

13 NOV 1968

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 G Luanda

|                |  |              |
|----------------|--|--------------|
| ANNÉE 3 - No 1 | BULLETIN SEISMIQUE D'ANGOLA (PORTUGAL) | JANVIER 1967 |
|----------------|--|--------------|

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\varphi = 14^{\circ} 54' 08''$  S      Longitude:  $\lambda = 19^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\Phi = 14^{\circ} 48' 23''$  S      Altitude:  $h = 1761$  m

Nature du sous-sol:  
Granite

Constantes des sismographes

| Séismographes               | $T_0$<br>(s) | $T_g$<br>(s) | Amplification |             |             |              |
|-----------------------------|--------------|--------------|---------------|-------------|-------------|--------------|
|                             |              |              | $T_s=0,2$ s   | $T_s=0,6$ s | $T_s=1,0$ s | $T_s=15,0$ s |
| Benioff vertical (z)        | 1,0          | 0,2          | 76750         | 33000       | 15300       | -            |
| Benioff vertical (z)        | 1,0          | 21,3         | 400           | 1100        | 1650        | 120          |
| Benioff vertical (CPZ)      | 1,0          | 0,75         | 38000         | 150000      | 100000      | -            |
| Benioff N/S (CPN)           | 1,0          | 0,85         | 38000         | 150000      | 100000      | -            |
| Benioff EW (CPE)            | 1,0          | 0,82         | 38000         | 150000      | 100000      | -            |
| Sprengnether vertical (LPZ) | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether NS (LPN)       | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether EW (LPE)       | 15,0         | 100,0        | -             | -           | -           | 1500         |

| Date | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|------|--------|--------------|--|--------------|-------------------|
|------|--------|--------------|--|--------------|-------------------|

1967 Jan. 1 PKP 09:04:07,5 eICPZn;iz - -  
 U.S.C.G.S.: Epicentre: 20,5 S; 178,4 W (Région des îles Fidji)  
 $h = 627$  km  $H = 08:45:42,2$  Mag: 5,6 (C.G.S.)  
 $\Delta = 144^{\circ}$

1 PKP 14:38:16 eCPZ - -  
 LR 15:26,7 LPZNE - -  
 M 15:43,8 LPZ 20 - -  
 U.S.C.G.S.: Epicentre: 12,4 S; 165,8 E (Îles Santa Cruz)  
 $h = 33$  R  $H = 14:18:51$  Mag: 5,0 (C.G.S.)  
 $\Delta = 140^{\circ}$

1 PKP 22:18:28,8 iCPZ;eLPZ - - c  
 SKP 22:22:10,3 iCPZ - - d  
 LR 23:06,3 LPZN - - -  
 U.S.C.G.S.: Epicentre: 11,1 S; 165,5 E (Îles Santa Cruz)  
 $h = 33$  R  $H = 21:58:57,8$  Mag: 5,4 (C.G.S.)  
 $\Delta = 140^{\circ}$

| Date   | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |           |
|--|--|--------------|--|--------------|-------------------|-----------|
| 1967 Jan. 2  | Pg   | 04:46:22,0   | eCPZNE; iz   | -            | SN, WE            |           |
|  | Sg   | 04:46:33,8   | iCPZNE; iz   | -            | c, SN, EW         |           |
|  | S*   | 04:46:56,0   | iz   | -            | -                 |           |
|  | Sn   | 04:46:38,5   | iCPZNE; iz   | -            | c, NS, WE         |           |
|  | 2  | P            | 07:05:19,5   | iCPZNE; eLPZ | -                 | d, NS, EW |
|  | pP   | 07:05:27,5   | iCPZ   | -            | c                 |           |
|  | PP   | 07:08:13,5   | iCPZNE   | -            | c, NS, EW         |           |
|  | S  | 07:15:31     | eLPNE  | -            | -                 |           |
|  | LQ   | 07:26:44     | LPZNE  | -            | -                 |           |
|  | LR   | 07:30:47     | LPZNE  | -            | -                 |           |
|  | U.S.C.G.S.: Epicentre: 25,2 S; 71,0 W (Côte Nord du Chili)<br>h = 38 R H = 06:53:17,5 Mag: 5,0 (C.G.S.)<br>$\Delta = 80^\circ$ |              |  |              |                   |           |
|  | 2  | P            | 08:28:14,5   | iCPZN        | -                 | d, SN     |
|  |  | pP           | 08:28:21,5   | eCPZ         | -                 | -         |
|  |  | LR           | 08:45,3  | GPNE; LPZN   | 12                | -         |
|  | U.S.C.G.S.: Epicentre: 32,2 N; 22,7 E (Côte de Libye)<br>h = 20 km H = 08:19:32,8 Mag: 4,5 (C.G.S.)<br>$\Delta = 47^\circ$     |              |  |              |                   |           |
|  | 2  | P            | 09:51:25,3   | iCPZNE       | -                 | d, NS, WE |
|  |  | PP           | 09:51:35,4   | iCPZNE       | -                 | c, SN, EW |
|  |  | (PPP)        | 09:51:43,3   | iCPZ         | -                 | -         |
|  |  | -            | 09:54:03,9   | iCPZ         | -                 | c         |
|  |  | S            | 09:54:09,5   | iCPN         | -                 | d         |
| sS   |  | 09:54:21,5   | GPZNE  | -            | -                 |           |
| SS   |  | 09:54:32     | CPZNE; LPN   | -            | -                 |           |
| SSS  |  | 09:54:46     | iCPZNE; LPZ  | -            | -                 |           |
| Lg   |  | 09:55:49     | GPZNE; LPZNE   | -            | -                 |           |
| LR   |  | 09:56:56     | LPZNE  | -            | -                 |           |
| U.S.C.G.S.: Epicentre: 10,2 S; 28,5 E (République du Congo)<br>h = 33 km H = 09:47:53,3 Mag: 5,6 (C.G.S.)<br>$\Delta = 15,3^\circ$ |  |              |  |              |                   |           |
| 2  | P  | 13:59:55,5   | iCPZN  | -            | c                 |           |
|  | LR   | 14:23,7      | LPZNE  | 20           | -                 |           |
|  | M  | 14:25,1      | LPZ  | 16           | -                 |           |
| U.S.C.G.S.: Epicentre: 30,6 N; 50,4 E (Iran)<br>h = 40 km H = 13:50:06,2 Mag: 5,2 (C.G.S.)<br>$\Delta = 58^\circ$                  |  |              |  |              |                   |           |
| 2  | PKIKP  | 20:19:23,9   | iz, IZ   | -            | d                 |           |
|  | PKIKP  | 20:19:31,7   | iz   | -            | c                 |           |
|  | PP   | 20:22:14,0   | iz   | -            | c                 |           |
|  | PKS  | 20:23:19,6   | iz   | -            | d                 |           |
|  | LQ   | 21:00,5      | LPNE   | 50           | -                 |           |
|  | LR   | 21:08,1      | LPZNE  | 40           | -                 |           |
|  | M  | 21:15,0      | LPZ  | 22           | -                 |           |
| U.S.C.G.S.: Epicentre: 12,3 S; 166,4 E (Iles Santa Cruz)<br>h = 33 km H = 19:59:58,2 Mag: 5,2 (C.G.S.)<br>$\Delta = 141,7^\circ$   |  |              |  |              |                   |           |
| 3  | Lg   | 02:16:12     | eCPZNE; ez   | -            | SN, EW            |           |
| 3  | PKIKP  | 05:55:10,5   | iCPZN  | -            | c, NS             |           |
|  | PKIKP  | 05:55:19,0   | iz, eZ   | -            | c                 |           |
|  | -  | 05:55:26,0   | iz   | -            | c                 |           |
|  | -  | 05:55:36,1   | iz   | -            | c                 |           |
|  | PKS  | 05:58:43,7   | iz   | -            | d                 |           |
|  | PS   | 06:08:38     | Z  | -            | -                 |           |
|  | LR   | 06:45:37     | LPZNE  | 30           | -                 |           |
|  | M  | 07:15:30     | LPZ  | 17           | -                 |           |
| U.S.C.G.S.: Epicentre: 10,9 S; 165,5 E (Iles Santa Cruz)<br>h = 33 km H = 05:35:46,6 Mag: 5,2 (C.G.S.)<br>$\Delta = 142^\circ$     |  |              |  |              |                   |           |
| 3  | PKIKP  | 06:12:21,0   | iz   | -            | c                 |           |
|  | PKIKP  | 06:12:27,5   | iz   | -            | c                 |           |
| 3  | PKIKP  | 11:24:50,5   | iz   | -            | c                 |           |
|  | LR   | 12:13:42     | LPZE   | 30           | -                 |           |
| U.S.C.G.S.: Epicentre: 11,2 S; 165,4 E (Iles Santa Cruz)<br>h = 33 R H = 11:05:15,4 Mag: 5,3 (C.G.S.)<br>$\Delta = 140^\circ$      |  |              |  |              |                   |           |

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Jan. 3   | PKIKP  | 21:42:47,3   | iz   | -            | d                 |
|   | PKIKP  | 21:42:53,7   | iz   | -            | c                 |
|   | LQ     | 22:23:20     | LPN  | 60           | -                 |
|   | LR     | 22:31:24     | LPZN   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 12,4 S; 166,4 E (Iles Santa Cruz)<br>h = 33 R H = 21:23:22 Mag: 5,0 (C.G.S.) - 5,4/5,8 (BRK)<br>$\Delta = 140^\circ$ |        |              |  |              |                   |
| 4   | LR     | 03:56:38     | LPZE   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 3,6 S; 148,9 E (Mer Bismarck)<br>h = 9 km H = 02:53:28 Mag: 4,9 (C.G.S.)<br>$\Delta = 129^\circ$                     |        |              |  |              |                   |
| 4   | P      | 06:08:16,5   | ICPZN; iz  | -            | d, SN             |
|   | pP     | 06:05:25,9   | ICPZ; iz   | -            | c                 |
|   | LR     | 06:26:24     | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 38,6 N; 22,1 E (Grèce)<br>h = 7 km H = 05:58:54,1 Mag: 5,2 (C.G.S.)<br>$\Delta = 53,5^\circ$                         |        |              |  |              |                   |
| 4   | Pn     | 12:56:11,0   | eCPZNE; ez   | -            | -                 |
|   | Sn     | 12:57:05,0   | eCPZNE; ez, ez                                     | -            | -                 |
|   | S*     | 12:57:13,0   | eCPZNE; ez, ez                                     | -            | -                 |
|   | Lg     | 12:57:21,0   | eCPZNE; ez, ez                                     | -            | -                 |
|   | Sg     | 12:57:28,5   | eCPZNE   | -            | -                 |
| 4   | LR     | 18:43:00     | LPZNE  | 24           | -                 |
| 4   | P      | 20:27:58,5   | eICPZ  | -            | e                 |
|   | pP     | 20:28:17,2   | ICPZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 10,7 N; 62,5 W (Côte de Venezuela)<br>h = 74 km H = 20:15:55,8 Mag: 5,5 (C.G.S.)<br>$\Delta = 80^\circ$              |        |              |  |              |                   |
| 4   | P      | 22:57:22,2   | ICPZN; iz, iz                                      | -            | d, SN             |
|   | -      | 22:57:35,9   | ICPN   | -            | SN                |
|   | pP     | 22:57:40,0   | ICPZ   | -            | d                 |
|   | S      | 23:04:50     | LPZN   | -            | -                 |
| U.S.C.G.S.: Epicentre: 55,7 S; 27,6 W (Sud des Iles Sandwich)<br>h = 88 km H = 22:48:24,4 Mag: 5,5 (C.G.S.)<br>$\Delta = 52^\circ$          |        |              |  |              |                   |
| 5   | P      | 00:28:31,3   | ICPZN; iLPZ; iz, iz                                | 1            | d, NS             |
|   | pP     | 00:28:38,1   | ICPZNE   | -            | c, SN, WE         |
|   | PP     | 00:32:39,3   | ICPZNE; iLPZNE;                                    | -            | d, SN, WE         |
|   |        |              | iz, iz   | -            |                   |
|   | PPP    | 00:34:57,0   | iLPZ   | -            | d                 |
|   | SKS    | 00:38:07     | iLPZNE   | -            | c, SN, WE         |
|   | SKKS   | 00:39:10     | iLPZNE   | -            | c, NS, EW         |
|   | S      | 00:39:50     | iLPNE  | -            | NS, EW            |
|   | sS     | 00:40:10     | iLPNE  | -            | NS, WE            |
|   | SP     | 00:41:14     | iLPZNE   | -            | e, SN, EW         |
|   | PS     | 00:41:42     | iLPZNE   | -            | d, NS, EW         |
|   | SS     | 00:46:26     | iLPZNE   | -            | d                 |
|   | LR     | 00:54:12     | LPZNE  | 17           | -                 |
| U.S.C.G.S.: Epicentre: 48,1 N; 102,8 E (Mongolie)<br>h = 33 km H = 00:14:40,4 Mag: 6,4 (C.G.S.)<br>$\Delta = 100,5^\circ$                   |        |              |  |              |                   |
| 6   | PKIKP  | 00:23:11,9   | ICPZ   | -            | c                 |
|   | LQ     | 01:10:34     | LPZ  | 40           | -                 |
|   | LR     | 01:18:00     | LPZNE  | 28           | -                 |
|   | M      | 01:25:18     | LPZ  | 18           | -                 |
| U.S.C.G.S.: Epicentre: 41,8 N; 143,9 E (Hokkaido, Japon)<br>h = 35 km H = 00:04:02,7 Mag: 5,5 (C.G.S.)<br>$\Delta = 129,2^\circ$            |        |              |  |              |                   |
| 7   | P      | 00:40:00,2   | ICPZNE   | 1            | d, WE             |
|   | (pP)   | 00:40:10,3   | ICPZ   | -            | d                 |
|   | S      | 00:50:37     | LPZNE  | -            | NS, EW            |
|   | LQ     | 01:03:40     | LPNE   | 42           | -                 |
|   | LR     | 01:08:30     | LPZNE  | 30           | -                 |
|   | M      | 01:12:00     | LPZ  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 48,8 S; 112,7 E (Océan Indien)<br>h = 33 km H = 00:27:25,2 Mag: 5,8 (C.G.S.)<br>$\Delta = 89^\circ$                  |        |              |  |              |                   |

| Date   | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--|--|--------------|--|--------------|-------------------|
| 1967 Jan. 7  | LQ   | 12:42:12     | LPZE   | 30           | -                 |
|  | LR   | 12:48:14     | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 12,3 S; 166,1 E (Iles Santa Cruz)<br>h = 33 km H = 11:33:01 Mag: 4,7 (C.G.S.)<br>$\Delta = 142^\circ$     |  |              |  |              |                   |
| 7  | PKIKP  | 17:00:31,7   | iCPZ   | -            | -                 |
|  | PKIKP  | 17:00:38,7   | iCPZ   | -            | d                 |
|  | LQ   | 17:48:39     | LPZNE  | 34           | -                 |
|  | LR   | 17:56:40     | LPZNE  | 22           | -                 |
|  | M  | 18:03:00     | LPZ  | 18           | -                 |
| U.S.C.G.S.: Epicentre: 11,9 S; 166,1 E (Iles Santa Cruz)<br>h = 33 R H = 16:41:03 Mag: 5,1 (C.G.S.)<br>$\Delta = 141,8^\circ$    |  |              |  |              |                   |
| 8  | P  | 02:05:07,5   | iCPZNE   | -            | c, SN, WE         |
|  | LQ   | 02:25:36     | LPNE   | 26           | -                 |
|  | LR   | 02:30:22     | LPZN   | 14           | -                 |
| U.S.C.G.S.: Epicentre: 27,7 N; 54,5 E (Iran)<br>h = 17 km H = 01:59:13,6 Mag: 5,3 (C.G.S.)<br>$\Delta = 58^\circ$                |  |              |  |              |                   |
| 8  | LQ   | 06:18:00     | LPZNE  | 30           | -                 |
|  | LR   | 06:23:40     | LRZ  | 22           | -                 |
| U.S.C.G.S.: Epicentre: 56,0 N; 162,9 E (Kamtchatka)<br>h = 33 km H = 05:02:52,1 Mag: 5,1 (C.G.S.)<br>$\Delta = 130^\circ$        |  |              |  |              |                   |
| 8  | LQ   | 16:37:00     | LPZN   | 30           | -                 |
|  | LR   | 16:41:00     | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 12,2 S; 166,5 E (Iles Santa Cruz)<br>h = 40 km H = 15:27:16,9 Mag: 5,1 (C.G.S.)<br>$\Delta = 142^\circ$   |  |              |  |              |                   |
| 9  | P  | 13:36:11,7   | iCPZ   | -            | c                 |
|  | U.S.C.G.S.: Epicentre: 28,0 S; 67,2 W (Province La Rioja, Argentine)<br>h = 119 km H = 13:24:39,0 Mag: 4,5 (C.G.S.)<br>$\Delta = 76^\circ$ |              |  |              |                   |
| 9  | LQ   | 18:51:24     | LPZNE  | 40           | -                 |
|  | LR   | 19:00:10     | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 12,3 S; 166,6 E (Iles Santa Cruz)<br>h = 33 km H = 17:47:42 Mag: 4,8 (C.G.S.)<br>$\Delta = 142^\circ$     |  |              |  |              |                   |
| 9  | LR   | 21:04:24     | LPZ  | 20           | -                 |
|  | U.S.C.G.S.: Epicentre: 11,5 S; 165,4 E (Iles Santa Cruz)<br>h = 78 km H = 19:47:06 Mag: 5,5 (C.G.S.)<br>$\Delta = 142^\circ$               |              |  |              |                   |
| 10   | L  | 01:51:40     | LPZNE  | -            | -                 |
| 10   | PKIKP  | 13:53:40,7   | iCPZ   | -            | c                 |
|  | PKP  | 13:53:43,3   | iCPZ   | -            | d                 |
|  | PKIKP  | 13:53:49,4   | iCPZ   | -            | c                 |
|  | LR   | 14:48:00     | LPZN   | 22           | -                 |
| U.S.C.G.S.: Epicentre: 19,6 S; 175,8 W (Ile Tonga)<br>h = 33 km H = 13:34:06 Mag: 5,0 (C.G.S.)<br>$\Delta = 144,3^\circ$         |  |              |  |              |                   |
| 10   | P  | 22:36:27,0   | iCPZ   | -            | c                 |
|  | U.S.C.G.S.: Epicentre: 25,5 S; 70,7 W (Côte Nord du Chili)<br>h = 33 km H = 22:24:26,3 Mag: 4,9 (C.G.S.)<br>$\Delta = 79^\circ$            |              |  |              |                   |
| 11   | LQ   | 06:39:32     | LPN  | 40           | -                 |
|  | LR   | 06:49:40     | LPZE   | 22           | -                 |
| U.S.C.G.S.: Epicentre: 0,1 S; 122,1 E (Nord-Est des Océanes)<br>h = 23 km H = 05:54:00 Mag: 5,6 (C.G.S.)<br>$\Delta = 105^\circ$ |  |              |  |              |                   |

| Date   | Phases  | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (M) | Périodes (s) | Sens du mouvement |
|--|---|--------------|--|--------------|-------------------|
| 1967 Jan. 11   | P   | 11:30:34,8   | iCPZNE; iLPZ                                       | 1,5          | c, SN, WE         |
|  | S   | 11:38:34     | iLPN   | -            | SN                |
|  | LQ  | 11:43:00     | LPZNE  | 32           | -                 |
|  | LR  | 11:51:50     | LPZNE  | 22           | -                 |
|  | M   | 11:57:00     | LPZN   | 26           | -                 |
| U.S.C.G.S.: Epicentre: 34,1 N; 45,7 E (Iran)<br>h = 34 km H = 11:20:45,7 Mag: 5,6 (C.G.S.)<br>$\Delta = 57^\circ$                          |   |              |  |              |                   |
| 11   | LQ  | 16:47:22     | LPN  | -            | -                 |
|  | LR  | 16:51:12     | LPZN   | -            | -                 |
| U.S.C.G.S.: Epicentre: 5,3 N; 82,5 W (Sud du Panama)<br>h = 22 km H = 16:08:06,1 Mag: 5,1 - 5,5 (BRK); 5,3 (C.G.S.)<br>$\Delta = 96^\circ$ |   |              |  |              |                   |
| 12   | P   | 05:26:27,5   | iCPZN  | -            | c, NS             |
|  | LR  | 05:44:14     | LPZ  | 16           | -                 |
| U.S.C.G.S.: Epicentre: 56,1 S; 26,7 W (Sud des îles Sandwich)<br>h = 33 R H = 05:17:22 Mag: 5,4 (C.G.S.)<br>$\Delta = 51^\circ$            |   |              |  |              |                   |
| 12   | Pn  | 10:45:58,7   | iCPZNE; iz, iZ                                     | -            | c, SN             |
|  | P*  | 10:46:14,6   | iz, iZ   | -            | -                 |
|  | Pg  | 10:46:13,3   | iCPZN  | -            | -                 |
|  | Sn  | 10:46:44,5   | iCPZE; iz, iZ                                      | -            | -                 |
|  | (S*)  | 10:46:48,8   | iCPZNE; iz, iZ                                     | -            | -                 |
|  | Lg  | 10:46:55,5   | iCPZE; iz, iZ                                      | -            | -                 |
| 10   | LR  | 18:46:18     | LPZNE  | 16           | -                 |
|  | U.S.C.G.S.: Epicentre: 28,0 N; 54,5 E (Iran)<br>h = 33 km H = 18:14:20 Mag: 4,9 (C.G.S.)<br>$\Delta = 57^\circ$   |              |  |              |                   |
| 12   | P   | 21:58:29,2   | eCPZN; iz, iZ                                      | -            | c, SN             |
| 12   | P   | 22:27:36     | eCPZNE   | -            | -                 |
|  | LR  | 22:36:34     | LPZNE  | -            | -                 |
| U.S.C.G.S.: Epicentre: 2,1 N; 31,3 E (Ouganda)<br>h = 29 km H = 22:22:12 Mag: 4,4 (C.G.S.)<br>$\Delta = 23^\circ$                          |   |              |  |              |                   |
| 13   | PKIKP   | 14:07:31,5   | iCPZ   | -            | d                 |
|  | PKIKP   | 14:07:40,5   | iCPZ   | -            | d                 |
|  | PP  | 14:10:30     | LPZ  | -            | -                 |
|  | SPP   | 14:22:37     | LPZ  | -            | -                 |
|  | SS  | 14:28:40     | LPNE   | -            | -                 |
|  | LR  | 14:54:30     | LPZNE  | 32           | -                 |
|  | M   | 15:09:00     | LPZ  | 18           | -                 |
|  | U.S.C.G.S.: Epicentre: 10,6 S; 161,4 E (îles Salomon)<br>h = 32 km H = 13:48:11,7 Mag: 6,4 ? (PAS); 5,7 - 6,1 (BRK); 6 (C.G.S.)<br>$\Delta = 139,2^\circ$ |              |  |              |                   |
| 14   | P   | 12:54:06,0   | iCPZE  | -            | c, EW             |
|  | pP  | 12:54:18,6   | iCPZ   | -            | c                 |
|  | LQ  | 13:19:20     | LPZNE  | 30           | -                 |
|  | LR  | 13:26:00     | LPZ  | 22           | -                 |
| U.S.C.G.S.: Epicentre: 4,1 S; 102,4 E (Sud-Est de Sumatra)<br>h = 33 km H = 12:41:17,4 Mag: 5,2 (C.G.S.)<br>$\Delta = 85^\circ$            |   |              |  |              |                   |
| 14   | P   | 14:13:46,1   | iCPZNE; iLPZ                                       | -            | c, NS, WE         |
|  | pP  | 14:13:54,5   | iCPZE  | -            | c, WE             |
|  | PP  | 14:15:08,2   | iCPZNE; iLPZ                                       | -            | c, NS, WE         |
|  | S   | 14:19:32     | iLPZNE   | -            | d, NS, WE         |
|  | SS  | 14:21:20     | LPNE   | -            | -                 |
|  | LR  | 14:23:32     | LPZNE  | 40           | -                 |
|  | M   | 14:27:30     | LPZN   | 18           | -                 |
| U.S.C.G.S.: Epicentre: 43,4 S; 39,1 E (îles Prince Edward)<br>h = 33 R H = 14:06:48 Mag: 5,3 (C.G.S.)<br>$\Delta = 36^\circ$               |   |              |  |              |                   |

| Date   | Phases   | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes(μ)               | Périodes (s)                        | Sens du mouvement                          |
|--|--|--|---|-------------------------------------|--|
| 1967 Jan. 14   | P<br>pP<br>LR  | 15:41:51,3<br>15:42:02,8<br>16:20:00   | iOPZN<br>iOPZ<br>LPN  | -<br>-<br>-                         | c<br>c<br>-                                |
| U.S.C.G.S.: Epicentre: 44,6 N; 81,5 E (Sinkiang, Chine)<br>h = 33 R H = 15:29:15,0 Mag: 5,0 (C.G.S.)<br>$\Delta = 85^\circ$                      |  |  |   |                                     |  |
| 14   | P*<br>Pn<br>Pg<br>S*<br>Sg<br>Sn   | 22:30:29,3<br>22:30:29,8<br>22:30:31,0<br>22:30:48,9<br>22:30:49,6<br>22:30:50,0     | eOPZNE;ez, eZ<br>iOPZN<br>iOPN<br>iOPZNE;iz, iZ<br>iOPN<br>iOPN | -<br>-<br>-<br>-<br>-<br>-          | NS<br>c, NS<br>SN<br>c, SN, WE<br>NS<br>SN |
| $\Delta = 1,45^\circ$  |  |  |   |                                     |  |
| 15   | P<br>LR  | 15:17:42,7<br>15:46:38   | iOPZ<br>LPZN  | -<br>20                             | c<br>-                                     |
| U.S.C.G.S.: Epicentre: 25,6 S; 70,7 W (Côte Nord du Chili)<br>h = 5 km H = 15:05:37,3 Mag: 4,8 (C.G.S.)<br>$\Delta = 79^\circ$                   |  |  |   |                                     |  |
| 15   | LR   | 21:00:00   | LPZNE   | 20                                  | -  |
| U.S.C.G.S.: Epicentre: 29,0 N; 49,3 W (Atlantique Nord)<br>h = 33 km H = 20:27:37 Mag: 4,7 (C.G.S.)<br>$\Delta = 70^\circ$                       |  |  |   |                                     |  |
| 16   | PKIKP<br>-<br>PP<br>LR   | 05:03:56<br>05:04:25<br>05:07:20<br>05:54:30   | eOPZNE<br>iOPZ<br>LPZ<br>LPZ E                                  | -<br>-<br>-<br>30                   | -<br>d<br>-<br>-                           |
| U.S.C.G.S.: Epicentre: 11,3 S; 165,7 E (Iles Santa Cruz)<br>h = 33 km H = 04:44:27,3 Mag: 5,3 (C.G.S.)<br>$\Delta = 141,9^\circ$                 |  |  |   |                                     |  |
| 16   | P<br>LR  | 07:22:55,6<br>07:52:12   | iOPZ;iz<br>LPZE   | -<br>-                              | d<br>-                                     |
| U.S.C.G.S.: Epicentre: 24,2 S; 66,8 W (Argentine)<br>h = 188 km H = 07:11:12,1 Mag: 5,4 (C.G.S.)<br>$\Delta = 76^\circ$                          |  |  |   |                                     |  |
| 16   | P<br>LR  | 11:28:38,6<br>12:15:42   | iLPZ<br>LPZNE   | -<br>26                             | d<br>-                                     |
| U.S.C.G.S.: Epicentre: 10,7 S; 161,3 E (Iles Salomon)<br>h = 40 km H = 11:09:08,4 Mag: 5,3 - 5,7 (BRK); 5,1 (C.G.S.)<br>$\Delta = 136^\circ$     |  |  |   |                                     |  |
| 16   | PKIKP<br>PP<br>PSS<br>LR<br>M <sub>1</sub><br>M <sub>2</sub><br>M <sub>3</sub> | 14:45:54,8<br>14:49:15,0<br>15:08:34<br>15:34:22<br>15:44:40<br>15:48:10<br>15:53:21 | eOPZN<br>LPZ<br>LPZN<br>LPZNE<br>LPZNE<br>LPZ<br>LPZ            | -<br>-<br>-<br>28<br>19<br>18<br>17 | -<br>d<br>c<br>-<br>-<br>-<br>-            |
| U.S.C.G.S.: Epicentre: 11,2 S; 165,7 E (Iles Santa Cruz)<br>h = 6 km H = 14:26:22,9 Mag: 5,3 (C.G.S.); 5,8 - 6,2 (BRK)<br>$\Delta = 141,9^\circ$ |  |  |   |                                     |  |
| 16   | PKIKP<br>-   | 15:08:16<br>15:08:36   | eOPZ<br>iOPZ  | -<br>-                              | -<br>c                                     |
| U.S.C.G.S.: Epicentre: 11,3 S; 165,7 E (Iles Santa Cruz)<br>h = 33 km H = 14:48:49,3 Mag: 5,1 (C.G.S.)<br>$\Delta = 141,9^\circ$                 |  |  |   |                                     |  |
| 16   | PKIKP<br>PP<br>LR  | 16:21:53,5<br>16:25:35,8<br>17:17:50   | eOPZ<br>iOPZ<br>LPZNE   | -<br>-<br>20                        | -<br>c<br>-                                |
| U.S.C.G.S.: Epicentre: 11,3 S; 165,6 E (Iles Santa Cruz)<br>h = 38 km H = 16:02:22,7 Mag: 5,1 (C.G.S.)<br>$\Delta = 141,9^\circ$                 |  |  |   |                                     |  |

| Date  | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|---|--|--------------|--|--------------|-------------------|
| 1967 Jan. 17  | P  | 01:18:19,6   | iCPZNE; iLPZNE; iz, IZ                             | 0,7          | d, SN, WE         |
|   | PcP  | 01:18:25,6   | iCPZNE; iz, IZ                                     | -            | c, NS, EW         |
|   | pP   | 01:20:18,6   | iCPZNE; iLPZNE; iz, IZ                             | -            | d, EW             |
|   | PP   | 01:21:11,6   | iCPZNE; eLPZE; iz, IZ                              | -            | c, NS             |
|   | PPP  | 01:22:45,5   | iCPZNE; iLPE; iz, IZ                               | -            | c, NS, EW         |
|   | S  | 01:26:52,3   | iCPZNE; iLPZNE; iz, IZ                             | -            | c, SN, WE         |
|   | SKS  | 01:27:21,0   | iLPZ   | -            | c                 |
|   | ss   | 01:30:28     | iLPZNE   | -            | c, SN, WE         |
|   | SS   | 01:31:22     | iLPE   | -            | EW                |
|   | SSS  | 01:35:18     | iLPZ   | -            | c                 |
| LR  | 01:42:34   | LPZE         | 16   | -            |                   |
| U.S.C.G.S.: Epicentre: 27,4 S; 69,3 W (Santiago, Argentine)<br>h = 590 km H = 01:07:54,3 Mag: 6 1/4 (PAS); 4,8 - 5,2 (BRK); 5,5 (C.G.S.)<br>Δ = 71,7°       |  |              |  |              |                   |
| 17  | PKIKP  | 03:39:54,7   | iCPZN; iz, IZ                                      | -            | d, NS             |
| U.S.C.G.S.: Epicentre: 20,2 S; 177,8 W (Iles Fidji)<br>h = 500 km H = 03:21:18,3 Mag: 4,6 (C.G.S.)<br>Δ = 143,1°  |  |              |  |              |                   |
| 17  | P  | 10:34:32,0   | iCPZN  | -            | c, NS             |
|   | LR   | 10:49:36     | LPZN   | 22           | -                 |
| U.S.C.G.S.: Epicentre: 58,2 S; 25,4 W (Sud des Iles Sandwich)<br>h = 33 R H = 10:25:22,7 Mag: 5,1 (C.G.S.)<br>Δ = 52°                                       |  |              |  |              |                   |
| 17  | PKIKP  | 12:18:37,0   | iCPZE  | -            | c                 |
|   | PP   | 12:20:47,8   | iCPZ; iLPZNE                                       | -            | c                 |
|   | PKS1   | 12:21:54,0   | iCPZ; iLPZNE                                       | -            | c                 |
|   | PKS2   | 12:22:15,3   | iCPZ; iLPZ   | -            | d                 |
|   | PPP  | 12:23:41     | LPZE   | -            | -                 |
|   | SKS  | 12:25:48     | LPZE   | -            | -                 |
|   | SP   | 12:30:47     | LPZ  | -            | -                 |
|   | PS   | 12:30:56     | LPNE   | -            | -                 |
|   | PPS  | 12:32:41     | LPZNE  | -            | -                 |
|   | SS   | 12:38:34     | LPZNE  | -            | -                 |
|   | LR   | 13:00:00     | LPZNE  | 30           | -                 |
|   | M  | 13:18:22     | LPZNE  | 21           | -                 |
|   | U.S.C.G.S.: Epicentre: 38,3 N; 142,1 E (Japon)<br>h = 44 km H = 11:59:31,5 Mag: 6 1/2 (PAS); 6,5 (BRK); 5,9 (C.G.S.)<br>Δ = 129,2° |              |  |              |                   |
| 17  | P  | 14:50:27,0   | iCPZNE; iz, IZ                                     | -            | c, NS, WE         |
| 17  | P  | 21:57:15,1   | iCPZN  | -            | d, NS             |
| 18  | PKIKP  | 04:40:07,4   | iCPZ   | -            | d                 |
| U.S.C.G.S.: Epicentre: 48,9 N; 154,9 E (Iles Kouriles)<br>h = 40 km H = 04:20:52,9 Mag: 5,4 (C.G.S.)<br>Δ = 139,6°  |  |              |  |              |                   |
| 18  | PKP  | 05:53:09,5   | eCPZ   | -            | -                 |
|   | PP   | 05:53:54,0   | iCPZ; iLPZ   | -            | -                 |
|   | PPP  | 05:56:18     | iLPZ   | -            | -                 |
|   | LQ   | 06:20:48     | LPZNE  | -            | -                 |
|   | LR   | 06:30:00     | LPZNE  | 18           | -                 |
|   | M  | 06:46:10     | LPZ  | 17           | -                 |
| U.S.C.G.S.: Epicentre: 56,6 N; 120,8 E (Russie)<br>h = 11 km H = 05:34:32,6 Mag: 6,1 (C.G.S.)<br>Δ = 111,9°   |  |              |  |              |                   |
| 18  | PKIKP  | 08:37:49,5   | eCPZ   | -            | -                 |
|   | LQ   | 09:34:00     | LPNE   | -            | -                 |
|   | LR   | 09:39:00     | LPZNE  | 24           | -                 |
| U.S.C.G.S.: Epicentre: 52,5 N; 168,3 W (Iles Fox, Iles Aléoutiennes)<br>h = 37 km H = 08:18:22,00 Mag: 6 (PAS); 5,5 - 5,7 (BRK); 5,7 (C.G.S.)<br>Δ = 142,4° |  |              |  |              |                   |
| 18  | P  | 13:55:46,7   | iCPZN  | -            | c, SN             |
|   | pP   | 13:55:54,2   | iCPZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 58,4 S; 25,7 W (Sud des Iles Sandwich)<br>h = 11 km H = 13:46:33,9 Mag: 5,1 (C.G.S.)<br>Δ = 52,3°                                    |  |              |  |              |                   |

| Date         | Phases   | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes (μ)  | Périodes (s)                       | Sens du mouvement                               |
|--------------|--|--|---|------------------------------------|---|
| 1967 Jan. 18 | PKIKP<br>-   | 14:49:07,5<br>14:50:12,1   | iCPZ<br>iCPZ  | -<br>-                             | c<br>c  |
|              | U.S.C.G.S.: Epicentre: 17,9 S; 175,4 W (Iles Tonga)<br>h = 226 km H = 14:29:21,5 Mag: 4,6 (C.G.S.)<br>Δ = 146,0°             |  |   |                                    |   |
| 18           | PP   | 22:07:24,5   | iCPZ  | -                                  | c   |
|              | U.S.C.G.S.: Epicentre: 48,1 N; 102,9 E (Mongolie)<br>h = 33 km H = 21:49:25,8 Mag: 5,2 (C.G.S.)<br>Δ = 100,6°                |  |   |                                    |   |
| 19           | PKIKP<br>PP<br>-<br>LQ<br>LR<br>M  | 12:57:43,2<br>12:59:59,8<br>13:22:38<br>13:38:38<br>13:42:08<br>13:56:00             | iCPZNE; iLPZ<br>iCPZ; iLPZ<br>iLPNE<br>LPNE<br>LPZNE<br>LPZNE                             | -<br>-<br>-<br>40<br>24<br>27      | d, NS, WE<br>c<br>SN, WE<br>-<br>-<br>-         |
|              | U.S.C.G.S.: Epicentre: 11,8 S; 166,6 E (Iles Santa Cruz)<br>h = 156 km H = 12:38:31,3 Mag: 5,5 (C.G.S.)<br>Δ = 142,1°        |  |   |                                    |   |
| 19           | PKIKP  | 15:01:01,5   | iCPZ  | -                                  | d   |
|              | U.S.C.G.S.: Epicentre: 52,4 N; 169,6 W (Iles Fox, Iles Aléoutiennes)<br>h = 55 km H = 14:41:37 Mag: 5,2 (C.G.S.)<br>Δ = 143° |  |   |                                    |   |
| 20           | P<br>PP<br>PS<br>SS<br>LQ<br>LR<br>M   | 02:11:09,3<br>02:15:16,8<br>02:24:20<br>02:30:30<br>02:37:08<br>02:46:44<br>02:53:40 | iCPZ; iLPZ; iz, iZ<br>iCPZNE; iLPZNE; iz, iZ<br>iLPZNE<br>LPZNE<br>LPZNE<br>LPZNE<br>LPNE | -<br>-<br>-<br>-<br>34<br>28<br>21 | d<br>d, NS, WE<br>d, NS, WE<br>-<br>-<br>-<br>- |
|              | U.S.C.G.S.: Epicentre: 48,0 N; 102,9 E (Mongolie)<br>h = 33 R H = 01:57:23,1 Mag: 6,1 (C.G.S.)<br>Δ = 99°                    |  |   |                                    |   |
| 20           | L  | 13:10:32   | LPZN  | 20                                 | -   |
| 21           | P<br>S<br>SS<br>LQ<br>LR   | 03:07:54,5<br>03:21:00<br>03:26:23<br>03:38:20<br>03:41:00                           | iCPZ<br>LPZNE<br>LPZNE<br>LPNE<br>LPZNE   | -<br>-<br>-<br>38<br>22            | -<br>-<br>-<br>-<br>-                           |
|              | U.S.C.G.S.: Epicentre: 49,8 S; 114,8 W (Ile Cordillera)<br>h = 33 R H = 02:54:00,8 Mag: 5,3 (C.G.S.)<br>Δ = 102°             |  |   |                                    |   |
| 21           | LR   | 09:43:00   | LPZN  | 20                                 | -   |
|              | U.S.C.G.S.: Epicentre: 17,8 N; 145,9 E (Iles Mariannes)<br>h = 104 km H = 08:15:33,4 Mag: 4,8 (C.G.S.)<br>Δ = 133°           |  |   |                                    |   |
| 21           | PKIKP<br>PKIKP<br>PP<br>LR   | 14:07:32,0<br>14:07:41,0<br>14:10:51,3<br>14:53:34                                   | iCPZ<br>iCPZ<br>iCPZ<br>LPZN  | -<br>-<br>-<br>28                  | c<br>c<br>c<br>-                                |
|              | U.S.C.G.S.: Epicentre: 30,7 S; 178,2 W (Iles Kermadec)<br>h = 65 km H = 13:48:14,1 Mag: 4,9 (C.G.S.)<br>Δ = 133,0°           |  |   |                                    |   |
| 21           | PKP1<br>PKP2   | 15:35:26,8<br>15:35:29,7   | iCPZN<br>iCPZNE   | -<br>-                             | c, NS<br>d, SN, WE                              |
|              | U.S.C.G.S.: Epicentre: 16,4 S; 178,7 W (Iles Fidji)<br>h = 496 km H = 15:16:37 Mag: 3,6 (C.G.S.)<br>Δ = 146,4°               |  |   |                                    |   |
| 22           | LQ<br>LR   | 12:22:16,9<br>12:50:00<br>12:55:20   | iCPZE<br>LPNE<br>LPZNE  | -<br>60<br>20                      | c, EW<br>-<br>-                                 |
|              | U.S.C.G.S.: Epicentre: 8,8 N; 93,7 E (Iles Nicobar)<br>h = 36 km H = 12:09:52,3 Mag: 4,9 (C.G.S.)<br>Δ = 81°                 |  |   |                                    |   |
| 22           | LR   | 19:36:46   | LPZNE   | 22                                 | -   |
|              | U.S.C.G.S.: Epicentre: 0,8 S; 16,0 W (Ile de l'Ascension)<br>h = 33 km H = 19:22:01,4 Mag: 4,6 (C.G.S.)<br>Δ = 34°           |  |   |                                    |   |



| Date         | Phases  | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--------------|---|--------------|--|--------------|-------------------|
| 1967 Jan. 22 | PKP <sub>2</sub>  | 21:54:19,7   | IGPZ   | -            | c                 |
|              | U.S.C.G.S.: Epicentre: 16,5 S; 173,8 W (Iles Tonga)<br>h = 33 R H = 21:34:35 Mag: 4,2 (C.G.S.)<br>$\Delta = 147^{\circ}$                            |              |  |              |                   |
| 22           | PKIKP   | 22:54:24,2   | IGPZ   | -            | c                 |
|              | U.S.C.G.S.: Epicentre: 18,0 S; 178,5 W (Iles Fidji)<br>h = 600 km H = 22:35:51 Mag: 4,5 (C.G.S.)<br>$\Delta = 145,0^{\circ}$                        |              |  |              |                   |
| 23           | L   | 05:52:00     | LPZNE  | 10           | -                 |
| 23           | P   | 20:54:19,2   | IGPZNE; iLPZ                                       | -            | d, NS, EW         |
|              | pP  | 20:54:27,5   | IGPZN  | -            | d                 |
|              | PP  | 20:55:37,3   | IGPZ   | -            | c                 |
|              | S   | 20:59:38     | eILPZNE  | -            | c, NS, WE         |
|              | SS  | 21:01:18     | eLPN   | -            | NS                |
|              | LQ  | 21:02:12     | LPZN   | -            | -                 |
|              | LR  | 21:02:36     | LPZE   | 20           | -                 |
|              | U.S.C.G.S.: Epicentre: 1,6 S; 15,6 W (Ile Ascension)<br>h = 33 R H = 20:47:56,7 Mag: 5,1 (C.G.S.)<br>$\Delta = 33^{\circ}$                          |              |  |              |                   |
| 23           | LQ  | 21:24:40     | LPZNE  | 50           | -                 |
|              | LR  | 21:28:36     | LPZE   | 28           | -                 |
|              | U.S.C.G.S.: Epicentre: 19,9 N; 109,3 W (Iles Revilla Gigedo)<br>h = 56 km H = 20:25:38,3 Mag: 5,7-5,9 (BRK); 5,3 (C.G.S.)<br>$\Delta = 124^{\circ}$ |              |  |              |                   |
| 23           | LQ  | 22:17:20     | LPZNE  | 36           | -                 |
|              | LR  | 22:31:48     | LPZNE  | 20           | -                 |
|              | U.S.C.G.S.: Epicentre: 19,8 N; 109,3 W (Iles Revilla Gigedo)<br>h = 33 km H = 21:24:19,0 Mag: 4,4 (C.G.S.)<br>$\Delta = 124^{\circ}$                |              |  |              |                   |
| 24           | LQ  | 04:11:26     | LPZNE  | 34           | -                 |
|              | LR  | 04:25:51     | LPZNE  | 20           | -                 |
|              | U.S.C.G.S.: Epicentre: 21,4 N; 141,3 E (Hokkaido, Japon)<br>h = 69 km H = 03:05:39,0 Mag: 5,4 (PAL); 5,7 (C.G.S.)<br>$\Delta = 129,2^{\circ}$       |              |  |              |                   |
| 24           | P   | 09:36:20,5   | IGPZNE; eILPZ                                      | -            | c, NS, EW         |
|              | pP  | 09:36:29,9   | IGPZNE   | -            | d, SN, EW         |
|              | -   | 09:36:40,0   | IGPZNE   | -            | c, SN, EW         |
|              | PP  | 09:37:47,8   | IGPZNE   | -            | d, NS, WE         |
|              | PPP   | 09:38:07,0   | IGPZNE   | -            | c, SN, WE         |
|              | S   | 09:41:39,0   | iLPZNE   | -            | d, NS, WE         |
|              | LQ  | 09:45:00     | LPZNE  | 18           | -                 |
|              | LR  | 09:45:22     | GPZNE; LPZ   | 11           | -                 |
|              | M <sub>1</sub>  | 09:47:30     | LPE  | 18           | -                 |
|              | M <sub>2</sub>  | 09:54:30     | LPE  | 15           | -                 |
|              | U.S.C.G.S.: Epicentre: 0,6 S; 21,0 W (Atlantique Central)<br>h = 33 km H = 09:29:12,3 Mag: 4,9 (C.G.S.)<br>$\Delta = 37,0^{\circ}$                  |              |  |              |                   |
| 24           | LQ  | 15:38:12     | LPZNE  | 24           | -                 |
|              | U.S.C.G.S.: Epicentre: 0,8 S; 19,9 W (Atlantique Central)<br>h = 33 km H = 15:21:50 Mag: 5,0 (C.G.S.)<br>$\Delta = 37,0^{\circ}$                    |              |  |              |                   |
| 25           | P   | 02:01:31,9   | IGPZNE; iLPZ;<br>iz, iz                            | 0,8          | c, SN, WE         |
|              | pP  | 02:01:44,8   | IGPZ   | -            | c                 |
|              | PP  | 02:02:37,7   | IGPZNE; iLPZ;<br>iz, iz                            | -            | c, NS, WE         |
|              | S   | 02:12:06     | LPNE   | -            | c, NS, WE         |
|              | LQ  | 02:20:42     | LPZNE  | -            | -                 |
|              | LR  | 02:26:12     | LPZNE  | 18           | -                 |
|              | U.S.C.G.S.: Epicentre: 36,6 N; 71,6 E (Afghanistan)<br>h = 281 km H = 01:50:19,4 Mag: 5,7 (C.G.S.)<br>$\Delta = 74^{\circ}$                         |              |  |              |                   |
| 25           | (P)   | 03:05:39,7   | IGPZE; eLPZ;<br>iz, eZ                             | -            | c                 |

| Date        | Phases  | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|-------------|---|--------------|--|--------------|-------------------|
| 1967 Jan 25 | PKIKP   | 11:02:56,4   | iCPZN  | -            | d, SN             |
|             | U.S.C.G.S.: Epicentre: 19,9 S; 178,1 W (Iles Fidji)<br>h = 599 km H = 10:44:27 Mag: 4,2 (C.G.S.)<br>Δ = 142°                                      |              |  |              |                   |
| 26          | P   | 02:15:24,0   | iCPZN  | -            | d, SN             |
| 26          | P   | 02:20:29,3   | iCPZNE   | -            | c, NS             |
|             | U.S.C.G.S.: Epicentre: 58,4 S; 25,6 W (Sud des Iles Sandwich)<br>h = 33 R H = 02:11:20,7 Mag: 4,1 (C.G.S.)<br>Δ = 52°                             |              |  |              |                   |
| 26          | LR  | 17:02:00     | LPZNE  | 30           | -                 |
|             | U.S.C.G.S.: Epicentre: 15,0 N; 92,8 W (Mexico - Guatémala)<br>h = 33 km H = 16:10:34,3 Mag: 4,9 - 5,3 (BRK); 5,3 (C.G.S.)<br>Δ = 112°             |              |  |              |                   |
| 27          | Pn  | 00:39:25,0   | eCPZNE; ez, eZ                                     | -            | -                 |
|             | Pg  | 00:39:28,7   | iCPZNE; iz, iZ                                     | -            | d, NS, EW         |
|             | Sn  | 00:39:51,1   | eCPZNE; iz, iZ                                     | -            | EW                |
|             | S*  | 00:39:53,0   | iCPZNE; iz, iZ                                     | -            | d, NS, EW         |
|             | Sg  | 00:39:54,8   | iCPZNE; iz, iZ                                     | -            | d, NS, EW         |
|             | Δ = 1,9°  |              |  |              |                   |
| 27          | PKIKP   | 12:55:56,0   | iCPZN  | -            | c                 |
|             | U.S.C.G.S.: Epicentre: 20,5 S; 177,8 W (Iles Fidji)<br>h = 440 km H = 12:37:13,5 Mag: 4,6 (C.G.S.)<br>Δ = 146°                                    |              |  |              |                   |
| 27          | PP  | 14:34:52,7   | iCPZ   | -            | c                 |
|             | U.S.C.G.S.: Epicentre: 31,6 S; 179,5 E (Iles Kermadec)<br>h = 470 km H = 14:13:47 Mag: -<br>Δ = 139°  |              |  |              |                   |
| 28          | Pn  | 10:15:50,6   | eCPZ   | -            | -                 |
|             | P*  | 10:15:56,7   | eCPZN; ez, eZ                                      | -            | -                 |
|             | Pg  | 10:16:03,7   | eCPN   | -            | -                 |
|             | Sn  | 10:16:32,1   | eCPE; ez, eZ                                       | -            | -                 |
|             | S*  | 10:16:41,5   | iCPZNE; iz, iZ                                     | -            | d, SN, WE         |
|             | Lg  | 10:16:43,0   | iCPZNE; ez, eZ                                     | -            | WE                |
|             | Sg  | 10:16:47,7   | iCPZN  | -            | c, NS             |
|             | Δ = 3,4°  |              |  |              |                   |
| 28          | PKIKP   | 14:12:25,7   | iCPZN; iLPZN;                                      | -            | d, NS             |
|             |   |              | iz, iZ   | -            |                   |
|             | PKIKP   | 14:12:35,4   | iCPZE  | -            | c                 |
|             | PP  | 14:15:34,7   | iCPZ; iLPZN  | -            | c                 |
|             | PKS   | 14:16:04,7   | iCPZ   | -            | d                 |
|             | SKKS  | 14:22:31,3   | iCPNE; iLPN  | -            | SN, EW            |
|             | SP  | 14:25:48     | iLPN   | -            | NS                |
|             | SPP   | 14:28:17     | iLPN   | -            | NS                |
|             | SS  | 14:34:22     | LPE  | -            | -                 |
|             | PSS   | 14:35:05     | iLPN   | -            | NS                |
|             | LQ  | 15:01:30     | iLPNE  | -            | -                 |
|             | LR  | 15:05:40     | iLPNE  | 24           | -                 |
|             | M   | 15:17:30     | LPZNE  | 22           | -                 |
|             | U.S.C.G.S.: Epicentre: 52,4 N; 169,5 W (Iles Fox, Iles Aléoutiennes)<br>h = 47 R H = 13:52:58,3 Mag: 6,1 - 6,2 (PAS); 6,3 - 6,7 (BRK)<br>Δ = 149° |              |  |              |                   |
| 28          | PKIKP   | 14:25:23,5   | eCPZN  | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 52,3 N; 169,5 W (Iles Fox, Iles Aléoutiennes)<br>h = 54 km H = 14:05:58,1 Mag: 5,0 (C.G.S.)<br>Δ = 149°                    |              |  |              |                   |
| 28          | PKIKP   | 14:42:52,5   | eCPZ   | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 52,4 N; 169,4 W (Iles Fox, Iles Aléoutiennes)<br>h = 47 km H = 14:23:26,7 Mag: 5,2 (C.G.S.)<br>Δ = 149°                    |              |  |              |                   |
| 28          | PKIKP   | 16:50:24,7   | eCPZ   | -            | -                 |
|             | -   | 16:50:51,7   | eCPZ   | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 52,3 N; 169,3 W (Iles Fox, Iles Aléoutiennes)<br>h = 32 H = 16:31:21,1 Mag: 5,6 (C.G.S.)<br>Δ = 149°                       |              |  |              |                   |

| Date         | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--------------|--|--------------|--|--------------|-------------------|
| 1967 Jan. 28 | PKIKP  | 17:39:03,7   | eCPZ   | -            | -                 |
|              | U.S.C.G.S.: Epicentre: 52,3 N; 169,5 W (Iles Fox, Iles Aléoutiennes)<br>h = 41 km H = 17:19:32,7 Mag: 4,7 (C.G.S.)<br>$\Delta = 143^\circ$ |              |  |              |                   |
| 28           | PKIKP  | 18:01:26,7   | iCPZN  | -            | d, SN             |
|              | PKIKP  | 18:01:34,0   | iCPZ   | -            | c                 |
|              | PP   | 18:05:08,7   | iCPZ   | -            | c                 |
|              | PKS  | 18:05:22,2   | iCPZ   | -            | d                 |
|              | LR   | 18:42:26     | LPZE   | 20           | -                 |
|              | U.S.C.G.S.: Epicentre: 52,4 N; 169,4 E (Iles Fox, Iles Aléoutiennes)<br>h = 50 R H = 17:42:01,5 Mag: 5,6 (C.G.S.)<br>$\Delta = 143^\circ$  |              |  |              |                   |
| 28           | PKIKP  | 22:47:04,2   | iCPZ   | -            | c                 |
|              | PKS  | 22:50:21,2   | iCPZN  | -            | c, NS             |
|              | U.S.C.G.S.: Epicentre: 55,0 N; 160,2 E (Kamtchatka)<br>h = 113 R H = 22:28:01,2 Mag: 5,1 (C.G.S.)<br>$\Delta = 132^\circ$                  |              |  |              |                   |
| 29           | P  | 00:22:37,2   | iCPZN  | -            | d, NS             |
|              | U.S.C.G.S.: Epicentre: 47,9 N; 14,3 E (Autriche)<br>h = 25 km H = 00:12:13,6 Mag: 4,6 (C.G.S.)<br>$\Delta = 63^\circ$                      |              |  |              |                   |
| 29           | P  | 04:03:49,2   | iCPZ   | -            | d                 |
|              | LR   | 04:24:00     | LPNE   | 18           | -                 |
|              | U.S.C.G.S.: Epicentre: 26,5 N; 55,3 E (Iran)<br>h = 42 km H = 03:53:58,8 Mag: 5,1 (C.G.S.)<br>$\Delta = 58^\circ$                          |              |  |              |                   |
| 29           | P  | 07:15:48,7   | eCPZ   | -            | -                 |
|              | LR   | 07:36:22     | LPZNE  | 18           | -                 |
|              | U.S.C.G.S.: Epicentre: 26,7 N; 55,3 E (Iran)<br>h = 58 km H = 07:06:00 Mag: 4,9 (C.G.S.)<br>$\Delta = 57,0^\circ$                          |              |  |              |                   |
| 29           | P  | 07:21:56,2   | iCPZ   | -            | d                 |
|              | PP   | 07:23:25,7   | iCPZNE   | -            | c                 |
|              | U.S.C.G.S.: Epicentre: 26,5 N; 55,3 E (Iran)<br>h = 33 km H = 07:12:05 Mag: 4,7 (C.G.S.)<br>$\Delta = 57,0^\circ$                          |              |  |              |                   |
| 29           | P  | 08:06:28,0   | eCPZNE; iLPZ   | -            | -                 |
|              | pP   | 08:06:43,2   | iCPZ   | -            | c                 |
|              | PP   | 08:08:32,7   | iCPZ   | -            | d                 |
|              | S  | 08:14:31,7   | eCPE   | -            | EW                |
|              | LQ   | 08:22:32     | LPNE   | -            | -                 |
|              | LR   | 08:26:20     | LPNE   | 22           | -                 |
|              | M  | 08:32:44     | LPZN   | 14           | -                 |
|              | U.S.C.G.S.: Epicentre: 26,5 N; 55,2 E (Iran)<br>h = 38 km H = 07:56:39,2 Mag: 5,2 (C.G.S.)<br>$\Delta = 58^\circ$                          |              |  |              |                   |
| 29           | PKIKP  | 18:06:08,2   | eCPZ   | -            | -                 |
|              | U.S.C.G.S.: Epicentre: 16,2 S; 173,8 W (Iles Tonga)<br>h = 134 km H = 17:46:33,3 Mag: 4,5 (C.G.S.)<br>$\Delta = 146^\circ$                 |              |  |              |                   |
| 30           | P  | 01:30:52,2   | eCPZN  | -            | -                 |
|              | LQ   | 01:50:38     | LPZNE  | 36           | -                 |
|              | LR   | 01:54:22     | LPZNE  | 20           | -                 |
|              | U.S.C.G.S.: Epicentre: 41,0 N; 44,2 E (Caucase)<br>h = 33 R H = 01:20:31,7 Mag: 5,0 (C.G.S.)<br>$\Delta = 62^\circ$                        |              |  |              |                   |
| 30           | LQ   | 12:56:00     | LPNE   | -            | -                 |
|              | LR   | 12:59:00     | LPZNE  | 20           | -                 |
|              | U.S.C.G.S.: Epicentre: 39,9 N; 41,3 E (Turquie)<br>h = 33 km H = 12:25:00,6 Mag: 4,8 (C.G.S.)<br>$\Delta = 58^\circ$                       |              |  |              |                   |

| Date   | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--|--------|--------------|--|--------------|-------------------|
| 1967 Jan 30  | P      | 21:18:28,0   | iCPZ   | -            | c                 |
|  | pP     | 21:18:36,6   | iCPZ   | -            | c                 |
|  | LR     | 21:54:30     | LPZ  | 16           | -                 |
| U.S.C.G.S.: Epicentre: 26,2 N; 96,2 E (Burma)                      |        |              |  |              |                   |
| h = 44 km H = 21:05:30,4 Mag: 5,5 (C.G.S.)                         |        |              |  |              |                   |
| $\Delta = 89^\circ$  |        |              |  |              |                   |
| 31   | LR     | 09:44:00     | LPZN   | 22           | -                 |
| 31   | Pn     | 10:18:23,3   | eCPZN; ez, eZ                                      | -            | -                 |
|  | Sn     | 10:19:00,1   | iCPZN; iz, iZ                                      | -            | d, SN             |
|  | S*     | 10:19:04,7   | iCPZN; iz, iZ                                      | -            | c, NS             |
|  | Sg     | 10:19:11,7   | iCPZ; iz, iZ                                       | -            | c                 |
| $\Delta = 2,95^\circ$  |        |              |  |              |                   |
| 31   | LR     | 14:29:30     | LPZE   | 22           | -                 |
| U.S.C.G.S.: Epicentres: 2,8 N; 84,4 W (Côte Central de l'Amérique) |        |              |  |              |                   |
| h = 33 km H = 13:37:34,3 Mag: 5,3 (C.G.S.)                         |        |              |  |              |                   |
| $\Delta = 98^\circ$  |        |              |  |              |                   |
| 31   | P      | 19:10:16,7   | iCPZN  | -            | d, NS             |
|  | LR     | 19:32:00     | LPZNE  | 21           | -                 |
| U.S.C.G.S.: Epicentre: 26,5 N; 55,3 E (Iran)                       |        |              |  |              |                   |
| h = 16 km H = 19:00:22,7 Mag: 5,2 (C.G.S.)                         |        |              |  |              |                   |
| $\Delta = 58^\circ$  |        |              |  |              |                   |

SERVICO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda

C.P. 1228 C Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - No 2

FÉVRIER 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\varphi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E

Latitude géocentrique:  $\varphi = 14 48 23$  S Altitude:  $h = 1761$  m

Nature du sous-sol:

Granite

Constantes des sismographes

| Sismographes                | $T_0$<br>(s) | $T_g$<br>(s) | Amplification |             |             |              |
|-----------------------------|--------------|--------------|---------------|-------------|-------------|--------------|
|                             |              |              | $T_s=0,2$ s   | $T_s=0,6$ s | $T_s=1,0$ s | $T_s=15,0$ s |
| Benloff vertical (z)        | 1,0          | 0,2          | 76750         | 33000       | 15300       | -            |
| Benloff vertical (z)        | 1,0          | 21,3         | 400           | 1100        | 1650        | 120          |
| Benloff vertical (CPZ)      | 1,0          | 0,75         | 38000         | 150000      | 100000      | -            |
| Benloff N/S (CPN)           | 1,0          | 0,85         | 38000         | 150000      | 100000      | -            |
| Benloff EW (GPE)            | 1,0          | 0,82         | 38000         | 150000      | 100000      | -            |
| Sprengnether vertical (LPZ) | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether NS (LPN)       | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether EW (LPE)       | 15,0         | 100,0        | -             | -           | -           | 1500         |

| Date  | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--|--------------|--|--------------|-------------------|
| 1967.. Fev. 1   | P  | 01:17:11,7   | eICPZN   | -            | c                 |
|   | pP   | 01:17:25,0   | iCPZ   | -            | c                 |
|   | S  | 01:25:19     | LPE  | -            | -                 |
|   | LQ   | 01:33:28     | LPNE   | -            | -                 |
|   | LR   | 01:38:00     | LPZNE  | 22           | -                 |
|   | U.S.C.G.S.: Epicentre: 26,7 N - 55,9 E (Iran)<br>h = 19 km H = 01:07:19,2 Mag: 5,0 (C.G.S.)<br>$\Delta = 53^{\circ}$ |              |  |              |                   |
| 1   | LR   | 13:01:34     | LPZE   | 24           | -                 |
| 1   | P  | 13:44:20,2   | iCPZN  | -            | -                 |
|   | pP   | 13:44:26,7   | iCPZ   | -            | -                 |
|   | LR   | 13:50:34     | LPZE   | 22           | -                 |
| 1   | P  | 14:56:27,5   | iCPZ   | -            | c                 |
|   | -  | 14:56:58,0   | iCPZ   | -            | d                 |
|   | LR   | 15:30:14     | LPZE   | 18           | -                 |
| U.S.C.G.S.: Epicentre: 16,7 S - 72,7 W (Côte du Pérou)<br>h = 41 km H = 14:44:07,7 Mag: 4,9 (C.G.S.)<br>$\Delta = 83^{\circ}$ |  |              |  |              |                   |

| Date  | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |       |
|---|--|--------------|--|--------------|-------------------|-------|
| 1967 Fev. 1   | P  | 15:32:48,7   | eiCPZ  | -            | c                 |       |
|   | pP   | 15:33:05,6   | iCPZ   | -            | d                 |       |
|   | LR   | 16:05:15     | LPZ  | 20           | -                 |       |
|   | U.S.C.G.S.: Épicentre: 4,8 S - 103,2 E (Sumatra)               |              |  |              |                   |       |
|   | h = 33 km H = 15:19:56,8 Mag: 5,3 (C.G.S.)                     |              |  |              |                   |       |
|   | Δ = 87°  |              |  |              |                   |       |
|   | 1  | P            | 23:57:34,7   | iCPZN        | -                 | c     |
|   |  | PcP          | 23:57:49,7   | iCPZN        | -                 | c, NS |
|   | U.S.C.G.S.: Épicentre: 22,0 S - 66,7 W (Jujuy - Argentine)     |              |  |              |                   |       |
|   | h = 210 km H = 23:46:09,5 Mag: 4,7 (C.G.S.)                    |              |  |              |                   |       |
| Δ = 76°   |  |              |  |              |                   |       |
| 2   | P  | 06:34:51,0   | iCPZN;eiLPZ  | -            | c, NS             |       |
|   | -  | 06:34:58,6   | iCPZN  | -            | d, SN             |       |
|   | pP   | 06:35:19,2   | iCPZN  | -            | c, SN             |       |
|   | PcP  | 06:36:03,7   | iCPZN;eiLPZ  | -            | d, NS             |       |
|   | PP   | 06:36:45,7   | iCPZN  | -            | SN                |       |
|   | S  | 06:42:12     | eCPN;iLPZNE  | -            | d, NS, EW         |       |
|   | sS   | 06:42:46,5   | iLPZN  | -            | d, SN             |       |
|   | SS   | 06:45:44     | eILPZNE  | -            | c, NS, EW         |       |
|   | LQ   | 06:47:16     | LPZNE  | 40           | -                 |       |
|   | LR   | 06:49:41     | LPZNE  | 25           | -                 |       |
|   | U.S.C.G.S.: Épicentre: 57,9 S - 25,7 W (Sud des Iles Sandwich) |              |  |              |                   |       |
| h = 81 R H = 06:25:49,8 Mag: 5,8 (C.G.S.)               |  |              |  |              |                   |       |
| Δ = 52°   |  |              |  |              |                   |       |
| 2   | P  | 07:49:53,0   | eCPZ   | -            | -                 |       |
|   | pP   | 07:50:04,3   | iCPZ   | -            | d                 |       |
|   | U.S.C.G.S.: Épicentre: 39,7 N - 75,5 E (Sinkiang - Chine)      |              |  |              |                   |       |
| h = 39 km H = 07:37:54,9 Mag: 5,3 (C.G.S.)              |  |              |  |              |                   |       |
| Δ = 78°   |  |              |  |              |                   |       |
| 2   | PKIKP  | 16:43:23,7   | iCPZ   | -            | c                 |       |
|   | PP   | 16:45:24,2   | iCPZ   | -            | c                 |       |
|   | U.S.C.G.S.: Épicentre: 41,6 N - 139,7 E (Hokkaido - Japon)     |              |  |              |                   |       |
| h = 176 km H = 16:24:39,1 Mag: 5,4 (C.G.S.)             |  |              |  |              |                   |       |
| Δ = 126,7°  |  |              |  |              |                   |       |
| 2   | PKIKP  | 18:37:03,0   | iCPZ   | -            | d                 |       |
|   | PKIKP  | 18:37:14,1   | iCPZ   | -            | d                 |       |
|   | U.S.C.G.S.: Épicentre: 4,3 S - 153,7 E (Nouvelle Zelande)      |              |  |              |                   |       |
| h = 247 km H = 18:18:17,4 Mag: 5,0 (C.G.S.)             |  |              |  |              |                   |       |
| Δ = 136,2°  |  |              |  |              |                   |       |
| 3   | PKIKP  | 03:15:26,7   | iCPZ   | -            | d                 |       |
|   | PKIKP  | 03:15:30,2   | iCPZ   | -            | c                 |       |
|   | PKP <sub>2</sub>   | 03:15:32,2   | iCPZ   | -            | d                 |       |
|   | U.S.C.G.S.: Épicentre: 20,8 S - 175,3 W (Iles Tonga)           |              |  |              |                   |       |
| h = 70 km H = 02:56:00 Mag: 4,6 (C.G.S.)                |  |              |  |              |                   |       |
| Δ = 142°  |  |              |  |              |                   |       |
| 3   | P  | 13:00:36,8   | iCPZ;iLPZ  | -            | c                 |       |
|   | pP   | 13:02:36,8   | iCPZ   | -            | c                 |       |
|   | S  | 13:11:05,0   | iLPN   | -            | SN                |       |
|   | SP   | 13:12:28,0   | eILPZE   | -            | c, EW             |       |
|   | sS   | 13:14:39,0   | iLPN   | -            | SN                |       |
|   | SS   | 13:18:06,0   | iLPE   | -            | WE                |       |
|   | SSS  | 13:21:09,5   | iLPN   | -            | SN                |       |
|   | LQ   | 13:29:38     | LPNE   | 28           | -                 |       |
|   | U.S.C.G.S.: Épicentre: 5,6 S - 110,5 E (Mer de Java)           |              |  |              |                   |       |
| h = 560 km H = 12:48:09,2 Mag: 5,4 (C.G.S.)             |  |              |  |              |                   |       |
| Δ = 95,3°   |  |              |  |              |                   |       |
| 3   | L  | 15:03:30     | LPZNE  | -            | -                 |       |
| 4   | P  | 00:07:17,5   | iCPZ   | -            | d                 |       |
| 4   | LR   | 19:17:00     | LPZNE  | 24           | -                 |       |
| U.S.C.G.S.: Épicentre: 12,9 S - 14,7 W (Atlantique Sud) |  |              |  |              |                   |       |
| h = 33 km H = 19:04:29 Mag: 4,8 (C.G.S.)                |  |              |  |              |                   |       |
| Δ = 30°   |  |              |  |              |                   |       |

| Date   | Phases                               | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes (μ)             | Périodes (s)                      | Sens du mouvement                           |
|--|--------------------------------------|--|--|-----------------------------------|---|
| 1967 Fev. 5  | P<br>S<br>SS<br>Lg                   | 10:23:30,7<br>10:25:20,7<br>10:25:25,2<br>10:25:36,2<br>10:26:24,0                         | eCPZ; ez<br>ICPZ; iz<br>ICPZ; iz<br>ICPZ; iz<br>ICPZ; iz       | -<br>-<br>-<br>-<br>0,5           | -<br>d<br>d<br>d<br>-                       |
| U.S.C.G.S.: Épicentre: 18,0 S - 23,6 E (Zambie)<br>h = --- H = 10:21:01 Mag: 3,9 (B U L)<br>Δ = 10,6°                            |                                      |  |  |                                   |   |
| 5  | P<br>pP<br>PP<br>S<br>sS<br>LQ<br>LR | 19:01:21,0<br>19:01:30,3<br>19:02:11,2<br>19:06:08,0<br>19:06:44,0<br>19:07:36<br>19:09:48 | ICPZ; eILPZ<br>ICPZ<br>ICPZ<br>ILPNE<br>eILPN<br>LPZE<br>LPZNE | -<br>-<br>-<br>-<br>-<br>22<br>16 | d<br>c<br>d<br>d, EW<br>NS<br>-<br>-        |
| U.S.C.G.S.: Épicentre: 5,4 S - 11,4 W (Ile Ascension)<br>h = 19 km H = 18:55:45,1 Mag: 5,2 (C.G.S.)<br>Δ = 27°                   |                                      |  |  |                                   |   |
| 6  | PKIKP<br>PKIKP                       | 01:54:21,3<br>01:54:24,8   | ICPZ<br>ICPZ   | -<br>-                            | c<br>c                                      |
| U.S.C.G.S.: Épicentre: 20,2 S - 176,2 W (Iles Fidji)<br>h = 280 R H = 01:35:18 Mag: 4,1 (C.G.S.)<br>Δ = 142°                     |                                      |  |  |                                   |   |
| 6  | PKIKP                                | 03:45:40,7   | ICPZ   | -                                 | d   |
| U.S.C.G.S.: Épicentre: 60,1 N - 152,8 W (Alaska)<br>h = 110 km H = 03:26:35,4 Mag: 4,9 (C.G.S.)<br>Δ = 133,8°                    |                                      |  |  |                                   |   |
| 6  | (P)                                  | 14:08:55,8   | eCPZ   | -                                 | -   |
| 6  | P                                    | 14:32:57,7   | ICPZ   | -                                 | d   |
| 6  | P<br>LR                              | 14:37:08,5<br>14:48:39   | ICPZ<br>LPZN   | -<br>20                           | c<br>-                                      |
| 7  | P<br>Lg                              | 06:25:18,0<br>06:32:07   | eICPZ<br>cPZ; LPNE   | -<br>2,2                          | e<br>-                                      |
| U.S.C.G.S.: Épicentre: 0,3 S - 30,8 E (Ruwenzori)<br>h = --- H = 06:20:19 Mag: 4,6 (C.G.S.)<br>Δ = 22,4°                         |                                      |  |  |                                   |   |
| 7  | PKIKP<br>PKIKP<br>PKS<br>LR          | 08:47:51,0<br>08:48:02,5<br>08:51:16,1<br>09:27:00   | eCPZ<br>ICPZ<br>ICPZ; iLPZ<br>LPN                              | -<br>-<br>-<br>-                  | -<br>c<br>c<br>c                            |
| U.S.C.G.S.: Épicentre: 13,9 N - 144,8 E (Iles Mariannes)<br>h = 138 km H = 08:28:57,9 Mag: 5,7 (BRK); 5,4 (C.G.S.)<br>Δ = 132,9° |                                      |  |  |                                   |   |
| 7  | LR                                   | 10:13:00   | LPZN   | 20                                | -   |
| 7  | PKIKP<br>PKIKP<br>-                  | 15:12:23,0<br>15:12:32,6<br>15:12:50,7   | eICPZ<br>ICPZ<br>ICPZ  | -<br>-<br>-                       | c<br>c<br>c                                 |
| U.S.C.G.S.: Épicentre: 56,7 N - 157,2 W (Alaska)<br>h = 67 km H = 14:53:13,9 Mag: 4,4 (BRK); 5,6 (C.G.S.)<br>Δ = 137,6°          |                                      |  |  |                                   |   |
| 8  | PKIKP                                | 00:07:58,2   | ICPZ   | -                                 | d   |
| U.S.C.G.S.: Épicentre: 17,8 S - 178,5 W (Iles Fidji)<br>h = 571 km H = 23:49:21,8 Mag: 3,9 (C.G.S.)<br>Δ = 145,2°                |                                      |  |  |                                   |   |
| 8  | P<br>pP<br>S<br>sS<br>SS<br>LQ<br>LR | 15:44:18,2<br>15:44:28,2<br>15:51:16,0<br>15:51:40,0<br>15:54:36,0<br>15:56:25<br>15:58:00 | ICPZ<br>eICPZ<br>ILPZNE<br>ILPZ<br>eILPZNE<br>LPNE<br>LPZN     | -<br>-<br>-<br>-<br>-<br>26<br>20 | c<br>c<br>d, NS, EW<br>c<br>d, NS<br>-<br>- |
| U.S.C.G.S.: Épicentre: 58,3 S - 13,0 W (Atlantique Sud)<br>h = 33 R H = 15:35:43 Mag: 5,1 (C.G.S.)<br>Δ = 48°                    |                                      |  |  |                                   |   |

| Date        | Phases  | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|-------------|---|--------------|--|--------------|-------------------|
| 1967 Fev. 8 | P   | 17:30:31,7   | 1CPZ   | -            | c                 |
|             | U.S.C.G.S.: Épicentre: 29,2 N - 93,9 E (Burma - Inde)<br>h = 33 km H = 17:17:45,7 Mag: 5,1 (C.G.S.)<br>$\Delta = 85^\circ$                                    |              |  |              |                   |
| 9           | P   | 04:48:43,0   | 1CPZ   | -            | d                 |
|             | LR  | 04:54:08     | LPN  | 22           | -                 |
|             | U.S.C.G.S.: Épicentre: 14,0 S - 13,7 W (Atlantique Sud)<br>h = 33 km H = 04:43:09 Mag: 4,4 (C.G.S.)<br>$\Delta = 26,6^\circ$                                  |              |  |              |                   |
| 9           | P   | 14:17:51,7   | 1CPZ   | -            | d                 |
|             | S   | 14:25:31     | eLPN   | -            | -                 |
|             | LQ  | 14:35:00     | LPZN   | 40           | -                 |
|             | LR  | 14:40:15     | LPZN   | 22           | -                 |
|             | U.S.C.G.S.: Épicentre: 40,0 N - 20,3 E (Grèce - Albanie)<br>h = 3 km H = 14:08:18,7 Mag: 5,6 (C.G.S.)<br>$\Delta = 55^\circ$                                  |              |  |              |                   |
| 9           | P   | 15:37:38,0   | 1CPZ;1LPZE   | 1,2          | c, EW             |
|             | pP  | 15:37:51,7   | 1CPZ   | -            | c                 |
|             | PP  | 15:41:23,8   | 1CPZ;eLPZE   | -            | c                 |
|             | PPP   | 15:43:17,7   | 1CPZ   | -            | d                 |
|             | S   | 15:48:16,0   | eLPZNE   | -            | d, NS, WE         |
|             | SS  | 15:54:31     | eLPNE  | -            | NS, WE            |
|             | LR  | 16:01:08     | LPZNE  | 22           | -                 |
|             | U.S.C.G.S.: Épicentre: 2,9 N - 74,9 W (Colombie)<br>h = 58 R H = 15:24:47,2 Mag: 6,3 (C.G.S.); 6,4 (PAS); 7,3 - 7,5 (BRK); 7-7,4 (PAL)<br>$\Delta = 90^\circ$ |              |  |              |                   |
| 9           | PKP   | 20:35:38,6   | 1CPZ   | -            | c                 |
|             | U.S.C.G.S.: Épicentre: 19,5 S - 176,1 W (Iles Fidji)<br>h = 308 km H = 20:16:36 Mag: 3,9 (C.G.S.)<br>$\Delta = 143^\circ$                                     |              |  |              |                   |
| 10          | P   | 03:29:46,7   | 1CPZ   | -            | c                 |
|             | pP  | 03:29:55,9   | 1CPZ   | -            | c                 |
| 10          | P   | 05:58:18,7   | 1CPZ   | -            | c                 |
|             | U.S.C.G.S.: Épicentre: 33,0 N - 75,5 E (Kachemire - Inde)<br>h = 27 km H = 05:46:27,9 Mag: 4,9 (C.G.S.)<br>$\Delta = 76^\circ$                                |              |  |              |                   |
| 10          | LR  | 12:23:24     | LPZE   | 28           | -                 |
|             | U.S.C.G.S.: Épicentre: 7,3 S - 125,5 E (Mer de Banda)<br>h = 27 km H = 11:29:46,4 Mag: 5,3 (C.G.S.)<br>$\Delta = 109^\circ$                                   |              |  |              |                   |
| 10          | Lg  | 22:08:(00)   | CPZ  | -            | -                 |
|             | U.S.C.G.S.: Épicentre: 14 S - 26 E (Marécage de Buzango)<br>h = ----- H = 22:01:(40) Mag: 3,7 (BUL)<br>$\Delta = 12^\circ$                                    |              |  |              |                   |
| 10          | Lg  | 23:00:09     | CPZ  | -            | -                 |
|             | U.S.C.G.S.: Épicentre: 14 S - 26 E (Marécage de Buzango)<br>h = ----- H = 22:53:57 Mag: 4,1 (BUL)<br>$\Delta = 12^\circ$                                      |              |  |              |                   |
| 11          | P   | 09:07:16,7   | 1CPZ   | -            | c                 |
| 11          | LR  | 10:26:24     | LPZNE  | 20           | -                 |
|             | U.S.C.G.S.: Épicentre: 52,0 N - 106,2 E (Lac Baikal)<br>h = 5 km H = 09:27:29,6 Mag: 4,7 (BRK); 5,4 (C.G.S.)<br>$\Delta = 102^\circ$                          |              |  |              |                   |
| 11          | P   | 20:00:05,9   | 1CPZ   | -            | d                 |
|             | U.S.C.G.S.: Épicentre: 21,9 S - 70,8 W (Nord du Chili)<br>h = 29 R H = 19:48:03,2 Mag: 4,7 (C.G.S.)<br>$\Delta = 80^\circ$                                    |              |  |              |                   |
| 11          | P   | 22:58:39,7   | 1CPZ   | -            | d                 |



| Date   | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s.) | Sens du mouvement |
|--|--|--------------|--|---------------|-------------------|
| 1967 Fev. 12   | P  | 12:01:32,0   | iCPZ   | -             | c                 |
|  | S  | 12:10:28,0   | iLPNE  | -             | SN                |
|  | LQ   | 12:19:30     | LPNE   | 32            | -                 |
|  | LR   | 12:23:36     | LPZNE  | 22            | -                 |
|  | U.S.C.G.S.: Epicentre: 42,6 S - 83,8 E (Mid - Indian Rise)<br>h = 33 R H = 11:50:50 Mag: 5,4 (C.G.S.)<br>$\Delta = 66^\circ$       |              |  |               |                   |
| 12   | Lg   | 12:18:12     | CPZ  | -             | -                 |
| 12   | P  | 14:20:17,7   | eCPZ   | -             | c                 |
|  | pP   | 14:20:26,2   | iCPZ   | -             | c                 |
|  | LQ   | 14:44:28     | LPN  | 30            | -                 |
|  | LR   | 14:50:48     | LPZNE  | 22            | -                 |
|  | U.S.C.G.S.: Epicentre: 21,7 S - 70,1 W (Côte Nord du Chili)<br>h = 18 km H = 14:08:12,5 Mag: 5,5 (C.G.S.)<br>$\Delta = 80^\circ$   |              |  |               |                   |
| 12   | Lg   | 15:16:39     | CPZ  | -             | -                 |
| 12   | U.S.C.G.S.: Epicentre: 29,0 S - 26,3 E (Afrique du Sud)<br>h = --- H = 15:07:45 Mag: 4,1 (C.G.S.)<br>$\Delta = 17^\circ$           |              |  |               |                   |
|  | P  | 16:18:17,9   | eCPZ   | -             | c                 |
|  | U.S.C.G.S.: Epicentre: 35,8 N - 71,0 E (Hindu Kush)<br>h = 100 km H = 16:06:48 Mag: 5,2 (C.G.S.)<br>$\Delta = 73^\circ$            |              |  |               |                   |
| 12   | P  | 16:55:59,0   | iCPZ   | -             | c                 |
| 12   | U.S.C.G.S.: Epicentre: 30,3 N - 50,3 E (Iran)<br>h = 33 R H = 16:46:04 Mag: 4,6 (C.G.S.)<br>$\Delta = 57^\circ$                    |              |  |               |                   |
|  | P  | 21:39:33,7   | iCPZ   | -             | d                 |
| 13   | P  | 05:27:25,8   | iCPZ   | -             | c                 |
|  | pP   | 05:27:35,4   | iCPZ   | -             | c                 |
|  | LR   | 05:53:33     | LPZNE  | 26            | -                 |
|  | U.S.C.G.S.: Epicentre: 38,1 S - 73,4 W (Côte Central du Chili)<br>h = 33 R H = 05:15:24,7 Mag: 4,6 (C.G.S.)<br>$\Delta = 79^\circ$ |              |  |               |                   |
| 13   | PKIKP  | 15:48:22,7   | iCPZ   | -             | d                 |
|  | LR   | 16:40:00     | LRZ  | 20            | -                 |
| 13   | U.S.C.G.S.: Epicentre: 5,1 S - 153,1 E (Nouvelle Irlande)<br>h = 57 km H = 15:29:05,1 Mag: 5,0 (C.G.S.)<br>$\Delta = 135^\circ$    |              |  |               |                   |
|  | P  | 21:09:31,2   | iCPZ   | -             | c                 |
| 13   | P  | 23:26:25,2   | eCPZ   | -             | -                 |
|  | pP   | 23:26:39,0   | iLPZ   | -             | c                 |
|  | PP   | 23:29:30,7   | iCPZ; iLPZN  | -             | c, NS             |
|  | S  | 23:36:25     | iLPZNE   | -             | c, NS, EW         |
|  | SP   | 23:37:10     | iLPNE  | -             | NS, WE            |
|  | SS   | 23:41:30     | iLPNE  | -             | NS, EW            |
|  | SSS  | 23:46:32     | LPNE   | -             | -                 |
|  | LQ   | 23:48:00     | LPNE   | -             | -                 |
|  | LR   | 23:51:44     | LPZNE  | -             | -                 |
|  | M  | 23:56:45     | LPZN   | 21            | -                 |
|  | U.S.C.G.S.: Epicentre: 52,7 N - 34,1 W (Atlantique Nord)<br>h = 10 km H = 23:14:19,6 Mag: 6,3 (C.G.S.)<br>$\Delta = 79,1^\circ$    |              |  |               |                   |
| 14   | P  | 01:48:50,1   | iCPZ   | -             | d                 |
|  | pP   | 01:49:12,0   | iLPZ   | -             | d                 |
|  | PP   | 01:52:11,9   | iCPZ   | -             | c                 |
|  | S  | 01:59:30     | eLPNE  | -             | NS, EW            |
|  | LQ   | 02:13:12     | LPNE   | 40            | -                 |
|  | LR   | 02:17:00     | LPZE   | 34            | -                 |
|  | M <sub>1</sub>   | 02:20:00     | LPZ  | 32            | -                 |
|  | M <sub>2</sub>   | 02:27:00     | LPZ  | 18            | -                 |
| U.S.C.G.S.: Epicentre: 13,7 N - 96,5 E (Iles Andaman)<br>h = 27 km H = 01:36:04,7 Mag: 6,8 (C.G.S.)<br>$\Delta = 86^\circ$ |  |              |  |               |                   |

| Date  | Phase            | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|---|------------------|--------------|--|--------------|-------------------|
| 1967 Fev 14   | PKIKP            | 05:21:07,2   | 1CPZ   | 0,7          | d                 |
|   | PP               | 05:23:48,7   | e1CPZ  | -            | d                 |
|   | SP               | 05:33:42     | LPZ  | -            | -                 |
|   | LR               | 06:19:10     | LPZN   | 20           | -                 |
| U.S.C.G.S.: Épicentre: 13,3 S - 171,3 E (Nouvelles Hébrides)              |                  |              |  |              |                   |
| h = 635 km H = 05:02:38,4 Mag: 5,6 (C.G.S.)                               |                  |              |  |              |                   |
| $\Delta = 144,2^\circ$  |                  |              |  |              |                   |
| 14  | (P)              | 05:31:59,7   | 1CPZ   | -            | d                 |
| 14  | P                | 17:45:42,0   | eCPZ   | -            | -                 |
|   | S                | 17:49:27,7   | eCPZ   | -            | -                 |
|   | Lg               | 17:52:34     | LPZN   | -            | -                 |
| U.S.C.G.S.: Épicentre: 16,9 S - 35,3 E (Malawi)                           |                  |              |  |              |                   |
| h = --- H = 17:40:59 Mag: 4,7 (BUL)                                       |                  |              |  |              |                   |
| $\Delta = 21^\circ$   |                  |              |  |              |                   |
| 14  | PKP <sub>2</sub> | 18:32:55,2   | 1CPZ   | -            | d                 |
|   | LQ               | 19:17:00     | LPZNE  | 34           | -                 |
|   | LR               | 19:19:50     | LPZNE  | 21           | -                 |
| U.S.C.G.S.: Épicentre: 19,4 S - 172,8 W (Iles Tonga)                      |                  |              |  |              |                   |
| h = 33 R H = 18:13:14 Mag: 4,9 (C.G.S.)                                   |                  |              |  |              |                   |
| $\Delta = 144^\circ$  |                  |              |  |              |                   |
| 14  | (P)              | 18:51:54     | eCPZ   | -            | -                 |
| 14  | (P)              | 19:20:06     | eCPZ   | -            | -                 |
| 15  | P                | 01:57:27,2   | 1CPZ   | -            | c                 |
| U.S.C.G.S.: Épicentre: 34,5 N - 47,6 E (Iran)                             |                  |              |  |              |                   |
| h = 38 km H = 01:47:27,7 Mag: 5,0 (C.G.S.)                                |                  |              |  |              |                   |
| $\Delta = 59^\circ$   |                  |              |  |              |                   |
| 15  | S                | 05:56:42     | iLPZE  | -            | d                 |
|   | LQ               | 06:00:24     | LPN  | 36           | -                 |
|   | LR               | 06:06:38     | LPZNE  | 26           | -                 |
| U.S.C.G.S.: Épicentre: 17,1 S - 66,6 E (Iles Mascarene)                   |                  |              |  |              |                   |
| h = 33 R H = 05:40:14 Mag: 5,0 (C.G.S.)                                   |                  |              |  |              |                   |
| $\Delta = 50^\circ$   |                  |              |  |              |                   |
| 15  | P                | 06:10:11,0   | 1CPZ   | 1,1          | d                 |
|   | LR               | 06:41:20     | LPZNE  | 26           | -                 |
| U.S.C.G.S.: Épicentre: 20,4 N - 94,1 E (Burma)                            |                  |              |  |              |                   |
| h = 10 km H = 05:57:24,6 Mag: 5,5 (C.G.S.)                                |                  |              |  |              |                   |
| $\Delta = 85^\circ$   |                  |              |  |              |                   |
| 15  | P                | 16:23:48,2   | iz   | -            | -                 |
|   | S                | 16:32:03,7   | 1CPZN; iLPZNE;                                     | -            | d, SN             |
|   |                  |              | iz   | -            | -                 |
|   | SP               | 16:33:00     | iLPZNE   | -            | d, NS, EW         |
|   | sS               | 16:35:54,7   | 1CPN; iLPNE  | -            | NS, WE            |
|   | SS               | 16:36:56     | iLPNE  | -            | SN, WE            |
|   | S8S              | 16:40:54     | iLPZNE   | -            | c, SN, WE         |
|   | LQ               | 16:44:40     | LPZNE  | 36           | -                 |
| U.S.C.G.S.: Épicentre: 9,0 S - 71,3 W (Pérou - Brésil)                    |                  |              |  |              |                   |
| h = 597 km H = 16:11:11,8 Mag: 6,4-7 (BAS); 7,2 - 7,4 (BRK); 6,2 (C.G.S.) |                  |              |  |              |                   |
| $\Delta = 82,8^\circ$   |                  |              |  |              |                   |
| 15  | (P)              | 16:40:57,2   | 1CPZ; eiz  | -            | d                 |
|   | (S)              | 16:51:18,7   | 1CPZ; iz   | -            | c                 |
| 16  | (Lg)             | 10:06:28     | CPZN; z  | -            | -                 |
| 17  | P                | 01:30:22,3   | 1CPZN  | -            | c, SN             |
|   | LQ               | 01:32:18     | LPZNE  | 38           | -                 |
|   | LR               | 01:37:48     | LPZ  | 20           | -                 |
| U.S.C.G.S.: Épicentre: 30,9 S - 65,4 W (Cordoba - Argentine)              |                  |              |  |              |                   |
| h = 182 km H = 01:19:09 Mag: 3,7 (C.G.S.)                                 |                  |              |  |              |                   |
| $\Delta = 79^\circ$   |                  |              |  |              |                   |
| 17  | (P)              | 05:21:06,6   | 1CPZ; iz   | -            | d                 |

| Date   | Phases  | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (A) | Périodes (s) | Sens du mouvement |
|--|---|--------------|--|--------------|-------------------|
| 1967 Fév. 27   | PKIKP   | 10:30:15,2   | iCPZN, eILPZ                                       | -            | c                 |
|  | PKIKP   | 10:30:29,7   | iCPZ   | -            | d                 |
|  | RP  | 10:33:21,5   | iCPZN, iLPZN                                       | -            | d, SN             |
|  | SKP   | 10:34:07     | iLPN   | -            | SN                |
|  | SS  | 10:51:50     | iLPNE  | -            | NS, EW            |
|  | LQ  | 11:07:34     | LPE  | 40           | -                 |
|  | LR  | 11:20:00     | LPZNE  | 30           | -                 |
| M  | 11:31:00  | LPZ          | 18   | -            |                   |
| U.S.C.G.S.: Epicentre: 23,7 S - 175,2 W (Iles Tonga)<br>h = 19 km H = 10:10:51,5 Mag: 6,4 (C.G.S.); 6,2 (P.A.S.)<br>$\Delta = 140^\circ$ |   |              |  |              |                   |
| 17   | Pn  | 12:48:20,1   | eCPZN  | -            | -                 |
|  | Sn  | 12:49:04,0   | eICPZN   | -            | -                 |
|  | Lg  | 12:49:17,6   | iCPZN  | -            | -                 |
| 17   | (LR)  | 17:48:00     | LPZN   | 22           | -                 |
| 18   | P   | 00:43:02,7   | iCPZ   | -            | c                 |
|  | S   | 00:52:16     | eLPN   | -            | -                 |
|  | LR  | 01:03:50     | LPZ  | 24           | -                 |
| U.S.C.G.S.: Epicentre: 28,9 N - 49,4 W (Atlantique Nord)<br>h = 33 R H = 00:31:48 Mag: 5,2 (C.G.S.)<br>$\Delta = 71^\circ$               |   |              |  |              |                   |
| 18   | PKIKP   | 02:58:35,5   | iCPZ   | -            | d                 |
|  | LR  | 03:45:16     | LPZ  | 24           | -                 |
|  | M   | 03:57:00     | LPZNE  | 18           | -                 |
| U.S.C.G.S.: Epicentre: 5,9 S - 153,2 E (Nouvelle Irlande)<br>h = 41 km H = 02:39:19,4 Mag: 5,4 (C.G.S.)<br>$\Delta = 134^\circ$          |   |              |  |              |                   |
| 18   | P   | 11:45:24,0   | iCPZ   | -            | -                 |
|  | PcP   | 11:45:40,0   | iCPZ   | -            | -                 |
| U.S.C.G.S.: Epicentre: 32,4 Z - 71,4 W (Côte Central du Chili)<br>h = 74 km H = 11:33:31,5 Mag: 4,3 (C.G.S.)<br>$\Delta = 78^\circ$      |   |              |  |              |                   |
| 19   | LR  | 15:41:00     | LPZN   | 20           | -                 |
| 19   | P   | 16:44:11,1   | iCPZ   | -            | d                 |
|  | pP  | 16:44:23,7   | iCPZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 38,3 S - 73,5 W (Côte Central du Chili)<br>h = 33 R H = 16:32:07 Mag: 4,5 (C.G.S.)<br>$\Delta = 79^\circ$         |   |              |  |              |                   |
| 19   | PKIKP   | 19:45:05,5   | eCPZ   | -            | -                 |
|  | U.S.C.G.S.: Epicentre: 18,9 S - 174,0 W (Iles Tonga)<br>h = 33 R H = 19:25:27 Mag: 4,5 (C.G.S.)<br>$\Delta = 144^\circ$ |              |  |              |                   |
| 19   | P   | 21:19:30,7   | iCPZ   | -            | d                 |
|  | pP  | 21:21:28,0   | iCPZ   | -            | d                 |
| U.S.C.G.S.: Epicentre: 24,7 S - 63,5 W (Argentine)<br>h = 566 km H = 21:09:01 Mag: 4,0 (C.G.S.)<br>$\Delta = 73^\circ$                   |   |              |  |              |                   |
| 19   | P   | 22:27:59,6   | iCPZ   | -            | d                 |
|  | PcP   | 22:28:10,0   | iCPZ   | -            | d                 |
|  | pP  | 22:28:22,4   | iCPZ   | -            | d                 |
|  | PP  | 22:31:54     | iLRZ   | -            | d                 |
|  | SKS   | 22:38:30,5   | iCPN; eILPZNE                                      | -            | SN, EW            |
|  | -   | 22:38:46,5   | iCPN   | -            | SN                |
|  | S   | 22:39:14     | eILPNE   | -            | NS, EW            |
|  | SP  | 22:40:38     | iLPZE  | -            | d, EW             |
|  | SS  | 22:46:40     | iLPN   | -            | SN                |
|  | LR  | 22:59:40     | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 9,2 S - 113,1 E (Sud de Java)<br>h = 80 km H = 22:14:35,3 Mag: 6,3/4 (PAS); 6,2 (C.G.S.)<br>$\Delta = 96,7^\circ$ |   |              |  |              |                   |

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (µ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Fev. 20  | P      | 15:30:28,0   | 1CPZN  | -            | c, NS             |
|   | pP     | 15:30:36,7   | 1CPZ   | -            | d                 |
|   | PeP    | 15:30:45,2   | 1CPZ   | -            | c                 |
|   | SKS    | 15:40:14     | eLPZNE   | -            | SN                |
|   | LR     | 15:49:00     | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Épicentre: 33,7 N - 75,9 E (Pakistan)<br>h = 24 km H = 15:18:39,9 Mag: 5,7 (C.G.S.)<br>Δ = 75°            |        |              |  |              |                   |
| 20  | PP     | 16:45:12,2   | 1CPZ   | -            | d                 |
|   | LR     | 17:02:19     | LPZE   | 22           | -                 |
| U.S.C.G.S.: Épicentre: 5,2 S - 68,7 E (Iles Chagos)<br>h = 33 R H = 16:33:49,2 Mag: 4,8 (C.G.S.)<br>Δ = 59°           |        |              |  |              |                   |
| 20  | LR     | 19:17:00     | LRZE   | 17           | -                 |
| 20  | PKIKP  | 23:01:13,2   | 1CPZ   | -            | c                 |
|   | PKIKP  | 23:01:20,7   | 1CPZ   | -            | c                 |
|   | LR     | 23:56:44     | LPZE   | 21           | -                 |
| U.S.C.G.S.: Épicentre: 11,8 S - 166,3 E (Iles Santa Cruz)<br>h = 22 km H = 22:41:44,6 Mag: 4,7 (C.G.S.)<br>Δ = 143°   |        |              |  |              |                   |
| 20  | P      | 23:47:28,3   | 1CPZ   | -            | c                 |
| 21  | P      | 04:29:05,2   | 1CPZ   | -            | c                 |
|   | pP     | 04:29:13,5   | 1CPZ   | -            | c                 |
|   | LR     | 04:58:00     | LPZ  | 22           | -                 |
| U.S.C.G.S.: Épicentre: 19,2 N - 67,9 W (Ile de Mona)<br>h = 44 km H = 04:16:21,1 Mag: 4,8 (C.G.S.)<br>Δ = 88°         |        |              |  |              |                   |
| 21  | (R)    | 11:59:11,7   | 1CPZ   | -            | d                 |
| 21  | LR     | 12:40:00     | LPZE   | 20           | -                 |
| 21  | P      | 12:49:32,4   | 1CPZ   | -            | d                 |
|   | LR     | 13:26:00     | LPZ  | 16           | -                 |
| U.S.C.G.S.: Épicentre: 33,6 N - 75,3 E (Cachemire)<br>h = 31 km H = 12:37:44,5 Mag: 5,1 (C.G.S.)<br>Δ = 75°           |        |              |  |              |                   |
| 21  | P      | 17:30:01,0   | 1CPZ   | -            | c                 |
|   | pP     | 17:30:10,2   | 1CPZ   | -            | d                 |
| U.S.C.G.S.: Épicentre: 56,6 S - 26,0 W (Sud des Iles Sandwich)<br>h = 33 R H = 17:20:58 Mag: 4,7 (C.G.S.)<br>Δ = 51°  |        |              |  |              |                   |
| 22  | PKIKP  | 14:13:51,2   | eCPZ   | -            | -                 |
|   | LR     | 15:03:00     | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Épicentre: 11,8 S - 166,4 E (Iles Santa Cruz)<br>h = 84 km H = 13:54:34,7 Mag: 4,8 (C.G.S.)<br>Δ = 140°   |        |              |  |              |                   |
| 22  | PKIKP  | 18:46:00,5   | 1CPZ   | -            | d                 |
|   | PKIKP  | 18:46:05,7   | 1CPZ   | -            | c                 |
|   | -      | 18:46:33,9   | 1CPZ   | -            | d                 |
|   | PP     | 18:48:57,7   | 1CPZ   | -            | c                 |
|   | SKP    | 18:49:18,0   | e1CPZN   | -            | c, SN             |
|   | PSP    | 19:01:38     | eLPZ   | -            | -                 |
|   | LQ     | 19:26:00     | LPE  | 36           | -                 |
|   | LR     | 19:32:00     | LPZNE  | 26           | -                 |
| U.S.C.G.S.: Épicentre: 19,5 S - 169,0 E (Nouvelles Hébrides)<br>h = 87 R H = 18:26:46,5 Mag: 5,6 (C.G.S.)<br>Δ = 137° |        |              |  |              |                   |
| 22  | P      | 23:37:04,7   | eCPZN  | -            | -                 |
|   | pP     | 23:37:12,0   | 1CPZN  | -            | c, NS             |
|   | S      | 23:44:16     | eLPN   | -            | -                 |
|   | LR     | 23:52:00     | LPZNE  | 24           | -                 |
| U.S.C.G.S.: Épicentre: 58,1 S - 25,7 W (Sud des Iles Sandwich)<br>h = 33 R H = 23:27:58 Mag: 5,0 (C.G.S.)<br>Δ = 52°  |        |              |  |              |                   |

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (µ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Fev 23   | L      | 07:37,0      | LPZNE  | 18           | -                 |
| 23  | LR     | 15:36:40     | LPZ  | 20           | -                 |
| U.S.C.G.S.: Épicentre: 41,4 S - 88,6 W (Ouest du Chili)<br>h = 33 km H = 14:51:55 Mag: 4,9 (C.G.S.)<br>$\Delta = 87^\circ$          |        |              |  |              |                   |
| 23  | P      | 19:09:11,7   | iPPZ   | -            | c                 |
| 23  | LR     | 21:51:00     | LPZ  | 18           | -                 |
| 23  | P      | 22:46:39,7   | iCPZN; iLPZ  | -            | d, SN             |
|   | PP     | 22:48:06     | iLPZ   | -            | c                 |
|   | S      | 22:52:20,0   | iLPNE  | -            | NS, EW            |
|   | LR     | 22:56:45     | LPZNE  | 20           | -                 |
|   | M1     | 23:00:00     | LPZ  | 20           | -                 |
|   | M2     | 22:58:20     | LPE  | 13           | -                 |
| U.S.C.G.S.: Épicentre: 45,4 S - 40,6 E (Iles Prince Edward)<br>h = --- H = 22:39:33 Mag: 4,7 (B UL)<br>$\Delta = 36^\circ$          |        |              |  |              |                   |
| 24  | P      | 14:28:24,2   | iCPZ; iz   | -            | d                 |
|   | S      | 14:32:51,2   | eCPN   | -            | -                 |
|   | Lg     | 14:34:50,7   | CPZN; z  | -            | -                 |
| U.S.C.G.S.: Épicentre: 0,7 N - 29,8 E (Congo)<br>h = --- H = 14:23:29 Mag: 4,1 (BUL)<br>$\Delta = 22,4^\circ$                       |        |              |  |              |                   |
| 24  | Pg     | 19:05:11,3   | iCPZNE; iz   | -            | c, SN             |
|   | Sg     | 19:05:13,3   | iCPZ; iz   | -            | c                 |
| 25  | P      | 11:29:19,1   | iCPZ   | -            | c                 |
|   | LR     | 11:46:40     | LPZNE  | 24           | -                 |
| U.S.C.G.S.: Épicentre: 29,2 S - 68,7 W (San Juan - Argentine)<br>h = 110 km H = 11:17:41 Mag: 4,1 (C.G.S.)<br>$\Delta = 76,2^\circ$ |        |              |  |              |                   |
| 25  | -      | 11:35:58,1   | iCPZ   | -            | d                 |
| 25  | PKP    | 11:39:14,4   | iCPZ   | -            | c                 |
|   | LQ     | 12:09:12     | LPN  | 30           | -                 |
|   | LR     | 12:13:26     | LPZNE  | 24           | -                 |
| U.S.C.G.S.: Épicentre: 0,0 S - 123,9 E (Célabes)<br>h = 70 km H = 11:20:47,4 Mag: 5,8 (C.G.S.)<br>$\Delta = 109,6^\circ$            |        |              |  |              |                   |
| 25  | PKIKP  | 16:05:43,8   | iCPZ   | -            | d                 |
| U.S.C.G.S.: Épicentre: 19,6 S - 176,0 W (Iles Tonga)<br>h = 358 km H = 15:46:52 Mag: 4,5 (C.G.S.)<br>$\Delta = 146^\circ$           |        |              |  |              |                   |
| 25  | Pg     | 18:05:58,2   | eCPZN; ez  | -            | -                 |
|   | Sg     | 18:06:00,7   | iCPZN; ez  | -            | d, SN             |
| 25  | Lg     | 20:29:15     | CPZN   | -            | -                 |
| 26  | LR     | 03:26:00     | LPZNE  | 30           | -                 |
| 26  | P      | 04:10:40,2   | iCPZN  | 0,8          | SN                |
|   | PcP    | 04:10:44,3   | iCPZN  | -            | c, NS             |
| U.S.C.G.S.: Épicentre: 49,8 N - 73,1 E (Kazakh - RSS)<br>h = 0 R H = 03:57:57,7 Mag: 6,0 (C.G.S.)<br>$\Delta = 85^\circ$            |        |              |  |              |                   |
| 27  | P      | 02:41:41,7   | iCPZN  | -            | d                 |
|   | PcP    | 02:41:50,0   | iCPZ   | -            | d                 |
|   | pP     | 02:41:54,7   | iCPZ   | -            | c                 |
|   | -      | 02:42:15,0   | iCPZ   | -            | c                 |
|   | LR     | 03:07:14     | LPZ  | 30           | -                 |
| U.S.C.G.S.: Épicentre: 39,3 S - 74,7 W (Côte Central du Chili)<br>h = 33 R H = 02:29:35 Mag: 4,9 (C.G.S.)<br>$\Delta = 80^\circ$    |        |              |  |              |                   |

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Feb. 27  | P      | 09:44:12,0   | 10PZ; 1z   | -            | d                 |
| 27  | LR     | 11:48:36     | LPZE   | 24           | -                 |
| 27  | Pg     | 20:44:09,7   | eOPZN; ez  | -            | -                 |
|   | Sg     | 20:44:18,2   | 10PZN; ez  | -            | d                 |
| 27  | LR     | 20:54:36     | LPZNE  | 14           | -                 |
| 28  | PKP    | 09:56:29     | eOPZ   | -            | -                 |
|   | PP     | 09:58:34     | eLPZ   | -            | -                 |
|   | LR     | 10:44:00     | LPZNE  | 24           | -                 |
| <p>U.S.G.G.S.: Épicentre: 32,7 N - 141,7 E (Sud de Honshu - Japon)<br/>           h = 23 km H = 09:37:18,0 Mag: 5,5 (G.G.S.); 5<sup>3</sup>/<sub>4</sub> - 6 ( P A S )<br/> <math>\Delta = 129^\circ</math></p> |        |              |  |              |                   |
| 28  | P      | 14:31:04,2   | 10PZN  | -            | c                 |
| <p>U.S.G.G.S.: Épicentre: 37,5 N - 21,3 E (Grèce)<br/>           h = 77 km H = 14:21:54 Mag: 4,6 (G.G.S.)<br/> <math>\Delta = 53^\circ</math></p>   |        |              |  |              |                   |

16 APR 1969

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 C Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - No 3

MARS 1967

Station seismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\varphi = 14^{\circ} 54' 08''$  S      Longitude:  $\lambda = 13^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\Phi = 14 48 23$  S      Altitude:  $h = 1761$  m

Nature du sous-sol:

Granite

Constantes des séismographes

| Séismographes               | $T_0$<br>(s) | $T_g$<br>(s) | Amplification |             |             |              |
|-----------------------------|--------------|--------------|---------------|-------------|-------------|--------------|
|                             |              |              | $T_s=0,2$ s   | $T_s=0,6$ s | $T_s=1,0$ s | $T_s=15,0$ s |
| Benloff vertical (z)        | 1,0          | 0,2          | 76750         | 33000       | 15300       | -            |
| Benloff vertical (z)        | 1,0          | 21,3         | 400           | 1100        | 1650        | 120          |
| Benloff vertical (CPZ)      | 1,0          | 0,75         | 38000         | 150000      | 100000      | -            |
| Benloff N/S (CPN)           | 1,0          | 0,85         | 38000         | 150000      | 100000      | -            |
| Benloff EW (CPE)            | 1,0          | 0,82         | 38000         | 150000      | 100000      | -            |
| Sprengnether vertical (LPZ) | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether NS (LPN)       | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether EW (LPE)       | 15,0         | 100,0        | -             | -           | -           | 1500         |

| Date        | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ )   | Périodes (s) | Sens du mouvement |
|-------------|--------|--------------|--|--------------|-------------------|
| 1967 Mar. 1 | LR     | 10:45,2      | LPZN   | -            | -                 |
|             |        |              | U.S.C.G.S.: Epicentre: 28,3 N - 57,1 E (Iran)<br>h = 39 km H = 10:12:49,4 Mag: 4,9 (C.G.S.)<br>$\Delta = 60^{\circ}$                     |              |                   |
|             | 1 LR   | 15:18,6      | LPZ  | -            | -                 |
|             | M1     | 15:25,5      | LPZ  | 22           | -                 |
|             | M2     | 15:27,3      | LPZ  | 21           | -                 |
|             |        |              | U.S.C.G.S.: Epicentre: 1,5 N - 126,4 E (Iles Moluques)<br>h = 49 km H = 14:24:26,5 Mag: 5,3 (C.G.S.)<br>$\Delta = 112^{\circ}$           |              |                   |
|             | 2 LR   | 03:34,3      | LPZ  | -            | -                 |
|             | M1     | 03:38,4      | LPZ  | 18,5         | -                 |
|             | M2     | 03:46,8      | LPZ  | 17,0         | -                 |
|             |        |              | U.S.C.G.S.: Epicentre: 0,3 S - 78,7 W (Equador)<br>h = 121 km H = 02:47:31,7 Mag: 4,8 - 5,2 (B R K)<br>$\Delta = 92,3^{\circ}$           |              |                   |
|             | 3 LR   | 00:14,5      | LPZ  | -            | -                 |
|             |        |              | U.S.C.G.S.: Epicentre: 15,9 N - 96,4 W (Côte de Oaxaca - México)<br>h = 40 km H = 23:17:23 Mag: 3,9 (C.G.S.)<br>$\Delta = 112,8^{\circ}$ |              |                   |

| Date        | Phases  | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|-------------|---|--|--|--------------|-------------------|
| 1967 Mar. 3 | LR  | 06:17,4  | LPZ  | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 5,3 S - 68,5 E (Iles Chagos)<br>h = 33 km H = 05:48:54,8 Mag: 4,8 (C.G.S.)<br>Δ = 57,8°                      |  |  |              |                   |
| 3           | Pn<br>Sn  | 10:30:45,1<br>10:31:09,2   | CPZ; z<br>CPZ; z                                   | -            | -                 |
| 3           | LR  | 13:32,5  | CPZ  | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 50,3 S - 139,6 E (Sud d'Australie)<br>h = 33 km H = 12:44:00 Mag: ----<br>Δ = 100°                           |  |  |              |                   |
| 3           | LR  | 15:28,2  | CPZNE  | -            | -                 |
|             | U.S.C.G.S.: 50,2 S - 139,8 E (Sud d'Australie)<br>h = 33 km H = 14:40:14,1 Mag: 4,7 (C.G.S.)<br>Δ = 99,7°                           |  |  |              |                   |
| 3           | Pn<br>Sn  | 15:56:41,6<br>15:57:02,5   | CPZ; z<br>CPZ; z                                   | -            | -                 |
|             | Δ = 1,6°  |  |  |              |                   |
| 4           | PKP (SKP)   | 06:35:37,0<br>06:38:55,5   | iCPZ; LPZ; iZ; iz<br>CPZ                           | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 18,5 S - 175,4 W (Iles Tonga)<br>h = 225 km H = 06:16:21,9 Mag: 5,7 (C.G.S.); 4,9 - 5,3 (BRK)<br>Δ = 145°    |  |  |              |                   |
| 6           | PKP   | 04:58:27,5   | iCPZ   | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 30,5 N - 137,6 E (Honshu - Japon)<br>h = 490 km H = 04:40:17,8 Mag: 5,1 (C.G.S.)<br>Δ = 126,7°               |  |  |              |                   |
| 6           | P<br>LR   | 11:41:14,5<br>12:08,7  | iCPZ<br>LPZ  | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 3,7 N - 95,8 E (Sumatra)<br>h = 57 km H = 11:28:49,4 Mag: 5,1 (C.G.S.)<br>Δ = 81,6°                          |  |  |              |                   |
| 7           | Pn<br>P<br>Pg<br>Sq<br>S<br>Sg<br>Lg  | 11:45:59,0<br>11:45:05,7<br>11:45:14,9<br>11:45:44,6<br>11:45:54,5<br>11:46:02,6<br>11:46:04,9 | eCPZ<br>CPZ<br>CPZ<br>CPZ<br>CPZ<br>CPZ<br>CPZ     | -            | -                 |
|             | Δ = 3,6°  |  |  |              |                   |
| 7           | Pn<br>Sn  | 15:43:34,0<br>15:44:03,0   | eCPZ<br>CPZ  | -            | -                 |
| 8           | P   | 22:33:06   | eCPZ   | -            | -                 |
| 8           | PKP   | 23:26:38   | eCPZ   | -            | -                 |
|             | U.S.C.G.S.: Epicentre: 17,6 S - 177,0 W (Iles Fidji)<br>h = 182 km H = 23:07:16 Mag: 4,2 (C.G.S.)<br>Δ = 145,7°                     |  |  |              |                   |
| 9           | L   | 04:36,0  | LPZ  | -            | -                 |
| 9           | P   | 04:49:27,5   | iCPZ   | -            | -                 |
| 9           | P   | 04:56:35   | CPZ  | -            | -                 |
| 9           | L   | 04:59,5  | LPZN   | -            | -                 |
| 9           | P<br>I<br>I   | 05:01:17<br>05:01:22,5<br>05:01:46,5   | CPZ<br>CPZ<br>CPZ                                  | -            | -                 |
| 9           | PKP<br>L<br>M   | 18:22:14,9<br>19:06,3<br>19:43,5   | eCPZ; ez<br>LPN<br>LPN                             | -<br>-<br>30 | -<br>-<br>-       |
|             | U.S.C.G.S.: Epicentre: 10,7 S - 166,3 E (Iles Santa Cruz)<br>h = 59 km H = 18:02:45,7 Mag: 6,4 (PAS); 5,9 - 6,1 (BRK)<br>Δ = 142,3° |  |  |              |                   |



| Date   | Phases                  | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s)           | Sens du mouvement     |
|--|-------------------------|--|--|------------------------|-----------------------|
| 1967 Mar, 10   | P<br>L                  | 12:46:13,8<br>12:52:55,0                                 | 1LPZ<br>1LPZ   | -<br>-                 | d<br>-                |
| U.S.C.G.S.: Epicentre: 0,7 N - 30,2 E (Ouganda)<br>h = 43 km H = 12:41:14 Mag: ----<br>$\Delta = 22,7^\circ$                                   |                         |  |  |                        |                       |
| 11   | PKP                     | 08:52:53,1   | 1CPZ   | -                      | d                     |
| U.S.C.G.S.: Epicentre: 10,7 S - 166,2 E (Iles Santa Cruz)<br>h = 49 km H = 08:33:27,4 Mag: 6,4 (PAS)<br>$\Delta = 142,7^\circ$                 |                         |  |  |                        |                       |
| 11   | P<br>LR                 | 19:46:16,0<br>19:56,3                                    | CPZ<br>LPZE  | -<br>-                 | d<br>-                |
| U.S.C.G.S.: Epicentre: 19,7 N - 38,9 E (Mer Rouge)<br>h = 33 km H = 19:38:22 Mag: 5,2 (C.G.S.)<br>$\Delta = 42^\circ$                          |                         |  |  |                        |                       |
| 12   | Pn<br>Sn<br>Lg          | 03:53:47,5<br>03:54:54,0<br>03:55:21,5                   | 1CPZ<br>CPZ<br>CPZ                                       | -<br>-<br>-            | c<br>-<br>-           |
| $\Delta = 5,7^\circ$   |                         |  |  |                        |                       |
| 12   | P                       | 11:01:36   | CPZ  | -                      | -                     |
| U.S.C.G.S.: Epicentre: 28,3 S - 70,4 W (Chili Central)<br>h = 31 km H = 10:49:48,6 Mag: 4,5 (C.G.S.)<br>$\Delta = 79^\circ$                    |                         |  |  |                        |                       |
| 13   | LR<br>M                 | 07:49,2<br>07:53,5                                       | LPZ<br>LPZ   | -<br>13                | -<br>-                |
| U.S.C.G.S.: Epicentre: 19,7 N - 38,8 E (Mer Rouge)<br>h = 41 km H = 07:28:06 Mag: 5,3 (C.G.S.)<br>$\Delta = 42,6^\circ$                        |                         |  |  |                        |                       |
| 13   | PKP                     | 07:56:04,5   | 1CPZ   | -                      | c                     |
| U.S.C.G.S.: Epicentre: 20,6 S - 178,4 W (Iles Fidji)<br>h = 586 km H = 07:37:37,5 Mag: 4,6 (C.G.S.)<br>$\Delta = 142,3^\circ$                  |                         |  |  |                        |                       |
| 13   | LR                      | 08:30,2  | LPZNE  | -                      | -                     |
| U.S.C.G.S.: Epicentre: 19,6 N - 38,9 E (Mer Rouge)<br>h = 33 km H = 08:10:56,3 Mag: 5,0 (C.G.S.)<br>$\Delta = 42,6^\circ$                      |                         |  |  |                        |                       |
| 13   | P<br>S<br>LR            | 16:18:57,0<br>16:28:56<br>16:44,5                        | 1CPZ<br>LPZNE<br>LPZNE                                   | -<br>-<br>-            | d<br>-<br>-           |
| U.S.C.G.S.: Epicentre: 40,1 S - 74,5 W (Côte Sud du Chili)<br>h = 33 km H = 16:06:54,3 Mag: 6,0 (C.G.S.); 7,1-7,5 (BRK)<br>$\Delta = 79^\circ$ |                         |  |  |                        |                       |
| 13   | P<br>S<br>SS<br>LR<br>M | 19:30:13,6<br>19:36:41<br>19:39:50<br>19:41,9<br>19:47,5 | 1CPZ; 1LPZNE<br>LPZNE<br>LPZN<br>LPZNE<br>LPZNE          | -<br>-<br>-<br>-<br>13 | c<br>-<br>-<br>-<br>- |
| U.S.C.G.S.: Epicentre: 19,7 N - 38,9 E (Mer Rouge)<br>h = 7 km H = 19:22:15,4 Mag: 5,8 (C.G.S.)<br>$\Delta = 42,6^\circ$                       |                         |  |  |                        |                       |
| 14   | L                       | 05:10,8  | LPZ  | -                      | -                     |
| 14   | L                       | 05:48,9  | LPZN   | -                      | -                     |
| 14   | S<br>LR                 | 07:21:40,0<br>07:37,2                                    | CPNE<br>CPZ  | -<br>-                 | -<br>-                |
| U.S.C.G.S.: Epicentre: 28,4 N - 94,3 E (Inde - Chine)<br>h = 24 km H = 06:58:04,6 Mag: 5,9 (C.G.S.)<br>$\Delta = 89,2^\circ$                   |                         |  |  |                        |                       |
| 14   | LR                      | 18:29,2  | CPZN   | -                      | -                     |

| Date   | Phases   | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes( $\mu$ ) | Périodes ( s )                    | Sens du mouvement                   |
|--|--|--|---|-----------------------------------|-------------------------------------|
| 1967 Mar. 14   | LR<br>M  | 22:13,9<br>22:17,5   | LPZ<br>LPZ  | -<br>14                           | -                                   |
| U.S.C.G.S.: Epicentre: 19,4 N - 38,7 E (Mer Rouge)<br>h = 33 km H = 21:52:05 Mag: 4,6 (C.G.S.)<br>$\Delta = 41^\circ$                          |  |  |   |                                   |                                     |
| 15   | P  | 22:14:51,0   | GPZ; z  | -                                 | c                                   |
| U.S.C.G.S.: Epicentre: 59,5 S - 26,1 W (Sud des Iles Sandwich)<br>h = 33 R H = 22:02:10 Mag: 5,7 (C.G.S.)<br>$\Delta = 53^\circ$               |  |  |   |                                   |                                     |
| 16   | P  | 03:23:09,5   | z   | -                                 | -                                   |
| U.S.C.G.S.: Epicentre: 19,5 N - 38,9 E (Mer Rouge)<br>h = 33 R H = 03:11:59 Mag: 5,4 (C.G.S.)<br>$\Delta = 42,5^\circ$                         |  |  |   |                                   |                                     |
| 19   | PKP<br>PP<br>PKS<br>SKKS                                     | 04:20:54<br>04:23:24<br>04:24:28<br>04:30:16                                       | aLPZ; dz<br>LPZNE; Z<br>LPN; z<br>LPN                   | -<br>-<br>-<br>-                  | -<br>-<br>-<br>-                    |
| U.S.C.G.S.: Epicentre: 45,4 N - 151,3 E (Iles Kouriles)<br>h = 33 km H = 04:01:36,7 Mag: 6 $\frac{1}{4}$ ( P A S )<br>$\Delta = 133,3^\circ$   |  |  |   |                                   |                                     |
| 19   | (P)  | 21:37:51,2   | GPZ; z  | -                                 | -                                   |
| 20   | LR   | 20:12,1  | LPZNE   | -                                 | -                                   |
| U.S.C.G.S.: Epicentre: 22,1 S - 170,6 E (Iles Loyauté)<br>h = 28 km H = 19:07:25,2 Mag: 5,5 (C.G.S.)<br>$\Delta = 136,6^\circ$                 |  |  |   |                                   |                                     |
| 20   | LR   | 14:33,0  | LPZNE   | -                                 | -                                   |
| U.S.C.G.S.: Epicentre: 45,6 N - 151,4 (Iles Kouriles)<br>h = 51 km H = 13:31:34,0 Mag: 5,5 - 5,9 (BRK); 5,7 (C.G.S.)<br>$\Delta = 133,2^\circ$ |  |  |   |                                   |                                     |
| 21   | P  | 18:10:37,0   | z, Z  | -                                 | c                                   |
| 21   | PKP  | 17:42:55,0   | GPZ   | -                                 | d                                   |
| U.S.C.G.S.: Epicentre: 19,2 S - 174,0 W (Iles Tonga)<br>h = 49 km H = 17:23:19,2 Mag: 4,5 (C.G.S.)<br>$\Delta = 145,1^\circ$                   |  |  |   |                                   |                                     |
| 22   | LR<br>M  | 03:14,5<br>03:20,1   | LPZNE<br>LPZN   | -<br>15                           | -                                   |
| U.S.C.G.S. Epicentre: 20,3 N - 38,7 E (Mer Rouge)<br>h = 33 km H = 02:54:23 Mag: ---<br>$\Delta = 43^\circ$                                    |  |  |   |                                   |                                     |
| 22   | LR<br>M <sub>1</sub><br>M <sub>2</sub><br>M <sub>3</sub>     | 05:49,3<br>05:54,5<br>05:57,5<br>06:01,5   | LPZNE<br>LPZ<br>LPZ<br>LPZ                              | -<br>20<br>18<br>16               | -                                   |
| U.S.C.G.S.: Epicentre: 10,8 S - 79,0 W (Côte du Pérou)<br>h = 26 km H = 05:05:17 Mag: 4,6 (C.G.S.)<br>$\Delta = 89,7^\circ$                    |  |  |   |                                   |                                     |
| 22   | LR   | 14:03,2  | GPZ   | -                                 | -                                   |
| 22   | P<br>S<br>SS<br>LQ<br>LR<br>M <sub>1</sub><br>M <sub>2</sub> | 18:07:33,2<br>18:15:07,8<br>18:19:07,0<br>18:25,8<br>18:28,5<br>18:29,5<br>18:33,5 | GPZ; LPZN<br>LPE<br>LPN<br>CPE<br>CPN<br>CPNE<br>CPNE   | -<br>-<br>-<br>-<br>-<br>17<br>15 | c, SN<br>-<br>-<br>-<br>-<br>-<br>- |
| U.S.C.G.S.: Epicentre: 39,2 N - 24,6 E (Mer Egée)<br>h = 33 km H = 17:58:06,4 Mag: 6,7 (PAS); 6,5 - 6,7 (BRK)<br>$\Delta = 55,1^\circ$         |  |  |   |                                   |                                     |

| Date  | Phases                            | Heure T.M.G.  | Composantes, nature du mouvement et amplitudes (µ)         | Périodes (s)               | Sens du mouvement          |
|---|-----------------------------------|---|--|----------------------------|----------------------------|
| 1967 Mar. 22  | P<br>S<br>LR                      | 21:26:42,0<br>21:34:07,0<br>21:41,1   | iCPZ; iLPZ<br>LPZNE<br>LPZ                                 | -<br>-<br>-                | c<br>-<br>-                |
| U.S.C.G.S.: Epicentre: 56,1 S - 27,6 W (Sud des Iles Sandwich)<br>h = 29 km H = 21:17:34 Mag: 5,4 (C.G.S.)<br>Δ = 51,7°               |                                   |   |  |                            |                            |
| 23  | LR                                | 01:00,3   | CPZ  | -                          | -                          |
| 23  | LR                                | 01:45,5   | CPZ  | -                          | -                          |
| 23  | LR<br>M                           | 05:49:40,6<br>05:54:50  | CPZ<br>CPZ   | -<br>18                    | -<br>-                     |
| U.S.C.G.S.: Epicentre: 2,8 S - 68,1 E (Carlsberg)<br>h = 33 km H = 05:23:34,3 Mag: 5,1 (C.G.S.)<br>Δ = 55,1°                          |                                   |   |  |                            |                            |
| 23  | P<br>LR                           | 15:13:10,0<br>15:42,2   | eCPZ<br>LPZN   | -<br>-                     | -<br>-                     |
| U.S.C.G.S.: Epicentre: 4,7 S - 101,8 E (Sumatra)<br>h = 33 km H = 15:00:27,8 Mag: 5,2 (C.G.S.)<br>Δ = 87,1°                           |                                   |   |  |                            |                            |
| 24  | P<br>LR                           | 02:05:42,0<br>02:18,1   | eCPZ<br>LPZNE  | -<br>-                     | -<br>-                     |
| U.S.C.G.S.: Epicentre: 20,2 N - 38,3 E (Mer Rouge)<br>h = 33 R H = 01:57:49 Mag: 5,0 (C.G.S.)<br>Δ = 42,6°                            |                                   |   |  |                            |                            |
| 24  | LR                                | 06:58,5   | CPZN   | -                          | -                          |
| U.S.C.G.S.: Epicentre: 20,4 N - 38,7 E (Mer Rouge)<br>h = 42 km H = 06:38:09 Mag: 5,1 (C.G.S.)<br>Δ = 40,3°                           |                                   |   |  |                            |                            |
| 24  | P<br>pP<br>-<br>S<br>PPS<br>SSS   | 09:12:49,5<br>09:14:59,5<br>09:19:46,5<br>09:23:21,0<br>09:27:12,0<br>09:34,2 | iCPZ; LPZ; z<br>iCPZ; z<br>iCPZ; iLPZ<br>LPN<br>LPN<br>LPZ | -<br>-<br>-<br>-<br>-<br>- | c<br>-<br>-<br>-<br>-<br>- |
| U.S.C.G.S.: Epicentre: 6,0 S - 112,3 E (Mer de Java)<br>h = 600 km H = 09:00:19,5 Mag: 6,7 - 7,2 (BRK); 6,0 (C.G.S.)<br>Δ = 96,8°     |                                   |   |  |                            |                            |
| 25  | P                                 | 12:29:46,5  | iLPZ; Z  | -                          | c                          |
| U.S.C.G.S.: Epicentre: 23,1 S - 66,4 W (Jujuy - Argentine)<br>h = 202 km H = 12:18:23,9 Mag: 4,8 (C.G.S.)<br>Δ = 75,2°                |                                   |   |  |                            |                            |
| 25  | PP<br>PKS<br>LR<br>M <sub>1</sub> | 23:09:43,0<br>23:10:46,0<br>23:47,5<br>24:12,5                                | CPZ<br>CPZN<br>CPZ<br>CPZ                                  | -<br>-<br>-<br>22          | -<br>-<br>-<br>-           |
| U.S.C.G.S.: Epicentre: 45,5 N - 151,4 E (Iles Kouriles)<br>h = 41 km H = 22:47:58,4 Mag: 5,2 - 5,6 (BRK); 5 3/4 (P A L)<br>Δ = 133,3° |                                   |   |  |                            |                            |
| 25  | PKP                               | 23:18:08,8  | iCPZ; iz   | 0,9                        | d                          |
| U.S.C.G.S.: Epicentre: 20,2 S - 179,0 W (Iles Fidji)<br>h = 654 km H = 22:59:47,3 Mag: 4,7 (C.G.S.)<br>Δ = 142,8°                     |                                   |   |  |                            |                            |
| 26  | LR                                | 23:49,6   | LPZ  | -                          | -                          |
| U.S.C.G.S.: Epicentre: 9,3 S - 148,6 E (Nouvelle Guinée)<br>h = 14 km H = 22:39:01,5 Mag: 5,3 (C.G.S.)<br>Δ = 83,7°                   |                                   |   |  |                            |                            |
| 27  | P<br>L                            | 08:37:57,5<br>08:48,3   | iCPZ; iz, iz<br>LPZ  | -<br>-                     | c<br>-                     |
| U.S.C.G.S.: Epicentre: 8,9 S - 71,3 W (Brésil)<br>h = 603 km H = 08:26:34,5 Mag: 5,3 (C.G.S.)<br>Δ = 82,7°                            |                                   |   |  |                            |                            |

| Date         | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--------------|--|--------------|--|--------------|-------------------|
| 1967 Mar. 27 | LR   | 09:48,2      | LPZ  | -            | -                 |
|              | M  | 10:05,8      | LPZ  | 21           | -                 |
|              | U.S.C.G.S.: Epicentre: 38,4 N - 116,5 E (Chine)<br>h = 61 km H = 08:58:25,5 Mag: 5,4 (C.G.S.)<br>$\Delta = 109,2^\circ$              |              |  |              |                   |
| 27           | PKP  | 10:21:11,5   | eCPZ   | -            | -                 |
|              | LR   | 11:07,3      | LPZN   | -            | -                 |
|              | U.S.C.G.S.: Epicentre: 16,5 S - 168,1 E (Nouvelles Hébrides)<br>h = 11 km H = 10:01:42,0 Mag: 6,0 (C.G.S.)<br>$\Delta = 139,8^\circ$ |              |  |              |                   |
| 28           | LR   | 20:26,6      | LPZ  | -            | -                 |
|              | U.S.C.G.S.: Epicentre: 17,1 N - 122,4 E (Iles Philippines)<br>h = 51 km H = 19:32:25,4 Mag: 5,3 (C.G.S.)<br>$\Delta = 11,9^\circ$    |              |  |              |                   |
| 29           | LR   | 06:04,2      | LPZE   | -            | -                 |
|              | U.S.C.G.S.: Epicentre: 6,0 S - 150,5 E (Nouvelle Bretagne)<br>h = 33 R H = 04:47:11 Mag: 5,0 (C.G.S.)<br>$\Delta = 129^\circ$        |              |  |              |                   |
| 29           | LR   | 11:33,1      | CPZ  | -            | -                 |
| 29           | PKP  | 17:27:45,8   | iCPZ   | -            | d                 |
|              | U.S.C.G.S.: Epicentre: 20,1 S - 179,0 W (Iles Fidji)<br>h = 610 km H = 17:09:21,9 Mag: 4,6 (C.G.S.)<br>$\Delta = 143^\circ$          |              |  |              |                   |
| 30           | P  | 02:21:40,3   | iCPZ; LPZ; iZ  | -            | -                 |
|              | S  | 02:33:10,0   | CPE; LPZ   | -            | -                 |
|              | LQ   | 02:49,2      | CPNE   | -            | -                 |
|              | LR   | 02:51,5      | CPNE   | -            | -                 |
|              | M  | 02:58,5      | CPZ  | 23           | -                 |
|              | U.S.C.G.S.: Epicentre: 11,0 S - 115,5 E (Sud d'île Ball)<br>h = 33 km H = 02:08:02,4 Mag: 6,0 (C.G.S.)<br>$\Delta = 98,5^\circ$      |              |  |              |                   |
| 30           | PKP  | 23:24:26,0   | eCPZ; ez   | -            | -                 |
|              | LR   | 00:13,2      | LPZ  | -            | -                 |
|              | M  | 00:18,5      | LPZN   | 26           | -                 |
|              | U.S.C.G.S.: Epicentre: 16,9 S - 176,9 W (Iles Fidji)<br>h = 33 km H = 23:04:46 Mag: 5,1 (C.G.S.)<br>$\Delta = 146,5^\circ$           |              |  |              |                   |
| 31           | LR   | 03:36,5      | LPZ  | -            | -                 |
|              | M  | 03:44,0      | LPZE   | 15           | -                 |
|              | U.S.C.G.S.: Epicentre: 20,2 N - 38,6 E (Mer Rouge)<br>h = 33 km H = 03:18:24,2 Mag: 4,8 (C.G.S.)<br>$\Delta = 38,1^\circ$            |              |  |              |                   |
| 31           | L  | 11:17,1      | LPZ  | -            | -                 |
| 31           | PKP  | 20:24:27,1   | iCPZ   | -            | d                 |
|              | U.S.C.G.S.: Epicentre: 15,4 S - 167,5 E (Nouvelles Hébrides)<br>h = 132 km H = 20:05:19 Mag: 5,3 (C.G.S.)<br>$\Delta = 140^\circ$    |              |  |              |                   |

16 APR 1969

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 C Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - N° 4

AVRIL 1967

Station sismographique de Sá da Bandeira  
Coordonnées de la station:

Latitude géographique:  $\varphi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\Phi = 14^{\circ} 48' 29''$  S Altitude:  $h = 1761$  m

Nature du sous-sol:  
Granite

Constantes des sismographes

| Séismographes               | $T_0$<br>(s) | $T_g$<br>(s) | Amplification |             |             |              |
|-----------------------------|--------------|--------------|---------------|-------------|-------------|--------------|
|                             |              |              | $T_s=0,2$ s   | $T_s=0,6$ s | $T_s=1,0$ s | $T_s=15,0$ s |
| Benioff vertical (z)        | 1,0          | 0,2          | 76750         | 33000       | 15300       | -            |
| Benioff vertical (Z)        | 1,0          | 21,3         | 400           | 11,00       | 1650        | 120          |
| Benioff vertical (CPZ)      | 1,0          | 0,75         | 38000         | 150000      | 100000      | -            |
| Benioff N/S (CPN)           | 1,0          | 0,85         | 38000         | 150000      | 100000      | -            |
| Benioff EW (CPE)            | 1,0          | 0,82         | 38000         | 150000      | 100000      | -            |
| Sprengnether vertical (LPZ) | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether NS (LPN)       | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether EW (LPE)       | 15,0         | 100,0        | -             | -           | -           | 1500         |

| Date | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|------|--------|--------------|--|--------------|-------------------|
|------|--------|--------------|--|--------------|-------------------|

1967 Avr. 1 PKP 06:19:33,5 CPZ  
U.S.C.G.S.: Epicentre:  $45,8$  N -  $151,8$  E (Iles Kouriles)  
 $h = 40$  km  $H = 05:54:19,1$  Mag:  $5,74$  (PAS);  $5,9-6,1$  (BRK);  $5,74$  (PAL)  
 $\Delta = 133,4^{\circ}$

1 PKP 06:16:06,0 LPZ  
U.S.C.G.S.: Epicentre:  $46,3$  N -  $152,0$  E (Iles Kouriles)  
 $h = 40$  km  $H = 05:57:09$  Mag:  $5,5$  (C.G.S.)  
 $\Delta = 133,4^{\circ}$

1 P 09:27:24,2 eCPZ  
S 09:29:18,9 CPZ  
LQ 11:28,4 LPN  
LR 11:40,7 LPZNE  
U.S.C.G.S.: Epicentre:  $4,6$  S -  $105,8$  W (Ile Cordillera)  
 $h = 33$  km  $H = 10:41:00,2$  Mag:  $5,9-6,1$  (BRK);  $6,0$  (PAS)  
 $\Delta = 116,9^{\circ}$

SERVIÇO METEOROLÓGICO DE ANGOLA - 2 -

| Date | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|------|--------|--------------|--|--------------|-------------------|
|------|--------|--------------|--|--------------|-------------------|

1967 Avr. 1 PKP 12:42:48,8 iCPZ - - c  
 PP 12:45:14,7 iCPZ - -  
 PKS 12:46:16 LPZN - -  
 LQ 13:27,4 LPNE - -  
 LR 13:47,0 LPNE - -

U.S.C.G.S.: Épicentre: 45,7 N - 151,8 E (Iles Kouriles)  
 h = 40 R H = 12:23:35,5 Mag: 5,9 (C.G.S.); 5 3/4 (PAS); 5,4 - 5,8 (BRK)  
 Δ = 133,6°

2 PKP 17:59:50,4 CPZ; iz, iz - -  
 PKS 18:03:14,5 CPZ; LPZ; eiz, eiz - -  
 LR 18:42,5 LPZNE; Z - -

U.S.C.G.S.: Épicentre: 6,3 S - 148,8 E (Nouvelle-Bretagne)  
 h = 37 km H = 17:40:38,8 Mag: 5,0 (C.G.S.); 5 3/4 (PAS)  
 Δ = 130,8°

2 (P) 21:47:05,7 CPZ; z - -

3 - 07:50:45 LPZ - -  
 LR 07:58,4 LPZNE - -  
 M 08:04,3 LPZNE 16 - -

U.S.C.G.S.: Épicentre: 19,9 N - 38,5 E (Mer Rouge)  
 h = 33 R H = 07:38:28,4 Mag: 5,1 (C.G.S.)  
 Δ = 42,6°

9 L 09:08,8 LPZNE - -

U.S.C.G.S.: Épicentre: 6,1 S - 151,5 E (Nouvelle Bretagne)  
 h = 16 km H = 08:04:15,4 Mag: 5,1 (C.G.S.); 5,8 - 6,1 (BRK)  
 Δ = 133,3°

3 PKP 13:18:11,5 iCPZ; LPZ; z, Z - -  
 SS 13:40:18 LPZNE - -  
 LR 14:11,5 LPZNE - -

U.S.C.G.S.: Épicentre: 20,2 S - 173,7 W (Iles Tonga)  
 h = 48 R H = 12:58:40,9 Mag: 5,3 (C.G.S.); 5,1 - 5,5 (BRK)  
 Δ = 144,1°

4 L 01:28,9 LPZNE - -

U.S.C.G.S.: Épicentre: 2,3 S - 138,7 E (Nouvelle Guinée)  
 h = 11 km H = 00:37:26,1 Mag: 5,6 (C.G.S.)  
 Δ = 123°

4 PKP 01:38:01,4 iCPZ; iz - -

U.S.C.G.S.: Épicentre: 17,2 S - 178,5 W (Iles Fidji)  
 h = 371 km H = 01:19:06 Mag: 4,4 (C.G.S.)  
 Δ = 145,7°

4 L 05:03,1 LPZN - -

U.S.C.G.S.: Épicentre: 50,1 S - 127,4 E (Australie)  
 h = 39 R H = 04:15:41 Mag: 4,5 (C.G.S.)  
 Δ = 93°

5 PKP 12:02:33,1 iCPZ; iz - -  
 L 12:33,8 LPZ - -

U.S.C.G.S.: Épicentre: 17,7 S - 178,4 W (Iles Fidji)  
 h = 480 R H = 11:43:49 Mag: 4,3 (C.G.S.)  
 Δ = 145,4°

5 LR 14:14,2 LPZNE - -

U.S.C.G.S.: Épicentre: 40,2 S - 45,4 E (Atlantique - Océan Indien)  
 h = 39 km H = 13:55:33 Mag: ----  
 Δ = 37,5°

5 P 20:51:27,9 CPZ; z - -

U.S.C.G.S.: Épicentre: 10,9 N - 43,4 W (Atlantique Nord)  
 h = 33 km H = 20:41:09,3 Mag: 4,7 (C.G.S.)  
 Δ = 62°

(5) PKP 21:49:32,6 iCPZ; iz - - c

U.S.C.G.S.: Épicentre: 17,6 S - 178,4 W (Iles Fidji)  
 h = 546 km H = 21:30:53 Mag: 4,4 (C.G.S.)  
 Δ = 145,4°

| Date   | Phase | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--|-------|--------------|--|--------------|-------------------|
| 1967 Av. 5   | LR    | 23:17,4      | LPZN   | -            | -                 |
| U.S.C.G.S.: Épicentre: 53,2 S - 140,6 E (Iles Macquarie)<br>h = 93 R H = 22:29:35 Mag: 5,0 (C.G.S.)<br>Δ = 98,2°                 |       |              |  |              |                   |
| 5  | PKP   | 23:52:21,1   | eiCPZ; eiz   | -            | -                 |
|  | -     | 23:55:40,9   | CPZ; z   | -            | -                 |
| U.S.C.G.S.: Épicentre: 31,1 S - 178,2 W (Iles Kermadec)<br>h = 60 R H = 23:33:06,0 Mag: 5,2 (C.G.S.)<br>Δ = 132,6°               |       |              |  |              |                   |
| 6  | LR    | 03:45,2      | LPZ  | -            | -                 |
| U.S.C.G.S.: Épicentre: 19,6 N - 64,2 W (Iles Vierges)<br>h = 13 km H = 03:07:05,5 Mag: 4,6 (C.G.S.)<br>Δ = 83,9°                 |       |              |  |              |                   |
| 6  | P     | 13:07:09,6   | iz   | -            | d                 |
|  | L     | 13:32,0      | z  | -            | -                 |
| U.S.C.G.S.: Épicentre: 30,1 N - 50,9 E (Iran)<br>h = 10 km H = 12:57:14,0 Mag: 5,4 (C.G.S.)<br>Δ = 57,6°                         |       |              |  |              |                   |
| 9  | PcP   | 16:17:18,8   | iz, eZ   | -            | d                 |
| U.S.C.G.S.: Épicentre: 35,6 S - 72,8 W (Côte Central du Chili)<br>h = 43 km H = 16:04:58 Mag: 4,2 (C.G.S.)<br>Δ = 78,5°          |       |              |  |              |                   |
| 10   | -     | 00:17:24,4   | eiz; Z   | -            | -                 |
| U.S.C.G.S.: Épicentre: 17,7 S - 173,0 W (Iles Tonga)<br>h = 70 R H = 23:57:24,9 Mag: 4,9 (C.G.S.); 5,0 - 5,4 (BRK)<br>Δ = 146,7° |       |              |  |              |                   |
| 10   | PKP   | 15:22:05,5   | iCPZ; z; Z   | -            | c                 |
|  | PKS   | 15:25:44,0   | LPZE   | -            | -                 |
|  | SP    | 15:35:04     | LPZ  | -            | -                 |
|  | PPS   | 15:36:49     | LPZ  | -            | -                 |
|  | -     | 15:47:28     | LPZNE  | -            | -                 |
|  | L     | 16:01,2      | LPZNE  | -            | -                 |
| U.S.C.G.S.: Épicentre: 7,3 S - 155,8 E (Iles Solomon)<br>h = 29 R H = 15:02:42,2 Mag: 5,6 (C.G.S.)<br>Δ = 136,5°                 |       |              |  |              |                   |
| 10   | LQ    | 17:30,3      | LPE  | -            | -                 |
|  | LR    | 17:39,3      | LPZNE  | -            | -                 |
|  | M     | 17:40,5      | LPZ  | 24           | -                 |
| U.S.C.G.S.: Épicentre: 63,6 S - 167,3 W (Iles Cordillera)<br>h = 39 R H = 16:47:50 Mag: 5,4 (C.G.S.)<br>Δ = 101,5°               |       |              |  |              |                   |
| 10   | PKP   | 20:16:46,6   | iCPZ   | -            | d                 |
|  | PKS   | 20:20:10,5   | CPZ  | -            | -                 |
| U.S.C.G.S.: Épicentre: 58,6 N - 154,3 W (Alaska)<br>h = 86 km H = 19:57:34,4 Mag: 5,5 (C.G.S.)<br>Δ = 135,4°                     |       |              |  |              |                   |
| 10   | LR    | 22:57,5      | LPZNE  | -            | -                 |
| U.S.C.G.S.: Épicentre: 7,3 S - 155,9 E (Iles Solomon)<br>h = 39 km H = 21:49:19,5 Mag: 5,3 (C.G.S.)<br>Δ = 136,5°                |       |              |  |              |                   |
| 11   | LR    | 05:56,3      | LPZNE  | -            | -                 |
| U.S.C.G.S.: Épicentre: 7,4 S - 155,7 E (Iles Solomon)<br>h = 86 km H = 04:52:48,3 Mag: 5,5 (C.G.S.)<br>Δ = 135°                  |       |              |  |              |                   |
| 11   | P     | 10:52:08,7   | iCPZ   | -            | -                 |
| U.S.C.G.S.: Épicentre: 23,2 S - 68,8 W (Nord du Chili)<br>h = 93 km H = 10:40:21,5 Mag: 5,0 (C.G.S.)<br>Δ = 77,2°                |       |              |  |              |                   |

| Date         | Phases      | Heure T.M.G.  | Composantes, nature du mouvement et amplitudes (M) | Périodes (s) | Sens du mouvement |
|--------------|-------------|---|--|--------------|-------------------|
| 1967 Avr. 11 | LR          | 13:20,3   | LPZE   | -            | -                 |
|              | U.S.C.G.S.: | Épicentre: 18,8 N - 62,7 W (Iles Leward)                    |  |              |                   |
|              |             | h = 49 km H = 12:42:47,7 Mag: 5,2 (C.G.S.)                  |  |              |                   |
|              |             | $\Delta = 82,1^\circ$                                       |  |              |                   |
| 11           | PKP         | 19:22:12,6  | iCPZ   | -            | c                 |
|              | U.S.C.G.S.: | Épicentre: 17,6 S - 170,1 W (Iles Fidji)                    |  |              |                   |
|              |             | h = 690 km H = 19:03:40,0 Mag: 4,3 (C.G.S.)                 |  |              |                   |
|              |             | $\Delta = 145,2^\circ$                                      |  |              |                   |
| 12           | P           | 05:04:11,5  | iCPZ; iLPZ; iz,                                    | -            | d                 |
|              |             |   | iz   | -            | -                 |
|              | PcP         | 05:04:20,5  | iCPZ; iz   | -            | -                 |
|              | S           | 05:14:40,7  | LPNE   | -            | -                 |
|              | SS          | 05:20:14,2  | LPNE   | -            | -                 |
|              | LQ          | 05:26,3   | LPNE   | -            | -                 |
|              | LR          | 05:30,6   | LPNE   | -            | -                 |
|              | U.S.C.G.S.: | Épicentre: 5,3 N - 96,5 E (Sumatra)                         |  |              |                   |
|              |             | h = 55 km H = 04:51:40,2 Mag: 6,1 (C.G.S.)                  |  |              |                   |
|              |             | $\Delta = 84,6^\circ$                                       |  |              |                   |
| 12           | P           | 10:25:04,8  | eCPZ   | -            | -                 |
|              | S           | 10:27:34,0  | iCPZ; ez   | -            | -                 |
|              | Lg          | 10:28:30  | CPZ; LPZN; z                                       | -            | -                 |
|              | U.S.C.G.S.: | Épicentre: 27,3 S - 16,0 E (Sud-Ouest de l'Afrique)         |  |              |                   |
|              |             | h = --- H = 10:22:10 Mag: 4,4 (BUL)                         |  |              |                   |
|              |             | $\Delta = 12,6^\circ$                                       |  |              |                   |
| 12           | PKIKP       | 14:14:17,5  | iCPZ   | -            | d                 |
|              | LR          | 14:57:32  | LPZNE  | 24           | -                 |
|              | U.S.C.G.S.: | Épicentre: 7,3 S - 155,6 E (Iles Solomon)                   |  |              |                   |
|              |             | h = 52 km H = 13:54:57,2 Mag: 5,2 (C.G.S.); 4,9 - 5,3 (BRK) |  |              |                   |
|              |             | $\Delta = 136,3^\circ$                                      |  |              |                   |
| 12           | Lg          | 15:10:58,5  | CPZ; z   | -            | -                 |
|              | U.S.C.G.S.: | Épicentre: 14,9 S - 22,8 E (Barotseland)                    |  |              |                   |
|              |             | h = --- H = 15:05:02 Mag: 3,2 (BUL)                         |  |              |                   |
|              |             | $\Delta = 8,9^\circ$  |  |              |                   |
| 12           | LR          | 19:02:38  | LPZE   | 30           | -                 |
|              | U.S.C.G.S.: | Épicentre: 8,3 S - 127,0 E (Timor)                          |  |              |                   |
|              |             | h = 13 km H = 18:06:59,2 Mag: 4,4 (C.G.S.)                  |  |              |                   |
|              |             | $\Delta = 107^\circ$  |  |              |                   |
| 12           | P           | 19:38:02,1  | iCPZ   | -            | c                 |
|              | pP          | 19:38:08,0  | iCPZ   | -            | -                 |
|              | U.S.C.G.S.: | Épicentre: 14,4 N - 56,7 E (Mer Arabien)                    |  |              |                   |
|              |             | h = 33 R H = 19:28:55 Mag: 4,7 (C.G.S.)                     |  |              |                   |
|              |             | $\Delta = 51,8^\circ$                                       |  |              |                   |
| 12           | P           | 19:46:19,0  | iCPZ   | -            | c                 |
|              | U.S.C.G.S.: | Épicentre: 5,2 N - 96,7 E (Sumatra)                         |  |              |                   |
|              |             | h = 56 km H = 19:33:47,3 Mag: 5,2 (C.G.S.)                  |  |              |                   |
|              |             | $\Delta = 84,7^\circ$                                       |  |              |                   |
| 12           | LR          | 19:55:38  | LPZNE  | 22           | -                 |
|              | U.S.C.G.S.: | Épicentre: 7,5 S - 155,7 E (Iles Solomon)                   |  |              |                   |
|              |             | h = 73 km H = 18:45:12 Mag: 5,1 (C.G.S.)                    |  |              |                   |
|              |             | $\Delta = 136,3^\circ$                                      |  |              |                   |
| 12           | P           | 21:34:15,5  | iCPZ   | 0,9          | c                 |
|              | PcP         | 21:34:21,9  | iCPZ   | -            | c                 |
|              | pP          | 21:34:36,6  | iCPZ   | -            | c                 |
|              | LR          | 22:02:00  | LPZE   | 21           | -                 |
|              | U.S.C.G.S.: | Épicentre: 35,5 S - 73,3 W (Côte Central du Chili)          |  |              |                   |
|              |             | h = 12 km H = 21:22:09,3 Mag: 5,3 (C.G.S.)                  |  |              |                   |
|              |             | $\Delta = 82,9^\circ$                                       |  |              |                   |
| 13           | P           | 08:38:14,4  | iCPZ   | -            | d                 |
|              | LR          | 09:07:00  | LPZN   | 20           | -                 |
|              | U.S.C.G.S.: | Épicentre: 5,5 N - 96,6 E (Sumatra)                         |  |              |                   |
|              |             | h = 68 km H = 08:25:43,8 Mag: 5,2 (C.G.S.)                  |  |              |                   |
|              |             | $\Delta = 84,7^\circ$                                       |  |              |                   |



| Date         | Phases                 | Heure T.M.G.  | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--------------|------------------------|---|--|--------------|-------------------|
| 1967 Avp. 10 | PKP <sub>2</sub>       | 14:47:03,6  | iCPZ   | -            | d                 |
|              | U.S.C.G.S.: h = 99 R   | Épicentre: 7,0 S - 151,0 W (Iles Line)<br>H = 14:26:49,5            | Mag: 5,2 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 153,3°  |  |              |                   |
| 13           | PKIKP                  | 17:32:16,6  | iCPZ   | -            | d                 |
|              | U.S.C.G.S.: h = 610 km | Épicentre: 18,0 S - 178,6 W (Iles Fidji)<br>H = 17:13:43,5          | Mag: 5,0 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 145,0°  |  |              |                   |
| 13           | P                      | 19:00:02,6  | iCPZ   | -            | d                 |
|              | U.S.C.G.S.: h = 64 km  | Épicentre: 34,2 S - 72,1 W (Côte Central du Chili)<br>H = 18:48:07  | Mag: 4,6 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 78,2°   |  |              |                   |
| 13           | PKP<br>LR              | 20:12:29,1<br>20:56:12  | iCPZ<br>LPZ  | -<br>20      | d<br>-            |
|              | U.S.C.G.S.: h = 98 km  | Épicentre: 27,3 N - 128,7 E (Iles Rynkyn)<br>H = 19:53:42,4         | Mag: 6,0 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 118,8°  |  |              |                   |
| 14           | P<br>LR                | 14:00:36,7<br>14:17:20  | iCPZ<br>LPZ  | -<br>22      | d<br>-            |
|              | U.S.C.G.S.: h = 93 R   | Épicentre: 22,8 S - 69,4 E (Océan Indien)<br>H = 13:51:17           | Mag: 4,8 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 59,1°   |  |              |                   |
| 14           | -                      | 19:47:28,5  | ez, eZ   | -            | -                 |
| 14           | (P)<br>(pP)            | 23:51:31<br>23:51:44,5  | ez, eZ<br>iz, iZ                                   | -<br>-       | -<br>d            |
| 15           | LR                     | 01:53:00  | LPZ  | 20           | -                 |
|              | U.S.C.G.S.: h = 95 km  | Épicentre: 33,1 S - 178,7 W (Sud des Iles Kermadec)<br>H = 00:41:06 | Mag: 4,5 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 129°  |  |              |                   |
| 15           | PKS                    | 09:22:04,1  | iz, iZ   | -            | c                 |
|              | U.S.C.G.S.: h = 349 km | Épicentre: 29,1 S - 179,7 W (Iles Kermadec)<br>H = 09:00:40         | Mag: 4,4 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 134,1°  |  |              |                   |
| 15           | Pg<br>Sg               | 17:25:07,4<br>17:25:13  | iz, iZ<br>iz, iZ                                   | -<br>-       | c<br>d            |
|              |                        | Δ = 0,5°  |  |              |                   |
| 16           | Lg                     | 01:42:55  | z, Z   | -            | -                 |
|              | U.S.C.G.S.: h = ---    | Épicentre: 4,7 S - 34,7 E (Tanzanie)<br>H = 01:30:59                | Mag: 4,0 (BUL)                                     |              |                   |
|              |                        | Δ = 21°   |  |              |                   |
| 16           | Pn<br>Sn               | 03:42:35,0<br>03:43:00,4  | iz, iZ<br>iz, iZ                                   | -<br>-       | c<br>-            |
|              |                        | Δ = 1,9°  |  |              |                   |
| 16           | P<br>pP<br>LR          | 10:01:48,5<br>10:01:56,5<br>10:10:48                                | iCPZ<br>iCPZ<br>LPZE                               | -<br>-<br>29 | c<br>c<br>-       |
|              | U.S.C.G.S.: h = 93 km  | Épicentre: 0,1 N - 17,3 W (Ile Ascension)<br>H = 09:55:01           | Mag: 4,8 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 35°   |  |              |                   |
| 17           | PKP<br>LR              | 11:37:41,5<br>12:33:00  | eCPZ<br>LPZ  | -<br>20      | -<br>-            |
|              | U.S.C.G.S.: h = 45 R   | Épicentre: 12,5 S - 166,3 E (Iles Santa Cruz)<br>H = 11:18:19,3     | Mag: 4,9 (C.G.S.)                                  |              |                   |
|              |                        | Δ = 141,5°  |  |              |                   |
| 19           | P                      | 07:25:55,5  | iCPZ   | -            | c                 |
| 19           | P<br>S<br>Lg           | 13:28:23,5<br>13:31:32,0<br>13:32:24                                | ez, eZ<br>eZ<br>ez, eZ                             | -<br>-<br>-  | -<br>-<br>-       |
|              | U.S.C.G.S.: h = ---    | Épicentre: 16,6 S - 28,2 E (Kariba)<br>H = 13:25:00                 | Mag: 2,7 (BUL)                                     |              |                   |
|              |                        | Δ = 14,2°   |  |              |                   |

| Date         | Phases  | Heure T.M.G. | Composantes, nature du mouvement et amplitudes( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--------------|---|--------------|---|--------------|-------------------|
| 1967 Avr. 19 | P   | 22:09:47,6   | iCPZ  | -            | c                 |
|              | U.S.C.G.S.: Épicentre: 18,8 N - 69,6 W (S. Domingo)<br>h = 103 R H = 21:57:05,1 Mag: 5,0 (C.G.S.)<br>$\Delta = 88,5^\circ$                |              |   |              |                   |
| 20           | P   | 02:54:19,1   | iCPZ; iz  | -            | d                 |
|              | PP  | 02:54:30,7   | iCPZ  | -            | c                 |
|              | PPP   | 02:54:37,4   | iCPZ  | -            | d                 |
|              | S   | 02:56:53,0   | iCPZ; iz  | -            | c                 |
|              | SS  | 02:57:05,5   | iCPZ  | -            | c                 |
|              | SSS   | 02:57:25,3   | iCPZ  | -            | d                 |
|              | Lg  | 02:58:30,5   | CPZ; LPNE; z  | -            | -                 |
|              | M   | 02:58:45     | CPZ   | 0,9          | -                 |
|              | U.S.C.G.S.: Épicentre: 16,7 S - 28,2 E (Zambie)<br>h = 33 km H = 02:50:58 Mag: 5,5 (C.G.S.)<br>$\Delta = 14,2^\circ$                      |              |   |              |                   |
| 20           | P   | 04:20:40,5   | iCPZ; iz  | 0,7          | c                 |
|              | U.S.C.G.S.: Épicentre: 49,7 N - 78,1 E (Kazakh - RSS)<br>h = 0 R H = 04:07:57,6 Mag: 5,7 (C.G.S.)<br>$\Delta = 85,9^\circ$                |              |   |              |                   |
| 20           | P   | 04:25:04,0   | iCPZ  | -            | d                 |
|              | LR  | 04:35:42     | LPZNE   | 20           | -                 |
|              | U.S.C.G.S.: Épicentre: 41,1 S - 19,4 W (Atlantique Sud)<br>h = 33 km H = 04:17:42 Mag: 5,3 (C.G.S.)<br>$\Delta = 38,7^\circ$              |              |   |              |                   |
| 21           | SP  | 08:43:00     | CPZ   | -            | -                 |
|              | L   | 09:00,1      | CPZ; LPNE   | -            | -                 |
|              | U.S.C.G.S.: Épicentre: 5,4 S - 126,9 E (Mer Banda)<br>h = 33 R H = 08:14:25,0 Mag: 6,4 (PAS); 6,4 - 6,6 (B R K)<br>$\Delta = 110,9^\circ$ |              |   |              |                   |
| 21           | PKP   | 14:56:44,5   | iCPZ; iz  | -            | d                 |
|              | U.S.C.G.S.: Épicentre: 20,6 S - 177,5 W (Iles Fidji)<br>h = 454 km H = 14:38:33 Mag: 4,9 (C.G.S.)<br>$\Delta = 143^\circ$                 |              |   |              |                   |
| 21           | PKP   | 18:07:24,2   | iCPZ  | -            | c                 |
|              | U.S.C.G.S.: Épicentre: 15,5 S - 180,0 E (Iles Fidji)<br>h = 33 R H = 17:47:42 Mag: 4,5 (C.G.S.)<br>$\Delta = 146,7^\circ$                 |              |   |              |                   |
| 22           | LR  | 09:29:40     | LPZE  | 30           | -                 |
|              | U.S.C.G.S.: Épicentre: 5,6 S - 126 E (Mer de Banda)<br>h = 33 R H = 08:37:25,8 Mag: 5,2 (C.G.S.)<br>$\Delta = 110,8^\circ$                |              |   |              |                   |
| 22           | P   | 13:20:11,5   | iCPZ; eLPZ  | -            | c                 |
|              | pP  | 13:20:23,2   | iCPZ  | -            | c                 |
|              | S   | 13:30:44     | eLPN  | -            | -                 |
|              | LR  | 13:47:48     | LPZN  | 24           | -                 |
|              | M   | 13:59:30     | LPZ   | 16           | -                 |
|              | U.S.C.G.S.: Épicentre: 5,1 N - 96,4 E (Sumatra)<br>h = 42 km H = 13:07:38,1 Mag: 5,4 (C.G.S.)<br>$\Delta = 84,4^\circ$                    |              |   |              |                   |
| 22           | LR  | 15:31:30     | LPZ   | 26           | -                 |
|              | U.S.C.G.S.: Épicentre: 8,3 N - 82,8 W (Panamá - Costa Rica)<br>h = 40 km H = 14:43:21,4 Mag: 5,0 (C.G.S.)<br>$\Delta = 89^\circ$          |              |   |              |                   |
| 23           | LR  | 13:50,8      | LPZ   | -            | -                 |
|              | U.S.C.G.S.: Épicentre: 8,6 N - 126,5 E (Iles Philippines)<br>h = 43 km H = 12:50:24,9 Mag: 5,3 (C.G.S.)<br>$\Delta = 114,2^\circ$         |              |   |              |                   |
| 23           | LR  | 15:35,2      | LPZ   | -            | -                 |
|              | U.S.C.G.S.: Épicentre: 1,6 N - 80,2 E (Océan Indien)<br>h = 33 R H = 15:01:06,8 Mag: 5,1 (C.G.S.)<br>$\Delta = 67^\circ$                  |              |   |              |                   |

| Date         | Phases  | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--------------|---|--------------|--|--------------|-------------------|
| 1967 Avr. 24 | LR  | 09:31:24     | LPZNE  | 20           | -                 |
|              | U.S.C.G.S.: Épicentre: 37,4 N - 72,7 E (Tadjik - RSS)<br>h = 31 km H = 08:51:10,9 Mag: 5,6 (C.G.S.)<br>$\Delta = 76,2^\circ$                |              |  |              |                   |
| 24           | P   | 11:54:16,5   | ICPZ   | -            | c                 |
|              | pP  | 11:54:24,4   | ICPZ   | -            | d                 |
|              | S   | 12:01:54     | eLPE   | -            | -                 |
|              | LR  | 12:10:43     | LPZE   | 30           | -                 |
|              | U.S.C.G.S.: Épicentre: 24,0 S - 69,6 E (Océan Indien)<br>h = 33 R H = 11:44:58,1 Mag: 5,0 (C.G.S.)<br>$\Delta = 53,3^\circ$                 |              |  |              |                   |
| 24           | P   | 16:42:09,1   | ICPZ   | -            | c                 |
|              | LR  | 16:59:42     | LPZN   | 20           | -                 |
|              | U.S.C.G.S.: Épicentre: 56,3 S - 26,9 W (Iles Sandwich)<br>h = 118 km H = 16:33:13,6 Mag: 5,1 (C G S)<br>$\Delta = 51,5^\circ$               |              |  |              |                   |
| 25           | LR  | 07:55:00     | LPZNE  | 22           | -                 |
|              | U.S.C.G.S.: Épicentre: 0,3 S - 121,9 E (Nord des Iles Célèbes)<br>h = 20 km H = 06:57:48,9 Mag: 5,3 (C.G.S.)<br>$\Delta = 107,6^\circ$      |              |  |              |                   |
| 25           | P   | 10:43:29,5   | ICPZ; iz   | -            | c                 |
|              | pP  | 10:43:39,7   | ICPZ; iz   | -            | d                 |
|              | U.S.C.G.S.: Épicentre: 43,3 N - 87,0 E (Sinkiang - Chine)<br>h = 34 R H = 10:30:37,8 Mag: 5,2 (C.G.S.)<br>$\Delta = 88,6^\circ$             |              |  |              |                   |
| 25           | P   | 10:47:59,0   | ICPZ; iz   | -            | c                 |
|              | pP  | 10:48:09,0   | ICPZ; iz   | -            | c                 |
|              | LR  | 11:12:44     | LPZNE  | 24           | -                 |
|              | U.S.C.G.S.: Épicentre: 32,9 S - 69,0 W (Mendoza - Argentine)<br>h = 99 km H = 10:36:14,3 Mag: 5,7 (C.G.S.)<br>$\Delta = 75,8^\circ$         |              |  |              |                   |
| 26           | P   | 18:15:27     | ICPZ; iz   | -            | -                 |
| 26           | PKIKP   | 22:06:04,5   | ICPZ   | -            | c                 |
|              | LR  | 22:56:30     | LPZ  | -            | -                 |
|              | U.S.C.G.S.: Épicentre: 16,5 S - 175,6 E (Iles Fidji)<br>h = 116 km H = 21:46:41 Mag: 4,8 (C.G.S.)<br>$\Delta = 143,9^\circ$                 |              |  |              |                   |
| 27           | P   | 00:53:(12)   | ICPZ; iz   | -            | -                 |
|              | (LQ)  | 01:14:00     | LPNE   | -            | -                 |
|              | LR  | 01:18:14     | LPZNE  | 28           | -                 |
| 27           | LR  | 09:34:20     | LPZ  | 18           | -                 |
|              | U.S.C.G.S.: Épicentre: 2,0 S - 138,4 E (Côte Ouest de Nouvelle Guinée)<br>h = 99 R H = 08:36:48 Mag: 5,1 (C.G.S.)<br>$\Delta = 122,9^\circ$ |              |  |              |                   |
| 27           | Pn  | 10:25:46,4   | ICPZ; iz, eZ   | -            | d                 |
|              | P*  | 10:25:48,4   | ICPZ   | -            | d                 |
|              | Pg  | 10:25:50,5   | ICPZ   | -            | c                 |
|              | Sn  | 10:26:(09)   | iz, IZ   | -            | d                 |
|              | S*  | 10:26:11,6   | IZ   | -            | c                 |
|              | Sg  | 10:26:14,0   | IZ   | -            | c                 |
|              | U.S.C.G.S.: Épicentre: 14,5 S - 14,0 E (Sã da Bandeira)<br>h = ----- H = 10:25:16 Mag: 4,0 (BUL)<br>$\Delta = 1,3^\circ$                    |              |  |              |                   |
| 27           | Sn  | 10:30:27,0   | iz   | -            | -                 |
| 27           | Pn  | 10:34:06,1   | z, Z   | -            | -                 |
|              | Pg  | 10:34:08,0   | z, Z   | -            | -                 |
|              | Sn  | 10:34:27,3   | z, Z   | -            | -                 |
|              | Sg  | 10:34:29,2   | z, Z   | -            | -                 |
|              | $\Delta = 1,6^\circ$  |              |  |              |                   |
| 27           | Pn  | 13:43:58,5   | z, IZ  | -            | c                 |
|              | Pg  | 13:44:02,0   | z, Z   | -            | -                 |
|              | Sn  | 13:44:21,0   | iz, IZ   | -            | d                 |
|              | Sg  | 13:44:24,0   | z, Z   | -            | -                 |
|              | $\Delta = 1,7^\circ$  |              |  |              |                   |

| Date   | Phases         | Heure T.M.G.                        | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s.) | Sens du mouvement |
|--|----------------|-------------------------------------|--|---------------|-------------------|
| 1967 Avr. 27   | P              | 23:36:04,4                          | ICPZ   | -             | d                 |
| U.S.C.G.S.: Épicentre: 12,6 S - 41,0 E (Porto Amélia, Mozambique)  |                |                                     |  |               |                   |
| h = --- H = 23:30:29 Mag: 4,6 (C.G.S.)                             |                |                                     |  |               |                   |
| $\Delta = 28,0^\circ$  |                |                                     |  |               |                   |
| 27   | -              | 23:44:21                            | ez, ez   | -             | -                 |
| 28   | LQ<br>LR       | 07:48,6<br>07:51,6                  | LPN<br>LPZ   | -             | -                 |
| U.S.C.G.S.: Épicentre: 37,1 S - 52,2 E (Océan Indien)              |                |                                     |  |               |                   |
| h = 33 R H = 07:31:32 Mag: ---                                     |                |                                     |  |               |                   |
| $\Delta = 40,8^\circ$  |                |                                     |  |               |                   |
| 28   | L              | 11:22,3                             | LPZE   | -             | -                 |
| 28   | Pg<br>Sg       | 19:23:10,1<br>19:23:21,5            | eCPZ; z<br>CPZ; z  | -             | -                 |
| $\Delta = 0,8^\circ$   |                |                                     |  |               |                   |
| 28   | P<br>LR        | 19:48:35,6<br>20:11,6               | eCPZ<br>LPZN   | -             | -                 |
| U.S.C.G.S.: Épicentre: 28,5 N - 57,5 E (Iran)                      |                |                                     |  |               |                   |
| h = 24 km H = 19:38:29 Mag: 4,8 (C.G.S.)                           |                |                                     |  |               |                   |
| $\Delta = 60,7^\circ$  |                |                                     |  |               |                   |
| 29   | LR             | 01:09,8                             | LPZN   | -             | -                 |
| U.S.C.G.S.: Épicentre: 51,2 N - 130,4 W (Iles Reine Charlotte)     |                |                                     |  |               |                   |
| h = 6 km H = 00:04:41,8 Mag: 5,5 $\frac{1}{2}$ (GOL); 4,3(C.G.S.)  |                |                                     |  |               |                   |
| $\Delta = 133,7^\circ$   |                |                                     |  |               |                   |
| 29   | PKP<br>PP<br>L | 04:14:44,3<br>04:17:55,5<br>04:56,7 | ICPZ<br>CPZ<br>LPZE                                      | -             | c<br>-<br>-       |
| U.S.C.G.S.: Épicentre: 51,4 N - 178,3 W (Iles Aléoutiennes)        |                |                                     |  |               |                   |
| h = 50 km H = 03:55:20,8 Mag: 6,0 (C.G.S.)                         |                |                                     |  |               |                   |
| $\Delta = 142,1^\circ$   |                |                                     |  |               |                   |
| 29   | LR             | 07:41,5                             | LPZNE  | -             | -                 |
| U.S.C.G.S.: Épicentre: 38,2 S - 48,6 E (Atlantique - Océan Indien) |                |                                     |  |               |                   |
| h = 33 km H = 07:21:48 Mag: 4,6 (C.G.S.)                           |                |                                     |  |               |                   |
| $\Delta = 38,6^\circ$  |                |                                     |  |               |                   |
| 29   | PKP            | 12:50:53,6                          | CPZ  | -             | -                 |
| U.S.C.G.S.: Épicentre: 15,6 S - 173,8 W (Iles Tonga)               |                |                                     |  |               |                   |
| h = 59 km H = 12:31:09 Mag: 4,6 (C.G.S.)                           |                |                                     |  |               |                   |
| $\Delta = 146,6^\circ$   |                |                                     |  |               |                   |
| 30   | P<br>pP<br>LR  | 07:35:57,6<br>07:36:19,1<br>08:01,4 | ICPZ; iz<br>CPZ; z<br>LPZNE                              | -             | d<br>-<br>-       |
| $\Delta = 89^\circ$  |                |                                     |  |               |                   |

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda

C.P. 1228 C Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - No 5

MAI 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\varphi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E

Latitude géocentrique:  $\phi = 14^{\circ} 48' 29''$  S Altitude: h = 1761 m

Nature du sous-sol:

Granite

Constantes des sismographes

| Sismographes                   | T <sub>0</sub><br>(s) | T <sub>g</sub><br>(s) | Amplification         |                       |                       |                        |
|--------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
|                                |                       |                       | T <sub>s</sub> =0,2 s | T <sub>s</sub> =0,6 s | T <sub>s</sub> =1,0 s | T <sub>s</sub> =15,0 s |
| Benioff vertical<br>(z)        | 1,0                   | 0,2                   | 76750                 | 33000                 | 15900                 | -                      |
| Benioff vertical<br>(Z)        | 1,0                   | 21,3                  | 400                   | 1100                  | 1650                  | 120                    |
| Benioff vertical<br>(CPZ)      | 1,0                   | 0,75                  | 38000                 | 150000                | 100000                | -                      |
| Benioff N/S<br>(CPN)           | 1,0                   | 0,55                  | 38000                 | 150000                | 100000                | -                      |
| Benioff EW<br>(CPE)            | 1,0                   | 0,82                  | 38000                 | 150000                | 100000                | -                      |
| Sprengnether vertical<br>(LPZ) | 15,0                  | 100,0                 | -                     | -                     | -                     | 1500                   |
| Sprengnether NS<br>(LPN)       | 15,0                  | 100,0                 | -                     | -                     | -                     | 1500                   |
| Sprengnether<br>(LPE)          | 15,0                  | 100,0                 | -                     | -                     | -                     | 1500                   |

| Date | Phases | Heure<br>T.M.G. | Composantes<br>nature du<br>mouvement et<br>amplitudes (μ) | Périodes<br>(s) | Sens du<br>mouvement |
|------|--------|-----------------|--|-----------------|----------------------|
|------|--------|-----------------|--|-----------------|----------------------|

1967 Mai 1

|                 |            |          |    |   |
|-----------------|------------|----------|----|---|
| P               | 07:18:34,3 | iz, iz   | -  | c |
| LR              | 07:32:00   | LPZNE    | 10 | - |
| LR <sub>1</sub> | 07:35:00   | LPZNE; Z | 40 | - |
| F               | 08:18:00   | LPZ      | -  | - |

U.S.C.G.S.: Epicentre: 39,7 N, 21,3 E (Grèce)  
h = 15 km H = 07:09:00,5 Mag: 5,8 (C.G.S.)  
 $\Delta = 55,1^{\circ}$

|   |                |            |              |   |   |
|---|----------------|------------|--------------|---|---|
| 3 | P <sub>n</sub> | 16:45:59,4 | 1CPZ; iz     | - | c |
|   | S              | 16:47:26,5 | 1CPZ; iz, iz | - | c |

$\Delta = 7,6^{\circ}$

SERVICIO METEOROLOGICO DE ANGOLA - 2 -

Centro de Geofisica de Luanda  
Luanda

| Date       | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (A) | Périodes (s) | Sens du mouvement |
|------------|--------|--------------|--|--------------|-------------------|
| 1967 Mai 4 | P      | 08:26:38,8   | 10PZ (0,09);<br>iz, iz                             | 1            | c                 |
|            | LR     | 08:42:00     | LPZNE; Z   | 24           | -                 |

U.S.C.G.S.: Epicentre: 55,7 S, 27,9 W (Sud des Iles Sandwich)  
h = 33 km H = 08:17:32,1 Mag: 5,8 (C.G.S.)  
 $\Delta = 51,6^\circ$

|   |    |          |          |    |   |
|---|----|----------|----------|----|---|
| 4 | LR | 11:29:00 | LPZ      | 36 | - |
| 5 | LR | 13:19:00 | LPZ      | 30 | - |
| 5 | LR | 16:09:00 | LPZNE    | 28 | - |
| 5 | LR | 18:24:00 | LPZE     | 24 | - |
| 5 | LR | 23:37:00 | LPZ      | 24 | - |
| 6 | LR | 02:31:00 | LPZ      | 16 | - |
| 6 | LR | 08:56:00 | LPZNE; Z | 20 | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |
| - | -  | -        | -        | -  | - |

| Date | Phases | Heure T.M.G. | Composantes nature du mouvement et amplitudes (A) | Périodes (s) | Sens du mouvement |
|------|--------|--------------|---|--------------|-------------------|
|------|--------|--------------|---|--------------|-------------------|

1967 Mai 1  
P 07:10:34,3  
LR 07:32:00  
LR 07:32:00  
P 08:18:00  
U.S.C.G.S.: Epicentre: 33,7 N, 51,3 E (Gros)  
h = 15 km H = 07:02:00,5 Mag: 5,8 (C.G.S.)  
 $\Delta = 52,1^\circ$

3  
P 10:42:33,4  
P 10:47:36,2  
 $\Delta = 5,6^\circ$

SERVICO METEOROLOGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 O Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - No 6

JUIN 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\phi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E

Latitude géocentrique:  $\Phi = 14^{\circ} 48' 23''$  S Altitude:  $h = 1761$  m

Nature du sous-sol:

Granite

Constantes des sismographes

| Sismographes                | T <sub>0</sub><br>(s) | T <sub>g</sub><br>(s) | Amplification |          |          |           |
|-----------------------------|-----------------------|-----------------------|---------------|----------|----------|-----------|
|                             |                       |                       | Ts=0,2 s      | Ts=0,6 s | Ts=1,0 s | Ts=15,0 s |
| Benioff vertical (z)        | 1,0                   | 0,2                   | 76750         | 33000    | 15300    | -         |
| Benioff vertical (Z)        | 1,0                   | 21,3                  | 400           | 1100     | 1650     | 120       |
| Benioff vertical (CPZ)      | 1,0                   | 0,75                  | 38000         | 150000   | 100000   | -         |
| Benioff N/S (CPN)           | 1,0                   | 0,85                  | 38000         | 150000   | 100000   | -         |
| Benioff EW (CPE)            | 1,0                   | 0,82                  | 38000         | 150000   | 100000   | -         |
| Sprengnether vertical (LPZ) | 15,0                  | 100,0                 | -             | -        | -        | 1500      |
| Sprengnether NS (LPN)       | 15,0                  | 100,0                 | -             | -        | -        | 1500      |
| Sprengnether EW (LPE)       | 15,0                  | 100,0                 | -             | -        | -        | 1500      |

| Date  | Phases | Heure T.W.G. | Composantes nature du mouvement et amplitudes( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Juin 8   | LR     | 14:27:00     | LPZ  | 38           | -                 |
| 9   | LR     | 13:28:00     | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 52,4 S, 143,5 E (Ouest de l'île Macquarie)<br>h = 33 H = 12:41:22 Mag: 5,1 (C.G.S.)<br>$\Delta = 99,3^{\circ}$ |        |              |  |              |                   |
| 10  | P      | 05:38:43,0   | 1CPZ(0,04);<br>iz, iz                                  | 1            | d                 |
|   | pP     | 05:38:50,0   | 1CPZ; iz, iz   | -            | d                 |
|   | LR     | 05:58:00     | LPZNE; Z   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 41,3 S, 73,6 W (Côte Sud du Chili)<br>h = 37 H = 05:26:44,4 Mag: 5,7 (C.G.S.)<br>$\Delta = 78,1^{\circ}$       |        |              |  |              |                   |
| 10  | P      | 05:46:00,0   | 1CPZ; iz   | -            | d                 |
|   | S      | 05:48:51,5   | 1CPZ; iz   | -            | d                 |
| $\Delta = 16,0^{\circ}$   |        |              |  |              |                   |

| Date | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes( $\mu$ ) | Périodes (s) | Sens du mouvement |
|------|--------|--------------|---|--------------|-------------------|
|------|--------|--------------|---|--------------|-------------------|

1967 Juin 10 PKP 14:17:23,4 iCPZ(0,05);iz,iz 1 c

U.S.C.G.S.: Epicentre: 19,3 S, 178,2 W (Région des Iles Fidji)  
 h = 596 km H = 13:58:53,3 Mag: 5,1 (C.G.S.)  
 $\Delta = 143,9^\circ$

|    |     |            |              |    |   |
|----|-----|------------|--------------|----|---|
| 10 | (P) | 14:25:51,4 | iCPZ; iz     | -  | c |
| 12 | P   | 05:28:02,0 | iCPZ; iz, iz | -  | d |
|    | LR  | 05:37:00   | LPZNE; Z     | 40 | - |

U.S.C.G.S.: Epicentre: 44,9 S, 35,7 E (Région des Iles Prince Edouard)  
 h = 36 km H = 05:21:11 Mag: 5,6 (C.G.S.)  
 $\Delta = 35,4^\circ$

|    |     |            |                      |    |   |
|----|-----|------------|----------------------|----|---|
| 12 | LR  | 22:03:00   | LPZE                 | 20 | - |
| 13 | LR  | 00:44:00   | LPZNE                | 20 | - |
| 13 | Pg  | 06:24:49,9 | iz                   | -  | - |
|    | Sg  | 06:25:00,4 | iz                   | -  | - |
|    |     |            | $\Delta = 0,8^\circ$ |    |   |
| 14 | -   | 03:26:36,0 | iCPZ;iz, iz          | -  | c |
| 14 | PKP | 05:26:08,5 | iCPZ;iz, iz          | -  | c |

U.S.C.G.S.: Epicentre: 15,2 S, 173,6 W (Iles Tonga)  
 h = 11 km H = 05:06:16,3 Mag: 5,9 (C.G.S.)  
 $\Delta = 149,1^\circ$

|    |      |            |          |    |   |
|----|------|------------|----------|----|---|
| 14 | LR   | 06:30:00   | LPZN     | 20 | - |
| 15 | LR   | 17:50:00   | LPZNE; Z | 30 | - |
| 15 | LR   | 18:00:00   | LPZNE; Z | 30 | - |
| 17 | P    | 05:09:14,3 | iz, iz   | -  | c |
|    | pP   | 05:09:47,3 | iz, iz   | -  | d |
|    | S    | 05:16:25,3 | ez, ez   | -  | - |
|    | (LR) | 05:25:00   | Z        | 16 | - |

U.S.C.G.S.: Epicentre: 58,3 S, 26,6 W (Sud des Iles Sandwich)  
 h = 140 km H = 05:00:11,9 Mag: 6,1 (C.G.S.)  
 $\Delta = 52,6^\circ$

|    |    |            |         |    |   |
|----|----|------------|---------|----|---|
| 19 | LR | 14:56:00   | LPZNE   | 30 | - |
| 19 | -  | 16:54:36,5 | iCPZ;iz | -  | c |
| 19 | -  | 17:27:12,8 | iCPZ;iz | -  | c |
| 19 | LR | 17:30:00   | LPZNE   | 20 | - |
| 20 | LR | 08:51:00   | LPZNE   | 30 | - |
|    | F  | 09:58:00   | LPZ     | -  | - |

U.S.C.G.S.: Epicentre: 52,8 N, 167,1 W (Iles Fox, Iles Aléoutiennes)  
 h = 11 km H = 07:38:44,9 Mag: 5,2 (C.G.S.)  
 $\Delta = 142,1^\circ$

|    |    |          |      |    |   |
|----|----|----------|------|----|---|
| 21 | LR | 02:32:00 | LPZN | 30 | - |
|----|----|----------|------|----|---|

U.S.C.G.S.: Epicentre: 8,7 N, 39,7 W (Atlantique Central)  
 h = 33 km H = 02:06:08 Mag: 4,7 (C.G.S.)  
 $\Delta = 57,8^\circ$

|    |    |            |        |    |   |
|----|----|------------|--------|----|---|
| 21 | LR | 07:36:00   | Z      | 20 | - |
| 21 | P  | 20:21:29,7 | iz, iz | -  | c |
|    | LR | 20:50:00   | Z      | 22 | - |

U.S.C.G.S.: Epicentre: 25,2 S, 70,5 W (Côte Nord du Chili)  
 h = 23 km H = 20:09:28,4 Mag: 5,7 (C.G.S.)  
 $\Delta = 78,4^\circ$



| Date  | Phases       | Heure T.M.G.             | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--------------|--------------------------|--|--------------|-------------------|
| 1967 Juin 22  | LR           | 11:24:00                 | LPZ  | 24           | -                 |
| 22  | LR           | 20:23:00                 | LPZ  | 20           | -                 |
| 23  | PKIKP<br>PKP | 00:45:17,5<br>00:45:23,5 | eCPZ; ez, iz<br>iCPZ; iz, iz                             | -<br>-       | d<br>c            |
| U.S.C.G.S.: Epicentre: 15,0 S, 172,3 W (Région des Iles Samoa)<br>h = 33 km H = 00:25:29,8 Mag: 5,1 (C.G.S.)<br>$\Delta = 149,6^\circ$  |              |                          |  |              |                   |
| 23  | PKIKP<br>PKP | 01:02:02,0<br>01:02:07,0 | iCPZ; iz, iz<br>iCPZ; iz, iz                             | -<br>-       | c<br>c            |
| U.S.C.G.S.: Epicentre: 14,9 S, 172,4 W (Iles Samoa)<br>h = 33 km H = 00:42:13,4 Mag: 5,1 (C.G.S.)<br>$\Delta = 149,6^\circ$             |              |                          |  |              |                   |
| 23  | PKP          | 14:57:00,0               | iz   | -            | c                 |
| U.S.C.G.S.: Epicentre: 21,3 S, 179,3 W (Région des Iles Fidji)<br>h = 605 km H = 14:38:35,7 Mag: 5,1 (C.G.S.)<br>$\Delta = 141,6^\circ$ |              |                          |  |              |                   |
| 26  | LR           | 00:29:00                 | LPZ  | 24           | -                 |
| 26  | PKP          | 09:28:27,5               | iCPZ; iz, iz   | -            | d                 |
| U.S.C.G.S.: Epicentre: 18,0 S, 178,3 W (Région des Iles Fidji)<br>h = 477 km H = 09:09:42,4 Mag: 4,3 (C.G.S.)<br>$\Delta = 145,1^\circ$ |              |                          |  |              |                   |
| 27  | LR           | 22:13:00                 | LPZNE; Z   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 46,4 S, 96,0 E (Océan Indien)<br>h = 33 km H = 21:37:48,1 Mag: 5,4 (C.G.S.)<br>$\Delta = 74,0^\circ$             |              |                          |  |              |                   |
| 28  | LR           | 01:27:00                 | LPZE   | 20           | -                 |
| 28  | LR           | 15:28:00                 | LPZE; Z  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 47,0 S, 165,8 E (Nouvelle Zélande)<br>h = 37 km H = 14:34:04,5 Mag: 5,6 (C.G.S.)<br>$\Delta = 113,3^\circ$       |              |                          |  |              |                   |
| 29  | LR           | 03:46:00                 | LPZE   | 20           | -                 |

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 G Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 9 - No 7

JUILLET 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\phi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\phi = 14^{\circ} 48' 29''$  S Altitude: h = 1761 m

Nature du sous-sol:

Granite

Constantes des sismographes

| Séismographes               | T <sub>0</sub><br>(s) | T <sub>g</sub><br>(s) | Amplification |          |          |           |
|-----------------------------|-----------------------|-----------------------|---------------|----------|----------|-----------|
|                             |                       |                       | Ts=0,2 s      | Ts=0,6 s | Ts=1,0 s | Ts=15,0 s |
| Benloff vertical (z)        | 1,0                   | 0,2                   | 76750         | 33000    | 15300    | -         |
| Benloff vertical (Z)        | 1,0                   | 21,3                  | 400           | 1100     | 1650     | -         |
| Benloff vertical (CPZ)      | 1,0                   | 0,75                  | 38000         | 150000   | 100000   | -         |
| Benloff N/S (CPN)           | 1,0                   | 0,85                  | 38000         | 150000   | 100000   | -         |
| Benloff EW (CPE)            | 1,0                   | 0,82                  | 38000         | 150000   | 100000   | -         |
| Sprengnether vertical (LPZ) | 15,0                  | 100,0                 | -             | -        | -        | 1500      |
| Sprengnether NS (LPN)       | 15,0                  | 100,0                 | -             | -        | -        | 1500      |
| Sprengnether EW (LPE)       | 15,0                  | 100,0                 | -             | -        | -        | 1500      |

| Date | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|------|--------|--------------|--|--------------|-------------------|
|------|--------|--------------|--|--------------|-------------------|

1967 Jul 1 (P) 07:41:41,4 iz, IZ - c  
LQ 08:02:00 LPZN -  
LR 08:11:00 LPZNE; Z 30 -

U.S.C.G.S.: Epicentre: 0,8 S, 98,7 E (Sumatra)  
h = 26 km H = 07:28:57,6 Mag: 5,5 (C.G.S.)  
 $\Delta = 85,2^{\circ}$

PKP 23:29:32,0 iz, IZ - c  
PP 23:32:29,0 eLPZN - d, NS  
LQ 00:17:20,0 LPZNE -  
LR 00:25:00 LPZNE; Z 26 -  
F 02:26:00 LPZ -

U.S.C.G.S.: Epicentre: 54,4 N, 158,0 W (Sud de l'Alaska)  
h = 33 km H = 23:10:07,2 Mag: 6,2 (C.G.S.)

$\Delta = 140,0^{\circ}$

| Date   | Phases | Heure<br>T.M.G. | Composantes,<br>nature du<br>mouvement et<br>amplitudes ( $\mu$ ) | Périodes<br>(s) | Sens du<br>mouvement |
|--|--------|-----------------|---|-----------------|----------------------|
| 1967 Juil 2  | P      | 07:16:18,9      | iz, iz  | -               | d, c                 |
|  | pP     | 07:16:25,3      | iz, iz  | -               | d                    |
|  | -      | 07:26:37,0      | eLPNE   | -               | NS, EW               |
|  | SS     | 07:33:37,0      | eLPZE   | -               | d, EW                |
|  | LQ     | 07:38:00        | LPZNE   | -               | -                    |
|  | LR     | 07:46:00        | LPZNE; Z  | 25              | -                    |
| U.S.C.G.S.: Epicentre: 8,7 N, 93,8 E (Région des Iles Nicobar)<br>h = 33 km H = 07:03:52,9 Mag: 5,7 (C.G.S.)<br>$\Delta = 89,0^\circ$        |        |                 |   |                 |                      |
| 3  | P      | 12:55:44,4      | iGPZ(0,024) iz  | 0,6             | d                    |
| U.S.C.G.S.: Epicentre: 22,8 S, 69,0 W (Nord du Chili)<br>h = 97 km H = 12:43:56,6 Mag: 4,8 (C.G.S.)<br>$\Delta = 77,5^\circ$                 |        |                 |   |                 |                      |
| 3  | LR     | 17:45:00        | LPZ   | 20              | -                    |
| 3  | P      | 21:54:36,0      | iGPZ; iz, iz  | -               | c                    |
|  | pP     | 21:54:41,5      | iGPZ; iz, iz  | -               | c                    |
|  | LR     | 22:01:00        | LPZNE   | 25              | -                    |
| U.S.C.G.S.: Epicentre: 7,5 S, 13,4 W (Région de l'île de l'Ascension)<br>h = 33 km H = 21:48:50,9 Mag: 4,8 (C.G.S.)<br>$\Delta = 27,4^\circ$ |        |                 |   |                 |                      |
| 4  | P      | 14:28:53,0      | iGPZ; iz, iz  | -               | c                    |
|  | pP     | 14:28:59,5      | iGPZ; iz, iz  | -               | c                    |
|  | -      | 14:49:40,0      | eLPZ  | -               | c                    |
|  | LR     | 14:54:00        | LPZE; iz  | 30              | -                    |
| U.S.C.G.S.: Epicentre: 38,1 S, 73,4 W (Côte Central du Chili)<br>h = 28 km H = 14:16:51,6 Mag: 5,4 (C.G.S.)<br>$\Delta = 78,5^\circ$         |        |                 |   |                 |                      |
| 5  | -      | 00:04:07,0      | iGPZ; iz, iz  | -               | c                    |
| 5  | P      | 01:02:22,8      | iGPZ  | -               | d                    |
|  | LR     | 01:22:00        | LPZE  | 14              | -                    |
| U.S.C.G.S.: Epicentre: 36,8 N, 21,3 E (Grèce)<br>h = 22 km H = 00:53:14,2 Mag: 4,8 (C.G.S.)<br>$\Delta = 52,2^\circ$                         |        |                 |   |                 |                      |
| 5  | LR     | 08:52:00        | LPZE  | 20              | -                    |
| 5  | -      | 16:11:05,7      | iGPZ; iz  | -               | d                    |
| 6  | PKIKP  | 14:00:58,0      | iGPZ, iz  | -               | d                    |
|  | PKP    | 14:01:53,0      | eGPZ, eLPZ;<br>iz, iz   | -               | d                    |
|  | PP     | 14:05:04,5      | iGPZ, eLPZN;<br>iz, iz  | -               | c, NS                |
|  | SS     | 14:17:40,0      | eLPZE   | -               | d, EW                |
|  | LR     | 14:51:00        | LPZNE; Z  | 30              | -                    |
| U.S.C.G.S.: Epicentre: 52,6 N, 168,2 W (Iles Fox, Iles Aléoutiennes)<br>h = 14 km H = 13:42:22,5 Mag: 5,9 (C.G.S.)<br>$\Delta = 142,3^\circ$ |        |                 |   |                 |                      |
| 6  | P      | 18:44:29,4      | iGPZ, iz, iz  | -               | c                    |
|  | -      | 18:44:45,0      | iGPZ, iz, iz  | -               | d                    |
|  | LR     | 19:09:00        | LPZNE   | 26              | -                    |
| U.S.C.G.S.: Epicentre: 18,9 N, 61,9 W (Iles Leeward)<br>h = 57 km H = 18:32:15,1 Mag: 5,1 (C.G.S.)<br>$\Delta = 81,5^\circ$                  |        |                 |   |                 |                      |
| 6  | P      | 19:29:28,9      | iGPZ; iz, iz  | -               | -                    |
| U.S.C.G.S.: Epicentre: 8,1 N, 38,5 W (Atlantique Central)<br>h = 33 km H = 19:19:48,4 Mag: 4,9 (C.G.S.)<br>$\Delta = 56,4^\circ$             |        |                 |   |                 |                      |
| 7  | (LR)   | 01:34:00        | LPZNE   | 30              | -                    |
| 7  | LR     | 07:34:00        | LPZNE   | 20              | -                    |

| Date  | Phases         | Heure T.M.G.                           | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s)   | Sens du mouvement   |
|---|----------------|--|--|----------------|---------------------|
| 1967 Juil 8   | PKP            | 13:32:04,0                             | 10PZ; iz, IZ   | -              | d                   |
| U.S.C.G.S.: Epicentre: 19,9 S, 178,1 W (Région des Iles Fidji)<br>h = 520 km H = 13:13:29,1 Mag: 4,3 (C.G.S.)<br>$\Delta = 149,4^\circ$               |                |  |  |                |                     |
| 8   | P<br>S         | 12:16:39,5<br>12:18:52,5               | 10PZ; iz<br>10PZ; iz                                     | -<br>-         | -<br>d              |
| $\Delta = 12,0^\circ$   |                |  |  |                |                     |
| 10  | PKP            | 06:48:10,2                             | iz, IZ   | -              | c                   |
| U.S.C.G.S.: Epicentre: 17,6 S, 178,8 W (Région des Iles Fidji)<br>h = 529 km H = 06:29:30,5 Mag: 4,8 (C.G.S.)<br>$\Delta = 145,3^\circ$               |                |  |  |                |                     |
| 10  | LR             | 20:13:00                               | LPZE   | 30             | -                   |
| 11  | -              | 04:36:31,0                             | 10PZ; iz   | -              | d                   |
| 11  | LR             | 05:31:00                               | LPZNE  | 22             | -                   |
| 12  | PKP            | 21:34:30,0                             | 10PZ; 10LPZ;<br>iz, IZ                                   | -              | d, c                |
| U.S.C.G.S.: Epicentre: 16,1 S, 178,3 E (Région des Iles Fidji)<br>h = 39 km H = 21:14:53 Mag: 5,3 (C.G.S.)<br>$\Delta = 145,6^\circ$                  |                |  |  |                |                     |
| 12  | LQ<br>LQ<br>LR | 21:39:00<br>21:45:00<br>21:50:00       | LPNE<br>LPZ<br>LPZE                                      | 40<br>40<br>28 | -<br>-<br>-         |
| 13  | -<br>-<br>-    | 03:17:39,5<br>03:20:14,0<br>03:20:22,5 | 10PZ; iz<br>10PZ; iz, IZ<br>10PZ; iz, IZ                 | -<br>-<br>-    | c<br>d<br>c         |
| 13  | PKP            | 07:55:43,0                             | 10PZ; iz, IZ   | -              | d                   |
| U.S.C.G.S.: Epicentre: 16,2 S, 178,1 E (Région des Iles Fidji)<br>h = 50 km H = 07:36:07,2 Mag: 5,4 (C.G.S.)<br>$\Delta = 145,4^\circ$                |                |  |  |                |                     |
| 13  | LR             | 11:12:00                               | LPZN   | 24             | -                   |
| 14  | PKP            | 03:07:14,4                             | 10PZ; iz, IZ   | -              | d                   |
| U.S.C.G.S.: Epicentre: 11,4 S, 166,2 E (Iles Santa Cruz)<br>h = 80 km H = 02:47:53,0 Mag: 5,2 (C.G.S.)<br>$\Delta = 142,3^\circ$                      |                |  |  |                |                     |
| 14  | P<br>PPP<br>LR | 03:31:44,0<br>03:36:48,4<br>03:56:00   | 10PZ; iz<br>eLPZNE<br>LPZNE                              | -<br>-<br>30   | d<br>c, NS, EW<br>- |
| U.S.C.G.S.: Epicentre: 17,6 S, 72,3 W (Côte du Pérou)<br>h = 37 km H = 03:19:26,8 Mag: 5,1 (C.G.S.)<br>$\Delta = 81,7^\circ$                          |                |  |  |                |                     |
| 15  | P              | 03:39:40,4                             | 10PZ; iz   | -              | c                   |
| U.S.C.G.S.: Epicentre: 49,8 N, 78,1 E (Kazakh, RSS)<br>h = 0 km H = 03:26:57,4 Mag: 5,4 (C.G.S.)<br>$\Delta = 85,9^\circ$                             |                |  |  |                |                     |
| 16  | P<br>(pP)      | 09:54:25,8<br>09:54:56,0               | 10PZ; iz, IZ<br>10PZ; IZ                                 | -<br>-         | d<br>c              |
| U.S.C.G.S.: Epicentre: 31,6 S, 70,0 W (Région de la frontière Chili-Argentine)<br>h = 95 km H = 09:42:41,5 Mag: 4,7 (C.G.S.)<br>$\Delta = 76,8^\circ$ |                |  |  |                |                     |

| Date   | Phases   | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes (μ)                                     | Périodes (s)                       | Sens du mouvement                      |
|--|--|--|--|------------------------------------|--|
| 1967 Jul 16  | (PKP)<br>PP<br>PS<br>LQ<br>LQ<br>LR<br>F           | 13:53:15,8<br>13:54:31,0<br>14:04:10,0<br>14:24:00<br>14:30:00<br>14:32:00<br>15:59:00 | iCPZ; iz<br>eLPZ<br>eLPZE<br>LPN<br>LPZE; iz<br>LPZNE<br>LPZ                           | -<br>-<br>-<br>50<br>50<br>30<br>- | d<br>-<br>-<br>-<br>-<br>-<br>-        |
| U.S.C.G.S.: Epicentre: 0,8 S, 132,6 E (Région de la Nouvelle Guinée)<br>h = 33 km H = 13:34:29,9 Mag: -<br>$\Delta = 177,8^\circ$                |  |  |  |                                    |  |
| 17   | LR   | 19:27:00   | LPZ  | 24                                 | -                                      |
| 20   | -  | 12:03:06,5   | iCPZ; iz, iz   | -                                  | c                                      |
| 20   | P<br>pP<br>-                                       | 13:22:58,5<br>13:23:38,5<br>13:23:56,0   | iCPZ; iz, iz<br>iCPZ; iz, iz<br>CPZ; iz, iz  | -<br>-<br>-                        | d<br>c<br>c                            |
| U.S.C.G.S.: Epicentre: 28,1 S, 66,9 W (Province de Catamarca, Argentine)<br>h = 157 km H = 13:11:35,0 Mag: 5,3 (C.G.S.)<br>$\Delta = 74,7^\circ$ |  |  |  |                                    |  |
| 20   | -  | 13:32:21,5   | iCPZ; iz, iz   | -                                  | c                                      |
| 20   | PKP<br>PP  | 14:45:38,5<br>14:48:45,5   | iCPZ; iz<br>iCPZ; iz, iz   | -<br>-                             | c<br>c                                 |
| U.S.C.G.S.: Epicentre: 31,4 N, 178,3 E (Iles Rat, Iles Aléoutiennes)<br>h = 33 km H = 14:26:14,1 Mag: 5,3 (C.G.S.)<br>$\Delta = 141,5^\circ$     |  |  |  |                                    |  |
| 20   | PKIKP<br>PKP<br>PP<br><br>(PS)<br>LQ<br>LR         | 15:53:30,0<br>15:55:18,5<br>15:56:51,4<br><br>16:06:41,0<br>16:30:00<br>16:34:00       | eLPZ; iz, iz<br>iCPZ; iz, iz<br>iCPZ; eLPZE;<br>iz, iz<br>eLPZE; eZ<br>LPZE<br>LPZE; Z | -<br>-<br>-<br>-<br>-<br>30<br>30  | c<br>c<br>c, EW<br><br>c, EW<br>-<br>- |
| U.S.C.G.S.: Epicentre: 7,7 N, 134,9 E (Iles Carolines)<br>h = 8 km H = 15:36:20,1 Mag: -<br>$\Delta = 122,3^\circ$                               |  |  |  |                                    |  |
| 20   | P <sub>n</sub><br>S <sub>n</sub><br>L <sub>g</sub> | 20:06:03,2<br>20:06:36,0<br>20:06:41,8   | iCPZ; iz<br>iCPZ; iz<br>iCPZ; iz   | -<br>-<br>-                        | c<br>c<br>d                            |
| U.S.C.G.S.: Epicentre: 33,5 S, 179,0 W (Sud des Iles Kermadec)<br>h = 39 km H = 03:58:02,4 Mag: 5,0 (C.G.S.)<br>$\Delta = 2,6^\circ$             |  |  |  |                                    |  |
| 20   | -  | 23:33:46,2<br>23:33:53,0   | iCPZ; iz, iz<br>iCPZ; iz, iz   | -<br>-                             | c<br>d                                 |
| 22   | PKP<br>pPKP<br>PP<br>SKP<br>LR                     | 04:17:10,0<br>04:17:19,5<br>04:19:22,5<br>04:20:35,0<br>05:05:00                       | iCPZ; iz<br>iCPZ; iz<br>iCPZ; iz<br>iCPZ; iz<br>LPZE; Z                                | -<br>-<br>-<br>-<br>24             | d<br>d<br>d<br>d<br>-                  |
| U.S.C.G.S.: Epicentre: 59,7 S, 26,2 W (Sud des Iles Sandwich)<br>h = 33 km H = 07:49:35,9 Mag: 5,4 (C.G.S.)<br>$\Delta = 59,3^\circ$             |  |  |  |                                    |  |
| 22   | P<br>pP  | 13:59:34,0<br>14:00:02,0   | iCPZ<br>iCPZ   | -<br>-                             | d<br>d                                 |
| U.S.C.G.S.: Epicentre: 31,6 S, 69,5 W (Province de San Juan, Argentine)<br>h = 111 km H = 19:47:54,0 Mag: 4,9 (C.G.S.)<br>$\Delta = 76,4^\circ$  |  |  |  |                                    |  |

| Date  | Phases                              | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes ( $\mu$ )  | Périodes (s)                     | Sens du mouvement                       |
|---|-------------------------------------|--|---|----------------------------------|---|
| 1967 Jul 22   | P<br>pP<br>PP<br>PPP<br>S<br>LR     | 17:06:44,7<br>17:06:48,0<br>17:09:06,0<br>17:10:20,0<br>17:14:37,0<br>17:34:00               | iCPZ<br>iCPZ; iLPZE<br>eLPE<br>eLPE<br>eLPZE<br>CPZ; LPZE | -<br>-<br>-<br>-<br>-<br>-       | d<br>d, c, EW<br>EW<br>EW<br>d, EW<br>- |
| <p>U.S.C.G.S.: Epicentre: 40,7 S, 30,8 E (Turquie)<br/>h = 4 km H = 16:56:53,3 Mag: 7 <math>\frac{1}{4}</math> (PAS) 7.1 - 7.3 (BRK)<br/><math>\Delta = 57,9^\circ</math></p>   |                                     |  |   |                                  |   |
| 23  | P                                   | 07:09:00   | iCPZ; iz  | -                                | d, c                                    |
| <p>U.S.C.G.S.: Epicentre: 38,2 S; 73,5 W (Côte Central du Chili)<br/>h = 33 km H = 06:56:58 Mag: 4,5 (C.G.S.)<br/><math>\Delta = 78,5^\circ</math></p>  |                                     |  |   |                                  |   |
| 23  | PKP                                 | 19:03:40,6   | iCPZ; iz  | -                                | d                                       |
| <p>U.S.C.G.S.: Epicentre: 20,0 S, 175,5 W (Iles Tonga)<br/>h = 77 km H = 18:44:13,6 Mag: 4,9 (C.G.S.)<br/><math>\Delta = 144,0^\circ</math></p>   |                                     |  |   |                                  |   |
| 23  | LR                                  | 14:39:00   | LPZE; Z   | 30                               | -                                       |
| <p>U.S.C.G.S.: Epicentre: 56,2 S, 158,3 E (Région de l'île de Macquarie)<br/>h = 33 km H = 13:48:06 Mag: 5,1 (C.G.S.)<br/><math>\Delta = 103,0^\circ</math></p>   |                                     |  |   |                                  |   |
| 24  | -                                   | 03:22:04,0   | iCPZ; iz  | -                                | d                                       |
| 24  | -                                   | 03:23:40,8   | iCPZ; iz  | -                                | d                                       |
| 24  | -                                   | 16:11:18,5<br>16:12:45,0   | iCPZ; iz<br>iCPZ; iz                                      | -<br>-                           | c<br>c                                  |
| 25  | -                                   | 07:30:16,5   | iCPZ; iz  | -                                | c                                       |
| 26  | P<br>LR                             | 19:03:07,2<br>19:16:00<br>19:27:00   | iCPZ; iz, iz<br>eLPZNE; eZ<br>eCPZ; LPZNE;<br>ez, Z       | -<br>-<br>20                     | c<br>-<br>-                             |
| <p>U.S.C.G.S.: Epicentre: 39,5 N, 40,4 E (Turquie)<br/>h = 33 km H = 18:59:01,3 Mag: 5,6 (C.G.S.)<br/><math>\Delta = 60,0^\circ</math></p>  |                                     |  |   |                                  |   |
| 26  | -                                   | 19:12:06,0   | iCPZ; iz  | -                                | c                                       |
| 27  | LR                                  | 11:52:38,0<br>11:55:00   | eLPNE<br>LPZNE  | -<br>20                          | NS, EW<br>-                             |
| 29  | P<br>pP<br>-<br>-<br>S<br>SSS<br>LR | 10:37:01,7<br>10:37:44,5<br>10:40:22,9<br>10:40:47,9<br>10:47:36,9<br>10:57:07,9<br>11:13:00 | iz, iz<br>iz, iz<br>iz,<br>eZ<br>iz<br>eZ<br>Z            | -<br>-<br>-<br>-<br>-<br>-<br>20 | c<br>d<br>c<br>c<br>d<br>-<br>-         |
| <p>U.S.C.G.S.: Epicentre: 8,8 N, 73,0 W (Nord de Colombie)<br/>h = 161 km H = 10:24:24,6 Mag: 6,0 (C.G.S.)<br/><math>\Delta = 88,9^\circ</math></p>   |                                     |  |   |                                  |   |
| 29  | P<br>LR                             | 24:12:31,0<br>24:40:00   | iz<br>Z   | -<br>30                          | c<br>-                                  |
| <p>U.S.C.G.S.: Epicentre: 10,6 N; 67,3 W (Côte de Venezuela)<br/>h = 10 km H = 23:59:58,7 Mag: 6 <math>\frac{1}{2}</math> (PAS), 6.3 - 6.5 (BRK), 5 <math>\frac{3}{4}</math> - 6 (PAL)<br/><math>\Delta = 84,0^\circ</math></p> |                                     |  |   |                                  |   |
| 30  | P<br>LR                             | 08:28:54,5<br>08:45:00   | iCPZ; iz, iz<br>LPZNE                                     | -<br>30                          | d<br>-                                  |
| <p>U.S.C.G.S.: Epicentre: 60,1 S, 28,5 W (Région Sud des Iles Sandwich)<br/>h = 33 km H = 08:19:28,3 Mag: 5,2 (C.G.S.)<br/><math>\Delta = 54,5^\circ</math></p>   |                                     |  |   |                                  |   |

Bull. St. Angois  
Année 3 - No 7

| Date | Phases | Heure T.M.C. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|------|--------|--------------|--|--------------|-------------------|
|------|--------|--------------|--|--------------|-------------------|

1967 Jul 30 P 01:40:53,0 iz, iz - d  
 - 01:41:45,9 iz, iz - d

U.S.C.G.S.: Epicentre: 40,7 N, 30,4 E (Turquie)  
 h = 16 km H = 01:31:01,7 Mag: 5,6 (C.G.S.)  
 $\Delta = 57,8^\circ$

30 LR 11:31:00 LPNE 30 -  
 LR<sub>1</sub> 11:36:00 LPNE; Z 40 -

U.S.C.G.S.: Epicentre: 56,2 S, 146,9 E (Ouest de l'île de Macquarie)  
 h = 33 km H = 10:49:32,8 Mag: 5,1 (C.G.S.)  
 $\Delta = 98,1^\circ$

30 LR 13:02:00 LPZNE 24 -

30 PKP 13:54:27,5 iCPZ; iz - d  
 pPKP 13:54:46,0 iCPZ; iz - d  
 LQ 14:32:00 LPZNE -  
 LR 14:42:00 LPZNE; Z 30 -

U.S.C.G.S.: Epicentre: 5,3 S, 153,6 E (Région de Nouvelle Irlande)  
 h = 50 km H = 13:35:14,4 Mag: 5,2 (C.G.S.)  
 $\Delta = 135,6^\circ$

30 PKP 17:43:20,0 iCPZ(0,057); 0,8 d  
 - 17:46:06,8 iCPZ; iz - c  
 - 17:46:30,0 iCPZ; iz - c  
 PP 17:46:46,0 iCPZ; iz - c

U.S.C.G.S.: Epicentre: 17,8 S, 178,8 W (Iles Fidji)  
 h = 564 km H = 17:24:43,1 Mag: 5,1 (C.G.S.)  
 $\Delta = 145,3^\circ$

30 LR 22:48:00 LPZN LR 20 -

31 LR 23:36:00 LPZN 30 -

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 C Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - Nº 8

AOUT 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\phi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\phi = 14 48 23$  S Altitude: h = 1761 m

Nature du sous-sol:

Granite

Constantes des sismographes

| Sismographes                   | T <sub>0</sub><br>(s) | T <sub>g</sub><br>(s) | Amplification |          |          |           |
|--------------------------------|-----------------------|-----------------------|---------------|----------|----------|-----------|
|                                |                       |                       | Ts=0,2 s      | Ts=0,6 s | Ts=1,0 s | Ts=15,0 s |
| Benloff vertical<br>(z)        | 1,0                   | 0,2                   | 76750         | 33000    | 15300    | -         |
| Benloff vertical<br>(Z)        | 1,0                   | 21,3                  | 400           | 1100     | 1650     | -         |
| Benloff vertical<br>(CPZ)      | 1,0                   | 0,75                  | 38000         | 150000   | 100000   | -         |
| Benloff N/S<br>(CPN)           | 1,0                   | 0,85                  | 38000         | 150000   | 100000   | -         |
| Benloff EW<br>(CPE)            | 1,0                   | 0,82                  | 38000         | 150000   | 100000   | -         |
| Sprengnether vertical<br>(LPZ) | 15,0                  | 100,0                 | -             | -        | -        | 1500      |
| Sprengnether NS<br>(LPN)       | 15,0                  | 100,0                 | -             | -        | -        | 1500      |
| Sprengnether EW<br>(LPE)       | 15,0                  | 100,0                 | -             | -        | -        | 1500      |

| Date | Phases | Heure<br>T.M.G. | Composantes,<br>nature du<br>mouvement et<br>amplitudes (M) | Périodes<br>(s) | Sens du<br>mouvement |
|------|--------|-----------------|---|-----------------|----------------------|
|------|--------|-----------------|---|-----------------|----------------------|

1967 Août 1 LR 01:57:00 LPZNE 30  
U.S.C.G.S.: Epicentre: 13,0 S, 76,8 W (Côte du Pérou)  
h = 66 km H = 01:13:42,6 Mag: 5,5 (C.G.S.)  
 $\Delta = 86,9^{\circ}$

1 LQ 09:53:00 LPZN  
LR 09:55:00 LPZNE 34  
U.S.C.G.S.: Epicentre: 60,0 S, 159,2 E (Sud de la Nouvelle Irlande)  
h = 33 km H = 09:05:49,3 Mag: 5,5 (C.G.S.)  
 $\Delta = 100,2^{\circ}$

2 LR 11:53:00 LPZNE 24

2 P 14:19:03,7 ICPZ  
pP 14:19:09,2 ICPZ d  
c  
U.S.C.G.S.: Epicentre: 71,2 N, 8,5 W (Ile Jan Mayen)  
h = 33 km H = 14:06:17,8 Mag: 5,3 (C.G.S.)  
 $\Delta = 87,4^{\circ}$



| Date   | Phases  | Heure T.M.G.                           | Composantes, nature du mouvement et amplitudes (M) | Périodes (s) | Sens du mouvement |
|--|---|--|--|--------------|-------------------|
| 1967 Août 2  | P<br>LR   | 18:30:17,6<br>19:03:00                 | iCPZ; iz<br>LPZN                                   | 20           | c                 |
| U.S.C.G.S.: Epicentre: 4,6 S; 109,2 E (Sumatra)<br>h = 83 km H = 18:17:32,0 Mag: 5,1 (C.G.S.)<br>$\Delta = 88,5^\circ$         |   |  |  |              |                   |
| 2  | P   | 22:52:58,0                             | iCPZ; iz, iz                                       |              | c                 |
| U.S.C.G.S.: Epicentre: 22,3 S; 68,7 W (Nord du Chili)<br>h = 107 km H = 22:41:12,2 $\Delta = 77,2^\circ$                       |   |  |  |              |                   |
| 3  | -   | 00:27:44,0<br>00:27:54,4               | iCPZ; iz, iz<br>iCPZ; iz, iz                       |              | c                 |
| 3  | -   | 02:46:25,5                             | iCPZ; iz   |              | c                 |
| 4  | -   | 07:10:41,0                             | iCPZ; iz   |              | d                 |
| 4  | PKP   | 22:54:29,0                             | iCPZ; iz   |              | d                 |
| U.S.C.G.S.: Epicentre: 17,7 S; 179,2 W (Iles Tonga)<br>h = 33 km H = 22:34:47,7 Mag: 4,8 (C.G.S.)<br>$\Delta = 146,8^\circ$    |   |  |  |              |                   |
| 8  | PKP   | 07:32:31,6                             | iCPZ; iz   |              | d                 |
| U.S.C.G.S.: Epicentre: 17,5 S; 179,0 W (Iles Fidji)<br>h = 523 km H = 07:13:50,8 Mag: 4,4 (C.G.S.)<br>$\Delta = 145,3^\circ$   |   |  |  |              |                   |
| 9  | P   | 07:26:42,0                             | iCPZ; iz   |              | d                 |
| U.S.C.G.S.: Epicentre: 8,5 S; 73,8 W (Pérou - Brésil)<br>h = 46 km H = 07:14:08,1 Mag: 5,0 (C.G.S.)<br>$\Delta = 85,3^\circ$   |   |  |  |              |                   |
| 9  | PKP<br>PP   | 08:38:35,0<br>08:39:29,5               | iCPZ; iz<br>iCPZ; iz                               |              | d                 |
| U.S.C.G.S.: Epicentre: 6,4 S; 130,4 E (Mer de Banda)<br>h = 89 km H = 08:20:03,7 Mag: 5,7 (C.G.S.)<br>$\Delta = 114,0^\circ$   |   |  |  |              |                   |
| 9  | P <sub>g</sub><br>S <sub>g</sub><br>(L <sub>g</sub> )       | 10:10:48,0<br>10:10:55,0<br>10:11:16,5 | iCPZ; iz<br>iCPZ; iz<br>iCPZ; iz                   |              | c                 |
| $\Delta = 0,6^\circ$   |   |  |  |              |                   |
| 9  | -   | 22:56:35,5                             | iCPZ; iz   |              | d                 |
| 10   | -   | 04:08:22,0                             | iCPZ; iz   |              | c                 |
| 10   | -   | 04:32:49,0                             | iCPZ; iz   |              | d                 |
| 10   | (P <sub>g</sub> )<br>(S <sub>g</sub> )<br>(L <sub>g</sub> ) | 06:28:22,2<br>06:28:29,6<br>06:28:30,8 | iz<br>iz<br>iz                                     |              | d                 |
| 10   | PKP<br>LQ<br>LR   | 11:40:35,0<br>12:30:00<br>12:41:00     | iCPZ; iz<br>LPZNE<br>LPZNE                         | 24           | d                 |
| U.S.C.G.S.: Epicentre: 45,4 N; 150,3 E (Iles Kouriles)<br>h = 37 km H = 11:21:22,3 Mag: 5,7 (C.G.S.)<br>$\Delta = 132,8^\circ$ |   |  |  |              |                   |
| 11   | P<br>(S)<br>(L <sub>g</sub> )                               | 03:17:49,6<br>03:19:30,0<br>03:20:25,5 | iCPZ; iz<br>iCPZ; iz<br>iCPZ; iz, iz               |              | c                 |
| U.S.C.G.S.: Epicentre: 15,0 S; 29,5 E (Zambie)<br>h = 33 km H = 03:15:26,8 Mag: -<br>$\Delta = 9,8^\circ$                      |   |  |  |              |                   |
| 11   | -   | 19:16:44,0                             | iCPZ   |              | c                 |

| Date   | Phases          | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--|-----------------|--------------|--|--------------|-------------------|
| 1967 Août 12   | PKIKP           | 09:53:49,0   | iGPZ; eLPZ; iz                                     |              |                   |
|  | PKP             | 09:58:53,4   | iGPZ; iz, iz                                       |              | d                 |
|  | -               | 09:59:42,8   | eLPZ   |              |                   |
|  | -               | 10:00:53,5   | iGPZ; iz   |              | c                 |
|  | -               | 10:01:45,5   | iGPZ; iz   |              | d                 |
|  | PP              | 10:01:50,5   | iGPZ; iLPZNE; iz, iz                               |              | c                 |
|  | (PPS)           | 10:14:19,0   | eLPZNE; ez   |              |                   |
|  | LQ              | 10:45:00     | LPZNE  |              |                   |
| LR   | 10:49:00        | LPZNE; Z     | 24   |              |                   |
| U.S.C.G.S.: Epicentre: 24,7 S; 177,5 W (Sud des Iles Fidji)<br>h = 134 km H = 09:39:44,3 Mag: 5,8 (C.G.S.)<br>$\Delta = 139,4^\circ$         |                 |              |  |              |                   |
| 12   | PKIKP           | 12:50:17,0   | iGPZ; iz   |              |                   |
|  | PKP             | 12:50:23,0   | iGPZ; iz, iz                                       |              | d                 |
|  | pPKP            | 12:50:29,0   | iGPZ; iz, iz                                       |              | c                 |
|  | LQ              | 13:36:00     | LPZNE  |              |                   |
|  | LR              | 13:46:00     | LPZNE  | 20           |                   |
|  | LR <sub>1</sub> | 13:52:00     | LPZNE  | 20           |                   |
| U.S.C.G.S.: Epicentre: 14,9 S; 166,7 E (Iles des Nouvelles Hébrides)<br>h = 23 km H = 12:30:56,1 Mag: 5,2 (C.G.S.)<br>$\Delta = 140,1^\circ$ |                 |              |  |              |                   |
| 13   | P               | 16:40:19,0   | iGPZ; iLPZNE; iz, iz                               |              | d                 |
|  | PP              | 16:41:52,4   | iLPZNE; iz   |              |                   |
|  | -               | 16:45:57,0   | eLPN   |              |                   |
|  | S               | 16:46:12,0   | eLPZN  |              |                   |
|  | -               | 16:46:19,0   | eLPE   |              |                   |
|  | LR              | 16:51:00     | LPZNE; Z   | 30           |                   |
| U.S.C.G.S.: Epicentre: 50,9 S; 29,1 E (Sud de l'Afrique)<br>h = 33 km H = 16:33:04,0 Mag: 5,4 (C.G.S.)<br>$\Delta = 38,9^\circ$              |                 |              |  |              |                   |
| 13   | LR              | 18:00:00     | LPZNE  | 30           |                   |
| 13   | PKP             | 20:25:09,0   | iGPZ(0,1); iz, iz                                  | 1            | c                 |
|  | SKP ou PKS      | 20:28:10,0   | iGPZ; iz, iz                                       |              | d                 |
| U.S.C.G.S.: Epicentre: 55,3 N; 135,3 E (Honshu, Japon)<br>h = 357 km H = 20:06:50,6 Mag: 6,0 (C.G.S.)<br>$\Delta = 124,4^\circ$              |                 |              |  |              |                   |
| 13   | LR              | 20:58:00     | LPZNE  | 20           |                   |
| 13   | P               | 22:17:50,2   | iGPZ(0,07); iz, iz                                 | 1            | d                 |
| U.S.C.G.S.: Epicentre: 43,2 N; 0,5 W (Pyrenées)<br>h = 15 km H = 22:07:47,5 Mag: 5,3 (C.G.S.)<br>$\Delta = 59,5^\circ$                       |                 |              |  |              |                   |
| 13   | PP              | 22:37:05,0   | eLPZNE   |              | d, NS, EW         |
|  | -               | 22:39:08,0   | eLPZE  |              | c, EW             |
|  | -               | 22:41:14,0   | iLPZ   |              | c                 |
|  | -               | 22:50:09,0   | eLPZ   |              | c                 |
|  | LQ              | 23:12:00     | LPNE   |              |                   |
|  | LR              | 23:23:00     | LPZNE  | 24           |                   |
| U.S.C.G.S.: Epicentre: 4,4 S; 152,5 E (Nouvelle Bretagne)<br>h = 29 km H = 22:15:09,6 Mag: 5,3 (C.G.S.)<br>$\Delta = 135,0^\circ$            |                 |              |  |              |                   |
| 13   | P               | 23:49:50,0   | iGPZ(0,09); iz, iz                                 | 1            | c                 |
|  | LR              | 23:56:00     | LPZNE; Z   | 24           |                   |
| U.S.C.G.S.: Epicentre: 7,0 S; 12,6 W (Région de l'île de l'Ascension)<br>h = 28 km H = 23:44:11,1 Mag: 5,0 (C.G.S.)<br>$\Delta = 26,8^\circ$ |                 |              |  |              |                   |
| 14   | Pn              | 00:15:41,0   | ieGPZ; iez   |              |                   |
|  | Sn              | 00:16:26,0   | iGPZ; iz   |              | c                 |
| $\Delta = 3,7^\circ$   |                 |              |  |              |                   |

| Date   | Phases     | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (M) | Périodes (s) | Sens du mouvement |
|--|------------|--------------|--|--------------|-------------------|
| 1967 Août 15   | (P)        | 09:33:56,5   | iGPZ; iz   |              | d                 |
| 16   | P          | 19:31:37,5   | iGPZ(0,05); iz, iz                                 | 1            | d                 |
|  | pP         | 19:31:42,0   | iGPZ; iz, iz                                       |              | d                 |
|  | -          | 19:31:56,5   | iGPZ; iz, iz                                       |              | c                 |
|  | -          | 19:32:04,0   | iGPZ; iz, iz                                       |              | c                 |
|  | LQ         | 19:54:00     | LPZNE  |              |                   |
|  | LR         | 20:00:00     | LPZNE  | 30           |                   |
| U.S.C.G.S.: Epicentre: 0,9 N; 98,9 E (Sumatra)<br>h = 26 km H = 19:18:57,6 Mag: 5,6 (C.G.S.)<br>$\Delta = 85,8^\circ$                        |            |              |  |              |                   |
| 17   | P          | 20:37:49,0   | iGPZ; iz, iz                                       |              | c                 |
|  | -          | 20:37:57,0   | iGPZ; iz, iz                                       |              | d                 |
| U.S.C.G.S.: Epicentre: 60,3 S; 27,0 W (Sud des îles Sandwich)<br>h = 98 km H = 20:28:34 Mag: 5,2 (C.G.S.)<br>$\Delta = 54,0^\circ$           |            |              |  |              |                   |
| 17   | P          | 23:31:50,0   | iGPZ; iz, iz                                       |              | d                 |
|  | -          | 23:31:55,5   | iGPZ; iz, iz                                       |              | d                 |
|  | pP         | 23:32:15,5   | iGPZ; iz, iz                                       |              | d                 |
|  | -          | 23:32:25,3   | iGPZ; iz, iz                                       |              | c                 |
| U.S.C.G.S.: Epicentre: 22,8 S; 68,9 W (Nord du Chili)<br>h = 90 km H = 23:20:02,7 Mag: 4,7 (C.G.S.)<br>$\Delta = 77,4^\circ$                 |            |              |  |              |                   |
| 18   | Pg         | 10:35:29,0   | ieGPZ; iez   |              |                   |
|  | Sg         | 10:35:32,0   | iGPZ; iz   |              | d                 |
| $\Delta = 0,2^\circ$   |            |              |  |              |                   |
| 19   | -          | 09:52:22,0   | ieGPZ; iez   |              |                   |
|  | -          | 09:52:24,5   | iGPZ; iz, iz                                       |              | d                 |
|  | -          | 09:57:05,5   | iGPZ; iz, iz                                       |              | c                 |
| 19   | PKP        | 15:46:43,0   | iGPZ; iz   |              | d                 |
|  | -          | 15:47:26,4   | iGPZ; iz   |              | c                 |
|  | -          | 15:47:34,0   | iGPZ; iz   |              | c                 |
|  | PS ou SP   | 15:57:20,0   | eLPZ   |              | c                 |
|  | PPS ou SPP | 15:58:31,0   | eLPZ   |              | c                 |
|  | SSS        | 16:07:46,0   | eLPZNE   |              | c, SN             |
|  | LQ         | 16:21:00     | LPZN   |              |                   |
|  | LR         | 16:24:00     | LPZN; Z  | 30           |                   |
| U.S.C.G.S.: Epicentre: 10,4 N; 126,0 E (Région des îles Philippines)<br>h = 58 km H = 15:28:08,5 Mag: 5,6 (C.G.S.)<br>$\Delta = 114,2^\circ$ |            |              |  |              |                   |
| 19   | PKP        | 16:01:11,5   | iGPZ; iz, iz                                       |              | d                 |
| U.S.C.G.S.: Epicentre: 12,4 S; 166,6 E (îles Santa Cruz)<br>h = 86 km H = 15:41:53,3 Mag: 5,4 (C.G.S.)<br>$\Delta = 141,8^\circ$             |            |              |  |              |                   |
| 20   | P          | 02:14:39,0   | iGPZ; iz   |              | d                 |
|  | pP         | 02:14:44,6   | iGPZ; iz, iz                                       |              | d                 |
|  | LR         | 02:55:00     | LPZNE  | 20           |                   |
| U.S.C.G.S.: Epicentre: 45,3 N; 80,1 E (Kazakh - Sinkiang)<br>h = 33 km H = 02:02:05,2 Mag: 5,1 (C.G.S.)<br>$\Delta = 85,0^\circ$             |            |              |  |              |                   |
| 20   | P          | 15:15:20,5   | iGPZ(0,09);<br>iz, iz                              | 1            | d                 |
|  | pP         | 15:15:47,0   | iGPZ; iz, iz                                       |              | d                 |
| U.S.C.G.S.: Epicentre: 25,2 S; 69,0 W (Nord du Chili)<br>h = 109 km H = 15:03:36,2 Mag: 5,6 (C.G.S.)<br>$\Delta = 77,1^\circ$                |            |              |  |              |                   |
| 20   | LR         | 20:56:00     | LPZN; Z  | 24           |                   |
| 21   | P          | 07:45:27,5   | iGPZ   |              | c                 |
|  | pP         | 07:45:36,0   | iGPZ   |              | d                 |
|  | -          | 07:45:50,0   | iLPZ   |              | c                 |
|  | (PP)       | 07:48:49,0   | eLPZ   |              | c                 |
|  | (S)        | 07:55:55,0   | iLPZN  |              | c, SN             |
|  | SS         | 08:01:12,0   | eLPZN  |              | c, SN             |
|  | LQ         | 08:07:00     | LPZN; Z  |              |                   |
|  | LR         | 08:18:00     | CPZ; LPZNE; z, Z                                   | 30           |                   |
| U.S.C.G.S.: Epicentre: 3,6 N; 95,8 E (Nord de Sumatra)<br>h = 33 km H = 07:33:00,6 Mag: 5,9 (C.G.S.)<br>$\Delta = 89,5^\circ$                |            |              |  |              |                   |

| Date   | Phases   | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes (M)   | Périodes (s)   | Sens du mouvement                         |
|--|--|--|--|----------------|---|
| 1967 Août 22   | P<br>S   | 02:35:41,6<br>02:37:44,6   | iCPZ; iz<br>iCPZ; iz   |                | d<br>d                                    |
| U.S.C.G.S.: Epicentre: 19,6 S; 29,6 E (République de Botswana)<br>h = 33 km H = 02:33:08 Mag: 3,8 (C.G.S.)<br>$\Delta = 10,8^\circ$                    |  |  |  |                |   |
| 22   | P  | 09:08:00,0   | iCPZ; iz   |                | c   |
| U.S.C.G.S.: Epicentre: 19,7 S; 70,7 W (Côte Nord du Chili)<br>h = 46 km H = 08:55:54,6 Mag: 4,8 (C.G.S.)<br>$\Delta = 79,7^\circ$                      |  |  |  |                |   |
| 22   | P<br>S<br>LQ<br>LR   | 13:11:23,7<br>13:18:54,0<br>13:26:00<br>13:29:00   | iCPZ(0,07);<br>iLPZNE; iz, iz<br>eLPZNE; iz<br>LPZNE; Z<br>CPZ; LPZNE; z, Z  | 1<br>30        | d, NS, EW<br>d, NS, EW                    |
| U.S.C.G.S.: Epicentre: 60,8 S; 24,6 W (Sud des Iles Sandwich)<br>h = 33 km H = 13:02:06,8 Mag: 6,1 (C.G.S.)<br>$\Delta = 53,4^\circ$                   |  |  |  |                |   |
| 22   | P<br>pP<br>LR  | 13:26:19,8<br>13:26:24,0<br>13:43:00   | iCPZ; iz, iz<br>iCPZ; iz, iz<br>CPZ; LPZNE;<br>z, Z  | 20             | d<br>d                                    |
| U.S.C.G.S.: Epicentre: 60,9 S; 23,2 W (Sud des Iles Sandwich)<br>h = 19 km H = 13:17:02,5 Mag: 5,9 (C.G.S.)<br>$\Delta = 53,0^\circ$                   |  |  |  |                |   |
| 23   | LQ<br>LR   | 10:11:00<br>10:14:00   | LPNE<br>LPNE   | 40<br>20       |   |
| 24   | P<br>pP  | 10:48:58,6<br>10:49:05,3   | iCPZ; iz, iz<br>iCPZ; iz, iz   |                | d<br>d                                    |
| U.S.C.G.S.: Epicentre: 17,1 S; 40,3 E (Canal de Mozambique)<br>h = 33 km H = 10:43:26 Mag: 5,1 (C.G.S.)<br>$\Delta = 25,9^\circ$                       |  |  |  |                |   |
| 24   | PKP<br>-<br>SKP ou PKS<br>-<br>-<br>-<br>-<br>PPP<br>LR<br>LR <sub>1</sub> | 10:52:20,7<br>10:55:14,5<br>10:55:51,5<br>10:57:14,0<br>10:57:17,0<br>10:57:24,4<br>10:58:17,8<br>10:58:32,0<br>11:42:00<br>11:50:00 | iCPZ; iz<br>iCPZ; iz<br>iCPZ; iz<br>iLPZN<br>iCPZ; iz, iz<br>iLPZE<br>iCPZ; iz, iz<br>iLPZ<br>LPZNE<br>LPZNE                     | 20<br>20       | d<br>c<br>d<br>SN<br>c<br>c, WE<br>c<br>d |
| U.S.C.G.S.: Epicentre: 14,9 S; 166,9 E (Région des Iles de Nouvelles Hébrides)<br>h = 23 km H = 10:32:52,6 Mag: 5,3 (C.G.S.)<br>$\Delta = 140,3^\circ$ |  |  |  |                |   |
| 24   | P dif.<br>P<br>PP<br>PPP<br>-<br>S<br>(Lg)<br>LR                           | 23:17:58,2<br>23:18:06,0<br>23:18:17,5<br>23:18:24,5<br>23:18:34,4<br>23:20:41,8<br>23:21:41,4<br>23:22:51,0                         | iCPZ; iz, iz<br>iCPZ; iz, iz<br>iCPZ; iz, iz<br>iCPZ; iz, iz<br>iCPZ; iz, iz<br>iCPZ; iz, iz<br>iCPZ; iLPZNE;<br>iz, iz<br>LPZNE | 14             | c<br>d<br>c<br>c<br>d<br>d<br>d           |
| U.S.C.G.S.: Epicentre: 10,5 S; 27,3 E (République du Congo)<br>h = 21 km H = 23:14:45,0 Mag: 5,0 (C.G.S.)<br>$\Delta = 14,2^\circ$                     |  |  |  |                |   |
| 26   | PKP<br>pPKP<br>-<br>-<br>-<br>LQ<br>LR<br>LR <sub>1</sub><br>F             | 00:55:48,5<br>00:56:58,0<br>00:57:55,0<br>00:59:15,0<br>01:08:54,0<br>01:31:00<br>01:49:00<br>02:04:00<br>03:01:00                   | iCPZ; iz, iz<br>iCPZ; iz, iz<br>iLPZE<br>iLPN<br>eLPZ<br>LPN<br>LPZE; Z<br>LPZNE; Z<br>LPZ                                       | 50<br>20<br>20 | c<br>c<br>d, EW<br>SN<br>d                |
| U.S.C.G.S.: Epicentre: 12,2 N; 140,7 E (Ouest des Iles Carolines)<br>h = 33 km H = 00:36:42,1 Mag: 6,1 (C.G.S.)<br>$\Delta = 131,0^\circ$              |  |  |  |                |   |

| Date   | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--|----------|--------------|--|--------------|-------------------|
| 1967 Août 26   | -        | 18:39:49,2   | iCPZ; iz, iz                                       |              | c                 |
|  | -        | 18:40:00,5   | iCPZ; iz, iz                                       |              | c                 |
|  | LR       | 19:55:00     | LPZN   | 22           |                   |
| 27   | PKP      | 22:28:43,2   | iCPZ; iz, iz                                       |              | c                 |
| U.S.C.G.S.: Epicentre: 20,4 S; 178,1 W (Région des îles Fidji)<br>h = 545 km H = 22:10:11,6 Mag: 4,3 (C.G.S.)<br>$\Delta = 142,9^\circ$  |          |              |  |              |                   |
| 28   | P        | 01:08:12,4   | iCPZ; iz, iz                                       |              | d                 |
| U.S.C.G.S.: Epicentre: 10,0 S; 71,2 W (Pérou - Brésil)<br>h = 609 km H = 00:56:51,0 Mag: 4,7 (C.G.S.)<br>$\Delta = 82,4^\circ$           |          |              |  |              |                   |
| 28   | LR       | 17:32:00     | LPZNE  | 22           |                   |
| 29   | LQ       | 08:17:00     | LPZNE  | 40           |                   |
|  | LR       | 08:21:00     | LPZNE; Z   | 24           |                   |
| 30   | P        | 04:35:28,5   | iCPZ; eLPZE;<br>iz, iz                             |              | d, EW             |
|  | PP       | 04:39:18,6   | iCPZ; eLPZNE;<br>iz, iz                            |              | d, SN, WE         |
|  | PS ou SP | 04:48:05,0   | eLPZNE   |              | d, NS, EW         |
|  | -        | 05:00:54,0   | eLPZNE; eZ   |              | c, SN, WE         |
|  | LR       | 05:10:00     | LPZNE; Z   | 30           |                   |
| U.S.C.G.S.: Epicentre: 31,7 N; 100,3 E (Izechwan Province - Chine)<br>h = 3 km H = 04:22:01,5 Mag: 6,1 (C.G.S.)<br>$\Delta = 95,1^\circ$ |          |              |  |              |                   |
| 30   | LR       | 06:35:00     | LPZNE  | 20           |                   |
| 30   | LR       | 14:53:00     | LPZNE  | 20           |                   |
| 31   | PKP      | 19:12:37,2   | iCPZ; iz, iz                                       |              | d                 |
|  | -        | 19:12:39,5   | iCPZ; iz, iz                                       |              | d                 |
|  | -        | 19:12:54,5   | iCPZ; iz, iz                                       |              | c                 |
|  | PKP      | 19:13:47,5   | iCPZ; iz, iz                                       |              | d                 |
|  | PP       | 19:16:01,6   | iCPZ; iz, iz                                       |              | d                 |
| U.S.C.G.S.: Epicentre: 17,5 S; 175,2 W (Îles Tonga)<br>h = 277 km H = 18:53:25,2 Mag: 5,4 (C.G.S.)<br>$\Delta = 146,4^\circ$             |          |              |  |              |                   |

**PUBLIC**

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SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 C Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - No 9

SEPTEMBRE 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\phi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\Phi = 14^{\circ} 48' 23''$  S Altitude:  $h = 1761$  m

Nature du sous-sol:

Granite

Constantes des sismographes

| Séismographes                  | $T_0$<br>(s) | $T_g$<br>(s) | Amplification |             |             |              |
|--------------------------------|--------------|--------------|---------------|-------------|-------------|--------------|
|                                |              |              | $T_s=0,2$ s   | $T_s=0,6$ s | $T_s=1,0$ s | $T_s=15,0$ s |
| Benioff vertical<br>(z)        | 1,0          | 0,2          | 76750         | 33000       | 15300       | -            |
| Benioff vertical<br>(z)        | 1,0          | 21,3         | 400           | 1100        | 1650        | 120          |
| Benioff vertical<br>(CPZ)      | 1,0          | 0,75         | 38000         | 150000      | 100000      | -            |
| Benioff N/S<br>(CPN)           | 1,0          | 0,85         | 38000         | 150000      | 100000      | -            |
| Benioff EW<br>(CPE)            | 1,0          | 0,82         | 38000         | 150000      | 100000      | -            |
| Sprengnether vertical<br>(LPZ) | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether NS<br>(LPN)       | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether EW<br>(LPE)       | 15,0         | 100,0        | -             | -           | -           | 1500         |

| Date | Phases | Heure<br>T.M.G. | Composantes,<br>nature du<br>mouvement et<br>amplitudes ( $M$ ) | Périodes<br>(s) | Sens du<br>mouvement |
|------|--------|-----------------|---|-----------------|----------------------|
|------|--------|-----------------|---|-----------------|----------------------|

1967 Sept. 1 P 15:06:20,7 iCPZ; iz - c  
- 15:06:26,5 iCPZ; iz - c

U.S.C.G.S.: Epicentre: 44,1 S, 82,1 W (Ouest du Chili)  
h = 33 km H = 14:53:55 Mag: 5,2 (C.G.S.)

$\Delta = 89,6^{\circ}$

3 P 21:20:29,7 iCPZ; iLPZNE - e, SN, WE  
pP 21:20:37,6 iCPZ - d  
PP 21:24:09,7 iCPZ, iLPZE - e  
- 21:31:04,5 iLPZNE - e, NS, EW  
SS 21:37:27,9 iLPZNE - c, SN, WE  
PS 21:32:34,9 eCPZ, iLPZ - c  
LR 21:56:00 LPZNE 24 -

U.S.C.G.S.: Epicentre: 10,6 S, 79,8 W (Côte du Pérou)  
h = 38 km H = 21:07:30,8 Mag: 6,5 (C.G.S.)  $\Delta = 90,4^{\circ}$

4 22:16:35,1 iCPZ; iz - c

6 P 01:56:12,0 iCPZ; iz - d  
pP 01:56:21,0 iCPZ; iz - d

U.S.C.G.S.: Epicentre: 24,1 S, 91,7 E (Inde - Pakistan)  
h = 18 km H = 01:43:31,8 Mag: 5,0 (C.G.S.)

$\Delta = 85,4^{\circ}$

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|---|--------------|-------------------|
| 1967 Sept. 6  | -      | 05:32:13,0   | eLPZN   | -            | d, SN             |
| 6   | P      | 07:42:42,5   | iCPZ; iz, iz  | -            | d                 |
|   | pP     | 07:42:49,6   | iCPZ; iz, iz  | -            | c                 |
|   | -      | 07:42:54,2   | iCPZ; iz, iz  | -            | d                 |
|   | -      | 07:43:04,3   | iCPZ; iz  | -            | d                 |
|   | -      | 07:43:30,0   | iCPZ; iz, iz  | -            | c                 |
|   | LR     | 08:17:00     | LPZNE; Z  | 27           | -                 |
| U.S.C.G.S.: Epicentre: 14,7 N, 93,6 E (Iles Andaman)<br>h = 33 R H = 07:30:10,8 Mag: 5,6 (C.G.S.)<br>$\Delta = 84,5^\circ$  |        |              |   |              |                   |
| 7   | (PKP)  | 07:30:39,0   | iCPZ; iz  | -            | c                 |
|   | -      | 07:31:15,3   | iCPZ; iz  | -            | c                 |
|   | -      | 07:31:42,0   | iCPZ; iz  | -            | d                 |
|   | PPP    | 07:33:46,0   | iCPZ; iz  | -            | d                 |
|   | PPS    | 07:42:08,5   | iLPZE   | -            | d                 |
|   | LR     | 08:10:00     | LPZNE   | 22           | -                 |
| U.S.C.G.S.: Epicentre: 2,7 N, 124,3 E (Mer de Célèbes)<br>h = 274 km H = 07:12:36,6 Mag: 5,8 (C.G.S.)<br>$\Delta = 110,8^\circ$   |        |              |   |              |                   |
| 7   | -      | 09:56:59,4   | iCPZ; iz, iz  | -            | c                 |
|   | -      | 09:57:06,7   | iCPZ; iz  | -            | c                 |
| 7   | PKP    | 11:26:38,5   | iCPZ; iz  | -            | c                 |
| U.S.C.G.S.: Epicentre: 31,3 S, 179,6 E (Iles Kermadec)<br>h = 430 km H = 11:08:13,2 Mag: 5,1 (C.G.S.)<br>$\Delta = 131,9^\circ$   |        |              |   |              |                   |
| 7   | -      | 11:29:23,9   | iCPZ; iz, iz  | -            | d                 |
|   | -      | 11:32:32,5   | iCPZ; iz  | -            | d                 |
| 8   | P      | 08:18:50,5   | iCPZ; iz  | -            | d                 |
|   | -      | 08:19:08,6   | iCPZ; iz  | -            | c                 |
|   | -      | 08:19:16,8   | iCPZ; iz  | -            | c                 |
| U.S.C.G.S.: Epicentre: 34,2 S, 71,4 W (Côte Central du Chili)<br>h = 33 km H = 08:06:56,2 Mag: 4,8 (C.G.S.)<br>$\Delta = 77,5^\circ$  |        |              |   |              |                   |
| 8   | P      | 09:12:01,5   | iCPZ; iz, iz  | -            | c                 |
|   | pP     | 09:12:11,4   | iCPZ; iz, iz  | -            | d, c              |
|   | LR     | 09:42:00     | LPZNE   | 21           | -                 |
| U.S.C.G.S.: Epicentre: 23,4 S, 70,7 W (Côte Nord du Chili)<br>h = 33 km H = 08:59:59,3 Mag: 5,5 (C.G.S.)<br>$\Delta = 78,9^\circ$   |        |              |   |              |                   |
| 8   | PKP    | 22:26:47,3   | iCPZ; iz  | -            | d                 |
|   | pPKP   | 22:56:54,3   | iCPZ; iz  | -            | d, c              |
|   | PP     | 22:58:54,0   | iLPZE; iz   | -            | d, SN             |
|   | LQ     | 23:39:00     | LPZN  | 32           | -                 |
|   | LR     | 23:50        | LPZNE   | 29           | -                 |
| U.S.C.G.S.: Epicentre: 12,2 N, 140,8 E (Ouest des Iles Carolines)<br>h = 27 km H = 22:37:39,5 Mag: 5,3 (C.G.S.) 5.4 - 5.6 (BRK) 5 - 1/2 - 5 3/4 (GOL)<br>$\Delta = 128,8^\circ$ |        |              |   |              |                   |
| 9   | P      | 10:17:09,6   | iCPZ; iLPZNE;<br>iz, iz                                 | -            | d, NS, EW         |
|   | pP     | 10:19:09,5   | iCPZ; iLPZ;<br>iz, iz                                   | -            | d                 |
|   | (S)    | 10:20:07     | iLPZNE; iz  | -            | d, NS, EW         |
|   | (S)    | 20:25:42,5   | iCPZ; iCPZNE;<br>iz, iz                                 | -            | c, d, NS, EW      |
|   | -      | 10:29:19     | iLPZNE; iz  | -            | c, SN, WE         |
|   | LR     | 10:41:00     | LPZNE; Z  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 27,7 S; 69,1 W (Prov. de Santiago Del Estero, Argentine)<br>h = 578 km H = 10:06:44,1 Mag: 5,8 (C.G.S.) 5.0 - 5.2 (BRK)<br>$\Delta = 71,5^\circ$         |        |              |   |              |                   |
| 9   | -      | 10:47:32,2   | iCPZ; iz  | -            | d                 |

| Date   | Phases         | Heure<br>T.M.G. | Composantes,<br>nature du<br>mouvement et<br>amplitudes( $\mu$ ) | Périodes<br>(s) | Sens du<br>mouvement |
|--|----------------|-----------------|--|-----------------|----------------------|
| 1967 Sept. 9   | -              | 17:10:31,0      | iCPZ, eLPZN  | -               | c, SN                |
|  | PP             | 17:10:38,0      | iCPZ, iLPZ;<br>iz, iz  | -               | d, c                 |
|  | -              | 17:16:56        | iLPN   | -               | SN                   |
|  | PS             | 17:19:49,0      | iLPZNE   | -               | c, SN, WE            |
|  | SSP            | 17:25:39,0      | eLPZNE; iz   | -               | c, NS, WE            |
|  | LR             | 17:41:00        | LPZNE; Z   | 30              | -                    |
| U.S.C.G.S.: Epicentre: 54,8 S, 136,0 W (Sud du Pacifique)<br>h = 33 R H = 16:52:01,3 Mag: 5,4 (C.G.S.) 6 $\frac{1}{4}$ (PAS)<br>$\Delta = 105,7^\circ$ |                |                 |  |                 |                      |
| 11   | P              | 06:22:48,5      | iCPZ; iz   | -               | d                    |
| U.S.C.G.S.: Epicentre: 27,5 N, 66,4 E (Ouest du Pakistan)<br>h = 36 km H = 06:12:00,5 Mag: 4,6 (C.G.S.)<br>$\Delta = 66,5^\circ$                       |                |                 |  |                 |                      |
| 11   | LR             | 05:48:00        | LPZNE  | 20              | -                    |
| U.S.C.G.S.: Epicentre: 21,4 S, 169,7 E (Iles Loyauté)<br>h = 11 km H = 04:37:16,4 Mag: 5,0 (C.G.S.) 5.0 - 5.3 (BRK)<br>$\Delta = 136,8^\circ$          |                |                 |  |                 |                      |
| 12   | -              | 00:27:57,4      | iCPZ; iz   | -               | d                    |
| 12   | P              | 00:28:39,6      | iCPZ, iLPZE;<br>iz, iz   | -               | d, NS                |
|  | LR             | 00:34:00        | LPZNE  | 20              | -                    |
| U.S.C.G.S.: Epicentre: 22,8 S; 10,5 W (Sud de l'océan Atlantique)<br>h = 33 R H = 00:23:27,7 Mag: 4,9 (C.G.S.)<br>$\Delta = 24,0^\circ$                |                |                 |  |                 |                      |
| 12   | P <sub>n</sub> | 00:51:20        | ieCPZ, iz  | -               | -                    |
|  | S <sub>n</sub> | 00:51:50,5      | iCPZ, iz   | -               | d                    |
| $\Delta = 2,4^\circ$   |                |                 |  |                 |                      |
| 12   | P              | 10:28:44,3      | iCPZ; ei z   | -               | d                    |
|  | pP             | 10:29:05,3      | iCPZ; iz   | -               | d                    |
| U.S.C.G.S.: Epicentre: 19,7 S, 69,9 W (Nord du Chili)<br>h = 125 km H = 10:16:04,9 Mag: 4,5 (C.G.S.)<br>$\Delta = 79,0^\circ$                          |                |                 |  |                 |                      |
| 12   | P              | 11:17:08,0      | iCPZ; iz   | -               | d                    |
|  | -              | 11:17:20,0      | iCPZ; iz   | -               | d                    |
|  | -              | 11:17:23,6      | iCPZ; iz   | -               | c                    |
| U.S.C.G.S.: Epicentre: 5,0 S, 11,5 W (Ile de l'Ascension)<br>h = 33 R H = 11:11:31,3 Mag: 4,9 (C.G.S.)<br>$\Delta = 26,5^\circ$                        |                |                 |  |                 |                      |
| 12   | P*             | 20:48:45,7      | iCPZ, iz   | -               | c                    |
|  | S*             | 20:49:02,0      | iCPZ, iz   | -               | -                    |
| $\Delta = 1,2^\circ$   |                |                 |  |                 |                      |
| 12   | -              | 22:12:30,9      | iCPZ, iz   | -               | c                    |
|  | -              | 22:12:49,2      | iCPZ, iz   | -               | d                    |
| 12   | LR             | 23:02:00        | LPZNE  | 24              | -                    |
| U.S.C.G.S.: Epicentre: 5,5 S, 151,7 E (Nouvelle Bretagne)<br>h = 50 km H = 21:49:47,6 Mag: 5,2 (C.G.S.) 6.0-6.4 (BRK)<br>$\Delta = 133,9^\circ$        |                |                 |  |                 |                      |
| 13   | -              | 19:00:32,4      | eCPZ, ez   | -               | d                    |
|  | PKP            | 19:00:39,5      | iCPZ, iz   | -               | d                    |
| U.S.C.G.S.: Epicentre: 52,7 N, 172,5 E (Iles Aléoutiennes)<br>h = 34 km H = 18:41:15,4 Mag: 5,7 (C.G.S.) 5,0 (BRK)<br>$\Delta = 138,7^\circ$           |                |                 |  |                 |                      |



| Date   | Phases               | Heure T.M.G.                                       | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s)      | Sens du mouvement |
|--|----------------------|--|--|-------------------|-------------------|
| 1967 Sept. 13  | P<br>pP<br>PcP<br>LR | 20:06:41,3<br>20:07:11,5<br>20:07:54,6<br>20:23:00 | iCPZ; iz<br>iCPZ; iz; IZ<br>iCPZ; iz; IZ<br>LPZNE  | -<br>-<br>-<br>20 | c<br>c<br>d<br>-  |
| U.S.C.G.S.: Epicentre: 56,0 S, 27,4 W (Sud des Iles Sandwich)<br>h = 148 km H = 19:57:47,9 Mag: 5,3 (C.G.S.)<br>$\Delta = 51,6^\circ$                    |                      |  |  |                   |                   |
| 13   | LR                   | 20:02:00   | LPZN   | 26                | -                 |
| 14   | P                    | 14:59:50,0   | iCPZ, iz   | -                 | c                 |
| U.S.C.G.S.: Epicentre: 28,4 N, 57,1 E (Sudde l'Iran)<br>h = 33 R H = 14:49:41,9 Mag: 4,7 (C.G.S.)<br>$\Delta = 60,5^\circ$                               |                      |  |  |                   |                   |
| 14   | PKP                  | 15:54:25,0   | iCPZ, iz   | -                 | -                 |
| U.S.C.G.S.: Epicentre: 15,4 S, 167,5 E (Iles Nouvelles Hébrides)<br>h = 142 km H = 15:35:17,3 Mag: 4,9 (C.G.S.)<br>$\Delta = 140,3^\circ$                |                      |  |  |                   |                   |
| 14   | P                    | 20:44:39,0   | iCPZ; iz   | -                 | d                 |
| U.S.C.G.S.: Epicentre: 29,5 S, 70,2 W (Côte Nord du Chili)<br>h = 38 km H = 20:32:39,3 Mag: 4,8 (C.G.S.)<br>$\Delta = 78,6^\circ$                        |                      |  |  |                   |                   |
| 15   | P                    | 00:12:18,2   | iCPZ, iz   | -                 | d                 |
| U.S.C.G.S.: Epicentre: 32,0 S, 78,8 E (Mid - Indian Rise)<br>h = 33 R H = 00:02:03 Mag: -<br>$\Delta = 61,4^\circ$                                       |                      |  |  |                   |                   |
| 15   | PKP<br>LR            | 00:47:42,0<br>01:41:00                             | iCPZ, iz<br>LPZNE                                  | -<br>-            | d<br>-            |
| U.S.C.G.S.: Epicentre: 35,6 N, 140,4 E (Côte Est de Honshu, Japon)<br>h = 59 km H = 00:28:39,8 Mag: 5,2 (C.G.S.) 4.7-5.1 (BRK)<br>$\Delta = 128,4^\circ$ |                      |  |  |                   |                   |
| 15   | P<br>PcP<br>pP<br>LR | 10:45:29,7<br>10:45:34,3<br>10:45:39,6<br>11:23:00 | iCPZ, iz, IZ<br>iCPZ, iz, IZ<br>iCPZ, iz<br>LPZNE  | -<br>-<br>-<br>20 | d<br>d<br>d<br>-  |
| U.S.C.G.S.: Epicentre: 27,4 N, 91,8 E (Bhoutan)<br>h = 57 km H = 10:32:48,7 Mag: 5,8 (C.G.S.)<br>$\Delta = 86,8^\circ$                                   |                      |  |  |                   |                   |
| 15   | -                    | 17:14:26,0   | iCPZ, iz   | -                 | d                 |
| 15   | P<br>pP              | 18:03:41,0<br>18:04:06,5                           | iCPZ, iz<br>iCPZ, iz                               | -<br>-            | c<br>c            |
| U.S.C.G.S.: Epicentre: 31,6 S, 69,4 W (Province de San Juan, Argentine)<br>h = 118 km H = 17:52:02,3 Mag: 4,7 (C.G.S.)<br>$\Delta = 76,3^\circ$          |                      |  |  |                   |                   |
| 16   | P                    | 04:16:40,5   | iCPZ, iz   | -                 | d                 |
| U.S.C.G.S.: Epicentre: 50,0 N, 77,8 E (Kazakh Oriental, RSS)<br>h = 0 H = 04:03:58,0 Mag: 5,3 (C.G.S.)<br>$\Delta = 85,8^\circ$                          |                      |  |  |                   |                   |
| 16   | -                    | 05:46:33,2   | iCPZ   | -                 | c                 |
| 16   | -                    | 05:53:20,0<br>05:53:34,3                           | iCPZ, iz<br>iCPZ; iz                               | -<br>-            | c<br>d            |
| 16   | -                    | 08:06:35,3   | iCPZ, iz   | -                 | c                 |
| 16   | PKP                  | 08:51:24,5   | iCPZ, iz   | -                 | c                 |
| U.S.C.G.S.: Epicentre: 52,0 N, 176,4 W (Iles Aléoutiennes)<br>h = 65 km H = 08:31:58,4 Mag: 5,4 (C.G.S.)<br>$\Delta = 142,1^\circ$                       |                      |  |  |                   |                   |

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Sept. 16   | -      | 10:25:47,5   | iCPZ, iz   | -            | c                 |
|   | -      | 10:25:53,2   | iCPZ, iz   | -            | c                 |
| 16  | LR     | 10:32:00     | LPZNE  | 22           | -                 |
| 16  | -      | 15:30:41,5   | iCPZ, iz   | -            | c                 |
| 17  | -      | 01:41:10,4   | iCPZ, iz   | -            | d                 |
| 18  | PKP    | 15:52:14,0   | iCPZ, iz   | -            | d, c              |
|   | pPKP   | 15:52:24,2   | iCPZ, iz   | -            | c                 |
|   | LR     | 16:35:00     | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 5,9 S; 146,6 E (Est de la Nouvelle Guinée)<br>h = 39 km H = 15:33:06,5 Mag: 5,5 (C.G.S.)<br>$\Delta = 129,1^\circ$   |        |              |  |              |                   |
| 18  | PKP    | 19:32:21,5   | iCPZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 20,7 S; 178,4 W (Iles Fidji)<br>h = 562 km H = 19:13:52,5 Mag: 4,0 (C.G.S.)<br>$\Delta = 142,5^\circ$  |        |              |  |              |                   |
| 18  | -      | 08:32:30,0   | iCPZ   | -            | c                 |
| 19  | (PKP)  | 11:15:11,5   | iCPZ, iz   | -            | c                 |
|   | -      | 11:18:25,9   | iCPZ, iz, iz   | -            | d                 |
|   | -      | 11:17:54     | eLPZ   | -            | d                 |
|   | PKS    | 11:18:29,0   | iLPZ   | -            | c                 |
|   | -      | 11:19:02,0   | eLPNE  | -            | NS, EW            |
|   | PS     | 11:27:30,2   | iLPZ   | -            | -                 |
|   | LR     | 12:08:00     | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 43,0 N, 145,2 E (Hokkaido, Japon)<br>h = 84 km H = 10:56:08,6 Mag: 5,9 (C.G.S.) $6\frac{1}{2}$ (PAS), 6.2 - 6.6 (BRK), $6\frac{1}{4}$ - $6\frac{1}{2}$ (PAL)<br>$\Delta = 130,2^\circ$ |        |              |  |              |                   |
| 19  | P      | 12:54:35,6   | iCPZ, iz, iz   | -            | d                 |
|   | pP     | 12:54:46,4   | iCPZ, iz, iz   | -            | c                 |
|   | S      | 13:01:52,0   | iLPN   | -            | NS                |
|   | LR     | 13:10:00     | LPZNE; Z   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 57,8 S; 23,4 W (Sud des Iles Sandwich)<br>h = 33 R H = 12:45:35,3 Mag: 5,7 (C.G.S.)<br>$\Delta = 51,0^\circ$   |        |              |  |              |                   |
| 19  | P      | 19:14:26,3   | iCPZ, iz   | -            | c                 |
| U.S.C.G.S.: Epicentre: 1,6 S, 100,5 E (Sud de Sumatra)<br>h = 83 km H = 19:01:47,5 Mag: 5,0 (C.G.S.)<br>$\Delta = 86,7^\circ$   |        |              |  |              |                   |
| 19  | P      | 19:36:23,5   | iCPZ, iz   | -            | d                 |
|   | pP     | 19:36:34,4   | iCPZ, iz   | -            | d                 |
|   | LR     | 19:50:00     | LPZNE; Z   | 19           | -                 |
| U.S.C.G.S.: Epicentre: 36,3 S, 52,2 E (Atlantique - indien Rise)<br>h = 33 R H = 19:28:45,2 Mag: 5,4 (C.G.S.)<br>$\Delta = 40,6^\circ$  |        |              |  |              |                   |
| 20  | P      | 09:46:18,9   | iz   | -            | c                 |
| U.S.C.G.S.: Epicentre: 8,0 S, 74,5 W (Pérou - Brésil)<br>h = 145 km H = 09:33:54,1 Mag: 5,1 (C.G.S.)<br>$\Delta = 86,0^\circ$   |        |              |  |              |                   |
| 20  | PKP    | 09:57:44,1   | iz   | -            | d                 |
|   | -      | 09:58:31,8   | iz, iz   | -            | c                 |
|   | LR     | 10:34:00     | Z  | 26           | -                 |
| U.S.C.G.S.: Epicentre: 49,8 S, 163,4 E (Iles Auckland)<br>h = 30 km H = 09:39:15,2 Mag: 6,1 (C.G.S.) $6\frac{1}{2}$ (PAS) 6.3 - 6.7 (BRK)<br>$\Delta = 110,1^\circ$   |        |              |  |              |                   |
| 20  | -      | 10:08:51,0   | iz   | -            | c                 |

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Sept. 20   | PKP    | 10:56:21,0   | iz   | -            | d                 |
| U.S.C.G.S.: Epicentre: 20,8 S, 169,8 E (Iles Nouvelles Hébrides)<br>h = 129 km H = 10:37:20,3 Mag: 5,9 (C.G.S.) 5.3-5,5 (BRK)<br>$\Delta = 137,4^\circ$ |        |              |  |              |                   |
| 20  | LR     | 10:58:00     | Z  | 13           | -                 |
| 20  | -      | 15:46:26,1   | iz   | -            | d                 |
| 20  | -      | 20:00:14,0   | eLPNE  | -            | SN, WE            |
| 20  | -      | 20:02:35,0   | eLPZ   | -            | c                 |
| 20  | LR     | 00:39:00     | LPZN   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 59,2 S, 148,6 E (Ouest des Iles Macquarie)<br>h = 33 R H = 23:51:22,3 Mag: -<br>$\Delta = 97,5^\circ$                            |        |              |  |              |                   |
| 21  | -      | 19:01:24,0   | eLPZNE   | -            | c, SN, WE         |
| 22  | -      | 01:31:49,5   | iCPZ, iz   | -            | c                 |
| 22  | P      | 05:16:40,2   | iCPZ, iz   | -            | d                 |
| U.S.C.G.S.: Epicentre: 50,0 N; 77,6 E (Kazakh Oriental, RSS)<br>h = 0 H = 05:03:57,9 Mag: 5,3 (C.G.S.)<br>$\Delta = 85,7^\circ$                         |        |              |  |              |                   |
| 22  | P      | 08:15:07,0   | iCPZ, iz, iz   | -            | d                 |
|   | S      | 08:20:43     | iLPE   | -            | WE                |
|   | LR     | 08:24:00     | LPZNE  | 22           | -                 |
| U.S.C.G.S.: Epicentre: 0,7 S; 20,1 W (Central Mid-Atlantique Ridge)<br>h = 33 R H = 08:08:04,3 Mag: 5,3 (C.G.S.)<br>$\Delta = 96,1^\circ$               |        |              |  |              |                   |
| 22  | PKP    | 10:37:11,5   | iCPZ, iz   | -            | d                 |
|   | pPKP   | 10:37:26,0   | iCPZ, iz   | -            | c                 |
|   | LQ     | 11:25:00     | LPZNE  | 31           | -                 |
|   | LR     | 11:34:00     | LPZNE; Z   | 28           | -                 |
| U.S.C.G.S.: Epicentre: 44,5 N, 149,4 E (Iles Kouriles)<br>h = 60 km H = 10:17:59,9 Mag: 5,6 (C.G.S.) 5.3-5.7 (BRK), 5,9 (PAL)<br>$\Delta = 132,5^\circ$ |        |              |  |              |                   |
| 23  | PKP    | 07:15:04,5   | iCPZ, iz   | -            | c                 |
|   | -      | 07:17:50,6   | iCPZ, iz   | -            | d                 |
|   | LR     | 07:59:00     | LPZNE; Z   | 29           | -                 |
| U.S.C.G.S.: Epicentre: 21,8 S; 179,7 W (Iles Fidji)<br>h = 595 km H = 06:56:43,6 Mag: 5,4 (C.G.S.) 6 - 6.4 (BRK)<br>$\Delta = 141,1^\circ$              |        |              |  |              |                   |
| 23  | P      | 22:05:11,0   | iCPZ, iz   | -            | c                 |
|   | pP     | 22:05:17,5   | iCPZ, iz   | -            | d, c              |
|   | LR     | 22:15:00     | LPZN   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 40,4 S, 16,7 W (Atlantique Sud)<br>h = 33 R H = 21:58:06 Mag: 4,8 (C.G.S.)<br>$\Delta = 36,6^\circ$                              |        |              |  |              |                   |
| 23  | LR     | 18:48:00     | LPZNE  | 30           | -                 |
| 24  | PKP    | 01:15:51,5   | iCPZ, iz   | -            | c                 |
| U.S.C.G.S.: Epicentre: 4,6 N; 128,6 E (Nord de Halmahera)<br>h = 33 R H = 00:57:09,7 Mag: 5,3 (C.G.S.)<br>$\Delta = 115,5^\circ$                        |        |              |  |              |                   |
| 24  | -      | 18:32:39,6   | iCPZ, iz   | -            | d                 |
|   | -      | 18:32:37,5   | iCPZ, iz   | -            | c                 |
| 24  | -      | 20:30:40,0   | iCPZ, iz   | -            | -                 |
|   | -      | 20:30:48,7   | iCPZ, iz   | -            | -                 |
| 24  | -      | 22:37:39,2   | iCPZ, iz   | -            | d                 |

| Date          | Phases   | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes(μ)   | Périodes (s)                           | Sens du mouvement   |
|---------------|--|--|---|--|---|
| 1967 Sept. 25 | PKP<br>pPKP  | 04:58:11,5<br>04:58:17,5   | iCPZ, iz<br>iCPZ, iz  | -                                      | c, d<br>d   |
|               | U.S.C.G.S.: Epicentre: 15,1 S; 173,4 W (Iles Tonga)<br>h = 63 R H = 04:38:26,2 Mag: 5,0 (C.G.S.)<br>$\Delta = 149,2^\circ$                                 |  |   |  |   |
| 25            | P<br>LR  | 09:04:01,2<br>09:29:00   | iCPZ, iz<br>LPZ   | -<br>22                                | c<br>-  |
|               | U.S.C.G.S.: Epicentre: 17,7 N; 61,6 W (Iles Leeward)<br>h = 48 km H = 08:51:49,4 Mag: 4,8 (C.G.S.) 4,9 - 5,1 (BRK)<br>$\Delta = 80,3^\circ$                |  |   |  |   |
| 25            | P<br>-   | 08:22:19,6<br>08:33:10,0   | iCPZ, iz<br>iCPZ  | -<br>-                                 | d<br>c  |
|               | U.S.C.G.S.: Epicentre: 17,7 N; 61,5 W (Iles Leeward)<br>h = 33 R H = 08:10:06,7 Mag: 4,6 (C.G.S.)<br>$\Delta = 80,3^\circ$                                 |  |   |  |   |
| 25            | PKP  | 19:53:54,5   | iCPZ, iz  | -                                      | d   |
|               | U.S.C.G.S.: Epicentre: 17,8 S; 178,2 W (Iles Fidji)<br>h = 426 km H = 19:35:04 Mag: 4,4 (C.G.S.)<br>$\Delta = 145,3^\circ$                                 |  |   |  |   |
| 26            | P<br>PcP<br>-<br>LR  | 11:23:09,6<br>11:23:17,0<br>11:32:49,0<br>11:47:00   | iCPZ, iz, iz<br>iCPZ, iz<br>iLPZNE<br>LPZE  | -<br>-<br>-<br>40                      | c<br>d<br>c, NS, EW<br>-  |
|               | U.S.C.G.S.: Epicentre: 33,6 S; 70,5 W (Région de Chili - Argentine)<br>h = 84 km H = 11:11:23,7 Mag: 5,8 (C.G.S.) 5,5 - 5,7 (BRK)<br>$\Delta = 76,9^\circ$ |  |   |  |   |
| 26            | P<br>-<br>pP<br>-<br>-<br>S<br>-<br>LQ<br>LR   | 16:23:21,0<br>16:23:28,3<br>16:23:34,5<br>16:23:42,5<br>16:26:35,0<br>16:33:15,3<br>16:38:38,0<br>16:48:00<br>16:51:00 | iCPZ, iLPZNE;<br>iz, iz<br>iCPZ; iz<br>iCPZ, iLPZ;<br>iz, iz<br>iCPZ, iLPZNE;<br>iCPZ; iz, iz<br>iCPZ, iLPZNE;<br>iz, iz<br>iLPZNE<br>LPZNE<br>LPZNE, Z | -<br>-<br>-<br>-<br>-<br>-<br>38<br>24 | c, SN, WE<br>c<br>c<br>c, NS, EW<br>c<br>d, NS, WE<br>d, SN, EW<br>-<br>- |
|               | U.S.C.G.S.: Epicentre: 30,0 S; 71,5 W (Côte du Chili)<br>h = 55 R H = 16:11:23,9 Mag: 6 3/4 (PAS), 5,8 - 6,0 (BRK)<br>$\Delta = 78,4^\circ$                |  |   |  |   |
| 26            | -<br>-<br>-  | 17:24:58,0<br>17:25:10,3<br>17:25:12,4   | iCPZ, iz<br>iCPZ, iz<br>iCPZ, iz  | -<br>-<br>-                            | -<br>d<br>c   |
| 27            | PKP  | 02:31:57,8   | iCPZ, iz  | -                                      | c   |
|               | U.S.C.G.S.: Epicentre: 19,8 S; 177,9 W (Iles Fidji)<br>h = 573 km H = 02:19:26 Mag: 4,1 (C.G.S.)<br>$\Delta = 143,6^\circ$                                 |  |   |  |   |
| 27            | PKP  | 09:52:00,0   | iCPZ, iz  | -                                      | c   |
|               | U.S.C.G.S.: Epicentre: 11,4 S; 166,3 E (Iles de Santa Cruz)<br>h = 92 R H = 09:32:38,8 Mag: 4,5 (C.G.S.)<br>$\Delta = 142,3^\circ$                         |  |   |  |   |
| 27            | -  | 10:53:11,3   | iCPZ, iz  | -                                      | d   |
| 27            | -  | 17:19:12,5   | iCPZ, iz  | -                                      | c   |
| 28            | -  | 03:19:56,4   | iCPZ, iz  | -                                      | c   |

| Date   | Phases                             | Heure T.M.G.         | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--|------------------------------------|----------------------|--|--------------|-------------------|
| 1967 Sept. 28  | PKP                                | 05:16:15,0           | iCPZ, iLPZ; iz, iz                                       | -            | d, c              |
|  | -                                  | 05:16:18,3           | iCPZ, iz   | -            | c                 |
|  | -                                  | 05:16:39,0           | iCPZ, iz   | -            | c                 |
|  | PP                                 | 05:18:50,0           | iLPZ   | -            | d                 |
|  | -                                  | 05:19:48,0           | iLPZNE   | -            | c, SN, WE         |
|  | PPS                                | 05:30:50,0           | iLPZN  | -            | c, SN             |
|  | LQ                                 | 06:00:00             | LPZNE  | 49           | -                 |
|  | LR                                 | 06:06:00             | LPZNE; Z   | 26           | -                 |
|  | LQ <sub>2</sub><br>LR <sub>2</sub> | 06:41:00<br>06:47:00 | LPZ<br>LPZNE   | 36<br>26     | -<br>-            |
| <p>U.S.C.G.S.: Epicentre: 6,6 S; 153,4 E (Nouvelle Bretagne)<br/>           h = 44 R H = 04:56:56,3 Mag: 5,9 (C.G.S.) 6.1 - 6.3 (BRK) 6,5 (PAS) 6,9 (GOL)<br/> <math>\Delta = 134,8^\circ</math></p> |                                    |                      |  |              |                   |
| 28   | LR                                 | 16:55:00             | LPZNE; Z   | 23           | -                 |
| <p>U.S.C.G.S.: Epicentre: 59,5 N, 147,1 W (Golfe de l'Alaska)<br/>           h = 28 km H = 15:44:55,7 Mag: 5,6 (C.G.S.) 5.4 - 5.8 (BRK)<br/> <math>\Delta = 133,2^\circ</math></p>                   |                                    |                      |  |              |                   |
| 29   | PKP                                | 07:39:11,0           | iCPZ, iz   | -            | c                 |
|  | -                                  | 07:39:14,0           | iCPZ, iz   | -            | c                 |
| <p>U.S.C.G.S.: Epicentre: 19,8 S, 174,0 W (Iles Tonga)<br/>           h = 33 R H = 07:19:35 Mag: 4,6 (C.G.S.)<br/> <math>\Delta = 144,5^\circ</math></p>   |                                    |                      |  |              |                   |
| 29   | P                                  | 15:14:09,0           | iCPZ, iz   | -            | c, d              |
| <p>U.S.C.G.S.: Epicentre: 4,6 N; 32,5 W (Mid-Atlantique Ridge)<br/>           h = 33 R H = 15:05:18,9 Mag: 4,9 (C.G.S.)<br/> <math>\Delta = 49,5^\circ</math></p>                                    |                                    |                      |  |              |                   |
| 29   | -                                  | 23:23:21,5           | iCPZ, iz   | -            | d                 |
|  | -                                  | 23:23:44,0           | iCPZ, iz   | -            | c                 |
| 29   | LR                                 | 23:19:00             | LPZN   | 20           | -                 |
| <p>U.S.C.G.S.: Epicentre: 49,9 S, 163,5 E (Iles Auckland)<br/>           h = 33 R H = 22:21:14,7 Mag: 5,1 (C.G.S.)<br/> <math>\Delta = 110,0^\circ</math></p>  |                                    |                      |  |              |                   |
| 30   | PKP                                | 08:16:09,5           | iCPZ   | -            | -                 |
|  | pPKP                               | 08:16:17,8           | iCPZ, iz   | -            | d                 |
|  | LR                                 | 09:02:00             | LPZE   | 25           | -                 |
| <p>U.S.C.G.S.: Epicentre: 28,9 N, 129,9 E (Iles Ryukyu)<br/>           h = 32 km H = 07:57:19,9 Mag: 5,5 (C.G.S.) 4,9 - 5,2 (BRK)<br/> <math>\Delta = 120,0^\circ</math></p>                         |                                    |                      |  |              |                   |

23 AUG 1968

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda

C.P. 1228 O Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - No 10

OCTOBRE 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\phi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E

Latitude géocentrique:  $\phi = 14^{\circ} 48' 23''$  S Altitude:  $h = 1761$  m

Nature du sous-sol:

Granite

Constantes des sismographes

| Sismographes                   | $T_0$<br>(s) | $T_g$<br>(s) | Amplification |             |             |              |
|--------------------------------|--------------|--------------|---------------|-------------|-------------|--------------|
|                                |              |              | $T_s=0,2$ s   | $T_s=0,6$ s | $T_s=1,0$ s | $T_s=15,0$ s |
| Benioff vertical<br>(z)        | 1,0          | 0,2          | 76750         | 33000       | 15300       | -            |
| Benioff vertical<br>(Z)        | 1,0          | 21,3         | 400           | 1100        | 1650        | 120          |
| Benioff vertical<br>(CPZ)      | 1,0          | 0,75         | 38000         | 150000      | 100000      | -            |
| Benioff N/S<br>(CPN)           | 1,0          | 0,85         | 38000         | 150000      | 100000      | -            |
| Benioff EW<br>(CPE)            | 1,0          | 0,82         | 38000         | 150000      | 100000      | -            |
| Sprengnether vertical<br>(LPZ) | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether NS<br>(LPN)       | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether EW<br>(LPE)       | 15,0         | 100,0        | -             | -           | -           | 1500         |

| Date | Phases | Heure<br>T.M.G. | Composantes,<br>nature du<br>mouvement et<br>amplitudes ( $\mu$ ) | Périodes<br>(s) | Sens du<br>mouvement |
|------|--------|-----------------|---|-----------------|----------------------|
|------|--------|-----------------|---|-----------------|----------------------|

1967 Oct. 2 PKP 00:31:17,2 iCPZ; iz - d  
 - 00:31:33,5 iCPZ; iz - d  
 - 00:34:03,5 iCPZ; iz, iz - c  
 - 00:34:20,5 iCPZ; iz, iz - d

U.S.C.G.S.: Epicentre: 21,0 S; 178,8 W (Région des Iles Fidji)  
 $h = 604$  R  $H = 00:12:52,8$  Mag: 5,2 (C.G.S.)

$\Delta = 142,1^{\circ}$

3 LR 18:45:00 Z 20 -  
 - 18:48:30,0 eLPN - -  
 - 18:52:41,0 eLPN - -  
 - 18:53:20,0 eLPZE - -  
 LR1 19:03:00 LPN 30 -  
 LR2 19:06:00 LPZNE 28 -

U.S.C.G.S.: Epicentre: 10,9 N; 85,9 W (Costa Rica)  
 $h = 21$  km  $H = 18:16:03,2$  Mag: 6 $\frac{1}{2}$  (PAS)

$\Delta = 101,7^{\circ}$

| Date        | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes( $\mu$ ) | Périodes (s) | Sens du mouvement |
|-------------|--------|--------------|---|--------------|-------------------|
| 1967 Oct. 4 | PKIKP  | 17:40:25,2   | iCPZ; eLPZ; iz, iZ                                      | -            | c                 |
|             | PKP    | 17:40:40,0   | iCPZ; eLPZ; iz, iZ                                      | -            | c                 |
|             | -      | 17:41:07,0   | iCPZ; iz, iZ  | -            | d                 |
|             | PP     | 17:43:29,8   | iCPZ; eLPZNE  | -            | d, NS, EW         |
|             | -      | 17:44:20,0   | iCPZ; eLPNE   | -            | c, SN, EW         |
|             | SS     | 18:01:15,0   | eLPZNE; eZ  | -            | d, NS, EW         |
|             | SSS    | 18:05:48,0   | eLPZNE; eZ  | -            | d, SN, WE         |
|             | LQ     | 18:18:00     | LPZNE; Z  | 43           | -                 |
|             | LR     | 18:31:00     | LPZNE; Z  | 30           | -                 |

U.S.C.G.S.: Epicentre: 5,7 S; 153,9 E (Nouvelle Irlande)  
h = 52 km H = 17:21:20,7 Mag: 6 $\frac{3}{4}$  (PAS)

$$\Delta = 135,7^\circ$$

|   |            |            |          |    |           |
|---|------------|------------|----------|----|-----------|
| 6 | PPS ou SPP | 04:16:44,6 | eLPZNE   | -  | d, NS, EW |
|   | -          | 04:20:26,0 | eLPZNE   | -  | d, NS, EW |
|   | LQ         | 04:24:00   | LPZNE; Z | 40 | -         |
|   | LR         | 04:27:00   | LPZNE; Z | 27 | -         |

U.S.C.G.S.: Epicentre: 10,3 S; 66,4 E (Océan Indien)  
h = 33 km H = 03:59:51,0 Mag: 5,1 (C.G.S.)

$$\Delta = 51,7^\circ$$

|   |    |            |                       |    |   |
|---|----|------------|-----------------------|----|---|
| 7 | P  | 01:26:01,6 | iCPZ(0,22);<br>iz, iZ | 1  | d |
|   | -  | 01:26:25,0 | iCPZ; iz, iZ          | -  | c |
|   | LQ | 01:47:00   | LPN                   | 40 | - |
|   | LR | 01:49:00   | LPN                   | 26 | - |
|   | LQ | 01:51:00   | LPZE                  | 40 | - |
|   | LR | 01:54:00   | LPZE                  | 26 | - |

U.S.C.G.S.: Epicentre: 29,6 S; 71,1 W (Côte Central du Chili)  
h = 42 km H = 01:14:04,1 Mag: 5,3 (C.G.S.)

$$\Delta = 78,1^\circ$$

|   |     |            |          |    |   |
|---|-----|------------|----------|----|---|
| 8 | PKP | 17:18:45,5 | iCPZ; iz | -  | d |
|   | LR  | 18:09:00   | LPZNE    | 20 | - |

U.S.C.G.S.: Epicentre: 9,5 S; 148,8 E (Est de la Nouvelle Guinée)  
h = 17 km H = 16:59:34,4 Mag: 5,5 (C.G.S.)

$$\Delta = 129,4^\circ$$

|   |       |            |              |    |   |
|---|-------|------------|--------------|----|---|
| 8 | (PKP) | 18:27:26,0 | iCPZ; iz, iZ | -  | c |
|   | LR    | 19:15:00   | LPZNE        | 30 | - |

U.S.C.G.S.: Epicentre: 5,6 S; 154,0 E (Iles Solomon)  
h = 70 km H = 18:08:18,1 Mag: 5,1 (C.G.S.)

$$\Delta = 135,8^\circ$$

|   |     |            |          |    |   |
|---|-----|------------|----------|----|---|
| 9 | PKP | 13:47:16,0 | iCPZ; iz | -  | d |
|   | -   | 14:02:15,0 | eLPZ     | -  | - |
|   | LR  | 14:38:00   | LPZNE; Z | 25 | - |

U.S.C.G.S.: Epicentre: 5,7 S; 154,0 E (Iles Solomon)  
h = 41 km H = 13:27:56,7 Mag: 4,9 (C.G.S.)

$$\Delta = 135,8^\circ$$

|   |     |            |              |   |   |
|---|-----|------------|--------------|---|---|
| 9 | PKP | 14:29:24,0 | iCPZ; iz, iZ | - | c |
|   | -   | 14:32:09,0 | iCPZ; iz, iZ | - | d |

U.S.C.G.S.: Epicentre: 54,0 N; 155,1 E (Kamohatka)  
h = 393 km H = 14:10:57,5 Mag: 5,2 (C.G.S.)

$$\Delta = 190,8^\circ$$

|   |      |            |                         |    |           |
|---|------|------------|-------------------------|----|-----------|
| 9 | PKP  | 17:40:08,2 | iCPZ; iLPZNE;<br>iz, iZ | -  | c, SN, EW |
|   | -    | 17:42:31,2 | iLPZ; iZ                | -  | d         |
|   | pPKP | 17:42:39,5 | iCPZ; iz                | -  | c         |
|   | -    | 17:45:32,7 | iCPZ; iLPZNE;<br>iz, iZ | -  | c, SN, WE |
|   | -    | 17:51:03,8 | iCPZ; iLPZNE;<br>iz, iZ | -  | c, SN, WE |
|   | -    | 17:55:01,7 | iCPZ; iLPZNE;<br>iz, iZ | -  | d, SN, WE |
|   | (SS) | 18:01:22,9 | iLPZNE; iZ              | -  | e, SN, WE |
|   | LR   | 18:30:00   | LPZNE; Z                | 30 | -         |
|   | F    | 20:37:00   | LPZ                     | -  | -         |

U.S.C.G.S.: Epicentre: 21,1 S; 179,3 W (Iles Fidji)  
h = 654 km H = 17:21:49,5 Mag: 7 - 7 $\frac{1}{4}$  MB (PAS), 6,9 - 7,1 (BRK)

$$\Delta = 142,9^\circ$$

| Date   | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--|--------|--------------|--|--------------|-------------------|
| 1967 Oct. 9  | -      | 18:24:29,5   | iCPZ; iz   | -            | d                 |
|  | -      | 18:24:32,0   | iCPZ; iz   | -            | d                 |
| 9  | PKP    | 18:51:30,5   | iCPZ; iz   | -            | c                 |
| U.S.C.G.S.: Epicentre: 21,3 S; 179,3 W (Iles Fidji)<br>h = 619 km H = 18:33:08,2 Mag: 5,1 (C.G.S.)<br>$\Delta = 142,9^\circ$                   |        |              |  |              |                   |
| 11   | P*     | 15:14:12,7   | iCPZ; iz   | -            | c                 |
|  | S*     | 15:14:30,8   | iCPZ; iz   | -            | c                 |
| $\Delta = 1,4^\circ$   |        |              |  |              |                   |
| 11   | P      | 20:39:33,0   | iCPZ; iz, IZ   | -            | d                 |
| U.S.C.G.S.: Epicentre: 10,3 S; 71,2 W (Pérou-Brésil)<br>h = 585 km H = 20:28:10,2 Mag: 5,0 (C.G.S.)<br>$\Delta = 82,3^\circ$                   |        |              |  |              |                   |
| 12   | PKP    | 06:53:27,0   | iCPZ; iz, IZ   | -            | c                 |
|  | -      | 06:56:08,3   | iCPZ; iz, IZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 21,1 S; 179,2 W (Iles Fidji)<br>h = 636 km H = 06:35:06,7 Mag: 5,6 (C.G.S.)<br>$\Delta = 142,9^\circ$                   |        |              |  |              |                   |
| 12   | PKP    | 13:12:03,8   | iCPZ; iz   | -            | c                 |
|  | -      | 13:14:15,0   | iCPZ; iz   | -            | d                 |
|  | (PP)   | 13:14:42,0   | iCPZ; iz, IZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 52,2 N; 152,5 E (Nord-Ouest des Iles Kouriles)<br>h = 476 km H = 12:53:46,9 Mag: 5,5 (C.G.S.)<br>$\Delta = 130,6^\circ$ |        |              |  |              |                   |
| 12   | PKP    | 18:50:13,0   | iCPZ; iz, IZ   | -            | d                 |
|  | LR     | 19:30:00     | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 7,1 S; 129,8 E (Mer de Banda)<br>h = 45 km H = 18:31:37,1 Mag: 6,2 (C.G.S.)<br>$\Delta = 113,2^\circ$                   |        |              |  |              |                   |
| 14   | Pn     | 01:40:18,0   | iCPZ; Ioz  | -            | -                 |
|  | Sn     | 01:40:41,0   | iCPZ; iz   | -            | c                 |
| $\Delta = 1,8^\circ$   |        |              |  |              |                   |
| 14   | P      | 03:43:13,6   | iCPZ; iz, IZ   | -            | c                 |
|  | LR     | 04:09:00     | LPZE   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 17,3 N; 60,8 W (Iles Leeward)<br>h = 29 km H = 03:31:04,5 Mag: 5,3 (C.G.S.)<br>$\Delta = 80,0^\circ$                    |        |              |  |              |                   |
| 14   | p*     | 11:55:43,4   | iCPZ; Iez  | -            | -                 |
|  | S*     | 11:55:59,5   | iCPZ; iz   | -            | c                 |
| $\Delta = 1,2^\circ$   |        |              |  |              |                   |
| 14   | pP     | 23:35:19,2   | iCPZ; iz, IZ   | -            | d                 |
|  | -      | 23:41:18,9   | iCPZ; iz, IZ   | -            | c                 |
|  | -      | 23:43:18,5   | iCPZ; iLPZNE;<br>iz, IZ                                  | -            | c, SN, WE         |
|  | -      | 23:45:23,6   | iLPZNE; iz   | -            | d, NS, EW         |
| U.S.C.G.S.: Epicentre: 3,3 S; 38,2 E (Kenya)<br>h = 33 km H = 23:29:30,0 Mag: 5,2 (C.G.S.)<br>$\Delta = 27,0^\circ$                            |        |              |  |              |                   |
| 15   | P      | 08:14:28,4   | iCPZ; iLPZ;<br>iz, IZ                                    | -            | c                 |
|  | PP     | 08:18:41,2   | iLPZNE   | -            | c, SN, WE         |
|  | (S)    | 08:25:05,0   | eLPZNE; eZ   | -            | c, SN, WE         |
|  | (SSP)  | 08:33:48,0   | eLPZNE; eZ   | -            | c, SN, WE         |
|  | LR     | 08:55:00     | LPZNE  | 24           | -                 |
| U.S.C.G.S.: Epicentre: 11,9 N; 86,0 W (Côte de Nicaragua)<br>h = 162 km H = 08:00:50,3 Mag: 6,2 (C.G.D.)<br>$\Delta = 102,1^\circ$             |        |              |  |              |                   |



| Date   | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--|--------|--------------|--|--------------|-------------------|
| 1967 Oct. 15   | -      | 08:30:35,8   | iOPZ; iz, IZ   | -            | d                 |
|  | -      | 08:30:58,0   | iOPZ; iz, IZ   | -            | c                 |
| 16   | LR     | 14:33:00     | LPZNE  | 30           | -                 |
| 16   | Pg     | 16:41:19,0   | iOPZ; iz, IZ   | -            | c                 |
|  | Sg     | 16:41:29,5   | iOPZ; iz, IZ   | -            | d                 |
| $\Delta = 0,8^\circ$   |        |              |  |              |                   |
| 16   | LR     | 20:41:00     | LPZNE; Z   | 30           | -                 |
| 17   | -      | 05:16:40,2   | iOPZ; iz, IZ   | -            | d                 |
| 17   | -      | 14:12:18,8   | iOPZ; iz, IZ   | -            | c                 |
| 17   | LR     | 22:00:00     | LPZE   | 30           | -                 |
| 18   | -      | 01:35:46,0   | eLPZE  | -            | c, WE             |
|  | -      | 01:36:19,0   | eLPE   | -            | WE                |
|  | PS     | 01:37:42,0   | eLPZN  | -            | d, SN             |
|  | SSP    | 01:42:54,4   | eLPZNE   | -            | d, SN, WE         |
|  | LR     | 01:50:00     | LPE  | 20           | -                 |
|  | LQ     | 01:57:00     | LPZN   | -            | -                 |
|  | LR1    | 02:00:00     | LPZNE; Z   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 79,8 N; 2,4 E (Mer de Groënland)<br>h = 33 km H = 01:11:45 Mag: 5,7 (C.G.S.)          |        |              |  |              |                   |
| $\Delta = 94,9^\circ$  |        |              |  |              |                   |
| 18   | PKP    | 22:25:32,4   | iOPZ; iz, IZ   | -            | d                 |
|  | (SKP)  | 22:28:52,0   | iOPZ; iz, IZ   | -            | c                 |
|  | LR     | 23:13:00     | LPZN   | 25           | -                 |
| U.S.C.G.S.: Epicentre: 33,9 S; 179,6 W (Sud des Iles Kermadec)<br>h = 26 km H = 22:06:29,5 Mag: 5,4 (C.G.S.) |        |              |  |              |                   |
| $\Delta = 129,6^\circ$   |        |              |  |              |                   |
| 18   | PKP    | 23:54:27,0   | iOPZ; iz, IZ   | -            | c                 |
|  | -      | 23:58:16,2   | iOPZ; iz   | -            | c                 |
|  | LR     | 00:47:00     | LPZNE  | 25           | -                 |
| U.S.C.G.S.: Epicentre: 13,9 S; 166,5 E (Nouvelles Hébrides)<br>h = 57 km H = 23:35:11,0 Mag: 5,0 (C.G.S.)    |        |              |  |              |                   |
| $\Delta = 140,8^\circ$   |        |              |  |              |                   |
| 19   | P      | 10:45:26,5   | iOPZ; iz, IZ   | -            | c                 |
|  | pP     | 10:45:33,6   | iOPZ; iz, IZ   | -            | c                 |
|  | Lg     | 10:52:39,0   | iOPZ; iLPZNE;<br>iz, IZ                                  | -            | c, SN, WE         |
|  | LR     | 10:54:00     | LPZNE  | 16           | -                 |
| U.S.C.G.S.: Epicentre: 5,1 S; 35,1 E (Tanganyika)<br>h = 33 km H = 10:40:15 Mag: 4,8 (C.G.S.)                |        |              |  |              |                   |
| $\Delta = 29,4^\circ$  |        |              |  |              |                   |
| 19   | P      | 15:06:33,0   | iOPZ; iz, IZ   | -            | d                 |
|  | LR     | 15:22:00     | LPZN   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 58,6 S; 24,8 W (Sud des Iles Sandwich)<br>h = 33 km H = 14:57:24 Mag: 5,3 (C.G.S.)    |        |              |  |              |                   |
| $\Delta = 52,1^\circ$  |        |              |  |              |                   |
| 19   | P      | 15:48:20,0   | iOPZ; iz, IZ   | -            | c                 |
|  | LR     | 16:06:00     | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 58,7 S; 25,0 W (Sud des Iles Sandwich)<br>h = 33 km H = 15:39:10,3 Mag: 5,1 (C.G.S.)  |        |              |  |              |                   |
| $\Delta = 52,2^\circ$  |        |              |  |              |                   |
| 20   | P      | 01:11:56,0   | iOPZ; iLPZN;<br>iz, IZ                                   | -            | c, SN             |
|  | LR     | 01:27:00     | LPZNE; Z   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 58,6 S; 25,0 W (Sud des Iles Sandwich)<br>h = 12 km H = 01:02:43,8 Mag: 5,6 (C.G.S.)  |        |              |  |              |                   |
| $\Delta = 52,1^\circ$  |        |              |  |              |                   |
| 20   | LR     | 07:20:00     | LPZNE  | 20           | -                 |
| 20   | -      | 16:15:04,5   | iOPZ; iz, IZ   | -            | c                 |

| Date  | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|--------|--------------|--|--------------|-------------------|
| 1967 Oct. 21  | P      | 02:47:19,0   | iCPZ; iz, iZ   | -            | c                 |
|   | pP     | 02:47:20,5   | iCPZ; eLPZ; iz, iZ                                       | -            | d                 |
|   | PcP    | 02:47:25,5   | iCPZ; iz, iZ   | -            | c                 |
|   | LQ     | 03:08:00     | LPN  | -            | -                 |
|   | LR     | 03:10:00     | LPN  | 30           | -                 |
|   | LQ1    | 03:12:00     | LPZE   | -            | -                 |
|   | LR1    | 03:17:00     | LPZNE; Z   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 27,7 S; 71,8 W (Côte du Chili)<br>h = 13 km H = 02:55:12,3 Mag: 5,4 (C.G.S.)<br>$\Delta = 79,0^\circ$            |        |              |  |              |                   |
| 21  | -      | 05:13:09,5   | eCPZ; iz, iZ   | -            | c                 |
| 22  | P      | 01:03:24,0   | iCPZ; iz, iZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 22,3 S; 65,7 W (Province de Jujuy)<br>h = 259 km H = 00:52:10,9 Mag: 5,2 (C.G.S.)<br>$\Delta = 74,6^\circ$       |        |              |  |              |                   |
| 23  | PKP    | 08:45:21,0   | iCPZ; iz, iZ   | -            | d                 |
| U.S.C.G.S.: Epicentre: 28,9 N; 139,1 E (Région des îles Bonin)<br>h = 463 km H = 08:27:06,2 Mag: 5,3 (C.G.S.)<br>$\Delta = 128,1^\circ$ |        |              |  |              |                   |
| 24  | PKP    | 03:32:11,4   | iCPZ; iz, iZ   | -            | c                 |
| U.S.C.G.S.: Epicentre: 31,3 S; 179,7 W (Îles Kermadec)<br>h = 250 km H = 03:13:26,5 Mag: 5,4 (C.G.S.)<br>$\Delta = 132,1^\circ$         |        |              |  |              |                   |
| 25  | -      | 01:14:21,0   | eLPZ   | -            | c                 |
|   | PKP    | 01:17:55,8   | iCPZ; iz, iZ   | -            | c                 |
|   | PP     | 01:18:51,0   | eLPZNE; eZ   | -            | c, SN, WE         |
|   | PS     | 01:28:20,0   | eLPZNE; eZ   | -            | d, NS, EW         |
|   | -      | 01:45:49,2   | eLPZNE; eZ   | -            | d, NS, EW         |
|   | LQ     | 01:57:00     | LPZNE; Z   | 40           | -                 |
|   | LR     | 01:59:00     | LPZNE; Z   | 24           | -                 |
| U.S.C.G.S.: Epicentre: 24,5 N; 122,2 E (Taiwan)<br>h = 65 km H = 00:59:22,6 Mag: 6,0 (C.G.S.)<br>$\Delta = 112,9^\circ$                 |        |              |  |              |                   |
| 26  | LR     | 01:13:00     | LPZ  | 30           | -                 |
|   | LR1    | 01:21:00     | LPZNE  | 24           | -                 |
| 26  | LR     | 05:58:00     | LPZNE  | 16           | -                 |
|   | -      | 12:45:54,0   | iCPZE; iz  | -            | d, WE             |
| 26  | -      | 12:48:20,5   | iCPN   | -            | d                 |
|   | -      | 12:50:04,0   | iCPZNE; iz, iZ   | -            | d, SN, EW         |
|   | LR     | 12:59:00     | LPZE   | 20           | -                 |
|   | -      |              |  |              |                   |
| 26  | LQ     | 18:15:00     | LPZNE  | 40           | -                 |
|   | LR     | 18:20:00     | LPZNE  | 25           | -                 |
| 28  | LQ     | 00:26:00     | LPZNE  | 40           | -                 |
|   | LR     | 00:31:00     | LPZNE  | 17           | -                 |
| 28  | -      | 18:53:26,4   | iCPZ   | -            | d                 |
|   | -      | 18:53:33,0   | iCPZ   | -            | c                 |
|   | LR     | 19:14:00     | LPZNE  | 30           | -                 |
| 29  | P      | 12:46:37,7   | iCPZNE   | -            | d, NS, EW         |
|   | pP     | 12:46:49,2   | iCPZN; eLPZN   | -            | c, SN             |
|   | PS     | 12:54:18,0   | eLPZNE   | -            | c, SN             |
|   | LQ     | 13:00:00     | LPZNE  | 30           | -                 |
|   | LR     | 13:04:00     | LPZNE  | 18           | -                 |
| U.S.C.G.S.: Epicentre: 60,8 S; 23,1 W (Sud des Îles Sandwich)<br>h = 33 km H = 12:37:22,2 Mag: 5,3 (C.G.S.)<br>$\Delta = 52,9^\circ$    |        |              |  |              |                   |
| 30  | -      | 06:16:40,5   | iCPZNE   | -            | d, NS, EW         |
| 30  | -      | 20:08:05,7   | iCPZNE   | -            | d, SN, WE         |
| 31  | -      | 14:01:23,2   | iCPZNE   | -            | c, SN, WE         |
| 31  | P      | 21:17:20,8   | iCPZNE   | -            | d, NS, EW         |
|   | LQ     | 21:35:00     | LPZNE  | 40           | -                 |
|   | LR     | 21:38:00     | LPZNE  | 26           | -                 |
| U.S.C.G.S.: Epicentre: 37,8 N; 14,6 E (Sicile)<br>h = 33 km H = 21:08:07,2 Mag: 4,8 (C.G.S.)<br>$\Delta = 52,7^\circ$                   |        |              |  |              |                   |

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 G Luanda

ANNÉE 3 - No 11

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

NOVEMBRE 1967

Station seismographique de São da Bandeira

Coordonnées de la station:

Latitude géographique:  $\varphi = 14^{\circ} 54' 08''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\Phi = 14 48 23$  S Altitude:  $h = 1761$  m

Nature du sous-sol:

Granite

Constantes des sismographes

| Sismographes                | $T_0$<br>(s) | $T_g$<br>(s) | Amplification |             |             |              |
|-----------------------------|--------------|--------------|---------------|-------------|-------------|--------------|
|                             |              |              | $T_s=0,2$ s   | $T_s=0,6$ s | $T_s=1,0$ s | $T_s=15,0$ s |
| Benioff vertical (z)        | 1,0          | 0,2          | 76750         | 33000       | 15300       |              |
| Benioff vertical (Z)        | 1,0          | 21,3         | 400           | 1100        | 1650        | 120          |
| Benioff vertical (CPZ)      | 1,0          | 0,75         | 38000         | 150000      | 100000      | -            |
| Benioff N/S (CPN)           | 1,0          | 0,85         | 38000         | 150000      | 100000      | -            |
| Benioff EW (CPE)            | 1,0          | 0,82         | 38000         | 150000      | 100000      | -            |
| Sprengnether vertical (LPZ) | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether NS (LPN)       | 15,0         | 100,0        | -             | -           | -           | 1500         |
| Sprengnether EW (LPE)       | 15,0         | 100,0        | -             | -           | -           | 1500         |

| Date   | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |           |
|--|--------|--------------|--|--------------|-------------------|-----------|
| 1967 Nov. 1  | LR     | 15:47,0      | LPZN   | 45           |                   |           |
|  | 1      | PKP          | 17:38:44,6   | 1CPZNE       | -                 | c, SN, WE |
|  |        | -            | 17:38:48,6   | 1CPZN        | -                 | d, SN     |
|  |        | -            | 17:38:55,6   | 1CPZE        | -                 | d, EW     |
|  |        | -            | 17:41:25,5   | 1CPZ         | -                 | d         |
| U.S.C.G.S.: Epicentre: 23,0 S - 176,8 W (Sud des îles Fidji)<br>h = 140 R H = 14:59:58,9 Mag: 5,3 (C.G.S.)<br>$\Delta = 140,8^{\circ}$             |        |              |  |              |                   |           |
|  | 2      | P            | 09:44:10,6   | 1CPZE        | -                 | d, EW     |
|  |        | -            | 09:44:40,4   | 1CPZE        | -                 | d, EW     |
| U.S.C.G.S.: Epicentre: 28,8 S - 69,5 W (Chili-Argentine)<br>h = 79 km H = 03:22:24,7 Mag: 5,3 (C.G.S.); 4,8 - 5,2 (BRK)<br>$\Delta = 76,9^{\circ}$ |        |              |  |              |                   |           |
|  | 4      | -            | 12:36:31,6   | 1CPNE        | -                 | c, WE     |
|  |        | -            | 12:36:39,0   | 1CPNE        | -                 | c, WE     |
|  | 4      | LR           | 14:32:00   | LPZN         | 40                | -         |
|  |        | LR           | 14:43:00   | LPZNE        | 25                | -         |
| U.S.C.G.S.: Epicentre: 37,4 N - 141,6 E (Côte Est de Honshu, Japon)<br>h = 46 km H = 13:26:47,7 Mag: 5,7 (C.G.S.) $\Delta = 129,1^{\circ}$         |        |              |  |              |                   |           |

| Date  | Phases                              | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes (μ)           | Périodes (s)                      | Sens du mouvement                                       |
|---|-------------------------------------|--|--|-----------------------------------|---|
| 1967 Nov. 4   | PKP<br>LR<br>LR                     | 14:49:46,0<br>15:34:00<br>15:48:00   | iGPZ<br>LPZNE<br>LPZNE                                       | -<br>50<br>23                     | c<br>-<br>-   |
| U.S.C.G.S.: Epicentre: 43,5 N - 144,1 E (Hokkaido, Japon)<br>h = 30 R H = 14:30:37,5 Mag: 5,8 (C.G.S.); 6 (GOL)<br>$\Delta = 129,9^\circ$       |                                     |  |  |                                   |   |
| 4   | P<br>pP<br>PP<br>-<br>-<br>LR<br>LR | 16:39:41,5<br>16:40:07,2<br>16:43:14,5<br>16:50:08,5<br>16:50:30,4<br>17:04,0<br>17:13,0 | iGPZE<br>iGPZN<br>iGPZN<br>iCPNE<br>iCPZNE<br>LPZNE<br>LPZE  | -<br>-<br>-<br>-<br>-<br>44<br>20 | d, WE<br>c, WE<br>d, NS<br>c, WE<br>d, WE<br>-<br>-     |
| U.S.C.G.S.: Epicentre: 2,8 S - 77,7 W (Pérou - Equateur)<br>h = 99 R H = 16:26:48,2 Mag: 6,0 (C.G.S.); 5,5 - 5,9 (BRK)<br>$\Delta = 90,4^\circ$ |                                     |  |  |                                   |   |
| 5   | -<br>-<br>-                         | 06:20:37,8<br>06:21:52,2<br>06:22:27,2   | iCPNE<br>iCPZNE<br>iCPZNE                                    | -<br>-<br>-                       | SN, EW<br>c, SN, WE<br>c, SN, WE                        |
| 5   | LR                                  | 14:15,0  | LPZNE  | 22                                | -   |
| U.S.C.G.S.: Epicentre: 46,9 S - 34,6 E (Iles Prince Edward)<br>h = 33 R H = 13:56:20 Mag: 4,4 (C.G.S.)<br>$\Delta = 36,5^\circ$                 |                                     |  |  |                                   |   |
| 6   | PKP                                 | 21:51:35,2   | iCPZNE   | -                                 | d, SN, EW   |
| U.S.C.G.S.: Epicentre: 17,7 S - 178,7 W (Iles Fidji)<br>h = 549 km H = 21:32:56,5 Mag: 4,5 (C.G.S.)<br>$\Delta = 145,3^\circ$                   |                                     |  |  |                                   |   |
| 10  | LR                                  | 03:27,0  | LPZNE  | 19                                | -   |
| U.S.C.G.S.: Epicentre: 36,0 N - 53,8 E (Iran)<br>h = 33 R H = 02:50:56 Mag: 5,0 (C.G.S.)<br>$\Delta = 63,6^\circ$                               |                                     |  |  |                                   |   |
| 10  | LR                                  | 05:16,0  | LPZNE  | 20                                | -   |
| U.S.C.G.S.: Epicentre: 45,1 N - 28,1 W (Atlantique Nord)<br>h = 33 R H = 04:40:15,0 Mag: 4,8 (C.G.S.)<br>$\Delta = 70,8^\circ$                  |                                     |  |  |                                   |   |
| 10  | PKP                                 | 13:29:52,2   | iCPZNE   | -                                 | c, SN, WE   |
| U.S.C.G.S.: Epicentre: 18,0 S - 178,5 W (Iles Fidji)<br>h = 592 km H = 13:11:18,1 Mag: 5,0 (C.G.S.)<br>$\Delta = 145,0^\circ$                   |                                     |  |  |                                   |   |
| 10  | P<br>LR<br>LR <sub>1</sub>          | 18:48:25,0<br>19:05,0<br>19:08,0   | iCPZNE<br>LPZNE<br>LPZNE                                     | -<br>40<br>30                     | c, SN, WE<br>-<br>-                                     |
| U.S.C.G.S.: Epicentre: 6,0 S - 71,4 E (Iles Chagos)<br>h = 32 km H = 18:38:37,6 Mag: 5,4 (C.G.S.)<br>$\Delta = 57,5^\circ$                      |                                     |  |  |                                   |   |
| 11  | P<br>-<br>-<br>-<br>Lg<br>LR        | 02:34:04,0<br>02:39:19,0<br>02:39:28,2<br>02:41:15,0<br>02:41:42,0<br>02:43,0            | iCPZNE<br>iCPNE<br>iCPZ<br>eLPZNE<br>iCPZNE; eLPZNE<br>LPZNE | -<br>-<br>-<br>-<br>-<br>16       | c, NS, EW<br>SN, WE<br>d<br>d, NS, EW<br>d, NS, EW<br>- |
| U.S.C.G.S.: Epicentre: 2,0 N - 31,5 E (Ouganda)<br>h = 33 km H = 02:28:45,6 Mag: 5,1 (C.G.S.)<br>$\Delta = 24,6^\circ$                          |                                     |  |  |                                   |   |
| 11  | P<br>LR<br>LR <sub>1</sub>          | 12:05:43,0<br>12:25,0<br>12:27,0   | iCPZNE; eLPZE<br>LRZN<br>LPZNE                               | -<br>30<br>20                     | d, NS, WE<br>-<br>-                                     |
| U.S.C.G.S.: Epicentre: 6,0 S - 71,4 E (Iles Chagos)<br>h = 37 km H = 11:55:55,6 Mag: 5,6 (C.G.S.)<br>$\Delta = 57,5^\circ$                      |                                     |  |  |                                   |   |

| Date  | Phases   | Heure T.M.G.  | Compsantes, nature du mouvement et amplitudes ( $\mu$ )                           | Périodes (s)                              | Sens du mouvement  |
|---|--|---|---|---|--|
| 1967 Nov. 11  | P<br>pP<br>LR<br>LR <sub>1</sub>                         | 12:24:45,2<br>12:24:55,6<br>12:42,0<br>12:45,0  | iCPZNE;eLPZE<br>iCPNE<br>LPZNE<br>LPZNE   | -<br>-<br>30<br>22                        | d, NS, EW<br>SN, WE<br>-<br>-  |
| U.S.C.G.S.: Epicentre: 6,0 S - 71,3 E (Iles Chagos)<br>h = 34 km H = 12:14:57,3 Mag: 5,7 (C.G.S.)<br>$\Delta = 57,5^\circ$                  |  |   |   |   |  |
| 11  | P<br>LR<br>LR <sub>1</sub>                               | 18:09:49,0<br>18:29,0<br>18:31,0  | eOPZE;iLPZE<br>LPZNE<br>LPZNE   | -<br>30<br>20                             | c, EW<br>-<br>-  |
| U.S.C.G.S.: Epicentre: 6,1 S - 71,4 E (Iles Chagos)<br>h = 33 km H = 18:00:00,7 Mag: 5,7 (C.G.S.)<br>$\Delta = 57,5^\circ$                  |  |   |   |   |  |
| 11  | -<br>-   | 23:30:48,0<br>23:31:43,5  | iCPZNE<br>iCPZNE  | -<br>-                                    | c, SN, WE<br>d, NS, EW   |
| 12  | PKIKP<br>PKP<br>pPKP<br>PP<br>LR<br>LR                   | 10:56:34,0<br>10:56:35,5<br>10:56:46,0<br>11:00:03,0<br>11:46,0<br>11:49,0                          | ieOPZN<br>iCPZNE;iLPZN<br>iCPZ<br>iCPZN;eLPZN<br>LPZNE<br>LPZNE                   | -<br>-<br>-<br>-<br>50<br>30              | -<br>d, NS, WE<br>c<br>c, NS<br>-<br>-                               |
| U.S.C.G.S.: Epicentre: 17,2 S - 172,0 W (Iles Tonga)<br>h = 34 km H = 10:36:52,0 Mag: 5,6 (C.G.S.)<br>$\Delta = 147,4^\circ$                |  |   |   |   |  |
| 12  | LR   | 18:29,0   | LPZN  | 30  | -  |
| 13  | -<br>-<br>-  | 20:39:35,0<br>20:39:47,5<br>20:41:53,2  | iCPZN<br>iCPE<br>iCPZNE   | -<br>-<br>-                               | d, NS<br>WE<br>d, SN, WE   |
| 14  | PKP<br>-<br>-<br>LR                                      | 05:47:17,8<br>05:47:26,4<br>05:50:29,8<br>06:40,0   | iCPZ<br>iCPZ<br>iCPZ;eGPZ<br>LPZNE  | -<br>-<br>-<br>20                         | c<br>c<br>c<br>-   |
| U.S.C.G.S.: Epicentre: 5,4 S - 147,1 E (Est de la Nouvelle Guinée)<br>h = 201 km H = 05:28:36,9 Mag: 5,8 (C.G.S.)<br>$\Delta = 129,1^\circ$ |  |   |   |   |  |
| 14  | -  | 23:01:00  | ieOPZNE   | -   | -  |
| 15  | LR   | 19:27,0   | LPZNE   | 20  | -  |
| 15  | P<br>pP<br>PcP<br>-<br>PPS<br>LR<br>LR <sub>1</sub><br>F | 21:43:54,0<br>21:43:57,5<br>21:44:02,5<br>21:53:46,0<br>21:54:47<br>22:09:00<br>22:11:00<br>00:01,0 | iCPZ(1,3)NE<br>iCPZNE<br>iCPZNE;eLPZNE<br>eLPZNE<br>eLPZ<br>LPZNE<br>LPZNE<br>LPZ | 0,16<br>-<br>-<br>-<br>-<br>34<br>24<br>- | c, SN, WE<br>c, NS, EW<br>c, NS, WE<br>d, SN, WE<br>d<br>-<br>-<br>- |
| U.S.C.G.S.: Epicentres: 28,7 S - 71,2 W (Côte Central du Chili)<br>h = 15 km H = 21:31:51,5 Mag: 6,2 (C.G.S.)<br>$\Delta = 78,3^\circ$      |  |   |   |   |  |
| 15  | -  | 21:23:47,0  | eOPZNE  | -   | d, SN, WE  |
| 17  | -<br>-<br>-  | 03:03:52,2<br>03:04:34,0<br>03:06:32,0  | iCPZNE<br>eLPZNE<br>eLPZN   | -<br>-<br>-                               | c, NS, WE<br>c, NS, EW<br>d, SN                                      |
| 17  | pP<br>-<br>-<br>LR<br>LR <sub>1</sub>                    | 05:10:19<br>05:19:26<br>05:23:28<br>05:30,0<br>05:32,0  | eCPZ<br>eLPZNE<br>eLPZ<br>LPZNE<br>LPZNE  | -<br>-<br>-<br>40<br>24                   | c<br>d, SN, EW<br>c<br>-<br>-  |
| U.S.C.G.S.: Epicentre: 28,5 N - 43,8 W (Atlantique Nord)<br>h = 33 km H = 04:58:56,8 Mag: 5,2 (C.G.S.)<br>$\Delta = 70,3^\circ$             |  |   |   |   |  |
| 17  | P<br>pP  | 08:00:45,2<br>08:01:12,9  | iCPZNE<br>iCPZ  | -<br>-                                    | d, NS, EW<br>d   |
| U.S.C.G.S.: Epicentre: 24,5 S - 68,5 W (Chili-Argentine)<br>h = 119 km H = 07:49:03,1 Mag: 4,6 (C.G.S.) $\Delta = 76,7^\circ$               |  |   |   |   |  |

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| Date  | Phases          | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $M_w$ ) | Périodes (s) | Sens du mouvement |
|---|-----------------|--------------|--|--------------|-------------------|
| 1967 Nov. 17  | -               | 09:36:54,0   | ICPZ   | -            | d                 |
|   | -               | 09:39:07,5   | ICPZ   | -            | c                 |
|   | LR              | 10:29,0      | LPZNE  | 30           | -                 |
| 17  | P               | 18:42:56,0   | ICPZNE   | -            | c, NS, WE         |
| U.S.C.G.S.: Epicentre: 21,6 S - 68,2 W (Chili - Bolivie)<br>h = 129 km H = 18:31:14,1 Mag: 4,7 (C.G.S.)<br>$\Delta = 77,0^\circ$            |                 |              |  |              |                   |
| 18  | -               | 03:00:00     | eLPZNE   | -            | -                 |
| 19  | PKP             | 12:26:04,5   | ICPZNE   | -            | c, SN, WE         |
|   | LR              | 13:14,0      | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 36,4 N - 141,1 E (Côte Est de Honshu, Japon)<br>h = 41 km H = 12:06:59,5 Mag: 5,5 (C.G.S.)<br>$\Delta = 128,9^\circ$ |                 |              |  |              |                   |
| 19  | PKP             | 17:48:39,0   | ICPZNE; eLPZ   | -            | -                 |
|   | PKS             | 17:52:11     | eLPZNE   | -            | d, NS, WE         |
|   | PPS             | 18:03:29     | eLPZNE   | -            | d, SN, EW         |
|   | SSS             | 18:13:00     | eLPZNE   | -            | -                 |
|   | LR              | 18:33,0      | LPZNE  | 40           | -                 |
|   | LR <sub>1</sub> | 18:36,0      | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 22,6 S - 170,9 E (Iles Loyauté)<br>h = 33 km H = 17:29:20,9 Mag: 5,2 (C.G.S.)<br>$\Delta = 136,5^\circ$              |                 |              |  |              |                   |
| 20  | LR              | 03:24,0      | LPZN   | 24           | -                 |
| 21  | P               | 09:00:03,5   | ICPZNE   | -            | c, NS, WE         |
|   | LR              | 09:07,0      | LPZNE  | 24           | -                 |
| U.S.C.G.S.: Epicentre: 0,1 N - 17,1 W (Nord de l'île de l'Ascension)<br>h = 33 km H = 08:53:22,4 Mag: 4,8 (C.G.S.)<br>$\Delta = 33,7^\circ$ |                 |              |  |              |                   |
| 21  | P               | 17:15:11,0   | ICPZNE   | -            | d, NS, EW         |
|   | LR              | 17:44,0      | LPZNE  | 40           | -                 |
|   | LR              | 17:48,0      | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 72,7 N - 8,5 E (Mer de la Norvège)<br>h = 33 R H = 17:02:25,0 Mag: 5,5 (C.G.S.)<br>$\Delta = 87,7^\circ$             |                 |              |  |              |                   |
| 22  | P               | 10:42:33,0   | ICPZN  | -            | d, NS             |
|   | LR              | 10:58,0      | LPZN   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 59,6 S - 26,4 W (Région des îles Sandwich)<br>h = 33 R H = 10:33:14,7 Mag: 5,2 (C.G.S.)<br>$\Delta = 53,3^\circ$     |                 |              |  |              |                   |
| 22  | PKP             | 15:38:48     | eLPZ   | -            | c                 |
|   | SKP             | 15:42:15     | eLPZNE   | -            | c, SN, WE         |
|   | SPP             | 15:53:35     | eLPZNE   | -            | d, NS, WE         |
|   | LR              | 16:23,0      | LPZNE  | 40           | -                 |
|   | LR <sub>1</sub> | 16:26,0      | LPZNE  | 30           | -                 |
| U.S.C.G.S.: Epicentre: 22,7 S - 170,9 E (Région des îles Loyauté)<br>h = 42 km H = 15:19:26,8 Mag: 5,2 (C.G.S.)<br>$\Delta = 136,4^\circ$   |                 |              |  |              |                   |
| 23  | P               | 08:44:32,7   | ICPZNE; eLPZNE   | -            | c, SN, WE         |
|   | PP              | 08:46:20,0   | ICPZNE; eLPNE  | -            | d, SN, WE         |
|   | PPP             | 08:47:19,0   | ICPN; eLPNE  | -            | SN                |
|   | S               | 08:51:29     | eCPN; eLPN   | -            | -                 |
|   | PS              | 08:51:39     | eCPE; eLPZE  | -            | -                 |
|   | -               | 08:55:20     | eLPNE  | -            | -                 |
|   | (SSS)           | 08:55:40     | eLPZ   | -            | -                 |
|   | LR              | 08:57,0      | LPNE   | 54           | -                 |
|   | LR <sub>1</sub> | 08:59:32     | LPZ  | 40           | -                 |
|   | M               | 09:04,0      | LPZN   | 14           | -                 |
|   | M <sub>1</sub>  | 09:05,7      | LPZNE  | 12           | -                 |
|   | M <sub>2</sub>  | 09:08,5      | LPZE   | 15           | -                 |
|   | M <sub>3</sub>  | 09:09,4      | LPZE   | 7            | -                 |
| F   | 12,5            | LPZ          | -  | -            |                   |
| U.S.C.G.S.: Epicentre: 14,5 N - 52,1 E (Est du golfe d'Aden)<br>h = 3 km H = 08:35:49,5 Mag: -----<br>$\Delta = 48,2^\circ$                 |                 |              |  |              |                   |

| Date  | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |  |
|---|--|--------------|--|--------------|-------------------|--|
| 1967 Nov. 23  | P  | 13:55:26,8   | iCPZ   | -            | c                 |  |
|   | SKS  | 14:06:04     | eLPN   | -            | -                 |  |
|   | PS   | 14:08:04     | eLPZN  | -            | -                 |  |
|   | SS   | 14:13:06     | eLPZNE   | -            | -                 |  |
|   | LQ   | 14:20:38     | LPE  | 50           | -                 |  |
|   | LR   | 14:28,0      | LPZNE  | 45           | -                 |  |
|   | F  | 16:00        | LPZ  | -            | -                 |  |
| U.S.C.G.S.: Epicentre: 80,2 N - 1,0 W (Nord d'Ivalbard)<br>h = 10 km H = 13:42:01,6 Mag: 5,8 (C.G.S.)<br>$\Delta = 95,4^\circ$                  |  |              |  |              |                   |  |
| 24  | PKP  | 06:01:09,8   | iCPZNE   | -            | c, SN, WE         |  |
| U.S.C.G.S.: Epicentre: 16,4 S - 177,9 W (Région des îles Fidji)<br>h = 428 R H = 05:42:14,0 Mag: 5,4 (C.G.S.)<br>$\Delta = 146,8^\circ$         |  |              |  |              |                   |  |
| 25  | -  | 12:14:33,5   | iCPZN  | -            | c                 |  |
| 25  | P  | 22:01:06,5   | iCPZNE   | -            | d, NS, EW         |  |
|   | -  | 22:18:06     | eLPZ   | -            | -                 |  |
|   | -  | 22:25:06     | eLPN   | -            | -                 |  |
| U.S.C.G.S.: Epicentre: 55,3 S - 29,1 W (Sud des îles Sandwich)<br>h = 33 km H = 21:51:58 Mag: 5,4 (C.G.S.)<br>$\Delta = 51,9^\circ$             |  |              |  |              |                   |  |
| 26  | PKP  | 00:27:00,8   | iCPZ   | -            | c                 |  |
|   | LR   | 01:02,7      | LPN  | 40           | -                 |  |
|   | LR <sub>1</sub>  | 01:09,5      | LPZNE  | 30           | -                 |  |
|   | LR <sub>2</sub>  | 01:13,5      | LPZNE  | 20           | -                 |  |
|   | U.S.C.G.S.: Epicentre: 28,6 N - 130,0 E (îles de Ryukyu)<br>h = 33 R H = 00:08:09,8 Mag: 5,7 (C.G.S.)<br>$\Delta = 120,1^\circ$      |              |  |              |                   |  |
| 26  | P  | 03:58:44,4   | iCPZNE   | -            | c, SN, WE         |  |
|   | U.S.C.G.S.: Epicentre: 55,2 S - 29,2 W (Sud des îles Sandwich)<br>h = 33 R H = 03:49:36,8 Mag: 5,3 (C.G.S.)<br>$\Delta = 51,9^\circ$ |              |  |              |                   |  |
|   | PKP  | 00:26:18,8   | iCPZ   | -            | -                 |  |
| U.S.C.G.S.: Epicentre: 15,3 S - 173,6 W (îles Tonga)<br>h = 173 km H = 00:06:45 Mag: 4,3 (C.G.S.)<br>$\Delta = 149,0^\circ$                     |  |              |  |              |                   |  |
| 27  | P  | 05:25:07,5   | iCPZNE; iLPZ                                       | -            | d, NS, EW         |  |
|   | -  | 05:25:24,5   | iCPZNE   | -            | d, SN, WE         |  |
|   | -  | 05:25:30     | eLPZ   | -            | -                 |  |
|   | -  | 05:34:40     | eLPE   | -            | -                 |  |
|   | -  | 05:35:26     | eLPZN  | -            | -                 |  |
|   | LR   | 05:49,3      | LPZNE  | 40           | -                 |  |
| U.S.C.G.S.: Epicentre: 30,8 S - 71,0 W (Côte Central du Chili)<br>h = 62 R H = 05:13:12,6 Mag: 5,4 (C.G.S.)<br>$\Delta = 77,8^\circ$            |  |              |  |              |                   |  |
| 27  | PKP  | 08:38:14,8   | iCPZ   | -            | c                 |  |
|   | LR   | 09:29,3      | LPZ  | 30           | -                 |  |
|   | LR <sub>1</sub>  | 09:36,5      | LPZN   | 20           | -                 |  |
|   | U.S.C.G.S.: Epicentre: 21,3 S - 174,3 W (îles Tonga)<br>h = 33 R H = 08:18:42,4 Mag: 5,4 (C.G.S.)<br>$\Delta = 149,0^\circ$          |              |  |              |                   |  |
| 27  | P  | 13:46:02,0   | iCPZNE   | -            | d, NS, EW         |  |
|   | (S)  | 13:49:46,5   | iCPZ   | -            | d                 |  |
|   | -  | 13:49:52,6   | iCPN   | -            | SN                |  |
| U.S.C.G.S.: Epicentre: 3,0 S - 28,0 E (Lac Tanganyika)<br>h = 33 R H = 13:41:46 Mag: -----<br>$\Delta = 18,6^\circ$                             |  |              |  |              |                   |  |
| 27  | P  | 19:29:03,5   | iCPZ   | -            | c                 |  |
| U.S.C.G.S.: Epicentre: 31,5 S - 68,5 W (Province de S. Juan, Argentine)<br>h = 113 km H = 19:17:28,2 Mag: 4,4 (C.G.S.)<br>$\Delta = 75,5^\circ$ |  |              |  |              |                   |  |

| Date         | Phases   | Heure T.M.G.  | Composantes, nature du mouvement et amplitudes (μ)  | Périodes (s)  | Sens du mouvement  |
|--------------|--|---|---|---|--|
| 1967 Nov. 27 | LR   | 20:44,2   | LPZE  | 30  | -  |
|              | U.S.C.G.S.: Epicentre: 12,6 S - 66,4 E (Océan Indien)<br>h = 33 km H = 20:17:49 Mag: 5,1 (C.G.S.)<br>$\Delta = 51,3^\circ$       |   |   |   |  |
| 27           | LR   | 21:30,3   | LPZE  | 30  | -  |
|              | U.S.C.G.S.: Epicentre: 12,7 S - 66,4 E (Océan Indien)<br>h = 33 R H = 21:03:20,4 Mag: 4,8 (C.G.S.)<br>$\Delta = 51,3^\circ$      |   |   |   |  |
| 27           | (LR)   | 22:11,1   | LPZNE   | 30  | -  |
| 28           | PKP<br>pPKP<br>PP<br>LR  | 02:55:33<br>02:56:07,5<br>02:57:08<br>03:37,3   | eCPZ<br>iCPZ<br>eCPZ<br>LPZ   | -<br>-<br>-<br>30   | c<br>c<br>d<br>-   |
|              | U.S.C.G.S.: Epicentre: 32,1 N - 130,8 E (Kyushu, Japon)<br>h = 125 km H = 02:36:54,1 Mag: 5,6 (C.G.S.)<br>$\Delta = 120,8^\circ$ |   |   |   |  |
| 29           | P<br>LR  | 01:35:50<br>02:06,2   | eCPZ<br>LPZE  | -<br>20   | d<br>-   |
|              | U.S.C.G.S.: Epicentre: 18,4 N - 62,4 W (Iles Leeward)<br>h = 58 km H = 01:23:34,5 Mag: 5,1 (C.G.S.)<br>$\Delta = 81,8^\circ$     |   |   |   |  |
| 29           | -<br>-<br>-<br>-<br>-  | 05:37:35<br>05:39:04,5<br>05:44:42,5<br>05:44,8<br>05:46,7  | eCPZNE<br>iCPN<br>iCPE<br>eLPNE<br>eLPZ   | -<br>-<br>-<br>-<br>-   | c, NS, EW<br>SN<br>WE<br>-<br>-  |
| 29           | P<br>PP<br>PcS<br>SS<br>LR   | 15:11:04,8<br>15:12:39,5<br>15:17:09<br>15:19:50<br>15:19,0   | iCPZN<br>iCPZN<br>eLPZNE<br>eLPE<br>LPZNE   | -<br>-<br>-<br>-<br>40  | c, SN<br>c, NS<br>-<br>-<br>-  |
|              | U.S.C.G.S.: Epicentre: 53,6 S - 6,1 E (Ile Bouvet)<br>h = 33 R H = 15:03:38 Mag: 5,4 (C.G.S.)<br>$\Delta = 39,1^\circ$           |   |   |   |  |
| 29           | -  | 22:57:39,0  | iCPZNE  | -   | c, SN, WE  |
| 30           | -<br>-   | 04:52:54,4<br>04:52:58,6  | iCPZ<br>iCPZNE  | -<br>-  | d<br>c, SN, WE   |
| 30           | P<br>LR  | 05:53:34,0<br>05:59,8   | iCPZE<br>LPZE   | -<br>30   | c, EW<br>-   |
|              | U.S.C.G.S.: Epicentre: 16,0 S - 13,4 W (Atlantique Sud)<br>h = 33 R H 05:48:06 Mag: -----<br>$\Delta = 25,9^\circ$               |   |   |   |  |
| 30           | P<br>-<br>-<br>pP<br>PcP<br>PP<br>(PPP)<br>-<br>S<br>LR<br>M<br>M <sub>1</sub><br>M <sub>2</sub><br>M <sub>3</sub>               | 07:33:30,0<br>07:33:33,0<br>07:33:42,0<br>07:34:32,2<br>07:35:43,0<br>07:36:51<br>07:41:13<br>07:41:24<br>07:50,2<br>07:55,2<br>07:57,2<br>07:59,1<br>08:00,2 | iCPZN,eLPZNE<br>iCPZNE<br>iCPZN<br>iCPZN<br>iCPZN<br>eLPZN<br>eLPZN<br>eLPZNE<br>LPZNE<br>LPZNE<br>LPE<br>LPZN<br>LPZNE | -<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>50<br>-<br>-<br>-<br>-<br>- | c, NS<br>c, NS, WE<br>d, SN<br>c, NS<br>c, SN<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>-<br>- |
|              | U.S.C.G.S.: Epicentre: 41,5 N - 20,5 E (Albanie)<br>h = 29 km H = 07:23:51,5 Mag: 6,0 (C.G.S.)<br>$\Delta = 56,8^\circ$          |   |   |   |  |

Notes: 11 morts et 134 blessés en Peshkopi, Albanie. 7 morts et 40 blessés en Debar, Yougoslavie. Considérablement dangereux dans l'aire Peshkopi - Debar.

Mag: 6½ (PAS), 6,6 - 6,8 (BRK), 6¾ (PAL), 6½ - 6¾ (GOL)

$\Delta = 56,8^\circ$



| Date         | Phases | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|--------------|--------|--------------|--|--------------|-------------------|
| 1967 Nov. 30 | -      | 11:22:47,8   | 1GPZE  | -            | d, EW             |
|              | -      | 11:22:59,0   | 1GPZN  | -            | d, NS             |
|              | -      | 11:24:32,5   | 1GPZE  | -            | d, WE             |
|              | -      | 11:29:15     | eLPZNE   | -            | -                 |
|              | -      | 11:32:17     | eLPZNE   | -            | -                 |
|              | (LR)   | 11:34,0      | LPZE   | 35           | -                 |

|    |     |            |        |   |           |
|----|-----|------------|--------|---|-----------|
| 30 | PKP | 16:06:14,6 | 1GPZNE | - | c, SN, WE |
|    | SKP | 16:08:55,5 | 1GPZ   | - | d         |
|    | -   | 16:09:20,5 | 1GPZ   | - | d         |

U.S.C.G.S.: Epicentre: 17,9 S - 178,3 W (Région des Iles Fidji)

h = 629 km H = 15:47:44,2 Mag: 4,7 (C.G.S.)

$$\Delta = 147,2^{\circ}$$

|    |    |         |      |    |   |
|----|----|---------|------|----|---|
| 30 | LR | 18:52,2 | LPZE | 30 | - |
|----|----|---------|------|----|---|

U.S.C.G.S.: Epicentre: 8,1 S - 80,2 W (Côte Nord du Pérou)

h = 45 R H = 18:05:19,2 Mag: 5,1 (C.G.S.)

$$\Delta = 91,4^{\circ}$$

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda  
C.P. 1228 O Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 3 - No 12

DÉCEMBRE 1967

Station sismographique de Sá da Bandeira

Coordonnées de la station:

Latitude géographique:  $\psi = 14^{\circ} 54' 06''$  S Longitude:  $\lambda = 13^{\circ} 28' 39''$  E  
Latitude géocentrique:  $\Phi = 14^{\circ} 48' 23''$  S Altitude:  $h = 1761$  m

Nature du sous-sol:

Granite

Constantes des sismographes

| Sismographes                | T <sub>0</sub><br>(s) | T <sub>g</sub><br>(s) | Amplification         |                       |                       |                        |
|-----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|------------------------|
|                             |                       |                       | T <sub>s</sub> =0,2 s | T <sub>s</sub> =0,6 s | T <sub>s</sub> =1,0 s | T <sub>s</sub> =15,0 s |
| Benioff vertical (z)        | 1,0                   | 0,2                   | 76750                 | 33000                 | 15300                 | -                      |
| Benioff vertical (Z)        | 1,0                   | 21,3                  | 400                   | 1100                  | 1650                  | 120                    |
| Benioff vertical (CPZ)      | 1,0                   | 0,75                  | 38000                 | 150000                | 100000                | -                      |
| Benioff N/S (GPN)           | 1,0                   | 0,85                  | 38000                 | 150000                | 100000                | -                      |
| Benioff EW (GPE)            | 1,0                   | 0,82                  | 38000                 | 150000                | 100000                | -                      |
| Sprengnether vertical (LPZ) | 15,0                  | 100,0                 | -                     | -                     | -                     | 1500                   |
| Sprengnether NS (LPN)       | 15,0                  | 100,0                 | -                     | -                     | -                     | 1500                   |
| Sprengnether EW (LPE)       | 15,0                  | 100,0                 | -                     | -                     | -                     | 1500                   |

| Date   | Phases  | Heure T.M.G.      | Composantes, nature du mouvement et amplitudes ( $\omega$ ) | Périodes (s)   | Sens du mouvement |   |
|--|---|-------------------|---|----------------|-------------------|---|
| 1967 Déc. 1  | -   | 14:02:27,7        | eICPZ   | -              | d                 |   |
|  | LR  | 14:08,3           | LPZE  | 30             | -                 |   |
|  | 1   | PKIKP             | 14:15:49,2  | iCPZN          | -                 | d |
|  |   | PKP               | 14:15:59,3  | iCPZNE         | -                 | d |
|  |   | pPKP              | 14:16:47,2  | iCPZN          | -                 | - |
|  |   | PP                | 14:18:29,3  | iCPZNE; iLPZNE | -                 | - |
|  |   | SKP               | 14:19:20,2  | iCPZNE; iLPZN  | -                 | - |
|  |   | -                 | 14:20:26  | LPZNE          | -                 | - |
|  |   | SKKS <sub>1</sub> | 14:25:12  | GPNE           | -                 | - |
|  |   | SP                | 14:28:24  | LPZ            | -                 | - |
|  |   | SPP               | 14:30:18  | LPZNE          | -                 | - |
|  |   | SKKS <sub>2</sub> | 14:31,8   | LPZ            | -                 | - |
|  |   | SS                | 14:36,0   | LPZN           | -                 | - |
|  |   | LR                | 15:00,8   | LPZNE          | 65                | - |
|  |   | LR                | 15:08,0   | LPZE           | 30                | - |
|  | U.S.C.G.S.: Epicentre: 49,5 N 154,4 E (Iles Kuriles)<br>h = 136 km H = 13:57:02,4 Mag: 5,9; 5,4 - 5,6 (BRK); 6 $\frac{1}{2}$ (GL) |                   |   |                |                   |   |
| $\Delta = 133,0^{\circ}$   |   |                   |   |                |                   |   |
| 1  | PKP   | 17:11:52,3        | CPZ   | -              | -                 |   |
| U.S.C.G.S.: Epicentre: 17,6 S 178,5 W (Région des Iles Fidji)<br>h = 504 km H = 16:53:09 Mag: 4,2 (C.G.S.) |   |                   |   |                |                   |   |
| $\Delta = 145,4^{\circ}$   |   |                   |   |                |                   |   |

| Date  | Phases         | Heure T.M.G. | Composantes, nature du mouvement et amplitudes( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|----------------|--------------|---|--------------|-------------------|
| 1967 Déc. 2   | LR             | 01:30,3      | -   | 35           | -                 |
| U.S.C.G.S.: Epicentre: 24,1 N 108,6 W (Golfe de Californie)<br>h = 33 km H = 00:31:18,9 Mag: 5,1; 5,8 - 6,0 (BRK); 6 (PAL); 4 3/4 - 5 (GOL)<br>$\Delta = 125,0^\circ$ |                |              |   |              |                   |
| 2   | P              | 12:54:24,6   | GPZN  | -            | -                 |
|   | LR             | 13:18,6      | LPZNE   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 41,3 N 20,3 E (Albanie)<br>h = 17 km H = 12:44:42,7 Mag: 5,4<br>$\Delta = 56,6^\circ$  |                |              |   |              |                   |
| 2   | -              | 16:40:51,9   | ICPZ  | -            | d                 |
|   | LR             | 16:50,4      | LPZ   | 22           | -                 |
| 2   | LR             | 21:05,0      | LPZNE   | 20           | -                 |
| 3   | P <sub>n</sub> | 20:55:24,4   | ICPZN   | -            | -                 |
|   | P <sub>g</sub> | 20:55:30,4   | ICPZNE  | -            | -                 |
|   | S <sub>n</sub> | 20:55:54,6   | ICPZNE  | -            | -                 |
|   | S <sub>g</sub> | 20:55:57,5   | ICPZNE  | -            | -                 |
| $\Delta \approx 2,4^\circ$  |                |              |   |              |                   |
| 4   | LR             | 09:54,1      | LPZE  | 40           | -                 |
|   | LR             | 09:56,0      | LPZNE   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 43,7 N 127,4 W (Côte d'Oregon)<br>h = 33 km H = 08:48:45,2 Mag: 4,6 (C.G.S.); 5,5 - 6 (BRK)<br>$\Delta = 136,0^\circ$                          |                |              |   |              |                   |
| 4   | -              | 14:10:24,0   | ICPZNE  | -            | -                 |
|   | (SPP)          | 14:23,6      | LPZE  | -            | -                 |
|   | (PPS)          | 14:23,8      | LPN   | -            | -                 |
|   | (SS)           | 14:26,8      | LPZNE   | -            | -                 |
|   | (SSS)          | 14:31,0      | LPZ   | -            | -                 |
|   | LR             | 14:38,7      | LPZNE   | 120          | -                 |
| U.S.C.G.S.: Epicentre: 36,4 S 97,5 W (Ouest de Chili)<br>h = 33 km H = 13:56:36* Mag: 4,4 (C.G.S.)<br>$\Delta = 97,2^\circ$   |                |              |   |              |                   |
| 4   | P*             | 14:52:31,8   | GPZNE   | -            | -                 |
|   | S*             | 14:52:51,4   | GPZNE   | -            | -                 |
| $\Delta \approx 1,4^\circ$  |                |              |   |              |                   |
| 4   | -              | 19:01:03,4   | ICPZNE  | -            | d, SN, WE         |
| 4   | P              | 19:11:30,3   | ICPZN   | -            | c, NS             |
| U.S.C.G.S.: Epicentre: 63,0 S 60,5 W (Péninsule de Palmer)<br>h = 33 R H = 19:00:22,6 Mag: 4,7 (C.G.S.)<br>$\Delta = 69,5^\circ$                                      |                |              |   |              |                   |
| 4   | LR             | 22:07,8      | LPZE  | 40           | -                 |
|   | LR             | 22:11,9      | LPZE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 2,8 N 65,1 E (Carlsberg)<br>h = 33 R H = 21:41:50,9 Mag: 4,9 (C.G.S.)<br>$\Delta = 54,1^\circ$   |                |              |   |              |                   |
| 4   | PKP            | 22:38:08,4   | eCPZN   | -            | d, NS             |
| U.S.C.G.S.: Epicentre: 51,6 N 173,5 W (Iles Aléoutiennes)<br>h = 50 km H = 22:18:41,0 Mag: 4,7 (C.G.S.)<br>$\Delta = 142,9^\circ$                                     |                |              |   |              |                   |
| 5   | PKP            | 09:24:41,3   | ICPZ  | -            | d                 |
|   | pPKP           | 09:29:51,2   | ICPZNE  | -            | -                 |
| U.S.C.G.S.: Epicentre: 51,6 N 173,4 W (Iles Aléoutiennes)<br>h = 36 km H = 09:05:13,1 Mag: 5,3 (C.G.S.)<br>$\Delta = 142,9^\circ$                                     |                |              |   |              |                   |
| 5   | LR             | 19:39,2      | LPZE  | 30           | -                 |
|   | LR             | 19:44,3      | LPZE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 30,8 N 114,0 W (Golfe de Californie)<br>h = 33 km H = 18:35:37,6 Mag: 4,8 (C.G.S.); 5 1/2 (PAS)<br>$\Delta = 129,5^\circ$                      |                |              |   |              |                   |
| 6   | -              | 03:23:48,4   | ICPZN   | -            | d, SN             |
| 6   | PKP            | 05:22:08,5   | ICPZNE  | -            | c, SN, WE         |
|   | SKP            | 05:24:57,8   | CPZ   | -            | -                 |
| U.S.C.G.S.: Epicentre: 21,3 S 178,8 W (Iles Fidji)<br>h = 559 km H = 05:03:40,8 Mag: 5,1 (C.G.S.)<br>$\Delta = 141,9^\circ$   |                |              |   |              |                   |

| Date  | Phases   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |   |
|---|--|--------------|--|--------------|-------------------|---|
| 1967 Déc. 6   | PKIKP  | 10:00:18,1   | IGPZ   | -            | c                 |   |
|   | PKP  | 10:00:24,6   | IGPZ   | -            | c                 |   |
|   | SKP  | 10:03:49,9   | IGPZ   | -            | -                 |   |
| U.S.C.G.S.: Epicentre: 14,9 S 167,3 E (Iles Nouvelles Hébrides)<br>h = 124 km H = 09:41:06,4 Mag: 5,3 (C.G.S.)<br>$\Delta = 140,5^\circ$  |  |              |  |              |                   |   |
| 6   | LR   | 22:48,0      | LPZNE  | 40           | -                 |   |
|   | LR   | 22:49,0      | LPZNE  | 30           | -                 |   |
|   | LR   | 22:51,6      | LPZNE  | 20           | -                 |   |
| U.S.C.G.S.: Epicentre: 1,2 S 67,5 E (Carlsberg)<br>h = 33 R H = 22:21:56,8 Mag: 5,5 (C.G.S.)<br>$\Delta = 54,4^\circ$   |  |              |  |              |                   |   |
| 7   | PKP  | 10:00:45,3   | IGPZNE   | -            | c, NS, WE         |   |
|   | PKS  | 10:04:14,6   | IGPZ   | -            | c                 |   |
|   | U.S.C.G.S.: Epicentre: 16,7 S 174,1 W (Iles Tonga)<br>h = 120 R H = 09:41:14,1 Mag: 5,0 (C.G.S.)<br>$\Delta = 147,5^\circ$               |              |  |              |                   |   |
| 7   | PKP  | 10:08:45,7   | IGPZNE   | -            | c, NS, EW         |   |
|   | U.S.C.G.S.: Epicentre: 14,6 S 167,3 E (Iles Nouvelles Hébrides)<br>h = 151 km H = 09:49:37,0 Mag: 5,3 (C.G.S.)<br>$\Delta = 140,8^\circ$ |              |  |              |                   |   |
|   | -  | 20:50:11,9   | IGPZ   | -            | c                 |   |
| 8   | P  | 06:16:40,7   | IGPZNE   | -            | d, SN, EW         |   |
|   | U.S.C.G.S.: Epicentre: 49,8 N 78,2 E (East de Kazakh SSR)<br>h = 0 H = 06:03:57,1 Mag: 5,4 (C.G.S.)<br>$\Delta = 86,0^\circ$             |              |  |              |                   |   |
|   | 8  | LR           | 03:08,0  | LPZ          | 30                | - |
| LR <sub>1</sub>   |  | 03:14,2      | LPZNE  | 20           | -                 |   |
| U.S.C.G.S.: Epicentre: 10,6 S 161,5 E (Iles Salomon)<br>h = 14 km H = 02:00:27,9 Mag: 5,4 (C.G.S.)<br>$\Delta = 139,3^\circ$  |  |              |  |              |                   |   |
| 8   | (SSS)  | 04:15,0      | LPZ  | -            | -                 |   |
|   | LR   | 04:19,0      | LPZN   | 25           | -                 |   |
|   | LR <sub>1</sub>  | 04:21,2      | LPZN   | 20           | -                 |   |
| 8   | LR   | 04:33,5      | LPZE   | 40           | -                 |   |
|   | LR <sub>1</sub>  | 04:35,6      | LPZ  | 30           | -                 |   |
|   | LR <sub>2</sub>  | 04:42,8      | LPZNE  | 20           | -                 |   |
| U.S.C.G.S.: Epicentre: 3,4 S 148,8 E (Mer de Bismarck)<br>h = 33 km H = 03:29:35* Mag: 4,7 (C.G.S.)<br>$\Delta = 132,1^\circ$   |  |              |  |              |                   |   |
| 8   | -  | 13:48:02,6   | IGPZNE   | -            | -                 |   |
| 9   | PKP  | 08:14:08,5   | IGPZN  | -            | c, SN             |   |
|   | -  | 08:14:12,7   | IGPZNE   | -            | d, NS, WE         |   |
|   | U.S.C.G.S.: Epicentre: 15,2 S 173,3 W (Iles Tonga)<br>h = 33 km H = 07:54:19,8 Mag: 5,0 (C.G.S.)<br>$\Delta = 149,2^\circ$               |              |  |              |                   |   |
| 9   | P  | 09:37:46,2   | IGPZE  | -            | c, EW             |   |
|   | U.S.C.G.S.: Epicentre: 17,1 S 70,7 W (Côte de Péru)<br>h = 76 km H = 09:25:39,8 Mag: 4,7 (C.G.S.)<br>$\Delta = 80,9^\circ$               |              |  |              |                   |   |
|   | 9  | LR           | 11:58,2  | LPZ          | 50                | - |
| LR <sub>1</sub>   |  | 11:59,5      | LPZNE  | 30           | -                 |   |
| LR <sub>2</sub>   |  | 12:07,1      | LPZNE  | 20           | -                 |   |
| U.S.C.G.S.: Epicentre: 10,9 S 164,2 E (Iles Santa Cruz)<br>h = 33 R H = 10:50:46,6 Mag: 5,5 (C.G.S.)<br>$\Delta = 141,2^\circ$  |  |              |  |              |                   |   |
| 10  | PKP  | 12:26:14,1   | IGPZ   | -            | c                 |   |
|   | LR   | 13:05,6      | LPZNE  | 50           | -                 |   |
|   | LR <sub>1</sub>  | 13:11,6      | LPZNE  | 40           | -                 |   |
|   | LR <sub>2</sub>  | 13:13,3      | LPZNE  | 30           | -                 |   |
|   | LR <sub>3</sub>  | 13:20,1      | LPZNE  | 20           | -                 |   |
| U.S.C.G.S.: Epicentre: 40,5 N 124,6 W (Côte de Californie)<br>h = 5 km H = 12:06:50,3 Mag: 5,8 (C.G.S.); 5 $\frac{1}{2}$ - 5 $\frac{1}{2}$ (PAS); 5,5 - 5,7 (BRK); 5 $\frac{1}{2}$ - 5 $\frac{1}{2}$ (GOL); 5 $\frac{3}{4}$ (PAL)<br>$\Delta = 135,5^\circ$ |  |              |  |              |                   |   |

| Date   | Phases                             | Heure<br>T.M.G.    | Composantes,<br>nature du<br>mouvement et<br>amplitudes( $\mu$ ) | Périodes<br>(s) | Sens du<br>mouvement |
|--|------------------------------------|--------------------|--|-----------------|----------------------|
| 1967 Déc. 10   | P                                  | 23:02:19,7         | 1GPZNE, LPZNE  | -               | d, SN, WE            |
|  | PP                                 | 23:04:53           | LPZNE  | -               | -                    |
|  | S                                  | 23:11:16           | LPZNE  | -               | -                    |
|  | -                                  | 23:15:00           | LPZ  | 20              | -                    |
|  | SS                                 | 23:15:46           | LPZNE  | -               | -                    |
|  | SSS                                | 23:18:52           | LPNE   | -               | -                    |
|  | LR                                 | 23:23,3            | LPZ  | 40              | -                    |
|  | LR <sub>1</sub>                    | 23:25,3            | LPZE   | 30              | -                    |
|  | M <sub>1</sub><br>LR <sub>2</sub>  | 23:27,5<br>23:30,0 | LPZN<br>LPZNE  | 25<br>20        | -                    |
| U.S.C.G.S.: Epicentre: 17,7 N 73,9 E (Inde)<br>h = 33 R H = 22:51:24,3 Mag: 6,0 (C.G.S.); 6,2 (PAS); 6,4 - 6,5 (BRK); 6,2 - 6,2 (GOL)<br>$\Delta = 67,9^\circ$ |                                    |                    |  |                 |                      |
| 11   | (S)                                | 13:12:29,8         | 1GPN   | -               | SN                   |
|  | (SS)                               | 13:12:28,4         | 1GPN   | -               | SN                   |
|  | (SSS)                              | 13:14:18,8         | 1GPN   | -               | SN                   |
|  | (Lg)                               | 13:14:56,8         | GPZN   | -               | -                    |
| BUL Epicentre: 15,8 S 34,7 E (Malawi)<br>h = - H = 13:04:05 Mag: -<br>$\Delta = 20,5^\circ$  |                                    |                    |  |                 |                      |
| 11   | LR                                 | 19:30,2            | LPN  | 30              | -                    |
|  | LR <sub>1</sub>                    | 19:32,2            | LPZNE  | 20              | -                    |
| U.S.C.G.S.: Epicentre: 14,9 N 56,0 E (Mer Arabique)<br>h = 33 km H = 19:05:02 Mag: 4,5 (C.G.S.)<br>$\Delta = 51,5^\circ$                                       |                                    |                    |  |                 |                      |
| 11   | PKP                                | 20:00:26,3         | 1GPZNE   | -               | c, NS, EW            |
|  | pPKP                               | 20:00:35,7         | 1GPZNE   | -               | -                    |
| U.S.C.G.S.: Epicentre: 20,6 S 174,3 W (Iles Tonga)<br>h = 33 R H = 19:40:53,3 Mag: 5,3 (C.G.S.)<br>$\Delta = 143,7^\circ$                                      |                                    |                    |  |                 |                      |
| 11   | LR                                 | 20:11,8            | LPN  | 40              | -                    |
|  | LR <sub>1</sub>                    | 20:14,2            | LPN  | 30              | -                    |
|  | LR <sub>2</sub>                    | 20:15,2            | LPZN   | 25              | -                    |
|  | LR <sub>3</sub>                    | 20:19,4            | LPN  | 20              | -                    |
| U.S.C.G.S.: Epicentre: 13,7 N 51,6 E (Golfe d'Aden)<br>h = 33 R H = 19:48:43,3 Mag: 5,2 (C.G.S.)<br>$\Delta = 47,3^\circ$                                      |                                    |                    |  |                 |                      |
| 11   | P                                  | 22:38:50,7         | 1GPZNE   | -               | e, NS, EW            |
|  | S                                  | 22:45:24           | LPZNE  | -               | -                    |
|  | SS                                 | 22:49:10           | LPZNE  | -               | -                    |
|  | SSS                                | 22:50:30           | LPZNE  | -               | -                    |
|  | LR                                 | 22:53,3            | LPZNE  | 40              | -                    |
|  | LR <sub>1</sub><br>LR <sub>2</sub> | 22:55,7<br>22:59,2 | LPN<br>LPZNE   | 30<br>20        | -                    |
| U.S.C.G.S.: Epicentre: 13,6 N 51,6 E (Golfe d'Aden)<br>h = 33 km H = 22:20:18,3 Mag: 5,6 (C.G.S.)<br>$\Delta = 47,3^\circ$                                     |                                    |                    |  |                 |                      |
| 12   | P                                  | 03:31:40,5         | 1GPZE  | -               | d, EW                |
|  | LR                                 | 03:47,1            | LPZ  | 40              | -                    |
|  | LR <sub>1</sub>                    | 03:49,2            | LPZNE  | 30              | -                    |
|  | LR <sub>2</sub>                    | 03:51,2            | LPZNE  | 20              | -                    |
| U.S.C.G.S.: Epicentre: 5,7 N 61,5 E (Carlsberg)<br>h = 33 R H = 03:22:32 Mag: -<br>$\Delta = 51,9^\circ$   |                                    |                    |  |                 |                      |
| 12   | LR                                 | 06:52,6            | LPZ  | 30              | -                    |
|  | LR <sub>1</sub>                    | 06:57,0            | LPZNE  | 20              | -                    |
| U.S.C.G.S.: Epicentre: 17,6 N 73,9 E (Inde)<br>h = 29 km H = 06:18:37,9 Mag: 5,4 (C.G.S.)<br>$\Delta = 67,9^\circ$   |                                    |                    |  |                 |                      |
| 12   | SKP                                | 08:29:16           | LPZ  | -               | -                    |
|  | SPP                                | 08:40:28           | LPZ  | -               | -                    |
|  | PPS                                | 08:40:38           | LPNE   | -               | -                    |
|  | LR                                 | 09:10,2            | LPZNE  | 40              | -                    |
|  | LR <sub>1</sub>                    | 09:12,8            | LPZNE  | 30              | -                    |
|  | LR <sub>2</sub>                    | 09:19,1            | LPZNE  | 20              | -                    |
| U.S.C.G.S.: Epicentre: 22,7 S 171,1 E (Iles Loyauté)<br>h = 39 km H = 08:06:16,7 Mag: 4,9 (C.G.S.)<br>$\Delta = 136,5^\circ$                                   |                                    |                    |  |                 |                      |

| Date  | Phases          | Heure T.M.G. | Composantes, nature du mouvement et amplitudes ( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|-----------------|--------------|--|--------------|-------------------|
| 1967 Déc. 12  | P               | 15:59:51,7   | 1CPZ   | -            | d.                |
|   | LR              | 16:21,8      | LPZ  | 40           | -                 |
|   | LR <sub>1</sub> | 16:24,3      | LPZNE  | 25           | -                 |
|   | LR <sub>2</sub> | 16:27,1      | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 17,4 N 73,9 E (Inde)<br>h = 27 km H = 15:48:55,5 Mag: 5,0 (C.G.S.)<br>$\Delta = 67,8^\circ$                        |                 |              |  |              |                   |
| 13  | (PKIKP)         | 10:57:10,2   | 1CPZ   | -            | d                 |
|   | PKP             | 10:57:25,9   | 1CPZNE   | -            | d, NS, EW         |
|   | (SKP)           | 11:00:40,2   | CPZ, LPZ   | -            | d                 |
|   | PKS             | 11:00:56,9   | CPZNE, LPN   | -            | d, NS, EW         |
| U.S.C.G.S.: Epicentre: 47,6 N 152,6 E (Iles Kourille)<br>h = 124 km H = 10:38:23,4 Mag: 5,5 (C.G.S.)<br>$\Delta = 133,0^\circ$            |                 |              |  |              |                   |
| 13  | -               | 11:20:37,6   | 1CPZN  | -            | c, NS             |
| 13  | PKP             | 19:26:26,7   | 1CPZNE   | -            | d, SN, WE         |
|   | pPKP            | 19:26:36,2   | 1CPZNE   | -            | c, SN, EW         |
|   | PP              | 19:29:22     | LPZ  | -            | -                 |
|   | PKS             | 19:30:16,2   | CPNE, LPNE   | -            | -                 |
|   | PSP             | 19:41:35     | LPZ  | -            | -                 |
|   | LR              | 20:12,2      | LPZ  | 40           | -                 |
|   | LR <sub>1</sub> | 20:13,4      | LPZNE  | 30           | -                 |
|   | LR <sub>2</sub> | 20:19,0      | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 19,1 S 168,7 E (Iles Nouvelles Hébrides)<br>h = 51 km H = 19:07:14,4 Mag: 5,7 (C.G.S.)<br>$\Delta = 138,7^\circ$   |                 |              |  |              |                   |
| 13  | PKP             | 21:53:49,7   | 1CPZNE   | -            | d, NS, EW         |
| U.S.C.G.S.: Epicentre: 17,7 S 178,1 W (Iles Fidji)<br>h = 562 km H = 21:35:11,4 Mag: 4,6 (C.G.S.)<br>$\Delta = 145,4^\circ$               |                 |              |  |              |                   |
| 14  | P               | 02:29:15,5   | 1CPZNE   | -            | c, NS, EW         |
|   | PPS             | 02:36:31     | LPZNE  | -            | -                 |
|   | LR              | 02:44,0      | LPZN   | 40           | -                 |
|   | LR <sub>1</sub> | 02:46,3      | LPZE   | 30           | -                 |
| U.S.C.G.S.: Epicentre: 14,3 N 53,7 E (Mer Arabique)<br>h = 33 km H = 02:20:27,9 Mag: 4,9 (C.G.S.)<br>$\Delta = 49,4^\circ$                |                 |              |  |              |                   |
| 14  | P               | (03:03:50,5) | 1CPZN  | -            | -                 |
|   | LR              | 03:27,0      | LPZN   | 15           | -                 |
| U.S.C.G.S.: Epicentre: 34,4 N 26,2 E (Crète)<br>h = 7 km H = 02:54:47,6 Mag: 4,5 (C.G.S.)<br>$\Delta = 50,8^\circ$                        |                 |              |  |              |                   |
| 14  | P               | 03:32:40,7   | 1CPZNE   | -            | d, NS, EW         |
|   | -               | 03:33:02,4   | 1CPZNE   | -            | d, NS, EW         |
| U.S.C.G.S.: Epicentre: 24,0 S 69,3 W (Chili)<br>h = 53 km H = 03:20:47,8 Mag: 5,1 (C.G.S.)<br>$\Delta = 77,6^\circ$                       |                 |              |  |              |                   |
| 14  | -               | 18:44:50,4   | 1CPZ   | -            | c                 |
|   | -               | 18:47:49,6   | 1CPZ   | -            | c                 |
|   | LR              | 19:30,6      | LPZN   | 50           | -                 |
|   | LR <sub>1</sub> | 19:33,1      | LPZN   | 40           | -                 |
| 14  | LR              | 22:25,1      | LPZNE  | 30           | -                 |
|   | LR <sub>1</sub> | 22:27,6      | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 4,0 S 68,4 E (Région de l'Archipel de Chagos)<br>h = 33 km H = 21:58:55 Mag: 4,9 (C.G.S.)<br>$\Delta = 54,4^\circ$ |                 |              |  |              |                   |
| 14  | P               | 23:48:55,6   | 1CPZ   | -            | c                 |
| 16  | P               | 03:32:02,0   | 1CPZ   | -            | c                 |
|   | PcP             | 03:32:10,4   | CPZN   | -            | -                 |
|   | pP              | 03:32:21,7   | CPNE   | -            | -                 |
| U.S.C.G.S.: Epicentre: 2,9 S 77,0 W (Pérou - Equateur)<br>h = 121 km H = 03:19:13,4 Mag: 5,0 (C.G.S.)<br>$\Delta = 89,7^\circ$            |                 |              |  |              |                   |

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| Date         | Phases  | Heure T.M.G.   | Composantes, nature du mouvement et amplitudes ( $\mu$ )         | Périodes (s)                        | Sens du mouvement                           |
|--------------|---|--|--|-------------------------------------|---|
| 1967 Déc. 16 | P<br>pP   | 15:13:01,6<br>15:13:30,8   | iCPZNE<br>iCPZNE   | -<br>-                              | c, SN, EW<br>c, SN, WE                      |
|              | U.S.C.G.S.: Epicentre: 31,7 S 69,7 W (S. Juan, Argentine)<br>h = 105 km H = 15:01:19,9 Mag: 4,5 (C.G.S.)<br>$\Delta = 76,5^\circ$   |  |  |                                     |   |
| 16           | PKP<br>PP<br>PKS<br>LR<br>LR<br>LR<br>LR  | 21:13:15,6<br>21:15:45<br>21:16:47,0<br>21:59,8<br>22:01,2<br>22:08,2<br>22:18,7   | iCPZNE<br>LPZ<br>CPNE; LPZNE<br>LPZNE<br>LPZNE<br>LPZNE<br>LPZNE | -<br>-<br>-<br>50<br>40<br>30<br>20 | c, NS, WE<br>-<br>-<br>-<br>-<br>-<br>-     |
|              | U.S.C.G.S.: Epicentre: 51,2 N 157,7 E (Côte east de Kamtchatka)<br>h = 24 km H = 20:53:58,3 Mag: 5,5 (C.G.S.)<br>$\Delta = 193,8^\circ$   |  |  |                                     |   |
| 17           | P   | 00:36:47,7   | iCPZNE   | -                                   | c, NS, EW                                   |
|              | U.S.C.G.S.: Epicentre: 36,5 N 71,4 E (Afghanistan - U.R.S.S. région Intérieure)<br>h = 82 km H = 00:25:15,1 Mag: 5,2 (C.G.S.)<br>$\Delta = 74,9^\circ$  |  |  |                                     |   |
| 17           | L <sub>g</sub>  | 04:14:14,0   | iCPZNE   | -                                   | c, SN, EW                                   |
|              | BUL (Rhodésie) Epicentre: 6,6 S 30,1 E (Lac Tanganyika)<br>h = - H = 04:04:39 Mag: 4,2 (C.G.S.)<br>$\Delta = 18,2^\circ$  |  |  |                                     |   |
| 17           | L <sub>g</sub>  | 11:41:12,6   | iCPZNE   | -                                   | c, SN, EW                                   |
|              | BUL (Rhodésie) Epicentre: 10,9 S 34,2 E (Lac Malawi)<br>h = - H = 11:30:26 Mag: 4,3 (C.G.S.)<br>$\Delta = 20,6^\circ$   |  |  |                                     |   |
| 17           | L <sub>g</sub>  | 11:49:56,2   | iCPZNE   | -                                   | d, NS, EW                                   |
|              | BUL (Rhodésie) Epicentre: 7,0 S 30,0 E (Lac Tanganyika)<br>h = - H = 11:40:51 Mag: 3,9 (C.G.S.)<br>$\Delta = 18,0^\circ$  |  |  |                                     |   |
| 17           | P<br>L <sub>g</sub><br>LR   | 18:09:50,1<br>18:19:55,8<br>18:22,3  | iCPZNE<br>iCPZNE; LPZ<br>LPZNE                                   | -<br>-<br>-                         | d, NS, EW<br>-<br>-                         |
|              | U.S.C.G.S.: Epicentre: 5,8 N 37,2 E (Ethiopie)<br>h = 19 km H = 18:03:43 Mag: -<br>$\Delta = 31,3^\circ$  |  |  |                                     |   |
| 19           | (P)<br>LR<br>LR <sub>1</sub>  | 05:20:02<br>05:34,0<br>05:35,1   | iCPZN<br>LPZ<br>LPZ  | -<br>30<br>20                       | d, NS<br>-<br>-                             |
| 19           | P<br>LR<br>LR <sub>1</sub>  | 08:54:22,3<br>09:20,8<br>09:25,1   | iCPZNE<br>NPZ<br>LPZE  | -<br>30<br>20                       | c, SN, WE<br>-<br>-                         |
|              | U.S.C.G.S.: Epicentre: 20,5 S 71,0 W (Côte Central de Chili)<br>h = 18 km H = 08:42:20,7 Mag: 5,3<br>$\Delta = 78,2^\circ$  |  |  |                                     |   |
| 20           | P<br>pP<br>S<br>sS<br>LQ<br>LR<br>LR <sub>1</sub>   | 11:46:48,3<br>11:47:08,1<br>11:57:06<br>11:57:35<br>12:09:22<br>12:15,0<br>12:17,9 | iCPZNE<br>iCPZE; LPZ<br>LPE<br>LPNE<br>LPN<br>LPZNE<br>LPZNE     | -<br>-<br>-<br>-<br>-<br>30<br>20   | d, NS, EW<br>c, WE<br>-<br>-<br>-<br>-<br>- |
|              | U.S.C.G.S.: Epicentre: 11,8 N 93,0 E (Iles Andaman)<br>h = 61 km H = 11:32:25,9 Mag: 5,4 (C.G.S.)<br>$\Delta = 83,1^\circ$  |  |  |                                     |   |
| 20           | PKP<br>pPKP<br>SKP<br>PKS   | 17:26:58,3<br>17:27:37,1<br>17:30:30,1<br>17:30:46,1                               | iCPZNE<br>iCPZE<br>iCPZ<br>iCPNE                                 | -<br>-<br>-<br>-                    | d, NS, EW<br>d, EW<br>d<br>NS, EW           |
|              | U.S.C.G.S.: Epicentre: 15,1 N 167,4 E (Iles Nouvelles Hébrides)<br>h = 135 km H = 17:07:49,1 Mag: 5,1 (C.G.S.) 7,0 (PAS); 7,0 - 7,3 (BRK); 7 $\frac{1}{2}$ (PAL); 7,0 (GOL)<br>$\Delta = 5,1^\circ$ |  |  |                                     |   |

| Date  | Phase   | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|---|---|--------------|--|--------------|-------------------|
| 1967 Déc. 21  | P   | 02:37:22,3   | ICPZNE, LPZNE                                      | -            | c, SN, WE         |
|   | S   | 02:47:18,9   | ICPZNE   | -            | c, SN, WE         |
| U.S.C.G.S.: Epicentre: 21,8 S 70,0 W (Côte Central de Chili)<br>h = 33 km H = 02:25:21,6 Mag: 6,3 (C.G.S.)<br>Δ = 78,6° |   |              |  |              |                   |
| 21  | P   | 08:02:48,2   | ICPZNE   | -            | c, SN, WE         |
|   | pP  | 08:02:52,7   | ICPZNE   | -            | d, NS, EW         |
|   | pP  | 08:03:10,0   | ICPZNE   | -            | c, NS, WE         |
| U.S.C.G.S.: Epicentre: 16,4 S 72,6 W (Côte de Pérou)<br>h = 99 km H = 07:50:34,8 Mag: 5,0 (C.G.S.)<br>Δ = 82,2°         |   |              |  |              |                   |
| 21  | P   | 11:50:09     | eCPZ   | -            | d                 |
|   | P   | 11:50:10,5   | ICPZ   | -            | d                 |
| U.S.C.G.S.: Epicentre: 7,0 N 72,1 W (Nord Est de Columbie)<br>h = 33 km H = 11:37:22,5 Mag: 5,4 (C.G.S.)<br>Δ = 87,6°   |   |              |  |              |                   |
| 21  | PKP   | 18:05:15,1   | ICPZ   | -            | d                 |
|   | PP  | 18:07:36,2   | ICPZN  | -            | d, NS             |
|   | SKP   | 18:08:36,8   | ICPZ   | -            | d                 |
|   | PKS   | 18:08:41,8   | ICPNE  | -            | NS, WE            |
| U.S.C.G.S.: Epicentre: 31,7 S 179,1 W (Iles Kermadec)<br>h = 23 km H = 17:45:54,4 Mag: 5,1 (C.G.S.)<br>Δ = 132,8°       |   |              |  |              |                   |
| 21  | LR  | 19:51,7      | LPZN   | 30           | -                 |
|   | LR  | 19:57,6      | LPZN   | 20           | -                 |
| 21  | P   | 23:55:35,6   | ICPZE  | -            | d, WE             |
|   | SP  | 23:55:54,9   | ICPZE  | -            | c, EW             |
| U.S.C.G.S.: Epicentre: 11,8 N 93,1 E (Iles Andaman)<br>h = 33 km H = 23:43:11,4 Mag: 5,0<br>Δ = 83,2°                   |   |              |  |              |                   |
| 22  | -   | 16:26:07     | ICPZNE   | -            | -                 |
|   | LR  | 16:32,0      | LPZNE  | 30           | -                 |
| 22  | -   | 19:39:12     | ICPZNE   | -            | -                 |
| 22  | PKP   | 23:28:16,6   | ICPZ   | -            | c                 |
|   | pPKP  | 23:28:24,7   | ICPZ   | -            | d                 |
|   | PP  | 23:30:51,8   | ICPZN  | -            | d, NS             |
|   | LR  | 00:19,6      | LPZN   | 22           | -                 |
|   | LR <sub>1</sub>   | 00:19,7      | LPZN   | 20           | -                 |
|   | LR <sub>2</sub>   | 00:19,7      | LPZN   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 29,9 S 177,4 W (Iles Kermadec)<br>h = 22 km H = 23:08:58,0 Mag: 5,4 (C.G.S.)<br>Δ = 134,0°       |   |              |  |              |                   |
| 23  | PK KP   | 13:42:19,2   | ICPZ   | -            | c                 |
|   | PKP   | 13:42:26,8   | ICPZ   | -            | c                 |
|   | pPKP  | 13:42:43,3   | ICPZ   | -            | d                 |
|   | SKP   | 13:45:54,2   | ICPZ   | -            | d                 |
|   | LR  | 14:28,3      | LPZ  | 40           | -                 |
|   | LR <sub>1</sub>   | 14:29,7      | LPZNE  | 30           | -                 |
|   | LR <sub>2</sub>   | 14:38,4      | LPZNE  | 20           | -                 |
|   | U.S.C.G.S.: Epicentre: 5,2 S 151,8 E (Région de Nouvelle Bretagne)<br>h = 61 km H = 13:23:15,0 Mag: 5,5 (C.G.S.); 5,7-6,1 (BRK)<br>Δ = 134,2° |              |  |              |                   |
| 23  | PKP   | 02:43:40,4   | ICPZNE   | -            | c, SN, EW         |
| U.S.C.G.S.: Epicentre: 21,0 S 178,0 W (Iles Fidji)<br>h = 428 km H = 02:24:58,4 Mag: 5,0 (C.G.S.)<br>Δ = 142,4°         |   |              |  |              |                   |
| 24  | P   | 08:15:57,6   | ICPE   | -            | WE                |
|   | Lg  | 08:19:32,5   | ICPZNE   | -            | c, SN, WE         |
| BUL (Rhodésie) Epicentre 12,0 S 26,4 E (Zambie)<br>h = - H = 08:12:40 Mag: 3,8 (C.G.S.)<br>Δ = 13,0°                    |   |              |  |              |                   |
| 24  | LR  | 09:41,1      | LPZNE  | 30           | -                 |
|   | LR  | 09:45,9      | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 54,5 N 142,5 E (Iles Sakhaline)<br>h = 33 km H = 08:34:13,5 Mag: 5,0 Δ = 124,2°                  |   |              |  |              |                   |



| Date  | Phases   | Heure<br>T.M.G. | Composantes,<br>nature du<br>mouvement et<br>amplitudes (μ) | Périodes<br>(s.) | Sens du<br>mouvement |
|---|--|-----------------|---|------------------|----------------------|
| 1967 Déc. 24  | P  | 20:15:22,8      | ICPZNE; LPZNE   | -                | c, SN, EW            |
|   | PcP  | 20:15:30,1      | ICPZNE; LPZNE   | -                | c, SN, WE            |
|   | PP   | 20:18:25        | LPZNE   | -                | -                    |
|   | PPP  | 20:20:17,8      | ICPE; LPZE  | -                | WE                   |
|   | S  | 20:25:19,4      | ICPZE; LPZNE  | -                | WE                   |
|   | sS   | 20:25:36        | LPZN  | -                | -                    |
|   | LR   | 20:40,7         | LPZNE   | 30               | -                    |
|   | LR <sub>1</sub>  | 20:42,1         | LPZNE   | 20               | -                    |
|   | M  | 20:42,8         | LPZ   | -                | -                    |
|   | U.S.C.G.S.: Epicentre: 17,4 N 61,1 W (Iles Leward)<br>h = 24 km H = 20:03:10,9 Mag: 6,4 (C.G.S.); 6 <sup>3</sup> / <sub>4</sub> - 7 (PAS); 6,3 - 6,5 (BRK); 6,5 (GOL)<br>Δ = 80,3°   |                 |   |                  |                      |
| 24  | P  | 21:44:44,7      | ICPZNE  | -                | d, SN, EW            |
|   | PcP  | 21:44:51,7      | ICPZNE  | -                | c, SN, WE            |
|   | U.S.C.G.S.: Epicentre: 17,4 N 61,3 W (Iles Leward)<br>h = 20 km H = 21:32:31,3 Mag: 5,9 (C.G.S.); 6 <sup>1</sup> / <sub>2</sub> (PAS); 5,6 - 6,0 (BRK)<br>Δ = 80,5°  |                 |   |                  |                      |
| 25  | PKIKP  | 01:42:37,3      | ICPZNE  | -                | c, NS, EW            |
|   | PKP  | 01:42:41,2      | ICPZNE; LPZ   | -                | c, NS, EW            |
|   | pPKP   | 01:43:05,2      | ICPZNE; LPZE  | -                | d, NS, EW            |
|   | PP   | 01:45:30,2      | ICPZNE; LPZNE   | -                | d, NS, EW            |
|   | SKP  | 01:46:22,7      | ICPZ; LPZ   | -                | c                    |
|   | PKS  | 01:46:26,8      | ICPNE; LPNE   | -                | -                    |
|   | PPP  | 01:48:26,7      | ICPZNE  | -                | c, SN, WE            |
| U.S.C.G.S.: Epicentre: 5,3 S 153,7 E (Nouvelle Irlande)<br>h = 64 km H = 01:23:33,6 Mag: -; 6 <sup>3</sup> / <sub>4</sub> - 7 (PAS); 6,8 - 7,2 (BRK); 7 <sup>1</sup> / <sub>4</sub> (GOL)<br>Δ = 135,7° |  |                 |   |                  |                      |
| 25  | P  | 10:53:33,2      | ICPZNE; LPZE  | -                | c, SN, WE            |
|   | PcP  | 10:53:38,2      | ICPZNE  | -                | d, SN, WE            |
|   | pP   | 10:53:46,2      | ICPZNE  | -                | d, NS, WE            |
|   | PP   | 10:56:29,2      | ICPZNE; LPZE  | -                | d, NS, EW            |
|   | S  | 11:03:29,1      | ICPZNE; LPZNE   | -                | d, NS, EW            |
|   | ScS  | 11:03:45,8      | ICPNE; LPZNE  | -                | NS, WE               |
|   | SS   | 11:08:16        | LPZNE   | -                | -                    |
|   | LR   | 11:19,3         | LPZE  | 40               | -                    |
|   | LR <sub>1</sub>  | 11:21,2         | LPZNE   | 30               | -                    |
|   | LR <sub>2</sub>  | 11:24,6         | LPZNE   | 20               | -                    |
|   | U.S.C.G.S.: Epicentre: 21,5 S 70,4 W (Côte de Chili)<br>h = 53 km H = 10:41:31,6 Mag: 5,8 (C.G.S.); 6 <sup>3</sup> / <sub>4</sub> (PAS); 5,8 - 6,2 (BRK); 5 <sup>1</sup> / <sub>2</sub> - 5 <sup>3</sup> / <sub>4</sub> (GOL)<br>Δ = 79,0° |                 |   |                  |                      |
| 25  | SP   | 17:32:54        | LPZNE   | -                | -                    |
|   | SSS  | 17:39:36        | LPNE  | -                | -                    |
|   | LR   | 17:41,2         | LPZN  | 40               | -                    |
|   | LR <sub>1</sub>  | 17:41,7         | LPZNE   | 30               | -                    |
|   | LR <sub>2</sub>  | 17:42,1         | LPZNE   | 20               | -                    |
| U.S.C.G.S.: Epicentre: 37,7 S 77,9 E (Océan Indien)<br>h = 33 km H = 17:14:14,9 Mag: 5,2 (C.G.S.)<br>Δ = 60,8°  |  |                 |   |                  |                      |
| 25  | P  | 21:25:52,9      | eGPZE   | -                | c, EW                |
|   | LR   | 21:33,1         | LPZE  | 30               | -                    |
|   | LR <sub>1</sub>  | 21:34,0         | LPZNE   | 20               | -                    |
| U.S.C.G.S.: Epicentre: 1,9 S 12,7 W (Iles Ascension)<br>h = 33 R H = 21:11:52,4 Mag: 5,0 (C.G.S.)<br>Δ = 29,0°  |  |                 |   |                  |                      |
| 26  | {Sn}   | 00:39:39,2      | ICPZNE  | -                | d                    |
|   | {Lg}   | 00:40:01,0      | ICPZNE  | -                | d                    |
| 26  | PKIKP  | 09:11:52,9      | ICPZ  | -                | d                    |
|   | PKP  | 09:11:58,9      | ICPZ  | -                | c                    |
|   | LR   | 10:00,3         | LPZNE   | 30               | -                    |
|   | LR <sub>1</sub>  | 10:06,5         | LPZNE   | 20               | -                    |
| U.S.C.G.S.: Epicentre: 5,1 S 153,7 E (Nouvelle Irlande)<br>h = 59 km H = 09:22:42,3 Mag: 5,2 (C.G.S.)<br>Δ = 135,8°   |  |                 |   |                  |                      |
| 26  | LR   | 10:38,0         | LPZNE   | 30               | -                    |
|   | LR <sub>1</sub>  | 10:45,5         | LPZNE   | 20               | -                    |
| U.S.C.G.S.: Epicentre: 44,5 N 129,7 W (Au large de la Côte de l'Oregon)<br>h = 33 R H = 09:29:38,5 Mag: 5,1 (C.G.S.); 5 (BRK); 5 - 5 <sup>1</sup> / <sub>4</sub> (GOL)<br>Δ = 137,1°                    |  |                 |   |                  |                      |

| Date   | Phases             | Heure T.M.G. | Composantes, nature du mouvement et amplitudes (μ) | Périodes (s) | Sens du mouvement |
|--|--------------------|--------------|--|--------------|-------------------|
| 1967 Déc. 26   | LR                 | 11:00,9      | LPZN   | 30           | -                 |
|  | LR <sub>1</sub>    | 11:03,5      | LPZN   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 44,5 N 129,8 W (Au large de la Côte de l'Oregon)<br>h = 33 R H = 09:49:50,8 Mag: 4,5 (C.G.S.); 4,6 (BRK)<br>Δ = 137,1°                  |                    |              |  |              |                   |
| 26   | (LR)               | (11:18,3)    | LPZN   | 30           | -                 |
|  | (LR <sub>1</sub> ) | (11:21,2)    | LPZN   | 20           | -                 |
| 26   | LR                 | 11:49,5      | LPZ  | 30           | -                 |
|  | LR                 | 11:52,1      | LPZ  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 44,7 N 129,6 W (Au large de la Côte de l'Oregon)<br>h = 33 R H = 10:38:58* Mag: 3,7 (C.G.S.)<br>Δ = 137,1°                              |                    |              |  |              |                   |
| 27   | -                  | 09:32:01,5   | ICPZN  | -            | c                 |
|  | S                  | 09:39:07,5   | ICPZNE   | -            | NS, EW            |
|  | SKS                | 09:39:14,1   | ICPZNE; LPZNE                                      | -            | c, NS, EW         |
|  | SS                 | 09:44:00     | LPZNE  | -            | -                 |
|  | (LQ)               | 09:49:36     | LPN  | -            | -                 |
|  | LR                 | 10:01,1      | LPZ  | 20           | -                 |
|  | M <sub>1</sub>     | 10:03,3      | LPZNE  | 15           | -                 |
| U.S.C.G.S.: Epicentre: 21,2 S 68,3 W (Région Intérieure entre Chili et Bolivie)<br>h = 135 km H = 09:17:55,7 Mag: 6,4<br>Δ = 77,2°                             |                    |              |  |              |                   |
| 27   | P                  | 11:00:28,8   | ICPZE  | -            | d, WE             |
|  | pP                 | 11:00:55,8   | ICPZ   | -            | d                 |
| U.S.C.G.S.: Epicentre: 22,5 S 68,8 W (Chili)<br>h = 110 R H = 10:48:45 Mag: 4,4 (C.G.S.)<br>Δ = 77,3°  |                    |              |  |              |                   |
| 27   | PKP                | 16:42:14,7   | ICPZNE; LPZN                                       | -            | c, NS, WE         |
|  | pPKP               | 16:42:29,1   | ICPE   | -            | EW                |
|  | PP                 | 16:45:26,2   | ICPZNE; LPZNE                                      | -            | d, NS, EW         |
|  | SKP                | 16:46:06     | LPZNE  | -            | -                 |
|  | SS                 | 17:03:52     | LPZNE  | -            | -                 |
|  | LR                 | 17:30,9      | LPZNE  | 35           | -                 |
|  | LR <sub>1</sub>    | 17:37,1      | LPZNE  | 20           | -                 |
|  | M                  | 17:45,4      | LPZ  | -            | -                 |
| U.S.C.G.S.: Epicentre: 22,3 S 174,8 W (Iles Tonga)<br>h = 33 R H = 16:22:48,5 Mag: 6,1 (C.G.S.); 6 (PAS); 6,2 (BRK)<br>Δ = 141,9°                              |                    |              |  |              |                   |
| 28   | PKP                | 06:45:41,7   | ICPZ   | -            | c                 |
|  | LR                 | 07:05,7      | LPZ  | 50           | -                 |
|  | LR <sub>1</sub>    | 07:07,0      | LPNE   | 40           | -                 |
|  | LR <sub>2</sub>    | 07:34,6      | LPZNE  | 30           | -                 |
|  | LR <sub>3</sub>    | 07:41,0      | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 44,2 N 128,8 W (Au large de la Côte d'Oregon)<br>h = 33 R H = 06:26:15,8 Mag: 5,4 (C.G.S.); 5,6-6,1 (BRK); 5-5 1/4 (GOL).<br>Δ = 136,6° |                    |              |  |              |                   |
| 28   | LR                 | 09:52,1      | LPZ  | 30           | -                 |
|  | LR <sub>1</sub>    | 09:52,8      | LPZE   | 20           | -                 |
| 28   | LR                 | 23:18,8      | LPZ  | 50           | -                 |
|  | LR <sub>1</sub>    | 23:19,4      | LPNE   | 40           | -                 |
|  | LR <sub>2</sub>    | 23:20,4      | LPZNE  | 30           | -                 |
|  | LR <sub>3</sub>    | 23:26,1      | LPZNE  | 20           | -                 |
| U.S.C.G.S.: Epicentre: 44,2 N 128,9 W (Au large de la Côte d'Oregon)<br>h = 33 R H = 21:11:33,9 Mag: 5,0 (C.G.S.); 5,2 (BRK); 5-5 1/4 (GOL).<br>Δ = 136,7°     |                    |              |  |              |                   |
| 29   | LR                 | 07:06,6      | LPZ  | 30           | -                 |
|  | LR <sub>1</sub>    | 07:10,6      | LPZE   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 36,3 N 70,2 E (Hindu Kush)<br>h = 230 km H = 06:24:50,3 Mag: 74,0 (C.G.S.)<br>Δ = 74,0°   |                    |              |  |              |                   |
| 29   | -                  | 07:19:41,7   | ICPZE  | -            | d, EW             |
| 29   | -                  | 08:12:42,7   | ICPZE  | -            | c, EW             |
| 29   | Lg                 | 13:17:06,1   | ICPZNE   | -            | -                 |
| BUL (Rhodésie) Epicentre: 1,3 N 34,0 E (Mt. Elgon, Ouganda)<br>h = - H = 13:04:17 Mag: 4,2 (C.G.S.) Δ = 26,0°  |                    |              |  |              |                   |

| Date  | Phases          | Heure T.M.G. | Composantes, nature du mouvement et amplitudes( $\mu$ ) | Périodes (s) | Sens du mouvement |
|---|-----------------|--------------|---|--------------|-------------------|
| 1967 Déc. 29  | Lg              | 13:59:25     | ICPZNE  | -            | -                 |
| BUL (Rhodésie) Epicentre: 1,3 N 34,0 E (Mt. Elgon Ouganda)<br>h = - H = 13:46:48 Mag: 4,1 (C.G.S.)<br>$\Delta = 26,0^\circ$                             |                 |              |   |              |                   |
| 29  | Lg              | 15:56:54,4   | ICPZNE  | -            | -                 |
| BUL (Rhodésie) Epicentre: 1,3 N 34,0 E (Mt. Elgon, Ouganda)<br>h = - H = 15:43:48 Mag: 4,1 (C.G.S.)<br>$\Delta = 26,0^\circ$                            |                 |              |   |              |                   |
| 29  | PKP             | 20:48:59,1   | ICPZE   | -            | d, EW             |
|   | pPKP            | 20:49:06,5   | ICPZN   | -            | c, NS             |
|   | PP              | 20:52:07     | eLPZE   | -            | -                 |
|   | SS              | 21:10:38     | LPNE  | -            | -                 |
|   | LR              | 21:43,2      | LPZNE   | 22           | -                 |
|   | LR              | 21:44,0      | LPZNE   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 22,8 S 175,3 W (Iles Tonga)<br>h = 30 km H = 20:29:32,2 Mag: 5,3 (C.G.S.); 5,4 - 5,8 (BRK); 5,2 (GOL).<br>$\Delta = 141,3^\circ$ |                 |              |   |              |                   |
| 29  | Pn              | 21:09:50     | ICPZNE  | -            | d, NS, EW         |
|   | Sn              | 21:10:24     | ICPZNE  | -            | -                 |
|   | Lg              | 21:10:29     | ICPZNE  | -            | -                 |
| $\Delta = 2,8^\circ$  |                 |              |   |              |                   |
| 29  | -               | 22:02:29,7   | ICPZE   | -            | d, EW             |
| 29  | -               | 22:38:02,5   | ICPZNE  | -            | d, NS, EW         |
| 29  | -               | 23:01:32,6   | ICPZE   | -            | d, EW             |
|   | LR              | 23:40,1      | LPZN  | 20           | -                 |
| 30  | -               | 00:14:45,8   | CPZE  | -            | c, EW             |
| 30  | P               | 02:26:18,6   | ICPZNE  | -            | c, SN, WE         |
|   | pP              | 02:26:32,2   | ICPZNE  | -            | d, NS, EW         |
| U.S.C.G.S.: Epicentre: 25,7 S 70,3 W (Côte de Chili)<br>h = 44 R H = 02:14:20,2 Mag: 5,0 (C.G.S.)<br>$\Delta = 78,1^\circ$                              |                 |              |   |              |                   |
| 30  | -               | 03:54:58,2   | ICPZE   | -            | d, EW             |
| 30  | P               | 04:29:17,1   | ICPZN   | -            | d, NS             |
|   | LR              | 04:50,3      | LPZNE   | 25           | -                 |
|   | LR <sub>1</sub> | 04:54,1      | LPZNE   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 44,7 N 12,2 E (Italie)<br>h = 33 R H = 04:19:21,2 Mag: 5,3 (C.G.S.)<br>$\Delta = 59,6^\circ$                                     |                 |              |   |              |                   |
| 30  | -               | 09:01:49,0   | ICPZE   | -            | d, EW             |
| 30  | -               | 09:55:09,0   | ICPZE   | -            | d, EW             |
| 30  | -               | 10:36:41,7   | ICPZNE  | -            | d, NS, EW         |
| 30  | -               | 18:11:05,6   | eCPZE   | -            | d, EW             |
| 30  | LR              | 20:36,9      | LPZE  | 25           | -                 |
| 31  | -               | 10:10:58,9   | eCPZE   | -            | d, EW             |
|   | LR              | 10:18,1      | LPZE  | 25           | -                 |
| 31  | LR              | 16:17,1      | LPZNE   | 25           | -                 |
|   | LR <sub>1</sub> | 16:21,8      | LPZNE   | 20           | -                 |
| U.S.C.G.S.: Epicentre: 7,1 S 154,8 E (Ile Salomon)<br>h = 19 km H = 15:05:32,3 Mag: 5,4 (C.G.S.)<br>$\Delta = 135,9^\circ$                              |                 |              |   |              |                   |