KEW OBSERVATORY, RICHMOND, S

H 07
File

SEISMOLOGICAL BULLETIN FOR January 1933.

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 : GALITZIN APERIODIC SEISMOGRAPHS, PHOTO-GALVANOMETRIC REGISTRATION, THREE COMPONENTS.

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

COMPONENT.	DATE FROM WHICH CONSTANTS APPLY.	GALVANOMETER FREE PERIOD T_1.	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ^2.	$\frac{Ak}{\pi l}$
		sec.	sec.		sec^{-1}
N.	6 Sept. 1932	24.7	25.1	0.00	47.2
E.	5 Sept. 1932	24.8	25.1	+0.01	43.4
Z.	7 Sept. 1932	13.0	12.8	+0.07	109.

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

DATE.	PHASE.	G.M.T. h.	m.	s.	PERIOD. sec.	AMPLITUDES. AN. μ	AE. μ	AZ. μ	Δ km.	REMARKS.
Jan. 1	eL	9	58							
	F	10	25							
3	eL	16	9							
	F		40							Confused by
4	eL	2	9							microseisms.
	F		45							
"	eL	4	29							
	F		50							
7 NZ	e	4	19							
	e		29	31						
E	e		35	00						
NE	e		36	16						
NE	eL		45							
NE	M_1		46	55	41	+10	-27			
N	M_2		47	54	38	+30				
Z	eL		52							
N	M_3		54	54	20	+31				
E	M_4		55	3	21		+55			
	F	6	5							
8	e	7	13							
	F		40							
9 EZ	iP	2	10	27					5700 ‡	Compression.
Z	ipP		11	17						Azimuth about east.
	iS		17	29						Samarkand, 40°N, 67°E.
NE	eeS		18	24						(Strasbourg).
NE	iScS		19	53						Deep Focus (0.03) ‡
	eSS		21	21					‡	Distance & depth from
N	esSS		22	41						tables by F.J.Scrase.
	F	3	15							

H128.W.190100.7'33.G&A 923.

SEISMOLOGICAL BULLETIN.

January 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	Δ KM.	REMARKS.
Jan. 14.	i(Sg)	8	31	52						Northern England.
	i		31	56						Very small.
	F		33							
17	e	19	40							
	F	20	5							
"	e	22	46							
	F		55							
18	eL	9	13							Possibly not seismi
	F		25							
21	e	16	3							
	F	17	10							
21	iP	19	34	58					11200	Dilatation.
	iPP		39	2						Indian Ocean,
E	ePPP		41	17						34°S, 58.5°E.
NE	eSKS ‡		45	31						(Strasbourg.)
E	iSKKS‡		46	7						
E	iS		46	37						Bombay telegraphs:
NE	iPS		48	5						iP 19h. 30m. 36s.
NE	iSS		53	37						iS 38 25
NE	eSSS		57	19						
NE	L	20	3							‡ SKS = S_cP_cS
Z	eL		8							SKKS = $S_cP_cP_cS$.
N	M1		16	43	23	+51				
Z	M2		17	36	21			+59		
E	M3		17	54	22		-59			
N	M4		21	29	20	-51				
E	M5		22	22	19		+64			
N	M6		24	35	20	+49				
EZ	M7		24	38	18		+58	+52		
	F	22	40							
23	e	18	58							
	F	19	5							
27/28 Z	i	22	56	14						No "N" record.
E	eL	23	35							
Z	eL		43							
	F	1	0							
29 EZ	e	18	58							" " "
	F	19	5							

F. J. Scrase
fr.
Superintendent.

6th. Feb., 1933.

H.128.W.100100.7/33 G.D.G23.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR FEBRUARY 1933.

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 : 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_1 (SEC).	PENDULUM FREE PERIOD T (SEC).	DAMPING CONSTANT μ^2	$Ak/\pi L$ (SEC).$^{-1}$
N	6 Sept. 1932	24.7	25.1	0.00	47.2
E	5 Sept. 1932	24.8	25.1	+0.01	43.4
Z	7 Sept. 1932	13.0	12.8	+0.07	109.

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

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	Δ KM.	REMARKS.
Feb. 3 N	e	22	33	52						
NE	i		33	57						
NE	L		52							
Z	L		58							
N	M		59	12	23	-8				
	F	23	30							
8	e	7	10	24						Southern Germany.
	F		12							Very small.
13 NE	e	3	10							
NE	L		15							
Z	eL		20							
N	M_1		20	37	18	+19				
E	M_2		24	59	12		+33			
Z	M_3		25	1	12			-42		
	F	4	5							
14	e	6	45							
	F	7	10							
19	e	5	26							
	F		45							
22	e	18	25							
	F		40							
23 Z	iP	8	22	31					10,700	Compression.
	iPP		26	12						Pacific Ocean off
	i		26	36						Northern Chile
E	eSKS		33	8						(18°S., 72°W)
NE	iSKKS		33	28						(Strasbourg)
N	i		34	6						

FORM : [illegible]

KEW OBSERVATORY, RICHMOND, SUR

SEISMOLOGICAL BULLETIN.

...February.....1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	Δ KM.	REMARKS.
Feb. 23 (ctd.)										
	NE iPS	8	35	18						
	NE iPPS		35	48						
	NE iSS		40	7						
	NE L_Q		48							Irregular waves.
	N M_1		51	16	44	-150				
	E M_2		51	21	40		+95			
	L_R		54							
	E M_3		59	12	23		4170			Very regular waves
	N M_4	9	0	16	21	-125				from 8h. 58m to
	Z M_5		0	33	19			-125		9h. 2m.
	F	11	30							
25	e	23	32							
	F		45							
27	e	17	35							
	F	18	10							
28	e	22	27							Very small.
	F		35							

F. J. W. Whipple
n
Superintendent.

6th. March, 1933.

H147.190.100.3'33.6p925.

AIR MINISTRY, METEOROLOGICAL OFFICE

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR MARCH 1933.

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 : 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_1 (SEC).	PENDULUM FREE PERIOD T (SEC).	DAMPING CONSTANT μ^2	$Ak/\pi L$ (SEC).
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TIME SERVICE : MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK (MORRISON); TIME COMPARISONS ARE MADE DAILY WITH SIGNALS FROM GREENWICH OBSERVATORY. SEISMOMETRIC READINGS CAN BE DETERMINED TO THE NEAREST SECOND.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	Δ KM.	REMARKS.
Mar. 2/3										
ZNE	iP	17	43	31					9400	Amplitudes of iP as read in mm. N E Z +5.3 +2.4 -18.7
ZNE	i		43	35						
ZNE	i		43	39						
ZNE	iPP		46	58						
Z	iPPP		49	3						
E	iPPP		49	5						
E	iSKS		53	51						Azimuth = 26°
ZN	i		53	57						
ZNE	iS		54	1						Destructive in N.E. Japan
Z	iPS		54	53						
Z	i		55	3						39°N., 142.5°E. (Strasbourg.)
E	i		55	32						
E	i		58	59						
E	i		59	9						
E	i		59	16						
N	SS		59	(43)						
	eL	18	7							
N	M	From			(21)	>350				Oscillations off top and bottom of charts.
E	M	18	10		(24)		>350			
Z	M	to	18.40		(20)			>600		
	F	1	30							
3	e	5	15							
	F		50							
3 NE	eL	9	52							
Z	eL	10	2							
E	M	10	1	34	22		-15			
	F	11	5							
3	e	15	50							
	F	16	10							
6	e	13	46							
	F	14	5							

H.162. 45. 100. 4-33. Gp923

SEISMOLOGICAL BULLETIN.

MARCH 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
Mar. 7	e	14	49							
	F	15	0							
8	e	2	22							
	F		40							
11 ZNE	eP	2	6	15					8855	Destructive round Long Beach, Southern California. 32.8°N, 118.5°W (J.S.A)
NE	eS		16	18						
NE	eL		26							
Z	eL		30							
N	M		37	34	22	+24				
E	M		39	52	17		+14			
Z	M		44	58	19			-17		
	F	3	30							
11 Z	eP	14	34	24					(10100)	
N	ePP		38	8						
ZNE	eSKS		44	19						
Z	e(S)		45	27						
NE	eL	15	6							
E	M		8	44	23		+7			
Z	eL		14							
Z	M		17	39	15			+5		
N	M		19	48	16	+6				
	F	16	10							
11 Z	iP	19	45	7						Deep focus. Surface waves very poorly developed.
Z	i		47	2						
ZNE	iPP		49	5						
NE	eSKS		54	53						
NE	iS		55	31						
Z	i		56	55						
E	e		58	57						
E	iSS	20	2	13						
	F	21	5							
12	e	5	55							
	F	6	10							
13	e	8	5							
	F		20							
14 ZNE	eP	1	24	30					2485	
E	eS		28	34						
N	e		28	42						
NE	L		30.0							
Z	L		32.4							
N	M		32	29	12	+15				
	F	-	-	-						Overlapped by next shock.
N	e	1	47							
NE	eL		50							
Z	eL		56							
	F	2	40							
15	eL	6	23							
	F	7	10							

1.162.46.100. 4·33. Gp.923.

FORM : 3738. M.O. 357.

KEW OBSERVATORY, RICHMOND, SURREY

SEISMOLOGICAL BULLETIN.

MARCH 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	Δ KM.	REMARKS.
Mar.									8365	
17‡ Z	iP	16	6	58						
NE	eS		16	36						
N	iSKS		17	13						
Z E	eSP		17	21						
N	eSS		20	58						
E	eL		25							
ZN	eL		29							
N	M		38	44	20	-24	+17			
E	M							-16		
Z	M		48	46	14					
	F	17	40							
17‡ Z	e	19	51	13						
E	e		57	44						
E	e	20	0	19						
NE	e		16	53						
NE	eL		23							
N	M		29	57	27	-37	+24			
E	M									
Z	eL		30				-24			
E	M		42	22	19			+21		
Z	M		42	26	18					
	F	21	25							
18‡ N	e	3	35							
NE	eL		51							
E	M		54	8	46		(-50)			Small on "N-S" component.
Z	eL		59							
N	M	4	6	40	20	+8				
	F		30							
23 NE	e	18	22	46						
NE	eL		25							
Z	eL		28							
	F		35							
23 Z	e	18	4	(23)						
NE	eL		12							
Z	eL		14							
	F		45							
26	e	5	38							Very small.
	F		45							
	e	19	47							
	F		55							
28	e	4	54							
	F	5	10							
31	e	22	38							
	F		55							

‡ Records confused by wind and microseisms

F.J.W. Whipple.

F.J.W. Whipple,
Superintendent.

4th. April, 1933.

H162. 45. 100. 4-33. Gp 923.

AIR MINISTRY, METEOROLOGICAL OFFICE

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR APRIL 1933

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 : 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_1 (SEC).	PENDULUM FREE PERIOD T (SEC).	DAMPING CONSTANT $\mu 2$	$Ak/\pi L$ (SEC).
N	6 Sept. 1932	24.7	25.1	0.00	47.2
E	5 Sept. 1932	24.8	25.1	+0.01	43.4
Z	7 Sept. 1932	13.0	12.8	+0.07	109.

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

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	Δ KM.	REMARKS.
Apr. 1 NE	eL	16	44							
E	M		47	24	24		+ 5			
Z	eL		48							
N	M		50	9	21	+ 4				
	F	17	15							
9 ZNE	iP	2	59	11					9280	
Z	e		59	30						
ZNE	ePP	3	2	16						
NE	S		9	35						
N	e		13	37						
E	eSS		15	9						
N	eSSS		21	2						
NE	eL		26							
Z	eL		32							
N	M		35	22	21	+23				
E	M		35	33	21		+41			
Z	M		39	36	20			-14		
	F	-	-	-						Overlapped by next shock.
9 Z	eP	4	11	7					8930	
ZNE	eS		21	14						
N	e		25	37						
E	eSS		26	57						
E	eSSS		30	39						
NE	eL		37							
Z	eL		39							
N	M		40	56	25	-12				
N	M		45	58	22	+ 9				
E	M		48	12	17		+23			
Z	M		48	16	17			+17		
	F	5	30							
9	e	11	19							
	F		40							

SEISMOLOGICAL BULLETIN. (contd.)

....APRIL..... 19 33

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	Δ KM.	REMARKS.
Apr 9	e	21	47							
Z E	eL		53							
	F	22	10							
13	e	23	22							
	F		55							
16	e	7	26							
	F	8	25							
16 Z E	e	19	37	6						No "N" record.
Z	e		46	35						
Z	e	20	23	47						
E	eL		13							
Z	eL		27							
Z	M		31	58	21			+ 8		
	F		55							
16 Z E	e	21	20							No "N" record.
	F		45							
19	e	2	34							
	F	3	20							
19	e	3	33							
	F	4	00							
19 Z	e	7	1	4						
E	e		8	20						
NE	e		18	40						
NE	eL		30							
E	M		32	42	26		-16			
N	M		32	55	25	-16				
Z	eL		37							
N	M		42	9	17	+50				
E	M		42	9	17		+33			
Z	M		42	15	15			-47		
	F	8	50							
23 ZNE	iP	6	2	54					2720	Amplitudes of iP as read in mm. :- Z +2.7 N +1.4 E -2.8 giving azimuth about 115° 36.5° N., 26.5° E (Strasbourg.) Destructive in Italian island of Kos, Aegean Sea. Overlapped by next shock.
ZNE	i		2	57						
NE	iS		7	16						
ZNE	i		7	23						
Z	i		7	26						
NE	L		9							
Z	L		11							
E	M		13	24	17		+94			
Z	M		14	1	10			-51		
N	M		15	11	12	+89				
	F	-	-	-						

H169.45.1005'33Gp923.

M.O.357.
FORM : [illegible]

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN. (contd.) APRIL 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	Δ KM.	REMARKS.
Apr. 23 Z	eP	7	26	14					9310	
NE	eS		36	40						
NE	L		54							
Z	L	8	1							
E	M		2	51	21		-20			
	F	9	30							
23	eL	11	27							
	F		40							
25 ZN	e	22	42	41						
	eL		48							
	F	23	00							
27 ZN	P	2	46	48					7350	Amplitudes of iP as read in mm. :-
ZNE	iP		46	53						Z N E
ZNE	iPP		49	14						-10.0 +5.3 -1.4
E	iS		55	35						
N	i		55	51						giving azimuth
N	i		56	50						about 344°
E	iSS		59	36						
NE	eL	3	5							Alaska.
Z	eL		9							
N	M		11	54	28	+101				
Z	M		18	3	13			-67		
E	M		19	47	15		-4.8			
	eL_2	5	8							via the Antipodes.
	F	6	0							
27 Z	e	12	12	27						
NE	e		17	11						
Z	e		19	17						
NE	eL		34							
Z	eL		37							
	F	13	40							
28	e	22	38	48						
NE	L		42							
N	M		43	18	16	-9				
Z	eL		45							
	F	23	0							

F.J.W. Whipple
Superintendent.

6th. May, 1933.

H169,45.100,5'33,GP 923.

M.0.357.

FORM : ~~3717~~

AIR MINISTRY, METEOROLOGICAL OFFICE

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR .....MAY.....19.33.

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 : 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).

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

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	Δ KM.	REMARKS.
May 1 Z	eP	19	1	45						
E	eL		30							
ZN	eL		34							
	F	-	-	-						Overlapped by next shock.
1 Z	iP	20	3	23					9010	
E	eS		13	34						
E	eL		26							
ZN	eL		31							
E	M		35	5	28		-13			
Z	M		44	51	18			+ 6		
	F	22	5							
2	e	0	2							
	F		35							
4	e	0	18							
	F		35							
5 NE	eL	4	43							
Z	eL		52							
E	M		52	36	20		- 5			
	F	5	20							
6 Z	iP	5	45	52					8900	
E	iS		55	57						
ZN	e		56	2						
NE	e	6	1	6						
N	eL		8							
Z E	eL		11							
E	M		12	51	27		-13			
Z	M		15	44	20			-10		
	F	7	10							

FORM : [illegible]

KEW OBSERVATORY, RICHMOND, SUR

SEISMOLOGICAL BULLETIN.

MAY 1933

DATE.		PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	Δ KM.	REMARKS.
May 6		e	21	12							
		F		30							Very Small.
7		e	17	28							
		F		35							
8		e	1	22							
		F		40							
8	Z E	iP	10	46	11					8770	Compression.
	Z E	i		46	15						
	Z E	ePP		49	19						
	E	eS		56	10						
	N	eL	11	9							
	Z E	eL		13							
	N	M		20	14	24	+21				
	E	M		23	41	18		+27			
	Z	M		24	36	17			+17		
		F	13	35							
8		e	18	50							Very small.
		F	19	15							
9		e	3	25							
		F		40							
11	Z	eP	19	14	18					2210	Dilatation. Amplitudes of iP as read in mm:- Z +6.0 N +2.0 E -3.4 Azimuth + 118° giving epicentre near 40°N., 23°E Gulf of Salonica.
	ZNE	iP		14	20						
	Z	PP		15	40						
	ZNE	eS		17	59						
	ZNE	eL		20							
	N	M		20	56	14	+85				
	E	M		22	18	11		-62			
	Z	M		22	22	8			+41		
		F	20	15							
15		e	20	11							
		F		30							
16	Z E	e	1	25	(28)						
	NE	e		34	(50)						
	NE	eL	2	3							
	Z	eL		7							
	N	M		5	32	25	+14				
	E	M		15	17	19		+11			
		F	3	35							
18											
18		e	0	40							
		F	1	5							
19	Z	eP	18	7	30					5990	Atlantic Ocean 1.5°S., 11°W. (Strasbourg).
	ZNE	iP		7	34						
	ZNE	eS		15	5						
	NE	eL		20							
	Z	eL	24	24							
	N	M		27	41	26	+55				
	E	M		31	27	15		-43			
	Z	M		31	57	13			+39		
		F	20	10							

H 180.45.100.633.GP923.

M.O.357.

FORM : ~~3716~~

KEW OBSERVATORY, RICHMOND, SURREY,

MAY 1933.

SEISMOLOGICAL BULLETIN.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
May 20	e	5	50							
	F	7	0							
23	e	17	29							Very small.
	F	18	00							
30	e	12	22							
	F		45							
30	e	14	48							
	F		55							

A.W. Lee

for Superintendent.

2nd. June, 1933.

H 180.45,100.6'33GP 923.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR JUNE 1933.

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 : 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_1 (SEC).	PENDULUM FREE PERIOD T (SEC).	DAMPING CONSTANT μ^2	$Ak/\pi L$ (SEC.)$^{-1}$
N	6 Sept. 1932	24.7	25.1	0.00	47.2
E	5 Sept. 1932	24.8	25.1	+0.01	43.4
Z	7 Sept. 1932	13.0	12.8	+0.017	109.

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

	DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	Δ KM.	REMARKS.
1	ZN	e	2	45	13						
	ZNE	e		49	00						
		eL		51							
	N	M		52	3	13	+ 3				
		F	3	10							
2	Z	e	7	51	30						
	E	e	8	1	57						
	NE	eL		22							
	Z	eL		26							
	N	M		33	56	20	+10				
	E	M		37	48	18		-11			
		F	9	10							
2		e	13	27							Very small.
		F		40							
3	Z	e	17	22	2						
	Z	e		25	32						
	ZNE	eL		58							
	N	M	18	1	5	19	+ 8				
	Z	M		6	30	15			- 8		
		F		45							
4		e	13	32							
		F		40							Very small.
4		e	14	9							
		F		15							
6		e	2	51							
	NE	eL	3	18							
	Z	eL		27							
	Z	M		30	46	19			- 7		
	N	M		32	8	20	- 6				
		F	4	0							

H 1 92,600 7/1007 33 G P 923.

SEISMOLOGICAL BULLETIN.

JUNE (contd.) 1933.

DATE.		PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
7	Z	eP	11	57	49					8400	
	NE	eS	12	7	29						
	NE	eL		23							
	Z	eL		28							
	Z	M		35	8	15			- 7		
		F	14	00							
8	Z	i	18	23	10						
	ZNE	e		26	25						
	NE	eL		52							
	Z	eL		55							
	E	M		57	10	25		+ 9			
		F	20	00							
10		e	12	4							
		F	-	-							Overlapped by next shock.
10	Z	eP	12	10	52					2050	Compression.
	ZNE	iP		10	57						
	NE	eS		14	20						
	ZNE	L		15							
	Z	M		17	4	15			+16		
	E	M		17	27	13		-16			
	N	M		18	20	12	+17				
		F	14	10							
10		eL	14	23							
		F		40							
10		e	15	21							
		F		35							
10		e	16	38							Very small.
		F	17	00							
10		e	20	42							
		F		55							
11		e	13	28							
		F		35							Very small.
11		e	14	34							
		F	15	35							
12	Z	e	15	34	22						
		eL	16	2							
		F		45							
12		eL	21	50							
		F	22	10							
13	Z	eP	20	45	59					9100	
	Z	ePcP		46	15						
	Z	ePP		49	10						
	NE	eS		56	15						
	E	eL	21	12							
	ZN	eL		17							
	N	M		22	25	20	+ 9				
	E	M		24	00	18		- 9			
	Z	M		26	53	20			- 7		
		F	22	5							

H 182.B007.100.733 GP928.

DATE.		PHASE.	G.M.T.			PERIOD.	AMPLITUDE.				
							An	Ae	Az		
			HR.	MIN.	SEC.	SEC.	μ	μ	μ	KM.	
13	Z	eP	22	30	33					7230	
	Z	ePP		32	54						
	NE	eS		39	14						
	E	eL		51							
	ZN	eL		54							
	E	M		59	52	18			+ 3		
	N	M	23	0	53	19	+ 6				
		F		50							
14		e	21	33							} Very small.
		F		45							
16		e	1	30							
		F	2	5							
18	E	e	5	0							
	ZNE	eL		8							
	N	M		10	28	24	- 7				
		F	6	0							
18/19	ZNE	iP	21	50	9					9200	Amplitudes of iP as read in mm.:- Z N E +4.7 -2.0 (-0.8)
	ZNE	iPP		53	20						
	ZN	ePPP		55	29						
	NE	iS	22	0	29						
	E	i		0	34						
	Z E	i		0	57						Large movement.
	Z E	iPS		1	27						
	N	iPPS		2	20						
	E	iSS		6	18						} emergent on N-S component.
	E	iSSS		9	38						
	NE	L		15							
	Z	L		20							
	E	M		20	28	36		-200			
	N	M		22	24	30	-155				North of Japan.
	E	M		23	20	27		+165			
	N	M		26	57	23	+140				43°N., 142°E. (Strasbourg.)
	E	M		27	56	20		+125			
	N	M		29	18	23	-195				38°N., 142°E. (U.S.C.G.S.)
	E	M		29	35	22		+125			
	N	M		30	29	22	-170				
	Z	M		30	44	21			-185		
	Z	M		32	56	17			-135		
		F	1	45							
19		e	19	23							
		F		50							
24/25	ZNE	eP	22	8	46					(11200)	Destructive in southern Sumatra.
	E	iSKS		19	40						
	E	iSS		29	6						
	NE	eL		37							4°S.,103.5°E. (Strasbourg.)
	N	M		44	50	43	+340				
	Z	eL		45							
	E	M		51	48	29		+135			
	N	M		56	36	24	+150				
	E	M	23	1	16	20		+185			
	Z	M		1	28	20			+100		
	N	M		3	6	20	+145				
	E	M		4	25	17		+135			
	Z	M		4	37	18			+110		
		F	2	40							

H192,6007,100733,GP923.

SEISMOLOGICAL BULLETIN.

.....JUNE. (contd 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
25	e	6	36							Very small.
	F	7	0							
25 ZNE	e	21	14							
ZNE	eL		24							
Z	M		30	54	14			+ 6		
	F	22	20							
27 Z E	eP	15	44	41					2200	
NE	eS		48	21						
ZNE	L		50							
	F	16	15							
28	e	12	9							Very small.
	F		30							
28/29										
Z	e	23	46	36						
NE	e		56	14						
ZNE	eL	0	10							
	F	1	5							
29	e	3	9							
	F		30							
29	e	15	30							Very small.
	F		35							
29 ZNE	e	16	58	37						
ZNE	eL	17	3							
	F		15							
29 ZNE	e	18	33	50						
ZNE	eL		39							
	F		50							

F.J.W. Whipple,
Superintendent.

6th. July, 1933.

H 192,6007.100.733 G.P. 923.

M.O.357.
FORM : 3242

AIR MINISTRY, METEOROLOGICAL OFFICE

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR JULY 1933.

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 : 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_1 (SEC).	PENDULUM FREE PERIOD T (SEC).	DAMPING CONSTANT $\mu 2$	$Ak/\pi L$ (SEC).
N	6 Sept. 1932	24.7	25.1	0.00	47.2
E	5 Sept. 1932	24.8	25.1	+0.01	43.4
Z	7 Sept. 1932	13.0	12.8	+0.07	109.

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

DATE.		PHASE.	G.M.T.			PERIOD.	AMPLITUDE.			Δ	REMARKS.
							An	Ae	Az		
July			HR.	MIN.	SEC.	SEC.	μ	μ	μ	KM.	
2		e	12	7							
		F		40							
3		e	15	52							
		F	16	15							
7		e	8	7							Very small.
		F		25							
9	ZNE	iP	1	42	16					8900	Compression.
	NE	eS		52	21						Kurile Islands.
	E	eL	2	5							45°N., 150°E.
	ZN	eL		13							(U.S.C.G.S.)
	E	M		14	52	25		-9			
	N	M		21	29	18	-9				
	Z	M		24	15	16			+7		
		F	4	25							
9	Z	eP	5	46	59					9550	Pacific Ocean
	NE	eS		57	27						off Mexico.
	N	eL		11							17°N.,105°W.
	Z E	eL		14							(U.S.C.G.S.)
		F		45							
9	NE	e(S)	9	50	22						P lost during changing of charts. Probably P of second shock.
	Z	e	10	0	29						
	ZNE	eL		10							
		F	11	30							

H.197. 45. 100. 8-33. G.p.823.

SEISMOLOGICAL BULLETIN.

....JULY (Contd.) 1933....

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
9 Z	e	11	33	47						Very small; traces only on horizontal components.
	F	12	40							
9 ZNE	iP	12	42	52						
NE	iS		52	59					8930	Compression. Kurile Islands. 45°N., 150°E. (U.S.C.G.S.) Repetition of 9d. 1h.
NE	L	13	12							
Z	L		16							
E	M		15	32	25		-35			
Z	M		23	40	21			+22		
	F	15	45							
9 Z	eP	16	19	19						
E	eS		29	25					8910	Kurile Islands. Further repetition.
NE	eL		48							
Z	eL		52							
	F	17	35							
9 Z	e	18	3	49						
ZNE	eL		38							
	F	19	10							
9	e	21	49							
	F	22	15							
9	e	23	0							
	F		30							
10 Z	e	0	34	7						
ZNE	eL	1	8							
	F		30							
10 ZNE	iP	3	34	33						
E	eS		44	45					9030	Compression. Pacific Ocean off Mexico. 17°N., 104°W. (U.S.C.G.S.) Repetition of 9d. 5h.
E	eL	4	2							
ZN	eL		5							
E	M		12	1	16		+26			
Z	M		12	4	16			+23		
	F	5	30							
10 Z	e	10	53	36						
ZNE	eL	11	40							
	F	12	30							
10	e	12	35							
	F	13	0							
11	e	7	44							
	F		50							
12	e	12	50							
	F	13	5							
12	e	14	15							Very small.
	F		25							
14 Z	e	1	58	11						
	F	2	5							Possibly not seismic

KEW OBSERVATORY, RICHMOND, SUI

SEISMOLOGICAL BULLETIN.

JULY (Contd.) 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	Δ KM.	REMARKS.
18	Z e	19	24	15						
	E eL		58							
	ZN eL	20	5							
	F		40							
19	ZNE eL	5	45							
	F	6	0							
19	e	11	27							
	F	12	30							
19	ZN e	13	44	18						
	ZNE eL	14	15							
	F	15	(10)							
19	ZN eP	15	11	47					(8700)	Aleutian Islands. 51°N., 174°W. (U.S.C.G.S.).
	ZNE eL		40							
	F	16	50							
19	ZNE eP	20	12	29					2800	
	NE eS		16	57						
	Z e	17	17	6						
	NE L		18							
	N M		21	18	16	-25				
	F	21	0							
20/21	Z eP	23	26	34					9210	
	NE eS		36	55						
	E e L		54							
	ZN eL		57							
	F	0	35							
21/22										
	Z e	20	21	13						
	Z e		25	23						
	E e		33	40						
	Z e		35	6						
	N e		35	24						
	E e		36	3						
	N e eL		41	31						
	ZN eL	21	2							
	N M		8	31	19	-20				
	Z M		8	36	20			-24		
	F	0	10							
22	ZNE eP	21	7	2					8420	Amplitudes as read in mm. :- Z +1.5 N -0.8 E (+0.2)
	NE eS		16	43						
	N eSS		21	44						
	N eSSS		25	37						
	Z ePKKP		25	49						
	E eL		27							
	ZN eL		32							Azimuth between N and NNW.
	E M		34	14	26		-33			
	N M		43	27	20	-37				
	E M		44	53	20		+40			
	N M		46	34	19	-40				
	Z M		46	37	18			+41		
	eL_2	23	17							Via Antipodes.
	F	1	15							

FORM : 2246.

KEW OBSERVATORY, RICHMOND, SURR

SEISMOLOGICAL BULLETIN.

JULY (Contd.) 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	△ KM.	REMARKS.
23 Z	eP	4	26	10					9650	
E	eS		36	52						
ZNE	eL		57							
	F	5	45							
23 Z	e	9	44	41						
ZNE	eL		54							
	F	10	30							
24 Z	e	10	22							Very small; traces only on horizontal components.
	F		40							
24 Z	e	19	15	11						
ZN	e		18	37						
N	e		25	17						
ZNE	eL	20	2							
Z	M		15	1	20			+22		
N	M		15	6	20	+18				
E	M		20	(0)	20		+11			
	F	22	10							
25 Z	e	3	40.2							Possibly not seismic
	F		43							
25 Z	e	5	5	6						
NE	L		27							
	F		45							
31 Z	i	11	40	26						Confused by micro-seisms and wind.
ZNE	L		46							
ZNE	M		48							
	F	12	10							

F.J.W. Whipple,
Superintendent.

3rd. August., 1933.

AIR MINISTRY, METEOROLOGICAL OFFICE

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR August, 1933.

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 : 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_1.	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ^2.	$\frac{Ak}{\pi l}$
		sec.	sec.		sec^{-1}
N.	6 Sept. 1932	24.7	25.1	0.00	47.2
E.	5 Sept. 1932	24.8	25.1	+0.01	43.4
Z.	7 Sept. 1932	13.0	12.8	+0.07	109.

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

DATE.	PHASE.	G.M.T. h.	m.	s.	PERIOD. sec.	AMPLITUDES. AN. μ	AE. μ	AZ. μ	Δ km.	REMARKS.
Aug.										
4	e	18	21							
	F		30							Very small; possibly not seismic.
5	e	1	4							
NE	eL		44							
Z	eL		53							
	F	3	5							
7 Z	e	3	15	19						
E	e		25	48						
ZNE	eL		41							
	F	4	10							Very small.
7	e	13	30							
	F	14	5							
11 ZNE	i	9	5	47						
Z	e		8	41						
ZNE	e		15	29						
E	e		24	8						
ZNE	eL		31							
E	M		35	44	25		+15			
N	M		35	57	25	+21				
	F	10	45							
13 Z	e	9	41	46						
Z	e		45	49						
ZNE	eL	10	18							
	F	12	10							
14	e	22	52							
	F	23	5							

H 22245.100 9/33.CP923

M.O. 357

FORM : ~~3308~~

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

(contd. August, 1933.

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	As μ	Az μ	Δ KM.	REMARKS.
August										
15 ZNE	e	0	50	8						
E	e		54	19						
ZNE	eL		55							
	F	2	0							
15 NE	eL	3	41							
Z	eL		49							
	F	4	15							
15 NE	eL	20	24							
Z	eL		26							
	F		35							
17	e	6	34							
	F		45							
18	-	-	-	-						No records 5h. 15m to 8h. 15m.
20 NE	eL	12	36							
Z	eL		45							
	F	13	0							
22	eL	11	47							
	F	12	20							
25 ZNE	eP	8	2	2					8430	Compression.
E	eS		11	44						
NE	eSS		16	27						
NE	eSSS		19	30						
NE	L		23.8							
Z	eL		26							
N	M		31	7	23					
NE	M		33	30	23					
E	M		35	44	24					
	F	10	45							
26										
	e	21	18							
	F		35							
26 Z E	eP	20	23	56					2160	
ZNE	eS		27	33						
	L		28.4							
N	M		29	5	19	+6				
	F	21	5							
28/29 Z	eP	22	34	23					12,670	
ZNE	eP'		38	21						
Z	ePP		39	19						
NE	iSKS		45	3						
E	iS		47	8						
NE	iPS		48	51						
Z	iSP		48	55						
NE	eSS		54	51						
N	eSSS		58	27						
N	eSSSS	23	2	15						
NE	eL		5							
Z	eL		8							
E	M		20	59	18		-78			
N	M		22	23	20	+135				
Z	M		22	38	18			-130		
	F	3	15							

22245 100,933 GP.923.

KEW OBSERVATORY, RICHMOND, SUR

SEISMOLOGICAL BULLETIN.

August (contd.) 1933

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
August										
29 ZN	i	15	6	30						
NE	i		13	48						
ZNE	i		13	59						
ZNE	i		15	6						
	eL		30							"L" waves very poorly developed.
		16	5							
31 NE	e	3	10							
NE	eL		23							
Z	eL		27							
	F		50							

F.J. Scrase,
for Superintendent.

5th. Sept., 1933.

H22.45,10.9.33 GP923

FORM : ~~3717.~~ M.O.357.

AIR MINISTRY, METEOROLOGICAL OFFI

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR SEPTEMBER, 1933.

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 : 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_1.	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ^2.	$\frac{Ak}{\pi l}$
		sec.	sec.		sec^{-1}
N.	6 Sept. 1932	24.7	25.1	0.00	47.2
E.	5 Sept, 1932	24.8	25.1	+0.01	43.4
Z.	7 Sept. 1932	13.0	12.8	+0.07	109.

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

DATE.	PHASE.	G.M.T.	PERIOD.	AMPLITUDES.			Δ	REMARKS.
				AN.	AE.	AZ.		
		h. m. s.	sec.	μ	μ	μ	km.	
2 Z	eP	16 53 34					(10000)	Pacific Ocean.
ZN	ipP	55 11						Depth of focus
NE	iSKS	17 3 24						about 400 Km.
NE	iS	3 51						(J.S.A.)
ZNE	iSP	5 8						
NE	eL	10						"L" waves very
Z	eL	15						poorly developed.
N	M	39 36	17	+7				
Z	M	39 42	16			-6		
	F	18 50						
6	e	2 40						
	F	3 25						
6	e	18 30						
	F	19 5						
6/7 Z	iP'	22 27 9						
Z	ipP'	29 34					(17000)	Small on horizontal
N	e(SKKS)	36 47						Pacific Ocean
								24°S.,178°W. Depth
N	eL	44						of focus about 600 K
Z E	eL	48						(J.S.A.)
	F	0 40						"L" waves very poor
								developed.
7	e	9 9						
	F	20						
7	e	18 53						
	F	19 10						Very small.
7/8	e	23 10						
	F	0 10						
8	e	7 2						
	F	10						Very small.

H28545/100/1033GP.923

SEISMOLOGICAL BULLETIN.

SEPT

DATE.		PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
25	ZNE	eP	19	1	27					6710	Compression.
	Z	i		1	39						
	ZNE	ePP		3	41						
	ZNE	ePPP		5	5						
	NE	eS		9	41						
	Z	e		15	21						
	ZNE	eL		19							
	E	M		29	13	18		-78			
	Z	M		29	49	16			-80		
	N	M		29	56	16	-77				
		F	21	20							
26	Z	e	3	36	6						Destructive around Lama dei Peligni, Central Italy.
	N	e		40	(17)						
	ZNE	iL		41	11						
		F	4	5							
27	ZNE	eL	22	48							
		F	23	10							
27/28	ZNE	eL	23	45							Very small.
		F	0	5							
30	Z	e	14	41	29						
	NE	eL	15	17							
	Z	eL		27							
	N	M		35	31		+11				
	Z	M		35	36				-9		
		F	17	15							

F.J.W. Whipple,
Superintendent.

6th. October, 1933.

H 235.45.100.1033.GP923

KEW OBSERVATORY, RICHMOND,

SEISMOLOGICAL BULLETIN FOR OCTOBER, 1933.

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 : 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_1.	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ^2.	$\frac{Ak}{\pi l}$
		sec.	sec.		sec^{-1}
N.	3 Oct., 1933	24.7	24.9	-.04	47.1
E.	3 Oct., 1933	24.8	24.8	-.04	43.3
Z.	4 Oct., 1933	13.0	12.3	+.13	109.

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

DATE.	PHASE.	G.M.T.	PERIOD.	AMPLITUDES.			Δ	REMARKS.
				A_N.	A_E.	A_Z.		
Oct.		h. m. s.	sec.	μ	μ	μ	km.	
2	eL	15 18						Overlapped by next shock.
	F	- -						
2 Z E	iP	15 42 4					9450	Compression Azimuth about W. Pacific Ocean west of Central America. 4°N., 84°W. (Strasbourg.)
ZN	i	42 56						
ZN	i	43 51						
Z	iPP	45 24						
E	iSKS	52 29						
N E	iS	52 37						
Z	e	53 45						
E	i	53 54						
NE	L	16 4						
Z	L	9						
E	M	15 9	23		-39			
E	M	18 35	19		-36			
Z	M	18 41	17			-32		
N	M	20 15	18	+24				
Z	M	22 40	17			-35		
	F	19 40						
3	e	19 19						No records, 3d.8h.32 to 15h.5m. 4d.8h.45 to 12h.0m. during standardization etc.
	F	20 5						
3	e	22 32						
	F	45						
5	e	5 58						
	F	6 15						

H243.43.100. II 3 Gp023.

FORM : 2249.

KEW OBSERVATORY, RICHMOND, SUR[illegible]

SEISMOLOGICAL BULLETIN.

OCTOBER (contd.) 1933

DATE.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.			Δ	REMARKS.
						An	Ae	Az		
October		HR.	MIN.	SEC.	SEC.	μ	μ	μ	KM.	
5 ZNE	eP	6	26	2					2050	Compression.
NE	eS		29	30						
ZNE	eL		31							
	F		55							
5 Z E	iP	13	37	56					4830	
NE	eS		44	29						
E	e(SS)		47	52						
ZNE	eL		51							
E	M		57	32	22		+16			
N	M		58	50	22	-17				
Z	M	14	5	39	12			+11		
	F	15	50							
7	e	3	34							
	F	4	15							
14 Z	eP	22	30	39					8500	
NE	eS		40	24						
NE	eL		56							
Z	eL	23	0							
	F		45							
16 NE	eL	5	4							Confused by micro-seisms.
Z	eL		10							
	F		15							
17 ZNE	eL	14	15							
	F		40							
20	e	11	17							Possibly not seismic. Confused by wind and microseisms.
	F		40							
21 E	eL	3	30							
ZN	eL		35							
	F	4	40							
22 ZNE	eL	12	35							
	F	13	15							
23 ZNE	eL	5	22							
	F	6	10							
23 ZNE	e	14	4	26						
NE	eL		20							
Z	eL		23							
N	M		28	51	22	+ 6				
	F	15	5							
24	e	16	35							Very small.
	F	17	0							
24	e	22	45							
	F		55							
25/26 Z	e	23	41	14						
Z	i		42	6						
N	e		45	15						
NE	i		51	28						
NE	i		52	2						

FORM :

KEW OBSERVATORY, RICHMOND, SURREY

SEISMOLOGICAL BULLETIN.

OCTOBER (cont) 1933

DATE.	PHASE.	G.M.T. HR.	G.M.T. MIN.	G.M.T. SEC.	PERIOD. SEC.	AMPLITUDE. An μ	AMPLITUDE. Ae μ	AMPLITUDE. Az μ	△ KM.	REMARKS.
October 25/26										
Z	i		53	34						
N	e		53	38						
	eL	0	8							
N	M		20	35	20	+14				
E	M		20	45	19		-15			
Z	M		20	50	20			-16		
	F	1	40							
26 Z	e	12	40							Confused by wind and microseisms.
	eL		55							
	F	14	45							
30	e	8	20							Possibly not seismic.
	F		40							

F.J.W. Whipple.
Superintendent.

6th. Nov., 1933.

FORM : ~~2215~~

AIR MINISTRY, METEOROLOGICAL OFFI

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR NOVEMBER, 1933.

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 : 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_1.	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ^2.	$\frac{Ak}{\pi l}$
		sec.	sec.		sec^{-1}
N.	3 Oct., 1933	24.7	24.9	-.04	47.1
E.	3 Oct., 1933	24.8	24.8	-.04	43.3
Z.	4 Oct., 1933	13.0	12.3	+.13	109.

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

DATE.		PHASE.	G.M.T. h.	m.	s.	PERIOD. sec.	AMPLITUDES. A_N μ	A_E μ	A_Z μ	Δ km.	REMARKS.
1	Z E	eL	16	17							
		F		40							
2	Z	e	12	38	56						
	ZNE	eL	13	0						disturbed	Horizontal components by wind.
	Z	M		23	21	18			+ 7		
		F	14	15							
5	NE	eL	21	5							
	N	M		9	30	24	+ 6				
		F	22	0							
6		e	7	27							
		F		40							
8		e	0	54	6						Felt in Southern Germany.
		F		58							
19	Z	e	3	30	57						
	NE	e		53	5						
	NE	e		54	31						
	NE	eL	4	21							
	Z	eL		29							
		F	5	45							
20/21	ZNE	eP	23	28	34					3810	Compression. Amplitudes of iP as read in mm:- Z N E -14.0 +9.7 -4.2 Azimuth = 335° giving epicentre near 75°N., 65°W. Baffin Bay.
	ZNE	iP		28	39						
	ZNE	iPP		30	8						
	Z	iP_cP		31	4						
	NE	iS		34	10						
	E	iSS		36	16						
	ZNE	eL		37							

H.265 &S.100.1233 Gp.923

M.O.357

FORM : ~~3718.~~

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

NOVEMBER (contd.) 1933.

DATE.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.			△	REMARKS.
						An	Ae	Az		
20/21 Nov. contd.		HR.	MIN.	SEC.	SEC.	μ	μ	μ	KM.	
E	M		38-41		22		>310*			*Maxima too large to be recorded completely.
N	M		39-40		(20)	>270*				
E	M		44	33	14		>260*			
N	M		44	43	14	>250*				
Z	M		44	47	14			+340		
N	M		47	7	11	+170				
Z	M		47	10	11			-165		
Z	M		50	17	11			-140		
	F	3	30							
22 Z E	e	0	11							
NE	eL		25							
Z	eL		27							
	F	1	5							
22 E	e	5	14							
N	eL		25							
Z E	eL		29							
	F	6	5							
22	e	8	50							Possibly not seismic. Very small.
	F	9	0							
22	e	9	22							
	F		40							
22 Z	i	13	1	28						
ZNE	i		4	45						
Z E	e		8	39						
N	e		21	14						
NE	eL		40							
Z	eL		48							
N	M		58	21	22	+22				
E	M		59	22	23		-20			
Z	M	14	6	10	18			+15		
	F	15	30							
22 NE	e	19	44							
NE	eL		47							
Z	eL		52							
	F	20	5							
22 NE	eL	23	17							
Z	eL		21							
	F		40							
23 ZNE	e	1	20							Very small.
	F		25							
23 NE	e	19	19	49						
ZNE	eL		35							
E	M		38	13	22		- 5			
	F	20	20							
28 Z	i	11	17	44						
NE	e		24	11						
ZNE	eL		27							
E	M		36	51	25		+25			
N	M		39	11	22	-30				
Z	M		40	23	22			-21		
	F	12	35							

N2 b3. 45100. 12-33. Gp. 923

SEISMOLOGICAL BULLETIN.

NOVEM

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
29 ZNE	eL	5	38							
	F	6	20							
29 ZNE	eL	19	47							
	F	20	15							
30	e	4	54							
	F	5	5							

F.J.W.Whipple.

SUPERINTENDENT.

6th. December, 1933.

H 265.45 100 12-33. Gp923

KEW OBSERVATORY, RICHMOND

SEISMOLOGICAL BULLETIN FOR DECEMBER, 19 33.

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 : 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_1.	PENDULUM FREE PERIOD T.	DAMPING CONSTANT μ^2.	$\frac{Ak}{\pi l}$
		sec.	sec.		sec^{-1}
N.	3 Oct., 1933	24.7	24.9	-.04	47.1
E.	3 Oct., 1933	24.8	24.8	-.04	43.3
Z.	4 Oct., 1933	13.0	12.3	+.13	109.

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

DATE.	PHASE.	G.M.T. h.	m.	s.	PERIOD. sec.	AMPLITUDES. AN. μ	AE. μ	AZ. μ	Δ km.	REMARKS.
December										
2 ZNE	eL	6	45							
	F	7	15							"N" record defective (broken contact between pendulum coils & leads) 2d. 9h. 38m. to 7d. 11h. 57m.
2 ZNE	eL	20	55							
	F	22	5							
6		-	-	-						No records 10h. 19m. to 11h. 25m.
7		-	-	-						Adjustments for tilt of pillar.
9 ZNE	eL	8	25							No records 10h. 45m. to 11h. 57m.
	F		35							Repairing "N".
12 Z	i	14	30	20						
Z	e		33	35						
N	e		37	24						
NE	eL	15	7							
Z	eL		16							
N	M		19	20	25	-13				
	F	16	45							
13 ZNE	iP	21	36	16						
ZNE	i		36	23					9250	Compression.
N	i		45	39						Horizontal components disturbed by wind.
NE	iS		46	39						
E	i		50	30						
NE	e		55	46						
NE	eL	22	3							Pacific Ocean off Central America. 18°N., 104°W (U.S.C.G.S.)
Z	eL		6							
E	M		13	15	17		-54			
N	M		13	23	20	-21				
Z	M		13	45	16			-46		
	F	23	10							

FORM : ~~XXIX~~ M.O.357.

KEW OBSERVATORY, RICHMOND, SURR

SEISMOLOGICAL BULLETIN.

DECEMBER (Contd.) 1933

DATE.	PHASE.	G.M.T. HR.	MIN.	SEC.	PERIOD. SEC.	AMPLITUDE. An μ	Ae μ	Az μ	△ KM.	REMARKS.
Dec.										
14 ZNE	eL	8	3							
E	M		6	47	15		+12			
Z	M		6	49	15			+11		
	F		25							
14	e	19	18							
	F		45							
15 Z E	iP	7	46	47					2410	
ZNE	i		46	50						
Z E	iPP		47	8						
ZNE	iS		50	45						
ZNE	L		51	43						
N	M		52	42	19	-27				
E	M		53	15	17		-34			
Z	M		53	28	16			+30		
	F	8	25							
18	e	21	44							
	F		55							
19	e	18	4							
	F		25							
21/22	e	23	59							Very small.
	F	0	30							
24 NE	e	11	27							
E	eL		46							
ZN	eL		52							
	F	12	55							

F.J.W. Whipple.

SUPERINTENDENT.

2nd. Jan., 1934.

H261,45100,134GP928