

Complete J.H.

UNIVERSITY OF ARKANSAS

SEISMOLOGICAL BULLETIN JULY - SEPT 1956.

Volume V

Number 3



The University of Arkansas Seismograph Station

Operated by the University's Department of Geology
 in conjunction with the
 United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 5, Number 3, September, 1956

Data for July, August, September
1956Instruments

Vertical component - Bonieff type, short period
electromagnetic-galvanometric.

Seismometer period - 1.5 second
Galvanometer period - 0.2 second
Damping ratio - about 20 to 1 (near critical)
Recording drum speed - 60 mm per minute

Horizontal components - Wilson-Larison hinged types: E-W, N-S.
electromagnetic-galvanometric.

Seismometer period - 7.5 - 9.5 seconds
Galvanometer period - 3.6 - 3.8 (E-W)
3.8 - 4.0 (N-S)
Recording drum speed - 30 mm per minute

Clock - IBM, electrically wound, Invar pendulum type.
Accuracy limits generally within one second.

Radio - Time signals received by a Hallierafter SX-43 receiver.

(Additional information regarding the station is given on the
back cover)

Information in Remarks column is usually from U.S. Coast and
Geodetic Survey epicenter cards. C following the trace amplitude
indicates a compressional motion of the wave; D indicates dila-
tation.

Bulletin compiled by Marshall F. Cole, Observer

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
July											
1											No quakes
✓ 2	iP	01	21	05	0.7			1.0			
	iP	14	49	18	0.8			3.0			
✓ 3	iP	00	38	15.7	0.9			4.0D			C&GS - 00-31-29** Columbia-Venezuela border. Dist. (P-H) = 3,750 km.ca.
✓ ✓	eP	15	51	44.3	1.0			3.0			C&GS - 15-46-41* 13½°N., 91°W. Near coast of Guatemala. Dist. (P-H) = 2,550 km.ca.
	e		52	00	1.0			4.0			
	e			31	1.2			4.0			
✓ 4 ✓	iP	11	19	44.8	1.3			4.0C			C&GS - 11-08-28* 31°S., 71°W. Central Chile. Dist. (P-H) = 7,900 km.ca.
	e(PcP)		20	01	0.8			4.0			
5 ✓	iP	06	05	35	1.0			1.5			C&GS - 05-54-35** Kamchatka. Dist (P-H) = 7,550 km.ca.
✓	eP	08	29	24	1.5			1.3			C&GS - 08-16-47* 43½°N., 140°E. off coast of Hokkaido, Japan. H=100 km. Dist. (P-H) = 9,700 km.ca.
✓	iP	13	09	13.5	0.9			1.5D			C&GS - 13-01-05* 63½°N., 151½°W. Alaska. Dist (P-H) = 4,850 km.ca.
6											No quakes
7											No quakes
8											No quakes
9											No quakes
10 ✓	iP	18	09	09	1.0			3.0C			C&GS - 17-56-03** Marshall Islands. Dist. (P-H) = 10,100 km.ca.
11 ✓	iP	03	01	34	0.6			1.5D			
✓	eP	11	36	37	0.7			1.0			

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
July											
17	iPPZEN	07	52	20.2	1.0	4.0	4.0	1.0	1.2	1.2	C&GS - 07-34-07*
	e(sPP)ZEN	55	21	3	2.0	4.0	4.0	35.0	7.0	3.0	7°S., 126½°E.
	eZEN	57	49	3	1.2	1.8	1.5	8.0	10.0	7.0	Banda Sea (h=450)
	eZEN	58	36	3	1.0	7.0	1.3	7.0	12.0	5.0	Dist. (P-H)=12,100
	cEN	08	01	14		2.0	2.0		6.0	5.0	km.ca.
	cEN	12	32			14.0	8.0		4.0	6.0	
	iP	15	28	48	1.0			2.5D			C&GS - 15-19-38*
											41°N., 27°W. Azores
											region. Dist (P-H)=
											5,750 km.ca.
	iP	17	29	23	1.0			1.5			
	iP	22	37	53	1.0			5.0C			C&GS - 22-32-40**
	o	44	22		2.0			1.5			300 miles off coast
											of Guerrero, Mexico
											Dist. (P-H)=2,650
											km.ca.
18	iPP	00	46	07.4	1.0			1.0D			C&GS - 00-27-27*
											5°S., 151°E., New
											Britain. Dist (P-H)=
											11,750 km.ca.
	iP	00	57	03.8	1.1			3.0C			
	o		20		1.6			2.0			
	cP	06	38	14.5	1.0			1.5			C&GS - 06-19-15*
	o		24.5		1.0			12.0			5°S., 130°E., Banda
	cEN		32.5			2.0	2.0	1.5	1.5		Sea. Dist. (P-H)=
	cZEN	41	38	5	?	?	?	32.0	10.0	4.0	12,100 km.ca.
	cZEN	50	29		1.5	4.0	6.0	6.0	3.5	5.0	
	o	51	38	5	1.5			7.5			
	cEN	57	42			8.0	7.0	10.0	10.0		
	cLmaxEN	07	40	00	20.0	16.0	16.0	3.0	17.0	14.0	
	c(P)	10	45	18	1.0			0.5			
	cP	11	09	34	1.0			1.0			C&GS - 10-58-18**
											Near east coast of
											Kamchatka. Dist.
											(P-H)=7,850 km.ca.
19	iP	20	59	46.5	1.0			2.0			C&GS - 20-40-54*
											15°N., 120½°E.
											Near west coast of
											Luzon, P.I. Dist
											(P-H)=11,700 km.ca.

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
July											
19	✓ cPZEN	23	32	17	1.0	3.5	3.5	3.0	1.5	1.5	C&GS - 23-26-25* 9½°N., 84½°W. Near coast of Costa Rica. Dist. (P-H)=3,100 km.ca.
	✓ c		23		1.5			5.0			
	✓ c		33	25	1.5			5.0			
	✓ iP	23	43	57	1.0			2.0			C&GS - 23-38-04* 9½°N., 85°W. Near coast of Costa Rica. Dist. (P-H)=3,150 km.ca.
	✓ c		44	09	1.1						
	✓ cEN		50	32		7.0	6.0		4.0	2.5	
20	✓ iP	07	49	22	1.5			2.0			C&GS - 07-39-10* 20°S., 70°W. Northern Chile. Dist. (P-H)= 6,700 km.ca.
	✓ c		50	20	1.0			1.5			
	✓ iP	17	59	09	1.00			2.0			
	✓ cP	23	11	36	1.1			1.0			
21	✓ iP	00	19	56	1.1			2.5			C&GS - 00-08-31* 1°N., 26°W. Mid- Atlantic Ocean, Dist (P-H)=8,050 km.ca.
21	✓ iP	15	02	06.7	1.0			20.0			C&GS - 14-51-06* 50°N., 147½°E. Sea of Okhotsk. h=600, Dist. (P-H)=8,600 km.ca.
	✓ c		28		1.0			8.0			
	✓ c		04	18	1.0			6.0			
	✓ iP	15	51	17.7	1.0			4.00			C&GS - 15-32-25* 23°N., 70°E. Western India. Dist. (P-H)= 11,700 km.ca.
	✓ iP	16	01	31.1	1.0			1.00			
22	✓ iP	03	41	54	1.1			4.0			C&GS - 03-28-59** Aegean Sea after- schock. Dist.(P-H)= 9,900 km.ca.
	✓ iP	09	35	07	1.0			5.0			C&GS - 09-25-08* 19°S., 69°W. Northern Chile. h=100 km. Dist. (P-H)=6,650 km. ca.
	✓ opP		31		1.0			10.0			
	✓ c(S)EN		43	08		8.0	6.0	3.0	2.0		
	✓ c(ScS)EN		48			8.0	7.0	3.5	4.0		

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
July 23	✓ iP	07	55	57.1	1.0			1.20			
	✓ oP	08	08	47.5	1.5			1.2			C&GS - 08-03-51* 36 $\frac{1}{2}$ °N., 122°W. California. Dist. (P-H)=2,450 km.ca.
	✓ iP	13	10	13	1.2			1.0D			
	✓ iP	13	58	08.4	1.0			1.2D			
	iPZN	19	36	21.9	1.2		5.0	3.0D		2.5	C&GS - 19-25-50*
	oZN		36	29.8	1.7		4.0	8.0		5.0	24°S., 102°W. Easter
	oSN		45	12				6.0		5.0	Island region. Dist.
	oLmax EN	20	00	00	16.0		17.0	4.0		10.0	(P-H)=6,950 km.ca.
24	✓ o(P)	07	17	52	1.1			1.0			
	✓ iP	13	13	02.6	1.0			1.0			C&GS - 13-00-18* 30 $\frac{1}{2}$ °N., 139°E. South of Honshu, Japan. h=500 km. Dist. (P-H)=10,850 km.ca.
	✓ iPP	19	15	42.7	1.0			2.0D			C&GS - 18-56-32* 1°N., 126 $\frac{1}{2}$ °E. Molucca Passage. Dist. (P-H)=12,050 km.ca.
25											No Quakes
26	✓ iP	02	45	48.5	1.0			1.0			
	✓ iP	09	57	49.3	1.0			1.0			C&GS - 09-53-18* 39 $\frac{1}{2}$ °N., 118 $\frac{1}{2}$ °W. Fallon, Nevada. Dist. (P-H)=2,200 km.ca.
27											Vertical Component Dead
28											Vertical Component Dead
29	✓ iPP	07	33	42.5	1.0			5.00			C&GS - 07-13-44*
	o		34	01.4	1.0			5.0			9°S., 85 $\frac{1}{2}$ °E. Eastern Indian Ocean. Dist. (P-H)=12,750 km.ca.

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Aug.											
1	✓ iP	06	54	58.4	1.1			5.0D			C&GS - 06-44-00* 28 $\frac{1}{2}$ °S., 71 $\frac{1}{2}$ °W. Central Chile fore- shock. Dist. (P-H)= 7,550 km.ca.
	✓ iP	07	08	08.3	1.1			13.0D			C&GS - 06-57-09* 28 $\frac{1}{2}$ °S., 71 $\frac{1}{2}$ °W. Central Chile. Dist. (P-H)=7,550 km.ca.
	✓ oP	20	34	08	1.0			3.0			C&GS - 20-28-26* 18 $\frac{1}{2}$ °N., 71°W. Dominican Republic Dist. (P-H)=3,200 km.ca.
2	✓ iP	07	18	00.9	1.2			10.0D			C&GS - 07-11-20* 5°N., 75°W. Central Columbia. Dist. (P-H)=4,050 km.ca.
	✓ iP	07	30	39.5	1.2			8.0C			C&GS - 07-18-11* 43N., 14 $\frac{1}{2}$ E. Off coast of Hokkaido, Japan. Dist. (P-H)= 9,550 km.ca.
	o			45	1.2			5.0			
	o			56	1.0			4.0			
3											No Quakes
4	✓ iP	06	20	22	1.0			2.0D			C&GS - 06-10-05* 21°S., 71°W. Near coast of Northern Chile. Dist. (P-H)= 6,800 km.ca.
	✓ oP	11	28	34	1.1			1.0			C&GS - 11-22-30** 100 miles off north coast of Porto Rico. Dist. (P-H)=3,250 km.ca.
	✓ iP	13	39	42	0.7			6.0C			
	o			55	0.8			3.5			
5	✓ iP	05	53	12.8	1.1			2.5D			

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Aug.											
5 ✓	oP	09	21	53	1.0			0.5			C&GS - 09-09-12* 41°N., 144°E. Off east coast of Hokkaido, Japan. Dist. (P-H)=9,400 km.ca.
6 ✓	oP	13	21	03.5	0.8			1.0			
7											No Quakes
8											No Quakes
9 ✓	oP	07	30	31	1.2			3.0			C&GS - 07-19-15** Central Chile. Dist. (P-H)=7,850 km.ca.
✓	iP o	17-06-25.9 28			1.0 1.0			12.00 10.0			C&GS - 17-00-57* 12°N., 86°W. Near coast of Nicaragua. Dist. (P-H)=2,850 km.ca.
✓	iPZEN o o(PP)	23-13-25.8 14-34 17-10			1.2 2.0 3.0	10.0 10.0		10.0 3.0 10.0	20.0 15.0		C&GS - 23-00-42* 15°S., 176°W. Samoa Island Region. Dist. (P-H)=9,700 km.ca.
10 ✓	iP	02-23-00.7			0.5			3.0D			C&GS - 02-17-11* 10°N., 84½°W. Costa Rica. Dist. (P-H)= 3,100 km.ca.
11											Vertical Component Dead
12											Vertical Component Dead
13											Vertical Component Dead
14 ✓	o(P)	13-02-35			1.3			1.5			
15 ✓	iP o	06-39-31.6 42-44			1.0 1.0			1.5 2.0			

Date	Phase	Time GCT			Period (secs)			Trace Amp. (rms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Aug.											
15	iP	12	09	22.4	1.0			1.5			C&GS - 12-02-54* 43 $\frac{1}{2}$ °N., 16 $\frac{1}{2}$ °E. Near coast of Yugoslavia. Dist. (P-H)=4,350 km.ca.
	o			12-30	2.0			4.0			
	o			13-32	2.5			5.0			
	o(P)	14	24	19	2.0			2.5			
16											Vertical Component Dead
17											Vertical Component Dead
18											Vertical Component Dead
19											Vertical Component Dead
20	✓ o(P)	06	40	10	1.1			20.0			
	✓ o(P)	10	48	45	1.0			2.0			
21											No Quakes
22	✓ o(P)	01	46	02	1.2			1.5			
	✓ iP	18	34	04.7	1.1			3.0D			
23	✓ iP	05	49	57.3	1.0			2.5D			
	✓ iPZIN	14	58	05.7	1.0	2.0		5.0C		2.5	
	oZIN			58-22	1.0	4.0		12.0		4.0	
	oZIN			59-15	1.2	4.0		8.0		5.0	
	✓ o(P)	15	42	20	1.0			1.5			
24	✓ oP	04	03	05	1.1			2.0			C&GS - 03-50-54* 45 $\frac{1}{2}$ °N., 152°E. Kurile Islands. Dist. (P-H)=9,050 km.ca.
	iPZIN	04	38	07.3	1.2	5.0	6.0	1.5	5.0	7.0C	C&GS - 04-27-33* 53°N., 172 $\frac{1}{2}$ °E. Near Aleutian Islands. Dist. (P-H)=7,150 km.ca.
	o(PP)			40-52	2.5			6.0			
	oSZIN			46-58	1.5	4.0	4.0	3.0	6.0	7.0	
	o			05-00-32	1.5			1.5			
	oLmaxEN	05	04	40	15.0	20.0	20.0	15.0	5.0		

Date	Phase	Time GCT			Period (secs)			Trace Amp. (rms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Aug.											
24	✓ iP	08	52	37.4	1.5			2.00			C&GS - 08-41-30* 54°N., 162°E. Kamchatka, Dist. (P-H)=7,700 km.ca.
	✓ iP	19	14	21.9	1.2			2.00			
	✓ iP	20	14	53.1	1.0			2.00			
25	iP	16	01	58.1	1.2			4.0			C&GS - 15-57-43* 30½°N., 15½°W. Baja,
	✓ cZEN		07	20	3.0	4.0	4.0	4.0	5.0	5.0	California, Dist.
	✓ cZEN		08	18	4.0	10.0	10.0	6.0	15.0	15.0	(P-H)=2,050 km.ca.
	c		09	32	5.0			8.0			
	✓ iP	19	44	18.6	1.8			2.20			C&GS 19-33-45* 52½°N., 172½°E. Near Aleutian Islands Dist. (P-H)=7,100 km.ca.
26	c(P)	08	10	07	1.0			1.2			
	✓ iP	16	58	53.1	1.2			2.0			C&GS - 16-48-20* 52½°N., 172½°E. Near Aleutian Islands Dist. (P-H)=7,100 km.ca.
27											No Quakes
28											No Quakes
29	✓ iP	03	15	42.2	0.9			3.00			C&GS - 03-04-32* 54°N., 160°E. Near east coast of Kamchatka, Dist. (P-H)=7,800 km.ca.
30	✓ iP	04	33	18.8	0.8			4.00			C&GS - 04-24-24* 54°N., 164°W. Unimak Island, Aleutian Islands, Dist. (P-H) =3,150 km.ca.
	✓ iPZEN	05	30	24.8	1.5	3.5	3.5	10.0	15.0	7.00	C&GS - 05-24-52* 41°N., 126½°W. Off coast of Northern California, Dist.
	✓ cZEN		31	26.	1.8	3.5	3.8	4.0	14.0	4.0	(P-H)=2,050 km.ca.
	✓ cSZEN		35	06✓	2.0	4.8	5.0	8.0	10.0	12.0	
	✓ cLmaxZEN		40	00.	7.0	14.0	10.0	6.0	15.0	30.0	

Date	Phase	Time GCT			Period (secs)			Trace Amp. (rms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Aug.											
31 ✓	iP	18	31	50.9	1.3			4.00			C&GS - 18-22-53* 13°S., 77°W. Near coast of Peru. Dist. (P-H) = 5,550 km.ca.

Date	Phase	Time GCT			Period (secs)			Trace Amp. (rms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Sept.											
1	✓ c(P)	17	05	32	0.8			1.0			
2	✓ c(P)	00	36	29	1.2			2.0			
	✓ c(P)	00	40	17	1.0			1.2			
3	✓ iP	03	25	44.1	1.2			2.5			
4	✓ iP	07	36	28.4	1.4			3.0D			
5	✓ c(P)	01	56	14	1.5			2.5			
	✓ c(P)	16	11	40	1.2			3.0			
	✓ iP	18	31	42.7	1.2			2.5D			
6	✓ c(P)	04	38	13	1.0			2.0			
	✓ iP	09	31	15.5	1.0			2.0D			
	✓ c(P)	11	55	34 ✓	1.2			2.0			C&GS - 11-46-35** Dodecanese Islands Region. Dist. (P-H) =6,600 km.ca.
7	✓ iP	04	07	10.3 ✓	1.0			2.0D			
	✓ iP	09	21	27.7	1.5			4.0D			C&GS - 09-10-30** Near coast of northern Chile. Dist. (P-H)=8,200 km.ca.
	✓ iP	13	37	57.1	0.09			1.0			C&GS - 13-35-57** East Tennessee- Kentucky border. Dist. (P-H)=900 km.ca.
	✓ c(P)	20	35	13	1.0			2.0			
8	✓ iP	08	06	32.0	1.2			3.0D			
	✓ iP	18	18	02.7 ✓	1.3			2.5D			C&GS - 18-08-10** 76½°N., 7°E. Arctic Ocean west of Spits- bergen. Dist. (P-H)= 7,550 km.ca.
9	✓ oP	17	51	21	1.2			2.0			C&GS - 17-05-13* 3°N., 129°E. Halnaha. Dist. (P-H)=14,700 km.ca.

Date	Phase	Time GCT			Period (secs)			Trace Amp. (rms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Sept.											
10	✓ c(P)	07	73	19	1.2			2.0			
	✓ iP	11	30	27.7	0.8			4.0D			C&GS - 11-25-28* 14½°N., 89½°W. El Salvador. Dist. (P-H)=2,500 km.ca.
	✓ c(P)	12	16	08	1.0			2.0			
	/ c(P)	12	19	47	1.0			2.0			
	/ iP	12	54	09.7	1.2			4.0			
	✓ iP	14	10	21.8	1.3			6.0D			C&GS - 14-04-45* 11½°N., 103½°W. Pacific Ocean, south of Mexico. Dist. (P-H)=2,850 km.ca.
	o(PP)			47	1.8			3.0			
	oLmax			36-50	8.0			3.0			
11	✓ iP	00	05	34.9	1.3			3.0C			
	✓ iP	02	46	7.0	✓ 2.0			8.0C			C&GS - 02-32-28* 16½°S., 178°E. Fiji Islands. Dist. (P-H)=10,350 km.ca.
	✓ iPZEN	09	59	32.6	✓ 1.2	4.0	5.0	6.0	12.0	13.0D	
	o	10	01	04	✓ 1.5			5.0			
	✓ iP	21	15	39.7	✓ 1.5			12.0D	✓		C&GS - 21-03-56* 49½°N., 155°E. Northern Kurile Is. Dist. (P-H)=11,350 km.ca.
12	✓ c(P)	20	00	38	3.0			4.0			
	✓ iP	20	11	32.9	1.1			3.0C			
13											No Quakes
14	✓ iPZN	06	21	40.3	✓ 1.5	4.0		4.0D	✓	2.0	C&GS - 06-16-54* 15°N., 94°W. Off coast of Chiapas, Mexico. Dist. (P-H)=2,300 km.ca.
	o			22-21	✓ 1.2			4.0			
	o			50	1.8			6.0			

Date	Phase	Time GCT			Period (secs)			Trace Amp. (rms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Sept.											
15	iP c(sP)	07-49-11.6	✓	1.5			10.0D				C&GS - 07-39-04* 20°S., 69°W. Northern Chile. Dist. (P-H)=6,700 km.ca.
		50	✓	1.4			12.0				
16	iP	08-42-09.7		1.0			5.0C				
	cPPZN	08-54-59.8		.15			3.0C				C&GS - 08-37-22* 34°N., 69½°E. Afghanistan. Dist. (P-H)=10,800 km.ca.
	cLmaxZN	09-46-30		17.0	20.0		4.0	10.0			
17	iP	04-34-54.3		0.8			3.0D				
	c(P)	16-30-31		1.2			2.0				
18	c(P)	00-58-22		.08			3.0				
	c(P)	01-56-24		.08			1.0				
19											No Quakes
20	iP	03-13-02		0.8			2.0				C&GS - 03-02-50** Near north coast of Chile. Dist. (P-H)= 6,650 km.ca.
20	iP	20-17-33.2	✓	1.3			5.0D	✓			C&GS - 20-06-09* 51°N., 159°E. Near coast of South Kamchatka. Dist. (P-H)=8,100 km.ca.
	iP	22-03-21.9	✓	1.2			7.0D				C&GS - 21-52-01* 51½°N., 159½°E. Near south coast of Kamchatka. Dist. (P-H)=8,100 km.ca.
	c	04-12	✓	2.4			6.0				
	c(P)	23-14-47	✓	1.2			3.0				
21	iP	09-20-21.1		1.1			4.0C				C&GS - 09-16-20* 20°N., 100½°W. Central Mexico. Dist. (P-H)=1,900 km.ca.

Date	Phase	Time GCT			Period (secs)			Trace Amp. (rms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Sept. 21	✓ iP	19	22	10.4	0.7			7.00			C&GS - 19-11-59* 26 $\frac{1}{2}$ ^o S., 63 ^o W. Santiago del Estero. Province Argentina. h=about 600 km. Dist. (P-H)=7,650 km.ca.
	✓ iP	23	07	51.2	1.2			3.00			C&GS - 22-55-46* 46 ^o N., 151 $\frac{1}{2}$ ^o E. Kurilo Islands. Dist. (P-H)=8,850 km.ca.
22											No Quakes
23	✓ o(P)	19	32	42	1.2			2.0			
	✓ o(P)	20	45	44	1.1			1.5			
24	✓ iP	06	17	38.5	1.1			3.00			C&GS - 06-04-37 15 $\frac{1}{2}$ ^o S., 173 $\frac{1}{2}$ ^o W. Samoa Islands. Dist. (P-H)=10,000 km.ca.
	✓ o(P)	14	01	37.	.08			3.5			
25	✓ iP	18	33	31.0	1.0			5.00			C&GS - 18-27-25* 8 ^o N., 83 ^o W. Costa Rica-Panama foreshock. Dist. (P-H)=3,300 km.ca.
26	✓ oP	05	17	28	1.2			3.0			C&GS - 05-04-01* 30 $\frac{1}{2}$ ^o N., 142 ^o E. Off south coast of Honshu. Dist. (P-H)=10,600 km.ca.
	✓ iP	14	12	04.3	1.1			7.00			
	o			28	1.2			5.0			
	✓ o(P)	19	45	40.8	0.1			2.0			
	✓ iP	20	17	53.6	0.4			3.00			
	o			59	1.8			8.0			
	o			18-24	1.3			10.0			
27	✓ o(P)	14	18	34	0.1			1.0			
	o			20-40	1.2			8.0			
28	✓ iP	15	11	27.2	1.7			6.00			C&GS - 15-01-36* 77 $\frac{1}{2}$ ^o N., 7 ^o E. Off west coast of Spitsbergen. Dist. (P-H)=6,500 km.ca.

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Sept.											
29	✓ iP	11	40	41.8	1.0			3.00			C&GS - 11-31-40* 12°S., 78°W. Off coast of Peru. Dist. (P-H)=5,650 km.ca.
	✓ iP	21	33	54.4	1.3			3.00	✓		C&GS - 21-20-52* 37½°N., 141°E. Central Honshu, Japan. Dist. (P-H)= 10,050 km.ca.
	✓ iP o	23	34	00 17	1.3 1.2			7.00 12.0	✓		C&GS - 23-20-52* 35½°N., 140°E. Central Honshu, Japan. One killed, several injured / minor property damage in Tokyo. h=60 km. Dist. (P-H) =10,400 km.ca.
30	✓ o(P)	02	36	27	1.6			2.0			

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are $36^{\circ} 05.46'$ north latitude and $94^{\circ} 11.47'$ west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas
Seismograph Station
Department of Geology
Fayetteville, Arkansas

Complex Sh.H.

UNIVERSITY OF ARKANSAS SEISMOLOGICAL BULLETIN

Volume V

Number 4



The University of Arkansas Seismograph Station

Operated by the University's Department of Geology
in conjunction with the
United States Coast and Geodetic Survey

FAYETTEVILLE SEISMOGRAPH STATION

Volume 5, Number 4, December, 1957

Data for October, November, December
1956Instruments

Vertical Component - Benioff type, short period
electromagnetic-galvanometric.

Seismometer period - 1.5 second
Galvanometer period - 0.2 second
Damping ratio - about 20 to 1 (near critical)
Recording drum speed - 60 mm per minute

Horizontal Components - Wilson-Lamison hinged types: E-W, N-S.
electromagnetic-galvanometric.

Seismometer period - 7.5 - 9.5 seconds
Galvanometer period - 3.6 - 3.8 (E-W)
3.8 - 4.0 (N-S)

Recording drum speed - 30 mm per minute

Clock - IBM, electrically wound, Invar pendulum type.
Accuracy limits generally within one second.

Radio - Time signals received by a Hallicrafter SX-43 receiver.

(Additional information regarding the station is given on the
back cover.)

Information in Remarks column is usually from U.S. Coast and
Geodetic Survey epicenter cards. C following the trace
amplitude indicates a compressional motion of the wave; D
indicates dilation.

Bulletin compiled by Marshall F. Cole, Observer

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Oct.											
1	iP	12	17	07.7	1.1			5.0			
1	e(P)	12	22	21	1.0			1.5			
1	iP	18	09	52.2	1.2			8.0			C&GS-18-04-40* 18 $\frac{1}{2}$ °N., 77°W. Jamaica Minor property damago. Dist. (P-H)= 2,650 km. ca.
1	e(P)	23	26	22	1.1			2.0			
2	eP	07	56	02	1.2			2.0			C&GS - 07-51-30* 21°N., 108°W. Off coast Jalisco, Mexico. Dist (P-H)=2200 km. ca.
2	iP e	15	07	39.1 48	1.4 1.5			12.0 7.0			C&GS - 14-56-26* 53°N., 159°E. Near coast of Kamchatka. h=about 60 km. Dist. (P-h)=7950 km.ca.
2	eP	15	57	40	1.2			2.0			C&GS - 15-53-30* 24°N., 109 $\frac{1}{2}$ °W. Southern Gulf California. Dist. (P-H)=1950 km.ca.
2	e(P) eZN	16	01	50 03-00	1.2 2.5			2.0 5.0			
3	iP	01	13	49.5	1.0			2.5			C&GS - 01-09-03** Off coast of Oaxaca, Mexico. Dist. (P-H)= 2350 km.ca.
/ 3	iPZN	08	28	49.1	1.1	3.0	15.0	3.0			C&GS - 08-18-46* 20°S., 69 $\frac{1}{2}$ °W. Northern Chile. h=100 km. Dist. (P-H)=6700 km.ca.
3	e(P)	16	45	50	0.9			2.5			
3	eP	20	26	02	1.1			3.0			C&GS - 20-21-40* 41 $\frac{1}{2}$ °N., 110°W. SW Wyoming. Dist. (P-H)= 1550 km.ca.
4	e(P)	04	55	11	0.8			1.5			

Date	Phase	Time GCT			Period (secs)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Oct.											
4 ✓	iP	07	27	32.1	1.2			5.00			
4 ✓	iP	17	19	59.8	1.2			6.00			C&GS - 17-15-14** 200 miles off Coast of Chiapas, Mexico. Dist. (P-H)=2400 km.ca.
	o(pP)		20	30	1.5			7.0			
	e		23	22	1.6			2.0			
5 ✓	iP	00	35	26.7	1.6			2.5D			
5 ✓	eP	08	29	41.2	1.2			2.0			C&GS - 08-14-14** 100 miles off Coast of Kamchatka. Dist. (P-H)=12,900 km.ca.
5 ✓	e(P)	13	05	08	0.2			2.0			
5 ✓	e(P)	16	12	09	0.8			1.5			
5 ✓	ePP	21	58	34	0.8			1.2			C&GS - 21-43-16* 13°S., 167°E. New Hebrides Islands. h=about 100 km. Dist. (P-H)=11,050 km.ca.
6 ✓	iP	02	41	34.4	0.9			3.0D			
7 ✓	eP	06	58	35	0.8			2.5			C&GS - 06-52-13** 100 miles off Coast of Panama. Dist. (P-H)=4200 km.ca.
8 ✓	eP	01	55	11	0.8			2.0			C&GS - 01-49-09** 200 miles off Coast of Vancouver Islands, British Columbia. Dist. (P-H)=3200 km.ca.
8 ✓	e(P)EN	15	20	12		5.0	6.0		13.0	15.0	
9 ✓	iP	06	32	57.1	1.5			2.00			C&GS - 06-19-37* 19½°S., 174°W. Tonga Islands. Dist. (P-H)=10,400 km.ca.
9 ✓	iP	11	01	41.2	1.6			4.00			C&GS - 10-53-41* 25°N., 46°W. Atlantic Ocean. Dist. (P-H)=4700 km.ca.
10 ✓	iP	20	50	02.4	?			4.00			
	e		25		?			20.0			

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Oct. 11	iPZEN	02-36-33.7	2.0	2.0	2.0	25.0	20.0	25.0	OC	C&GS - 02-24-33*	
	e(pP)ZEN	37-02	2.0	5.0	5.0					46°N., 150½°E.	
	e	38-00	1.2			18.0				Kurile Islands, Felt	
	e EN	39-27		5.0	5.3		10.0	8.0		Hokkaido, Japan, h=	
	e(PP)ZEN	45	1.5	5.8	4.0	10.0	8.0	8.0		about 100 km. Dist.	
	e(S)ZEN	46-25	3.8	8.0	8.0	10.0	60.0	65.0		(P-H)=8850 km.ca.	
	eLmax ZEN	03-09-11	10.0	16.0	22.0	3.0	25.0	19.0			
11	iPZEN	16-54-16.8	1.8	4.0	4.0	20.0	75.0	80.0		C&GS - 16-48-46*	
	e(s)ZEN	58-52	1.1	7.5	8.0	7.0	80.0	80.0		40½°N., 126½°W. Off	
	eZEN	17-04-08	3.2	20.0	20.0	7.0	80.0	80.0		Cape Mendocino, Calif.	
	eLmax ZEN	08-24	9.0	10.0	10.0	8.0	70.0	70.0		Dist. (P-H)=2900 km. ca.	
11	iP	17-27-58.5	1.3			10.0	OD			C&GS - 17-18-17*	
										41°N., 126°W. Cape Mendocino, After Shock.	
										Dist. (P-H)=2900 km. ca.	
12	iPZEN	02-47-09.9	1.4	3.0	6.0	8.0	3.0	10.0	OC	C&GS - 02-37-43*	
	e(s)EN	54-45		6.0	8.0		9.0	7.0		15°S., 74½°W. Near	
	eLmaxEN	03-11-40		15.0	15.0		5.0	5.0		Coast of Central Peru. Dist. (P-H)=5950 km. ca.	
12	e(P)	03-24-06	1.1					1.8			
12	iP	12-35-23.7	1.4					5.0	OC	C&GS - 12-22-48*	
										42½°N., 144½°E. Near East Coast Hokkaido, Japan. Dist. (P-H)= 9500 km.ca.	
13	iP	05-11-31.9	1.1					5.0	OC	C&GS - 05-04-40*	
										9½°N., 70°W. Western Venezuela. Dist. (P-H)=3900 km.ca.	
13	iP	15-24-08.4	1.5					4.5	D	C&GS - 15-12-25*	
	e(pP)	23	1.4					6.0		49½°N., 156°E. Northern Kurile Islands Dist. (P-H)=8300 km.ca.	
13	eP	23-00-53	1.1					2.5		C&GS - 22-55-20** Near Coast of Northern California. Dist. (P-H)=2950 km.ca.	

Date	Phase	Time GCT			Period (secs.)			Trace Amo. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Oct. 14 ✓	iP e(pP)	21-18-32.6 45	1.0 1.0				2.0D 2.5				C&GS - 21-05-36* 28°N., 141½°E. Off East Coast of Honshu. h=about 60 km. Dist. (P-H)=9900 km.ca.
15 ✓	e(P)	06-02-04	1.2				1.5				
16 ✓	iP	10-54-29.4	0.8				1.0D				C&GS - 10-44-43* 20°N., 157°W. Hawaiian Islands. Dist. (P-H)=6300 km.ca.
16 ✓	iP	17-05-13.5	1.2				2.0D				
17 ✓	e(P)	04-35-33	1.2				1.5				
17 ✓	e(P)	14-48-24	1.1				1.3				
18 ✓	iP	07-20-57.2	1.2				5.0D				
19 ✓	iP	01-37-44	1.4				3.5C				C&GS - 01-38-53* 11½°S., 76°W. Central Peru. h=about 100 km. Dist. (P-H)=5500 km.ca.
19 ✓	iP	03-32-46.8	1.2				2.5C				
19 ✓	iPZN e(s)EN e(PPS)EN eLmaxEN	20-57-50. 21-06-08. 18-17. 23-10	0.9	4.0 4.0 8.0	4.0 4.0 8.0	6.0 4.0 8.0	4.0C 6.0 5.0 30.0	3.0 6.0 12.0 35.0			C&GS - 20-47-33* 52°N., 177°E. Rat Islands. Dist. (P-H)=6800 km.ca.
20 ✓	iP	00-04-05.8	1.2				4.5C				
20 ✓	iP	03-40-51.1	1.0				4.5D				C&GS - 03-31-24* 51½°N., 170°W. Fox Islands. Dist. (P-H)=6000 km.ca.
21 ✓	eP e(S)ZEN eZEN	08-43-45 48-53 50-05	1.0 2.0 3.5	4.0 14.0	4.0 6.0		3.5 5.0 4.0	7.0 13.0	11.0 7.0		C&GS - 08-39-45* 25°N., 109°W. Southern California Gulf. Dist. (P-H)=1900 km.ca.
21 ✓	e(P)	09-45-48	1.1				2.0				
22 ✓	iP e(S)ZEN	11-58-17.7 12-03-27	2.1 2.0	4.0 4.0	4.0		1.2D 1.5	3.0	3.0		

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Oct. 23 ✓	iP	03	06	56.2	1.0			3.5C			
23 ✓	iP e(pP)	04	30	16.1	0.8			2.5C			C&GS - 04-24-52** Off Coast of El Salvador. Dist. (P-H)=2800 km.ca.
				37	1.1			3.0			
23 ✓✓	iP	08	14	12.5	1.3			2.5D			C&GS - 08-07-35* 3°N., 95°W. North-west of Galapagos Islands. Dist. (P-H)=3700 km.ca.
23 ✓✓	iP	09	00	06.8	1.1			3.0D			C&GS - 08-41-22* 13½°N., 120½°E. Mindore Island. h=about 100 km. Dist. (P-H)=11,800 km.ca.
23 ✓	eP	10	15	07	1.1			2.0			C&GS - 10-01-48* 19°S., 174°W. Tonga Islands. Dist. (P-H)=10,400 km.ca.
24 ✓	iP e	13	49	04.5	0.2			2.0C			
				50-28	0.2			6.0			
24 ✓✓	iPZEN	14	47	39.6	1.5	7.0	8.0	35.0C	9.0	25.0	C&GS - 14-42-11* 12°N., 87°W. Coast of Nicaragua. Damage at Managua. Dist. (P-H)=2800 km.ca.
	e(S)ZEN			52-57	1.8	11.0	18.0	10.0	100.0	120.0	
	eLmaxZEN			56-53	3.0	26.0	26.0	5.0	75.0	135.0	
	eEN			15-02-14		12.0	21.0		32.0	65.0	
	eEN			05-44		20.0	18.0		32.0	75.0	
25 ✓	iP	05	27	09.3	1.5			13.0C			C&GS - 05-21-40* 12°N., 87°W. Nicaragua Aftershock. Dist. (P-H)=2800 km.ca.
25 ✓	iP	10	20	28.1	1.0			10.5D			C&GS - 08-54-46* 6½°S., 130°E. Banda Sea. h=about 200 km. Dist. (P-H)=10,300 km.ca.
26 ✓	ePPP	09	13	41	0.8			1.5			
26 ✓	iP	09	16	48.2	0.8			3.0D			
26 ✓	e(P)	13	54	29	0.1			4.0			
27											Vertical Component Dead

Date	Phase	Time GCT h m s	Period (secs.)			Trace Amp. (mms.)			Remarks
			Z	E	N	Z	E	N	
Oct. 28	iP eEN e(PPS)	03-47-07.1 53-10 58-31	1.6	6.0	5.0	3.00 4.0	5.0		C&GS - 03-28-41* 32°S., 179°W Kermadec +slands. Dist. (P-H)=11700 km.ca.
29									Vertical Component Dead
30	iPZE e(S)EN	10-36-20 40	--	--	--	15.0 3.0	3.0 7.0		Missouri
31	eP	01-43-17.0	1.1			2.1			
31	e(P)	14-22-12.	1.7			2.0			
31	ePZEN e(PcP)ZN eZEN eLmaxEN	14-32-29 33-19 41-25 48-40	2.0 1.5 1.6 14.0	6.0 5.0 17.0 14.0	4.0 5.0 18.0 14.0	2.0 3.0 1.6 6.0	4.0 5.0 10.0 4.0	7.0	C&GS - 14-22-19* 27°N., 54½°E. Southern Iran after shock. Dist. (P-H)= 6700 km.ca.

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Nov. 9 ✓	iP	06	10	29.6	1.3			3.0			C&GS -06-01-51* 34½°N., 34½°W. North Atlantic. Dist. (P-H)=4800 km.ca.
9 ✓	iP	12	14	55.1	1.2			4.0			C&GS - 11-55-21** Near South Coast of Java. Dist. (P-H)= 12,600 km.ca.
9 ✓	iPZE eSE e(ScS)E	13	10	25.8	1.2	2.4		1.5	15.0		C&GS - 13-06-10* 17°N., 94°W. Southern Mexico. Slight Damage Oaxaca. h=about 150 km. Dist. (P-H)=2150 km.ca.
10 ✓	iPZN e	00	13	59.2	1.3		2.2	7.0	3.0		C&GS - 00-08-27* 10½°N., 86°W. Near Coast of Costa Rica. h=about 100 km. Dist. (P-H)= 2950 km.ca.
11 ✓	e(P)	16	26	07	1.2			2.0			
11 ✓	iP e(pP)	19	27	42.6	1.2			5.0			C&GS - 19-15-20* 44°N., 149°E. Kurile Islands. Dist. (P-H)=9200 km.ca.
12 ✓	e(P)	06	52	19	0.7			1.2			
12 ✓	e(P) e	07	27	04	0.8			1.5			
12 ✓	e(P)	15	16	26	1.0			5.0			
12 ✓	e(P)	17	52	35	0.8			1.5			
13 ✓	iP e(pP) •	03	39	21.6	1.0			10.0			
13 ✓	ePP e	10	15	14.4	2.0			3.5			
				19.4	1.8			1.5			
								1.2			
								6.0			C&GS - 09-55-30* 48½°S., 124°E. Indian Ocean, 1000 miles South of Australia. Dist. (P-H)=12,800 km.ca.

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Nov. 14 ✓	ePP	01	09	52.5	1.2			1.5			C&GS - 00-51-36* 36°N., 71°E. Hindu Kush. h=about 200 km Dist. (P-H)=11,400 km.ca.
15 ✓	eP	14	25	05	1.0			1.1			C&GS - 14-17-15** Galapagos Islands. Foreshock. Dist. (P-H)=7,500 km.ca.
15 ✓	eP	17	35	34	1.0			1.1			C&GS - 17-27-55* 3°S., 103½°W. Pacific Ocean, about 900 miles west of Galapagos Islands. Dist. (P-H)=4350 km.ca.
16 ✓	eP eN	03	27	59 35-07	1.0		6.0	1.1		6.5	C&GS - 03-23-05* 35½°N., 121°W. Near Coast of California. Dist. (P-H)=2450 km.ca.
16 ✓	iP e(pP)	12	00	47.9 51.9	0.8 1.1			1.0D 6.0			C&GS - 11-53-54* 8½°N., 71°W. Northwest Venezuela. Dist. (P-H)=3800 km.ca.
16 ✓	eP	22	12	06	1.2			1.3			C&GS - 22-02-19* 18°S., 67°W. Peru-Bolivia-Chile Border h=about 150 km. Dist. (P-H)=6500 km.ca.
17 ✓	iP	09	27	57.6	1.0			1.4D			
17 ✓	e(P)	12	13	22	0.8			1.1			
17 ✓	iP	13	39	51.4	1.1			2.0D			
17 ✓	iPZEN e(pP)EN eZEN eEN	20	33	51.6 39-25 44-28 21-08-38	1.2	4.0 6.0 4.0 10.0	4.0 6.0 8.0 10.0	3.0D 6.0 10.0 10.0	6.0 9.0 15.0 10.0	6.0 10.0 45.0 10.0	C&GS - 20-27-15* 54½°N., 134°W. Queen Charlotte Islands. Dist. (P-H)=3600 km.ca.
18											No Quakes
19 ✓	e(P)	07	33	38	1.1			1.2			

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Nov. 20 ✓	iP e	12-17-50.7			1.0			3.0D			C&GS - 11-58-37* 0, 123 $\frac{1}{2}$ ⁰ E. Near East Coast of Celebes. Dist. (P-H)=12,300 km.ca.
		21-03			1.1			2.0			
20 ✓	e(P)	22-58-13			1.0			1.0			
21 ✓	eP	06-34-32			1.0			1.2			C&GS - 06-22-10* 49 ⁰ N., 141 $\frac{1}{2}$ ⁰ E. Off West Coast of Sakhalin. Dist. (P-H)=9200 km.ca.
21 ✓	iP	07-46-23.0			1.2			7.0C			C&GS - 07-33-28* 38 ⁰ N., 142 ⁰ E. Near Coast of Northern Honshu. h=about 60 km. (Dist. (P-H))= 10,000 km.ca.
22											Vertical Component Dead
23											Vertical Component Dead
24 ✓	iP e(pP)	02-06-26.0			1.1			3.0D			C&GS - 01-56-06* 22 $\frac{1}{2}$ ⁰ S., 67 ⁰ W. Argentina-Bolivia. h=about 150 km. Dist. (P-H)=7300 km.ca.
		46			1.2			3.0			
25 ✓	iP	14-24-51.1			1.1			3.0C			C&GS - 14-15-05* 17 ⁰ S., 72 ⁰ W. Near Coast of Southern Peru. Dist. (P-H)= 6300 km.ca.
26 ✓	iPZEN eZEN e(S)ZEN	04-13-33.9			0.1	0.1	0.1	7.0D	3.0	3.0	C&GS - 04-12-42* 37 ⁰ N., 90 $\frac{1}{2}$ ⁰ W. Missouri Felt Southeastern Missouri Southwestern Illinois. Dist. (P-H) =370 km.ca.
		40			0.1	0.1	0.1	8.0	8.0	7.0	
		14-11			0.4	0.7	0.7	23.0	5.0	5.0	
26 ✓	e(P)	05-38-57			1.1			2.0			
26 ✓	e(P)	15-58-22			1.0			2.0			

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Nov. 26	iPZEN e(pP) e	19-00-33.8 48 01-07	1.4 1.2 1.3	1.0	1.1	5.00 10.0 5.0	2.0	2.0		C&GS - 18-49-56* 26°S., 70½°W. Northern Chile. h= about 100 km. Dist. (P-H)=7300 km.ca.	
26	e(P)	23-59-25	1.0			1.3					
27										No Quakes	
28	iPZEN e(sP) e(S)EN	19-38-55.4 39-18 48-64	1.2 1.8 4.0	2.0	2.0	16.00 8.0	6.0	6.0	15.0	C&GS - 19-27-11* 49½°N., 155°E. Northern Kurile Islands. Dist. (P-H) =8400 km.ca.	
29	iP	09-29-02.5	0.8			2.1D				C&GS - 09-15-20* 27°N., 141°E. Bonin Islands. Dist. (P-H) =10,900 km.ca.	
29	eP	10-41-20.3	1.0			1.3					
30	iP	15-07-39.7	1.0			3.00					
30	eP	17-04-46	1.0			1.5				C&GS - 16-51-28* 20½°S., 174½°W. Tonga Islands. Dist. (P-H)=10,500 km.ca.	
30	iP	19-41-40.0	1.1			17.00				C&GS - 19-30-34* 31½°S., 70°W. San Juan Province, Argentina. h=about 150 km. Dist. (P-H) =7800 km.ca.	

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Dec. 1 ✓	iP	21	34	43.2	1.2			4.5C			C&GS - 21-24-54* 7½°S., 72½°W. Off Coast of Southern Peru. Dist. (P-H)= 6300 km.ca.
2 ✓	eP e	03	09	17.1 13-04							C&GS - 02-59-56* 52½°N., 169°W. Fox Islands Foreshock. Dist. (P-H)=5900 km.ca.
3 ✓	iP	07	29	27.1	1.0			2.5D			C&GS - 07-20-08* 53°N., 169°W. Fox Islands. Dist. (P-H)=5900 km.ca.
3 ✓	iPZEN e(PP)	07	54	16.1 56-24	1.2 0.5	6.0	6.0	2.0C 1.0	8.0	8.0	C&GS - 07-11-55* 52½°N., 169°W. Fox Islands Aftershock Dist. (P-H)=5900 km.ca.
4 ✓	iP	08	56	06.9	1.0			2.5D			C&GS - 08-14-28* 50°N., 156°E. Kurile Islands. Dist. (P-H)=8200 km.ca.
4 ✓	iP	10	20	12.1	2.0			5.0D			C&GS - 10-07-54* 45½°S., 106°W. South Pacific Ocean. Dist. (P-H)=9200 km.ca.
4 ✓	eP	10	51	23.6	0.8			2.5			C&GS - 10-42-10* 53°N., 167°W. Fox Islands Aftershock. Dist. (P-H)=5800 km. ca.
4 ✓	iPZN eSZEN	23	06	11.8 10-04	0.8 0.8	6.0	6.0	5.0 5.0	10.0D 22.0	11.0 15.0	C&GS - 23-01-35* 15°N., 92°W. Guate- mala. h=about 150 km. Dist. (P-H)= 2300 km.ca.
5 ✓	iP	05	28	56.6	1.2			2.0D			C&GS - 05-24-27** Near Coast of Colima, Mexico. Dist. (P-H)= 1900 km.ca.

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Dec. 7 ✓	iPP	14	49	58.4	0.8			6.0C			C&GS - 14-30-24** Near Southeastern Sumatra. Dist. (P-H)=12,600 km.ca.
7 ✓	eP e	18	37	24	0.6 1.0			1.2 3.6			
8											Vertical Component Dead
9 ✓	e(P)	09	27	47.2	0.8			1.1			
9 ✓	iP	17	12	07.6	1.0			2.5C			C&GS - 17-00-45** Off East Coast of Kamchatka. Dist. (P-H)=8000 km.ca.
9 ✓	iP e(pP)	21	12	12.7	1.1 0.8			1.5C 3.0			
10 ✓	iP	23	25	42.2	0.5			11.0D			C&GS - 23-15-00** Argentina-Chile Border. Dist. (P-H) =7100 km.ca.
11 ✓	eP	06	42	50	1.3			2.5			C&GS - 06-31-23** Off East Coast of Kamchatka. Dist. (P-H)=8100 km.ca.
12											No Quakes
13 ✓	iP eLmaxZEN eEN	13	19	49.0							C&GS - 13-15-37* 31°N., 115°W. Lower California. Dist. (P-H)=2000 km.ca.
13 ✓	eP	15	11	08							C&GS - 14-52-02* 2°N., 126½°E. Molucca Passage. Dist. (P-H)=12,200 km.ca.
14 ✓	e(P)	03	36	06	0.8			1.3			
14 ✓	iP	15	24	24.8	0.9			6.0C			

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Dec. 14 ✓	e(P)	18	25	35	1.4			1.5			
15 ✓	eP	10	10	42	1.1			1.5			
16 ✓	iPZEN e(S)EN eEN	01	48	31.6 53-20 58-53							C&GS - 01-41-52* 6 $\frac{1}{2}$ ^o N., 78 ^o W. Near West Coast of Columbia. Dist. (P-H)=3600 km.ca.
16 ✓	e(P)	23	01	48	0.9			1.0			
17 ✓	e(P)	02	51	23	1.2			3.0			
17 ✓	e(P)	03	06	44	1.2			3.0			
18 ✓	iPZEN e(pP)ZEN e(S)EN eEN eEN eLmaxEN	02	41	46.6 42-01 50-14 55-20 58-16 03-04-50	1.1 1.7	4.0 4.0	6.0 5.0 8.0 10.0 16.0 28.0	7.0C 9.0	6.0 6.0 20.0 6.0 12.0 10.0	10.0 10.0 28.0 18.0 16.0 15.0	C&GS - 02-31-00* 25 $\frac{1}{2}$ ^o S., 68 $\frac{1}{2}$ ^o W Chile-Argentina Border. Dist. (P-H) =7300 km.ca.
19											No Quakes
20 ✓	iP	20	00	01.4	1.1			1.5C			C&GS - 19-47-51* 46 ^o N., 150 ^o E. Kurile Islands. Dist. (P-H)=8950 km.ca.
20 ✓	ePP	21	33	20.6	1.2			2.0D			C&GS - 21-13-40* 4 $\frac{1}{2}$ ^o S., 101 $\frac{1}{2}$ ^o E. Near West Coast of Sumatra. Dist. (P-H)=12,700 km.ca.
21 ✓	iPZEN e(S)EN eEN	09	05	05.6 10-05 23-34	1.2	2.0 9.0 10.0	2.0 10.0 10.0	1.5C 25.0 40.0	5.0 27.0 35.0	5.0 27.0 35.0	C&GS - 08-58-53* 51 ^o N., 131 ^o W. Queen Charlotte Islands. Dist. (P-H)=3000 km.ca.
22 ✓	eP	23	25	59.3	1.0			2.5			C&GS - 23-12-35* 33 $\frac{1}{2}$ ^o N., 139 ^o E. South Coast of Honshu, Japan. Dist. (P-H)=10,500 km.ca.

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Dec. 23 ✓	eP	08	51	09.3	1.0			1.5			C&GS - 08-37-26* 22°N., 144°E. Marianas islands h=about 100 km. Dist. (P-H)=10,500 km.ca.
24											No Quakes
25 ✓	iP	06	38	34.5	1.0			2.0D			
25 ✓	iP	09	42	13.2	1.0			6.0D			C&GS - 09-33-37* 48½°N., 28°W North Atlantic Ocean. Dist. (P-H) =5300 km.ca.
	e		44	18	2.0			4.0			
	eLmax	10	01	20	14.0			2.0			
26 ✓	iP	07	53	56.5	1.2			2.5D			C&GS - 07-34-18* 9½°S., 112°E. Off South Coast of Java. Dist. (P-H) =12,700 km.ca.
26 ✓	iP	19	11	29.1	0.9			2.1D			
27 ✓	ePZEN	00	27	26.0	1.2	3.0	3.0	5.0	3.0	4.0	C&GS - 00-14-15 24°S., 177°W. Tonga Islands Region. Dist. (P-H) =10,200 km.ca.
	eZEN		31	29	1.6	3.0	3.0	7.0	7.0	8.0	
	e(S)EN		37	26		7.0	7.0		22.0	24.0	
27 ✓	e(P)	05	06	53	0.9			1.5			
27 ✓	iP	06	48	18.9	0.9			2.0D			
28 ✓	iPZEN	19	26	04.5	1.1	?	?	5.5C	?	?	C&GS - 19-21-30* 21°N., 109°W. Off South Coast of Baja, California Dist. (P-H)=3200 km. ca.
	e(S)EN		29	48		8.0	8.0		12.0	20.0	
	eLmaxEN		31	49		4.0	4.0		23.0	35.0	
	eEN		37	32		8.0	8.0		10.0	12.0	
	eEN		38	47		5.0	5.0		8.0	8.0	
	eEN		42	17		7.0	7.0		8.0	8.0	
29 ✓	e(P)EN	21	10	20		4.0	6.0		7.0	8.0	
30											No Quakes
31 ✓	e(S)	09	13	05	2.0			1.5			C&GS - 09-03-40* 31°N., 114°W. Northern Gulf of California. Dist. (P-H)=2700 km.ca.

Date	Phase	Time GCT			Period (secs.)			Trace Amp. (mms.)			Remarks
		h	m	s	Z	E	N	Z	E	N	
Dec. 31 ✓	eP	17	43	56	1.5			1.5			C&GS - 17-39-28* 39°N., 119°W. Western Nevada. Minor Damage. Dist. (P-H) = 2200 km.ca.

The University of Arkansas Seismograph Station is located on the University Farm, 2.5 miles northwest of the main campus at Fayetteville. Coordinates of the station are $36^{\circ} 05.46'$ north latitude and $94^{\circ} 11.47'$ west longitude. Altitude above mean sea level is 1,325 feet. The seismometer pier rests on the Boone limestone of lower Mississippian age. Approximately 2,500 feet of limestone, shale and sandstone overlie the pre-Cambrian crystalline rocks in the vicinity of the station.



University of Arkansas
Seismograph Station
Department of Geology
Fayetteville, Arkansas