



**British
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

Applied geoscience for our
changing Earth

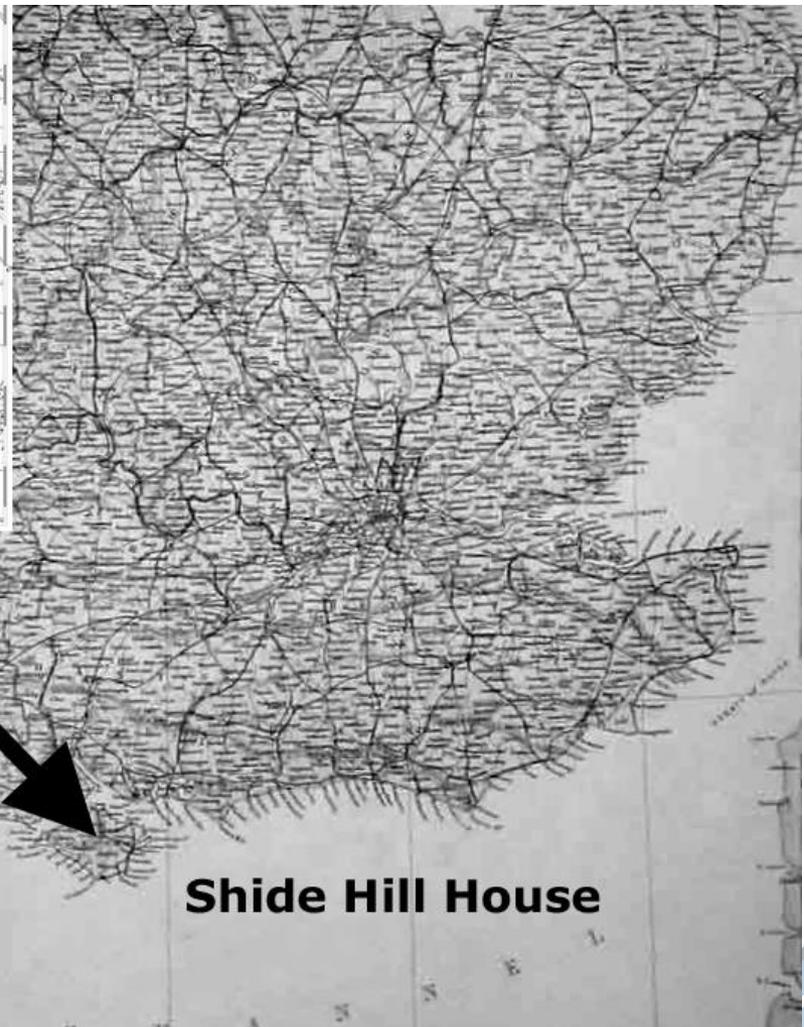
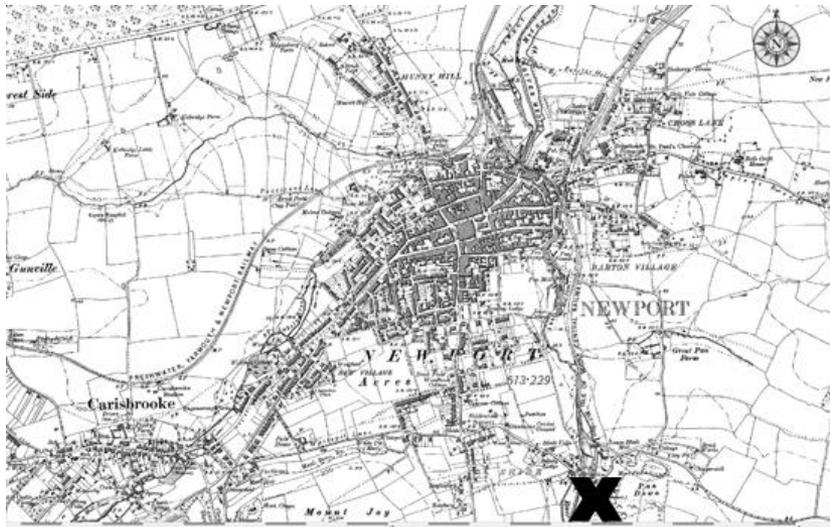
The International Seismological Centre: Ancestry and origins

RMW Musson

John Milne at Shide



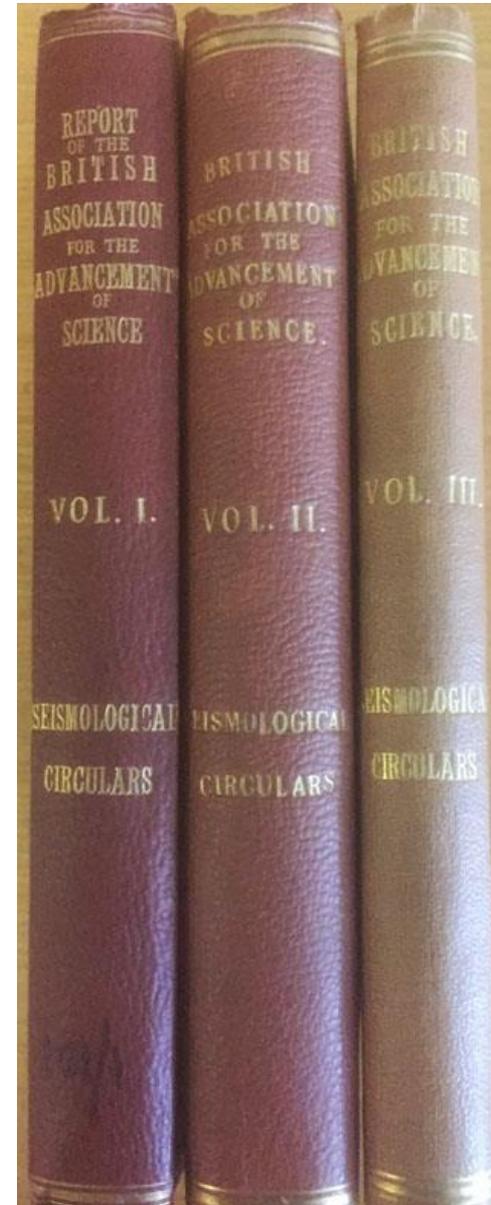
Shide



Shide Hill House

Shide Circulars

- First global bulletins
- Covered 1899-1912
- Essentially compendiums of individual station bulletins



Sample page

Register of Displacements recorded at the Alipore Observatory, Calcutta.
G. W. KÜCHLER, Assistant Meteorological Reporter.

Date	Greenwich Mean Time	Remarks
1900.		
July 7	H. M. S. 9 14 53	
" 12	The instrument does	not seem to be sensitive enough.
" 14	24 3 53 3 0 17 0 39 38 2 28 29 5 6 54	Thickening of line. Doubtful. Thickening of line.
" 17	23 0 2	" "
" 19	16 35 45	" "
" 21	11 50 11	" "
" 26	23 52 22	" "
" 29	7 11 42	" "
" 30	19 50 30	Well defined. Began suddenly with almost no preliminary tremor.
" 31	22 25 22	Thickening of line.
August 31	20 51 18	" "
" 4	19 50 26	" "
" 5	4 37 9	" "
" 13	20 20 27	" "
" 15	7 32 36	" "
" 16	8 44 0	" "
" 17	6 42 7	" "
" 18	12 29 41	" "
" 18	18 35 51	" "
" 21	2 24 10	" "
" 22	0 48 19	" "
" 23	21 8 49	" "
" 23	2 45 40	" "
" 23	6 35 23	" "
" 29	The instrument does	not seem to be sufficiently sensitive.
" 29	2 40 41 5 42 13 6 43 45	Small displacement. Thickening of line.
September 4	10 24 8	" "
" 6	19 5 6	" "
" 7	22 4 43	" "
" 9	23 57 58	" "
" 9	22 59 7	Small displacement: almost abrupt.
" 11	2 38 29	Thickening of line.
" 13	1 33 39	Doubtful.
" 13	11 48 55	Thickening of line.
" 15	22 44 40	" "
" 16	23 31 27	" "
" 17	22 4 57	" "
" 20	11 11 18	" "
October 1	21 45 32	" "
" 2	9 35 46	" "
" 7	21 12 45	" "
" 8	11 55 0	" "
" 20	18 47 28	" "
October 23 to November 6 instrument out of order.		

85

Register of Displacements recorded at the Alipore Observatory, Calcutta—continued.

Date	Greenwich Mean Time	Remarks
December 18	H. M. S. 22 20 34	Thickening of line.
" 19	22 37 46	" "
" 21	21 59 3	" "
" 22	17 56 29	" "
" 25	5 13 4	" "
" 24	21 17 24	" "
" 29	7 44 39	" "
" 30	20 30 35	" "
" 30	20 53 16	" "
" 31	23 38 18	" "

Register from Culaba, Bombay. Director, N. A. F. Moos.

Observatory Number	Date	Time of Disturbance in G.M.T.			Amplitude in mm. and in Arc of Maximum Movement	Remarks
		Begin-ning	Maxi-mum	End		
1900.						
186	July 29	H. M. S. 7 25 14	H. M. S. —	H. M. S. 7 26 3	MM. "	—
182	" 31	10 43 4	—	10 49 56	—	—
212	Sept. 1	18 00 2	—	19 46 40	—	—
213	" 1-2	23 34 51	—	0 46 25	—	—
214	" 2	2 9 25	—	2 57 7	—	—
215	" 2	5 9 8	—	5 51 15	—	—
217	" 2	11 33 51	—	11 53 0	—	—
224	" 5	32 55 44	23 2 51	23 20 24	0.5=0.58	—
237	" 17-18	22 7 5	22 23 23	0 54 38	1.9=1.33	—
239	" 20	19 16 26	19 22 44	19 55 31	0.5=0.56	—
260	Oct. 7	21 14 37	21 37 35	22 49 13	0.7=0.51	—
264	" 8	12 02 10	13 30 42	15 40 37	0.4=0.58	—
265	" 10	3 5 38	3 9 26	3 42 45	0.6=0.65	—
266	" 29	9 32 32	10 56 7	12 26 54	2.2=1.61	—
268	Nov. 8	8 6 41	8 19 41	8 45 52	0.9=0.66	—
269	" 9	18 29 39	18 33 11	18 55 25	1.0=0.78	—
269	" 11	4 23 48	4 26 26	4 31 19	0.6=0.44	—
271	" 12	1 20 6	1 31 14	2 37 46	1.0=0.73	—
272	" 16	21 27 5	21 36 6	22 2 2	2.7=1.97	—
281	" 21	8 14 51	8 40 5	9 27 4	1.6=1.17	—
284	" 30	13 41 56	—	14 5 7	—	—
278	Dec. 25	5 14 2	5 45 9	6 20 39	5.1=3.72	After-tremors ended at Gh. 56m. 18s.

HH Turner to BAAS

- *The death of John Milne, in July 1913, creates a situation of some difficulty and anxiety. He organised a world-wide seismological service with very little financial help from others ...*



BAAS continuation

- Shide circulars initially continued by Milne's assistant JH Burgess for 1913-1917
- Format changed to event-based listings

1914. March 14.
 Origin : 39°2N. 139°8E., determined by Pulkovo.
 Time at Origin : P=20h. 0m. 6s. S=20h. 0m. 6s.

Station and Component.	Machine.	Distance from Origin.	Azimuth.	P			O-C.	PR ₁			S.			O-C.	L.			M.			Remarks.
				H.	M.	S.	S.	H.	M.	S.	H.	M.	S.	S.	H.	M.	S.	H.	M.	S.	
Osaka	G.	5-8	219	20	2	3	+28							20	3	34	20	3	53		
Zi-ka-wai	W.	17-0	247	20	4	12	+1	20	5	7	20	7	37	+13	20	8	19	20	11	39	
Irkutsk	G.	27-6	310	20	5	38	-12				20	10	41	-17	20	13	30	20	13	9	38°5N. 138E.
Manila	W.	29-6	319	20	6	22	-8				20	11	47	+14	20	16	32	20	23	33	Akita Province, Japan.
Calcutta	E. M.	46-6	264	20	8	10	-40								20	14	15	20	27	29	
Tashkent	G.	52-3	297	20	9	24	-4	20	12	36	20	16	53	+1	20	26	0	20	30	40	30°8N. 141°4E.
Eksferinberg	G.	52-5	317	20	9	24	-5				20	16	51	-5	20	21	0	20	28	7	40°16N. 141°19E.
Batavia	W.	54-7	222	20	9	35	-8								20	28	0	20	40	0	
Honolulu	E. M.	55-4	90	20	10	6	+18								20	18	0	20	18	48	
Bombay	E. M.	60-6	272				...				20	18	54	+17				20	34	54	
Kodakanal	E. M.	62-2	260				...				20	19	30	+33	20	26	54	20	44	36	
Colombo	E. M.	62-5	256				...											20	55	0	
Pulkovo	G.	63-4	329	20	10	53	0				20	19	36	0	20	28	0	20	37	56	S.R. 20h. 24m. 54s.
Baku	G.	65-8	303	20	10	46	-10	20	15	16	20	19	35	-6	20	30	0	20	47	5	
Tiflis	G.	68-5	307	20	11	13	0				20	20	17	+3	20	33	0	20	38	48	
Konigsberg	W.	72-7	328	20	11	37	-3	20	14	22	20	20	56	-8	20	31	54	20	42	36	46°2N. 148°0E.
Adelaide	E. M.	74-1	181				...											20	49	0	
Czernowitz	E. M.	74-7	321	20	11	56	-3	20	14	43	20	21	27	-1	20	35	0	20	41	0	S.R. 20h. 26m. 32s.
	Ma.	74-7	321	20	11	56	-3	20	14	43	20	21	27	-1				20	41	0	
Lemberg	B.O.	75-0	323	20	11	40	-15	20	14	20	20	21	24	-8	20	35	48	20	42	52	
Breslau	W.	76-9	327	20	12	25	+19				20	31	14	-39	20	40	0	20	46	0	
Budapest	W.	78-5	334	20	12	15	-3				20	32	13	+1	20	38	24	20	44	28	
Koenig	E. M.	78-6	305	20	12	23	+6											20	47	0	
Belrus	E. M.	78-8	305				...	20	21	0								20	49	0	
Vienna	W.	79-2	325	20	12	16	-4				20	32	0	-20	20	30	0	20	48	30	
Eksferinberg	Ma.	79-8	340	20	12	12	-12											20	47	18	
Kodakanal	G.	80-4	340	20	12	25	-3				20	33	53	-1	20	37	0	20	47	18	
Osaka	W.	80-5	325	20	12	50	-2				20	33	57	+2	20	39	30	20	48	52	
Manila	W.	81-5	353	20	13	28	-4				20	34	43		20	40	0	20	49	0	

The ISS

- WWI enforced an interruption in global seismology
- How to continue was decided upon at the 1st IUGG General Assembly in Rome in 1922
- Founding of the *International Seismological Summary* to prepare global bulletins
- HQ at Oxford under Prof HH Turner
- Ultimately responsible to IUGG Seismology Section (later IASPEI)

ISS bulletin

1943										314									
	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.											
	m.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m.											
Tinianaba	88-1	14	112 54a	0	—	—	112 5	P ₁ P	—										
Tucson	89-9	30	115 4	—	—	—	—	—	—										
Huachayo	91-9	107	—	-1	e 25 8	PS	113 12	P ₁ P	e 41-7										
La Paz	92-2	114	—	+3	e 25 49	(-12)	e 20 55	SS	e 43-2										
St. Louis	107-4	55	18 47	PP	e 25 48	(+1)	e 27 29	PS	43-2										
Kourou	130-9	385	e 19 46	(-3)	—	—	—	—	—										
Helian	131-3	374	19 48	(-6)	—	—	—	—	—										
Kov	130-3	3	e 19 12	(-48)	—	—	—	—	—										
Scitigart	141-8	30	19 35	5	28 12	PKKS	e 20 50	PKP	e 32-2										
Paris	162-2	357	119 58	(-5)	—	—	133 33	PKS	29-2										
Chermont-Ferrand	165-2	356	120 6	(-4)	—	—	124 32	PP	e 36-2										
Tolosa	170-1	25	120 6	(-3)	—	—	131 27	PKP	—										
Tortosa	170-2	4	e 29 4	(-5)	—	—	e 40 27	SS	e 94-2										
Granada	172-2	32	20 33	(+22)	32 43	(+29)	22 1	PKP	34-0										

Additional readings:
 Riverside IFFN - 6m. 20a., II - 6m. 42a., IN - 10m. 14a., IEN - 10m. 29a.
 Pasadena ePPZ - 16m. 15a.
 Mount Wilson IZ - 13m. 25a.
 Palomar eZ - 13m. 25a.
 Riverside eZ - 13m. 14a.
 Tinianaba eZ - 13m. 21a.
 Tucson ePPZ - 16m. 25a.
 Kourou e - 20m. 15a. and 29m. 31a.
 Helian eZ - 20m. 12a. and 21m. 12a.
 Scitigart ePPZ - 24m. 28a., eZ - 35m. 12a. 7.
 Tolosa IFFZ - 15m. 19a.
 Tortosa eE - 24m. 27a., II - 24m. 25a.
 Granada IFFZ - 25m. 51a., SPS - 30m. 53a., SS - 16m. 51a.
 Long waves were also recorded at Harvard and Udele.

August 14d. Readings also at Zh. Oaxaca, Tacubaya, Bogota, Cape Girardeau, San Juan, St. Louis, Tucson, Mount Wilson, Pasadena, Palomar, Riverside, Tinianaba, Santa Clara, Bosman, and Philadelphia, Zh. (Harvard), Zh. (Pittsburgh, near Bogota, and near La Paz), 9h. (Mitsunawa), 12h. (near Andijan and near Mienawa), 15a. (near Fort de France), 16h. (Tortosa), 17h. (near La Paz), 20h. (Cheb), 22h. (Bogota and Fort de France).

August 15d. 0h. 12m. 15a. Epicentre 19° 5'N, 68° 0'W.
 A = +3534, B = -8746, C = +3318; $\delta = -9$; A = +5;
 D = -927, E = -375; G = +124, H = -368, K = -943.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	m.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m.
San Juan	2-1	192	19 29	-3	10 47	-17	—	—
Port au Prince	4-2	238	10 54	-13	11 19	-38	—	11-9
Fort de France	8-4	115	e 1 32	+10	3 20	-15	—	—
Bermuda	13-2	35	e 3 18	+7	e 24	-6	—	e 6-9
Balboa Heights	15-5	228	e 5 38	-1	—	—	—	—
Bogota	15-9	303	e 3 43	-4	e 6 23	-11	—	17-1
Colombia	18-5	325	e 2 43	+7	e 6 19	-1	—	e 7-6
Philadelphia	21-3	246	e 4 58	+8	e 8 40	-3	4.5 28	PP e 9-9
Fordham	21-9	350	3 11	-14	1 8 20	-4	—	—
Harvard	23-1	385	e 5 28	+20	e 9 23	+7	—	e 12-8
Pittsburgh	23-3	387	e 5 12	+2	1 9 32	+12	—	e 11-2
Atlanta	26-6	248	e 5 45	+3	—	—	—	e 12-2
St. Louis	27-1	370	e 5 47	+1	e 10 26	+2	—	e 12-2
Seven Falls	27-7	336	e 5 47	+3	e 10 26	+2	—	—
Chicago	27-8	327	e 6 14	+21	e 10 24	+1	—	e 12-2

Continued on next page.

1943										315									
	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.											
	m.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m.											
Huachayo	32-2	194	e 7 38	PP	e 11 33	-12	—	—	e 13-2										
La Paz	35-8	180	17 1	2	13 1	+20	—	—	21-8										
Rapid City	38-2	319	e 8 19	PP	e 12 56	-41	—	—	e 13-4										
Tucson	40-5	298	17 42	+2	e 15 52	+3	—	—	e 20-5										
Salt Lake City	42-9	310	—	—	—	—	—	—	e 17-9										
Bureau	44-0	317	—	—	—	—	—	—	e 18 18	SS	e 22-4								
Palomar	45-5	309	18 25a	+2	—	—	—	—	—	—	—								
La Jolla	45-8	308	18 26a	+1	—	—	—	—	—	—	—								
Riverside	46-0	300	18 27a	0	—	—	—	—	—	—	—								
Mount Wilson	46-6	300	18 28a	+1	—	—	—	—	—	—	—								
Pasadena	46-7	300	18 22a	0	115 27	+5	110 27	PP	e 23-8										
Tinianaba	47-0	303	18 26a	+1	—	—	—	—	—	—	—								
Santa Barbara	47-9	305	e 8 43	+1	—	—	—	—	—	—	—								
Secretary Sund	47-8	17	—	—	e 17 58	+4	—	—	e 29-0										
Tolosa	57-0	53	19 54	-2	e 17 53	0	12 4	PP	27-1										
Granada	58-3	58	110 12	+13	118 23	+22	—	—	24-6										
Tortosa	59-2	53	9 55	-7	118 11	-1	—	—	29-2										
St. Louis	61-4	54	e 8 44	7	118 35	2	—	—	e 27-8										
Paris	62-8	45	e 10 27	-3	—	—	—	—	e 31-2										
Chermont-Ferrand	63-2	48	e 10 28	-4	e 18 47	-16	—	—	e 35-2										
Udele	64-0	42	—	—	e 19 10	-3	—	—	e 29-8										
Scitigart	67-2	44	e 10 34	-4	—	—	—	—	—	—	—								
Florence	69-1	49	e 11 55	+25	e 20 10	-5	—	—	—	—	—								
Tolosa	70-6	47	110 27	-52	120 26	-7	—	—	—	—	—								
Helian	88-2	59	e 12 57	+2	e 23 35	-3	—	—	—	—	—								

Additional readings:
 Fort de France e - 2m. 9a. and 2m. 42a.
 Bogota I - 2m. 52a., 4m. 11a., and 4m. 58a.
 Philadelphia e - 6m. 36a.
 Fordham I - 2m. 35a.
 Rapid City e - 2m. 27a. 1.
 Tucson I - 8m. 5a. and 13m. 29a.
 Palomar IZ - 8m. 53a.
 Pasadena IZ - 8m. 48a.
 Almeria IZ - 19m. 35a., PPF - 13m. 52a., P₁S - 14m. 41a., S₂S - 19m. 47a.
 Long waves were also recorded at other European stations.

August 15d. 2h. 22m. 42a. Epicentre 13° 7'N, 147° 6'E.
 A = -8206, B = +5208, C = +2354; $\delta = +3$; A = +6;
 D = +536, E = +844; G = -199, H = +126, K = -972.

	Δ	Az.	P.	O-C.	S.	O-C.	Supp.	L.
	m.	m. s.	m. s.	m. s.	m. s.	m. s.	m. s.	m.
Nape	22-3	314	e 4 56	-5	7 30	1	—	—
Mitima	22-7	343	e 5 12	-8	9 14	+3	—	—
Tokyo Cen. Met. Oh.	23-9	344	e 5 28	+21	—	—	—	—
Sagaya	23-4	339	e 5 13	+2	—	—	—	—
KOH	23-6	330	1 5 13	0	9 28	+3	—	—
Kagostima	23-7	322	5 13	-1	9 36	+9	—	—
Kobe	23-7	335	e 5 20	+6	9 36	+9	—	—
Hikone	23-8	338	e 5 19	+4	9 31	+3	—	—
Nagano	24-4	342	e 5 32	-11	—	—	—	—
Riverview	E. 47-4	176	—	—	115 2	-39	118 40	SS
Irkutsk	51-7	328	—	—	16 23	+1	e 20 29	SS
Andijan	70-1	309	e 11 17	+1	e 20 27	0	11 51	P ₁ P
Silka	71-6	34	—	—	e 20 22	+8	—	—
Tashkent	72-4	210	11 27	-3	20 53	0	—	—
Sverdlovsk	77-0	326	e 11 56	0	21 20	-25	—	e 30-9

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Directors of ISS

- HH Turner at Oxford
- Turner succeeded by Harry Plaskett in 1930
- Then Harold Jeffreys in 1946 (moves to Kew)
- Succeeded by Robert Stoneley in 1957
- ISS became ISC (International Seismological Centre) in 1963 under Patrick Willmore



ISS in decline

- In the early 1960s, ISS was struggling:
 - Inadequate funding and staff
 - Backlog of work from war years
 - Unable to keep up with rapidly-increasing number of world-wide stations



ISS to ISC

- 1963 UNESCO meeting to discuss future of international seismology
- Agreed new body should be internationally funded (chiefly by USA and UK) and controlled
- Committee to discuss options for “World Centre” was chaired by Perry Byerly
- Recommended Edinburgh as location, Willmore as Director – maintained continuity with ISS

Early ISC bulletin

January 14d 12h		1968										14d	
Code	Station Name	Date	Ar	P or POP	(S - G)	Log	Supplementaries	Time	IS - G	IS - C	IS - D	IS - E	
						A77	Op 14	ISC 14	h	m	s	Go	
SP1	Lasz P Ring	74-02	227	+12	42	18.9							
WZ2	Bueman (W)	83-18	304	+12	41	80						12 41 42	
WZ3	Bueman (W)											12 46 43	
WZ4	Bueman (W)											12 50 31 - 23	
BUT	Burns	83-27	225	+12	28	59.2							
WMSD	Wichita Mountains	83-95	210	+12	40	55.3						12 40 12	
DUC	Duquesne	87-83	322	+12	40	04.7						12 43 30	
TUC	Tulsa	93-74	318	+12	40	27						12 53 24 + 26	

USGS Jan 14d 12h 12h 42m 48.2s 122.67W 111.47N Depth=62 dm, SD=1.3s on 42 dm, Mag=0.9 on 12 dm
 Jan 14d 12h 42m 48.7±0.28s, Epimere 52.21' ±0.027 North by 171.19' ±0.081 West, 1991 dm
 Depth = 0.00179 or 04 km, SD ± 2.65m on 99 dm, Mag = 0.9 on 22 dm, SC 1320
 (Depth from P observations is 0.0017 ± 0.00018)

(S) For Islands, Abandon Islands / (I) Alaska - Abandon Area

ADK	Adak	3-23	280	+12	41	38.5						12 42 26 + 6
PAK	Palmyra	84-29	84	+12	44	13						
CDL	College Outpost	17-18	28	+12	44	44						12 48 08 + 11
BRW	Birnie	18-05	14	+12	45	35						
TUT	Totia	21-02	62	+12	46	32						12 45 42
PHC	Fort Harbo	26-88	76	+12	48	31						
FLJ	Fort Saint James	27-82	67	+12	48	25						
ALB	Alaska	28-08	76	+12	48	48						
YIC	Yukon	30-24	76	+12	47	01						
TUM	Tumalo	31-23	81	+12	47	09.2						
SLA	Salt Lake	31-28	79	+12	47	11.0						
MCC	Miss Creek	31-62	70	+12	47	13						
LON	Longline	32-01	80	+12	47	16.6						
PNZ	Penikese	32-02	14	+12	47	22.1						
CDR	Cornwall	32-21	85	+12	47	18.8						
KJP	Kapapa Defu	32-73	157	+12	47	21.5						
WPA	Wahalea	32-87	151	+12	47	22.2						
NTJ	Northman	34-01	14	+12	47	26						
NSM	Nassau	34-28	75	+12	47	30						
GMN	Gilman	34-13	95	+12	47	30						
HYD	Hawaiian Volcano	35-28	153	+12	47	45						
MRM	Morona	35-85	93	+12	47	43.7						
WMS	Waikeke	35-70	93	+12	47	43						
HERB	Hungry Horse	36-86	73	+12	47	43.9						
ORV	Orcades	36-76	91	+12	47	43.7						
BKS	Berke	38-79	94	+12	47	53.5						
MHC	Mount Hancock	37-60	84	+12	47	59.4						
TIA	Tahiti	37-60	284	+12	48	00						12 48 20
JAB	Jamaica	37-84	82	+12	48	02.8						12 49 14
JAL	Jamaica											12 49 26
BJT	Bute	37-87	78	+12	48	05.7						12 54 15 + 27 41
SLD	San Luis Dam	37-93	94	+12	48	06.9						12 50 25 + 4 9
SLD	San Luis Dam											12 50 59 + 9 9
SDW	Sidney	38-30	284	+12	48	09.3						12 48 14 - 5
BER	Berkeley											12 50 20 - 2
MAT	Manzanita	38-54	288	+12	48	07						
WZ2	Bueman (W)	38-68	78	+12	48	08.9						
PRV	Pratt	38-97	94	+12	48	11.8						
LUR	Lurline	39-80	87	+12	48	17.0						
LF4	Lasz P Ring	40-45	71	+12	48	23.8						12 50 28 + 1 - 1
SGR	St George	41-09	83	+12	48	29.4						
SGR	St George	41-22	83	+12	48	34.5						12 54 96
PCZ	Fort Churchill	41-88	90	+12	48	38.2						
PAW	Pawnee	41-72	85	+12	48	39.0						
ORS	Orcades	41-62	78	+12	48	39						
WEL	Wahalea	41-95	266	+12	48	38						
POU	Hanning George	42-71	80	+12	48	37.8						12 48 48
UNO	Union	42-81	82	+12	48	37.8						
SGA	St George	43-96	88	+12	48	52						12 48 44
PLJ	Yagor	44-90	88	+12	48	05.6						12 54 47
MOB	Monte	45-84	8	+12	48	08.1						12 58 40 - 15
YFO	Yonke Fossil	45-84	88	+12	48	07.1						
TUC	Tulsa	47-48	80	+12	49	20.7						
ALD	Alaska	48-12	88	+12	49	30.4						
WBS	Wahalea (WASSS)	48-12	358	+12	49	30						12 48 56
GDH	Good Hope	50-28	24	+12	49	42						
WMSD	Wichita Mountains	51-21	79	+12	50	08.6						
SLD	San Luis Dam	52-53	57	+12	50	20						
STG	St George	53-23	12	+12	50	12.2						12 54 17
WTG	Wahalea	53-23	12	+12	50	12.2						12 51 00
CLJ	Clarendon	58-73	82	+12	50	42.9						
OTT	Ottawa	58-83	85	+12	50	44						
KVF	Kula	58-18	262	+12	50	32.8						
KVR	Kula	58-55	265	+12	50	48.7						12 50 36
WSD	Wahalea	58-58	352	+12	50	48						12 50 52
MVC	Monte	59-58	54	+12	50	50						
CPD	Camden Point	60-24	49	+12	50	55.9						
BRW	Birnie (B H)	61-41	43	+12	50	58						
DIA	Duba	61-88	262	+12	51	04						
KUN	Kula	62-88	58	+12	51	10						12 50 52
WES	Wahalea	63-87	264	+12	51	16						

January 14d 12h		1968										14d	
Code	Station Name	Date	Ar	P or POP	(S - G)	Log	Supplementaries	Time	IS - G	IS - C	IS - D	IS - E	
						A77	Op 14	ISC 14	h	m	s	Go	
WZ2	Bueman (W)	69-00	49	+12	51	26						0 9	
WZ3	Bueman (W)	68-57	51	+12	51	34						12 51 39	
WZ4	Bueman (W)	67-94	265	+12	51	40.9							
WZ5	Bueman (W)	66-84	320	+12	51	57.0							
USA	U.S. Army	71-88	7	+12	52	12.1						9 3	
WZ6	Bueman (W)	72-37	156	+12	52	11.6							
WZ7	Bueman (W)	73-28	186	+12	52	15.0							
WZ8	Bueman (W)	74-38	287	+12	52	38						12 54 08	
WZ9	Bueman (W)	75-80	1	+12	52	41.1							
WZ10	Bueman (W)	77-08	288	+12	52	38						9 4	
WZ11	Bueman (W)	77-58	282	+12	52	45						4 8	
WZ12	Bueman (W)	77-58	282	+12	52	40						2 5	
WZ13	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ14	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ15	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ16	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ17	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ18	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ19	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ20	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ21	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ22	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ23	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ24	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ25	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ26	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ27	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ28	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ29	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ30	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ31	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ32	Bueman (W)	77-58	282	+12	52	47						9 3	
WZ33	Bueman (W)	77-58	282	+12	52	47							

Directors of ISC



The heirs of Milne!

