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SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
January 13, 1966

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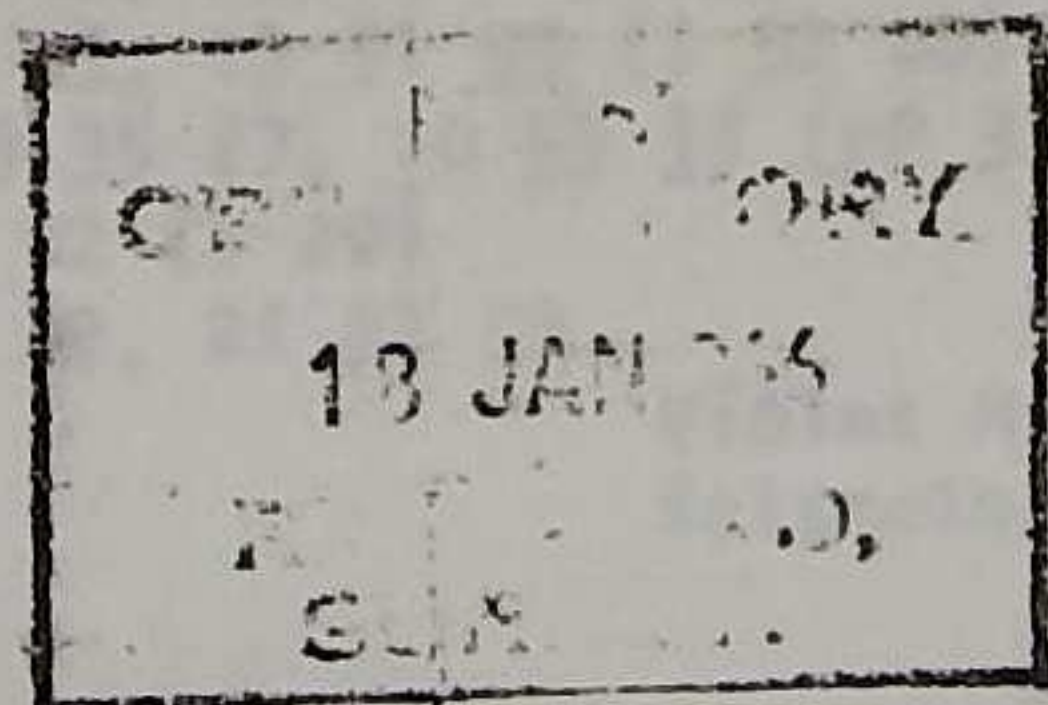
CONTINUATION

January				January 11			
3	iP	13 44 42		11	eP	10 26 32	
3	iP	15 57 02			eS	27 28	
5	iP	18 22 20			Magnitude	4.4 ±	
	ipP		30	11	eP	14 18 39	
6	eP	04 28 36			e	46	
7	iP	07 55 19		11	eP	14 28 54	
7	eP	15 10 52			e	59	
	e		11 10		eS	39.0	
	e		37		eSS	44.6	
7	iP	19 10 55.2			eG	50.7	
	IS		11 19.7		Δ 87°? May be part of the preceding, with greater distance		
	Magnitude 4				eP	12 35 21	
9	eP	08 01 53		12	eS	40 16	
9	09 20 52				eL	42.9	
	e		21 16				
10	iP	16 25 16					

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)

January 1	WDY	06 31 40, 12 37 44 (1 49)
2	GSC	03 45 23, 04 16 31 (pP 36), 04 59 31 (1 35), 14 58 39, 18 53 31; WDY 04 05 03
3	GSC	18 24 40 (pP 56, sP 25 03); WDY 18 30 00
4	GSC	03 01 54, 06 40 50, 12 58 46, 15 03 30, 15 16 00; WDY 00 01 (e 39); CLC eP 02 45 12
5	WDY	05 58 40, 11 06 35
7	CLC	14 06 41
8	GSC	04 19 32, 22 34 15, 22 51 28
9	GSC	03 24 01, 04 17 57, 05 01 10 (1 46), 09 59 58 (1 10 00 02), 23 35 47
10	GSC	00 24 28 (1 49), 11 21 50, 13 10 59

Violet M. Taylor  
Seismological Assistant



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SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
January 26, 1966 *Jan 13 - 24*



CONTINUATION

January 13	eP	10 39 42	January 20	iP	14 55 14
13	iP	10 50 21		i	30
	i	51 05	22	iP	07 42 23
	eS	57.3	22	iP	11 12 01
	iL	11 03.7	22	eP	14 33 39
14	iP	20 53 57		eS	39 03
	i	54 01		iL	41 57
15	eP	11 20 11		$\Delta 34^\circ$ Magn. 6	
	e	22		$\mu$	sec
	eL	23 24		PZ	$\frac{1}{4}$ 2
15	eP	12 06 12		MH	20 20
	iS	11 16	23	eP	01 03 15
	eL	13.7		eS	07.9
15	iP	19 41 49		eL	09.6
16	iP	09 20 58		$\Delta 25^\circ ?$	
18	iP	06 38 29		$\mu$	sec
	compression			MH	9 20
20	iP	01 56 53	23	eP	01 59 02
	i	58		i	24
20	iP	04 40 22		eL	02 01.3
	eS	50.9		i(S)	01 34
	eSS	56.7		Magnitude $5\frac{1}{2} \pm$	
	eG	05 02.9		Not well determined	
	eR	06.3	23	i	23 51 08
	$\Delta 86^\circ$			i(S)	53 06
	Magn. $5\frac{1}{2} \pm$			Compare 01:59	
	$\mu$	sec	24	eP	04 56 04
	MH	$2\frac{1}{2}$ 20			

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Barrett (BAR), Goldstone (GSC) and Woody (WDY)

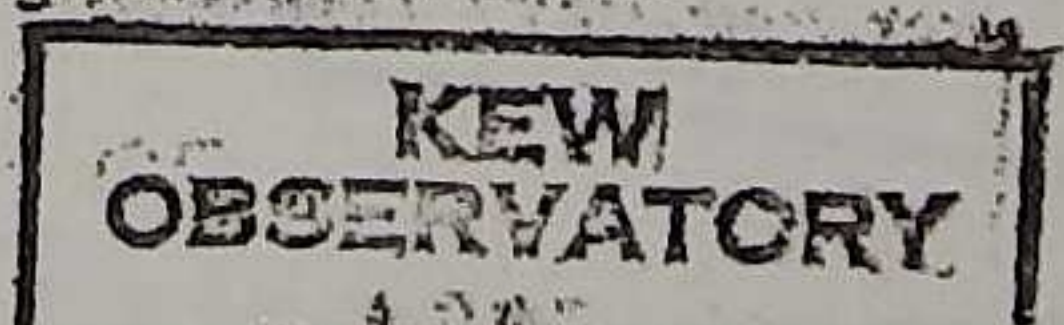
CORRECTIONS:

January 9 GSC 03 24 01 should read 03 23 01  
GSC 05 01 10 etc., should read 05 01 39 (i 46)

CONTINUED SUPPLEMENT:

7 CLC 18 28 31 (i 45); WDY 20 35 53; BAR 19 10 35.6 (S 43.2)  
8 WDY 02 54 47, 11 45 25, 13 18 04 (pP 14), 20 36 46  
9 WDY 10 58 11, 16 10 17  
10 CLC 01 09 36, 14 36 39 (e 51); WDY 01 37 27, 01 49 04  
11 BAR 10 25 50.6 (i 58.7, iS 26 36.0); GSC 03 29 03 (e 30 37),  
03 40 09, 05 51 08 (i 54), 14 47 40; WDY 03 33 37, 08 34 50  
(i 35 01), 12 54 11 (pP 23), 14 36 34 (i 41), 22 01 25 (i 31)  
12 CLC 08 11 14, 10 33 59; WDY 01 49 11, 21 57 52  
13 CLC 06 04 48, 12 34 44, 14 27 00; GSC 23 54 13; WDY 04 44 21  
(pP 36), 19 37 46  
14 WDY 01 17 29 (i 47), 22 02 10, 22 03 12 (i 22)  
15 GSC 19 41 12, 19 41 49; WDY 04 09 25, 11 08 27, 11 45 11,  
12 24 25, 14 46 55, 15 51 55 (i 52 00), 20 52 57  
16 GSC 19 54 14; WDY 09 35 27, 10 59 33 (pP 37)  
17 GSC 18 01 18, 19 04 02 (i 20)  
18 GSC 01 26 21, 21 35 32, 21 52 39

Violet M. Taylor  
Seismological Assistant



1966

Jan 27 - Feb 9

SEISMOLOGICAL LABORATORY  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 February 9, 1966



CONTINUATION

Date	Station	Time	Time	Time	Station	Time	Time	Time	
January 27	iP	02	12	31	February 5	ePP	02	19	22
28	iP	04	48	02	ePS				28.3
28	eP	05	54	52	eSS				33.6
	i		55	02	eG				43.9
	iS	06	05	29	eR				48.8
	IPS		06	36	Δ 97°±				
	eSS			11.3	Magn. 6¼				
	eG			17.3					
	eR			21.4					
	Δ 88°			Mag. 6½					
			μ	sec					
	PZ		0.1	2					
	MH		30	20					
	MZ		30	20					
28	iP	09	38	31	5	e(PS)	15	40	41
28	iP	22	48	16		i(SS)			46 42
	ePcP			24		e			51.2
	ipP			43		eG			59.0
	eS			57 27		IR	16	05	04
	eR	23	06.9			Interpretation doubtful			
31	iP	14	13	21	5	iP	16	26	17
February 2	eP	05	45	31		i			24
	eS			55 06		ipP			46
	i			34		iP	23	45	34
	eG	06	04.2		5	ipP			57
	iR			07.5		isP			46 10
	Δ 73°				6	eP	04	18	17
3	iP	00	58	39		e			39
	ipP			59 08	6	iP	23	34	47
	esP			22		epP			35 08
3	eP	02	18	16		eS			44.0
	e			31	7	eP''	04	45	05
3	iP	06	06	32		ePP			46 05
	e			09 54		eSKS			52.5
4	eP	04	14	09		eS			53.7
	e			21		ePS			55.7
4	iP	10	51	33		eSS	05	02.0	
	ipP			52 23		eG			12.2
	isP			29		eR			20.5
	ePP			54 56		Δ 113°			Magn. 6¼-6½
	iS	11	01	49					
	iSP			02.8					
	isS			03 09					
	iG			03.8					
	Δ 89°			Depth 200 km					
			μ	sec					
	PZ		1	4					

KEW  
 OBSERVATORY  
 15 FEB 1966  
 RICHMOND,  
 SURREY.

SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
February 9, 1966

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Cottonwood (CWC), Goldstone (GSC) and Woody (WDY)

January 18 CLC 05 51 02, 07 25 43  
19 WDY 04 55 37 (pP 50), 09 17 13, 12 01 09, 12 56 37, 13 57 10,  
21 18 47 (e 19 18, i 19 24), 22 27 41  
20 GSC 05 47 38, 07 24 33 (i 47), 11 15 46, 15 13 24; WDY 01 03 01  
(i 06), 02 51 02, 06 47 49, 09 05 52 (pP 06 07),  
11 53 43 (pP 48), 16 39 48 (pP 40 01, sP 40 07), 19 55 36  
21 GSC 02 31 28, 09 54 46; WDY 18 11 51  
22 GSC 04 07 27 (pP 39), 07 52 26 (e 43), 11 02 24, 19 48 29,  
22 13 49; WDY 03 52 42, 07 14 29, 12 53 30, 18 40 51  
23 GSC 01 58 38.0 (i 59 05.3, IS? 02 00 37.6), 23 50 09.2  
(i 38.4, iS 52 21.0); WDY 15 16 34 (i 42 1 51)  
24 GSC 02 24 03, 04 40 06 (pP 16), 05 25 36 (pP 45), 06 02 09,  
08 29 14?, 11 48 14 (pP 24), 21 19 34; WDY 00 20 22,  
20 34 28 (i 51), 03 52 29, 03 56 24 (i 34), 04 08 42,  
06 09 32, 06 50 21, 21 24 03  
25 CWC 05 17 37; GSC 05 53 19, 10 40 05 (e 37, eS 42 18);  
WDY 03 29 04  
26 GSC 01 22 26, 06 01 34, 07 13 43, 22 44 52; WDY 01 32 37,  
10 43 17  
27 GSC 10 23 53; WDY 10 26 54 (i 27 11), 12 12 27, 19 23 59,  
19 31 03, 19 47 32  
28 GSC 08 07 18, 10 17 53, 18 01 43 (s 03 17), 19 15 29;  
CLC 08 14 10  
29 GSC 06 37 10, 14 46 33 (i 39), 16 11 32 (e 42); CLC 00 23 30,  
01 26 02, 03 30 54; WDY 02 49 45, 08 02 46 (i 58)  
30 WDY 07 27 49, 09 29 47, 11 32 50  
31 GSC 14 03 16, 23 12 24 (i 35); WDY 00 56 12 (pP 22), 19 27 51  
February 1 GSC 13 58 35, 14 36 15; CLC 16 10 48, 18 07 57; WDY 08 33 42  
(i 50, e 59), 12 02 59, 20 34 00  
2 WDY 13 30 20, 17 22 14 (i 23 07)  
3 CLC 02 29 54 (pP 30 01), 06 17 18 (pP 25); WDY 05 09 43,  
06 02 33 (e 37 i 45 i 48), 17 24 52 (pP 56),  
17 34 40 (pP 45), 20 10 37 (pP 49), 20 15 40 (e 47)  
4 WDY 02 45 06, 02 51 32 (i 39), 05 16 20 (i 25), 10 02 52  
(e 03 04), 15 48 25 (pP 37)

Violet M. Taylor  
Seismological Assistant

**KEW  
OBSERVATORY**  
19 MAY 1966  
RICHMOND,  
SURREY.

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 160

January - 1966

Unless otherwise noted, readings refer to 1st motion at Pasadena

1966  
January

3	13 44 42, 15 57 02
5	18 22 20 (pP 30)
6	04 28 36
7	07 55 19, 15 10 52 (pP 11 10), 19 10 55.2 (S 11 19.7)
9	09 20 52 (pP 21 16)
10	16 25 16
11	10 26 32 (S 27 28), 14 18 39 (e 46), 14 28 54 (S 39 00±)
12	12 35 21 (S 40 16)
13	10 39 42, 10 50 21 (i 51 05, S 57 18±)
14	20 53 57
15	11 20 11, 12 06 12 (S 11 16), 19 41 49
16	09 20 58
18	06 38 29
20	01 56 53, 04 40 22 (S 50 54±), 14 55 14 (i 30)
22	07 42 23, 11 12 01, 14 33 39 (S 39 03)
23	01 03 15 (S 07 54±), 01 59 02 (i 24, eL 02 01 18±), 23 51 08
27	02 12 31
28	04 48 02, 05 54 52 (i 55 02, S 06 05 29), 09 38 31, 22 48 16 (PcP 24, pP 43, S 57 27)
31	14 13 21

1966

Supplement: Times of P, etc. for additional shocks recorded at Barrett (BAR), China Lake (CLC), Cottonwood (CWC), Goldstone (GSC) and Woody (WDY)

January

- 1 WDY 06 31 40, 12 37 44 (i 49)
- 2 GSC 03 45 23, 04 16 31 (pP 36), 04 59 31 (i 35), 14 58 39, 18 53 31; WDY 04 05 03
- 3 GSC 18 24 40 (pP 56, sP 25 03); WDY 18 30 00
- 4 GSC 03 01 54, 06 40 50, 12 58 46, 15 03 30, 15 16 00; WDY 00 01 08 (e 39); CLC 02 45 12
- 5 WDY 05 58 40, 11 06 35
- 7 CLC 14 06 41, 18 28 31 (i 45); WDY 20 35 53; BAR 19 10 35.6 (s 43.2)
- 8 GSC 04 19 32, 22 34 15, 22 51 28; WDY 02 54 47, 11 45 25, 13 18 04 (pP 14), 20 36 46
- 9 GSC 03 23 01, 04 17 57, 05 01 39 (i 46), 09 59 58 (i 10 00 02), 23 35 47; WDY 10 58 11, 16 10 17
- 10 GSC 00 24 28 (i 49), 11 21 50, 13 10 59; CLC 01 09 36, 14 36 39 (e 51); WDY 01 37 27, 01 49 04
- 11 BAR 10 25 50.6 (i 58.7, iS 26 36.0); GSC 03 29 03 (e 30 37), 03 40 09, 05 51 08 (i 54), 14 47 40; WDY 03 33 37, 08 34 50 (i 35 01), 12 54 11 (pP 23), 14 36 34 (i 41), 22 01 25 (i 31)
- 12 CLC 08 11 14, 10 33 59; WDY 01 49 11, 21 57 52
- 13 CLC 06 04 48, 12 34 44, 14 27 00; GSC 23 54 13; WDY 04 44 21 (pP 36), 19 37 46
- 14 WDY 01 17 29 (i 47), 22 02 10, 22 03 12 (i 22)
- 15 GSC 19 41 12, 19 41 49; WDY 04 09 25, 11 08 27, 11 45 11, 12 24 25, 14 46 55, 15 51 55 (i 52 00), 20 52 57
- 16 GSC 19 54 14 ; WDY 09 35 27, 10 59 33 (pP 37)
- 17 GSC 18 01 18, 19 04 02 (i 20)
- 18 GSC 01 26 21, 21 35 32, 21 52 39; CLC 05 51 02, 07 25 43
- 19 WDY 04 55 37 (pP 50), 09 17 13, 12 01 09, 12 56 37, 13 57 10, 21 18 47 (e 19 18, i 19 24), 22 27 41
- 20 GSC 05 47 38, 07 24 33 (i 47), 11 15 46, 15 13 24; WDY 01 03 01 (i 06), 02 51 02, 06 47 49, 09 05 52 (pP 06 07), 11 53 43 (pP 48), 16 39 48 (pP 40 01, sP 40 07), 19 55 36
- 21 GSC 02 31 28, 09 54 46; WDY 18 11 51
- 22 GSC 04 07 27 (pP 39), 07 52 26 (e 43), 11 02 24, 19 48 29, 22 13 49; WDY 03 52 42, 07 14 29, 12 53 30, 18 40 51
- 23 GSC 01 58 38.0 (i 59 05.3, iS? 02 00 37.6), 23 50 09.2 (i 38.4, iS 52 21.0); WDY 15 16 34 (i 42 i 51)
- 24 GSC 02 24 03, 04 40 06 (pP 16), 05 25 36 (pP 45), 06 02 09, 08 29 14?, 11 48 14 (pP 24), 21 19 34; WDY 00 20 22, 02 34 28 (i 51), 03 52 29, 03 56 24 (i 34), 04 08 42, 06 09 32, 06 50 21, 21 24 03
- 25 CWC 05 17 37; GSC 05 53 19, 10 40 05 (e 37, eS 42 18); WDY 03 29 04
- 26 GSC 01 22 26, 06 01 34, 07 13 43, 22 44 52; WDY 01 32 37, 10 43 17
- 27 GSC 10 23 53; WDY 10 26 54 (i 27 11), 12 12 27, 19 23 59, 19 31 03, 19 47 32
- 28 GSC 08 07 18, 10 17 53, 18 01 43 (s 03 17), 19 15 29; CLC 08 14 10
- 29 GSC 06 37 10, 14 46 33 (i 39), 16 11 32 (e 42); CLC 00 23 30, 01 26 02, 03 30 54; WDY 02 49 45, 08 02 46 (i 58)
- 30 WDY 07 27 49, 09 29 47, 11 32 50
- 31 GSC 14 03 16, 23 12 24 (i 35); WDY 00 56 12 (pP 22), 19 27 51

April 13, 1966

Violet M. Taylor, Seismological Assistant

KEW  
OBSERVATORY  
- 1 MAR 1966  
RICHMOND,  
SURREY.

1966  
Feb - 22



Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
February 23, 1966

CONTINUATION  
February 8

	eP	17 10 59
	eS	14 36
	iL	15.7
	$\Delta 19^\circ$ Magn.	$5\frac{1}{4}$
		$\mu$ sec
	PZ	0.3 4
	MH	10 20
9	iP	01 01 27
	i	33
	eS	06.7
	iL	09.3
9	iP''	04 59 18
	ePP	05 00 31
	eSKS	06.2
	iSP	10.6
	iSS	17.6
	eG	30.7
	iR	38.7
	$\Delta 119^\circ \pm$	
	Magn.	$5\frac{1}{2} \pm$
		$\mu$ sec
	MH	8 20
9	iP	07 37 47
9	eP	14 09 04
	eS	18.3
	eL	22.7
9	iP	15 24 01
10	iP	05 41 27
	eS	51.5
	eR	06 11.1
	$\Delta 82^\circ$	
10	iP	14 33 33
	i	44
	ePP	36 50
	iS	43 44
	iPS	44.7
	iSS	48.6
	iG	54.7
	eR	58.7
	$\Delta 82^\circ$	
	Magn.	$6\frac{1}{2}$
		$\mu$ sec
	PZ	0.2 1
	PH	0.1 1
	SH	4 20
	MH	30 30
	MZ	10 20

February 13	iP	05 11 25
13	iP	06 16 37
15	eP	10 08 24
	e	41
	eS	18.7
	eSS	23.7
	eG	28.9
	eR	31.7
	$\Delta 80^\circ$	
15	iP	16 35 59
16	iP	03 31 11
	compression	
	i	21
	epP	33
	eSKS	41 35
	iS	48
	iSS	43.0
	iG	54.2
	i(P'P')	57 15
	eR	58.4
	$\Delta 87^\circ$ Depth 80 km, Magn.	$6\frac{1}{2}$
		$\mu$ sec
	PZ	1 4
	PH	0.2 1
	MH	35 20
	MZ	30 20
16	iP	23 48 41
17	iP'	12 08 05
	iP2'	09 02
	ePP	12 13
	ePPS	25.9
	iSS	33.7
	eR	13 07.0
	$\Delta 162^\circ$ Magn.	$6\frac{1}{4}$
		$\mu$ sec
	PPZ	$\frac{1}{4}$ 2
	MH	8 20
17	iP'	13 03 03
	iP2'	04 01
18	eSKS	07 24.1
	eS	27.2
	eSS	32.4
	iG	42.5
	eR	50.8
	Interpretation	
	doubtful: $\Delta = 107^\circ?$	

KEW  
OBSERVATORY

- 1 MAR 1966

RICHMOND,  
SURREY.



Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)

CONTINUATION:

		(Continued)				February 22 (continued)	
February 18	eP	12 53	49			eSP	05 27 16
	e		57			iSS	33.5
18	eP	19 13	56			iG	40.9
	i		49			IR	42.7
20	iP	20 15	55			Δ 84° Depth	50 km±
21	ePP	00 42	21			Magn.	6 3/4
	ePS		52.2				
	eSS		59.2				
	eG	01 12.2					
	eR		20.4				
	Δ 118° ?						
22	iP	05 15	50				
	compression						
	from southwest						
	i	15 59		22	eP	06 10 21	
	iPP	19 30			e	30	
	e	26 24		22	iP	18 31 48	
	eS	50			i	32 04	

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)

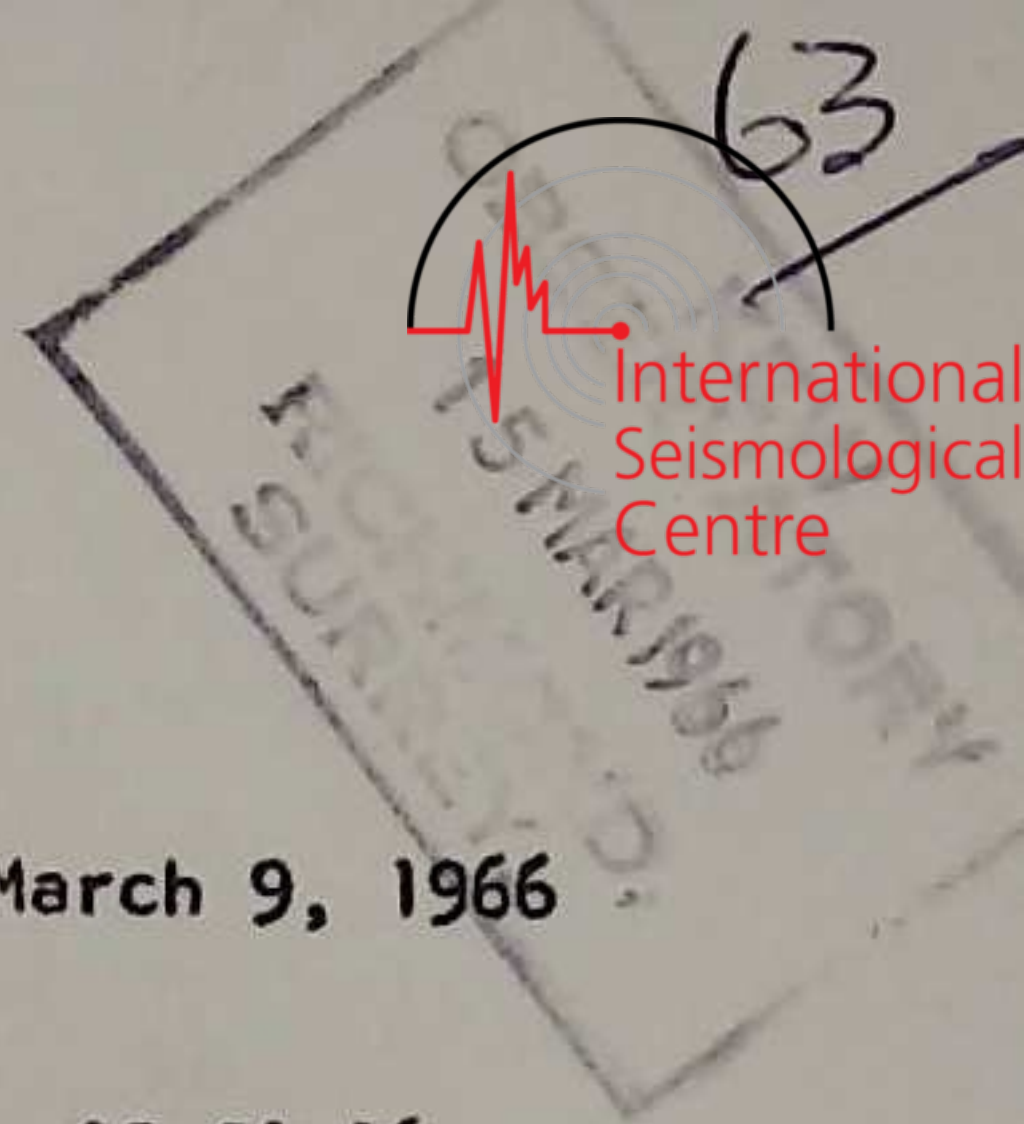
February 4	GSC	00 10 43, 21 04 13; WDY	21 23 58
5	GSC	02 15 17 (PP 18 53), 02 31 59 (=PKKP?), 20 09 45 (i 52),	20 36 20; CLC 15 27 03; WDY 01 35 13 (i 17 i 18), 09 50 01
6	GSC	02 41 20, 10 11 21 (i 12 52), 10 18 36 (S? 20 47), 20 23 23	(i 35); WDY 19 17 18 (i 38), 21 34 21
7	GSC	04 55 39, 07 44 32, 14 07 19; CLC 17 11 36; WDY 13 57 17	(i 27), 23 25 22 (i 26 11)
8	CLC	16 14 35; WDY 04 23 37, 15 05 50 (i 06 06)	
9	GSC	14 56 04; WDY 06 32 04 (pP 25), 10 05 37, 19 15 37,	20 39 27, 21 07 27, 23 44 59 (i 45 24)
10	CLC	00 27 35 (i 40), 15 09 53; WDY 01 36 56, 02 12 14, 10 54 28,	12 45 10 (i 17), 14 53 32 (e 53), 20 23 57 (pP 24 36)
11	WDY	04 59 28	
12	GSC	11 50 56 (i 56 05); CLC 00 06 37, 03 08 00	
13	GSC	10 06 31	
14	CLC	08 44 55, 16 45 02 (pP 34), 17 18 33 (pP 19 00, sP 19 11)	
15	GSC	22 26 27; CLC 22 45 29 (pP 47 57), 23 50 22	
16	GSC	07 52 20, 12 05 52 (e 06 23), 22 27 14	
17	GSC	00 49 02 (e 09), 02 21 08, 07 55 28 (pP 47), 15 08 06 (i 11),	21 08 20 (e 26, e 38)
18	GSC	05 10 12, 07 18 02, 12 18 16, 14 35 51 (pP 36 02)	

Violet M. Taylor  
Seismological Assistant



Pasadena

Feb 23 - March 1 1966



Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)

March 9, 1966

CONTINUATION

Date	Station	Time	Time	Date	Station	Time	Time
February 23	eP	13	05 19	March 5	eP	23	01 16
	e		25		e		40
24	iP	05	49 08		eS	11	23
24	iP	19	59 43		eR	24.3	
25	eP	23	02 02		$\Delta 82^\circ \pm$		
	e		13	6	eP''	02	34 33
	iS		11 30		ePP	35	24
	i		57		eSKS	41.2	
	iG		20 17		eS	43.1	
	eR		23.1		ISP	44.8	
	$\Delta 75^\circ$				ePKKP	45	20
26	eP	00	42 55		eSS	51.1	
	e		43 03		eL	03	02.1
	eL		56.1		$\Delta 113^\circ$ Magn. $6\frac{1}{2}$		
26	eS	11	42 30		$\mu$ sec		
	eG		51.1		MH	20	20
	eR		53.9	6	iP	18	14 01
	$\Delta 75^\circ$				eS	24	13
27	eP	16	39 12		eG	34.7	
	e		20		eR	38.4	
	eS		46.5		$\Delta 80^\circ \pm$		
	eL		52.1	7	eP	21	42 32
27	eP	20	49 30		ePP	46	22
	eS		53.4		eS	53.1	
28	iP	02	13 32		eSS	59	54
	e		14 26		eG	22	08.6
	eS		22.8		eR	12.1	
28	e(S)	13	59.4		$\Delta 96^\circ$ Mag. $6\frac{3}{4}$		
	e(SS)	14	05.6		$\mu$ sec		
	eG		12.1		MH	40	20
	eR		18.0	8	iP	00	29 46
28	iP	21	50 39		eS	39.5	
	epP		46	8	eP	01	26 32
	isP		55		eSKS	36.6	
	eS	22	00.1		IS	38.1	
	eL		14.6		eSS	42.2	
March 3	iP	03	35 58		iG	48.9	
	ipP		36 11		eR	51.8	
	eS		44.3		$\Delta 86^\circ$ Magn. 6		
	iL		52.1		$\mu$ sec		
5	eP	00	12 14		MH	8	20
	eG		38.5	8	eP''	05	59 35
	eR		41.5		ePP	06	00.3
5	eP	15	56 18		eSKS	06.3	
	eR	16	22.1		ePKKP	10	39
5	eS	21	21.4		iG	26.1	
	iSS		26.8		eR	31.1	
	eG		35.4		$\Delta 110^\circ$ Magn. $5\frac{3}{4} - 6$		
	eR		41.1		$\mu$ sec		
	$\Delta 90^\circ \pm$				MH	4	20

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
March 9, 1966

SUPPLEMENT: Times of P for additional shocks recorded at China Lake (CLC),  
Cottonwood (CWC), Goldstone (GSC) and Woody (WDY)

February 11 CWC 09 28 12  
13 WDY 05 28 22 (i 29 18)  
14 WDY 10 55 13, 15 58 45  
15 WDY 00 34 52, 03 00 23 (e 33), 12 16 48  
16 WDY 05 34 05  
17 GSC 23 51 41  
19 GSC 02 06 35, 02 59 34, 23 00 02 (pP 21); WDY 14 30 54  
(i 31 52); CLC 22 16 17  
20 GSC 02 15 16, 06 08 07 (pP 18), 06 23 00, 10 41 21, 15 35 44,  
(e 36 34), 18 26 25 (e 29 57), 19 05 08; WDY 00 13 18,  
00 23 46, 20 06 48 (e 07 36), 21 59 29  
21 GSC 00 41 16 (PKKP 51 36, PS 52 24), 13 32 01 (pP 31, PcP 35 49),  
14 24 11 (e 20 e 35); WDY 17 29 58, 18 04 48, 23 22 45  
22 GSC 18 46 56; WDY 01 47 08 (i 21), 02 51 32, 06 31 12 (e 20),  
06 39 06, 09 24 14, 09 28 37, 16 40 35, 19 40 00;  
CLC 18 43 37, 18 56 26  
23 GSC 01 22 57 (pP 23 09), 04 28 50; WDY 09 06 30  
24 WDY 19 02 36  
25 WDY 02 34 42, 02 37 30, 02 56 53, 13 17 43  
26 GSC 00 39 08 (pP 19), 11 33 19 (i 27 i 38); WDY 03 00 55,  
08 00 41, 08 34 30, 16 22 34  
27 WDY 16 38 36, 16 38 57  
28 GSC 02 10 03, 13 48 38 (i 53); WDY 02 09 20 (i 54), 02 13 22,  
02 22 35, 14 55 07, 18 05 59 (e 06 29), 18 12 55 (i 13 15),  
18 41 59

March 1 GSC 07 26 33, 12 33 19; WDY 13 00 21 (e 37), 21 43 36  
2 GSC 12 00 24 (i 37); WDY 06 07 29, 13 14 42, 20 26 45  
3 WDY 10 23 05, 10 28 34, 17 43 33, 21 40 42  
4 WDY 03 59 30, 08 17 20

Violet M. Taylor  
Seismological Assistant

Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 161  
 February - 1966

-- Unless otherwise noted, readings refer to 1st motion at Pasadena

1966  
 February

- 2 05 45 31 (S 55 06)
- 3 00 58 39 (pP 59 08, sP 22), 02 18 16, 06 06 32 (e 09 54)
- 4 04 14 09, 10 51 33 (pP 52 23, sP 29, PP 54 56, S 11 01 49, sS 03 09)
- 5 02 19 22 (PS 28 18±), PS 15 40 41, 16 26 17 (pP 46), 23 45 34  
 (pP 57, sP 46 10)
- 6 04 18 17, 23 34 47 (pP 35 08)
- 7 04 45 05 (PP 46 05, SKS 52 30±, S 53 42±), 08 52 58
- 8 10 13 32, 17 10 59 (S 14 36)
- 9 01 01 27 (S 06 42±), 04 59 18 (PP 05 00 31, SKS 06 12±), 07 37 47,  
 14 09 04 (S 18 18±), 15 24 01
- 10 05 41 27 (S 51 30±), 14 33 33 (i 44, PP 36 50, S 43 44)
- 13 05 11 25, 06 16 37
- 15 10 08 24 (S 18 42±)
- 16 03 31 11 (i 21, pP 33, SKS 41 35, S 41 48, P'P' 57 15), 23 48 41
- 17 12 08 05 (i 09 02, PP 12 13), 13 03 03 (i 04 01)
- 18 SKS 07 24 06± (S 27 12±), 12 53 49, 19 35 56 (pP 14 49)
- 20 20 15 55
- 21 PP 00 42 21 (PS 52 12±)
- 22 05 15 50 (i 59, PP 19 30, S 26 50), 06 10 21 (e 10 30),  
 18 31 48 (pP 32 04)
- 23 13 05 19 (e 25)
- 24 05 49 08, 19 59 43
- 25 23 02 02 (S 11 30)
- 26 00 42 55, S 11 42 30
- 27 16 39 12 (S 46 30±), 20 49 30 (S 20 53 24±)
- 28 02 13 32 (S 22 48±), S 13 59 24±, 21 50 39 (pP 46, sP 55, S 22 00 06±)

KEW  
 OBSERVATORY  
 20 JUN 1966  
 F. ... D.,  
 SURREY.

Gretchen M. Taylor  
 Seismological Assistant

1966

Supplement: Times of P, etc. for additional shocks recorded at China Lake (CLC), Goldstone (GSC) and Woody (WDY), and Cottonwood (CWC).

## February

1 GSC 13 58 35, 14 36 15; CLC 16 10 48, 18 07 57; WDY 08 33 42  
(i 50, e 59), 12 02 59, 20 34 00

2 WDY 13 30 20, 17 22 14 (i 23 07)

3 CLC 02 29 54 (pP 31 01), 06 17 18 (pP 25); WDY 05 09 43, 06 02 33  
(e 37 i 45 i 48), 17 24 52 (pP 56), 17 34 40 (pP 45),  
20 10 37 (pP 49), 20 15 40 (e 47)

4 GSC 00 10 43, 21 04 13; WDY 02 45 06, 02 51 32 (i 39), 05 16 20  
(i 25), 10 02 52 (e 03 04), 15 48 25 (pP 37), 21 23 58

5 GSC 02 15 17 (PP 18 53), 02 31 59 (=PKKP?), 14 34 47, 20 09 45  
(i 52), 20 36 20; CLC 15 27 03; WDY 01 35 13 (i 17 i 28), 09 50 01

6 GSC 02 41 20, 10 11 21 (i 12 52), 10 18 36 (S? 20 47), 20 23 23  
(i 35); WDY 19 17 18 (i 38), 21 34 21

7 GSC 04 55 39, 07 44 32, 14 07 19; CLC 17 11 36; WDY 13 57 17 (i 27),  
23 25 22 (i 26 11)

8 CLC 16 14 35; WDY 04 23 37, 15 05 50 (i 06 06)

9 GSC 14 56 04; WDY 06 32 04 (pP 25), 10 05 37, 19 15 37, 20 39 27,  
21 07 27, 23 44 59 (i 45 24)

10 CLC 00 27 35 (i 40), 15 09 53; WDY 01 36 56, 02 12 14, 10 54 28,  
12 45 10 (i 17), 14 53 32 (e 53), 20 23 57 (pP 24 36)

11 WDY 04 59 28; CWC 09 28 12

12 GSC 11 50 56 (i 56 05); CLC 00 06 37, 03 08 00

13 GSC 10 06 31; WDY 05 28 22 (i 29 18)

14 CLC 08 44 55, 16 45 02 (pP 34), 17 18 33 (pP 19 00, sP 19 11);  
WDY 10 55 13, 15 58 43

15 GSC 22 26 27; CLC 22 45 29 (pP 47 57), 23 50 22; WDY 00 34 52,  
03 00 23 (e 33), 12 16 48

16 GSC 07 52 20, 12 05 52 (e 06 23), 22 27 14; WDY 05 34 05

17 GSC 00 49 02 (e 09), 02 21 08, 07 55 28 (pP 47), 15 08 06 (i 11),  
21 08 20 (e 26, e 38), 23 51 41

18 GSC 05 10 12, 07 18 02, 12 18 16, 14 35 51 (pP 36 02)

19 GSC 02 06 35, 02 59 34, 23 00 02 (pP 21); WDY 14 30 54 (i 31 52);  
CLC 22 16 17

20 GSC 02 15 16, 06 08 07 (pP 18), 06 23 00, 10 41 21, 15 35 44 (e 36 34),  
18 26 25 (e 29 57), 19 05 08; WDY 00 13 18, 00 23 46, 20 06 48  
(e 06 36), 21 59 29

21 GSC 00 41 16 (PKKP 51 36, PS 52 24), 13 32 01 (pP 31, PcP 35 49),  
14 24 11 (e 20 e 35); WDY 17 29 58, 18 04 48, 23 22 45

22 GSC 18 46 56; WDY 01 47 08 (i 21), 02 51 32, 06 31 12 (e 20), 06 39 06,  
09 24 14, 09 28 37, 16 40 35, 19 40 00; CLC 18 43 37, 18 56 26

23 GSC 01 22 57 (pP 23 09), 04 28 50; WDY 09 06 30

24 WDY 19 02 36

25 WDY 02 34 42, 02 37 30, 02 56 53, 13 17 43

26 GSC 00 39 08 (pP 19), 11 33 19 (i 27 i 38); WDY 03 00 55, 08 00 41,  
08 34 30, 16 22 34

27 WDY 16 38 36, 16 38 57

28 GSC 02 10 03, 13 48 38 (i 53); WDY 02 09 20 (i 54), 02 13 22,  
02 22 35, 14 55 07, 18 05 59 (e 06 29), 18 12 55 (i 13 15),  
18 41 59

Violet M. Taylor  
Seismological Assistant

May 12, 1966

Pasadena

Mar 7-16/1966



Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
Provisional Readings at Pasadena  
(and auxiliary stations as noted)  
March 17, 1966

CORRECTION

March 5 eP 15 56 18  
Should read: 15 57 18

CONTINUATION

March 7	eP?	18 12 51
	eL	16.1
8	iP	20 57 23
	i	36
	i	41
	i	50
	i	56
	i	58 03
	iS	21 06 38
		$\mu$ sec
	PZ	$\frac{1}{2}$ 1
9	iP	14 03 56
	iL	05 11
9	iP	23 32 47
	ipP	33 18
	iPP	35 58
10	iP	04 38 04
	eS	47 51
	eSS	53.4
	eG	05 00.2
	$\Delta 80^\circ$	
10	iP	12 26 40
	i	27 53
11	iP	01 37 25
	i	56
	i	38 32
	eL	41.7

March 11	iP	01 59 40
	i	02 00 10
	i	21
11	eP	08 07 10
	eS	18.1
	ePS	19.2
	eG	30.7
	eR	35.7
	$\Delta 90^\circ$	
11	eP	09 54 28
	iL	58.6
11	eP	10 29 41
	e	47
12	iP	01 18 06
12	iP	16 44 53
	compression	
	IPP	48 44
	ISKS	55 30
	IS	56.0
	eSS	17 02.2
	iR	16.5
	$\Delta 95^\circ$ Magn.	$7\frac{1}{2} - 7\frac{3}{4}$
		$\mu$ sec
	PZ	$1\frac{1}{2}$ $1\frac{1}{2}$
	PH	12 12
	PPZ	20 14
	PPH	15 10
	MH	200 20
13	eP	18 11 28
	eS	22.3
	eSS	28.3
	eG	35.1
	eR	39.6
	$\Delta 90^\circ$	
		$\mu$ sec
	MH	2 20
13	iP	18 52 29
	ipP	47
16	iP	12 24 47
	eS	34 39
	eG	44.5
	eR	47.9

KEW  
OBSERVATORY  
22 MAR 1966  
RICHMOND,  
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Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
March 17, 1966

SUPPLEMENT: Times of P for additional shocks at Barrett (BAR), China Lake (CLC), Goldstone (GSC) and Woody (WDY), Cottonwood (CWC)

March	4	GSC	19 21 37 (e 45);	WDY	14 25 48 (i 56),	17 41 42, 21 22 36	
	5	CWC	02 83 23, 04 59 57, 14 42 02;	WDY	05 15 25 (i 55, i 17 40),	10 20 53, 21 12 26 (=PP?)	
	6	GSC	08 26 21, 13 49 41 (pP 55);	WDY	00 25 33, 00 38 49,	04 44 52, 04 48 47	
	7	CWC	09 17 16, 18 12 24;	GSC	01 30 11, 02 46 41;	WDY	06 38 47,
			07 35 59, 20 27 44				
	8	CWC	02 44 56, 06 29 54;				
		GSC	23 28 02; WDY	03 59 44, 05 55 32 (P''	59 32, PKKP	06 10 45),	
			06 29 56, 06 38 18, 23 35 46				
	9	BAR	14 03 28.5 (s 04 40.1);	GSC	05 14 07 (eS	23 07),	
			08 19 18, 14 16 24, 15 56 11;	WDY	13 08 22, 23 45 50		
	10	WDY	00 29 25				
	11	GSC	23 25 56, 23 46 56;	WDY	09 42 21 (pP	39, sP	
			07 10 41 (pP	11 14), 12 21 31, 14 31 09, 19 36 36			
	12	GSC	07 10 41 (pP	11 14), 12 21 31, 14 31 09, 19 36 36			
	13	GSC	09 44 44, 10 06 19, 21 55 34, 21 59 52				
	14	GSC	03 34 24 (pP	32), 06 50 01			

Violet M. Taylor  
Seismological Assistant



SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
March 23, 1966

CONTINUATION  
March 17

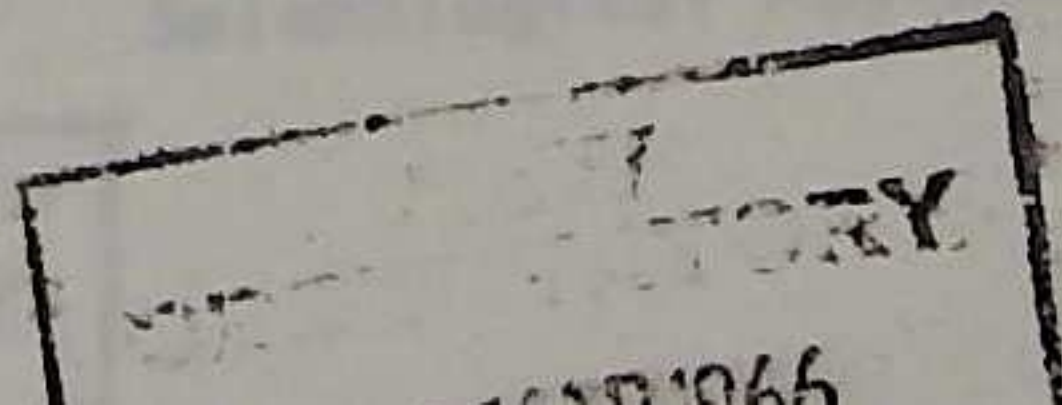
	iP	16 01 39
	dilatation from southwest	
	ipP	03 49
	iPP	04 59
	iS	10 57
	isS	14.9
	iSS	15.8
	isSS	19.6
	IG	23.0
	$\Delta 80^\circ$	
	Depth 600 km	
	Magn. 6 3/4	
	$\mu$	sec
	PZ	3 1
	PH	1 1/2
	SH	1 1/2
18	iP	18 08 12
	eL	10 22
19	eP	17 28 40
	i	30 08
19	iP	17 36 15
20	eP	01 59 22
	ePP	02 04 31
	eSKP	05 46
	eSS	22.0
	Onset of surface waves not clear	
	$\Delta 134^\circ$ Magn. 6 3/4 - 7	
	$\mu$	sec
	PPZ	1 7
	PZH	1 1/2 6
	MH	60 20
	MZ	60 20

March 20	iP	06 03 25
20	eP	07 59 14
	i (pP)	43
	eS	08 08.7
20	iP	09 16 14
	eS	26 05
	eSS	31.0
	eG	35.9
	eR	39.4
	$\Delta 80^\circ$ Magn. 5 3/4	
	$\mu$	sec
	MH	5 20
20	eP	18 21 40
	eS	32.1
	e	33.0
	eSS	37.7
	eG	43.6
	eR	47.0
	$\Delta 87^\circ$	
21	iP	06 42 11
22	eP	08 09 51
22	iP	08 32 50
	iPP	36 41
	iSKS	43 26
	eS	44 00
	eSS	50.2
	eG	59.5
	eR	09 02.9
	$\Delta 94^\circ$ Magn. 6 3/4 - 7	
	$\mu$	sec
	PZ	2 3
	MH	50 20
	MZ	24 20


SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)

March 11	WDY	21 09 50, 23 23 50 (e 26 05, e 29 14)
12	GSC	14 38 29, 18 13 10, 18 38 47 (pP 53)
13	WDY	15 07 15, 23 05 13
14	WDY	01 48 24, 04 56 56, 14 16 28
15	GSC	11 27 33 (PP 31 28), 16 00 49, 16 21 48, 16 44 18, 23 45 23, 23 55 29; CLC 23 21 53
17	WDY	08 01 44, 11 10 23 (i 35), 11 49 51 (iL 52 10), 22 34 54
18	WDY	03 36 23, 14 22 04 (i 15)

Violet M. Taylor  
Seismological Assistant



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Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
**PROVISIONAL READINGS AT PASADENA**  
 (and auxiliary stations as noted)  
 March 30, 1966

**CORRECTION**

March 22 eP  
Should read:

08 09 51

March 26

IP 10 50 15

eP

08 24 51

i 21

**ADDITIONAL**

March 18 eP  
19 e(P)  
eS?  
eG  
eR

18 17 34

26

eG 52.6

eR 53.4

eP'' 15 32 17

iPP 33 10

ePS 43 12

eSS 49.6

eG 58

27

IP 19 01 22

i 34

i 49

iPP 02 56

iS 07 37

eL 11.5

**CONTINUATION**

March 23 IP  
ePP  
eS  
eG  
iR  
 $\Delta 94^\circ$  Magn. 6

00 18 08

23 00

29 16

43.6

49.8

$\mu$  sec

PZ  $\frac{1}{4}$  2 $\frac{1}{2}$

MH 8 20

23 eP 08 18 14

23 eP 04 24 00

eL 52.0

23 IP 22 49 58

24 IP 04 16 35

24 eP 08 40 30

eS 51.0

eG 09 03.0

eR 06.5

25 eP 13 15 13

$\Delta 43^\circ$

$\mu$  sec

PZ 1 2 $\frac{1}{2}$

SH 1 $\frac{1}{2}$  20

MH 5 20

28 IP 15 58 24

i 59 13

28 eP 17 52 01

29 IP 02 30 05

compression

iPP 27

iS 40 25

eG 52.1

eR 55.7

$\Delta 83^\circ$

29 IP 10 53 56

e 54 13

**SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)**

March 18 GSC 18 52 43, 20 59 08  
 19 GSC 09 40 27, 13 55 29 (pP 38), 15 11 27; CLC 16 40 48;  
 WDY 01 26 24, 02 04 10, 06 17 13, 08 35 12, 18 02 19 (pP 26)  
 20 GSC 17 45 32; WDY 05 17 36, 07 04 54  
 21 GSC 14 36 19; WDY 07 28 47 (i 29 10), 13 37 34 (i 37 57,  
 1 38 07, 1 31; two shocks?), 15 50 58, 21 41 11  
 22 GSC 08 59 06; CLC 00 33 26, 03 48 29, 08 05 33, 09 15 06,  
 19 34 51 (i 35 05); WDY 10 27 42, 10 35 25, 11 21 44,  
 13 16 39, 16 47 06  
 23 CLC 01 18 36, 02 20 32, 08 13 11, 11 33 21, 19 08 46  
 (pP 09 01), 22 06 55  
 24 CLC 07 35 56, 08 57 59 (pP 58 04); WDY 03 31 16 (i 24),  
 11 23 19, 22 19 39  
 25 WDY 12 12 56, 13 46 53, 15 44 18

Violet M. Taylor  
Seismological Assistant

KEW  
 OBSERVATORY  
 - 5 APR 1966



PASADENA PRELIMINARY BULLETIN NO. 162

March - 1966

Unless otherwise noted, readings refer to 1st motion at Pasadena

1966

March

3 03 35 58 (pP 36 11, S 44 18±)  
5 00 12 14, 15 57 18, S 21 21 24±, 23 01 16 (S 11 23)  
6 02 34 33 (PP 35 24, SKS 41 12±, S 43 06±, SP 44 48±, PKKP 45 20),  
18 14 01 (S 24 13)  
7 18 12 51, 21 42 32 (PP 46 22, S 53 06±)  
8 00 29 46 (S 39 30±), 01 26 32 (SKS 36 36±, S 38 06±), 05 59 35 (PP 06 00 18±,  
SKS 06 18±, PKKP 10 39), 20 57 23 (i 36 i 31 ipP 57 50 iS 21 06 38)  
9 14 03 56, 23 32 47 (pP'' 33 18, SKP 35 58)  
10 04 38 04 (S 47 51), 12 26 40 (pP 27 53)  
11 01 37 25 (i 37 56 i 38 32), 01 59 40 (pP 02 00 10 i 21), 08 07 10  
(S 18 06±), 09 54 28, 10 29 31  
12 01 18 06, 16 44 53 (PP 48 44, SKS 55 30, S 56 00±)  
13 18 11 28 (S 22 18±), 18 52 29 (pP 47)  
16 12 24 47 (S 34 39)  
17 16 01 39 (pP 03 49 PP 04 59, S 10 57, sS 14 54±)  
18 18 08 12, 18 17 34  
19 13 55 33, 17 28 40 (i 30 08), 17 36 15  
20 01 59 22 (PP 02 04 31, SKP 05 46), 06 03 25 (USSR?), 07 59 14 (pP 43,  
S 08 08 42±), 09 16 14 (S 26 05), 18 21 40 (S 32 06±)  
21 06 42 11  
22 08 24 51, 08 32 50 (PP 36 41, SKS 43 26, S 44 00)  
23 00 18 08 (PP 23 00, S 29 16) 04 24 00, 05 18 14, 22 49 58  
24 04 16 35, 08 40 30 (S 51 00±)  
25 13 15 13  
26 10 50 15, 15 32 17 (SKS 43 12)  
27 19 01 22 (pP 34, PP 02 56, S 07 37)  
28 15 58 24 (pP 59 13), 17 52 01  
29 02 30 05 (pP 27, S 40 25), 10 53 56 (e 54 13)  
30 12 44 07 (S 47 18)

KEW  
OBSERVATORY

20 JUN 1966

RICHMOND,  
SURREY.

SUPPLEMENT: Times of P etc., for additional shocks recorded at Barrett (BAR), China Lake (CLC), Cottonwood (CWC), Goldstone (GSC) and Woody (WDY).

1966

March

- 1 GSC 07 26 33, 12 33 19; WDY 13 00 21 (e 37), 21 43 36  
 2 GSC 12 00 24 (i 37); WDY 06 07 29, 13 14 42, 20 26 45  
 3 WDY 10 23 05, 10 28 34, 17 43 33, 21 40 42  
 4 GSC 19 21 37 (e 45); WDY 03 59 30, 08 17 20, 14 25 48 (i 56),  
 17 41 42, 21 22 36  
 5 CWC 02 38 23, 04 59 57, 14 42 02; WDY 05 15 25 (i 55, i 17 40),  
 10 20 53, 21 12 26 (=PP?)  
 6 GSC 08 26 21, 13 49 41 (pP 55); WDY 00 25 33, 00 38 49, 04 44 52, 04 48 47  
 7 CWC 09 17 16, 18 12 24; GSC 01 30 11, 02 46 41; WDY 06 38 47, 07 35 59,  
 20 27 44  
 8 CWC 02 44 56, 06 29 54; GSC 23 28 02; WDY 03 59 44, 05 55 32  
 (P'' 59 32, PKKP 06 10 45), 06 29 56, 06 38 18, 23 35 46  
 9 BAR 14 03 28.5 (s 04 40.1); GSC 05 14 07 (eS 23 07), 08 19 18,  
 14 16 24, 15 56 11; WDY 13 08 22, 23 45 50  
 10 WDY 00 29 25  
 11 GSC 23 25 56, 23 46 56; WDY 09 42 21 (pP 39, sP 50), 21 09 59, 23 23 50  
 (e 26 05), 23 29 14  
 12 GSC 07 10 41 (pP 11 14), 12 21 31, 14 31 09, 14 38 29, 18 13 10,  
 18 38 47 (pP 53), 19 36 36  
 13 GSC 09 44 44, 10 06 19, 21 55 34, 21 59 52; WDY 15 07 15, 23 05 13  
 14 GSC 03 34 24 (pP 32), 06 50 01; WDY 01 48 24, 04 56 56, 14 16 28  
 15 GSC 11 27 33 (PP 31 28), 16 00 49, 16 21 48, 16 44 18, 23 45 23,  
 23 55 29; CLC 23 21 53  
 17 WDY 08 01 44, 11 10 23 (i 35), 11 49 51 (iL 52 10), 22 34 54  
 18 GSC 18 52 43, 20 59 08; 21 26 44; WDY 03 36 23, 14 22 04 (i 15)  
 19 GSC 09 40 27, 13 55 29 (pP 38), 15 11 27; CLC 16 40 48; WDY 01 26 24,  
 02 04 10, 06 17 13, 08 35 12, 18 02 19 (pP 26)  
 20 GSC 17 45 32; WDY 05 17 36, 07 04 54  
 21 GSC 14 36 19; WDY 07 28 47 (i 29 10), 13 37 34 (i 37 57, i 38 07, i 31;  
 two shocks?), 15 50 58, 21 41 11  
 22 GSC 08 59 06; CLC 00 33 26, 03 48 29, 08 05 33, 09 15 06, 19 34 51  
 (i 35 05); WDY 10 27 42, 10 35 25, 11 21 44, 13 16 39, 16 47 06  
 23 CLC 01 18 36, 02 20 32, 08 13 11, 11 33 21, 19 08 46 (pP 09 01), 22 06 55  
 24 CLC 07 35 56, 08 57 59 (pP 58 04); GSC 20 21 31; WDY 03 31 16 (i 24),  
 11 23 19, 22 19 39  
 25 GSC 13 03 25 (i 29 i 34), 14 04 50, 22 04 48; WDY 12 12 56, 13 46 53,  
 15 44 18  
 26 GSC 02 22 44, 10 01 52, 12 40 02 (i 13), 13 45 39, 18 27 35,  
 22 26 40; WDY 10 55 59  
 27 GSC 03 50 38, 06 03 03 (pP 34), 10 51 19, 15 04 58 (pP 06 09), 23 20 18  
 (pP 25); CLC 15 27 42; WDY 15 50 56 (i 51 00), 21 10 26  
 28 GSC 05 04 18, 15 38 27 (s 45 50), 18 29 25, 20 38 40; WDY 00 12 07,  
 00 41 16, 01 24 35, 19 05 45 (i 06 51), 22 11 09  
 29 GSC 02 21 39, 06 40 21 (pP 38), 10 14 40, 13 40 03, 23 04 37  
 (pP 49); CLC 17 50 22; WDY 16 34 33, 21 29 32  
 30 CLC 20 53 38; GSC 01 39 28, 04 37 40, 05 05 30 (i 49), 05 44 03, 05 54 15  
 08 30 52, 13 20 58, 17 55 24 (e 56), 21 46 22; WDY 01 45 37,  
 11 41 02, 18 57 53 (pP 58 02)  
 31 CLC 14 46 19; GSC 01 01 01, 05 18 46, 17 20 20, 19 09 34, 23 56 04?  
 (e 35); WDY 20 24 52, 20 47 58 (i 48 08)



SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)

April 13, 1966

CONTINUATION

April 10	iP i eS? iL	22 29 13 20 29.7 31.1	April 11	iP eS i eL e Δ 30°	23 06 51 11.6 12.1 14.2 15.2
11	iP ipP ePcP iS iL Δ 22° depth 100 km  PZ	17 22 15 31 25 55 26.3 27.2   μ    sec 1/2   1/2			

SUPPLEMENT: Times of P for additional shocks at Barrett (BAR), China Lake (CLC), Goldstone (GSC) and Woody (WDY)

March 24	GSC 20 21 31
25	GSC 13 03 25 (i 29 i, 34), 14 04 50, 22 04 48
26	GSC 02 22 44, 10 01 52, 12 40 02 (i 13), 13 45 39, 18 27 35, 22 26 40; WDY 10 55 59
27	GSC 03 50 38, 06 03 03 (pP 34), 10 51 19, 15 04 58 (pP 06 09), 23 20 18 (pP 25); CLC 15 27 42; WDY 15 50 56 (i 51 00), 21 10 26
28	GSC 05 04 18, 15 38 27 (s 45 50), 18 29 25, 20 38 40; WDY 00 12 07, 00 41 16, 01 24 35, 19 05 45 (i 06 51), 22 11 09
29	GSC 02 21 39, 06 40 21 (pP 38), 10 14 40, 13 40 03, 23 04 37 (pP 49); CLC 17 50 22; WDY 16 34 33, 21 29 32
30	CLC 20 53 38; GSC 01 39 28, 04 37 40, 05 05 30 (i 49), 05 44 03, 05 54 15, 08 30 52, 13 20 58, 17 55 24 (e 56), 21 46 22; WDY 01 45 37, 11 41 02, 18 57 53 (pP 58 02)
31	CLC 14 46 19; GSC 01 01 01, 17 20 20, 19 09 34, 23 56 04? (e 35); WDY 20 24 52, 20 47 58 (i 48 08)
April 1	GSC 02 59 53 (pP 03 00 10), 03 45 42, 03 52 41 (pP 49), 15 27 55, 16 03 39; WDY 01 36 25, 05 34 22 (i 45), 08 25 44? (i 26 00, i 06) 19 29 13 (pP 23)
2	GSC 08 42 29, 11 15 02; WDY 12 42 38, 21 20 14, 22 02 11, 22 55 00 (pP 12)
3	BAR 19 45 21.5 (i 35.0, eS 40 06); GSC 19 33 07; WDY 07 51 42, 16 07 05 (pP 43), 16 54 43, 18 37 57
4	GSC 03 10 40 (i 45), 06 31 03, 07 01 15, 09 34 25, 10 43 23, 18 28 01, 20 55 44, 20 59 26; WDY 01 58 29 (i 41), 05 29 03, 23 45 00
5	GSC 05 08 46 (e 58 e 09 03), 06 12 28, 09 03 29 (e 36), 10 55 48 (e 53); WDY 18 46 07, 19 13 18
6	GSC 19 58 32 (e 49), 22 35 12, 23 15 19, 23 18 44; WDY 05 15 45 (pP 16 19), 07 13 26, 13 08 11; CLC 18 19 05
7	GSC 14 48 42; WDY 17 28 51
8	WDY 02 54 26, 06 02 46 (i 57 i 03 04), 07 27 32, 09 25 23, 12 33 37

Violet M. Taylor  
Seismological Assistant

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
April 27, 1966

CONTINUATION

Date	Station	Time	μ	sec	Date	Station	Time	μ	sec	
April 12	iP	23 50 07			April 20	eP	16 38 50			
	iS	24 00 24				21	iP	09 00 05		
	eSS	05.7				21	iP	15 56 16		
	eG	11.5					i	57 32		
	eR	16.9					e	58 50		
	Δ 82° Mag. 6					22	iP	03 19 06		
							iS	29 18		
	PZ	$\frac{1}{4}$	2				eSS	34.2		
	SH	8	24				eSSS	38.0		
	MH	10	20				eG	40.7		
13	eP	03 47 02				eR	45.7			
	i	50				Δ 86°				
	iS	58 02								
	eSS	04 03.2								
	eG	09.9			22	MH	$\frac{1}{4}$	20		
	eR	15.7				eP	10 22 17			
						e	22			
	PZ	$\frac{1}{4}$	2		22	iP	23 33 54			
	SH	3	24			dilatation from				
	MH	4	20			northwest				
14	iP	06 31 11				ipP	34 00			
	i	19				iS	39 12			
	eP	06 51 08				eL	41 39			
	eS	57 50				e(R)	42 39			
	eR	07 04.7								
	Δ 48°									
	eP	01 33 50								
	iS	39 10			23	eP''	00 28 15			
	eL	41.4				ePP	29 12			
	eR	42.7				ePS	38 53			
15						ePKKP	38 54			
	PZ	$1\frac{1}{2}$	4			eSKKP	42 56			
	SH	4	7			eSS	44.7			
	MH	40	20			eR	58.6			
	MZ	30	20			Δ 118° Magn. 6 3/4				
	iP	15 34 45								
	iP	16 51 54								
	eL	56.1			23	MH	$\frac{1}{2}$	20		
	eP	02 45 30				iP''	09 15 20			
	eS	55.5				iPS	25 53			
20	eL	03 06.7				ePKKP	26 05			
	eP	06 13 09				eSKKP	29 59			
	eS	23.1				Δ 118° Magn. 6±				
	eSS	28.0								
	eG	34.3								
	eR	38.1			25	MH	$2\frac{1}{2}$	20		
	Δ 79°±					iP	10 53 09			
						eS	11 02 05			

OBSERVATION  
 - 3 MAY 1966  
 RICHMOND,  
 SURREY.

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Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
April 27, 1966

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)

April 8 GSC 20 16 08, 22 17 23, 23 55 51 (i 56 05, i 14); WDY 22 40 03  
(i 11), 22 43 20 (i 27), 22 46 08 (i 13), 23 15 24 (i 39)

9 GSC 04 18 14 (e 21), 14 43 44, 15 02 07, 18 58 07 (e 21 i 28),  
20 24 09 (i 19); WDY 07 22 29 (i 36), 08 54 29 (i 36),  
20 30 29 (pP 44)

10 GSC 10 49 06 (i 10); WDY 04 19 59 (i 20 09), 06 07 19, 07 06 16

11 GSC 16 14 48, 18 32 44; WDY 10 40 49, 14 43 22, 22 07 08?  
(i 23), 23 53 36 (i 55 43)

12 GSC 23 28 22; WDY 12 18 40 (i 49), 17 40 17 (pP 31), 21 23 09

13 GSC 04 39 38 (pP 41 26), 12 51 13, 13 10 28; WDY 00 38 09  
(i 14), 11 25 03, 21 45 47

14 WDY 02 23 19 (i 31), 19 29 14

15 GSC 05 06 02 (e 16), 06 46 38; WDY 18 11 22 (e 32 i 35),  
23 41 17

16 GSC 22 55 07 (pP 29); WDY 04 47 06, 07 22 00 (i 05), 10 25 17,  
11 40 20 (i 28 i 38, i 41 58, i 42 07), 15 02 40, 15 30 08,  
15 34 46 (pP 36 39)

17 WDY 02 25 59, 02 44 29, 06 49 28

18 GSC 08 33 27; CLC 09 21 06 (pP 16)

19 GSC 07 30 49; CLC 20 36 34 (pP 50, sP 59), 22 29 34, 23 03 37

20 GSC 06 55 29 (i 34), 06 58 16 (i 21), 14 13 58; CLC 02 53 13,  
03 02 33, 03 07 58, 05 46 19 (e 25), 14 44 37, 17 12 04;  
WDY 02 58 44 (pP 51), 11 25 06 (pP 21 sP 27)

21 CLC 04 11 19, 06 16 06, 06 18 49, 08 27 04, 09 28 58; GSC 16 17 43  
(e 46), 16 24 03; WDY 17 48 35

22 WDY 07 30 04 (i 10), 08 19 14, 08 31 06 (i 19), 12 36 29,  
13 13 24

Violet M. Taylor  
Seismological Assistant

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Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
May 10, 1966

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)

April 22 GSC 19 56 25 (pP 33), 23 27 47 (e 52); WDY 07 30 04 (i 10),  
08 19 14, 08 31 06 (i 19), 12 36 29, 13 13 24, 17 06 10 (i 19)  
23 CLC 20 22 44; GSC 00 24 45 (P'' 28 12), 01 14 07, 03 40 36, 04 07 48,  
05 57 28 (i 31), 07 03 20 (i 29, e 07 24, eS 14 13), 18 33 01;  
WDY 06 10 40, 07 32 09, 18 12 30  
24 GSC 06 10 30 (i 45), 06 13 08 (e 25), 07 13 38; WDY 03 40 10,  
15 20 55 (pP 21 06), 20 52 42  
25 GSC 02 21 35, 08 45 38, 10 53 17 (pP 55 15), 21 31 02  
26 WDY 01 29 23, 02 46 40 (pP 51), 07 38 13  
27 CLC 20 07 14 (e 32); WDY 21 44 55 (pP 46 45), 22 59 51  
28 WDY 00 29 04, 01 04 52, 10 19 21 (i 28)  
29 WDY 00 10 22 (i 30), 02 36 49 (pP 37 10, sP 20), 03 44 40,  
09 15 35 (i 44), 10 59 57, 23 13 27 (i 32)  
30 GSC 08 22 10; WDY 02 02 03, 02 44 00, 06 37 33, 13 44 33, 14 13 10  
May 1 GSC 01 22 48, 10 23 50, 13 44 05, 22 33 43 (i 36 12, i 38 17);  
WDY 07 14 03, 11 03 46 (pP 04 14), 13 10 54  
2 GSC 11 04 36 (pP? 05 33), 22 51 04; WDY 21 45 01, 23 30 07 (i 16)  
3 GSC 01 28 46, 12 15 09 (i 29, i 38); WDY 03 00 22, 21 06 26, 22 18 06  
4 GSC 07 57 56, 13 27 06 (i 13), 18 20 42 (i 23 14, i 23 33, i 26 54),  
20 30 30; WDY 02 29 58, 07 17 08, 10 57 12  
5 GSC 00 30 04 (pP 31 11), 05 55 44, 06 25 29 (pP 39), 15 26 34,  
15 34 56 (pP 35 14), 16 02 42; WDY 04 43 16 (i 28), 06 43 42,  
07 37 58 (e 38 10), 07 47 19 (e 42), 07 58 38, 20 53 08 (e 29)  
6 WDY 04 06 21, 10 20 17

Violet M. Taylor  
Seismological Assistant

Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 May 11, 1966

CORRECTION

April 8 Pasadena  
 eP  
 Should read:  
 eP

11 29 39  
 11 21 39

ADDITIONAL

April 23 eP  
 iS  
 eG  
 eR

07 03 20  
 14 00  
 29.6  
 37.2

CONTINUATION

April 28 eP  
 e  
 eS  
 eL  
 eR

10 45 00  
 07  
 49.8  
 52.3  
 55.2

28  $\Delta 33^\circ \pm$

eP 17 08 06  
 iS 17 41  
 eR 30.1

$\Delta 74^\circ$

		$\mu$	sec	
28	MH	3	20	
28	eP	17	25 11	
28	iP	22	33 01	
	iL		35.1	
	eR		36.1	
29	iP	01	53 25	
	eS		58 55	
	eL	02	00.8	
	eR		02.0	

$\Delta 32^\circ$

30 iP 13 05 30  
 eL 09.3  
 eR 10.2

$\Delta 21^\circ$  Magn.  $5\frac{1}{2} \pm$

		$\mu$	sec
	PZ	$1\frac{1}{2}$	2
	MH	15	20
May 1	iP	16	32 44
	dilatation from southeast		
	ipP		33 22
	isP		41

May 1 (Continued)

iS 16 40 41  
 isS 41 48  
 iSS 44.7  
 eG 47.7  
 eR 51.9

$\Delta 61^\circ$  Depth 150 km  
 Magn.  $6\frac{3}{4}$

		$\mu$	sec
	PZ	4	5
	PH	3	5
	SH	3	8
2	eP	10	06 01
	eSKS		16.9
	eS		17.7
	eSS		23.7
	eG		30.9
	eR		36.7

$\Delta 95^\circ$  Magn. 6

		$\mu$	sec
	MH	8	20
2	iP	11	04 29
2	iP	16	58 36
4	eP	18	20 45
	e		21 19
5	iP	06	47 54
	i		58
5	eP	14	34 45
	eSKS		45 21
	ePS		47.9
	eSS		52.9
	eG	15	01.7
	eR		06.8

$\Delta 103^\circ$  Magn.  $5\frac{3}{4}$ -6

		$\mu$	sec
	MH	6	20
	MZ	5	20
6	eP	02	56 37
7	iP	03	27 38.4
	iS		28 20.7
	Magn. $4\frac{1}{2}$		
9	eS	20	26 57
	eG		36.7
	eR		39.1

$\Delta 78^\circ?$

ICEW  
 OBSERVATORY  
 16 MAY 1966  
 RICHMOND,  
 SURREY.



Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 163

April - 1966

Unless otherwise noted, readings refer to 1st motion at Pasadena

1966	
April	
2	01 58 07 (e 59 07, S 02 02 42)
3	04 55 34 (pP 47, S 05 18±)
4	19 56 33 (pP 57 12, PcP 59 17, ScP 20 02 56)
5	06 27 48
6	03 18 52 (SS 41 12±, G 04 01 30±; $\Delta$ 150°), 22 07 31 (e 56)
7	05 14 26 (i 32, S 23 54±), 09 55 45 (pP 58, S 10 06 18±)
8	01 56 54 (pP 57 07, PcP 57 45, pPcP 58 00, S 02 05 10, P'P' 26 14) 05 34 53 (pP 35 06), 10 45 10 (i 16 i 23), 11 21 39 (i 50, S 31 24±) 14 18 02 (S 26 18±)
9	02 41 55, 02 49 42, 20 15 05
10	10 42 14, 16 48 15 (pP 32, PP 51 30, S 58 12), 22 29 13
11	17 22 15 (pP 31, PcP 25 55, S 26 18±), 23 06 51 (S 11 42±)
13	03 47 02 (i 50, S 58 02), 04 39 20
14	06 31 11 (i 19)
15	06 51 08 (S 57 50)
16	01 33 50 (S 39 10), 15 34 45
17	16 51 54
20	02 45 30 (S 55 30±), 06 13 09 (S 23 06±), 16 38 50
21	09 00 05, 15 56 16 (i 57 32, e 58 50)
22	03 19 06 (S 29 18), 10 22 17, 23 33 54 (pP 34 00, S 39 12)
23	00 28 15 (PP 29 12, PS 38 53, PKKP 38 54, SKKP 42 56), 07 03 20 (S 14 00), 09 15 20 (PS 25 53, PKKP 26 05, SKKP 29 59)
25	10 53 09 (S 11 02 05)
28	10 45 00 (S 49 56±), 17 08 06 (S 17 41), 17 25 11, 22 33 01
29	01 53 25 (S 58 55)
30	13 05 30

KEW  
 OBSERVATORY  
 28 JUN 1966  
 RICHMOND,  
 SURREY.

SUPPLEMENT: Times of P etc., for additional shocks recorded at Barrett (BAR), China Lake (CLC), Goldstone (GSC) and Woody (WDY)

1966

April

- 1 GSC 02 59 53 (pP 03 00 10), 03 45 42, 03 52 41 (pP 49), 15 27 55, 16 03 39; WDY 01 36 25, 05 34 22 (i 45), 08 25 44? (i 26 00, i 06), 19 29 13 (pP 23)
- 2 GSC 08 42 29, 11 15 02; WDY 12 42 38, 21 20 14, 22 02 11, 22 55 00 (pP 12)
- 3 BAR 19 45 21.5 (i 35.0, eS 40 06); GSC 19 33 07; WDY 07 51 42, 16 07 05 (pP 43), 16 54 43, 18 37 57
- 4 GSC 03 10 40 (i 45), 06 31 03, 07 01 15, 09 34 25, 10 43 23, 18 28 01, 20 55 44, 20 59 26; WDY 01 58 29 (i 41), 05 29 03, 23 45 00
- 5 CLC 16 42 50; GSC 05 08 46 (e 58, e 09 03), 06 12 28, 09 03 29 (e 36) 10 55 48 (e 53); WDY 18 46 07, 19 13 18
- 6 GSC 19 58 32 (e 49), 22 35 12, 23 15 19 (SKP 18 44); WDY 05 15 45 (pP 16 19), 07 13 26, 13 08 11; CLC 18 19 05
- 7 GSC 14 48 42; WDY 17 28 51
- 8 GSC 20 16 08, 22 17 23, 23 55 51 (i 56 05, i 14); WDY 02 54 26, 06 02 46 (i 57, i 03 04), 07 27 32, 09 25 23, 12 33 37, 22 40 03 (i 11), 22 43 20 (i 27), 22 46 08 (i 13), 23 15 24 (i 39)
- 9 GSC 04 18 14 (e 21), 14 43 44, 15 02 07, 18 58 07 (e 21 i 28), 20 24 09 (i 19); WDY 07 22 29 (i 36), 08 54 29 (i 36), 20 30 29 (pP 44)
- 10 GSC 10 49 06 (i 10); WDY 04 19 59 (i 20 09), 06 07 19, 07 06 16
- 11 GSC 16 14 48, 18 32 44; WDY 10 40 49, 14 43 22, 22 07 08? (i 23), 23 53 36 (i 55 43)
- 12 GSC 23 28 22; WDY 12 18 40 (i 49), 17 40 17. (pP 31), 21 23 09
- 13 GSC 04 39 38 (pP 41 26), 12 51 13, 13 10 28; WDY 00 38 09 (i 14), 11 25 03, 21 45 47
- 14 WDY 02 23 19 (i 31), 19 29 14
- 15 GSC 05 06 02 (e 16), 06 46 38; WDY 18 11 22 (e 32 i 35), 23 41 17
- 16 GSC 22 55 07 (pP 29); WDY 04 47 06, 07 22 00 (i 05), 10 25 17, 11 40 20 (i 28 i 38, i 41 58, i 42 07), 15 02 40, 15 30 08, 15 34 46 (pP 36 39)
- 17 WDY 02 25 59, 02 44 29, 06 49 28
- 18 GSC 08 33 27; CLC 09 21 06 (pP 16)
- 19 GSC 07 30 49; CLC 20 36 34 (pP 50, sP 59), 22 29 34, 23 03 37
- 20 GSC 06 55 29 (i 34), 06 58 16 (i 21), 14 13 58; CLC 02 53 13, 03 02 33, 03 07 58, 05 46 19 (e 25), 14 44 37, 17 12 04; WDY 02 58 44 (pP 51), 11 25 06 (pP 21 sP 27)
- 21 CLC 04 11 19, 06 16 06, 06 18 49, 08 27 04, 09 28 58; GSC 16 17 43 (e 46), 16 24 03; WDY 17 48 35
- 22 GSC 19 56 25 (pP 33), 23 27 47 (e 52); WDY 07 30 04 (i 10), 08 19 14, 08 31 06 (i 19), 12 36 29, 13 13 24, 17 06 10 (i 19)
- 23 CLC 20 22 44; GSC 00 24 45 (P'' 28 12), 01 14 07, 03 40 36, 04 07 48, 05 57 28 (i 31), 07 03 20 (i 29, e 07 24, eS 14 13), 18 33 01; WDY 06 10 40, 07 32 09, 18 12 30
- 24 GSC 06 10 30 (i 45), 06 13 08 (e 25), 07 13 38; WDY 03 40 10, 15 20 55 (pP 21 06), 20 52 42
- 25 GSC 02 21 35, 08 45 38, 10 53 17 (pP 55 15), 21 31 02
- 26 WDY 01 29 23, 02 46 40 (pP 51), 07 38 13
- 27 CLC 20 07 14 (e 32); WDY 21 44 55 (pP 46 45), 22 59 51

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SUPPLEMENT: (Continued)

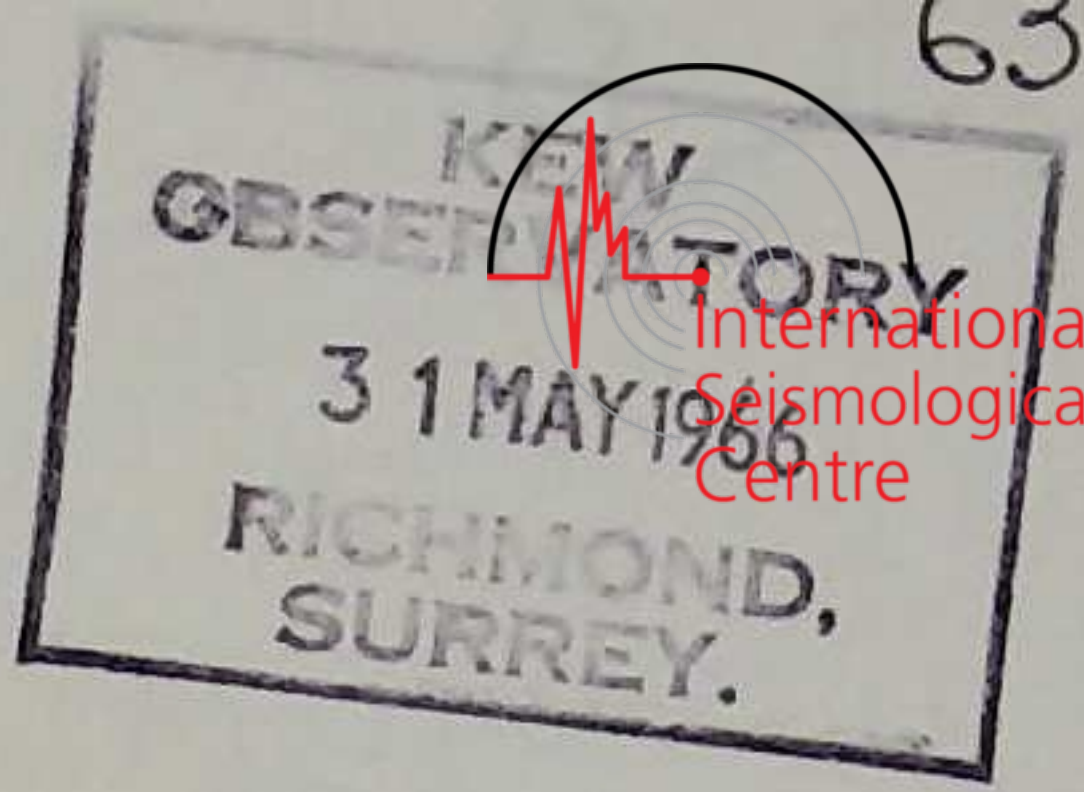
1966

April

28 WDY 00 29 04, 01 04 52, 06 48 25 (i 37), 10 19 21 (i 28)  
 29 WDY 00 10 22 (i 30), 02 36 49 (pP 37 10, sP 20), 03 44 40, 09 15 35  
 (i 44), 10 59 57, 23 13 27 (i 32)  
 30 GSC 08 22 10; WDY 02 02 03, 02 44 00, 06 37 33, 13 44 33, 14 13 10

Biolet M. Taylor  
Seismological Assistant

June 9, 1966



Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 May 24, 1966

ADDITIONAL

May 7 Barrett:  
 iP  
 iS  
 El Centro:  
 iP  
 eS

03 27 10.1  
 22.1  
 03 27 13.9  
 27.0

May 19

eP 07 13 43  
 iS 19 32  
 eScP 48  
 iG 22.0  
 iR 23.7  
 Δ 39° Mag. 6

CONTINUATION

May 11


iP  
 i  
 iS  
 iL  
 Δ 60°  
 11 eP  
 i  
 eL  
 Δ 60°?  
 11 eP  
 eS  
 eL  
 Δ 60°  
 14 iP  
 15 iP  
 ipP  
 iS  
 eG  
 iR  
 Δ 48° Magn. 5 3/4 - 6  
 PZ  
 SH  
 MH  
 16 iP  
 17 iP  
 i  
 eS  
 eSS  
 eG  
 eR  
 Δ 88°  
 PZ  
 MH  
 18 iP  
 dilatation from southeast  
 iL  
 iLg  
 Δ 15° Magn. 5 3/4  
 PZ  
 MH

14 28 01  
 16  
 36 21  
 43.7  
 14 37 05  
 16  
 52.8  
 21 50 01  
 58 37  
 22 05.7  
 20 37 05  
 14 54 29  
 38  
 15 01 13  
 05.7  
 07.5  
 μ sec  
 0.3 3  
 1 3  
 10 20  
 03 04 57  
 17 11 03  
 10  
 21 49  
 27.7  
 34.3  
 39.2  
 μ sec  
 1/2 3  
 1 20  
 07 35 00  
 37 25  
 38 59  
 μ sec  
 3/4 2 1/2  
 50 20

20  
 20

20  
 20  
 21  
 21  
 21  
 21  
 22  
 22  
 22  
 22  
 22

μ sec  
 PZ 0.2 1  
 SH 2 8  
 MH 28 20  
 MZ 21 20  
 iP 02 06 58  
 iP 09 27 28  
 eSKS 37 54  
 eS 38 04  
 eSS 44.3  
 eG 50.0  
 eR 53.7  
 Δ 88°  
 Magn. 6 1/4 - 6 1/2  
 μ sec  
 PZ 1/2 1 1/2  
 SH 3 20  
 MH 5 20  
 iP 11 53 59  
 i 54 19  
 eP 12 46 58  
 iP 00 03 02  
 iS 06 33  
 iP 08 20 00  
 i 22  
 iP 11 20 47  
 iP 22 51 33  
 iP 00 04 49  
 iP 03 05 10  
 eP 06 10 07  
 iP 07 46 25  
 eL 49.3  
 Δ 15°  
 μ sec  
 PZ 0.15 1 1/2  
 MH 18 20  
 eP 09 32 58  
 eL 35.9  
 Δ 15°  
 eP 15 43 21

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Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
May 25, 1966

CONTINUATION (Continued)

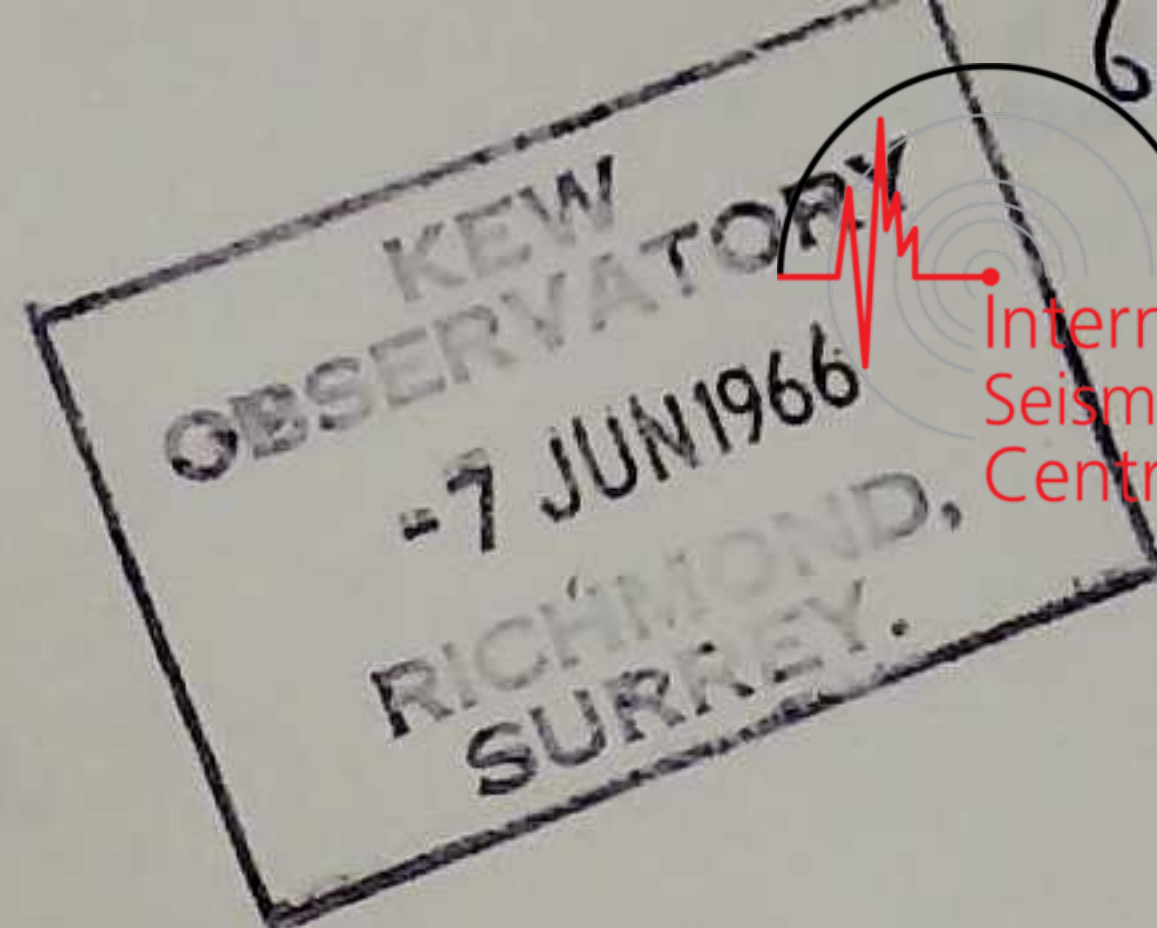
May 23	eP	06 10 25	May 23	eP	11 55 01
	e	45		i	14
	eS	19 52		iL	57.0
	eG	28.7		Δ 15°	
	eR	31.7			μ sec
	Δ 73°			MH	30 20
23	eP	07 18 11	23	iP	14 35 15
	e	17	23	iP	18 11 58
23	iP	08 52 07	24	i	12 12
	i	15		eP	03 51 28
	eS	09 02.4		i	33
	eSS	07.7		i	52 50
	eR	17.1		Sacramento Valley	
	Δ 83°			Magnitude 4½ - 4 3/4	

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Cottonwood (CWC), Goldstone (GSC) and Woody (WDY)

May 6	GSC	16 20 16, 20 05 27; WDY 20 37 48
7	GSC	05 21 33, 09 13 29, 10 06 48, 17 16 42 (i 57); WDY 03 34 03, 10 17 36, 11 20 30
8	GSC	06 29 19 (i 29), 08 41 07 (i 16), 12 38 26; WDY 01 36 05 (pP 18, i 24), 10 27 58, 11 28 24, 16 24 28, 20 15 39
9	GSC	03 47 24 (e 32), 05 23 30, 05 37 47 (i 51, i 38 05), 15 26 52, 20 17 52, 21 42 16; WDY 00 59 09 (e 01 02 08), 01 12 50, 03 09 40, 03 47 35, 03 50 15 (i 28), 16 44 41, 18 24 04, 23 19 49
10	GSC	11 51 11, 13 18 53 (i 19 05); WDY 05 45 08, 06 39 55 (e 40 00 e 10), 09 53 22, 10 20 23 (i 43), 14 06 24, 16 42 20 (i 43 02), 20 15 35, 20 33 50 (i 54 i 34 06), 21 16 56, 22 10 24
11	WDY	01 31 02 (i 07 i 17), 01 32 55 (pP 33 16, sP 26), 02 45 41, 04 07 54, 07 53 46, 15 43 18, 18 16 59, 21 10 03 (pP 52), 23 33 59;
	CWC	11 41 22 (e 29)
12	WDY	12 27 13, 13 15 46 (e 59)
13	GSC	19 19 47 (i 54); WDY 00 46 04, 05 12 45 (pP 13 16), 08 08 19 (i 31), 11 02 22, 13 00 23
14	GSC	17 12 06 (i 23), 17 16 11 (i 28), 19 49 09 (e 20); WDY 06 20 36 (e 21 25), 09 16 05, 09 41 19, 11 40 31, 13 53 34, 16 46 36, 18 38 09
15	GSC	04 41 44 (pP 43 49), 09 03 56; WDY 03 54 51, 20 00 17
16	CLC	23 24 03; GSC 03 15 50, 06 16 42, 07 29 42, 13 19 29 (i 52), 20 12 28; WDY 06 41 05, 06 53 11, 15 02 21, 23 52 27
17	GSC	01 11 08 (i 15), 01 52 52 (i 53 02), 07 22 25 (e 25 11), 17 08 59, 19 08 22 (pP 32); WDY 05 53 42, 09 20 04 (pP 14), 09 46 19 (pP 27, sP 33)
18	GSC	00 11 01, 07 56 34, 08 08 00; WDY 03 53 09 (pP 19), 03 59 14, 05 00 17, 23 34 59
19	GSC	00 28 42 (e 29 19, eS 30 54); WDY 09 25 34 (e 49 e 57), 10 30 59, 12 08 59 (pP 09 11), 23 20 26
20	GSC	18 16 28; WDY 07 03 24, 07 41 24 (i 28 i 31), 08 20 33

Violet M. Taylor  
Seismological Assistant

Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 June 2, 1966



International  
 Seismological  
 Centre

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone, (GSC) and Woody (WDY)

May 13 WDY 17 24 15 (i 28)  
 20 WDY 20 01 42, 21 47 36, 23 34 54  
 21 GSC 02 48 39; WDY 00 20 59 (i 21 17), 03 35 24, 07 54 15, 08 20 03  
 (pP 21 55), 11 02 49 (pP 03 09), 17 29 19  
 22 GSC 05 31 07, 05 40 49, 09 27 08, 10 06 38, 10 16 43, 14 54 34;  
 WDY 01 42 06, 03 38 13, 05 42 02, 16 24 00, 16 55 04, 18 07 45, 21 21 12  
 23 GSC 00 15 49 (PP 17 08), 01 21 56, 02 32 26, 07 17 19, 07 18 05,  
 07 59 04, 08 26 28, 11 44 45, 13 03 19, 18 11 29 (pP! 58, sP 12 10),  
 20 58 12 (i 19), 22 44 41; WDY 00 26 02 (i 13), 18 41 44  
 24 GSC 05 51 05.7; WDY 03 51 04.7 (S 52 09.2), 05 50 43.4 (S 52 14.5),  
 21 00 25  
 25 GSC 13 39 33, 13 50 26 (PKKP?), 14 10 56; WDY 08 43 02 (PP 47 51),  
 16 41 04 (i 10), 17 06 29 (e 45), 19 00 08, 22 04 16 (pP 32),  
 23 01 55  
 26 WDY 00 11 25 (pP 39), 00 32 54, 00 55 29 (i 36), 03 08 10,  
 04 46 21, 07 23 34, 07 58 23, 10 50 35 (pP 50), 12 11 34,  
 12 19 54 (pP 20 09, sP 14), 12 33 35, 12 38 05 (i 25, pP 39 48),  
 18 51 22, 20 58 05 (i 09, pP 18), 21 28 02, 23 11 53 (e 12 01),  
 23 24 29 (pP 26 24)  
 27 WDY 01 58 30, 06 08 10 (i 18), 09 17 19 (i 29)

Violet M. Taylor  
 Seismological Assistant

Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 June 2, 1966

ADDITIONAL

May 22 eP 05 50 04 May 25 eP<sup>11</sup> 13 39 30  
 eL 55.7 ePP 40 06

CONTINUATION

May 24 iP 05 51 04  
 Explosives test, Chase V  
 (Tinemaha: iP 05 50 43.5)

24 eP 15 41 21  
 e 58

24 eP 20 23 14  
 eL 26.3

Δ 15°

μ sec

PZ 0.1 1

MH 10 20

25 eSKS 08 50.0

ePS 57.6

eSS 09 03.6

eG 14.2

eR 19.9

Δ 110°

25 eP 12 19 53

eS 30.6

ePS 31.9

eSS 36.3

eG 43.0

eR 47.7

Δ 89°

May 25 eP<sup>11</sup> 13 39 30

ePP 40 06

eSKS 46.1

eS 48.1

eSS 55.9

iG 14 06.7

eR 12.2

Δ 110°

μ sec

MH 5 20

26 iP 12 38 03

eS 47 48

eG 52.0

eR 55.7

Δ 78°

26 iP 18 41 44

iS 51 26

e(L) 19 02.0

26 iP 20 34 15.1

iS! 35 03.0

Magn. 5.2

26 eP 23 24 27

30 iP 03 17 59

i 18 09

eL 31.6

June 1 iP 11 59 34

eS 12 09.7

eSS 14.7

eG 19.7

eR 25.4

Δ 81°

μ sec

PZ 1/4 1 1/2

MH 3 20

KEW  
 OBSERVATORY  
 - 7 JUN 1966  
 RICHMOND,  
 SURREY.

KEW  
OBSERVATORY  
24 AUG 1966  
RICHMOND,  
SURREY.



Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 164

May - 1966

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Unless otherwise noted, readings refer to 1st motion at Pasadena

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1966

May

1 16 32 44 (pP 33 22, sP 33 41, S 40 41, sS 41 48)  
2 10 06 01 (SKS 16 54±, S 17 42 ±), 11 04 29, 16 58 36  
4 18 20 45 (e 21 19)  
5 06 47 54 (i 58), 14 34 45 (SKS 45 21, PS 47 54±, SS 52 54±)  
6 02 56 37  
7 03 27 38.4 (S 28 20.7)  
9 S 20 26 57  
11 14 28 01 (i 16, S 36 21), 14 37 05 (i 16), 21 50 01 (S 58 37)  
14 20 37 05  
15 14 54 29 (pP 38, S 15 01 13)  
16 03 04 57  
17 17 11 03 (i 10, S 21 49)  
18 07 35 00 (L 37 25, Lg 38 59)  
19 07 13 43 (S 19 32, ScP 19 48)  
20 03 06 58, 09 27 28 (SKS 37 54, S 38 04), 11 53 59 (i 54 19), 12 46 58  
21 00 03 02 (S 06 33) 08 20 00, 11 02 47, 22 51 33  
22 00 04 49, 03 05 10, 05 50 04, 06 10 07, 07 46 25, 09 32 58  
23 06 10 25 (S 19 52), 07 18 11, 08 52 07 (i 15, S 09 02 24±), 11 55 01  
(i 14), 14 35 15, 18 11 30 (pP 58, i 12 12)  
24 03 51 28, 05 51 04 (explosives test), 15 41 21 (e 58), 20 23 14  
25 SKS 08 50 00±, 12 19 53 (S 30 24±), 13 39 30 (PP 40 06, SKS 46 06±,  
S 48 06±)  
26 12 38 03 (S 47 48), 18 41 44 (S 51 26), 20 34 15.1 (S 35 03.0),  
23 24 27  
30 03 17 59 (i 18 09)



SUPPLEMENT: Times of P etc., for additional shocks recorded at Barrett (BAR), China Lake (CLC), Goldstone (GSC) and Woody (WDY), Cottonwood (CWC)

1966

May

- 1 GSC 01 22 48, 10 23 50, 13 44 05, 18 42 50 (pP 43 19), 22 33 42, 22 36 12 (i 38 17); WDY 07 14 03, 11 03 46 (pP 04 14), 13 10 54
- 2 GSC 11 04 36, 11 05 33, 22 51 04; WDY 21 45 01, 23 30 07 (i 16)
- 3 GSC 01 28 46, 12 15 09 (i 29 i 38); WDY 03 00 22, 21 06 26, 22 18 06
- 4 GSC 07 57 56, 13 27 06 (i 13), 18 20 42 (i 23 14, i 23 33, i 26 54), 20 30 30; WDY 02 29 58, 07 17 08, 10 57 12
- 5 GSC 00 30 04 (pP 31 11), 05 55 44, 06 25 29 (pP 39), 15 26 34, 15 34 56, 15 35 14, 16 02 42; WDY 04 43 16 (i 28), 06 43 42, 07 37 58 (e 38 10), 07 47 19 (e 42), 07 58 38, 20 53 08 (e 29)
- 6 GSC 16 20 16, 20 05 27; WDY 04 06 21, 07 25 52 (pP 27 46), 10 20 17, 20 37 48
- 7 CLC 04 11 18; BAR 03 27 10.1 (S 27 22.1); GSC 05 21 33, 09 13 29, 10 06 48, 17 16 42 (i 57); WDY 03 34 03, 10 17 36, 11 20 30
- 8 GSC 08 41 07 (i 16), 12 38 26; WDY 01 36 05 (pP 18, i 24), 10 27 58, 11 28 24, 16 24 28, 20 15 39
- 9 GSC 03 47 24 (e 32), 05 23 30, 05 37 47 (i 51, i 38 05), 15 26 52, 20 17 52, 21 42 16; WDY 00 59 09 (e 01 02 08, PKKP? 01 12 50), 03 09 40, 03 47 35, 03 50 15 (i 28), 16 44 41, 18 24 04, 23 19 49
- 10 GSC 11 51 11, 13 18 53 (i 19 05); WDY 05 45 08, 06 39 55 (e 40 00 e 10), 09 53 22, 10 20 23 (i 43), 14 06 24, 16 42 20 (i 43 02), 20 15 35, 20 33 50 (i 54 i 34 06), 21 16 56, 22 10 24
- 11 WDY 01 31 02 (i 07 i 17), 01 32 55 (pP 33 16, sP 26), 02 45 41, 04 07 54, 07 53 46, 15 43 18, 18 16 59, 21 10 03 (pP 52), 23 33 59;  
CWC 11 41 22 (e 29)
- 12 WDY 12 27 13, 13 15 46 (e 59)
- 13 GSC 19 19 47 (i 54); WDY 00 46 04, 05 12 45 (pP 13 16), 08 08 19 (i 31), 11 02 22, 13 00 23, 17 24 15 (i 28)
- 14 GSC 17 12 06 (i 23), 17 16 11 (i 28), 19 49 09 (e 20); WDY 06 20 36 (e 21 25), 09 16 05, 09 41 19, 11 40 31, 13 53 34, 16 46 36, 18 38 09
- 15 GSC 04 41 44 (PcP 43 49), 09 03 56; WDY 03 54 51, 20 00 17
- 16 CLC 23 24 03; GSC 03 15 50, 06 16 42, 07 29 42, 13 19 29 (i 52), 20 12 28; WDY 06 41 05, 06 53 11, 15 02 21, 23 52 27
- 17 GSC 01 11 08 (i 15), 01 52 52 (i 53 02), 07 22 25 (e 25 11), 17 08 59, 19 08 22 (pP 32); WDY 05 53 42, 09 20 04 (pP 14), 09 46 19 (pP 27, sP 33)
- 18 GSC 00 11 01, 07 56 34, 08 08 00; WDY 03 53 09 (pP 19), 03 59 14, 05 00 17, 23 34 59
- 19 GSC 00 28 42 (e 29 19, eS 30 54); WDY 09 25 34 (e 49 e 57), 10 30 59, 12 08 59 (pP 09 11), 23 20 26
- 20 GSC 18 16 28; WDY 07 03 24, 07 41 24 (i 28 i 31), 08 20 33, 20 01 42, 21 47 36, 23 34 54
- 21 GSC 02 48 39; WDY 00 20 59 (i 21 17), 03 35 24, 07 54 15, 08 20 03 (pP 21 55), 11 02 49 (pP 03 09), 17 29 19
- 22 GSC 05 31 07, 05 40 49, 09 27 08, 10 06 38, 10 16 43, 14 54 34; WDY 01 42 06, 03 38 13, 05 42 02, 16 24 00, 16 55 04, 18 07 45, 21 21 12

1966  
 May 23 GSC 00 15 49 (PP 17 08), 01 21 56, 02 32 26, 07 17 19, 07 18 05,  
 07 59 04, 08 26 28, 11 44 45, 13 03 19, 18 11 29 (pP! 58, sP 12 10),  
 20 58 12 (i 19), 22 44 41; WDY 00 26 02 (i 13), 18 41 44  
 24 GSC 05 51 05.7; WDY 03 51 04.7 (S 52 09.2), 05 50 43.4 (S 52 14.5),  
 21 00 25  
 25 GSC 13 39 33, 13 50 26 (PKKP?), 14 10 56; WDY 08 43 02 (PP 47 51),  
 16 41 04 (i 10), 17 06 29 (e 45), 19 00 08, 22 04 16 (pP 32),  
 23 01 55  
 26 BAR 20 33 47.2 (S 34 05.8); WDY 00 11 25 (pP 39), 00 32 54, 00 55 29  
 (i 36), 03 08 10, 04 46 21, 07 23 34, 07 58 23, 10 50 35 (pP 50),  
 12 11 34, 12 19 54 (pP 20 09, sP 14), 12 33 35, 12 38 05 (i 25,  
 pP 39 48), 18 51 22, 20 58 05 (i 09, pP 18), 21 28 02, 23 11 53  
 (e 12 01), 23 24 29 (pP 26 24)  
 27 GSC 19 12 03, 22 16 08; WDY 01 58 30, 06 08 10 (i 18), 09 17 19  
 (i 29), 16 03 05  
 28 GSC 00 17 24, 02 21 16 (pP 23 25), 05 33 35 (i 53), 06 06 46 (i 07 01),  
 20 09 22, 20 47 36, 21 58 36 (pP 48); WDY 22 36 36 (i 37 05)  
 29 GSC 13 55 57 (pP 57 49); WDY 06 52 46, 07 03 26 (e 36), 20 45 23  
 30 WDY 12 52 26, 19 31 57, 22 34 16  
 31 GSC 07 50 40 (i 47 i 58), 09 00 07, 10 24 37; WDY 19 03 51, 20 11 56,  
 20 34 13 (epP 30)

Violet M. Taylor  
 Seismological Assistant

July 26, 1966

EARTHQUAKES NEAR PARKFIELD AND CHOLAME, CALIFORNIA  
Special Notice, July 20, 1966



Parkfield and Cholame are small communities in the central Coast Ranges, in and near the San Andreas fault zone; approximate positions are:

Parkfield:  $35^{\circ} 54' N$   $120^{\circ} 26' W$   
Cholame:  $35^{\circ} 43' N$   $120^{\circ} 18' W$

On four known occasions, earthquakes originating presumably on the San Andreas fault have shaken this area sufficiently to cause local damage, and with development of long cracks in or near the fault zone.

1901	March 2	11:45 p.m.	Damage at Parkfield, and at Stone Canyon northwest of it.
1922	March 10	3:21 a.m.	Chimneys down at Cholame and Parkfield (Magnitude $6\frac{1}{2}$ )
1934	June 7	12:47 p.m.	Some damage at Parkfield, Magnitude 6.
1966	June 27	9:26 p.m.	Some damage, Magnitude 5.6.

(Times are Pacific Standard,  $120^{\circ} W$ , except that for 1966, which is daylight-saving time)

During the June 27th earthquake, surficial right-lateral displacements of up to 5 cm took place along the recent trace of the San Andreas fault for more than 25 km from south of Cholame to north of Parkfield. In many areas, the displacements have more than doubled since that time, apparently partly by continuous creep and partly by displacements during aftershocks. More than 17 portable seismographs of various types are now operating in the area, representing studies by the California Institute of Technology, University of California (Berkeley), and the U.S. Geological Survey. The Geological Survey had established a temporary station at Gold Hill in the Parkfield area several months before the event, and this station recorded the foreshock and principal earthquake in addition to aftershocks. The nearest previously established station was at Priest Valley (PRI), belonging to the University of California network. The nearest station of the C.I.T. network is at Woody (WDY), since the former station at King Ranch (KRC) was discontinued in December, 1965.

The Parkfield-Cholame area had been visited on June 16th, 11 days prior to the earthquake, by a field-trip group of the Second U.S. - Japan Conference on Research Related to Earthquake Prediction, and very fresh appearing en-echelon cracks were observed at that time along the fault trace south of Parkfield. In this same area, an asphalt road had had to be repaired several times in the previous 2 or 3 years at the point where it crossed the fault trace. Because of the observation of fresh cracks, suggesting accelerated creep, Dr. James Brune (C.I.T.) ran a 24-hour record in the area for micro-earthquake recording on 18-19 June, one week before the earthquake. No micro-earthquakes were observed during this period, although a similar run one day after the earthquake gave an estimated equivalent rate of more than 2400 micro-earthquakes ( $M = 0$ ) per day within 24 km of the station.

Times of the various shocks at the permanent stations generally show fairly constant mutual differences, so that the epicenters do not differ more than a few kilometers. However, a shock on June 24, of magnitude 3.6, had an epicenter distinctly farther to the northwest.

Seismological Laboratory  
225 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)

The three largest shocks were as follows:

June 27, 9:09 p.m.	(June 28, 04:09 G.C.T.)	Magnitude 4.8
27 9:26 p.m.	(June 28, 04:26 G.C.T.)	5.6
29 12:53 p.m.	(19:53 G.C.T.)	4.8

Through July 2 there were four others of magnitude 4.0 or over, and at least 19 of magnitude 3.0-3.9.

All quoted magnitudes are based on the amplitudes recorded at the C.I.T. stations, with careful intercomparison.

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International  
Seismological  
Centre

KEY  
OBSERVATORY  
15 JUN 1966  
RICHMOND,  
SURREY.

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
June 8, 1966

ADDITIONAL

June 1 eP  
(or P'')

02 42 48

CONTINUATION

June 2 IP  
dilatation  
i  
i(pP)  
eS  
eSS  
eG  
 $\Delta 50^\circ$   
depth 100 km (?)  
Magn. 6

03 36 42

48  
56  
43 54  
47.3  
47.7

$\mu$  sec

PZ  
PH  
SH  
2 IP  
e  
4 eP  
4 iP  
iP  
i  
iS  
eSS  
eG  
eR  
eP'P'

0.3  $1\frac{1}{2}$   
0.2  $1\frac{1}{2}$   
 $1\frac{1}{2}$  8  
07 26 28  
27 18  
12 15 55  
23 59 02  
10  
16  
24 07 46  
11.7  
15.2  
18.5  
27 42

$\Delta 65^\circ$  Depth 40 km  
Magn.  $5\frac{3}{4}$  - 6

$\mu$  sec

PZ  
SH  
MH  
6 iP  
i  
eS  
eSS  
eG  
eR

$\frac{1}{4}$  2  
3 20  
5 20  
01 58 28  
33  
02 09.0  
14.8  
20.9  
24.4

$\Delta 87^\circ$

6 iP  
compression from north

08 00 18

June 6 (continued)

epP 08 01 11  
eP'' 04 30  
IPP 50  
ipPP 05 46  
eSKS 10 12  
iS 11.9  
iPS 13 42  
iPKKP 16 24  
eSKKP 19 30  
eR 38.4

$\Delta 103^\circ$   
Depth 220 km  
Magn.  $6\frac{3}{4}$

$\mu$  sec

PPZ  
7 eP  
iS  
iSS  
iG  
iR

3 5  
01 10 12  
18 48  
22.8  
26.2  
28.7

$\Delta 65^\circ$  Magn.  $6\frac{1}{4}$

$\mu$  sec

PZ  
SH  
MH  
MZ  
7 iP  
IPP  
iSKS  
iS  
iPS  
eSS  
iG  
iR

0.2  $1\frac{1}{2}$   
8 14  
12 20  
8 20  
14 12 50  
16 32  
23 26  
42  
24.9  
29.7  
37.7  
41.7

$\Delta 92^\circ$   
Magn.  $6\frac{3}{4}$  - 7

$\mu$  sec

PZ  
PH  
PPZ  
PPH  
SH  
MH  
MZ

1 1  
0.2 1  
4 20  
3 20  
22 30  
40 20  
30 20

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
( and auxiliary stations as noted)  
June 8, 1966

SUPPLEMENT: Times of P for additional shocks recorded at Barrett (BAR),  
China Lake (CLC), Goldstone (GSC) and Woody (WDY)

May	26	BAR	20 33 47.2 (S 34 05.8)
	27	GSC	19 12 03, 22 16 08; WDY 16 03 05
	28	GSC	00 17 24, 02 21 16 (pP 23 25), 05 33 35 (i 53), 06 06 46 (i 07 01), 20 09 22, 20 47 36, 21 58 36 (pP 48); WDY 22 36 36 (i 37 05)
	29	GSC	13 55 57 (pP 57 49); WDY 06 52 46, 07 03 26 (e 36), 20 45 23
	30	WDY	12 52 26, 19 31 57, 22 34 16
	31	GSC	07 50 40 (i 47 i 58), 09 00 07, 10 24 37; WDY 19 03 51, 20 11 56, 20 34 13 (epP 30)
June	1	GSC	1P 12 47 14 (pP 32, i 40); WDY 04 02 00, 10 27 20, 10 36 15 (e 24 e 31)
	2	WDY	02 57 47, 07 37 25, 07 55 14 (i 28), 08 13 30 (i 50), 08 30 09 17 05 36 (i 48 i 59), 17 16 26, 23 08 49
	3	WDY	14 00 08

Violet M. Taylor  
Seismological Assistant

7-21/1

Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 June 22, 1966

NEW OBSERVATORY  
 28 JUN 1966  
 RICHMOND, SURREY.  
 International Seismological Centre

CONTINUATION

June	Time	Station	Time	Station	Time	Station
7	15 25 14	eP	June 15	iP	01 12 37	
8	20 05 32	eP		ePP	15 50	
	13 00	eS		eS	23 20	
	18.4	eG		iSS	28.7	
	20.7	eR		iG	35.4	
		$\Delta 53^\circ$		iR	38.1	
9	15 20 28	iP		$\Delta 86^\circ$ Magn. $7\frac{1}{2}$		
	50	e		$\mu$ sec		
11	02 41 39	iP		PZ	$1\frac{1}{2}$ 2	
	44 56	iL		SH	50 15	
	$\mu$ sec			MH	180 20	
	10 17	MH		MZ	170 20	
	10 18	MZ	15	iP	01 26 22	
11	18 21 07	iP		i	34	
	22 00	i	15	iP	01 45 46	
12	03 20 11	iP		eR	02 11.3	
13	07 45 44	iP		$\Delta 86^\circ$ Magn. $7\frac{1}{4}$		
	56 14	iS		$\mu$ sec		
	08 01.9	eSS		PZ	1 1	
	08 12	iG		MZ	80 20	
	12.2	iR		Aftershock; involved in the preceding		
	$\Delta 88^\circ$ Magn. $6 - 6\frac{1}{4}$			eP	04 39 43	
	$\mu$ sec		15	iP	06 26 41	
	PZ	0.2 2	15	eG	50.0	
	SH	$2\frac{1}{2}$ 20		eR	54.1	
	MH	10 20		eP	16 49 18	
	MZ	8 20	15	eR	17 16.2	
13	12 09 30	iP		$\Delta 86^\circ$		
13	18 20 44	iP!		eP	10 19 20	
	21 47	ipP	16	eS	23.1	
	22 12	isP		eR	25.1	
	25 20	ipPP		iP	22 38 54	
	30 46	eS	17	eP	15 51 18	
	32 20	eSP	19	e	25	
	43.2	iG		eP	19 37 07	
	19 07 22	eP'IP'IP'	19	eS	43 22	
	$\Delta 90^\circ$			eG	46.7	
	Depth 250 km			eR	49.3	
	Magn. $6 \frac{3}{4}$			$\Delta 42^\circ \pm$		
	$\mu$ sec		20	eP	09 03 31	
	PZ	6 4		eS	12.7	
	PH	2 3		eL	21.7	
	SH	3 10		i(S,SS)	09 52.2	
	MH	5 20	20	eG	55.1	
13	21 05 44.8	iP		eR	57.2	
	Magnitude $3\frac{1}{2}$			iP	00 55 55	
	Felt in Orange County		21	iP	09 46 56.0	
14	21 15 32	iP	21	i	47 00.1	
	17 03	ipP		iS	26.0	
				Magn. $4\frac{1}{4}$		
			21	iP	13 17 51	

Seismological Laboratory  
 220 North San Rafael Avenue  
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 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 June 22, 1966



SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY) and Cottonwood (CWC)

June 4	CLC	10 31 36 (S 34 11); GSC 14 19 23, 18 18 12 (pP 36, sP 50)
	WDY	08 46 36 (e 48 54), 11 34 05, 13 03 48 (i 04 12), 21 50 35, 22 16 57
5	GSC	02 28 59, 09 45 41, 18 32 24, 21 56 42; WDY 07 41 43, 22 19 58 (i 20 11)
6	GSC	09 35 14, 10 08 30 (pP 09 00), 15 09 06 (i 17 i 26), 21 01 20 (e 04 04, e 05 34); WDY 06 23 00, 10 00 21 (e 01 21)
7	GSC	03 34 52, 03 50 36 (PKKP?), 11 58 27 (pP 40), 19 17 05, 22 38 08 (PP 41 34); WDY 05 07 49, 06 52 13 (e 49), 07 50 03 (pP 12, sP 18), 11 18 41, 12 31 48, 13 34 48, 15 05 58, 21 29 40, 21 50 45
8	GSC	03 55 08, 15 07 32; WDY 05 43 38, 06 35 01 (pP 10 sP 15), 15 13 31, 19 05 54
9	CLC	00 31 19, 02 08 31, 07 07 47, 07 25 03, 08 48 25, 11 33 26 (e 38), 13 19 48; WDY 01 09 51, 22 28 30 (i 58)
10	GSC	04 34 09 (i 18 i 34), 08 23 56, 10 43 27, 10 57 32, 14 18 54, 18 14 52, 22 25 03, 22 55 05; WDY 14 18 43 (pP 19 26)
11	GSC	05 17 14, 08 46 26, 11 27 02 (i 29 26, i 31 33); WDY 03 14 48, 11 08 33
12	GSC	00 40 48, 04 04 58, 10 18 21, 19 38 15, 20 34 02; CWC 02 09 58; WDY 16 45 15 (pP 46 41), 19 56 02
13	GSC	02 55 56 (e 56 07), 04 11 41, 05 39 10; WDY 18 32 53 (pP 33 58), 22 34 11
14	GSC	02 49 56, 12 06 50 (e 07 01), 20 05 52; WDY 09 06 05, 12 25 47, 16 58 07 (e 29), 17 08 02 (pP 09)
15	CLC	02 18 42, 03 11 59, 05 28 22 (pP 29), 06 16 38, (pP 47), 07 36 19, 16 37 59, 19 23 33 (e 24 12); GSC 02 26 33, 02 29 06, 03 00 18, 03 16 30, 03 40 14 (i 21), 03 45 09, 03 56 50, 04 17 36, 06 17 35 (e 41), 06 22 11 (e 18), 15 41 39; WDY 01 21 16, 01 22 28, 01 44 58, 01 45 44, 01 47 51, 01 58 00, 02 07 54 (pP 08 07), 02 10 33?, 02 26 16, 02 26 50, 02 28 43, 04 49 17 (i 24), 02 56 59, 03 02 31, 03 10 15, 03 52 18 (pP 29), 03 54 05 (pP 16), 04 11 27, 06 21 01, 06 52 41, 07 09 14, 07 43 55, 09 12 36, 09 51 47, 10 09 54, 11 23 49, 11 34 40? (e 49), 16 30 05 (pP 16), 20 11 49, 21 01 35, 22 55 56, 23 36 21 (e 29)

Violet M. Taylor  
 Seismological Assistant



Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
**PROVISIONAL READINGS AT PASADENA**  
 (and auxiliary stations as noted)  
 July 6, 1966



**CORRECTION**

May 20	Pasadena		
	IP	02 06 58	
	Should read:		
	IP	03 06 58	
21	Pasadena		
	IP	11 20 47	
	Should read:		
	IP	11 02 47	
June 15	Woody	04 49 17	
	Should read:	02 49 17	

**ADDITIONAL - Pasadena:**

June 19	eP	08 05 56	
	eS	17.2	
	eL	30.9	

**CONTINUATION**

June 21	eP	18 17 43	
	eS?	22.2	
	eG	24.4	
	eR	25.7	
	$\Delta = 33^\circ \pm$		
21	IP	23 16 42	
22	IP	07 17 09	
	eS	22 06	
	eG	24.4	
	eR	25.9	
	$\Delta 33^\circ \pm$		
22	IP	11 45 27	
	i	38	
22	eP	20 43 12	
	IP''	46 52	
	i	57	
	ePP	48 10	
	ISKKS	53 00	
	ISKKS	54 16	
	eS	55.2	
	$\Delta 116^\circ$		
	Depth 200 km?		
		$\mu$	sec
	MH	12	20
	MZ -	10	20
23	IP	05 13 00	
25	IP	01 58 22	
	IS	02 08 31	
	eR	23.4	
25	IP	16 14 06	
	epP	17	

June 25	IP	17 30 56	
	ipP	31 11	
	ePcP	33 48	
	IpPcP	34 05	
	eR	39.5	
	$\Delta 30^\circ$ ; depth 80 km		
	(or two shocks?)		
27	eP	08 50 44	
	e	51 03	
27	eP''	10 59 52	
	IPP	11 00 41	
	ePS	10 12	
	ePKKP	10 28	
	ePPS	11.7	
	$\Delta 116^\circ$ Magn. 5 3/4		
		$\mu$	sec
	MH	3	20
27	eP''	11 18 01	
	IPP	56	
	IPS	28 38	
	ePKKP	28 41	
	ePPS	29.8	
	$\Delta 116^\circ$ Magn. 6		
		$\mu$	sec
	MH	5	20
	overlaps the preceding		
27	IP	22 00 17	
28	IP	04 09 38.5	
	i	48.0	
	IS	10 10.5	
	Magn. 4.8		
	Felt in San Luis Obispo County		
28	IP	04 26 55.7	
	i	27 02.1	
	IS	30.5	
	Magn. 5.8		
	Felt in San Luis Obispo County		
28	IP	11 51 51	
29	IP	19 54 08.0	
	IS	41.1	
	Magn. 4.7		
	Felt: Coalinga, Fresno, Parkfield		
29	eP	21 59 32	
	IS	22 11 16	
	eL?	23.1	
	eR	26.2	
	$\Delta 95^\circ?$		
	Possibly deep		

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
July 6, 1966

Date	Station	Time	Depth	Magn.	Angle	
July 1	IP	06 04 04				
	epP		21			
	ISKs	41 31				
	IS	15 21				
	e	16 11				
	ePS	17 03				
	IR	36.1				
	Δ 97° Depth 60 km Magn. 6 3/4					
3	PZ		μ 1/2	sec 1 1/2		
	MH	20	40			
	IP	04 21 22				
	i		30			
	IS	31 09				
	eG	40.7				
	eR	43.7				
Δ 77°						
4	IP	02 04 24				
	i		43			
	eS	11 30				
	eR	18.7				
Δ 50° ±						
July 4	eP	12 26 54				
	eS	36 47				
	eSS	41.1				
	eG	46.6				
	eR	49.7				
	Δ 76°					
	4	IP	18 42 10			
	compression from northwest					
5	iScP	47 31				
	IS	49 04				
	iScS	52 04				
	ISS	52.4				
	IL	53.7				
	Δ 49° Magn. 6 3/4 - 7					
				μ	sec	
PZ			1	2		
PH			1 1/2	2		
MH	200	20				
IP	02 30 13					
compression						
IS	36 59					
eL	40.7					

**SUPPLEMENT:** Times of P for additional shocks at China Lake (CLC), Cottonwood (CWC), Goldstone (GSC), Santa Barbara (SBC) and Woody (WDY)

June 15 WDY 01 25 38, 02 21 11, 08 06 59

16 CLC 16 49 56 (pP 50 03); GSC 17 14 25, 18 12 03; WDY 00 16 36, 08 42 56, 09 04 37, 09 59 56?, 10 56 51, 12 08 04, 12 13 12 (e 19), 14 44 21, 15 01 05, 15 37 03, 16 58 49 (pP 59 03), 18 52 34, 19 38 55, 20 43 50 (pP 44 42), 21 10 48 (pP 55), 22 50 15 (e 51 25)

17 CWC 08 23 21; WDY 00 57 53 (i 56, pP 58 03), 01 22 28 (pP 54), 01 28 25, 07 01 34, 08 59 53 (pP 09 00 12, sP 00 18), 10 15 21, 10 30 47, 12 00 28, 12 17 12, 13 31 51 (pP 59), 19 02 03

18 CWC 05 41 01 (pP 10), 08 24 03 (pP 08), 08 37 31 (pP 37), 19 33 08; WDY 02 27 00 (e 11), 06 38 40, 08 43 35, 15 57 17, 19 29 03 (PP? 19 32 55), 22 25 50

19 WDY 00 13, 37, 00 27 04 (e 13), 13 02 47, 19 06 56, 22 52 24 (i 35)

20 WDY 01 32 25 (i 30 i 34 i 41), 09 46 11, 19 20 48, 22 12 56

21 WDY 04 02 29 (i 33 i 43), 07 23 41, 09 46 40.7, 15 59 04 (pP 21)

22 GSC 19 01 29; WDY 00 30 07, 02 02 43 (i 47)

23 CLC 13 39 58 (i 40 14, e 24); WDY 22 03 34

24 WDY 03 09 49, 08 30 00 (pP 36), 13 59 38

25 CLC 18 51 42 (pP 52 14), 23 22 49; WDY 05 21 15, 10 44 23 (pP 45 27), 11 25 18, 13 29 09, 21 41 12 (i 16)

26 CLC 07 01 16; WDY 07 46 56, 22 31 05 (i 31 11), 23 58 33

27 CLC 04 19 25 (i 32), 08 33 51, 08 50 52 (pP 51 07), 20 10 35, 22 00 25 (pP 50); WDY 03 09 05, 12 25 34 (pP 56), 17 45 36 (i 42), 18 57 39, 19 04 57 (i 05 02), 19 14 59, 19 33 12 (i 19)

Violet M. Taylor, Seismological Assistant

Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 165

June - 1966

Unless otherwise noted, readings refer to 1st motion at Pasadena

1966  
 June  
 1 02 42 48, 11 59 34 (S 12 09 42±)  
 2 03 36 42 (pP 56, S 43 53), 07 26 28  
 4 12 15 55, 23 59 02 (pP 10, sP 16, S 24 07 46, P'P' 27 42)  
 6 01 58 28 (S 02 09 00±), 08 00 18 (pP 01 11, P'' 04 30, PP 04 50, pPP 05 46,  
 SKS 10 12, S 11 54±, PS 13 42, PKKP 16 24, SKKP 19 30)  
 7 01 10 12 (S 18 48), 14 12 50 (PP 16 32, SKS 23 26, S 23 42), 15 25 14  
 8 20 05 32 (S 13 00)  
 9 15 50 28 (e 50)  
 11 02 41 39 (L 44 56), 18 21 07  
 12 03 20 11  
 13 07 45 44 (S 56 14), 12 09 30, 18 20 44 (pP 21 47, sP 22 12, S 30 46)  
 14 21 15 32 (pP 17 03)  
 15 01 12 37 (S 23 20), 01 26 22, 01 45 46, 04 39 43, 06 26 41, 16 49 18  
 16 10 19 20 (S 23 06±)  
 17 22 38 54  
 19 08 05 56 (S 17 12±), 15 51 18, 19 37 07 (S 43 22)  
 20 09 03 31 (S 12 42±), S 52 12±  
 21 00 55 55, 13 17 51, 18 17 43 (S 22 12±), 23 16 42  
 22 07 17 09 (S 22 06), 11 45 27 (i 38), 20 43 12 (P'' 46 52, SKS 53 00,  
 i 54 16)  
 23 05 13 00  
 25 01 58 22 (S 02 08 31), 16 14 06 (pP 17), 17 30 56 (pP 31 11, PcP 33 48,  
 pPcP 34 05)  
 27 08 50 44 (e 51 03), 10 59 52 (PP 11 00 41, PS 10 12, PKKP 10 28),  
 11 18 01 (PP 56, PS 28 38, PKKP 28 41), 22 00 17  
 28 04 09 38.5 (S 10 10.5), 04 26 55.7 (S 27 30.5), 11 51 51  
 29 19 54 08.0 (S 41.1), 21 59 32 (S 22 11 16)

KEW  
 OBSERVATORY  
 29 DEC 1966  
 DIAMOND,  
 SURREY.

SUPPLEMENT: Times of P etc., for additional shocks recorded at China Lake (CLC), Cottonwood (CWC), Goldsonte (GSC), Santa Barbara (SBC), Riverside. (RVR) and Woody (WDY)



1966	June	Station	Times
	1	GSC	IP 12 47 14 (pP 32, i 40); WDY 04 02 00, 10 27 20, 10 36 15 (e 24 e 31)
	2	WDY	02 57 47, 07 37 25, 07 55 14 (i 28), 08 13 30 (i 50), 08 30 09, 17 05 36 (i 48 i 59), 17 16 26, 23 08 49
	3	WDY	14 00 08
	4	CLC	10 31 36 (s 34 11); GSC 14 19 23, 18 18 12 (pP 36, sP 50);
	4	WDY	08 46 36 (pP 48 54), 11 34 05, 13 03 48 (i 04 12), 21 50 35, 22 16 57
	5	GSC	02 28 59, 09 45 41, 18 32 24, 21 56 42; WDY 07 41 43, 18 56 16, 22 19 58 (i 20 11)
	6	GSC	09 35 14, 10 08 30 (pP 09 00), 15 09 06 (i 17 i 26), 21 01 20 (e 04 04, e 05 34); WDY 06 23 00, 10 00 21 (e 01 21)
	7	GSC	03 34 52, 03 50 36 (PKKP?), 11 58 27 (pP 40), 19 17 05, 22 38 08 (pP 41 34); WDY 05 07 49, 06 52 13 (e 49), 07 50 03 (pP 12, sP 18), 11 18 41, 12 31 48, 13 34 48, 15 05 58, 21 29 40, 21 50 45
	8	GSC	03 55 08, 15 07 32; WDY 05 43 38, 06 35 01 (pP 10 sP 15), 15 13 31, 19 05 54
	9	CLC	00 31 19, 02 08 31, 07 07 47, 07 25 03, 08 48 25, 11 33 26 (e 38), 13 19 48; WDY 01 09 51, 22 28 30 (i 58)
	10	GSC	04 34 09 (i 18 i 34), 08 23 56, 10 43 27, 10 57 32, 14 18 54, 18 14 52, 22 25 03, 22 55 05; WDY 14 18 43 (pP 19 26)
	11	GSC	05 17 14, 08 46 26, 11 27 02 (i 29 26, i 31 33); WDY 03 14 48, 11 08 33
	12	GSC	00 40 48, 04 04 58, 10 18 21, 19 38 15, 20 34 02; CWC 02 09 58;
	12	WDY	16 45 15 (pP 46 41), 19 56 02
	13	GSC	02 55 56 (e 56 07), 04 11 41, 05 39 10; WDY 18 32 53 (pP 33 58), 22 34 11
	14	GSC	02 49 56, 12 06 50 (e 07 01), 20 05 52; WDY 09 06 05, 12 25 47, 16 58 07 (e 29), 17 08 02 (pP 09)
	15	CLC	02 18 42, 03 11 59, 05 28 22 (pP 29), 06 16 38 (pP 47), 07 36 19, 16 37 59, 19 23 33 (e 24 12); GSC 02 26 33, 02 29 06, 03 00 18, 03 16 30, 03 40 14 (i 21), 03 45 09, 03 56 50, 04 17 36, 06 17 35 (e 41), 06 22 11 (e 18), 15 41 39; WDY 01 21 16, 01 22 28, 01 25 38, 01 44 58, 01 45 44, 01 47 51, 01 58 00, 02 07 54 (pP 08 07), 02 10 33?, 02 21 11, 02 26 16, 02 26 50, 02 49 17 (i 24), 02 56 59, 03 02 31, 03 10 15, 03 52 18 (pP 29), 03 54 05 (pP 16), 04 11 27, 06 21 01, 06 52 41, 07 09 14, 07 43 55, 08 06 59, 09 12 36,, 09 51 47, 10 09 54, 11 23 49, 11 34 40? (e 49), 16 30 05 (pP 16), 20 11 49, 21 01 35, 22 55 56, 23 36 21 (e 29)
	16	CLC	09 14 16, 16 49 56 (pP 50 03); GSC 17 14 25, 18 12 03; WDY 00 16 36, 08 42 54, 09 04 37, 09 59 56?, 10 56 51, 12 08 04, 12 13 12 (e 19), 14 44 21, 15 01 05, 15 37 08, 16 58 49 (pP 59 03), 18 52 34, 19 38 55, 20 43 50 (pP 44 42), 21 10 48 (pP 55), 22 50 15 (e 51 25)
	17	CWC	08 23 21; WDY 00 57 53 (i 56, pP 58 03), 01 22 28 (pP 54), 01 28 25, 07 01 34, 08 59 53 (pP 09 00 12, sP 00 18), 10 15 20, 10 30 47, 12 00 28, 12 17 12, 13 31 51 (pP 59), 19 02 03
	18	CWC	05 41 01 (pP 10), 08 24 03 (pP 08), 08 37 31 (pP 37), 19 33 08;
	18	WDY	02 27 00 (e 11), 06 38 40, 08 43 35, 15 57 17, 19 29 03 (PP? 19 32 55), 22 25 50
	19	WDY	00 13 37, 00 27 04 (e 13), 13 02 47, 19 06 56, 22 52 24 (i 35)
	20	WDY	01 32 25 (i 30 i 34 i 41), 09 46 11, 19 20 48, 22 12 56

1966

June

- 21 WDY 04 02 29 (i 33 i 43), 07 23 41, 09 46 40.7, 15 59 04 (pP 21)
- 22 GSC 19 01 29; WDY 00 30 07, 02 02 43 (i 47)
- 23 CLC 13 39 58 (i 40 14, e 24); WDY 22 03 34
- 24 WDY 03 09 49, 08 30 00 (pP 36), 13 59 38
- 25 CLC 18 51 42 (pP 52 14), 23 22 49; WDY 05 21 15, 10 44 23 (pP 45 27),  
11 25 18, 13 29 09, 21 41 12 (i 16)
- 26 CLC 07 01 16; WDY 07 46 56, 22 31 05 (i 31 11), 23 58 33
- 27 CLC 04 19 25 (i 32), 08 33 51, 08 50 52 (pP 51 07) 20 10 35, 22 00 25  
(pP 50); WDY 03 09 05, 12 25 34 (pP 56), 17 45 36 (i 42), 18 57 39,  
19 04 57 (i 05 02), 19 14 59, 19 33 12 (i 19)
- 28 GSC 04 09 44.4, 04 27 01.5; SBC 04 09 25.0 (S 53.5), 04 26 42.1  
(S 27 09); CLC 01 12 09 (pP 13 07), 07 53 51, 23 29 39
- 29 SBC 19 53 54.3; GSC 19 54 13.9; CLC 02 51 24, 07 11 19; WDY 23 04 51  
(i 05 04)
- 30 CLC 09 11 04 (pP 12 51); WDY 01 03 17, 06 18 26, 10 48 14, 15 58 59  
(i 59 16), 17 09 05, 17 15 26 (i 33), 17 28 48 (i 54), 17 43 34  
(i 41), 18 24 52 (i 58), 21 47 25

November 14, 1966

Violet M. Taylor  
Seismological Laboratory

25 JUL 1966

RICHMOND, SURREY.



Seismological Laboratory  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 July 20, 1966

ADDITIONAL

July 4 IP  
i

18 58 55  
58

July 13 IP  
13 eP

06:00 00  
08 27 49

CONTINUATION

July 6 eP

00 16 23

i 30 19  
i 33  
eS 33 19  
eR 38.7

6

e  
eP  
eS  
eG  
eR  
 $\Delta 42^\circ$

24.2  
19 31 15  
37 33  
40.9  
42.6

13  
14

Two shocks?

14 59 45

10

MH  
IP  
IS  
eSS  
eG  
eR  
 $\Delta 76^\circ$

$\mu$  sec  
4 20  
10 13 15  
23 47  
29.1  
35.7  
39.1

14

eS 40 59  
eP 12 24 31  
eS 29.6  
eL 31.8  
iR 32.7

10

eP  
i  
eSKS  
IS  
eSS  
eG  
eR  
 $\Delta 86^\circ$

16 26 08  
18  
36.7  
37 41  
43 47  
48.0  
57.1

14  
15

iP 20 19 48  
iP 08 09 13  
i 35  
iP 01 50 28  
ipP 55  
iS 58 17  
esS 58.7  
eSS 02 01.9  
iG 04.7  
iR 07.0

11

IP

01 18 50

$\Delta 60^\circ$  Depth 100 km  
Magn.  $6-6\frac{1}{4}$

11

IP  
i  
eS  
eL

22 57 33  
44  
23 07 15  
16.8

19

$\mu$  sec  
PZ 0.2  $1\frac{1}{2}$   
PH 0.1  $1\frac{1}{2}$   
SH 8 30  
IP 07 36 51

12

IP

08 12 55

12

IP?  
eS

19 10 50  
17 19

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) Santa Barbara (SBC) and Woody (WDY)

June 28	GSC	J4 09 44.4, 04 27 01.5; SBC 04 09 25.0 (S 53.5), 04 26 42.1 (S 27 09); CLC 01 12 09 (pP 13 07), 07 53 51, 23 29 39
29	SBC	19 53 54.3 ; GSC 19 54 13.9; CLC 02 51 24, 07 11 19; WDY 23 04 51 (i 05 04)
30	CLC	09 11 04 (pP 12 51); WDY 01 03 17, 06 18 26, 10 48 14, 15 58 59 (i 59 16), 17 09 05, 17 15 26 (i 33), 17 28 48 (i 54), 17 43 34 (i 41), 18 24 52 (i 58), 21 47 25
July 1	WDY	05 01 51 (i 57), 05 53 51, 13 43 42 (pP 44 11) 16 46 35 (i 42), 16 57 21 (i 27), 19 31 53, 20 24 24 (e 23 01)
2	WDY	00 29 18, 07 12 57 (i 13 02), 12 22 56 (e 23 01), 17 54 03 (e 09), 19 04 03
3	GSC	04 02 55, 15 30 06 (i 11), 17 13 11 (e 23), 17 54 03 (e 09), 19 04 03 (e 08); WDY 01 41 22 (i 28), 17 50 49 (i 53), 18 17 52 (i 58), 20 50 49

Violet M. Taylor, Seismological Assistant

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
July 28, 1966

CONTINUATION

July 19	eP	19 28 29	July 23	iP	03 46 05
	i	40	23	iP	08 34 22
	eS	34 55		i	29
	eScS	38.2	23	iP	14 39 47
	eG	38.7		i	58
	eR	40.1		e	41 40
	$\Delta 47^\circ$			iS	46 11
20	iP	20 11 16		iG	49.7
21	iP	18 41 11		eR	51.7
	compression from southwest		23	$\Delta 40^\circ$	
	epP	43 14		eP?	20 19 49
	iPP	44 14		i	20 10
	epPP	46 00	23	iP	23 12 04
	iS	50 16		i	08
	esS	53.9	24	eP	09 03 35
	eG	19 02.0	24	iP	17 30 01
	$\Delta 75^\circ$ Depth 600 km			i	35
	Magn. 6		25	iP	08 54 17
		$\mu$ sec		i	48
	PZ	0.6 1	25	eP	21 03 52
	PH	0.3 1		i	59
	PPZ	0.2 1	26	eP	03 58 04
	PPH	0.1 1½		e	11
	SH	¾ 4	26	iP	05 55 28
22	iP	08 38 15	26	iP	22 52 01
	i	39 02	27	iP	05 00 33
22	eP	10 25 18		i	48
	i	32		iS	10 04
	eScP	30 56		eSS	14.7
	iS	31 46		eG	20.4
	eG	34.7		eR	24.7
	eR	35.9		$\Delta 75^\circ$	
	$\Delta 43^\circ$				
		$\mu$ sec			
	PZ	0.1 1			
	SH	1 3			
	MH	11 20			
	MZ	4 20			

KEW  
OBSERVATORY  
- 2 AUG 1966  
RICHMOND,  
SURREY.

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
July 28, 1966



**SUPPLEMENT:** Times of P for additional shocks at China Lake (CLC), Goldstone (GSC), Woody (WDY) and Riverside (RVR)

July 4 GSC 01 45 02 (i 08), 03 22 54, 03 23 01 (i 08), 07 33 48 (e 35 58),  
19 04 14 (e 21), 19 07 46 (i 51), 20 03 11 (e 21), 20 39 07  
(e 12), 21 10 34 (PcP 12 06), 22 22 44 (PcP 24 17);  
WDY 01 05 23, 05 54 05, 18 54 00 (i 07), 20 33 33, 20 54 10,  
22 12 05 (i 09), 22 28 00 (e 29 14)

5 GSC 03 33 59, 05 20 25 (i 30); WDY 03 07 31 (i 35), 03 59 49

6 WDY 20 09 11, 20 34 58, 22 54 12 (pP 55 31); RVR 00 00 55

7 GSC 23 33 50; WDY 01 30 12, 04 55 19, 09 59 22, 14 34 48

8 GSC 03 59 37, 22 24 18

9 GSC 08 04 40; WDY 00 33 32, 01 20 00 (i 05), 08 35 29, 09 35 29,  
14 25 49 (e 27 55)

10 GSC 02 01 49, 10 31 16, 20 54 51, 22 17 48 (pP 18 02); WDY 01 19 40,  
01 33 01 (e 35 02), 07 08 00 (i 32), 08 35 28, 09 35 28

11 WDY 02 27 17, 05 18 51, 08 35 27, 09 35 28, 15 44 26; GSC 00 08 58,  
00 25 28 (pP 47), 00 57 57, 05 50 09

12 WDY 00 17 25, 06 49 58, 07 16 05, 08 35 28, 09 35 27, 17 49 51  
(e 50 04), 19 06 39 (pP 53), 21 51 48 (i 56 i 52 02); GSC 19 06 41  
(i 56)

13 WDY 00 12 05, 00 47 38, 00 54 37 (i 43), 04 15 37, 06 58 24, 08 35 28,  
09 35 29, 10 43 57, 11 56 43, 12 15 41 (i 52), 14 55 09 (e 59 18,  
i 59 37), 15 09 48, 18 03 38 (i 45 i 54), 21 15 30; GSC 06 58 29,  
14 58 55 (i 59 18, e 49)

14 WDY 02 01 12 (e 25), 06 54 14 (i 21), 07 35 16, 08 35 29, 09 35 28,  
10 08 40 (i 46 i 52); GSC 18 16 16 (i 22, i 17 59); GSC 10 09 03

15 GSC 08 48 46, 21 33 36; CLC 08 35 20, 09 35 20; WDY 15 57 38

16 GSC 07 32 31, 18 19 12, 20 18 28

17 GSC 01 10 34, 08 53 07 (i 30), 08 55 38 (i 56 05), 10 45 46,  
12 53 02, 16 16 14, 17 33 45, 19 19 44 (i 50); WDY 16 31 14

18 GSC 00 53 47, 00 59 38 (i 43), 07 48 16, 11 12 36 (i 46), 22 27 27  
(i 28 08), 22 47 04 (e 11); WDY 03 34 43, 04 51 00 (i 14),  
05 48 49, 16 41 39

19 GSC 06 33 58, 20 27 01, 21 26 38 (i 42 i 50); WDY 00 30 04, 05 46 29,  
09 01 44, 12 05 20, 19 45 46 (i 58)

20 GSC 08 06 09, 09 41 44, 11 03 38 (i 04 39), 13 31 38, 14 38 46;  
WDY 00 30 24, 08 35 27, 09 35 28, 11 33 12 (i 24), 14 48 48 (i 49 03)

21 GSC 01 06 17 (i 31), 04 11 21, 05 22 13 (i 41), 09 10 09 (i 19),  
10 10 45 (i 56), 13 40 04 (i 10); WDY 05 20 42, 05 36 08 (e 40 06),  
08 35 27, 09 35 27, 11 12 35, 12 59 40, 13 31 45

22 GSC 19 56 58 (i 58 04)

23 GSC 04 17 35, 06 04 54 (e 06 05), 06 15 47, 12 29 57, 14 25 53  
(i 26 05), 15 34 13 (i 25), 19 40 01

24 GSC 06 42 12, 07 57 43, 08 22 03, 08 56 44, 09 03 44

Violet M. Taylor  
Seismological Assistant



PASADENA PRELIMINARY BULLETIN NO. 166

July - 1966

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Unless otherwise noted, readings refer to 1st motion at Pasadena

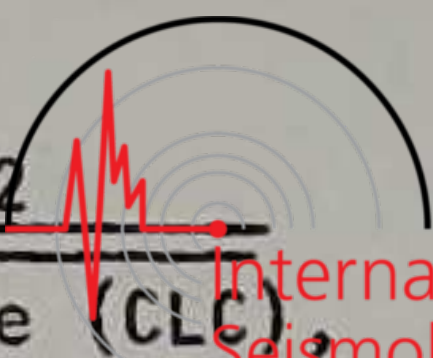
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1966

July

- 1 06 04 04 (pP 21, SKS 14 31, S 15 21, PS 17 03)  
3 04 21 22 (i 30, iS 31 09)  
4 12 26 54 (S 36 47), 18 42 10 (ScP 47 31, S 49 04, ScS 52 04), 18 58 55  
(i 58)  
5 02 30 13 (S 36 59)  
6 00 16 23, 19 31 15 (S 37 33)  
10 10 13 15 (S 23 47), 16 26 08 (i 18, SKS 36 42±, S 37 41)  
11 01 18 50, 22 57 33 (i 44, S 23 07 15)  
12 08 12 55, 19 10 50 (S 17 19)  
13 06 00 00, 08 27 49 (PcP 30 19, i 30 33, S 33 19), 14 59 45  
14 06 30 47 (i 56, S 40 59), 12 24 31 (S 29 36±), 20 19 48  
15 08 09 13 (pP 35)  
19 01 50 28 (pP 55, S 58 17, sS 58 42±), 07 36 51, 19 28 29 (i 40, S 34 55,  
ScS 38 12±)  
20 20 11 16  
21 18 41 11 (pP 43 14, PP 44 14, pPP 46 00, S 50 16, sS 53 54±)  
22 08 38 15, (pP 39 02), 10 25 18 (i 32, ScP 30 56, S 31 46)  
23 03 46 05, 08 34 22 (i 29), 14 39 47 (i 58, S 46 11), 20 19 59 (i 20 10),  
23 12 04  
24 09 03 35, 17 30 01 (pP 30 35)  
25 08 54 17 (pP 48), 21 03 52 (i 59)  
26 03 58 04 (e 11), 05 55 28, 22 52 01  
27 05 00 33 (i 48, iS 10 04)  
28 12 20 18 (i 34)  
29 11 58 53 (pP 59 06, i 14)  
31 12 01 59 (S 13 18±)



PPLEMENT: Times of P etc., for additional shocks recorded at China Lake (CLC), Goldstone (GSC) and Woody (WDY), Riverside (RVR)

166 (For July 1, 2, and 3 See Page 3).

- 4 GSC 01 45 02 (i 08), 03 22 54, 03 23 01 (i 08), 07 33 48 (e 35 58),  
19 04 14 (e 21), 19 07 46 (i 51), 20 03 11 (e 21), 20 39 07 (e 12),  
21 10 34 (PcP 12 06), 22 22 44 (PcP 24 17); WDY 01 05 23, 05 54 05,  
18 54 00 (i 07), 20 33 33, 20 54 10, 22 12 05 (i 09), 22 28 00  
(e 29 14)
- 5 GSC 03 33 59, 05 20 25 (i 30); WDY 03 07 31 (i 35), 03 59 49
- 6 WDY 20 09 11, 20 34 58, 22 54 12 (pP 55 31); RVR 00 00 55
- 7 GSC 23 33 50, WDY 01 30 12, 04 55 19, 09 59 22, 14 34 48
- 8 GSC 03 59 37, 22 24 18
- 9 GSC 08 04 40; WDY 00 33 32, 01 20 00 (i 05), 08 35 29, 09 35 29,  
14 25 49 (e 27 55)
- 10 GSC 02 01 49, 10 31 16, 20 54 51, 22 17 48 (pP 18 02); WDY 01 19 40,  
01 33 01 (e 35 02), 07 08 00 (i 32), 08 35 28, 09 35 28
- 11 WDY 02 27 17, 05 18 51, 08 35 27, 09 35 28, 15 44 26; GSC 00 08 58,  
00 25 28 (pP 47), 00 57 57, 05 50 09
- 12 WDY 00 17 25, 06 49 58, 07 16 05, 08 35 28, 09 35 27, 17 49 51 (e 50 04)  
19 06 39 (pP 53), 21 51 48 (i 56 i 52 02); GSC 19 06 41 (i 56)
- 13 WDY 00 12 05, 00 47 38, 00 54 37 (i 43), 04 15 37, 06 58 24, 08 35 28,  
09 35 29, 10 43 57, 11 56 43, 12 15 41 (i 52), 14 55 09 (e 59 18,  
i 59 37), 15 09 48, 18 03 38 (i 45 i 54), 21 15 30; GSC 06 58 29,  
14 58 55 (i 59 18, e 49)
- 14 WDY 02 01 12 (e 25), 06 54 14 (i 21), 07 35 16, 08 35 29, 09 35 28,  
10 08 40 (i 46 i 52); GSC 18 16 16 (i 22, i 17 59); GSC 10 09 03
- 15 GSC 08 48 46, 21 33 36; CLC 08 35 20, 09 35 20; WDY 15 57 38
- 16 GSC 07 32 31, 18 19 12, 20 18 28
- 17 GSC 01 10 34, 08 53 07 (i 30), 08 55 38 (i 56 05), 10 45 46, 12 53 02,  
16 16 14, 17 33 45, 19 19 44 (i 50); WDY 02 36 53, 16 31 14
- 18 GSC 00 53 47, 00 59 38 (i 42), 07 48 16, 11 12 36 (i 46), 22 27 27  
(i 28 08), 22 47 04 (e 11); WDY 03 34 43, 04 51 00 (i 14), 05 48 49,  
09 05 27, 10 05 27, 16 41 39
- 19 GSC 06 33 58, 20 27 01, 21 26 38 (i 43 i 50); WDY 00 30 04, 05 46 29  
08 35 28, 09 01 44, 09 35 27, 12 05 20, 19 45 46 (i 58)
- 20 GSC 08 06 09, 09 41 44, 11 03 38 (i 04 39), 13 31 38, 14 38 46;  
WDY 00 30 24, 08 35 27, 09 35 28, 11 33 12 (i 24), 14 48 48 (i 49 03);  
CLC 21 03 34
- 21 GSC 01 06 17 (i 31), 04 11 21, 05 22 13 (i 41), 09 10 09 (i 19),  
10 10 45 (i 56), 13 40 04 (i 10); WDY 05 20 42, 05 36 08 (e 40 06),  
08 35 27, 09 35 27, 11 12 35, 12 59 40, 13 31 45
- 22 GSC 07 54 39, 08 35 18, 09 35 19, 19 56 58 (i 58 04)
- 23 CLC 08 35 21; GSC 04 17 35, 06 04 54 (e 06 05), 06 15 47, 08 45 36,  
12 29 57, 14 25 53 (i 26 05), 14 47 46 (i 48 01), 15 34 13 (i 25)  
19 40 01; WDY 02 28 40, 08 48 12, 09 35 27, 11 55 55
- 24 GSC 06 42 12, 07 57 43, 08 22 03, 08 56 44, 09 03 44; WDY 04 41 51  
(i 42 04), 08 35 27, 09 35 27
- 25 GSC 23 36 02; WDY 08 35 27, 09 26 06, 09 35 27, 11 04 10, 11 53 17,  
13 22 22
- 26 GSC 06 34 21 (i 31), 09 35 19, 12 58 18 (i 29, i 45); WDY 18 12 23
- 27 GSC 07 27 28 (e 43), 08 17 09, 08 35 19, 09 35 19, 19 11 40; WDY 15 37 17
- 28 GSC 01 30 43 (e 31 21), 07 24 34, 07 51 14, 11 01 41 (e 49); WDY 07 11 13,  
08 35 27, 09 35 27, 14 38 40, 20 12 22, 23 33 51
- 29 WDY 04 43 31 (i 40), 07 19 16, 22 19 47 (i 58); GSC 19 34 25, 19 59 08

1966

July

30 GSC 03 27 13, 17 32 18 (i 32 32), 20 42 10; WDY 09 31 15 (e 37),  
14 40 02, 17 53 21, 19 46 58  
31 GSC 10 39 03, 11 58 48, 19 20 08 (e 24), 22 29 01; WDY 07 59 17  
(i 45), 19 17 51 (e 18 02), 19 23 55, 23 21 12 (i 32)

November 14, 1966

Violet M. Taylor  
Seismological Assistant

July

1 WDY 05 01 51 (i 57), 05 53 51, 13 43 42 (pP 44 11) 16 46 35 (i 42),  
16 57 21 (i 27), 19 31 53, 20 24 24  
2 WDY 00 29 18, 07 12 57 (i 13 02), 12 22 56, (e 23 01)  
3 GSC 04 02 55, 15 30 06 (i 11), 17 13 11 (e 23), 17 54 03 (e 09),  
19 04 03 (e 08); WDY 01 41 22 (i 28), 17 50 49 (i 53), 18 17 52  
(i 58), 20 50 49

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Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
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CONTINUATION

July	28	iP	12 20 18
		i	34
	29	iP	11 58 53
		i	59 06
		i	14
	31	eP	12 01 59
		eS	13.3
August	1	iP	03 35 47
	1	eP	06 34 40
	1	eP	09 57 02
	1	eP''	21 21 56
		iPP	22 51
		ePKKP	32 14
		iPS	41
		iSS	39.3
		iG	52.3
		iR	55.3
		$\Delta 118^\circ$ Magn. 6 $\frac{3}{4}$	
		$\mu$ sec	
		PPZ	1 $\frac{1}{4}$ 20
		MH	40 20
		MZ	30 20
	5	iP	04 45 46
		i	52
		eS	57 51
		eSS	05 06.7
		eG	09.6
		eR	12.1
		$\Delta 90^\circ$	
	6	iP	14 48 23
	6	iP	21 13 27
	7	iP	02 20 52
		dilatation from northwest	
		ipP	21 13

August 7 (continued)

	iS	02 27 10
	iG	30.4
	iScS	30 50
	iR	32.1
	$\Delta 42^\circ$ Magn. 6 $\frac{3}{4}$	
	$\mu$ sec	
	PZ	3 2
	PH	2 4
	SH	8 8
	MH	145 20
	MZ	42 20
	eP	03 20 05
	i	10
	eP?	14 18 20
	iP	17 37 24.0
	i	28.6
	iS	38 22.0
	$\Delta 5^\circ$	
	Magnitude 6 $\frac{1}{4}$ - 6 $\frac{1}{2}$	
	eP	07 36 52
	iP	08 06 47
	i	54
	iL	10.2
	$\Delta 20^\circ$	
	$\mu$ sec	
	PZ	0.4 1 $\frac{1}{2}$
	PH	0.1 1 $\frac{1}{2}$
	MH	25 20
	MZ	20 20
	iP	10 09 17
	i	57
	eP	13 21 11
	e	22 04
	eP	09 03 55
	e	04 14

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Seismological Laboratory  
220 North San Rafael Avenue  
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(and auxiliary stations as noted)  
August 10, 1966

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)

July	17	WDY	02 36 53
	18	WDY	09 05 27, 10 05 27
	19	WDY	08 35 28, 09 35 27
	22	GSC	07 54 39, 08 35 18, 09 35 19
	23	WDY	02 28 40, 08 48 12, 09 35 27, 11 55 55; CLC 08 35 21;
		GSC	08 45 36, 14 47 46 (i 48 01)
	24	WDY	04 41 51 (i 42 04), 08 35 27, 09 35 27
	25	GSC	23 36 02; WDY 08 35 27, 09 26 06, 09 35 27, 11 04 10, 11 53 17, 13 22 22
	26	GSC	06 34 21 (i 31), 09 35 19, 12 58 18 (i 29, i 45); WDY 18 12 23
	27	GSC	07 27 28 (e 43), 08 17 09, 08 35 19, 09 35 19, 19 11 40; WDY 15.37 1
	28	GSC	01 30 43 (e 31 21), 07 24 34, 07 51 14, 11 01 41 (e 49);
		WDY	07 11 13, 08 35 27, 09 35 27, 14 38 40, 20 12 22, 23 33 51
	29	WDY	04 43 31 (i 40), 07 19 16, 22 19 47 (i 58); GSC 19 34 25, 19 59 08
	30	GSC	03 27 13, 17 32 18 (i 32 32), 20 42 10; WDY 09 31 15 (e 37), 14 40 02, 17 53 21, 19 46 58
	31	GSC	10 39 03, 11 58 48, 19 20 08 (e 24), 22 29 01; WDY 07 59 17 (i 45), 19 23 55, 23 21 12 (i 32)
August	1	GSC	10 01 33, 12 02 20, 19 28 37 (PKP?), 20 43 01 (i 16), 20 49 38, 22 53 40; WDY 19 57 03 (i 15)
	2	GSC	02 44 29, 19 00 48, 19 10 57; WDY 16 08 39, 18 38 02 (i 11), 19 36 30, 22 12 49
	3	GSC	03 32 26, 16 09 53 (i 10 03), 19 02 39 (i 03 03); WDY 04 36 31 (i 46), 15 36 57 (i 37 04)
	4	GSC	03 33 19, 06 00 15 (e 02 13 i 57)
	5	GSC	01 01 25 (i 57), 04 11 21; WDY 04 37 03 (i 38 01, i 39 53) 08 24 12 (i 21)

Violet Taylor  
Seismological Assistant

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Seismological Laboratory  
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August 17, 1966

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CORRECTION

August 7 eP? 14 18 20  
Should read: eP 14 18 10

ADDITIONAL

August 5 IP 20 11 47

CONTINUATION

August 10 IP 05 12 51

compression  
I -13 16  
i 35  
IS 22 32  
eG 33.4  
IR 35.7

Δ 77° Magn. 6½

	μ	sec
PZ	0.4	1½
PH	0.1	1
SH	2	20
10 IP	12	46 56
ePP		50.7
eSKS		57 54
ePS		59 20
eSS	13	04.4
eG		13.0
eR		15.6

Δ 94°

	μ	sec
MH	3½	20
MZ	3	20
10 eP	16	10 50
e		11 13

August 11 eP 05 24 23  
I 30  
eS 33 40  
eSS 38.4  
eG 43.7  
IR 46.7  
Δ 75°

	μ	sec
MH	4	20
11 eP	10	53 37
e		50
eS		59 42
eL	11	02.4
eR		04.8

Δ 40°

12 eP 04 11 41  
epP 12 12  
12 IP 20 24 00  
IP 08  
IPcP 26 25  
IPcP 35  
eS 29.8  
eL 31.7

Δ 40°

15 IP 13 42 51  
dilatation  
eS 48 04  
eL 52.1  
16 eP 04 44 47  
I 45 00  
I(S) 46 03

SUPPLEMENT: Times of P for additional shocks at Barrett (BAR), China Lake (CLC), El Centro (ECC), Goldstone (GSC) and Woody (WDY)

July 31 WDY 19 17 51 (e 18 02)  
August 2 BAR 15 53 09  
4 WDY 20 45 55 (i 46 05)  
5 WDY 13 26 33, 18 28 18  
6 WDY 07 34 59 (i 35 03 i 11), 07 38 26, 08 14 54 (i 15 08),  
08 33 21 (pP 58), 11 35 43, 15 55 32 (i 55), 19 44 10,  
20 30 17  
7 BAR 17 36 57.5, ECC 17 36 48.1; WDY 04 20 55, 05 40 23,  
06 29 16, 13 53 36 (pP 55 33), 15 19 11, 20 30 02  
8 WDY 00 49 22, 05 25 06 (i 21), 22 50 31, 23 15 21  
9 GSC 06 59 04, 22 38 34 (e 44); WDY 02 32 13, 17 42 30 (i 57),  
23 43 31  
10 GSC 17 54 38; WDY 02 11 21 (i 38), 15 02 13 (pP 47)  
11 GSC 00 27 13, 04 00 28, 13 29 33, 13 35 56, 14 51 02, 15 03 33  
WDY 08 51 06, 15 48 30, 20 52 04 (pP 15), 22 28 23 (pP 35),  
23 29 26 (pP 38), 23 37 44 (pP 57), 23 45 59  
12 WDY 00 24 45 (i 57), 00 44 07, 02 00 36, 04 11 43 (pP 12 15,  
sP 34), 05 15 33, 10 38 56, 14 42 21, 14 50 00

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Seismological Laboratory  
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(and auxiliary stations as noted)  
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CONTINUATION

August 15	iP	02 23 45	
16	iP	18 03 45.0	
	i	04 00.5	
	iS	05 01.0	
Δ 680 km Magn. 6			
16	eP	19 58 23	
	iS	20 09 02	
	iPS	10.1	
	eSS	14.9	
	eSSS	17.7	
	iG	21.2	
	eR	22.7	
Δ 85°			
		μ sec	
	MH	3½ 20	
	MZ	3½ 20	
17	iP	20 11 52	
	e	12 58	
	i	14 35	
17	eP	21 07 30	
	i	41	
	i	52	
	eL	20.3	
17	iP	23 09 09.5	
	i	20.9	
	iS	10 24.0	
Magn. 4 3/4			
18	iP	06 16 10.5	
	i	22.0	
	iS	17 24.7	
Magn. 4½			
18	eP	06 46 45	
18	iP	09 16 46.0	
	i	58.7	
	iS	17 53.0	
Magn. 5			
18	iP	10 39 28	
compression from southeast			
	ipP	39 44	
	iPcP	42 24	
	ipPcP	43	
	iS	44 33	
	isS	45 02	
	iG	47.0	
	iR	49.1	
Δ 31° depth 80 km Magn. 6			
		μ sec	
	PZ	1 3	
	PH	1 3	
	SH	2 5	
	MH	7 20	

August 18	iP	12 01 43.5	
	i	54.5	
	iS	02 56.5	
Magn. 4½			
18	iP	13 34 30.2	
	i	41.0	
	iS	35 43.5	
Magn. 4½			
18	iPP	14 52 35	
	iPP	14 56 28	
(Two shocks distant 110° ±)			
18	eP	17 36 15.6	
	i	25.7	
	iS	37 28.1	
Magn. 5			
19	iP	10 52 49.0	
	i	53 03.7	
	iS	58.9	
Magn. 4½			
19	eP	11 30 42	
	eS	38.0	
	eL	39.7	
19	EP	12 36 13	
	ePP	40 29	
	iSKS	47 05	
	iPS	49 56	
	ePKKP	52 07	
	eR	13 11.5	
Δ 103° Magn 7 - 7 1/4			
		μ sec	
	PZ	0.2 1½	
	PPZ	4 5	
	PPH	0.2 1½	
	MH	50 20	
	MZ	30 20	
19	eP	12 58 22	
20	iP	07 52 38	
	ipP	53 05	
20	iP	09 43 55	
	iS	53 14	
20	ePS	12 27.0	
	e	32.5	
	eR	45.0	
Δ 103° ± Magn. 6 1/4			
		μ sec	
	MH	10 20	

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(and auxiliary stations as noted)  
August 25, 1966

CONTINUATION  
August 20

	eP	23 07 04	August 22	iP	14 31 08
	iS	17 11	22	eP	17 54 56
	eG	27.5		i	55 06
	eR	31.2		iS	18 05 39
	Δ 80° Magn.	5 3/4		i	07 02
		μ sec		iSS	10.8
21	MH	5 20		iG	18.2
	ePP	05 19 06		iR	22.4
	iSKS	25 12		Δ 90° Magn.	6 1/2
	iPS	28 06			μ sec
	eSS	33.1		MH	25 20
	eR	48.0		MZ	20 20
	Δ 105° ±		24	iP	07 28 29
		μ sec		ipP	53
22	MH	8 20		isP	29 04
	iP	08 28 38.8		iS	37 40
	i	51.8			
	iS	29 51.4			
	Magn.	4 1/2 - 4 3/4			

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC), Woody (WDY) and Palomar (PLM)

August 11 PLM 09 57 52  
 12 GSC 19 43 49; WDY 15 46 13 (e 20), 16 16 24 (e 30), 19 34 03 (e 35 21, i 35 34), 21 20 22, (e 28), 22 35 17  
 13 WDY 02 18 30, 04 43 42, 04 46 07, 11 09 39 (pP 48), 14 25 18, 20 28 50 (e 29 04)  
 14 WDY 05 03 55, (i 04 05)  
 15 WDY 02 44 51, 02 59 45 (PP 03 04 14), 10 40 12, 11 05 14 (pP 25), 13 09 17, 19 43 36 (pP 51, sP 56)  
 16 GSC 18 00 01, 18 03 21.8, 19 50 54.9, 23 16 01; WDY 01 28 20, 09 54 15, 10 06 01 (i 21), 21 36 41, 23 15 34 (i 51)  
 17 GSC 23 08 44.1; WDY 20 08 08 (e 16)  
 18 GSC 00 24 19 (e 34, e 27 48, i 28 06), 06 15 47.0, 09 16 22.7, 12 01 19.9, 13 34 07.0, 14 48 39 (PP 52 34, PKKP 15 03 24, i 31), PP 14 56 29 (PKKP 15 07 09, i 24); WDY 02 41 08 (i 15, i 20), 14 48 33 (PP 53 05, i 53 43, PKKP 15 03 30, i 39), 14 52 27 (PP 56 59, i 57 39, PKKP 15 07 22, i 32)  
 19 WDY 03 16 04, 12 49 07, (i 49 15), 14 08 22  
 20 GSC 06 38 38 (S 41 40)

Violet Taylor  
Seismological Assistant

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Seismological Laboratory  
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PROVISIONAL READINGS AT PASADENA  
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CONTINUATION

August				September			
25	eP	23	30	12	1	iP	14 15 39
26	iP	01	04	12		i	48
	eL			29.4		eL	19.9
26	e(PP)	09	30	24	1	eP	14 28 19
	eG			43.2	1	iP	23 25 48
	eR			47.2	2	eP	01 03 27
				$\mu$ sec		e	55
	MH	4		20		eR	17.6
26	iP	10	27	23	2	iP	08 06 41
28	iP	07	42	31		compression from south	
28	iP	10	15	09		iS	12 56
	ipP			17 00		iG	16.0
	eS			25 08		iR	17.7
29	e	13		45.6		$\Delta$ 43° Magn. $6\frac{1}{4}$	
	eG			55.9		$\mu$ sec	
	eR	14		00.9		PZ	1 4
30	iP	20	27	29		SH	7 17
	dilatation from northwest					MH	23 20
	ipP			27 40		MZ	23 20
	iPcP			29 53	2	iP	11 06 41.4
	IpPcP			30 05		iS	49.6
	iS			32 49		Magnitude $3\frac{1}{2}$	
	eR			36.6		Felt at Fontana, Riverside, San Bernardino etc.	
	$\Delta$ 35° Magn. $5\frac{1}{2}$ - $5\frac{3}{4}$					eP	21 22 37
				$\mu$ sec		iP	12 27 26
	PZ	$\frac{1}{2}$		2	2	e(pP)	37
	MH	6		20	3	i(sP)	42
	MZ	4		20		eP	16 30 16
30	iP	23	41	32	3	eS	34 46
	dilatation from southeast					eL	36.1
	eL			44.5		eR	37.2
	eR			45.9		eP	22 23 52
	$\Delta$ 20°				4	eP	07 13 06.3
				$\mu$ sec	6	iS	14 09.0
	PZ	4		4		Magn. $4\frac{3}{4}$	
	MH	20		20			
	MZ	17		20			

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12 SEP 1966  
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September 7, 1966

SUPPLEMENT: Times of P for additional shocks at Barrett (BAR), China Lake (CLC), Goldstone (GSC) and Woody (WDY)

August	16	BAR	iP 04 44 15.7, IS 45 21.0
	20	WDY	22 28 10, 23 20 22, 23 25 27
	21	GSC	05 14 35, 18 44 44
	22	GSC	08 28 16.4, 11 17 24 (pP 35), 14 31 08 (pP 33 13), 17 12 20 (e 29 i 36), 17 20 46; WDY 19 36 35 (pP 57), 20 26 22, 20 44 47
	23	GSC	03 03 43, 05 58 12, 06 52 34 (e 53 19), 18 35 53, 22 46 37;
		WDY	00 06 23, 15 12 47
	24	GSC	00 59 10, 02 03 50, 02 32 07
	25	WDY	23 56 01
	26	WDY	00 11 42, 03 19 15, 09 19 40, 22 36 52 (pP 37 09)
	27	WDY	02 50 43 (i 50), 02 54 44 (e 53), 03 14 36, 04 49 51, 10 38 50, 13 10 53 (pP 11 04)
	28	GSC	04 21 35 (e 47), 07 42 04 (pP 42 38, S 52 59, sS 53 39), 13 32 50, 15 48 30; WDY 13 32 44 (pP 33 39), 20 15 27 (pP 46)
	29	GSC	04 08 45 (e 54), 13 39 00 (i 14), 19 39 20 (pP 37 sP 47), 21 10 19, 22 36 50; WDY 05 59 23 (pP 33), 08 16 42
	30	GSC	06 23 13 (pP 23), 13 49 23 (e 30), 18 32 09;
		WDY	05 40 16, 08 48 56 (i 49 03), 12 58 53 (i 59 06), 13 10 41 (e 47), 15 15 32, 17 06 09
	31	GSC	09 50 42, 14 17 27, 23 48 38; WDY 08 58 13, 15 42 42 (pP 56), 19 51 41 (pP 49)
September	1	GSC	15 37 00 (pP 22 sP 32); WDY 14 36 46 (PP 40 42), 14 53 10, 21 37 34
	2	WDY	02 09 07 (i 12), 05 06 44 (e 51), 08 54 32 (e 38), 09 21 42, 10 30 39

Violet M. Taylor  
Seismological Assistant

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 167

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Unless otherwise noted, readings refer to 1st motion at Pasadena

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1966	
August	
1	03 35 47, 06 34 40, 09 57 02, 21 21 56 (PP 22 51, PKKP 32 14, PS 32 41)
5	04 45 46 (i 52, S 57 51), 20 11 47
6	14 48 23, 21 13 27
7	02 20 52 (pP 21 13, S 27 10, ScS 30 50), 03 20 05 (i 10), 14 18 10 17 37 24.0 (i 28.6, S 38 22.0)
8	07 36 52, 08 06 47 (i 54), 10 09 17 (pP 57)
9	09 03 55
10	05 12 51 (i 13 16, i 35, S 22 32), 12 46 56 (SKS 57 54, PS 59 20), 16 10 50
11	05 24 23 (S 33 40), 10 53 37 (e 50, S 59 42)
12	04 11 41 (pP 12 12), 20 24 00 (pP 08, PcP 26 25, pPcP 26 35, S 29 48±)
15	02 23 45, 13 42 51 (S 48 04)
16	04 44 47 (S 46 03), 18 03 45.0 (i 04 00.5, S 05 01.0), 19 58 23 (S 20 09 02)
17	20 11 52 (e 12 58, i 14 35), 21 07 30 (i 41), 23 09 09.5 (S 10 24.0)
18	06 16 10.5 (S 17 24.7), 06 46 45, 09 16 46.0 (S 17 53.0), 10 39 28 (pP 39 44, PcP 42 24, pPcP 42 43, S 44 33, sS 45 02), 12 01 43.5 (S 02 56.5), 13 34 30.2 (S 35 43.5), 14 52 35, 14 56 28, 17 36 15.6 (S 37 28.1)
19	10 52 49.0 (S 53 58.9), 11 30 42 (S 38 00±), 12 36 13 (PP 40 29, SKS 47 05, PS 49 56, PKKP 52 07), 12 58 22
20	07 52 38 (pP 53 05), 09 43 55 (S 53 14), PS 12 27 00±, 23 07 04 (S 17 11)
21	05 19 06 (SKS 28 12, PS 28 06)
22	08 28 38.8 (S 29 51.4), 14 31 08, 17 54 56 (S 18 05 39)
24	07 28 29 (pP 53, sP 29 04, S 37 40)
25	23 30 12
26	01 04 12, SS 09 30 24, 10 27 23
28	07 42 31, 10 15 09 (pP 17 00, S 25 08)
30	20 27 29 (pP 27 40, S 32 49), P 20 29 53 (pP 30 05), 23 41 32

SUPPLEMENT: Times of P etc., for additional shocks recorded at Barrett (BAR), China Lake (CLC), Cottonwood (CWC), El Centro (ECC), Golstone (GSC), Palomar, (PLM) and Woody (WDY)

1966

August

- 1 GSC 10 01 33, 12 02 20, 19 28 37 (PKP?), 20 43 01 (i 16), 20 49 38, 22 53 40; WDY 15 58 33, 15 59 33, 19 57 03 (i 15)
- 2 BAR 15 53 09; GSC 02 44 29, 19 00 48, 19 10 57; WDY 16 08 39, 18 38 02 (i 11), 19 36 30, 22 12 49
- 3 GSC 03 32 26, 16 09 53 (i 10 03), 19 02 39 (i 03 03); WDY 04 36 31 (i 46), 15 36 57 (i 37 04)
- 4 GSC 03 33 19, 06 00 15 (e 02 13 i 57); WDY 20 45 55 (i 46 05)
- 5 GSC 01 01 25 (i 57), 04 11 21, 20 17 06
- WDY 04 37 03 (i 38 01, i 39 53), 08 24 12 (i 21), 13 26 33, 18 28 18
- 6 WDY 07 34 59 (i 35 03 i 11), 07 38 26, 08 14 54 (i 15 08), 08 33 21 (pP 58), 11 35 43, 15 55 32 (i 55), 19 44 10, 20 30 17
- 7 BAR 17 36 57.5; ECC 17 36 48.1; WDY 04 20 55, 05 40 23, 06 29 16, 13 53 36 (pP 55 33), 15 19 11, 20 30 02
- 8 WDY 00 49 22, 05 25 06 (i 21), 22 50 31, 23 15 21
- 9 GSC 06 59 04, 22 38 34 (e 44); WDY 02 32 13, 17 42 30 (i 57), 23 43 31
- 10 GSC 17 54 38; WDY 02 11 21 (i 38), 13 20 25, 15 02 13 (pP 47)
- 11 GSC 00 27 18, 04 00 28, 10 18 50 (e 19 22), 13 29 33, 13 35 56, 14 51 02, 15 03 33; WDY 08 51 06, 15 48 30, 20 52 04 (pP 15), 22 28 23 (pP 35), 23 29 26 (pP 38), 23 37 44 (pP 57), 23 45 59;
- PLM 09 57 52
- 12 GSC 19 43 49; WDY 00 24 45 (i 57), 00 44 07, 02 00 36, 04 11 43 (pP 12 15, sP 34), 05 15 33, 10 38 56, 14 42 21, 14 50 00, 15 46 13 (e 20), 16 16 24 (e 30), 19 34 03 (e 35 21, i 35 34), 21 20 22 (e 28), 22 35 17
- 13 WDY 02 18 30, 04 43 42, 04 46 07, 11 09 39 (pP 48), 14 25 18, 20 28 50 (e 29 04)
- 14 WDY 05 03 55 (i 04 05)
- 15 WDY 02 44 51, 02 59 45 (PP 03 04 14), 10 40 12, 11 05 14 (pP 25), 13 09 17, 19 43 36 (pP 51 sP 56)
- 16 BAR 04 44 15.7 (s 45 21.0); GSC 18 00 01, 18 03 21.8, 19 50 54.9, 23 16 01; WDY 01 28 20, 09 54 15, 10 06 01 (i 21), 21 36 41, 23 15 34 (i 51)
- 17 GSC 23 08 44.1; WDY 20 08 08 (e 16)
- 18 GSC 00 24 19 (e 34, e 27 48, i 28 06), 06 15 47.0, 09 16 22.7, 12 01 19.9, 13 34 07.0, 14 48 39 (PP 52 34, PKKP 15 03 24, i 31), PP 14 56 29 (PKKP 15 07 09, i 24); WDY 02 41 08 (i 15 i 20), 14 48 33 (PP 53 05 i 53 43, PKKP 15 03 30 i 39), 14 52 27 (PP 56 59 i 57 39, PKKP 15 07 22 i 32)
- 19 WDY 03 16 04, 12 49 07 (i 49 15), 14 08 22
- 20 GSC 06 38 38 (s 41 40); WDY 10 50 57, 11 02 23, 11 50 19, 22 38 10, 23 20 22, 23 25 27
- 21 GSC 05 14 35, 18 44 44
- 22 GSC 08 28 16.4, 11 17 24 (pP 35), 14 31 08 (pP 33 13), 17 12 20 (e 29 i 36), 17 20 46; WDY 19 36 35 (pP 57), 20 26 22, 20 44 47
- 23 GSC 03 03 43, 05 58 12, 06 52 34 (e 53 19), 18 35 53, 22 46 37; WDY 00 06 23, 15 12 47
- 24 GSC 00 59 10, 02 03 50, 02 32 07
- 25 WDY 23 56 01
- 26 WDY 00 11 42, 03 19 15, 09 19 40, 22 36 52 (pP 37 09)

1966  
August

27 WDY 02 50 43 (i 50), 02 54 44 (e 53), 03 14 36, 04 49 51, 10 38 50,  
13 10 53 (pP 11 04)

28 GSC 04 21 35 (e 47), 07 42 04 (pP 42 38, s 52 59, sS 53 39), 13 32 50,  
15 48 30; WDY 13 32 44 (pP 33 39), 20 15 27 (pP 46)

29 GSC 04 08 45 (e 54), 13 39 00 (i 14), 19 39 20 (pP 37 sP 47),  
21 10 19, 22 36 50; WDY 05 59 23 (pP 33), 08 16 42

30 GSC 06 23 13 (pP 23), 13 49 23 (e 30), 18 32 09; WDY 05 40 16, 08 48 56  
(i 49 03), 12 58 53 (i 59 06), 13 10 41 (e 47), 15 15 32, 17 06 09

31 CWC 18 26 08; GSC 09 50 42, 14 17 27, 23 48 38; WDY 08 58 13,  
15 42 42 (pP 56), 19 51 41 (pP 49)

November 14, 1966

Violet M. Taylor  
Seismological Assistant

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
September 22, 1966

CONTINUATION  
September 7

Date	Station	Time	Magnitude	Notes
September 7	eP	14 49 05		
	e	12		
8	eP	08 40 16		
	eS	49 40		
8	IP	21 29 16		
8	IP	21 29 52		
	i	30 06		
	iPP	34 34		
	iSKS	40 44		
	iSP	43 47		
	i	44 10		
	ePKKP	45 37		
	eSSS	53.4		
	eG	59.7		
	eR	22 06.2		
	$\Delta 105^\circ$	Magn. 6 3/4 - 7		
		$\mu$ sec		
	PZ	1/2 2		
	PPZ	1 2 1/2		
	PPH	1/2 2		
	MH	30 20		
	MZ	20 20		
9	IP	18 37 54		
	i	38 02		
11	IL	01 46.1		
11	IP	17 09 56.9		
11	IP	17 46 42		
	compression			
	iScP	51 52		
	iS	53 40		
	$\Delta 48^\circ$			
11	IP	20 13 50.6		
12	IP	11 42 29		
	iS	52 55		
	iG	12 06.6		
	iR	10.7		
	$\Delta 90^\circ$	Magn. 6 1/2 - 6 3/4		
		$\mu$ sec		
	PZ	3 10		
	SH	3 10		
	MH	30 20		
September 12	eP	16 42 25.1		
	i	26.4		
	iS	43 42.9		
	Magnitude 6.3			
	Some damage and rock slides in Nevada, west of Reno			
	IP	17 21 35.7		
	iS	22 48.5		
	Large aftershock			
	Magnitude 5.3			
	IP	01 03 33		
	IP	22 01 58.0		
	iS	03 13.3		
	Magn. 4.4			
	IP	22 41 53.0		
	iS	43 07.5		
	Magn. 4.5			
	eP	23 33 55		
	eP''	37 28		
	iPP	38 46		
	eS	47 37		
	iPS	48 45		
	iSS!	55 48		
	eR	24 16.5		
	$\Delta 122^\circ$	Magnitude 6 3/4		
		$\mu$ sec		
	PZ	1 1/4 20		
	PPZ	5 20		
	PPH	3 1/2 20		
	MH	15 20		
	MZ	15 20		
	iPP	12 12 10		
	ePS	22 04		
	iSS	29 02		
	eR	49.7		
	$\Delta 122^\circ$	Magn. 6 1/4 - 6 1/2		
		$\mu$ sec		
	MH	8 20		
	eP	02 55 32		
	IP	21 17 16		
	IP	06 50 02		
	eSS	15 51.7		
	eR	16 12.6		
	IP	04 34 35		
	IP	05 04 51		

**KEW  
OBSERVATORY**  
 26 SEP 1966  
 RICHMOND,  
 SURREY.

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
September 21, 1966

SUPPLEMENT: Times of P for additional shocks at Barrett (BAR), China Lake (CLC), Cottonwood (CWC), Goldstone (GSC) and Woody (WDY).

Month	Day	Station	Times of P
August	31	CWC	18 26 08
September	2	GSC	17 16 36, 22 20 49, 22 22 32, 22 53 02
	3	GSC	06 44 26, 08 22 51 (i 23 08), 12 37 39 (pP 55), 19 57 03
	4	CLC	05 48 49 (i 59); GSC 04 56 06, 05 48 44, 08 46 52, 10 59 12 (pP 11 00 56); WDY 13 41 28 (e 43)
	5	BAR	23 06 00 (S 07 00); CLC 07 05 52 (i 06 01), 18 11 16 (i 28 i 33); GSC 00 19 53 (pP 20 44 sP 21 03), 08 57 06 (i 20 i 25), pP 11 29 24, 16 40 41 (i 46); WDY 11 29 06 (pP 19), 20 29 20, 23 06 52 (S 08 44)
	6	BAR	07 12 35.9 (S 13 03.0); GSC 08 08 09 (pP 20), 08 09 15 (i 21), 08 52 27 (pP 53 06), 20 35 41; WDY 07 59 56, 21 14 30
	7	CLC	06 06 49; GSC 16 08 13 (e 31), 16 32 04 (pP 09);
		WDY	08 20 19, 10 30 52, 16 53 52
	8	WDY	00 37 31, 15 41 19 (i 42 37), 21 29 18 (i 53), 22 06 25 (pP 35), 22 40 38 (i 41 00), 23 09 22
	9	GSC	18 48 51; WDY 04 14 00 (e 42), 07 26 42, 09 58 38 (i 44) 12 26 58, 12 30 21, 13 13 04, 15 19 23, 15 43 15 (i 20), 18 31 00 (i 25), 23 22 28, 23 26 03
	10	GSC	02 38 30 (i 49), 14 15 09, 14 24 51, 17 43 36, 22 07 09;
		WDY	10 30 13, 12 14 32, 16 22 40 (e 46), 16 39 55 (e 40 08)
	11	GSC	01 44 16 (L 46 15, Lg 47 03), 03 29 27; WDY 07 03 04, 08 06 59, 18 24 22
	12	CLC	14 15 54; WDY 00 55 05, 02 03 32, 12 38 37, 12 52 58, 13 07 44, 14 18 12 (pP 20)
	13	GSC	23 06 09 (e 20); WDY 05 36 52, 07 57 49, 09 51 47 (i 53 16 i 53 24), 21 38 43
	14	GSC	19 44 44, 21 15 29; WDY 00 33 51 (e 34 00), 01 26 20, 05 09 53, 14 20 00, 14 40 58
	15	GSC	04 19 12 (S 29 24±), 10 42 27, 14 27 18; WDY 02 43 42, 07 59 47, 08 02 42, 08 09 28, 12 37 43 (i 55), 17 24 21 (e 28 11)
16	WDY	02 55 20 (i 29), 08 09 05, 12 36 41, 13 14 36, 13 24 47 (i 56), 15 02 02, 15 05 52 (i 06 03)	

Violet M. Taylor  
Seismological Assistant

SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
October 12, 1966

CONTINUATION  
September 22

Date	Time	Station	Reading	Date	Time	Station	Reading		
September 22	18 57	iP	51.5	October 3	02 32	eP	04		
		i	58 04.5				i	23	
		iS	57.8			07 35	iP	57	
		Magn.	5 $\frac{1}{4}$				e	36 33	
		18 59	iS		58.0		16 07	iP	42
		Magn.	5 $\frac{1}{2}$					compression	
	22	19 10	iP		26.0			ipP	08 22
			i		36.6			eSKS	17 52
			iS		11 45.0			iS	18 12
		Magn.	4 $\frac{1}{4}$					iG	31.7
22	20 00	iP	48.5			$\Delta$ 91°	Depth 160 km		
		i	01 01.6			Magn.	6 3/4		
		iS	59.5						
23	11 57	iP	18.5			$\mu$	sec		
		i	31.6			PZ	0.4 1 $\frac{1}{2}$		
		i	58 32.5			SH	3 10		
	Magn.	4 $\frac{1}{2}$			8	eP	00 24 00		
24	09 02	iP	33			eS	33 54		
		i	37			iG	43 28		
25	05 01	iP	56		8	eP	02 45 59		
25	06 07	iP	17			iS	55 48		
		ipP	39			i	56 39		
		isP	08 01			iG	03 05 28		
		iPcP	11 14			eR	09.3		
		iS	20		8	iP	14 54 53		
		$\Delta$ 21°			8	iP	17 52 08		
		Depth 100 km				eL	18 02.6		
		Magn. 5 $\frac{1}{2}$ $\pm$			9	iP	02 17 26		
	28	14 18	e	55			i	18 19	
			ePP	19 17		9	eP	08 11 29	
		ePS	28 44			iS	12 35.2		
		eSS	34.8			Magn.	5 $\frac{1}{4}$ -5 $\frac{1}{2}$		
		eR	53.7		10	eP	21 23 08		
		$\Delta$ 113°			11	iP <sup>11</sup>	06 44 03		
		09 40	iP	11		iPP	46 24		
30		ipP	41			ePS	55 56		
		eS	49 12			eSS	07 02.9		
October 2	05 12	iP	38.5			eL	23.3		
		iS	41.5			$\Delta$ 120°			
	Magnitude	3 3/4 - 4							
	Felt sharply in Los Angeles; no significant damage but much excitement								
2	07 31	eP	42						
		e	57						
		eS	38 15						
		eL	41.7						
		eR	43.9						

KEW  
OBSERVATORY  
17 OCT 1966  
RICHMOND,  
SURREY.



SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
October 12, 1966

SUPPLEMENT: Times of P for additional shocks recorded at China Lake (CLC), Goldstone (GSC), Palomar (PLM) and Woody (WDY)

September	16	GSC	17 17 47; WDY 14 29 20 (i 25)
	17	GSC	01 29 48, 03 56 04, 11 03 13, 17 31 01 (i 07), 23 35 45;
		WDY	19 03 21, 23 14 46
	18	GSC	00 47 13, 05 34 01 (pP 09), 21 02 39 (e 03 46);
		WDY	10 00 25, 13 53 36, 20 25 18, 21 13 07 (e 26)
	19	GSC	07 13 28 (e 15 33); WDY 03 49 47, 21 28 58
	20	GSC	17 44 32, 21 27 30, 23 29 45; WDY 00 17 33 (i 51),
			06 49 30, 14 43 24 (i 35), 18 24 17
	21	GSC	07 43 25 (e 36 e 41), 10 00 31
	22	GSC	18 57 25.4; WDY 00 14 14 (i 19), 04 27 24 (i 28),
			12 27 41, 13 46 19, 18 32 53, 21 46 43
	23	WDY	01 40 34 (i 51), 02 16 46 (i 57), 05 04 46, 20 39 31
			(i 39)
	24	GSC	17 01 13, 22 08 15 (i 24)
25	CLC	08 49 16 (i 25), 20 29 34; WDY 08 57 44	
26	WDY	05 29 38? (e 30 05 e 14), 06 21 27 (i 32), 07 03 23	
		(i 26), 19 15 20	
27	GSC	03 32 41, 06 43 41; WDY 04 36 23, 09 17 42	
28	WDY	02 43 59, 12 00 47	
29	CLC	02 55 54 (pP 56 53)	
30	WDY	15 13 47, 15 40 48; PLM 07 09 05	
October	1	GSC	01 19 03, 10 17 03, 17 00 16; WDY 06 23 54
	2	WDY	02 37 14, 06 04 27, 11 32 28, 12 15 50 (i 58), 14 51 27
			(pP 41), 22 06 53, 22 16 46
	3	WDY	01 28 53, 02 29 09 (e 30 36, Lg 32 12), 04 14 33
	4	WDY	01 57 16, 04 40 02, 23 49 17
	5	GSC	03 07 55 (pP 08 14, sP 08 23), 05 37 55, 08 53 57
		(i 54 04), pP 10 18 45, 18 04 44, 23 43 40;	
	WDY	10 17 44 (pP 18 38), 19 47 00 (e 23)	
6	GSC	09 42 50, 13 27 45, 13 58 53, 04 29 20; WDY 14 40 17	

Violet M. Taylor  
Seismological Assistant

OBSERVATORY  
29 DEC 1966  
R. J. ...  
SURREY.

SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 168

September - 1966

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Unless otherwise noted, readings refer to 1st motion at Pasadena

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1966  
September

1	14 15 39, 14 28 19, 23 25 48
2	01 03 27, 08 06 41 (S 12 56), 11 06 41.4 (S 49.6), 21 22 37
3	12 27 26, 16 30 16 (S 34 46)
4	22 23 52
6	07 13 06.3 (S 14 09.0)
7	14 49 05
8	08 40 16 (S 49 40), 21 29 16, 21 29 52 (PP 34 34, SKS 40 44, SP 43 47, PKKP 45 37)
9	18 37 54
11	L 01 46.1, 17 06 56.9, 17 46 42 (ScP 51 52, S 53 40), 20 13 50.6
12	11 42 29 (S 52 55), 16 42 25.1 (i 26.4, iS 43 42.9), 17 21 35.7 (S 22 48.5)
13	01 03 33
14	22 01 58.0 (S 03 13.3), 22 41 53.0 (S 43 07.5), 23 33 55 (P'' 37 28, PP 38 46, S 47 37, PS 48 45, SS 55 48)
15	PP 12 12 10 (PS 22 04, SS 29 02)
16	02 55 32
17	21 17 16
18	06 50 02, SS 15 51 42±
19	04 34 35, 05 04 51
22	18 57 51.5 (i 58 04.5, iS 57.8) S 18 59.58.0, 19 10 26.0 (i 36.6, S 11 45.0), 20 00 48.5 (i 01 01.6, iS 59.5)
23	11 57 18.5 (i 31.6, iS 58 32.5)
24	09 02 33
25	05 01 56, 06 07 17 (pP 39, sP 08 01, PcP 11 14, S 11 20)
28	14 18 55 (PP 19 17, PS 28 44)
30	09 40 11 (pP 41, S 49 12)

SUPPLEMENT: Times of P etc., for additional shocks recorded at Barrett (BAR), China Lake (CLC), Goldstone (GSC), Palomar (PLM) and Woody (WDY)

1966

September

- 1 GSC 15 37 00 (pP 22 sP 32); WDY 14 36 46 (PP 40 42),  
14 53 10, 21 37 34
- 2 GSC 17 16 36, 22 20 49, 22 22 32, 22 53 02; WDY 02 09 07 (i 12),  
05 06 44 (e 51), 08 54 32 (e 38), 09 21 42, 10 30 39
- 3 GSC 06 44 26, 08 22 51 (i 23 08), 12 37 39 (pP 55), 19 57 03
- 4 CLC 05 48 49 (i 59; GSC 04 56 06, 05 48 44, 09 46 52, 10 59 12  
(pP 11 00 56); WDY 13 41 28 (e 43)
- 5 BAR 23 06 00 (s 07 00); CLC 07 05 52 (i 06 01), 18 11 16 (i 28 i 33);  
GSC 00 19 53 (pP 20 44 sP 21 03), 08 57 06 (i 20 i 25), pP 11 29 24,  
16 40 41 (i 46); WDY 11 29 06 (pP 19), 20 29 20, 23 06 52  
(s 08 44)
- 6 BAR 07 12 35.9 (s 13 03.0); GSC 08 08 09 (pP 20), 08 09 15  
(i 21), 08 52 27 (pP 53 06), 20 35 41; WDY 07 59 56, 21 14 30
- 7 CLC 06 06 49; GSC 16 08 13 (e 31), 16 32 04 (pP 09); WDY 08 20 19,  
10 30 52, 16 53 52
- 8 WDY 00 37 31, 15 41 19 (i 42 37), 21 29 18 (i 53), 22 06 25  
(pP 35), 22 40 38 (i 4~~4~~ 00), 23 09 22
- 9 GSC 18 48 51; WDY 04 14 00 (e 42), 07 26 42, 09 58 38 (i 44),  
12 26 58, 12 30 21, 13 13 04, 15 19 23, 15 43 15 (i 20),  
18 31 00 (i 25), 23 22 28, 23 26 03
- 10 GSC 02 38 30 (i 49), 14 15 09, 14 24 51, 17 43 36, 22 07 09;  
WDY 10 30 13, 12 14 32, 16 22 40 (e 46), 16 39 55 (e 40 08)
- 11 GSC 01 44 16 (L 46 15, Lg 47 03), 03 29 27; WDY 07 03 04, 08 06 59,  
18 24 22;
- 12 CLC 14 15 54; WDY 00 55 05, 02 03 32, 12 38 37, 12 52 58, 13 07 44,  
14 18 12 (pP 20)
- 13 GSC 23 06 09 (e 20); WDY 00 44 32, 05 36 52, 07 57 49, 09 51 47  
(i 53 16 i 53 24), 21 38 43
- 14 GSC 19 44 44, 21 15 29; WDY 00 33 51 (e 34 00), 01 26 20,  
05 09 53, 14 20 00, 14 40 58
- 15 GSC 04 19 12 (s 29 24±), 10 42 27, 14 27 18; WDY 02 43 42,  
07 59 47, 08 02 42, 08 09 28, 12 37 43 (i 55), 17 24 21  
(e 28 11)
- 16 GSC 17 17 47; WDY 02 55 20 (i 29), 08 09 05, 12 36 41, 13 14 36,  
13 24 47 (i 56), 14 59 20 (i 25), 15 02 02, 15 05 52 (i 06 03)
- 17 GSC 01 29 48, 03 56 04, 11 03 13, 17 31 01 (i 07), 23 35 45;  
WDY 19 03 21, 20 29 51 (i 56), 23 14 46
- 18 GSC 00 47 13, 05 34 01 (pP 09), 21 02 39 (e 03 46); WDY 10 00 25,  
13 53 36, 20 25 18, 21 13 07 (e 26)
- 19 GSC 07 13 28 (e 15 33); WDY 03 49 47, 21 28 58
- 20 GSC 17 44 32, 21 27 30, 23 29 45; WDY 00 17 33 (i 51), 06 49 30,  
14 43 24 (i 35), 18 24 17
- 21 GSC 07 43 25 (e 36 e 41), 10 00 31
- 22 GSC 18 57 25.4; WDY 00 14 14 (i 19), 04 27 24 (i 28), 12 27 41,  
13 46 19, 18 32 53, 21 46 43
- 23 WDY 01 40 34 (i 51), 02 16 46 (i 57), 05 04 46, 20 39 31 (i 39)
- 24 GSC 17 01 13, 22 08 15 (i 24)
- 25 CLC 08 49 16 (i 25), 20 29 34; WDY 08 57 44

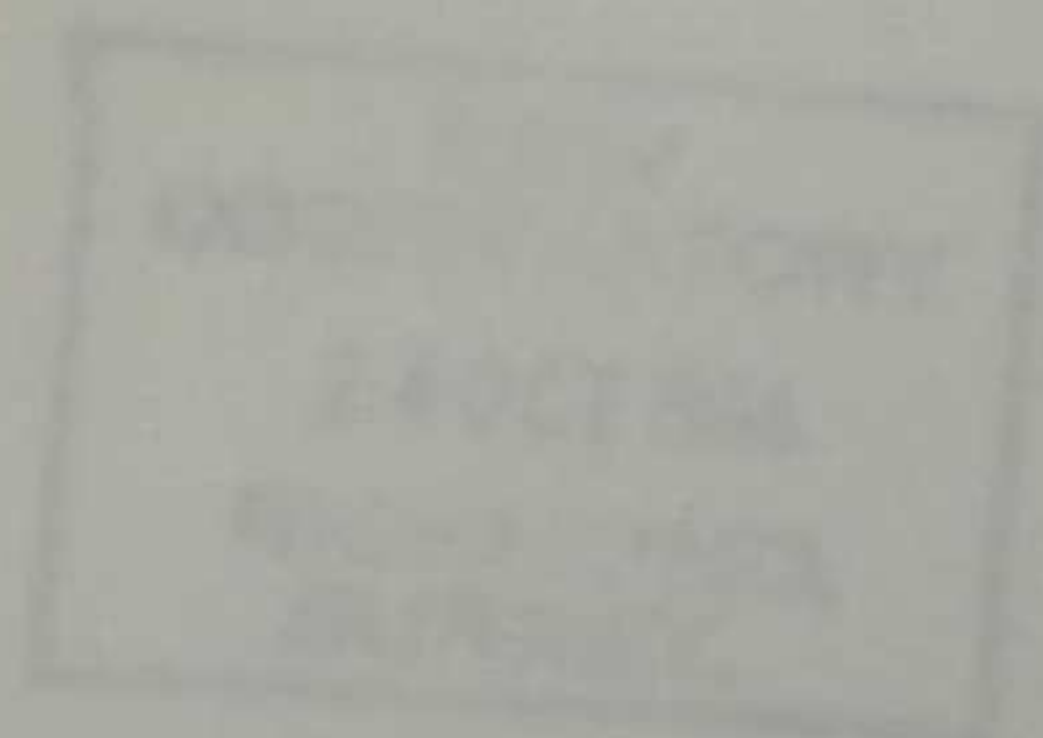
1966

September

26	WDY	05 29 38? (e 30 05 e 14), 06 21 27 (i 32), 07 03 23 (i 26), 19 15 20
27	GSC	03 32 41, 06 43 41; WDY 04 36 23, 09 17 42
28	WDY	02 43 59, 12 00 47
29	CLC	02 55 54 (pP 56 53)
30	WDY	15 13 47, 15 40 48; PLM 07 09 05

November 14, 1966

Violet M. Taylor  
Seismological Assistant



Seismological Laboratory  
 220 N. San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 October 20, 1966



ADDITIONAL  
 October 8

iP 03 13 15  
 eP 12 14 09  
 e 19  
 e 31

October 17  
 17  
 17

iP 14 01 30  
 eR 26.7  
 iP 18 31 24  
 eP 21 51 50

CONTINUATION  
 October 11

iP 16 59 34.5  
 iS 49.8

Magn. 4.3±  
 Felt at Barstow,  
 Los Angeles, etc.

12 iP 00 25 31  
 12 eP 04 34 58  
 e 35 10  
 eS 45.3  
 12 eP 08 26 42  
 e 27 00  
 12 iP 02 27 16  
 i 26  
 13 iP 02 22 04  
 e 29.7  
 eR 49.5  
 13 iS 19 00.7  
 14 iP 20 35 29.2  
 iS 36 25.6  
 Magn. 4¼-4½  
 15 iP 08 41 48  
 16 eP 06 59 49  
 eS 07 09 01  
 16 iP 09 25 42  
 eR 50.6  
 17 eP 04 10 22  
 i 36  
 eS 20 44  
 ePS 21.7  
 eG 33.4  
 eR 35.6  
 Δ 89°  
 17 eP 10 28 07  
 eS 38.7  
 iPS 39.6  
 eG 50.0  
 iR 53.1  
 Δ 89° Magn. 5 ¾  
 μ sec  
 PZ 0.1 2  
 MH 6 20  
 MZ 5 20  
 17 iP 12 48 44  
 ipP 54

compression .  
 i 51 52  
 iS 59 50  
 eG 22 06.6  
 eR 11.9  
 eP'P' 21 31  
 Δ 60° Magn. 7½

μ sec  
 PZ 5 4  
 PH 3 3  
 MH 350 20  
 MZ 300 20  
 17 eP 23 14 19  
 17 eP 23 42 38  
 17 iP 23 56 42  
 18 iP 04 14 37  
 18 iP 22 38 50  
 eL 23 00.2  
 19 iP 06 42 45  
 19 eP 08 16 04  
 iPP 19 53  
 iSKS 26.5  
 iPS 28.7  
 ePKKP 31 54  
 iSS 34.2  
 eP''P'' 40 05  
 iG 44.0  
 iR 48.7  
 Δ 103° Magn. 6 ¾  
 μ sec  
 PZ 0.2 4  
 PPZ 1 3  
 PPH 1 4  
 MH 40 20  
 MZ 30 20  
 19 iP 11 34 25  
 ipP 35 19

KEW  
 OBSERVATORY  
 24 OCT 1966  
 RICHMOND,  
 SURREY.

Seismological Laboratory  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
October 20, 1966

SUPPLEMENT: Times of P for additional shocks at Barrett (BAR), China Lake (CLC), Goldstone (GSC) and Woody (WDY)

October 7 GSC 21 02 34 (pP 48)  
 8 GSC 02 33 29 (pP 34 05), 04 02 42 (e 04 56), 17 51 56  
 (i 52 05, i 52 09); WDY 13 12 45, 19 49 16 (e 41),  
 21 08 05 (i 16)  
 9 BAR 08 11 03.5; GSC 02 26 01, 02 46 56 (e 47 08), 02 54 58  
 (e 55 12), 23 05 19 (e 27); WDY 14 01 07, 20 17 32 (i 36)  
 10 GSC 01 25 09, 08 07 36, 20 37 43 (e 39 44)  
 11 GSC 00 09 56 (e 10 17), 05 11 55, 05 51 03 (e 12),  
 08 18 32 (i 45), 16 56 27 (pP 51), 16 59 21.8, 18 02 48;  
 WDY 01 57 21 (i 58 10)  
 12 CLC 19 00 55; GSC 02 21 04 (pP 16), 03 25 40 (e 50), 03 29 12  
 (i 28), 08 09 53 (i 10 09), 09 10 27, 20 27 13 (i 29 34);  
 WDY 00 35 35 (i 48), 09 49 51 (i 50 26), 11 36 07, 12 50 28,  
 16 08 01 (pP 22), 18 37 09  
 13 GSC 17 36 40 (i 49 i 54); WDY 05 18 57, 05 32 47, 15 55 15  
 (pP 52)  
 14 GSC 01 57 50 (e 58 03 e 21), 20 35 34.3; WDY 02 43 56  
 (i 46 07), 21 24 21  
 17 GSC 13 16 50 (i 54)  
 18 GSC 08 35 58 (pP 36 07)  
 19 GSC 02 27 33 (e 45)

Violet M. Taylor  
Seismological Assistant

Seismological Laboratory  
220 N. San Rafael Avenue  
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PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
November 1, 1966

CORRECTION		Pasadena		October 27		iP		09 30 33	
June	9	iP	15 20 28	27	iP			12 06 45.5	
		should read	15 50 28		iS			07 17.8	
					Magn. 3 3/4				
CONTINUATION				27	eP			12 18 29	
October	19	eP	17 47 50	27	iP			14 33 27	
		e	55		i			36	
	20	eP	13 48 17		iS			43 40	
		i	51		i			54	
	20	iP	14 26 02.2		eG			54.5	
		iS	16.0		eR			58.3	
		Magn. 3 3/4 -4			Δ 84° Magn. 6 - 6 1/4				
	22	iP	12 57 01					μ sec	
		epP	17		PZ			0.2	1 1/4
		i	43		SH			1 1/2	6
		eL	13 11.0		MH			6	20
	22	eP	17 18 15.0	28	iP			01 54 22	
		i	29.8		eL			02 17.9	
		iS	19 51.6	28	eP			22 24 35	
	23	eP	07 19 25		eG			47.9	
		e	41		eR			51.8	
	23	eP	09 28 51	29	eP			02 53 06	
	23	eP	12 25 25	29	eP			15 42 18	
	25	eP	07 49 25	30	iP			22 21 28.0	
	25	iP	16 40 41.5		i			33.7	
		i	51.9		iS			22 35.8	
		iS	41 53.0		Magn. 4 3/4				
		Magn. 4 3/4 - 5		31	iP			17 19 27.5	
	25	eP	18 16 20		i			39.4	
	26	iP	15 18 49.0		iS			20 37.8	
		i	59.5		Magn. 4 3/4				
		i	19 55.0						
		Magn. 4 3/4							
	26	iP	18 41 41						
		i	55						
	27	iP	06 09 29						
		i(pP)	42						
		e(sP)	48						
		iPP	12 06						
		eP'P'	36 48						
		Δ 78°							

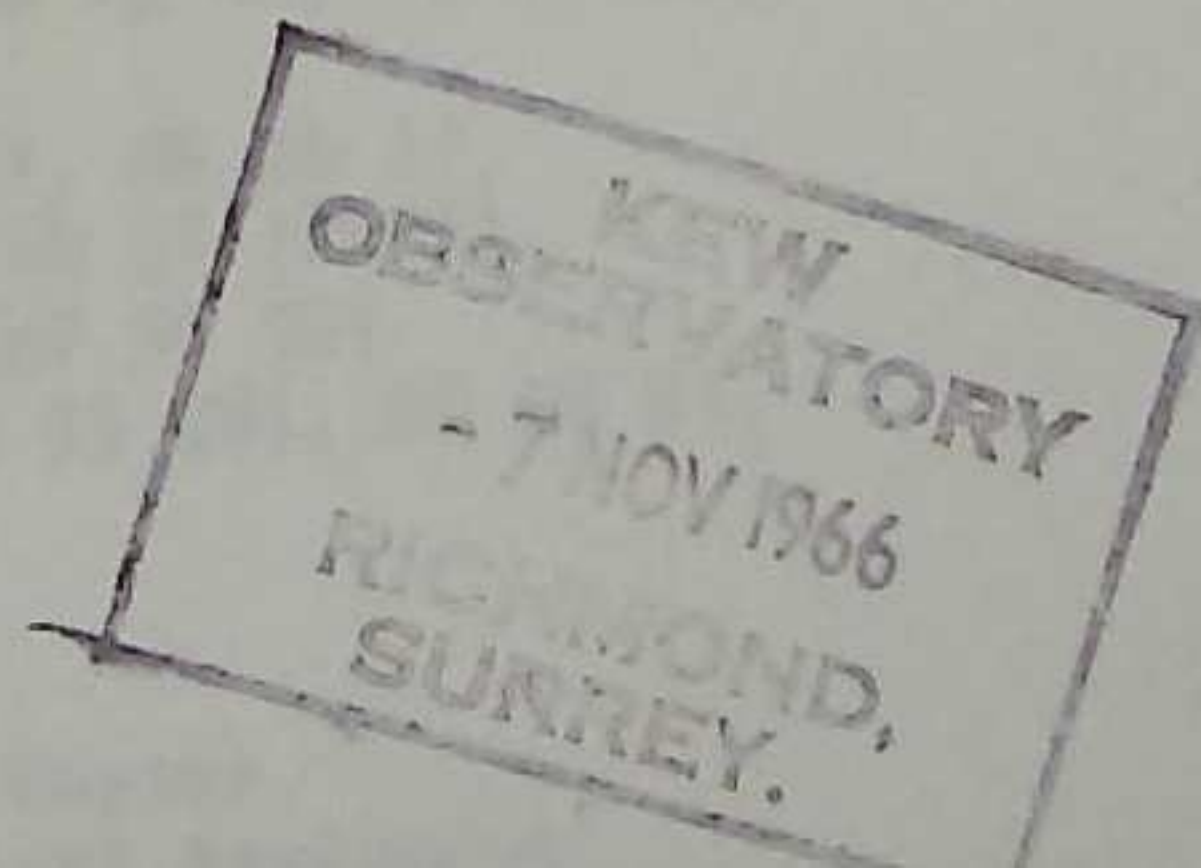
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220 N. San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
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November 1, 1966

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY)

October 14	WDY	12 24 21, 18 05 39 (pP 50), 22 52 11
15	WDY	12 16 03 (e 18), 18 11 30 (pP 41), 20 46 57 (e 47 34), 22 51 27, (i 37)
17	WDY	01 52 38, 07 41 39 (i 43 39), 09 04 11, 11 22 22, 12 21 50, 13 31 21, 14 52 42 (pP 53 09), 22 03 19 (pP 31); CLC 19 58 01
18	WDY	01 13 46 (e 52), 02 06 23, 02 45 53 (e 46 24), 02 50 14 (pP 23), 11 09 41 (e 12 07), 13 02 19, 15 16 47, 17 55 43, 20 19 19 (i 27), 21 02 20 (i 27), 23 27 55; CLC 18 52 36 (i 49), 19 19 20 (e 56)
19	GSC	02 27 33 (e 45), 14 37 04 (pP 11); WDY 03 33 53, 19 46 19
20	WDY	15 17 28, 18 35 16
21	GSC	12 51 36; WDY 02 09 26, 10 42 38 (i 58, i 45 31)
22	WDY	03 58 30, 04 55 35
23	WDY	07 49 43
24	GSC	05 53 13, 11 08 37, 14 03 15, 15 50 09, 18 59 09 (i 21)
25	GSC	01 14 44, 02 17 06; WDY 00 40 04 (e 22), 02 19 35 (e 50), 07 57 54 (pP 58 04, i 15), 12 50 35, 23 28 20 (pP 29 04)
26	GSC	13 40 38 (i 42), 15 18 49.0; WDY 05 34 20 (pP 35), 13 33 30, 16 43 46, 18 02 38, 20 49 50, 21 05 17, 21 14 17, 21 16 58, 22 42 28 (e 36)
27	GSC	06 09 23, 12 06 51.4; WDY 00 42 55, 02 40 20, 06 09 19, 07 06 47 (e 07 41), 10 18 22, 18 01 43, 23 58 13 (pP 31)
28	WDY	13 32 21 (e 29, e 33)
29	GSC	14 44 11 (i 18)
30	GSC	22 35 16 (i 20)
31	GSC	00 05 51, 05 20 23 (e 35), 17 19 01.1 (S 47.6)

Violet M. Taylor  
Seismological Assistant





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PROVISIONAL READINGS AT PASADENA  
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November 10, 1966

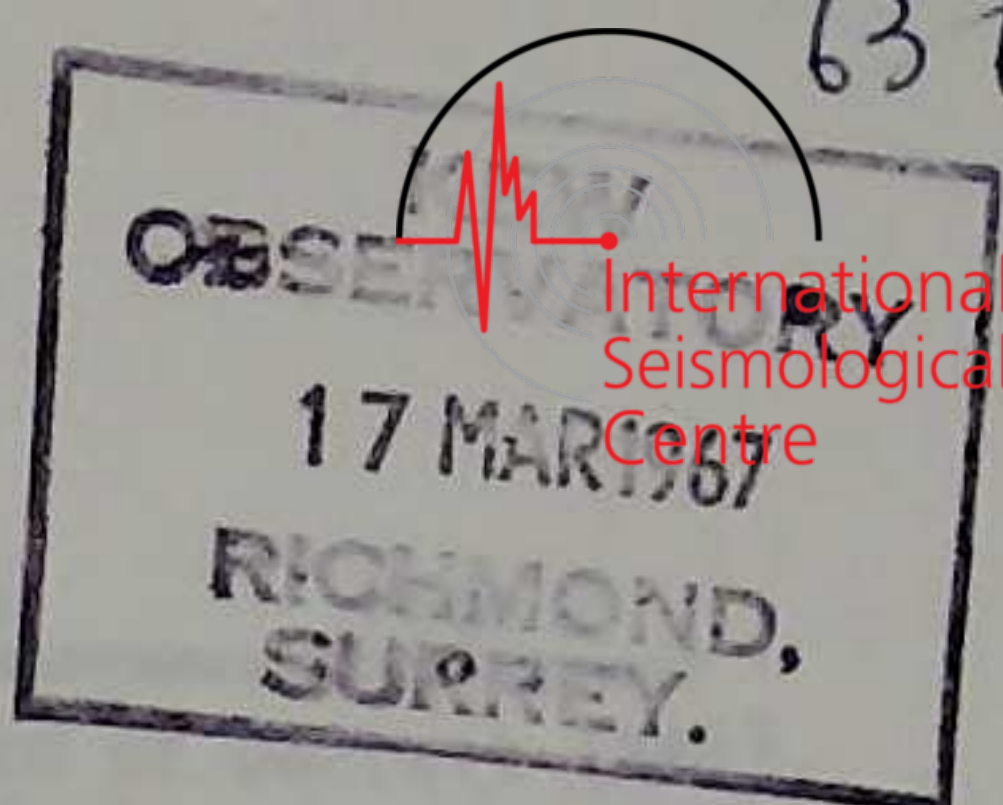
CONTINUATION

Date	Time	Phase	Time	Time	Time	Date	Time	Phase	Time	Time	Time
October	31	iP	17	19	27.5	November	5	eP	05	19	08.4
		i			39.4			i			17.1
		iS		20	37.8			iS			54.2
		Magn.	4 3/4					Magn.	5 - 5 1/4		
November	3	iP	11	45	52	5	eP	12	56	42	
		ipP			46 02		ePP			59 22	
		e(S,L)			52.8		eS	13		06.1	
	3	iP	16	33	03		eG			14.7	
		compression					eR			17.9	
		ipP			15		Δ 73°	Magn. 6 1/4			
		iS		39	57			μ		sec	
		eScS		42	54		PZ	0.2		1 1/2	
		i			43.7		PPZ	0.1		2	
		iR			47.3		SH	4		15	
		Δ 49°	Depth 50 km				MH	12		20	
		Magn.	6 - 6 1/4				MZ	12		20	
						6	iP	14	54	16	
		PZ		1/2	1 1/2	9	iP	11	39	42	
		SH		5	20	9	eP	14	17	45	
		MH		12	20		e			54	
4		iP	14	55	12		e			18 05	
		i			20		eS			24.1	
5		e(P)	02	34	03		eL			27.3	
5		eP	02	42	59						
		e			43 06						

SUPPLEMENT: Times of P for additional shocks at China Lake (CLC), Goldstone (GSC) and Woody (WDY), Barrett (BAR).

October	22	CLC	17 17 39.9 (i 57.1 iS 18 45.0 i 19 00.3)
	25	CLC	16 40 20.9 (i 30.2 iS 41 00.3)
	28	WDY	18 56 07, 23 37 04
	29	GSC	03 09 41, 10 51 24; WDY 05 22 42, 05 59 25 (e 40) 06 41 43 (pP 52), 07 21 23 (pP 41), 13 29 20 (i 47)
	30	WDY	00 14 05 (pP 19), 05 55 50, 15 29 02, 19 16 07
	31	WDY	00 01 15, 01 10 34 (pP 43), 09 28 59, 11 19 52, 13 49 06 18 32 27, 20 10 14
November	1	WDY	03 34 11, 05 52 22, 06 52 42, 07 12 09 (pP 14, i 23) 11 44 51, 15 01 15 (i 19), 17 17 38
	2	WDY	05 46 48 (i 47 00)
	3	WDY	03 41 41 (i 57, i 42 14), 08 16 31, 09 13 41, 13 12 36, 13 37 13
	4	GSC	04 06 16, 06 11 35, 06 42 43, 09 05 11, 09 24 17, 11 01 20, 20 34 04; WDY 06 11 37, 06 14 31 (PcP?), 06 42 56, 06 45 40 (PcP?), 15 54 44 (pP 56 52)
	5	GSC	12 31 26 (e 31), 13 54 51 (e 55 00, e 55 08), 20 38 21, 23 35 38; BAR 05 18 40.7 (S 58.3)
	6	GSC	08 39 11, 08 47 32

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PASADENA PRELIMINARY BULLETIN NO. 169

October - 1966

Unless otherwise noted, readings refer to 1st motion at Pasadena

1966

October

- 2 07 31 42 (S 38 15)
- 3 02 32 04
- 4 07 35 57 (e 36 33)
- 7 16 07 42 (pP 08 22, SKS 17 52, S 18 12)
- 8 00 24 00 (S 33 54), 02 45 59 (S 55 48), 03 13 15, 12 14 09, 14 54 53  
• 17 52 08
- 9 02 17 26 (i 18 19), 08 11 29 (S 12 35)
- 10 21 23 08
- 11 06 44 03 (PP 46 24, PS 55 56), 16 59 34.5 (S 49.8)
- 12 00 25 31, 04 34 58 (S 45 18±), 08 26 42, 20 27 16 (i 26),
- 13 02 22 04
- 14 20 35 29.2 (S 36 25.6)
- 15 08 41 48
- 16 06 59 49 (S 07 09 01), 09 25 42
- 17 04 10 22 (i 36, S 20 44), 10 28 07 (S 38 42±), 12 48 44 (pP 54),  
14 01 30, 18 31 24, 21 51 50 (S 59 50, P'P' 22 21 31), 23 14 19,  
23 42 38, 23 56 42
- 18 04 14 37, 22 38 50
- 19 04 11 25, 06 42 45, 08 16 04 (PP 19 53, SKS 26 30±, PS 28 42±  
PKKP 31 54), 11 34 25 (i 35 19), 17 47 50
- 20 13 48 17 (i 51)
- 22 12 57 01 (pP 17), 17 18 15.0 (S 19 51.6)
- 23 07 19 25, 09 28 51, 12 25 25
- 25 07 49 25, 16 40 41.5 (S 41 53.0), 18 16 20
- 26 15 18 49.0, 18 41 41 (i 55)
- 27 06 09 29 (PP 12 06, P'P' 36 48), 09 30 33, 12 18 29, 14 33 27 (S 43 40)
- 28 01 54 12, 22 24 35
- 29 02 53 06, 15 42 18
- 30 22 21 28.0 (S 22 35.8)
- 31 17 19 27.5 (S 20 37.8)

SUPPLEMENT: Times of P etc., for additional shocks recorded at Barrett (BAR), China Lake (CLC), Goldstone (GSC), Tinemaha (TIN) and Woody (WDY).

1966

October

- 1 GSC 01 19 03, 10 17 03, 17 00 16; WDY 06 23 54; TIN 02 58 14.7 (S 28.1)
- 2 WDY 02 37 14, 06 04 27, 11 32 28, 12 15 50 (i 58), 14 51 27 (pP 41), 22 06 53, 22 16 46
- 3 WDY 01 28 53, 02 29 09 (e 30 36, Lg 32 12), 04 14 33
- 4 WDY 01 57 16, 04 40 02, 23 49 17
- 5 GSC 03 07 55 (pP 08 14, sP 08 23), 05 37 55, 08 53 57 (i 54 04), pP 10 18 45, 18 04 44, 23 43 40; WDY 10 17 44 (pP 18 38), 19 47 00 (e 23)
- 6 GSC 09 42 50, 13 27 45, 13 58 53, 14 29 20; WDY 14 40 17
- 7 GSC 21 02 34 (pP 48)
- 8 GSC 02 33 29 (pP 34 05), 04 02 42 (e 04 56), 17 51 56 (i 52 05, i 52 09); WDY 13 12 45, 19 49 16 (e 41), 21 08 05 (i 16)
- 9 BAR 08 11 03.5; GSC 02 26 01, 02 46 56 (e 47 08), 02 54 58 (e 55 12), 23 05 19 (e 27); WDY 14 01 07, 20 17 32 (i 36)
- 10 GSC 01 25 09, 08 07 36, 20 37 43 (e 39 44)
- 11 GSC 00 09 56 (e 10 17), 05 11 55, 05 51 03 (e 12), 08 18 32 (i 45), 16 56 26 (pP 51), 16 59 21.8, 18 02 48, 20 53 34 (pP 48); WDY 01 57 21 (i 58 10)
- 12 CLC 19 00 55,; GSC 02 21 04 (pP 16), 03 25 40 (e 50), 03 29 12 (i 28), 08 09 53 (i 10 09), 09 10 27, 20 27 13 (i 29 34); WDY 00 35 35 (i 48), 09 49 51 (i 50 26), 11 36 07, 12 50 28, 16 08 01 (pP 22), 18 37 09
- 13 GSC 17 36 40 (i 49 i 54); WDY 05 18 57, 05 32 47, 15 55 15 (pP 52)
- 14 GSC 01 57 50 (e 58 03 e 21), 20 35 34.4; WDY 02 43 56 (i 46 07), 12 24 21, 18 05 39 (pP 59), 22 52 11
- 15 WDY 12 16 03 (e 18), 18 11 30 (pP 41), 20 46 57 (47 34), 22 51 27 (i 37)
- 16 GSC 13 15 26; WDY 13 15 44
- 17 GSC 13 16 50 (i 54); WDY 01 52 38, 07 41 39 (i 43 39), 09 04 11, 11 22 22, 12 21 50, 13 31 21, 14 52 42 (pP 53 09), 22 03 19 (pP 31); CLC 19 58 01
- 18 GSC 08 35 58 (pP 36 07); WDY 01 13 46 (e 52), 02 06 23, 02 45 53 (e 46 24), 02 50 14 (pP 23), 11 09 41, 11 12 07, 13 02 19, 15 16 47, 17 55 43, 20 19 19 (i 27), 21 02 20 (i 27), 23 27 55; CLC 18 52 36 (i 49), 19 19 20 (e 56)
- 19 GSC 02 27 33 (e 45), 14 37 04 (pP 11); WDY 03 33 53, 16 47 01, 19 46 19
- 20 WDY 15 17 28, 18 35 16
- 21 GSC 12 51 36; WDY 02 09 26, 10 42 38 (i 58), 10 45 31
- 22 CLC 17 17 39.9 (i 57.1, IS 18 45.0 I 19 00.3); WDY 03 58 30, 04 55 35
- 23 WDY 07 49 43
- 24 GSC 05 53 13, 11 08 37, 14 03 15, 15 50 09, 18 59 09 (i 21)
- 25 CLC 16 40 20.9 (i 30.2 IS 41 00.3); GSC 01 14 44, 02 17 06; WDY 00 40 04 (e 22), 02 19 35 (e 50), 07 57 54 (pP 58 04, i 15), 12 50 35, 23 28 20 (pP 29 04)
- 26 GSC 13 40 38 (i 42), 15 18 49.0; WDY 05 34 20 (pP 35), 13 33 30, 16 43 46, 18 02 38, 20 49 50, 21 05 17, 21 14 17, 21 16 58, 22 42 28 (e 36)

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October

27 GSC 06 09 23, 12 06 51.4; WDY 00 42 55, 02 40 20, 06 09 19,  
07 06 47 (e 07 41), 10 18 22, 18 01 43, 23 58 13 (pP 31)

28 WDY 13 32 21 (e 29, e 33), 18 56 07, 23 37 04

29 GSC 03 09 41, 10 51 24, 14 44 11 (i 18); WDY 05 22 42, 05 59 25  
(e 40), 06 41 43 (pP 52), 07 21 23 (pP 41), 13 29 20 (i 47)

30 GSC 22 35 16 (i 20); WDY 00 14 05 (pP 19), 05 55 50, 15 29 02,  
19 16 07

31 GSC 00 05 51, 05 20 23 (e 35), 17 19 01.1 (S 47.6); WDY 00 01 15,  
01 10 34 (pP 43), 09 28 59, 11 19 52, 13 49 06, 18 32 27,  
20 10 14

February 20, 1967

Violet M. Taylor  
Seismological Assistant

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 PASADENA

SEISMOLOGICAL LABORATORY  
 220 North San-Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 November 23, 1966



CORRECTION

October 28


Should read:

CONTINUATION

November 10

	iP	01 54 22		November 13	iP	06 10 41
	eL	02 17.9		13	eP	06 13 43
	iP	01 54 12		13	iP	11 51 42
	eL	02 17.9		13	eP	14 34 25
				15	iP	16 27 20
	iP	03 14 35			i	26
	dilatation from			18	iP	09 23 33
	southeast				iS	32 56
	ipP	15 07			eSS	36.9
	eS	24 36			iG	42.7
	eL	37.1			$\Delta 76^\circ$	
	$\Delta 85^\circ$ Depth 130 km			19	iP	07 43 04
		$\mu$ sec		19	eP	18 30 32
	PZ	$\frac{1}{2}$ 2			eS	38 28
11	iP	15 38 46		20	iP	02 03 13
	ipP	55		20	iP	04 34 48
	iS	44 51		20	iP	09 38 15
	eL	47.9			eS	45.2
	$\Delta = 43^\circ$				eG	48.3
11	eP	18 23 22			eR	50.5
	iS	25 06			$\Delta 45^\circ$	
12	eP	04 15 07		20	eP?	17 00 42
12	iP!	12 02 02			e	51
	dilatation				eSKS	11.1
12	eP	13 01 13			e	12.6
	iS	10 42			eSS	17.4
12	iP	18 57 42			iG	24.2
	compression				iR	28.8
	epP	58 02			$\Delta 92^\circ$	
	ipp	19 01 07		21	iP	11 16 38
	ipPP	27			i	41
	eS	08 05			i	55
	ePS	09.5			eL	20.7
	eSS	12.7		21	iP	12 30 09
	eG	20.4			ipP	25
	eR	42.2			eR	49.4
	$\Delta 86^\circ$ Depth 70 km			22	iP	06 40 10
	Magn. $6\frac{1}{2}$				compression from northwest	
		$\mu$ sec			ipP	41 50
	PZ	1 4			eS	48.6
	MH	25 20			eSS	51.5
	MZ	25 20			$\Delta 72^\circ$ Depth 450 km	
	eP	23 16 29			Magn. $m = 6\frac{1}{4}-6\frac{1}{2}$	
	eP	01 28 06			$\mu$ sec	
	iP	03 01 02			PZ	0.5 1
	epP	17		22	PH	0.3 1
	i	22			iP	07 19 59
	eS	08 24			eS	31 28
	eL	17.4			eSS	38.3
	$\Delta 50^\circ$				eL	52.3
				22	$\Delta 96^\circ$	
					iP	09 01 20
					i	27
					eL	24.5

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 220 North San Rafael Avenue  
 Pasadena, California  
**PROVISIONAL READINGS AT PASADENA**  
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 November 23, 1966

**SUPPLEMENT:** Times of P for additional shocks recorded at China Lake (CLC), Cottonwood (CWC), Goldstone (GSC) and Woody (WDY)

October	11	GSC	20 53 34 (pP 48)
November	5	WDY	11 21 21 (e 35), 16 16 16 (i 24), 21 43 05
	7	GSC	00 01 04; CLC 17 49 10, 20 39 29 (i 41 48); WDY 13 01 30
	8	CLC	13 27 18; WDY 11 44 47 (i 57); CWC 03 29 21
	9	GSC	03 22 29, 22 04 02 (pP 16); CLC 02 12 37, 02 41 26;
		WDY	02 23 46
	10	CLC	05 18 30, 10 56 00 (i 59 24), 20 58 24, 22 06 31;
		WDY	13 38 21, 22 16 25
	11	CLC	18 08 58, 22 45 40 (e 48); GSC 03 22 11, 10 00 23, 16 13 48 (pP 55); WDY 01 43 15 (i 27), 10 54 07, 18 42 40 (e 48)
	12	CLC	06 27 51, 16 10 26 (e 14 32), 17 44 39 (pP 51);
		GSC	00 53 03, 10 03 17, 12 14 34; WDY 07 18 10 (e 20 21), 07 48 16, 09 17 29, 14 07 40 (i 50)
	13	CLC	00 27 42, 00 39 33, 01 28 19 (e 29 14), 13 13 36, 14 34 30 (i 35 18), 14 39 07, 21 19 16 (pP 25); GSC 03 15 55, 05 14 19, 06 17 03, 13 26 38, 18 53 37 (pP 48); WDY 03 28 58
	14	CLC	03 27 23, 03 54 21; GSC 03 30 33; WDY 21 55 45
	15	GSC	00 16 36 (i 40 i 44), 17 16 37, 21 52 16; WDY 16 34 04 (i 12), 18 14 15, 20 33 49 (i 55)
	16	CLC	20 54 35 (pP 46); GSC 02 08 19, 06 10 31, 08 20 56, 23 08 09, 23 29 35; WDY 01 07 19 (i 24), 17 33 21 (i 32), 23 28 46 (i 29 27)
	17	CLC	14 49 53; GSC 14 02 12, 14 51 23; WDY 00 44 14, 07 18 59, 16 02 56 (i 03 04, i 03 13), 19 37 35, 19 58 36, 21 35 04 (i 17), 21 53 55 (i 54 00)
	18	GSC	19 53 49; WDY 00 33 59 (i 54 i 59, i 34 05), 12 56 01 (i 12)
	19	GSC	05 31 46 (pP 32 00)
	20	GSC	07 34 13, 17 00 37, 19 06 56
	22	GSC	12 22 33

Violet M. Taylor  
 Seismological Assistant

SEISMOLOGICAL LABORATORY  
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 December 8, 1966




CONTINUATION  
 November 23

	eP	02 31 53	
	e	32 05	
	eS	42 16	
	eSS	48.2	
	eSSS	51.3	
	iG	55.0	
	iR	57.7	
	Δ 87° Magn. 5 3/4 - 6		
		μ sec	
	MH	5 20	
	MZ	4 20	
24	iP	07 00 07	
	ipP	14	
24	iP	07 44 31	
	epP	44	
24	eP	16 57 38	
	eS	17 07.4	
	iG	18 20	
	eR	21.7	
	Δ 82°		
24	iP	19 23 24	
	ipP	44	
25	eP	03 30 55	
	eS	41.3	
	eR	53.7	
	Δ 82°		
26	iP	02 29 54	
	dilatation		
	ipP	30 08	
26	e(P)	03 34 08	
	eL	52.9	
	iL	55 20	
27	eP	04 17 03	
27	iP	13 53 34	
27	iP	21 23 27	
	i	33	
	ipP	35	
	eS	32 00	
	eSS	36.0	
	eSSS	38.7	
	eG	40.3	
	iLg	46.2	
	eRg	50.9	
	Δ 69° Depth 50 km		
	Magn. 6		
		μ sec	
	PZ	0.1 1	
	MH	12 20	

	November 28	iP	07 40 51
		iS	47.4
		iG	50.7
		iR	53.7
		Δ 48°	
		Magn. 6 1/2 - 6 3/4	
		μ sec	
		PZ	1/2 2
		SH	5 20
		MH	8 20
	28	iP	10 19 52
		epP	20 01
	29	eP	05 14 20
		eL	32.2
		eR	33.7
	29	iP	08 11 12
	29	eP	09 40 56
	29	iP	22 29 53
		ipP	30 33
		isP	55
		ePP	33 16
		iSKS	40 04
		iS	16
		esS	41 16
		eSSS	49.5
		eG	52.6
		iR	56.7
		Δ 85° Depth 160 km	
		Magn. 5 1/2 - 5 3/4	
		μ sec	
		PZ	0.1 1 1/2
		PPZ	1/4 3 MH 1 1/2 20
	29	eP	23 02 55
		e	12.7
		eR	15.2
	December 1	eP	04 35 51
	1	iP	05 09 23
		compression from southwest	
		i	09 48
		i	58
		ipp!	12 42
		i	13 17
		iSKS	19.7
		iPS	20.6
		ipPS	21 20
		iSS	25.3
		iSSS	28.7
		iG	31.7
		ep'ip'	35 33

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 PROVISIONAL READINGS AT PASADENA  
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 December 8, 1966

CONTINUATION (Continued)  
 December 1 (continued)

	December 1		iP	
iR	05 36.1		compression	19 07 54
eSKPP <sup>1</sup>	05 38 56		i	08 01
Δ 85°			i	36
Depth 100 km ?				
Magn. 6 3/4				
	μ	sec		
PZ	1/2	1		
PH	1/4	1		
PPZ	1	2		
PPH	1/2	2		
SH	10	28		
MH	5	20		

SUPPLEMENT: Times of P for additional shocks recorded at China Lake (CLC), Goldstone (GSC), Palomar (PLM) and Woody (WDY)

	November		16	WDY	00 41 17 (i 31 i 35)
			18	GSC	18 59 28; WDY 21 28 05
			19	CLC	07 26 27 (e 30 21), 08 01 32, 09 03 18 (e 22), 16 45 29 (i 36);
				GSC	05 31 46 (pP 32 00); PLM 16 08 57 (pP 09 03); WDY 08 44 42,
					10 37 29, 17 51 22
			20	GSC	04 47 22, 07 34 13, 17 00 37, 19 06 36; WDY 01 10 14, 05 55 05
					(i 11 i 15), 15 49 24, 20 59 15 (i 19 i 23), 21 21 46 (i 56),
					22 54 34
			21	WDY	02 30 54 (i 58, e 31 14), 19 30 10
			22	GSC	12 22 33, 16 04 03; WDY 19 43 46 (i 53)
			24	CLC	13 10 58; WDY 08 48 14, 09 04 40, 15 13 40 (i 56), 20 20 06
			25	CLC	19 11 34, 19 12 00; WDY 16 45 01, 19 12 04
			26	GSC	04 33 02; WDY 05 37 06 (i 23), 05 58 21 (S 05 59 39)
			27	GSC	04 21 52; CLC 11 11 27, 12 58 30, 14 29 55, 14 39 26
			28	GSC	06 35 08, 11 57 11 (i 24), 15 01 34, 23 08 41 (pP 51);
				CLC	03 17 22, 04 51 58, 08 30 23, 19 45 04, 20 16 11
			29	CLC	03 29 54 (e 30 13), 12 21 43, 15 51 32
			30	CLC	00 42 42; GSC 13 11 20 (e 26), 15 10 46
	December		1	CLC	00 28 30 (i 45); GSC 05 27 27
			2	WDY	09 45 24 (P <sup>11</sup> 48 53, PP 49 45, PKKP 10 00 55)
			3	GSC	14 25 07 (pP 26 56)
			4	GSC	12 22 58
			5	GSC	02 44 06, 03 43 40 (e 45 e 50), 05 01 41 (i 51), 14 22 53
					(i 23 00)
			6	GSC	05 37 29 (i 35), 07 28 46

Violet M. Taylor  
 Seismological Assistant





International  
Seismological  
Centre  
Kew  
OBSERVATORY  
17 MAR 1967  
RICHMOND,  
SURREY.

SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 170

November - 1966

Unless otherwise noted, readings refer to 1st motion at Pasadena

1966

November

- 3 11 45 52 (pP 46 02, S 52 48±), 16 33 03 (pP 15, S 39 57)
- 4 14 55 12 (i 20)
- 5 02 34 03, 02 42 59 (e 43 06), 05 19 08.4 (S 54.2), 12 56 42 (PP 59 22, S 13 06 06 ±)
- 6 14 54 16
- 9 11 39 42, 14 17 45 (e 54, S 24 06±)
- 10 03 14 35 (pP 15 07, S 24 36)
- 11 15 38 46 (pP 55, S 44 51), 18 23 22 (S 25 06)
- 12 04 15 07, 12 02 02, 13 01 13 (S 10 42), 18 57 42 (pP 58 02, PP 19 01 07, S 08 05), 23 16 29
- 13 01 28 06, 03 01 02 (pP 17, S 08 24), 06 10 41, 06 13 43, 11 51 42, 14 34 25
- 15 16 27 20
- 18 09 23 33 (S 32 56)
- 19 07 43 04, 18 30 32 (S 38 28)
- 20 02 03 13, 04 34 48, 09 38 15 (S 45 12±), SKS 17 11 06±
- 21 11 16 38 (pP 55), 12 30 09 (pP 25)
- 22 06 40 10 (pP 41 50, S 48 36±), 07 19 59 (S 31 28), 09 01 20
- 23 02 31 53 (e 32 05, S 42 16)
- 24 07 00 07 (pP 14), 07 44 31 (pP 44), 16 57 38 (S 17 07 24±), 19 23 24 (pP 44)
- 25 03 30 55 (S 41 18±)
- 26 02 29 54 (pP 30 08), 03 34 08
- 27 04 17 03, 13 53 54, 20 23 27 (pP 35 S 32 00)
- 28 07 40 51 (S 47 24±), 10 19 32 (pP 41)
- 29 05 14 20, 08 11 12, 09 40 56, 22 29 53 (pP 30 33, sP 55, PP 33 16, SKS 40 04, S 40 16), 23 02 55
- 30 22 23 43

21 NOV 02 30 04 11 57  
 22 DEC 15 21 23 16 06  
 24 DEC 17 10 01 NOV 07  
 25 NOV 16 45 01 19 12  
 26 DEC 17 02 03 DEC 04 23 37  
 27 DEC 04 21 52 DEC 11  
 28 DEC 06 15 08 11 57  
 29 DEC 03 29 58 16 10  
 30 DEC 04 42 12 58  
 February 20, 1967



SUPPLEMENT: Times of P etc., for additional shocks recorded at China Lake (CLC), Cottonwood (CWC), Goldstone (GSC), Palomar (PLM) and Woody (WDY)

1966

November

1	WDY	02 34 11, 05 52 22, 06 52 42, 07 12 09 (pP 14, i 23), 11 44 51, 15 01 15 (i 19), 17 17 38
2	WDY	05 46 48 (i 47 00)
3	WDY	03 41 41 (i 57, i 42 14), 08 16 31, 09 13 41, 13 12 36, 13 37 13
4	GSC	04 06 16, 06 11 35, 06 42 43, 09 05 11, 09 24 17, 11 01 20, 20 34 04; WDY 06 11 37, 06 14 31 (PcP?), 06 42 56, 06 45 50 (PcP?), 15 54 44 (pP 56 52)
5	GSC	12 31 26 (e 31), 13 54 51 (e 55 00, e 55 08), 20 38 21, 23 35 38; BAR 05 18 40.7 (S 58.3); WDY 11 21 21 (e 35), 16 16 16 (i 24), 21 43 05,
6	GSC	08 39 11, 08 47 32
7	GSC	00 01 04; CLC 17 49 10, 20 39 29 (i 41 48); WDY 13 01 30,
8	CLC	13 27 18; WDY 11 44 47 (i 57); CWC 03 29 21
9	GSC	03 22 29, 22 04 02 (pP 16); CLC 02 12 37, 02 41 26; WDY 02 23 46
10	CLC	05 18 30, 10 56 00 (i 59 24), 20 58 24, 22 06 31; WDY 13 38 21, 22 16 25
11	CLC	18 08 58, 22 45 40 (e 48); GSC 03 22 11, 10 00 23, 16 13 48 (pP 55); WDY 01 43 15 (i 27), 10 54 07, 18 42 40 (e 48)
12	CLC	06 27 51, 16 10 26 (e 14 32), 17 44 39 (pP 51); GSC 00 53 03, 10 03 17, 12 14 34; WDY 07 18 10 (e 20 21), 07 48 16, 09 17 29, 14 07 40 (i 50)
13	CLC	00 27 42, 00 39 33, 01 28 19 (e 29 14), 13 13 36, 14 34 30 (i 35 18), 14 39 07, 21 19 16 (pP 25); GSC 03 15 55, 05 14 19, 06 17 03, 13 26 38, 18 53 37 (pP 48); WDY 03 28 58
14	CLC	03 27 23, 03 54 21; GSC 03 30 33; WDY 21 55 45
15	GSC	00 16 36 (i 40 i 44), 17 16 37, 21 52 16; WDY 16 34 04 (i 12), 18 14 15, 20 33 49 (i 55)
16	CLC	20 54 35 (pP 46); GSC 02 08 19, 06 10 31, 08 20 56, 23 08 09, 23 29 35; WDY 00 41 17 (i 31 i 35), 01 07 19 (i 24), 17 33 21 (i 32), 23 28 46 (i 29 27)
17	CLC	14 49 53; GSC 14 02 12, 14 51 23; WDY 00 44 14, 07 18 59, 16 02 56 (i 03 04, i 03 13), 19 37 35, 19 58 36, 21 35 04 (i 17), 21 53 55 (i 54 00)
18	GSC	18 59 28, 19 53 49; WDY 00 33 59 (i 54 i 59, i 34 05), 12 56 01 (i 12), 21 28 05
19	CLC	07 26 27 (e 30 21), 08 01 32, 09 03 18 (e 22), 16 45 29 (i 36)
	GSC	05 31 46 (pP 32 00); PLM 16 08 57 (pP 09 03); WDY 08 44 42, 10 37 29, 17 51 22
20	GSC	04 47 22, 07 34 13, 17 00 37, 19 06 36; WDY 01 10 14, 05 55 05 (i 11 i 15), 15 49 24, 20 59 15 (i 19 i 23), 21 21 46 (i 56), 22 54 34
21	WDY	02 30 54 (i 58 e 31 14), 19 30 10
22	GSC	12 22 33, 16 04 03; WDY 19 43 46 (i 53)
24	CLC	13 10 58; WDY 08 48 14, 09 04 40, 15 13 40 (i 56), 20 20 06
25	WDY	16 45 01, 19 12 04; CLC 19 11 34, 19 12 00
26	CLC	11 02 03; GSC 04 33 02; WDY 05 37 06 (i 23), 05 58 21 (S 05 59 39)
27	GSC	04 21 52; CLC 11 11 27, 12 58 30, 14 29 55, 14 39 26
28	GSC	06 35 08, 11 57 11 (i 24), 15 01 34, 23 08 41 (pP 51); CLC 03 17 22, 04 51 58, 08 30 23, 19 45 04, 20 16 11
29	CLC	03 29 54 (e 30 13), 12 21 43, 15 51 32
30	CLC	00 42 42; GSC 13 11 20 (e 26), 15 10 46

Violet M. Taylor, Seismological Assistant

February 20, 1967

Dec 7 - 21 / 1966

SEISMOLOGICAL LABORATORY  
 220 North San Rafael Avenue  
 Pasadena, California  
 PROVISIONAL READINGS AT PASADENA  
 (and auxiliary stations as noted)  
 December 22, 1966



CONTINUATION  
 December 7

December 14

7	iP	17 12 36
	i	45
7	iP	17 28 36
	i	43
	e	37.5
8	iP	15 12 44
	e(L)	20 20
9	iP	04 12 57
9	iP	16 52 57
	i	59
	i	53 06
	eL	17 05.9
10	iP	10 50 10
10	iP	13 12 44
	iPcP	15 43
	eS	17.5
	iScP	19 32
	eL	20.7
	eScS	23 22
	Δ 30° Magn. 6½	

	PZ	0.3	1½
	SH	20	15
	MH	70	20
10	eP	18	21 48
	eS		32 55
	ePS		34 24
	eG		46.6
	iR		51.7
	Δ 92° Magn. 6-6¼		

	PZ	0.2	1
	MH	7	20
	MZ	4	20
11	iP	20	04 53
	eS		15.6
	eR		33.7
11	iP	20	08 56
11	eP	20	21 06
	eS		31 42
	eR		51.1
14	iP!	03	51 59
	compression		
14	iP	11	28 07
14	eP	21	21 27
	ePP		25 22
	iSKS		32 02
	eS		56
	ePS		34 10
	iG		49.6
	iR		53.0
	Δ 100° Magn. 6¼-6½		

	PZ	0.2	2
	PPZ	1	7
	MH	6	20
	MZ	6	20
17	iP	17	52 22
	ipP		53 10
	isP		23
18	iP	05	11 25
18	iP	10	01 10
	ipP		21
20	eP	00	33 38
20	eP	01	49 19
	eL		54.0
20	eP	02	31 21
	eS		35 06
	iR		36.2
	Δ 21° Magn. 5		

	MH	12	20
20	iP	07	59 56
	iS	08	03.7
	iR		04.7
	Δ 21° Magn. 5¼		

	PZ	½	2½
	MH	15	20
	MZ	12	20
20	iP	12	38 04
	ipP		40 08
	iS		47 18
	i		51.1
	i		56.1
	epP	13	04 50
			07 03

Δ 81° Depth 600 km  
 Magn. m = 6

	PZ	0.3	1
	SH	6	7
20	iP!	15	30 55.7
	Large underground detonation at Nevada Test Site		
21	iP	09	04 20
	dilatation		
	iS		14 43
	iPS		15.7
	iSS		20.6
	iSSS		23.9
	iG		27.1

Δ 88° Depth 50 km?

	PZ	1	1½
	SH	6	6

OBSERVATORY  
 KEY  
 29 DEC 1966  
 RICHMOND,  
 SURREY.

SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California

PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
December 22, 1966

SUPPLEMENT: Times of P for additional shocks recorded at China Lake (CLC),  
Goldstone (GSC) and Woody (WDY).

November 26	CLC	11 02 03	
December 5	WDY	22 42 28	
	7	WDY	22 16 57 (i 17 15)
	8	CLC	11 43 23; GSC 00 02 47 (pP 03 18), 23 24 29; WDY eP 06 33 04
	9	CLC	09 55 31; GSC 09 57 23, 17 21 07 (pP 17); WDY 01 04 59, 02 11 35, 10 17 30, 13 42 42 (e 47)
	10	CLC	16 24 41
	11	CLC	17 47 32 (e 42 e 55), 18 09 52 (e 10 20); GSC 19 58 59 (e 59 05, e 59 12), 23 27 05; WDY 02 14 09 (pP 25), 21 06 10 (e 20 e 30), 22 06 05
	12	GSC	11 10 56; WDY 05 38 36
	13	GSC	04 34 03, 15 36 34, 15 49 30, 20 28 38; WDY 01 11 58, 07 10 39, 09 21 41
	14	GSC	02 08 49, 06 53 42; WDY 10 58 49, 11 16 16 (pP 31)
	15	GSC	02 26 39 (i 30 08), 08 35 41; WDY 22 32 56 (pP 33 07)
	16	GSC	21 10 47; WDY 01 37 18 (pP 30), 13 03 26 (i 31)
	17	GSC	06 09 25, 06 48 33, 07 54 12
	19	GSC	00 09 28, 02 21 11 (e 41)
	20	GSC	01 04 57
	21	GSC	06 12 20, 21 21 32
	22	GSC	05 57 57

Violet M. Taylor  
Seismological Assistant

SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
December 31, 1966

CORRECTION

November 27 iP  
should read

21 23 27 etc.

December 28

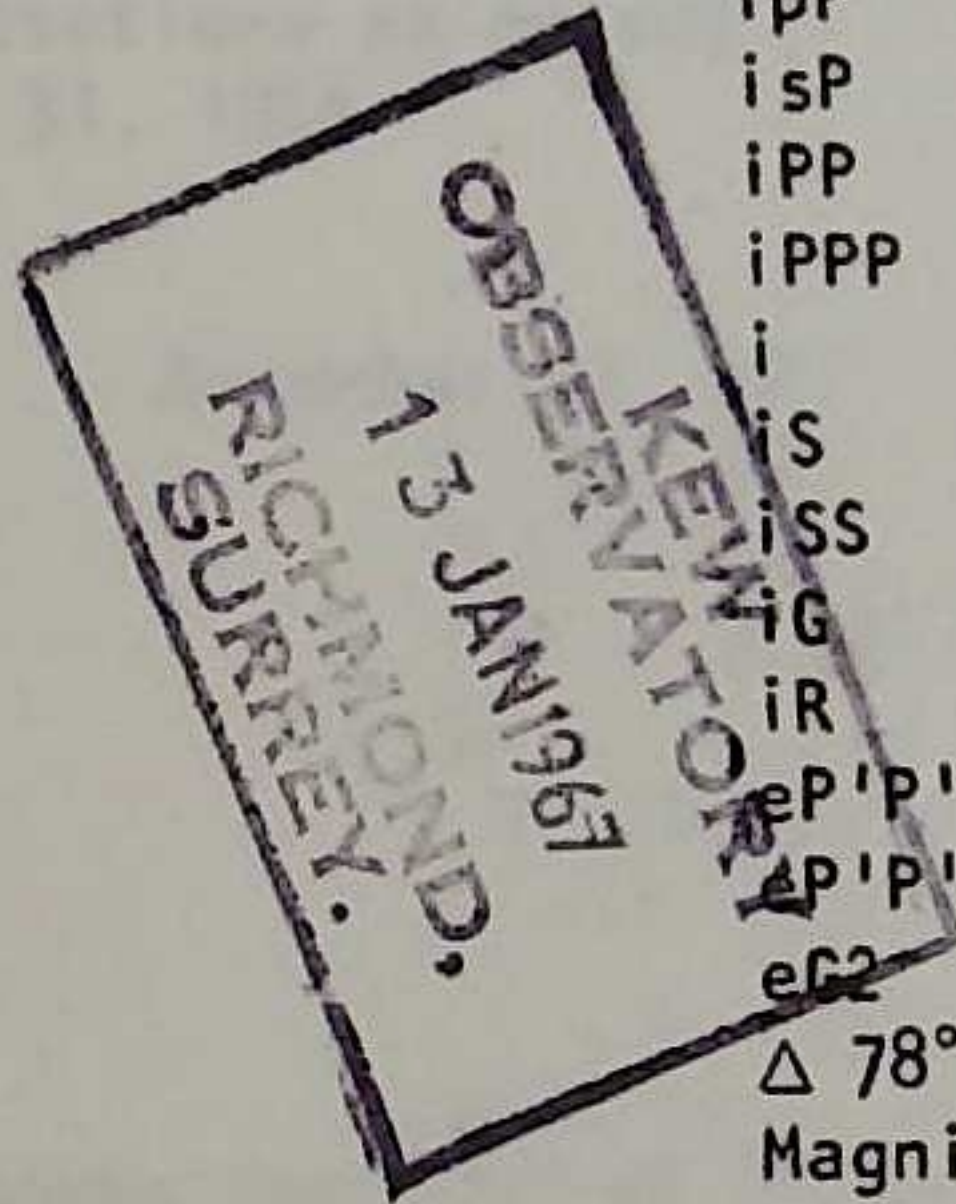
iP! 08 29 44  
compression from southeast

CONTINUATION

December 23 iP  
23 iP  
ipP  
i(SKS)  
ePS  
iSS  
eG  
eR

20 23 27

01 22 12  
16 03 48  
04 07  
14 26  
16 25  
21 44  
30.5  
34.6.



ipP 58  
isP 30 04  
iPP 32.7  
iPPP 34.3  
i 36.3  
iS 29 16  
iSS 44.2  
iG 49.7  
iR 53.9  
eP'P' 56 44  
eP'P'P' 09 16 52  
eG2 10 18.7

Δ 95° Depth 70 km  
Magnitude 6 3/4

Δ 78° Depth 50 km  
Magnitude 7-3/4

		μ	sec
	PZ	0.2	2
	PH	0.3	2
	MH	30	20
	MZ	30	20
24	iP	22	35 37
	ipP		36 03
	iS		41 43
	iScP		43
	iL		43.7
	Δ 38° Depth 130 km		
25	iP	23	12 10
	ipP		25
	isP		33
	e(S,L)		24.7
26	iP	05	24 00
26	iP	22	59 01.1
	iS		06.6
	Magnitude 3-3/4 Epicenter near 33° 48' N 118° 33' W Felt in area about Santa Monica Bay		
27	ipP	01	34 24
	eL		57.7
27	iP	12	02 36
27	iP	21	28 53
	ipP		29 09
	iPcP		31 31
	ipPcP		49
	eS		33.9
	iScP		35 12
	Δ 32° Depth 80 km Magn 6±		
	PZ	0.4	1 1/2

		μ	sec
	PZ	8	3
	PH	4	2
	SH	12	6
	MH	290	20
	MZ	220	20
29	iP		02 00 08
29	iP		11 38 43
29	iP		12 07 15
	iS		16 12
	iG		24.0
	iR		28.1
	Δ 67° Magn. 6		
	PZ	0.2	2
	MH	10	20
	MZ	7	20
29	eP	22	27 14
	iS		36 14
	iSS		40.4
	eG		43.9
	iR		48.3
	Δ 68° Magn. 6		
	MH	13	20
	MZ	10	20
30	iP		01 11 26
30	iP		04 42 29
31	iP		18 35 37
	small preceding shock		

KEW  
OBSERVATORY  
13 JAN 1967  
RICHMOND,  
SURREY.



SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California 91105  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
December 31, 1966

CONTINUATION

December 31	iP	18 35 58	December 31	eP	19 51 02
	iS	46 30	31	iP	22 27 55
	iSP	47 30		iR	54.0
	iG	58.2		$\Delta 85^\circ$ Magn.	$7\frac{1}{4}-7\frac{1}{2}$
	eR	19 02 19		$\mu$	sec
	$\Delta 85^\circ$ Magn.	$7\frac{1}{2}$		MH	200 20
		$\mu$ sec			
	MH	200 20			

SUPPLEMENT: Times of P for additional shocks recorded at China Lake (CLC)  
\* Goldstone (GSC) and Woody (WDY)

December 19	GSC	04 46 10 (e 26);	WDY	03 51 40, 22 56 36
20	GSC	18 53 59 (e 58 14);	WDY	22 03 15, 22 51 16
21	WDY	13 17 52		
22	GSC	19 34 32 (pP 52);	WDY	02 19 55 (e 20 06), 02 27 05, 23 51 33
23	CLC	02 09 04 (i 19, e 11 35, e 11 54),		08 56 29, 19 08 51 (i 09 32),
		23 59 06 (i 14);	GSC	10 00 07 (pP 36, sP 50), 12 05 17 (e 23),
		16 46 20;	WDY	01 22 14 (pP 24 16, sP 25 18), 14 16 33, 22 19 51
		(pP 59)		
24	CLC	00 05 49, 00 26 22, 06 48 40 (e 49 00);	GSC	06 13 28;
		WDY	20 55 43	
25	CLC	14 39 34;	WDY	12 53 11 (e 50)
26	GSC	22 59 25.8;	WDY	13 31 00, 17 29 15
27	GSC	01 34 11 (pP 25, e 35 46, i 37 18)		
28	WDY	11 02 08 (e 15)		
29	CLC	15 07 29 (pP 38)		
30	GSC	04 50 04, 07 21 31, 10 05 11 (e 19);	WDY	01 11 26 (pP 13 41)

Violet M. Taylor  
Seismological Assistant

\*December 17 WDY 18 57 30 (i 52), 21 28 51  
18 WDY 18 59 04

KEW  
OBSERVATORY  
13 JAN 1967  
RICHMOND,  
SURREY.

SEISMOLOGICAL LABORATORY  
220 North San Rafael Avenue  
Pasadena, California 91105  
PROVISIONAL READINGS AT PASADENA  
(and auxiliary stations as noted)  
January 6, 1967



CONTINUATION

January 1	eP	00 33 45	January 3	eP	06 05 28
	iP	07 17 12		eR	32.1
	iPP	19 50	3	iP	06 14 37
			3	iP	11 17 51
	iS	26 34		eS	28.3
	eR	38.0		eR	43.7
	Δ 72° Magn. 6½-6-3/4			Δ 93°	
		μ sec	3	iP	12 44 43
	PZ	0.7 1	3	iP	20 16 41
	PH	½ 1		i	49
	SH	4 24	4	iP	20 25 28
	MH	20 20		i	46
	MZ	20 20		i	52
1	iP	22 11 32	5	iP	00 27 41
	eS	22 08		i	47
	eL	37.7		iPP	31 23
	Δ 85° Magn. 6			iSKS	38 24
		μ sec		i(S)	42
	PZ	0.2 1½		i	39 52
	MH	5 20		iSS	45.2
	MZ	5 20		eG	55.0
2	eP	07 04 54		iR	59.3
	i	05 03		Δ 93° Magn. 7½	
	eS	14 24			μ sec
	eL	28.7		PZ	0.3 1½
2	eP?	20 11 45		PH	0.2 2
	e(P)	12 32		PPZ	1½ 2½
	eS	23 08		MH	170 20
	eSS	28.5		MZ	150 20
	eG	35.0	5	iP	00 55 33
	eR	38.7	6	iP	00 15 36
3	iP	05 04 49		ipP	47
3	iP	05 35 09		iS	25 06
	i	36 24		Δ 72° Depth 50 km	
3	eP	05 48 12			μ sec
	eS	58 54		MH	3 20
	iR	06 14.3		MZ	3 20
	Δ 93°				
		μ sec			
	MH	10 20			

SUPPLEMENT: Times of P for additional shocks recorded at China Lake (CLC), Goldstone (GSC), Palomar (PLM) and Woody (WDY)

January 1	GSC	13 31 12
2	PLM	01 08 23, 02 47 56, 02 50 06 (e 44)
3	PLM	06 13 30, 06 14 20, 10 56 03, 11 44 14, 20 55 44, 21 36 06, 21 46 07
4	GSC	03 55 33 (pP 44), 03 59 45 (e 55), 10 27 20 (i 35);
	PLM	00 26 17, 13 19 41 (i 50)
5	PLM	01 22 55 (pP 23 05), 10 48 22 (pP 40)
6	PLM	00 11 27

Violet M. Taylor  
Seismological Assistant

SEISMOLOGICAL LABORATORY  
 220 North San Rafael Avenue  
 Pasadena, California

PASADENA PRELIMINARY BULLETIN NO. 171

December - 1966

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Unless otherwise noted, readings refer to 1st motion at Pasadena

---

1966

December

- 1 04 35 51, 05 09 23 (i 48, i 58, PP 12 42, SKS 19 42±, P'P' 35 33, SKPP 38 56,  
 19 07 54 (i 08 01, i 36)
- 4 18 13 37 (S 23 00±)
- 7 17 12 36 (i 45), 17 28 36 (i 43)
- 8 15 12 44
- 9 04 12 57, 16 52 57
- 10 10 50 10, 13 12 44 (PcP 15 43, S 17 30±, ScP 19 32, ScS 23 22),  
 18 21 48 (S 32 55)
- 11 20 04 53 (S 15 36±), 20 08 56, 20 21 06 (S 31 42)
- 14 03 51 59, 11 28 07, 21 21 27 (PP 25 22, SKS 32 02, S 32 56)
- 17 17 52 22 (pP 53 10, sP 53 23)
- 18 05 11 25 (USSR), 10 01 10 (pP 21)
- 20 00 33 38, 01 49 19, 02 31 21 (S 35 06), 07 59 56 (S 08 03 42±),  
 12 38 04 (pP 40 08, S 47 18), 15 30 55.7 (Nevada)
- 21 09 04 20 (S 14 43)
- 23 01 22 12, 16 03 49 (pP 04 08, S 14 27)
- 24 22 35 38 (pP 36 04, ScP 41 44)
- 25 23 12 11 (pP 26, sP 34)
- 26 05 24 01, 22 59 01.1 (S 59 06.6)
- 27 01 34 25, 12 02 37, 21 28 53 (pP 29 09, PcP 31 31, pPcP 31 49,  
 S 33 54±, ScP 35 12)
- 28 08 29 44 (pP 58, sP 30 04, PP 32 42±, S 39 16)
- 29 02 00 08, 11 38 43, 12 07 15 (S 16 12), 22 27 14 (S 36 14)
- 30 01 11 26, 04 42 29
- 31 18 35 37, 18 35 58 (S 46 30), 19 51 02, 22 27 55

KEW  
 OBSERVATORY  
 10 APR 1967  
 RICHMOND,  
 SURREY.



SUPPLEMENT: Times of P etc., for additional shocks recorded at Barrett (BAR), China Lake (CLC), Cottonwood (CWC), Glasmis (GLA), Goldstone (GSC), Palomar (PLM), Tinemaha (TIN), and Woody (WDY).

December 1 CLC 00 28 30 (i 45); GSC 05 27 27  
 2 WDY 09 45 24 (P' 48 53, PP 49 45, PKKP 10 00 55)  
 3 GSC 14 25 07 (pP 26 56)  
 4 GSC 12 22 58  
 5 GSC 02 44 06 , 03 43 40 (e 45 e 50), 05 01 41 (i 51), 14 22 53 (i 23 00); WDY 22 42 28  
 6 GSC 05 37 29 (i 35), 07 28 46  
 7 WDY 22 16 57 (i 17 15)  
 8 CLC 11 43 23; GSC 00 02 47 (pP 03 18), 23 24 29; WDY 06 33 04  
 9 CLC 09 55 31; GSC 09 57 23; 17 21 07 (pP 17); WDY 01 04 59, 02 11 35, 10 17 30, 13 42 42 (e 47)  
 10 CLC 16 24 41  
 11 CLC 17 47 32 (e 42, e 55), 18 09 52 (e 10 20); GSC 19 58 59 (e 59 05, e 59 12), 23 27 05; WDY 02 14 08 (pP 25), 21 06 10 (e 20 e 30), 22 06 05  
 12 GSC 11 10 56; WDY 05 38 36  
 13 GSC 04 34 03, 15 36 34, 15 49 30, 20 28 38; WDY 01 11 58, 07 10 39, 09 21 41  
 14 GSC 02 08 49, 06 53 42; WDY 10 58 49, 11 16 16 (pP 31)  
 15 GSC 02 26 39 (i 30 08), 08 35 41; WDY 22 32 56 (pP 33 07)  
 16 GSC 01 10 38, 02 02 42, 21 10 47; WDY 01 37 18 (pP 30), 13 03 26 (i 31)  
 17 GSC 06 09 25, 06 48 33, 07 54 12; WDY 18 57 30 (i 52), 21 28 51  
 18 WDY 18 59 04  
 19 GSC 00 09 28, 02 21 11 (e 41), 04 46 10 (e 26); WDY 03 51 40, 22 56 36  
 20 GSC 01 04 57, 18 53 59 (e 58 14); WDY 22 03 15, 22 51 16  
 21 GSC 06 12 20, 21 21 32; WDY 13 17 52  
 22 GSC 05 57 57, 19 34 32 (pP 52); WDY 02 19 55 (e 20 06), 02 27 05, 23 51 33  
 23 CLC 02 09 04 (i 19, e 11 35, e 11 54), 08 56 29, 19 08 22 (i 09 33), 23 59 07 (i 15)  
 GSC 10 00 08 (pP 37, sP 51), 12 05 18 (e 24), 16 46 20;  
 WDY 01 22 14 (pP 24 16, sP 25 18), 14 16 33, 22 19 51 (pP 59)  
 24 CLC 00 05 50 , 00 26 23, 06 48 41 (e 49 01); GSC 06 13 29;  
 WDY 20 55 43  
 25 CLC 14 39 35; WDY 12 53 11 (e 50)  
 26 GSC 22 59 26.8; WDY 13 31 00, 17 29 15  
 27 GSC 01 34 12 (pP 26, e 35 47, i 37 19)  
 28 WDY 11 02 08 (e 15)  
 29 CLC 15 07 29 (pP 38)  
 30 GSC 04 50 04, 07 21 31, 10 05 11 (e 19); WDY 01 11 26 (pP 13 41), 16 44 46, 17 21 36, 18 42 51 (i 44 52)  
 31 WDY 00 42 00, 03 13 01, 03 34 00, 05 19 42; CLC 21 12 29 (i 36), 21 33 03, 23 50 46

NOTE: From Dec. 22 15h to Dec. 28 00h, erroneous time signals were broadcast, and received at these stations. Because of discovery of this error, some times reported in this bulletin are one second later than as given in provisional readings.

Violet M. Taylor  
Seismological Assistant