

BANDEIRA

Oct. 1965  
Nov. " "  
DEC. " "

SERVIÇO METEOROLÓGICO DE ANGOLA

Centro de Geofísica de Luanda

C.P. 1228 C Luanda

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 1 - No 10

OCTOBRE 1965

Station sismographique de São 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> (s)	T <sub>g</sub> (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
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 (μ)	Périodes (s)	Sens du mouvement
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1965 Oct. 1 PKP 00:07:04,0 1CPZ d  
SKP 00:10:23,5 1CPZNE;LPZNE d,NS,EW  
LR 00:58 LPZNE 20  
F 02:20

U.S.C.G.S.: Epicentre: 59,7 N; 143,4 W (Alaska)  
h = 19 km; H = 23:47:40,7; Mag: 4,8 (CGS)  
 $\Delta = 192,1^{\circ}$

1 Pn 00:57:33,0 1CPZNE;1z  
Sn 00:58:12,5 1CPZNE;1z  
Sn - Pn = 39,5  $\Delta = 3,2^{\circ}$

1 PKP 09:11:34,0 1CPZ(0,008)NE 1,3 c,NS,WE  
LPZN;1z;1z d,NS,WE  
PP 09:14:46,0 1CPZNE;LPZNE d,NS,WE  
SKP 09:15:16,0 1CPZN;LPZ d,SN  
LR 10:18 25

U.S.C.G.S.: Epicentre: 50,1 N; 178,3 E (Iles Aléoutiennes)  
h = 32 km; H = 08:52:05,8; Mag: 6,3 (CGS)  
 $\Delta = 142,7^{\circ}$



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes (u)	Périodes (s)	Sens du mouvement	
1965 Oct. 1	PKP SKP PP	13:40:51,5 13:43:49,0 13:44:07,0	iCPZ(0,008); iz iCPZ; LPZ iCPZNE	1,3	d c c, SN, WE	
	U.S.C.G.S.: Epicentre: 20,0 S; 174,4 E; (Iles Nouvelles Hébrides) h = 553 km; H = 13:22:28,5; Mag: 6,2 (CGS) $\Delta = 140,4^\circ$					
	1	P	22:43:42,0	iCPZ(0,007)NE LPZNE; iz; IZ	1,3	d, NS, EW
		LR	23:09	LPZNE	16	
	U.S.C.G.S.: Epicentre: 60,7 S; 24,9 W (Iles Sandwich) h = 33 km; H = 22:34:25,5; Mag: 6,0 (CGS) $\Delta = 59,5^\circ$					
	3	-	05:19:50,5	iCPZNE		d, NS
		LR	06:00	LPZNE	25	
	3	PKP	11:05:44,5	iCPZ(0,002)N; iz	0,8	c, NS
	U.S.C.G.S.: Epicentre: 52,6 N; 170,6 W (Iles Fox) h = 22 km; H = 10:46:14,7; Mag: 5,3 (CGS) $\Delta = 142,2^\circ$					
	3	-	11:50:11,5	iCPZNE		d, NS, EW
	3	PKP PP LR	15:04:42,5 15:07:13,0 15:55	iCPZE iCPZ; LPZN LPZNE; Z	35 35	c, SN, NE
	U.S.C.G.S.: Epicentre: 49,5 N; 156,5 E (Iles Kuriles) h = 33 km; H = 14:45:26,8; Mag: 5,9 (CGS) $\Delta = 139,8^\circ$					
	3	P PP LR F	16:26:59,5 16:29:56,0 16:54 18:20	iCPZNE; LPZ; iz; IZ LPZ LPZNE; Z	22	c, SN, WE
	U.S.C.G.S.: Epicentre: 42,9 S; 75,4 W (Chili) h = 28 km; H = 16:14:54,9; Mag: 6,0 (CGS) $\Delta = 79,1^\circ$					
	4	PKP SKP -	00:32:30,5 00:35:50,0 00:36:28,0	iCPZ; iz iCPZE; iz iCPZE		c c, EW
	U.S.C.G.S.: Epicentre: 6,4 S; 147,4 E (Nouvelle Guinée) h = 75 km; H = 00:13:25,8; Mag: 5,8 (CGS) $\Delta = 129,6^\circ$					
	4	P	03:48:34,0	iCPZ(0,003)		
	4	P	15:50:59,5	iCPZNE		d, SN, WE
	5	P LR	09:53:44,0 10:10	iCPZE LPZNE	30	d, WE
	5	P	10:15:16,5	iCPZ		d
	6	-	05:21:23,0	iCPZN		d, SN
	6	P	15:46:18,5	iCPZ		c
	U.S.C.G.S.: Epicentre: 36,5 N; 70,2 E (Hindu Kush) h = 203 km; H = 15:35:04,1; Mag: 5,2 (CGS) $\Delta = 74,2^\circ$					
	6	P	16:39:18,5	iCPZNE; iz		c, NS, EW
	6	LR	20:08	LPZNE	30	
	7	LR	02:27	LPZNE	20	
	7	LR	04:29	LPZNE	20	
	7	LR	09:57	LPZNE	25	
	7	LR	18:17	LPZN	18	
	8	LR	02:11	LPZNE	18	



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes ( $\mu$ )	Périodes (s)	Sens du mouvement
1965 Oct. 10	P	17:34:54,5	iGPZ(0,006)N	0,9	c, NS
	LR	17:50	iz; LZ LPZNE	22	
U.S.C.G.S.: Epicentre: 59,1 S; 24,8 W (Iles Sandwich) h = 55 km; H = 17:25:44,0 Mag: 5,7 (CGS) $\Delta = 52,4^{\circ}$					
12	PKP	14:00:19,0	iGPZ	20	c
	LR	14:54	LPZE		
U.S.C.G.S.: Epicentre: 56,3 N; 153,7 W (Iles Kodiak) h = 11 km; H = 13:40:55,9 Mag: 5,3 (CGS) $\Delta = 137,4^{\circ}$					
13	LR	15:51	LPZNE	18	
14	LR	01:32	LPZE	28	
15	P	14:31:12,0	iGPZ(0,003)E	1	c
	U.S.C.G.S.: Epicentre: 14,4 N; 93,7 E (Iles Andaman) h = 33 km; H = 14:18:39,8 Mag: 5,3 (CGS) $\Delta = 84,6^{\circ}$				
15	PKP	23:41:20,0	iGPZ(0,002)	0,8	c
	U.S.C.G.S.: Epicentre: 19,4 S; 175,8 W (Iles Tonga) h = 194 km; H = 23:22:04,2 Mag: 4,1 (CGS) $\Delta = 144,5^{\circ}$				
16	PKP	22:34:01,0	iGPZ(0,002)iz	1,5	d
	LR	23:27	LPZE	30	
U.S.C.G.S.: Epicentre: 15,1 S; 173,5 W (Iles Tonga) h = 45 km; H = 22:14:15,3; Mag: 5,3 (CGS) $\Delta = 149,2^{\circ}$					
17	PKP	02:12:59,0	iGPZ	28	d
	LR	02:59	LPZNE		
U.S.C.G.S.: Epicentre: 8,0 S; 155,9 E h = 93 km; H = 01:53:42,7; Mag: 5,5 (CGS) $\Delta = 136,2^{\circ}$					
17	PKP	04:14:59,5	iGPZ(0,004)N	1	d, NS
	U.S.C.G.S.: Epicentre: 15,7 S; 173,8 W (Iles Tonga) h = 51 km; H = 03:55:15,4 Mag: 5,5 (CGS) $\Delta = 148,6^{\circ}$				
18	LR	22:46	LPZNE; Z	25	
19	PKP	21:08:05,0	iGPZ		c
	PP	21:11:06,5	iGPZ, LPZ		
U.S.C.G.S.: Epicentre: 52,3 N; 174,3 E (Iles Aléoutiennes) h = 48 km; H = 20:48:47,4 Mag: 5,6 (CGS) $\Delta = 139,6^{\circ}$					
20	PKP	11:27:39,3	iGPZNE		d, SN, EW
	U.S.C.G.S.: Epicentre: 51,6 N; 173,8 W (Iles Andreanof) h = 32 km; H = 11:08:11,1; Mag: 5,4 (CGS) $\Delta = 142,8^{\circ}$				
20	P	118:26:35,0	iGPZ(0,005)	0,7	c
21	LR	00:44	LPZNE	20	
22	(P)	00:48:16,0	iGPZE	25	c, WE
	LR	00:55	LPZE		
22	P	18:48:02,0	iGPZE	22	d, EW
	LR	19:17	LPZE		
U.S.C.G.S.: Epicentre: 25,0 S; 71,3 W (Chili) h = 13 km; H = 18:35:54,5; Mag: 5,1 (CGS) $\Delta = 79,2^{\circ}$					
23	(P)	06:20:13,0	iGPZ		c



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes (μ)	Périodes (s)	Sens du mouvement
1965 Oct. 23	P LR	07:05:34,5 07:33	ICPZ(0,006)NE;iz LPZNE	1,5 25	c,NS,EW
			U.S.C.G.S.: Epicentre: 29,4 S; 71,6 W (Chili) h = 33 km; H = 06:53:32,8; Mag: 5,5 (CGS) $\Delta = 78,6^\circ$		
23	P	15:46:40,0	ICPZ(0,009)NE iz;iz	1	c,SN,WE
			U.S.C.G.S.: Epicentre: 32,4 S; 71,3 W (Chili) h = 67 km; H = 15:34:47,2; Mag: 5,1 (CGS) $\Delta = 77,8^\circ$		
24	(P)	18:37:52,5	ICPZN;iz		c,SN
24	LR	15:28	LP(ZNE)	30	
24	PKP	21:28:27,5	ICPZ(0,002)N	0,8	c,SN
			U.S.C.G.S.: Epicentre: 17,7 S; 178,5 W (Iles Fidji) h = 515 km; H = 21:09:44,3; Mag: 4,7 (CGS) $\Delta = 145,3^\circ$		
25	PKP	13:50:20,0	ICPZNE		c,SN,WE
			U.S.C.G.S.: Epicentre: 14,6 S; 167,4 E (Iles Nouvelles Hébrides) h = 117 km; H = 13:31:00; Mag: 5,1 (CGS) $\Delta = 140,8^\circ$		
25	LR	09:48	LPZN	20	
25	LR	18:45	LPZNE	20	
25	(P)	22:53:16,0	ICPZNE;LPZN iz;iz		c,SN,WE
	(PP)	22:55:24,5	ICPZNE;LPZNE iz;iz		c,NS,EW
	(S)	22:56:22,5	ICPZNE;LPZNE iz;iz		d,NS,EW
	LR	23:58	LPZNE Z	20	
26	P	12:27:04,0	ICPZ(0,001)NE iz	0,6	c,SN,WE
	-	12:27:25,5	ICPZNE;iz		d,NS,WE
27	LR	05:54	LPZNE	22	
27	(P)	09:38:43,5	ICPZ		c
27	P	18:12:38,5	ICPZ		d
28	LR	05:20	LPZN	20	
29	PKP	21:19:26,5	ICPZ		d
			U.S.C.G.S.: Epicentre: 51,5 N; 179,2 E (Iles Aléoutiennes) h = 0 km; H = 21:00:00,1; Mag: 6,1 (CGS) $\Delta = 141,6^\circ$		
29	Pg Sg	21:20:16,0 21:20:19,0	ICPZ;iz ICPZN;iz		c,SN
		Sg - Pg = 3 s	0,2 $\mu$		
30	P* S*	05:58:30,5 05:58:43,5	ICPZNE;Z ICPZNE;Z		d,NS,WE c,EW
		S* - P* = 13 s	$\Delta \approx 1,0^\circ$		
30	P LR	07:17:26,0 08:12	ICPZN;LPZ; iz;iz LPZNE	20	c,SN
31	P	13:59:41,0	ICPZNE;iz	0,8	d,SN,EW
			U.S.C.G.S.: Epicentre: 24,9 S; 69,0 W (Chili-Argentine) h = 107 km; H = 13:47:56,8; Mag: 5,4 (CGS) $\Delta = 77,1^\circ$		
31	LR	16:14	LPZNE	20	
31	P LR	17:00:25,0 18:04	ICPZN;iz LPZNE	0,5 20	d,SN



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C.P. 1228 C Luanda

*Bandeira  
Nov. 1965*

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 1 - No 11

NOVEMBRE 1965

II - 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> (s)	T <sub>g</sub> (s)	T <sub>s=0,2 s</sub>	Amplification		
				T <sub>s=0,6 s</sub>	T <sub>s=1,0 s</sub>	T <sub>s=15,0 s</sub>
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 (LPE)	15,0	100,0	-	-	-	1500

Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes(μ)	Périodes (s)	Sens du mouvement
1965 Nov. 1	P	18:24:19,0	iCPZ(0,003)NE;iz	1	c,SN,WE
	P	01:10:28,5	iCPZ(0,004)N iz	1	d,SN
	P	01:50:27,5	iCPZ;LPZE iz;iz		d,SN,EW
	PP	01:52:32,0	iCPZNE LPZE;iz		c,SN,WE
	S	01:59:57,0	iCPZNE;LPZNE iz;iz		c,NS,EW
	-	02:04:18,5	iCPZE;LPZNE		d,EW
	LR	19:19	LPZNE;Z	25	
	LR	07:10	LPZNE	30	
	LR	14:21	LPZNE;Z	23	
	P	15:07:20,5	iCPZNE		d,NS,EW
	P	17:31:56,5	iCPZ;iz		c,SN
	LR	20:11	LPZNE	20	
	P	02:07:31,0	iCPZ(0,002)NE iz;iz	1	d,SN,WE
	LR	02:30	LPZ	22	

U.S.C.G.S.: Epicentre: 27,9 N; 57,0 E (Iran)  
h = 38 km H = 01:57:25,0 Mag: 5,1 (CGS)  $\Delta = 60,1^{\circ}$



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes( $\mu$ )	Périodes (s)	Sens du mouvement
1965 Nov. 8	P LR	04:07:58,5 04:20	iCPZNE LPZNE	20	c,SN,EW
U.S.C.G.S.: Epicentre: 46,8 S; 33,7 E (Ile Prince Edward) h = 33 km; H = 04:01:00; Mag: 4,5 (CGS) $\Delta = 36,1^{\circ}$					
8	P	18:31:59,0	iCPZ(0,002)	1	c
U.S.C.G.S.: Epicentre: 31,7 S; 69,7 W (Argentine) h = 101 km; H = 18:20:19,6 Mag: 4,9 (CGS) $\Delta = 76,3^{\circ}$					
9	- -	01:33:24,8 01:39:55,5	iCPZ iCPZE		d c,WE
10	LR	10:26	LPZNE	20	
11	LR	03:41	LPZNE;	30	
11	PKP	09:05:32,9	iCPZ(0,005)NE iz,IZ	0,8	d,NS,EW
U.S.C.G.S.: Epicentre: 18,4 S; 177,7 W (Iles Fidji) h = 350 km; H = 08:46:35,1 Mag: 4,9 (CGS) $\Delta = 144,9^{\circ}$					
11	LR	17:39	LPZNE	25	
12	LR	02:51	LPZNE	30	
12	PKP - LR	18:11:10,5 18:11:30,0 19:02	iCPZ iCPZ;iz LPZNE	25	d c
U.S.C.G.S.: Epicentre: 30,5 N; 140,2 E (Japon) h = 40 km; H = 17:52:24,1; Mag: 6,6 (CGS) $\Delta = 128,9^{\circ}$					
13	Pn Sn	02:57:34,0 02:58:00,5	iCPZNE iz iCPZNE;iz		
Sn - Pn = 26 <sup>s</sup> $\Delta = 2,0^{\circ}$					
13	P LR	04:46:45,0 05:28	iOPZ(0,009)NE iz,IZ LPZNE;Z	0,8 20	c,NS,EW
U.S.C.G.S.: Epicentre: 43,8 N; 87,8 E (Chine) h = 59 km; H = 04:33:53,0 Mag: 6,3 (CGS) $\Delta = 89,4^{\circ}$					
13	P	06:25:03,5	iCPZ;iz	-	
13	P LR	18:11:24,9 18:40	iCPZ(0,008)NE iz,IZ LPZNE	1 20	c,SN,WE
U.S.C.G.S.: Epicentre: 29,4 S; 68,1 W (Argentine) h = 48 km; H = 17:59:41,7 Mag: 5,9 (CGS) $\Delta = 75,6^{\circ}$					
15	Pn Sn	10:32:34,0 10:32:54,0	iz iz		
Sn - Pn = 20 <sup>s</sup> $\Delta = 1,6^{\circ}$					
15	P S LR	11:27:42,9 11:31:14,9 11:35	iz,IZ iz Z	20	
U.S.C.G.S.: Epicentre: 0,3 S; 18,7 W h = 24 km; H = 11:18:49,9; Mag: 5,6 (CGS) $\Delta = 35,0^{\circ}$					
16	P	01:15:10,0	iCPZNE;iz,IZ		c,SN,WE
U.S.C.G.S.: Epicentre: 36,4 N; 71,2 E (Afghanistan) h = 241 km; H = 01:09:55,7 Mag: 5,5 (CGS) $\Delta = 74,8^{\circ}$					
16	S	03:27:05,0	iCPZNE;iz		d,NS,WE



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes(μ)	Périodes (s)	Sens du mouvement
1965 Nov. 16	P	15:35:55,0	iOPZ(0,8)NE	2,5	d,SN,WE
	LR	15:59	LPZNE;iz,iz LPZNE;Z	25	
U.S.C.G.S.: Epicentre: 31,0 N; 41,5 W h = 17 km; H = 15:24:42,9; $\Delta = 69,6^\circ$					
18	PKP	20:19:09,0	iCPN(0,07)E iz,iz	1	SN,EW
	PP	20:22:29,0	iCPNE LPZNE		NS,EW
U.S.C.G.S.: Epicentre: 18,8 S; 177,9 W (Iles Fidji) h = 421 km; H = 20:00:19,0 $\Delta = 144,4^\circ$					
18	P	22:17:19,0	iCPZ;iz		
	LR	23:08	LPZNE	32	
19	LR	02:31	LPZN	18	
19	P	12:17:49,0	iCPZNE,iz		d,NS,WE
19	LR	08:13	LPZNE;Z	20	
20	P	15:24:03,0	iCPZ(0,01);iz	1	d
	LR	16:16	LPZNE		
20	P	16:18:57,0	iCPZE iz		c
21	P	04:01:56,0	iCPZE;iz		c,EW
21	P	05:10:40,0	iCPZ(0,06)NE;iz	0,9	c,SN,WE
U.S.C.G.S.: 49,8 N; 78,1 E h = 0 km; H 04:57:57,9; Mag: 5,8 (CGS) $\Delta = 85,9^\circ$					
21	P	09:49:05,0	iCPZ		d
21	PKP	10:50:16,0	iCPZ(0,05)NE	1,5	d,NS,WE
	PP	10:51:16,5	iz iCPZNE;LPZE		d,NS,EW
	LR	11:31	iz,iz LPZNE;Z	20	
U.S.C.G.S.: Epicentre: 6,1 S; 130,4 E (Mer de Banda) h = 93 km; H = 10:31:49,7; Mag: 6,3 (CGS) $\Delta = 114,0^\circ$					
22	P	12:08:53,0	iCPZNE;iz		SN,WE
	LR	12:20	LPZNE	20	
U.S.C.G.S.: 52,1 S; 15,7 E (Afrique) h = 33 km; H = 12:01:44,2 Mag: 5,5 (CGS) $\Delta = 37,2^\circ$					
22	LR	21:38	LP(ZNE)	30	
23	LR	02:09	LP(ZNE)	25	
23	P	13:15:26,0	iCPZ(0,01)N		d,NS
24	P	15:19:26,0	iCPZ		c
24	LR	21:52	LPZNE	20	
25	P	22:56:49,0	iCPZ(0,05)iz,iz	1	d
25	LR	17:51	LPZNE	20	
25	LR	21:47	LPZNE	20	
26	-	08:42:49,0	iCP(ZNE)		d
	-	08:49:51,0	iCPZNE,iz,iz		c,SN,WE
27	P	01:52:20,0	iCPZ(0,04) iz,iz	1	
	LR	02:37	LPZNE	26	
27	LR	04:14	LPZNE	20	



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes(μ)	Périodes (s)	Sens du mouvement
1965 Nov. 27	Sn	10:46:09,5	iCPZNE;iz		d,NS,WE
27	PKP LR	12:21:07,5 13:13	iCPZ LPZNE;Z	25	c
U.S.C.G.S.: Epicentre: 9,7 S; 159, E (Iles Salomon) h = 51 km; H = 12:01:51,9 Mag: - $\Delta = 136,4^{\circ}$					
27	Sn	16:24:21,5	iCPZN;iz		d,NS
28	P LR	04:08:37,5 04:34	iCPZ(0,02)NE LPZ;iz,iz LPZNE;Z	1 25	d,SN,EW
28	P LR	05:35:12,0 05:58	iCPZ(0,08)NE iz,iz LPZNE	1,3 17	d,SN,WE
28	P LR	21:44:32,5 22:17	iCPZ(0,03)E LPZE	1 25	c,WE
U.S.C.G.S.: 4,9 S; 103,2 E (Sumatra) h = 87 km; H = 21:31:47,3 $\Delta = 88,5^{\circ}$					
29	P	04:15:09,0	iCPZ(0,04)NE	0,6	d,NS,WE
29	LR	18:01	LPZE	18	
30	Pn Sn	11:53:33,0 11:56:10,5	iCPZNE;iz iCPZNE;iz		d,SN,WE c
Sn - Pn = 157,5 <sup>s</sup> $\Delta = 8,0^{\circ}$					



SERVIÇO METEOROLÓGICO DE ANGOLA

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C.P. 1228 C Luanda

*Bandeira  
Dec. 1965*

BULLETIN SÉISMIQUE D'ANGOLA (PORTUGAL)

ANNÉE 1 - No 12

DÉCEMBRE 1965

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	To (s)	Tg (s)	Ts=0,2 s	Amplification		
				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 (OPZ)	1,0	0,75	38000	150000	100000	-
Benioff N/S (OPN)	1,0	0,85	38000	150000	100000	-
Benioff EW (OPE)	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
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1965 Déc. 1	LR	15:56:00	LPZN	30	
1	LR	17:42:00	LPZN	34	
2	P	00:48:17,2	iCPZ(0,04)NE iz, iz	1	c, NS, WE

U.S.C.G.S.: Epicentre: 16,4 S, 69,6 W (Perou - Bolivie)  
h = 196 km H = 00:36:30,1 Mag: 5,2 (CGS)

$\Delta = 79,4^{\circ}$

2	P	10:28:10,5	iCPZ; iz		c
	pP	10:28:22,5	iCPZN; iz		d, NS

U.S.C.G.S.: Epicentre: 31,3 S, 68,5 W (Province de S. Juan, Argentine)  
h = 46 km H = 10:16:27,0 Mag: 4,6 (CGS)

$\Delta = 75,6^{\circ}$



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes( $\mu$ )	Périodes (s)	Sens du mouvement
1965 Déc. 2	PKP LR	23:57:58,0 23:50:00	iCPZN;iz LPZN	32	c,SN
U.S.C.G.S.: Epicentre: 15,3 S, 173,1 W (Iles Tonga) h = 20 km H = 23:38:13,3 Mag: 5,5 (CGS) $\Delta = 149,1^{\circ}$					
3	PKP pPKP LR	07:04:36,5 07:04:47,5 08:03:00	iCPZ(0,027)NE; iz,iz iCPZNE;iz,iz LPZNE	1,3 20	d,NS,EW d,NS
U.S.C.G.S.: Epicentre: 20,4 S, 174,2 W (Iles Tonga) h = 33 km H = 06:45:02 Mag: 5,4 (CGS) $\Delta = 143,8^{\circ}$					
3	LR	15:57:00	LPZNE	40	
3	P	21:29:07	CPZ(0,04)NE iz, iz	0,5	c,SN,WE
U.S.C.G.S.: Epicentre: 36,3 N, 69,5 E (Hindou Koush) h = 19 km H = 21:17:33,6 Mag: 5,5 (CGS) $\Delta = 73,8^{\circ}$					
4	PKP	02:31:23,5	iCPZ(0,04)N iz	1	c,SN
U.S.C.G.S.: Epicentre: 51,3 N, 170,6 W (Iles Fox) h = 18 km H = 02:11:49,9 Mag: 5,5 (CGS) $\Delta = 143,4^{\circ}$					
4	LR	17:14:00	LPZNE;Z	15	
6	PKP SSS LR	11:53:50,0 12:16:00 12:49:00	iCPZ;iz LPZNE LPZNE;Z	18	c
U.S.C.G.S.: Epicentre: 18,9 N, 107,1 W (MEXICO) h = 37 km H = 11:34:53,7 Mag: 5,9 (CGS) $\Delta = 123,2^{\circ}$					
7	LR LR	11:16:00 21:44:00	LPZNE LPZNE	40 30	
7	PKP pPKP LR	22:38:13,1 22:38:42,1 23:18:00	iCPZ;iz iCPZ;iz LPZNE	24	c c
U.S.C.G.S.: Epicentre: 6,4 S, 146,3 E (Région Est de la Nouvelle Guinée) h = 109 km H = 22:19:14,8 Mag: 6,4 (CGS) $\Delta = 128,6^{\circ}$					
8	PKP PP LR	18:24:09,9 18:26:05,4 19:05:00	iCPZ(0,021)NE iz, iz iCPZNE;iz, iz LPZNE	0,6 50	c,SN,WE c,SN,WE
U.S.C.G.S.: Epicentre: 37,1 S, 177,5 E (Près de la Côte Nord d'Islande) h = 165 km H = 18:05:26,1 Mag: 5,8 (CGS) $\Delta = 125,8^{\circ}$					
9	P LR F	02:59:42,9 03:10:00 04:00	iCPZN;iz LPZNE;Z	36	c,SN
U.S.C.G.S.: Epicentre: 43,5 S, 39,0 E (Région des Iles Prince Edouard) h = 33 km H = 02:52:43,8 Mag: 5,3 (CGS) $\Delta = 36,0^{\circ}$					
9	- - -	06:27:43,0 06:37:28 07:05:00	iCPZE;eLPZ;iz eLPZNE Z	26	c,WE c,SN,EW



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes( $\mu$ )	Périodes (s)	Sens du mouvement
1965 Déc. 9	PKP	13:31:25,5	iCPZ(0,031)NE	0,7	d,NS,EW
	pPKP	13:33:53,0	eLPZ;iz, iz iCPZNE;iz,iz;		d,NS,EW
	PP	13:34:53,5	eLPZ iCPZNE;iz		d,SN,EW
U.S.C.G.S.: Epicentre: 18,0 S, 178,2 W (Région des Iles Fidji)					
h = 650 km H = 13:12:55,5 Mag: 5,6 (CGS)					
$\Delta = 145,2^{\circ}$					
9	PKP	13:44:10,0	iCPZ(0,06)N	1	d,NS
U.S.C.G.S.: Epicentre: 17,7 S, 178,3 W (Région des Iles Fidji)					
h = 650 km H = 13:25:40,7 Mag: 5,1 (CGS)					
$\Delta = 145,4^{\circ}$					
10	PKP	22:12:42,2	iCPZ(0,07)NE; eLPZ;iz, iz	0,9	d,NS,WE
	LQ	23:00:30,4		38	
	LR	23:02:00	LPZNE	15	
	F	00:20			
U.S.C.G.S.: Epicentre: 11,4 S, 166,2 E (Iles Sainte Croix)					
h = 55 km H = 21:53:17,4 Mag: 5,8 (CGS)					
$\Delta = 142,3^{\circ}$					
10	(P)	23:54:53,5	iCPZNE;iz		d,NS,WE
11	P	22:22:07,5	iCPZ(0,015)N;iz	1	c,SN
	LR	22:50:00	LPZNE	22	
U.S.C.G.S.: Epicentre: 38,2 S, 73,4 W (Près de la Côte Central du Chile)					
h = 33 km H = 22:10:06,0 Mag: 4,6 (CGS)					
$\Delta = 78,4^{\circ}$					
11	P (LR)	23:02:23,5 23:46:00	iCPZNE;iz LPZN	24	c,SN,EW
12	P	02:09:16,8	iCPZ(0,011)NE; iz	0,6	c,NS,WE
U.S.C.G.S.: Epicentre: 22,4 S, 68,7 W (Nord du Chile)					
h = 119 km H = 01:57:33,4 Mag: 4,3 (CGS)					
$\Delta = 77,2^{\circ}$					
12	PKP	07:40:19,0	iCPZ		d
	LR	08:29:00	LPZN	30	
U.S.C.G.S.: Epicentre: 27,9 S, 177,9 W (Iles Kermadec)					
h = 10 km H = 07:20:53,7 Mag: 4,9 (CGS)					
$\Delta = 135,8^{\circ}$					
12	PKP	16:59:42,5	iCPZ		d
	LR	17:53:00	LPZNE	24	
U.S.C.G.S.: Epicentre: 23,3 S; 175,5 W (Région des Iles Tonga)					
h = 32 km H = 16:40:14,3 Mag: 5,0 (CGS)					
$\Delta = 140,8^{\circ}$					
12	P	22:44:19,0	iCPZ(0,03)NE	1	c,SN,EW
	pP	22:44:28,7	iz, iz iCPZN;iz		c,SN
	LR	22:59:00	LPZNE	24	
U.S.C.G.S.: Epicentre: 29,3 S, 60,6 E (Atlantique - Ocean Indien)					
h = 33 km H = 22:35:58,5 Mag: 5,3 (CGS)					
$\Delta = 45,6^{\circ}$					



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes (μ)	Périodes (s)	Sens du mouvement
1965 Déc. 13	PKP	11:11:23,0	iCPZ(0,01)	1	d
	pPKP	11:11:35,5	eCPZ;ez		d
	PP	11:13:53,5	iCPZE		
	LR	12:05:00	GPE;LPZN	26	
	-	12:16:00	Z	20	
	F	13:20			
U.S.C.G.S.: Epicentre: 44,7 N, 150,1 E (Région des Iles Kouriles) h = 35 km H = 10:52:08,5 Mag: 5,7 (CGS) 132,9°					
13	P	15:17:20,5	iCPZN;iz		d,NS
	pP	15:17:57,3	iCPZN;iz		d,NS
	S	15:24:31	LPZNE		
	LR	15:34:00	LPZNE	20	
	F	17:00			
U.S.C.G.S.: Epicentre: 56,1 S, 27,6 W (Région Sud des Iles Sandwich) h = 157 km H = 15:08:27 Mag: 5,2 (CGS) △ = 51,8°					
13	PKP	17:08:40,8	iCPZ(0,05)NE iz, iz	0,6	d,NS,EW
U.S.C.G.S.: Epicentre: 14,1 S, 170,2 E (Région des Iles Nouvelles Hébrides) h = 638 km H = 16:50:16,8 Mag: 5,0 (CGS) △ = 143,0°					
13	LR	20:57:00	LPZNE	46	
14	-	00:01:00	LPZN	20	
15	P	02:31:58,4	iCPZ(0,0225)iz	1	c
	LR	02:39:00	LPZNE	22	
U.S.C.G.S.: Epicentre: 3,3 S, 12,0 W (Nord de l'île d'Ascension) h = 33 km H = 02:26:10,5 Mag: 4,8 (CGS) △ = 27,7°					
15	P	04:56:25,0	iCPZ(0,035)NE;iz	1	d,NS,WE
U.S.C.G.S.: Epicentre: 22,2 N, 94,6 E (Burma) h = 106 km H = 04:43:47 Mag: 5,3 (CGS) △ = 87,7°					
15	LR	12:58:00	LPZNE	40	
15	P	23:18:57,1	iCPZ(0,06)E iz, iz	1	c,WE
	PP	23:22:56,0	iCPZE		c,WE
	LR	23:51:00	LPZNE;Z	44	
	F	02:30			
U.S.C.G.S.: Epicentre: 7,5 N, 82,2 W (Sud du Panama) h = 15 km H = 23:05:20,7 Mag: 6,0 (CGS) △ = 97,4°					
16	LR	10:45:00	LPZNE;Z	30	
U.S.C.G.S.: Epicentre: 47,4 S, 99,7 E (Sud-est Océan Indien) h = 33 km H = 10:09:23,3 Mag: 5,6 (CGS) △ = 76,6°					
16	P	22:58:14,0	iCPZ(0,035)NE; iz, iz	0,6	d,NS,EW
	pP	22:58:42,6	iCPZNE;iz, iz		d,NS,EW
U.S.C.G.S.: Epicentre: 22,4 S, 68,5 W (Nord du Chili) h = 116 km H = 22:46:30,0 Mag: 5,5 (CGS) △ = 77,2°					
17	PKP	23:25:20,4	iCPZ(0,035)NE iz, iz	0,8	d,NS,WE
	PP	23:28:46,7	iCPZ;iz		d
U.S.C.G.S.: Epicentre: 17,5 S, 179,1 W (Région des Iles Fidji) h = 573 km H = 23:06:42,4 Mag: 5,5 (CGS) △ = 145,3°					



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes(μ)	Périodes (s)	Sens du mouvement
1965 Déc. 17	P	06:27:13,5	iCPZ(0,035)NE;	1	c,SN,WE
	LR	06:39:00	iz,iz LPZNE	28	
U.S.C.G.S.: Epicentre: 8,6 N, 39,4 W (Ocean Atlantique) h = 33 km H = 06:17:24,7 Mag: 5,3 (CGS) $\Delta = 57,4^\circ$					
17	-	19:07:19,4	iCPZNE		d,NS,EW
19	(Pn)	11:22:27,0	iCPZNE;iz		d,NS,WE
19	P	22:16:47,4	iCPZ(0,041)NE;	0,5	d,NS,EW
	LR	22:36:00	eLPZNE;iz, iz	36	
	F	00:00	LPZNE;Z		
U.S.C.G.S.: Epicentre: 32,2 S, 78,8 E (Ocean Indien) h = 33 km H = 22:06:32,7 Mag: 5,8 (CGS) $\Delta = 61,4^\circ$					
20	P	00:17:51,5	iCPZ(0,025)N,iz,iz	1	c,EW
	LR	00:37:00	LPZNE;Z	30	
U.S.C.G.S.: Epicentre: 40,2 N, 24,8 E (Mer Egeo) h = 33 km H = 00:08:15,2 Mag: 5,3 (CGS) $\Delta = 56,1^\circ$					
21	-	11:00:09,2	iCPZ		d
21	-	14:39:31,6	iCPZNE		d,NS,WE
21	PKP	18:09:05,4	iCPZ(0,1)NE; iz,iz	1,2	c,SN,WE
U.S.C.G.S.: Epicentre: 19,1 S, 177,6 W (Région des Iles Fidji) h = 36 km H = 17:50:10,2 Mag: 5,1 (CGS) $\Delta = 144,2^\circ$					
21	-	22:35:54,6	iCPZNE;iz		c,SN,WE
22	LR	00:14:00	LPZN	26	
22	PKP	00:48:07,9	iCPZ;iz		d
	LR	01:34:00	LPZNE	46	
U.S.C.G.S.: Epicentre: 52,4 N, 160,5 E (Côte Est de Kamechatka) h = 5 km H = 00:28:46,2 Mag: 5,1 (CGS) $\Delta = 134,3^\circ$					
22	P	04:32:57,0	iCPZ;iz		c,SN,WE
	pP	04:33:06,0	iCPZNE;iz		
	LR	04:49:00	LPZNE	26	
U.S.C.G.S.: Epicentre: 8,8 N, 39,4 W (Ocean Atlantique) h = 33 km H = 04:23:09,1 Mag: 5,0 (CGS) $\Delta = 57,6^\circ$					
22	P	03:58:46,0	iCPZ;iz		
	LR	04:15:00	LPZE	26	
U.S.C.G.S.: Epicentre: 8,2 N, 39,4 W (Ocean Atlantique) h = 33 km H = 03:48:54,8 Mag: 4,8 (CGS) $\Delta = 57,2^\circ$					
22	P	14:19:25,0	iCPZ		c
U.S.C.G.S.: Epicentre: 32,2 S, 79,0 E (Ocean Indien) h = 33 km H = 14:09:07,2 Mag: 5,5 (CGS) $\Delta = 67,6^\circ$					
22	-	16:06:20,0	iCPZ;iz		d
22	PKP	20:00:39,8	iCPZ(0,025)N; eLPZ;iz,iz	2	c,NS
	PP	20:03:19,0	iCPZNE;iz,iz		d,NS,EW
	SKP	20:04:06,5	iCPZN;eLPZN; iz,iz		d,SN
	SS	20:21:00	LPZNE		
	LR	20:46:00	LPZNE	50	
U.S.C.G.S.: Epicentre: 58,4 N, 153,0 W (Région des Iles Kodiak) h = 50 km H = 19:41:23,0 Mag: 6,5 (CGS) $\Delta = 135,4^\circ$					



Date	Phases	Heure T.M.G.	Composantes, nature du mouvement et amplitudes (u)	Périodes (s)	Sens du mouvement
1965 Déc. 23	Pn Sn	01:55:58,5 01:56:45,0	iCPZNE;iz iCPZNE;iz		
			$\Delta = 3,8^{\circ}$		
23	Pn Sn	21:50:23,0 21:50:51,0	cPZNE;z cPZNE;z		
			$\Delta = 2,1^{\circ}$		
23	Pn Sn	21:52:25,6 21:52:51,5	cPZNE;z cPZNE;z		
			$\Delta = 2,0^{\circ}$		
23	LR	21:54:00	LPZNE	30	
25	PKP PP SS	03:16:28,5 03:19:55,0 03:38:00,0	iCPZ(0,055)NE; iLPZN;iz,iz iCPZNE;eLPZ; iz,iz eLPZNE	1	c,SN,WE c,SN,EW
25	PKP	18:36:17,0	iCPZ(0,055)NE; iz,iz	1	c,SN,EW
	U.S.C.G.S.: Epicentre: 18,1 S, 179,2 W (Région des Iles Fidji) h = 625 km H = 18:17:47 Mag: 5,5 (CGS)				
			$\Delta = 144,7^{\circ}$		
25	PKP	19:39:16,2	iCPZ(0,065)NE; eLPZ;iz,iz	1	d,NS,WE
	U.S.C.G.S.: Epicentre: 18,1 S, 179,2 W (Région des Iles Fidji) h = 620 km H = 19:20:45,1 Mag: 5,4 (CGS)				
			$\Delta = 144,8^{\circ}$		
25	PKP	21:05:14,5	iCPZ(0,03)N; iz,iz	1	c,SN
	U.S.C.G.S.: 18,1 S, 179,1 W (Région des Iles Fidji) h = 620 km H = 20:46:43,6 Mag: 4,4 (CGS)				
			$\Delta = 144,8^{\circ}$		
26	Pn Sn	02:11:59,0 02:12:28,0	iCPZNE;iz iCPZNE;iz		
			$\Delta = 2,3^{\circ}$		
26	PKP SKP LQ LR	04:12:21,0 04:15:43,0 05:48:00 05:02:00	iCPZ;iz eCPZN;eLPZ; ez,eZ LPNE LPZNE	50 28	d c
	U.S.C.G.S.: Epicentre: 5,5 S, 151,4 E (Région de la Nouvelle Bretagne) h = 133 km H = 03:53:16,6 Mag: 6,0 (CGS)				
			$\Delta = 133,6^{\circ}$		
28	P -	11:34:49,0 11:40:48,0	iCPZNE;iz,iz iCPZNE;iz,iz		c,SN,WE
	U.S.C.G.S.: Epicentre: 1,4 S, 29,5 E (Région du lac Tanganyika) h = 31 km H = 11:30:08 Mag: 4,6 (CGS)				
			$\Delta = 20,8^{\circ}$		
28	-	20:55:11,0	iCPZE;iz		c,WE
30	P LQ LR	02:25:57,0 03:14:00 03:21:00	iCPZ(0,02);iz LPZNE LPZNE	1 60 30	d
	U.S.C.G.S.: Epicentre: 54,1 N, 164,3 W (Région de l'île Unimak) h = 28 km H = 02:06:31,1 Mag: 5,6 (CGS)				
			$\Delta = 140,8^{\circ}$		
30	P LR	06:28:07,8 06:57:00	iCPZNE;iz,iz LPZE	30	d,NS,EW
	U.S.C.G.S.: Epicentre: 16,8 S, 71,2 W (Sud du Pérou) h = 118 km H = 06:16:03,9 Mag: 5,7 (CGS)				
			$\Delta = 80,8^{\circ}$		