

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

14 FEB 1939

File

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR JANUARY 1939

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 .	$\frac{Ak}{\pi l}$
N.	1937, Dec. 14	sec. 24.2	sec. 8.1	0.00	sec ⁻¹ 77.3
E.	1937, Dec 15	24.8	8.3	0.00	76.3
Z.	1937, Dec. 30	13.3	13.0	-0.01	75.4

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.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939									
January									
2	ZNE	eL F	4	48					Confused by microseisms
			5	0					
3	ZNE	eL F	17	56					Confused by microseisms
			18	10					
11	ZNE	e F	18	4					
				15					
11	ZE	eL F	22	10					Very small on N-S component
				25					
13		e F	23	8					Very small
				15					
19	NE Z	eL eL F	10	37					
				46					
			11	10					
20	ZNE E	eL M F	1	33					Confused by microseisms
				37	25	20	+18		
			2	5					
20	ZNE E	eL M F	14	32					Confused by microseisms.
				38	35	14	+13		
			15	0					

SEISMOLOGICAL BULLETIN.

JANUARY 19 39

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TITUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939									
January									
20		e F	21	20					Very small
				45					
22		e F	5	15					Very small
				30					
22	ZNE	eL F	14	38					
			15	10					
23	NE ZNE E	i eL M F	2	32	9				
				34					
				38	47	13	-26		
			3	0					
23		e F	13	27					
			14	10					
25	Z	iP	3	46	31			12000	Dilatation. N.E.,e.
	Z	ipP		46	53				
	Z	ePKP		50	39				
	Z	iPP		51	1				
	NE	ipPP		51	19				
	Z	i		51	27				large movement
	ZNE	isPP		51	32				
	NE	iSKS		57	5				Very destructive in Chile.
	ZE	isSKS		57	53				34° S., 73° W. (Strasbourg.)
	ZNE	iSP	4	0	14				
	ZNE	isSP		0	48				Depth of focus about 75 km.
	ZE	i		2	31				
	ZNE	iSS		5	53				
	ZNE	isSS		6	13				large movements.
	ZNE	i		7	3				
	E	i		7	47				
	ZN	i		10	9				
	E	iSSS		10	39				large movements.
	ZE	i		10	55				
	ZN	i		11	9				
	ZNE	i		14	25				
	ZNE	L		16					
	Z	M		31	9	25	+340		
	E	M		31	16	23	-230		
	N	M		33	52	20	+140		
		F	7	55					
27	ZNE	eL F	14	53					
			15	10					
27		e F	20	20					
				30					
29	ZNE	eL F	19	30					Confused by microseisms.
			20	10					

M.O.
444

5.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

JANUARY1939...

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939						sec.	μ	km.	
January									
30	Z	iPKP	2	37	43			14700	Dilatation. N.E.,e
	ZNE	iPP		40	1				
	ZNE	iPKS		41	3				Solomon Islands.
	NE	i		41	26				7° S., 156° E. (Strasbourg)
	NE	iSKKS		46	54				
	ZNE	iSKSP		50	0				
	ZE	iPPS		52	46				
	E	i		56	12				
	E	i		56	54				
	NE	iSS		57	13				
	E	iPSS		57	42				
	NE	i		59	44				
	E	i	3	4	50				
	NE	eL		12					
	Z	eL		20					
	E	M		27	38	25	-310		
	N	M		28	1	25	+370		
	Z	M		28	35	28	-370		
		F	7	10					
31	Z	i	0	11	58				N.E.,e.
	NE	e		13	50				
	Z	e		18	6				
	ZNE	e		23	24				
	NE	i		43	39				
	ZNE	eL		46					
	E	M		56	9	26	+15		
		F	2	20					
Correction to Kew Seismological Bulletin; December, 1938.									
The times tabulated for the earthquake of 26th December are all 6 seconds too early; the entries should be corrected to read :-									
	NE	i	22	10	38				
	E	i		10	45				
	N	i		14	6				
	N	i		14	35				
	NE	i		14	46				
	ZNE	L		15					
		F		25					
(Signed)									
F.J.W. Whipple Superintendent 6th February 1939.									



SEISMOLOGICAL BULLETIN FOR...FEBRUARY.....1939.

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

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N.	1937. Dec. 14	sec. 24.2	sec. 8.1	0.00	sec ⁻¹ 77.3
E.	1937. Dec. 15	24.8	8.3	0.00	76.3
Z.	1937. Dec. 30	13.3	13.0	-0.01	75.4

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DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ.	REMARKS.
			h.	m.	s.				
1939.									
February									
3		e F	0	6					Very small
3	Z	ePKP	5	45	44			15100	Diffraacted waves
	Z	iPP		48	16				N.E., e.
	ZNE	iPKS		49	15				
	Z	iPPP		51	35				
	Z	e		52	27				
	N	iSKS		52	51				
	E	e		56	43				
	NE	iSKSP		58	27				
	ZNE	iPPS	6	0	13				
	NE	iSS		6	17				
	NE	eSSS		11	3				
	NE	eL		21					
	Z	eL		27					
	E	M		34	53	27	+31		
	Z	M		45	15	22	-17		
	N	M		45	32	21	+22		
	F		8	20					
3	ZNE	eL	21	39					
		F	22	10					
4	ZNE	eL	6	22					Confused by microseisms
		F	7	0					

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939. February 6	ZN E N ZNE ZNE ZNE ZN ZE Z ZE	i i i i i i i i i i F	7	29	21				
				29	31				
				29	45				
				29	52				
				30	9				
				30	16				
				30	24				
				30	32				
				30	43				
				31	16				
				37					
6	ZNE ZNE	e eL F	10	42					
				48					
			11	0					
7	ZNE	eL F	4	56					
			5	20					
8	NE Z	eL eL F	7	10					
				16					
				30					
8	ZNE	eL F	21	2					
				25					
9	ZNE E	eL M F	16	9		22	+9		
				11	17				
				35					
16	ZE NE NE ZNE N Z	iP iS eL eL M M F	19	3	44			9570	Compression. Love waves. Rayleigh waves.
				14	22				
				32					
				39					
				43	43	20	-19		
				46	0	20	-19		
			20	15					
17		e F	16	45					
				55					
23		e F	16	9					
				25					
24	ZE ZNE	i eL F	14	36	51				
				56					
			15	15					
27	ZNE	eL F	18	1					
				15					
28	ZNE	eL F	3	42					
			4	5					

(Signed)

 F.J.W. Whipple
 Superintendent
 4th February 1939.

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR.....MARCH

9.39

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

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N.	1937, Dec. 14	sec. 24.2	sec. 8.1	0.00	sec. ⁻¹ 77.3
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DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939.									
March									
1		e F	3	10					Very small
2	ZNE	eL F	8	7					
				25					
4	ZNE	eL F	21	0					
				25					
5		e F	3	16					Very small
				20					
7	E ZN	eL eL F	2	52					
				58					
			3	25					
7	ZNE F	eL	16	2					
				30					
8/9	E ZN N	eL eL M F	22 23	56 4					Confused by microseisms
				7	17	27	-13		
			0	10					
10		e F	8	30					
				45					
13		e F	3	45					Very small
			4	0					

M.O. 444

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

MARCH 1939

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			h.	m.	s.	sec.	μ	km.	
1939									
March									
13	ZNE	eL F	6	34					
			7	10					
16	ZNE	eL F	21	35					
				55					
17	E ZE	i eL F	13	44	1				
				46					
				55					
20	Z	iP	3	35	5			9500	N.E., e. Felt in Kiu Shiu, Japan. Focal depth 55 km. (Strasbourg)
	Z	iPP		38	46				
	Z	ePPP		40	36				
	NE	eS		45	29				
	N	iPS		45	43				
	NE	i		46	1				
	Z	eSP		46	39				
	E	iSPS		47	1				
	Z	iPPP	4	1	45				
	NE	eL		6					
	Z	eL		9					
	N	M		11	24	18	-21		
	E	M		11	33	20	-22		
	Z	M		19	8	13	+12		
		F	5	10					
20	ZNE	eL F	5	56					By path exceeding 180°
			6	15					
21	Z	iP	1	24	31			10070	
	Z	i		24	52				
	Z	iPP		27	58				
	NE	i		34	46				
	E	iSKS		35	12				
	N	iS		35	32				
	E	iPS		36	21				
	E	iPPS		36	52				
	ZN	i		40	27				
	NE	iSS		41	30				
	E	iPKKP		41	52				
	NE	LQ		48					
	ZNE	LR		56					
	N	M	2	5	50	24	+73		Indian Ocean, to S.W. of Sumatra. 2°S., 91° E. (Strasbourg)
	E	M		9	51	20	+70		
	Z	M		9	56	20	-69		
		F	4	15					
22	ZNE	eL F	4	48					
			5	20					
22		e F	8	43					
			9	45					



SEISMOLOGICAL BULLETIN.

MARCH.....1939...

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI-TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939 March 23		e F	17	40					Very small
			18	15					
25	ZNE	eL F	6	38					(Signed) J.M. Stagg Superintendent 5th April 1939.
			7	5					

SEISMOLOGICAL BULLETIN FOR.....APRIL.....19 39.

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N.	1937, Dec. 14	sec. 24.2	sec. 8.1	0.00	sec ⁻¹ 77.3
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DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI-TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939. April									
4	Z	e	10	30	35				
	ZNE	eL	11	30					
		F	12	15					
5	ZNE	iPKP ₁	17	2	20			16700	Dilatation. Z large movement.
	N	i		2	27				
	ZN	i		2	41				
	Z	i		3	6				
	ZN	i		3	40				
	ZN	i		4	5				
	ZNE	iPP		6	1				
	E	e		14	11				
	ZNE	iPSKS		16	7				
	N	iPPS		19	1				
	Z	i		20	10				
	E	i		24	51				
	NE	iSS		25	7				
	Z	eSSS		26	11				
	NE	iSSS		30	31				
	Z	i		36	11				
	NE	eL		43					
	Z	eL		52					
	N	M	18	7	28	22	-63		
	Z	M		7	58	22	+52		
	E	M		9	47	20	+41		
		F	20	10					
6	ZE	e	17	58	41				
	ZNE	eL	18	3					
		F	18	10					Not very distant.

 From the ISC collection scanned by SISMOS

FORM 3718.

M.O. 444

3.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

APRIL 19 39

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939 April 21						sec.	μ	km.	
	ZN	iP	4	39	56			8300	Focal Depth 525 km.
	Z	i		39	59				
	N	iP _c P		40	14				
	ZN	ipP		41	48				
	Z	i		41	52				
	Z	isP		42	44				
	Z	isP _c P		42	50				
	ZN	iPP		42	56				
	ZN	epPP		44	30				
	N	epPP		44	44				
	ZE	e		48	22				
	ZNE	iS		48	52				
	ZN	e		49	4				
	ZN	iS _c S		49	10				
	ZN	iSP		49	30				
	N	isS		52	8				E,e.
	Z	isSP		52	46				
	N	i		52	55				
	E	iSS		54	0				
	NE	isSS		56	44				
23	Z	●SSS		57	43				
	E	e		59	50				
	Z	i	5	0	10				E,e.
		F	6	40					
	Z	iP	16	32	24			5900	Compression N,e.
	Z	iPP		34	19				
	Z	epPP		35	36				
	Z	iP _c S		37	34				
	NE	iS		39	55				
	Z	iSP		39	58				
	ZNE	i		40	5				
	E	iS _c S		42	10				
	E	SS		43	48				
	E	SSS		45	38				
	Z	L		48	40				
	NE	L		49	40				
	N	M		52	5	15	+11		
	E	M		52	13	15	+26		
	Z	M		59	31	12	-10		
		F	18	15					
26	ZNE	eL	12	03					
		F		23					
28	ZE	eP	0	37	40			2320	
	N	iS		41	30				
	Z	iP _c P		41	44				
	ZNE	eL		43					
		F	1	15					
28	NE	e	13	14					
		F		21					Very small

SEISMOLOGICAL BULLETIN.

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			h.	m.	s.				
1939 April 30									
	Z	e	03	11	52				
	Z	e		12	16				
	Z	i		14	49				N,E,e.
	Z	i		15	24				
	E	i		15	32				
	ZE	i		17	30				
	ZNE	i		17	48				
	Z	i		18	8				
	NE	i		18	26				
	Z	i		18	36				
	ZNE	i		18	54				large movement.
	Z	i		20	07				
	Z	i		20	44				
	N	i		21	06				
	Z	i		21	56				
	N	i		22	18				
	Z	i		22	56				
	ZE	e		24	38				
	N	i		24	49				large movement.
	NE	i		26	46				
	ZN	i		27	46				
	ZE	i		28	43				N,e.
	ZN	i		30	12				
	Z	i		33	0				
	E	i		35	45				Z,N,e.
	N	i		37	16				
	E	i		40	20				
	Z	i		40	48				
	NE	i		41	22				
	NE	eLQ		52					
	Z	eLR	4	0					
	N	M		18	12	18	-180		
	E	M		21	19	20	-220		
	Z	M		22	6	18	+240		
		F	-	-	-				

(Signed)

J.M. Stagg
Superintendent
5th May 1939.

Lat. 51° 28' 6" N, Long. 0° 18' 47" W, Height above sea level

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DATE.	COMP.	PHASE.	G.M.T.	PERIOD.	AMPLITUDE.	Δ	REMARKS.
			h. m. s.	sec.	μ	km.	
1938	Z	oP _I	06 10 52			9,230	
May	Z	iP _{II}	12 32				N, e.
	Z	iP _{III}	17 38				Three consecutive shocks.
	Z	e	18 50				
	N	iSKS _I	21 12				
	E	iS _I	21 14				
	E	ePS _I	22 32				Destructive in Akita, Japan.
	N	iSKS _{II}	22 56				
	E	eS _{II}	22 58				40°N. 139°E.
	Z	ePS _{II}	23 58				(USCGS)
	N	i	26 20				Z, e.
	Z	eSS _I	27 24				
	N	e	27 44				
	N	eS _{III}	28 00				
	Z	e	29 48				
	Z	eSSS _I	31 04				
	Z	e	31 58				
	Z	eSSS _{II}	33 04				
	NE	eLQ	36				
	Z	eLR	40 38				
	E	M	47 36	17	+89		
	N	M	50 49	14	+48		
	Z	M	51 43	12	+35		
		F	08 55				

SEISMOLOGICAL BULLETIN.

MAY 19 39

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939.									
May									
1	ZNE	eL F	12	38					Very small
				59					
1	Z	eP	16	18	14			9,100	
	Z	ePP		21	32				
	N	eS		28	30				
	NE	eLQ		44	08				
	Z	eLR		49	08				
	E	M		54	56	16	+22		
	N	M		58	14	14	-14		
	Z	M		59	08	12	-10		
		F	18	5					
2	Z	eP	13	27	12			8,850	
	Z	i		28	05				
	Z	iPP		30	14				
	NE	iS		37	15				30°N 114°W (USCGS)
	N	iSKS		37	28				
	NE	i		40	24				
	NE	iSS		42	24				
	N	e		45	40				
	E	eSSS		45	58				
	NE	eLQ		47	38				
	Z	eLR		51	38				
	N	M		59	00	21	+133		
	E	M	14	03	29	15	-108		
	Z	M		03	29	16	+101		
		F	16	15					
6	Z	eP	06	12	37			8,940	Confused by microseisms
	EN	eS		22	44				5°N 84°W (USCGS)
	E	iPS		23	45				
	E	e		27	04				
	E	iSS		28	32				
	E	eSSS		31	34				
	EN	eLQ		34	38				
	Z	eLR		38					
	Z	M		43	25	20	-11		
	N	M		45	44	20	+ 9		
	E	M		54	35	20	+15		
		F	07	20					
6	NE	eL	17	51					
	Z	eL		57					
		F	18	20					
8	ZNE	iP	01	51	49			2,450	Compression
	N	i		54	11				Amplitudes of iP as read, in mm.
	ZNE	iS		55	50				Z N E
	E	i		57	34				+5.0 +2.3 +4.0
	NE	L		58	08				Azimuth = 240°
	N	M		59	55	13	-193		Felt in San Miguel (Azores)
	E	M	02	00	26	10	+150		
	Z	M		01	22	8	-118		37.5°N 24.5°W (Strasbourg)
		F	05	30					
8	Z	e	08	57					
		F	09	06					



SEISMOLOGICAL BULLETIN.

May 1939

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939									
May									
8	Z	eP	16	20	18			2,560	Small movements
	Z	e		20	30				
	Z	ePP		20	44				
	Z	ePPP		20	54				
	E	eS		24	28				
	E	e		24	36				
	ZNE	eL		26					
		F	17	20					
9	ZNE	eL	08	04					
		F		33					
9	ZNE	e	16	36	33				Very small
	ZNE	eL		38					
		F	17	12					
9	ZNE	eL	17	51					Very small
		F	18	0					
10	Z	eP	07	56	13			8,620	Small
	Z	eP _c P		56	26				
	NE	eS	08	06	04				51°N 179°W
	NZ	ePS		07	00				(USCGS)
	NE	eSS		10	28				
	N	eSSS		15	04				
	NE	eL _Q		17	08				
	Z	eL _R		21	38				
	ZNE	eL	10	05					By path greater than 180°
		F	10	40					
11	ZNE	eL	18	48					Very small
		F	19	00					
12	ZNE	eL	03	02					Small
		F	03	25					
14	Z	e	18	32	23				
	Z	e		37	15				
	Z	e		41	17				
	NE	eL	19	30					Surface waves small
	Z	eL		35					
		F	20	20					
14/15	Z	e	23	40	55				Surface waves very small.
	ZNE	e		44	59				
		F	00	25					
15	-	-	10	20	to				No record on Galitzin Instruments.
			11	03					
15	ZNE	eL	22	04					
		F		13					

SEISMOLOGICAL BULLETIN.

May 19 39.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939									
May									
16	Z	iP	07	33	10			9,800	
	Z	ePP		36	47				
	E	eS		43	59				
	E	eLQ		56					
	Z	eLR	08	03					
		F	09	15					
16	-	-	09	41	to				No record on Galitzin Instruments.
			11	50					
16	-	-	13	17	to				No record on Galitzin Instruments.
			15	47					
17	-	-	13	19	to				No record on Galitzin Instruments.
			15	58					
17	Z	eP	18	44	15			10,690	
	ZN	iPP		48	19				
	Z	e		50	25				
	Z	ePPP		50	59				
	NE	iSKS		54	49				
	E	eS		55	43				
	ZN	ePS		56	59				
	Z	ePPS		58	15				
	NE	eSS	19	02	31				
	E	eSSS		06	07				
	NE	eLQ		11					
	Z	eLR		19					
	E	M		20	49	34	+42		
	N	M		22	20	30	-28		
	Z	M		29	54	21	-16		
		F	21	40					
18	-	-	09	19	to				No record on Galitzin Instruments.
			11	05					
19	-	-	09	04	to				No record on Galitzin Instruments.
			10	35					
19	Z	e	18	42	52				Very small.
	E	e		48	54				
	E	e		51	16				
	NE	e	19	09	22				
	ZNE	eL	19	28					
		F	20	00					
20	-	-	08	18	to				No record on Galitzin Instruments.
			09	02					
20		F	10	20					Missed owing to changing records.

M.O. 444

5.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

May 19 39

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939									
May									
21	ZNE	i	20	40	45				Very small
	Z	e			54				
	ZN	i		43	03				Surface waves poorly developed.
	ZNE	e		50	18				
		F	21	30					
22	Z	e	01	55	21				
	NE	e	02	05	25				
	NE	eL		31	30				
	Z	eL		42	00				
	Z	eL	03	42	00				By path greater than 180°
		F	04	10					
22	ZE	eL	07	07					
		F		30					
22	-	-	09	04	to				No record on Galitzin Instrument.
			12	00					
23	ZE	e	04	29	21				Very small
	ZE	e			45				
	ZN	e		31	35				
	NE	e		37	58				
	N	e	05	06					Surface waves very small
		F	05	40					
23	ZN	e	19	13	35				Very small
	ZN	e		25	35				
		F		40					
24	-	-	10	48	to				No record on Galitzin Instruments.
25			10	07					
25	-	-	11	11	to				No record on Galitzin Instruments.
				50					
25	-	-	13	13	to				No record on Galitzin Instruments.
			14	0					
25	-	-	14	58	to				No record on Galitzin Instruments.
			15	42					
26	Z	eP	09	50	42			6,620	Very small
	E	eP _c P		51	26				
	Z	ePP		53	00				
	Z	ePPP		54	29				
	ZNE	eS		58	51				
	-	-	-	-	-				10.02 to 10.11 missed while changing records.
	Z	e	10	11	39				
	Z	iSS		13	17				
	Z	i		15	19				
	ZE	eSSS		15	31				
	NE	eLQ		16	00				
	Z	eLR		18	00				
	N	M		19	22	16	+11		
	Z	M		19	34	15	+11		
	E	M		20	40	12	+ 8		
		F	11	20					

M.O. 444

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

May 1939.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939 May 26	Z	e	18	10	53				Very small
	Z	e		17	59				
	ZNE	e		20	52				
	Z	e		37	23				
	NE	eL		47					
	Z	eL		56					
		F	20	45					
27	Z	iP	03	57	14			8,300	Focal depth 75 km.
	ZNE	ipP		57	32				
	N	isP			45				
	Z	e		58	25				
	NE	iS	04	06	38				
	N	ipS		07	11				
	E	isS		07	15				
	N	iPS		07	26				
	NE	e		07	54				
	E	eSS		11	55				
	NE	eSSS		15	29				
	Z	e		18	21				
	ZNE	eL		22	35				
	Z	e		33	25				
		F	05	25					
27	-	-	21	46					Galitzin vertical component ceased recording.
28	-	-	10	18	to				No record on Galitzin Instrument
			12	55					
30	NE	eL	01	22					Very small
		F		30					
30	NE	e	10	23	00				No vertical component record.
	N	e		25	44				
	NE	e		26	40				
	N	e		33	54				
	NE	e		36	16				
	N	e		36	34				
	E	e		38	52				
	N	e		39	37				
	E	e		40	50				
		F	11	20					
31	NE	e	00	32	29				No vertical component record. E, e.
	N	i		35	49				
	NE	i		37	16				N, e.
	E	e		37	44				
	E	i		38	11				
	E	i		40	22				
	N	e		40	42				
		F		55					
31	NE	eL	19	46					Very small
		F		59					

(Signed)

J.M. Stagg
Superintendent
6th June 1939.

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

20 JUL 1939

File

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.SEISMOLOGICAL BULLETIN FOR JUNE 1939.

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 .	$\frac{Ak}{\pi l}$
N.	1937, Dec. 14	sec. 24.2	sec. 8.1	0.00	sec ⁻¹ 77.3
E.	1937, Dec. 15	24.8	8.3	0.00	76.3
Z.	1937, Dec. 30	13.3	13.0	-0.01	75.4

TIME SERVICE: MINUTE TIME-MARKS ARE MADE ELECTROMAGNETICALLY BY CONTACT CLOCK (~~XXXXXXXXXX~~);

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.	AMPLI- TITUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939. June 1	NE	eL F	01	20	39 30				Very small.
2	E	e	03	52					No vertical component record.
	E	e		57	55				
	NE	e		58	57				
	E	e		59	44				
	E	e	04	01	53				
	E	e		02	45				
	NE	eL F		24					
			05	40					
3	-	-	10	04					Galitzin vertical component restarted recording.
4	Z	e	00	43	57				Very small
	Z	e		53	22				
		F	01	45					
4	Z	e	12	17	16				Very small.
	ZNE	eL	13	24					
		F	14	20					
4	NE	eL	16	22					
	ZNE	eL		29					
		F		50					
5	Z	i	23	09	33				
	NE	e		16	38				
	NE	e		17	53				
	Z	e		18	46				
		F		55					
7	NE	eL F	02	02	40				

FORM 3717.

M.O. 444

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN. JUNE 1939

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939. June									
7	ZNE	eL F	20	37					
				47					
8	ZNE	eL F	02	22					
				50					
8	ZNE	eL F	16	30					
			17	30					
8	Z	iPKP	21	06	17			16,000	Compression
	NE	e			37				
	Z	i			49				15°S 173°W
	Z	ePP		09	34				(USCGS)
	NE	e			47				Samoa Islands.
	Z	e			54				
	N	ePKS		10	01				
	Z	e			10				
	NE	e			29				
	NE	e			55				
	N	e		11	20				
	E	ePPP		12	49				
	ZN	eSKS		13	09				
	N	e		17	17				
	NE	eSS		28	15				
	E	ePSS			55				
	E	e		30	21				
	E	eSSS		34	11				
	ZNE	eL			52				
		F	23	15					
9	ZNE	eL F	01	03					
				25					
9	E	eL F	20	06					
				40					
10	E	eL F	09	07					
				25					
12	Z	iP	04	15	12			6,520	21°N 66°W
	Z	eP _c P		16	11				(USCGS)
	Z	e		16	35				
	E	eP _c S		20	10				
	NE	eS		23	16				
	NE	eS _c S		25	11				
	NE	eSS		27	20				
	E	eSSS		29	20				
	NE	eL		32					
	Z	eLR		33					
	E	M		33	39	26	+26		
	N	M		39	28	17	+12		
		F	05	40					
13	NE	eL F	16	30					Very small
				58					
13	Z	e	20	58					
	NE	e	21	08					
	NE	eL		36					
		F	22	00					

SEISMOLOGICAL BULLETIN.

JUNE 19 39.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.		μ		
1939									
June									
16	ZNE	eL F	22	36					
				48					
17	ZNE	eL F	13	20					
			14	20					
18	NE	eL	04	40					
	ZNE	eL		49					
		F	05	10					
18	NE	e	12	55					
	Z	e		58					
		F	13	10					
18	Z	i	16	58	02				
	Z	i			16				
	NE	e	17	07	52				
	ZNE	eL		24					
		F		55					
19	Z	e	22	08	28				
	NE	eL		34					
	ZNE	eL		39					
		F	23	25					
20	ZNE	eL F	13	20					
				35					
21	ZNE	e F	12	30					Very small
			14	15					
22	Z	iP	19	27	52			5,180	
	Z	e		29	18				
	N	iPP		29	41				
	ZN	eP _c S		33	22				
	ZE	iS _c		34	44				
	N	iPS			48				
	E	iS _c S		37	35				
	NE	e			52				
	ZE	eSS		38	10				
	ZE	eLQ		39	16				
	Z	eL _R		41	20				
	E	M		45	48	18	-70		
	N	M		46	00	22	-54		
	Z	M		48	54	14	+41		
		F	21	30					
24	ZNE	eL F	00	35					
			01	05					
24	ZNE	eL F	05	07					
				30					

KEW OBSERVATORY, RICHMOND, SURR

SEISMOLOGICAL BULLETIN.

JUNE 19 39.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.		μ	km.	
1939. June 27/28	Z	e	23	18	33				
	Z	e		22	58				
	Z	e		23	38				
	Z	e		25	15				
	ZE	e		29	14				
	NE	e		30	46				
	ZNE	e		31	57				
	Z	e		33	00				
	ZE	e		33	38				
	ZE	e		34	14				
	Z	e		38	15				
	E	e		38	46				
	E	e		39	20				
	Z	e		49	58				
	NE	eL		54					
	Z	eL	00	02					
	E	M		06	11	24	-33		
	N	M		10	21	21	-19		
	Z	M			29	23	+23		
		F	01	40					
29	ZNE	eL	21	32					
		F	22	05					

(Signed)
J.M. Stagg
Superintendent
6th July 1939.

SEISMOLOGICAL BULLETIN FOR.....JU



From the ISC collection scanned by SISMOS

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

File

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	$\frac{Ak}{\pi l}$
N.	1939, June 30	sec. 24.5	sec. 8.2	0.00	sec ⁻¹ 77.7
E.	1937, Dec. 15 1939, July 21	24.8 24.3	8.3 8.1	0.00 0.00	76.3 72.8
Z.	1937, Dec. 30 1939, July 24	13.3 - constants	13.0 unknown	-0.01	75.4 -

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.	sec.	μ	km.	
1939.									
July									
2	Z	e	17	12	13				Very small
	Z	e			23				
	Z	eL F	18	18	27				
2	Z	eL F	20	25	45				Very small
2/3	Z	e	23	53	45				
	NE	eL		53	57				
	Z	eL		54	17				
		F	00	10					
4	Z	e	18	39	45				
	Z	e		40	04				
	Z	e			34				
	Z	e		43	38				
	Z	e		44	18				
	NE	e		48	57				
	ZNE	e		49	03				
	N	e			22				
	N	e			29				
	ZN	e		50	36				
	ZN	e			50				
	NE	e		51	09				
	N	e			33				
	ZNE	e		52	41				
	Z	e		55	38				
	N	e		57	36				
	NE	eL	19	01					Surface waves poorly developed.
	Z	eL		05					
		F	20	35					

FORM 3717.

669,6036,4402,125,60,916,118 5/8/39

SEISMOLOGICAL BULLETIN.

JULY 19 39.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
1939			h.	m.	s.	sec.	μ	km.	
JULY									
5/6	Z	e	22	59	44				
	Z	i			48				
	Z	i			53				
	Z	i	23	00	01				
	Z	e		02	16				
	ZN	e			24				
	Z	e			31				
	Z	e			36				
	NE	e			43				
	Z	e		03	22				
	N	e			49				
	ZN	e		05	30				
	ZN	e			49				
	ZN	e		07	02				
	N	e		09	16				
	ZN	e		10	06				
	Z	e		13	18				
	NE	e		13	42				
	N	e		16	00				
	Z	e			50				
	E	e		21	58				
	NE	e		26	56				
	NE	eL		39					Surface waves poorly developed.
	Z	eL		46					
		F	01	10					
6	Z	e	01	24	42				Very small
	Z	e		27	10				
6	ZNE	eL	04	26					Small
		F		35					
8	ZNE	eL	03	24					
		F		40					
12	Z	iP	20	20	38			8,900	
	NE	eS		30	43				
	NE	eL _Q		50					Very small
	Z	eL _R		52					
		F	21	30					
12/13	ZE	ePKP	03	08	19			16,000	
	Z	ePP		11	11				
	N	ePKS		12	04				
	N	e		13	29				
	N	e		14	19				
	NE	e		15	00				
	Z	ePPP			05				
	N	e(SKS)			41				
	N	e		16	16				
	N	e			35				
	N	eSKKS		18	44				
	Z	e			53				
	Z	e		21	27				
	NE	eSKSP		22	19				
	ZNE	e		28	17				
	NE	eL _Q		52					Long waves small
	Z	eL _R	00	06					
	E	M		02	24	26	+10		
	N	M		03	04	32	+20		

**SEISMOLOGICAL BULLETIN.**

JULY.....1939...

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
1939			h.	m.	s.	sec.	μ	km.	
JULY									
12/13	Z	M F	01	16 50	13	18	-11		
13	NE Z	eL eL F	17 18	56 01 45					
14	Z Z E E NE NE Z	iP e(PcP) eS e e(SS) eLQ eLR F	08 09 10	43 52 53 05 06 10 15	17 26 53 05			8,300	Long waves small
16	ZNE	eL F	09 10	30 15					
16	Z Z Z N E NE Z	eP e ePP eS eSS eLQ eLR F	12 13 14	34 37 38 45 51 58 01 10	32 02 08 08 12			9,000	Small
18	Z Z Z Z NE E N NE NE NE Z N Z E	eP e(PcP) ePP ePPP eS e(PS) e(ScS) eSS eSSS eLQ eLR M M M F	03 04	37 38 40 42 47 48 48 51 55 56 59 08 18 22 06	56 49 35 48 16 06 32 42 37 56 59 07 18 22	16 17 17	-26 -39 +24	8,000	49°N 130°W (U.S.C.G.S.)
18	ZNE	eL F	12 13	10 00					Very small
19/20	Z Z Z Z N NE Z	e e e e e eL eL F	23 23 23 23 00 00 01	31 35 39 53 00 35 45 30	23 45 51 11 11				Very small

SEISMOLOGICAL BULLETIN.

..... JULY 19.39..

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939 JULY 20.									
	Z	i	02	41	40				N,E,e
	Z	i			47				
	Z	i			55				
	Z	e			59				
	Z	e	44	11					
	Z	e	45	21					
	Z	e	48	59					
	N	e	51	13					
	Z	e	55	08					
	N	e			41				
	Z	e	57	51					
	N	e	58	55					
	E	e	03	03	51				
	N	e	08	35					
	Z	e	15	11					
	ZNE	eL	25						Surface waves poorly developed
		F	04	40					
20	ZNE	eL	17	26					Very small
		F	18	20					
23	ZNE	eL	16	02					Small
		F		50					
24	NE	eL	22	19					
		F		40					
25	N	eP	03	45	37			2,690	Small
	NE	eS		49	57				
	N	e		53	15				
	NE	eL		54					
		F	04	27					
25	NE	eL	15	35					
		F		45					
26	NE	eL	05	29					
		F		35					
27	NE	e	05	33	24				Very small
	NE	eL	06	00					
		F		25					
27/28	E	e	23	49	33				Small
	NE	eL	00	12					
		F		40					
28	NE	eL	01	57					
		F	02	07					
28	N	e	10	18	12				Very small
	NE	e		22	24				
	NE	eL		26					
		F	11	00					
28	NE	e	16	15	52				Very small
	NE	eL		20					
		F		50					

KEW OBSERVATORY, RICHMOND, SURF

SEISMOLOGICAL BULLETIN.

JULY 1939

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI-TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939 JULY 31	ZNE	eL F	13	47					Small
31	NE	eL F	19	29					
				55					
									(Signed) G. D. Robinson for Superintendent August 5th, 1939.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR AUGUST 1939

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 .	$\frac{Ak}{\pi l}$
N.	1939, June 30	sec. 24.5	sec. 8.2	0.00	sec-1 77.7
E.	1939, July 21	24.3	8.1	0.00	72.8
Z.	1939, July 24	-	Constants unknown		-

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.	AMPLI-TUDE.	Δ	REMARKS.
1939.			h.	m.	s.	sec.	μ	km.	
1	ZN	e	16	07	33				Very small
	Z	e		08	07				
	Z	e		10	25				No long waves
		F		15					
2	Z	eP	00	59	20			9,380	
	Z	e(P _c P)			36				
	Z	e	01	00	30				
	Z	ePP		02	18				
	Z	e		09	19				
	N	eS			49				
	N	e		11	01				
	N	eSS		15	33				
	NE	eL _Q		23	17				
	Z	eL _R		29					
		F	03	27					
2	NE	eL	09	36					
		F		46					
2	Z	eP	13	11	23			2,600	
	NE	eS		15	36				
	ZN	e			55				
	N	e		19	06				
	NE	eL _Q		20					
	Z	eL _R		21					
		F		40					
3	Z	e	02	48	12				Small
	ZNE	eL	03	50					
		F	04	55					

SEISMOLOGICAL BULLETIN.



From the ISC collection scanned by SISMO5

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939.									
3	Z	iP	12	38	02			2,720	
	NE	eS		42	24				
	NE	e			38				
	N	e		44	06				
	N	e		45	34				
	ZNE	eL		47					
	N	M		46	48	13	-13		
		F	13	20					
5	ZNE	eL	21	22					
		F		30					
8	NE	eL	00	45					
	Z	eL		52					
		F	01	00					
9	ZNE	eL	03	41					
		F	04	00					
9/10	Z	eP	23	48	58			2,750	Very small
	ZNE	eS		53	22				
	NE	eL _Q		57	30				
	Z	eL _R		58					
		F	00	20					
12	Z	i	02	26	40				
	Z	e		27	31				
	Z	e		29	55				
	Z	e			59				13°S 169°E
	Z	e		30	05				(U.S.C.G.S.)
	ZN	e			47				
	Z	e		31	43				
	N	e		36	31				
	Z	e		41	15				
	N	e		44	25				
		F	04	35					Surface waves poorly developed.
12	Z	iP	10	02	07			8,870	
	NE	eS		12	11				
	NE	eL _Q		27					45°N 143°E
	Z	eL _R		30					(U.S.C.G.S.)
		F	12	00					
16	NE	eL	17	37					
	Z	eL		41					
		F	18	35					
17	ZNE	eL	16	35					
		F		50					
18	NE	eL	05	16					
		F		28					

SEISMOLOGICAL BULLETIN.

August 1939

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ km.	REMARKS.
			h.	m.	s.				
1939. 18/19	Z	iPKP	22	35	38			16,000	
	Z	i			42				
	Z	e			54				18°S 168°E (U.S.C.G.S.)
	ZN	e		36	16				
	ZN	e			30				
	ZN	ePP		39	02				
	ZN	ePKS			24				
	N	e		40	24				
	Z	e			59				
	Z	e		41	22				
	N	e		44	08				
	N	e		47	12				
	Z	eSKSP		50	04				
	N	e		51	14				
	NE	eSS		58	06				
	N	e	23	01	46				
	N	eSSS		03	56				
	N	e		19	42				
	NE	eLQ		24					
	Z	eLR		30					
	N	M		40	41	20	-15		
		F	01	00					
19	Z	i	01	07	10				
	N	e		13	00				
	NE	eL	02	00					
	Z	eL		07					
		F	03	20					
21	NE	e	15	41					Small
	NE	eL		45					
		F	16	55					
21	NE	eL	19	46					Very small
		F	20	15					
22	N	e	00	18	59				Small
	NE	e		29	19				
	NE	eL		48					
		F		35					
22	ZNE	e	12	56	59				Very small
	N	e		57	27				
	E	e			35				
	E	e			53				
		F	13	05					
23	Z	e	04	55	53				Small
	NE	eL	05	45					
		F	07	05					
25	Z	i	04	07	18				
	ZN	e		10	35				
	NE	eL		40					
		F	06	00					

SEISMOLOGICAL BULLETIN.

AUGUST 1939.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI-TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939									
26	NE	eL F	04	17					Very small
				35					
26	NE	eL F	09	09					
				25					
28	NE	eL F	22	00					
				30					
30	N	e	00	33	58				Very small
	N	e		38	16				
	ZNE	eL		49					
		F	01	25					
									(Signed)
									George C. Simpson, K.C.B., D.Sc., F.R.S. Superintendent 9th September 1939.

AIR MINISTRY, METEOROLOGICAL OFFICE, LONDON.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN FOR...SEPTEMBER.....1939

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 .	$\frac{Ak}{\pi l}$
N.	1939, June 30	sec. 24.5	sec. 8.2	0.00	sec ⁻¹ 77.7
E.	1939, July 21	24.3	8.1	0.00	72.8
Z.	1939, July 24	- constants	unknown		-

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.
1939. Sept. 2			h.	m.	s.	sec.	μ	km.	
	Z	e	9	18	09				
	N	i		21	51				
	ZNE	eL	10	03	-				
		F	11	10	-				
3	Z	e	8	09	25				
	N	eL		32	-				
	ZE	eL		37	-				
		F	9	03	-				
6	ZNE	eL	11	50	-				
		F	12	05	-				
8	ZN	e	12	16	40			8600	
	ZN	i(P)			48				large movement e.E.
	ZN	i		17	09				
	ZN	i			15				
	ZN	i			47				
	Z	e		19	03				
	Z	e		19	49				
	Z	e		23	13				
	Z	e		25	10				
	ZNE	i(S)		26	37				large movement.
	NE	i		27	03				
	NE	i			25				
	N	e		31	10				
	N	i(SS)		32	06				
	N	i			45				
	NE	eLQ		38	-				
	ZNE	eLR		40.5					
	E	M		44	13	28	57		
	Z	M		52	-	26	-		
	N	M		52	06	24	92		
	ZNE	eL		14	30	-			by path greater than 180°
		F		16	20	-			

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

SEPTEMBER

International
Seismological
Centre

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939 Sept. 11	ZNE	eL F	8	35	-				
			9	15	-				
12	Z	e	12	26	10				
	ZNE	eL F	13	25	-				
			14	20	-				
14	ZNE	eL F	9	50	-				
			10	15	-				
15/16	ZE	iP	23	21	42			2690	Comp. eN.
	NE	e		25	55				
	NE	iS		26	02				
	ZN	i			12				
	ZN	iSS			53				
	ZNE	eL F		28	30				
			0	15	-				
17	ZN	eL F	20	53	-				Very small
			21	12	-				
18	Z	e	0	19	57				On short period vertical inst.
	N	i		20	36				eZ (only.
	ZN	i			46				
	NE	i			58				Not very distant.
	N	i		21	09				
	N	i			30				
	ZN	i F			57				
				40	-				
19	ZE	e	3	31	58				
	ZNE	e		38	10				
	ZNE	eL F		48	-				
			4	25	-				
20	Z	iP	0	24	03			2150	eNE
	Z	i			14				larger movement
	ZNE	i			21				
	Z	i			43				
	NE	eS		27	39				
	NE	i			44				
	N	i			48				eZ
	NE	i(SS)		28	04				
	Z	i(P _c P)			22				long waves very poorly developed
	N	e			43				
	N	i		30	28				
	NE	i(P _c S) F		32	16				
			1	05	-				
20	Z	e	7	48	30				
	ZNE	eL F	8	55	-				
			9	30	-				
21	Z	eP	11	23	29			2440	
	NE	eS		27	29				
	ZNE	eL F		29	-				
				45	-				

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

.....SEPTEMBER.....1939.....
International
Seismological
Centre

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939. Sept. 21	Z NE	eP eS eL F	11	47	40 51 39 53 30			2430	larger than preceding shock.
21	ZE ZE NE ZNE	iP i eS eL F	12	48	35 40 52 37 54 -			2460	eN
21	ZNE	eL F	22	08	- 30 -				Very small.
22	ZNE ZNE ZNE Z NE ZNE E Z ZNE N E Z	iP iP ePP e e(PcP) iS iSS i eL M M M F	0	41	37 43 11 03 37 47 17 37 30 00 24 51.5 30 -	14 13 13	190 68 -	2560	Amplitudes of first movements as read in mm :- Z= -1.0 N= -0.4 E= + 0.6 Z= -4.0 N= -1.2 E= + 1.9 giving Azimuth = 123° Destructive near Smyrna compare shocks on 21 d.
25	ZNE	eL F	16	40	- 55 -				Very small
30			10 24	30 00	- -				Galitzin instruments out of action.
(Signed)									
George C. Simpson K.C.B., F.R.S. Superintendent. 5th October 1939.									

M.O. 444

2.

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

OCTOBER 1939

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.				
1939									
October									
13			15	10	-				No record on Galitzin instruments
			21	10	-				
15	ZE	e	4	57	-				Very small
		F	5	05	-				
15	Z	e(P)	4	07	51			(1100)	eP from short period
	N	i(S _n)		09	47				vertical instrument only
	ZE	e(S*)		10	35				
	N	i(S _g)		11	04				
	ZE	eL		12	26				
		F		25					
17	ZN	iPKP	6	41	27			15,500	Compression, eE
	Z	i			45				
	Z	epPKP		42	07				Focal depth about 150k.m.
	Z	isPKP			25				
	Z	iPP		44	40				Azimuth about N.
	N	iSKP			55				
	Z	i		45	04				
	N	iPKS			13				
	Z	ipPP			16				
	N	isPP			39				
	ZN	i		46	19				
	ZN	ePPF		47	55				
	Z	i		48	47				
	NE	ipSKS		49	19				
	N	eSKKS		50	37				
	N	ipSKKS		51	19				
	N	ePS		54	55				
	Z	iPPP		56	19				by path greater than 180°
	Z	ipPPP			55				" " " " "
	Z	isPPP		57	08				" " " " "
	N	iSKKS			31				" " " " "
	Z	i		59	11				
	Z	i			20				
	N	e	7	03	00				
	NE	isSS			13				
	N	i		04	46				
	N	eSSS		07	52				
	ZNE	eL		20	-				
	N	M		45	35	18	+6		
	Z	M		46	28*	24	-7*		* Approximate values
	E	M		46	30	21	+18		
	ZNE	eL	8	00	-				By path greater than 180°
		F	9	20	-				
19	Z	e	12	14	54				Small, confused by microseisms
	ZNE	eL		18	-				Reported felt at Ottawa
		F		25	-				
19	Z	iP	22	37	58			2090	eN
	NE	iS		42	18				eZ
	ZE	e		44	54				Confused by microseisms
	NE	eL		45.5					
	Z	eL		48	-				
		F	23	00	-				

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	
			h.	m.	s.				
1939 October 20	NE	eL F	20	50	-				Very small No Z record
26	NE NE	e eL F	1	10	20				No Z record Small
31	NZ	i	6	54	23				possibly not seismic

(Signed)

G.C. Simpson K.C.B.
Superintendent

2nd November 1939.

SEISMOLOGICAL BULLETIN FOR.....NOVEMBER.....19.39.....

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	$\frac{Ak}{\pi l}$
N.	1939, June 30	sec. 24.5	sec. 8.2	0.00	sec-1 77.7
E.	1939, July 21	24.3	8.1	0.00	72.8
Z.	1939, July 24 1939, Nov. 21	14.25 constants	12.3 unknown	-0.01	73.4

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.	AMPLI- TUDE.	Δ	REMARKS.
			h. m. s.	sec.	μ	km.	
1939. November							
4	ZNE	eL F	10 38 - 55 -				Early phases probably lost when changing record.
5	ZN N N	e i i(L) F	2 18 59 25 51 26 09 45 -				ZE,e Confused by large microseisms
7	ZNE	e F	4 41 - 50 -				Confused by microseisms very small
8	N ZNE N	e eL M F	17 46 00 50 - 52 27 18 00 -	16	+12		Confused by microseisms not very distant
10	ZN	eL F	18 28 - 40 -				very small
10	ZN	eL F	21 25 - 50				very small
18	N ZNE	e eL F	1 54.5 - 2 10 - 3 00 -				Confused by microseisms
20			14 45 - 16 25				No record during standardisation

NOVEMBER

1939

SEISMOLOGICAL BULLETIN.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.	sec.	μ	km.	
1939 November									
21	Z	iP	8	55	08			3150.	P and S small movements, long waves larger in comparison. Destructive in N.E. Anatolia
	N	iS	9	00	02				
	N	eL		03.5	-				
	N	iS _c S		05	52				
	ZE	eL		07.5	-				
		F		45	-				
21	ZE	iP	11	10	30			(9,200)	eN Compression
	ZE	i			52				eN
	ZE	ipP		11	12				eN
	ZE	isP			42				eN
	ZE	ipPP		14	21				)Record missing)
				16	-				
				20	40				
	N	i(S)		20	30				Depth about 200 km. Azimuth north of east
	NE	i(pS)		21	36				
	NE	i(SP)			42				
	N	e(PS)		22	06				
	Z	i			20				
	E	i			36				
	Z	i			56				
	Z	i		23	16				
	ZN	i(SS)		25	56				
	N	i(sSS)		26	52				
	N	i(SSS)		30	00				
	N	i(pSSS)			50				
	N	i(sSSS)		31	05				
	Z	i		35	45				
		F	12	20	-				
21			14	15					No record during standardisation
			16	15					
21	ZN	eL	22	30	-				
		F		50	-				
25	ZN	eL	0	30	-				
		F	1	30	-				
25			9	45	-				No record on Galitzin instruments.
26			9	45	-				

(Signed)

G.C. Simpson K.C.B.
Superintendent.

4th December 1939.

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

18 JAN 1940

SEISMOLOGICAL BULLETIN FOR DECEMBER 1939

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	$\frac{Ak}{\pi l}$
N.	1939, June 30	sec. 24.5	sec. 8.2	0.00	sec-1 77.7
E.	1939, July 21	24.3	8.1	0.00	72.8
Z.	1939, July 24 1939, Nov. 21	14.25 constants	12.3 unknown	-0.01	73.4

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.	AMPLI- TUDE.	Δ	REMARKS.
1939			h. m. s.	sec.	μ	km.	
1	ZN	e F	7 55 - 8 10 -				Confused by microseisms
5	Z	iP	8 42 18			8780	e, NE.
	Z	iP _c P	23				
	Z	ePP	45 11				Confused by microseisms
	E	iS	52 17				e, ZN.
	ZE	iSKS	36				
	E	eSS	57 16				
	E	eSSS	9 01 31				
	N	eLQ	04 -				
	ZE	eLR	07 -				
	E	M	19 25	17	-31		
	Z	M	20 02	17	-43		
	N	M	21 14	16	-25		
		F	10 10 -				
16	ZN	iP	10 58 44			8880	Compression e, E.
	Z	iP _c P	59				
	Z	e	59 52				
	Z	e	11 00 32				
	Z	ePP	01 52				
	Z	ePPP	04 04				
	NE	iS	08 48				
	N	iSKS	57				
	ZNE	ePS	09 12				
	NE	iPPS	24				
	Z	e	54				
	N	e	10 40				
	N	eSS	14 01				
	N	e	19 1/2 -				
	ZNE	eLR	28 1/2 -				
	Z	M	31 09	29	-45		
	N	M	32 32	28	+42		

KEW OBSERVATORY, RICHMOND, SURREY, ENGLAND.

SEISMOLOGICAL BULLETIN.

DECEMBER 1939.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ	REMARKS.
			h.	m.	s.		μ	km.	
1939									
16	E	M	38	13		20	+15		
		F	12	15	-				
21	ZE	iP(1)	21	06	51			8630	Compression eN
	ZE	iP _c P(1)			57				eN
	Z	ePP(1)	09	35					
	Z	iP(2)			47				
	Z	i	10	43					eE
	Z	iP(3)	11	53					eNE
	Z	iPP(3)	14	57					eNE
	E	iS(1)	16	43					
	N	iSKS(1)	17	03					
	NE	iPS(1)			17				Azimuth about west
	E	i			53				
	Z	iS(2)	19	37					Three successive shocks, probably
	E	iSKS(2)			47				with others following.
	ZNE	iPS(2)	20	09					
	Z	i	21	05					
	N	iSS(1)			25				Felt at San Jose Costa Rica.
	NZ	iSKS(3)			59				
	E	iPS(3)	22	11					
	EN	i			33				
	Z	i	23	03					
	NE	eSS(2)	24	27					
	ZNE	eL	30	-					
	N	M	22	12	18	21	+345		
	Z	M			27	20	-420		
	E	M			50	19	-140		
22		F	01	00	-				
22	ZE	iP	04	56	03			8710	Compression
	ZE	i	05	00	05				
	NE	iS	05	59					
	E	iSKS	06	13					
	E	e(PPS)			52				
	ZE	eSS	11	37					
	N	eLQ	18	-					
	Z	i	19	19					
	ZE	eLR	22 ¹ ₂						
	Z	M	26	21		17	-34		
	N	M	31	46		20	+23		
	E	M	43	29		18	+25		
		F	-	-	-	-	-		Overlapped by next shock.
22	ZE	e	07	18	-				
	ZNE	eL			35				
		F	08	15	-				
23	Z	e	17	43	55				
	ZNE	eL			55				
		F	18	15	-				

SEISMOLOGICAL BULLETIN.

DATE.	COMPT.	PHASE.	G.M.T.			PERIOD.	AMPLI- TUDE.	Δ km.	REMARKS.
			h.	m.	s.				
1939 25	ZNE	e F	06	47	-				Not very distant
				53	-			2150	
25	Z N N N ZE N	iP eS i iL eL M F	12 13	57 00 01	19 55 00				
					37				
				02 $\frac{1}{2}$		13	+11		
				03	31				
				35	-				
25	ZNE	eL F	17 18	30 00	- -			3350	Very destructive in N.E. Anatolia
27	ZE ZNE Z ZNE ZNE ZNE E E*	iP i(P) i(PPP) i(P _c P) iS i iL M* F	00	03 04	26 15 47				From 0009 to 0020 hours traces are not clearly legible owing to rapid large movements. *True maxima exceed limit of registration, largest movement which can be definitely identified is given here.
					07 09				
					08 33				
					48				
					12 19				
					16 $\frac{1}{2}$ *	20	-1800		
			04	30	-			3110	iP from short period instrument.
28	Z NE ZE ZNE	iP eS i eL F	03	31 36	14 05 17				Confused by microseisms
					42 $\frac{1}{2}$				
			04	05	-				
29	ZNE	e F	11 12	45 05	- -				

(Signed)

G.C. Simpson K.C.B.
Superintendent.

3rd January 1940