

Instituto Geográfico y Catastral  
OBSERVATORIO CENTRAL GEOFISICO  
"ALFONSO REY PASTOR"  
DE TOLEDO (ESPAÑA)

Naturaleza del terreno: Mioceno Superior

Coordenadas de la Estación:

L = 39°52'53"N  
M = 04°02'55"W  
Z = 480,54 m.

BOLETIN SISMOLOGICO

MES DE MAYO DE 1970

Constantes de los Sismógrafos.

| Aparato     | Masa<br>Kg | Período<br>T <sub>0</sub> | Rozamiento<br>$\frac{r}{T_0^2}$ | Amplitud<br>V | Amortgto°<br>ε |
|-------------|------------|---------------------------|---------------------------------|---------------|----------------|
| Wiechert ZP | 1200       | 3.20                      | 0.130                           | 2.415         | 6.93           |
| " NT        | 1000       | 9.10                      | 0.034                           | 888           | 5.61           |
| " ET        | 1000       | 10.0                      | 0.015                           | 1.010         | 4.25           |
| " NX        | 800        | 9.0                       | 0.009                           | 383           | 5.24           |
| " EX        | 800        | 9.50                      | 0.003                           | 304           | 3.81           |

Equipos Standard

- 1.- Sprengnether (Standard) de período largo (Tp=15s. Tg=100s.)  
Sus componentes serán designadas por ZL, NL, EL.
- 2.- Benioff (Standard) de período corto (Tp=1.0s. Tg=0,75s.)  
Sus componentes serán designadas por ZS, NS, ES.

| Núm.  | Fecha | Fase | Comp. | H  | M  | S    | Núm.   | Fecha | Fase | Comp. | H  | M  | S     |
|---|-------|------|-------|----|----|------|--|-------|------|-------|----|----|-------|
| 407   | 1     | eIP  | ZS    | 00 | 04 | 40.6 | 409  | 1     | i    | ZL    | 09 | 04 | 36    |
|   |       | Lr   | ZL    |    | 14 | 00   |  |       | Lq   | NL    |    | 09 | 00    |
|   |       |      |       |    |    |      |  |       | M    | ZL    |    |    | 17.00 |
| 39°2N-29°4E; Ho=23-59-10.7(1.3-37)<br>h=N Mag:4.6(CGS) Turquía. (U.S.C.G.S.)  |       |      |       |    |    |      | D=83°2=9.245 Km.   |       |      |       |    |    |       |
| 408   | 1     | eP   | ZL    | 03 | 40 | 42.8 | 14°6N-93°2W; Ho=08-35-24.2(1.0-90)<br>h=44 Km. Mag:5.4(CGS), 6.0(Pas),<br>Cerca de la Costa de Chiapas, Méjico. (U.S.C.G.S.) |       |      |       |    |    |       |
|   |       | ePP  | ZL    |    | 41 | 31   | 410  | 1     | Lr   | ZL    | 18 | 05 | 00    |
|   |       | eSKS | ZL    |    | 46 | 58   | 411  | 1     | iP   | ZL    | 20 | 15 | 36    |
|   |       | ePS  | ZL    |    | 50 | 16   | (Compresión)   |       |      |       |    |    |       |
|   |       | ePPS | ZL    |    | 51 | 08   |  |       | ePP  | EL    |    | 18 | 16    |
|   |       | eSS  | EL    |    | 55 | 40   |  |       | ePPP | EL    |    | 20 | 36    |
|   |       | Lq   | NL    | 04 | 10 | 40   |  |       | eS   | EL    |    | 25 | 49    |
|   |       | Lr   | ZL    |    | 18 | 30   |  |       | ePS  | EL    |    | 26 | 48    |
| 15°7N-121°8E; Ho=03-22-13.4(1.1-71)<br>h=29 Km. Mag:5.4-5.5(CGS) Luzón, Islas Filipinas, sentido en el área de Manila. (U.S.C.G.S.) |       |      |       |    |    |      |  |       | eSS  | EL    |    | 31 | 26    |
| 409   | 1     | eIP  | ZL    | 08 | 47 | 32   |  |       | Lq   | NL    |    | 38 | 00    |
|   |       | ePP  | ZL    |    | 50 | 45   |  |       | Lr   | ZL    |    | 40 | 00    |
|   |       | iS   | EL    |    | 57 | 48   |  |       |      |       |    |    |       |

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(continúa)



Núm. Fecha Fase Comp. H M S  
 411 1 (continuación)  
 seg. micr.  
 iP ZL 9.0 0.96  
 D=82°6=9.180 Km.

14°6N-93°6W; Ho=20-03-27.9(1.2-75)  
 h=38 Km. Mag:5.0-5.4(CGS), 5.3(BRK)  
 Cerca de la Costa de Chiapas, Méjico. (U.S.C.G.S.)

412 1 iP<sup>IV</sup> ZS 23 52 11.2  
 (Dilatación)  
 iP<sup>IV</sup> ZS 52 28.2  
 seg. micr.  
 iP<sup>IV</sup> ZS 1.0 0.08

8°5S-159°8E; Ho=23-32-37.8(0.7-33)  
 h=67 Km. Mag:5.3(CGS) Islas Salomón  
 Sentido. (U.S.C.G.S.)

413 2 iP ZL 02 19 05  
 Compresión  
 ePP ZL 22 12  
 ePPP ZL 24 16  
 eS EL 29 16  
 eSS EL 34 47  
 eSSS NL 38 14  
 Lr ZL 45 00  
 seg. micr.  
 iP ZL 9.0 0.96

D=82°2=9.135 Km.

14°7N-93°7W; Ho=02-06-56.3(1.1-84)  
 h=32 Km. Mag:5.4-5.5(CGS), 5.3(BRK)  
 Cerca de la Costa de Chiapas, Méjico. (U.S.C.G.S.)

414 2 eP ZL 05 27 54  
 Lr ZL 54 00

14°5N-93°0W; Ho=05-15-43.7(0.9-66)  
 h=33 Km. Mag:5.1(CGS) Cerca de la  
 Costa de Chiapas, Méjico. (U.S.C.G.S.)

415 2 eSg NS 15 03 25.8

416 2 eSg NS 16 35 38.5

417 2 eSg NS 16 47 57.5

418 2 eP ZS 16 48 18.0

419 3 Lr ZL 09 51 00

420 3 Lr ZL 19 30 00

421 4 eP<sub>2</sub> ZS 08 01 45.0

ePP ZL 04 55  
 e ZL 08 55  
 Lr ZL 57 00

20°7S-173°5E; Ho=07-40-52.3(1.3-54)  
 h=14 Km. Mag:5.2-5.7(CGS), 5.3(BRK)  
 Región Islas Nuevas Hébridias. (U.S.C.G.S.)

Núm. Fecha Fase Comp. H M S  
 422 4 eP ZL 19 12 46  
 e(PP) ZL 15 10  
 e NL 20 20  
 e(S) NL 22 20  
 e(SS) NL 28 14  
 Lq NL 39 00  
 Lr ZL 45 00

41°6S-80°1E; Ho=18-53-19.7(1.2-31)  
 h= Mag:5.3-6.2(CGS) Cresta del In  
 dico Medio. (U.S.C.G.S.)

423 6 Lr ZL 03 42 00

424 6 Lr ZL 06 21 00

425 6 eP ZS 12 32 51.0  
 eS NL 36 47  
 Lr ZL 37 00

D=22°=2.445 Km.

49°8N-29°1/2W; Ho=12-28-08 Cresta  
 media del Atlántico Norte. (B.C.I.S.)

50°0N-29°0W; Ho=12-28-16.0(0.9-27)  
 h=33 Km. Mag:4.8(CGS) Cresta del  
 Atlántico Norte. (U.S.C.G.S.)

426 6 ePg ZS 14 48 07.5

eSg NS 48 12.0

e ZS 48 12.5

e(Sn) NS 48 22.0

Posible explosión artificial en las  
 canteras de Yepes, Toledo.

427 6 Lr ZL 16 11 00

428 7 eP ZS 14 06 50.0

e ZS 07 24.0

429 7 Lr ZL 19 23 00

430 8 eP ZS 02 54 49.3

39°0N-30°0E; Ho=02-49-13 M<sub>L</sub>V=4.5  
 (Wien) Turquía, al E. de Gédiz. (B.C.I.S.)

38°9N-29°9E; Ho=02-49-15.6(1.2-42)  
 h=30 Km. Mag:4.7(CGS) Turquía. (U.S.C.G.S.)

431 8 Lr ZL 13 55 00

432 9 iPg NS 17 01 20.1

eSg NS 01 42.5

i(L) ZS 02 00.0

seg. micr.  
 iPg NS 0.5 0.09

Débil

433 9 Lr ZL 17 45 00

434 9 eP<sup>IV</sup> ZS 18 19 54.0

ePP ZS 23 10.0

(continúa)



| Núm. | Fecha | Fase | Comp.          | H  | M  | S  |
|------|-------|------|----------------|----|----|----|
| 434  | 9     |      |                |    |    |    |
|      |       |      | (continuación) |    |    |    |
|      |       | e    | NL             | 18 | 25 | 52 |
|      |       | e    | ZL             |    | 35 | 00 |
|      |       | Lr   | ZL             | 19 | 07 | 00 |

4°45'-151°7'E; Ho=18-00-50.0(0.9-93)  
h=203 Km. Mag:5.9(CGS) Sentido en  
Rabaul grado III. Región Nueva Bre-  
taña. (U.S.C.G.S.)

|     |    |     |    |      |    |       |
|-----|----|-----|----|------|----|-------|
| 435 | 10 | ePg | ZS | 14   | 27 | 06.0  |
|     |    | iSg | NS |      | 27 | 16.5  |
|     |    |     |    | seg. |    | micr. |
|     |    | iSg | NS | 0.5  |    | 0.13  |

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 436 | 10 | eP | ZS | 19 | 47 | 22.0 |
|     |    | Lr | ZL | 20 | 45 | 00   |

24°05'-66°7'W; Ho=19-34-57.4(0.9-37)  
h=178 Km. Mag:5.0(CGS) Provincia de  
Salta, Argentina. (U.S.C.G.S.)

|     |    |                 |        |    |    |      |
|-----|----|-----------------|--------|----|----|------|
| 437 | 10 | eP <sup>w</sup> | ZS     | 20 | 22 | 51.8 |
|     |    | ePP             | ZL, ZS |    | 24 | 04   |
|     |    | e(SS)           | ZL     |    | 39 | 00   |
|     |    | Lr              | ZL     |    | 45 | 00   |

18°6'N-145°2'E; Ho=20-05-15.9(0.9-122)  
h=602 Km. Mag:5.6(CGS) Islas Maria-  
nas. (U.S.C.G.S.)

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 438 | 11 | Lr | ZL | 03 | 40 | 00 |
|-----|----|----|----|----|----|----|

|     |    |    |    |            |    |       |
|-----|----|----|----|------------|----|-------|
| 439 | 12 | iP | ZS | 22         | 53 | 41.4  |
|     |    |    |    | Compresión |    |       |
|     |    | e  | ZS |            | 54 | 13.8  |
|     |    | eS | NL |            | 57 | 33    |
|     |    | Lr | ZL |            | 58 | 00    |
|     |    |    |    | seg.       |    | micr. |
|     |    | iP | ZS | 1.2        |    | 0.09  |

38°2'N-22°6'E; Ho=22-49-02 Grecia, al  
W. del Golfo de Corinto. (B.C.I.S.)

38°2'N-22°7'E; Ho=22-49-02.2(1.4-48)  
h=35 Km. Mag:4.9(CGS) Grecia. (U.S.  
C.G.S.)

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 440 | 13 | Lr | ZL | 17 | 15 | 00 |
|-----|----|----|----|----|----|----|

|     |    |     |    |            |    |       |
|-----|----|-----|----|------------|----|-------|
| 441 | 14 | iPn | ZS | 02         | 31 | 21.6  |
|     |    |     |    | Compresión |    |       |
|     |    | eP+ | NS |            | 31 | 30.0  |
|     |    | ePg | ZS |            | 31 | 49.6  |
|     |    | i   | NS |            | 32 | 30.3  |
|     |    | iSn | NS |            | 32 | 41.0  |
|     |    | iS+ | NS |            | 32 | 55.3  |
|     |    | i   | NS |            | 33 | 02.8  |
|     |    |     |    | seg.       |    | micr. |
|     |    | iPn | ZS | 0.8        |    | 0.02  |

D=5°40'=600 Km.

35°9'N-10°7'W; Ho=02-29-44.0(1.0-11)  
h=33 Km. Mag:4.3(CGS) Atlántico Nor-  
te. (U.S.C.G.S.)

(continda)

| Núm. | Fecha | Fase | Comp.   | H | M | S |
|------|-------|------|---|---|---|---|
| 441  | 14    |      |   |   |   |   |
|      |       |      | (continuación)  |   |   |   |
|      |       |      | 35°9'N-11°0'W; Ho=02-29-43.7 h=40 Km.<br>m=4.2 Océano Atlántico. (L.C.S.S.<br>Madrid) |   |   |   |

|     |    |     |    |    |    |    |
|-----|----|-----|----|----|----|----|
| 442 | 14 | ePP | ZL | 08 | 54 | 36 |
|     |    | i   | ZL |    | 56 | 35 |

3°45'-145°2'E; Ho=08-32-42.2(0.9-46)  
h=29 Km. Mag:5.6-5.8(CGS) Cerca y  
al Norte de la Costa de Nueva Gui-  
nea. (U.S.C.G.S.)

|     |    |        |    |            |    |       |
|-----|----|--------|----|------------|----|-------|
| 443 | 14 | iP     | ZS | 09         | 27 | 40.5  |
|     |    |        |    | Compresión |    |       |
|     |    | ePP    | ZL |            | 29 | 16    |
|     |    | e(PPP) | ZL |            | 29 | 48    |
|     |    | Lr     | ZL |            | 37 | 00    |
|     |    |        |    | seg.       |    | micr. |
|     |    | iP     | ZS | 1.4        |    | 0.05  |

43°1'N-47°3'E; Ho=09-20-24; M<sub>PV</sub>=5.8(Bens-  
berg); M=5.7(Uppsala); M<sub>LV</sub>=5.7(Moxa,  
Wien); M<sub>LH</sub>=5.5(Moxa); M<sub>py</sub>=5.3(Moxa)  
Daghestan, región de Makhatchkala.  
URSS. (B.C.I.S.)

43°0'N-47°1'E; Ho=09-20-22(1.0-121); h=17  
Mag:5.5-5.6(CGS). Este del Caucaso  
(U. S. C. G. S. ).

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 444 | 14 | Lr | ZL | 14 | 57 | 00.0 |
|-----|----|----|----|----|----|------|

|     |    |        |    |            |    |       |
|-----|----|--------|----|------------|----|-------|
| 445 | 14 | iP     | ZS | 18         | 19 | 43.0  |
|     |    |        |    | Compresión |    |       |
|     |    | i      | ZS |            | 19 | 46.5  |
|     |    | iPP    | ZL |            | 21 | 10    |
|     |    | i(PPP) | ZL |            | 22 | 18.   |
|     |    | iS     | ZL |            | 25 | 34    |
|     |    | Lr     | ZL |            | 26 | 00    |
|     |    | M      | ZL |            | 40 | 20    |
|     |    |        |    | seg.       |    | micr. |
|     |    | iP     | ZS | 1.2        |    | 0.02  |
|     |    | i      | ZS | 1.1        |    | 0.06  |
|     |    | M      | ZL | 16.0       |    | 4.28  |

43°1'N-47°3'E; Ho=18-12-21; Mag:6.8(Upp-  
M<sub>PV</sub>=6.8(Bensberg); M<sub>LV</sub>=6.7(Moxa, Wien)  
M<sub>LH</sub>=6.5(Moxa); M<sub>LH</sub>=6.2(Tirana); M<sub>LV</sub>=  
5.2(Tirana). Daghestan, URSS, región de  
Makhatchkala. (B.C.I.S.)

43°0'N-47°1'E; Ho=18-12-28(1.1-135);  
h=44 Kms. Mag:5.6-6.5(CGS); 6.7(Pas);  
6.5(BRK); 6 1/2(Pal). Este del Caúca-  
so. Este terremoto, así como el an-  
terior han causado amplios daños y  
victimas en Daghestan. (U. S. C. G.  
S.).

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 446 | 15 | Lr | ZL | 01 | 10 | 00.0 |
|-----|----|----|----|----|----|------|

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 447 | 15 | Lr | ZL | 08 | 25 | 00.0 |
|-----|----|----|----|----|----|------|



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Núm. Fecha Fase Comp. H M S  
 448 15 eP ZL 09 56 52  
 Lr ZL 10 22 00  
 14°5N-92°8W; Ho=09-44-452(1.1-62); h=N;  
 Mag:5.4-5.5(CGS). Cerca de la Costa  
 de Chiapas(Méjico). (U. S. C. G. S.)

449 15 iP<sub>2</sub> ZS 11 00 29.5  
 Compresión  
 seg. micr.  
 iP<sub>2</sub> ZS 1.5 0.01  
 21°5S-176°7W; Ho=10-40-14(1.0-45); h=  
 251 Kms. Mag:5.3(CGS). Islas Fiji(U. S.  
 C. G. S.)

450 15 iP ZS 17 23 45.0  
 Compresión  
 iPP ZL 25 56  
 iPPP ZL 27 42  
 iS NL 32 18  
 iSS EL 36 42  
 Lr ZL 38 00  
 M EL 50 00  
 seg. micr.  
 iP ZS 1.0 0.02  
 iS NL 16.0 0.02  
 M EL 16.0 11.03  
 D=64°2=7135 Km.

50°2N-91°3E; Ho=17-13-15.1(1.1-159);  
 h=N; Mag:5.9-6.7(CGS); 6.8(Pas); 6.5(BRK)  
 6 3/4(Pal). Región fronteriza, Mongo  
 lia, URSS. (U. S. C. G. S.)

451 15 eP ZS 20 22 47.0  
 50°2N-91°3E; Ho=20-12-16.9(1.0-67);  
 h=N; Mag:5.0(CGS). Región fronteriza  
 Mongolia, URSS. (U. S. C. G. S.)

452 15 iP ZS 21 01 39.6  
 Dilatación  
 e NL 30 08.0  
 Lr ZL 34 00  
 seg. micr.  
 iP ZS 1.3 0.007

56°8N-117°8E; Ho=20-50-12.7(1.0-65);  
 h=33 Kms. Mag:4.9(CGS). Este del Lago  
 Baikal. (U. S. C. G. S.)

453 16 Lr ZL 02 32 00

454 16 eP ZS 21 34 03.5  
 Lr ZL 50 00

42°9N-47°1E; Ho=21-27-01; Daghestan  
 URSS. (B.C.I.S.)

455 17 eP<sup>1</sup> ZS 05 09 32.2  
 Lr ZL 24 00

43°0N-47°1E; Ho=05-02-1; Mag:4.4(Wien)  
 Daghestan, URSS. (B.C.I.S.)

43°0N-46°9E; Ho=05-02-17.7(1.2-28);  
 Mag:4.7(CGS). Este del Caúcaso. (U. S.  
 C. G. S.)

Núm. Fecha Fase Comp. H M S  
 456 17 eiP ZS 06 56 20.3  
 (Compresión)  
 Lr ZL 07 08 00  
 seg. micr.  
 eiP ZS 0.9 0.05

43°1N-47°1E; Ho=06-49-05; Mag: M<sub>LH</sub>=5.7  
 (Srobarova), M<sub>IV</sub>=5.3(Moxa, Wien), M<sub>LH</sub>=  
 5.2(Pruhonice); M<sub>LH</sub>=5.1(Moxa); M<sub>PV</sub>=  
 4.8(Moxa). Daghestan, URSS. (B.C.I.S.)

43°0N-46°9E; Ho=06-49-06.1(1.1-62);  
 h=N; Mag:5.0(CGS). Este del Caúcaso  
 (U. S. C. G. S.)

457 17 Lr ZL 10 05 00

458 17 Lr ZL 19 19 00

459 17 iP ZS 21 36 54.8  
 Compresión  
 Lr ZL 22 05 00  
 seg. micr.  
 iP ZS 1.0 0.03

7°3S-80°7W; Ho=21-24-22.6(1.1-34);  
 h=36 Km. Mag:4.9(CGS). Fuera de la  
 costa Norte del Perú. (U. S. C. G. S.)

460 18 iP ZS 01 35 56.5  
 Compresión  
 ZS 35 02.5  
 iS EL 39 58  
 Lr ZL 40 00  
 seg. micr.  
 iP ZS 1.0 0.04  
 D=22°7=2.520 Km.

52°3N-30°3W; Ho=01-30-08 M<sub>PV</sub>=5.0  
 (Bensberg); M<sub>LH</sub>=4.9(Pruhonice) Cres-  
 ta Média del Atlántico Norte. (B.C.  
 I.S.)

52°1N-30°2W; Ho=01-30-05.6(1.1-62)  
 h=33 Km. Mag:4.9(CGS) Cresta del At  
 lántico Norte. (U.S.C.G.S.)

461 18 eP<sub>1</sub> ZS 03 27 02.2  
 eP<sub>2</sub> ZS 27 20.0

12°4S-166°6E; Ho=03-07-15.5(1.1-35)  
 h=76 Km. Mag:5.1(CGS) Región Islas  
 Santa Cruz. (U.S.C.G.S.)

462 18 Lr ZL 08 12 00

463 18 eP ZS 14 48 08.0  
 Lr ZL 15 22 00

56°9N-117°6E; Ho=14-36-40.7<sup>+</sup>(1.0-24)  
 h=N Mag:4.6(CGS) Este del Lago Bai  
 kal. (U.S.C.G.S.)

464 19 Lr ZL 01 37 00



| Núm. | Fecha | Fase     | Comp.    | H  | M  | S             |
|------|-------|----------|----------|----|----|---------------|
| 465  | 19    | eP<br>Lr | ZS<br>ZL | 10 | 33 | 33.0<br>53 00 |

10°9N-68°9W; Ho=10-22-57.6(1.0-65)  
h=16 Km. Mag:5.1-4.9(CGS) Cerca de  
la costa de Venezuela. Sentido en  
Caracas y Puerto Cabello. (U.S.C.G.  
S.)

|     |    |               |                |    |    |                            |
|-----|----|---------------|----------------|----|----|----------------------------|
| 466 | 19 | Lr            | ZL             | 16 | 01 | 00                         |
| 467 | 19 | e<br>ePg<br>i | ZS<br>ZS<br>NS | 21 | 45 | 30.5<br>45 50.0<br>45 58.0 |

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 468 | 20 | Lr | ZL | 17 | 42 | 00 |
|-----|----|----|----|----|----|----|

|     |    |      |    |             |       |      |
|-----|----|------|----|-------------|-------|------|
| 469 | 20 | iP   | ZS | 20          | 17    | 12.0 |
|     |    |      |    | Dilatación: |       |      |
|     |    | iPP  | ZL | 21          | 24    |      |
|     |    | e    | ZL | 25          | 04    |      |
|     |    | iSKS | NL | 27          | 38    |      |
|     |    | iS   | EL | 28          | 32    |      |
|     |    | iPS  | ZL | 29          | 52    |      |
|     |    | iPPS | EL | 30          | 38    |      |
|     |    | iSS  | EL | 35          | 06    |      |
|     |    | iSSS | NL | 39          | 58    |      |
|     |    | Lr   | ZL | 42          | 00    |      |
|     |    | M    | ZL | 54          | 00    |      |
|     |    |      |    | seg.        | micr. |      |
|     |    | iP   | ZS | 2.0         | 0.35  |      |
|     |    | iS   | EL | 24.0        | 3.92  |      |
|     |    | M    | ZL | 24.8        | 9.60  |      |

D=98°=10.890 Km.

55°9S-28°3W; Ho=20-03-42.2(1.1-124)  
h=70 Km. Mag:6.0(CGS) Sur de las Is  
las Sandwich. (U.S.C.G.S.)

|     |    |    |    |            |       |      |
|-----|----|----|----|------------|-------|------|
| 470 | 20 | iP | ZS | 20         | 43    | 45.5 |
|     |    |    |    | Dilatación |       |      |
|     |    |    |    | seg.       | micr. |      |
|     |    | iP | ZS | 1.8        | 0.28  |      |

51°5N-178°5W; Ho=20-30-54.7(0.9-96)  
h=48 Km. Mag:5.7(CGS) Islas Andrea  
nof, Aleutianas. (U.S.C.G.S.)

|     |    |    |    |            |       |      |
|-----|----|----|----|------------|-------|------|
| 471 | 20 | iP | ZS | 22         | 13    | 42.4 |
|     |    |    |    | Compresión |       |      |
|     |    | i  | ZS | 13         | 49.0  |      |
|     |    |    |    | seg.       | micr. |      |
|     |    | iP | ZS | 1.0        | 0.04  |      |

5°7N-77°5W; Ho=22-02-09(1.0-45)  
h=33 Km. Mag:4.9(CGS) Cerca de la  
costa W. de Colombia. (U.S.C.G.S.)

|     |    |            |          |    |    |                    |
|-----|----|------------|----------|----|----|--------------------|
| 472 | 21 | ePg<br>eSg | ZS<br>NS | 04 | 59 | 53.0<br>05 00 32.0 |
|-----|----|------------|----------|----|----|--------------------|

37°8N-8°3W; Ho=04-58-(24) h=N Sur  
de Portugal. Sentido en Castro-Ver-  
de (Portugal). (L.C.S.S. Madrid)

| Núm. | Fecha | Fase | Comp. | H  | M  | S  |
|------|-------|------|-------|----|----|----|
| 473  | 21    | Lr   | ZL    | 16 | 26 | 00 |

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 474 | 22 | Lr | ZL | 19 | 15 | 00 |
|-----|----|----|----|----|----|----|

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 475 | 23 | Lr | ZL | 08 | 25 | 00 |
|-----|----|----|----|----|----|----|

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 476 | 23 | Lr | ZL | 16 | 54 | 00 |
|-----|----|----|----|----|----|----|

|     |    |                       |                      |    |    |                                 |
|-----|----|-----------------------|----------------------|----|----|---------------------------------|
| 477 | 23 | eP<br>eS<br>ePS<br>Lr | ZS<br>EL<br>ZL<br>ZL | 23 | 23 | 20.0<br>34 15<br>35 35<br>58 00 |
|-----|----|-----------------------|----------------------|----|----|---------------------------------|

43°5N-147°9E; Ho=23-09-52.8(1.0-49)  
h=35 Km. Mag:5.2-5.3(CGS) Islas Ku  
riles. (U.S.C.G.S.)

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 478 | 24 | Lr | ZL | 01 | 40 | 00 |
|-----|----|----|----|----|----|----|

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 479 | 24 | Lr | ZL | 07 | 20 | 00 |
|-----|----|----|----|----|----|----|

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 480 | 24 | Lr | ZL | 17 | 28 | 00 |
|-----|----|----|----|----|----|----|

|     |    |  |                            |    |    |  |
|-----|----|--|----------------------------|----|----|--|
| 481 | 25 | iP <sub>1</sub><br>eP <sub>2</sub><br>ePP<br>Lr<br>iP <sub>1</sub> | ZS<br>ZS<br>ZL<br>ZL<br>ZS | 17 | 07 | 38.0<br>Dilatación<br>08 46.0<br>12 42<br>18 08 00<br>seg. micr.<br>1.5 0.13 |
|-----|----|--|----------------------------|----|----|--|

29°4S-177°8W; Ho=16-47-36.0(1.2-91)  
h=63 Km. Mag:5.5(CGS) Islas Kerma-  
dec. (U.S.C.G.S.)

|     |    |                 |                |    |    |                            |
|-----|----|-----------------|----------------|----|----|----------------------------|
| 482 | 25 | ePg<br>eSg<br>e | ES<br>ES<br>ES | 17 | 17 | 17.5<br>17 25.3<br>18 05.5 |
|-----|----|-----------------|----------------|----|----|----------------------------|

Posible explosión.

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 483 | 25 | Lr | ZL | 23 | 33 | 00 |
|-----|----|----|----|----|----|----|

|     |    |    |    |            |       |      |
|-----|----|----|----|------------|-------|------|
| 484 | 26 | iP | ZS | 15         | 12    | 18.2 |
|     |    |    |    | Compresión |       |      |
|     |    |    |    | seg.       | micr. |      |
|     |    | iP | ZS | 1.4        | 0.15  |      |

37°1N-116°1W; Ho=15-00-00.0(120)  
h=0 Km. Mag:5.6(CGS), 5.1(Pas) Sur  
de Nevada, experimental. (U.S.C.G.  
S.)

|     |    |       |    |            |      |    |
|-----|----|-------|----|------------|------|----|
| 485 | 27 | iP    | ZL | 12         | 18   | 34 |
|     |    |       |    | Dilatación |      |    |
|     |    | e(pP) | ZL | 20         | 02   |    |
|     |    | i(sP) | ZL | 20         | 38   |    |
|     |    | iPP   | ZL | 22         | 57   |    |
|     |    | ipPP  | ZL | 25         | 00   |    |
|     |    | iSKS  | NS | 28         | 40.5 |    |
|     |    | i(S)  | EL | 30         | 40   |    |
|     |    | i     | NL | 31         | 18   |    |
|     |    | i     | ZS | 31         | 34   |    |
|     |    | iPS   | NL | 32         | 33   |    |

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| Núm. | Fecha | Fase | Comp.          | H          | M  | S     |
|------|-------|------|----------------|------------|----|-------|
| 485  | 27    |      | (continuación) |            |    |       |
|      |       | i    | NL             | 12         | 34 | 17    |
|      |       | Lr   | ZL             |            | 54 | 00    |
|      |       | M    | EL             | 13         | 05 | 00    |
|      |       |      |                | seg. micr. |    |       |
|      |       | i    | NL             | 18.0       |    | 28.60 |
|      |       | M    | EL             | 18.0       |    | 40.20 |

27°2N-140°1E; Ho=12-05-06,0(0.9-195)  
h=382 Km. Mag:6.2(CGS), 7.1(Pas), 7.0  
(BRK) Región Islas Bonin. (U.S.C.G.S.)

|     |    |      |        |            |    |       |
|-----|----|------|--------|------------|----|-------|
| 486 | 27 | iP   | ZS     | 19         | 18 | 59.5  |
|     |    |      |        | Compresión |    |       |
|     |    | iPP  | ZL     |            | 22 | 50    |
|     |    | iSKS | NL     |            | 29 | 42    |
|     |    | iS   | EL     |            | 30 | 04    |
|     |    | ePS  | ZL, NL |            | 31 | 36    |
|     |    | eSS  | NL     |            | 37 | 42    |
|     |    | Lr   | ZL     |            | 51 | 00    |
|     |    | M    | ZL     | 20         | 10 | 00    |
|     |    |      |        | seg. micr. |    |       |
|     |    | iP   | ZS     | 1.6        |    | 0.18  |
|     |    | M    | ZL     | 18.0       |    | 49.49 |

D=94°2=10.465 Km.  
40°3N-143°0E; Ho=19-05-39,0(1.3-112)  
h=33 Km. Mag:5.7-6.0(CGS), 6.0(Pas)  
Fuera de la Costa Este de Honshu,  
Japón. Sentido en la parte N. y cen-  
tro de Honshu. (U.S.C.G.S.)

|     |    |      |    |            |    |      |
|-----|----|------|----|------------|----|------|
| 487 | 27 | iP   | ZS | 22         | 49 | 11.2 |
|     |    |      |    | Compresión |    |      |
|     |    | e    | ZS |            | 49 | 20.0 |
|     |    | ePP  | ZL |            | 53 | 00   |
|     |    | ePPP | ZL |            | 55 | 31   |
|     |    | iS   | EL | 23         | 00 | 11   |
|     |    | iSS  | EL |            | 06 | 45   |
|     |    | Lq   | EL |            | 20 | 00   |
|     |    | Lr   | ZL |            | 23 | 00   |
|     |    |      |    | seg. micr. |    |      |
|     |    | iP   | ZS | 1.5        |    | 0.10 |

D=90°5=10.05 Km.  
40°2N-143°2E; Ho=22-35-46.4(1.1-94)  
h=16 Km. Mag:5.5-5.8(CGS) Fuera de  
la Costa de Honshu, Japón. (U.S.C.  
G.S.)

|     |    |     |    |    |    |      |
|-----|----|-----|----|----|----|------|
| 488 | 28 | eP  | ZS | 00 | 10 | 01.0 |
|     |    | ePP | ZS |    | 13 | 38.0 |
|     |    | eS  | EL |    | 21 | 10   |
|     |    | Lr  | ZL |    | 44 | 00   |

40°3N-142°9E; Ho=23-56-40,02(1.0-85)  
h=38 Km. Mag:5.4(CGS) Al Este y fue-  
ra de la costa de Honshu, Japón. (U.  
S.C.G.S.)

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 489 | 28 | Lr | ZL | 08 | 49 | 00 |
|-----|----|----|----|----|----|----|

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 490 | 28 | eP | ZS | 17 | 50 | 37.0 |
|     |    | eS | EL | 18 | 00 | 30   |

(continúa)

| Núm. | Fecha | Fase | Comp.          | H   | M | S |
|------|-------|------|----------------|---|---|---|
| 490  | 28    |      | (continuación) |   |   |   |
|      |       |      |                | 48°5N-126°7W; Ho=17-38-32,1(1.2-57)<br>h=3 Km. Mag:4.9(CGS) Región Islas<br>Vancouver. (U.S.C.G.S.) |   |   |

|     |    |                 |    |    |    |      |
|-----|----|-----------------|----|----|----|------|
| 491 | 29 | eP <sup>v</sup> | ZS | 04 | 22 | 40.0 |
|     |    | ipP             | ZS |    | 23 | 35.0 |

8°5S-158°7E; Ho=04-03-26,6(1.0-30)  
h=168 Km. Mag:5.0(CGS) Islas Salo-  
món. (U.S.C.G.S.)

|     |    |     |    |    |    |      |
|-----|----|-----|----|----|----|------|
| 492 | 29 | eP  | ZS | 04 | 44 | 07.0 |
|     |    | ipP | ZS |    | 44 | 28.8 |
|     |    | Lr  | ZL | 05 | 21 | 00   |

44°2N-146°7E; Ho=04-31-03,7(1.2-73)  
h=73 Km. Mag:5.3(CGS) Islas Kuriles.  
(U.S.C.G.S.)

|     |    |                    |    |    |    |      |
|-----|----|--------------------|----|----|----|------|
| 493 | 29 | e(P <sub>1</sub> ) | ZS | 05 | 34 | 34.0 |
|     |    | ip <sub>2</sub>    | ZS |    | 34 | 53.0 |
|     |    | eSKS               | ZL |    | 41 | 08   |
|     |    | e(PPS)             | ZL |    | 49 | 48   |
|     |    | eSS                | EL |    | 58 | 00   |
|     |    | eSSS               | EL | 06 | 03 | 44   |
|     |    | Lq                 | EL |    | 18 | 00   |
|     |    | Lr                 | ZL |    | 28 | 00   |

15°0S-173°5W; Ho=05-14-38,0(1.1-89)  
h=33 Km. Mag:5.5-5.8(CGS) Islas Ton-  
ga, sentido en Aia. (U.S.C.G.S.)

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 494 | 29 | eP | ZS | 10 | 46 | 26.0 |
|-----|----|----|----|----|----|------|

24°0N-94°1E; Ho=10-33-58,6(0.9-57)  
h=47 Km. Mag:5.0(CGS) Región fron-  
teriza Burma-India. (U.S.C.G.S.)

|     |    |                 |    |            |    |      |
|-----|----|-----------------|----|------------|----|------|
| 495 | 29 | ip <sub>1</sub> | ZL | 19         | 22 | 02   |
|     |    |                 |    | Compresión |    |      |
|     |    | ip <sub>2</sub> | ZL |            | 22 | 22   |
|     |    | iPP             | ZL |            | 25 | 04   |
|     |    | eSKS            | NL |            | 30 | 22   |
|     |    | iSKSP           | NL |            | 36 | 07   |
|     |    | iPPS            | ZL |            | 38 | 48   |
|     |    | e               | EL |            | 41 | 16   |
|     |    | eSS             | EL |            | 45 | 23   |
|     |    | Lq              | EL | 20         | 04 | 00   |
|     |    | Lr              | ZL |            | 14 | 00   |
|     |    | M               | NL |            | 44 | 00   |
|     |    |                 |    | seg. micr. |    |      |
|     |    | M               | NL | 26.4       |    | 5.55 |

D=149°7=16.635 Km.  
11°6S-166°3E; Ho=19-02-19,0(1.1-100)  
h=50 Km. Mag:5.9-6.1(CGS), 6(Pas),  
Islas Santa Cruz. (U.S.C.G.S.)

|     |    |       |    |    |    |      |
|-----|----|-------|----|----|----|------|
| 496 | 29 | e(Pg) | ZS | 19 | 59 | 04.0 |
|     |    | eSn   | NS |    | 59 | 56   |

38°8N-9°2W; Ho=19-57-43, h=N Pró-  
ximo a Lisboa. (L.C.S.S. Madrid)



| Núm. | Fecha | Fase            | Comp. | H  | M  | S    |
|------|-------|-----------------|-------|----|----|------|
| 497  | 29    | eP <sub>1</sub> | ZS    | 20 | 49 | 38.5 |
|      |       | iP <sub>2</sub> | ZS    |    | 50 | 23.0 |

20°6S-178°7W; Ho=20-30-45.1(1.2-61)  
h=610 Km. Mag:5.1(CGS) Región Islas  
Fiji. (U.S.C.G.S.)

|     |    |    |    |    |    |    |
|-----|----|----|----|----|----|----|
| 498 | 30 | e  | NL | 10 | 48 | 10 |
|     |    | e  | NL |    | 51 | 22 |
|     |    | Lq | NL |    | 57 | 00 |
|     |    | Lr | ZL | 11 | 00 | 00 |

|     |    |      |    |    |    |    |
|-----|----|------|----|----|----|----|
| 499 | 30 | ePP  | ZL | 13 | 35 | 22 |
|     |    | ePPP | ZL |    | 38 | 11 |
|     |    | eS   | NL |    | 42 | 12 |
|     |    | ePS  | NL |    | 45 | 24 |
|     |    | eSS  | NL |    | 50 | 44 |
|     |    | Lr   | ZL | 14 | 07 | 00 |

12°2N-124°5E; Ho=13-16-27.1(1.1-107)  
h=93 Km. Mag:5.8(CGS) Samar, Islas  
Filipinas. Sentido en la parte cen-  
tral de las Islas. (U.S.C.G.S.)

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 500 | 30 | eP | ZS | 23 | 32 | 13.5 |
|     |    | Lr | ZL | 00 | 07 | 00   |

53°7N-164°1W; Ho=23-19-37.4(1.2-50)  
h=33 Km. Mag:4.9(CGS) Región Islas  
Unimak. (U.S.C.G.S.)

|     |    |        |    |            |    |      |
|-----|----|--------|----|------------|----|------|
| 501 | 31 | iP     | ZS | 20         | 35 | 58.0 |
|     |    |        |    | Dilatación |    |      |
|     |    | i      | ZS |            | 36 | 51.0 |
|     |    | iPP    | ZL |            | 39 | 08   |
|     |    | iPPP   | ZL |            | 41 | 15   |
|     |    | iSKS   | NL |            | 46 | 00   |
|     |    | iS     | EL |            | 46 | 24   |
|     |    | iSS    | EL |            | 51 | 32   |
|     |    | i(SSS) | EL |            | 56 | 00   |
|     |    | Lr     | ZL | 21         | 04 | 00   |

(continúa)

| Núm. | Fecha | Fase | Comp. | H | M | S |
|------|-------|------|-------|---|---|---|
| 501  | 31    |      |       |   |   |   |

(continuación)  
seg. micr.  
iP ZS 1.5 6.1  
i ZS 1.5 12.0

D=85°2=9.465 Km.

9°2S-78°8W; Ho=20-23-27.2(0.9-101)  
h=43 G Km. Mag:6.6-7.8(CGS), 7.6(Pas)  
7 1/4-7 1/2(BRK) Cerca de la Costa  
Norte del Perú. Aproximadamente  
70.000 muertos, 800.000 personas sin  
hogar, 250 millones de dólares en  
daños. Caras, Huaras y Yungay casi  
totalmente destruidos. Chimbote su-  
frió grandes daños. Todos los pue-  
blos del cañón de Huaylas se inun-  
daron al reventarse las presas y que  
daron enterradas por las avalanchas  
de tierra y lodo. Max. Int. (VIII)  
en el área de Chimbote-Casma. Sen-  
tido en una extensión de 600 millas  
a lo largo del Perú. (U.S.C.G.S.)

|     |    |    |    |            |      |      |
|-----|----|----|----|------------|------|------|
| 502 | 31 | iP | ZS | 20         | 58   | 22.8 |
|     |    |    |    | Compresión |      |      |
|     |    |    |    | seg. micr. |      |      |
|     |    | iP | ZS | 1.5        | 0.73 |      |

9°8S-78°6W; Ho=20-45-52.7(0.7-31)  
h=55 Km. Mag:6.0(CGS) Cerca de la  
Costa Norte de Perú. (U.S.C.G.S.)

|     |    |    |    |    |    |      |
|-----|----|----|----|----|----|------|
| 503 | 31 | eP | ZS | 21 | 36 | 28.0 |
|-----|----|----|----|----|----|------|

9°5S-78°2W; Ho=21-45-03.6(1.3-16)  
h=50 Km. Mag:4.6(CGS) Cerca de la  
Costa Norte de Perú. (U.S.C.G.S.)

|     |    |     |    |            |    |      |
|-----|----|-----|----|------------|----|------|
| 504 | 31 | eiP | ZS | 22         | 00 | 36.8 |
|     |    |     |    | Dilatación |    |      |
|     |    | i   | ZS |            | 00 | 51.5 |

10°2S-78°6W; Ho=21-48-04.4(0.9-59)  
h=51 Km. Mag:5.6(CGS), 4 3/4(BRK)  
Cerca de la Costa del Perú. (U.S.  
C.G.S.)

Ana Maria Gomez-Menor

Julia Ramos Ramos

GONZALO PAYO  
Ingeniero Jefe