

Jesuit Seismological Service Record

of the

Seismographic Station, Astronomical and Meteorological Observatory

University of Santa Clara, California, U. S. A.



$\phi = 37^{\circ} 26' 36''$ N $\lambda = 121^{\circ} 57' 03'' = 8^h 7^m 50^s$ W; elevation 27.43 M.

TIME: Mean Civil Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENTS: Wiechert 80 kg., astatic, horizontal and vertical pendulums.

NOMENCLATURE: International.

FROM FEBRUARY 7, 1913, TO MARCH 8, 1913

| DATE | CHAR. | COMP. | PHASES. | TIME | | | PERIOD | AMP. | REMARKS |
|--------|-------|-------|---------|------|-----|-----|--------|------|---------|
| | | | | h. | m. | s. | | | |
| Feb. 7 | Id | N-S | pe | 22: | 05: | 43 | | | |
| | | | S | | | | | | |
| | | | L | 22: | 05: | 53 | | | |
| | | | M | 22: | 05: | 54 | 1 | 1.12 | |
| | | | C | 22: | 06: | 24 | | | |
| | | | F | 22: | 08 | | | | |
| | E-W | pe | 22: | 05: | 43 | | | | |
| | | S | | | | | | | |
| | | L | 22: | 05: | 54 | | | | |
| | | M | 22: | 05: | 54 | 1 | 1.75 | | |
| | | C | 22: | 06: | 36 | | | | |
| | | F | 22: | 07: | 57 | | | | |
| | V | | P | | | | | | |
| | | | S | | | | | | |
| | | | L | | | | | | |
| | | | M | | | | | | |
| | | | C | | | | | | |
| | | | F | | | | | | |
| | 14 | Id | N-S | pe | 0: | 29: | 34 | | |
| | | | | S | | | | | |
| | | | | L | 0: | 29: | 40 | | |
| | | | | M | 0: | 29: | 40 | 1 | 3 |
| | | | | C | 0: | 30: | 24 | | |
| | | | | F | 0: | 32 | | | |
| E-W | pe | 0: | 29: | 33 | | | | | |
| | S | | | | | | | | |
| | L | 0: | 29: | 46 | | | | | |
| | M | 0: | 29: | 46 | 1 | 1.5 | | | |
| | C | 0: | 30: | 30 | | | | | |
| | F | 0: | 31: | 45 | | | | | |
| V | | | P | | | | | | |
| | | | S | | | | | | |
| | | | L | | | | | | |
| | | | M | | | | | | |
| | | | C | | | | | | |
| | | | F | | | | | | |

Distance:— 118 Km. W. 32° 37' N.

Distance:— 132.5 Km. N. 26° 34' W.


| | | | | | | |
|--------|----|-----|----|-----------|---|-----|
| Mar. 3 | Ir | N-S | pe | 3: 05: 24 | | |
| | | | S | | | |
| | | | L | 3: 08: 00 | | |
| | | | M | 3: 08: 00 | 2 | .75 |
| | | | C | 3: 11: 48 | | |
| | | | F | 3: 14: 42 | | |
| | | E-W | pe | 3: 05: 18 | | |
| | | | S | | | |
| | | | L | 3: 07: 00 | | |
| | | | M | 3: 09: 51 | 2 | 2 |
| | | | C | 3: 12: 24 | | |
| | | | F | 3: 26 | | |
| | | V | P | | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |

Distance:— 1172 Km. W 22° N.

March 8, Ir. H. 16:12:00, M. 16:13:40; period 12 sec.; amp. 1 mm.; C. 16:15:00; F. 16:19. Sinusoid. (Guatemala quake.)

JEROME S. RICARD, S. J., Director
by Albert J. Newlin, Asst.

1913


 Nos. 113-114-115.
 International
 Seismological
 Centre

Jesuit Seismological Service Record

of the

Seismographic Station, Astronomical and Meteorological Observatory University of Santa Clara, California, U. S. A.

 $\phi = 37^{\circ} 26' 36''$ N $\lambda = 121^{\circ} 57' 03'' = 8^{\text{h}} 7^{\text{m}} 50^{\text{s}}$ W; elevation 27.43 M.

TIME: Mean Civil Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENTS: Wiechert 80 kg., astatic, horizontal and vertical pendulums.

NOMENCLATURE: International.

FROM MARCH 14, 1913, TO JUNE 22, 1913

| DATE | CHAR. | COMP. | PHASES, | TIME | | | PERIOD s. | AMP. m. m. | REMARKS |
|------|-------|-------|---------|------|-----|----|--------------|---------------|---------|
| | | | | h. | m. | s. | | | |
| 14 | llr | N-S | P e | 9: | 03: | 48 | | | |
| | | | S | | | | | | |
| | | | L | 9: | 29: | 30 | | | |
| | | | M | 9: | 10: | 00 | 1.5 | 2 | |
| | | | C | | | | | | |
| | | | F | 9: | 59: | 24 | | | |
| | | E-W | P e | 9: | 03: | 48 | | | |
| | | | S | | | | | | |
| | | | L | 9: | 27: | 00 | | | |
| | | | M | 9: | 10: | 30 | 1.5 | 4.12 | |
| | | | C | 10: | 02: | 00 | | | |
| | | | F | 10: | 40: | 00 | | | |
| | | V | P | | | | | | |
| | | | S | | | | | | |
| | | | L | | | | | | |
| | | | M | | | | | | |
| | | | C | | | | | | |
| | | | F | | | | | | |

Distance:— 9364 Km. W. 25° 53' N. Sinusoid.

| | | | | | | |
|---------|-----|-----|----------------|------------|-----|------|
| 31 | lr | N-S | P _i | 3: 49: 00 | | |
| | | | S | | | |
| | | | L | 3: 58: 55 | | |
| | | | M | 4: 08: 56 | 6 | .75 |
| | | | C | 4: 11: 30 | | |
| | | | F | 6: 03: 00 | | |
| | | E-W | P | 3: 49: 04 | | |
| | | | S | | | |
| | | | L | 4: 01: 39 | 10 | |
| | | | M | 3: 49: 40 | 1.5 | 1.12 |
| | | | C | 4: 16: 00 | | |
| | | | F | 6: 03: 00 | | |
| | | V | P | | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |
| June 22 | llr | N-S | P _e | 13: 58: 35 | | |
| | | | S | | | |
| | | | L | 14: 08: 00 | | |
| | | | M | 14: 11: 06 | 6 | .5 |
| | | | C | 14: 25: 00 | | |
| | | | F | 15: 15: 00 | | |
| | | E-W | P _e | 13: 58: 24 | | |
| | | | S | 14: 04: 34 | | |
| | | | L | 14: 08: 04 | | |
| | | | M | 14: 11: 12 | 6 | 1 |
| | | | C | 14: 26: 00 | | |
| | | | F | 15: 35: 00 | | |
| | | V | P | | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |

Distance:— 4217 Km. W. 33° 48' N. Irregular sinusoid.

May 30, E.-W. lr. L. 12:29:00; m. 12:40:00; C. 12:41:30; F. 13:17:30; N.-S.: trace. Direction: W. Sinusoid.

Distance:— 3073 Km. W 11° 19' N. Sinusoid. (Alaskan quake)

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 $\phi = 37^{\circ} 26' 36''$ N $\lambda = 121^{\circ} 57' 03'' = 8^{\text{h}} 7^{\text{m}} 50^{\text{s}}$ W; elevation 27.43 M.

TIME: Mean Civil Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENTS: Wiechert 80 kg., astatic, horizontal and vertical pendulums.

NOMENCLATURE: International.

FROM JUNE 27, 1913, TO OCTOBER 2, 1913

| DATE | CHAR. | COMP. | PHASES. | TIME | | | PERIOD s. | AMP. m. m. | REMARKS |
|------|-------|-------|---------|------|-----|----|--------------|--|--|
| | | | | h. | m. | s. | | | |
| 27 | llr | N-S | P i | 5: | 09: | 00 | | | Distance:— 2981 Km. S. 30° 30' W. Sinusoid. (Tonga Island quake.) |
| | | | S | 5: | 18: | 42 | | | |
| | | | L | 5: | 28: | 26 | | | |
| | | | M | 5: | 10: | 12 | 1.5 | 5.72 | |
| | | | C | 6: | 02: | 00 | | | |
| | | | F | 6: | 38: | 30 | | | |
| | | E-W | P i | 5: | 09: | 00 | | | |
| | | | S | 5: | 18: | 42 | | | |
| | | | L | 5: | 28: | 26 | | | |
| | | | M | 5: | 09: | 31 | 1.5 | 3.37 | |
| | | | C | 6: | 03: | 30 | | | |
| | | | F | 7: | 07: | 30 | | | |
| | | V | P | | | | | July 6. Faint trace of Sinusoid between 19:18 and 19:31. | |
| | | | S | | | | | | |
| | | | L | | | | | July 8. Faint trace of V record between 0:09 and 0:25. | |
| | | | M | | | | | | |
| | | | C | | | | | | |
| | | | F | | | | | | |

| | | | | | | |
|--------|----|-----|----|------------|----|------|
| Aug. 6 | Ir | N-S | Pi | 22: 26: 06 | | |
| | | | S | | | |
| | | | L | 22: 35: 07 | | |
| | | | M | 22: 55: 42 | 18 | .37 |
| | | | C | 23: 00: 00 | | |
| | | | F | 23: 14: 35 | | |
| | | E-W | Pi | 22: 26: 06 | | |
| | | | S | | | |
| | | | L | 22: 35: 07 | | |
| | | | M | 22: 55: 42 | 10 | 1.12 |
| | | | C | 23: 00: 00 | | |
| | | | F | 23: 14: 35 | | |
| | | V | P | | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |
| Oct. 2 | Ir | N-S | Pi | 4: 32: 15 | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |
| | | E-W | Pi | 4: 32: 15 | | |
| | | | S | | | |
| | | | L | 4: 49: 15 | | |
| | | | M | 4: 55: 11 | 25 | .5 |
| | | | C | | | |
| | | | F | 5: 07: 00 | | |
| | | V | P | | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |

Distance:— 2818 Km. W. 18° 17' N.

Sept. 3. Trace of Sinusoid on E-W, between 21:31 and 21:53.

Distance:— 6670 Km. W., slightly N.
(Simultaneous with Panama quake.)

Note: Max. Amp. bet. P and L. in
N-S .25 mm.
E-W .50 mm.
Angle W. 26° 34' N.

JEROME S. RICARD, S. J., Director
by Albert J. Newlin, Asst.

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$\phi = 37^{\circ} 26' 36''$ N $\lambda = 121^{\circ} 57' 03'' = 8^{\text{h}} 7^{\text{m}} 50^{\text{s}}$ W; elevation 27.43 M.

TIME: Mean Civil Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENTS: Wiechert 80 kg., astatic, horizontal and vertical pendulums.

NOMENCLATURE: International.

FROM OCTOBER 11, 1913, TO NOVEMBER 10, 1913

| DATE | CHAR. | COMP. | PHASES. | TIME | | | PERIOD s. | AMP. m. m. | REMARKS |
|---------|-------|-------|---------|------|-----|----|--------------|---------------|--|
| | | | | h. | m. | s. | | | |
| Oct. 14 | lld | N-S | pi | 20: | 21: | 14 | | | Oct. 11. Trace of Sinusoid on E-W. from 4:49 to 5:34. Distance:— 118 Km. W. $41^{\circ} 25'$ N. |
| | | | S | | | | | | |
| | | | L | 20: | 21: | 25 | | | |
| | | | M | 20: | 21: | 36 | 1.5 | 3.75 | |
| | | | C | 20: | 22: | 00 | | | |
| | | | F | 20: | 27: | 00 | | | |
| | | E-W | pi | 20: | 21: | 14 | | | |
| | | | S | | | | | | |
| | | | L | 20: | 21: | 24 | | | |
| | | | M | 20: | 21: | 54 | 1.5 | 4.25 | |
| | | | C | 20: | 22: | 30 | | | |
| | | | F | 20: | 27: | 36 | | | |
| | | V | P | | | | | | |
| | | | S | | | | | | |
| | | | L | | | | | | |
| | | | M | | | | | | |
| | | | C | | | | | | |
| | | | F | | | | | | |

| | | | | | | |
|----|-----|-----|----|------------|-----|------|
| 20 | Ilv | N-S | pe | 11: 25: 36 | | |
| | | | S | | | |
| | | | L | 11: 26: 14 | | |
| | | | M | 11: 26: 25 | 1.5 | 5 |
| | | | C | 11: 27: 09 | | |
| | | | F | 11: 29: 06 | | |
| | | E-W | pe | 11: 25: 36 | | |
| | | | S | | | |
| | | | L | 11: 26: 12 | | |
| | | | M | 11: 26: 24 | 1.5 | 6.75 |
| | | | C | 11: 27: 00 | | |
| | | | F | 11: 29: 36 | | |
| | | V | P | | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |
| 25 | ld | N-S | pi | 9: 45: 54 | | |
| | | | S | | | |
| | | | L | 9: 46: 03 | | |
| | | | M | 9: 46: 29 | .8 | 2.75 |
| | | | C | 9: 46: 30 | | |
| | | | F | 9: 48: 20 | | |
| | | E-W | pi | 9: 45: 52 | | |
| | | | S | | | |
| | | | L | 9: 46: 03 | | |
| | | | M | 9: 46: 27 | .8 | 2.75 |
| | | | C | 9: 46: 30 | | |
| | | | F | 9: 48: 30 | | |
| | | V | pi | 9: 45: 54 | | |
| | | | S | | | |
| | | | L | 9: 46: 03 | | |
| | | | M | 9: 46: 06 | .8 | 1 |
| | | | C | 9: 46: 34 | | |
| | | | F | 9: 46: 44 | | |

Distance:— 314.26 Km. W. 36° 35' N.

Distance:— 117.97 Km. S. E.
Very faint shock felt.

Nov. 10. Trace of sinusoid on E-W. from 21:52 to 22.20.

JEROME S. RICARD, S. J., Director
by Albert J. Newlin, Asst.

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$\phi = 37^{\circ} 26' 36''$ N $\lambda = 121^{\circ} 57' 03'' = 8^{\text{h}} 7^{\text{m}} 50^{\text{s}}$ W; elevation 27.43 M.

TIME: Mean Civil Greenwich, midnight to midnight, 0-24 hrs.

INSTRUMENTS: Wiechert 80 kg., astatic, horizontal and vertical pendulums.

NOMENCLATURE: International.

FROM NOVEMBER 29, 1913, TO DECEMBER 26, 1913

| DATE | CHAR. | COMP. | PHASES. | TIME | | | PERIOD s. | AMP. m. m. | REMARKS |
|---------|-------|-------|---------|-------|-----|----|--------------|---------------|---|
| | | | | h. | m. | s. | | | |
| Nov. 29 | ld | N-S | pi | 10: | 00: | 30 | | | |
| | | | S | | | | | | |
| | | | L | 10: | 00: | 33 | | | |
| | | | M | 10: | 00: | 42 | .8 | 1.5 | |
| | | | C | 10: | 01: | 04 | | | |
| | | | F | 10: | 02: | 00 | | | |
| | | E-W | pi | 10: | 00: | 30 | | | Distance:— 59.81 Km. E. 33° 41' S. Very faint shock felt. Immediately preceded by trace of d record. |
| | | | S | | | | | | |
| | | | L | 10: | 00: | 33 | | | |
| | | | M | 10: | 00: | 48 | .8 | 2.25 | |
| | | | C | 10: | 01: | 00 | | | |
| | | | F | 10: | 02: | 00 | | | |
| | | V | P | Trace | | | | | Nov. 30. Trace of d record on Horizontal from 20:46:12 to 20:47:42. Dec. 6. Trace of v record on Horizontal from 0:19:45 to 0:25:00. |
| | | | S | | | | | | |
| | | | L | | | | | | |
| | | | M | | | | | | |
| | | | C | | | | | | |
| | | | F | | | | | | |

| | | | | | | |
|---------|-----|-----|----|------------|---|------|
| Dec. 20 | lId | N-S | Pe | 0: 32: 18 | | |
| | | | S | | | |
| | | | L | 0: 32: 25 | | |
| | | | M | 0: 32: 48 | 1 | 4.75 |
| | | | C | 0: 32: 58 | | |
| | | | F | 0: 34: 30 | | |
| | | E-W | pe | 0: 32: 18 | | |
| | | | S | | | |
| | | | L | 0: 32: 25 | | |
| | | | M | 0: 33: 00 | 1 | 4.25 |
| | | | C | 0: 33: 06 | | |
| | | | F | 0: 35: 30 | | |
| | | V | P | Trace | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |
| 26 | lId | N-S | Pi | 11: 34: 08 | | |
| | | | S | | | |
| | | | L | 11: 34: 21 | | |
| | | | M | 11: 34: 28 | 1 | 3 |
| | | | C | 11: 35: 45 | | |
| | | | F | 11: 36: 30 | | |
| | | E-W | Pi | 11: 34: 08 | | |
| | | | S | | | |
| | | | L | 11: 34: 21 | | |
| | | | M | 11: 34: 24 | 1 | 5.25 |
| | | | C | 11: 35: 45 | | |
| | | | F | 11: 37: 00 | | |
| | | V | P | Trace | | |
| | | | S | | | |
| | | | L | | | |
| | | | M | | | |
| | | | C | | | |
| | | | F | | | |

Distance:— 87.88 Km. S. 41° 49' E.

Dec. 20. Trace of d record on Horizontal from 4:27:18 to 4:29.

Distance:— 132.51 Km. E. 29° 45' S.

JEROME S. RICARD, S. J., Director
by Albert J. Newlin, Asst.