CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA CALIFORNIA

SEISMOLOGICAL LABORATORY

BULLETIN

JANUARY-MARCH 1940

(PASADENA AND AUXILIARY STATIONS)

Date	Sta.	Phase	h	m	s		Remarks
Jan 1	P	iPNEZ	12	26	14	c	Deep! Near 18°S.177°W.,
		epPZ		28	12		O=12:15.2,h=550 km.
		iPPZ		29	18		Apia reports eP=12:17:08
		iSN		35	22		iS=12:18:37
	MW	iPNEZ!		26	15		Tu iP 12 26 38
		ipPNEZ		28	13		ipP 28 39
		iPPZ		29	15		
	R	iPNEZ		26	15	c	
		epPZ		28	15		
		isPZ		29	01		
		iPPNEZ		29	21		
	SE	iPNEZ		26	09		
		iPPZ		29	09		
	LJ	iPNEZ		26	14		
		ePPNZ		29	14		
	T	iPNEZ		26	21	c	
		eSNEZ		35	35		
	H	iPNEZ		26	21	c	
		epPZ		28	20		
		eSNZ		35	34		
		eP'P'Z		53	21		
	Pr	iPZ		26	18	c	
		ipPZ		28	17		
		iZ		29	21		
Jan 2	P	iPNZ	11	17	46	c	Normal. USCGS: 31°S.108°W.,
	PX	eSNZ		26	23		O=11:07.6
		eLE		34			Pasadena: 28 1/2°S.113°W.,
	MW	ePNEZ		17	45		O=11:07:14
	R	ePNEZ			45		Major earthquake
	T	ePNEZ		18	05		(Magnitude 7)
	H	ePNEZ			00		
	Pr	iPZ		17	43	c	
Jan 2	MW	ePZ	21	22	52		Tu iP 21 22 02
	R	ePZ			48		
	T	ePZ			23		
	H	ePZ			13		
Jan 3	P	iPZ	11	26	54	c	Tu iP 11 27 19 c
	MW	iPZ			54		
	R	iPZ			58		
	T	iPZ		27	05		
	H	iPZ			01		
Jan 4	P	iPZ	01	22	29		Normal.
	PX	eLZ		47			Tu eP 01 22 46
	MW	iPZ		22	26		
	R	ePZ			23		
	T	ePZ			37		
Jan 4	MW	iPZ	19	36	05		Tu eP 19 36 53
	R	iPZ			11		
	T	iPZ		35	48		
Jan 5	P	iPZ	00	33	29		
	MW	iPZ			30		
	R	iPZ			31		
	T	iPZ			27		
Jan 6	MW	iPZ	06	42	42		Tu iP 06 43 28
	R	iPZ			46		
	T	ePZ			24		
Jan 6	P	eZ	08	26	41		Tu eP 08 27 08
	MW	iZ			45		
	R	eZ			33		
		iZ			48		
	T	eZ		26	22		
Jan 6	P	iPNEZ	14	16	07	d	Deep (h=90 km.)
		ipPZ			30		USCGS: 22°S. 170°E., O=14:08.4
	PX	iPPZ		19	31		Apia: 20.7°S. 170.7°E.
		isPPZ			59		O=14:03:19
		eSKSN		26	13		JSA: 21.5°S. 169.4°E.,
		iSN			46		O=14:03:38
		isSN		27	22		Wellington: 21 3/4°S. 169°E.,
		eGN		38.9			O=14:03.8
	P	eP'P'Z		42	05		Tu ip 14 16 30 d

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Date	Sta.	Phase	h	m	s		Remarks
Jan 6	MW	iPNEZ	14	16	08	d	Major earthquake(Magnitude7)conti
		ipPNEZ			32		
		iPPNZ		19	34		
		eP'P'Z		42	00		
	R	iPNEZ		16	10	d	
		ipPZ			28		
		iZ			44		
		eP'P'Z		42	01		
	SE	iPNEZ		16	04		
	LJ	ePNEZ			07		
	T	ePNEZ			15	d	
		eNE		27	00		
		eP'P'Z		42	04		
	H	ePNEZ	14	16	14		
		epPNZ			39		
		eP'P'Z		42	04		
Jan 6	P	iPZ	18	15	51		Tu iP 18 15 37
	MW	iPZ			52		
	R	iPZ			51		
	T	iPZ		16	12		
Jan 7	P	eZ	03	34	48		Tu e 03 35 18
	MW	eZ			45		
	R	eZ			49		
	T	eZ			38		
	H	eZ			40		
Jan 7	P	iPNZ	21	44	19		Deep?
	MW	iPNEZ			18		Tu iP 21 43 46 d
	R	iPZ			15	d	Probably Chile
		iZ			41		
	T	iPNEZ			32	d	
		iZ			57		
	H	iPNEZ			25		
Jan 10	MW	ePZ	03	50	12		Tu eP 03 49 49
Jan 11	P	iPNEZ	14	40	44		Tu eP 14 40 08
	MW	iPZ			46		
	R	iPZ			48		
	T	iPNEZ			53		
	H	iPZ			52		
Jan 14	P	iZ	10	06	53		
	T	eZ			46		
Jan 16	P	ePZ	22	06	11		Tu iP 22 05 22
		eZ		09	00		
	MW	iPZ		06	11		
		iZ			22		
	R	iPZ			06		
		eZ		08	45		
		eZ			58		
	T	eZ		06	25		
		eZ		08	50		
		iZ		09	04		
Jan 17	P	iPNEZ	01	27	22	d	Deep? USCGS: 17°N.148°E.,
		iZ			42		O=01:14:53
		eZ			57		JSA: 17.2°N.147.3°E.,
	PX	iSNE		37	44		O=01:14:57
		eLE		49.7			Depth probably about 70 km.
	P	eP'P'Z		53	55		Surface waves well developed
		eSKPP'Z		57	25		Major earthquake(Magnitude 7)
		eP'P'P'Z	02	14	15		Tu iP 01 27 55 d
	MW	iPNEZ	01	27	22	d	e 55 33
		iZ			42		eP'P'P' 02 14 08
		eSNEZ		37	53		
		eP'P'P'Z	02	14	16		
	R	iPNEZ	01	27	26	d	
		eSNEZ		37	51		
	SE	ePNE		27	16		
	LJ	iPNEZ		27	28		
		eSNE		37	56		

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Date	Sta.	Phase	h	m	s	Remarks
Jan 17	T	iPNEZ	01	27	18	Continued
		eSNEZ		37	39	
		eP'P'P'P'Z	02	14	07	
	H	iPNEZ		27	21	
		eSNE		37	33	
Jan 17	P	iPEZ	04	02	29	Tu e 04 03 01
		iZ			40	
		iZ			51	
	MW	iPZ			30	
	R	ePZ			32	
	LJ	ePZ			34	
	T	ePZ			26	
Jan 17	P	ePZ	05	34	05	
	MW	iPZ			07	
Jan 17	P	ePZ	07	04	47	
	MW	ePZ			47	
	T	ePZ			48	
Jan 17	P	ePZ	09	53	09	
	MW	iPZ			10	
Jan 17	P	ePZ	10	32	01	Tu e 10 32 34
	MW	ePZ			02	
Jan 17	P	ePZ	12	19	10	Tu e 12 20 06
		iEZ			34	
	MW	ePZ			11	
		iZ			35	
	R	eZ			37	
	T	eZ			30	
	H	eEZ			33	
Jan 17	P	iPNEZ	13	53	27	Tu eP 13 54 00
	MW	iPNEZ			27	
	R	ePZ			30	
Jan 17	P	ePZ	14	19	53	
	MW	iPZ			53	
	T	iPZ			47	
Jan 17	P	ePZ	14	46	08	Tu eP 14 46 40
	MW	ePZ			07	
	R	ePZ			11	
	T	ePZ			08	
Jan 17	P	ePZ	15	38	21	Tu eP 15 38 53
		eZ		40	19	
	MW	iPZ		38	22	
		iZ		40	19	
	R	ePZ		38	23	
		iZ		40	21	
	T	ePZ		38	17	
		iZ		40	15	
Jan 17	P	ePNEZ	19	51	36	Tu iP 19 52 10
	MW	iPZ			38	
	R	iPZ			40	
	LJ	ePZ			44	
	T	iPNEZ			34	
Jan 17	P	iPNEZ	22	54	07	Tu iP 22 54 29
	MW	iPZ			08	
	R	iPZ			10	
	T	iPZ			18	
	H	ePNEZ			16	
Jan 18	P	ePZ	03	24	15	Tu eP 03 24 49
	MW	ePZ			16	
		iZ		26	47	
	R	ePZ		24	19	
	T	ePZ			11	
Jan 19	P	ePZ	03	41	25	
	MW	iPZ			26	
	T	ePZ			22	

Date	Sta.	Phase	h	m	s	Remarks
Jan 19	P	ePZ	05	36	25	Tu eP 05 36 57
		iZ			45	Japan. Mizusawa reports:
		eZ		37	19	P=05:24:37, S=05:25:17
	MW	iPZ		36	25	
	T	ePZ			13	
		iZ			19	
Jan 19	P	ePZ	06	11	03	Tu eP 06 11 36
	MW	iPZ			03	
		iZ			11	
	R	ePZ			06	
	T	ePZ		10	58	
Jan 19	MW	ePZ	08	44	21	
	T	iPZ			12	
Jan 19	P	ePZ	09	11	01	
	MW	ePZ			02	
	T	eZ		10	57	
Jan 19	P	iPZ	14	04	16	Deep? Tu eP 14 04 42
		iZ			26	Near Apia, which reports:
		iZ			54	P=13:53:55, S=13:54:32
	MW	iPZ			18	
		iZ			28	
		iZ			57	
	R	iPZ			20	
	T	iPZ			27	
		iZ			36	
		iZ		05	06	
	H	iPNEZ		04	25	
Jan 19	P	eZ	16	15	58	Tu iP 16 16 07
	MW	eZ			59	
	R	eZ			52	
		eZ		16	04	
	T	eZ			09	
Jan 19	P	ePZ	17	31	40	Tu iP 17 32 27
		iNEZ			49	
	MW	iPZ			42	
		iNEZ			50	
	R	eZ			46	
	T	iPNEZ			27	
Jan 20	P	iZ	04	12	42	Tu eP 04 13 46
	T	ePZ			08	Recorded at Victoria:04^h06^m
Jan 20	P	ePZ	10	11	05	Tu eP 10 10 52
	PX	iSE		22	03	Roughly 55°S.133°W.,O=09:58.C
		eLE		34.6		using Wellington, Perth, Apia
	MW	ePZ		11	08	Melbourne and Riverview.
	R	ePZ			09	Major earthquake(Magnitude7)
	T	eNEZ			23	
Jan 20	P	iPZ	10	26	10	Tu iP 10 25 37
	MW	iPZ			11	
	R	iPZ			07	
	T	ePZ			22	
Jan 20	P	iPZ	10	42	48	
	MW	iPZ			49	
	R	iPZ			44	
	T	iPZ		43	02	
Jan 21	P	ePZ	02	58	16	Tu eP 02 58 46
		eZ			43	
	MW	iPZ			20	
	R	iPZ			21	
	T	ePNZ			11	
	H	iPZ			14	
Jan 21	P	iPNEZ	03	22	00 c	Deep. Tu iP 03 22 25 c
		iZ			21	
	MW	iPNEZ			01 c	
		eZ		25	07	
	R	iPNEZ		22	02	
		eZ		24	13	
		eZ		25	09	
	T	iPNEZ		22	09 c	
	H	ePNE			07	

Date	Sta.	Phase	h	m	s	Remarks
Jan 21	P	iPNEZ	04	32	01	Deep. Tu iP 04 32 19
		ipPNEZ			56	ipP 33 14
		iZ		33	06	Kermadec Islands (as indicated
		iZ			18	by Wellington); h=250km.
	PX	eSE		42	06	
	MW	iPNEZ		32	02	
		iZ			21	
		ipPNEZ!			57	
		eZ		33	29	
		eZ			53	
		ePPZ		35	36	
	R	iPNEZ		32	02	
		ipPNEZ			58	
	SB	iPNEZ		31	59	
		epPZ		32	53	
	T	ePNEZ		32	11	
	H	ePNEZ			09	
Jan 21	P	iPZ	07	46	14	Tu iP 07 46 39
	MW	iPZ			15	
	R	ePZ			16	
	T	iPZ			23	
Jan 21	P	ePZ	13	05	16	Tu eP 13 05 36
	MW	ePZ			16	
	T	ePZ			26	
Jan 22	P	ePZ	01	12	28	Tu eP 01 12 48
	MW	ePZ			28	
	R	ePZ			30	
	T	ePZ			37	
Jan 23	P	iPZ	02	20	06	
	MW	ePZ			07	
	R	ePZ			09	
	T	ePZ			16	
Jan 24	P	ePZ	01	43	01	Tu eP 43 13
Jan 24	T	ePZ	10	18	14	Tu eP 10 17 26
Jan 24	MW	ePZ	13	08	59	Tu eP 13 08 02
	R	ePZ			53	
	T	ePZ		09	16	
Jan 24	P	eZ	18	02	40	Tu e 18 02 41
	MW	eZ			17	
		eZ			32	
	R	eZ			34	
Jan 25	P	iPZ	18	59	13	
	MW	iPZ			13	
Jan 26	P	ePZ	04	24	16	Tu iP 04 24 53
	MW	iPZ			16	
	T	iPNEZ			00	
Jan 26	P	iPNEZ	06	54	24	Normal. Wellington 15°S.167°E.,
		ipPZ		57	47	0=06:41.7
	PX	eSE	07	05	21	Tu iP 06 54 50
		eLNE		20.5		
	MW	iPNEZ	06	54	24	
		iPPZ		57	47	
	R	ePE		54	26	
	LJ	ePNEZ			28	
	T	iPNEZ			29	
	H	ePNE			30	
Jan 26	P	ePNEZ	17	17	21	Normal. Tu iP 17 17 50
	PX	eSNE		28	06	Osaka gives 26.8°N. 131.2°E.
		eLNE		41.0		Major earthquake (Magnitude 7)
	MW	ePNEZ		17	21	
	SB	ePNEZ			16	
	LJ	ePEZ			26	
	T	iPNEZ			15	
		ePPZ		20	41	
	H	ePNEZ		17	22	
Jan 27	P	ePZ	02	32	11	Tu eP 02 32 06
	MW	ePZ			11	

Date	Sta.	Phase	h	m	s		Remarks
Jan 27	P	iPZ	15	02	05		Tu eP 15 02 33
	MW	iPZ			05		Japan. Osaka gives
	T	ePZ		01	54		34.1°N.138.9°E.
Jan 28	P	iPEZ	07	37	53		Tu eP 07 37 00
		ePPZ		40	17		Central America
	MW	iPZ		37	53		
	T	ePNEZ		38	06		
		iPPNEZ		40	22		
	H	ePNEZ		38	02		
Jan 28	P	ePEZ	08	34	09		Tu iP 08 34 46
	MW	iPZ			10		Alaska?
	R	ePZ			13		
	T	ePNEZ		38	47		
	H	iPNEZ			55		
Jan 30	P	iPNEZ	12	07	10		Tu iP 12 06 28
	MW	iPNEZ			09		
	R	ePE			07		
	T	ePNEZ			23		
	H	ePNEZ			17		
Jan 30	P	ePZ	12	46	56		Tu iP 12 46 14
	MW	ePZ			56		
	T	ePZ		47	09		
Jan 30	P	iPNEZ	13	58	22		Tu iP 13 57 40
	MW	iPNEZ			22		
Feb 5	P	iZ	06	39	27		Tu eP 06 39 37
		iZ		40	26		
	MW	iZ		39	28		
	R	ePZ			08		
		eZ			31		
	T	ePZ			01		
	H	ePZ			02		
		eZ			25		
Feb 5	P	iPNEZ	10	49	56	c	Deep? P large and sharp.
	MW	iPNEZ			58	c	Tu iP 10 50 21 c
	R	iPZ		50	01		
	T	iPNEZ			06		
	H	iPNEZ			04		
Feb 5	P	ePZ	23	00	57		Tu iP 23 01 11 c
	MW	iPZ			58		
	T	ePZ			38		
Feb 7	P	iPEZ	17	24	54	c	Deep? USCGS: 52°N.174.5°E.,
		iZ		25	02		0=17:15:56, normal
		ipPEZ		25	10		If pP is correctly identifie
	PX	iE		26	28		h=70 km. Surface waves not
		ePPZ			51		large.
		iSEZ		32	07		JSA: 52.0°N.177.1°E.,
		eLN		37.0			0=17:16:16, h=60km.
	MW	iPNEZ		24	55		Tu iP 17 25 37
		ipPNEZ		25	13		eP'P' 55 38
		eSNE		32	05		
	R	iPNEZ		24	58		
		ipPZ		25	15		
	SB	iPZ		24	48		
	LJ	ePNEZ		25	06		
	T	iPNEZ		24	40		
		eSNEZ		31	43		
	H	ePNEZ		24	48		
Feb 8	P	iPZ	01	57	03		Tu eP 01 56 58
	MW	iPZ			02		
	R	ePZ			00		
	T	iPZ			10		
Feb 8	P	iPZ	08	07	34		Normal. JSA: 39.5°N.121.5°W.
		eSNE		09	11		0=08:05:50
	MW	ePNEZ		07	38		BC eP 08 07 40
		iSNE		09	14		iS 09 24
	R	iPNEZ		07	40		Tu iP 08 46
		iSZ		09	35		iS 12 16

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Date	Sta.	Phase	h	m	s		Remarks
Feb 8	SB	iPNEZ		07	27		Shock of destructive magnitude (6) felt over an area of about 45,000 square kilometers, in northeastern California, with some local damage notably at Chico and other points in Butte County.
	T	iPNEZ		06	59		
		iSNE		08	03		
	H	iPNEZ		07	14		
		iSNEZ		08	27		
	Pr	iPZ		07	51		
Feb 8	T	iPZ	12	42	25		Tu iP 12 42 44
Feb 8	P	ePZ	23	21	36		Normal. Tu eP 23 21 16
	PX	eSNE?		28	33		
		eLNZ		35.2			
	MW	ePZ		21	35		
	Pr	iZ			29		
Feb 9	P	iPNEZ	13	31	40	c	Deep? Tu iP 13 32 17 c
	MW	iPNZ			41	c	
	R	iPNEZ			43		
		iZ			55		
		iZ		32	39		
	SB	iPNEZ		31	33	c	
	LJ	iPNEZ			50	c	
	T	iPNEZ			26	c	
		iZ			55		
		iZ		32	22		
	H	iPNEZ		31	31		
		iZ		32	24		
	Pr	iPZ		31	49	c	
		iZ		32	01		
		iZ			57		
		iZ		34	00		
Feb 9	P	ePEZ	14	05	24		Deep? Tu iP 14 05 58
		iEZ			37		i 06 12
	MW	iPNZ			25		Osaka gives 40.2°N.142.5°E.
		iNZ			38		
	R	iPZ			26		
		iNEZ			41		
	SB	ePZ			20		
		eNEZ			31		
	LJ	eNEZ			45		
	T	ePNEZ			15		
		eNEZ			29		
	H	iPNEZ			19		
		iNEZ			32		
	Pr	ePZ			32		
		iZ			45		
Feb 11	P	ePZ	06	19	27		Tu iP 06 19 50
	MW	iPZ			27		
	R	ePZ			29		
	T	ePZ			34		
	H	ePNEZ			31		
	Pr	iPZ			30		
Feb 11	P	iPNZ	14	36	03		Tu iP 14 36 25
	MW	ePNZ			03		
	R	iPZ			04		
	T	iPNEZ			13		
	H	iPNEZ			11		
	Pr	iPZ			05		
		eZ			48		
Feb 12	P	iPNEZ	00	13	18		Normal? JSA: 28.0°S. 71.0°W., 0=00:01:32
		iZ			26		
	PX	iSN		22	59		
		eLN		38			
	MW	ePZ		13	11		
		iZ			27		
	R	ePNEZ			08		
	SB	ePZ			14		
		ePN			28		
	LJ	ePNEZ			05		
	T	iPNEZ			25		

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Date	Sta.	Phase	h	m	s		Remarks
Feb 12	H	iPNEZ	00	13	21		Continued
	Pr	iPZ			04		
		iZ			23		
		iZ			57		
Feb 12	P	iPNEZ	05	34	11	c	
	MW	iPNEZ			12	c	
		iZ			20		
	R	iPNEZ			16		
	LJ	ePNEZ			23		
	T	iPNEZ		33	58	c	
		iZ		35	42		
	H	iPNEZ		34	02		
		iZ			09		
		iZ		35	43		
	Pr	iPZ		34	23		
		iZ			35		
Feb 12	P	iPNEZ	08	32	51	d	Deep. JSA: 22.6°S. 177.5°W.,
		ipPZ		33	52		0=08:21:05, h=200 km
	PX	iSN		42	43		Wellington: 28°S. 177°W.,
		iE		44	07		0=08:21.0, h=200-250
	P	eP'P'Z		59	42		
		eSKPP'Z	09	02	50		
	MW	iPNZ	08	32	52		
		ipPZ		33	53		
		eSN		42	43		
		eP'P'Z		59	41		
		eSKPP'Z	09	02	50		
	R	ePNEZ	08	32	51		
		eP'P'Z		59	33		
		eSKPP'Z	09	02	46		
	SB	iPNEZ	08	32	47		
	LJ	iPNEZ			50		
	T	iPNEZ		33	01		
		ipPZ			57		
		eSE		43	01		
	H	iPNEZ		32	58		
		ipPZ		33	52		
		eSN		42	58		
	Pr	iPZ		32	53		
		ipPZ		33	56		
		eP'P'Z		59	41		
		ipP'P'Z	09	00	37		
		iSKPP'Z		02	48		
Feb 12	P	iPZ	09	24	50		Deep? JSA: 54.0°N. 160.0°W.,
		iNEZ!			59		0=09:17:57, h=100 Km
		iPPE		26	31		
		iPcPZ		27	13		
		iSEZ		30	28		
		iScPZ		31	16		
	PX	eLZ		33	11		
	MW	iPNZ	09	24	50		
		iNZ			59		
		iPPZ		26	27		
		iPcPZ		27	12		
		eSNZ		30	28		
		iScPZ		31	16		
	R	iPNEZ		24	53		
		iNEZ		25	03		
		eSNE		30	36		
	SB	iNEZ		24	50		
		eSNE		30	13		
	LJ	ePNEZ		25	04		
		iNEZ			12		
	T	ePNEZ		24	32		
		iZ			42		
		iPcPZ		27	08		
		eSE		30	00		

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Date	Sta.	Phase	h	m	s		Remarks
Feb 12	H	iPNEZ	09	24	40		Continued
		iNEZ			48		
		iPcPNEZ		27	11		
		eSNE		30	10		
	Pr	iPZ		25	02		
		iZ!			13		
Feb 12	P	iZ	15	22	49		Normal? Tu eP 15 22 57
	PX	eLEZ?		58			
	MW	iZ		22	46		
	R	eZ			46		
	T	eZ			48		
	Pr	eZ			51		
Feb 13	P	iPEZ	21	00	14	c	Tu iP 21 00 36
	MW	iPNZ			15	c	
	R	iPZ			20		
	SB	ePZ			10	c	
	T	iPNEZ			23		
	H	iPNEZ			21		
Feb 13	P	ePZ	23	54	08		Normal. Tu eP 23 55 28
	PX	eLE		55.6			Felt in Mendocino and Humboldt
	MW	iPNZ		54	04		Counties, California, with
	R	ePEZ		54	10		some slight damage.
	SB	iPZ			06		
	T	ePNEZ		53	40		
		iSNE		55	10		
	H	iPNEZ		53	50		
		iSN		55	38		
Feb 14	P	iPNEZ	02	16	36	d	Deep? Surface waves small.
	PX	eLZ		53			Tu iP 02 15 50 d
	MW	iPNZ		16	38	d	
		iZ		17	59		
	R	iPZ		16	39		
		eZ		18	02		
	SB	iPZ		16	35		
	T	iPNEZ			37		
	H	iPZ			38		
Feb 14	P	ePZ	10	37	48		Normal. Tu eP 10 37 37
	PX	eE		48	42		
		eLE	11	01.5			
	MW	ePNZ	10	37	47		
	R	ePZ			44		
	T	ePZ			57		
	H	ePZ			57		
Feb 14	R	ePZ	17	49	41		Tu eP 17 50 05
Feb 16	T	ePZ	02	38	46		Tu eP 02 39 45
Feb 17	P	ePNEZ	13	47	16		Tu iP 13 47 42
	MW	iPZ			18		
	R	ePZ			19		
	T	iPNEZ			25		
	H	iPZ			23		
	Pr	iPZ			20		
Feb 18	MW	iPZ	07	39	14		Tu eP 07 39 39
	T	ePZ			25		
Feb 18	MW	iPZ	07	51	37		Tu eP 07 52 01
	T	iPZ			47		
Feb 18	MW	iPZ	13	46	44		Tu iP 13 47 09
	T	iPZ			54		
Feb 19	P	iPNEZ	07	26	13	c	Normal? Surface waves small.
		iPcPZ		28	48		Tu iP 07 25 19 c
	PX	eLNEZ		41.4			Central America.
	MW	iPNZ		26	13	c	
		ePcPZ		28	40		
	R	ePZ		26	06		
		ePcPZ		28	39		
	T	iPEZ		26	26		
		iPcPEZ		29	45		
	Pr	iPZ		26	02		

Date	Sta.	Phase	h	m	s		Remarks
Feb 19	P	iPNEZ	12	07	13	c	Normal. 34°00' 117°03'
							0=12:06:58
		iSNE			25		Felt generally within 80 km.
	MW	iPNZ			12	c	of the epicenter
		iSN			21		BC eP 12 07 38
	R	iPNEZ			04	d	iS 08 22
		iSNE			08		Tu iP 08 17
	LJ	iPNEZ			17	d	
		iSN			33		
	T	iPEZ			46		
		iSEZ		08	36		
	Pr	iPZ		07	10		
Feb 20	P	iPNEZ	02	30	39	c	Deep. USCGS: 12°S.167°E.
		ipPZ		31	28		0=02:18:08
		iPPZ		34	01		Pasadena: 13 1/2°S.167°E.,
	PX	iSE		40	48		0=02:18:20, h=200 km.
	P	iPKKPZ		48	47		JSA. 14.4°S.166.5°E.,
		iZ		50	21		0=02:18:20, h=200 km.
	PX	eLN		53	04		Wellington: 14°S.167 1/4°E.,
	P	eP'P'Z		56	50		0=02:18.3, h=200 km.
	MW	iPNZ		30	40	c	Tu iP 02 31 04
		ipPZ		31	29		
		iPPZ		34	02		
		iPKKPZ		48	45		
		iZ		50	21		
		iP'P'Z		56	48		
		eSKPP'Z		59	56		
	R	iPNEZ		30	43		
		ipPZ		31	31		
		iPKKPZ		48	44		
		eP'P'Z		56	50		
	SB	iPNEZ		30	35		
		ipPZ		31	28		
	LJ	ePNEZ		30	40		
		ipPZ		31	30		
		ePPZ		34	03		
	T	ePNEZ		30	44		
		epPZ		31	31		
		iPKKPZ		48	44		
		eP'P'Z		56	49		
	H	iPNEZ		30	44		
		ipPZ		31	33		
		iPKKPZ		48	45		
		iP'P'Z		56	47		
	Pr	iPZ		30	43		
		ipPZ		31	33		
		iPPZ		34	07		
		iPKKPZ		48	45		
		iP'P'Z		56	50		
Feb 20	P	ePZ	13	14	43		Normal. Tu eP 13 14 46
		eZ		19	33		Roughly 38°S.79°E.,
	PX	eLZ	14	12.1			0=12:54:40
	MW	ePZ	13	14	44		
	R	ePZ			40		
	T	ePZ			43		
	H	ePZ			44		
	Pr	ePZ			45		
Feb 20	P	iPZ	20	47	11		Tu iP 20 47 34
	MW	iPZ			13		
	R	iPZ			01		
	T	ePZ			21		
	Pr	iPZ		46	50		
		iZ		47	14		
Feb 20	P	ePZ	20	52	04		Normal. Tu eP 20 52 22
	PX	eLNE	21	16			
	MW	ePZ	20	52	08		
	R	ePZ			07		
	T	ePZ			13		
	Pr	iPZ			08		
		iPPZ		56	14		

Date	Sta.	Phase	h	m	s		Remarks
Feb 21	P	iPEZ	01	34	08		Tu iP 01 34 30
	MW	iPZ			10		
	R	iPZ			13		
	T	iPNEZ		33	51		
	H	iPZ			57		
	Pr	iPZ		34	16		
Feb 21	P	ePZ	02	48	20		Tu e 02 48 51
	MW	iPZ			22		
	R	ePZ			25		
Feb 22	T	ePZ	04	18	54		Tu eP 04 19 05
	Pr	iPZ			46		
Feb 22	T	ePZ	04	35	08		Tu eP 04 36 49
	H	ePZ			19		
Feb 22	T	ePZ	05	47	11		Tu eP 05 48 53
	H	ePZ			21		
	Pr	ePZ		48	05		
Feb 23	P	iPZ	01	09	22	c	Deep?
		epPZ			35		
	MW	iPNEZ			23	c	
		ipPZ			40		
	R	iPZ			25	c	
		ipPZ			41		
	T	iPEZ			24		
	Pr	iPZ			27		
		ipPZ			43		
Feb 23	P	iPZ	05	11	32		Tu iP 05 11 53
	MW	iPZ			34		
	R	iPZ			35		
	T	iPEZ			44		
	Pr	iPZ			34		
Feb 23	P	ePZ	09	36	35		Deep? Tu iP 09 35 36
		eZ			57		
	MW	iPZ			33		
		iZ			56		
	R	iPZ			29		
		iZ			52		
	T	eZ			51		
	Pr	iPZ			22		
		iZ			45		
Feb 23	P	iPZ	16	43	28		Tu iP 16 42 27 c
	MW	iPZ		43	24	c	
	R	iPZ			26		
	T	iPEZ			32		
	Pr	iPZ			27		
Feb 24	P	iPNZ	09	38	54		Normal. Reported felt at Owens
		iSNEZ		39	48		River Gorge and in Yosemite
	MW	iPZ		38	53		Valley.
		iSEZ		39	43		37°30'N. 118°32'W.,0=09:38:00
	R	iPZ		38	57		BC eP 09 39 03
		iSNEZ		39	53		Aftershock at 09:48
	SB	iPZ		38	52		
		iSNE		39	32		
	T	iPNEZ		38	12	c	
		iSNE			20		
	H	iPNEZ			27		
		iSNEZ			47		
	Pr	iPZ		39	08		
Feb 24	P	iPNEZ	11	50	24		Tu eP 11 49 37
	MW	iPNEZ			24		
	R	ePZ			18		
	SB	ePZ			41		
	T	ePZ			58		
	H	ePNE			51		
	Pr	ePZ			08		
Feb 24	P	iPNEZ	12	13	53		Normal. Tu eP 12 14 20
	PX	eLN		41.0			New Guinea, about 3°S.143°E.,
	MW	iPZ		13	52		0=12:00.2
		ePPZ		17	18		Major earthquake (Magnitude 7)

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Date	Sta.	Phase	h	m	s		Remarks
Feb 24	R	iPZ	12	13	56		Continued
	T	ePNEZ			52		
	H	ePNE			53		
	Pr	iPZ			58		
		ePPZ		17	34		
Feb 24	MW	iPZ	13	41	23		Tu eP 13 41 49
	R	ePZ			26		
	T	iPZ			33		
	Pr	iPZ			27		
Feb 25	R	ePZ	03	26	51		Deep? Tu iP 03 26 02
		eZ		29	46		
	T	iPZ		27	12		
		iZ		29	54		
	H	ePZ		27	05		
	Pr	iPZ		26	44		
		iZ		29	47		
Feb 25	MW	ePZ	08	05	57		Tu eP 08 05 03
	R	ePZ			52		
	T	ePZ			19		
Feb 26	T	ePZ	05	20	45		Tu eP 05 21 30
Feb 27	R	ePZ	00	02	18		Tu eP 00 02 25
	T	iPZ			13		
Feb 27	P	iPNEZ	12	22	39		Tu iP 12 21 53
	MW	iPNEZ			40		West Indies?
	R	iPNEZ			35		
	SB	iPZ			49		
	T	iPNEZ			46		
	H	ePZ			42		
	Pr	iPZ			31		
Feb 27	P	ePZ	19	23	53		Two shocks? Tu e 19 26 53
		iZ		26	01		
	MW	ePZ		23	50		
		iZ		26	03		
	R	iZ			04		
	T	iZ			00		
Feb 28	P	iPNEZ	13	09	27	d	Deep? Tu iP 13 09 52 d
	MW	iPNEZ			29	d	
	R	ePNEZ			29	d	
	SB	iPZ			24		
	LJ	ePZ			29		
	T	ePE			34		
	H	iPNEZ			32		
	Pr	iPZ			32		
Feb 28	MW	iPZ	17	08	42		Tu iP 17 09 06
		iZ		14	46		i 14 08
	R	iPZ		08	44		Two shocks?
Feb 28	P	ePZ	17	28	43		Normal. 38°08'N.116°05'W.,
		iSNEZ		29	10		0=17:28:07
	MW	ePZ		28	41		Felt widely in Imperial, San
		iPNZ			44		Diego, and Riverside Counties
		iSN		29	09		Tu iP 17 29 15
	R	iPNEZ		28	32	c	
		iSNE			51		
	SB	iPZ		29	06		
		iSNZ			52		
	LJ	iPNEZ		28	27	c	
	H	iPZ		29	07		
		iSNZ			56		
Feb 29	P	iPZ	12	42	58		Tu iP 12 43 32
	MW	iPZ			59		Northern Japan. Mizusawa
	R	iPZ		43	02		reports: P=12:32:38,S=12:33
	T	iPZ		42	48		
	Pr	ePZ		43	08		
Feb 29	P	ePPZ	16	25	54		Normal. Using Kaara and Eu
	PX	eLNE	17	01			pean stations, we find
	MW	eZ	16	25	42		37°N.26°E., 0=16:07:46
		iPPZ			57		

Date	Sta.	Phase	h	m	s	Remarks
Mar 1	MW	iPZ	10	53	04	Tu eP 10 53 30
	R	ePZ			07	
	T	ePZ			07	
Mar 3	P	ePZ	00	18	27	Normal. Tu eP 00 18 50
		iNEZ			32	i 18 54
		ePPZ		22	10	ePP 00 22 17
	PX	eEZ		28	45	Wellington: 17 1/2°S.167°E.,
		eLZ		45.7		0=00:05.6
	R	iPNEZ		18	28	
	SB	iPZ			27	
	LJ	ePZ			32	
	T	ePNEZ			32	
		iPPZ		22	06	
	H	iPNEZ		18	34	
	Pr	iPZ			27	
		iZ			32	
Mar 4	P	iPZ	12	56	07	Tu iP 12 55 36
	MW	iPZ			07	
	R	iPZ			04	
	T	iPZ			15	
Mar 4	MW	iPZ	15	54	58	Tu iP 15 54 04
	R	ePZ			53	
	T	iPZ		55	15	
	Pr	iPZ		54	48	
Mar 4	P	iP"Z	16	03	16	Tu iP" 16 03 28
	MW	iP"Z			16	
	R	eP"Z			18	
	T	iP"Z			16	
	H	iP"Z			16	
Mar 4	P	ePEZ	20	10	05	Normal. JSA: 13.6°N.46.2°W.,
	PX	eLN		29.1		0=19:58:58
	MW	iPNEZ		10	04	Tu iP 20 09 18
	R	iPNEZ			00	
	SB	ePZ			12	
	LJ	ePZ			01	
	H	ePZ			03	
	Pr	iPZ		09	59	
Mar 5	P	ePZ	09	01	53	Tu eP 09 02 27
	MW	ePZ			57	Probably Kurile Is. Mizusawa
	R	ePZ			53	reports: P=08:52:45,
	T	ePZ			40	S=08:54:06
Mar 5	P	iPZ	23	07	14	Tu eP 23 07 51
	MW	iPZ			14	
	R	iPZ			17	
	T	iPZ		06	52	
Mar 6	P	ePZ	00	01	35	Normal. Small surface waves
	MW	iPNEZ			34	recorded.
	R	iPNZ			37	Tu eP 00 02 09
	T	ePNEZ			11	
	H	iPNEZ			23	
Mar 6	P	ePZ	05	58	27	Tu eP 05 59 04
	MW	ePZ			27	
	R	iPZ			30	
	T	ePNEZ			05	
	H	ePZ			13	
Mar 6	PX	eLNEZ	19	20		Wellington: 48°S.165°E.,
						0=18:28:+
Mar 7	P	ePNZ	07	19	38	Tu eP 07 19 28
	MW	iPZ			40	
		eZ		20	15	
	R	ePZ		19	39	
	T	iPNEZ			58	
	H	ePNEZ			53	
Mar 7	P	ePEZ	19	43	36	Tu iP 19 44 21
	MW	iPNEZ			37	
	R	iPZ			42	
	T	iPNEZ			23	
	H	iPZ			31	
	Pr	iPZ			49	

Date	Sta.	Phase	h	m	s		Remarks
Mar 8	P	iPZ	05	07	43		Tu eP 05 08 18
	MW	iPZ			43		
	R	ePZ			46		
	T	ePZ			33		
	H	ePNEZ			36		
Mar 9	P	iPZ	05	11	52		Tu eP 05 12 29
	MW	ePZ			50		
	R	iPZ			55		
	T	ePNEZ			26		
	Pr	ePZ		12	01		
Mar 9	P	iPNEZ	10	58	43	c	Deep. h=500 km.Δ=83°,
		ipPNZ	11	00	32		Origin time=10:47.1
	PX	eSNE		08	19		Osaka give 28.0°N.140.0°E.,
		iNE			33		h=520 km.
	P	eSKPP'Z		27	33		Tu iP 10 59 15 c
	MW	iPNEZ	10	58	45	c	ipP 11 01 07
		iZ			50		i 03 00
		ipPZ	11	00	33		
		iZ			45		
		iNEZ		08	33		
		eSKPP'Z		27	35		
	R	iPNEZ	10	58	47	c	
		iZ			52		
		ipPZ	11	00	44		
		eSKPP'Z		27	31		
	SB	iPZ	10	58	38		
		iZ			43		
	LJ	ePNEZ		58	51		
	T	iPZ	10	58	38	c	
		iZ			44		
		ipPZ	11	00	34		
		eSNE		08	12		
	H	iPNEZ	10	58	40		
		epPZ	11	00	32		
	Pr	iPZ	10	58	50	c	
		iZ			55		
		ipPZ	11	00	49		
		iZ		01	47		
Mar 9	P	iPZ	14	38	25		
	MW	iPZ			28		
	R	iPZ			29		
	T	iPZ			19		
	Pr	iPZ			33		
Mar 10	T	eZ	10	40	45		Tu iP 10 39 22
	Pr	eZ			03		
Mar 10	P	iPZ	18	02	59		Normal. Nevada: roughly
		iZ		03	10		37°N.115°W., O=18:01.:
		iSNEZ		04	08		BC eP 18 02 19
	MW	ePZ		02	56		iS 02 37
		iSNE		04	02		Tu iP 18 03 27
	R	iPNEZ		02	55		Aftershock: 00^h06^m, March 11
		iSNE		03	56		
	SB	ePZ		03	25		
	T	ePZ		02	37		
		iZ			42		
		iNEZ			46		
		iSNEZ		03	16		
	H	iPNEZ		02	37		
		iSNE		03	16		
	Pr	iPZ		03	00		
Mar 11	P	iPZ	11	37	25	c	Tu eP 11 37 40
	MW	iPNEZ			26	c	Felt at Mizusawa, which repo
	R	iPZ			28		P=11:26:09, S-P=25 sec. Osa
	T	ePZ			16		gives 41.1°N.142.2°E.
	H	ePZ			19		

Date	Sta.	Phase	h	m	s	Remarks
Mar 12	P	iPZ	00	59	05	Tu iP 00 59 30 c
	MW	iPZ			06	Near Apia, which reports:
	R	iPZ			07	P=00:48:37, S=00:49:20
	T	iPZ			14	
	Pr	iPZ			00	
Mar 12	P	iPZ	19	49	41	Tu iP 19 50 04 d
	MW	iPZ			41	
Mar 13	P	iPZ	08	13	54	Tu iP 08 13 16
	MW	iPZ			54	
	R	iPZ			50	
Mar 13	P	iPNEZ	22	17	45	Tu iP 22 18 06
	MW	iPZ			45	
	R	ePZ			47	
	T	iPNEZ			58	
	H	ePZ			58	
Mar 14	P	iPNZ	02	38	55	Tu eP 02 39 16
	MW	iPZ			55	
	R	ePZ			56	
	T	ePZ		39	04	
	H	ePNE			03	
	Pr	ePZ		38	57	
Mar 14	P	eZ	17	46	04	Normal. Tu iP 17 45 05
		eNEZ		47	35	iS 17 46 21
	MW	eZ		46	02	
	R	eZ			00	
	T	eZ			39	
	H	eZ			26	
Mar 14	P	ePZ	18	41	34	Tu e? 18 41 39
		ePPZ		42	58	Wellington: 56°S.145°E.,
	PX	eLZ	19	17.4		O=18:22:--
	MW	ePNEZ	18	41	34	
	R	ePZ			34	
	T	ePZ			37	
		ePPZ		43	14	
Mar 14	P	ePNEZ	21	27	29	Normal. Arizona, New Mexico.
		eNEZ		30	09	Tu eP 21 26 28
	MW	ePNEZ		27	31	BC e 21 27 50
		eNEZ		30	02	
	R	ePNEZ		27	24	
		eZ		29	33	
		eNE			47	
	SB	eZ		27	44	
	LJ	ePZ			09	
	T	ePNEZ		28	01	
		eZ		31	27	
	H	iPNEZ		27	48	
		eE		30	59	
		eZ		31	19	
	Pr	iPZ		27	08	
		iZ			46	
		iZ		29	28	
Mar 14	P	ePNEZ	22	35	37	Arizona, New Mexico
		eZ		38	22	Tu iP 22 34 38
	MW	ePZ		35	34	BC e 22 38 00
		eNEZ		38	04	
	R	ePZ		35	31	
	T	eNEZ		36	02	
Mar 15	P	eNEZ	05	40	39	Normal. Small surface waves recorded.
	MW	iPZ			34	
		iZ			40	Tu eP 05 41 11
	R	eZ			40	
	SB	iZ			31	
	T	ePNEZ			27	
	H	ePNEZ			28	
	Pr	eZ			44	
		eZ			48	

Date	Sta.	Phase	h	m	s	Remarks
Mar 15	P	iPNEZ	13	55	58	Tu eP 13 54 58
	MW	iPZ			58	
	R	iPZ			52	
	T	ePZ		56	12	
		eZ		58	29	
Mar 16	P	ePZ	20	15	47	Tu eP 20 15 29
	MW	ePZ			43	
	R	ePZ			43	
	T	ePNEZ		16	03	
Mar 16	P	ePNEZ	20	47	22	Normal. Tu iP 20 48 11
	PX	eLEZ		57.0		
	MW	iPNEZ		47	24	
	R	iPNEZ			28	
	T	iPNEZ			07	
	H	iPNEZ			13	
Mar 17	P	iPNEZ	12	05	06	Deep? Tu iP 12 04 31
		iZ			41	
	MW	iPZ			06	
		iZ			40	
Mar 17	P	ePZ	17	53	18	Tu iP 17 53 37
	MW	ePZ			19	
	R	iPZ			20	
	T	iPZ			28	
Mar 18	P	iPZ	03	23	40	Tu eP 03 23 25
	MW	iPZ			40	
	R	ePZ			37	
	T	ePZ		24	01	
	H	ePZ		23	54	
	Pr	ePZ			36	
Mar 18	P	ePNZ	05	51	44	Normal. Tu iP 05 52 01
		ePPZ		55	16	Near New Zealand
	PX	eLNEZ	06	17.9		
	MW	iPNEZ	05	51	43	
	R	ePNEZ			45	
	SB	ePZ			32	
	LJ	ePZ			43	
	T	ePNEZ			53	
	H	ePNEZ			51	
	Pr	iPZ			44	
Mar 18	P	ePNEZ	10	46	51	Tu eP 10 47 17
	MW	iPZ			50	
	R	ePZ			53	
	T	ePZ			55	
	Pr	ePZ			55	
Mar 19	P	eZ	04	54	09	Normal? Surface waves small
		eZ		55	06	Tu e 04 54 07
	PX	eLZ	05	38		Central Asia (Hindu Kush?)
	MW	eZ	04	54	06	
	T	eZ			35	
Mar 19	P	ePZ	08	12	52	
	MW	ePZ			46	
Mar 19	P	eZ	10	58	05	
	MW	eZ		57	46	
Mar 19	P	iPNEZ	23	56	58 c	Tu iP 23 56 43
	PX	eLNEZ	24	13.8		Region of Easter Island?
	MW	iPNEZ	23	56	58 c	
	R	iPNEZ			56 c	
	SB	ePNZ		57	01	
	LJ	ePZ		56	46	
	T	ePNE		57	20	
	H	iPZ			13	
	Pr	iPZ		56	51	
Mar 20	P	eNEZ	00	39	56	Tu eP 00 40 45
	MW	ePNEZ			53	
	R	ePZ			56	
	SB	ePEZ			47	
	T	ePNE			24	
	H	ePNEZ			37	
	Pr	ePZ		40	06	

Date	Sta.	Phase	h	m	s		Remarks
Mar 20	P	ePNEZ	02	49	41		Normal. Tu eP 02 50 30
	PX	eLNE		58.0			
	MW	iPNEZ		49	41		
	R	ePNEZ			45		
	SB	ePZ			31		
	T	ePN			08		
	H	ePNEZ			20		
Mar 20	P	iPNEZ	13	45	09	c	Deep?
		iZ			22		
	MW	iPNEZ			10	c	
		iZ			23		
	R	iPZ			12	c	
		iZ			24		
	T	ePNE			05		
	Pr	iPZ			15	c	
Mar 21	P	iP"NEZ	14	12	07	d	Normal? Surface waves small
		iZ			15		and indefinite
		iSKPNEZ		15	32		Felt on Java, and Christmas
		iZ			44		Island, according to Batavia,
	PX	eSSNE		32	16		which gives: 9.3°S.108.7°E.,
	MW	eP"Z		11	57		O=13:52:58
		iP"NEZ		12	08	d	Tu iP" 14 12 11
		iZ			15		
		ePPZ		14	38		
		iSKPNEZ!		15	33		
		iZ			46		
	R	iP"NEZ		12	09	d	
		iSKPNEZ		15	33		
	SB	iP"NEZ		12	07		
		iZ			14		
		iSKPNEZ		15	27		
	LJ	eP"NEZ		12	10		
		eSKPNEZ		15	36		
	T	eP"NE		12	08		
		eSKPNE		15	28		
	H	iP"NEZ		12	07		
		iSKPNZ		15	30		
		iNEZ			42		
	Pr	iP"Z		12	10		
		iZ			17		
		iSKPZ		15	36		
Mar 22	P	ePZ	08	32	21		Tu eP 08 31 52
	MW	iPZ			24		
	R	ePZ			19		
	H	ePZ			38		
	Pr	ePZ			10		
Mar 22	P	ePZ	20	32	12		Normal. Tu iP 20 32 34
	PX	eLNEZ		56	20		
	MW	iPNEZ		32	13		
	R	iPNEZ			15		
	SE	ePZ			09		
	LJ	ePZ			09		
	T	ePNE			23		
	H	ePNEZ			21		
	Pr	iPZ			15		
Mar 23	P	ePZ	08	26	35		Tu iP 08 26 56
	MW	ePZ			34		
	R	ePZ			37		
	T	ePNE			45		
	H	ePNEZ			42		
	Pr	ePZ			37		
Mar 23	P	ePZ	22	43	14		Tu iP 22 43 37
	MW	ePZ			16		
	R	ePZ			17		

Date	Sta.	Phase	h	m.	s		Remarks
Mar 24	P	iPNEZ	12	00	05		Deep? Distant?
		eZ		01	11		Tu iP 11 59 30
		eZ			38		e 12 27 38
	MW	iPZ		00	04		
		iZ		01	12		
		iZ			36		
	R	iPZ		00	01		
	H	ePNEZ			12		
	Pr	ePZ		59	55		
		eZ		01	07		
Mar 24	P	iPNEZ	20	47	50	c	Deep? Tu iP 20 48 34
	MW	iPNEZ!			51	c	i 20 49 24
	R	iPZ			54	c	
	SE	iPZ			43		
	LJ	iPNEZ		48	02		
	H	iPZ		47	42	c	
Mar 25	P	ePZ	17	39	42		Tu iP 17 40 21
	MW	ePZ			41		
	R	ePZ			44		
Mar 27	P	iPNEZ	12	39	52	c	Normal? USCGS: 51°N.180°
		iZ		40	05		O=12:31.1
		eScPZ		45	14		JSA: 51.5°N.177.5°W.,
	PX	iSNEZ		46	44		O=12:31:31, Normal.
		iScSN		49	42		Tu iP 12 40 37
		eLNZ		50	24		
	MW	iPNEZ		39	52	c	
		iPPZ		42	11		
		iScPZ		45	14		
		eSNEZ		46	46		
	R	ePNEZ		39	56		
		eScPZ		45	16		
		eSNEZ		46	53		
	SB	ePEZ		39	42		
		eSE		46	26		
	LJ	ePNEZ		40	06		
		eSE		47	05		
	T	ePNE		39	40		
		eSNE		46	20		
Mar 27	P	iPZ	13	59	44		Tu iP 14 00 28
	MW	iPZ			44		
	R	iPZ			48		
	T	ePE			30		
Mar 27	P	ePZ	21	06	52		Tu iP 21 07 34
	MW	iPZ			51		
	R	ePZ			54		
	T	ePZ			37		
Mar 28	P	iPNEZ	08	16	52	c	Tu iP 08 17 16 c
	MW	iPNEZ			52	c	
	R	iPZ			54	c	
Mar 28	P	iPNEZ	16	02	47		Deep. Tu eP 16 08 10
	PX	iZ		06	57		i 08 11
		iNE		07	15		ePKKP 17 59
		eLNEZ		17	03		Philippines: 14 1/2°N.120°E.,
	P	ePKKPZ		18	35		O=15:48:52, h=200 km.
		iZ		19	30		using Manila and all other
	MW	ePZ		02	46		available data
		iNEZ		07	00		
		iPKKPZ		18	34		
		eZ		19	26		
	R	iPZ		02	50		
		eZ		07	00		
		iPKKPZ		18	33		
	T	ePE		02	42		

Date	Sta.	Phase	h	m	s	Remarks
Mar 28	P	iPNEZ	17	55	15 c	Normal? Central America
		iPcPZ		58	01	Tu iP 17 54 21
	PX	eLE	18	07.2		
	MW	iPNEZ	17	55	15	
	R	iPNEZ		55	10	
		iPcPZ		57	54	
		eScPZ	18	01	36	
	SE	ePZ	17	55	25	
	LJ	ePNEZ			03	
	T	iPNE			31	
	H	iPNEZ			19	
Mar 28	P	iPZ	19	57	52	Identification of S doubtful
		iSNEZ	20	00	16	BC iP 19 57 36
	MW	iPZ	19	57	53	
		iSNEZ	20	00	16	
	R	ePZ	19	57	51	
		eSNEZ	20	00	10	
	T	ePNE	19	57	38	
		iSNE		59	06	
	H	ePZ		58	01	
		eSNE		59	28	
Mar 29	P	iPZ	06	09	59	Tu iP 06 10 28
	MW	iPZ			59	
	R	ePZ		10	01	
	H	iPZ			08	
Mar 29	P	eP"Z	21	56	41	Near 3°N.95°E. Felt on
		iSKPZ	22	00	02	Simuloee, according to
	MW	eP"Z	21	56	41	Batavia
		ePPZ		59	17	Tu eP" 21 56 40
		iSKPZ	22	00	02	eSKP 22 00 22
Mar 30	PX	eLZ	00	19		Normal. Wellington:58°S146°E.
Mar 30	P	iPZ	04	52	41	Tu iP 04 51 50
	MW	iPZ			43	
	Pr	ePZ			33	
Mar 30	PX	eLZ	07	19		Normal
Mar 30	P	iPNEZ	08	17	44 c	Tu iP 08 17 16
	MW	iPZ			45 c	
	R	iPZ			46 c	
	T	iPZ			53	
	H	iPNEZ			51	
Mar 30	P	ePZ	12	05	47	Tu eP 12 06 10
	MW	iPZ			49	
	R	iPZ			50	
	T	ePZ			59	
Mar 31	P	iPNEZ	17	03	39	Tu eP 17 03 02
		iZ			50	
	MW	iPZ			39	
	R	iPNZ			35	
	T	iPNEZ			51	

Corrected coordinates for Palomar (Pr): 33°21.0'N.116°51.5'W.

New abbreviations: Tu = Tucson; BC = Boulder City

C.F. Richter

July 11, 1941

CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA CALIFORNIA

SEISMOLOGICAL LABORATORY

BULLETIN

APRIL-JUNE 1940

(PASADENA AND AUXILIARY STATIONS)

STATION COÖRDINATES

				Symbol
Pasadena	34°08.9' N.,	118°10.3' W.,	h=295 m.	P,PX
Mt. Wilson	34°13.5' N.,	118°03.4' W.,	h=1742 m.	MW
Riverside	33°59.8' N.,	117°22.5' W.,	h=250 m.	R
Santa Barbara	34°26.5' N.,	119°42.9' W.,	h=100 m.	SB
La Jolla	32°51.8' N.,	117°15.2' W.,	h=7.7 m.	LJ
Tinemaha	37°05.7' N.,	118°15.5' W.,	h=1180 m.	T
Haiwee	36°08.2' N.,	117°57.9' W.,	h=1100 m.	H
Palomar	33°21.0' N.,	116°51.5' W.,	h=1700 m.	Pr

c = compression

d = dilatation

When surface waves are not reported no such waves are observed.

Times given for Tucson (Tu) and Boulder City (BC) are read from original records lent by courtesy of the U. S. Coast and Geodetic Survey and the U. S. Reclamation Service.

All times are G. C. T.

All communications should be addressed to the central station, as follows:

Seismological Laboratory,
220 North San Rafael Avenue,
Pasadena, California.

Date	Sta.	Phase	h	m	s	Remarks
Apr 1	P	iPNEZ	11	32	55	Normal. Distance 103°
		iPPEZ		37	05	Wellington: 3°S. 140°E.,
	PX	iSKSE		43	31	O=11:19.0
		ePSEZ		46	09	Felt in North New Guinea,
		eLNEZ	12	04.9		according to Batavia
	MW	ePZ	11	32	57	Major earthquake
		iPPEZ		37	07	(Magnitude 7)
	R	ePZ		32	58	
		ePPNEZ		37	05	
	LJ	ePPZ			02	
	T	ePZ		33	00	
		ePPZ		37	06	
	H	iPNEZ		33	02	
		ePPNEZ		37	08	
Apr 2	P	iPNEZ	13	13	40	Tu iP 13 14 02
	MW	iPNEZ			41	
	R	ePZ			43	
	T	ePNEZ			51	
	Pr	iPZ			42	
Apr 3	P	ePZ	13	17	43	Tu eP 13 18 13
	MW	ePZ			44	
Apr 5	P	iPNEZ	16	47	36	Deep? Tu iP 16 48 07
		iZ		48	30	South of Japan, roughly
	MW	iPZ		47	37	28°N. 141°E., O=16:35.5, using
		eZ		48	30	Hukuoka, Manila, and Mizusawa
		iZ			34	h=200 km?
	R	iPZ		47	39	
		eZ		48	32	
		iZ			38	
	LJ	ePZ		47	44	
	T	iPNEZ			31	
		iZ		48	25	
	H	iPNEZ		47	34	
Apr 6	MW	iPZ	03	33	06	Tu iP 03 33 53
	T	iPZ		32	51	
Apr 6	T	iPZ	07	43	49	Tu iP 07 43 38
Apr 7	P	iPNEZ	08	42	57	Normal. Nevada, near
		iZ!		43	08	37°N. 115°W. O=08:42.0
	MW	iPZ		42	55	BC eP 08 42 19
		iNEZ!		43	05	iS 36
		iSNEZ		44	00	Tu iP 43 26
	R	iPNZ		42	54	
		iNZ		43	05	
		eSNE			59	
	T	ePZ		42	36	
		iZ!			45	
		iSNE		43	18	
	H	iPNEZ		42	36	
		iSE		43	17	
	Pr	iPZ		43	00	
Apr 7	T	ePZ	09	55	03	Tu iP 09 55 02
Apr 8	P	iPNEZ	09	01	33	Normal. Tu eP 09 01 02
	PX	eLNE		28	44	Chile, about 31°S.
	MW	ePNEZ		01	32	
	R	ePNEZ			31	
	T	ePNEZ			45	
	H	ePNEZ			41	
Apr 8	P	iPZ	17	21	14	Tu iP 17 21 57
	MW	iPZ			15	
	R	iPZ			18	
	T	iPZ		20	54	
Apr 8	T	iPNEZ	18	03	13	Tu eP 18 04 58
	H	iPZ			23	
Apr 8	P	iPZ	20	25	18	
	MW	iPZ			19	
	R	iPZ			22	
	T	ePZ			20	

Date	Sta.	Phase	h	m	s	Remarks
Apr 10	MW	iPZ	02	35	59	Tu iP 02 35 37
Apr 10	T	ePZ	19	19	17	Tu eP 19 19 34
Apr 10	P	ePZ	20	25	54	Tu e 20 25 24
		eZ		27	05	
	MW	ePZ		25	54	
		eZ		27	05	
	R	iPZ		25	52	
Apr 11	P	ePNEZ	09	14	40	Tu eP 09 15 19
	MW	iPZ			42	Northern Kurile Islands?
	R	ePZ			44	
	T	ePNEZ			29	
	H	ePNEZ			38	
	Pr	iPZ			50	
Apr 12	T	ePZ	04	37	38	Tu iP 04 38 42
Apr 12	P	iPZ	06	06	00	Tu iP 06 06 34
	MW	iPZ			01	Felt at Mizusawa, which re-
	R	ePZ			03	ports: P=05:54:33, S=05:54:46
	T	ePNEZ		05	50	Osaka gives 38.4°N.141.8°E.
	H	ePNEZ			54	
Apr 12	P	eZ	06	36	36	Tu i 06 36 22
	MW	eZ			34	May be SKPP' of the preceding
	R	eZ			28	
	T	eZ			20	
Apr 12	PX	eLNE	20	24		Normal. Tu eP 20 12 50
	R	ePZ		13	37	
	T	ePZ			59	
Apr 13	P	eP"NZ	20	37	15	Tu eP" 20 37 16
		iPPZ		40	34	Near Batavia, which reports:
		iSKPZ		41	13	P=20:19:01, S=20:19:32,
	MW	iP"Z		37	14	deep focus
		iPPZ		40	34	
		iSKPZ		41	21	
	R	eP"Z		37	15	
		ePPZ		40	35	
		eSKPZ		41	18	
Apr 14	MW	iPZ	00	16	50	Tu iP 00 17 38
	T	iPZ			35	
Apr 14	P	iPNEZ	09	44	34	Deep. Surface waves small.
		iZ		45	22	Tu iP 09 44 59
		iZ		47	18	i 09 45 50
	PX	eE		53.9		Near Apia, which reports:
	MW	iPNEZ		44	35	P=09:34:17, S=09:34:59
		eZ		45	22	
		iZ		47	18	
	R	iPNEZ		44	37	
		eZ		45	23	
		eZ		47	23	
	SB	iPZ		44	29	
	LJ	iPNEZ			35	
	T	iPEZ			44	
		iZ		45	36	
		eE		54	40	
	H	iPNEZ		44	44	
Apr 14	P	iPNEZ	15	07	16	Deep? Small surface waves
		iZ			29	recorded. Tu iP 15 07 52
	MW	iPNEZ			16	i 15 08 06
		iZ			29	Kurile Islands, about
	R	iPZ			20	47°N.150°E, O=14:56.3, using
		iZ			38	Hukuoka, Mizusawa, and Uccle
	T	ePEZ			05	
		eEZ			17	
	H	ePNEZ			10	
		eZ			22	
Apr 15	P	iPZ	05	47	43	Tu iP 05 48 11
	MW	iPZ			44	
	R	iPZ			42	
	T	ePZ			49	

Date	Sta.	Phase	h	m	s		Remarks
Apr 16	P	iPNEZ	06	16	45		Normal. USCGS: 52.6°N. 173.8°E.
	PX	iSNEZ		23	59		O=06:07.7
		iScSN		26	34		JSA: 52.6°N. 175.8°E.,
		iLNE		29.3			O=06:07:56
		eP'P'Z		47	24		Tu iP 06 17 23
	MW	iPNEZ		16	46		eP'P' 06 47 19
		eSNEZ		24	03		Major earthquake
	R	ePNEZ		16	49		(Magnitude 7)
	SE	ePNEZ			38		
		eSNE		23	46		
	LJ	ePNEZ		16	56		
	T	ePNEZ		16	31		
		eSNE		23	38		
	H	iPNEZ		16	39		
		eSE		23	47		
Apr 16	P	iPNEZ	06	52	07		Normal. Aftershock.
	MW	iPNEZ			07		JSA: 52.6°N.175.8°E.,
	R	iPNEZ			12		O=06:48:16
	SE	iPZ			01		Tu 06 52 49
	T	ePNEZ		51	53		
	H	iPZ		52	02		
Apr 16	P	iPNEZ	06	57	12		Aftershock?
	MW	iPNEZ			13		
Apr 16	P	iZ	07	03	59		
	MW	iZ			55		
Apr 16	P	iPNEZ	07	57	40		Tu iP 07 58 23
	MW	iPEZ			41		Aftershock, Aleutian Islands
	R	iPEZ			44		
	T	iPNEZ			25		
Apr 16	P	iPZ	08	00	44		Tu iP 08 01 27
	MW	iPZ			45		Aftershock.
	R	iPZ			48		
	T	ePZ			27		
Apr 16	P	iZ	08	05	37		
	MW	iZ			39		
Apr 16	P	iPZ	08	12	27		Aftershock, Aleutian Islands
	MW	iPZ			28		
Apr 17	P	iPZ	05	52	36		Tu eP 05 53 18
	MW	iPZ			37		
	R	ePZ			45		
	T	ePZ			22		
Apr 17	P	iPZ	16	06	46		Tu iP 16 07 31
	MW	iPZ			48		
Apr 17	MW	iPZ	16	30	02		Tu eP 16 30 44
Apr 17	P	ePZ	21	47	31		Normal.
		iNEZ			36		
	PX	eLEZ	22	15			
	R	ePEZ	21	47	33		
	T	ePNEZ			34		
Apr 18	P	ePZ	06	38	31		Tu iP 06 39 32
	MW	iPZ			51		
	T	ePZ			35		
Apr 18	P	iPZ	10	31	34		Tu iP 10 32 17
	MW	iPZ			34		
Apr 18	P	iPNEZ	18	43	58	c	Normal. 34°04'N.117°23'W.
		iSNEZ		44	08		O=18:43:44
	MW	iPNEZ		43	57	c	BC eP 18 44 29
		iSNE		44	06		eS 45 13
	R	iPNEZ		43	47	d	Tu iP 45 11
	LJ	ePNEZ		44	06		Felt over a wide area, in-
		iSNE			22		cluding Pasadena and
	T	iPNEZ			34		Los Angeles
		iSNEZ		45	21		
	H	iPNEZ		44	20		
		iSNE			47		
	Pr	iPZ		44	00		

Date	Sta.	Phase	h	m	s		Remarks
Apr 18	P	ePZ	19	56	35		Normal?
		iEZ		57	05		Wellington: 2 1/2°S. 154°E.
	PX	eLEZ	20	25			0=19:43.6
	MW	iPZ	19	56	34		Felt in New Britain, etc.,
		iZ		57	04		according to Riverview
	R	ePZ		56	36		
		eZ		57	05		
	T	ePZ		56	35		
		eZ		57	27		
Apr 19	P	iPNEZ	00	15	49	c	Tu iP 00 16 32
	MW	iPNEZ			50	c	Aleutian Islands. Aftershock
	R	iPNEZ			58		of April 16, 06h
	SE	iPNEZ			41		
	LJ	ePZ		16	01		
	T	iPNEZ		15	35		
	H	ePNEZ			42		
Apr 19	P	ePZ	06	44	49		Tu iP 06 45 31
	MW	ePZ			51		
	T	ePZ			34		
Apr 19	P	iPEZ	11	02	08		Tu eP 11 02 45
	MW	iPNEZ			08		
	R	ePZ			11		
	T	iPNEZ		01	55		
	H	ePNEZ		02	00		
Apr 19	P	iPZ	11	14	44		
		eZ		15	14		
	MW	iPZ		14	45		
		iZ		15	14		
	R	iPZ		14	48		
		eZ		15	17		
	T	iPZ		14	45		
		eZ		15	15		
Apr 19	T	iPZ	12	44	36		Tu eP 12 44 50
Apr 19	P	ePZ	14	50	14		Normal? Tu iP 14 50 51
		iNEZ			25		Kurile Islands about
	PX	eSNE		58	40		50°N. 155°E., 0=14:39.8
		eLEZ	15	10			using all available data
	MW	iPZ	14	50	13		
		iNEZ			22		
	R	ePNEZ			16		
	T	ePNEZ			01		
	H	ePNEZ			05		
Apr 19	P	ePZ	17	54	30		Tu iP 17 54 18
		iZ			40		
	MW	iPZ			31		
		iZ			41		
	T	ePZ			17		
		iZ			26		
Apr 20	P	ePZ	10	31	56		Tu iP 10 32 35
		iZ		32	06		
	MW	iPZ		31	57		
		iZ		32	10		
	R	eZ		31	59		
	T	ePZ			44		
Apr 20	MW	eZ	13	01	52		Tu eP 13 02 16
	T	ePZ		02	01		
Apr 20	P	iPZ	16	00	04		Deep? Tu ePP 16 04 27
		iPPZ		04	13		Off Mindanao, about 7°N. 127°E.
	MW	iPZ		00	11		0=14:46.0,
							using Manila, Palau, Hong Kong, Phu-Lien, Ksara, Batavia and Medan
Apr 20	P	iPZ	20	00	09		Tu eP 20 00 47
	MW	iPZ			09		
	R	ePZ			12		
	T	ePZ	19	59	57		
		eZ	20	00	12		

Date	Sta.	Phase	h	m	s		Remarks
Apr 20	P	iPEZ	20	29	46	c	Deep. Tu eP 20 30 15
	MW	iPNEZ			46	c	Near Kyoto, h=350 km.,
	R	iPZ			49	c	according to Osaka
	SE	iPZ			40		
	LJ	ePZ			53		
	T	iPNEZ			38	c	
	H	iPNEZ			40		
Apr 22	P	iPZ	00	29	11		Tu eP 00 29 50
	MW	iPZ			12		
	R	ePZ			16		
	T	ePZ		28	56		
Apr 22	P	iPZ	05	22	51		Tu iP 05 22 19
	MW	iPZ			50		
	R	iPZ			47		
	T	iPNEZ		23	03		
Apr 22	P	iPNEZ	06	36	34		Normal. Tu eP 06 37 47
	PX	eLZ		39	39		
	MW	iPNEZ		36	32		
	R	ePNEZ			39		
	T	ePNEZ			06		
	H	ePNEZ			15		
Apr 22	P	iZ	17	33	05		Tu iP 17 32 30
		iZ			41		
	MW	iZ			04		
		eZ			40		
	R	iZ			00		
		iZ			37		
	T	eZ			16		
Apr 23	P	iPZ	18	30	24		Tu eP 18 30 39
	MW	iPZ			23		
	R	ePZ			25		
	T	iPZ			05		
Apr 24	P	ePZ	09	15	18		
	MW	ePZ			17		
	R	ePZ			21		
	T	ePZ			19		
Apr 24	P	iPZ	10	35	33		Normal.
	PX	eLEZ	11	05			Wellington: 4 1/2°S. 148°E.,
	MW	iPZ	10	35	33		0=10:22.1
	R	ePZ			35		
	T	ePZ			33		
Apr 24	P	ePZ	12	01	19		Tu iP 12 02 18
	MW	iPZ			19		
	R	ePZ			23		
	T	ePNZ		00	43		
	H	ePNEZ			56		
Apr 24	P	iPZ	20	28	30		Tu eP 20 28 20
	MW	ePZ			29		
	R	iPZ			29		
	Pr	iPZ			27		
Apr 25	P	ePNEZ	10	29	53		Tu iP 10 30 14
	MW	iPZ			53		Near Apia, which reports
	R	ePZ			55		P=10:20:26, S=10:21:36
	T	iPNEZ		30	08		
	H	ePNEZ			00		
	Pr	iPZ		29	56		
Apr 25	MW	iPZ	17	57	30		Tu eP 17 57 54
	Pr	iPZ			33		
Apr 25	P	iPNEZ	18	29	22	c	Deep? Tu iP 18 29 45
	MW	iPNEZ			23	c	e 31 58
	R	ePZ			24		
	LJ	ePZ			22		
	T	iPNEZ			31		
	H	iPNEZ			29		
	Pr	iPZ			25		

Date	Sta.	Phase	h	m	s		Remarks
Apr 25	P	iPNEZ	22	01	20	c	Tu iP 22 00 47 c
		eZ			51		
	MW	iPNEZ			20	c	
	R	iPNEZ			16	c	
	SB	iPNEZ			25		
	LJ	ePZ			12		
	T	iPNEZ			30	c	
	H	iPNEZ			25		
	Pr	iPZ			10		
		iZ			37		
Apr 27	P	iPZ	02	00	42		Deep? Tu eP 02 00 59
		iZ		01	14		i 01 08
	MW	iPZ		00	42		i 01 31
		iZ		01	14		
	R	ePZ		00	40		
		eZ		01	12		
	T	iZ			19		
	H	eZ			18		
	Pr	iPZ		00	50		
Apr 27	P	ePNZ	09	47	59		Normal. Tu iP 09 48 27
	PX	eSNE		58	34		New Hebrides
		eLNE	10	13.2			Wellington: 12°S. 168°E.,
	MW	iPNEZ	09	47	59		0=09:35.4
	R	iPNEZ		48	01		
	H	ePNEZ			03		
	Pr	iPZ		47	59		
Apr 27	P	eZ	09	58	34		Probably an aftershock
	MW	iPZ	09	58	29		Times close to those of S for
	R	eZ			48		main shock
	Pr	ePZ			35		
Apr 27	P	ePPZ	10	51	01		Normal. Probably equatorial
	PX	iE		59	31		Atlantic, about 1°N. 15°W.,
		iSSE!	11	04.8			0=10:33.1
		eLNE		19			using all available data
	MW	eZ	10	50	27		The reports are difficult to interpret and the result is doubtful, owing to overlapping with the preceding.
Apr 27	P	iPNEZ	13	26	11	c	Deep? Tu iP 13 26 49 c
		eZ			39		
		iZ			50		
	MW	iPNEZ			11	c	
	R	iPZ			14	c	
		iZ			29		
	SB	iPZ			08		
	LJ	ePZ			21		
	T	iPNEZ		25	57		
	H	iPNEZ		26	01	c	
	Pr	iPZ			20		
		iZ			35		
		iZ			58		
Apr 27	P	ePZ	18	17	21		Normal. Tu iP 18 17 50
	PX	eSE		27	59		New Hebrides; aftershock of
		eLE		42	00		09h. Times at all reporting
	MW	iPNEZ		17	23		stationg agree closely for
	R	ePNEZ			25		the two shocks
	H	ePNEZ			28		
	Pr	iPZ			28		
Apr 28	P	iPZ	01	57	39		Tu eP 01 56 47
	MW	iPZ			39		
	R	iPZ			33		
	Pr	iPZ			27		
Apr 29	P	iPZ	12	27	50		Tu eP 12 28 15
	MW	iPZ			52		
	R	ePZ			52		
	T	ePZ			59		
	H	iPZ			57		
	Pr	ePZ			58		

Date	Sta.	Phase	h	m	s		Remarks
Apr 29	P	iPNEZ	15	23	04	c	Tu iP 15 23 39
	MW	iPNEZ			05	c	Northern Japan. Mizusawa re-
	R	iPNEZ			08	c	ports: P=15:13:31, S=15:14:42
	SB	ePZ		22	59		
	LJ	ePNEZ		23	14		
	T	iPNEZ		22	54	c	
	H	iPNEZ			58		
	Pr	iPZ		23	12	c	
May 1	P	ePNZ	02	45	16		Deep? Tu iP 02 44 45
	MW	iPNZ			17		i 02 46 47
		eZ		47	19		South America, h=550 km.?
		eZ		48	34		
	R	iPZ		45	13		
		iZ		47	16		
	T	iPZ		45	27		
		eZ		47	30		
	H	ePZ		45	22		
	Pr	iPZ			10		
May 1	PX	eLEZ	08	47			East Indies; near Amboina
May 2	P	iPZ	04	38	25		Tu iP 04 38 43
	MW	iPZ			25		
	R	ePZ			26		
	Pr	iPZ			28		
May 2	PX	eLEZ	06	46			Normal. Tu iP 06 04 06
	MW	ePZ	06	08	39		
	R	ePZ			49		
	Pr	ePZ			51		
May 2	P	iPNEZ	08	38	05	c	Deep? Tu iP 08 38 29 c
		eEZ		39	27		i 08 40 09
	MW	iPNEZ		38	05	c	
		iZ		39	31		
	R	iPNEZ		38	08	c	
		eZ		39	35		
	SB	iPNEZ		38	01	c	
	LJ	ePNEZ			06		
	T	iPNEZ			11	c	
		iZ		37	38		
		eZ		39	39		
	H	iPNEZ		38	10	c	
	Pr	iPZ			09		
		eZ		39	35		
May 2	P	ePNEZ	21	59	55		Surface waves may belong to
	PX	eLE	22	02.8			another shock.
	MW	ePZ	21	59	55		Tu eP 22 01 09
May 4	P	ePZ	07	33	10		Normal. USCGS: 53.0°N. 173.0°E.,
	PX	eSNE		40	31		0=07:24.1
		eLNZ		46			JSA: 52.6°N. 175.8°E.,
	MW	iPNEZ		33	11	c	0=07:24:22
	R	ePZ		33	14		Tu iP 07 33 53
	SE	iPNEZ			04		
	LJ	ePZ			23		
	T	ePZ		32	56		
	H	iPNZ		33	01		
	Pr	iPZ			20	c	
May 4	P	ePZ	07	44	51		Tu iP 07 45 35
	MW	iPZ			58		
May 4	P	iPZ	08	15	59		Tu iP 08 16 41
	MW	iPZ		16	00		
	Pr	ePZ			08		
May 4	P	iPZ	09	33	49		Tu iP 09 39 33
	MW	iPZ			49		
May 4	PX	eEZ	17	11			Normal? Tu iP 16 53 12
	MW	iPZ	16	53	54		i 16 53 19
	R	ePZ			50		
May 4	PX	eLNEZ	21	49			Normal. Tu e 21 20 40
	MW	eZ		20	53		ePP 21 21 11
		iPKKPZ		31	28		ePKKP 21 31 29
							Roughly 35°N. 59°E., 0=21:02:00
							using all available data

Date	Sta.	Phase	h	m	s	Remarks
May 5	P	iPNZ	02	13	13	Normal. Tu iP 02 12 28
		iEZ			18	i 34
		iZ		14	17	i 13 36
	PX	iSNEZ		20	50	JSA: 5.9°S. 81.4°W.,
		eLNZ		30.4		0=02:03:54, h= 40 km.
	MW	iPNEZ		13	10	
		iZ			18	
		iZ		14	21	
	R	iPNEZ		13	07	
	LJ	ePNEZ			00	
	T	ePNEZ			27	
	H	ePZ			27	
May 5	P	ePZ	09	00	45	Tu iP 09 01 10
	MW	iPZ			46	
	R	ePZ			48	
	T	iPZ			54	
	H	ePZ			58	
May 7	PX	eLNZ	23	11		Normal. Tu eP 22 37 40
	MW	ePPZ	22	41	57	ePP 22 41 15
						Pasadena: 42°N. 43°E.,
						0=22:23:38
May 8	P	iPZ	07	49	19	
	MW	iPZ			19	
	R	iPZ			22	
	T	iPZ			20	
May 10	P	ePNEZ	01	28	33	Normal. Tu eP 01 27 28
	PX	eLNE		31.5		Off Mexico; roughly 20°N. 108°W.,
	MW	iPNEZ		28	35	0=01:24.9, using St. Louis
	R	ePNEZ			26	
	SB	ePZ			48	
	LJ	ePNEZ			18	
	T	ePNEZ		29	04	
	H	ePNE		28	52	
May 10	P	ePNZ	01	47	05	Normal. Tu iP 01 45 59
	PX	eLNE		49.7		Off Mexico
	MW	ePNEZ		47	03	
	R	ePNEZ		46	56	
	SB	ePZ		47	17	
	LJ	ePNEZ		46	43	
	T	ePNEZ		47	34	
	H	ePNE			24	
May 10	P	eP"Z	19	18	45	Normal? Tu eP" 19 18 57
		iZ		22	09	Felt in Central Java, accord-
	MW	iP"NEZ		18	44	ing to Batavia. Epicenter
		iZ		22	07	apparently near 8°S. 105°E.,
	R	iP"Z		18	41	0=18:59.5
	SB	eP"Z			43	
	LJ	eP"Z			48	
	T	iP"NEZ			44	
	Pr	eP"Z			47	
May 11	P	iPNEZ	02	48	07 d	Tu iP 02 48 32
	PX	eLE	03	09		
	MW	iPNEZ	02	48	07 d	
	R	ePZ			09	
	SB	iPZ			01	
	LJ	ePZ			07	
	T	iPNEZ			17	
	H	ePN			18	
	Pr	iPZ			10 d	
May 11	P	ePZ	03	58	11	Tu eP 03 58 42
	MW	iPZ			10 c	
	R	ePZ			18	
	SB	iPZ			05	
	T	iPNEZ			07 c	
	Pr	ePZ			08	

Date	Sta.	Phase	h	m	s	Remarks
May 11	P	iPNEZ	07	51	01	Tu iP 07 51 28
	MW	iPNEZ			02	i 46
	R	iPNEZ			05	
	LJ	ePZ			04	
	T	iPZ			05	
	H	ePE			05	
	Pr	iPZ			07	
May 11	P	iPNEZ	14	03	43	Normal. USCGS: 53.2°N. 172.0°E.
	PX	iSEZ		10	59	0=13:54:37
		eLE		15		JSA: 52.5°N. 175.6°E.,
	MW	iPNEZ		03	43	0=13:54:56
	R	iPNEZ			47	Tu iP 14 04 27
	SB	iPNEZ			36	
	LJ	ePNEZ			55	
	T	iPNEZ			29	
		eSNE		10	33	
	H	ePNE		03	36	
	Pr	iPZ			54	
		iPcPZ		05	30	
May 11	P	ePNEZ	20	07	16	Tu iP 20 06 19
	MW	iPNEZ			17	
	R	ePNEZ			10	
	SB	ePZ			28	
	LJ	ePZ			00	
	T	ePZ			43	
May 12	P	iPEZ	03	06	14	Tu iP 03 06 56
	MW	iPNEZ			14	
	R	ePZ			18	
	T	ePZ		05	59	
	Pr	iPZ		06	22	
May 12	PX	eLNE	16	37.6		Normal. Tu eP 16 31 18
	MW	ePZ		32	09	
	R	ePZ			10	
May 12	P	ePNEZ	20	47	57	Normal. Tu eP 20 46 58
	PX	eSE		51	47	Off Mexico; roughly
		eLNE		52.8		18°N. 106°W., 0=20:48.5°
	R	ePZ		47	51	using St. Louis
	LJ	ePZ			41	
	T	ePNEZ		48	23	
	H	ePNE			15	
	Pr	ePZ		47	41	
May 13	P	ePNEZ	14	57	41	Tu iP 14 58 24
	M	iPEZ			41	
	R	ePZ			45	
	T	iPZ			27	
	Pr	iPZ			51	
May 14	P	ePZ	15	14	33	Tu eP 15 14 47
	MW	ePZ			35	
	R	ePZ			29	
	T	ePZ			22	
May 14	P	ePZ	16	57	22	Tu eP 16 57 04
	MW	iPZ			21	
	R	ePZ			19	
	Pr	iPZ			18	
May 15	P	iPZ	17	11	02	Tu iP 17 09 34
	MW	iPZ			03	e 10 32
May 16	P	iPNEZ	20	36	40	Tu iP 20 37 50
	MW	iPNEZ			40	
	R	iPNEZ			46	
	T	iPNEZ			12	
	H	ePNE			23	
May 16	P	iPNEZ	22	17	21	Tu eP 22 18 32
	MW	iPNEZ			22	
	R	ePNEZ			29	
	T	ePZ		16	54	
	H	ePNE		17	06	

Date	Sta.	Phase	h	m	s		Remarks
May 17	P	iPNEZ	02	07	42		Normal. JSA: 7.9°N. 82.1°W.,
	PX	iSNE		14	12		O=01:59:40
		eLNE		18.9			Tu iP 02 06 47
	MW	iPZ		07	41		
	R	ePNEZ			36		
	SB	ePNEZ			52		
	LJ	ePZ			29		
	T	iPNEZ			55		
	H	ePZ			51		
May 17	P	iPZ	10	45	21		Tu iP 10 45 37
	MW	ePZ			22		
	R	ePZ			23		
	T	ePZ			31		
May 18	P	iPNEZ	05	04	27	c	Normal. 34°03'N. 116°17'W.,
		iSNE			47		O=05:03:59
	MW	iPNEZ			26	c	Felt over a wide area, with
		iSNE			45		no reported damage
	R	iPNEZ			16	c	BC iP 05 04 38 c
		iSNE?			28		Tu iP 05 13 c
	SB	ePZ			45	c	Many aftershocks; the largest
	LJ	iPNEZ			26	d	with O=05:51:21 and O=07:21:33
		iSNE			45		
	T	iPNEZ			58	c	
	H	iPNEZ			40	c	
		iSE		05	18		
	Pr	iPZ			16		
May 18	P	ePZ	11	10	13		
	MW	iPZ			16		
May 18	P	eZ	18	25	04		Tu eP 18 28 58
	MW	ePZ		24	53		i 27 25
		e		25	04		
	R	ePZ		24	48		
	T	ePZ		25	09		
		eZ			20		
May 19	P	iPNEZ	04	37	23	c	Normal. 32°46.5'N. 115°29.1'W.
	MW	ePNE			28	c	O=04:36:41
	R	iPE			14	c	BC iP 04 37 23 c
	SB	iPEZ			41	c	Tu iP 04 37 42 c
	LJ	iPNZ			08	c	
	T	iPNEZ			55	d	
	H	iPNEZ			41		
	Pr	iPZ			05		

Damage in all towns of Imperial Valley, and along irrigation canals. No immediate foreshocks. Aftershocks numberous, the larger reported below.

A fault trace was found extending from about 32°54'N. 115°35'W. to 32°25'N. 115°09'W. in a nearly straight line, except near its northern end. Along this trace the southwest side of the fault was displaced northwest, relative to the northeast side, by amounts reaching a maximum of about 5 meters near the international boundary between the U.S.A. and Mexico, decreasing to zero at the ends. Roads, fences, railways, and irrigation canals were ruptured and offset. Vertical displacements were smaller than horizontal displacements, and varied rapidly and irregularly along the fault, the downthrow being to the southwest at some points and to the northeast at others close by.

May 19	P	iPN	05	52	18		Normal. First large after-
		iSN?			51		shock. Heavy damage at
	T	iPZ			47		Brawley
May 19	P	iPNE	06	34	09		Normal. Large aftershock
		iSNE			42		
	LJ	iPNZ			48		
May 19	P	iPN	06	36	13		Normal. Larger aftershock;
		iSN			48		disturbed by the preceding

Date	Sta.	Phase	h	m	s		Remarks
May 19	P	iPNEZ	15	27	48		Deep. Tu iP 15 28 22 d
		iPcPZ		28	06		ipP 30 20
		ipPZ		29	43		USCGS: 51°N. 148°E.,
	PX	eEZ		35	03		O=15:17:55, h=580 km.
		iSNEZ			52		JSA: 50.3°N. 148.2°E.,
		iN		36	49		O=15:18:00, h=600 km.
	P	eP'P'Z		56	11		Osaka: 51.0°N. 151.0°E.,
	MW	iPNEZ		27	49		h=600 km.
		ipPNEZ		29	44		Pasadena: 51°N. 149°E.,
		iSNEZ		35	53		O=15:17:55, h=580 km.
		iP'P'Z		56	12		
	R	iPZ		27	54		
		ipPZ		29	49		
		eSEZ		35	59		
		eP'P'Z		56	19		
	SB	iPNEZ		27	44		
		ipPNEZ		29	39		
		eSNE		35	42		
	LJ	iPNE		27	54		
	T	iPNEZ	15	27	36		
		iPcPZ		28	06		
		ipPZ		29	28		
		eSNEZ		35	30		
	H	iPNEZ		27	41		
		eSNE		35	36		
May 19	P	iP'NEZ	18	36	28		Normal. Distance 152°. Major
		iZ			37		earthquake (Magnitude 7)
	PX	eLE	19	32			Roughly, 23°S. 31°E., O=18:16.4
	MW	iP'NEZ	18	36	28		using Cape Town and data re-
	R	iP'EZ			26		ceived from Strasbourg.
	SB	iP'NEZ			32		Strong on the Zululand coast;
	LJ	eP'NEZ			28		felt in Natal, Transvaal, and
	T	iP'NEZ			27		the Limpopo area. (Nature,
	H	iP'NEZ			27		June 8, 1940).
May 21	P	iPNZ	19	00	28	c	Deep. Tu iP 19 00 50 c
		ipPNEZ		01	48		ipP 02 12
		iN		02	08		i 19 02
		iSNZ		10	07		iP'P' 27 07
		eP'P'Z		27	22		
		eZ		30	17		Add: MW iPZ 19 00 29 c
	R	iPZ		00	30	c	ipPZ 01 48
		ipPZ		01	51		iP'P'Z 27 22
		eSNEZ		10	11		eZ 30 17
		eP'P'Z		27	21		USCGS: 23°S. 178°W
	SB	iPNEZ		00	27		O=18:48.9 h=400 km.
		ipPZ		01	45		Wellington: 23°S. 177°W.
		eSNEZ		10	00		O=18:48.9
	LJ	ePNEZ	19	00	28		h=350 km.
		epPNEZ		01	48		
		eSNE		10	05		
		eP'P'Z		27	23		
	T	iPNEZ		00	37		
		ipPZ		01	57		
		eSNE		10	21		
		eP'P'Z		27	18		
	H	ePNEZ		00	36		
		ipPNEZ		01	57		
		eSNE		10	21		
May 22	P	ePZ	12	10	11		Tu eP 12 10 49
	MW	iPZ			12		
	R	iPZ			13		
	T	iPZ		09	49		
May 23	P	ePZ	06	10	31		Tu iP 06 11 12
	MW	iPNEZ			30		
	R	iPZ			37		
	T	ePNEZ			16		
	Pr	iPZ			42		

Date	Sta.	Phase	h	m	s		Remarks
May 23	P	iPZ	07	53	31		Normal? Tu iP 07 54 14
		iNZ			40		i 22
	MW	iPNEZ			31		
		iZ			40		
	R	iZ			43		
	T	iPZ			18		
		iNEZ			27		
	H	iNEZ			32		
	Pr	iPZ			42		
		iZ			51		
May 24	P	iPNEZ	16	43	54	c	(Deep) Tu iP 16 43 14
	PX	iE		44	02		i 29
		iSN		52	03		eP'P' 17 13 45
		iSSN		56	08		USCGS: 12°S. 78.0°W.,
		eL		59			0=16:33:46
	P	eP'P'Z	17	13	34		JSA: 10.8°S. 77.8°W.,
	MW	iPNEZ	16	43	55	c	0=16:34:00, H=50+ km.
		iNEZ		44	06		Destructive in Peru. Major
		eSNEZ		52	11		earthquake (Magnitude 7)
		eP'P'Z	17	13	34		
	R	iPNEZ	16	43	50	c	
		iZ		44	09		
		eSNE		51	53		
		eP'P'Z	17	13	32		
	SB	ePNEZ	16	44	02		
		eSN		52	17		
		eP'P'Z	17	13	33		
	LJ	ePNEZ	16	43	44		
		eSNE		51	48		
		eP'P'Z	17	13	35		
	T	iPNEZ	16	44	08		
		iZ			20		
		eSN		52	33		
		eP'P'Z	17	13	30		
	H	ePNZ	16	44	03		
	Pr	iPZ		43	45	c	
		iZ		44	03		
		eSZ		51	50		
		eP'P'Z	17	13	36		
May 24	P	iPNEZ	22	07	51	c	Aftershock. Tu iP 22 07 11 c
		iZ		08	01		USCGS: 12.0°S. 78.0°W.,
		iSNEZ		16	03		0=21:57:40
		eP'P'Z		37	26		JSA: 10.8°S. 77.8°W.,
	MW	iPNEZ		07	51	c	0=21:57:56
		iZ		08	02		
		eSN		16	05		
		eP'P'Z		37	28		
	R	iPNEZ		07	47	c	
		iZ			58		
		eSNE		15	54		
		eP'P'Z		37	30		
	SB	ePZ		08	00		
	LJ	ePNEZ		07	42		
	T	iPZ		08	06		
		eP'P'Z		37	27		
	H	ePNE		08	00		
	Pr	iPZ	22	07	42	c	
		iZ			55		
		eP'P'Z		37	32		
May 25	MW	iPZ	05	45	21		Tu iP 05 44 39
	R	ePZ			16		
	T	ePNEZ			34		
	Pr	ePZ			11		
May 25	MW	iPZ	19	41	39		Tu iP 19 42 26
	T	ePZ			21		
May 25	P	ePZ	19	54	06		Tu eP 19 54 32
	MW	ePZ			08		
	R	ePZ			09		
	T	ePZ			14		

Date	Sta.	Phase	h	m	s	Remarks
May 26	P	iPZ	00	51	32	Tu eP 00 51 35
		iSE		52	26	Baja California, about
	MW	iPZ		51	33	31°N. 115°W., 0=00:50.5
	R	ePZ			19	
	LJ	ePZ			11	
	Pr	iPZ			08	
May 27	PX	eZ	08	03	17	Normal? Tu e 08 04 49
		eZ		05	03	
		eLNZ		31.8		
	MW	eZ		05	03	
	T	eZ			16	
May 27	P	iPZ	08	05	18	Tu iP 08 05 36
		iZ			53	i 06 13
May 27	P	iPNZ	11	52	25	Tu iP 11 52 50
	MW	iPNEZ			26	
	R	iPZ			27	
	T	iPNEZ			32	
	H	ePNEZ			31	
	Pr	iPZ			29	
May 27	P	iPZ	15	54	08	Tu iP 15 54 25
		iZ			23	i 43
	MW	iPZ			09	
		iZ			25	
	R	iPZ			10	
		eZ			25	
	T	ePZ			17	
	Pr	ePZ			09	
May 28	P	ePZ	09	54	38	Normal. USCGS: 2°S. 136°E.,
		ePPEZ		58	48	0=09:40.4
	PX	eSKSE	10	05	19	Bombay (via Strasbourg):
		ePSE		07	43	3°S. 138°E., 0=09:40:54
		iSSE		13	30	Major earthquake
		eLE		26.4		(Magnitude 7)
	MW	iPNEZ	09	54	38	
	R	ePZ			40	
		ePPZ		58	53	
	T	ePNEZ		54	37	
		ePPZ		53	46	
	H	ePNE		54	42	
May 28	P	ePZ	14	36	02	Normal. Japan. Felt at Osaka,
	MW	iPZ			03	which reports iP=14:23:44.5
	R	ePZ			06	S =14:23:59.7
	T	iPZ		35	55	and gives 33.8°N. 134.5°E.
	Pr	ePZ		38	06	
May 29	PX	eLEZ	01	32		Normal. Tu e 01:17:01
	MW	eZ	01	16	17	
	R	eZ			19	
	Pr	eZ			25	
May 29	P	ePZ	02	04	34	Normal. USCGS: 67.9°N. 138°W.
	PX	eSE		10	02	0=01:57:36
		eLNE		18.6		JSA: 66.6°N. 132.7°W.,
	MW	iPNEZ		04	35	0=01:57:57
	R	iPNEZ			37	Tu iP 02 05 04
	SB	iPNEZ			39	Major earthquake
	LJ	ePZ			48	(Magnitude 7)
	T	iPZ			04	
	H	iPNEZ			22	
	Pr	ePZ			39	
		iZ			45	
May 29	P	ePZ	16	42	05	Tu iP 16 42 44
	MW	iPZ			06	
	R	iPZ			10	
	T	iPZ		41	54	

Date	Sta.	Phase	h	m	s		Remarks
May 30	P	iPNZ	07	30	32	d	Tu iP 07 30 56
	MW	iPNEZ			33	d	i 31 18
	R	iPNEZ			35	d	
	SB	iPNEZ			28		
	T	iPNEZ			41		
	H	iPNEZ			40		
	Pr	iPZ			36	d	
May 31	P	ePNZ	00	52	27		Tu iP 00 52 53
	MW	iPZ			28		
	R	ePZ			29		
	SB	ePZ			22		
	T	ePNEZ			38		
	H	ePNE			36		
May 31	P	ePZ	02	43	42		Tu iP 02 44 06
	MW	iPZ			42		
	R	ePZ			43		
	T	ePZ			52		
	H	ePNEZ			49		
	Pr	iPZ			44		
May 31	P	ePZ	05	03	45		Normal. Tu eP 05 03 19
	PX	eLE		13.4			
	MW	ePZ		03	48		
	R	ePZ			46		
	Pr	ePZ			38		
May 31	P	ePZ	05	51	06		Tu iP 05 51 24
	MW	iPZ			07		
	R	ePZ			08		
	T	ePZ			16		
	H	ePNE			15		
	Pr	iPZ			08		
May 31	P	ePZ	13	06	03		Tu iP 13 06 44
	MW	iPZ			04		
	R	iPZ			07		
	T	iPZ			01		
	H	ePE			03		
	Pr	ePZ			10		
June 1	P	iPNEZ	05	27	29	c	Normal. Tu iP 05 28 15
		iSN			50		Several aftershocks, the
	MW	iPNEZ			28		largest at 06:54
		iSNE			48		34°03'N. 116°17'W.,
	R	iPZ			18	c	0=05:27:00
		iSNE			29		
	H	iPZ			42		
		iSE		28	19		
	Pr	iPZ		27	18		
June 1	P	ePZ	09	36	26		Tu iP 09 37 02
	MW	ePZ			25		
	R	iPZ			29		
	T	eZ		35	49		
		eZ		36	04		
	H	ePEZ			12		
June 1	P	iPZ	10	49	50		Tu iP 10 49 15
		iZ		50	17		i 42
	R	ePZ		49	47		
		iZ		50	13		
	T	ePZ		50	04		
		eZ			30		
June 2	P	ePZ	00	00	19		Imperial Valley.
		iSNE		01	03		Tu i 00 00 46
	MW	iPNEZ		00	20		Preceded by several smaller
	R	iPNEZ			10		shocks
June 2	P	iPEZ	06	13	38	c	Tu iP 06 14 25
		iSN			58		34°03'N. 116°17'W.
	MW	iPNEZ			37	c	0=06:13:09
		iSNE			58		
	R	iPNEZ			26		
		iSN			37		
	Pr	iPZ			27		

Date	Sta.	Phase	h	m	s		Remarks
June 2	P	ePZ	07	08	15		Tu iP 07 07 34 c
	MW	iPZ			15		
		iZ			27		
	R	ePZ			11		
	T	iPZ			18		
June 2	P	ePEZ	11	48	02		Tu iP 11 48 47 c
	PX	eSE		52.7			Aleutian Islands
		eLZ		56.3			52°N. 178°W., O=11:37:35,
	MW	iPNEZ		48	02		using Fordham, St.Louis, and
	R	ePNEZ			06		Weston
	T	iPNEZ		45	49		
	H	ePNE			55		
	Pr	iPZ		46	12		
		iZ			28		
June 2	P	iPNZ	12	22	54		Tu eP 12 23 24
	MW	iPNEZ			54		e 27 28
	R	iPZ			57		
	SB	iPZ			48		
	T	iPNEZ			51		
	H	ePNEZ			54		
	Pr	ePZ		23	00		
June 2	P	iPNEZ	19	29	31		Deep? Tu iP 19 29 50 d
	PX	eE		39	41		i 31 30
	MW	iPNEZ		29	32	d	
		iZ		31	54		
	R	iPNEZ		29	32	d	
	SB	iPZ			29		
	T	iPNEZ			41		
	H	ePNEZ			40		
	Pr	iPZ			34	d	
June 2	P	ePNEZ	23	50	31		Tu iP 23 49 29
	PX	eLEZ		55			
	MW	iPNEZ		50	30		
	R	ePNEZ			28		
	T	iPNEZ			59		
	H	ePZ			47		
	Pr	ePZ			13		
June 3	P	iPNEZ	18	08	08		Normal. Tu iP 18 07 02
	PX	eLN		10	25		USCGS: 25°N. 110°W., O=18:05.4
		eSNEZ			32		JSA: 24.4°N. 110.4°W.,
	MW	ePNZ		08	09		O=18:05:11, h=50 km.
	R	iPNEZ			02		Numerous aftershocks recorded
	SB	ePNEZ			24		at Tucson
	T	iPNEZ			45		
	H	iPNEZ			29		
	Pr	iPZ		07	51		
June 4	P	iPNEZ	00	09	28	c	Deep. Tu iP 00 09 50
		eZ		10	08		i 10 35
	MW	iPNEZ		09	24	c	
		iZ		10	09		
	R	iPNEZ		09	26	c	
		eZ		10	10		
	T	iPNEZ		09	26		
	Pr	iPZ		09	28	c	
		eZ		10	12		
June 4	P	ePZ	10	35	40		Tu iP 10 36 21
		iSNE		36	05		33°07'N. 116°25'W., O=10:35:10
	MW	iPNZ		35	41		Some damage to canals on the
		iSNE		36	05		west side of Imperial Valley
	R	iPNEZ		35	32		Felt over a wide area.
	Pr	iPZ			19		
June 5	MW	iPZ	02	54	24		Tu iP 02 54 50
	R	iPZ			28		
	T	iPZ			32		

Date	Sta.	Phase	h	m	s		Remarks
June 5	P	iPZ	11	07	59	c	Normal. Tu iP 11 08 29 c
	PX	ePPNEZ		09	18		USCGS: 68°N. 138°W., O=11:01:00
		eSN		13	27		JSA: 67.0°N. 138.7°W.,
		eLE		15.7			O=11:01:00
	MW	iPNEZ		08	00	c	Major earthquake
	R	iPNEZ			02	c	(Magnitude 7)
	SB	iPNEZ		07	55		
		ePPZ		09	19		
	T	iPNEZ		07	38		
	H	iPNZ			43		
June 7	P	ePZ	07	30	43		Normal. Tu e 07 35 21
	PX	eLE	08	07.5			Wellington: 10°S. 152°E.,
	MW	ePZ	07	30	44		O=07:17.3
	T	ePZ			46		
June 7	P	iPNZ	10	20	39		Tu iP 10 21 02
	MW	iPZ			39		
	R	iPZ			41		
	T	iPZ			48		
	Pr	iPZ			41		
June 7	P	ePZ	12	16	22		Tu eP 12 16 11
	MW	ePZ			22		
	R	ePZ			20		
	T	ePZ			37		
	Pr	ePZ			17		
June 8	MW	ePZ	03	56	13		Tu eP 03 55 36
	R	ePZ			11		
	Pr	ePZ			08		
June 8	P	eZ	04	11	30		Tu eP 04 11 44
	MW	eZ			18		
	R	eZ			28		
	Pr	eZ			23		
June 8	P	ePZ	11	34	46		Normal. Tu iP 11 33 49
	MW	ePZ			48		
	R	ePZ			42		
	Pr	iPZ			34		
June 10	P	ePZ	13	55	29		Deep? Tu iP 13 56 14
	MW	iPNEZ			27		i 26
		eZ			39		i 57 26
	T	ePZ			14		
		eZ			26		
June 11	P	eP"Z	09	00	55		Normal. Tu eP" 09 01 07
	PX	eLZ		37.6			Roughly 8°S. 125°E.,
	MW	eP"Z		00	54		O=08:42.0
	T	eP"Z			55		using Batavia, Manila, and
June 11	P	eZ	13	54	40		Australian stations
	PX	eLEZ	19	04.1			Normal? Tu iP 13 55 13
	MW	iPZ	13	54	33		55 26
		iNEZ			41		
	R	ePZ			37		
		eZ			44		
	SB	eNEZ			32		
	T	ePZ			14		
	H	ePNE			22		
	Pr	iPZ			41		
		iZ			48		
June 12	MW	iPZ	02	48	13		Tu iP 02 48 36
	R	ePZ			15		
	T	iPZ			22		
June 12	P	ePZ	05	48	23		Tu iP 05 49 00
	MW	ePZ			23		Kurile Islands
	R	eZ			28		
	T	ePZ			13		
June 12	PX	eLZ	09	29			Normal. Tu eP 09 16 56
	MW	eZ	09	16	40		
	R	eZ			40		
	T	ePZ		15	57		
	Pr	eZ		16	24		
		eZ			48		

Date	Sta.	Phase	h	m	s		Remarks
June 12	P	ePZ	14	11	50		Tu iP 14 12 28
	MW	ePNEZ			50		Japan. Osaka gives
	R	ePNEZ			53		35.3°N. 141.0°E.
	SE	iPZ			47		
	T	iPNEZ			49		
	H	ePNEZ			53		
	Pr	ePZ		12	02		
June 12	P	iPNEZ	14	23	26		Tu iP 14 23 58
	R	iPNEZ			28		Japan. Osaka gives
	SB	iPZ			20		35.2°N. 141.0°E.
	T	ePNEZ			17		
	H	ePNEZ			22		
	Pr	iPZ			33		
June 12	MW	ePZ	15	14	51		Normal. Tu eP 15 13 54
	R	ePZ			44		
	T	iPZ		15	15		
	Pr	iPZ		14	40		
June 12	T	ePZ	16	16	12		Tu eP 16 16 48
June 12	MW	ePZ	18	00	16		Normal. Tu eP 17 59 18
	R	ePZ			10		
	T	ePZ			35		
	Pr	ePZ			03		
June 12	P	iPNZ	18	49	01	d	Deep. Tu iP 18 49 38 d
		iZ			22		S.E. of Hatizyo Island,
	PX	eLZ	19	18			according to Osaka, which
	MW	iPNEZ	18	49	02	d	gives 31.4°N. 143.2°E., h=100 km.
	R	iPNEZ			03		
	SB	iPNEZ		48	55		
	T	iPNEZ			53		
	H	iPNEZ			57		
	Pr	iPZ		49	07		
June 13	P	ePZ	22	14	42		Tu eP 22 15 02
	PX	eLZ		40			
	MW	ePZ		14	36		
	R	ePZ			37		
	T	ePZ			46		
June 14	P	iPNEZ	03	34	56		Tu iP 03 34 11 d
		eZ		35	23		i 34
	MW	iPZ		34	56		
	R	ePZ			52		
	T	iPNEZ		35	10		
June 14	P	ePZ	07	59	41		Tu eP 07 59 47
	MW	iPZ			41		
	R	ePZ			41		
	T	ePNZ			35		
June 14	P	eZ	17	21	09		Tu iP 17 21 43 d
	MW	ePZ			00		
	R	ePZ			00		
		eZ			14		
	T	eZ		20	41		
June 15	P	iPZ	09	21	09		Tu iP 09 21 42 c
	MW	iPZ			10		Japan. Osaka reports
	R	ePZ			13		P=09:10:28.1, S=09:11:24.4
	SB	iPZ			05		Mizusawa reports
	T	iPNEZ			01		P=09:10:06, S=09:10:31
	H	iPNEZ			05		
June 15	P	iPNEZ	14	28	04		Tu iP 14 28 27 c
	MW	iPNZ			04	c	
	T	iPNEZ			12		
	H	ePZ			11		
June 17	MW	eZ	02	13	37		Tu eP 02 14 18
	R	eZ			37		
	T	eZ			21		

Date	Sta.	Phase	h	m	s		Remarks
June 17	P	iPEZ	10	33	43	c	Normal. Strong in the
		iZ			54		Hawaiian Islands.
		iPcPZ		36	15		Tu iP 10 34 33
	PX	iSNE		39	44		USCGS: 21.0° N. 155.3° W.,
		eLN		41.2			0=10:26.8
	MW	iPNEZ		33	43	c	JSA: 21.0°N. 153.6°W.,
		iZ			55		0=10:27:00
		iPcPZ		36	16		Pasadena: 20.5°N. 155.3°W.,
	R	iPNEZ		33	48		0=10:26:47
		iPcPZ		36	19		Major earthquake
	SB	iPNEZ		33	34		(Magnitude 7)
	LJ	ePNEZ			47		
		iZ			55		
	T	iPNEZ			51		
	H	ePZ			46		
June 17	P	iPZ	11	45	22		Tu iP 11 45 46
	MW	iPZ			22		
	R	ePZ			23		
	T	iPZ			31		
June 17	MW	ePZ	18	23	05		Tu eP 18 24 05
June 17	P	iPZ	23	15	18		Tu eP 23 15 52
	MW	iPZ			08		
	R	ePZ			22		
June 18	P	eP"Z	14	09	55		Tu eP" 14 10 17, followed
		iZ		12	49		by indefinite short-period
	PX	eSKSE		15	50		motion for several minutes.
		iNE		19	18		Philippines. Region of
	MW	eP"Z		09	55		5°30'N. 122°E., possibly deep
		iZ		10	17		according to Manila.
		iZ		12	47		Pasadena: 5 1/2°N. 123 1/2°E.,
	R	eP"Z		10	10		0=13:52:33, h=570 km.
June 18	P	iPZ	18	48	04	d	Normal. Tu iP 18 48 47
	PX	iSNEZ		55	21		USCGS: 54° N. 173° E.,
		eLE	19	00			0=18:39.0
	MW	iPNEZ	18	48	05	d	JSA: 54.0°N. 175.4°E.,
	R	iPNEZ			09	d	0=18:39:17
	SB	iPNEZ		47	57		
	LJ	ePZ		48	17		
	T	ePNEZ		47	50		
	H	ePNEZ			57		
June 19	P	iPZ	18	44	20		Tu iP 18 44 39
	MW	iPZ			20		
	R	iPZ			22		
June 19	P	iPZ	18	31	19		Tu iPZ 18 31 57
		eZ		32	32		
	R	ePZ		31	23		
June 19	PX	eLZ	19	56			Normal. Tu eP 19 28 10
	R	ePZ	19	27	48		
June 22	P	ePZ	11	51	25		Deep? Small surface waves
		iP"NZ		55	02		recorded. Felt in Celebes,
		iZ		58	23		etc. Tu iP" 11 55 11
	PX	iNE	12	01	36		iPKKP 12 05 21
		iNE		02	42		Pasadena: 0° .122 1/2°E.
		iPSEZ		05	19		0=11:36:46, h=200 km.
	P	ePKKPZ			48		
	MW	ePZ	11	51	24		
		iP"NEZ		55	02		
		iPKKPZ	12	05	46		
	R	iPZ	11	51	27		
		iP"Z		55	03		
		ePKKPZ	12	05	42		
	SB	iP"Z	11	55	00		
	T	ePZ	11	51	09		
		iP"NEZ		55	01		
	H	iP"NEZ			01		
	Pr	ePZ	11	51	23		
		iP"Z		55	07		
		ePKKPZ	12	05	49		
		iSKKPZ		09	43		

Date	Sta.	Phase	h	m	s		Remarks
June 23	P	iPZ	07	05	48		Normal. Tu iP 07 05 50
	PX	eLE		25			Roughly 75°N. 10°W., 0=07:55.3
	MW	iPNEZ		05	49	d	using Hamburg, Ksara, Ottawa
	R	ePZ			47		and Weston
	T	ePZ			31		
	H	iPNEZ			37		
	Pr	iPZ			53		
June 23	P	iPNZ	19	08	43		Tu iP 19 07 53
	MW	ePZ			42		
	R	ePZ			39		
	SB	ePZ			52		
	T	ePNEZ			51		
	Pr	ePZ			34		
June 23	P	iPNZ	21	44	05		Normal. Tu eP 21 43 02
	PX	eLNEZ		46.2			USCGS: 25.0°N. 111.0°W.,
	MW	ePZ		44	08		0=21:41:21
	R	ePNEZ		43	59		JSA: region of 26°N. 110.5°W.,
	SB	ePZ		44	24		0=21:41:34
	LJ	ePNEZ		43	51		
	T	ePZ		44	40		
	H	ePNEZ			28		
	Pr	ePZ		43	50		
June 24	P	iPZ	08	02	58		Tu iP 08 03 18 d
	MW	iPZ			58	d	
	R	iPZ			56		
	T	iPZ		03	08		
June 25	P	iPNEZ	08	02	30	c	Tu iP 03 03 08 c
	PX	eLEZ		20.8			Near 56°N. 157°E., 0=02:52.1,
	MW	iPNEZ		02	30	c	using St. Louis, Mizusawa,
	R	iPZ			34		Ksara, etc.
	SB	ePZ			23		
	T	iPNEZ			17		
	Pr	iPZ			33		
June 25	PX	eLZ	05	19.0			Normal. Tu iP 04 56 30
	MW	iPZ	04	57	06		
	R	iPZ			03		
	T	iPZ			04		
	Pr	iZ			07		
June 26	P	eP"Z	08	19	21		Tu eP" 08 19 21
		iSKPNEZ		22	42		iSKP 23 08
		iZ		23	08		i 33
	MW	eP"Z		19	21		i 24 28
		eSKPEZ		22	42		Off Sumatra about 6°S. 103°E.,
	R	eP"Z		19	24		0=08:00.2
		eSKPZ		22	44		Batavia reports: iP=08:01:25
	H	eP"NE		19	31		iS?=08:02:13
		eSKPNEZ		22	41		
	Pr	eP"Z		19	33		
		iSKPZ		22	48		
		iZ		23	13		
June 26	P	ePZ	13	45	45		Tu eP 13 45 25
	MW	ePZ			44		
	R	ePZ			44		
	Pr	iPZ			33		
June 26	MW	iPZ	19	40	07		Tu iP 19 40 28
	Pr	iPZ			12		
June 27	P	iPNEZ	07	04	12	c	Deep. 30.6°N. 138.8°E.,
	MW	iPNEZ			12	c	h=400 km., according to
	R	iPZ			14	c	Osaka
	T	iPNEZ			06	c	
	H	iPNEZ			06		
	Pr	iPZ			19	c	
June 27	P	ePZ	11	59	28		
	MW	iPZ			30		
	R	ePZ			31		
	T	iPZ			08		
	Pr	iPZ			31		

Date	Sta.	Phase	h	m	s	Remarks
June 29	P	eZ	02	50	19	Tu iP 02 49 55
	R	iPZ			08	
June 30	P	ePZ	13	18	34	Tu iP 13 18 51
	MW	ePZ			35	
		eZ		22	06	
	R	ePZ		18	36	
	Pr	iPZ			35	
		iZ		19	00	

C. F. Richter
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CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA CALIFORNIA

SEISMOLOGICAL LABORATORY

BULLETIN

JULY-SEPTEMBER 1940

(PASADENA AND AUXILIARY STATIONS)

Date	Sta.	Phase	h	m	s	Remarks
July 1	P	ePZ	21	40	38	Tu iP 21 40 15 d
	MW	iPNEZ			38	Bur. Int. 41.5°N.28.5°W.
	R	iPZ			36	Florissant gives
	SE	ePZ			44	44.0°N.28.4°W., O=21:29:48,
	H	ePNEZ			30	which appears preferable
	Pr	iPZ			35	
July 2	MW	ePZ	01	48	39	Tu iP 01 49 10
	R	ePZ			42	N.E. off Hatidijozima according to Osaka
July 2	P	ePZ	19	20	28	Normal. Tu iP 19 20 51
	PX	eZ		26	05	
		eSE		30	05	
		iSZ			32	
		eLNE		39		
	MW	ePNEZ		20	28	
	R	ePZ			29	
	SE	ePNEZ			33	
	E	iPNEZ			38	
	H	ePNEZ			35	
	Pr	ePZ			29	
July 3	P	iPZ	14	48	36	
	MW	ePZ			36	
	R	ePZ			38	
	Pr	ePZ			41	
July 3	P	iPNZ	16	06	03	Tu iP 16 06 58
	MW	iPNEZ			05	
	R	ePZ			18	
	SE	ePNEZ			03	
	E	iPNEZ		05	41	
	H	ePNE			54	
July 3	P	iPZ	18	28	34	Tu eP 18 28 48
	MW	iPNZ			34	
	R	iPZ			36	
	SE	ePZ			32	
	LJ	ePZ			26	
	T	ePZ			42	
	Pr	iPZ			34	
July 4	P	iPNEZ	09	11	30	Deep. Tu iP 09 12 03
		epPZ		12	31	Osaka gives 44.8°N.144.5°E., h=200 km.
	MW	iPEZ		11	31	
		ipPZ		12	31	
	R	iPZ		11	33	
		ipPZ		12	34	
	SE	iPZ		11	23	
	LJ	ePNEZ			39	
	T	iPNEZ			19	
	H	iPNEZ			23	
	Pr	iPZ			37	
July 5	P	ePZ	13	27	33	Tu eP 13 28 09
	MW	ePZ			36	
July 5	P	iPNEZ	14	15	24	Normal? Tu iP 14 15 48 c
	PX	eLZ		37.2		Near Apia, which reports
	MW	iPNEZ		15	24	eP=14:04:50, S=14:05:30
		iZ			40	
	R	ePZ			26	
	SE	ePZ			19	
	LJ	ePNEZ			23	
	E	iPNEZ			34	
	H	ePNEZ			31	
	Pr	iPZ			26	

Date	Sta.	Phase	h	m	s	Remarks
July 6	P	iPNEZ	03	49	38 d	Deep. Tu iP 03 48 51 d
		ipPEZ		50	17	ipP 49 31
	PX	iE			58	isP 49 56
		iSE		57	08	USCGS: 11°N.61°W.,O=03:40:00,
		eE		58	16	h=175 km
		eE		59	10	JSA:12.3°N.64.4°W.,O=03:40:24,
		eGZ	04	06.5		h=160 km.
	MW	iPNEZ	03	49	37 d	Pasadena: 13 1/2°N.60°W.,
		ipPZ		50	19	O=03:40:24, h=160 km.
	R	iPNEZ		49	32 d	Bur.Int.: 13.5°N.61.5°W.
		ipPZ		50	15	R.F. 4-5 at Fort-de France,
	SE	iPNEZ		49	47	which reports P=03:40:50,
	LJ	ePNEZ			32	S=03:41:10
	T	iPNEZ			42	
	H	iPZ			38	
		ipPZ		50	19	
	Pr	iPZ		49	29 d	
		ipPZ		50	10	
July 6	P	ePZ	18	00	34	Tu iP 18 01 02
	MW	ePZ			34	
	R	ePZ			35	
	Pr	ePZ			41	
July 6	P	ePZ	21	07	55	Tu eP 21 07 01
	MW	iPNEZ			55	
	R	iPZ			50	
July 7	P	iPZ	18	43	58	Tu iP 18 44 00
		iSNE		44	43	
	MW	iPNZ		43	56	
		iSNE		44	44	
	R	ePZ		43	45	
		iNZ			50	
		iSNZ		44	29	
	LJ	iPZ		43	38	
		iSNE		44	01	
	Pr	iPZ		43	35	
July 8	PX	eLZ	06	32		Normal. Tu eP 06 02 58
July 8	PX	eLZ	08	08		Normal. Tu eP 07 38 44
July 8	P	iPNZ	10	58	34	Normal. Tu eP 10 59 43
		iSNE		59	25	
	MW	iPZ		58	34	
		iSE		59	25	
	R	iPNEZ		58	38	
		iSE		59	34	
	SB	iPZ		58	31	
		iSNE		59	22	
	H	iPNEZ		58	07	
		iSNE			29	
	Pr	iPZ		58	47	
July 8	P	iPZ	15	28	11	Deep. Tu iP 15 28 42
	MW	iPZ			12	Osaka gives 28.0°N.140.3°E.,
	R	iPZ			14	h=400 km.
	T	iPNEZ			04	
	H	iPZ			07	
	Pr	iPZ			18	
July 10	P	iPNEZ	06	01	09 c	Deep. Very large shock.
	PX	ipPZ		03	12	USCGS: 45°N.128°E. O=05:50.5,
		isPZ		04	08	h=400-500 km.
		iSNE		10	27	JSA: 45.6°N.128.6°E.,
		eSKPP'Z		30	00	O=05:49:50, h=500-600 km.
		eZ			13	Osaka: 44.8°N.130.6°E.,
		iZ			27	h=560 km.
	MW	iPNEZ		01	10 c	Pasadena: 44°N.131°E.,
		ipPZ		03	16	O=05:49:55, h=580 km.
		eSNE		10	27	EC eP 06 01 13
		eSKPP'Z		29	59	eS 06 10 34

(Continued)

Date	Sta.	Phase	h	m	s		Remarks
July 10	R	iPNEZ	06	01	12	c	Tu iP 06 01 37 c
		ipPZ		03	26		ipP 03 41
		eSNEZ		10	38		i 03 48
		eSKPP'Z		30	16		i 05 18
		iZ			26		i 19 38
	SB	iPNEZ		01	04	c	eSKPP' 29 49
		ipPZ		03	11		i 30 17
		eSNEZ		10	21		eP'P'P' 48 16
		eZ		30	25		i 07 02 45
	LJ	iPNEZ	06	01	16	c	
		ipPZ		03	22		
		eSNEZ		10	43		
	T	iPNEZ		01	00	c	
		iNEZ!			08		
		ipPZ		03	10		
		eSKPP'Z		30	20		
	H	iPNEZ		01	03		
		eSNE		10	15		
		eSKPP'Z		30	28		
	Pr	iPZ		01	15	c	
		ipPZ		03	19		
		iSPZ		04	34		
		iSZ		10	44		
		iZ		19	38		
		eSKPP'Z		30	04		
		iZ			29		
		iP'P'P'Z		48	12		
July 11	P	iPZ	07	05	35		Tu iP 07 05 58
	R	ePZ			38		
	Pr	ePZ			31		
July 12	P	iPZ	01	31	10		Tu iP 01 30 16
	MW	iPZ			11		
	R	iPZ			05		
	T	iPZ			28		
July 12	PX	eLZ	19	07.0			Normal. Tu eP 19 03 24
July 13	P	iPNEZ	16	55	22	c	Normal? Tu iP 16 54 31 c
		eScPZ	17	01	10		USCGS: 7.1°N.83°W.,O=16:47:30
	PX	eSNEZ			49		JSA: 9.1°N.82.5°W.,O =16:47:35
		eLN		07.1			Felt at Panama, which reports
	MW	iPNEZ	16	55	23	c	P=16:48:16, S=16:48:42
	R	iPEZ			17	c	
		iZ		57	20		
	SE	ePZ		55	32		
	LJ	ePNEZ			11		
	T	iPNEZ			34		
	H	iPEZ			29		
	Pr	iPZ			12	c	
		iZ		57	13		
July 14	MW	iZ	00	00	41		Tu iP'? 23 59 49 July 13
July 14	P	iPNEZ	06	01	31	c	Normal. Tu iP 06 02 16 c
		iScPZ		06	44		iScP 07 10
	PX	iSNEZ		08	25		eP'P' 31.9
		iScSN		11	18		USCGS: 52°N.178°E.,O=05:52:48
		iLNE		13.6			JSA: 52.7°N.177.6°W.,
	P	eP'P'Z		32	15		O=05:53:18, h=80 km
	MW	iPNEZ		01	33	c	Major earthquake
		iScPZ		06	45		(Magnitude 7 1/2)
		iSZ		08	26		
	R	iPNEZ		01	36	c	
		iScPZ		06	46		
		eSEZ		08	35		
	SE	iPNEZ		01	28		
		iScPZ		06	41		
	LJ	iPNEZ		01	44		
		eScPZ		06	51		
		eSNE		08	48		
		iScSNE		11	30		

(Continued)

Date	Sta.	Phase	h	m	s		Remarks
		(Continued)					
July 14	T	iPNEZ	06	01	18		
		iScPNZ		06	37		
		eSN		08	11		
		iScSN		11	06		
	H	iPZ		01	23		
		iScPZ		06	40		
	Pr	iPZ		01	41	c	
		iScPZ		06	51		
		iSZ		08	48		
July 14	P	ePZ	15	43	30		Tu iP 15 44 02.
	MW	iPNEZ			33		Osaka gives 36°N.141°E.
	R	ePZ			34		
	T	ePZ			22		
	Pr	iPZ			35		
July 16	P	iPNEZ	00	04	49	c	(Deep.) Tu iP 00 05 33
		ipPZ		05	06		ipP 05 50
	MW	iPNEZ		04	50	c	Aleutian Islands
		ipPZ		05	07		
	R	iPNEZ		04	53	c	
		ipPZ		05	11		
	SE	iPNEZ		04	41		
		ipPZ			59		
	T	iPNEZ		04	35		
		ipPZ			53		
	H	iPNZ			40		
		ipPZ			57		
	Pr	iPZ		05	01	c	
		ipPZ			17		
July 16	P	ePZ	03	24	28		Normal. Tu ePZ 03 25 16
	PX	eLNEZ		32	23		
	MW	iPNEZ		24	29		
	R	ePZ			33		
	T	ePNEZ			40		
	H	ePE			53		
	Pr	ePZ			36		
July 16	PX	eLZ	05	39			Normal. Felt in N. Celebes.
							Tu eP" 05 06 16
							ePP 07 25
							ePKKP 16 47
July 16	PX	eLZ	19	57.0			Normal. Tu iP 19 18 54
July 16	P	iPZ	22	17	12		Deep (h=150km)
		ipPZ			50		Tu iP 22 17 37
	MW	iPNZ			18		ipP 18 14
		ipPZ			52		Near Apia, which reports
	R	iPZ			15		iP=22:06:42, iS=22:07:22
		ipPZ			54		
	SE	eZ			45		
	LJ	eZ			51		
	T	iPZ			22		
	H	ePNE			20		
		epPNE		18	00		
	Pr	ePZ		17	14		
		ipPZ			51		
July 17	P	iPNEZ	12	06	55		Tu iP 12 06 03
	MW	iPZ			55		
	R	iPZ			50		
	LJ	ePZ			44		
	T	iPNEZ		07	08		
	Pr	iPZ		06	44		
July 18	P	iPZ	02	22	20		Tu iP 02 22 44
	MW	iPZ			21		
	R	ePZ			23		
	Pr	iPZ			24		

Date	Sta.	Phase	h	m	s	Remarks
July 18	P	ePZ	15	50	05	Deep? Tu iP 15 49 27
		iZ			17	i 39
	MW	iPZ			06	
		iZ			18	
	R	ePZ			01	
		eZ			13	
	T	ePZ			18	
		eZ			30	
	Pr	iPZ		49	55	
		iZ		50	09	
July 19	P	iPZ	08	09	21	Tu iP 08 09 45
	MW	iPZ			22	
	R	iPZ			24	
July 19	P	ePZ	04	56	26	Normal? Tu iP 04 57 13
		iNEZ			38	USCGS: 54°N.178°E., O=04:47.4
	PX	iSNEZ	05	03	44	JSA: 50.7°N.177.9°E.,
		eLN		09.1		O=04:47:39
	MW	ePEZ	04	56	30	
	R	ePEZ			40	
	SE	iPZ			31	
	H	ePNZ			27	
July 19	P	ePZ	22	04	06	Tu eP 22 04 31
	MW	ePZ			07	
	R	ePZ			10	
July 20	P	iPZ	02	05	17	Normal. Tu iP 02 05 44
	PX	eSNEZ		14	42	Felt at Apia, which reports
		eLNZ		25		iPn=01:54:22, iSn=01:54:43,
	MW	iPNEZ		05	19	and gives 15°01'S.172°39'W.,
	R	ePZ			21	O=01:54:01
	SE	ePZ			19	
	LJ	ePNEZ			14	
	T	ePZ			27	
	H	ePNEZ			27	
July 20	P	ePZ	17	54	44	Tu eP 17 55 10
	MW	iPZ			46	
	R	ePZ			47	
	T	ePZ			49	
July 21	P	iPZ	00	13	30	Deep. Tu iP 00 14 02
		ipPZ			55	Japan: 41°N.141°E., O=00:01.9,
	MW	ePZ			30	h=100 km. using Mizusawa and
		ipPZ			56	Collmberg. Felt at Mizusawa,
	R	iPZ			33	which reports P=00:02:18,
		ipPZ			58	S=00:02:36
	T	iPZ			19	
		epPZ			43	
July 21	P	ePZ	05	28	26	Deep. Tu iP 05 28 51
		epPZ		29	06	epP 29 31
	MW	ePZ		28	26	16°S.169°E., O=05:16:10,
		epPZ		29	08	h=160 km. using Bristane,
	R	ePZ		28	29	Manila, and Riverview
		epPZ		29	10	
	T	iPZ		28	30	
		epPZ		29	11	
July 21	P	ePZ	08	36	39	Normal. Tu iP 08 37 10
		iSNE		37	08	33°05'N.115°59'W.,O=08:36:02
	MW	iPZ		36	33	
		iSNE		37	07	
	R	iPZ		36	29	
		iSN			49	
	LJ	iPNEZ			24 c	
		iNE!			39	
	Pr	iPZ			19 c	
July 21	P	iPZ	13	57	15	Tu iP 13 57 51
	MW	iPZ			16	
	R	ePZ			19	
	T	iPZ			04	

Date	Sta.	Phase	h	m	s	Remarks
July 21	P	iP"Z	15	57	07	Normal. Tu eP" 15 57 19
		iZ			22	i 57 22
	PX	iPPE		58	35	iPP 58 39
		eSKSE	16	08	51	iPKKP 16 07 27
		iPSEZ		07	28	Distance=115°. Florissant gives
	P	iPKKPZ			58	1.8°N.120.0°E.,O=15:38:27.Felt
	PX	ePPSEZ		08.7		in N.Celebes and N.E. Borneo,
		eSSE		18.7		according to Batavia
		eLEZ		30.2		
	MW	iP"Z	15	57	06	
		ePKKPZ	16	07	55	
	R	eP"Z	15	57	08	
		ePKKPZ	16	07	48	
	T	eP"Z	15	57	08	
		ePKKPZ	16	07	52	
July 21	P	iPNEZ	18	39	41	Deep. Tu iP 18 40 03 d
		ipPZ		41	39	ipP 42 03
	MW	iPNEZ		39	42	esP 43 13
		ipPNEZ		41	40	Wellington: 25°S.172°E.,
	R	iPNEZ		39	43	O=18:28.3
		eZ		41	38	Pasadena: 28°S.179°E.,
		iZ			42	O=18:28.3, h=550 km.
	LJ	ePZ		39	40	using New Zealand stations
	T	iPNEZ			50	
		epPZ		41	48	
July 21	P	iPZ	19	21	17	Tu iP 19 21 39
	MW	iPZ			17	
	R	ePZ			19	
	T	iPZ			25	
July 22	MW	iPZ	05	40	48	Deep? Tu iP 05 41 33
		iZ		41	02	i 48
	T	ePZ		40	31	
		iZ			45	
	Pr	eZ		41	14	
July 22	P	iPNZ	23	01	30	Normal. 37°38'N.118°52'W.,
		eSNE		02	21	O=23:00:38. Felt in the
	MW	iPZ		01	30	epicentral region.
		iSNE		02	21	Tu eP 23 02 39
	R	iPZ		01	34	Berkeley: iP=23:01:20
	SE	ePZ		01	28	Fresno: eP 23:00:55,
		iSE		02	09	iS=23:01:11
	T	iPEZ		00	47	
		iSE			57	
	H	iPNEZ		01	04	
July 23	MW	ePZ	00	01	45	Tu eP 00 02 35
	R	iPZ			41	
July 23	MW	eZ	00	13	57	Tu e 00 13 27
	T	eZ		14	08	e 14 09
July 23	P	ePZ	14	14	58	Tu iP 14 14 05
	MW	ePZ			54	
	R	ePZ			52	
	T	ePZ			44	
July 24	MW	ePZ	14	43	50	Deep? Tu eP 14 44 29
	R	ePZ			53	Northern Japan.
July 26	P	ePZ	19	41	46	Tu eP 19 42 10
	R	ePZ			48	
	T	iPZ		42	07	
July 27	P	iPNEZ	13	38	47 d	Deep. Tu iP 13 37 50 d
		ipPZ		39	02	USCGS: 13.6°N.91.6°W.,
		iZ			44	O=13:32.4
	PX	ePPE		40	24	JSA: 18.7°N.91.3°W.,
	P	ipPcPZ		41	42	O=13:32:30, h=100 km.
		ipPcPZ			59	
	PX	iSNE		43	55	
		isSN		44	25	
	P	iScPZ		45	28	
		iZ			57	
	PX	eLN		45.7		
	P	eScSN		49	16	

(Continued)

Date	Sta.	Phase	h	m	s	Remarks
		(Continued)				
July 27	MW	ePNE	18	38	46	
		eSNE		43	54	
	R	iPNEZ		38	40	
		ipPZ			59	
		iPcPZ		41	41	
		ipPcPZ			58	
		eSNE		43	43	
		iScPZ		45	22	
		iZ			53	
	SE	iPNEZ		38	51	
		iPcPZ		41	47	
		eSNE		44	11	
	LJ	ePNEZ		38	35	
		eSNE		43	30	
	T	iPNEZ		39	05	
		iPcPZ		41	48	
		iZ		42	07	
		iSNE		44	21	
		iScPZ		45	34	
		iScSN		49	29	
	H	iPNEZ		38	56	
		iSNE		44	08	
July 27	P	iPZ	17	08	42	Tu iP 17 09 07
	R	iPZ			45	
	T	iPZ			52	
July 28	P	iPZ	19	39	02	Tu iP 19 39 37
	R	iPZ			06	North of Japan?
	T	iPZ		38	52	
July 30	P	ePPZ	00	30	02	Normal. Tu eP 00 26 08
	PX	eLE		59.2		ePP 30 16
						Destructive in Turkey.
						39°N.34°E.,O=00:12:14
						(Bur. Int.)
July 30	P	eZ	05	42	28	Normal. Tu e=05 42 22
	PX	eLNZ		55.2		
	R	eZ		42	35	
July 30	P	ePZ	15	35	14	Normal? Tu iP 15 34 26
	PX	eLZ		49.4		
	R	iPZ		35	11	
	T	ePZ			30	
July 30	P	eZ	16	13	33	Normal? Tu eP? 16 12 12
	PX	eLZ		31.3		
	T	iPZ		13	18	
July 30	P	iPZ	19	27	59	Tu iP 19 27 17
		eNEZ		30	51	i 29 42
	PX	eLE		31	23	
	R	iPZ		27	55	
		eNEZ		30	32	
	SE	iPNEZ		28	13	
	T	ePNEZ			36	
	H	ePNEZ			23	
July 30	P	ePZ	22	08	00	Tu iP 22 02 22
	MW	iPNEZ			01	
	R	iPZ		02	57	
July 31	MW	iPZ	02	01	42	Deep? Tu iP 02 02 07
		iZ		02	38	e 58
	R	iPZ		01	44	
		iZ		02	35	
July 31	P	ePZ	11	52	53	Normal.
	PX	eLZ	12	28		
	MW	ePZ	11	52	56	
	R	ePZ		53	00	
	T	ePZ		52	56	
July 31	P	ePZ	14	40	31	Normal?
	PX	eLZ	15	12		
	MW	iPZ	14	40	32	
	R	ePZ			35	
	T	iPZ			35	

Date	Sta.	Phase	h	m	s	Remarks
Aug 1	P	iPNEZ	12	51	15 c	Deep. Tu iP 12 51 36 c
		epPZ		53	05	ipP 53 27
	PX	eSPZ			58	eS 13 01.4
		ePPZ		54	29	iP'P' 13 17 24
		eSE	13	00	52	Wellington: 26°S.180°,
		iNEZ		01	05	O=12:39.5,h=500km.
		iZ			27	Felt in the North Island,
		iE		02	05	New Zealand
		iE		04	20	
	P	eP'P'Z		17	34	
	MW	iPNEZ	12	51	17 c	
		ipPZ		53	06	
		iZ		54	39	
		eSNE	13	00	54	
		eNE		01	09	
		iP'P'Z		17	32	
	R	iPNEZ	12	51	18 c	
		ipPZ		53	09	
		eSNE	13	00	57	
		eN		01	11	
	SE	iPZ	12	51	14	
		ipPZ		53	02	
		eSN	13	00	59	
	LJ	iPNEZ	12	51	16	
		epPZ		53	06	
		eSNE	13	00	52	
	T	iPNEZ	12	51	26	
		epPZ		53	17	
		eSNE	13	01	05	
		eNE			25	
	H	iPNEZ	12	51	23	
		epPZ		53	13	
		eSNEZ	13	01	20	
Aug 1	P	iPZ	13	09	26	Tu iP 13 09 17. May be PKKP of
	MW	iPZ			27	preceding.
Aug 1	P	iPNEZ	15	20	03 c	Normal? USCGS: 44.5°N.140°E.,
		ipPNZ			17	O=15:08:21
	PX	iPPE		22	49	JSA: 44.0°N.139.0°E.,
		eSE		29	41	O=15:08:24
		iE		30	20	Bur.Int.: 42°N.139°E.
		iE			54	Osaka: 44.3°N.139.1°E.
		iLN		39.9		Tu iP 15 20 35 c
	P	eP'P'Z		47	15	ipP 20 49
	MW	iPNEZ		20	04 c	iP'P' 47 15
		ipPZ			18	Strong in Hokkaido. Felt at
		eP'P'Z		47	39	Mizusawa, which reports:
	R	iPNEZ		20	06 c	P=15:09:43, S=15:10:52.
		ipPNEZ			20	Major earthquake
	SE	ePZ		19	58	(Magnitude 7 1/2)
		ipPNZ		20	12	
	LJ	ePNEZ			12	
		ipPNEZ			26	
	T	iPNEZ		19	53 c	
		ipPZ		20	07	
		eSNE		29	28	
	H	iPNEZ		19	56	
		ipPZ		20	11	
Aug 2	T	ePZ	09	44	28	Tu eP 09 44 24
Aug 2	MW	ePZ	13	08	45	Tu iP 13 09 29
	T	iPZ			30	
Aug 2	P	iPZ	14	43	57	Tu iP 14 44 41
	MW	ePZ			57	
	T	iPZ			43	
Aug 2	P	iPZ	15	41	03	Tu iP 15 41 49
	MW	iPZ			05	i 15 41 58
	R	ePZ			10	
	T	iPZ		40	51	
	H	ePZ			57	

Date	Sta.	Phase	h	m	s	Remarks
Aug 3	MW	ePZ	01	58	58	Tu iP 01 59 36
	T	iPZ			38	
Aug 3	P	iPZ	03	28	11	Deep? Tu iP 05 28 56
	MW	iPZ			12	i 24 05
		iZ			21	
	R	ePZ			18	
	T	iPZ		28	57	
	H	iPNEZ		28	08	
Aug 3	P	iPZ	20	33	42	Tu iPZ 20 34 14
	MW	iPZ			43	Japan. Mizusawa reports
	R	ePZ			44	P=20:28:31, S=20:24:32
Aug 3	P	iPZ	23	04	17	Tu iP 23 05 02
	MW	iPZ			18	
Aug 4	MW	iPZ	00	16	39	Tu iP 00 17 28
	T	iPZ			24	
Aug 4	MW	ePZ	00	29	53	
	T	iPZ			42	
Aug 4	P	iPZ	02	27	52	Deep? Tu iP 02 33 18
	MW	ePZ			53	i 40 15
Aug 4	P	iPZ	09	27	55	Tu iP 09 28 29
	MW	iPZ			57	Japan. Osaka gives
	T	iPZ			47	37.7°N. 141.1°E.
Aug 4	P	ePZ	16	17	24	Deep? Tu iP 16 16 44
		eZ			53	e 17 13
	MW	iPZ			24	
		iZ			53	
	T	iPZ			37	
		eZ		18	05	
Aug 5	P	iPZ	04	39	49	Tu iP 04 40 12 d
	MW	iPZ			50	
	R	ePZ			52	
	T	ePZ			53	
	Pr	iPZ			52	
Aug 5	MW	iPZ	05	57	15	Tu iP 05 57 59
	T	iPZ			00	Probably a foreshock of 08h
		ePcPZ		58	51	
	Pr	ePZ		57	24	
Aug 5	P	ePEZ	08	28	08 c	Normal? Tu iP 08 28 58 c
		iZ			13	iPcP 30 12
		iScPZ		38	43	iScP 34 08
	PX	eSNE		34	56	Aleutian Islands, probably
		eLEZ		38.5		near 52°N.180°, O=08:19.5
	MW	iPNEZ		28	09 c	
		iZ			13	
		eSNE		34	56	
	R	iPNEZ		28	13	
	SE	ePNEZ			01	
	LJ	ePNEZ			20	
	T	ePNEZ		27	54	
		iNZ		28	04	
		iPcPZ		28	45	
		eScPZ		33	28	
	H	iPNEZ		28	00	
		iPcPZ		29	35	
	Pr	iPZ		28	19	
		iZ			29	
		iPcPZ		29	22	
		eScPZ		33	25	
Aug 5	P	ePZ	10	07	57	Tu eP 10 08 28
	MW	ePZ			57	Very roughly 40°N.122°E.,
	R	ePZ		08	01	O=09:55.0
	T	ePZ		07	45	using Manila, Mizusawa, Osaka,
	Pr	ePZ		08	02	Basel and Collmberg
Aug 5	P	ePZ	14	08	13	Tu eP 14 08 39
	MW	ePZ			13	Near Apia, which reports
	R	ePZ			14	P=13:47:38, iS=13:48:55
	T	ePZ			24	
	Pr	ePZ			15	

Date	Sta.	Phase	h	m	s	Remarks
Aug 7	P	iPNEZ	03	07	26 d	Deep. Tu iP 03 06 50 d
		ipPZ			54	ipP 07 19
		isPZ		08	05	eP'P 35 16
	MW	iPNEZ		07	25 d	Roughly 23°S.68°W.,O=02:55.9,
	R	iPNEZ			22 d	h=110 km.,
		ipPZ			51	using Weston, Ottawa, Cartuja
	SE	iPZ			31	
	LJ	ePNEZ			16	
		epPNEZ			45	
	T	iPNZ			37 d	
		ipPZ		08	05	
	H	ePEZ		07	32	
	Pr	iPZ			17 d	
		ipPZ			45	
Aug 7	P	iPNEZ	08	00	02 c	Deep. Tu iP 08 00 22
		epPZ			48	ipP 01 08
	MW	iPEZ		00	02 c	
		epPZ			49	
	R	iPNEZ			04	
	LJ	ePZ			01	
	T	iPNZ			10	
		epPZ			58	
	Pr	iPZ			04 c	
		ipPZ			50	
Aug 7	P	ePNEZ	14	22	33	Tu iP 14 22 02
	MW	iPNEZ			32	
	R	iPZ			30	
	LJ	ePZ			25	
	T	ePZ			40	
	Pr	iPZ			26	
Aug 7	T	ePZ	18	44	15	Tu eP 18 43 38
Aug 7	R	iPZ	20	09	02	Deep? Tu iP 20 08 24
		iZ			35	i 56
	T	iPZ			20	
		eZ			58	
	Pr	ePZ		08	58	
		eZ		09	31	
Aug 8	MW	ePZ	13	08	46	Tu ePZ 13 07 44
	T	ePZ			58	
	Pr	ePZ			26	
Aug 8	PX	eLZ	13	32.8		Normal. Tu iP 13 19 16
	MW	iPZ	13	20	10	Central America
	T	ePZ			25	
		eZ		23	08	
	Pr	iPZ		19	58	
Aug 8	PX	eLZ	15	09		Wellington: 59°S.145°E.,
						O=14:08:25
Aug 8	P	iPZ	15	10	54	Deep. Tu iP 15 10 22
		ipPZ		11	23	ipP 52
	MW	iPZ		10	54	
		ipPZ		11	23	
	R	iPZ		10	51	
		ipPZ		11	20	
	T	iPZ		11	01	
		ipPZ			31	
	Pr	iPZ		10	47	
		ipPZ		11	16	
Aug 8	T	ePZ	16	52	41	Tu iP 16 51 30
	Pr	iPZ		52	13	
Aug 8	P	iPZ	22	37	26	Tu iP 22 36 29
	MW	iPZ			28	
	R	iPZ			22	
	T	ePZ			52	
Aug 9	T	iPZ	05	33	31	Tu eP 05 32 51, e 05 33 10
Aug 9	P	iPNEZ	13	53	23	Tu iP 13 52 35, i 13 53 09
	T	ePZ			25	Felt (R.F. 2-3) at Fort-de-
	Pr	iPZ			13	France, which reports
						P=13:44:25, S-P=18sec.

Date	Sta.	Phase	h	m	s		Remarks
Aug 10	P	iPZ	04	39	19		Tu iP 04 40 04
	MW	iPZ			20		
	R	ePZ			24		
	T	iPZ			05		
	Pr	iPZ			31		
Aug 10	P	iPZ	05	36	11		Tu iP 05 36 56
	MW	iPZ			12		
	T	iPZ		35	57		
	Pr	ePZ		36	23		
Aug 11	P	iPZ	07	16	08		Tu iP 07 17 47
	MW	ePZ			08		
	R	ePZ			02		
	T	ePZ			21		
	Pr	iPZ		17	53		
Aug 11	T	iPZ	07	58	25		Tu eP 07 58 58
Aug 11	P	iPNEZ	16	58	08		Normal. Tu eP 16 58 84
		iPPZ	17	00	49		Pelt (S.F. 4) at Apia, which
	PX	eSEZ		07	25		reports: iP=16:47:17,
		eLNEZ		16.8			iS=16:47:37
	MW	ePZ	16	58	08		and gives 14°41'S.172°5oW.,
		iPPZ	17	00	49		O 16:46:51
	R	iPEZ	16	58	12		
	SE	iPNEZ			08		
	LJ	iPNEZ			10		
	T	iPNEZ			17		
	H	ePN			18		
	Pr	iPZ			12		
Aug 12	P	iPZ	15	55	50		Tu iP 15 55 44
	MW	iPZ			52		These readings may refer to P'
	R	iPZ			50		
	T	ePZ			40		
Aug 12	P	iPNEZ	17	56	37		Tu iP 17 57 01
	MW	iPNEZ			38	c	
	R	iPZ			39		
	SE	eRZ			32		
	T	iPZ			46		
	H	ePNEZ			44		
Aug 13	P	iPNZ	08	27	07		Tu iP 08 28 52 d
	MW	iPZ			08		
	R	ePZ			05		
	LJ	ePZ		28	59		
	T	iPNEZ		27	28		
	H	ePNEZ			20		
	Pr	iPZ			01		
Aug 13	P	iPNEZ	15	49	13		Normal? Surface waves recorded
		iNEZ			22		Tu iP 15 49 42
	PX	iNE		59	44		i! 48
	MW	iPNEZ		49	13	c	i 53 17
		iNZ			22		Osaka 36.1°N.132.1°E.
		iZ			33		
	R	iPNZ			15		
		iNZ			23		
	SE	iPZ			07		
		iNEZ			15		
	LJ	ePNEZ			28		
	T	iPZ			04		
		iZ			12		
	H	iPNEZ			08		
		iNEZ			16		
		eN		59	39		
	Pr	iPZ		49	19	c	
		iZ			27		
		iZ			35		
		iZ		52	43		

Date	Sta.	Phase	h	m	s		Remarks
Aug 13	P	iPNEZ	22	08	13		Normal. 36°14'N.120°19'W.
	MW	iPZ			18		O=22:07:29
	R	ePZ			20		
	SE	iPZ			01		
		iSNE			29		
	T	iPNEZ			01	d	
		iSNE			25		
	H	iPNEZ			02		
		iSNE			29		
Aug 15	P	iPZ	02	59	32		
	R	ePZ			27		
	T	iPNZ			45		
	Pr	iPZ			21		
Aug 15	P	iPNEZ	04	40	09		
	MW	ePNEZ			10		
	R	ePNEZ			09		
	T	ePNEZ		39	36		
	Pr	iPZ		40	17		
Aug 15	P	iPZ	04	57	25		
	MW	iPEZ			27		
	R	ePZ			28		
	T	eNZ		56	51		
	Pr	ePZ			38		
Aug 15	P	iPZ	21	35	45		Deep.
		ipPZ		36	24		
	MW	iPNEZ		35	48	c	
		ipPNEZ		36	24		
	T	iPZ		35	48		
		ipPZ		36	24		
	H	iPNZ		35	45		
		ipPNZ		36	26		
Aug 17	P	ePZ	12	16	35		Tu iP 12 16 41
	MW	ePZ			35		
	Pr	iPZ			24	d	
Aug 18	P	ePZ	08	07	14		Normal. Tu iP 08 07 34
	PX	eLZ		34			
	MW	ePZ		07	14		
	R	ePZ			16		
	T	ePZ			22		
	H	ePZ			24		
Aug 20	R	iPZ	05	14	10		Tu eP 05 14 36
	T	ePZ		13	56		N.E. of Hatidyozima (Osaka)
Aug 20	P	iPZ	06	44	08	d	Tu eP 06 44 35
	MW	iPNEZ			08	d	
	R	iPZ			10		
	T	ePZ			17		
	Pr	iPZ			12	d	
Aug 20	PX	eLZ	08	31			
	T	ePZ	07	58	28		
Aug 20	PX	eLZ	08	15			Tu iP 08 44 02
	T	ePZ	08	43	53		
Aug 20	P	ePZ	17	43	14		Normal. Tu e 17 47 44
	PX	ePPZ		45	12		Wellington: 6°S.148°E.,
		eZ		55.8			O=17:29.7
		eSSZ	18	01.8			
		eLZ		18.5			
	MW	ePZ	17	43	18		
	R	iPZ			19		
	T	ePZ			15		
Aug 20	P	ePZ	19	08	18		Tu eP 19 05 46
	PX	eSNZ		12	30		
		eLE		17	45		
	MW	iPZ		08	18		
	R	ePZ			09		
Aug 21	P	ePZ?	19	42	51		Normal. Tu eP 19 42 44
	PX	eLZ	20	11.5			

Date	Sta.	Phase	h	m	s		Remarks
Aug 22	P	ePZ	03	34	33		Normal? Tu iP 03 35 21
		iNEZ!			45	c	i! 38
		iZ		36	47		e 04 06.5
		iZ		39	39		Felt at Unalaska. Depth 60 km?
	PX	eSNE		40	36		USCGS: 51.9°N. 164.9°W.,
		iLNE		43	28		O=03:27:18
	MW	iPNEZ		34	34		JSA: 52.2°N. 165.8°W.
		iNEZ!			45		O=03:27:17; normal
		iZ		36	49		
		iZ	04	06	30		
	R	ePNEZ	03	34	39		
		iNEZ			50		
		iZ		36	56		
		eSNE		40	48		
		iZ	04	06	35		
	T	ePNEZ	03	34	17		
		iZ			26		
		iZ		36	47		
	H	iPEZ	03	34	27		
		iNEZ			37		
		iZ		36	49		
		eSNE		40	20		
	Pr	ePZ		34	42		
		iZ			54		
Aug 22	P	iPZ	06	08	20		Tu iP 06 08 38
	MW	iPZ			20		
	R	ePZ			20		
	T	iPZ			18		
	H	iPNEZ			21		
Aug 22	P	ePZ	11	11	23		Tu iP 11 10 38
	MW	ePZ			23		
	R	ePZ			17		
	T	ePZ			35		
	Pr	iPZ			10		
Aug 22	P	ePZ	13	42	40		Tu eP 13 41 48
	MW	iPZ			40		
	T	ePZ			54		
	Pr	ePZ			28		
Aug 24	P	iPZ	07	24	26		Tu iP 07 24 51
	MW	iPZ			26		
	R	iPZ			29		
	T	iPZ			32		
	Pr	iPZ			30	c	
Aug 24	P	ePZ	07	59	35		Tu iP 08 00 22
	MW	iPZ			35		
	R	ePZ			39		
	T	ePZ			16		
	Pr	iPZ			46		
Aug 24	P	ePNEZ	13	42	30	d	Normal. Tu iP 13 42 56 d
	PX	eSNE		51	51		Felt at Apia, which reports
		eLNEZ	14	08.3			iP=13:31:36, S=13:32:29
	MW	ePNZ	13	42	29	d	
	R	ePZ			32		
	SE	ePZ			22		
	LJ	ePNEZ			31		
	T	iPZ			39		
	H	ePNEZ			39		
	Pr	iPZ			33	d	
Aug 24	P	ePZ	13	50	31		Tu eP 13 50 54
	MW	ePZ			38		Overlapped by the preceding
	T	eZ			38		
	Pr	ePZ			38		

Date	Sta.	Phase	h	m	s		Remarks
Aug 25	PX	eSNEZ	01	11	48		Tu eP 01 08.9
	MW	ePZ		10	36		eS 10.8
		eSNEZ		11	48		Foreshock at 01:04
	R	ePZ		10	28		
		eSZ		11	28		
	LJ	ePZ		10	11		
		eSNE			57		
	Pr	iPZ			09		
Aug 25	P	iPZ	10	43	45		Tu iP 10 44 18
	MW	iPZ			47		Japan. Mizusawa reports
	R	iPZ			45		P=10:32:38, S=10:38:18
	Pr	ePZ			51		
Aug 26	P	iPZ	00	36	48		Tu iP 00 37 07
	MW	iPZ			44		
	T	iPZ			51		
Aug 26	P	iPNEZ	02	38	06	d	Deep. Tu iP 02 37 27 d
		iZ			35		Probably Peru, about 11°S.,
		iZ			46		h=120 km.
	MW	iPNEZ			07	d	
		iZ			38		
		iZ			46		
	R	iPNEZ			08	d	
		iZ			30		
		iZ			42		
	SE	ePZ			15		
		eZ			58		
	LJ	ePNEZ		37	58		
		eZ		38	36		
	T	iPNEZ			21		
	H	ePNEZ			14		
Aug 26	P	ePNZ	05	03	36		Normal. Tu eP 05 07 51
	PX	eSNZ		14	59		JSA: 2.0°N. 80.5°W., O=05:00.8
		eLNEZ		21.3			
	MW	iPNEZ		08	36		
	R	ePZ			31		
	LJ	ePNEZ			33		
	T	ePNEZ			55		
	H	ePNZ			48		
Aug 27	P	ePZ	07	10	08		Deep? Tu iP 07 10 31 c
		iZ		12	20		e 07 12 39
	MW	iPZ		10	10	c	Apia reports: eP=08:54:27,
		eZ		12	19		eS=08:55:37,
	R	ePZ		10	12		with some doubt. Possibly
	H	iPNEZ			18		not the same shock.
		ePZ			18		
Aug 28	P	iPNEZ	12	40	11	d	Deep. Tu iP! 12 40 34 d
		epPZ			56		ipP 41 24
	MW	iPNEZ			12	d	eP'P' 13 07 13
		ipPZ		41	01		Not far from Apia, which
	R	iPNEZ		40	18	d	reports: eP=12:30:26,
	SE	iZ			38		eS=12:31:58
	T	iPZ			21		
		ipPZ		41	10		
	H	iPNEZ		40	18		
	Pr	iPZ		40	14	d	
		ipPZ		41	04		
Aug 28	P	iPZ	13	45	04		Tu iP 13 45 29
	MW	iPZ			05		
	R	ePZ			06		
	T	ePZ			13		
	Pr	iPZ			08		
Aug 28	P	ePZ	15	28	09		Tu iP 15 28 38
	MW	iPZ			10		i 46
	R	ePZ			18		Japan?
	R	eZ		27.9			
	Pr	ePZ		28	18		

Date	Sta.	Phase	h	m	s	Remarks
Aug 29	MW	ePZ	05	06	04	Tu iP 05 06 52
	Pr	iPZ			16	
Aug 29	P	ePZ	15	00	42	Tu iP 15 00 56
	PX	eLZ		28.1		
	MW	ePZ		00	41	
	R	eZ			38	
		eZ			50	
	T	ePZ		01	03	
	Pr	iPZ		00	42	
		iZ			56	
Aug 30	P	eZ	18	30	30	Tu eP 18 31 02
	MW	ePZ?			17	
		eZ			30	
	T	iPZ			25	
	H	ePNE			32	
	Pr	eZ			36	
Aug 30	P	ePZ	21	42	34	Tu eP 21 42 35
	MW	ePZ			33	
	T	iPZ			16	
Aug 31	P	iPZ	16	34	14	Tu iP 16 38 40
	R	iPZ			11	
		iZ			53	
	T	iPZ			26	
	Pr	ePZ			07	
Aug 31	P	iPNZ	17	23	08	Deep? Tu iP 17 22 30
	MW	iPZ			09	i 23 12
		iZ		24	00	
	R	iPZ		23	05	
	T	iPZ			21	
		iZ			43	
		eZ		24	08	
	H	iPZ		23	16	
		eZ			40	
	Pr	iPZ			00	
Aug 31	P	ePZ	19	41	51	Normal. Tu eP 19 41 29
	PX	eN		43	33	
		eLNZ		54.7		
	MW	ePZ		41	52	
	R	ePZ			50	
Sept 1	P	iPZ	11	32	02	Tu iP 11 32 26
	MW	iPZ			02	
	T	ePZ			10	
	Pr	iPZ			05	
Sept 2	P	iPZ	08	12	58	Tu iP 08 13 31
	MW	iPZ			54	
	T	iPZ			39	
	Pr	iPZ		13	03	
Sept 2	P	ePZ	08	51	31	Tu iP 08 52 21
	MW	ePZ			33	
	R	ePZ			36	
	LJ	ePNEZ			37	
	Pr	ePZ			40	
Sept 2	P	eNZ	23	11	40	Tu e 23 12 19
	MW	iZ			40	i 13 19
	R	eNEZ		10	58	
		iNZ		11	25	
Sept 3	P	iPZ	01	40	40	Deep. Tu iP 01 41 02
		epPZ		41	08	epP 30
		isPZ			20	isP 43
	PX	eLZ?	02	11		Wellington: 22 1/2°S. 171 1/2°E.
	MW	iPNEZ	01	40	40	0=01:28.0, h=100 km.
		epPZ		41	09	
		isPZ			15	
	R	ePZ		40	42	
		epPZ		41	09	
	LJ	ePZ		40	41	
	T	iPNEZ			47	
		epPZ		41	20	

(Continued)

Date	Sta.	Phase	h	m	s	Remarks
		(Continued)				
Sept 8	H	ePEZ	01	40	46	
	Pr	iPZ		40	43	
		iZ		41	16	
Sept 8	MW	ePZ	12	06	16	Tu iP 12 07 02
	R	ePZ			29	
	T	iPZ			04	
	Pr	ePZ			37	
Sept 8	PX	eLZ	15	40		Normal. Tu e 15 00 08
	MW	eZ	14	59	39	Probably Tibet
	T	eZ			20	
Sept 5	P	iPZ	08	38	48	Tu iP 08 38 53
Sept 8	P	iPZ	08	01	00	Normal? Tu iP 08 01 39
		iZ		01	11	Bur. Int. 57°N.162.5°E.,
	PX	eLZ		15.5		0=02:51:28
	MW	iPZ		01	02	
		iZ			12	
	R	ePZ		00	52	
	SE	ePZ			54	
	T	iPEZ			47	
		iZ			58	
	H	ePNZ			52	
		iZ		01	03	
	Pr	iPZ		01	10	
		iZ			21	
Sept 8	P	ePZ	08	24	19	Normal? Tu iP 08 24 50
	PX	eLZ		57		
	MW	ePZ		24	18	
	R	ePZ			21	
	T	ePZ			14	
	Pr	ePZ			24	
Sept 8	P	iPZ	20	30	33	Tu iP 20 29 50
	MW	iPZ			24	
	R	iPZ			19	
	H	iPZ			32	
	Pr	ePZ			15	
Sept 7	P	iPZ	18	08	05	Normal. Felt in Monterey
		iSE			44	County. Roughly: 36.5°N.121.5°W.
	MW	iPZ			05	0=13:02.1
	R	iPZ			23	Foreshocks at 10:36.5 and
	SE	iPZ		02	51	10:38.6
	T	ePNEZ			52	
	H	iPNEZ		02	57	
	Pr	iPZ		03	23	
Sept 7	PX	eLZ	20	12.0		Normal. Tu ePP 19 42 20
	R	ePPZ	19	42	03	Near 9°N.127°E. (Manila)
Sept 8	P	iPZ	01	18	48	Deep? Tu iP 01 19 10 d
	MW	iPNEZ			48	
	R	ePZ			51	
	T	iPZ			57	
	H	iPNEZ			55	
	Pr	iPZ			51	
Sept 8	PX	eLNEZ	06	21.0		Normal. Tu iP 06 16 49
						S 06 18.6
Sept 8	P	ePZ	10	17	38	Tu iP 10 16 38
	MW	iPZ			34	
	R	ePZ			23	
	T	ePZ			48	
	Pr	iPZ			23	
Sept 8	P	iPNEZ	10	24	27	Normal? Tu iP 10 25 07
	PX	eLZ		42.8		i 20
	MW	iPNEZ		24	26	Aleutian Islands
	R	ePZ			31	
	T	iPNEZ			12	
	H	iPNEZ			19	
	Pr	iPZ			37	

Date	Sta.	Phase	h	m	s	Remarks
Sept 8	P	ePZ	18	23	30	Tu eP 18 24 09
	R	ePZ			32	
	Pr	ePZ			44	
Sept 9	P	iPZ	04	11	14	Tu iP 04 10 49
	MW	iPNEZ			15	Chile?
	R	ePZ			15	
	T	iPZ			26	
	H	ePZ			22	
	Pr	iPZ			06	
Sept 9	P	ePZ	21	47	00	Tu iP 21 47 32
	MW	ePZ			01	
	R	ePZ			02	
	Pr	ePZ			04	
Sept 9	P	eZ	23	08	32	Tu iP 23 09 02 d
	MW	eZ?			17	i 17
		iZ			31	i 11 04
	R	eZ			31	i 20
	H	eNEZ			19	
	Pr	iPZ			25	
		iZ			40	
Sept 12	P	ePZ	00	16	24	Normal. 31.7°N.115.1°W.
		iSNEZ		17	12	0=00:15.5
	MW	iPZ		16	25	Tu eP 00 16 29
		iSNE		17	11	Foreshock at 00:06
	R	ePZ		16	13	
		eSNE			56	
	LJ	iPZ		16	03	
		iSNZ			29	
	Pr	iPZ			05	
Sept 12	P	ePZ	00	35	54	Deep? Felt in N. Celebes and
		iP"Z		39	48	at Laboeha (Batjan), according
		iZ		40	28	to Batavia
		iZ		42	35	Tu iP" 00 40 00
		iZ		43	09	i 41 24
	MW	iP"NEZ		39	48	iPKKP 50 13
		iZ		40	28	
	R	iP"Z		39	48	
	Pr	iP"Z			50	
Sept 12	P	iPNZ	09	32	45 d	Deep? Tu iP 09 33 09 d
	MW	iPNEZ			45 d	Near Apia, which reports
	R	iPZ			47	eP=09:22:52, iS=09:23:54
	LJ	ePZ			33	
	T	iPNZ			53 d	
	H	iPNEZ			52	
	Pr	iPZ			48 d	
Sept 12	P	ePNEZ	13	30	16	Normal. Tu eP 13 30 47
	PX	ePPZ		33	56	e 55 43
		eSKSNE		40	49	Felt strongly at Rabaul,
		iZ		42	45	Kokopo, etc. according to
		iSSZ		47	47	Riverview.
		eLNEZ		54.6		Wellington gives:
	MW	iPNEz		30	17	4 1/2°S.153 1/2°E.,0=13:17.2
	R	ePNEZ			19	Major earthquake (Magnitude 7)
	LJ	ePNEZ			23	
	T	ePZ			19	
	H	ePNEZ			23	
	Pr	ePZ			21	
Sept 13	P	iPZ	08	00	45	Tu iP 08 01 22
	MW	iPZ			46	
	R	iPZ			49	
	T	iPZ			25	
	Pr	iPZ			57	

Date	Sta.	Phase	h	m	s	Remarks
Sept 13	P	ePZ	11	50	58	Normal. 32.1°N.114.3°W.,
		iSNE		51	59	0=11:49:57
	MW	ePZ		50	57	Tu iP 11 50 44
		iSE		51	59	BC eP 11 51 04
	R	ePZ		50	48	iS 52 20
		iSN		51	54	
	LJ	iPNEZ		50	39	
	Pr	iPZ			37	
Sept 13	P	iPZ	15	29	28	
	MW	iPZ			25	
	R	iPZ			28	
	Pr	iPZ			26	
Sept 14	P	ePZ	02	37	39	Tu iP 02 38 23 c
	MW	ePNEZ			39	
	R	ePZ			44	
	T	iPNEZ			26	
	H	ePZ			31	
	Pr	iPZ			50	
Sept 14	P	ePZ	18	18	45	
	MW	iPZ			45	
	R	ePZ			44	
	T	ePZ			48	
	Pr	ePZ			50	
Sept 14	P	iPNEZ	23	14	19	Normal. Tu eP 23 13.3
	PX	eLN		20.3		
	MW	iPZ		14	19	
	R	iPZ			18	
	T	iPNEZ			48	
	H	ePZ			34	
	Pr	iPZ			07	
Sept 15	P	iPNZ	12	06	44	Tu iP 12 07 28
	MW	iPNEZ			46	
	R	ePZ			50	
	LJ	ePNZ			56	
	T	ePZ			32	
	H	ePZ			37	
	Pr	iPZ			55	
Sept 15	P	iPNZ	14	33	56	Tu iP 14 34 19 c
	MW	iPNEZ			57	
	R	iPZ			58	
	T	ePZ		34	02	
	Pr	iPZ		33	58	
Sept 15	P	ePZ	17	27	07	Tu iP 17 27 29
	MW	iPZ			08	
	R	ePZ			08	
	T	iPZ			16	
	Pr	iPZ			09	
Sept 17	PX	eLZ	08	47		Normal. Tu e 08 20 56
	R	eZ		20	24	
	T	eZ			22	
	Pr	eZ			24	
Sept 17	MW	iPZ	09	01	30	Tu iP 09 00 49
	R	iPZ			26	
	T	iPZ			46	
	H	ePZ			40	
	Pr	iPZ			20	
Sept 17	P	ePZ	19	55	20	Tu iP 19 54 39
	MW	iPZ			20	
	R	iPZ			16	
	T	iPZ			35	
	Pr	iPZ			10	

Date	Sta.	Phase	h	m	s		Remarks
Sept 18	P	iPNEZ	15	20	33	d	Deep. Tucson iP 15 19 58 d
		ipPZ		21	02		isP 20 40
		isPZ			12		i 20 56
	MW	iPNEZ		20	33	d	Roughly: 23°S.67°W., O=15:09.2,
		ipPZ		21	03		h=110 km., using Cape Girar-
		isPZ			15		deau and Weston
	R	iPNEZ		20	30	d	
		ipPZ			59		
		isPZ		21	11		
	SE	iPNEZ		20	40		
	LJ	ePNEZ			24		
	T	iPNEZ			45	d	
		ipPZ		21	16		
	H	ePNEZ		20	41		
		epPZ		21	11		
		isPZ			25		
	Pr	iPZ		20	23	d	
		ipPZ			52		
		isPZ		21	06		
Sept 19	P	eZ	11	33	22		Tu i 11 33 33
	MW	eZ			22		
Sept 19	P	ePNEZ	18	32	34	d	Normal? Tu iP 18 32 56 d
	PX	ePPZ		36.5			ePKKP 50 07
		eNE		43	05		eP'P' 58 18
		iSNEZ			25		USCGS: 23°S.171°E.,O=18:19.8
		iZ		44	30		Wellington: 23 1/2°S.171°E.,
		eZ		47	50		O=18:19.6
		eLNEZ		55	8		Major earthquake (Magnitude 7)
	MW	iPNEZ		32	35	d	
	R	ePNEZ			36	d	
		eE		43	07		
	SE	ePNEZ		32	30		
	LJ	ePNEZ			36		
	T	iPNEZ			41		
		eE		43	37		
	H	ePNEZ		32	40		
	Pr	iPZ			36	d	
Sept 20	P	iPPZ	00	16	07		Normal. Tu ePP 00 16 14
	PX	eLZ		36.0			Roughly: 4°N.140°E., O=00:0.0
	MW	ePZ		13	27		
		ePPZ		15	58		
	R	ePPZ		16	00		
	H	ePPNEZ			04		
	Pr	ePPZ		15	56		
Sept 20	MW	ePZ	09	05	01		Tu eP 09 05 44
	H	eNEZ		04	49		
	Pr	ePZ		05	07		
Sept 20	P	iPZ	12	23	01		Normal. Nevada, about
		eSNE			56		37°N.114°W.
	R	iPZ		22	45		BC eP 12 22 05; iS 12 22 28
	Pr	iPZ			50		Tu iP 12 23 17
Sept 20	P	ePZ	18	57	21		Normal. Tu iP 18 57 09
	PX	eLNZ	19	27			
	MW	iPZ	18	57	28		
	T	ePZ			34		
	H	ePZ			28		
	Pr	ePZ			14		
Sept 21	MW	iPZ	12	30	36		Tu iP 12 29 42
	Pr	iPZ			24		Central America
Sept 21	P	eZ	14	06	48		Deep. Tu iP" 14 07 09
	PX	ePPZ		07	38		ePKKP 14 18 38
		esPPZ		08	50		Hindu Kush: 36.5°N.70.5°E.,
		eN		18.0			O=18:49:00, h=220 km.
	P	iPKKPZ		18	11		
	MW	eZ		06	48		
		iPKKPZ		18	12		

(Continued)

Date	Sta.	Phase	h	m	s	Remarks
		(Continued)				
Sept 21	R	ePPZ	14	07	38	
		iPKKPZ		18	10	
	T	eZ		07	07	
	Pr	eZ			02	
		ePPZ			42	
		esPPZ		08	56	
Sept 22	MW	eZ	12	56	02	Tu e 12 56 54
		eZ		58	18	e 59 03
	R	eZ			23	
	T	eZ		55	49	
		iZ		58	02	
	H	eZ		55	54	
		iZ		58	08	
	Pr	iZ			28	
Sept 22	P	iPZ	22	23	15	Tu iP 22 23 42
		iZ			27	i 52
	T	ePZ			26	Near Apia, which reports:
		eZ			37	eP=22:12:22, S?=22:12:51
Sept 22	P	iPZ	23	05	08	Deep. Philippines. Felt
		iP"NEZ		09	12	slightly on Mindanao.
		iZ		11	46	Pasadena: 8°N.124°E.,
	PX	iSKSNEZ		14	49	O=22:51:56, h=650-700 km.,
		iSPEZ		18	10	using Manila and all other
		eEZ		19	21	available data.
	P	iPKKPZ		20	25	Tu iP" 23 09 25
		iZ			38	eSP 19 07
		iZ		24	32	iPKKP 20 04
		eP'P'Z		23	24	i 20 12
	MW	ePNEZ		05	13	i 24 07
		eP"NEZ		09	10	iP'P' 27 50
		iZ		11	45	
		eSPEZ		18	20	
		iPKKPZ		20	25	
		iZ			40	
	R	ePZ		05	15	
		iP"NEZ		09	15	
		iPKKPZ		20	22	
		iZ			37	
	T	iPZ		05	07	
		eP"Z		08	55	
		iPKKPZ		20	29	
		iZ			44	
	H	eP"NEZ		09	12	
		ePKKPZ		20	27	
	Pr	ePZ		05	17	
		eP"Z		09	16	
		iPKKPZ		20	21	
		iZ			29	
		iZ		24	33	
Sept 23	P	iPNEZ	07	26	12	c Deep. Tu iP 07 25 38 c
		ipPNEZ		28	08	Roughly 25°S.62°W., P=07:15.1,
		iSN		35	18	h=570 km., using all available
	MW	iPNZ		26	11	c data.
		ipPZ		28	07	
		iSN		35	19	
	R	iPNEZ		26	09	c
		ipPZ		28	06	
		eSN		35	11	
	SE	iPZ		26	18	
		epPZ		28	19	
	LJ	ePEZ		26	03	
	T	iPNEZ			22	c
		epPNEZ		28	26	
		eSNE		35	38	
	H	iPNEZ		26	13	c
	Pr	iPZ			04	c

Date	Sta.	Phase	h	m	s		Remarks
Sept 23	P	ePZ	10	38	11		Tu eP 10 38 28
	MW	ePZ			09		Reading may refer to P"
	T	ePZ		37	57		
	H	eZ		38	02		
	Pr	iZ			18		
Sept 24	P	iPNEZ	01	00	56		Normal? Small surface waves
	MW	iPNEZ			57		recorded.
	SE	iPNZ			52		Tu iP 01 01 28
	T	iPNEZ			54		
	H	iPNEZ			56		
	Pr	iPZ		01	04		
Sept 24	P	iPNEZ	10	05	12	d	Deep? Tu iP 10 04 32 d
		iZ			46		i 05 20
	MW	iPNEZ			12	d	i 06 24
	T	iPNEZ			24	d	
	H	iPNEZ			19		
	Pr	iPZ			04	d	
		iZ		06	48		
Sept 25	P	ePZ	09	06	38		Tu eP 09 06 16
	MW	ePZ			39		
	R	ePZ			36		
	T	ePZ		07	02		
	Pr	iPZ		06	31		
Sept 25	P	iP'Z	14	47	52		Normal? Tu eP' 14 48 05
		iZ		48	01		e 50 27
	MW	eP'Z		47	52		Indian Ocean
		iZ		48	01		
	R	eP'Z		47	58		
		iZ		48	02		
	T	eZ		47	58		
	H	eP'Z			52		
		eEZ		48	01		
	Pr	eP'Z		47	59		
Sept 26	P	iPNEZ	04	08	58	c	Deep. Tu iP 04 09 17 c
		ipPNEZ		09	31		ipP 09 58
	PX	iE		20	51		iPKKP 26 50
	P	iPKKPZ		27	02		iP'P' 34 57
	PX	eLN		32.1			Wellington: 12°S.166 1/2°E.,
	P	eP'P'Z		35	05		0=03:56.5, h=125 km.
	MW	iPNEZ		08	58	d	
		ipPNZ		09	32		
		iPKKPZ		27	02		
		eP'P'NZ		35	07		
	R	iPNEZ		08	55		
		ipPNEZ		09	34		
		iPKKPZ		27	01		
		eP'P'Z		35	06		
	SE	ePZ		08	48		
		ipPZ		09	26		
	T	iPNEZ		08	57		
		ipPZ		09	05		
		ePKKPZ		27	02		
		eP'P'Z		35	03		
	H	ePNEZ		08	57		
		ipPNEZ		09	36		
		ePKKPZ		27	02		
	Pr	iPZ		08	54	d	
		ipPZ		09	33		
		iPKKPZ		26	59		
		iP'P'Z		35	06		
Sept 26	R	ePZ	09	31	51		Tu eP 09 31 25
	T	ePZ		32	14		
	H	ePZ			02		
	Pr	ePZ		31	47		

Date	Sta.	Phase	h	m	s		Remarks
Sept 26	MW	iPZ	17	06	13		Tu iP 17 06 50
	R	iPZ			16		
	T	ePZ			41		
Sept 27	P	ePZ	17	05	29		Normal. Tu iP 17 06 50
		eSNEZ		07	01		Felt in Humboldt and Mendo-
		eLZ		08.8			cino Counties, California
	MW	iPZ		05	23		
	R	iPNEZ			28		
	T	iPNEZ			05		
	H	iPNEZ			18		
Sept 29	P	iPNEZ	01	33	38	d	Deep. Tu iP 01 33 04 d
		epPZ			59		Andes, about 34°S., h=100 km.
	MW	iPNEZ			34	d	
		ipPZ		34	01		
	R	iPNEZ		33	30	d	
		ipPZ			57		
	SE	iPNEZ			40		
	T	iPNEZ			46		
		ipPZ		34	14		
	H	iPNEZ		33	41	d	
		epPZ		34	09		
	Pr	iPZ		33	25	d	
Sept 29	PX	eLN	04	59.1			Normal. Tu iP 04 49 52
	MW	eZ		49	28		
	H	eZ			02		
Sept 29	P	eZ	06	02	35		Normal. Tu iP 06 03 07
	PX	eLN		12.6			
	MW	ePZ		02	21		
	H	ePZ			08		
	Pr	eZ			27		
Sept 30	MW	eZ	09	48	35		Normal. Tu iP 09 47 37
	R	eZ			31		EC eP 09 47 52
Sept 30	P	iPZ	10	07	48		Tu iP 10 08 09
	MW	iPZ			48		
	R	ePZ			50		
	T	iPZ			56		
	H	iPNZ			53		
	Pr	iPZ			49		
Sept 30	P	ePZ	11	25	34		Normal? Tu eP 11 25 49
	PX	eLZ		51.6			Wellington: 29°S.176°W.,
	MW	ePZ		25	35		0=11:13.4, h=150-200 km.
	R	ePZ			37		Felt at Raoul I., Kermadecs.
	SE	ePZ			35		
	T	ePNEZ			48		
	H	ePNZ			41		
	Pr	ePZ			35		
Sept 30	P	ePZ	13	37	13		Normal. Tu eP 13 37 30
	PX	eLZ	14	08.6			
	MW	ePZ	13	37	15		
	R	ePZ			15		
	H	ePZ			22		
	Pr	ePZ			14		
Sept 30	P	ePZ	14	22	58		Normal? Tu eP 14 23 12
	PX	eLZ		49			Wellington: 29°S.176°W.,
	MW	ePZ		22	59		0=14:10.6, h=150-200 km.
	R	ePZ			58		
	Pr	ePZ			56		

C. F. Richter
November 25, 1941

CALIFORNIA INSTITUTE OF TECHNOLOGY

PASADENA CALIFORNIA

SEISMOLOGICAL LABORATORY

BULLETIN

OCTOBER-DECEMBER 1940

(PASADENA AND AUXILIARY STATIONS)

Date	Sta.	Phase	h	m	s		Remarks
Oct 1	P	iPNEZ	10	54	36	c	Deep. Tu iP 10 54 04 c
		epPNEZ			52		i 19
		iZ			56		i! 24
		isPZ		55	07		eP'P'? 11 21.9
	PX	eE		56	13		iP'P' 11 22.7
		ePPE		57	33		Chile. Felt at La Serena,
		eSN	11	04	28		Coquimto, and Copiapo.
		eSSN		09.0			JSA: 28.5°S.72.0°W.,
		eLNZ		19			O=10:42:52, h=100 km.
	MW	iPNEZ	10	54	37	c	
		iNEZ			56		
	R	ePNEZ			38	c	
	SE	iPNEZ			43	c	
	T	iPNEZ			43		
	H	ePNEZ			44		
	Pr	iPZ			27	c	
Oct 1	MW	eZ	13	18	46		Tu eP 13 19 15
Oct 1	P	ePZ	19	25	22		Deep? Tu iP 19 25 52
	MW	ePZ			22		e 25 11
		eZ			41		
	R	ePZ			24		
	Pr	iPZ			28		
Oct 1	P	eZ	20	46	34		Normal. Tu 20 47 11
	PX	eLZ		56.5			
	MW	eZ		46	34		
	R	eZ			29		
Oct 1	P	ePPZ	21	55	14		Normal. Tu e 21 58 27
	PX	iPSZ	22	03	10		Wellington: 41°S.168°E.,
		eN		25.6			O=21:38.4
	MW	eZ	21	58	19		
Oct 2	P	iPZ	01	03	41		
	R	ePZ			43		
Oct 2	P	iPZ	01	03	41		
	R	ePZ			43		
Oct 2	P	iPNEZ	03	23	19	c	Normal. Tu iP 03 22 26 c
		ePPZ		25	26		JSA: 9°N.87°W., O=03:15.2
	PX	eSN		29.4			
		eLN		34			
	MW	iPZ		23	19	c	
	R	ePNEZ			15		
	SE	ePNEZ			30		
	LJ	ePZ			08		
	T	iPNEZ			34		
	Pr	iPZ			06	c	
Oct 2	P	ePZ	04	17	43		Tu iP 04 18 08
	MW	ePZ			43		Near Apia, which reports
	R	eZ			50		P=04:08:54, S?=04:07:23
Oct 2	P	ePZ	10	36	24		Normal? Tu eP 10 36 40
	PX	eLZ	11	03			
	MW	ePZ	10	36	23		
	R	ePZ			24		
	T	ePZ			32		
	Pr	ePZ			25		
Oct 3	P	iPNEZ	05	07	29	d	Deep. Tu iP 05 06 54 d
		ipPZ			58		i 07 21
	MW	iPNEZ			31	d	Cape Girardeau gives
		ipPZ			58		20.8°S.70.4°W., h=150 km.
	R	iPNEZ			27	d	
		ipPZ			53		
	LJ	ePZ			21		
	T	iPNEZ			42		
		epPZ		08	09		
	H	iPZ		07	37		
	Pr	iPZ			22	d	
		iZ			42		

Date	Sta.	Phase	h	m	s	Remarks
Oct 3	P	iPNEZ	14	13	27	Normal? Small surface waves
		iZ			39	recorded.
	MW	iPZ			27	Tu eP 14 13 46
		iZ			40	i! 59
	R	ePZ			29	
		iZ			43	
	H	ePNZ			36	
		iZ			48	
Oct 3	P	iPZ	15	38	37	Normal? Tu iP 15 38 42
		iZ			43	i 49
	MW	iPZ			37	
	R	ePZ			37	
	T	ePZ?			19	
		eZ			26	
	H	ePNZ			25	
		eZ			31	
	Pr	ePZ			40	
		iZ			47	
Oct 3	P	iPZ	23	06	36	Tu iP 23 07 02
	MW	iPNEZ			37	
	R	iPZ			38	
	H	iPNEZ			43	
	Pr	iPZ			37	
Oct 4	P	eZ	07	36	57	Tu eP 07 35 09
	MW	ePZ			46	
	R	iPZ			43	
Oct 4	P	ePNEZ	08	06	02	Normal? Strong at Iquique,
		iZ			18	Chile. USCGS: 19°67°W.,
		iZ		12	31	O=07:54:35
	PX	eSNE		15	16	JSA: 20.3°S.70.4°W.,
		iSN			26	O=07:54:48, h=75 km.
		eSSE		19	50	Phases in 12^m may belong to
		eLNE		23.8		another shock.
	P	iP'P'Z		33	30	Tu eP 08 05 25
		$iP_2'P_2'Z$		34	29	iP'P' 32 53
	MW	ePNEZ		06	01	$iP_2'P_2'$ 34 29
		iZ			13	i 45
		iZ		12	30	
		iZ			39	
		eSNE		15	18	
		iP'P'Z		33	29	
		$iP_2'P_2'Z$		34	24	
	R	iPNEZ		05	58	
		iZ		12	27	
		iZ			35	
		eSNE		15	15	
		iP'P'Z		33	26	
	SE	ePNE		06	19	
		eSN		15	29	
	LJ	ePZ		05	55	
		eSE		15	09	
	T	ePNZ		06	16	
		iZ		12	42	
		eSN		15	49	
		iP'P'Z		33	43	
	H	ePNEZ		06	11	
		iZ		12	33	
		eSN		15	43	
		eP'P'Z		33	36	
	Pr	ePZ		05	54	
Oct 4	P	iPNEZ	09	44	30	Tu iP 09 48 58 c
	MW	iPZ			30	Aftershock
	R	iPZ			26	
	T	ePNZ			42	
	H	ePNEZ			37	
Oct 5	P	iPZ	04	57	19	Tu eP 04 56 48
	MW	iPZ			19	Aftershock
	R	iPZ			16	
	T	ePZ			38	
	H	ePZ			26	

Date	Sta.	Phase	h	m	s	Remarks
Oct 5	P	iPNEZ	09	41	12	Tu iP 09 41 55
	MW	iPNEZ			12	
		iZ			32	
	R	iPZ			17	
		iZ			38	
	LJ	ePZ			21	
	T	iPZ		40	59	
	H	iPNEZ		41	02	
	Pr	iPZ			23	
Oct 5	P	iPNEZ	14	46	20 d	Normal? Surface waves recorded
	MW	iPNEZ			19 d	USCGS: 9°N.84°W.,O=14:38:43
	R	iPNEZ			15 d	JSA: 8.7°N.84.6°W.,O=14:38:30
		iPcPZ		48	23	
	LJ	ePNEZ		46	08	
	T	iPNZ			33	
		iPcPZ		48	30	
	H	ePNEZ		46	26	
		ePcPNEZ		46	08	
	Pr	iPZ		46	07 d	
		iPcPZ		48	20	
Oct 6	P	ePZ	15	46	26	Tu eP 15 45 47
	MW	ePZ			24	Aftershock, Iquique?
	R	iPZ			21	
	H	ePZ			32	
Oct 6	P	ePNEZ	15	49	35 d	Tu iP 15 48 58 d
	PX	eSN		50	50	$eP_2'P_2'$ 16 17 58
	MW	ePNEZ		49	34 d	Aftershock, Iquique
	R	ePNEZ			31	JSA: 18°S.71°W.,O=15:38.7
	SE	ePNEZ			43	
	LJ	ePNE			25	
	T	iPNEZ			48	
	H	ePNEZ			44	
		eSN		59	04	
Oct 6	MW	ePZ	16	34	08	
	R	iPZ			09	
	T	ePZ			02	
	H	ePZ			05	
Oct 6	P	ePZ	18	20	29	Normal. 33°08'N.116°05'W.,
		iSNEZ		21	03	O=18:19:58
	MW	ePZ		20	16	BC eP 18 20 49
		iPZ			28	eS 21 26
		iSNE			45	Tu eP 21 00
	R	iPZ			18	i 20
		iSNE			48	
	LJ	iPNE			14 d	
		iSNE			29	
Oct 7	P	ePZ	01	38	41	Deep. Tu iP 01 38 57
	MW	ePZ			42	iPP 43 10
		iPPZ		42	31	Wellington: 38.6°S.176.7°E.,
	R	ePZ		38	43	O=01:25.65, h=160-170 km.
		ePPZ		42	31	Felt widely in the North
	H	ePZ		38	47	Island, New Zealand
		ePPZ		42	38	
Oct 7	P	iPZ	02	02	50	Tu iP 02 03 14
	MW	iPZ			51	
	R	iPZ			54	
	H	iPZ			58	
Oct 7	P	iPZ	06	57	17	Deep? Surface waves small
		iPPZ	07	01	25	Distant 107°. Roughly
		iSKSNE		07	42	4°N.126°E., O=06:43.2,
		iPKKPZ		12	46	h=150 km? Felt in south-
	PX	eLZ		32.8		eastern Mindanao, according
	MW	ePZ	06	57	17	to Manila; Sangi and Talaud
		iPPZ	07	01	24	Islands, according to Batavia
		eSKSE		07	44	
		ePKKPZ		12	45	

(continued)

Date	Sta.	Phase	h	m	s		Remarks
				(Continued)			
Oct 7	R	ePZ	06	57	22		Tu eP 06 57 37
		ePKKPZ	07	12	43		ePP 07 02 05
	T	eSKSE		07	39		iPS 07 11 52
	H	ePZ	06	57	09		iPKKP 07 12 17
		ePPZ	07	01	15		
		eSKSE		07	41		
		ePKKPZ		12	47		
Oct 9	P	ePZ	08	05	34		Tu iP 08 06 01
	MW	ePZ			35		
	R	ePZ			38		
	T	ePZ			43		
Oct 10	P	iPNZ	05	58	43	c	Tu iP 05 59 08
	MW	iPZ			43	c	
	R	iPZ			46		
	T	iPZ			51		
	H	iPZ			50		
	Pr	iPZ			48	d	
Oct 10	P	iPNEZ	05	57	21	d	Normal. 33°47'N.118°35'W.,
		iSNE			27		0=05:57:13
	MW	iPNEZ			24	d	Some damage at Redondo and
		iSNEZ			31		Manhattan Beach, near the
	R	iPNEZ			31	c	epicenter. Felt widely in
		iSNE			44		Los Angeles Metropolitan
	SE	iPZ			36		area.
		iSNE			54		BC eP 05 58 12
	LJ	ePE			37		Tu iP 05 58 52
		iSE			58		
	T	iPZ		58	06		
		eSNE			58		
	H	iPNEZ		57	58		
		iSNEZ		58	26		
	Pr	iPZ		57	38		
Oct 11	P	iPNEZ	07	59	52	d	Deep? Surface waves small,
		iZ	08	00	10		may be SS
	PX	iNEZ!		01	26		JSA 61°N.149°W., 0=07:58.8
	P	iZ		02	31		Tu iP 08 00 33 d
		iZ			45		
	PX	eLNEZ		09.8			
	MW	iPNEZ	07	59	52	d	
	R	iPZ			55	d	
		iZ	08	02	32		
	iZ				46		
	SE	iPNEZ	07	59	45	d	
		iZ	08	00	03		
	T	iPNEZ	07	59	31	d	
		iZ	08	02	24		
		iZ			39		
	H	iPNEZ	07	59	39		
		iZ	08	02	27		
		iZ			41		
	Pr	iPZ	08	00	01	d	
Oct 11	P	ePNEZ	18	58	54	c	Normal. USCGS: 45°S.73°W.,
	PX	eSZ	19	04	13		0=18:41.0
		eLNE		16.6			JSA: 40.7°S.78.6°W.,
	MW	iPNEZ	18	58	52	c	0=18:41:17
	R	ePNEZ			51		Pasadena: 41.5°S.74°W.,
		eSN	19	03	43		0=18:41:18
	T	ePNEZ	18	54	06		Tu iP 18 58 39 c
	H	ePNEZ			03		eS 19 03 47
	Pr	iPZ		58	49		Major earthquake(Magnitude 7)
Oct 12	P	ipPZ	02	55	04		Deep. Central America
	MW	ePZ		54	27		Tu iP 02 58 34
		ipPZ		55	05		epP 54 03
	R	iPZ		54	22		iPcP 56 40
		ipPZ			58		

(Continued)

Date	Sta.	Phase	h	m	s		Remarks
				(continued)			
Oct 12	T	iPZ	02	54	42		
	e?	eZ		55	00		
	H	ePZ		54	34		
	Pr	iPZ			15		
		ipPZ			50		
Oct 12	P	iPZ	03	09	40		Tu iP 03 09 04
	MW	ipZ			40		South America?
	R	iPZ			38		
	T	iPZ			52		
	H	ePZ			46		
Oct 12	P	iPZ	05	26	38		Normal? Tu iP 05 26 05
	MW	iPZ			39		e 14
		iZ			48		
	R	iPZ			35		
	T	iPZ			53		
	H	ePZ			43		
Oct 13	P	iPNEZ	13	38	11		Normal? Tu iP 13 38 38 d
		iZ			28		
	PX	eLNEZ	14	03.7			
	MW	iPNZ	13	38	13		
	R	ePZ			14		
	T	ePNEZ			22		
	H	ePNEZ			19		
	Pr	iPZ			15		
Oct 13	T	ePZ	23	59	54		Tu iP 00 00 08 Oct. 14
Oct 14	P	iPNEZ	02	48	52	c	Tu eP 02 49 21
	MW	iPNEZ			53	c	
	R	iPZ			55	c	
	T	ePZ			53		
	H	ePNEZ			54		
	Pr	iPZ			58		
Oct 14	MW	ePZ	03	58	31		Tu iP 03 57 11
	R	ePZ			19		
	T	ePZ			50		
Oct 14	P	ePZ	06	43	18		Tu iP 06 43 40
	MW	ePZ			18		
	R	ePZ			21		
	T	iPZ			27		
	H	ePZ			25		
	Pr	iPZ			21		
Oct 14	P	iPNEZ	08	56	07	d	Tu iP 08 56 30
	MW	iPNEZ			08	d	
	R	iPNEZ			09	d	
	SE	iPZ			04		
	T	iPNEZ			16	d	
	H	iPNEZ			14	d	
	Pr	iPZ			10	d	
Oct 14	P	iPZ	18	38	35		Tu iP 18 38 59
	MW	iPZ			36		
	R	ePZ			37		
	T	ePZ			44		
	H	ePZ			42		
	Pr	iPZ			39		
Oct 15	P	iPZ	06	45	14		Normal? Tu eP 06 45 52
		iNEZ			19		i 46 03
		iEZ!			24		Northern Japan. Mizusawa
	PX	eLZ?	07	06			reports: P=06:39;12
	MW	ePNEZ	06	45	18		S=06:40:47
		iZ			19		
		iNEZ			24		
	R	ePZ			17		
		iNEZ			27		
	SE	ePZ			06		
		iNEZ			17		
	T	iPNEZ		44	58		
		iNEZ		45	09		

(Continued)

Date	Sta.	Phase	h	m	s		Remarks
			(Continued)				
Oct 15	H	ePNEZ	06	45	04		
		iNEZ			15		
	Pr	ePZ			23		
		iZ			33		
Oct 15	P	ePZ	08	05	06		Tu eP 08 04 25
	MW	ePNEZ			05		
	R	ePZ			02		
	T	ePNEZ			16		
	H	ePZ			13		
	Pr	ePZ		04	58		
Oct 15	P	iPZ	18	05	32		Deep? Tu iP 18 06 16
		iZ		06	05		i 44
	MW	ePZ		05	33		
		eZ		06	01		
	R	ePZ		05	37		
		eZ		06	09		
	T	ePNEZ		05	18		
	H	ePZ			24		
	Pr	iPZ			48		
		iZ		06	12		
Oct 16	P	ePZ	14	29	51		Tu iP 14 30 15
	MW	iPZ			51		
	R	ePZ			54		
	T	iPZ		30	02		
	H	iPZ			00		
	Pr	iPZ		29	53		
Oct 16	P	iPZ	23	14	43	d	Deep? Tu iP 23 14 03
	MW	iPZ			43	d	i 27
		iZ		15	27		i 45
	R	iPNEZ		14	45	d	
		eZ		15	29		
	SB	iPNEZ		14	40		
	LJ	ePNE			42		
	T	iPNEZ			52	d	
	H	iPZ			51		
	Pr	iPZ			45	d	
		iZ		15	31		
Oct 18	T	iPZ	15	13	57		Deep? Tu iP 15 14 34
		iZ		14	10		i 48
Oct 19	P	iPZ	07	29	17		Tu eP 07 29 39
	MW	ePZ			18		
	T	ePZ			27		
	H	ePZ			26		
Oct 19	P	ePZ	11	07	50		Tu iP 11 08 12 d
	MW	iPZ			51		
	R	ePZ			53		
	T	iPZ		08	01		
	H	ePZ		07	59		
	Pr	iPZ			54		
Oct 19	P	iPZ	15	24	41		Tu eP 15 25 02
		iZ		25	07		
	MW	iPZ		24	41		
	R	ePZ			44		
	T	ePZ			24		
	H	ePNEZ			30		
	Pr	ePZ			48		
Oct 20	T	ePZ	00	17	49		Tu eP 00 18 25
Oct 21	P	iPNEZ	06	50	04		Normal. 38°07'N.118°25'W.,
		iSNE			26		0=06:49:38
	MW	iPNEZ			04	c	BC eP 06 50 30
		iSE			27		eS 51 06
	R	iPNEZ		49	54	d	Tu iP 06 50 48
		iSNEZ		50	10		
	LJ	iPNEZ		49	48		
		iSNEZ			59		
	H	ePZ		50	22		
		iSNZ		51	13		
	Pr	iPZ		49	42		

Date	Sta.	Phase	h	m	s		Remarks
Oct 21	P	ePZ	13	55	05		Deep? Tu iP 13 54 08
		iZ			35		i! 39
	MW	ePZ			05		
		iZ			35		
	R	iPZ			03		
		iZ			33		
	T	ePZ			22		
		eNEZ			41		
	H	ePZ			12		
	Pr	iPZ		54	54		
Oct 21	P	iPNEZ	20	28	35	d	Deep? Solomon Islands?
		iNEZ		29	07		Tu eP? 20 29 02
	MW	iPNEZ		28	35	d	ePKKP? 45 56
		iZ		29	07		
	R	iPZ		28	37	d	
		eZ		29	10		
	T	iPNE		28	35		
		eZ		29	08		
	Pr	iPZ		28	37		
Oct 22	P	iPZ	06	50	07	c	Deep (150 km.) Damage in
		ipPZ			40		Rumania. Strong in Bucarest.
		ePPZ		53	53		Foreshock (see Nov. 10, 01h)
	PX	eSKSN	07	00	20		0=06:37:00. Bucarest gives
		eSPZ		02	24		45.9°N.28.8°E.
		iZ		03	24		Tu iP 06 50 02 c
	P	iPKKPZ		07	04		ipP 50 38
		ipPKKPZ			40		e 07 03 42
	MW	iPZ	06	50	06	c	ePKKP 07 03
		ipPZ			41		iSKKP 12 00
		ePPZ		53	52		eP'P' 15 16
		iPKKPZ	07	07	04		
		ipPKKPZ			41		
		eSKKPZ		11	54		
		eP'P'Z		15	02		
	R	ePZ	06	50	05		
		iPKKPZ	07	07	05		
	T	iPNEZ	06	49	55		
		ePKKPZ	07	07	12		
	H	ePNEZ	06	49	59		
		epPZ		50	33		
		ePKKPZ	07	07	12		
	Pr	iPZ	06	50	08	c	
		ipPZ			48		
		iPKKPZ	07	07	04		
Oct 22	P	iPEZ	11	02	42	d	Normal. Felt in Humboldt
		eZ		05.0			County, California.
	MW	iPZ		02	42	d	Tu eP 11 03 32
	R	ePZ			43		e 04 02
	T	ePZ			17		eS? 08.4
		eSE?		03	51		
	H	ePZ		02	24		
		iNEZ		04	10		
	Pr	iPZ		02	59		
Oct 23	P	iPNEZ	02	32	20	d	Deep (h=140 km.) Colombia or
		ipPNEZ			51		Ecuador?
	MW	iPNEZ			20	d	Tu iP 02 31 34 d
		ipPZ			50		ipP 32 04
	R	iPNEZ			18	d	
		ipPZ			47		
	LJ	ePZ			09		
	T	iPZ			32		
		epPZ		33	03		
	Pr	iPZ		32	11	d	
		ipPZ			41		
Oct 24	P	iPNZ	02	31	08		Tu iP 02 30 27 d
	MW	iPZ			03	c	
	R	iPZ		30	59		
	T	iPEZ		31	14		
	H	ePZ			09		

Date	Sta.	Phase	h	m	s	Remarks
Oct 27	P	ePZ	19	55	01	Normal. Roughly 30°N.114°W.,
		eSNEZ		56	00	0=19:54.5
	MW	ePZ		54	57	Tu eP 19 54 26
		iSZ		56	03	eS 55.8
	R	ePZ		54	42	Aftershock at 20:26
		iPZ			51	
	LJ	iPZ		54	35	
		iSZ		55	13	
	Pr	iPZ		54	33	
Oct 27	P	ePZ	22	32	42	Tu iP 22 33 30 c
	MW	ePZ			40	Felt in northwestern Washing-
	R	iPZ			47	ton State
		iZ			52	
	H	ePNEZ			18	
Oct 28	P	ePZ	01	06	48	Tu iP 01 07 09
	MW	iPZ			47	Apia reports P=00:56:44
	R	ePZ?			40	S=00:58:45
	LJ	ePNE		07	01	
	H	ePNEZ		08	54	
Oct 28	P	iPNZ	01	30	31	Tu iP 01 30 01
	MW	iPNEZ			31	Felt in Argentina
	R	ePZ			28	
	SE	eZ			42	
	H	ePNEZ			38	
Oct 28	P	ePZ	03	35	58	Tu iP 03 37 17
	MW	ePZ			59	
	H	ePNEZ			43	
Oct 28	P	iPZ	21	01	21	Deep? Tu iP 21 01 58
		eZ			47	
	MW	iPZ			21	
		iZ			46	
	R	iPZ			24	
	LJ	ePNE			07	
	Pr	iPZ			31	
Oct 28	P	ePZ	21	21	58	Tu e 21 22 55
		eZ		22	02	i 23 56
		iNEZ		23	03	
	MW	ePZ		21	59	
		iZ		22	05	
		iNEZ		23	02	
	R	ePZ		22	02	
		eZ		23	06	
	LJ	eZ			19	
	T	eNE		21	25	
		eE		22	00	
	H	eNE		21	33	
		eNE			53	
	Pr	iPZ		22	13	
		iZ		23	14	
Oct 29	P	eZ	00	56	34	Tu eP 00 56 25
	MW	ePZ			29	
		eZ			36	
	Pr	eZ			41	
Oct 29	P	ePZ	09	29	13	Tu eP 09 30 02
	MW	ePZ			15	
Oct 30	PX	eLNZ	03	54.0		Normal Tu eP 03 28 14
Oct 30	PX	eLZ	11	49.5		Normal. Tu eP 11 35 15
Oct 30	P	iPNEZ	11	59	42 c	Deep. Tu iP 12 00 05 c
		ipPZ	12	01	49	epP 02 14
	MW	iPZ	11	59	44 c	ePKKP 15 10
		ipPZ	12	01	51	iP'P' 23 21
	R	iPZ	11	59	46 c	Wellington: 21°S.178°W.,
		epPZ	12	01	51	0=21:35.4, h=600 km.
	LJ	ePZ	11	59	43	
		epPZ	12	01	51	
	H	ePE	11	59	45	
		epPNE	12	01	55	
	Pr	iPZ	11	59	47	
		ipPZ	12	01	58	

Date	Sta.	Phase	h	m	s	Remarks
Oct 24	P	iPNEZ	20	18	55 d	Deep. Surface waves small.
		ipPZ		19	15	JSA: 33.5°S.73.0°W., h=100 km
		iSNE		29	01	Tu iP 20 18 26 d
	PX	eLN		45.8		ipP 49
	MW	iPNEZ		18	56 d	iP'P' 45 50
		eSNE		29	00	
	R	iPNEZ		18	53 d	
		ipPZ		19	16	
	SE	iPNEZ		19	01	
	LJ	ePNEZ		18	47	
	T	iPZ		19	08 d	
		ipPZ			32	
	H	iPNEZ			04	
	Pr	ePZ		18	48	
Oct 25	P	eZ	10	25	59	Normal? Tu eP 10 24 44
	MW	ePZ			43	i 59
		iZ			59	
	R	ePZ			37	
		iZ			58	
	T	ePZ		26	00	
		eZ			19	
		eZ			28	
	Pr	iPZ		25	28	
		iZ			45	
Oct 25	P	iPZ	15	06	35	Tu iP 15 07 00
	MW	iPNEZ			36	
	R	ePZ			33	
	T	ePNEZ			42	
	Pr	iPZ			38	
Oct 26	P	eZ	01	26	01	Normal. Utah, atout
		eSNZ		27	13	38°N.113°W.?
	MW	ePZ	01	25	38	Overton iP 01 24 48
		iSZ		27	10	iS 25 14
	R	ePZ		25	38	BC eP 24 58
		eSZ		27	00	eS 25 31
	T	ePZ		25	28	Tu eP 45
		iSZ		26	41	eS 27.2
	H	ePZ		25	23	
		iZ			38	
		iSZ		26	42	
Oct 26	P	ePZ	17	58	28	Normal. Tu iP 17 57 29
	MW	ePZ			28	BC 58 18
	R	iPZ			21	
	H	iPNEZ			40	
Oct 27	P	iPNEZ	05	43	08 c	Normal? USCGS: 9.9°N.84.4°W.
		iZ			17	0=05:35:36
		iPcPEZ		45	17	JSA: 10.0;N.84.7°W.,
	PX	eSE		48	52	0=05:35:35
		eLE		52		Tu iP 05 42 14 c
		iScSE		53	17	i! 22
	MW	iPNEZ		43	08 c	
		iPcPZ		45	15	
	R	ePNE		43	02	
	SE	iPNEZ			19	
	LJ	ePNEZ		42	56	
	T	ePNE		43	21 c	
		eSN		49	12	
		eScSN		58	22	
	H	ePNEZ		43	14 c	
		iPcPZ		45	18	
	Pr	iPZ		42	57	
Oct 27	P	ePNEZ	10	47	35	Tu iP 10 46 59
	MW	ePZ			36	i 48 18
	H	ePZ			38	
	Pr	ePZ			32	

Date	Sta.	Phase	h	m	s		Remarks
Oct 30	P	iPNEZ	23	10	33	c	Tu iP 23 11 08 c
	MW	iPNEZ			34	c	e 14 05
	R	iPZ			36	c	Japan. Mizusawa reports
	SE	iPZ			26	c	P=23:01:21, S=23:02:38
	T	ePNE			23		
	H	iPNE			27		
	Pr	iPZ			41	c	
Oct 31	P	iPNEZ	02	06	26		Tu e 02 06.7
	R	iPZ			29		
	Pr	iPZ			31		
Oct 31	P	iPZ	02	17	55		Tu iP 02 17 08 c
	R	iPZ			51		Felt at Fort-de-France,
	Pr	iPZ			47		Mercalli 4-5,with P=02:08:50
Oct 31	R	iP'Z	11	02	49		Tu iP' 11 02 53 c
	Pr	iP'Z			52		i 04 32
	H	eP,NE			45		Indian Ocean
Nov 1	P	iPZ	01	19	58		Tu iP 01 20 29
	MW	iPZ			56		
	R	ePZ		20	01		
	H	ePE		19	57		
	Pr	ePZ		20	04		
Nov 1	P	iPNEZ	07	25	12	d	Normal. 33°47'N.118°35'W.
		iSNE			18		O=07:25:08
	MW	iPNEZ		25	14	d	Felt from Pasadena to the
		iSNE			22		coast.
	R	iPNEZ		25	21	c	Tu eP 07 26 43
		iSNE			34		
	SE	ePNEZ			28		
		iSN			42		
	LJ	ePNEZ			29		
		iSNE			49		
Nov 1	P	ePNEZ	15	56	57		Deep? Tu iP 15 55 57
	PX	iZ		57	20		Roughly 19°N.107°W.,
		iNEZ			45		O=15:52.5 using Florissant
		eLNZ	16	01.4			and Weston.
	MW	iPNEZ	15	56	58		
	R	ePNEZ			51		
	LJ	ePNEZ			36		
	T	ePNE		57	24		
	H	ePNE			14		
	Pr	iPZ		56	40		
Nov 2	P	ePZ	04	59	46		Tu iP 04 58 51
	MW	ePZ			44		
	R	ePZ			36		
	Pr	ePZ			26		
Nov 2	P	iPNEZ	14	55	11		Tu iP 14 55 49
	MW	iPNEZ			10		
	R	ePZ			15		
	H	ePNZ		54	37		
Nov 2	P	ePZ	23	44	07		Normal. Tu iP 23 44 54
	PX	eLE		53.5			
	MW	iPZ		44	08		
	R	ePZ			12		
	Pr	iPZ			21		
Nov 3	P	ePZ	02	20	06		Normal. Tu iP 02 20 54
	PX	eLNEZ		30			
	R	iPZ		20	11		
	H	ePN		19	59		
	Pr	iPZ		20	18		
Nov 3	P	eZ	06	18	01		Tu iP 06 15 14
	R	ePZ		15	38		
		iZ			57		
	H	eN		16	09		
	Pr	ePZ		15	35		
		iZ			58		

Date	Sta.	Phase	h	m	s		Remarks
Nov 4	P	iPNEZ	03	58	55		Deep. Tu iP 03 59 24
		ipPEZ		59	25		
	MW	iPNEZ		58	57		
		ipPZ		59	28		
	R	iPNEZ		58	59		
		ipPZ		59	29		
	H	ePN			00		
	Pr	iPZ			00		
		ipPZ			30		
Nov 4	P	iPZ	04	16	33		Tu iP 04 16 58 c
	MW	iPNEZ			34		
	R	iPZ			36		
	Pr	iPZ			38		
Nov 6	P	iPZ	01	30	16		Tu iP 01 30 41
	R	eZ			25		
	Pr	iPZ			21		
Nov 7	MW	ePZ	08	25	31		
	R	ePZ			34		
	Pr	ePZ			34		
Nov 7	P	ePZ	14	09	38	c	Deep. Tu iP 14 10 03
		iNEZ!			38	d	iPP 13 45
	PX	epPZ?		11	20		Roughly 30°N.140°E.,O=13:57.7
		esPZ?		12	10		h=450 km.
		ePPZ		12	58		Mizusawa reports P=14:00:09,
		eSNE		19	15		S=14:01:53
		iSPZ		20	21		
		ePSNZ		21	22		
		eSSN		25	07		
		eLZ		32	06		
	P	eSKPP'Z		38	23		
	MW	iPNEZ		09	34	c	
		epPZ		11	26		
		iPPZ		13	00		
		eSNEZ		19	19		
		eSKPP'Z		38	25		
	R	iPNEZ		09	36	c	
		ipPZ		11	32		
		eSNE		19	18		
		eSKPP'Z		38	26		
	LJ	ePNEZ		09	42		
	T	ePNEZ			28		
		eSN		19	02		
	H	ePN		09	31		
		eSN		19	09		
	Pr	iPZ		09	41		
		iSKPP'Z		38	24		
Nov 8	P	ePZ	10	46	57		Tu iP 10 47 22
	PX	eNEZ		57.5			Wellington: 19°S.168°E.,
		eLNEZ		11	14.0		O=10:34.3
	MW	ePZ		10	46	58	
	R	ePZ		47	01		
	T	ePNE			02		
	Pr	iPZ			02		
Nov 8	P	iPZ	20	13	59		Tu iP 20 14 24
	MW	iPZ		14	00		
	R	iPZ			02		
	Pr	iPZ			02		
Nov 8	P	iPZ	22	22	06		Normal.35°20'N.124°40'W.,
		iSNE		23	08		O=22L20:45
	MW	iPNEZ		22	06	c	Berkeley P=22:21:35,
		iSNEZ		23	12		S=22:22:12 (courtesy of
	R	iPZ		22	16		Professor Byerly)
		iSNEZ		23	24		Unusual epicenter, far off
	SE	ePZ		21	47		th California coast
		iSZ		22	36		

(Continued)

Date	Sta.	Phase	h	m	s	Remarks
		(Continued)				
Nov 8	T	ePNEZ	22	22	08 d	
		iSEZ		23	14	
	H	iPZ		22	09	
		iSNE		23	16	
	Pr	iPZ		22	24	
		iSZ		23	31	
Nov 9	P	iPNZ	05	58	14 d	Tu iP 05 58 38
	MW	iPZ			15 d	
	R	ePZ			16	
	T	iPNEZ			23 d	
		iZ	06	02	57	
	H	iPNEZ	05	58	21 d	
	Pr	iPZ			18	
Nov 9	P	iPNEZ	06	09	39 c	Tu iP 06 10 03 c
		eZ		10	02	
		iNZ		12	45	
	MW	iPNEZ		09	40 c	
		eZ		12	46	
	R	ePZ		09	41	
		eZ		12	48	
	SE	ePZ		09	32 c	
	T	iPNEZ			47 c	
	H	iPNEZ			46 c	
	Pr	iPZ			44	
Nov 9	P	ePZ	09	28	38	Deep? Tu eP 09 29 07
		iZ		29	08	i 42
	MW	iPZ		28	33	
	R	ePZ			41	
	T	iPZ			32	
		iZ		29	04	
	Pr	ePZ		28	45	
Nov 9	P	ePZ	11	11	39	Normal? Tu iP 11 12 07
	PX	eLZ		37.6		Wellington: 11°S.169°E.,
	MW	iPZ		11	40	O=10:59+, h=80 km.
	R	iPZ			42	
	T	ePZ			44	
	H	ePZ			44	
	Pr	iPZ			43	
Nov 9	P	iPZ	15	18	30	Tu iP 15 18 54
	MW	iPZ			31	
	T	iPNEZ			38	
	H	iPZ			38	
	Pr	iPZ			34	
Nov 10	P	ePZ	01	52	15	Deep. (150 km.) Very destruc-
		ipPZ			49	tive in Rumania. O=01:39:10.
		iPPZ		56	03	USCGS: 45.0°N.26.2°E.,
		ipPPZ			34	O=01:39.0, h=100-150 km.
		isPPZ		57	02	JSA: 45.2°N.26.1°E.,
	PX	iPPPZ		58	18	O=01:39:14, h=150 km.
		iZ		59	57	Major earthquake (Bucarest:
		iSKSE	02	02	32	Magnitude 7 1/2 or more. (45.8°N,
		iN		03	48	Tu iP 01 52 10 (26.6°E
		eSPEZ		04	19	isPP 01 56 37
		eSSN		08.7		iSP 02 04 26
	P	ePKKPZ		09	04	iPKKP 02 09 13
		eP'P'Z		17	09	iP'P' 02 17 28
		eSKPP'Z		20	29	iSKPP' 02 20 38
	PX	eLN		28.0		
		iLN		28.6		
	MW	ePNEZ	01	52	13	
		eSKSNE	02	02	35	
		iPKKPZ		09	13	
		iZ!			29	

(Continued)

Date	Sta.	Phase	h	m	s	Remarks
		(Continued)				
Nov 10	R	ePNEZ	01	52	12	
		eSKSNE	02	02	34	
		iPKKPZ		09	15	
		iZ			26	
		eP'P'Z		17	00	
	SE	iPNEZ	01	52	20	
		eSKSN	02	02	37	
	LJ	ePZ	01	52	25	
		iNZ		56	49	
		eSKSNE	02	02	43	
	T	ePNEZ	01	52	04	
		eSKSNE	02	02	21	
		iPKKPZ		09	22	
		iZ			34	
		iP'P'Z		18	38	
	H	ePZ	01	52	09	
		eSKSNE	02	02	26	
	Pr	iPZ	01	52	15	
		iPKKPZ	02	09	11	
Nov 10	P	ePNEZ	20	47	24	Normal? Tu iP 20 46 27
	PX	iEZ		48	51	Roughly 17°N.84°W.,
		eZ		52.4		O=20:40:33,
		eLZ		57.6		using Ottawa, Pittsburgh,
	MW	ePZ		47	24	Weston, Fordham, Fort-de-
	R	ePZ			17	France, Florissant, Cape
	SE	ePZ			38	Girardeau.
	T	ePNEZ			38	
	H	ePNEZ			29	
Nov 10	P	ePZ	21	47	07	Normal. Tu iP 21 47 34
	PX	eLZ	22	09.6		Apia reports P=21:37:02,
	MW	ePZ	21	47	08	S=21:38:53
	R	ePZ			19	
	T	ePNEZ			18	
	H	ePZ			15	
Nov 12	P	ePZ	03	20	14	Deep. Tu iP 03 20 42 d
		eZ		21	05	epP 21 37
		ipPZ			09	
	MW	iPZ		20	15	
		ipPZ		21	09	
	R	iPZ		20	18	
		ipPZ		21	12	
	T	ePZ		20	19	
		epPZ		21	14	
	H	ePZ		20	20	
		epPZ		21	13	
	Pr	iPZ		20	19	
		ipPZ		21	14	
Nov 12	P	ePZ	04	44	34	Tu eP 04 43 40
	MW	ePZ			38	
	T	ePZ			45	
	Pr	iPZ			24	
Nov 12	P	ePZ	04	52	16	Tu iP 04 51 29
	MW	ePZ			16	
	R	ePZ			18	
	T	eZ			35	
	Pr	iZ			12	
Nov 13	P	ePNEZ	09	17	28	Tu iP 09 18 36
	MW	ePZ			22	
	R	ePZ			29	
	T	ePNEZ		18	55	
	Pr	ePZ		17	40	
		eZ			51	
Nov 14	P	iPZ	04	36	00	Tu iP 04 36 21
	R	ePZ			03	
	T	iPZ			10	
	H	iPZ			08	

Date	Sta.	Phase	h	m	s		Remarks
Nov 14	P	ePZ	10	45	54		Normal. Tu e? 10 46 26
		iNEZ		46	02		i 37
	PX	eLEZ	11	10.1			Japan. Mizusawa reports
	R	ePZ	10	45	55		P=10:34:48, S=10:35:34
	T	ePZ?			50		
		eZ			55		
	H	iZ		46	00		
	Pr	iZ		46	15		
Nov 15	P	ePZ	04	58	23		
	R	ePZ			24		
Nov 15	P	iPZ	08	10	28		
		iZ			44		
	R	ePZ			30		
		eZ			46		
	T	iPZ			37		
	Pr	ePZ			31		
Nov 15	P	ePZ	08	30	28		
	R	ePZ			28		
	T	ePZ			41		
	Pr	iPZ			19		
Nov 15	P	eZ	14	00	30		Normal. Wellington: 11°S.169°E.
	PX	eLZ		27.4			Possibly near 17°S.165°E.
	R	iPZ		00	22		
	T	ePZ			25		
	Pr	iPZ			23		
Nov 16	P	iPNEZ	02	36	01	c	Deep? Tu iP 02 36 44
		ipPZ?			14		i 36 58
		esPZ?			22		i 37 02
	PX	eLZ		50.4			
	MW	iPNEZ		36	00	c	
	R	iPNEZ			05		
		iNEZ			25		
	SE	iPNEZ		35	25		
	T	iPNEZ			47	c	
		iZ		37	12		
	H	iPNEZ		35	53		
		iZ		37	14		
	Pr	iPZ		36	12	c	
Nov 16	P	ePZ	07	35	31		
	MW	ePZ			32		
		eZ			54		
	R	ePZ			33		
	Pr	ePZ			34		
		iZ			55		
Nov 16	MW	ePZ	20	02	24		
	T	ePZ			30		
Nov 17	P	ePNEZ	03	59	46		Normal. Tu ip 04 00 57
	PX	eSNE	04	02.3			Off Vancouver Island.
		eLNEZ		03.0			Recorded at Victoria
	MW	ePZ	03	59	44		
	R	ePNEZ			51		
	T	ePNEZ			15		
	H	ePZ			28		
	Pr	ePZ	04	00	02		
Nov 17	PX	eLZ	06	51.4			Wellington: 60°S.148°E.,
							0=05:56.0
Nov 17	T	iPZ	07	01	38		Tu iP 07 01 55
Nov 17	P	ePZ	07	05	55		Tu iP 07 06 48
	MW	ePZ			56		
	R	ePZ		06	02		
	T	iPZ		05	28		
	H	ePZ			37		
	Pr	ePZ		06	08		

Date	Sta.	Phase	h	m	s		Remarks
Nov 17	P	iPNEZ	07	25	03	d	Normal? No clear surface
		iZ			11		waves. Felt in Humboldt
		iSNEZ		26	40		County.
	MW	iPNEZ		25	04	d	Tu iP 07 26 30
	R	iPNEZ			11		
	T	ePZ		24	33		
	Pr	ePZ		25	13		
Nov 17	P	iPZ	16	16	27		Tu eP 16 16 49
	R	ePZ			31		
	T	iPZ			33		
	H	ePZ			36		
Nov 17	P	iPZ	18	35	59		
		iZ		36	50		
	MW	iPZ		35	59		
		eZ		36	35		
		iZ			51		
	R	ePZ			00		
		eZ			38		
		iZ			53		
Nov 17	P	ePZ	19	55	47		Normal?
		iZ		56	02		
	PX	eLEZ	20	26.1			
	MW	iPZ	19	55	49		
		iZ		56	04		
	R	ePZ		55	50		
		eZ		56	01		
	T	ePZ		55	47		
Nov 18	P	iPZ	02	29	41		Tu iP 02 30 05
	MW	iPZ			41		
Nov 18	P	iEZ	13	00	03	d	Normal? Tu iP 13 00 33
	PX	eLZ		26.1			Japan. Mizusawa reports
	MW	iNEZ		00	03		P=12:49:08, S=12:50:29
	R	ePZ	12	59	50		
		iZ	13	00	07		
	SE	eZ	12	59	58		
	LJ	eZ	13	00	09		
	T	ePZ	12	59	38		
		iNEZ			55		
	H	eZ			58		
	Pr	eZ	13	00	08		
Nov 18	P	iPZ	22	18	35		Deep? Tu iP 22 18 59 d
	MW	iPZ			38	d	
		iZ		19	06		
	R	iPZ		18	38	d	
		iZ		19	09		
	H	ePZ		18	41		
	Pr	iPZ			40		
Nov 19	P	ePZ	15	13	25		Normal? Japan. Felt from
		iNEZ			39		Tokyo to southern Hokkaido
		iZ		18	22		(press report).
	PX	iSNEZ		23	05		Roughly 41°N.141°E.,
		eLN		38.0			0=15:01:40
	MW	ePNEZ		13	26		Mizusawa reports P=15:01:56,
		iZ			39		S=15:02:09, intensity 3.
	R	ePZ			29		Phase reported as S at PASA-
		iNEZ			43		dena may be SKS.
	SE	iZ			34		Tu iP 15 13 58
	LJ	eNEZ			46		i! 14 14
	T	iPZ			18		i 14 42
		iNEZ			30		
	H	iNEZ			38		
	Pr	iZ			47		

Date	Sta.	Phase	h	m	s		Remarks
Nov 19	P	iPNEZ!	18	38	32	c	Normal? Strong in Humboldt
		iSNEZ		37	56		County; damage very slight.
		iE		38	04		Tu iP 18 38 00
	MW	iPNEZ		38	33	c	
	R	iPNEZ			39	c	
	SE	iPZ			15		
	T	iPNEZ			06		
		iSNE		37	22		
	H	iPZ		38	17		
		iSNE		37	45		
	Pr	iPZ		38	49	c	
Nov 20	MW	ePZ	18	18	09		
Nov 20	P	iPZ	20	30	28		Tu iP 20 30 38
	MW	ePZ			23		i 52
		eZ			35		
	R	eZ			14		
	T	ePZ			28		
Nov 22	P	ePNZ	09	18	27		Normal? Felt in New Britain,
	PX	eLZ		48.7			according to Riverview.
	MW	iPNEZ		18	28		Wellington: 7°S.152°E.,
	R	iPZ			32		O=09:00.2
	T	iPNEZ			38		
Nov 22	P	iPNEZ	13	17	50	c	Tu iP 13 13 13
		ipPZ		19	49		ipP 13 20 19
	MW	iPNEZ		17	49	c	iPP 13 21 49
	R	iPZ			52		Manchuria, h=560-600 km.
	SE	iPZ			45		Mizusawa reports P=13:08:41
	LJ	ePNEZ		17	58		S=13:10:17
	T	iPNEZ		17	40		
		epPZ		19	39		
	H	iPZ		17	44		
Nov 23	P	iPNEZ	08	56	28	c	Normal. USCGS: 9°N.84°W.,
		iZ		57	42		O=08:48:52
	PX	eSE	04	02	41		JSA: 8.9°N.83.8°W.,
		eLNE		07.7			O=08:48:55
	MW	iPNEZ	08	56	28	c	Tu iP 08 56 36
	R	iPNEZ			28	c	i 56 24
	SE	ePNEZ			38		
	LJ	ePNEZ			18		
	T	iPNEZ			42	c	
		eZ		57	39		
	H	iPNEZ		56	37	c	
	Pr	iPZ		56	18		
Nov 24	P	iPNZ	16	25	25	d	
	MW	iPNEZ			26		
	R	iPZ			28	d	
	T	ePZ			25		
Nov 26	P	iPNEZ	01	09	03	c	Deep. Tu iP 01 09 28 c
		epPZ		11	03		ipP 01 11 29
	MW	iPZ!		09	04	c	eSKPP' 01 38 36
		epPZ		11	04		Tonga region, h=550 km.
	R	iPZ		09	06	c	
		epPZ		11	03		
	LJ	ePZ		09	03		
	T	iPZ			10		
		epPZ		11	13		
	H	iPZ		09	10		
	Pr	iPZ			07		
Nov 26	P	eZ	01	48.3			Tu eP 01 49 00
	MW	ePZ		48	13		
	R	iPZ			18		
	H	eZ			02		

Date	Sta.	Phase	h	m	s	Remarks
Nov 27	P	ePZ	14	54	35	Normal? Tu iP 14 55 09
		eZ		58	21	Felt (up to R.F. 6) in New
	PX	eN	15	05	49	Britain, according to
		eLN		19.7		Riverview.
	MW	ePZ	14	54	36	Wellington: 3 1/2°S.151 1/2°E
		iZ			39	O=14:41.5, h=80-100 km.
		eZ		58	22	
	R	iPNEZ	14	54	37 d	
		eZ		58	20	
	SE	ePZ		54	36	
	LJ	ePZ			42	
	T	iNEZ			38	
	H	eZ			42	
	Pr	ePZ			43	
Nov 28	P	ePZ	14	52	28	Normal. Tu iP 14 52 48
	PX	eLZ	15	28		
	MW	ePZ	14	52	26	
	R	ePZ			25	
Nov 29	P	iPZ	00	51	28	Japan. Mizusawa reports
	MW	iPZ			24	P=00:41:57, S=00:43:45
	R	iPZ			26	
	T	iPZ			15	
Nov 29	P	ePZ	13	05	27	Tu iP 13 05 59
	MW	ePZ			27	
	R	ePZ			29	
	T	iPZ			23	
Nov 29	P	iPZ	13	13	37	Deep. Tu iP 13 14 01
		ipPZ		14	11	ipP 35
	MW	iPZ		13	37	
		epPZ		14	12	
	T	ePZ		13	47	
		epPZ		14	22	
Nov 30	P	ePNZ	02	36	28	Tu eP 02 36 12
	MW	ePZ			29	
	R	ePZ			28	
	T	ePZ			48	
Nov 30	P	eZ	11	11	58	
		eZ		12	35	
Nov 30	P	ePZ	21	03	24	Tu eP 21 03 09
	PX	eLNZ		21.3		
	R	ePZ		03	25	
	T	ePZ			48	
	H	ePZ			40	
Dec 1	P	ePZ	15	59	38	Tu iP 15 58 39
	MW	ePZ			35	
	R	ePZ			28	
Dec 1	MW	iZ	18	17	39	Tu eP 18 16 32, i 18 16 45
Dec 1	P	iPZ	19	34	38	Deep? Tu iP 19 35 22
	MW	iPZ			39	i 48
	R	ePZ			43	
	T	iPZ			24	
	H	iPZ			30	
Dec 1	P	iPNEZ	21	18	28	Normal. Tu iP 21 17 35 c
	PX	eSNE		24	59	Central America
		eLN		29.8		
	MW	iPNEZ		18	28	
	R	iPNEZ			20	
	SE	ePEZ			38	
	T	ePNEZ			40	
	H	iPNEZ			38	
Dec 1	P	ePZ	21	57	14	Tu iP 21 56 24
	MW	ePZ			14	
	R	ePZ			09	
	T	eZ			28	
Dec 2	T	ePZ	09	45	04	Tu eP 09 44 54

Date	Sta.	Phase	h	m	s		Remarks
Dec 2	P	iPZ	10	12	35	c	Tu iP 10 12 00
	MW	iPZ			35		
	R	iPZ			35	c	
	T	iPNEZ			47	c	
	H	ePZ			42		
Dec 2	P	eZ	12	30	59		
	MW	eZ		32	35		
	T	iZ		30	35		
Dec 2	P	ePZ	14	11	14		Normal.
	PX	eLNZ		40.3			
	MW	ePZ		11	14		
	R	ePZ			13		
	T	ePZ			29		
Dec 3	P	ePZ	08	09	08		Tu iP 08 08 18 c
	MW	ePZ			09		
	R	ePZ			05		
	T	ePZ			22		
Dec 3	P	iPZ	07	55	38		
	MW	iPZ			37		
	R	iPZ			39		
Dec 3	MW	iPZ	09	58	28		Tu iP 09 58 44
	T	iPZ			31		
Dec 3	P	iPZ	14	41	50		Tu eP 14 42 25
	MW	ePZ			53		
	R	ePZ			55		
	T	ePZ			37		
Dec 4	P	eNE	00	10	48		Tu iP 00 07 41
	MW	eZ			50		eS? 08.8
	R	eNZ			28		
Dec 4	P	iPZ	01	19	28		Tu iP 01 19 51
	MW	iPZ			28		
	T	iPZ			38		
Dec 4	P	iZ	04	33	14		Tu e 04 33 38
	MW	eZ			11		i 41
		iZ			16		
	R	eZ			10		
	T	eZ			33		
Dec 4	MW	ePZ	07	58	58		Tu iP 07 59 41
	T	ePZ			42		
Dec 4	P	ePZ	13	20	20		Normal. Tu ePP 13 24 30
		ePPZ		24	06		ePKKP 13 35 09
	PX	eLE		55			Felt at Boela (Ceram),
	MW	ePZ		20	20		according to Batavia.
		ePPZ		24	12		Roughly 4°S.131°E., O=13:05:35,
	R	ePZ		20	26		using Batavia, Manila,
		ePPZ		24	48		Brisbane, etc.
Dec 4	P	iPZ	19	44	40		Tu iP 19 44 00
		iZ			49		i 08
	MW	iPZ			40		
		iZ			49		
	T	iPZ			54		
		iZ		45	03		
Dec 5	P	ePZ	11	02	51		Tu iP 11 08 29
	MW	iPZ			52		e 42
	T	ePZ			38		
		eZ			50		
Dec 6	P	iPZ	02	42	23		Tu iP 02 42 55
	MW	iPZ			24		
	R	ePZ			30		
	T	ePZ			17		
	H	ePZ			21		
Dec 6	P	ePZ	20	40	23		Tu iP 20 39 55
	MW	ePZ			24		i 40 14
	R	ePZ			21		
	T	ePZ			37		

Date	Sta.	Phase	h	m	s		Remarks
Dec 7	P	iPZ	08	25	18	c	Tu iP 08 25 56
	MW	iPZ			20	c	e 28 30
		eZ		27	48		
	R	iPZ		25	23	c	
	SB	iPZ			13		
	T	iPNEZ			04	c	
Dec 7	P	ePZ	13	27	29		Tu iP 13 26 36
	MW	iPZ			29		
	R	ePZ			23		
Dec 7	P	iPZ	14	29	37		
	MW	ePZ			37		
	R	ePZ			41		
	T	ePZ			33		
Dec 7	P	iPNEZ	22	17	22	d	Normal. Felt at San Diego
		iSNE		18	15		31°40'N.115°05'W.,O=22:18:27
	MW	iPZ		17	22	d	Tu iP 22 17 23 c
		iSNE		18	18		BC i 22 17 37
	R	iPZ		17	14	d	
		iSN			59		
	LJ	ePNZ			02	c	
		iNZ			04		
		iSNZ			38		
	T	iPNEZ		17	58	d	
		iNEZ		18	21		
		isNE		19	45		
	H	iPZ		17	44		
		iSNZ		19	09		
Dec 8	T	ePZ	01	36	10		Tu iP 01 35 07
Dec 8	MW	ePZ	03	31	24		Tu iP 03 31 44
	R	ePZ			25		Wellington: 25°S.170°E.
Dec 8	MW	ePZ	03	45	53		Tu eP 03 46 14
	R	ePZ			54		
	T	ePZ			59		
Dec 8	P	iP"NEZ	06	30	09		Tu eP"Z 06 30 12
	MW	iP"Z			09		iZ 23
	R	iP"Z			09		Felt in Java, according to
	SB	eP"Z			06		Batavia
	T	eP"Z			05		
	H	iP"Z			03		
Dec 8	P	iPZ	18	00	49		Deep? Tu iP 18 01 14 c
		eZ		01	30		i 57
	MW	ePZ		00	50		
		eZ		01	31		
	R	iPZ		00	51		
		eZ		01	32		
	T	iPZ		00	54		
	H	iPZ			54		
Dec 8	T	eZ	23	59	16		Tu eP 23 59 38
Dec 9	P	iPZ	16	13	27		Tu iP 16 13 53
	MW	iPZ			28		i 14 16
		eZ			49		
	R	iPZ			30		
		iZ			52		
	T	iPZ			29		
		eZ			52		
	H	iPZ			31		
		eZ			54		
Dec 10	MW	iPZ	00	28	38		Tu iP 00 28 54
	R	iPZ			33		i 33 15
	T	ePZ			51		
Dec 10	P	ePZ	17	15	22		Tu iP 17 15 19
	MW	ePZ			23		i 48
	R	iPZ			24		i 19 22
	T	iPZ			18		
	H	iPZ			19		
Dec 10	MW	iZ	19	39	34		Tu e 19 39 31
	R	iZ			34		i 39
	T	eZ			15		

Date	Sta.	Phase	h	m	s		Remarks
Dec 13	P	ePZ	05	30	26		Tu iP 05 29 48
	MW	ePZ			24		i 30 29
	R	ePZ			21		
Dec 14	P	iPNEZ	04	05	04		Tu iP 04 04 34
	MW	iPZ			05		
	R	iPZ			07		
	SB	iPZ			00		
	LJ	ePNZ			11		
	T	iPEZ			01		
Dec 14	P	iPNEZ	08	38	46	c	Deep. Large compressions in P
		ipPZ		38	55		preceded by small indefinite
		isPNEZ		39	50		motion. Tonga region, h=600 km
	MW	iPNEZ		38	47	c	Tu iP 08 37 09 c
		ipPZ		38	55		ipP 39 19
		isPEZ		39	50		esP 40 27
	R	iPNEZ		38	48	c	e 46 37
		ipPZ		38	57		iP'P' 09 06 10
		isPZ		39	55		
	SE	iPNEZ		38	42	c	
	LJ	ePNEZ		38	46		
		epPNEZ		38	55		
	T	iPNEZ		38	54	c	
		epPZ		39	03		
Dec 14	P	iPZ	13	30	06		Tu iP 13 30 29
	MW	iPZ			08		
	T	ePZ			15		
Dec 14	MW	ePZ	23	55	07		Tu iP 23 54 05
Dec 15	P	iPNEZ	23	59	38		Tu eP 23 59 43
		iPcPZ	24	02	20		iPcP 24 02 04
	MW	iPZ	23	59	37		Central America
		iPcPZ	24	02	20		
	R	iPZ	23	59	31		
	T	iPNZ			52		
		iPcPZ	24	02	24		
Dec 16	R	eZ	09	40	40		Tu e 09 44.9
		iZ		41	12		
	T	eZ		40	36		
Dec 16	T	iPZ	21	27	10		Tu iP 21 28 04
Dec 17	P	iPZ	14	56	00		Normal. Wellington:
	PX	eLEZ	15	27			0°,139 1/2°E.,O=14:42.1
	R	iPZ	14	56	04		
	T	ePZ		55	49		
Dec 18	P	iP'Z	03	59	22	d	Tu iP' 03 59 15
	MW	iP'Z			22	d	Indian Ocean
	R	iP'NEZ			21		
	SB	iP'NEZ			23	d	
	LJ	eP'Z			22		
	T	eP'Z			18		
Dec 18	P	iPZ	05	08	14		Deep. Tu iP 05 07 37
		ipPZ			50		ipP! 08 12
	MW	iPZ			14		
		ipPZ			50		
	R	iPZ			10		
		ipPZ			40		
	T	ePZ			27		
		ipPZ		09	03		
Dec 18	MW	eZ	05	50	44		Tu i 05 50 33; Near 4°S.131°E?
	R	eZ			58		i 51 01
Dec 18	MW	iPZ	06	18	25		Tu iP 06 19 08
	R	ePZ			22		
	T	iPZ			04		
		iZ		19	50		
Dec 18	T	iZ	17	13	55		Tu i 17 13 58, i 17 14 08
Dec 19	P	iPZ	08	23	07		
	MW	iPZ			09	d	
	R	iPZ			10		

Date	Sta.	Phase	h	m	s		Remarks
Dec 19	P	iPZ	20	18	20		Tu iP 20 18 29
	MW	iPZ			23		
	T	iPZ			29		
Dec 20	P	iPZ	07	34	39		Tu iP 07 34 02. Felt widely in
	PX	eNEZ		47	00		New England.
	MW	iPZ		34	39		USCGS: 44.0°N.71.1°W.,
		eZ		46	53		O=07:27:23
	R	iPZ		34	36		JSA: 43°42'N.71°28'W.,
	T	iPNEZ			28		O=07:27:28
	H	ePZ			30		
Dec 20	P	ePNEZ	23	42	44		Normal. Felt in Humboldt and
	PX	iSZ		44	20		Mendocino Counties, California
		eLNZ		44.5			Tu iP 23 44 04 d
	MW	iPNEZ		42	44		
	R	iPZ			51		
	SE	ePZ			32		
	T	ePNEZ			18		
		iNEZ!			20		
	H	iPNEZ			28		
		iSN		43	40		
Dec 21	P	ePZ	19	36	52		Tu eP 19 35 55
	MW	ePZ			52		
	R	iPZ			49		
	T	iPZ		37	17		
		iZ			29		
Dec 22	P	ePZ	12	48	30		Normal. Tu iP 12 48 51
	PX	eSNEZ		53.3			USCGS: 17°S.178°W., O=12:31:35
		eLZ	13	05.2			JSA: near 13°S.178°W.
	MW	iPNEZ	12	48	29		Wellington: 14 1/2°S.178 1/2°W.
	R	ePZ			29		O=12:31.8
		iZ			39		
	SE	eZ			25		
	LJ	eNZ			39		
	T	ePNEZ			36		
	H	ePZ			38		
Dec 22	P	iPNZ	19	10	28	c	Deep. Tu iP 19 09 49
		ipPZ		11	20		i 10 28
		iPPZ		18	03		ipP 10 46
	PX	iSNE		19	13		iS 18 05
		iSPE		20	04		eP'P' 38 55
		iNE			48		i 39 55
		eLNE		28.6			JSA: 14°S.71°W., O=19:00.2,
	MW	iPNEZ		10	28	c	h=250 km.
		ipPZ		11	22		Pasadena: 15 1/2°S.68°W.,
		isPZ			55		O=18:59:46, h=230 km.
		eSNEZ		19	14		
		eP'P'Z		38	42		
		eZ		39	44		
	R	iPNEZ		10	24	c	
		ipPZ		11	18		
		eSNE		19	08		
		eSPNE			59		
		eP'P'Z		38	38		
		eZ		39	38		
	SE	ePNEZ		10	34		
	LJ	iPNEZ			19		
		epPZ		11	14		
		eSNE		18	54		
		eSPE		19	51		
	T	iPNEZ		10	39	c	
		eSNEZ		19	35		
		eP'P'Z		38	42		
	H	iPNEZ		10	34	c	
		eSNEZ		19	26		
		eP'P'Z		38	42		
		eZ		39	39		

Date	Sta.	Phase	h	m	s	Remarks
Dec 22	P	ePZ	20	41	02	Tu eP 20 41 18
	MW	ePZ			02	
	R	ePZ		40	57	
	T	eZ		41	12	
Dec 23	T	ePZ	21	53.0		Tu eP 21 54 02
		eSNEZ		56.0		Felt in Montana at Helena,
	H	eSN		56.5		Butte, Livingston, and
						Great Falls (Press)
Dec 24	P	eNEZ	14	03	25	Normal. Tu iP 13 50 22
	PX	eZ		05	34	Aftershock, New England.
		iE		06	24	USCGS: 44.0°N.71.1°W.,
	MW	eZ		08	17	O=13:43:44
		eZ		06	12	JSA: 43°42'N.71°26'W.,
	R	eNZ		02	50	O=13:43:46
	LJ	eZ		03	15	
	T	eZ			11	
	H	eN		02	44	
Dec 25	R	iPZ	03	17	59	Tu iP 03 13 04
	T	iPZ			48	
	H	iPZ			58	
Dec 25	P	iPZ	12	13	09	Tu iP 12 13 46 c
	MW	iPZ			10	i 17 14
	R	iPZ			12	
	T	iPZ		15	57	
		iZ		16	16	
	H	ePNZ			02	
Dec 25	P	iPZ	18	27	53	Tu iP 18 27 22 c
	MW	iPZ			54	
	R	iPZ			50	
	H	iPNEZ		28	05	
		iPNZ			01	
Dec 26	R	ePZ	03	04	01	Tu iP 03 04 45
	T	ePZ		03	28	
Dec 26	P	iPZ	08	35	13	Tu iP 08 35 40
	MW	iPNEZ			14	
	R	iPZ			15	
	T	ePZ		34	49	
	H	ePNZ			57	
Dec 26	MW	iPZ	14	19	50	
	R	iPZ			48	
Dec 26	P	iPZ	23	39	27	Tu iP 23 40 01
	MW	iPZ			30	Japan. Mizusawa reports
	R	iPZ			31	P=23:28:28, S=23:29:06
	T	iPZ			18	
	H	iPNEZ			22	
Dec 27	P	iPZ	02	23	09	Tu iP 02 22 15
	R	iPZ			08	Central America?
		iPcPZ		25	30	
	T	ePZ		23	22	
		iPcPZ		25	36	
	Pr	iPZ		22	58	
		iPcPZ		25	29	
Dec 27	MW	iPZ	19	36	30	Tu eP 19 35 58
	R	iPZ			26	
	T	ePZ			42	
Dec 27	P	ePZ	22	11	17	Tu eP 22 11 19
	MW	ePZ			17	
	R	ePZ			18	
	T	ePZ		10	58	
	Pr	ePZ		11	21	

Date	Sta.	Phase	h	m	s		Remarks
Dec 28	P	iPNEZ!	16	50	11	d	Deep? Tu iP 16 50 42
	PX	eSKSNE	17	00	24		i 50 56
		iN			41		ePP 54 14
		iE		01	25		eP'P' 17 16 25
		eLE		14.9			eP'P'P' 37 17
	P	eP'P'Z		16.7			USCGS: 18 1/2°N.147°E.,
		eSKPP'Z		19	55		O=16:37.8, h=100 km.
		eP'P'P'Z		37	01		JSA: 18.3°N.148.7°E.,
	MW	iPNEZ	16	50	11	d	O=16:37:42
		iSKPP'Z	17	20	02		Major earthquake(Magnitude 7)
	R	iPNEZ	16	50	13	d	
		eNE	17	00	35		
		eP'P'Z		16	34		
		eSKPP'Z		19	53		
		eP'P'P'Z		37	00		
	T	iPNEZ	16	50	05	d	
	H	iPNZ			08	d	
	Pr	iPZ			17		
Dec 28	P	iPZ	17	12	36		Tu iP 17 13 07
	MW	iPZ			37	d	
	R	iPZ			39		
	T	ePZ			31		
	H	ePNZ			34		
	Pr	iPZ			43		
Dec 28	P	iPZ	23	32	50		Tu iP 23 33 22
	R	ePZ			53		
	T	iPZ			46		
Dec 28	R	ePZ	23	50	35		Tu iP 23 50 54
	T	ePZ			42		
Dec 29	R	iPZ	07	52	58		Tu iP 07 53 27
		iZ		53	05		i 39
		iZ			19		i 46
	T	iPZ		52	51		
		iZ		53	03		
Dec 29	MW	iPZ	16	45	45		Tu iP 16 44 54 d
	R	ePZ			42		
	T	ePZ		46	02		
	H	ePZ		45	55		
	Pr	ePZ			31		
Dec 29	PX	eNE	18	19	56		Tu eP 18 12 38
	MW	iPZ		18	26		
	R	ePZ			21		
	T	ePZ			42		
	H	ePNZ			37		
	Pr	iPZ			15		
Dec 30	PX	eLZ	13	35			Normal.
Dec 30	PX	eLZ	16	35			Normal. Near Apia, which
	T	ePZ		00	33		reports P=15:49:39,S=15:50:05
	H	ePZ			32		
Dec 30	R	iPZ	20	44	54		Tu iP 20 45 35
	T	ePZ			31		
	H	ePZ			29		
Dec 30	PX	eLZ	20	54			Normal. Part of preceding?
Dec 30	P	iPZ	21	03	19	c	Tu iP 21 03 50
	R	iPZ			22		
	T	iPNEZ			10	c	
	H	iPNZ			15		
	Pr	iPZ			26	c	
Dec 31	PX	eLZ	07	52.5			Normal. Tu iP 07 40 48
	R	ePZ		39	38		
	T	ePZ			05		
		eSZ?		40	54		
Dec 31	P	iZ	07	49	57		Tu eP 07 51 12
	MW	iZ			52		
	T	iPZ			31		

Pasadena and auxiliary stations, 1940

Date	Sta.	Phase	h	m	s	Remarks
Dec 31	MW	iPZ	10	02	30	Tu iP 10 03 01
	R	ePZ			32	Japan. Mizusawa reports:
	T	ePZ			17	P=09:52:29, S-P=32 sec.
	H	ePZ			28	
Dec 31	P	iPZ	20	53	38	Normal. Tu eP 20 54 10
	PX	eLZ	21	33		
	MW	iPZ	20	53	39	
		iZ		54	11	
	R	ePZ		53	42	
	T	iPZ			35	

C. F. Richter
March 3, 1942