

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

METEOROLOGICAL OFFICE,  
EDINBURGH  
28 MAR 1962  
R.6.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR JANUARY, 19 62.

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (I) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE"

(LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ah}{\pi l}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(II) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD. sec.	AMPLITUDE. μ	Δ km.	REMARKS.
			h.	m.	s.				
1	ZV	eP	02	52	58				52.3°N., 177.9°E. Rat Islands. USCGS.
1	ZV, Z	iP	23	52	15	5	1.0	8500	52.4°N., 177.7°E.
	NE	eS	24	01	57	12	1.5(H)		Rat Islands, Aleutian Islands. USCGS.
	E	M		30 $\frac{1}{2}$	-	18	1 $\frac{1}{2}$		
	N	M		31	-	18	1 $\frac{1}{2}$		
		F	25	10	-				Mag.: M = 5 $\frac{1}{2}$
✓ 2	N	e(S)	12	34	37				80.0°N., 24.3°E. h about 48 km. Svalbard region. USCGS.
	E	eL		36	-				
	E	M		39 $\frac{1}{2}$	-	20	2 $\frac{1}{2}$		
	N	M		40	-	20	3		
		F	13	15	-				Mag.: M = 4 $\frac{3}{4}$ -5.
3	ZV	eP	18	04	54				52.2°N., 177.5°E. Rat Islands. USCGS.
4	ZV	iPKP	00	10	14				21.5°S., 169.9°E. Loyalty Islands. USCGS.
✓ 4	ZV, Z	iP	04	48	21			9660	Confused by microseisms.
	N	eSKS		58	41				
	NE	eS		58	54	10	7.0(H)		33.9°N., 135.2°E. h about 56 km. Near Shikoku, Japan. USCGS.
	NE	e		59	16				
	NE	eL	05	10 $\frac{1}{2}$	-				
	E	M		22	-	30	16		
	N	M		22	-	30	14		
	E	M		30	-	20	5 $\frac{1}{2}$		
	N	M		33	-	18	11		
	Z	M		33	-	18	4		
		F	06	15	-				Mag.: M = 6 $\frac{1}{4}$

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

JANUARY, 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS	
			h.	m.	s.					sec.
5	NE	eL	01	23	-			1800	Confused by microseisms. 15.5°S., 177.7°W. Fiji Islands. region. USCGS. Mag.: M = 6.	
	E	M		43	-	21	3½			
	N	M		43	-	21	3			
		F	02	30	-					
5	ZV	iP	04	36	00				36.4°N., 71.2°E. h about 182 km. Hindu Kush. USCGS.	
7	ZV,Z	iP	10	06	40			1800	Compression. Confused by strong microseisms. 43.4°N., 17.4°E. Yugoslavia, 2 killed, 19 injured and heavy damage. USCGS. Mag.: M = 6.	
	ZV	i		06	44					
	E	eS		09	38	9	3.8(H)			
	NE	eL		10	-					
	E	M		11	½	-	14			24
	N	M		11	½	-	14			52
	F	10	45	-						
8	ZV,Z	iP	01	10	51	6	4.4	7180	Compression. 18.5°N., 70.5°W. h about 63 km. Near south coast of Dominican Republic. 1 killed, 6 injured and damage to property. USCGS. Mag.: M = 6.3	
	E	eS		19	24	16	8.2(H)			
	NE	eSS		23	30					
	N	eL		27	-					
	E	M		31	½	-	24			33
	N	M		31	½	-	26			16
	E	M		38	-	18	17			
	N	M		38	-	18	17			
	Z	M		38	-	18	12			
		F	02	30	-					
8	ZV	iPKP	06	02	47				24.2°S., 177.7°W. Tonga Islands. USCGS.	
9	ZV,Z	iP	12	52	58			1700	Confused by strong microseisms. 42.9°N., 144.8°E. h about 78 km. Near Hokkaido, Japan. USCGS. Mag.: M = 6	
	ZV	i		53	19					
	NE	eL	13	16	-					
	E	M		29	-	24	4			
	N	M		29	-	24	5			
	F	14	10	-						
11	ZV	iP	03	12	16				28.1°N., 84.8°E. Nepal. USCGS.	
11	ZV	eP	05	08	24			1700	Confused by very strong microseisms. 43.5°N., 17.7°E. Near coast of Yugoslavia. 2 killed, 20 injured and moderate property damage. Mag.: M = 6¼.	
	E	eS		11	14	14	6.4			
	NE	eL		12	-					
	E	M		13	½	-	15			29
	N	M		13	½	-	15			72
	F	06	00	-						
16	NE	eL	12	45	-			20	Confused by very strong microseisms. 30.5°S., 177.9°W. Kermadec Islands. USCGS.	
	N	M	13	09	-		5½			
	F		50	-						
17	NE	e	16	25	-				Small. Confused by strong microseisms. 43°N., 128.3°E. Molucca Passage. USCGS.	
		F	17	10	-					
19	ZV	e(P)	19	42	36			2370	Confused by microseisms. 38.5°N., 22.1°E. h about 38 km. Greece. USCGS. Mag.: M = 5	
	E	eS		46	26	17	5.8(H)			
	N	M		51	-	16	7			
	E	M		51	½	-	16			6½
		F	20	15	-					

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			h.	m.	s.				
19	NE	eL	22	29	-			Confused by microseisms. 38.2°N., 22.1°E. h about 60 km. Greece. USCGS.	
	N	M		30 <sup>1</sup> / <sub>2</sub>	-	16	5 <sup>1</sup> / <sub>2</sub>		
	E	M		32	-	16	2 <sup>1</sup> / <sub>2</sub>		
		F		40	-				
21	NE	e	02	58	-			Small. Confused by microseisms. 43.2°N., 16.6°E. Yugoslavia. USCGS.	
		F	03	10	-				
22	NE	e	07	50	-			Confused by strong microseisms. 52.4°N., 100.0°E. Lake Baikal region. USCGS.	
	E	M		59	-	20	3		
	N	M		59	-	20	3		
		F	08	15	-				
23	NE	e	17	38	-			Confused by strong microseisms. 44.6°N., 12.3°E. h about 61 km. Italy. USCGS.	
	N	M		39 <sup>1</sup> / <sub>2</sub>	-	16	2 <sup>1</sup> / <sub>2</sub>		
		F		45	-				
26	ZV,Z	iP	08	22	44	6	3.9	2680 Compression. PH 10 sec. 3.2 μ 35.5°N., 22.5°E. h about 50 km. Mediterranean Sea. BCIS Mag.: M = 5.6	
	ZV,Z	ePP		23	19				
	NE	eS		26	55	13	7.3(H)		
	N	eL		29 <sup>1</sup> / <sub>4</sub>	-				
	E	M		31 <sup>1</sup> / <sub>4</sub>	-	20	16		
	N	M		31 <sup>1</sup> / <sub>2</sub>	-	20	40		
		F	09	05	-				
27	NE	e	23	45	-			Small. Confused by microseisms. 31.0°N., 114.3°W. Gulf of California. USCGS.	
		F	24	10	-				
28	ZV,Z	iPKP	05	59	44			Compression.	
	ZV,Z	i		59	55				
	NE	eL	06	49	-				
	E	M	07	03	-	20	2 <sup>1</sup> / <sub>2</sub>		
	N	M		03	-	20	2 <sup>1</sup> / <sub>2</sub>		
		F		50	-				
31	ZV	eP	00	14	44				
	ZV	e		14	48				



M.O. 720

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON. R6.

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Lat. 51° 28' 8" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

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COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T. sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT $\mu^2$ .	$\frac{Ah}{\pi I}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(ii) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

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DATE.	COMPT.	PHASE.	G.M.T.			PERIOD. sec.	AMPLI- TITUDE. $\mu$	$\Delta$ km.	REMARKS.
			h.	m.	s.				
2	ZV,Z	iP	08	08	36			49.9°N., 78.2°E. Kazakh S.S.R. USC GS.	
2	NE	eL	17	55	-			Small. 43.7°N., 148.5°E.	
		F	18	20	-			Kurile Islands. USC GS.	
3	NE	ePFS	01	07	56			1.2°S., 137.8°E. North of New Guinea. USC GS.	
	NE	e		31	-				
	E	M		53 $\frac{1}{2}$	19	9			
	N	M		53 $\frac{1}{2}$	18	13			
	Z	M		53 $\frac{1}{2}$	18	9			
		F	04	15	-			Mag.: M = 6 $\frac{1}{2}$	
4	ZV,Z	i(P)	21	39	05		6100	Dilatation. Confused by strong microseisms.	
	NE	eS		46	43			0.5°S., 20.2°W. Atlantic Ocean.	
	NE	eL		52 $\frac{1}{2}$	-			USC GS.	
	N	M	22	04 $\frac{1}{2}$	18	5			
	E	M		05 $\frac{1}{2}$	18	6			
		F		30	-			Mag.: M = 5 $\frac{3}{4}$	
5	ZV	iP	23	08	18			Depth = 134 km. 35.9°N., 138.8°E.	
	ZV	ipP		08	52			Honshu, Japan. USC GS.	
6	NE	e	02	45	-			Very small. 29.5°N., 130.4°E.	
	NE	F	03	00	-			Ryukyu Islands. USC GS.	
8	NE	eL	12	35	-			Confused by microseisms.	
	N	M		59 $\frac{1}{2}$	24	4		3.2°S., 141.3°E.	
	N	M	13	07 $\frac{1}{2}$	20	3		New Guinea. USC GS.	
		F		25	-				

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DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
11	NE	eL	19	48	-				Confused by very strong microseisms. 4.5° S., 153.5° E. New Ireland region. USCGS.
	N	M	20	05	-	30	9		
		F		35	-				
14	ZV,Z	eP	06	50	23			12300	Confused by microseisms. PPH 22 sec. 14.8 μ  38.1° S., 73.1° W. h about 44 km. Near coast of Chile. Moderate property damage. USCGS.
	ZNE	ePP		54	59	12	7.7		
	E	eSKS	07	00	59				
	N	eS		02	17	20	13.0 (H)		
	NE	iPS		04	29				
	N	eSS		10	24				
	N	eSSS		14	29				
	NE	eL		22	-				
	E	M		35	-	24	156		
	N	M		35	-	24	87		
	N	M		40	-	20	62		
E	M		42 $\frac{1}{2}$	-	20	100			
Z	M		43	-	20	30			
		F	10	25	-			Mag.: M = 7.5	
18	ZV	e(P)	07	04	06				
	NE	eL		08	-				
	N	M		10 $\frac{1}{2}$	-	20	3 $\frac{1}{2}$		
	E	M		11 $\frac{1}{2}$	-	12	6 $\frac{1}{2}$		
	N	M		11 $\frac{1}{2}$	-	12	4 $\frac{1}{2}$		
		F		30	-				
18	ZV,Z	eP	17	36	45	5	1.5	8400	Dilatation. Depth = 75 km.  8.1° N., 74.6° W., Northern Colombia. USCGS.
	ZV,Z	iPcP		36	59				
	ZV,Z	iP		37	05				
	NE	eS		46	18				
	NE	eL		56 $\frac{1}{2}$	-				
	N	M	18	06	-	20	1 $\frac{1}{2}$		
	E	M		07 $\frac{1}{2}$	-	20	2 $\frac{1}{2}$		
		F		30	-			Mag.: M = 5 $\frac{3}{4}$ -6	
20	NE	eL	09	55	-				6.8° N., 92.5° E. Nicobar Islands. USCGS.
	E	M	10	12	-	20	1 $\frac{1}{2}$		
	N	M		12 $\frac{1}{2}$	-	20	1 $\frac{1}{2}$		
		F		30	-				
20	ZV,Z	i(PKP <sub>2</sub> )	10	26	33				25.9° S., 178.4° E. h about 655 km. Fiji Islands. USCGS.
20	ZV,Z	iP	16	17	56	6	1.8	9000	Compression. 43.0° N., 144.9° E. h about 55 km. Near Hokkaido, Japan. USCGS.
	NE	eS		28	00	12	2.6(H)		
	N	ePS		28	30				
	E	eL		42	-				
	E	M		57 $\frac{1}{2}$	-	20	3 $\frac{1}{2}$		
	N	M		57 $\frac{1}{2}$	-	20	4 $\frac{1}{2}$		
		F	17	35	-			Mag.: M = 6.0	
20	ZV	eP	22	14	15			8200	
	NE	eS		23	47				
	E	ePS		24	25				
	E	eSSS		32	15				
	N	eL		39	-				
	E	M		45	-	25	16		
	N	M		45	-	25	30		
		M		50	-	20	9		



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KEW OBSERVATORY, RICHMOND, SURREY, ENGLANDSEISMOLOGICAL BULLETIN

..... FEBRUARY, ..... 19.62.....

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLI- TUDE	Δ	REMARKS
			h.	m.	s.				
contd.									
20	E	M F	22 24	50 40	- -	20	11		Mag.: M = 6-6 $\frac{1}{4}$
23	NE N E	e M M F	21  22	24 38 39 10	- - - -	20 20	3 2		
27	ZV	iP	05	49	52				Compression. 36.6° N., 71.4° E. Hindu Kush. USCGS.
27	E N N E N Z	ePS eSS eL M M F	13    14	09 15 25 43 43 55	10 00 - - - -	20 20 20	8 $\frac{1}{2}$ 7 4 $\frac{1}{2}$		Confused by microseisms. 37.4° S., 73.2° W. h about 40 km. Near coast of Chile. USCGS. Mag.: M = 6 $\frac{1}{4}$





**METEOROLOGICAL  
OFFICE,  
EDINBURGH**

18 MAY 1962 R<sup>6</sup>.

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

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			h.	m.	s.				
1	ZV,Z	eP	18	47	32			43.0°N., 146.2°E. Hokkaido, Japan. USCGS.	
1	NE	eL F	22	28	-			Small. 37.3°N., 4.9°W. Spain. USCGS.	
2	NE	eSS	00	22	18				
	NE	eL		40	-				
	N	M	01	59 $\frac{1}{2}$	-	24	4 $\frac{1}{2}$	14.0°S., 172.5°E. h about 73 km. Samoa Islands. USCGS.	
	E	M		00 $\frac{1}{2}$	-	24	4		
	E	M		10 $\frac{1}{2}$	-	19	2		
	N	M		10 $\frac{1}{2}$	-	19	2 $\frac{1}{2}$		
		F	02	05	-			Mag.: M = 6	
2	NE	eL	13	53	-				
	E	M	14	01	-	28	3 $\frac{1}{2}$	5.4°N., 126.5°E. Off coast of Mindanao, P.I. USCGS.	
	N	M		01	-	30	4		
		F		25	-				
3	N	eL	13	03	-			7.4°N., 126.5°E. h about 90 km. Near coast of Mindanao, P.I. USCGS.	
	E	M		21	-	20	1 $\frac{1}{2}$		
	N	M		21	-	20	3		
		F		45	-				
6	ZV	iP	06	08	04		9100		
	ZV,Z	i		08	19				
	E	eS		18	15			13.7°N., 93.7°E. Andaman Islands. USCGS.	
	NE	eL		33	-				
	E	M		48	-	20	2		
	N	M		48	-	20	1 $\frac{1}{2}$		
		F	07	20	-				

M.O. 720

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			h.	m.	s.				
7	NE	e F	01	50 60	- -				Small.
7	NE E N	eL M M F	02	15½ 17½ 17½ 25	- - - -	16 16	2 2½		62.2°N., 26.6°W. h about 43 km. Southwest of Iceland. USCGS.
7	ZV ZV	iP iPP F	11 12	13 55	56 19 -	6	5.4		Compression. Confused by very strong microseisms. 19.3°N., 145.3°E. h about 680 km. Mariana Islands. USCGS. Mag.: M = 6½
8	NE E N	eL M M F	22	04 16 17 40	- - - -	20 20	2 4		Confused by strong microseisms. 3.4°S., 29.2°E. Republic of Congo. USCGS. Mag.: M = 5½
9	ZV	iPKP	07	16	04				18.4°S., 178.7°W. h about 472 km. Fiji Islands. USCGS.
9	NE	e F	23	10 30	- -				Small. 5.8°S., 146.4°E. Near New Guinea. USCGS.
11	NE	e F	16	05 20	- -				Small. 52.3°N., 178.0°E. Rat Islands. USCGS.
11	NE NE E N Z	eS eL M M M F	19 20 20 20 21	44 01½ 27½ 27½ 27½ 25	09 - - - -	12	2.9(H) 10½ 15 10		9.0°N., 126.7°E. Near coast of Mindanao, P.I. USCGS.  Mag.: M = 6.6
12	ZV N N E N	eP eS eL M M F	09 10	53 03 15 23 24 50	41 35 - - - -			8900	9.0°N., 83.0°W. h about 113 km. Costa Rica. USCGS.
12	ZV,Z NE E N E E N Z	iP eS eSS eL eLR M M M F	11 12 12 12 12 12 12 13	52 02 07 14 17 21½ 21½ 21½ 50	24 21 39 - - - - -	6 14	3.4 6.9(H)	8900	Compression. Confused by microseisms. EP 10 sec. 2.6 μ 8.1°N., 83.0°W. h about 58 km. Near coast of Panama and Costa Rica. USCGS.  Mag.: M = 6.4
15	ZV	e(P)	02	03	29				45.7°N., 151.3°E. Kurile Islands. USCGS.
16	NE	e F	20 21	50 30	- -				Very small. 10.8°S., 165.7°E. Santa Cruz Islands. USCGS.

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

MARCH,

19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
17	ZV,Z	iP	20	56	54	6	6.9	6000	PH 12 sec. 6.1 μ 10.6°N., 43.7°W. h about 25 km. North Atlantic Ocean. USCGS.
	ZV,Z	i		56	57				
	Z	iPP		58	54	6	2.9		
	Z	iPPP		59	52				
	NE	iS	21	04	26	15	59 (H)		
	E	eSS		08	04				
	NE	eL		09½	-				
	E	M		16½	-	19	44		
	N	M		16½	-	19	34		
	Z	M		16½	-	19	40		
	F		23	55	-			Mag.: M = 6.8	
18	NE	e	04	05	-				
	N	M		33	-	20	2		
	E	M		34	-	20	1½		
		F		05	15	-			
18	ZV,Z	iP	15	34	39	6	25	2000	Confused by microseisms. 40.7°N., 19.6°E. h = 33 km (BCIS) Southern Albania, 15 dead, 154 injured, moderate property damage. USCGS.
	NE	iS		37	57	9	11.2 (H)		
	NE	eL		39	-				
	E	M		41½	-	20	39		
	N	M		41½	-	18	88		
	Z	M		44	-	14	43		
		F		16	40	-			
18	ZV	e(P)	20	31	33				Confused by microseisms. 23.7°N., 114.5°E. h about 43 km. Kwangtung Province, China. USCGS.
	NE	eL		54	-				
	E	M	21	07	-	20	4½		
	N	M		07	-	19	5½		
		F		40	-				
19	NE	e	06	45	-				Small. 0.3°N., 123.5°E. Celebes Islands. USCGS.
		F	07	15	-				
21	ZV	ePP	23	15	50				5.9°S., 113.0°E. h about 631 km. Java Sea. USCGS.
	ZV	e		15	59				
22	Z	ePP	15	33	39	8	1.4		PPH 20 sec. 1.9 μ 3.2°S., 142.3°E. Near north coast of New Guinea. USCGS.
	Z	ePPP		36	16				
	NE	ePS		43	33				
	NE	eL	16	03	-				
	E	M		28	-	20	10		
	N	M		28	-	20	14		
	Z	M		28	-	20	8		
		F		18	10	-			
24	ZV,Z	e(FKP)	13	18	26				5.7°S., 145.0°E. h about 111 km. Near north coast of New Guinea. USCGS.
	N	M	14	15	-	20	3		
	E	M		17	-	20	2		
		F		15	20	-			
26	ZV,Z	e(P)	12	14	21				Confused by microseisms. 0.5°S., 19.2°W. Mid-Atlantic Ocean. USCGS.
	NE	eS		21	54	16	2.8 (H)		
	NE	eL		28	-				
	E	M		36½	-	20	3½		
	N	M		36	-	20	3		
		F		13	20	-			

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

MARCH, 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
26	NE	eL	17	24	-				40.6°S., 73.3°W. Near coast of Southern Chile. USC GS. Mag.: M = 6
	E	M		36½	-	20	4½		
	N	M		37	-	20	3½		
		F	18	20	-				
28	ZV	iP	01	00	53				36.6°N., 71.6°E. Hindu Kush. USC GS.
29	NE	e	20	55	-				Small. 0.5°S., 127.4°E. Halmahera region. USC GS.
		F	21	35	-				
31	NE	eL	08	32	-				9.8°N., 121.6°E. h about 156 km. Negros Island, P.I. USC GS.
	E	M		42	-	20	1½		
	N	M		42	-	20	2		
		F	09	15	-				

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR APRIL, 19 62.

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (I) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOLOGIE"

(LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1913).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{wI}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(II) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV.).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOLOGICAL READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
1	ZV	iP	00	53	37			Confused by microseisms. 33.6°N., 59.0°E. East Iran. Two killed and 3 injured. USCGS. Mag.: M = 5½	
	NE	eL	01	07	-				
	N	M		17½	-	16	5		
	E	M		18	-	16	2½		
		F		35	-				
1	NE	eL	05	39	-			Small. 41.9°N., 143.4°E. Near Hokkaido, Japan. USCGS.	
		F	06	10	-				
1	NE	e	13	05	-			Small. 4.2°S., 143.6°E. Near New Guinea. USCGS.	
		F		35	-				
1	ZV	ePKP	15	56	37			17.9°S., 167.2°E. New Hebrides. USCGS.	
4	NE	eL	14	36	-			Confused by strong microseisms. 8.0°N., 83.0°W. Near Panama and Costa Rica. USCGS.	
		M		43½	-	22	3½		
		N		44	-	22	3		
		F	15	15	-				
10	ZV	iP	10	43	48			Compression. 51.1°N., 157.7°E. Near Kamchatka. USCGS.	
10	ZV	iPKP	17	26	10			16.4°S., 175.3°W. h about 330 km. Fiji Islands. USCGS.	
10	ZV,Z	iP	21	41	43	5	7.2	2200 Compression. PH 6 sec. 6.8 μ	
		NE		45	20	13	18.8(H)		
		NE		47	-				
		E		49½	-	16	22		
		N		49½	-	16	48		
		Z		49½	-	14	14		
		F	23	05	-		Mag.: M = 5½		

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

APRIL, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
✓ 30	ZV,Z	eP	02	38	54	5	2.5		Compression. 38.8°N., 140.9°E. h about 104 km. Honshu, Japan. USCGS.
	NE	e		49	18				
	NE	eL	03	06	-				
	N	M		09	-	34	9		
	E	M		10	-	32	12		
	E	M		16	-	18	7½		
	N	M		16	-	18	5		
		F	04	15	-			Mag.: M = 6	
✓ 30	ZV,Z	ePKP	16	36	30				17.9°S., 176.1°W. Tonga Islands region. USCGS.
	ZV,Z	i		36	32				
	E	M	17	39	-	20	1½		
	N	M		39	-	20	3½		
	Z	M		39	-	20	1		
		F	19	15	-			Mag.: M = 6	
✓ 30	ZV,Z	ePKP	18	50	39				18.0°S., 176.4°W. h about 135 km. Fiji Islands region. USCGS.
	E	M	19	53	-	20	½		
	N	M		53	-	20	1		
		F	20	50	-				
30	NE	e	21	30	-				Small. 6.4°N., 124.0°E. Banda Sea. USCGS.
		F	22	10	-				
30	ZV,Z	eP	23	55	14	4	0.7	2400	73.7°N., 7°E. North Atlantic. BCIS
	E	eS		59	06	16	2.3(H)		
	E	eL	24	00	-				
	E	M		01	-	22	½		
	E	M		02	-	22	2		
	N	M		02	-	22	2		
		F	30	-	-			Mag.: M = 4½	

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND. R6

SEISMOLOGICAL BULLETIN FOR MAY, 19 62

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (I) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE"

(LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON, 1918).

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(II) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV.).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
2	NE	e F	03	20 40	-			Very small. 55.9°W., 156.1°W. Kodiak Islands. USCGS.	
3	ZV	eP	02	50	13			42.6°N., 144.6°E. Off Hokkaido, Japan. USCGS.	
3	E E N	eL M M F	04	22 36 37 20	- - - -	20 20	$\frac{1}{2}$ $\frac{1}{2}$	60.0°S., 32.9°W. Sandwich Islands region. USCGS.	
3	ZV NE ZV	iPn eSn e(Sg) F	23	29 30 31 45	24 53 46 -		860	43.6°N., 5.3°W. Spain. BCIS	
4	NE	e F	23 24	45 05	- -			Very small.	
5	NE E N	eL M M F	11 12	49 01 01 35	- - - -	20 20	3 3	34.2°N., 139.2°E. h about 73 km. Near Honshu, Japan. USCGS.	
6	NE	e F	04 05	40 40	- -			Small. 54.2°S., 136.5°W. South Pacific Ocean. USCGS.	
6	ZV ZV,Z N N N	iFKP eFP ePS eSS e	19	18 19 29 35 40	51 45 29 53 17			60.0°S., 32.8°W. Sandwich Islands region. USCGS.	

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

MAY,

19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
contd.									
6	E	eL	19	49	-				
	E	M		52	-	36	32		
	E	M	20	00 <sup>1</sup> / <sub>2</sub>	-	22	8		
	N	M		02	-	21	14		
	Z	M		02	-	21	8		
		F	22	20	-				Mag.: M = 6 <sup>1</sup> / <sub>2</sub>
6	NE	e	22	35	-				Very small. 60.2°S., 33.1°W.
		F	23	10	-				Sandwich Islands. USCGS.
7	ZV,Z	iP	17	51	58	8	4.2	8900	Compression. PH 12 sec. 2.6 μ
	ZV,Z	eFP		54	57	9	3.5		PPH 12 sec. 2.5 μ
	NE	eS	18	01	58	14	9.8 (ft)		
	N	eSKS		02	13				45.3°N., 146.7°E.
	N	eSS		06	55				Kurile Islands. USCGS.
	NE	eL		16	-				
	Z	M		25 <sup>1</sup> / <sub>2</sub>	-	24	12		
	N	M		25 <sup>1</sup> / <sub>2</sub>	-	24	43		
	E	M		26	-	21	33		
		F	20	40	-				Mag.: M = 6.3
8	ZV,Z	eP	23	59	05			2800	
	ZV	eFP		59	50				
	E	eS	24	03	21				35.9°N., 24.4°E. h about 93 km.
	N	eL		06 <sup>1</sup> / <sub>2</sub>	-				Sea of Crete. USCGS.
	E	M		07 <sup>1</sup> / <sub>2</sub>	-	20	1 <sup>1</sup> / <sub>2</sub>		
	N	M		07 <sup>1</sup> / <sub>2</sub>	-	20	1 <sup>1</sup> / <sub>2</sub>		
		F		20	-				
9	ZV	iP	11	31	12				46.1°N., 152.9°E. h about 56 km.
									Kurile Islands. USCGS.
10	ZV,Z	eP	00	14	09			7200	
	NE	eS		22	44				62.0°N., 150.1°W. h about 72 km.
	N	eL		34	-				Alaska. USCGS.
	N	M		44	-	20	1/2		
		F	-	-	-				overlapped by next shock.
10	ZV	e(P)	00	42	58				
10	Z	ePKP	00	47	17				41.8°S., 171.6°E. h about 54 km.
	E	M	02	13	-	19	1 <sup>1</sup> / <sub>2</sub>		South Island, New Zealand. USCGS.
	N	M		14	-	19	2 <sup>1</sup> / <sub>2</sub>		
		F		45	-				
10	ZV,Z	eP	05	24	03				52.4°N., 170.9°W. h about 43 km.
	E	M	06	00 <sup>1</sup> / <sub>2</sub>	-	20	2		Fox Islands, Aleutian Islands.
	N	M		00 <sup>1</sup> / <sub>2</sub>	-	20	3		USCGS.
		F	07	00	-				Mag.: M = 5 <sup>1</sup> / <sub>2</sub>
10	ZV,Z	iP	11	18	43				49.2°N., 28.5°W. North Atlantic
	E	M		24	-	16	1 <sup>1</sup> / <sub>2</sub>		Ocean. USCGS.
	N	M		24	-	16	1 <sup>1</sup> / <sub>2</sub>		
		F		30	-				
10	ZV	eP	14	21	48				49.2°N., 28.6°W. North Atlantic
	E	M		28	-	16	1		Ocean. USCGS.
		F		35	-				



M.O. 720

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN

.....MAY,..... 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD sec.	AMPLI- TUDE $\mu$	$\Delta$ km.	REMARKS
			h.	m.	s.				
10	NE	e F	18	38 45	- -				Small. 42.1°N., 19.2°E. Yugoslavia-Albania border. USCGS.
10	NE	e F	20	27 33	- -				Small.
10	NE	e F	21 22	40 00	- -				Very small.
10	NE	e F	23	08 20	-				Small.
11	NE	e F	01	10 18	- -				Very small. 44.4°N., 11.1°E. Italy. USCGS.
11	NE	e F	02	15 20	- -				Very small.
11	NE	e F	06	10 20	- -				Small.
11	ZV,ZNE ZV,ZNE NE N E N N E Z	eP ePP eSKS eS eSS eLQ M M M F	14	24 27 34 34 39 47 02½ 03 03 35	15 27 33 51 57 - - - - -	8 8 18 21 18 18	10.0 8.5 26(H) 68 96 44	9450	Compression. PH 16 sec. 10.3 $\mu$ . PPH 16 sec. 7.7 $\mu$ 17.0°N., 99.7°W. Near coast of Mexico. 4 dead, many injured and extensive property damage. USCGS.  Mag.: M = 7.3
14	ZV	eP F	16 17	57 07	22 -				49.0°N., 28.8°W. North Atlantic Ocean. USCGS.
15	ZV,Z ZV,Z E E E NE E N E N Z	ePKP ePP ePS eSS eSSS eL M M M M M F	05	42 43 53 59 04 11½ 25 25 36½ 36½ 36½ 35	41 43 50 44 18 - - - - - -	8 30 32 20 22 20	10.6 77 110 42 43 18		PPH 12 sec. 8.2 $\mu$  7.3°S., 128.3°E. h about 34 km. Banda Sea. USCGS.  Mag.: M = 7½
15	ZV	eP	08	36	23				39.7°N., 24.7°E. Aegean Sea. BCIS.
15	ZV	eP	19	43	57				53.4°N., 159.6°E. Near Kamchatka. USCGS.
18	ZV,Z NE E N	eP eL M M F	12	16 20 22½ 22½ 35	15 - - - -	16 16	1½ 1		48.6°N., 28.7°W. North Atlantic Ocean. USCGS.

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

MAY, 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
18	ZV	iP	18	58	52				Compression. 46.1°N., 148.5°E. Kurile Islands.
✓ 19	ZV,Z	iP	15	10	37	5	7.6	9600	Compression. PH 20 sec. 9.5 μ PPH 20 sec. 7.4 μ  17.2°N., 99.5°W. Near coast of Mexico. 3 dead, 16 injured and extensive property damage. USCGS.  Mag.: M = 7.1
	ZV,Z	ePP		13	47	5	5.5		
	E	eSKS		20	57				
	N	eS		21	11	16	11.1(H)		
	E	ePS		21	37				
	N	eSS		25	49				
	N	eLQ		33	-				
	E	M		48 <sup>1</sup> / <sub>2</sub>	-	20	58		
	N	M		49	-	20	39		
	Z	M		49 <sup>1</sup> / <sub>2</sub>	-	20	33		
		F	18	25	-				
✓ 21	ZV,Z	iP	12	13	37	8	11.1	7350	PH 12 sec. 5.3 μ PPH 12 sec. 3.0 μ  37.3°N., 96.0°E. Chinghai Province, China. USCGS.  Mag.: M = 7.0
	ZV,Z	iPP		15	59	10	4.5		
	E	eS		22	23	13	11.8(H)		
	NE	eSS		26	49				
	NE	eL		33 <sup>1</sup> / <sub>2</sub>	-				
	E	M		39	-	20	63		
	N	M		40	-	18	76		
	Z	M		44 <sup>1</sup> / <sub>2</sub>	-	12	47		
		F	14	20	-				
✓ 21	ZV,Z	iPKP <sub>1</sub>	21	34	36			16500	
	ZV,Z	ipFKP <sub>1</sub>		36	12				
	ZV,Z	ePP		38	16	8	3.2		
	E	eSS		56	39	24	70		
	E	eSSS		59	19				
	E	M	22	36 <sup>1</sup> / <sub>2</sub>	-	20	12		
	N	M		38	-	20	12		
	Z	M		38	-	20	5		
		F	23	45	-				
✓ 22	ZV,Z	ePKP	08	25	49	6	4.0		12.3°S., 166.6°E. h about 151 km. Santa Cruz Islands. USCGS.  Mag.: M = 6
	ZV,Z	ePP		28	39	8	2.1		
	N	eSKP		29	27				
		F	10	15	-				
✓ 22	NE	eL	23	02	-				5.5°S., 152.0°E. h about 100 km. New Britain. USCGS.  Mag.: M = 6-6 <sup>1</sup> / <sub>4</sub>
	E	M		22 <sup>1</sup> / <sub>2</sub>	-	20	4 <sup>1</sup> / <sub>2</sub>		
	N	M		22 <sup>1</sup> / <sub>2</sub>	-	20	4		
		F	24	20	-				
24	NE	e	04	50	-				Small. 49.1°N., 129.4°W. Vancouver Island region. USCGS.
		F	05	15	-				
25	Z	eP	00	53	19			2200	58.6°N., 31.5°W. South of Greenland. USCGS.  Mag.: M = 4 <sup>1</sup> / <sub>2</sub>
	NE	eS		56	55				
	NE	eL		58	-				
	N	M		59	-	20	1 <sup>1</sup> / <sub>2</sub>		
	E	M		59 <sup>1</sup> / <sub>2</sub>	-	18	1 <sup>1</sup> / <sub>2</sub>		
		F	01	15	-				

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

MAY, 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
25	Z N E	eP	01	11	31			59.0°N., 31.2°W. South of Greenland. USCGS.  Mag.: M = 4	
		M		17 <sup>1</sup> / <sub>2</sub>	-	20	1 <sup>1</sup> / <sub>2</sub>		
		M		18	-	18	1 <sup>1</sup> / <sub>2</sub>		
		F		27	-				
25	NE	e	05	35	-			Small. 20.7°S., 174.3°W. Tonga Islands. USCGS.	
		F	06	40	-				
28	NE	e	03	35	-			Very small. 16.4°N., 120.4°E. Philippine Islands. USCGS.	
		F	04	20	-				
28	NE	e	16	24	-			Very small. 45.°N., 5.5°E. France. BCIS	
		F		30	-				
28	NE	e	21	57	-			Very small. Aegean Sea foreshock. BCIS.	
		F	22	05	-				
28	NE	e	23	06	-			Very small. 39 <sup>1</sup> / <sub>2</sub> °N., 24 <sup>3</sup> / <sub>4</sub> °E. Aegean Sea. BCIS.	
		F		18	-				
29	NE	e	01	36	-			Very small. Aegean Sea aftershock. BCIS.	
		F		43	-				
30	NE	e	07	05	-			Very small.	
		F		30	-				
30	ZV,Z ZV,Z NE N E N	eP	10	10	09	5	0.5	30.3°N., 42.4°W. North Atlantic Ocean. USCGS.  Mag.: M = 5	
		eFP		11	37	5	0.5		
		eS		15	57				
		eL		18 <sup>1</sup> / <sub>2</sub>	-				
		M		21 <sup>1</sup> / <sub>2</sub>	-	24	3 <sup>1</sup> / <sub>2</sub>		
		M		21 <sup>1</sup> / <sub>2</sub>	-	20	3		
31	ZV E N	i(P)	02	06	46			24.5°N., 65.8°E. Off coast of West Pakistan. USCGS.	
		M		34	-	20	1 <sup>1</sup> / <sub>2</sub>		
		M		35	-	20	1		
		F		45	-				
31	NE N E N	eSKS	09	51	57			22.1°N., 142.6°E. h about 257 km. Volcano Islands region. USCGS.	
		eS		52	47				
		M	07	27 <sup>1</sup> / <sub>2</sub>	-	20	3		
		M		30	-	16	2 <sup>1</sup> / <sub>2</sub>		
		F	08	15	-				



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AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.....Rk.....

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN FOR JUNE, 19 62

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (i) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON 1913).

COMPONENT	DATE FROM WHICH CONSTANTS APPLY	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi I}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(ii) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK. TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY. SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE	COMPT.	PHASE	G.M.T.			PERIOD sec.	AMPLITUDE μ	Δ km.	REMARKS
			h.	m.	s.				
2	NE	e(S)	12	46	39	18	3	5100	49.9°N., 129.8°W. Vancouver Island region. USCGS. Mag.: M = 5½
	E	M	13	06	-				
	N	M		06	-				
		F		35	-				
2	NE	e(S)	17	38	41	18	5½	5100	29.8°N., 130.6°E. Kyushu, Japan. USCGS. Mag.: M = 6
	NE	eL		50	-				
	E	M	18	12	-				
	N	M		12½	-				
	Z	M		12½	-				
3	ZV,Z	eP	15	10	42	20	7½	5100	22.4°N., 45.2°W. North Atlantic Ocean. USCGS. Mag.: M = 5.6
	NE	eS		17	24				
	N	eL		21	-				
	E	M		25	-				
	N	M		25	-				
	Z	M		25	-				
4	NE	e	23	50	-	20	6	5100	Small.
		F	24	00	-				
6	NE	e	18	25	-	18	1½	5100	39.1°N., 123.1°W. California. USCGS.
	E	M		45	-				
	N	M		45½	-				
		F		50	-				
7	NE	e	01	00	-	20	4	5100	Very small. 30.0°N., 113.4°W. Gulf of California. USCGS.
	F		15	-					

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

JUNE, 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
7	E	e(Sg) F	19	59	29				Very small. 45°N., 5.5°E. France. BCIS.
			20	03	-				
8	NE	e F	09	50	-				Small. 29.1°N., 129.5°E. Ryukyu Islands. USCGS.
			10	25	-				
8	NE	e F	19	15	-				Very small. 11.3°N., 126.0°E. Timor Sea. USCGS.
				30	-				
8	NE	e F	21	45	-				Very small. 55.7°S., 26.2°W. Sandwich Islands. USCGS.
			22	05	-				
9	ZV,NE	e F	06	04	-				Very small.
				10	-				
9	NE	e F	10	52	-				Small.
			11	00	-				
11	NE	e F	01	25	-				Very small. 49.7°N., 129.3°W. Vancouver Island region. USCGS.
				45	-				
11	ZV,Z	ePKP	04	54	02				19.6°S., 177.7°W. h about 370 km. Fiji Islands. USCGS.
11	ZV,Z	iP	07	19	08	4	3.0	1800	Compression. PH 6 sec. 3.1 μ
	NE	eS		22	08	10	9.1		43.5°N., 18.3°E.
	NE	eL		22 $\frac{3}{4}$	-				Yugoslavia. 10 injured, extensive damage at Sarajevo. USCGS.
	E	M		24	-	20	17		
	N	M		24	-	20	54		
	E	M		24 $\frac{1}{2}$	-	14	22		
	N	M		24 $\frac{1}{2}$	-	16	61		
	Z	M		24 $\frac{1}{2}$	-	6	25		
		F	08	40	-				Mag.: M = 5 $\frac{1}{4}$
12	NE	e F	09	54	-				Small. 65.0°N., 16.6°W. Iceland. USCGS.
			10	05	-				
14	ZV,Z	eP	08	03	29			8240	54.3°N., 169.1°E. Near Islands, Aleutian Islands.
	NE	eS		13	00	20	1.9(H)		USCGS.
	N	eSS		17	56				
	E	M		41	-	20	4 $\frac{1}{4}$		
	N	M		42	-	20	3 $\frac{1}{2}$		
		F	09	35	-				Mag.: M = 5 $\frac{1}{2}$
14	ZV,Z	eP	08	07	27				54.2°N., 169.3°E. Near Islands. USCGS.
14	NE	eL	22	55	-				26.4°N., 126.5°E. Ryukyu Islands. USCGS.
	E	M	23	05 $\frac{1}{2}$	-	20	5 $\frac{1}{4}$		
	N	M		05 $\frac{1}{2}$	-	20	5 $\frac{1}{2}$		
		F		40	-				Mag.: M = 6
15	NE	eL	07	10	-				20.4°S., 70.9°W. Near coast of Chile. USCGS.
	E	M		22	-	20	1 $\frac{1}{2}$		
	N	M		22	-	20	1		
		F		50	-				

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**KEY OBSERVATORY, RICHMOND, SURREY, ENGLAND.**
**SEISMOLOGICAL BULLETIN**

JUNE, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
✓ 16	NE E N	eL	05	57	-				26.6°N., 126.4°E. Ryukyu Islands. USCGS. Mag.: M = 5½
		M	06	12½	-	20	1½		
		F		12½	-	20	1½		
				35	-				
17	ZV	iP	04	49	12			Dilatation. 33.5°N., 76.2°E. Kashmir region. USCGS.	
17	NE NE E N	eFS	04	54	42				40.1°S., 45.7°E. Indian Ocean. USCGS.
		eL	05	10	-	20	1		
		M		37½	-	20	1		
		F		38	-	20	1		
			50	-					
19	ZV,Z	iPKP	00	01	34			4.8°S., 151.8°E. New Britain. USCGS.	
✓ 21	ZV,Z NE N E	eP	04	55	59			9000	5.7°N., 82.6°W. South of Panama. USCGS. Mag.: M = 5½
		eS	05	06	06	16	1.4(H)		
		eL		17	-				
		M		26	-	20	2½		
		F		50	-				
✓ 23	ZV ZV,Z NE NE Z NE E N Z	eP	09	57	41			9950	25.7°N., 128.5°E. Ryukyu Islands. USCGS. Mag.: M = 6.5
		ePP	10	01	21	4	1.2		
		eSKS		08	13				
		eS		08	27	16	5.2(H)		
		eFS		09	47				
		eL		28	-				
		M		37	-	20	38		
		M		37	-	20	36		
		M		37	-	20	8		
	F	11	30	-					
✓ 24	NE E N	eL	01	54	-				25.6°N., 101.1°E. Yunnan Province, China. USCGS. Mag.: M = 5¾-6
		M	02	05½	-	20	2½		
		F		05½	-	20	6		
			40	-					
25	NE	eL F	07	19 50	- -			Small. 37.3°S., 73.5°W. Near coast of Chile. USCGS.	
✓ 25	Z NE NE E N Z	eP	11	23	13	7	1.0	9700	24.3°N., 122.6°E. Off coast of Formosa. USCGS. Mag.: M = 6¼
		eS		33	49				
		eL		49	-				
		M	12	07½	-	19	27		
		M		08	-	18	32		
	F	13	08	-	18	14			
			15	-					
26	NE	e	03	40	-				Small. 27.9°N., 129.2°E. Ryukyu Islands. USCGS.
		F	04	00	-				
27	NE	e	04	35	-				Very small. 6.1°S., 148.8°E. New Britain region. USCGS.
		F		55	-				
28	NE	e	05	10	-				Small. 20.0°N., 155.6°W. Hawaii Island. USCGS.
		F		50	-				

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

JUNE, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
28	ZV,Z	eP	06	55	21			2030	40.9°N., 20.8°E. Near Greece-Albania border. USCGS.  Mag.: M = 4½
	E	eS		58	41	10	0.9		
	E	M	07	01½	-	16	2		
	N	M		01½	-	16	6		
		F		15	-				
28	ZV,Z	1PKP	21	06	45				17.6°S., 175.2°W. h about 244 km. Tonga Islands.
29	NE	eL	16	55	-			4500	62.3°N., 152.4°W. Alaska. USCGS.
	N	M	17	06½	-	20	1½		
	E	M		07	-	20	1		
		F		30	-				
29	ZV	eP	22	43	20			4500	32.1°N., 48.4°E. Iran. USCGS.
	N	eS		49	26				
		F	23	20	-				
30	NE	eL	20	10	-				16.5°N., 122.0°E. Near coast of Luzon. USCGS. Mag.: M = 5¾
	E	M		24½	-	20	2		
		M		24½	-	20	3		
	N	F	21	10	-				



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AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON *Rb.*

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN FOR JULY, 19 62

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (i) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN UBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON 1913).

COMPONENT	DATE FROM WHICH CONSTANTS APPLY	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi I}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(ii) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK. TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY. SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE	COMPT.	PHASE	G.M.T.			PERIOD sec.	AMPLITUDE μ	Δ km.	REMARKS
			h.	m.	s.				
✓ 1	NE	e	21	50	-			40.0°N., 75.4°E. Sinkiang Province, China. USCGS.	
	E	M		57	-	16	2 1/2		
	N	M		57	-	16	1 1/2		
	Z	M		57	-	16	1 1/2		
		F	22	15	-				
✓ 2	ZV,Z	ePKP	08	51	38			10.3°S., 165.9°E. Santa Cruz Islands. USCGS.	
	E	M	09	56	-	20	1 1/2		
	N	M		56	-	20	1		
		F	10	15	-				
✓ 3	NE	e	19	25	-			56.3°S., 142.5°W. About 600 miles west of Macquarie Islands. USCGS. overlapped by next shock.	
	E	M		41	-	22	1		
	N	M		41	-	22	2		
		F		-	-				
3	N	M	19	55 1/2	-	20	1 1/2	54.6°S., 132.3°W. South Pacific Ocean. USCGS.	
	E	M		56 1/2	-	20	1		
		F	20	15	-				
3	ZV	iP	21	26	26			Small. 4.3°N., 31.6°W. Mid-Atlantic Ocean. USCGS.	
		F		55	-				
4	NE	eL	08	07	-			54.5°N., 36.7°W. South of Greenland. USCGS.	
	E	M		10 1/2	-	16	1		
	N	M		10 1/2	-	14	1		
		F		17	-				

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

JULY, 19 62.

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
4	NE	eL	08	53	-			6800	South of Greenland aftershock.
		M		56	-				
	N	M		56	-	16	1		
		F	09	03	-	14	1/2		
5	E	e(S)	18	04	57			2220	30.9°N., 141.4°E. South of Honshu, Japan. USCGS.
	NE	eL		23	-				
	N	M		33 1/2	-	20	1		
	E	M		34	-	20	1 1/2		
		F	19	15	-				
6	ZV,Z	eP	02	22	26	4	0.7	6800	13.3°N., 58.0°E. Arabian Sea, east of Socotra. USCGS.
	ZV,Z	ePcP		23	08				
	N	eS		30	41	8	1.6(H)		
	N	eLQ		38	-				
	E	M		57	-	17	1		
	N	M		57	-	18	1 1/2		
		F	03	20	-				
6	ZV,Z	iP	09	20	45	7	1.8	2220	38.0°N., 20.2°E. h about 30 km. Ionian Sea. USCGS.
	NE	eS		24	23	14	7.8(H)		
	NE	eL		26	-				
	E	M		27 1/2	-	20	6 1/2		
	N	M		27 1/2	-	20	9 1/2		
	E	M		28 1/2	-	16	9		
	N	M		28 1/2	-	16	26		
	Z	M		28 1/2	-	16	6		
		F	10	35	-				
6	ZV	eP	15	59	00			5700	37.2°N., 19.4°E. Ionian Sea. USCGS.
	N	M	16	06 1/2	-	16	1/2		
		F		15	-				
6	ZV,Z	iP	23	14	15	6	9.3	5700	Compression. Depth = 220 km. PH 12 sec. 5.6 μ PPH 12 sec. 5.5 μ 36.6°N., 70.4°E. Hindu Kush. Minor damage. USCGS.
	ZV,Z	ipP		15	04				
	ZE	iPcP		15	26				
	ZE	iPP		16	13	8	4.2		
	N	iS		21	15	14	30.3(H)		
	N	isS		22	35				
	N	eScS		23	29				
	N	eSS		24	56				
	E	M		36	-	20	18		
	N	M		36 1/2	-	22	25		
	F	25	20	-			Mag.: M = 6.2		
7	ZV,Z	iP	06	24	41	4	0.6	8600	51.3°N., 178.6°E. h about 60 km. Rat Islands, Aleutian Islands. USCGS.
	ZV,Z	i		24	55				
	E	eS		34	27				
	N	eSS		39	49				
	N	M		03	-	20	2		
	E	M		03 1/4	-	20	2 1/2		
	Z	M		03 1/2	-	20	1		
	F	-	-	-			Mag.: M = 5 1/2 overlapped by next shock.		
7	NE	e	07	45	-			8600	Very small. 51.3°N., 178.8°E. Rat Islands. USCGS.
		F	08	15	-				

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

JULY, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
7	ZV	eP F	12 13	51 07	42 -				Very small. 36.8°N., 18.5°E. Ionian Sea. USCGS.
7	ZV,Z	iP	21	32	42				51.9°N., 158.6°E. Near Kamchatka. USCGS.
8	NE	e F	03 04	45 40	- -				Small. 51.5°N., 178.5°E. Bat Islands, USCGS.
8	NE	e F	04 05	50 30	- -				Very small. 55.5°S., 30.1°W. Sandwich Islands. USCGS.
8	ZV,Z	eP F	07 08	40 15	08 -				Small. 8.1°N., 38.0°W. Mid-Atlantic Ocean. USCGS.
10	ZV,Z	iPKP	05	30	49				20.8°S., 178.7°W. h about 584 km. Fiji Islands. USCGS.
10	NE N E N Z	eS eL M M M F	10	15 16 <sup>1/2</sup> 18 <sup>1/2</sup> 18 <sup>1/2</sup> 19 <sup>1/2</sup> 30	11 - - - -				38.4°N., 25.9°E. Aegean Sea. USCGS.
						20	1/2		
						20	2		
						12	3		Mag.: M = 4 <sup>1/2</sup>
11	ZV,Z	eP eL M M F	01	13 28 36 <sup>1/2</sup> 37	13 - - -				31.8°N., 66.9°E. Afganistan. USCGS.
						20	1 1/2		
						20	3		Mag.: M = 5-5 <sup>1/4</sup>
11	NE E N	e M M F	13	30 36 36	- - -				11.9°N., 122.1°E. Panay, Philippine Islands. USCGS.
						20	1 1/2		
						20	3		
12	NE	e F	23 24	35 20	- -				Very small. 3.9°S., 104.1°W. South Pacific Ocean. USCGS.
12	NE E N Z	eSKS M M M F	03 04	56 38 38 38	19 - - -				10.4°N., 122.6°E. h about 66 km. Panay, Philippine Islands. USCGS.
						20	2		
						20	3		
						20	2		Mag.: M = 5 <sup>3/4</sup>
13	NE	e F	23	00 20	- -				Very small. 56.2°N., 164.0°E. Komandorskie Islands. USCGS.
14	ZV E N	e(P) M M F	16	09 38 38 55	13 - - -				30.4°N., 79.5°E. Tibet-Indian border. USCGS.
						16	1/2		
						16	1/2		
14	NE N E	eL M M F	20	16 24 <sup>1/2</sup> 25 50	- - - -				40.3°N., 124.4°W. Northern California. USCGS.
						20	1 1/2		
						20	1 1/2		

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

JULY, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
14	ZV,Z	eP	20	49	47		μ	km.	50.2°N., 155.8°E. Kurile Islands. USCGS.
15	ZV	e F	04	40 43	- -				Very small.
15	ZV,Z ZV,Z N	iP ipP eS F	06 07	59 00 09 50	37 03 39 -			9050	Depth = 100 km. 39.8°N., 140.9°E. Honshu, Japan. USCGS.
16	NE E N	e M M F	03	20 39 39 10	- - - -	20 20	$\frac{1}{2}$ $1\frac{1}{2}$		52.1°S., 138.9°E. South of Tasmania. USCGS.
16	NE	e F	05	30 50	- -				Very small. 11.2°S., 79.8°W. Near Peru. USCGS.
16	ZV N N	e(P) eL M F	07	08 14 $\frac{1}{2}$ 15 $\frac{1}{2}$ 22	25 - - -	20	$1\frac{1}{2}$		
✓16	ZV,Z NE E N	eP eS M M F	13	05 13 34 34 15	16 53 - - -	20 20	$\frac{1}{2}$ $\frac{1}{2}$	7200	62.3°N., 153.1°W. Alaska. USCGS.
✓17	ZV,Z N NE E N Z	ePP eSS eL M M M F	05 06	51 07 20 38 38 38 25	45 30 - - - - -	20 20 20	1 $1\frac{1}{2}$ 1		43.0°S., 74.9°W. Near coast of Chile. USCGS.
✓17	ZV,Z N N	iP eS M F	17 18	32 42 12 40	37 44 - -	5 10 20	0.9 1.3 3	9000	43.1°N., 144.5°E. Hokkaido, Japan. USCGS. Mag.: M = 5 $\frac{3}{4}$
24	ZV,Z ZV	iP i F	16 17	41 41 30	16 23 -				
24	ZV,Z ZV N N	eP epP eL M F	21 22	20 20 41 56 25	12 43 - - -	19	1		Depth = 120 km. 15.5°N., 92.5°W. Mexico-Guatemala border. USCGS.
25	ZV,Z Z N N N Z	eP ePP eS eL M M F	04 05 06	43 51 58 06 16 16 55	57 32 18 - - - -	5 16 18 18	1.3 3.6 9 6	8100	18.9°N., 81.1°W. h about 64 km. West of Jamaica. USCGS. Mag.: M = 6.0

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

JULY, 19 62

DATE	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.	
			h.	m.	s.					
26	ZV,Z	iP	08	26	51	4	12.3	8870	Dilatation. 7.5°N., 82.7°W. South of Panama. USCGS.	
	ZV	i		27	03					
	ZV,Z	iPP		29	53	5	6.9			
	N	eS		36	50	16	11.9			
	N	ePS		38	42					
	N	eL		47 <sup>1/2</sup>	-					
	Z	M		59 <sup>1/2</sup>	-	20	47			
	N	M		09 00 <sup>1/2</sup>	-	19	75			
26	N	e	22	25	-				Mag.: M = 7.1	
		F	23	00	-					
28	ZV,Z	iPKP	00	24	45				16.2°S., 173.2°W. h about 40 km. Samoa Islands region. USCGS.	
	NE	eL	01	12	-					
	N	M		24	-	20	2			
	E	M		25	-	20	1			
	Z	M		25	-	20	1			
28	NE	e	14	40	-				Very small. 14.8°N., 93.0°W. Mexico. USCGS.	
		F	15	05	-					
28	NE	e(S)	20	06	15				Small. 36.9°N., 141.9°E. Off Honshu, Japan. USCGS.	
		F		55	-					
28	ZV	iP	20	58	40				44.6°N., 148.6°E. Kurile Islands. USCGS.	
30	ZV,Z	ePKP	17	35	43				3.3°S., 143.9°E. Near north coast of New Guinea. USCGS.	
	ZV,Z	ePP		37	17	6	1.5			
	N	eL	18	08	-					
	N	M		32 <sup>1/2</sup>	-	19	27			
	Z	M		32 <sup>1/2</sup>	-	19	12			
30	ZV,Z	F	20	30	-			8500	Mag.: M = 6.9	
		iP	20	30	42	5	4.9			
		i		31	17					
		iS		40	23	14	31.0			
		e		41	07					
		eSS		44	25					
		eIQ		51	-					
		M		21 01 <sup>1/2</sup>	-	20	23			
31	N	M		01 <sup>1/2</sup>	-	20	12		Mag.: M = 6.9	
		F	23	30	-					
		eL	01	37	-					
31	NE	M		39	-	18	1 <sup>1/2</sup>		Small. 3.2°S., 144.1°E. Near New Guinea. USCGS.	
		F		46	-					
		e	03	15	-					
31	N	F		45	-				18.8°N., 120.8°E. Near north coast of Luzon, P.I. USCGS.	
		eS	05	36	49					
		eL		51	-					
		M	06	11 <sup>1/4</sup>	-	20	2 <sup>1/2</sup>			
		M		12 <sup>1/2</sup>	-	16	1 <sup>1/2</sup>			
31	Z	F		45	-				Mag.: M = 5 <sup>3/4</sup>	



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AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN FOR AUGUST, 1962

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (i) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON 1913).



COMPONENT	DATE FROM WHICH CONSTANTS APPLY	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi I}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(ii) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV.).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
1	ZV,Z	ePKP	04	55	56	20	10	10400	3.2°S., 143.7°E. Near north coast of New Guinea. USCGS.
	ZV,Z	ePP		56	25				
	N	e	05	07	34				
	N	eL		27 $\frac{1}{2}$	-				
	N	M		53 $\frac{1}{2}$	-				
	Z	M		53 $\frac{1}{2}$	-				
2	N	e	05	10	-	20	10	Mag.: M = 6 $\frac{1}{2}$	
		F		30	-				
2	ZV,Z	iP	15	41	51	15	$\frac{1}{2}$	33.4°N., 73.5°E. West Pakistan. USCGS.	
	N	M	16	06	-				
		F		20	-				
3	ZV,Z	iP	09	09	27	5	1.2	10400	Dilatation.
	ZV,Z	i		09	33				
	ZV,Z	e		10	03				
	ZV,Z	ePP		13	09				
	ZV,Z	i		13	16				
	NE	eSKS		19	51				
	NE	eS		20	27				
	ZNE	ePFS		22	19				
	NE	eSS		26	45				
	ZV,Z	P'P'		34	35				
	NE	eL		35	-				
	E	M		47 $\frac{1}{2}$	-				
	N	M		47 $\frac{1}{2}$	-				
Z	M		47 $\frac{1}{2}$	-					
	F		11	20	-	Mag.: M = 6.8			

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

AUGUST, 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
3	ZV,V	iP	11	12	56				Compression. 40.9°N., 73.3°E. Kirghiz S.S.R. USCGS.  Mag.: M = 5½
	E	M		32½	-	20	2½		
	N	M		32½	-	20	4½		
	E	M		36½	-	16	6½		
	N	M		36½	-	16	5		
	Z	M		36½	-	16	4		
5		F	12	10	-				
	N	e	09	21	-				74.2°N., 52.5°E. h = 0 km. H-bomb, Novaya Zemlya. USCGS.
	N	eL		24	-				
	E	M		29	-	24	7		
	N	M		29	-	24	6½		
	N	M		33½	-	13	7		
Z	M		33½	-	13	3½			
6		F		50	-				
	ZV,Z	eP	01	42	27	7	1.0	4000	32.0°N., 40.8°W. h about 48 km. North Atlantic Ocean. USCGS.  Mag.: M = 5.5
	ZV,Z	ePP		43	44				
	NE	eS		48	01	12	4.1(H)		
	NE	eL		50½	-		9½		
	N	M		53½	-	14	11		
	E	M		54	-	16	3½		
	Z	M		54½	-	16			
	F		03	10	-				
6	ZNE	e	04	28	-				Very small. 46.3°N., 7.5°E. Switzerland. BCIS.
		F		32	-				
6	ZV,Z	ePKP <sub>1</sub>	21	11	45				26.9°S., 177.1°W. h about 50 km. Kermadec Islands. USCGS.
	ZV,Z	ePKP <sub>2</sub>		12	09				
	ZV,Z	ePP		15	45				
	N	M	22	20	-	22	1½		
	E	M		21	-	20	2		
10		F	23	15	-				
	ZV,Z	iP	21	08	03	8	2.5	2100	PH 10 sec. 3.5 μ 49.4°N., 27.9°W. North Atlantic Ocean.  Mag.: M = 4.9
	NE	eS		11	28	8	2.1(H)		
	E	eL		12	-		12		
	E	M		14	-	19	4		
	N	M		14	-	18	6		
Z	M		14	-	18				
11		F		55	-				
	ZV,Z	iPKP <sub>1</sub>	02	06	17				Depth = 630 km. 20.0°S., 178.8°W. Fiji Islands. USCGS.
	ZV,Z	iPKP <sub>2</sub>		06	23				
	ZV,Z	ipPKP <sub>1</sub>		08	41				
Z	ePP		09	42					
11	ZV,Z	iP	08	28	24	4	2.4	9900	Dilatation. Depth = 135 km. 25.2°N., 123.3°E. h about 140 km. Off coast of Formosa. USCGS.  Mag.: M = 6.4
	ZV,Z	ePP		28	58				
	Z	ePP		31	51	7	1.1		
	NE	eS		38	58	14	7.9(H)		
	N	eSS		44	46				
	NE	eL		51½	-				
		F		09	45	-			



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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

AUGUST, 19 62

DATE	COMPT	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
13	ZV,Z	iP	06	48	26	4	1.1	9400	2.1°N., 83.5°W. About 300 miles N. West of Ecuador. USCGS.
	ZV,Z	ePP		51	38	4	0.9		
	NE	eS		58	48	16	4.0 (H)		
	E	eSS	07	04	28				
	E	eSSS		07	42				
	N	eL		11	-				
	Z	M		20 <sup>1</sup> / <sub>2</sub>	-	22	2 <sup>1</sup> / <sub>2</sub>		
	E	M		20 <sup>1</sup> / <sub>2</sub>	-	22	5 <sup>1</sup> / <sub>2</sub>		
	N	M		21	-	21	3		
		F	08	00	-				
13	NE	e	20	42	-			Mag.: M = 6.2	
	E	M		50	-	16	1		
	N	M		50	-	16	1		
	F	21	05	-			51.8°N., 110.2°E. Buryatskaya S.S.R. USCGS.		
14	NE	e	01	50	-			49.9°S., 163.0°E. North of Macquerie Islands. USCGS.	
	E	M	02	52	-	20	1 <sup>1</sup> / <sub>2</sub>		
	N	M		52	-	20	2		
	F	03	25	-					
14	ZV,Z	eP	07	36	17			28.0°N., 55.6°E. Iran. USCGS.	
17	NE	e	05	31	-			10.6°N., 121.6°E. Panay region, Philippine Islands. USCGS.	
	E	M	06	07	-	19	9		
	N	M		07	-	19	6 <sup>1</sup> / <sub>2</sub>		
	Z	M		07	-	19	2 <sup>1</sup> / <sub>2</sub>		
	F		45	-			Mag.: M = 6 <sup>1</sup> / <sub>4</sub>		
18	ZV,Z	eP	16	54	30			62.3°N., 152.5°W. Central Alaska. USCGS.	
	NE	eL	17	15	-				
	N	M		22 <sup>1</sup> / <sub>2</sub>	-	20	1 <sup>1</sup> / <sub>2</sub>		
	F		55	-					
18	ZV,Z	iP	17	56	50			7200	62.3°N., 152.5°W. Central Alaska. USCGS.
	NE	eS	18	05	26				
	N	M		24 <sup>1</sup> / <sub>4</sub>	-	22	1 <sup>1</sup> / <sub>2</sub>		
	E	M		25 <sup>1</sup> / <sub>2</sub>	-	18	1 <sup>1</sup> / <sub>2</sub>		
	F	19	15	-					
19	NE	e	11	35	-			06.8°S., 149.5°E. New Britain region. USCGS.	
	E	M	12	08 <sup>1</sup> / <sub>2</sub>	-	20	1 <sup>1</sup> / <sub>2</sub>		
	N	M		08 <sup>1</sup> / <sub>2</sub>	-	20	1 <sup>1</sup> / <sub>2</sub>		
	F		30	-					
19	ZV,Z	eP	18	35	49	5	1.3	5840	44.6°N., 81.7°E. Northwest Sinkiang Province. USCGS.
	ZV,Z	i		35	57				
	ZV,Z	ePcS		40	54				
	NE	eS		43	12	11	3.1 (H)		
	E	eScS		45	39				
	N	eSS		46	44				
	NE	eL		51	-				
	E	M		56	-	20	13		
	N	M		56	-	20	22		
		F	20	00	-				

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

AUGUST, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
19	NE	e F	23 24	50 15	- -				Very small. 26.6°S., 69.8°W. Near coast of Chile. USCGS.
20	N E N N Z	eL M M M M F	09	19 23 $\frac{1}{4}$ 23 $\frac{1}{4}$ 26 $\frac{1}{4}$ 26 $\frac{1}{2}$ 33	- - - - -				74.4°N., 051.2°E. h about 0 km. H-bomb, Novaya Zemlya. USCGS.
21	ZV,Z E E E N Z	eP eS eL M M M F	18	12 15 17 18 $\frac{1}{2}$ 18 $\frac{1}{2}$ 20 -	32 32 - - - -	4 12 19 19 16	0.5 1.9(H) 25 34 13	1830	41.5°N., 15.4°E. h about 36 km. Italy. USCGS.  Mag.: M = 5 $\frac{1}{2}$ overlapped by next shock.
21	ZV,Z E E E N Z	eP iS eL M M M F	18	22 25 27 29 29 30 $\frac{1}{2}$ 19 55	58 59 - - - -	6 12 19 19 16	2.9 10.4(H) 109 158 74	1840	41.4°N., 15.5°E. h about 34 km. Italy. About 15 dead, 200 injured and major property damage. USCGS.  Mag.: M = 6-6 $\frac{1}{4}$
21	ZV,Z N N E N Z	e(PKP) eSS eL M M M F	21	26 47 02 18 19 19 23 45	20 38 - - - -				28.7°S., 176.8°W. h about 55 km. Kermadec Islands region. USCGS.  Mag.: M = 6 $\frac{1}{4}$
22	NE N Z	e M M F	09	20 24 $\frac{1}{2}$ 24 $\frac{1}{2}$ 28	- - -	13 13	2 1		H-bomb explosion. Novaya Zemlya.
23	NE	e F	02 03	55 10	- -				Very small.
25	ZV,Z ZV,Z ZV,Z Z	iPKP <sub>1</sub> i ipPKP <sub>1</sub> e	08	50 50 52 53	31 36 51 58				Depth = 610 km. 20.5°S., 178.5°W. Fiji Islands. USCGS.
25	NE N N Z	e M M M F	09	20 22 $\frac{1}{2}$ 26 26 30	- - - -	24 13 13	2 1 $\frac{1}{2}$ 1		H-bomb explosion, Novaya Zemlya.
25	ZV,Z E E	eP eL M F	20	02 06 $\frac{1}{2}$ 07 $\frac{1}{2}$ 15	24 - - -				36.7°N., 1.6°E. Near coast of Algeria. USCGS.

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

AUGUST, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
26	NE	e	07	12	-			34.0°N., 139.2°E. h about 38 km. Near coast of Honshu, Japan. USCGS.	
	NE	eL		29	-				
	E	M		38 $\frac{1}{2}$	-	19	5		
	N	M		38 $\frac{1}{2}$	-	19	4		
		F	08	25	-			Mag.: M = 5 $\frac{3}{4}$ -6.	
26	ZV	iP	16	34	27			36.5°N., 1.6°E. Near coast of Algeria. USCGS.	
	E	M		39 $\frac{1}{2}$	-	14	1 $\frac{1}{2}$		
		F		45	-				
27	NE	e	09	17	-			74.7°N., 50.3°E. h about 0 km. H-bomb explosion. Novaya Zemlya. USCGS.	
	E	M		22	-	24	2 $\frac{1}{2}$		
	N	M		22	-	24	3 $\frac{1}{2}$		
	N	M		25 $\frac{1}{2}$	-	13	3		
	Z	M		25 $\frac{1}{2}$	-	13	2 $\frac{1}{2}$		
	F		32	-					
27	NE	e	17	00	-			Small. 38.3°N., 142.4°E. Off Honshu, Japan. USCGS.	
		F		25	-				
28	NE	e	01	10	-			Very small. 34.2°N., 139.7°E. Near Honshu, Japan. USCGS.	
		F		30	-				
28	NE	e	08	50	-			34.2°N., 139.3°E. Near coast of Honshu, Japan. USCGS.	
	E	M	09	02 $\frac{1}{2}$	-	20	1 $\frac{1}{2}$		
	N	M		02 $\frac{1}{2}$	-	20	1 $\frac{1}{2}$		
		F		30	-				
28	ZV, ZNE	iP	11	04	36	5	12.0	2370 Dilatation. PH 6 sec. 14.7 μ FFH 8 sec. 20.2 μ Depth = 75 km. 38.0°N., 23.1°E. Greece. 1 killed, 11 injured and moderate property damage. USCGS. Mag.: M = 6.5	
	ZV, Z	iP		04	52				
	NE	iS		08	23	12	163(H)		
	NE	isS		08	49				
	E	eL		10	-				
	N	M		13	-	20	50		
	E	M		14	-	20	33		
		F		12	40	-			
29	NE	e	16	00	-			Very small. 34.5°N., 139.8°E. Near Honshu, Japan. USCGS.	
		F		20	-				
29	NE	e	18	25	-			Very small. 34.3°N., 139.5°E. Near Honshu, Japan. USCGS.	
		F		45	-				
29	NE	e	21	00	-			34.0°N., 139.3°E. Near coast of Honshu, Japan. USCGS.	
	E	M		09 $\frac{1}{2}$	-	20	1		
	N	M		09 $\frac{1}{2}$	-	20	$\frac{1}{2}$		
	F		30	-					
29	NE	e(S)	23	00	13			34.1°N., 139.1°E. Near coast of Honshu, Japan. USCGS.	
	E	eL		23	-				
	E	M		32	-	20	3 $\frac{1}{2}$		
	N	M		34	-	20	3		
	F		24	15	-			Mag.: M = 5 $\frac{3}{4}$	
30	NE	e	06	30	-			Very small.	
		F		40	-				

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KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN

AUGUST, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
30	NE	e F	12	05	-				Very small. 35.1°N., 140.4°E. Near Honshu, Japan. USCGS.
30	ZV,Z	eP	13	46	36	4	0.4		41.8°N., 111.8°W. Utah-Idaho border. Minor damage. USCGS.
	NE	eL	14	06	-				
	E	M		16	-	16	2½		
	N	M		16	-	16	1½		
	Z	M		16	-	16	½		
		F		55	-				Mag.: 5¼-5½
30	ZV,Z	ePKP	17	47	38				21.2°S., 174.4°W. Tonga Islands. USCGS.
	E	eSS	18	00	13				
	E	M		43	-	20	1		
	N	M		43	-	20	1		
		F	19	45	-				
30	NE	e F	20	00	-				Very small. 47.7°S., 32.6°E. Prince Edward Islands. USCGS.
31	NE	e	11	40	-				15.4°S., 177.3°W. h about 60 km. Fiji Islands region. USCGS.
	E	M	12	00	-	20	1		
	N	M		00	-	20	½		
		F		30	-				
31	ZV,Z	iP	17	14	39	6	1.0	8700	Compression. 51.3°N., 179.7°W. Rat Islands, Aleutian Islands. USCGS.
	NE	eS		24	31				
	N	e		25	45				
	E	eL		35	-				
	E	M		57½	-	19	6		
	N	M		57½	-	20	7½		
	Z	M		57½	-	20	3		
		F	19	50	-				Mag.: M = 5.9
31	ZV	eP	18	08	02				51.2°N., 179.9°W. Rat Islands. USCGS.

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN FOR SEPTEMBER, 19 62

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (i) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON 1913).



COMPONENT	DATE FROM WHICH CONSTANTS APPLY	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(ii) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV.).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE	COMPT	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
✓ 1	ZV,Z	iP	03	58	00	12	1.1 (H)	8700	Compression. 51.3°N., 179.7°W. Rat Islands, Aleutian Islands. USCGS.
	NE	eS	04	07	51				
	N	eSS		13	19				
	E	eL		18	-				
	E	M		41	-				
	N	M		41	-				
	Z	M		41	-	19	$4\frac{1}{2}$		
		F		-	-	20	$5\frac{1}{2}$		Mag.: M = $5\frac{3}{4}$ overlapped by next shock.
1	ZV,Z	iP	04	53	35				Compression. 51.3°N., 179.9°W. Rat Islands. USCGS.
1	ZV,Z	iPKP <sub>1</sub>	05	11	17				Depth = 270 km. 15.9°S., 168.2°E. h about 244 km. New Hebrides Islands. USCGS.
	ZV,Z	iPKP <sub>1</sub>		12	24				
	ZV,Z	iPP		14	30				
✓ 1	ZV,Z	iP	08	03	01	19	$3\frac{1}{2}$	8700	51.3°N., 179.9°W. h about 42 km. Rat Islands, Aleutian Islands. USCGS.
	N	eS		12	51				
	E	M		46	-				
	N	M		46	-				
	Z	M		46	-				
		F	09	40	-				
1	NE	eF	10	10	-				Small.
		F		35	-				
✓ 1	ZV,Z	iP	15	10	35	3	0.9	6200	Compression. 25.8°N., 65.3°E. h about 46 km. Near coast of West Pakistan. USCGS.
	ZV,Z	ipP		10	41				
	NE	eS		18	18				
	E	eSS		20	18				
	E	M		$38\frac{1}{2}$	-				
	N	M		$38\frac{1}{2}$	-				
	F	16	05	-	17	$2\frac{1}{2}$		Mag.: M = $5\frac{3}{4}$	

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

SEPTEMBER, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
1	ZV,ZE	iP	19	28	05	10	20.2	4450	Compression. PH 13 sec. 18.4 μ PPH 14 sec. 39.0 μ 35.6°N., 50.0°E. Iran. Over 10000 killed, many injured and extensive property damage. USCGS.
	ZV,ZE	iFP	29	42	12	24.8			
	ZNE	iS	34	10	16	66(H)			
	NE	eLQ	37 $\frac{1}{2}$	-	-	-			
	E	M	45 $\frac{1}{2}$	-	20	260			
	N	M	46	-	19	277			
	Z	M	45 $\frac{1}{2}$	-	20	56			
	F	23	35	-	-		Mag.: M = 7.1		
1	ZV	iP	20	35	05	-	-	35.3°N., 49.6°E. Iran. USCGS.	
2	N	e	04	15	-	-	-	Very small.	
		F	25	-	-	-			
2	NE	e	04	48	-	-	-	Very small.	
		F	55	-	-	-			
2	NE	e	05	22	-	-	-	1 1 $\frac{1}{2}$	
		M	30 $\frac{1}{2}$	-	16	1			
		F	30 $\frac{1}{2}$	-	16	1 $\frac{1}{2}$			
2	NE	e	05	52	-	-	-	1 2	
		M	58	-	16	1 $\frac{1}{2}$			
	N	F	06	05	-	-	-		
2	NE	e	06	23	-	-	-	1 2	
		M	31	-	16	1 $\frac{1}{2}$			
		F	31	-	16	2			
2	NE	e	07	03	-	-	-	1 1 $\frac{1}{2}$	
		M	11 $\frac{1}{2}$	-	16	1 $\frac{1}{2}$			
		F	11 $\frac{1}{2}$	-	16	1 $\frac{1}{2}$			
2	N	e	07	58	-	-	-	Very small.	
		F	08	10	-	-			
2	NE	e	08	34	-	-	-	1	
		M	42 $\frac{1}{2}$	-	16	1			
	N	F	50	-	-	-	-		
2	ZV,Z	iP	19	56	46	-	-	71.2°N., 12.7°W. Jan Mayen Island region. USCGS.	
		N	20	04 $\frac{1}{2}$	-	16	1 $\frac{1}{2}$		
		F	10	-	-	-	-		
3	NE	e	04	50	-	-	-	Very small.	
		F	05	00	-	-			
4	NE	e	13	47	-	-	-	Small. 35.6°N., 49.7°E. Iran. USCGS.	
		F	14	10	-	-			
4	ZV,Z	iP	23	05	50	-	-	3600	Compression. 39.9°N., 44.2°E. Turkey-Armenia border. USCGS.
		E	11	01	-	-			
		N	20	-	20	3			
		E	21	-	20	1 $\frac{1}{2}$			
		F	50	-	-	-			

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

SEPTEMBER, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
8	NE	eL	10	36	-			3100	73.7°N., 53.8°E. Novaya Zemlya. H-bomb explosion. USCGS.  Mag.: M = 4.6
	E	M		39½	-	22	1.2		
	N	M		39½	-	22	1.5		
	N	M		42½	-	13	1.2		
	Z	M		42½	-	13	0.7		
		F		45	-				
10	ZV,Z	iP	09	41	53			3100	35.0°N., 27.1°E. Dodecanese Islands. USCGS.  Mag.: M = 5.1
	NE	eS		46	31	16	4.5(H)		
	EN	eL		49	-				
	E	M		51	-	22	4½		
	N	M		51	-	22	8		
	E	M		54	-	14	10		
	Z	M		54	-	14	4		
		F	10	25	-				
10	ZV,Z	iPKP1	16	02	34				21.1°S., 179.2°W. h about 640 km. Fiji Islands. USCGS.
	ZV,Z	i		02	39				
	ZV,Z	iPKP2		02	47				
10	NE	e	18	55	-				Very small. 17.5°S., 173.6°W. Tonga Islands. USCGS.
		F	19	20	-				
11	N	e	00	30	-				Very small. 39.9°N., 43.9°E. Turkey. USCGS.
		F		45	-				
12	ZV,Z	iP	21	05	54	6	1.9	5600	36.5°N., 69.2°E. h about 50 km. Hindu Kush. USCGS.  Mag.: M = 6.3
	Z	i		06	03				
	NE	iS		13	03	10	8.1(H)		
	E	eSS		16	31				
	N	eL		20	-				
	E	M		26½	-	24	24		
	N	M		27	-	23	40		
	E	M		31	-	18	40		
	N	M		31	-	18	19		
	Z	M		31	-	18	19		
		F	22	35	-				
13	NE	e	00	20	-				Very small. 7.3°S., 13.3°W. Ascension Island region. USCGS.
		F		40	-				
14	NE	e	00	44	-				39.6°N., 28.6°E. h about 69 km. Western Turkey. USCGS.
	N	M		36½	-	16	1½		
		F		55	-				
14	ZV,Z	ePKP1	18	36	58				Depth = 390 km. 19.9°S., 177.6°W. Fiji Islands. USCGS.
	ZV	epPKP1		38	33				
15	N	eL	08	15	-				74.4°N., 51.5°E. Novaya Zemlya, H-bomb explosion. USCGS.  Mag.: M = 4.8
	E	M		23½	-	22	1.2		
	N	M		23½	-	22	2.3		
	N	M		26½	-	13	3.1		
	Z	M		26½	-	13	1.7		
		F		40	-				

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

SEPTEMBER, 19 62

DATE	COMPT.	PHASE	G.M.T.				PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.	sec.				
✓ 15	ZV,Z	eP	23	02	47	5	2.0	8800	PH 14 sec. 1.7 μ 48.5°N., 156.8°E. Kurile Islands. USCGS.	
	ZV,Z	i		02	51					
	ZV,Z	i		03	06					
	Z	ePP		05	36	5	1.0			
	NE	eS		12	43	12	4.8(H)			
	N	eSS		17	36					
	E	eL		37	-					
	E	M		43	-	20	5½			
	N	M		44	-	20	8½			
	Z	M		44	-	20	3½			
	F		25	35	-			Mag.: M = 6.1		
16	NE	e	11	12	-				74.2°N., 51.6°E. Novaya Zemlya. H-bomb explosion. USCGS.	
	E	M		20	-	24	1.3			
	N	M		20	-	24	3.0			
	N	M		23½	-	13	3.1			
	Z	M		23½	-	13	1.7			
	F		30	-				Mag.: M = 4.9		
16	NE	e	19	45	-				Small. 16.7°N., 94.2°E. Near coast of Burma. USCGS.	
		F	20	10	-					
16	NE	e	23	30	-				Very small. 22.8°N., 123.5°E. Near coast of Formosa. USCGS.	
	F			50	-					
17	ZV,Z	iPKP	18	14	23				21.0°S., 179.1°W. h about 601 km. Fiji Islands. USCGS.	
	ZV,Z	i		14	28					
	ZV,Z	i		14	36					
17	N	eL	19	53½	-				41.3°N., 20.8°E. Southern Yugoslavia. USCGS.	
	E	M		55	-	16	1			
	N	M		55	-	16	2½			
		F		20	00	-				
18	ZV,Z	eP	00	41	11	6	2.7	8800	7.5°N., 82.3°W. South of Panama. USCGS.	
	ZV,Z	ePP		44	11	6	2.0			
	NE	eS		51	08	12	14.0(H)			
	E	eSS		56	31					
	E	eSSS	01	00	02					
	N	eLQ		02½	-					
	Z	M		09	-	24	18			
	E	M		09	-	24	39			
	N	M		10	-	23	29			
		F		03	50	-				
18	NE	e	05	50	-				Very small. 7.3°N., 82.4°W. South of Panama. USCGS.	
		F	06	05	-					
18	NE	eL	08	46	-				73.2°N., 54.7°E. Novaya Zemlya. H-bomb explosion. USCGS.	
	E	M		50½	-	22	0.5			
	N	M		50½	-	22	1.2			
	N	M		53½	-	13	2.0			
	Z	M		53½	-	13	1.2			
		F		09	00	-				
19	ZV,Z	iP	05	18	41				48.1°N., 145.1°E. h about 466 km. Near Sakhalin. USCGS.	



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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

SEPTEMBER, 19 62

DATE	COMPT	PHASE	G.M.T.			PERIOD sec.	AMPLI- TITUDE $\mu$	$\Delta$ km.	REMARKS
			h.	m.	s.				
19	NE	e	11	15	-			73.8°N., 53.8°E. Novaya Zemlya. H-bomb explosion. USCGS.  Mag.: M = 5.1	
	E	M		22	-	22	1.9		
	N	M		22	-	22	5.3		
	N	M		25 $\frac{1}{2}$	-	13	4.9		
	Z	M		25 $\frac{1}{2}$	-	13	2.6		
		F	11	55	-				
19	NE	e	15	10	-			Small.	
		F		25	-				
21	NE	e	08	17	-			Novaya Zemlya. H-bomb explosion.  Mag.: M = 4.6	
	E	M		22 $\frac{1}{2}$	-	22	0.5		
	N	M		22 $\frac{1}{2}$	-	22	1.8		
	N	M		25 $\frac{1}{2}$	-	13	1.9		
	Z	M		25 $\frac{1}{2}$	-	13	0.9		
		F		33	-				
21	NE	e	23	35	-			Very small. 57.7°S., 64.1°W. Drake Passage. USCGS.	
		F	24	05	-				
22	ZV,Z	iP	07	03	08			8300 26.5°N., 97.0°E. Northern Burma. USCGS.  Mag.: M = 6.3	
	ZV	eFP		05	57				
	NE	eS		12	40	8	3.5(H)		
	NE	ePS		13	18				
	N	eL		27 $\frac{1}{2}$	-				
	E	M		33 $\frac{1}{2}$	-	24	12		
		F		33 $\frac{1}{2}$	-	24	28		
		F	08	40	-				
23	NE	eL	12	24	-			Very small. 14.7°N., 45.1°W. Atlantic Ocean. USCGS.	
		F		35	-				
24	NE	e	03	50	-			44.3°N., 80.6°E. Kazakh S.S.R. USCGS.	
	N	M		56	-	16	1		
		F	04	05	-				
24	NE	e	06	25	-			Small. 9.2°N., 126.6°E. Philippine Islands. USCGS.	
		F		45	-				
24	ZV,Z	eP	14	50	37	5	1.1	42.8°N., 145.3°E. Near Hokkaido, Japan. USCGS.	
		F	15	50	-				
25	NE	eL	13	15	-			73.7°N., 55.0°E. Novaya Zemlya. H-bomb explosion. USCGS.  Mag.: M = 5.2	
	E	M		23	-	24	5.8		
	N	M		24	-	23	6.5		
	N	M		27	-	13	6.8		
	Z	M		27	-	13	3.5		
		F		40	-				
27	NE	e	07	40	-			Very small. 47.4°S., 34.3°E. Prince Edward Islands. USCGS.	
		F	08	05	-				

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KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN

.....SEPTEMBER,.....1962.....

DATE	COMPT.	PHASE	G.M.T.			PERIOD sec.	AMPLI- TITUDE μ	Δ km.	REMARKS
			h.	m.	s.				
27	NE	eL	08	15	-				74.3°N., 52.4°E. Novaya Zemlya. H-bomb explosion. USCGS.  Mag.: M = 5.2
	E	M		24	-	24	3.9		
	N	M		24	-	24	5.8		
	N	M		27 <sup>3</sup> / <sub>4</sub>	-	13	6.8		
	Z	M		27 <sup>3</sup> / <sub>4</sub>	-	13	3.5		
		F		50	-				
27	ZV,Z	iPKP	13	43	48				17.6°S., 178.9°W. Fiji Islands. USCGS.
28	ZV,Z	iP	19	07	50	5	1.0	8700	Compression. 5.2°N., 76.2°W. h about 127 km. Colombia. USCGS. Mag.: M = 5 <sup>1</sup> / <sub>2</sub>
	N	eS		17	32	8	2.0		
		F		45	-				
29	ZV,Z	iP	15	30	12				Confused by strong microseisms. 27.0°S., 63.6°W. h about 575 km. Argentina. USCGS.
	E	ePS		43	39				
		F	16	25	-				
30	NE	e	22	40	-				Small. 18.6°N., 120.9°E. Philippine Islands. USCGS.
		F	23	10	-				

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AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN FOR OCTOBER, 19 62

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (i) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON 1913).



COMPONENT	DATE FROM WHICH CONSTANTS APPLY	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(ii) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE	COMPT.	PHASE	G.M.T.			PERIOD sec.	AMPLITUDE μ	Δ km.	REMARKS
			h.	m.	s.				
1	ZV,Z	iPKP	04	15	33				17.5° S., 178.9° W. h about 550 km. Fiji Islands. USCGS.
1	ZV	iP	10	05	23				47.3° N., 151.5° E. h about 127 km. Kurile Islands.
1	ZV,Z	iP	12	22	31			5300	27.9° N., 54.9° E. Southern Iran. USCGS.
		eS		29	24	10	2.6(H)		
		M		44	-	20	2½		
		M		44	-	20	3		
		F	13	20	-				Mag.: M = 5½
2	N	e	23	15	-				Very small. Azores?
		F		30	-				
3	ZV,Z	eP	01	21	52			2520	40.6° N., 29.7° W. Azores region. USCGS. overlapped by next shock.
		eS		25	54				
		F	-	-	-				
3	ZV,Z	eP	01	24	26			2520	40.7° N., 29.7° W. Azores region. USCGS.
		eS		28	28	16	1.8		
		M		32	-	16	2½		
		M		32	-	14	3½		
		F	02	00	-				Mag.: M = 4½
3	N	e	19	40	-				Very small. 57.5° S., 26.7° W. Sandwich Islands. USCGS.
		F		55	-				
4	NE	e	00	05	-				Small. Azores?
		F		20	-				

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

OCTOBER, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
4	NE	e F	04 05	50 05	- -				Small. 40.4° N., 29.5° W. Azores region. USCGS.
4	NE	e F	06	07 20	- -				Small. Azores?
4	NE	e F	13	32 50	- -				Small. 40.9° N., 29.7° W. Azores region.
4	NE	e F	19	00 15	- -				Small. Azores?
4	NE	e F	19	23 30	- -				Very small. Azores?
4	ZV,Z E NE N E	iP eS eL M M F	19	50 54 58 59½ 00 15	55 50 - - - -	5 14 18 16	1.0 2.8(H) 5 2½	2430	38.3° N., 22.7° E. Greece. USCGS.  Mag.: M = 4.8
4	NE	e F	23	18 30	- -				Very small. Azores?
5	ZV,Z	e(P) F	04	19 30	43 -				40.2° N., 29.5° W. Azores region. USCGS.
5	ZV	e(P) F	08 09	44 00	32 -				40.7° N., 29.8° W. Azores region. USCGS.
5	ZV,Z N	eP M F	20	10 33½ 45	39 - -	16	1		35.1° N., 58.6° E. Iran. 5 killed, many injured. BCIS.
6	ZV,Z NE NE E N	eP eS eL M M F	03	22 26 27½ 29 29	09 18 - - -	5 14 16 14	1.7 3.7(H) 2½ 4½	2600	40.8° N., 29.5° W. Azores region. USCGS.  Mag.: M = 5.0
6	ZV,Z NE E N	eP eS M M F	04	00 04 07 07½ 30	01 09 - - -	14 16 14	2.0(H) 1½ 2½	2600	40.5° N., 29.5° W. Azores region. USCGS.  Mag.: M = 4½
6	ZV,Z NE NE Z N E	ePKP eSS eL M M M F	04 05	43 05 30 48 48 49 25	00 08 - - - -	22 22 22	3½ 6 4½		17.4° S., 167.7° E. New Hebrides Islands. USCGS.  Mag.: M = 6½
6	ZV,Z	iP	05	51	28				26.2° N., 126.9° E. Ryukyu Islands. USCGS.

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

OCTOBER, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
6	NE	e F	08 09	30 05	- -				Small. 17.4°S., 167.8°E. New Hebrides Islands. USCGS.
6	Z N E	eFKP M M F	08 08 08 10	23 28 29 20	05 - - -	22 22	1 1/2 1 1/2		17.2°S., 168.0°E. New Hebrides Islands. USCGS. Mag.: M = 5 1/2
6	ZV,Z ZV,Z	iFKP iFP	11 11	19 23	59 18				13.3°S., 167.3°E. New Hebrides Islands. USCGS.
6	ZV	iFKP	18	20	40				17.6°S., 168.0°E. New Hebrides Islands. USCGS.
6	ZV,Z N E	eFKP M M F	23 24 24 25	50 56 57 50	59 - - -	22 22	2 1 1/2		17.5°S., 167.6°E. New Hebrides Islands. USCGS. Mag.: M = 5 3/4
7	NE	e F	06 07	54 05	- -				Small. 40.5°N., 29.2°W. Azores region. USCGS.
7	ZV,Z N N	e(P) eS M F	09 09 10	54 58 01 15	33 45 - -	14	1	2660	40.2°N., 29.2°W. Azores region. USCGS.
7	N	e F	16 17	55 00	- -				Very small.
8	ZV,Z NE N	iP eS M F	05 05 05	19 23 26 35	23 34 - -	14	1	2650	Compression. 40.5°N., 29.5°E. Azores region. USCGS.
8	NE E	e M F	19 19 19	00 00 1/2 05	- - -	16	1 1/2		
8	ZV,Z ZV,Z NE N N N E E N Z	iP eCP eSKS eS eL M M M M M F	22 22 22 22 22 22 22 22 22 22 24	09 13 19 20 38 45 45 1/2 54 1/2 54 1/2 54 1/2 30	16 47 42 00 - - - - - - -	6 7 12 25 24 16 16 14	1.7 1.3 5.1(H) 39 27 26 32 16	9900	Compression. PPH 10 sec. 1.3 μ 24.3°N., 121.7°E. Near east coast of Formosa. USCGS. Mag.: M = 6.3
9	Z NE E N Z	e eL M M M F	20 21 21 21 21 22	35 09 30 30 30 55	- - - - - -	20 20 21 20	3 6 2		3.2°S., 148.2°E. Bismarck Sea. USCGS. Mag.: M = 6-6 1/4

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

OCTOBER, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.				
10	N	e	22	55	-			15.1°S., 173.3°W. Samoa Islands region. USCGS.	
	N	M	23	13	-	20	1½		
	E	M		14	-	20	1		
		F		30	-				
13	ZV,Z	iP	10	31	03			4350 35.5°N., 49.8°E. North western Iran. USCGS.	
	N	eS		37	00	10	1.5(H)		
	N	eL		42½	-				
	E	M		48	-	20	2		
	N	M		48	-	20	3		
		F	11	25	-			Mag.: M = 5¼	
13	NE	e	20	00	-			12.6°S., 166.6°E. Santa Cruz Islands. USCGS.	
	N	M		10	-	20	1		
		F		25	-				
14	NE	eL	15	50	-			31.8°N., 131.5°E. Near Kyushu, Japan. USCGS.	
	E	M	16	01	-	20	1		
	N	M		01	-	20	1		
		F		20	-				
15	ZV	ePKP <sub>1</sub>	23	56	38			43.5°S., 169.8°E. Near South Island, New Zealand. USCGS	
	ZV	ePKP <sub>2</sub>		57	53				
	N	M	25	20	-	20	1		
		F		45	-				
16	NE	eL	18	34	-			51.6°N., 175.8°W. Near Islands, Aleutian Islands. USCGS.	
	E	M		53	-	20	1		
	N	M		54	-	20	1½		
		F	19	30	-			Mag.: M = 5¼	
18	NE	e	05	00	-			Very small. 8.9°S., 117.0°E. Sumbawa. USCGS	
		F		25	-				
18	ZV	iP	08	52	47			46.5°N., 149.6°E. Kurile Islands. USCGS.	
18	ZV,Z	iP	11	34	33			46.5°N., 149.5°E. Kurile Islands. USCGS.	
19	NE	e	21	55	-			Small. 19.8°N., 108.3°W. Off coast of Mexico. USCGS.	
		F	22	25	-				
21	NE	e	02	35	-			Very small. 61.1°N., 149.7°W. Alaska. USCGS.	
		F		55	-				
22	NE	e	05	30	-			Small. 3.4°S., 145.3°E. Bismarck Sea. USCGS.	
		F	06	05	-				
22	NE	eL	09	21	-			73.4°N., 54.9°E. Novaya Zemlya. H-bomb explosion. USCGS.	
	E	M		26½	-	24	2.9		
	N	M		27½	-	22	4.4		
	N	M		30½	-	13	4.4		
	Z	M		30½	-	13	2.3		
		F		45	-			Mag.: M = 5.0	

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.**

**SEISMOLOGICAL BULLETIN**

OCTOBER, 19 62

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
22	ZV,Z	iP	15	35	28			49.8°N., 155.8°E. Northern Kurile Islands. USCGS.  Mag.: M = 5¼	
	N	eL		59	-				
	E	M	16	15½	-	20	1		
	N	M		15½	-	20	2		
		F		40	-				
25	NE	e	16	30	-			8.4°N., 82.6°W. Panama-Costa Rica border. USCGS.	
		F		50	-				
25	E N E	eL	21	15	-			Confused by strong microseisms. 61.4°S., 154.9°E. Southwest of Macquarie Islands. USCGS. Mag.: M = 6½	
		M		41½	-	20	7		
		M		42	-	20	4		
		F	22	20	-				
26	ZV,Z	iP	11	31	53			Compression. 33.7°N., 27.9°E. Mediterranean Sea. USCGS.	
		F		55	-				
29	ZV	iP	00	31	48			Dilatation. 7.1°N., 82.6°W. Off coast of Panama. USCGS.	
29	E E	e	21	55	-			Confused by strong microseisms.	
		M	22	03	-	22	1½		
		F		20	-				
30	NE E N	e	02	20	-			Confused by strong microseisms.	
		M		45	-	22	5		
		M		45	-	22	6		
		F	03	25	-				
31	ZV,Z NE E	iP	11	44	43			Confused by strong microseisms. 5.6°N., 82.6°W. South of Panama. USCGS.	
		eL	12	06	-				
		M		15	-	20	3		
		M		15	-				
		F		35	-				





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KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND

SEISMOLOGICAL BULLETIN FOR NOVEMBER, 19 62

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (I) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON 1913).



COMPONENT	DATE FROM WHICH CONSTANTS APPLY	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi l}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(II) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.  
TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.  
SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE	COMPT.	PHASE	G.M.T.			PERIOD sec.	AMPLI- TITUDE μ	Δ km.	REMARKS
			h.	m.	s.				
1	N	e	16	15	-				Confused by strong microseisms. 1.9°N., 133.0°E. Off New Guinea. USCGS.
		F	17	10	-				
1	NE	e	18	45	-				Confused by strong microseisms. 1.9°N., 132.8°E. Off New Guinea. USCGS.
		F	19	20	-				
2	N	e	15	40	-	20	2		Confused by microseisms. 10.0°S., 117.8°E. South of Sumbawa. USCGS.
		M	16	55	-				
4	ZV,Z	ePP	23	13	09	20	1 1/2		Confused by microseisms. 43.2°S., 75.6°W. Off coast of Chile. USCGS.
		eL	24	00	1/2				
		M	00	1/2	-				
		F	30	-	-				
5	ZV	i(P)	11	50	06				Mag.: M = 5 3/4
6	ZV	iP	00	18	20	18	3		Confused by strong microseisms. 28.0°N., 55.6°E. Southern Iran. USCGS.
		M	39	1/2	-				
		M	39	1/2	-				
		F	55	-	-				
7	ZV,Z	iP	13	02	48	16	1 1/2		Compression. Confused by microseisms. 40.5°N., 29.4°W. Azores. USCGS.
		eL	08	1/2	-				
		M	10	1/2	-				
		F	10	1/2	-				

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**KEY OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

NOVEMBER, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD sec.	AMPLI- TITUDE μ	Δ km.	REMARKS
			h.	m.	s.				
8	NE	e F	00	50	-			Very small. 15.1°S., 75.6°W. Near Peru. USCGS.	
8	NE E	e M F	01	20 34 50	- - -	20	1.1	4.4°S., 105.5°W. Galapagos Islands region. USCGS.	
9	ZV,Z N	iP M F	01	18 36 50	25 - -	16	1	Dilatation. 33.4°N., 47.2°E. Iraq-Iran border. USCGS.	
9	ZV	iP	11	11	08				
10	ZV,Z NE E N E N	iP eS M M M M F	01	45 55 19 20 24 24 50	30 34 - - - - -	4 6 26 26 20 20	3.2 3.8(H) 3 6 1½ 2	9050 Compression. 43.8°N., 147.2°E. h about 60 km. Kurile Islands. USCGS.	
11	ZV,Z ZV,Z NE E N	eP e eS M M F	11	41 41 49	47 55 57			6700 Confused by microseisms. 55.8°N., 113.1°E. Lake Baikal region. USCGS.	
			12	07 07½ 25	- - -	18 18	3 3	Mag.: M = 5½	
11	ZV ZV NE N E	e(P) e eS M M F	15	24 24 30 47 48	05 15 57 - -	16 16	2 2	5300 17.2°N., 40.7°E. Red. Sea. USCGS.	
			16	20	-			Mag.: M = 5	
11	ZV,Z NE E N	eFKP eL M M F	16	29	19			12.9°S., 166.5°E. h about 77 km. Santa Cruz Islands. USCGS.	
			17	17	-				
				35½	-	20	1½		
				35½	-	20	2½		
			18	20	-			Mag.: M = 6	
11	Z NE NE E N	ePP eSS eL M M F	22	33 49	59 47			43.2°S., 76.0°W. Off coast of Chile. USCGS.	
			23	03	-	20	2		
				21	-	20	2½		
			24	10	-			Mag.: M = 5¾	
12	NE E N E N Z	eL M M M M M F	13	38 40 40 48 48 48	- - - - - -	22 22 14 14	1½ 1½ 2½ 3½ 2		
			14	05	-				
12	NE	e F	21	30 45	- -			Very small. 17.8°S., 13.6°W. Atlantic Ocean. USCGS.	

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**
**SEISMOLOGICAL BULLETIN**

NOVEMBER, 19. 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	$\Delta$	REMARKS	
			h.	m.	s.					
14	N	eL	08	25	-		$\mu$	35.7°N., 140.8°E. h about 61 km. Central Honshu, Japan. USCGS.		
	E	M		40	-	20	1½			
	N	M		40	-	20	1½			
		F	09	10	-					
15	ZV,Z	iP	23	38	13	3	1.3	10100 Compression. 8.7°S., 79.8°W. h about 45 km. Near coast of Peru. USCGS.		
	E	eSKS		48	42					
	E	eS		49	02	16	2.7			
	N	eL	24	03	-					
	E	M		16	-	20	1½			
	N	M		16	-	20	3			
		F		55	-			Mag.: M = 6½		
16	N	eSS	07	56	47			32.3°S., 111.1°W. h about 43 km. Eastern Island region. USCGS.		
	NE	eL	08	11	-					
	N	M		34	-	20	5½			
	E	M		34	-	20	3			
		F	09	55	-				Mag.: M = 6-6½	
16	ZV,Z	iP	21	22	22	6	1.7	9000 Compression. 13.5°N., 93.2°E. Andaman Islands. USCGS.		
	ZV,Z	i		22	27					
	E	eSKS		32	33					
	N	e		32	43					
	N	M		59½	-	21	23			
	E	M	22	01½	-	20	14			
	Z	M		03½	-	20	4			
		F		55	-				Mag.: M = 6½	
23	E	ePS	00	55	34			15.1°S., 75.3°W. Near coast of Peru. USCGS.		
	NE	eL	01	09	-					
	N	M		22½	-	18	2½			
	E	M		23½	-	18	3			
	Z	M		23½	-	18	1½			
		F		50	-				Mag.: M = 5½	
23	ZV,Z	iPKP	23	24	30			21.5°S., 179.3°W. h about 609 km. Fiji Islands. USCGS.		
24	NE	e	16	36	-			9.8°N., 40.7°W. Mid-Atlantic Ocean. USCGS.		
	E	M		46	-	20	1½			
	N	M		46	-	20	1½			
		F	17	00	-			Mag.: M = 5		
25	NE	e	16	36	-					
	E	M		56½	-	14	1			
	N	M		56½	-	14	1			
		F	17	00	-					
26	ZV	eP	05	38	48			39.8°N., 77.2°E. Sinkiang Province, China. USCGS.		
	NE	e		50	34					
	NE	eL		56	-					
	E	M	06	03½	-	16	5			
	N	M		03½	-	16	5			
	Z	M		03½	-	16	3			
			F		30	-				Mag.: M = 5½

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**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

NOVEMBER, 1962

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
26	ZV	iP	16	18	39	20	1	23.8°S., 175.8°W. Tonga Islands. USCGS.	
	N	M F	17	24 40	-				
27	ZV,Z	iP	07	05	36			Compression. Depth = 200 km. 25.1°N., 122.9°E. Ryukyu Islands. USCGS.	
	ZV,Z	epP		06	25				
	ZV,Z	ePP		09	07				
	ZV,Z	epPP		09	46				
27	NE	e	12	50	-			Small. Confused by microseisms. 14.9°N., 119.9°E. Philippine Islands. USCGS.	
		F	13	15	-				
27	NE	e	17	40	-			Small. 12.2°N., 143.8°E. Mariana Islands. USCGS.	
		F	18	10	-				
28	NE E N	e	03	27	-	21 21	1 1/2 1 1/2	Confused by microseisms. 12.1°N., 143.7°E. Mariana Islands. USCGS.	
		M		37	-				
		M F		37 04	- 05				
28	ZV	e(P)	05	14	12			22.4°S., 10.5°W. Atlantic Ocean. USCGS.	
28	ZV N	e(P)	05	20	55	18	1 1/2	Confused by microseisms. 22.5°S., 10.7°W. Atlantic Ocean. USCGS.	
		M F		53 06	- 05				
29	ZV	ePKP	19	26	15	20 20	2	17.5°S., 168.5°E. Near Hebrides Islands. USCGS.	
	NE	eL	20	05	-				
	N	M		34	-				
	E	M F		35 21	- 25				
30	ZV,Z	eP	22	03	54	6	0.8	9160	Compression.
	Z	e		06	51				
	E	eSKS		13	57				17.4°N., 99.6°W. h about 51 km. Guerrero, Mexico. USCGS.
	N	eS		14	05	10	0.9(H)		
	NE	eL		30	-				
	N	M		41 1/2	-	20	1 1/2		
	E	M F		42 23	- 15	20	1 1/2		Mag.: M = 5.4

**AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON**

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

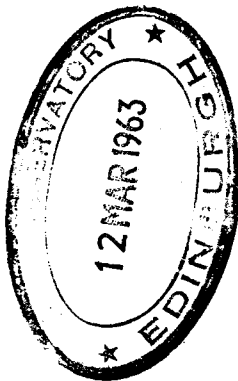
**SEISMOLOGICAL BULLETIN FOR DECEMBER, 19 62**

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above M.S.L. 5m.

LITHOLOGIC FOUNDATION: RIVER GRAVEL RESTING ON LONDON CLAY.

INSTRUMENTS: (i) GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

CONSTANTS: FOR NOTATION SEE FÜRST B. GALITZIN "VORLESUNGEN ÜBER SEISMOMETRIE" (LEIPZIG, 1914) OR G. W. WALKER "MODERN SEISMOLOGY" (LONDON 1913).



COMPONENT	DATE FROM WHICH CONSTANTS APPLY	GALVANOMETER FREE PERIOD T <sub>1</sub> sec.	PENDULUM FREE PERIOD T. sec.	DAMPING CONSTANT μ <sup>2</sup> .	$\frac{Ak}{\pi I}$ sec. <sup>-1</sup>
N.	1 October 1960	21.3	21.4	+0.01	64.0
E.	1 November 1960	20.7	20.7	-0.01	59.3
Z.	1 September 1960	11.1	9.1	+0.01	156.0

(ii) VERTICAL SEISMOGRAPH, PERIOD 1.5 SECS., DIRECT OPTICAL REGISTRATION (ZV.).

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK.

TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY.

SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS			
			h.	m.	s.							
1	NE	e	02	12	-	20	1	52.4° N., 170.1° W. Fox Islands, Aleutian Islands. USCGS.				
	NE	eL							23			
	E	M							36 $\frac{1}{2}$			
	N	M							37 $\frac{1}{2}$			
		F	03	15	-	20	1 $\frac{1}{2}$					
1	ZV	1PKP	04	37	24			29.7° S., 177.7° W. Kermadec Islands. USCGS.				
2	NE	e	06	40	-	20	1	Very small. 9.9° S., 159.9° E. Solomon Islands. USCGS.				
									F	07	10	-
2	NE	e	22	40	-	20	1	Very small. 35.8° N., 50.1° E. Iran. USCGS.				
									F	55	-	
4	E	e	04	13	-	20	1	10.1° N., 103.6° W. Off coast of Mexico. USCGS.				
									M	24	-	
									F	35	-	
4	ZV	e(P)	07	35	40			21.8° S., 65.6° W. h about 300 km. Southern Bolivia. USCGS.				
4	NE	eL	17	38	-	20	1	16.5° S., 172.8° W. Samoa Islands region. USCGS.				
									M	18	02	-
									M	19	02	-
		F	19	10	-	20	1 $\frac{1}{2}$					
5	NE	e	12	20	-	20	1	Very small. 10.3° S., 77.9° W. Peru. USCGS.				
									F	35	-	
6	ZV,Z	1P	04	15	58			49.0° N., 154.3° E. h about 85 km. Kurile Islands. USCGS.				

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

DECEMBER, 19 62

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
7	ZV,Z	eP	09	47	17			38.0°N., 106.3°E. Central China. USCGS.	
	E	M	10	15	-	20	1		
	N	M		15	-	20	1½		
		F		30	-				
7	ZV,Z	iP	14	16	03	4	2.1	10000 Dilatation. Depth = 418 km. 29.2°N., 139.2°E. h about 411 km. Bonin Islands region. USCGS. Mag.: M = 6.3 Confused by strong microseisms, 15.2°S., 173.7°W. Tonga Islands. region. USCGS. Mag.: M = 6¼ Confused by strong microseisms. 25.8°S., 63.4°W., h about 620 km. Argentina. USCGS. Mag.: M = 6.5 overlapped by next shock. Confused by strong microseisms. 50.5°N., 176.8°W. Andreanof Islands, Aleutian Islands. USCGS. Mag.: M = 5½ Confused by microseisms. 4.8°S., 153.8°E. h about 94 km. New Britain. USCGS. Mag.: M = 6 Small. 38.0°N., 106.1°E. China. USCGS. 9.0°S., 112.4°E. h about 64 km. Near coast of Java. USCGS. Mag.: M = 6-6¼ Compression. Confused by microseisms. PH 16 sec. 2.4 μ 52.4°N., 168.5°W. Fox Islands, Aleutians. USCGS. Mag.: M = 6¼ overlapped by next shock.	
	ZV,Z	epP		17	40				
	ZV,Z	iPP		19	50	6	2.9		
	NE	iSKS	14	25	53	15	11.2(H)		
	NE	iS		26	22				
	NE	esS		28	58				
	NE	i		29	20				
	N	ePPS		30	22				
	NE	eSS		32	46				
		F	15	40	-				
8	NE	eL	19	20	-				
	Z	M		38	-	20	4		
	N	M		38	-	20	7		
	E	M		39½	-	20	4		
	F	20	35	-					
8	ZV,Z	iP	21	39	38				
	ZV,Z	i		39	46				
	ZV,Z	iPP		43	36	6	2.9		
	EN	iSKS		49	19	16	15.8(H)		
	N	eS		49	52	20	11.1(H)		
	N	eSS		56	22				
	N	esSS		59	56				
	F	-	-	-					
8	ZV,Z	iP	23	07	03				
	ZV,Z	i		07	15				
	E	M		45	-	20	1½		
	N	M		46	-	20	2½		
	F	24	10	-					
12	NE	eL	11	00	-				
	E	M		22	-	22	2½		
	N	M		22	-	22	3		
		F		50	-				
17	NE	e	17	55	-				
		F	18	15	-				
21	NE	e	01	09	-				
	N	eL		30	-				
	N	M		57½	-	20	5½		
	E	M	02	00	-	20	4½		
	F		30	-					
21	ZV,Z	iP	08	54	34	4	1.3		
	NE	eS	09	04	21	16	3.2(H)		
	N	e		04	53				
	E	M		30	-	20	19		
	N	M		34	-	20	21		
	Z	M		34	-	20	12		

M.O. 720

**KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND**

**SEISMOLOGICAL BULLETIN**

.....DECEMBER,.....19.62..

DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLI-TUDE	Δ	REMARKS
			h.	m.	s.				
21	ZV,Z NE N	iP	09	21	49	4	3.2		Compression. 52.5°N., 168.5°W. Fox Islands. USCGS.
		e(S)		31	29	16	12.5(H)		
		M F		59 12	- 15	20	19		
21	ZV E N	iP	09	45	31				Dilatation. 42.4°N., 142.3°E. Near Hokkaido, Japan. USCGS. Mag.: M = 6
		M	10	27	-	20	6½		
		M F		27 -	- -	20	7		
21	ZV E E	e(P)	21	40	24				Confused by microseisms. 0.9°S., 80.9°W. Near coast of Ecuador. USCGS.
		e(SKS)		50	53				
		M F	22	16	-	20	1½		
22	ZV ZV NE E N	e(PKP)	01	12	08				Confused by strong microseisms. 22.0°S., 170.1°E. Loyalty Islands region. USCGS.
		e		12	20				
		eL		52	-				
		M	02	29	-	20	4½		
22	ZV NE E N E Z	M		30	-	20	5½	8700	Confused by microseisms. 52.5°N., 168.8°W. h about 47 km. Fox Islands, Aleutians. USCGS. Mag.: M = 6½
		F	03	30	-				
		iP	15	32	15	17	6.0(H)		
		eS		42	06				
22	NE E N E Z	e		42	44				Mag.: M = 6½
		M	16	06½	-	20	8½		
		M		07	-	20	8		
		M		12	-	18	6		
23	ZV E	iP	00	48	02				41.3°N., 20.5°E. Albania-Yugoslavia border. BCIS
		M		57½	-	16	1		
		F	01	05	-				
24	N NE E N Z E N Z	e	11	23	40				73.6°N., 57.5°E. Novaya Zemlya. USCGS. H-bomb explosion. Mag.: M = 5½
		eL		26	-				
		M		33½	-	22	5		
		M		34½	-	20	8½		
		M		34½	-	20	5		
		M		36	-	14	3		
		M		36	-	14	5		
25	NE N E Z	M	13	50	-				Mag.: M = 5½
		M		58½	-	20	1½		
		M		59½	-	16	1½		
26	ZV,Z ZV E N	iP	09	01	33			1500	39.3°N., 10.6°W. Off coast of Portugal. USCGS. Mag.: M = 4¾
		iS		04	00				
		M		05½	-	21	8½		
		M F		05½ 09	- 35	21	6		

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DATE	COMPT.	PHASE	G.M.T.			PERIOD	AMPLITUDE	Δ	REMARKS
			h.	m.	s.				
✓ 26	ZV,Z	iP	22	36	53	6	2.0	8300	Compression. FN 16 sec. 2.0 μ PFN 16 " 1.3 μ 53.9°N., 168.7°E. Komandorskie Islands. USCGS.
	ZV,Z	e		37	04				
	ZV,N	ePP		39	39				
	NE	iS		46	27	15	8.3(H)		
	NE	e		46	51				
	NE	eSS		51	13				
	E	M	23	12 <sup>1</sup> / <sub>2</sub>	-	20	9 <sup>1</sup> / <sub>2</sub>		
	N	M		12 <sup>1</sup> / <sub>2</sub>	-	18	7		
✓ 26	Z	M		12 <sup>1</sup> / <sub>2</sub>	-	18	3 <sup>1</sup> / <sub>2</sub>	Mag.: M = 6.2	
	Z	F	26	30	-				
	ZV,Z	eP	23	34	57				
	N	M	24	04	-	18	4		
27	E	M		04	-	18	3 <sup>1</sup> / <sub>2</sub>	23.9°N., 65.4°E. Arabian Sea. USCGS. Mag.: M = 5 <sup>1</sup> / <sub>2</sub>	
	E	F	-	-	-				
	Z	iP	23	57	52				
✓ 27	E	M	24	34	-	20	1 <sup>1</sup> / <sub>2</sub>	Compression. 54.0°N., 168.8°E. Komandorskie Islands. USCGS. 39.9°N., 142.0°E. Near coast of Honshu, Japan. USCGS.	
	E	F	-	-	-				
	ZV,Z	iP	18	31	05				
	N	e(S)		41	33				
28	E	M	19	11	-	20	1 <sup>1</sup> / <sub>2</sub>	Very small. 34.7°N., 23.9°E. Mediterranean Sea. USCGS.	
	E	M		11	-	20	1 <sup>1</sup> / <sub>2</sub>		
	E	F		25	-				
29	NE	e	23	42	-			23.9°N., 65.2°E. Pakistan. USCGS. Mag.: M = 5-5 <sup>1</sup> / <sub>4</sub>	
	NE	F		50	-				
	ZV,Z	iP	08	14	17				
	E	M		43	-	17	1 <sup>1</sup> / <sub>2</sub>		
✓ 29	N	M		43	-	17	2	10150 20.0°S., 69.9°W. h about 46 km. Northern Chile. USCGS. Mag.: M = 6.2	
	N	F		55	-				
	ZV,Z	eP	10	54	17	6	1.0		
	ZV,Z	ePP		57	58	8	1.1		
	E	eSKS	11	04	53	13	2.7(H)		
	NE	eS		05	09				
	E	eFS		06	41				
	NE	ePPS		07	17				
	E	eSS		11	43				
	EN	eL		19 <sup>1</sup> / <sub>2</sub>	-				
	E	M		32	-	20	11		
	N	M		32	-	20	7		
Z	M		32	-	20	6 <sup>1</sup> / <sub>2</sub>			
✓ 29	Z	F	12	30	-			Mag.: M = 6	
	ZV	ePKP <sub>2</sub>	15	08	29				
	NE	eL		55	-				
	E	M	16	18	-	20	1 <sup>1</sup> / <sub>2</sub>		
	N	M		18	-	20	3		
Z	M		18	-	20	1			
	Z	F	17	30	-				