

27 MAR 1969

BULLETINS

TIME SERVICE
OF
THE MIZUSAWA OBSERVATORY

Vol. XI No. 1-12

1966

The International Latitude Observatory of Mizusawa
Mizusawa-Shi, Iwate-Ken, Japan.

1968

Errata

Page	line and column	for	read
Preface p. ii	2. Observations		
	Astrolabe Observations		
	7 line	"o - a"	"o - a"
	8 line	"o - a"	"o - a"
Preface p. ii	10 line	wonths	months
14	Oct13.500 Temp(Instr.)	-15.2	+15.2
20 - 32	b) Results of the observations with Astrolabe		
	o - a	^s (0.001)	^s (0.0001)
21 - 33	c) Meteorological Data		
	2 line	Begining	Beginning
23	Mar 30 7 group		
	END of Group Wind (Vel.)	6	2
23	Mar 30 8 Group Wind (Vel.)		
		2	6
32	1 line	odservations	observations
43	NOVEMBER-1	6710	6170

1. Introduction.

This Bulletin contains the results of Time Service and the astronomical observations made at the Mizusawa Observatory during the period beginning with January 1966 to December 1966 by the following personnels;

S. Takagi (chief), C. Kakuta, K. Hurukawa, M. Kirita and T. Hara.

2. Observations.

Time and latitude observations are made with PZT and Danjon Astrolabe No. 34 every clear night.

The observed time is kept with the crystal clocks and regularly compared with the time kept at the principal observatories of the world by means of the radio time signals every day.

Instruments.

PZT	focal length	356.4 cm
	diameter	20.0 cm
Astrolabe	focal length	100.0 cm
No. 34	diameter	10.0 cm
Geographical positions of the instruments:		
PZT	9 ^h 24 ^m 31 ^s .443 E.	39° 08' 3".40 N.
Astrolabe	9 ^h 24 ^m 31 ^s .602 E.	39° 08' 3".40 N.

The Astronomical Observations.

The time system of the Bulletin is based on observations made with the PZT. There are some systematic differences between results obtained both with PZT and Astrolabe. After the causes of these differences are made clear, the results with astrolabe will be used to calculate the adopted time. The system of the star places of the PZT are the same as that of the Washington PZT stars. This was revised in 1961 and is effective since January 1962. That of Astrolabe is taken from FK 4 and its supplement. The results of the observations are given for both instruments respectively.

PZT Observations.

The quantities tabulated include the Date and Julian date, Group Number, Number of stars used for time determinations, Observed minus Adopted Clock corrections, Fractions of Day, Number of stars used for latitude determinations, Observed Latitude and Meteorological Data.

Astrolabe Observations.

The quantities tabulated are Date, Julian Date, Group Number, Observer, Observed minus Adopted Time, Poids for time observation, Observed Latitude, Poids for Latitude Observation, Observed Angle of the Prism (60°+), Poids for one Observation, No. of Stars Observed, Meteorological Data and Weather and Image Condition.

Observer	1:	K. Hurukawa.
	2:	H. Okawa.
	3:	K. Yokoyama.
	4:	S. Kuji.

Remarks for Astrolabe Observations.

01 : sharp	11 : cleared up
02 : vibrate	12 : cloudy at times
03 : faint	13 : thinly cloudy
04 : diffuse	14 : clouded up
05 : diffuse, vibrate	15 : misty

06 : diffuse, faint
07 : faint, vibrate

16 : strong wind
17 : snow at times
18 : full moon
19 : moon light
20 : dew on the instrument

The difference between the observed UT2 and the adopted UT2 is given in the column "o-a(UT2)" and that between the observed UT0 and the adopted UT2 is given in the column "o-a(UT0)". The decimal point is usually omitted.

The time system UT2 adopted in the Bulletin is established by fitting a curve to the observed UT2 obtained in two months approximately.

Polar Variation.

The corrections used in the Bulletin for the effect of polar motion on time observations are based on the coordinates of the pole published by the Bureau International de l'Heure. The daily values at 12^hU.T. tabulated in the Table, are obtained by passing a smooth curve through the 10-day values.

Seasonal Variation.

The corrections used in the Bulletin for the seasonal variation in the rate of the rotation of the earth are based upon those given by the Bureau International de l'Heure.

The daily values at 12^hU.T. tabulated in the Table, are obtained by passing a smooth curve through 5-day values.

3. Radio Time Signals.

The International Radio Time Signals are received regularly and compared with the clocks of the observatory.

The measured times of reception which are referred to the time system UT2 are given in decimals of a second with the decimal point omitted in a sense adopted time minus radio signal time.

Example

- (1) 0180 signifies 0^s.0180
(2) 9945 signifies -0^s.0055

The receptions of standard frequency JJY and WWVH are normally good and four decimals are given for the results of the reception of second pulses superposed on those standard frequency transmissions.

The time signals are registered photographically together with a second pulse delivered from the standard clock. The times of reception of the radio time signals are read off on the 50% rise point of a second pulse from those photographs.

4. Clocks.

The observed time is kept with M1, E2 and E4 (crystal clocks).

The intercomparison among M1, E2 and E4 are made with the rotary beat counter which may normally be relied to an accuracy of 10⁻¹⁰.

The clock corrections in the system UT2 are given for each clock.

The figures refer to 00^h00^m U.T. The values are given as four decimals of a second and whole seconds are omitted. The approximate daily rates are given for each clock at the foot of the table. The values are given in the unit of a second.

March 15, 1968

T. Okuda
Director

Section I. Astronomical Observations.

Adopted Longitude: 9^h 24^m 31.^s443 E. Adopted Latitude: 39°08'03".400N.

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	0-a (0. ^s 0001) UT ₀	No. of Stars	Frac. of Day	φ 39°08' +	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr.	House	Humidity (%)
Jan. 2.500	2439 000 +												
	128.000	II	2	.449	+310	2	.449	3.194	337.5	1.9	- 0.9	- 2.0	82.0
		IV	3	.704	+8	3	.704	3.385	292.5	1.8	- 1.0	- 4.1	73.0
			5	.602	+130	5	.602	3.309	310.9	1.7	- 1.0	- 3.3	76.6
6.500	132.000	III	4	.575	+156	4	.575	3.486	187.4	1.8	- 4.4	+ 2.1	76.5
7.500	133.000	II	2	.517	+101	2	.517	3.163	292.5	10.0	- 0.1	- 1.7	72.5
8.500	134.000	III	1	.608	+11	2	.615	2.925	292.5	1.0	- 2.9	- 7.0	90.0
11.500	137.000	IV	10	.706	+6	9	.708	3.529	339.9	4.3	- 0.5	- 2.8	79.3
12.500	138.000	II	10	.452	+87	10	.452	3.035	37	2.9	+ 0.3	- 2.1	71.5
		III	11	.575	-143	11	.575	3.115	224.8	0.8	- 0.8	- 4.9	82.6
		IV	11	.683	-138	11	.683	3.314	333.1	0.3	- 2.4	- 6.5	92.0
			32	.574	-69	32	.574	3.158	347.2	0.8	- 1.0	- 4.6	82.4
13.500	139.000	IV	6	.699	+183	6	.699	3.327	300.6	9.7	+ 1.0	- 0.8	79.5
20.500	146.000	II	9	.441	-8	9	.441	3.120	282.5	1.8	- 2.6	- 5.2	73.6
		III	6	.539	-112	6	.539	3.228	309.1	1.1	- 3.3	- 6.4	79.7
		IV	3	.646	+187	3	.646	2.913	10.1	1.4	- 4.0	- 7.2	80.3
			18	.508	-9	18	.508	3.122	300.3	1.3	- 3.1	- 5.9	76.8
21.500	147.000	II	4	.386	+383	4	.386	3.093	43.7	1.5	- 2.5	- 5.9	91.8
23.500	149.000	II	6	.412	+75	6	.412	3.162	0.0	0.2	- 2.0	- 6.0	74.2
24.500	150.000	II	6	.441	+290	6	.441	3.112	351.1	5.0	- 1.8	- 3.3	67.7
		III	7	.550	-1	7	.550	3.331	0.0	3.2	- 2.0	- 3.6	70.3
		IV	9	.650	-81	9	.650	3.368	180.2	0.8	- 2.7	- 5.4	74.6
			22	.561	+46	22	.561	3.286	354.1	2.1	- 2.2	- 4.3	71.4
25.500	151.000	III	2	.512	+319	3	.512	3.257	180.0	4.7	- 0.2	- 0.7	62.0
28.500	154.000	II	1	.391	+127	1	.391	3.175	225.0	0.8	- 1.4	- 2.5	81.0
		IV	2	.679	-191	3	.679	3.428	329.6	0.7	- 2.5	- 6.5	91.7
			3	.583	-84	4	.607	3.365	307.4	0.5	- 2.1	- 5.2	89.0

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0.s0001$) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000+										
Jan. 30.500	156.000	II	1	.457	-77	1	.457	2.981	315.0	-3.0	73.0
		III	5	.532	+281	5	.532	3.115	85.9	-3.4	75.8
		IV	4	.635	+38	4	.635	3.431	270.0	-4.6	84.8
			10	.566	+149	10	.566	3.228	248.5	-3.8	79.1
Feb. 1.500	158.000	III	1	.542	+58	1	.542	3.156	0.0	+4.2	67.0
		IV	1	.680	+370	1	.680	2.774	337.5	+2.4	63.0
			2	.611	+216	2	.611	2.965	350.3	+3.3	65.0
2.500	159.000	II	6	.411	-209	7	.411	3.251	323.1	+0.2	70.6
		III	4	.502	-151	5	.502	3.078	270.0	-1.7	86.2
			10	.447	-185	12	.449	3.179	317.1	-0.6	77.1
3.500	160.000	III	1	.551	+181	1	.551	3.407	315.0	+3.9	75.0
		IV	10	.640	+223	10	.640	3.354	289.2	+2.4	72.2
			11	.632	+221	11	.632	3.359	290.5	+2.5	72.5
4.500	161.000	IV	7	.662	+47	7	.662	3.727	313.8	-2.6	70.3
5.500	162.000	III	4	.525	+150	4	.525	3.162	267.2	-5.3	68.5
		IV	1	.530	+180	1	.530	3.476	292.5	-5.4	65.0
			5	.530	+135	5	.530	3.225	274.9	-5.3	67.8
6.500	163.000	II	1	.445	+332	2	.445	3.037	60.8	-3.9	89.5
		III	3	.498	-109	3	.498	3.281	271.3	-4.7	84.3
			4	.485	+1	5	.477	3.183	277.4	-4.5	86.4
7.500	164.000	II	1	.435	+310	1	.435	3.170	45.0	-2.4	82.0
		III	3	.501	+454	3	.501	3.565	324.5	-2.9	84.7
			4	.484	+418	4	.484	3.466	0.3	-2.8	84.0
9.500	166.000	II	3	.415	-12	3	.415	3.415	32.7	-3.0	53.3
		III	1	.521	-157	1	.521	3.450	292.5	+1.8	70.0
		IV	8	.623	+112	8	.623	3.356	349.6	+0.2	82.1
			12	.562	+59	12	.562	3.379	195.7	-0.5	73.9
11.500	168.000	III	1	.529	+25	1	.529	3.274	292.5	-1.8	67.0

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0.s0001$) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000+										
Feb. 12.500	169.000	III	1	.512	-77	1	.512	3.326	0.0	-3.9	74.0
		IV	5	.633	+176	5	.633	3.407	270.0	-4.5	83.8
			6	.613	+161	6	.613	3.394	352.3	-4.4	82.2
14.500	171.000	IV	4	.612	+58	4	.612	3.644	352.9	-5.5	67.8
		V	2	.758	+103	2	.758	3.439	347.0	-5.8	75.5
			6	.661	+76	6	.661	3.576	352.5	-5.6	70.4
15.500	172.000	III	1	.504	+116	1	.504	3.006	180.0	+0.6	77.0
		IV	5	.578	+118	5	.578	3.511	348.1	+0.5	78.8
		V	1	.722	-109	1	.722	2.876	180.0	+0.4	78.0
			7	.588	+92	7	.588	3.348	333.5	+0.5	78.4
16.500	173.000	III	5	.498	+304	5	.498	3.413	45.0	+2.8	67.8
		IV	9	.589	-171	9	.589	3.764	267.3	+1.4	82.9
			14	.556	-1	14	.556	3.639	186.6	+1.9	77.5
17.500	174.000	IV	2	.574	-108	2	.574	3.437	315.0	+1.0	96.0
21.500	178.000	III	8	.472	-94	8	.472	3.445	51.1	+7.5	82.5
		IV	6	.555	-96	6	.555	3.365	262.2	+6.1	91.8
			14	.508	-88	14	.508	3.411	205.3	+6.9	86.5
24.500	181.000	III	1	.494	+310	1	.494	3.224	337.5	+0.3	77.0
		IV	9	.576	+190	9	.576	3.383	183.7	-0.7	77.3
		V	8	.734	+128	8	.734	3.645	246.7	-2.0	84.0
			18	.642	+171	18	.642	3.491	192.7	-1.2	80.3
25.500	182.000	III	10	.459	+109	10	.459	3.414	299.2	+0.3	89.1
		IV	10	.558	+73	10	.558	3.556	342.9	+0.2	94.0
		V	4	.759	-171	4	.759	3.289	308.6	-0.7	98.0
			24	.550	+49	24	.550	3.452	326.4	+0.1	92.6
26.500	183.000	III	8	.465	-123	8	.465	3.222	335.0	+5.0	77.0
		IV	12	.566	+167	12	.566	3.370	51.7	+2.9	82.3
		V	10	.739	+5	10	.739	3.652	292.8	+0.1	89.4
			30	.597	+36	30	.597	3.425	186.1	+2.5	83.3

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0.s0001$) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
Feb. 28.500	185.000	III	9	.455	-56	9	.455	3.396	0.0	+ 6.4	65.6
		IV	10	.569	-28	10	.569	3.292	16.9	+ 5.3	75.4
		V	6	.766	-28	6	.766	3.429	76.9	+ 2.3	90.5
			25	.575	-37	25	.575	3.362	5.8	+ 5.0	75.5
Mar. 1.500	186.000	III	11	.444	-169	11	.444	3.495	264.9	+ 10.0	80.9
		IV	9	.546	-168	9	.546	3.289	319.2	+ 7.6	86.7
		V	11	.737	-22	11	.737	3.412	301.1	+ 3.0	93.8
			31	.578	-117	31	.578	3.406	303.1	+ 6.8	87.2
5.500	190.000	V	2	.724	-346	2	.724	3.723	315.0	+ 0.3	66.0
7.500	192.000	IV	4	.512	-16	8	.546	3.178	315.0	+ 0.2	58.1
8.500	193.000	IV	5	.546	+ 22	5	.546	3.160	307.8	+ 0.2	71.0
		V	2	.657	+ 208	3	.657	3.465	315.0	+ 1.4	80.0
			7	.578	+ 76	8	.588	3.274	314.2	+ 0.3	74.4
9.500	194.000	IV	2	.594	-70	3	.604	3.303	350.4	+ 1.4	89.3
		V	3	.675	+ 136	5	.670	3.408	355.8	+ 0.3	91.4
			5	.643	+ 55	8	.645	3.369	354.6	+ 0.7	90.6
10.500	195.000	V	4	.754	+ 137	5	.758	3.425	292.5	+ 3.9	55.0
11.500	196.000	IV	5	.555	-162	5	.555	3.719	33.3	+ 3.1	62.8
		V	2	.723	-44	2	.723	3.439	337.5	+ 0.3	82.5
			7	.603	-126	7	.603	3.639	200.7	+ 2.3	68.4
12.500	197.000	III	4	.432	-38	6	.432	3.232	347.2	+ 8.6	77.5
		IV	8	.538	-390	8	.538	3.363	211.3	+ 7.3	85.8
		V	4	.760	+ 29	4	.760	3.440	207.1	+ 4.2	93.3
			16	.567	-197	18	.552	3.336	311.2	+ 6.9	84.7
13.500	198.000	IV	1	.571	-187	1	.571	3.533	0.0	+ 11.0	73.0
		V	7	.700	-14	7	.700	3.453	312.8	+ 7.9	71.9
			8	.684	-35	8	.684	3.463	335.9	+ 8.3	72.0

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0.s0001$) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
Mar. 14.500	199.000	IV	6	.524	+ 139	6	.524	3.317	322.5	+ 2.2	58.2
		V	6	.719	-324	6	.719	3.898	337.5	+ 0.2	56.8
			12	.621	-91	12	.621	3.608	330.6	+ 1.2	57.5
17.500	202.000	IV	9	.492	-74	9	.492	3.420	300.0	+ 2.1	68.8
		V	9	.707	-78	9	.707	3.576	337.5	+ 0.1	61.7
		VI	3	.793	-63	3	.793	3.268	337.5	+ 0.4	61.3
			21	.627	-72	21	.627	3.465	323.2	+ 0.9	64.7
21.500	206.000	IV	11	.507	-2	11	.507	3.349	57.2	+ 0.0	76.7
		V	5	.714	-344	5	.714	3.691	195.3	+ 0.0	58.6
		VI	4	.788	-49	4	.788	3.518	202.5	+ 0.3	71.5
			20	.615	-96	20	.615	3.468	325.8	+ 0.1	71.1
23.500	208.000	IV	5	.552	-315	5	.552	3.136	296.3	+ 7.2	54.6
		V	8	.677	+ 110	8	.677	3.584	43.7	+ 4.8	58.0
		VI	2	.789	-163	2	.789	3.526	0.0	+ 3.0	57.0
			15	.650	-67	15	.650	3.427	357.6	+ 5.4	56.7
24.500	209.000	V	5	.704	-74	5	.704	3.233	271.3	+ 1.4	81.2
26.500	211.000	V	3	.715	-133	3	.715	3.451	342.2	+ 2.0	84.3
		VI	1	.806	-104	1	.806	3.352	202.5	+ 1.3	90.0
			4	.738	-124	4	.738	3.426	300.9	+ 1.8	85.7
30.500	215.000	IV	9	.492	-279	9	.492	3.414	296.7	+ 2.9	61.7
		V	11	.658	-139	11	.658	3.402	332.7	+ 1.8	65.2
		VI	5	.770	-140	5	.770	3.354	355.3	+ 0.9	68.2
			25	.621	-189	25	.621	3.397	316.5	+ 2.0	64.5
Apr. 1.500	217.000	IV	5	.449	-241	5	.449	3.345	337.5	+ 6.6	64.8
		V	8	.661	-49	8	.661	3.452	310.8	+ 5.5	73.5
			13	.579	-122	13	.579	3.411	323.0	+ 5.9	70.2
2.500	218.000	IV	5	.504	-18	5	.504	3.490	292.5	+ 7.3	76.2
		V	3	.682	-66	3	.682	3.472	356.9	+ 3.8	95.0
		VI	6	.768	-207	6	.768	3.400	202.5	+ 2.5	98.0
			14	.655	-109	14	.655	3.448	241.0	+ 4.5	89.6

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0^s.0001$) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
Apr. 3.500	219.000	N	7	.497	-54	7	.497	3.481	9.6	+12.4	51.3
		V	6	.622	-84	6	.622	3.336	272.5	+9.7	65.0
		M	2	.796	-131	2	.796	3.451	337.5	+7.2	55.0
			15	.587	-76	15	.587	3.419	318.6	+10.6	57.3
5.500	221.000	N	5	.499	+6	5	.499	3.152	193.2	+4.0	65.8
		V	10	.642	-115	10	.642	3.451	7.7	+2.0	84.2
		M	8	.768	-198	8	.768	3.239	334.8	+0.0	90.9
			23	.655	-115	23	.655	3.312	291.9	+1.7	82.5
6.500	222.000	V	1	.633	-273	1	.633	2.907	180.0	+9.7	81.0
7.500	223.000	V	3	.681	-46	3	.681	3.020	298.0	+8.7	79.0
		M	6	.754	-433	6	.754	3.466	319.6	+7.7	70.5
			9	.730	-302	9	.730	3.317	312.5	+8.0	73.3
8.500	224.000	N	8	.483	-320	8	.483	3.324	325.9	+10.7	82.1
		V	10	.633	-220	10	.633	3.327	284.4	+7.4	85.5
		M	9	.764	-348	9	.764	3.265	292.5	+4.6	95.1
			27	.632	-292	27	.632	3.305	305.1	+7.4	87.7
9.500	225.000	N	1	.540	(-653)	1	.540	3.617	292.5	+10.3	63.0
		V	9	.615	-152	9	.615	3.077	309.1	+8.1	58.6
		M	5	.761	-26	5	.761	3.048	315.0	+4.1	58.8
			15	.659	-141	15	.659	3.103	309.6	+6.9	59.0
10.500	226.000	N	1	.537	-350	1	.537	3.628	337.5	+4.2	58.0
		V	5	.668	-242	5	.668	3.728	0.0	+2.5	59.2
		M	9	.758	-318	9	.758	3.471	345.5	+1.6	57.3
			15	.713	-293	15	.713	3.567	352.5	+2.1	58.0
11.500	227.000	N	2	.437	-28	2	.437	2.894	337.5	+7.0	51.0
		V	3	.688	-198	3	.688	3.352	321.1	+4.8	75.7
		M	1	.729	-205	1	.729	3.728	337.5	+4.4	78.0
			6	.611	-158	6	.611	3.262	330.3	+5.5	67.9

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0^s.0001$) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
Apr. 12.500	228.000	N	6	.487	+55	6	.487	3.369	346.9	+9.0	63.2
		V	11	.622	-61	11	.622	3.353	7.8	+7.1	67.2
		M	9	.753	-310	9	.753	3.121	238.0	+6.0	76.7
			26	.636	-119	26	.636	3.276	347.8	+7.2	69.6
13.500	229.000	N	4	.490	-209	4	.490	3.319	294.0	+12.4	48.8
		V	7	.625	-558	10	.620	2.914	282.7	+7.6	71.1
		M	7	.744	-433	8	.747	3.101	206.3	+3.5	93.0
			18	.641	-431	22	.642	3.056	280.8	+7.1	75.0
14.500	230.000	N	6	.482	-228	6	.482	3.112	356.9	+10.8	77.7
		V	11	.617	-31	11	.617	3.365	198.1	+7.2	88.0
		M	1	.771	-215	1	.771	3.358	292.5	+4.8	90.0
			18	.581	-106	18	.581	3.280	317.4	+8.3	84.7
16.500	232.000	N	0			1	.521	3.801	315.0	+10.0	74.0
		V	4	.586	-305	4	.586	3.602	347.3	+8.9	73.5
		M	1	.737	+58	1	.737	3.041	225.0	+7.3	82.0
			5	.616	-232	6	.600	3.542	340.2	+8.6	75.0
22.500	238.000	N	5	.470	-255	5	.470	3.041	215.7	+15.1	83.6
		V	4	.565	-287	4	.565	3.137	212.2	+14.4	81.0
		M	9	.512	-270	9	.512	3.084	214.3	+14.8	82.4
27.500	243.000	V	2	.585	-218	2	.585	3.434	0.0	+15.5	84.0
29.500	245.000	V	1	.654	-314	0					
		M	1	.672	-298	1	.672	3.430	337.5	+15.4	84.0
			2	.663	-306	1	.672	3.430	337.5	+15.4	84.0
30.500	246.000	N	1	.483	(-786)	1	.483	3.837	0.0	+11.5	63.0
		V	6	.611	-137	6	.611	3.221	0.4	+9.4	62.5
		M	11	.714	-407	11	.714	3.321	350.3	+8.0	67.4
			18	.667	-280	18	.667	3.316	354.9	+8.7	65.5
May. 1.500	247.000	V	2	.517	-439	2	.517	3.265	337.5	+12.6	80.5
4.500	250.000	M	5	.720	-391	5	.720	2.818	14.9	+6.9	74.8

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0^{\circ}-a$ (0. ^s 0001) UT ₀	No. of Stars	Frac. of Day	φ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
May. 5.500	251.000	V	10	.560	-81	10	.560	2.990	37.9	+9.5	+3.3
		VI	1	.664	-153	0			0.0	+6.8	+2.0
			11	.569	-87	10	.560	2.990	37.9	+9.3	+3.2
6.500	252.000	V	9	.550	-409	9	.550	3.264	270.2	+15.8	+10.6
		VI	8	.684	-240	8	.684	2.997	180.0	+12.6	+7.3
			17	.613	-329	17	.613	3.138	191.7	+14.3	+9.1
8.500	254.000	V	4	.524	-278	4	.524	3.559	210.8	+15.1	+11.1
9.500	255.000	V	9	.542	-443	9	.542	3.708	301.1	+13.3	+8.2
		VI	10	.688	-204	10	.688	3.190	186.0	+11.0	+7.3
		VI	2	.761	-227	2	.761	3.581	337.5	+10.2	+7.3
		VI	21	.632	-308	21	.632	3.449	53.0	+11.9	+7.7
11.500	257.000	V	11	.543	-207	11	.543	3.467	356.6	+13.2	+8.2
		VI	11	.684	-312	11	.684	3.369	3.7	+10.4	+7.1
		VI	3	.758	-219	3	.758	3.806	0.0	+9.7	+6.4
		VI	25	.631	-254	25	.631	3.465	180.3	+11.6	+7.5
12.500	258.000	V	10	.533	-88	10	.533	3.040	352.1	+13.3	+7.8
		VI	9	.690	-418	9	.690	2.968	197.7	+10.2	+5.8
		VI	3	.755	-477	3	.755	3.166	315.0	+9.1	+4.1
		VI	22	.627	-276	22	.627	3.028	333.3	+11.5	+6.5
13.500	259.000	V	5	.556	-152	5	.556	3.798	341.9	+17.2	+11.2
		VI	10	.677	-522	10	.677	3.338	328.1	+14.0	+7.9
		VI	3	.752	-115	3	.752	3.632	315.0	+12.0	+6.4
		VI	18	.656	-351	18	.656	3.515	328.7	+14.6	+8.6
16.500	262.000	V	9	.527	-339	9	.527	3.431	341.1	+11.6	+8.2
		VI	3	.671	-131	3	.671	3.231	24.2	+10.1	+7.2
		VI	12	.563	-287	12	.563	3.381	344.7	+11.2	+8.0
17.500	263.000	V	9	.520	-627	9	.520	3.118	354.3	+11.5	+7.0
		VI	11	.668	-695	11	.668	3.242	21.3	+8.4	+3.1
		VI	5	.748	-611	5	.748	3.209	315.0	+6.8	+2.0
		VI	25	.631	-652	25	.631	3.191	355.2	+9.2	+4.3

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0^{\circ}-a$ (0. ^s 0001) UT ₀	No. of Stars	Frac. of Day	φ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
May. 18.500	264.000	VI	11	.665	-564	11	.665	3.626	9.9	+14.0	+8.1
		VI	5	.745	-377	5	.745	3.309	337.5	+12.0	+7.1
		VI	16	.690	-504	16	.690	3.527	182.0	+13.4	+7.8
19.500	265.000	V	10	.515	-659	10	.515	3.408	358.4	+22.1	+14.3
		VI	10	.667	-463	10	.667	3.464	331.6	+16.3	+9.9
		VI	5	.742	-488	5	.742	3.562	337.5	+14.3	+8.5
		VI	25	.621	-546	25	.621	3.461	342.2	+18.2	+11.4
20.500	266.000	V	7	.517	-405	7	.517	3.394	339.5	+21.0	+14.4
		VI	7	.642	-292	7	.642	3.111	298.7	+16.9	+10.3
		VI	5	.744	-326	5	.744	3.600	317.0	+13.8	+8.0
		VI	19	.623	-343	19	.623	3.344	331.3	+17.6	+11.2
25.500	271.000	VI	4	.675	-163	4	.675	3.352	8.1	+13.9	+10.0
		VI	8	.734	-447	8	.734	3.424	15.6	+13.2	+9.0
		VI	12	.714	-351	12	.714	3.400	14.6	+13.4	+9.3
26.500	272.000	V	3	.553	-53	3	.553	3.464	45.0	+17.7	+11.6
		VI	11	.643	-231	11	.643	3.141	19.3	+15.3	+10.3
		VI	8	.731	-478	8	.731	3.274	353.8	+13.7	+11.0
		VI	22	.663	-296	22	.663	3.233	186.3	+15.1	+10.7
27.500	273.000	VI	6	.620	-510	6	.620	3.010	307.9	+18.6	+12.3
		VI	2	.726	-384	2	.726	2.888	329.6	+15.7	+10.1
		VI	8	.646	-478	8	.646	2.980	315.3	+17.9	+11.8
30.500	276.000	V	1	.570	-324	1	.570	3.224	22.5	+15.2	+12.1
		VI	6	.631	-108	6	.631	3.193	329.7	+14.5	+11.1
		VI	1	.724	-370	1	.724	3.197	0.0	+13.6	+11.0
		VI	8	.635	-168	8	.635	3.197	351.5	+14.5	+11.2
31.500	277.000	V	6	.517	-376	6	.517	3.401	254.3	+16.3	+13.8
		VI	10	.628	-405	10	.628	3.369	299.7	+16.1	+10.6
		VI	8	.720	-390	8	.720	3.495	337.5	+14.0	+9.9
		VI	24	.631	-392	24	.631	3.419	300.9	+15.5	+11.2
7.500	284.000	V	3	.508	-213	3	.508	3.248	0.0	+18.4	+13.2
		VI	7	.620	-147	7	.620	3.332	13.1	+15.6	+11.6
		VI	10	.709	-365	10	.709	3.259	337.0	+14.6	+10.8
		VI	20	.648	-265	20	.648	3.283	181.7	+15.5	+11.4

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0.s0001$) UT $_0$	No. of Stars	Frac. of Day	φ $39^{\circ}08'$ +	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr.	House	Humidity (%)
June. 8.500	2439 000+	V	4	.508	-26	4	.508	3.215	337.5	3.8	+19.2	+13.8	86.5
			8	.595	-343	8	.595	3.293	355.6	2.0	+17.0	+12.2	91.4
			12	.566	-237	12	.566	3.267	346.8	2.6	+17.7	+12.7	89.8
			5	.501	-181	5	.501	3.233	180.0	4.4	+17.3	+11.9	65.6
12.500	289.000	V	10	.595	-431	10	.595	3.016	190.4	1.8	+14.7	+9.9	74.7
			9	.694	-416	9	.694	3.277	0.0	0.1	+12.0	+8.0	88.6
			24	.612	-373	24	.612	3.159	184.8	1.6	+14.2	+9.6	78.0
			6	.599	-196	6	.599	3.023	202.5	0.8	+17.2	+11.7	83.5
13.500	290.000	VI	10	.692	-571	10	.692	3.165	315.0	0.7	+15.0	+9.7	91.2
			16	.657	-428	16	.657	3.112	274.3	0.4	+15.8	+10.5	88.3
			1	.498	-281	1	.498	3.192	180.0	2.2	+22.4	+16.9	69.0
			9	.592	-263	9	.592	3.217	222.5	1.2	+19.9	+14.4	79.9
14.500	291.000	VI	11	.689	-483	11	.689	3.466	292.5	0.8	+17.5	+12.4	85.9
			21	.638	-379	21	.638	3.346	246.2	0.8	+18.8	+13.5	82.5
			11	.572	-357	11	.572	3.464	22.5	1.2	+21.2	+16.5	86.6
			10	.671	-413	10	.671	3.559	22.5	0.9	+19.3	+14.7	91.3
21.500	298.000	VII	3	.729	-366	3	.729	3.442	20.5	0.7	+18.2	+13.9	92.0
			24	.633	-386	24	.633	3.501	22.3	1.0	+20.0	+15.4	89.2
			5	.549	-351	5	.549	3.311	242.6	0.8	+21.0	+17.5	96.6
			1	.689	-475	1	.689	2.837	225.0	1.0	+23.0	+20.0	92.0
23.500	300.000	VII	2	.723	-466	2	.723	3.453	337.5	0.7	+22.7	+19.8	91.5
			3	.712	-466	3	.712	3.248	295.3	0.5	+22.8	+19.9	91.7
			4	.516	-358	4	.516	3.313	337.5	5.6	+18.1	+14.3	84.0
			8	.653	-242	8	.653	3.231	85.4	1.9	+16.2	+13.1	85.5
29.500	306.000	VII	4	.715	-111	4	.715	3.200	357.5	3.8	+15.4	+12.6	88.0
			16	.634	-248	16	.634	3.244	189.1	2.4	+16.5	+13.3	85.8
			11	.548	+71	11	.548	3.099	72.6	1.8	+18.9	+13.3	86.6
			9	.644	-489	9	.644	3.518	45.0	1.1	+16.6	+11.3	90.4
30.500	307.000	VII	5	.715	-523	5	.715	3.422	45.0	0.8	+15.1	+10.0	93.0
			25	.616	-248	25	.616	3.314	61.3	1.3	+17.3	+11.9	89.2

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ ($0.s0001$) UT $_0$	No. of Stars	Frac. of Day	φ $39^{\circ}08'$ +	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr.	House	Humidity (%)
July. 5.500	2439 000+	VI	7	.552	+67	6	.552	3.234	17.0	1.5	+16.9	+12.8	87.7
			10	.632	-236	10	.632	3.058	19.6	1.0	+15.6	+11.9	88.7
			5	.713	-473	5	.713	3.109	0.4	1.1	+14.4	+10.3	91.4
			22	.625	-192	21	.628	3.120	14.4	1.2	+15.7	+11.8	89.1
10.500	317.000	VI	6	.513	-118	6	.513	3.171	345.4	1.1	+23.6	+19.2	89.5
			11	.618	-464	11	.618	3.275	307.8	1.2	+21.7	+17.0	94.1
			2	.668	-459	2	.668	2.930	270.0	1.0	+20.9	+16.7	95.0
			19	.590	-353	19	.590	3.206	315.8	1.1	+22.2	+17.7	92.7
11.500	318.000	VI	1	.502	-287	1	.502	3.340	22.5	2.0	+26.1	+22.1	74.0
			5	.513	-76	5	.513	3.146	211.8	0.9	+22.8	+17.4	89.8
			9	.604	-109	9	.604	3.002	0.0	0.0	+20.6	+15.4	93.0
			14	.571	-97	14	.571	3.053	31.8	0.3	+21.4	+16.1	91.9
18.500	325.000	VI	3	.510	-15	3	.510	2.955	241.6	1.5	+25.7	+22.3	92.0
			1	.544	-157	1	.544	2.594	180.0	1.7	+27.9	+23.9	85.0
			1	.558	-38	1	.558	2.906	180.0	1.7	+27.6	+23.6	88.0
			2	.551	-98	2	.551	2.750	180.0	1.7	+27.8	+23.8	86.5
22.500	329.000	VII	8	.588	-194	8	.588	3.410	297.9	1.1	+21.9	+16.7	92.3
			2	.635	-329	2	.635	3.618	270.0	1.3	+20.9	+15.3	90.5
			10	.597	-221	10	.597	3.452	291.6	1.1	+21.7	+16.4	91.9
			5	.494	+55	5	.494	3.017	25.6	1.1	+27.4	+24.1	86.6
27.500	334.000	VII	8	.577	+22	8	.577	3.215	63.0	0.9	+26.3	+22.4	91.6
			12	.674	-367	12	.674	2.878	311.7	0.6	+24.7	+20.8	94.0
			25	.607	-157	25	.607	3.014	194.7	0.5	+25.8	+22.0	91.8
			3	.475	+239	3	.475	3.108	276.3	0.6	+25.0	+20.8	87.7
29.500	336.000	VI	4	.570	-201	4	.570	2.735	307.2	0.7	+23.6	+19.3	93.0
			4	.630	+82	4	.630	3.122	180.0	3.0	+22.5	+19.3	95.5
			11	.566	+22	11	.566	2.978	201.7	1.0	+23.6	+19.7	92.5
			5	.685	+120	5	.685	3.005	6.3	3.9	+19.3	+16.4	79.0
31.500	338.000	VII	3	.498	-17	3	.498	2.954	351.7	1.4	+20.4	+16.3	83.7
			9	.556	+73	9	.556	2.968	348.7	0.9	+19.5	+15.6	86.8
			12	.661	-1	12	.661	2.855	38.9	0.8	+18.0	+14.8	90.0
			24	.601	+24	23	.606	2.908	192.5	0.8	+18.9	+15.3	88.2

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ (0. ^s 0001) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr. House	Humidity (%)	
Aug.	2.500												
	2439 000 +												
	340.000	V	1	.475	+358	+400	.475	3.146	22.5	3.0	+21.9	+18.6	83.0
	342.000	V	5	.479	+288	+313	.479	2.973	58.1	1.2	+22.6	+18.4	79.4
	4.500	V	10	.549	-127	-102	.549	3.037	23.9	0.5	+21.4	+16.6	87.9
		V	6	.655	-258	-233	.655	3.123	251.0	0.8	+19.3	+15.2	90.3
		V	21	.563	-65	-40	.563	3.046	202.7	0.3	+21.1	+16.6	86.6
6.500	344.000	V	2	.532	-40	-31	.532	3.112	247.5	0.7	+24.9	+21.9	93.0
7.500	345.000	V	0	0			.562	3.424	262.7	0.2	+26.6	+21.7	91.0
		V	0	0			.628	3.027	331.6	1.4	+25.2	+19.8	91.0
		V	0	0			.606	3.159	327.9	1.0	+25.7	+20.4	91.0
12.500	350.000	V	6	.522	+74	+35	.522	2.782	180.0	0.5	+27.3	+22.9	88.2
		V	2	.643	-153	-192	.643	3.086	342.0	1.4	+25.1	+21.5	95.0
		V	8	.552	+18	-21	.552	2.858	248.7	0.1	+26.8	+22.6	89.9
27.500	365.000	V	11	.487	+42	-102	.487	3.052	180.0	4.3	+24.5	+20.7	90.7
28.500	366.000	V	7	.495	-28	-178	.495	3.144	225.0	0.5	+26.9	+22.0	89.6
29.500	367.000	V	8	.481	+89	-68	.481	3.153	225.0	0.6	+27.8	+22.7	87.1
		V	12	.584	+52	-105	.585	3.059	219.9	0.4	+25.3	+20.3	92.7
		V	10	.683	-140	-297	.683	3.029	337.9	0.8	+23.2	+18.9	93.9
		I	30	.589	-3	-159	.590	3.075	273.9	0.3	+25.3	+20.5	91.6
30.500	368.000	V	8	.478	+82	-80	.478	3.044	180.0	3.6	+28.8	+24.3	87.1
		V	6	.555	+158	-4	.555	2.761	189.2	2.2	+27.3	+22.8	92.0
		V	14	.511	+115	-47	.511	2.923	182.9	3.0	+28.2	+23.7	89.2
31.500	369.000	V	4	.461	+234	+66	.461	2.831	180.0	1.5	+25.9	+21.9	86.8
Sept.	2.500												
	371.000	V	5	.481	+408	+229	.481	2.883	72.2	1.9	+23.3	+19.8	76.6
		V	4	.607	+146	-33	.607	3.198	343.8	1.0	+21.3	+17.2	91.0
		V	9	.537	+290	+112	.537	3.023	49.6	1.2	+22.4	+18.6	83.0
	372.000	V	10	.468	+168	-15	.468	3.266	18.7	1.8	+23.4	+19.9	81.9
3.500													
		V	4	.551	-237	-420	.551	2.756	331.6	1.2	+22.3	+17.6	92.5
		V	4	.686	+136	-47	.686	3.484	315.0	1.3	+20.1	+16.4	93.8
		I	18	.535	+71	-112	.535	3.201	359.6	1.4	+22.4	+18.6	86.9

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ (0. s0001) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr. House	Humidity (%)	
Sept.	5.500												
	2439 000 +												
	374.000	VII	10	.459	+165	-29	.459	2.813	199.9	3.1	+19.6	+13.9	74.2
		VIII	6	.563	+363	+169	.563	2.751	216.8	2.1	+17.3	+13.4	78.5
		I	8	.653	+368	+174	.653	2.690	191.0	1.7	+16.1	+12.5	85.1
			24	.550	+282	+88	.550	2.757	201.5	2.4	+17.9	+13.3	78.9
7.500	376.000	VII	5	.474	+222	+20	.474	2.885	340.3	3.5	+25.1	+21.2	93.0
		VIII	5	.527	+290	+88	.527	2.927	194.8	2.5	+24.3	+20.4	93.0
		I	4	.627	-48	-250	.627	2.686	202.5	0.7	+22.9	+19.2	94.3
			14	.537	+170	-33	.537	2.843	280.1	0.7	+24.2	+20.3	93.4
8.500	377.000	VII	6	.450	+238	+31	.450	2.969	180.0	2.2	+21.8	+16.4	86.8
16.500	385.000	VIII	7	.538	-26	-264	.538	3.082	334.8	0.1	+16.3	+10.6	88.4
		I	7	.632	-22	-260	.632	3.287	337.5	0.1	+14.1	+10.2	90.4
			14	.585	-24	-262	.585	3.185	336.2	0.1	+15.2	+10.4	89.4
20.500	389.000	I	2	.628	-87	-335	.628	2.855	234.4	0.4	+15.4	+11.9	94.0
		II	2	.746	+13	-235	.746	3.022	315.0	0.9	+15.2	+11.5	94.5
			4	.687	-38	-286	.687	2.939	292.8	0.5	+15.3	+11.7	94.3
21.500	390.000	VIII	1	.565	+248	+129	.565	2.947	337.5	2.2	+19.2	+16.4	91.0
27.500	396.000	VIII	12	.505	+277	+18	.505	3.072	267.0	1.3	+17.4	+12.6	80.1
		I	10	.603	+73	-186	.603	2.606	0.0	1.4	+15.2	+9.8	92.0
		II	3	.688	+105	-154	.688	2.583	354.7	1.0	+13.2	+8.5	94.0
			25	.566	+174	-85	.566	2.827	315.6	0.9	+16.0	+11.0	86.5
30.500	399.000	VIII	11	.502	+243	-20	.502	2.707	344.2	0.7	+16.8	+11.5	89.1
		I	9	.600	+247	-16	.600	2.868	335.6	1.1	+14.4	+9.3	92.3
		II	12	.732	+452	+189	.732	3.272	331.8	1.0	+11.7	+7.7	93.9
			32	.616	+322	+59	.616	2.964	336.3	0.9	+14.2	+9.5	91.8
1.500	400.000	I	1	.643	+413	+148	.643	3.106	315.0	1.5	+16.8	+13.4	93.0
		II	2	.701	+77	-188	.701	2.943	337.5	0.4	+16.2	+12.5	93.0
			3	.682	+187	-77	.682	2.984	324.9	0.7	+16.4	+12.8	93.0
4.500	403.000	VIII	4	.480	+461	+194	.480	3.152	336.7	2.3	+16.9	+12.4	77.3
5.500	404.000	VIII	0					3.629	292.5	1.7	+12.4	+6.8	86.0
		I	5	.556	+113	-155	.556	3.125	307.7	1.6	+11.7	+5.6	87.7
			5	.556	+113	-155	.551	3.209	305.1	1.6	+11.7	+5.6	87.4

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ (0.0001) UT ₀	No. of Stars	Frac. of Day	φ $39^{\circ}08' +$	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr. House	Humidity (%)
Oct. 6.500	2439 000 + 405.000	VIII I II	11	.486	+355	11	.486	3.355	230.1	1.1	+11.7 + 6.1	87.3
			9	.573	+69	9	.573	3.161	252.9	0.7	+ 9.6 + 4.2	92.2
			10	.706	+83	10	.706	3.076	13.9	0.6	+ 6.9 + 3.2	94.6
			30	.585	+178	30	.585	3.204	254.7	0.5	+ 9.5 + 4.6	91.2
			12	.478	+224	12	.478	2.685	62.2	0.8	+13.9 + 9.3	89.5
7.500	406.000	VIII I II	0		+285	3	.564	2.764	22.5	0.8	+12.4 + 8.3	93.0
			2	.659	+159	2	.659	3.120	0.0	0.0	+11.3 + 7.9	94.0
			14	.504	+328	17	.514	2.750	54.6	0.7	+13.3 + 9.0	90.6
			3	.501	+331	3	.501	2.925	180.0	1.7	+17.5 +14.0	89.0
			9	.464	+30	9	.464	2.731	216.7	1.5	+17.8 +13.5	87.0
8.500	407.000	VIII I II	9	.464	+331	9	.464	2.731	216.7	1.5	+16.0 +12.2	90.0
			1	.531	+30	1	.531	2.655	315.0	0.3	+14.8 +11.6	92.0
			0	.471	+280	11	.491	2.772	222.6	1.2	+17.6 +13.4	87.7
			10	.431	+450	4	.431	2.867	189.1	2.7	+18.1 +14.0	85.5
			5	.602	+410	0	.431	2.867	292.5	0.6	+16.1 +11.8	92.0
10.500	409.000	I I I	9	.526	+428	4	.431	2.867	205.2	1.2	+17.0 +12.8	89.1
			12	.467	+409	12	.467	2.676	196.1	1.7	+16.2 +12.0	89.9
			8	.564	+380	8	.564	2.770	191.7	1.1	+14.7 +11.3	92.9
			20	.506	+389	20	.506	2.714	194.8	1.5	+15.6 +11.7	91.1
			12	.461	+216	12	.461	3.059	252.1	1.2	+15.7 +12.4	97.5
13.500	412.000	VIII I I	6	.570	+302	6	.570	2.983	225.0	0.7	+14.3 +11.3	98.0
			18	.497	+245	18	.497	3.034	246.1	1.0	-15.2 +12.0	97.7
			5	.489	+154	5	.489	2.904	247.5	2.4	+17.0 +16.9	83.8
			2	.557	+77	2	.557	2.989	353.4	1.0	+17.3 +15.5	78.5
			7	.508	+132	7	.508	2.928	257.0	1.7	+17.1 +16.5	82.3
14.500	413.000	VIII I I	4	.471	+318	4	.471	2.745	247.5	0.7	+16.5 +11.9	92.5
			5	.431	+579	5	.431	2.736	202.5	1.4	+13.9 +10.8	80.4
			4	.557	+304	4	.557	2.810	49.4	0.7	+13.0 +11.6	91.0
			9	.487	+457	9	.487	2.769	186.8	0.5	+13.5 +11.2	85.1
			1	.444	+263	1	.444	3.015	0.0	0.2	+12.6 + 9.9	89.0

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ (0.0001) UT $_0$	No. of Stars	Frac. of Day	φ $39^{\circ}08' +$	Wind Vel. (m/s)	Temp. (°C)</
------	-------------	-------	--------------	--------------	----------------------------------	--------------	--------------	--------------------------------	--------------------	--------------

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ UT ₀	$0-a$ UT ₁	No. of Stars	Frac. of Day	φ 39°08' +	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr. House	Humidity (%)
Nov. 2.500	2439 000 +	I	3	.477	+352	+116	3	.477	2.909	0.0	3.8	+ 9.4	64.7
			2	.600	+388	+152	2	.600	3.002	337.5	4.3	+ 7.7	63.0
			5	.526	+367	+130	5	.526	2.946	350.3	3.9	+ 8.7	64.0
			5	.537	+216	- 18	5	.537	2.929	17.6	3.4	+ 6.5	63.6
			9	.642	+132	-102	9	.642	3.189	12.8	3.1	+ 5.7	65.0
3.500	433.000	II	14	.604	+161	- 73	14	.604	3.096	14.6	3.2	+ 6.0	64.5
			3	.698	+333	+102	3	.698	3.193	0.0	2.7	+ 7.2	93.3
			8	.416	+168	- 61	8	.416	2.849	276.8	0.6	+13.0	82.0
			9	.495	+402	+173	9	.495	3.032	330.2	0.8	+11.6	87.8
			11	.639	+343	+114	11	.639	2.818	270.9	0.4	+ 8.6	94.0
4.500	434.000	II	28	.529	+312	+ 83	27	.529	2.891	296.6	0.5	+10.8	88.6
			1	.436	+396	+172	1	.436	3.239	67.5	0.2	+15.6	74.0
			3	.456	+232	+ 8	3	.456	2.715	337.5	0.7	+15.6	76.7
			4	.451	+273	+ 49	4	.451	2.846	342.9	0.5	+15.6	76.0
			9	.400	+234	+ 13	9	.400	2.915	32.4	0.6	+13.5	65.9
5.500	435.000	VIII	9	.483	+178	- 43	9	.483	3.027	348.8	0.2	+11.4	79.1
			3	.648	+192	- 29	3	.648	3.371	337.5	0.3	+ 7.4	89.7
			21	.471	+204	- 17	21	.471	3.028	17.1	0.4	+11.7	75.0
			3	.487	+128	- 90	3	.487	3.176	337.5	0.8	+11.8	84.7
			5	.453	+130	- 83	5	.453	2.879	351.7	2.5	+ 9.5	63.8
8.500	438.000	II	3	.667	+114	- 99	3	.667	3.469	13.0	1.7	+ 6.4	81.0
			4	.745	- 31	-244	4	.745	3.044	345.1	1.3	+ 4.7	91.4
			12	.604	+113	-100	12	.604	3.082	354.9	1.9	+ 7.1	77.3
			8	.476	+ 5	-205	8	.476	3.015	260.9	0.5	+ 7.3	91.3
			3	.598	+ 8	-202	3	.598	3.176	13.0	0.3	+ 5.0	94.3
12.500	442.000	III	1	.709	+468	+258	1	.709	2.824	67.5	1.0	+ 3.5	95.0
			12	.526	+ 44	-166	12	.526	3.039	282.5	0.2	+ 6.4	92.4
			5	.475	+227	+ 23	5	.475	2.954	349.8	3.0	+ 9.0	68.4
			4	.573	+238	+ 34	4	.573	3.213	322.6	4.3	+ 7.4	76.0
			9	.519	+232	+ 28	9	.519	3.069	335.3	3.5	+ 8.3	71.8

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ UT ₀	$0-a$ UT ₁	No. of Stars	Frac. of Day	φ 39°08' +	Wind Dir.	Wind Vel. (m/s)	Temp. (°C) Instr. House	Humidity (%)
Nov. 18.500	2439 000 +	I	6	.487	+144	- 48	6	.487	3.129	343.6	4.8	+ 9.2	60.3
			5	.616	+619	+427	5	.616	3.035	315.1	0.7	+ 6.4	82.0
			10	.728	+108	- 84	10	.728	3.051	6.6	0.4	+ 3.8	93.8
			21	.632	+240	+ 47	21	.632	3.070	343.4	1.7	+ 6.0	81.4
			5	.575	+385	+199	5	.575	2.846	317.9	0.5	+ 4.5	86.3
20.500	450.000	II	10	.725	+ 78	-108	10	.725	3.167	347.9	2.4	+ 2.9	84.8
			15	.675	+179	- 7	15	.675	3.060	345.2	1.8	+ 3.4	85.3
			6	.461	+110	- 71	6	.461	2.854	300.6	0.3	+ 0.5	83.0
			5	.562	+ 63	-118	5	.562	2.829	258.8	0.3	+ 0.4	91.6
			11	.507	+ 89	- 92	11	.507	2.843	281.7	0.3	+ 0.1	86.9
22.500	452.000	I	10	.448	+156	- 23	10	.448	3.238	229.9	0.8	+ 2.7	89.4
			11	.585	+ 64	-115	11	.585	2.944	356.8	0.8	+ 1.4	93.8
			9	.709	- 50	-229	9	.709	3.048	270.6	0.5	+ 0.3	95.0
			30	.576	+ 60	-119	30	.576	3.073	288.3	0.4	+ 1.3	92.7
			8	.445	+121	- 54	8	.445	3.084	315.0	0.3	+ 4.8	95.0
24.500	454.000	II	3	.530	+153	- 22	3	.530	3.034	332.8	0.8	+ 3.4	95.0
			11	.468	+131	- 45	11	.468	3.070	323.9	0.4	+ 4.4	95.0
			5	.451	+399	+229	5	.451	2.924	341.0	5.4	+ 0.8	66.6
			10	.423	+157	+ 2	10	.423	3.127	1.8	2.0	+ 1.0	80.4
			11	.565	- 31	-186	11	.565	3.441	6.3	0.9	+ 2.6	87.3
26.500	462.000	III	10	.692	(-500)	(-655)	10	.692	3.437	292.5	0.3	+ 4.4	92.4
			31	.560	(-122)	(-277)	31	.560	3.338	358.0	1.0	+ 2.7	86.7
			10	.421	-126	-279	10	.421	2.883	249.3	0.3	+ 0.7	90.0
			1	.494	-345	-498	1	.494	3.202	270.0	1.2	+ 0.6	95.0
			4	.684	+135	- 18	4	.684	2.957	269.8	0.3	+ 2.5	97.0
3.500	463.000	I	15	.496	- 71	-224	15	.496	2.924	258.4	0.4	+ 0.2	92.2
			2	.428	+ 37	-113	2	.428	3.044	337.5	1.1	+ 1.8	90.5
			3	.450	+365	+218	3	.450	3.107	292.5	1.0	+ 7.5	84.3
			3	.499	+361	+214	3	.499	2.963	180.0	2.8	+ 6.9	88.3
			5	.703	+205	+ 58	5	.703	3.092	352.8	3.1	+ 5.1	75.6
4.500	464.000	I	11	.578	+292	+144	11	.578	3.061	329.9	0.9	+ 6.3	81.4

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ (0.50001) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
Dec. 6.500	466.000	I	2	.369	+280	2	.369	3.244	337.5	+1.3	73.0
		II	4	.535	+264	4	.535	3.066	337.5	+0.6	68.3
		III	2	.690	+363	2	.690	2.982	45.0	+0.2	72.0
			8	.532	+293	8	.532	3.090	355.8	+0.6	70.4
11.500	471.000	I	2	.432	+237	2	.432	2.858	0.0	+1.0	71.5
		II	12	.535	+181	12	.535	2.976	8.8	+0.1	75.8
		III	8	.652	-89	8	.652	3.320	14.5	+0.9	74.6
			22	.568	+87	22	.568	3.090	9.7	-0.2	75.0
13.500	473.000	I	7	.408	+63	7	.408	3.216	304.0	-1.4	74.3
		II	2	.535	+116	2	.535	2.858	11.7	-3.0	84.0
		III	7	.652	+346	7	.652	3.146	252.7	-4.4	90.4
			16	.531	+191	16	.531	3.141	290.9	-2.9	82.6
14.500	474.000	I	7	.408	-23	7	.408	2.928	331.3	-0.2	74.6
		II	1	.478	+160	1	.478	3.159	337.5	+0.2	66.0
			8	.417	0	8	.417	2.957	332.1	-0.2	73.5
15.500	475.000	II	2	.480	+354	1	.485	3.059	335.1	+2.0	71.0
16.500	476.000	II	2	.587	+116	2	.587	3.170	0.0	+3.4	70.5
		III	2	.613	+79	2	.613	3.282	0.0	+3.2	70.0
			4	.600	+97	4	.600	3.226	0.0	+3.3	70.3
17.500	477.000	IV	5	.731	+374	5	.731	3.235	200.7	+0.6	82.2
18.500	478.000	II	5	.521	+260	5	.521	2.836	12.0	+2.1	86.8
		III	2	.673	-103	2	.673	3.217	337.5	-0.5	89.5
		IV	8	.753	-199	8	.753	3.095	258.8	-0.9	91.6
			15	.665	-33	15	.665	3.025	301.2	+0.2	89.7
20.500	480.000	II	9	.509	(+533)	9	.509	2.979	330.0	-1.1	63.2
		III	7	.646	(+597)	7	.646	2.836	337.5	-2.7	66.0
		IV	8	.743	(+558)	8	.743	3.126	327.9	-3.2	64.9
			24	.627	(+561)	24	.627	2.986	331.9	-2.3	64.6

a) Results of the observations with PZT.

Date	Julian Date	Group	No. of Stars	Frac. of Day	$0-a$ (0.50001) UT ₀	No. of Stars	Frac. of Day	ϕ 39°08' +	Wind Vel. (m/s)	Temp. (°C)	Humidity (%)
	2439 000 +										
Dec. 21.500	481.000	II	8	.510	+379	8	.510	3.096	283.8	-1.6	60.3
		III	5	.648	+216	5	.648	2.948	274.0	-2.7	66.0
		IV	2	.677	+518	2	.677	3.308	45.0	-2.9	66.0
			15	.578	+343	15	.578	3.075	300.2	-2.1	63.0

b) Results of the observations with Astrolabe.

Date	Julian Date	Group	Observer	UT ₀	UT ₂	0-a (0.0001)	P _{av}	Frac. of Day	φ 39°08'+	P _φ	dz	P	No. of Stars
1966				2400000+									
Jan. 11.500	39137.00	6	3	-24	-152		1.0	0.710	3.838	0.6	1.035	1.0	21
12.500	39138.00	5	2	-356	-482		1.3	0.630	3.264	0.8	1.987	1.3	20
		6	2	-93	-219		2.8	0.710	3.634	1.8	1.238	2.5	23
				-224	-351		4.1	0.673	3.449	2.6		3.8	43
17.500	39143.00	4	3	368	253		0.7	0.530	3.485	0.5	1.013	0.7	23
		5	3	401	286		2.2	0.610	3.140	1.5	1.320	2.6	18
				384	269		2.9	0.565	3.313	2.0		3.3	41
23.500	39149.00	4	1	-266	-366		1.1	0.500	3.663	0.9	1.607	1.9	13
24.500	39150.00	5	2	-53	-150		0.8	0.600	3.587	0.5	1.624	1.0	16
9.500	39166.00	7	2	-173	-227		1.4	0.720	3.759	0.8	1.415	1.2	23
19.500	39176.00	5	2	6	-17		1.0	0.530	3.491	0.8	1.668	1.0	23
		6	2	85	61		0.9	0.610	3.689	0.5	1.358	0.7	25
				45	22		1.9	0.572	3.590	1.3		1.7	48
21.500	39178.00	5	2	-63	-79		1.4	0.520	3.725	0.9	1.955	1.0	28
24.500	39181.00	7	1	-5	-10		1.4	0.680	3.501	0.9	1.274	1.2	24
25.500	39182.00	4	3	-39	-41		2.0	0.430	3.559	1.5	1.413	1.5	29
		5	2	-250	-252		0.9	0.510	3.796	0.6	1.648	0.8	24
		6	2	93	91		1.6	0.590	3.621	0.9	1.438	1.3	25
				-65	-67		4.5	0.506	3.659	3.0		3.6	78
26.500	39183.00	5	3	-81	-78		2.7	0.510	3.560	1.8	1.601	2.0	29
		6	3	-131	-128		1.2	0.590	3.831	0.7	0.921	0.9	26
		7	3	-57	-54		1.1	0.680	3.836	0.7	0.888	1.0	23
				-89	-87		5.0	0.587	3.742	3.2		3.9	78
1.500	39186.00	6	2	-28	-14		1.4	0.580	3.721	0.9	1.844	1.2	24
		7	2	-159	-145		1.0	0.670	3.564	0.6	1.717	0.7	26
		8	2	-115	-101		1.1	0.750	3.276	0.9	0.195	1.0	25
				-99	-85		3.5	0.668	3.520	2.4		2.9	75
8.500	39193.00	7	1	-229	-186		1.4	0.650	3.831	0.9	1.087	1.4	20
9.500	39194.00	8	2	-506	-459		1.0	0.730	3.483	0.7	1.336	1.0	21
11.500	39196.00	6	3	-151	-96		1.1	0.550	3.770	0.6	1.405	0.9	24

c) Meteorological Data.

Date	Group	Temp.(°C) Air	Pressure	Temp.(°C) Instr.	Wind Dir.	Wind Vel. (m/s)	Middle Wind Dir.	Middle Wind Vel. (m/s)	Hum. %	Temp. Air (°C)	Pressure	Temp. Instr. (°C)	Wind Dir.	Wind Vel. (m/s)	Remarks
1966															
Jan. 11	6	-2.4	756.8	-1.4	NNW	4	NW	5	65	-0.5	756.9	-2.0	N	5	02
12	5	-4.1	762.6	-3.5	W	1	CALM		91	-5.4	762.6	-4.5	N	1	
6	6	-5.4	762.6	-4.5	N	1	NNW	2	92	-5.4	761.8	-5.4	NNW	1	03
17	4	-2.1	754.1	-0.4	WNW	11	WNW	13	58	-2.2	753.4	-2.3	WNW	14	02
5	5	-2.2	753.4	-2.3	WNW	14	WNW	14	66	-2.1	752.7	-2.4	WNW	16	16
23	4	-9.8	760.3	-4.0	SSE	1	CALM		90	-9.9	758.9	-7.1	CALM		
24	5	-2.6	765.1	-2.0	N	4	NNW	1	70	-5.2	765.4	-3.8	SSW	2	13
9	7	-2.6	758.0	-2.2	E	2	CALM		91	-3.6	757.2	-3.3	E	1	14
19	5	-0.9	765.0	-0.7	NNW	3	NE	1	72	-1.4	765.4	-1.4	N	1	
6	6	-1.4	765.4	-1.4	N	1	N	1	81	-2.9	765.7	-2.6	NNE	1	
21	5	4.1	759.5	7.0	SW	2	NE	1	90	2.0	759.6	4.1	W	1	
24	7	-2.8	767.3	-3.5	SSW	3	CALM		81	-4.6	767.5	-4.0	CALM		04
25	4	3.4	762.5	4.3	NW	1	NNW	1	92	1.9	762.9	2.2	NNW	1	01
5	5	1.9	762.9	2.2	NNW	1	NW	1	95	-0.4	762.5	0.6	CALM		
6	6	-0.4	762.5	0.6	CALM		NW	2	98	-1.4	761.8	-0.5	W	1	13
26	5	1.7	764.6	3.6	E	1	ESE	1	81	-0.2	765.7	1.5	NE	2	
6	6	-0.2	765.7	1.5	NE	2	N	3	85	0.8	765.4	0.3	NNE	1	
7	7	0.8	765.4	0.3	NNE	1	CALM		84	-1.7	766.0	-1.2	WSW	1	
1	6	3.5	759.6	7.0	CALM		NNW	1	89	1.9	759.5	4.0	CALM		
7	7	1.9	759.5	4.0	CALM		NW	1	93	3.0	759.1	2.2	CALM		
8	8	3.0	759.1	2.2	CALM		CALM		93	-0.4	759.1	0.5	NW	1	13
8	7	-2.1	759.3	-3.2	SE	1	SE	1	79	-3.7	759.8	-3.4	SE	1	19
9	8	-1.5	758.6	-0.4	S	1	SW	1	92	-2.1	758.2	-1.5	SE	2	14
11	6	1.2	762.6	3.0	NNE	1	N	1	64	0.	762.5	0.6	NE	1	

b) Results of the observations with Astrolabe.

Date	Julian Date	Group	Observer	UT ₀	0-2 (0.0001) UT ₂	P _{air}	Frac. of Day	φ 39°08'+	P _o	dz	P	No. of Stars
1966				2400000+								
Mar.	30.500	6	3	-297	-155	0.9	0.510	3.554	0.6	0.753	0.9	22
		7	3	-81	60	1.4	0.590	3.478	0.9	1.165	1.2	25
		8	3	-526	-384	0.9	0.670	3.569	0.8	0.973	0.8	26
				-301	-160	3.2	0.594	3.534	2.3		2.9	73
Apr.	4.500	8	4	-193	-24	1.3	0.660	3.719	1.1	0.972	1.3	22
		8	4	6	196	0.8	0.650	3.654	0.6	1.309	1.2	15
		8	2	-400	-187	0.8	0.630	3.011	0.6	1.482	1.0	19
		9	2	-383	-170	0.6	0.720	3.343	0.6	1.521	0.7	21
				-391	-179	1.4	0.677	3.177	1.2		1.7	40
		9	1	-426	-208	1.2	0.720	3.281	1.0	1.804	1.4	20
		7	4	-235	-12	1.4	0.540	3.697	0.9	0.699	1.1	25
		8	4	-291	-68	0.9	0.620	3.522	0.8	0.618	1.1	20
				-263	-40	2.3	0.576	3.609	1.7		2.2	45
		7	3	-342	-89	1.5	0.530	3.619	0.9	1.267	1.4	22
May	6.500	8	4	-253	72	1.0	0.570	3.592	0.8	1.766	1.0	23
		9	4	-308	17	0.7	0.650	3.380	0.7	1.450	0.8	22
				-280	44	1.7	0.609	3.486	1.5		1.8	45
		8	2	-416	-74	1.4	0.560	3.281	0.9	2.044	1.3	22
		9	2	-438	-96	1.2	0.640	2.974	1.0	1.858	1.4	20
				-427	-85	2.6	0.598	3.127	1.9		2.7	42
		8	4	-421	-77	1.2	0.560	3.521	0.9	1.740	1.3	20
		9	2	-93	254	0.8	0.630	3.350	0.7	2.008	1.1	17
		10	2	-220	127	0.9	0.720	3.207	0.7	2.126	1.1	19
				-156	190	1.7	0.677	3.278	1.4		2.2	36
		9	2	-471	-112	1.3	0.620	3.329	1.4	1.507	1.3	25
		10	2	-651	-292	0.9	0.710	3.342	0.8	1.573	0.8	25
				-561	-202	2.2	0.665	3.335	2.2		2.1	50
		8	3	-432	-71	1.1	0.540	3.453	0.9	2.464	1.0	27
		9	3	-553	-192	0.6	0.620	3.533	0.7	2.318	0.7	24
		10	3	-659	-298	1.3	0.700	3.685	1.0	1.632	1.2	24
				-548	-187	3.0	0.617	3.557	2.6		2.9	75

c) Meteorological Data.

Date	Group	Temp.(°C) Air	Pressure	Temp.(°C) Instr.	Wind Dir.	Wind Vel. (m/s)	Hum.	Temp. Air (°C)	Pressure	Temp. Instr. (°C)	Wind Dir.	Wind Vel. (m/s)	Remarks
1966													
Mar.	30	2.1	756.4	2.0	WNW	10	62	2.2	757.7	1.7	N W	6	16
	7	2.2	757.7	1.7	N W	6	62	1.6	758.4	1.0	N	6	16
	8	1.6	758.4	1.0	N	2	68	1.1	758.7	0.1	NNW	2	
Apr.	4	-0.4	755.5	0.	N	2	72	0.	756.3	-0.6	N	4	06 19
	8	4.6	758.3	5.7	N W	1	91	3.9	757.2	3.8	E NE	2	06
	12	5.2	757.6	5.0	SSW	3	63	6.6	757.4	4.8	N	4	06
	9	6.6	757.4	4.8	N	4	69	2.5	757.7	3.5	S S E	2	03
	13	-0.2	756.8	2.3	WNW	1	92	-1.5	757.1	0.2	WNW	1	03
	14	5.4	760.5	8.3	SSW	3	83	4.0	760.3	6.0	SSW	2	03
	8	4.0	760.3	6.0	SSW	2	90	2.5	760.0	3.8	S E	1	03
	20	8.6	761.3	10.5	S S E	4	87	7.8	761.3	8.5	S	3	
May	6	12.9	759.7	15.1	NNW	1	93	10.1	759.8	12.7	N W	1	03
	9	10.1	759.8	12.7	N W	1	94	8.5	759.4	10.5	S	1	03
	11	9.4	752.3	10.0	N	4	69	8.8	753.1	8.6	N	6	
	9	8.8	753.1	8.6	N	6	68	8.4	753.4	7.7	N	8	
	12	9.3	756.7	12.0	S S E	3	82	7.5	756.6	9.4	SSW	3	03
	13	11.8	756.6	13.5	NNE	1	85	9.9	756.4	11.2	N W	2	13
	10	9.9	756.4	11.2	N W	2	91	7.6	756.3	9.2	NNW	1	03
	17	6.1	759.6	7.4	S E	1	91	4.2	759.7	5.6	N W	1	
	10	4.2	759.7	5.6	N W	1	90	2.9	759.9	4.4	N W	1	
	18	14.3	760.4	18.2	E	1	85	11.0	760.7	14.2	E NE	1	
	9	11.0	760.7	14.2	E NE	1	90	9.7	760.6	11.3	N	1	
	10	9.7	760.6	11.3	N	1	91	9.2	760.6	9.8	NNW	1	20

b) Results of the observations with Astrolabe.

Date	Julian Date	Group	Observer	UT ₀	UT ₃	P _{air}	Frac. of Day	φ 39°08' +	P _φ	dz	P	No. of Stars
1966	2400000+											
May 19.500	39265.00	8	4	-346	17	1.3	0.540	3.231	0.8	2.748	1.2	22
		9	4	-288	75	0.9	0.620	3.566	1.0	2.165	1.0	23
		10	4	-451	-87	0.7	0.700	3.639	0.9	1.951	1.0	19
				-361	1	2.9	0.616	3.479	2.7		3.2	64
26.500	39272.00	9	3	-587	-213	0.6	0.600	3.483	0.8	1.844	0.8	21
		10	3	-563	-189	0.6	0.680	3.289	0.5	1.740	0.7	21
				-575	-201	1.2	0.640	3.386	1.3		1.5	42
31.500	39277.00	8	4	-388	-12	0.9	0.500	3.485	0.6	2.534	0.9	21
		9	4	-386	-10	1.8	0.590	3.479	1.7	2.084	1.9	23
				-387	-11	2.7	0.547	3.482	2.3		2.8	44
7.500	39284.00	10	3	-364	4	1.0	0.650	3.222	0.7	1.306	1.0	22
8.500	39285.00	9	4	-602	-234	1.6	0.550	3.286	1.5	1.721	2.2	17
12.500	39289.00	9	3	-441	-82	0.7	0.550	3.502	0.8	1.754	0.7	26
		10	3	-317	41	1.9	0.640	3.422	1.7	1.898	1.8	25
		11	3	-441	-82	1.2	0.720	3.515	0.9	1.700	1.1	24
				-399	-41	3.8	0.634	3.480	3.4		3.6	75
13.500	39290.00	9	1	-797	-440	0.5	0.550	3.483	0.6	2.702	1.0	14
		11	1	-310	46	1.0	0.710	3.288	0.8	1.612	1.0	22
				-553	-197	1.5	0.648	3.386	1.4		2.0	36
14.500	39291.00	10	2	-283	70	1.2	0.630	3.274	1.0	2.005	1.3	22
		11	2	-308	45	3.7	0.710	3.265	2.6	1.502	2.9	27
				-295	57	4.9	0.674	3.269	3.6		4.2	49
15.500	39292.00	9	3	-343	8	0.8	0.540	3.701	0.9	1.843	0.9	24
21.500	39298.00	9	1	-180	150	0.9	0.520	3.395	0.8	1.692	1.0	22
		10	1	-291	39	1.1	0.610	3.651	0.8	1.765	1.1	22
		11	1	-334	-3	0.9	0.690	3.487	0.6	1.962	1.0	19
				-268	62	2.9	0.603	3.511	2.2		3.1	63
23.500	39300.00	9	3	-303	19	0.9	0.520	3.445	1.1	1.062	1.3	19
29.500	39306.00	11	1	-310	-19	0.7	0.670	3.210	0.5	1.662	0.7	20

c) Meteorological Data.

Date	Group	Temp.(°C) Air	Pressure	Temp.(°C) Instr.	Begining of Group	Wind Dir.	Wind Vel. (m/s)	Middle Wind Dir.	Middle Wind Vel. (m/s)	Hum.	Temp. Air (°C)	Pressure	Temp. Instr. (°C)	End of Group	Wind Dir.	Wind Vel. (m/s)	Remarks
1966																	
May 19	8	15.9	759.4	22.7	SSE	1	81	SSE	1	81	13.1	759.9	17.3	CALM		03	
9	9	13.1	759.9	17.3	CALM	1	84	NW	1	84	11.6	759.6	14.0	NNW	2	03	
10	10	11.6	759.6	14.0	NNW	2	88	NNW	1	88	10.1	759.9	12.0	NNW	2	03	
26	9	13.0	750.2	14.6	NE	3	82	NE	1	82	10.5	750.6	12.0	NE	2	20	
	10	10.5	750.6	12.0	NE	2	79	NNE	3	79	12.2	750.7	11.6	N	6		
31	8	16.7	754.6	19.9	ESE	2	70	WSW	2	70	13.1	755.0	16.6	WSW	2	19	
9	9	13.1	755.0	16.6	WSW	2	86	NW	2	86	11.4	755.2	13.8	WNW	1	19	
7	10	13.4	756.6	14.0	NNE	1	88	N	2	88	13.0	756.5	12.5	NNE	2	19	
8	9	14.6	758.2	16.9	SE	3	91	SSE	2	91	13.3	757.7	14.5	S	1		
12	9	12.5	758.4	13.7	SSE	4	66	SSW	3	66	9.8	758.6	11.5	SSW	2	01	
	10	9.8	758.6	11.5	SSW	2	84	SSW	1	84	7.9	758.3	9.8	CALM		01	
	11	7.9	758.3	9.8	CALM		89	CALM		89	6.6	758.0	8.0	CALM		01	
13	9	15.8	756.2	17.5	S	3	80	SSW	2	80	13.4	756.2	15.0	SSW	1	12	
	11	10.8	755.4	12.5	CALM		92	SE	1	92	10.2	755.4	11.2	ESE	1		
14	10	15.1	755.1	17.7	SSW	1	84	W	1	84	14.2	755.2	15.7	WNW	1		
	11	14.2	755.2	15.7	WNW	1	91	WNW	1	91	13.2	755.0	14.0	NNW	1		
15	9	18.4	756.5	21.0	SSW	1	86	SW	2	86	16.4	755.5	18.3	SSW	2	03	
21	9	18.4	753.6	21.0	CALM		83	NE	2	83	18.1	754.1	19.0	NNE	1		
	10	18.1	754.1	19.0	NNE	1	90	NNE	1	90	16.3	754.4	17.5	NNE	1		
	11	16.3	754.4	17.5	NNE	1	91	CALM		91	15.8	754.4	16.2	NNW	2		
23	9	19.3	754.8	19.4	N	2	96	N	1	96	18.2	754.9	18.6	N	2	20	
29	11	14.4	749.1	15.6	NNE	4	89	ESE	1	89	14.6	749.1	14.3	N	4	04	

b) Results of the observations with Astrolabe.

Date	Julian Date	Group	Observer	UT ₀	0-3 (0001) UT ₂	P _{ΔT}	Frac. of Day	φ 39°08' +	P _φ	dz	P	No. of Stars
June 1966	30.500	9	3	-588	-301	1.3	0.500	3.637	1.2	1.987	1.6	20
				-314	-27	0.8	0.590	3.536	0.7	1.696	0.6	28
				-277	9	1.0	0.670	3.488	0.7	1.669	0.8	25
July	5.500	11	3	-393	-106	3.1	0.593	3.554	2.6		3.0	73
				-250	7	0.9	0.570	3.460	0.8	1.425	1.1	20
				-299	-41	1.9	0.650	3.253	1.2	1.454	1.7	23
6.500	39312.00	12	3	-250	7	1.4	0.740	3.604	1.1	1.590	1.3	25
				-266	-9	4.2	0.660	3.439	3.1		4.1	68
				-117	134	1.1	0.570	3.378	1.0	1.754	1.2	23
9.500	39316.00	11	3	-236	-3	1.1	0.560	3.384	0.8	1.392	1.1	21
				-333	-100	1.3	0.640	3.296	0.7	1.196	1.2	21
				-284	-52	2.4	0.600	3.340	1.5		2.3	42
10.500	39317.00	11	4	16	242	1.2	0.560	3.680	1.0	1.709	1.6	17
				81	307	0.8	0.640	3.563	0.5	1.705	0.8	20
				48	274	2.0	0.603	3.621	1.5		2.4	37
13.500	39320.00	11	3	-376	-170	1.3	0.550	3.350	1.0	1.032	1.1	27
				-284	-78	1.3	0.630	3.357	0.9	1.304	1.1	24
				-330	-124	2.6	0.588	3.353	1.9		2.2	51
18.500	39325.00	10	4	-129	39	1.1	0.530	3.473	0.9	1.056	1.2	21
				-183	-84	1.4	0.600	3.389	0.9	1.165	1.8	16
				-102	-3	0.9	0.680	3.572	0.7	1.432	1.1	18
27.500	39334.00	12	1	-142	-44	2.3	0.642	3.480	1.6		2.9	34
				-13	44	2.0	0.580	3.260	1.2	0.478	2.0	20
				3	61	1.2	0.660	3.517	1.2	0.486	1.5	19
1.500	39339.00	1	4	-76	-18	1.9	0.750	3.329	1.0	0.837	1.7	21
				-28	29	5.1	0.665	3.369	3.2		5.2	60
				-140	-132	1.1	0.560	3.177	0.6	1.234	1.0	22
7.500	39345.00	12	2	-9	-1	1.6	0.650	3.251	1.3	1.351	1.4	26
				111	119	1.8	0.730	3.246	1.1	1.248	1.3	29
				-12	-5	4.5	0.654	3.225	3.0		3.7	77
12.500	39350.00	12	1	43	12	2.2	0.630	3.475	1.9	0.748	1.9	26

e) Meteorological Data.

Date	Group	Beginning of Group		Middle		End of Group		Remarks
		Temp.(°C)	Pressure	Temp.(°C)	Hum.	Temp. Instr. (°C)	Pressure	
1966								
June 30	9	17.0	750.4	18.9		14.3	751.0	15.7
	10	14.3	751.0	15.7		13.3	750.8	14.0
	11	13.3	750.8	14.0		11.3	750.7	12.3
July 5	10	14.7	753.9	15.0		13.0	754.1	14.0
	11	13.0	754.1	14.0		11.8	753.9	12.7
	12	11.8	753.9	12.7		10.3	754.0	11.3
6	10	17.0	754.2	18.4		14.8	754.4	16.0
	9	20.2	750.1	19.0		18.8	750.3	18.6
	11	18.8	750.3	18.6		17.9	750.3	18.0
10	10	20.9	751.5	23.0		18.3	751.7	20.6
	11	18.3	751.7	20.6		17.4	751.5	18.7
	13	18.4	756.7	17.4		16.7	757.3	16.8
18	11	16.7	757.3	16.8		15.5	757.4	15.7
	10	22.2	751.6	22.9		20.9	751.4	21.8
	27	23.6	754.4	23.0		22.3	754.4	23.0
12	12	22.3	754.4	23.0		21.2	754.2	22.0
	11	16.7	748.6	16.1		16.4	748.5	16.1
	12	16.4	748.5	16.1		15.3	748.3	15.8
Aug. 1	1	15.3	748.3	15.8		13.4	748.4	14.9
	11	23.7	748.3	24.3		21.6	748.3	22.9
	12	21.6	748.3	22.9		20.2	748.3	21.0
7	1	20.2	748.3	21.0		19.0	748.3	19.8
	11	22.8	752.6	23.0		21.9	751.5	22.6
	12							

b) Results of the observations with Astrolabe.

Date	Julian Date	Group	Observer	UT ₀	$\frac{0-a}{(0.0001)}$ UT ₂	P _{Δr}	Frac. of Day	φ 39°08' +	P _φ	dz	P	No. of Stars
1966												
Aug.	27.500	11	3	154	17	1.6	0.500	3.370	1.1	0.614	1.6	21
	28.500	11	2	188	43	2.9	0.510	3.221	2.1	0.861	2.3	27
		12	2	202	57	1.5	0.590	3.411	1.1	0.856	1.5	22
		1	2	194	49	1.5	0.670	3.208	1.0	1.068	1.2	26
29.500				194	49	5.9	0.589	3.280	4.2		5.0	75
		11	4	144	— 5	1.2	0.500	3.253	0.7	0.887	1.4	18
		12	4	222	72	2.6	0.580	3.362	2.6	0.920	3.6	18
		1	4	298	148	1.8	0.670	3.147	1.0	0.949	1.4	24
30.500				221	71	5.6	0.592	3.254	4.3		6.4	60
		11	3	134	— 21	2.9	0.500	3.312	1.8	0.949	2.3	26
		1	3	155	0	3.6	0.660	3.197	2.1	0.839	3.6	20
				144	— 10	6.5	0.570	3.254	3.9		5.9	46
Sept.	2.500	11	3	284	112	1.4	0.490	3.452	0.9	0.868	1.5	19
	4.500	1	1	— 31	— 215	1.7	0.650	3.183	1.0	1.462	1.3	25
	7.500	1	3	165	— 32	5.1	0.640	3.357	3.3	0.611	3.9	27
	16.500	11	1	415	178	1.6	0.460	3.212	1.2	1.517	1.5	24
29.500		1	2	333	71	1.0	0.580	3.118	0.6	1.505	0.9	23
	30.500	12	4	457	194	1.3	0.500	3.440	1.2	1.598	1.9	16
		1	4	523	260	2.7	0.580	3.422	1.6	1.276	2.0	27
		2	4	590	327	2.0	0.660	3.379	1.0	1.087	1.7	23
Oct.	5.500	1	2	241	— 26	1.9	0.570	3.234	1.2	1.505	1.5	26
		2	2	223	— 44	2.0	0.650	3.093	1.1	1.313	1.6	24
		3	2	90	— 177	1.5	0.740	3.106	0.9	1.325	1.1	27
	6.500			184	— 82	5.4	0.655	3.144	3.2		4.2	77
6.500		1	4	254	— 14	3.5	0.570	3.399	2.0	1.719	2.8	25
		2	4	120	— 148	3.2	0.650	3.336	2.0	1.225	2.9	22
				187	— 81	6.7	0.607	3.367	4.0		5.7	47

c) Meteorological Data.

Date	Group	Temp.(°C) Air	Pressure Instr.	Temp.(°C) Instr.	Wind Dir.	Wind Vel. (m/s)	Middle Wind Dir.	Middle Wind Vel. (m/s)	Hum. %	Temp. Air (°C)	Pressure Instr.	Temp. Instr. (°C)	Wind Dir.	Wind Vel. (m/s)	Remarks
1966															
Aug.	27	11		21.9	756.5	21.0	S	5	92	21.0	756.8	21.0	SSE	3	14 19
	28	11		23.7	754.0	23.4	NE	1	90	21.6	754.2	22.3	CALM		19
	12			21.6	754.2	22.3	CALM		95	20.6	754.1	21.7	W	1	19
		1		20.6	754.2	21.7	W	1	97	19.8	754.0	20.6	CALM		19
29	11			23.8	754.2	23.5	SW	1	89	22.2	754.2	22.8	SW	1	03
	12			22.2	754.2	22.8	SW	1	93	20.4	754.4	21.7	CALM		12
		1		20.4	754.4	21.7	CALM		94	19.4	754.3	20.6	NNW	1	03
	30	11		25.6	755.3	25.6	S	5	89	23.7	755.5	24.3	S	2	13
Sept.	1			22.9	755.5	23.0	SSW	3	95	21.6	755.3	22.0	SSW	1	13 20
	2	11		20.8	754.4	20.4	E	2	72	19.1	754.9	19.6	NW	1	12
	4	1		15.9	754.0	19.2	CALM		93	14.4	754.1	17.0	N	2	14
	7	1		20.6	753.8	20.1	SSW	1	95	19.6	753.9	20.0	SSW	1	13
16	11			14.9	756.0	16.8	CALM		85	11.9	756.3	14.2	CALM		
	29	1		8.5	758.4	11.0	SSE	1	91	7.3	758.7	9.0	N	1	12
	30	12		14.4	760.7	18.4	SSE	1	90	11.7	760.9	14.8	CALM		03
	1			11.7	760.9	14.8	CALM		90	10.2	760.9	12.5	NNW	2	03
5	2			10.2	760.9	12.5	NNW	2	93	9.1	761.0	11.0	NNW	1	03
	1			8.2	766.7	10.0	NW	2	88	6.6	767.0	7.8	N	2	03
	2			6.6	767.0	7.8	N	2	90	5.6	767.2	6.0	N	2	03
	3			5.6	767.2	6.0	N	2	92	3.5	767.5	4.6	CALM		
6	1			6.5	768.4	11.0	WSW	1	93	4.7	767.8	7.7	CALM		03
	2			4.7	767.8	7.7	CALM		94	4.4	767.5	6.0	NNW	1	02

b) Results of the observations with Astrolabe.

Date	Julian Date	Group	Observer	UT ₀	UT ₁ - a (0.0001)	P _{air}	Frac. of Day	φ 39°08' +	P _φ	dz	P	No. of Stars
Oct. 1966	10.500	2	3	291	22	3.4	0.640	3.344	1.7	1.161	2.8	23
				381	112	2.2	0.720	3.273	1.2	0.804	1.5	28
				336	67	5.6	0.684	3.308	2.9		4.3	51
				123	-143	1.0	0.540	3.453	0.8	1.100	1.2	19
Oct. 1966	14.500	1	3	82	-175	1.9	0.520	3.401	1.2	1.031	1.4	27
				359	101	2.2	0.600	3.503	1.3	0.652	1.8	24
				123	-134	1.0	0.690	3.255	0.6	0.522	1.0	19
				188	-69	5.1	0.594	3.386	3.1		4.2	70
Oct. 1966	23.500	1	4	-40	-296	1.1	0.520	3.373	0.6	1.956	0.9	23
				93	-162	1.5	0.600	3.361	0.8	1.334	1.5	20
				26	-229	2.6	0.557	3.367	1.4		2.4	43
				499	257	1.3	0.510	3.224	0.8	1.145	1.2	21
Oct. 1966	30.500	1	4	107	-133	1.2	0.500	3.323	0.8	1.559	1.1	23
				176	-64	1.2	0.580	3.354	0.8	1.175	1.1	22
				117	-123	2.4	0.660	3.139	1.4	0.952	1.7	27
				133	-106	4.8	0.584	3.272	3.0		3.9	72
Nov. 1966	5.500	2	1	230	1	1.3	0.570	3.342	0.7	1.988	1.0	25
				193	-27	5.9	0.470	3.285	3.8	1.528	4.3	28
				221	0	2.5	0.560	3.346	1.2	1.213	1.8	26
				269	48	2.4	0.730	3.248	1.6	0.898	1.9	27
Nov. 1966	11.500	2	3	265	53	2.6	0.550	3.383	1.3	0.897	2.0	24
				220	8	2.0	0.630	3.332	1.1	1.151	1.3	29
				197	-14	1.9	0.720	3.178	1.4	1.380	1.5	27
				227	15	6.5	0.636	3.298	3.8		4.8	80
Nov. 1966	12.500*	2	4	310	100	1.1	0.540	3.216	0.7	0.881	1.2	19
				92	-99	1.8	0.710	3.437	1.4	0.927	2.2	18
				150	-36	1.0	0.620	3.284	0.6	0.485	1.3	16
				172	-14	1.8	0.690	3.112	1.3	0.423	1.5	26
Nov. 1966	20.500	3	3	161	-25	2.8	0.663	3.198	1.9		2.8	42

c) Meteorological Data.

Date	Group	Temp.(°C) Air	Beginning of Group		Wind Dir.	Vel. (m/s)	Middle		Hum.	Temp. Air (°C)	End of Group		Remarks
			Pressure	Temp.(°C) Instr.			Wind Dir.	Vel. (m/s)			Pressure	Temp. Instr. (°C)	
Oct. 1966	10	13.1	759.0	15.3	CALM	1	ESE	1	92	11.5	759.1	12.8	N
Oct. 1966	14	17.2	750.7	17.7	WSW	1	WNW	1	78	16.2	751.0	16.5	N
Oct. 1966	22	9.9	761.2	10.7	ESE	2	NW	2	85	8.9	761.3	9.5	N
Oct. 1966	23	9.4	763.9	13.0	SW	2	W	2	93	7.3	764.2	9.9	CALM
Oct. 1966	30	11.9	752.1	13.0	WSW	1	SSE	2	80	10.4	752.3	11.0	SSE
Oct. 1966	31	10.9	756.0	14.4	ENE	1	CALM	1	86	8.5	756.2	11.1	S
Nov. 1966	5	7.3	762.8	10.6	S	1	SE	1	93	5.7	762.4	8.1	SE
Nov. 1966	8	9.2	759.9	11.0	CALM	1	NNW	1	78	6.2	760.4	8.2	CALM
Nov. 1966	11	6.9	761.8	7.2	NNW	4	N	3	68	6.4	762.6	5.7	NNW
Nov. 1966	12	3.0	760.7	5.5	CALM	1	CALM	1	93	2.2	760.8	3.3	ENE
Nov. 1966	18	0.8	758.4	2.0	SE	1	N	1	85	0.3	758.3	1.5	NW
Nov. 1966	20	-1.1	754.7	-0.8	SSE	3	SSE	2	84	-0.9	754.3	-1.0	N

b) Results of the observations with Astrolabe.

Date	Julian Date	Group	Observer	UT ₀	0-3 (0.0001) UT ₂	P _{AT}	Frac. of Day	φ 39°08'+	P _φ	dz	P	No. of Stars
1966 Nov. 23.500	2400000+ 39453.00	2	3	346	167	1.3	0.500	3.511	0.6	1.199	1.4	17
		3	3	131	-47	3.5	0.600	3.405	1.8	0.838	2.4	28
		4	3	113	-65	1.1	0.680	3.276	0.7	1.044	1.1	22
				196	18	5.9	0.601	3.397	3.1		4.9	67
Dec. 2.500	39462.00	3	1	161	7	2.1	0.580	3.256	1.2	0.913	1.5	27
		4	1	51	-102	1.4	0.660	3.398	1.0	1.129	1.1	26
		5	1	73	-80	1.5	0.740	3.320	1.0	1.058	1.1	27
				95	-58	5.0	0.660	3.325	3.2		3.7	80
6.500	39466.00	3	3	273	128	1.8	0.560	3.214	0.8	0.746	1.9	17
		3	3	162	29	1.6	0.550	3.100	0.9	0.570	1.3	25
		4	3	57	-75	1.1	0.630	3.450	0.8	0.327	1.1	21
				109	-23	2.7	0.587	3.275	1.7		2.4	46
14.500	39474.00	3	3	248	122	2.0	0.540	3.289	1.0	0.587	1.5	25
		4	3	64	-61	0.9	0.630	3.360	0.7	0.659	0.8	25
		5	3	145	19	1.4	0.710	3.348	0.9	0.795	1.1	27
				152	26	4.3	0.629	3.332	2.6		3.4	77
19.500	39479.00	5	3	62	-52	1.5	0.700	3.309	1.0	0.973	1.5	21
		3	4	77	-35	1.3	0.520	3.177	0.6	0.617	1.5	16
		3	3	79	-26	2.6	0.520	3.248	1.4	0.791	1.7	29
		4	3	-112	-218	1.2	0.600	3.388	0.9	0.644	0.9	27
20.500	39480.00			-16	-121	3.8	0.559	3.318	2.3		2.6	56
		3	4	121	18	4.0	0.510	3.313	2.2	0.812	3.1	25

c) Meteorological Data.

Date	Group	Beginning of Group		Middle		End of Group		Remarks
		Temp.(°C) Air	Pressure Instr.	Temp.(°C) Dir.	Wind Vel. (m/s)	Temp. Air (°C)	Pressure Instr.	
1966 Nov. 23	2	0.2	763.2	1.0	S	-1.2	763.0	N E 1 03 19
	3	-1.2	763.0	-0.2	N E 1	-1.8	762.5	N W 1 19
	4	-1.8	762.5	-1.0	N W 1	-2.3	762.5	E 2 19
	2	-4.8	761.0	-3.6	NNW 1	-6.0	761.0	WNW 1 03
Dec. 2	4	-6.0	761.0	-4.9	WNW 1	-7.6	761.1	CALM 1 06
	5	-7.6	761.1	-6.0	WNW 1	-7.8	761.4	N 1 13
	6	0.	758.9	2.0	N 3	-0.8	758.7	ENE 2 13
	11	-0.8	756.4	0.3	N 6	-1.1	756.3	N 4 4
14	4	-1.1	756.3	-1.5	N 4	-1.0	756.0	N E 3
	3	2.0	755.3	1.0	NNW 6	1.8	756.3	N 5 5
	4	1.8	756.3	0.6	N 5	0.9	757.2	NNW 4 4
	5	0.9	757.2	0.	NNW 5	0.1	758.5	NNW 2 2
19	5	1.9	750.5	3.6	CALM	0.3	749.7	N W 1 11
	3	-2.7	756.5	-2.8	NNW 6	-3.2	757.1	NNW 8 03
	24	-2.8	755.6	-1.8	N 3	-3.5	755.3	NNE 3 3
	4	-3.5	755.3	-3.5	NNE 3	-5.3	754.6	N 2 2
26	3	-4.8	751.1	-4.6	N 2	-6.8	750.8	NNE 2 03

Section I. Astronomical Observation

d) Correction for polar variation and seasonal variation.
The values are given to four decimal places of a second and these are applied to the reception times of radio time signals.

Date 1966 1200UT.	JANUARY		FEBRUARY		MARCH		Date 1966 1200UT.	APRIL		MAY		JUNE	
	S.V.	P.V.	S.V.	P.V.	S.V.	P.V.		S.V.	P.V.	S.V.	P.V.	S.V.	P.V.
UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀		UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀
1	-49	-103	-152	-79	-39	-27	1	+146	+8	+263	+43	+302	+72
2	-48	-102	-150	-75	+42	-25	2	+150	+9	+266	+45	+301	+73
3	-46	-101	-147	-72	+45	-23	3	+154	+10	+269	+46	+300	+74
4	-44	-100	-144	-70	+47	-21	4	+158	+12	+272	+48	+298	+74
5	-43	-100	-143	-68	+50	-19	5	+162	+12	+275	+48	+296	+75
6	-42	-99	-141	-66	+53	-19	6	+166	+13	+277	+49	+295	+75
7	-40	-98	-138	-63	+56	-18	7	+170	+14	+280	+49	+293	+75
8	-39	-97	-136	-60	+59	-17	8	+175	+15	+283	+50	+290	+76
9	-37	-97	-134	-58	+62	-16	9	+179	+17	+285	+50	+288	+76
10	-36	-96	-132	-55	+65	-15	10	+183	+18	+287	+51	+286	+76
11	-34	-94	-128	-51	+68	-14	11	+187	+19	+289	+52	+283	+77
12	-33	-93	-126	-47	+71	-13	12	+191	+21	+291	+53	+280	+78
13	-32	-92	-124	-44	+74	-12	13	+196	+22	+293	+54	+277	+78
14	-31	-91	-122	-41	+77	-10	14	+200	+24	+295	+56	+274	+78
15	-29	-90	-119	-38	+81	-8	15	+204	+25	+296	+56	+271	+79
16	-28	-89	-117	-35	+84	-8	16	+208	+26	+298	+57	+268	+79
17	-27	-88	-115	-31	+88	-7	17	+212	+26	+299	+58	+264	+79
18	-26	-87	-113	-29	+92	-6	18	+216	+28	+300	+59	+260	+79
19	-24	-86	-110	-25	+95	-5	19	+220	+29	+302	+60	+256	+80
20	-24	-85	-109	-21	+98	-4	20	+224	+30	+303	+61	+252	+80
21	-22	-84	-106	-18	+102	-3	21	+228	+31	+304	+62	+248	+80
22	-21	-82	-103	-14	+106	-2	22	+231	+33	+304	+64	+243	+81
23	-20	-81	-101	-9	+110	-1	23	+235	+35	+305	+65	+239	+81
24	-19	-79	-98	-6	+114	0	24	+239	+36	+305	+66	+234	+81
25	-18	-78	-96	-2	+118	+2	25	+242	+37	+305	+67	+230	+81
26	-17	-77	-94	+1	+121	+2	26	+246	+38	+305	+67	+225	+81
27	-16	-76	-92	+4	+125	+3	27	+249	+39	+305	+68	+220	+81
28	-15	-75	-90	+9	+129	+4	28	+253	+40	+304	+69	+214	+81
29	-13	-74	-87	+133	+137	+5	29	+256	+41	+304	+69	+209	+81
30	-12	-72	-84	+137	+142	+6	30	+260	+42	+304	+70	+204	+81
31	-11	-71	-82	+142	+148	+6	31	+303	+71	+303	+71	+374	+285

Date 1966 1200UT.	JULY		AUGUST		SEPTEMBER		Date 1966 1200UT.	OCTOBER		NOVEMBER		DECEMBER	
	S.V.	P.V.	S.V.	P.V.	S.V.	P.V.		S.V.	P.V.	S.V.	P.V.	S.V.	P.V.
UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀		UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀	UT ₂ minus UT ₀
1	+198	+81	+279	-17	+73	+56	1	-290	+26	-234	-6	-129	-30
2	+192	+81	+273	-24	+72	+48	2	-290	+25	-231	-6	-126	-31
3	+186	+81	+267	-32	+71	+39	3	-290	+25	-227	-7	-122	-31
4	+180	+81	+261	-39	+71	+32	4	-290	+24	-224	-8	-119	-32
5	+174	+81	+255	-47	+70	+23	5	-289	+23	-221	-9	-116	-32
6	+168	+81	+249	-54	+69	+15	6	-289	+22	-217	-10	-113	-33
7	+162	+81	+243	-61	+69	+8	7	-288	+20	-214	-11	-110	-34
8	+155	+81	+236	-68	+68	0	8	-287	+19	-210	-12	-107	-35
9	+149	+81	+230	-76	+67	-9	9	-286	+18	-207	-13	-104	-36
10	+142	+81	+223	-83	+66	-17	10	-285	+16	-203	-15	-101	-37
11	+136	+81	+217	-90	+65	-25	11	-284	+15	-200	-15	-98	-37
12	+129	+81	+210	-97	+64	-33	12	-283	+14	-196	-16	-95	-37
13	+122	+81	+203	-104	+63	-41	13	-281	+14	-193	-16	-92	-37
14	+115	+81	+196	-110	+62	-48	14	-279	+13	-189	-17	-90	-38
15	+108	+81	+189	-117	+62	-55	15	-278	+12	-185	-18	-87	-38
16	+101	+80	+181	-124	+61	-63	16	-276	+11	-182	-18	-84	-39
17	+94	+80	+174	-130	+60	-70	17	-274	+10	-178	-19	-81	-39
18	+87	+80	+167	-137	+59	-78	18	-272	+9	-174	-20	-79	-40
19	+79	+79	+158	-143	+58	-85	19	-270	+7	-171	-21	-77	-40
20	+72	+79	+151	-150	+57	-93	20	-268	+6	-167	-22	-74	-41
21	+65	+79	+144	-156	+56	-100	21	-265	+4	-164	-23	-72	-41
22	+58	+78	+136	-162	+55	-107	22	-263	+4	-160	-23	-70	-41
23	+50	+78	+128	-168	+55	-113	23	-260	+3	-156	-24	-68	-42
24	+43	+77	+121	-174	+54	-120	24	-258	+3	-153	-25	-65	-42
25	+35	+77	+112	-180	+53	-127	25	-255	+2	-149	-25	-63	-42
26	+28	+77	+105	-185	+53	-132	26	-252	+1	-146	-26	-61	-43
27	+20	+76	+96	-191	+52	-139	27	-249	-2	-142	-27	-59	-43
28	+12	+76	+88	-196	+51	-145	28	-246	-1	-139	-28	-57	-43
29	+5	+75	+80	-201	+50	-151	29	-243	-3	-136	-29	-55	-44
30	-2	+74	+72	-206	+49	-157	30	-240	-4	-132	-30	-54	-44
31	-9	+74	+65	-211	+48	-163	31	-237	-5	-129	-31	-52	-44

1966		1966		1966		1966		1966		1966	
May.		June.		July.		August.		September.		October.	
Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY
kc	5000	kc	5000	kc	5000	kc	5000	kc	5000	kc	5000
U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000
1	9917	1	9926	1	9927	1	9927	1	9927	1	9927
2	9914	2	9929	2	9929	2	9929	2	9929	2	9929
3	9916	3	9930	3	9930	3	9930	3	9930	3	9930
4	9921	4	9934	4	9937	4	9937	4	9937	4	9937
5	9926	5	9938	5	9940	5	9940	5	9940	5	9940
6	9926	6	9934	6	9931	6	9931	6	9931	6	9931
7	9927	7	9915	7	9911	7	9911	7	9911	7	9911
8	9936	8	9911	8	9912	8	9912	8	9912	8	9912
9	9951	9	9921	9	9925	9	9925	9	9925	9	9925
10	9960	10	9935	10	9939	10	9939	10	9939	10	9939
11	9965	11	9951	11	9955	11	9955	11	9955	11	9955
12	9969	12	9963	12	9966	12	9966	12	9966	12	9966
13	9962	13	9970	13	9971	13	9971	13	9971	13	9971
14	9962	14	9971	14	9972	14	9972	14	9972	14	9972
15		15	9969	15	9969	15	9969	15	9969	15	9969
16	9988	16	9965	16	9963	16	9963	16	9963	16	9963
17	9995	17	9961	17	9960	17	9960	17	9960	17	9960
18	9994	18	9959	18	9960	18	9960	18	9960	18	9960
19	9992	19	9962	19	9963	19	9963	19	9963	19	9963
20	9988	20	9969	20	9974	20	9974	20	9974	20	9974
21	9980	21	9982	21	9986	21	9986	21	9986	21	9986
22	9981	22	9994	22	9998	22	9998	22	9998	22	9998
23	9983	23	0005	23	0009	23	0009	23	0009	23	0009
24	9979	24	0016	24	0019	24	0019	24	0019	24	0019
25	9976	25	0025	25	0029	25	0029	25	0029	25	0029
26	9974	26	0037	26	0041	26	0041	26	0041	26	0041
27	9967	27	0051	27	0055	27	0055	27	0055	27	0055
28	9958	28		28	0044	28	0044	28	0044	28	0044
29	9943	29		29	0058	29	0058	29	0058	29	0058
30	9933	30	0064	30	0065	30	0065	30	0065	30	0065
31	9926	31									

1966		1966		1966		1966		1966		1966	
July.		August.		September.		October.		November.		December.	
Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY
kc	5000	kc	5000	kc	5000	kc	5000	kc	5000	kc	5000
U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000
1	0068	1	0062	1	0065	1	0065	1	0065	1	0065
2	0069	2	0076	2	0081	2	0081	2	0081	2	0081
3	0067	3	0090	3	0094	3	0094	3	0094	3	0094
4	0065	4	(0102)	4	0107	4	0107	4	0107	4	0107
5	0065	5	0115	5	0119	5	0119	5	0119	5	0119
6	0070	6	0121	6	0124	6	0124	6	0124	6	0124
7	0078	7	0126	7	0128	7	0128	7	0128	7	0128
8	0075	8	0127	8	0129	8	0129	8	0129	8	0129
9	0092	9	0134	9	0136	9	0136	9	0136	9	0136
10	0097	10	0148	10	0153	10	0153	10	0153	10	0153
11	0098	11	0165	11	0173	11	0173	11	0173	11	0173
12	0096	12	0187	12	0193	12	0193	12	0193	12	0193
13	0093	13	0207	13	0202	13	0202	13	0202	13	0202
14	0086	14	0217	14	0224	14	0224	14	0224	14	0224
15	0081	15	0238	15	0245	15	0245	15	0245	15	0245
16	0075	16	0257	16	0264	16	0264	16	0264	16	0264
17	0070	17	0273	17	0278	17	0278	17	0278	17	0278
18	0067	18	0285	18	0289	18	0289	18	0289	18	0289
19	0062	19	0291	19	0293	19	0293	19	0293	19	0293
20	0054	20	0290	20	0291	20	0291	20	0291	20	0291
21	0045	21	0284	21	0280	21	0280	21	0280	21	0280
22	0038	22	0271	22	0266	22	0266	22	0266	22	0266
23	0038	23	0258	23	0254	23	0254	23	0254	23	0254
24	0040	24	0251	24	0251	24	0251	24	0251	24	0251
25	0044	25	0247	25	0245	25	0245	25	0245	25	0245
26		26	0242	26	0239	26	0239	26	0239	26	0239
27	0023	27	0226	27	0219	27	0219	27	0219	27	0219
28	0025	28	0203	28	0198	28	0198	28	0198	28	0198
29	0031	29	0187	29	0184	29	0184	29	0184	29	0184
30	0041	30	0174	30	0169	30	0169	30	0169	30	0169
31	0049	31	0155	31	0148	31	0148	31	0148	31	0148

1966		1966		1966		1966		1966	
Sept.		Oct.		1966		1966		1966	
Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY
ke	5000	ke	5000	ke	5000	ke	5000	ke	5000
U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000
1	0138	1	0937	1	0937	1	0937	1	0937
2	0125	2	0916	2	0916	2	0916	2	0916
3	0115	3	0909	3	0909	3	0909	3	0909
4	0111	4	0904	4	0904	4	0904	4	0904
5	0109	5	0907	5	0907	5	0907	5	0907
6	0105	6	0932	6	0932	6	0932	6	0932
7	0095	7	0957	7	0957	7	0957	7	0957
8	0073	8	0967	8	0967	8	0967	8	0967
9	0038	9	0953	9	0953	9	0953	9	0953
10	0005	10	0937	10	0937	10	0937	10	0937
11	0988	11	0934	11	0934	11	0934	11	0934
12	0979	12	0945	12	0945	12	0945	12	0945
13	0972	13	0969	13	0969	13	0969	13	0969
14	0968	14	0973	14	0973	14	0973	14	0973
15	0971	15	0008	15	0008	15	0008	15	0008
16	0978	16	0012	16	0012	16	0012	16	0012
17	0985	17	0007	17	0007	17	0007	17	0007
18	0990	18	0007	18	0007	18	0007	18	0007
19	0990	19	0003	19	0003	19	0003	19	0003
20	0991	20	0003	20	0003	20	0003	20	0003
21	0972	21	0998	21	0998	21	0998	21	0998
22	0946	22	0005	22	0005	22	0005	22	0005
23	0939	23	0026	23	0026	23	0026	23	0026
24	0962	24	0044	24	0044	24	0044	24	0044
25	0991	25	0047	25	0047	25	0047	25	0047
26	0007	26	0050	26	0050	26	0050	26	0050
27	0007	27	0044	27	0044	27	0044	27	0044
28	0994	28	0030	28	0030	28	0030	28	0030
29	0977	29	0023	29	0023	29	0023	29	0023
30	0956	30	0021	30	0021	30	0021	30	0021
		31	0031	31	0031	31	0031	31	0031

1966		1966		1966		1966		1966	
Nov.		Dec.		1966		1966		1966	
Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY	Call Sign	JJY
ke	5000	ke	5000	ke	5000	ke	5000	ke	5000
U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000	U.T.	0000
1	0040	1	0008	1	0008	1	0008	1	0008
2	0034	2	0020	2	0020	2	0020	2	0020
3	0029	3	0032	3	0032	3	0032	3	0032
4	0023	4	0023	4	0023	4	0023	4	0023
5	0011	5	0021	5	0021	5	0021	5	0021
6	0004	6	0026	6	0026	6	0026	6	0026
7	0987	7	0029	7	0029	7	0029	7	0029
8	0976	8	0042	8	0042	8	0042	8	0042
9	0978	9	0064	9	0064	9	0064	9	0064
10	0974	10	0099	10	0099	10	0099	10	0099
11	0971	11	0119	11	0119	11	0119	11	0119
12	0975	12	0121	12	0121	12	0121	12	0121
13	0975	13	0128	13	0128	13	0128	13	0128
14	0968	14	0128	14	0128	14	0128	14	0128
15	0961	15	0116	15	0116	15	0116	15	0116
16	0955	16	0089	16	0089	16	0089	16	0089
17	0953	17	0050	17	0050	17	0050	17	0050
18	0953	18	0007	18	0007	18	0007	18	0007
19	0974	19	0958	19	0958	19	0958	19	0958
20	0997	20	0904	20	0904	20	0904	20	0904
21	0015	21	0946	21	0946	21	0946	21	0946
22	0020	22	0972	22	0972	22	0972	22	0972
23	0015	23	0943	23	0943	23	0943	23	0943
24	0002	24	0963	24	0963	24	0963	24	0963
25	0983	25	0963	25	0963	25	0963	25	0963
26	0968	26	0901	26	0901	26	0901	26	0901
27	0961	27	0952	27	0952	27	0952	27	0952
28	0964	28	0956	28	0956	28	0956	28	0956
29	0977	29	0953	29	0953	29	0953	29	0953
30	0995	30	0934	30	0934	30	0934	30	0934
		31	0956	31	0956	31	0956	31	0956

Section III. Clocks.

The table contains the uniform clock corrections in UT2 for three standard quartz clocks E_2 , E_4 and M_1 which are maintained and are available to the Time Service at the Mizusawa Observatory. The figures refer to 00^h00^mU.T.. The values are given as four decimals of a seconds are omitted.

Date 1966	JANUARY			FEBRUARY			MARCH			Date 1966	APRIL			MAY			JUNE		
	E_2	E_4	M_1	E_2	E_4	M_1	E_2	E_4	M_1		E_2	E_4	M_1	E_2	E_4	M_1	E_2	E_4	M_1
1	8657	7777	5745	9001	2037	5796	9324	6867	5879	1	9757	1221	6065	9793	5388	5890	9914	9451	5809
2	8684	7608	5763	9018	1857	5803	9348	6889	5889	2	9764	1033	6064	9794	5193	5884	9920	9262	5809
3	8712	7439	5780	9036	1679	5812	9362	6513	5901	3	9772	0845	6065	9799	5003	5882	9925	9071	5808
4	8737	7268	5796	9056	1502	5823	9366	6321	5897	4	9779	0656	6065	9807	4815	5884	9932	8882	5808
5	8754	7089	5803	9076	1326	5835	9370	6129	5893	5	9793	0475	6071	9815	4628	5885	9940	8694	5810
6	8772	6911	5811	9092	1146	5842	9381	5944	5896	6	9798	0284	6069	9820	4438	5884	9938	8497	5802
7	8800	6743	5830	9105	0963	5846	9396	5763	5902	7	9802	0092	6066	9826	4249	5883	9929	8293	5787
8	8834	6580	5854	9126	0787	5858	9410	5581	5908	8	9818	9912	6074	9838	4066	5889	9928	8117	5781
9	8870	6420	5880	9158	0623	5881	9428	5403	5918	9	9827	9725	6076	9857	3890	5901	9940	7935	5798
10	8905	6259	5905	9185	0454	5900	9449	5228	5931	10	9829	9532	6070	9870	3707	5907	9957	7757	5798
11	8937	6094	5927	9192	0265	5898	9471	5054	5945	11	9826	9333	6060	9879	3521	5910	9976	7581	5811
12	8961	5922	5942	9188	0065	5885	9492	4879	5958	12	9822	9133	6049	9886	3333	5910	9991	7400	5820
13	8977	5742	5948	9185	9896	5874	9509	4700	5967	13	9818	8933	6038	9884	3135	5902	0001	7215	5824
14	8990	5559	5951	9179	9663	5859	9524	4518	5974	14	9818	8738	6030	9887	2943	5898	0005	7024	5822
15	9004	5377	5956	9177	9465	5848	9536	4334	5977	15	9824	8548	6029	9905	2765	5909	0005	6829	5816
16	9016	5193	5958	9185	9277	5848	9548	4150	5981	16	9833	8361	6031	9921	2586	5919	0004	6633	5810
17	9024	5004	5956	9197	9093	5851	9560	3966	5985	17	9835	8168	6026	9931	2401	5922	0003	6438	5803
18	9029	4813	5953	9206	8906	5852	9574	3783	5991	18	9837	7974	6021	9934	2208	5919	0004	6243	5798
19	9035	4623	5949	9208	8712	5846	9592	3605	6001	19	9840	7782	6017	9936	2014	5914	0009	6053	5797
20	9046	4438	5951	9208	8516	5837	9614	3431	6015	20	9836	7582	6006	9934	1816	5906	0019	5869	5801
21	9052	4248	5948	9209	8320	5830	9631	3252	6024	21	9841	7392	6004	9931	1618	5896	0033	5688	5809
22	9046	4046	5932	9211	8126	5823	9643	3068	6028	22	9845	7201	6002	9935	1427	5894	0049	5508	5819
23	9033	3836	5910	9212	7931	5816	9657	2886	6034	23	9836	6997	5986	9941	1237	5893	0063	5326	5827
24	9010	3617	5878	9215	7738	5810	9673	2706	6042	24	9825	6790	5968	9940	1041	5886	0076	5144	5834
25	8976	3386	5835	9226	7553	5813	9689	2526	6050	25	9811	6581	5948	9940	0845	5879	0089	4962	5841
26	8947	3161	5797	9244	7375	5823	9705	2346	6059	26	9795	6369	5925	9942	0652	5875	0104	4781	5850
27	8942	2959	5782	9268	7203	5839	9723	2168	6069	27	9786	6163	5909	9939	0453	5866	0120	4602	5861
28	8951	2772	5782	9295	7034	5858	9741	1990	6079	28	9792	5972	5909	9933	0252	5853	0136	4423	5871
29	8961	2586	5783				9759	1811	6090	29	9800	5785	5910	9922	0045	5836	0152	4243	5881
30	8973	2401	5786				9771	1627	6094	30	9797	5587	5900	9914	9841	5822	0164	4061	5889
31	8986	2218	5790				9774	1434	6089	31				9911	9643	5812			

Approximate daily rates

Approximate daily rates

$$+0.0110 - 0.01853 + 0.0015 + 0.0109 - 0.01853 + 0.0023 + 0.0150 - 0.01811 + 0.0070 + 0.0014 - 0.01943 - 0.0057 + 0.0039 - 0.01915 - 0.0026 + 0.0086 - 0.01859 + 0.0028$$

Date 1966	JULY			AUGUST			SEPTEMBER			Date 1966	OCTOBER			NOVEMBER			DECEMBER		
	E ₂	E ₄	M ₁	E ₂	E ₄	M ₁	E ₂	E ₄	M ₁		E ₂	E ₄	M ₁	E ₂	E ₄	M ₁	E ₂	E ₄	M ₁
1	0171	3873	5890	0244	7907	5793	0326	1977	5716	1	0409	6464	5392	1442	6710	5366	2225	5697	5213
2	0174	3680	5887	0259	7728	5802	0313	1771	5699	2	0423	6431	5369	1466	6151	5357	2264	5695	5222
3	0174	3486	5882	0275	7550	5813	0305	1569	5686	3	0445	6410	5355	1489	6132	5348	2296	5685	5224
4	0174	3291	5876	0290	7370	5823	0300	1370	5676	4	0475	6397	5349	1513	6113	5339	2318	5665	5216
5	0177	3099	5873	0302	7188	5829	0299	1174	5670	5	0510	6388	5348	1532	6090	5326	2341	5647	5209
6	0184	2912	5875	0311	7003	5833	0297	0978	5663	6	0560	6396	5363			5309	2372	5636	5210
7	0193	2726	5878	0316	6814	5833	0287	0774	5648	7	0622	6414	5389	1557	6034	5288	2402	5624	5215
8	0203	2542	5883	0320	6624	5832	0265	0558	5621	8	0661	6411	5393	1575	6009	5274	2437	5617	5215
9	0212	2356	5886	0328	6438	5835	0233	0332	5584	9	0678	6385	5375	1605	5997	5272	2487	5628	5237
10	0219	2169	5888	0344	6260	5846	0201	0109	5547	10	0693	6357	5355	1629	5979	5264	2547	5647	5268
11	0222	1975	5885	0363	6085	5860	0184	9896	5525	11	0720	6341	5347	1654	5961	5257	2592	5650	5283
12	0223	1782	5881	0384	5913	5876	0177	9695	5514	12	0763	6341	5355	1686	5951	5257	2619	5636	5281
13	0220	1584	5872	0406	5741	5893	0171	9495	5503	13	0818	6353	5376	1711	5934	5251	2651	5627	5284
14	0216	1385	5863	0429	5573	5911	0167	9298	5495	14	0874	6366	5397	1732	5912	5240	2677	5612	5281
15	0213	1187	5854	0450	5400	5927	0172	9106	5495	15	0919	6368	5408	1752	5891	5229	2686	5580	5261
16	0210	0988	5846	0470	5226	5942	0179	8921	5498	16	0951	6357	5405	1774	5871	5220	2683	5536	5229
17	0207	0790	5837	0487	5050	5954	0187	8735	5501	17	0978	6341	5398	1799	5854	5214	2671	5483	5188
18	0206	0594	5830	0500	4869	5962	0192	8547	5502	18	1008	6329	5394	1831	5844	5215	2654	5424	5142
19	0203	0396	5822	0508	4683	5965	0195	8356	5500	19	1032	6311	5385	1873	5844	5226	2631	5360	5090
20	0197	0199	5810	0509	4490	5961	0193	8161	5494	20	1058	6294	5377	1922	5852	5244	2601	5289	5031
21	0190	9991	5797	0503	4290	5950			5472	21	1085	6279	5371	1967	5856	5259	2566	5213	4967
22	0186	9792	5788	0491	4084	5933			5439	22	1122	6273	5374	1970	5847	5262	2538	5143	4910
23	0187	9598	5789	0480	3878	5916	0140	7528	5428	23	1173	6282	5392	2021	5826	5252	2515	5079	4858
24	0191	9407	5782	0474	3678	5905	0198	7380	5447	24	1219	6285	5405	2035	5798	5235	2485	5008	4800
25	0195	9217	5780	0472	3482	5897	0262	7237	5472	25	1251	6275	5404	2043	5765	5213	2455	4937	4741
26	0196		5776	0468	3283	5888	0314	7081	5485	26	1282	6263	5402	2053	5754	5193	2445	4886	4703
27	0197	8835	5772	0453	3074	5867	0348	6910	5481	27	1306	6245	5393	2073	5712	5182	2449	4850	4679
28	0201	8641	5771	0431	2858	5840	0368	6722	5463	28	1321	6217	5375	2103	5712	5182	2444	4804	4646
29	0208	8454	5772	0416	2649	5820	0383	6529	5440	29	1339	6194	5361	2143	5698	5191	2446	4765	4620
30	0218	8270	5777	0403	2442	5802	0396	6495	5416	30	1367	6179	5356	2184	5698	5202	2472	4750	4618
31	0230	8087	5784	0387	2232	5782				31	1407	6176	5363				2519	4757	4637

経度観測報告

第11巻 第1-12号

非売品

昭和43年3月25日 印刷

昭和43年3月30日 発行

編集兼発行者 緯度観測所

岩手県水沢市星ヶ丘町2番12号

印刷所 水沢印刷株式会社

岩手県水沢市東町4番地