

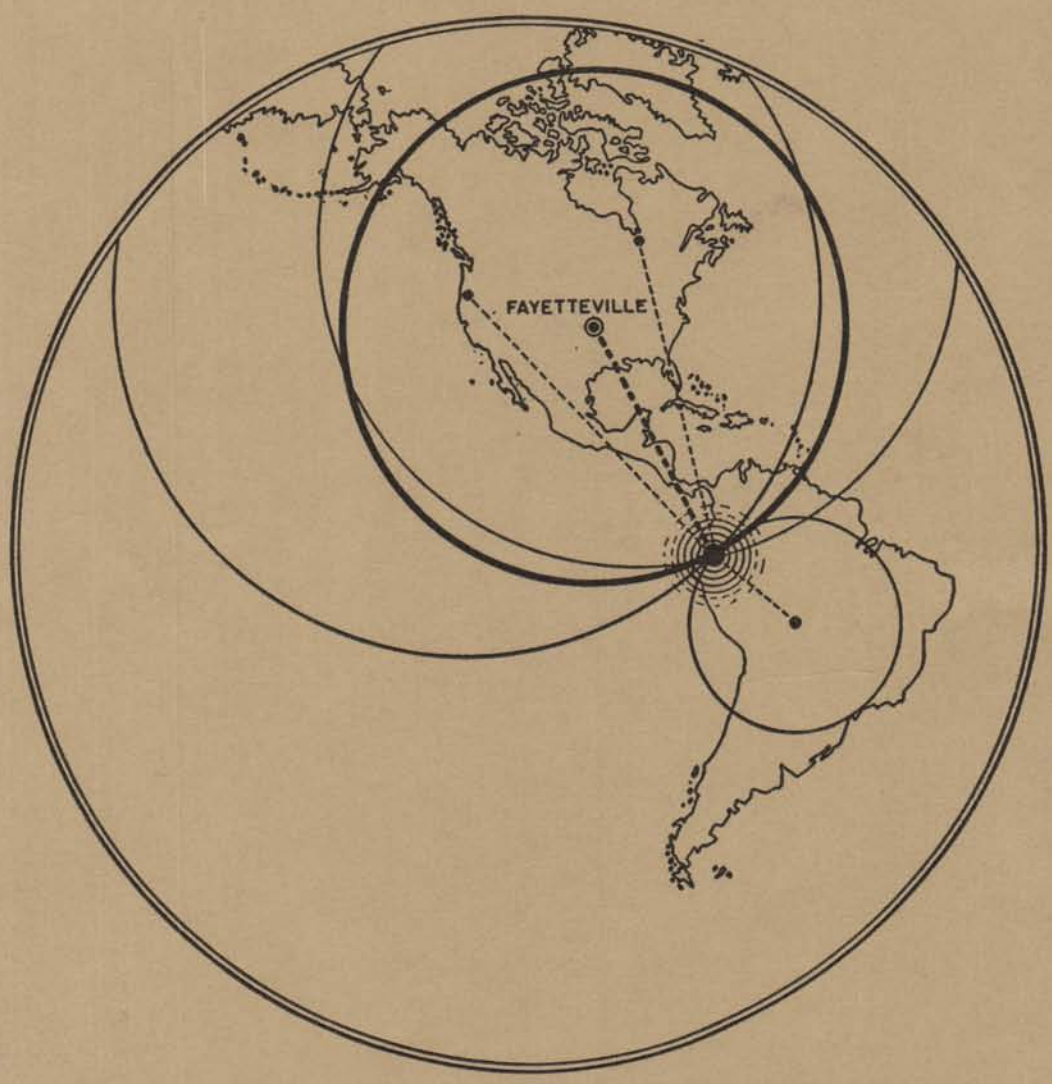
1963

# UNIVERSITY OF ARKANSAS

# SEISMOLOGICAL BULLETIN

Volume XII

Number 1



## The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology  
in conjunction with the  
United States Coast and Geodetic Survey

## FAYETTEVILLE SEISMOGRAPH STATION

Volume 12, Number 1, January 1963  
Date for January, February, March

## Instruments

Vertical component - Benioff moving coil type, short period electromagnetic galvanometric, Mass = 100 lbs.

Seismometer-Benioff moving coil period = 1.1 second  
Galvanometer-Geotechnical Corp. period = 0.2 second  
Damping ratio - about 15:1 (near critical)  
Recording drum speed = 60 mm. per minute

Horizontal components - Wilson - Wilson-Lamison hinges type: E-W  
N-S electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)  
6.0 seconds (E-W)  
Galvanometer - General Electric period - 4.1 seconds (N-S)  
3.8 seconds (E-W)

Recording Drum speed - 30 mm. per minute

Clock - IBM, electrically wound, invar pendulum type  
accuracy limits generally within one tenth second

Radio - WWV Time Signal impressed manually by telegraph key on 5th, 10th, and 15th second. Time signals received by a Hallicrafter receiver, S-40B.

Vertical-Ground motion trace up (compression)  
reading from left to right  
N-S - ground motion trace up - North  
E-W - ground motion trace up - East

(Additional information regarding the station is given on the back cover.)

Information in Remarks column is usually from U. S. Coast and Geodetic Survey epicenter cards. "C" following the trace amplitude indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by Gary Gillum,  
Observer

| Date      | Phase  | Time GCT |    |      | Period (Sec.) |     |     | Trace (Amp) mms |     |     |
|-----------|--|----------|----|------|---------------|-----|-----|-----------------|-----|-----|
|           |  | h        | m  | s    | Z             | E   | N   | Z               | E   | N   |
| Jan.<br>1 | eZ   | 05       | 28 | 57.4 | .7            |     |     | .7              |     |     |
| 1         | 56.6 N., 157.7 W., h 50 km; Alaska Penn. Mag. $6\frac{1}{2}$ (Pas.) $5\frac{3}{4}$ (Pal.)<br>(P-H) = 5110 km. ca. or $46^\circ$ . (23-39-05.6) |          |    |      |               |     |     |                 |     |     |
|           | iPZEN  | 23       | 47 | 27.7 | 2.0           | 1.8 | 2.0 | 6.0             | 6.0 | 6.0 |
|           | iPPZEN   | 23       | 49 | 22.8 | 0.5           | 3.0 |     |                 | 7.0 | 6.2 |
|           | eSZEN  | 23       | 54 | 07.0 | 2.0           | 6.0 | 6.0 | 0.6             | 7.0 | 13. |
| 2         | eZ   | 00       | 58 | 31.2 | 1.2           |     |     | 1.5             |     |     |
| 2         | 10 .0 N., 84.8 W., h 151 km; West coast Costa Rica; 09-53-36.7;<br>(P-H) = 2890 km. ca. or $26^\circ$ .  |          |    |      |               |     |     |                 |     |     |
|           | eZ   | 09       | 59 | 06.7 | 1.0           |     |     | 0.5             |     |     |
| 2         | eZ   | 16       | 23 | 32.5 | 1.0           |     |     | 0.5             |     |     |
| 2         | eZ   | 21       | 46 | 19.9 | 1             |     |     | 0.5             |     |     |
| 3         | eZ   | 10       | 09 | 12.7 | 1.5           |     |     | 2.0             |     |     |
| 3         | eZ   | 22       | 07 | 28.1 | 1.1           |     |     | 2.0             |     |     |
| 4         | C & GS 00-25-55.1; 1.2 N., 27.7 W., h 33 km.; 1500 km. south of Cape Verde Is. (P-H) = 7780 km. ca. or $70^\circ$ .                            |          |    |      |               |     |     |                 |     |     |
|           | iZ   | 00       | 35 | 06.9 | 1.5           |     |     | 1.5             |     |     |
| 4         | C & GS 05-42-35.3; 27.7 N., 142.2 E. h 33; Borin Is. region;<br>(P-H) = 10,665 km. ca. or $96^\circ$ .   |          |    |      |               |     |     |                 |     |     |
|           | iZ   | 05       | 55 | 59.7 | 1.6           |     |     | 1.2             |     |     |
| 4         | C & GS 21-17-10.0; 6.9 N., 73.1 W. h 160 km.; colombia<br>(P-H) = 3,780 km. ca. or $34^\circ$ .  |          |    |      |               |     |     |                 |     |     |
| 5         | iPZ  | 00       | 02 | 04.5 | 1.0           |     |     | 1.0             |     |     |
| 5         | iPZ  | 07       | 17 | 15.6 | 1.5           |     |     | 1.0             |     |     |
| 5         | C & GS 13-16-43.0; 10.0 S., 124.0 E. h 33 km. Timar.<br>(P-H) = 15,335 km. ca. or $138^\circ$ .  |          |    |      |               |     |     |                 |     |     |
|           | ePZ  | 13       | 35 | 37.6 | 0.5           |     |     | 1.5             |     |     |
|           | iPP  | 13       | 39 | 38.1 | 1.2           |     |     | 1.0             |     |     |
| 5         | C & GS 17-43-35.1; 7.0 W., 72.1 W. h 544 km. Western Brazil<br>(P-H) = 4,665 km. ca. or $42^\circ$ .   |          |    |      |               |     |     |                 |     |     |
|           | iPZ  | 17       | 51 | 22.6 | 0.5           |     |     | 4.0             |     |     |
| 5         | eZ   | 22       | 16 | 32.5 | 1.0           |     |     | 1.0             |     |     |

| Date      | Phase  | Time GCT   |   |   | Period (Sec.) |     |     | Trace (Amp) mms |     |     |
|-----------|--|------------|---|---|---------------|-----|-----|-----------------|-----|-----|
|           |  | h          | m | s | Z             | E   | N   | Z               | E   | N   |
| Jan.<br>6 | C & GS 04-40-14; 23.6 N., 108.6 W., h 33 km. Gulf of California.<br>(P-H) = 2000 km. ca. or 18°.   |            |   |   |               |     |     |                 |     |     |
|           | ePZ  | 04-44-17.5 |   |   | 1.0           |     |     | 0.7             |     |     |
|           | eSZEN  | 04-49-33.0 |   |   | 3.0           | 3.6 | 3.2 | 0.7             | 4.3 | 3.0 |
| 6         | iPZ  | 06-24-57.7 |   |   | 1.0           |     |     | 1.5             |     |     |
| 6         | C & GS 07-29-54.3; 46.8 N., 153.6 E. h 33 km. Kurile Islands<br>(P-H) = 8,555 km. ca. or 77°.  |            |   |   |               |     |     |                 |     |     |
|           | iPZ  | 07-41-47.5 |   |   | 1.4           |     |     | 1.0             |     |     |
| 6         | eZ   | 10-05-15.7 |   |   | 1.0           |     |     | 0.7             |     |     |
| 6         | C & GS 17-25-53.8; 62.7 N., 151.1 W., h 116 km. Central Alaska.<br>(P-H) = 5,555 km. ca. or 50°.   |            |   |   |               |     |     |                 |     |     |
|           | iPZ  | 17-33-46.7 |   |   | 0.9           |     |     | 2.0             |     |     |
| 6         | C & GS 18-07-47.8; 44.7 N., 112.0 W. h 33 km. Montana-Idaho border<br>region. Felt: upper Madison Valley, Mont.<br>(P-H) = 1,780 km. ca. or 16°. |            |   |   |               |     |     |                 |     |     |
|           | ePZ  | 18-11-31.5 |   |   | 1.0           |     |     | 1.0             |     |     |
|           | eZ   | 18-16-16.5 |   |   | 1.5           |     |     | 1.0             |     |     |
| 6         | C & GS 21-20-56.5; 47.4 N., 155.9 E. h 33 km. Kurile Islands.<br>(P-H) = 8,445 km. ca. or 76°.   |            |   |   |               |     |     |                 |     |     |
|           | iPZ  | 21-32-40.8 |   |   | 0.9           |     |     | 3.0D            |     |     |
| 7         | eZ   | 12-07-24.8 |   |   | 1.5           |     |     | 0.7             |     |     |
|           | eZ   | 12-09-19.1 |   |   | 1.0           |     |     | 1.0             |     |     |
| 8         | iPZ  | 01-13-58.9 |   |   | 1.0           |     |     | 0.7             |     |     |
| 8         | eZ   | 18-18-25.3 |   |   | 0.5           |     |     | 0.7             |     |     |
| 10        | C & GS 05-18-36.9; 18.8 N., 106.3 W. h 33 km.; off coast of<br>Jalisco, Mex., (P-H) = 2,280 km. ca. or 20.5°.                                    |            |   |   |               |     |     |                 |     |     |
|           | ePZ  | 05-23-11.5 |   |   | 1.0           |     |     | 1.0             |     |     |
| 11        | C & GS 12-12-16.2; 45.0 S., 75.7 W. h 33 km; near coast of northern<br>Chile. (P-H) = 9,110 km. ca. or 82°.                                      |            |   |   |               |     |     |                 |     |     |
|           | iPZ  | 12-24-35.2 |   |   | 1.5           |     |     | 3.5D            |     |     |
| 11        | C & GS 14-36-11.0; 12.6 N., 88.2 W. h 33 km; off coast of El Salvador.<br>(P-H) = 2,710 km. ca. or 24.5°.  |            |   |   |               |     |     |                 |     |     |
|           | iPZ  | 14-41-24.8 |   |   | 1.5           |     |     | 3.5D            |     |     |

| Date | Phase  | Time GCT |    |                       | Period (Sec.) |      |      | Trace Amp (mms) <sup>3</sup> |   |         |
|------|--|----------|----|-----------------------|---------------|------|------|------------------------------|---|---------|
|      |  | h        | m  | s                     | Z             | E    | N    | Z                            | E | N       |
| Jan. |  |          |    |                       |               |      |      |                              |   |         |
| 12   | C & GS 03-40-34.8; 4.8 N., 76.7 W. h 102 km. northern Colombia.<br>(P-H) = 3,830 km. ca. or 34.5°.           |          |    |                       |               |      |      |                              |   |         |
|      | iPZ  | 03       | 02 | 47-18.9               | 1.0           |      |      |                              |   | 7.5C    |
|      | epPZ   |          |    | 40.9                  | 1.0           |      |      |                              |   | 1.8     |
| 12   | C & GS 06-02-10; 16.7 N., 98.3 W. h 33 km. near coast of Oaxaca, Mex.<br>(P-H) = 2,220 km. ca. or 20°.       |          |    |                       |               |      |      |                              |   |         |
|      | iPZ  |          |    | <del>06-06-38.8</del> | 1.0           |      |      |                              |   | 1.7     |
| 12   | iPZ  |          |    | 23-40-40.9            | 1.0           |      |      |                              |   | 1.5     |
| 13   | iPZ  |          |    | 16-58-52.0            | 1.0           |      |      |                              |   | 1.0     |
| 13   | C & GS 17-20-19.2; 32.0 S. 68.7 W. h 113 km. San Juan Province, Argentina.<br>(P-H) = 7,780 km. ca. or 70°.  |          |    |                       |               |      |      |                              |   |         |
|      | iPZ  |          |    | 17-31-30.5            | 1.0           |      |      |                              |   | 2.5     |
| 13   | eZ   |          |    | 19-11-40.9            | -             |      |      |                              |   | -       |
| 14   | C & GS 02-18-02.0; 62.2 N., 150.1 W. h 91 km. Central Alaska<br>(P-H) = 4,665 km. ca. or 42°.                |          |    |                       |               |      |      |                              |   |         |
|      | ePZ  |          |    | 02-25-52.8            | 1.0           |      |      |                              |   | 1.7     |
| 15   | 3Z   |          |    | <del>01-41-32.4</del> | 1.5           |      |      |                              |   | 1.5     |
| 15   | iPZ  |          |    | 03-28-01.2            | 1.2           |      |      |                              |   | 2.0     |
| 15   | iPZ  |          |    | 04-51-12.7            | 1.0           |      |      |                              |   | 1.0     |
| 15   | eZ   |          |    | <del>05-32-18.8</del> | 0.7           |      |      |                              |   | 0.5     |
|      | eZ   |          |    | 05-33-34.1            | 1.0           |      |      |                              |   | 0.7     |
|      | eEN  |          |    | <del>05-48-30.7</del> |               | 30.0 | 30.0 |                              |   | 5.0 3.5 |
| 15   | iPX  |          |    | 08-52-39.5            | 1.5           |      |      |                              |   | 1.0     |
| 15   | C & GS 13-50-28.3; 11.5 N., 87.8 W. h 33 km. off west coast of Nicaragua.<br>(P-H) = 2,835 km. ca. or 25.5°. |          |    |                       |               |      |      |                              |   |         |
|      | iPZ  |          |    | 13-55-52.0            | 1.4           |      |      |                              |   | 4.0     |
| 15   | C & GS 19-26-34.3; 20.5 S., 177.9 W. h 496 km. Fiji Islands.<br>(P-H) = 10,780 km. ca. or 97°.               |          |    |                       |               |      |      |                              |   |         |
|      | iPZ  |          |    | <del>19-39-11.7</del> | 1.0           |      |      |                              |   | 1.7     |
| 16   | C & GS 03-52-56.1; 7.5 N., 74.5 W. h 33 km. Colombia.<br>(P-H) = 3,780 km. ca. or 34°.                       |          |    |                       |               |      |      |                              |   |         |
|      | iPZ  |          |    | 03-59-35.8            | 1.0           |      |      |                              |   | 1.7     |

| Date | Phase   | Time GCT   |   |   | Period (Sec.) |     |     | Trace Amp (mms.) 4 |   |              |
|------|---|------------|---|---|---------------|-----|-----|--------------------|---|--------------|
|      |   | h          | m | s | Z             | E   | N   | Z                  | E | N            |
| Jan. |   |            |   |   |               |     |     |                    |   |              |
| 16   | C & GS 06-44-56.8; 54.3 N., 35.2 W. h 33 km. 1300 km. s.w. of Iceland<br>(P-H) = 4,890 km. ca. or 44°.            |            |   |   |               |     |     |                    |   |              |
|      | iPZ   | 06-53-02.1 |   |   | 1.0           |     |     |                    |   | 1            |
| 16   | C & GS 21-08-38.8; 11.1 S., 111.6 E. h 94 km. south of Java.<br>(P-H) = 16,000 km. ca. or 144°.                   |            |   |   |               |     |     |                    |   |              |
|      | iP'Z  | 21-28-10.7 |   |   | 1.5           |     |     |                    |   | 4.5          |
| 17   | iZ  | 04-03-35.9 |   |   | 0.8           |     |     |                    |   | 0.6          |
| 17   | C & GS 19-31-12.6; 7.6 S., 75.3 W. h 201 km. Peru.<br>(P-H) = 5,000 km. ca. or 45°.                               |            |   |   |               |     |     |                    |   |              |
|      | iPZ   | 19-39-25.2 |   |   | 1.0           |     |     |                    |   | 1.5          |
| 18   | ez  | 08-54-41.4 |   |   | 0.5           |     |     |                    |   | 0.5          |
| 19   | ez  | 19-55-38.8 |   |   | 1.0           |     |     |                    |   | 0.7          |
|      | ez  | 19-59-05.5 |   |   | 1.0           |     |     |                    |   | 1.0          |
| 20   | C & GS 13-16-27.0; 26.4 N., 110.7 W. h 27 km. Gulf of California.<br>(P-H) = 1,945 km. ca. or 17.5°.              |            |   |   |               |     |     |                    |   |              |
|      | iPZEN   | 13-20-26.2 |   |   | 1.5           |     |     |                    |   | 1.5D         |
|      | iSZEN   | 13-25-29.6 |   |   | 1.5           | 6.0 | 6.0 |                    |   | 2.5 7.0 12.0 |
| 20   | C & GS 22-21-28.7; 26.7 N., 110.7 W. h 37 km. Gulf of California<br>(P-H) = 1,900 km. ca. or 17°.                 |            |   |   |               |     |     |                    |   |              |
|      | ePZ   | 22-25-24.5 |   |   | 1.0           |     |     |                    |   | 1.0          |
|      | eZEN  | 22-30-25.9 |   |   | 1.5           | 6.0 | 8.0 |                    |   | 1.5 2.5 3.0  |
|      | eZ  | 22-35-44.6 |   |   | 1.5           |     |     |                    |   | 0.7          |
| 21   | C & GS 04-15-50.2; 36.3 S., 69.7 W. h 183 km. Mendoza Province, Argentina.<br>(P-H) = 7,920 km. ca. or 71.3°.     |            |   |   |               |     |     |                    |   |              |
|      | iPZ   | 04-27-08.5 |   |   | 1.5           |     |     |                    |   | 1.7          |
| 22   | ez  | 12-43-13.1 |   |   | 1.0           |     |     |                    |   | 1.8          |
| 23   | ez  | 02-59-46.8 |   |   | 1.0           |     |     |                    |   | 1.5          |
| 24   | iPZ   | 19-47-39.5 |   |   | 1.0           |     |     |                    |   | 2.2          |
|      | iSZ   | 09-50-49.7 |   |   | 2.0           |     |     |                    |   | 0.7          |
| 24   | C & GS 12-09-01.2; 15.2 S., 183.6 W. h 33 km. Tunga Islands region.<br>Fet1: Apia. (P-H) = 10,335 km. ca. or 93°. |            |   |   |               |     |     |                    |   |              |
|      | ez  | 12-22-13.7 |   |   | 1.0           |     |     |                    |   | 1.0          |
| 25   | iPZ   | 19-27-29.2 |   |   | 1.6           |     |     |                    |   | 2.5          |
| 26   | eZ  | 00-27-24.2 |   |   | 1.0           |     |     |                    |   | 1.0D         |
| 26   | ez  | 00-46-00.2 |   |   | 1.0           |     |     |                    |   | 1.7          |

| Date    | Phase   | Time GCT     |   |   | Period (Sec.) |      |      | Trace Amp (mms.) |   |   | 5           |
|---------|---|--------------|---|---|---------------|------|------|------------------|---|---|-------------|
|         |   | h            | m | s | Z             | E    | N    | Z                | E | N |             |
| Jan. 27 | C & GS 11-47-35.3; 59.4 N., 153.4 W. h 92 km. Gulf of Alaska.<br>(P-H) = 5,000 km. ca. or 45°.                                    |              |   |   |               |      |      |                  |   |   |             |
|         | eZ  | 11-55-55.9   |   |   | 1.1           |      |      |                  |   |   | 1.5         |
| 27      | C & GS 15-24-46.5; 44.3 N., 114.5 W. h 31 km. Idaho.<br>(P-H) = 2,000 km. ca. or 18°.   |              |   |   |               |      |      |                  |   |   |             |
|         | ePZEN   | 15-28-50.3   |   |   | 1.5           |      |      |                  |   |   | 2.0         |
|         | eSZEN   | 15-32-05.3   |   |   | 2.0           | 7.0  | 7.0  |                  |   |   | 1.0 2.5 4.0 |
| 27      | C & GS 19-35-14.3; 41.2 N., 49.8 E. h 33 km. Caspian Sea near Azerbaijan SSR. Mag. 5½-5¾ (Pal.)<br>(P-H) = 10,665 km. ca. or 96°. |              |   |   |               |      |      |                  |   |   |             |
|         | iPZ   | 19-48-39.4   |   |   | 1.0           |      |      |                  |   |   | 3.0         |
| 28      | C & GS 02-12-14.3; 18.8 S., 76.7 W. h 105 km. central Peru.<br>(P-H) = 5,390 km. ca. or 48.5°.                                    |              |   |   |               |      |      |                  |   |   |             |
|         | iPZ   | 02-20-55.9   |   |   | 1.0           |      |      |                  |   |   | 4.5C        |
|         | epPZ  | 02-21-19.9   |   |   | 1.2           |      |      |                  |   |   | 2.0         |
| 28      | C & GS 13-00-50.7; 54.7 N., 161.6 W. h 33 km. Alaska Peninsula<br>Mag. 6-6½ (Pas.)<br>(P-H) = 5,445 km. ca. or 49°.               |              |   |   |               |      |      |                  |   |   |             |
|         | iPZEN   | 13-09-33.7   |   |   | 1.1           |      | 1.1  |                  |   |   | 7.5 2.7     |
|         | ePPPZ   | 13-12-23.7   |   |   | 1.0           |      |      |                  |   |   | 1.8         |
|         | eSZE  | 13-14-55.4   |   |   | 1.5           | 8.0  |      |                  |   |   | 2.0 3.2     |
|         | eLZEN   | 13-26-14.9   |   |   | 5.0           | 20.0 | 20.0 |                  |   |   | 0.7 37.0    |
| 29      | C & GS 09-21-14.3; 49.7 N., 154.9 E. h 126 km. Kurile Islands.<br>(P-H) = 8,110 km. ca. or 73°.                                   |              |   |   |               |      |      |                  |   |   |             |
|         | iPZEN   | 09-32-42.6 A |   |   | 1.1           |      |      |                  |   |   | 13.0C       |
|         | ipPZ  | 09-33-01.6   |   |   | 0.6           |      |      |                  |   |   | 1.5         |
| 29      | C & GS 20-33-27.0; 21.5 S., 68.6 W. h 73 km. Chile-Bolivia border.<br>(P-H) = 6,835 km. ca. or 61.5°.                             |              |   |   |               |      |      |                  |   |   |             |
|         | iPZ   | 20-43-41.7   |   |   | 1.5           |      |      |                  |   |   | 7.5D        |
|         | ipPZ  | 20-44-01.7   |   |   | 1.2           |      |      |                  |   |   | 2.0         |
| 30      | C & GS 04-39-56.3; 54.8 N., 101.6 W. h 33 km. Alaska Peninsula.<br>(P-H) = 5,445 km. ca. or 49°.                                  |              |   |   |               |      |      |                  |   |   |             |
|         | eZ  | 04-48-38.1 A |   |   | 1.0           |      |      |                  |   |   | 0.7C        |
| 30      | C & GS 10-10-04.1; 55.6 S., 28.3 W. h 33 km. Sandwich Islands region<br>Mag. 6½ (Pas.) (P-H) = 12,165 km. ca. or 109.5°.          |              |   |   |               |      |      |                  |   |   |             |
|         | iPZ   | 10-24-32.8   |   |   | 1.0           |      |      |                  |   |   | 0.2         |
|         | iPPZ  | 10-27-54.8   |   |   | 2.0           |      |      |                  |   |   | 1.0         |
|         | iSEN  | 10-34-59.3   |   |   |               | 6.0  | 6.0  |                  |   |   | 12.5 14.0   |
|         | eZ  | 10-54-41.6   |   |   | 1.0           |      |      |                  |   |   | 0.5         |
|         | eLEN  | 11-17-58.5   |   |   |               | 18.0 | 18.0 |                  |   |   | 15.0 12.0   |

| Date | Phase | Time GCT   |   |   | Period (Sec.) |   |   | Trace Amp. (mms.) 6 |   |   |
|------|-------|--|---|---|---------------|---|---|---------------------|---|---|
|      |       | h  | m | s | Z             | E | N | Z                   | E | N |
| Jan. |       |  |   |   |               |   |   |                     |   |   |
| 30   |       | C & GS 23-05-09.6; 39.8 N., 104.6 W. h 33 km. Colorado-Felt Boulder and Denver. (P-H) = 1,055 km. ca. or 9.5°. |   |   |               |   |   |                     |   |   |
|      | ePZ   | 23-17-20.5   |   |   | 0.5           |   |   | 1.0                 |   |   |
|      | eSZ   | 23-09-53.5   |   |   | 1.0           |   |   | 2.5                 |   |   |
| 31   |       | C & GS 23-09-58.3; 63.5 N., 149.4 W. h 56 km. Central Alaska. (P-H) = 4,890 km. ca. or 44°.                    |   |   |               |   |   |                     |   |   |
|      | eZ    | 03-17-52   |   |   | 1.0           |   |   | 0.4                 |   |   |
| 31   |       | eZ 06-08-17.5 0.8 0.5  |   |   |               |   |   |                     |   |   |
| 31   |       | C & GS 15-07-00.4; 35.8 N., 21.9 E. h 33 km. Ionian Sea, west of Crete. (P-H) = 9,555 km. ca. or 86°.          |   |   |               |   |   |                     |   |   |
|      | eZ    | 15-19-45.2   |   |   | 0.8           |   |   | 1.0                 |   |   |
| Feb. |       |  |   |   |               |   |   |                     |   |   |
| 1    |       | C & GS 16-38-58.3; 44.2 N., 114.6 W. h 33 km. Central Idaho. (P-H) = 2,000 km. ca. or 18°.                     |   |   |               |   |   |                     |   |   |
|      | ePZ   | 16-43-01.4   |   |   | 1.1           |   |   | 0.7                 |   |   |
|      | eZ    | 16-48-10.0   |   |   | 4.5           |   |   | 0.5                 |   |   |
| 2    |       | eZ 02-15-03.8 1.1 0.7  |   |   |               |   |   |                     |   |   |
| 2    |       | C & GS 19-32-15.1; 18.8 N., 81.5 W. h 71 km. Cayman Islands. (P-H) = 2,220 km. ca. or 20°.                     |   |   |               |   |   |                     |   |   |
|      | iZ    | 19-36-48.8   |   |   | 0.6           |   |   | 0.7C                |   |   |
| 2    |       | C & GS 21-25-38; 13.9 N., 92.1 W. h 33 km. off west coast of Guatemala. (P-H) = 2,445 km. ca. or 22°.          |   |   |               |   |   |                     |   |   |
|      | iPZ   | 21-30-33.1   |   |   | 0.7           |   |   | 2.0                 |   |   |
|      | eSZ   | 21-34-42.2   |   |   | 0.7           |   |   | 0.7                 |   |   |
| 3    |       | C & GS 04-23-28; 15.1 N., 92.0 W. h 166 km. off west coast of Guatemala. (P-H) = 2,220 km. ca. or 20°.         |   |   |               |   |   |                     |   |   |
|      | ePZ   | 04-27-58.7   |   |   | 1.2           |   |   | 0.7                 |   |   |
|      | ePcPZ | 04-31-55.0   |   |   | 0.7           |   |   | 0.7                 |   |   |
| 3    |       | C & GS 12-52-13.8; 7.6 N., 72.1 W. h 33 km. Venezuela-Colombia border. (P-H) = 3,890 km. ca. or 35°.           |   |   |               |   |   |                     |   |   |
|      | iPZ   | 12-59-03.3   |   |   | 1.0           |   |   | 2.0                 |   |   |
| 4    |       | C & GS 23-21-09.0; 48.5 N., 152.4 W. h 85 km. Kurile Islands. (P-H) = 8,275 km. ca. or 74.5°.                  |   |   |               |   |   |                     |   |   |
|      | iPZ   | 23-32-46.3   |   |   | 1.1           |   |   | 7.5D                |   |   |
| 5    |       | IZ 12-17-20.0 0.6 0.7  |   |   |               |   |   |                     |   |   |



| Date | Phase   | Time GCT |    |      | Period (Sec.) |      |   | Trace Amp. (mms.) 7 |     |   |
|------|---|----------|----|------|---------------|------|---|---------------------|-----|---|
|      |   | h        | m  | s    | Z             | E    | N | Z                   | E   | N |
| Feb. |   |          |    |      |               |      |   |                     |     |   |
| 5    | C & GS 17-49-38; 14.2 N., 94.0 W. h 33 km. off coast of Chiapar, Mexico.<br>(P-H) = 2,445 km. ca. or 22°.                           |          |    |      |               |      |   |                     |     |   |
|      | ePZ   | 17       | 54 | 31.2 | 0.9           |      |   | 1.5                 |     |   |
| 5    | C & GS 20-39-21.6; 38.4 S., 73.2 W. h 41 km. near coast of central Chile.<br>Mag. 6¼-6½ (Pas.) 6-6¼ (Berk.), 5 3/4-6 (Pal.).        |          |    |      |               |      |   |                     |     |   |
|      | ePZ   | 20       | 51 | 07.4 | 1.1           |      |   | 3.0D                |     |   |
|      | eLEN  | 21       | 00 | 51.9 | 14.0          | 14.0 |   | 11.0                | 7.0 |   |
| 6    | C & GS 01-21-29.0; 38.4 S., 73.6 W. h 33 km. near coast of central Chile.<br>Mag. 5¼-5½ (Pal.) (P-H) = 8,445 km. ca. or 76°.        |          |    |      |               |      |   |                     |     |   |
|      | ePZ   | 01       | 33 | 16.1 | 1.2           |      |   | 1.3                 |     |   |
| 6    | C & GS 03-27-55.8; 6.8 N., 73.2 W. h 108 km. Colombia-Venezuela border<br>region. (P-H) = 3,780 km. ca. or 34°.                     |          |    |      |               |      |   |                     |     |   |
|      | iPZ   | 03       | 34 | 38.7 | 0.6           |      |   | 9.0                 |     |   |
| 6    | C & GS 18-17-10.9; 55.6 N., 166.1 E. h 33 km. Komandorskie Island region.<br>(P-H) = 7,335 km. ca. or 66°.                          |          |    |      |               |      |   |                     |     |   |
|      | ePZ   | 17       | 27 | 54.8 | 0.5           |      |   | 1.7                 |     |   |
| 6    | iPZ   | 21       | 54 | 12.2 | 1.0           |      |   | 2.2D                |     |   |
| 7    | eZ  | 04       | 52 | 44.6 | 1.0           |      |   | 0.7                 |     |   |
| 8    | eZ  | 06       | 37 | 11.0 | 1.0           |      |   | 0.4                 |     |   |
| 8    | eZ  | 21       | 28 | 11.1 | 0.8           |      |   | 3.5                 |     |   |
| 9    | C & GS 07-59-52.9; 51.2 N., 179.8 W. h 33 km. Andreanof Islands, Aleutian<br>Islands, Mag. 4.5 (CGS). (P-H) = 6,665 km. ca. or 60°. |          |    |      |               |      |   |                     |     |   |
|      | IPZ   | 08       | 09 | 58.8 | 1.0           |      |   | 1.0C                |     |   |
| 9    | C & GS 16-05-03.0; 43.7 N., 150.6 E. h 33 km. Kurile Islands region.<br>Mag. 4.8 (CGS) (P-H) = 9,000 km. ca. or 81°.                |          |    |      |               |      |   |                     |     |   |
| 10   | C & GS 15-05-25.3; 53.5 N., 33.4 W. h 41 km. North Atlantic Ocean.<br>Mag. 4.9 (CGS) (P-H) = 5,000 km. ca. or 45°.                  |          |    |      |               |      |   |                     |     |   |
|      | eZ  | 15       | 13 | 37.5 | 0.7           |      |   | 1.0                 |     |   |
| 10   | C & GS 15-36-11.1; 44.6 N., 28.1 W. h 33 km. Azores Islands region.<br>(P-H) = 5,555 km. ca. or 50°.                                |          |    |      |               |      |   |                     |     |   |
|      | eZ  | 16       | 45 | 02.5 | 1.5           |      |   | 1.0                 |     |   |
| 10   | C & GS 21-35-48.7; 44.6 N., 147.8 E. h 67 km. Kurile Island region.<br>Mag. 4.9 (CGS) (P-H) = 9,000 km. ca. or 81°.                 |          |    |      |               |      |   |                     |     |   |
|      | iPZ   | 21       | 48 | 02.6 | 1.0           |      |   | 4.1D                |     |   |

| Date    | Phase  | Time GCT |    |      | Period (Sec.) |      |      | Trace Amp. (mms.) |      |      | 8 |
|---------|--|----------|----|------|---------------|------|------|-------------------|------|------|---|
|         |  | h        | m  | s    | Z             | E    | N    | Z                 | E    | N    |   |
| Feb. 11 | iPZ  | 16       | 53 | 08.8 | 0.9           |      |      | 1.0               | 0    | 0    |   |
| 12      | C & GS 00-34-05.6; 36.8 S., 96.9 W. h 33 km. southwest of Easter Island. (P-H) = 7,890 km. ca. or 71°.   |          |    |      |               |      |      |                   |      |      |   |
|         | iPZ  | 00       | 45 | 27.7 | 1.5           |      |      | 1.0               | 0    | 0    |   |
| 12      | C & GS 08-43-37.9; 19.0 N., 107.4 W. h about 33 km. Revilla Gigedo Islands region Mag. 4.4 (CGS) (P-H) = 2,335 km. ca. or 21°.   |          |    |      |               |      |      |                   |      |      |   |
|         | iPZ  | 08       | 48 | 16.2 | 1.0           |      |      | 1.0               | 0    | 0    |   |
| 13      | C & GS 00-22-51.3; 13.4 N., 91.0 W. h 116 km. near south coast of Guatemala. Mag. 5.0 (CGS) (P-H) = 2,445 km. ca. or 22°.  |          |    |      |               |      |      |                   |      |      |   |
|         | ePZ  | 00       | 27 | 42.2 | 1.2           |      |      | 2.5               |      |      |   |
|         | eSZ  | 00       | 31 | 37.8 | 1.2           |      |      | 1.0               |      |      |   |
|         | iZ   | 00       | 40 | 14.0 | 1.0           |      |      | 1.3               | D    |      |   |
| 13      | C & GS 08-50-02.2; 24.5 N., 121.8 E. h 33 km. northern Formosa, 3 killed & 15 injured; widespread, but moderate damage, Mag. 7¼ (Pas.), 7¼ (Berk.), 7-7¼ (Pal.). (P-H) = 12,445 km. ca. or 112°. |          |    |      |               |      |      |                   |      |      |   |
|         | ePZ  | 09       | 04 | 40.8 |               |      |      |                   |      |      |   |
|         | eSSEN  | 09       | 18 | 28.7 | 8.0           | 8.0  |      | 18.0              | 23.0 |      |   |
|         | eLE  | 09       | 43 | 22.4 | 22.0          |      |      | 6.0               |      |      |   |
|         | eLZEN  | 09       | 52 | 22.4 | 25.0          | 20.0 | 20.0 | 1.0               | 27.5 | 20.0 |   |
| 13      | C & GS 18-13-55.1; 9.9 S., 160-8 E. h 29 km. Solomon Islands. Felt: Honiara. Mag. 6½ (Pas.), 6½ (Berk.), 6-6¼ (Pal.), 5.8 (CGS). (P-H) = 12,220 km. ca. or 110°.                                 |          |    |      |               |      |      |                   |      |      |   |
|         | ePZ  | 18       | 32 | 36.4 | 2.0           |      |      | 2.0               |      |      |   |
|         | eLEN   | 19       | 04 | 04.4 | 12.0          | 12.0 |      | 3.0               | 2.0  |      |   |
| 14      | C & GS 07-04-40.8; 7.2 S., 128.2 e. h 197 km. Banda Sea. Felt: Darwin, Australia. Mag 6½ (Pas.), 5.8 (CGS) (P-H) = 14,220 km. ca. or 128°.   |          |    |      |               |      |      |                   |      |      |   |
|         | eP'Z   | 07       | 23 | 21.5 | 0.6           |      |      | 0.5               |      |      |   |
|         | iZ   | 07       | 23 | 35.5 | 1.1           |      |      | 4.0               |      |      |   |
|         | esPPZEN  | 07       | 26 | 43.9 | 1.5           | 7.0  | 7.0  | 17.0              | 12.0 | 5.0  |   |
|         | eSPPZ  | 07       | 36 | 10.9 | 2.0           |      |      | 1.5               |      |      |   |
| 14      | C & GS 12-09-11.4; 00.0 N., 20.0 W. h 33 km. Mid-Atlantic Ocean. Mag. 4-6 (CGS) (P-H) = 7.665 km. ca. or 69°.  |          |    |      |               |      |      |                   |      |      |   |
|         | iPZ  | 12       | 20 | 13.1 | 1.0           |      |      | 3.1               | C    |      |   |
| 14      | C & GS 21-54-34.3; 22.0 S., 170.1 E. h 47 km. Lyalty Islands region. (P-H) = 12,000 km. ca. or 108°.   |          |    |      |               |      |      |                   |      |      |   |
|         | iPSZ   | 22       | 27 | 38.5 | 2.5           |      |      | 2.0               |      |      |   |
|         | eZ   | 22       | 36 | 58.4 | 1.5           |      |      | 1.7               |      |      |   |

| Date       | Phase  | Time GCT   |   |   | Period (Sec.) |      |     | Trace Amp. (mms.) |      |     | 9 |
|------------|--|------------|---|---|---------------|------|-----|-------------------|------|-----|---|
|            |  | h          | m | s | Z             | E    | N   | Z                 | E    | N   |   |
| Feb.<br>16 | C & GS 03-01-40.5; 46.2 N., 111.0 W. h 33 K southwestern Montana. Felt: over wide area. Mag. 4.5 (CGS) (P-H) = 1,945 km. ca. or 16.5°. |            |   |   |               |      |     |                   |      |     |   |
|            | ePZ  | 03-05-27.3 |   |   | 1.3           |      |     | 0.7               |      |     |   |
|            | eSZ  | 03-10-02.1 |   |   | 1.0           |      |     | 2.2               |      |     |   |
| 16         | C & GS 10-46-22.0; 7.0 S., 117.3 E. h 561 km. Flores Sea. Mag 4.6 (CGS). (P-H) = 15,220 km. ca. or 137°.                               |            |   |   |               |      |     |                   |      |     |   |
|            | eP'Z   | 11-04-37.7 |   |   | 0.5           |      |     | 1.2               |      |     |   |
| 17         | C & GS 03-50-41.2; 17.3 N., 100.5 W. h 33 km. Guerrero Mexico. Mag. 4.1 (CGS) (P-H) = 2,220 km. ca. or 20°.                            |            |   |   |               |      |     |                   |      |     |   |
|            | ePZ  | 03-55-09.8 |   |   | 0.7           |      |     | 1.50              |      |     |   |
| 18         | C & GS 14-12-36.0; 36.2 S., 90.4 W. h 33 km. West of Chile. Mag 5.2 (CGS) (P-H) = 8,000 km. ca. or 72°.                                |            |   |   |               |      |     |                   |      |     |   |
|            | iPZ  | 14-23-58.6 |   |   | 1.5           |      |     | 4.00              |      |     |   |
| 18         | eZ   | 06-19-50.6 |   |   | 1.5           |      |     | 0.70              |      |     |   |
| 22         | C & GS 07-10-28.0; 85.0 N., 98.9 E. h 33 km. north polar region Mag. 5.0 (CGS); (P-H) = 6,555 km. ca. or 59°.                          |            |   |   |               |      |     |                   |      |     |   |
|            | ePZ  | 07-20-24.0 |   |   | 2.1           |      |     | 1.70              |      |     |   |
|            | eLE  | 07-41-11.2 |   |   |               | 14.0 |     |                   | 5.0  |     |   |
| 22         | C & GS 21-14-06.1; 18.1 N., 71.3 W. h 50 km. near south coast of Dominican Republic. Mag. 5.5 (CGS) (P-H) = 3,000 km. ca. or 27°.      |            |   |   |               |      |     |                   |      |     |   |
|            | iPZ  | 21-19-45.0 |   |   | 1.1           |      |     | 1.50              |      |     |   |
|            | eLEN   | 21-28-49.3 |   |   |               | 8.0  | 8.0 |                   | 2.0  | 5.0 |   |
| 23         | C & GS 06-32-30; 36.0 S., 102.5 W. h 33 km. south Pacific Ocean, Mag. 4.4 (CGS) (P-H) = 7,890 km. ca. or 71°.                          |            |   |   |               |      |     |                   |      |     |   |
|            | eZ   | 06-43-49.3 |   |   | 0.6           |      |     | 1.0               |      |     |   |
| 23         | C & GS 17-12-47.4; 44.4 N., 158.6 E. h 50 km. Kurile Islands region Mag. 4.4 (CGS) (P-H) = 8,110 km. ca. or 73°.                       |            |   |   |               |      |     |                   |      |     |   |
|            | iPZ  | 17-24-28.2 |   |   | 1.1           |      |     | 2.00              |      |     |   |
| 24         | C & GS 13-34-15.7; 14.6 N., 91.4 W. h 135 km. Central Guatemala. Felt: western El Salvador, Mag. 5.7 (CGS).                            |            |   |   |               |      |     |                   |      |     |   |
|            | iPZRN  | 13-38-55.1 |   |   | 1.5           | 3.4  |     | 4.5               | 4.0  |     |   |
|            | ePPZ   | 13-39-40.1 |   |   | 1.0           |      |     | 1.0               |      |     |   |
|            | iSZEN  | 13-42-55.6 |   |   | 1.5           | 14.0 |     | 5.0               | 27.5 |     |   |
| 25.        | C & GS 08-08-20.1; 28.1 S., 65.4 W. h 32 km. San Luis Province, Argentina. Mag. 5.3 (CGS) (P-H) = 7,665 km. ca. or 69°.                |            |   |   |               |      |     |                   |      |     |   |
|            | iPZ  | 08-19-25.3 |   |   | 1.5           |      |     | 4.0               |      |     |   |
|            | ipPZ   | 08-19-31.0 |   |   | 1.1           |      |     | 5.0               |      |     |   |

| Date    | Phase  | Time GCT   |   |   | Period (Sec.) |      |      | Trace Amp (mms.) |      |   | 10 |
|---------|--|------------|---|---|---------------|------|------|------------------|------|---|----|
|         |  | h          | m | s | Z             | E    | N    | Z                | E    | N |    |
| Feb. 25 | C & GS 08-58-40.8; 12.2 N., 88.2 W. h 33 km. off coast of El Salvador Mag. 4.2 (CGS); (P-H) = 2,780 km. ca. or 25°.  |            |   |   |               |      |      |                  |      |   |    |
|         | ePZ  | 09-03-58.2 |   |   | 0.6           |      |      | 3.5              |      |   |    |
| 25      | eZ   | 15-28-38.0 |   |   | 0.9           |      |      | 1.0              |      |   |    |
| 25      | C & GS 18-45-15.1; 42.8 N., 109.0 W. h 33 km. Wyoming. Mag. 4.3 (CGS) (P-H) = 2,000 km. ca. or 18°.  |            |   |   |               |      |      |                  |      |   |    |
|         | ePZ  | 18-49-22.5 |   |   | 0.5           |      |      | 0.2              |      |   |    |
|         | eSZ  | 18-52-11.5 |   |   | 1.0           |      |      | 2.0              |      |   |    |
| 26      | C & GS 07-52-13.6; 13.8 N., 144.1 E. h 98 km. Mariana Islands. (P-H) = 11,555 Km. ca. or 104°.   |            |   |   |               |      |      |                  |      |   |    |
|         | eZ   | 08-19-21.5 |   |   | 0.4           |      |      | 0.5              |      |   |    |
|         | eZ   | 08-21-19.0 |   |   | 0.8           |      |      | 2.0              |      |   |    |
| 26      | C & GS 16-30-13; 12.4 N., 87.4 W. h 33 km. near coast of Nicaragua. Mag. 4.2 (CGS) (P-H) = 2,780 Km. ca. or 25°.   |            |   |   |               |      |      |                  |      |   |    |
|         | iPZ  | 16-35-32.0 |   |   | 0.7           |      |      | 3.5D             |      |   |    |
| 26      | C & GS 20-14-08.7; 7.5 S., 146.2 E. h 171 km. eastern New Guinea. Mag. 7¼-7½ (Pas.), 7-7¼ (Berk.), 6¾-7 (Pal.), 7.1 (CGS). (P-H) = 11,275 km. ca. or 101.5°. |            |   |   |               |      |      |                  |      |   |    |
|         | ePZ  | 20-28-58.5 |   |   | 1.2           |      |      | 1.0              |      |   |    |
|         | iP'Z   | 20-32-36.7 |   |   | 1.0           |      |      | 7.5              |      |   |    |
|         | iPPZE  | 20-33-52.0 |   |   | 1.1           | 4.0  |      | 13.0             | 17.5 |   |    |
|         | eSKSE  | 20-39-12.9 |   |   |               |      | 8.0  |                  | 30.0 |   |    |
|         | eSKKSE   | 20-40-38.5 |   |   |               |      | 14.0 |                  | 25.0 |   |    |
|         | epSZE  | 20-42-58.5 |   |   | 1.8           | 16.0 |      | 7.0              | 37.0 |   |    |
| 27      | C & GS 11-00-45.3; 14.7 S., 73.3 W. h 110 km. southern Peru. Mag. 5.4 (CGS) (P-H) = 6,000 km. ca. or 54°.  |            |   |   |               |      |      |                  |      |   |    |
|         | iPZ  | 11-10-05.8 |   |   | 1.1           |      |      | 5.5              |      |   |    |
|         | epPZ   | 11-10-33.0 |   |   | 1.2           |      |      | 2.5              |      |   |    |
| 28      | eZ   | 01-35-58.9 |   |   | 1.5           |      |      | 1.1              |      |   |    |
| March 1 | C & GS 04-34.1; 15.6 N., 93.1 W. h 33 km. Chiapas, Mexico. Mag. 4.3 (P-H) = 2335 km. ca. or 21°.   |            |   |   |               |      |      |                  |      |   |    |
|         | ePZ  | 04-07-12.4 |   |   | 0.5           |      |      | 1.2              |      |   |    |
|         | eZ   | 04-10-41.3 |   |   | 0.7           |      |      | 1.5              |      |   |    |
| 1       | C aGS 10-45-55.7; 41.2 N., 142.9 E. h 41 km south of Hokkaido, Japan Mag. 5.1 (CGS) (P-H) = 9665 km. ca. or 87°.   |            |   |   |               |      |      |                  |      |   |    |
|         | eZ   | 10-58-36.7 |   |   | 0.6           |      |      | 1.5              |      |   |    |
| 2       | eZ   | 09-37-52.1 |   |   | 1.1           |      |      | 1.0              |      |   |    |

| Date  | Phase   | Time C & GT |   |      | Period (Sec.) |     |   | Trace Amp (mms.) |      |       |
|-------|---|-------------|---|------|---------------|-----|---|------------------|------|-------|
|       |   | h           | m | s    | Z             | E   | N | Z                | E    | N     |
| March |   |             |   |      |               |     |   |                  |      |       |
| 3     | C & GS 17-30-13.0; 36.7 N., 90.1 W. h 18 km. slight damage southeast Missouri, felt in six states. Mag. $4\frac{1}{2}$ (Pal), 4.5 (CGS) (P-H) = 400 km.ca. or $3.6^\circ$ .                   |             |   |      |               |     |   |                  |      |       |
|       | iPnZEN  | 17-31-04.7  |   | 1.0D | 1.0           | 1.0 |   | 27.0             | 1.0  | 1.0   |
|       | ePmEN   | 12.3        |   |      | 1.0           | 1.0 |   |                  | 2.0  | 7.0   |
|       | ePyEN   | 17.3        |   |      | 0.1           | 0.1 |   |                  | 1.0  | 5.0   |
|       | ePEN  | 26.3        |   |      | 1.0           | 1.0 |   |                  | 1.0  | 7.0   |
|       | iSnEN   | 55.1        |   |      | 2.0           | 2.0 |   |                  | 45.0 | 110.0 |
| 4     | C & GS 07-41-51.0; 82.9 N., 7.7 W. h 33 km. north polar region. Mag. 5.0 (C & GS) (P-H) = 6000 km. ca. or $54^\circ$ .  |             |   |      |               |     |   |                  |      |       |
|       | iPZ   | 07-51-11.4  |   | 1.2  |               |     |   | 1.7C             |      |       |
| 4     | C & GS 15-43-04.0; 4.5 S., 81.6 W. h 33 km. off coast of northern Peru. Mag. 5.4 (CSG) (P-H) = 4665 km. ca. or $42^\circ$ .   |             |   |      |               |     |   |                  |      |       |
|       | iPZE  | 15-50-53.3  |   | 0.7  | 1.0           |     |   | 10.4             | 4.0  |       |
|       | iSE   | 57-13.5     |   |      | 7.0           |     |   |                  | 11.0 |       |
| 4     | C & GS 18-31-51.9; 15.7 S., 75.3 W. h 45 km. near coast of southern Peru. Mag. 4.9 (CGS) (P-H) = 6055 km. ca. or $54.5^\circ$ .   |             |   |      |               |     |   |                  |      |       |
|       | iPZ   | 18-41-17.0  |   | 1.2  |               |     |   | 1.5C             |      |       |
| 5     | C & GS 07-05-01.7; 4.5 S., 81.5 W. h 31 km off coast of northern Peru. Mag. 5.6 (CGS) (P-H) = 4665 km. ca. or $42^\circ$ .  |             |   |      |               |     |   |                  |      |       |
|       | iPZEN   | 07-12-53.0  |   | 1.0  | 4.0           | 4.0 |   | 11.0C            | 2.5  | 4.0   |
| 7     | C & GS C5-22-01.1; 27.0 S., 113.5 W. h 33 km. approximately 500 km. west of Easter Ksland. Mag. $6\frac{3}{4}$ (Pas.), $6\frac{3}{4}$ Brk.), 5.6 (CGS). (P-H) = 7,220 km. ca. or $65^\circ$ . |             |   |      |               |     |   |                  |      |       |
|       | iPZEN   | 05-32-39.6  |   | 1.3  |               |     |   | 2.5D             |      |       |
|       | ipPZ  | 45.4        |   | 1.5  |               |     |   | 4.2              |      |       |
|       | eSN   | 41-30.4     |   |      |               | 5.0 |   |                  |      | 6.0   |
|       | eLEN  | 49-04.4     |   | 30.0 |               |     |   |                  | 0.5  | 3.5   |
| 7     | C & GS 12-16-28.5; 44.3 S., 75.3 W. h 45 km. near coast of southern Child. Mag. 5.6 (CGS) (P-H) = 9000 km. ca. or $81^\circ$ .  |             |   |      |               |     |   |                  |      |       |
|       | iPZEN   | 12-28-42.2  |   | 1.2  |               |     |   | 7.5D             |      |       |
| 7     | C & GS 23-53-25.8; 44.8 N., 123.4 W. h 33 km. northwestern Oregon. Felt, Mag. 4.6 (CGS) (P-H) = 2665 km. ca. or $24^\circ$ .  |             |   |      |               |     |   |                  |      |       |
|       | ePZ   | 23-58-34.5  |   | 0.6  |               |     |   | 1.5C             |      |       |
| 8     | ePZ 00-30-30.0 0.9 0.7  |             |   |      |               |     |   |                  |      |       |
|       | iSZEN   | 35-06.3     |   | 2.1  | 2.2           | 2.2 |   | 2.5              | 6.0  | 3.0   |

| Date  | Phase  | Time GCT |      |   | Period (Sec.) |      |      | Trace Ampt. (mms.) |      |      | 12 |
|-------|--|----------|------|---|---------------|------|------|--------------------|------|------|----|
|       |  | h        | m    | s | Z             | E    | N    | Z                  | E    | N    |    |
| March |  |          |      |   |               |      |      |                    |      |      |    |
| 8     | C & GS 15-06-05.3; 1.1 N., 29.9 W. h 33 km. Mid-Atlantic Ocean. Mag. 5.2 (CGS) (P-H) = 7,665 km. ca. or 69°.   |          |      |   |               |      |      |                    |      |      |    |
|       | iPZ  | 15-17    | 07.9 |   | 1.5           |      |      | 3.0C               |      |      |    |
| 10    | iPZ  | 00-34    | 11.0 |   | 0.7           |      |      | 2.0C               |      |      |    |
| 10    | iPZ  | 11-02    | 48.3 |   | 0.6           |      |      | 6.0D               |      |      |    |
| 11    | C & GS 15-30-07.6; 17.6 N., 1008 W. h 33 km. Guerrero, Mexico. Mag. 4.8 (CGS) (P-H) = 2,165 km. ca. or 19.5°.  |          |      |   |               |      |      |                    |      |      |    |
|       | iPZ  | 15-34    | 31.8 |   | 1.0           |      |      | 4.0C               |      |      |    |
| 11    | eZ   | 19-07    | 02.0 |   | 1.0           |      |      | 1.5                |      |      |    |
| 14    | eZ   | 18-07    | 12.0 |   | 0.7           |      |      | 1.5                |      |      |    |
| 15    | iPZ  | 00-34    | 41.9 |   | 1.0           |      |      | 1.5                |      |      |    |
| 15    | C & GS 05-46-32.8; 21.7 N., 45.4 W. h 33 km. north Atlantic Ocean. Mag. 4.9 (CGS) (P-H) = 4,945 km. ca. or 44.5°.                                    |          |      |   |               |      |      |                    |      |      |    |
|       | eZ   | 05-54    | 42.0 |   | 1.5           |      |      | 1.75               |      |      |    |
| 15    | ePZ  | 11-02    | 20.7 |   | 0.5           |      |      | 0.5                |      |      |    |
|       | eSZ  | 04-23    | 7    |   | 0.6           |      |      | 2.5                |      |      |    |
| 16    | C & GS 08-44-48.3; 46.5 N., 154.7 E. h 26 km. Kurile Islands region. Mg. 7 (Pas.), 7 3/4 (Brk), 6 3/4 (Pal), 6/2 (CGS) (P-H) = 8.555 km. ca. or 77°. |          |      |   |               |      |      |                    |      |      |    |
|       | iPZEN  | 08-56    | 39.3 |   | 0.9           | 5.0  | 5.0  | 61 C               | 19.0 | 36.0 |    |
|       | eSZEN  | 09-06    | 30.1 |   | 5.0           | 6.0  | 8.0  | 1.7                | 42.0 | 35.0 |    |
|       | eLZEN  | 25-39    | 8    |   | 20.0          | 20.0 | 20.0 | 1.0                | 42.0 | 20.0 |    |
| 17    | C & GS 08-42-12.3; 46.0 N., 155.0 E. h 35 km. Kurile Islands region. Mag. 4.7 (CGS) (P-H) = 8,665 km. ca. or 78°.                                    |          |      |   |               |      |      |                    |      |      |    |
|       | iPZ  | 08-54    | 09.1 |   | 1.2           |      |      | 1.7                |      |      |    |
| 18    | C & GS 10-02-00.8; 24.1 N., 5.0 E. h 0 km. southern Alberia. (P-H) = 9335 km. ca. or 84°.  |          |      |   |               |      |      |                    |      |      |    |
|       | iPZ  | 10-14    | 28.1 |   | 0.7           |      |      | 1.1C               |      |      |    |
| 19    | IPZ  | 13-21    | 02.0 |   | 1.1           |      |      | 2.0D               |      |      |    |
| 20    | eZ   | 01-16    | 13.2 |   | 1.2           |      |      | 2.0                |      |      |    |
| 21    | C & GS 04-00-11.1; 36.5 N., 140.9 E. h 50 km. near east coast of Honshu, Japan. Mag. 5.2 (CGS) (P-H) = 10,110 km. ca. or 91°.                        |          |      |   |               |      |      |                    |      |      |    |
|       | iPZ  | 04-13    | 13.3 |   | 1.0           |      |      | 2.5C               |      |      |    |
|       | ipZ  | 25       | 1    |   | 0.5           |      |      | 2.5C               |      |      |    |

| Date  | Phase | Time GCT   |   |   | Period Sec. |      |      | Trace Amp. (mms.) |       |       | 13 |
|-------|-------|--|---|---|-------------|------|------|-------------------|-------|-------|----|
|       |       | h  | m | s | Z           | E    | N    | Z                 | E     | N     |    |
| March |       |  |   |   |             |      |      |                   |       |       |    |
| 22    |       | C & GS 04-34-43.3; 44.7 N., 110.7 W. h 33 km. Yellowstone National Park, Wyoming Felt. Mag. 4.1 (CGS) (P-H) = 1,720 km. ca. or 15.5°.  |   |   |             |      |      |                   |       |       |    |
|       | ePZ   | 04-38-15.8   |   |   | 0.5         |      |      | 0.3               |       |       |    |
|       | eSZ   | 42-37.3  |   |   | 2.0         |      |      | 2.0               |       |       |    |
| 22    | iPZ   | 22-10-16.9   |   |   | 1.2         |      |      | 1.5C              |       |       |    |
| 24    | ePZ   | 02-26-32.4   |   |   | 0.8         |      |      | 5.0D              |       |       |    |
|       | eZ    | 29-28.5  |   |   | 1.5         |      |      | 1.5               |       |       |    |
|       | eZ    | 34-24.5  |   |   | 1.1         |      |      | 1.7               |       |       |    |
| 24    |       | C & GS 12-35-24.4; 51.8 N., 178.1 W. h 57 km. Andreanof Islands, Aleutian Islands. Mag. 6 (Pas.), 5 (Pal.) 5.5 (CGS). (P-G) = 6,555 km. ca. or 59°.  |   |   |             |      |      |                   |       |       |    |
|       | iPZ   | 21-45-19.7   |   |   | 0.7         |      |      | 10.0              |       |       |    |
|       | epPZ  | 46-07.5  |   |   | 0.5         |      |      | 15.0              |       |       |    |
|       | ePPZ  | 21.8   |   |   | 1.0         |      |      | 7.5               |       |       |    |
| 25    |       | C & GS 09-29-44.1; 36.0 N., 114.9 W. h 17 km. southern Nevada. Felt, Mag. 4.3 (CGS) (P-H) = 1,890 km. ca. or 17°.  |   |   |             |      |      |                   |       |       |    |
|       | ePZ   | 09-32-39.9   |   |   | 1.0         |      |      | 1.5               |       |       |    |
|       | iSZN  | 37-22.7  |   |   | 1.2         | 3.0  |      | 2.5               |       | 10.0  |    |
| 26    |       | C & GS 09-48-19.7; 29.7 S., 177.8 W. h 45 km. Kermadec Islands. Felt: Raoul Island. Mag. 6 3/4-7 (Pas), 7 (Bks), 7 (Pal). (P-H) = 11,335 km. ca. or 102°.  |   |   |             |      |      |                   |       |       |    |
|       | ePZ   | 10-02-12.7   |   |   | 1.0         |      |      | 1.7               |       |       |    |
|       | eSZN  | 06-13.7  |   |   | 2.0         | 10.0 |      | 2.5               |       | 9.0   |    |
|       | eGZN  | 25-00.0  |   |   | 25.0        | 50.0 |      | 0.5               |       | 5.0   |    |
|       | eLZN  | 42-13.7  |   |   | 18.0        | 14.0 |      | 1.0               |       | 23.0  |    |
| 26    | iPZ   | 19-59-56.9   |   |   | 0.5         |      |      | 1.0C              |       |       |    |
| 26    |       | C & GS 21-34-41.1; 36.0N., 135.7 E. h 33 km. near east coast of Honshu, Japan. Minor damage in central Honshu. Mag. 6 1/2 (Pas), 6 1/2 (Brk), 6-6 1/4 (Pal) 5.9 (CGS) (P-H) = 10,445 km. ca. or 94°. |   |   |             |      |      |                   |       |       |    |
|       | iPZ   | 21-48-00.4   |   |   | 1.5         |      |      | 4.5D              |       |       |    |
| 27    |       | C & GS 12-31-51.9; 6.8 N., 73.0 W. h 175 km. Colombia. Mag. 4.6 (CGS) (P-H) = 3,600 km. ca. or 32.5°.  |   |   |             |      |      |                   |       |       |    |
|       | iPZ   | 12-38-18.3   |   |   | 0.9         |      |      | 4.0C              |       |       |    |
| 27    |       | C & GS 13-15-30.2; 6.3 N., 73.1 W. h 147 km. Colombia. Mag. 5.0(CGS) (P-H) = 3,890 km. ca. or 35°.   |   |   |             |      |      |                   |       |       |    |
|       | iPZ   | 13-22-22.6   |   |   | 1.0         |      |      | 0.7C              |       |       |    |
| 27    | IPZEN | 23-24-51.4   |   |   | 1.2         | 3.0  | 4.0  | 9.0C              | 2.0   | 4.0   |    |
|       | iSZEN | 32-15.4  |   |   | 3.0         | 10.0 | 8.0  | 1.7               | 30.0  | 24.0  |    |
|       | iLZEN | 41-45.4  |   |   | 15.0        | 20.0 | 12.0 | 12.5              | 140.0 | 205.0 |    |

| Date        | Phase   | Time CGT |    |      | Period Sec. |     |   | Trace Amp (mms.) |     |   | 14 |
|-------------|---|----------|----|------|-------------|-----|---|------------------|-----|---|----|
|             |   | h        | m  | s    | Z           | E   | N | Z                | E   | N |    |
| March<br>27 | iPX   | 23       | 53 | 41.5 | 0.9         |     |   | 5.5              |     |   |    |
| 30          | ePZ   | 02       | 07 | 26.4 | 2.0         |     |   | 2.0              |     |   |    |
| 31          | C & GS 04-46-00.8; 6.5 S., 81.1 W. h 33 km. near coast of northern Peru. Mag. 5.2 (CGS) (P-H) = 4,890 km. ca. or 44°. |          |    |      |             |     |   |                  |     |   |    |
|             | iPZN  | 04       | 54 | 07.6 | 1.4         | 5.0 |   | 3.50             | 3.0 |   |    |
|             | eXN   | 05       | 00 | 42.1 |             | 7.0 |   |                  | 4.0 |   |    |
| 31          | O & GS 05-51-00.9; 10.7 S., 78.5 W. h 33 km. near coast of Peru. Mag. 5.0 (CGS) (P-H) = 5445 km. ca. or 49°.          |          |    |      |             |     |   |                  |     |   |    |
|             | iPZ   | 05       | 59 | 45.0 | 1.0         |     |   | 2.00             |     |   |    |



The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are  $36^{\circ} 05.46'$  north latitude and  $94^{\circ} 11.47'$  west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.

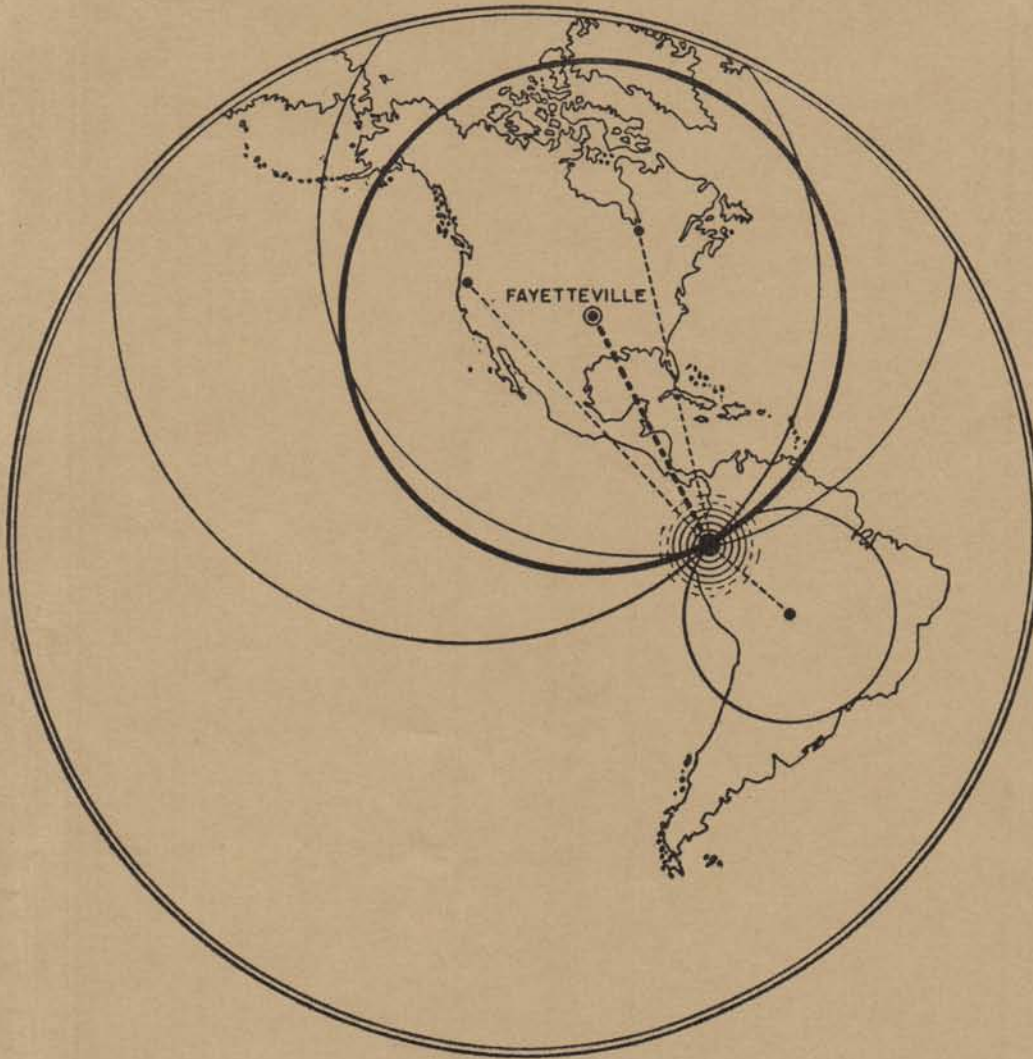


University of Arkansas  
Seismograph Station  
Department of Geology  
Fayetteville, Arkansas

# UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume XII

Number 2



## The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

## FAYETTEVILLE SEISMOGRAPH STATION

Volume 12, Number 2, April 1963

Data for April, May, June, 1963

## Instruments

Vertical component - Benioff moving coil type, short period electromagnetic-galvanometric, Mass = 100 lbs.

Seismometer-Benioff moving coil period = 1.1 second

Galvanometer-Geotechnical Corp, period = 0.2 second

Damping ratio - about 15:1 (near critical)

Recording drum speed - 60 mm. per minute

Horizontal components - Wilson - Wilson-Lamison hinges types: E-W  
N-S. electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)

6.0 second (E-W)

Galvanometer-General Electric period - 4.1 seconds (N-S)

3.8 seconds (E-W)

Recording drum speed - 30 mm. per minute

Clock - IBM, electrically wound, invar pendulum type.  
Accuracy limits generally within one tenth second.

Radio - WWV Time Signal impressed manually by telegraph key on  
5th, 10th, and 15th second. Time signals received  
by a Hallicrafter receiver, S-40B.

Vertical-Ground motion trace up (compression)  
reading from left to right  
N-S - Ground motion trace up - North  
E-W - Ground motion trace up - East

(Additional information regarding the station is given on the back cover.)

Information in Remarks column is usually from U. S. Coast and Geodetic Survey epicenter cards. "C" following the trace amplitude indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by Gary Gillum, Observer

390

| Date  | Phase   | Time GCT |    |      | Period Sec. |     |     | Trace (Amp) mms |      |      | l |
|-------|---|----------|----|------|-------------|-----|-----|-----------------|------|------|---|
|       |   | .h       | m  | s    | Z           | E   | N   | Z               | E    | N    |   |
| April |   |          |    |      |             |     |     |                 |      |      |   |
| 1     | iPZ   | 04       | 40 | 52.7 | .8          |     |     | .5              |      |      |   |
| 1     | iPZ   | 08       | 26 | 09.7 | .8          |     |     | .5              |      |      |   |
| 2     | CGT 11-35-51.4; 5.8 S., 105.0 E. h 91 km. Sumatra. (P-H) = 1600 km ca or 144°.  |          |    |      |             |     |     |                 |      |      |   |
|       | iPZ   | 11       | 55 | 20.2 | 1.0         |     |     | 4.0C            |      |      |   |
| 2     | iPZ   | 16       | 28 | 12.0 | 1.1         |     |     | 7.2D            |      |      |   |
|       |   |          |    | 17.8 | 0.6         |     |     | 3.0             |      |      |   |
| 3     | C & GS 15-54-51.7; 61.1 N., 148.1 W. h 78 km. Alaska. Mag. 5.7(CGS) (P-H) = 4720 km. ca. or 42.5°.                            |          |    |      |             |     |     |                 |      |      |   |
|       | iPZ   | 16       | 02 | 33.7 | 1.0         |     |     | 2.5D            |      |      |   |
| 4     | ePZ   | 02       | 07 | 40.0 |             |     |     |                 |      |      |   |
|       | eSZ   | 02       | 09 | 37.0 | .5          |     |     | 1.5             |      |      |   |
| 6     | C & GS 11-19-23.3; 63.4 N., 149.5 W. h 39 km. Central Alaska, Mag. 5.5 (CGS) (P-H) = 4,780 km. ca. or 43°.                    |          |    |      |             |     |     |                 |      |      |   |
|       | iPZ   | 11       | 27 | 18.7 | 1.0         |     |     | 2.5             |      |      |   |
|       | eEN   | 11       | 42 | 19.5 |             | 7.0 | 5.0 |                 | 4.0  | 10.0 |   |
| 7     | C & GS 15-28-01.8; 53.7 N., 170.1 W. h 202 km. Fox Islands region. Mag. 6.0 (CGS) (P-H) = 5780 km. ca. or 52°.                |          |    |      |             |     |     |                 |      |      |   |
|       | iPZ   | 15       | 37 | 03.7 | 0.7         |     |     | 4.0C            |      |      |   |
|       | iPZ   |          |    | 07.1 | 0.7         |     |     | 2.0             |      |      |   |
| 7     | C & GS 22-36-03.4; 4.9 S., 103.2 E. h 72 km. near southwest coast of Sumatra. Mag. 6.1 (CGS). (P-H) = 16,110 km. ca. or 145°. |          |    |      |             |     |     |                 |      |      |   |
|       | iPZ   | 22       | 55 | 33.2 | 1.0         | 3.0 | 3.0 | 65.0C           | 10.0 | 9.0  |   |
| 8     | C&GS 00-03-59.1; 39.6 N., 104.9 W. h 33 km. northeastern Colorado. (P-H) = 1,110 km. ca. or 10°.                              |          |    |      |             |     |     |                 |      |      |   |
|       | ePZ   | 00       | 06 | 11.6 |             |     |     |                 |      |      |   |
|       | iSZEN   | 00       | 08 | 46.7 | 1.0         | .7  | .7  | 7.0             | 3.0  | 4.0  |   |
| 10    | iPZ   | 07       | 03 | 11.9 | 6.0         |     |     | 2.5D            |      |      |   |
| 10    | ePZ   | 08       | 09 | 48.8 | 1.5         |     |     | 1.7             |      |      |   |
|       | eZ  | 08       | 13 | 21.8 | 1.0         |     |     | .7              |      |      |   |
| 10    | iPZ   | 23       | 15 | 04.0 | .5          |     |     | 2.0             |      |      |   |
|       | eSZ   | 23       | 18 | 33.1 | 1.5         |     |     | 2.0             |      |      |   |
| 12    | C & GS 04-13-23.7; 61.2 N., 147.3 W. h 61 km. central Alaska. Mag. 4.3 (CGS) (P-H) = 4,555 km. ca. or 41°.                    |          |    |      |             |     |     |                 |      |      |   |
|       | iPZ   | 04       | 21 | 05.8 | 1.0         |     |     | 0.5D            |      |      |   |

390

| Date  | Phsee   | Time GCT   |   |   | Period Sec. |   |   | Trace Amp (mms.) |   |   | 2 |
|-------|---|------------|---|---|-------------|---|---|------------------|---|---|---|
|       |   | h          | m | s | Z           | E | N | Z                | E | N |   |
| April |   |            |   |   |             |   |   |                  |   |   |   |
| 13    | C & GS 02-20-57.5; 6.2 S., 76.5 W. h 125 km. Central Peru. Mag. 6 3/4-7 (Pas), 6.3 (CGS) (P-H) = 4,890 km. ca. or 44°.                        |            |   |   |             |   |   |                  |   |   |   |
|       | iPZ   | 02-29-04.1 |   |   | 1.0         |   |   | 12.5D            |   |   |   |
|       |   | 20.7       |   |   | 1.0         |   |   | 3.5              |   |   |   |
|       |   | 49.3       |   |   | 0.7         |   |   | 5.0              |   |   |   |
| 13    | iPZ   | 02-45-12.7 |   |   | 1.0         |   |   | 8.5C             |   |   |   |
| 13    | C & GS 18-53-18.0; 11.7 N., 87.8 W. h 33 km. Off coast of Nicaragua Felt: Southern El Salvador. Mag. 4.14 (CGS) (P-H) = 2,780 km. ca. or 25°. |            |   |   |             |   |   |                  |   |   |   |
|       | iPZ   | 18-58-40.0 |   |   | 1.0         |   |   | 2.5              |   |   |   |
| 15    | C & GS 05-40-41.1; 23.5 S., 68.2 W. h 105 km. Chile-Bolivia border. Mag. 5.10 (CGS) (P-H) = 7000 km. ca. or 63°.                              |            |   |   |             |   |   |                  |   |   |   |
|       | iPZ   | 05-51-06.6 |   |   | 0.7         |   |   | 2.0              |   |   |   |
| 16    | ePZ   | 01-48-25.4 |   |   | 1.0         |   |   | 2.5              |   |   |   |
| 16    | C & GS 01-55-10.9; 0.7 S., 128.0 E. h about 32 km. Halmahera region Mag. 6.0 (CGS) (P-H) = 14,390 km. ca. or 129.5°.                          |            |   |   |             |   |   |                  |   |   |   |
|       | iPZ <sub>1</sub>  | 02-14-14.6 |   |   | 1.4         |   |   | 2.5              |   |   |   |
| 17    | ePZ   | 02-10-08.3 |   |   | 1.4         |   |   | 0.7              |   |   |   |
|       | eSZ   | 02-14-13.5 |   |   | 2.0         |   |   | 0.5              |   |   |   |
| 18    | C & GS 04-27-40.6; 19.4 N., 109.1 W. h 33 km. Off coast of Jalisco, Mexico. Mag. 4.5 (CGS) (P-H) = 3000 km. ca. or 27°.                       |            |   |   |             |   |   |                  |   |   |   |
|       | eZ  | 04-32-19.0 |   |   | 1.0         |   |   | 1.0              |   |   |   |
| 19    | C & GS 07-35-23.7; 35.8 N., 96.9 E. Isinghai Province, China. Mag. 7 (Pas), 6 3/4-7 (Brk), 6.1 (CGS) (P-H) = 14,945 km. ca. or 134.5°.        |            |   |   |             |   |   |                  |   |   |   |
|       | eZ  | 07-51-54.1 |   |   | 1.2         |   |   | 1.0              |   |   |   |
|       | eLZ   | 18-37-18.3 |   |   | 15.0        |   |   | 0.7              |   |   |   |
| 20    | C & GS 04-46-59.5; 27.5 S., 70.2 W. h 33 km. Northern Child. Mag. 4.7 (CGS) (P-H) = 7,445 km. ca. or 67.6°.                                   |            |   |   |             |   |   |                  |   |   |   |
|       | iPZ   | 05-57-51.5 |   |   | 1.0         |   |   | 1.0C             |   |   |   |
| 20    | C & GS 07-03-45.1; 52.4 N., 160.0 E. h 33 km. Off coast of Kamchatka Mag. 4.4 (CGS) (P-H) = 7,890 km. ca. or 71°.                             |            |   |   |             |   |   |                  |   |   |   |
| 20    | eZ  | 20-43-32.9 |   |   | 1.0         |   |   | 1.0              |   |   |   |
| 22    | ePZ   | 21-21-44.8 |   |   | 1.0         |   |   | 1.5              |   |   |   |
| 23    | iPZ   | 19-14-22.3 |   |   | 1.0         |   |   | 2.5C             |   |   |   |

| Date  | Phase   | Time GCT |    |      | Period Sec. |      |      | Trace Amp. (mms.) |     |     | 3 |
|-------|---|----------|----|------|-------------|------|------|-------------------|-----|-----|---|
|       |   | h        | m  | s    | Z           | E    | N    | Z                 | E   | N   |   |
| April |   |          |    |      |             |      |      |                   |     |     |   |
| 26    | ePZ   | 15       | 54 | 01.2 | 0.7         |      |      | 1.0               |     |     |   |
|       | eZ  | 15       | 54 | 32.0 | 1.0         |      |      | 2.5               |     |     |   |
| 27    | C & GS 03-42-33.9; 66.7 N., 19.2 W. h 33 km. Off north coast of Iceland. Mag. 4.6 (CGS) (P-H) = 5,780 km. ca. or 52°.   |          |    |      |             |      |      |                   |     |     |   |
|       | iPZ   | 03       | 51 | 38.2 | 1.0         |      |      | 1.5               |     |     |   |
| 27    | C & GS 11-03-29.1; 22.8 S., 68.9 W. h 100 km. Northern Chile. Mag. 4.8 (CGS) (P-H) = 6,890 km. ca. or 62°.  |          |    |      |             |      |      |                   |     |     |   |
|       | iPZ   | 11       | 13 | 47.8 | 1.0         |      |      | 1.0               |     |     |   |
| 27    | C & GS 19-29-43.7; 30.3 S., 70.3 W. h 59 km. Central Chile. Mag. 4.7 (CGS) (P-H) = 7,665 km. ca. or 69°.  |          |    |      |             |      |      |                   |     |     |   |
|       | eZ  | 19       | 40 | 48.9 | 1.0         |      |      | 1.0               |     |     |   |
| 29    | C & GS 20-35-41.6; 17.4 N., 92.7 W. h 27 km. Chiapas, Mexico. Mag. 5.2 (CGS) (P-H) = 2,110 km. ca. or 19°.  |          |    |      |             |      |      |                   |     |     |   |
|       | iPZ   | 20       | 39 | 56.9 | 1.5         |      |      | 5.0D              |     |     |   |
|       | iSZEN   | 20       | 43 | 18.9 | 1.0         |      |      | 2.5               |     |     |   |
| 29    | C & GS 21-44-17.1; 51.4 N., 178.6 E. h 60 km. Andreanof Islands, Aleutian Islands. Mag. 6 (Pas), 5-5 $\frac{1}{4}$ (Brk) 6 (pal), 5.6 (CGS) (P-H) = 6,665 km. ca. or 60°. |          |    |      |             |      |      |                   |     |     |   |
|       | iPZEN   | 21       | 54 | 26.4 | 0.5         |      |      | 4.0               |     |     |   |
|       | iSEN  | 22       | 02 | 43.4 |             | 5.6  | 5.0  |                   | 3.5 | 3.5 |   |
|       | eLEN  | 22       | 17 | 00.0 |             | 16.0 | 15.0 |                   | 9.0 | 6.0 |   |
| 30    | iPZ   | 01       | 17 | 18.5 | 1.0         |      |      | 1.5C              |     |     |   |
| 30    | C & GS 03-26-04.2; 51.2 N., 178.6 E. h 50 km. Andreanof Islands, Aleutian Islands. Mag. 4.9 (CGS) (P-H) = 6,665 km. ca. or 60°.   |          |    |      |             |      |      |                   |     |     |   |
|       | eZ  | 03       | 36 | 16.1 | 1.0         |      |      | 1.5               |     |     |   |
| 30    | C & GS 07-07-55.9; 51.6 N., 178.4 E. h 64 km. Andreanof Islands, Aleutian Islands. Mag. 5.1 (P-H) = 6,665 km. ca. or 60°.   |          |    |      |             |      |      |                   |     |     |   |
|       | eZ  | 07       | 18 | 04.3 | 0.5         |      |      | 1.5               |     |     |   |
| 30    | C & GS 18-43-14.0; 8.2 S., 79.9 W. h 60 km. near coast of Peru. Mag. 4.8 (CGS) (P-H) = 5,110 km. ca. or 46°.  |          |    |      |             |      |      |                   |     |     |   |
|       | iPZ   | 18       | 51 | 33.8 | 2.0         |      |      | 3.0               |     |     |   |
| May   |   |          |    |      |             |      |      |                   |     |     |   |
| 1     | C & GS 01-05-17.7; 52.4 N., 174.5 W. h 78 km. Andreanof Islands, Aleutian Islands. Mag. 5.2 (CGS) (P-H) = 6,220 km. ca. or 56°.   |          |    |      |             |      |      |                   |     |     |   |
|       | iPZ   | 01       | 14 | 54.7 | 1.0         |      |      | 2.5               |     |     |   |

| Date  | Phase  | Time GCT   |   |   | Period Sec. |      |      | Trace Amp. (mms.) |     |      | 4 |
|-------|--|------------|---|---|-------------|------|------|-------------------|-----|------|---|
|       |  | h          | m | s | Z           | E    | N    | Z                 | E   | N    |   |
| May 1 | C & GS 16-38-43.4; 13.3 N., 91.8 W. off west coast of Guatemala h about 70 km. Mag. 4.2 (CGS) (P-H) = 2,445 km. ca. or 22°.                  |            |   |   |             |      |      |                   |     |      |   |
|       | eZ   | 16-43-40.5 |   |   | 1.0         |      |      | 1.75              |     |      |   |
| 2     | iPZ  | 22-29-55.0 |   |   | 0.5         |      |      | 1.0               |     |      |   |
| 4     | C & GS 05-56-04.1; 51.8 N., 175.4 W. Andreanof Islands, Aleutian Islands h about 33 km. Mag. 5.15 (CGS) (P-H) = 6,335 km. ca. or 57°.        |            |   |   |             |      |      |                   |     |      |   |
|       | iPZ  | 06-05-47.4 |   |   | 1.5         |      |      | 1.5C              |     |      |   |
| 4     | ePZ  | 21-06-16.3 |   |   |             |      |      |                   |     |      |   |
|       | eSZ  | 21-08-00.2 |   |   | 1.0         |      |      | 1.5               |     |      |   |
| 5     | iPZ  | 15-12-37.0 |   |   | 1.0         |      |      | 2.5C              |     |      |   |
|       | ipPZ   | 15-12-51.7 |   |   | 1.0         |      |      | 3.5               |     |      |   |
|       | iPcPZ  | 15-12-57.6 |   |   | 1.0         |      |      | 5.0               |     |      |   |
| 6     | ePZ  | 08-12-58.8 |   |   | 0.5         |      |      | 1.75C             |     |      |   |
| 7     | C & GS 16-23-11.2; 22.0 S., 68.6 W. northern Chile. Mag. 5.4 (CGS) h about 110 km. (P-H) = 6,665 km. ca. or 60°.                             |            |   |   |             |      |      |                   |     |      |   |
|       | iPZ  | 16-33-15.5 |   |   | 1.0         |      |      | 4.0D              |     |      |   |
|       | ePFZ   | 16-33-52.3 |   |   | 1.0         |      |      | 2.0               |     |      |   |
|       | ePcPZ  | 16-34-11.9 |   |   | 0.7         |      |      | 4.0               |     |      |   |
| 7     | Possible local quake.  |            |   |   |             |      |      |                   |     |      |   |
|       | iPZ  | 20-04-09.6 |   |   | 0.5         |      |      | 0.5C              |     |      |   |
|       | eSZ  | 20-04-47.5 |   |   | 0.5         |      |      | 1.5               |     |      |   |
| 8     | C & GS 08-50-56.0; 54.9 N., 163.9 W. Unimak Islands, Aleutian Island region, Mag. 5.6 (CGS) (P-H) = 5,445 km. ca. or 49°.                    |            |   |   |             |      |      |                   |     |      |   |
|       | iPZ  | 08-59-41.9 |   |   | 0.7         |      |      | 2.5D              |     |      |   |
| 8     | C & GS 10-22-11.2; 36.6 N., 141.0 E. Honshu, Japan. Mag. 6.1 (CGS) (P-H) = 10,110 km. ca. or 91°.  |            |   |   |             |      |      |                   |     |      |   |
|       | iPZ  | 10-35-12.4 |   |   | 1.0         |      |      | 2.5C              |     |      |   |
|       | ePcP   | 23.6       |   |   | 0.7         |      |      | 3.5               |     |      |   |
|       | eSEN   | 46-10.7    |   |   |             | 8.0  | 8.0  | 5.0               | 5.0 |      |   |
| 9     | C & GS 15-03-41.0; 12.2 N., 86.9 W. near west coast of Nicaragua. Mag. 5.3 (CGS) (P-H) = 2,780 km. ca. or 25°.                               |            |   |   |             |      |      |                   |     |      |   |
|       | ePZ  | 15-08-58.7 |   |   | 0.6         |      |      | 1.0               |     |      |   |
|       | eSN  | 13-43.3    |   |   |             | 10.0 |      |                   | 2.5 |      |   |
| 10    | C & GS 22-22-42.2; 2.2 S., 77.6 W. Ecuador. Felt. Mag. 6 3/4 (Pas), 6 (Brk), 6 (pal), 5.7 (CGS) h about 33 km. (P-H) = 4,445 km. ca. or 40°. |            |   |   |             |      |      |                   |     |      |   |
|       | iPZ  | 22-30-14.8 |   |   | 0.5         |      |      | 0.5               |     |      |   |
|       | iPcPZEN  | 23.1       |   |   | 1.0         | 4.0  | 4.0  | 3.5               | 7.0 | 5.0  |   |
|       | iSEN   | 36-31.2    |   |   |             | 4.0  | 6.0  |                   | 9.0 | 10.0 |   |
|       | eLEN   | 42-37.6    |   |   |             | 20.0 | 40.0 |                   | 7.0 | 5.0  |   |

| Date   | Phase  | Time GCT   |   |   | Period Sec. |     |     | Trace Amp (mms.) |     |      | 5 |
|--------|--|------------|---|---|-------------|-----|-----|------------------|-----|------|---|
|        |  | h          | m | s | Z           | E   | N   | Z                | E   | N    |   |
| May 12 | C & GS 20-08-43.0; 57.4 N., 153.9 W. Kodiak Island, Alaska. Mag. 5.1 h about 80 km. (CGS) (P-H) = 4,890 km. ca. or 44°.                                      |            |   |   |             |     |     |                  |     |      |   |
|        | iPZEN  | 20-16-48.6 |   |   | 0.8         | 4.0 | 3.0 | 7.0D             | 5.0 | 3.5  |   |
|        | eP(?)Z   | 52.8       |   |   | 0.9         |     |     | 3.5              |     |      |   |
|        | eP(?)Z   | 17-09.5    |   |   | 1.0         |     |     | 5.0              |     |      |   |
|        | ePPZ   | 18-22.3    |   |   | 1.0         |     |     | 5.0              |     |      |   |
|        | eSEN   | 23-22.3    |   |   |             | 4.0 | 5.0 |                  | 7.0 | 5.0  |   |
|        | eLEN   | 26-52.0    |   |   |             | 6.0 | 9.0 |                  | 4.5 | 8.0  |   |
| 12     | C & GS 20-37-12.9; 55.9 N., 163.1 E. near east coast of Kamchatka. Mag. 5.1 h about 33 km. (CGS) (P-H) = 7.445 km. ca. or 67°.                               |            |   |   |             |     |     |                  |     |      |   |
|        | iPZ  | 20-48-06.6 |   |   | 0.9         |     |     | 2.0C             |     |      |   |
| 13     | C & GS 12-44-00.7; 14.5 N., 92.9 W. Mexico-Buatemala border. Mag. 4 3/4-5 (Brk), 5 1/4-5 1/2 (Pal), 5.6 (CGS) h about 60 km. (P-H) = 2,275 km. ca. or 21.5°. |            |   |   |             |     |     |                  |     |      |   |
|        | iPZEN  | 12-48-54.4 |   |   | 0.7         | 2.4 | 3.0 | 18.0             | 2.5 | 10.0 |   |
|        | eSEN   | 52-21.2    |   |   |             | 5.0 | 5.0 |                  | 9.0 | 7.0  |   |
| 13     | C & GS 18-03-04.4; 20.6 S., 70.7 W. near coast of northern Chile. h about 33 km. (P-H) = 6,890 km. ca. or 62°.   |            |   |   |             |     |     |                  |     |      |   |
|        | ez   | 18-13-24.2 |   |   | 1.5         |     |     | 2.0              |     |      |   |
| 15     | C & GS 12-08-08.8; 38.0 N., 26.4 W. Azores region. Felt: San Miguel Island. Mag 5.3 (CGS) h about 33 km. (P-H) = 5,780 km. ca. or 52°.                       |            |   |   |             |     |     |                  |     |      |   |
|        | eZ   | 12-17-17.6 |   |   | 1.0         |     |     | 0.5              |     |      |   |
| 16     | C & GS 20-42-33.5; 16.8 N., 99.0 W. Guerrero, Mexico. h about 33 km. (P-H) = 2,220 km. ca. or 20°.   |            |   |   |             |     |     |                  |     |      |   |
|        | eZ   | 20-47-03.2 |   |   | 1.1         |     |     | 1.5              |     |      |   |
| 17     | C & GS 04-06-36.2; 45.3 N., 159.8 E. Kurile Islands region. Mag. 5.9 (CGS) h about 33 km. (P-H) = 8.780 km. ca. or 79°.                                      |            |   |   |             |     |     |                  |     |      |   |
|        | iPZ  | 04-18-42.6 |   |   | 2.0         |     |     | 5.5C             |     |      |   |
| 17     | C & GS 14-11-01.5; 14.1 S., 74.2 W. southern Peru. Mag. 5.1 (CGS) h about 51 km. (P-H) = 5,890 km ca. or 53°.  |            |   |   |             |     |     |                  |     |      |   |
|        | iPZ  | 14-20-17.4 |   |   | 0.7         |     |     | 1.0D             |     |      |   |
| 18     | C & GS 05-33-25.0; 29.6 S., 68.5 W. La Rioja Province, Argentina h about 29 km. (P-H) = 7,710 km. ca. or 69.5°.  |            |   |   |             |     |     |                  |     |      |   |
|        | iPZ  | 05-44-33.3 |   |   | 1.0         |     |     | 4.0C             |     |      |   |
| 19     | C & GS 01-03-04.1; 46.5 S., 75.1 W. Coast of southern Chile. Mag. 6 3/4 (Pas), 6.5 (CGS) h about 33 km. (P-H) = 9,335 km. ca. or 84°.                        |            |   |   |             |     |     |                  |     |      |   |
|        | iPZN   | 01-15-30.4 |   |   | 2.0         |     | 4.0 | 7.0C             |     | 11.0 |   |
|        | iSN  | 25-57.6    |   |   |             |     | 8.0 |                  |     | 17.0 |   |



| Date      | Phase | Time GCT  |   |   | Period Sec. |     |      | Trace Amp (mms.) |     |      | 6 |
|-----------|-------|---|---|---|-------------|-----|------|------------------|-----|------|---|
|           |       | h   | m | s | Z           | E   | N    | Z                | E   | N    |   |
| May<br>19 |       | C & GS 21-35-49.6; 23.8 N., 45.9 W. north Atlantic Ocean. Mag. $6\frac{1}{2}$ (Pas), $6\frac{1}{4}$ - $6\frac{1}{2}$ (Brk), 6.0 (CGS) h about 33 km. (P-H) = 4,890 km. ca. $44^\circ$ . |   |   |             |     |      |                  |     |      |   |
|           | iPZN  | 21-43-49.1  |   |   | 1.5         |     | 2.0  | 5.0C             |     | 3.5  |   |
|           | ePFZ  | 4 35-35.2   |   |   | 1.6         |     |      | 4.0              |     |      |   |
|           | iSN   | 53-13.7   |   |   |             |     | 10.0 |                  |     | 30.0 |   |
|           | eLZN  | 59-20.0   |   |   | 10.0        |     |      | 1.8              |     |      |   |
| 19        |       | C & GS 23-31-25.7; 17.8 S., 69.4 W. Peru-Bolivia-Chile border region Mag. 5.15 (CGS) h about 148 km. (P-H) = 6,335 km. ca. or $57^\circ$ .  |   |   |             |     |      |                  |     |      |   |
|           | iPZ   | 23-41-07.9  |   |   | 0.7         |     |      | 3.5D             |     |      |   |
| 20        |       | C & GS 11-38-00.9; 30.7 S., 178.3 W. Kermadec Islands region. Mag. $6\frac{3}{4}$ -7 (Pas), $6\frac{1}{2}$ (Bek), 6.2 (CGS) h about 34 km. (P-H) = 11,220 km. ca. or $101^\circ$ .      |   |   |             |     |      |                  |     |      |   |
|           | ePZ   | 11-51-00.0  |   |   | 1.0         |     |      | 0.5              |     |      |   |
|           | eSZN  | 56-11.0   |   |   | 1.5         |     | 6.0  | 1.0              |     | 2.5  |   |
|           | eLN   | 12-27-20  |   |   |             |     | 18.0 |                  |     | 5.0  |   |
| 22        |       | C & GS 04-24-29.6; 17.7 N., 106.0 W. off west coast of Mexico. Mag. 4.6 (CGS) h about 33 km. (P-H) = 2,380 km. ca. or $21.5^\circ$  |   |   |             |     |      |                  |     |      |   |
|           | iPZN  | 04-29-13.2  |   |   | 1.5         |     |      | 2.5C             |     |      |   |
|           | iSN   | 35-25.4   |   |   | 3.0         |     | 6.0  | 2.0              |     | 6.0  |   |
| 22        |       | C & GS 13-56-43.0; 48.6 N., 154.7 E. Kurile Islands region. Mag. $6\frac{1}{2}$ (Pas), 6 (Brk), 6.3 (CGS) h about 22 km. (P-H) = 8,445 km. ca. or $76^\circ$ .                          |   |   |             |     |      |                  |     |      |   |
|           | iPZN  | 14-08-27.3  |   |   | 1.0         |     | 2.0  | 25.0             |     | 7.0  |   |
|           | iSN   | 18-15.0   |   |   |             |     | 6.0  |                  |     | 4.0  |   |
| 22        |       | C & GS 22-00-44.2; 49.3 N., 155.4 E. Kurile Islands region Mag. 5.1 (CGS) h about 33 km. (P-H) = 8,335 km. ca. or $75^\circ$ .  |   |   |             |     |      |                  |     |      |   |
|           | eZ    | 22-12-23.3  |   |   | 0.5         |     |      | 1.0              |     |      |   |
| 23        |       | C & GS 07-43-58.0; 19.2 N., 64.6 W. Leeward Islands region. Mag. 5.4. h about 55 km. (CGS) P-H) = 3,555 km. ca. or $32^\circ$ .   |   |   |             |     |      |                  |     |      |   |
|           | iPZ   | 07-50-11.6  |   |   | 1.0         |     |      | 2.0D             |     |      |   |
|           | eSZ   | 57-33.4   |   |   | 1.0         |     |      | 2.0              |     |      |   |
| 23        |       | C & GS 16-27-42.5; 46.6 N., 152.3 E. Kurile Islands region. Mag. 5.6 h about 52 km. (CGS) (P-H) = 8,665 km. ca. or $78^\circ$ .   |   |   |             |     |      |                  |     |      |   |
|           | iPZ   | 16-39-37.7  |   |   | 1.0         |     |      | 1.5C             |     |      |   |
| 23        |       | C & GS 18-21-18.3; 14.5 N., 105.2 W. off west coast of Mexico. h about 33 km. (P-H) = 2,665 km. ca. or $24^\circ$ .   |   |   |             |     |      |                  |     |      |   |
|           | iPZEN | 18-26-27.6  |   |   | 1.5         | 4.0 | 3.0  | 1.5              | 2.5 | 1.0  |   |
|           | iSEN  | 30-20.6   |   |   |             | 6.0 | 6.2  |                  | 6.0 | 3.0  |   |

| Date        | Phase  | Time GCT   |   |   | Period Sec. |     |     | Trace Amp (mms.) |     |     |
|-------------|--|------------|---|---|-------------|-----|-----|------------------|-----|-----|
|             |  | h          | m | s | Z           | E   | N   | Z                | E   | N   |
| <b>May</b>  |  |            |   |   |             |     |     |                  |     |     |
| 25          | C & GS 08-41-09.6; 42.7 N., 144.3 E. near east coast of Hokkaido, Japan. Mag. 5.14 (CGS) h about 80 km. (P-H) = 9,335 km. ca. or 84°.            |            |   |   |             |     |     |                  |     |     |
|             | iPZ  | 08-53-36.5 |   |   | 0.6         |     |     | 2.50             |     |     |
| 25          | C & GS 10-44-38.1; 39.8 N., 104.7 W. Colorado. Felt: Denver area. Mag. 3.5 (CGS) h about 33 km. (P-H) = 1,000 km. ca. or 9°.                     |            |   |   |             |     |     |                  |     |     |
|             | iPZ  | 10-46-40.3 |   |   | 0.1         |     |     | 1.0              |     |     |
|             | iSZEN  | 49-24.7    |   |   | 0.7         | 2.0 | 2.0 | 12.0             | 2.0 | 4.5 |
| 26          | C & GS 12-43-48.1; 16.7 S., 72.2 W. Southern Peru, Mag. 4.7 (CGS) h about 60 km. (P-H) = 6,220 km. ca. or 56°.                                   |            |   |   |             |     |     |                  |     |     |
|             | eZ   | 12-53-24.0 |   |   | 1.0         |     |     | 0.7              |     |     |
| 26          | C & GS 23-06-55.0; 55.2 N., 159.9 E., near east coast of Kamchatka. Mag. 5¼-5½ (Pal), 5.3 (CGS) h about 47 km. (P-H) = 7,665 km. ca. or 69°.     |            |   |   |             |     |     |                  |     |     |
|             | iPZ  | 23-17-58.8 |   |   | 0.5         |     |     | 4.0              |     |     |
|             | iSN  | 27-00.6    |   |   |             |     | 8.0 |                  |     | 3.0 |
| 27          | C & GS 03-58-47.9; 55.3 N., 160.1 E. near east coast of Kamchatka. Mag. 5¼ (Pal), 5.7 (CGS) h about 54 km. (P-H) = 2,610 km. ca. or 68.5°.       |            |   |   |             |     |     |                  |     |     |
|             | iPZ  | 04-09-48.5 |   |   | 0.5         |     |     | 4.0              |     |     |
|             | eSN  | 18-57.0    |   |   |             |     | 8.0 |                  |     | 3.0 |
| 28          | C & GS 08-22-21.8; 5.8 N., 71.9 W. central Columbia. Mag. 4.8 (CGS) h about 33 km. (P-H) = 4,220 km. ca. or 38°.                                 |            |   |   |             |     |     |                  |     |     |
|             | iPZ  | 08-29-34.2 |   |   | 0.5         |     |     | 1.00             |     |     |
| 31          | C & GS 21-53-46; 11.2 N., 91.2 W. off coast of El Salvador. Mag. 4.0 SD (0.1 (CGS) h about 33 km. (P-H) = 2,780 km. ca. or 25°.                  |            |   |   |             |     |     |                  |     |     |
|             | eZ   | 21-59-08.9 |   |   | 0.7         |     |     | 1.0              |     |     |
| <b>June</b> |  |            |   |   |             |     |     |                  |     |     |
| 1           | eZ   | 00-11-57.1 |   |   | 1.1         |     |     | 1.0              |     |     |
| 4           | iPZ  | 19-32-51.4 |   |   | 0.5         |     |     | 1.5              |     |     |
| 4           | iPZ  | 20-23-47.2 |   |   | 1.2         |     |     | 1.0              |     |     |
| 6           | C & GS 05-18-55.1; 19.9 N., 120.2 E. off north coast of Luzon, Philippine Islands. Mag. 5.3 h about 33 km. (CTS) (P-H) = 12,890 km. ca. or 116°. |            |   |   |             |     |     |                  |     |     |
|             | eP <sub>1</sub> Z  | 05-37-32.3 |   |   | 1.0         |     |     | 1.0              |     |     |
| 6           | C & GS 08-05-36.3; 36.5 N., 104.3 W. northern New Mexico Mag. 3.8 (CGS) h about 33 km. (P-H) = 1,055 km. ca. or 9.5°.                            |            |   |   |             |     |     |                  |     |     |
|             | ePZ  | 08-07-52.9 |   |   | 0.4         |     |     | 0.5              |     |     |
|             | eSZ  | 09-53.1    |   |   | 1.0         |     |     | 2.0              |     |     |

| Date | Phase   | Time GCT |    |      | Period Sec. |   |     | Trace Amp. (mms.) |   |     | 8 |
|------|---|----------|----|------|-------------|---|-----|-------------------|---|-----|---|
|      |   | h        | m  | w    | Z           | E | N   | Z                 | E | N   |   |
| June |   |          |    |      |             |   |     |                   |   |     |   |
| 7    | ePZN  | 19       | 36 | 29.6 | 1.2         |   | 4.0 | 1.0               |   | 2.5 |   |
| 8    | iPZ   | 12       | 52 | 42.8 | 1.0         |   |     | 3.5D              |   |     |   |
| 10   | eZ  | 20       | 47 | 08.3 | 1.0         |   |     | 0.5               |   |     |   |
| 10   | C & GS 06-39-04.0; 55.3 S., 146.1 E. 800 km. west of Macquarie Islands<br>Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pas) $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pal), 6.0 (CGS) (P-H) = 15,110 km. ca. or $136^{\circ}$ . |          |    |      |             |   |     |                   |   |     |   |
|      | eP <sub>1</sub> Z   | 06       | 58 | 21.2 | 1.5         |   |     | 2.5               |   |     |   |
| 10   | C & GS 10-46-58.1; 50.9 N., 160.2 E. off coast of Kamchatka. Mag. 5.3<br>(CGS) h about 33 km. (P-H) = 7,890 km. ca. or $71^{\circ}$ .   |          |    |      |             |   |     |                   |   |     |   |
|      | iPZ   | 10       | 58 | 16.9 | 1.5         |   |     | 4.0D              |   |     |   |
|      | ePPZ  |          |    | 30.4 | 1.0         |   |     | 2.5               |   |     |   |
|      | ePcPZ   |          |    | 39.5 | 1.2         |   |     | 2.5               |   |     |   |
| 11   | C & GS 13-08-31.4; 63.1 N., 151.4 W. central Alaska. h about 31 km.<br>(P-H) = 4,890 km. ca. or $44^{\circ}$ .  |          |    |      |             |   |     |                   |   |     |   |
|      | iPZ   | 13       | 16 | 34.2 | 0.5         |   |     | 3.5               |   |     |   |
|      | iZ  |          | 18 | 20.4 | 0.5         |   |     | 2.0               |   |     |   |
| 11   | C & GS 15-23-42.3; 31.8 N., 116.2 W. Baja, California. Felt: San Diego<br>Escondido, El Centro & Imperial Valley, Mag. 5 (Pas), 5.2 (CGS)<br>h about 33 km. (P-H) = 2,110 km. ca. or $19^{\circ}$ .             |          |    |      |             |   |     |                   |   |     |   |
|      | iPZ   | 15       | 28 | 02.1 | 0.5         |   |     | 1.4               |   |     |   |
|      | eSZ   |          | 33 | 45.6 | 2.0         |   |     | 2.5               |   |     |   |
| 13   | C & GS 16-59-10.9; 33.3 S., 71.3 W. near coast of central Chile.<br>h about 94 km. (P-H) = 7,890 km. ca. or $71^{\circ}$ .  |          |    |      |             |   |     |                   |   |     |   |
|      | ePZ   | 17       | 10 | 26.6 | 1.2         |   |     | 1.0               |   |     |   |
| 14   | C & GS 07-23-16; 16.4 N., 94.6 W. near coast of Chiapas, Mexico.<br>Mag. 4.2 (SD) 0.2 (CGS) h about 33 km. (P-H) = 2,110 km. ca. or $19^{\circ}$ .  |          |    |      |             |   |     |                   |   |     |   |
|      | iPZ   | 07       | 27 | 44.5 | 0.9         |   |     | 1.0D              |   |     |   |
| 14   | C & GS 08-19-16.6; 14.6 N., 93.4 W. near coast of Chiapas, Mexico.<br>Mag. 4.0 SD, 0.2 (CGS) h about 33 km. (P-H) = 2,275 km. ca. or $20.5^{\circ}$ .   |          |    |      |             |   |     |                   |   |     |   |
|      | eZ  | 08       | 24 | 05.3 | 0.7         |   |     | 0.5               |   |     |   |
| 17   | iPZ   | 18       | 39 | 43.8 | 1.0         |   |     | 2.5C              |   |     |   |
|      | eLZ   |          | 51 | 28.6 | 3.0         |   |     | 1.1               |   |     |   |
| 18   | iPZ   | 23       | 21 | 39.9 | 2.0         |   |     | 20.0C             |   |     |   |
| 19   | C & GS 09-09-04.0; 4.7 N., 126.5 E. Talaud Islands region.<br>Mag. $5\frac{1}{4}$ - $5\frac{1}{2}$ (Pal), 6.2 (CGS) h about 83 km. (P-H) = 13,780 km. ca. or $124^{\circ}$ .                                    |          |    |      |             |   |     |                   |   |     |   |
|      | eP <sub>1</sub> Z   | 09       | 28 | 00.7 | 1.0         |   |     | 1.0               |   |     |   |

| Date | Phase   | Time GCT |    |      | Period Sec. |     |     | Trace Amp (mms.) |     |     | 9 |
|------|---|----------|----|------|-------------|-----|-----|------------------|-----|-----|---|
|      |   | h        | m  | s    | Z           | E   | N   | Z                | E   | N   |   |
| June |   |          |    |      |             |     |     |                  |     |     |   |
| 20   | C & GS 00-56-04.1; 36.3 N., 144.5 E. off east coast of Honshu, Japan. Mag. 5.1 SD 0.3 (CGS) h about 33 km. (P-H) = 9,910 km. ca. or 89.5°.  |          |    |      |             |     |     |                  |     |     |   |
|      | iPZ   | 01       | 08 | 59.6 | 1.0         |     |     | 2.5D             |     |     |   |
| 20   | C & GS 03-34-18.2; 12.5 N., 89.2 W. off coast of El Salvador. Mag. 3.9 SD 0.2 (CGS) h about 75 km. (P-H) = 2,665 km. ca. or 24°.  |          |    |      |             |     |     |                  |     |     |   |
|      | eZ  | 03       | 39 | 27.0 | 1.0         |     |     | 0.7              |     |     |   |
| 20   | C & GS 19-47-41.3; 35.8 N., 3.6 W. western Mediterranean. Mag. 3.6 SD 0.2 (CGS) h about 54 km. (P-H) = 7,890 km. ca. or 71°.  |          |    |      |             |     |     |                  |     |     |   |
|      | ePZ   | 19       | 58 | 59.7 | 0.9         |     |     | 1.5              |     |     |   |
| 21   | C & GS 03-32-41.0; 10.6 N., 85.9 W. near west coast of Costa Rica. Mag. 4.6 SD 0.4 (CGS) h about 82 km. (P-H) = 2,890 km. ca. or 26°.   |          |    |      |             |     |     |                  |     |     |   |
|      | iPZ   | 03       | 38 | 11.6 | 0.7         |     |     | 2.2D             |     |     |   |
| 21   | iPZ   | 12       | 43 | 43.6 | 0.7         |     |     | 8.0D             |     |     |   |
| 22   | eZ  | 08       | 17 | 05.5 | 1.0         |     |     | 0.6              |     |     |   |
| 22   | eZ  | 11       | 02 | 07.7 | 0.7         |     |     | 0.5              |     |     |   |
| 24   | C & GS 04-26-37.9; 59.5 N., 151.7 W. Cook Inlet. Mag. 6 3/4 (Pas) 5.7 (CGS) Felt. h about 52 km. (P-H) = 4,895 km. ca. or 43°.  |          |    |      |             |     |     |                  |     |     |   |
|      | iPZ   | 04       | 34 | 35.5 | 1.2         |     |     | 12.5             |     |     |   |
|      | eLZ   | 48       | 00 | 04   | 10.0        |     |     | 5.0              |     |     |   |
| 24   | eZ  | 16       | 26 | 54.3 | 1.0         |     |     | 2.5              |     |     |   |
| 25   | C & GS 14-32-14.3; 8.4 S., 106.5 E. near south coast of Java. Mag. 5.4 (CGS) h about 78 km. (P-H) = 16,220 km. ca. or 146°.   |          |    |      |             |     |     |                  |     |     |   |
|      | iP <sub>1</sub> Z   | 15       | 51 | 49.8 | 1.2         |     |     | 2.5              |     |     |   |
| 25   | C & GS 15-51-49.0; 44.0 N., 110.0 W. Yellowstone National Park, Wyoming. Mag. 3.9 SD 0.4 (CGS) h about 33 km. (P-H) = 1,665 km. ca. or 15°.                                       |          |    |      |             |     |     |                  |     |     |   |
|      | ePZ   | 15       | 55 | 20.8 | 1.0         |     |     | 1.0              |     |     |   |
|      | eSZ   | 59       | 19 | 19.2 | 0.7         |     |     | 1.5              |     |     |   |
| 26   | C & GS 14-22-49; 5.9 N., 72.7 W. Columbia. Mag. 4.6 SD 0.3 (CGS) h about 33 km. (P-H) = 4,000 km. ca. or 36°.   |          |    |      |             |     |     |                  |     |     |   |
|      | iPZ   | 14       | 29 | 48.3 | 0.7         |     |     | 2.2C             |     |     |   |
| 26   | C & GS 17-42-40.6; 7.1 N., 82.3 W. near south coast of Panama. Felt: Mag. 6 1/4 - 6 1/2 (Pas), 5 1/2 - 5 3/4 (Pal), 6.0 SD 0.3 (CGS) h about 20 km. (P-H) = 3,445 km. ca. or 31°. |          |    |      |             |     |     |                  |     |     |   |
|      | iPZEN   | 17       | 48 | 55.7 | 1.0         | 2.0 | 1.5 | 16.0C            | 2.5 | 5.0 |   |
|      | eSEN  | 54       | 00 | 07   | 12.0        | 8.0 |     | 4.0              | 5.0 |     |   |

390

| Date | Phase   | Time GCT |    |      | Period Sec. |      |     | Trace Amp (mms) |      |     | 10 |
|------|---|----------|----|------|-------------|------|-----|-----------------|------|-----|----|
|      |   | h        | m  | s    | Z           | E    | N   | Z               | E    | N   |    |
| June |   |          |    |      |             |      |     |                 |      |     |    |
| 27   | C & GS 07-06-01.7; 60.5 N., 140.7 W. Yukon Territory, Mag. 6.5 SD |          |    |      |             |      |     |                 |      |     |    |
|      | 0.3 (CGS) h about 29 km. ( $\Delta$ -H) = 4,110 km. ca. or 37°.   |          |    |      |             |      |     |                 |      |     |    |
|      | ePZ   | 07       | 15 | 20.4 | 1.0         |      |     | 0.5             |      |     |    |
|      | eEN   |          | 28 | 00.9 |             | 4.0  | 4.0 |                 | 12.0 | 4.0 |    |
|      | eEN   |          | 29 | 07.7 |             | 12.0 | 8.0 |                 | 3.0  | 4.0 |    |

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are  $36^{\circ} 05.46'$  north latitude and  $94^{\circ} 11.47'$  west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas  
Seismograph Station  
Department of Geology  
Fayetteville, Arkansas

FAYETTEVILLE

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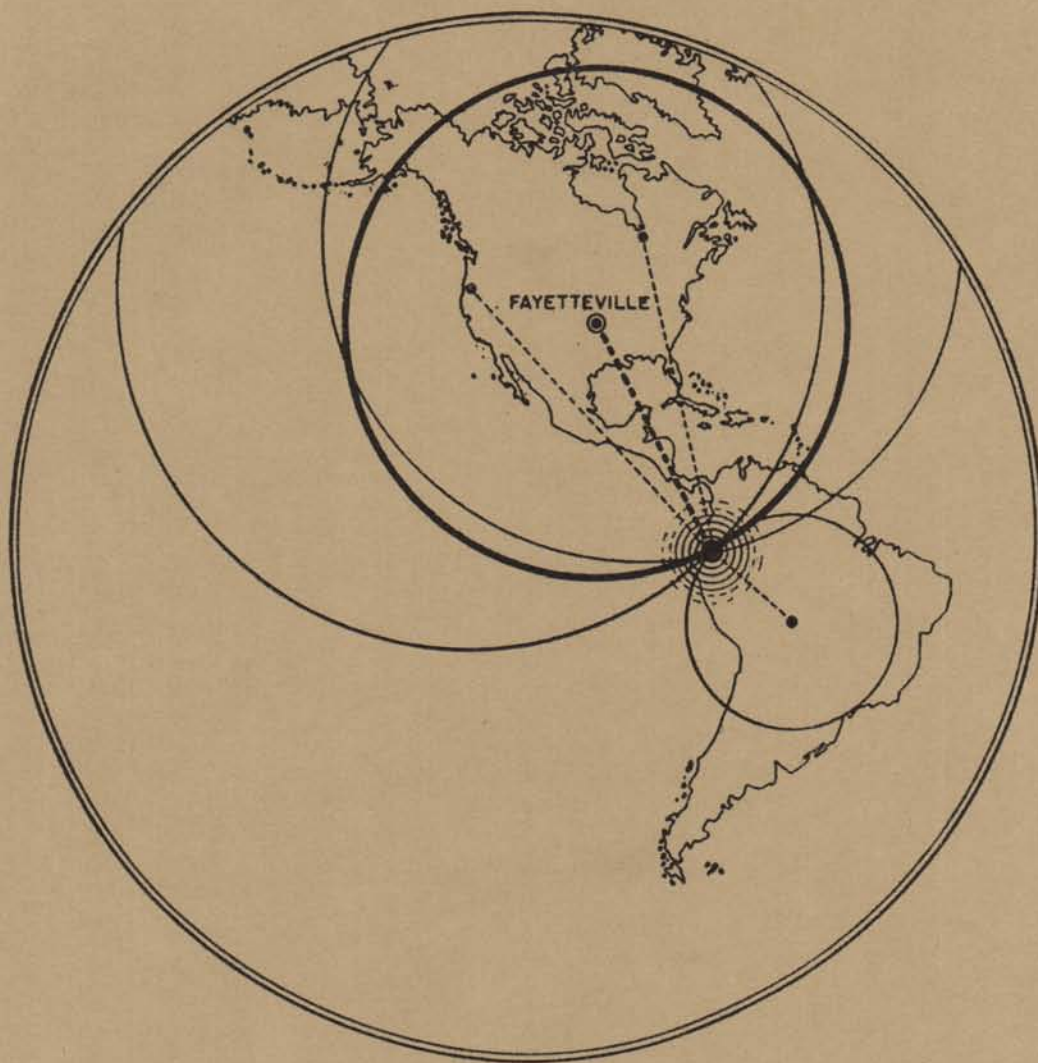
JULY - SEPT. 1963

# UNIVERSITY OF ARKANSAS

# SEISMOLOGICAL BULLETIN

Volume XII

Number 3



## The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

## FAYETTEVILLE SEISMOGRAPH STATION

Volume 12, Number 3, September 1963  
Data for July, August, September, 1963

## Instruments

Vertical component - Benioff moving coil type, short period electromagnetic-galvanometric, Mass = 100 lbs.

Seismometer-Benioff moving coil period = 1.1 second  
Galvanometer-Geotechnical Corp. period = 0.2 second  
Damping ratio - about 15:1 (near critical)  
Recording drum speed = 60 mm. per minute

Horizontal components - Wilson - Wilson-Lamison hinges types: E-W  
N-S electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)  
6.0 seconds (E-W)  
Galvanometer-General Electric period - 4.1 seconds (N-S)  
3.8 seconds (E-W)

Recording drum speed - 30 mm. per minute

Clock - IBM, electrically wound, invar pendulum type.  
Accuracy limits generally within one tenth second.

Radio - WWV Time Signal impressed manually by telegraph key  
on 5th, 10th, and 15th second. Time signals received  
by a Hallicrafter receiver, S-40B

Vertical-Ground motion trace up (compression)  
reading from left to right  
N-S - Ground motion trace up -North  
E-W - Ground motion trace up -East

(Additional information regarding the station is given on the back cover.)

Information in Remarks column is usually from U. S. Coast and Geodetic Survey epicenter cards. "C" following the trace amplitude indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by Gary Gillum, Observer



| Date | Phase  | Time G.C.T. |   |   | Period Sec. |     |      | Trace Amp. (mms.) |     |     | 1 |
|------|--|-------------|---|---|-------------|-----|------|-------------------|-----|-----|---|
|      |  | h           | m | s | Z           | E   | N    | Z                 | E   | N   |   |
| July |  |             |   |   |             |     |      |                   |     |     |   |
| 1    | C & GS 20-19-40.6; 4.7 S., 103.7 E. Off south coast of Sumatra. Mag. 4.13 (CGS) h about 91 km. (P-H) = 15,890 km. ca. or 143°.                               |             |   |   |             |     |      |                   |     |     |   |
|      | iP'Z   | 20-39-07.5  |   |   | 1.1         |     |      | 2.0C              |     |     |   |
| 2    | C & GS 08-02-54.1; 39.8N., 104.7W. Colorado. Felt: Denver and Boulder. Mag. 4.6 (CGS) h about 15 km. (P-H) = 1,055 km. ca. or 9.5°.                          |             |   |   |             |     |      |                   |     |     |   |
|      | iPZEN  | 08-05-07.5  |   |   | 0.2         |     |      | 3.0               |     |     |   |
|      | iSZEN  | 44.9        |   |   | 0.8         | 1.0 | 1.0  | 4.0               | 0.2 | 0.2 |   |
|      | iLZEN  | 17-40.6     |   |   | 1.0         | 1.6 | 1.0  | 20.0              | 3.5 | 9.0 |   |
| 2    | C & GS 09-46-35.8; 7.8 S., 109.0 E. Java. Mag. 5.1 (CGS) h about 117 km. (P-H) = 15,890 km. ca. or 143°.   |             |   |   |             |     |      |                   |     |     |   |
|      | iP'Z   | 10-06-01.3  |   |   | 0.5         |     |      | 5.0C              |     |     |   |
| 4    | C & GS 10-58-13.2; 26.3 S., 177.7 W. Tonga Islands region. Mag. 6 3/4 (PAS), 6 3/4-7 (BKS), 6.5 SD, 0.3 (CGS) h about 158 km. (P-H) = 10,780 km. ca. or 97°. |             |   |   |             |     |      |                   |     |     |   |
| 5    | C & GS 05-48-13.4; 11.6 S., 71.5 W. Peru. Minor damage at Lima. Mag. 5.8 SD, 0.3 (CGS) h about 55 km. (P-H) = 5,555 km. ca. or 50°.                          |             |   |   |             |     |      |                   |     |     |   |
|      | iPZ  | 05-57-04.1  |   |   | 2.0         |     |      | 12.0C             |     |     |   |
|      | iPPZ   | 19.3        |   |   | 1.0         |     |      | 5.0               |     |     |   |
| 7    | C & GS 19-20-42.3; 39.6 N., 111.9 W. Central Utah. Felt: Nephi area. Mag. 4.9 SD, 0.5 (CGS) h about 33 km (P-H) = 1,665 km. ca. or 15°.                      |             |   |   |             |     |      |                   |     |     |   |
|      | iPZ  | 19-24-07.9  |   |   | 1.0         |     |      | 1.5               |     |     |   |
|      | iSZ  | 28-21.9     |   |   | 2.0         |     |      | 3.0               |     |     |   |
| 10   | C & GS 05-22-57.1; 46.3 N., 152.9 E. h about 33 km. Kurile Islands region. Mag. 5.6 SD 0.5 (CGS). (P-H) = 8,110 km. ca. or 73°.                              |             |   |   |             |     |      |                   |     |     |   |
|      | ePZN   | 05-34-26.7  |   |   | 1.2         |     | 1.0  | 5.8               |     | 2.5 |   |
|      | eSN  | 44-41.4     |   |   |             |     | 8.8  |                   |     | 4.1 |   |
|      | eLN  | 06-02-15.4  |   |   |             |     | 14.2 |                   |     | 1.8 |   |
| 11   | ePZ  | 16-57-41.6  |   |   | 0.5         |     |      | 0.8               |     |     |   |
| 12   | C & GS 05-38-11.2; 6.1 S., 106.2 E. Java. Mag. 5.4 (CGS) h about 133 km. (P-H) = 15,220 km. ca. or 137°.   |             |   |   |             |     |      |                   |     |     |   |
|      | iP'Z   | 05-57-29.6  |   |   | 1.0         |     |      | 4.0D              |     |     |   |
| 12   | ePZ  | 14-09-36.0  |   |   | 1.2         |     |      | 1.0               |     |     |   |
| 12   | C & GS 15-28-08.5; 46.8 N., 153-6 E. Kurile Islands region. Mag. 5-5 1/4 (Pal), 4.8 SD, 0.2 (CGS) h about 33 km. (P-H) = 8,555 km. ca. or 77°.               |             |   |   |             |     |      |                   |     |     |   |
|      | ePZ  | 15-39-58.9  |   |   | 1.5         |     |      | 1.7               |     |     |   |
| 20   | ePZ  | 20-47-11.2  |   |   | 0.5         |     |      | 1.2               |     |     |   |

| Date | Phase  | Time GCT |    |      | Period Sec. |      |   | Trace Amp. (mms.) |     |   | 2 |
|------|--|----------|----|------|-------------|------|---|-------------------|-----|---|---|
|      |  | h        | m  | s    | Z           | E    | N | Z                 | E   | N |   |
| July |  |          |    |      |             |      |   |                   |     |   |   |
| 23   | iPZ  | 19       | 52 | 41.8 | 0.5         |      |   | 0.8               |     |   |   |
| 23   | ePZ  | 20       | 39 | 34.5 | 0.5         |      |   | 0.7               |     |   |   |
| 24   | ePZ  | 20       | 20 | 41.0 | 0.6         |      |   | 1.5               |     |   |   |
| 24   | ePZ  | 21       | 14 | 25.8 | 0.5         |      |   | 1.0               |     |   |   |
| 25   | C & GS 07-04-21.9; 6.8 N., 73.0 W. Northern Colombia. Felt: Cucuta, Medellin, Bogota. Mag. 5.2, SD 0.5 H about 152 km. (CGS) (P-H) = 3,780 Km. ca. or 34°.   |          |    |      |             |      |   |                   |     |   |   |
|      | iPZ  | 07       | 11 | 00.8 | 0.8         |      |   | 6.4               |     |   |   |
| 25   | iPZ  | 22       | 07 | 35.7 | 0.4         |      |   | 2.0               |     |   |   |
| 25   | iPZ  | 23       | 19 | 35.4 | 0.9         |      |   | 1.7               |     |   |   |
| 26   | C & GS 04-17-16.7; 42.1 N., 21.5 E. southern Yugoslavia. Estimated 2,000 killed and 3,000-4,000 injured at Dkopje; 80% of buildings destroyed and 5-10% additional buildings damaged. Mag. 5½-5¾ (Brk), 5½ (Pal), 5.4 SD 0.3 (CGS) h about 33 km. (P-H) = 9,220 km. ca. or 83° |          |    |      |             |      |   |                   |     |   |   |
|      | IPZ  | 04       | 29 | 37.5 | 1.2         | 2.0  |   | 5.0               | 2.4 |   |   |
|      | eLN  |          | 58 | 36.9 |             | 12.0 |   |                   | 5.6 |   |   |
| 27   | iPZN   | 23       | 57 | 00.8 | 0.8         | 0.7  |   | 1.2               | 1.6 |   |   |
|      | eSZN   |          |    | 16.7 | 0.6         | 1.0  |   | 1.2               | 2.3 |   |   |
|      | eLN  | 27       | 58 | 21.3 |             | 0.9  |   |                   | 2.1 |   |   |
| 28   | iPZ  | 08       | 14 | 52.9 | 0.7         |      |   | 4.0D              |     |   |   |
| 28   | C & GS 18-51-36.7; 46.6 N., 153.1 E. Kurile Islands region. Mag. 5.0 SD 0.3 (CGS) h about 33 km. (P-H) = 8.335 km. ca. or 75°.   |          |    |      |             |      |   |                   |     |   |   |
|      | iPZ  | 19       | 03 | 29.1 | 0.7         |      |   | 2.5C              |     |   |   |
| 29   | eLZN   | 21       | 24 | 40.7 | 16.0        | 18   |   | 1.0               | 8.0 |   |   |
| Aug. |  |          |    |      |             |      |   |                   |     |   |   |
| 1    | C & GS 04-05-04.3; 14.1 N., 92.3 W. h about 33 km. Guatemala. Mag. 4.0 SD 0.3 (CGS) (P-H) = 2,445 km. ca. or 22°.  |          |    |      |             |      |   |                   |     |   |   |
|      | ePZ  | 04       | 09 | 56.4 | 0.9         |      |   | 0.7               |     |   |   |
| 1    | C & GS 10-45-02.7; 55.3 N., 151.8 E. h about 50 km. near east coast of Kamchatka. Mag. 5.0 SD 0.3 (CGS) (P-H) = 7.445 Km. ca. or 67°.  |          |    |      |             |      |   |                   |     |   |   |
|      | iPZ  | 10       | 55 | 55.5 | 0.5         |      |   | 1.7C              |     |   |   |
| 4    | C & GS 07-08-47.1; 9.4 S., 115.2 E. h about 117 km. South of Java Mag. 5.5 (CGS) (P-H) = 15,220 km. ca. or 137°.   |          |    |      |             |      |   |                   |     |   |   |
|      | eP'Z   | 07       | 28 | 05.1 | 1.0         |      |   | 1.0               |     |   |   |
|      | ePKSZ  |          | 31 | 41.9 | 1.5         |      |   | 1.0               |     |   |   |

| Date      | Phase | Time G. C. T.  |   |   | Period Sec. |      |   | Trace Amp (mms.) |     |   | 3 |
|-----------|-------|--|---|---|-------------|------|---|------------------|-----|---|---|
|           |       | h  | m | s | Z           | E    | N | Z                | E   | N |   |
| Aug.<br>4 |       | C & GS 12-07-24.4; 4.1 S., 80.9 W. h about 34 km. near north coast of Peru. Mag. 4.7 SD 0.2 (CGS) (P-H) = 4,665 km. ca. or 42°.                      |   |   |             |      |   |                  |     |   |   |
|           | iPZ   | 12-15-12.8   |   |   | 0.8         |      |   | 3.5C             |     |   |   |
| 5         | iPZ   | 09-55-37.6   |   |   | 1.0         |      |   | 1.5C             |     |   |   |
|           | iZ    | 49.5   |   |   | 1.0         |      |   | 2.5              |     |   |   |
| 6         |       | C & GS 09-28-30.0; 38.1 S., 72.3 W. h about 96 km. Central Chile. Mag. 4.8 SD 0.2 (CGS) (P-H) = 8,335 km. ca. or 75°.                                |   |   |             |      |   |                  |     |   |   |
|           | ePZ   | 09-40-08.8   |   |   | 1.2         |      |   | 1.0              |     |   |   |
| 6         |       | C & GS 13-36-35.6; 57.0 N., 33.6 W. h about 33 km. North Atlantic Ocean. Mag. 5.1 SD 0.2 (CGS) (P-H) = 5,000 km. ca. or 45°.                         |   |   |             |      |   |                  |     |   |   |
|           | ePZN  | 13-44-45.2   |   |   | 1.5         | 3.0  |   | 1.5              | 1.5 |   |   |
|           | eSN   | 51-12.9  |   |   |             | 2.5  |   |                  | 1.5 |   |   |
|           | eLN   | 59-06.5  |   |   |             | 16.0 |   |                  | 1.5 |   |   |
| 8         |       | C & GS 02-14-54.5; 54.2 N., 168.1 E. h about 38 km. Fox Islands, Aleutian Islands. Mag. 5.5 SD 0.1 (CGS) (P-H) = 5,890 km. ca. or 53°.               |   |   |             |      |   |                  |     |   |   |
|           | iPPZ  | 02-25-35.9   |   |   | 1.1         |      |   | 2.5D             |     |   |   |
| 8         |       | C & GS 10-58-23.1; 35.9 S., 103.6 W. h about 33 km. Easter Island region. Mag. 4.7 (CGS) (P-H) = 8,000 km. ca. or 72°.                               |   |   |             |      |   |                  |     |   |   |
|           | iPZ   | 11-09-44.3   |   |   | 1.0         |      |   | 1.0D             |     |   |   |
| 10        | ePZ   | 08-27-39.0   |   |   | 0.7         |      |   | 0.5              |     |   |   |
| 11        |       | C & GS 07-37-20.4; 38.8 N., 140-9 E. h about 95 km. near east coast of northern Honshu, Japan. Mag. 5.0 SD 0.2 (CGS) (P-H) = 9,945 km. ca. or 89.5°. |   |   |             |      |   |                  |     |   |   |
|           | iPZ   | 07-50-15.6   |   |   | 1.0         |      |   | 0.7C             |     |   |   |
| 12        |       | C & GS 01-05-34.1; 32.5 S., 71.1 W. h about 92 km. Near coast of central Chile. Mag. 4.7 SD 0.2 (CGS) (P-H) = 7,780 km. ca. or 70°.                  |   |   |             |      |   |                  |     |   |   |
|           | iPZ   | 01-16-45.5   |   |   | 1.0         |      |   | 2.0              |     |   |   |
| 13        |       | C & GS 03-26-45.5; 55.0 N., 156.4 W. h about 33 km. Kodiak Island region. Mag. 5.0 SD 0.2 (CGS) (P-H) = 5,110 km. ca. or 46°.                        |   |   |             |      |   |                  |     |   |   |
|           | iPZ   | 03-35-04.7   |   |   | 0.7         |      |   | 2.2D             |     |   |   |
|           | ipPZ  | 11.9   |   |   | 0.7         |      |   | 2.0              |     |   |   |
| 13        |       | C & GS 21-52-37.4; 19.3 S., 173.7 W. h about 33 km. Tonga Island. Mag. 5.1 SD 0.4 (CGS) (P-H) = 10,445 km. ca. or 94°.                               |   |   |             |      |   |                  |     |   |   |
|           | iPZ   | 22-05-54.0   |   |   | 1.0         |      |   | 1.5              |     |   |   |

| Date       | Phase  | Time GCT |    |       | Period Sec. |     |   | Trace Amp. (mm) |   |      |
|------------|--|----------|----|-------|-------------|-----|---|-----------------|---|------|
|            |  | h        | m  | s     | Z           | E   | N | Z               | E | N    |
| Aug.<br>15 | C & GS 06-11-34.6; 37.9 N., 141.6 E. h about 54 km. near east coast of Honshu, Japan. (P-H) = 9.890 km. ca. or 89°.  |          |    |       |             |     |   |                 |   |      |
|            | iPZN   | 06       | 24 | 28.4  | 0.5         | 4.0 |   | 4.0C            |   | 12.0 |
|            | iSN  |          | 34 | 55.4  |             | 4.0 |   |                 |   | 3.0  |
| 15         | C & GS 17-25-05.9; 13.8 S., 69.3 W. h about 543 km. Peru-Bolivia border. Mag. 7 3/4 (PAS), 8 (BKS) (P-H) = 5,380 km. ca. or 48.5°.   |          |    |       |             |     |   |                 |   |      |
|            | iPZN   | 17       | 33 | 44.2  | 1.5         | 1.8 |   | 6.5             |   | 15.0 |
|            | iSZN   |          | 40 | 52.6  | 1.5         | 4.8 |   | 3.3             |   | 26.0 |
| 18         | C & GS 18-43-16.1; 50.3 N., 175.9 W. h about 33 km. Andreanof Islands, Aleutian Is. Mag. 5.5 SD 0.5 (CGS) (P-H) = 6,610 km. ca. or 59.5°.  |          |    |       |             |     |   |                 |   |      |
|            | ePZ  | 18       | 53 | 16.7  | 1.1         |     |   | 1.5D            |   |      |
| 19         | iPZ  | 03       | 52 | 57.0  | 2.0         |     |   | 4.5             |   |      |
| 20         | ePZ  | 21       | 53 | 02.7  | 0.5         |     |   | 6.0             |   |      |
| Sept.<br>4 | C & GS 13-32-12.3; 71.4 N., 7373 W. h about 33 Km. near east coast of Baffin Island. Felt: Clyde River, Mag. 6 1/4 - 6 1/2 (Pas), 6 (Bks), Mag. 5.9 SD 0.4 (CGS) (P-H) = 4,110 km. ca. or 37°. |          |    |       |             |     |   |                 |   |      |
|            | ePN  | 13       | 39 | 21.4  |             | 4   |   |                 |   | 11   |
|            | eN   |          | 40 | 16.0  |             | 5   |   |                 |   | 7    |
|            | eSN  |          | 45 | 03.0  |             | 5   |   |                 |   | 13.5 |
|            | eLN  |          | 49 | 21    |             | 6   |   |                 |   | 30   |
| 6          | eN   | 01       | 05 | 18    |             | 2   |   |                 |   | 3    |
|            | eN   |          | 17 | 59    |             | 7   |   |                 |   | 5    |
| 9          | C & GS 02-45-45.5; 4.4 S., 152.7 E. h about 34 km. New Britain. Felt: Rabaul. Mag. 5.6 SD 0.2 (CGS) (P-H) = 12,610 km. ca. or 112.5°.  |          |    |       |             |     |   |                 |   |      |
|            | eLN  | 03       | 39 | 06.24 |             | 10  |   |                 |   | 3.5  |
| 10         | C & GS 19-40-08; 2819 N., 104.0 W h about 33 km. Chihuahua, Mexico. Mag. 4.2 (CGS) (P-H) = 1,490 km. ca. or 13.5°.   |          |    |       |             |     |   |                 |   |      |
|            | eSN  | 19       | 45 | 42.4  |             | 0.5 |   |                 |   | 2.5  |
|            | eLN  |          | 46 | 51.4  |             | 3.5 |   |                 |   | 2.0  |
| 11         | ePN  | 04       | 17 | 56.6  |             | 2   |   |                 |   | 5    |
|            | eSN  |          | 19 | 39.6  |             | 10  |   |                 |   | 7    |
| 12         | C & GS 06-23-51.7; 44.2 N., 114.8 W. n about 33 km. Central Idaho. Felt. Mag. 4.4 SD 0.3 (CGS) (P-H) = 2,110 km. ca. or 19°.   |          |    |       |             |     |   |                 |   |      |
|            | eSN  | 06       | 33 | 06.2  |             | 4.5 |   |                 |   | 6    |

| Date        | Phase   | Time GCT |    |      | Period Sec. |   |     | Trace Amp. (mms.) |     |     |
|-------------|---|----------|----|------|-------------|---|-----|-------------------|-----|-----|
|             |   | h        | m  | s    | Z           | E | N   | Z                 | E   | N   |
| Sept.<br>13 | C & GS 15-51-56.6; 29.1 N., 105.6 W. h about 33 km. Chichuahua, Mexico. Mag. 4.7 SD 0.4 (CGS) (P-H) = 1,490 km. ca. or 13.5°.   |          |    |      |             |   |     |                   |     |     |
|             | eSN   | 10       | 55 | 44.2 |             |   | 4   |                   |     | 9   |
|             | eLN   |          | 58 | 18.2 |             |   | 5   |                   |     | 44  |
| 13          | eSN   | 17       | 08 | 10.7 |             |   | 2   |                   |     | 6   |
|             | iLN   |          | 09 | 16.7 |             |   | 3   |                   |     | 44  |
| 14          | C & GS 15-58-03.8; 44.2 N., 114.7 W. h about 33 km. Central Idaho. Mag. 4.3 (CGS) (P-H) = 2,110 km. ca. or 19°.   |          |    |      |             |   |     |                   |     |     |
|             | ePZ   | 16       | 02 | 20   | 0,8         |   |     |                   | 0.5 |     |
|             | eSEN  |          | 07 | 20   |             |   | 2.4 |                   |     | 1.8 |
| 14          | C & GS 19-46-15.8; 36.7 N., 121.8 W. h about 15 km. Monterey Country, California. Felt widely landslides north of Salivas. Mag. 5.4 (CGS) (P-H) = 2,220 km. ca. or 20°.           |          |    |      |             |   |     |                   |     |     |
|             | eLEN  | 19       | 57 | 52.8 |             | 5 | 5   |                   | 5   | 12  |
| 18          | eLN   | 17       | 46 | 06.2 |             |   | 18  |                   |     | 6   |
| 23          | C & GS 14-41-51.5; 33.7 N., 117.0 W. h about 14 km Riverside County, California. Felt Pasadena and San Jacinto area. Mag. 4 3/4-5 (Pas), 4.3 (CGS). (P-H) = 2,110 km. ca. or 19°. |          |    |      |             |   |     |                   |     |     |
|             | eLN   | 14       | 51 | 46   |             |   | 3   |                   |     | 10  |
| 24          | iPN   | 15       | 38 | 57   |             |   | 5   |                   |     | 111 |
|             | iSN   |          | 45 | 57   |             |   | 11  |                   |     | 45  |
|             | eLN   |          | 50 | 08   |             |   | 17  |                   |     | 9   |
| 29          | C & GS 22-44-02.9. 14.4 N., 91.9 W. h about 61 km. Guatemala, Mag. 5-5 1/4 (Pal), 5.1 SD 0.4 (CGS) (P-H) = 2,220 km. ca. or 20°.  |          |    |      |             |   |     |                   |     |     |
|             | ePNE  | 22       | 48 | 56.6 |             | 2 | 2   |                   | 4.5 | 8   |
|             | iSNE  | 22       | 52 | 58.5 |             | 5 | 5   |                   | 14  | 6.5 |
| 30          | ePN   | 08       | 24 | 25   |             |   | 2.4 |                   |     | 4.0 |

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are  $36^{\circ} 05.46'$  north latitude and  $94^{\circ} 11.47'$  west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas  
Seismograph Station  
Department of Geology  
Fayetteville, Arkansas

FAYETTEVILLE

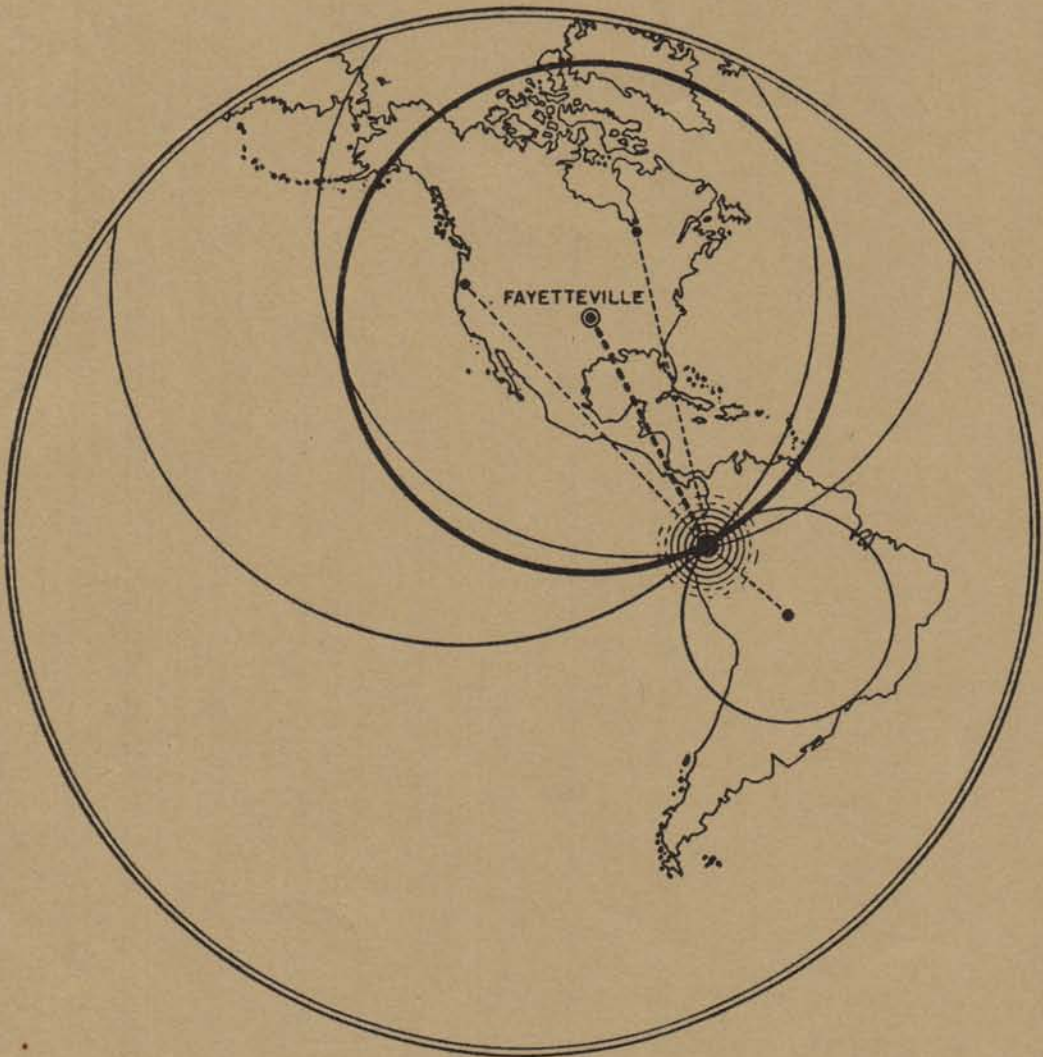
OCT - DEC. 1963.

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# UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume XII

Number 4



## The University Of Arkansas Seismograph Station

Operated by the University's Department of Geology

in conjunction with the

United States Coast and Geodetic Survey

## FAYETTEVILLE SEISMOGRAPH STATION

Volume 12, Number 4, November 1965  
Data for October, November, December 1963

## Instruments

Vertical component - Benioff moving coil type, short period electromagnetic-galvanometric, Mass = 100 lbs.

Seismometer-Benioff moving coil period = 1.1 second  
Galvanometer-Geotechnical Corp. period = 0.2 second  
Damping ratio - about 15:1 (near critical)  
Recording drum speed = 60 mm. per minute

Horizontal components - Wilson - Wilson-Lamison hinges types E-W  
N-S electromagnetic - galvanometric

Seismometer period - 6.0 seconds (N-S)  
6.0 seconds (E-W)  
Galvanometer-General Electric period - 4.1 seconds (N-S)  
3.8 seconds (E-W)

Recording drum speed - 30 mm. per minute

Clock - IBM, electrically wound, invar pendulum type.  
Accuracy limits generally within one tenth second.

Radio - WWV Time Signal impressed manually by telegraph key  
in 5th, 10th, and 15th second. Time signals received  
by a Hallicrafter receiver, S-40B

Vertical-Ground motion trace up (compression)  
reading from left to right  
N-S - Ground motion trace up - North  
E-W - Ground motion trace up - East

(Additional information regarding the station is given on the back cover.)

Information in Remarks column is usually from U. S. Coast and Geodetic Survey epicenter cards. "C" following the trace amplitude indicates a compressional motion of the wave; "D" indicates dilation.

Bulletin compiled by Jerry Gilley, Observer



|      |   | Time G. C. T. |    |       | Period Sec. |       |     | Trace Amp. (mms) |      |     |
|------|---|---------------|----|-------|-------------|-------|-----|------------------|------|-----|
|      |   | h             | m  | s     | Z           | E     | N   | Z                | E    | N   |
| Oct. |   |               |    |       |             |       |     |                  |      |     |
| 4    | C & GS 17-49-11.7; 30.2 N., 114.3 W. h about 14 km. Gulf of California<br>Mag. 4.8 (CGS) (P-H) = 2,110 km. ca. or 19°.  |               |    |       |             |       |     |                  |      |     |
|      | eLEN  | 17            | 58 | 41.0  |             | 5.0   | 2.0 |                  | 3.5  | 2.3 |
| 4    | e   | 21            | 28 | 43.0  |             | 3.5   | 1.8 |                  | 5.0  | 3.8 |
| 6    | C & GS 17-15-33.9; 33.9 S., 70.0 W. h about 101 km. Central Chile.<br>Felt. Mag. 5.1 SD 0.2 (CGS) (P-H) = 7,780 km. ca. or 70°.   |               |    |       |             |       |     |                  |      |     |
|      | iPZ   | 17            | 26 | 53.75 | 1           |       |     |                  | 3.5  |     |
| 7    | C & GS 03-59-54.1; 11.6 N., 86.9 W. h about 50 km. near west coast of<br>Nicaragua. Mag. 4.5 SD 0.4 (CGS) (P-H) = 2,780 km. ca. or 25°.   |               |    |       |             |       |     |                  |      |     |
|      | iPZ   | 04            | 05 | 17.6  | 1           |       |     |                  | 2.8  |     |
| 7    | C & GS 12-43-53.6; 12.9 S., 76.8 W. h about 69 Km. Central Peru.<br>Mag. 5.4 SD 0.3 (P-H) = 5,610 km. ca. or 51.5°.   |               |    |       |             |       |     |                  |      |     |
|      | iPZ   | 12            | 52 | 52.4  | 1.2         |       |     |                  | 3.5  |     |
| 7    | iPZ   | 21            | 58 | 26.9  | .5          |       |     |                  | 2    |     |
|      | eSZ   | 21            | 58 | 41.4  | 1.0         |       |     |                  | 3    |     |
| 8    | C & GS 00-17-01.1; 15.1 S., 173.2 W. h about 33 km. Samoa Islands<br>region. Felt throughout Samoa Islands and Nandi; Lautoka, Fiji Islands<br>Mag. 6 (Pas), 5½- 5 3/4 (Bks), 5.7 SD 0.4 (CGS) (P-H) = 9,780 km. ca.<br>or 88°.   |               |    |       |             |       |     |                  |      |     |
|      | ePZ   | 00            | 29 | 52    | 1.0         |       |     |                  | 5.0  |     |
| 11   | C & GS 10-17-07.6; 17.8 N., 105.9 W. h about 33 km. off coast of<br>Jalisco, Mexico. Mag. 5.0 SD 0.4 (CGS) (P-H) = 2,335 km. ca. or 21°.  |               |    |       |             |       |     |                  |      |     |
|      | ePZN  | 10            | 21 | 49.9  | 1.0         | 1.0   |     | 5.0              | 1.5  |     |
|      | e(S)ZN  | 10-22-17.4    |    |       | 2.4         | 1.5   |     | 5.0              | 3.8  |     |
|      | eLZN  | 10            | 28 | 24.9  | 10.0        | 4.0   |     | 3.0              | 30.0 |     |
| 13   | C & GS 15-17-57.1; 44.8 N., 149.5 E. h about 60 Km. Kurile Islands.<br>Felt: Hokkaido and Konshu, Japan. Light damage to U.S.N. ship General<br>Hugh J. Gaffey positioned at 44°21' N., 152°01' E. Seismic sea waves:<br>4.0 ft. Hokkaido; 2.5 ft. Oahu, Hawaii, 2.2 St. Crescent City,<br>California; 1.5 ft. Attu, Aleutians. Mag. 8¼ (Pas), 7 3/4-8 (Pal)<br>(P-H) = 9,000 km. ca. or 81°. |               |    |       |             |       |     |                  |      |     |
|      | ePZN  | 05            | 30 | 06.08 | 1.0         | 5.0   |     | 13.0             | 20.0 |     |
|      | ePPZN   | 05            | 32 | 11.08 |             |       |     |                  |      |     |
|      | eS(Z)N  | 05            | 36 | 13.08 |             | 12.0  |     |                  | 93.0 |     |
|      | eLZN  | 05            | 59 | 20.58 | 18.0        | 24(?) |     | 29.0             | 150  |     |
| 13   | C & GS 15-59-52.9; 45.6 N., 150.5 E. h about 35 km. Kurile Islands.<br>Mag. 6.1 SD 0.3 (CGS) (P-H) = 8,890 km. ca. or 80°.  |               |    |       |             |       |     |                  |      |     |
|      | iPZ   | 16            | 11 | 59.5  | 1.5         |       |     |                  | 9.0  |     |

| DATE          | PHASE   | Time G. C. T.  |    |      | Period Sec. |   |   | Trace Amp. (mms) |   |   | 2 |
|---------------|---------|--|----|------|-------------|---|---|------------------|---|---|---|
|               |         | h  | m  | s    | Z           | E | N | Z                | E | N |   |
| Oct.<br>13    |         | C & GS 16-45-18.8; 18.4 N., 103.1 W. h about 50 km. near coast of Michoacan, Mexico. Mag. 4.8 SD 0.4 (CGS) (P-H) = 2,000 km. ca. or 19°. |    |      |             |   |   |                  |   |   |   |
|               | e(P)Z   | 16   | 49 | 40.5 | 1.0         |   |   | 2.5              |   |   |   |
| 14            | X / iPZ | 13   | 30 | 50.4 | 1.0         |   |   | 5.0              |   |   |   |
| 16            | X / ePZ | 21   | 42 | 57.5 | 1.0         |   |   | 1.0              |   |   |   |
| 16            | eZ      | 22   | 27 | 55.0 | 1.0         |   |   | 1.5              |   |   |   |
| 18            |         | C & GS 17-55-00.2; 45.6 N., 150.6 E. h about 40 Km. Kurile Islands Mag. 5.2 SD 0.3 (CGS) (P-H) = 8,890 km. ca. or 80°.                   |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 18   | 07 | 05.5 | 1.0         |   |   | 6.5              |   |   |   |
| 18            |         | C & GS 20-05-14.4; 47.6 N., 154.3 E. h about 40 Km. Kurile Islands. Mag. 5.1 SD 0.3 (CGS) (P-H) = 8,945 km. ca. or 80.5°.                |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 20   | 17 | 02.0 | 1.0         |   |   | 3.5              |   |   |   |
| <del>17</del> | X /     | C & GS 21-22-52.7; 45.2 N., 151.1 E. h about 45 km. Kurile Islands. Mag. 5.0 SD 0.3 (CGS) (P-H) = 8,890 km. ca. or 80°.                  |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 21   | 34 | 43.5 | 1.0         |   |   | 1.0              |   |   |   |
| 19            |         | C & GS 01-04-54.1; 15.9 N., 93.9 W. h about 34 km. near coast of Chiapas, Mexico. Mag. 4.3 SD 0.3 (CGS) (P-H) = 2,110 km. ca. or 19°.    |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 01   | 09 | 27.5 | .5          |   |   | 1.5              |   |   |   |
| 19            |         | C & GS 02-14-17.4; 18.3 S., 70.2 W. h about 78 Km. near coast of southern Peru. Mag. 4.5 SD 0.2 (CGS) (P-H) = 6,335 km. ca. or 57°.      |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 02   | 24 | 05.5 | 1.0         |   |   | 1.5              |   |   |   |
| 19            |         | C & GS 03-15-02.5; 46.5 N., 153.9 E. h about 40 KM. Kurile Islands. Mag. 5.1 SD 0.3 (CGS) (P-H) = 8,945 km. ca. or 80.5°.                |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 03   | 26 | 53.5 | 1.0         |   |   | 3.0              |   |   |   |
| 19            | X /     | C & GS 03-34-19.9; 46.6 N., 153.8 E. h about 33 Km. Kurile Islands. Mag. 5½ (Pal), 5.4 SD 0.4 (CGS) (P-H) = 8,945 km. ca. or 80.5°.      |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 03   | 46 | 13.5 | 1.0         |   |   | 6.5              |   |   |   |
| 19            | X /     | C & GS 03-47-07.7; 46.8 N., 153.8 E., h about 25 Km. Kurile Islands. Mag. 5.12 SD 0.2 (CGS) (P-H) = 8,945 km. ca. or 80.5°.              |    |      |             |   |   |                  |   |   |   |
|               | ePZ     | 03   | 58 | 01.5 | 0.8         |   |   | 5.0              |   |   |   |

|      | Time   | G. C. T. |    |      | Period Sec. |     |     | Trace Amp. (mms) |   |      | 3    |
|------|--|----------|----|------|-------------|-----|-----|------------------|---|------|------|
|      |  | h        | m  | s    | Z           | E   | N   | Z                | E | N    |      |
| Oct. |  |          |    |      |             |     |     |                  |   |      |      |
| 20   | C & GS 00-53-07.2; 44.7 N., 159.7 E. h about 25 km. Kurile Islands<br>Seismic Sea. Waves: 2.0 ft. Midway Islands; 1.0 ft. La Jolla,<br>California; 0.5 ft., Oahu, Hawaii. Mag. 6 3/4-7 (Pas), 7 1/4-7 1/2 (Pal)<br>(P-H) = 8,890 km. ca. or 80°. |          |    |      |             |     |     |                  |   |      |      |
|      | ePN  | 01       | 05 | 45.7 |             |     | 3   |                  |   |      | 11.5 |
|      | eSN  | 01       | 15 | 21.7 |             |     | 8.4 |                  |   |      | 38.5 |
|      | eLN  | 01       | 20 | 53.7 |             |     | 23  |                  |   |      | 17   |
| 20   | C & GS 06-10-25.0; 13.9 N., 150.7 E. h about 50 km. Kurile Islands.<br>Mag. 5.2 (CGS) (P-H) = 8,835 km. ca. or 79.5°.  |          |    |      |             |     |     |                  |   |      |      |
|      | ePZ  | 06       | 22 | 34.3 |             | .8  |     |                  |   | 9.5  |      |
| 20   | C & GS 08-26-12.4; 44.3 N., 150.3 E. h about 33 km. Kurile Islands.<br>Mag. 4.9 SD 0.2 (CGS). (P-H) = 8,890 km. ca. or 80°.  |          |    |      |             |     |     |                  |   |      |      |
|      | ePZ  | 08       | 38 | 25.9 |             | .5  |     |                  |   | 1.5  |      |
| 20   | C & GS 09-10-43.9; 44.4 N., 150.0 E. h about 40 km. Kurile Islands.<br>Mag. 5.5 SD 0.3 (CGS) (P-H) = 8,890 km. ca. or 80°.   |          |    |      |             |     |     |                  |   |      |      |
|      | ePZ  | 09       | 22 | 55.3 |             | 1.0 |     |                  |   | 10.0 |      |
| 20   | C & GS 11-52-20.7; 44.7 N., 150.2 E. h about 45 km. Kurile Islands.<br>Mag. 5.1 SD 0.5 (CGS) (P-H) = 8,890 km. ca. or 80°.   |          |    |      |             |     |     |                  |   |      |      |
|      | ePZ  | 12       | 04 | 29.9 |             | 1.0 |     |                  |   | 4.5  |      |
| 20   | C & GS 13-29-26.6; 31.1 N., 115.6 W. h about 14 km. Baja, California.<br>(P-H) = 2,000 km. ca. or 18°.   |          |    |      |             |     |     |                  |   |      |      |
|      | ePPZ   | 13       | 33 | 21.3 |             | 1.0 |     |                  |   | 4.5  |      |
| 20   | C & GS 17-41-27.3; 44.2 N., 149.6 E. h about 45 km. Kurile Islands.<br>Mag. 4.8 SD 0.3 (CGS) (P-H) = 8,890 km. ca. or 80°.   |          |    |      |             |     |     |                  |   |      |      |
|      | ePZ  | 17       | 53 | 40.6 |             | .6  |     |                  |   | 2    |      |
| 21   | C & GS 09-40-14.6; 44.7 N., 150.3 E. h about 55 km. Kurile Islands.<br>Mag. 4.7 SD 0.3 (CGS) (P-H) = 8,890 km. ca. or 80°.   |          |    |      |             |     |     |                  |   |      |      |
|      | ePZ  | 09       | 52 | 22.3 |             | 1.0 |     |                  |   | 3    |      |
| 21   | C & GS 10-07-52.9; 45.5 N., 150.3 E. h about 55 km. Kurile Islands<br>Mag. 4.4 SD 0.4 (CGS) (P-H) = 8,890 km. ca. or 80°.  |          |    |      |             |     |     |                  |   |      |      |
|      | ePZ  | 10       | 19 | 57.0 |             | 1.0 |     |                  |   | 1.5  |      |
| 21   | C & GS 17-37-49.0; 44.7 N., 150.3 E. h about 55 km. Kurile Islands<br>Mag. 4.4 SD 0.4 (CGS) (P-H) = 8,890 km. ca. or 80°.  |          |    |      |             |     |     |                  |   |      |      |
|      | eZ   | 17       | 37 | 49.0 |             | 1.0 |     |                  |   | 2.5  |      |
| 21   | C & GS 23-35-33.0; 44.7 N., 150.3 E. h about 55 km. Kurile Islands<br>Mag. 4.4 SD 0.4 (CGS) (P-H) = 8,890 km. ca. or 80°.  |          |    |      |             |     |     |                  |   |      |      |
|      | eZ   | 23       | 35 | 33.0 |             | 1.5 |     |                  |   | 2.5  |      |

| DATE       | PHASE | Time G. C. T.   |    |      | Period Sec. |   |   | Trace Amp (mms) |   |   | 4 |
|------------|-------|---|----|------|-------------|---|---|-----------------|---|---|---|
|            |       | h   | m  | s    | Z           | E | N | Z               | E | N |   |
| Oct.<br>21 |       | C & GS 23-33-16.1; 44.2 N., 149.0 E. h about 55 km Kurile Islands.<br>Mag. 4.7 SD 0.2 (CGS) (P-H) = 8,890 km. ca. or 80°. |    |      |             |   |   |                 |   |   |   |
|            | ePZ   | 23  | 46 | 27.0 | 1.0         |   |   | 4.2             |   |   |   |
| 21         | eZ    | 23  | 50 | 24.0 | 1.0         |   |   | 2.0             |   |   |   |
| 22         | eZ    | 03  | 34 | 20.0 | 1.0         |   |   | 2.5             |   |   |   |
| 22         | eZ    | 03  | 57 | 48.5 | 1.5         |   |   | 2.5             |   |   |   |
| 22         | eZ    | 04  | 59 | 17.0 | 1.0         |   |   | 1.5             |   |   |   |
| 22         | eZ    | 10  | 50 | 22.0 | 1.5         |   |   | 2.5             |   |   |   |

| DATE | Phase   | Time G. C. T. |    |      | Period Sec. |     |     | Trace Amp (mms.) |       |       | 5 |
|------|---|---------------|----|------|-------------|-----|-----|------------------|-------|-------|---|
|      |   | h             | m  | s    | Z           | E   | N   | Z                | E     | N     |   |
| Nov. |   |               |    |      |             |     |     |                  |       |       |   |
| 2    | C & GS 17-53-27.2; 44.0 N., 150.5 E. h about 50 km Kurile Islands.<br>Mag. 5.0, SD 0.3 (CGS) (P-H) = km ca or 82°.  |               |    |      |             |     |     |                  |       |       |   |
|      | cZ  | 18            | 05 | 38.1 | 1           |     |     | 3.5              |       |       |   |
| 3    | C & GS 03-10-12.7; 3.5 S., 77.8 W. h about 33 km; Peru-Ecuador border<br>Mag. 6 3/4 (Pas.), 6-6 1/4 (Bks), 6.0 (Pal), 6.0 SD, 0.3 (CGS)<br>(P-H) = 4,665 km. ca. or 42°.      |               |    |      |             |     |     |                  |       |       |   |
|      | iPZN  | 03            | 18 | 02.5 | .5          | 1.0 |     | 30.0             | 18.0  |       |   |
|      | eSZN  | 03            | 20 | 37.0 | 1.5         | 2.0 |     | 6.0              | 5.0   |       |   |
|      | e(L)ZN  | 03            | 29 | 28.5 | 3.0         | 5.0 |     | 1.5              | 7.0   |       |   |
| 3    | C & GS 07-38-10.7; 15.6 S., 73.3 W. h about 112 km. Southern Peru.<br>Mag. 4.8 SD 0.2 (CGS) (P-H) = 6000 km. ca. or 54°.  |               |    |      |             |     |     |                  |       |       |   |
|      | iPZ   | 07-47-31.2    |    |      | 1.0         |     |     | 2.5              |       |       |   |
|      | epPZ  | 07-47-58.2    |    |      | 1.0         |     |     | 2.1              |       |       |   |
| 4    | C & GS 01-17-08.9; 6.8 S., 129.6 E. h about 80 Km Banda Sea. Slight damage at Darwin; felt throughout Australia, northern Tasmania and Papua. (P-H) = 14,220 km. ca. or 128°. |               |    |      |             |     |     |                  |       |       |   |
|      | ePZEN   | 01            | 31 | 36.4 | 0.5         | 0.7 |     | 2.0              | 3.0   |       |   |
|      | iPPPZEN   | 01            | 36 | 12.4 | 1.0         | 1.7 | 0.7 | 70.0             | 10.0  | 11.0  |   |
|      | iSZEN   | 01            | 39 | 24.4 | 3.5         | 2.0 | 2.2 | 185.0            | 253.0 | 196.0 |   |
|      | iSSZ  | 01            | 48 | 19.4 | 5.0         |     |     | 20.0             |       |       |   |
|      | eLZEN   | 01            | 49 | 38.9 | 10.0        | 9.0 | 5   | 9.0              | 70.0  | 34.0  |   |
| 4    | C & GS 05-22-59.0; 6.8 S., 129.8 E. h about 80 km. Banda Sea Mag. 5.4 (CGS)<br>(P-H) = 15,110 km. ca. or 136°.  |               |    |      |             |     |     |                  |       |       |   |
|      | iZ  | 05            | 45 | 14.6 | 1.5         |     |     | 4.5              |       |       |   |
| 4    | eZ  | 21            | 07 | 26.4 | .5          |     |     | 2.5              |       |       |   |
| 4    | C & GS 22-17-07.5; 6.8 S., 129.8 E. h about 122 km. Banda Sea. Mag. 5.14 (CGS)<br>(P-H) = 15,335 Km. Ca. or 138°.   |               |    |      |             |     |     |                  |       |       |   |
|      | iZ  | 22            | 39 | 17.8 | .5          |     |     | 9.5              |       |       |   |
| 5    | eZ  | 16            | 35 | 33.0 | 1           |     |     | 2                |       |       |   |
| 5    | eZ  | 22            | 47 | 06.5 | 0.5         |     |     | 1.5              |       |       |   |
| 6    | C & GS 02-55-54.0; 2.6 S., 138.4 E. h about 33 km. Western New Guinea.<br>Mag. 5.7 SD, 0.3 (CGS) (P-H) = 13,555 km. ca. or 122°.  |               |    |      |             |     |     |                  |       |       |   |
|      | cZ  | 02            | 32 | 07   | .5          |     |     | 2                |       |       |   |
| 6    | C & GS 09-01-12.0; 7.1 S., 129.2 E. h about 90 km. Banda Sea. Mag. 5.15 (CGS)<br>(P-H) = 15,445 km. ca. or 139°.  |               |    |      |             |     |     |                  |       |       |   |
|      | eZ  | 09            | 23 | 26   | 1.5         |     |     | 3                |       |       |   |
| 6    | iZ  | 09            | 36 | 41   | 1           |     |     | 11.5             |       |       |   |

| Date   | Phase  | Time G.C.T. |    |      | Period Sec. |      |      | Trace Amp (mms) |    |      | 6 |
|--------|--|-------------|----|------|-------------|------|------|-----------------|----|------|---|
|        |  | h           | m  | s    | Z           | E    | N    | Z               | E  | N    |   |
| Nov. 6 | C & GS 21-49-58.0; 12.2 N., 88.0 W. h about 37 km. off coast of El Salvador. Mag. 4.1 SD; 0.2 (CGS). (P-H) = 2,665 km. ca. or 24°.                       |             |    |      |             |      |      |                 |    |      |   |
|        | iZ   | 21          | 55 | 15.3 |             | .5   |      |                 |    | 4.0  |   |
| 7      | C & GS 09-22-53.3; 44.2 N., 151.1 E. h about 50 km. Kurite Islands. Mag. 4.4 SD; 0.4 (CGS); (P-H) = 8,890 km. ca. or 80°.                                |             |    |      |             |      |      |                 |    |      |   |
|        | eZ   | 09          | 35 | 01.3 | 1.0         |      |      |                 |    | 1.5  |   |
| 7      | iZ   | 13          | 11 | 27.0 | 1.0         |      |      |                 |    | 3.0  |   |
| 7      | iZ   | 18          | 08 | 14.6 |             | .5   |      |                 |    | 3.4  |   |
| 8      | C & GS 08-08-09.2; 45.0 N., 150.9 E. h about 40 Km. Kurile Islands Mag. 4.8 SD, 0.3 (CGS). (P-H) = 5,555 km. ca. or 81.5°.                               |             |    |      |             |      |      |                 |    |      |   |
|        | iZ   | 08          | 20 | 16.4 | 1           |      |      |                 |    | 2.5  |   |
| 9      | iZ   | 01          | 34 | 51.2 | 1           |      |      |                 |    | 2.5  |   |
| 9      | C & GS 02-46-44.5; 56.8 N., 34.6 W. h about 33 km. South of Iceland. Mag. 4.8 (CGS). (P-H) = 5,445 km. ca. or 49°.                                       |             |    |      |             |      |      |                 |    |      |   |
|        | iZ   | 02          | 54 | 51.2 | 1.5         |      |      |                 |    | 2.0  |   |
| 9      | C & GS 08-35-25.3; 45.6 N., 150.0 E. h about 45 Km. Kurile Islands Mag. 4.2 SD, 0.3 (CGS) (P-H) = 8,665 km. ca. or 78°.                                  |             |    |      |             |      |      |                 |    |      |   |
|        | iZ   | 08          | 46 | 47.8 | 7.5         |      |      |                 |    | 19.0 |   |
| 9      | C & GS 21-15-30.4; 9.0 S., 71.5 W. h about 600 km. Western Brazil Mag. 6 3/4-7 (Pas), 6 3/4-7 (Bks), 5.9 SD, 0.4 (CGS) (P-H) = 6,000 km. ca. or 54°.     |             |    |      |             |      |      |                 |    |      |   |
|        | iPZEN  | 21          | 23 | 28.3 | .5          | .5   | .5   | 154             | 64 | 108  |   |
|        | eSZEN  | 21          | 30 | 00.3 | 2.0         | 2.0  | 3.0  | 102             | 96 | 205  |   |
|        | eLZEN  | 21          | 36 | 36.3 | 6.0         | 12.0 | 18.0 | 9.5             | 43 | 44   |   |
| 10     | C & GS 01-00-38.8; 9.2 S., 71.5 W. h about 600 km. western Brazil. Mag. 6 1/2-6 3/4 (Pas.). 6 1/4 (Bks), 5.6 SD, 0.4 (CGS) (P-H) = 6,000 km. ca. or 54°. |             |    |      |             |      |      |                 |    |      |   |
|        | iPZEN  | 01          | 08 | 38.1 | 1.0         | 2.0  | 6.0  | 131             | 11 | 17   |   |
|        | iSZEN  | 01          | 15 | 02.1 | 3.0         | 4.0  | 6.0  | 26.5            | 28 | 146  |   |
| 10     | C & GS 17-17-42.7; 44.4 N., 149.0 E. h about 40 km. Kurile Islands Mag. 5.5 SD 0.4 (CGS). (P-H) = 8,780 km. ca. or 79°.                                  |             |    |      |             |      |      |                 |    |      |   |
|        | e(S)ZEN  | 17          | 39 | 55.5 | 1.5         |      |      |                 |    | 15.0 |   |
| 11     | C & GS 00-15-04.8; 7.0 S., 129.5 E. h about 132 km. Banda Sea. Mag. 5.6 (CGS) (P-H) = 15,335 km. ca. or 139°.  |             |    |      |             |      |      |                 |    |      |   |
|        | eZ   | 00          | 37 | 19.8 | 1           |      |      |                 |    | 12   |   |

|      |  | h  | m       | s    | Z   | E | N   | Z | E   | N    |
|------|--|----|---------|------|-----|---|-----|---|-----|------|
| Nov. |  |    |         |      |     |   |     |   |     |      |
| 11   | C & GS 09-49-43.3; 44.6 N., 148.9 E. h about 55 km. Kurile Islands<br>Mag. 4.7 S <sub>d</sub> 0.3 (CGS) (P-H) = 9,000 km. ca. or 81°.              |    |         |      |     |   |     |   |     |      |
|      | eZ   | 10 | 01      | 55.6 | 1   |   |     |   | 2   |      |
| 11   | C & GS 11-29-06.4; 16.9 S., 174.4 W. h about 185 km. Tonga Islands.<br>Mag. 5.2 SD, 0.3 (CGS) (P-H) = 10,220 km. ca. or 92°.                       |    |         |      |     |   |     |   |     |      |
|      | X ✓ eZ   | 11 | 41      | 56.1 | 1   |   |     |   | 3   |      |
| 12   | C & GS 07-56-53.6; 44.2 N., 149.0 E. h about 45 km. Kurile Islands<br>Mag. 4.8 SD, 0.3 (CGS). (P-H) = 9,000 km. ca. or 81°.                        |    |         |      |     |   |     |   |     |      |
|      | eZ   | 08 | 09      | 07.9 | 1.0 |   |     |   | 2.5 |      |
| 12   | C & GS 08-33-15.9; 44.2 N., 149.2 E. h about 50 km. Kurile Islands<br>Mag. 4.8 SD, 0.3 (CGS) (P-H) = 9,000 km. ca. or 81°.                         |    |         |      |     |   |     |   |     |      |
|      | eZ   | 08 | 45      | 29.9 | 1.0 |   |     |   | 3.0 |      |
| 12   | C & GS 13-00-00.7; 44.2 N., 149.4 E. h about 50 km. Kurile Islands<br>Mag. 4.9 SD 0.2 (CGS). (P-H) = 9,000 km. ca. or 81°.                         |    |         |      |     |   |     |   |     |      |
|      | eZ   | 13 | 12      | 14.7 | 1.5 |   |     |   | 3.0 |      |
| 13   | C & GS 20-03-06.6; 25.3 N., 109.3 W. h about 14 km. Gulf of California<br>Mag. 4.6 SD, 0.3 (CGS) (P-H) = 1,890 km. ca. or 17°.                     |    |         |      |     |   |     |   |     |      |
|      | i(P)Z  | 20 | 08-03.9 |      | 1   |   |     |   | 2   |      |
| 14   | C & GS 09-05-47.8; 15.1 N., 93.9 W. h about 33 km. off coast of Chiapas,<br>Mexico. Mag. 4.9 SD 0.3 (CGS) (P-H) = 2165 km. ca. or 19.5°.           |    |         |      |     |   |     |   |     |      |
|      | iZ   | 09 | 10      | 25.3 | .5  |   |     |   | 2.5 |      |
| 14   | C & GS 17-59-04.9; 15.0 N., 94.2 W. h about 33 km. off coast of Chiapas,<br>Mexico. Mag. 4.9 SD 0.2 (CGS) (P-H) = 2,390 km. ca. or 2.15°.          |    |         |      |     |   |     |   |     |      |
|      | eZ   | 18 | 03      | 48.5 | .5  |   |     |   | 2.0 |      |
| 15   | C & GS 21-06-34.0; 44.3 N., 149.0 E. h about 50 km. Kurile Islands.<br>Mag. 6.0 (Bks), 6¼-6½ (Pal), 6.0 SD 0.4 (CGS) (P-H) = 9,000 km. ca. or 81°. |    |         |      |     |   |     |   |     |      |
|      | X ✓ iPZN   | 21 | 18      | 47.6 | 1   |   | 2.0 |   | 31  | 7.4  |
|      | eSN  | 21 | 40      | 52.6 | ..  |   | 8.0 |   |     | 19.0 |
| 16   | C & GS 02-30-07.0; 44.3 N., 149.0 E. h about 50 Km. Kurile Islands.<br>Mag. 5.0 SD 0.2 (CGS) (P-H) = 9,110 km. ca. or 82°.                         |    |         |      |     |   |     |   |     |      |
|      | X ✓ iZ   | 02 | 42      | 21.7 | 1.5 |   |     |   | 4.0 |      |
| 16   | iZ   | 07 | 13      | 10.8 | 1.0 |   |     |   | 9.0 |      |
| 16   | C & GS 22-43-26.4; 22.3 S., 175.0 W. h about 33 km. Tonga Islands Mag. 6<br>(Pas.) 5¼-5½ (Bks), 5.6 S. 02 (CGS) (P-H) = 10,665 km. ca. or 96°.     |    |         |      |     |   |     |   |     |      |
|      | X ✓ iZ   | 22 | 56      | 51   | .7  |   |     |   | 3.0 |      |

|      |   | Time G.C. T. |    |      | Period Sec. |     |     | Trace Amp. (mms.) |     |      |
|------|---|--------------|----|------|-------------|-----|-----|-------------------|-----|------|
|      |   | h            | m  | s    | Z           | E   | N   | Z                 | E   | N    |
| Nov. |   |              |    |      |             |     |     |                   |     |      |
| 17   | C & GS 00-48-02.6; 7.4 N., 37.4 W. h about 33 km. north Atlantic Ocean. Mag. $6\frac{1}{4}$ - $6\frac{1}{2}$ (Pas) $5\frac{1}{2}$ - $5\frac{3}{4}$ (Bks), $6$ - $6\frac{1}{2}$ (Pal) 5.9 SD 0.4 (CGS) (P-H) = 6,555 km. ca. or $59^\circ$ . |              |    |      |             |     |     |                   |     |      |
| X /  | i(P)Z   | 00           | 58 | 00   | 1.0         |     |     | 13.0              |     |      |
| 18   | C & GS 16-02-19.9; 29.7 N., 113.8 W. h about 14 km. Gulf of California Mag. 4.7 SD 0.3 (CGS) (P-H) = 2,110 km. ca. or $19^\circ$ .  |              |    |      |             |     |     |                   |     |      |
|      | PZEN  | 16           | 06 | 27.0 | 1.5         | 2   | 2   | 11.5              | 7.5 | 2    |
| 18   | e(P)ZWN   | 19           | 43 | 00   | 1           | 3   | 3   | 2                 | 2.5 | 8    |
| 18   | ePZEN   | 22           | 10 | 16   | 2           | 3   | 3.6 | 3.5               | 22  | 21   |
| 19   | C & GS 01-11-93.2; 31.0 N., 113.7 W. h about 14 km. Gulf of California Mag. 4.9 SD 0.3 (CGS) (P-H) = 1,207 km. ca. or $17.5^\circ$ .  |              |    |      |             |     |     |                   |     |      |
|      | e(P)Z   | 01           | 15 | 42.9 | 3           |     |     | 4                 |     |      |
|      | e(S)EN  | 01           | 20 | 59.9 |             | 4   | 4   |                   | 7   | 11   |
| 19   | C & GS 08-23-11.6; 30.9 N., 13.8 W. h about 14 km. Gulf of California Mag. $5\frac{1}{4}$ (Pas) Mag. 5.0 (CGS) (P-H) = 1,207 km. ca. or $17.5^\circ$ .  |              |    |      |             |     |     |                   |     |      |
|      | ePZ   | 08           | 27 | 11.9 | 1           |     |     | 1.5               |     |      |
|      | eSZEN   | 08           | 32 | 12.3 | 2.6         | 4   | 4   | 5.5               | 53  | 49   |
| 19   | C & GS 11-00-54.3; 44.4 N., 149.2 E. h about 33 km. Kurile Islands. Mag. 5.8 SD 0.3 (CGS) (P-H) = 9,055 km. ca. or $81.5^\circ$ .   |              |    |      |             |     |     |                   |     |      |
| X /  | iPZ   | 11           | 15 | 09.3 | 1.0         |     |     | 20.5              |     |      |
| 19   | C & GS 17-49-52.5; 53.1 N., 159.6 E. h about 40 km. off east coast of Kamchatka. Mag. 4.9 SD 0.3 (CGS) (P-H) = 7,780 km. ca. or $70^\circ$ .  |              |    |      |             |     |     |                   |     |      |
|      | iZ  | 17           | 49 | 52.5 | 1           |     |     | 4                 |     |      |
| 19   | C & GS 18-17-02.2; 5.0 S., 102.2 E. h about 37 km. off coast of Sumatra. Mag. 5.4 SD 6.4 (CGS) (P-H) = 16,665 km. ca. or $150^\circ$ .  |              |    |      |             |     |     |                   |     |      |
| X /  | iP'Z  | 18           | 36 | 38.5 | 1           |     |     | 5                 |     |      |
| 19   | eZ  | 20           | 13 | 42.5 | 1.5         |     |     | 1.5               |     |      |
| 21   | C & GS 23-23-11.8; 11.1 S., 164.3 E. h about 149 km. Santa Cruz Islands Mag. 4.7 (CGS) (P-H) = 12,000 km. ca. or $108^\circ$ .  |              |    |      |             |     |     |                   |     |      |
|      | iPZ   | 20           | 58 | 03.0 | 1.0         |     |     | 7.0               |     |      |
| 22   | X / iPZ   | 00           | 37 | 32.9 | 1.0         |     |     | 4.5               |     |      |
| 22   | iPZ   | 11           | 18 | 10.3 | 1.0         |     |     | 9.5               |     |      |
|      | i(L)NE  | 11           | 28 | 10.3 |             | 4.0 | 4.0 |                   | 2.0 | 15.0 |



| DATE | GRADE | Time G. C. T.   |       |      | Period Sec. |     |     | Trace Amp. (mms) |      |   |
|------|-------|---|-------|------|-------------|-----|-----|------------------|------|---|
|      |       | h   | m     | s    | Z           | E   | N   | Z                | E    | N |
| Nov. |       |   |       |      |             |     |     |                  |      |   |
| 22   |       | C & GS 14-45-51.7; 44.4 N., 149.0 E. h about 33 km Kurile Islands<br>Mag. 5.6 SD 0.4 (CGS) (P-H) = 9,000 km. ca. or 81°.                        |       |      |             |     |     |                  |      |   |
|      | X ✓   | i(P)ZN  | 14    | 58   | 07.0        | 1.0 | 2.0 | 11.0             | 1.5  |   |
| 23   |       | C & GS 07-50-46.3; 30.1 N., 114.0 W. h about 14 km. Gulf of California<br>Mag. 6 (Pas.), 6 (Bks) 5.1 SD 0.4 (CGS) (P-H) = 1,175 km. ca. or 17°. |       |      |             |     |     |                  |      |   |
|      | X ✓   | iPZN  | 07    | 54   | 51.6        | 1   | 1   | 34               | 9.5  |   |
|      |       | iSZN  | 08    | 00   | 16.1        | 3.5 | 3   | 21               | 122  |   |
|      |       | e(L)ZN  | 08    | 03   | 16.1        | 6.5 | ?   | 15.5             | 98   |   |
| 23   |       | C & GS 08-17-16.6; 30.0 N., 113.9 W. h about 14 km. Gulf of California<br>Mag. 4.6 (CGS) (P-H) = 2,000 km. ca. or 18°.                          |       |      |             |     |     |                  |      |   |
|      |       | iPZ   | 08    | 21   | 24.6        | 1.5 |     | 1.5              |      |   |
| 23   |       | C & GS 08-32-31; 29.9 N., 114.0 W. h about 14 km. Gulf of California<br>Mag. 5.3 SD 0.4 (CGS) (P-H) = 2.055 km. ca. or 18.5°.                   |       |      |             |     |     |                  |      |   |
|      |       | iPZN  | 08    | 36   | 41.1        | 2   | 3   | 8                | 5    |   |
|      |       | iSZN  | 08    | 42   | 04.1        | 3.5 | 4   | 13.5             | 84   |   |
|      |       | e(L)ZN  | 08    | 45   | 06.6        | 7.5 | 9   | 6.5              | 44.5 |   |
| 24   |       | C & GS 17-56-02.2; 44.3 N., 149.3 E. h about 50 km. Kurile Islands.<br>Mag. 4.6 SD 0.3 (CGS) (P-H) = 8,940 km. ca. or 80.5°.                    |       |      |             |     |     |                  |      |   |
|      |       | eZ  | 18    | 08   | 13.8        | 1.0 |     | 2.0              |      |   |
| 24   |       | C & GS 18-09-08.7; 46.4 N., 150.0 E. h about 40 km. Kurile Islands<br>Mag. 4.9 SD 0.4 (CGS) (P-H) = 8,665 km. ca. or 78°.                       |       |      |             |     |     |                  |      |   |
|      |       | eZ  | 18    | 20   | 49.8        | 1.0 |     | 2.0              |      |   |
| 24   |       | eZ  | 23    | 27   | 03.8        | 0.5 |     | 1.5              |      |   |
| 25   |       | eZ  | 05    | 19   | 42.7        | 1.0 |     | 1.5              |      |   |
| 25   |       | eZ  | 05    | 49   | 29.7        | 0.5 |     | 1.0              |      |   |
| 25   |       | C & GS 06-43-23.5; 45.4 N., 151.4 E. h about 50 km. Kurile Islands<br>Mag. 4.8 SD 0.3 (CGS) (P-H) = 8,780 km. ca. or 79°.                       |       |      |             |     |     |                  |      |   |
|      |       | eZ  | 06    | 55   | 29.7        | 1.0 |     | 1.5              |      |   |
| 25   |       | C & GS 10-02-23.8; 44.3 N., 149.5 E h about 55 km. Kurile Islands<br>Mag. 4.9 SD 0.4 (CGS) (P-H) = 8,780 km. ca. or 79°.                        |       |      |             |     |     |                  |      |   |
|      | X ✓   | eZ  | 10-14 | 34.7 |             | 1.0 |     | 3.0              |      |   |
| 25   |       | C & GS 10-11-04.8; 44.1 N., 149.9 E. h about 45 km. Kurile Islands<br>Mag. 4.8 SD 0.4 (CGS) (P-H) = 9,000 km. ca. or 79°.                       |       |      |             |     |     |                  |      |   |
|      |       | eZ  | 10    | 23   | 17.1        | 1.0 |     | 2.5              |      |   |
| 25   |       | eZ  | 13    | 56   | 44.6        | 0.5 |     | 2.0              |      |   |

| DATE       | PHASE  | Time G. C. T. |    |      | Period Sec. |     |   | Trace Amp (mms) 10 |   |     |
|------------|--|---------------|----|------|-------------|-----|---|--------------------|---|-----|
|            |  | h             | m  | s    | Z           | E   | N | Z                  | E | N   |
| Nov.<br>26 | eZ   | 05            | 04 | 59.5 | .5          |     |   | 2.5                |   |     |
| 26         | C & GS 06-52-08.9; 3.8 S., 129.6 E. h about 33 km. Banda Sea. Mag. 5.1 (CGS) (P-H) = 15,335 Km. ca. or 138°.                           |               |    |      |             |     |   |                    |   |     |
|            | eZ   | 07            | 14 | 20.0 | 1.3         |     |   | 12.5               |   |     |
| Dec        |  |               |    |      |             |     |   |                    |   |     |
| 1          | C & GS 04-26-12.8; 56.1 N., 111.8 E. h about 33 km. Lake Baikal region. Mag. 5.3 SD 0.4 (CGS) (P-H) = 9,555 km. ca. or 86°.            |               |    |      |             |     |   |                    |   |     |
| X ✓        | eZ   | 04            | 38 | 47.5 | 1.0         |     |   | 2.0                |   |     |
| 2          | eZ   | 21            | 20 | 28.8 | 1.0         |     |   | 4.0                |   |     |
| 3          | eZ   | 00            | 02 | 18.0 | 1           |     |   | 4.5                |   |     |
| 3          | eZ   | 04            | 37 | 28.6 | 1           |     |   | 7.5                |   |     |
| 3          | C & GS 05-09-22.0; 46.2 N., 153.0 E. h about 40 km. Kurile Islands Mag. 5.1 SD 0.2 (CGS) (P-H) = 8,665 km. ca. or 78°.                 |               |    |      |             |     |   |                    |   |     |
| X ✓        | eZ   | 05            | 21 | 18.5 | 1.5         |     |   | 4.5                |   |     |
| 3          | C & GS 23-03-41.6; 22.4 S., 69.3 W. h about 18 km Northern Chile. Mag. 6¼ (Pas), 6.1 SD 0.3 (CGS) (P-H) = 7000 km. ca. or 63°.         |               |    |      |             |     |   |                    |   |     |
| X ✓        | iPZN   | 23            | 14 | 07.0 | 1.5         | 2.0 |   | 21.0               |   | 7.5 |
| 4          | C & GS 01-27-34.1; 46.2 N., 153.1 E. h about 20 km. Kurile Islands Mag. 5.2 SD 0.4 (CGS) (P-H) = 8,665 km. ca. or 78°.                 |               |    |      |             |     |   |                    |   |     |
| X ✓        | eZ   | 01            | 39 | 32.5 | 1.5         |     |   | 5.5                |   |     |
| 4          | C & GS 02-43-30.4; 45.9 N., 153.2 E. h about 50 km. Kurile Islands Mag. 4.8 SD 0.3 (CGS) (P-H) = 8,665 km. ca. or 78°.                 |               |    |      |             |     |   |                    |   |     |
|            | eZ   | 02            | 55 | 26.6 | 1.0         |     |   | 2.5                |   |     |
| 4          | C & GS 02-13-07.1; 8.3 S., 83.1 W. h about 33 km off coast of Peru Mag. 4.6 SD 0.4 (CGS) (P-H) = 5,000 km. ca. or 45°.                 |               |    |      |             |     |   |                    |   |     |
|            | eZ   | 03            | 21 | 20.6 | 0.5         |     |   | 1.0                |   |     |
| 4          | C & GS 04-18-46.3; 19.5 N., 108.3 W. h about 33 km. Revilla Gigedo Islands Region. Mag. 4.8 SD 0.2 (CGS) (P-H) = 3,000 km. ca. or 27°. |               |    |      |             |     |   |                    |   |     |
|            | eZ   | 04            | 24 | 24.1 | 1.5         |     |   | 2.0                |   |     |
| 4          | C & GS 08-24-17.1; 46.1 N., 152.9 E. h about 33 km. Kurile Islands region Mag. 5.3 SD 0.4 (CGS) (P-H) = 8,665 km. ca. or 78°.          |               |    |      |             |     |   |                    |   |     |
| X ✓        | eZ   | 08            | 36 | 14.7 | 1.0         |     |   | 3.5                |   |     |

|      | Time   | G. C. T. |      |        | Period Sec. |   |   | Trace Amp. (mms) |   |   | 11 |
|------|--|----------|------|--------|-------------|---|---|------------------|---|---|----|
|      |  | h        | m    | s      | Z           | E | N | Z                | E | N |    |
| Dec. |  |          |      |        |             |   |   |                  |   |   |    |
| 4    | C & GS 15-44-59.9; 46.0 N., 153.2 E. h about 40 km. Kurile Islands region. Mag. 4.9 SD 0.4 (CGS) (P-H) = 8,720 km. ca. or 78.5°.     |          |      |        |             |   |   |                  |   |   |    |
|      | eZ   | 15       | 56   | 59.4   | 1.0         |   |   | 2.5              |   |   |    |
| 4    | C & GS 15-59-42.1; 35.5 S., 102.8 W. h about 33 km Easter Island region Mag. 6 (Pal), 4.6 SD 0.4 (CGS) (P-H) = 8,000 km. ca. or 72°. |          |      |        |             |   |   |                  |   |   |    |
|      | X ✓ eZ   | 16       | ✓ 11 | 60.9   | 1.0         |   |   | 6.0              |   |   |    |
| 5    | C & GS 04-23-22.2; 35.7 S., 103.1 W. h about 33 km. Eastern Island Region Mag. 4.8 SD 0.4 (CGS) (P-H) = 7,780 km. ca. or 70°.        |          |      |        |             |   |   |                  |   |   |    |
|      | eZ   | 04       | 34   | 43.6   | 1.0         |   |   | 2.0              |   |   |    |
| 5    | C & GS 06-51-02.5; 37.2 N., 87.0 W. h about 33 km. western Kentucky (P-H) = 1,110 km. ca. or 10°.                                    |          |      |        |             |   |   |                  |   |   |    |
|      | eZ   | 06       | 53   | 36.2   | .5          |   |   | 2.5              |   |   |    |
| 5    | C & GS 11-29-44.4; 7.4 N., 77.3 E. h about 33 km Columbia Mag. 4.7 (CGS) (P-H) = 3,665 km. ca. or 33°                                |          |      |        |             |   |   |                  |   |   |    |
|      | X ✓ eZ   | 11       | 36   | ✓ 18.8 | 1.0         |   |   | 2.5              |   |   |    |
| 7    | eZ   | 08       | 38   | 52.7   | 1.0         |   |   | 1.5              |   |   |    |
| 8    | C & GS 07-53-15.1; 46.4 N., 153.0 E. h about 20 km Kurile Islands Mag. 5.2 SD 0.4 (CGS) (P-H) = 8,665 km. ca. or 78°                 |          |      |        |             |   |   |                  |   |   |    |
|      | X ✓ eZ   | 08       | 05   | ✓ 13.2 | 1.5         |   |   | 3.5              |   |   |    |
| 10   | C & GS 03-31-21.1; 6.2 S., 128.1 E. h about 366 km. Banda Sea felt. Darwin Mag. 5.6 (CGS) (P-H) = 14,780 km. ca. or 133°.            |          |      |        |             |   |   |                  |   |   |    |
|      | X ✓ eZ   | 03       | 52   | ✓ 43.6 | 1           |   |   | 8                |   |   |    |
| 14   | C & GS 00-05-39.8; 2.3 S., 61.2 W. h about 36 km. northern Brazil Mag. 4.8 SD 0.3 (CGS) (P-H) = 5,445 km. ca. or 49°.                |          |      |        |             |   |   |                  |   |   |    |
|      | X ✓ eZ   | 00       | 14   | ✓ 23.0 | 1.5         |   |   | 3.0              |   |   |    |
| 14   | C & GS 07-51-07.9; 62.7 N., 149.5 W. h about 95 km. central Alaska Mag. 5.1 SD 0.3 (CGS) (P-H) = 4,445 km. ca. or 40°.               |          |      |        |             |   |   |                  |   |   |    |
|      | X ✓ eZ   | 07       | 58   | ✓ 56.3 | 1.0         |   |   | 3.5              |   |   |    |
| 14   | eZ   | 12       | 42   | 38.7   | 0.5         |   |   | 1.0              |   |   |    |
| 15   | eZ   | 05       | 16   | 55.5   | 0.5         |   |   | 1.5              |   |   |    |
| 15   | C & GS 16-54-23.6; 16.3 N., 97.7 W. h about 35 km. Oaxaca, Mexico Mag. 4.2 (CGS) (P-H) = 2,220 km. ca. or 20°.                       |          |      |        |             |   |   |                  |   |   |    |
|      | eZ   | 16       | 58   | 54.5   | 1.5         |   |   | 2.0              |   |   |    |

| DATE       | GRADE  | Time G. C. T. |    |      | Period Sec. |      |      | Trace Amp. (mms) |   |   | 12 |
|------------|--|---------------|----|------|-------------|------|------|------------------|---|---|----|
|            |  | H             | m  | s    | Z           | E    | N    | Z                | E | N |    |
| Dec.<br>15 | C & GS 19-34-45.5; 4.8 S., 108.0 E. h about 650 km Java Sea. Felt: Djakarta Mag. 6.4 (CGS) (P-H) = 15,890 km. ca. or 143°.                                     |               |    |      |             |      |      |                  |   |   |    |
| X ✓        | iPZN   | 19            | 53 | 05.5 | 1.0         | 3.0  | 38.0 | 11.5             |   |   |    |
|            | eSZN   | 19            | 57 | 35.5 | 1.5         | 6.0  | 15.0 | 8.0              |   |   |    |
| 16         | eZ   | 04            | 36 | 16.8 | 1.0         |      | 5.0  |                  |   |   |    |
| 16         | C & GS 06-23-20.4; 12.2 N., 88.4 W. h about 34 km. off coast of El Salvador. Felt: El Salvador Mag. 4.3 SD 0.4 (CGS) (P-H) = 2,665 km. ca. or 24°.             |               |    |      |             |      |      |                  |   |   |    |
|            | eZ   | 06            | 28 | 36.8 | 0.5         |      | 3.0  |                  |   |   |    |
| 16         | C & GS 13-47-56.4; 37.1 N., 20.9 E. h about 15 km. Ionian Sea. Mag. 5.6 SD 0.1 (CGS) (P-H) = 9,555 km. ca. or 86°.   |               |    |      |             |      |      |                  |   |   |    |
| X ✓        | iPZ  | 14            | 00 | 35.4 | 1.0         |      | 10.0 |                  |   |   |    |
|            | eZ   | 14            | 37 | 46.4 | 1.0         |      | 8.5  |                  |   |   |    |
| 16         | eZ   | 16            | 26 | 09.9 | 1.0         |      | 14.0 |                  |   |   |    |
| 18         | C & GS 00-30-02.6; 24.8 S., 176.6 W. h about 46 km. Tonga Islands. Felt: Tonga, Fiji and Kermadec Islands. Mag. 6.5 SD 0.3 (CGS) (P-H) = 10,890 km. ca. or 98° |               |    |      |             |      |      |                  |   |   |    |
| X ✓        | ePZN   | 00            | 43 | 37.0 | 1.0         | 8.0  | 13.0 | 19.8             |   |   |    |
|            | ePPZN  | 00            | 47 | 38.0 | 2.0         | 10.0 | 14.8 | 24.0             |   |   |    |
| 19         | C & GS 17-04-07.8; 9.7 S., 79.1 W. h about 56 km. Near coast of Central Peru Mag. 5.1 (CGS) (P-H) = 5,335 km. ca. or 48°.                                      |               |    |      |             |      |      |                  |   |   |    |
| X ✓        | i(P)Z  | 17            | 12 | 40.1 | 1.5         |      | 26.5 |                  |   |   |    |
| 19         | C & GS 02-33-50.1; 35.2 S., 58.0 W. h about 32 km. Mendoza Province Argentina Mag. 5.3 (CGS) (P-H) = 8,220 km. ca. or 74°.                                     |               |    |      |             |      |      |                  |   |   |    |
|            | eZ   | 20            | 45 | 23.0 | 1.0         |      | 8.5  |                  |   |   |    |
| 20         | eZ   | 09            | 16 | 18.8 | 0.5         |      | 3.0  |                  |   |   |    |
| 20         | C & GS 10-48-04.2; 5.2 S., 80.8 W. h about 55 km. near coast of northern Peru. Mag. 5.2 SD 0.3 (CGS) (P-H) = 4,780 km. ca. or 43°.                             |               |    |      |             |      |      |                  |   |   |    |
|            | i(P)Z  | 10            | 56 | 00.3 | 1.0         |      | 10.0 |                  |   |   |    |
| 20         | C & GS 13-00-50.7; 44.9 H. 111.7 N. h about 33 km. Hebyed Lake Montane area. Mag. 4.3 SD 0.3 (CGS) (P-H) = 1,780 km. ca. or 16°.                               |               |    |      |             |      |      |                  |   |   |    |
|            | eZ   | 13            | 04 | 39.7 | 1.0         |      | 2.5  |                  |   |   |    |
| 20         | eZ   | 17            | 06 | 03.1 | 1.0         |      | 2.5  |                  |   |   |    |

| Date | Time  | Time G. C. T. |    |      | Period Sec. |     |   | Trace Amp. (mms.) |   |     | 13 |
|------|---|---------------|----|------|-------------|-----|---|-------------------|---|-----|----|
|      |   | h             | m  | s    | Z           | E   | N | Z                 | E | N   |    |
| Dec. |   |               |    |      |             |     |   |                   |   |     |    |
| 21   | C & GS 12-34-22.7; 21.2 S., 175.8 W. h about 90 km. Tonga Islands. Mag. 5.1 SD 0.2 (CGS) (P-H) = 10,335 km. ca. or 93°.                                   |               |    |      |             |     |   |                   |   |     |    |
| X ✓  | eZ  | 12            | 47 | 36.0 | 1.0         |     |   | 2.5               |   |     |    |
| 21   | X ✓   | eZ            | 13 | 27   | 55.0        | 0.7 |   | 2.0               |   |     |    |
| 21   |   | eZ            | 17 | 29   | 05.0        | 1.0 |   | 2.0               |   |     |    |
| 22   | C & GS 01-20-11.0; 14.3 N., 93.0 W. h about 33 km. off coast of Chiapas, Mexico. Mag. 4.4 SD 0.2 (CGS) (P-H) = 2,445 km. ca. or 22°.                      |               |    |      |             |     |   |                   |   |     |    |
|      | e(P)Z   | 01            | 24 | 54.0 | 1.0         |     |   | 4.5               |   |     |    |
|      | e(S)Z   | 01            | 28 | 47.0 | 0.5         |     |   | 1.0               |   |     |    |
| 22   | C & GS 23-13-55.2; 6.9 N., 73.0 W. h about 153 km. Columbia. Felt: Bogata, Monizales and Bucaramanga. Mag. 5.2 SD 0.4 (CGS) (P-H) = 3,665 km. ca. or 33°. |               |    |      |             |     |   |                   |   |     |    |
| X ✓  | iPZ   | 23            | 20 | 33.0 | 0.5         |     |   | 21.0              |   |     |    |
| 26   | C & GS 07-58-22.4; 76.5 N., 22.4 E. h about 33 km. Svalbard region Mag. 5.1 (CGS) (P-H) = 6,665 km. ca or 60°.  |               |    |      |             |     |   |                   |   |     |    |
| X ✓  | eZ  | 08            | 08 | 27.0 | 1.0         |     |   | 2.5               |   |     |    |
| 26   |   | eZ            | 20 | 12   | 39.5        | 0.5 |   | 2.7               |   |     |    |
| 26   |   | eZ            | 21 | 54   | 12.2        | 1.0 |   | 5.5               |   |     |    |
| 28   | C & GS 06-57-09.9; 14.4 N., 92.3 W. h about 33 km. near coast of Guatemala Mag. 4.5 SD 0.2 (CGS) (P-H) = 2,445 km. ca. or 22°.                            |               |    |      |             |     |   |                   |   |     |    |
|      | eZ  | 07            | 01 | 59.5 | 0.5         |     |   | 1.0               |   |     |    |
| 28   |   | eZ            | 16 | 53   | 18.4        | 1.0 |   | 3.0               |   |     |    |
| 29   | C & GS 18.8 N., 106.2 W. h about 33 km. off coast of Jalisco, Mexico. Mag. 4.1 SD 0.4 (CGS)   |               |    |      |             |     |   |                   |   |     |    |
|      | eZ  | 03            | 46 | 02.7 | 1.0         |     |   | 1.5               |   |     |    |
| 29   | X ✓   | i(P)Z         | 17 | 25   | 28.7        | 1.0 |   | 8.5               |   |     |    |
| 30   | C & GS 08-27-45.1; 18.8 N., 105.8 W. h about 33 km. off coast of Jalisco, Mexico. Mag. 3.9 SD 0.4 (CGS) (P-H) = 2,257 km. ca. or 20.5°.                   |               |    |      |             |     |   |                   |   |     |    |
|      | eZ  | 08            | 32 | 19.3 | 1.0         |     |   | 1.5               |   |     |    |
| 30   | C & GS 13-29-25.3; 45.5 N., 150.6 E. h about 40 km. Kurile Islands. Mag. 5.7 SD 0.2 (CGS) (P-H) = 8,890 km. ca. or 80°.                                   |               |    |      |             |     |   |                   |   |     |    |
| X ✓  | ePZN  | 13            | 41 | 31.7 | 1.0         | 1.5 |   | 21.0              |   | 3.0 |    |

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are  $36^{\circ} 05.46'$  north latitude and  $94^{\circ} 11.47'$  west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas  
Seismograph Station  
Department of Geology  
Fayetteville, Arkansas