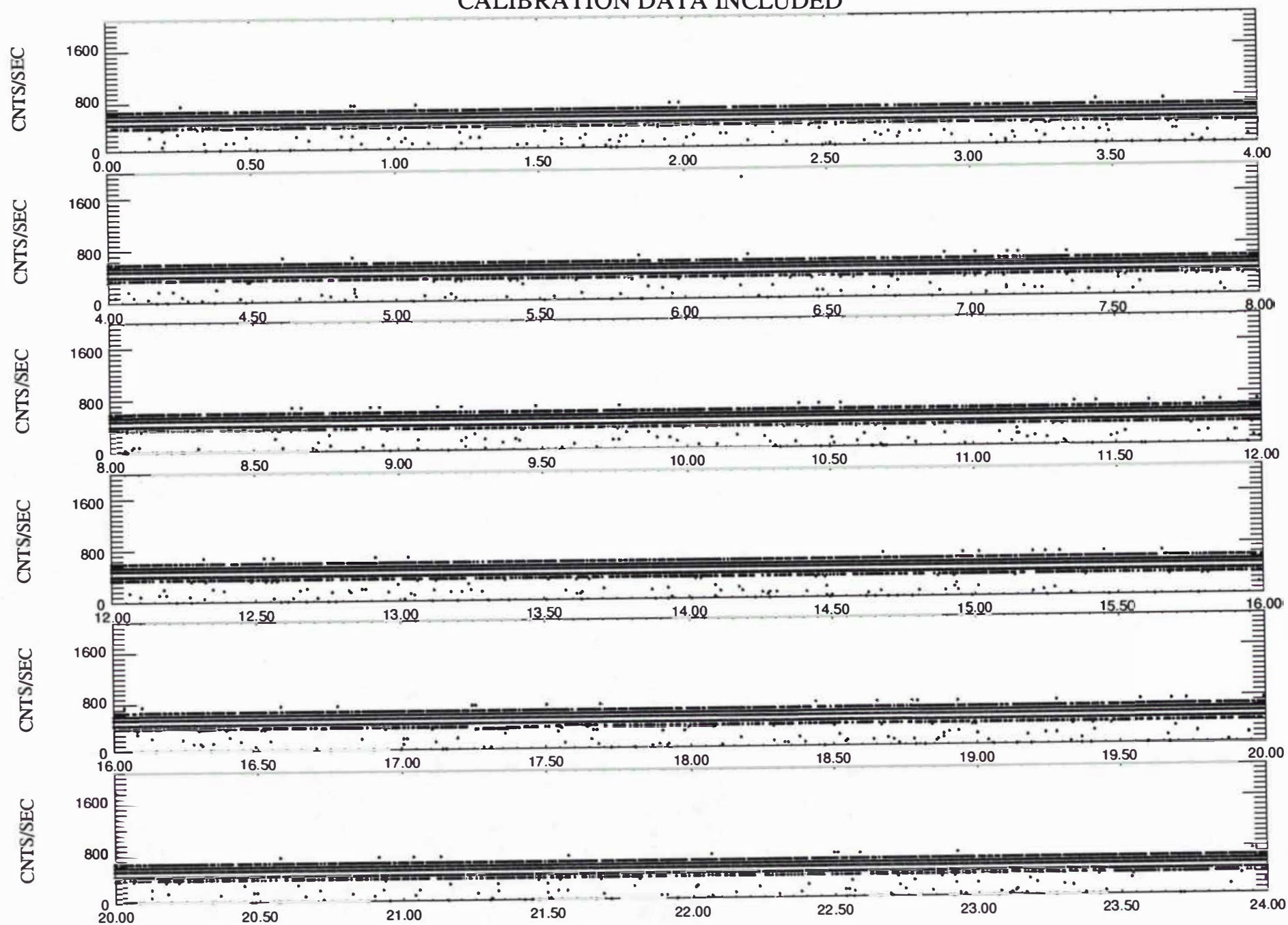
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

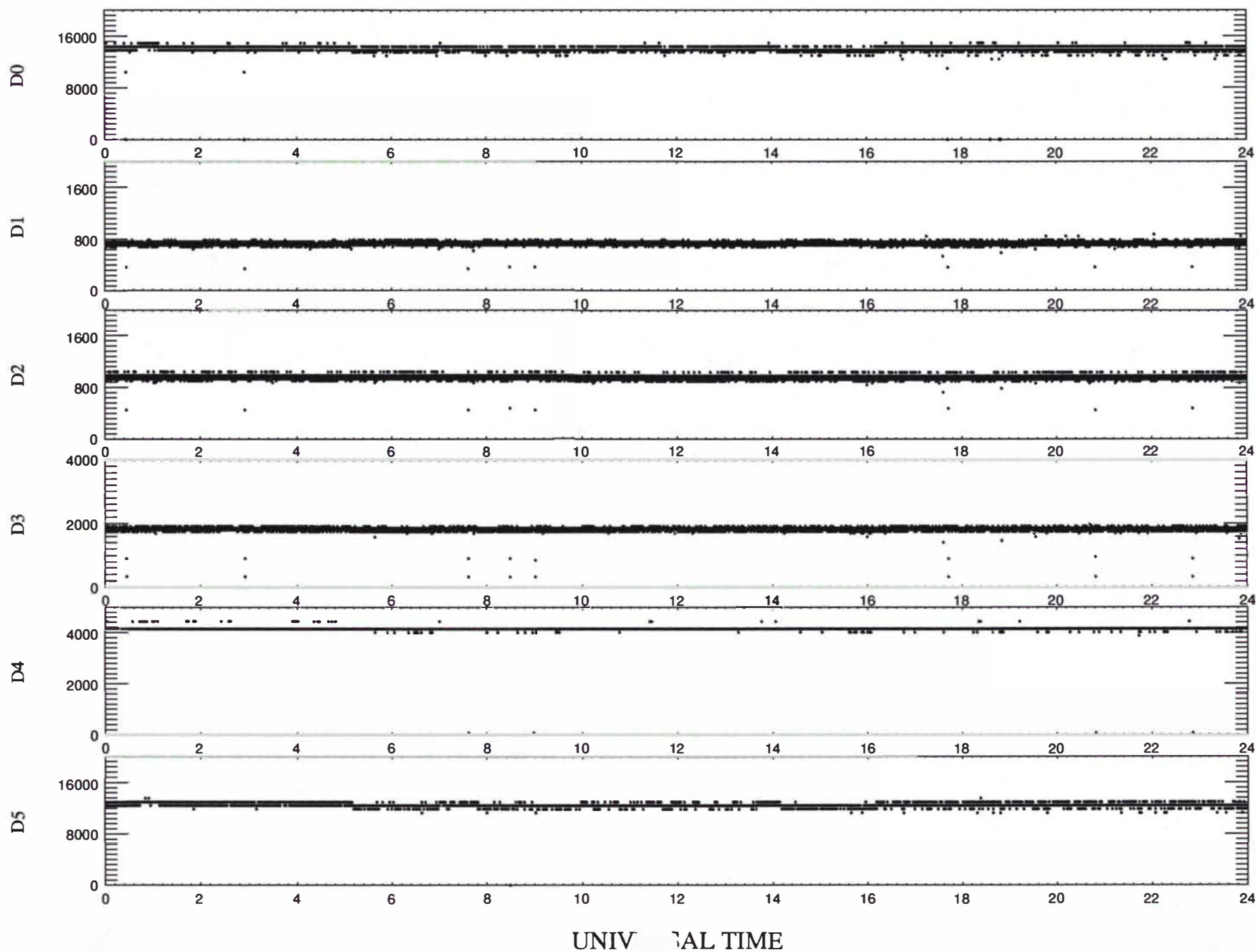
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIV CAL TIME



KONUS

ULYSSES RT

07 / 02 / 00

25 / 02 / 98 18324.008 s

0.250 S INTERVALS REGROUPED BY 12

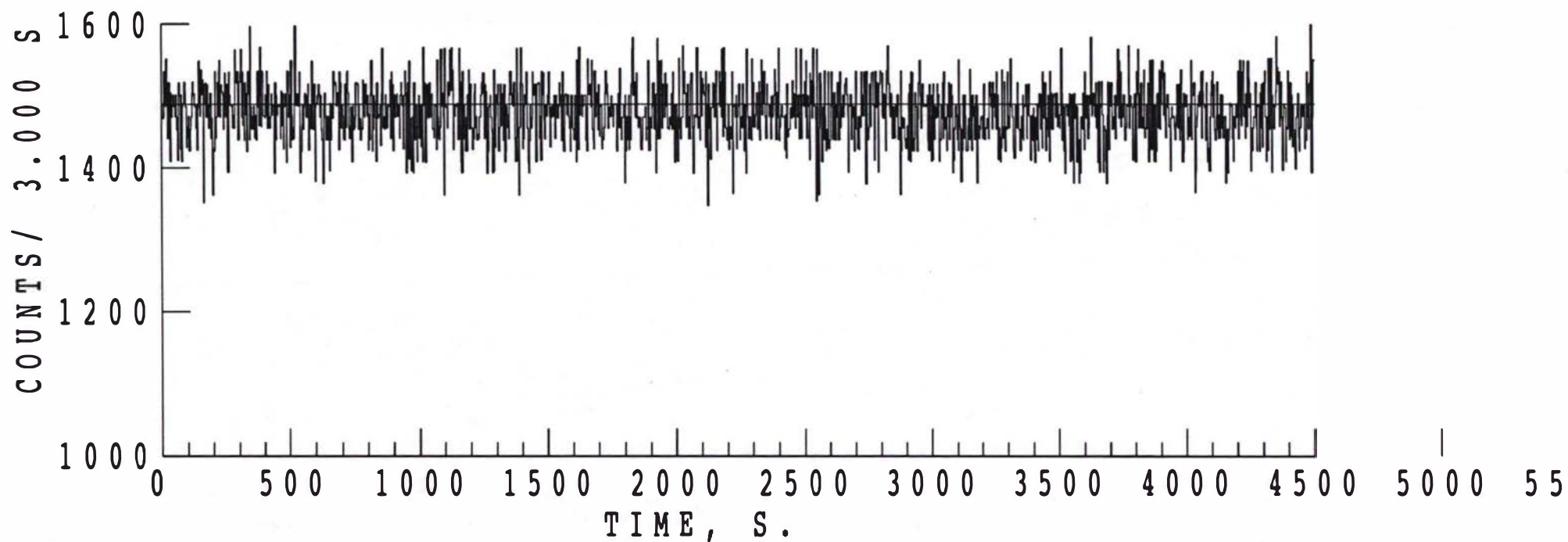
0 - 0 keV

N= 10 M= 10

>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



From SURASAK@SSLMOR.msfc.nasa.gov Thu Feb 26 12:14:05 1998
Return-Path: <SURASAK@SSLLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA05716; Thu, 26 Feb 1998 12:14:04 -0800
Received: from SSLLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id MAA21918; Thu, 26 Feb 1998 12:14:02 -0800
Date: Thu, 26 Feb 1998 14:13:43 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980226141343.21e278ec@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6615
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6615
EVENT OF 1998 FEB 25 DAY OF YEAR= 56
EVENT CROSSING TIME AT BATSE : 30564. S. OR 08:29:24.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 126.000 14.000
BATSE PEAK COUNTING RATE: 8750 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 25/ 2/ 98 IS:
RA= 160.132 DEC= 12.985 DIST= 4.412 AU
BATSE-ULYSSES DISTANCE = 660096860. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=146.82 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH=-1842.90 SECS.
CROSSING TIME AT ULYSSES IS 28721. S. OR 07:58:41 +/- 231.21 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 25/ 2/ 98 IS:
RA= 354.826 DEC= -3.071 DIST= 2.307 AU
MARS-BATSE DISTANCE = 345064480. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 49.40 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 749.12 SECS.
CROSSING TIME AT MARS IS 31313. S. OR 08:41:53 +/- 163.09 SECONDS

BATSE BURST TRIGGER

NO.: 6615

TIME: TJD=0869 SECONDS=30564

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=110.2 AZIMUTH=126.7 ERROR=0.469 DEGREES

COMMENTS:

GRB. DOUBLE PULSE WITH SUBSTRUCTURE,DUR ABOUT 200S,STARTS AT ABOUT T-20S.
SECOND PULSE IS MUCH STRONGER, MAX AT ABOUT T+110S. VISIBLE ABOVE 300 KEV.
POSSIBLE PRECURSOR AT ABOUT T-64S.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6615	980225	10869	30564	8750	126	+14	200

Helio corr removed 18/2/00

Date: May 7 '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? *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? *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

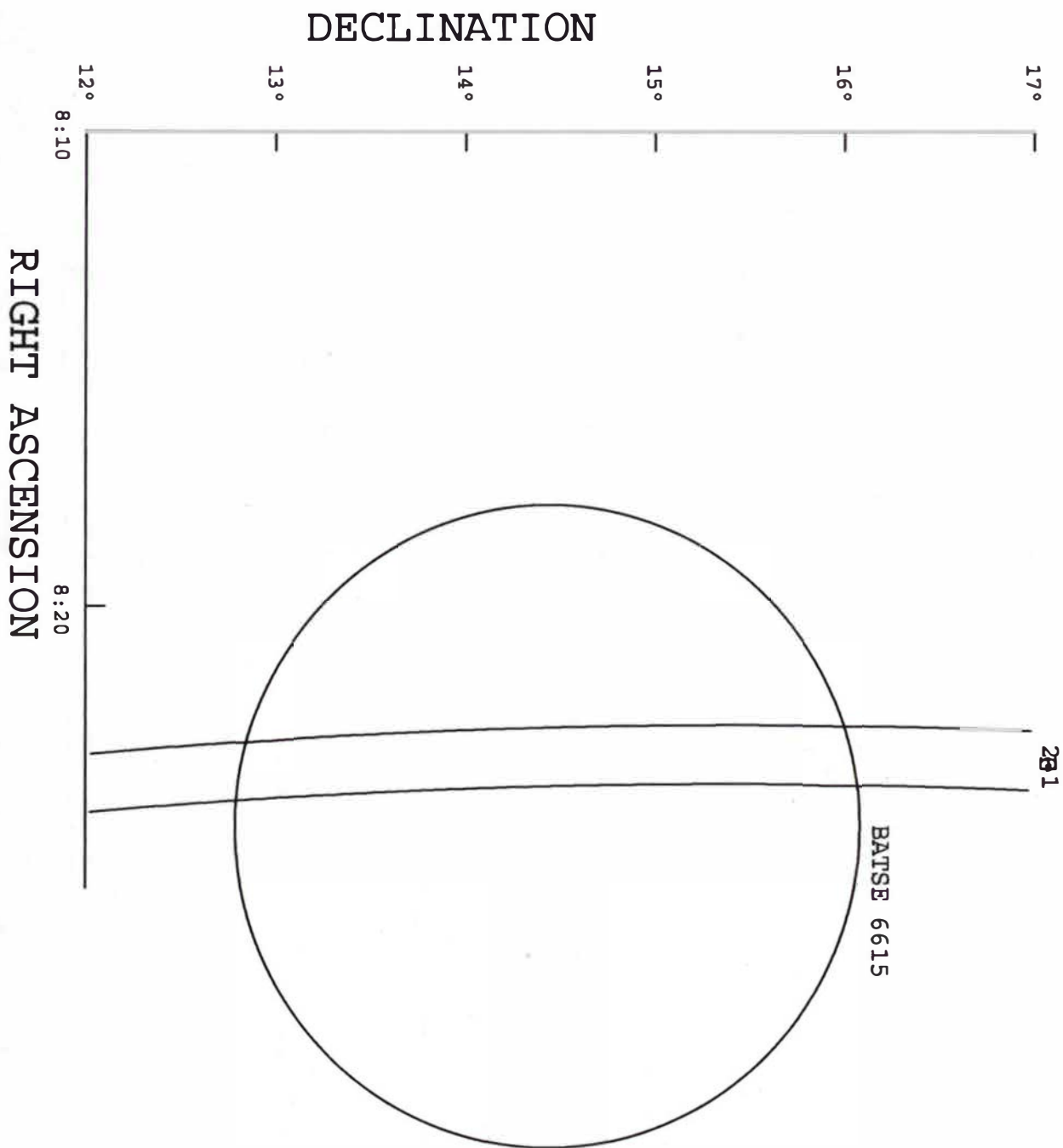
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 25, 1998 7:59

18 / 2 / 0



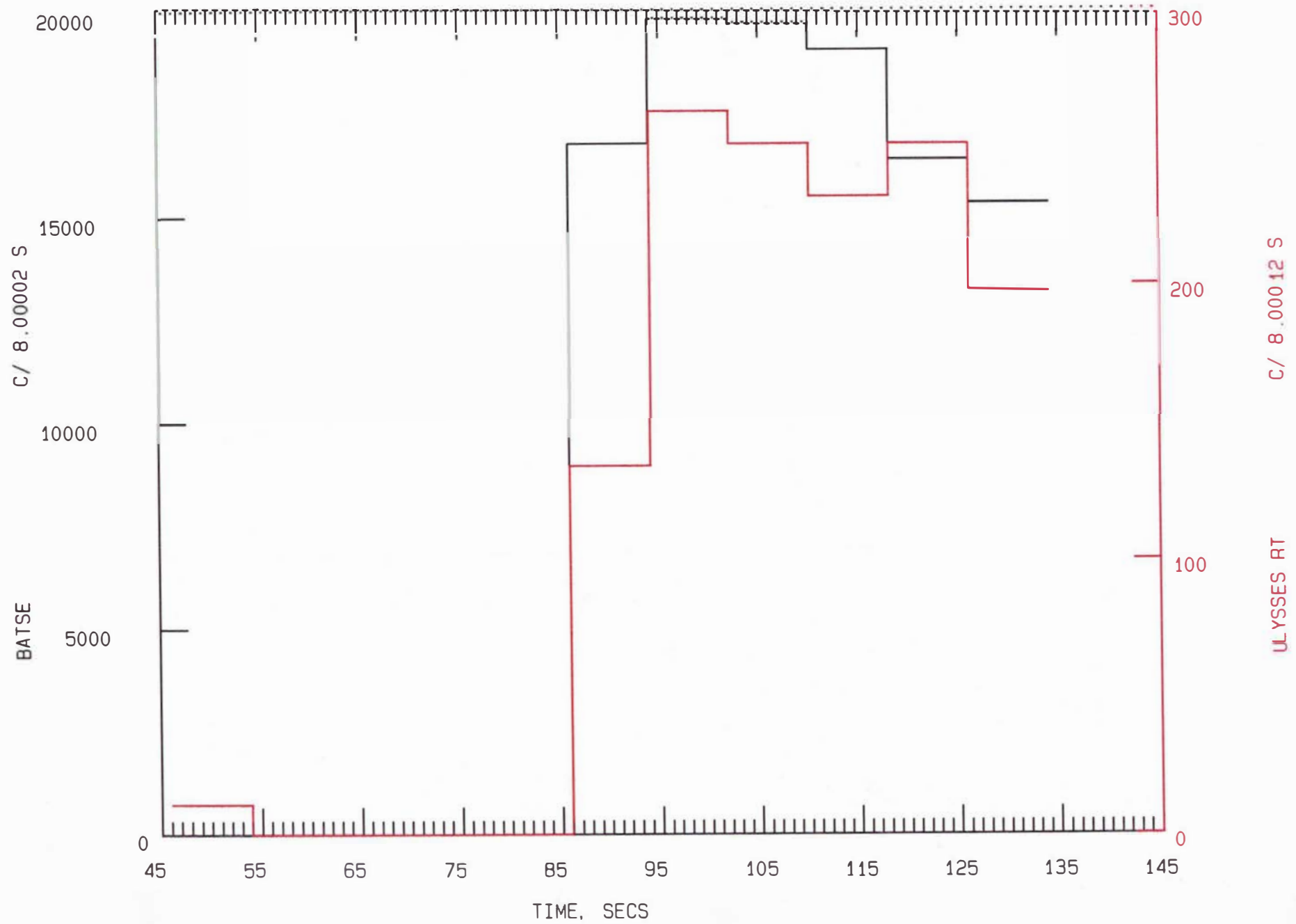
BATSE

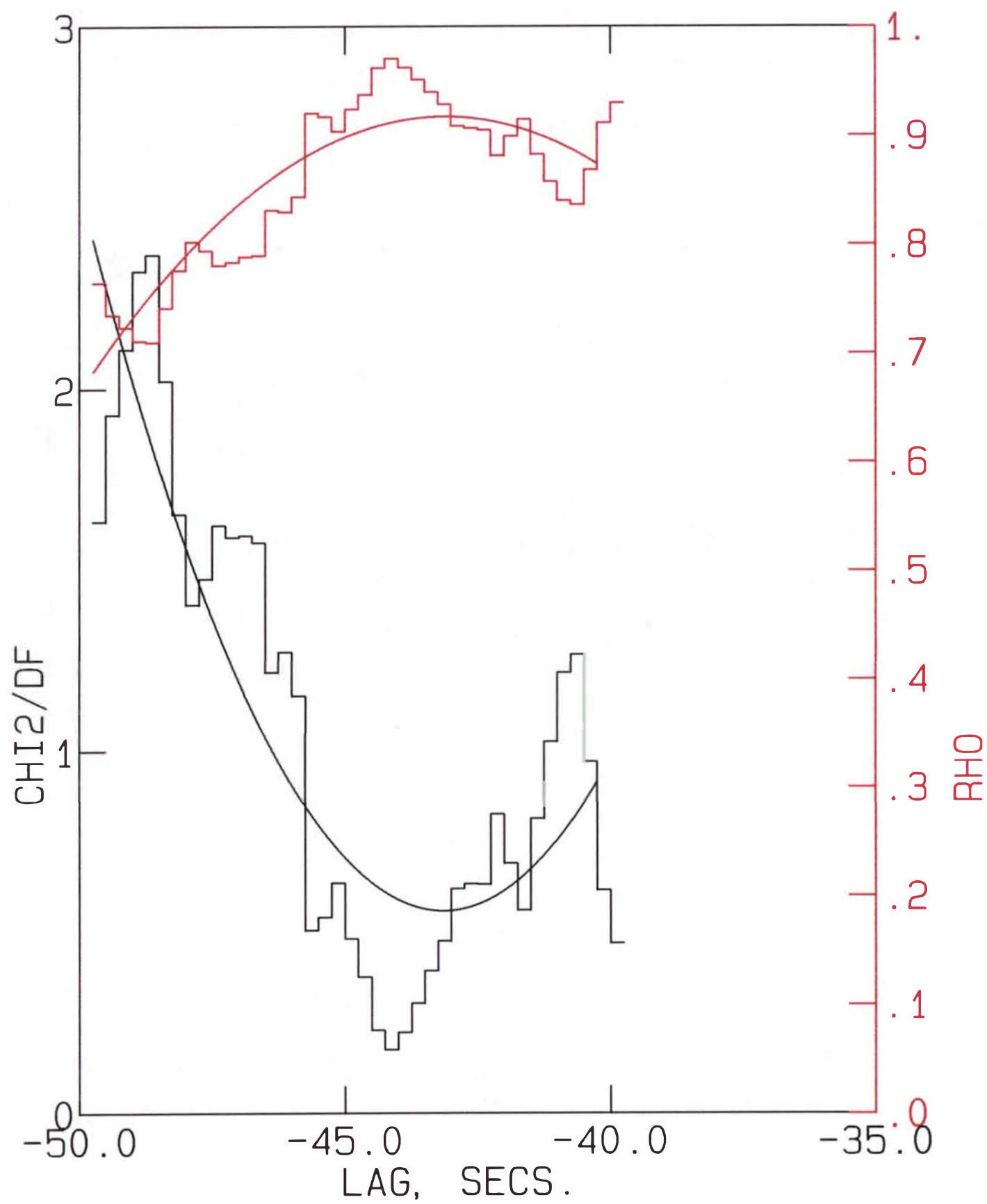
-ULYSSES RT CORRELATION

25/ 2/98

30564.066

7/ 5/98





ULYSSES RT

7 / 5 / 98

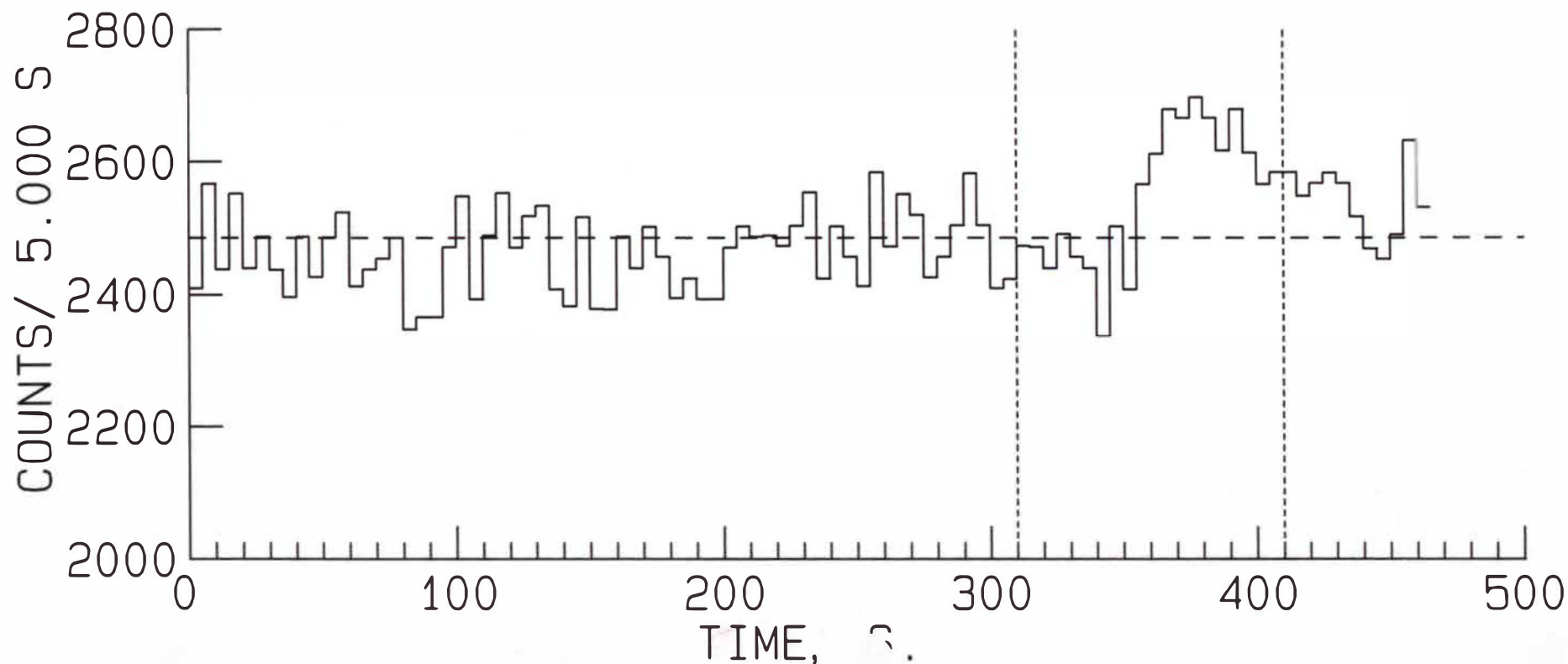
25 / 2 / 98 28476.118 s

0.250 S INTERVALS REGROUPED BY 20

22- 149 keV

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



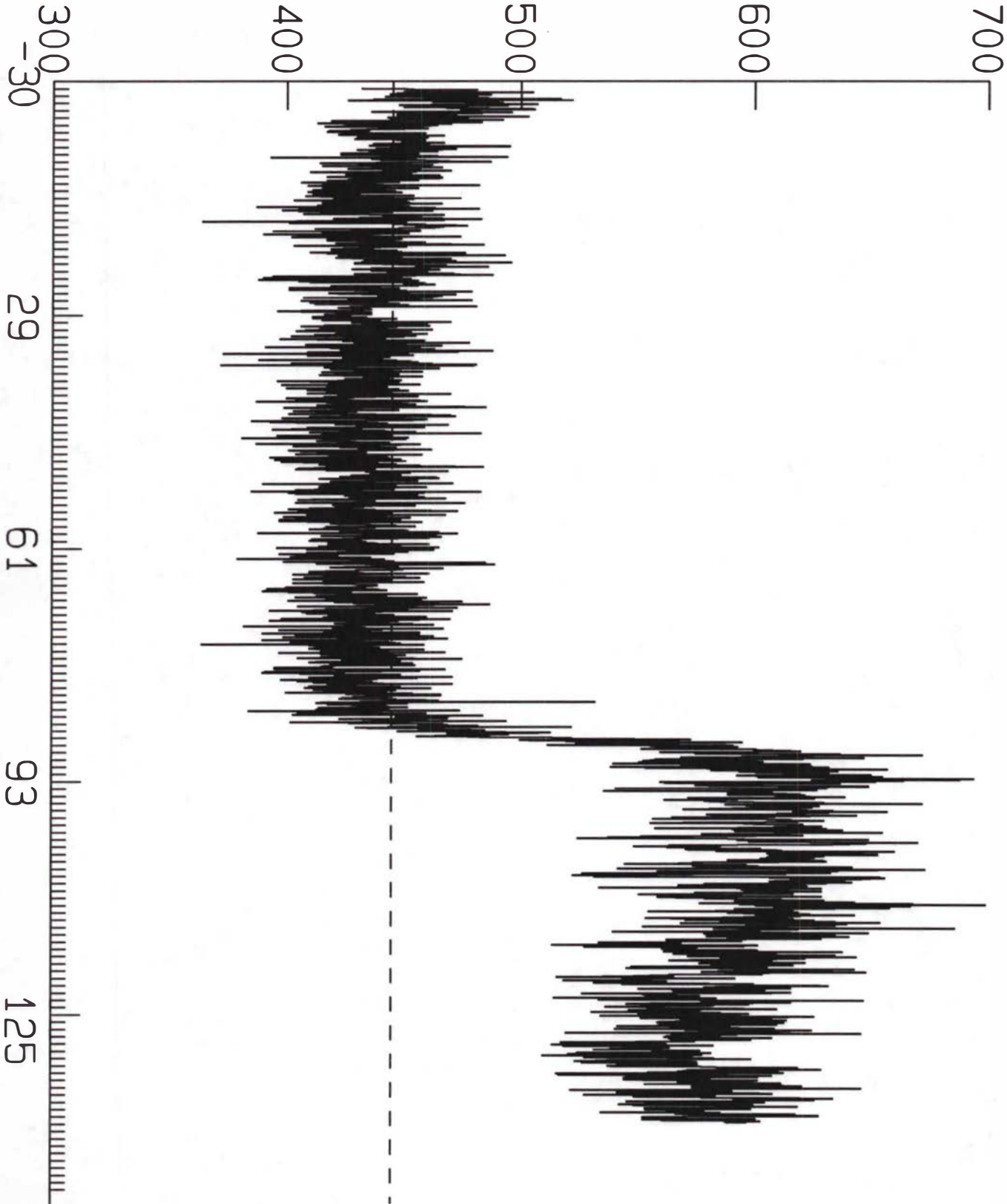
BATSE

25/02/98

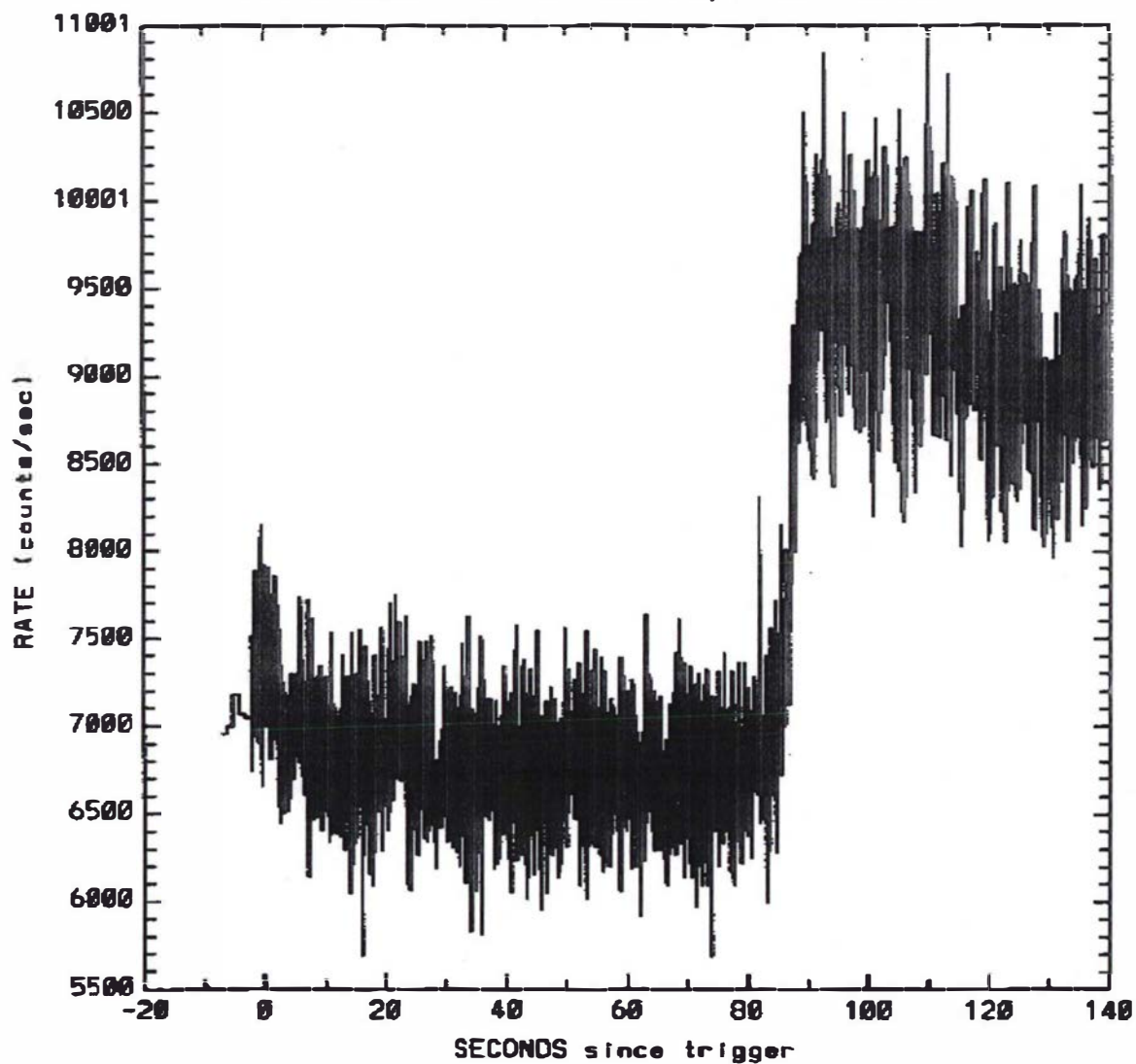
30564.066

25- 100 keV

COUNTS/0.064 S



DISCSC Data for K. Hurley, No. 6615



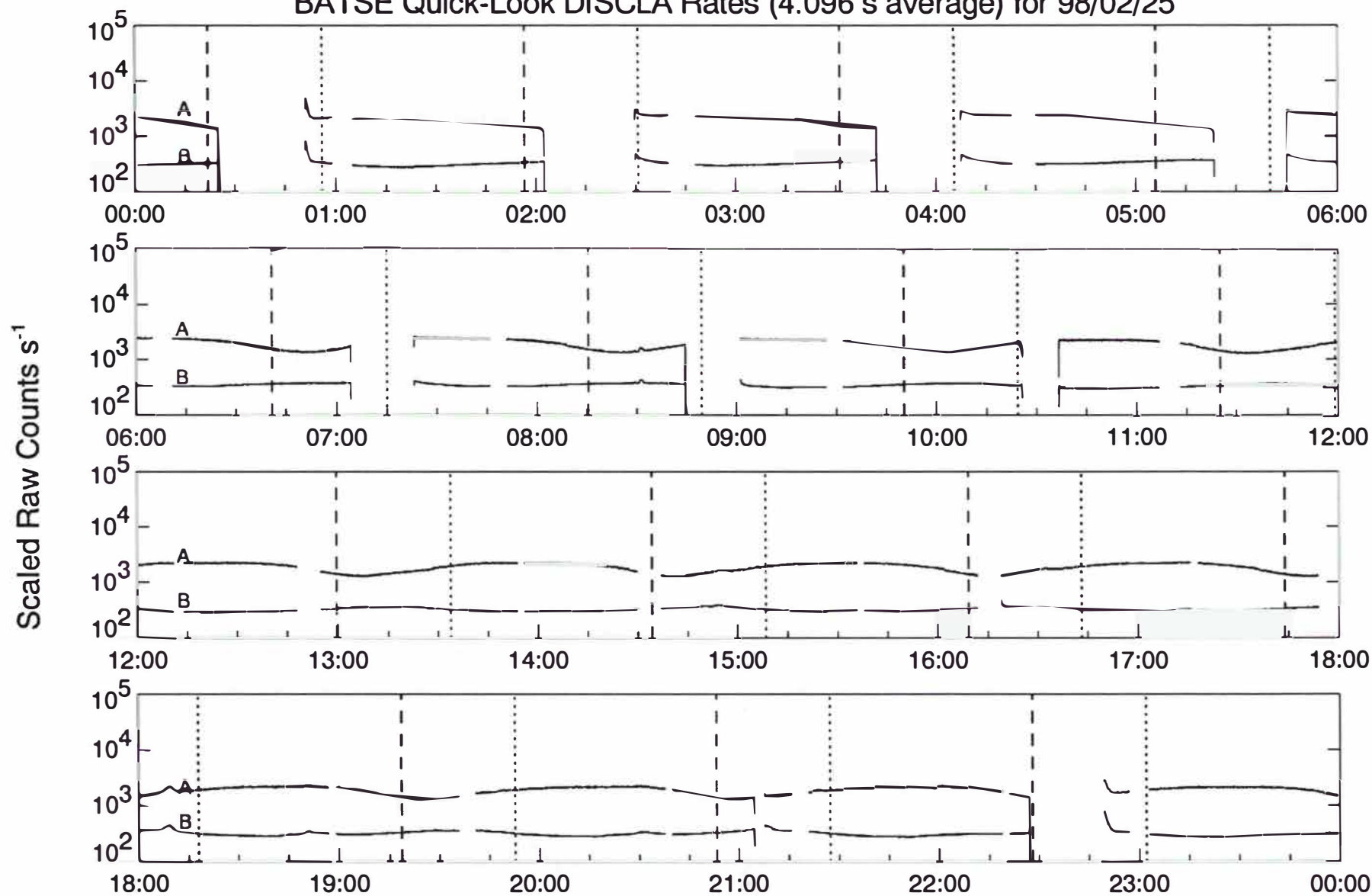
5-MAR-1998 09:24:05

Created by MOPS 80
(Burnt Display)
Version 12.25

Trigger # : 6615

Trigger Time:
10069 / 30564.865Burnt Data Type:
DISCSCDeadtime
Corrected: N
Background Data
Type: PREB + DISCLA
Minimum Integ. Time:
0.064 seconds)Detectors [7..8]:
--54----Discriminators:
(1..2)Quality Mask:
B016P1

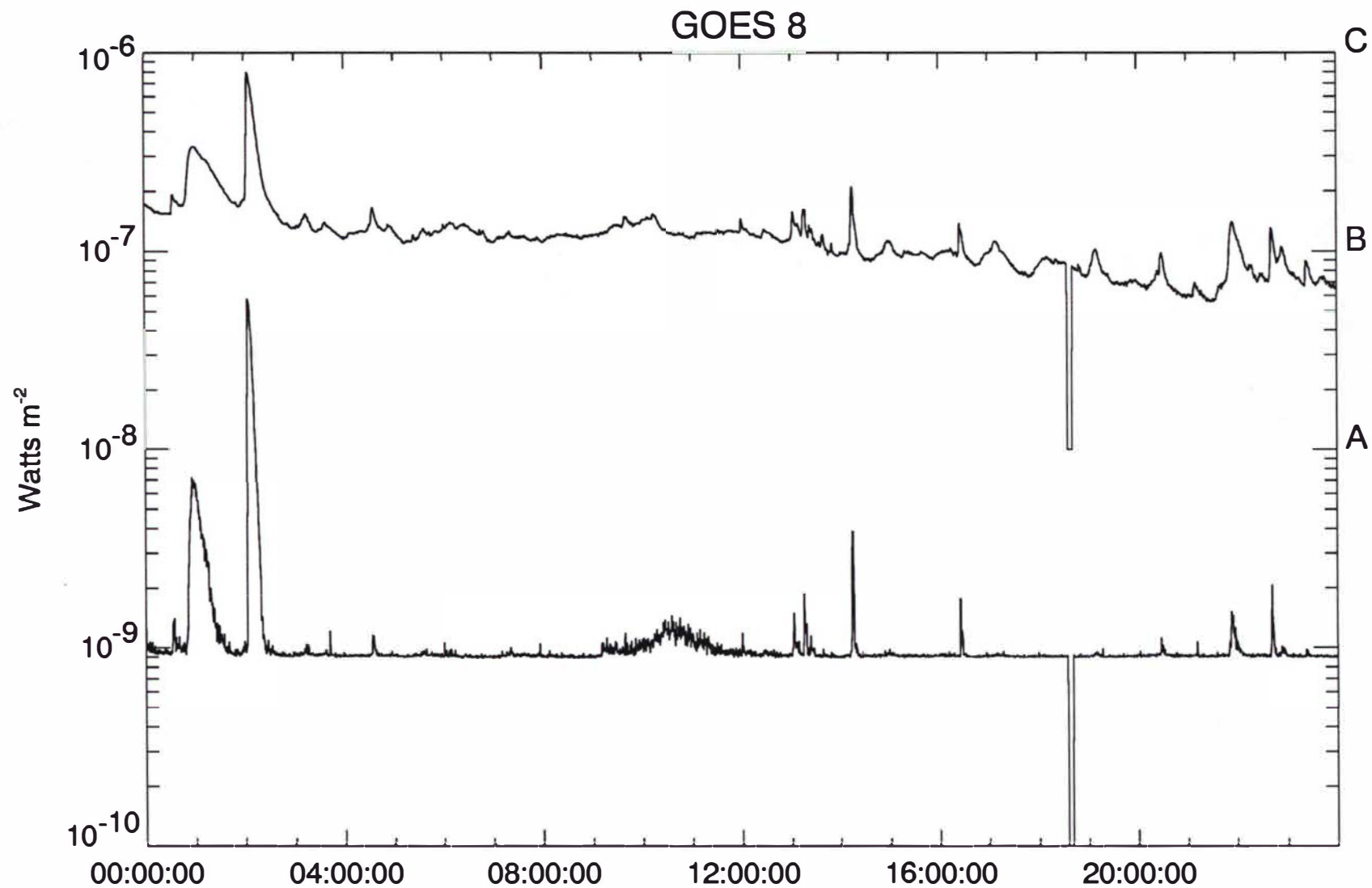
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/25



Current Time: 98/03/01, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



Data Start: 98/02/25, 0000:00

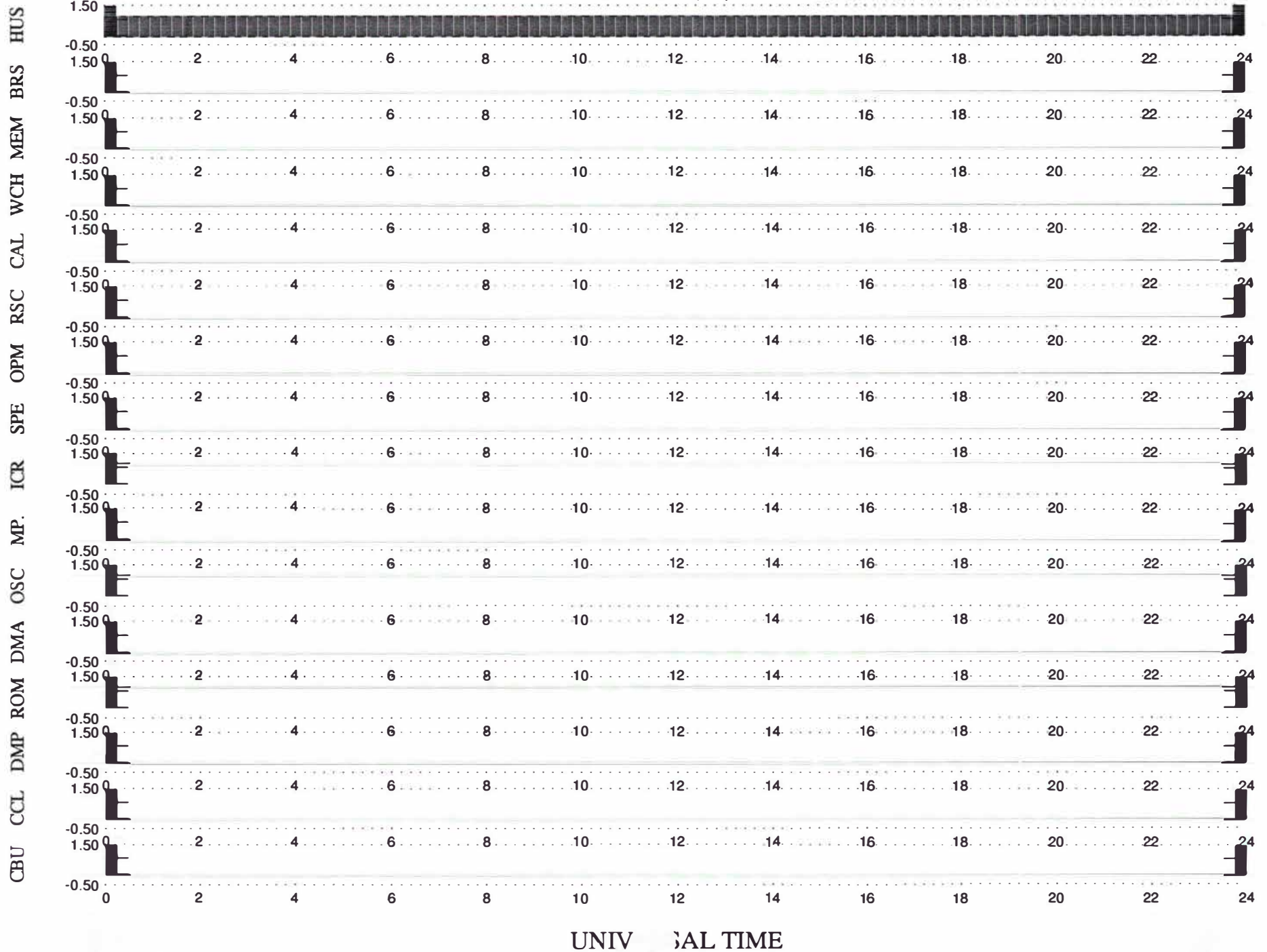
Plot created: 98/03/01, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

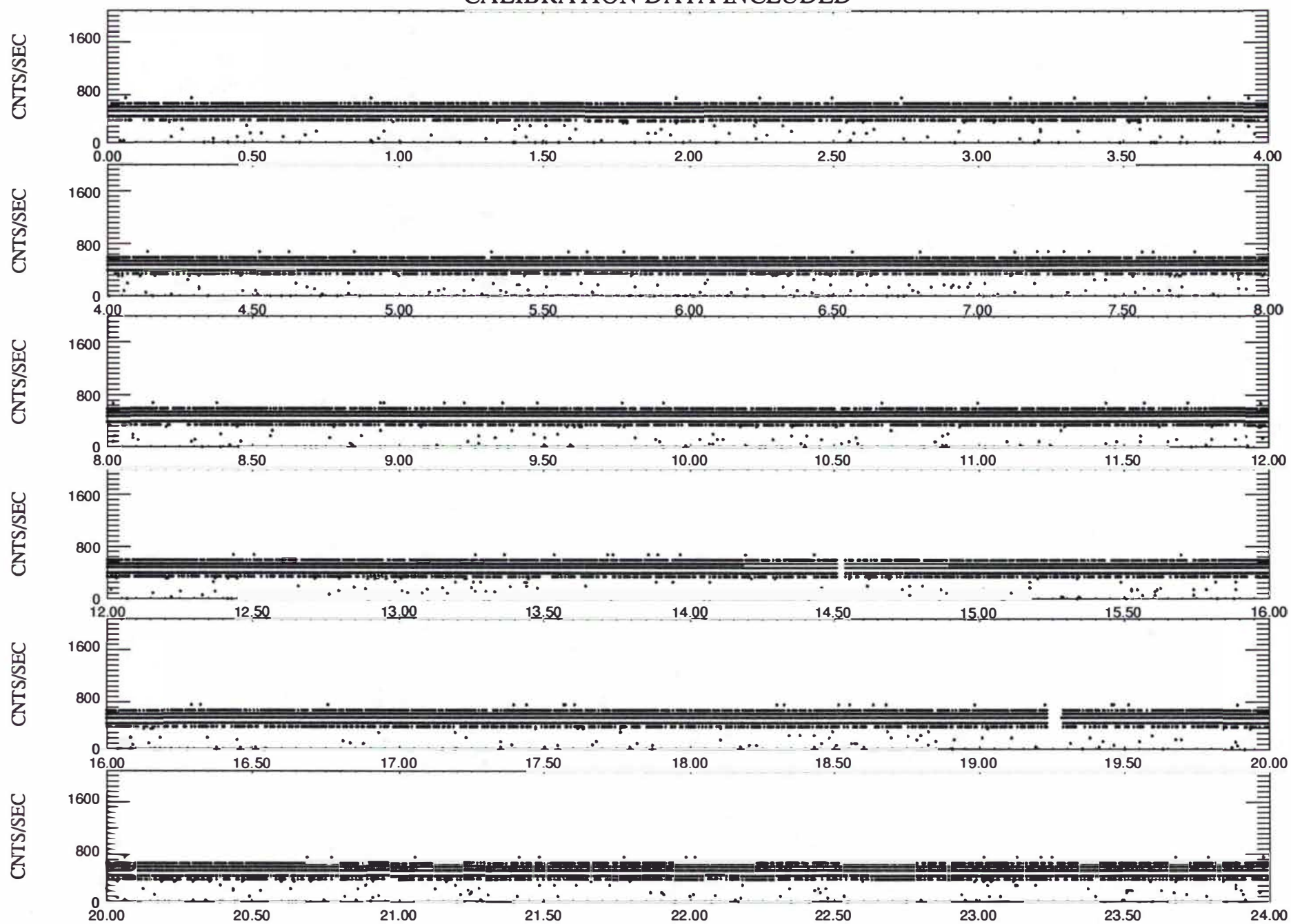
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

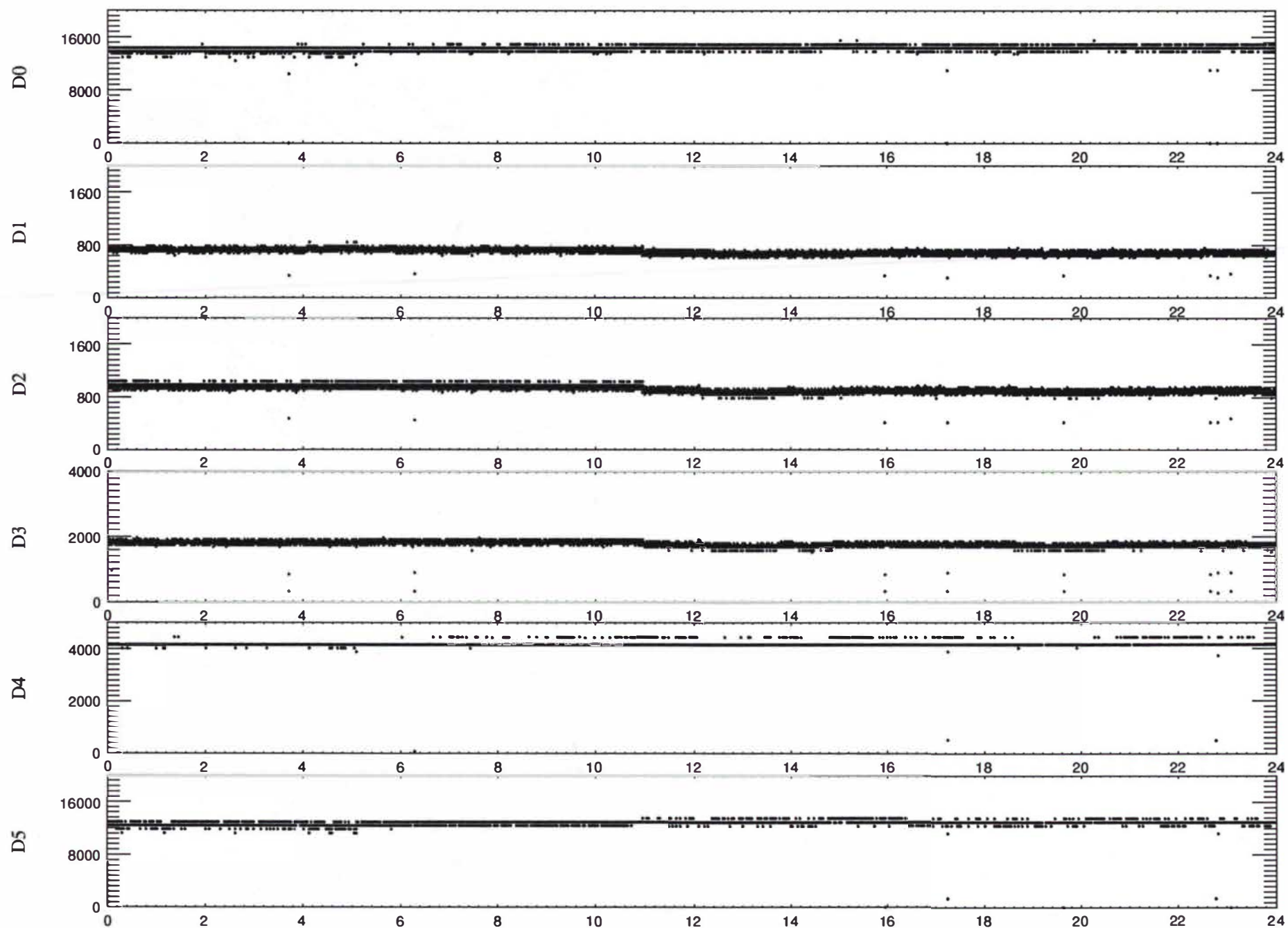
NO BURST (10)



CALIBRATION DATA INCLUDED



UNIV 3AL TIME



UNIV 3AL TIME

From SURASAK@SSLMOR.msfc.nasa.gov Fri Feb 27 14:02:38 1998
Return-Path: <SURASAK@SSLES.MSFC.NASA.GOV>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA21379; Fri, 27 Feb 1998 14:02:37 -0800
Received: from SSLES.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id OAA29578; Fri, 27 Feb 1998 14:02:35 -0800
Date: Fri, 27 Feb 1998 16:02:35 -0600 (CST)
From: SURASAK@SSLMOR.msfc.nasa.gov
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980227160235.21e27f0f@ssl.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6616
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6616
EVENT OF 1998 FEB 26 DAY OF YEAR= 57
EVENT CROSSING TIME AT BATSE : 59541. S. OR 16:32:21.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 96.000 -64.000
BATSE PEAK COUNTING RATE: 2400 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 26/ 2/ 98 IS:
RA= 159.830 DEC= 13.018 DIST= 4.413 AU
BATSE-ULYSSES DISTANCE = 660151788. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 89.19 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 31.04 SECS.
CROSSING TIME AT ULYSSES IS 59572. S. OR 16:32:52 +/- 432.74 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 26/ 2/ 98 IS:
RA= 355.539 DEC= -2.754 DIST= 2.309 AU
MARS-BATSE DISTANCE = 345500512. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 87.92 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 41.86 SECS.
CROSSING TIME AT MARS IS 59583. S. OR 16:33:02 +/- 200.59 SECONDS

BATSE BURST TRIGGER

NO.: 6616

TIME: TJD=0870 SECONDS=59541

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=126.0 AZIMUTH=32.4 ERROR=5.191 DEGREES

COMMENTS:

GRB. F.R.E.D. SINGLE PULSE. DURATION ABOUT 20S. NOT VISIBLE ABOVE 300 KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6616	980226	10870	59541	2400	096	-64	20

BATSE BURST# 6616

ULYSSES RT

27 / 2 / 98

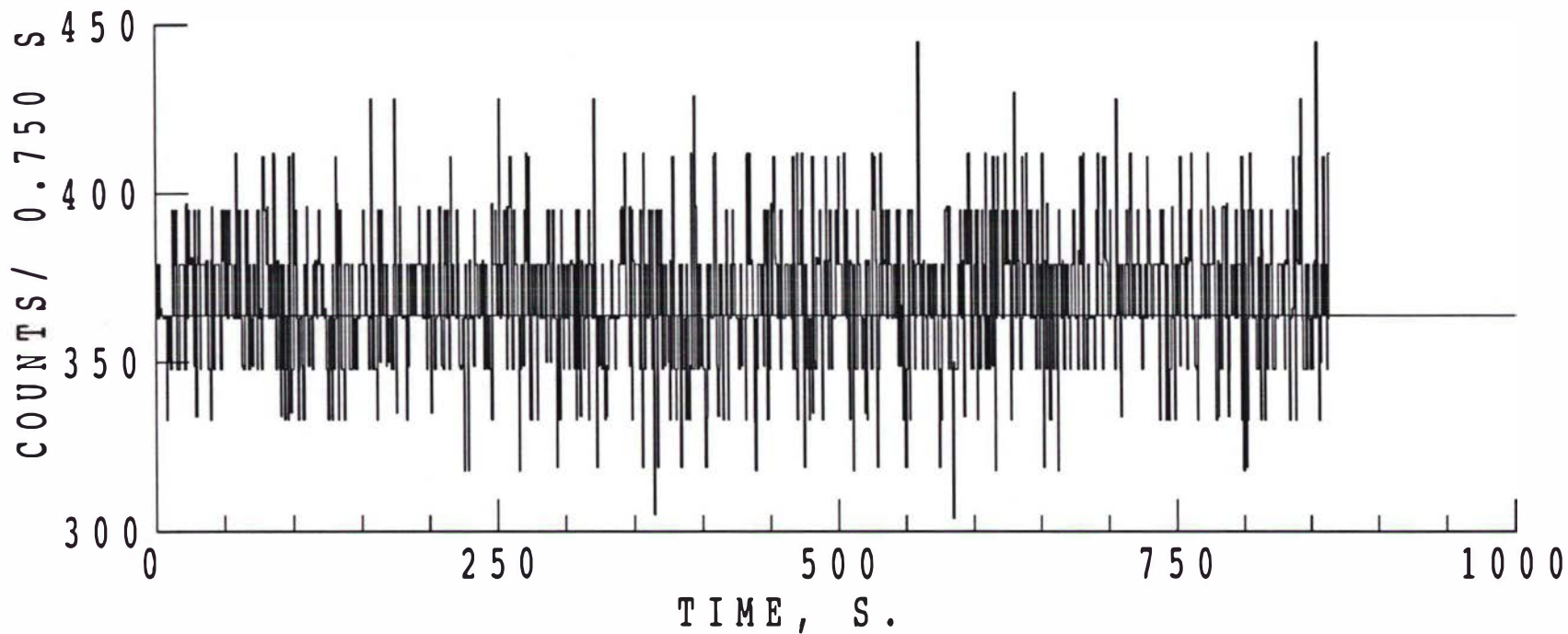
26 / 2 / 98 59148.145 s

0.250 S INTERVALS REGROUPED BY 3

0 - 0 keV

N= 10 M=10
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



KONUS

ULYSSES RT

07/02/00

26/02/98 76608.078 s

0.250 S INTERVALS REGROUPED BY 12

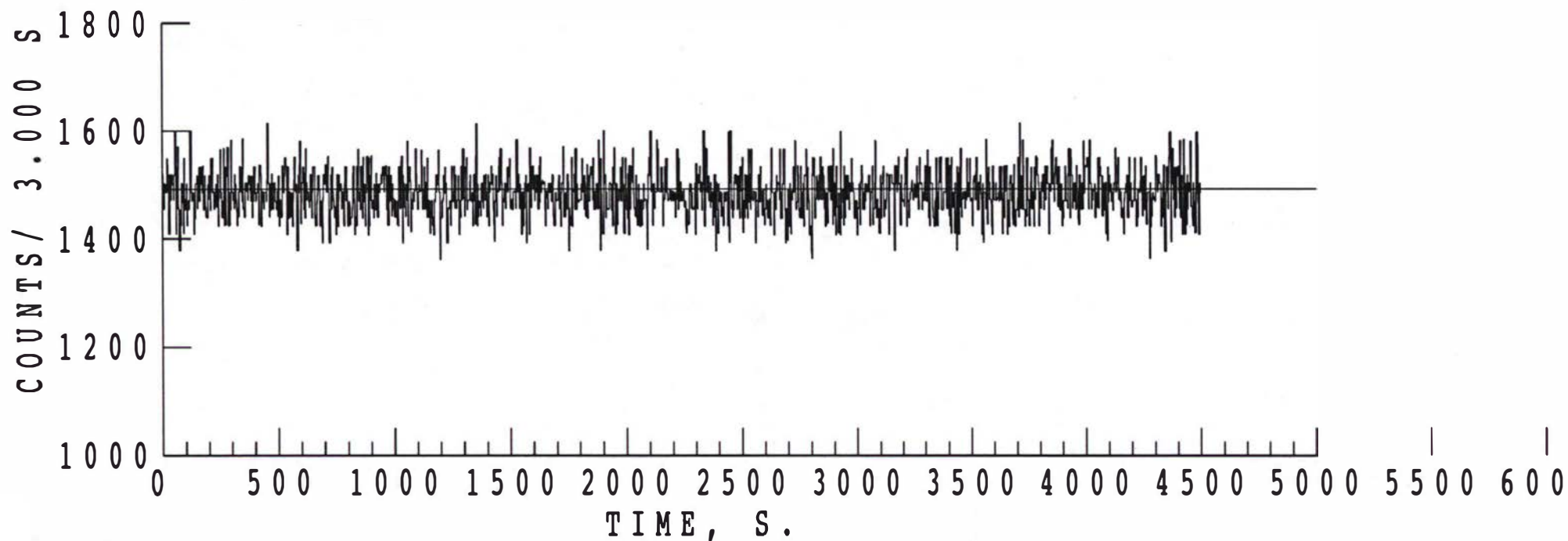
0 - 0 keV

N= 10 M= 10

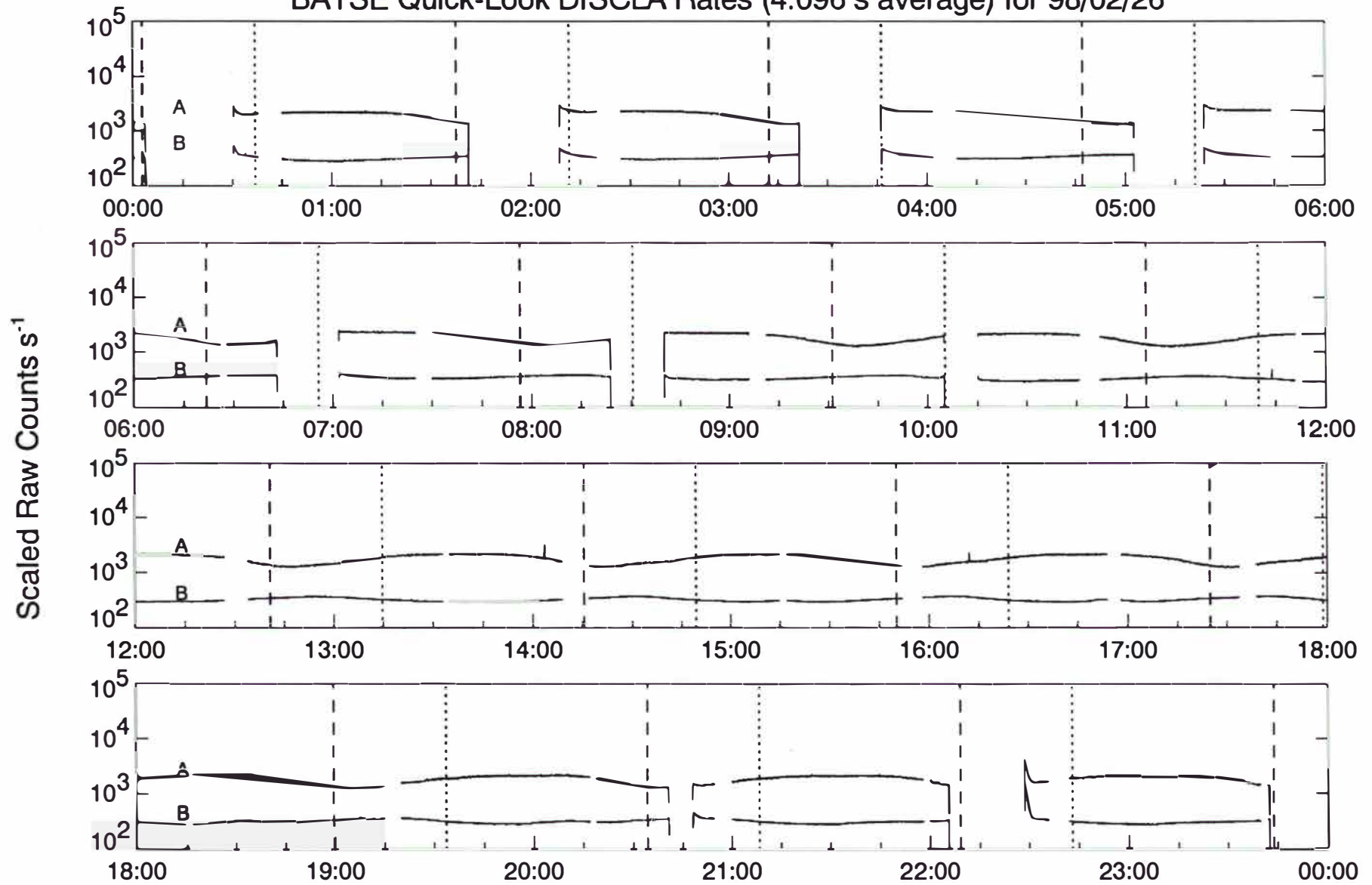
>4.0 SIGMA FLUCTUATIONS

N= 10 M= 2

>4.0 SIGMA FLUCTUATIONS



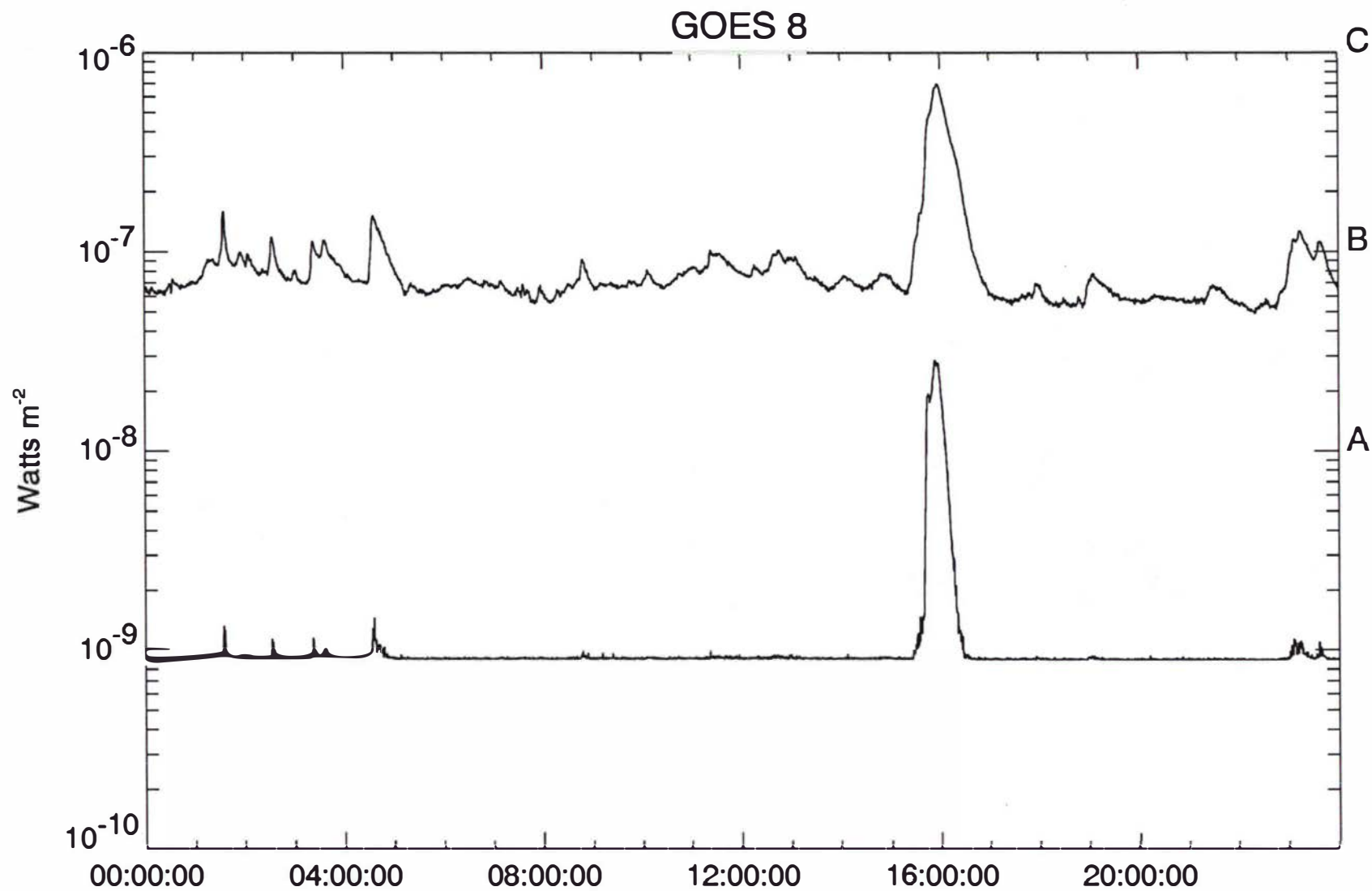
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/26



Current Time: 98/03/02, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/26, 0000:00

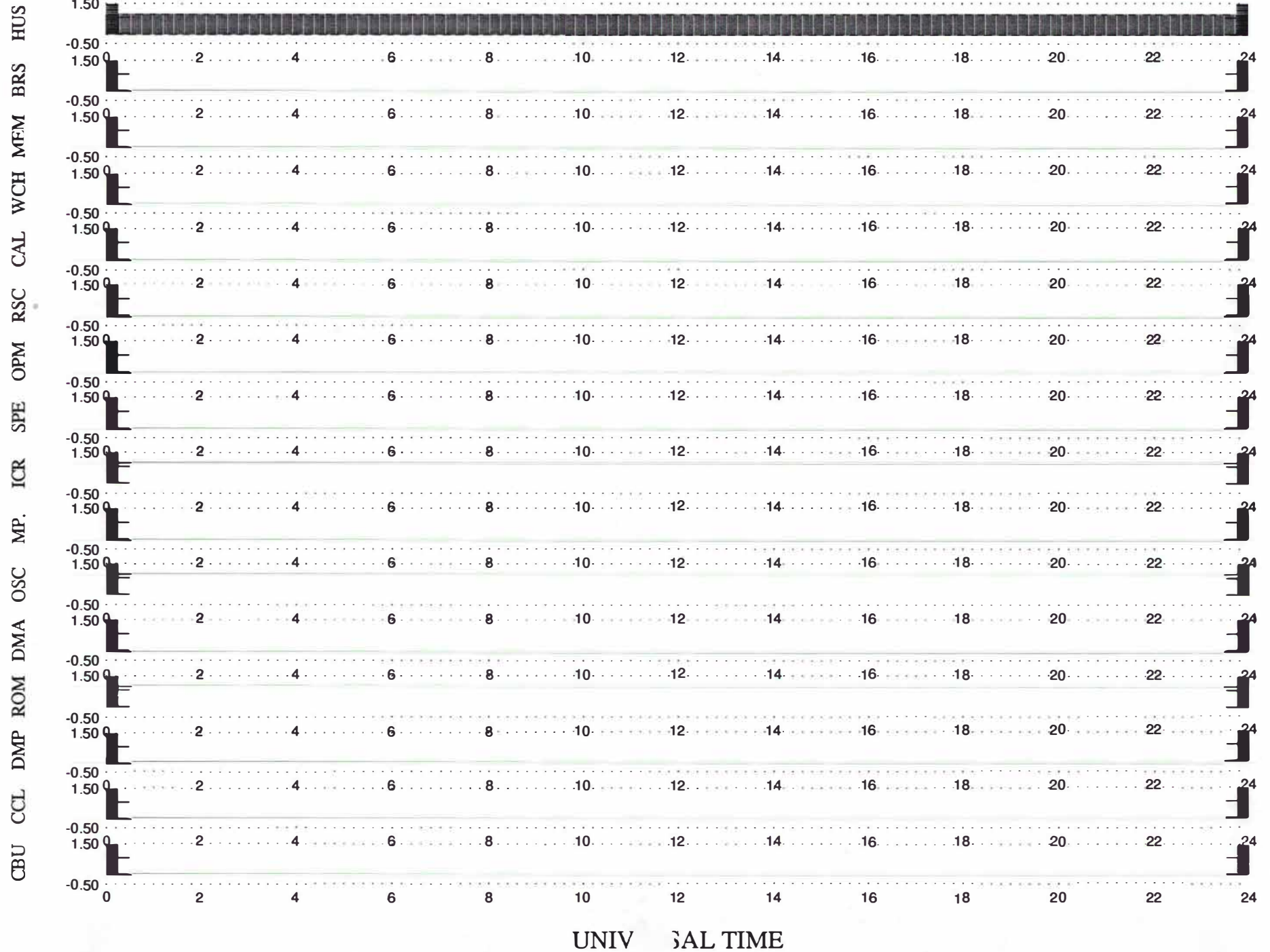
Plot created: 98/03/02, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

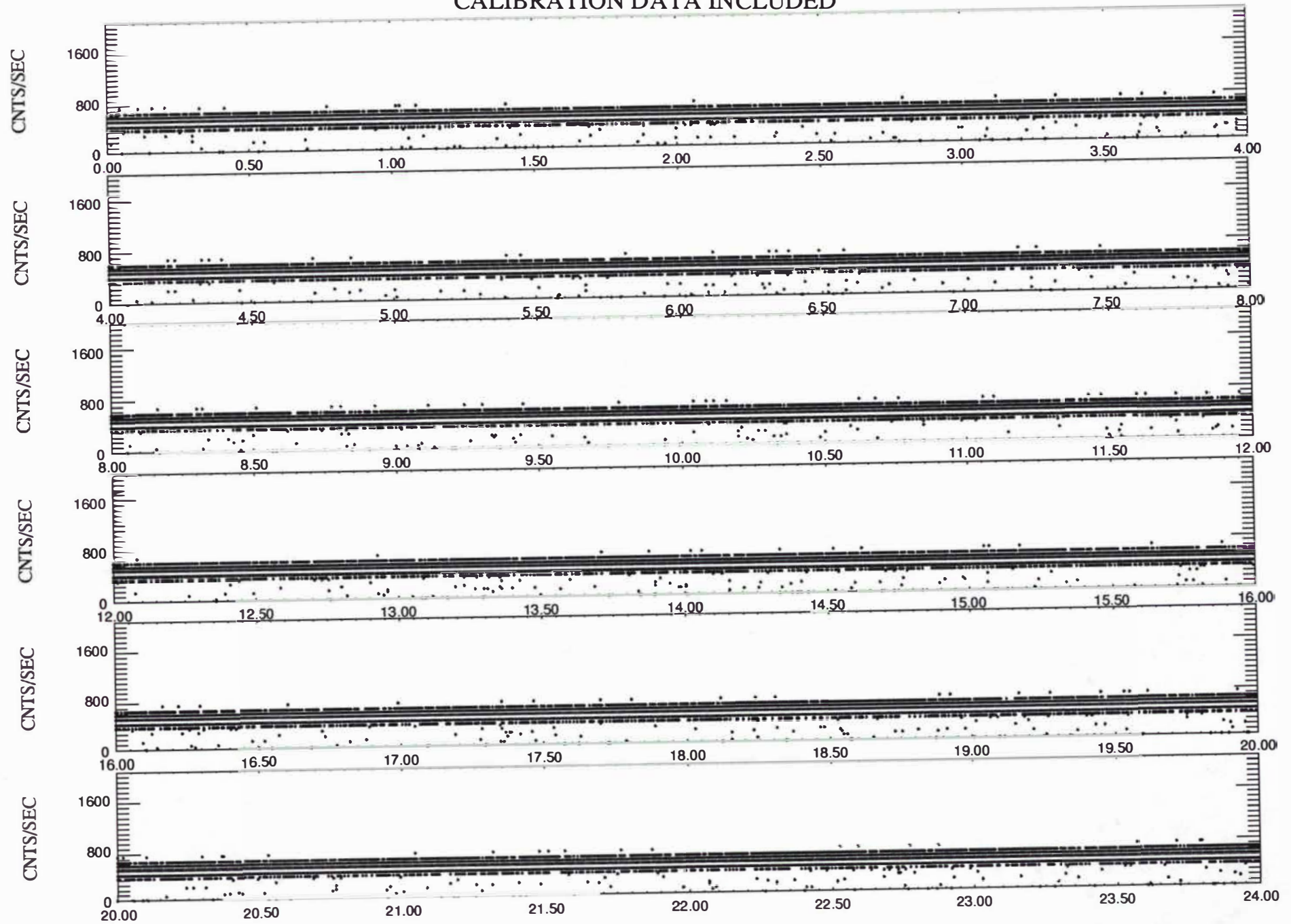
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

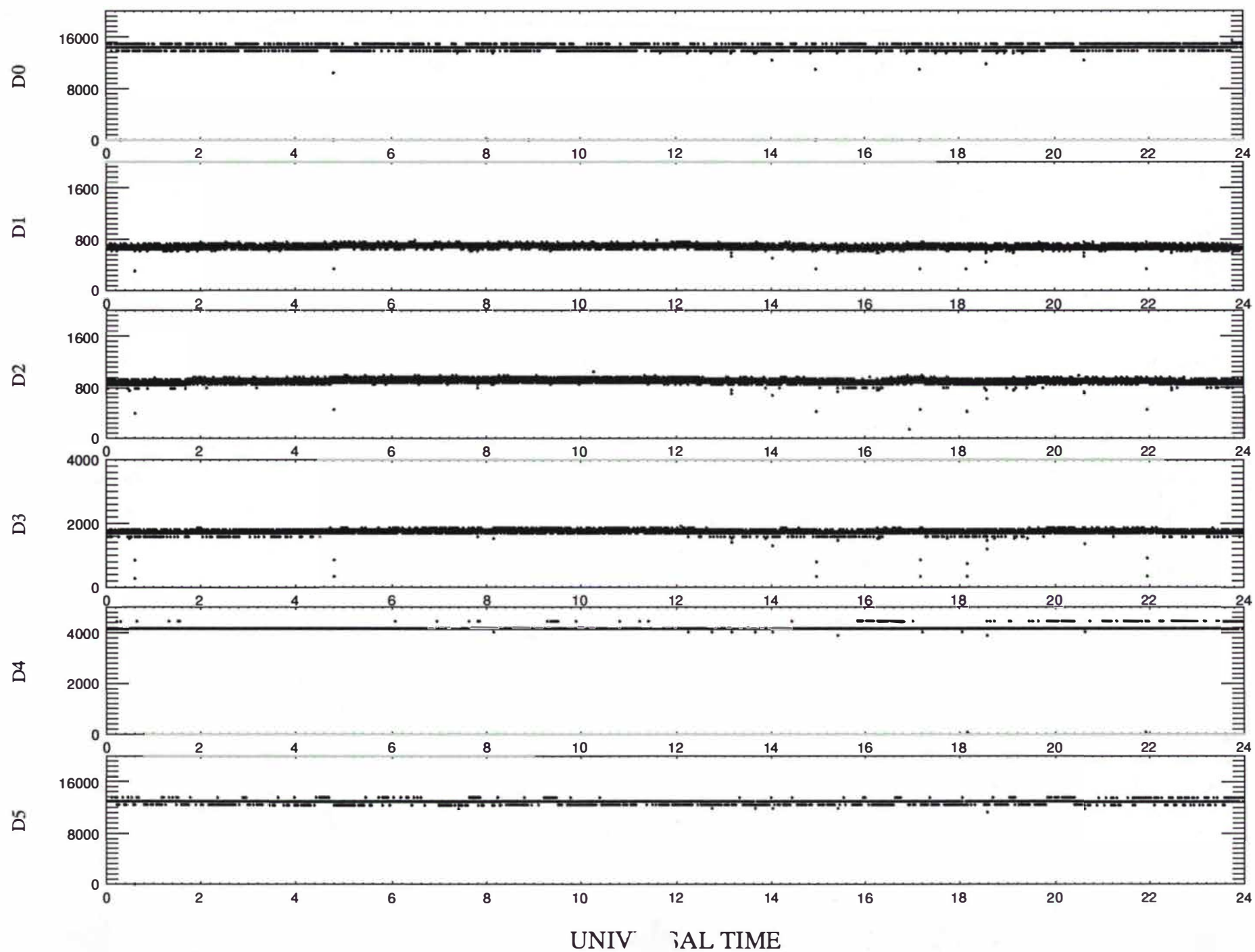
NO BURST (10)



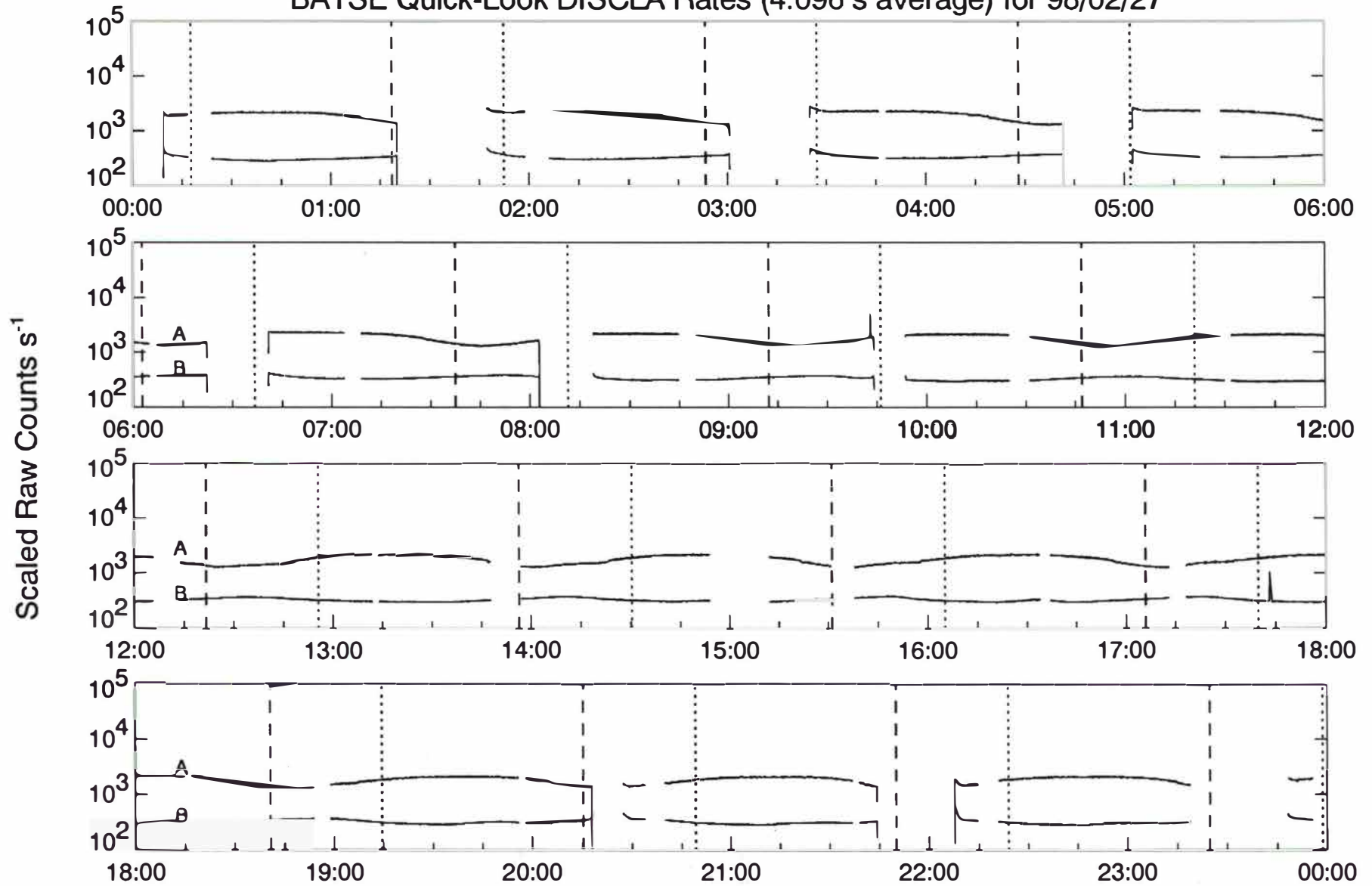
CALIBRATION DATA INCLUDED



UNIV CAL TIME



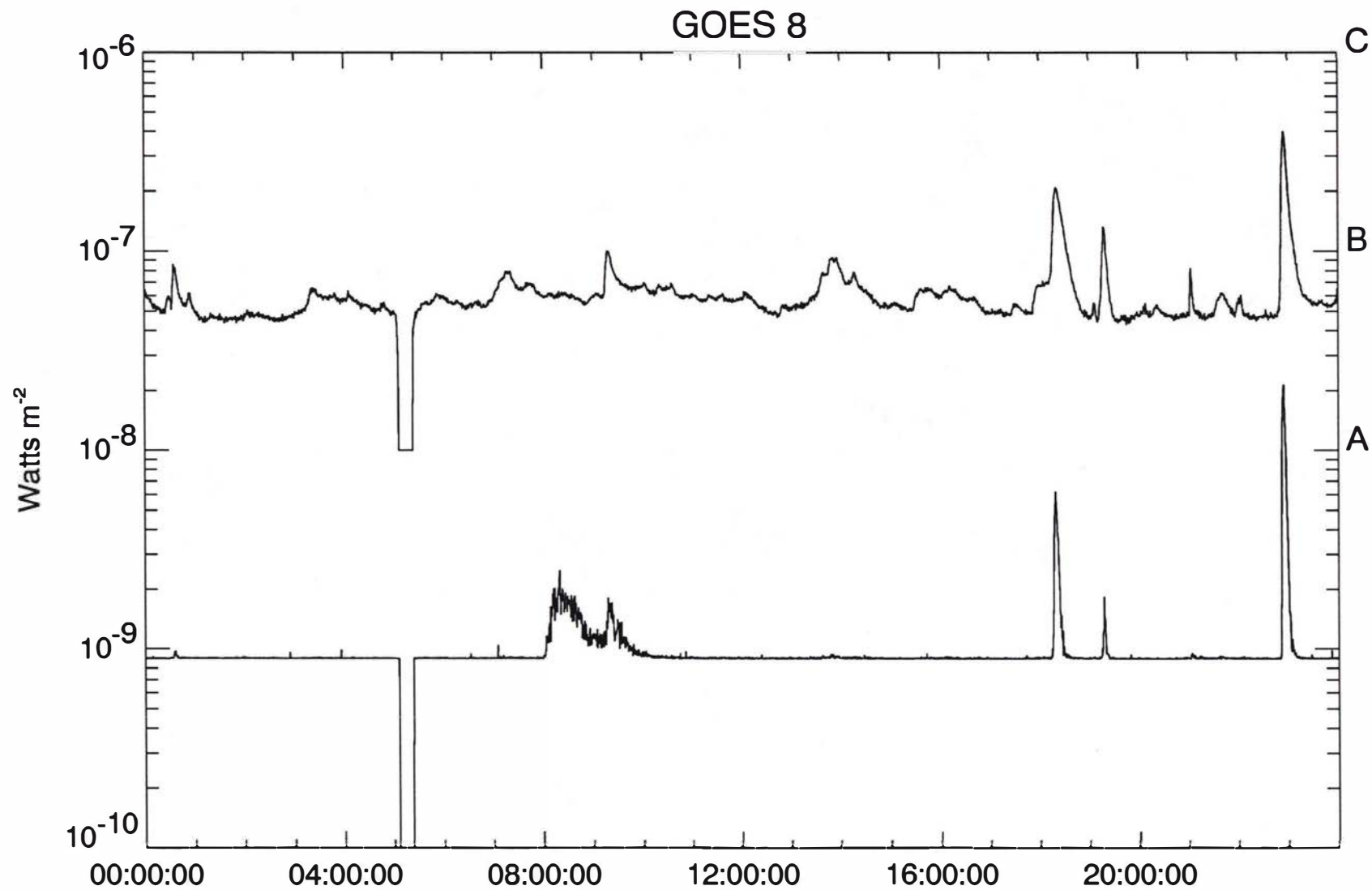
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/27



Current Time: 98/03/03, 1008 EDT
 A: Channel 0 Most Sunward LAD
 B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
 Dashed line: Night entry

* Solar Burst Trigger
 + Solar Flare



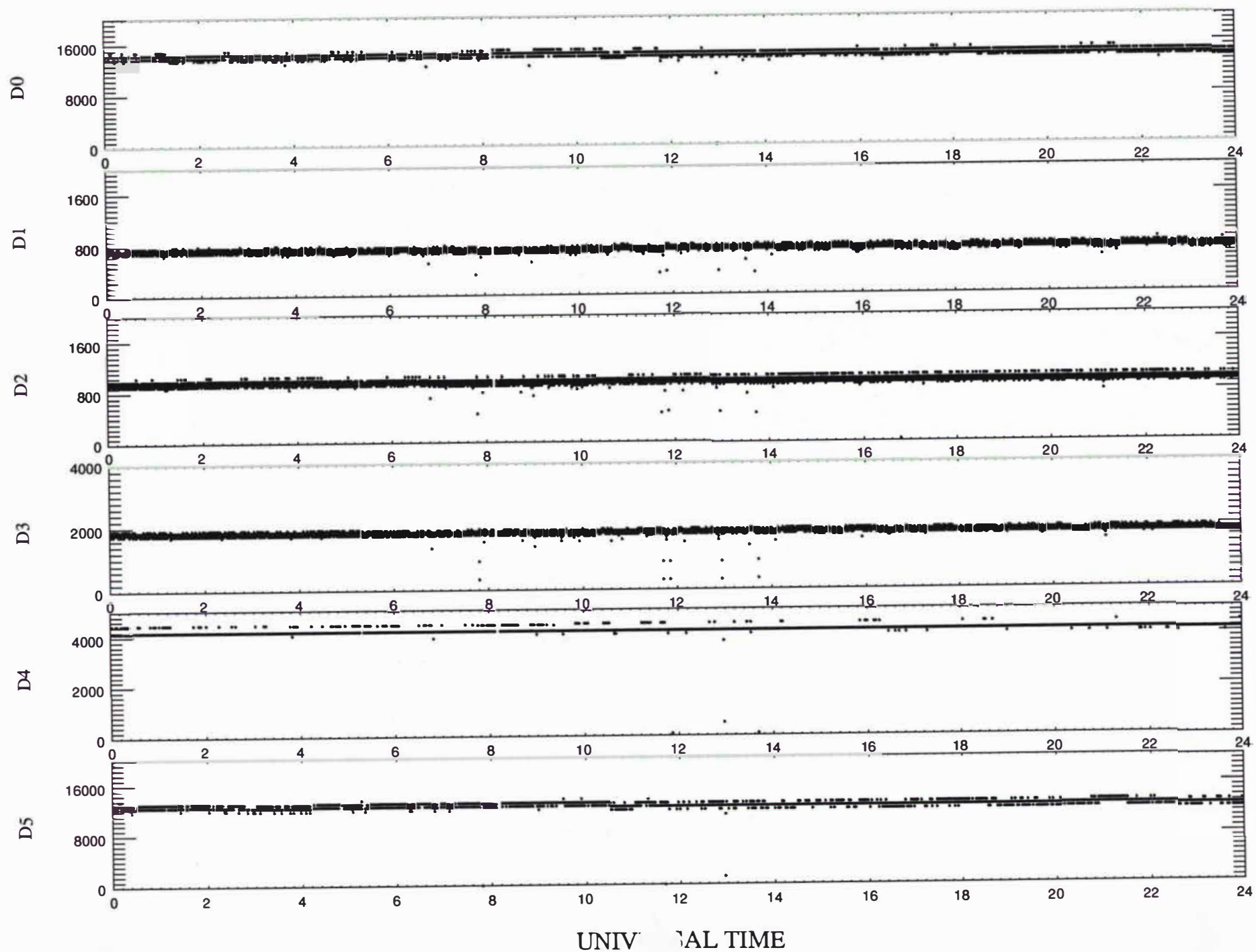
Data Start: 98/02/27, 0000:00

Plot created: 98/03/03, 1007

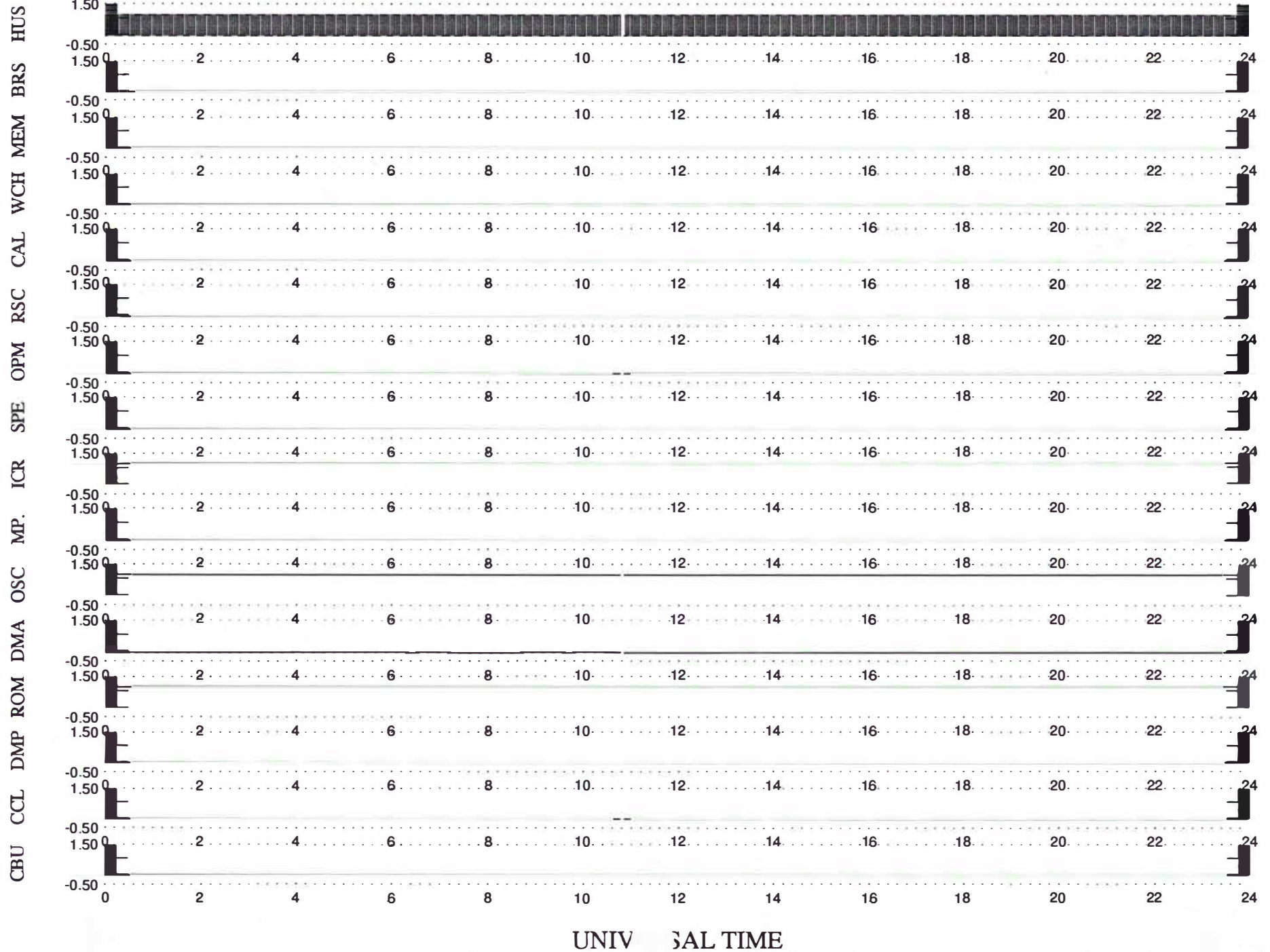
Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

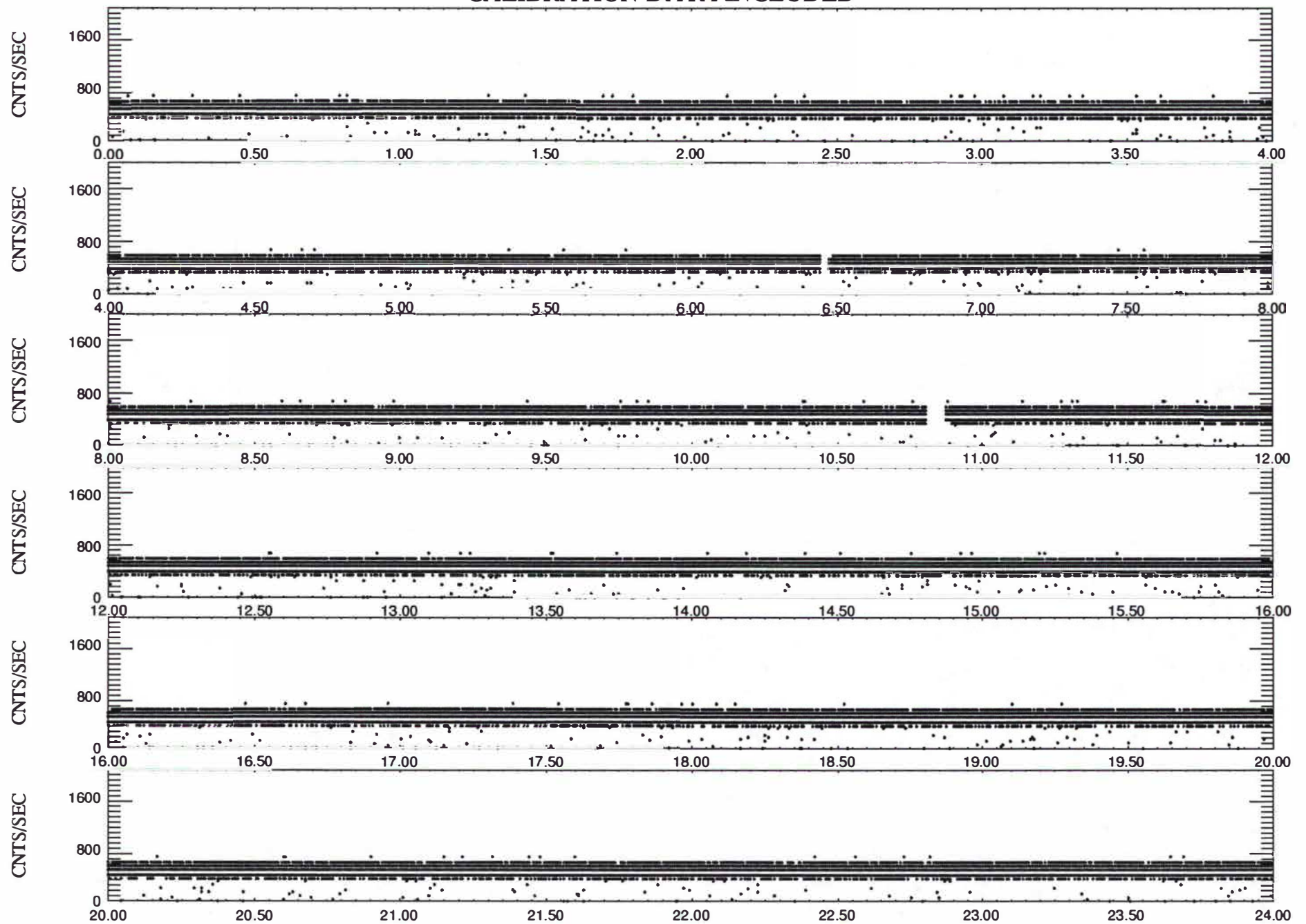
Sample average = 10



NO BURST (10)



CALIBRATION DATA INCLUDED



UNIV 3AL TIME

From RICHARDSON@fender.msfc.nasa.gov Tue Mar 3 13:15:49 1998
Return-Path: <RICHARDSON@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id NAA27899; Tue, 3 Mar 1998 13:15:49 -0800
From: RICHARDSON@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id NAA19381; Tue, 3 Mar 1998 13:15:45 -0800
Date: Tue, 3 Mar 1998 15:15:47 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980303151547.224b2b32@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6617
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6617
EVENT OF 1998 FEB 28 DAY OF YEAR= 59
EVENT CROSSING TIME AT BATSE : 24247. S. OR 06:44:07.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 25.000 13.000
BATSE PEAK COUNTING RATE: 180000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 28/ 2/ 98 IS:
RA= 159.513 DEC= 13.052 DIST= 4.414 AU
BATSE-ULYSSES DISTANCE = 660308297. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 52.07 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 1353.82 SECS.
CROSSING TIME AT ULYSSES IS 25601. S. OR 07:06:40 +/- 372.19 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 28/ 2/ 98 IS:
RA= 356.962 DEC= -2.118 DIST= 2.315 AU
MARS-BATSE DISTANCE = 346368064. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION=148.33 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -983.33 SECS.
CROSSING TIME AT MARS IS 23264. S. OR 06:27:43 +/- 90.37 SECONDS

BATSE BURST TRIGGER

NO.: 6617

TIME: TJD=0872 SECONDS=24247

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=33.8 AZIMUTH=53.9 ERROR=4.7 DEGREES

COMMENTS:

GRB. VERY STRONG SPIKE WITH STRUCTURE. DURATION APPROX. = 0.8 SEC.
VISIBLE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6617	980228	10872	24247	180000	025	+13	.8

Helio corr removed 18/2/00

Date: May 7 '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? *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)? *N/A*
- ☒ BATSE ephemeris for T_0 ?
- ☒ Error circle position and radius from public catalog used?
- ☒ If MER data were used, is a 30 ms systematic error included?

3. PVO Data

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

- ☒ ACCESS database updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

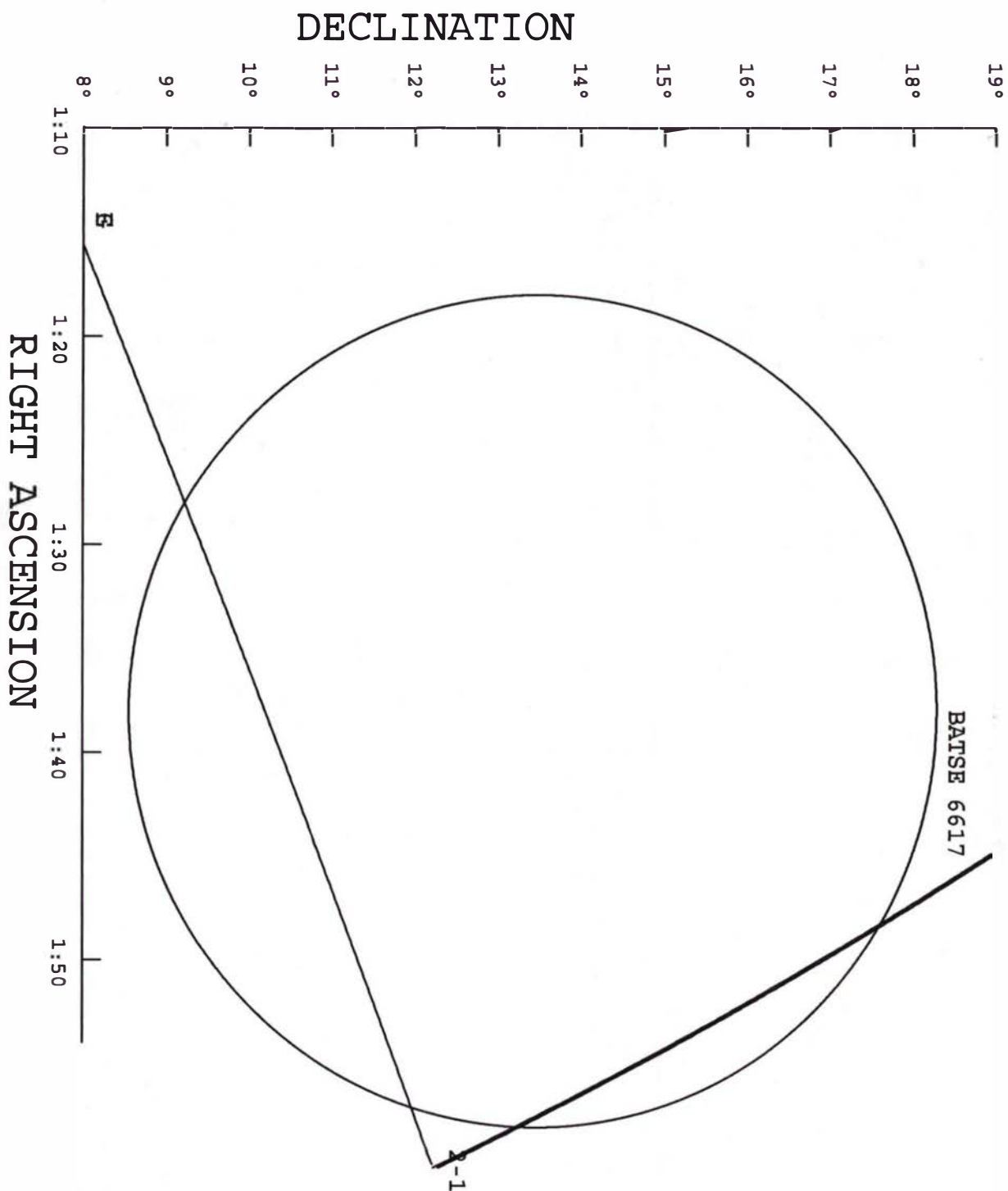
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 28, 1998 7:05

18 / 2 / 0



BATSE

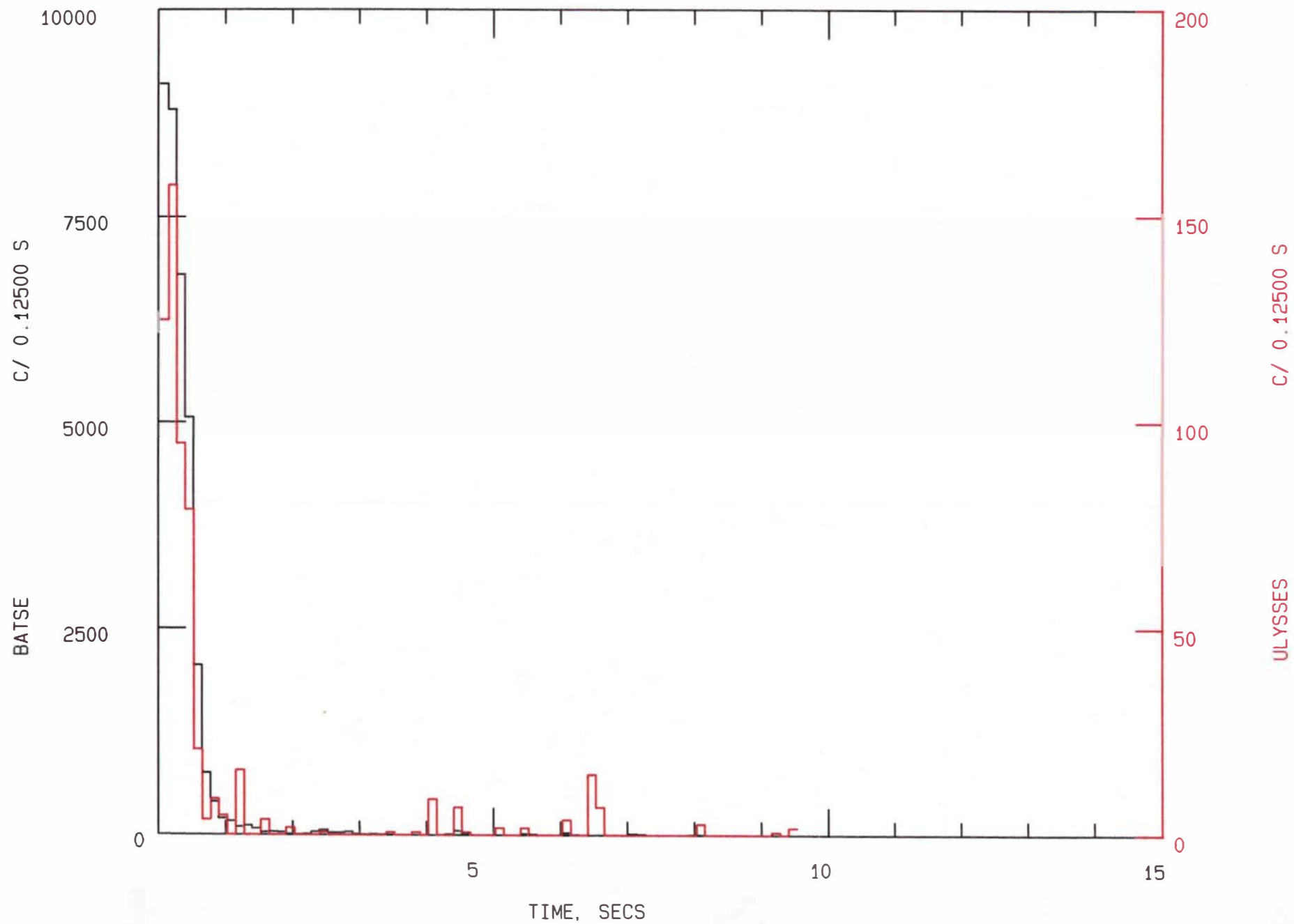
-ULYSSES

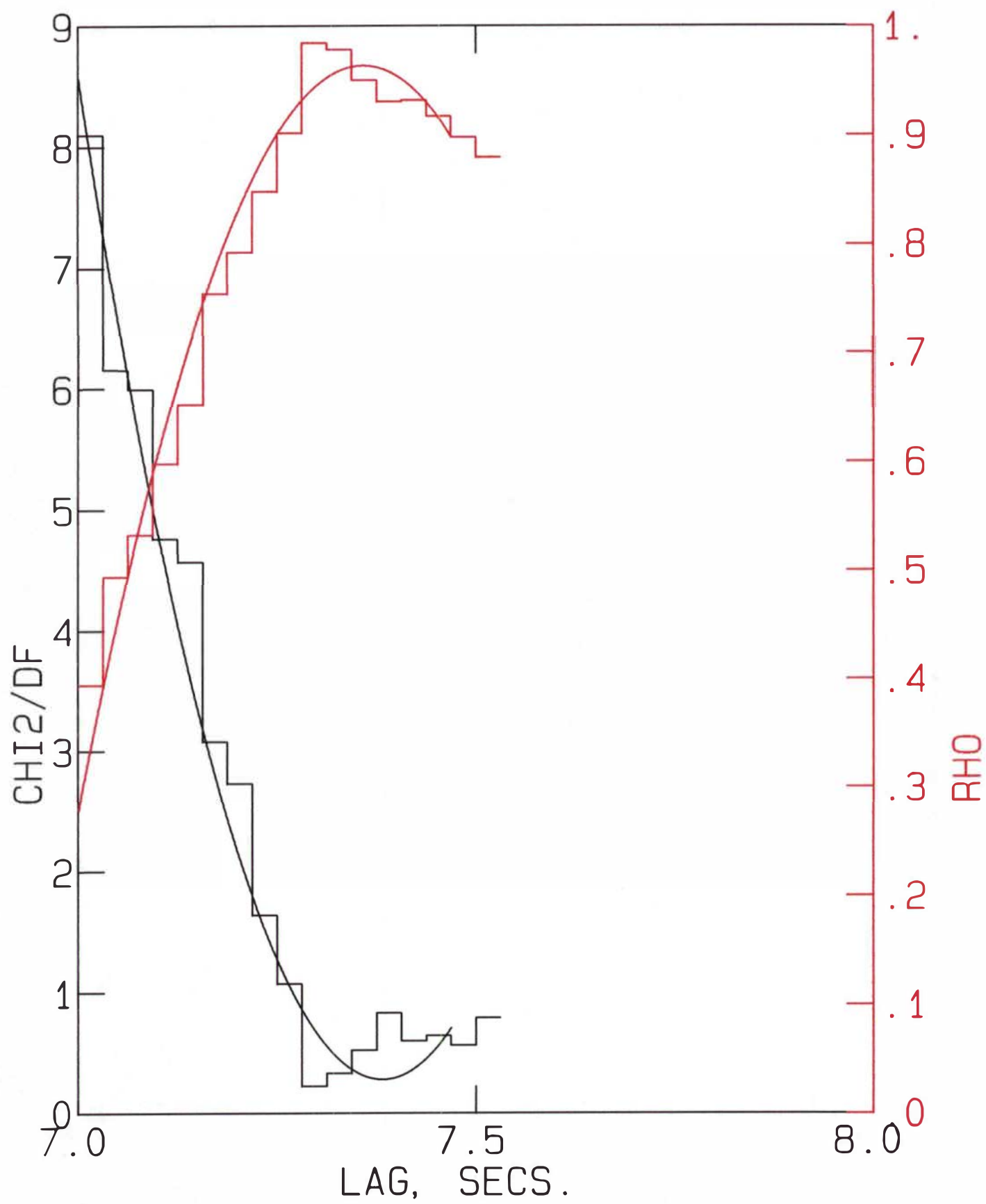
CORRELATION

28/ 2/98

24247.329

7/ 5/98





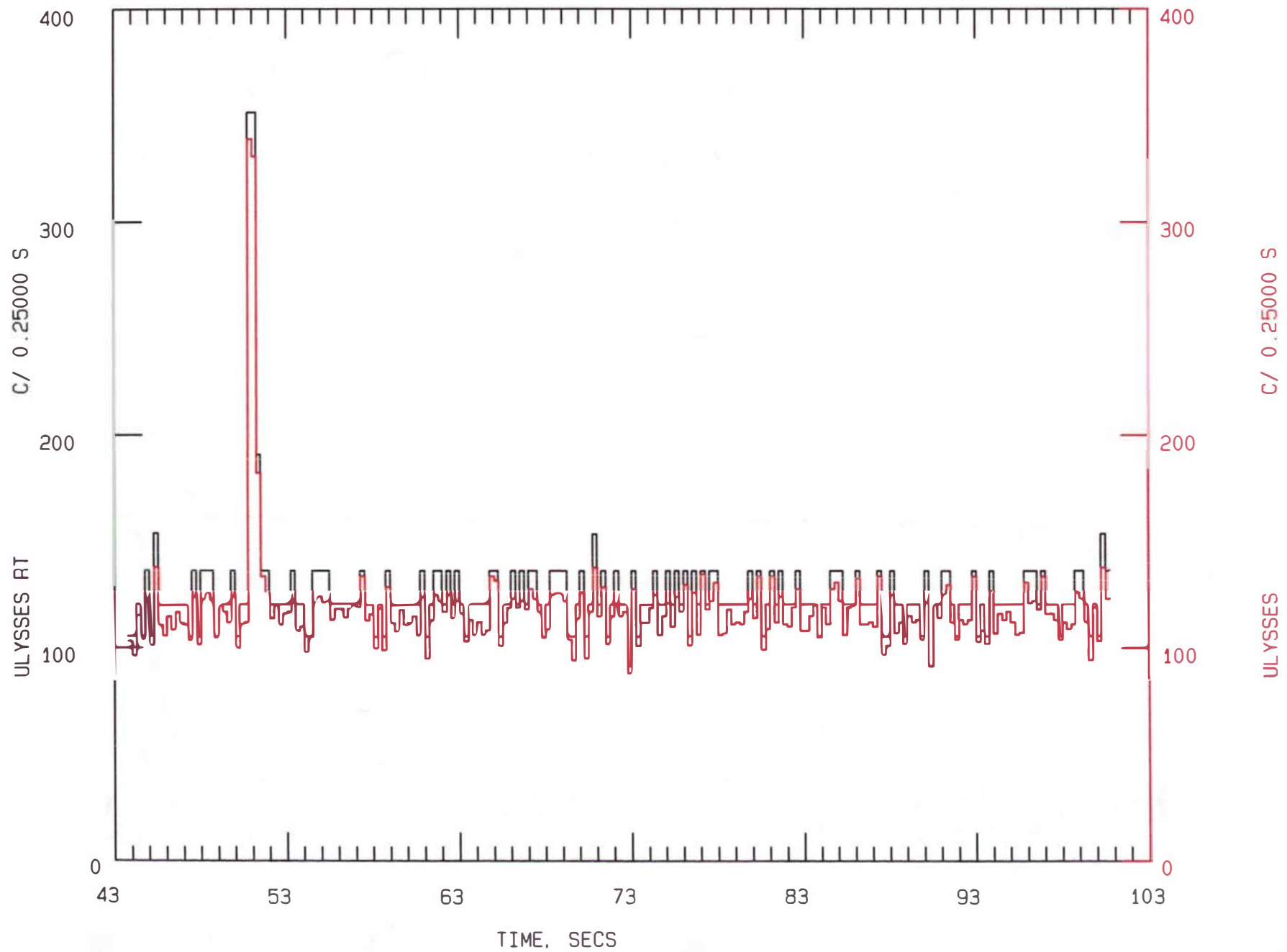
ULYSSES RT-ULYSSES

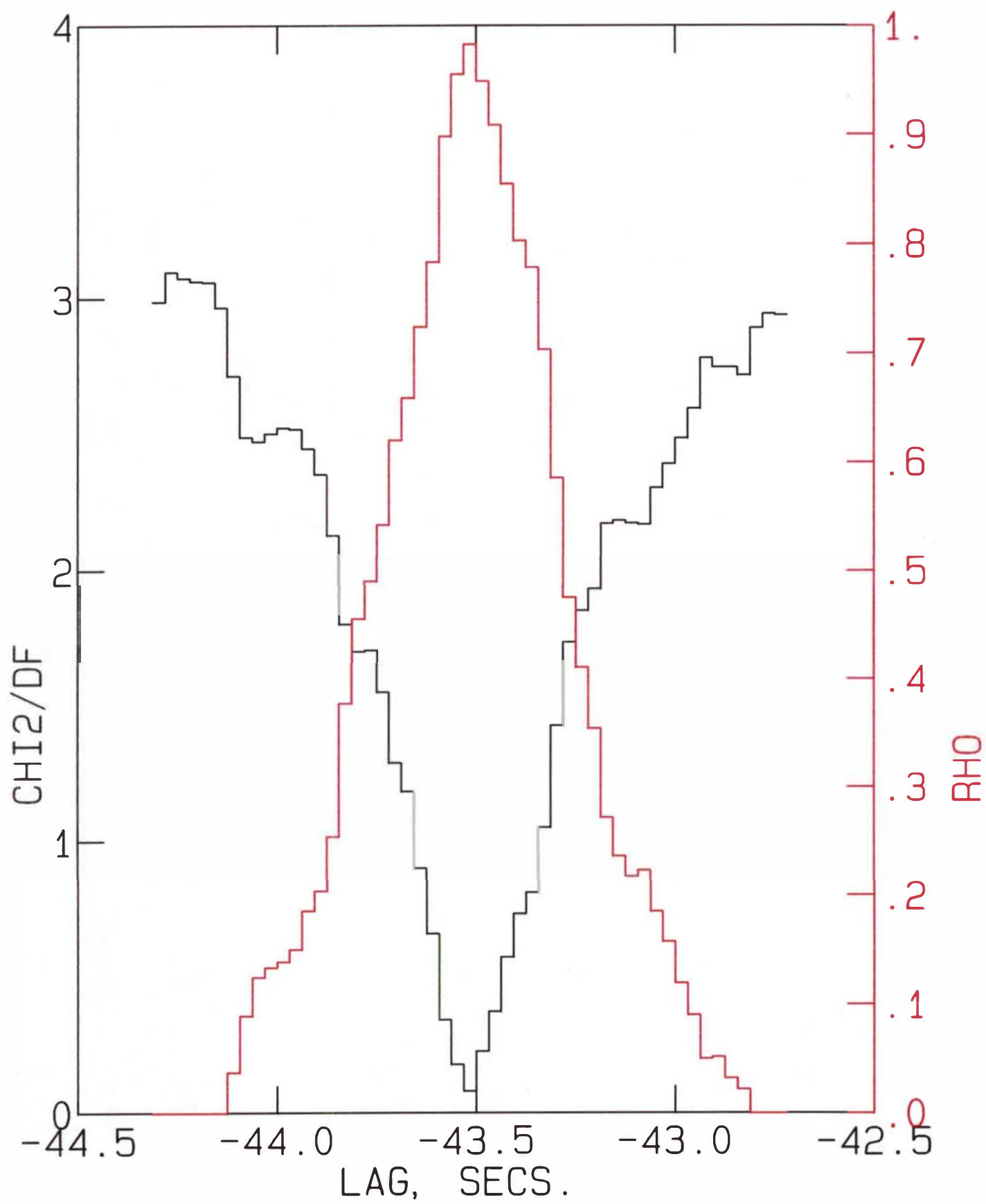
CORRELATION

28/ 2/98

25452.191

7/ 5/98

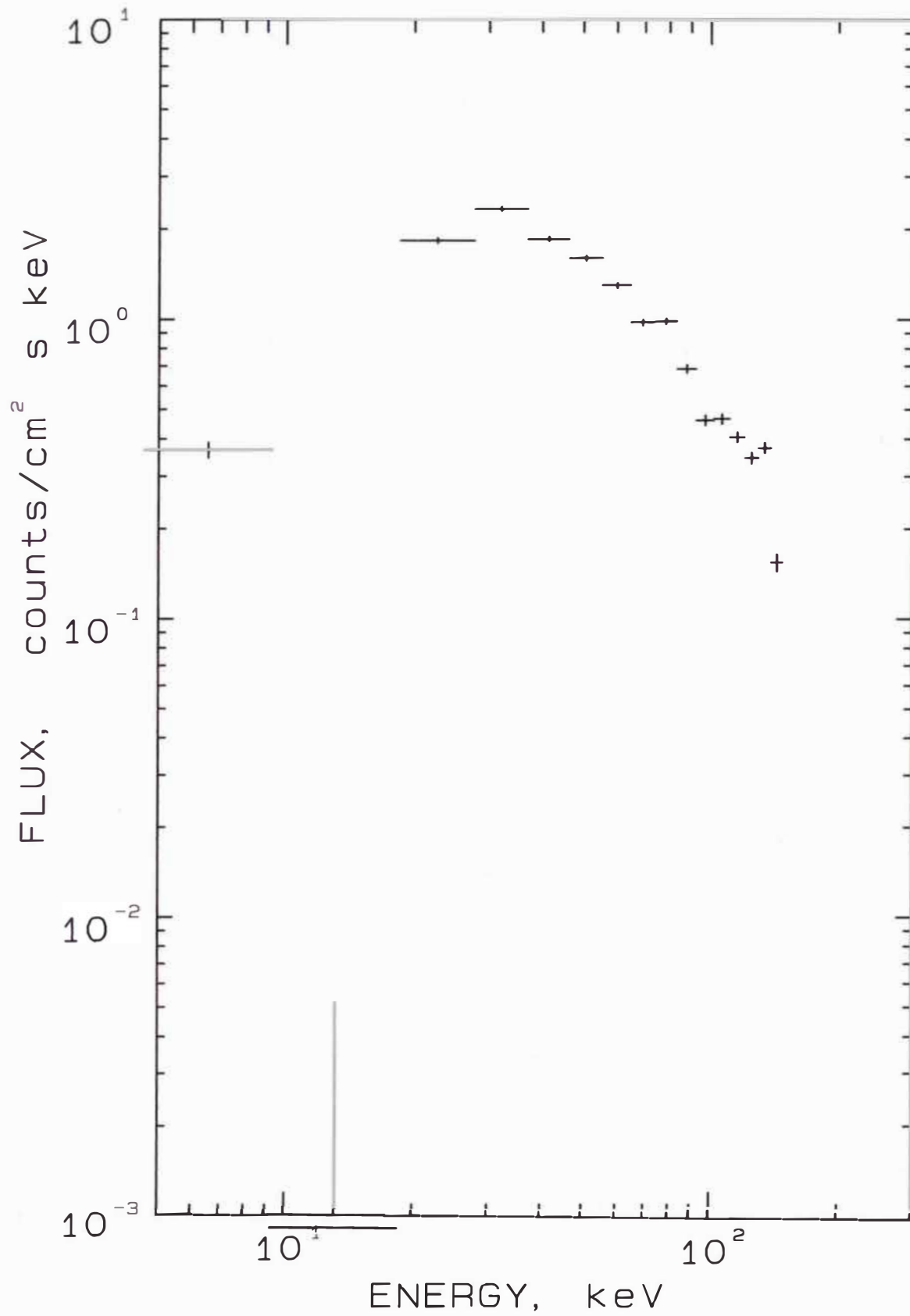




ULYSSES 28/02/98 25503.083

7/ 5/98

SPECTRUM INTEGRATED OVER 10.6 SECONDS, INTERVALS 2 TO 12



ULYSSES 28/02/98 25503.083 BURST SPECTRAL COUNT RATES

4- 18 keV

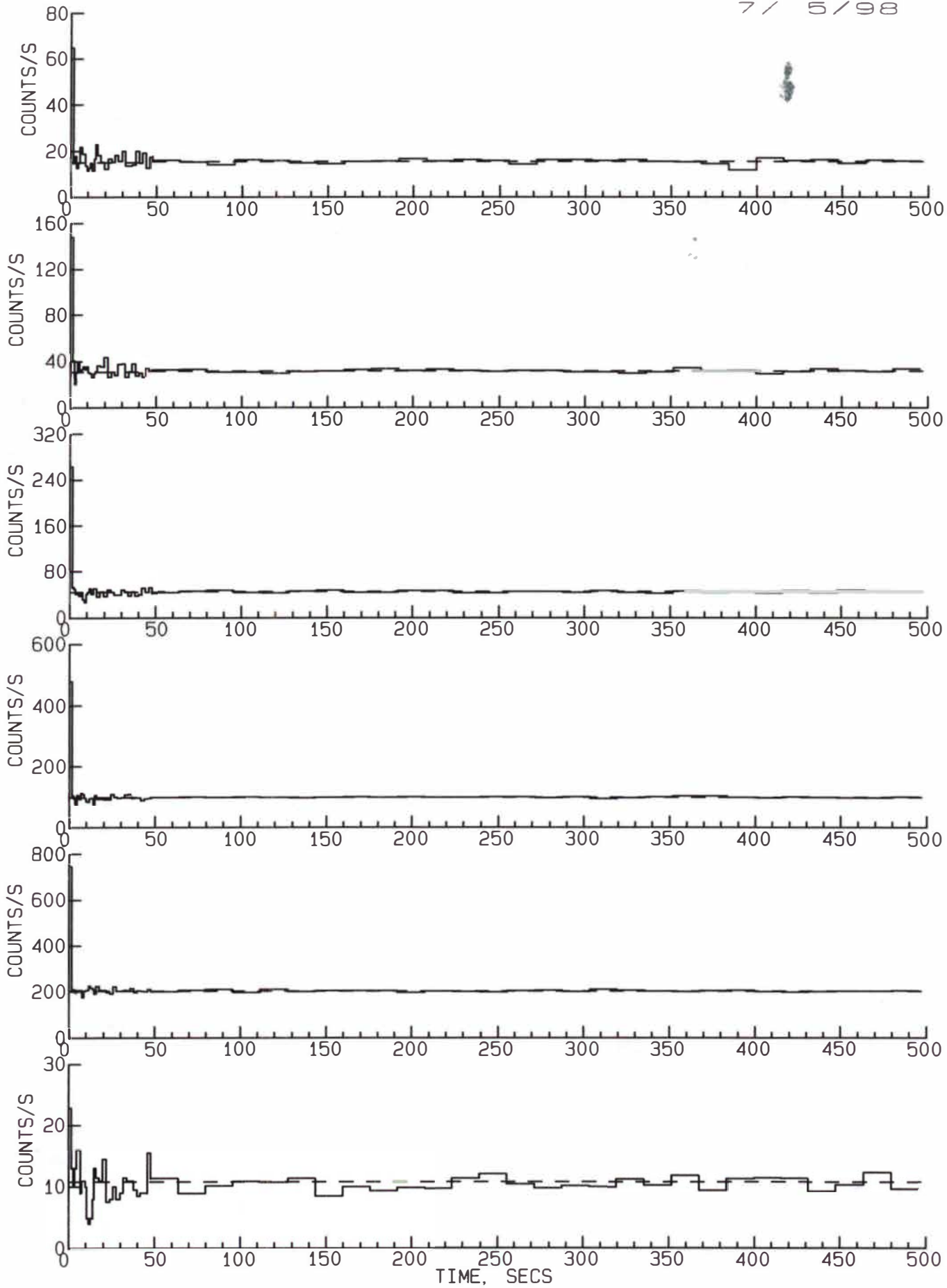
18- 46 keV

46- 74 keV

74-102 keV

102-129 keV

129-148 keV



ULYSSES

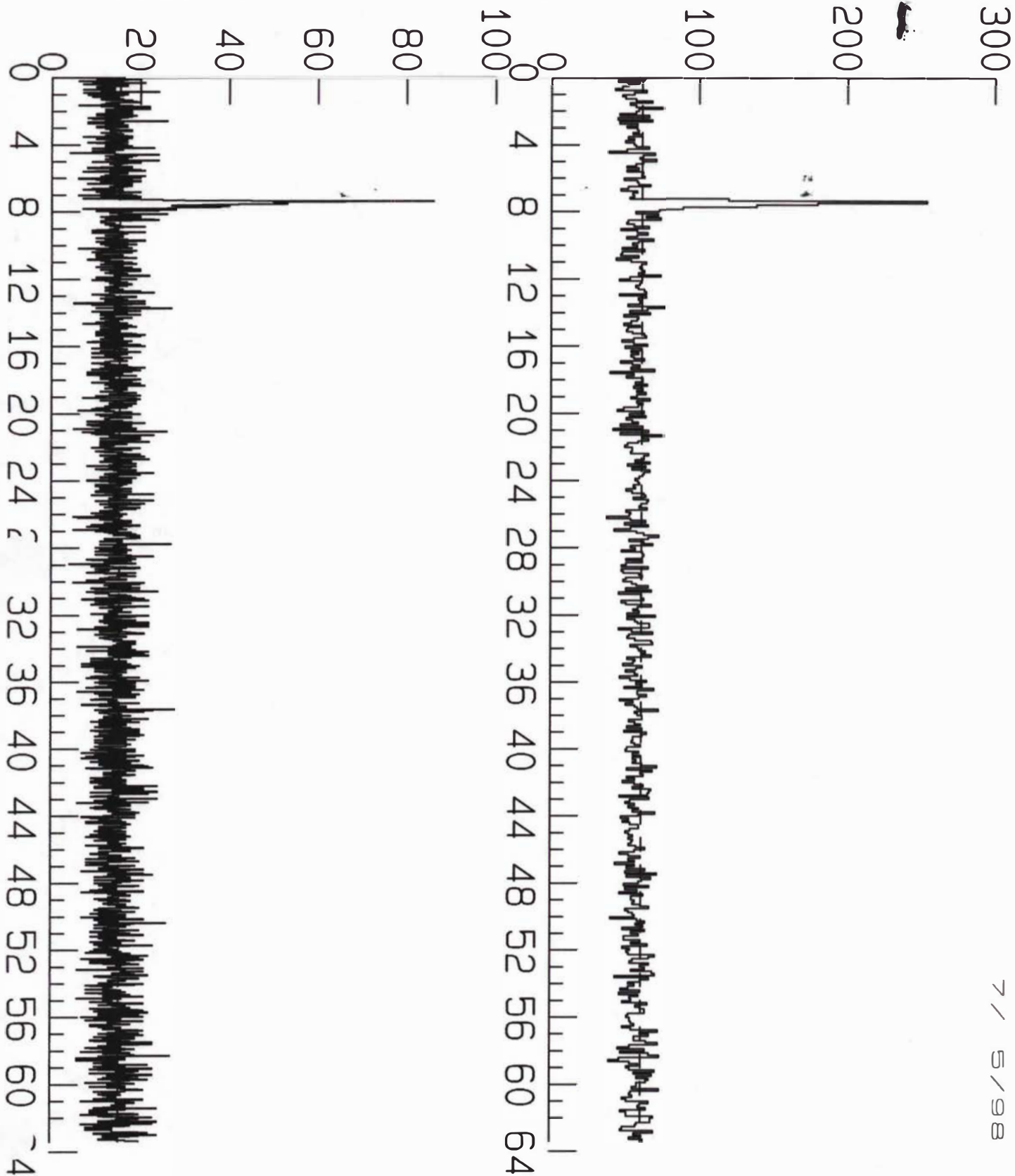
28/02/98

Ttrig=25503.115

22- 148 keV

COUNTS/0.031 S

COUNTS/0.125 S

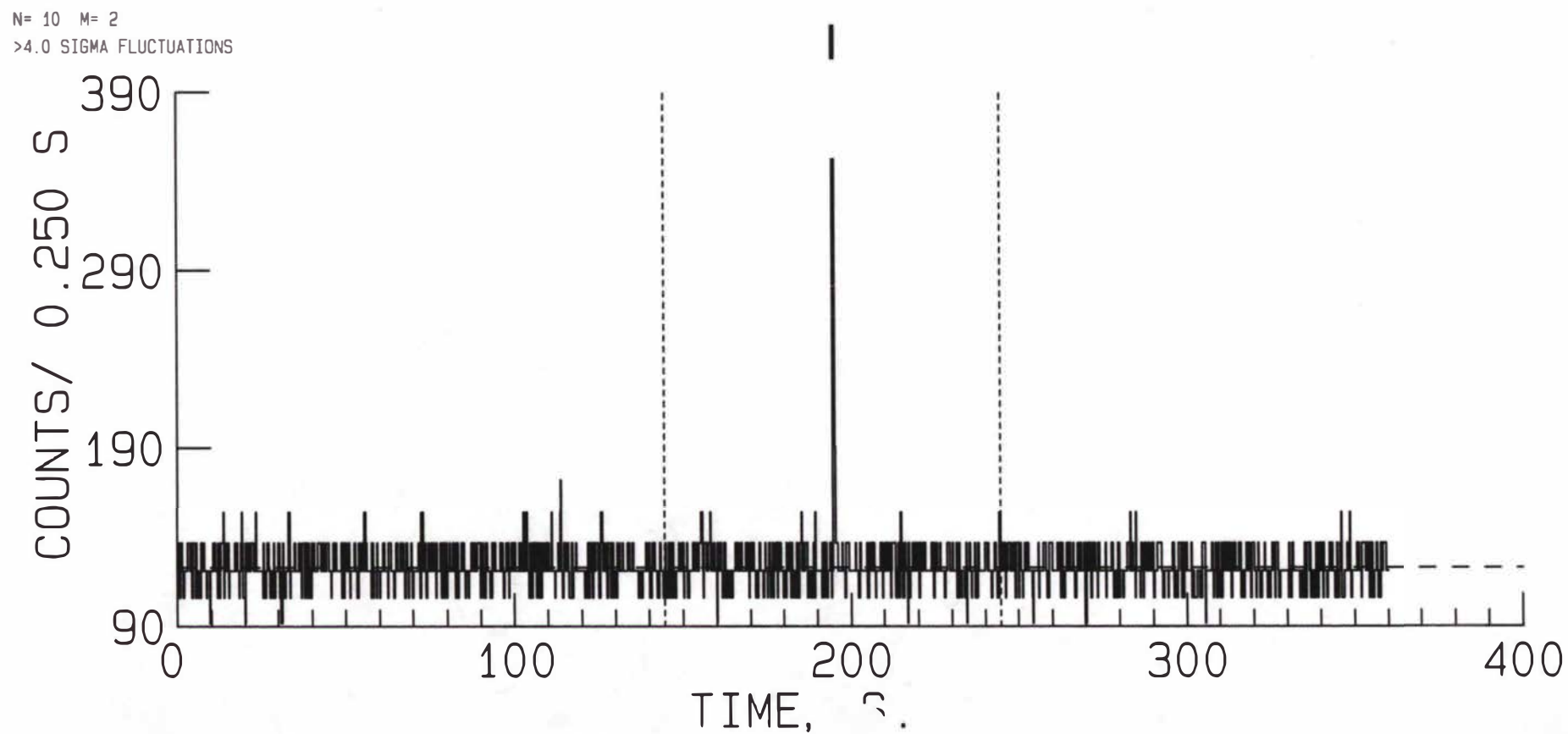


ULYSSES RT

7 / 5 / 98

28 / 2 / 98 25308.158 s

22- 148 keV



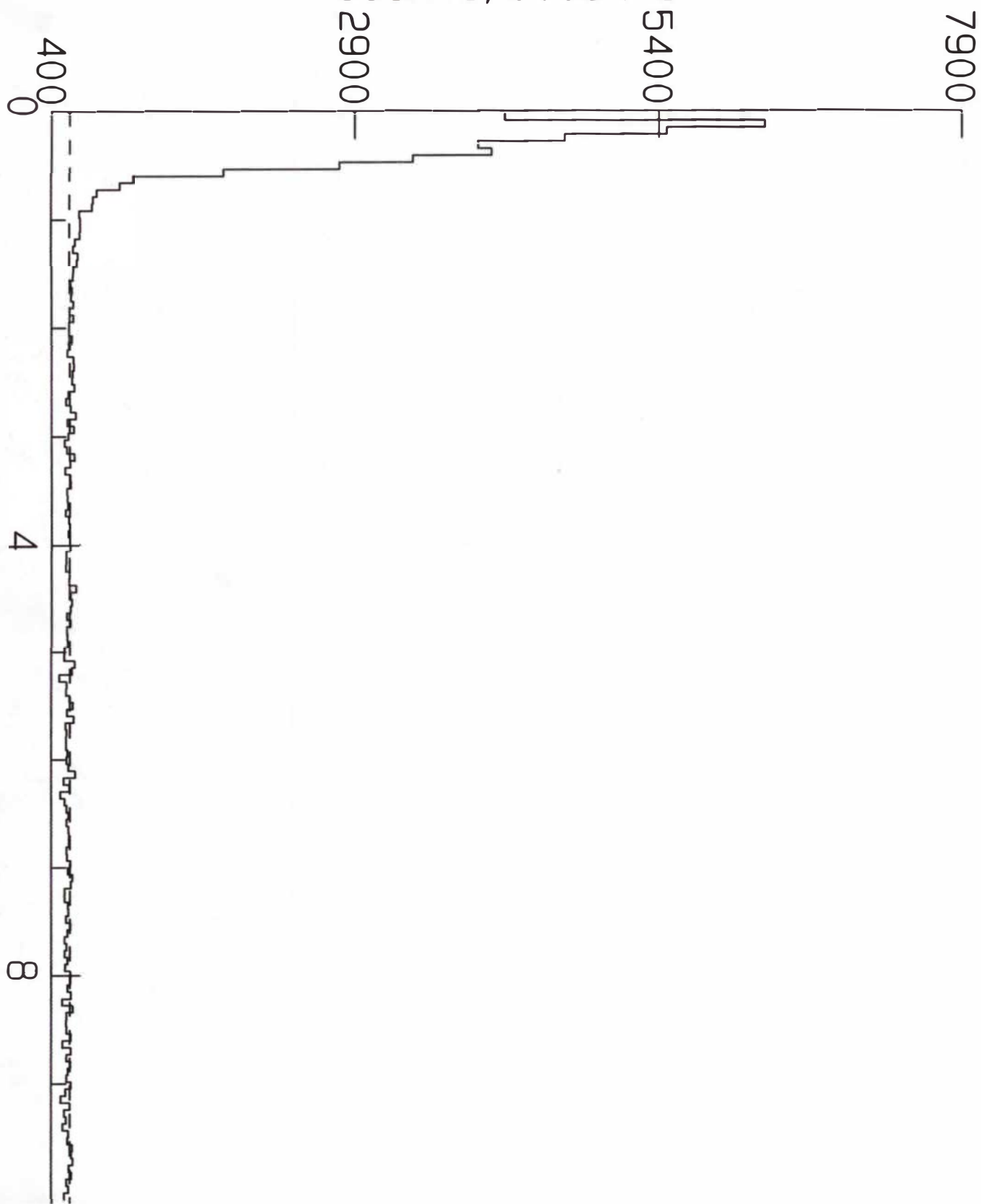
BATSE

28/02/98

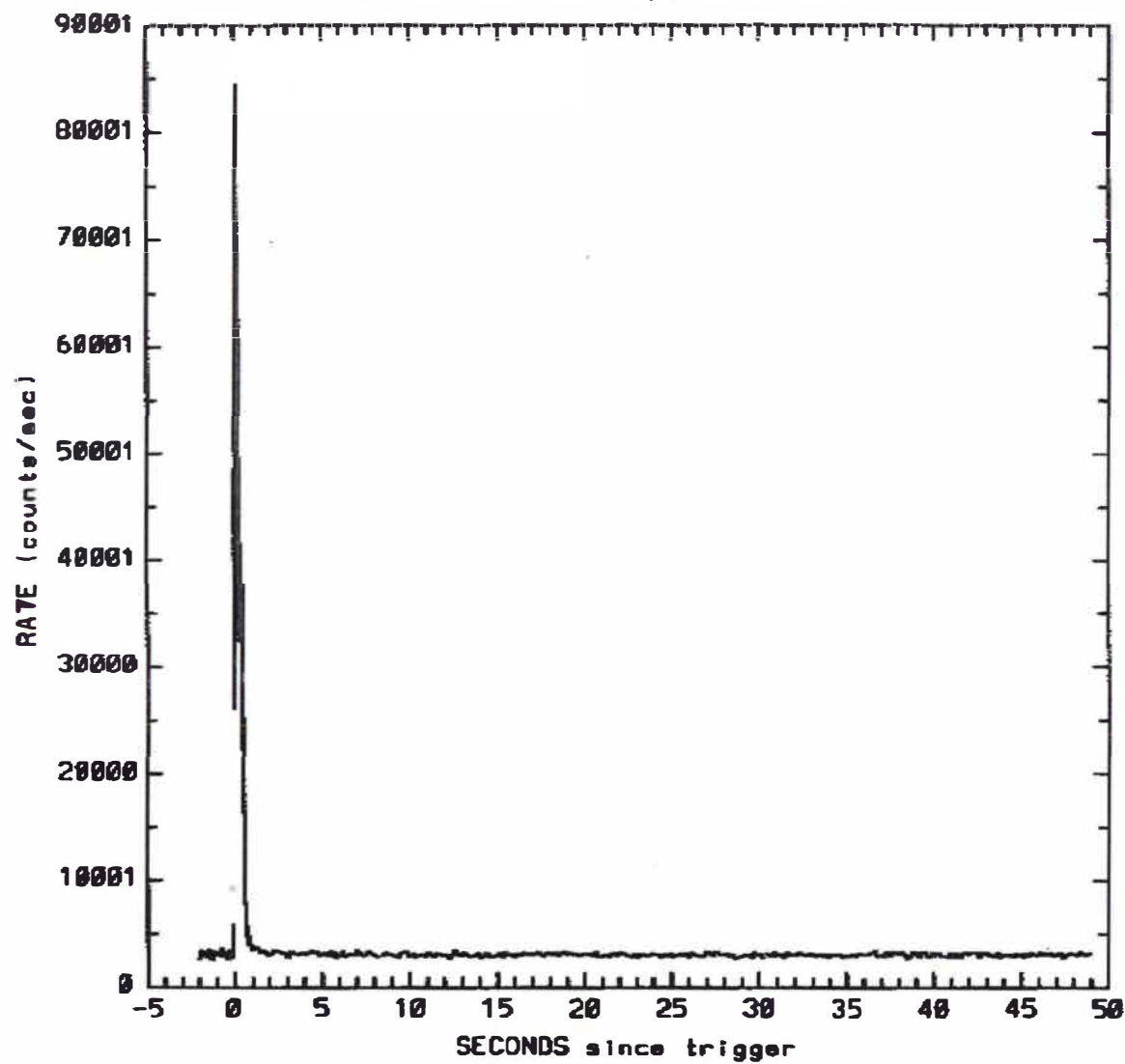
24247.329

25- 100 keV

COUNTS/0.064 S



TTS Data for K. Hurley, No. 6617



5-MAR-1998 09:47:56

Created by MOPS BD
(Burst Display)
Version 12.25

Trigger # . 6617

Trigger Time:
18872 / 24247.329Burst Data Type:
TTS

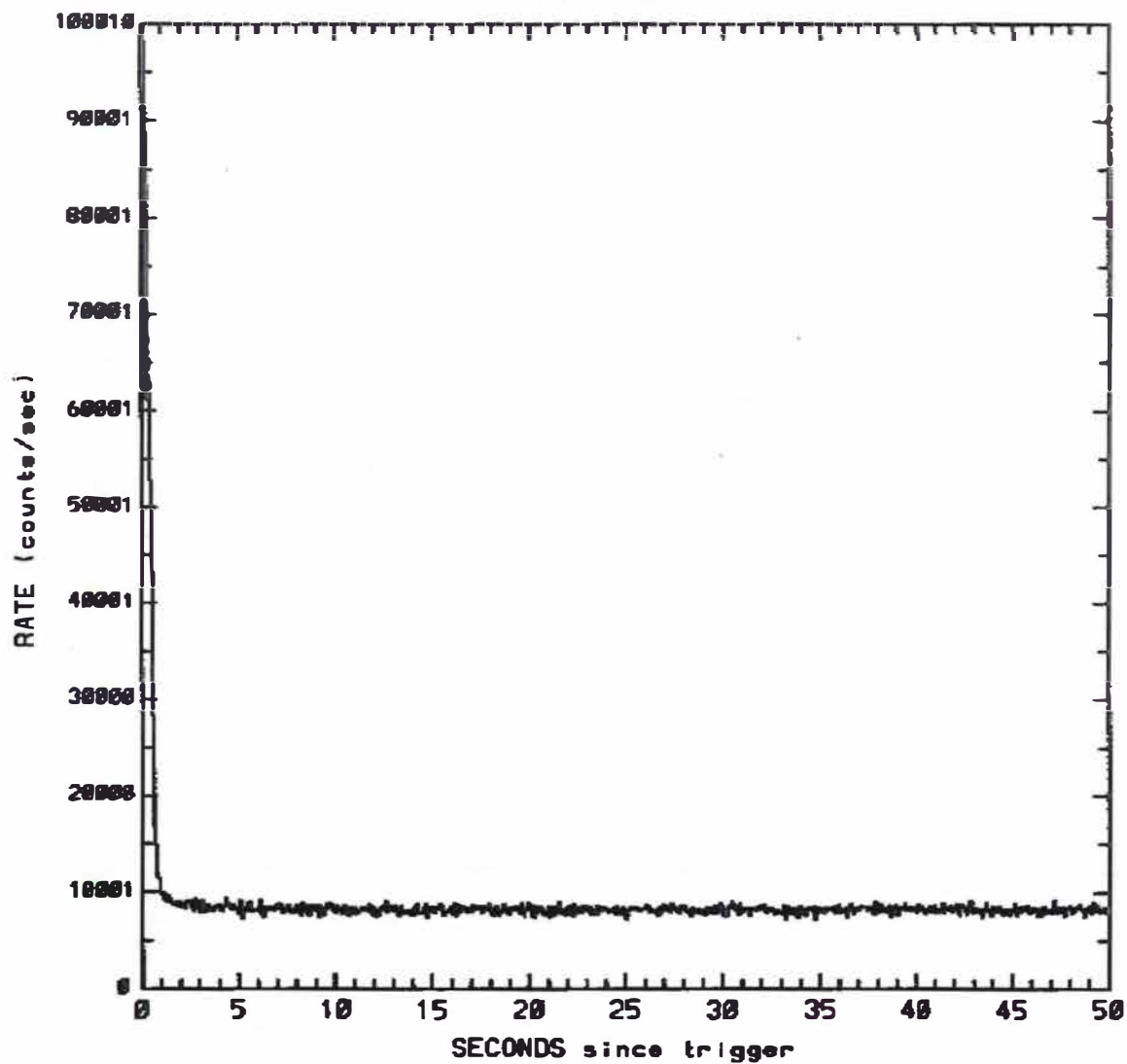
Time Corrected: Y

Maximum Time Error:
0.03138 second(s)Deadtime
Corrected: NBackground Data
Type: PREB + DISCLA

Bin Count: 8

Detectors [7..8].
---4---8Discriminators:
[2 : 2]Quality Mask:
BDISP1

MER Data for K. Hurley, No. 6617



5-MAR-1998 09:46:46

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

Trigger # : 6617

Trigger Time:
18872 / 24247.329Burst Data Type:
MERDeadtime
Corrected: NBackground Data
Type: CONTMinimum Integ. Time:
0.064 secondsDetectors [7..8]:
---4---8Channels:
[0..6]Quality Mask:
B0TSP1

From RICHARDSON@fender.msfc.nasa.gov Wed Mar 4 09:30:12 1998
Return-Path: <RICHARDSON@fender.msfc.nasa.gov>
Received: from sunspot.ssl.berkeley.edu by apollo.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA08691; Wed, 4 Mar 1998 09:30:11 -0800
From: RICHARDSON@fender.msfc.nasa.gov
Received: from FENDER.MSFC.NASA.GOV by sunspot.ssl.berkeley.edu (SMI-8.6/SMI-SVR4)
id JAA24469; Wed, 4 Mar 1998 09:30:12 -0800
Date: Wed, 4 Mar 1998 11:29:55 -0600 (CST)
To: khurley@sunspot.ssl.berkeley.edu
Message-Id: <980304112955.224a4622@fender.msfc.nasa.gov>
Subject: Crossing Windows for BATSE Burst 6618
Content-Length: 1135
X-Lines: 26
Status: RO

BATSEARCH PROGRAM

BATSE BURST # 6618
EVENT OF 1998 FEB 28 DAY OF YEAR= 59
EVENT CROSSING TIME AT BATSE : 60841. S. OR 16:54:01.0
COORDINATES ARE 0.000 0.000 6800. (RA, DEC, DIST.)
BURST ARRIVAL DIRECTION: 91.000 44.000
BATSE PEAK COUNTING RATE: 24000 C/S

EVENT CROSSING TIME AT ULYSSES WILL BE FOUND
INTERPOLATED POSITION OF ULYSSES ON 28/ 2/ 98 IS:
RA= 159.485 DEC= 13.055 DIST= 4.414 AU
BATSE-ULYSSES DISTANCE = 660329768. KM.
ANGLE WHICH BATSE-ULYSSES VECTOR MAKES WITH GRB ARRIVAL DIRECTION=114.45 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= -911.67 SECS.
CROSSING TIME AT ULYSSES IS 59929. S. OR 16:38:49 +/- 384.27 SECONDS

EVENT CROSSING TIME AT MARS WILL BE FOUND
POSITION OF MARS ON 28/ 2/ 98 IS:
RA= 356.962 DEC= -2.118 DIST= 2.315 AU
MARS-BATSE DISTANCE = 346368064. KM.
ANGLE WHICH BATSE-MARS VECTOR MAKES WITH GRB ARRIVAL DIRECTION= 85.62 DEG.
LIGHT TRAVEL TIME ALONG PROJECTED PATH= 88.16 SECS.
CROSSING TIME AT MARS IS 60929. S. OR 16:55:29 +/- 201.34 SECONDS

BATSE BURST TRIGGER

NO.: 6618

TIME: TJD=0872 SECONDS=60841

TYPE: BURST SOLAR FLARE TRIGGER SIGNAL:N

SIGNIFICANCE: SIGMA

INTENSITY: COUNTS/CM2

LOCATION: ZENITH=67.8 AZIMUTH=128.9 ERROR=2.3 DEGREES

COMMENTS:

GRB. MAIN PULSE WITH STRUCTURE BEGINS AT APPROX. T WITH DUR. APPROX. = 20SEC.
PROBABLE EXTENDED EMISSION OUT TO APPROX. T+65 SEC. TOTAL DUR. APPROX. = 65SEC.
VISIBLVE ABOVE 300KEV.

BATSE #	Date	TJD	SoD	Max ct/s	RA	Dec	Dur (s)
6618	980228	10872	60841	24000	091	+44	65

Helio corr removed

Date: May 7 '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? *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? *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

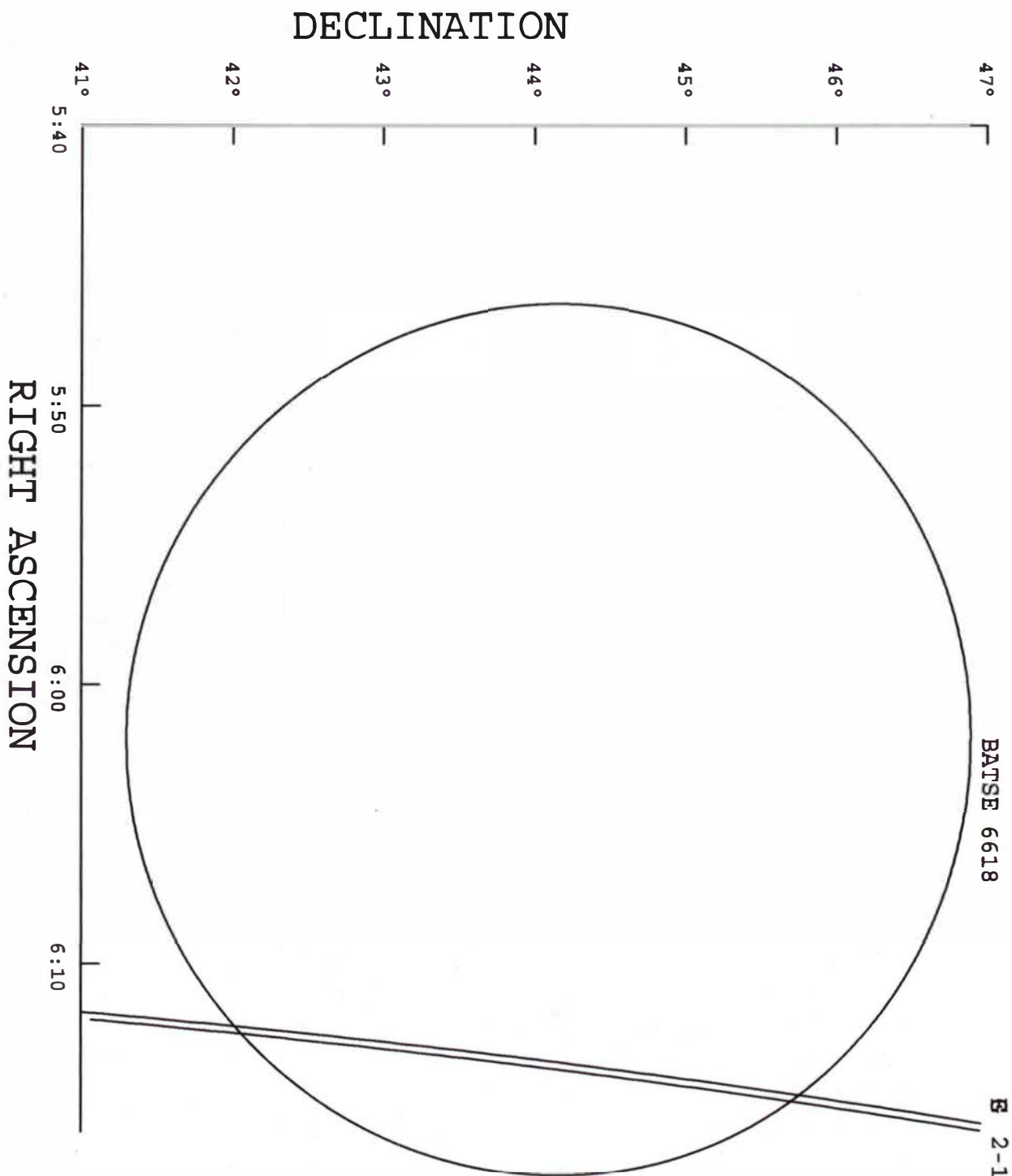
G=GALACTIC EQUATOR

1 ULYSSES

2 BATSE

EVENT OF FEB 28, 1998 16:37

18/ 2/ 0



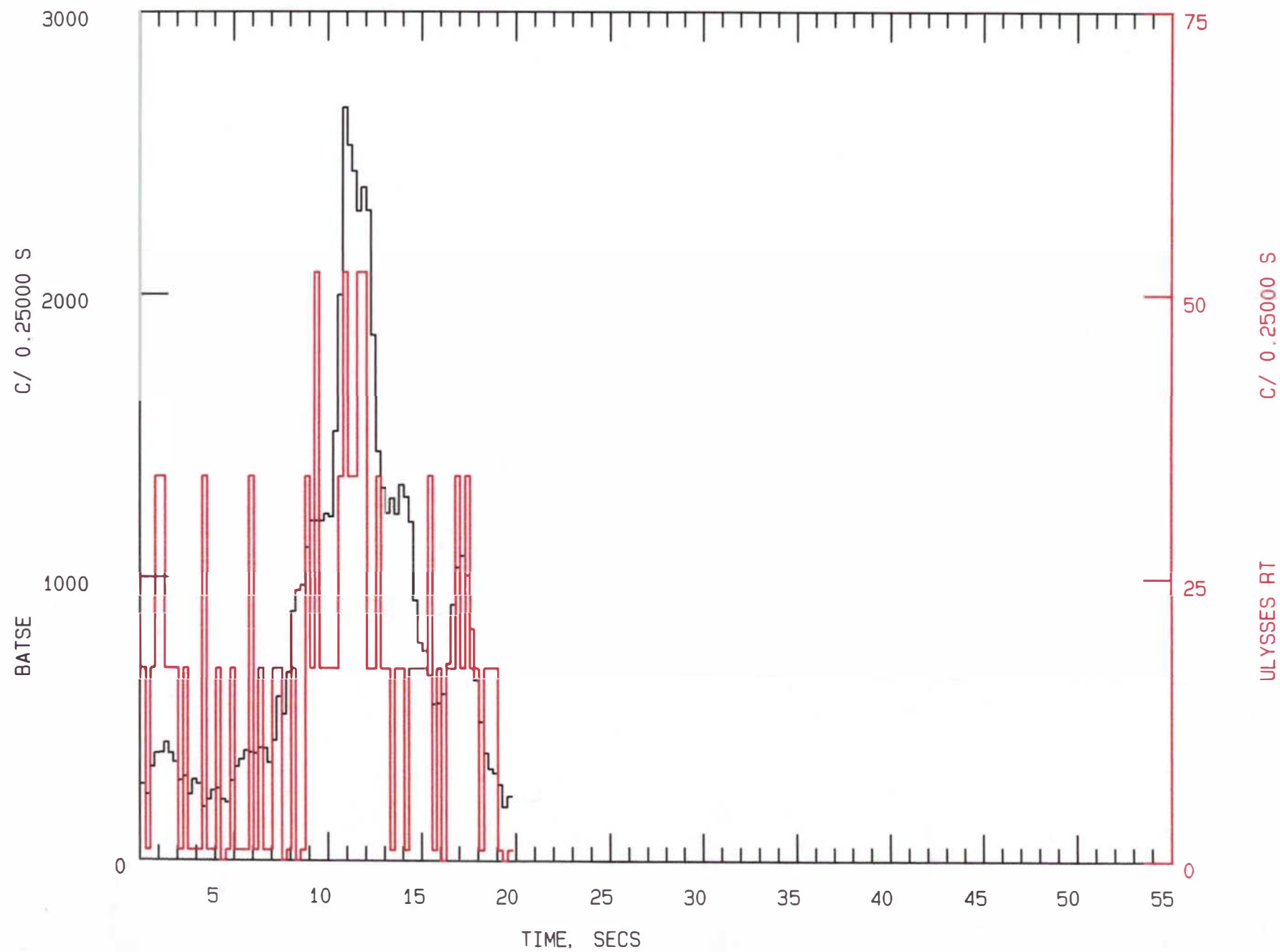
BATSE

-ULYSSES RT CORRELATION

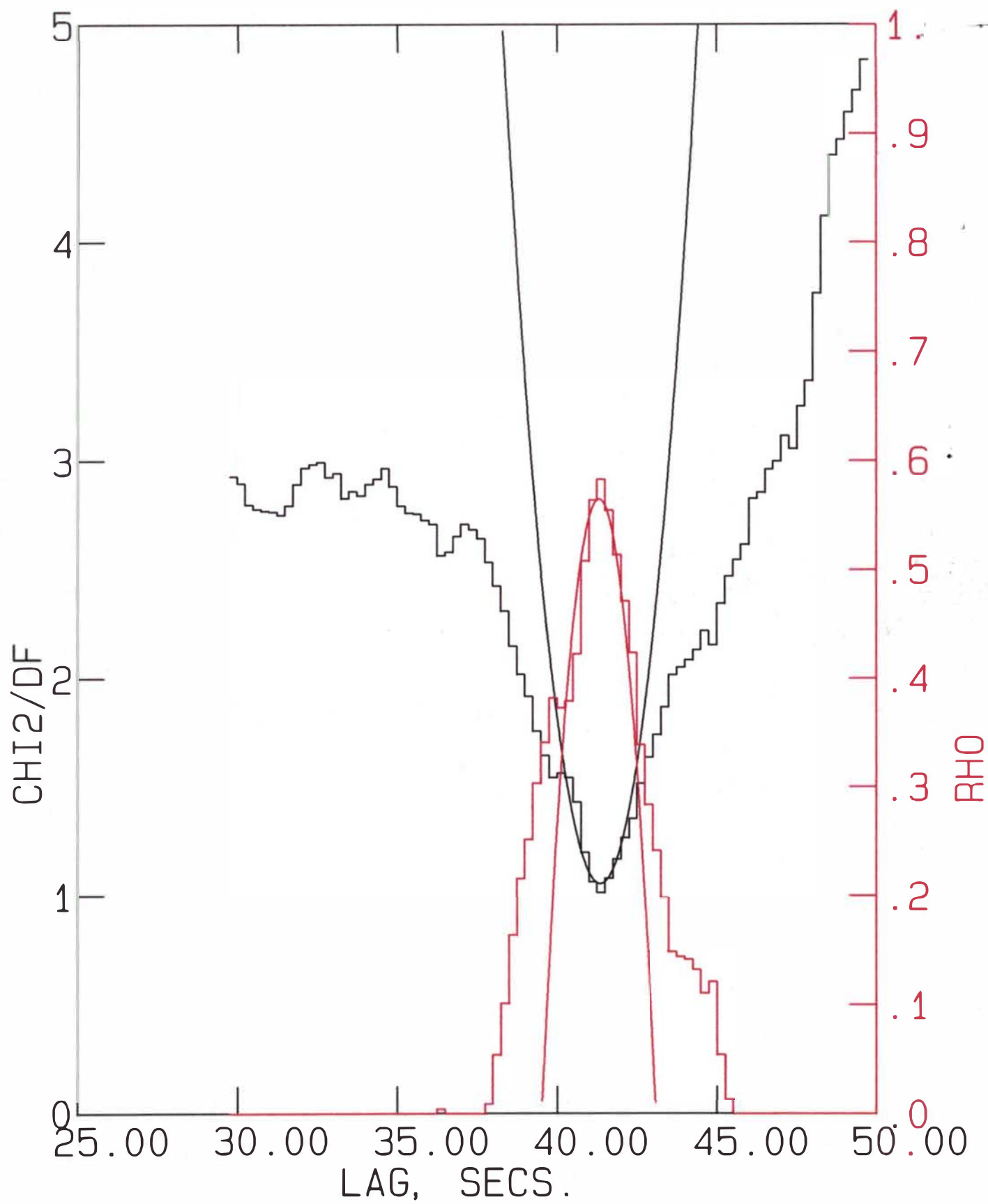
28/ 2/98

60841.442

7/ 5/98



Handwritten text in a cursive script, possibly a list or a series of notes, with some lines underlined. The text is faint and difficult to read.



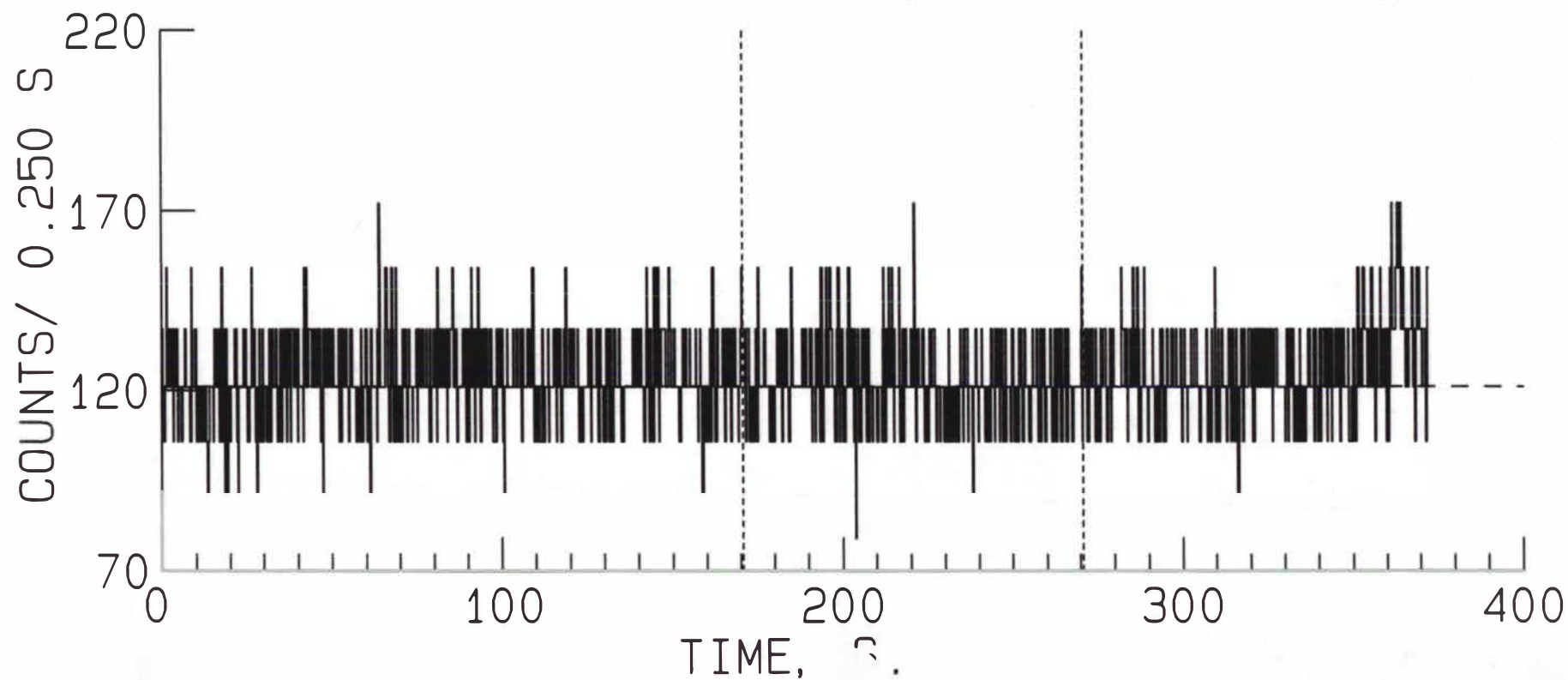
ULYSSES RT

7 / 5 / 98

28 / 2 / 98 59544.030 s

22- 148 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



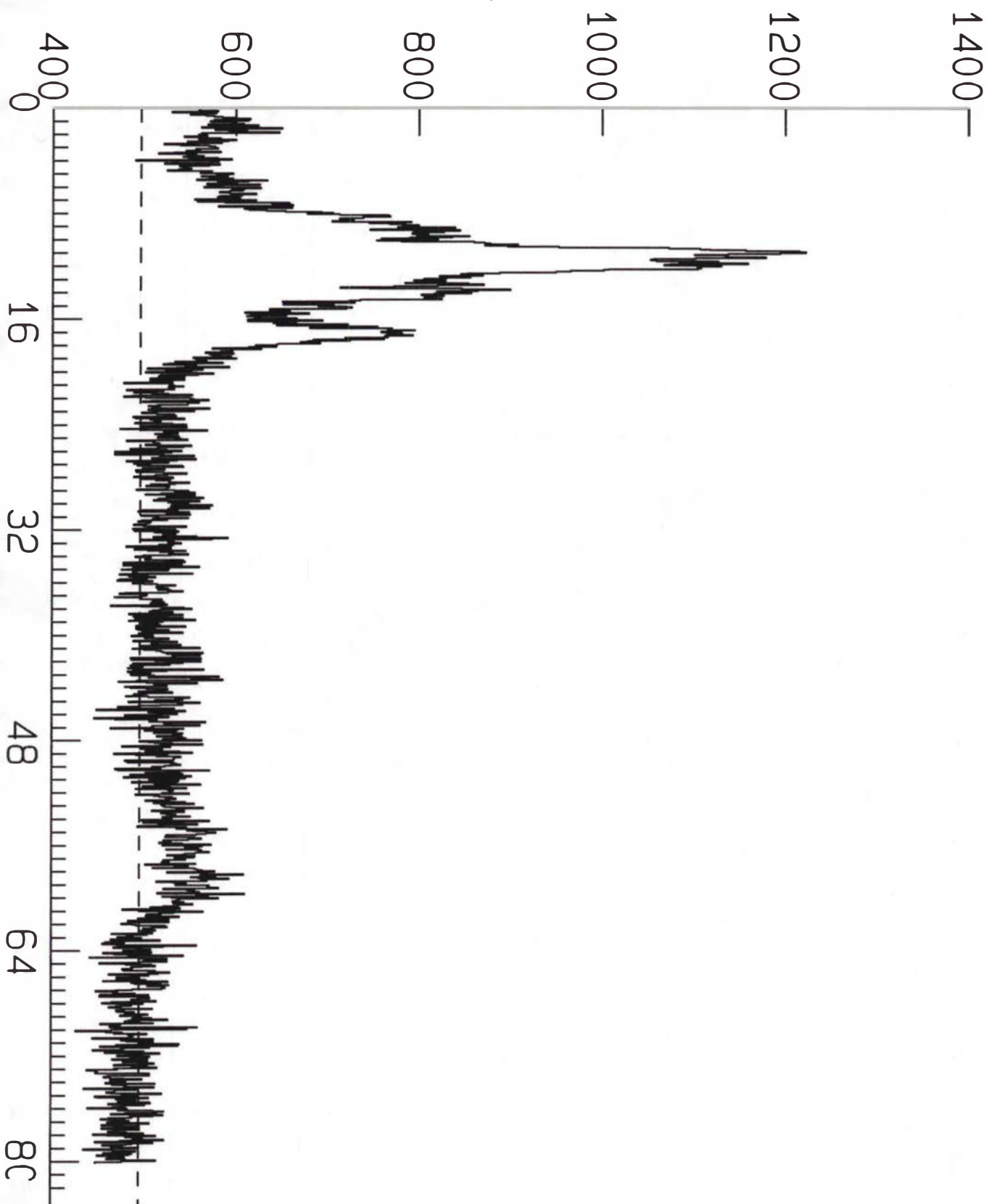
BATSE

28/02/98

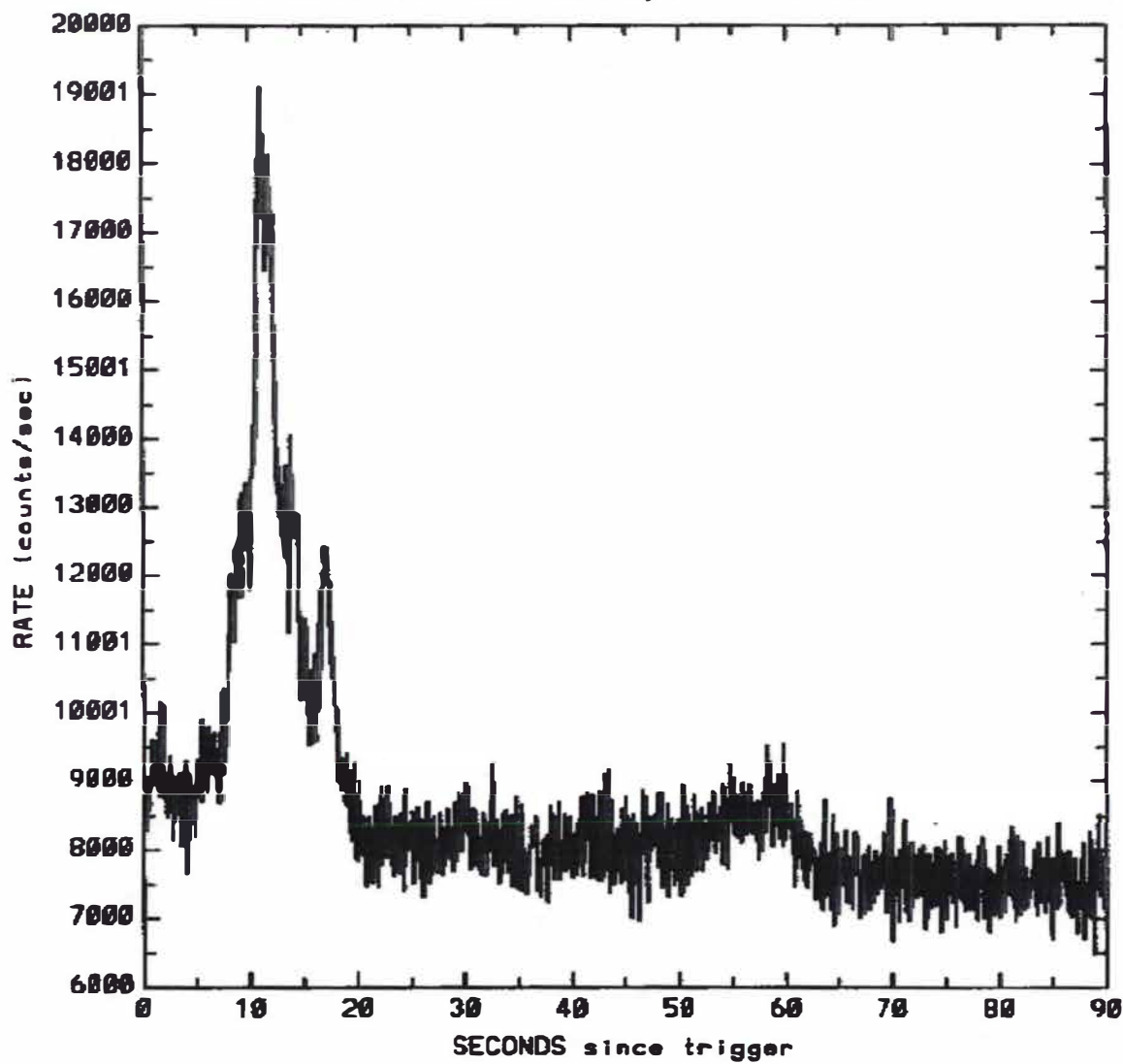
60841.442

25- 100 keV

COUNTS/0.064 S



MER Data for K. Hurley. No. 6618



5-MAR-1998 09:53.00

Created by MOPS 80
(Burst Display)
Version 12.25

Trigger = 6618

Trigger Time:
18872 / 68841.441Burst Data Type:
MERDeadtime
Corrected: NBackground Data
Type: CONTMinimum Integ. Time:
0.064 secondsDetectors [7..8].
--54----Channels:
(8..6)Quality Mask:
BDISP1

Date: Apr 2 2007

BURST TRIANGULATION CHECKLIST

1. Ulysses Data

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

2. For Konus events

- ☒ Konus ecliptic latitude used with latest calibration?

2. For Odyssey events

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

2. For 3 or More Spacecraft events

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

3. For INTEGRAL events

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

-
- ☒ ACCESS and MBL4 databases updated?

N-M = CORRELATION BETWEEN SATELLITES N AND M

EARTH-N = EARTH AS SEEN FROM SATELLITE N

S=SUN

E=ECLIPTIC

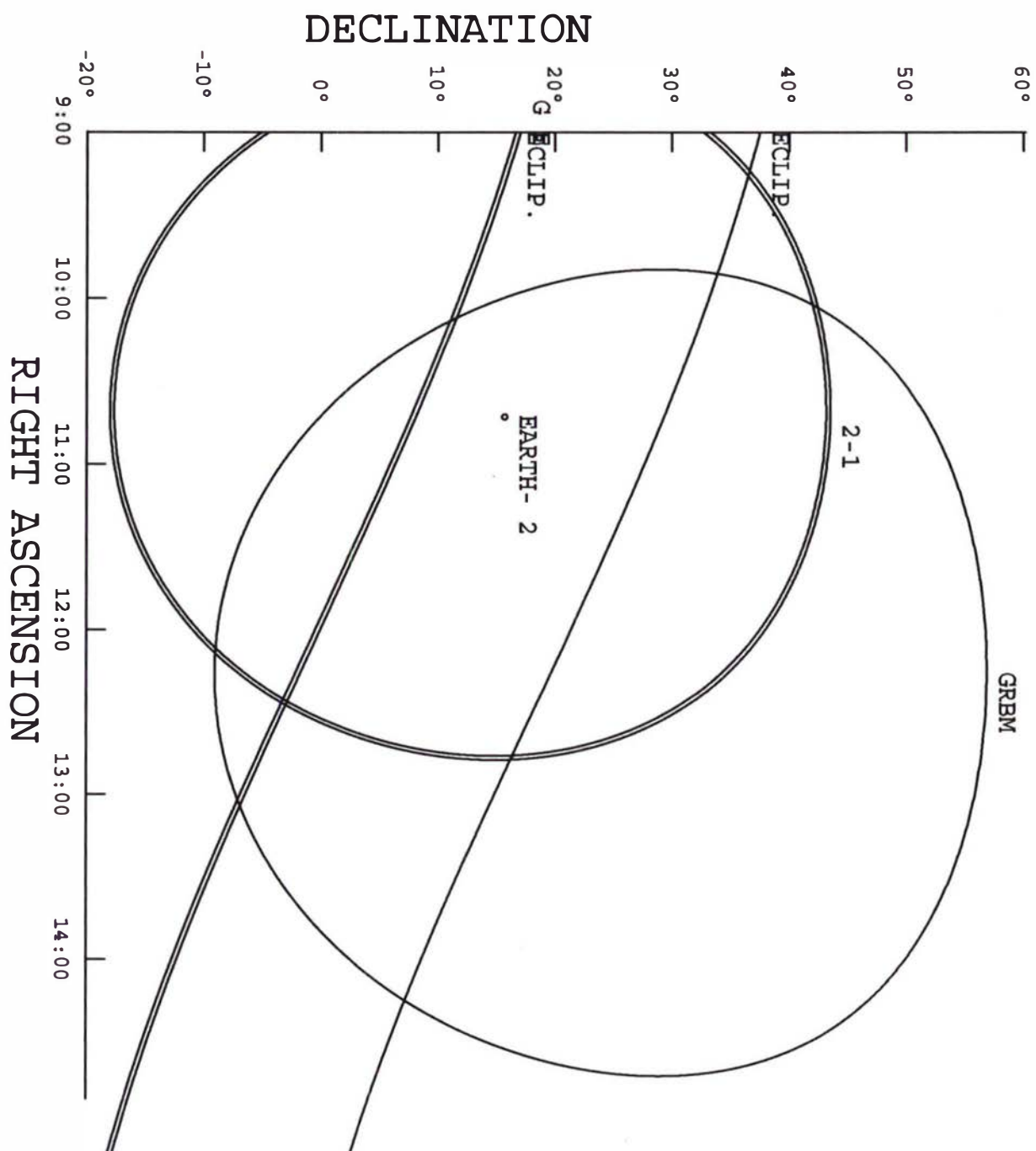
G=GALACTIC EQUATOR

1 ULYSSES

2 KONUS2

EVENT OF FEB 28, 1998 22:39

2 / 4 / 7



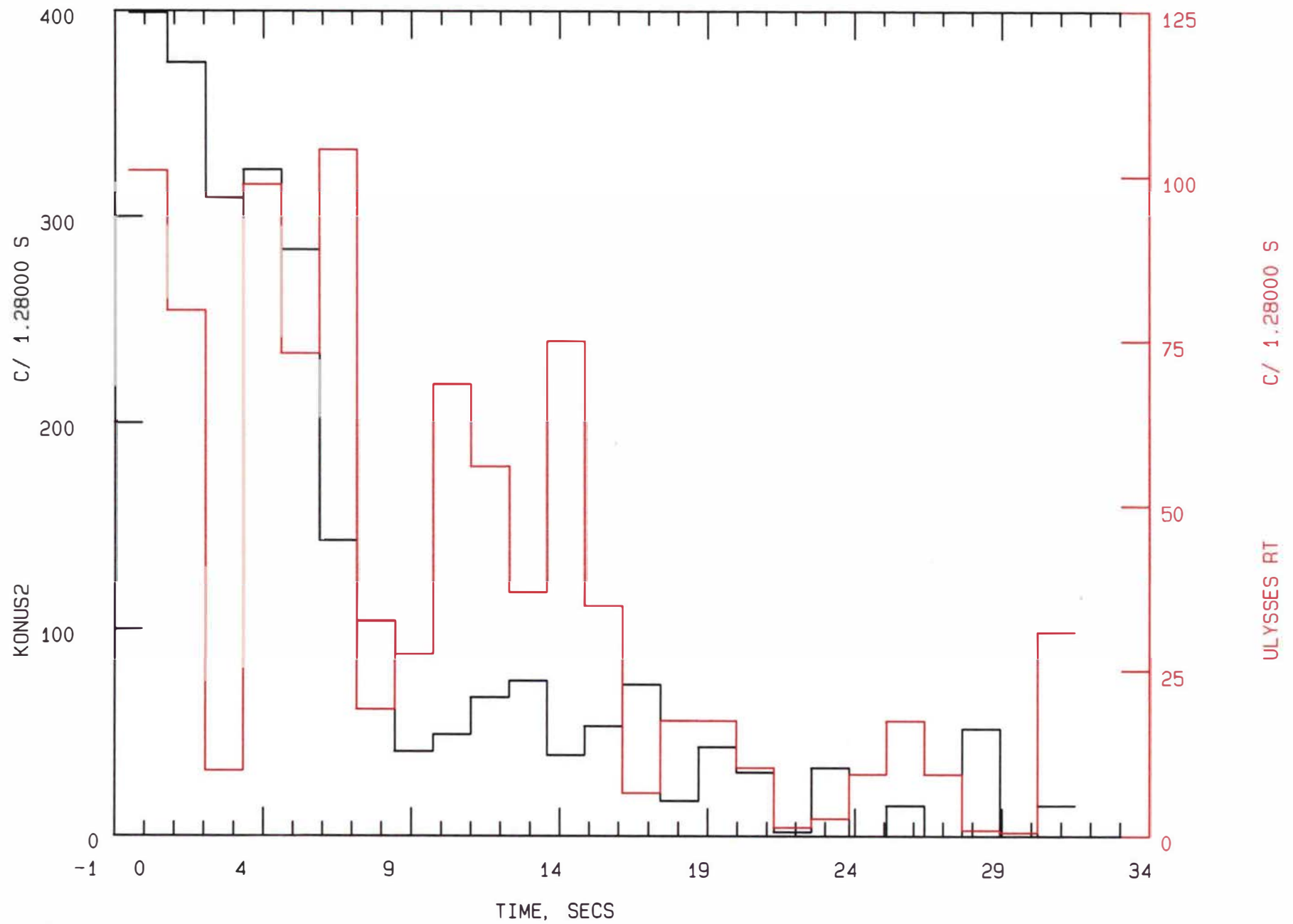
KONUS2

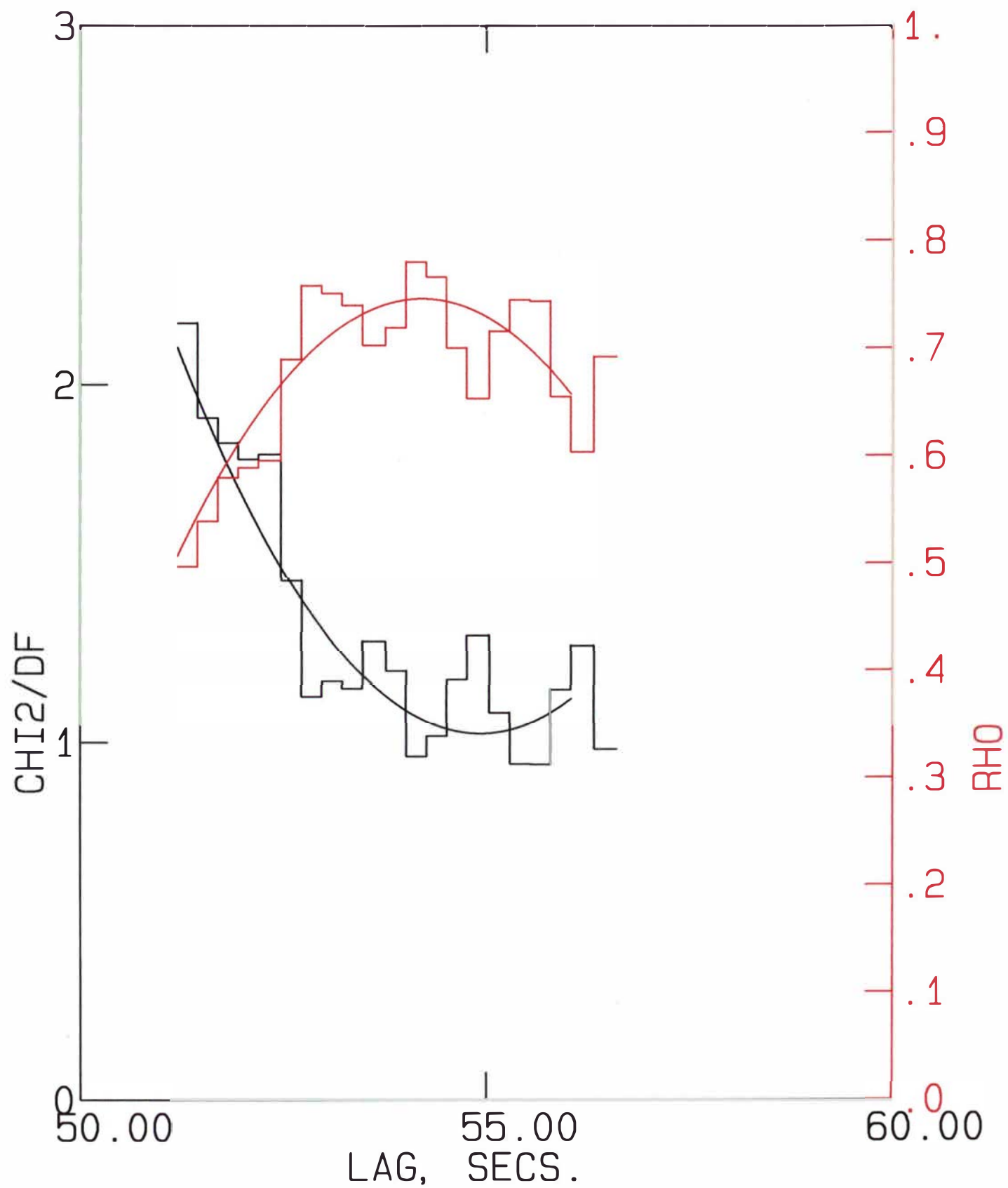
-ULYSSES RT CORRELATION

28/02/98

83505.107

2/ 4/ 7





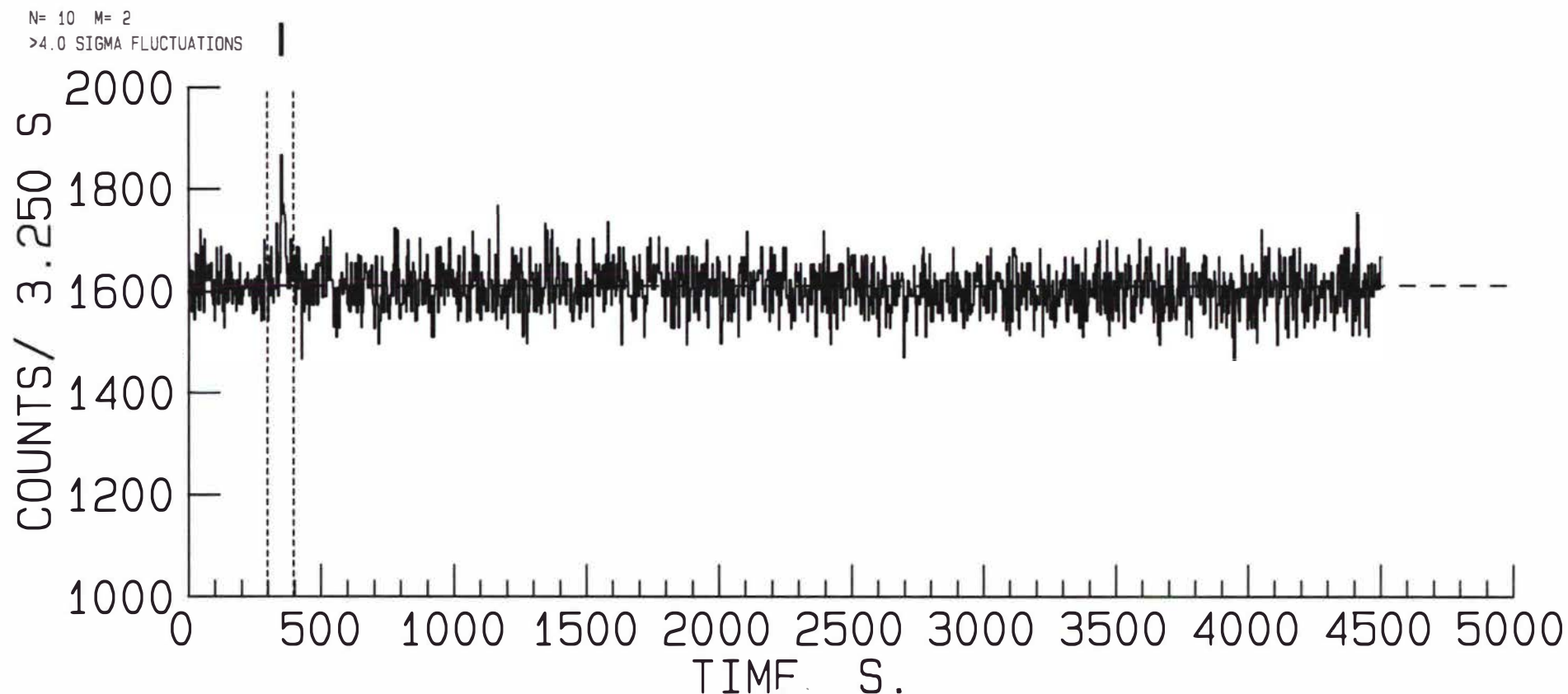
ULYSSES RT

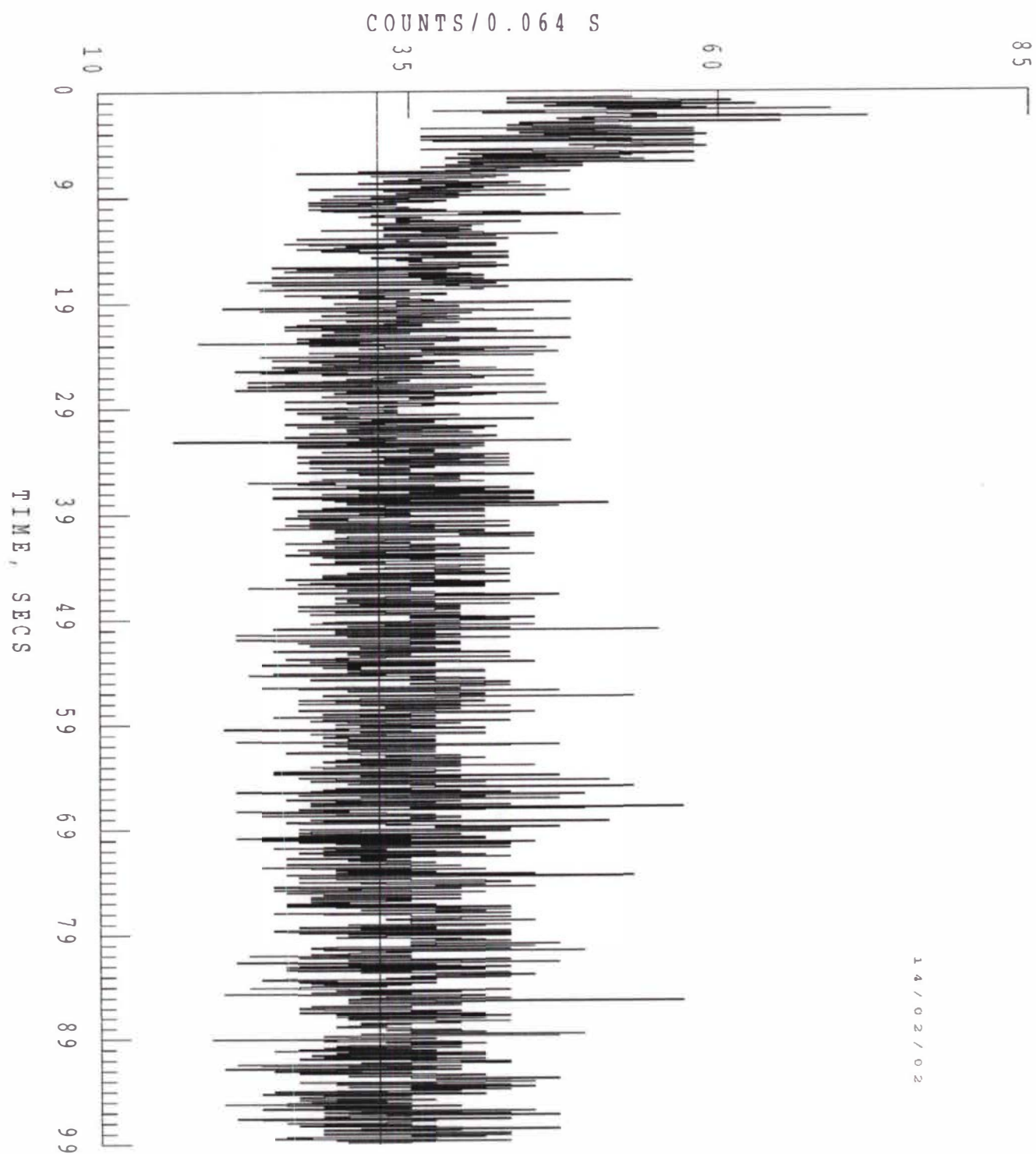
2 / 4 / 7

28 / 2 / 98 81252.016 s

0.250 S INTERVALS REGROUPED BY 13

22- 148 keV





KONUS2 19980228 83505

ULYSSES RT

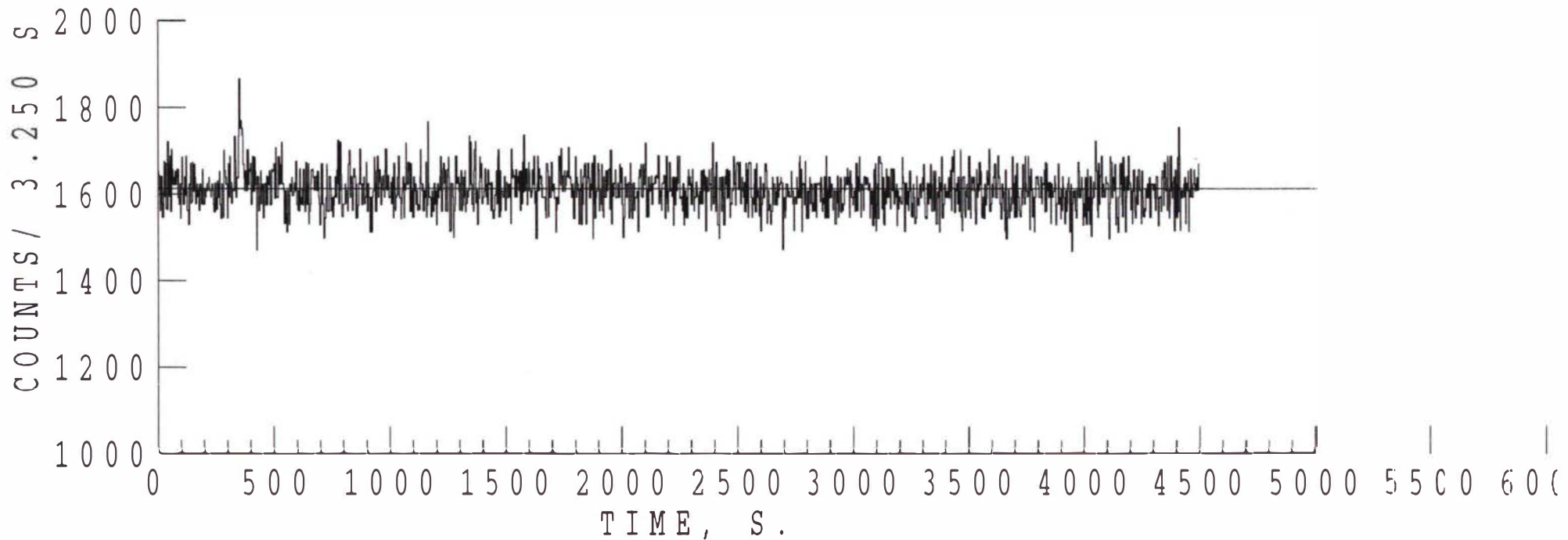
14 / 02 / 02

28 / 02 / 98 81252.016 s

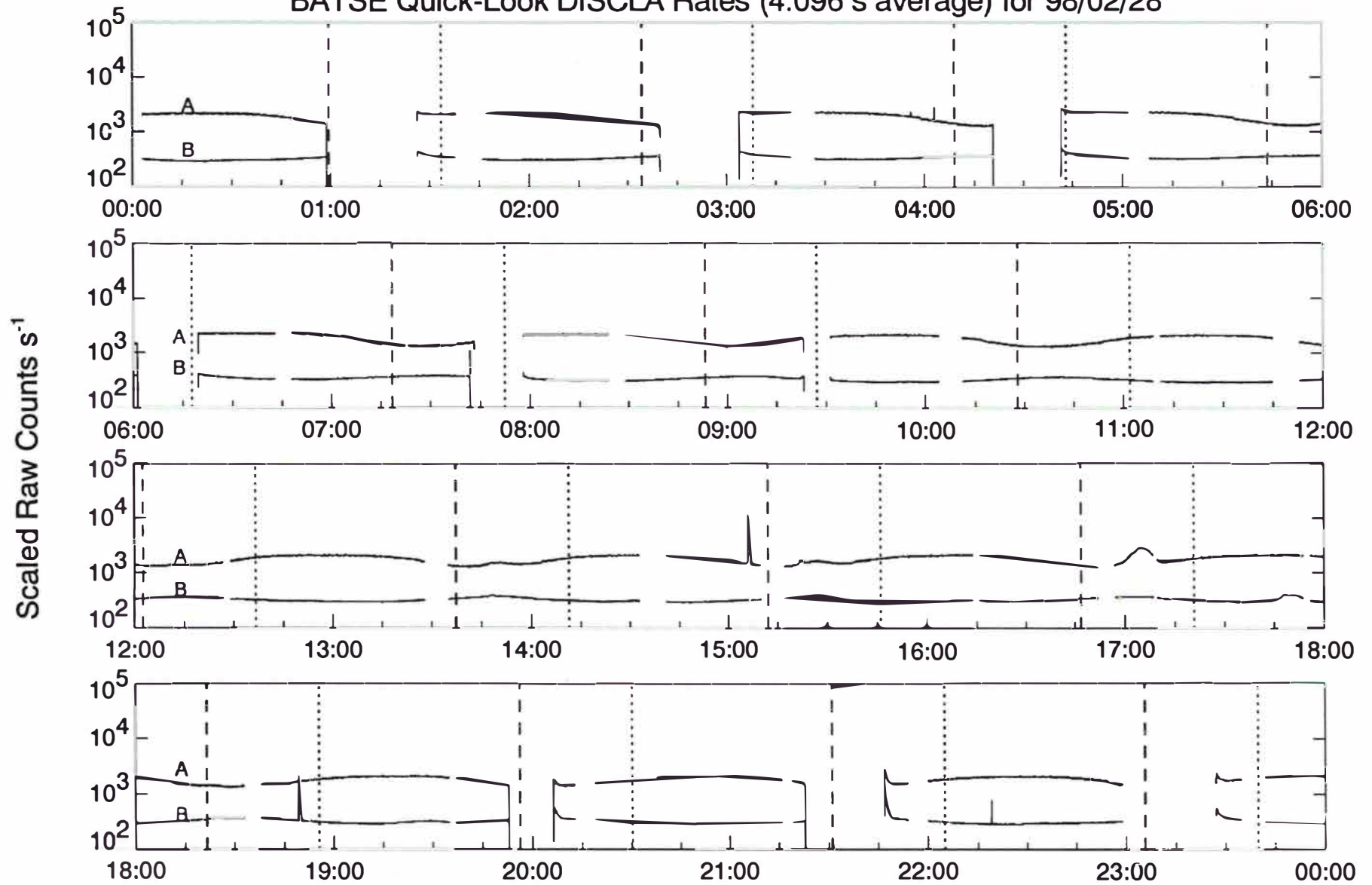
0.250 S INTERVALS REGROUPED BY 13

0 - 0 keV

N= 10 M= 2
>4.0 SIGMA FLUCTUATIONS



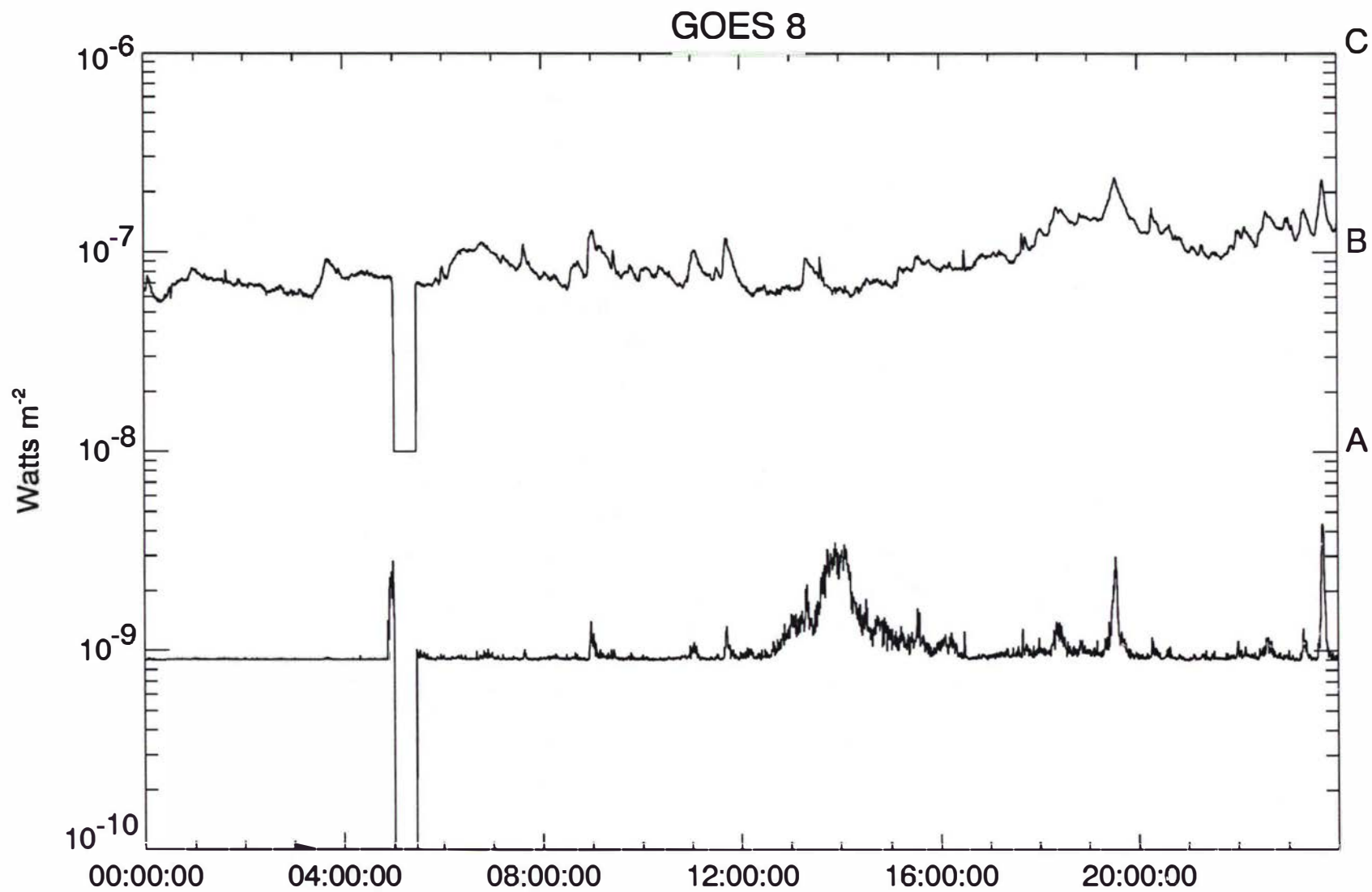
BATSE Quick-Look DISCLA Rates (4.096 s average) for 98/02/28



Current Time: 98/03/04, 1008 EDT
A: Channel 0 Most Sunward LAD
B: Sum Channel 0 Anti-Sunward LADs X .05

Dotted line: Day entry
Dashed line: Night entry

* Solar Burst Trigger
+ Solar Flare



Data Start: 98/02/28, 0000:00

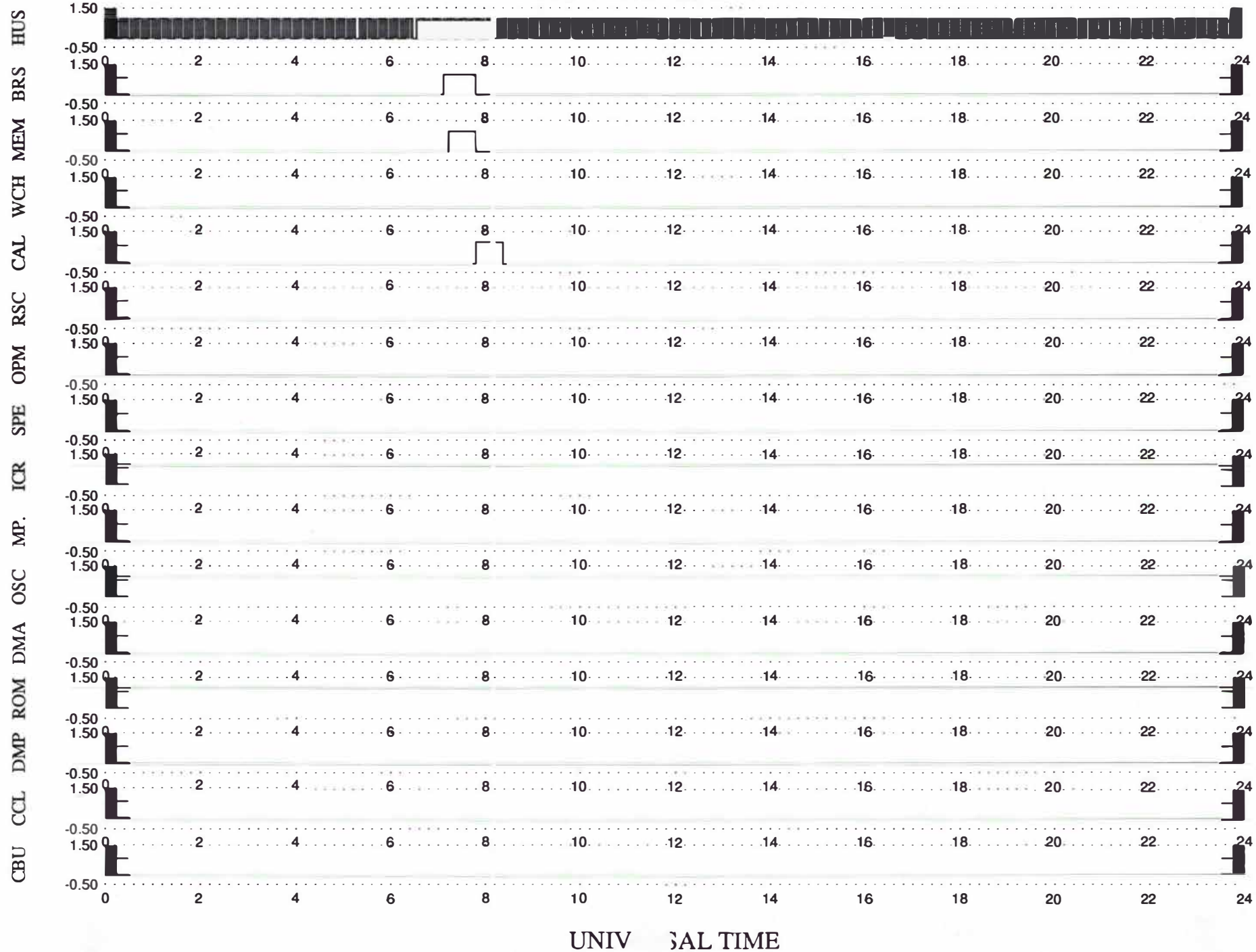
Plot created: 98/03/04, 1007

Channel 1 (1.0 - 8.0 Angstroms) Background not subtracted

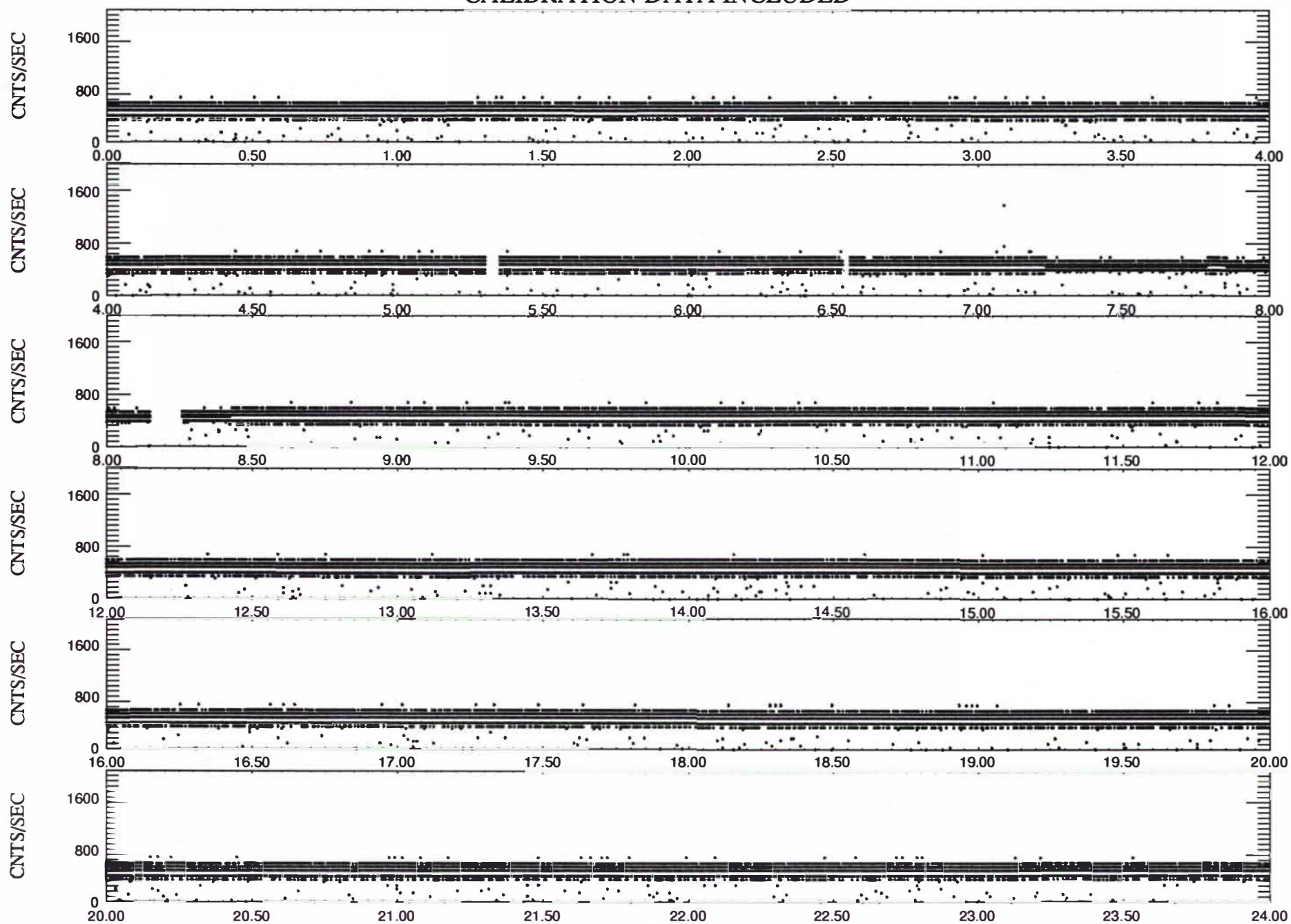
Channel 2 (0.5 - 4.0 Angstroms) Background not subtracted

Sample average = 10

BURST NUMBER 11

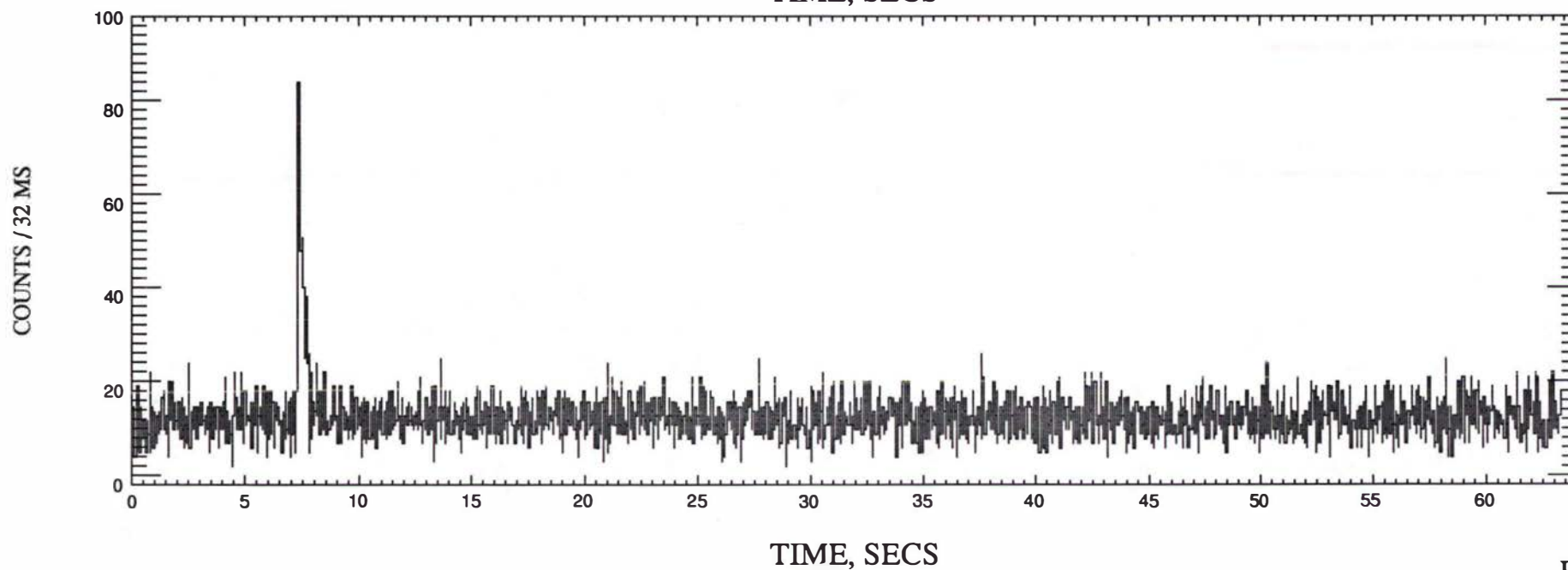
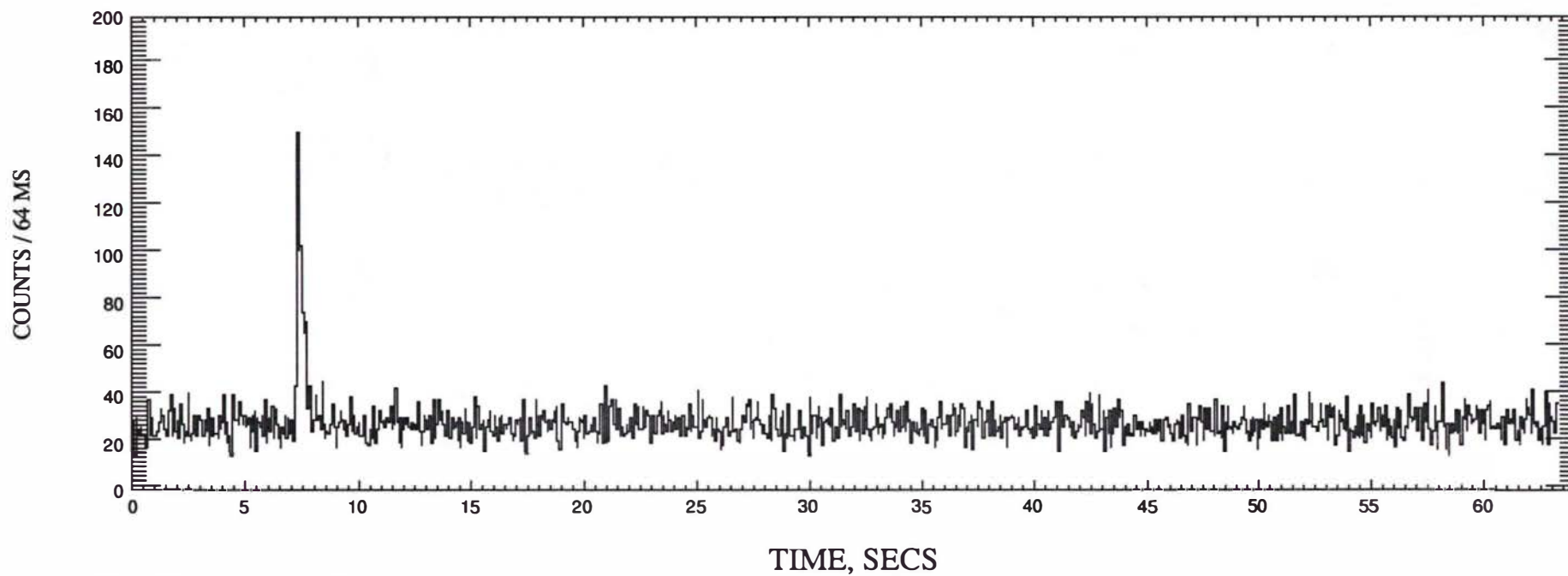


CALIBRATION DATA INCLUDED

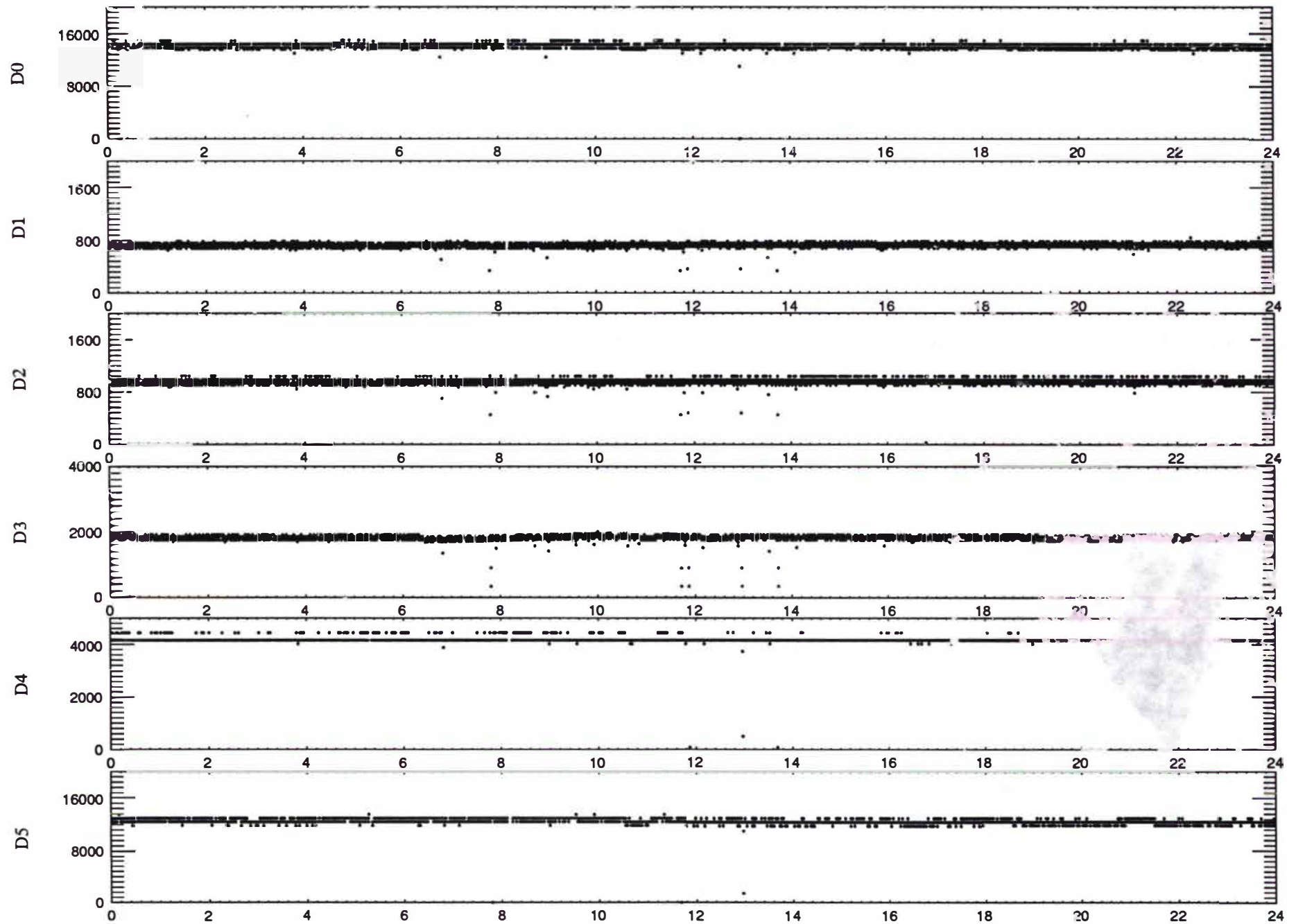


UNIV CAL TIME

Burst Counter 11 at UT= 7.084189631144 h=25503.083 s 07:05:03.083







UNIVERSAL TIME