CHAPTER IV

DATA AND RESULTS

IV.1 Data and Results of Pc 1 Micropulsation Observations

Data on Pc 1 micropulsations were recorded at TREND Site*, Sakaraj, Nakhon Ratchasima, from February 2, 1970 to February 24, 1970. Recordings were taken for 2 1/2 minutes at the beginning of each hour between 0700 and 2000, local time, every day. The first minute was recorded at a chart speed of 1 millimeter per second, the second minute at a speed of 5 millimeter per second, and the last 30 seconds of recording was at a speed of 25 millimeter per second. Recordings were examined for the occurrence of Pc 1 during each day of observation, and the Pc 1 traces were then digitized. After digitizing, the Pc 1 data were analyzed to find the power spectrum densities of Pc 1 at different times of occurrence. Table IV-1 showes the power spectrum density of Pc 1 in the east-west direction which occurred at different hours of each day. Besides amplitudes, Table IV-1 showes the frequency of the Pc 1 signals recorded. Table IV-2 showes activity of Pc 1 in the north-south direction. Figure 23 is a chart that showing two frequencies of Pc 1 oscillations that occurred at the same time, with onset time and date indicated. The Pc 1 activity over TREND Site from February 2 through February 24, 1970 is illustrated in Figure 24.

* TREND Site is located at geographic latitude 14°30'39"N, geographic longitude 101°56'8"E (equivalent to geomagnetic latitude 2°57'4"N and geomagnetic longitude 171°12'58"E).

Table IV-1

Pc 1 MICROPULSATION ACTIVITY IN EAST-WEST DIRECTION OVER TREND SITE, THAILAND, FEBRUARY 2 THROUGH FEBRUARY 24, 1970

Local Time / Date	0700		0800		0900		1000		1100		1200		1300		1400		1500		1600		1700		1800		1900		2000	
	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$
2	–	–	–	–	–	–	–	–	–	–	–	–	.3	404	–	–	–	–	.45	277	–	–	.6	27.7	1.0	14.8	.4	336
3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.55	130	.5	609	.5	650	–	–	1.1	87
4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.3	440	.7	10.4	–	–
5	–	–	–	–	–	–	–	–	1.2	5.2	–	–	.3	255	–	–	.3	290	–	–	–	–	–	–	–	–	–	–
6	–	–	1.2	3.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.66	6.5	–	–	–	–
7	–	–	1.2	3.7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.4	115	–	–
8	–	–	1.2	4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.4	78	.5	78.7	–	–	–	–
9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	–	–	1.2	6.6	–	–	–	–	–	–	–	–	–	–	–	–	.55	210	.7	26	–	–	–	–	.4	180	–	–
11	1.2	7	1.2	6.4	–	–	–	–	–	–	–	–	.25	320	–	–	–	–	–	–	.25	390	–	–	–	–	–	–
12	1.1	2.2	1.1	5.6	1.1	6.4	–	–	–	–	1.2	6.4	1.2	5	–	–	1.2	34.7	–	–	1.2	36.3	–	–	–	–	–	–
13	1.2	4.3	1.2	5.1	1.2	3.4	1.2	1.3	1.2	4.6	1.2	4	–	–	–	–	–	–	–	–	–	–	–	–	1.2	3.8	–	–
14	1.2	4.5	1.2	4.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15	–	–	–	–	–	–	–	–	–	–	.8	21	–	–	.66	24.9	–	–	–	–	–	–	.25	200	–	–	–	–
16	1.2	6.7	–	–	–	–	–	–	–	–	–	–	–	–	.4	135	.5	100	–	–	–	–	.9	40	–	–	–	–
17	1.2	6	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18	1.2	10	1.2	5	–	–	.45	102	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19	–	–	–	–	–	–	–	–	–	–	–	–	.4	104	–	–	–	–	–	–	–	–	.5	41	.7	11	–	–
20	–	–	–	–	–	–	.25	650	.4	240	.3	150	–	–	–	–	–	–	–	–	.3	250	.55	300	.4	100	.3	284
21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.83	25	–	–	–	–	.5	400	.5	350
22	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.25	505	–	–	–	–	.66	3.1	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

Table IV-2

Pc 1 MICROPULSATION ACTIVITY IN NORTH-SOUTH DIRECTION OVER TREND SITE, THAILAND, FEBRUARY 2 THROUGH FEBRUARY 24, 1970

Local Time / Date	0700		0800		0900		1000		1100		1200		1300		1400		1500		1600		1700		1800		1900		2000	
	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$	$f_{(Hz)}$	$Amp_{(mγ)}$
2	—	—	—	—	—	—	—	—	—	—	—	—	.3	135	—	—	—	—	.45	140	—	—	.6	13.3	1.0	7.2	.4	154
3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.55	27.5	.5	80	.5	190	—	—	1.1	48
4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.3	280	.7	2	—	—
5	—	—	—	—	—	—	—	—	1.2	4.3	—	—	.3	75	—	—	.3	160	—	—	—	—	—	—	—	—	—	—
6	—	—	1.2	2.8	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.66	4.4	—	—	—	—
7	—	—	1.2	3.4	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.4	70	—	—
8	—	—	1.2	3.5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.4	28	.5	39	—	—	—	—
9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
10	—	—	1.2	5.7	—	—	—	—	—	—	—	—	—	—	—	—	.55	57	.7	18	—	—	—	—	.4	84	—	—
11	1.2	5.8	1.2	4.6	—	—	—	—	—	—	—	—	.25	130	—	—	—	—	—	—	.25	120	—	—	—	—	—	—
12	1.1	1.6	1.1	4.5	1.1	4.5	—	—	—	—	1.2	4	1.2	2.7	—	—	1.2	26.7	—	—	1.2	25.4	—	—	—	—	—	—
13	1.2	2.6	1.2	3.1	1.2	2.6	1.2	2.2	1.2	0.9	1.2	0.8	—	—	—	—	—	—	—	—	—	—	—	—	1.2	2.3	—	—
14	1.2	3.4	1.2	3	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
15	—	—	—	—	—	—	—	—	—	—	.8	10	—	—	.66	15.5	—	—	—	—	—	—	.25	86	—	—	—	—
16	1.2	3.9	—	—	—	—	—	—	—	—	—	—	—	—	.4	70	.5	53	—	—	—	—	.9	25	—	—	—	—
17	1.2	2.1	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
18	1.2	3.5	1.2	3.2	—	—	.45	44	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
19	—	—	—	—	—	—	—	—	—	—	—	—	.4	50	—	—	—	—	—	—	—	—	.5	21	.7	3	—	—
20	—	—	—	—	—	—	.25	350	.4	70	.3	50	—	—	—	—	—	—	—	—	.3	120	.55	220	.4	30	.3	160
21	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.83	15	—	—	—	—	.5	200	.5	150
22	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
23	—	—	—	—	—	—	—	—	—	—	—	—	—	—	.25	280	—	—	—	—	.66	2.1	—	—	—	—	—	—
24	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

Table IV-3

Pc 1 MICROPULSATION ACTIVITY IN VERTICAL DIRECTION OVER TREND SITE, THAILAND, FEBRUARY 2 THROUGH FEBRUARY 24, 1970

Local Time / Date	0700		0800		0900		1000		1100		1200		1300		1400		1500		1600		1700		1800		1900		2000	
	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$	$f_{(Hz)}$	$Amp_{(mf)}$
2	–	–	–	–	–	–	–	–	–	–	–	–	.3	110	–	–	–	–	.45	45	–	–	.6	5.5	1.0	3.2	.4	72
3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.55	7	.5	22	.5	64	–	–	1.1	42.8
4	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.3	200	.7	1.3	–	–
5	–	–	–	–	–	–	–	–	1.2	1.7	–	–	.3	60	–	–	.3	75	–	–	–	–	–	–	–	–	–	–
6	–	–	1.2	0.9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.66	1.6	–	–	–	–
7	–	–	1.2	1.2	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.4	31	–	–
8	–	–	1.2	1.1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.4	17	.5	9.1	–	–	–	–
9	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
10	–	–	1.2	1.8	–	–	–	–	–	–	–	–	–	–	–	–	.55	14	.7	6.8	–	–	–	–	.4	41	–	–
11	1.2	2	1.2	2	–	–	–	–	–	–	–	–	.25	90	–	–	–	–	–	–	.25	90	–	–	–	–	–	–
12	1.1	0.3	1.1	2.8	1.1	1.3	–	–	–	–	1.2	1.1	1.2	6	–	–	1.2	9.6	–	–	1.2	8.7	–	–	–	–	–	–
13	1.2	0.8	1.2	0.9	1.2	0.7	1.2	0.6	1.2	0.9	1.2	0.8	–	–	–	–	–	–	–	–	–	–	–	–	1.2	0.8	–	–
14	1.2	1	1.2	1	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
15	–	–	–	–	–	–	–	–	–	–	.8	6	–	–	.66	5.2	–	–	–	–	–	–	.25	65	–	–	–	–
16	1.2	5.2	–	–	–	–	–	–	–	–	–	–	–	–	.4	28	.5	20	–	–	–	–	.9	10	–	–	–	–
17	1.2	0.3	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
18	1.2	2.7	1.2	0.4	–	–	.45	7	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
19	–	–	–	–	–	–	–	–	–	–	–	–	.4	16	–	–	–	–	–	–	–	–	.5	5	.7	1.8	–	–
20	–	–	–	–	–	–	.2	50	.4	40	.3	40	–	–	–	–	–	–	–	–	.3	130	.55	100	.4	20	.3	62
21	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.83	7	–	–	–	–	.5	150	.5	90
22	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
23	–	–	–	–	–	–	–	–	–	–	–	–	–	–	.2	110	–	–	–	–	.66	1.5	–	–	–	–	–	–
24	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

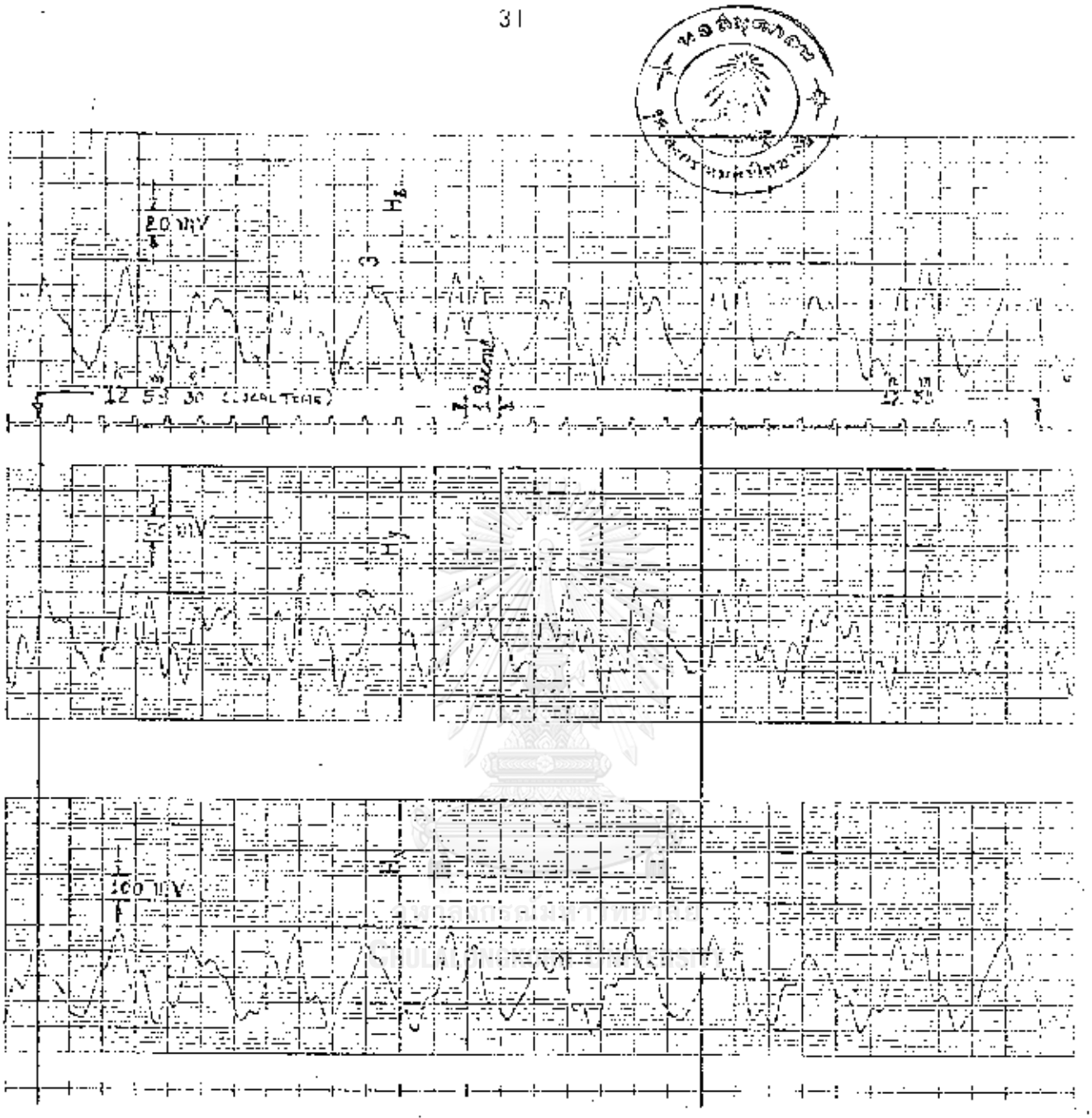


FIG. 23 Hx, Hy, AND Hz AT TREND SITE, THAILAND SHOWING DIFFERENT FREQUENCIES OF Pc 1 OSCILLATIONS, FEBRUARY 11, 1970

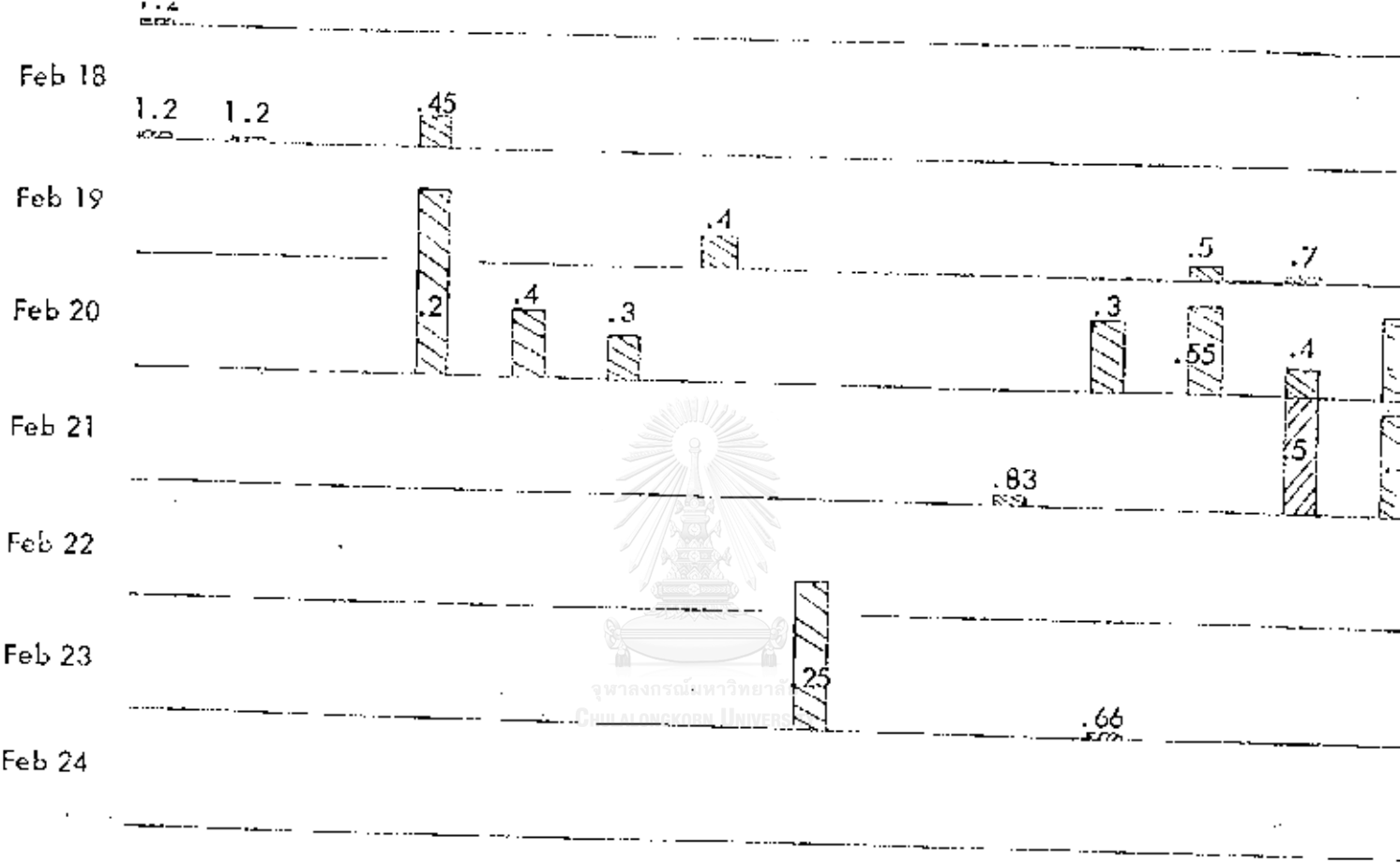
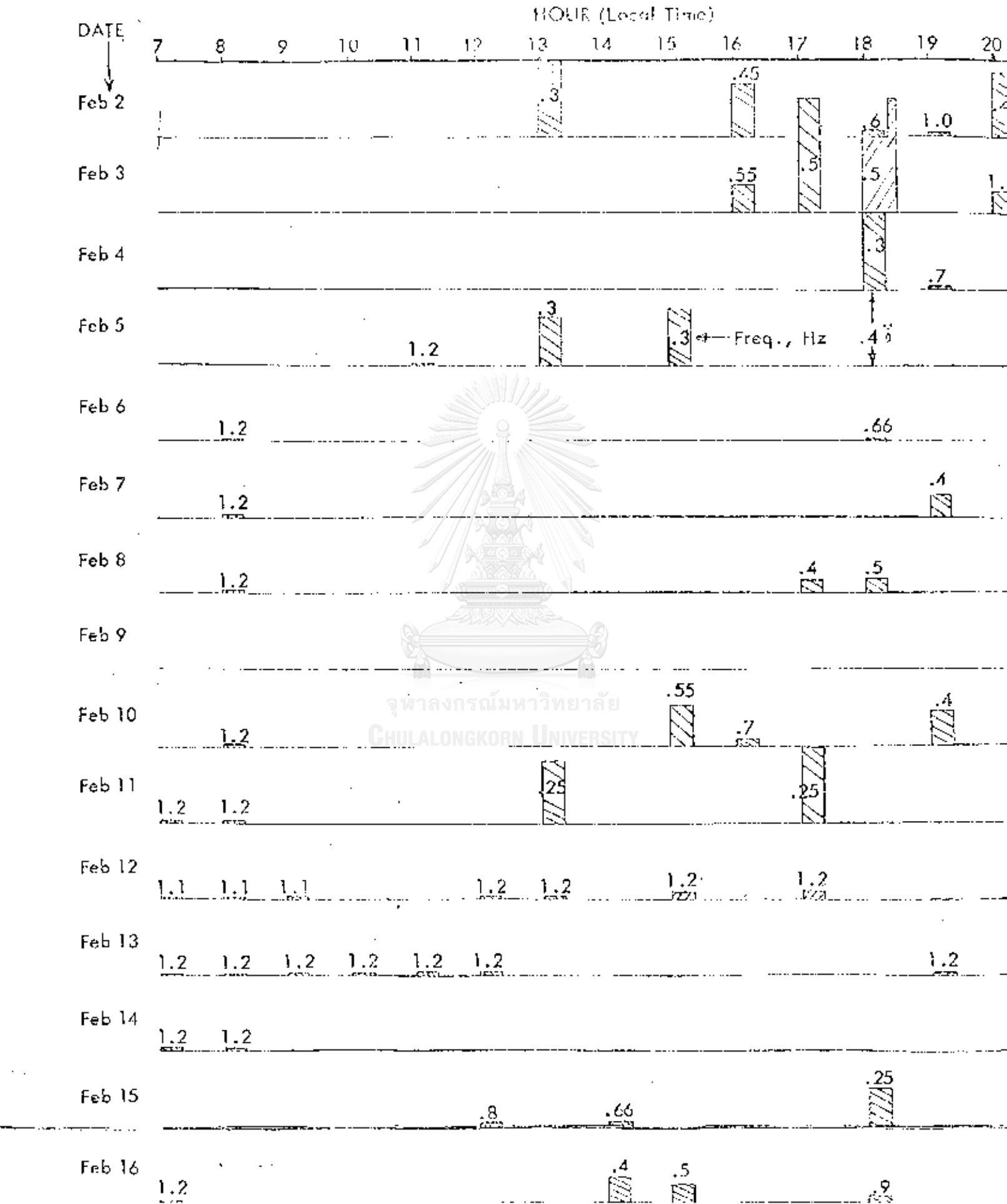


FIG. 24 Pc 1 ACTIVITY OVER TREND SITE, THAILAND, FEBRUARY 2 THROUGH FEBRUARY 24, 1970



IV.2 The Electron Density of Ionosphere E-Region

The E-region ionospheric condition was observed at the Applied Scientific Research Corporation of Thailand (ASRCT), Bangkok. The data of ionosphere E-region were collected with a modified model C-2 Vertical-incident sounder by sweeping 1 MHz to 25 MHz in 0.5 minute. These observations were made on a routine 24 hour-a-day basis, with soundings recorded every 15 minutes on the ionograms. All data were thus recorded and read at ASRCT. Table IV-4 shows virtual heights of the lowest E-region stratification by time and date from February 2 to February 24, 1970, and Table IV-5 shows the virtual height of the highest E-region stratification during the same period. Table IV-6 presents data of the critical frequencies for the highest E-region stratification. The ionizing agent which produces the normal E-region is believed to be soft X radiation of solar origin. Because the E layer recombination process is the same process discribed in the Chapman Layer[1], then we can calculate electron density in E layer by using the equation for the Chapman Layer:

$$N = N_m \, Ch(x).$$

Electron density of E-Layer ionosphere from February 2 to February 24, 1970 is shown in Table IV-7.

[1] Kelso, J.M. 1964. Formation of Chapman Layer, p.p. 75-85, Radio Ray Propagation in the Ionosphere. New York: McGraw-Hill Book Co. Inc.

Table IV-4

VIRTUAL HEIGHT OF THE LOWEST E-REGION STRATIFICATION FROM FEBRUARY 2 THROUGH FEBRUARY 24, 1970

Local Time / Date	0700 (km)	0800 (km)	0900 (km)	1000 (km)	1100 (km)	1200 (km)	1300 (km)	1400 (km)	1500 (km)	1600 (km)	1700 (km)
2	-	-	-	-	-	110	C	C	105	100	110
3	C	110	110	110	110	110	110	C	110	C	C
4	C	110	110	110	110	110	105	105	100	100	C
5	C	115	110	-	-	-	-	-	110	110	C
6	C	110	110	105	110	105	105	100	100	100	105
7	160	110	-	-	-	110	C	110	C	110	110
8	C	110	110	110	110	115	110	110	110	110	110
9	140	115	110	110	110	100	C	C	105	110	110
10	C	110	110	C	110	110	115	110	105	105	110
11	C	110	110	C	C	110	C	105	C	110	115
12	120	110	105	100	100	110	C	110	C	C	115
13	C	115	110	110	100	110	110	105	110	110	C
14	C	110	110	110	110	110	100	100	105	105	115
15	-	-	-	-	-	-	-	-	-	-	-
16	C	C	110	110	110	105	105	105	110	105	115
17	C	115	110	105	105	105	105	100	100	105	110
18	C	110	110	110	105	C	C	110	105	110	110
19	C	115	120	120	C	115	110	110	110	110	C
20	140	120	-	-	-	-	-	-	-	-	-
21	C	C	110	110	110	110	110	110	110	110	115
22	105	115	110	110	110	110	110	110	110	110	110
23	C	115	110	110	110	110	110	110	110	105	120
24	C	110	120	110	100	C	C	105	105	C	120

C = Any non-ionospheric reason.

Table IV-5

VIRTUAL HEIGHT OF THE HIGHEST E-REGION STRATIFICATION FROM FEBRUARY 2 THROUGH FEBRUARY 24, 1970

Local Time / Date	0700 (km)	0800 (km)	0900 (km)	1000 (km)	1100 (km)	1200 (km)	1300 (km)	1400 (km)	1500 (km)	1600 (km)	1700 (km)
2	-	-	-	-	-	125	C	C	110	125	140
3	C	120	115	115	120	115	115	C	115	C	C
4	C	150	140	135	130	120	120	115	110	110	C
5	C	140	150	-	-	-	-	-	130	130	C
6	C	130	120	120	130	125	130	120	110	140	140
7	170	140	-	-	-	130	C	125	C	150	120
8	C	120	130	140	140	130	125	120	140	170	170
9	160	150	130	130	140	120	C	C	125	145	150
10	C	150	120	C	120	125	125	120	145	145	135
11	C	140	130	C	C	115	C	140	C	140	160
12	140	130	140	140	120	120	C	130	C	C	170
13	C	140	130	125	125	130	125	120	120	120	C
14	C	130	125	130	125	120	120	120	115	115	140
15	-	-	-	-	-	-	-	-	-	-	-
16	C	C	130	140	130	120	120	135	130	130	150
17	C	140	135	130	135	115	115	115	130	120	140
18	C	130	140	120	115	C	C	135	120	130	140
19	C	140	140	140	C	130	130	125	125	140	C
20	160	170	-	-	-	-	-	-	-	-	-
21	C	C	140	130	130	125	120	125	130	130	130
22	130	140	135	130	120	130	120	125	125	140	140
23	C	125	130	130	125	125	130	120	115	140	140
24	C	135	130	135	130	C	C	125	130	C	125

C = Any non-ionospheric reason.

Table IV-6

CRITICAL FREQUENCY OF THE HIGHEST E-REGION STRATIFICATION
FROM FEBRUARY 2 THROUGH FEBRUARY 24, 1970

Local Time / Date	0700 (MH_z)	0800 (MH_z)	0900 (MH_z)	1000 (MH_z)	1100 (MH_z)	1200 (MH_z)	1300 (MH_z)	1400 (MH_z)	1500 (MH_z)	1600 (MH_z)	1700 (MH_z)
2	-	-	-	-	-	3.5	C	C	3.0	3.4	2.7
3	C	2.8	2.7	3.2	3.5	3.6	3.9	C	3.2	C	C
4	C	2.9	3.2	3.5	3.5	3.9	3.8	3.4	3.2	2.7	C
5	C	2.6	3.1	-	-	-	-	-	3.6	3.2	C
6	C	2.7	3.3	3.6	3.9	4.0	4.0	3.7	3.4	3.2	2.6
7	2.2	3.0	-	-	-	3.8	C	3.8	C	3.2	2.5
8	C	2.5	3.1	3.7	3.8	3.9	4.0	3.7	3.7	3.5	3.5
9	2.0	2.8	3.4	3.7	4.0	4.0	C	C	3.6	3.4	2.8
10	C	3.0	3.3	C	4.0	4.0	4.0	3.9	3.6	3.5	2.9
11	C	3.0	3.5	C	C	3.7	C	3.9	C	3.5	3.0
12	2.2	3.0	3.5	3.8	3.8	4.0	C	3.8	C	C	3.5
13	C	3.0	3.5	3.7	4.0	4.0	4.0	3.9	3.6	3.2	C
14	C	3.0	3.4	3.9	4.0	4.0	3.8	4.0	3.6	3.3	2.8
15	-	-	-	-	-	-	-	-	-	-	-
16	C	C	3.6	3.9	4.0	4.1	4.0	4.0	3.7	3.4	3.0
17	C	3.1	3.5	4.0	4.0	4.0	4.0	4.0	3.7	3.3	2.8
18	C	3.0	3.5	3.9	4.0	C	C	4.0	3.8	3.3	3.0
19	C	3.0	3.6	4.0	C	4.3	4.2	4.0	3.6	3.5	C
20	2.0	3.0	-	-	-	-	-	-	-	-	-
21	C	C	3.4	3.7	4.0	4.0	4.0	3.9	4.0	3.5	2.9
22	2.2	3.1	3.5	3.2	4.0	4.0	4.0	3.4	3.7	3.4	3.0
23	C	3.0	3.6	3.9	4.0	4.2	4.2	4.0	3.6	3.3	3.0
24	C	3.0	3.3	3.7	4.0	C	C	3.8	3.6	C	2.6

C = Any non-ionospheric reason.

Table IV-7

ELECTRON DENSITY OF IONOSPHERE E-LAYER FROM FEBRUARY 2 THROUGH FEBRUARY 24, 1970

Date / Local Time	0700 (Electron/cm^3)	0800 (Electron/cm^3)	0900 (Electron/cm^3)	1000 (Electron/cm^3)	1100 (Electron/cm^3)	1200 (Electron/cm^3)	1300 (Electron/cm^3)	1400 (Electron/cm^3)	1500 (Electron/cm^3)	1600 (Electron/cm^3)	1700 (Electron/cm^3)
2	-	-	-	-	-	1.26×10^5	C	C	9.21×10^4	5.50×10^4	2.37×10^4
3	C	5.56×10^4	6.99×10^4	1.119×10^5	1.345×10^5	1.566×10^5	1.819×10^5	C	1.054×10^5	C	C
4	C	2.45×10^4	5.23×10^4	9.51×10^4	1.073×10^5	1.719×10^5	1.404×10^5	1.207×10^5	9.43×10^4	5.64×10^4	C
5	C	3.50×10^4	3.52×10^4	-	-	-	-	-	9.97×10^4	6.62×10^4	C
6	C	4.15×10^4	9.79×10^4	1.153×10^5	1.333×10^5	1.384×10^5	1.121×10^5	1.006×10^5	1.065×10^5	2.27×10^4	1.59×10^4
7	2.15×10^4	3.65×10^4	-	-	-	1.489×10^5	C	1.402×10^5	C	3.38×10^4	3.62×10^4
8	C	4.46×10^4	6.89×10^4	7.95×10^4	9.00×10^4	1.694×10^5	1.633×10^5	1.475×10^5	7.49×10^4	1.64×10^4	1.17×10^4
9	1.57×10^4	3.02×10^4	8.29×10^4	1.117×10^5	9.97×10^4	1.261×10^5	C	C	9.59×10^4	4.52×10^4	1.88×10^4
10	C	2.62×10^4	9.80×10^4	C	1.757×10^5	1.840×10^5	1.822×10^5	1.621×10^5	4.50×10^4	3.38×10^4	3.45×10^4
11	C	3.65×10^4	8.79×10^4	C	C	1.654×10^5	C	6.60×10^4	C	5.67×10^4	1.97×10^4
12	1.74×10^4	5.14×10^4	4.48×10^4	4.04×10^4	1.106×10^5	1.808×10^5	C	1.228×10^5	C	C	1.80×10^4
13	C	4.67×10^4	8.79×10^4	1.277×10^5	1.036×10^5	1.650×10^5	1.634×10^5	1.409×10^5	1.254×10^5	8.35×10^4	C
14	C	5.19×10^4	9.52×10^4	1.244×10^5	1.605×10^5	1.808×10^5	1.116×10^5	1.177×10^5	1.230×10^5	8.72×10^4	3.36×10^4
15	-	-	-	-	-	-	-	-	-	-	-
16	C	C	9.34×10^4	8.85×10^4	1.403×10^5	1.651×10^5	1.556×10^5	9.05×10^4	1.056×10^5	5.91×10^4	2.86×10^4
17	C	5.04×10^4	6.77×10^4	1.027×10^5	9.33×10^4	1.774×10^5	1.756×10^5	1.401×10^5	6.06×10^4	7.73×10^4	2.63×10^4
18	C	5.19×10^4	6.28×10^4	1.559×10^5	1.725×10^5	C	C	1.189×10^5	1.214×10^5	7.09×10^4	3.02×10^4
19	C	4.75×10^4	1.008×10^5	1.409×10^5	C	1.947×10^5	1.575×10^5	1.556×10^5	1.145×10^5	5.70×10^4	C
20	1.67×10^4	2.30×10^4	-	-	-	-	-	-	-	-	-
21	C	C	5.59×10^4	1.121×10^5	1.403×10^5	1.808×10^5	1.791×10^5	1.479×10^5	1.236×10^5	8.01×10^4	4.68×10^4
22	1.35×10^4	5.07×10^4	6.79×10^4	8.38×10^4	1.760×10^5	1.840×10^5	1.791×10^5	1.124×10^5	1.210×10^5	5.38×10^4	3.05×10^4
23	C	6.67×10^4	9.37×10^4	1.245×10^5	1.605×10^5	1.819×10^5	1.575×10^5	1.706×10^5	1.342×10^5	3.63×10^4	3.50×10^4
24	C	4.61×10^4	1.015×10^5	9.82×10^4	8.05×10^4	C	C	1.179×10^5	7.87×10^4	4.39×10^4	C

C = Any non-ionospheric reason.

IV.3 Relationship between Pc 1 Micropulsation and E-Region Ionosphere

The Pc 1 micropulsation activity during observations was compared with electron density value of E-layer ionosphere. The graphic illustration of Pc 1 activity versus electron density of E-layer ionosphere in each hour is shown in Figure 25. In Figure 25, the electron density shown for each hour from 0700 L.T. to 1700 L.T. is the average value of the densities recorded at that hour over all observations from February 2 through February 24, 1970. Similarly, the Pc 1 data are the averaged amplitudes of Pc 1 events occurring at each hour during the observation period. Figure 26 is the graphic illustration of Pc 1 activity on February 13 vs the electron density of the E-region stretification for the same date. By comparing the two figures (25, 26), it can be seen that the relationship between Pc 1 vs electron density in E-region shows that the pattern based on the hourly averages of a month's observation is similar to that for a one-day period.

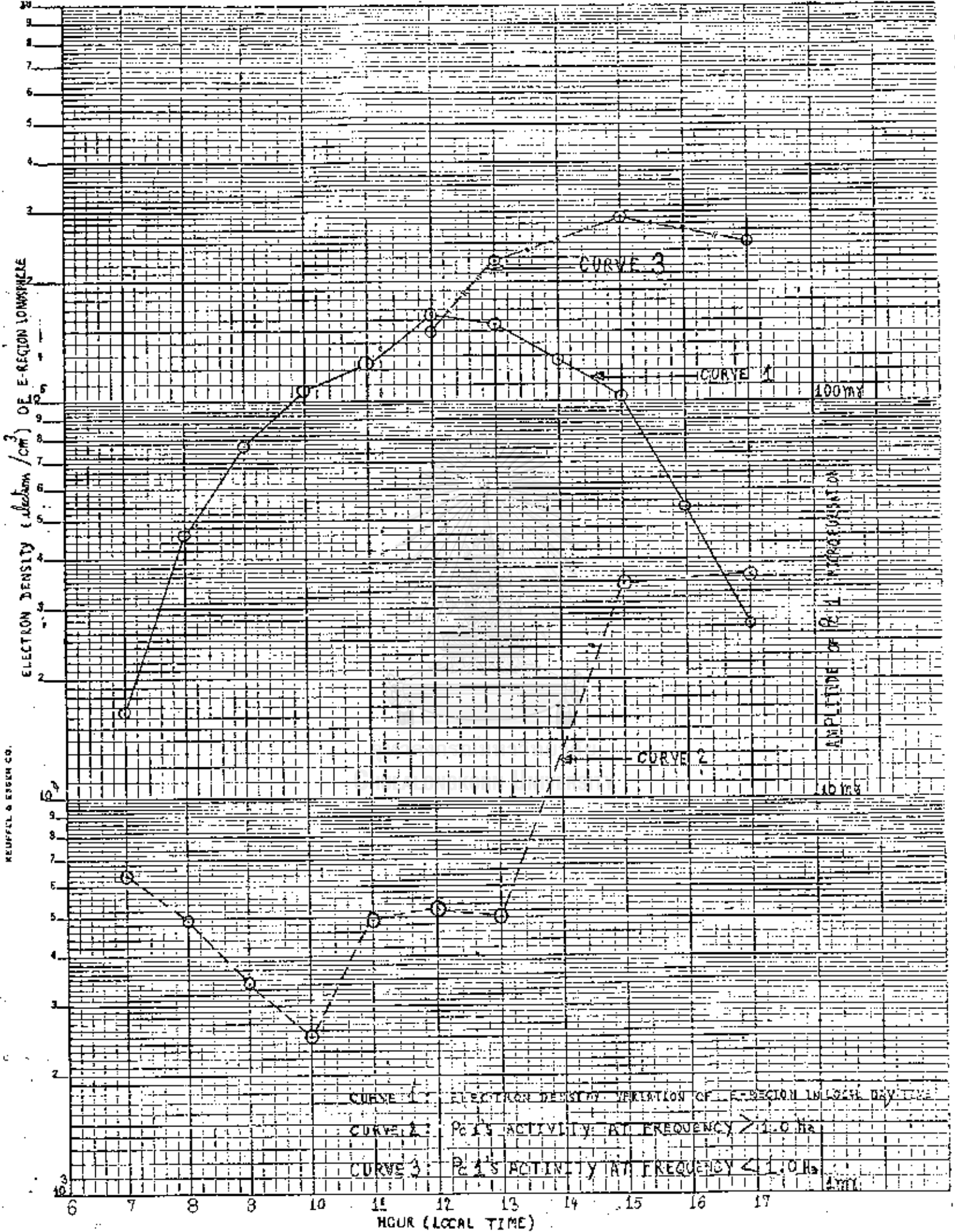


Fig. 1 Electron Density of E Region Ionosphere from February 2 through February 24, 1970

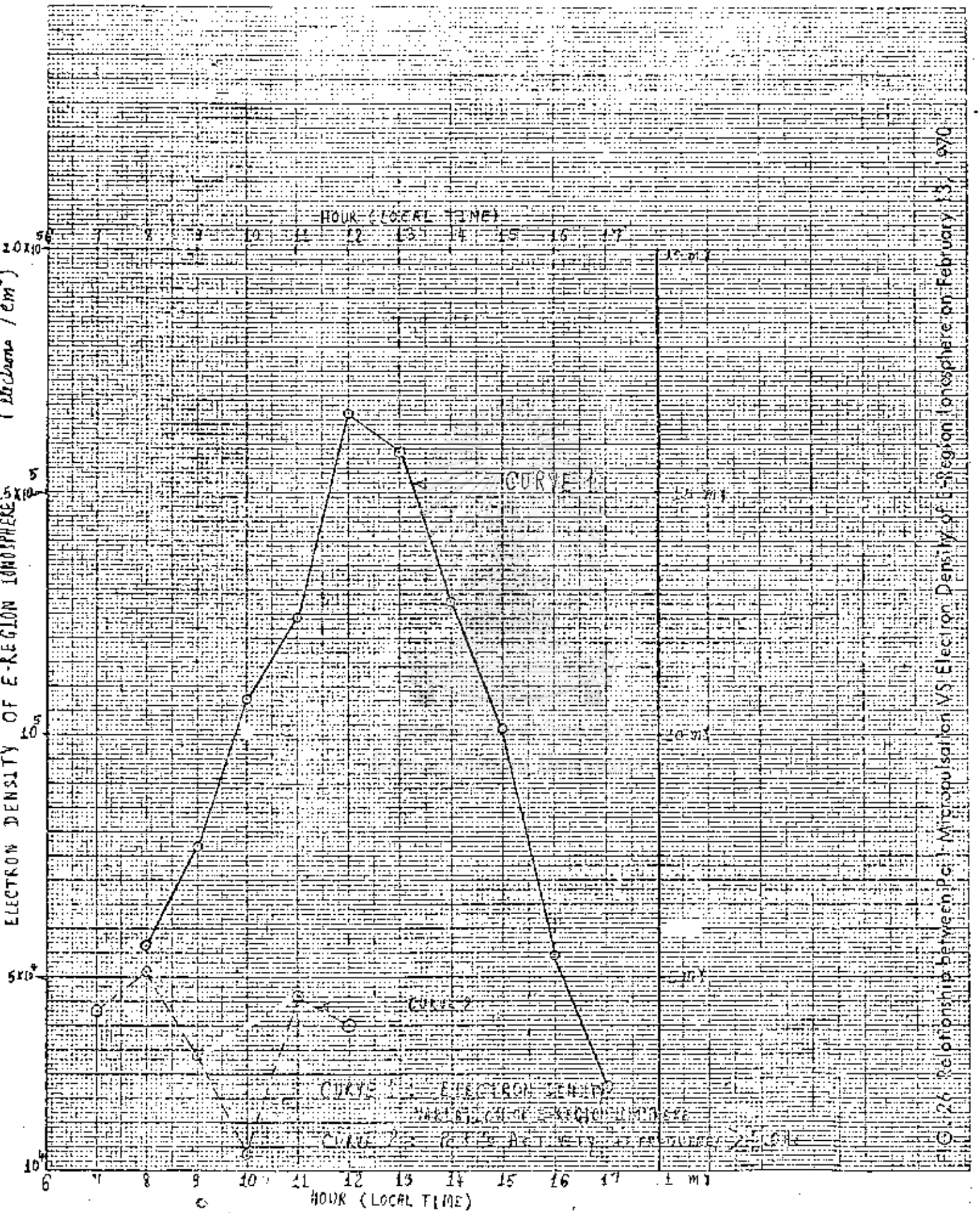


FIG. 2.6 Relationship between Pc 1 Micropulsation V/S Electron Density of E-region Ionosphere on February 13, 1970