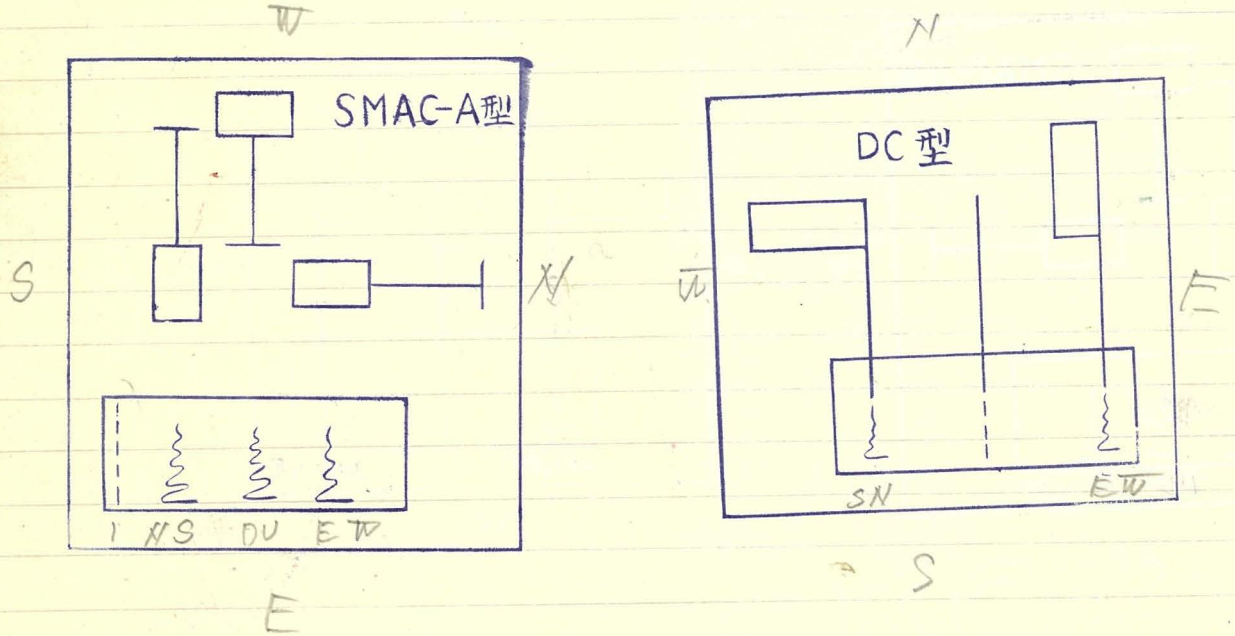
(17) 新潟県営アパート　SMAC—A型 / 台　DC型 / 台

場　　所　新潟市川岸3丁目
観測開始　1958年4月
建物階数　4F · B1F
設置階数　2号館 B1F　3号館 RF
責任者　村山 昇（新潟県土木部建築課）



STRONG-MOTION EARTHQUAKE OBSERVATION COMMITTEE

STRONG-MOTION EARTHQUAKE RECORDS OF THE NIIGATA EARTHQUAKE

JUNE 16, 1964

PUBLISHED BY
EARTHQUAKE RESEARCH INSTITUTE
UNIVERSITY OF TOKYO

DEC. 1964

Table 1. List of the Site where Strong Motion Accelerographs are Installed.

Name	Number of		Address	Installation Site	Date of Installation
	SMAC	DC			
Earthquake Research Institute	1	1	University of Tokyo, Motofujicho, Bunkyo Ward, Tokyo	Underground vault.	July 1953
Akashi Seisakusho Ltd.	1	0	No. 5-1, Higashi-Shinagawa, Shinagawa Ward, Tokyo	1F	July 1953
Daimaru Department Store	3	0	No. 1-1, Marunouchi, Chiyoda Ward, Tokyo	2B, 2F, 6F	Dec. 1954
Toyoko Department Store	3	0	No. 55, Kamidori Nichome, Shibuya Ward, Tokyo	5F main, 5F new, overbridge	Mar. 1955
Metropolitan Municipal Office	4	0	No. 1, Marunouchi 3-chome, Chiyoda Ward, Tokyo	2B, 2F, 5F, 8F	Sept. 1956
Meiji University	1	1	Post-graduate School, No. 2 Surugadai, Chiyoda Ward, Tokyo	2B, 8F	June 1957
Kameido Appartment Building	0	2	No. 65, Kameido 7-chome Koto Ward, Tokyo	1F, 3F	June 1957
Ministry of International Trade and Industry	0	2	Kasumigaseki, Chiyoda Ward, Tokyo	1B, 9F	June 1957
Mitaka Appartment Building	1	1	Appartment house of the Housing Corporation, Muremachi, Mitaka City	1F, 3F	April 1957
Daini Sennari Building	2	0	No. 1, Ginza 8-chome, Chuo Ward, Tokyo	1B, 1R	Mar. 1958
Tokyo Tatemono Building	2	0	No. 7, Yaesu 3-chome, Chuo Ward, Tokyo	1B, 9F	June 1958
Uyeno Matsuzakaya Department Store	3	0	No. 1, Ueno-Hirokoji, Daito Ward, Tokyo	6F main, 6F new, 3B	Sept. 1958
Marubutsu Department Store	2	0	No. 591, Ikebukuro 1-chome, Toshima Ward, Tokyo	3B, 1R	Oct. 1958
Tokyo Tower	2	0	No. 20, Shiba Park, Minato Ward, Tokyo	Sightseeing gallery, 4F	Dec. 1958
Home Office, Japan National Railway	1	0	No. 1, Marunouchi 1-chome, Chiyoda Ward, Tokyo	1R	
Building Research Institute	1	0	Hyakunincho, Shinjuku Ward, Tokyo	1F	Jan. 1960
Shimizu Construction Co.	2	0	No. 1-1, Takaracho 2-chome, Chuo Ward, Tokyo		
Railway Technical Research Institute	3	0	Heibei-Shinden Kokubunji City	1B, 2F, 5F	Nov. 1959
Osaka Daiichi Seimei Building	1	1	In front of Osaka Station, Osaka City	2B, 1R	May 1953
Osaka Godo-Chosha	1	1	No. 2, Ootenomae-machi, Higashi Ward, Osaka	1B, 1R	Mar. 1957
Osaka Asahi Building	3	0	No. 22, Nakanoshima 2-chome, Osaka City	2B, 8F, 4R tower	Oct. 1958
Kansai Denryoku Building	3	0	No. 164, Umegaya-cho, Kita Ward, Osaka City	2B, 8F, 14F	Oct. 1959
Nagoya Bunka Kaikan	1	0	No. 8-8, Hisayacho, Higashi Ward, Nagoya City	1R	April 1954
Nakamura Appartment Building	1	1	Prefectural Appartment building Inabaji, Nakamura Ward, Nagoya City	1F, 3F	Mar. 1957
Nagoya Tower	1	0	No. 15, Kaguracho, 2-chome, Naka Ward, Nagoya City	Sightseeing gallery	June 1957
Ichinomiya	0	1	Branch Station of Geophysical Observatory, Nagoya University, Ichinomiya City	1F	Dec. 1958
Kushiro District Meteorological Observatory	1	0	Nusamai-cho, Kushiro City	1F	June 1959
Tohoku University	1	1	Architectural Institute, Faculty of Engineering, Tohoku University Minami-Rokkencho, Sendai City	1F, 1R	May 1958
Atomic Energy Research Institute	1	0	Meteorological Laboratory, Atomic Energy Research Institute, Tokai Village, Naka County, Ibaraki Prefecture.	1F	Sept. 1957
Kawasaki Power Station	3	0	National Railway, Kawasaki Power Station	0m, 25m, 40m level	Nov. 1959
Niigata Prefectural Appartment Building	1	1	Kawagishimachi 3-chome (Suburb of Niigata City)	1B, 1R	April 1958
Kanazawa Central Hospital	1	1	No. 38, Nishimikagecho, Kanazawa City	1B, 1R	April 1958
Totsugawa Dam	1	0	Sarutani Dam, Totsu River, Yoshino Country, Nara Prefecture	Side bank	Mar. 1958
Hiroshima City Hall	1	1	No. 1, Motoicho Hiroshima City	1B, 1R	April 1958
Kochi City Hall	1	1	No. 1, Obiyamachi Kochi City	1B, 1R	April 1958

Table 2. List of Earthquakes Recorded by any of the Strong Motion Accelerographs.

No.	Date				Epicentral Region	Position of Hypocentre			Maximum Intensity	Number of Records		Intensity at J.M.A.* Tokyo
	Year	Month	Day	Time		Latitude	Longitude	Depth		SMAC	DC	
								KM				
1	1954	VI	5	22:14	South-western part of Ibaraki Prefecture	36.0°N	139.9°E	50–60	IV	1	0	III
2	1956	II	10	06:55	South-western part of Ibaraki Prefecture	36.1	139.9	60	IV	2	0	III
3	1956	II	14	09:52	Near the mouth of River Edo.	35.7	139.9	50	V	3	1	IV
4	1956	IV	26	20:38	Vicinity of Choshi City	35.8	140.8	30	III	3	1	III
5	1956	IX	30	08:21	Middle part of Chiba Prefecture	35.5	140.2	70	V	7	0	IV
6	1956	XI	4	14:37	Middle part of Chiba Prefecture	35.6	140.2	80	IV	7	0	III
7	1956	XII	19	06:13	Near the border of Tokyo and Kanagawa Prefectures	35.6	139.2	120	IV	4	1	IV
8	1957	VII	17	03:03	South-western part of Ibaraki Prefecture	36.1	139.9	50	IV	2	3	II
9	1957	IX	16	09:07	Off the south eastern sea of Katsuura	35.0	140.5	80	III	2	2	II
10	1957	X	31	11:37	Eastern part of Fukushima Prefecture	37.6	140.8	80	IV	3	3	II
11	1958	III	17	01:22	South-western part of Ibaraki Prefecture	36.0	140.1	60	III	3	1	I
12	1958	V	11	06:31	Near Tokyo	35.65	139.7	40	III	7	3	III
13	1958	VI	27	10:42	Near the northern coast of Tokyo Bay	35.7	140.0	40	IV	4	1	II
14	1958	VIII	28	13:06	South-western part of Ibaraki Prefecture	36.05	139.95	50	IV	4	2	II
15	1958	XI	7	07:58	Off the southern coast of Etorofu Island	44.3	148.5	80	V	3	2	II
16	1959	I	24	14:08	Off the eastern coast of Fukushima Prefecture	37.4	141.1	80	V	8	1	III
17	1959	I	30	22:41	Northern part of Tokyo Bay	35.6	140.0	80	III	5	0	III
18	1959	III	16	07:19	Middle part of Chiba Prefecture	35.5	140.2	80	III	3	0	II
19	1959	IV	25	16:13	Lower reaches of River Edo	35.8	139.6	60	I	3	0	I
20	1959	IV	29	07:01	Off the south-eastern coast of Boso Peninsula	34.9	140.7	70	III	3	0	II
21	1959	VII	26	06:20	Near the border of Ibaraki and Fukushima Prefectures	36.8	140.5	80	IV	6	0	II
22	1959	IX	8	19:03	Off shore in the Kashima-nada	36.4	140.7	50	III	1	0	II
23	1959	IX	24	07:23	Western part of Yamanashi Prefecture	35.7	138.4	10	IV	1	1	II
24	1960	I	14	19:26	~~Southern~~ part of Ibaraki Prefecture	36.0	140.2	70		14	4	III
25	1960	II	23	18:23	Northern part of Chiba Prefecture	35.8	140.3	40		6	2	II

* Japan Meteorological Agency.

Table 3. Characteristics of Strong-Motion Earthquake Accelerographs.

(Continued)

Characteristics \ Name	SMAC	DC
Component	2 Horizontal 1 Vertical	2 Horizontal
Type	Horiz. pendulum	Inverted pendulum
Weight of bob (kg)	4.3	
Natural period (sec)	0.1	0.1
Sensitivity (gals/mm)	25	12
Damping	Critical	Critical
Damping mechanism	Air piston	Air piston
Recording range (gals)	10–1000	10–500
Recording speed (mm/sec)	10	20
Recording medium	Waxed paper	Smoked paper
Recording drive	Hand-wound spring motor	1/50 HP DC motor
Recording time duration	3 min.	3 min.
No. repeat cycles	3	1
Starter	Elect. contact made by vertical motion	Elect. contact made by vertical motion
Period of starter pendulum (sec)	0.3	0.3
Starter threshold (gals)	10	10
Auxiliary starter	Mechanical, works at 100 gals.	—
Time marking	1 sec., 1/2 sec. or 1/5 sec..	1 sec.
Power supply	4 Dry cells	3 Dry cells
Size, overall (cm)	56×74×84	59×48×35

(to be continued)

STRONG MOTION EARTHQUAKE
No. 93.

DATE

June 16, 1964, 13 h 01 m

EPICENTER AND DEPTH

Longitude : 139.2° E. Latitude : 38.4° N. Depth : 40 km.

INTENSITY (Japanese Scale)

V .... Niigata, Aikawa, Sakata, Sendai.
IV .... Akita, Yamagata, Onahama, Fukusima, Maebasi, Kakioka, Isinomaki, Sirakawa, Wajima, Nagano, Takata.
III .... Miyako, Kumagaya, Kofu, Chichibu, Utsunomiya, Suwa, Omaezaki, Toyama, Yokohama, Tokyo, Ofunato, Oiwake, Matsumoto.
II .... Aomori, Mito, Matsusiro, Funatsu, Kanazawa, Choshi, Ezasi, Mishima, Iida.
I ..... Hachinoe, Tomizaki, Toyooka, Hikone, Tsu, Fukui, Takayama, Morioka, Hakodate, Mori, Muroran, Obihiro, Shizuoka.

DAMAGE

The damaged area covers about 2,000 km² in area in Niigata and other two prefectures. Total damage to buildings and other structures published by the Board of Police on June 19 is as follows : loss of life 25, injured 398, totally collapsed buildings 1,455, half collapsed buildings 7,284, burned houses 317, submarged houses 13,595, bridges collapsed or washed away 40, part of embankment collapsed 64, number of sufferers 108,260.

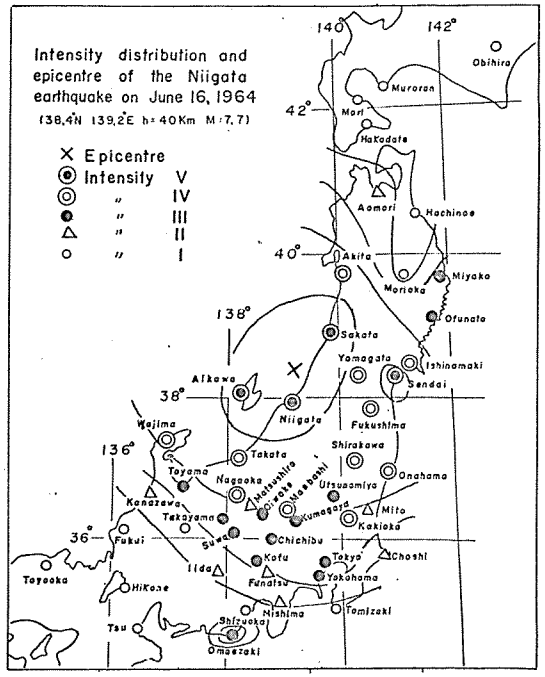
Abbreviations :

R : Roof
F : Floor
B1 : First Basement
SMAC : Strong Motion Accelerograph Type Instrument
DC : Dept. of Construction Type Instrument

STRONG MOTION ACCELEROGRAPH STATIONS

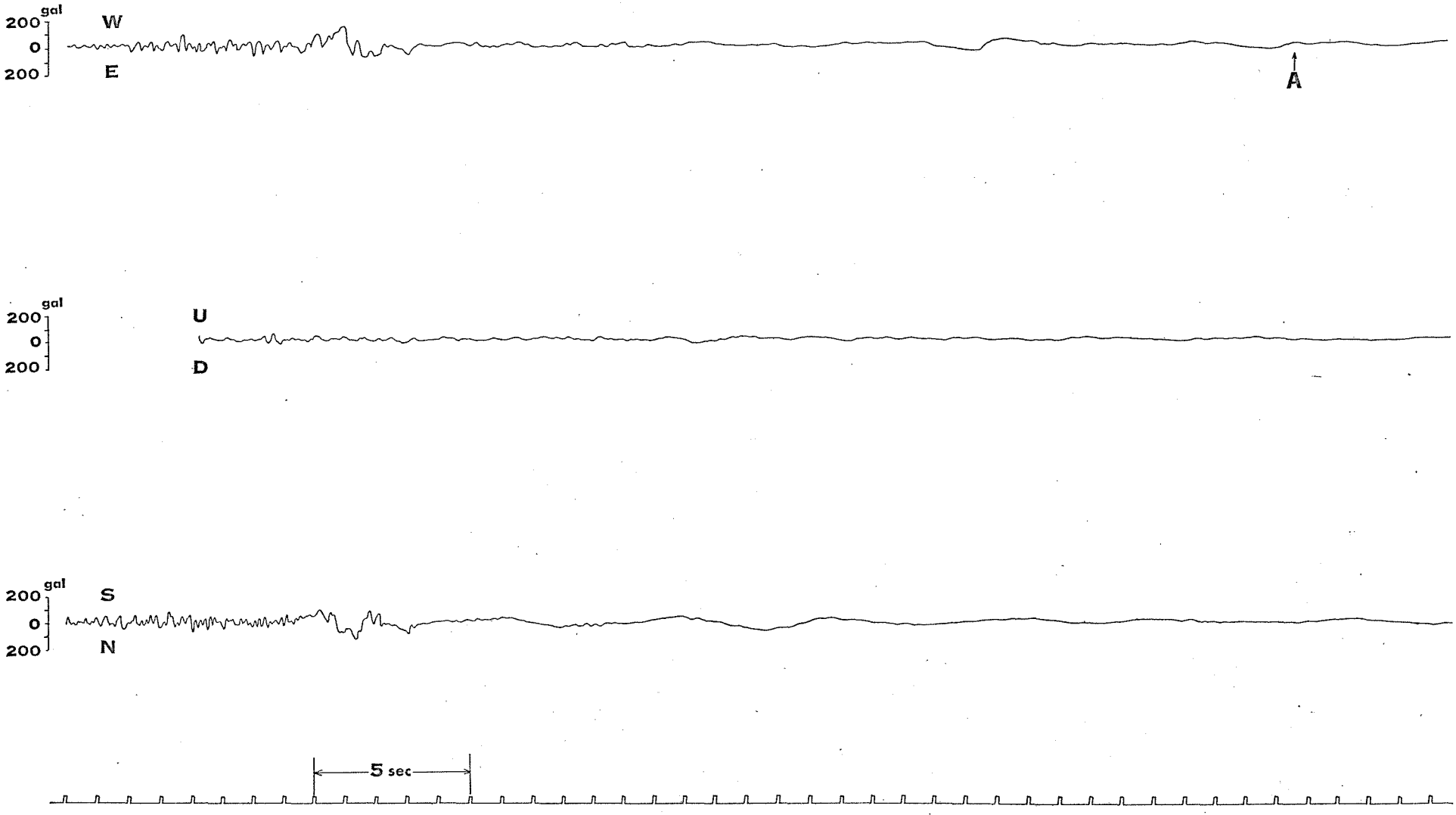
No. Location
501 Architecture Div. ; Engineering Dept. Tohoku Univ., Minami-rokkencho, Sendai.
502 Prefectural Government Hall, Akita.
503 Sendai Power Station, Shichigahama-machi, Miyagi Pref.

701 No. 2 Apartment House, Kawagishi-cho, Niigata.



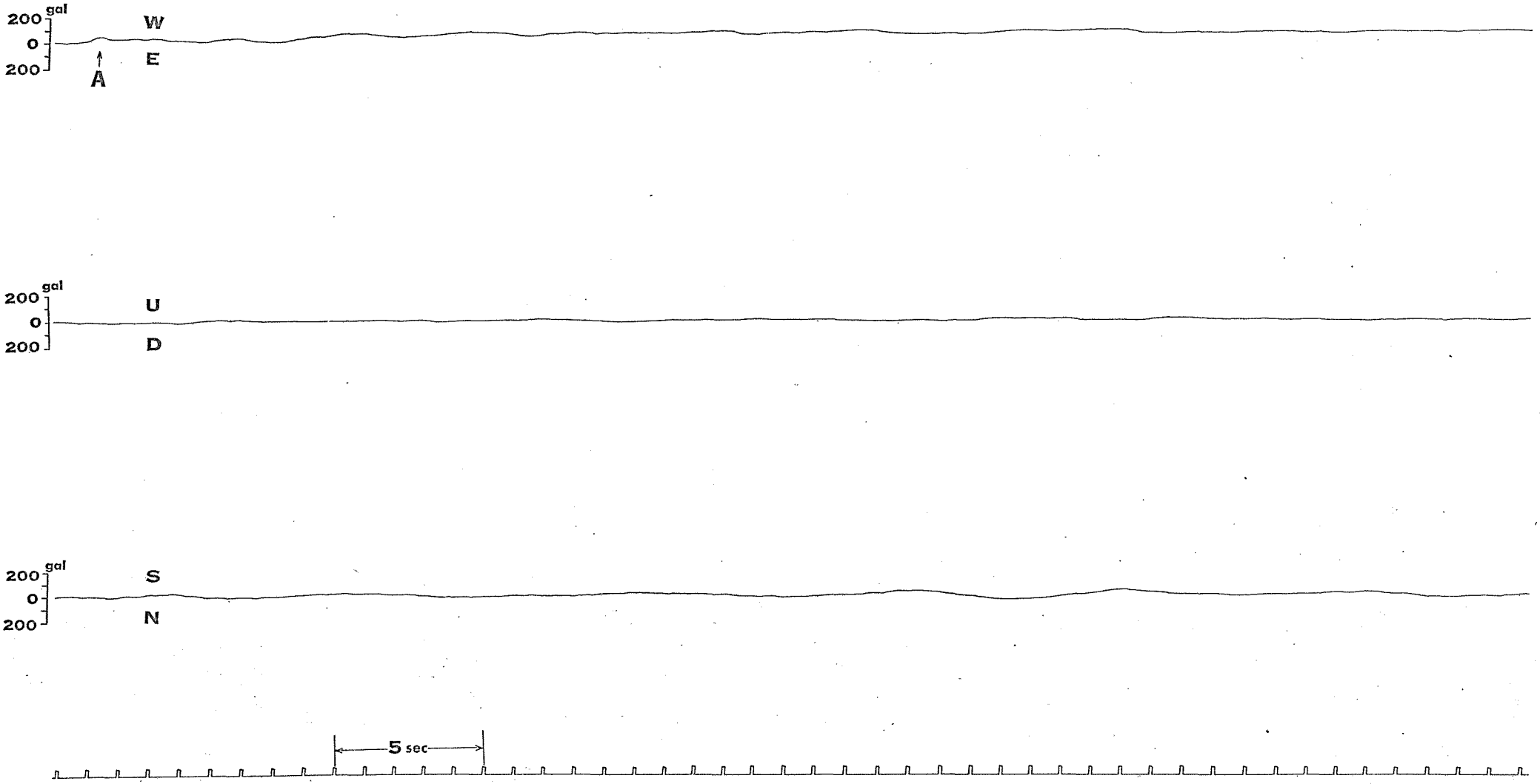
Earthquake No. 93. June 16, 1964. SMAC-A Accelerograph

Site 701, BIF



Earthquake No. 93. June 16, 1964. SMAC-A Accelerograph

Site 701, BIF (Continued)



Earthquake No. 93. June 16, 1964. DC Accelerograph

Site 701, RF