ANALYSES OF STRONG MOTION EARTHQUAKE ACCELEROGRAMS

VOLUME IV - FOURIER AMPLITUDE SPECTRA

PARTS V, W, AND Y - ACCELEROGRAMS IIv294 TO IIv333,
IW334 TO IW336, IW338, IW339, IW342 TO IW345,
AND IY370 TO IY381

REPORT NO. EERL 75-101

A REPORT ON RESEARCH CONDUCTED UNDER A GRANT FROM THE NATIONAL SCIENCE FOUNDATION

PASADENA, CALIFORNIA
APRIL, 1975
CALIFORNIA INSTITUTE OF TECHNOLOGY
EARTHQUAKE ENGINEERING RESEARCH LABORATORY

ANALYSES OF
STRONG MOTION EARTHQUAKE ACCELEROMETERS

Volume IV - Fourier Amplitude Spectra

Parts V, W and Y - Accelerograms IIW294 to IIW333,
IIW334 to IIW336, IIW338, IIW339, IIW342 to IIW345,
and IIY370 to IIY381

Report No. EERL 75-101

A Report on Research Conducted Under a Grant from the National Science Foundation

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ABSTRACT

This is the last of a series of reports presenting Fourier amplitude spectra for earthquake ground motions and for structural response accelerations. Volume IV, Part A, Report No. EERL 72-100, included an introduction summarizing Fourier spectrum techniques in earthquake engineering as a background to the use of the data. For each earthquake accelerogram, two spectrum plots are given - a Fourier amplitude spectrum versus frequency on a linear scale and a log-spectrum, log-frequency plot. In this Volume IV series, Fourier amplitude spectra have been given for all corrected accelerograms, including building response measurements. The corrected records analyzed in this report, Volume IV, Parts V, W and Y, appeared in Volume II, Part V, Report No. EERL 75-52, and Volume II, Parts W and Y, Report No. EERL 75-53. Their uncorrected versions were published in Volume I, Part V, Report No. EERL 73-27; Volume I, Part W, Report No. EERL 73-28; and Volume I, Part Y, Report No. EERL 73-30.
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PREFACE TO VOLUME IV, PARTS V, W, AND Y

This report, Volume IV, Parts V, W, and Y, Report No. EERL 75-101, is the final part of a series initiated in July, 1969, and completes the objective of making available in a standard format Fourier amplitude spectrum calculations for all important strong-motion earthquake records collected since the initiation of the U.S. network in 1932 through 1971.

These Fourier spectrum calculations have been based on the corrected accelerograms reported in the Volume II series and therefore represent the best combination of accuracy and frequency range which it is feasible to achieve with the currently available instrumentation and data-processing techniques. As future investigations improve these data processing techniques, and as more refined instruments make it possible to attain higher levels of accuracy and wider frequency ranges, such calculations can no doubt be extended to include these improvements.

This issue contains data from California stations which recorded strong ground motion during the years 1933 to 1967; during the Lytle Creek earthquake, September 12, 1970; and the Borrego Mountain earthquake, April 8, 1968.

The records of Part V are included here in chronological order and the following series of records are of particular interest.

*For reasons of economy and convenience in the size of the reports, it has been thought desirable to combine three parts into one report.
The Los Angeles Subway Terminal, sub-basement, and the Long Beach Public Utilities Building records complete the set of three records obtained from the Long Beach earthquake of March 10, 1933, and were considered suitable for inclusion in this digitization project. The third is from the Vernon, CMD Building included in Part B, Series reference number B021.

The Hollywood Storage Building penthouse record from the Taft, 1952, earthquake is included to accompany the basement and P.E. lot records appearing in Part A, Series reference numbers A006 and A007.

Nine records are included from a foreshock and two aftershocks of the March 22, 1957, San Francisco earthquake. The aftershock at 1515 PST produced records at the Alexander Building (3 records), Oakland City Hall (2 records) and the Southern Pacific Building (one record, in the basement).

Other records in this issue include the Long Beach Public Utilities Building and the Los Angeles Chamber of Commerce Building (November 14, 1941), San Luis Obispo (November 21, 1952), the Port Hueneme Navy Research and Evaluation Laboratory (March 18, 1957), Eureka (September 4, 1962), Castaic (July 15, 1965), the Pacific Telephone Building in Sacramento (September 12, 1966), and the 12th floor of the Bethlehem Building in San Francisco (December 18, 1967).

Some of the records of Part W included in the Volume I series of uncorrected data have been eliminated from the processing of Volumes II, III, and IV. This decision, applying to very low
amplitude accelerograms, reflects the expectation that the resulting
displacement records would be dominated by noise. The eliminated
records are:


The remaining records of Part W, from the Lytle Creek
earthquake, are from the following locations:

1. 6074 Park Drive, Wrightwood
2. Cedar Springs CWR site; Allen Ranch and the right
   abutment
3. Hall of Records, San Bernardino
4. Southern California Edison Co., Colton
5. Millikan Library, Caltech, Pasadena (2 records)

The records of Part X, also from the Lytle Creek earthquake,
have all been eliminated.

The records of Part Y from the Borrego Mountain earthquake,
none having been deleted from the Volume I list, are from the
following locations:

1. Southern California Edison Co., Colton
2. Orange County Engineering Building, Santa Ana
3. Southern California Edison Co., Terminal Island,
   Long Beach
4. JPL, Caltech, Pasadena (2 records)
5. Millikan Library, Caltech, Pasadena
6. Athenaeum, Caltech, Pasadena
7. Southern California Edison Co., 601 W. 5th St., Los
   Angeles
8. Subway Terminal, Los Angeles
9. Hollywood Storage Building, Los Angeles (2 records)

Three other records from the Borrego Mountain earthquake
were included in the earlier reports of the Volume II series. These
were closer to the epicenter of any of the above.
10. El Centro, in Part A, reference number A019
12. San Onofre Nuclear Generating Station (Southern California Edison Co.), in Part B, reference number B040.


A separate section included in Volume IV, Parts Q, R, and S, Report No. EERL 74-104, entitled "High Frequency Amplitude Errors in Digitized Strong Motion Accelerograms" describes the results of a recent investigation of high frequency noise generated by the digitizing process. Frequencies from several to 25 Hz have been studied, and figures have been included to indicate clearly the extent to which Fourier amplitudes have been affected within this range.
NOTES ON THE VOLUME IV SERIES

Description of the Four Volumes of the Project. The series of reports in Volume I present "uncorrected" digitized and plotted strong-motion earthquake accelerograph data, while the series in Volume II present corrected digitized data prepared so that the maximum information over the widest practicable frequency range would be available. The corrections include long period filtering ensuring to the greatest extent possible a uniform type of baseline adjustment and an instrument correction to account for the high frequency response characteristics of the accelerograph transducer.

The Volume III series presents earthquake response spectrum curves calculated from the corrected accelerograms of Volume II, while the Volume IV series contains Fourier amplitude spectra calculated by the Fast Fourier Transform algorithm. An extensive introduction was prepared for Volume IV, Part A, Report No. EERL 72-100, where details of the methods used can be found together with examples of applications to various problems of earthquake engineering and strong-motion seismology. That introduction should also serve as a basic summary of background information for users of the data.

Contents of the Various Parts. The specific records whose "uncorrected" digitized versions appeared in Part A of Volume I are included subsequently with their analyses in Part A of Volume II, III, and IV. This arrangement has been maintained throughout the whole series. In Part C of Volume IV, Report No. EERL 73-101, we began the presentation of Fourier spectra analysis for the
unusually important series of accelerograms obtained during the San
Fernando earthquake of February 9, 1971, and Part S contains the last
of the San Fernando records. In Part T a return is made to those
records received during the years 1933 to 1968, which continue into
Parts U and V. Parts W and X contain the records from the Lytle
Creek, California, earthquake of Sept. 12, 1970, and Part Y contains
the records of the Borrego Mountain, California, earthquake of April 8,
1968, not already included in Parts A and B. Part Y marks the con-
clusion of the current digitizing and analysis project.

**Component Directions.** A description of the component direction
nomenclature for the records was given in Volume II, Part B, Report
No. EERL 72-50. Consistent with this, the component direction where
it appears in this report refers to the direction of the transducer
pendulum motion for the trace to be deflected "up" on the record
when viewed in the normal way with time increasing from left to
right. The direction of true ground acceleration is opposite to this
pendulum motion. The spectral calculations of Volume IV, however,
are concerned with the amplitude spectrum only and the particular
component sense is thus immaterial.

**Assessment of Long Period Errors.**

A. **San Fernando earthquake data, 70-mm and 35-mm film,**

included in Parts C through S

A separate section in Volume II, Part G, Report No. EERL
73-52, entitled "Current Assessment of Long Period Errors" describes
the results of a recent investigation of long period displacements
calculated from recorded accelerations. During the course of this
study it became evident that the procedures for preparation of 70-mm film and, to a lesser extent, 35-mm film records from the San Fernando earthquake of February 9, 1971, introduced spurious excitations at periods close to the duration of the sectional enlargements. These effects have been removed from all of the 70-mm and 35-mm film records by filtering with a long period limit of 8 seconds rather than the standard cut-off period of 16 seconds in the Volume II correction procedure. The following list of Caltech reference numbers indicates the records from the San Fernando earthquake included in Volume I, Parts C through S, that have been processed with the cut-off period of 8 seconds:

Parts G, H, I: All records in these parts.
Part J: Records J142 and J145 through J150.
Part K: All records.
Part L: Records L166, L167, L168; L172 through L175.
Part M: Records M176, M177, M178; M180 through M184.
Part N: All records.
Part O: Records O198 through O201; O206, O208, O210.
Parts Q, R, S: All records in these parts.

A decision was also made at the same time to eliminate a number of very low amplitude accelerograms from further processing (Volume II, III, and IV) reflecting the expectation that the resulting displacement records will be dominated by noise. Their Caltech reference numbers are as follows:
H127; I140; J151, J152; K153 through K156, K161 through K165; O202, O203, O209, O211, O212; P224 through P230.

B. **Six inch and twelve inch photographic paper records, included in Parts A through Y.**

The decision to eliminate the very low amplitude accelerograms of the San Fernando earthquake, detailed above in Section A, was extended to include the more distant records of the Lytle Creek earthquake, Sep. 12, 1970, whose uncorrected data appeared in Volume I, Parts W and X. The entire Part X has been eliminated from further processing. Although this somewhat drastic action was required in this case, nevertheless it is apparent in some of the displacement plots that have reached the Volume II series of reports that some long period noise is still present in the published data. There are no components remaining with periods longer than the cut-off period of 14 seconds (and roll-off termination at 20 seconds), or in the case of 70- and 35-mm film records from the San Fernando earthquake, the cut-off of 8 seconds (and roll-off termination at 10 seconds), but it is evident that for some records these cut-off periods are in fact too long. The cause for this lies in the very low amplitude of acceleration for much of the duration of some of the records and the consequent lowering of the signal-to-noise ratio. This noise arises primarily from random digitization noise, and is independent of the acceleration amplitudes. With this in mind, the displacement plots indicate that a cut-off period lower than 14 seconds, or 8 seconds as the case may be, should be used to remove these components
from the acceleration data. It is clear, of course, that in routine processing of accelerograms, such as those mentioned above, it is not practical to examine each earthquake accelerogram in sufficient detail to permit selection of the cut-off period optimal for that particular record.

**Description of the Figures and Tables.** For each component in the following pages the Fourier amplitude spectrum is presented in two forms - a linear plot and a log-log plot. Details concerning identification are given at the top of each plot. The second line gives the name, date, and time of occurrence of the earthquake; the third line is comprised of two labels, the observation station and the component processed. The Roman numeral "IV" in the first identification label indicates that the results pertain to the fourth stage of data processing, i.e., Volume IV of Fourier spectra of accelerogram records already corrected for baseline adjustment and instrument response. The letter following the Roman numerals indicates the part of Volume II to which the processed record belongs. The three-digit number completing the first label is the Caltech Reference Number for the given earthquake record in Volume I, right-adjusted in a three-digit numerical field. The second label is a string of three numbers separated by periods; the first number gives the year in which the earthquake occurred; the second is the serial number of the record as it was received at the Caltech Earthquake Engineering Research Laboratory during that year; and the last number indicates whether it was a main event or an aftershock (sequentially numbered, the main event starting from zero). On the linear spectrum plot, the data lying
above the 95 percent confidence level may be considered relevant to that degree. The spectra have been plotted up to a frequency of 25 cyc/sec on linear and logarithmic scales, corresponding to the capabilities of the instrumentation and data processing methods used.

**Frequency Transfer Functions.** This report presents many spectra of accelerograms recorded simultaneously at different locations in the same structure, for example, the basement, mid-height, and roof levels of a tall building. At present, it is planned to calculate frequency transfer functions involving smoothing and calculating the ratio of two such spectra in supplementary reports.

**Numbering of EERL Reports.** The system for the EERL-numbering of the reports is based on two numbers, one indicating the year of preparation, and the second indicating the volume to which the report belongs. A detailed description follows.

For the Volume I reports, the first number indicates the year in which the particular data was first prepared for either a report or for loading onto magnetic tape. This number ranges from 70 to 73. The first printing of Volume I, Part A, appeared before the numbering system was chosen. Although it was dated July, 1969, it actually did not appear until 1970, and was consequently numbered EERL 70-20 in subsequent printings. For the reports of Volumes II, III, and IV, the first number indicates the year in which the report was prepared, and ranges from 70 to 75.

The second number increases consecutively with each report, restarting at 20 each year in the case of Volume I reports, at 50 for Volume II, and 80 for Volume III, and at 100 for Volume IV. For
example, Volume II, Part G, Report No. EERL 73-52, was prepared in 1973 and was the third report of the Volume II series to be published that year. The numbers from 01 to 19 each year are reserved for other publications of the Earthquake Engineering Research Laboratory, such as thesis reports and special reports.

Acknowledgments. Any long-continued project requiring much detailed work must depend upon the devoted efforts of many people. We have been unusually fortunate in the quality and energy of the staff that has carried out these tasks with special care and attention. The particular individuals who have made these special contributions have been listed in the acknowledgments appended to the various reports in the series and we should like to add here a final word of appreciation to everyone involved.

The entire project was made possible by the continuing support of the National Science Foundation, with important supplements from the Earthquake Research Affiliates Program of the California Institute of Technology.

D. E. Hudson
A. G. Brady
M. D. Trifunac
Earthquake Engineering Research Laboratory
California Institute of Technology
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<th>Long. (E)</th>
<th>Depth* (km)</th>
<th>Mag.</th>
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<td>-124°12'00&quot;</td>
<td>-</td>
<td>5.0</td>
<td>6</td>
</tr>
<tr>
<td>Southern Calif.</td>
<td>07/15/65</td>
<td>2346 PST</td>
<td>34°29'06&quot;</td>
<td>-118°31'18&quot;</td>
<td>15.1</td>
<td>4.0</td>
<td>6</td>
</tr>
<tr>
<td>Northern Calif.</td>
<td>09/12/66</td>
<td>0841 PST</td>
<td>39°24'00&quot;</td>
<td>-120°06'00&quot;</td>
<td>-</td>
<td>6.3</td>
<td>7</td>
</tr>
<tr>
<td>Northern Calif.</td>
<td>12/18/67</td>
<td>0925 PST</td>
<td>37°00'36&quot;</td>
<td>-121°47'18&quot;</td>
<td>-</td>
<td>5.2</td>
<td>6</td>
</tr>
</tbody>
</table>

*Listed depth of 16.0 km is an estimate used for travel times in epicenter calculations (Gutenberg, 1951; Hileman et al., 1973).
Earthquake Data, Part W

Location: Lytle Creek, California
Date: September 12, 1970
Time: 0630 PST
Epicenter: 34°16'12"N, 117°32'24"W
Depth: 8.0 km
Magnitude: 5.4
Maximum Intensity: VII

Earthquake Data, Part Y

Location: Borrego Mountain, California
Date: April 8, 1968
Time: 1830 PST
Epicenter: 33°11'24"N, 116°07'42"W
Depth: 11.1 km
Magnitude: 6.4
Maximum Intensity: VII
REFERENCES (See additional list, page 268)


FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LONG BEACH EARTHQUAKE  MAR 10, 1933 - 1754 PST
IVV314  33.002.0  L.A. SUBWAY TERMINAL SUB-BSMT., LOS ANGELES, CAL.  COMP N51W

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LONG BEACH EARTHQUAKE  MAR 10, 1933 - 1754 PST
IVV315  33.003.0  PUBLIC UTILITIES BLDG., LONG BEACH, CAL.  COMP WEST

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION

LONG BEACH EARTHQUAKE MAR 10, 1933 - 1754 PST
IVV315 33.003.0 PUBLIC UTILITIES BLDG., LONG BEACH, CAL. COMP WEST

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
TORRANCE-GARDENA EARTHQUAKE  NOV 14, 1941 - 0042 PST
IVV316  41.004.0  PUBLIC UTILITIES BLDG., LONG BEACH, CAL.  COMP NORTH

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION

TORRANCE-GARDENA EARTHQUAKE  NOV 14, 1941 - 0042 PST

IVV316 41,004.0  PUBLIC UTILITIES BLDG., LONG BEACH, CAL.  COMP EAST

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
TORRANCE-GARDENA EARTHQUAKE  NOV 14, 1941 - 0042 PST
IVV316  41.004.0  PUBLIC UTILITIES BLDG., LONG BEACH, CAL.  COMP EAST

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
Torrance-Gardena Earthquake  Nov 14, 1941 - 0042 PST
IVV316 41.004.0 Public Utilities Bldg., Long Beach, Cal. Comp Up

Log of Fourier Amplitude Spectrum - CM/SEC

Log of Frequency - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
TORRANCE-GARDENA EARTHQUAKE NOV 14, 1941 - 0042 PST
IVV317 41.005.0 CHAMBER OF COMMERCE, BSMT., LOS ANGELES, CAL. COMP S4OW

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
TORRANCE-GARDENA EARTHQUAKE   NOV 14, 1941 - 0042 PST
IVV317  41.005.0 CHAMBER OF COMMERCE, BSMT., LOS ANGELES, CAL.  COMP S40W

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS

-3.0  -2.0  -1.0   0.0   1.0   2.0
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION

TORRANCE-GARDENA EARTHQUAKE  NOV 14, 1941 - 0042 PST

IVV317  41.005.0  CHAMBER OF COMMERCE, BSMT., LOS ANGELES, CAL.  COMP UP

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST
IVV319 52.012.0 CITY RECREATION BLOG., SAN LUIS OBISPO, CAL. COMP N36W

[Graph showing a Fourier amplitude spectrum with log of frequency on the x-axis and log of amplitude on the y-axis.]
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SOUTHERN CALIFORNIA EARTHQUAKE NOV 21, 1952 - 2346 PST
IVV319 52.012.0 CITY RECREATION BLOCK, SAN LUIS OBISPO, CAL. COMP UP

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION

SAN FRANCISCO EARTHQUAKE FORESHOCK MAR 22, 1967 - 10:48 PST

IVW320 57.001.0 SOUTHERN PACIFIC BLDG., BSMT, SAN FRANCISCO, CAL.

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE FOreshock  MAR 22, 1957 - 1048 PST
IYV320 57.001.0 SOUTHERN PACIFIC BLDG., BSMT. SAN FRANCISCO, CAL  COMP UP

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE FORESHOCK MAR 22, 1957 - 1048 PST
IVV320 57.001.0 SOUTHERN PACIFIC BLDG., BSMT, SAN FRANCISCO, CAL COMP UP

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MARCH 22, 1957 - 11:44 PST
IVV321 57.011.0 OAKLAND CITY HALL, 16TH FL., OAKLAND, CAL. COMP UP

Log of Fourier Amplitude Spectrum - cm/sec

Log of Frequency - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IVV322 57.014.0 SOUTHERN PACIFIC BLDG., BSMT, SAN FRANCISCO, CAL COMP NYSE
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVV322  SOUTHERN PACIFIC BLDG., BSMT, SAN FRANCISCO, CAL  COMP UP

95 PERCENT CONFIDENCE LEVEL

FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVV323  57.015.0  ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL  COMP N81E

FOURIER AMPLITUDE SPECTRUM - CW/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVV323  57.015.0  ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL  COMP N81E

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVV323 57.015.0  ALEXANDER BLDG., BSMT, SAN FRANCISCO, CAL  COMP NO SW

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IYV324  57.016.0  ALEXANDER BLDG., 11TH FL., SAN FRANCISCO, CAL.  COMP N81E

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST

IVV324  57.016.0  ALEXANDER BLDG., 11TH FL., SAN FRANCISCO, CAL.  COMP NO1E

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVY324 57.016.0 ALEXANDER BLDG., 11TH FL., SAN FRANCISCO, CAL.  COMP SO9E

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IVV324 57.016.0 ALEXANDER BLDG., 11TH FL., SAN FRANCISCO, CAL. COMP UP

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

IV324 57.016.0 ALEXANDER BLDG., 11TH FL., SAN FRANCISCO, CAL.
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
IVV325 57.017.0 ALEXANDER BLDG., 16TH FL., SAN FRANCISCO, CAL. COMP SOSE

Fourier Amplitude Spectrum - cm/sec

Frequency - CPS

95 percent confidence level
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVV326  57.020.0  OAKLAND CITY HALL, BSMT, OAKLAND, CAL.  COMP N26E

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVV326  57.020.0  OAKLAND CITY HALL, BSMT, OAKLAND, CAL.  COMP UP
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE    MAR 22, 1957 - 1515 PST
IVV327 57.021.0    OAKLAND CITY HALL, 16TH FL., OAKLAND, CAL.    COMP N26E

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE   MAR 22, 1957 - 1515 PST
IVV327  57.021.0   OAKLAND CITY HALL, 16TH FL., OAKLAND, CAL.   COMP N64W

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1515 PST
IVV327 57.021.0 OAKLAND CITY HALL, 16TH FL., OAKLAND, CAL.  COMP UP
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1515 PST
1W6377 57.021.0 ORKLAND CITY HALL, 16TH FL., ORKLAND, CAL.
COMP UP

LOG OF FREQUENCY - CPS
LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1627 PST
IVV328 57.022.0 SOUTHERN PACIFIC BLDG., 8STM., SAN FRANCISCO, CAL. COMP NYSE

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957  -  1627 PST
IVV328  57.022.0  SOUTHERN PACIFIC BLDG., BSMT., SAN FRANCISCO, CAL.  COMP N45W

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1627 PST
IVY328  57.022.0  SOUTHERN PACIFIC BLDG., BSMT., SAN FRANCISCO, CAL.  COMP N45W
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE MAR 22, 1957 - 1627 PST
SOUTHERN PACIFIC BLDG., BSMT., SAN FRANCISCO, CAL.

95 PERCENT CONFIDENCE LEVEL

FREQUENCY - CPS

FREQUENCY AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SAN FRANCISCO EARTHQUAKE  MAR 22, 1957 - 1627 PST
IVY326  57.022.0  SOUTHERN PACIFIC BLDG., BSMT., SAN FRANCISCO, CAL.  COMP UP

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SOUTHERN CALIFORNIA EARTHQUAKE MAR. 18, 1957 - 1055 PST
57.023.0 NAVY RESEARCH & EVALUATION LAB., PORT HUENEME, CAL.
COMP UP 95 PERCENT CONFIDENCE LEVEL

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
SOUTHERN CALIFORNIA EARTHQUAKE MAR 18, 1957 - 1056 PST
IVV329 57.023.0 NAVY RESEARCH & EVALUATION LAB., PORT HUENEME, CAL. COMP UP

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST
IVV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP N79E

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST
IVV330 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP S11E

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
NORTHERN CALIFORNIA EARTHQUAKE SEPT 4, 1962 - 0917 PST
IVW390 62.001.0 FEDERAL BUILDING, EUREKA, CALIFORNIA COMP UP

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
NORTHERN CALIFORNIA EARTHQUAKE SEP 12, 1966 - 0841 PST
IVV332 66.010.0 PACIFIC TEL. & TEL. BLDG., BSMT., SACRAMENTO, CAL COMP SOUTH

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
NORTHERN CALIFORNIA EARTHQUAKE SEP 12, 1966 - 0841 PST
IVV332 66.010.0 PACIFIC TEL. & TEL. BLDG., BSMT., SACRAMENTO, CAL COMP EAST
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION

NORTHERN CALIFORNIA EARTHQUAKE  DEC 18, 1967 - 0925 PST

IVV333  67.008.0  BETHLEHEM BLDG., 12TH FL., SAN FRANCISCO, CAL.  COMP NORTH

FREQUENCY - CPS

4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
0   5   10  15  20  25

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
NORTHERN CALIFORNIA EARTHQUAKE DEC 18, 1967 0925 PST
IVV333 67.008.0 BETHLEHEM BLDG., 12TH FL., SAN FRANCISCO, CAL. COMP NORTH

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS

-3 -2 -1 0 1 2

0 1 2 3
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
NORTHERN CALIFORNIA EARTHQUAKE DEC 18, 1967 - 0925 PST
IVV333 67,008.0 BETHLEHEM BLDG., 12TH FL., SAN FRANCISCO, CAL. COMPU UP

95 PERCENT CONFIDENCE LEVEL

FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW334 70.002.0 6074 PARK DR., WRIGHTWOOD, CAL. COMP S25W

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW334 70.002.0 6074 PARK DR., WRIGHTWOOD, CAL. COMP S25W
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE  SEP 12, 1970 - 0630 PST
IWV335  70.011.0  ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL.  COMP 585E

FREQUENCY - CPS

0  5  10  15  20  25

FOURIER AMPLITUDE SPECTRUM - CM/SEC

0  5  10  15  20  25

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE  SEP 12, 1970 - 0630 PST
IVX335  70.011.0  ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL.  COMP S85E
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE  SEP 12, 1970 - 0630 PST
IVW335  70.011.0  ALLEN RANCH, CWR SITE, CEDAR SPRINGS, CAL.  COMP DOWN

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP S54E

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE  SEP 12, 1970 - 0630 PST
IVW336  70.004.0  RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL.  COMP 536W
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP DOWN

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW336 70.004.0 RIGHT ABUTMENT, CWR SITE, CEDAR SPRINGS, CAL. COMP DOWN
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW338 70.010.0 HALL OF RECORDS, SAN BERNARDINO, CAL. COMP NORTH

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW338 70.010.0 HALL OF RECORDS, SAN BERNARDINO, CAL. COMP NORTH

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW338 70.010.0 HALL OF RECORDS, SAN BERNARDINO, CAL. COMP EAST

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW339 70.009.0 SOUTHERN CALIFORNIA EDISON COMPANY, COLTON, CAL. COMP EAST

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW339 70.009.0 SOUTHERN CALIFORNIA EDISON COMPANY, COLTON, CAL. COMP UP

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
1W342 70.038.0 MILLIKAN LIBRARY, BSMNT., CALTECH, PASADENA, CAL. COMP NORTH

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE  SEP 12, 1970 - 0630 PST
IVW342 70.038.0 MILLIKAN LIBRARY, Basement, CALTECH, PASADENA, CAL.  COMP EART

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW342 70.038.0 MILLIKAN LIBRARY, BSMNT., CALTECH, PASADENA, CAL. COMP EAST

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW342 70.038.0 MILLIKAN LIBRARY, BSMNT., CALTECH, PASADENA, CAL. COMP DOWN

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW343 70.003.0 MILLIKAN LIBRARY, 10TH FL., CALTECH, PASADENA, CAL. COMP NORTH
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW343 70.003.0 MILLIKAN LIBRARY, 10TH FL., CALTECH, PASADENA, CAL. COMP DOWN

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE, SEP 12, 1970 - 0630 PST
JPL, 70-039.0
IVANHOE, 70-039.0
LOG OF FREQUENCY - CPS
LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW344 70.039.0 J.P.L.. BSMNT.. PASADENA, CAL. COMP S08W

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL

FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW344 70.039.0 J.P.L., BSMNT., PASADENA, CAL. COMP DOWN

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
1VW344 70.039.0 J.P.L., BSMNT., PASADENA, CAL. COMP DOWN

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

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-3 -2 -1 0 1 2
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW345 70.040.0 J.P.L., 9TH FL., PASADENA, CAL. COMP S82E
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE  SEP 12, 1970 - 0630 PST
IVW345 70,040.0  J.P.L., 9TH FL., PASADENA, CAL.  COMP SO8W

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE  SEP 12, 1970 - 0630 PST
IVW345  70.040.0  J.P.L., 9TH FL., PASADENA, CAL.  COMP DOWN

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL

FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
LYTLE CREEK EARTHQUAKE SEP 12, 1970 - 0630 PST
IVW345 70.040.0 J.P.L., 9TH FL., PASADENA, CAL. COMP DOWN

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS

-3
-2
-1
0
1
2

-3
-2
-1
0
1
2
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY370 68.099.0 S, CALIF. EDISON CO., COLTON, CAL. COMP EAST

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APRIL 8, 1968 - 1830 PST
IVY310 68.099.0 S. CALIF. EDISON CO., COLTON, CAL.
COMP UP

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
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BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY371 68.103.0 ENGINEERING BLDG., SANTA ANA, ORANGE COUNTY, CAL. COMP S86W

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE  APR 8, 1968 - 1830 PST
IVY371  68.103.0  ENGINEERING BLDG., SANTA ANA, ORANGE COUNTY, CAL.  COMP UP
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
TERMINAL ISLAND, SQ. CAL. EDISON PLANT, LONG BEACH, CAL.
CONF N21W
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY372 68.080.0 TERMINAL ISLAND, 50. CAL. EDISON PLANT, LONG BEACH, CAL. COMP S69W

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY372 68.080.0 TERMINAL ISLAND, SD, CAL. EDISON PLANT, LONG BEACH, CAL. COMP UP

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE  APR 8, 1968 - 1830 PST
IVY373 68.089.0  J.P.L., BSMNT., PASADENA, CAL.  COMP S82E
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 6, 1968 - 1830 PST
IVY374 68.100.0 J.P.L., 9TH FL., PASADENA, CAL. COMP DOWN

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY374 68.100.0 J.P.L., 9TH FL., PASADENA, CAL. COMP DOWN

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY375 68.055.0 MILLIKAN, BSMNT., CALTECH, PASADENA, CAL. COMP NORTH

LOG OF FREQUENCY - CPS

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
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IVY375   68.055.0  MILLIKAN, BSMNT., CALTECH, PASADENA, CAL.  COMP DOWN
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1630 PST
IVY376 68.104.0 PASADENA, CALTECH, ATHENAEUM, CAL. COMP SOUTH

FOURIER AMPLITUDE SPECTRUM - CM/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY376 68.104.0 PASADENA, CALTECH, ATHENREUM, CAL. COMP WEST

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY376 68.104.0 PASADENA, CALTECH, ATHENREUM, CAL. COMP UP
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY377 68.106.0 S. CALIF. EDISON CO., 601 W. 5TH ST., LOS ANGELES, CAL. COMP N52W
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE   APR 8, 1968 - 1030 PST
IVY377 68.106.0  S. CALIF. EDISON CO., 601 W. 5TH ST., LOS ANGELES, CAL.  COMP UP

FOURIER AMPLITUDE SPECTRUM - CW/SEC

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION

BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST

IVY378 68.072.0 SUBWAY TERMINAL, BSMT., LOS ANGELES, CAL. COMP S52E

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY379 66.026.0 CMD BLOG., VERNON, CAL. COMP N83W

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION

BOREGO MOUNTAIN EARTHQUAKE, APR 8, 1958 - 1830 PST

IVY379 68.026.0 CMD BLDG., VERNON, CAL.

COMP S074

95 PERCENT CONFIDENCE LEVEL

30 20 10 0

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY379 68.026.0 CMD BLDG., VERNON, CAL. COMP UP

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY379 68.026.0 CMD BLDG., VERNON, CAL. COMP UP
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1958 - 1830 PST
IVY380 68.071.0 HOLLYWOOD STORAGE, P.E. LOT, LOS ANGELES, CAL. COMP SOUTH

FREQUENCY - CPS

FOURIER AMPLITUDE SPECTRUM - CM/SEC

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY380 68.071.0 HOLLYWOOD STORAGE, P.E. LOT, LOS ANGELES, CAL. COMP SOUTH

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY380 68-071.0 HOLLYWOOD STORAGE, P.E. LOT, LOS ANGELES, CAL.
COMP EAST

-258-
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY380 68.071.0 HOLLYWOOD STORAGE, P.E. LOT, LOS ANGELES, CAL. COMP EAST

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1958 - 1830 PST
IVY380 68.071.0 HOLLYWOOD STORAGE, P.E., LOT, LOS ANGELES, CAL. COMP UP

- 95 PERCENT CONFIDENCE LEVEL -
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE  APR 8, 1968 - 1830 PST
IVY380 68.071.0  HOLLYWOOD STORAGE, P.E. LOT, LOS ANGELES, CAL.  COMP UP

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
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BORREGO MOUNTAIN EARTHQUAKE  APR 6, 1968 - 1830 PST
IVY381  68.025.0  HOLLYWOOD STORAGE, PENTHOUSE, LOS ANGELES, CAL.  COMP SOUTH

FREQUENCY - CPS

95 PERCENT CONFIDENCE LEVEL
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1966 - 1830 PST
IVY381 68.025.0 HOLLYWOOD STORAGE, PENTHOUSE, LOS ANGELES, CAL., COMP WEST

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
FOURIER AMPLITUDE SPECTRUM OF ACCELERATION
BORREGO MOUNTAIN EARTHQUAKE APR 8, 1968 - 1830 PST
IVY381 68.025.0 HOLLYWOOD STORAGE, PENTHOUSE, LOS ANGELES, CAL., COMP UP

LOG OF FOURIER AMPLITUDE SPECTRUM - CM/SEC

LOG OF FREQUENCY - CPS
California Institute of Technology
Earthquake Engineering Research Laboratory

The following reports of the Earthquake Engineering Research Laboratory from 1970 on can be obtained from the National Technical Information Service, Springfield, Virginia 22121:

**Strong-Motion Earthquake Accelerograms**
**Digitized and Plotted Data**
**Volume I**

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### Strong-Motion Earthquake Accelerograms
Digitized and Plotted Data

Corrected Accelerograms and Integrated Ground Velocity and Displacement Curves

**Volume II**

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Analyses of Strong-Motion Earthquake Accelerograms
Response Spectra

Volume III

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## Analyses of Strong-Motion Earthquake Accelerograms

**Fourier Amplitude Spectra**

### Volume IV

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Strong-Motion Instrumental Data on the San Fernando Earthquake of February 9, 1971, (PB-204 198)

P. C. Jennings, et al, Forced Vibration of a 22-Story Steel Frame Building (EERL 71-01; PB-205 161)

P. C. Jennings, ed., Engineering Features of the San Fernando Earthquake (EERL 71-02; PB-202 550)

Randolph A. Adu, Response and Failure of Structures under Stationary Random Excitation (EERL 71-02; PB-205 304)

Jacobo Bielak, Earthquake Response of Building-Foundation Systems (EERL 71-04; PB-205 305)

M. D. Trifunac, F. E. Udwadia, A. G. Brady, High Frequency Errors and Instrument Corrections of Strong-Motion Accelerograms (EERL 71-05; PB-205 369)

Knut Sverre Skattum, Dynamic Analysis of Coupled Shear Walls and Sandwich Beams (EERL 71-06; PB-205 267)

John Brent Hoerner, Modal Coupling and Earthquake Response of Tall Buildings (EERL 71-07; PB-207 635)

P. C. Jennings and J. Bielak, Dynamics of Building-Soil Interaction (EERL 72-01; PB-209 666)

F. E. Udwadia, Invesgation of Earthquake and Microtremor Ground Motions (EERL 72-02; PB-212 853)

Albert W. Whitney, On Insurance Settlements Incident to the 1906 San Francisco Fire (DRC 72-01; PB-213 256)

J. H. Wood, Analysis of the Earthquake Response of a Nine-Story Steel Frame Building during the San Fernando Earthquake (EERL 72-04; PB-215 823)


Research Papers Submitted to the Fifth World Conference on Earthquake Engineering, Rome, Italy, 25-29 June 1973 (EERL 73-02; PB-220 431)

Earthquakes and Insurance, Published Papers on Earthquake Research Affiliates Conference of 2-3 April 1973 (DRC 73-02; PB-223 033)

M. D. Trifunac and V. Lee, Routine Computer Processing of Strong-Motion Accelerograms (EERL 73-03; PB-226 047/AS)
D. K. Jephcott and D. E. Hudson, The Performance of Public School Plants During the San Fernando Earthquake (EERL 74-01; PB-240 000/AS)