

DEPARTMENT OF THE INTERIOR

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Processed Strong-Motion Data for
the Central Chile Earthquake of March 3, 1985:
Fifteen Accelerograph Sites Owned by CHILECTRA,
ENDESA, and the Department of Geology and Geophysics,
University of Chile

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Denver, Colorado

1989

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PROCESSED STRONG-MOTION DATA FOR
THE CENTRAL CHILE EARTHQUAKE OF MARCH 3, 1985:
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ENDESA, AND THE DEPARTMENT OF GEOLOGY AND GEOPHYSICS,
UNIVERSITY OF CHILE

INTRODUCTION

The March 3, 1985 ($M_s = 7.8$) earthquake that occurred off the coast of central Chile is known to have triggered 31 accelerographs¹ located throughout the region (Fig. 1). This report presents processed records from 15 accelerographs owned and operated by CHILECTRA, Empresa Nacional de Electricidad (ENDESA), and the Department of Geology and Geophysics, University of Chile. Processed records from an additional 11 sites are presented by Celebi (1987). In addition, listings of peak accelerations from all 31 recording sites are available in Saragoni *et al.* (1985) and Wyllie *et al.* (1986).²

The mainshock occurred at 7:47 p.m. local time (22:47 UTC) on Sunday March 3, 1985. The epicenter was located off the coast of central Chile approximately 19 km west of the town of Quintay (Fig. 1). The National Earthquake Information Center (NEIC) assigned a surface-wave magnitude of M_s 7.8 for the mainshock, which makes it the largest earthquake to strike central Chile since 1906, when an M_s 8.3 earthquake occurred near Valparaíso (Comte *et al.*, 1986). Modified Mercalli Intensities as high as IX were reported in the coastal towns of San Antonio and Llolele (Algermissen, 1985); however, intensities ranging from VI to VIII were most common in the epicentral area (Saragoni *et al.*, 1985).

NEIC reported the occurrence of an m_b 5.5 foreshock just 10.4 sec prior to the mainshock. Since the two events occurred so close in time, the Seismological Service of the Department of Geology and Geophysics, University of Chile (DGG) was able only to obtain a location for the foreshock. The earthquake parameters reported by NEIC and the University of Chile (Algermissen, 1985; Wyllie *et al.*, 1986; Celebi, 1987) are given in the following table.

¹The accelerograph at Peldehue triggered but apparently malfunctioned.

²The San Isidro accelerograph site is mistakenly referred to as San Pedro in these two references.

Origin Time UTC	Latitude	Longitude	Depth (km)	m_b	M_s	Institute
22:46:56.8	33.11°S	71.74°W	33	5.5	--	NEIC
22:46:59.9	33.24°S	71.86°W	16	--	--	DGG
22:47:07.2	33.14°S	71.87°W	33	6.7	7.8	NEIC

The depths reported by NEIC were constrained to 33 km during their computer analyses and, therefore, do not represent an accurate estimate of focal depth.

Focal mechanism studies, analyses of teleseismic recordings, geodetic measurements, and aftershock studies have led researchers to infer thrusting along the shallow-dipping interface of the Nazca and South American plates during the mainshock and many of the larger aftershocks (e.g., Dziewonski *et al.*, 1985; Comte *et al.*, 1986; Christensen and Ruff (1986); Korrat and Madariaga, 1986; Monfret and Romanowicz, 1986; Pardo *et al.*, 1986; Barrientos, 1988; Choy and Dewey, 1988). This is consistent with subduction of the Nazca plate beneath the continent of South America.

RECORDING SITES AND INSTRUMENTATION

The locations of all accelerographs that recorded the earthquake (except Peldehue) are indicated on Figure 1. The squares identify the 15 sites analyzed in this report. Coordinates, site conditions, and instrument characteristics for each site are summarized in Tables 1 and 2. Epicentral distances, peak amplitudes, and filter parameters for each accelerogram are listed in Table 3.

All but three of the recording sites were equipped with *Kinematics* SMA-1 strong-motion accelerographs. The exceptions were San Isidro and Santiago (ENDESA building), which housed *Katsujima* PK-130 accelerographs, and Rapel, where a *Teledyne* RFT-250 accelerograph was installed.

The SMA-1 and RFT-250 accelerographs are fixed-gain instruments that record acceleration on 70-mm film with a recording speed of 1 cm/sec. Nominal values for their recording sensitivity, natural frequency, and damping are 19 mm/g, 25 Hz, and 60 percent of critical, respectively. The PK-130 accelerograph is an automatic gain-ranging accelerograph that records acceleration on 90-mm light-sensitive paper with a recording speed of 5 cm/sec. The natural frequency and damping of the PK-130 accelerograph are not known; however, its frequency response is designed to be flat over the frequency range 0.3-30 Hz.

PROCESSING METHODOLOGY

Processing was performed with AGRAM, an accelerogram processing package developed by the U.S. Geological Survey (Converse, 1984). The relatively poor condition of the original film records made it necessary to digitize the recordings by hand rather than by the laser trace-following device usually used by the U.S. Geological Survey to process strong-motion records. Therefore, four AGRAM routines--IOMTAP, BUTTER, REFORM, and SCALE--could not be used in their present form and were replaced with similar routines designed to perform the same basic functions. Details of the processing steps are summarized below.

Digitization. The 70-mm film records were photographically enlarged to five times their original size to insure adequate signal-to-noise ratios. For long records, this required that the film be photographed in 100 cm frames, representing about 20 sec of record time. The frames were overlapped by about 5-10 cm during the photographic process to allow accurate reconstruction of the accelerogram after digitization. Because of the large sensitivity and fragile nature of the PK-130 recordings, they were not enlarged prior to digitization.

Each frame was digitized by means of a hand-held cursor on a digitizing table having a resolution of 0.001 in (0.00254 cm). This process resulted in a sample rate of about 250-350 samples per second and an amplitude resolution of about 0.3 cm/sec² (about 0.0003g) for the film records and 0.03-0.4 cm/sec² (about 0.00003-0.0004g), depending on the gain of the instrument, for the paper records. When possible, six traces were digitized for each accelerogram: three acceleration traces (one vertical and two horizontal components), two fixed traces, and one set of timing marks. Timing marks were written every 0.5 sec on the film records and every 0.1 sec on the paper records. There were no fixed traces on the accelerograms obtained at Colbún, Melipilla, Rapel, and Ventanas, so only the acceleration traces and timing marks were digitized for these records.

Phase I (Uncorrected Acceleration). Starting times for each trace were adjusted to minimize phasing errors and the timing trace was interpolated to determine relative time for each data point. Each trace was then adjusted to have an average amplitude of zero, after which absolute amplitudes were computed from instrument sensitivities.

Phase II (Corrected Time Series). Phase I data were interpolated to 200 samples per second, and in the case of the film records, a frequency domain instrument-correction operator was applied to remove the response of the recording system. Since the high-frequency response of the PK-130 accelerograph is flat to about 30 Hz, no instrument correction was applied to these time series.

When fixed traces were available, high-frequency noise was identified from ratios of the Fourier amplitude spectra of the acceleration and fixed traces. The ratios were plotted as a linear function of frequency to emphasize the high-frequency tail of the spectra. When fixed traces were not available, high-frequency noise was identified directly from the Fourier amplitude spectra of the

acceleration time series. High-frequency noise was removed by applying a 5 Hz bandwidth cosine taper to the Fourier amplitude spectra.

When fixed traces were available, low-frequency noise was identified from ratios of the pseudorelative velocity (PSRV) response spectra of the acceleration and fixed traces. The ratios were plotted as a logarithmic function of period to emphasize the low-frequency tail of the spectra. The filter parameter was chosen to give a minimum signal-to-noise ratio of 2:1, corresponding to signal-to-noise ratios ranging from about 3:1 to 8:1 for peak displacement. When fixed traces were not available, low-frequency noise was identified directly from the PSRV spectra of the acceleration time series. In this latter case, the filter parameter was selected to correspond to the frequency at which the presence of noise became visible on the PSRV spectra. Low-frequency noise was removed with a bidirectional (zero phase), fourth-order Butterworth filter applied in the time domain.

The PK-130 recording system applies a lowcut filter to the acceleration time series as it is recorded. As a result, the low-frequency response of this system begins to roll off at a frequency of about 0.4 Hz (2.5 sec). However, since the response of the system at 0.2 Hz (5.0 sec)--the approximate upper limit of useable signal (Table 3)--is still 85 percent of the unfiltered response, a low-frequency correction was not found to be necessary.

The instrument-corrected acceleration time series were padded with zeros, integrated, and filtered to obtain velocity. The resulting velocity records were then integrated to obtain displacement. Finally, the padded acceleration time series were filtered and unpadded to obtain corrected acceleration, velocity, and displacement.

Phase III and IV. Fourier amplitude spectra (FAS) and response spectra in terms of relative displacement (RD), relative velocity (RV), pseudorelative velocity (PSRV), absolute acceleration (AA), and pseudoabsolute acceleration (PSAA) were computed from the corrected acceleration time series at 91 periods ranging from 0.04 to 15 sec. The response spectra were calculated for five values of critical damping: 0, 2, 5, 10, and 20 percent.

Processed Data. Plots of the processed time series, Fourier amplitude spectra, and response spectra are displayed in the *Appendix*. These plots include uncorrected acceleration time series; corrected acceleration, velocity, and displacement time series; Fourier amplitude spectra, and PSRV response spectra. The plots of response spectra include both a logarithmic tripartite plot of pseudorelative velocity and a linear plot of relative velocity. The Fourier spectra are plotted as a function of both logarithmic and linear functions of frequency. On the Fourier spectra plots, F_c identifies the lowcut filter limit, F_R identifies the highcut filter limit, F_T identifies the end of the highcut filter transition bandwidth, and A_0 identifies the amplitude of the zero-frequency asymptote.

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DATA AVAILABILITY

A magnetic tape of the processed data described in this report can be obtained from the National Geophysical Data Center in Boulder, Colorado. All requests should be forwarded to:

National Geophysical Data Center/NOAA
World Data Center-A for Solid Earth Geophysics
325 Broadway, Code E/GC1
Boulder, CO 80303

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TABLE 1

Station Locations and Site Conditions

Recording Station	Latitude (°S)	Longitude (°W)	Structure	Location	Site Geology*	Owner**
Cauquenes	36.00	72.22	2-story bldg.	Ground level	Quaternary alluvium	DDG
Colbún	35.72	71.43	Tunnel	Subgrade	Olig.-Mio. volcanics	ENDESA
Constitución	35.30	72.32	2-story bldg.	Ground level	Paleozoic intrusives	DDG
Hualañé	34.97	71.82	1-story bldg.	Ground level	Quaternary alluvium	DDG
Iloca	34.92	72.22	1-story bldg.	Ground level	Quaternary alluvium	DDG
Los Vilos	31.92	71.50	1-story bldg.	Ground level	Triassic sediments	DDG
Melipilla	33.68	71.22	1-story bldg.	Ground level	Quaternary alluvium	DDG
Pichilemu	34.38	72.02	1-story bldg.	Ground level	Paleozoic metamorphics	DDG
Quintay	33.20	71.68	Small shelter	Ground level	Paleozoic intrusives	ENDESA
Rapel	34.03	71.58	Tunnel	Subgrade	Paleozoic intrusives	ENDESA
San Fernando	34.60	71.00	1-story bldg.	Ground level	Quaternary alluvium	DDG
San Isidro	32.90	71.27	1-story bldg.	Ground level	Quaternary alluvium	ENDESA
Santiago	33.45	70.67	6-story bldg.	Basement	Quaternary alluvium	ENDESA

TABLE 1 (Continued)

Station Locations and Site Conditions

Recording Station	Latitude (°S)	Longitude (°W)	Structure	Location	Site Geology*	Owner**
Ventanas	32.75	71.49	6-story bldg.	Ground level	Quaternary alluvium	CHILECTRA
Zapallar	32.57	71.47	1-story bldg.	Ground level	Juarassic intrusives	DDG

*Servicio Nacional de Geología y Minería (1982)

**DDG:

Stations owned by the Department of Geology and Geophysics, University of Chile
 ENDESA: Stations owned by the Empresa Nacional de Electricidad
 CHILECTRA: Stations owned by CHILECTRA

TABLE 2
Instrument Characteristics

Recording Station	Instrument Type	Component	Sensitivity (mm/g)	Natural Frequency (Hz)	Damping (%)
Cauquenes	SMA-1	North-South	18.5	25.6	57.9
		Vertical	19.5	25.4	60.3
		East-West	18.0	25.7	60.0*
Colbún	SMA-1	Longitudinal	18.8	25.8	60.0*
		Vertical	17.8	25.8	60.0*
		Transverse	18.7	25.3	60.0*
Constitución	SMA-1	North-South	17.3	25.6	58.5
		Vertical	17.6	26.1	58.5
		East-West	16.9	27.0	61.5
Hualañé	SMA-1	North-South	17.7	25.9	63.8
		Vertical	17.7	25.6	63.8
		East-West	17.4	26.3	60.3
Iloca	SMA-1	North-South	17.5	25.7	60.6
		Vertical	18.2	26.3	63.3
		East-West	19.8	24.7	60.0
Los Vilos	SMA-1	North-South	18.4	25.4	58.5
		Vertical	18.9	25.6	61.5
		East-West	19.6	25.2	61.2
Melipilla	SMA-1	North-South	19.0	25.0	62.3
		Vertical	18.5	26.0	57.7
		East-West	21.2	25.0	59.4
Pichilemu	SMA-1	North-South	18.1	26.4	58.8
		Vertical	16.8	26.5	58.5
		East-West	19.1	25.5	58.2
Quintay	SMA-1	Longitudinal	17.2	26.2	60.0*
		Vertical	19.2	24.8	60.0*
		Transverse	19.8	25.1	60.0*
Rapel	RFT-250	North-South	37.4	17.8	60.0*
		Vertical	35.6	19.0	60.0*
		East-West	36.2	18.3	60.0*

TABLE 2 (Continued)
Instrument Characteristics

Recording Station	Instrument Type	Component	Sensitivity (mm/g)	Natural Frequency (Hz)	Damping (%)
San Fernando	SMA-1	North-South	18.4	25.9	67.4
		Vertical	16.9	27.7	60.8
		East-West	18.0	25.6	63.8
San Isidro	PK-130	Longitudinal	61.3-980.7**	--	--
		Vertical	61.3-980.7**	--	--
		Transverse	61.3-980.7**	--	--
Santiago	PK-130	Longitudinal	61.3-980.7**	--	--
		Vertical	61.3-980.7**	--	--
		Transverse	61.3-980.7**	--	--
Ventanas	SMA-1	North-South	17.8	25.0*	62.6
		Vertical	17.4	25.0*	60.4
		East-West	17.5	25.0*	59.3
Zapallar	SMA-1	North-South	19.6	25.2	60.3
		Vertical	18.3	25.8	64.0
		East-West	16.9	26.9	58.5

*Estimated

**Automatic gain ranging

TABLE 3

Summary of Ground Motion Data

Recording Station	Epicentral Distance (km)	Highcut Filter Limit (Hz)	Lowcut Filter Limit (sec)	Component	Peak Accel. (cm/sec ²)		Peak Vel. (cm/sec)	Peak Disp. (cm)
					Uncorr.	Corr.		
Cauquenes	319.1	15.0	2.7	North-South	81.9	84.3	6.05	0.710
		17.0	2.2	Vertical	43.3	41.2	2.74	0.384
		12.0	3.3	East-West	112.3	110.7	8.61	1.16
Colbún	289.2	22.0	3.0	Longitudinal	54.3	47.8	7.07	1.35
		28.0	2.8	Vertical	33.8	29.6	2.81	0.488
		21.0	4.3	Transverse	41.2	44.1	5.26	1.51
Constitución	243.4	9.0	4.0	North-South	132.7	127.9	17.8	2.63
		19.0	4.0	Vertical	40.6	38.9	4.12	0.565
		9.0	4.5	East-West	79.6	78.5	7.96	1.68
Hualañé	203.2	19.0	3.4	North-South	173.2	167.1	11.4	1.51
		28.0	2.8	Vertical	94.5	83.4	5.75	1.18
		21.0	4.0	East-West	136.5	133.5	11.0	2.39
Iloca	200.2	18.0	2.8	North-South	207.0	221.3	9.34	1.10
		35.0	3.0	Vertical	90.9	85.3	5.70	1.20
		18.0	3.0	East-West	275.7	272.9	15.1	1.37
Los Vilos	139.8	20.0	2.4	North-South	36.9	33.9	2.85	0.411
		22.0	2.8	Vertical	19.5	19.8	2.26	0.437
		20.0	2.9	East-West	25.8	24.5	2.83	0.487

TABLE 3 (Continued)

Summary of Ground Motion Data

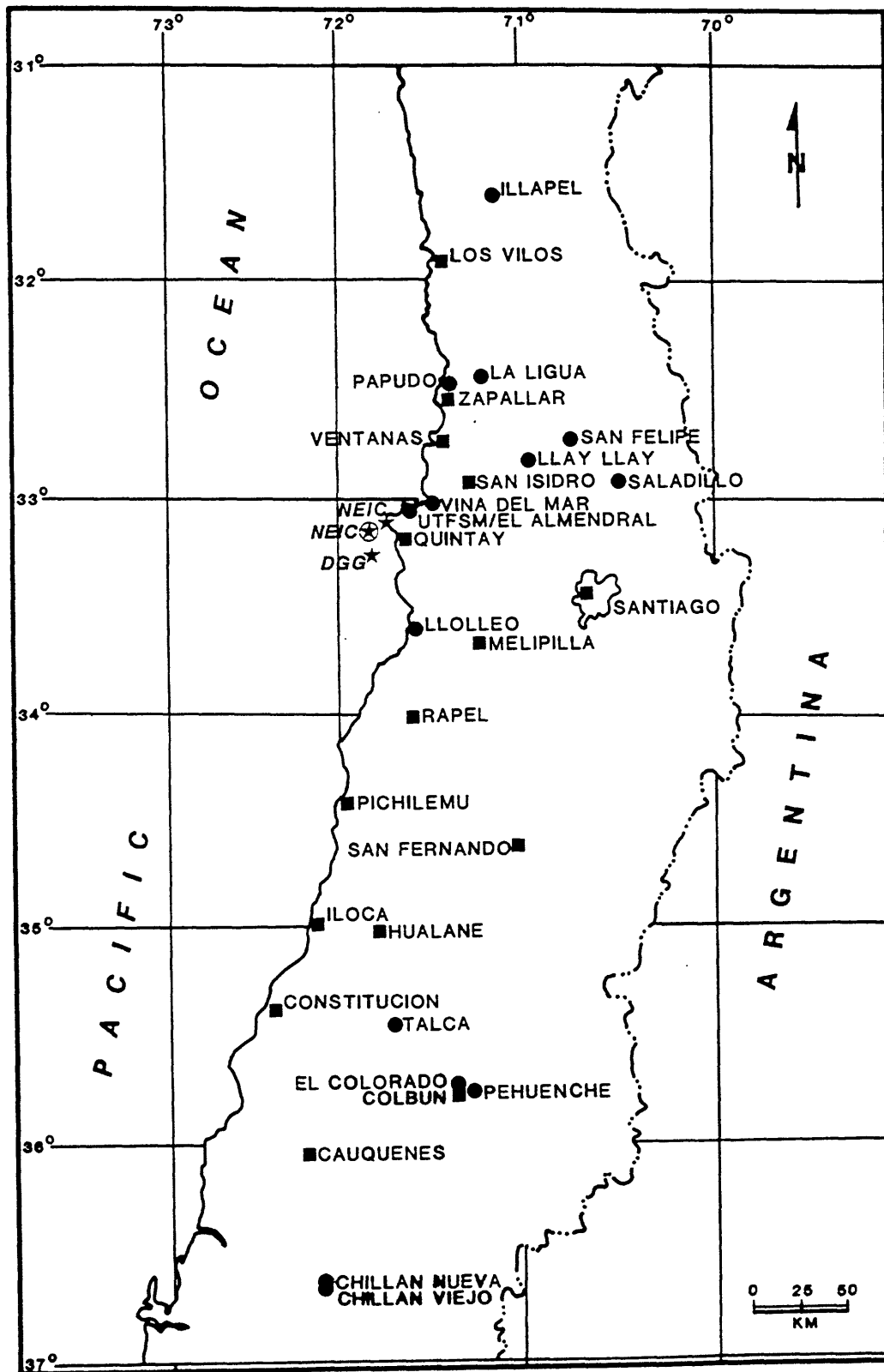
Recording Station	Epicentral Distance (km)	Highcut Filter Limit (Hz)	Lowcut Filter Limit (sec)	Component	Peak Accel. (cm/sec ²)		Peak Vel. (cm/sec)	Peak Disp. (cm)
					Uncorr.	Corr.		
Melipilla	85.2	22.0	7.5	North-South	641.6	673.0	34.2	12.0
		32.0	3.7	Vertical	274.3	249.9	11.8	2.81
		24.0	5.0	East-West	509.8	518.1	40.3	6.03
Pichilemu	138.4	23.0	6.0	North-South	259.7	254.1	11.7	3.74
		22.0	5.0	Vertical	122.1	119.3	5.84	1.86
		27.0	5.8	East-West	183.6	175.3	12.5	4.08
Quintay	18.9	30.0	4.0	Longitudinal	231.5	231.5	12.5	2.80
		32.0	3.5	Vertical	162.9	180.9	6.08	1.19
		30.0	4.6	Transverse	240.3	255.0	19.3	3.50
Rapel	102.4	17.0	6.5	North-South	226.2	219.2	10.4	3.14
		26.0	3.8	Vertical	63.3	61.3	4.29	0.890
		17.0	5.0	East-West	89.5	87.6	6.06	1.71
San Fernando	181.0	23.0	4.0	North-South	275.1	285.1	24.5	4.23
		37.0	3.0	Vertical	121.2	119.1	9.03	2.02
		22.0	5.1	East-West	329.8	332.8	23.9	5.51
San Isidro	58.2	25.0	5.0	Longitudinal	711.6*	706.8	43.2	6.91
		25.0	2.6	Vertical	416.1	393.3	19.8	1.69
		25.0	5.5	Transverse	686.3	696.0	43.4	5.54

TABLE 3 (Continued)
Summary of Ground Motion Data

Recording Station	Epicentral Distance (km)	Highcut Filter Limit (Hz)	Lowcut Filter Limit (sec)	Component	Peak Accel. (cm/sec ²)		Peak Vel. (cm/sec)	Peak Disp. (cm)
					Uncorr.	Corr.		
Santiago	117.1	30.0	3.0	Longitudinal	121.6	124.0	11.7	1.21
		30.0	3.2	Vertical	96.3	94.6	4.77	0.91
		30.0	4.5	Transverse	118.9	119.6	14.1	3.40
Ventanas	56.0	18.0	5.0	Longitudinal	206.5	208.9	23.3	3.88
		30.0	3.3	Vertical	176.0	173.4	7.10	1.20
		19.0	4.5	Transverse	228.0	223.0	24.6	4.60
Zapallar	73.5	20.0	1.8	North-South	285.3	265.1	11.2	1.14
		20.0	1.5	Vertical	210.1	191.0	5.20	0.479
		20.0	2.4	East-West	296.6	298.5	13.5	1.69

*Original trace was off scale and was reconstructed to estimate the peak value

Figure 1 (*Overleaf*). Map of Central Chile showing the locations of accelerographs that recorded the March 3, 1985 earthquake (circles and squares). The squares represent accelerograms processed in this report. The star and circle mark the NEIC location of the M_s 7.8 mainshock. The two stars mark the NEIC and the Seismological Service, Department of Geology and Geophysics, University of Chile (DGG) locations of the m_b 5.5 foreshock.



APPENDIX

Processed Strong-Motion Data

SUMMARY OF STRONG-MOTION RECORD PROCESSING

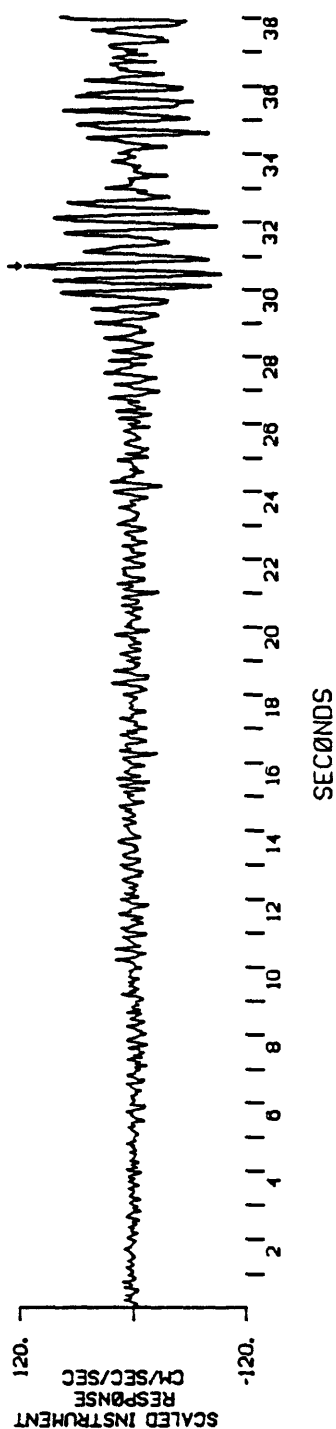
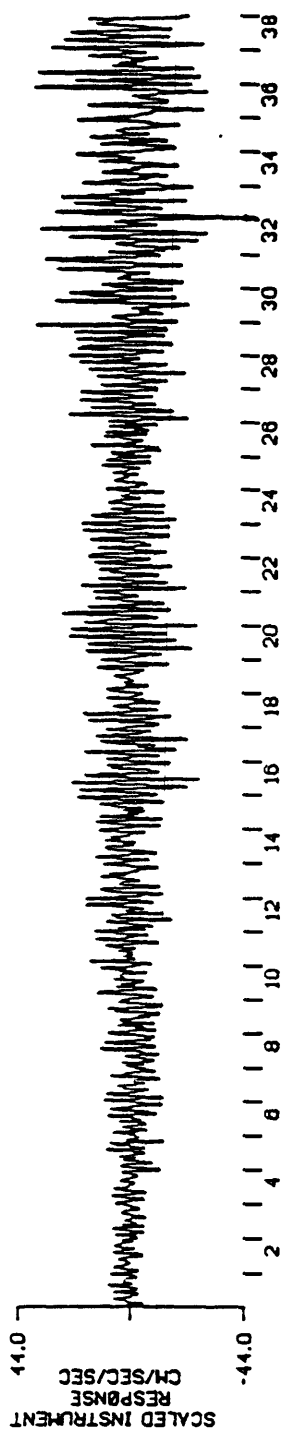
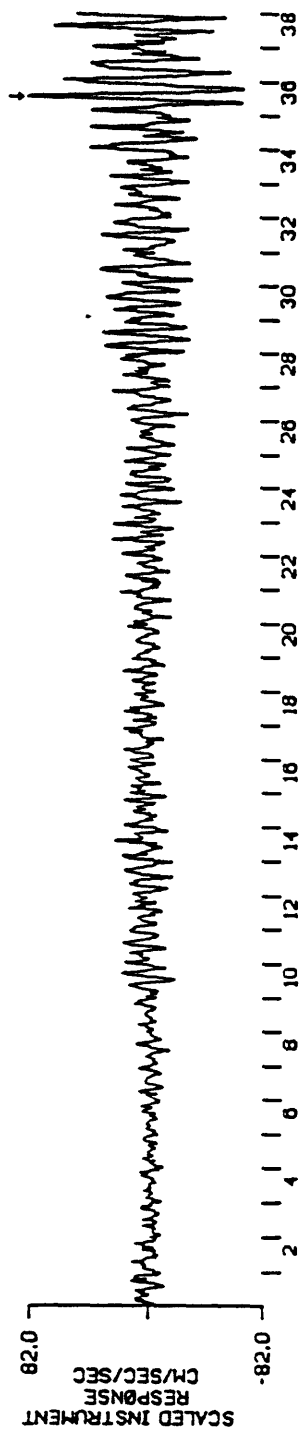
Central Chile earthquake, 3/3/85
22:47:07 UTC, $M_s=7.8$

Cauquenes, Chile

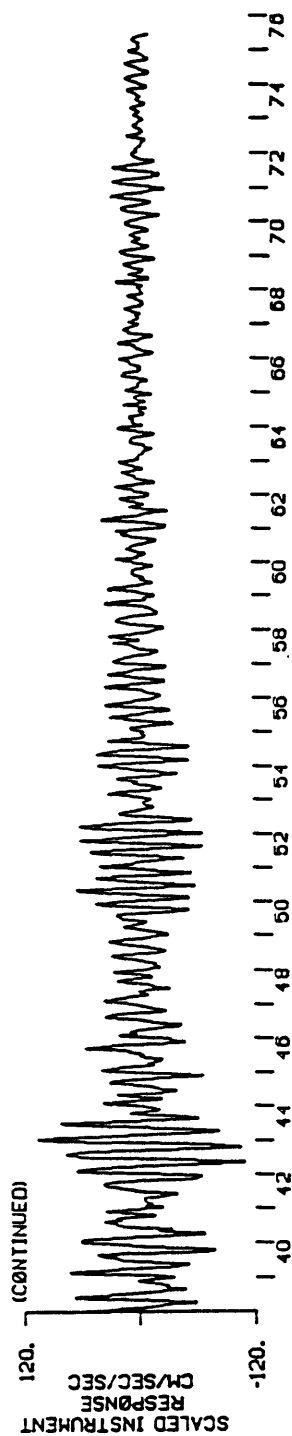
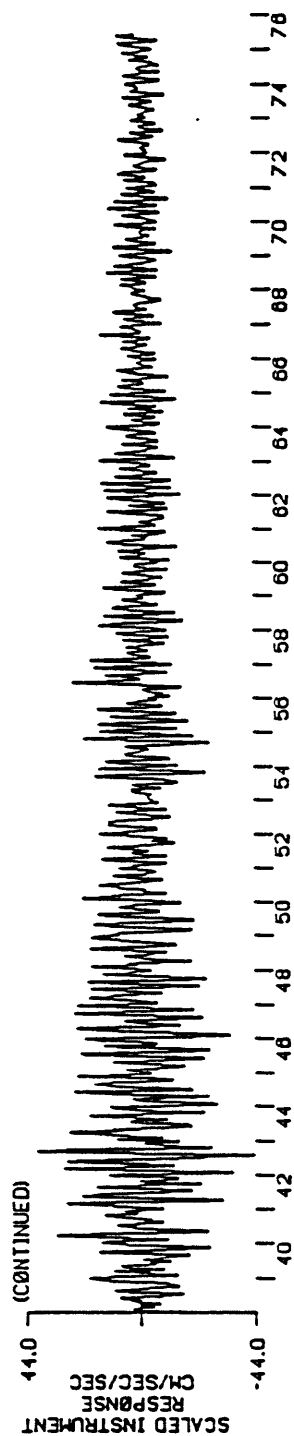
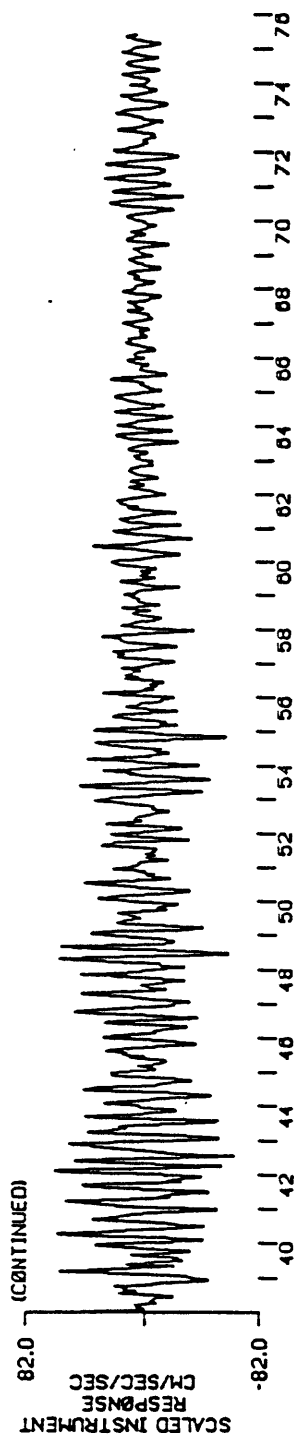
DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.6	25.4	25.7
Damping (% Critical)	57.9	60.3	60.0*
<u>Filter Parameters:</u>			
Highcut (Hz)	15.0	17.0	12.0
Lowcut (Hz)	0.370	0.455	0.300
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	81.9	-43.3	112.3
Peak Acceleration, A (cm/s/s)	84.3	-41.2	110.7
Peak Velocity, V (cm/s)	6.05	-2.74	-8.61
Peak Displacement, D (cm)	-0.710	0.384	-1.16
<u>Parameter Ratios:</u>			
$ V/A $ (sec)	0.072	0.067	0.078
$ AD/V^2 $	1.6	2.1	1.7

* Nominal Value

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 81.85 -43.33 112.33



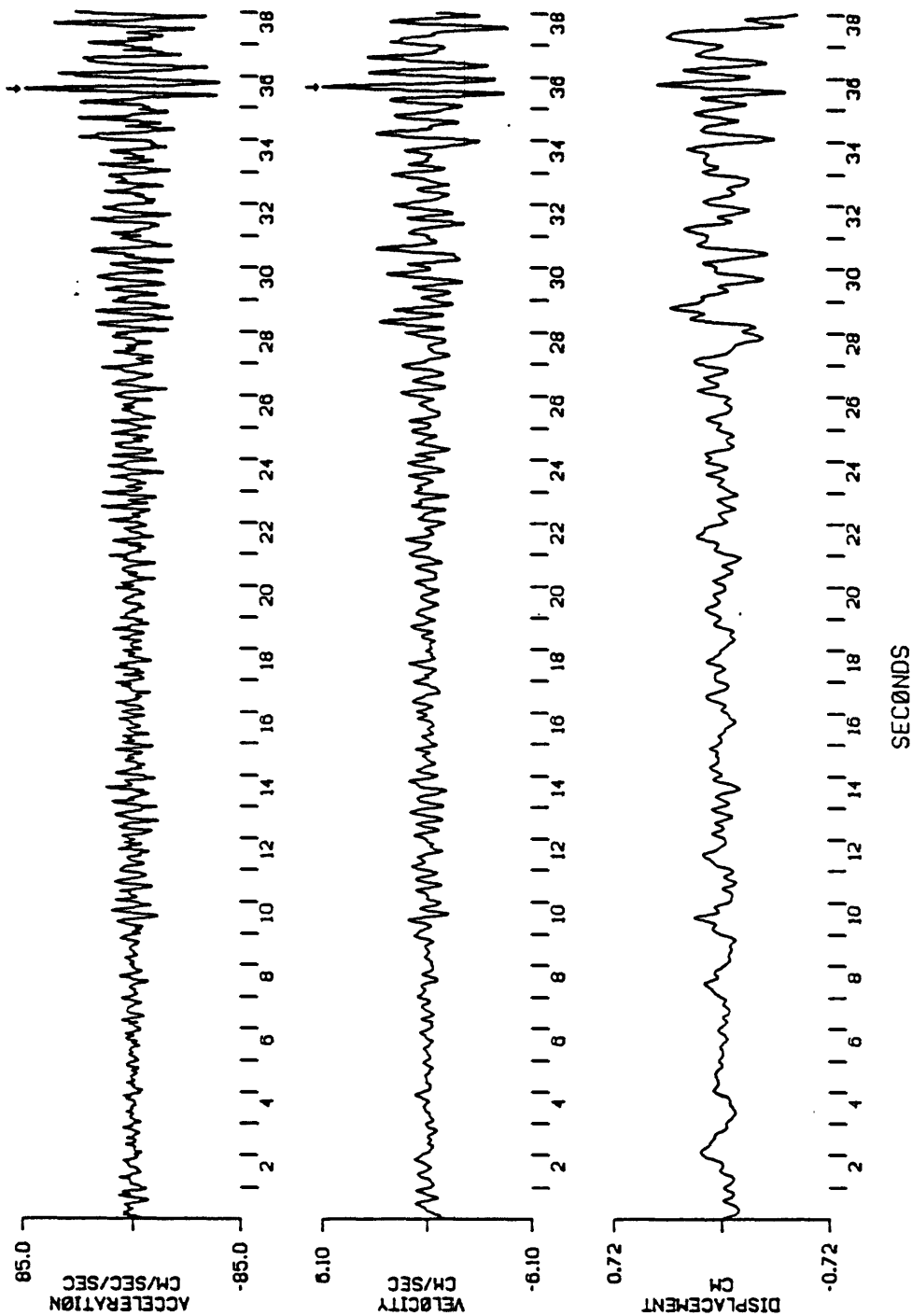
UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES (CM/SEC/SEC): 81.85 -43.33 112.33



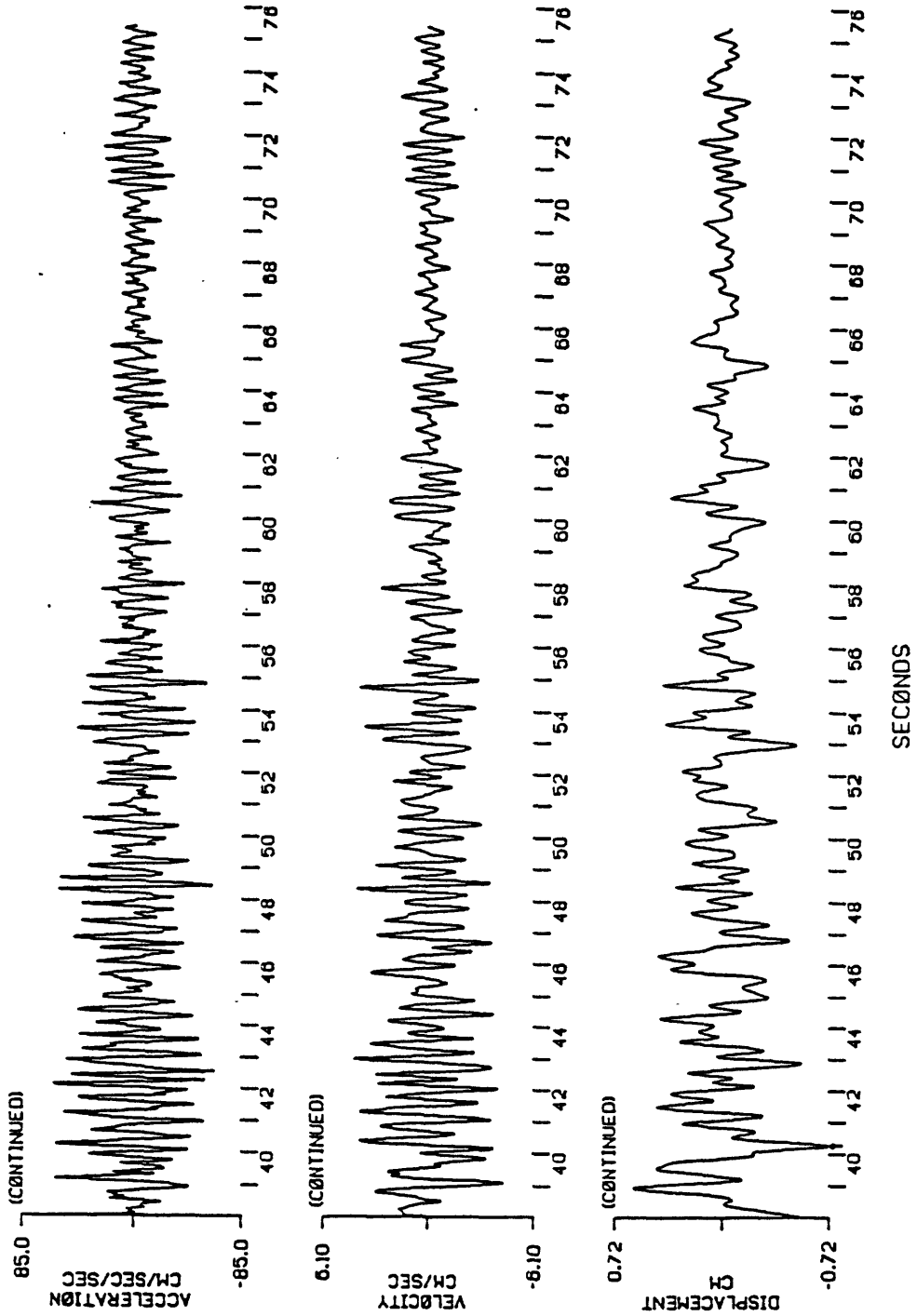
SECONDS

CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH

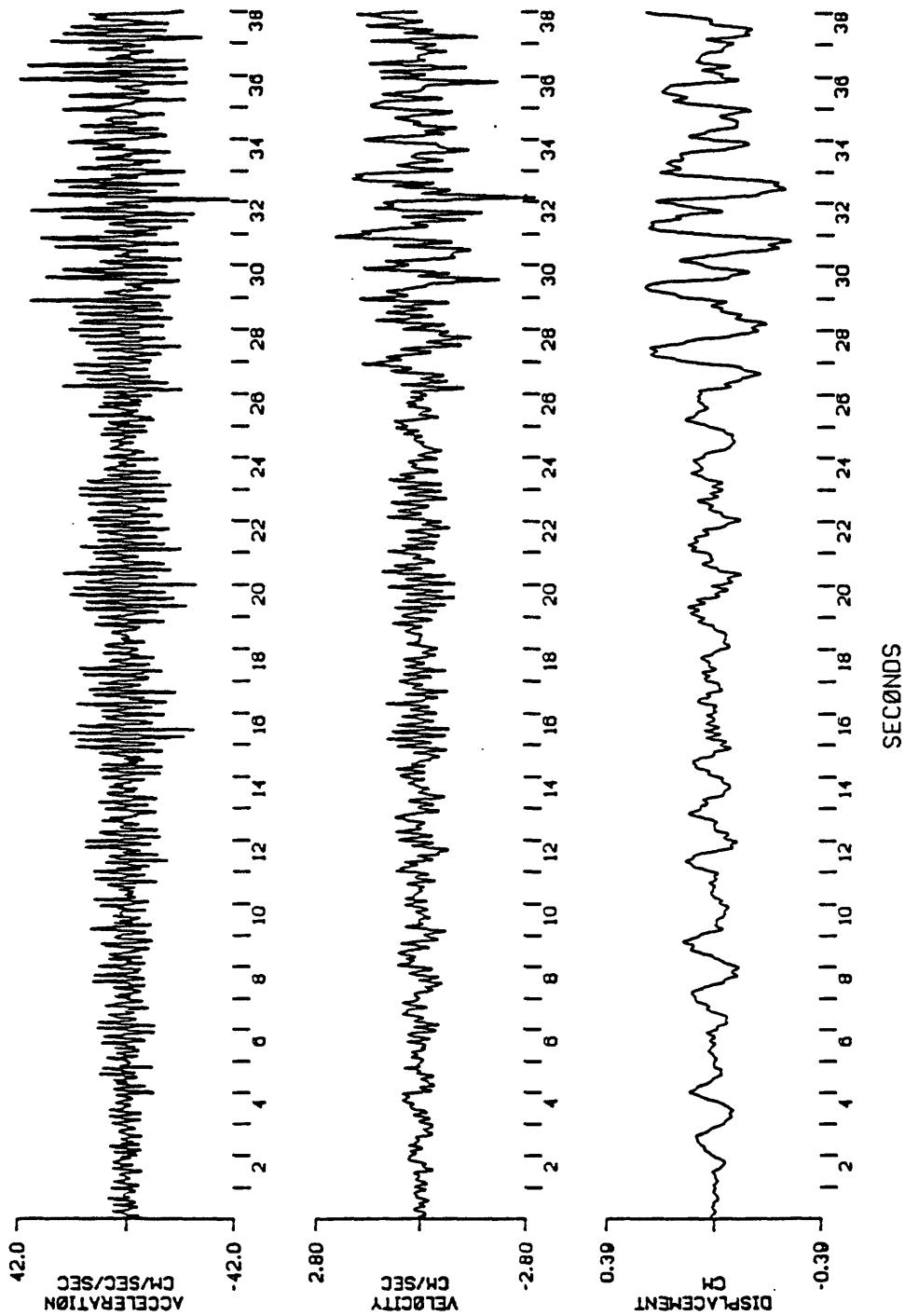
PEAK VALUES: ACCEL=84.25 CM/SEC/SEC, VELOCITY=6.05 CM/SEC, DISPL=-0.71 CM



CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL-84.25 CM/SEC/SEC, VELOCITY-6.05 CM/SEC, DISPL--0.71 CM

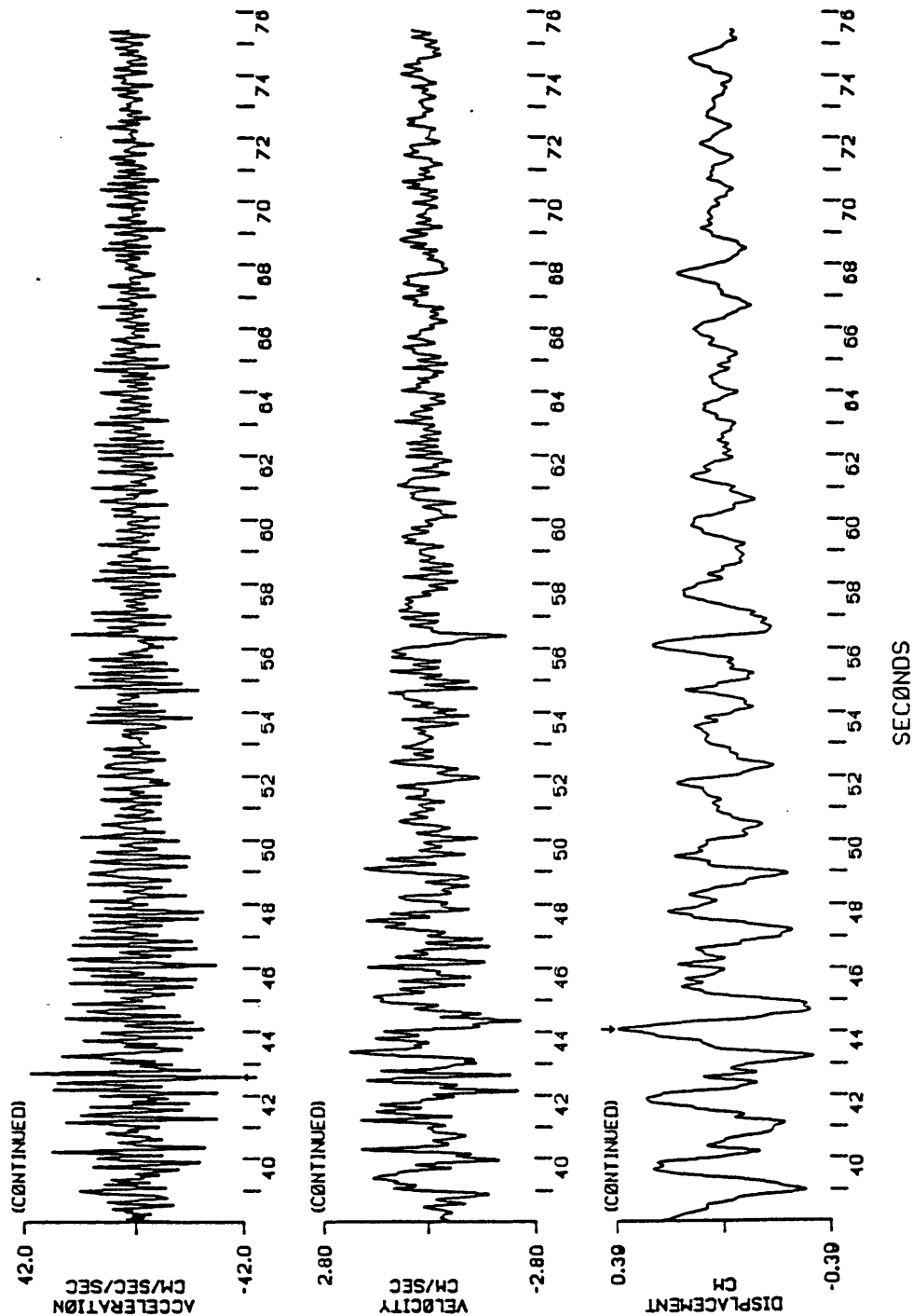


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, VERTICAL
 PEAK VALUES: ACCEL--41.16 CM/SEC/SEC, VELOCITY--2.74 CM/SEC, DISPL--0.38 CM



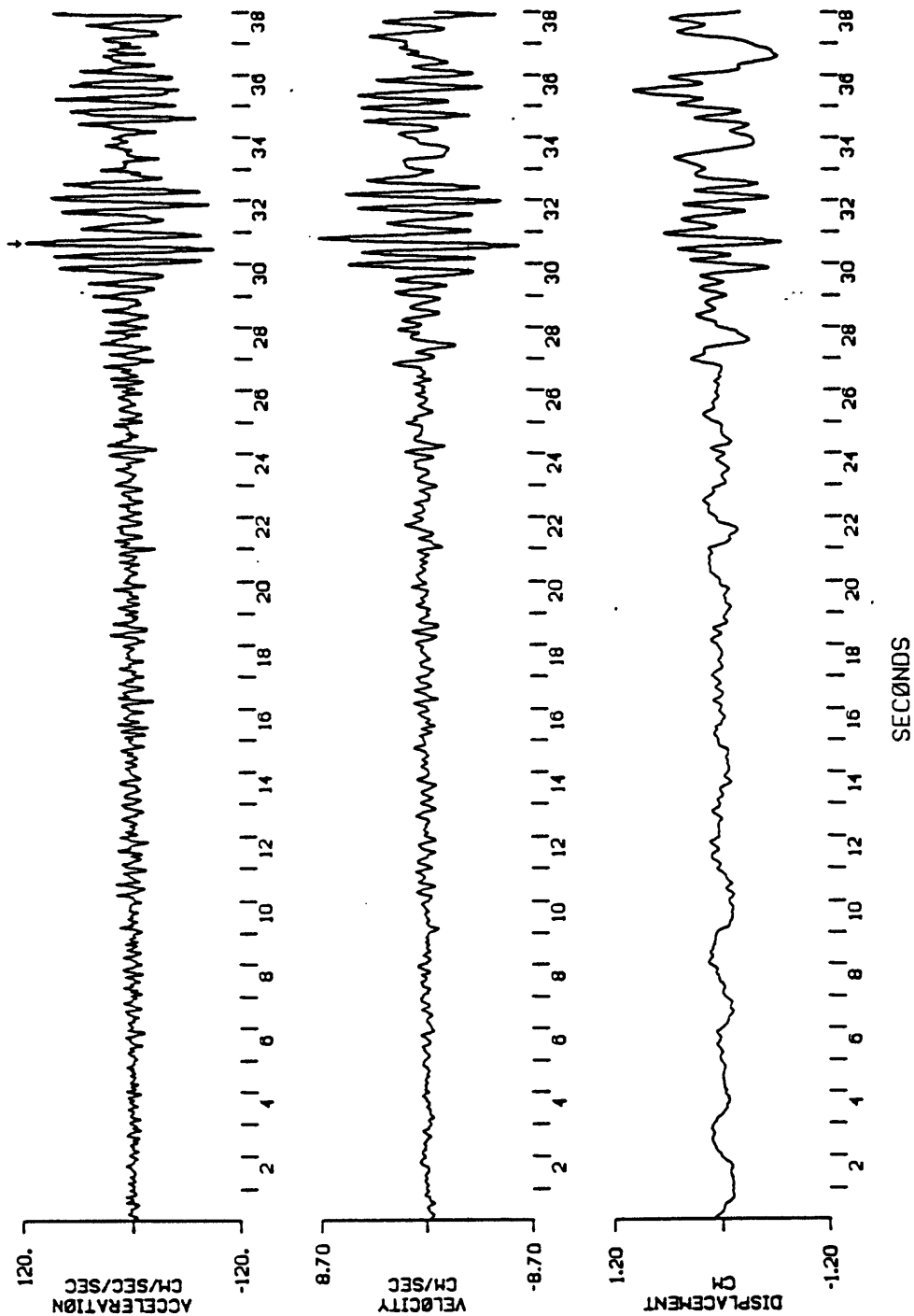
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
CAUQUENES, CHILE, VERTICAL

PEAK VALUES: ACCEL--41.16 CM/SEC/SEC, VELOCITY--2.74 CM/SEC, DISPL--0.38 CM



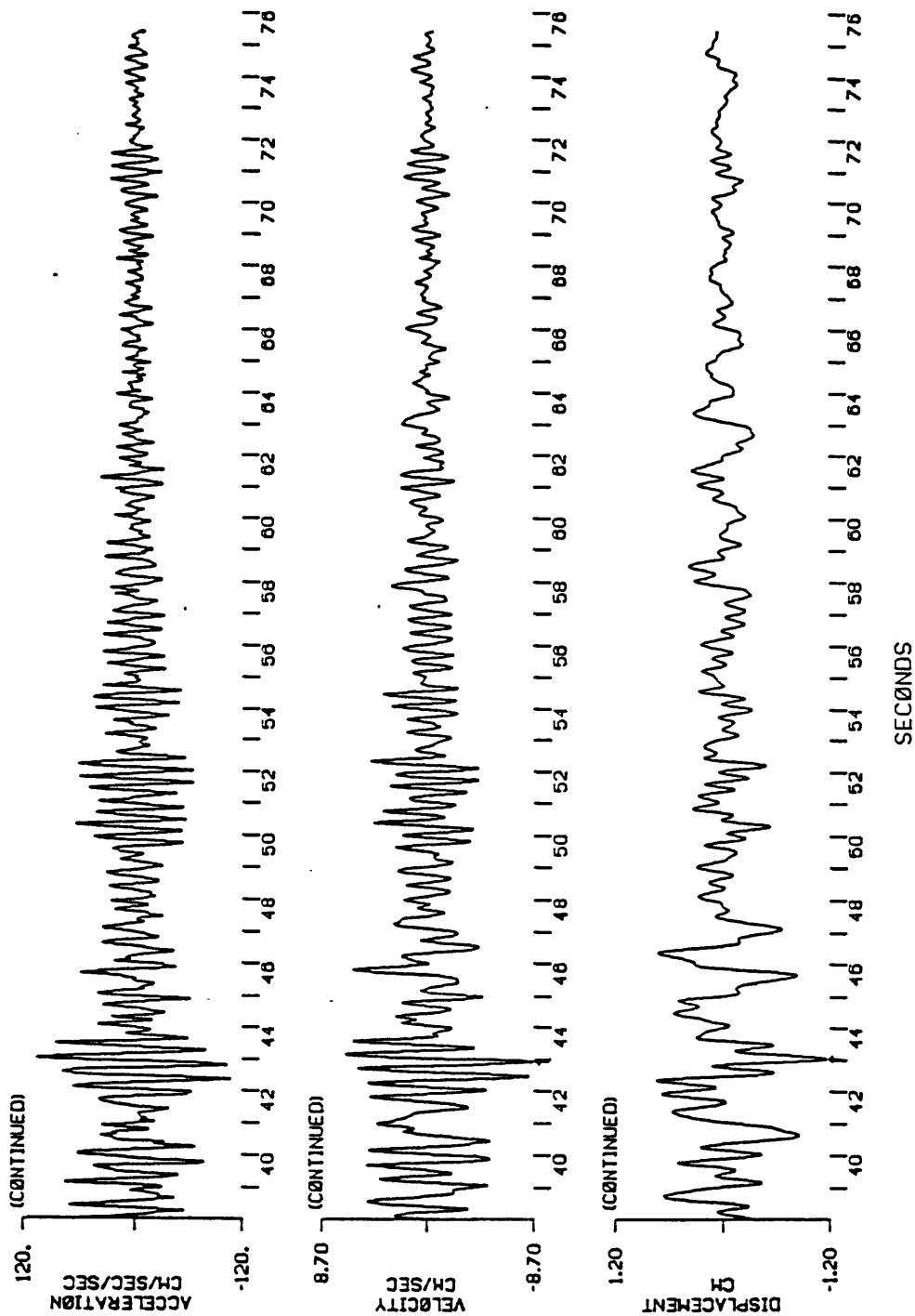
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, EAST-WEST

PEAK VALUES: ACCEL -110.74 CM/SEC/SEC, VELOCITY -8.61 CM/SEC, DISPL -1.16 CM

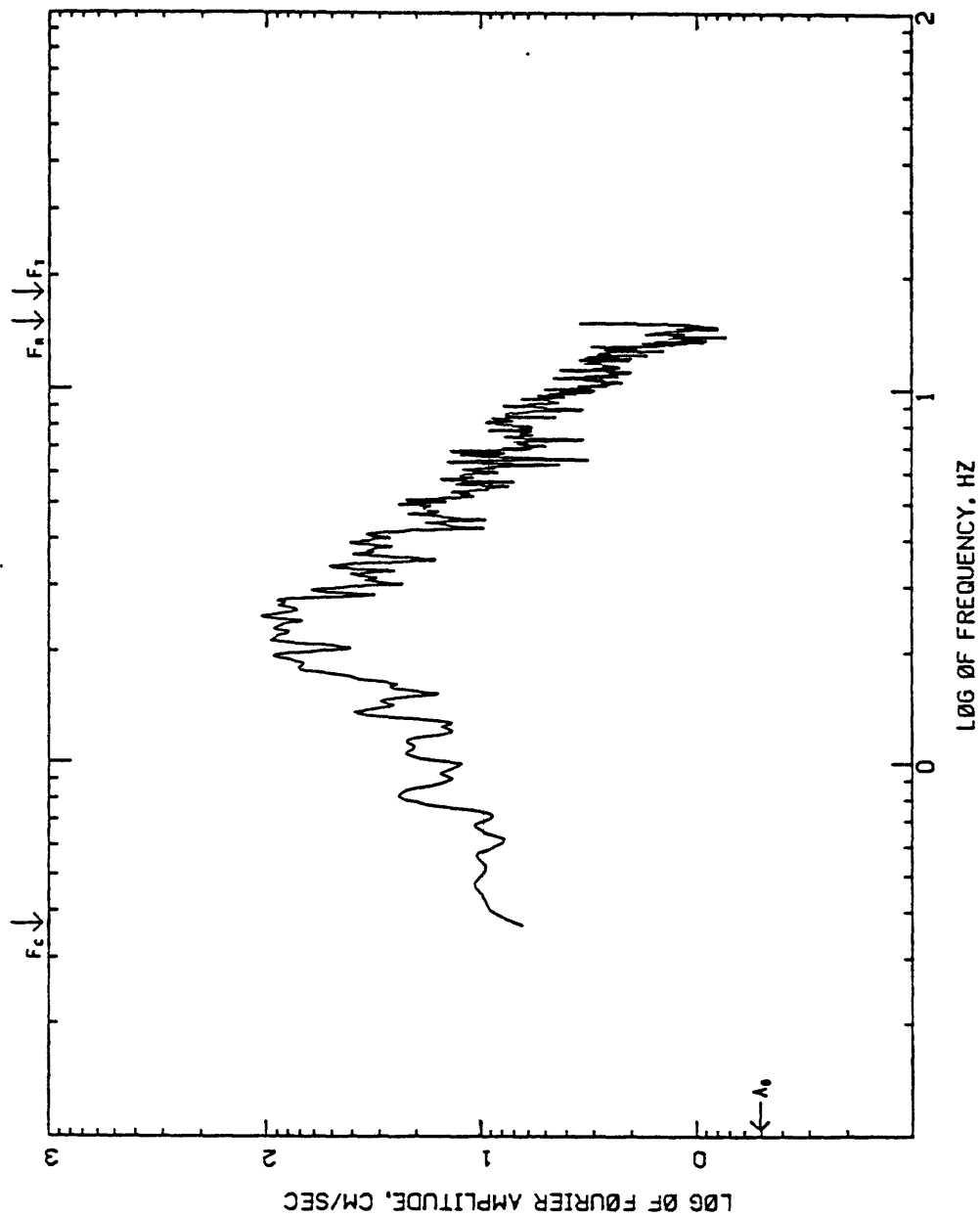


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUIENES, CHILE EAST-WEST

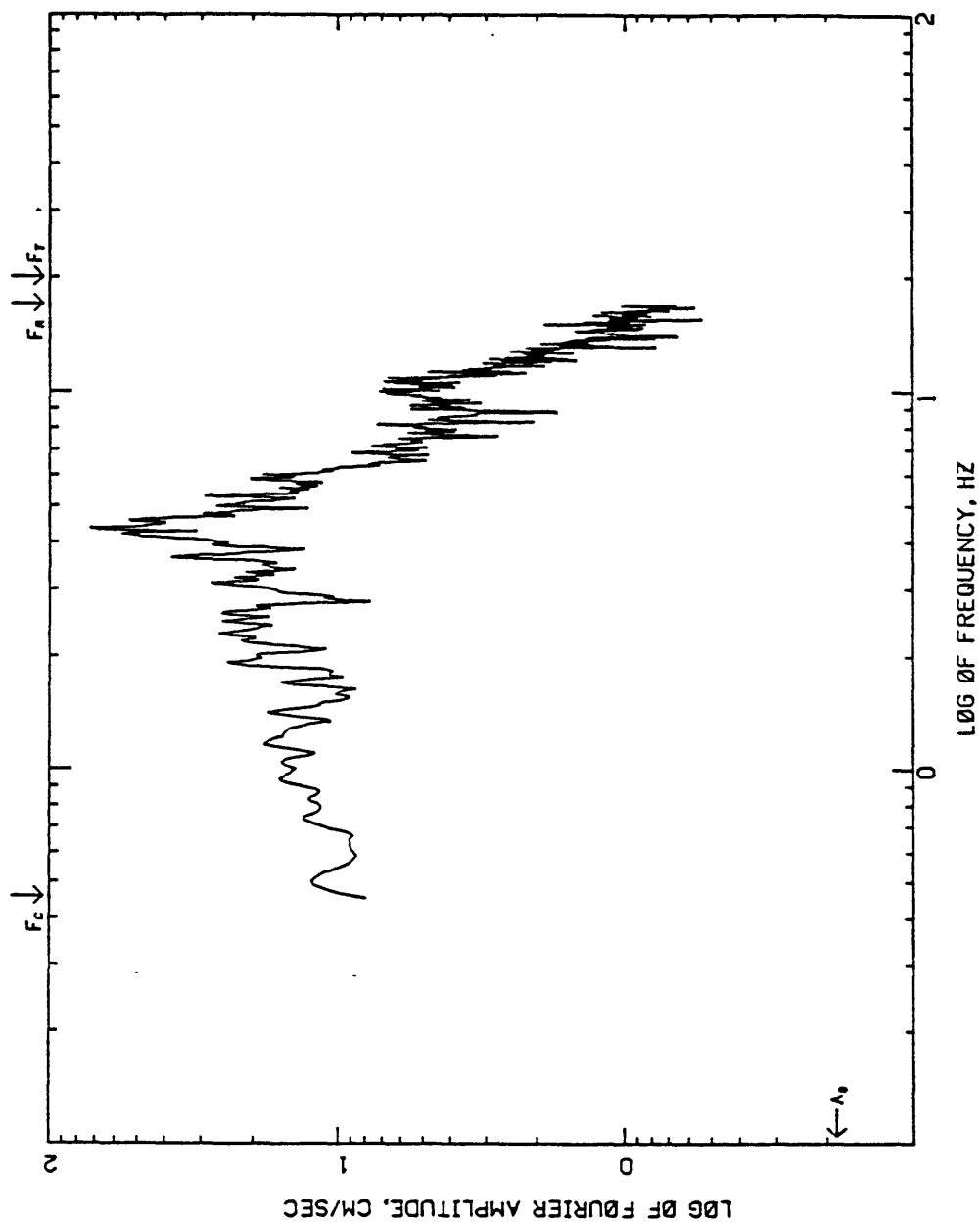
PEAK VALUES: ACCEL-110.74 CM/SEC/SEC, VELOCITY-8.61 CM/SEC, DISPL-1.16 CM



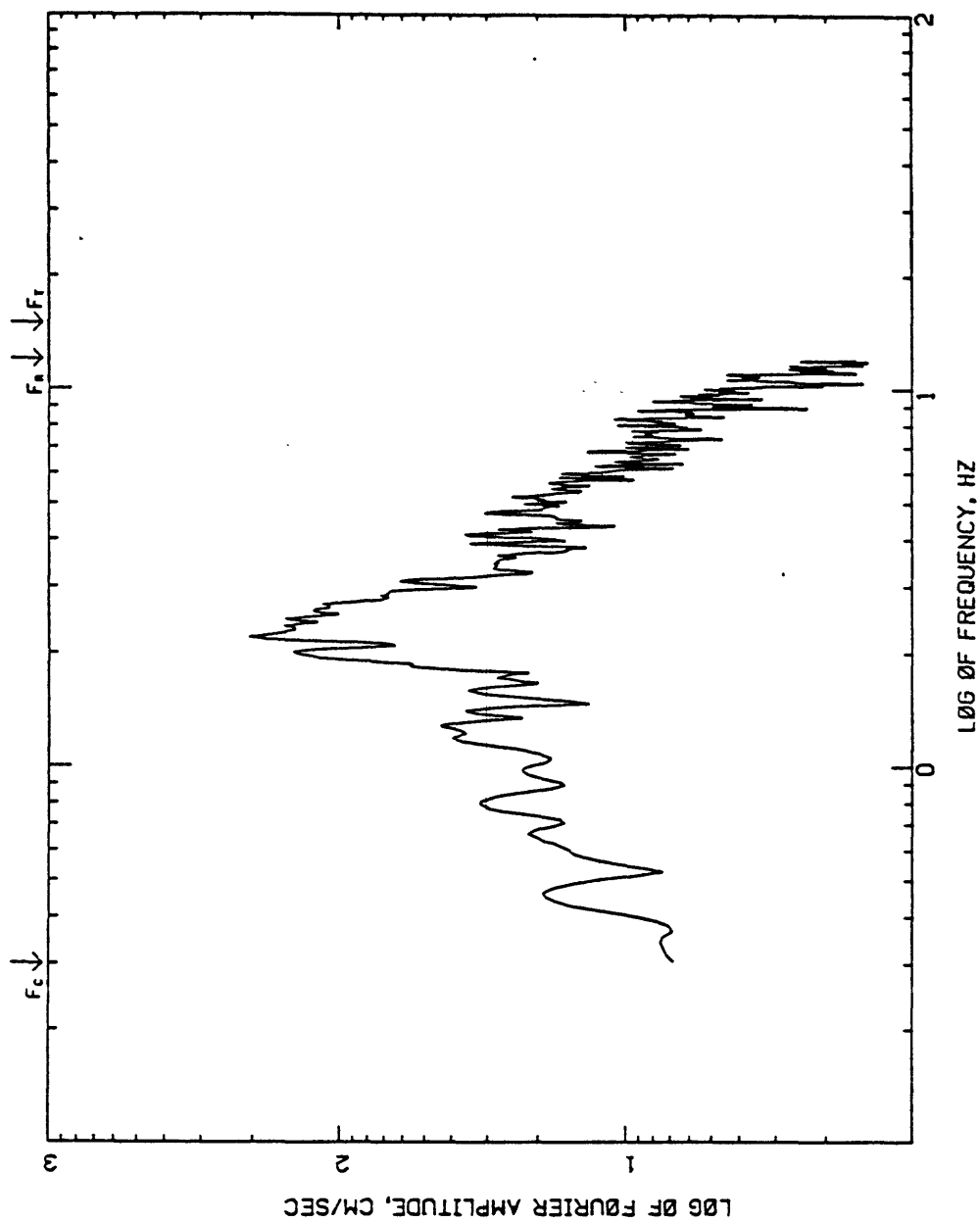
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS= ZCR055, SM00TH101, N0N0ISE



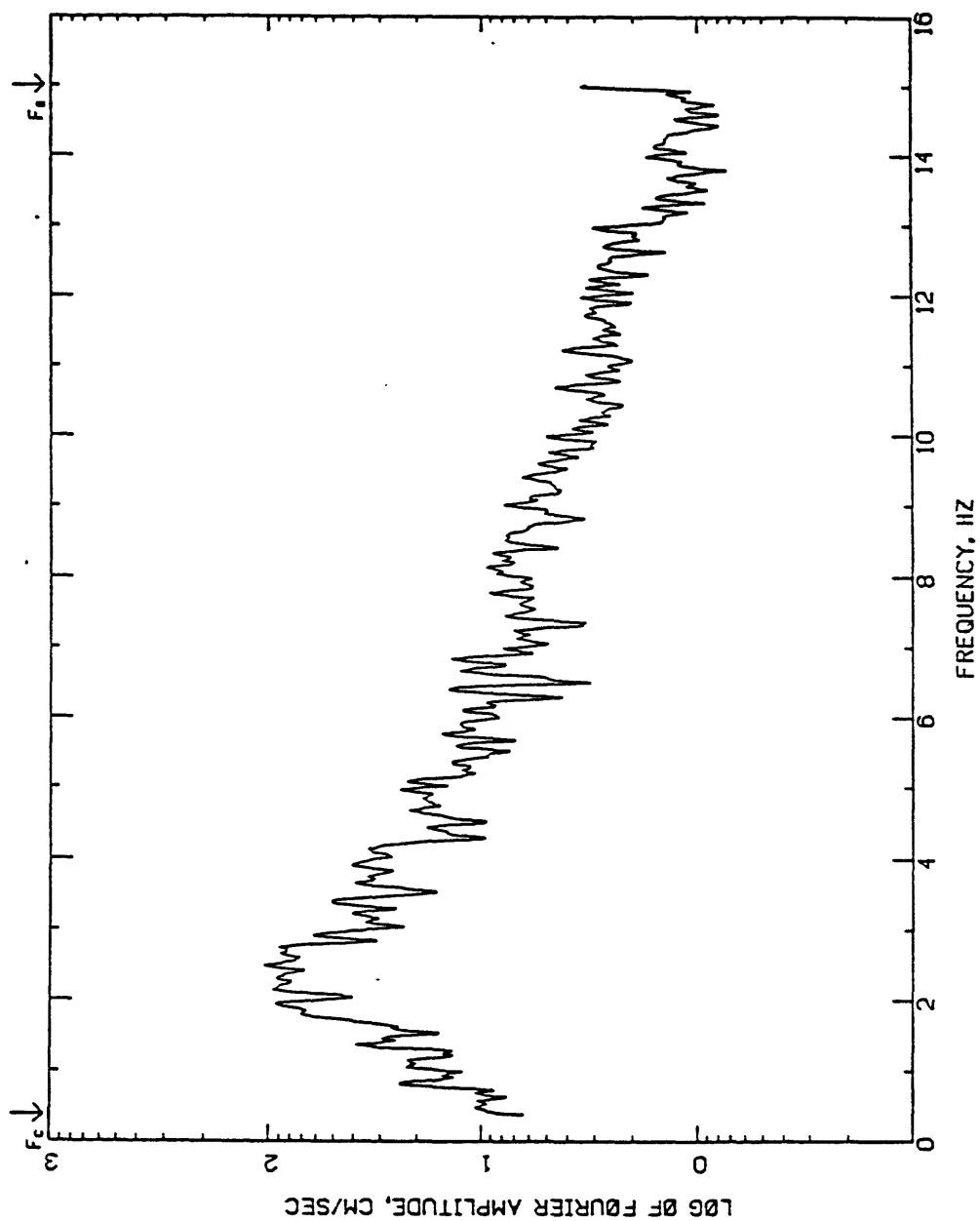
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR0SS, SM00TH10, N0N0ISE



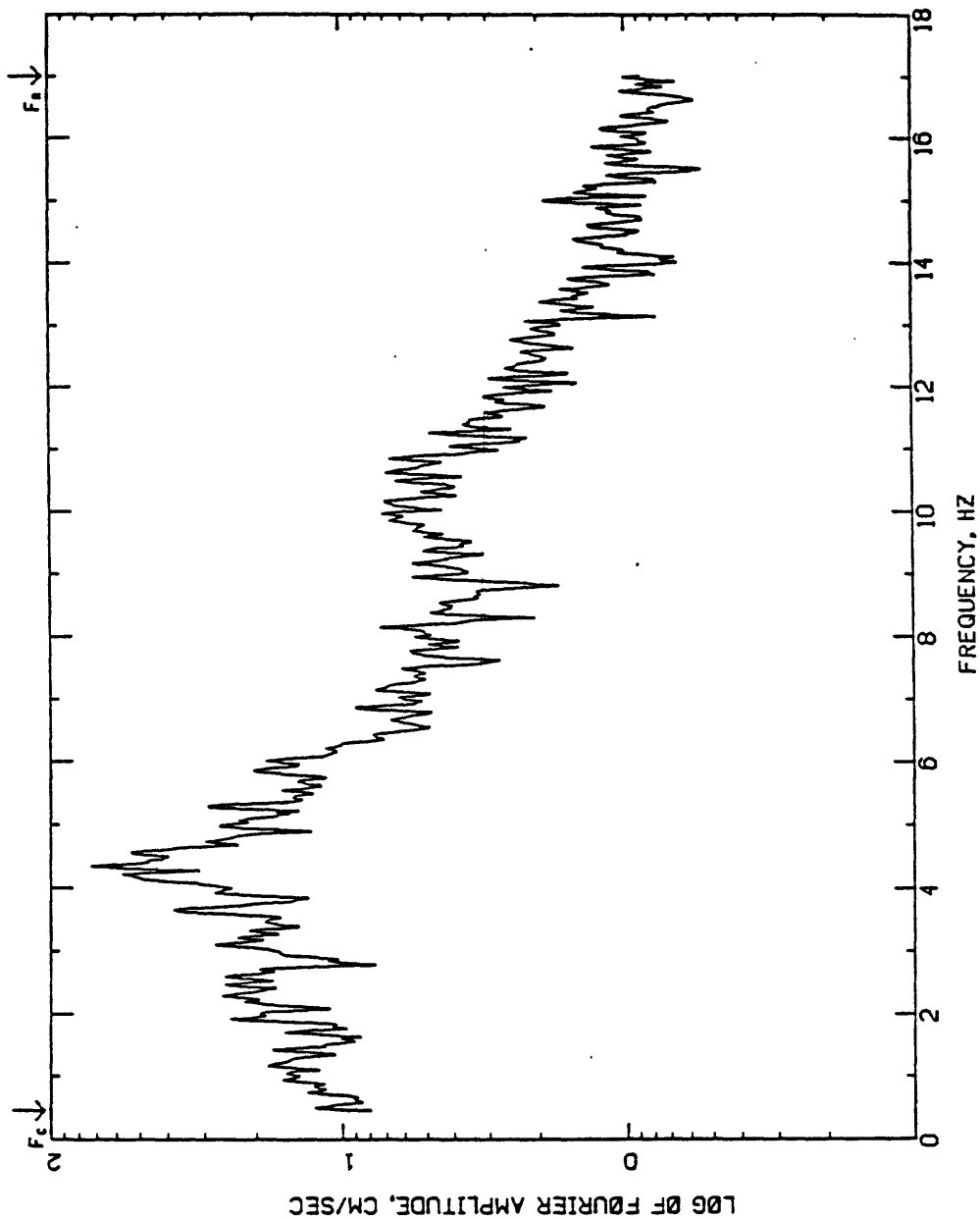
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR0SS, SMOOTH101, N0N0ISE



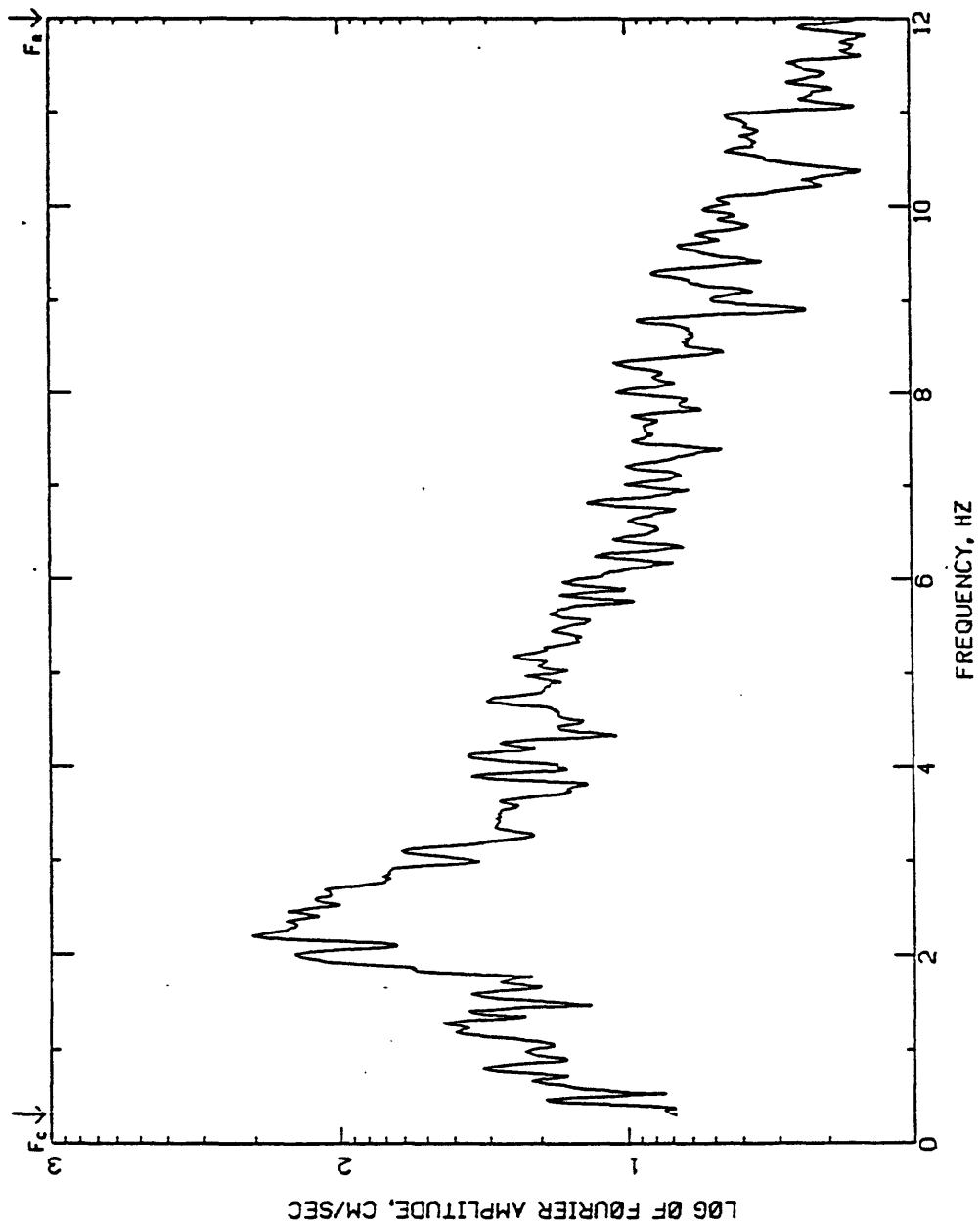
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCR0SS,SM00TH01,N0N0ISE



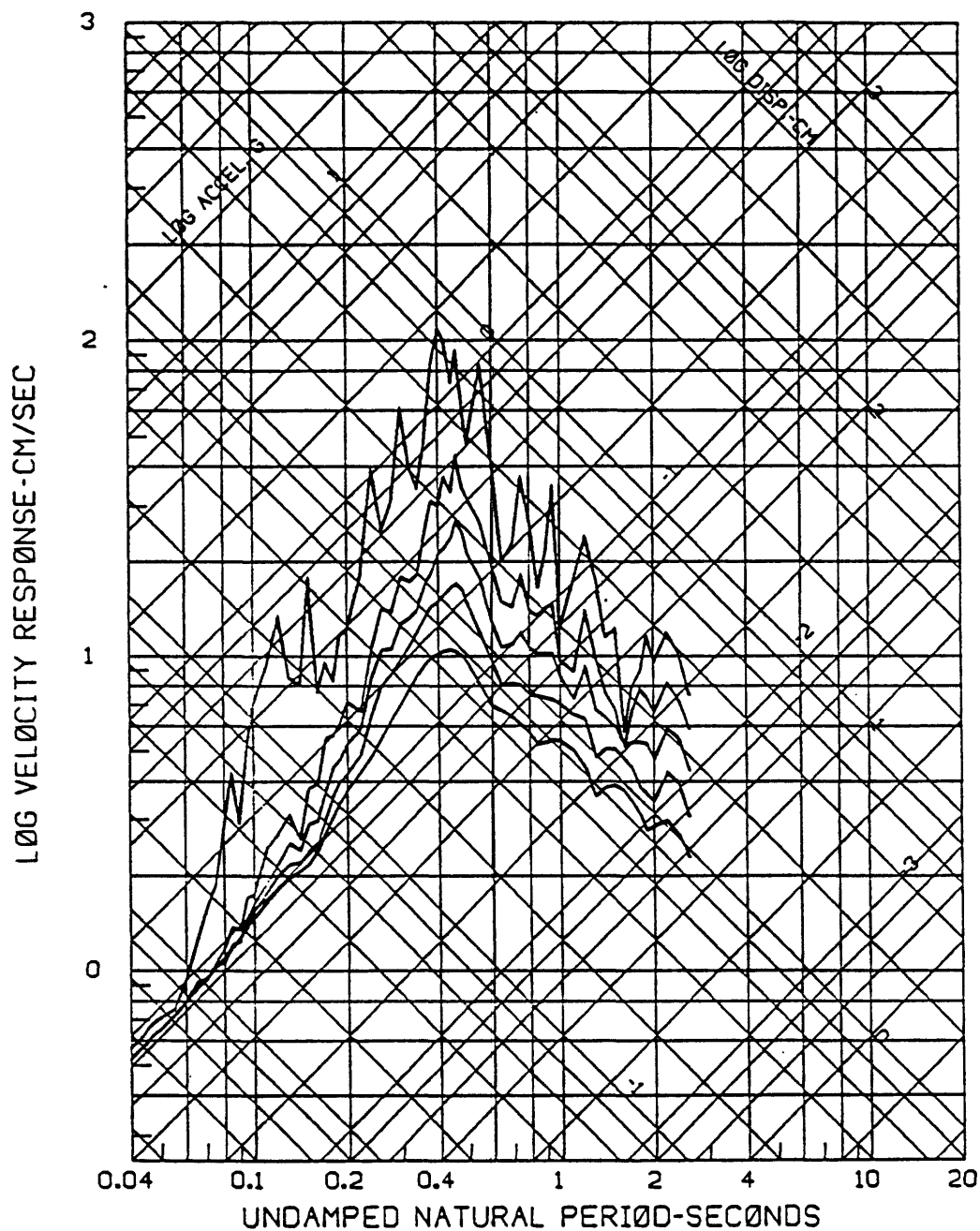
FØURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR0SS,SH00TH101,N0N0ISE



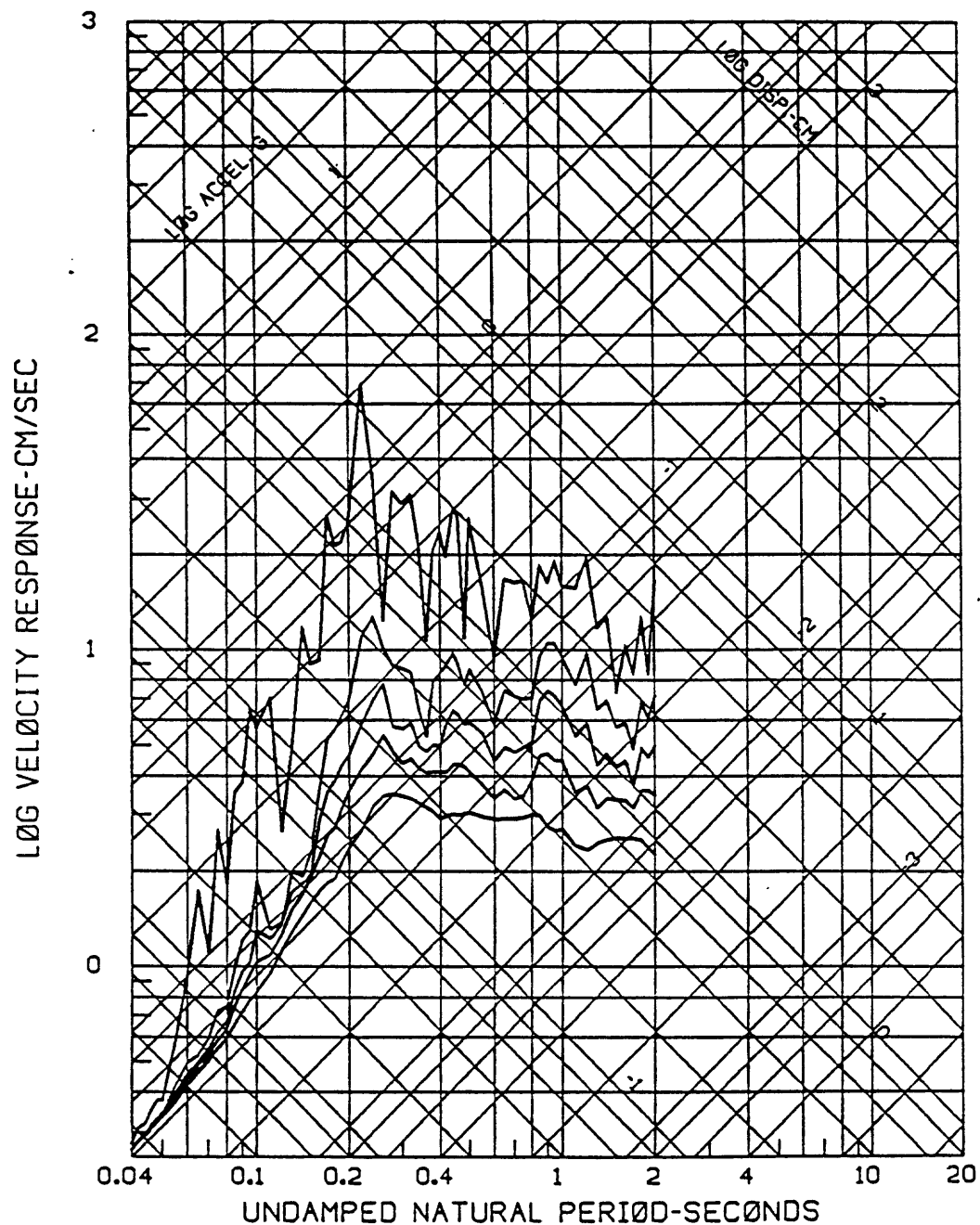
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR055, SM00TH100, N000ISE



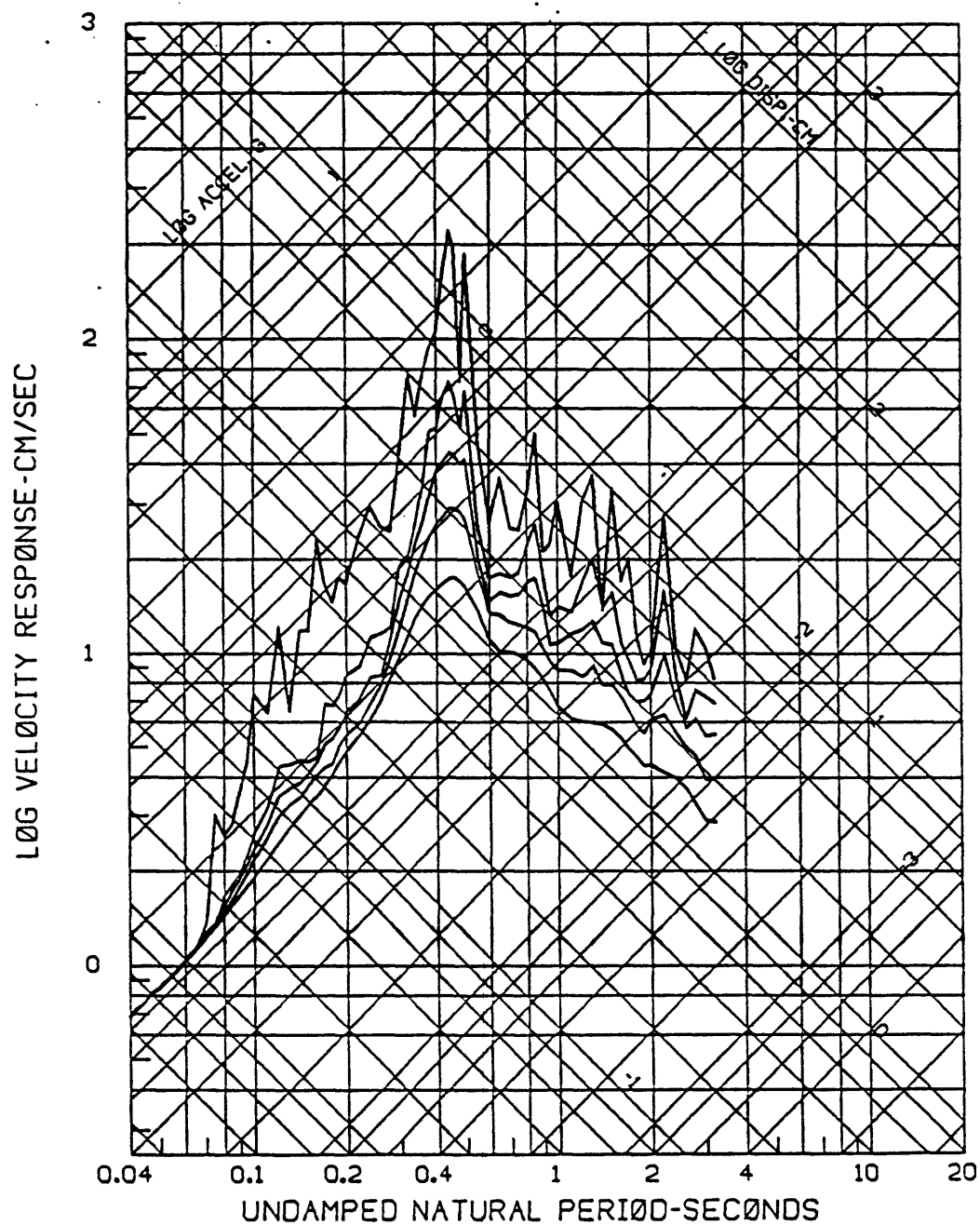
PSEUDØ RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



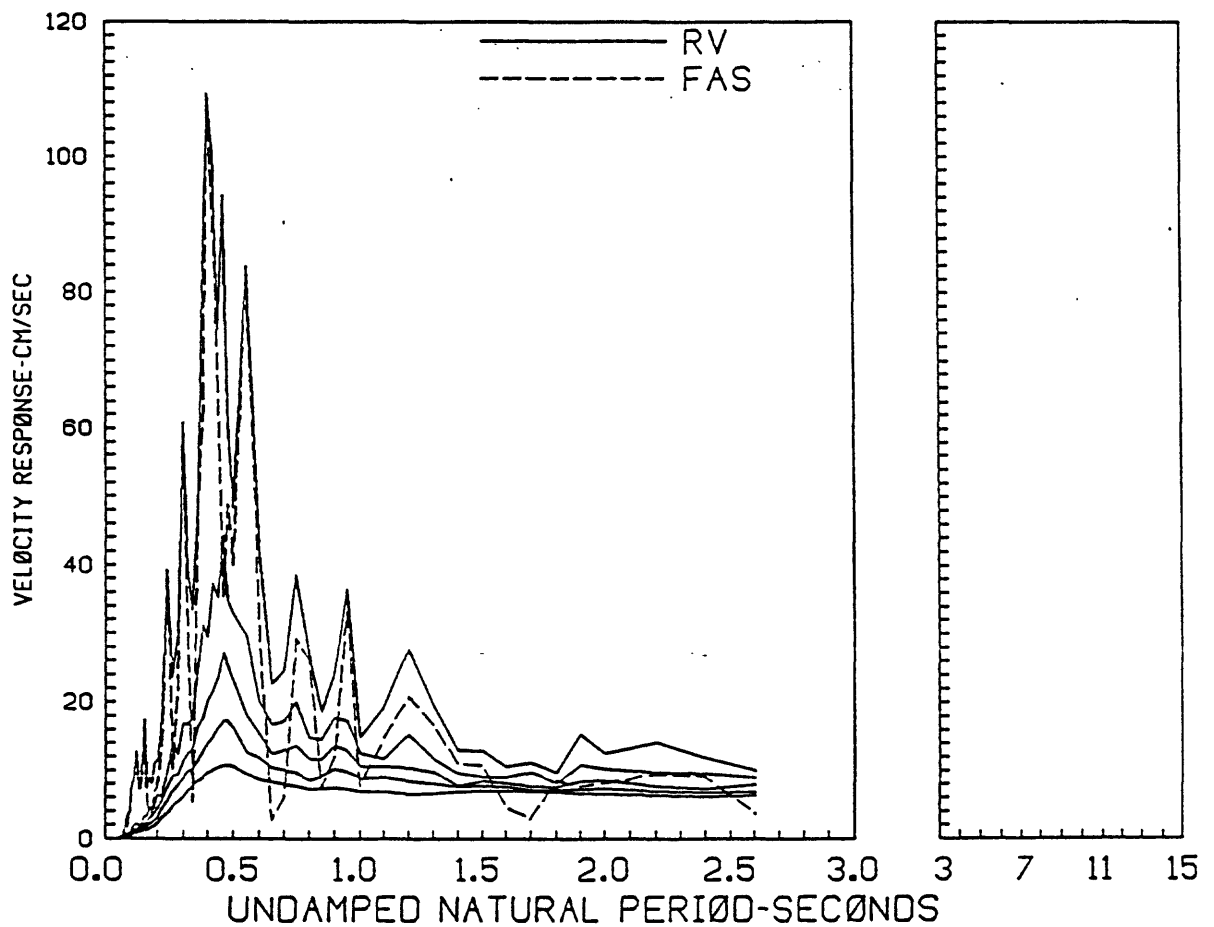
PSEUDØ RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



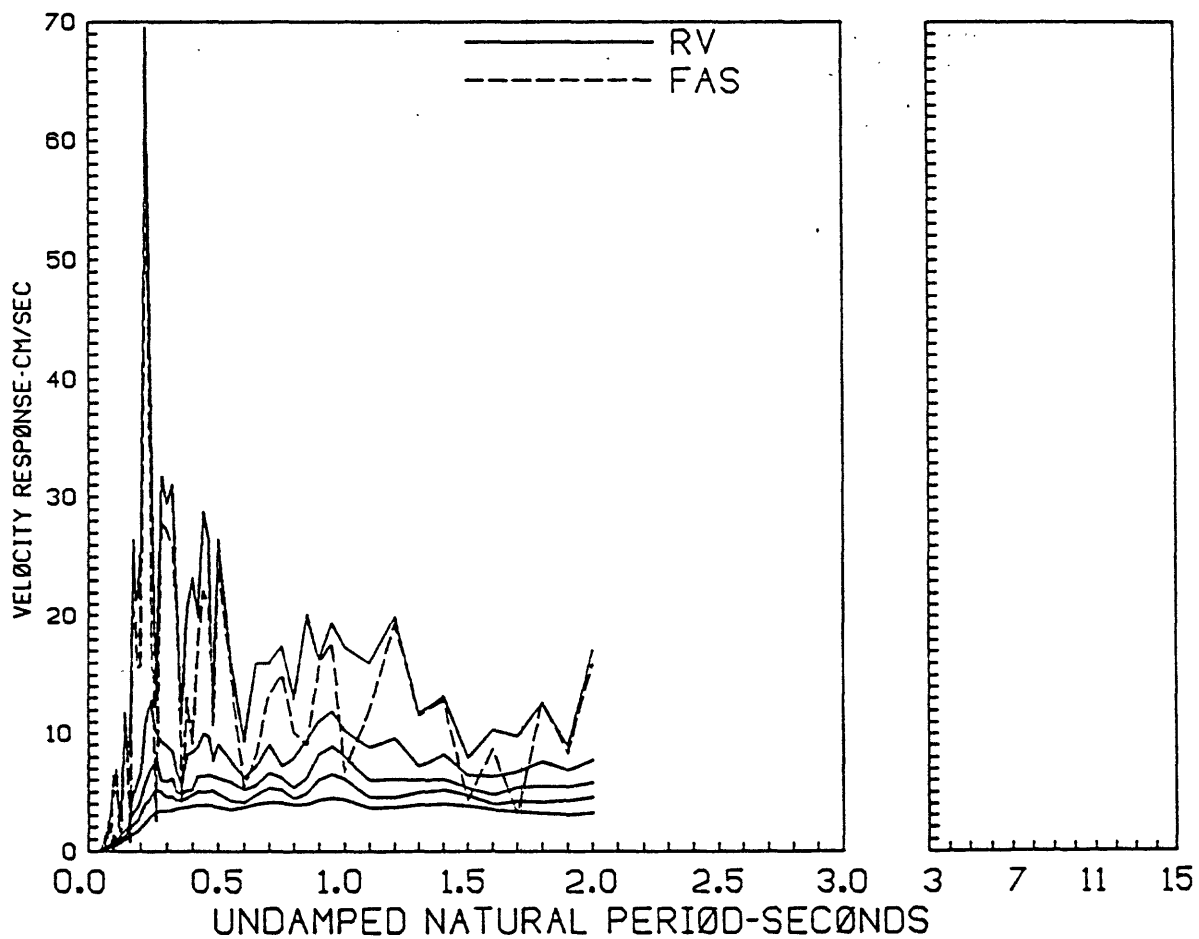
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, EAST-WEST
 0.2,5,10,20 PERCENT CRITICAL DAMPING



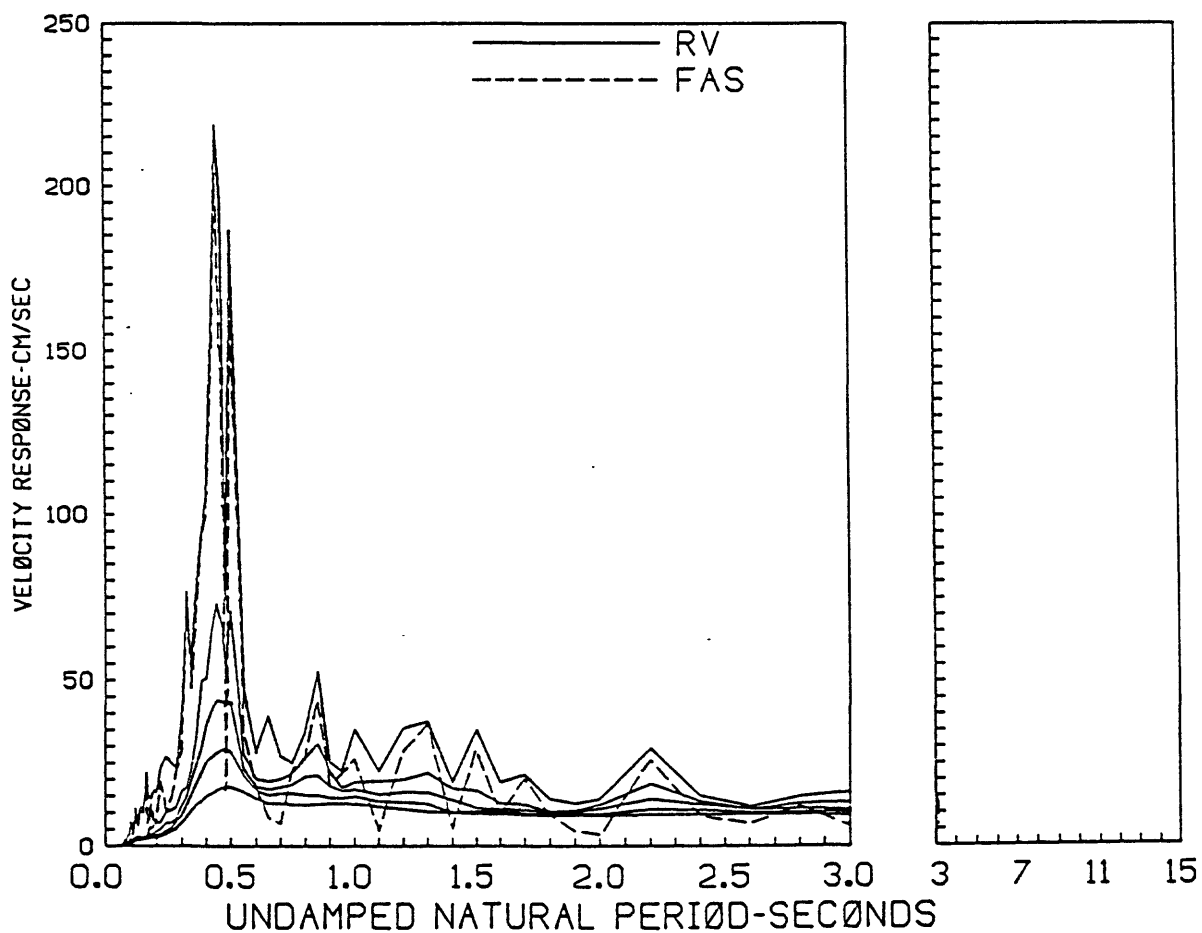
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CAUQUENES, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

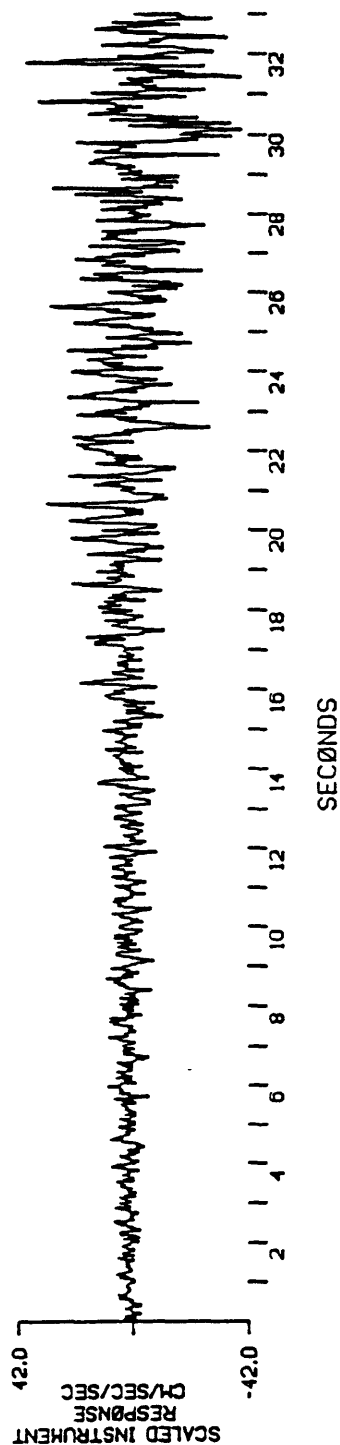
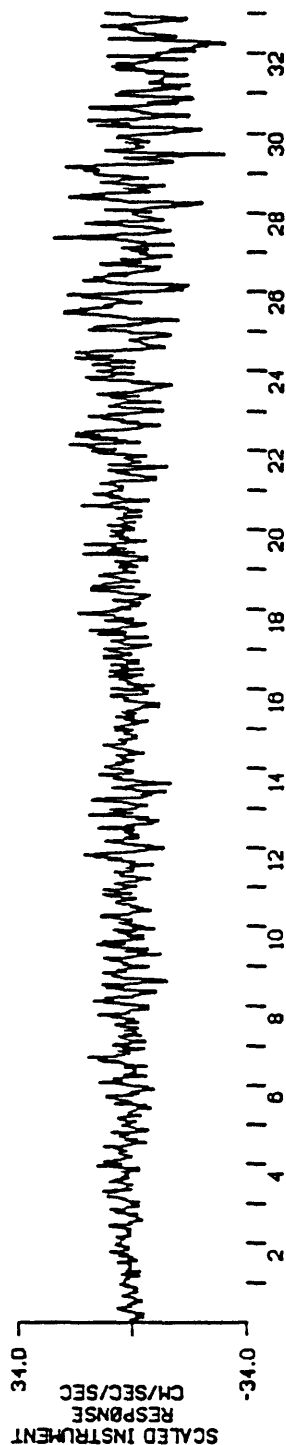
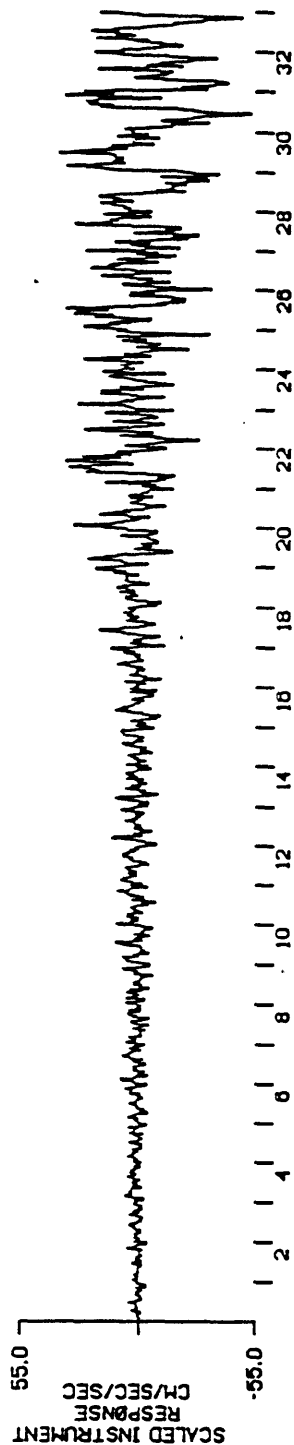
Central Chile earthquake of 3/3/85
22:47:07 UTC, $M_s=7.8$

Colbun, Chile

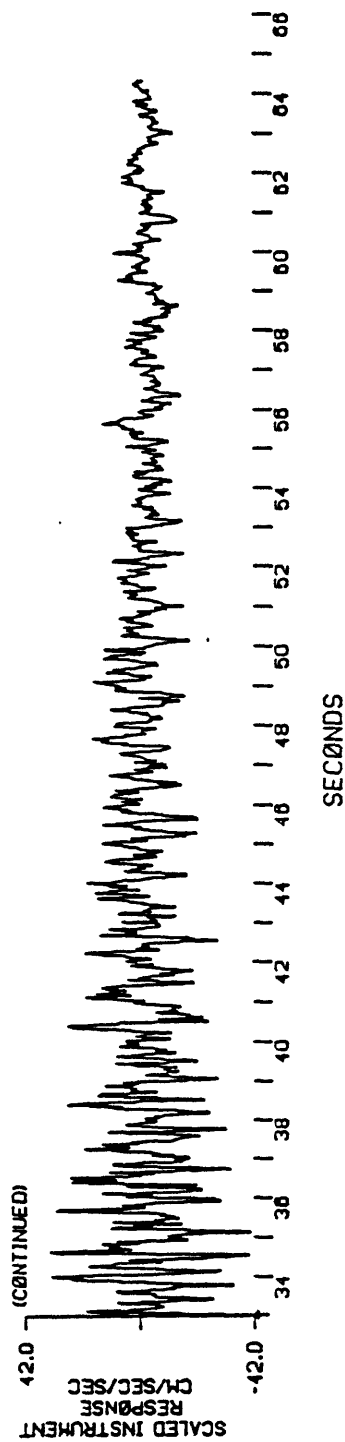
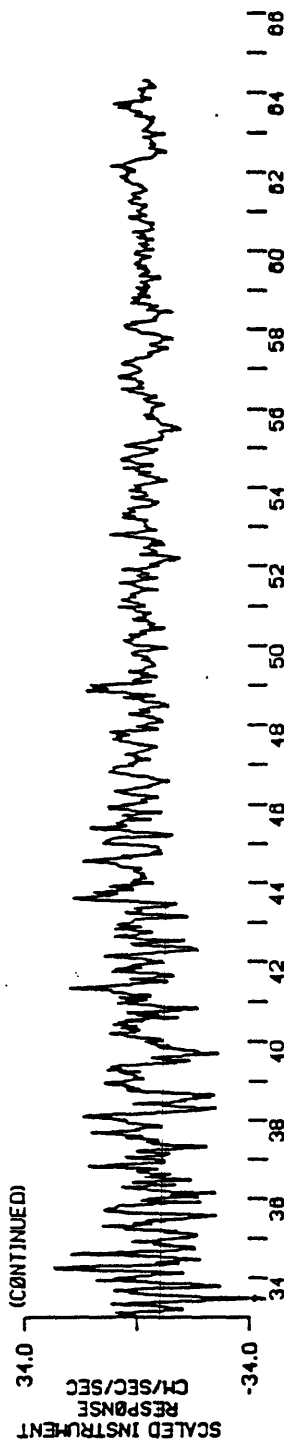
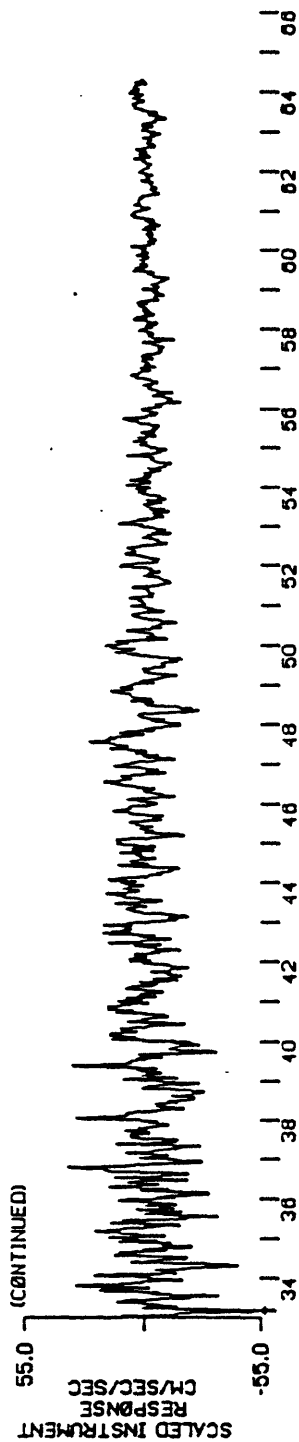
DESCRIPTION	COMPONENT		
	Longitudinal	Vertical	Transverse
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.8	25.8	25.3
Damping (% Critical)	60.0*	60.0*	60.0*
<u>Filter Parameters:</u>			
Highcut (Hz)	22.0	28.0	21.0
Lowcut (Hz)	0.333	0.357	0.233
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	-54.3	-33.8	-41.2
Peak Acceleration, A (cm/s/s)	-47.8	-29.6	44.1
Peak Velocity, V (cm/s)	-7.07	2.81	-5.26
Peak Displacement, D (cm)	-1.35	-0.488	1.51
<u>Parameter Ratios:</u>			
V/A (sec)	0.15	0.095	0.12
AD/V ²	1.3	1.8	2.4

* Nominal value

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CØLBUN, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES(CM/SEC/SEC): -54.27 -33.77 -41.16

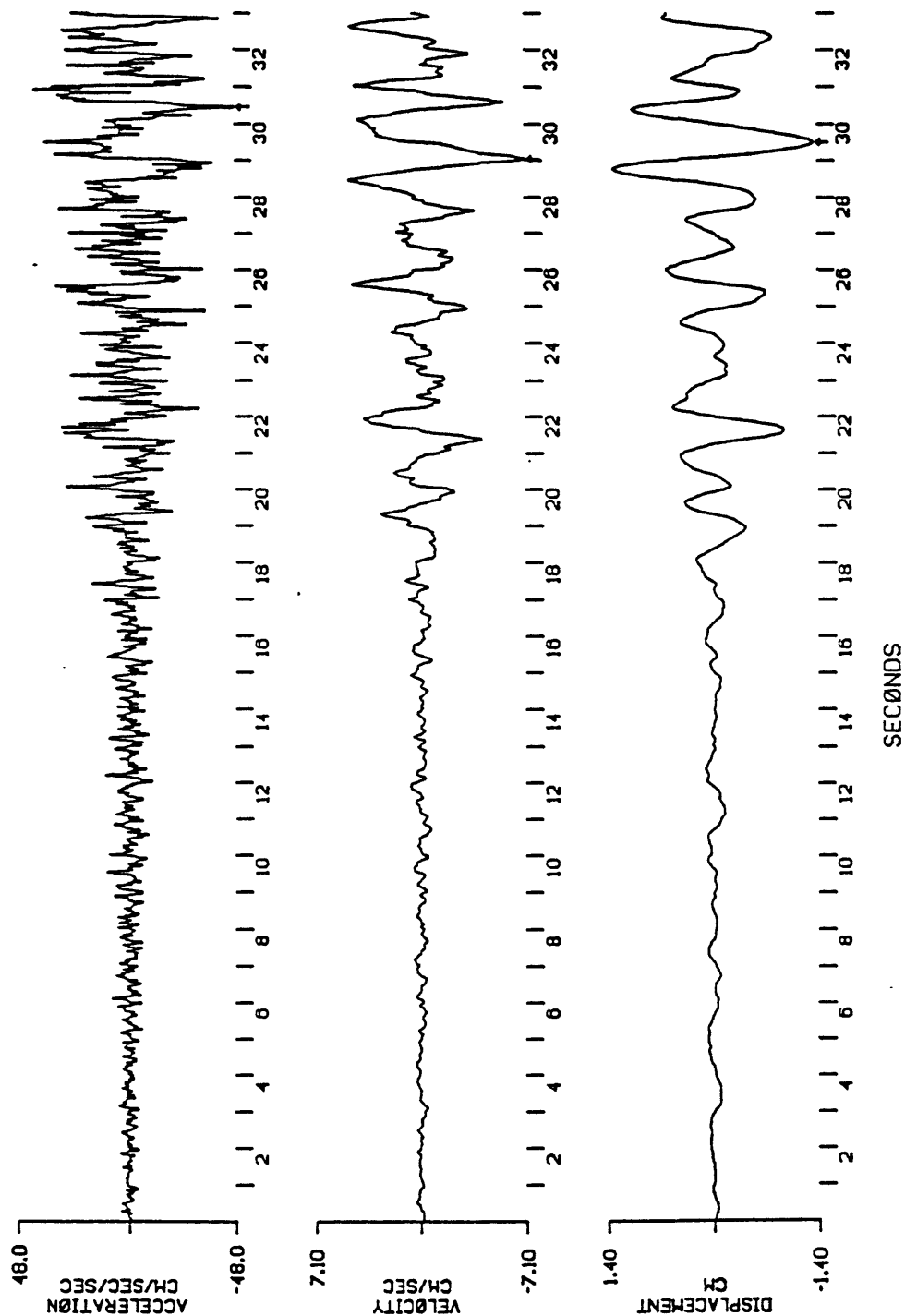


UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 COLBUN, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES (CM/SEC/SEC): -54.27 -33.77 -41.16

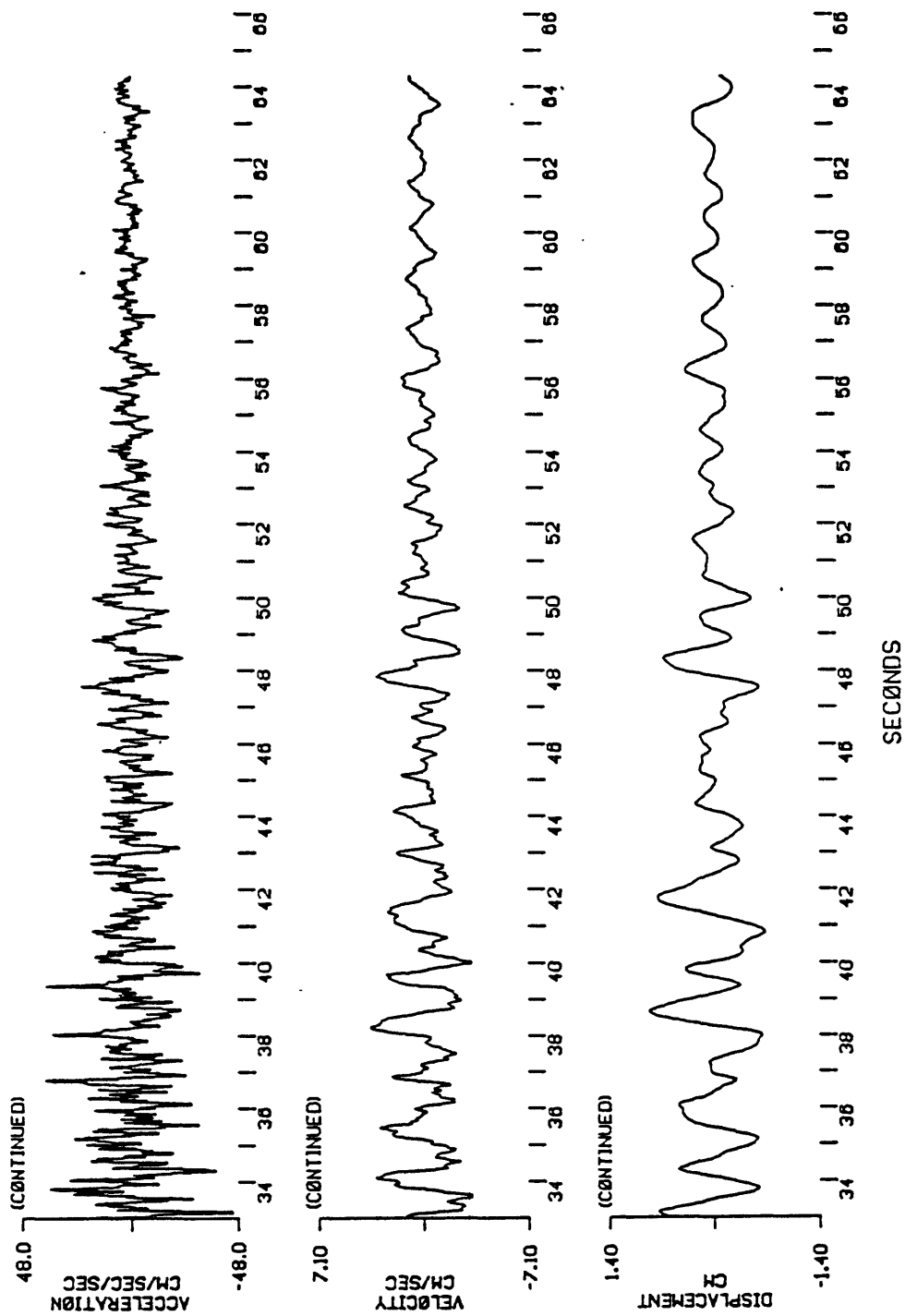


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CØLBUN, CHILE, LØNGITUDINAL

PEAK VALUES: ACCEL--47.75 CM/SEC/SEC, VELOCITY--7.07 CM/SEC, DISPL--1.35 CM

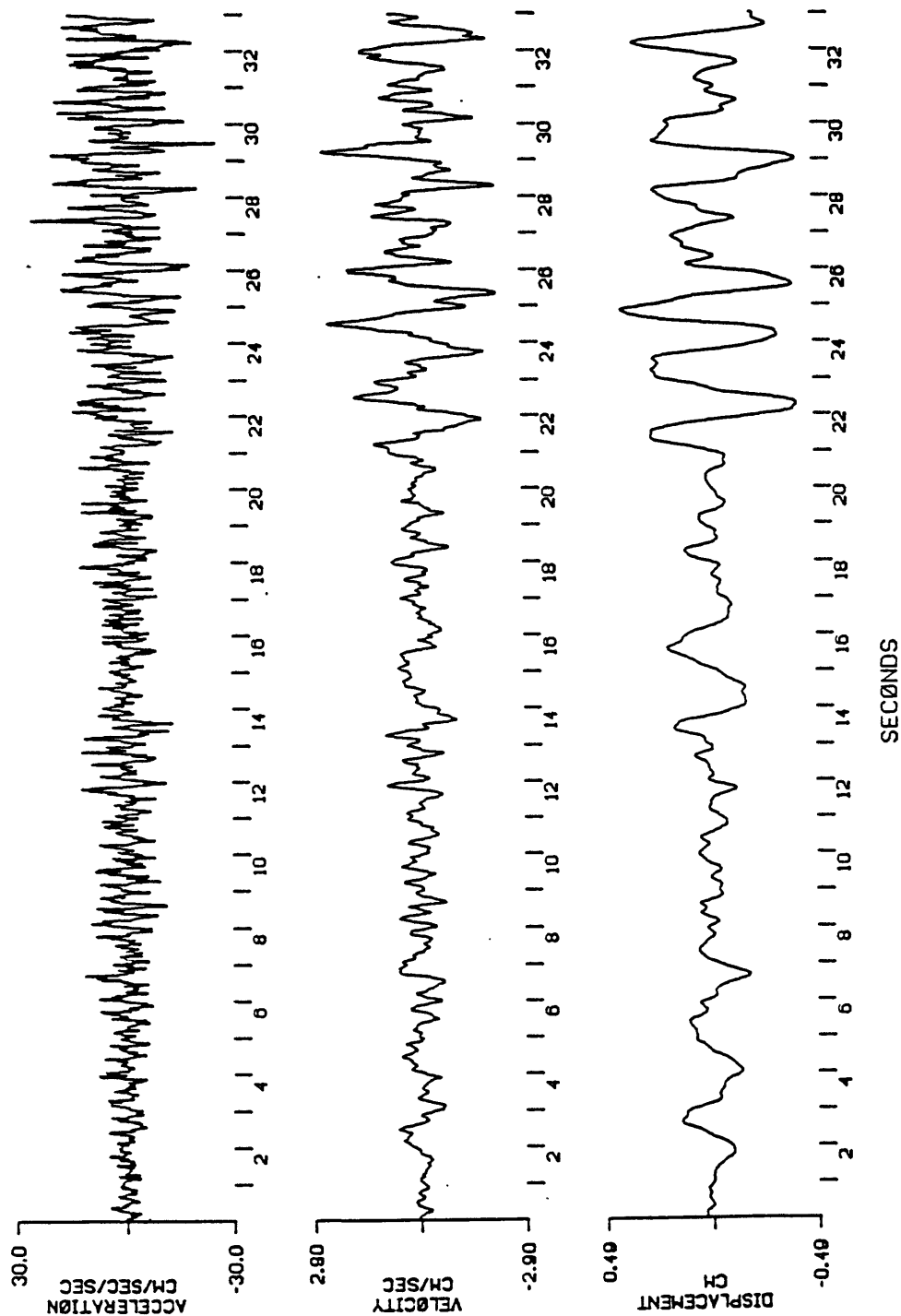


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 COILBUN, CHILE, LONGITUDINAL
 PEAK VALUES: ACCEL--47.75 CM/SEC/SEC, VELOCITY--7.07 CM/SEC, DISPL--1.35 CM

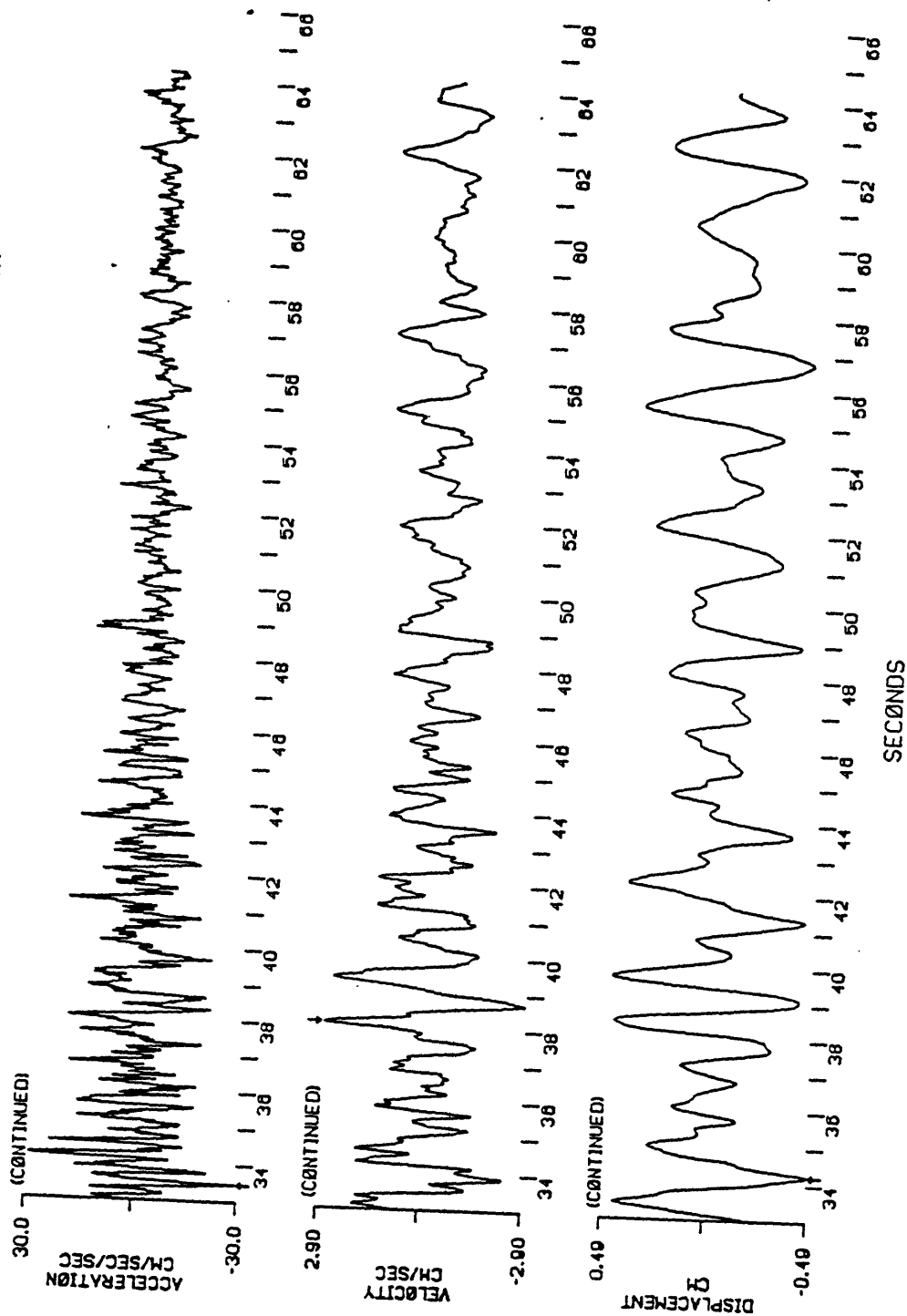


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8

PEAK VALUES: ACCEL--29.55 CM/SEC/SEC, VELOCITY-2.81 CM/SEC, DISPL--0.49 CM



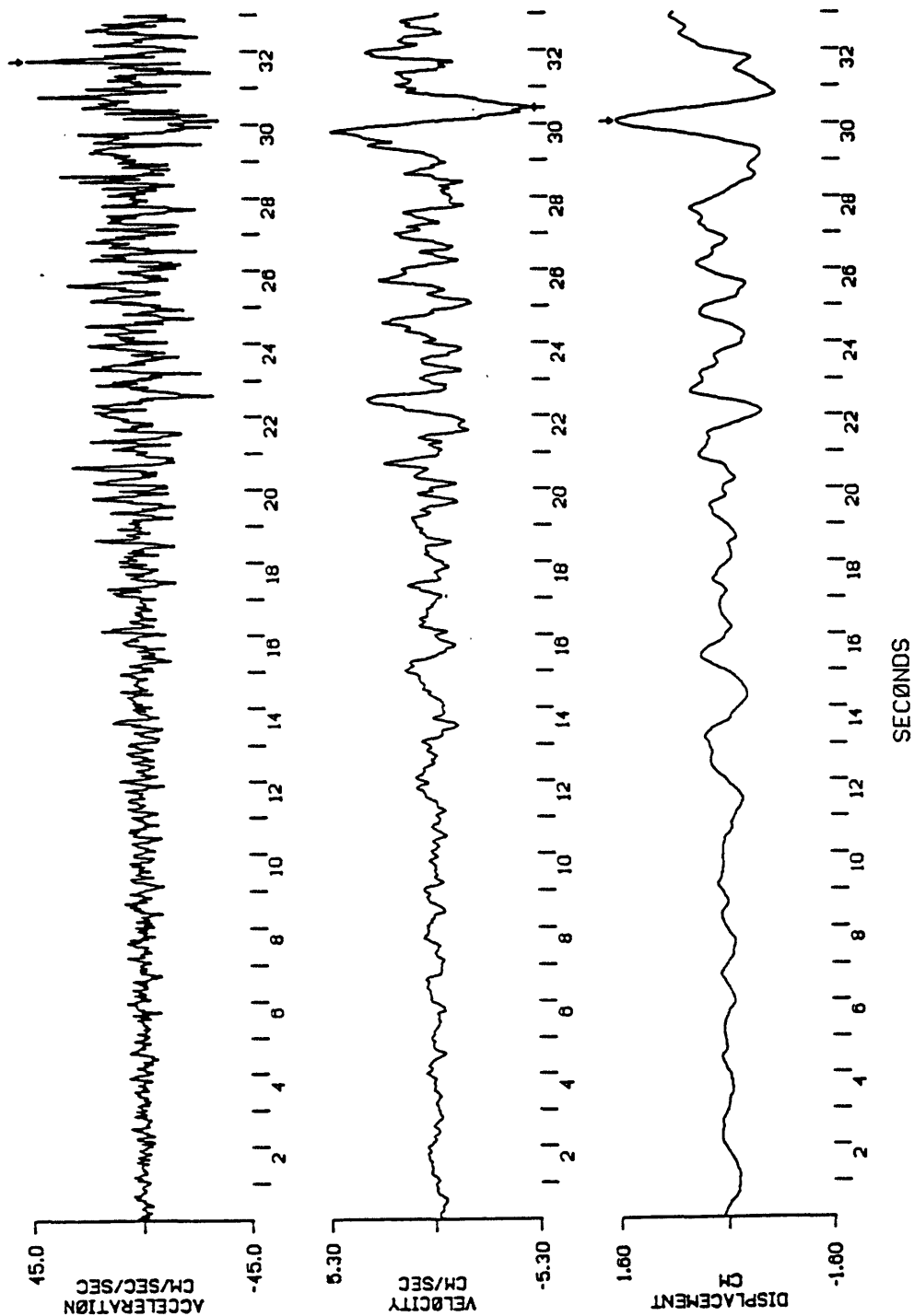
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 COLBUN, CHILE, VERTICAL
 PEAK VALUES: ACCEL--29.55 CM/SEC/SEC, VELOCITY-2.81 CM/SEC, DISPL--0.49 CM



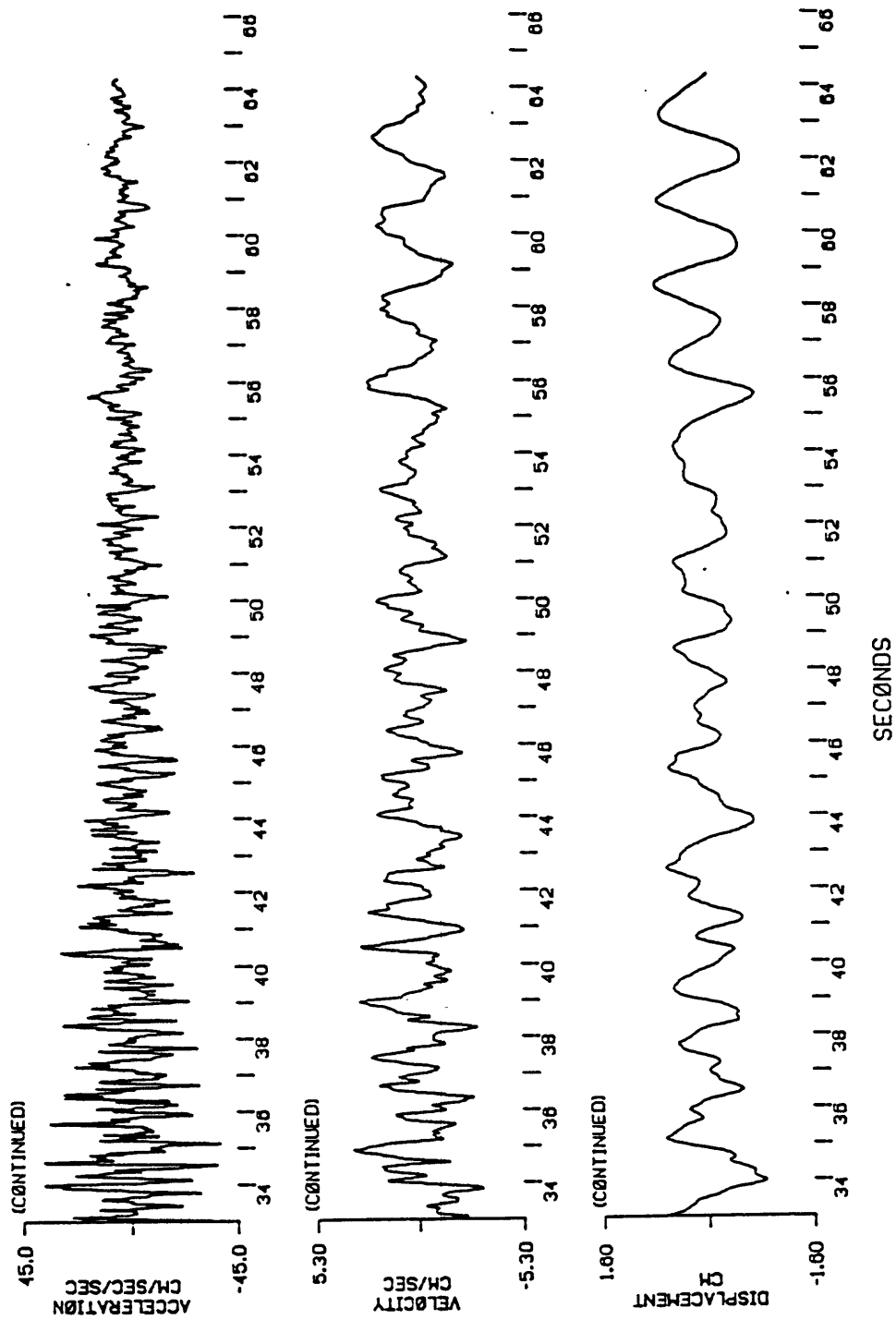
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8

COLBUN, CHILE, TRANSVERSE

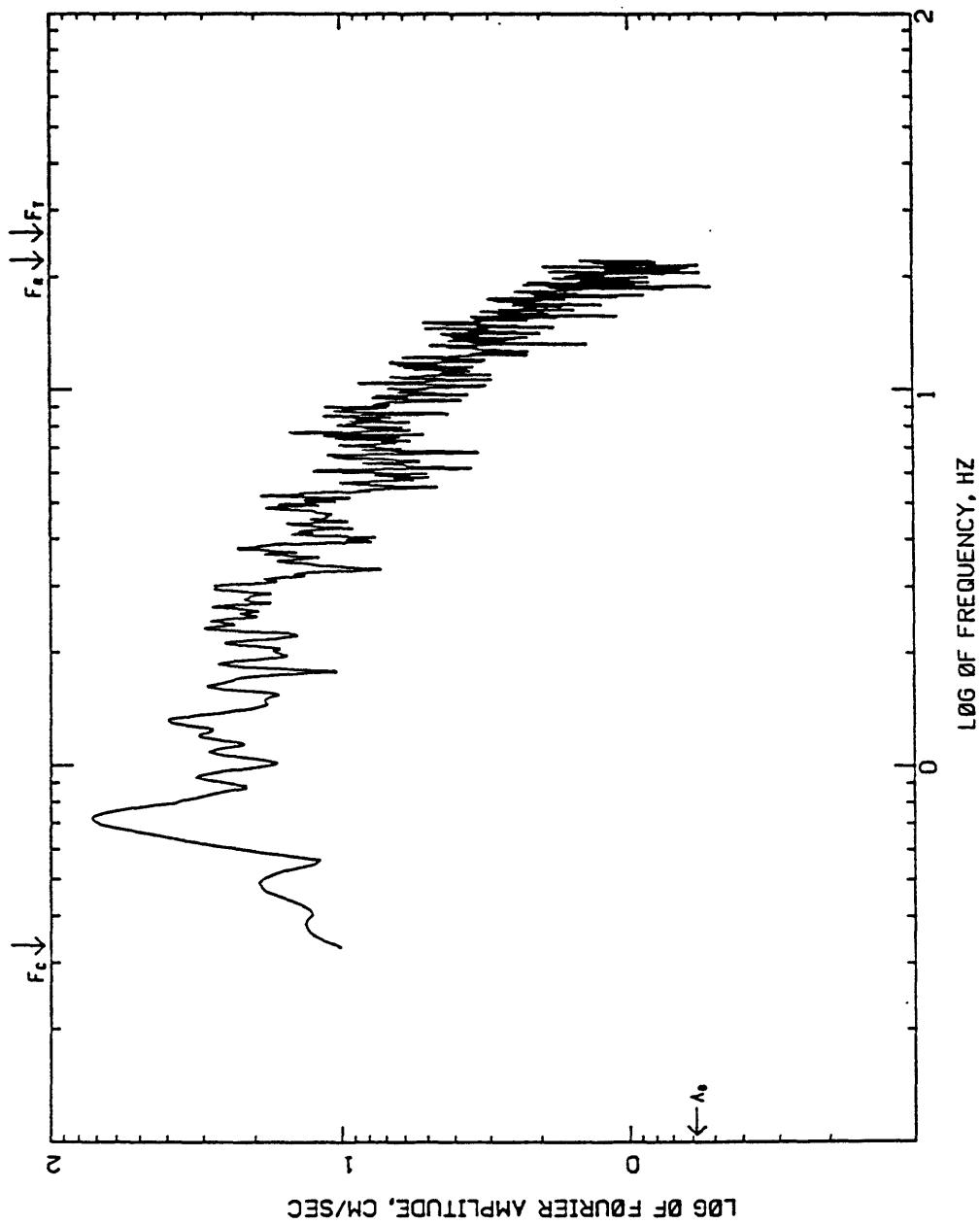
PEAK VALUES: ACCEL-44.11 CM/SEC/SEC, VELOCITY-5.26 CM/SEC, DISPL-1.51 CM



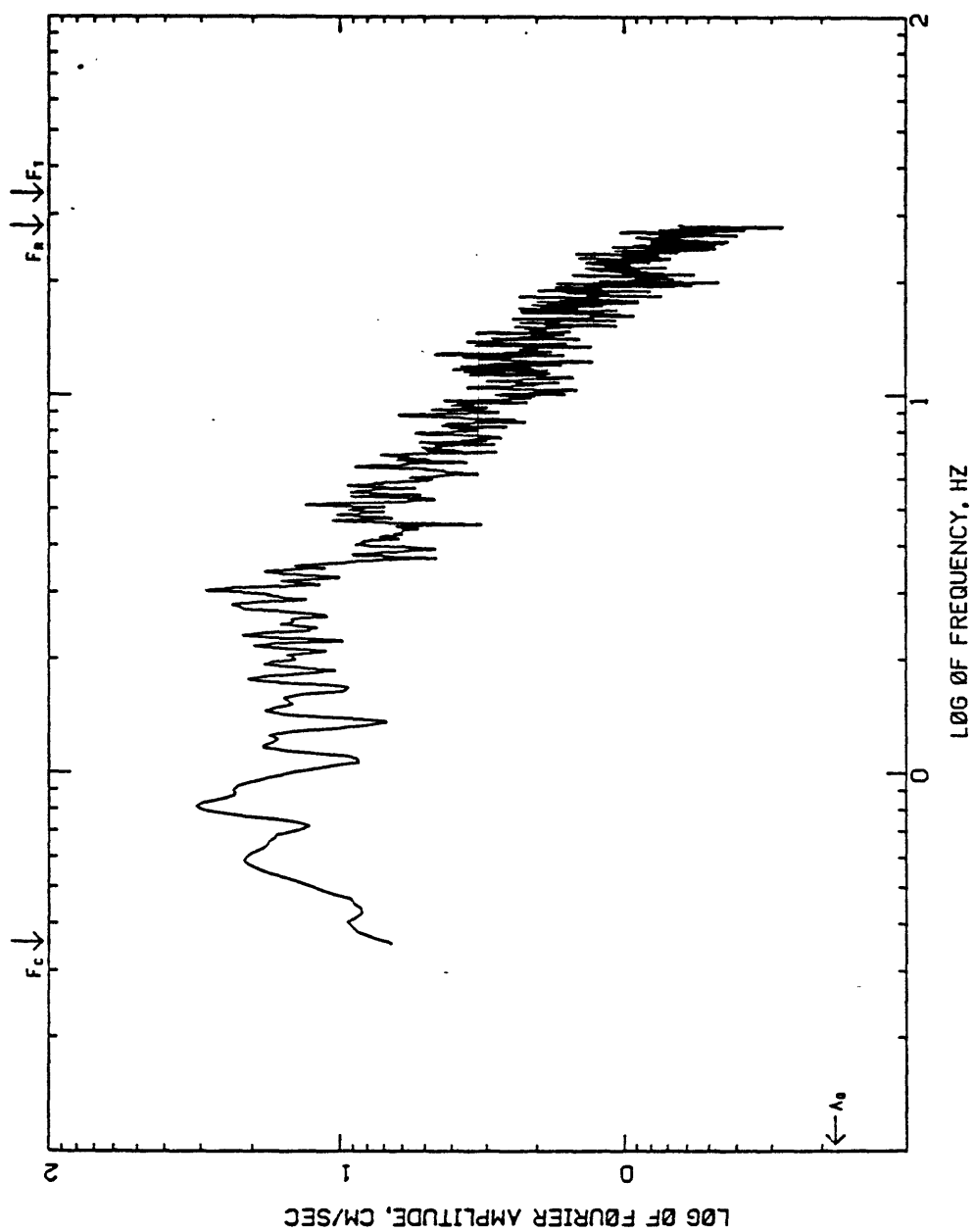
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8
 COLBUN, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL-44.11 CM/SEC/SEC, VELOCITY-5.26 CM/SEC, DISPL-1.51 CM



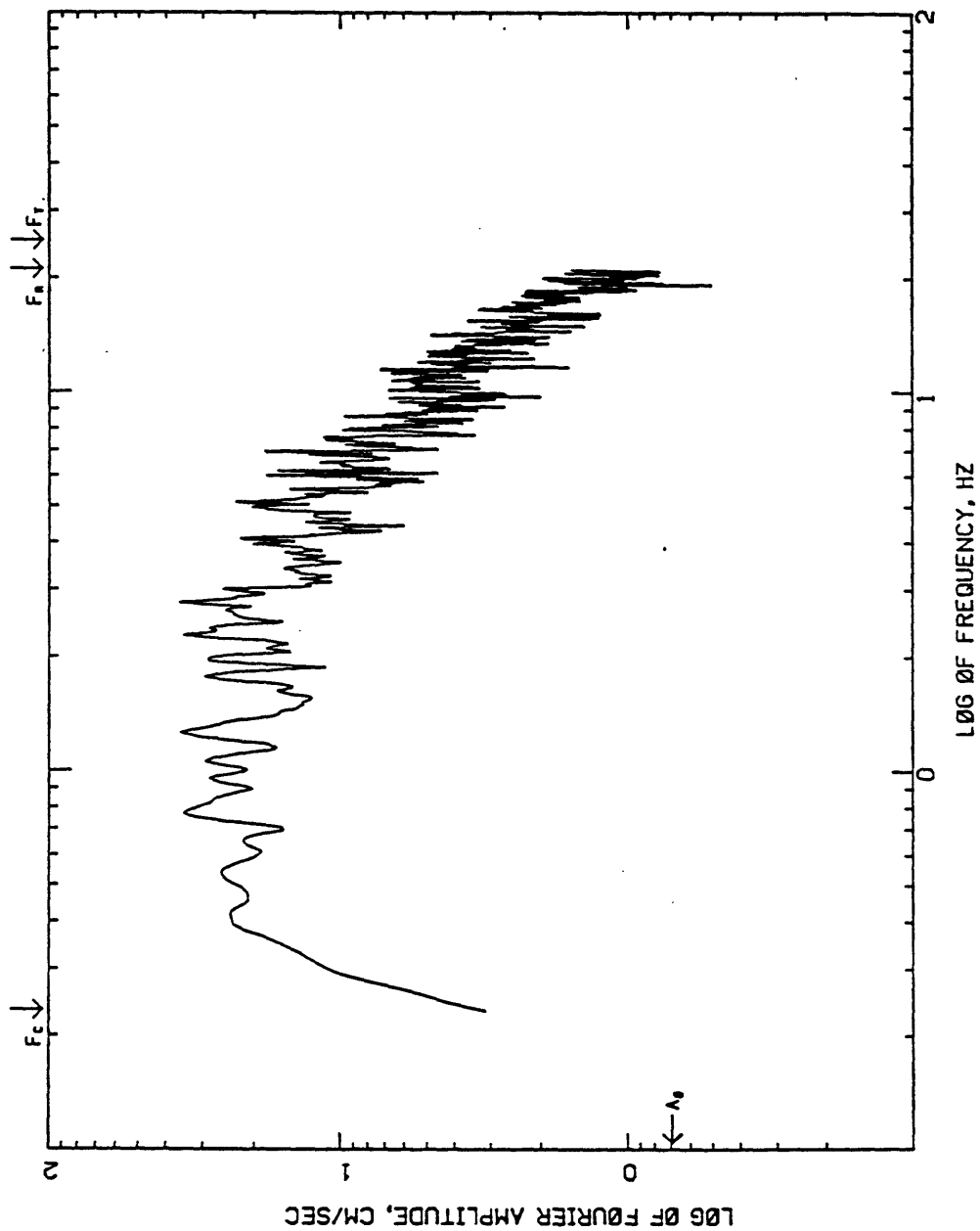
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 C0LBUN, CHILE, LONGITUDINAL
 COMPUTING OPTIONS- ZCR0SS, SM00TH101, N0N0ISE



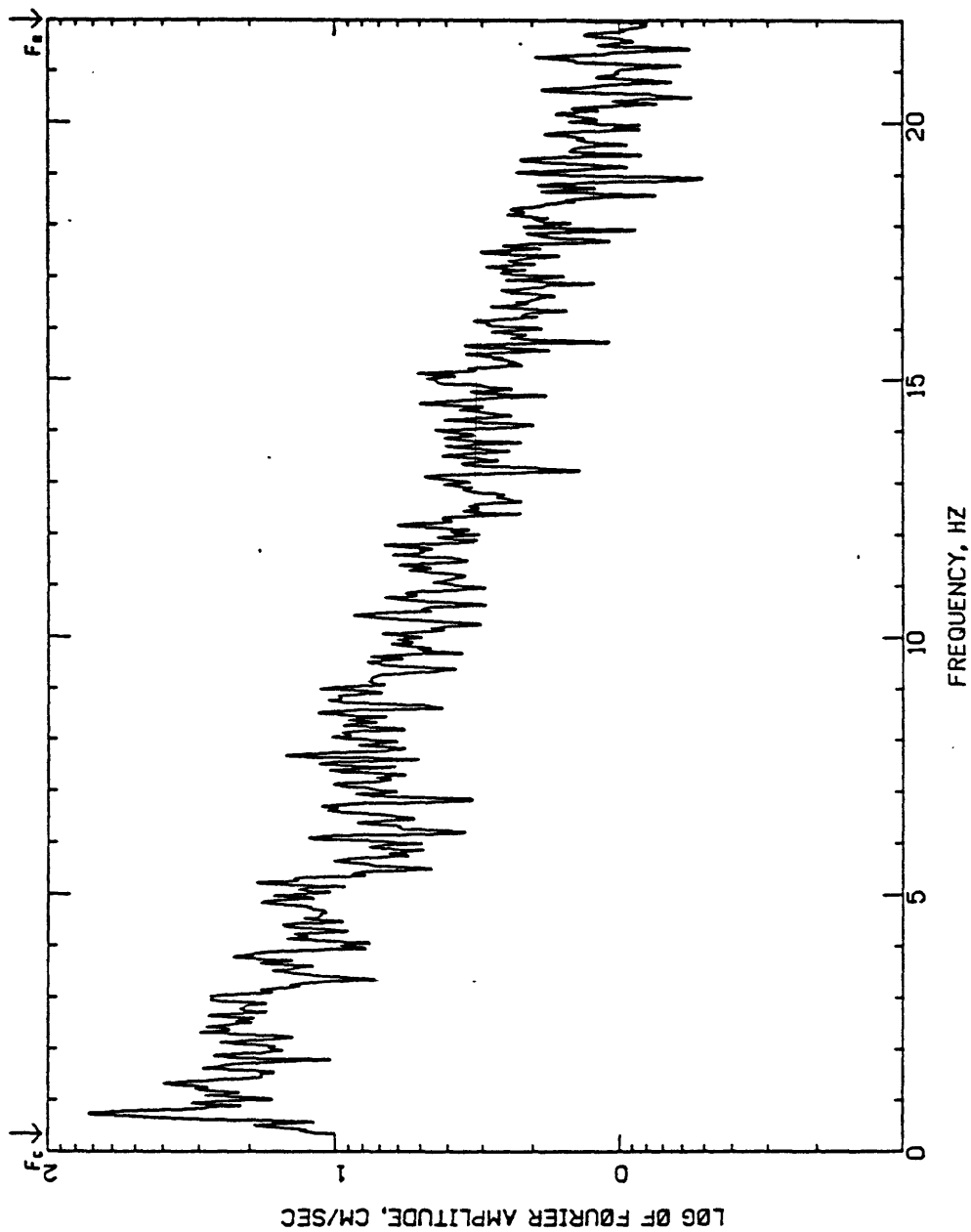
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CØBUN, CHILE, VERTICAL
 CØPUTING ØPTIONS- ZCRØSS.SMØØTHØIØ, NØNØISE



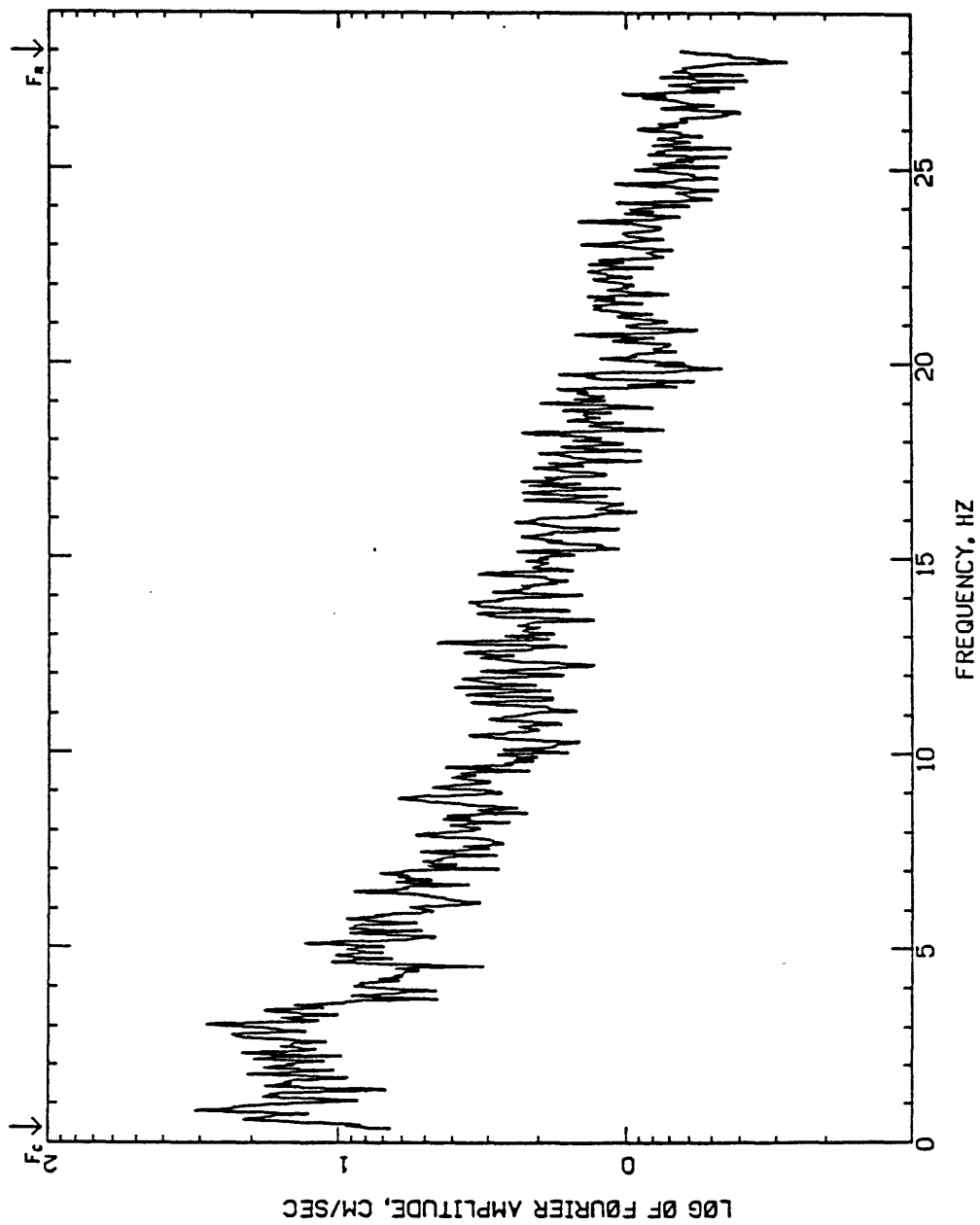
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 COLBUN, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCROSS, SMOOTH(10), NOISE



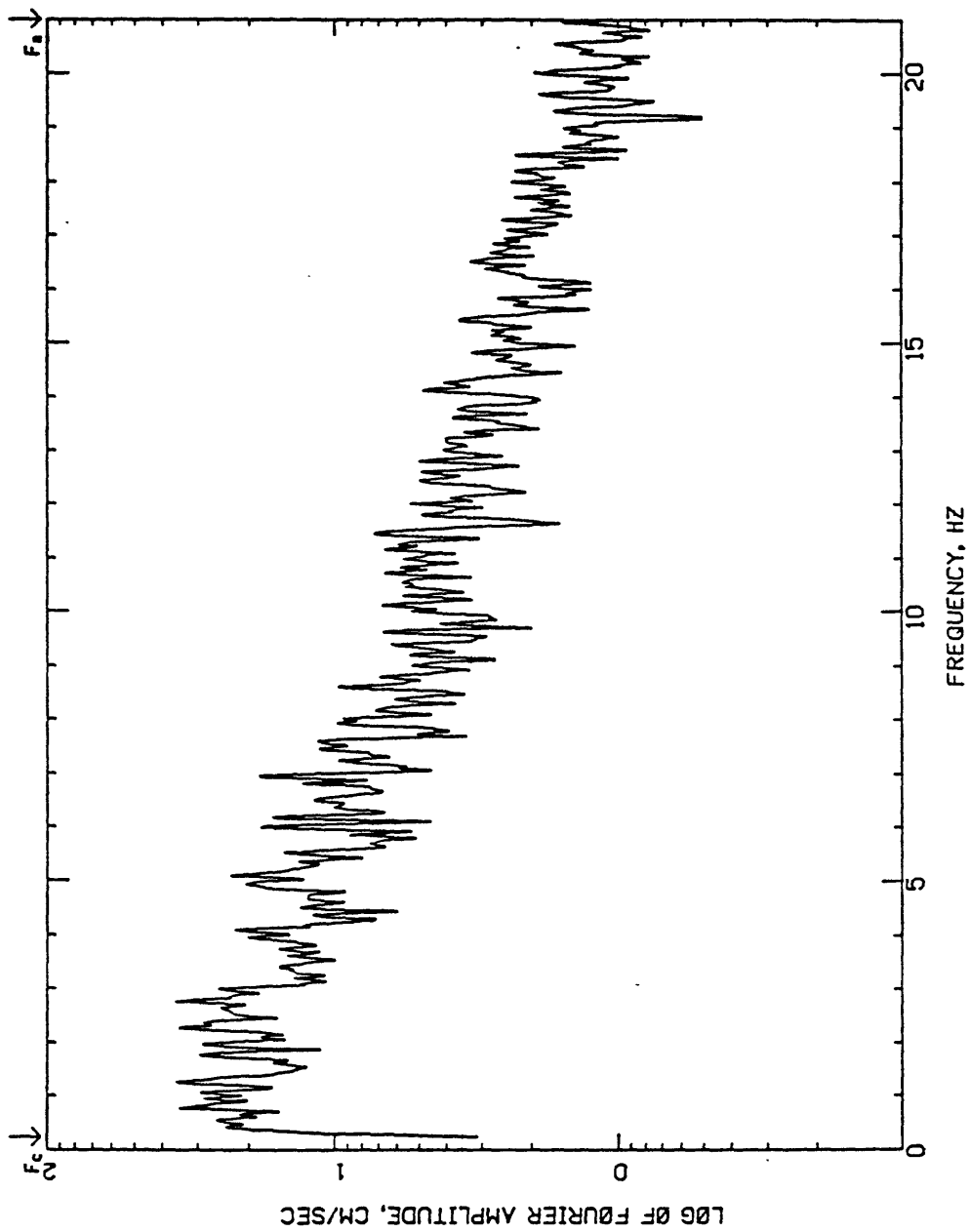
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 C01BUN, CHILE, LONGITUDINAL
 COMPUTING OPTIONS- ZCR055,SH00THU01,N000ISE



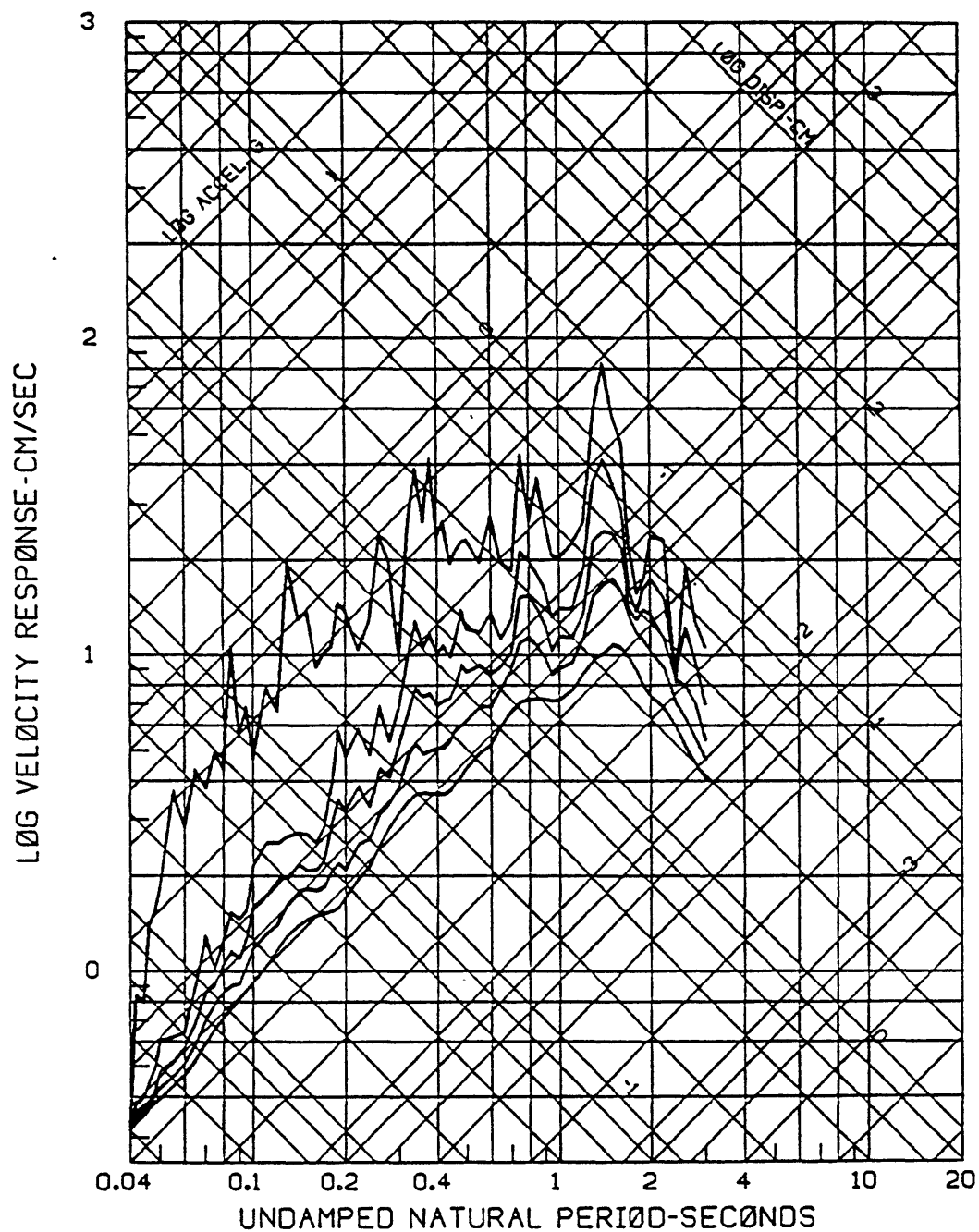
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 C0LBUN, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055,SM00TH101,N0N0ISE



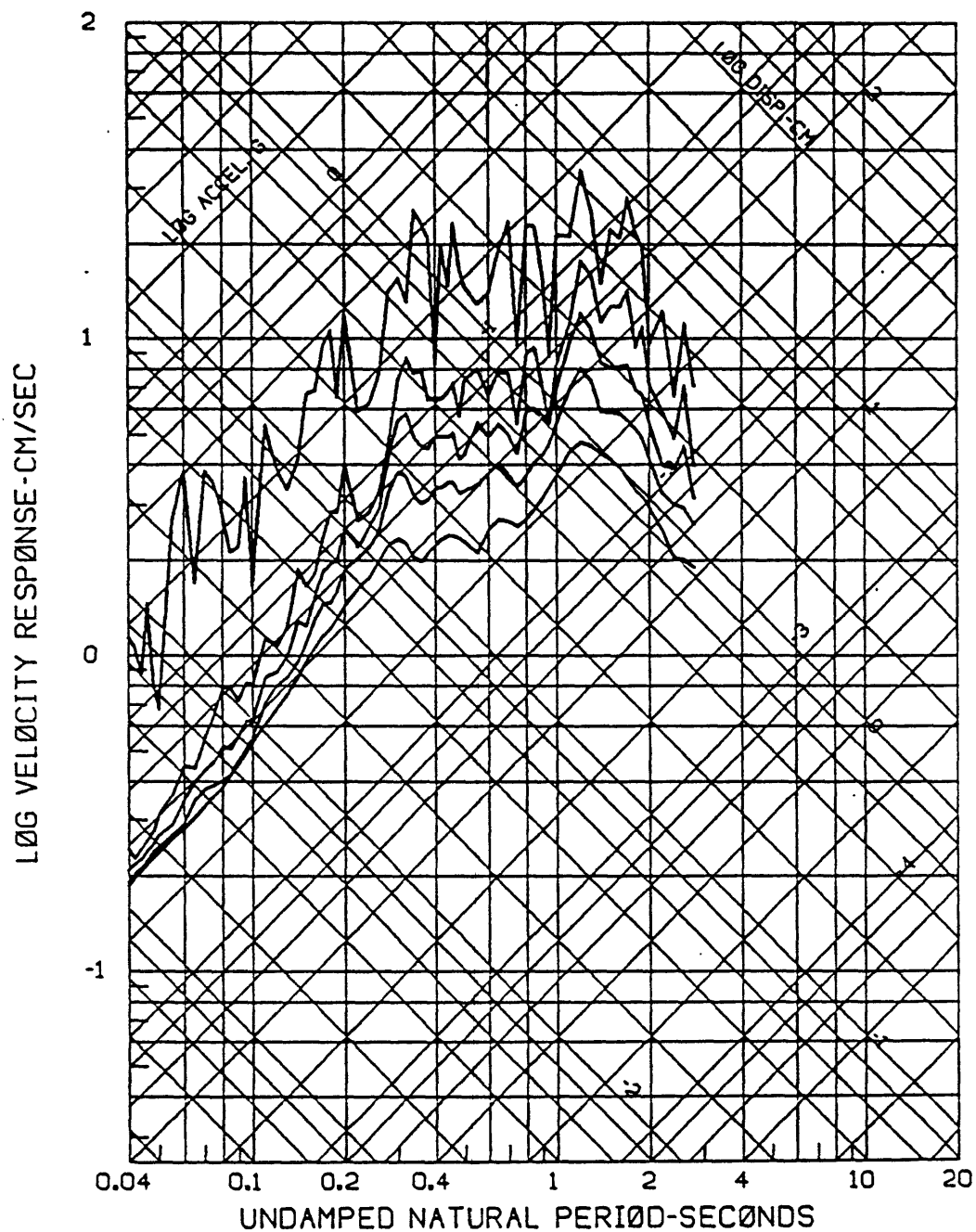
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CØLBUN, CHILE, TRANSVERSE
 CØMPUTING ØPTIONS- ZCRØSS,SHØØTHIØI,NØØISE



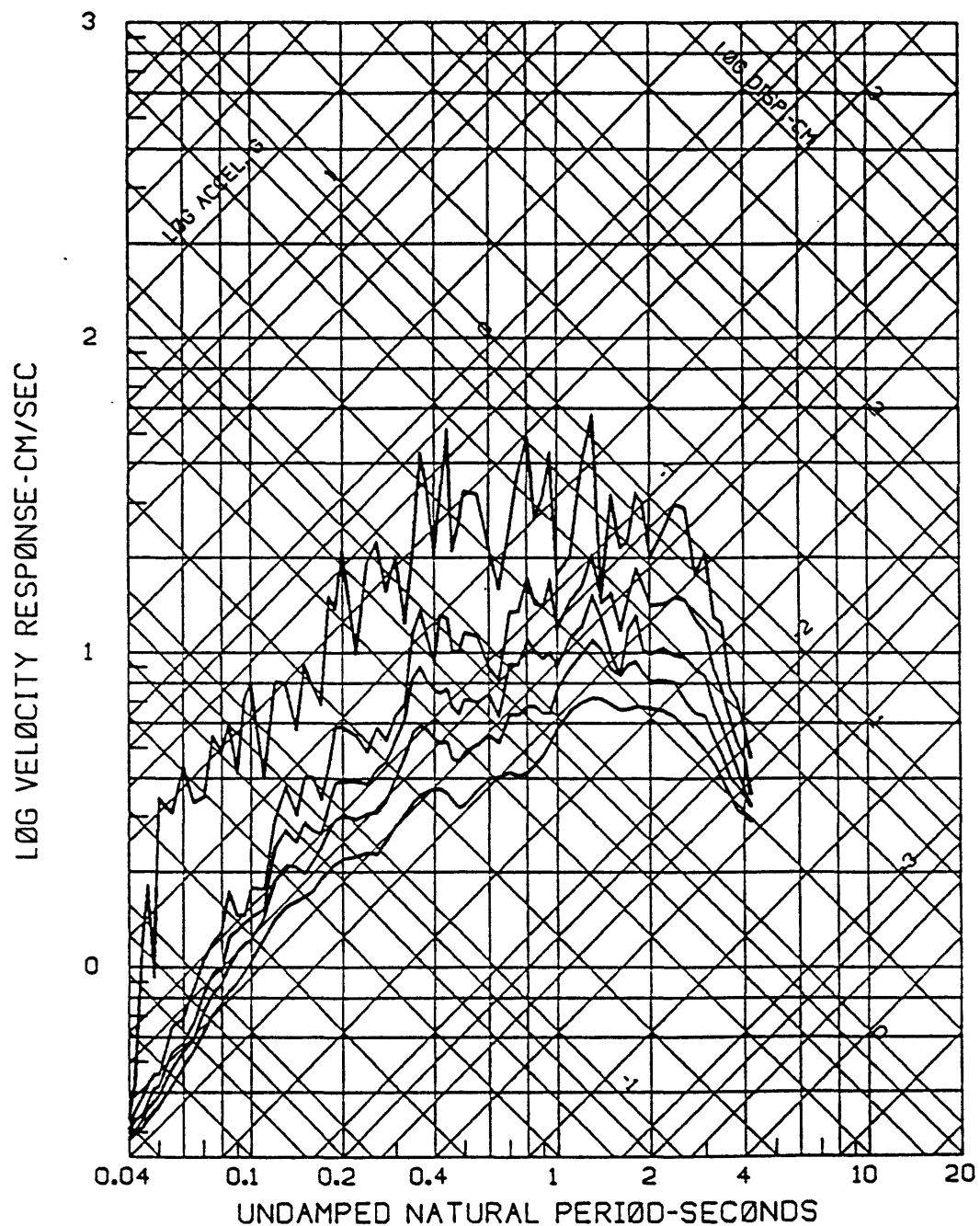
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 COLBUN, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



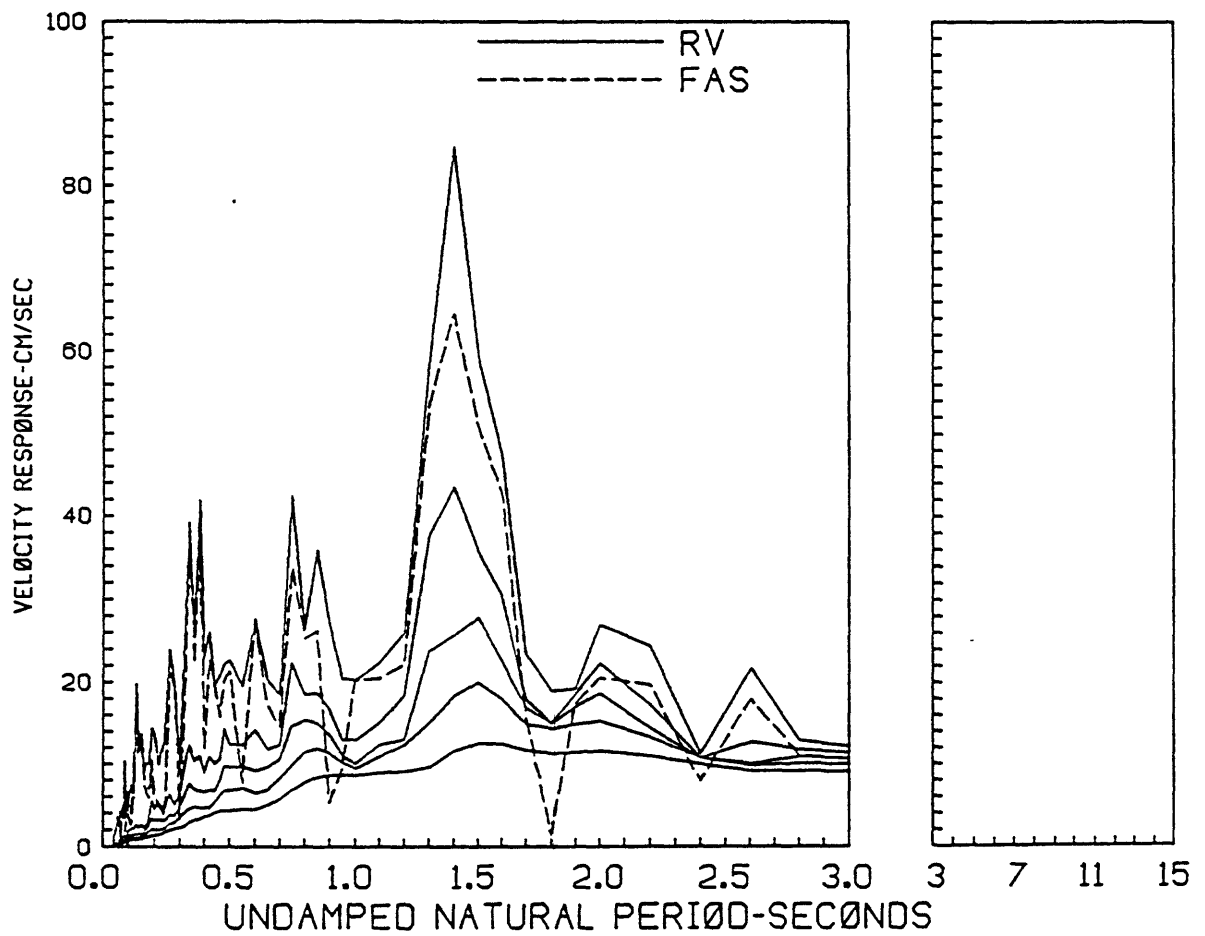
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 COLBUN, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



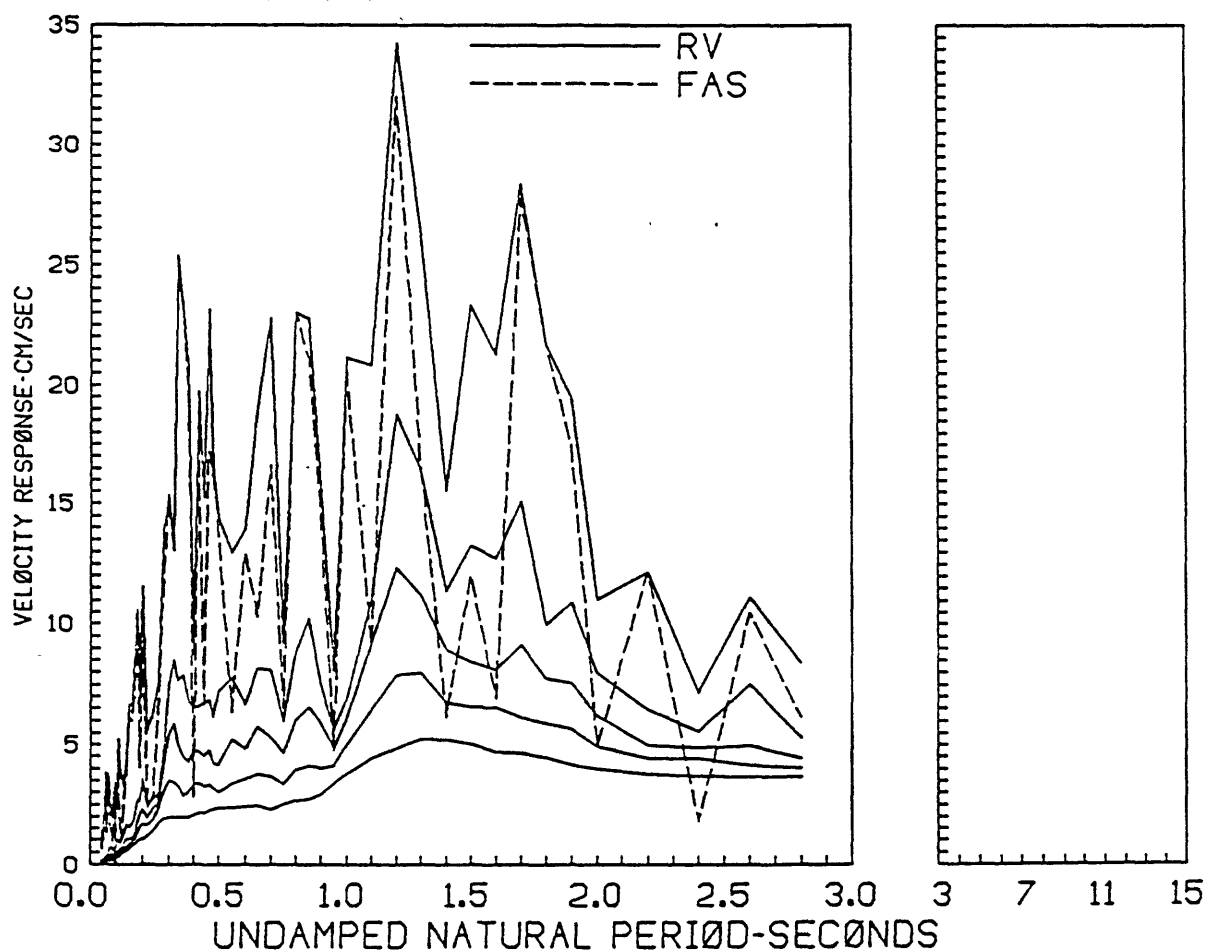
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 COLBUN, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



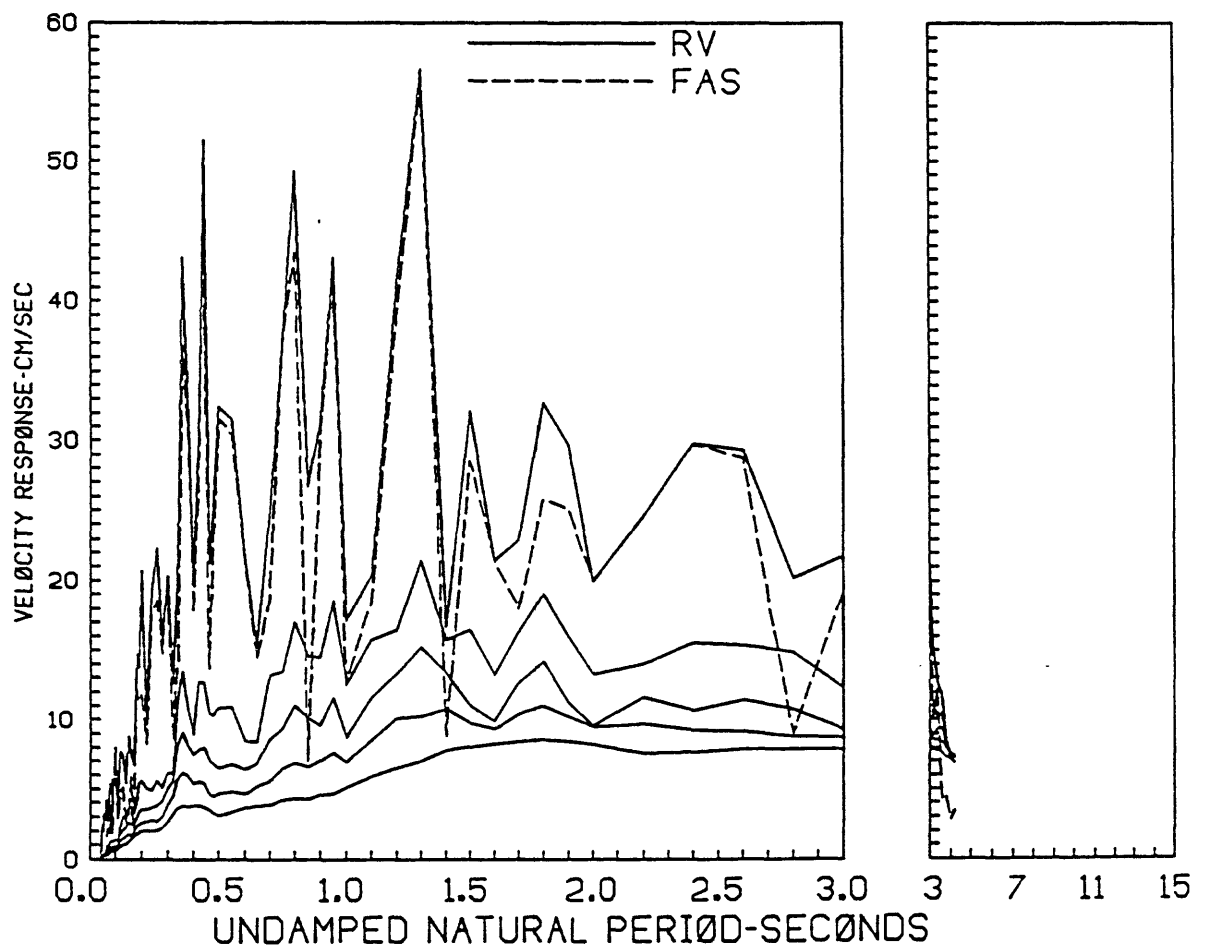
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 COLBUN, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 COLBUN, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 COLBUN, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

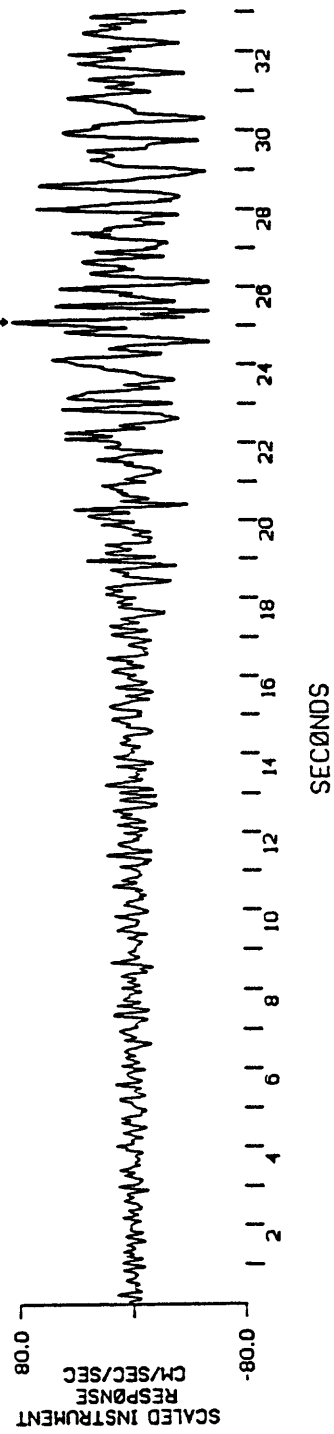
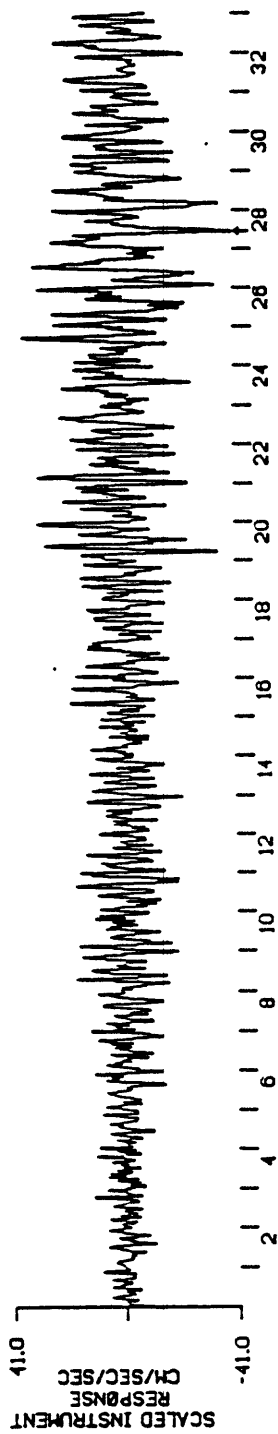
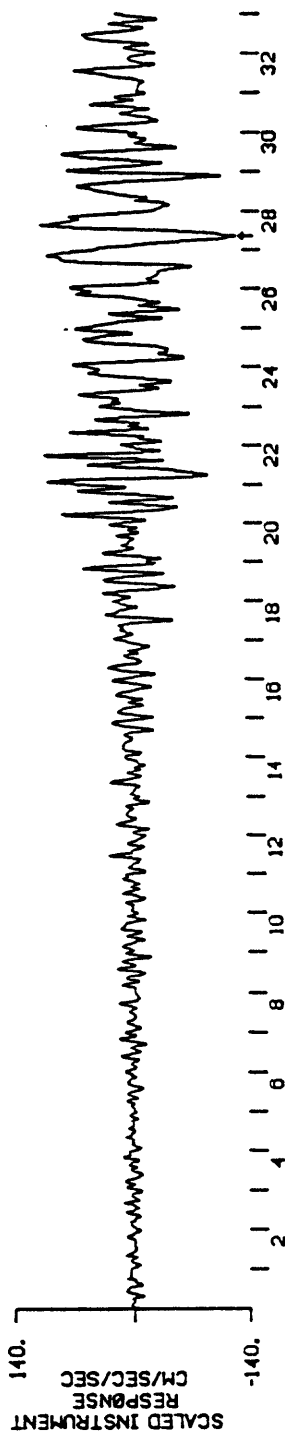
Central Chile earthquake, 3/3/85

22:47:07 UTC, $M_s=7.8$

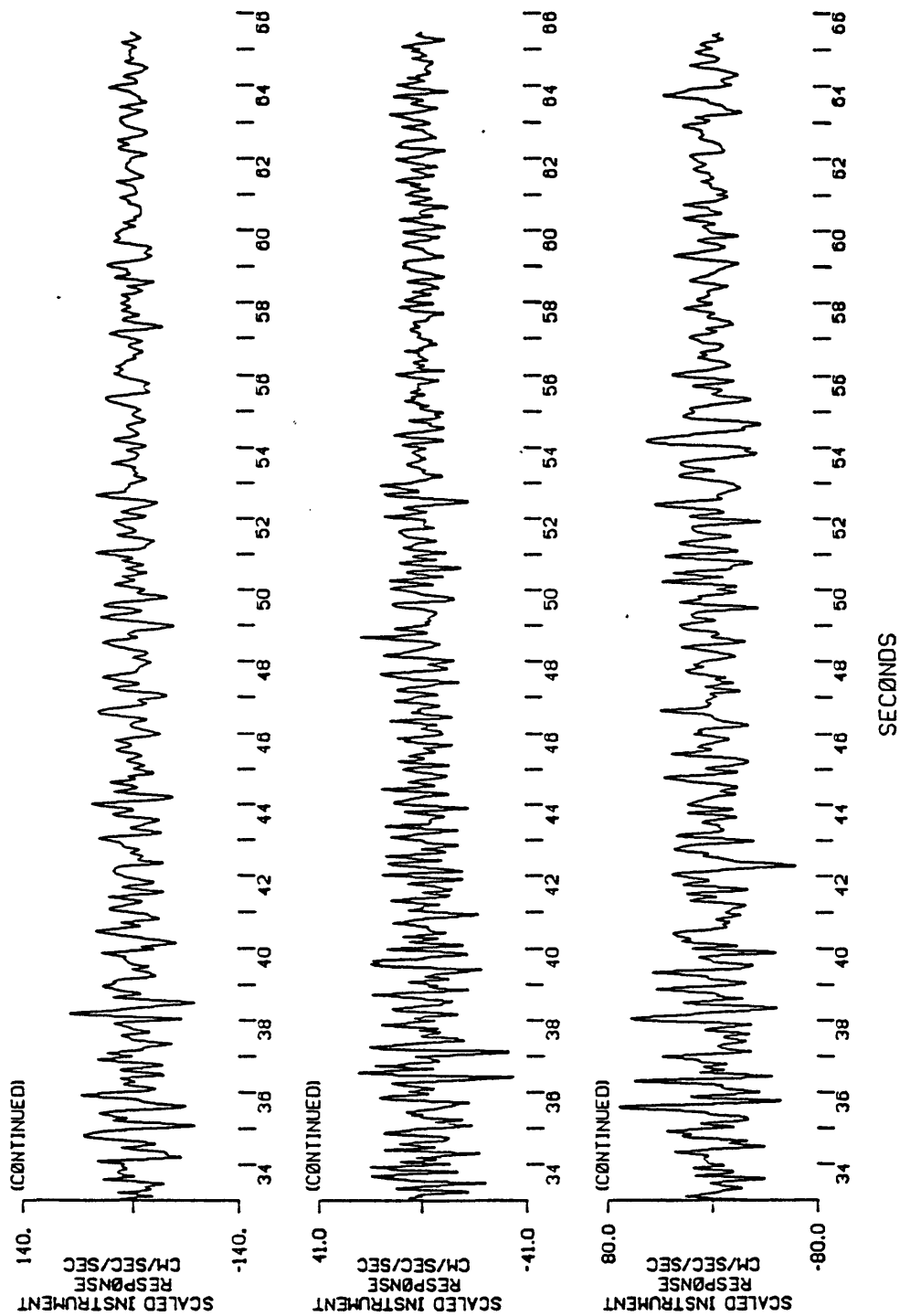
Constitucion, Chile

DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.6	26.1	27.0
Damping (% Critical)	58.5	58.5	61.5
<u>Filter Parameters:</u>			
Highcut (Hz)	9.0	19.0	9.0
Lowcut (Hz)	0.250	0.250	0.222
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	-132.7	-40.6	79.6
Peak Acceleration, A (cm/s/s)	-127.9	38.9	78.5
Peak Velocity, V (cm/s)	-17.8	-4.12	7.96
Peak Displacement, D (cm)	2.63	0.565	1.68
<u>Parameter Ratios:</u>			
$ V/A $ (sec)	0.14	0.11	0.10
$ AD/V^2 $	1.1	1.3	2.1

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): -132.72 -40.64 79.56

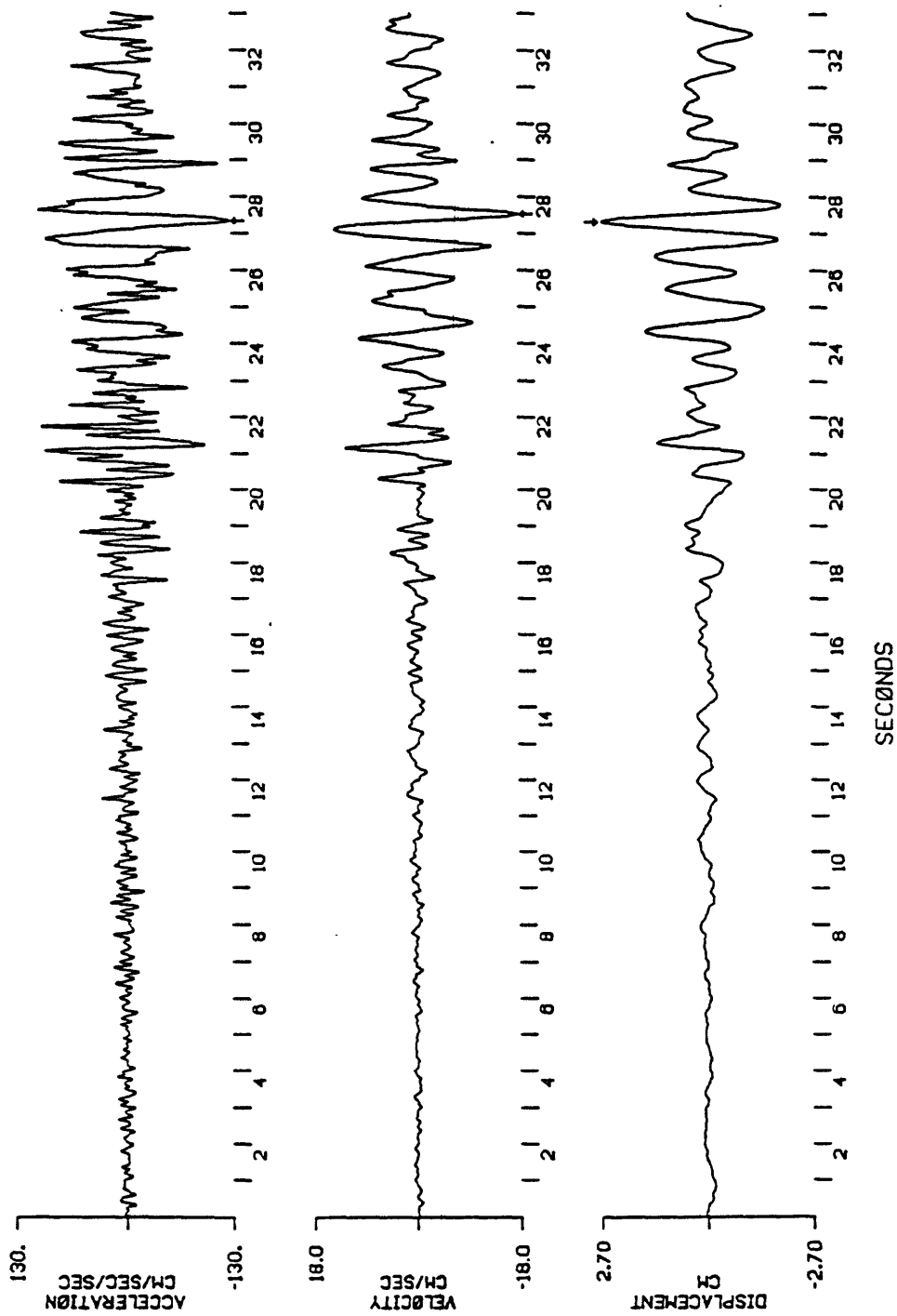


UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC): -132.72 -40.64 79.56

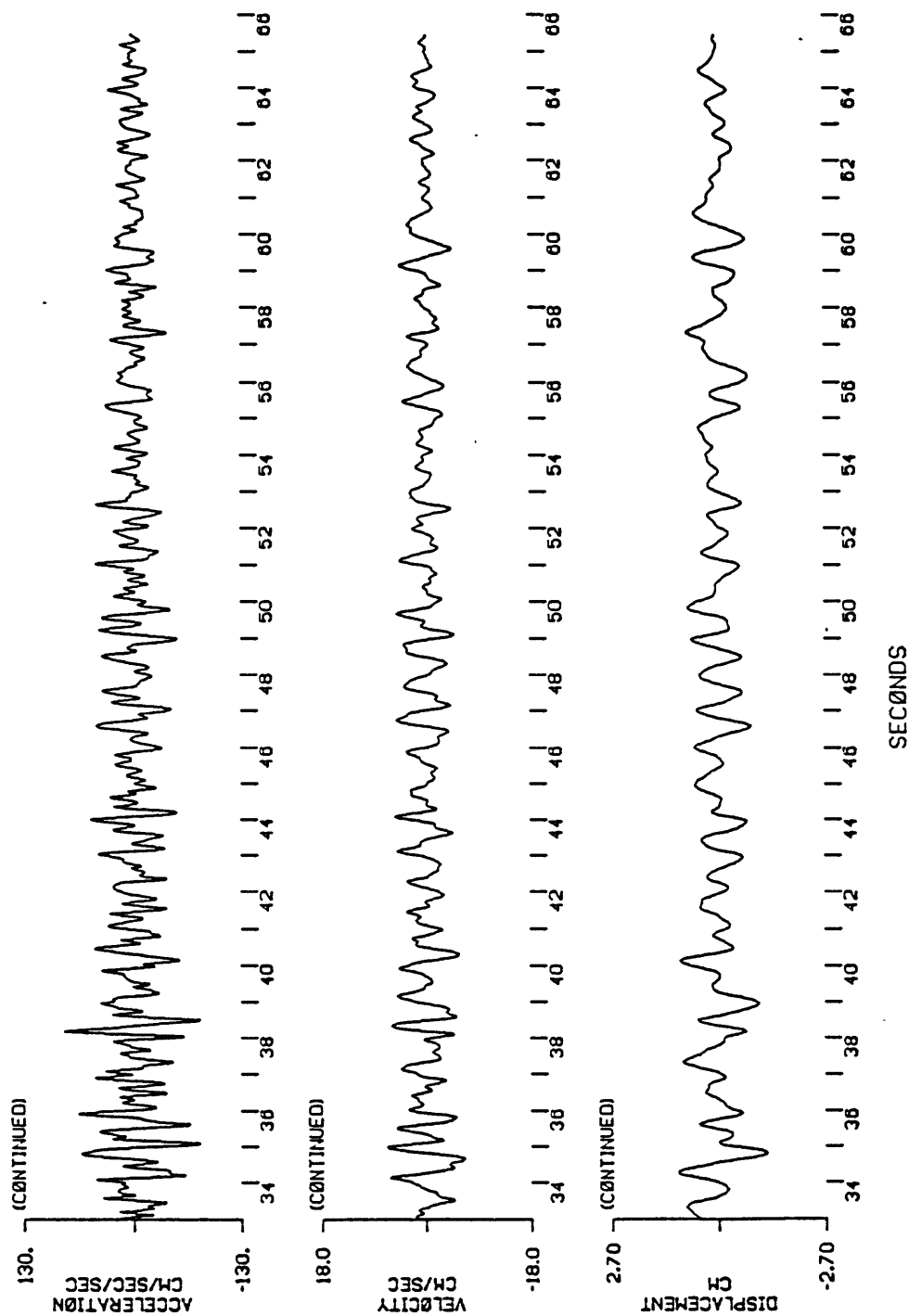


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, NORTH-SOUTH

PEAK VALUES: ACCEL--127.91 CM/SEC/SEC, VELOCITY--17.82 CM/SEC, DISPL--2.63 CM

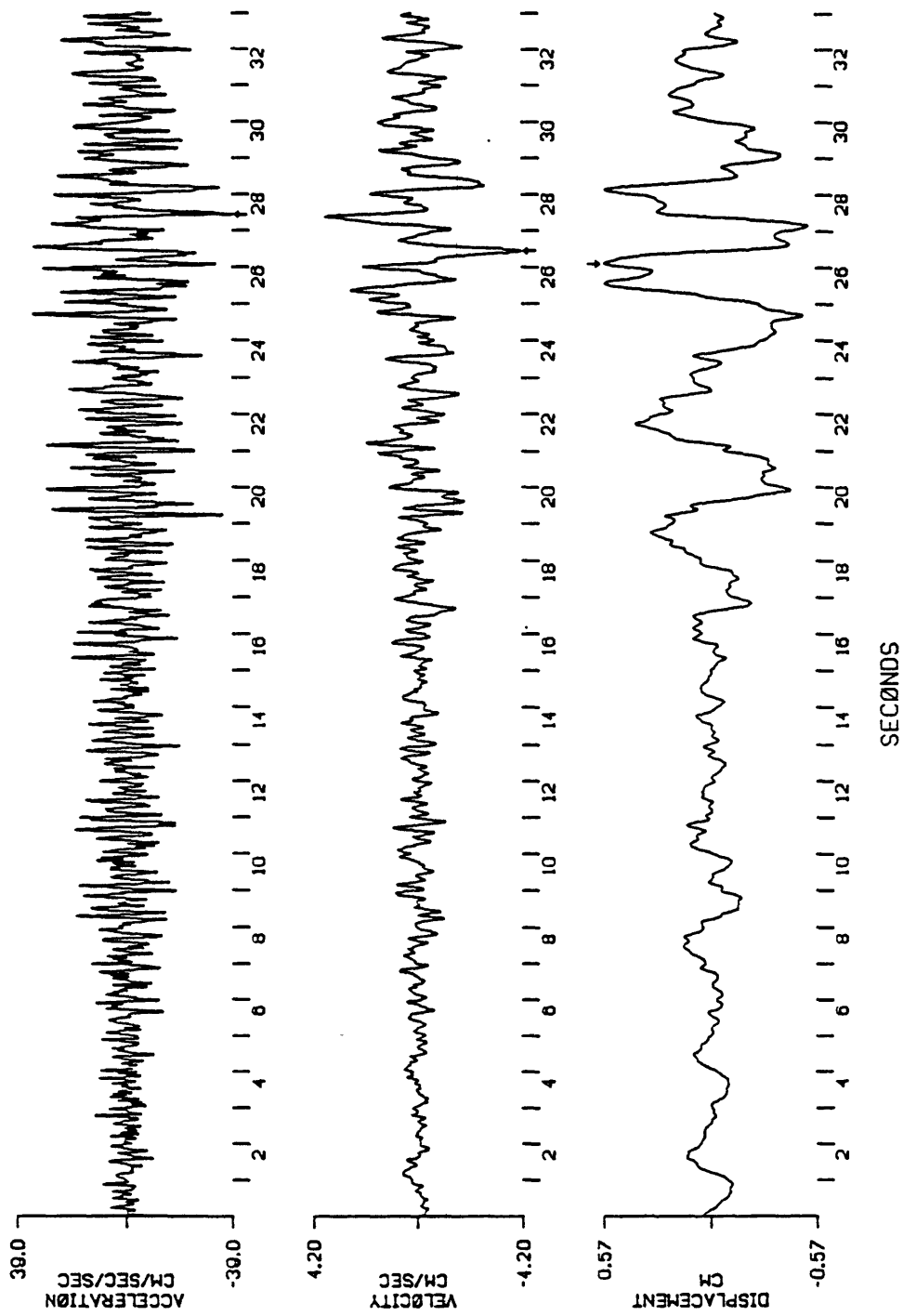


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL--127.91 CM/SEC/SEC, VELOCITY--17.82 CM/SEC, DISPL--2.63 CM



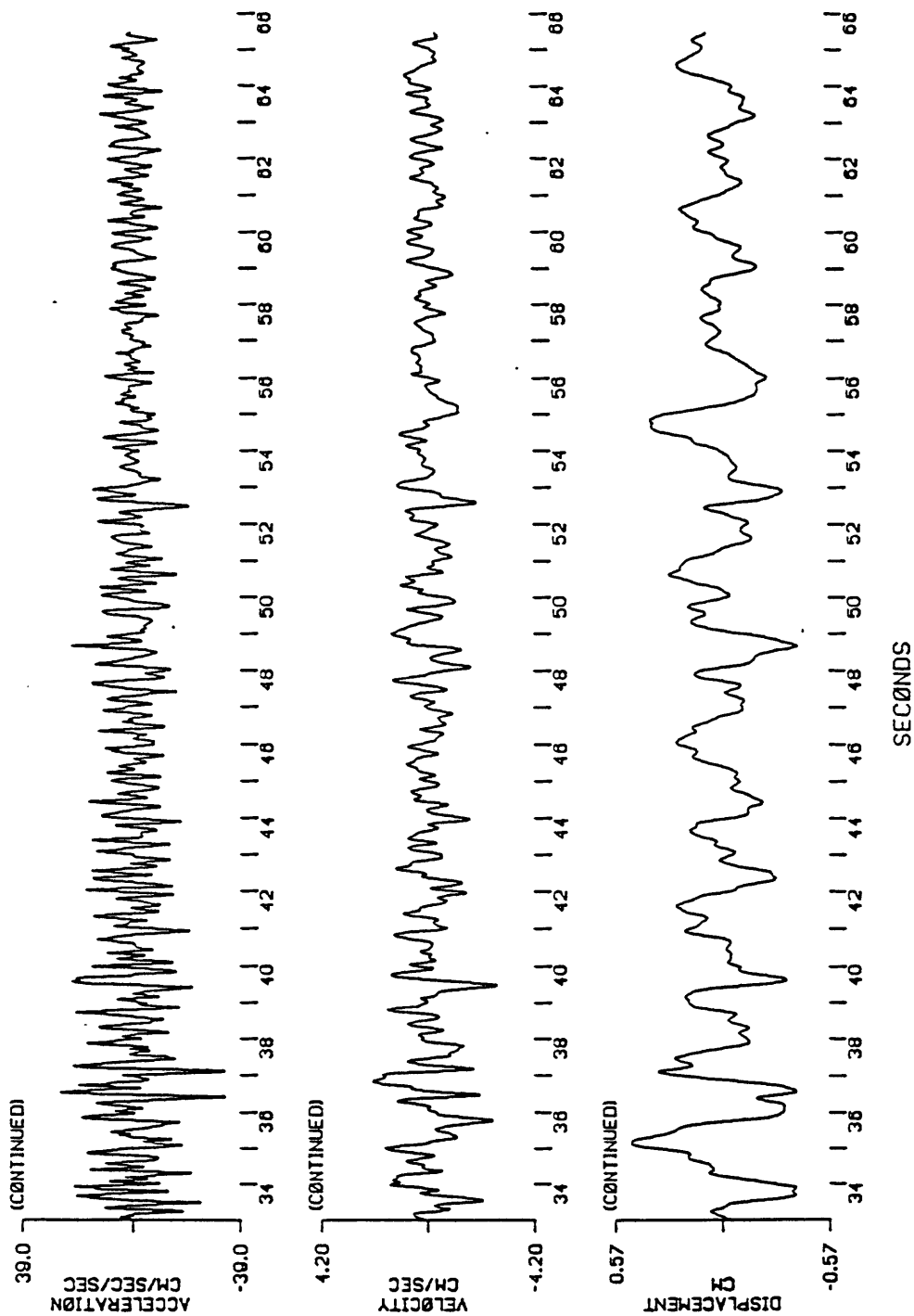
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, VERTICAL

PEAK VALUES: ACCEL--38.92 CM/SEC/SEC, VELOCITY--4.12 CM/SEC, DISPL-0.57 CM

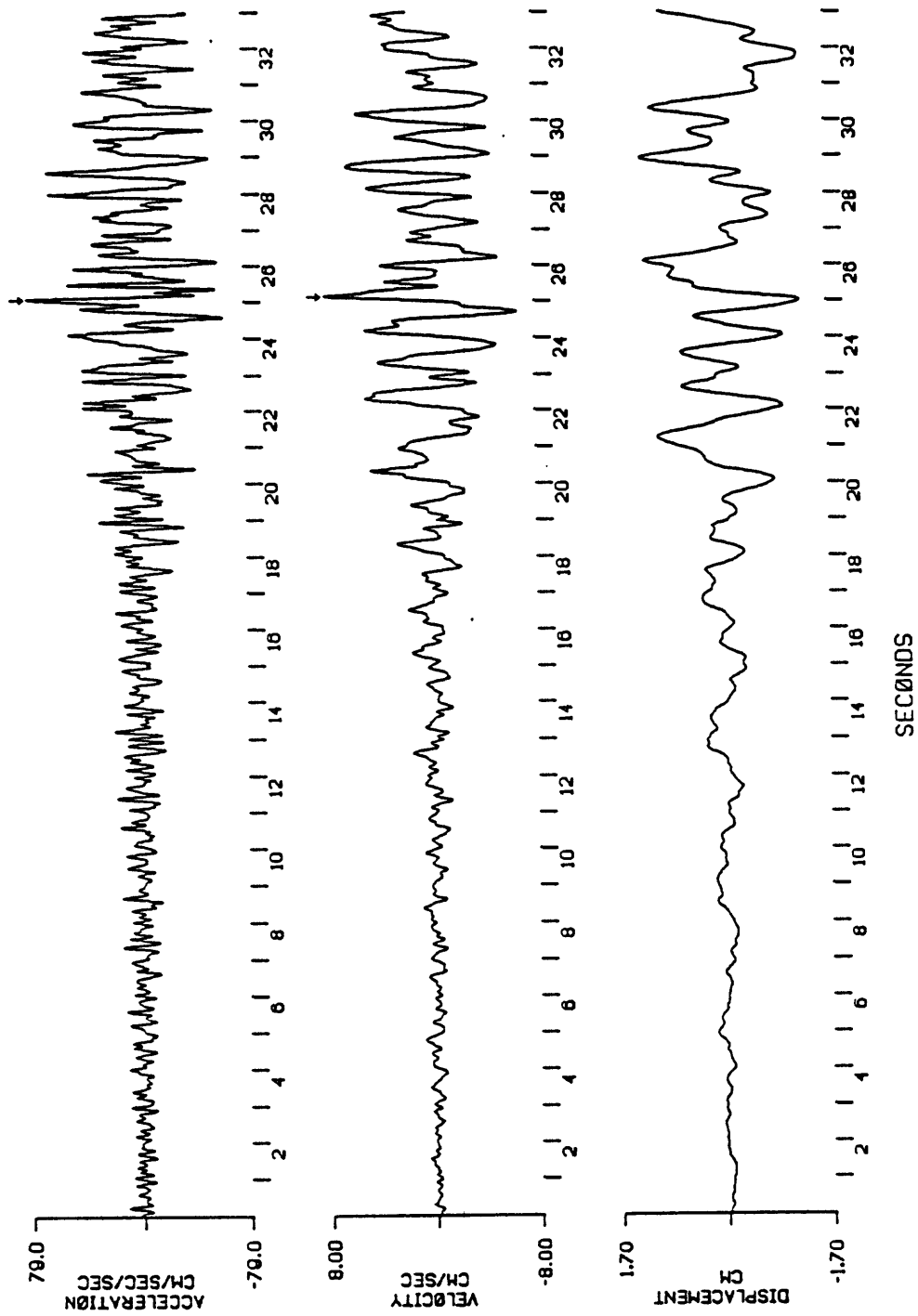


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
CONSTITUCION, CHILE, VERTICAL

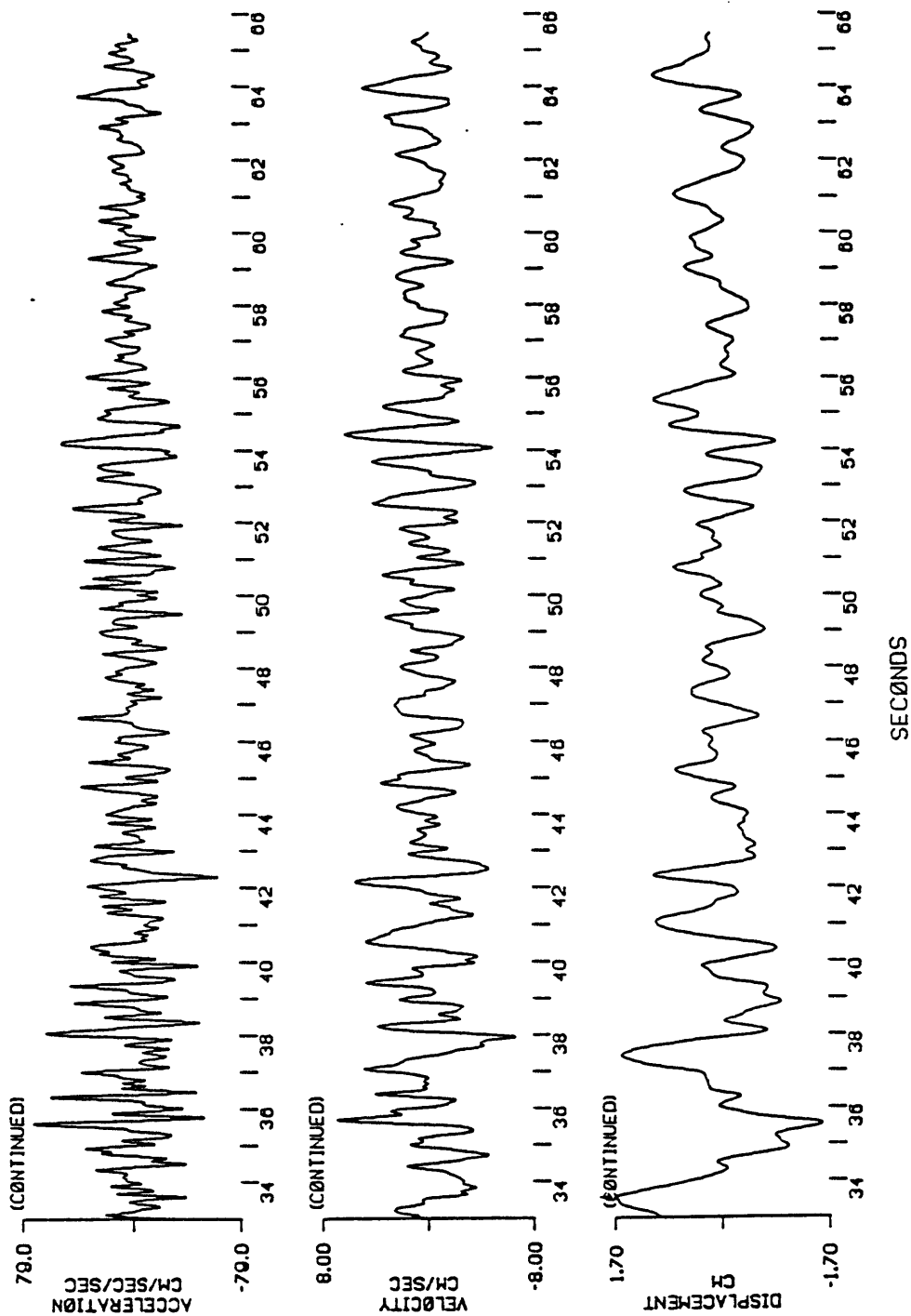
PEAK VALUES: ACCEL--38.92 CM/SEC/SEC, VELOCITY--4.12 CM/SEC, DISPL-0.57 CM



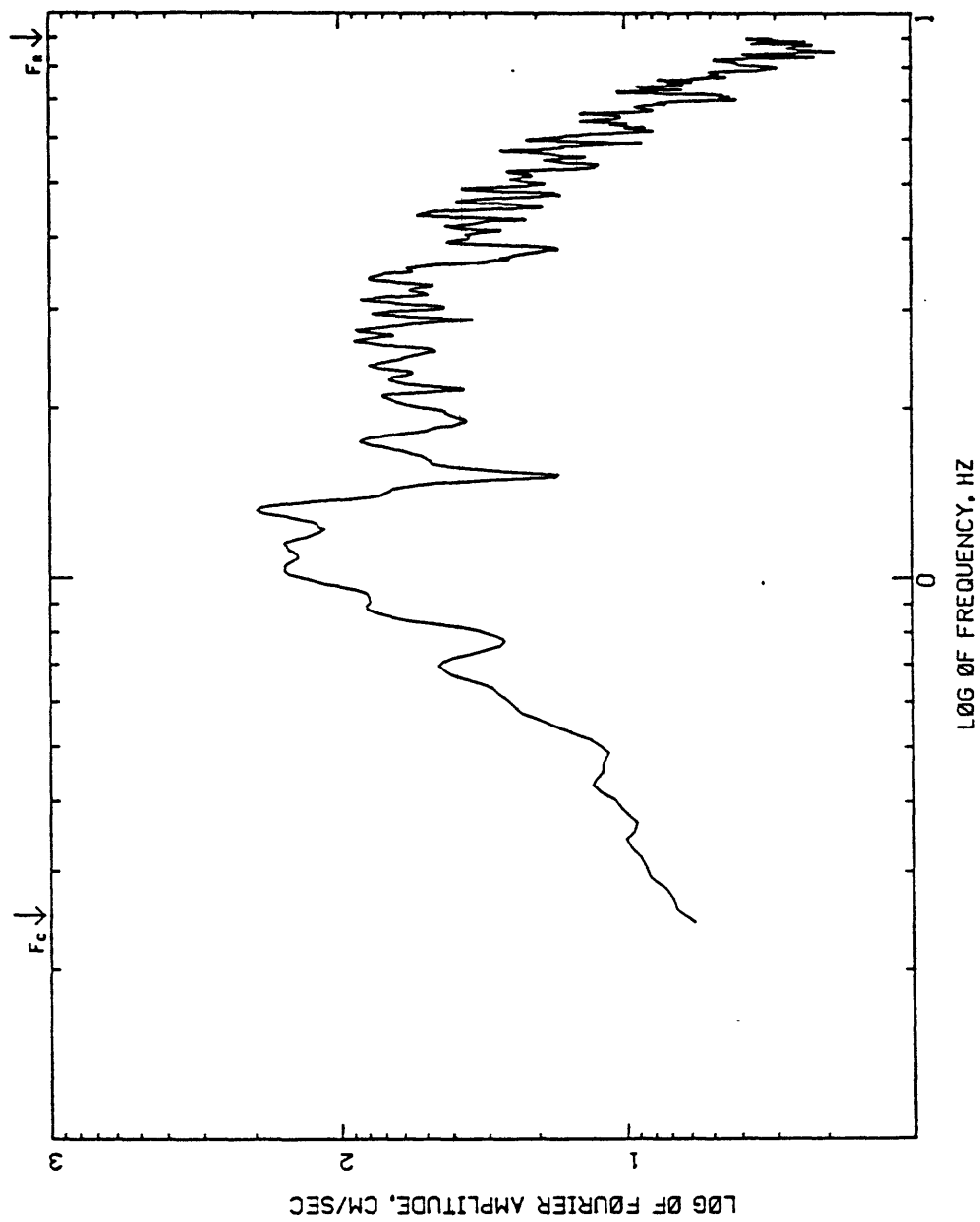
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, EAST-WEST
 PEAK VALUES: ACCEL=78.53 CM/SEC/SEC, VELOCITY=7.96 CM/SEC, DISPL=1.68 CM



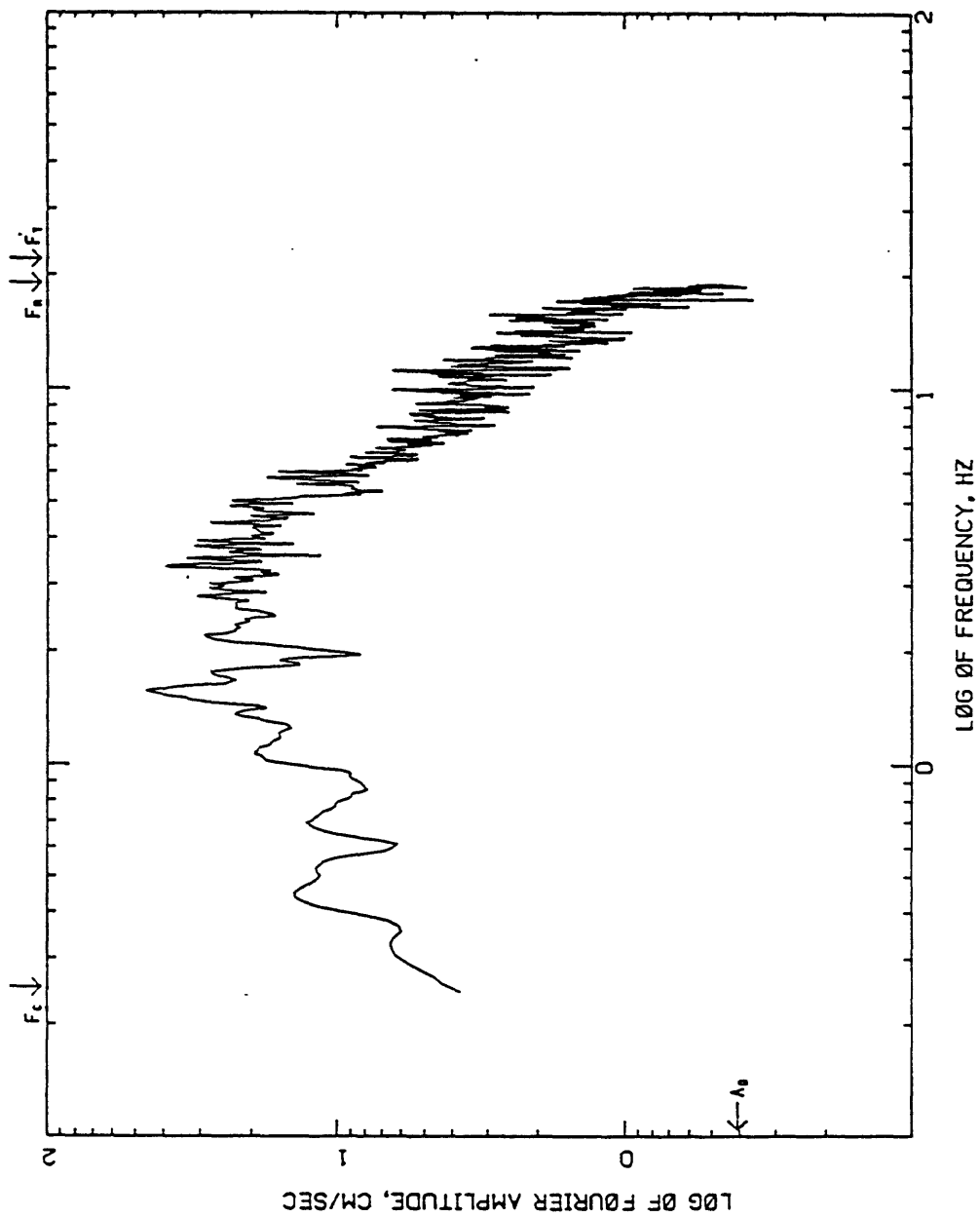
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, EAST-WEST
 PEAK VALUES: ACCEL=78.53 CM/SEC/SEC, VELOCITY=7.96 CM/SEC, DISPL=1.68 CM



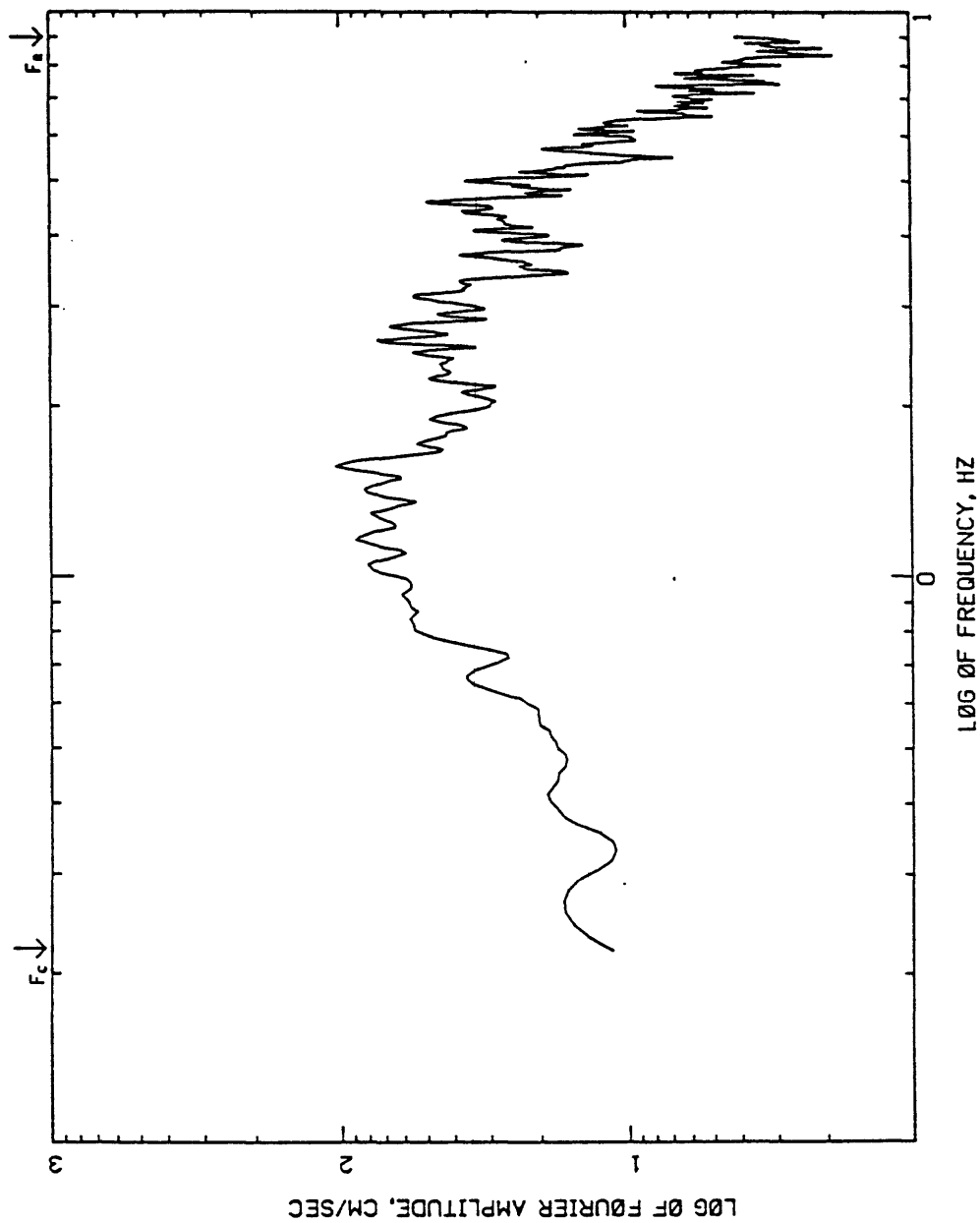
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE NORTH-SOUTH
 COMPUTING OPTIONS - ZCRSS, SMOOTH(10), NONNOISE



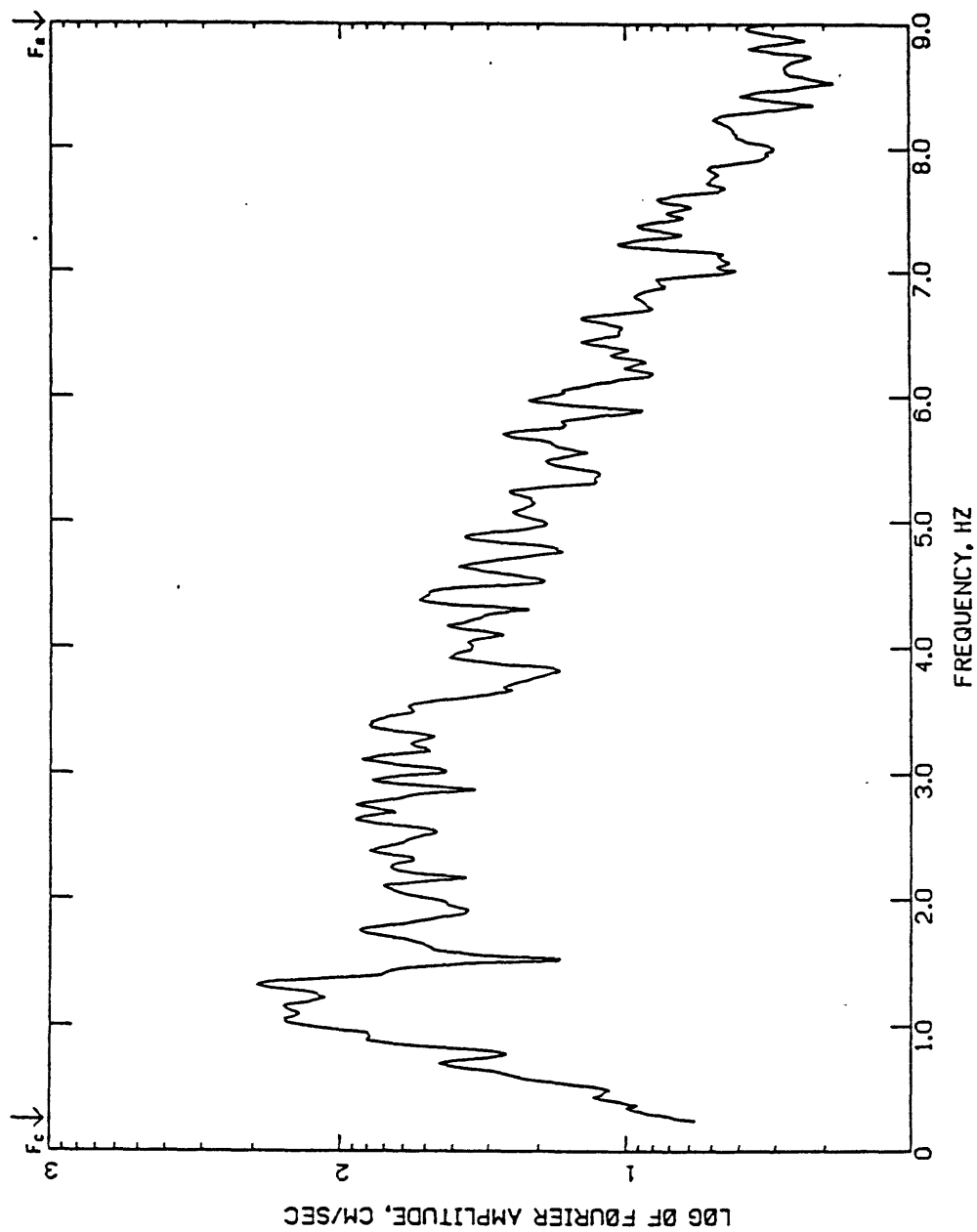
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUTION, CHILE, VERTICAL
 COMPUTING OPTIONS - ZCR055.5M00THU01,N00N0ISE



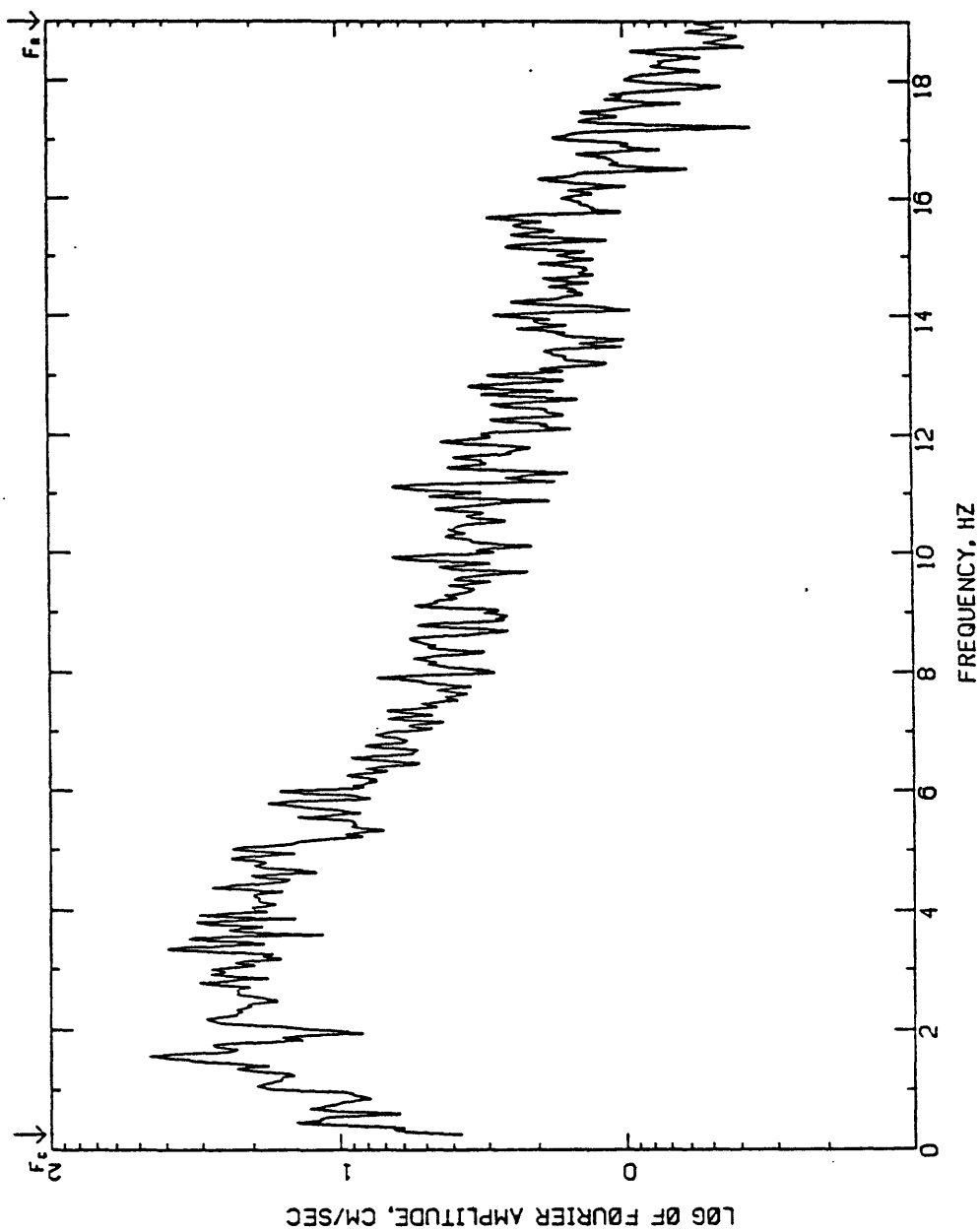
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR055, SM00TH100, N00NOISE



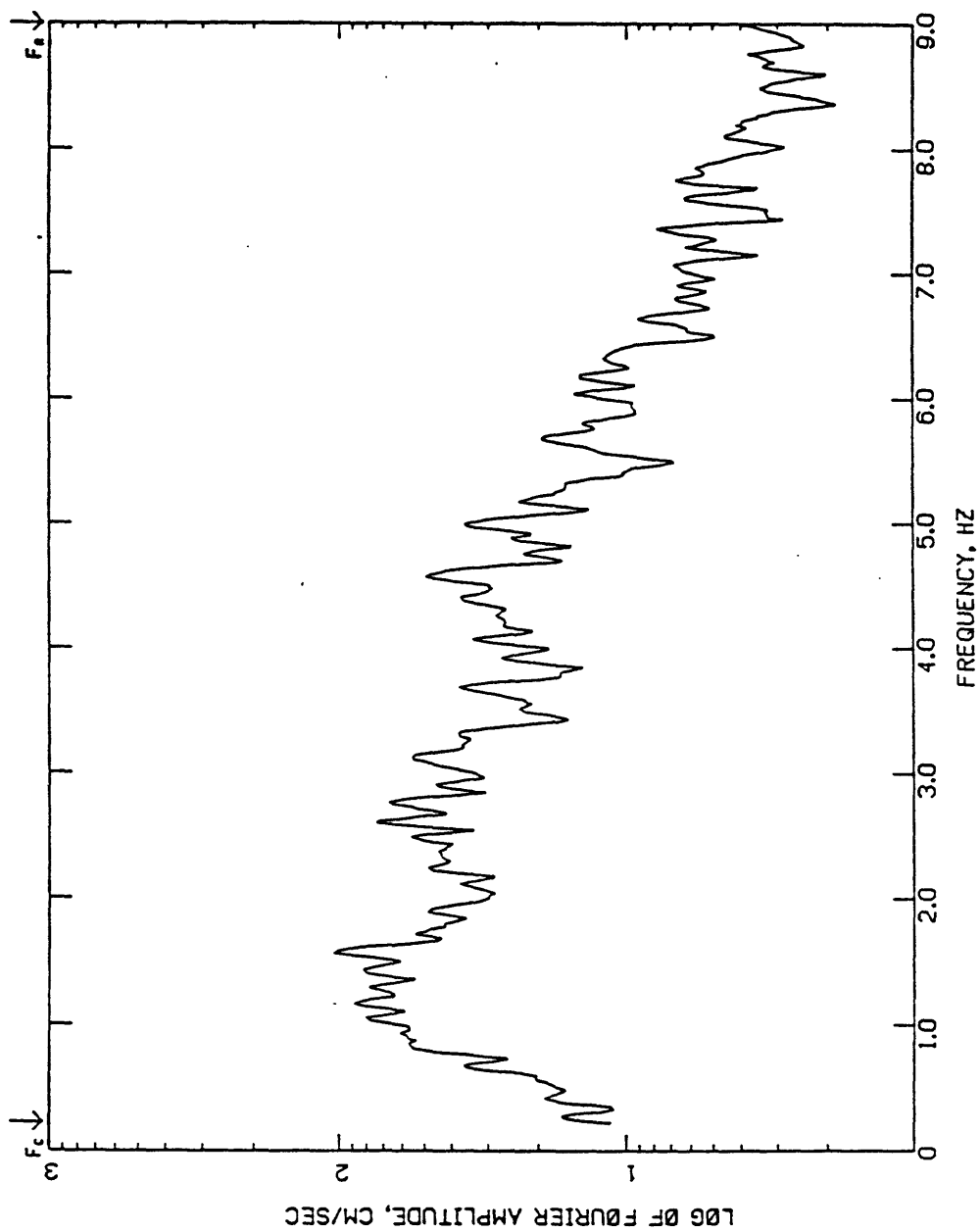
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CØNSTITUCIØN, CHILE, NØRTH-SØUTH
 CØMPUTING ØPTIONS- ZCRØSS, SMØØTH100, NØNØISE



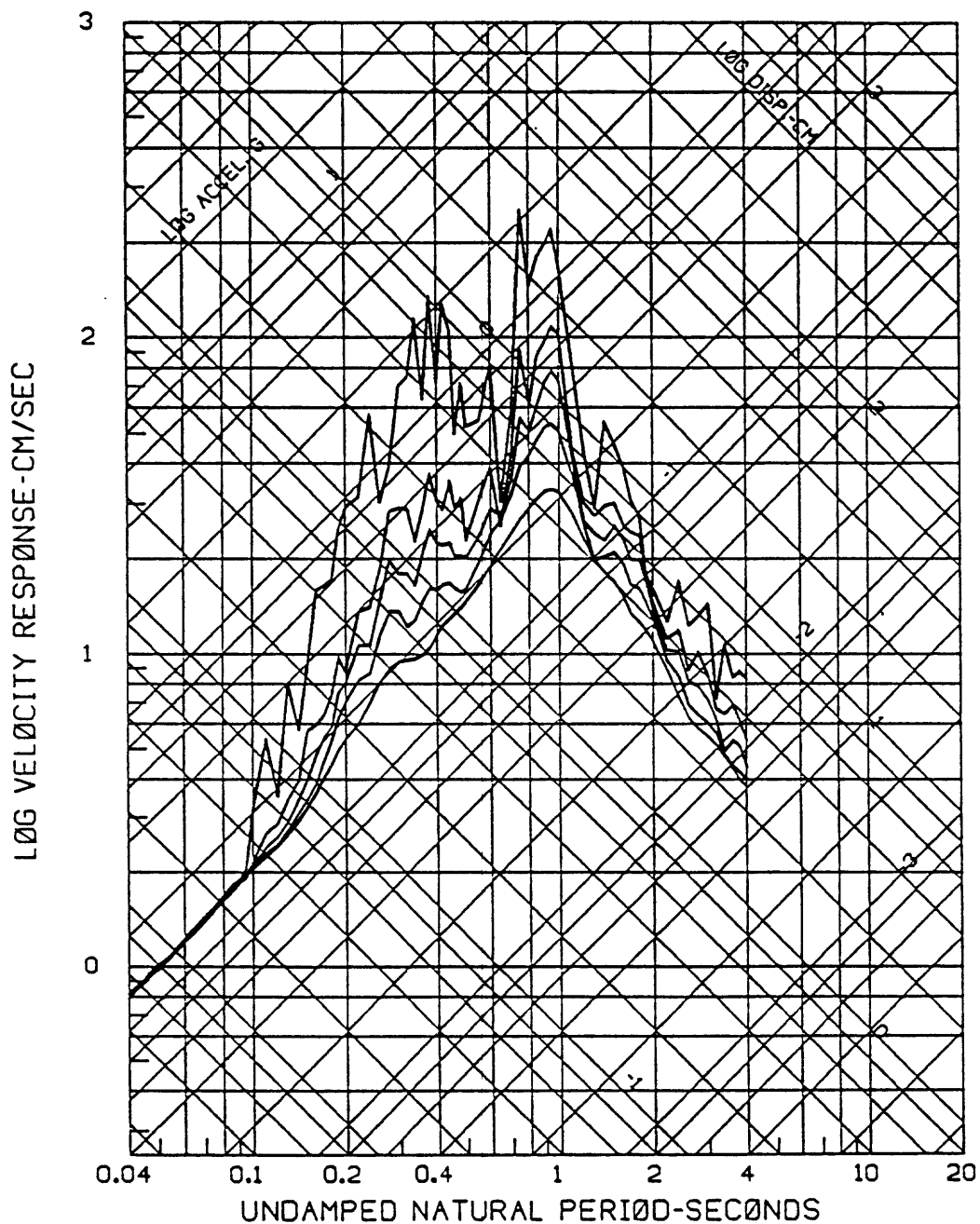
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUTION, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCROSS, SMOOTH101, NØNØISE



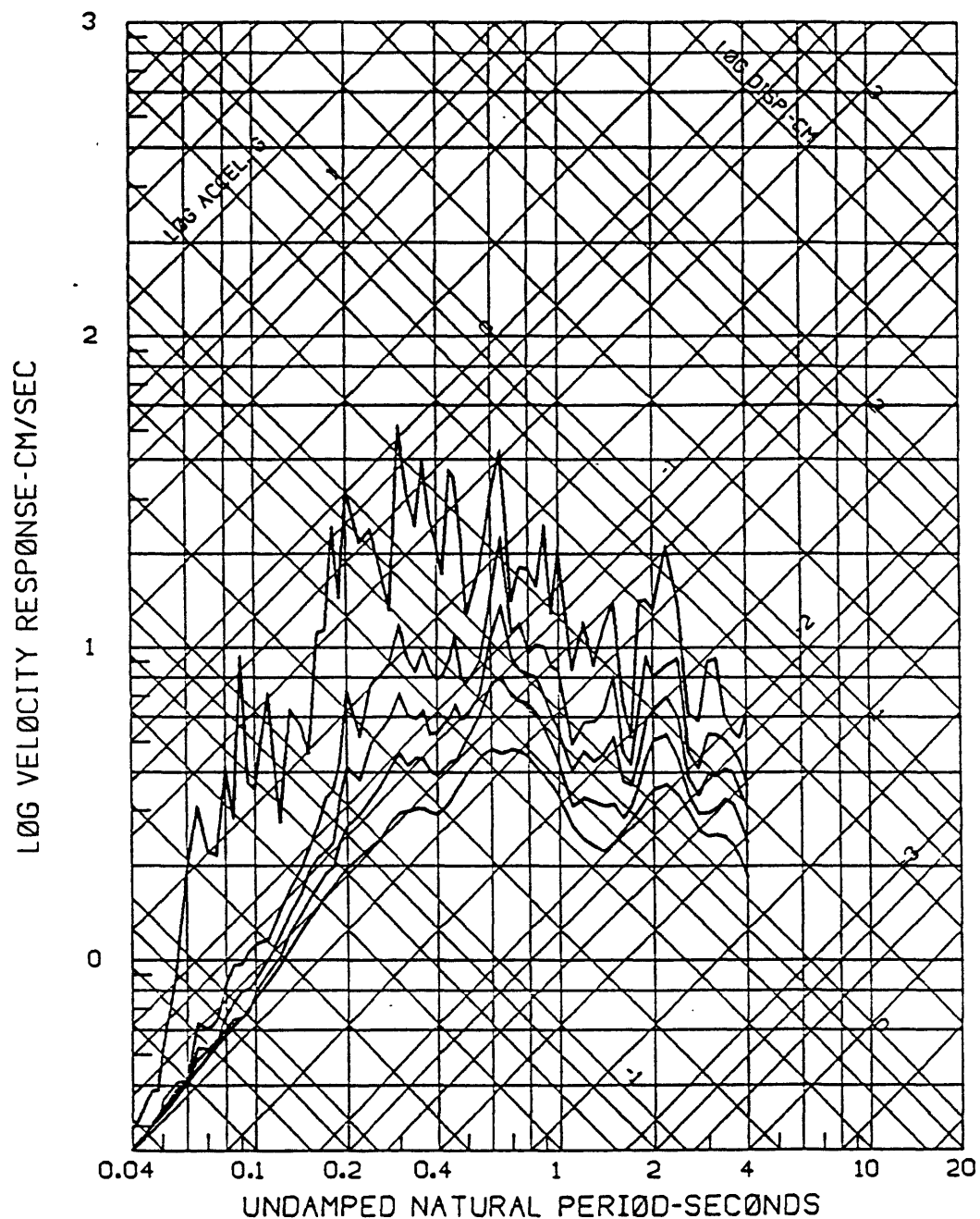
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR055,SM00TH10,NOISE



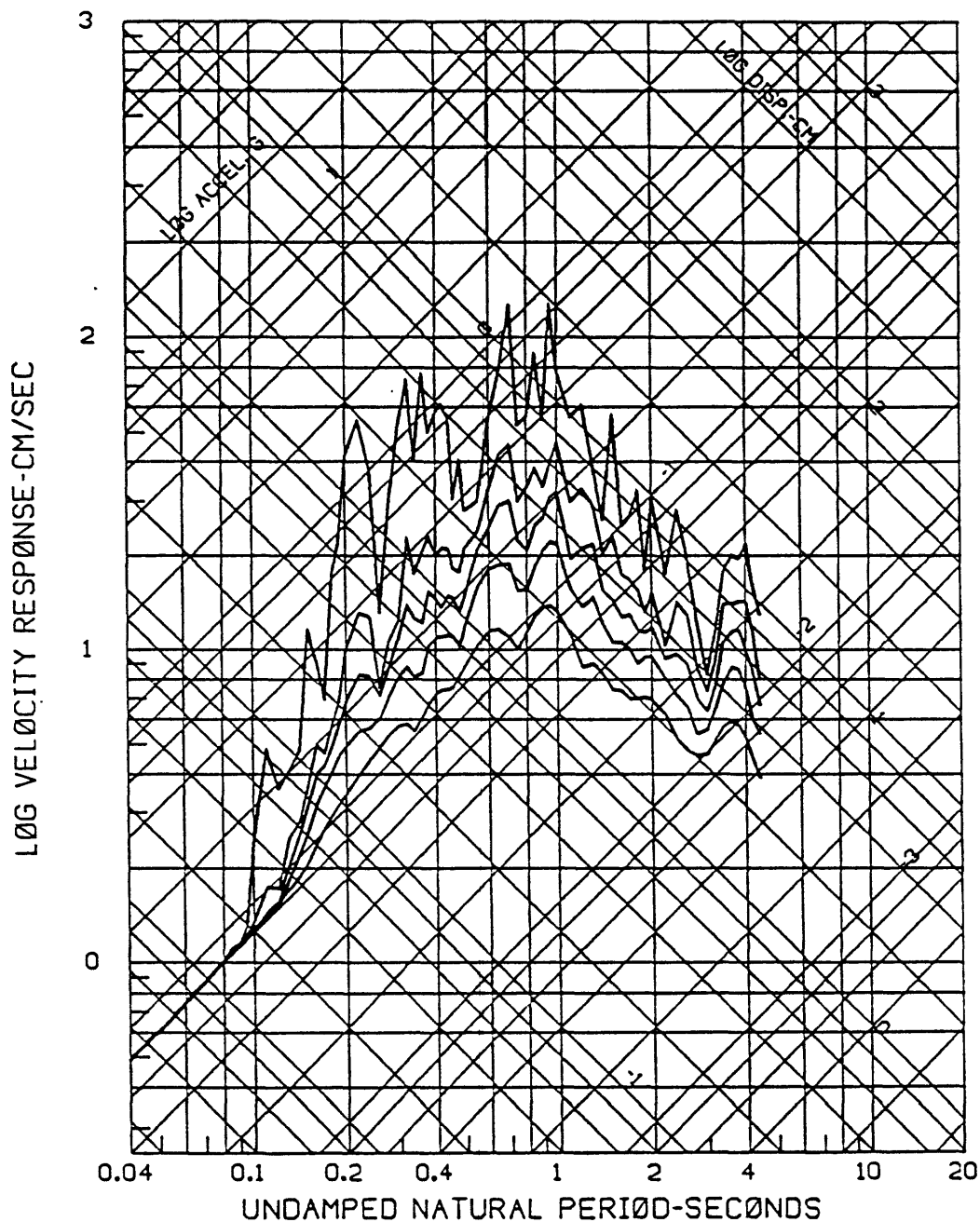
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



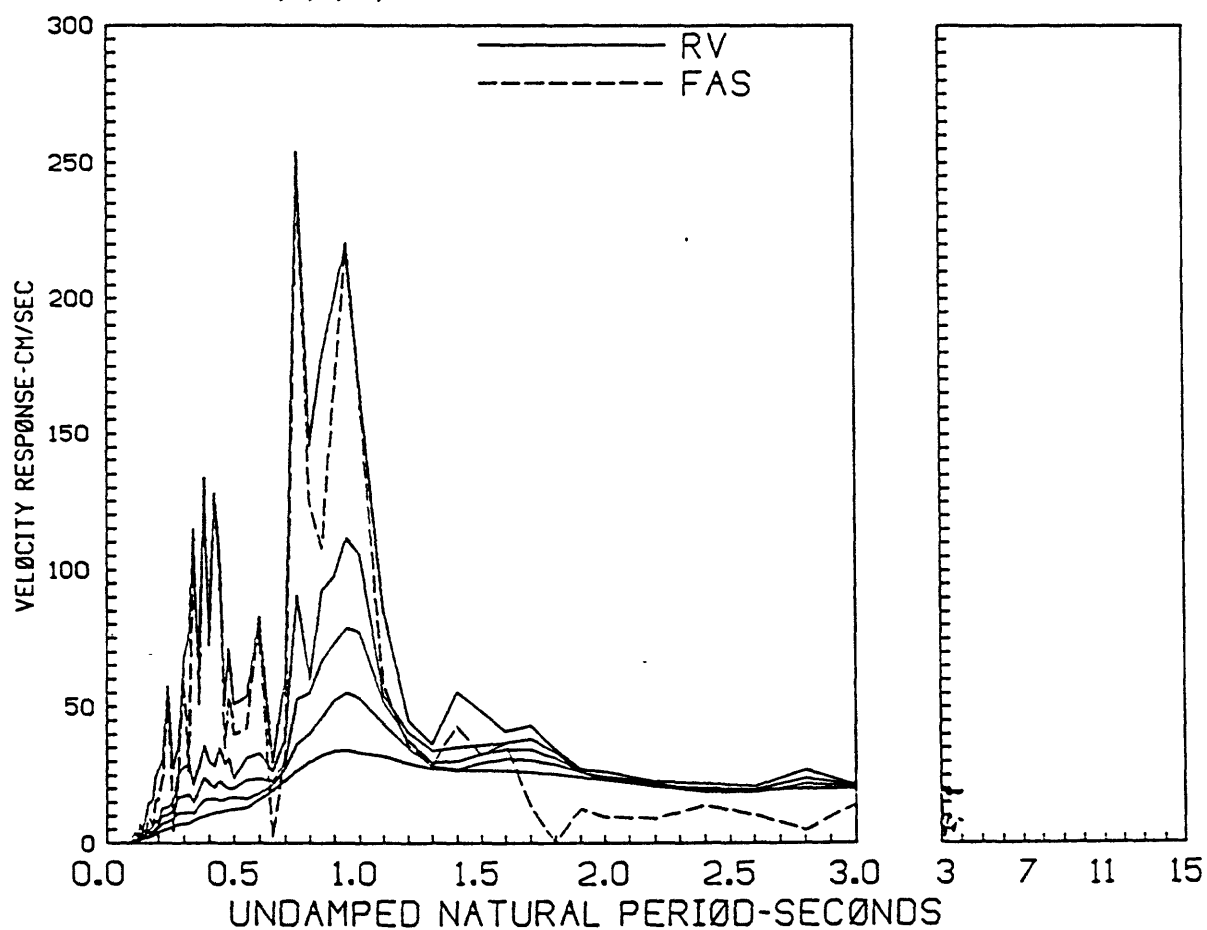
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCIØN, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



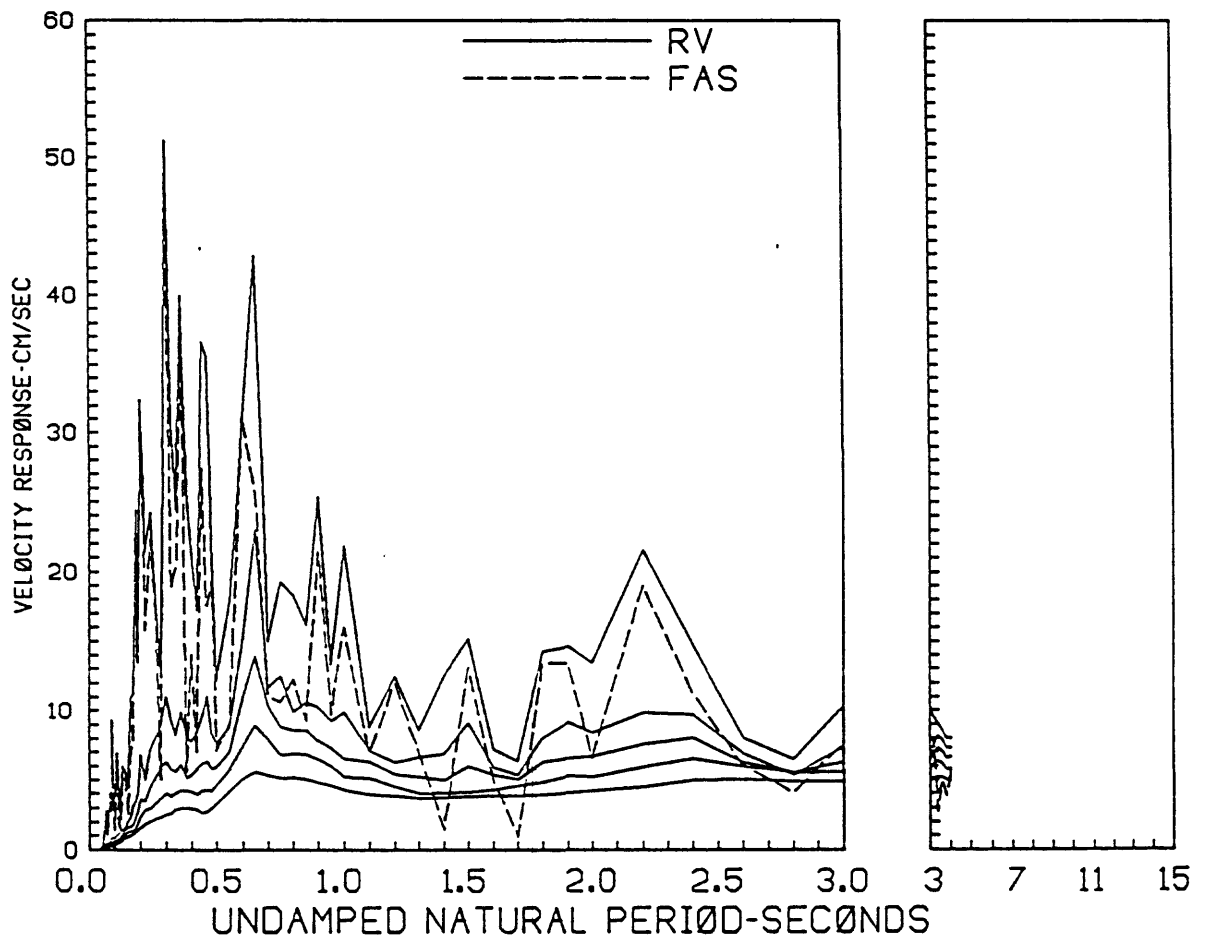
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCIÓN, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



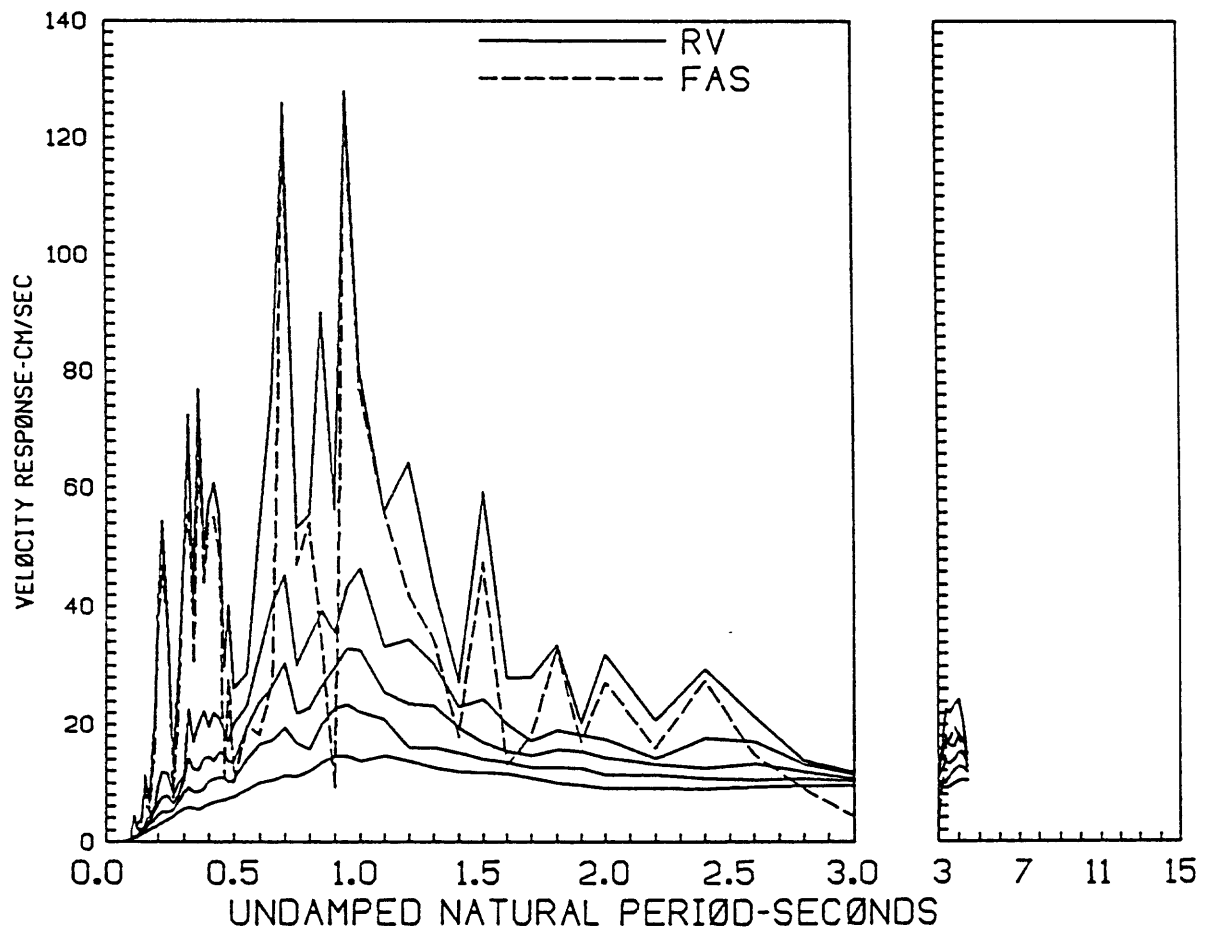
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCIÓN, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCIÓN, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CONSTITUCION, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



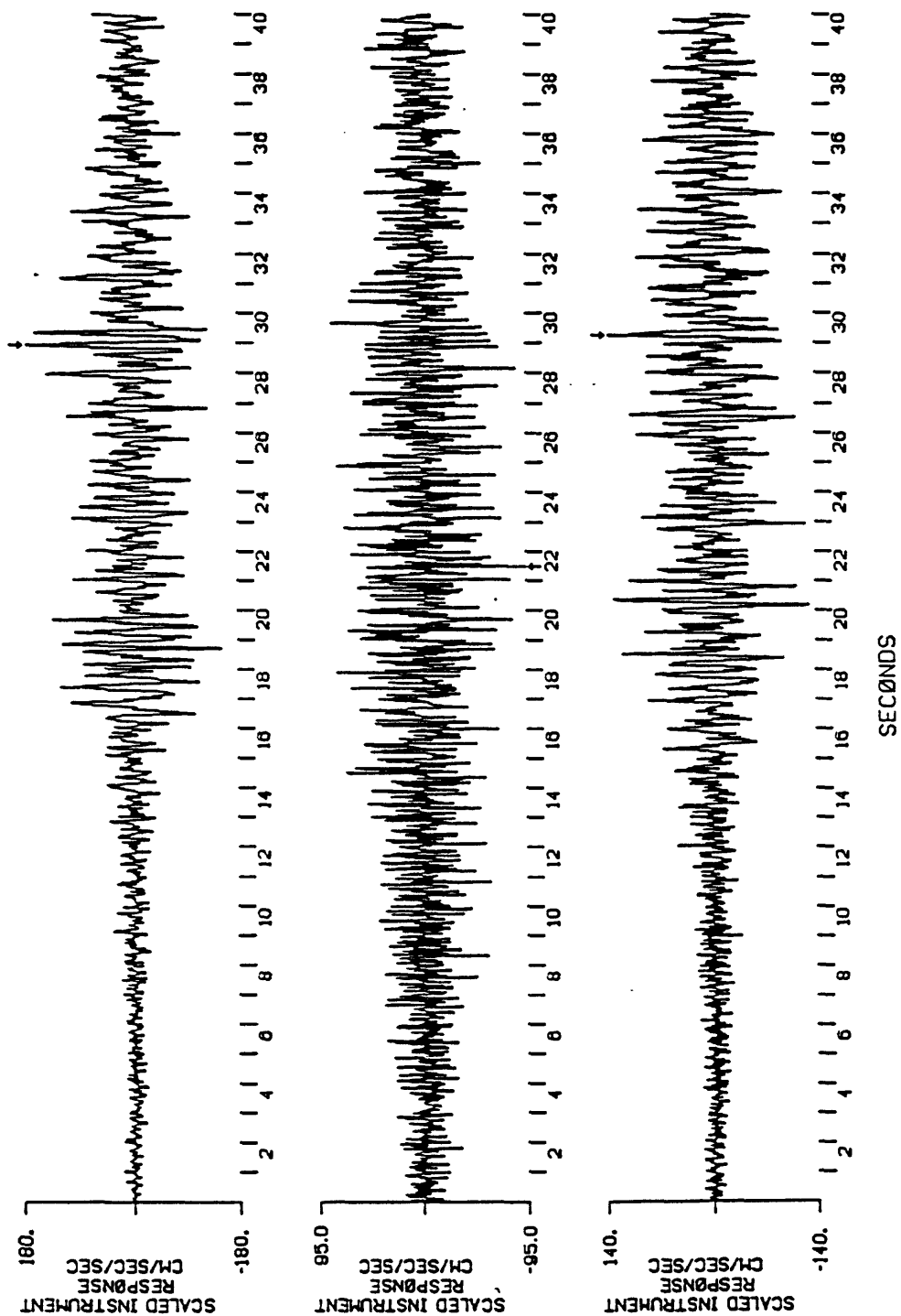
SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake, 3/3/85
22:47:07 UTC, $M_s=7.8$

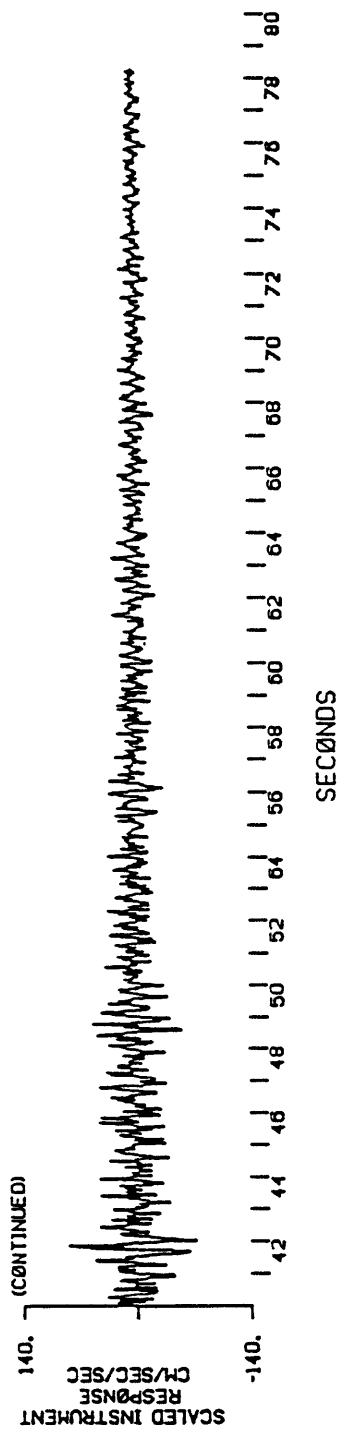
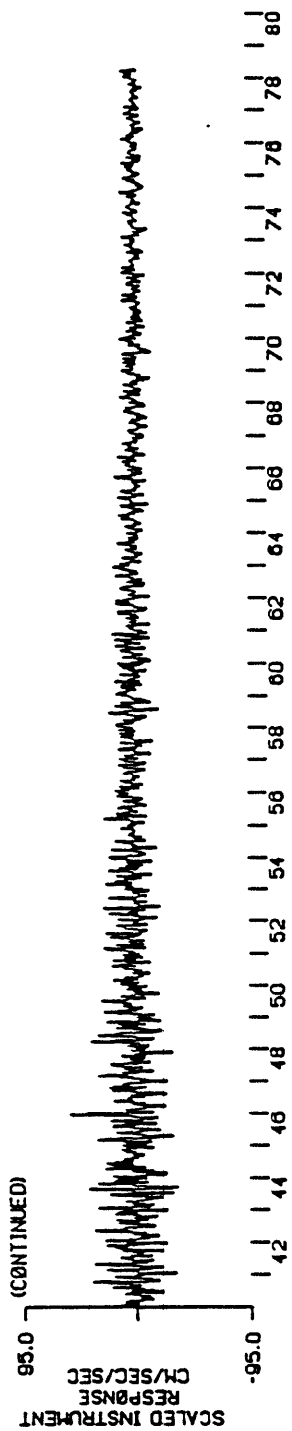
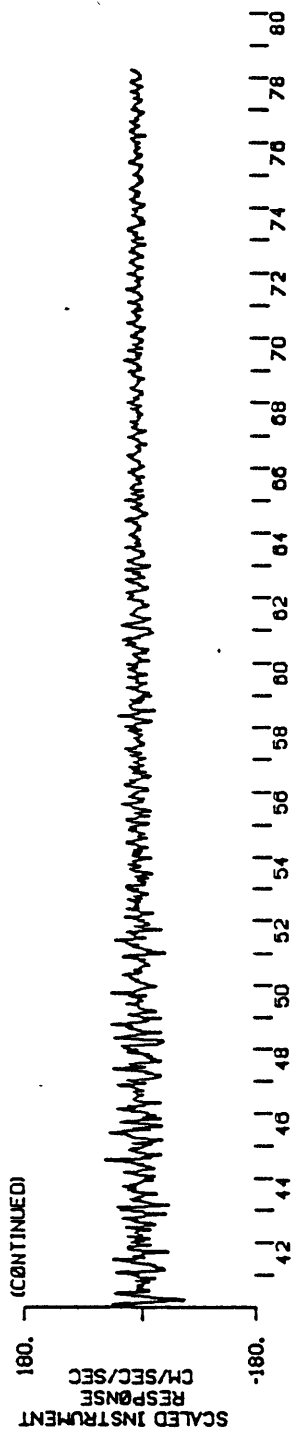
Hualane, Chile

DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.9	25.6	26.3
Damping (% Critical)	63.8	63.8	60.3
<u>Filter Parameters:</u>			
Highcut (Hz)	19.0	28.0	21.0
Lowcut (Hz)	0.294	0.357	0.250
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	173.2	-94.5	136.5
Peak Acceleration, A (cm/s/s)	167.1	-83.4	133.5
Peak Velocity, V (cm/s)	11.4	5.75	11.0
Peak Displacement, D (cm)	1.51	-1.18	-2.39
<u>Parameter Ratios:</u>			
$ V/A $ (sec)	0.068	0.069	0.082
$ AD/V^2 $	1.9	3.0	2.6

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 HUAYLANE, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 173.18 -94.50 136.49

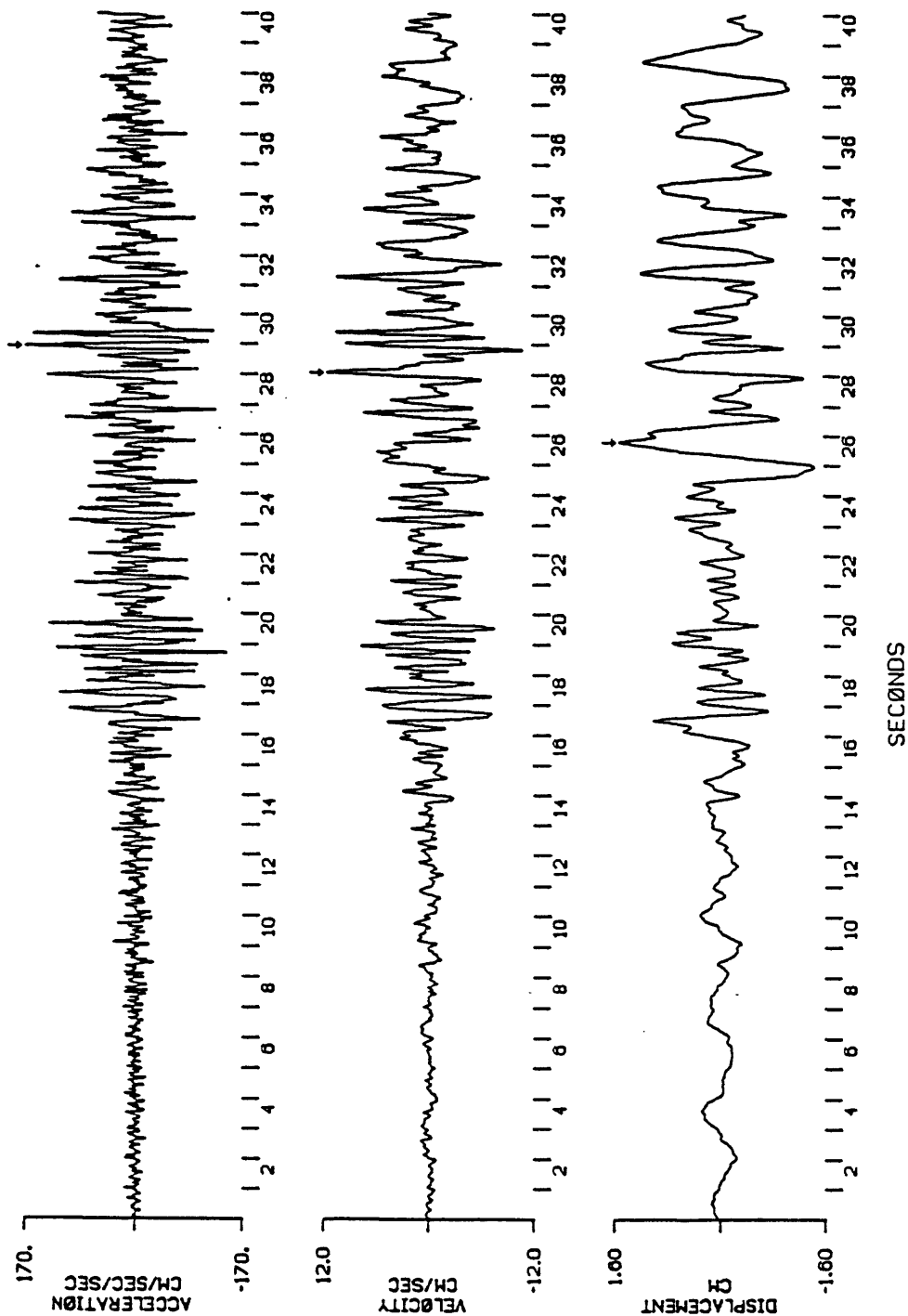


UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 HUALANE, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 173.18 -94.50 136.49

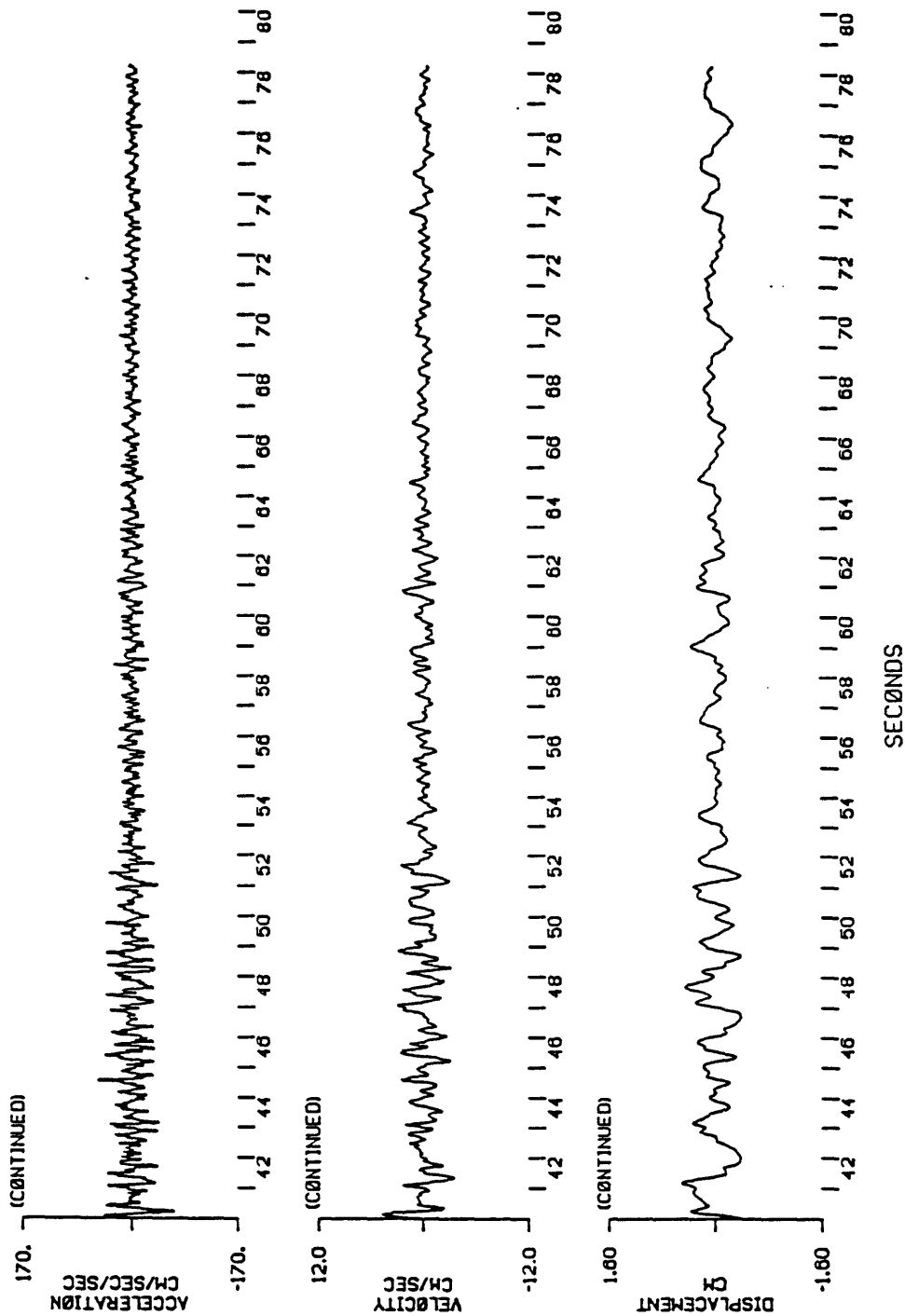


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
HUALANE, CHILE NORTH-SOUTH

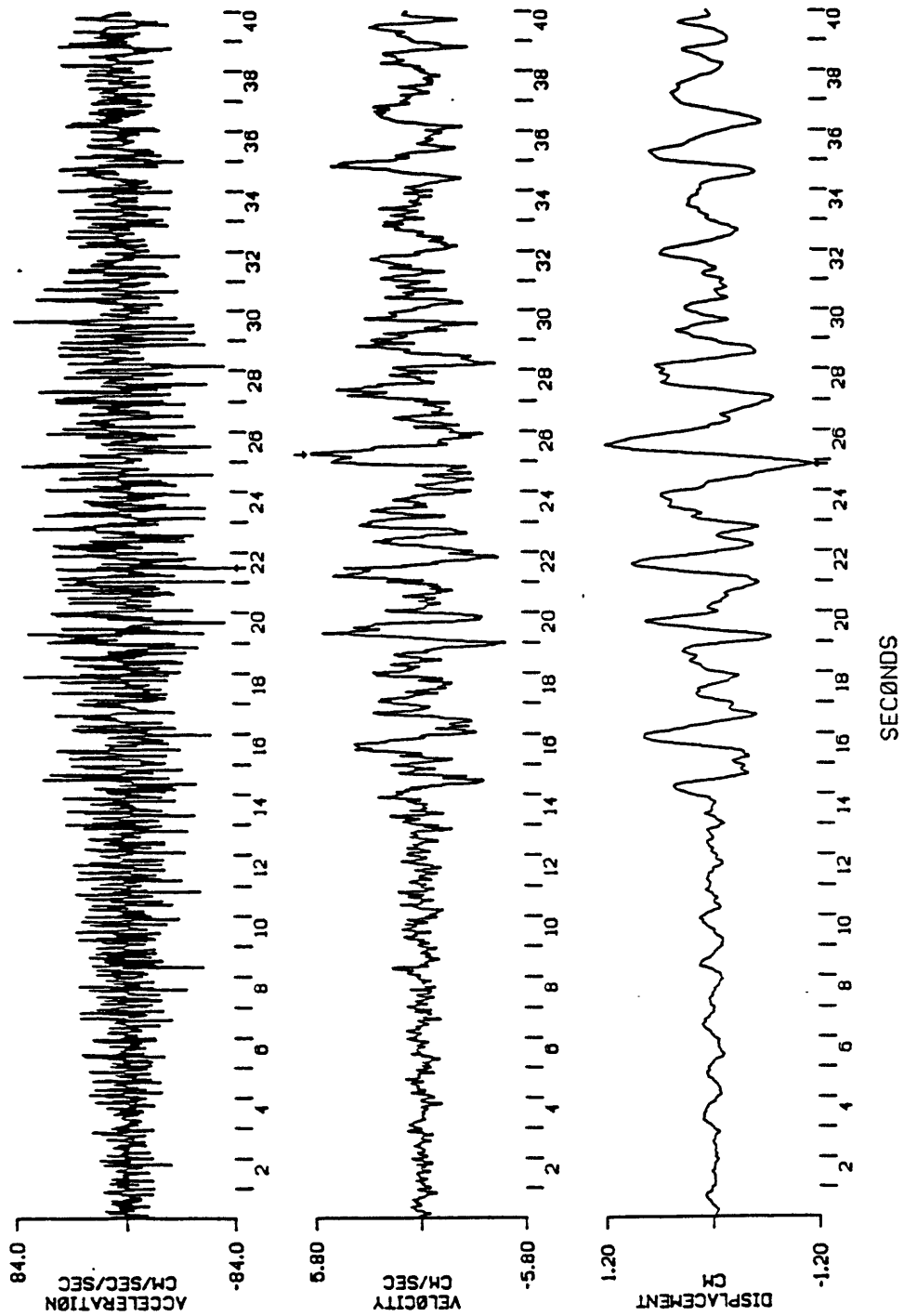
PEAK VALUES: ACCEL-167.14 CM/SEC/SEC, VELOCITY-11.42 CM/SEC, DISPL-1.51 CM



CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 HUALANE, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL-167.14 CM/SEC/SEC, VELOCITY-11.42 CM/SEC, DISPL-1.51 CM

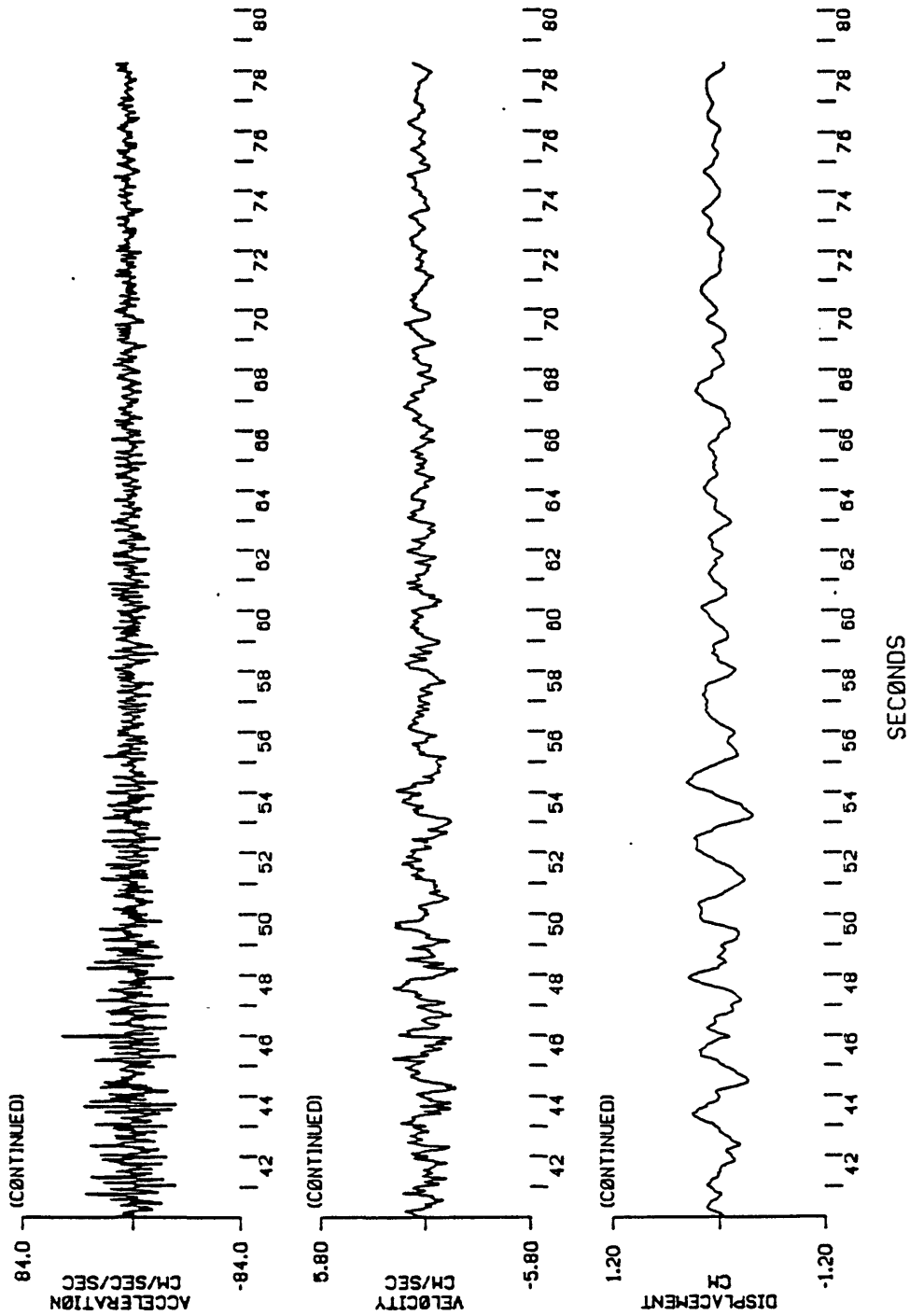


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 IIVALANE, CHILE, VERTICAL
 PEAK VALUES: ACCEL--83.36 CM/SEC/SEC, VELOCITY-5.75 CM/SEC, DISPL--1.18 CM



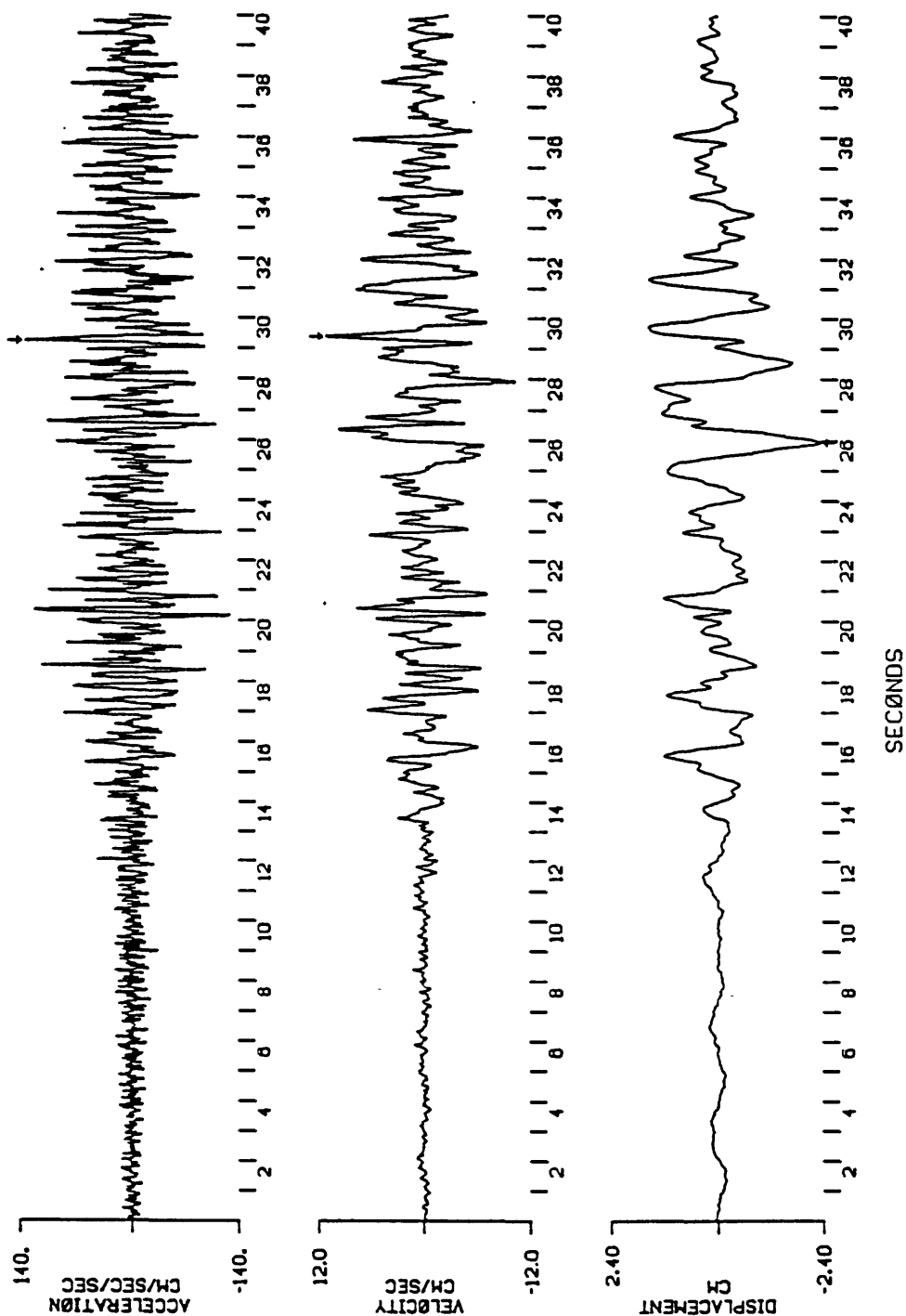
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
HUALANE, CHILE, VERTICAL

PEAK VALUES: ACCEL--83.36 CM/SEC/SEC, VELOCITY-5.75 CM/SEC, DISPL--1.18 CM

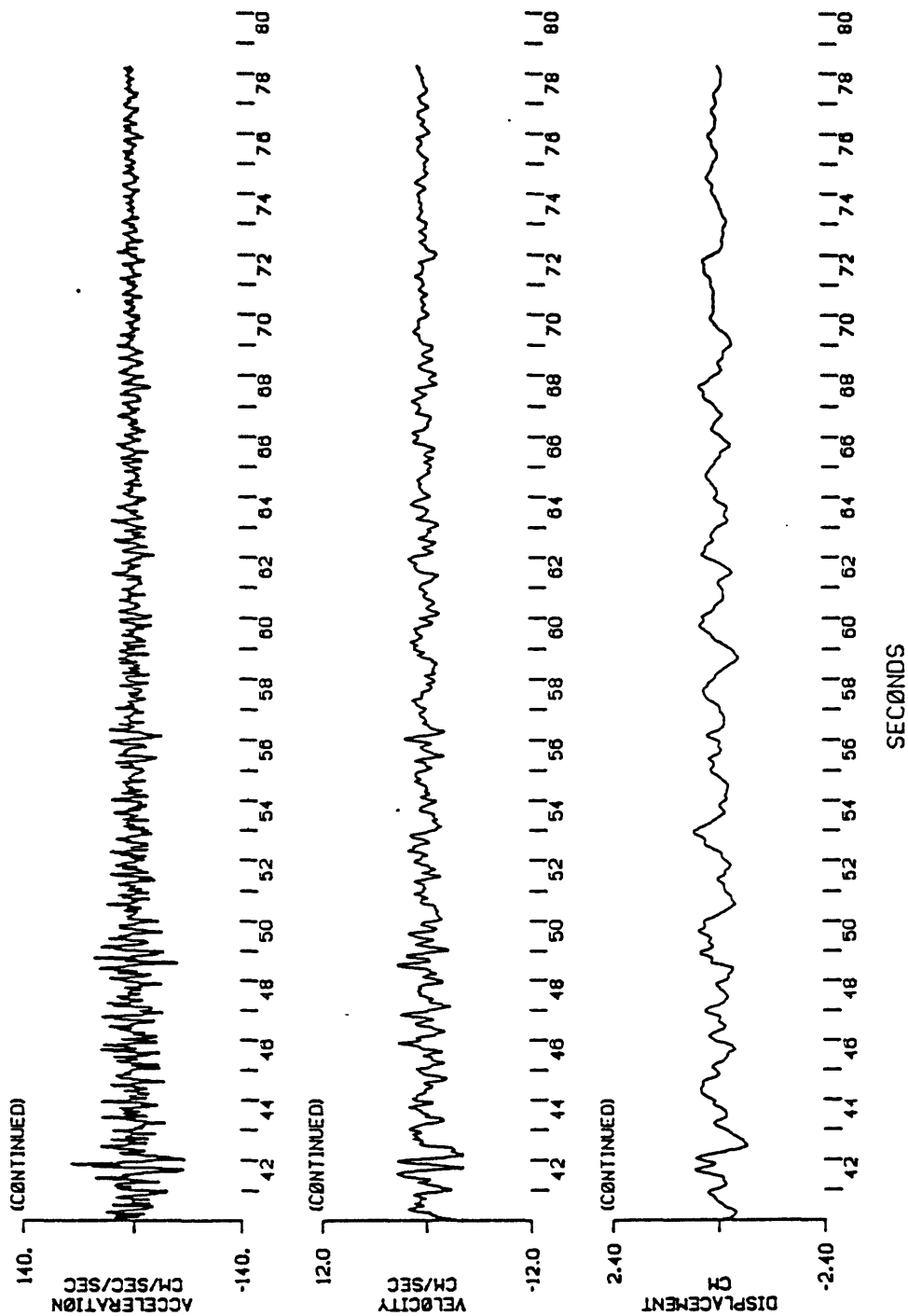


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 HUALANE, CHILE, EAST-WEST

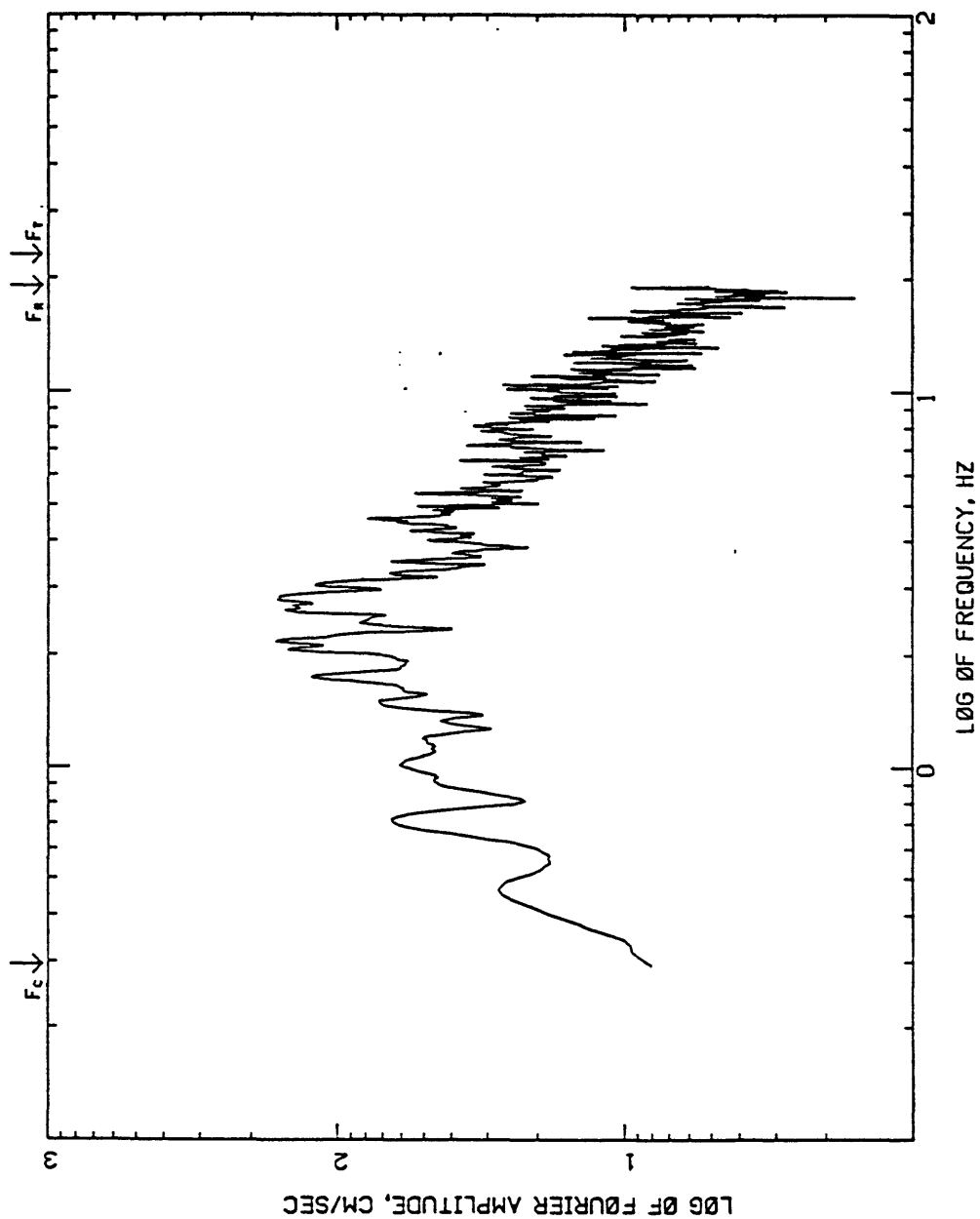
PEAK VALUES: ACCEL-133.47 CM/SEC/SEC, VELOCITY-11.02 CM/SEC, DISPL-2.39 CM



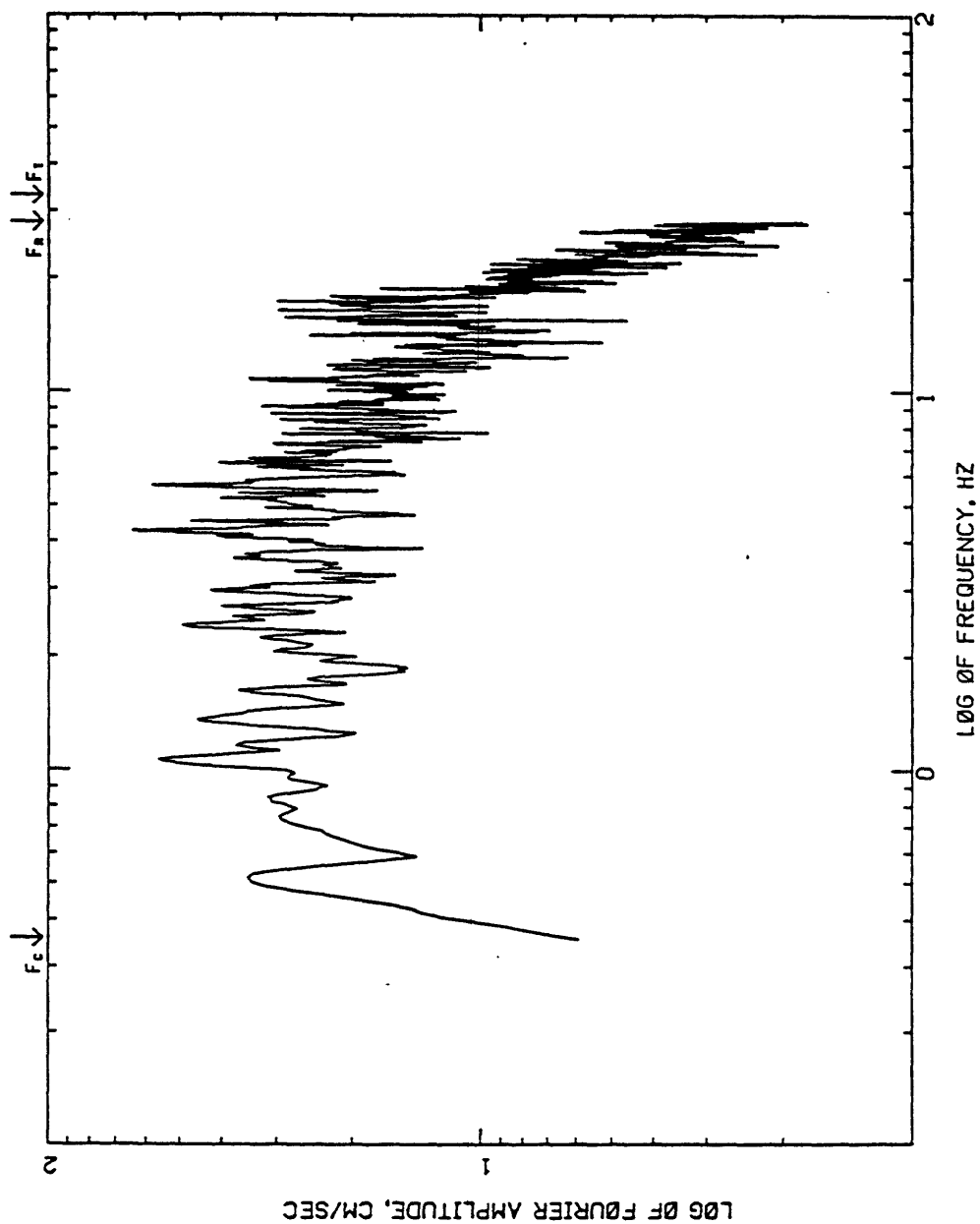
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 HUALAÑE, CHILE, EAST-WEST
 PEAK VALUES: ACCEL-133.47 CM/SEC/SEC, VELOCITY-11.02 CM/SEC, DISPL--2.39 CM



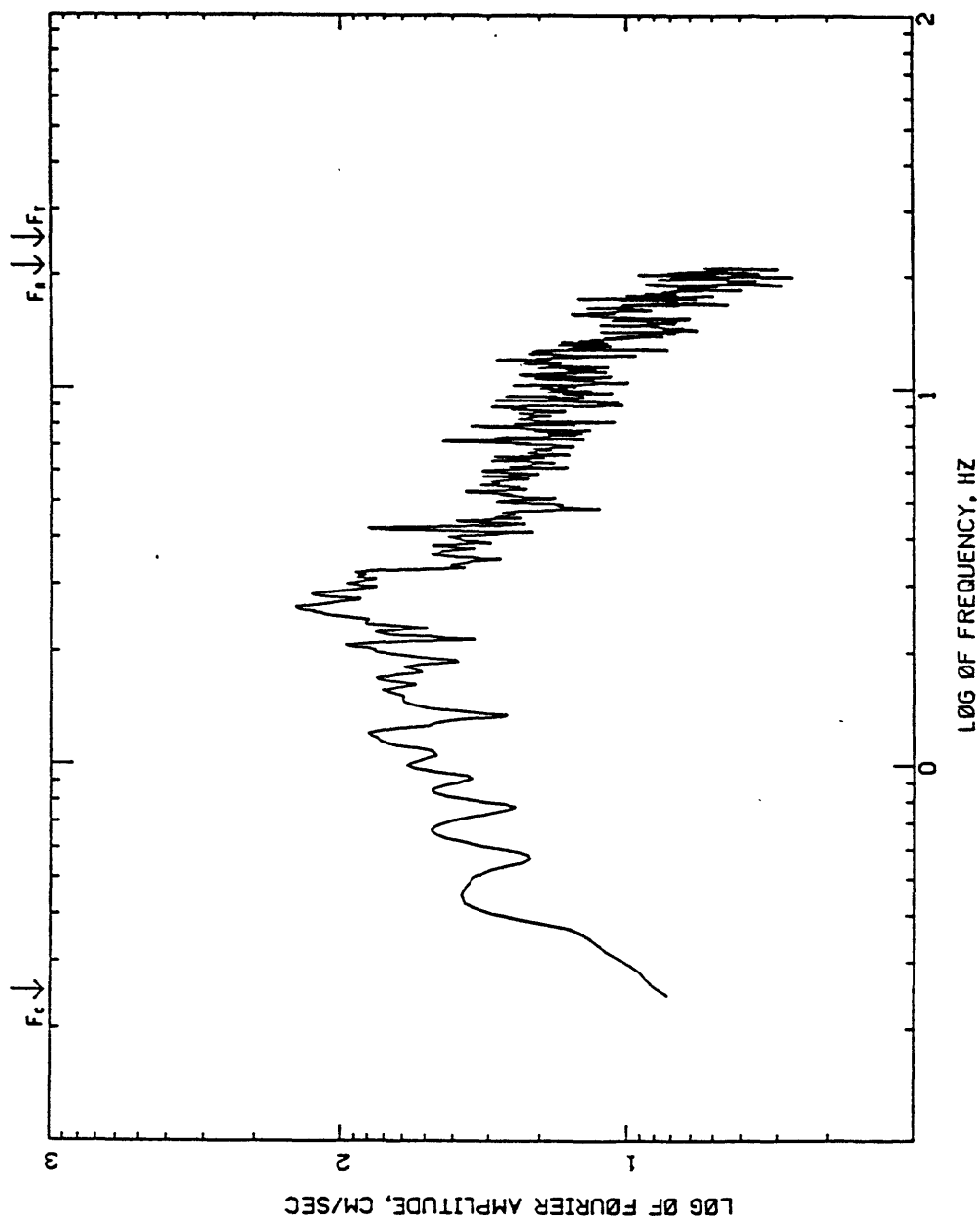
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 HUAYLAE, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS - ZCR055, SM00TH10, N0N0ISE



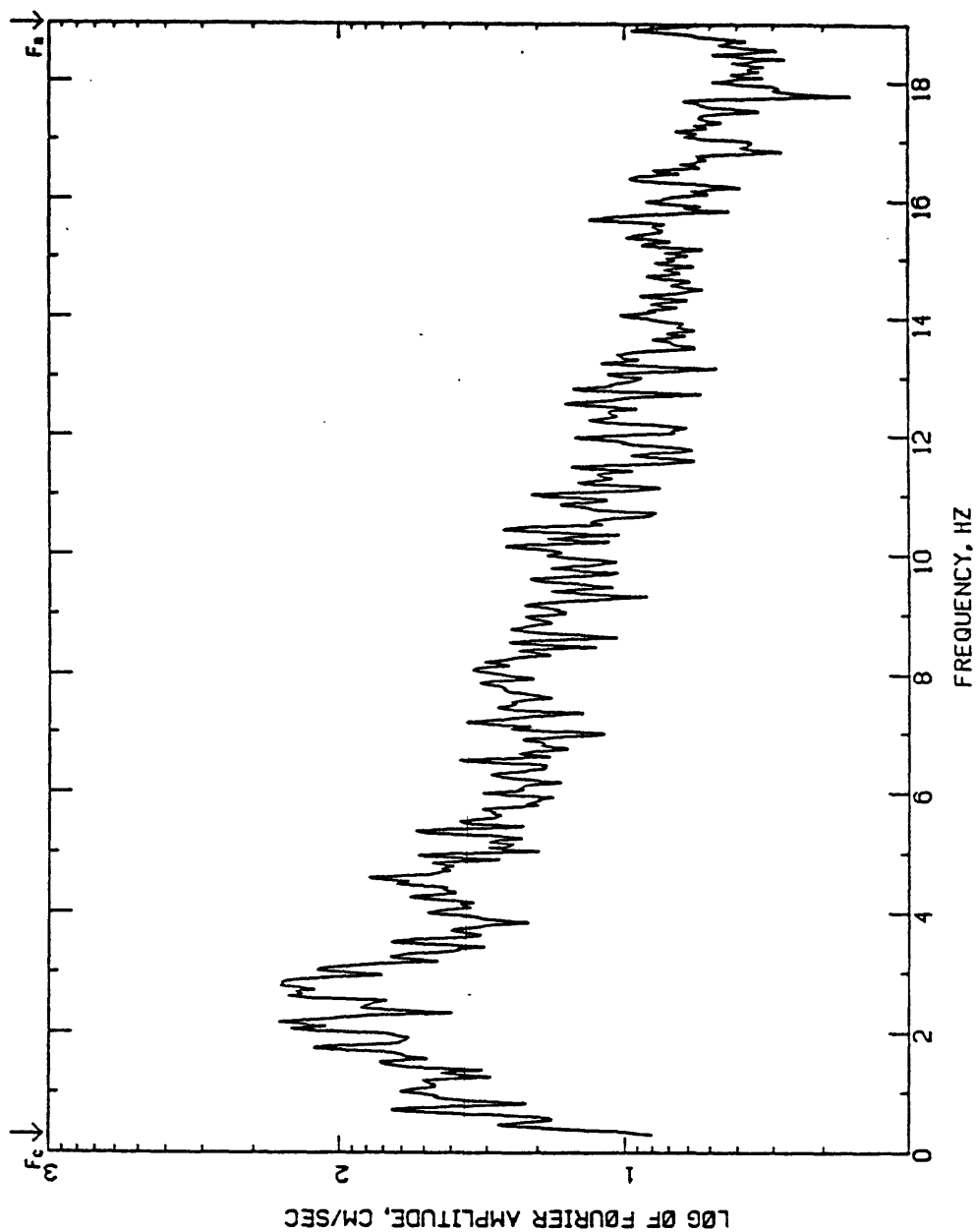
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 HUALANE, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SM00TH101, N0N0ISE



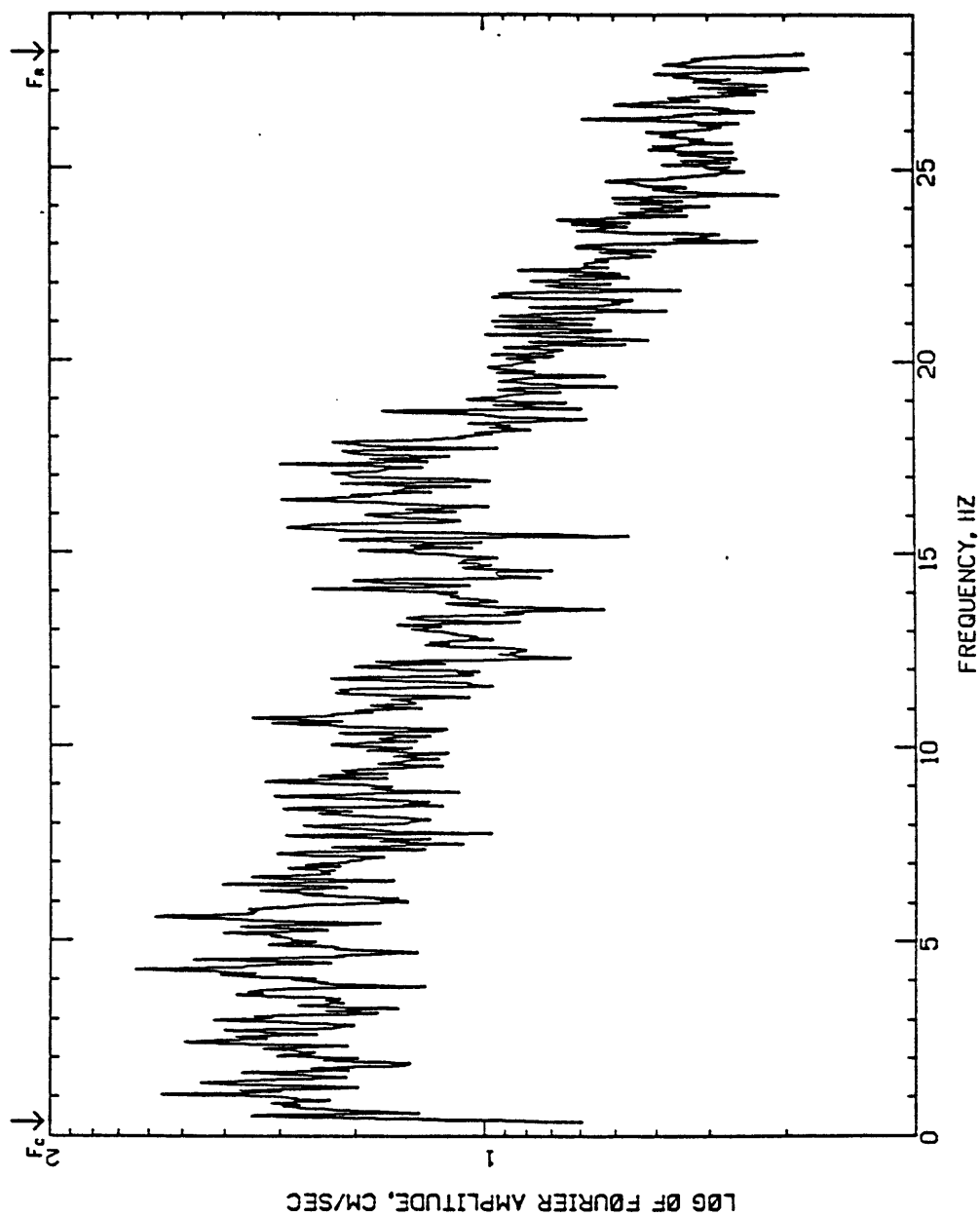
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 HUALAÑE, CHILE, EAST-WEST
 COMPUTING OPTIONS: ZCR055, SMOOTH100, N000ISE



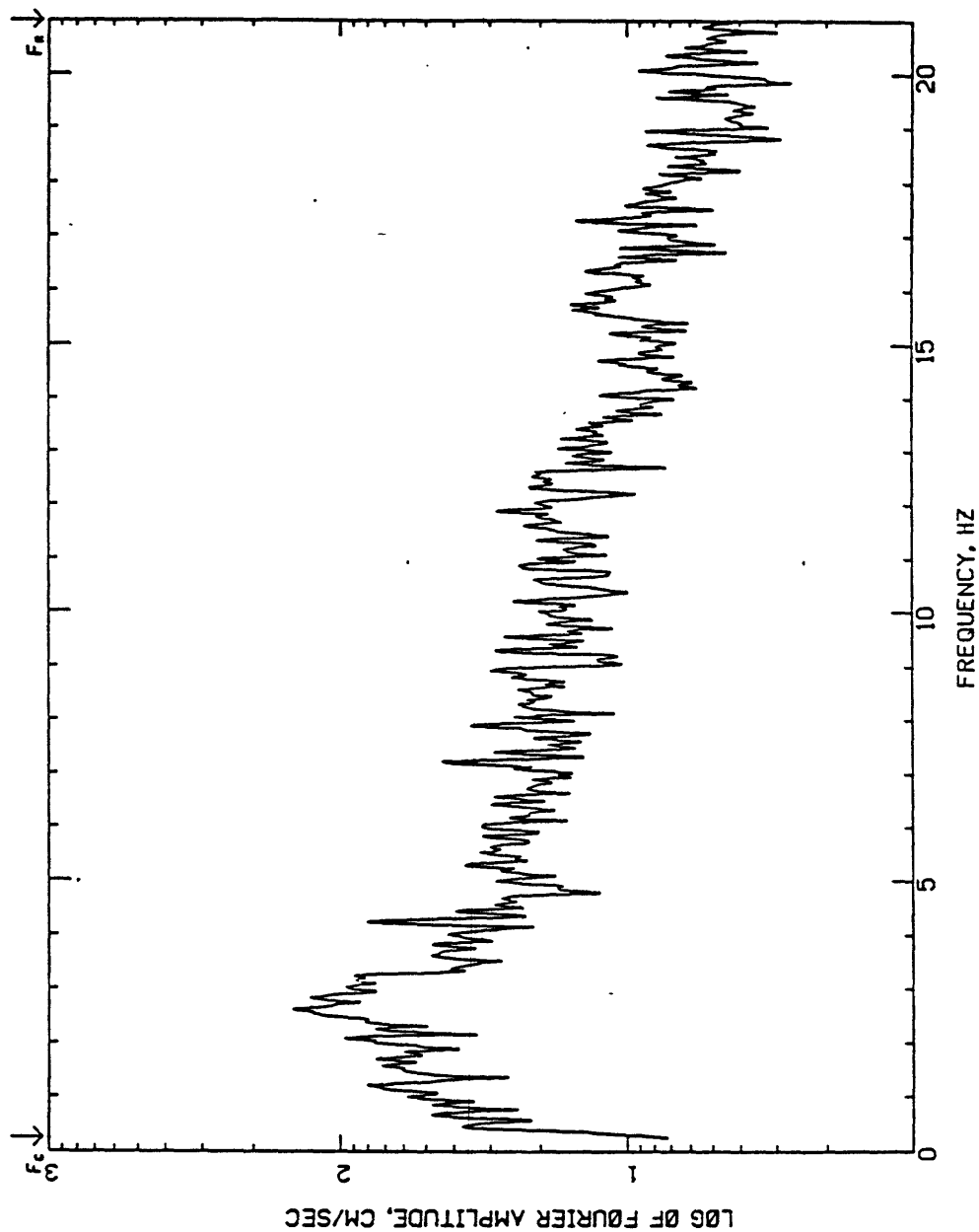
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 HUALAIE, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCR0SS,SM00TH(10),N0N0ISE



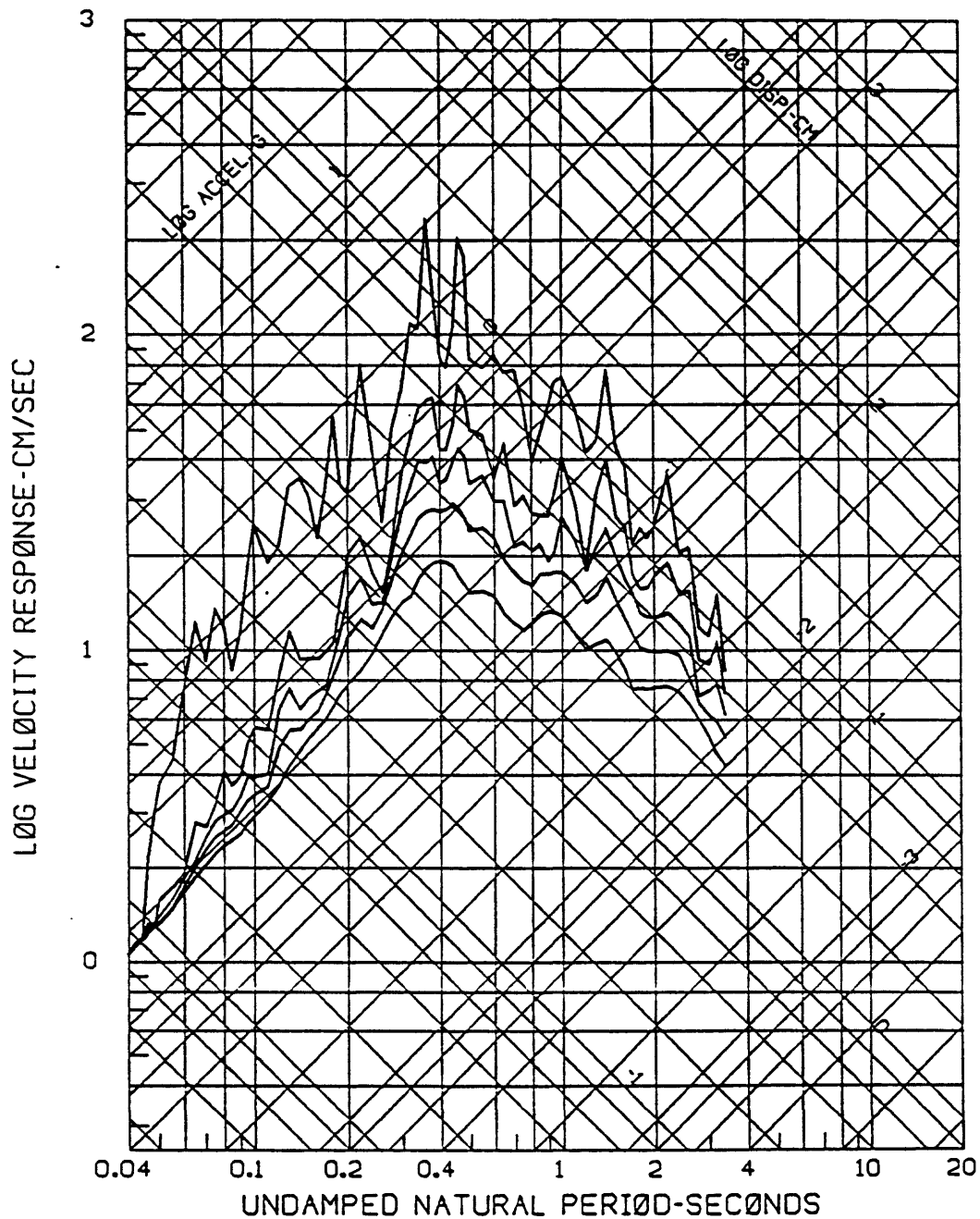
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 HUALANE, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SM00TH100, N0N0ISE



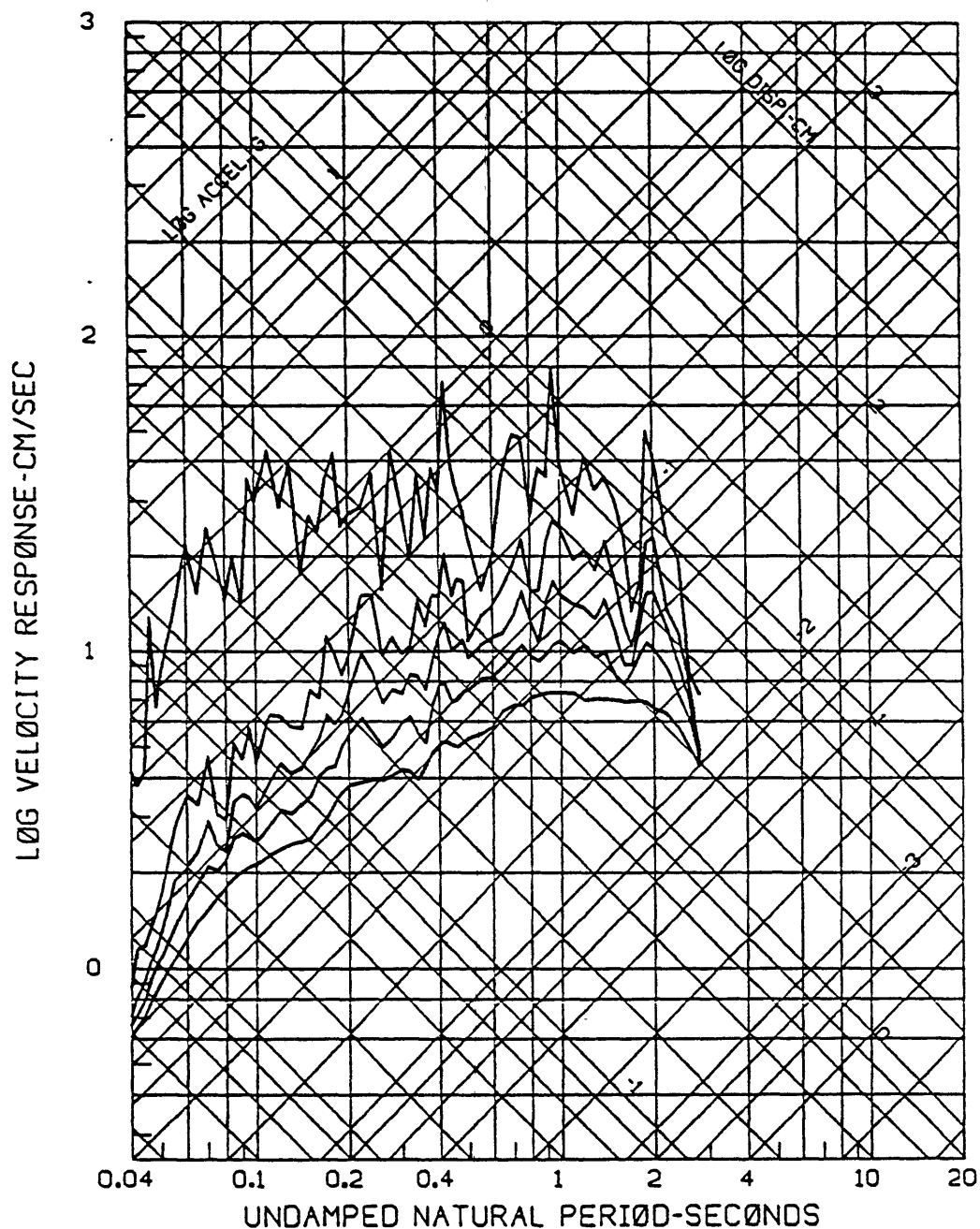
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 HUALANE, CHILE EAST-WEST
 COMPUTING OPTIONS: ZCR055, SMOOTH101, N00ISE



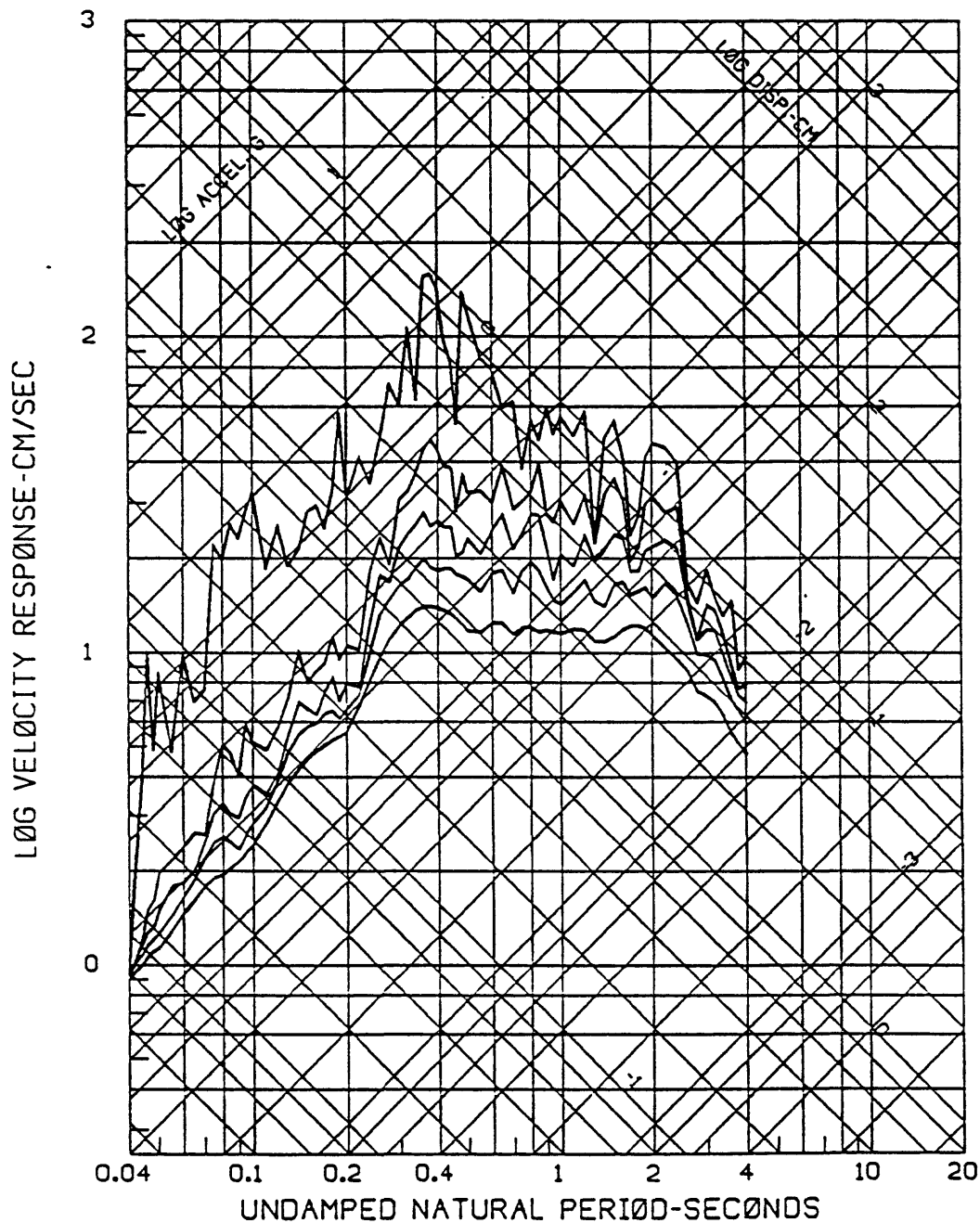
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 HUALANE, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



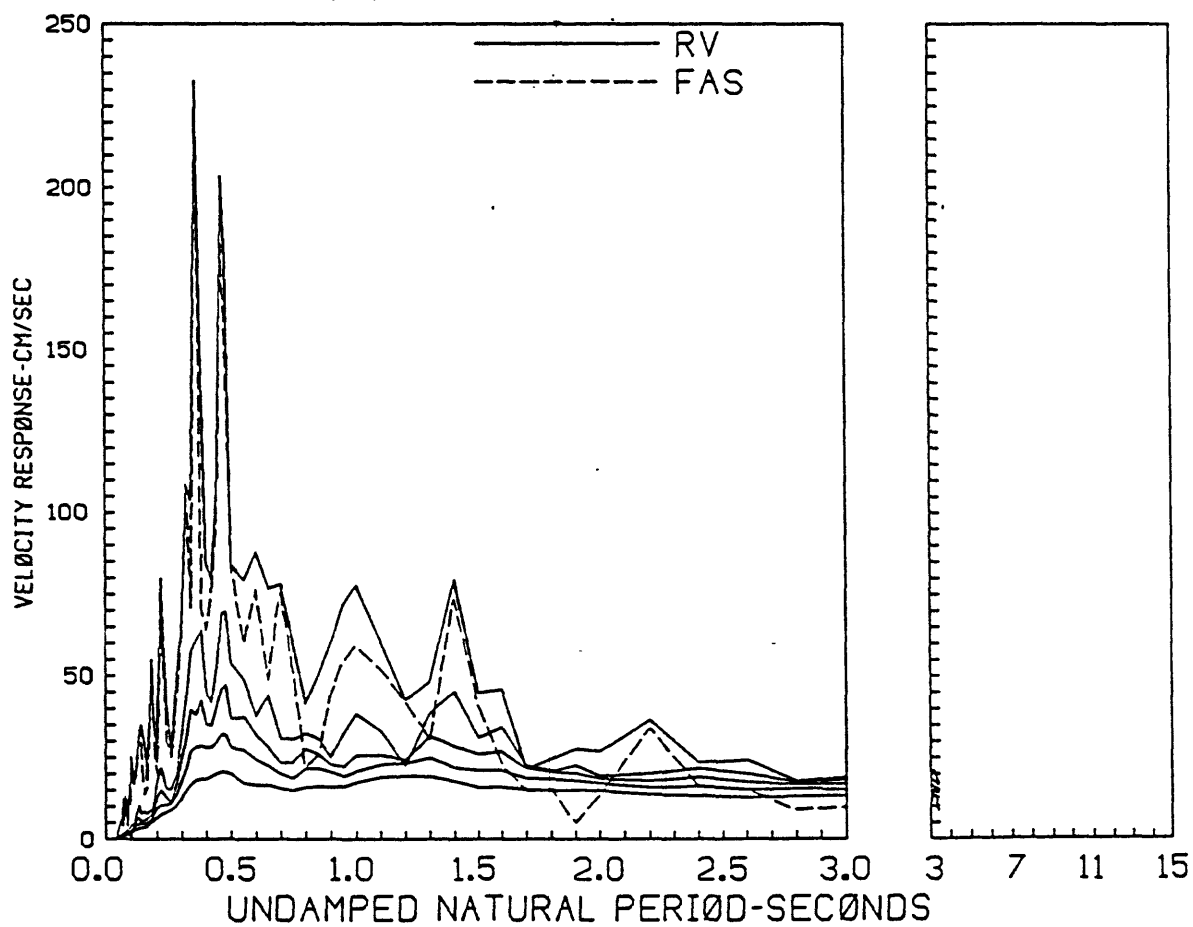
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 HUALANE, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



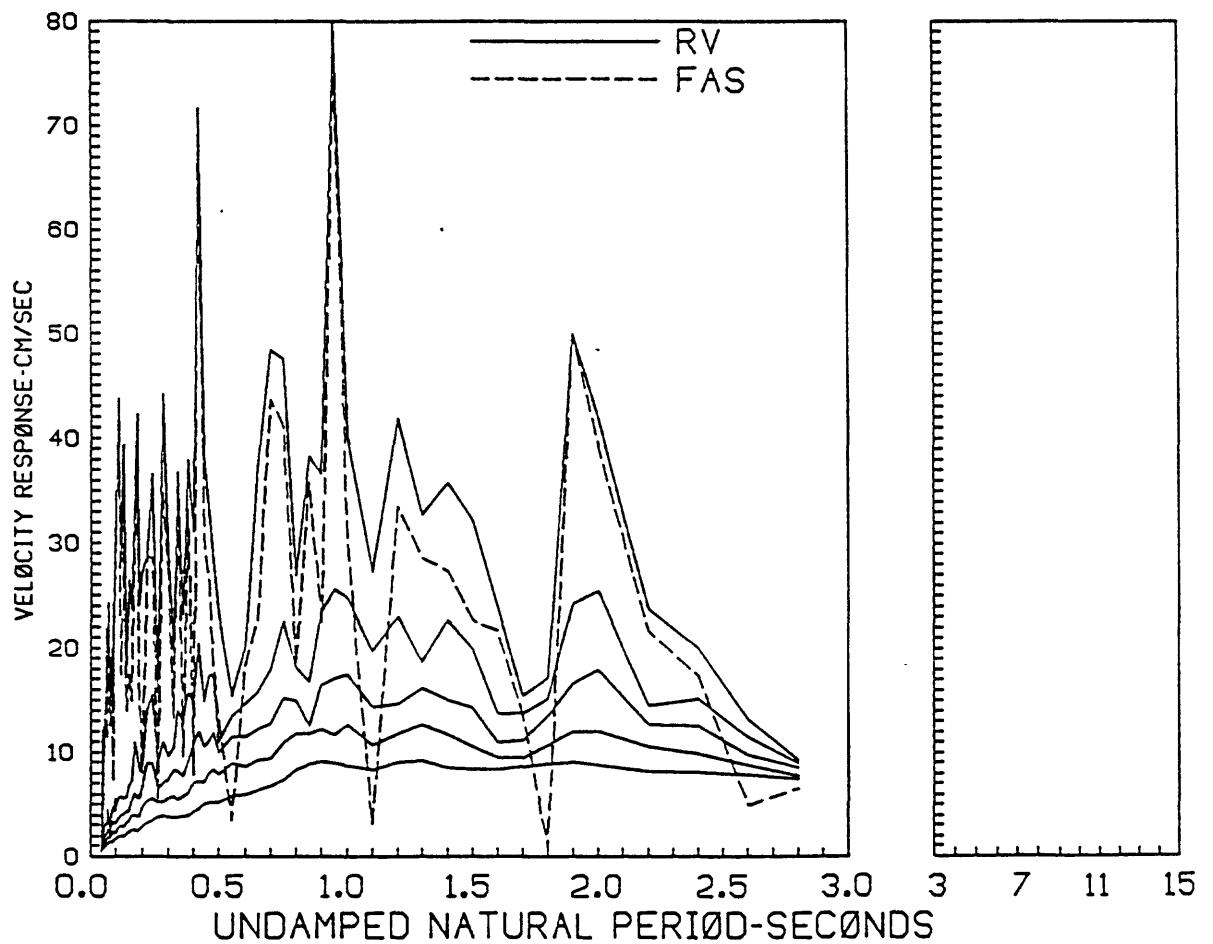
PSEUDØ RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 HUALANE, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



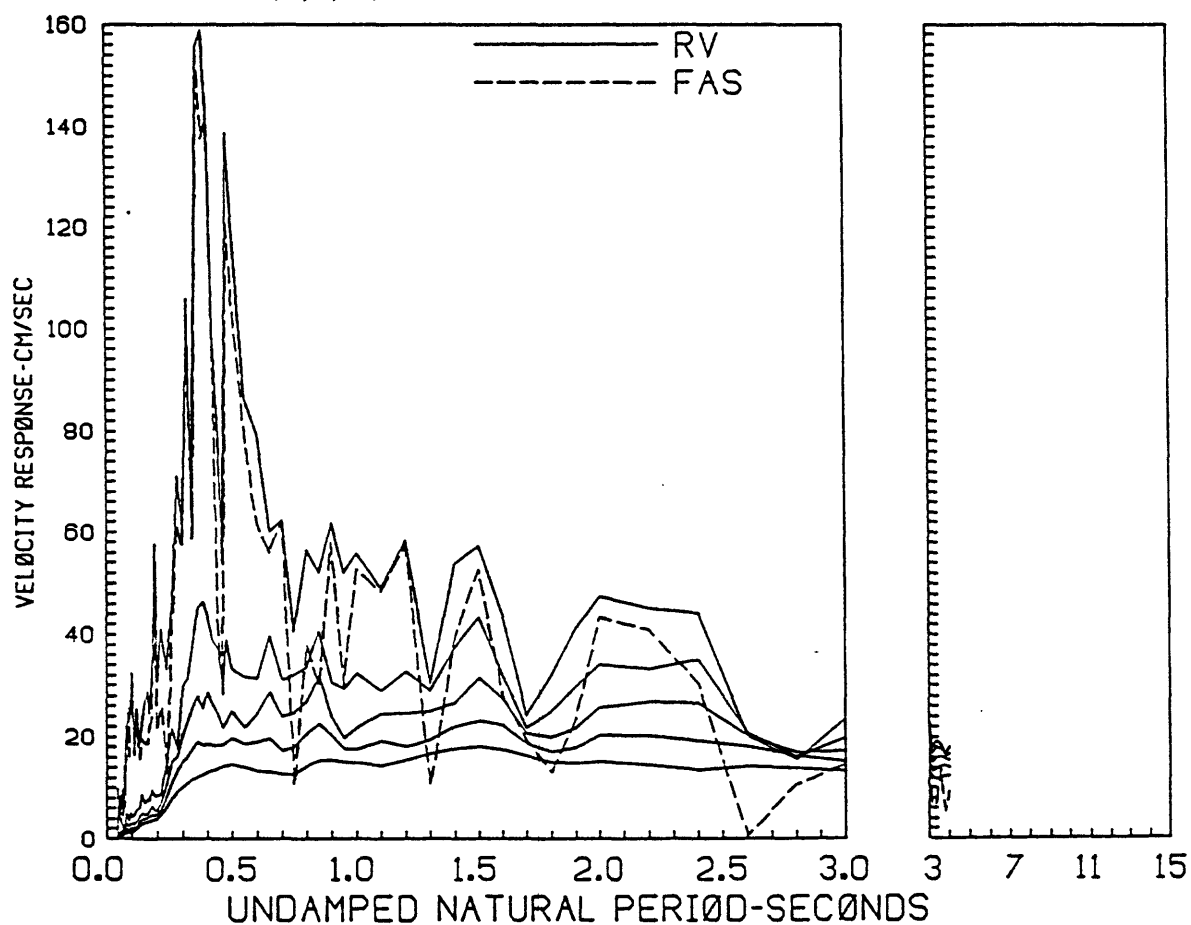
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 HUALANE, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 HUALANE, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 HUALANE, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

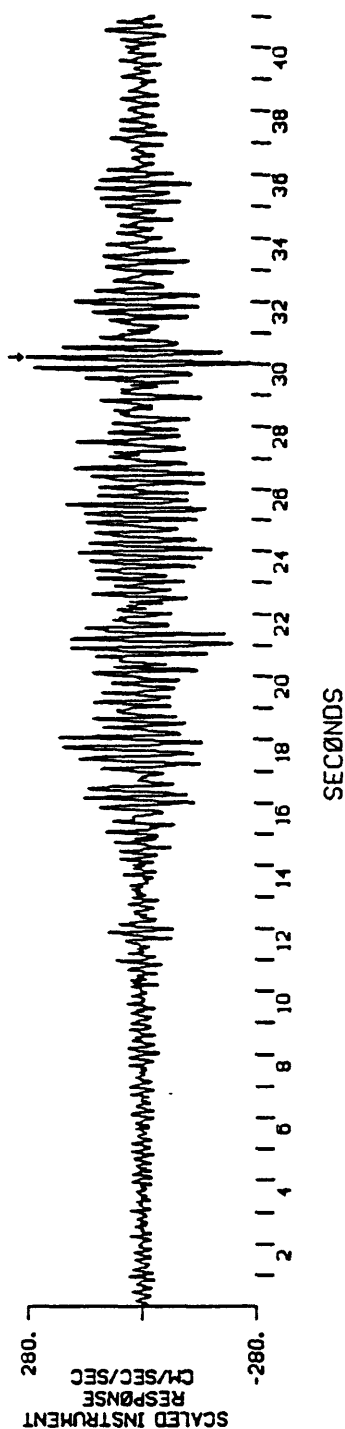
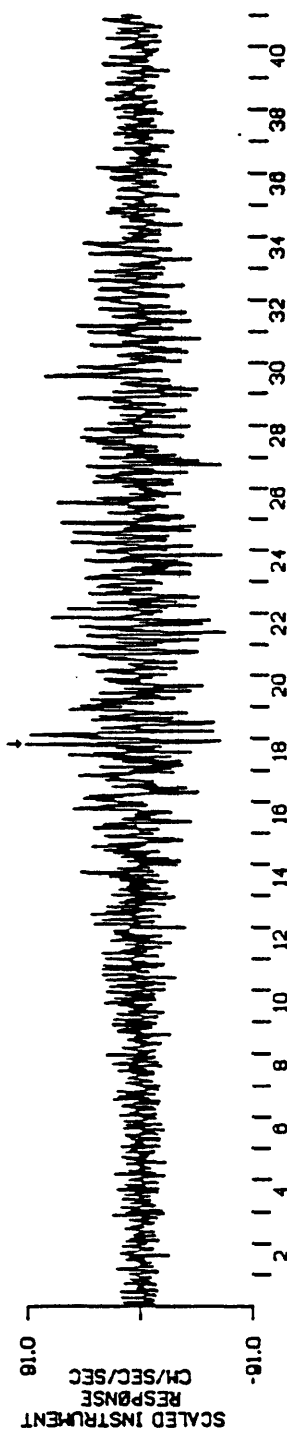
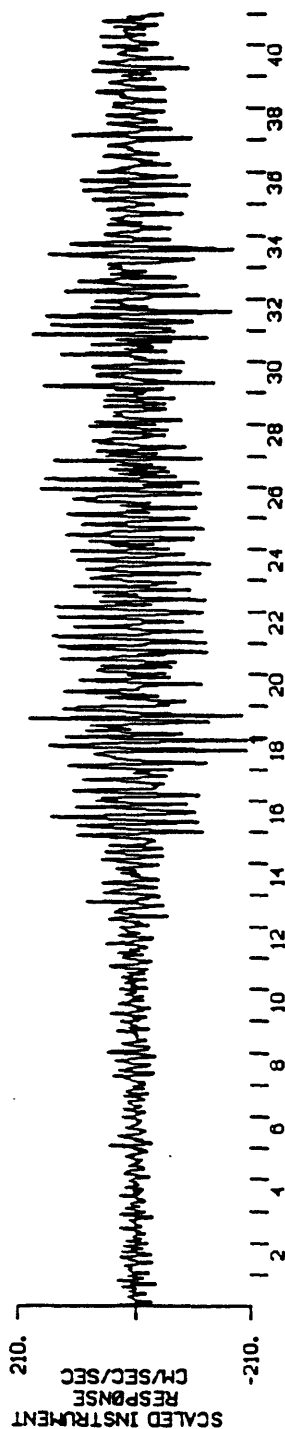
Central Chile earthquake, 3/3/85

22:47:07 UTC, $M_s=7.8$

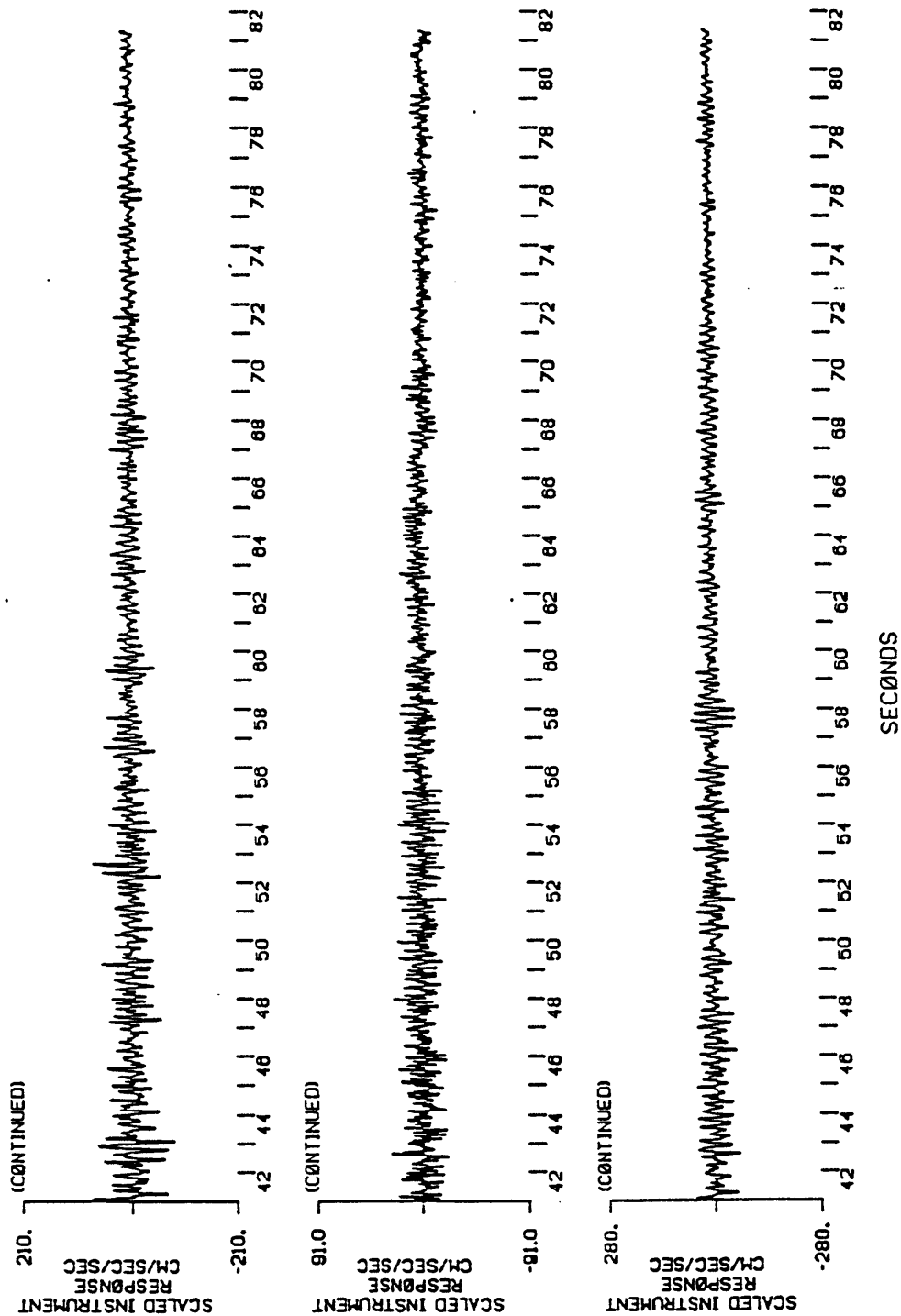
Iloca, Chile

DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.7	26.3	24.7
Damping (% Critical)	60.6	63.3	60.0
<u>Filter Parameters:</u>			
Highcut (Hz)	18.0	35.0	18.0
Lowcut (Hz)	0.357	0.333	0.333
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	-207.0	90.9	275.7
Peak Acceleration, A (cm/s/s)	-221.3	85.3	272.9
Peak Velocity, V (cm/s)	9.34	5.70	15.1
Peak Displacement, D (cm)	-1.10	-1.20	1.37
<u>Parameter Ratios:</u>			
$ V/A $ (sec)	0.042	0.067	0.055
$ AD/V^2 $	2.8	3.2	1.6

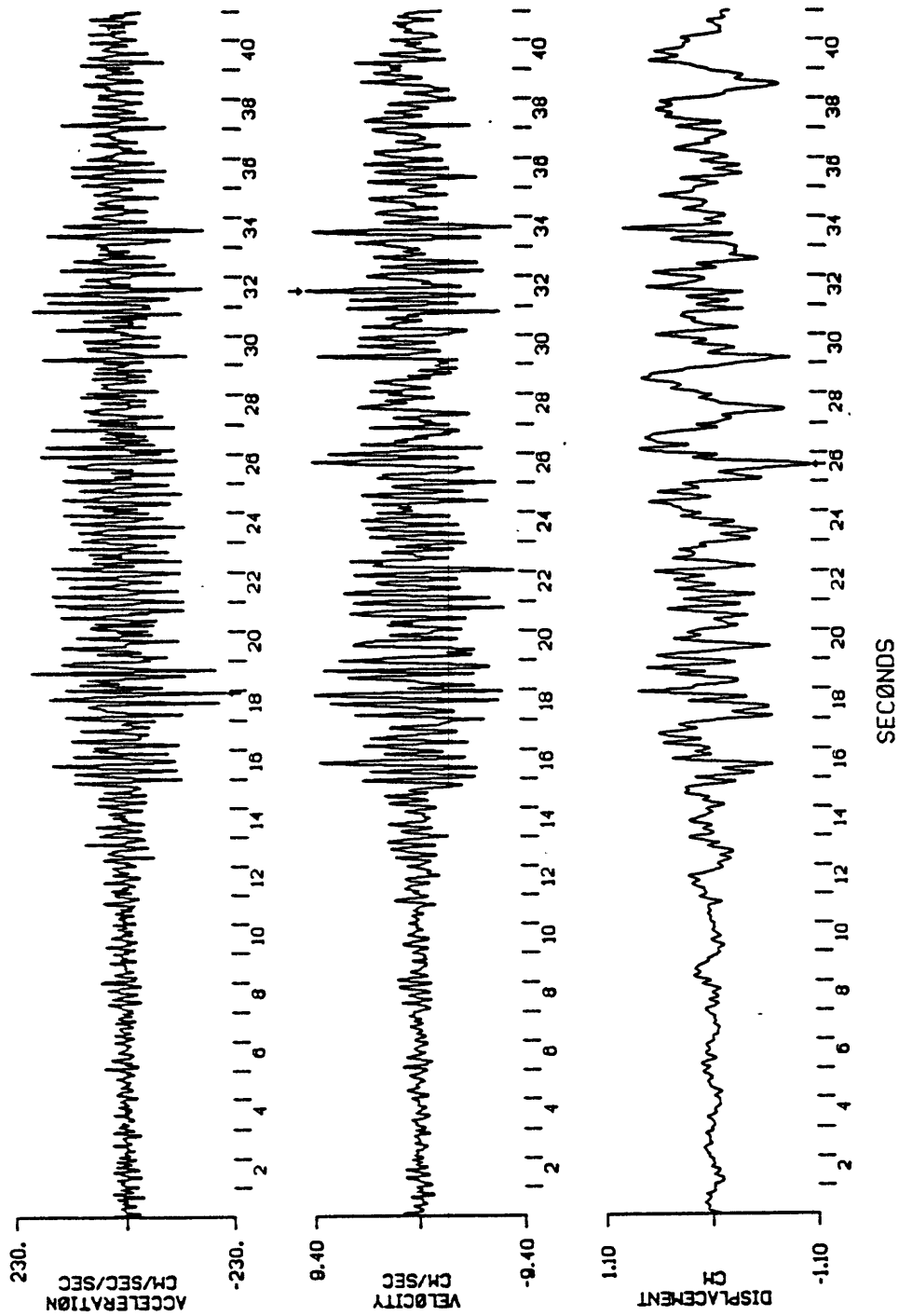
UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ILØCA, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUE(S)CM/SEC: -206.97 90.89 275.66



UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ILOCA, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): -206.97 90.89 275.66



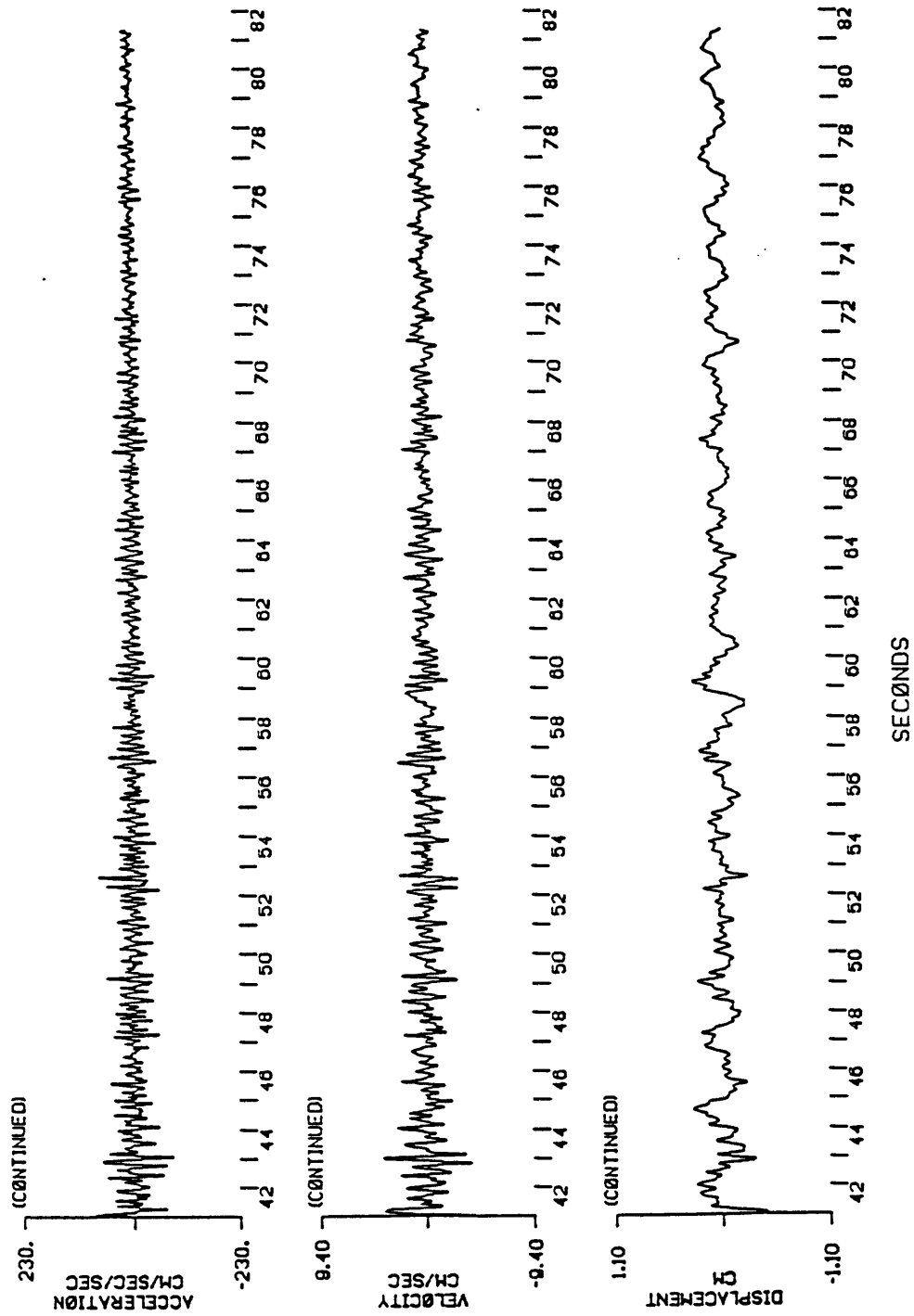
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 ILOCA, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL--221.29 CM/SEC/SEC, VELOCITY-9.34 CM/SEC, DISPL--1.10 CM



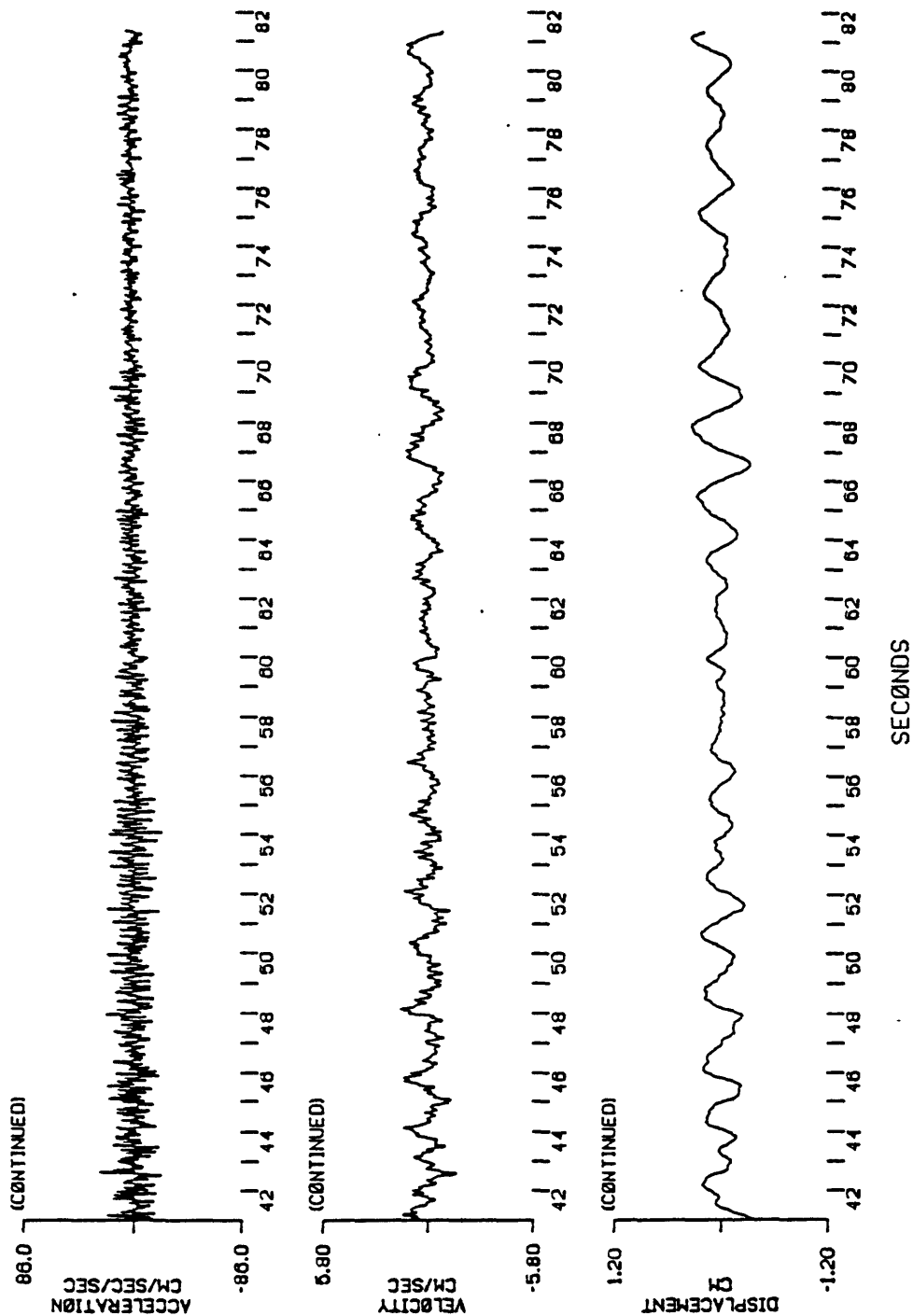
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8

ILØCA, CHILE, NORTH-SOUTH

PEAK VALUES: ACCEL=-221.29 CM/SEC/SEC, VELOCITY=9.34 CM/SEC, DISPL=-1.10 CM

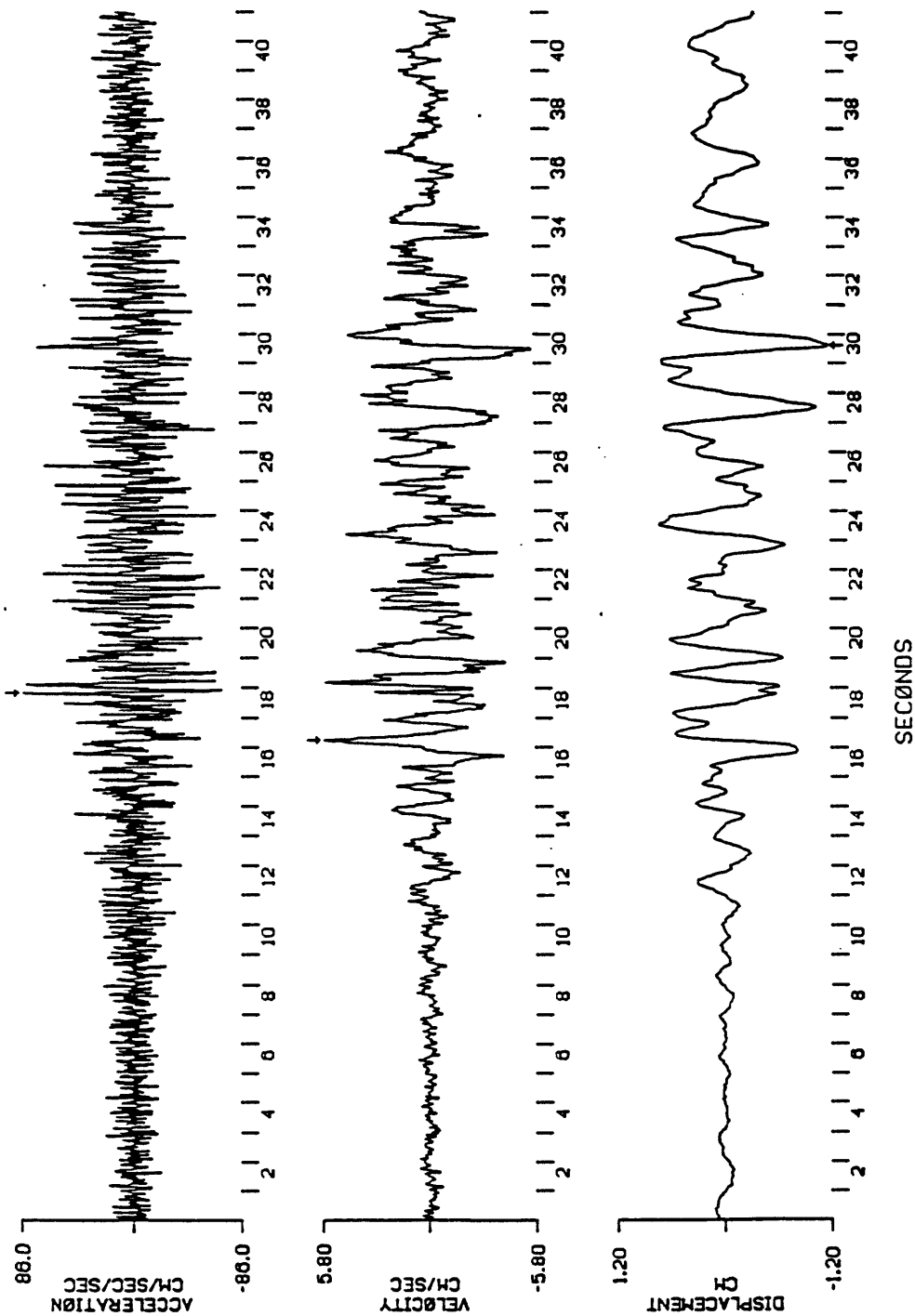


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ILLOCA, CHILE, VERTICAL
 PEAK VALUES: ACCEL-85.29 CM/SEC/SEC, VELOCITY-5.70 CM/SEC, DISPL-1.20 CM



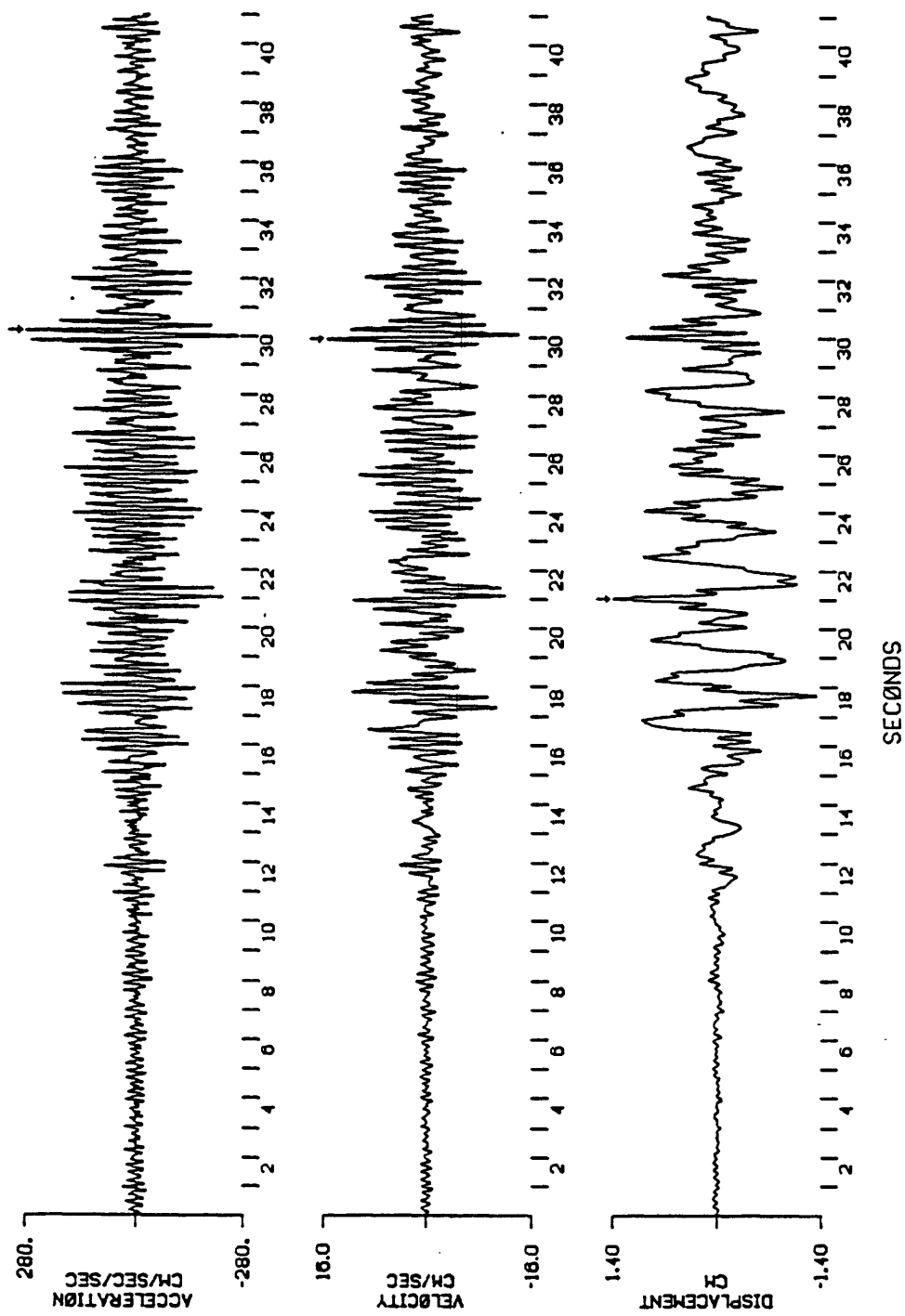
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ILOCA CHILE VERTICAL

PEAK VALUES: ACCEL=85.29 CM/SEC/SEC, VELOCITY=5.70 CM/SEC, DISPL=1.20 CM



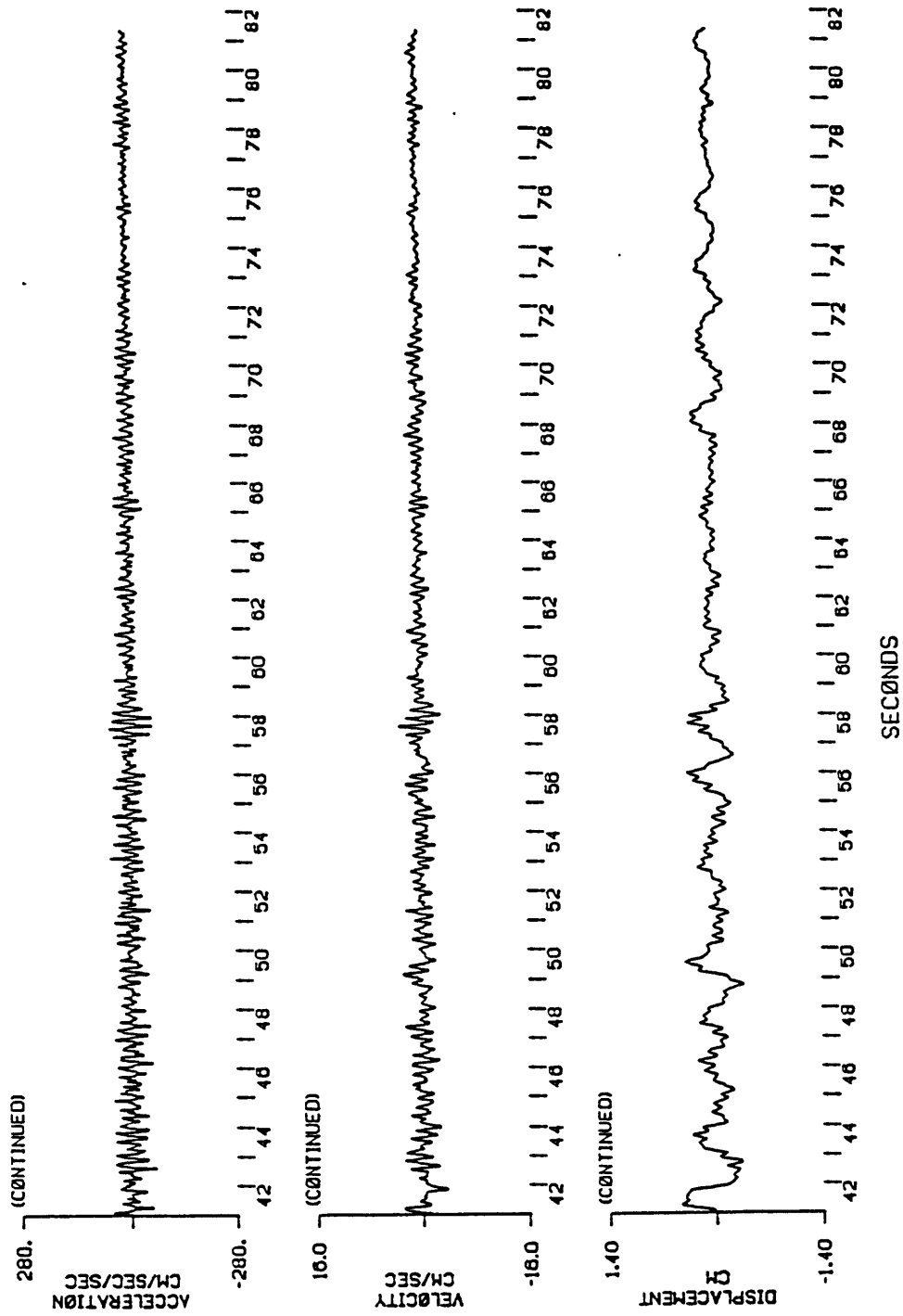
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ILOCA, CHILE, EAST-VEST

PEAK VALUES: ACCEL-272.91 CM/SEC/SEC, VELOCITY-15.09 CM/SEC, DISPL-1.37 CM

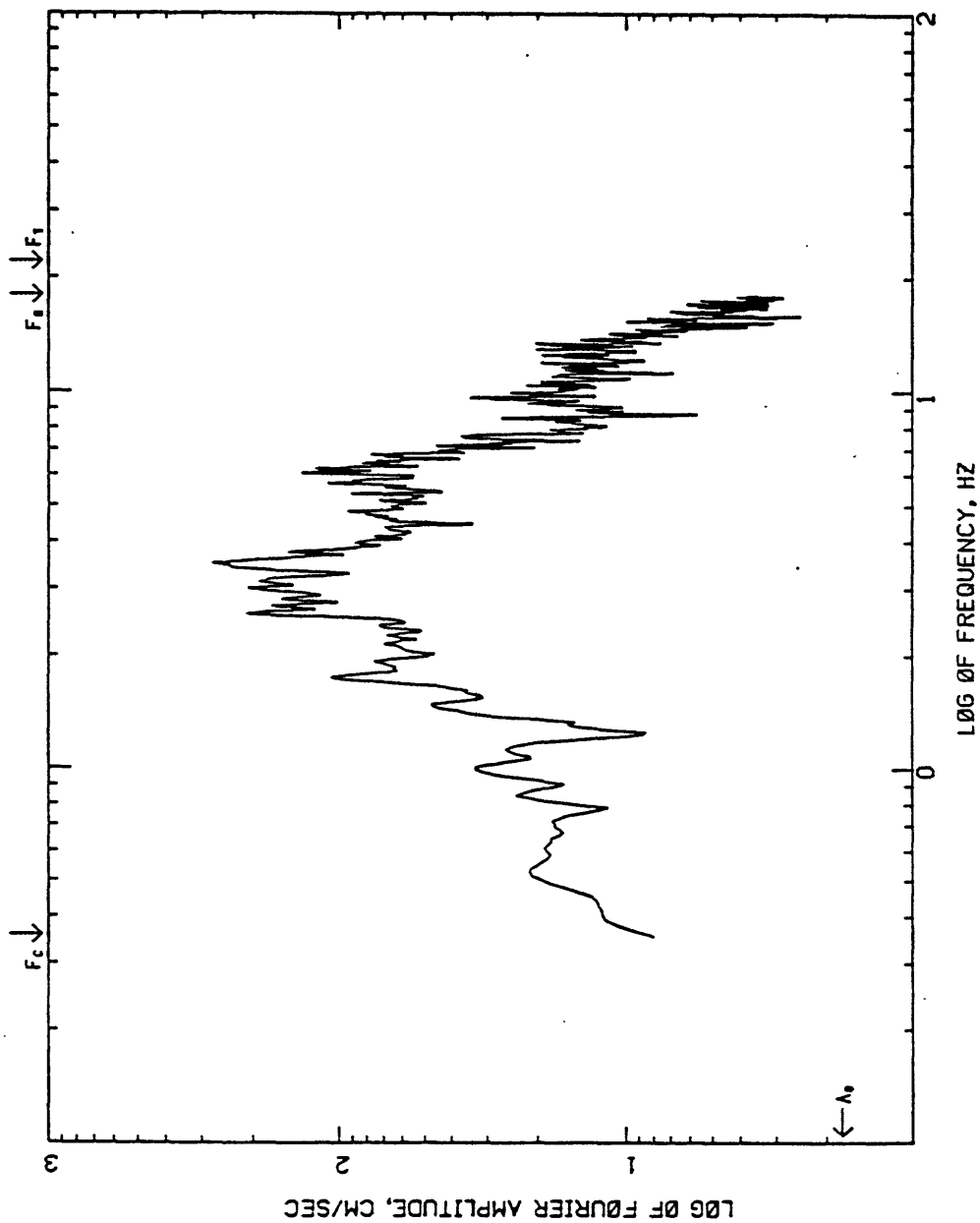


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8

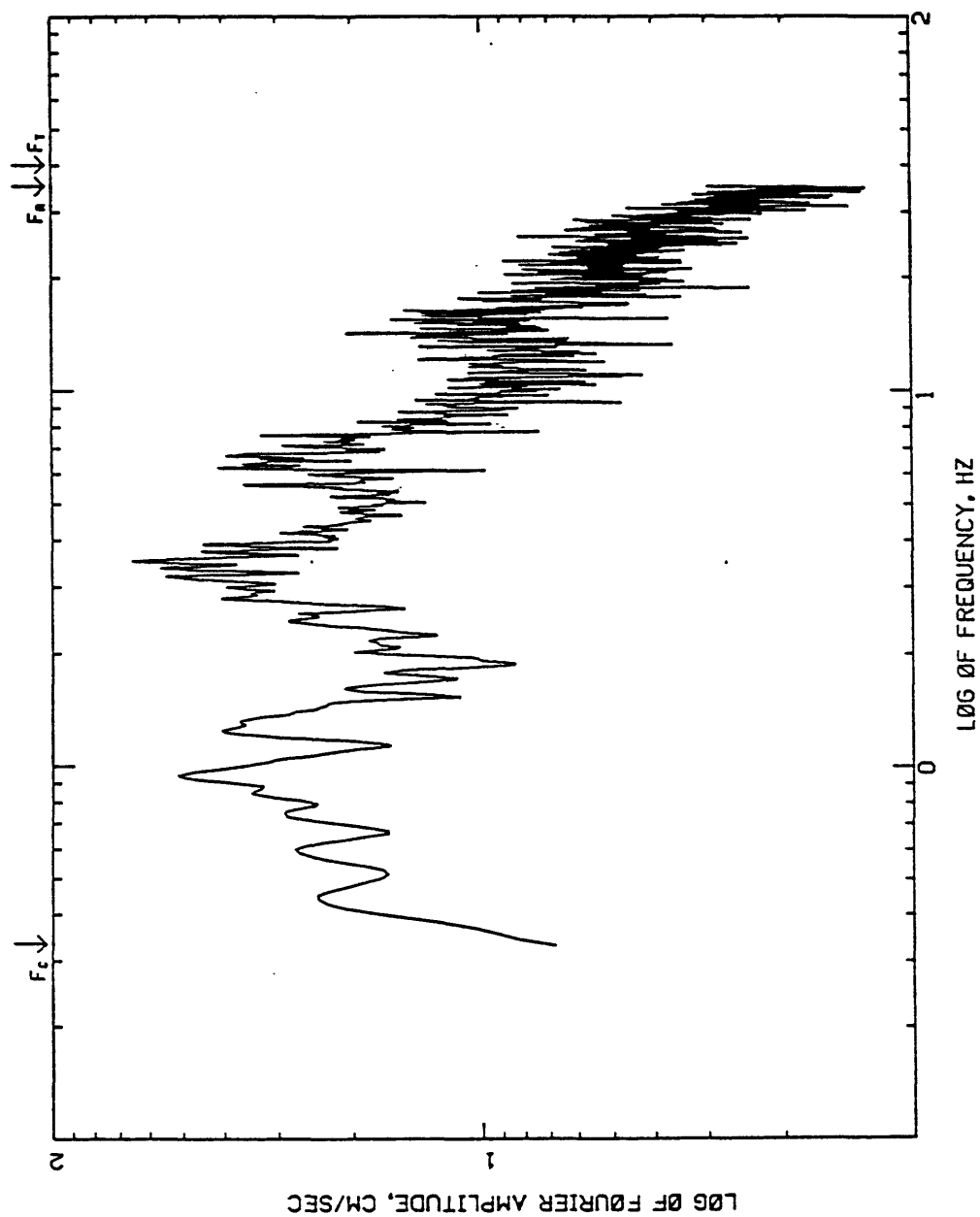
ILOCA, CHILE, EAST-WEST
PEAK VALUES: ACCEL -272.91 CM/SEC/SEC, VELOCITY-15.09 CM/SEC, DISPL-1.37 CM



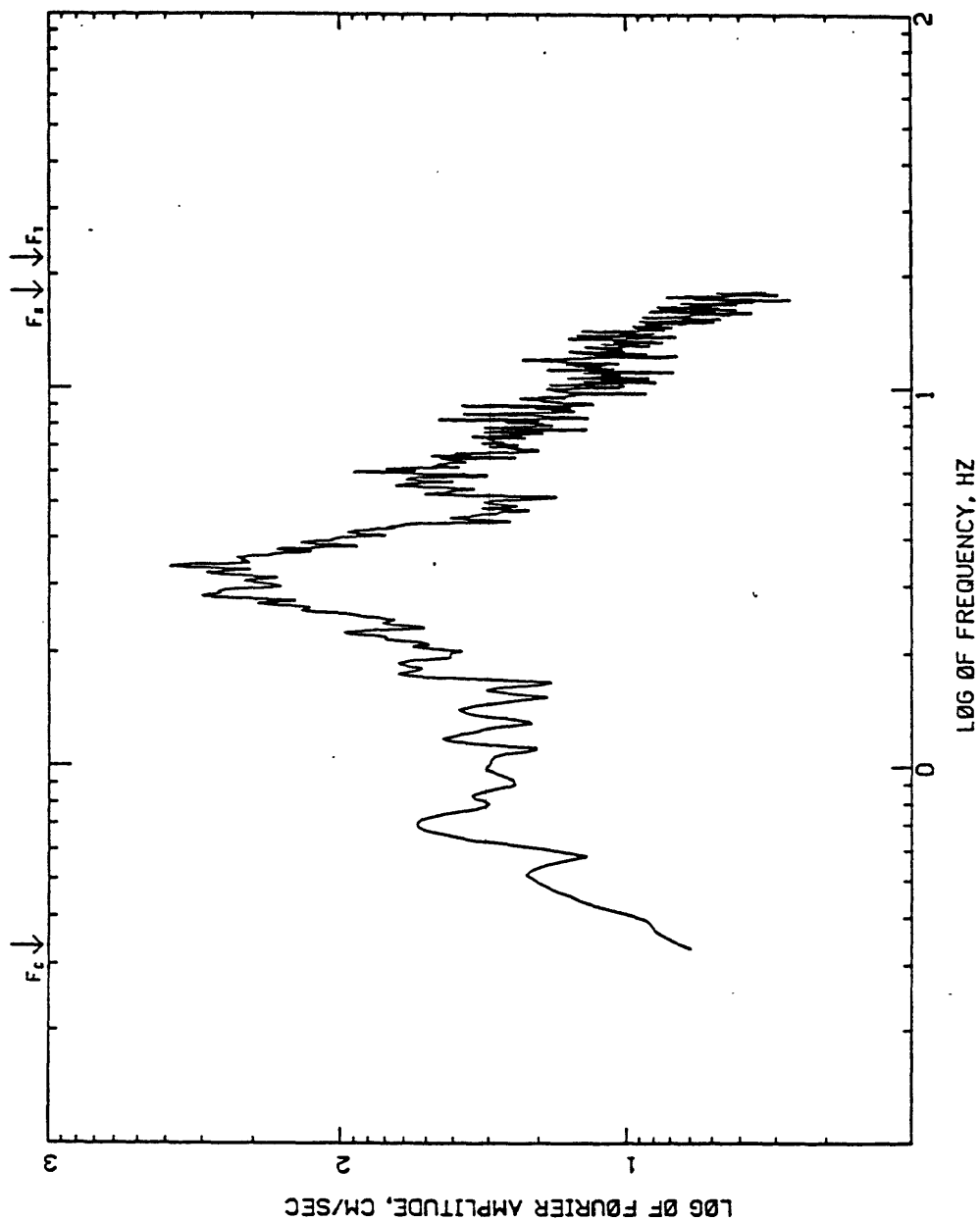
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 IL0CA, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCR0SS,SM00TH(10),N0N0ISE



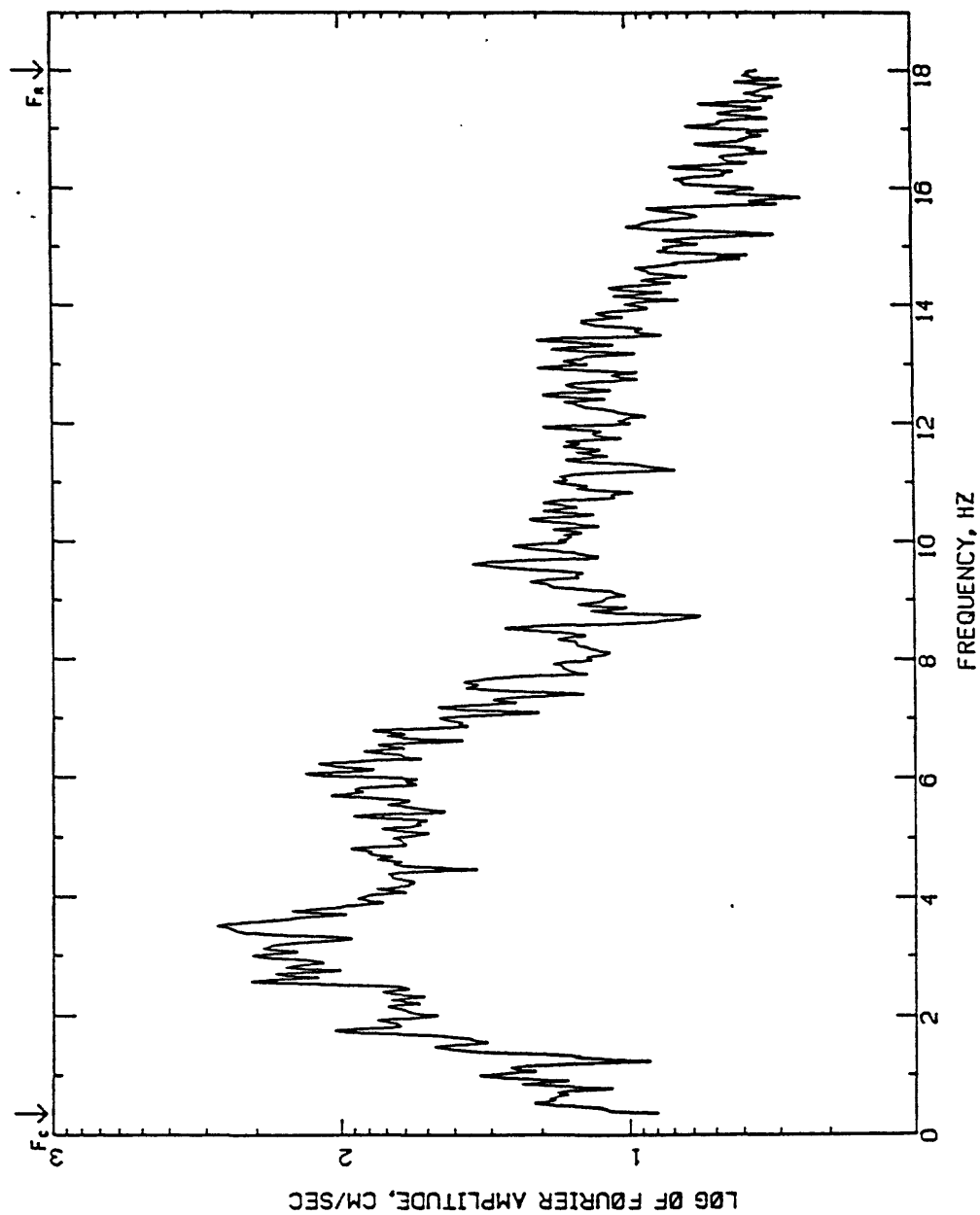
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 ILCA, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCRSS:SM00TH101,N00ISE



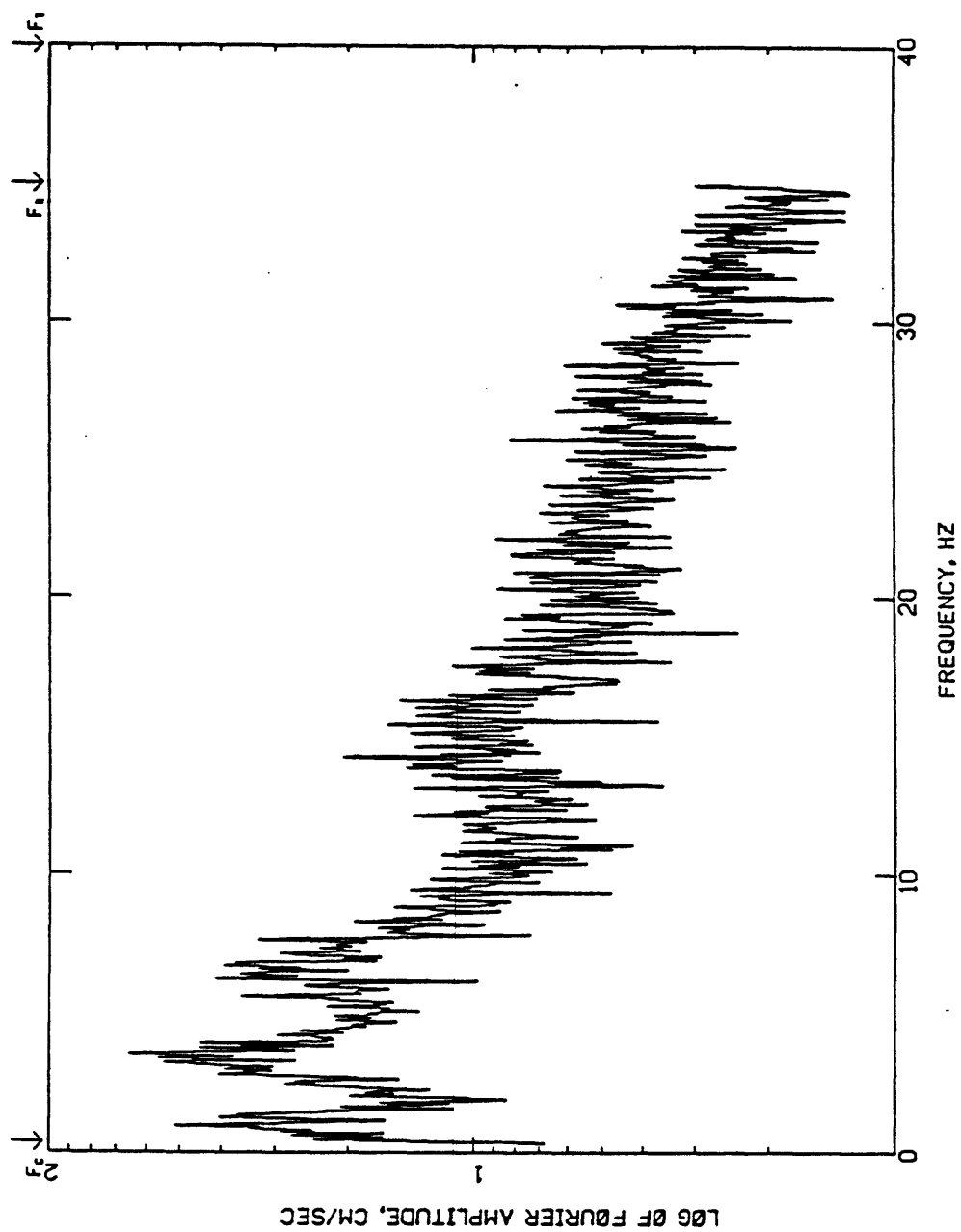
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 (LØCA CHILE EAST-VEST
 CØPUTING ØPTIONS = ZCRØSS, SMØØTHIØI, NØNØISE



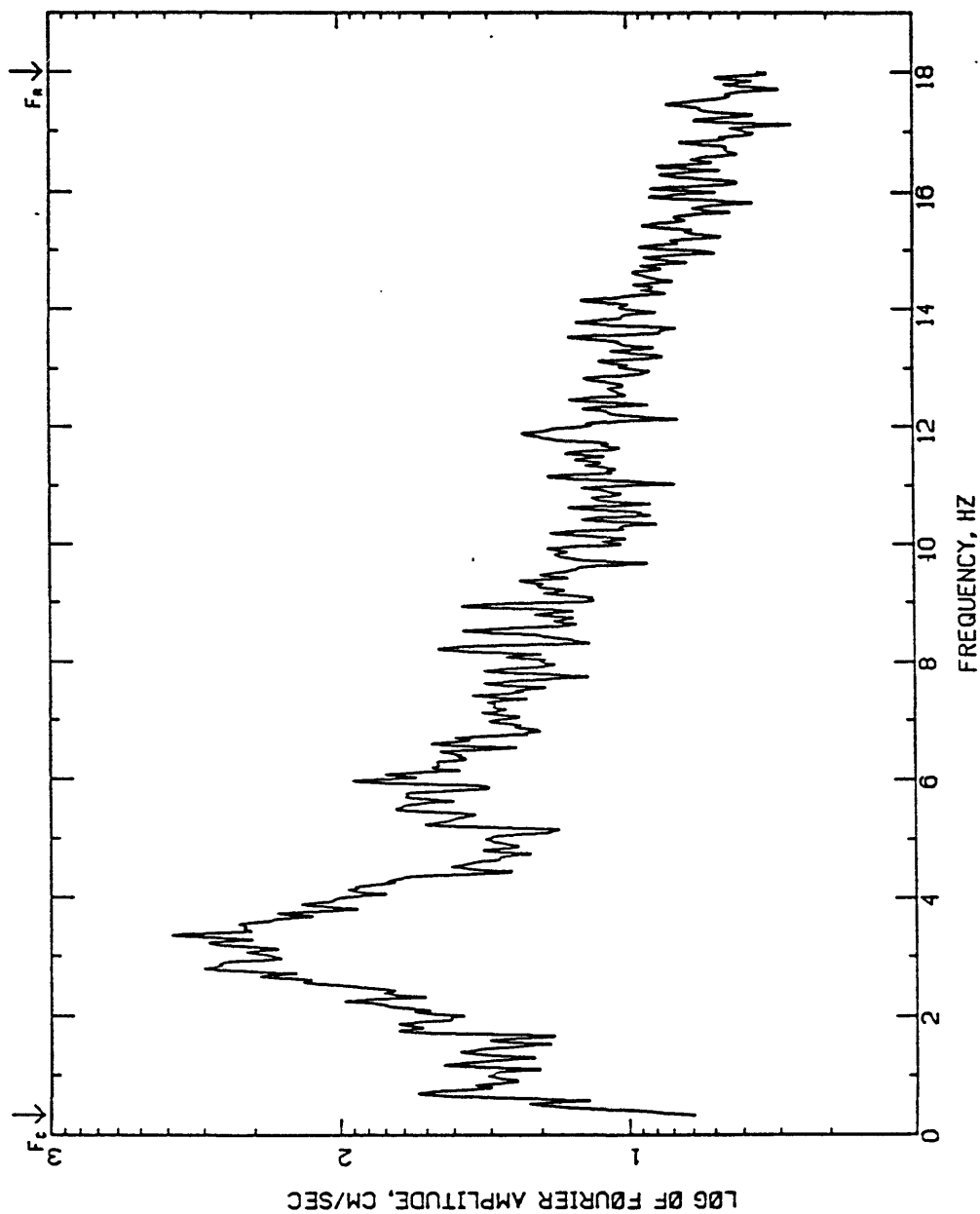
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 JLOCX CHILE NORTH-SOUTH
 COMPUTING OPTIONS- ZCR0SS, SM00TH101, N0N0ISE



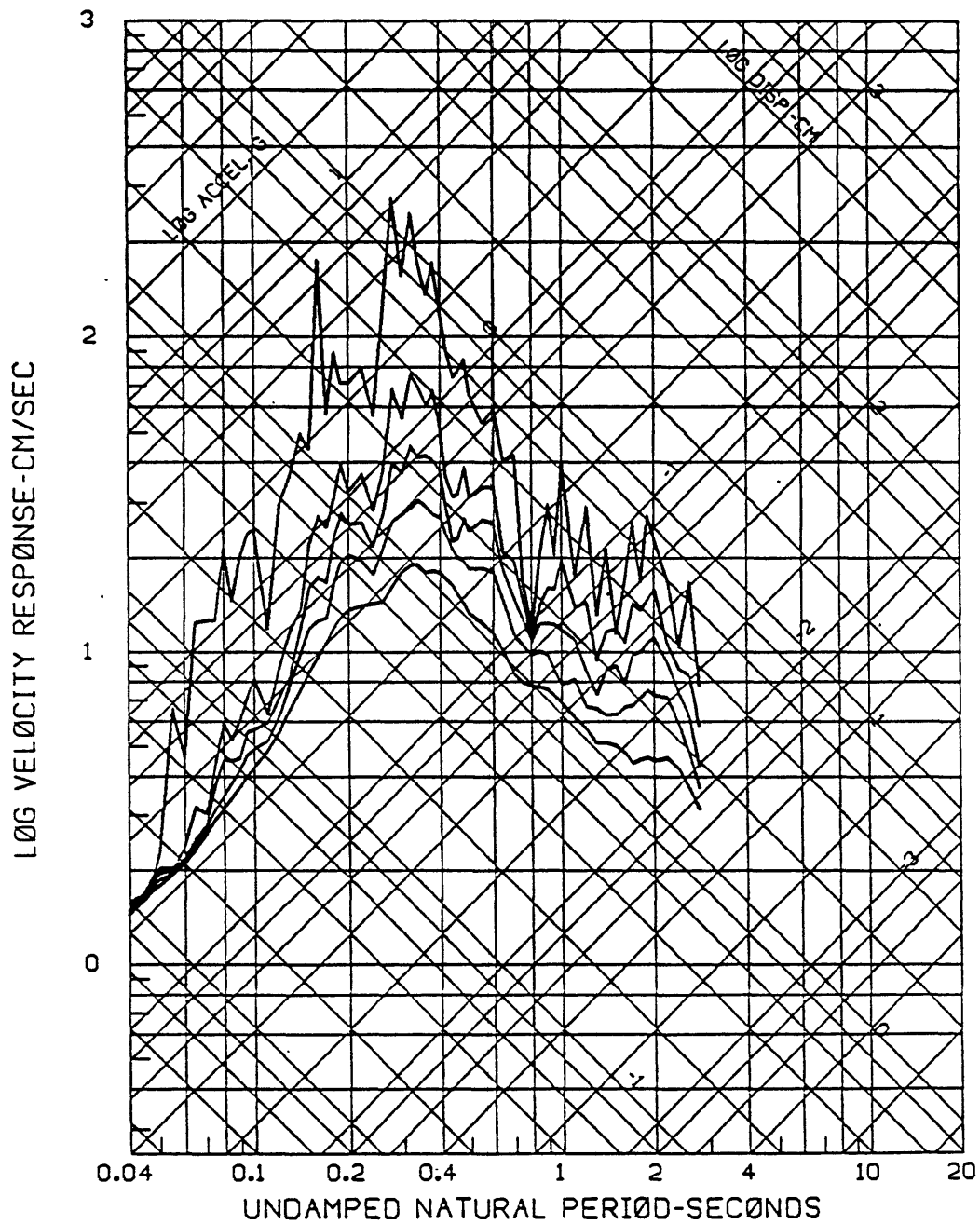
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ILDC, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SMOOTH101, N0N0ISE



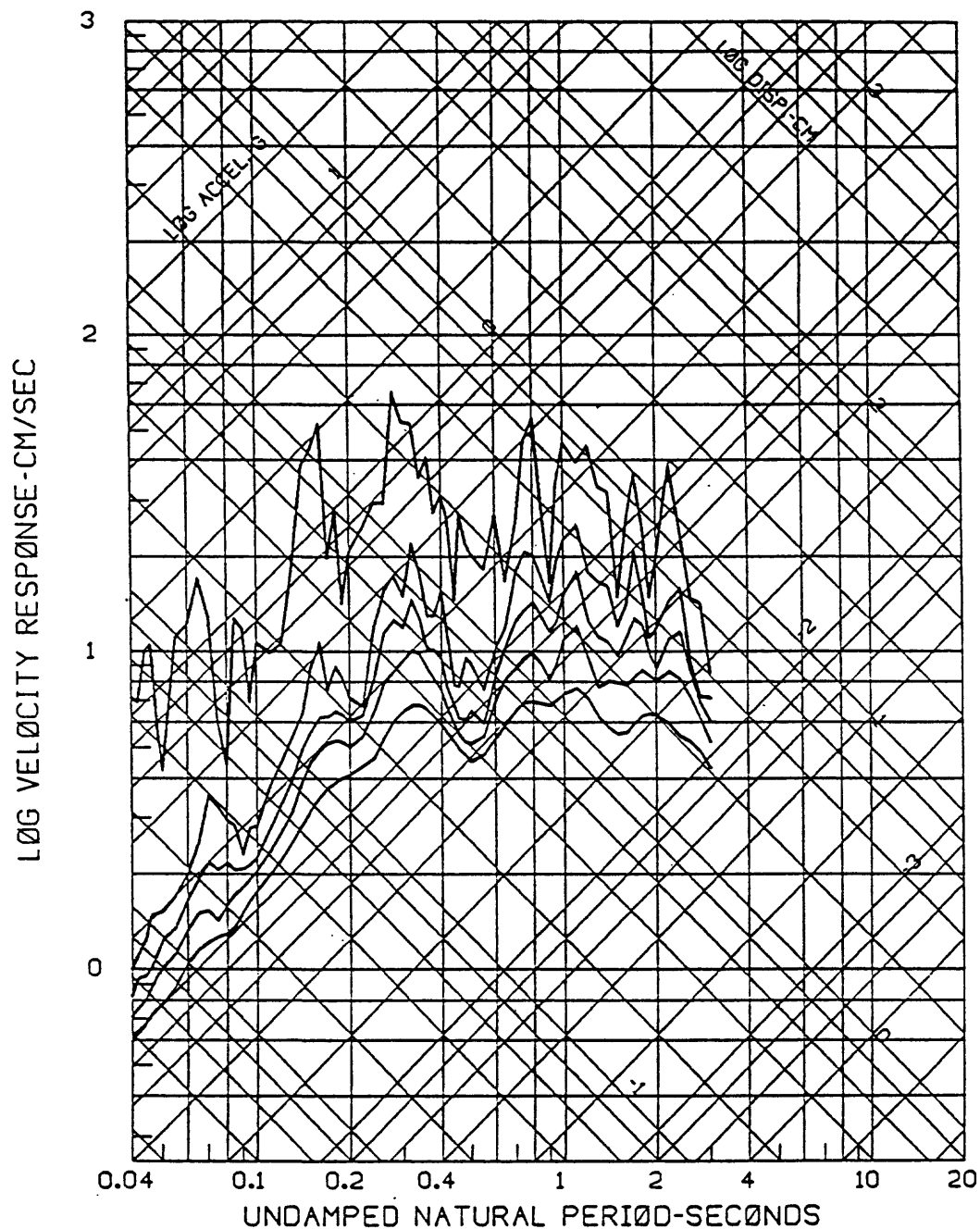
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8
 ILØCA, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCRØSS,SMØTH101,NØNØISE



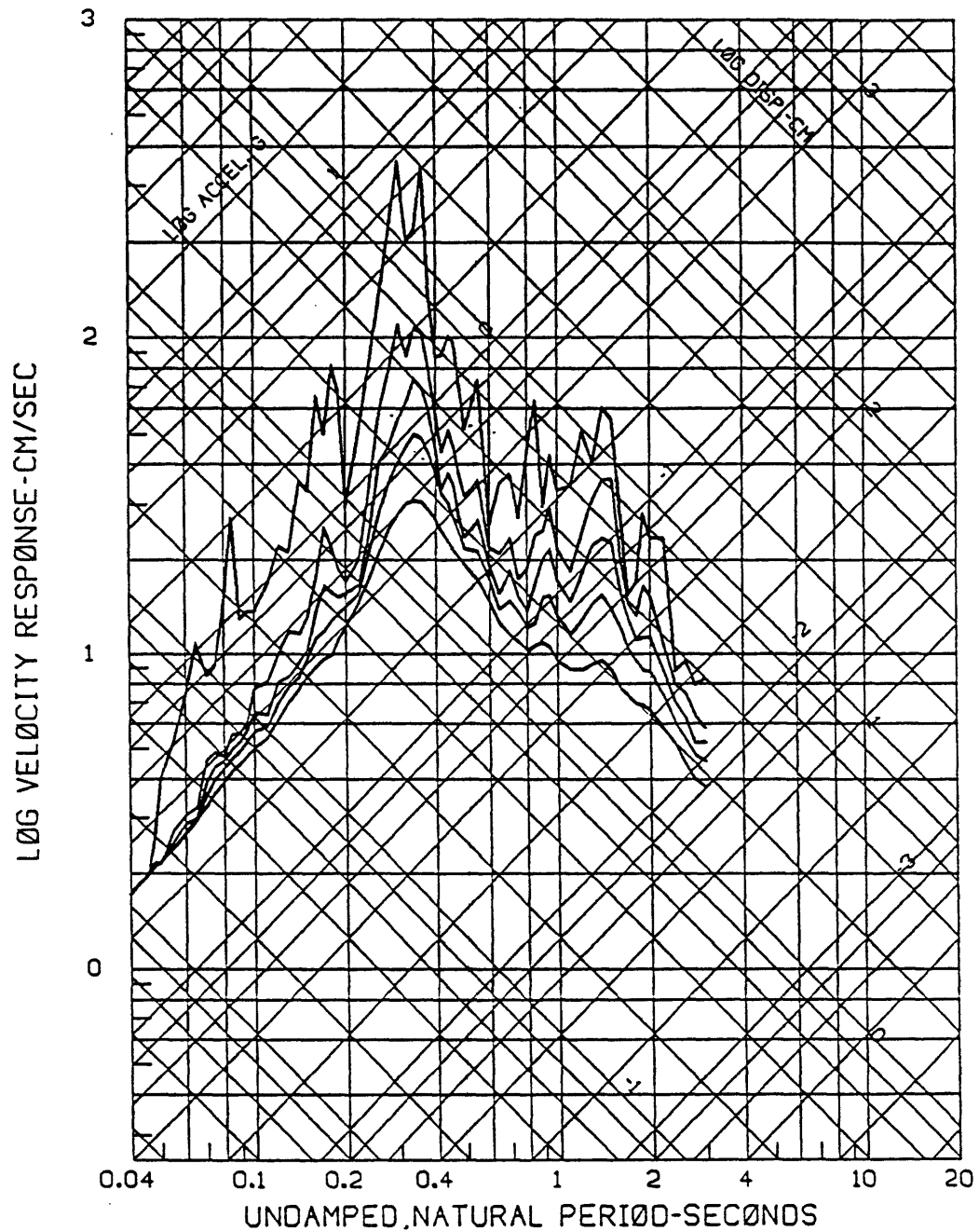
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 ILOCA, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



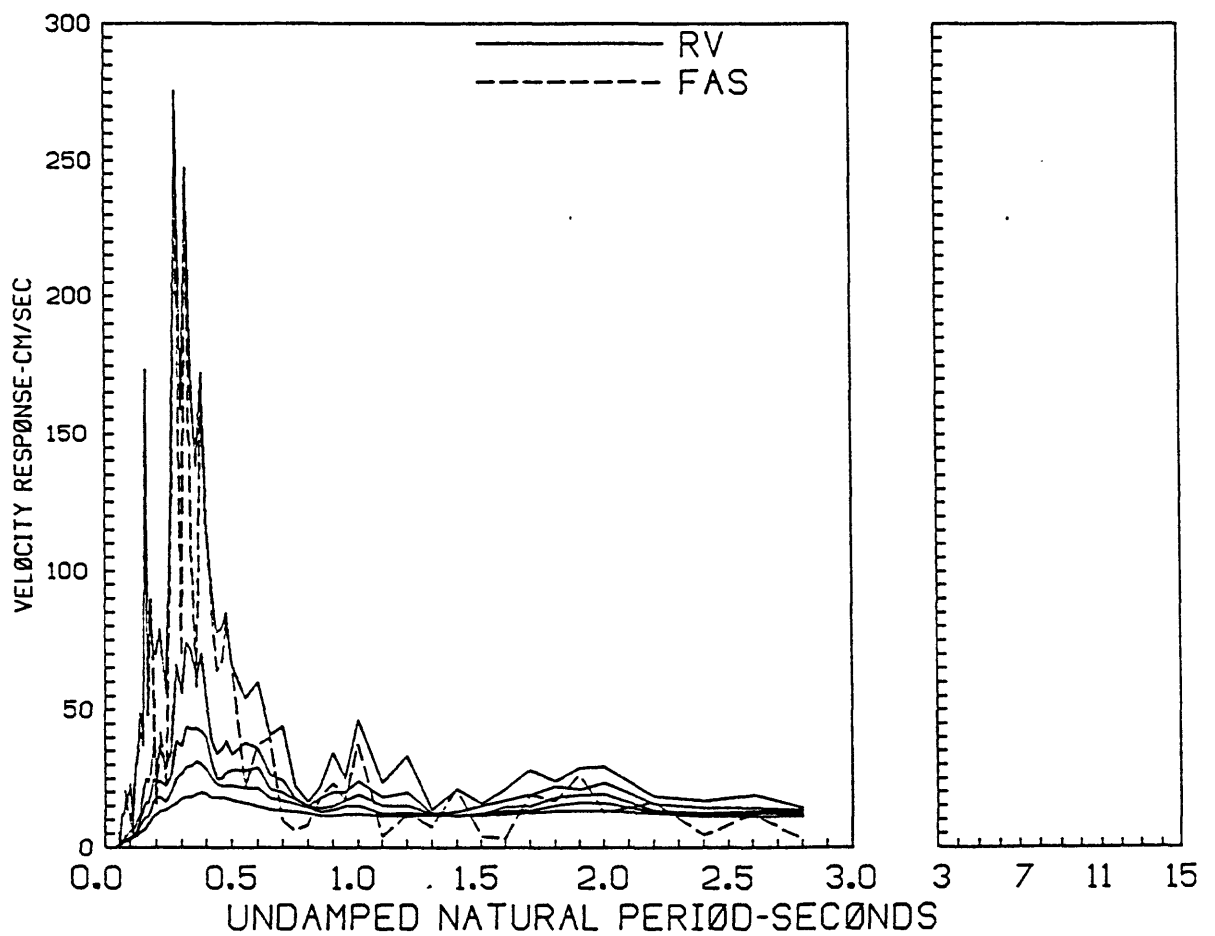
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 ILOCA, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



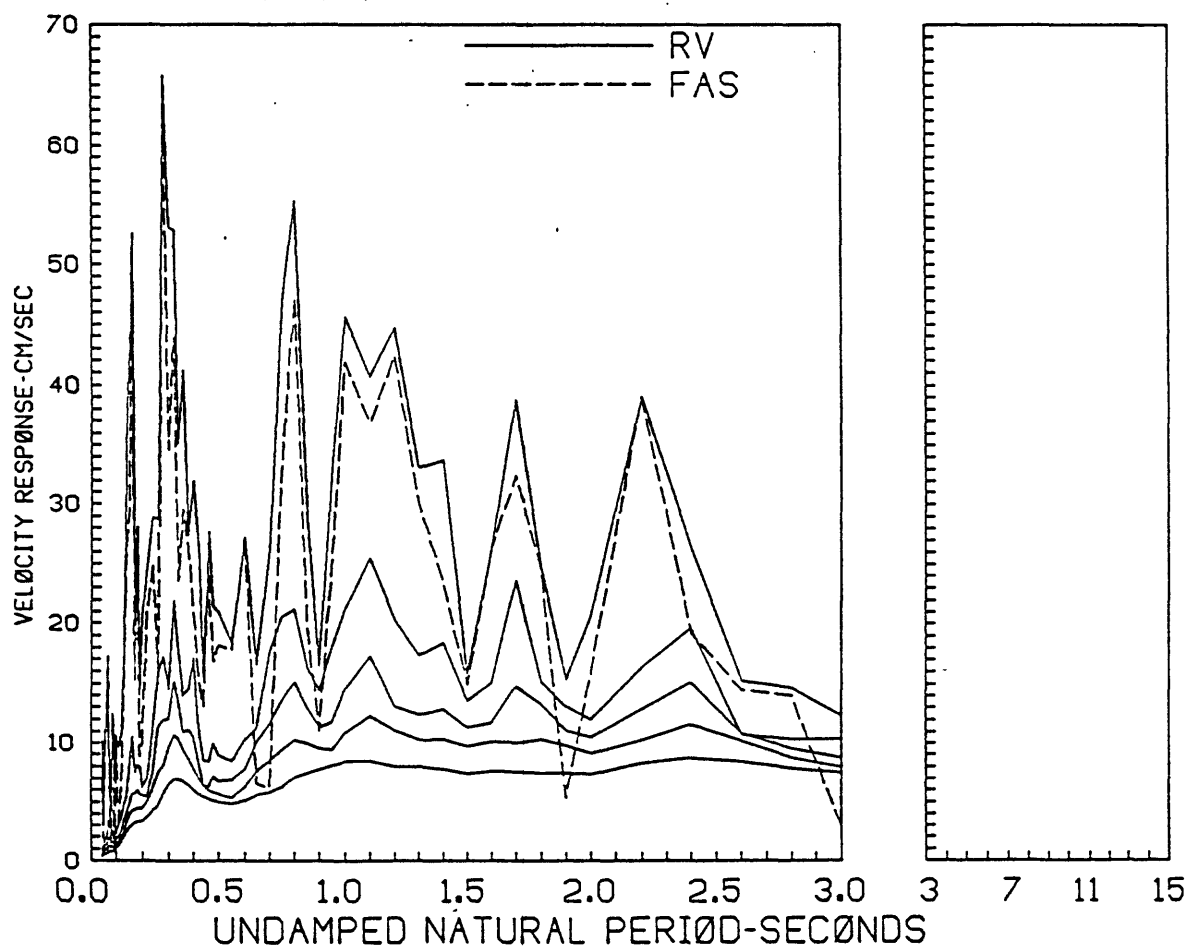
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 ILOCA, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



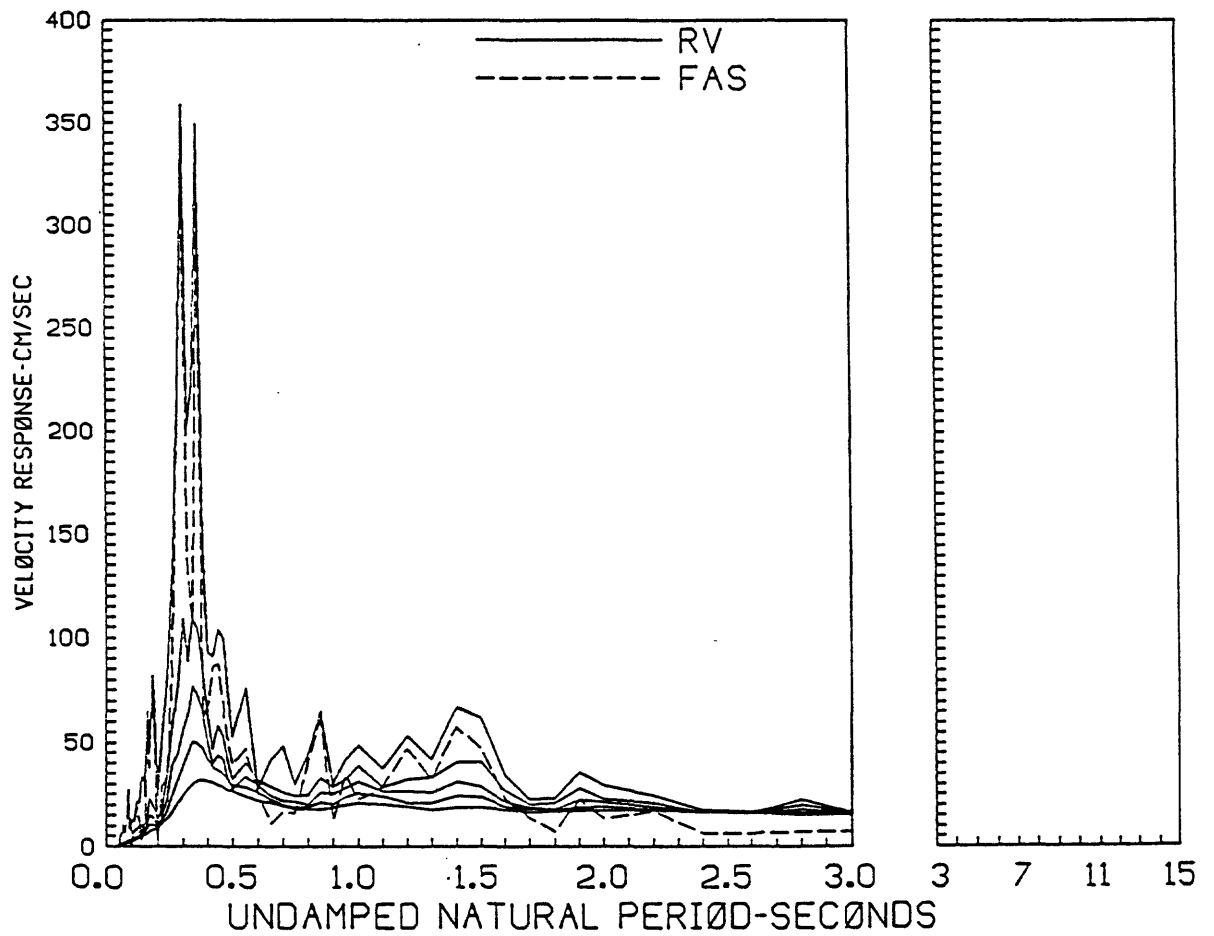
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ILØCA, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ILØCA, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ILØCA, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



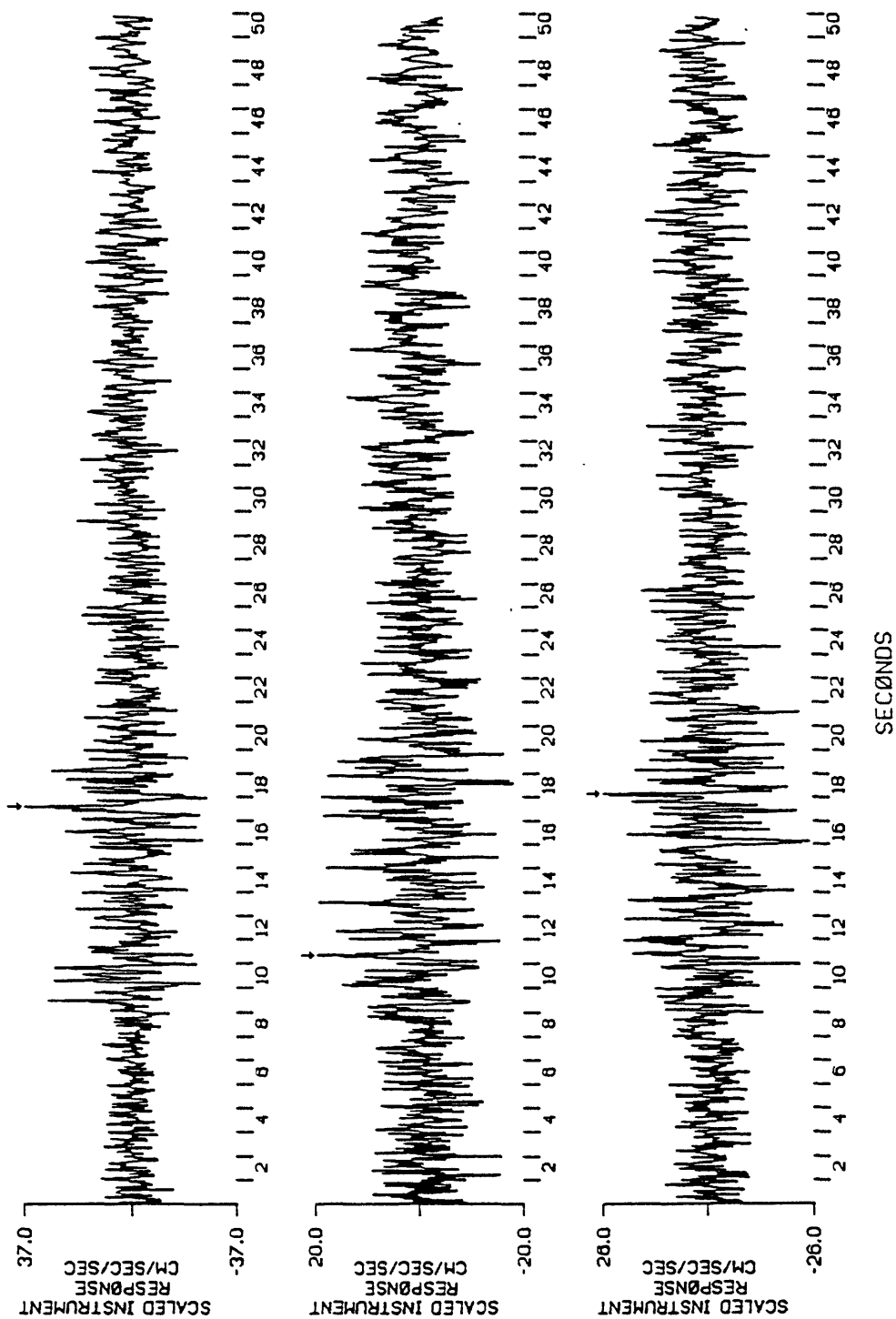
SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake, 3/3/85
22:47:07 UTC, $M_s=7.8$

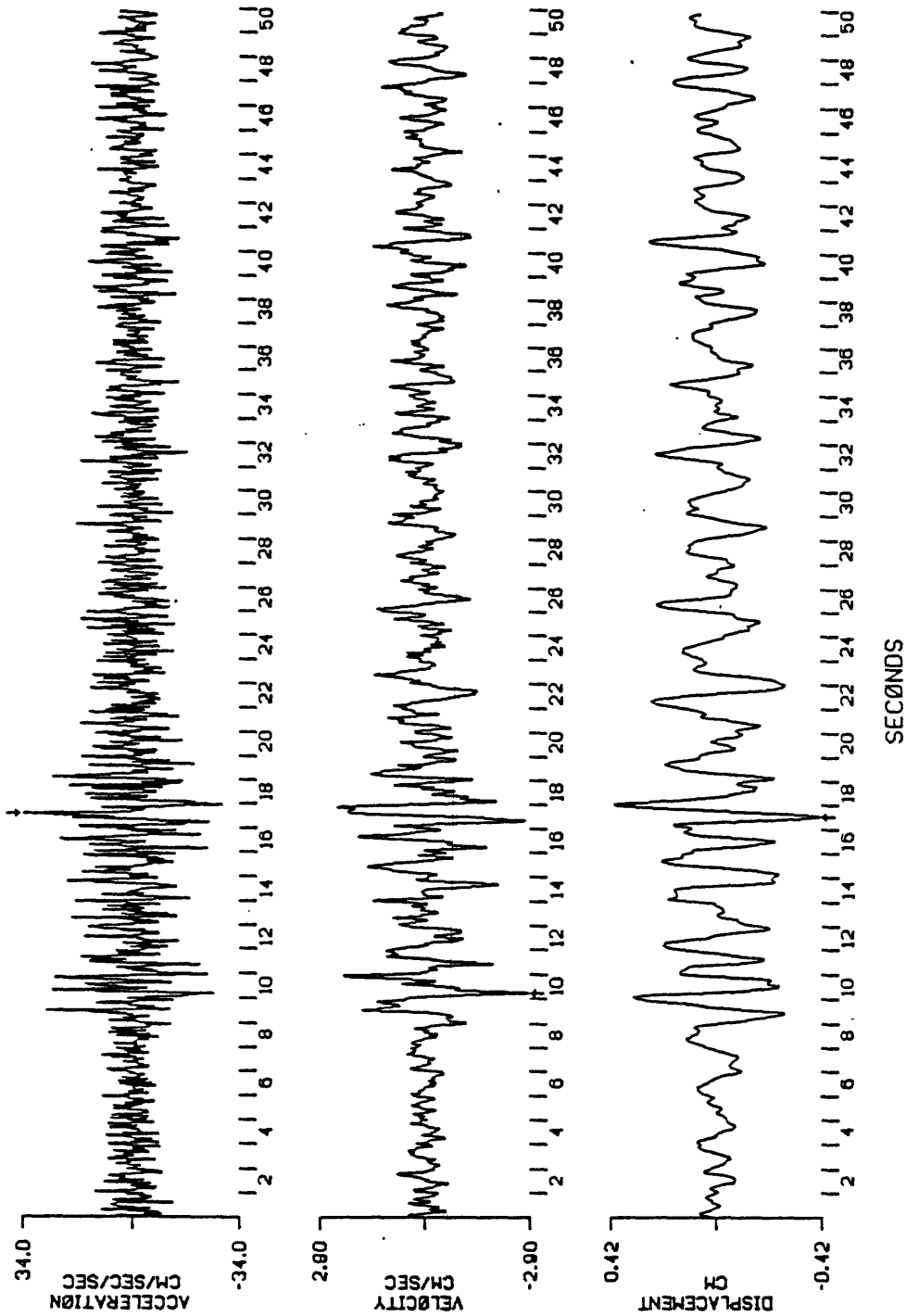
Los Vilos, Chile

DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.4	25.6	25.2
Damping (% Critical)	58.5	61.5	61.2
<u>Filter Parameters:</u>			
Highcut (Hz)	20.0	22.0	20.0
Lowcut (Hz)	0.417	0.357	0.345
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	36.9	19.5	25.8
Peak Acceleration, A (cm/s/s)	33.9	19.8	24.5
Peak Velocity, V (cm/s)	-2.85	-2.26	2.83
Peak Displacement, D (cm)	-0.411	0.437	0.487
<u>Parameter Ratios:</u>			
$ V/A $ (sec)	0.084	0.11	0.12
$ AD/V^2 $	1.7	1.7	1.5

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE NORTH-SOUTH, VERTICAL EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 36.85 19.50 25.84



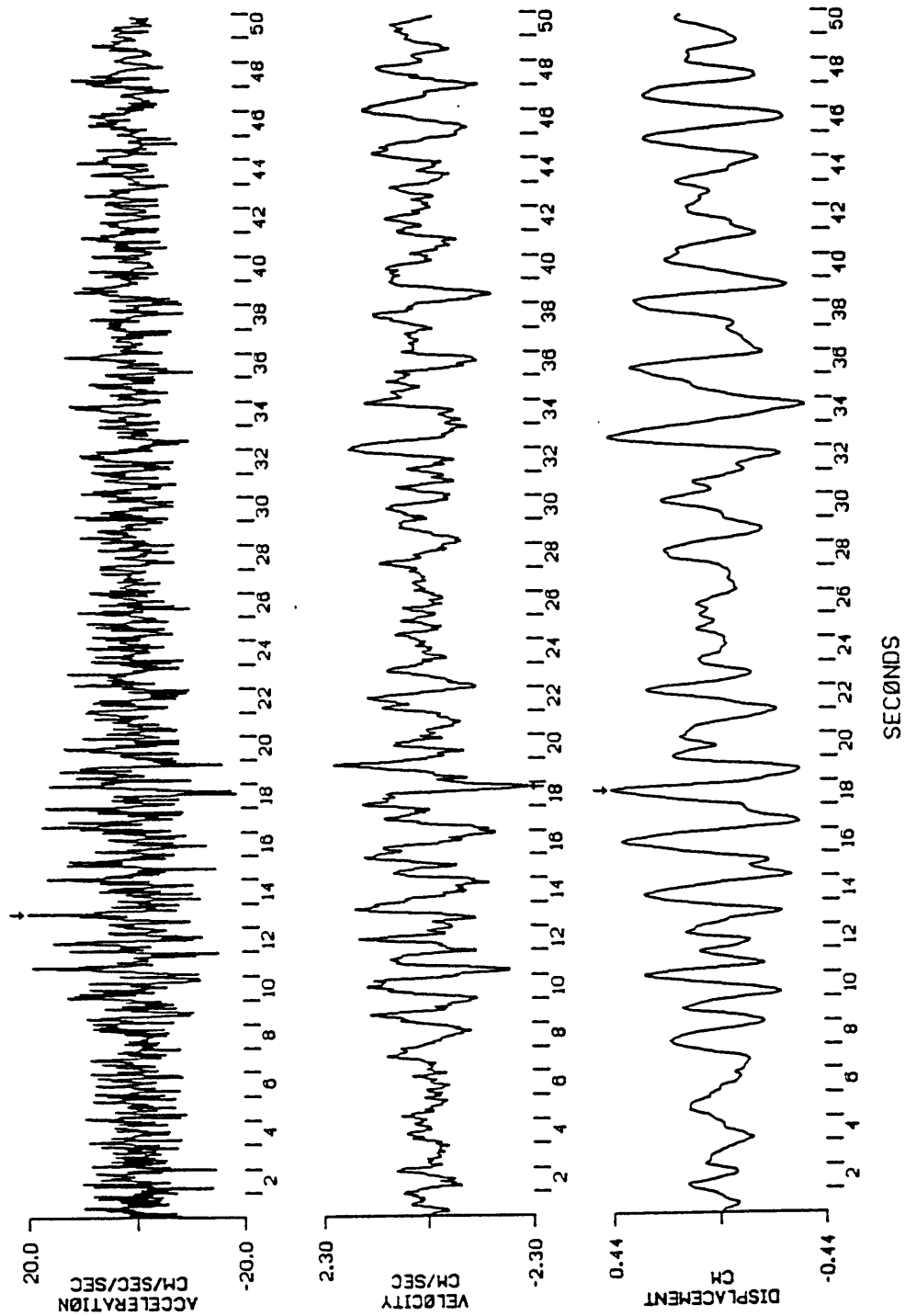
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL-33.91 CM/SEC/SEC, VELOCITY-2.85 CM/SEC, DISPL-0.41 CM



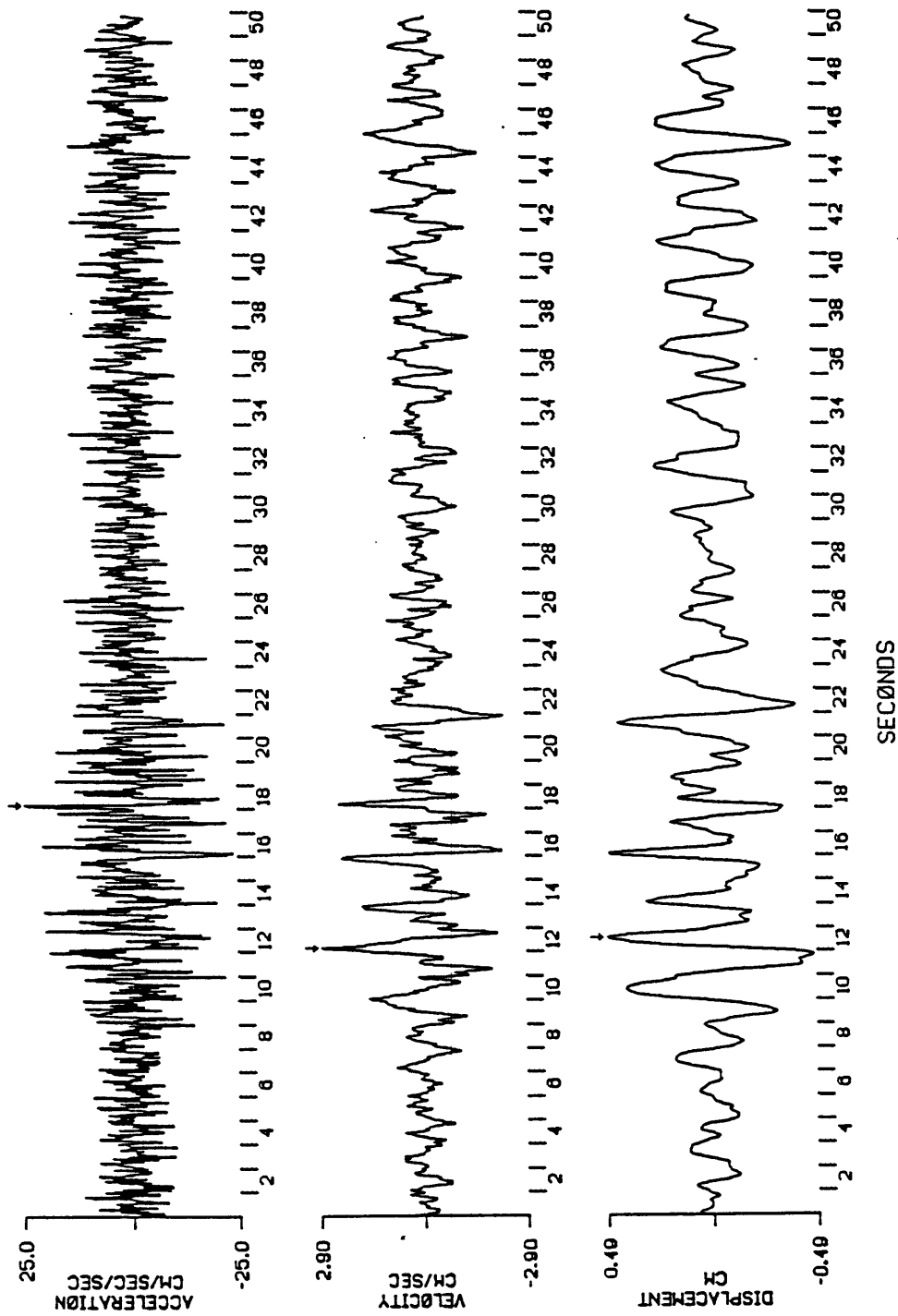
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8

LØS VILØS, CHILE, VERTICAL

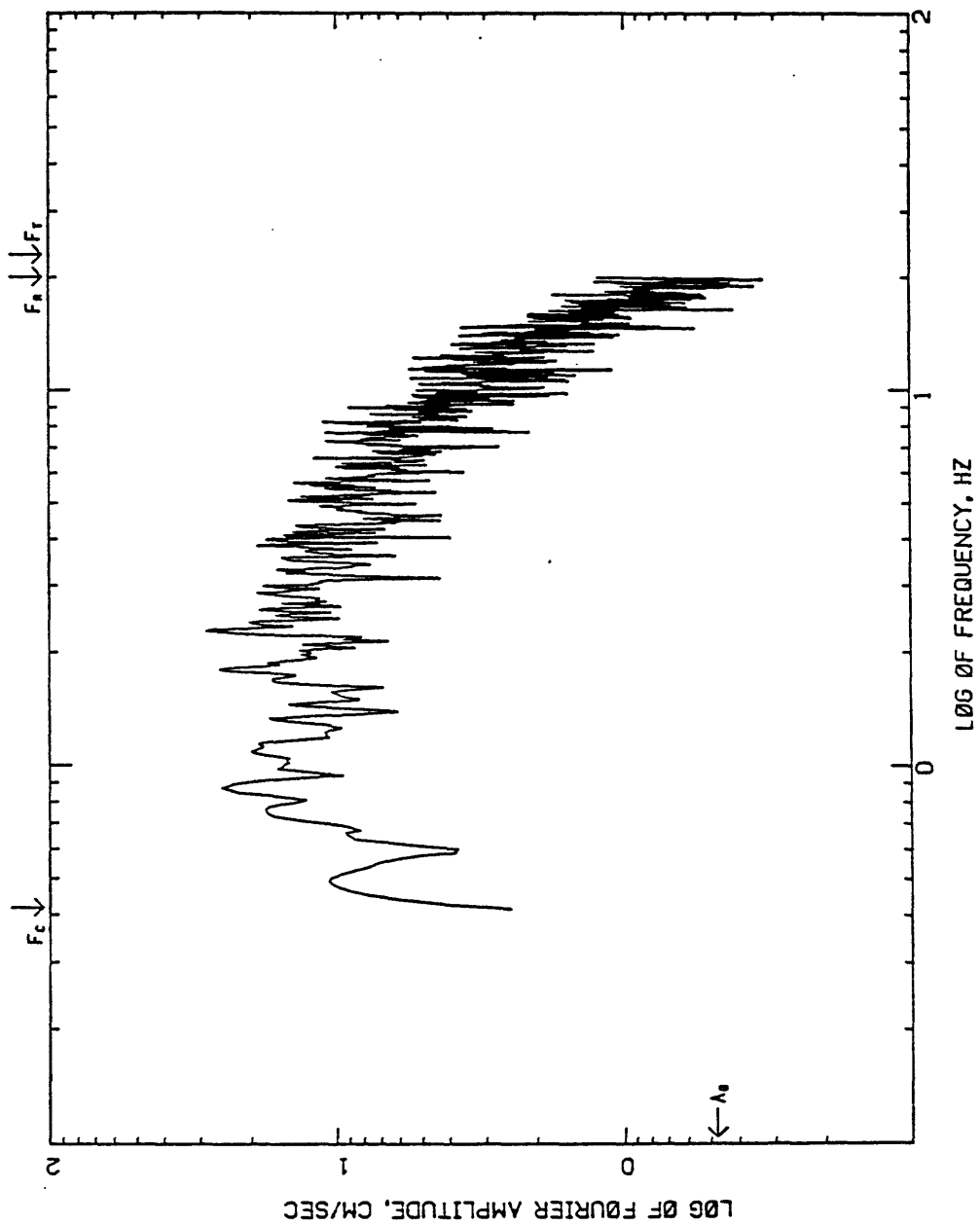
PEAK VALUES: ACCEL-19.82 CM/SEC/SEC, VELOCITY-2.26 CM/SEC, DISPL-0.44 CM



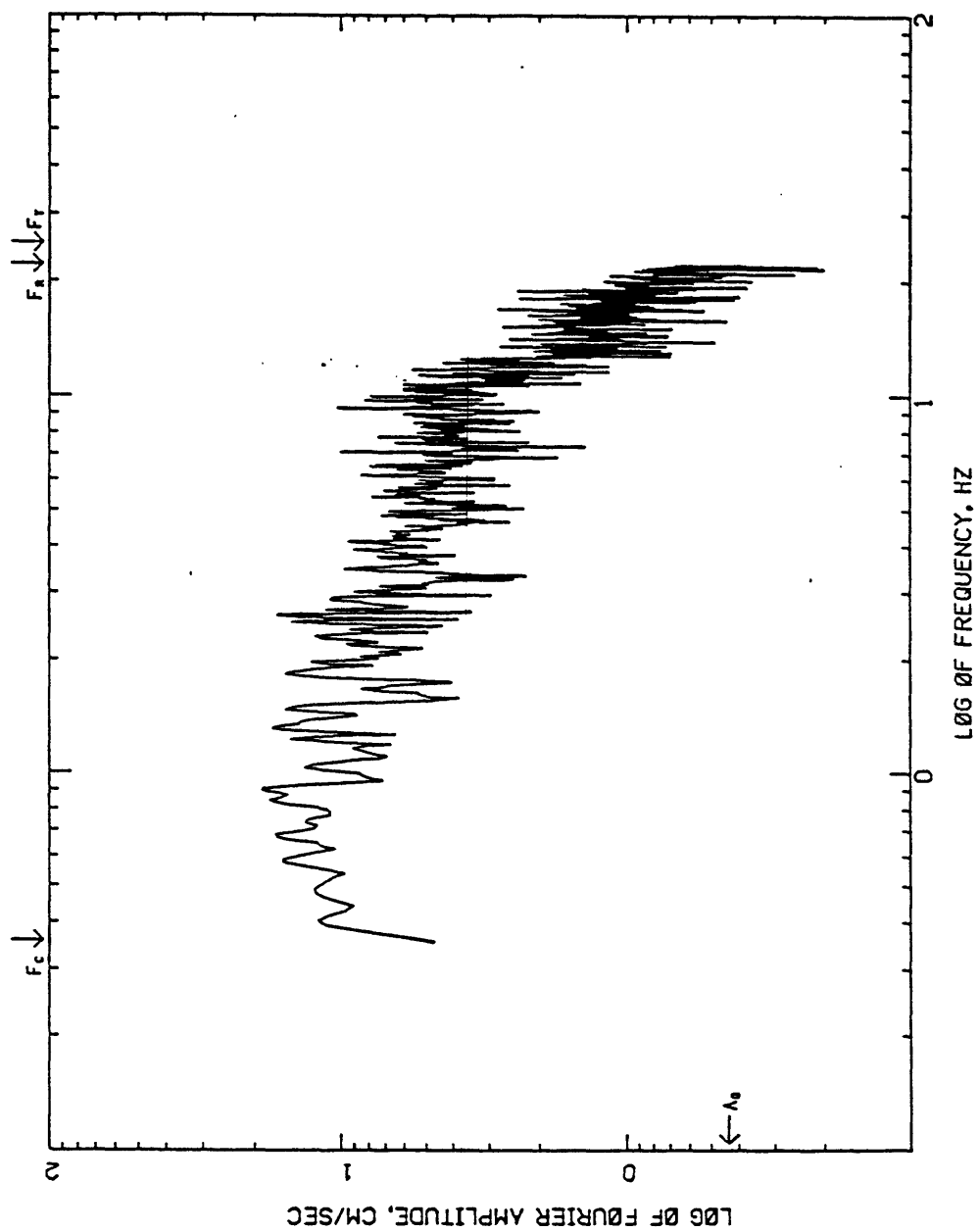
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE, EAST-WEST
 PEAK VALUES: ACCEL-24.50 CM/SEC/SEC, VELOCITY-2.83 CM/SEC, DISPL-0.49 CM



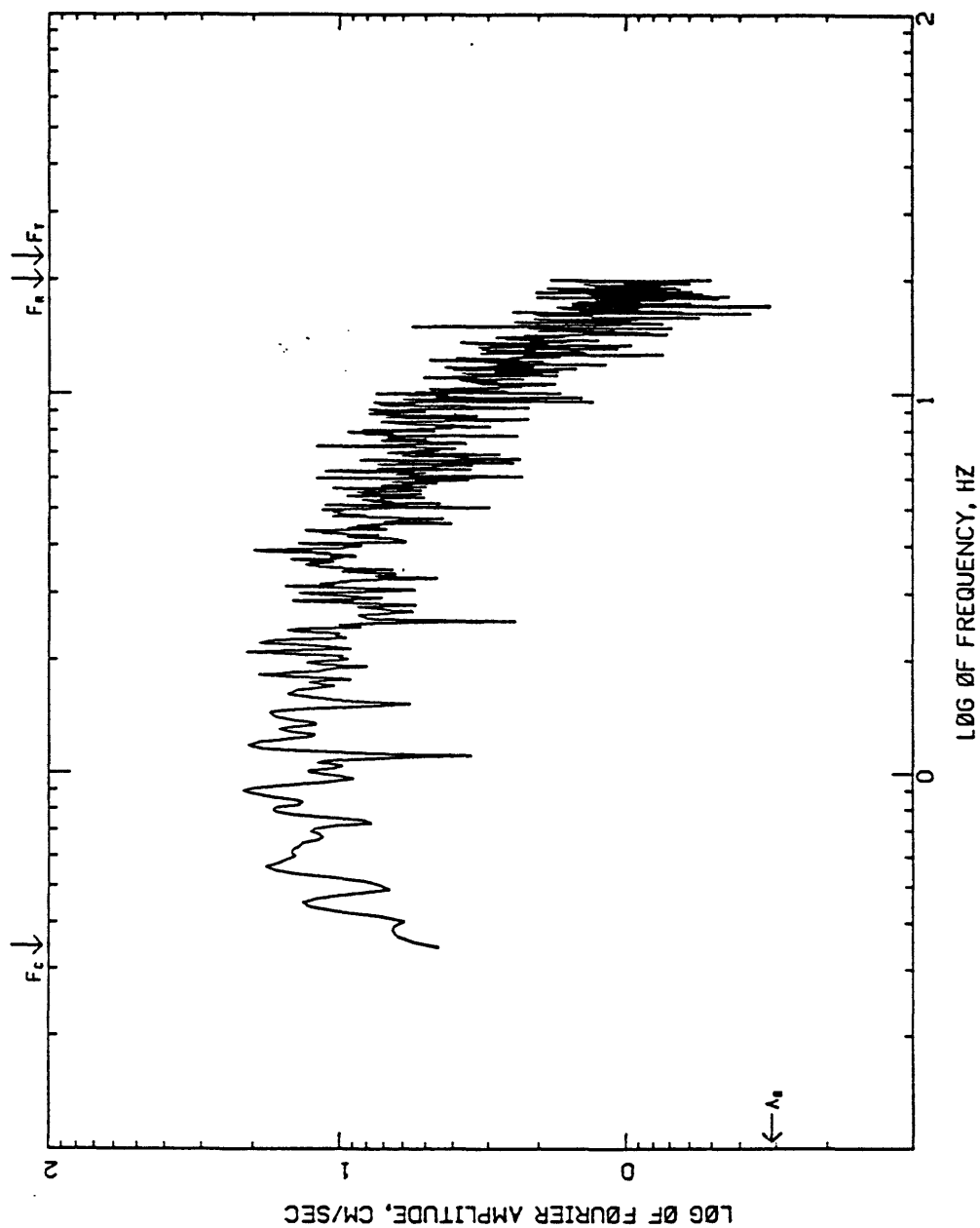
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCR055, SM00TH(5), N0N0ISE



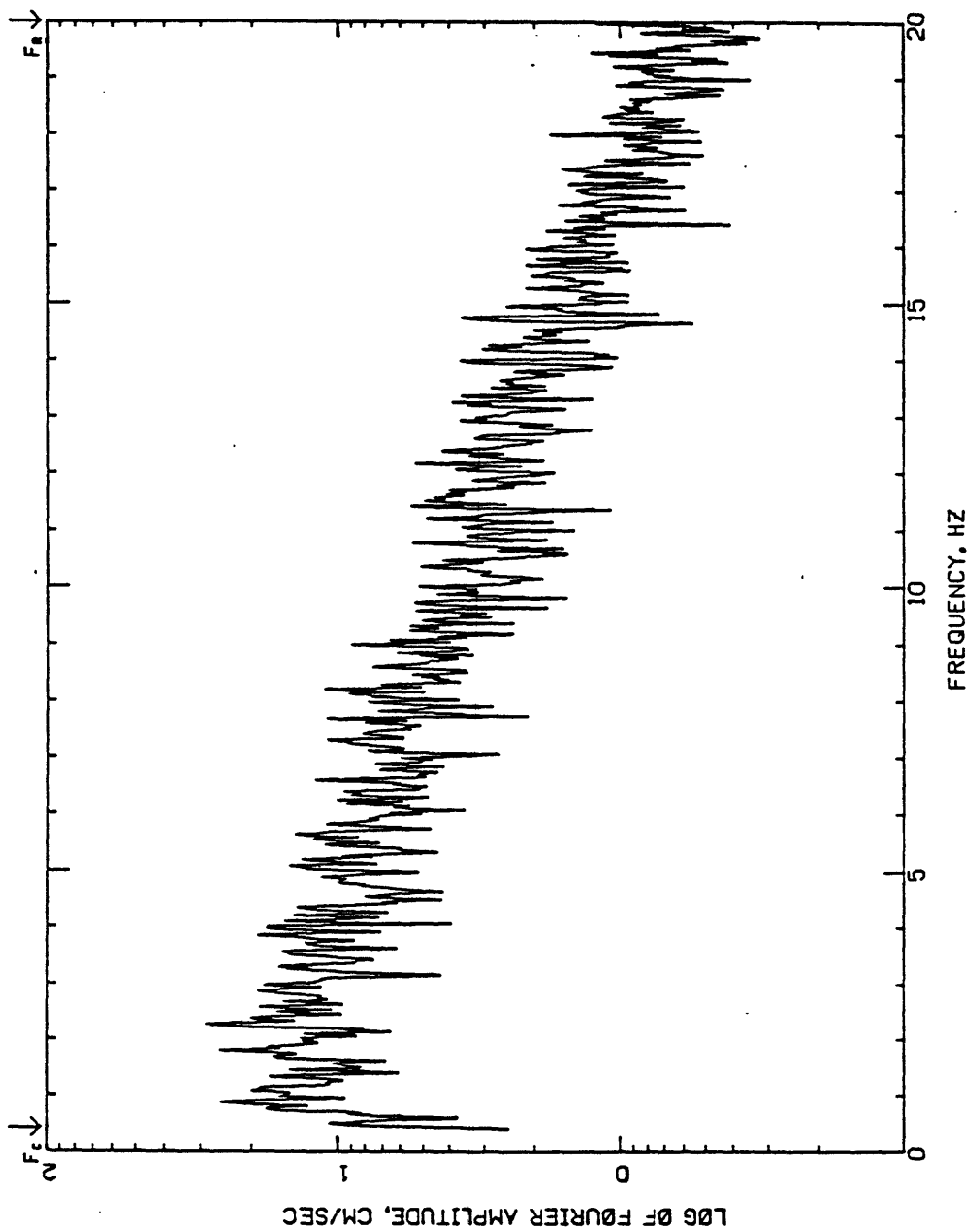
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE, VERTICAL
 COMPUTING OPTIONS= ZCR055, SM00TH(5), N0N0ISE



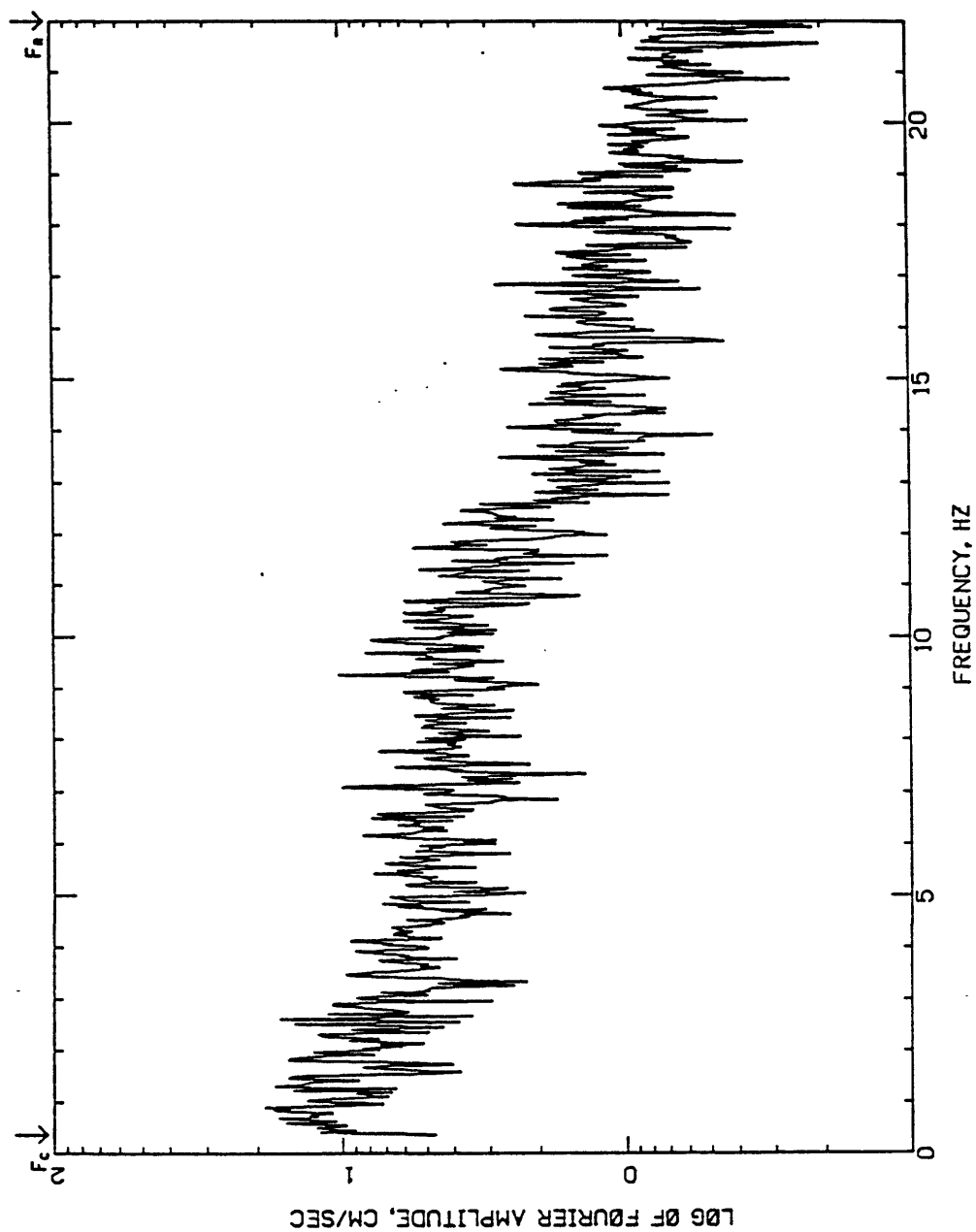
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR055, SM00TH(5), N0N0ISE



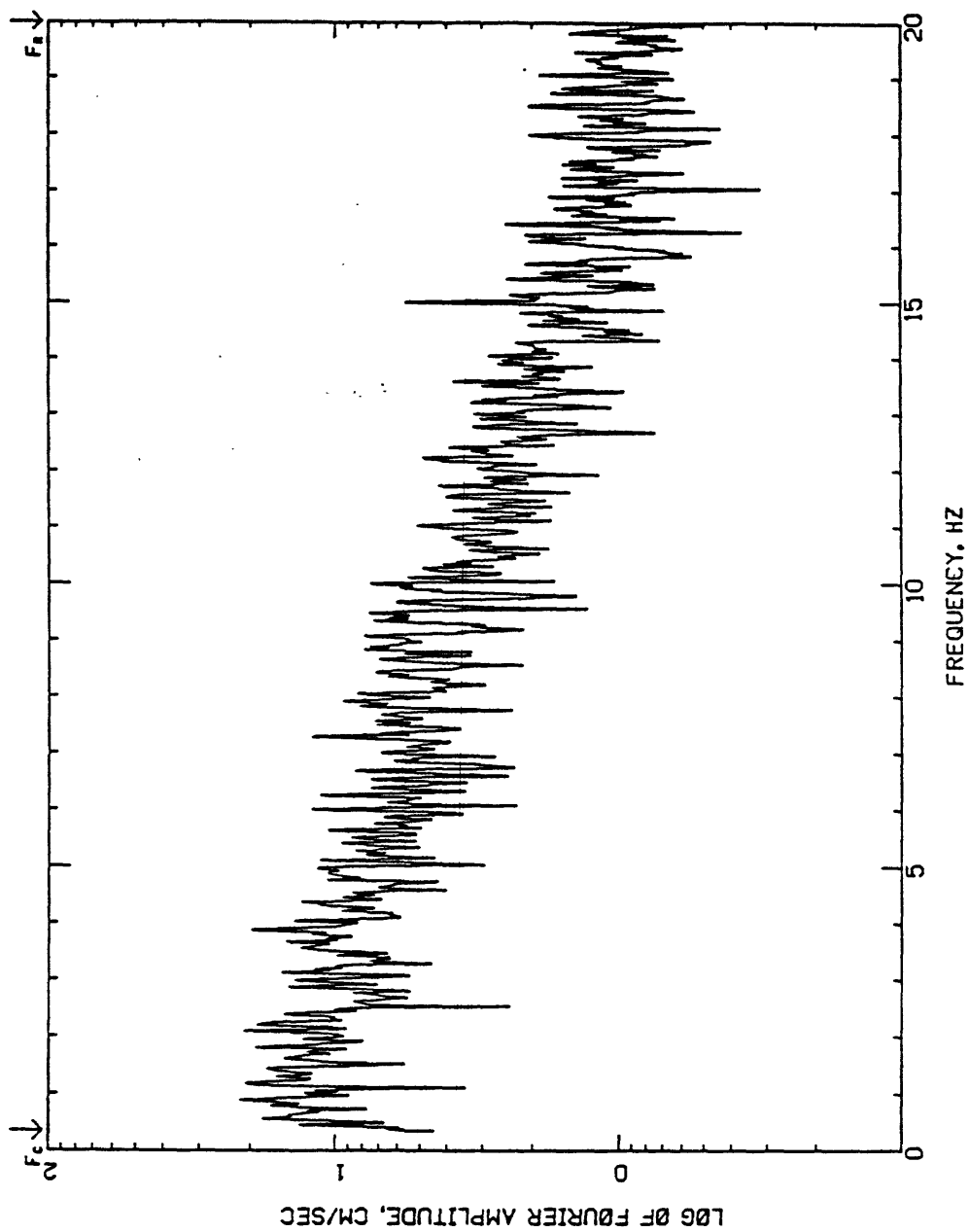
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC MS-7.8
 LOS VILLOS, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS - ZCR0SS,SM00TH(5),N0N0ISE



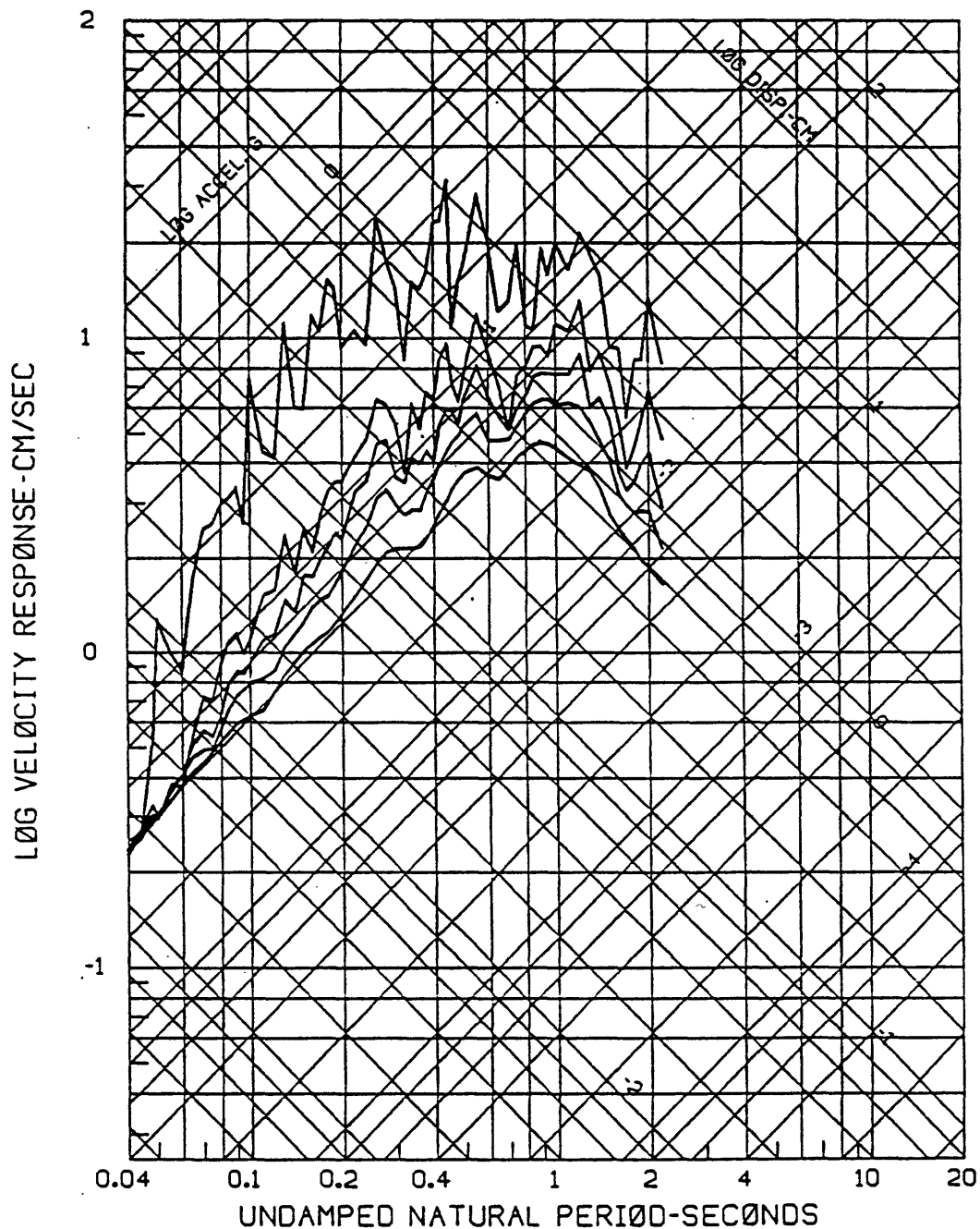
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SMOOTH(5), N0N0ISE



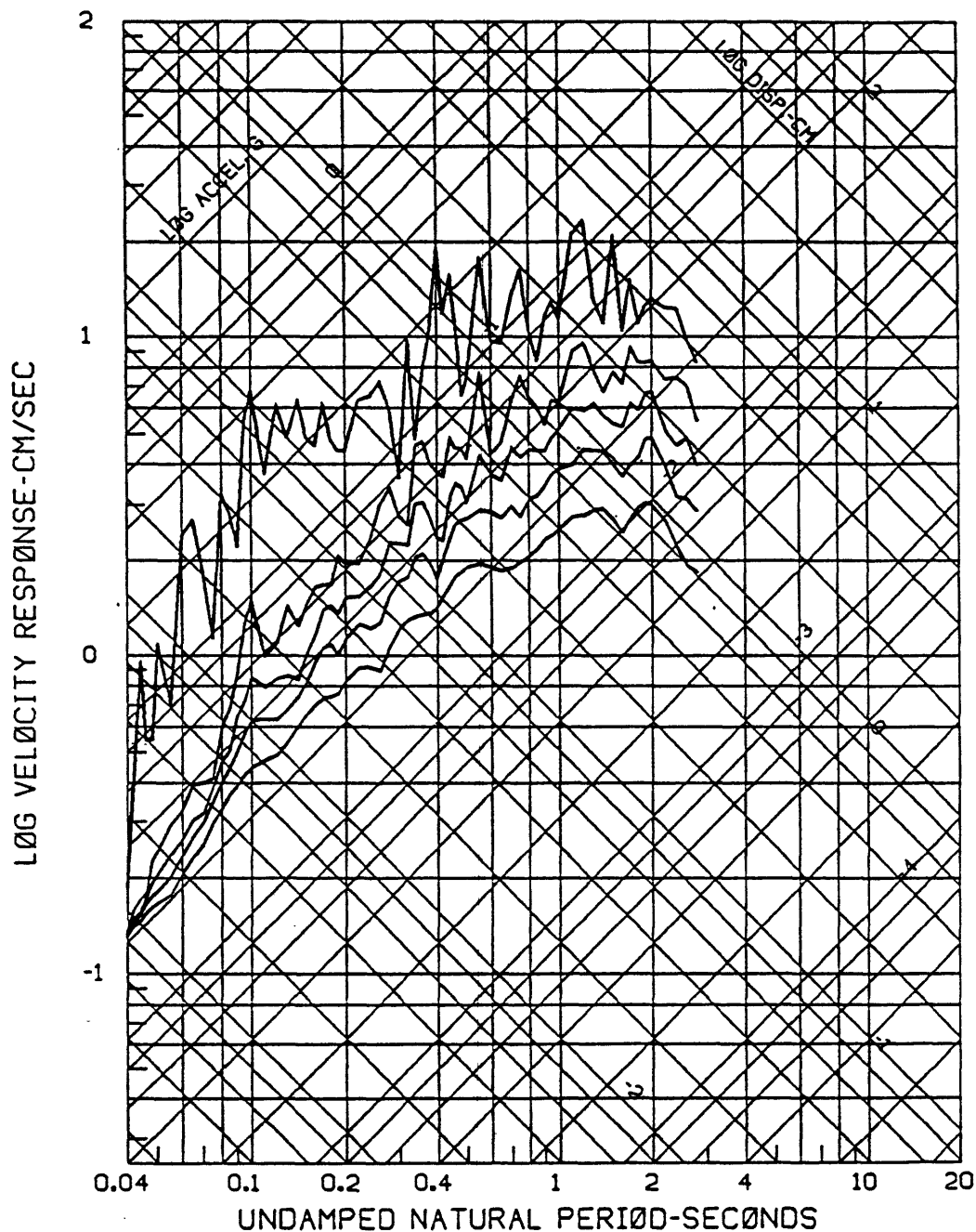
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 LOS VILLOS, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR055,SH00TH(5),N0N0ISE



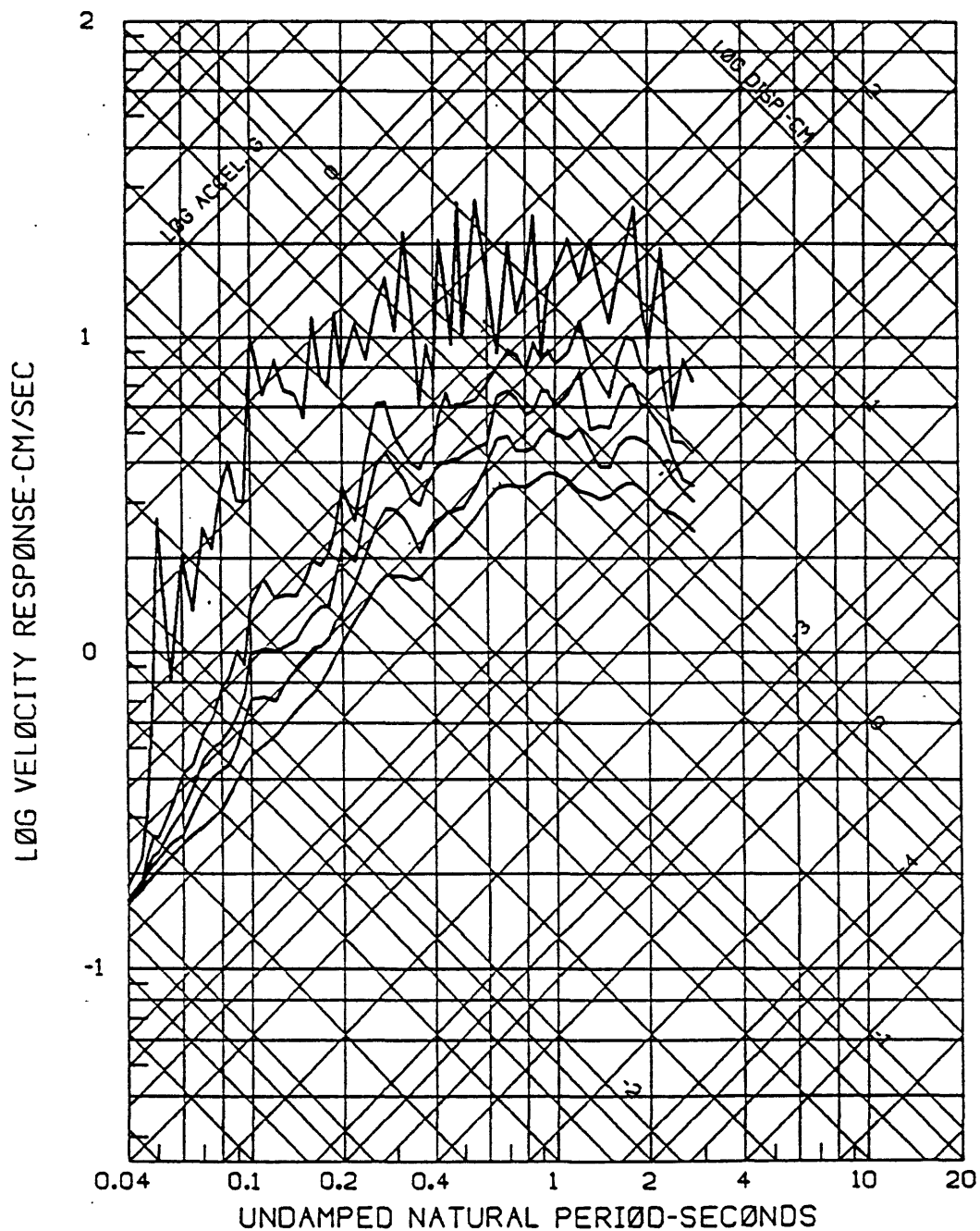
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 LOS VILLOS, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



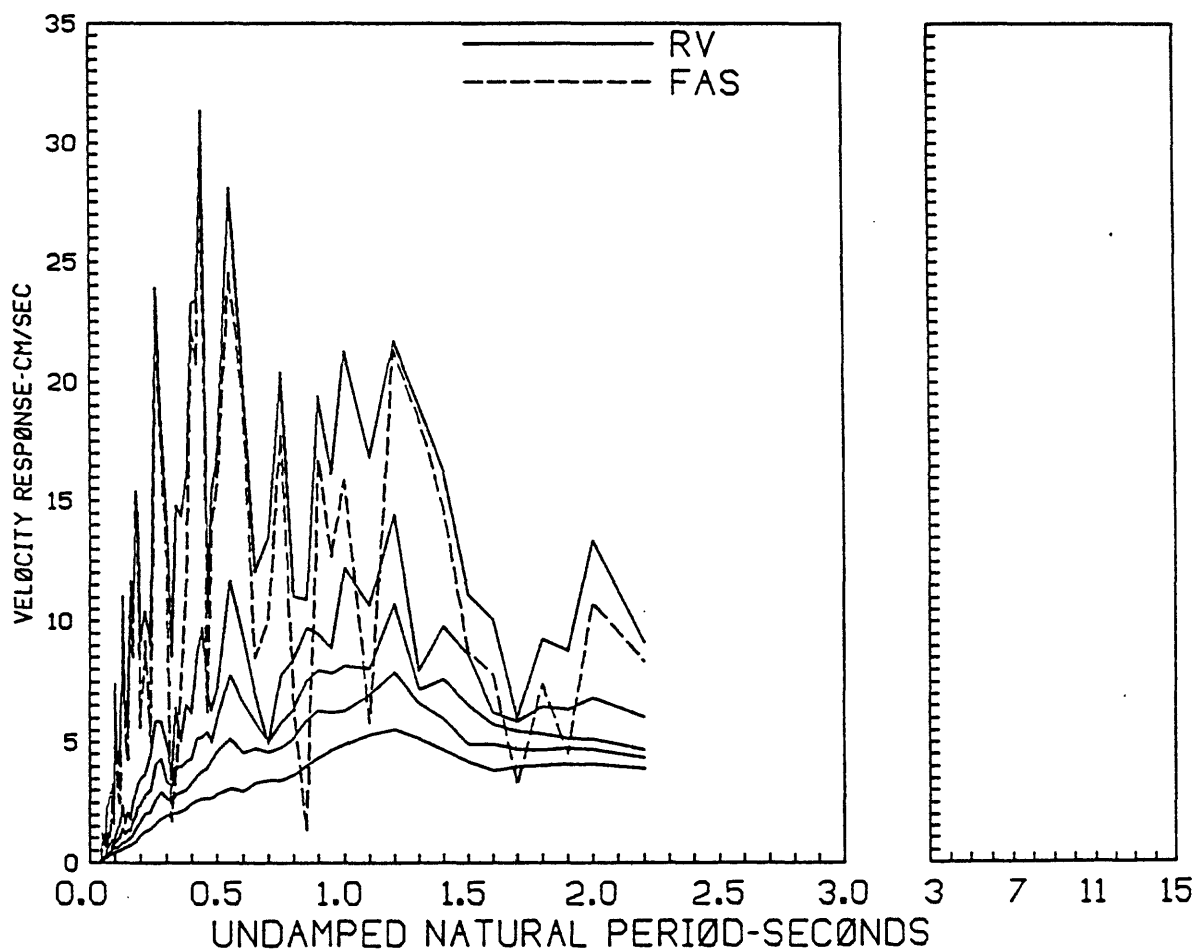
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 LOS VILLOS, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



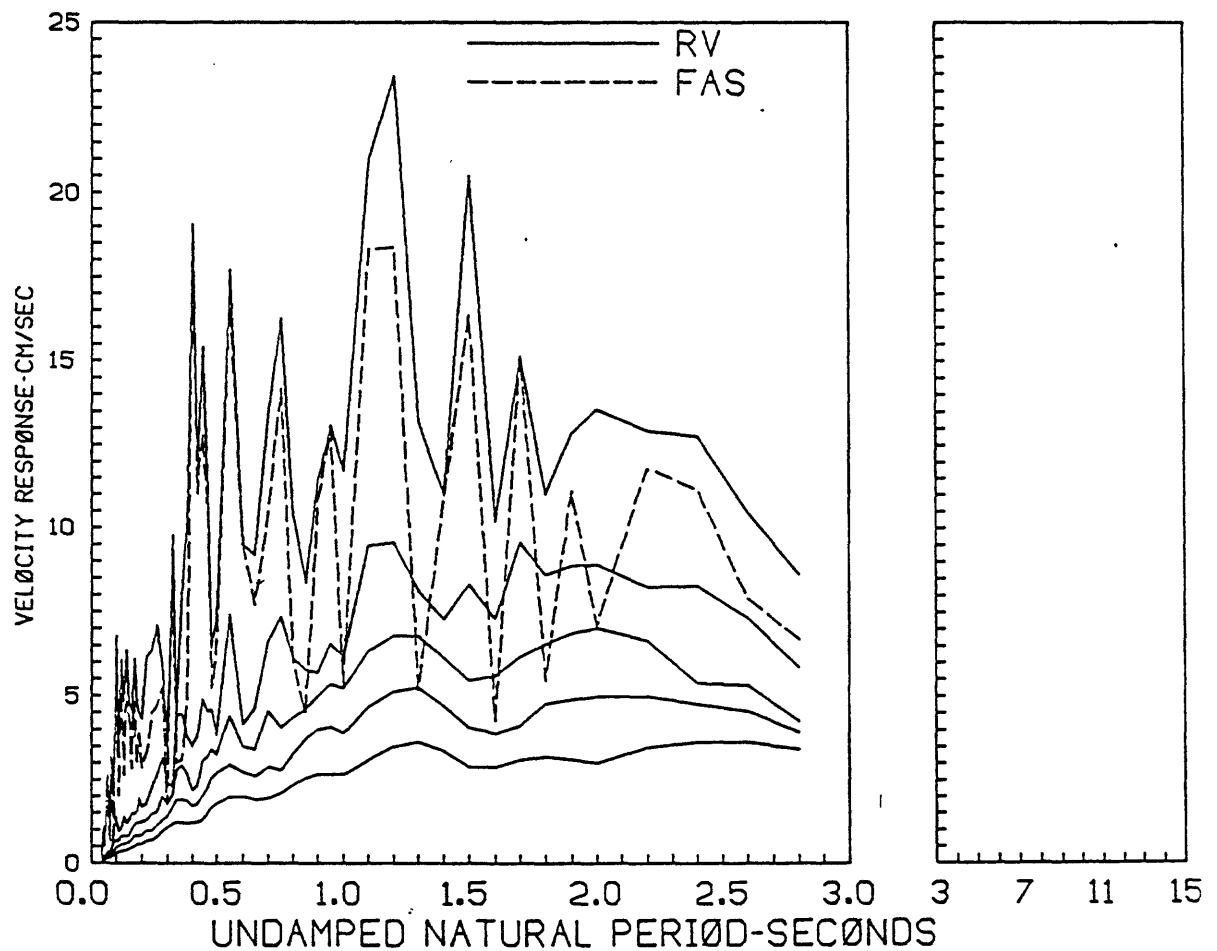
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 LOS VILLOS, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



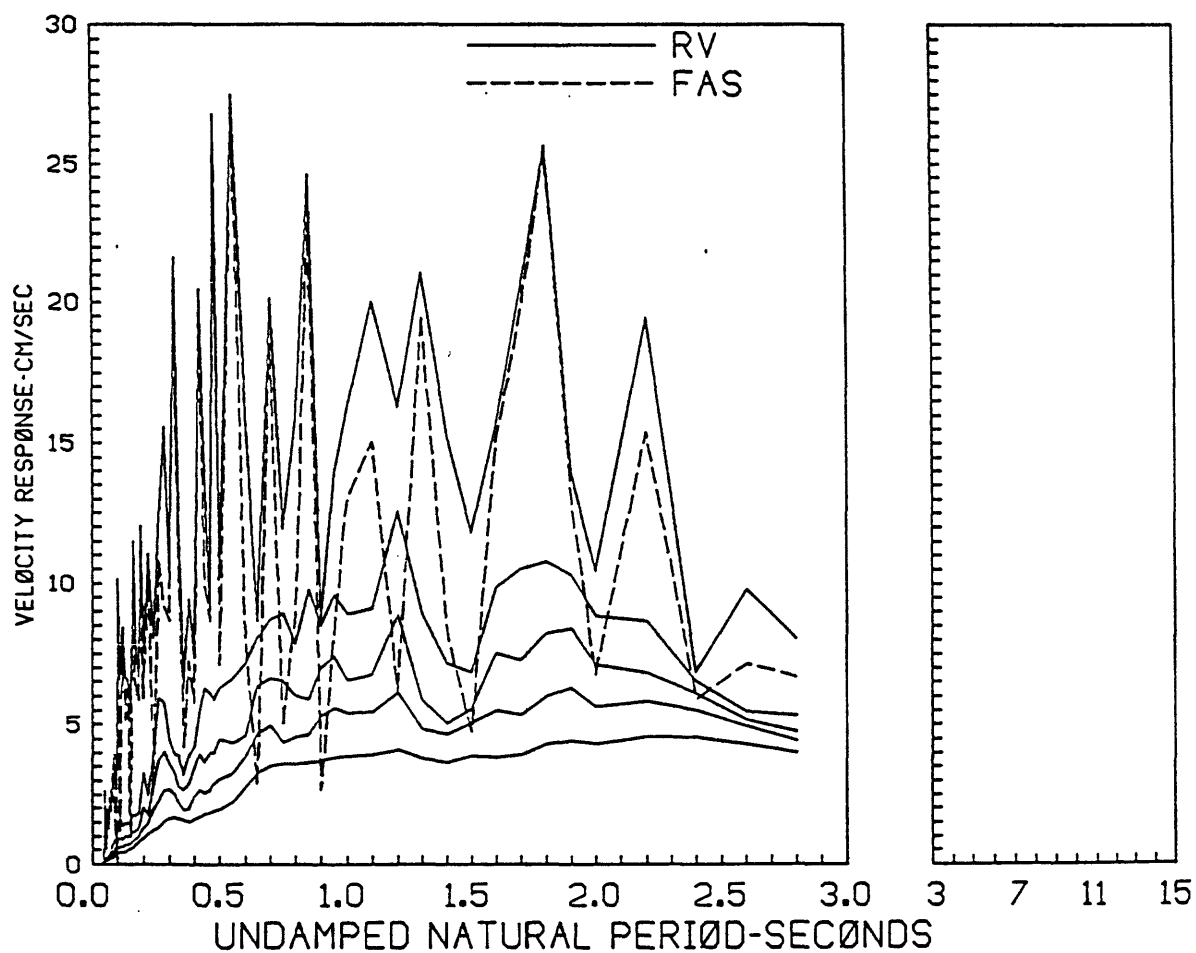
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 LOS VILLOS, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 LOS VILLOS, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 LOS VILLOS, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



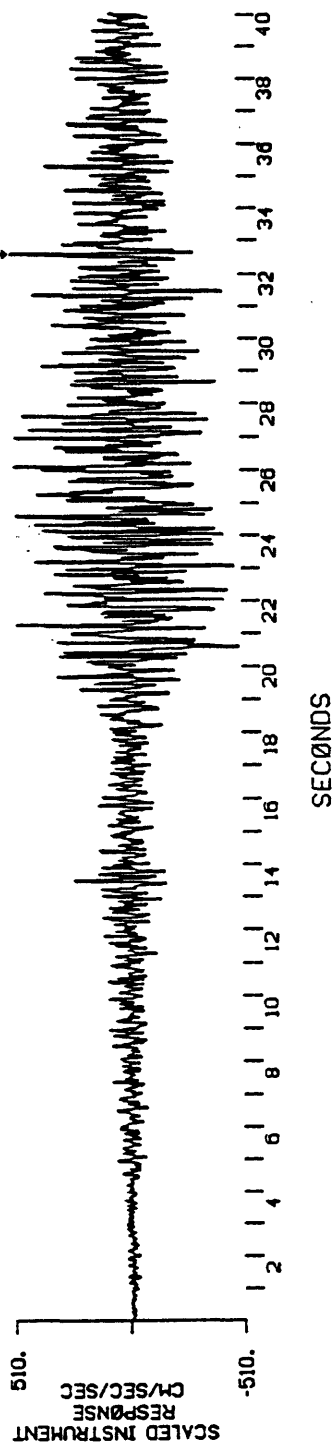
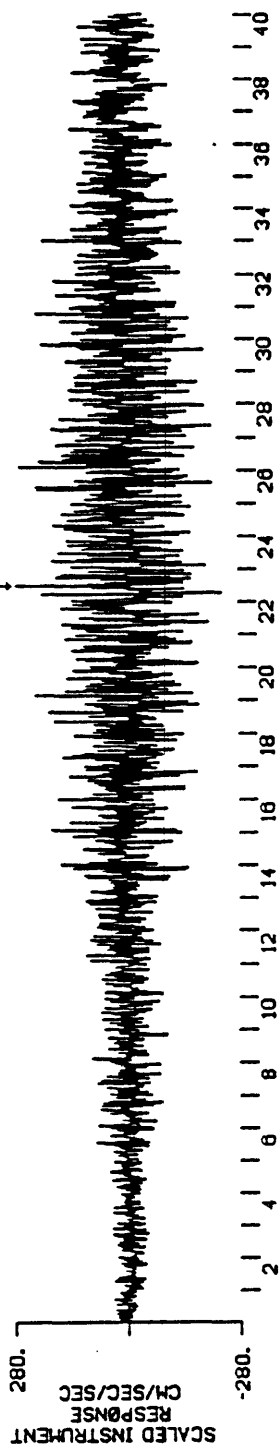
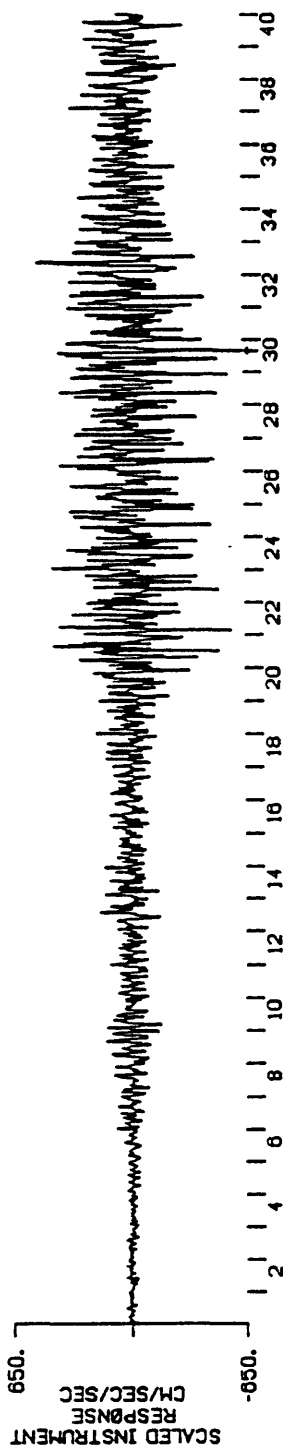
SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake, 3/3/85
22:47:07 UTC, $M_s=7.8$

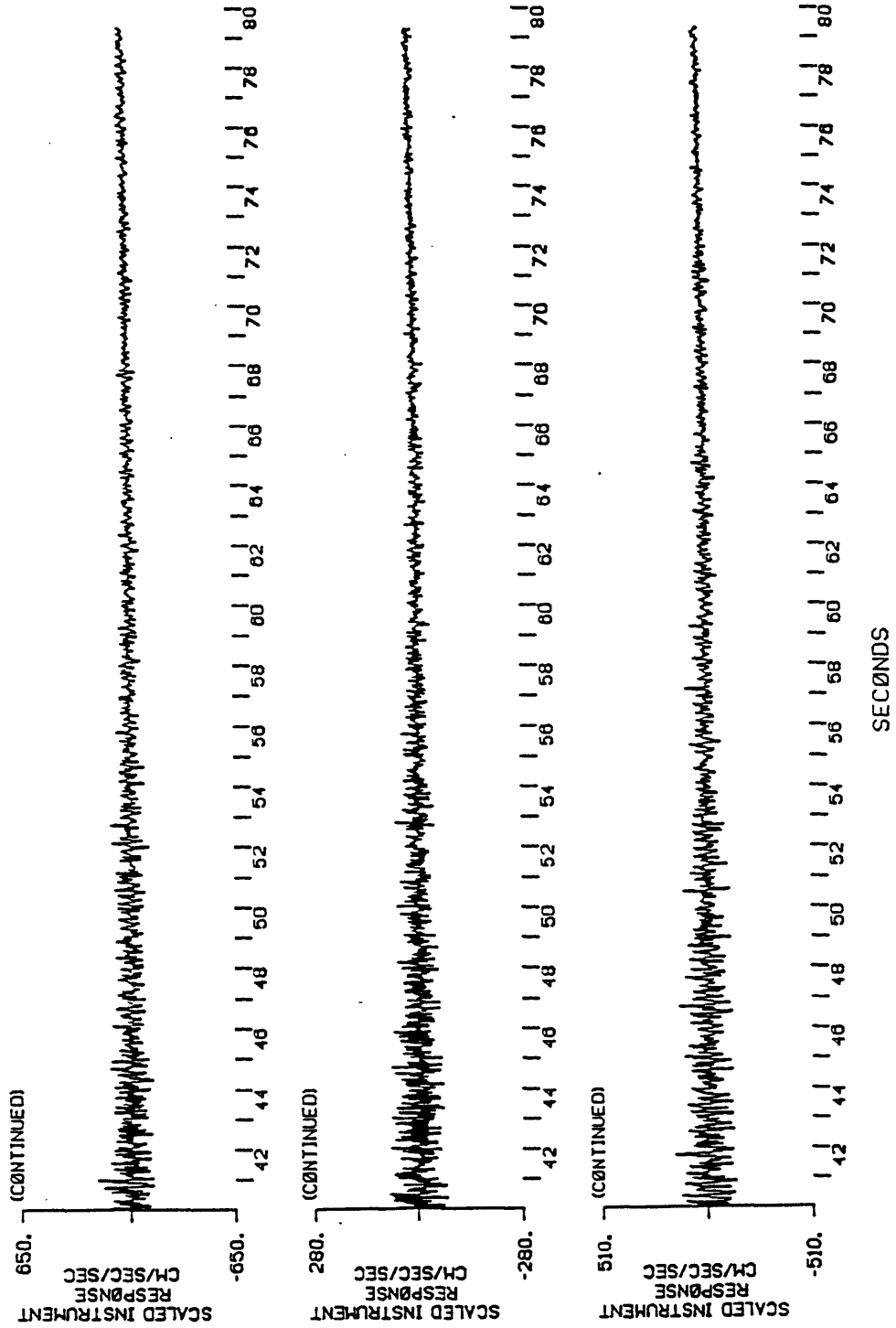
Melipilla, Chile

DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.0	26.0	25.0
Damping (% Critical)	62.3	57.7	59.4
<u>Filter Parameters:</u>			
Highcut (Hz)	22.0	32.0	24.0
Lowcut (Hz)	0.133	0.270	0.200
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	-641.6	274.3	509.8
Peak Acceleration, A (cm/s/s)	-673.0	-249.9	518.1
Peak Velocity, V (cm/s)	34.2	-11.8	40.3
Peak Displacement, D (cm)	12.0	-2.81	6.03
<u>Parameter Ratios:</u>			
V/A (sec)	0.051	0.047	0.078
AD/V ²	6.9	5.0	1.9

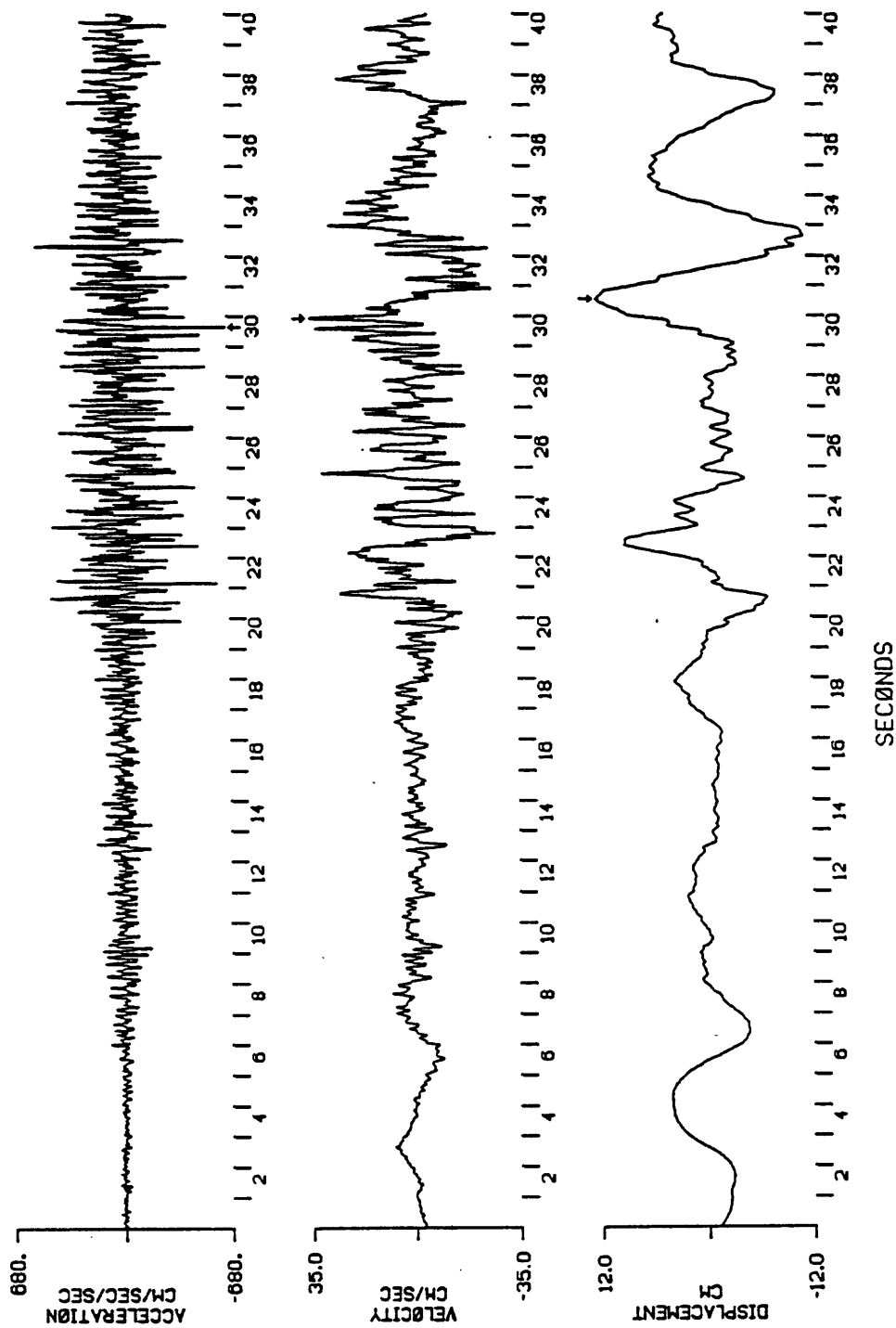
UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES (CM/SEC/SEC): -041.58 274.28 509.81



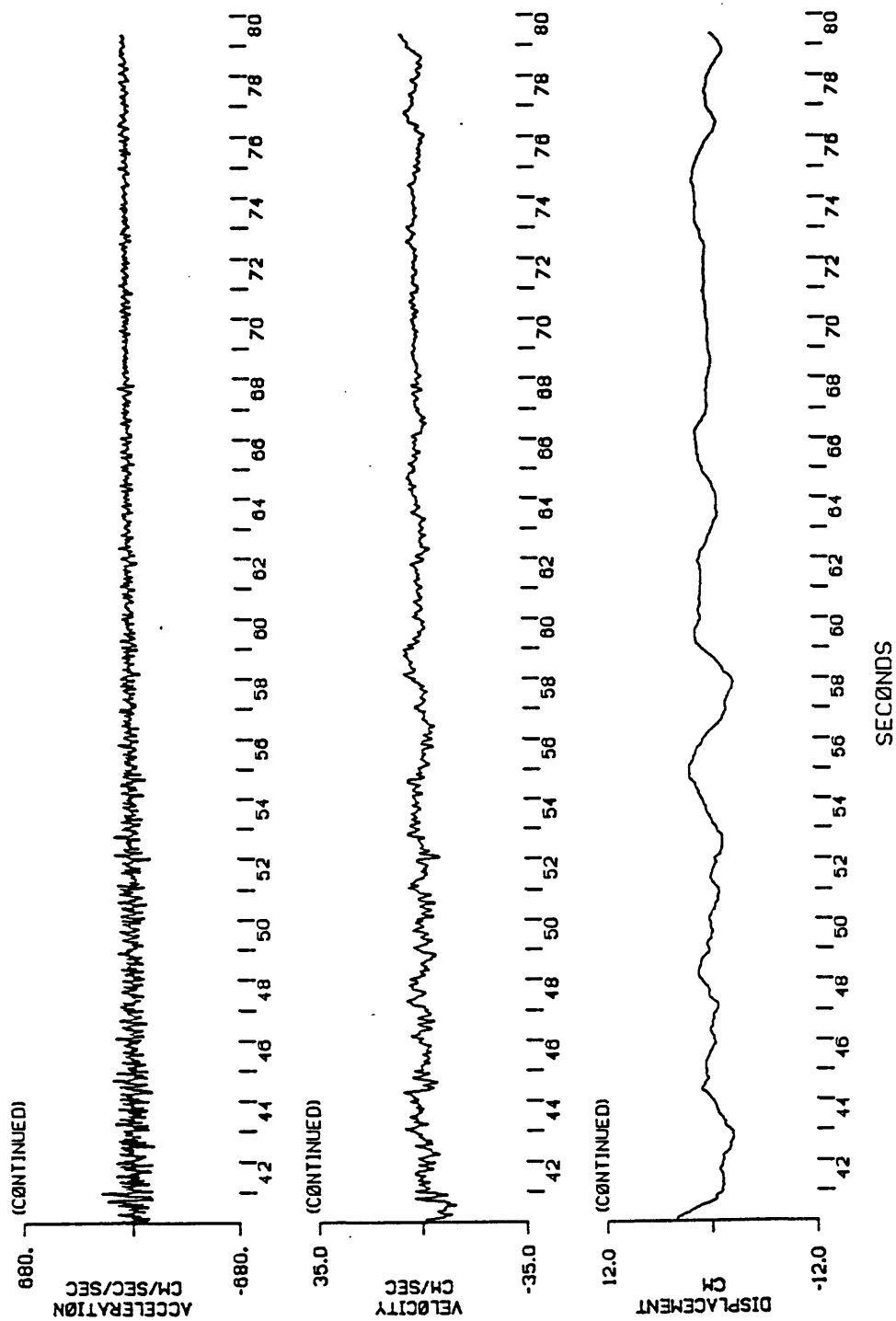
UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE NORTH-SOUTH VERTICAL EAST-WEST
 PEAK VALUES(CM/SEC/SEC): -641.58 274.28 509.81



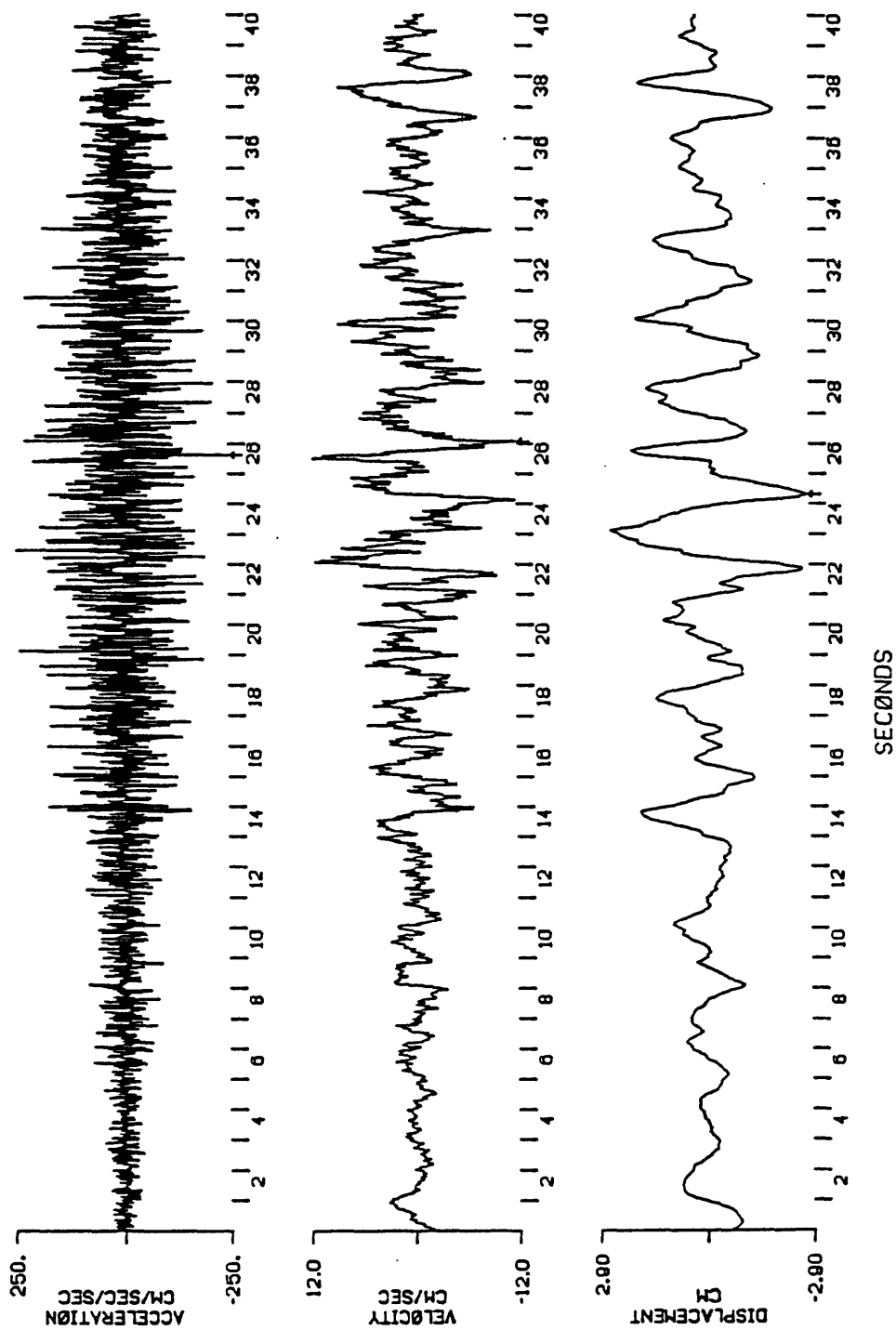
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL--673.03 CM/SEC/SEC, VELOCITY-34.24 CM/SEC, DISPL-11.99 CM



CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL=-673.03 CM/SEC/SEC, VELOCITY-34.24 CM/SEC, DISPL-11.99 CM

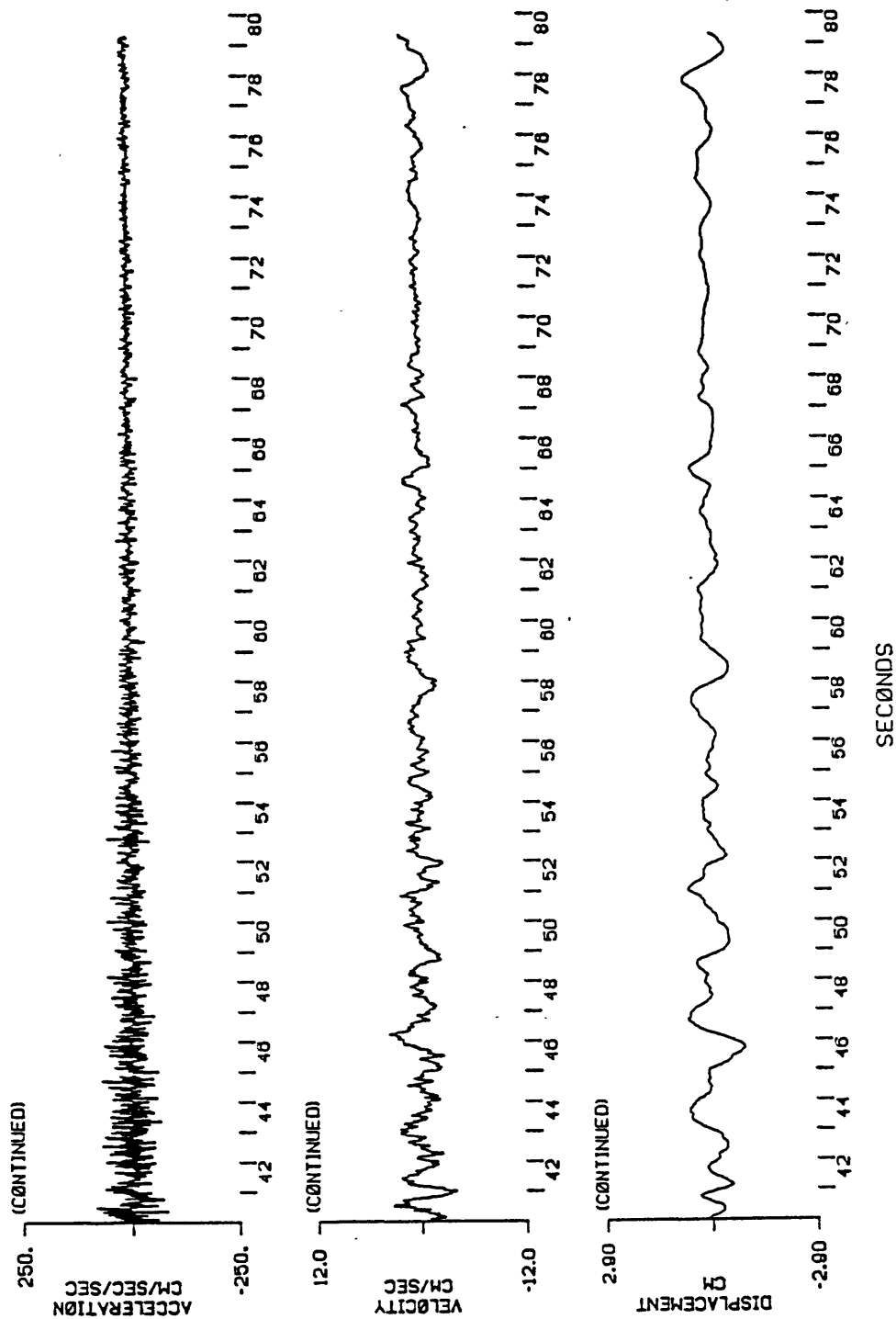


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE VERTICAL
 PEAK VALUES: ACCEL--249.85 CM/SEC/SEC, VELOCITY--11.78 CM/SEC, DISPL--2.81 CM



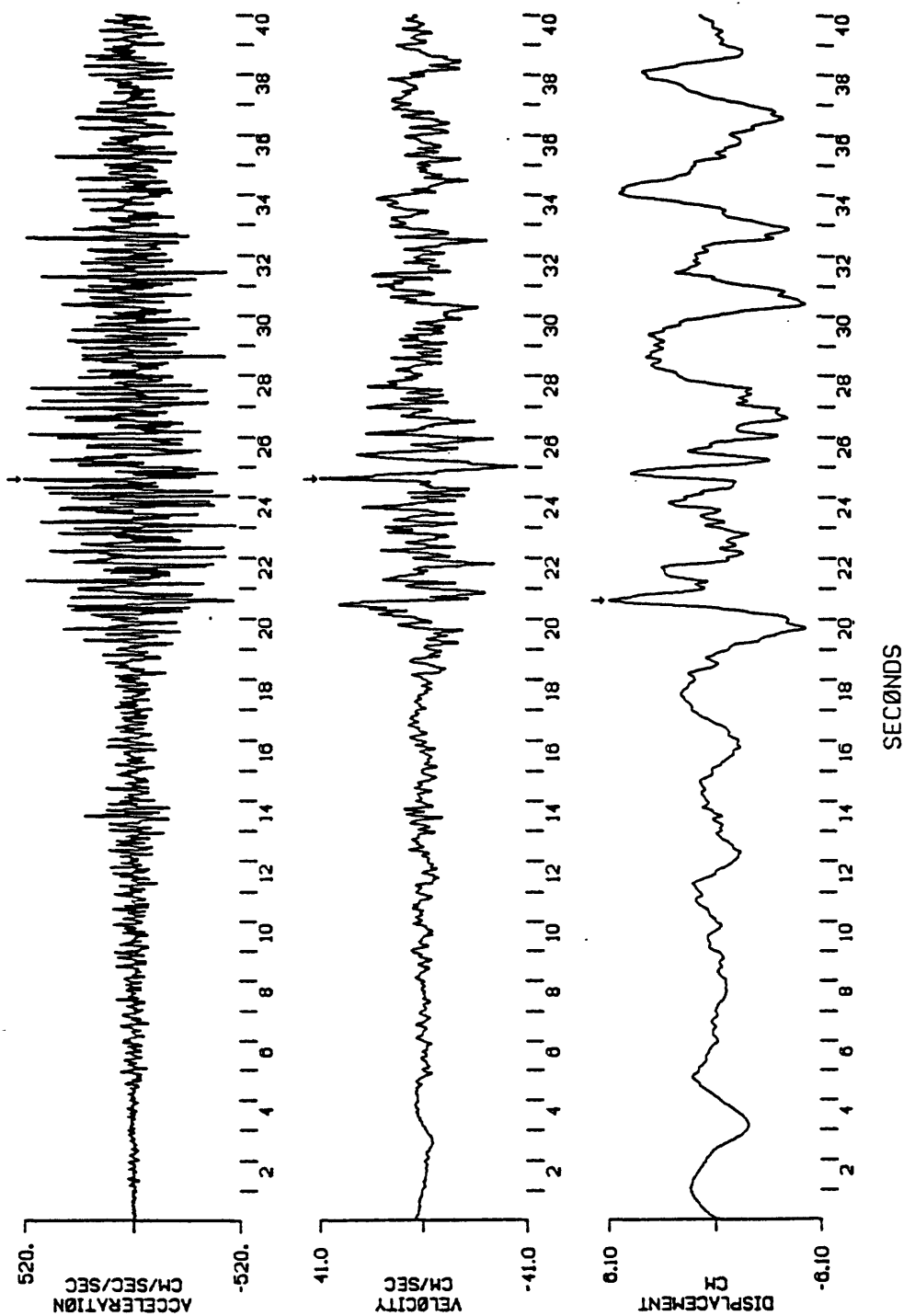
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
MELIPILLA, CHILE, VERTICAL

PEAK VALUES: ACCEL--249.85 CM/SEC/SEC, VELOCITY--11.78 CM/SEC, DISPL--2.81 CM

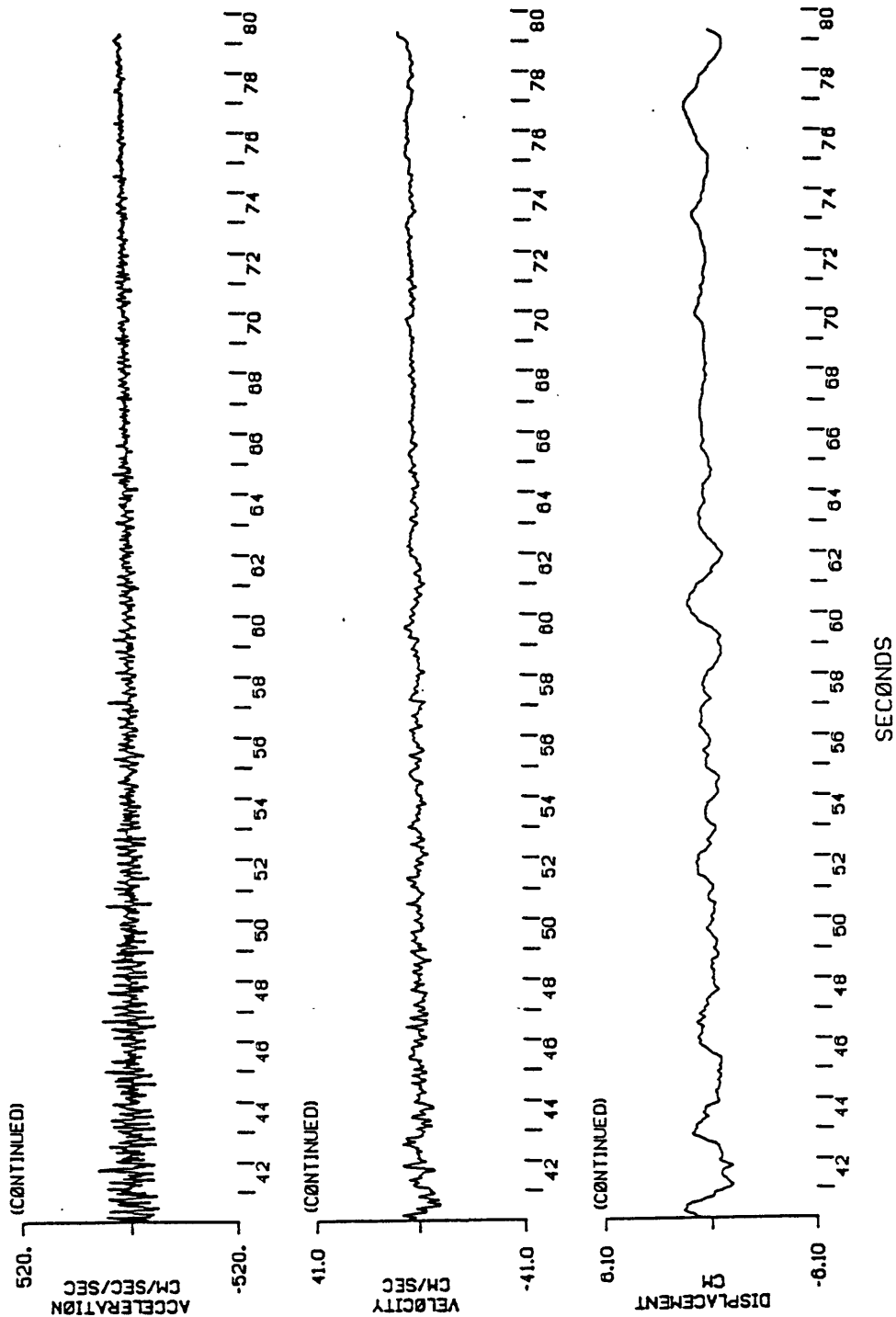


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
MELIPILLA, CHILE, EAST-WEST

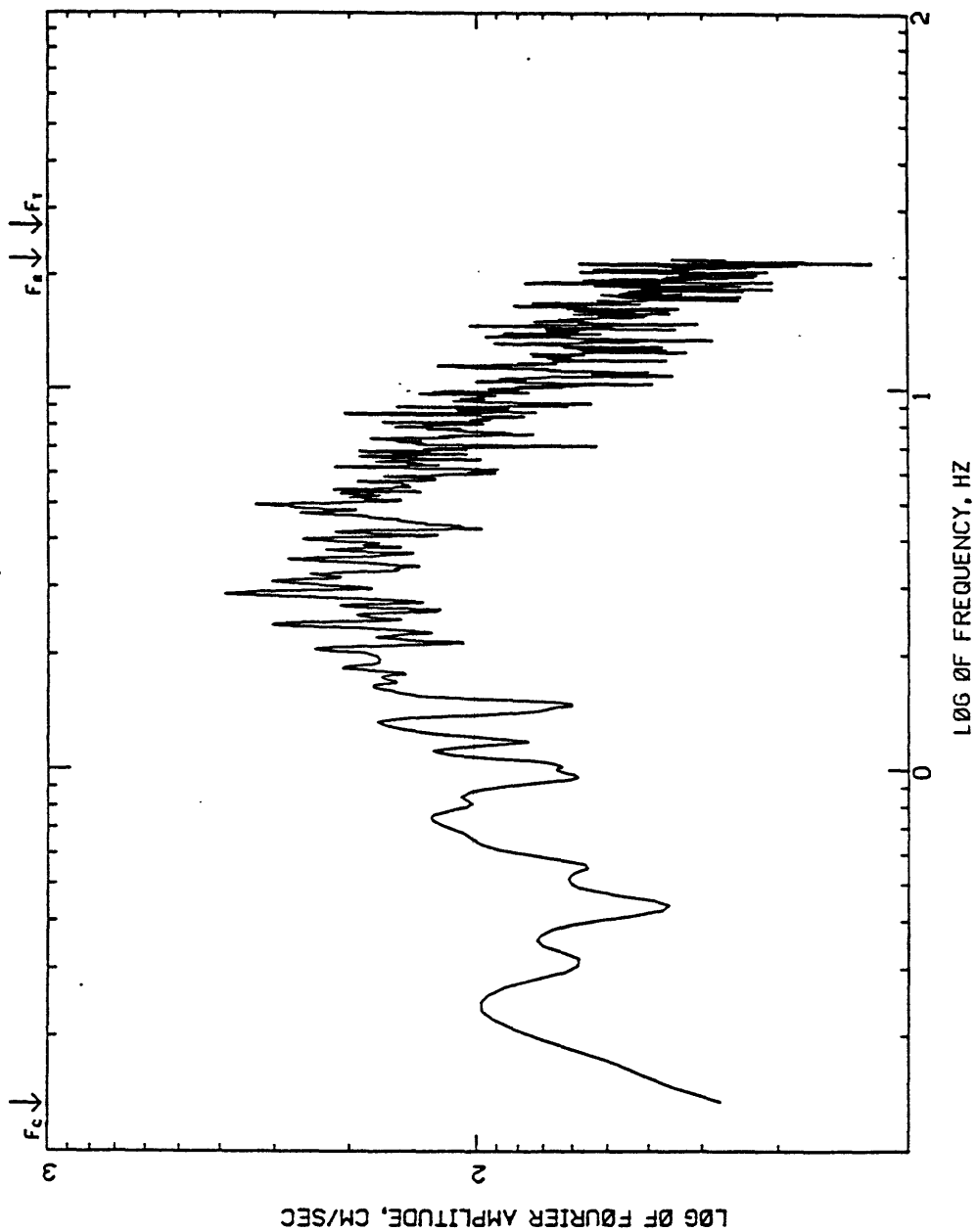
PEAK VALUES: ACCEL-518.09 CM/SEC/SEC, VELOCITY-40.35 CM/SEC, DISPL-6.03 CM



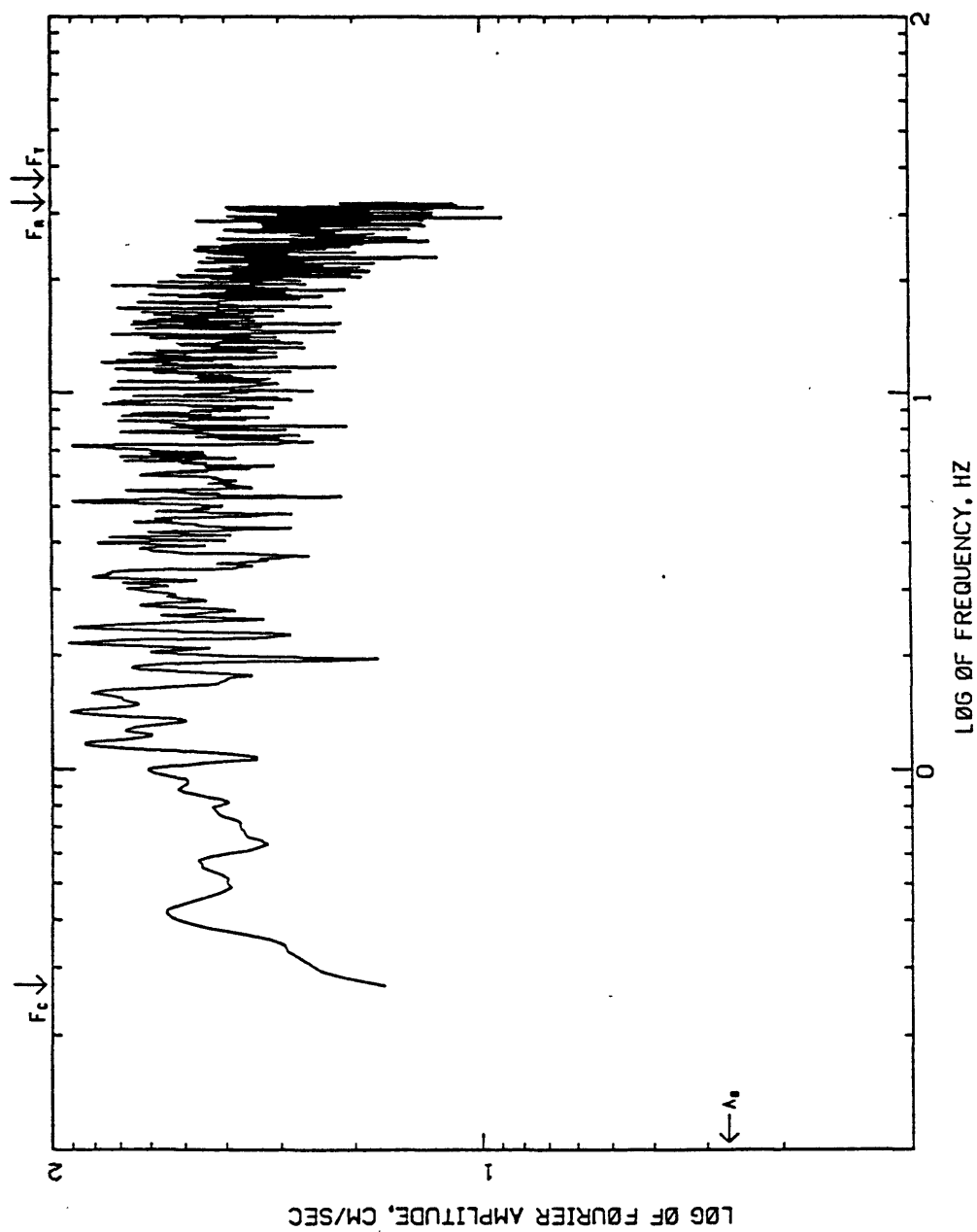
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, EAST-WEST
 PEAK VALUES: ACCEL-518.09 CM/SEC/SEC, VELOCITY-40.35 CM/SEC, DISPL-6.03 CM



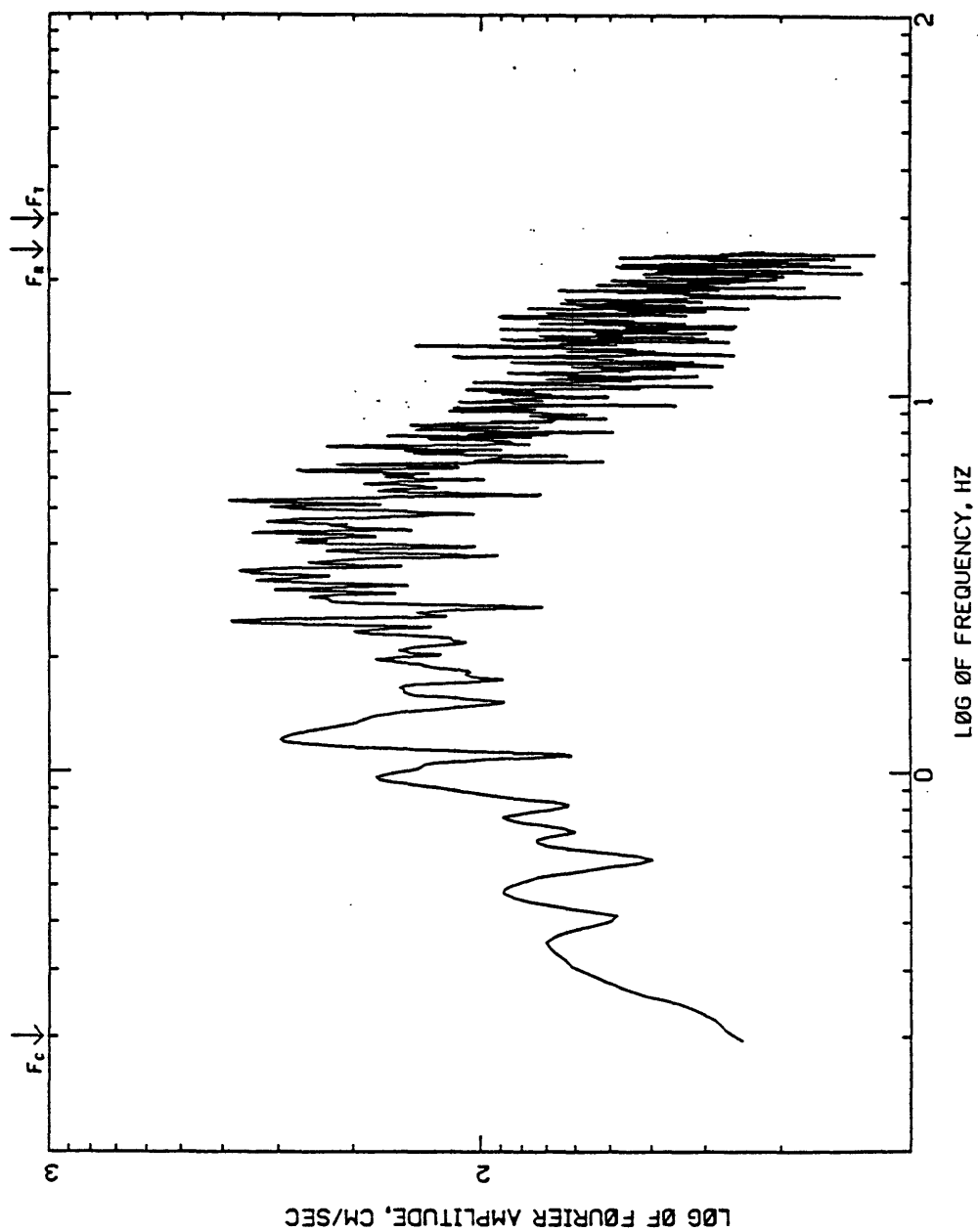
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCROSS, SMOOTH(10), NOISE



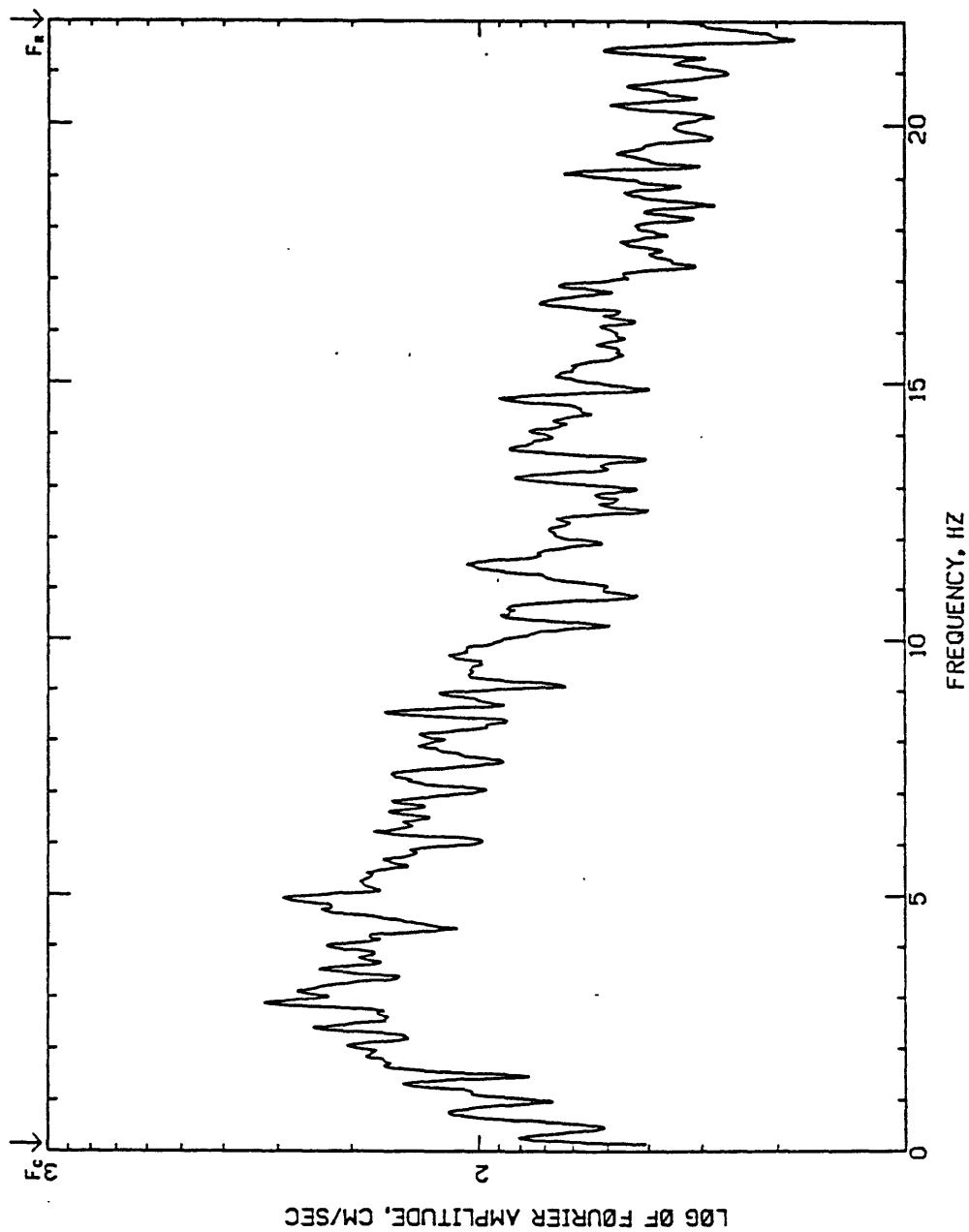
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCROSS, SMOOTH(10), NOISE



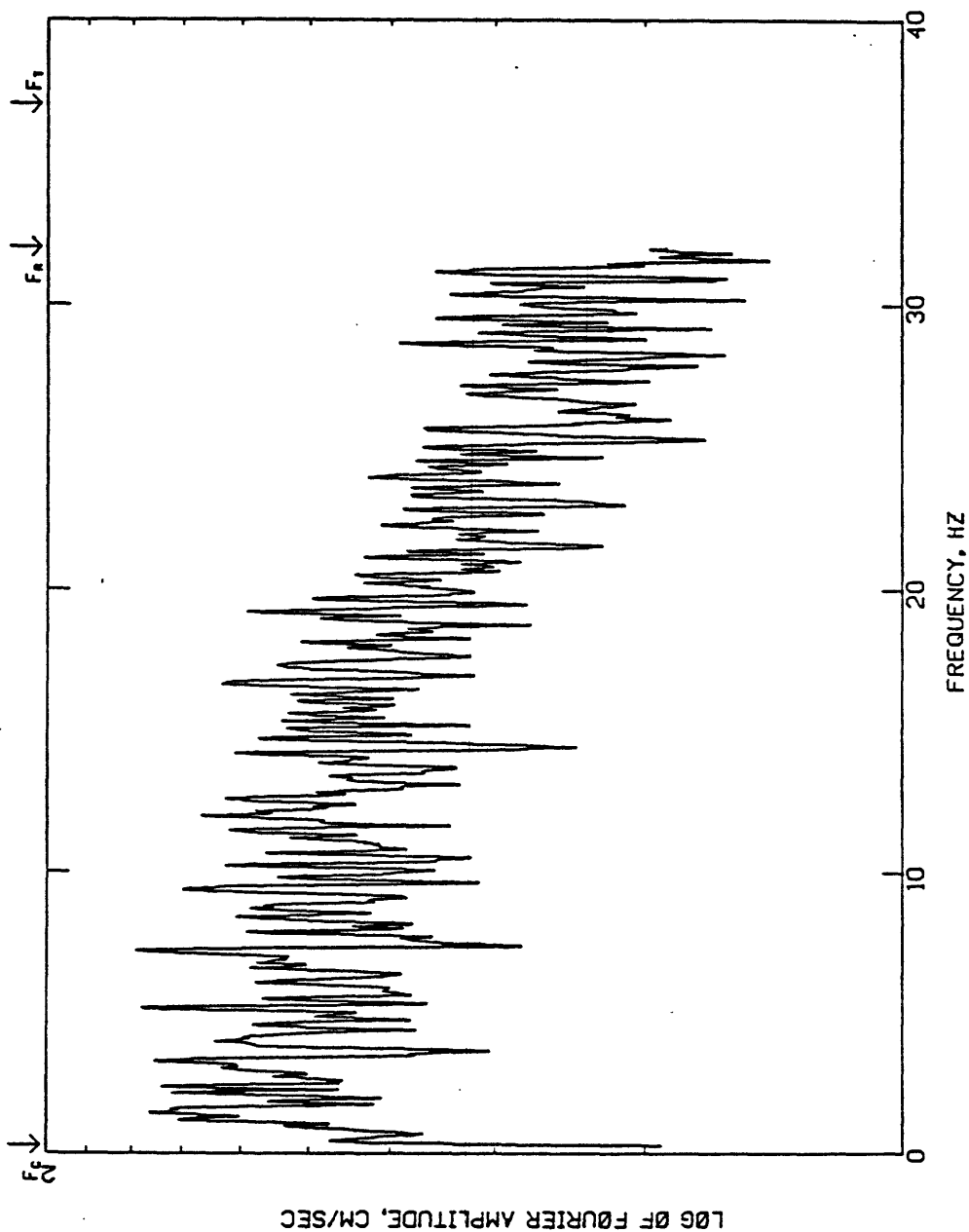
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR055, SMOOTH100, N0N0ISE



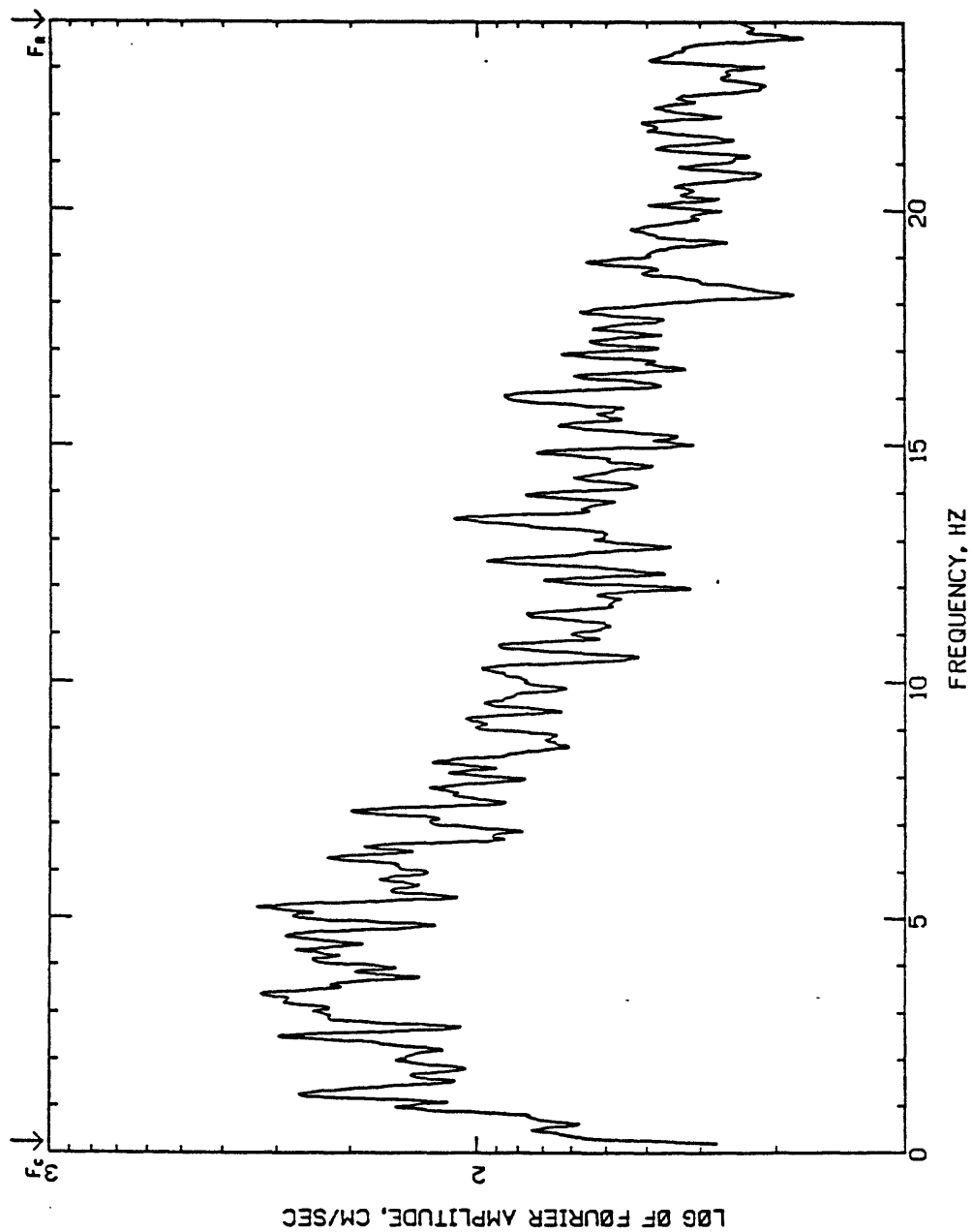
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS - ZCR0SS, SMOOTH(20), NON0ISE



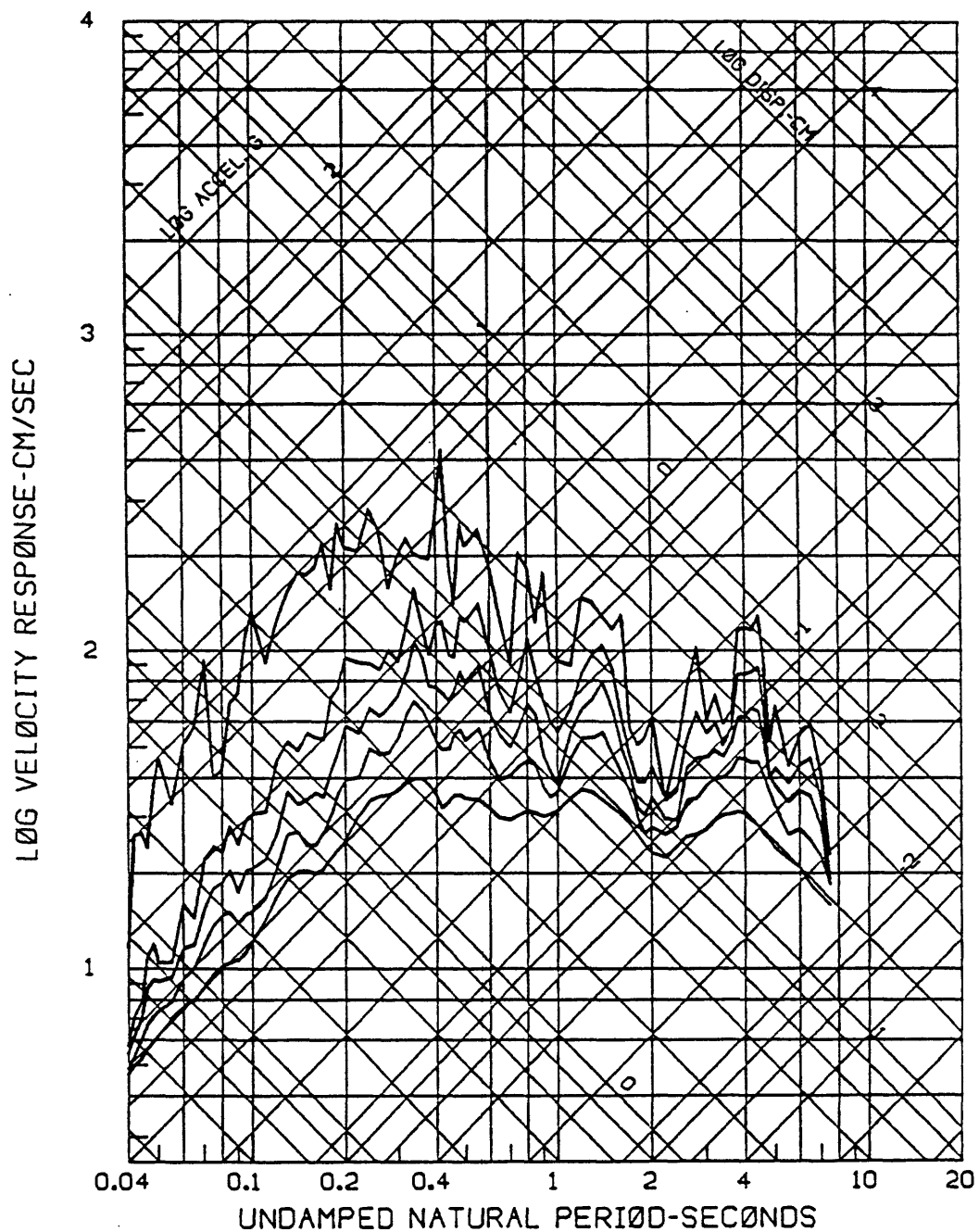
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 CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCROSS, SM00TH(20), N0N0ISE



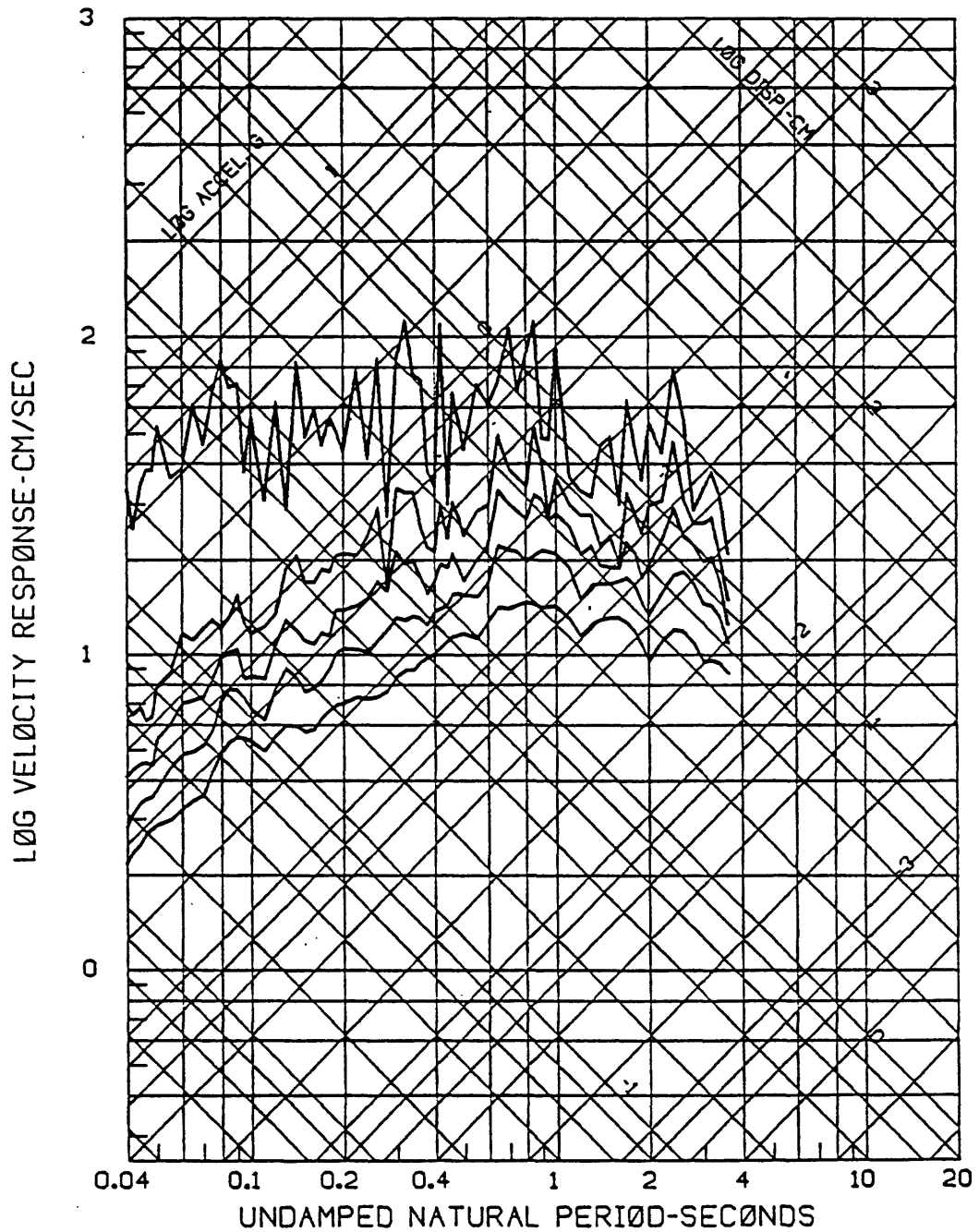
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 MELIPILLA, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR0SS,SM00TH(20),N0N0ISE



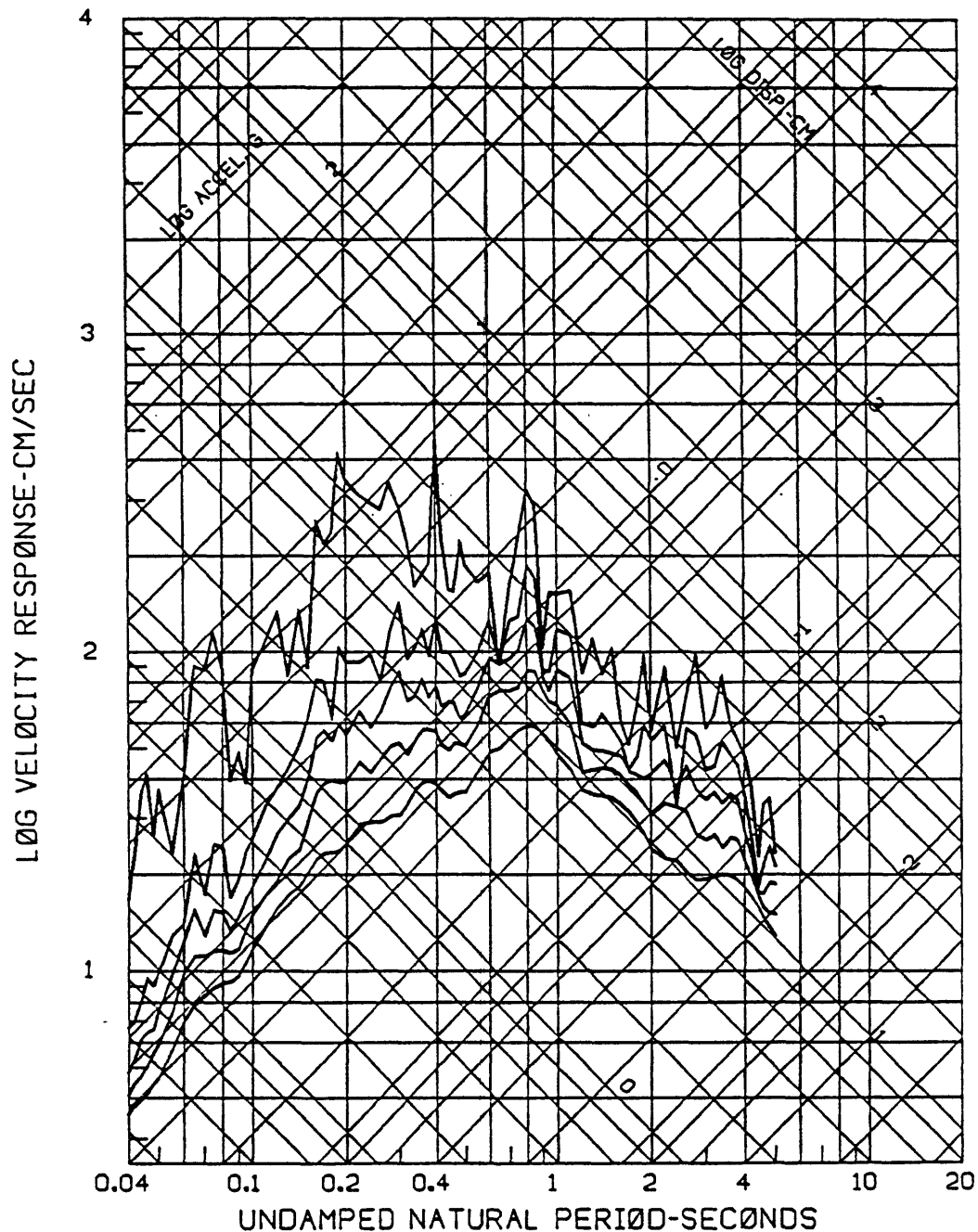
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 MELIPILLA, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



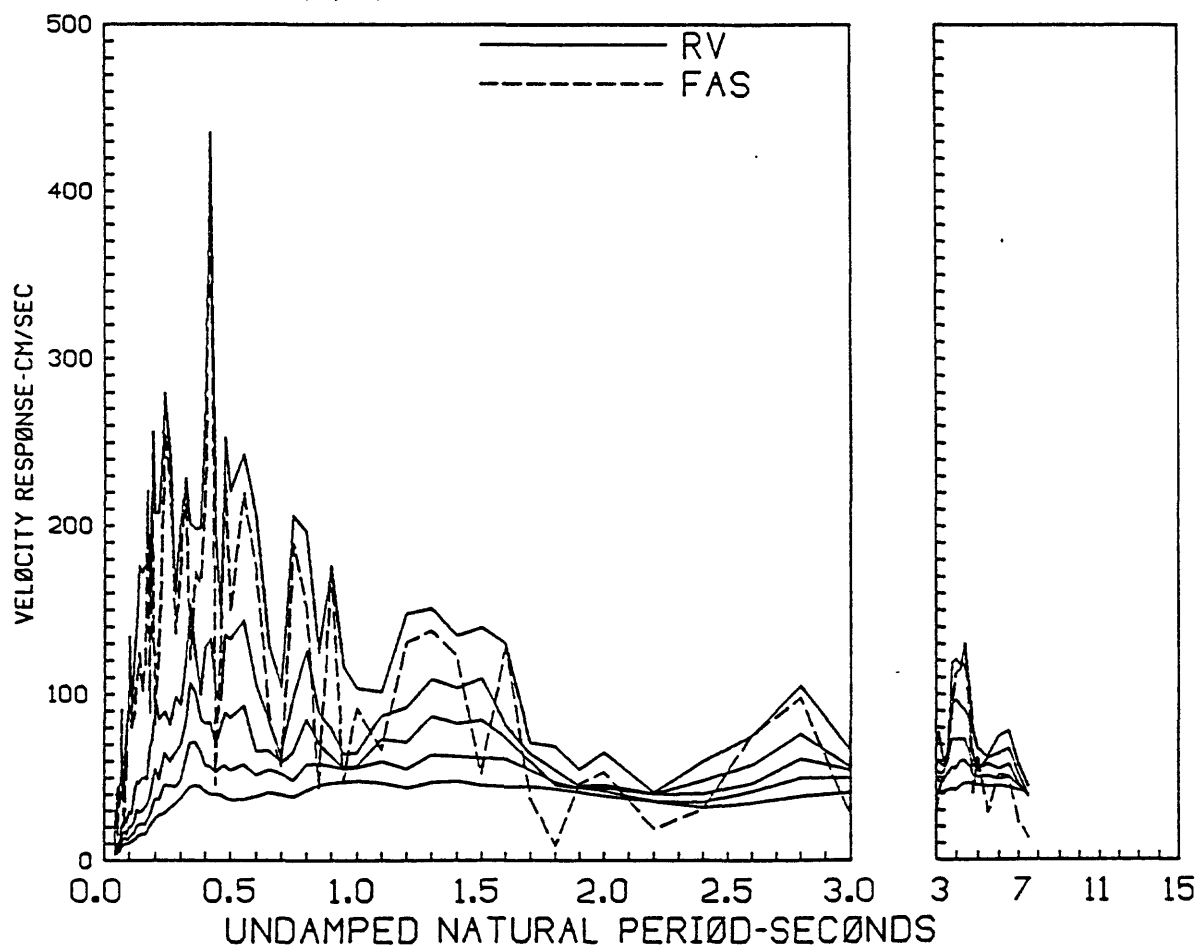
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 MELIPILLA, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



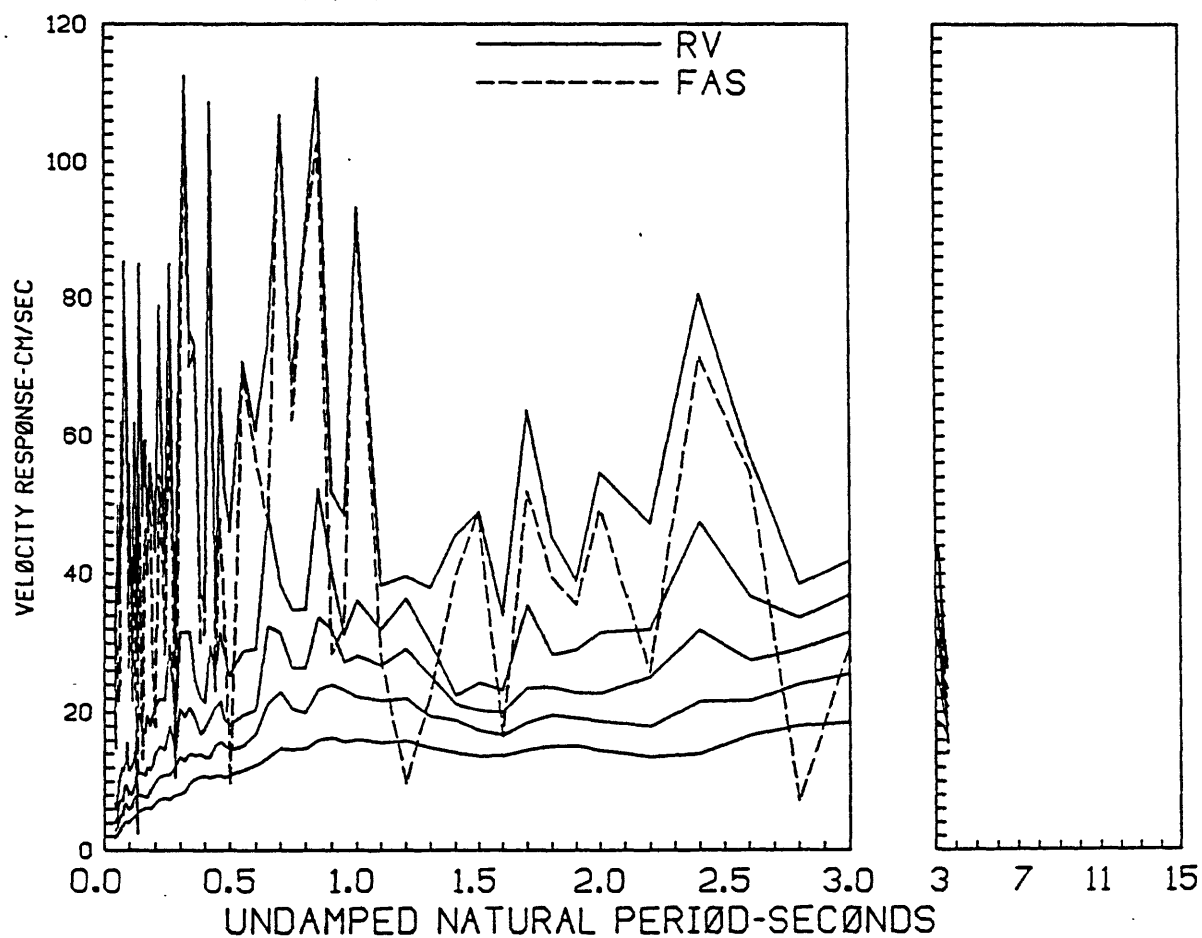
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 MELIPILLA, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



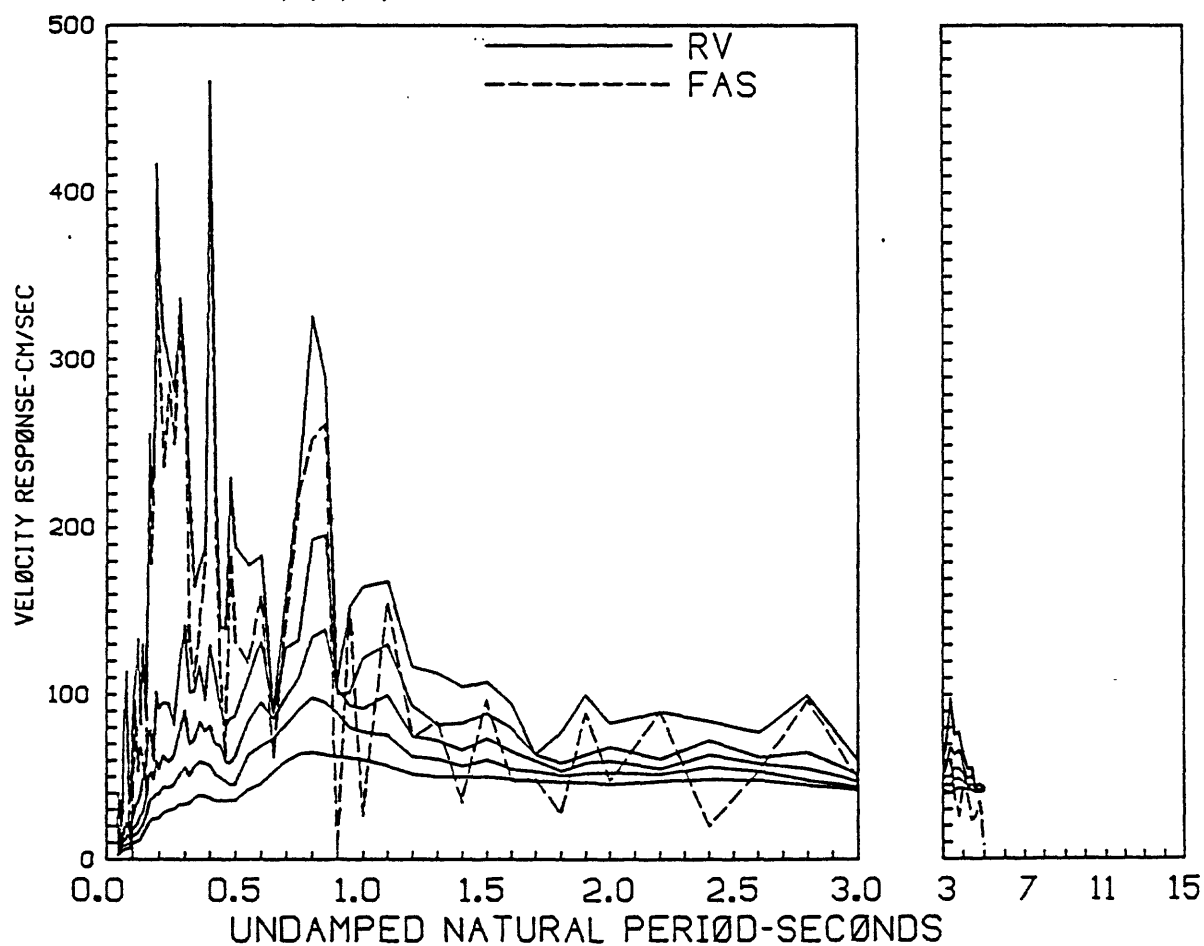
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 MELIPILLA, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 MELIPILLA, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 MELIPILLA, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

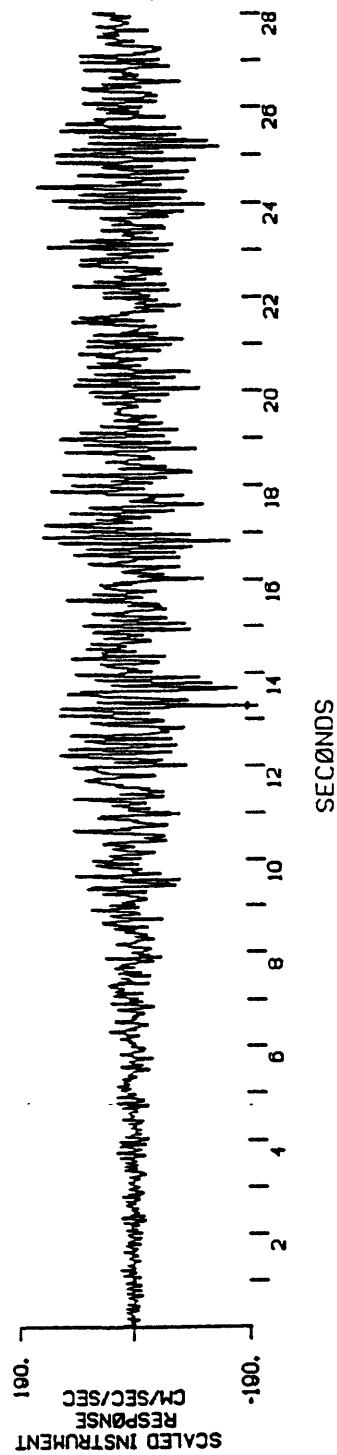
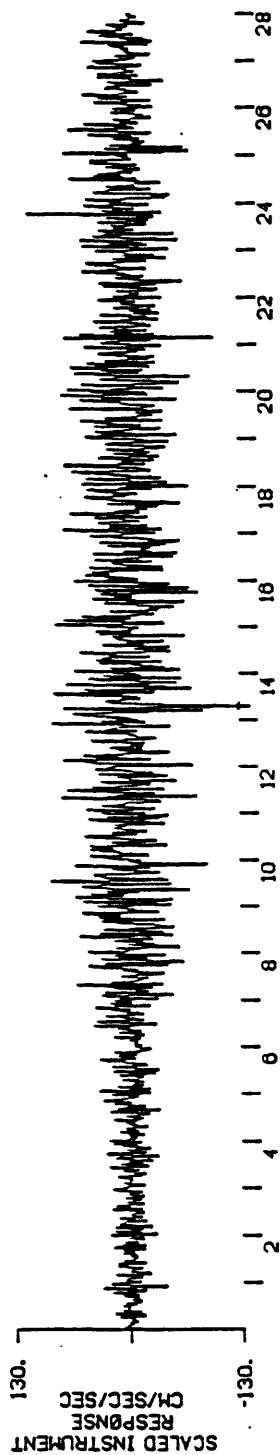
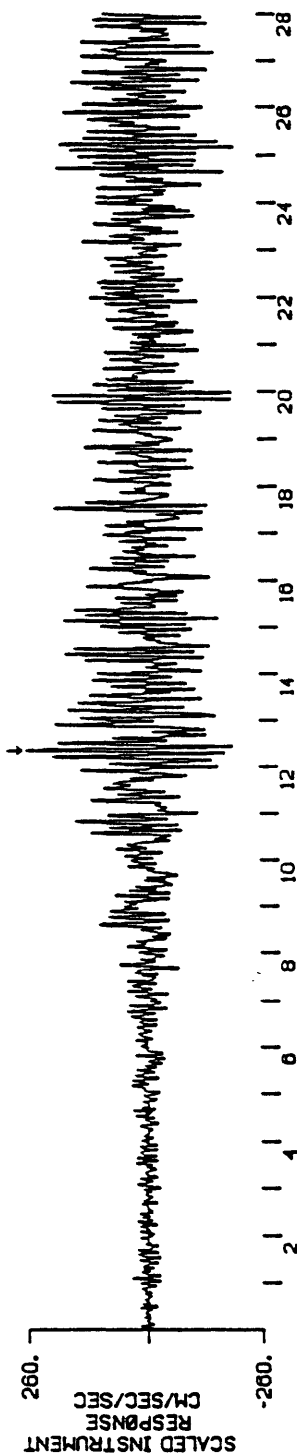
Central Chile earthquake, 3/3/85

22:47:07 UTC; $M_s=7.8$

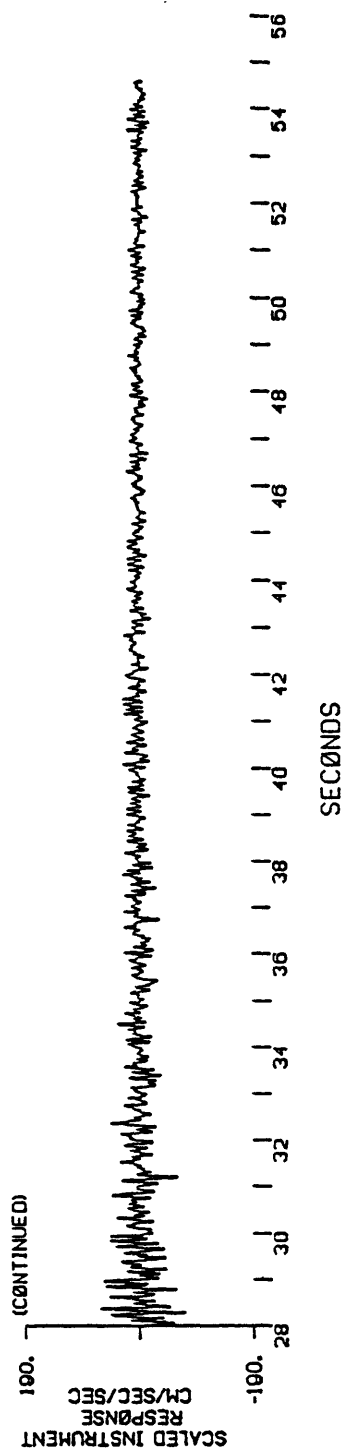
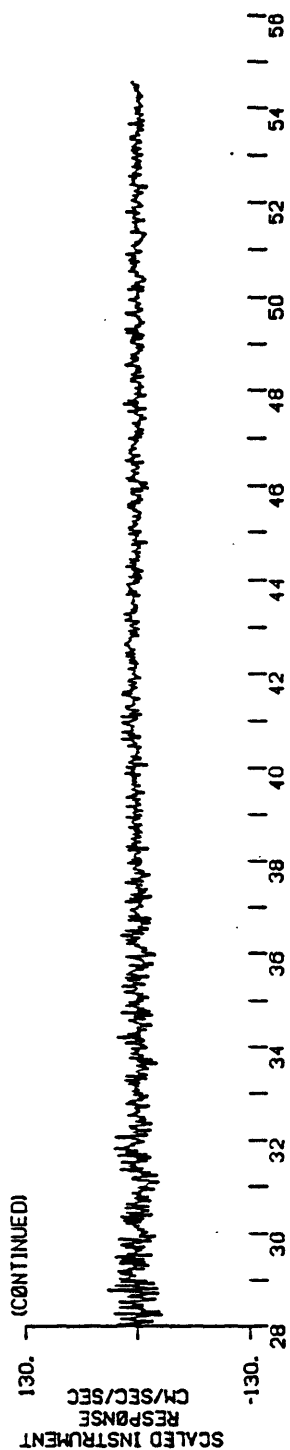
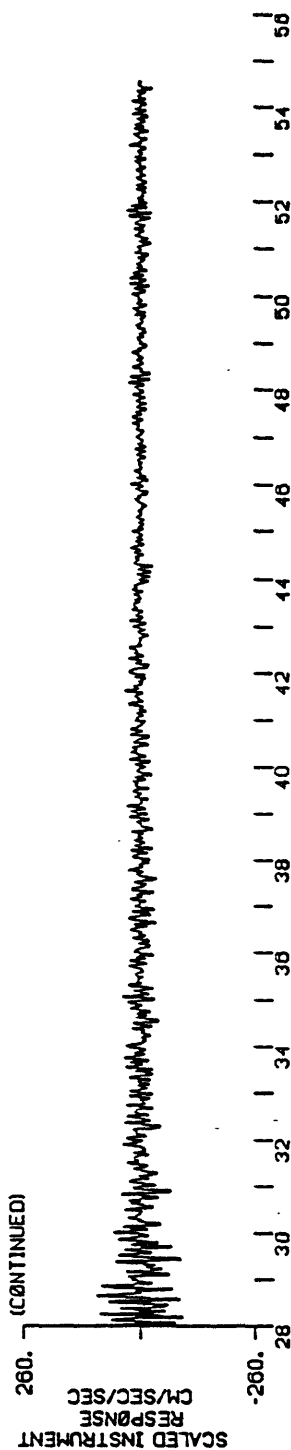
Pichilemu, Chile

DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	26.4	26.5	25.5
Damping (% Critical)	58.8	58.5	58.2
<u>Filter Parameters:</u>			
Highcut (Hz)	23.0	22.0	27.0
Lowcut (Hz)	0.167	0.200	0.172
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	259.7	-122.1	-183.6
Peak Acceleration, A (cm/s/s)	254.1	-119.3	-175.3
Peak Velocity, V (cm/s)	-11.7	-5.84	12.5
Peak Displacement, D (cm)	3.74	-1.86	4.08
<u>Parameter Ratios:</u>			
V/A (sec)	0.046	0.049	0.071
AD/V ²	6.9	6.5	4.6

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU CHILE NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 259.69 -122.13 -183.58

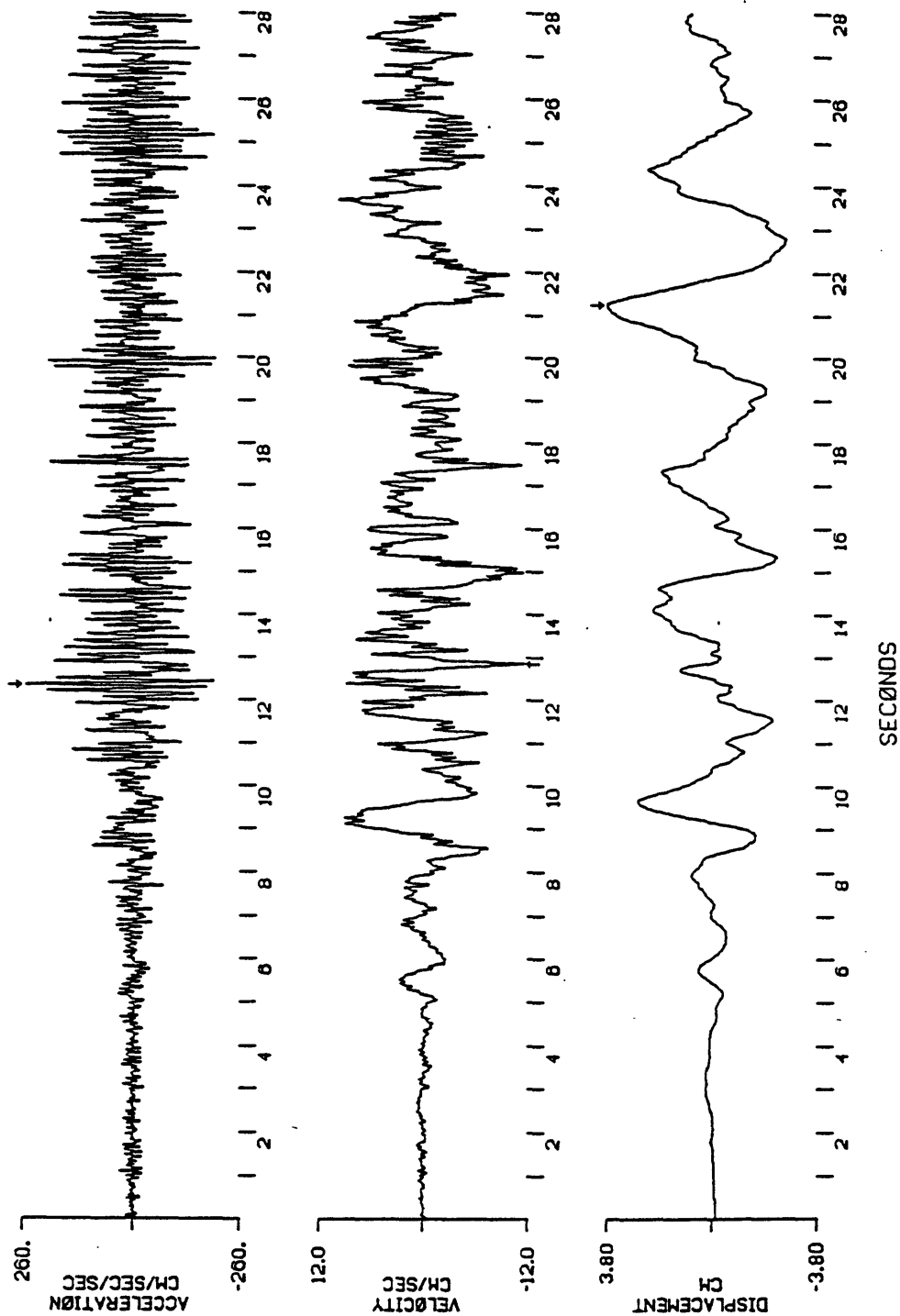


UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC): 259.69 -122.13 -183.58

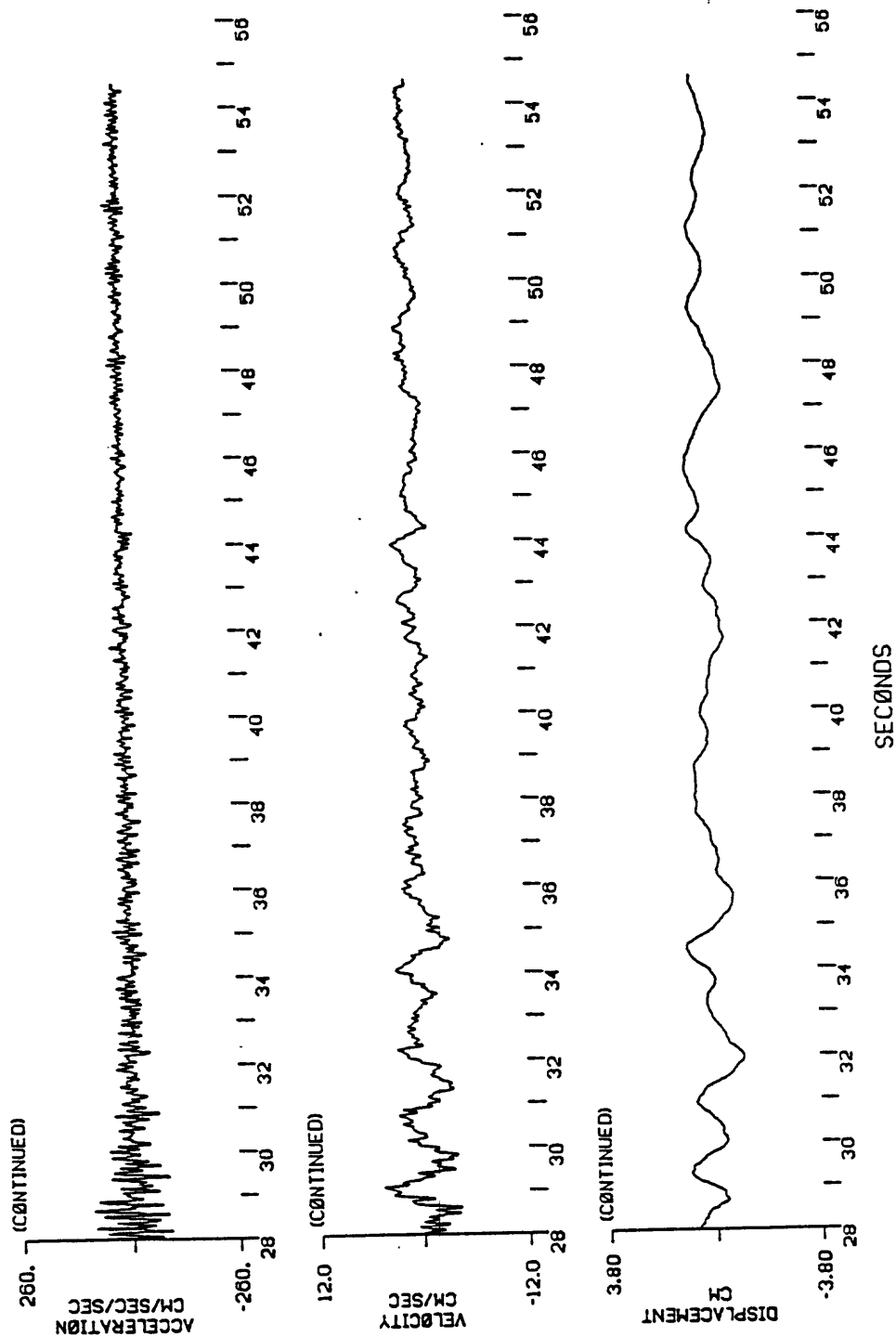


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC MS-7.8
 PICHILEMU, CHILE, NORTH-SOUTH

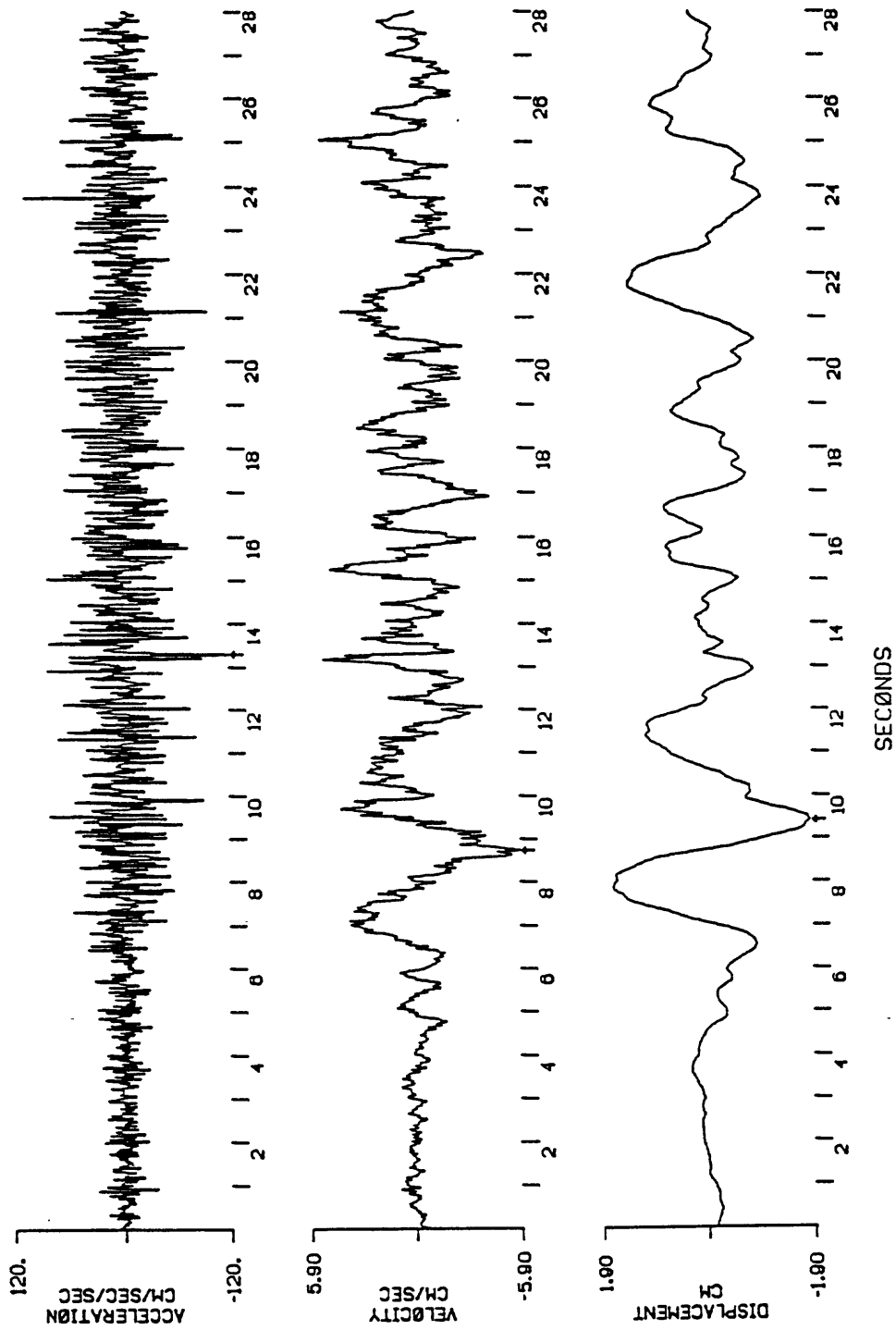
PEAK VALUES: ACCEL-254.12 CM/SEC/SEC, VELOCITY-11.68 CM/SEC, DISPL-3.74 CM



CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC MS-7.8
 PICHILEMU, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL-254.12 CM/SEC/SEC, VELOCITY--11.68 CM/SEC, DISPL-3.74 CM

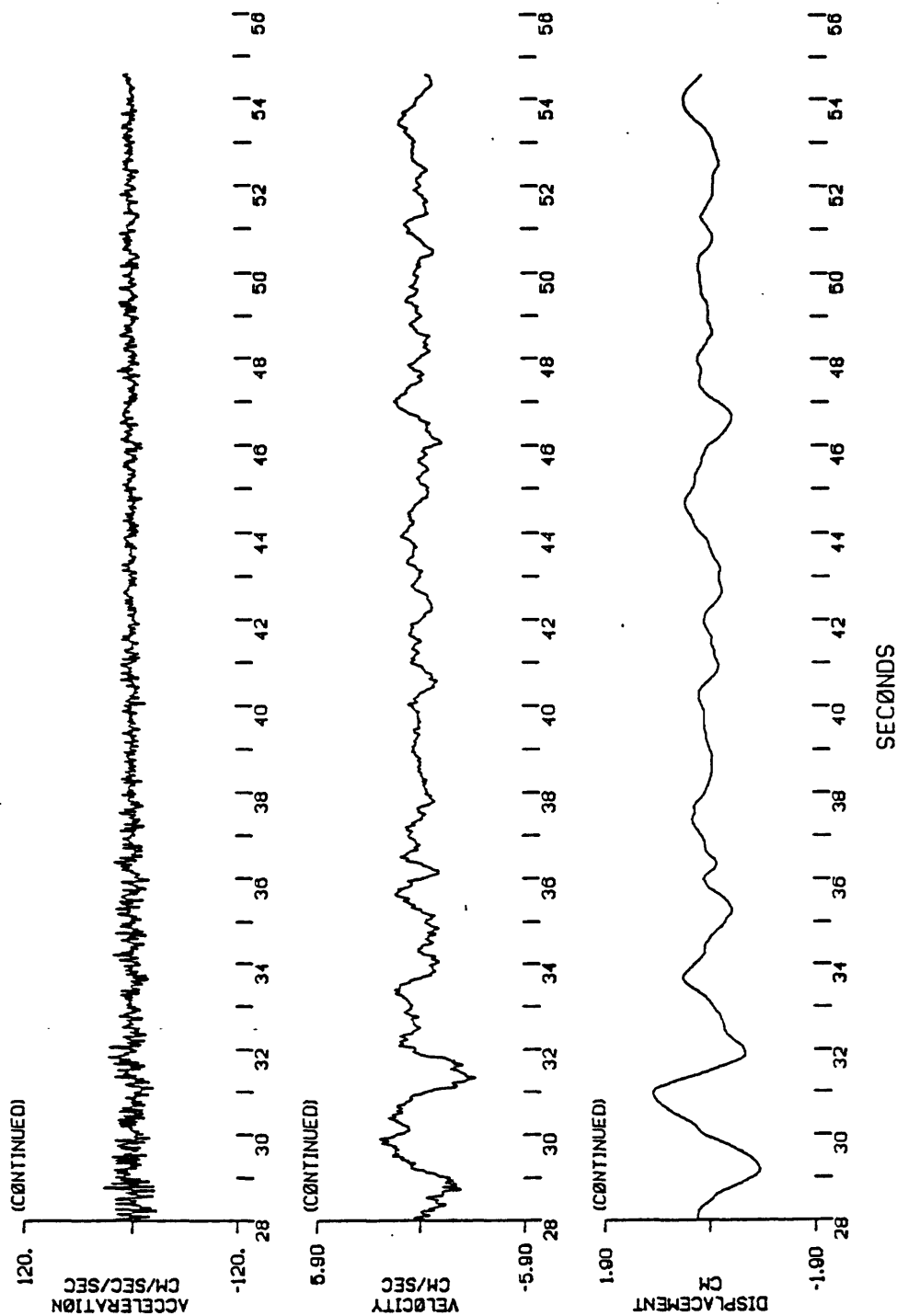


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE, VERTICAL
 PEAK VALUES: ACCEL--119.29 CM/SEC/SEC, VELOCITY--5.84 CM/SEC, DISPL--1.86 CM

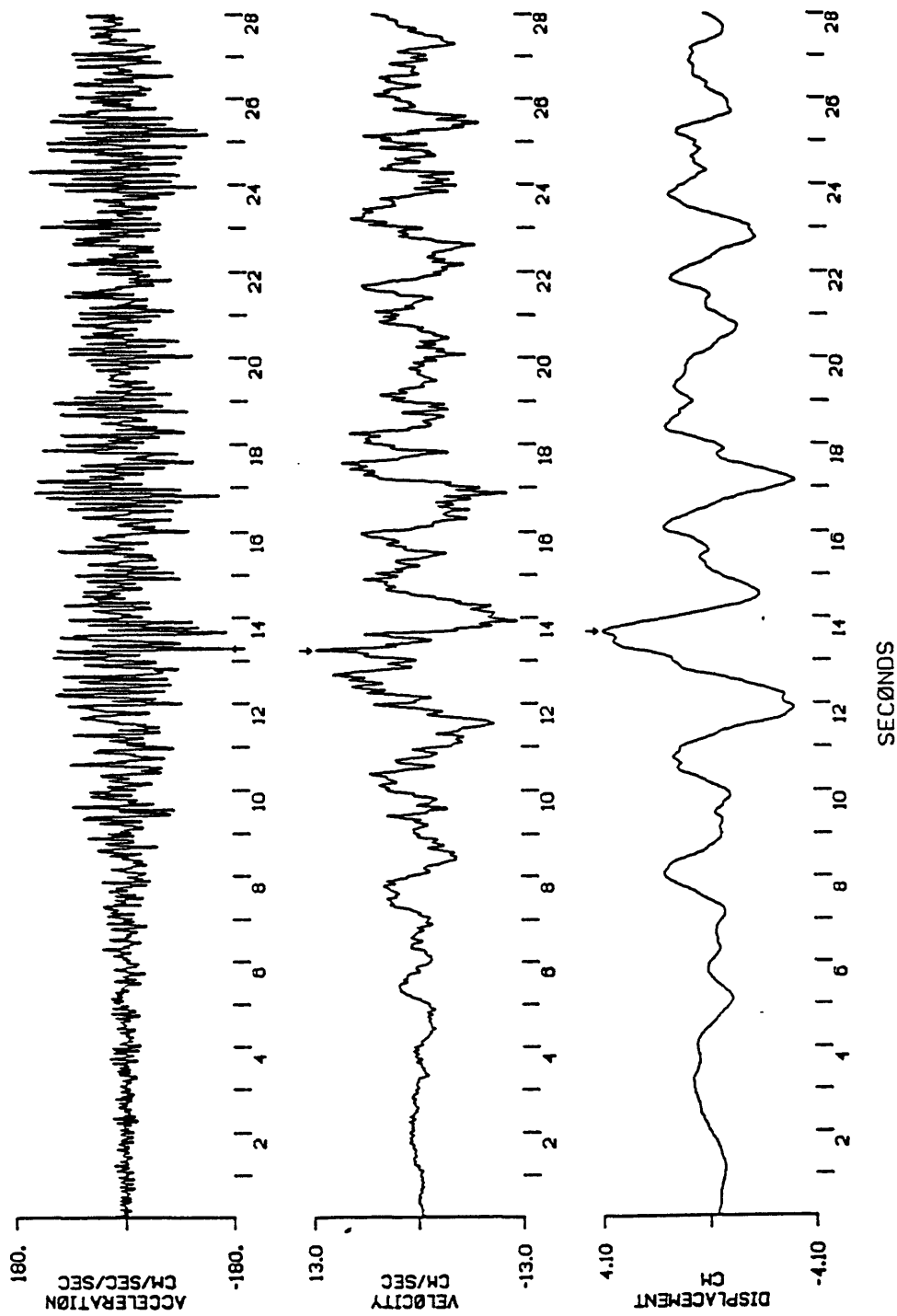


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
PICHILEMU, CHILE, VERTICAL

PEAK VALUES: ACCEL--119.29 CM/SEC/SEC, VELOCITY--5.84 CM/SEC, DISPL--1.86 CM

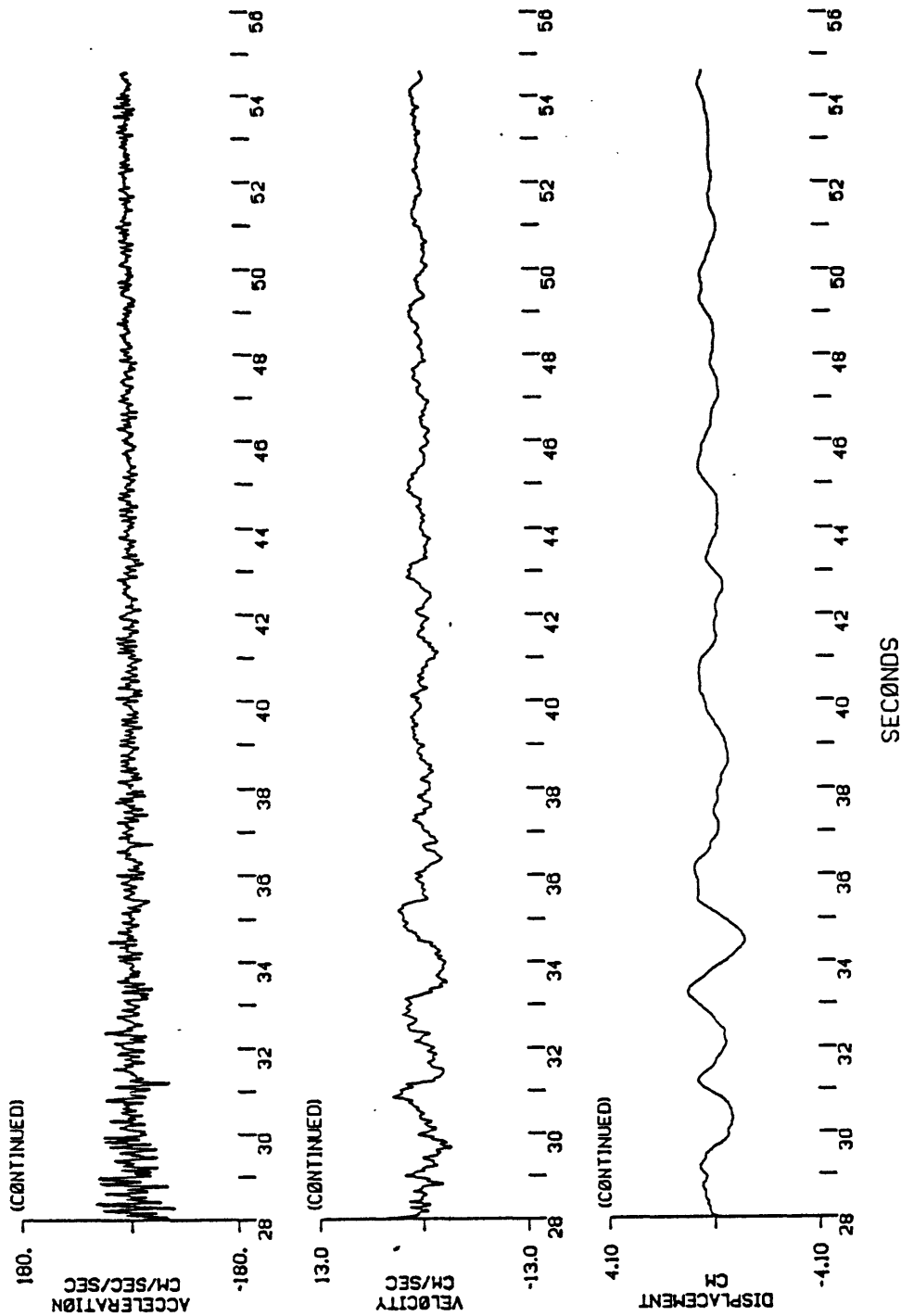


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE, EAST-WEST
 PEAK VALUES: ACCEL--175.28 CM/SEC/SEC, VELOCITY-12.54 CM/SEC, DISPL-4.08 CM

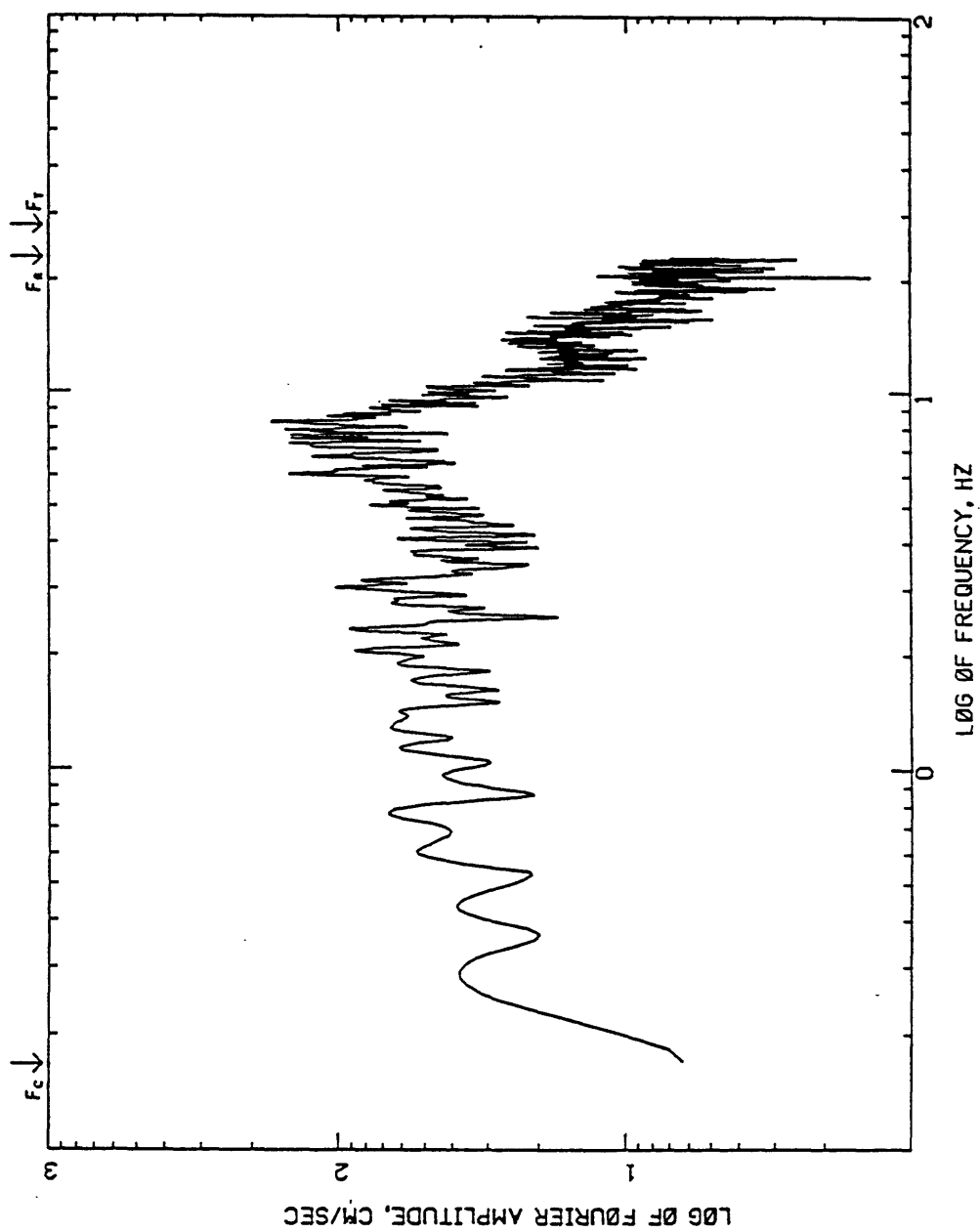


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
PICHILEMU, CHILE, EAST-WEST

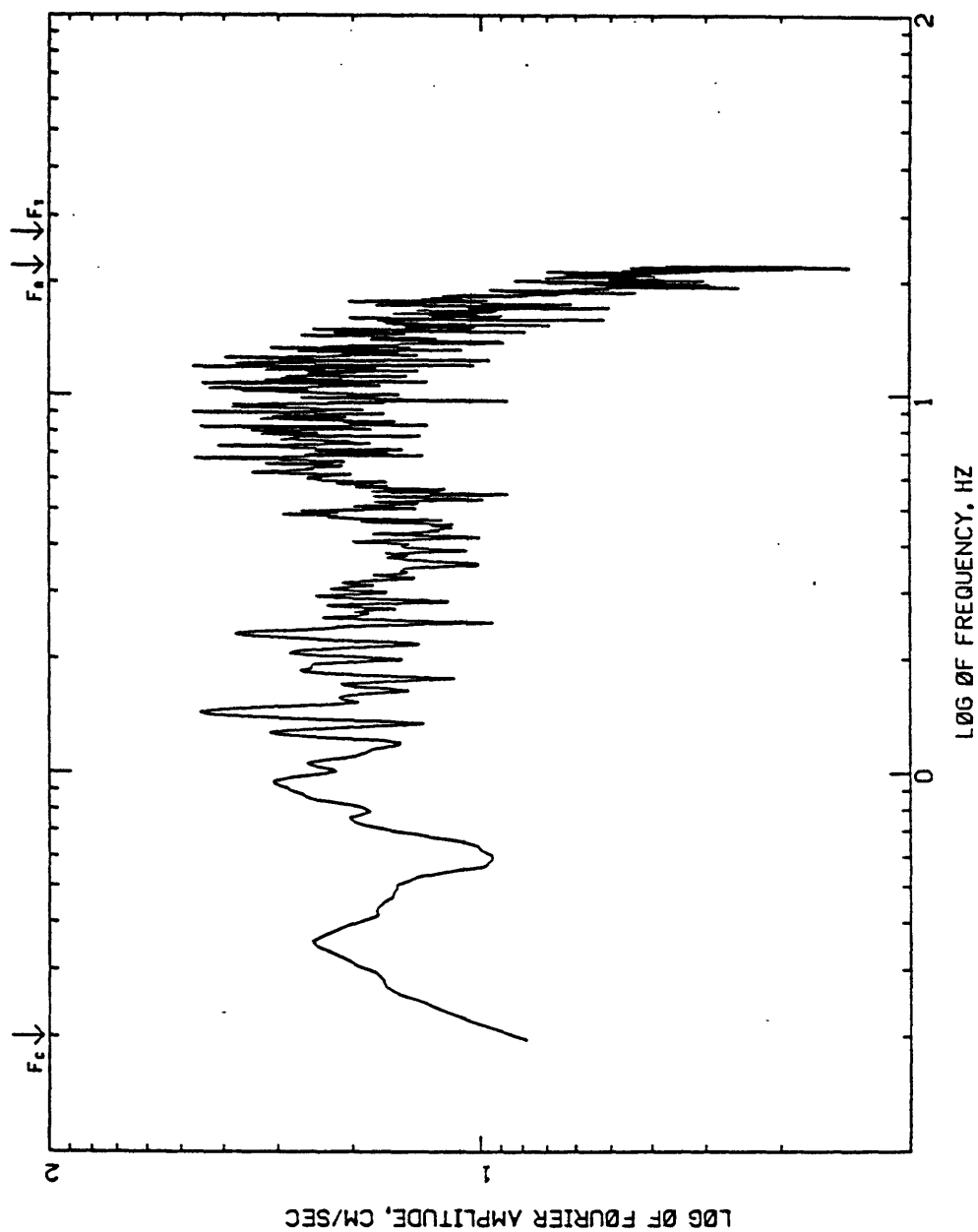
PEAK VALUES: ACCEL--175.28 CM/SEC/SEC, VELOCITY-12.54 CM/SEC, DISPL-4.08 CM



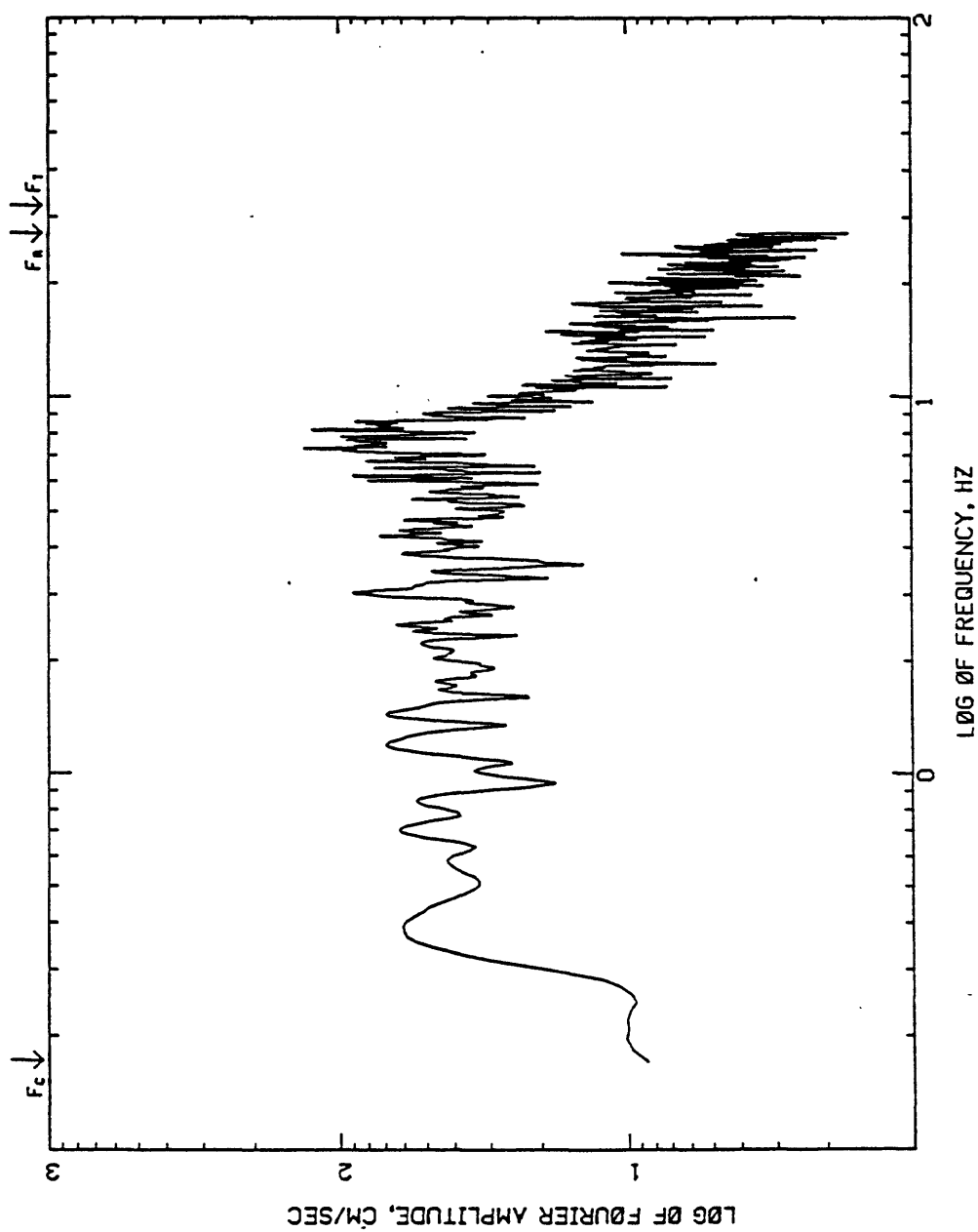
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS - ZCR0SS, SM00TH101, N0N0ISE



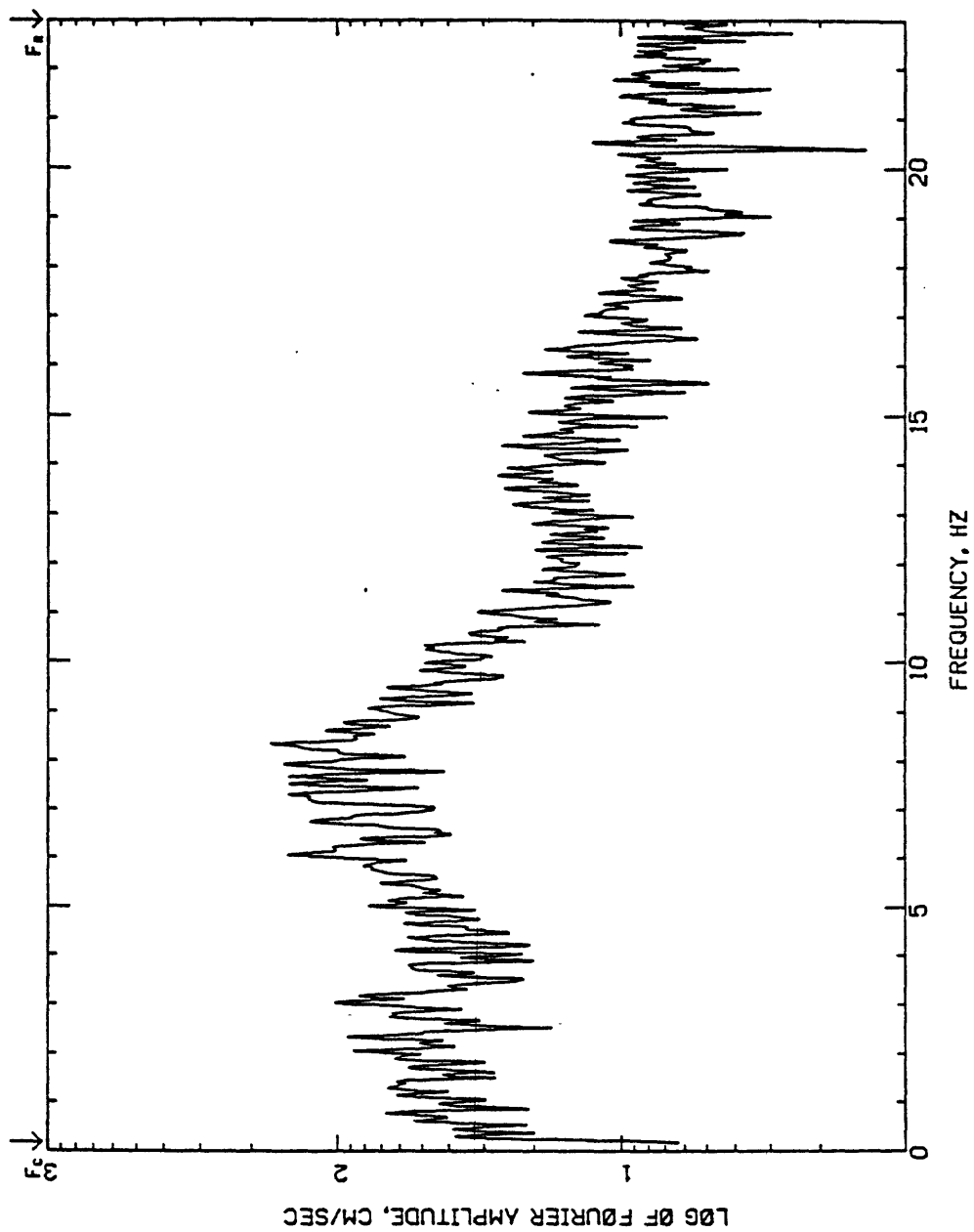
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SM00TH001, N00NOISE



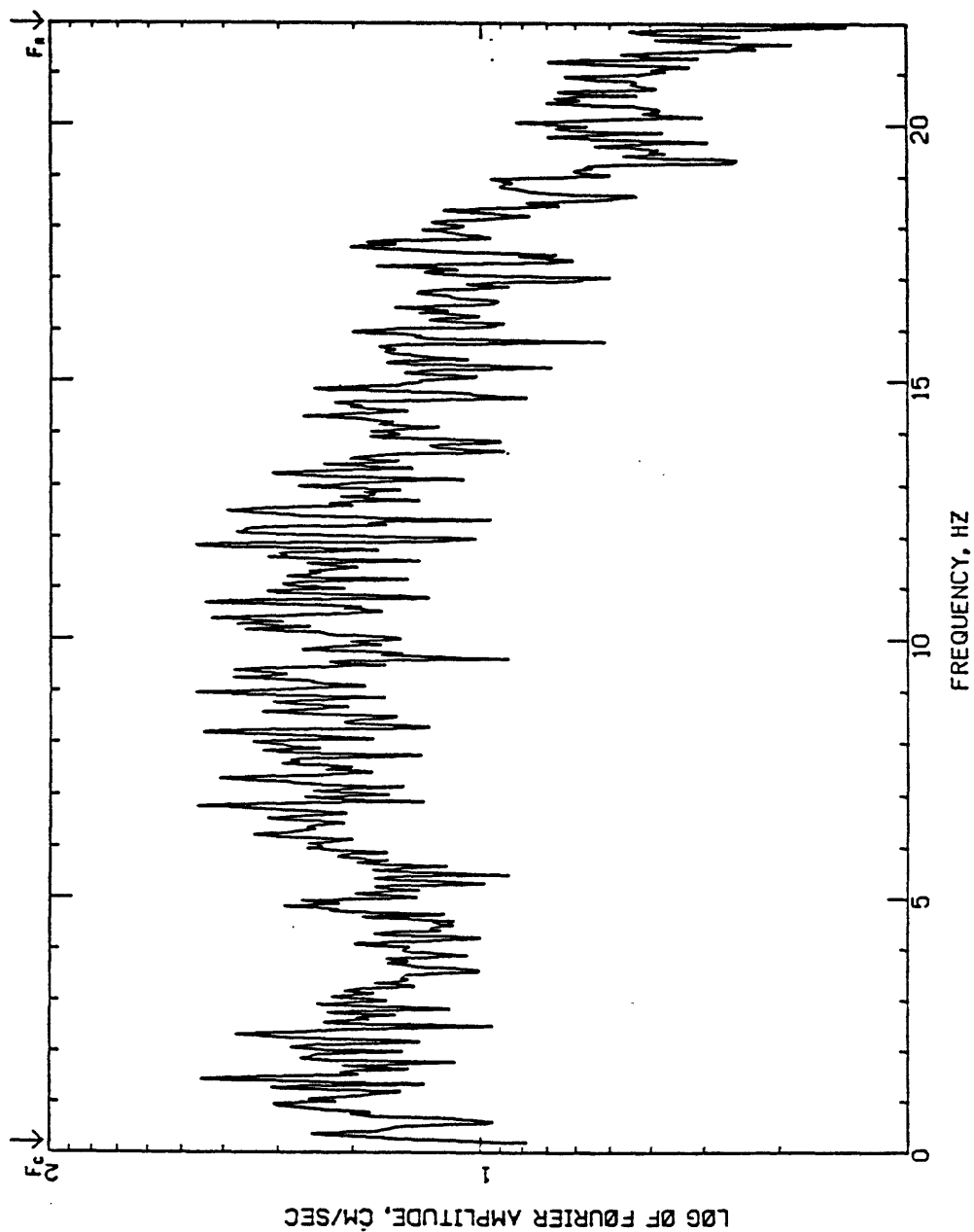
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE EAST-WEST
 COMPUTING OPTIONS- ZCR055, SM00TH10, N0N0ISE



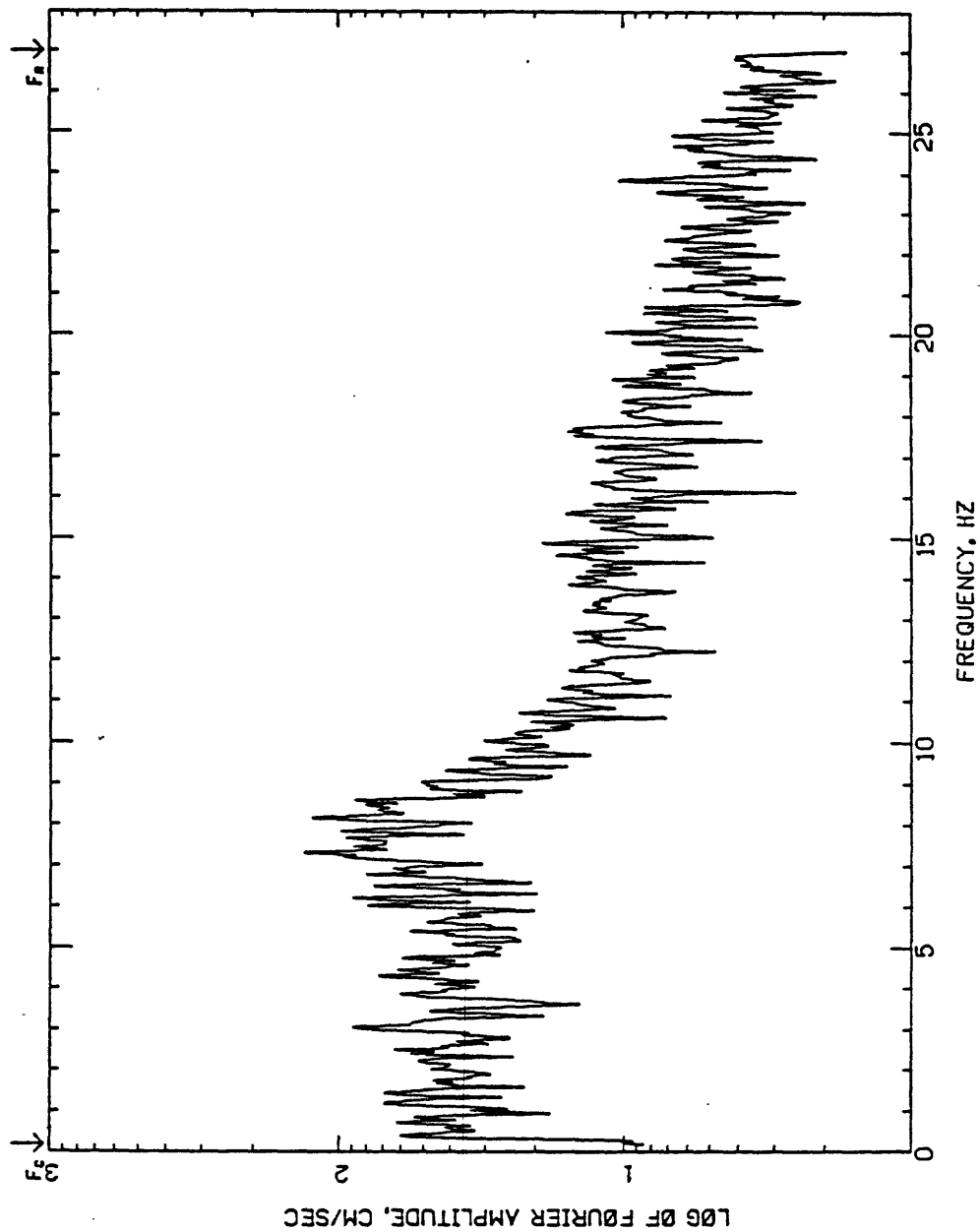
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC MS-7.8
 PICHILEMU, CHILE NORTH-SOUTH
 COMPUTING OPTIONS- ZCR055, SMOOTH(10), NONNOISE



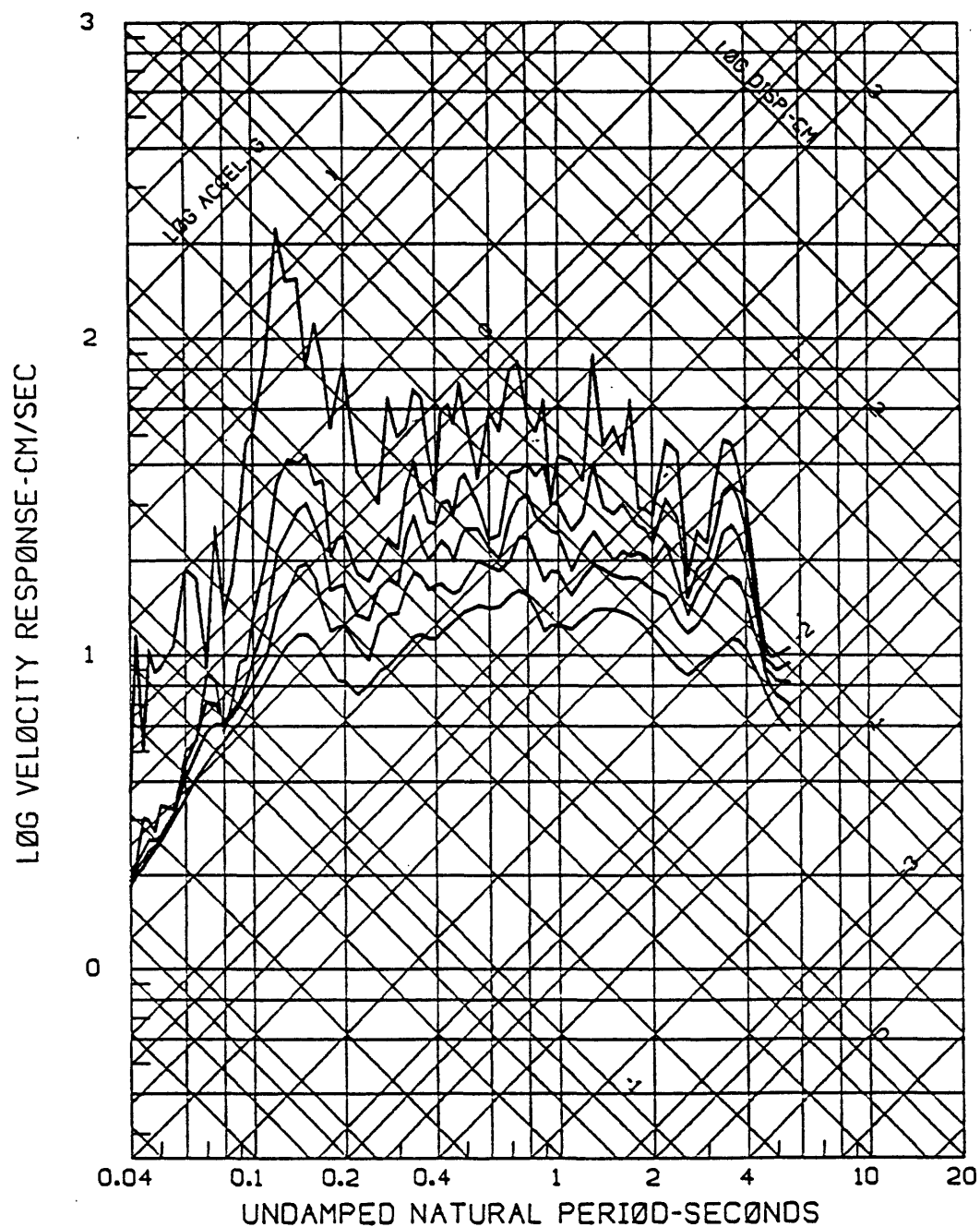
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055,SH00TH(10),N00ISE



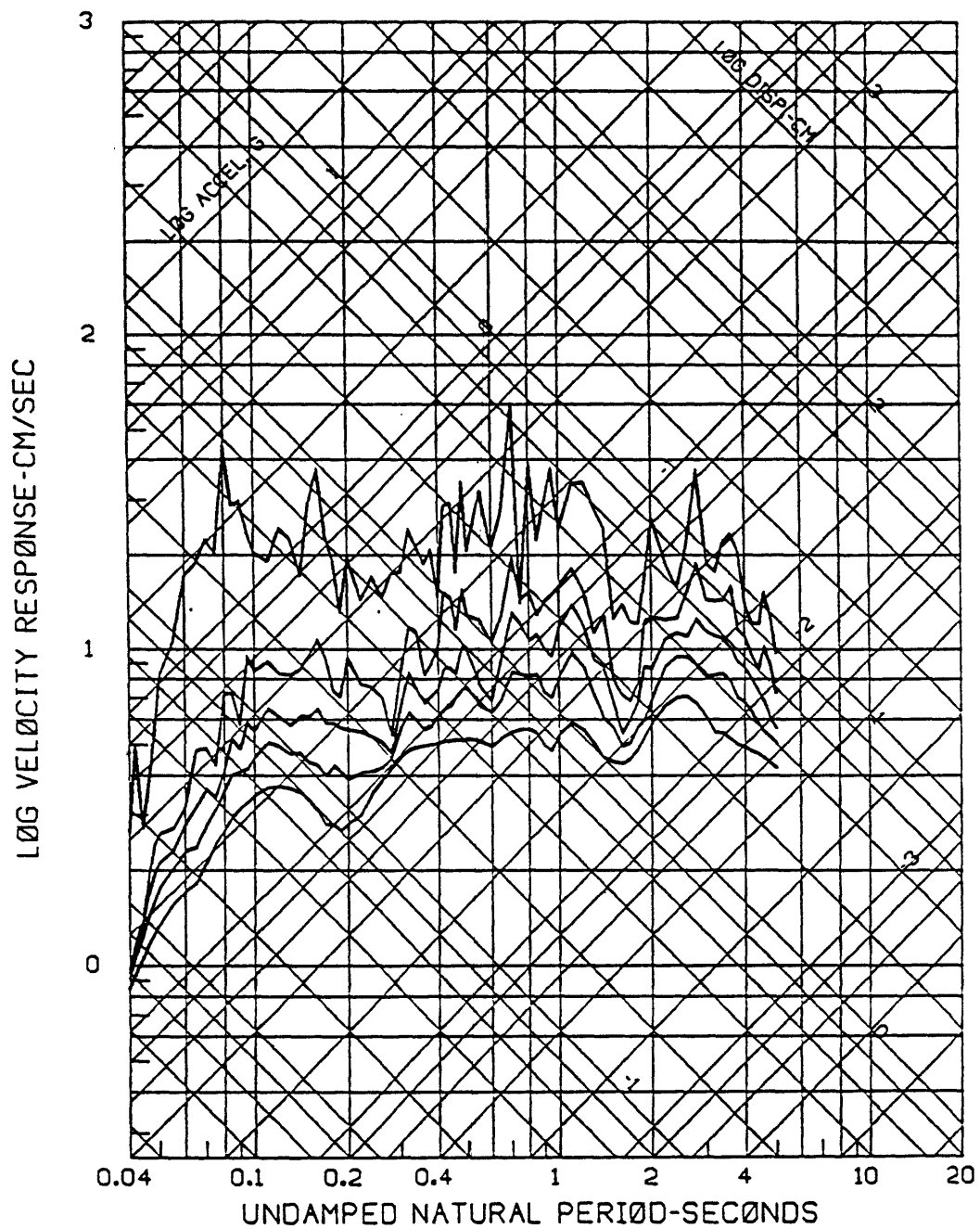
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 PICHILEMU, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR0SS,SM00TH(10),N0N0ISE



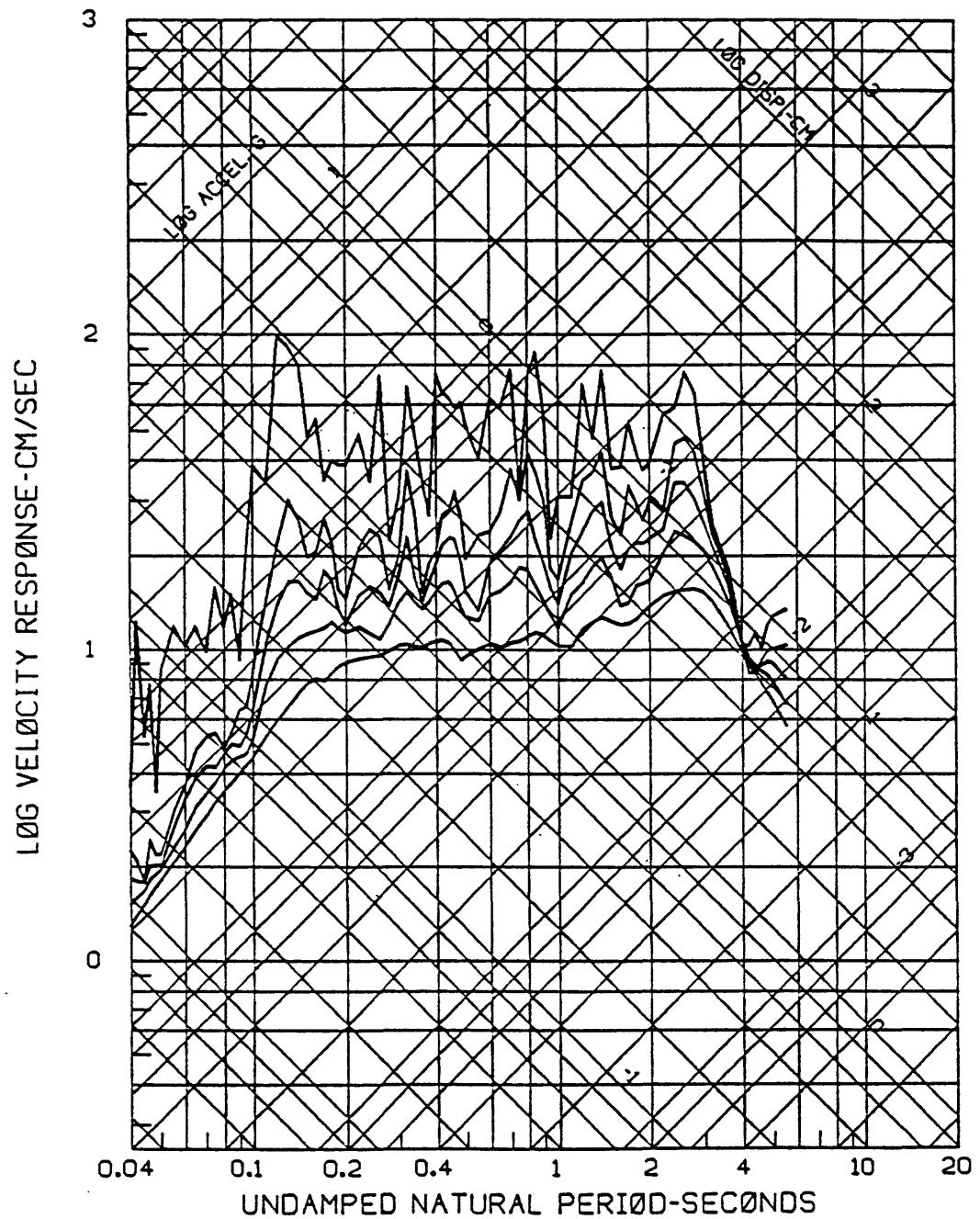
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 PICHILEMU, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



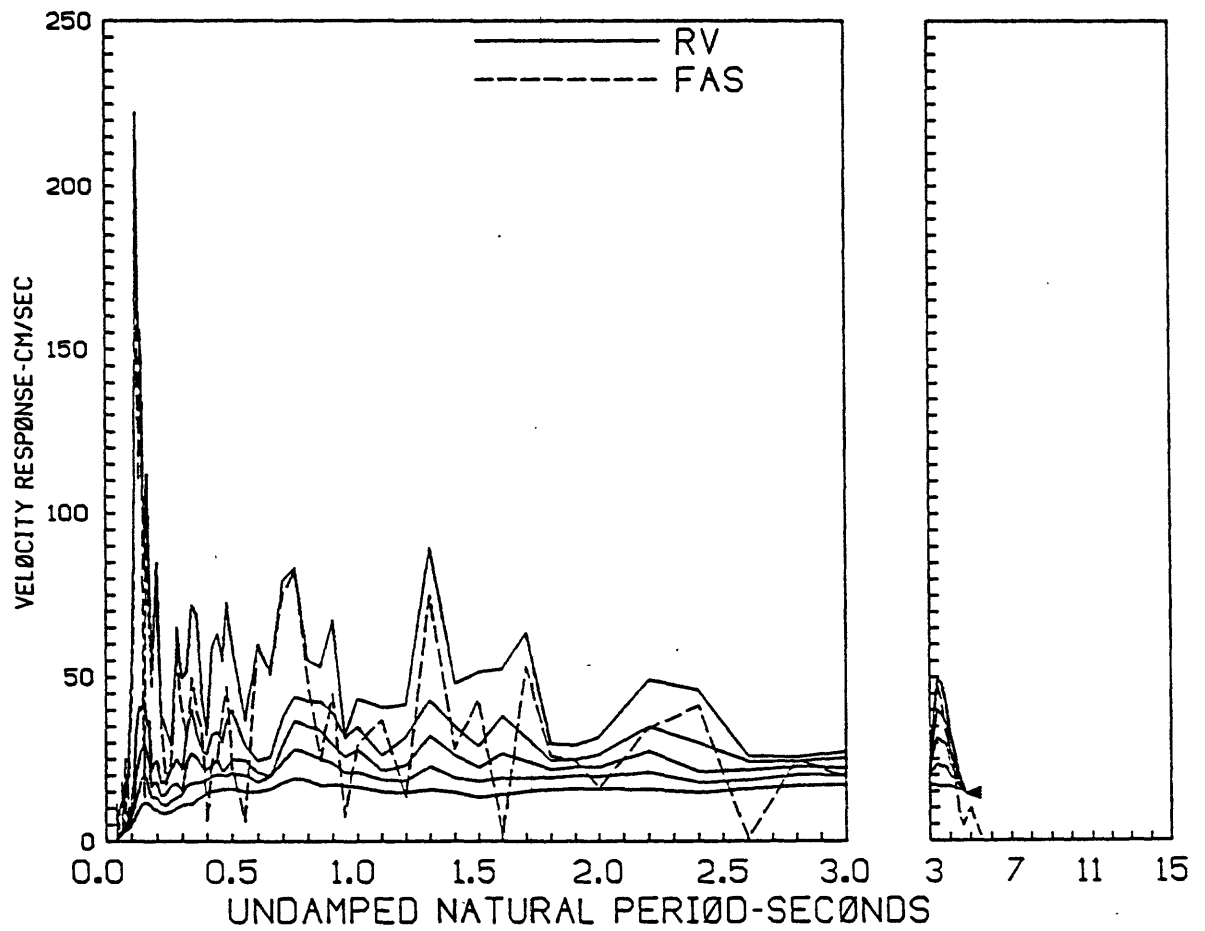
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 PICHILEMU, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



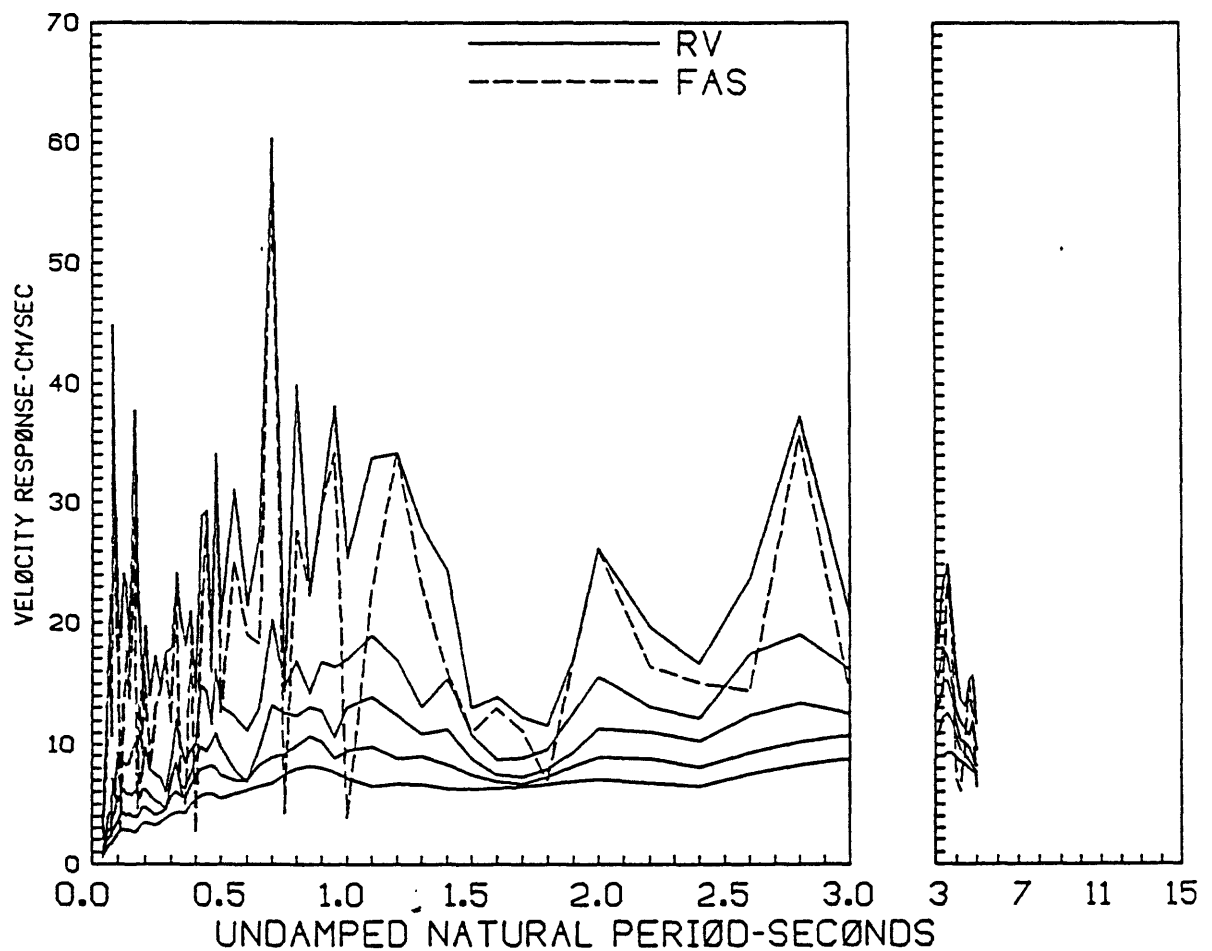
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 PICHILEMU, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



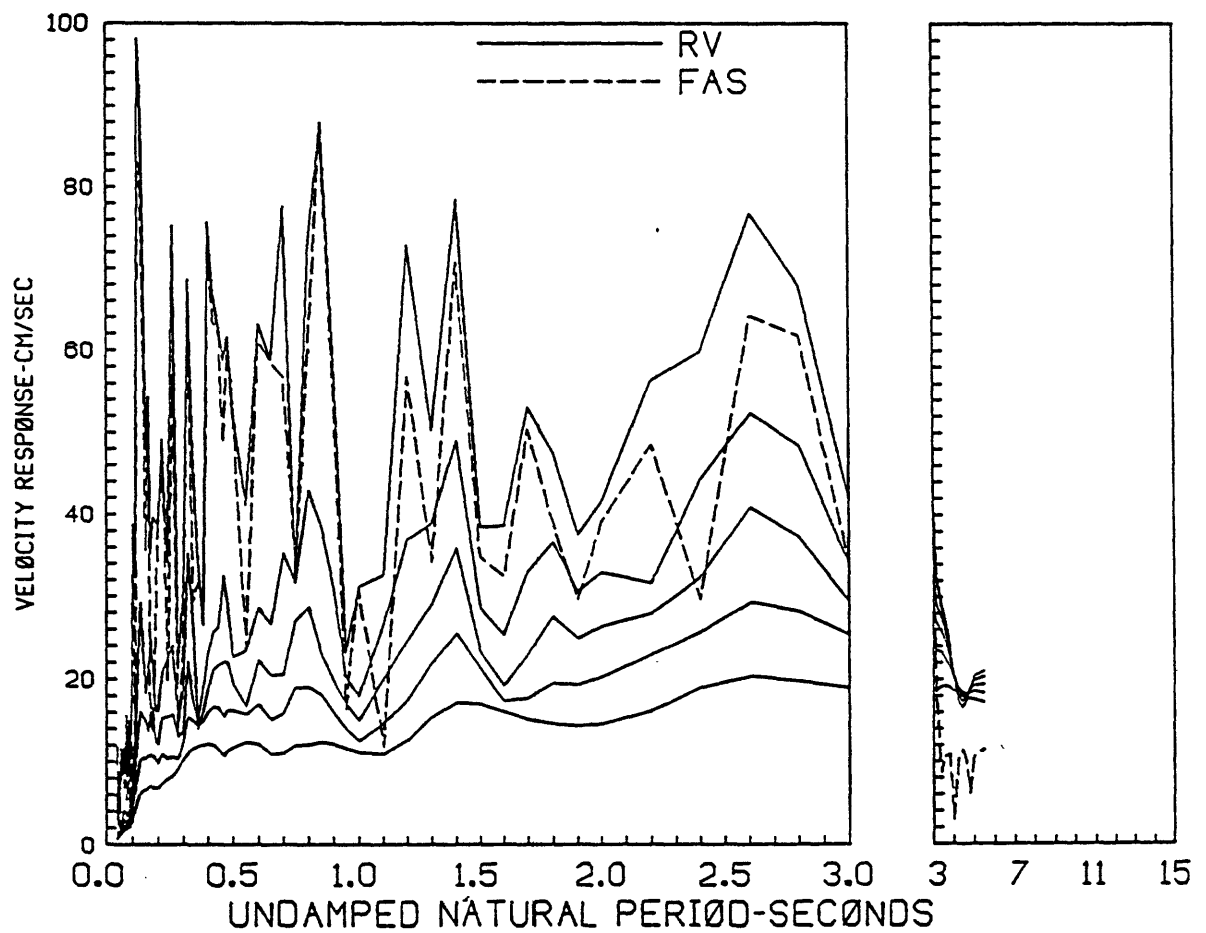
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 PICHILEMU, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 PICHILEMU, CHILE, VERTICAL
 0.2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 PICHILEMU, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake, 3/3/85

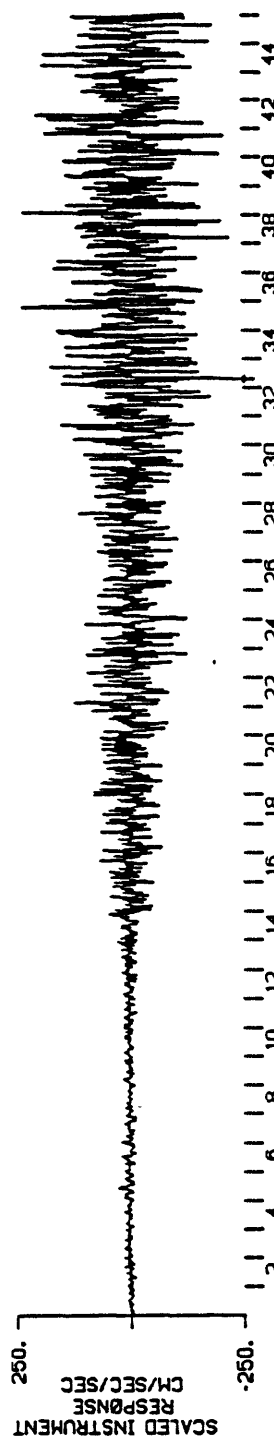
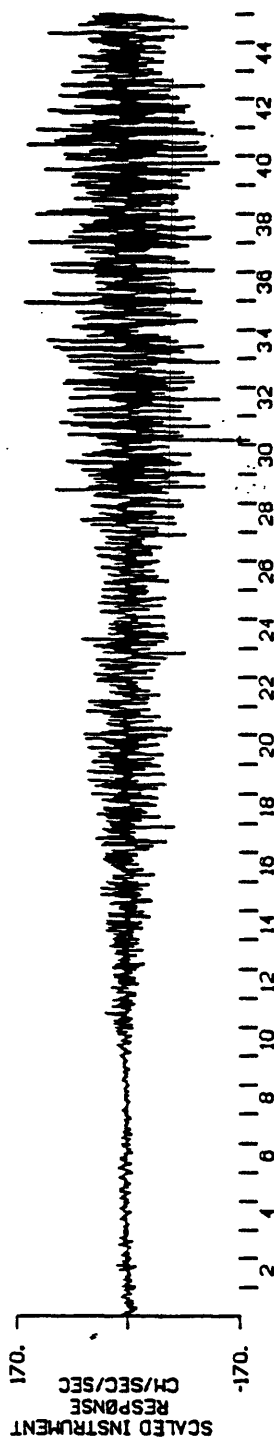
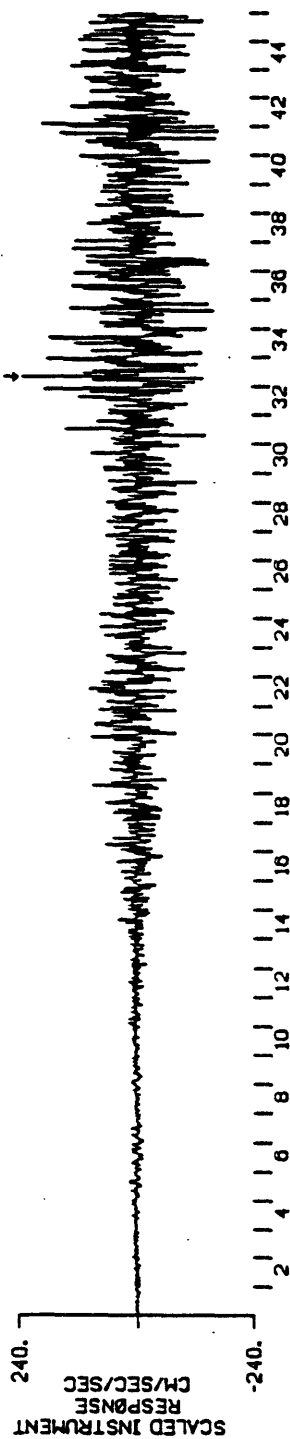
22:47:07 UTC, $M_s=7.8$

Quintay, Chile

DESCRIPTION	COMPONENT		
	Longitudinal	Vertical	Transverse
<u>Instrument Characteristics:</u>			
Frequency (Hz)	26.2	24.8	25.1
Damping (% Critical)	60.0*	60.0*	60.0*
<u>Filter Parameters:</u>			
Highcut (Hz)	30.0	32.0	30.0
Lowcut (Hz)	0.250	0.286	0.217
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	231.5	-162.9	-240.3
Peak Acceleration, A (cm/s/s)	231.5	180.9	255.0
Peak Velocity, V (cm/s)	12.5	-6.08	-19.3
Peak Displacement, D (cm)	2.80	-1.19	-3.50
<u>Parameter Ratios:</u>			
V/A (sec)	0.054	0.034	0.076
AD/V ²	4.1	5.8	2.4

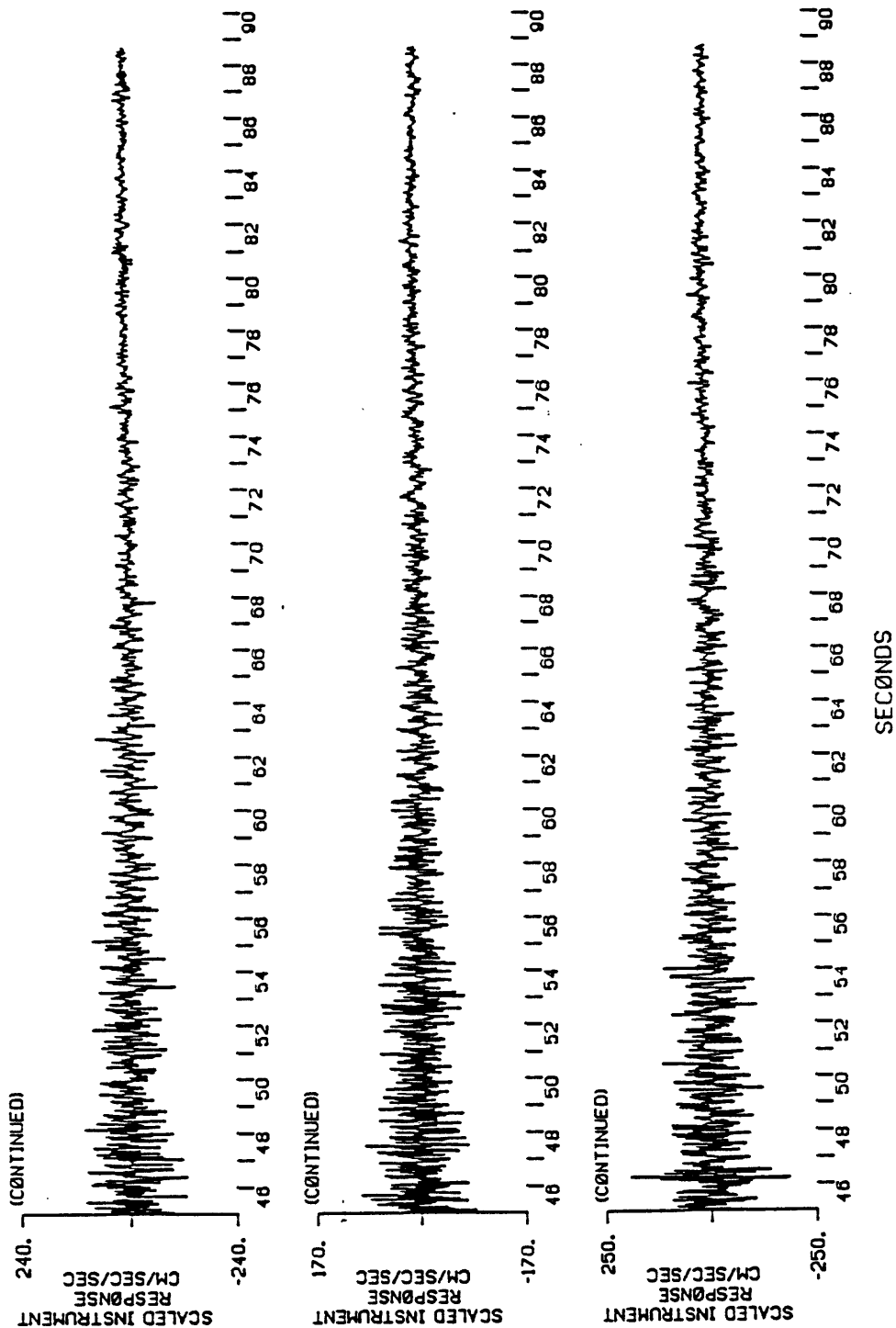
* Nominal Value

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC MS-7.8
 QUINTAY, CHILE. LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES(CM/SEC): 231.45 -162.93 -240.33

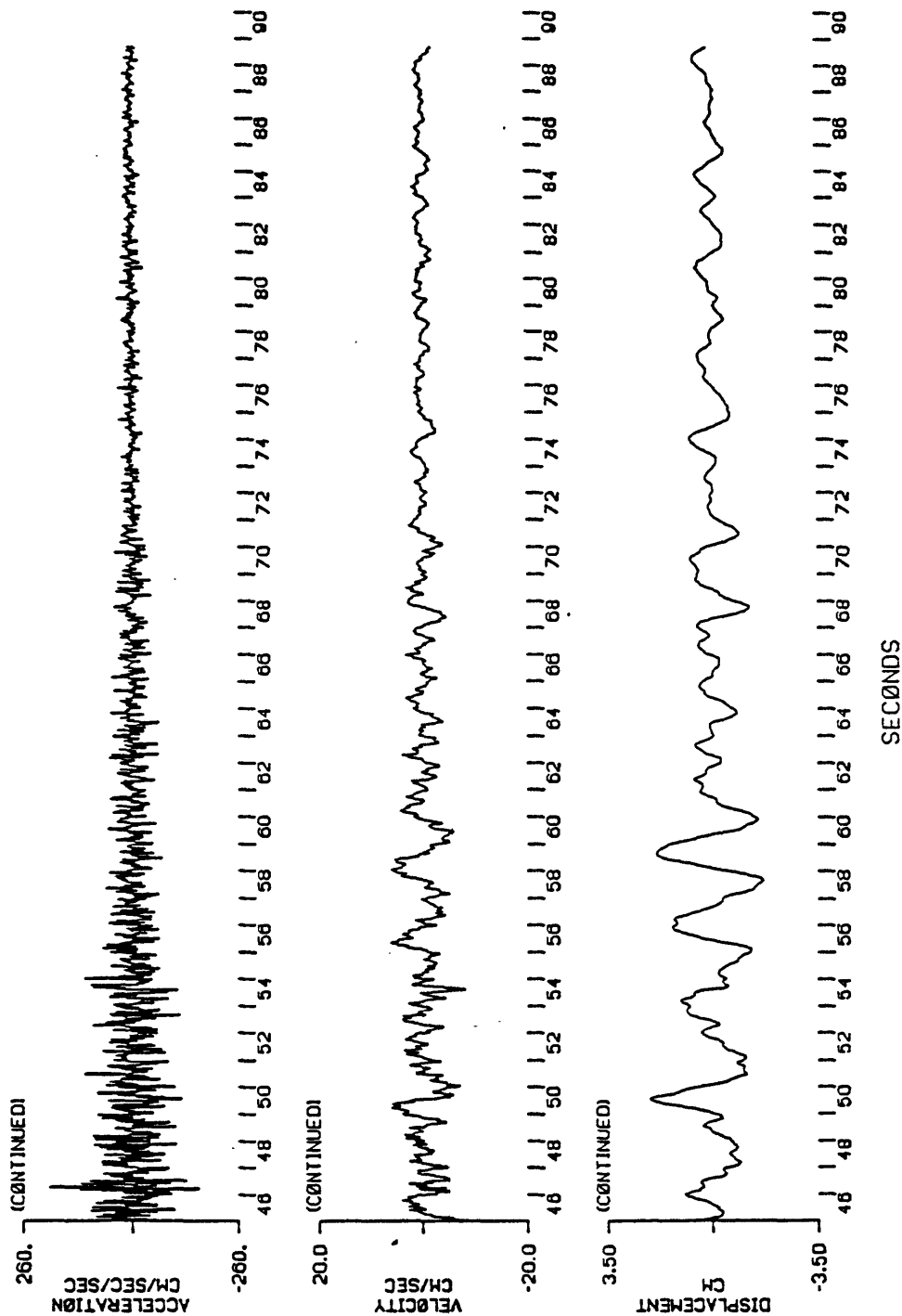


SECONDS

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC MS-7.8
 QUINTAY, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES(CM/SEC/SEC): 231.45 -162.93 -240.33

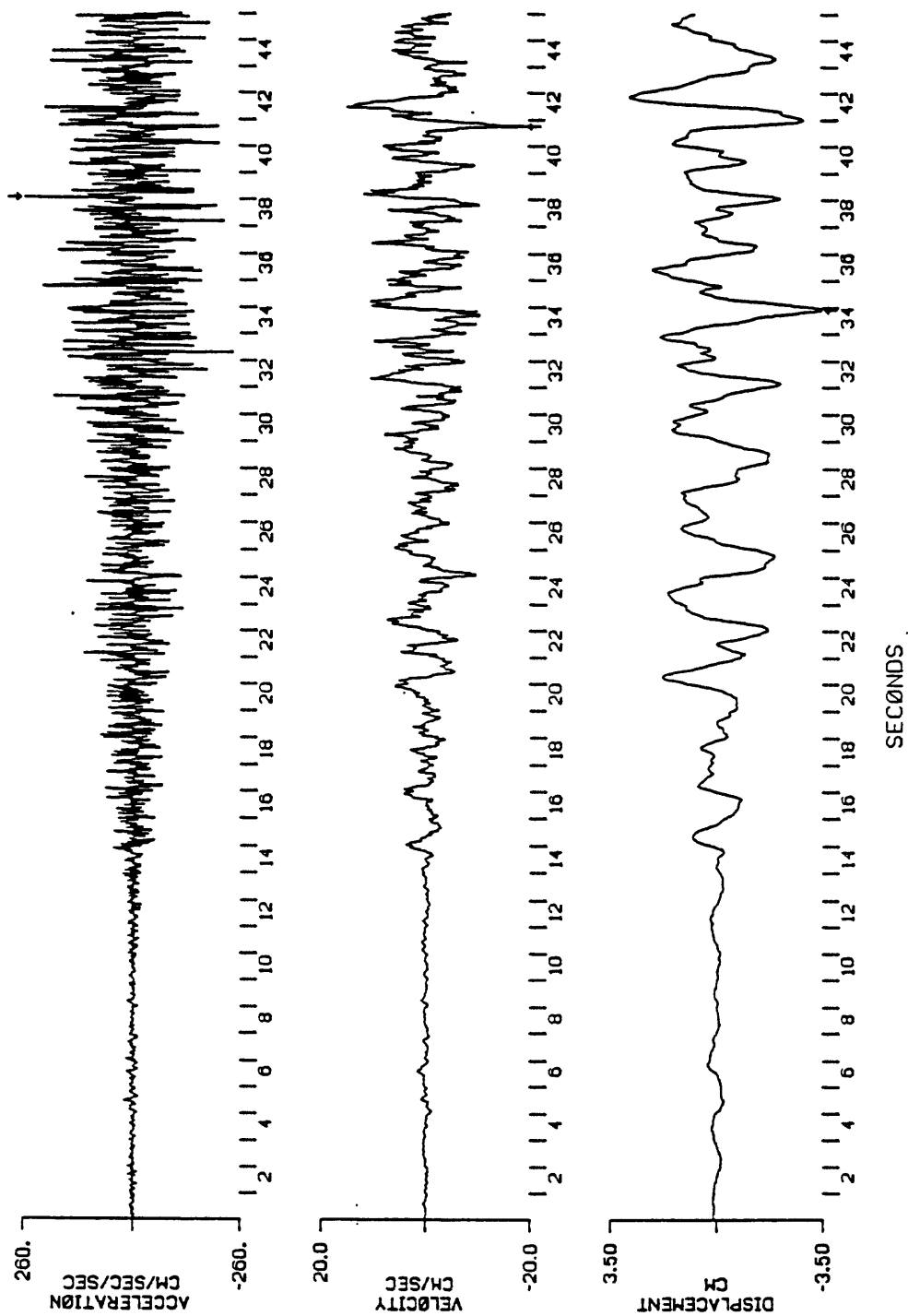


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL -255.00 CM/SEC/SEC, VELOCITY -19.34 CM/SEC, DISPL -3.50 CM

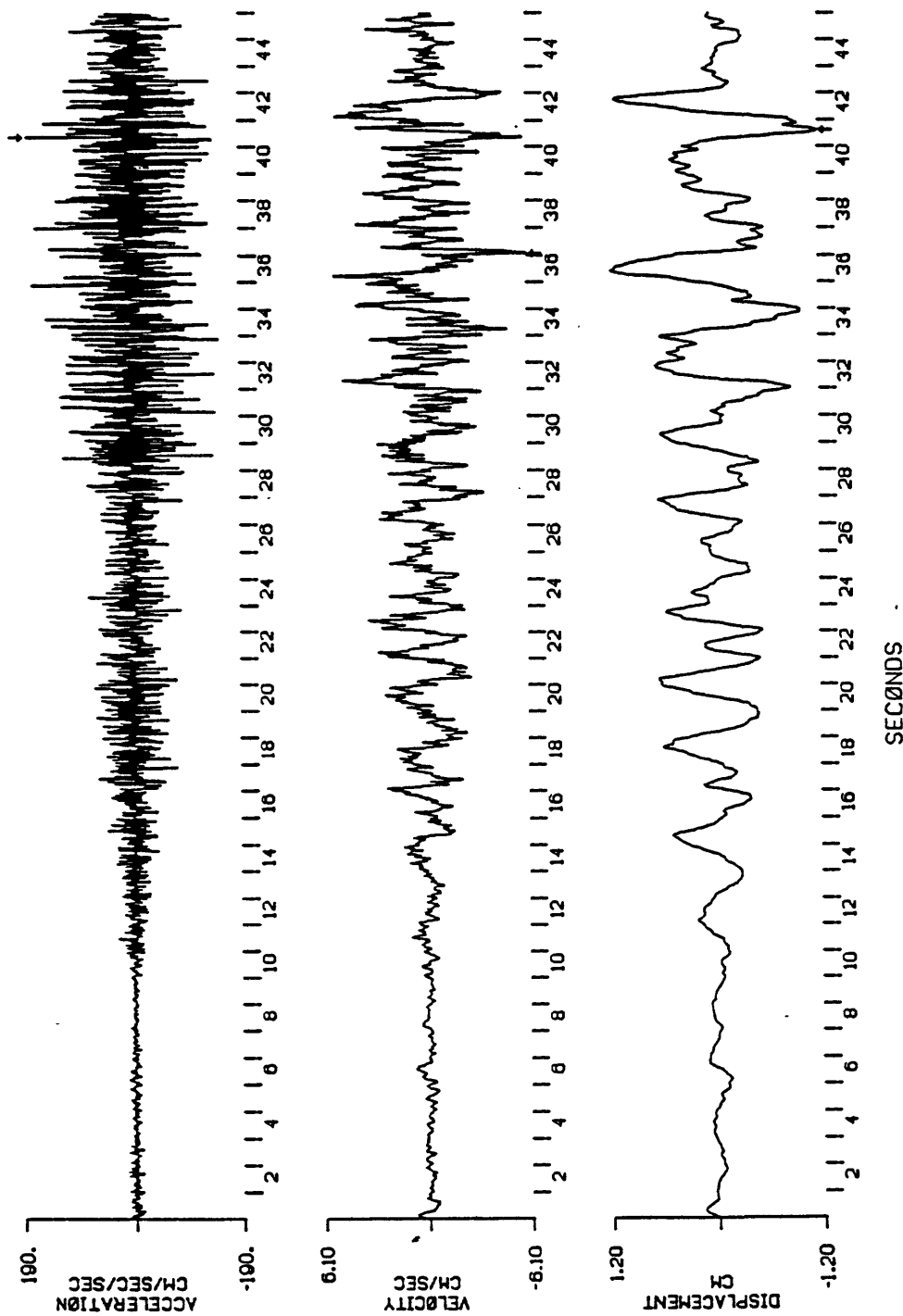


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, TRANSVERSE

PEAK VALUES: ACCEL=255.00 CM/SEC/SEC, VELOCITY=-19.34 CM/SEC, DISPL=-3.50 CM

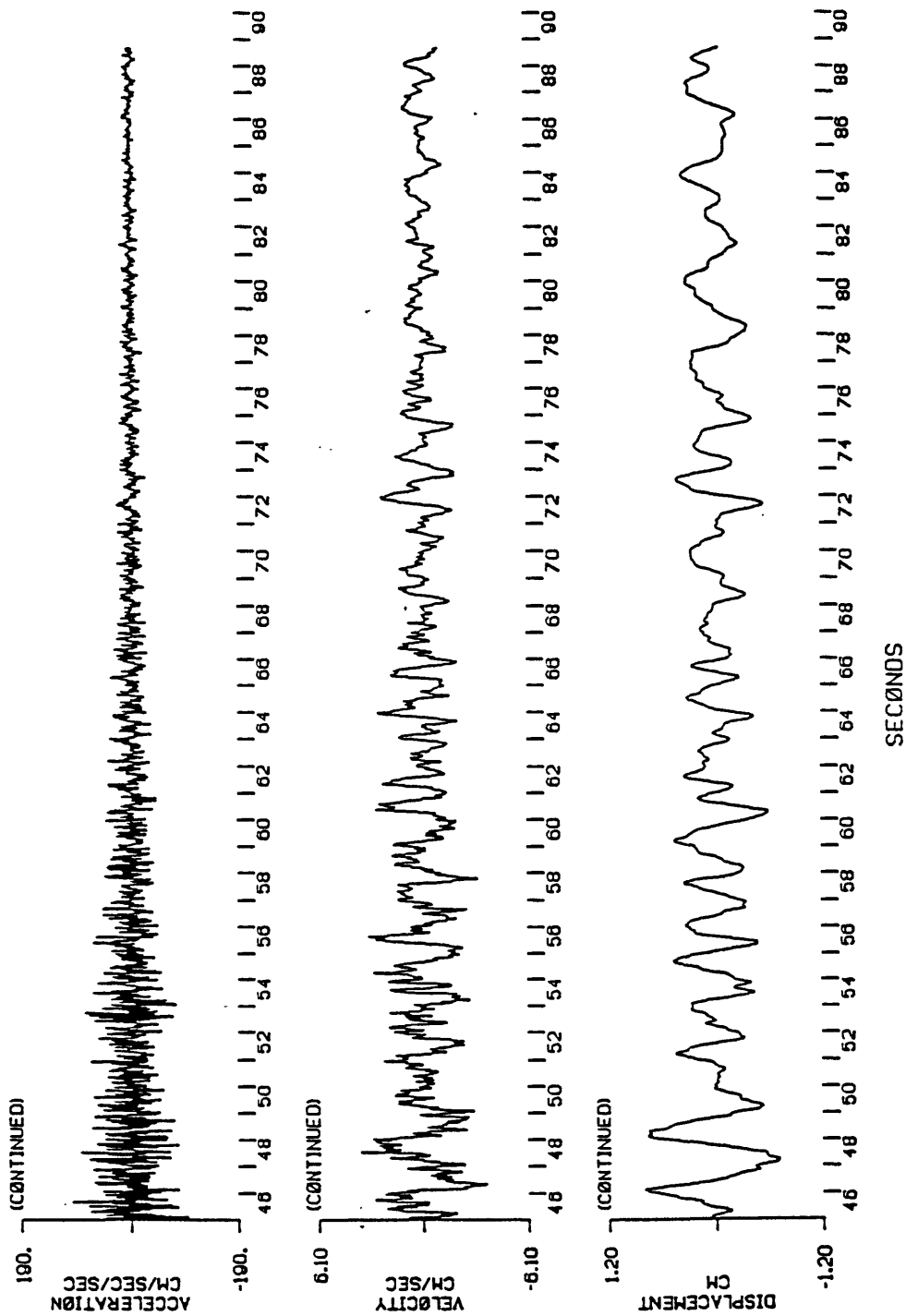


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, VERTICAL
 PEAK VALUES: ACCEL-180.90 CM/SEC/SEC, VELOCITY-6.08 CM/SEC, DISPL-1.19 CM

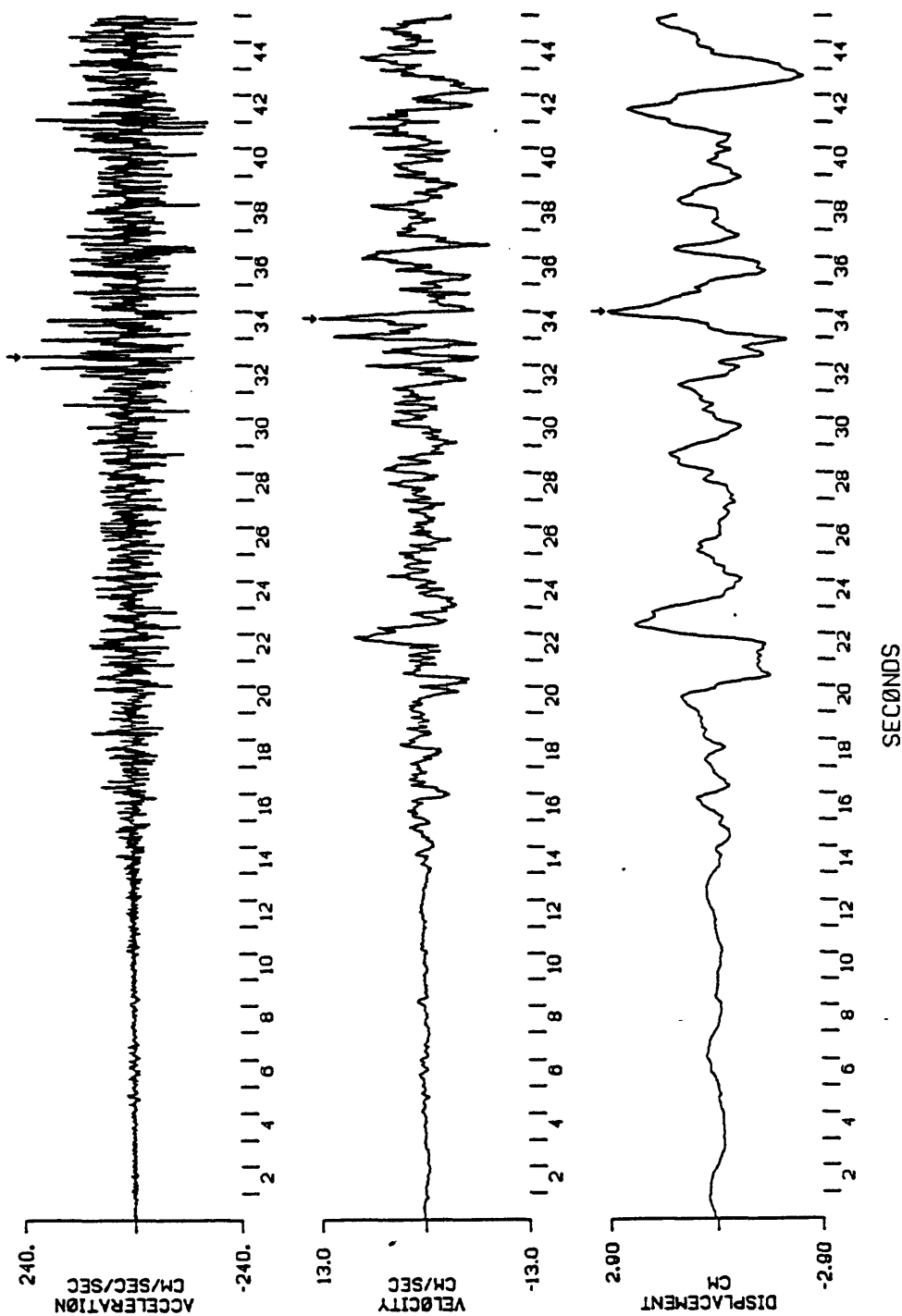


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
QUINTAY, CHILE, VERTICAL

PEAK VALUES: ACCEL -180.90 CM/SEC/SEC, VELOCITY -6.08 CM/SEC, DISPL -1.19 CM

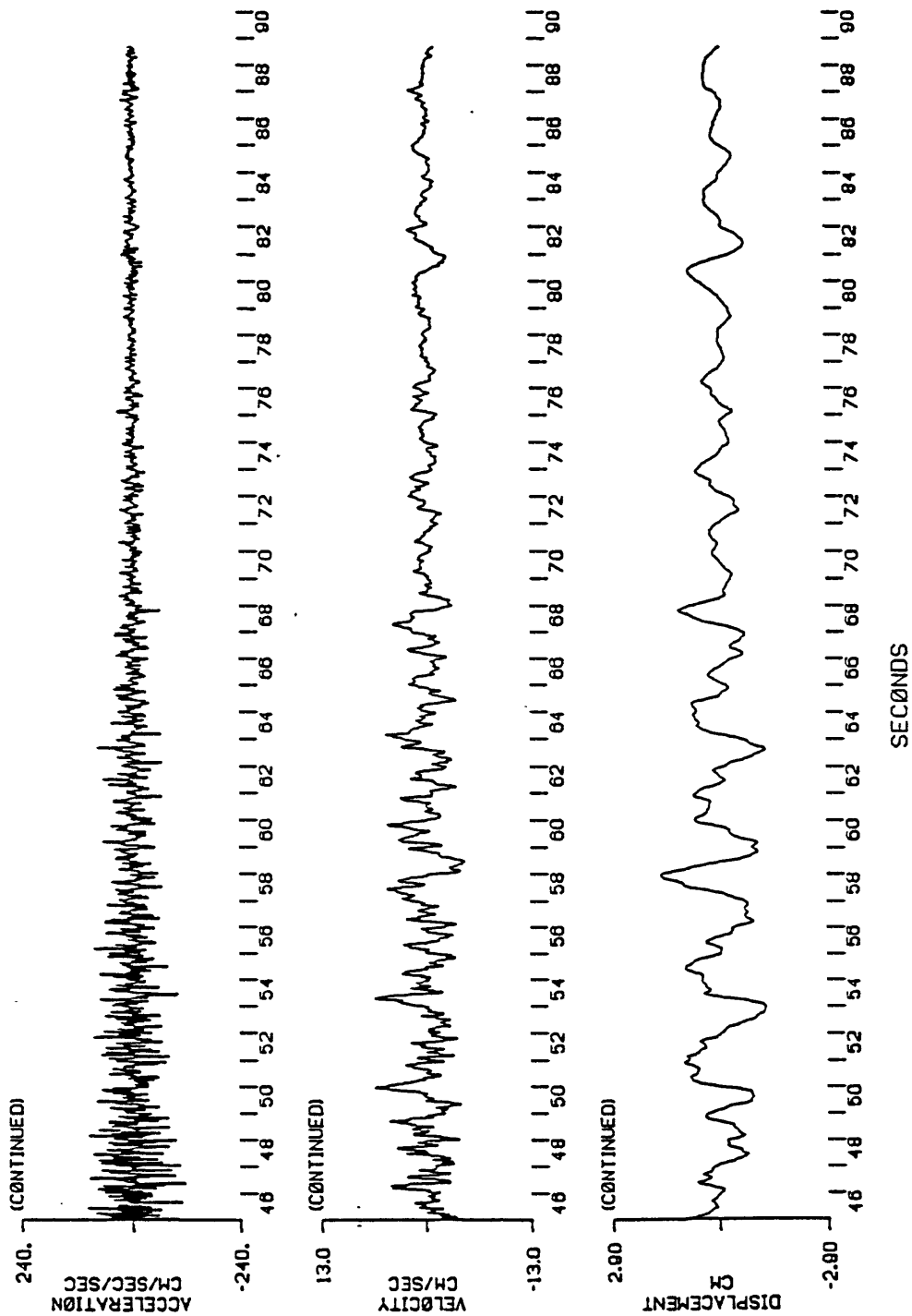


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, LONGITUDINAL
 PEAK VALUES: ACCEL-231.54 CM/SEC/SEC, VELOCITY-12.51 CM/SEC, DISPL-2.80 CM

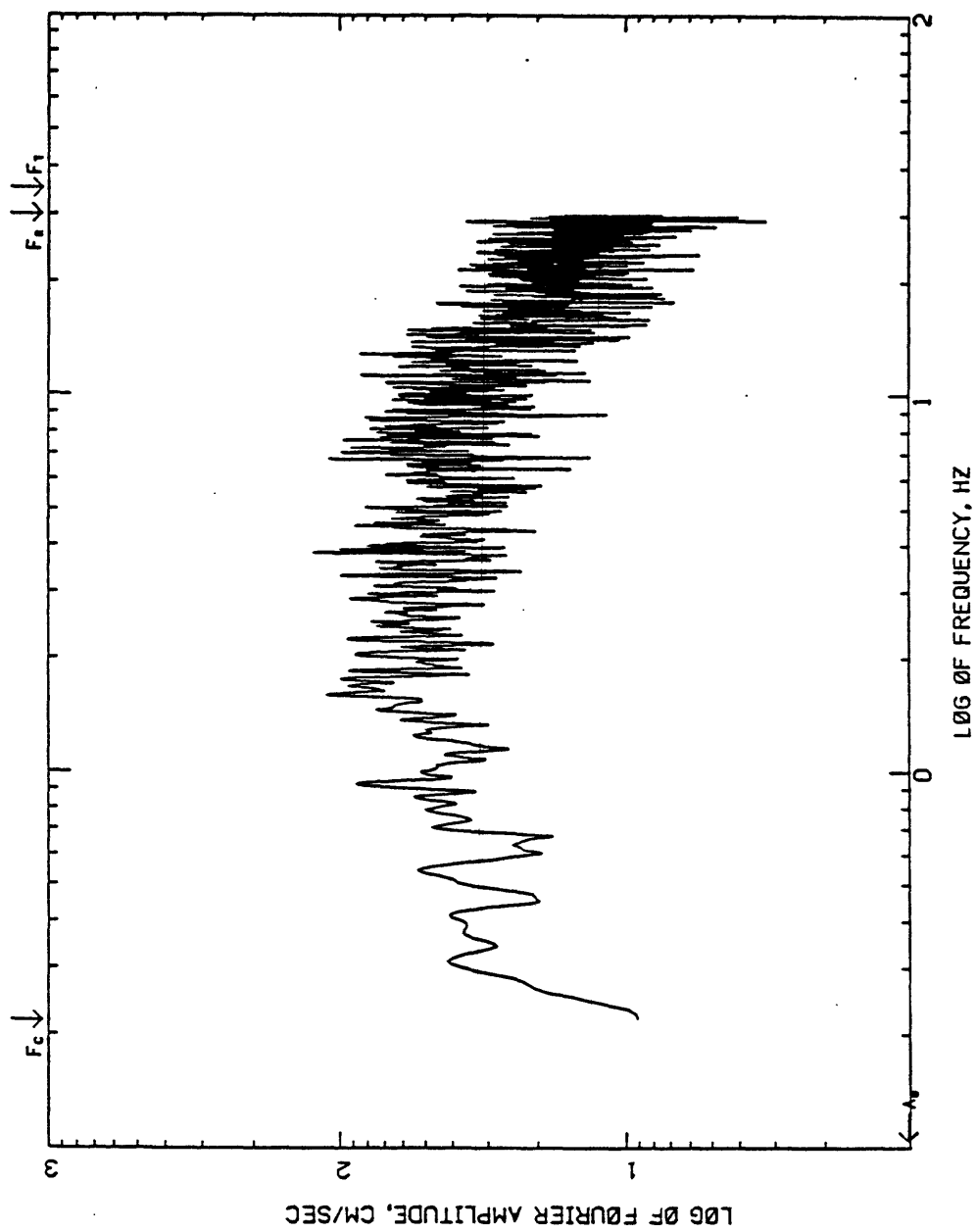


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8

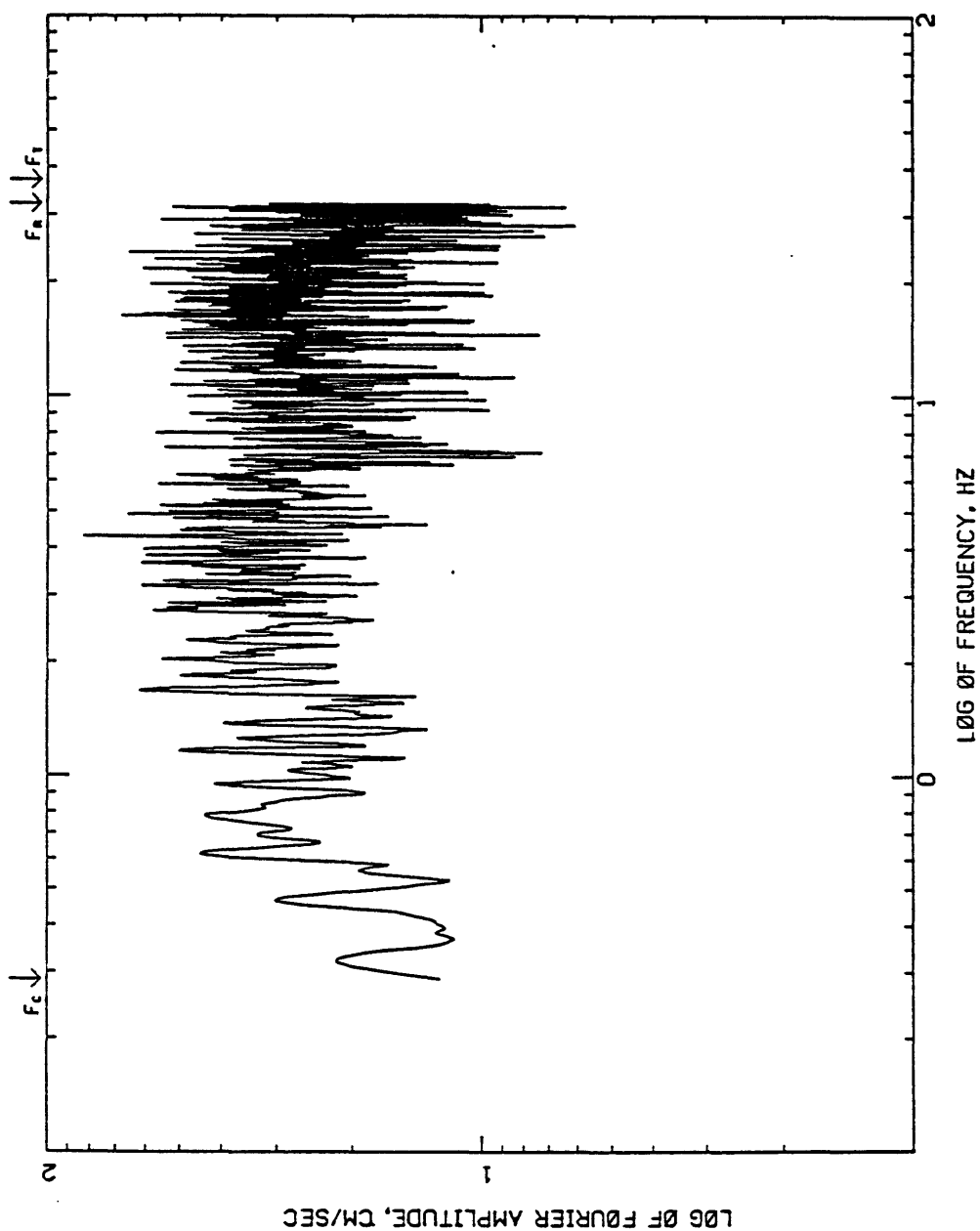
QUINTAY, CHILE, LONGITUDINAL
PEAK VALUES: ACCEL-231.54 CM/SEC/SEC, VELOCITY-12.51 CM/SEC, DISPL-2.80 CM



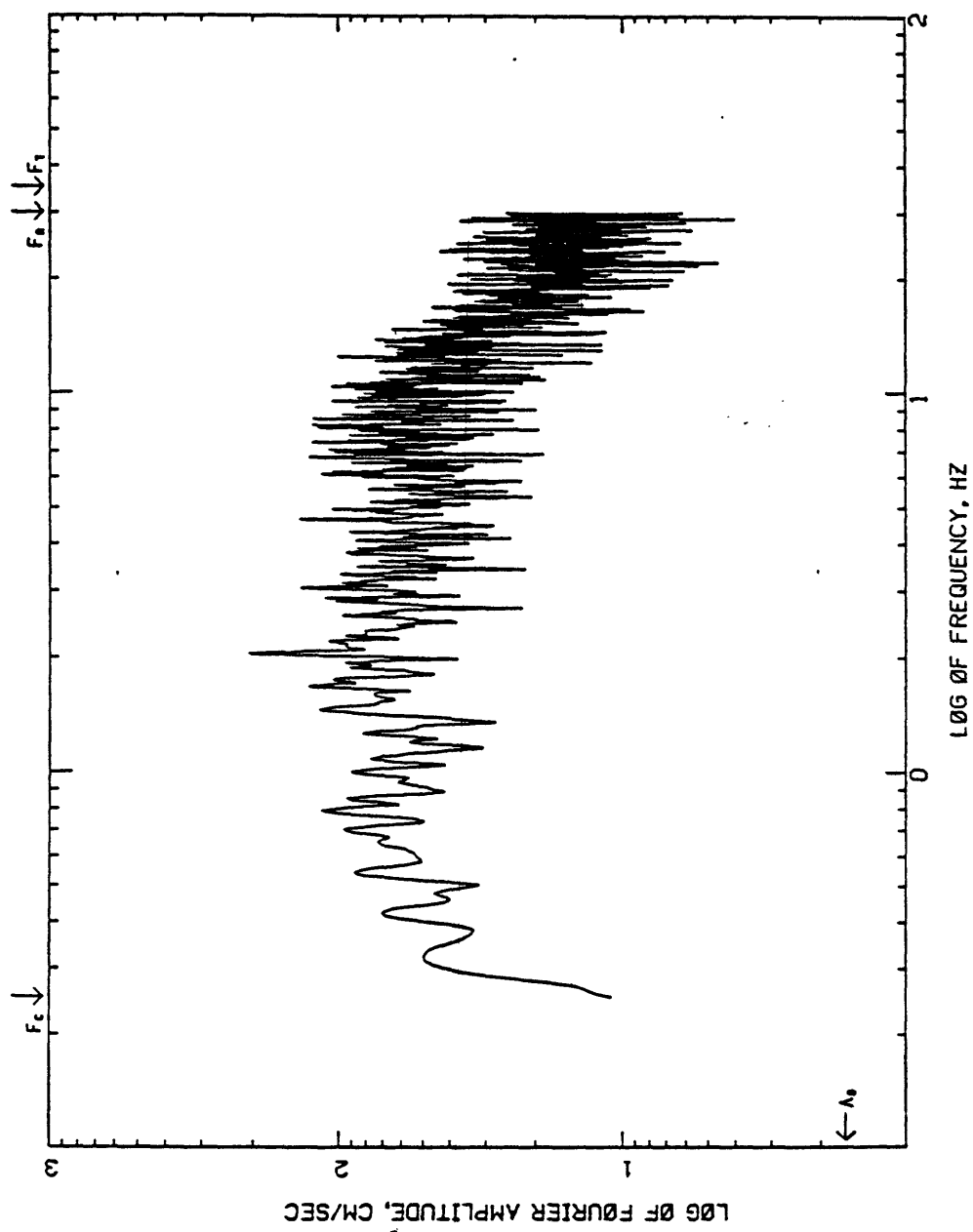
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, LONGITUDINAL
 COMPUTING OPTIONS- ZCR055,SH00TH101,N0N0ISE



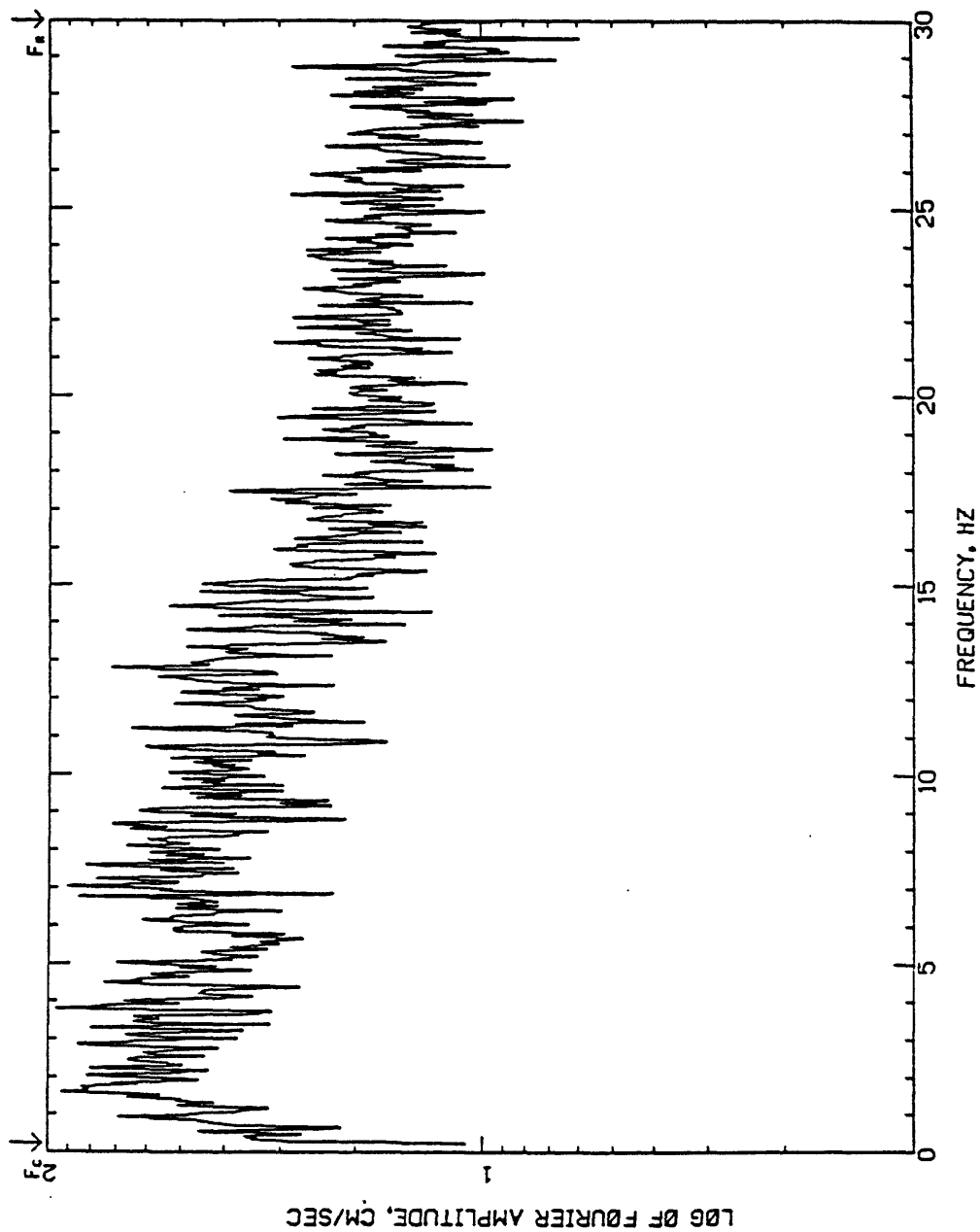
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, VERTICAL
 COMPUTING OPTIONS: ZCROSS, SMOOTH(10), NOISE



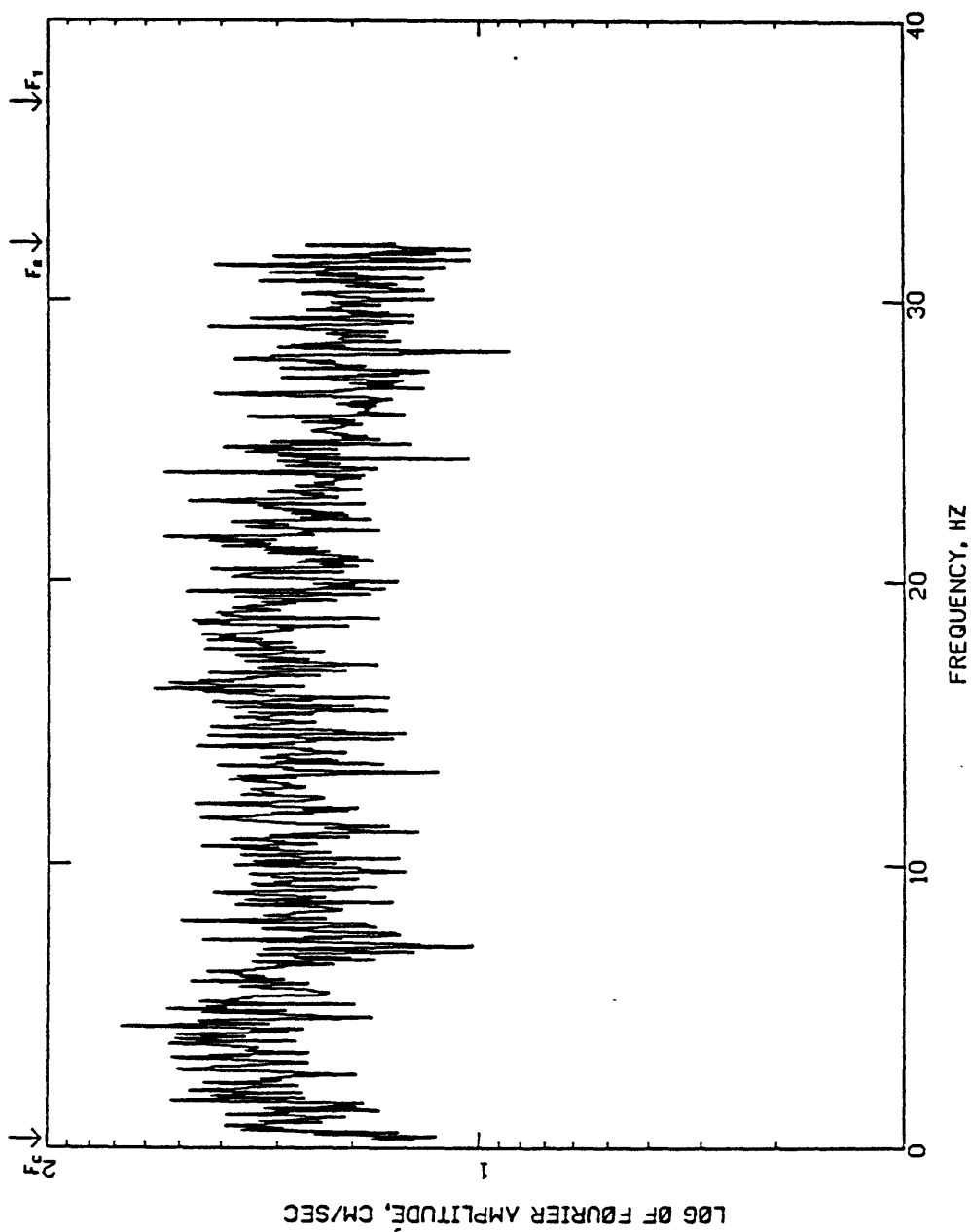
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, TRANSVERSE
 COMPUTING OPTIONS: ZCR0SS,SM00TH10,NOISE



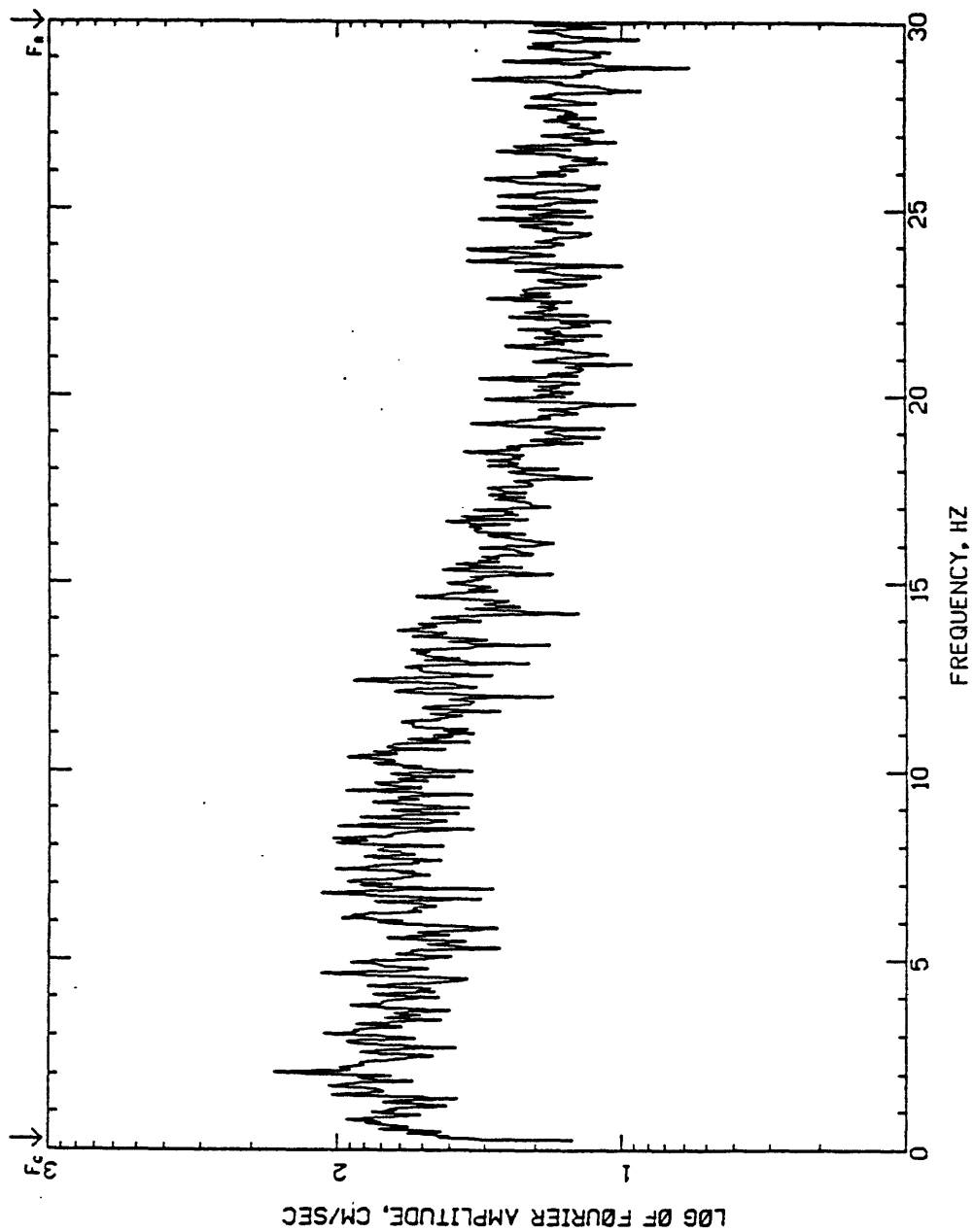
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, LONGITUDINAL
 COMPUTING OPTIONS- ZCR0SS,SH00THI20I,N0N0ISE



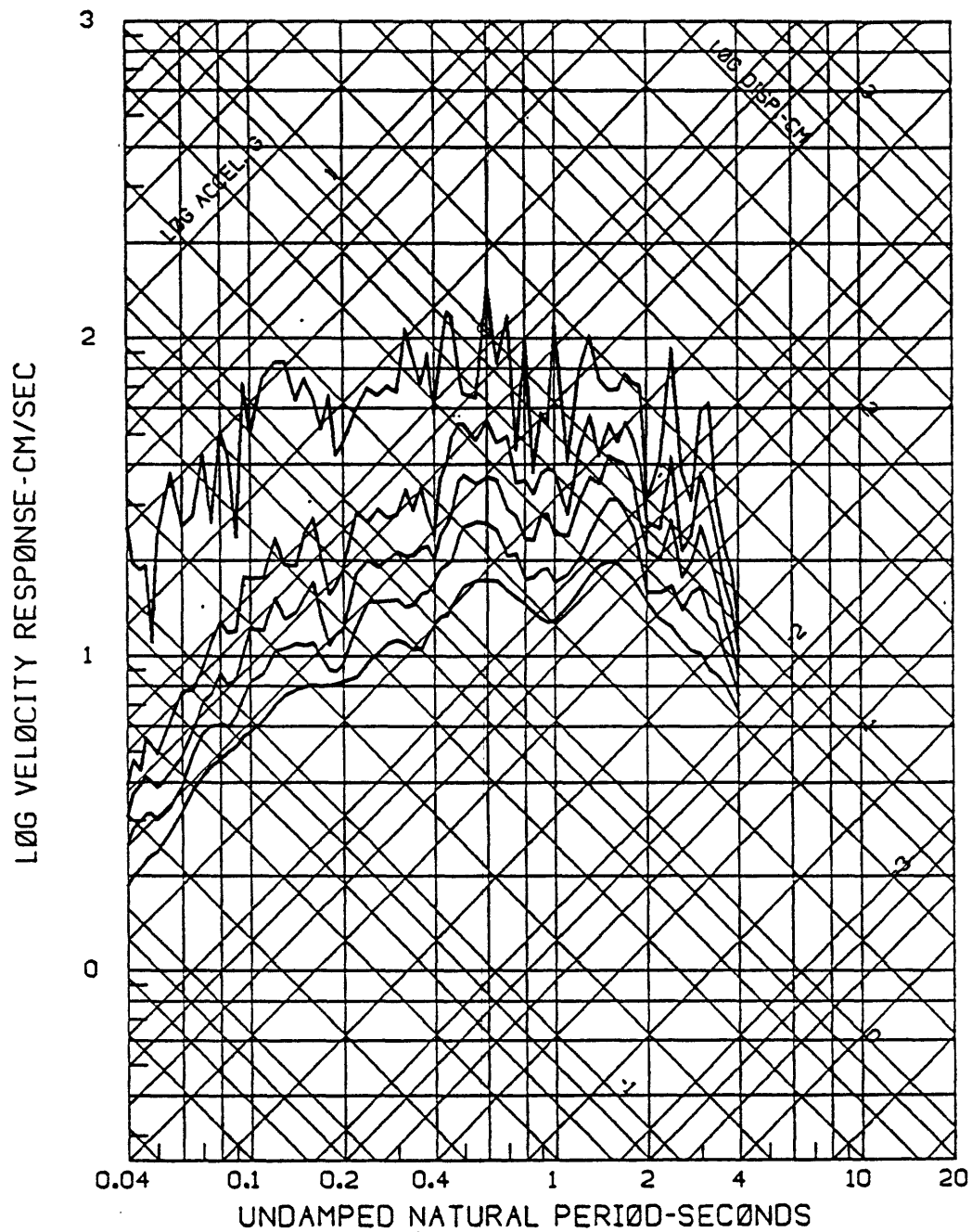
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, VERTICAL
 COMPUTING OPTIONS: ZCR055, SMOOTH(20), NONNOISE



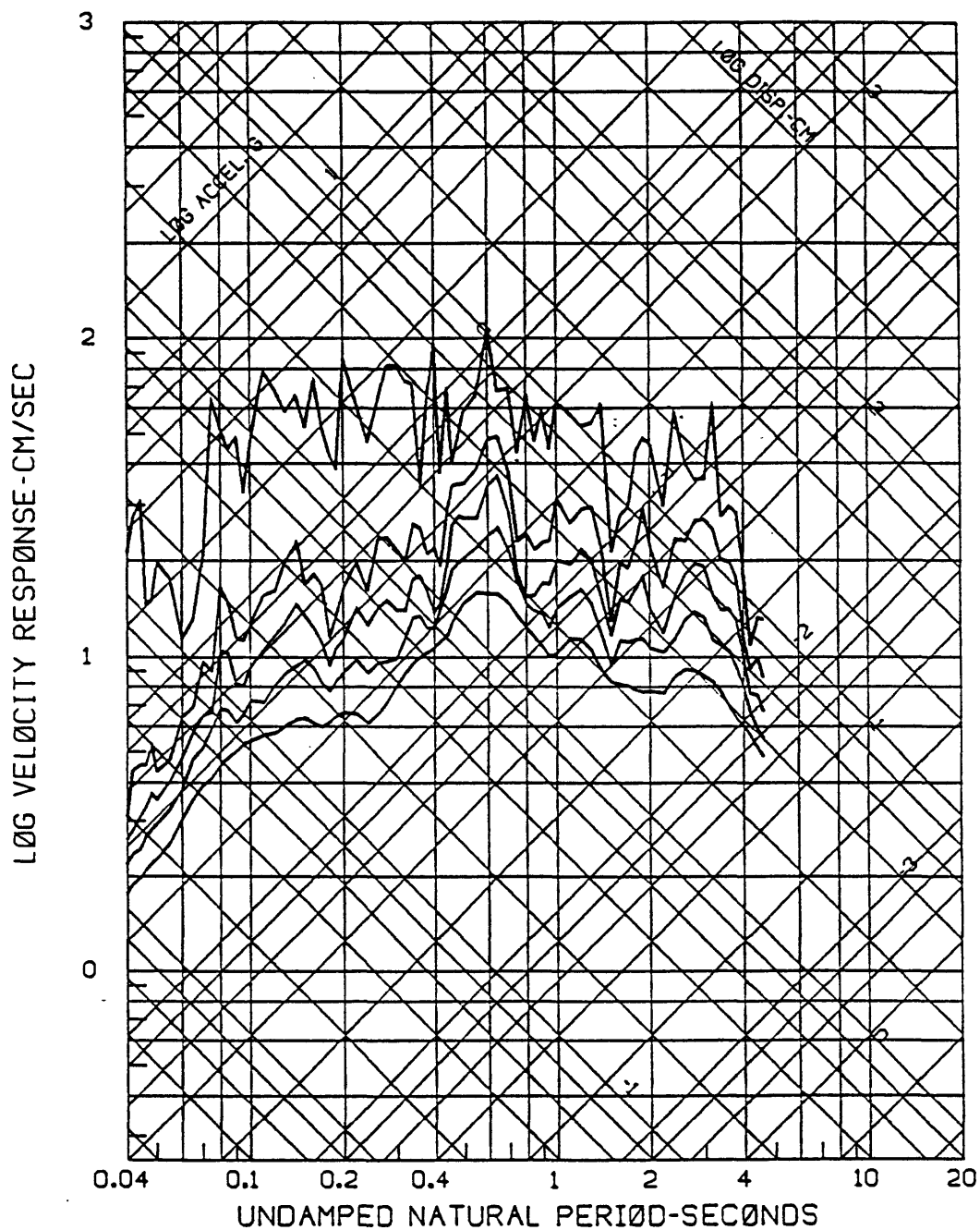
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 QUINTAY, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCR055,SM00TH20,N0N0ISE



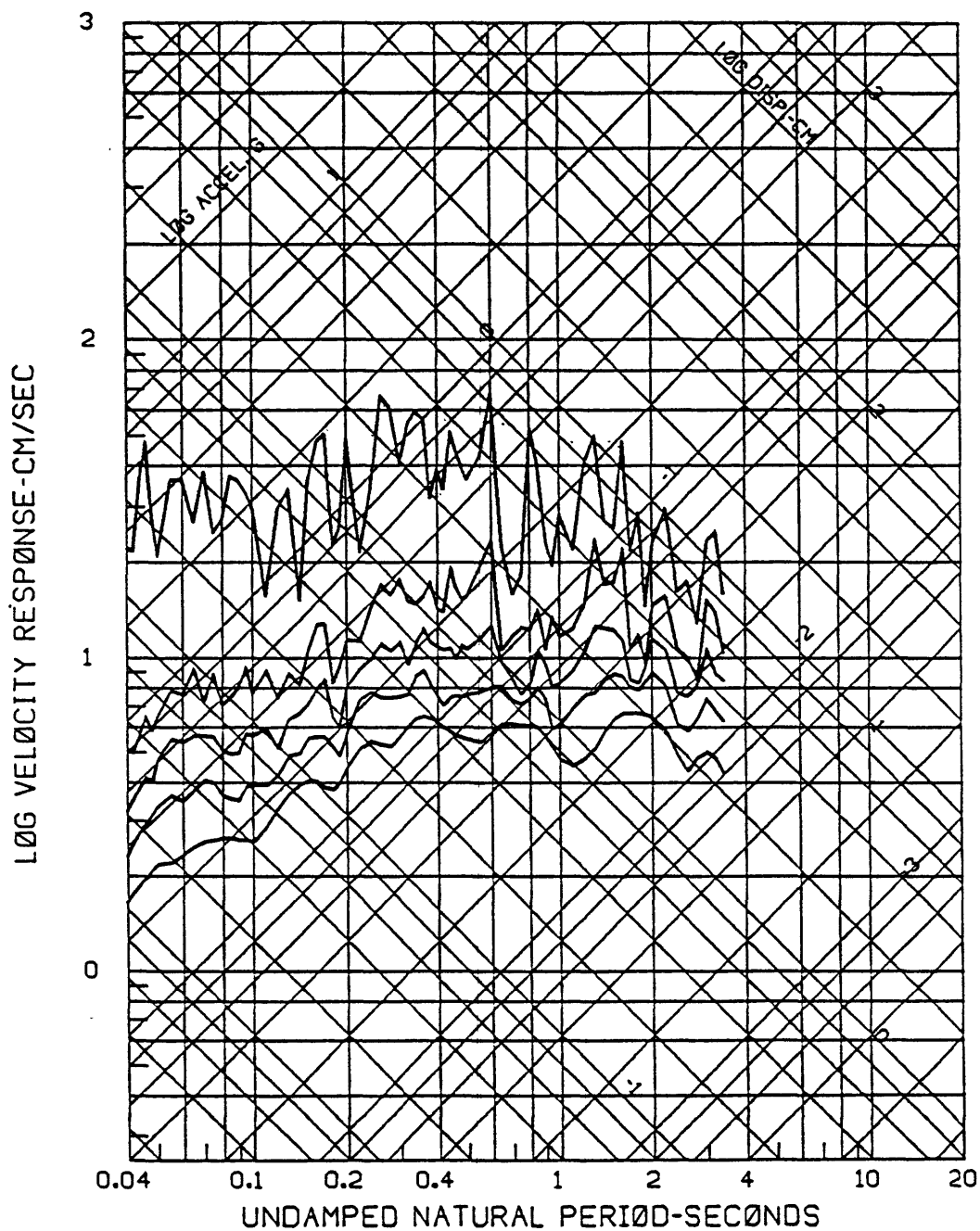
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 QUINTAY, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



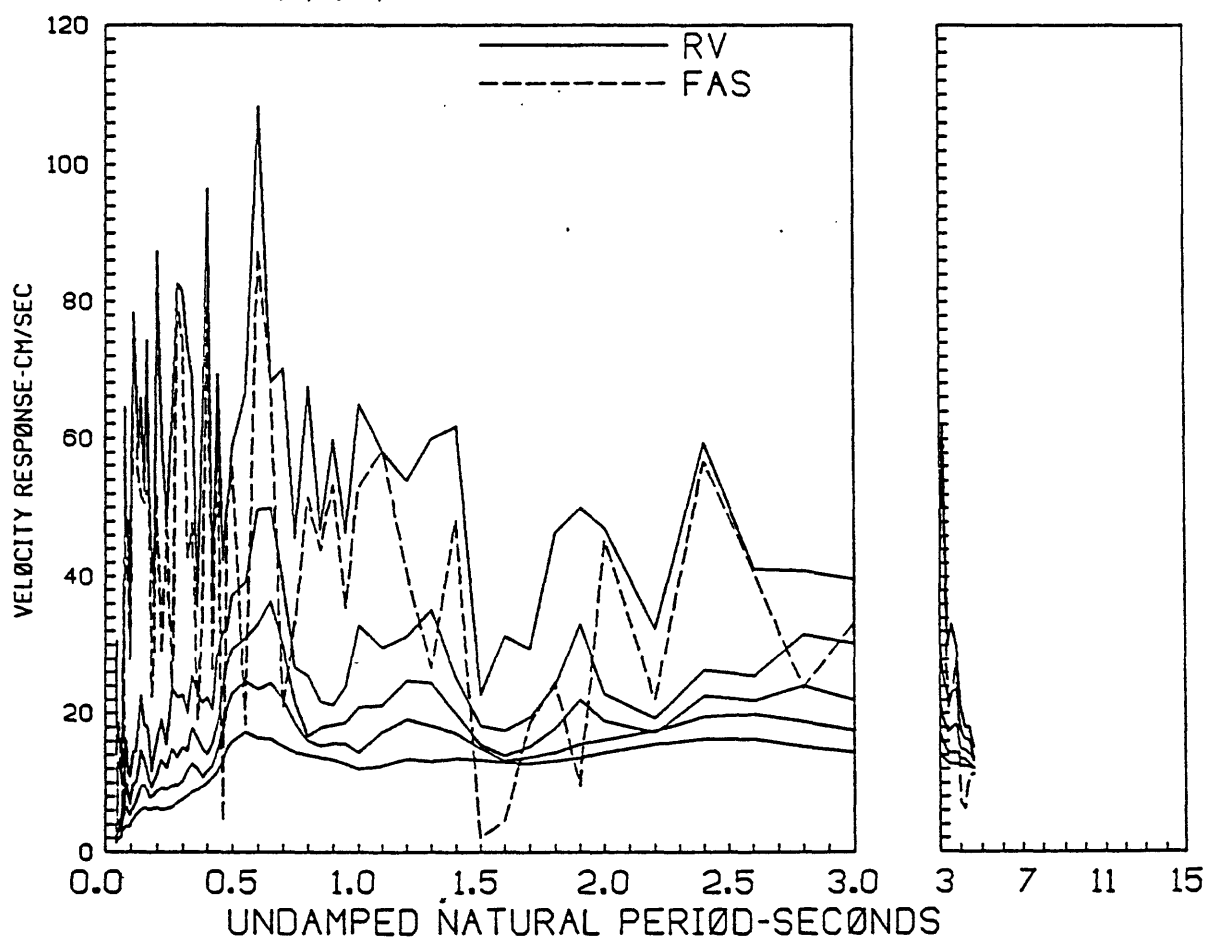
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 QUINTAY, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



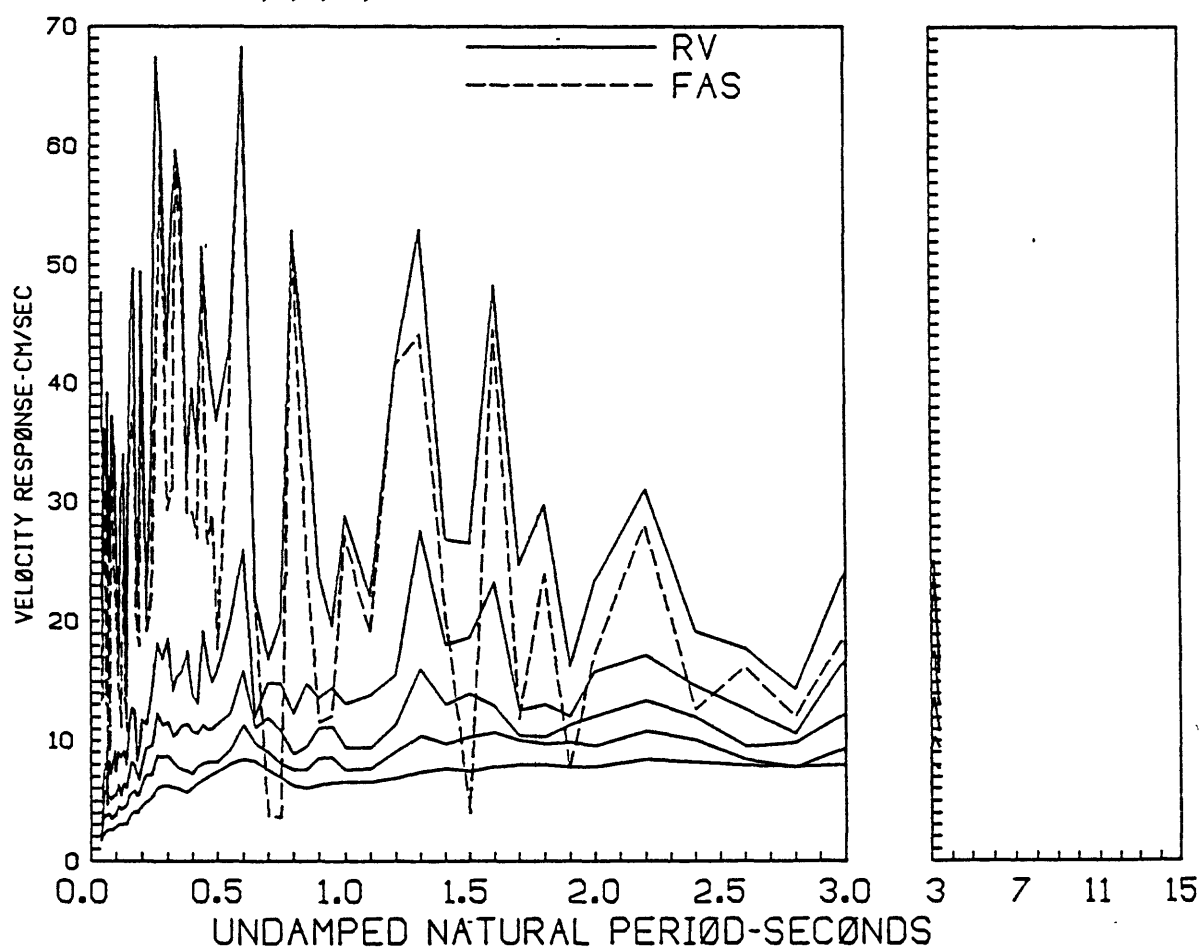
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 QUINTAY, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



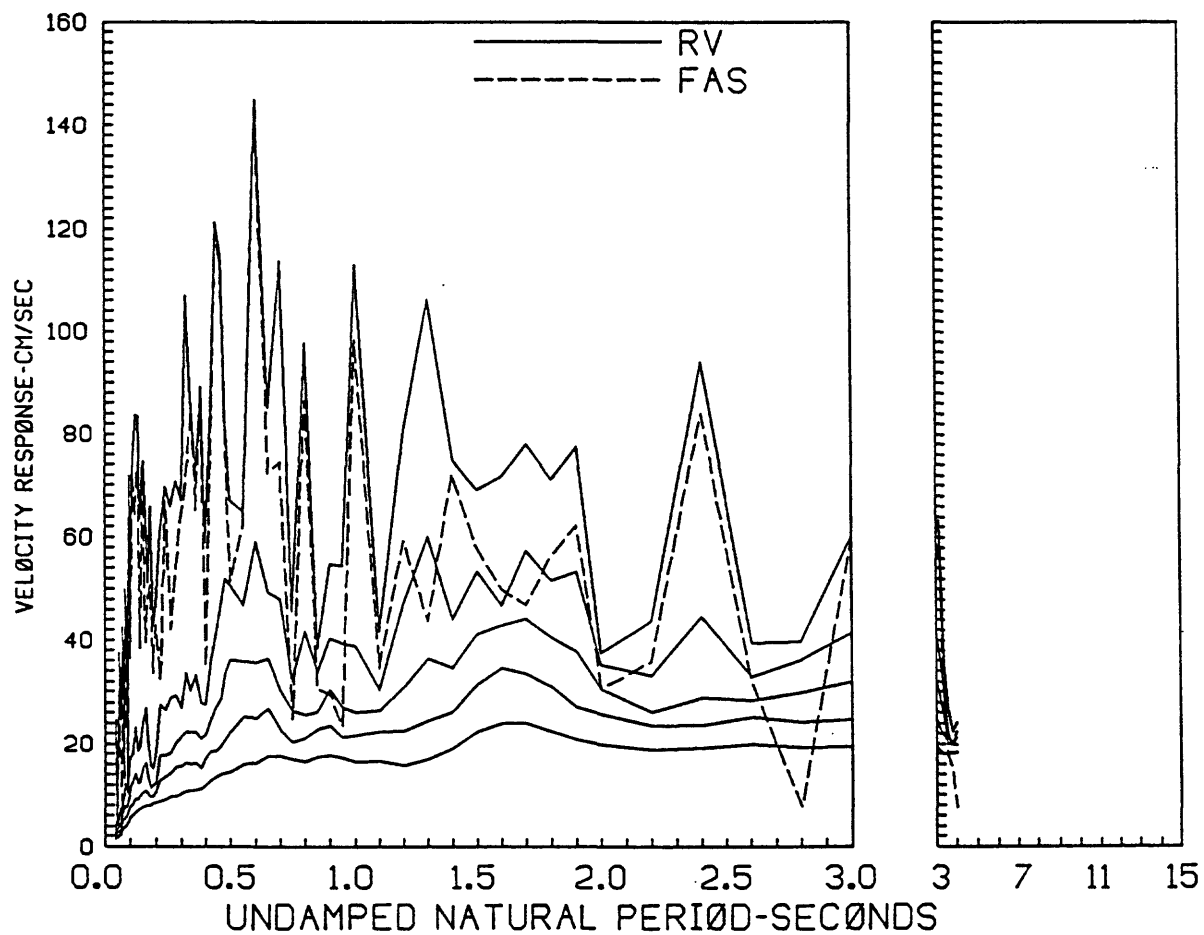
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 QUINTAY, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 QUINTAY, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 QUINTAY, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake of 3/3/85

22:47:07 UTC, $M_s=7.8$

Rapel, Chile

DESCRIPTION	COMPONENT		
	North-south	Vertical	East-west

Instrument Characteristics:

Frequency (Hz)	17.8	19.0	18.3
Damping (% Critical)	60.0*	60.0*	60.0*

Filter Parameters:

Highcut (Hz)	17.0	26.0	17.0
Lowcut (Hz)	0.154	0.263	0.200

Peak Parameters:

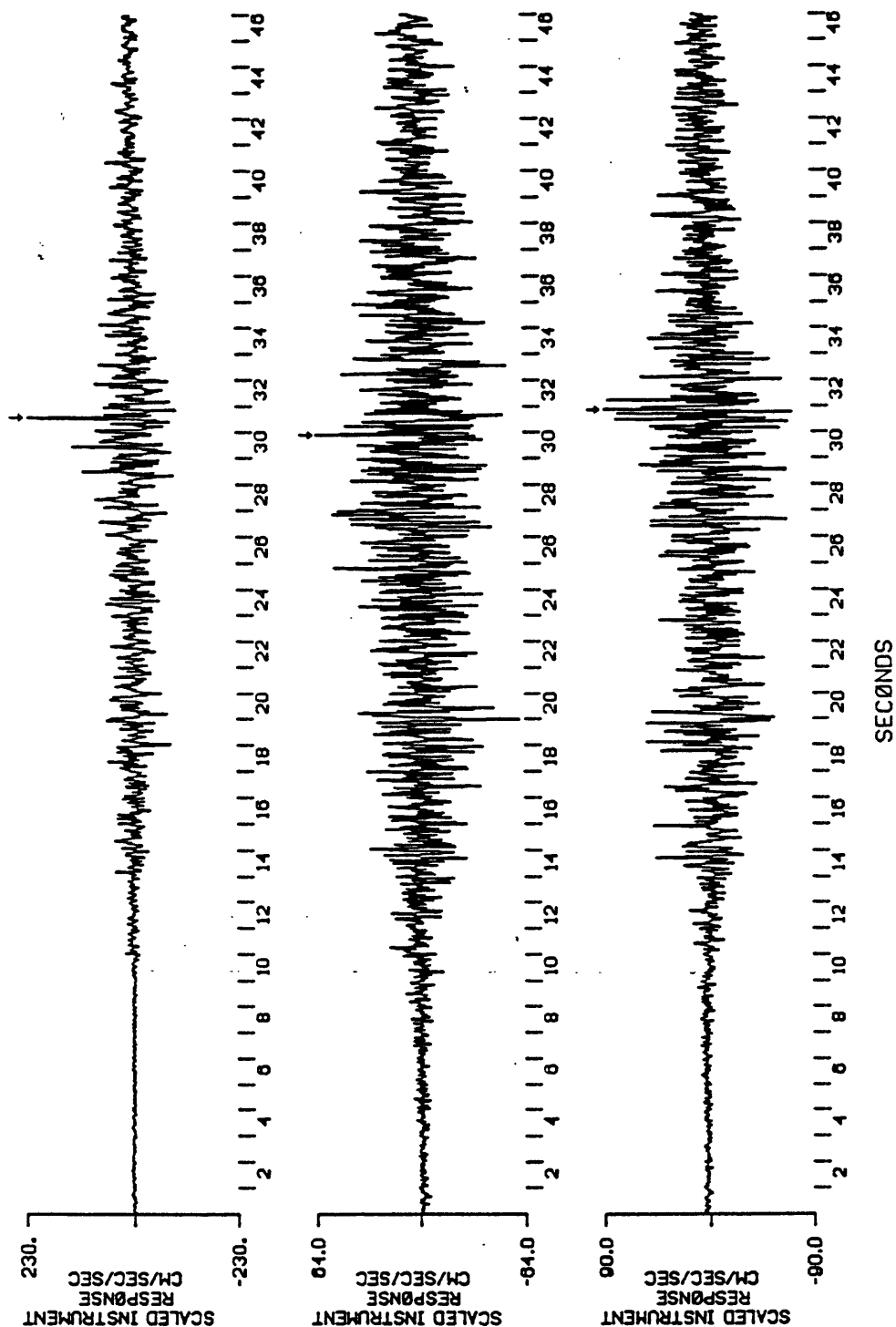
Peak Acceleration, Unc. (cm/s/s)	226.2	63.3	89.5
Peak Acceleration, A (cm/s/s)	219.2	61.3	87.6
Peak Velocity, V (cm/s)	-10.4	-4.29	6.06
Peak Displacement, D (cm)	-3.14	.890	-1.71

Parameter Ratios:

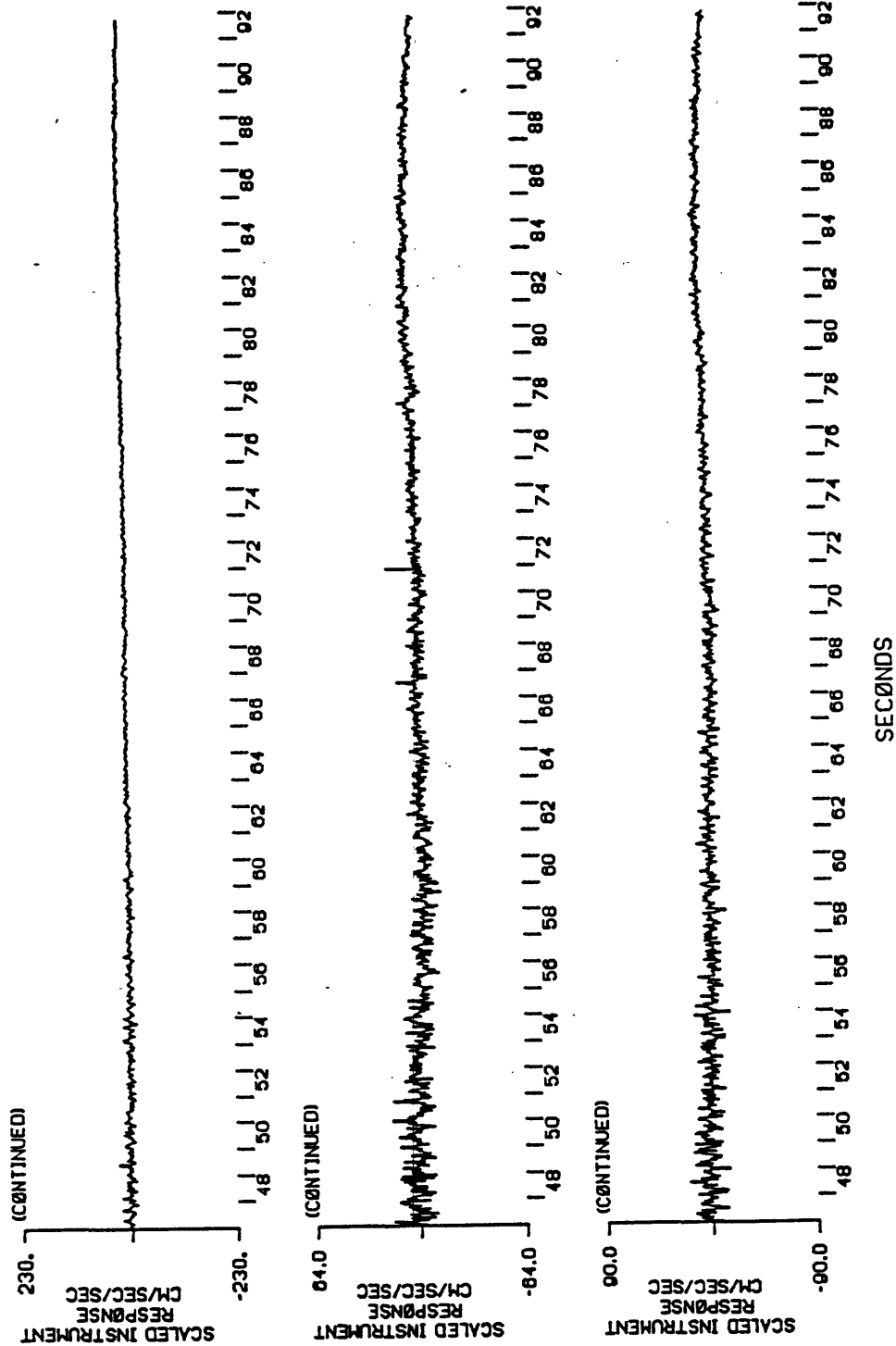
V/A (sec)	0.047	0.070	0.069
AD/V ²	6.4	3.0	4.1

* Nominal Value

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 226.22 63.26 89.54

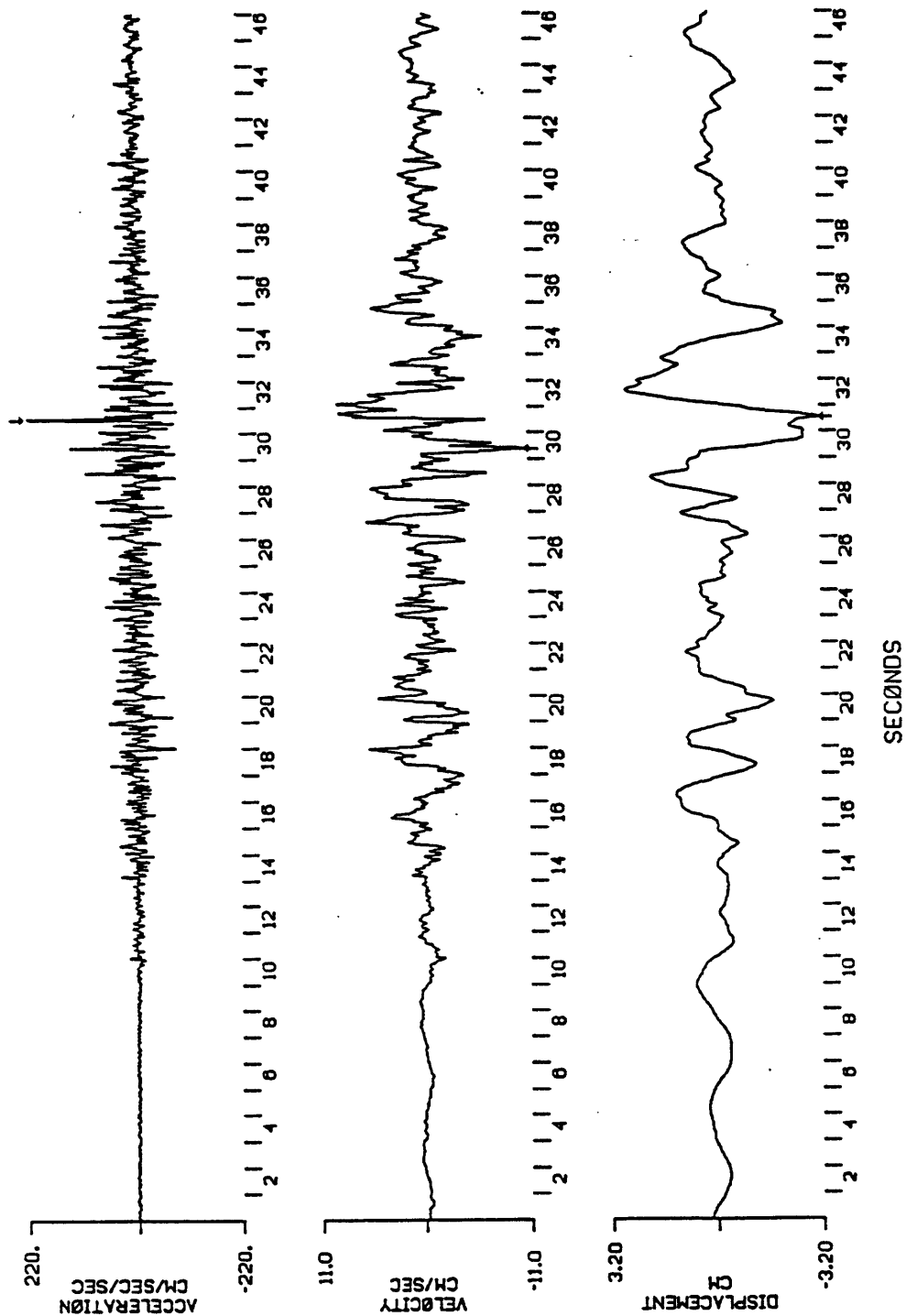


UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 226.22 63.26 89.54



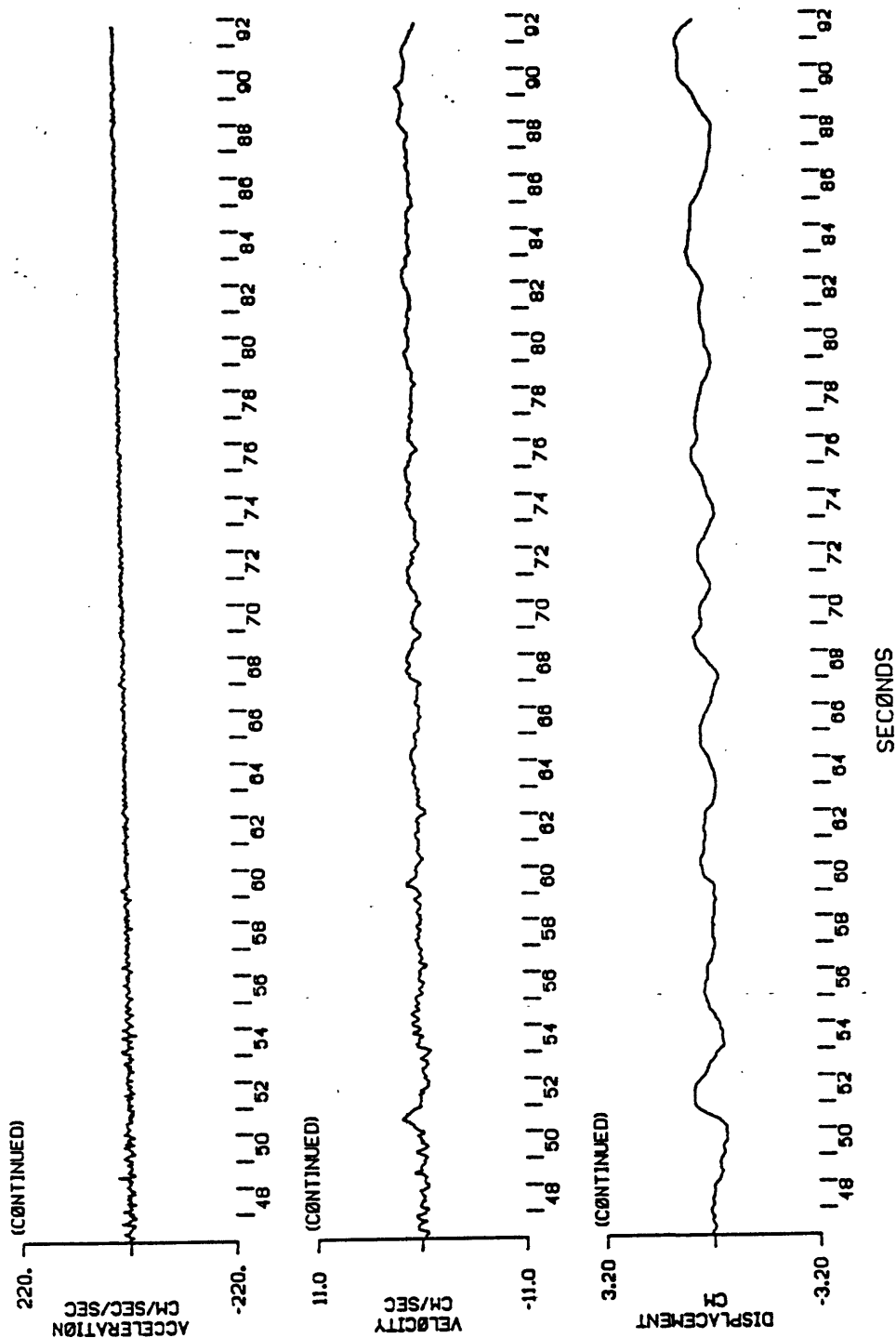
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, NORTH-SOUTH

PEAK VALUES: ACCEL -219.20 CM/SEC/SEC, VELOCITY -10.39 CM/SEC, DISPL -3.14 CM



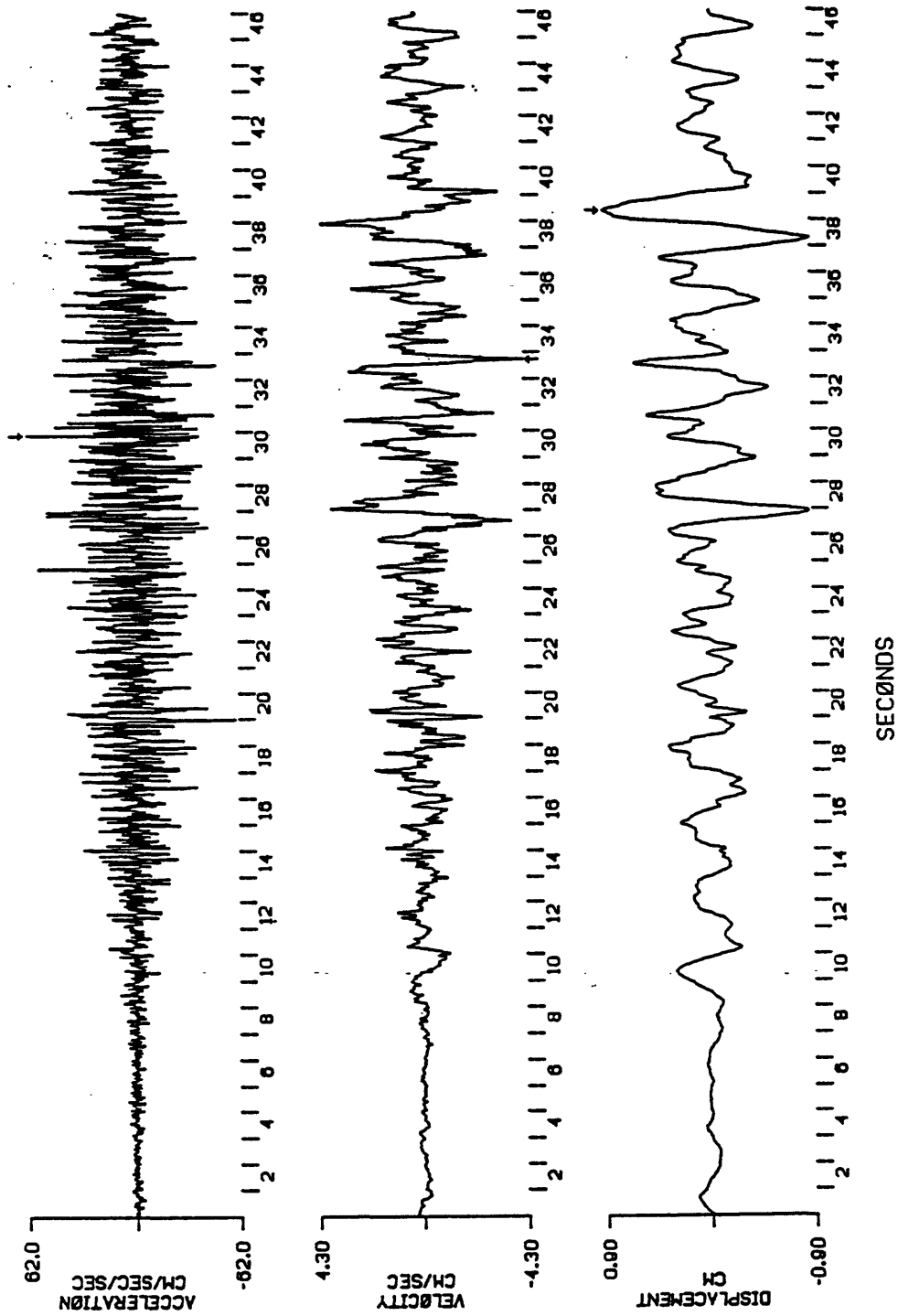
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
RAPEL CHILE, NORTH-SOUTH

PEAK VALUES: ACCEL-219.20 CM/SEC/SEC, VELOCITY-10.39 CM/SEC, DISPL-3.14 CM

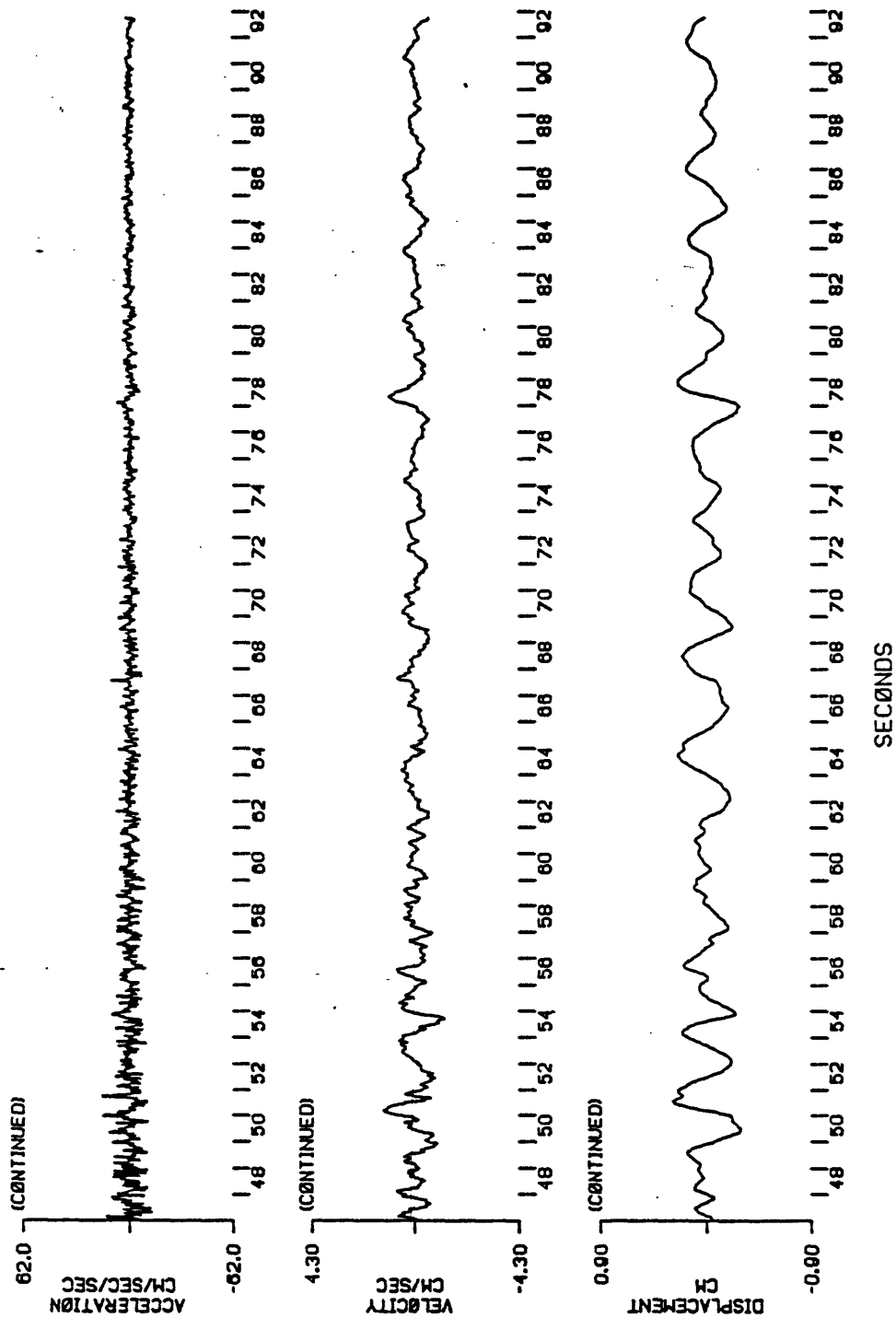


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8

RAPEL, CHILE, VERTICAL
PEAK VALUES: ACCEL-61.32 CM/SEC/SEC, VELOCITY--4.29 CM/SEC, DISPL-0.89 CM

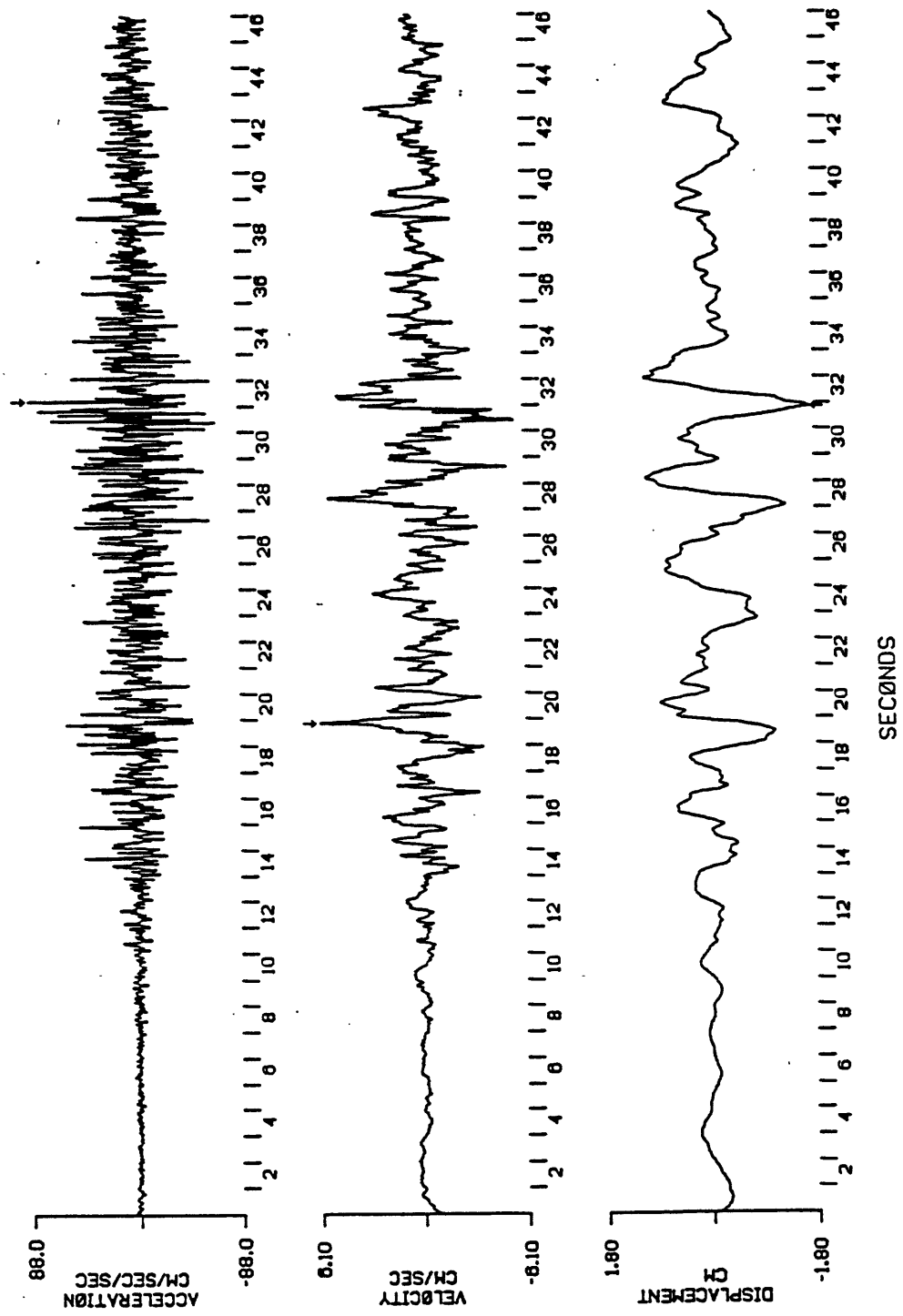


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, VERTICAL
 PEAK VALUES: ACCEL-61.32 CM/SEC/SEC, VELOCITY-4.29 CM/SEC, DISPL-0.89 CM



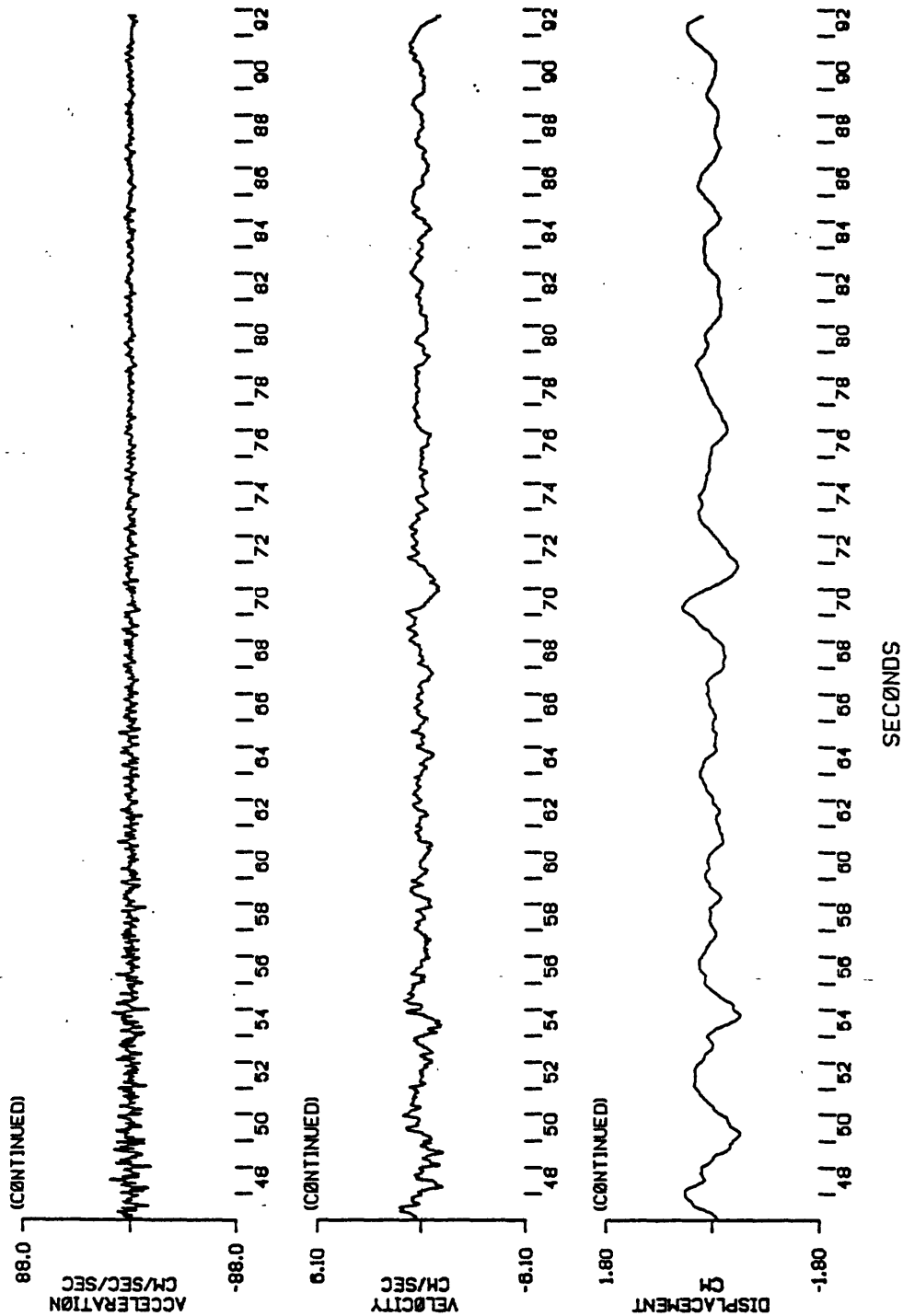
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, EAST-WEST

PEAK VALUES: ACCEL-87.61 CM/SEC/SEC, VELOCITY-6.06 CM/SEC, DISPL-1.71 CM

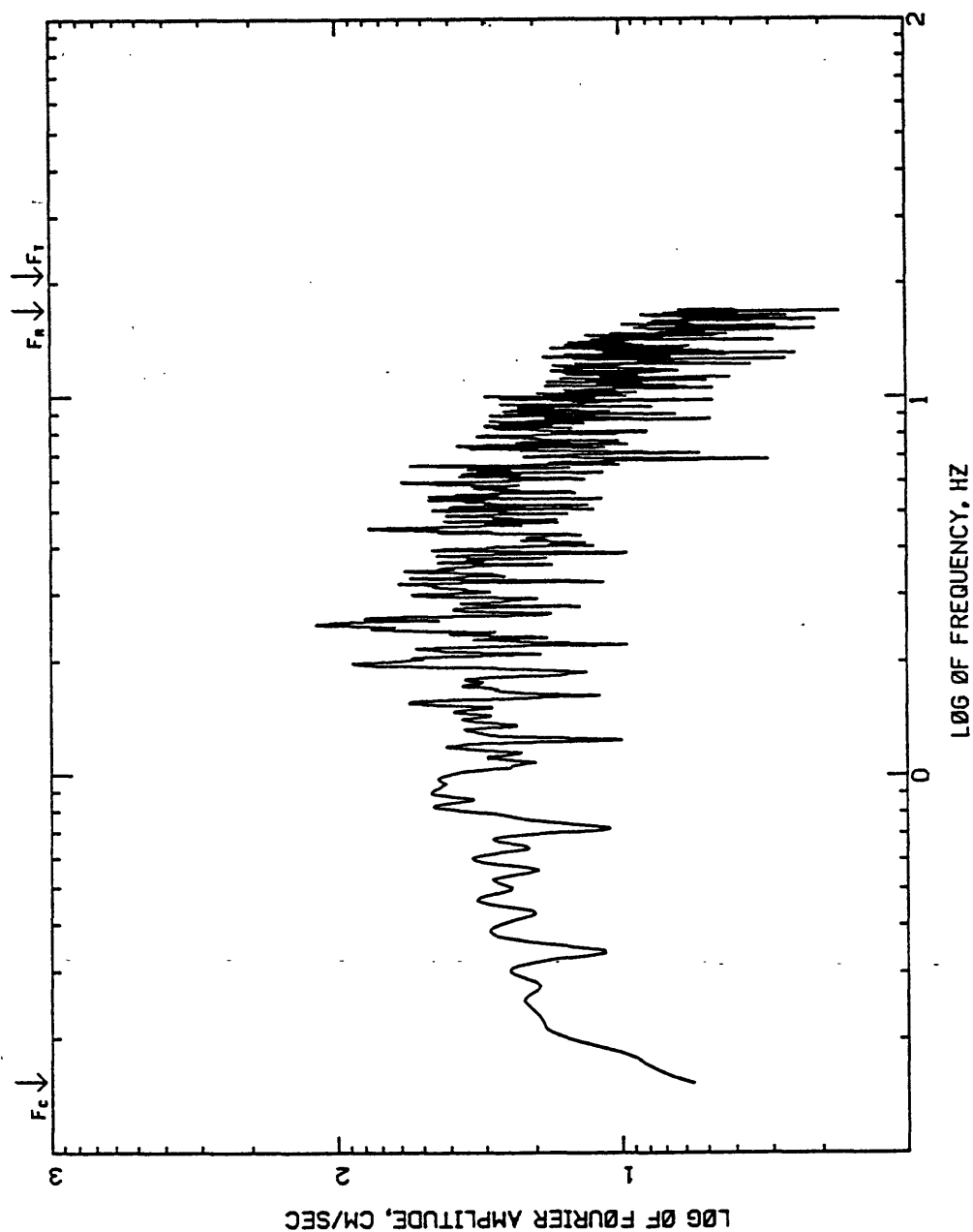


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
RAPEL CHILE, EAST-WEST

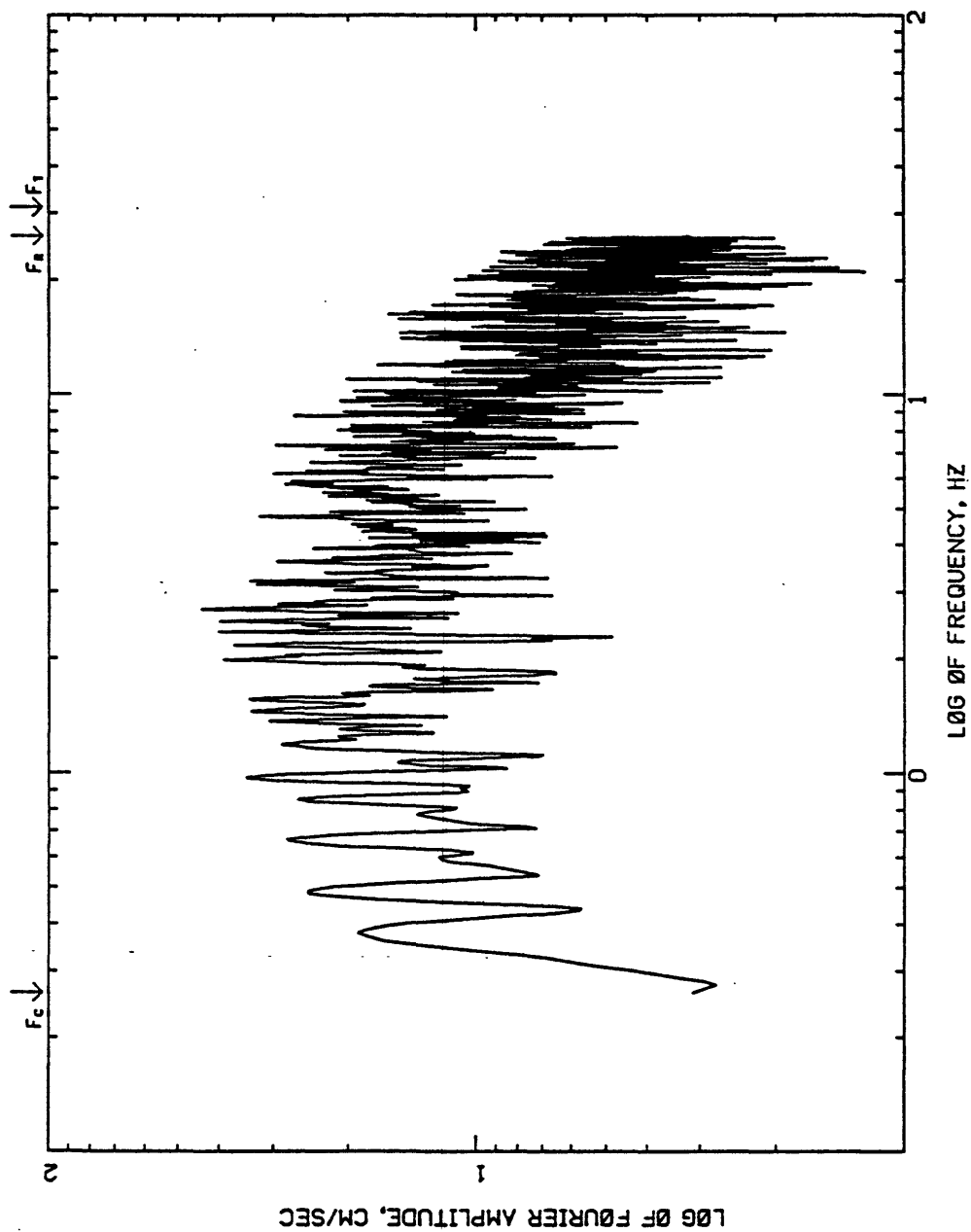
PEAK VALUES: ACCEL-87.61 CM/SEC/SEC, VELOCITY-6.06 CM/SEC, DISPL-1.71 CM



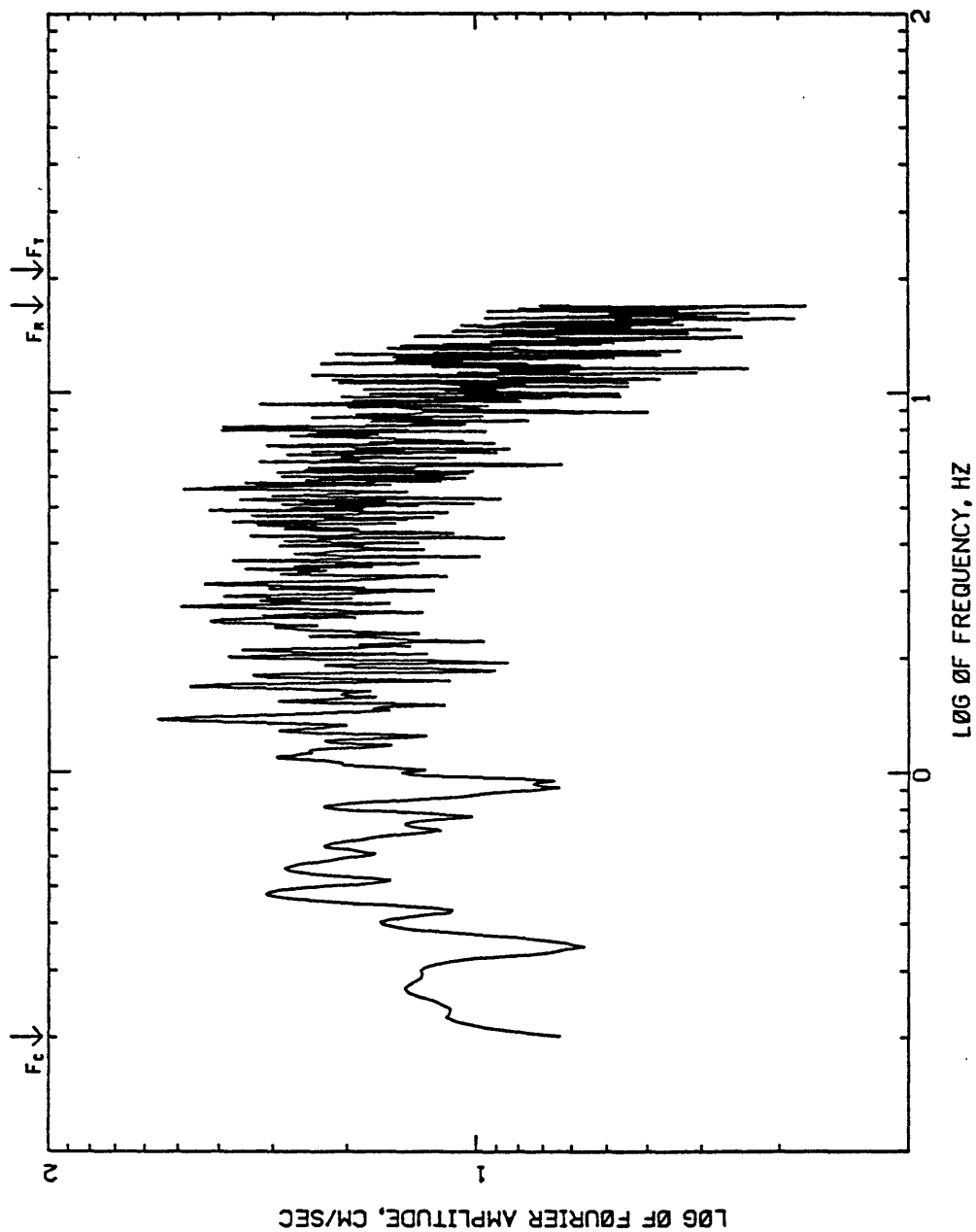
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCR055, SM00TH101, N0N0ISE



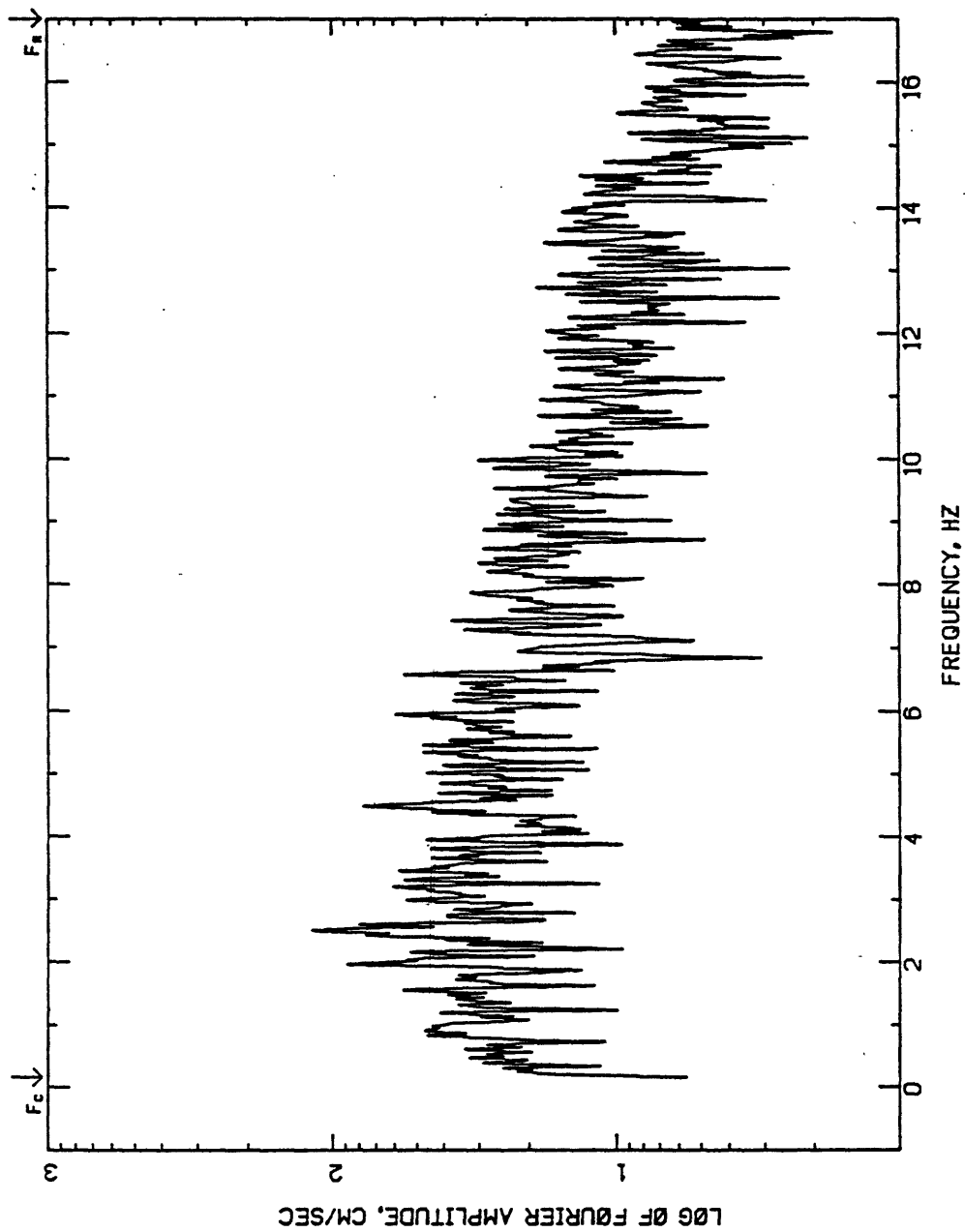
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, VERTICAL
 COMPUTING OPTIONS= ZCROSS,SMOOTH(10),NONNOISE



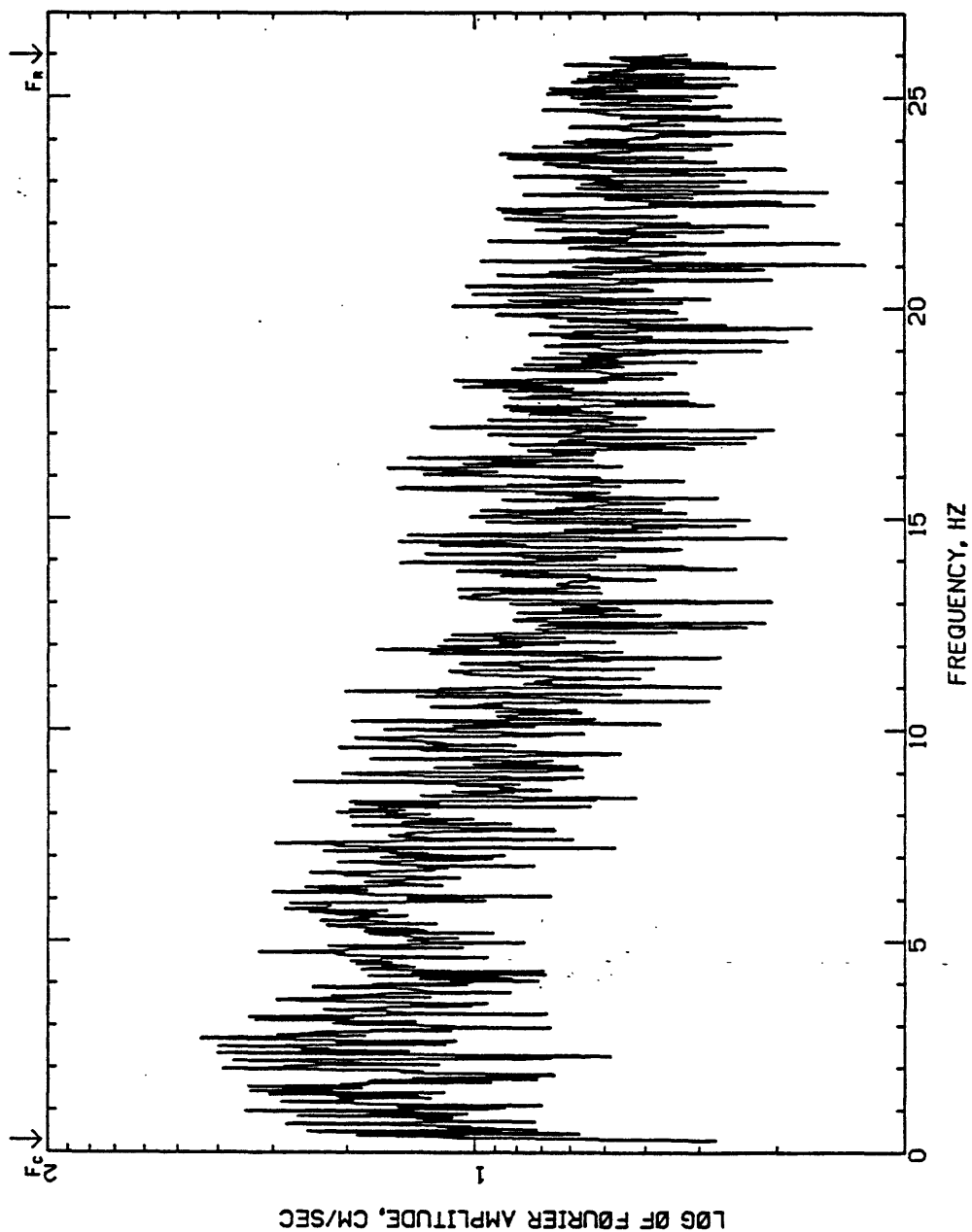
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCROSS, SMOOTH(10), NONNOISE



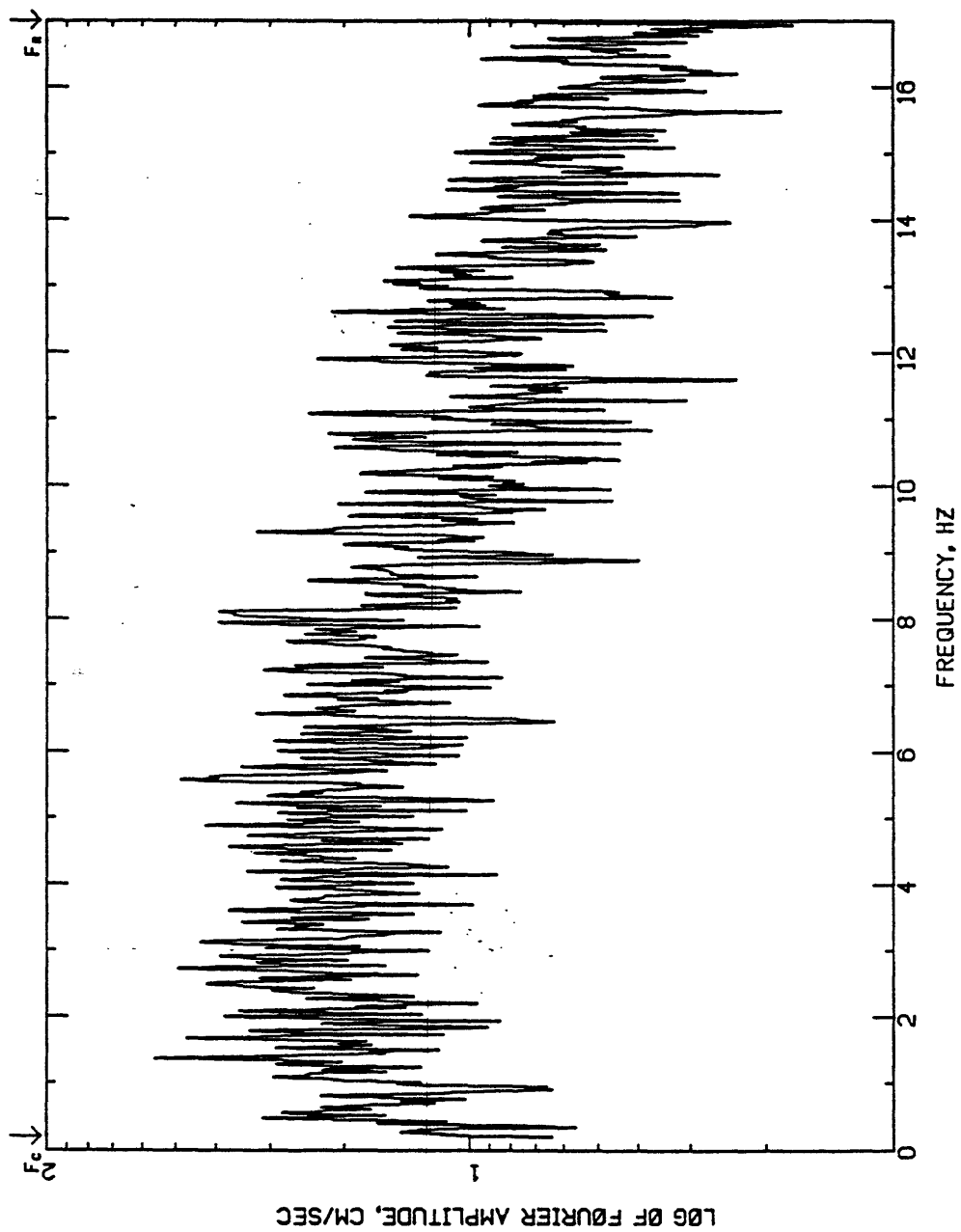
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS= ZCR055, SM00TH101, N0N0ISE



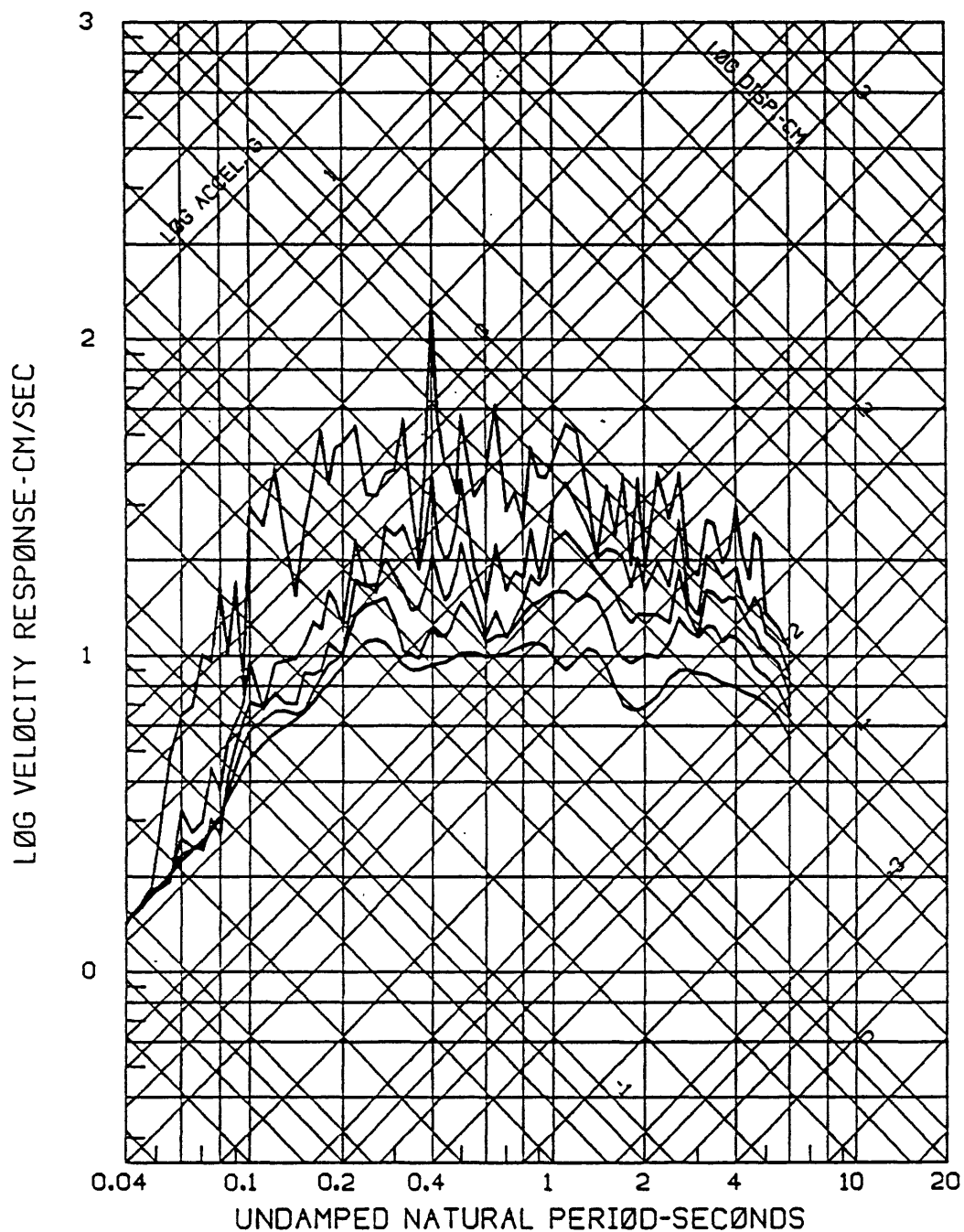
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC, MS-7.8
 RAPEL, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR0SS,SM00TH(10),N0N0ISE



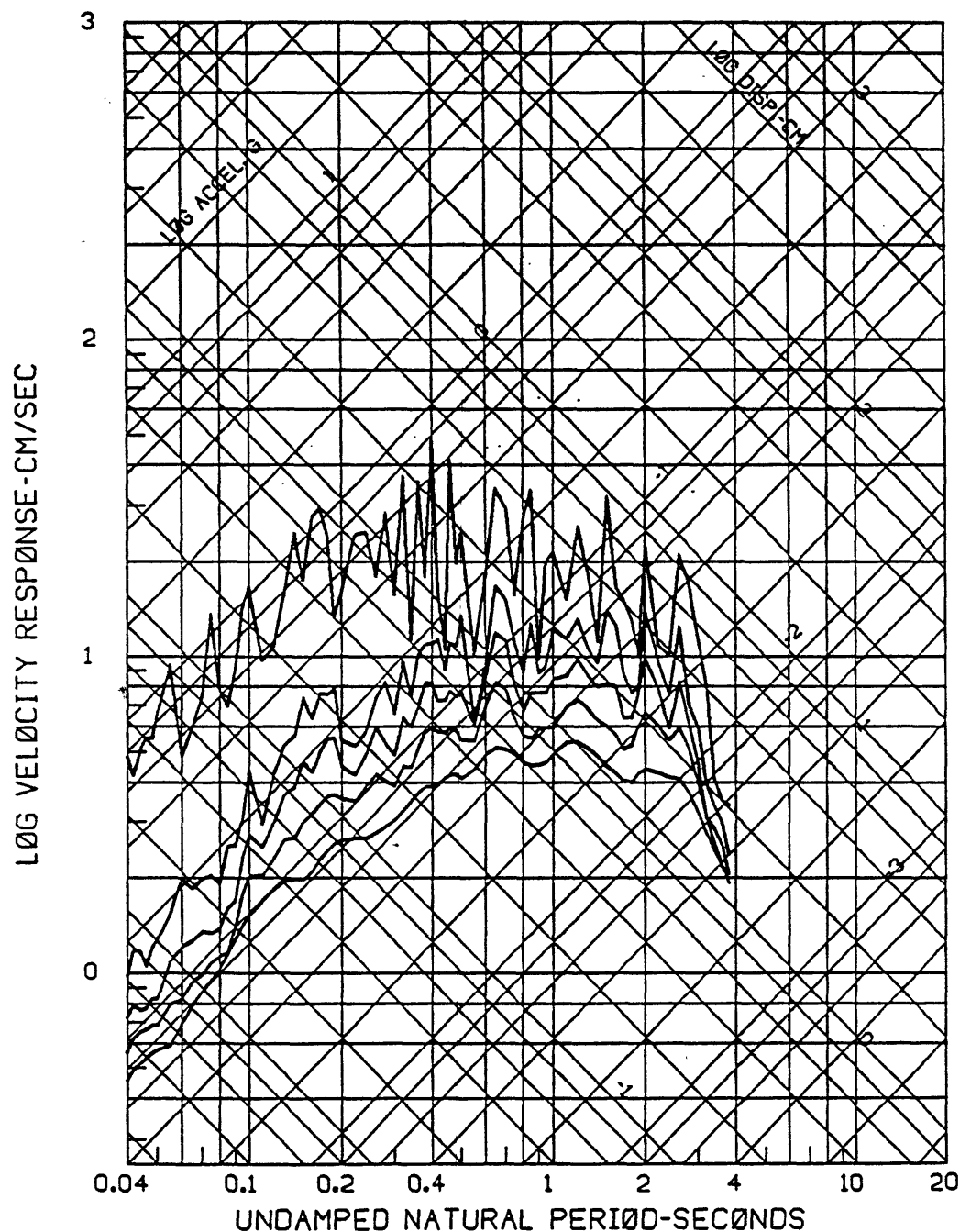
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 RAPEL CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR055, SMOOTH100, N000ISE



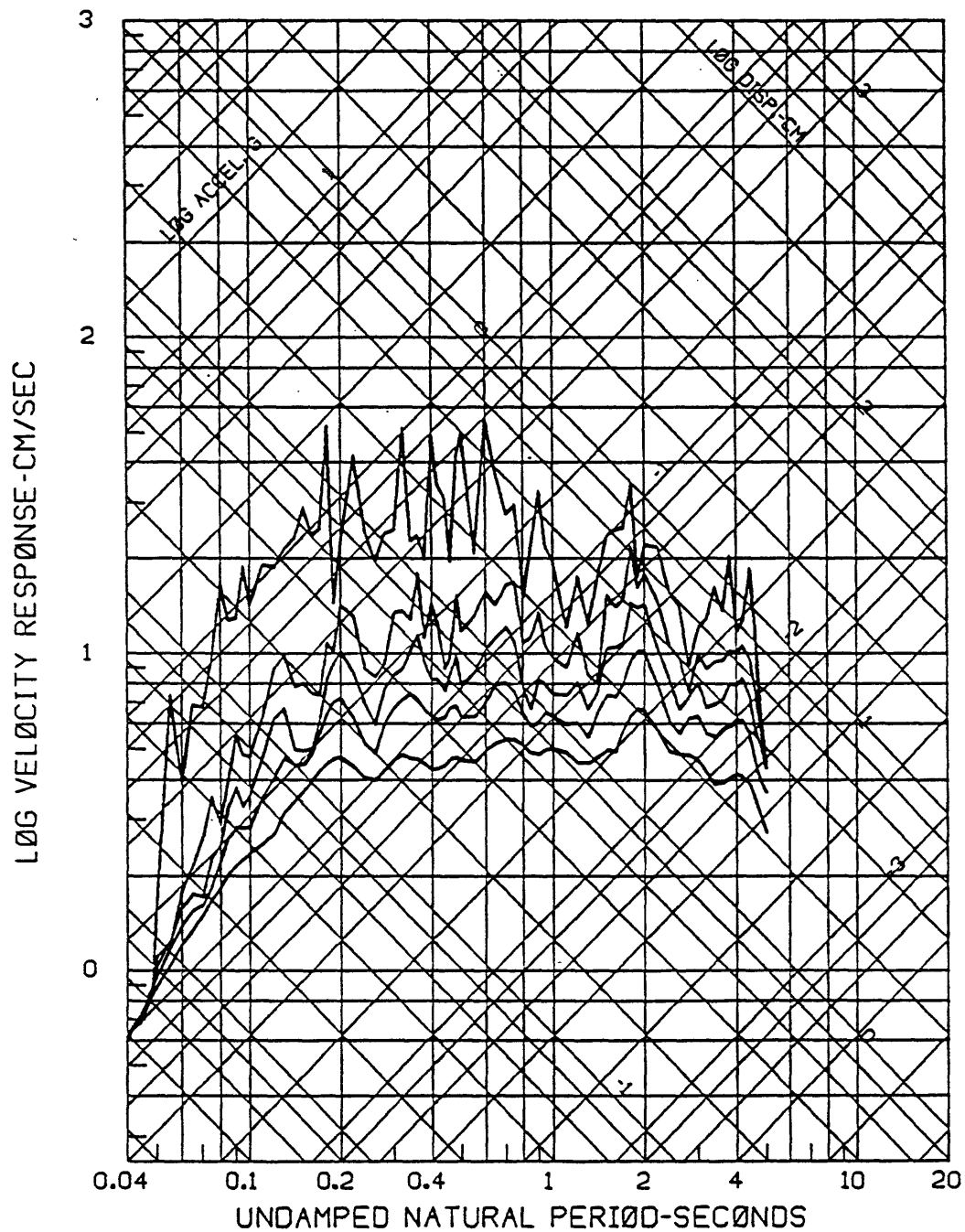
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 RAPEL, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



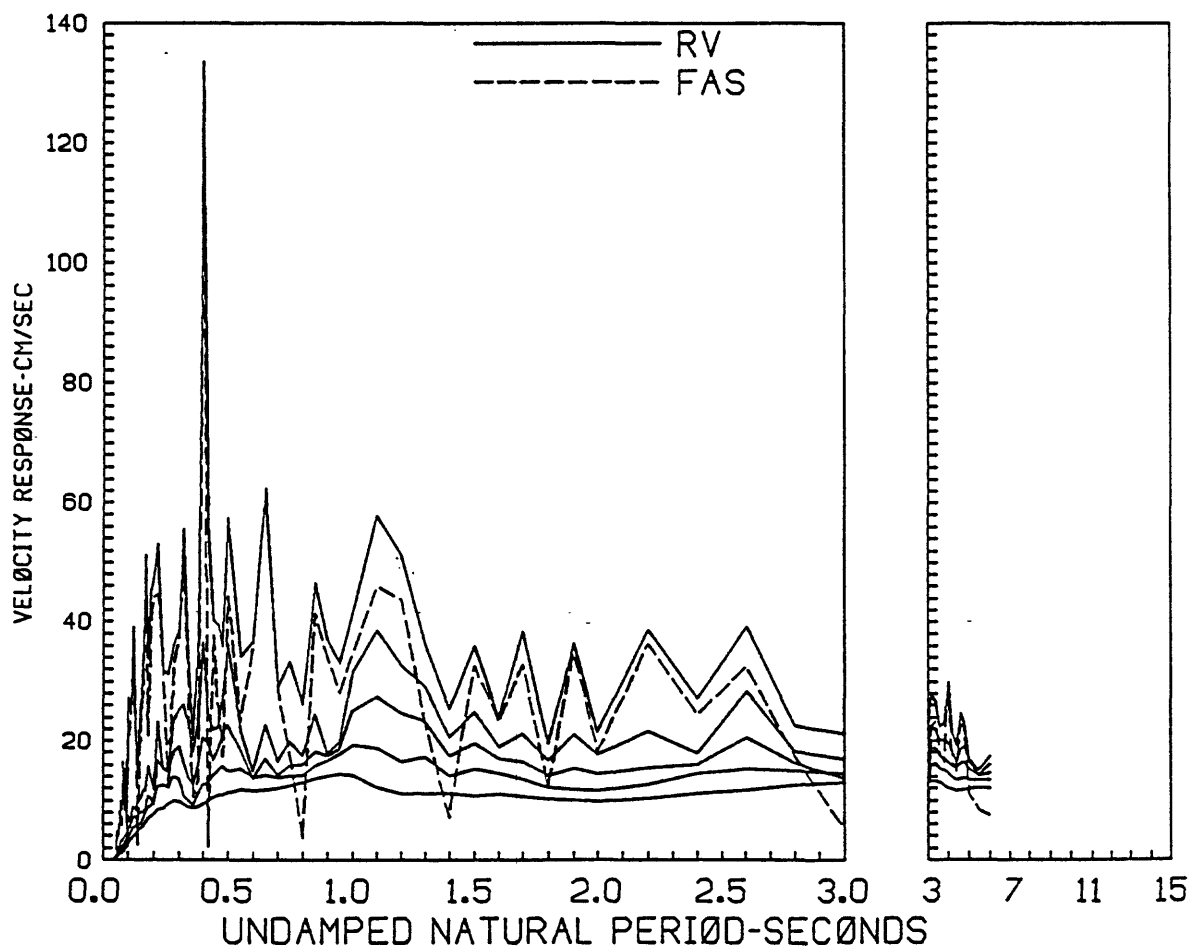
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 RAPEL, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



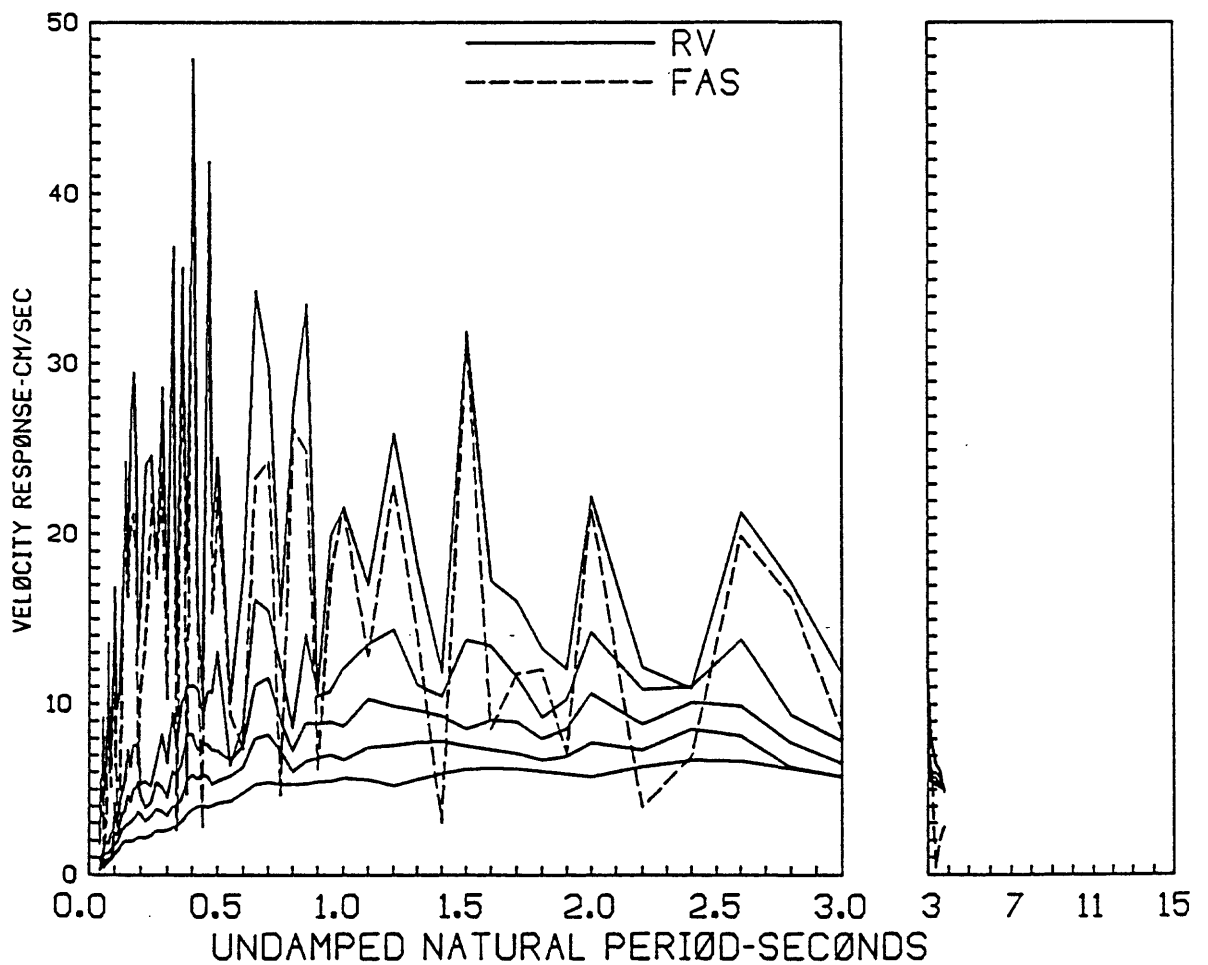
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 RAPEL, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



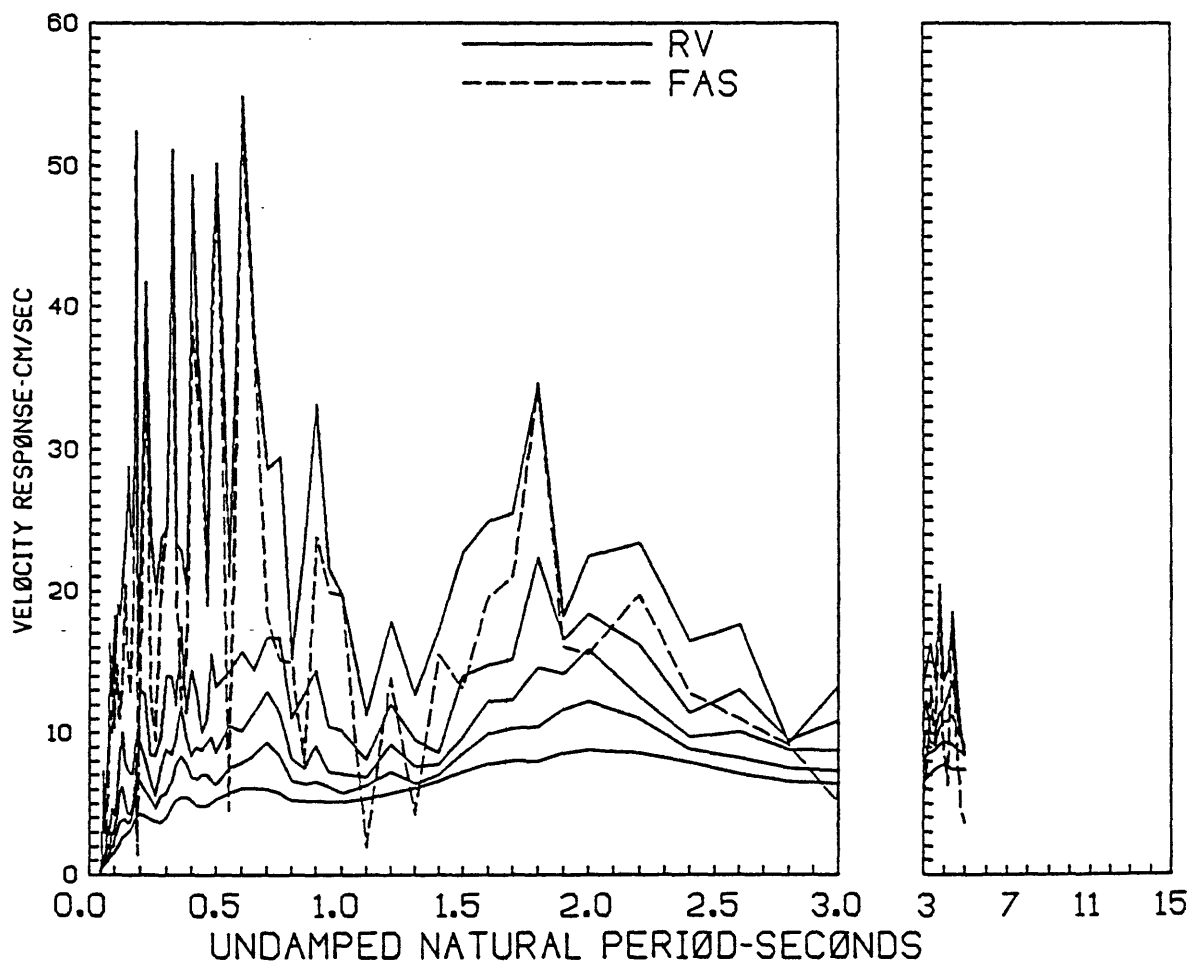
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 RAPEL, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 RAPEL, CHILE, VERTICAL
 0.2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 RAPEL, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

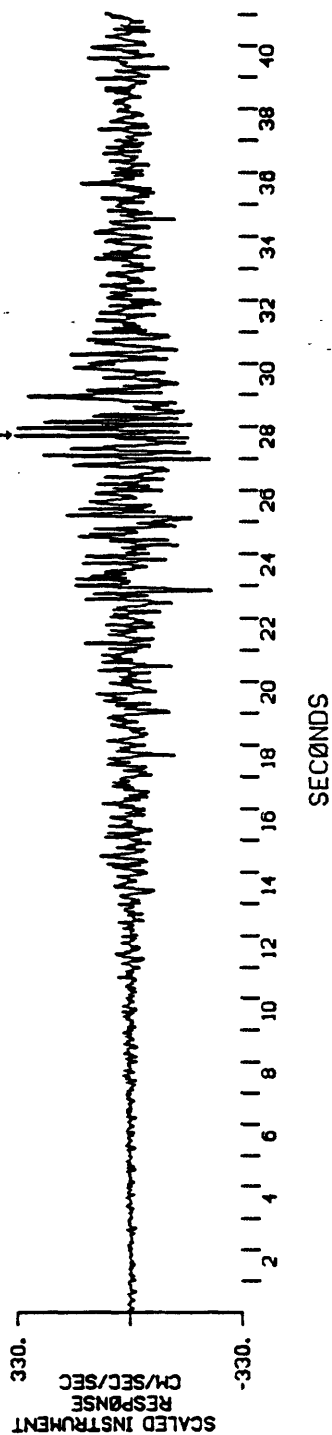
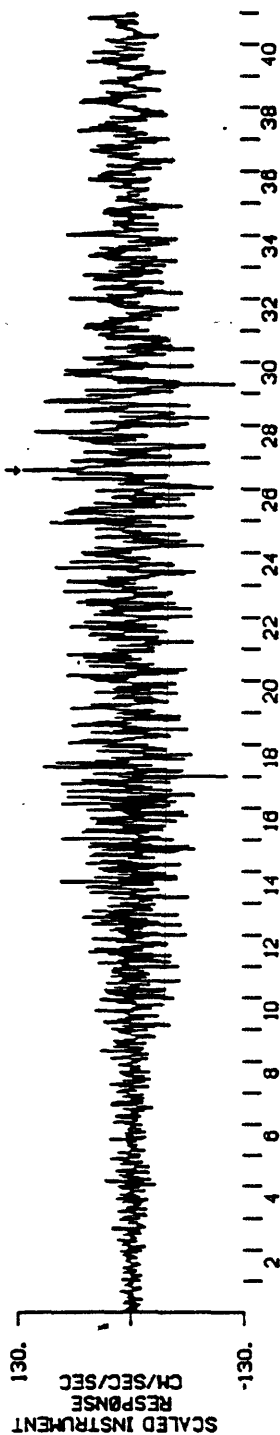
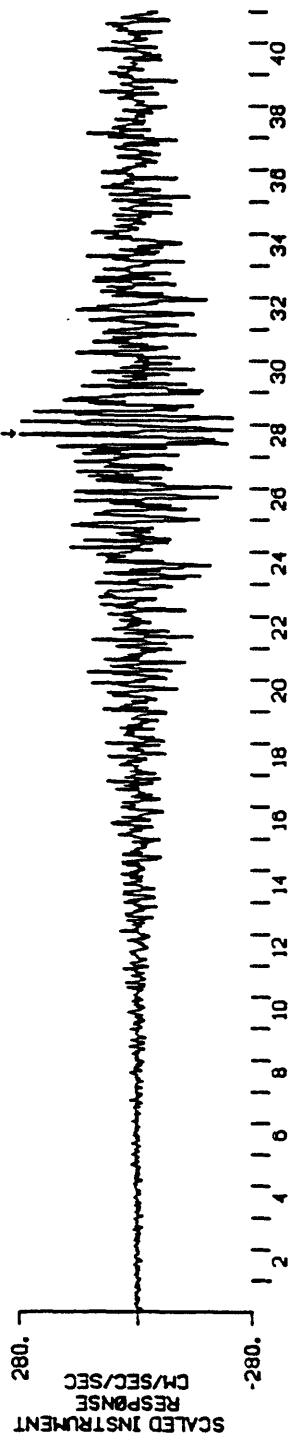
Central Chile earthquake, 3/3/85

22:47:07 UTC, $M_s=7.8$

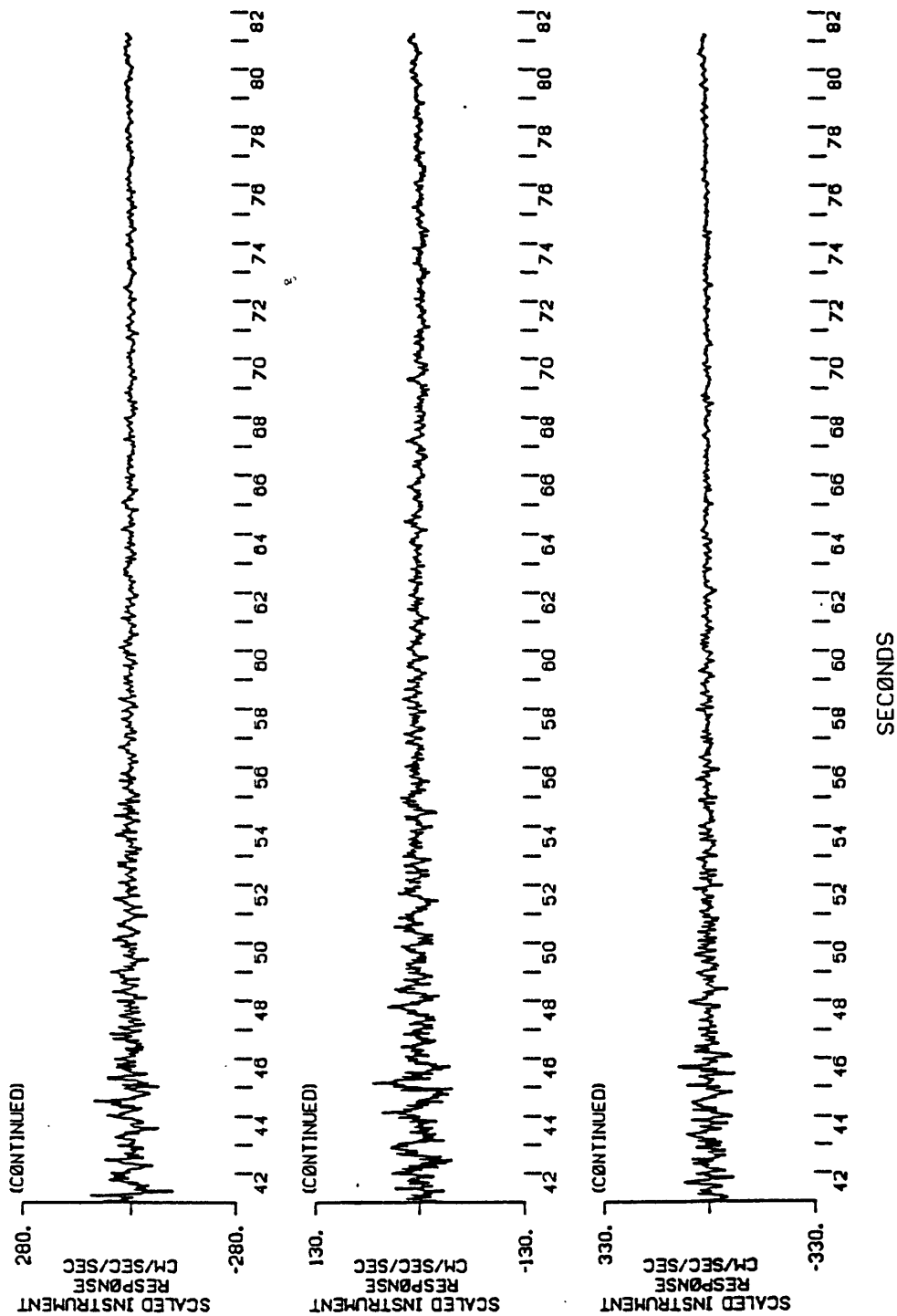
San Fernando, Chile

DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.9	27.7	25.6
Damping (% Critical)	67.4	60.8	63.8
<u>Filter Parameters:</u>			
Highcut (Hz)	23.0	37.0	22.0
Lowcut (Hz)	0.250	0.333	0.196
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	275.1	121.2	329.8
Peak Acceleration, A (cm/s/s)	285.1	119.1	332.8
Peak Velocity, V (cm/s)	24.5	9.03	-23.9
Peak Displacement, D (cm)	-4.23	2.02	-5.51
<u>Parameter Ratios:</u>			
$ V/A $ (sec)	0.086	0.076	0.072
$ AD/V^2 $	2.0	3.0	3.2

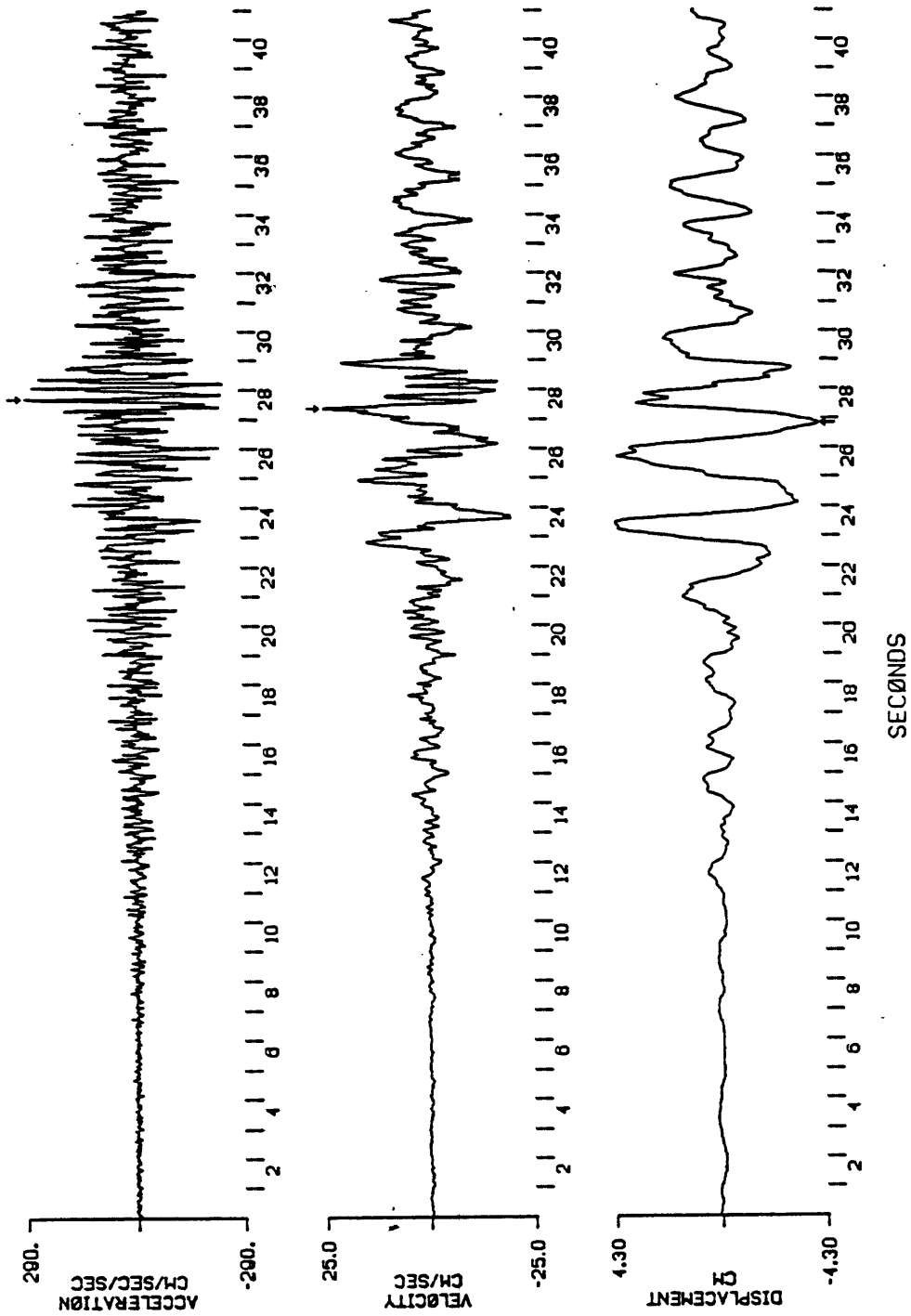
UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, NORTH-SOUTH, VERTICAL, 329.75
 PEAK VALUES(CM/SEC): 275.09 121.21



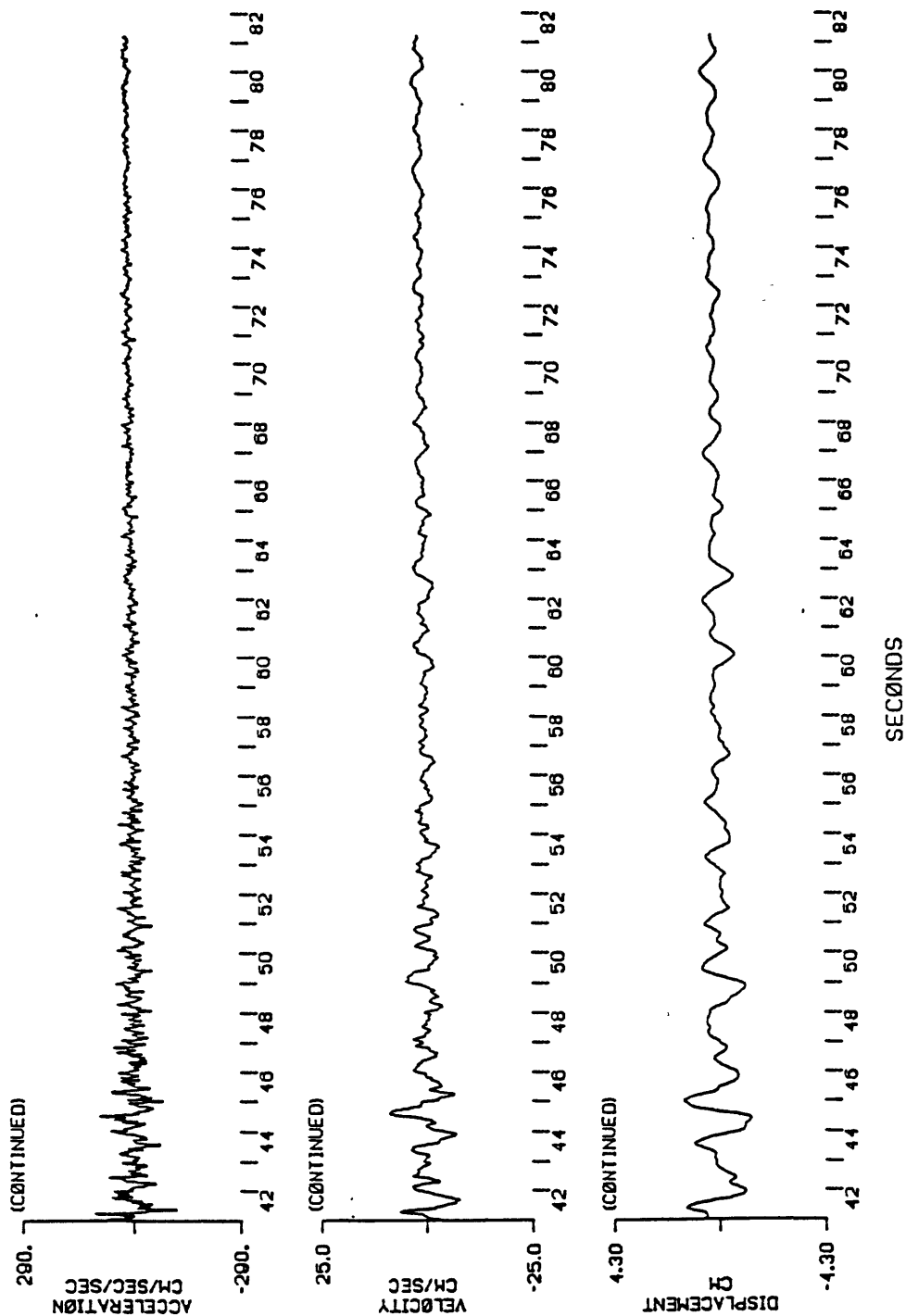
UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): 275.09 121.21 329.75



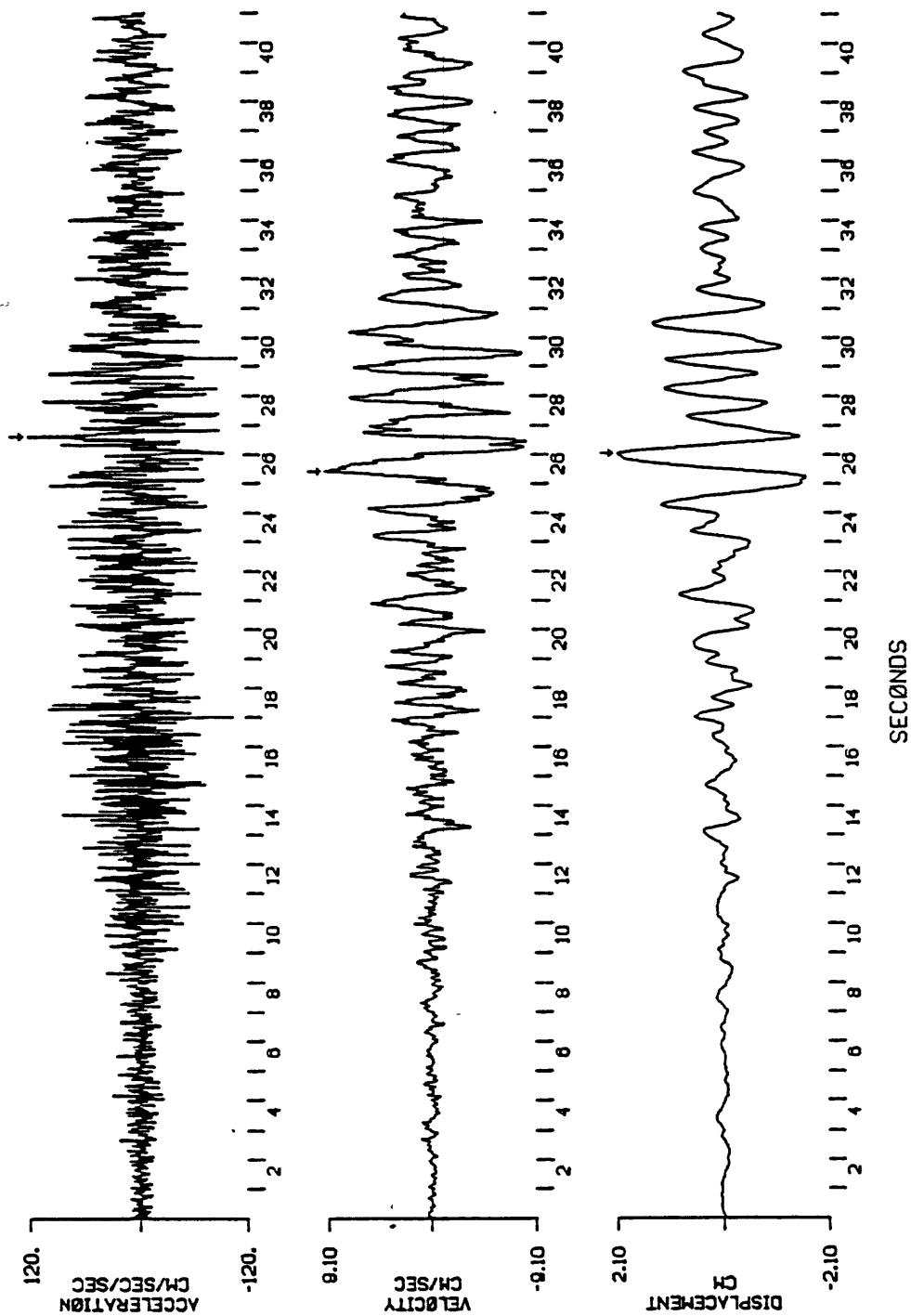
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 CENTRAL SAN FERNANDO, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL=285.08 CM/SEC/SEC, VELOCITY=24.50 CM/SEC, DISPL=-4.23 CM



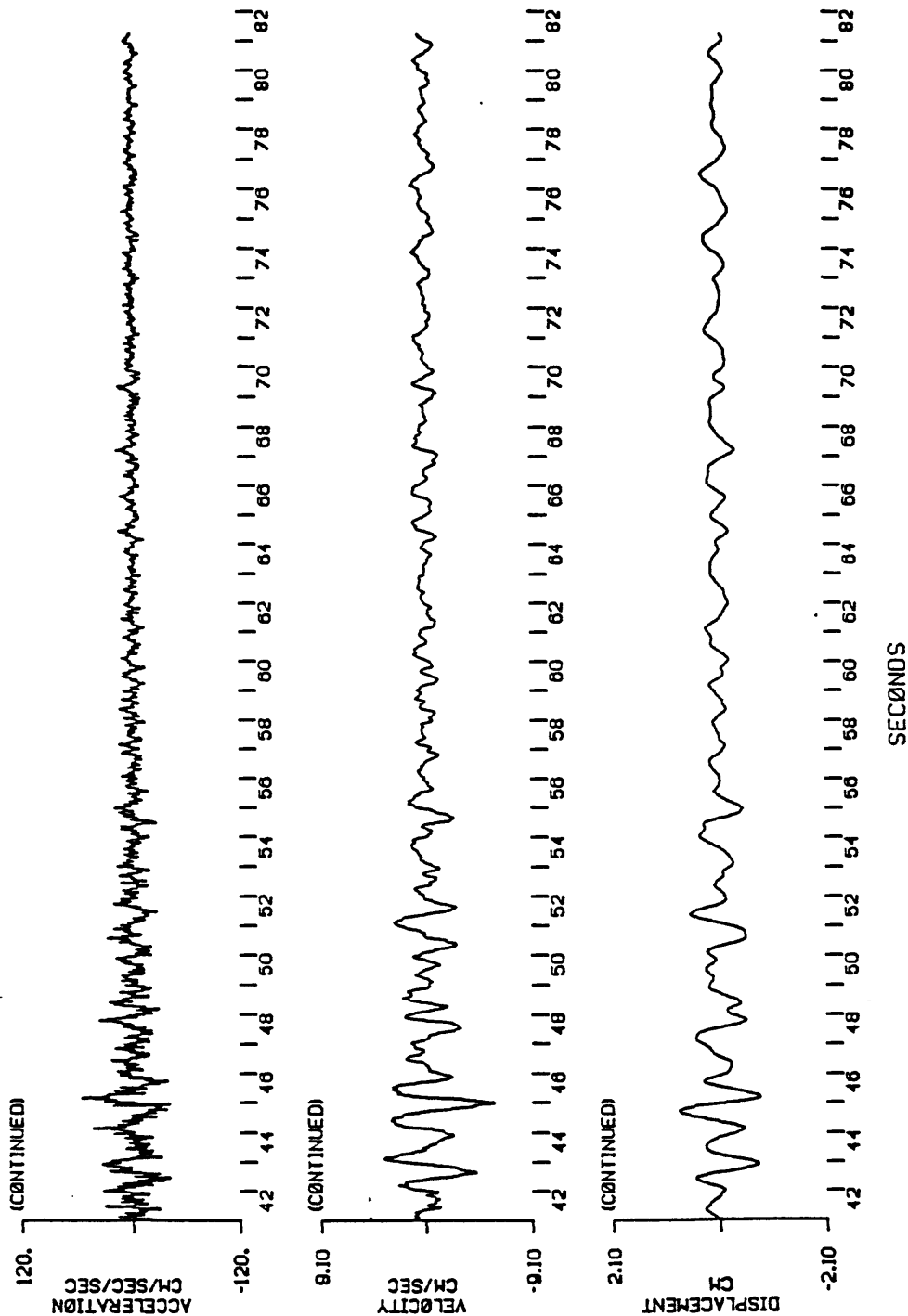
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, NORTH-SOUTH
 PEAK VALUES: ACCEL-285.08 CM/SEC/SEC, VELOCITY-24.50 CM/SEC, DISPL-4.23 CM



CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, VERTICAL
 PEAK VALUES: ACCEL-119.07 CM/SEC/SEC, VELOCITY-9.03 CM/SEC, DISPL-2.02 CM

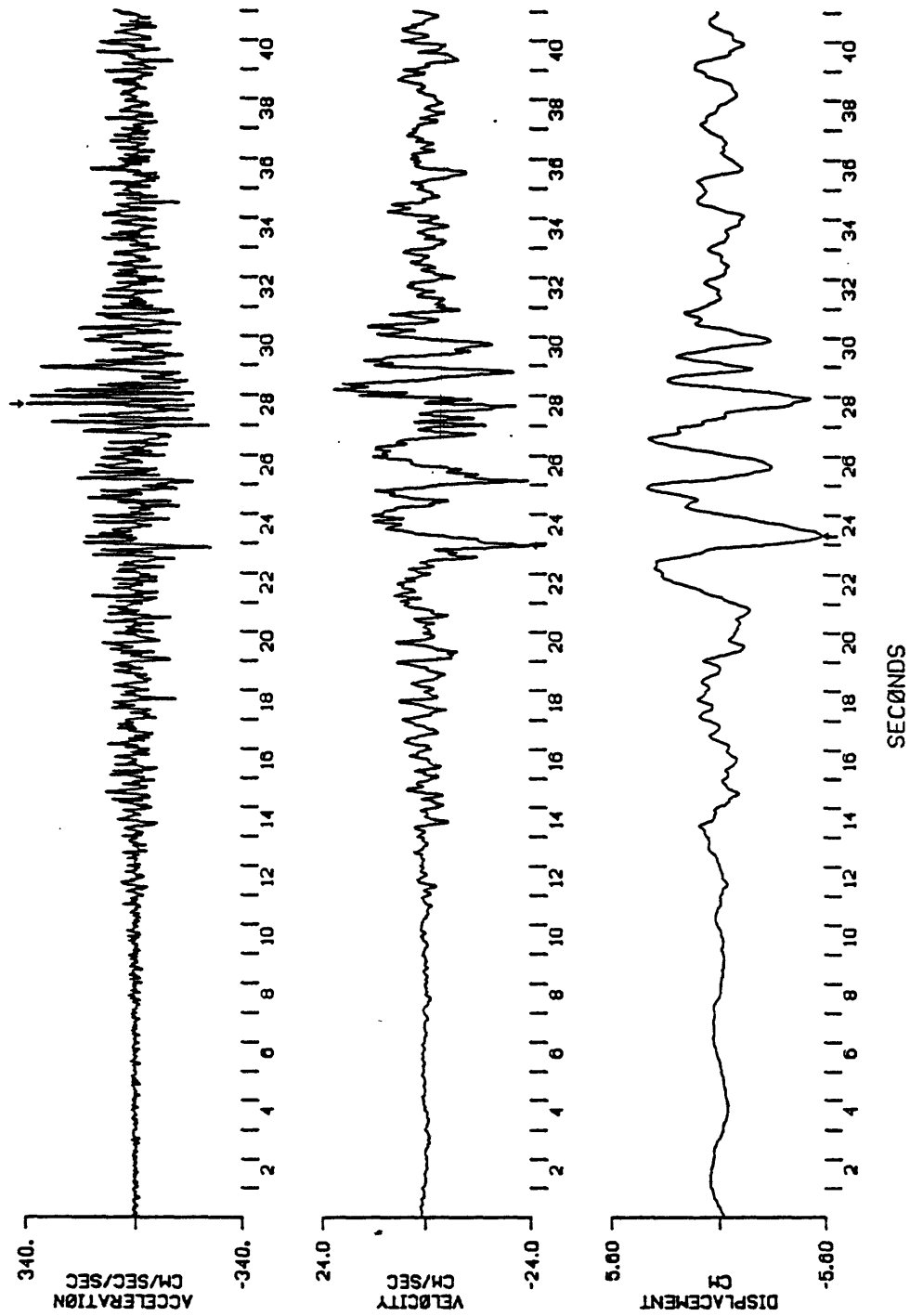


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, VERTICAL
 PEAK VALUES: ACCEL -119.07 CM/SEC/SEC, VELOCITY -9.03 CM/SEC, DISPL -2.02 CM



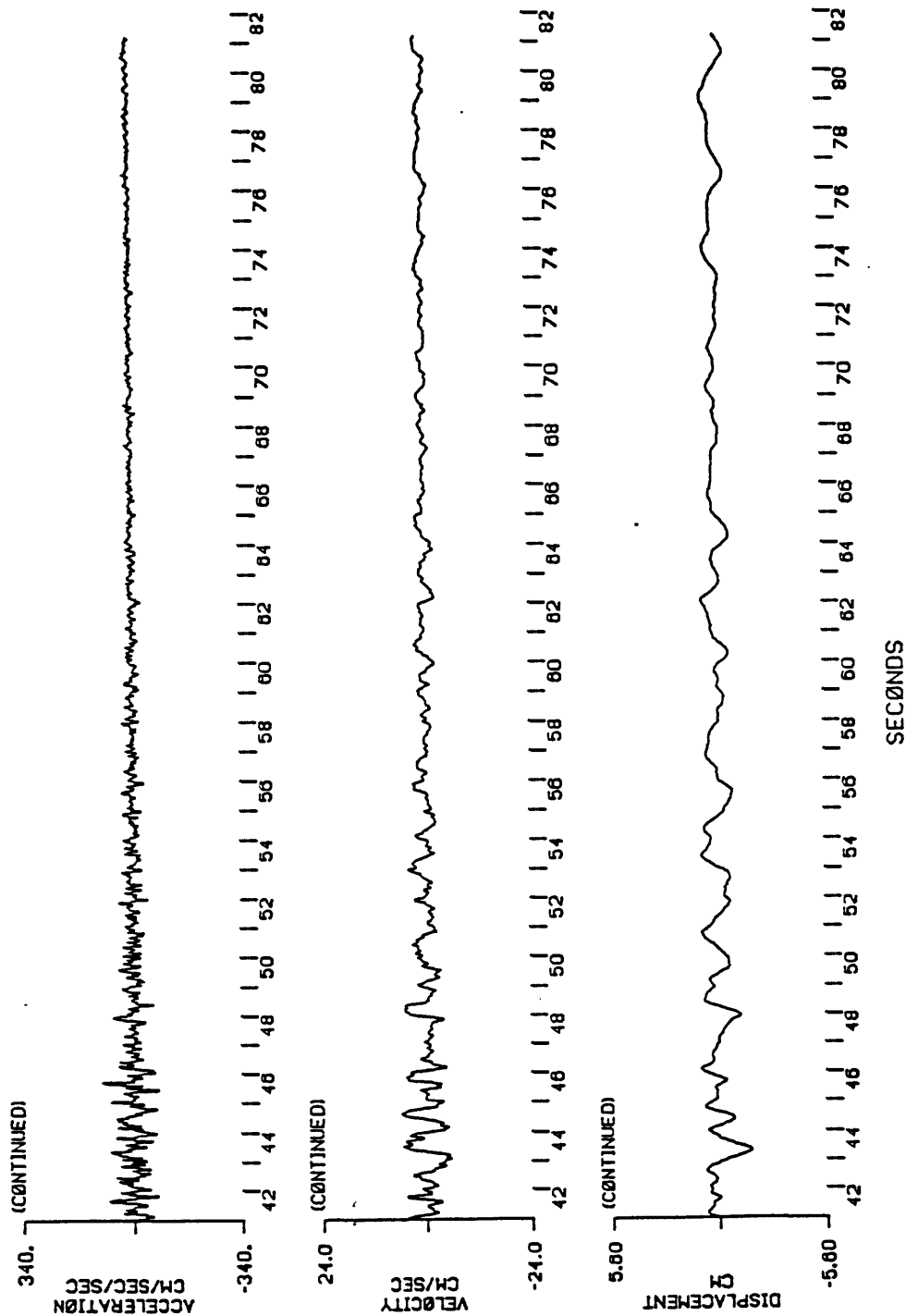
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC MS-7.8
 SAN FERNANDO, CHILE, EAST-WEST

PEAK VALUES: ACCEL--332.76 CM/SEC/SEC, VELOCITY--23.90 CM/SEC, DISPL--5.51 CM

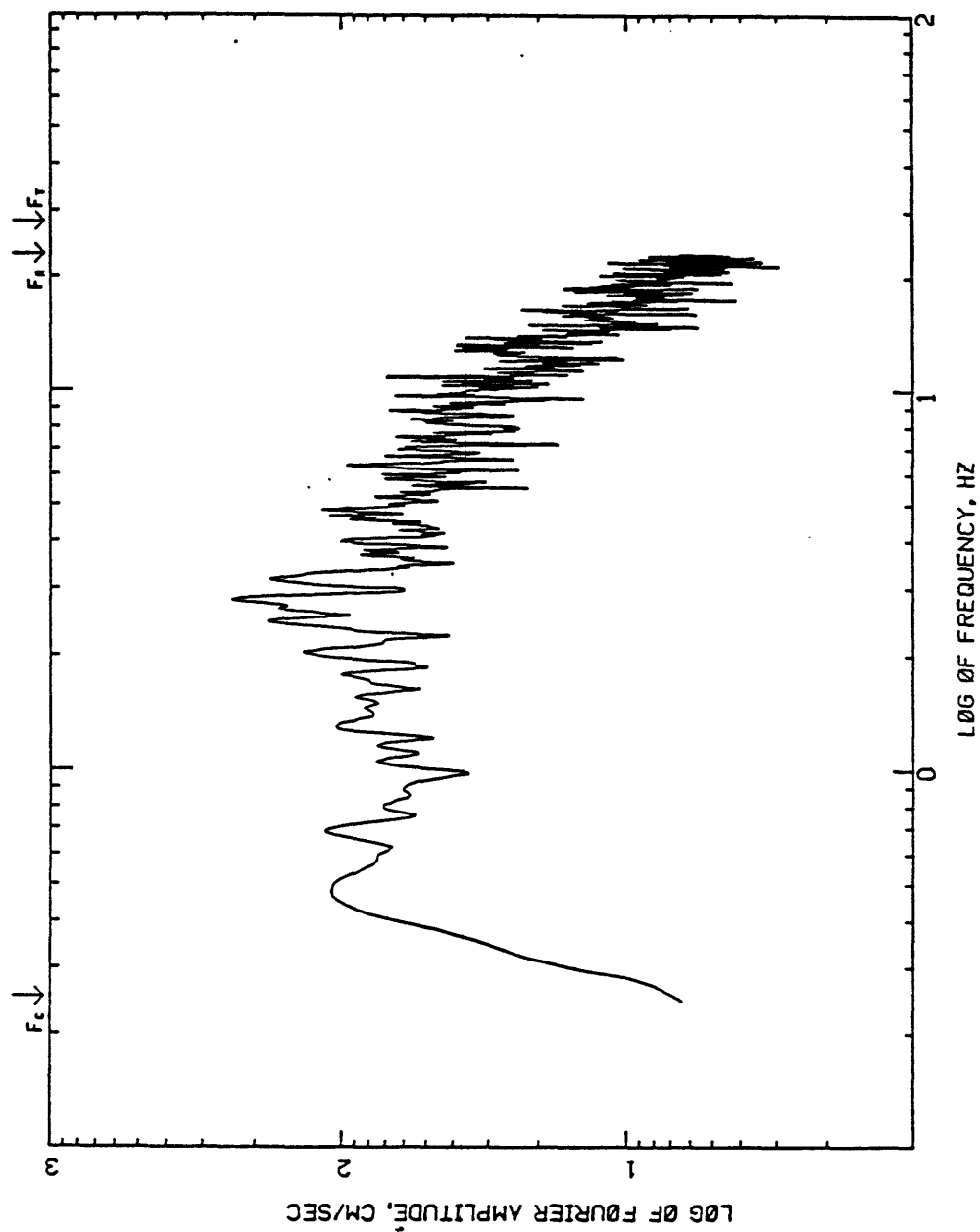


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, EAST-WEST

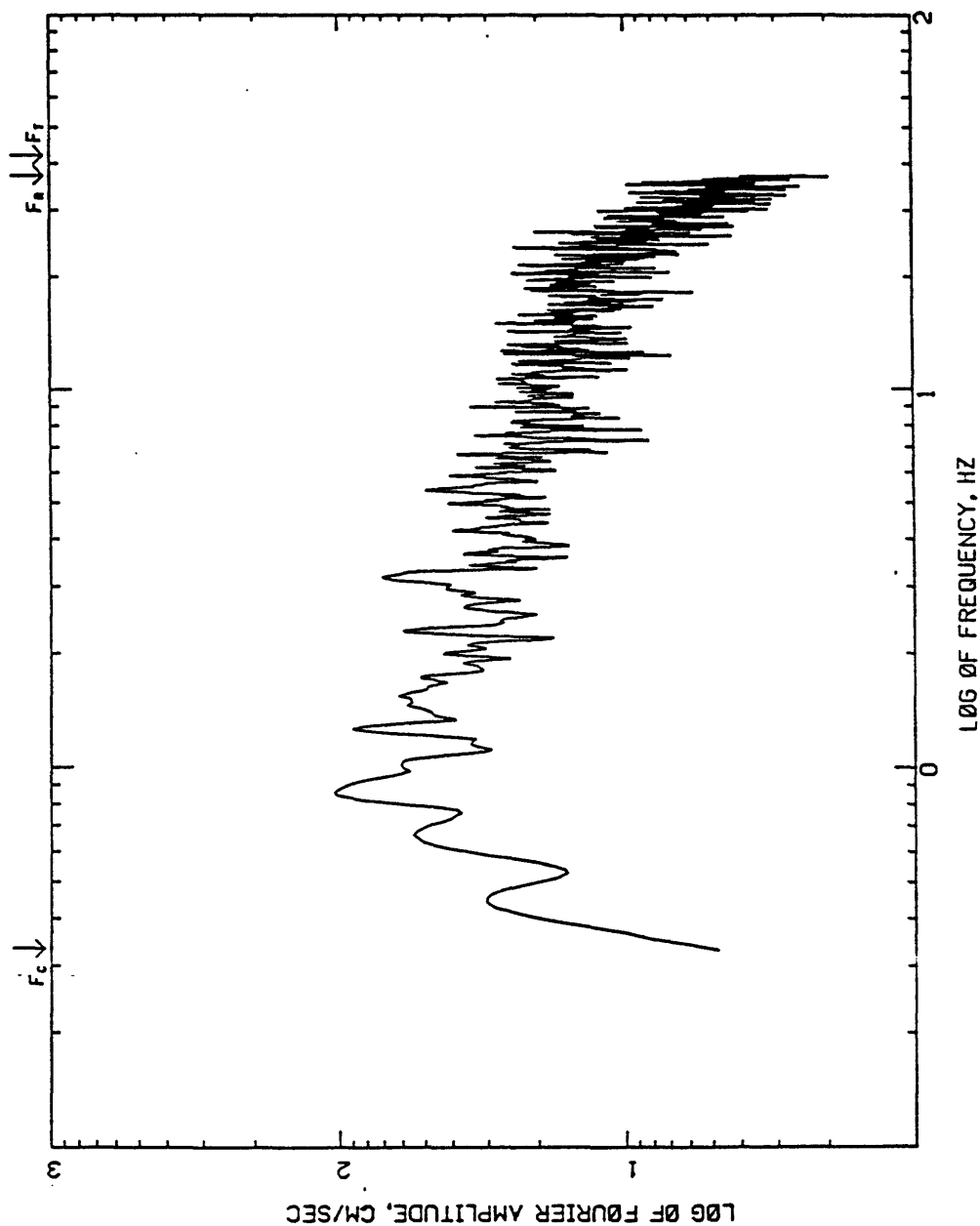
PEAK VALUES: ACCEL--332.76 CM/SEC/SEC, VELOCITY--23.90 CM/SEC, DISPL--5.51 CM



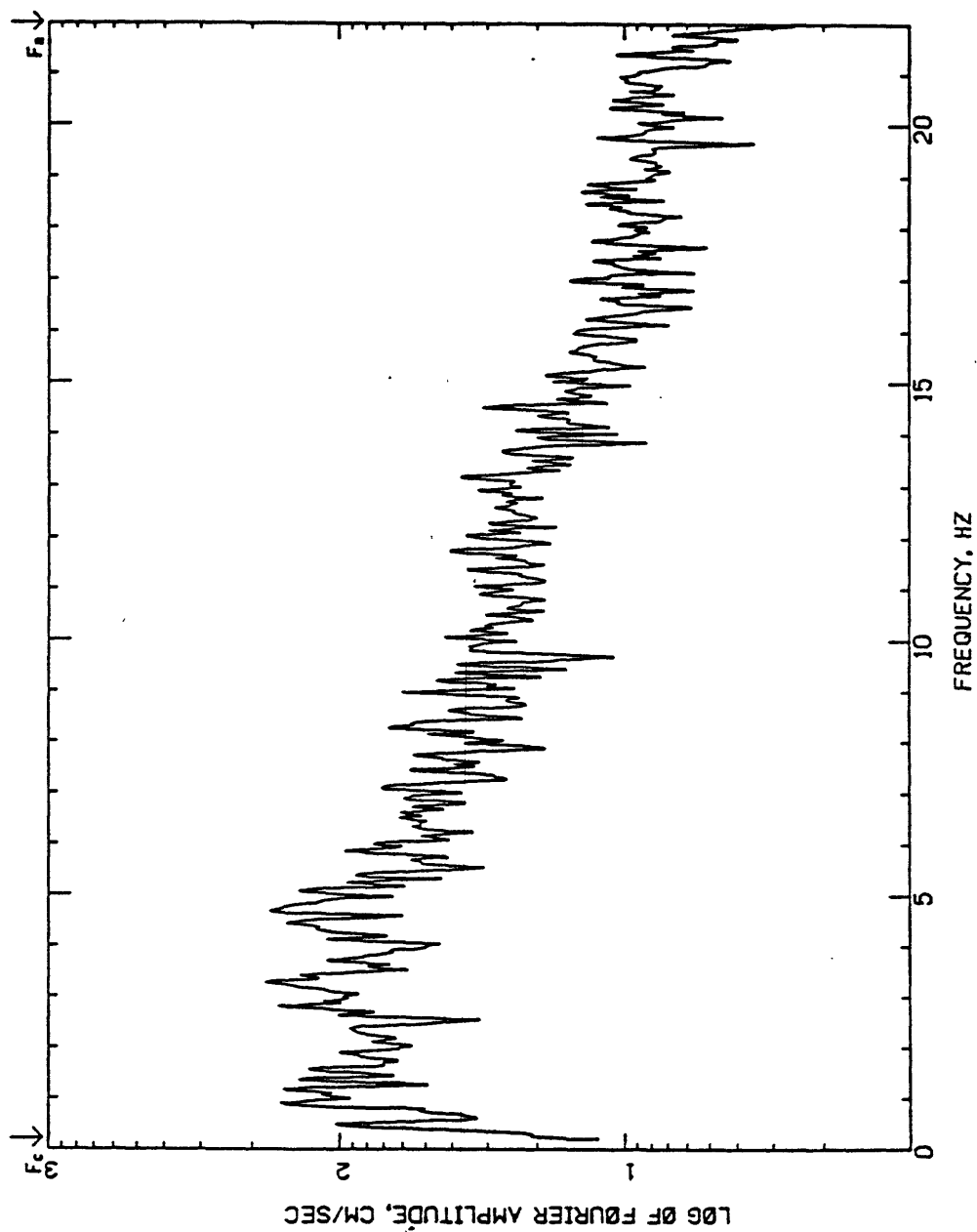
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS: ZCR055, SMOOTH10, N00ISE



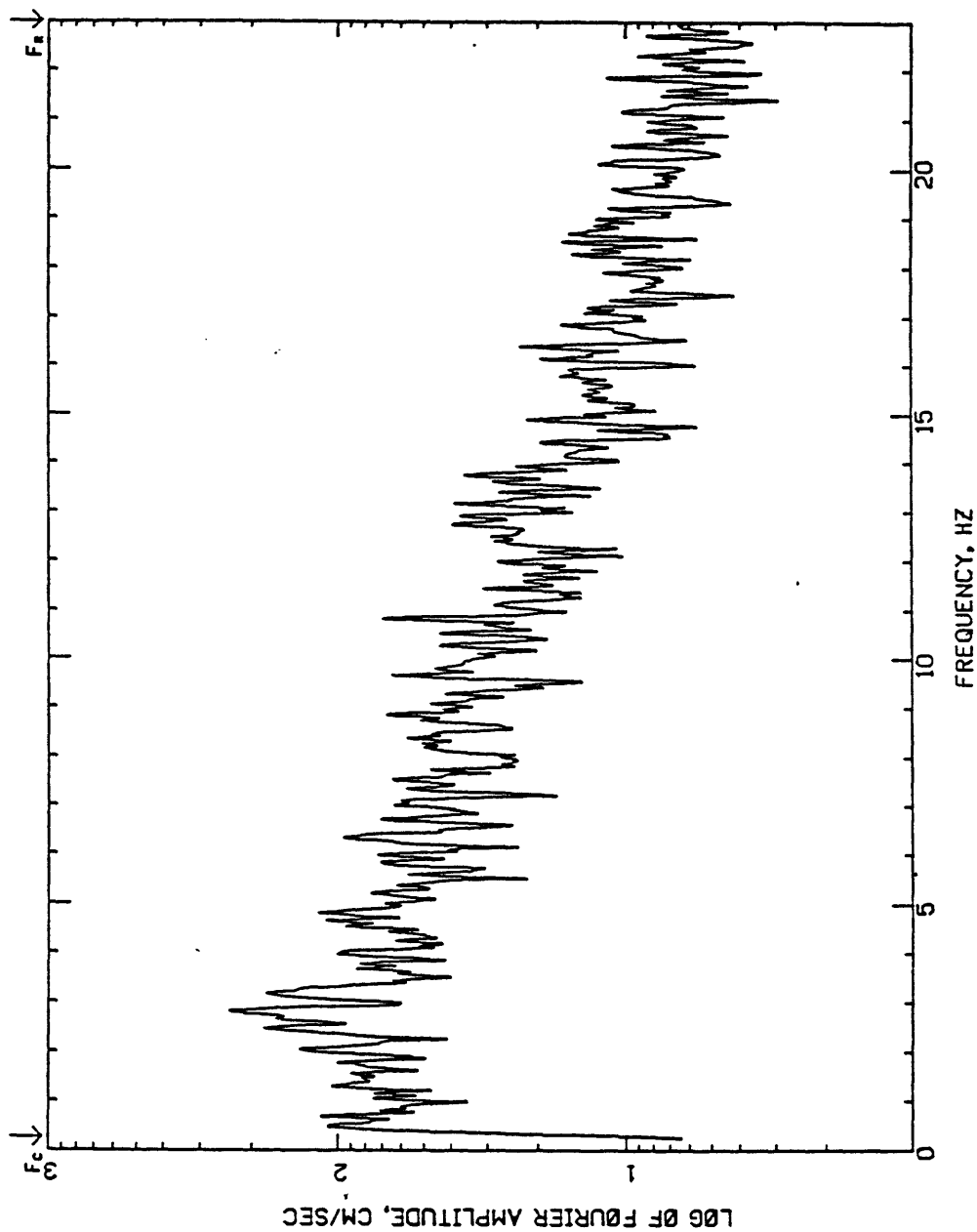
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055,SH00TH101,N0N0ISE



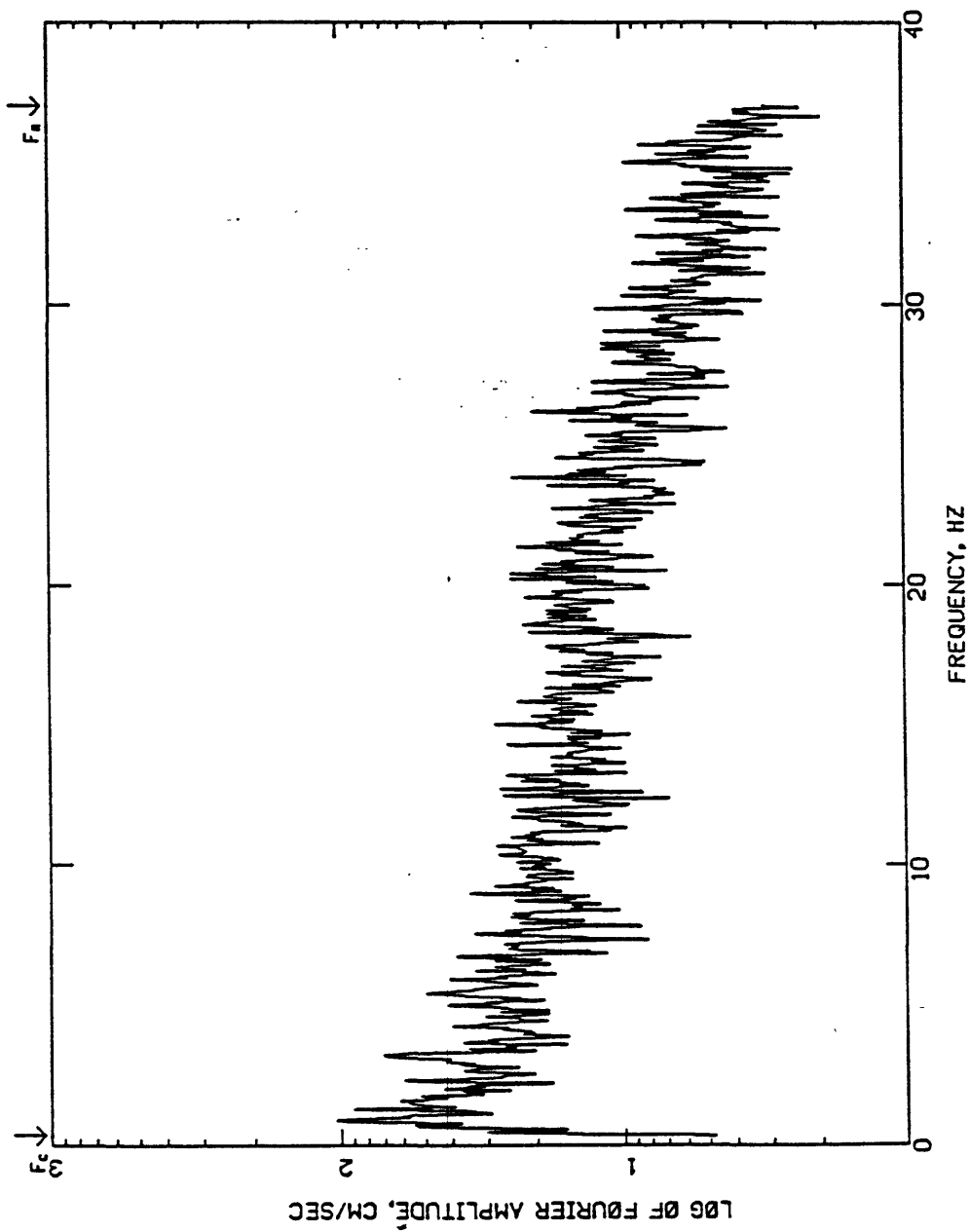
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR0SS,SM00TH101,N0N0ISE



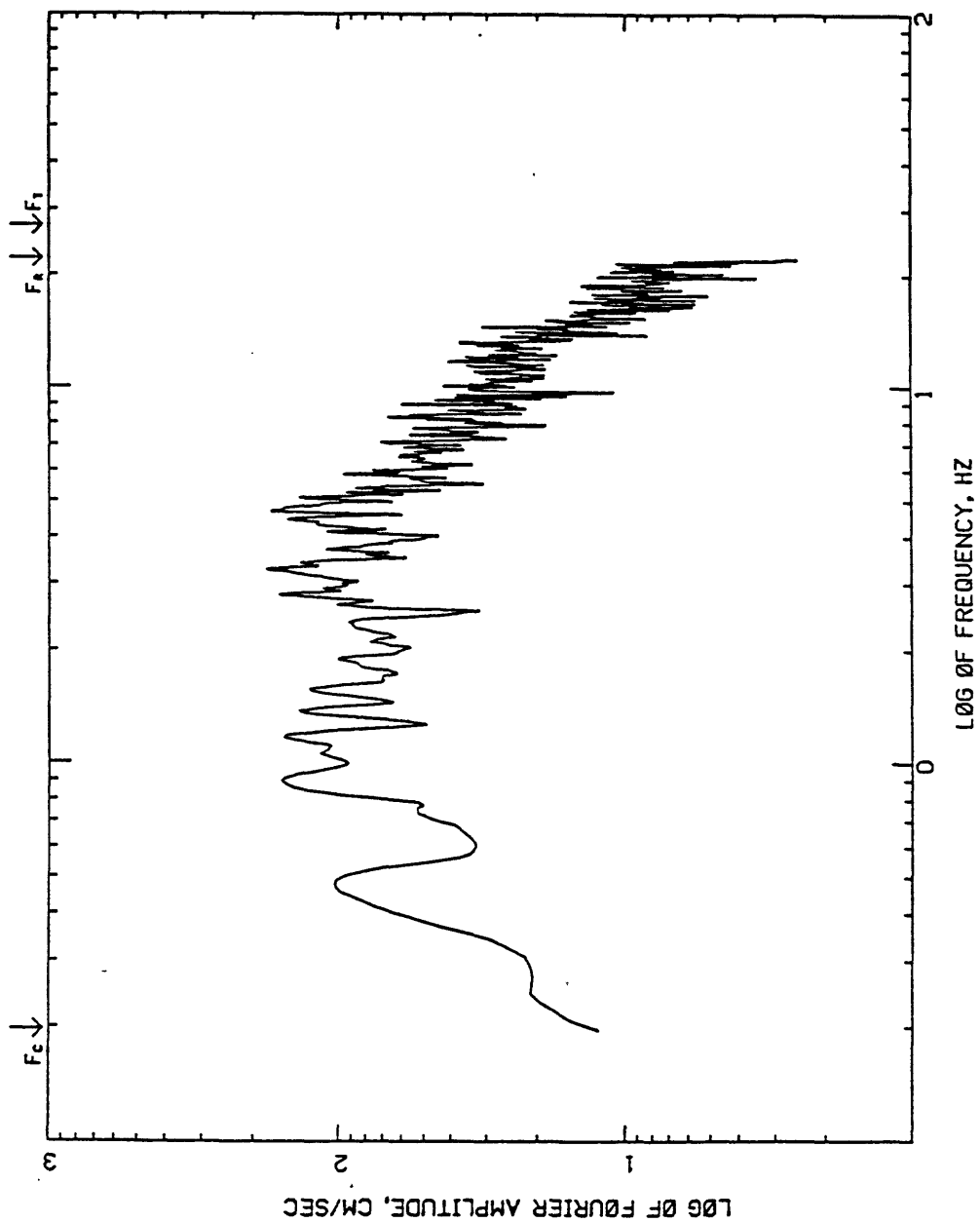
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCR0SS, SM00TH100, N0N0ISE



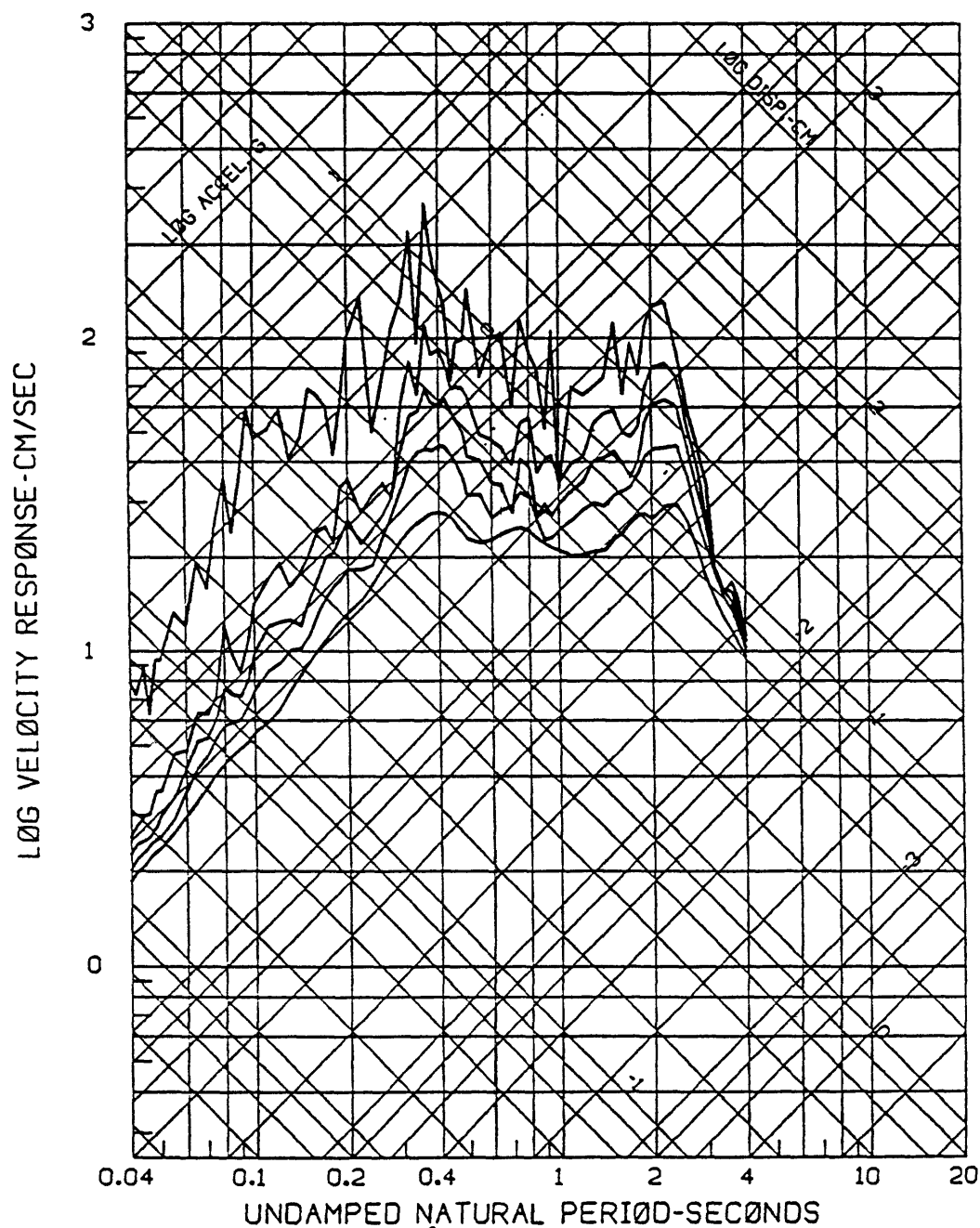
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SMOOTHJOI, N00ISE



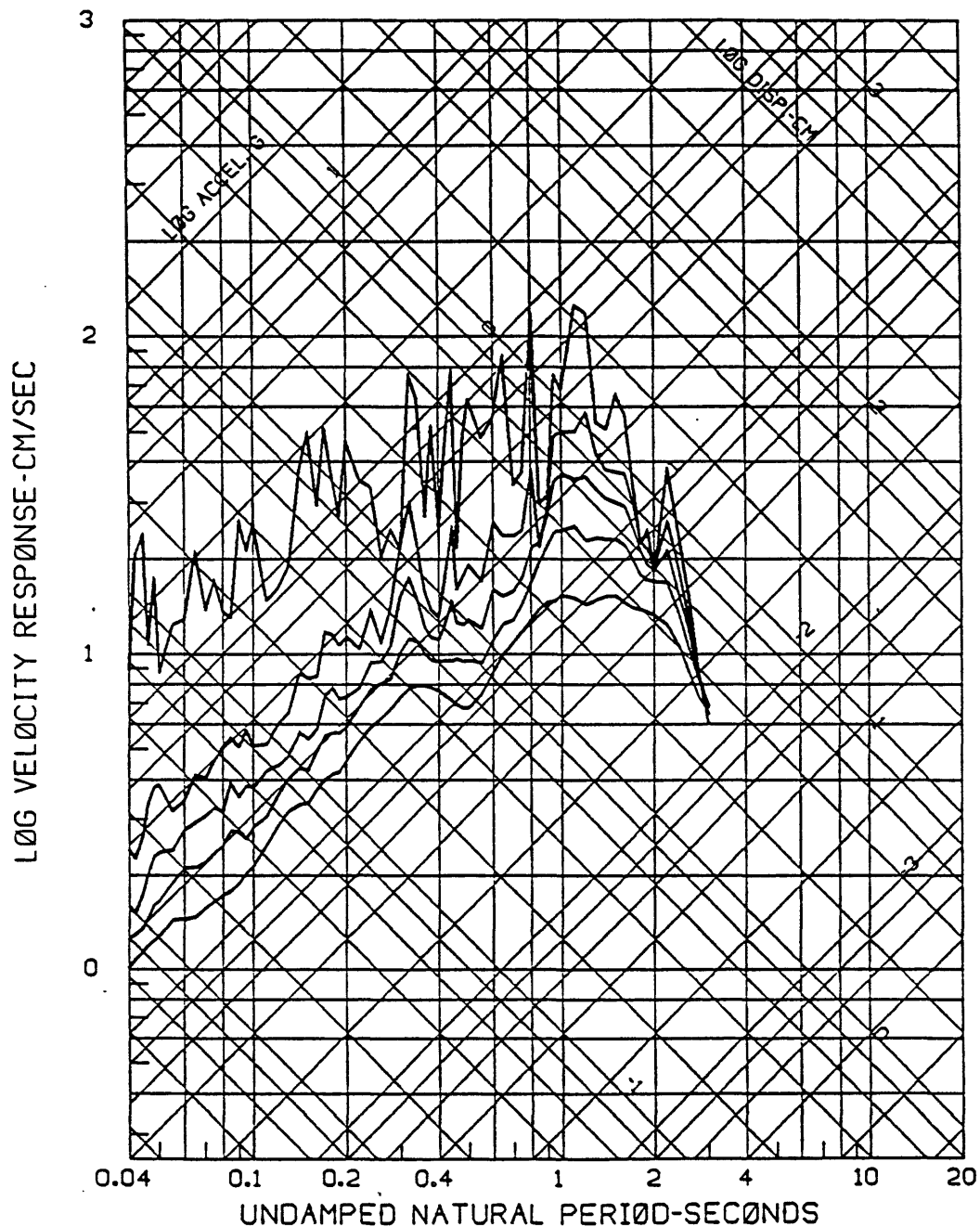
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN FERNANDO, CHILE EAST-WEST
 COMPUTING OPTIONS- ZCR055, SMOOTH10, N00ISE



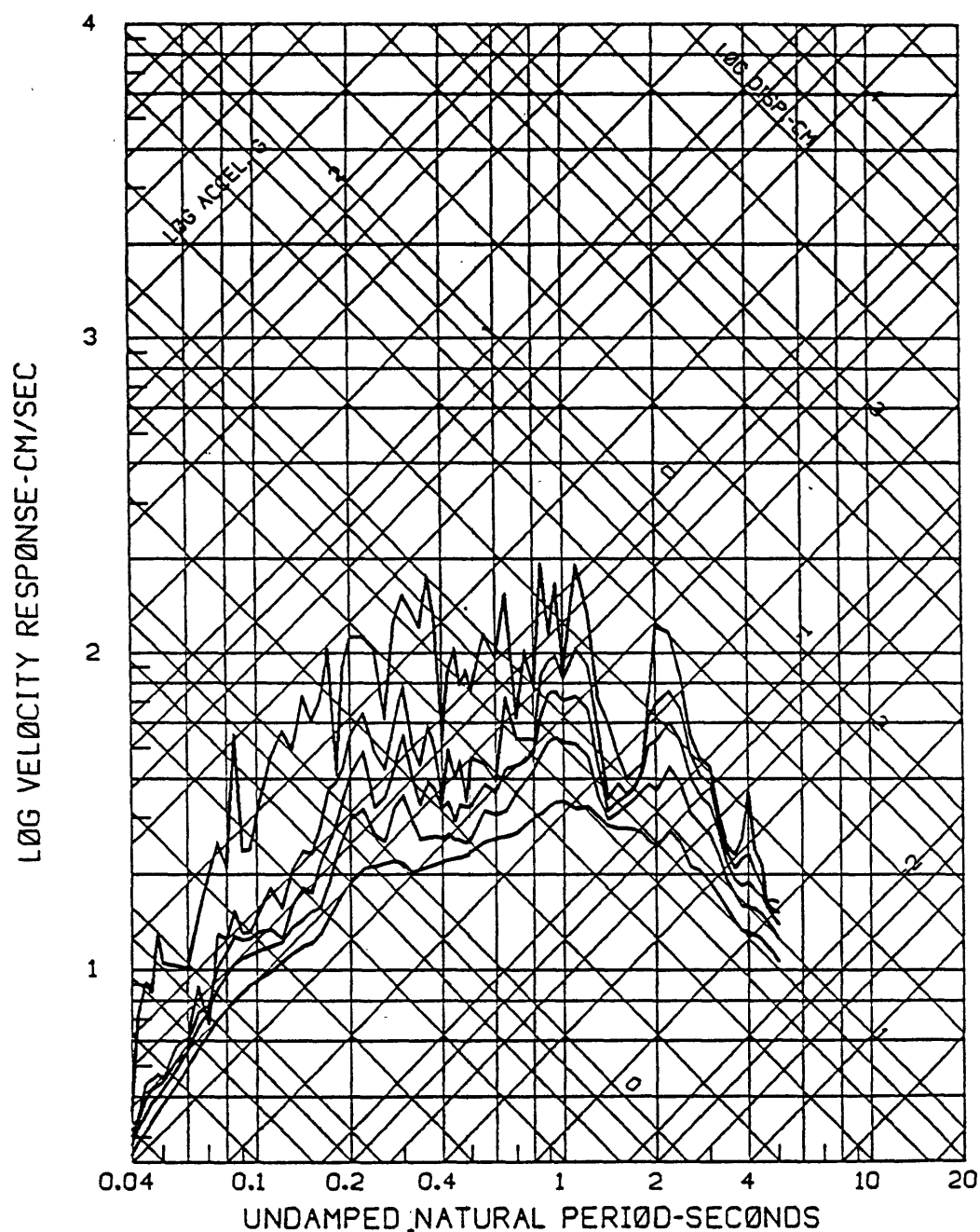
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 SAN FERNANDO, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



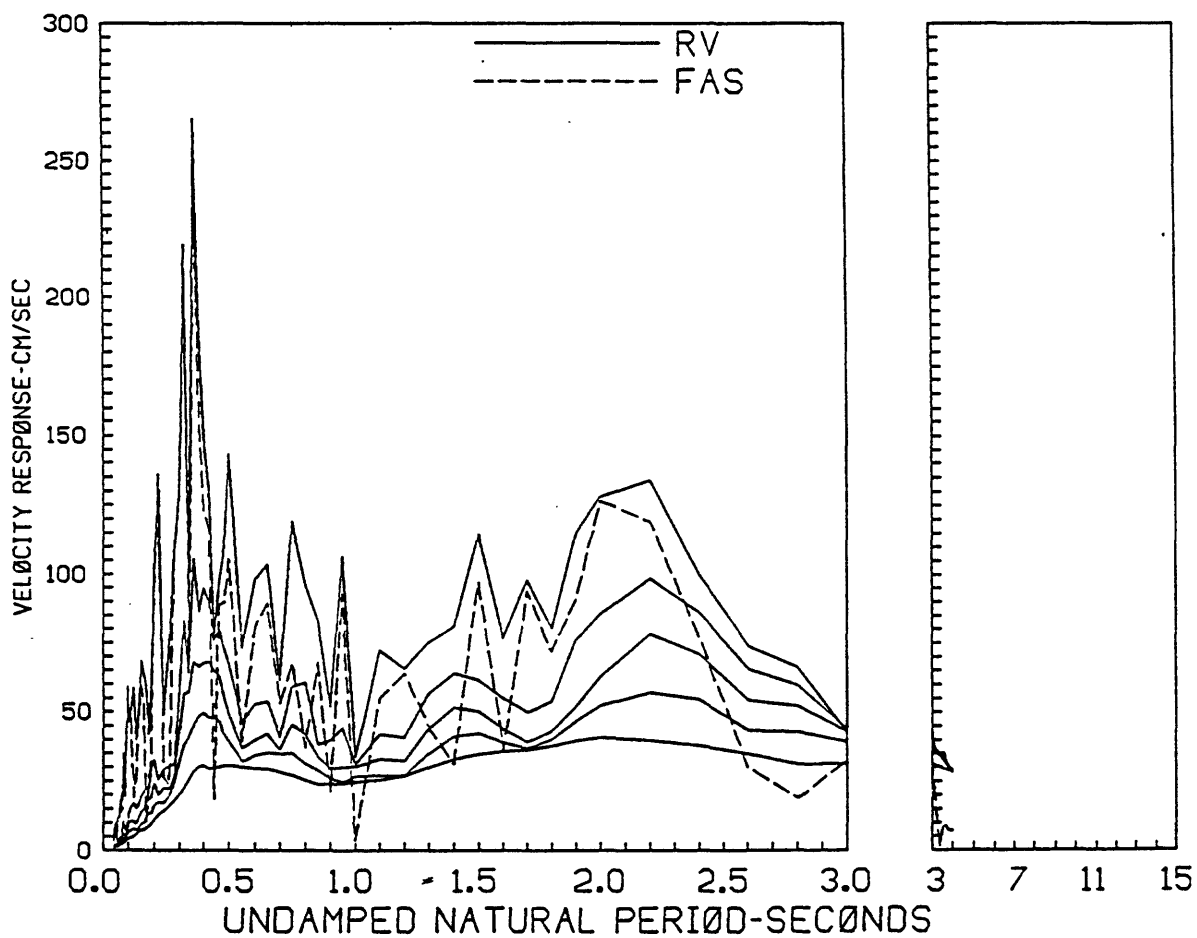
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 SAN FERNANDO, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



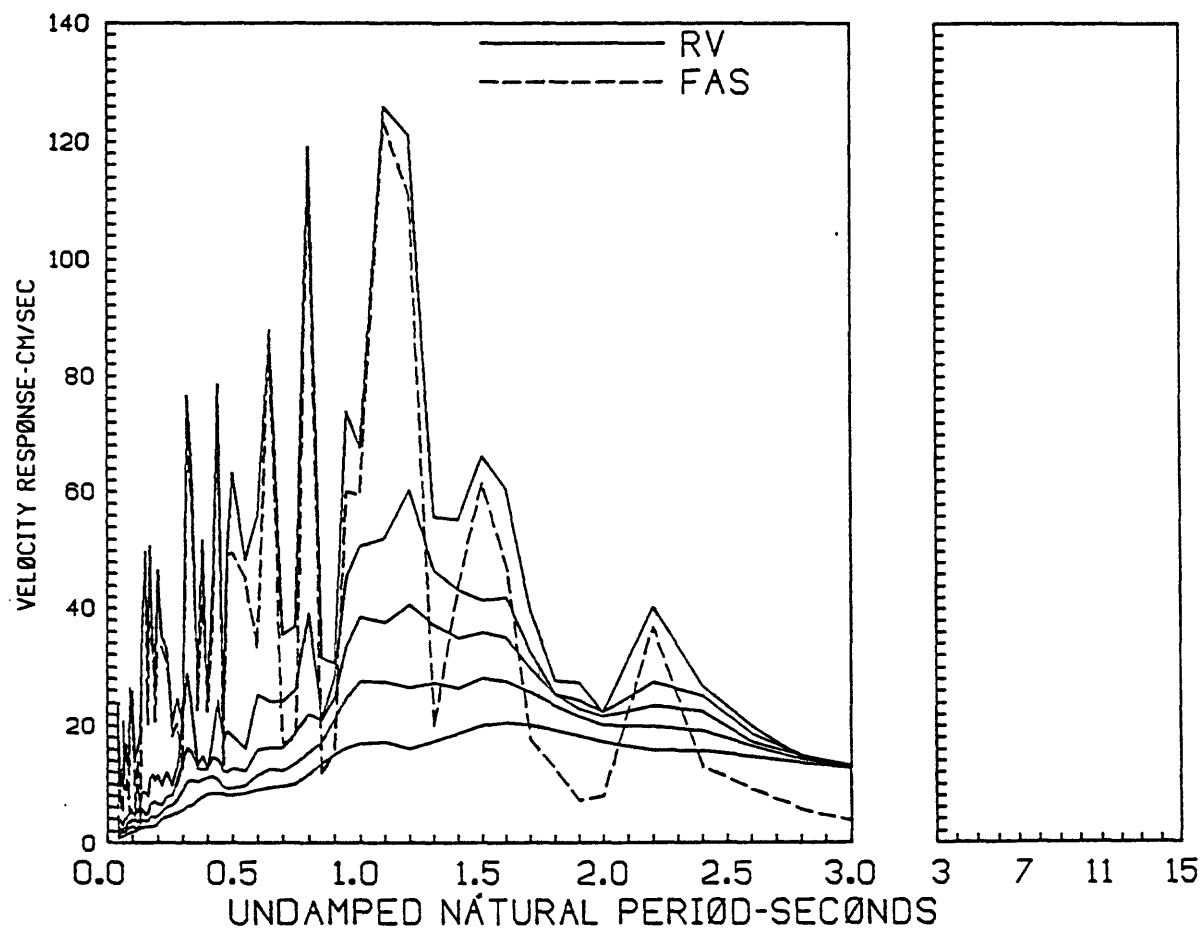
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 SAN FERNANDO, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



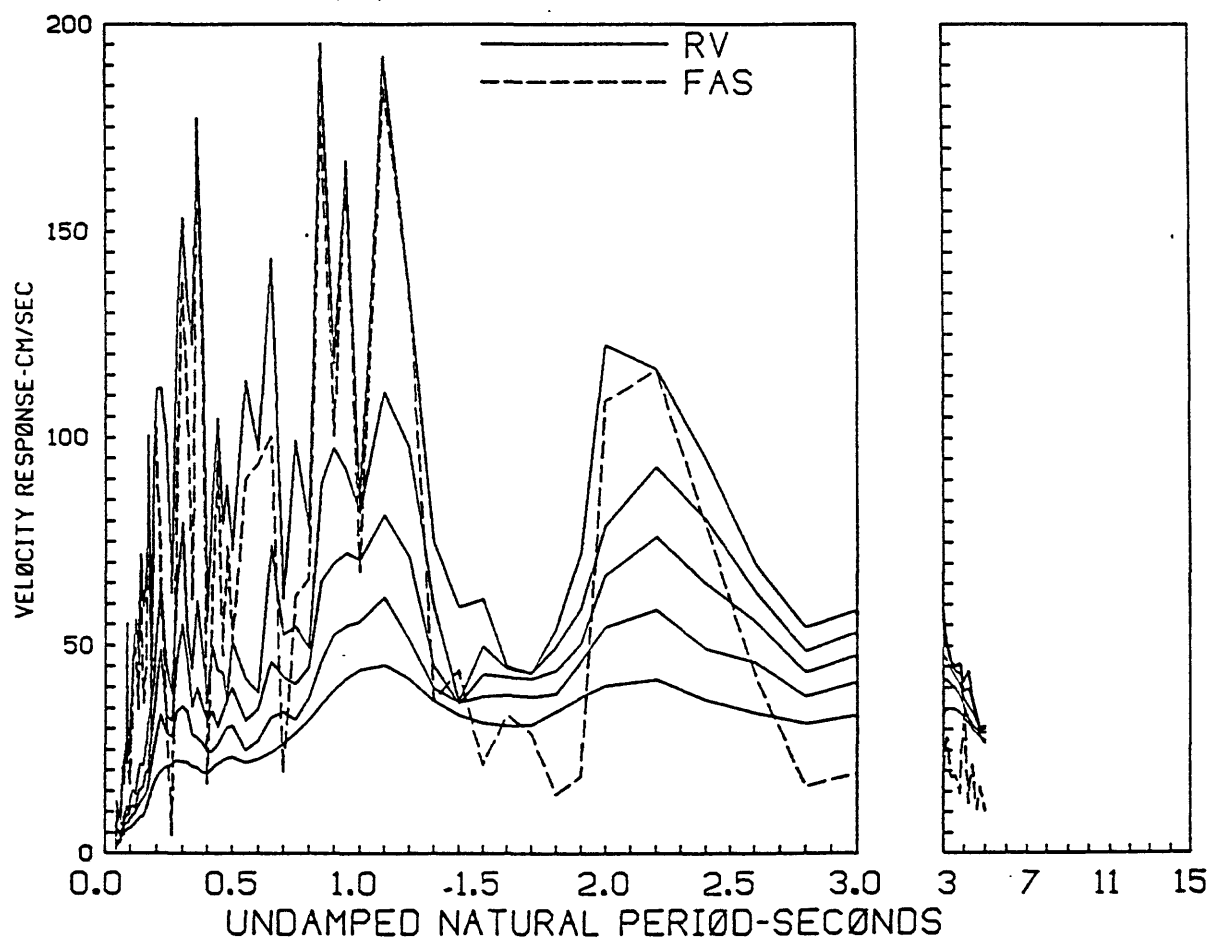
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 SAN FERNANDO, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 SAN FERNANDO, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 SAN FERNANDO, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake of 3/3/85
22:47:07 UTC, $M_s=7.8$

San Isidro (San Pedro), Chile

DESCRIPTION	COMPONENT		
	Longitudinal	Vertical	Transverse

Instrument Characteristics:

Frequency (Hz)	----	----	----
Damping (% Critical)	----	----	----

Filter Parameters:

Highcut (Hz)	25.0	25.0	25.0
Lowcut (Hz)	0.200	0.380	0.180

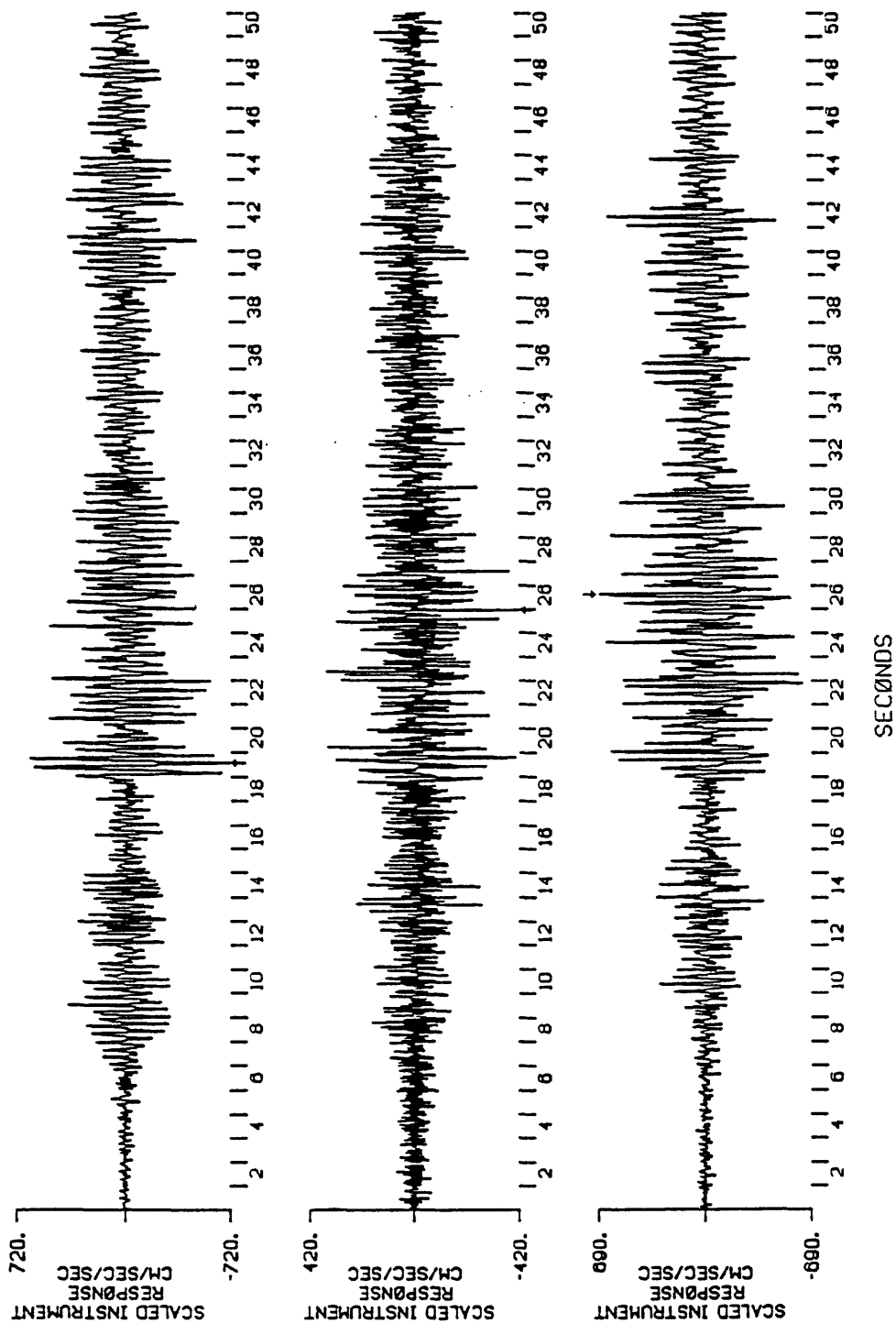
Peak Parameters:

Peak Acceleration, Unc. (cm/s/s)	-711.6	-416.1	686.3
Peak Acceleration, A (cm/s/s)	-706.8	-393.3	696.0
Peak Velocity, V (cm/s)	43.2	19.8	-43.4
Peak Displacement, D (cm)	6.91	1.69	5.54

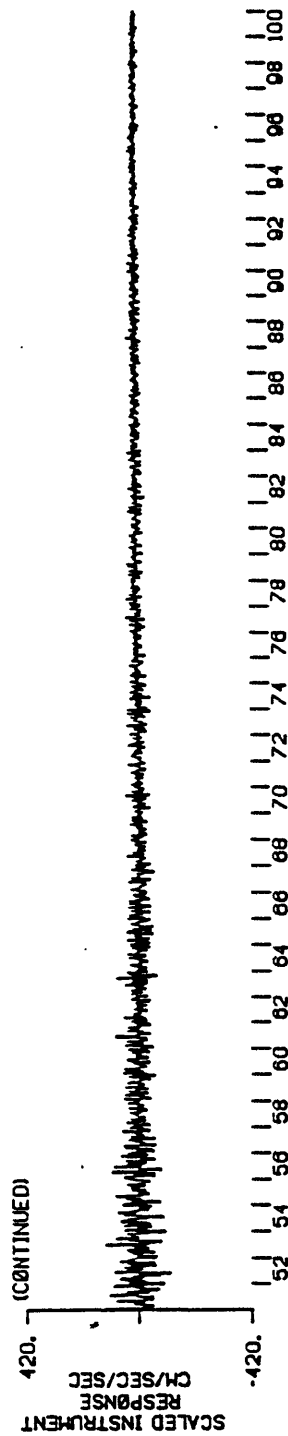
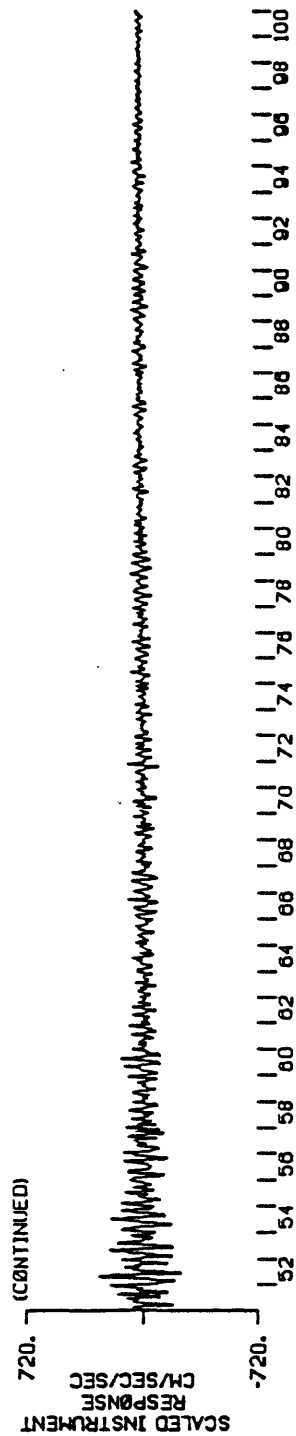
Parameter Ratios:

$ V/A $ (sec)	0.061	0.050	0.062
$ AD/V^2 $	2.6	1.7	2.0

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES(CM/SEC/SEC): -711.56 -416.07 686.28

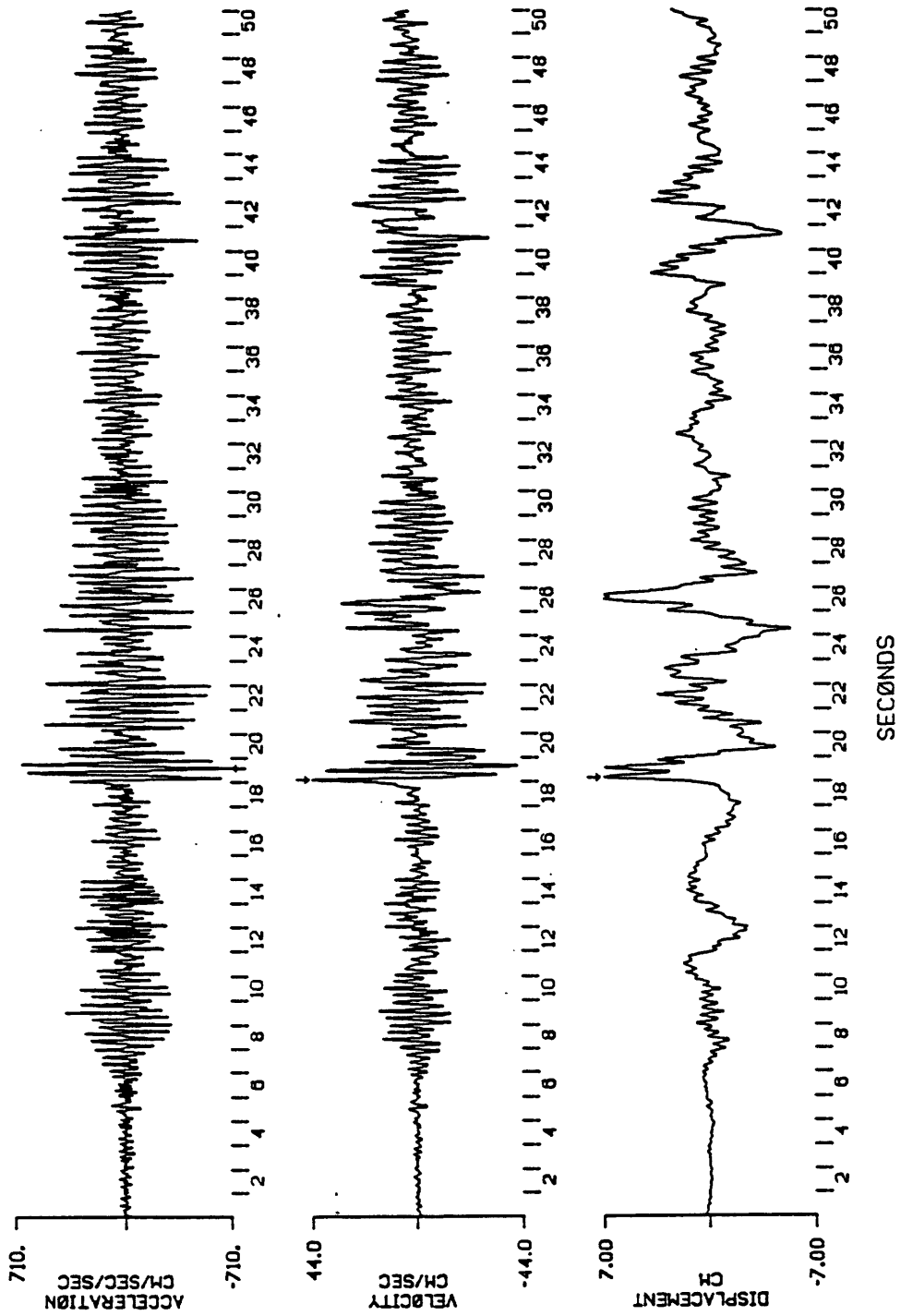


UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES(CM/SEC/SEC): -711.56 -416.07 686.28

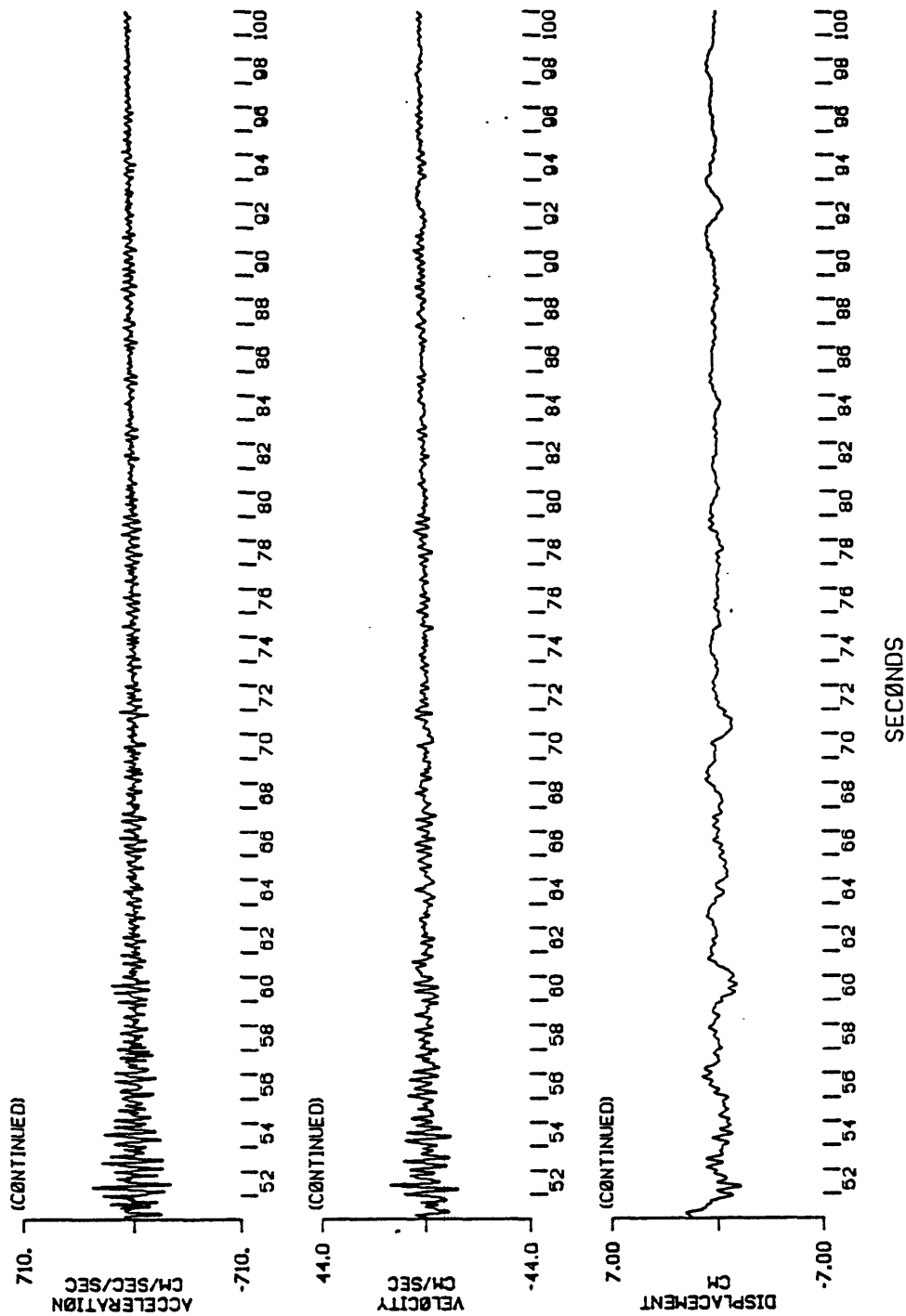


SECONDS

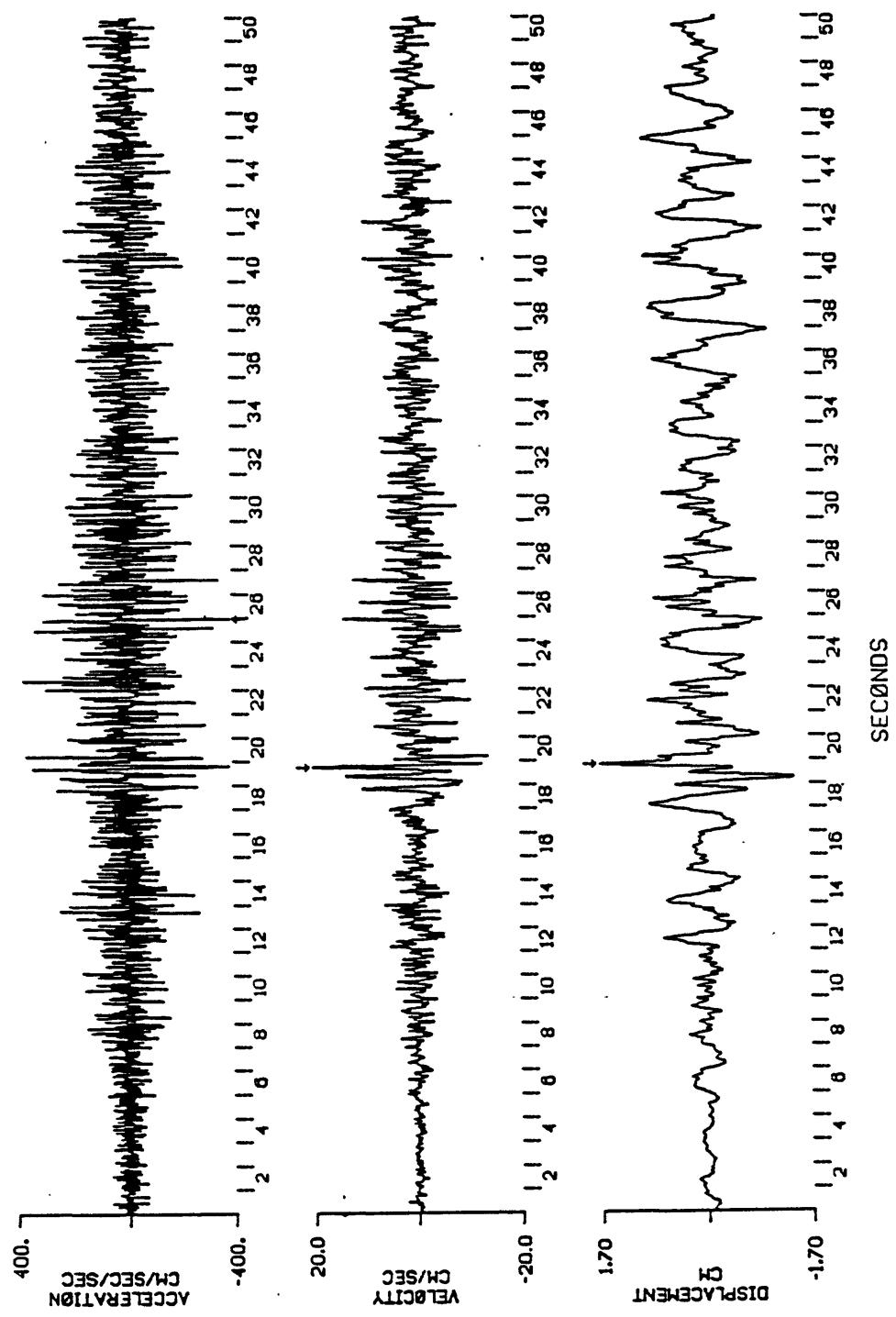
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, LONGITUDINAL
 PEAK VALUES: ACCEL--706.75 CM/SEC/SEC, VELOCITY-43.19 CM/SEC, DISPL-6.91 CM



CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, LONGITUDINAL
 PEAK VALUES: ACCEL--706.75 CM/SEC/SEC, VELOCITY-43.19 CM/SEC, DISPL-6.91 CM

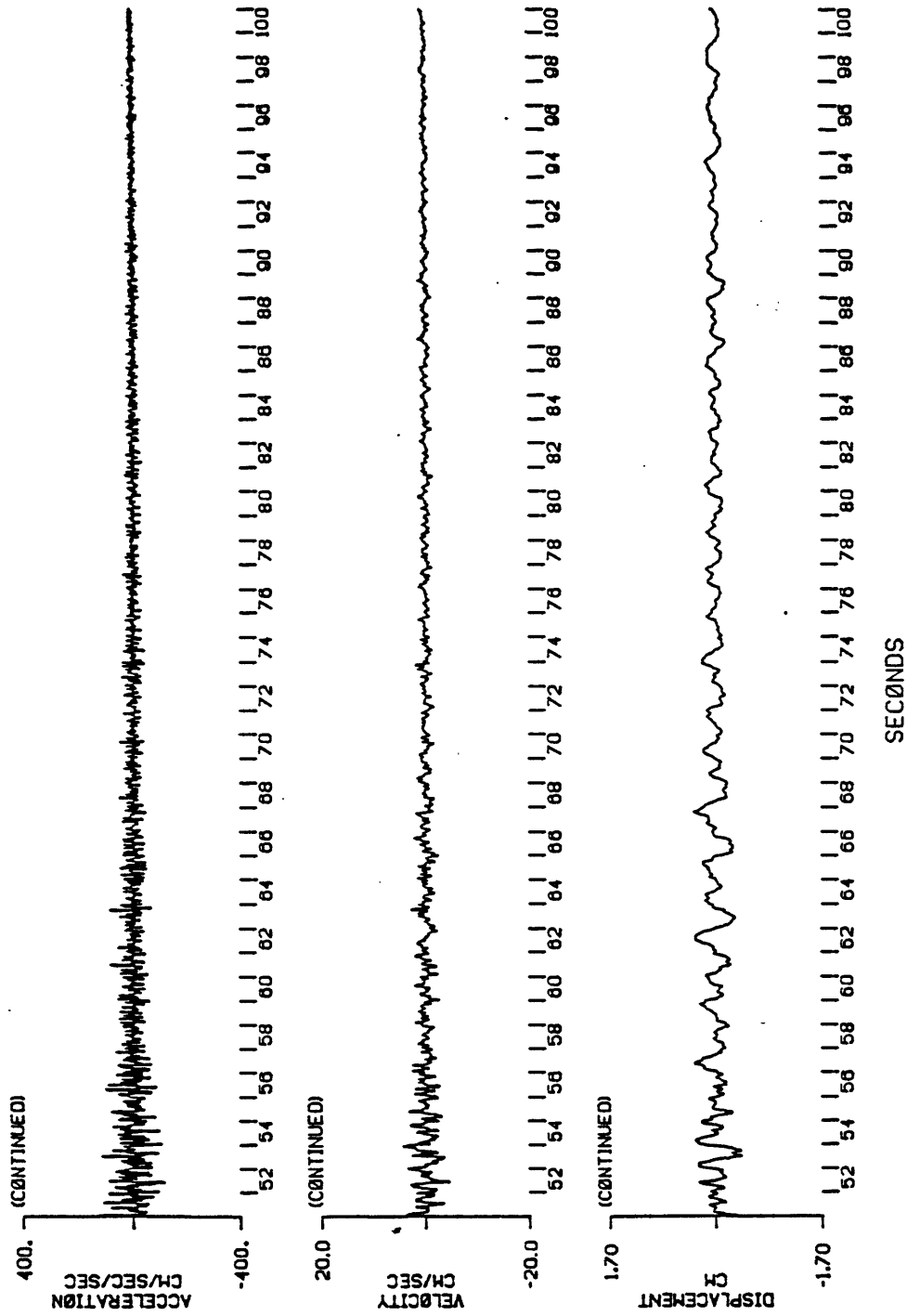


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, VERTICAL
 PEAK VALUES: ACCEL --393.26 CM/SEC/SEC, VELOCITY-19.76 CM/SEC, DISPL-1.69 CM

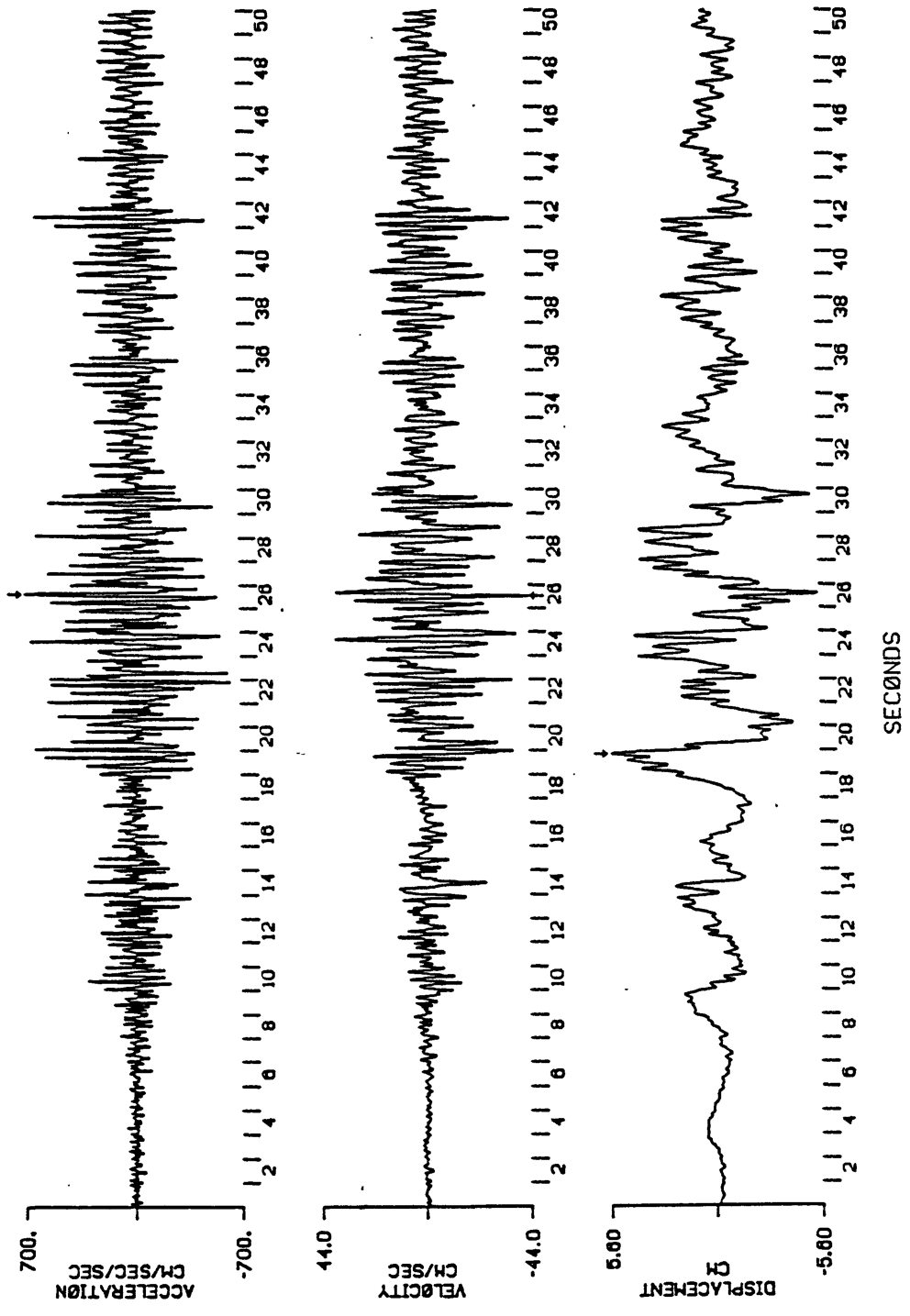


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, VERTICAL

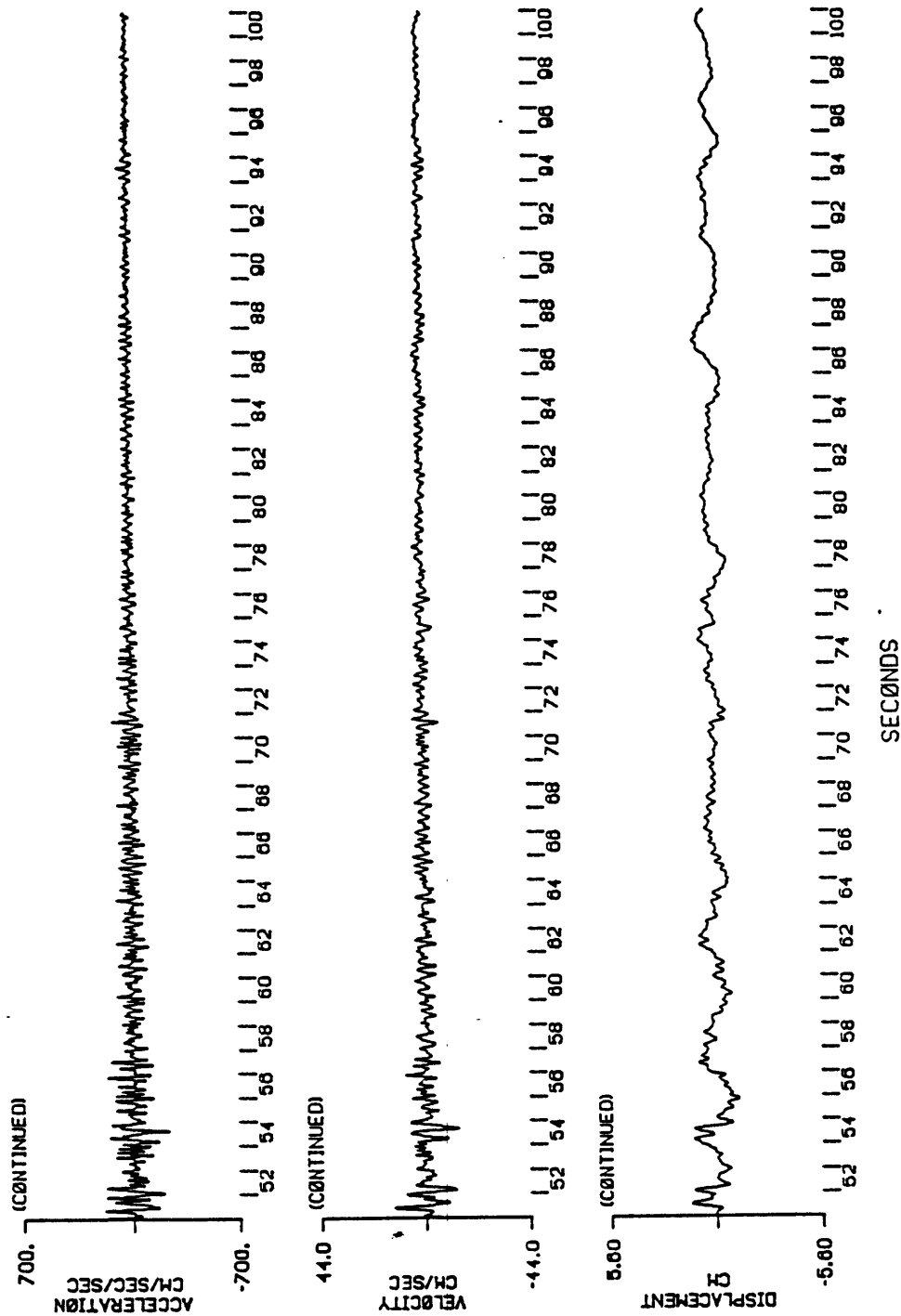
PEAK VALUES: ACCEL--393.26 CM/SEC/SEC, VELOCITY-19.76 CM/SEC, DISPL-1.69 CM



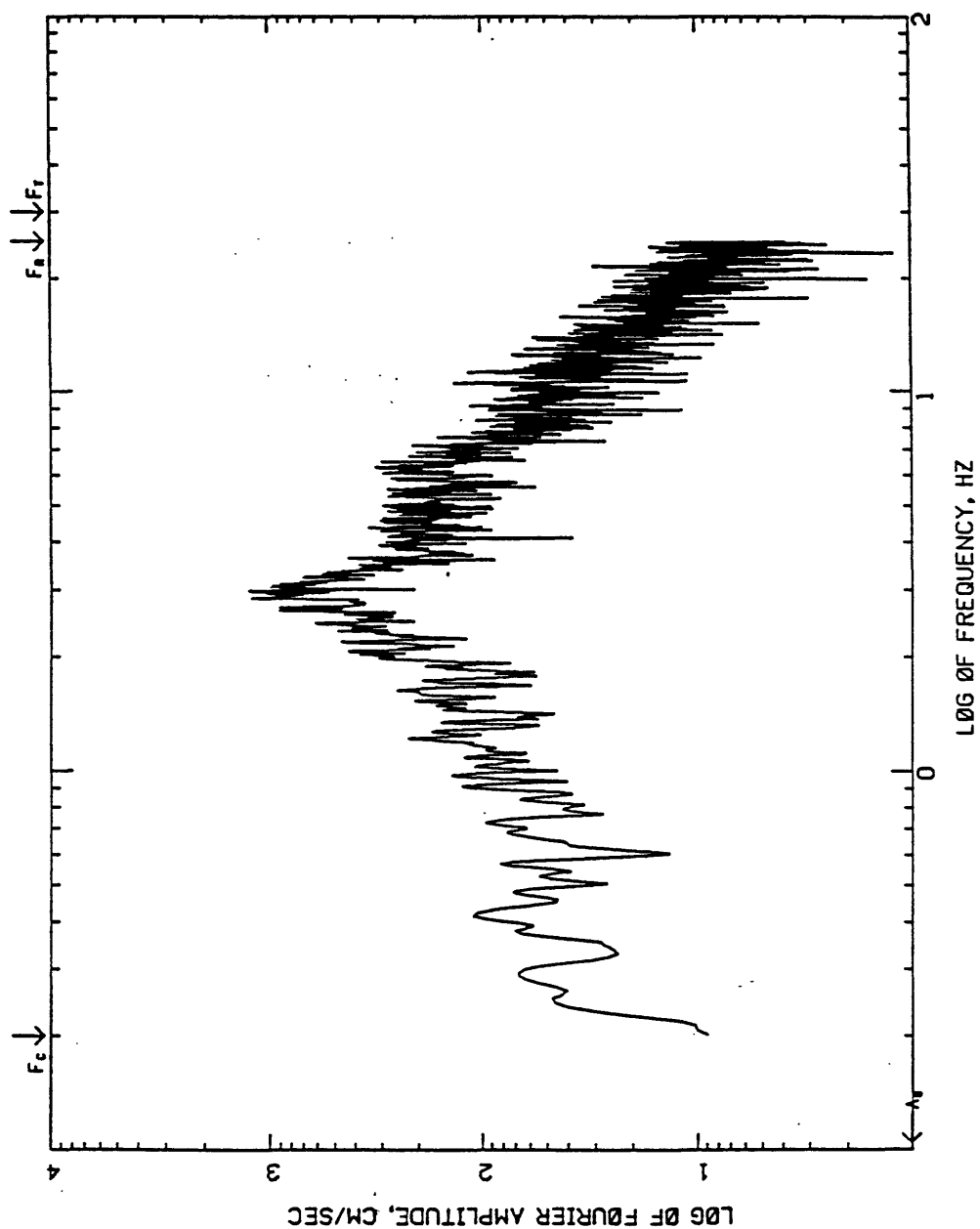
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC MS-7.8
 SAN ISIDRO, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL-696.04 CM/SEC/SEC, VELOCITY--43.38 CM/SEC, DISPL-5.54 CM



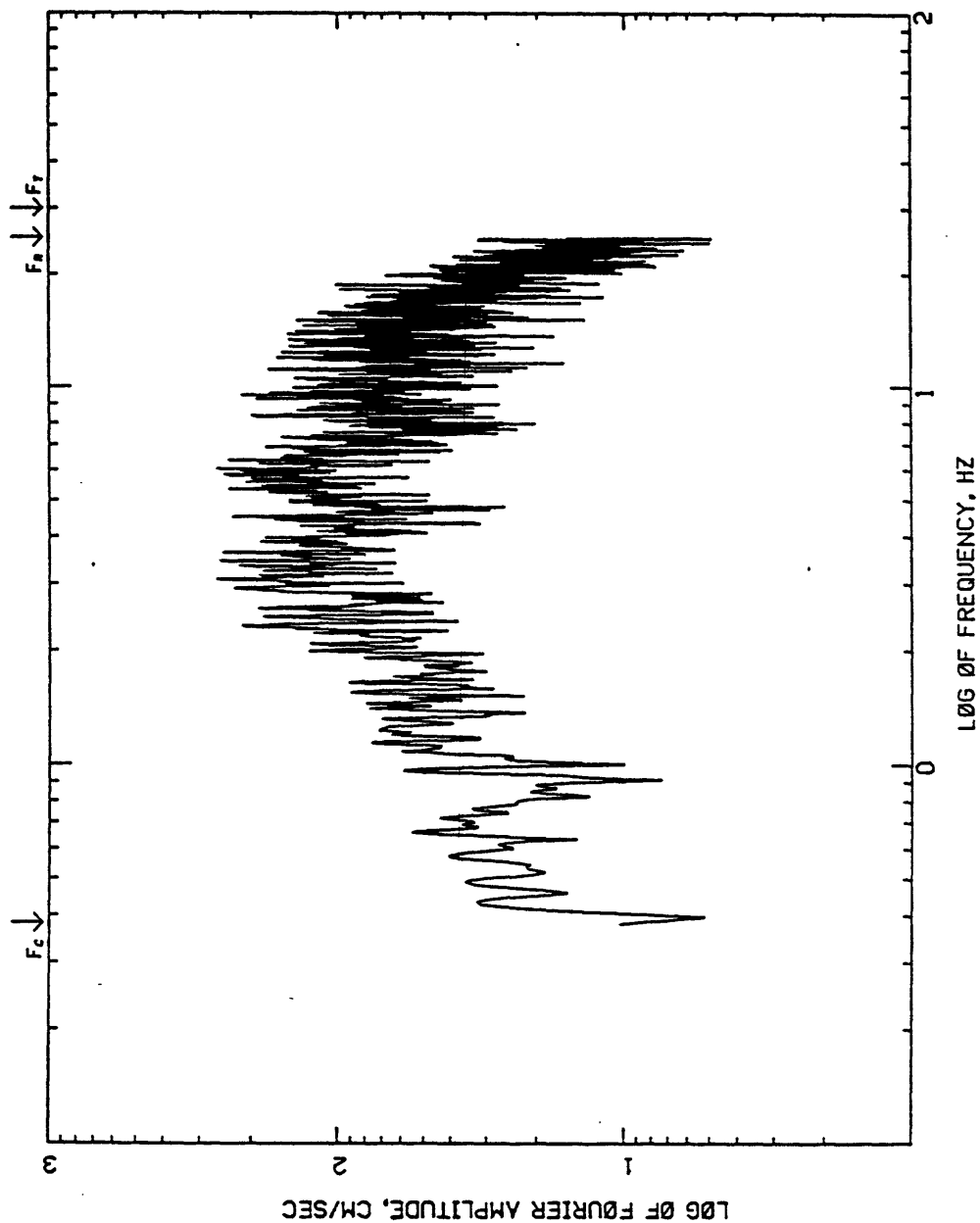
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL-696.04 CM/SEC/SEC, VELOCITY-43.38 CM/SEC, DISPL-5.54 CM



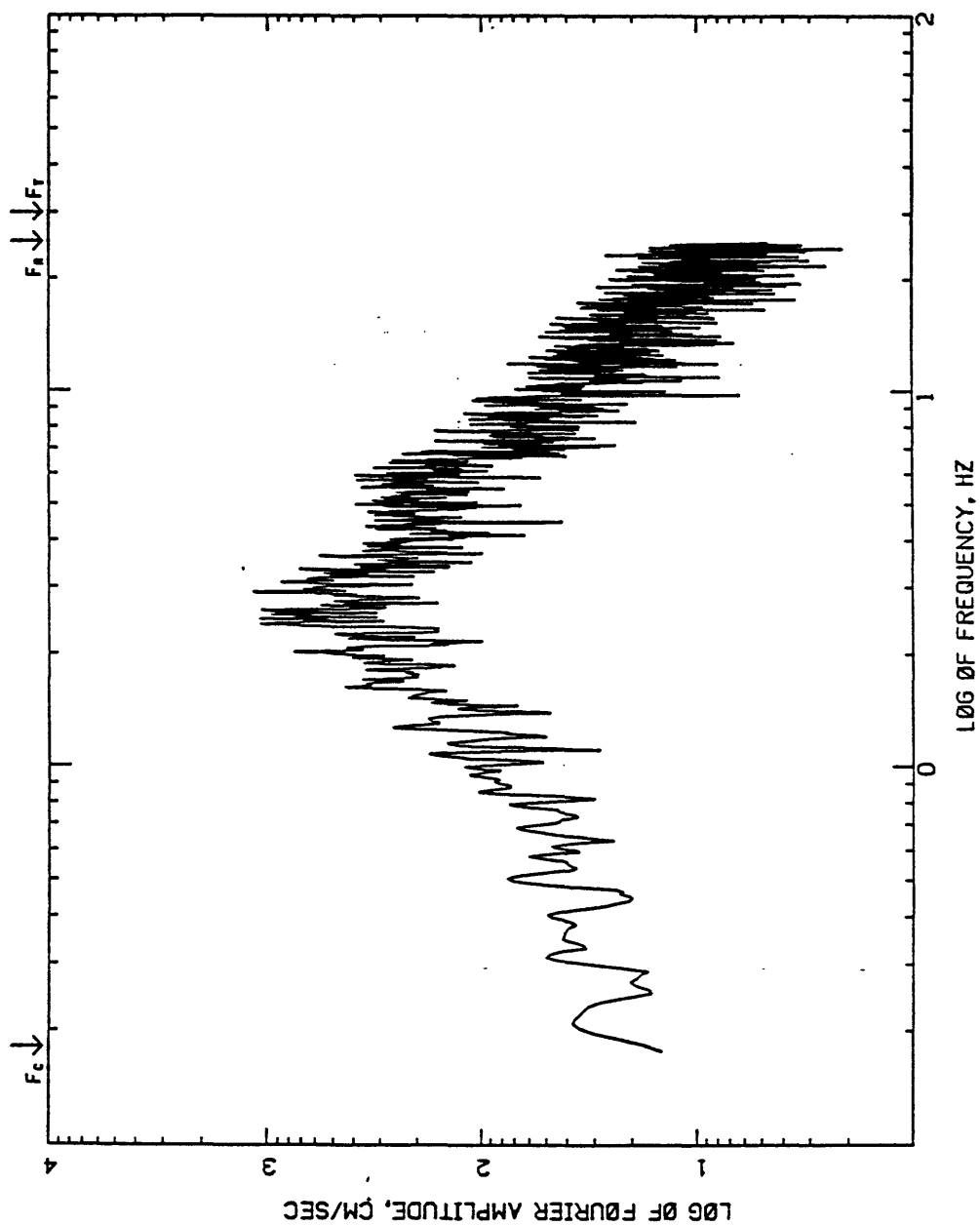
FØURIER AMPLITUDE SPECTRUM ØF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, LONGITUDINAL
 COMPUTING ØPTIONS- ZCRØSS, SMØØTH(5), NØNØISE



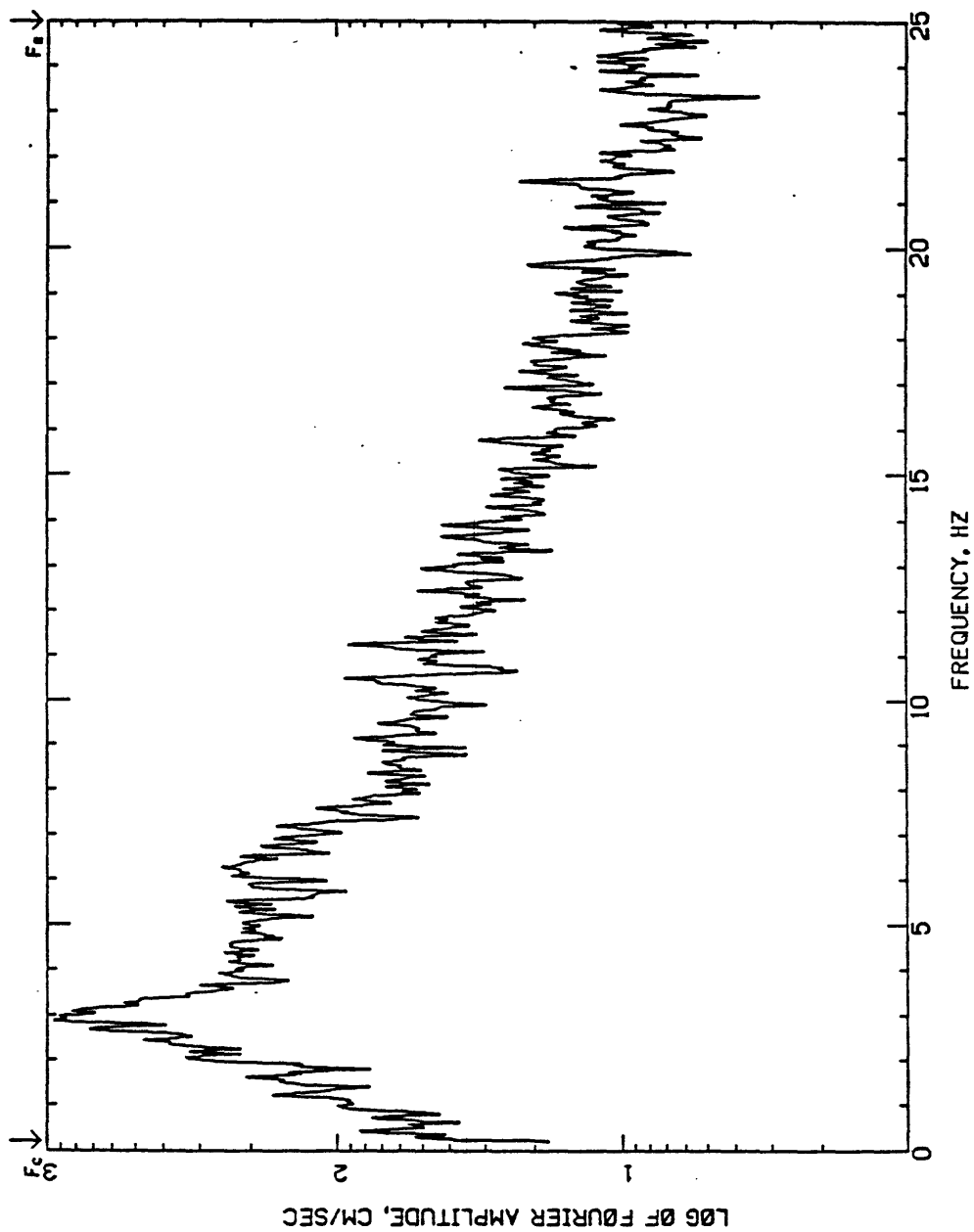
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, VERTICAL
 COMPUTING OPTIONS - ZCROSS, SMOOTH(5), NONNOISE



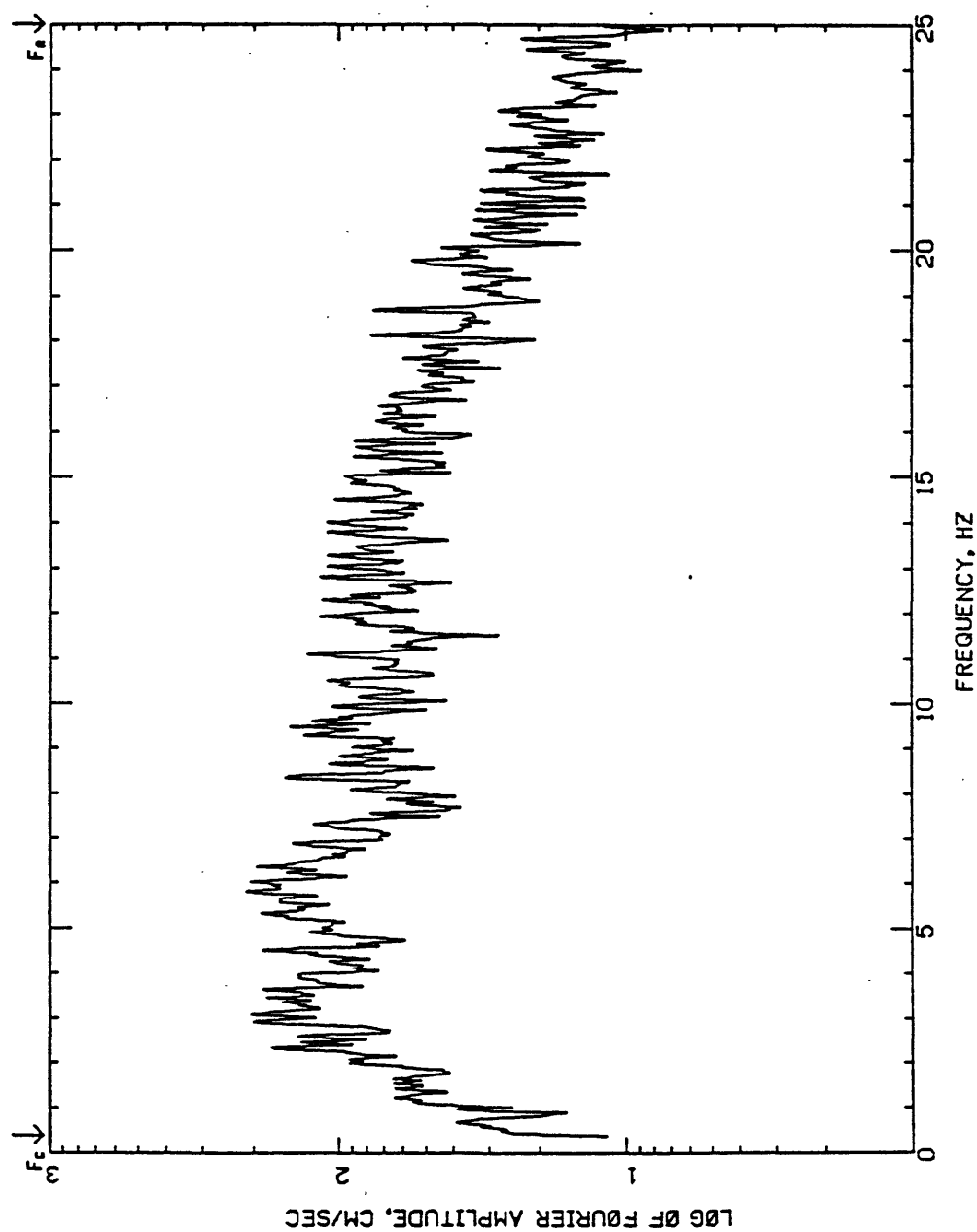
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCR055, SM00TH(5), N0N0ISE



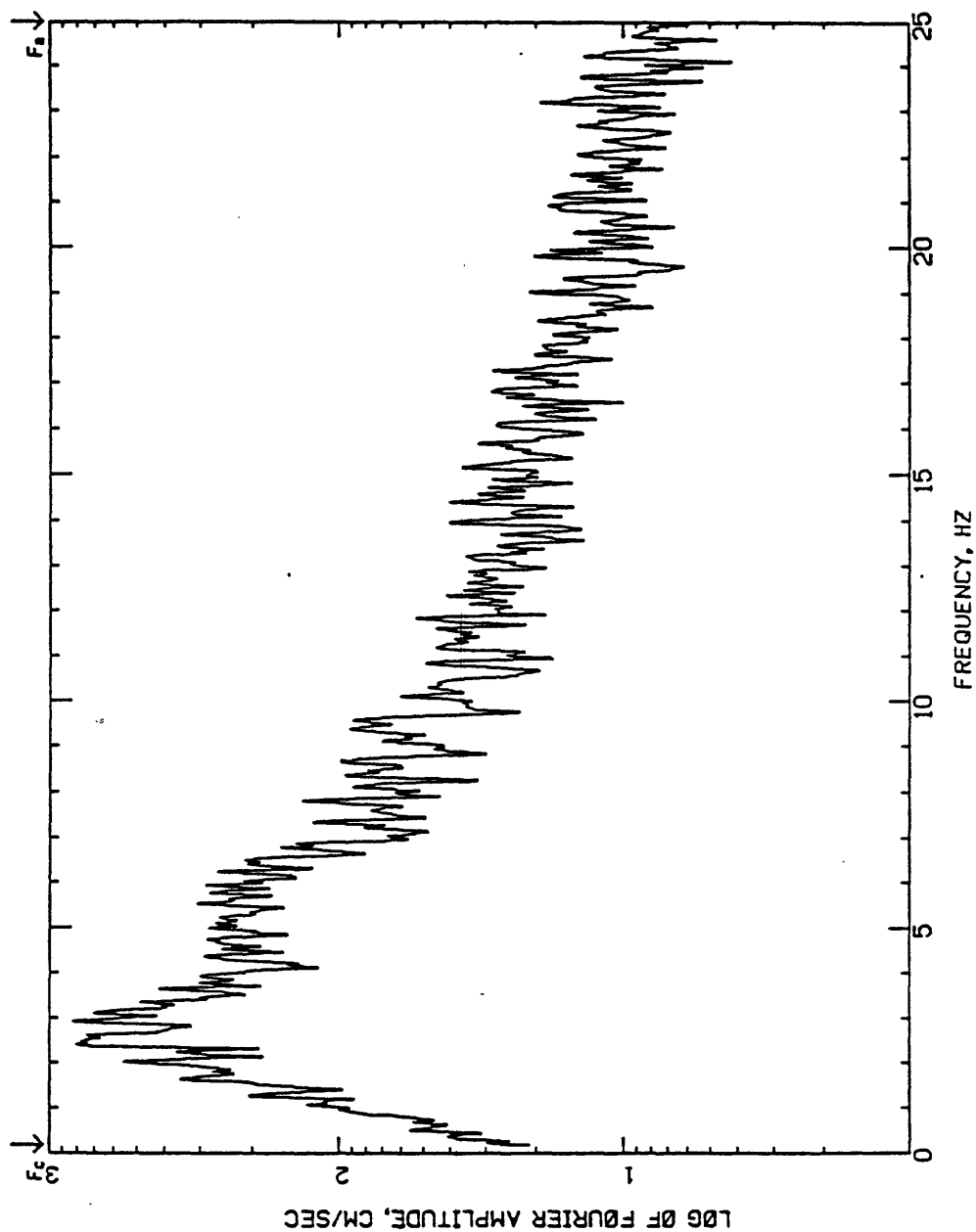
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO, CHILE, LONGITUDINAL
 COMPUTING OPTIONS - ZCR055.SM00TH20,N0N0ISE



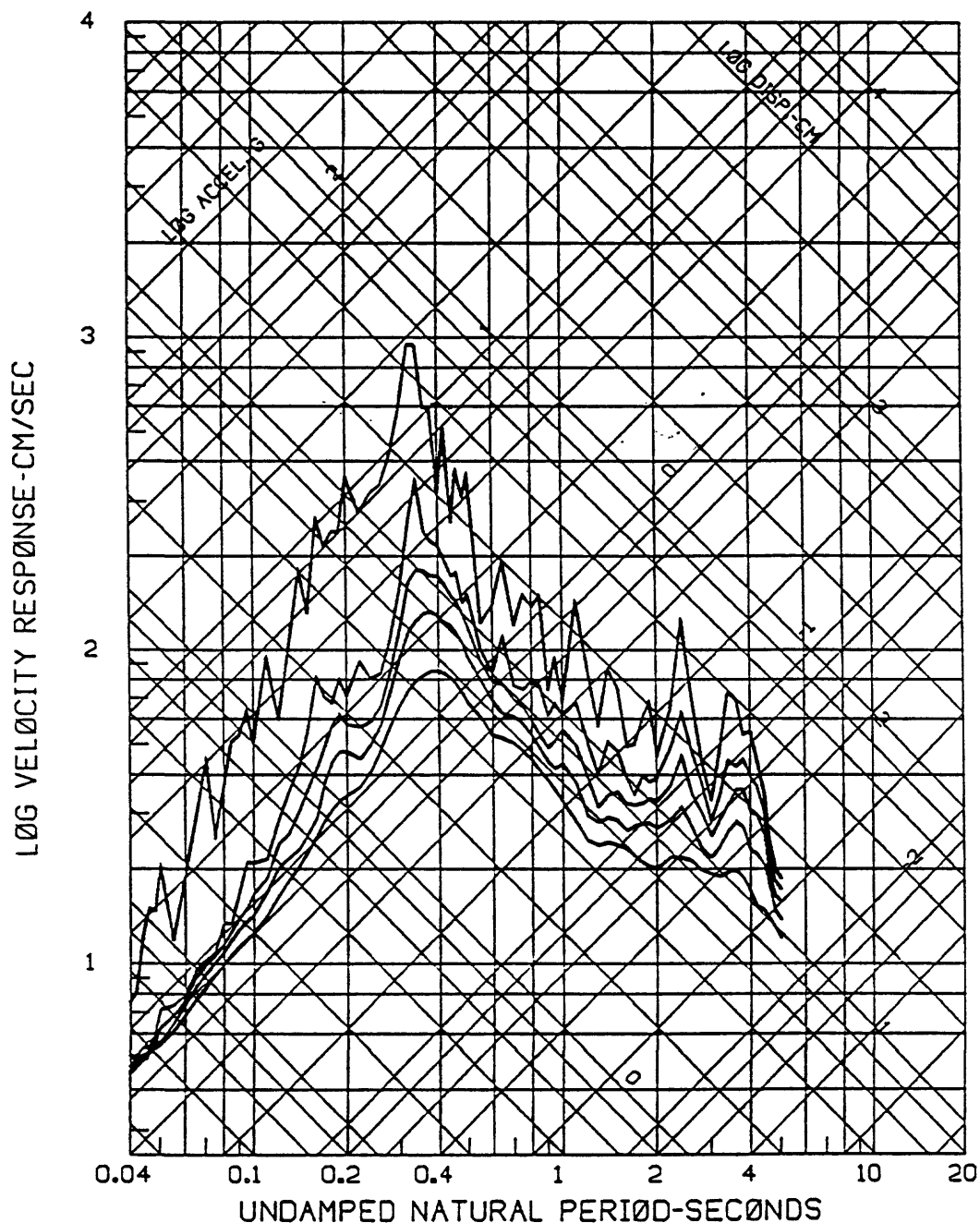
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 SAN ISIDRO CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR0SS,SM00TH(20),N0N0ISE



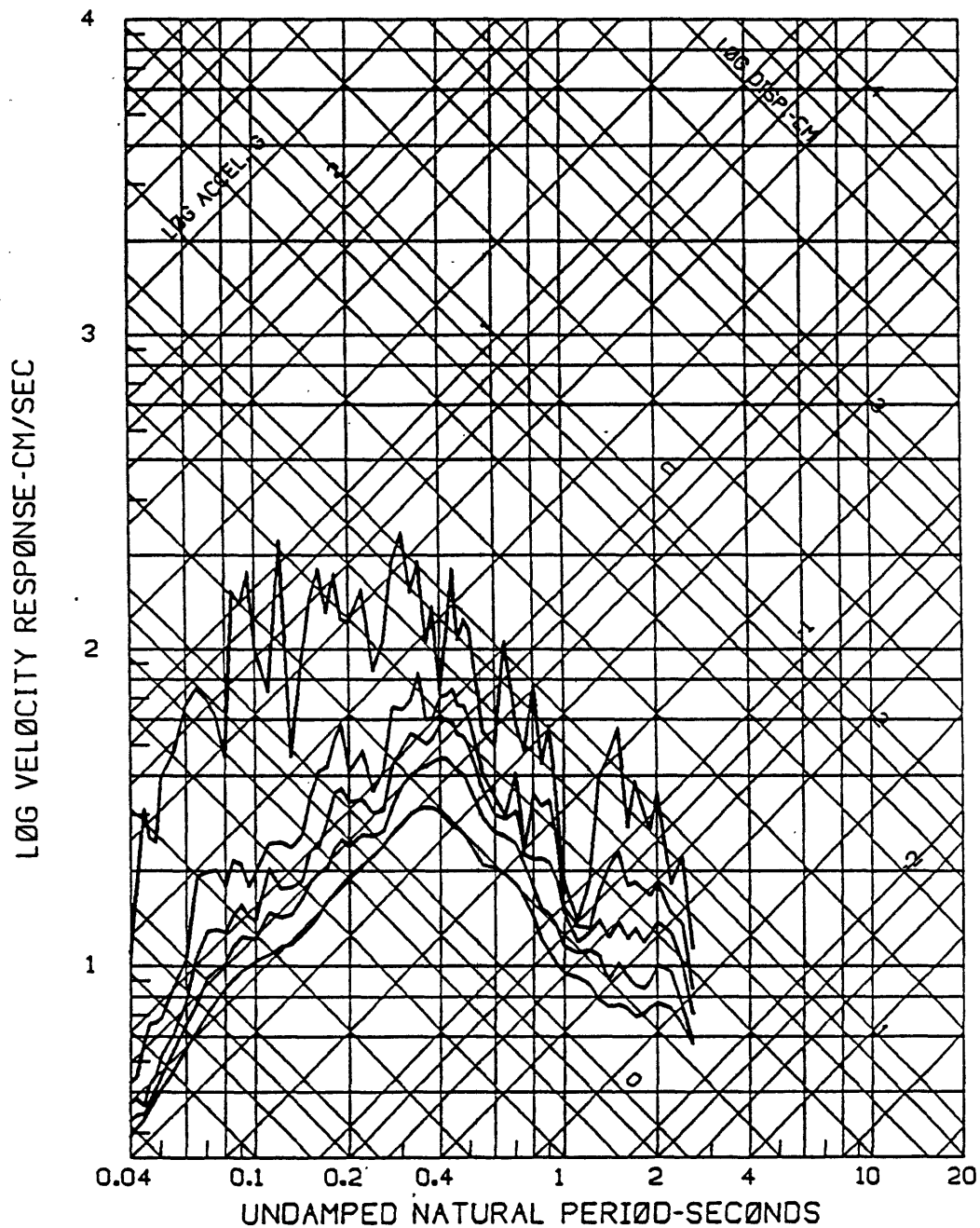
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ 3/3/85 22:47:07 UTC MS-7.8
 SAN ISIDRO, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCR055,SM0THI20I,N0N0ISE



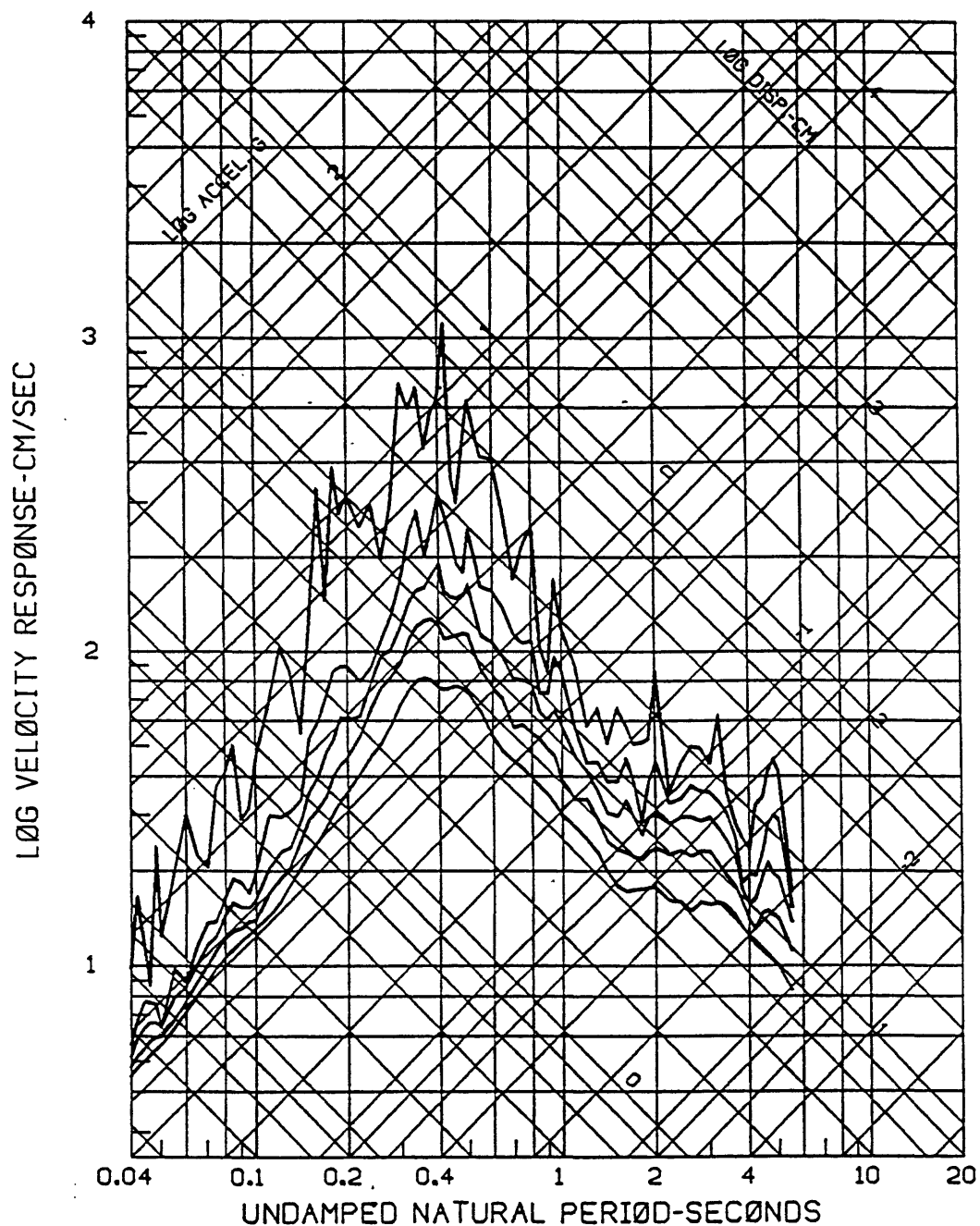
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 SAN ISIDRO, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



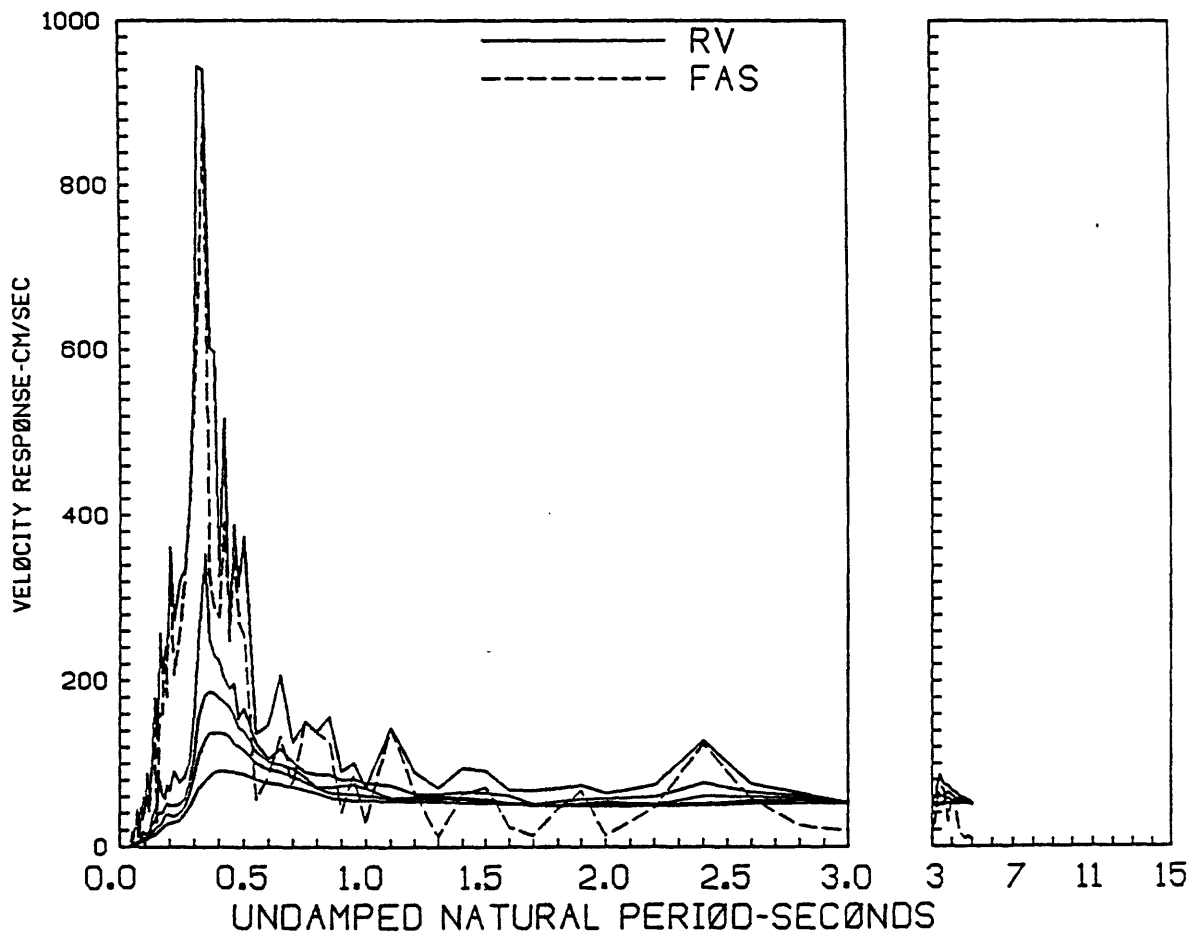
PSEUDØ RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 SAN ISIDRO, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



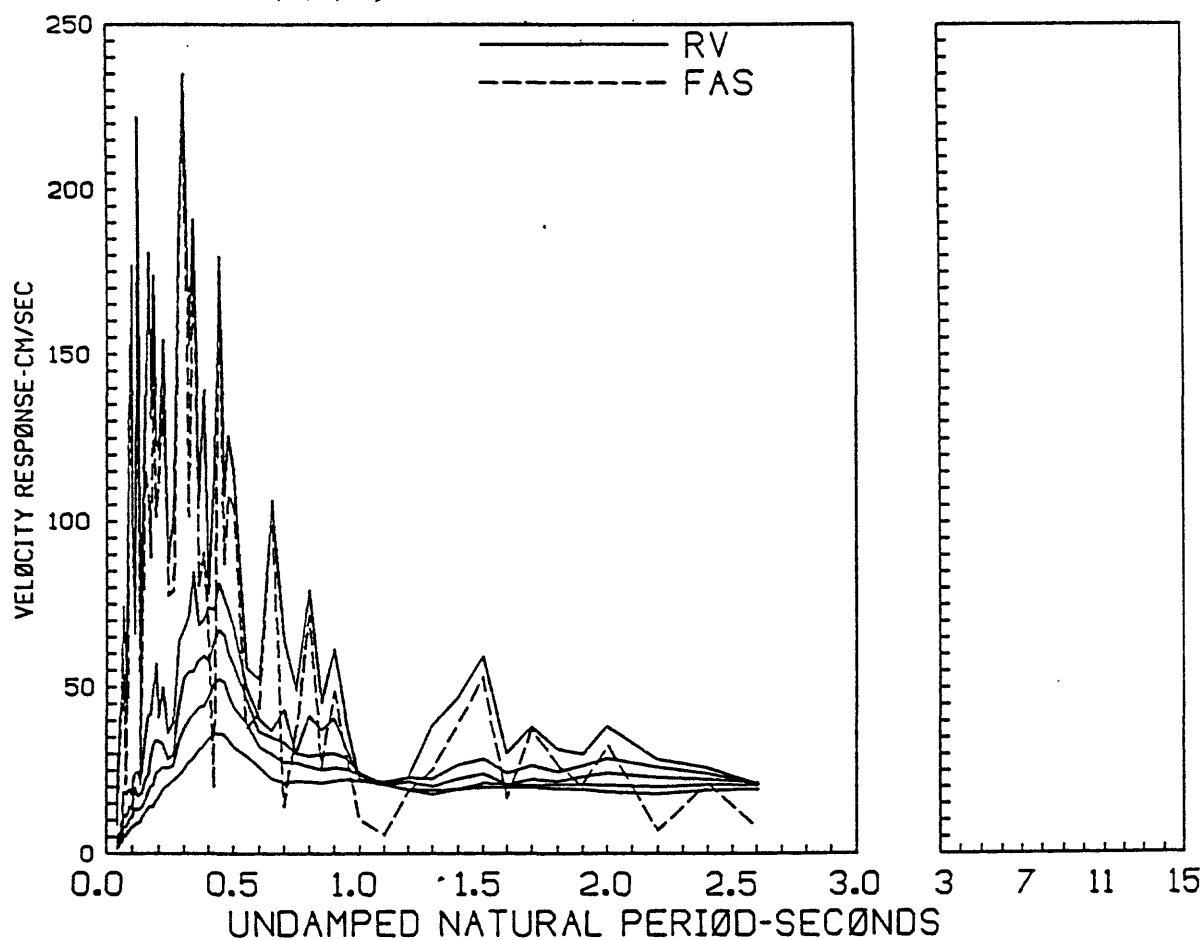
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 SAN ISIDRO, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



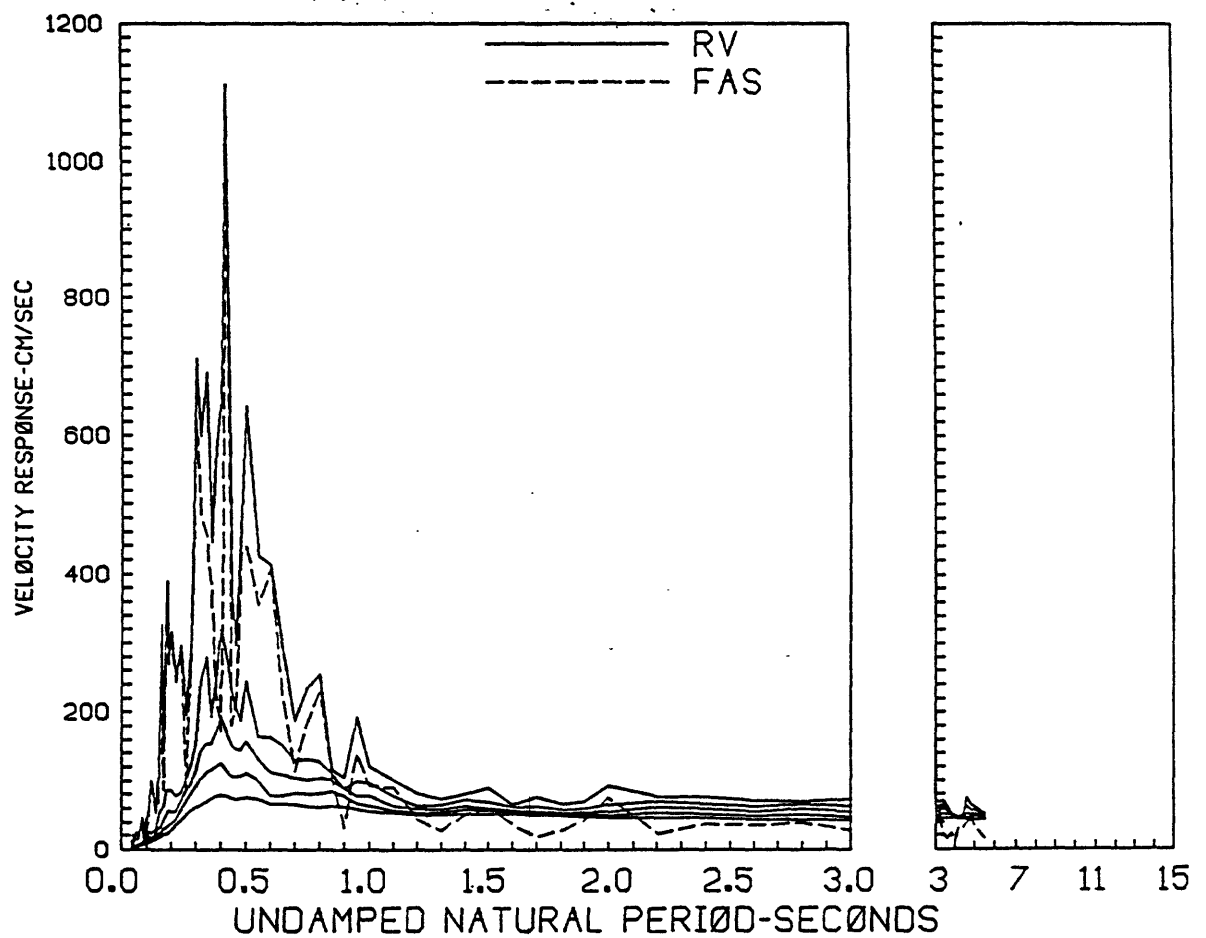
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 SAN ISIDRO, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
SAN ISIDRO, CHILE, VERTICAL
0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 SAN ISIDRO, CHILE, TRANSVERSE
 0.2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake of 3/3/85

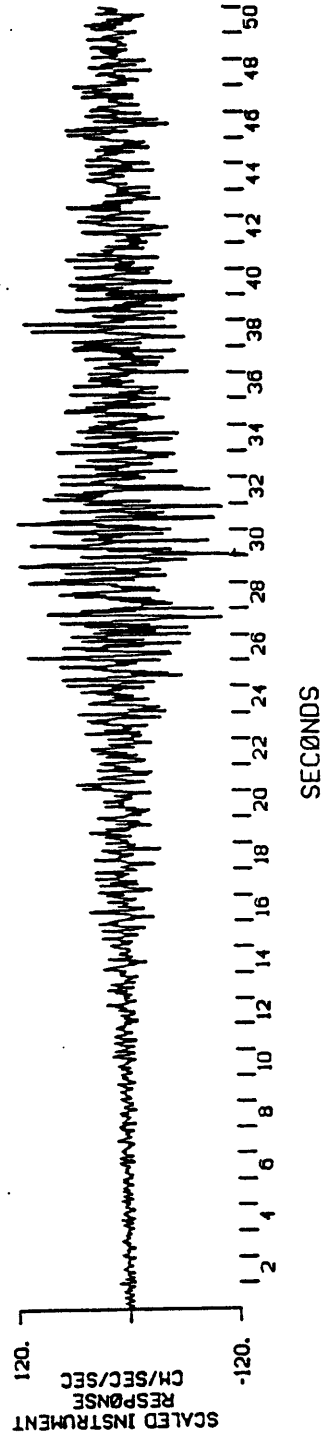
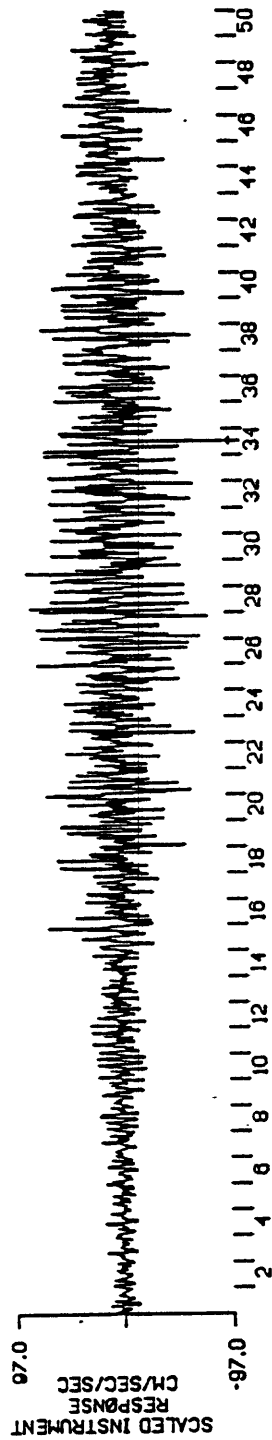
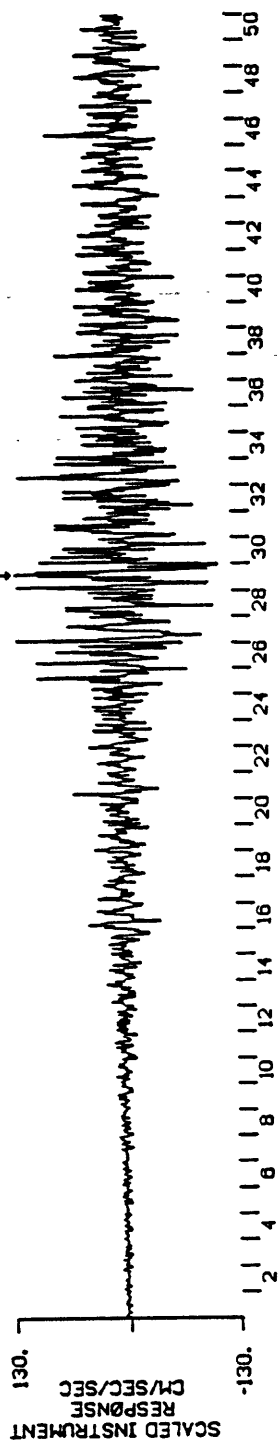
22:47:07 UTC, $M_s=7.8$

ENDESA Building (Basement), Santiago, Chile

DESCRIPTION	COMPONENT		
	Longitudinal	Vertical	Transverse
<u>Instrument Characteristics:</u>			
Frequency (Hz)	----	----	----
Damping (% Critical)	----	----	----
<u>Filter Parameters:</u>			
Highcut (Hz)	30.0	30.0	30.0
Lowcut (Hz)	0.330	0.310	0.220
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	121.6	-96.3	-118.9
Peak Acceleration, A (cm/s/s)	124.0	-94.6	-119.6
Peak Velocity, V (cm/s)	11.7	4.77	14.1
Peak Displacement, D (cm)	1.21	-0.914	-3.40
<u>Parameter Ratios:</u>			
V/A (sec)	0.094	0.050	0.12
AD/V ²	1.1	3.8	2.0

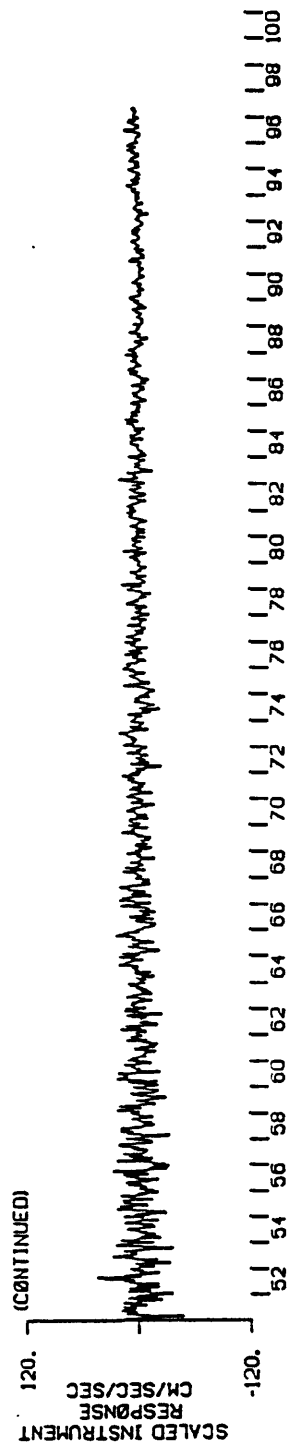
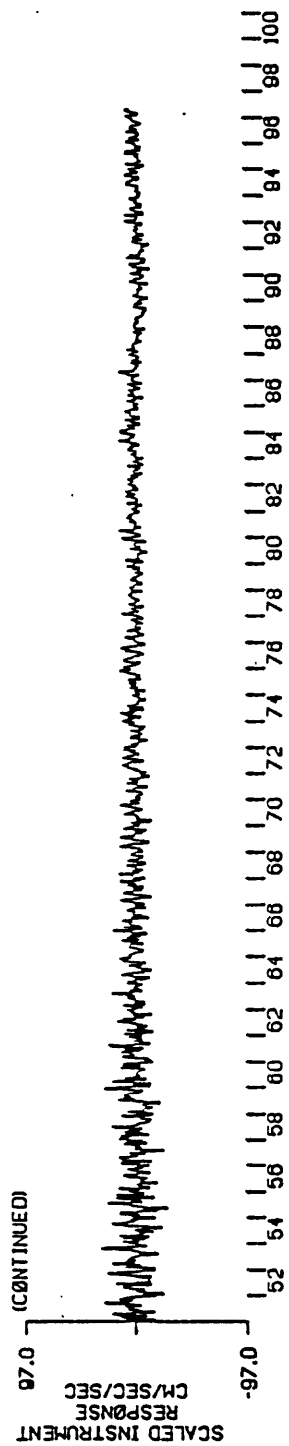
UNCORRECTED ACCELEROGRAM
CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
SANTIAGO, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE

PEAK VALUES(CM/SEC/SEC): 121.58 -96.28 -118.89



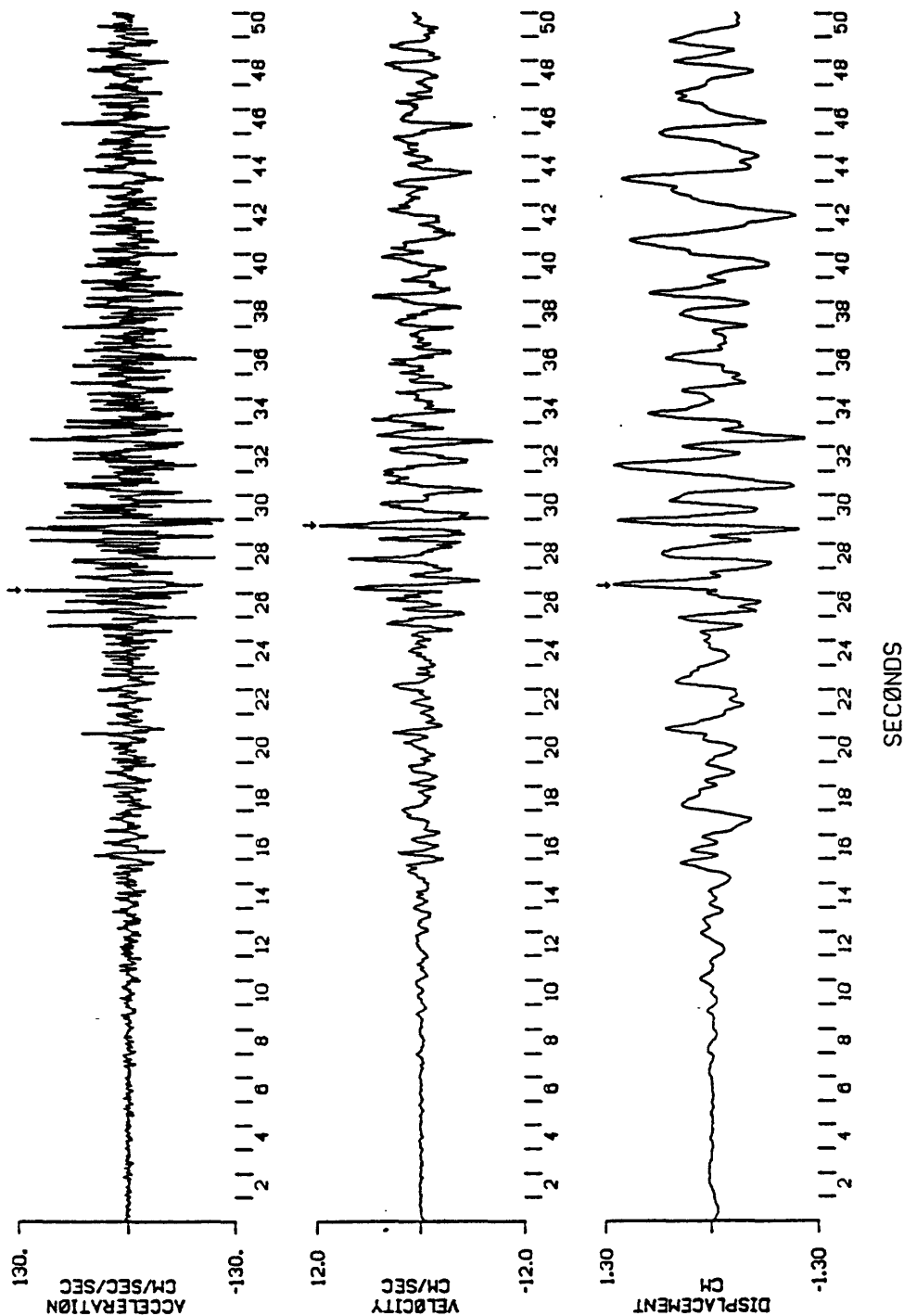
UNCORRECTED ACCELEROGRAM
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
SANTIAGO, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE

PEAK VALUES(CM/SEC/SEC): 121.58 -96.28 -118.89

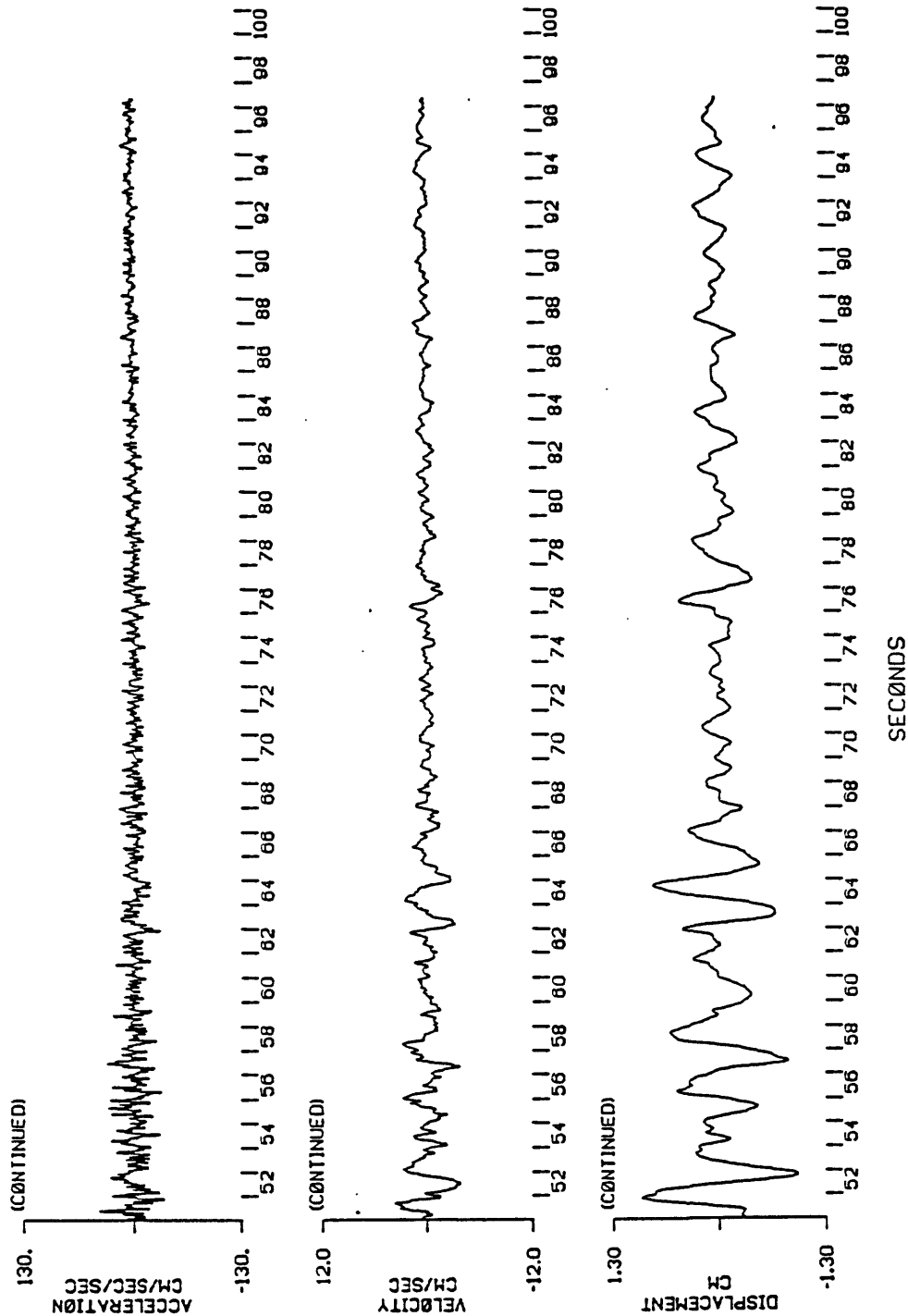


SECONDS

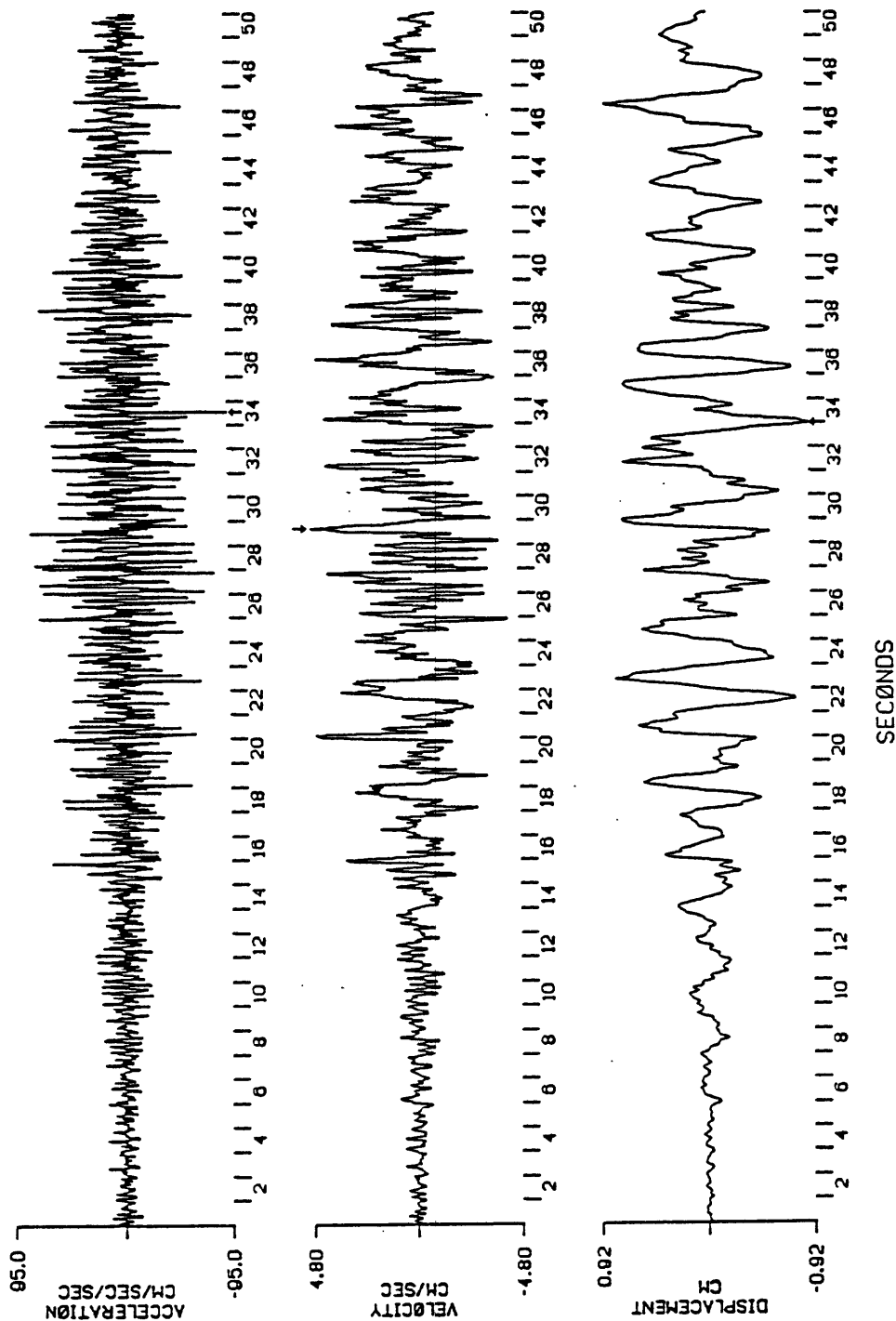
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC. MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE. LONGITUDINAL
 PEAK VALUES: ACCEL-123.96 CM/SEC/SEC, VELOCITY-11.70 CM/SEC, DISPL-1.21 CM



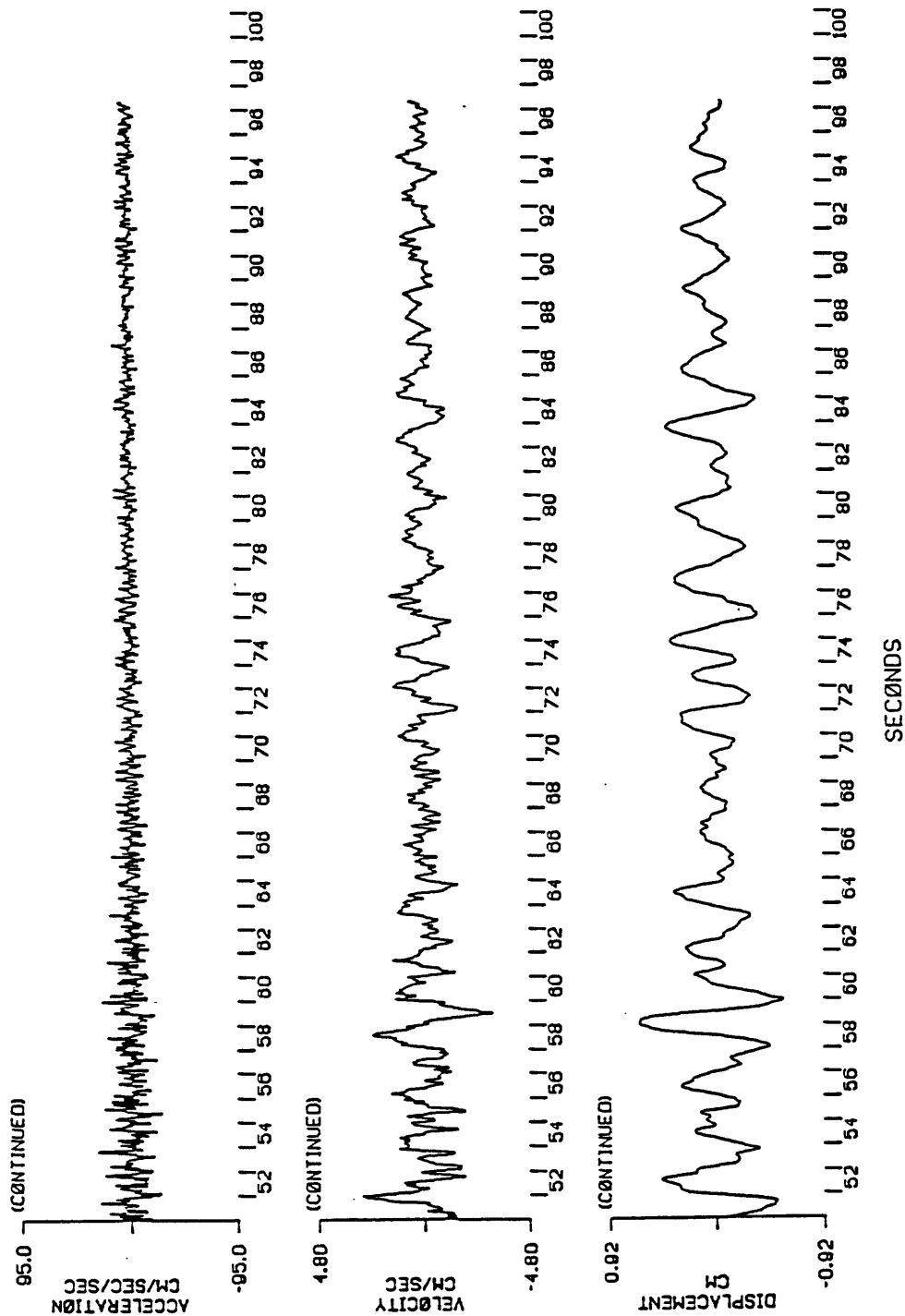
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, LONGITUDINAL
 PEAK VALUES: ACCEL=123.96 CM/SEC/SEC, VELOCITY=11.70 CM/SEC, DISPL=1.21 CM



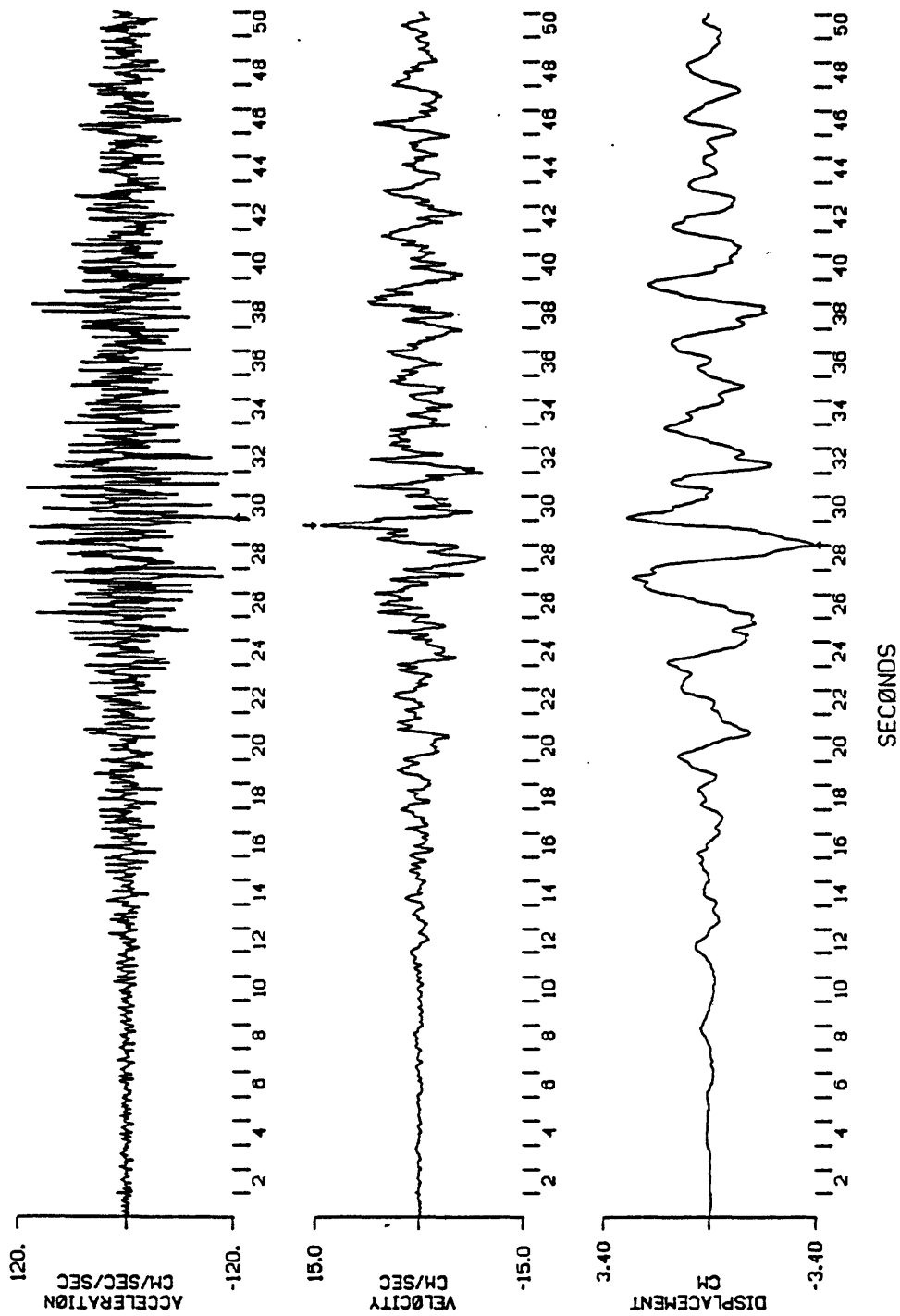
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, VERTICAL
 PEAK VALUES: ACCEL--94.63 CM/SEC/SEC, VELOCITY--4.77 CM/SEC, DISPL--0.91 CM



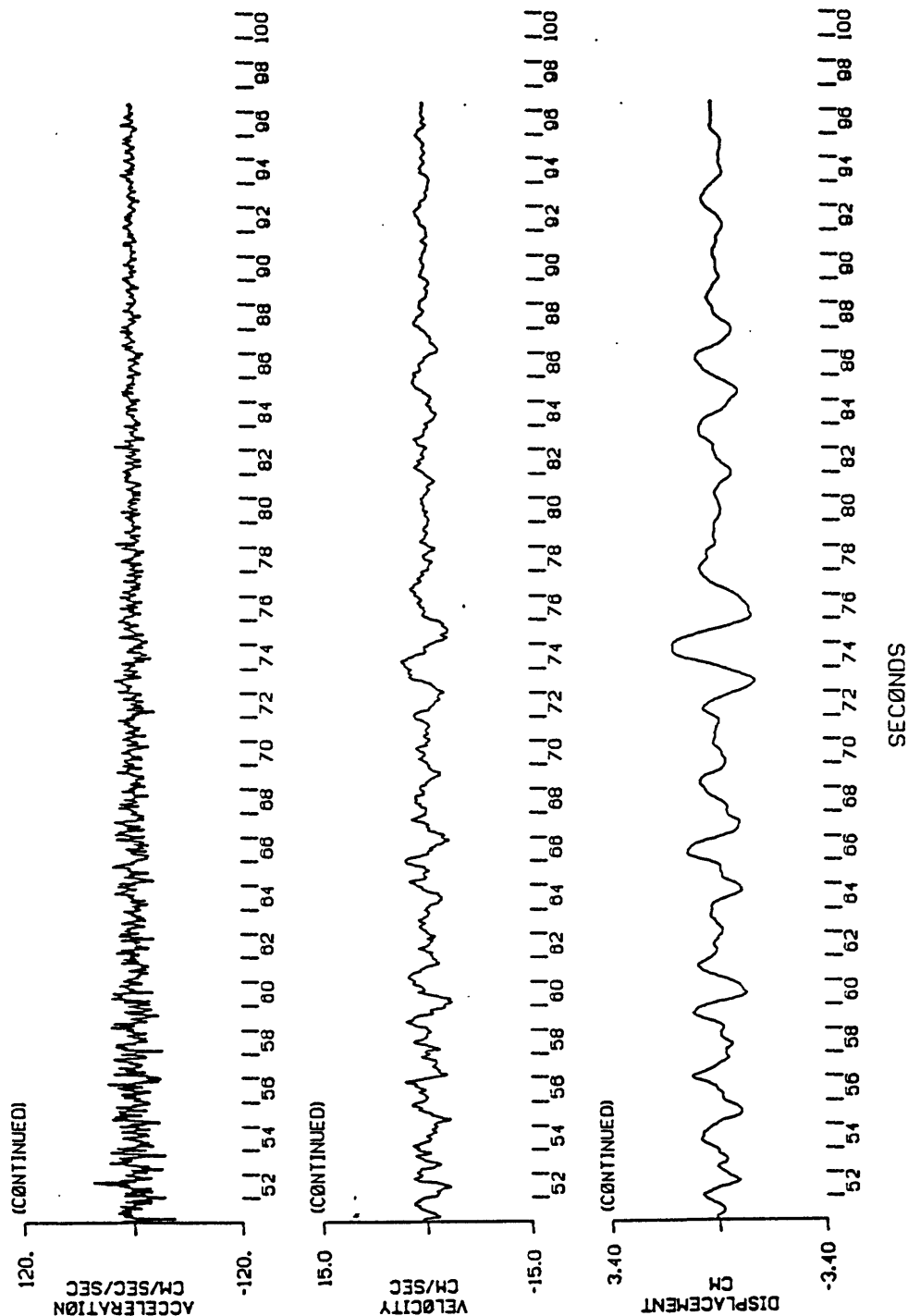
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, VERTICAL
 PEAK VALUES: ACCEL--94.63 CM/SEC/SEC, VELOCITY=4.77 CM/SEC, DISPL--0.91 CM



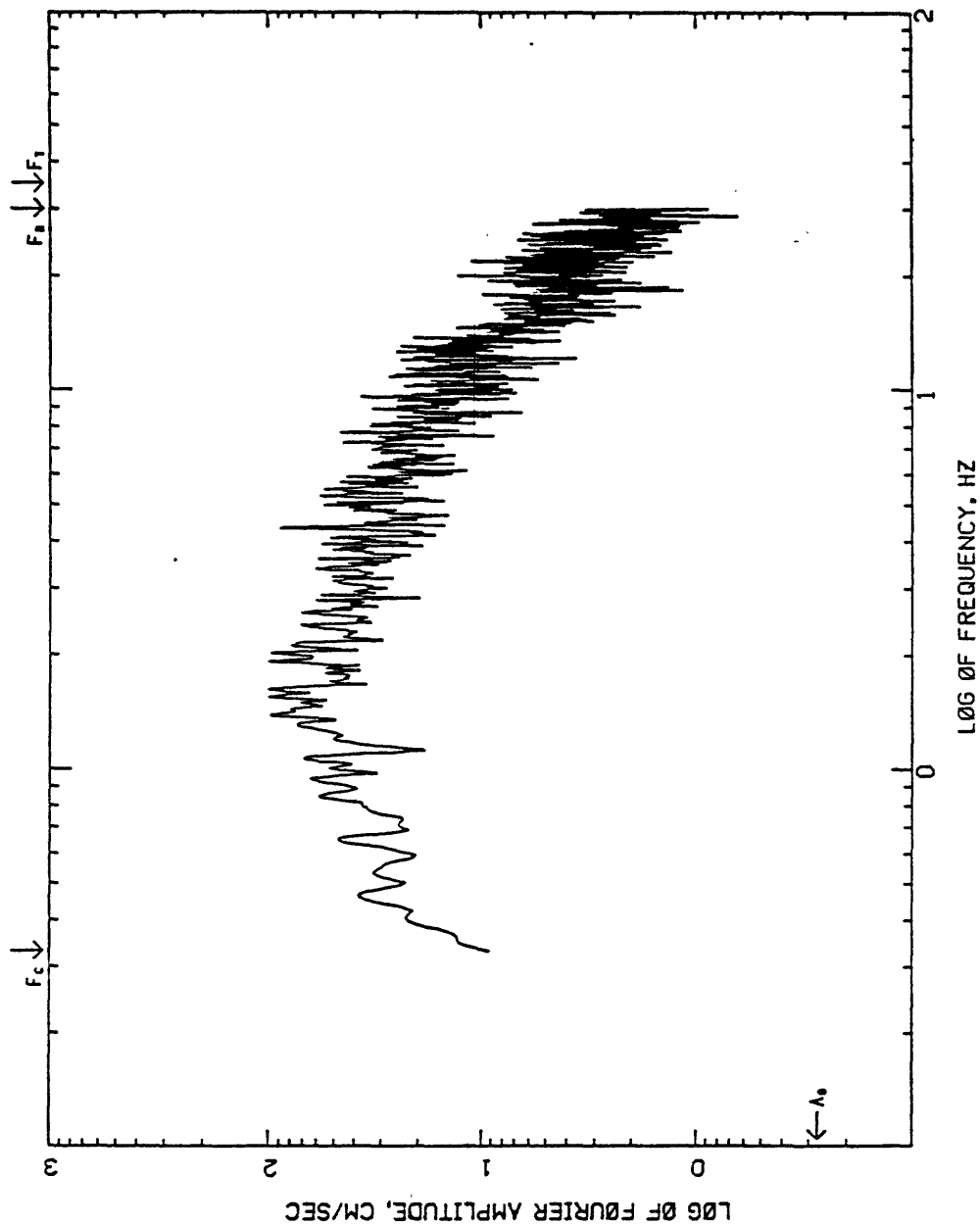
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL--119.57 CM/SEC/SEC, VELOCITY--14.06 CM/SEC, DISPL--3.40 CM



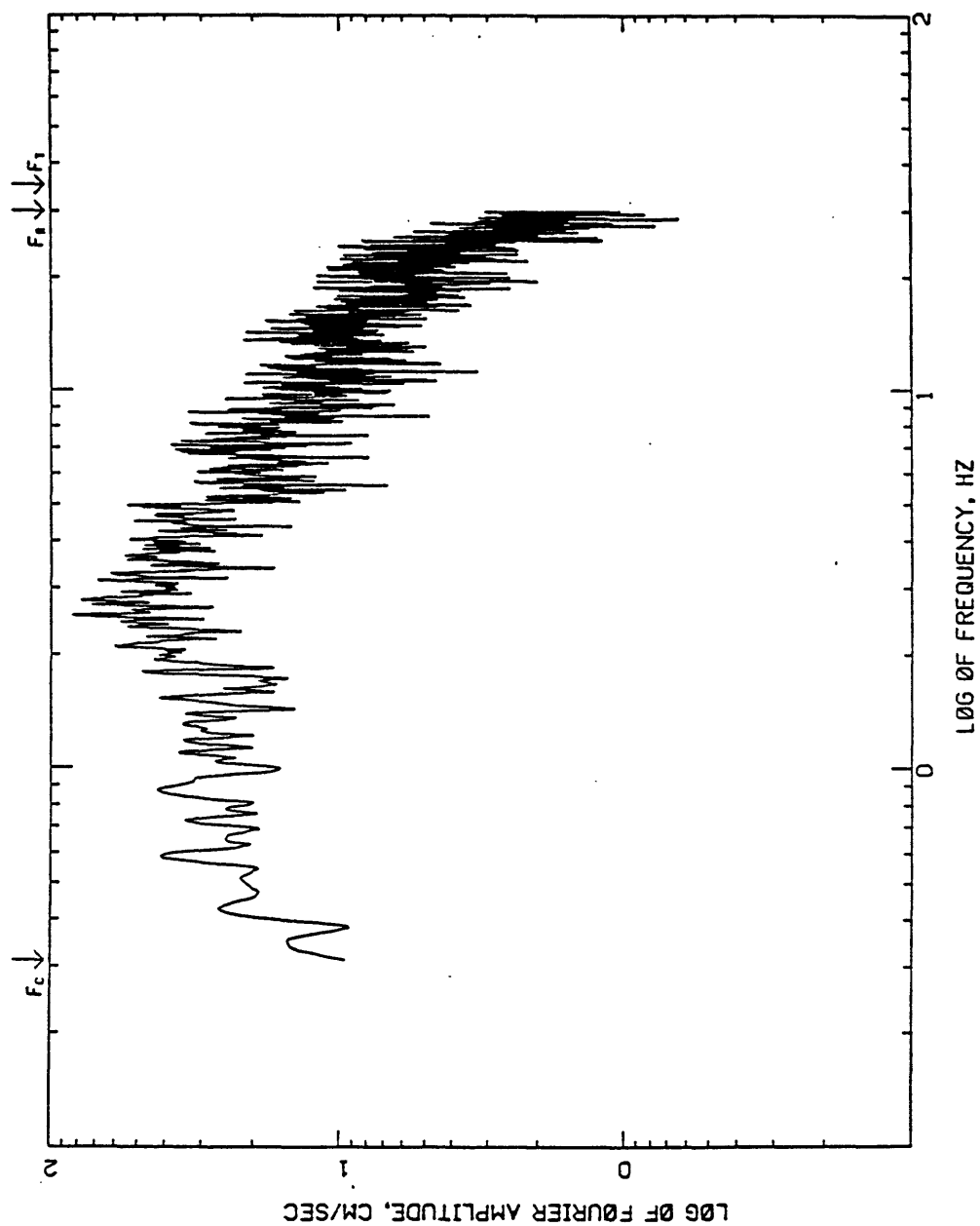
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL = 119.57 CM/SEC/SEC, VELOCITY = 14.06 CM/SEC, DISPL = 3.40 CM



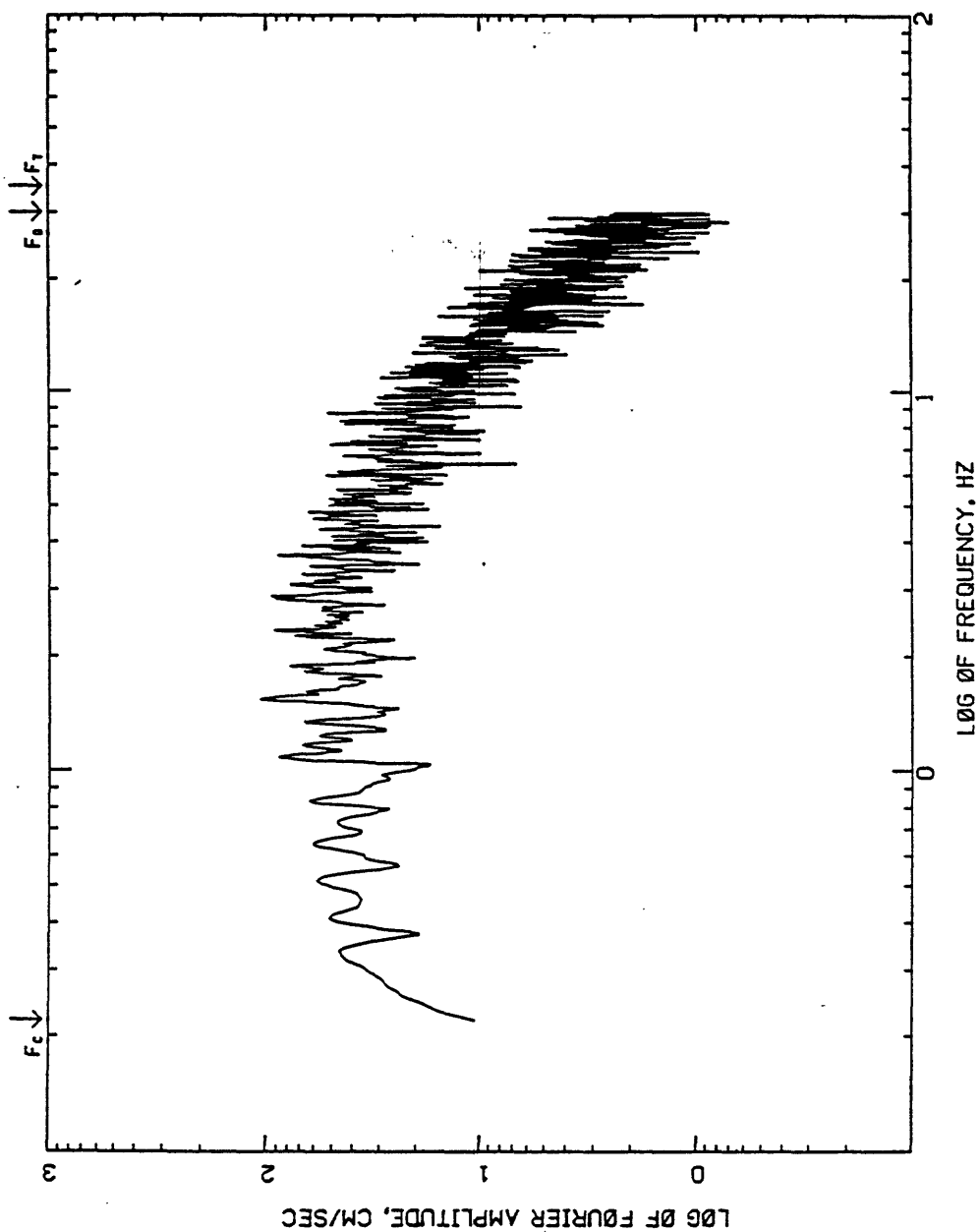
FØURIER AMPLITUDE SPECTRUM ØF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSM1), SANTIAGO, CHILE, LONGITUDINAL
 COMPUTING OPTIONS - ZCRØSS, SMØØTHJØI, NØNØISE



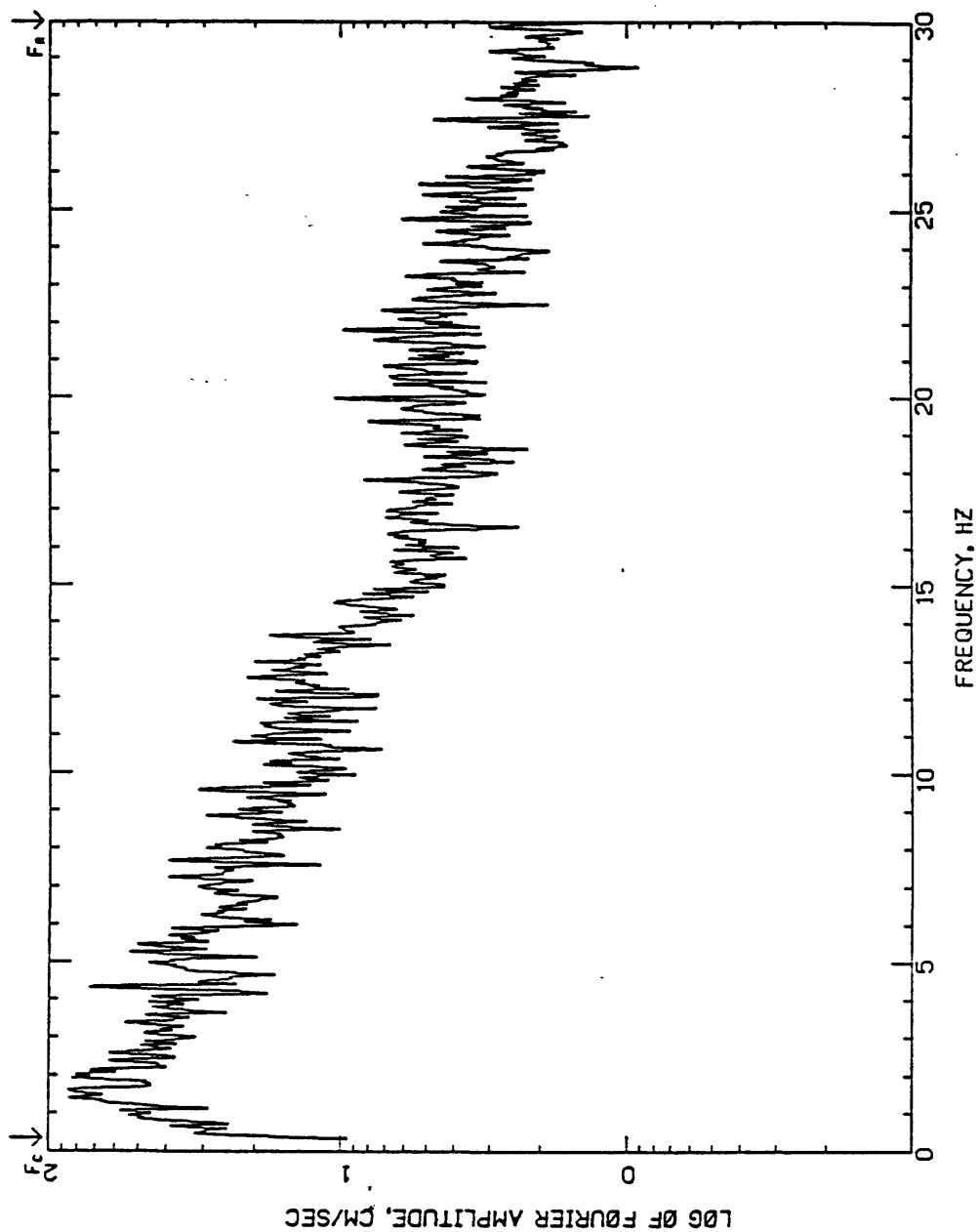
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, VERTICAL
 COMPUTING OPTIONS= ZCR0SS,SM00TH101,N00ISE



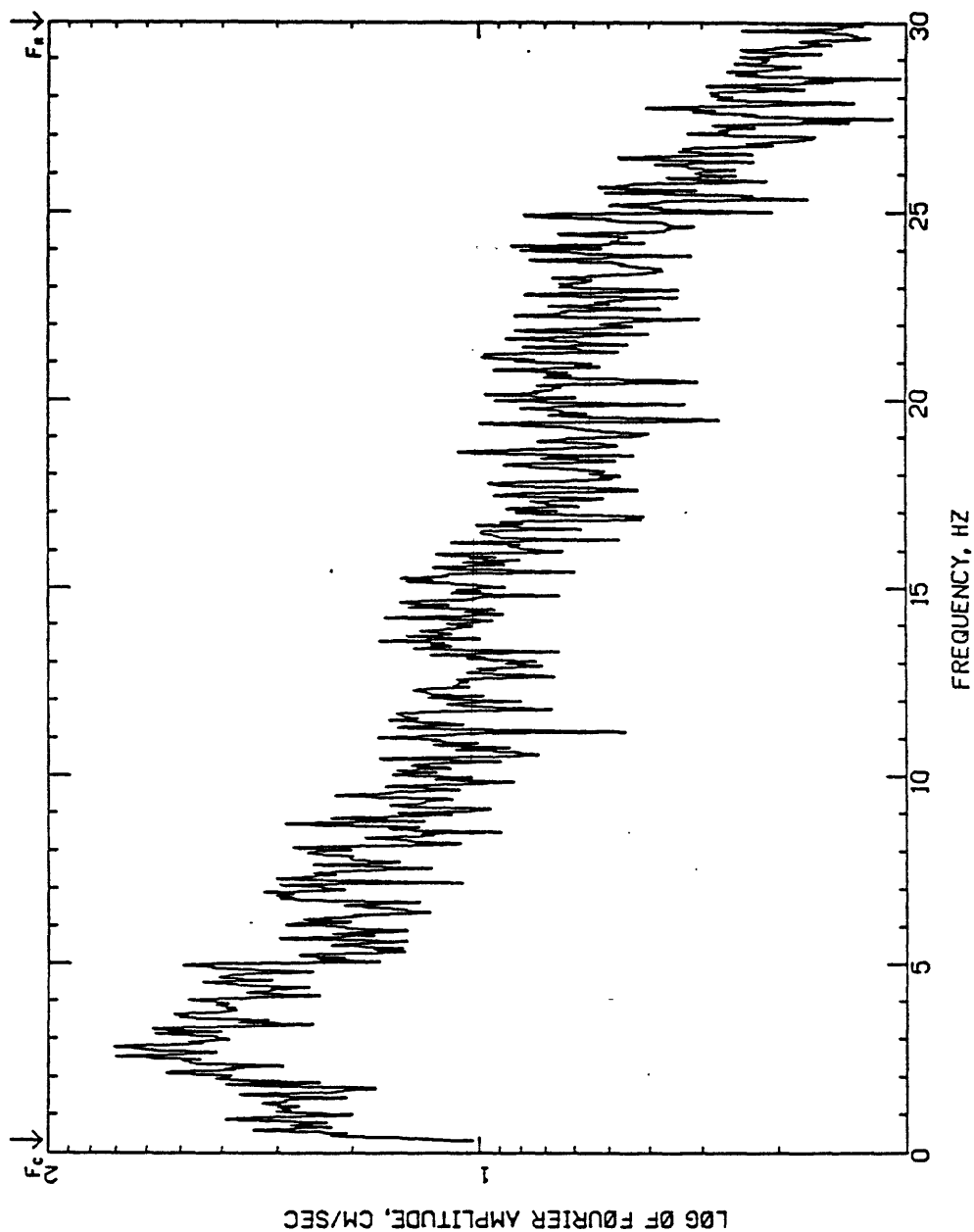
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCR0SS, SM00TH10, N0N0ISE



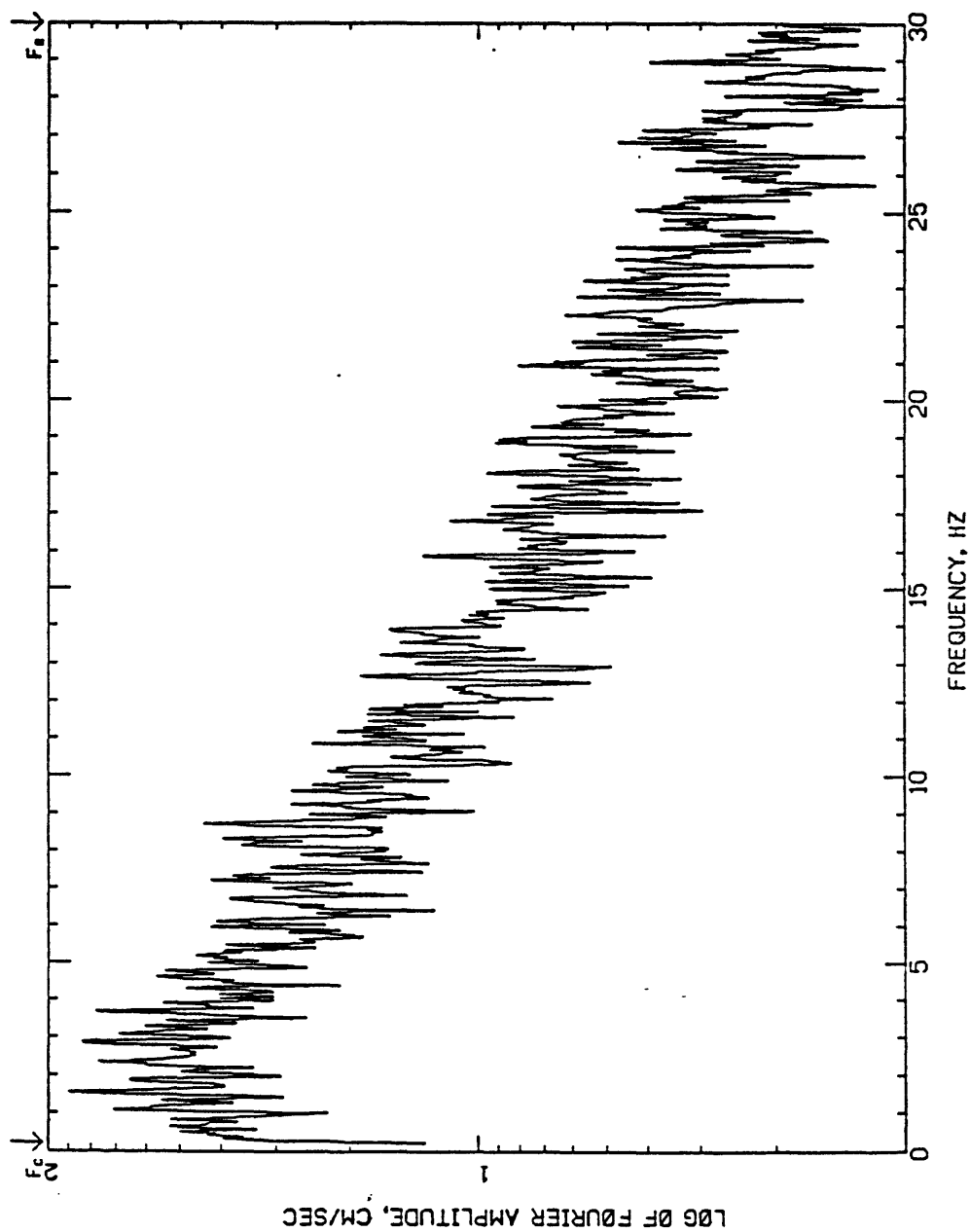
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/89, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, LONGITUDINAL
 COMPUTING OPTIONS- ZCR0SS,SM0011(20),N0N0ISE



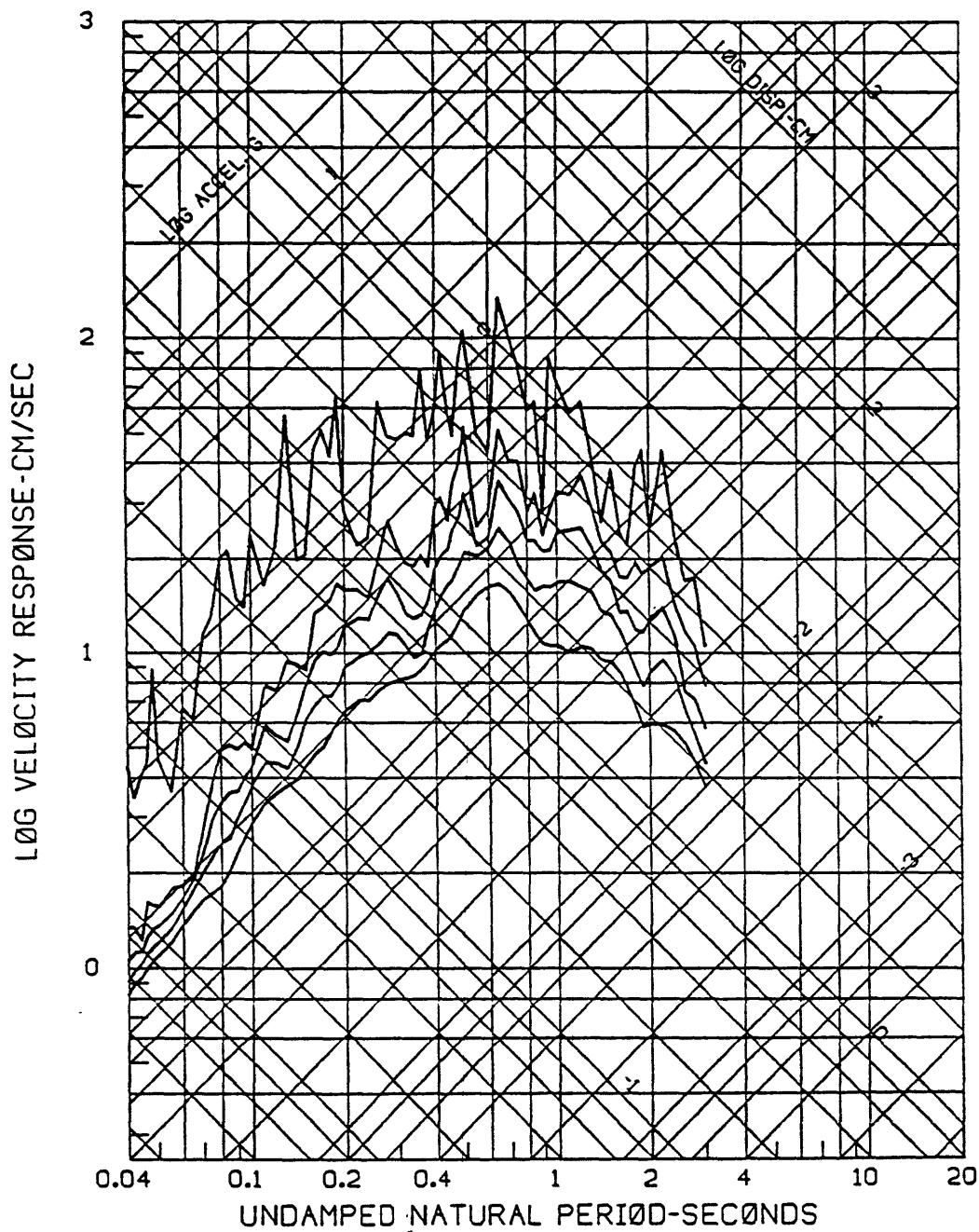
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SM00TH2D, N0N0ISE



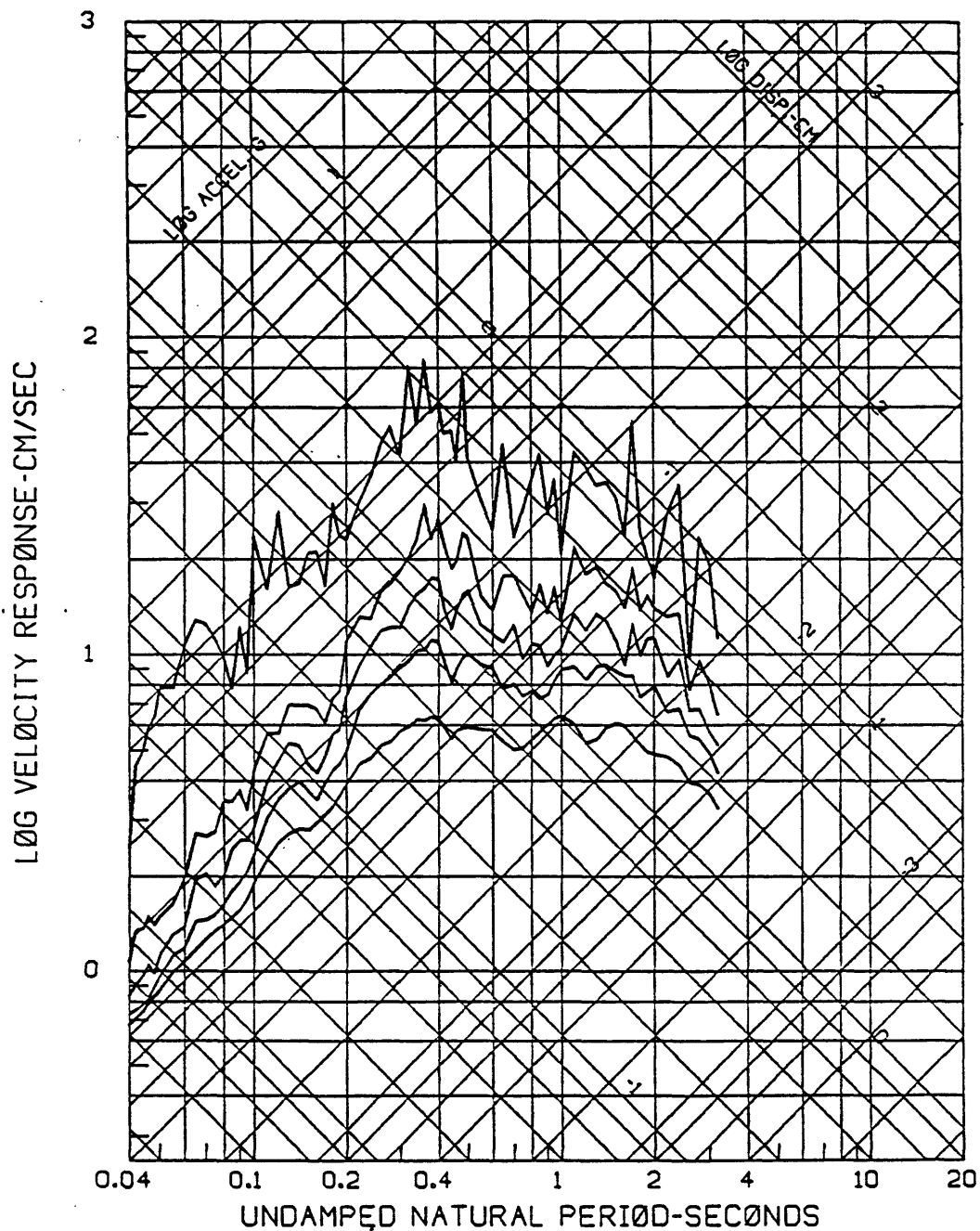
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCR055,SH00TH(20),N0N0ISE



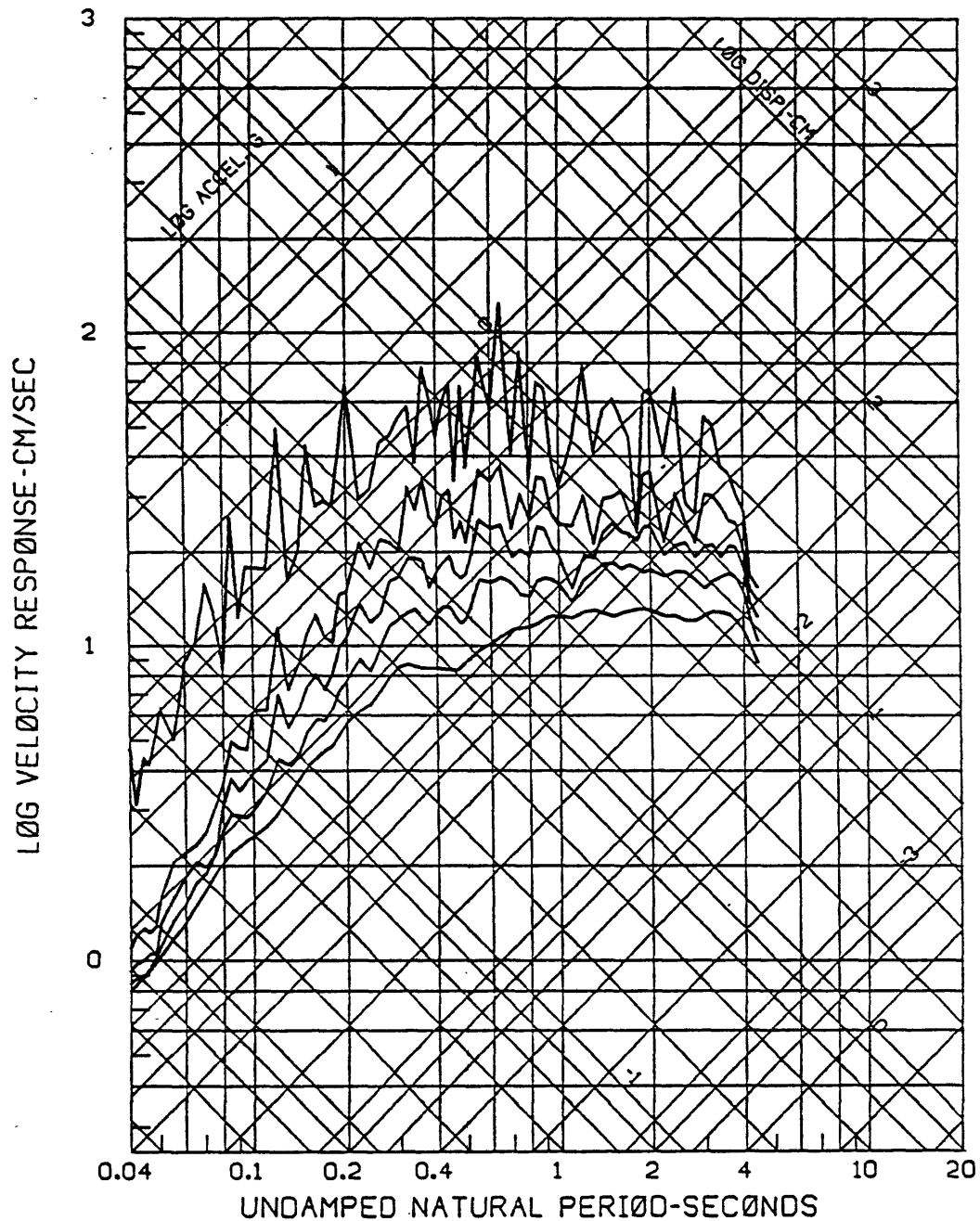
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



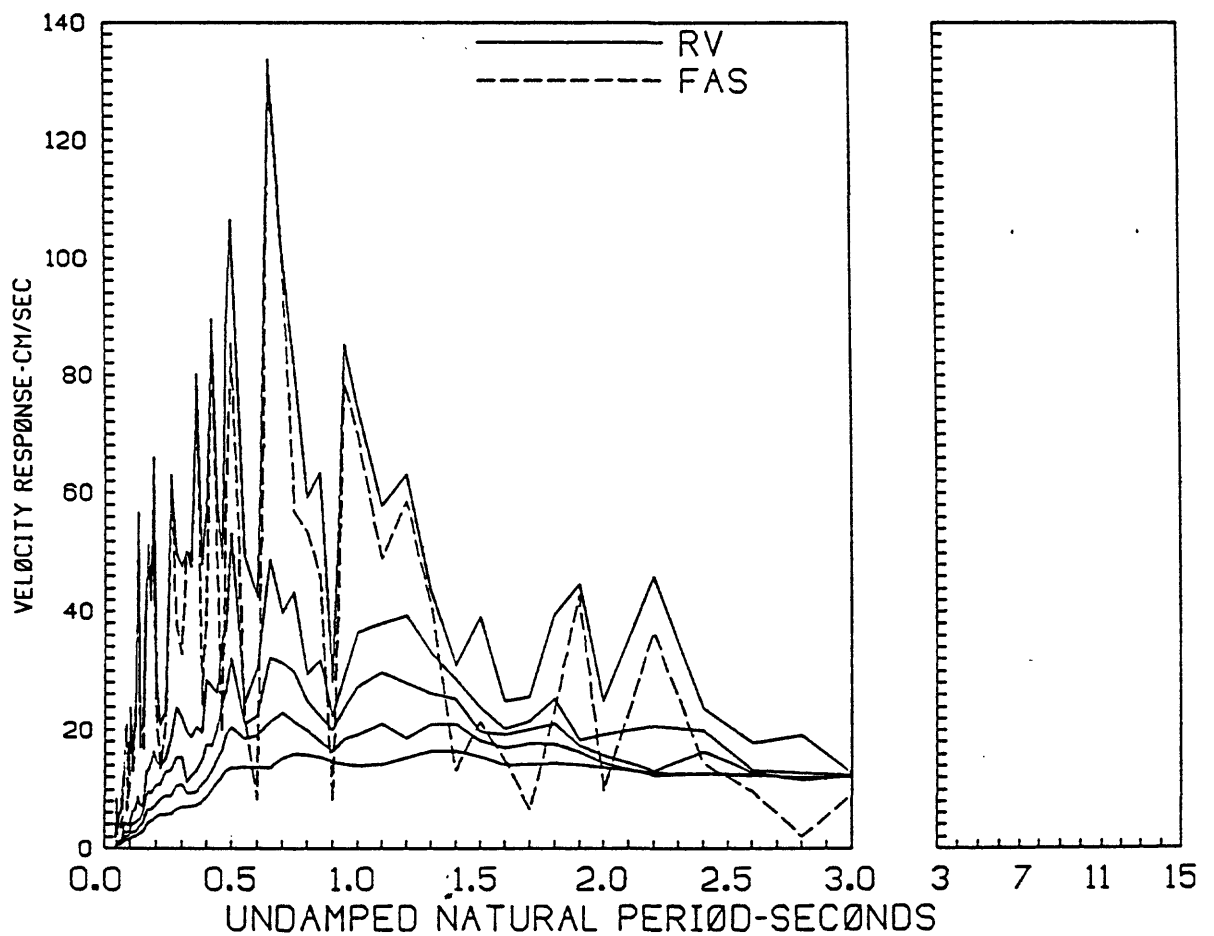
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



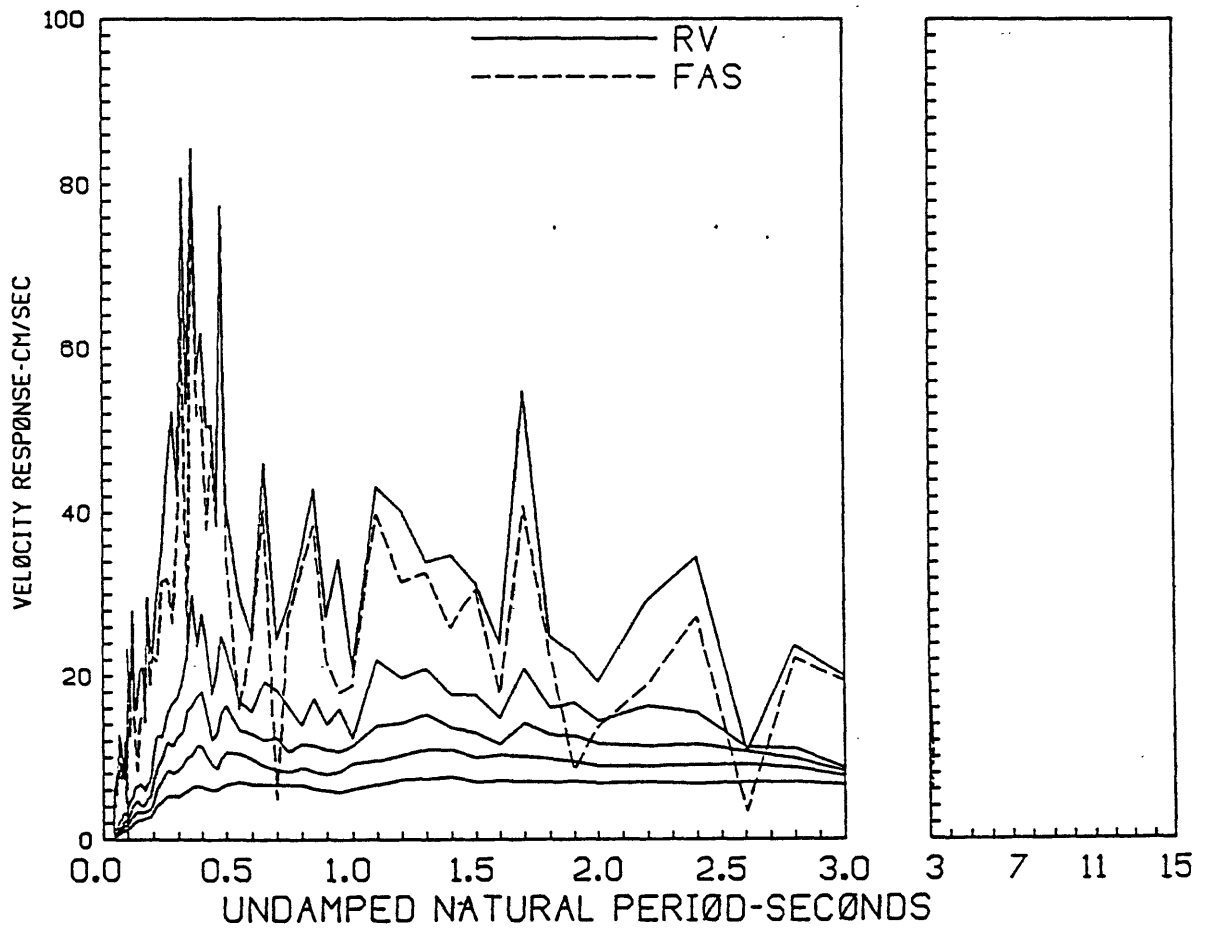
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



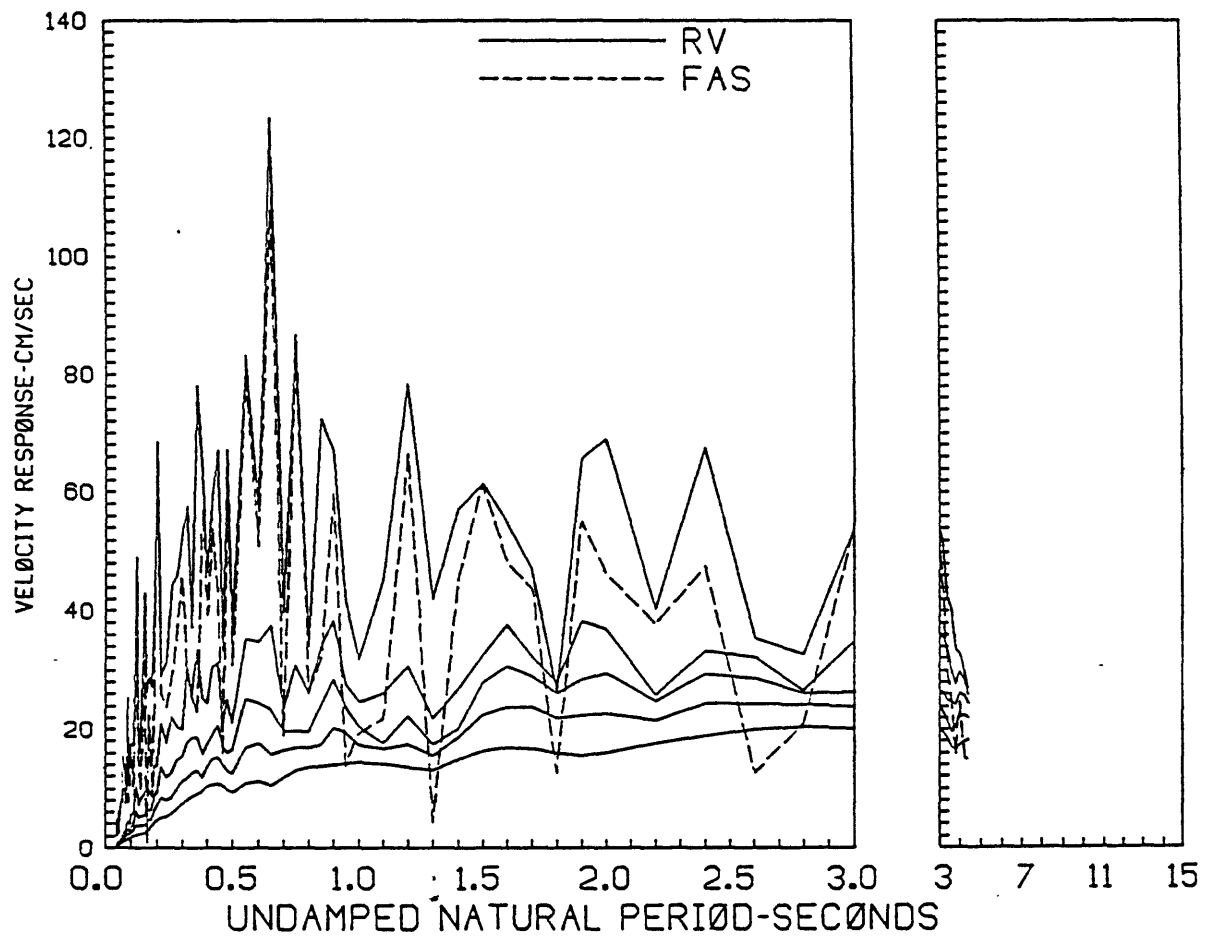
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 ENDESA BUILDING (BSMT), SANTIAGO, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



SUMMARY OF STRONG-MOTION RECORD PROCESSING

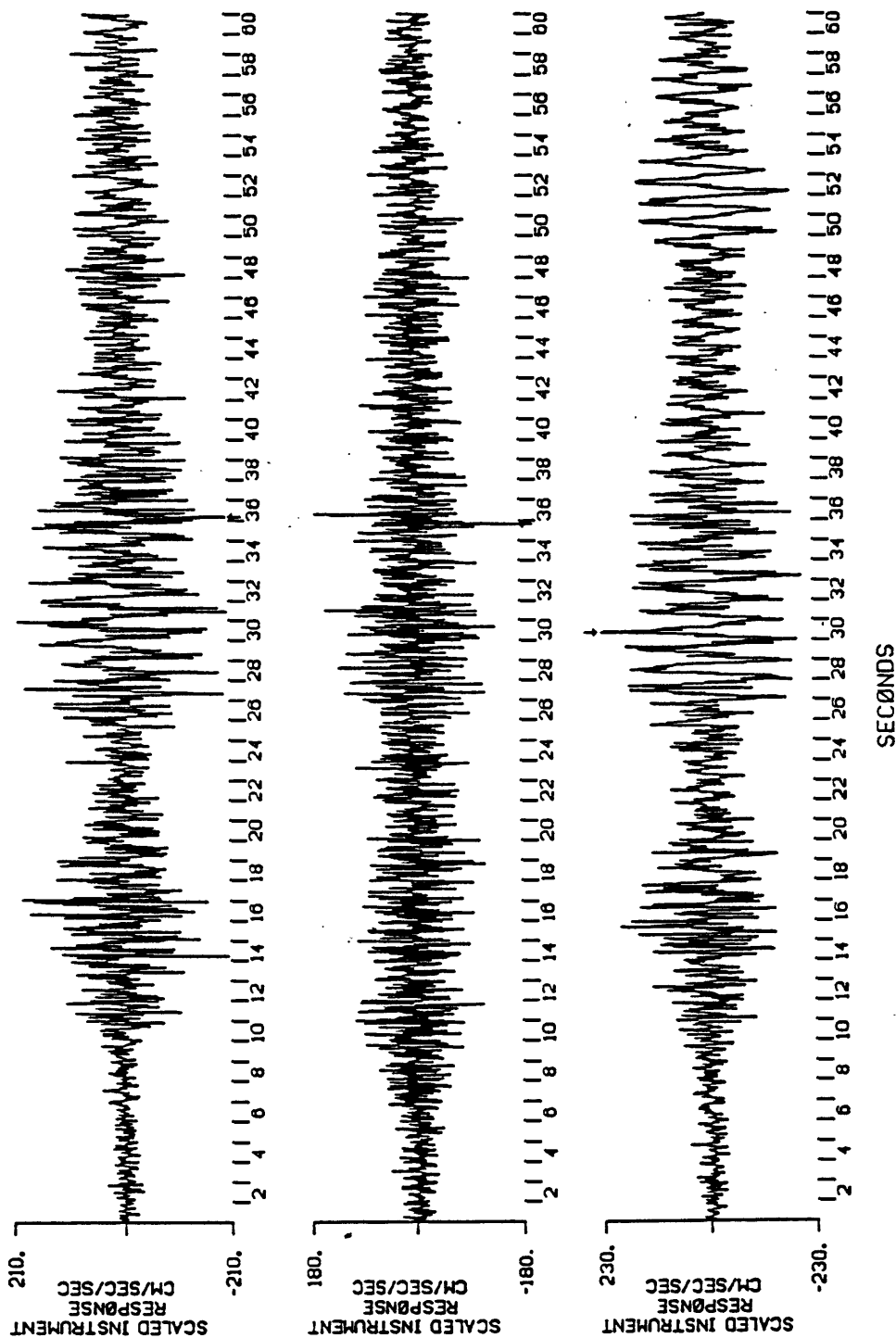
Central Chile earthquake, 3/3/85
22:47:07 UTC, $M_s=7.8$

Ventanas, Chile

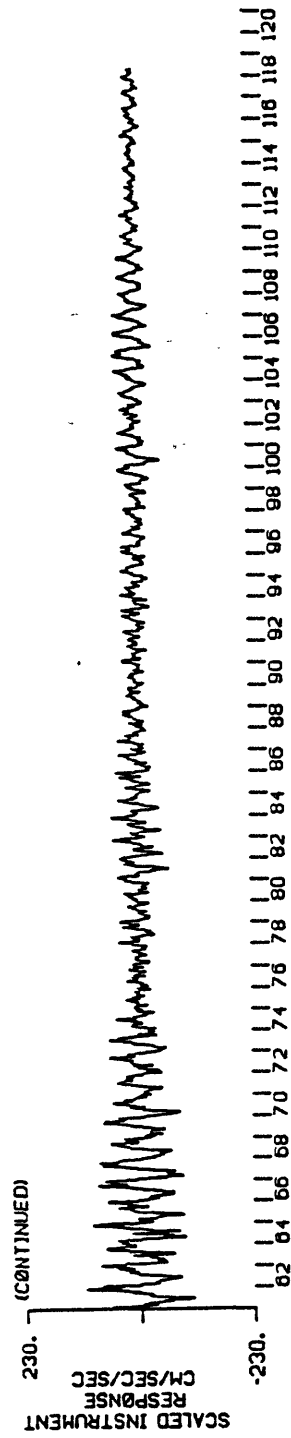
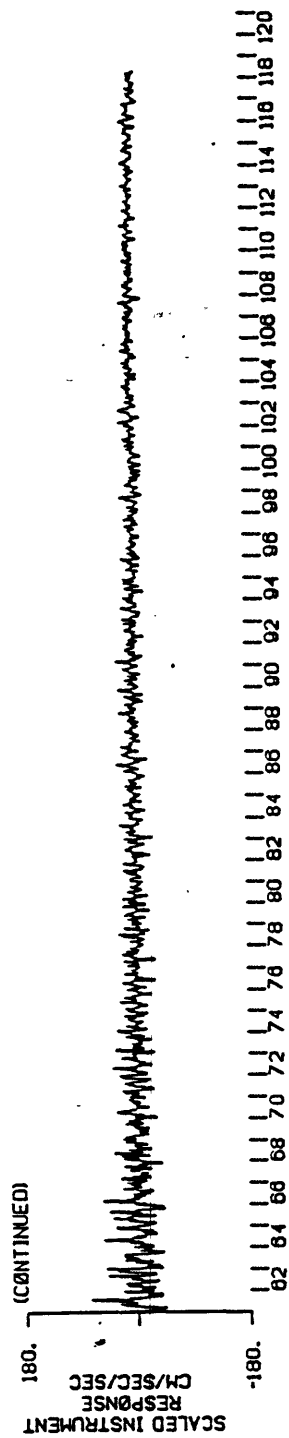
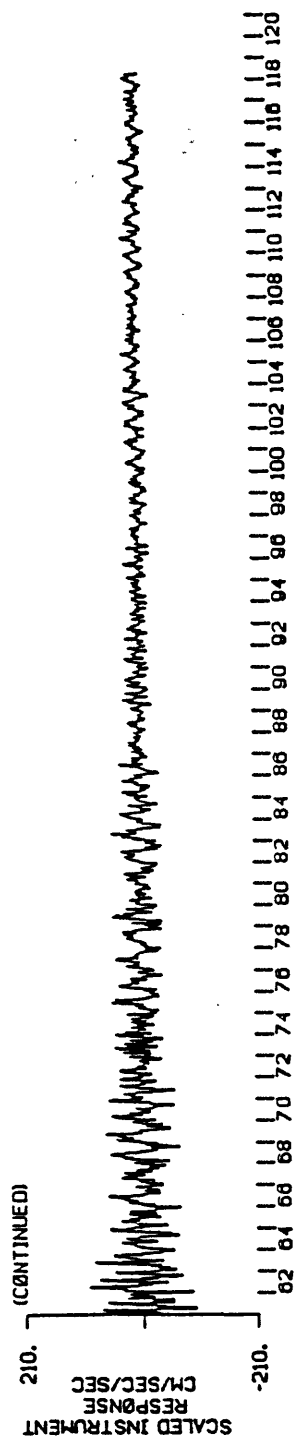
DESCRIPTION	COMPONENT		
	Longitudinal	Vertical	Transverse
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.0*	25.0*	25.0*
Damping (% Critical)	62.6	60.4	59.3
<u>Filter Parameters:</u>			
Highcut (Hz)	18.0	30.0	19.0
Lowcut (Hz)	0.200	0.303	0.222
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	-206.5	-176.0	228.0
Peak Acceleration, A (cm/s/s)	-208.9	173.4	223.0
Peak Velocity, V (cm/s)	-23.3	-7.10	-24.6
Peak Displacement, D (cm)	-3.88	-1.20	-4.60
<u>Parameter Ratios:</u>			
V/A (sec)	0.11	0.041	0.11
AD/V ²	1.5	4.1	1.7

* Nominal Value

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES(CM/SEC/SEC): -206.45 -176.00 227.95

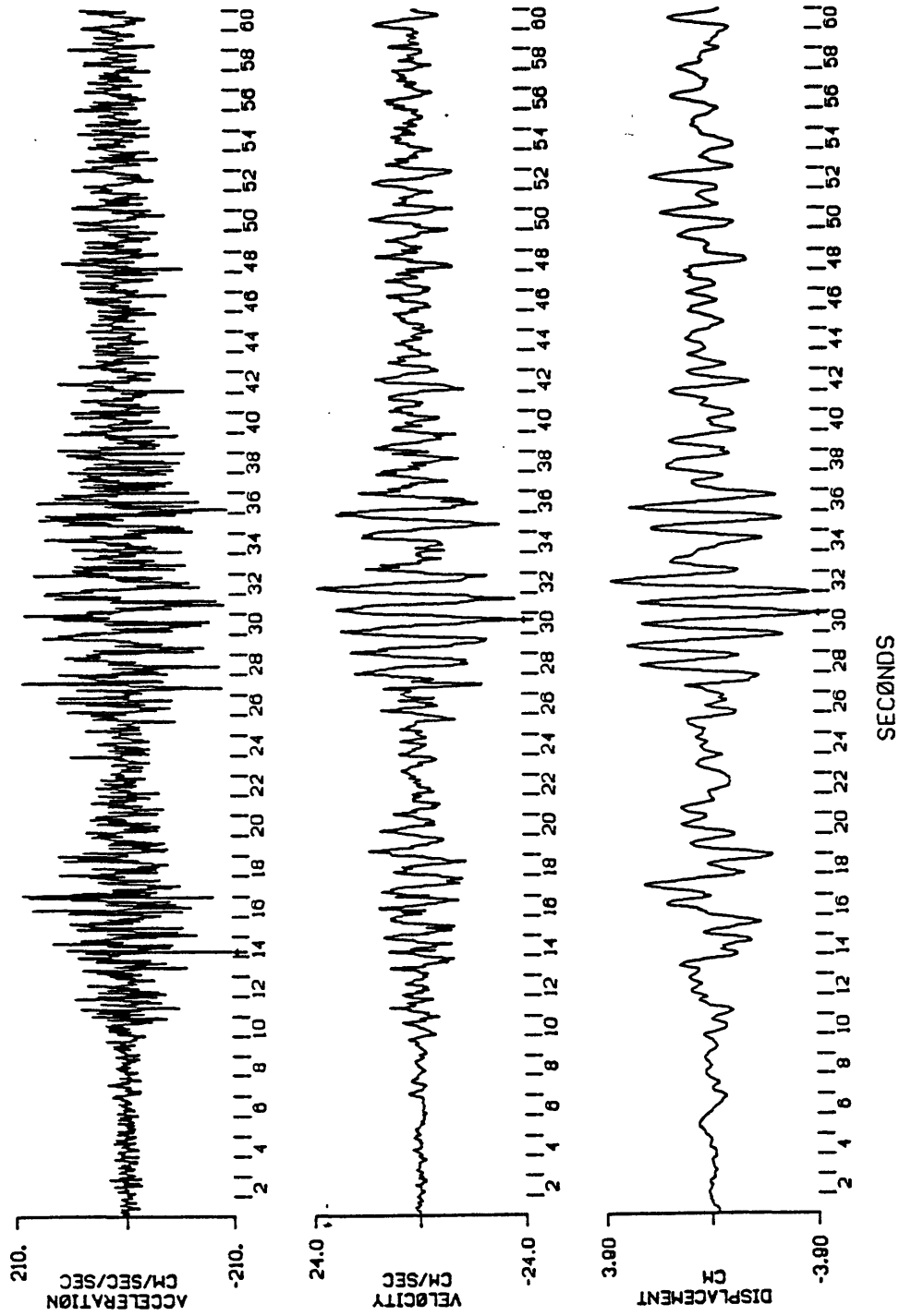


UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, LONGITUDINAL, VERTICAL, TRANSVERSE
 PEAK VALUES(CM/SEC/SEC): -206.45 -176.00 227.95

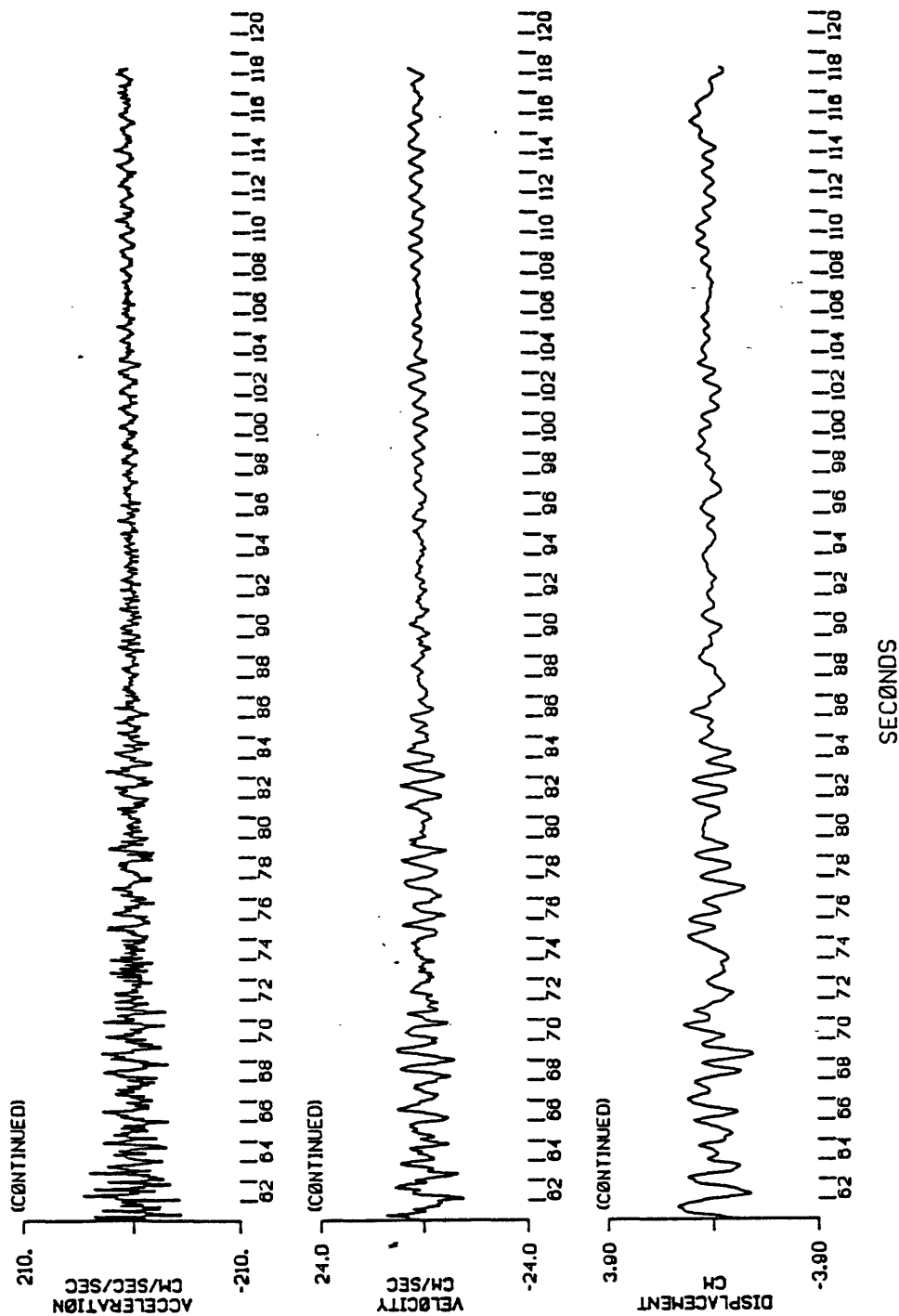


SECONDS

CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, LONGITUDINAL
 PEAK VALUES: ACCEL--208.90 CM/SEC/SEC, VELOCITY--23.25 CM/SEC, DISPL--3.88 CM

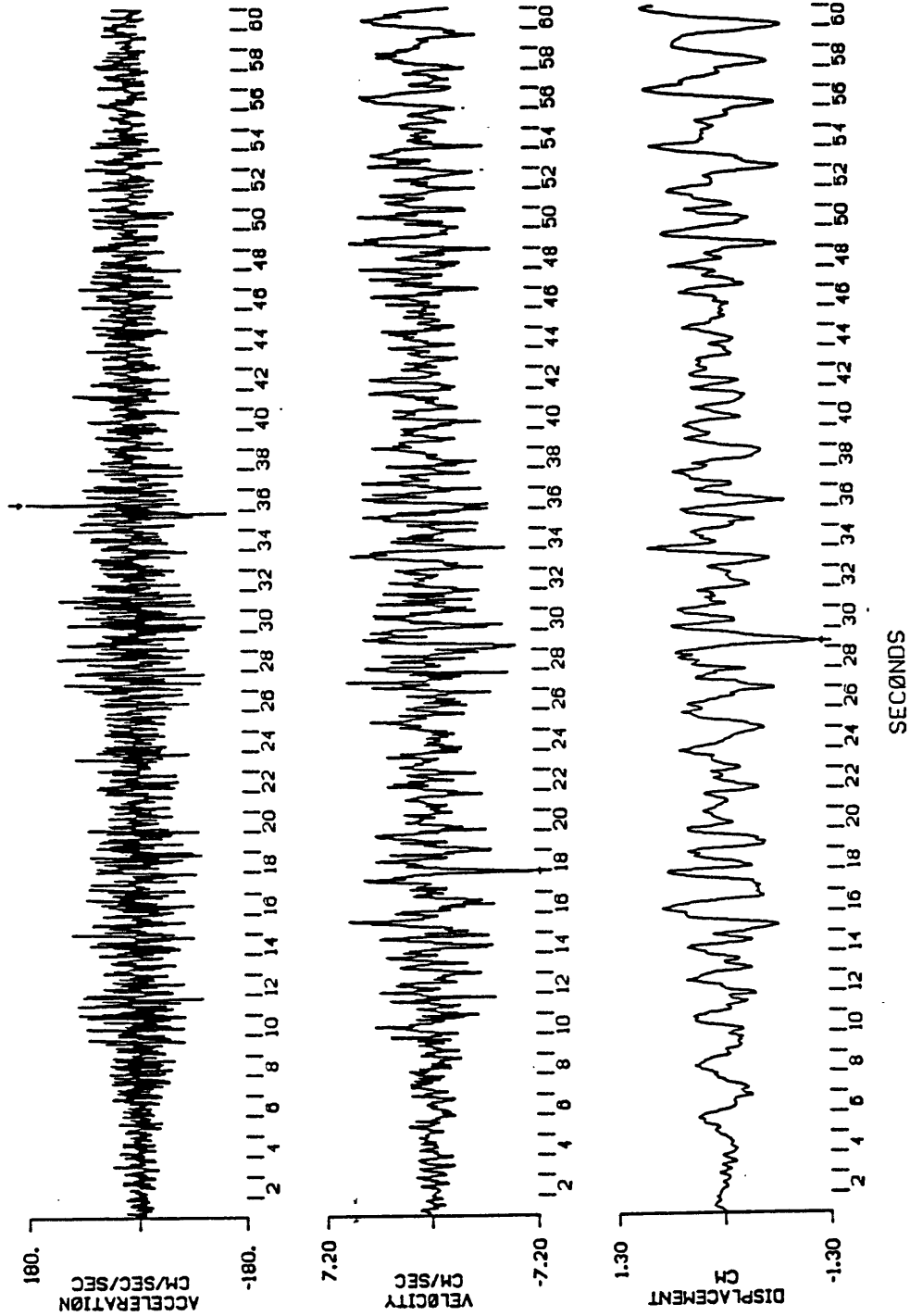


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS CHILE, LONGITUDINAL
 PEAK VALUES: ACCEL--208.90 CM/SEC/SEC, VELOCITY--23.25 CM/SEC, DISPL--3.88 CM

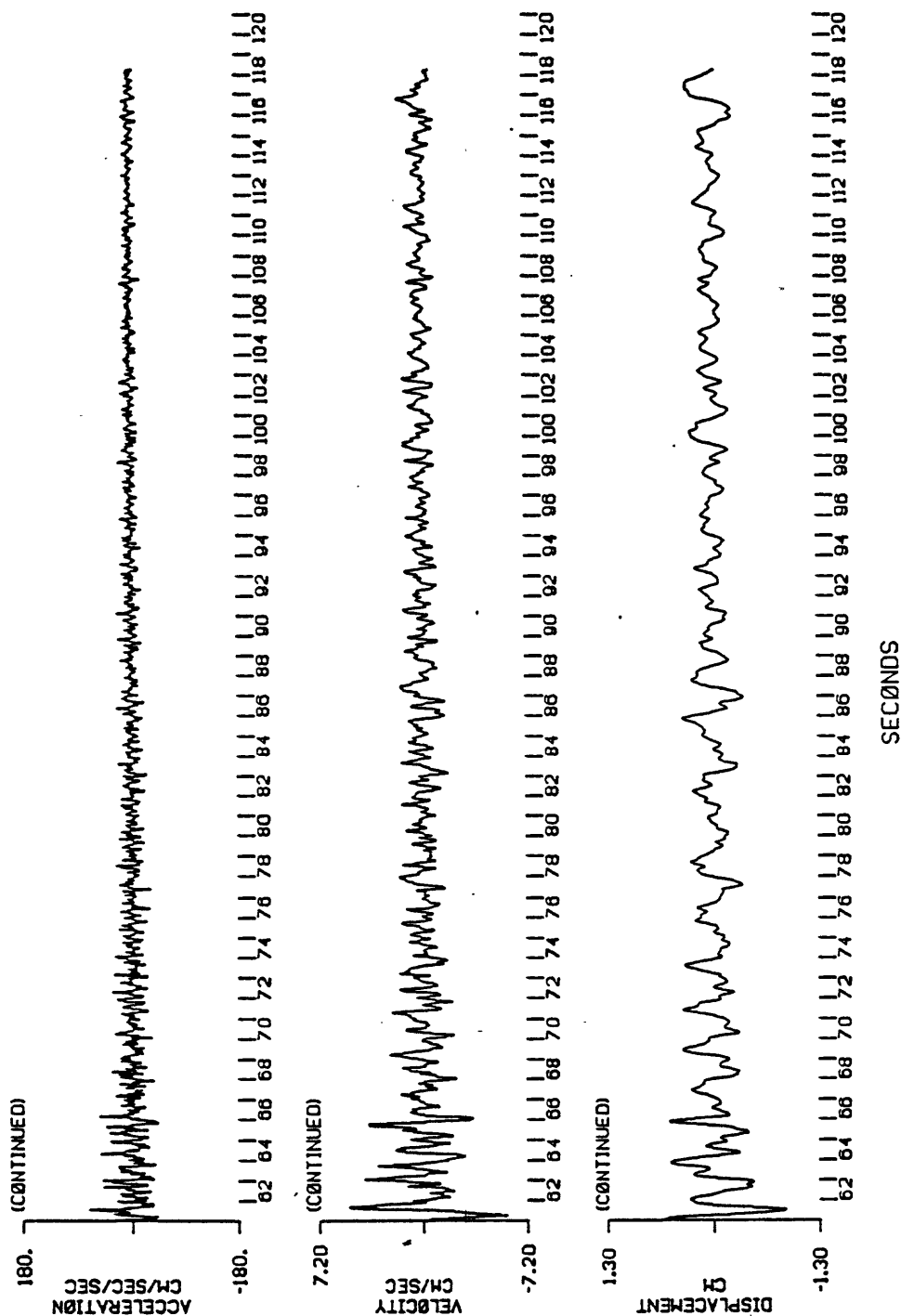


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, VERTICAL

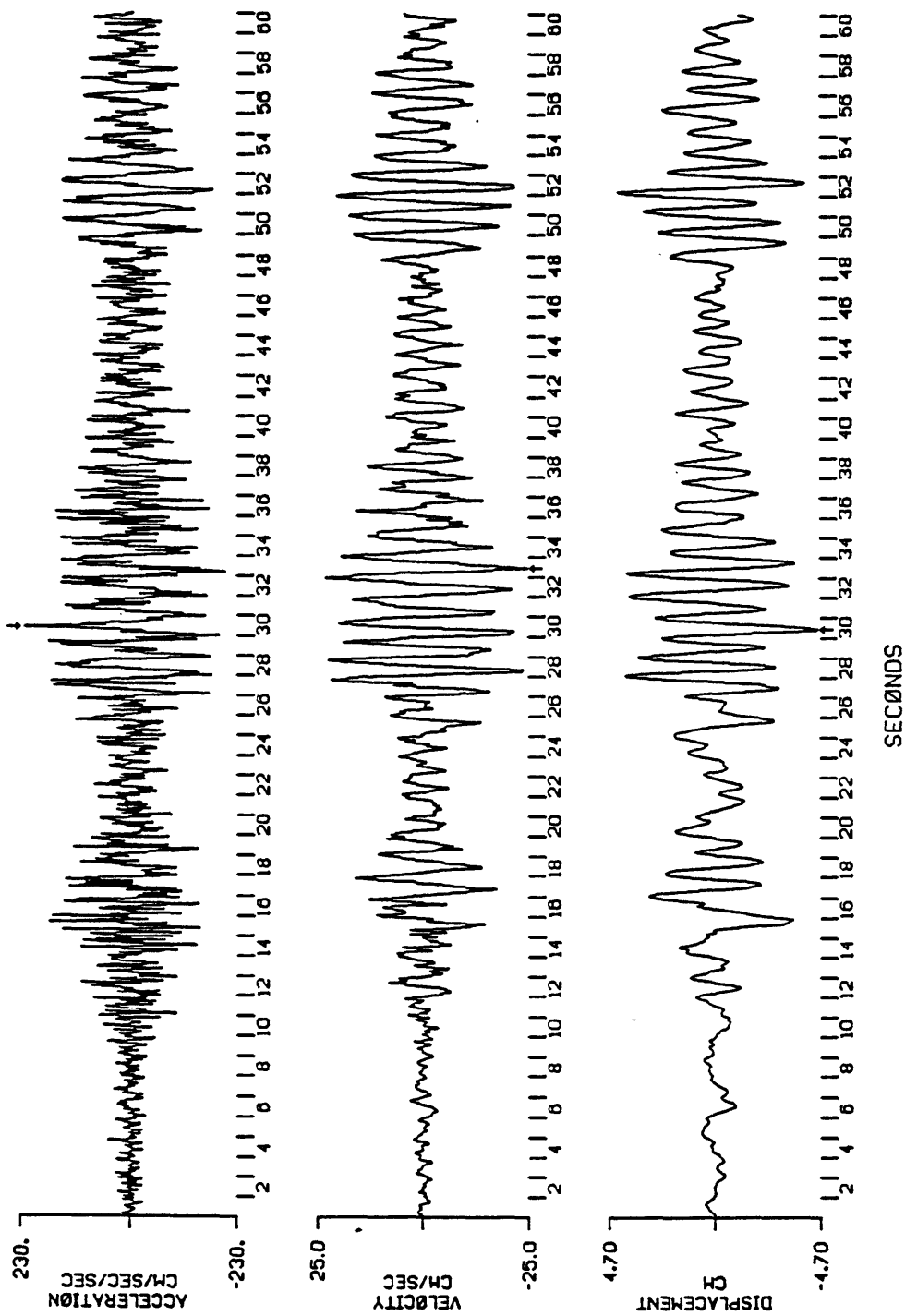
PEAK VALUES: ACCEL-173.37 CM/SEC/SEC, VELOCITY--7.10 CM/SEC, DISPL--1.20 CM



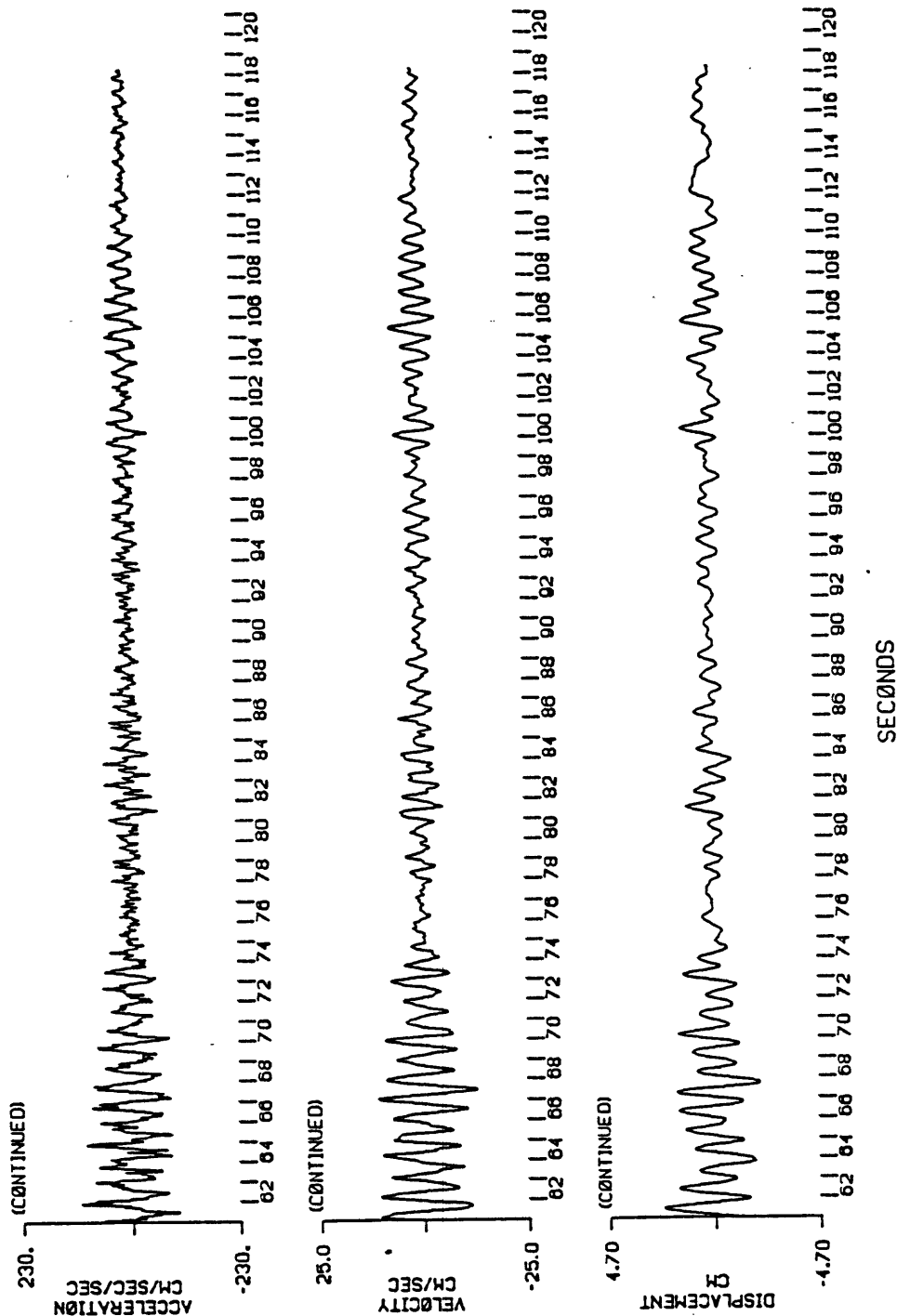
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, VERTICAL
 PEAK VALUES: ACCEL-173.37 CM/SEC/SEC, VELOCITY-7.10 CM/SEC, DISPL-1.20 CM



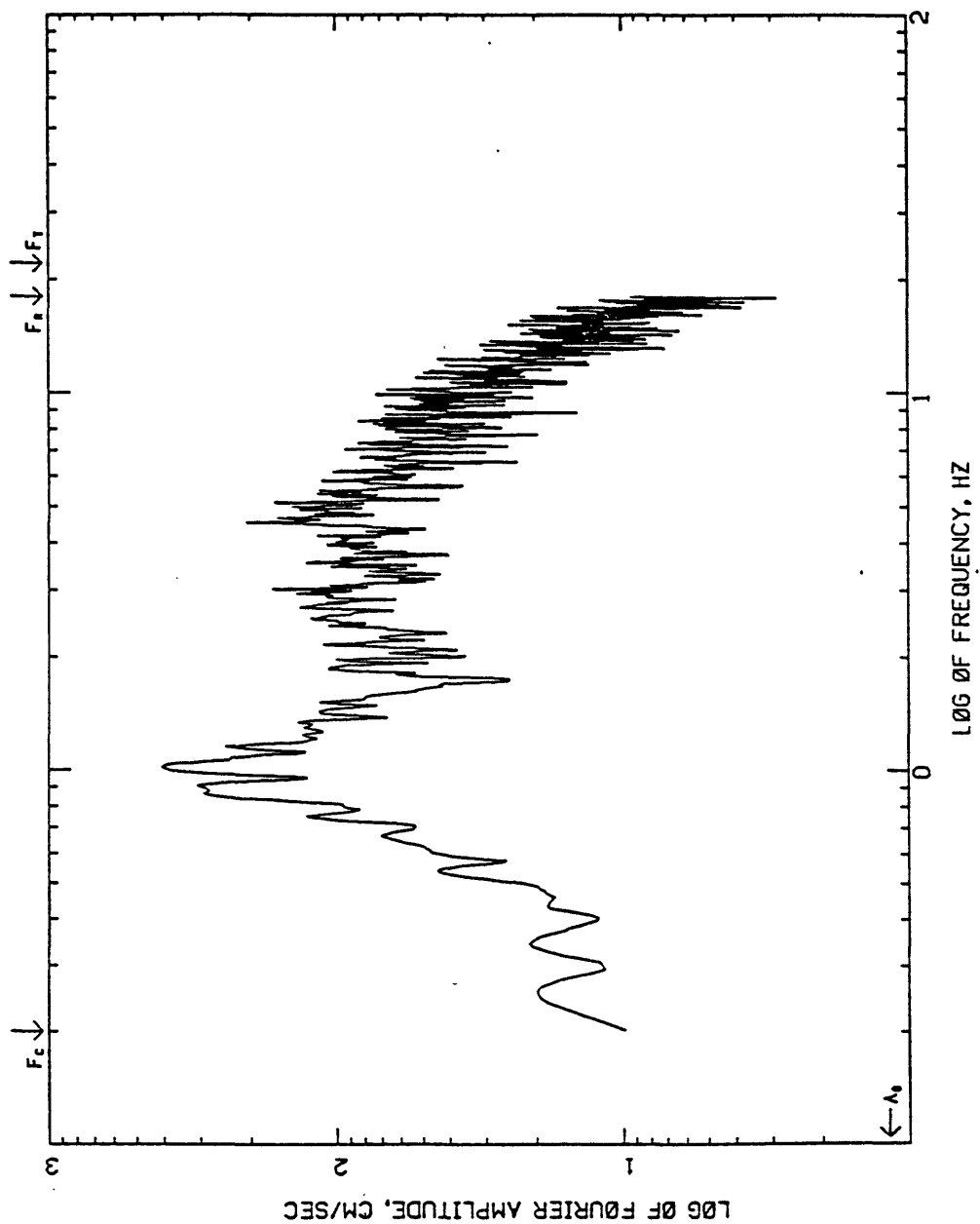
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL-223.04 CM/SEC/SEC, VELOCITY--24.55 CM/SEC, DISPL--4.60 CM



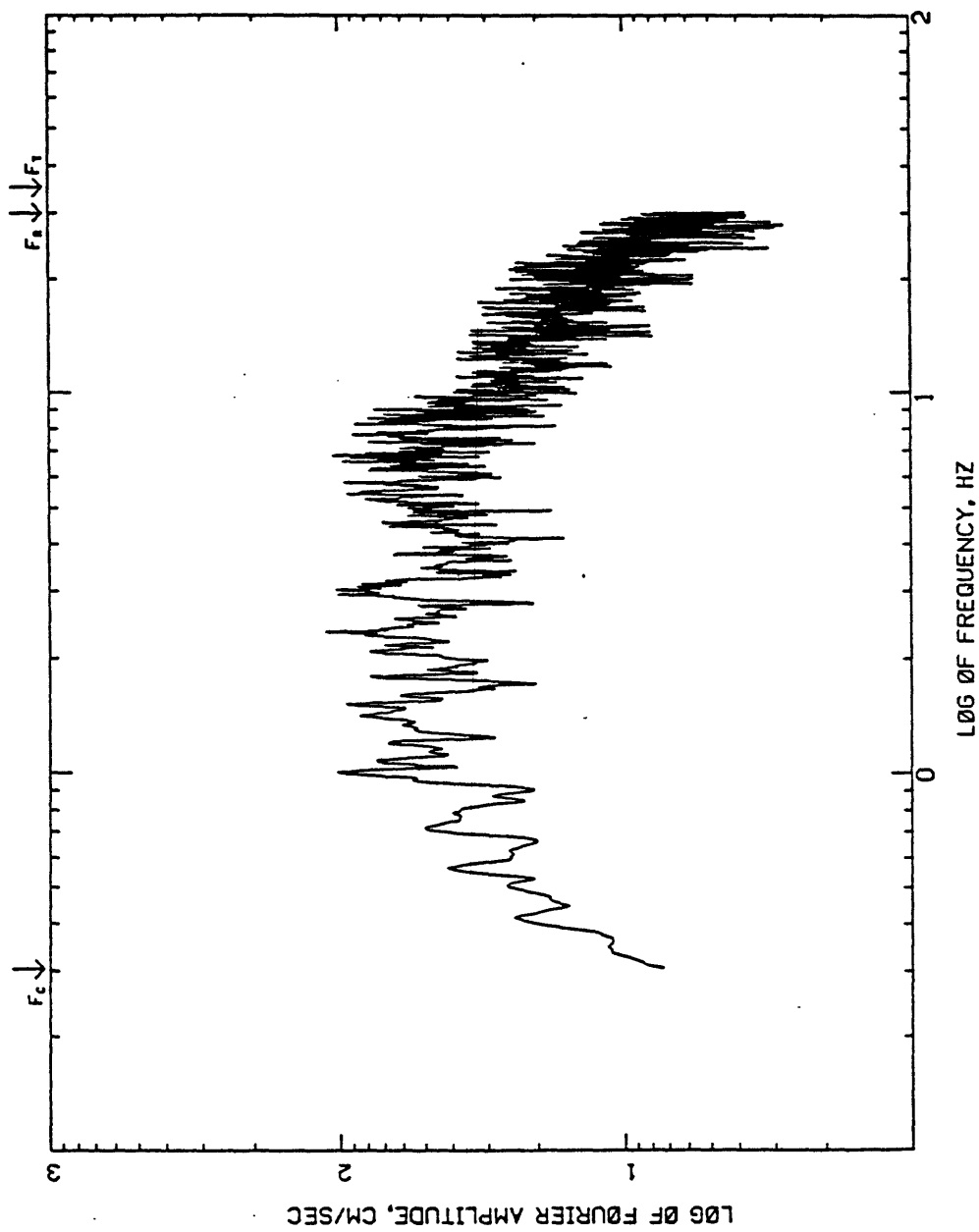
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC MS-7.8
 VENTANAS, CHILE, TRANSVERSE
 PEAK VALUES: ACCEL-223.04 CM/SEC/SEC, VELOCITY--24.55 CM/SEC, DISPL--4.60 CM



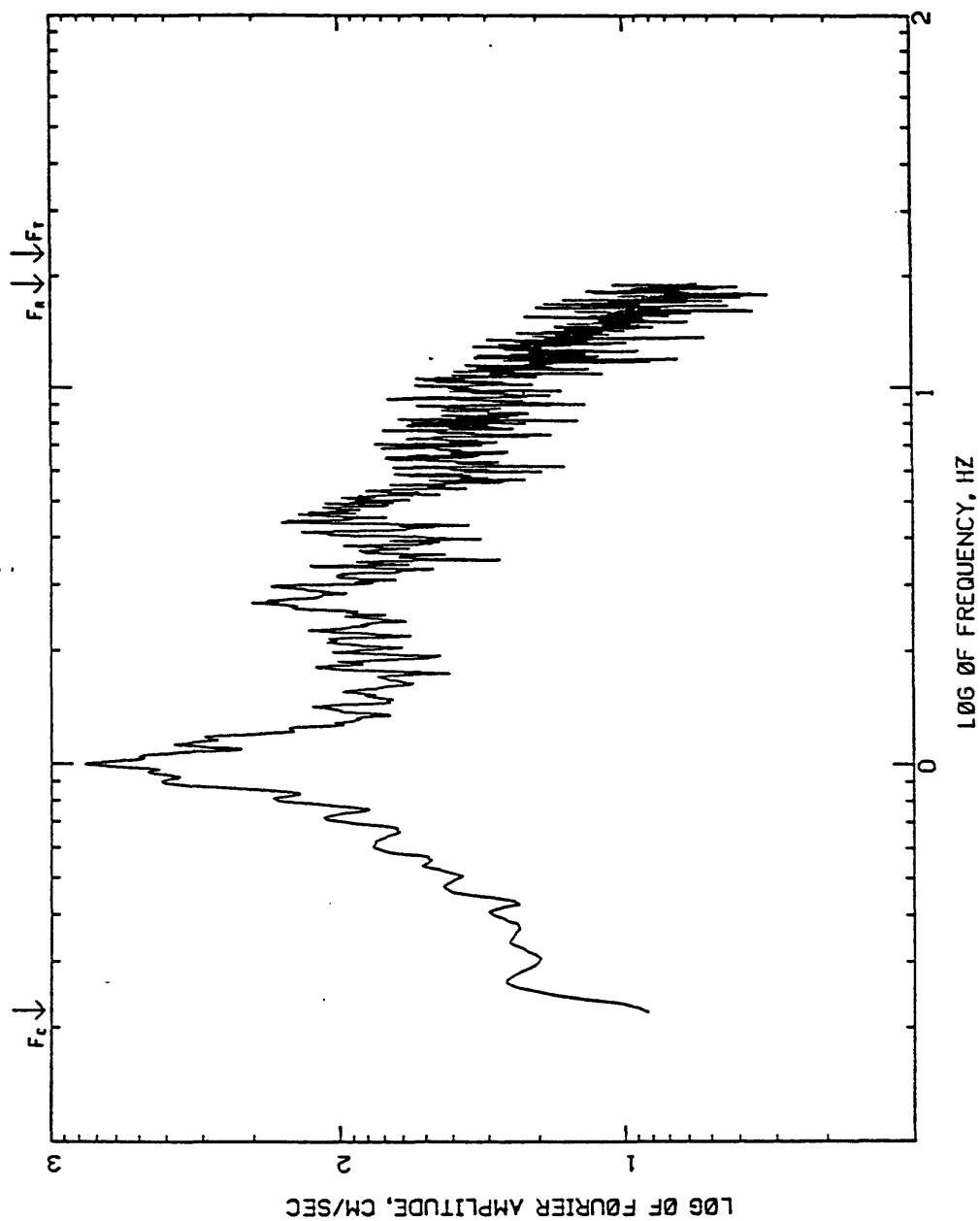
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, LONGITUDINAL
 COMPUTING OPTIONS- ZCR0SS,SM00TH101,N0N0ISE



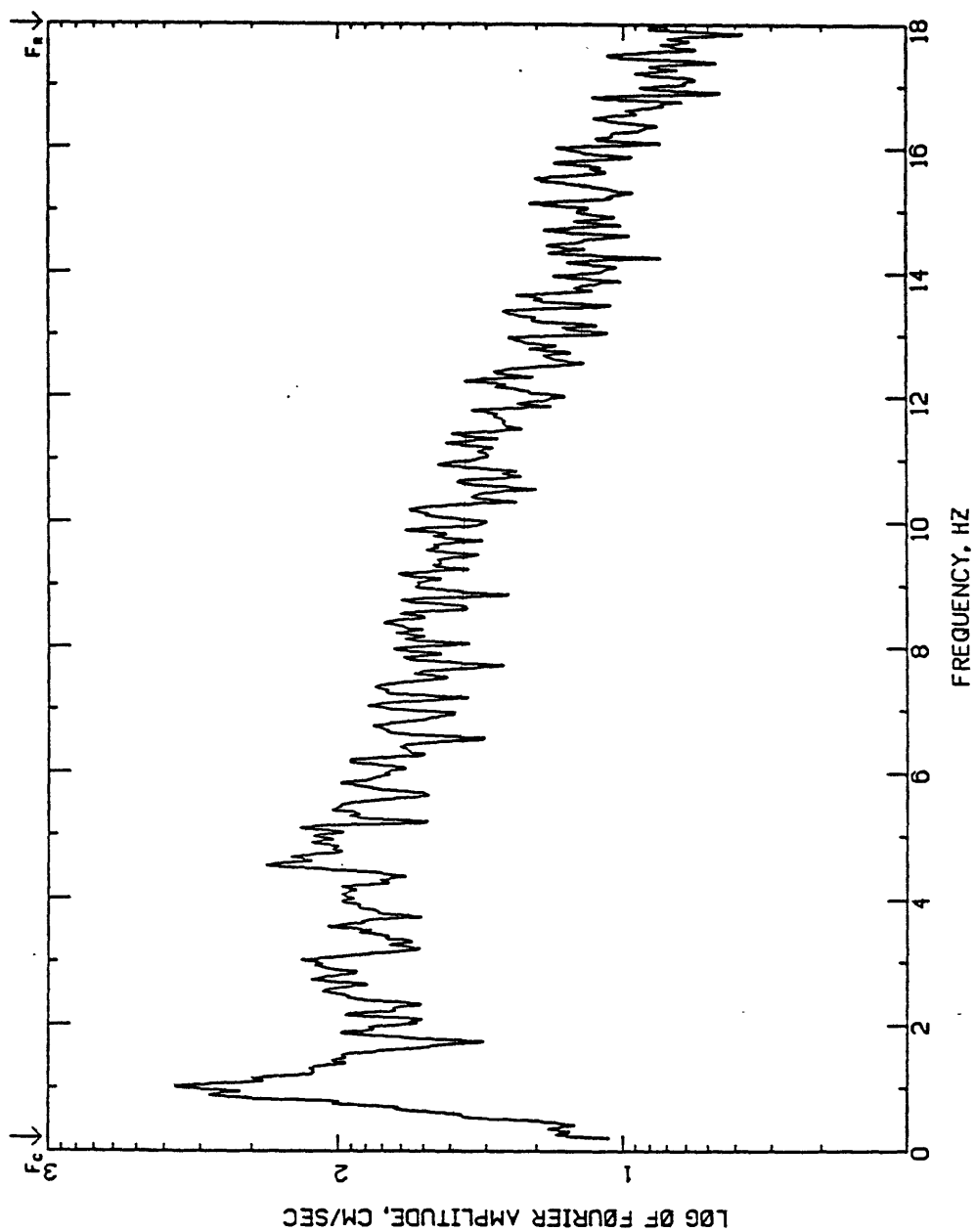
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCR055, SMOOTH10, NON0ISE



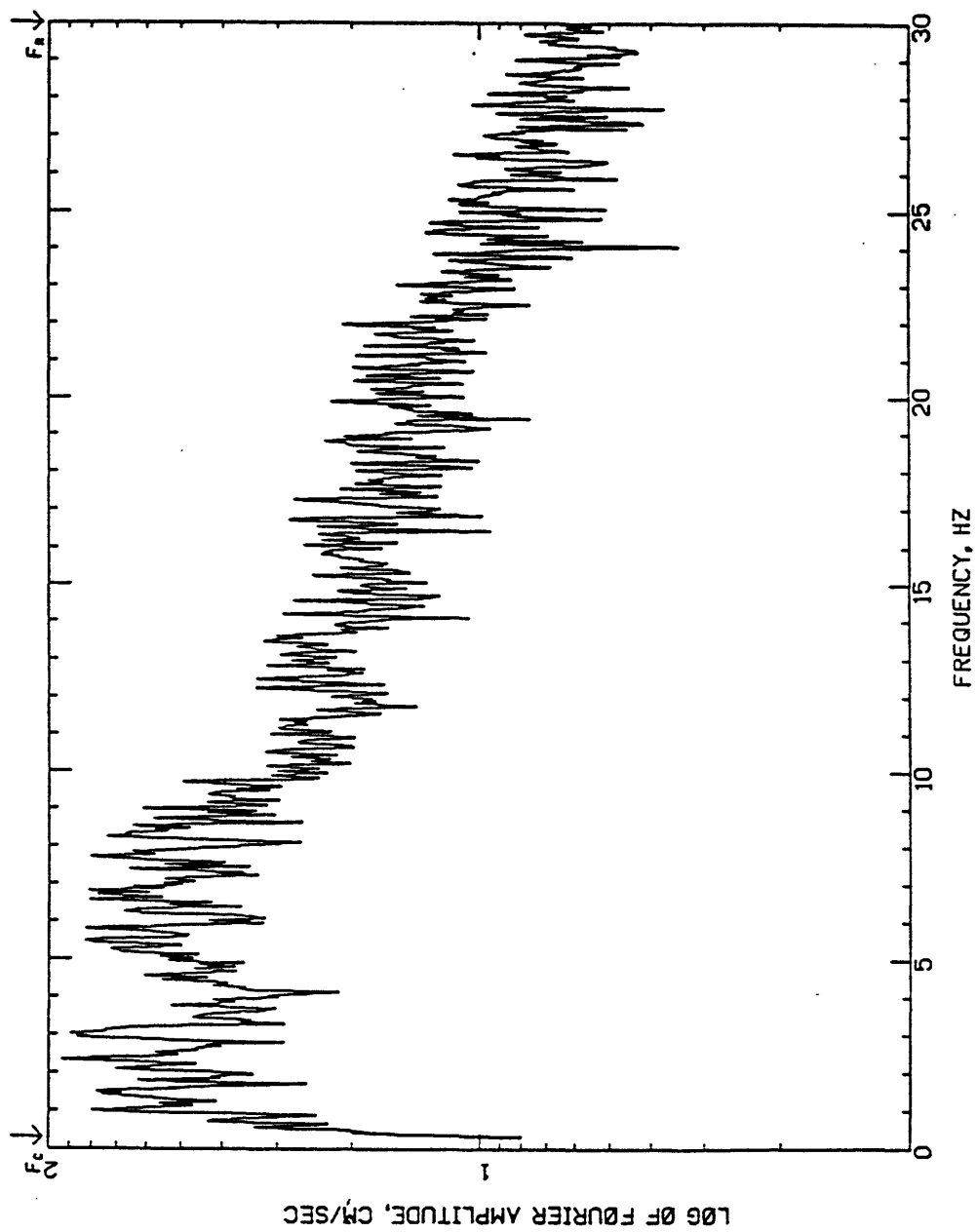
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC MS-7.8
 VENTANAS, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCR055, SM00TH100, N00ISE



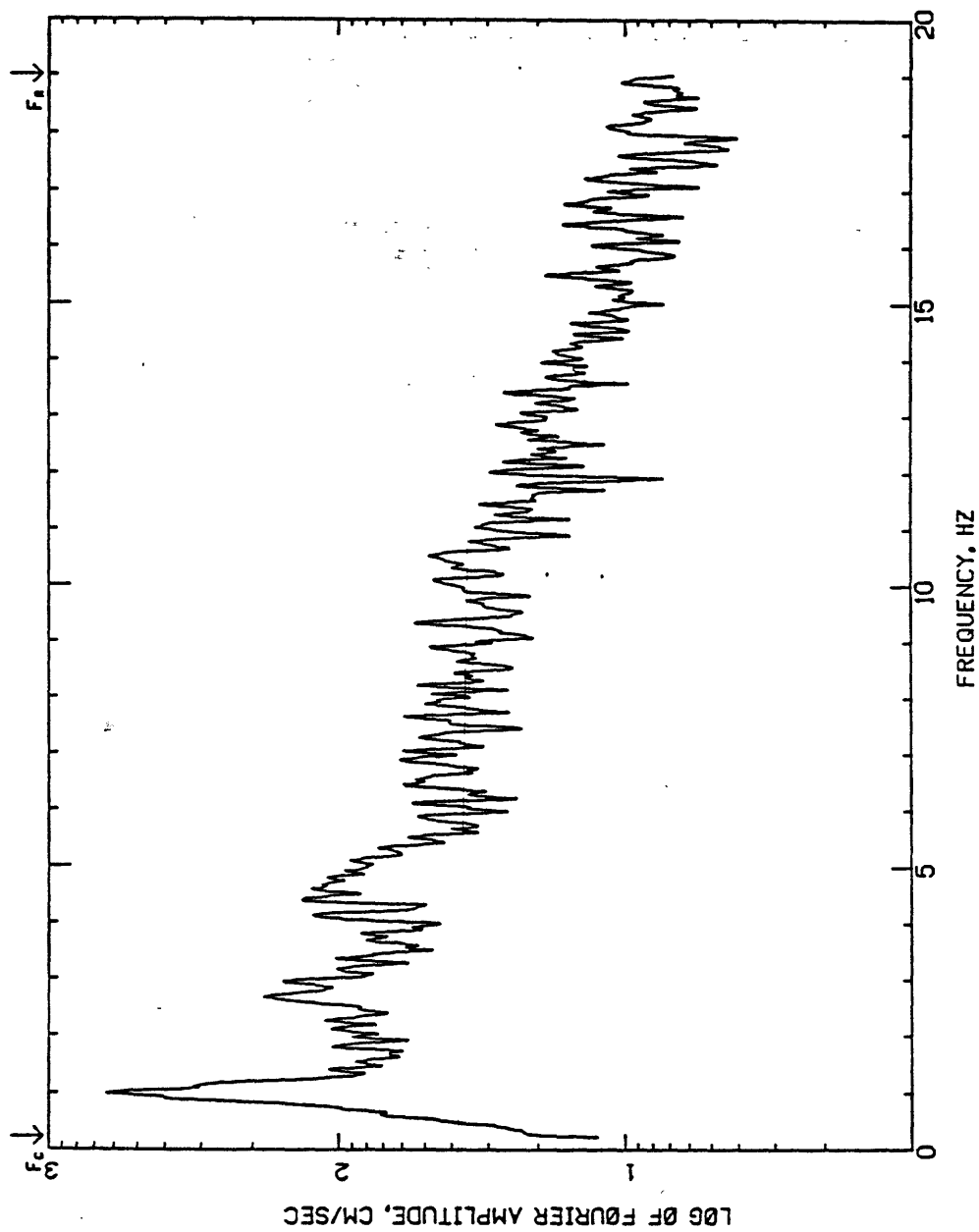
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, LONGITUDINAL
 COMPUTING OPTIONS- ZCR055, SM00THC201, N0N0ISE



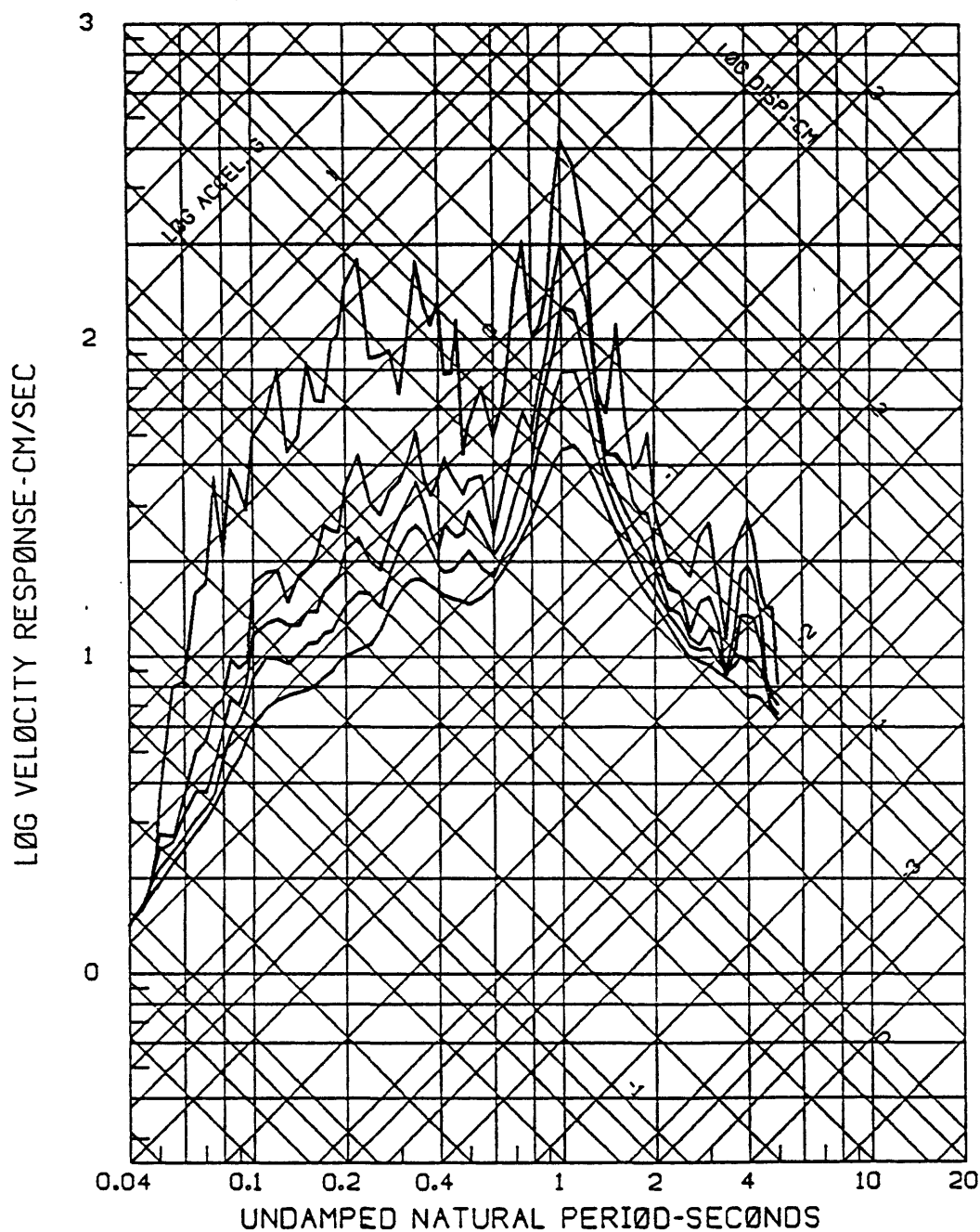
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 VENTANAS, CHILE, VERTICAL
 COMPUTING OPTIONS- 2CROSS, SM00TH1C20I, N0N0ISE



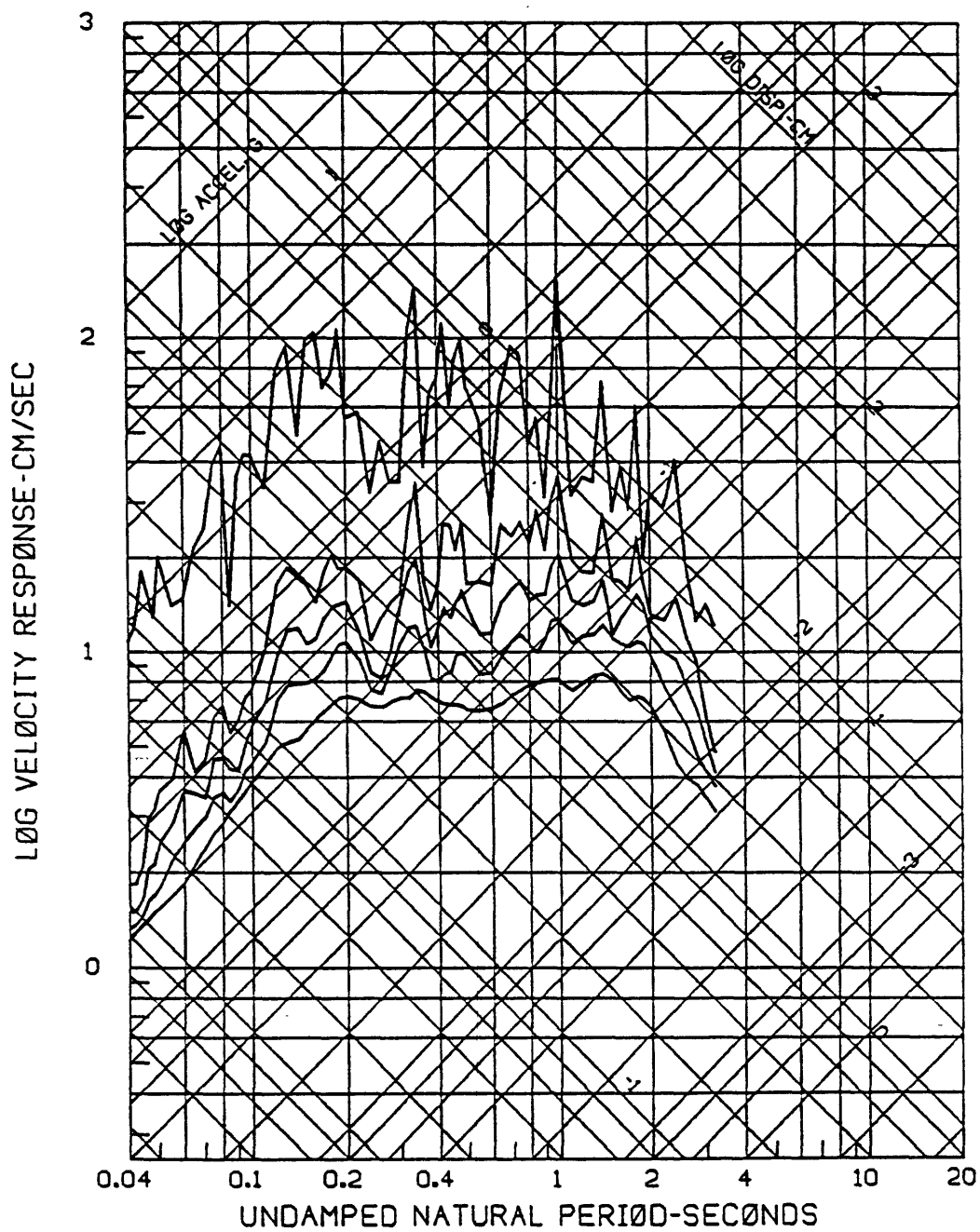
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC MS-7.8
 VENTANAS, CHILE, TRANSVERSE
 COMPUTING OPTIONS- ZCR0SS,SM00TH(20),N0N0ISE



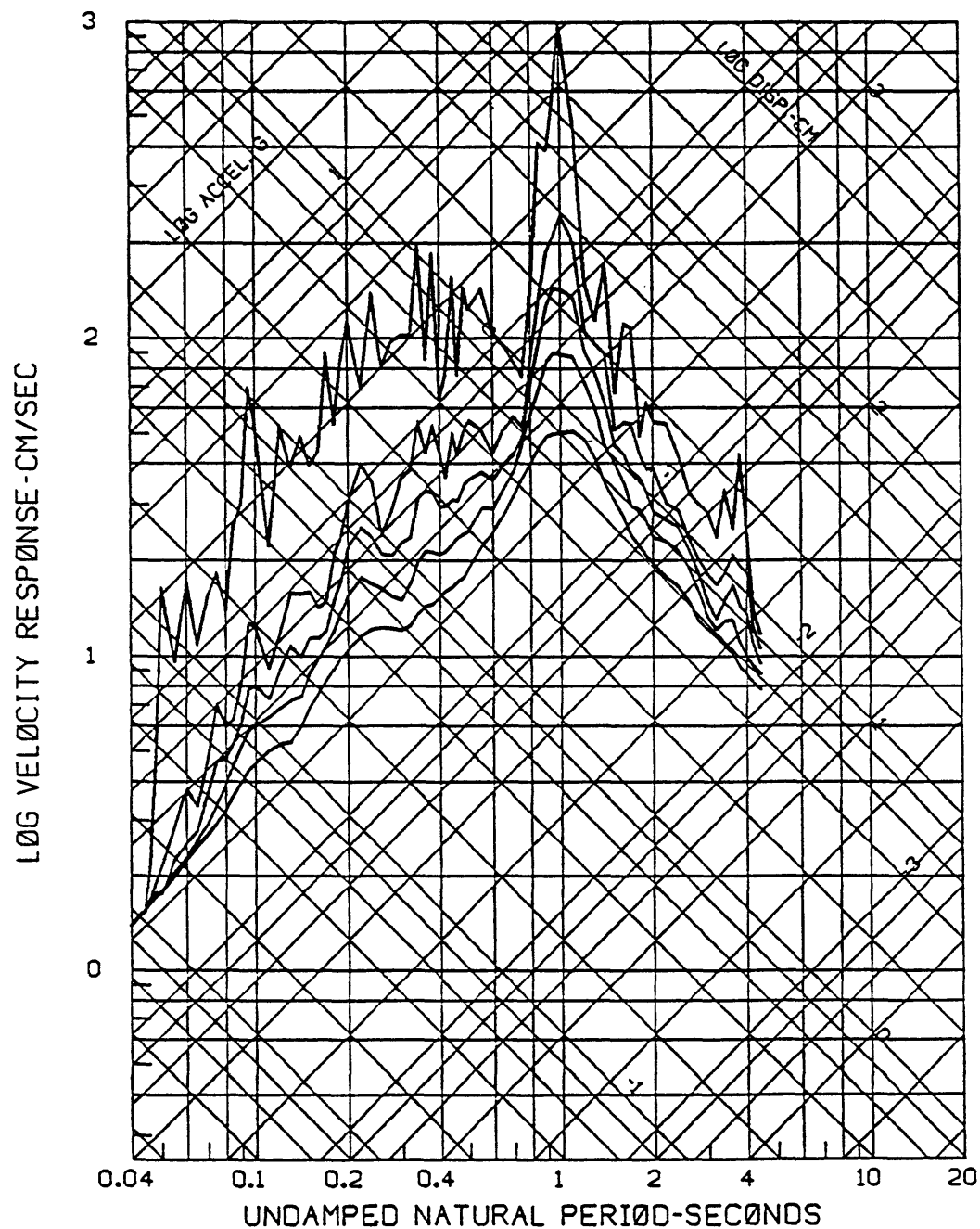
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 VENTANAS, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



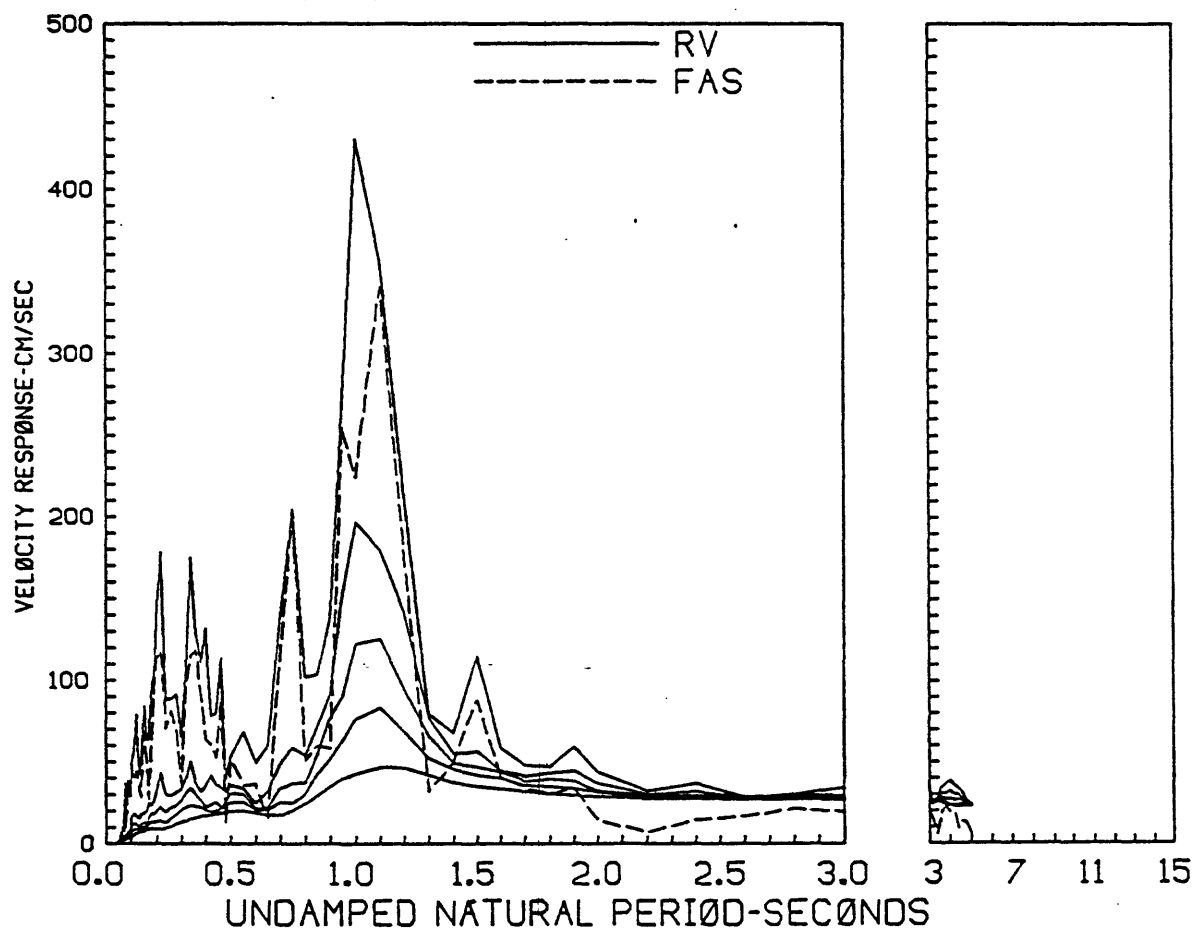
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 VENTANAS, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



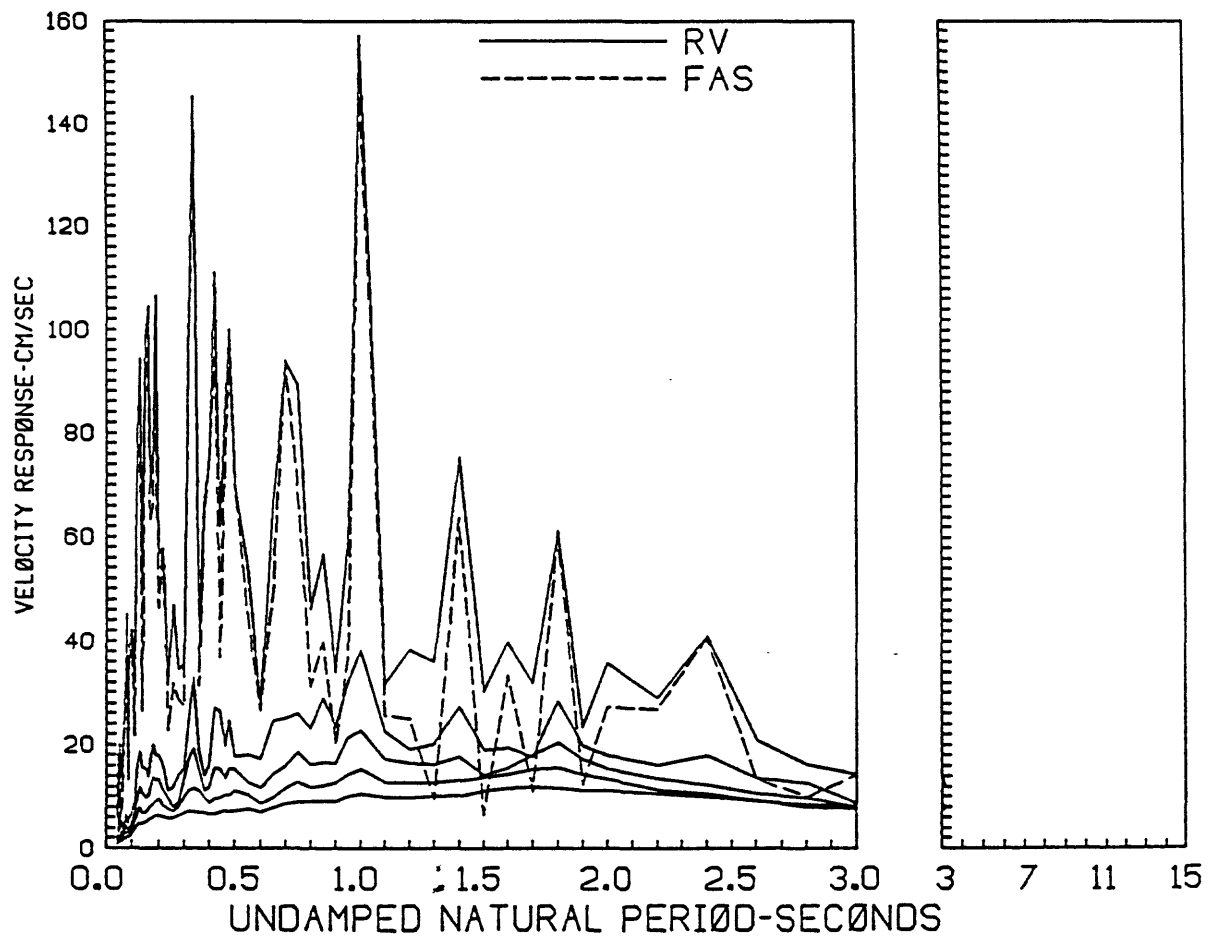
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 VENTANAS, CHILE, TRANSVERSE
 0.2,5,10,20 PERCENT CRITICAL DAMPING



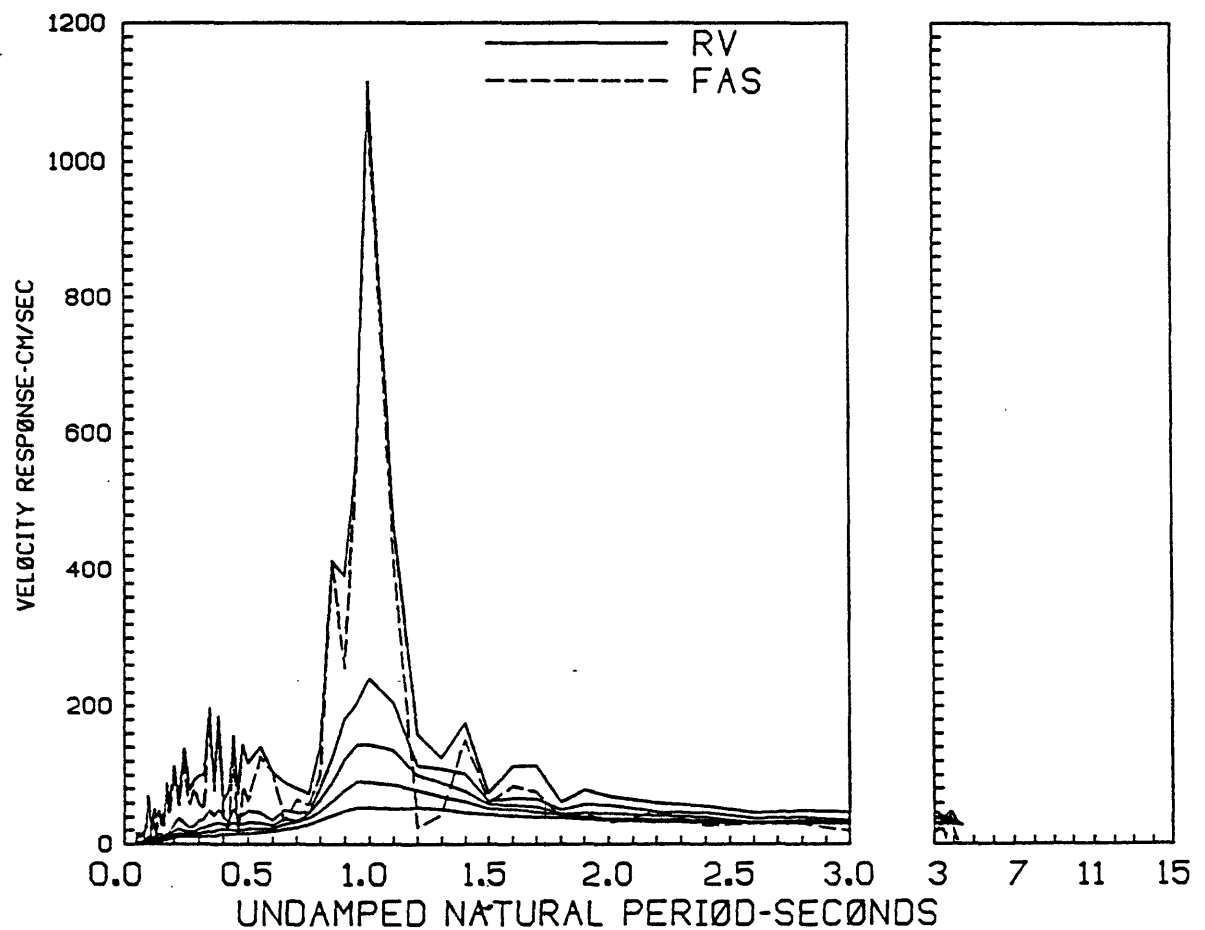
RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 VENTANAS, CHILE, LONGITUDINAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 VENTANAS, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, $M_s=7.8$
 VENTANAS, CHILE, TRANSVERSE
 0,2,5,10,20 PERCENT CRITICAL DAMPING



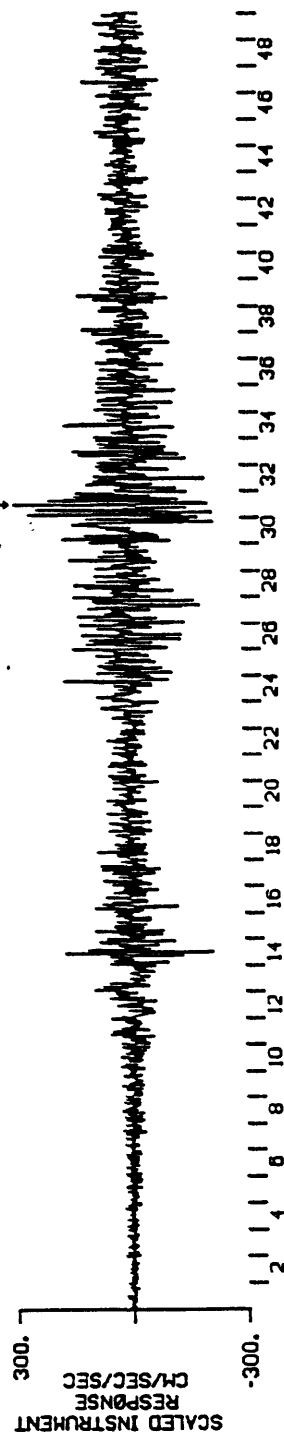
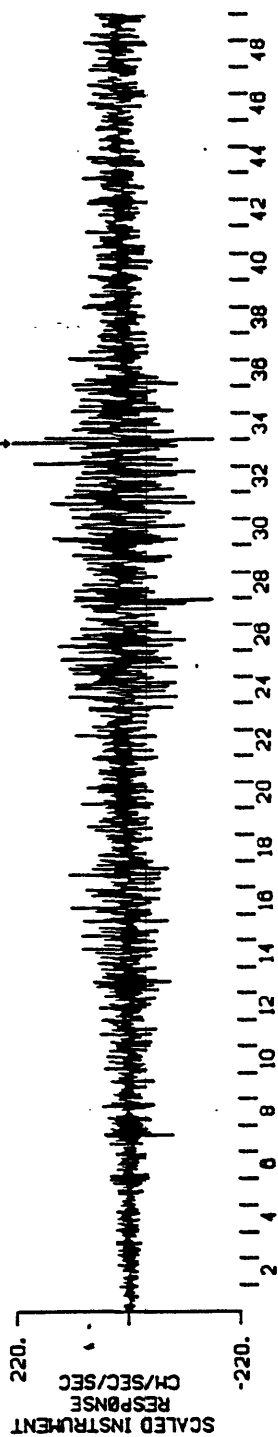
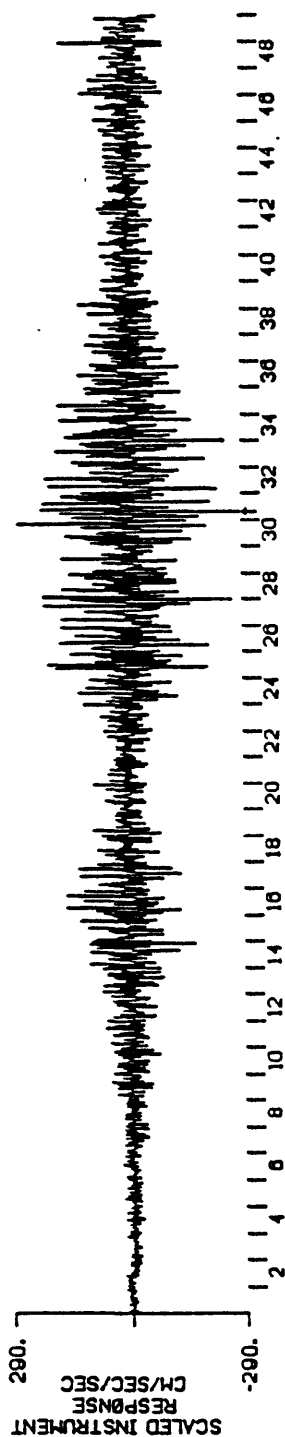
SUMMARY OF STRONG-MOTION RECORD PROCESSING

Central Chile earthquake, 3/3/85
22:47:07 UTC, $M_s=7.8$

Zapallar, Chile

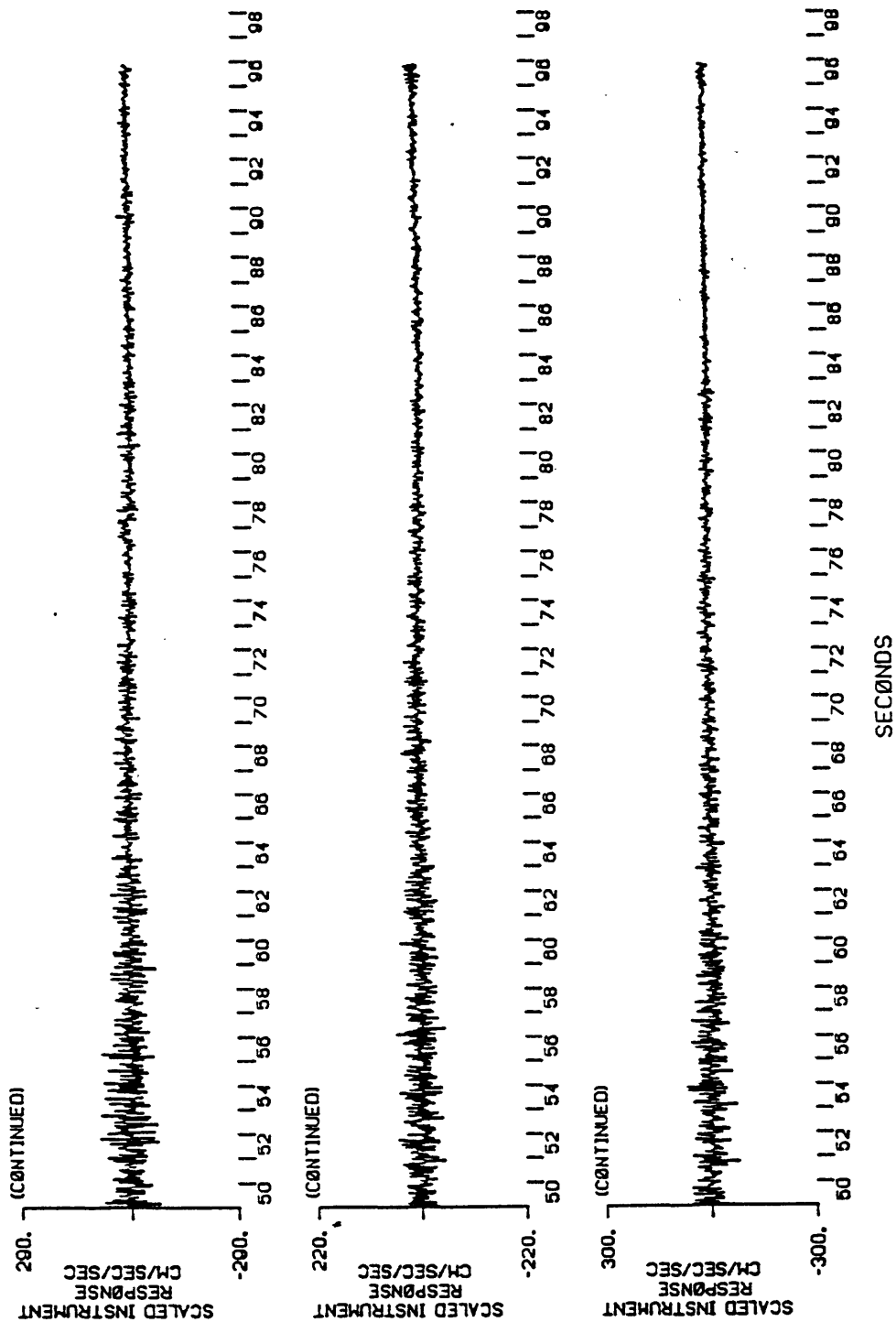
DESCRIPTION	COMPONENT		
	North-South	Vertical	East-West
<u>Instrument Characteristics:</u>			
Frequency (Hz)	25.2	25.8	26.9
Damping (% Critical)	60.3	64.0	58.5
<u>Filter Parameters:</u>			
Highcut (Hz)	20.0	20.0	20.0
Lowcut (Hz)	0.556	0.667	0.417
<u>Peak Parameters:</u>			
Peak Acceleration, Unc. (cm/s/s)	-285.3	210.1	296.6
Peak Acceleration, A (cm/s/s)	-265.1	191.0	298.5
Peak Velocity, V (cm/s)	-11.2	5.20	13.5
Peak Displacement, D (cm)	1.14	-0.479	-1.69
<u>Parameter Ratios:</u>			
V/A (sec)	0.042	0.027	0.045
AD/V ²	2.4	3.4	2.8

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): -285.31 210.05 296.62



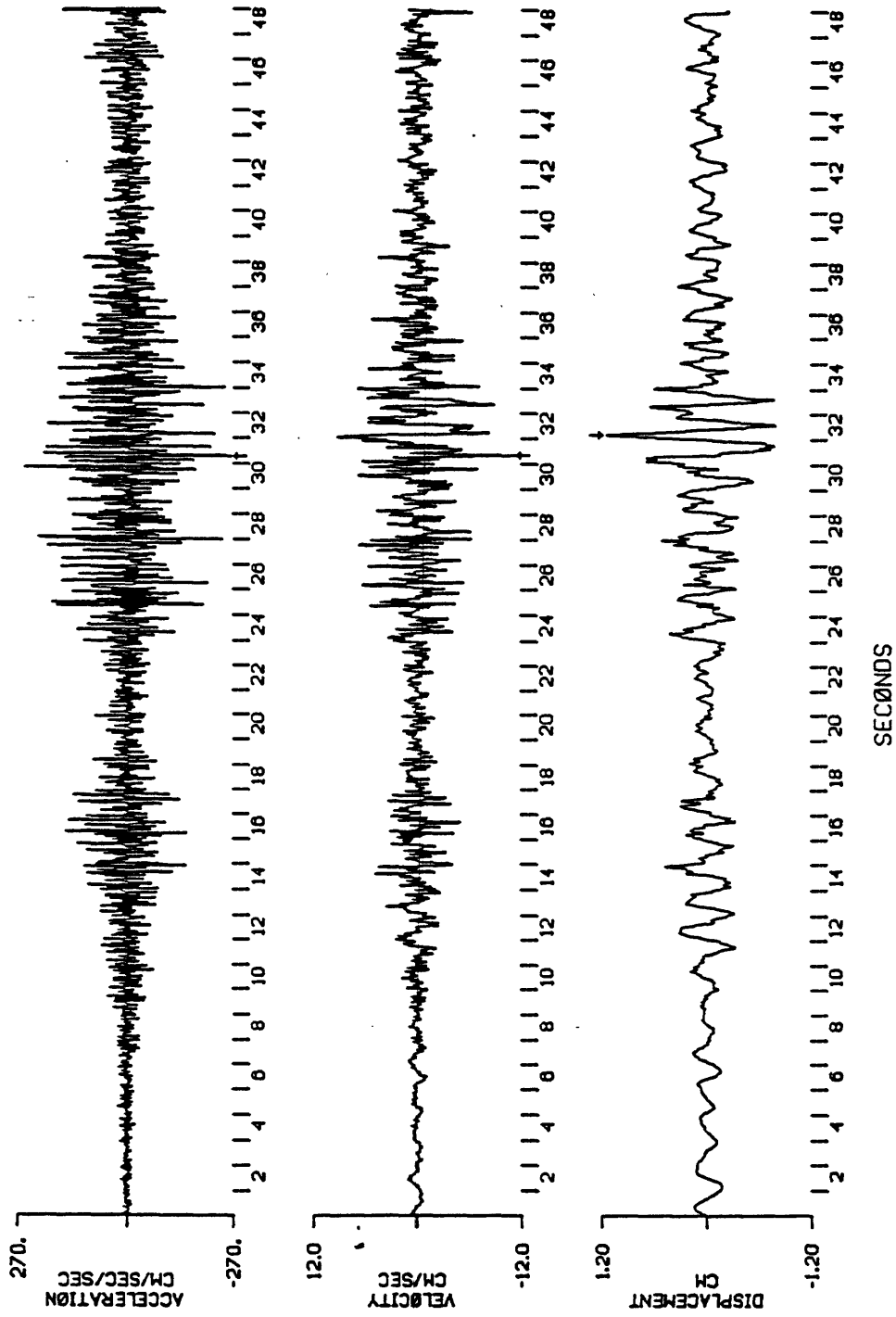
SECONDS

UNCORRECTED ACCELEROGRAM
 CENTRAL CHILE EQ. 3/3/85 22:47:07 UTC MS-7.8
 ZAPALLAR, CHILE, NORTH-SOUTH, VERTICAL, EAST-WEST
 PEAK VALUES(CM/SEC/SEC): -285.31 210.05 296.62



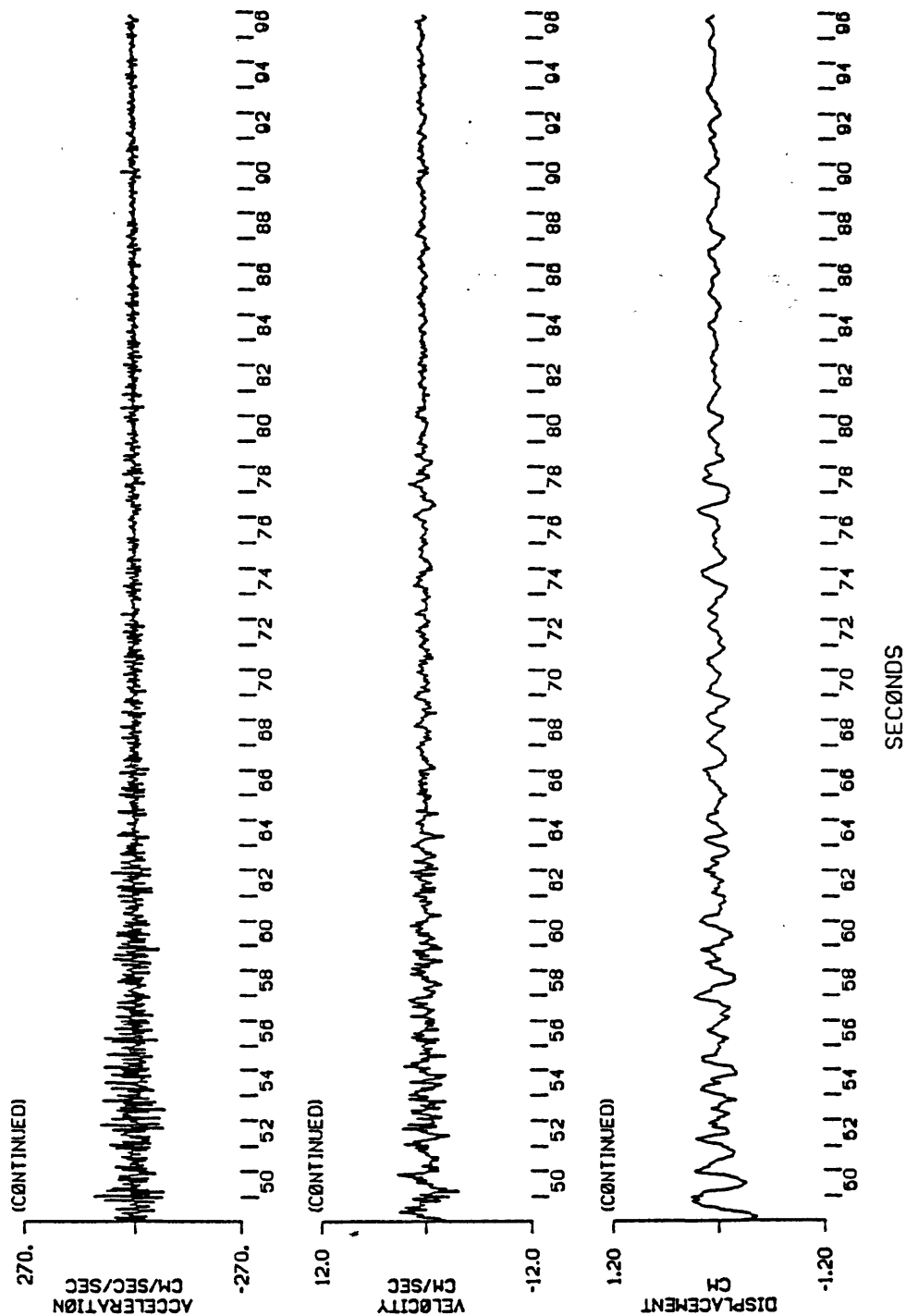
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE, NORTH-SOUTH

PEAK VALUES: ACCEL--265.11 CM/SEC/SEC, VELOCITY--11.22 CM/SEC, DISPL-1.14 CM

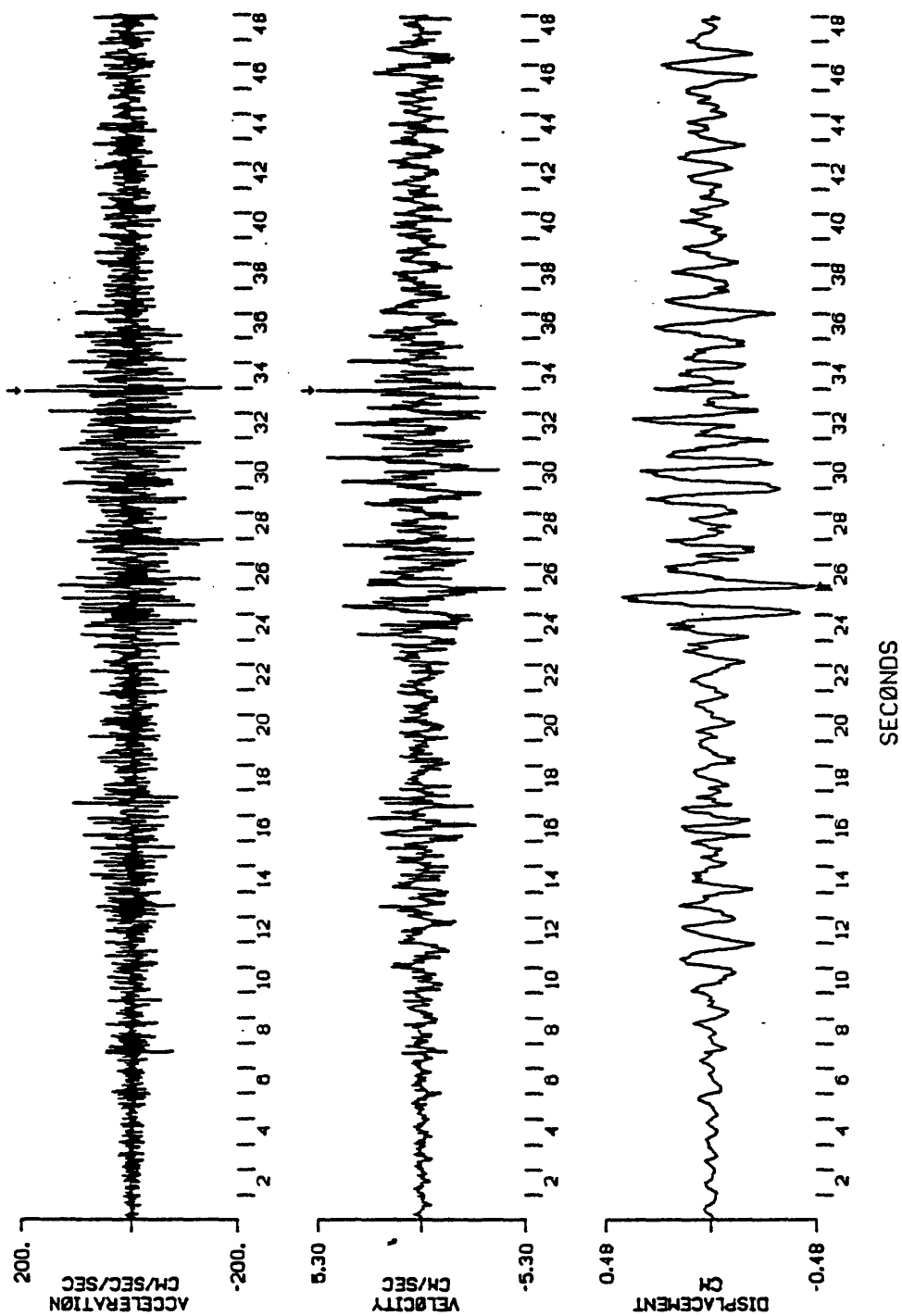


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE, NORTH-SOUTH

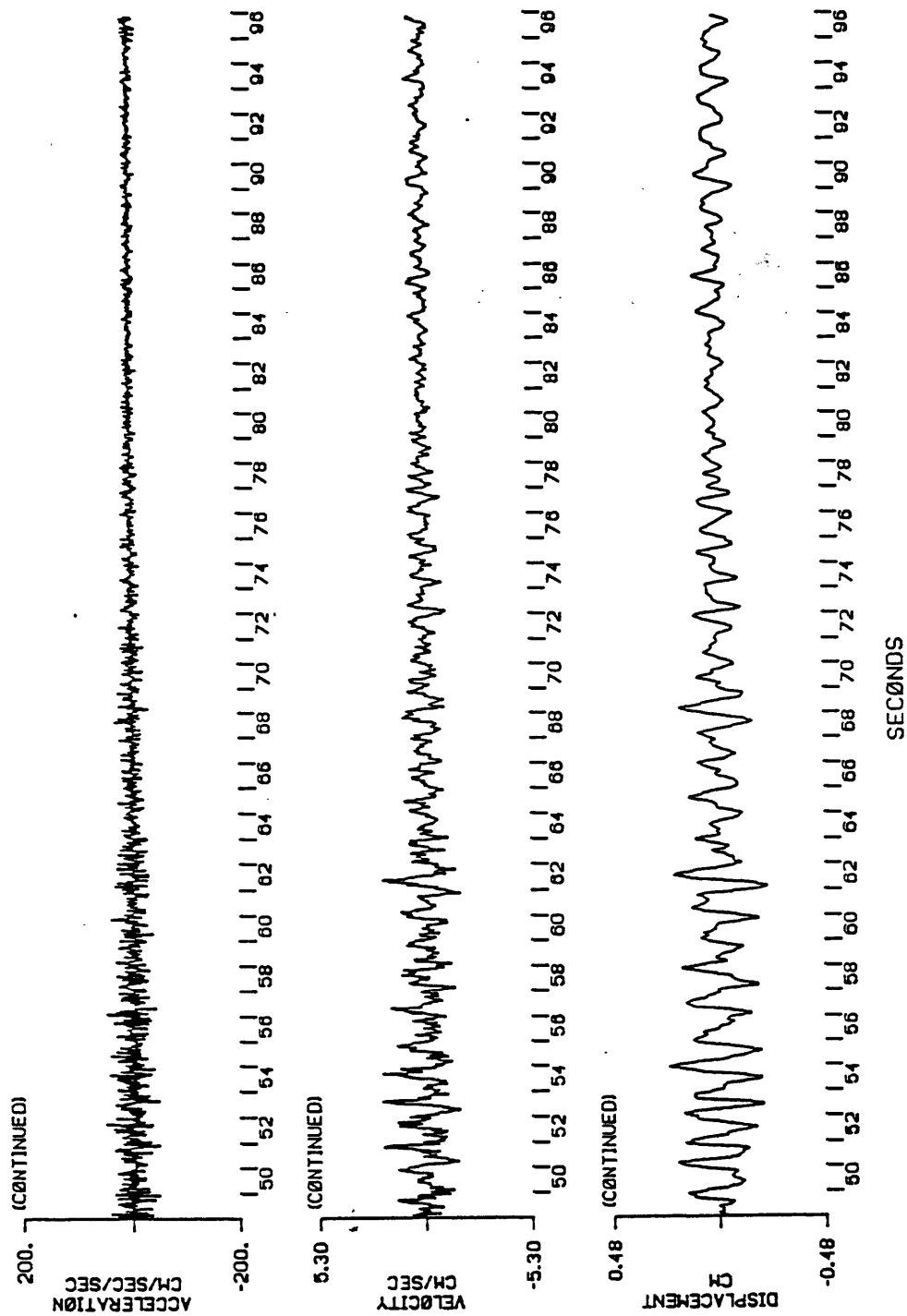
PEAK VALUES: ACCEL--265.11 CM/SEC/SEC, VELOCITY--11.22 CM/SEC, DISPL--1.14 CM



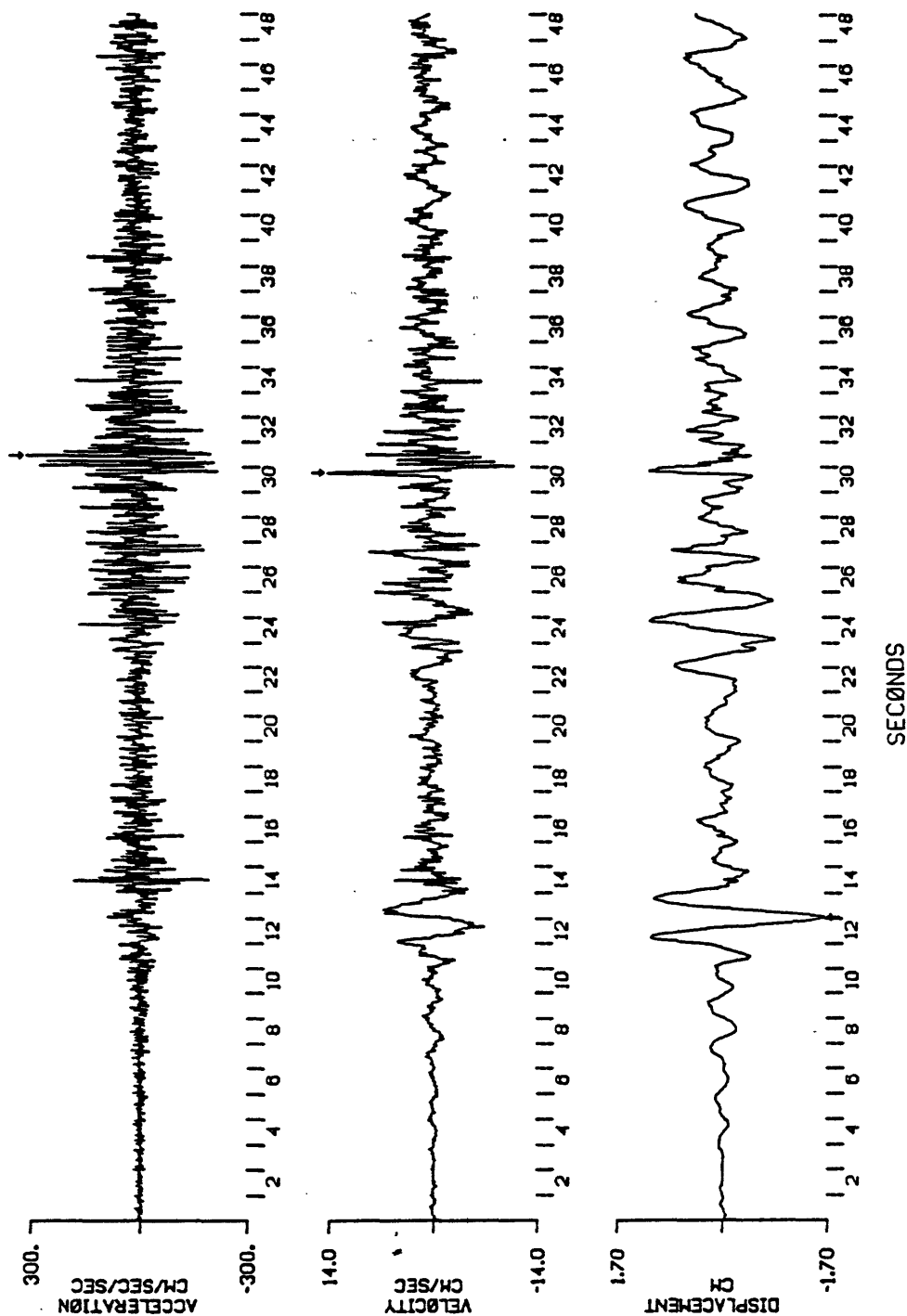
CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ, 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE, VERTICAL
 PEAK VALUES: ACCEL=191.02 CM/SEC/SEC, VELOCITY=5.20 CM/SEC, DISPL=-0.48 CM



CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE VERTICAL
 PEAK VALUES: ACCEL -191.02 CM/SEC/SEC, VELOCITY -5.20 CM/SEC, DISPL -0.48 CM

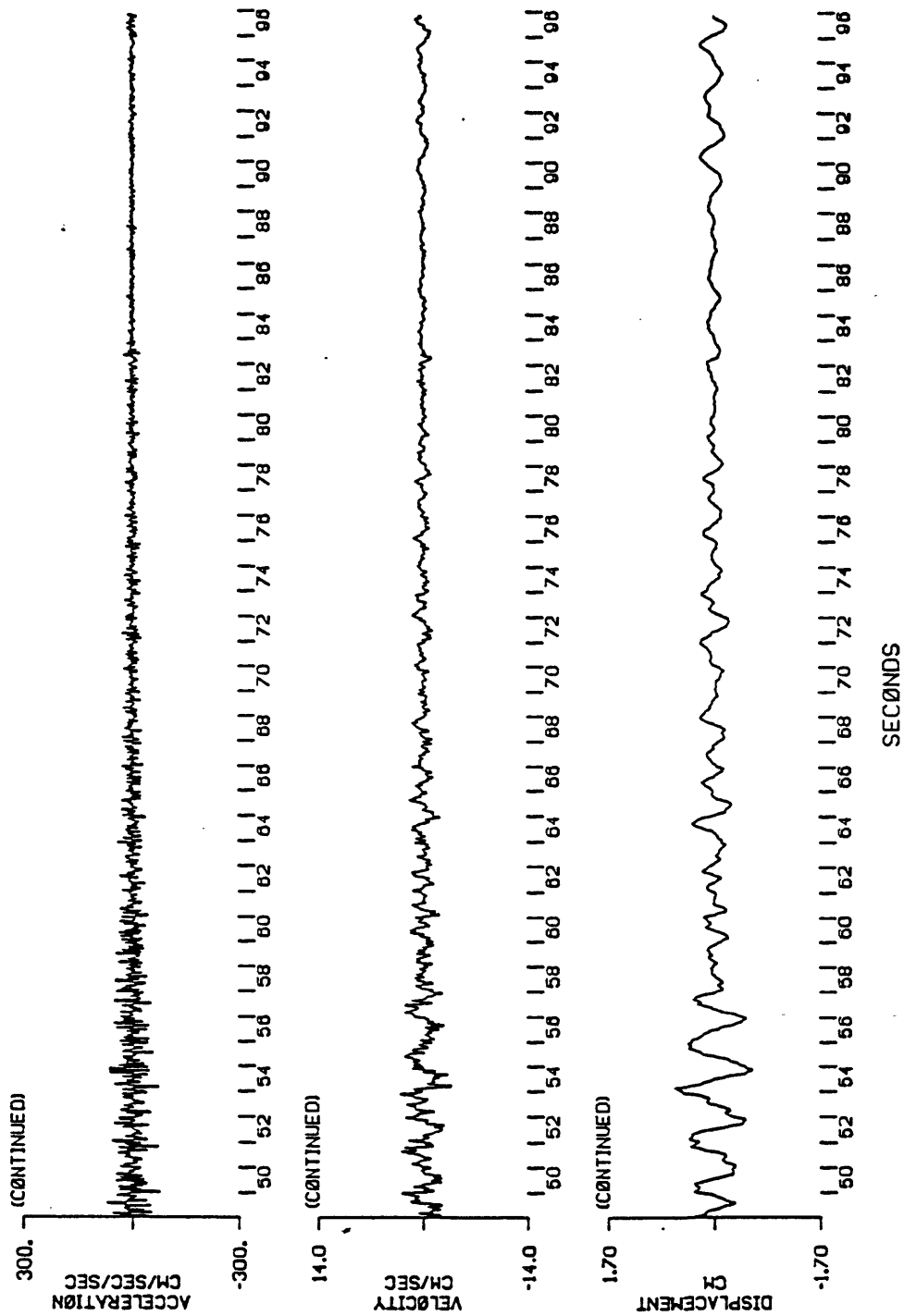


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
 CENTRAL CHILE EQ. 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE, EAST-WEST
 PEAK VALUES: ACCEL-298.49 CM/SEC/SEC, VELOCITY-13.46 CM/SEC, DISPL--1.69 CM

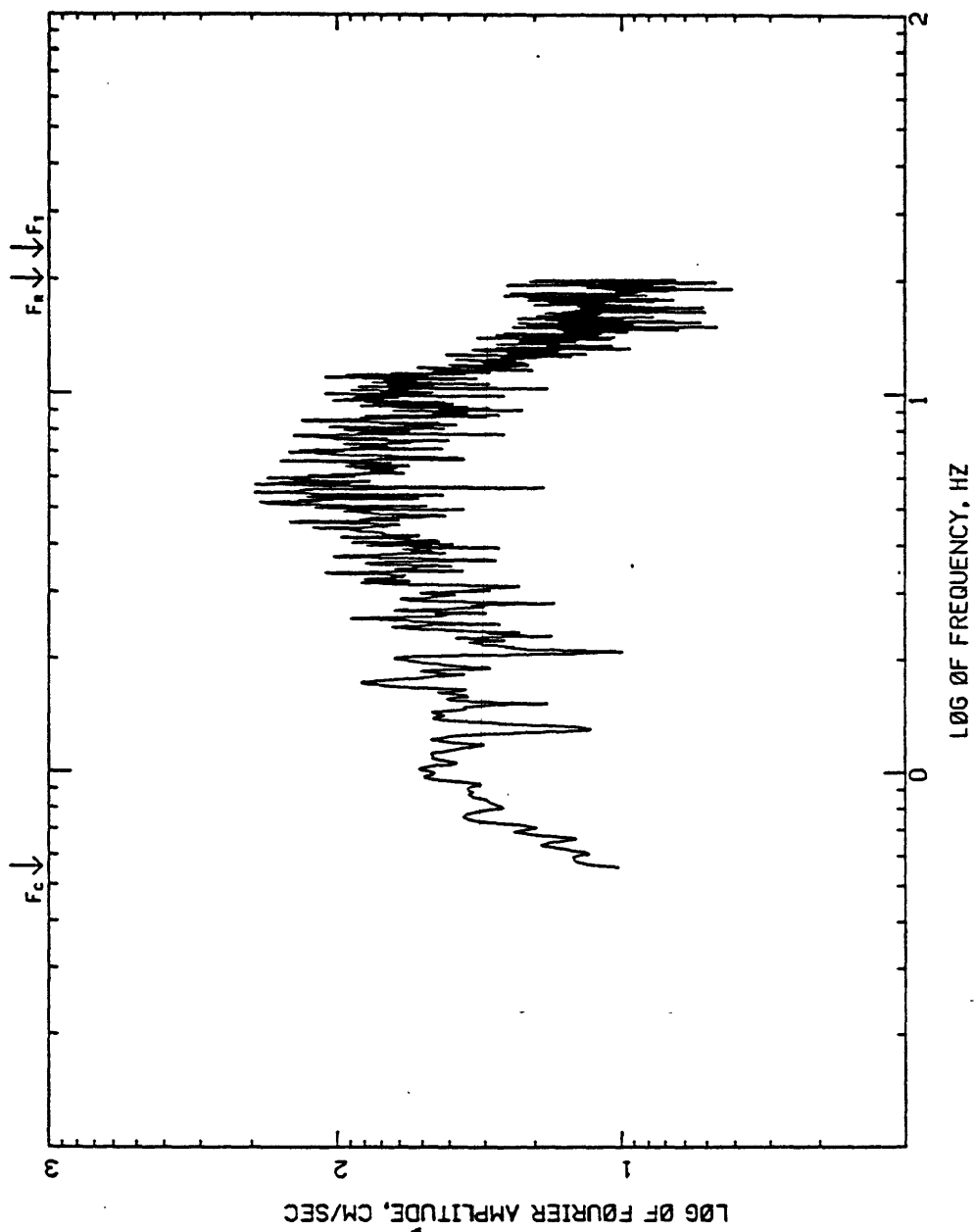


CORRECTED ACCELERATION, VELOCITY, AND DISPLACEMENT 200.00 SPS
CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
ZAPALLAR, CHILE, EAST-WEST

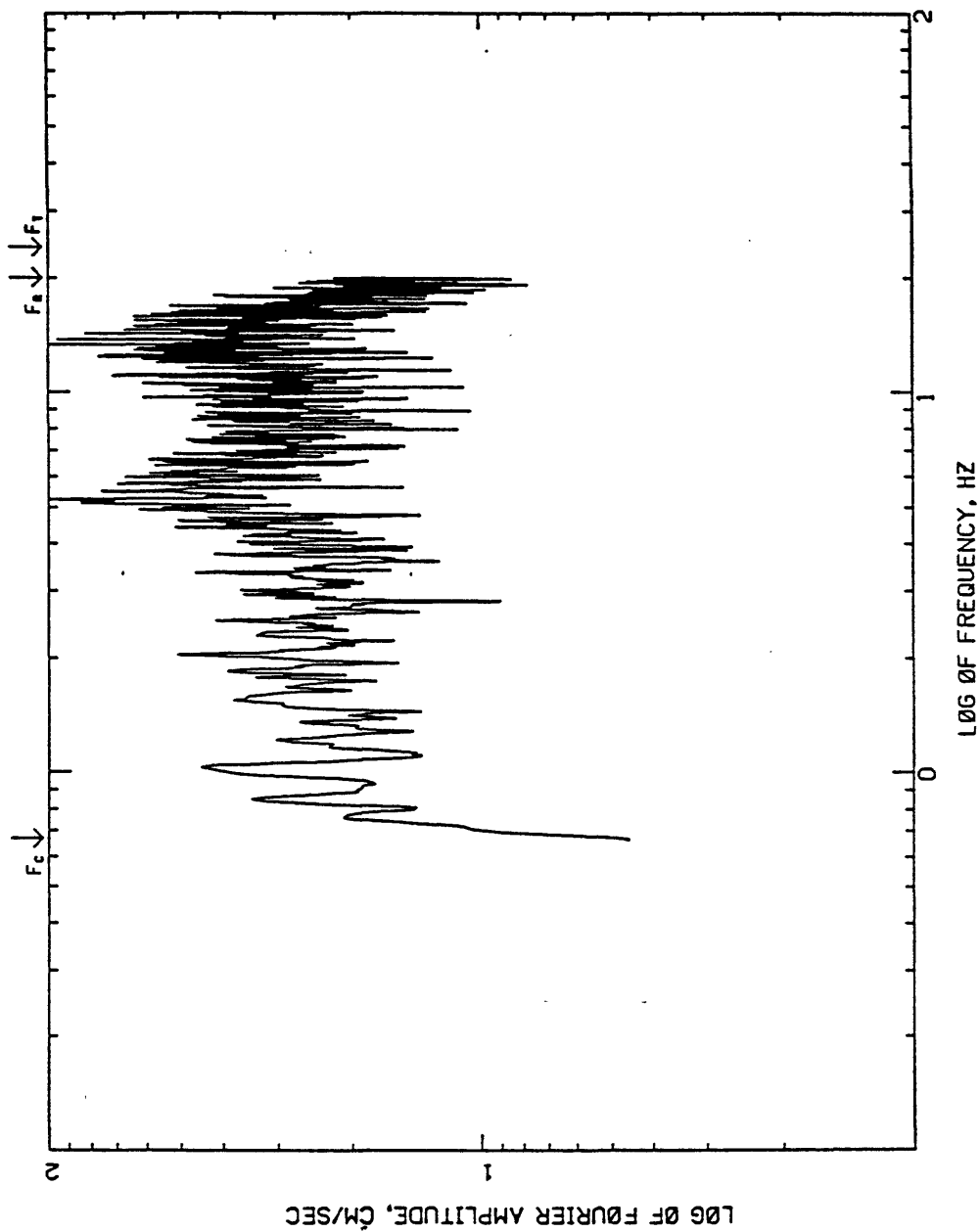
PEAK VALUES: ACCEL -298.49 CM/SEC/SEC, VELOCITY -13.46 CM/SEC, DISPL -1.69 CM



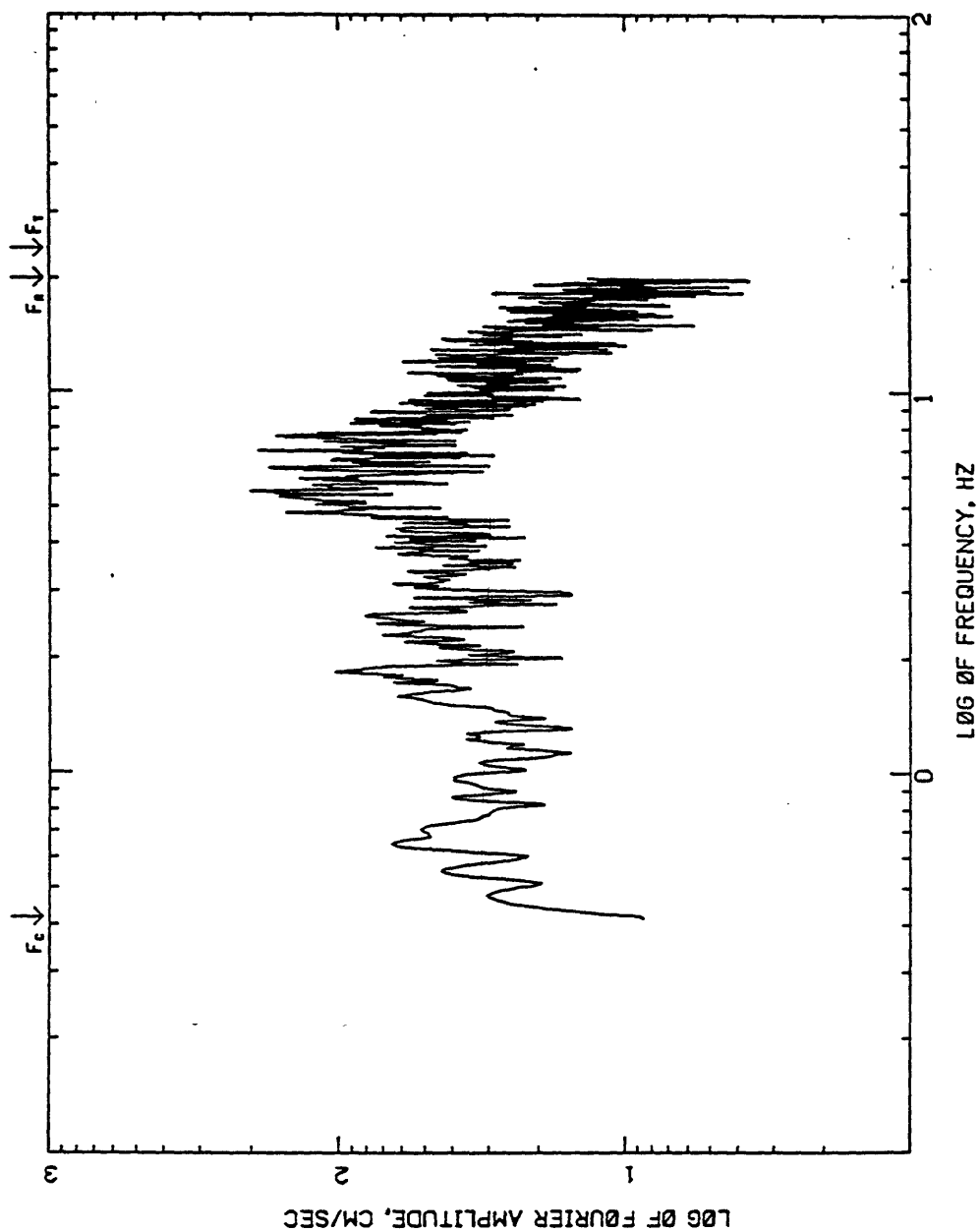
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS- ZCROSS, SMOOTH101, NØNØISE



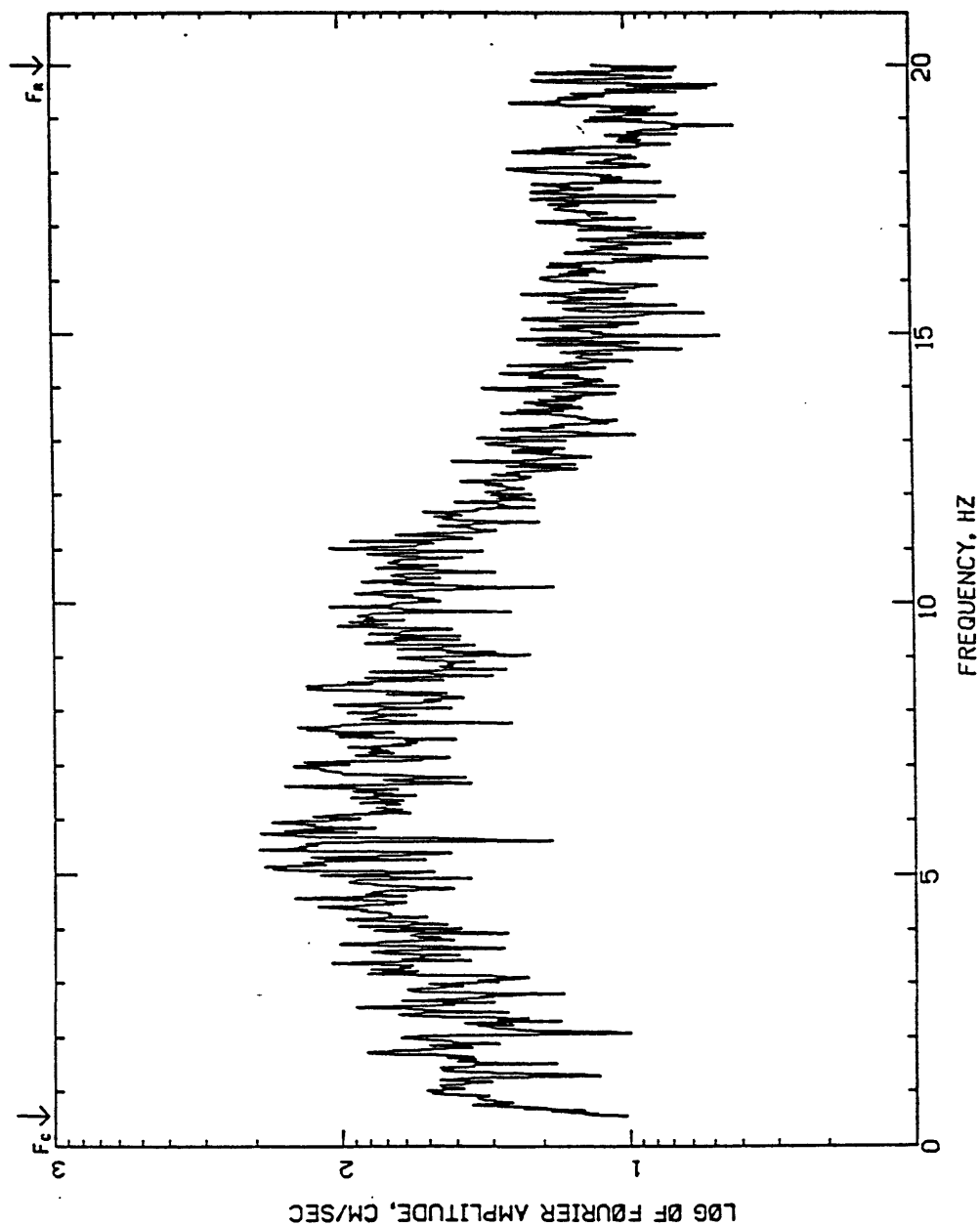
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 ZAPALLAR, CHILE VERTICAL
 COMPUTING OPTIONS- ZCR055, SM00TH101, N0N0ISE



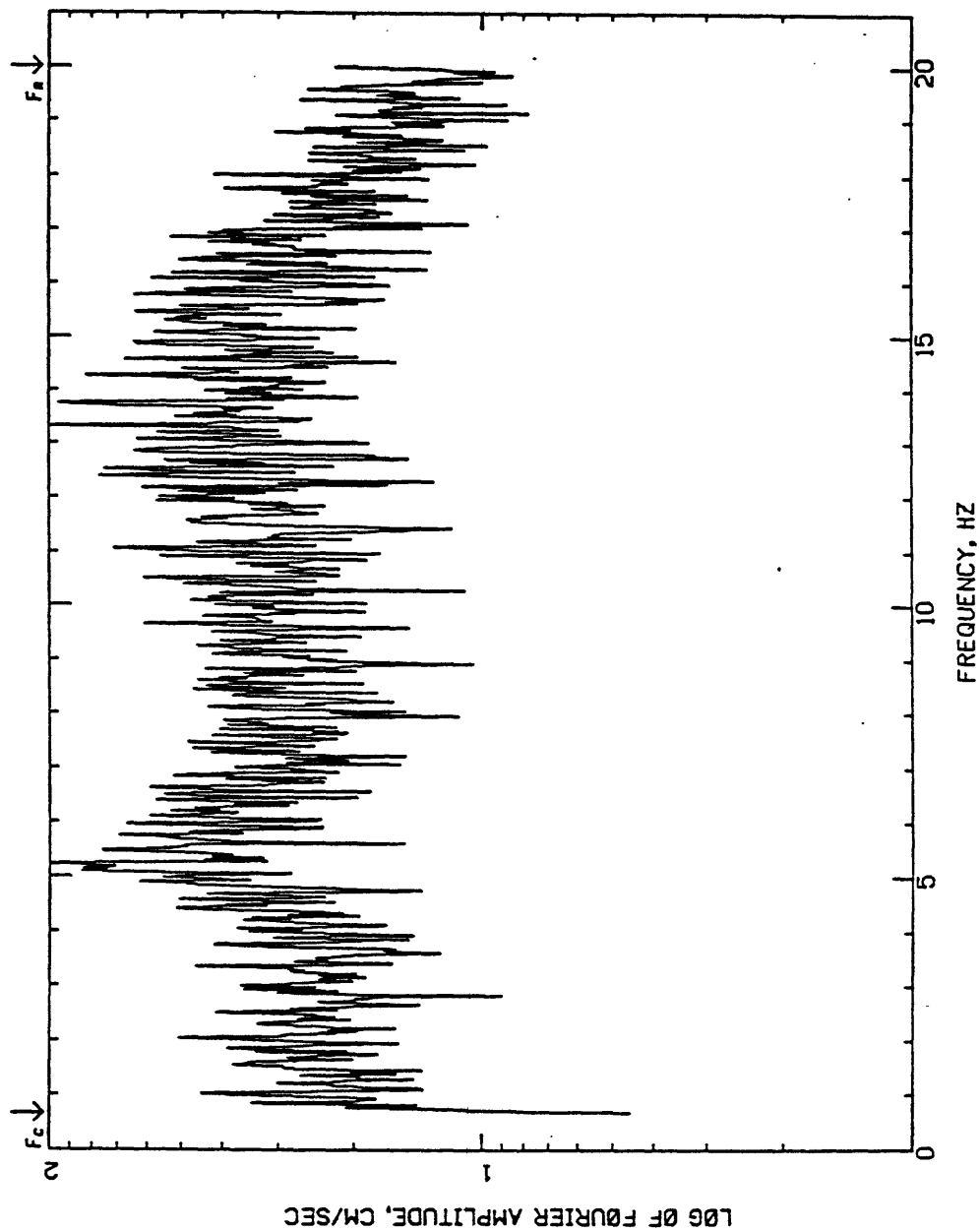
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 ZAPALLAR, CHILE, EAST-WEST
 COMPUTING OPTIONS- ZCR0SS,SM00TH10,NOISE



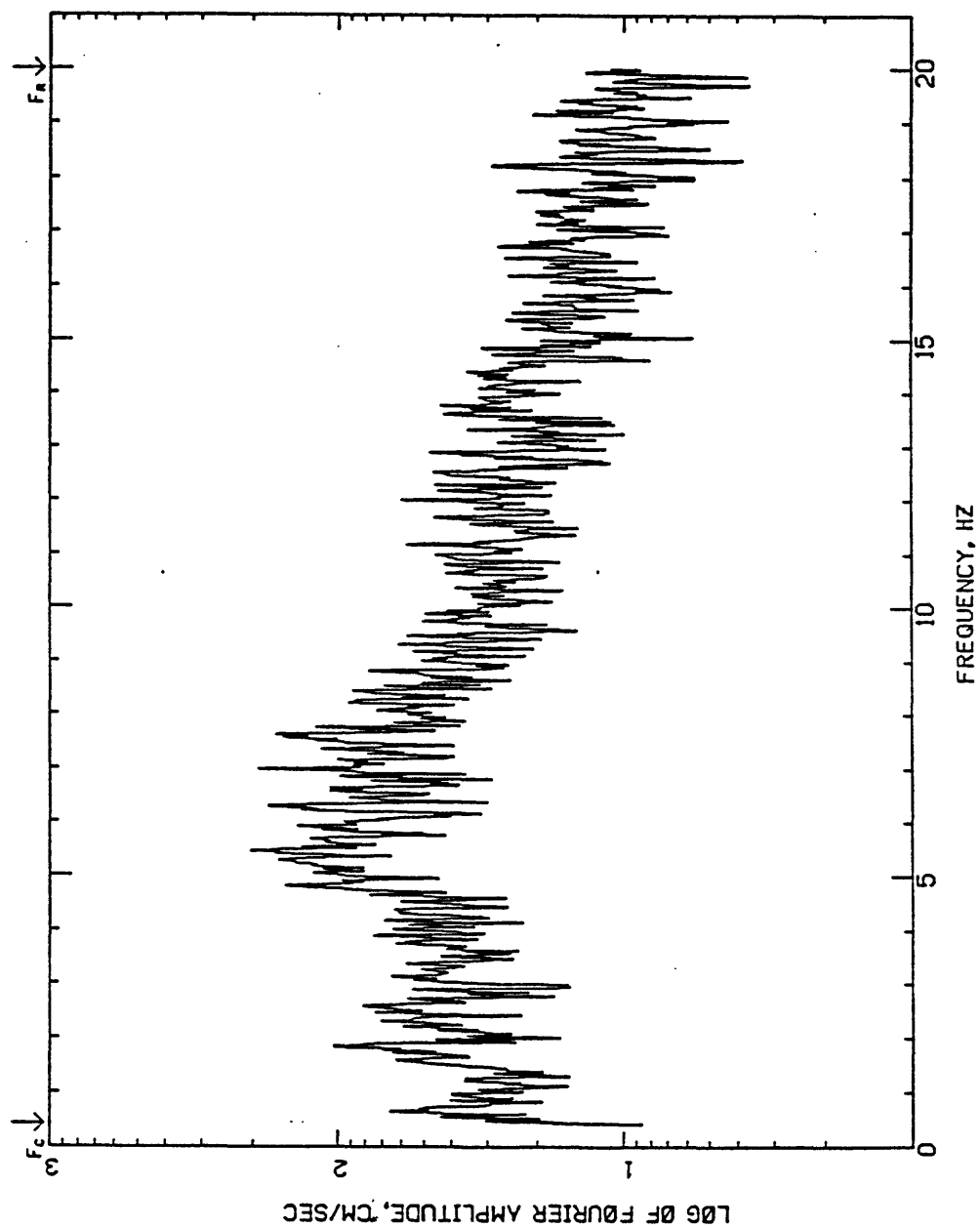
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 ZAPALLAR, CHILE, NORTH-SOUTH
 COMPUTING OPTIONS: ZCR055.S100TH101.N000ISE



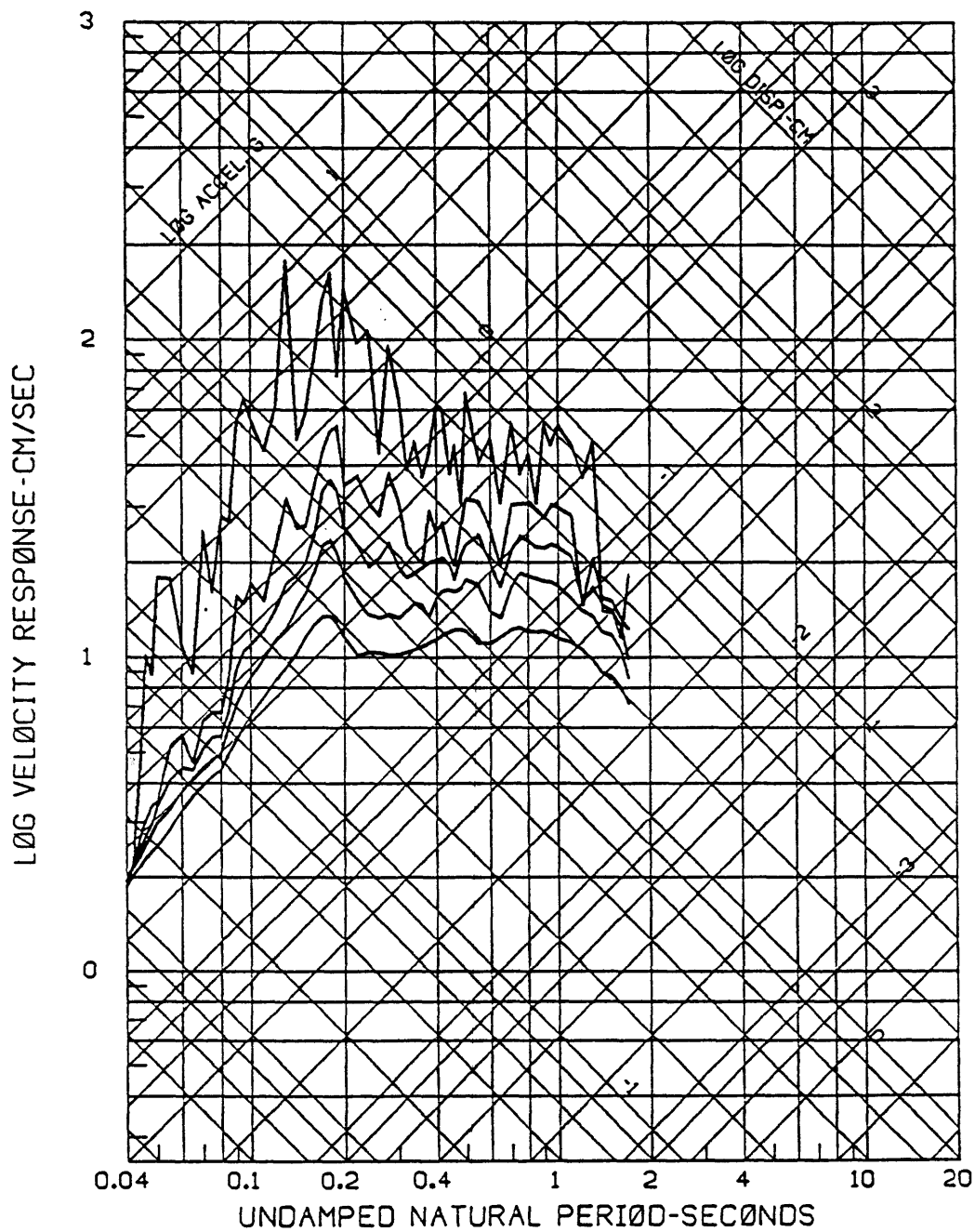
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 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, MS-7.8
 ZAPALLAR, CHILE, VERTICAL
 COMPUTING OPTIONS- ZCROSS, SMOOTH(10), NO NOISE



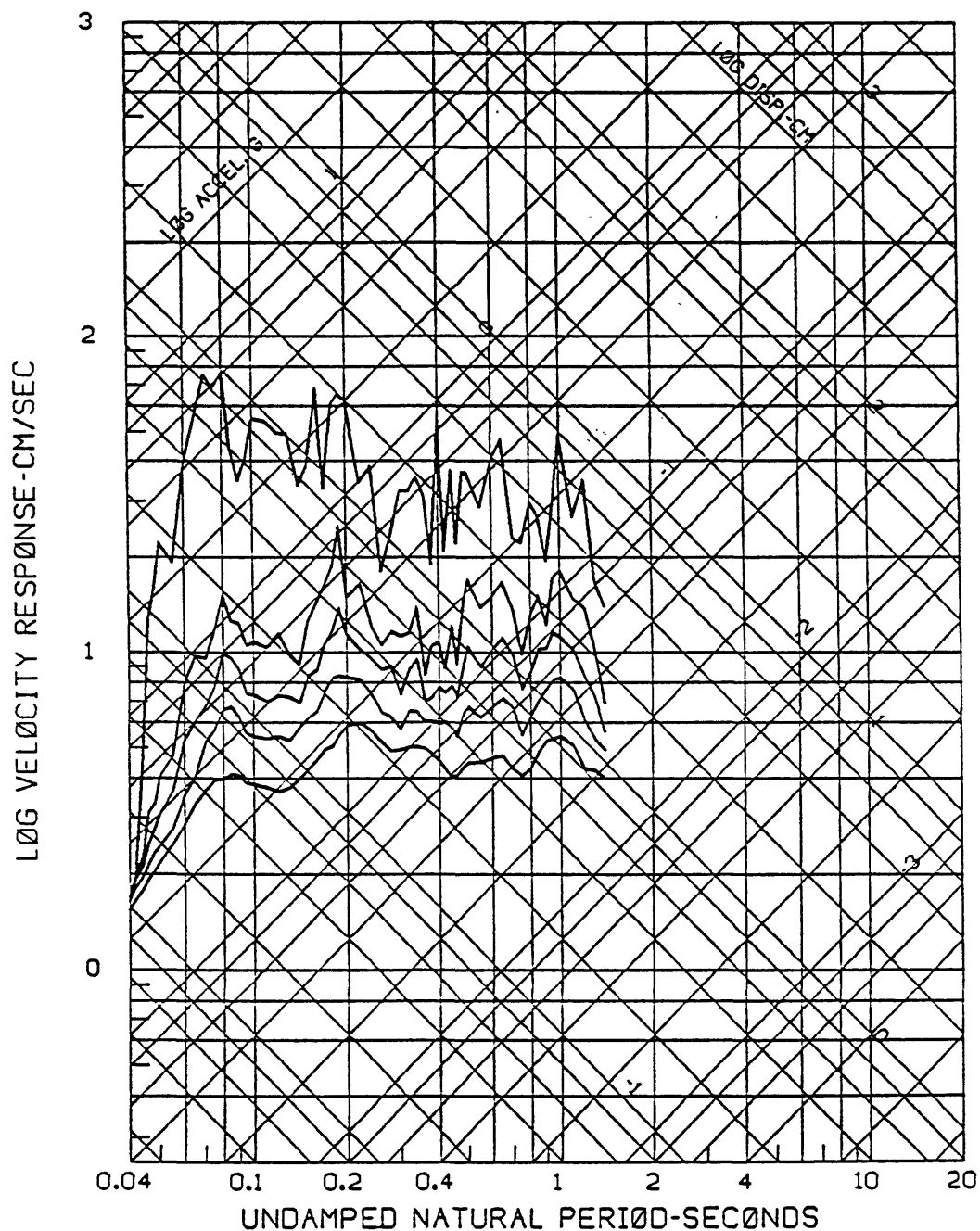
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 ZAPALLAR, CHILE, EAST-VEST
 COMPUTING OPTIONS- ZCR0SS,SH00TH(0),N0N0ISE



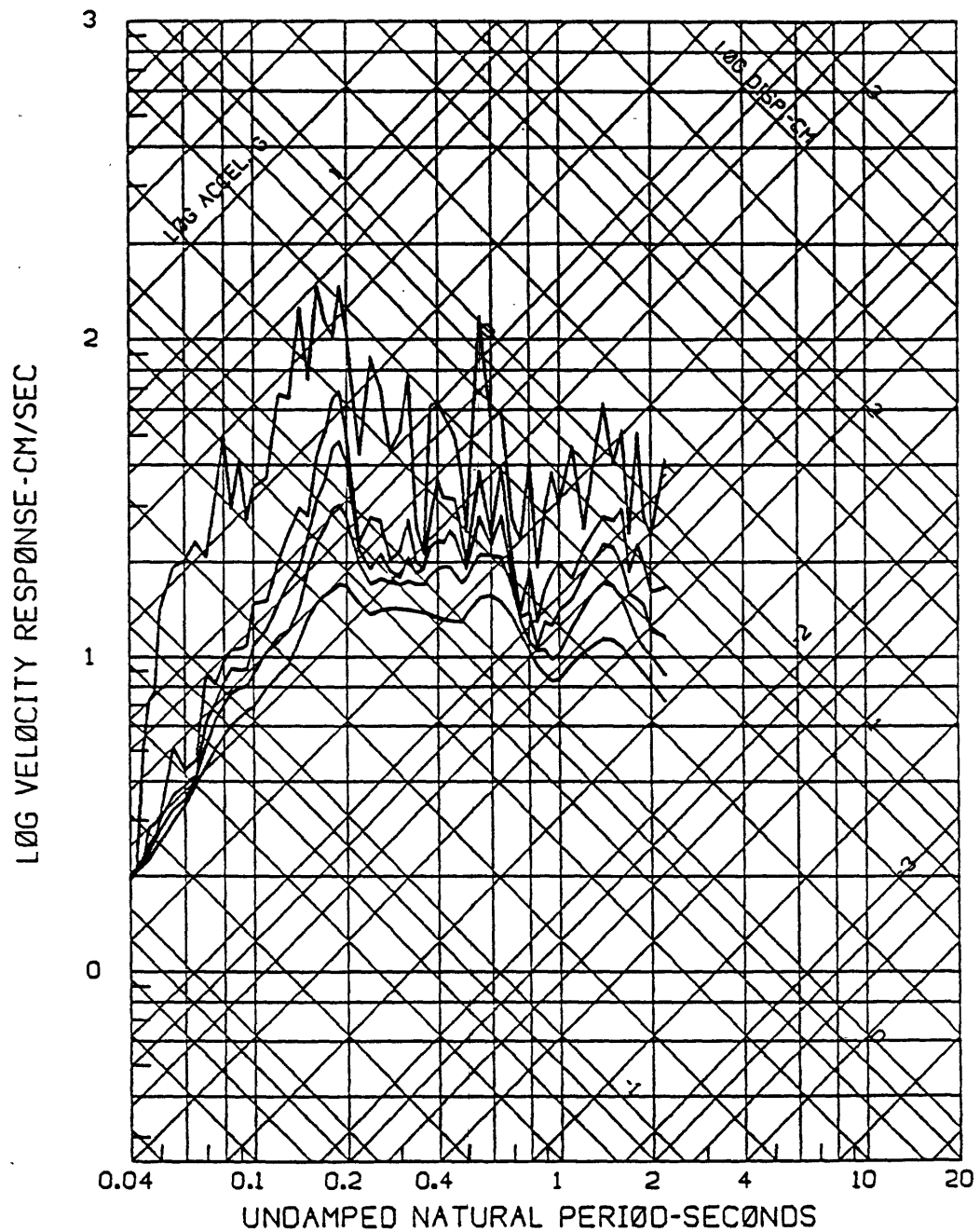
PSEUDO RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms-7.8
 ZAPALLAR, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



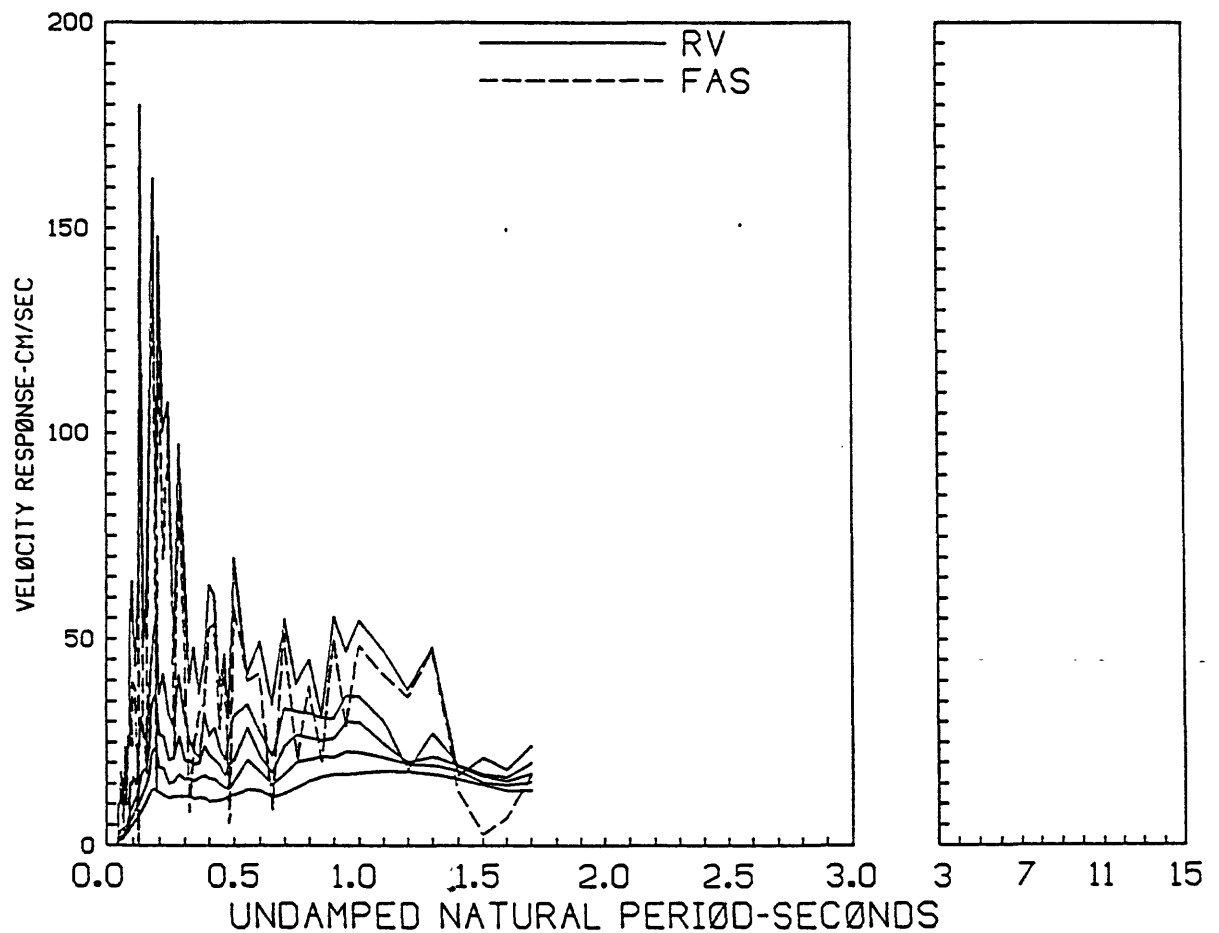
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 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ZAPALLAR, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



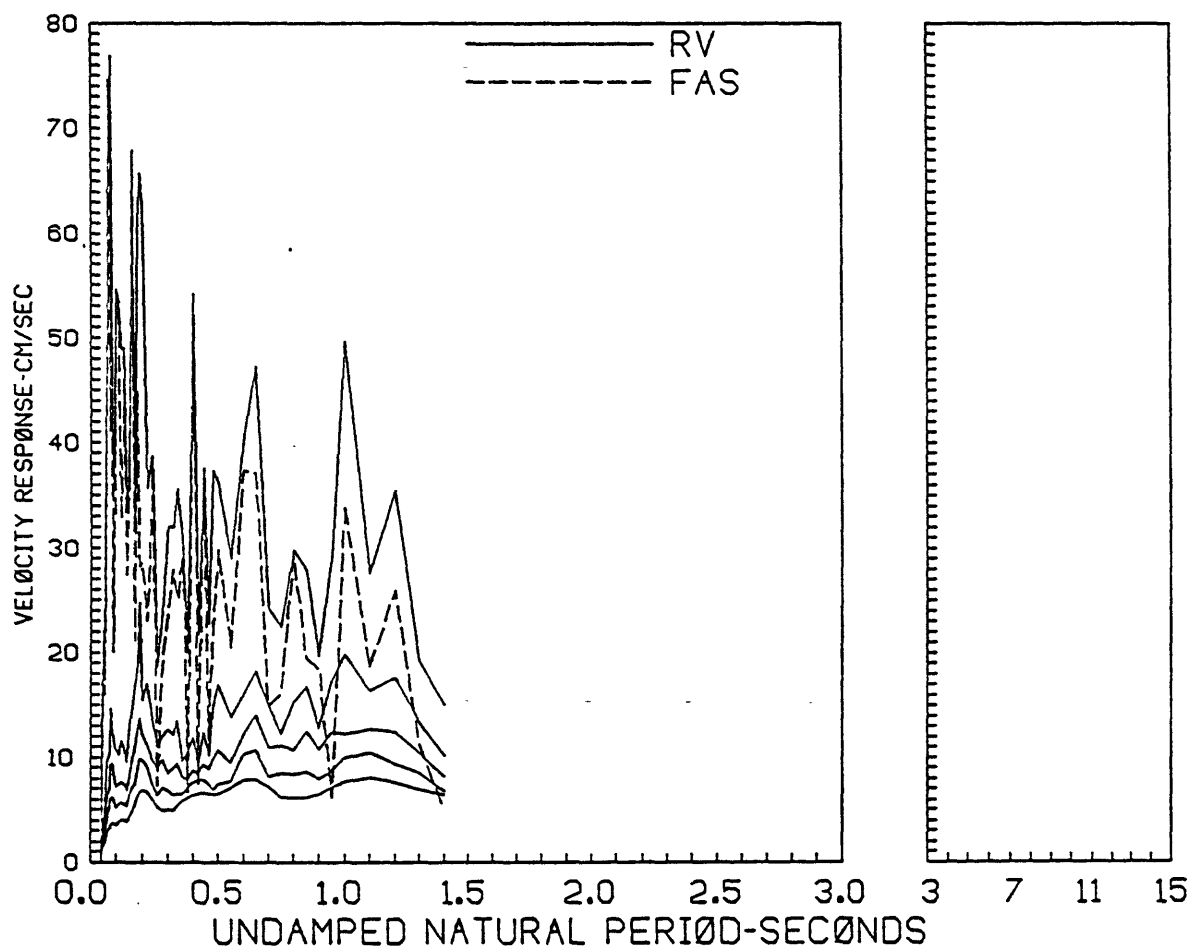
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 ZAPALLAR, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ZAPALLAR, CHILE, NORTH-SOUTH
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ZAPALLAR, CHILE, VERTICAL
 0,2,5,10,20 PERCENT CRITICAL DAMPING



RELATIVE VELOCITY RESPONSE SPECTRA
 CENTRAL CHILE EQ., 3/3/85, 22:47:07 UTC, Ms=7.8
 ZAPALLAR, CHILE, EAST-WEST
 0,2,5,10,20 PERCENT CRITICAL DAMPING

