

United States Department of the Interior
Geological Survey

Seismic Engineering Data Report

PROCESSED ACCELEROGRAM FROM MONTICELLO DAM,
JENKINSVILLE, SOUTH CAROLINA,
16 OCTOBER 1979, 0706 UTC

by

P. N. Mork and A. G. Brady

OPEN FILE REPORT 81-1214

Prepared on behalf of the National Science Foundation

Grant CA-114

This report is preliminary and has not been reviewed
for conformity with U.S. Geological Survey editorial standards.
Any use of trade names is for descriptive purposes only
and does not imply endorsement by the USGS.

Menlo Park, California
October 1981

Processed Accelerogram from Monticello Dam, Jenkinsville,
South Carolina, 16 October 1979, 0706 UTC

This report serves first to document a magnetic tape containing the results of processing the strong-motion data from this accelerogram, and second to reproduce the more important graphical results. The record follows, by a little more than one year, three records that were described in our March 1981 Open File Report 81-0448 to which reference may be made for a description of the site, records, and processing.

Digitizing was carried out by IOM-TOWILL of Santa Clara, California, and USGS processing has produced plots of acceleration at three stages of correction, corrected velocity and displacement, and response and Fourier spectra. Numerical data is available on magnetic tape from the Environmental Data and Information Service, NOAA, in Boulder, Colorado, 80302; phone (303) 499-1000, extension 6473, or (FTS) 320-6473.

The special processing required for the evidently visible 25 and 35 Hz content has resulted in the following plots. "Raw data" signifies the input to the correction scheme, and corresponds to uncorrected data of Caltech and USGS processing. These data are interpolated at 500 points/second, and the plot is labelled "Interpolated/decimated". Butterworth filters whose corner frequencies are 3 db down are used to band pass the interpolated data between the low frequency limit of 1 Hz (with $n = 1$, first order) and the high frequency limit of 50 Hz ($n = 2$, second order). These plots are labelled "Filtered/windowed". The second page of plots for each component contains the acceleration, velocity and displacement with the instrument correction applied. All plots are scaled so that the peak value, listed in the title, fills the vertical axis.

The response spectra plots, both linear and tripartite, contain plots from 1 to 25 Hz, or 0.04 to 1 second. The high frequencies, up to 50 Hz, are portrayed in the Fourier spectra plots.

Tape format

The tape delivered to EDIS, Boulder, Colorado for dissemination purposes contains two files:

1. Uncorrected data, or the "raw data" of the plots; three components.
2. Corrected acceleration, velocity and displacement, as described above; three components.

The tape characteristics are: Blocked, fixed length, 80-byte card image, 2000 byte block size (that is, 25 cards), unlabelled, 9-track, 800 bpi, ASCII.

Reference:

A. G. Brady, P. N. Mork and J. P. Fletcher, "Processed Accelerograms from Monticello Dam, Jenkinsville, South Carolina, 27 August 1978 and Two Later Shocks", USGS Open File Report 81-0448, March 1981.

U.S. STRONG-MOTION NETWORK

Station No. 2532 34.304N, 81.333W

Jacksonville, S.C. Monticello Dam
Jenkinsville, Monticello Dam

SMA-1 No. 603 (USGS) Shared Abut
(Center Crest)

EARTHQUAKE OF

16 October 1979 0306 EDT

16 October 1979 0706 UTC

DIRECTION*

180°

Up

Up

090°

090°

CONSTANTS

Sens. = 1.90 cm/g

Per. = .040 sec

Damp. = 0.60 crit

Sens. = 1.75 cm/g

Per. = .040 sec

Damp. = 0.60 crit

Sens. = 1.75 cm/g

Per. = .038 sec

Damp. = 0.60 crit

Film speed =
Film speed
2 time marks/sec

5 cm

*Azimuthal direction of case acceleration for upward trace deflection (opposite direction to pendulum motion)
Azimuthal direction to pendulum motion

Film speed =

2 time marks/sec

tion to pendulum motion)

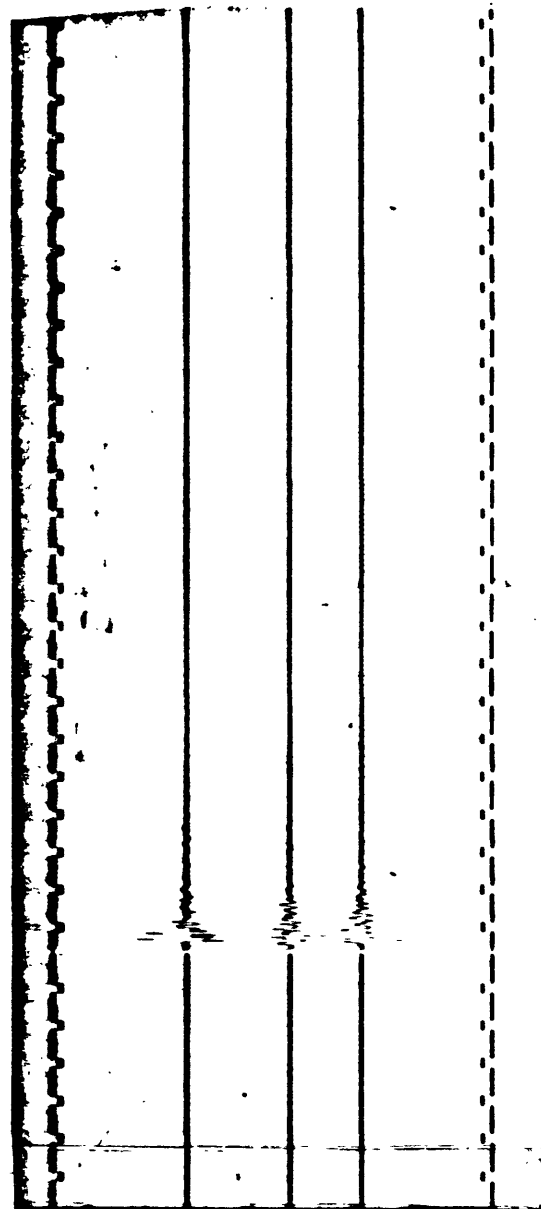
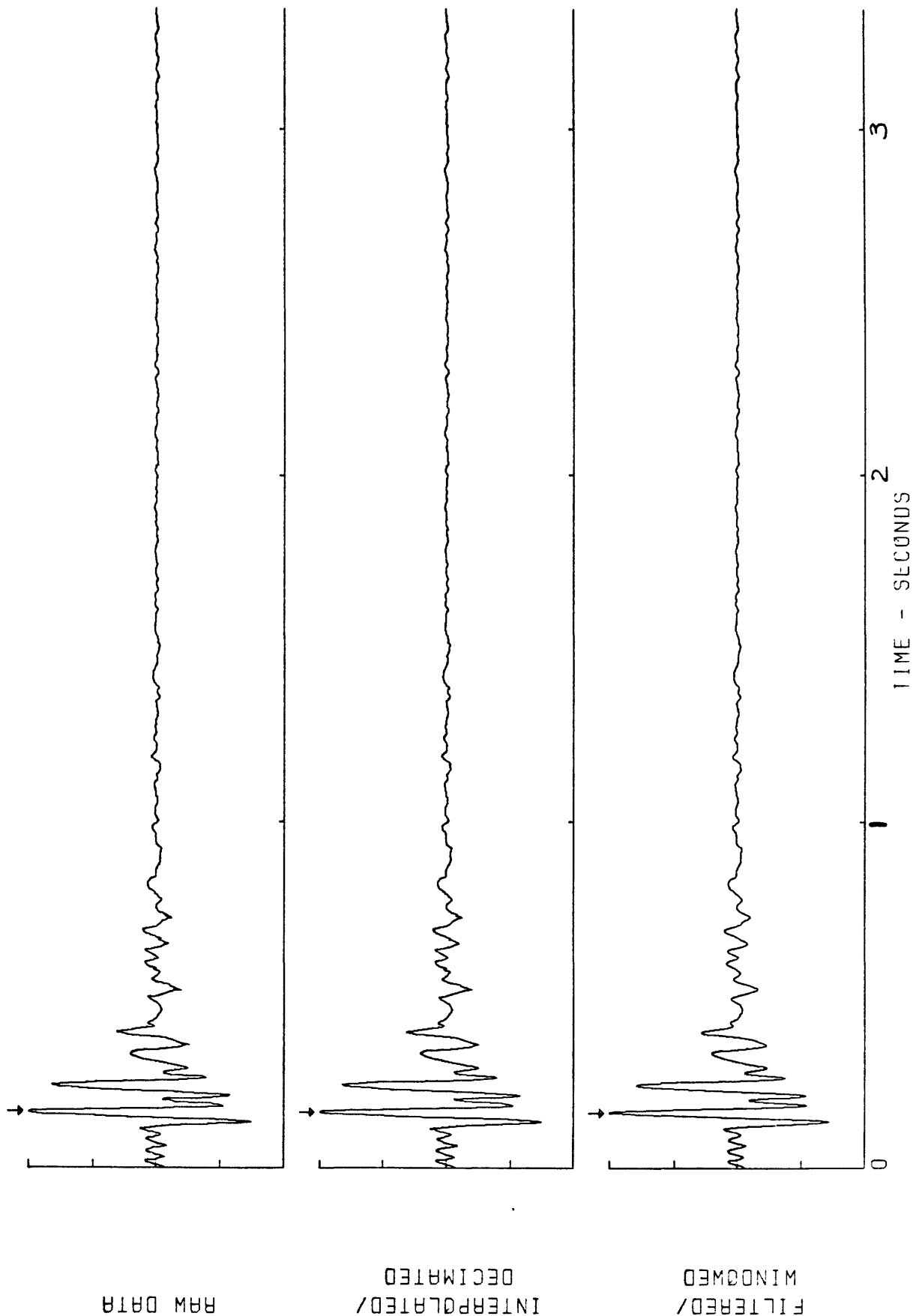
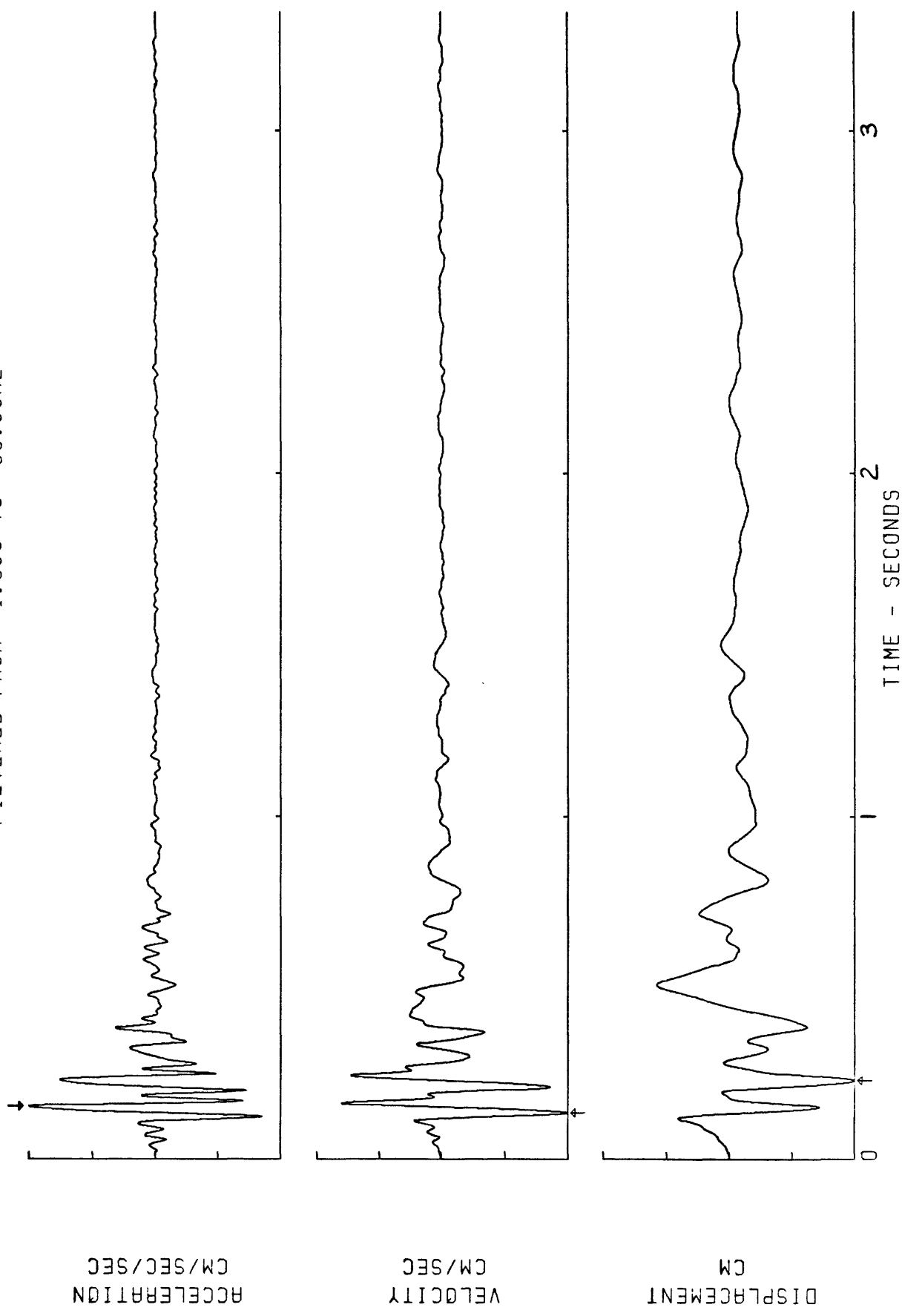


Figure 1.- Original Accelerogram

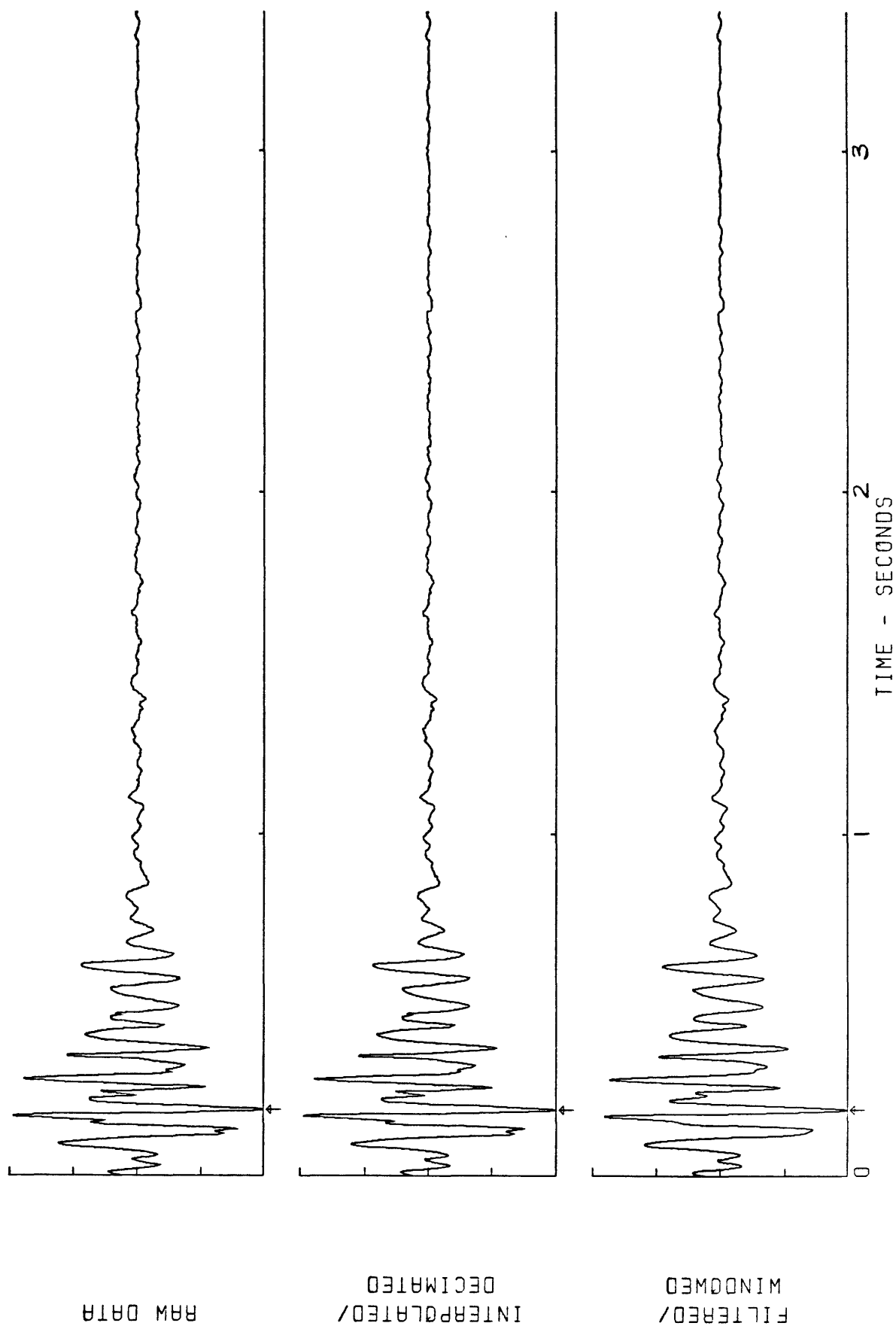
MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 180 DEG
 PEAK VALUES: RAW= 3.472 (G/10), INTERP= 339.9, FILTERED= 348.0 (CM/SEC/SEC)



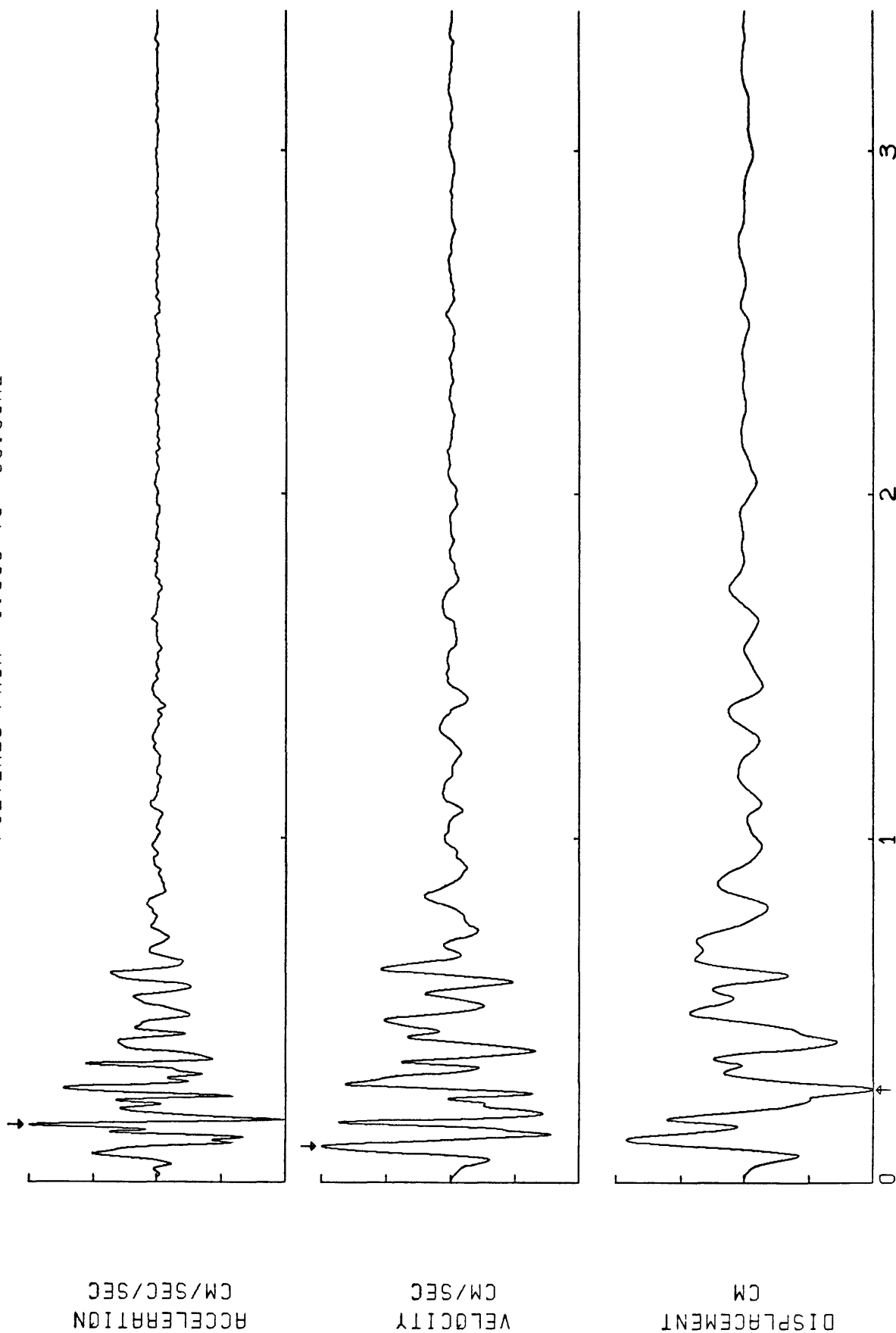
MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 180 DEG
 ↑ PEAK VALUES: ACCEL= 346.9 CM/SEC/SEC, VELOCITY= -3.46 CM/SEC, DISPL= -0.06 CM
 FILTERED FROM 1.000 TO 50.00HZ



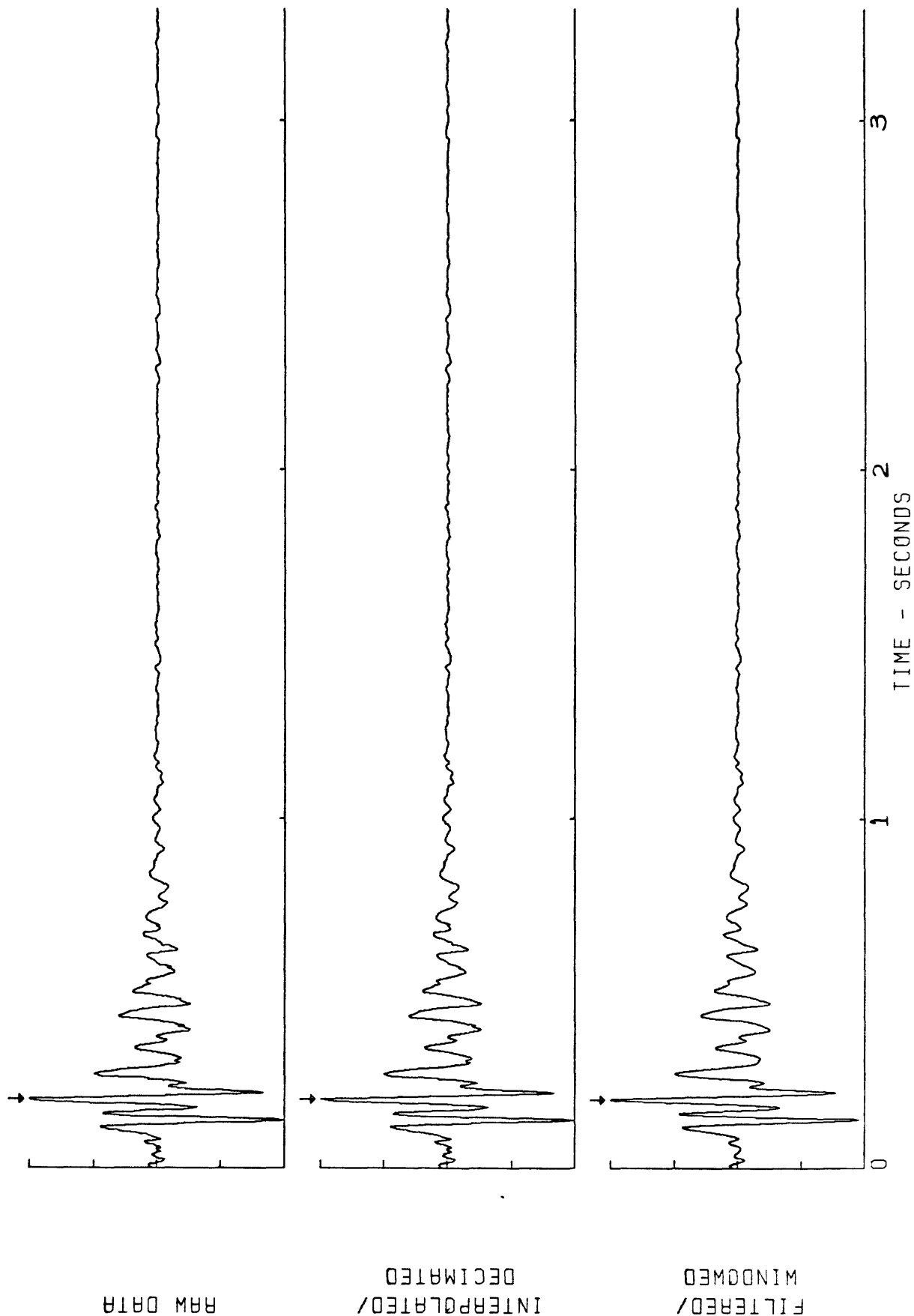
MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, COMP UP
 PEAK VALUES: RAW= -1.51 (G/10), INTERP= -148., FILTERED= -147. (CM/SEC/SEC)



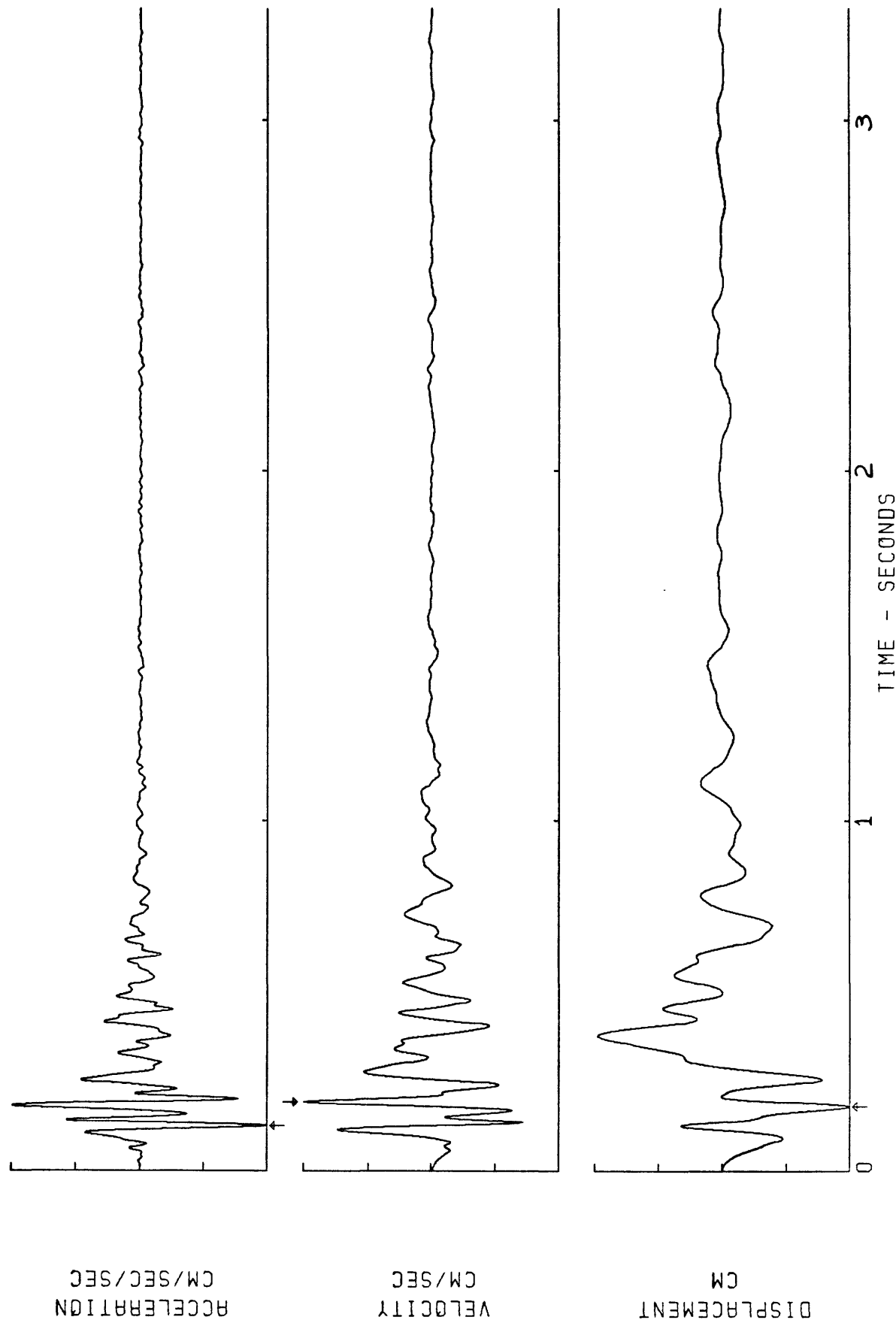
MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, COMP UP
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 FILTERED FROM 1.000 TO 50.00HZ



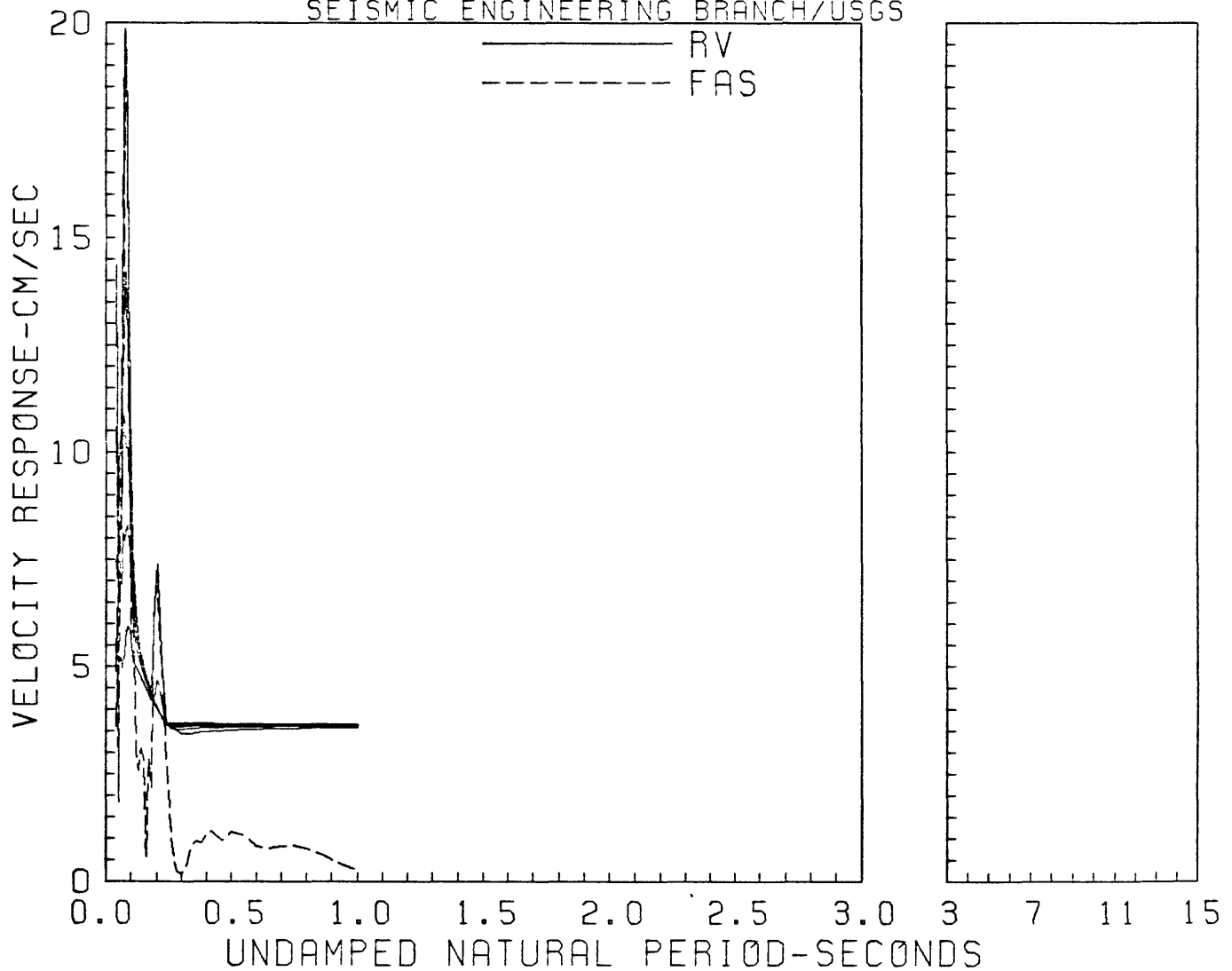
MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 90 DEG
 PEAK VALUES: RAW= 3.169 (G/10), INTERP= 310.8, FILTERED= 312.9 (CM/SEC/SEC)



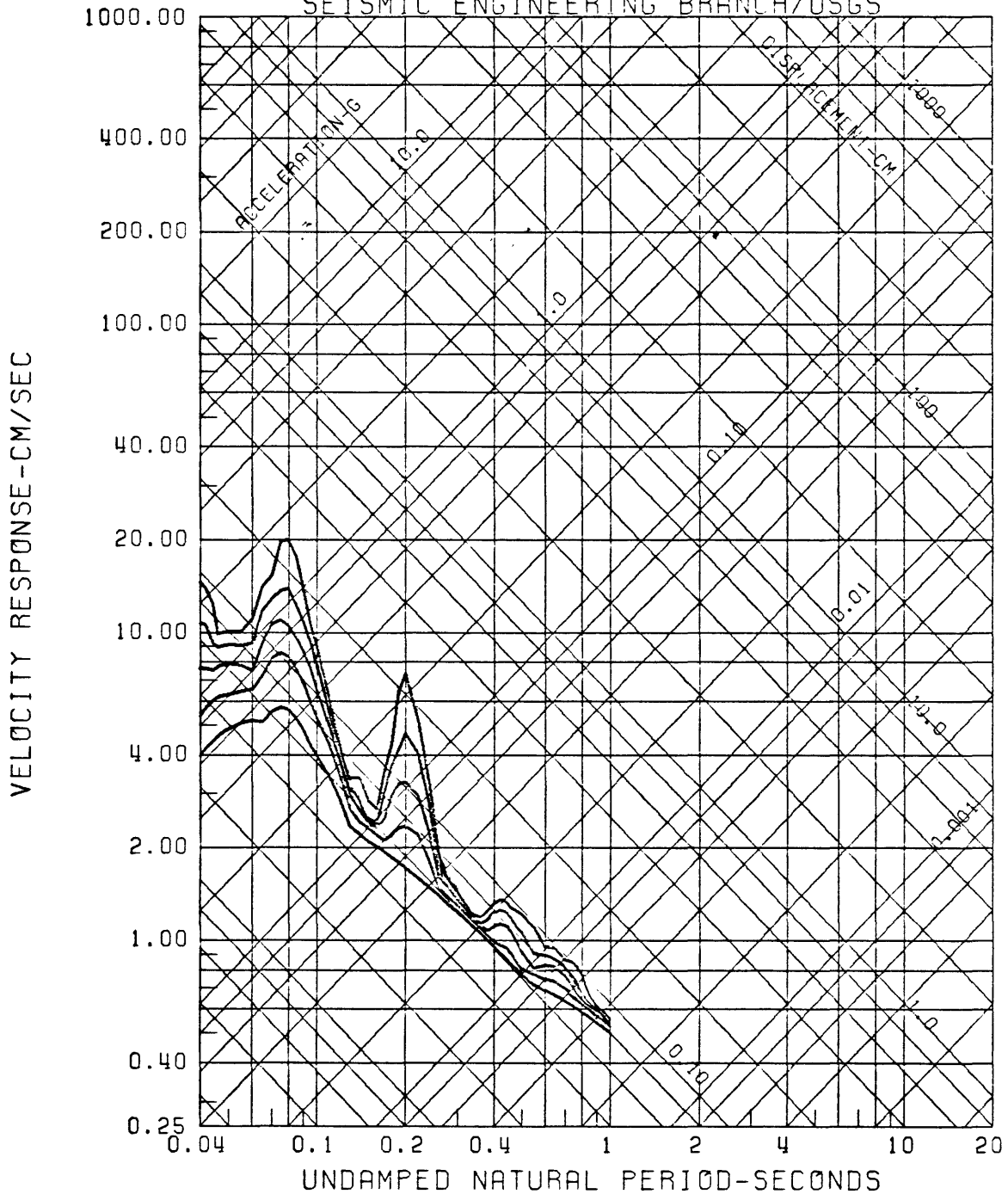
MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 90 DEG
 ↑ PEAK VALUES: ACCEL = -350. CM/SEC/SEC, VELOCITY = 3.079 CM/SEC, DISPL = -0.05 CM
 FILTERED FROM 1.000 TO 50.00HZ



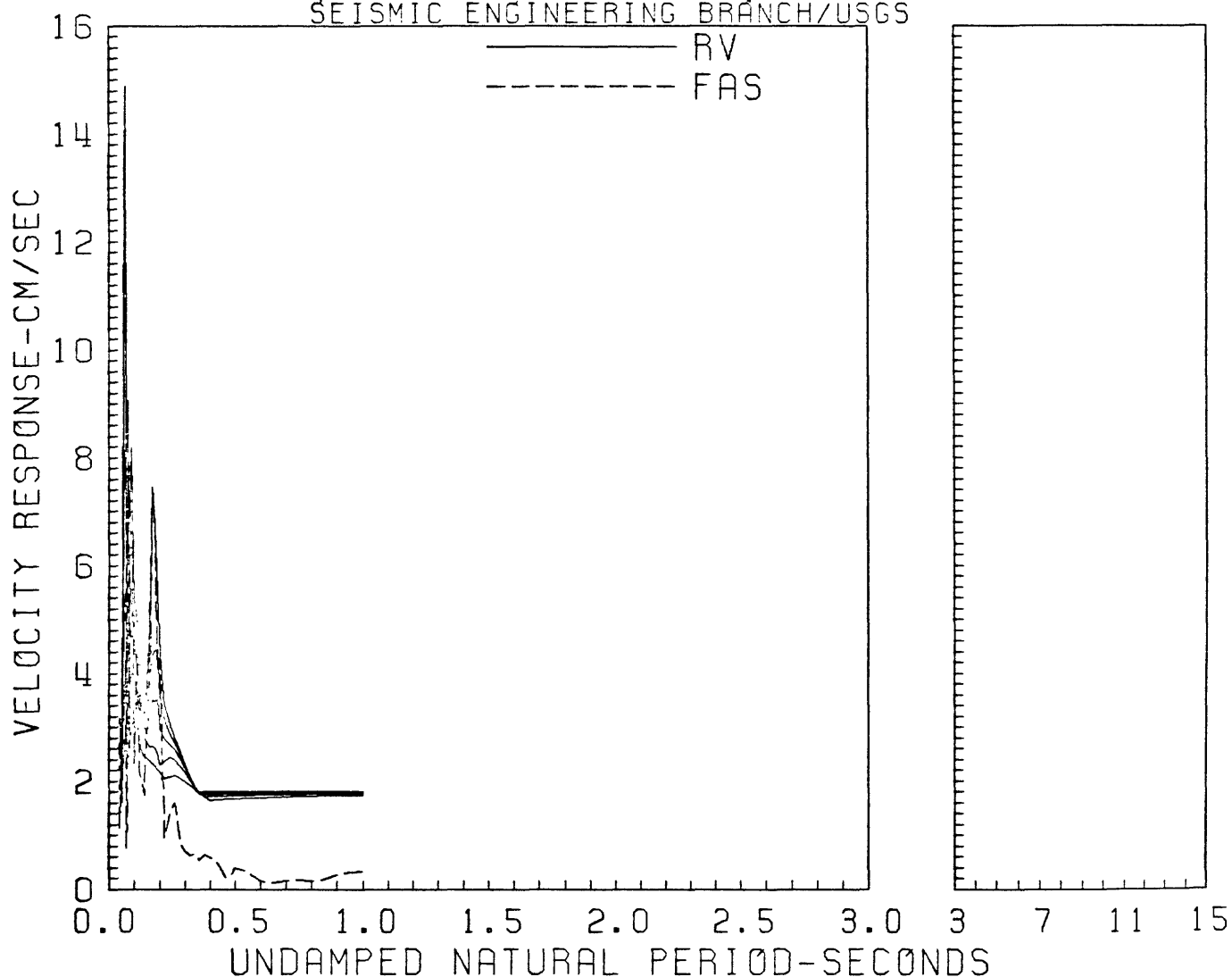
RELATIVE VELOCITY RESPONSE SPECTRUM
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0705UTC, 180 DEG
 0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



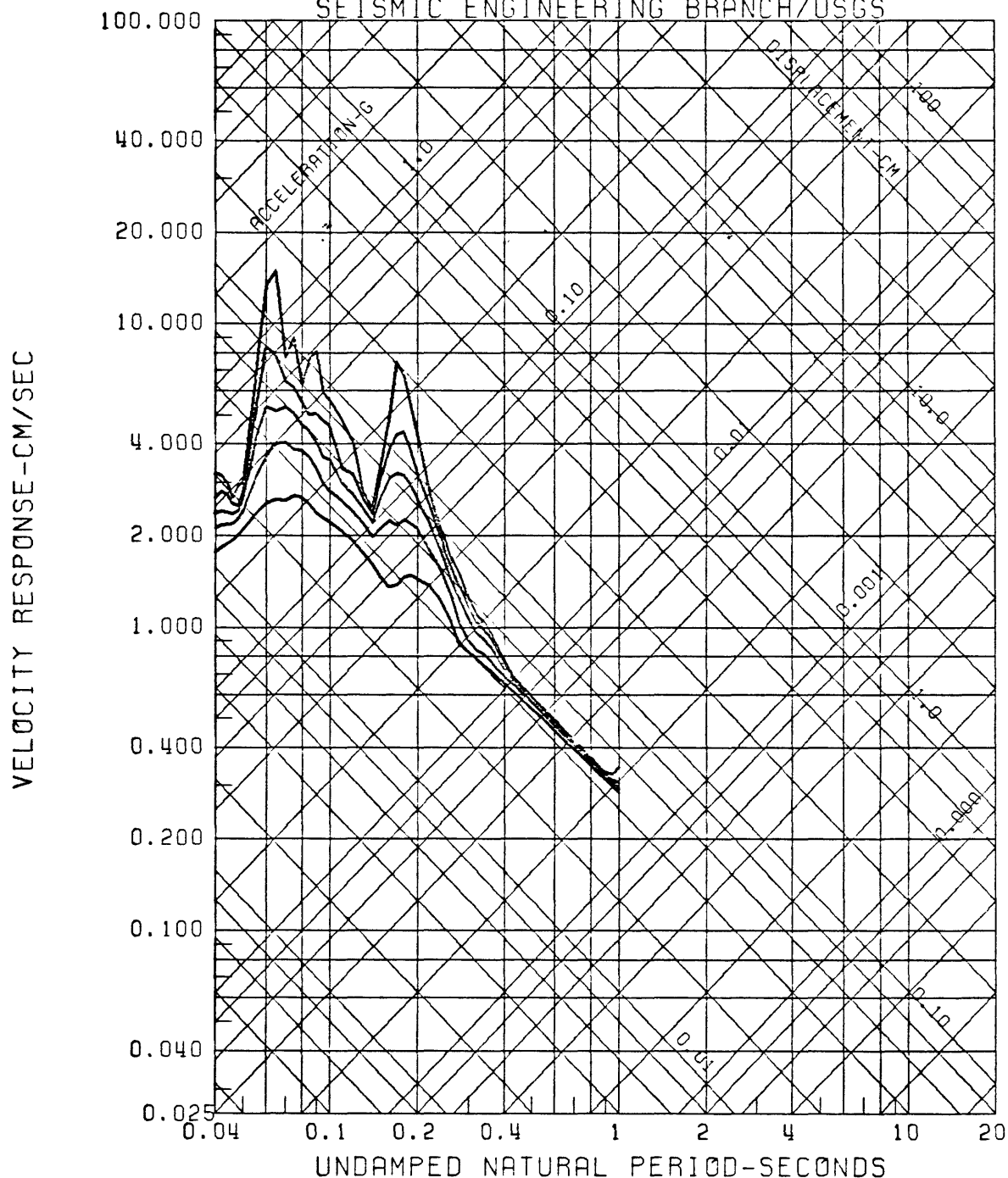
RESPONSE SPECTRA
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 180 DEG
 0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



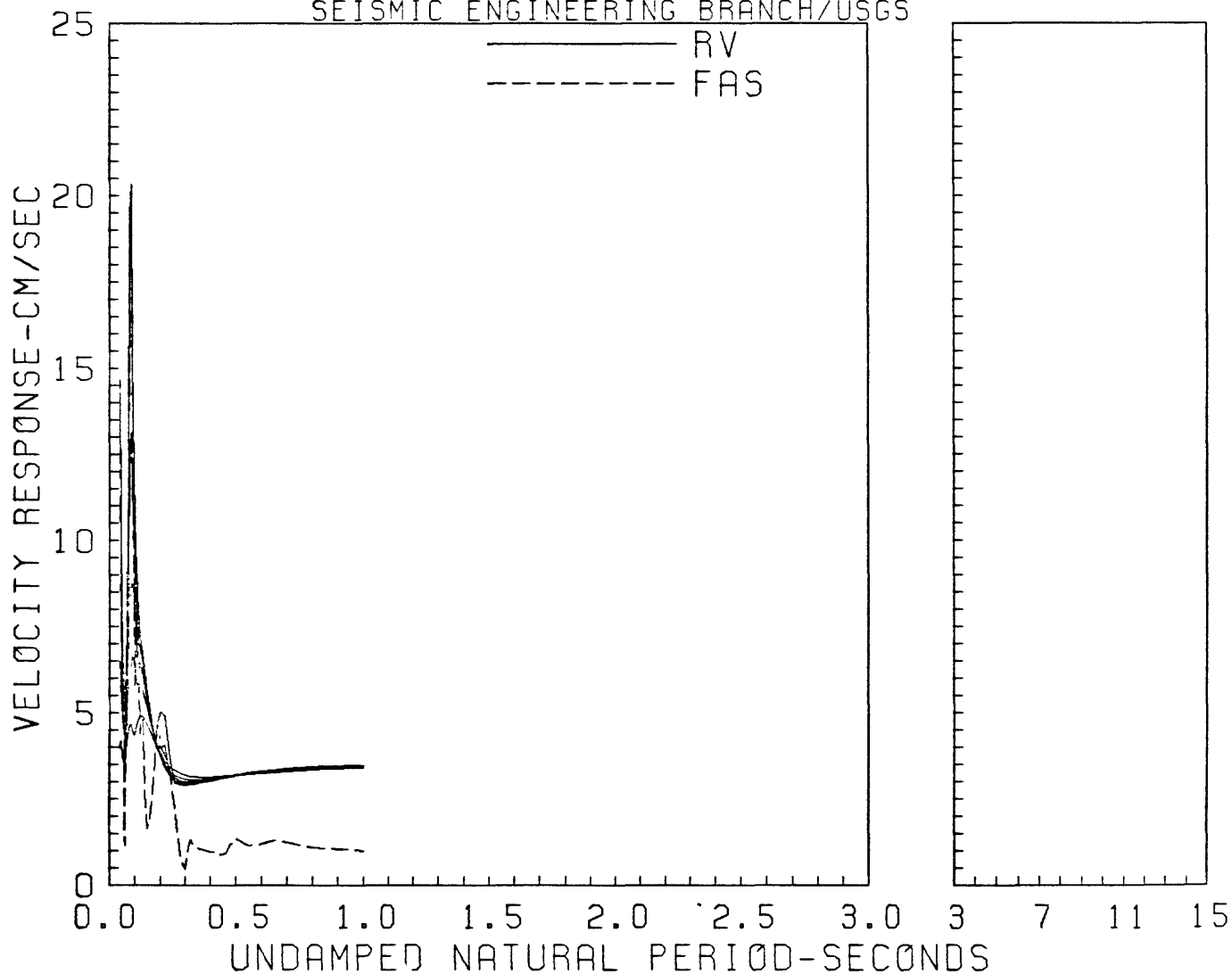
RELATIVE VELOCITY RESPONSE SPECTRUM
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, COMP UP
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 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



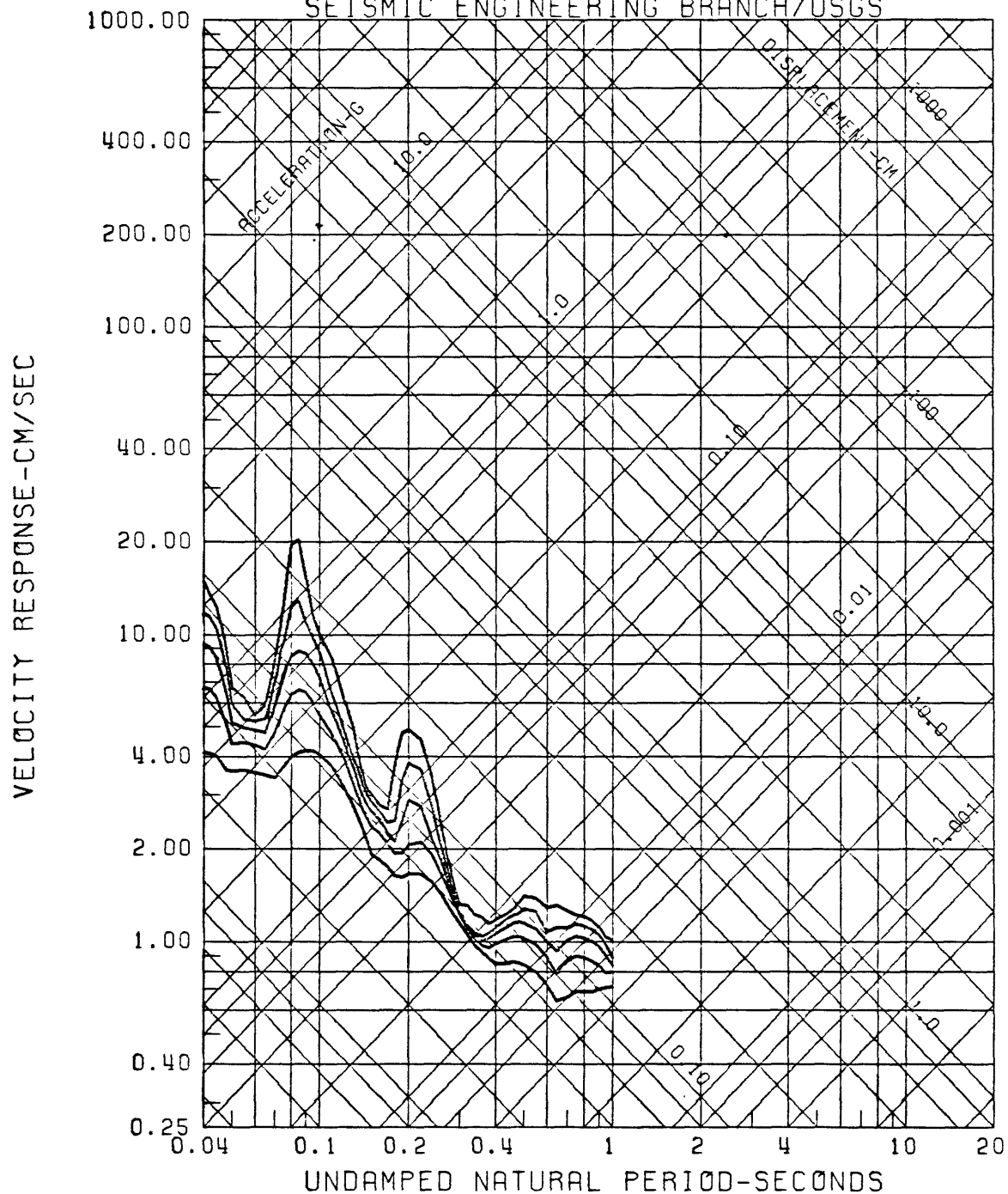
RESPONSE SPECTRA
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, COMP UP
 0.2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



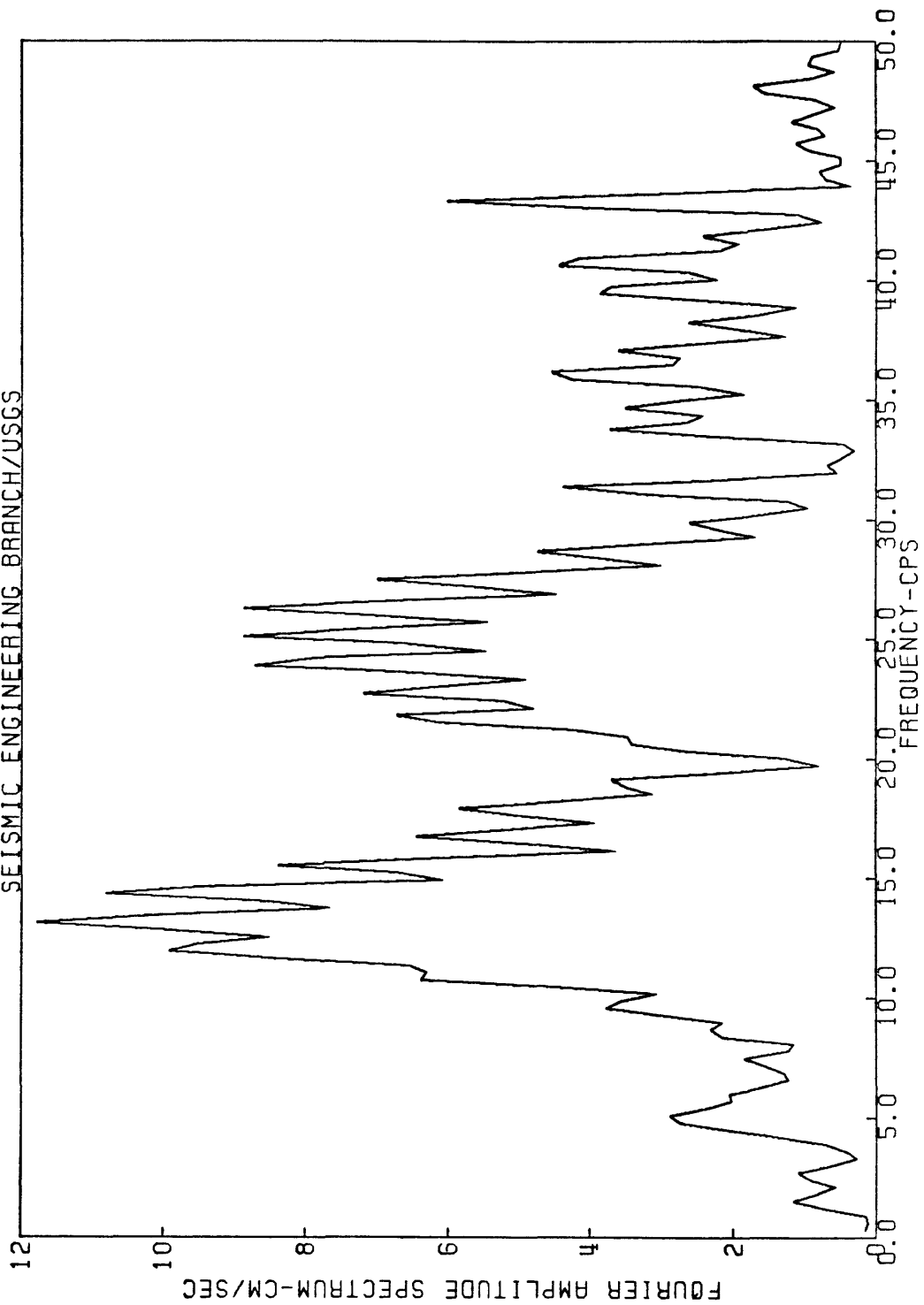
RELATIVE VELOCITY RESPONSE SPECTRUM
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 90 DEG
 0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



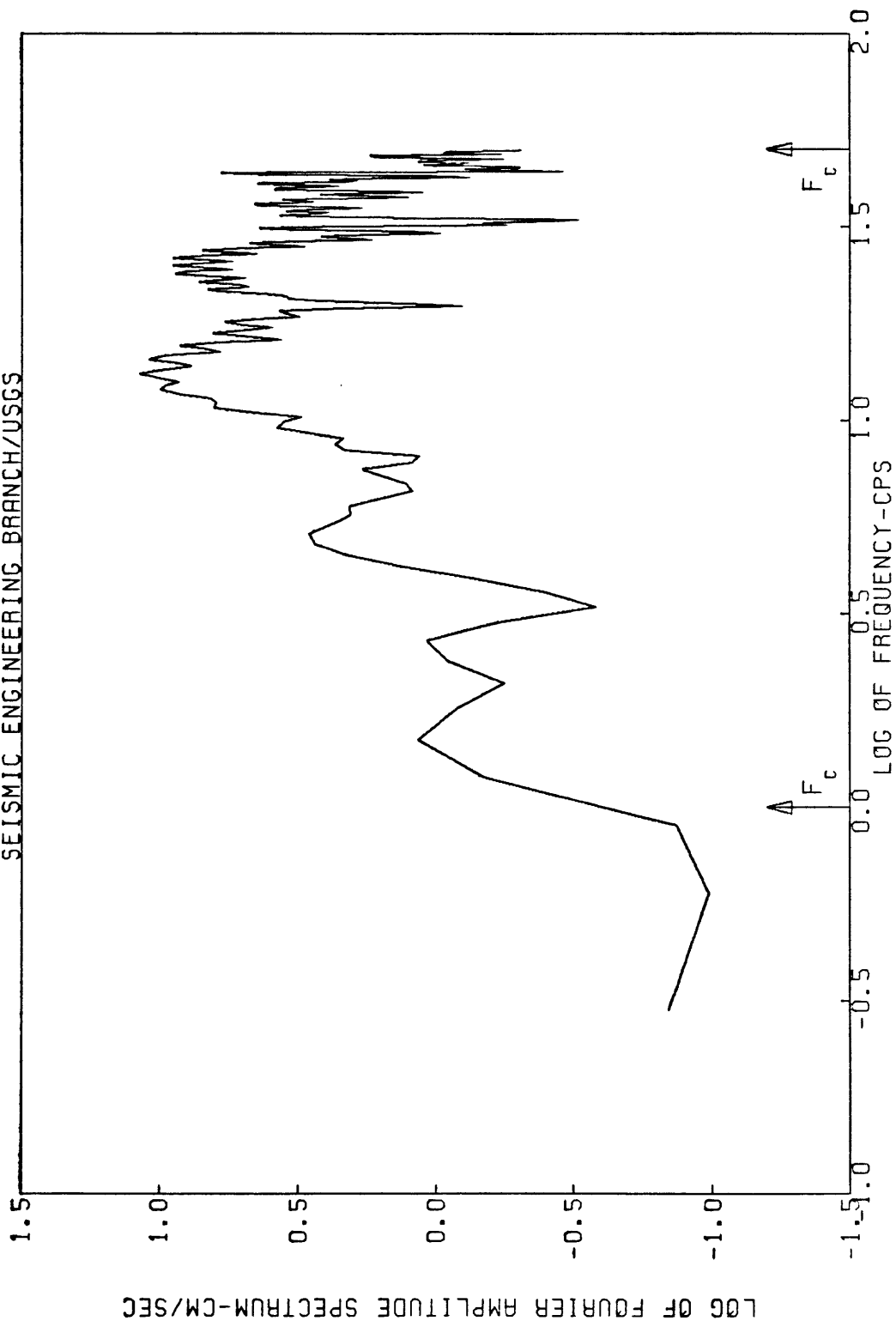
RESPONSE SPECTRA
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 90 DEG
 0, 2, 5, 10, 20 PERCENT CRITICAL DAMPING
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



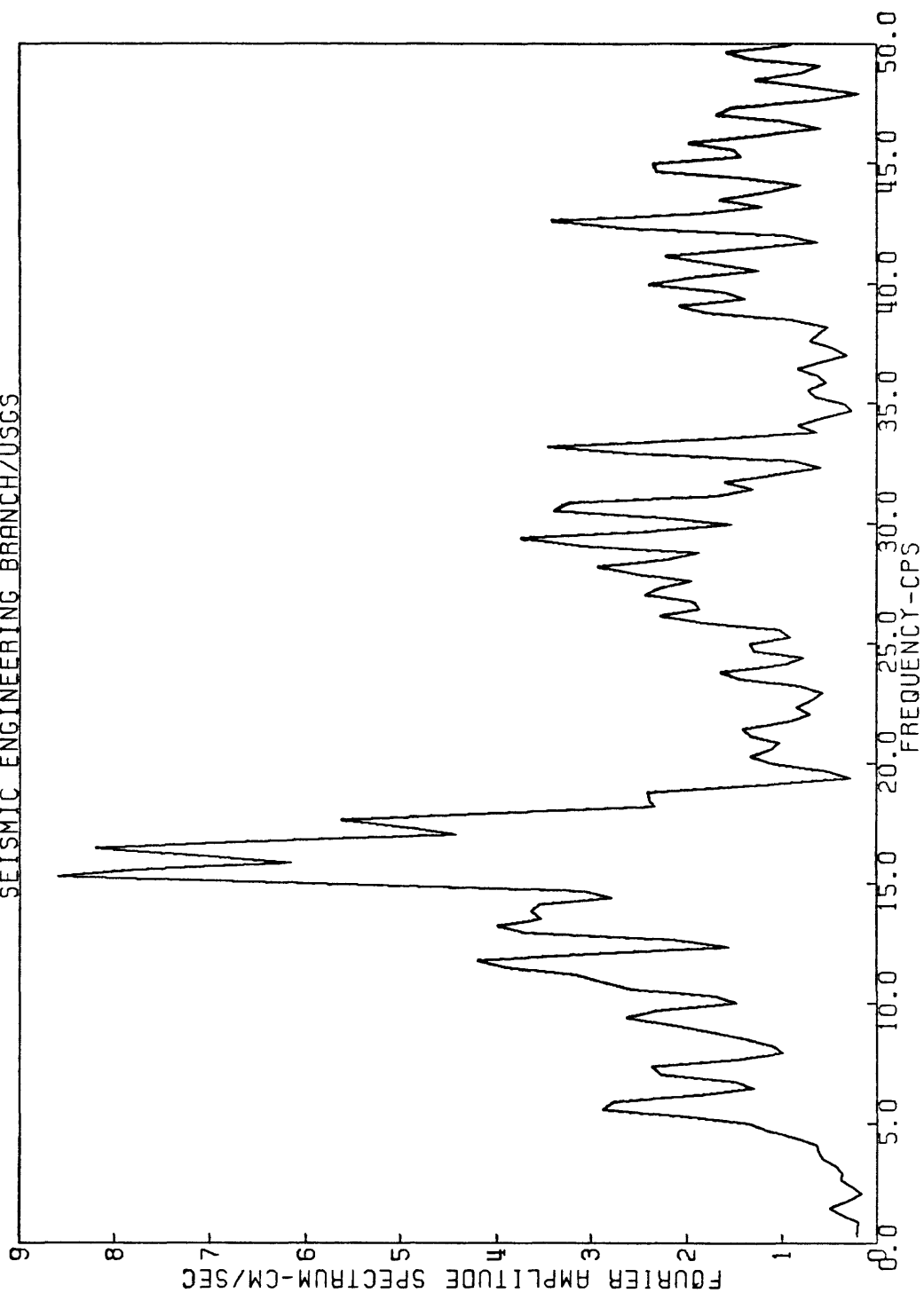
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 180 DEG
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



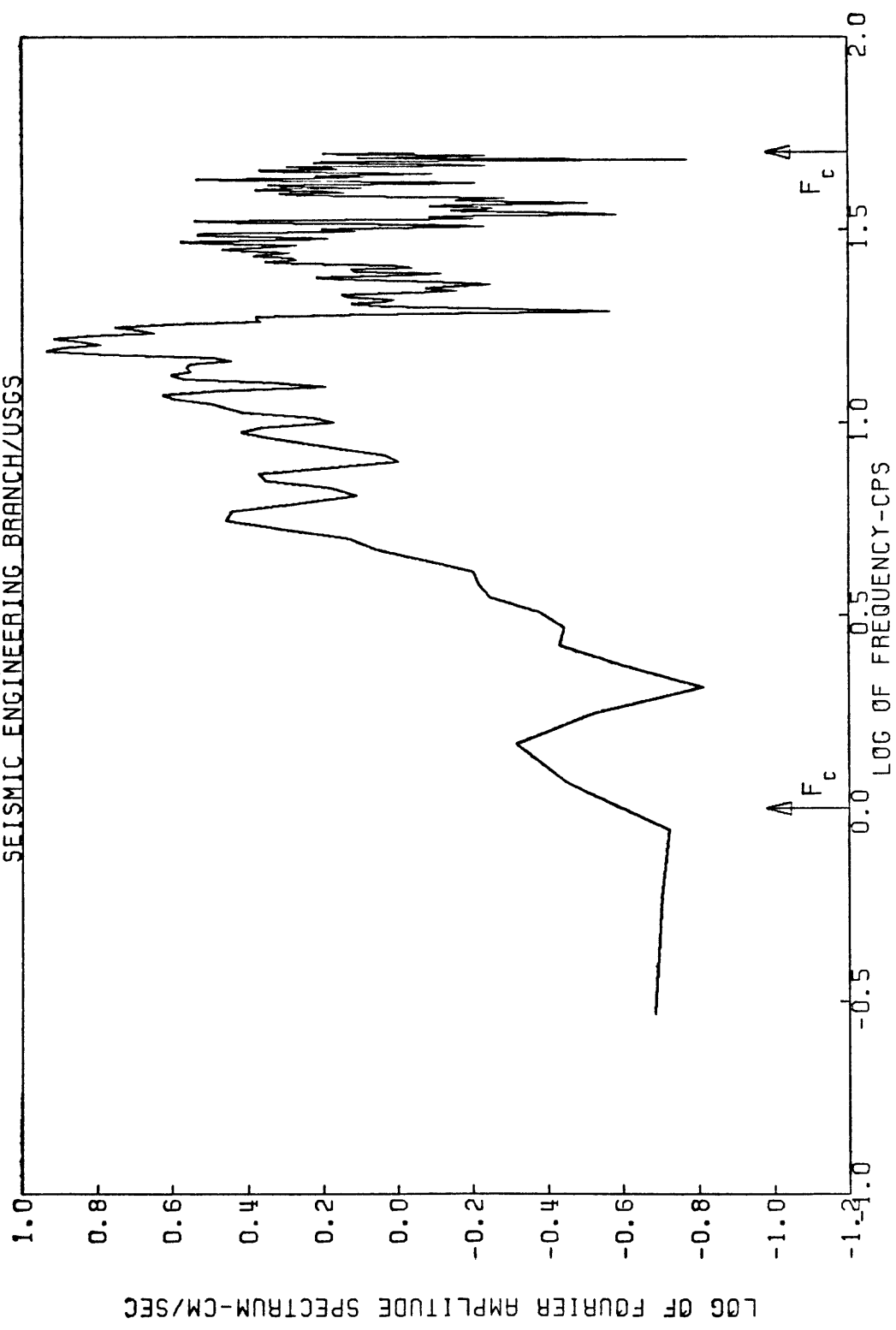
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 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



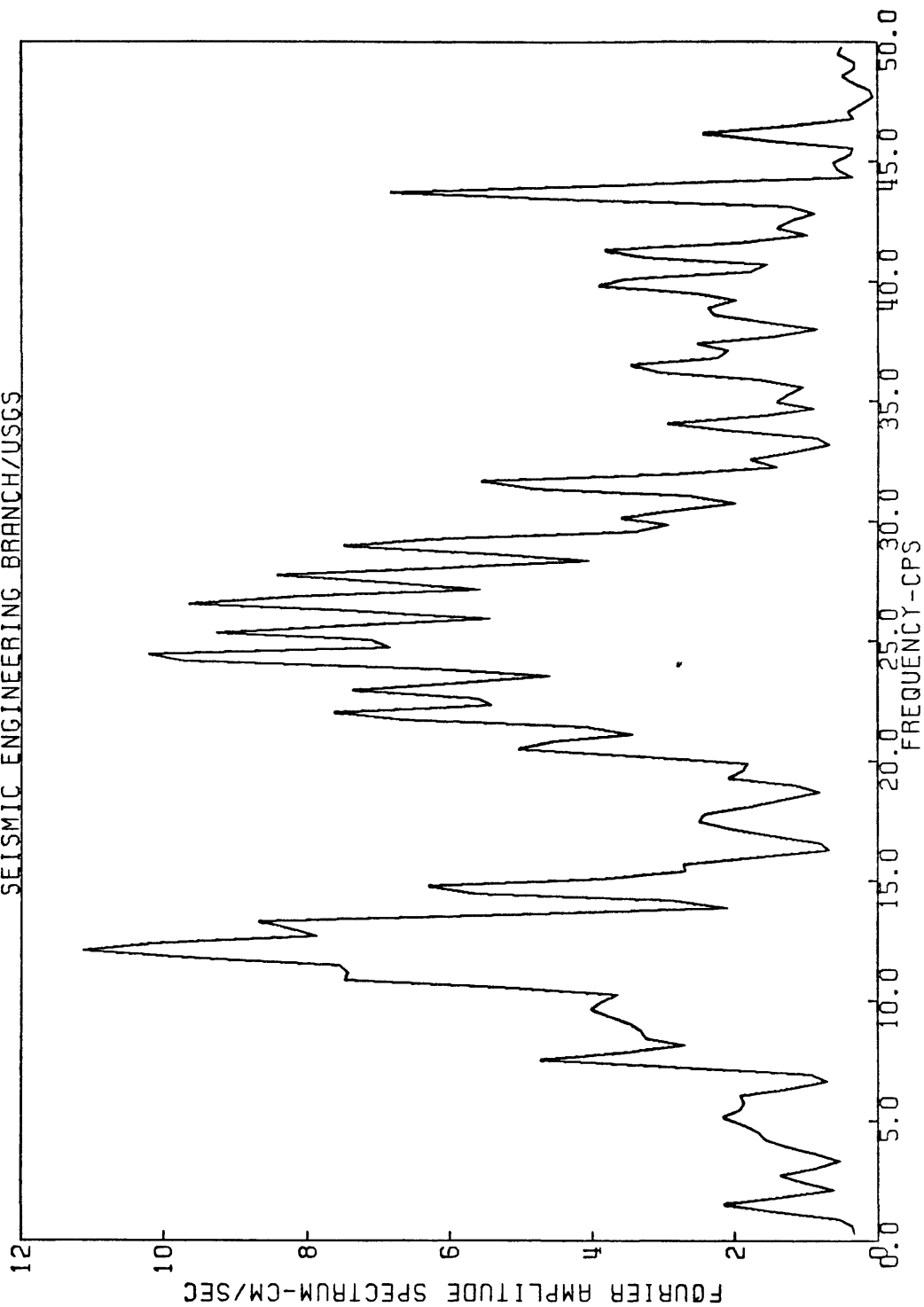
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 MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, COMP UP
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, COMP UP
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS



FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 90 DEG
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
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FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
 MONTICELLO EARTHQUAKE OF OCTOBER 16, 1979 - 0706UTC
 JENKINSVILLE, S.C. MONTICELLO DAM, 10/16/79, 0706UTC, 90 DEG
 BAND PASSED FROM N=1, 1.000 HZ TO N=2, 50.00 HZ
 SEISMIC ENGINEERING BRANCH/USGS

