Characteristics of the Second Miyakojima Typhoon

By Yasushi MITSUTA & Sadao YOSHIZUMI

(Manuscript received May 8, 1968)

Abstract

The meteorological aspect of the characteristics of the Second Miyakojima Typhoon (No. 6618 Cora) is shown in this paper. This typhoon caused severe damage on Miyakojima Island on Sept. 5, 1966. The damage was mainly caused by severe winds which reached 60.8 m/sec at the maximum, with 85.3 m/sec as the peak gust.

1. Outline of the life history of the typhoon.

The Second Miyakojima Typhoon (No. 6618, Cora), which caused severe damage to houses and other property on Miyakojima and its adjacent islands on Sept. 5, 1966, can be traced back to a tropical depression to the northwest of Guam on Aug. 29. The depression moved southwest until turning to the northwest on 30 th. It developed into a typhoon with a central pressure of 998 mb at a point about 400 km west of Guam next morning. It continued to move on in a northwesterly direction, developing rapidly to a central pressure of about 930 mb and a maximum wind speed of 50 m/sec. The track of the typhoon and its central pressure are shown in Fig. 1. This figure was made mainly from data analyzed by the Japan Meteorogical Agency.

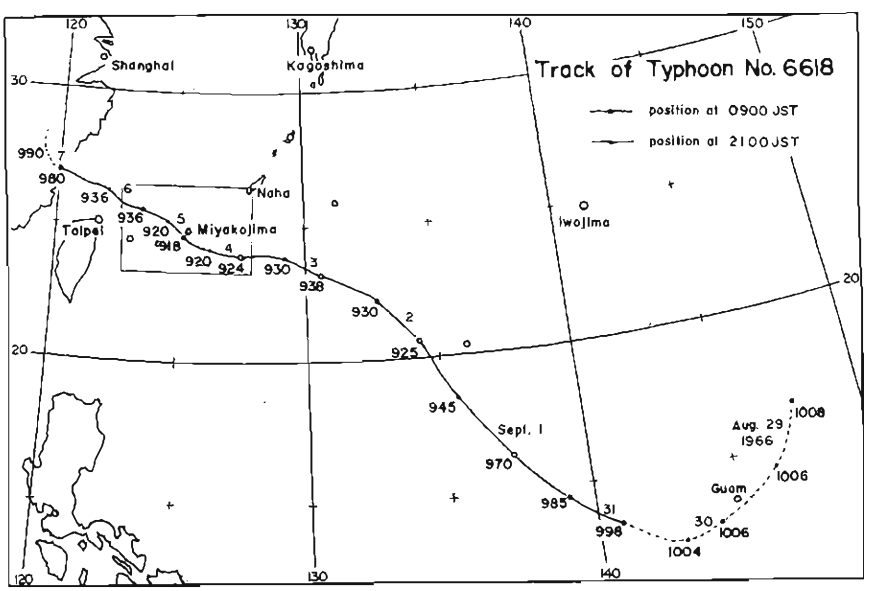

Fig. 1 ; The track of the Second Miyakojima Typhoon.

The typhoon turned and gradually headed to the west and attained its maximum intensity of 918 mb when it hit Miyakojima on the morning of Sept. 5.

The synoptic weather map of 0900 Sept. 5, when the typhoon was most intense and near Miyakojima Isl., is shown in Fig. 2. After that it moved westnorthwest crossing the East China Sea and its central pressure gradually increased. It landed on the coast of Fukien, on the mainland of China, in the morning of the 7 th and rapidly filled up over the continent as shown in Fig. 1.

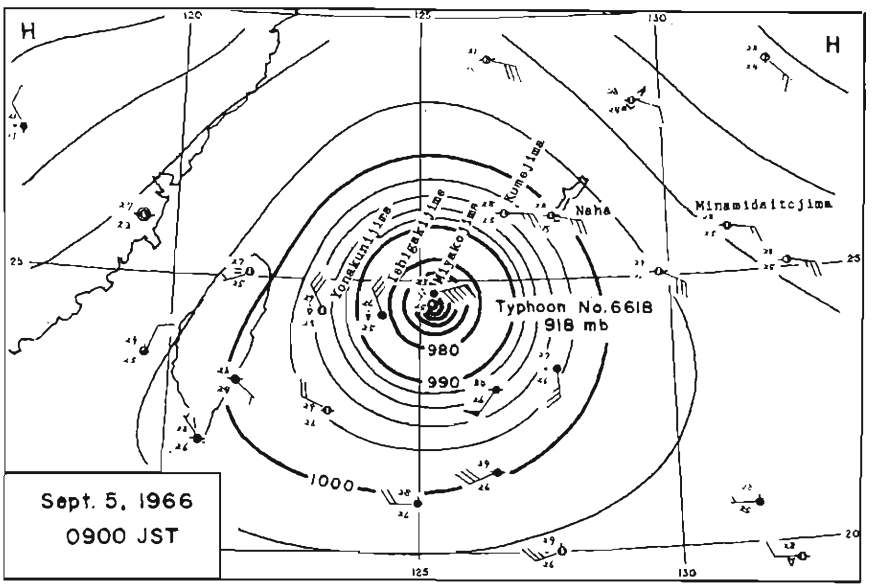

Fig. 2 ; The weather map at 0900 JST Sept. 5, 1966.

2. Detailed movement of the typhoon near Miyakojima Island.

Prior to studies of the meteorological environment of Miyakojima, where the disaster was most severe, a detailed analysis was made of the movement of the typhoon near the island from 1200 Sept. 4 to 0900 Sept. 6. As there are only a few island weather stations nearby, the position of the center of the typhoon is hardly fixed by the map analysis shown in Fig. 2. Therefore, the only data that could fix the hourly positions of the typhoon are the sparse direct positionings by aircraft reconnaisance (see Appendix 1) and radar observations at the Miyakojima Weather Station before 0630 JST of the 5 th (see Appendix 2), from which hourly positions were exterpolated.

To exterpolate the positions the pressure field of the typhoon was assumed and its parameters were determined from the data of direct fixes. The hourly positions can thus be estimated from the hourly observational data from the island stations (Appendix 3) by using the pressure distribution functions.

The pressure field is assumed to be described by the following empirical formula by Schloemer (1954) [1] for the purpose of simplicity without sacrificing accuracy ;

$$P - P_o = (P_n - P_o) \exp(-R/r) \qquad (1),$$

where P is pressure at a point at distance r from the center of the typhoon, P_o

the central pressure, P_n the pressure outside the typhoon and R the radius of the maximum wind zone.

As the central pressure of the typhoon did not change so rapidly in this area, P_o was chosen as the interpolated value from the data shown in Fig. 1 and Appendix 1. The other parameters P_n and R did not change so rapidly either and were calculated from the combinations of the center positions directly fixed by radar and aircraft observation and several surface observations at Miyakojima, Ishigakijima or Yonagunijima at the same time. From these parameters the hourly positions when direct fixings are lacking can be determined, using two sets of surface pressure data from the nearby islands. The results, which are smoothed to some extent, are shown in Table 1 and Fig. 3. The forward motion of the typhoon shown in this table is the averaged motion over three hours.

As is seen from the figure the forward movement of the typhoon is extremely slow; as slow as 10 km/hr or so near Miyakojima, which is just about equivalent to the speed of a bicycle. Therefore the island was under influence of the typhoon for a long time, i. e., more than 20 hours within 100 km from the center of the typhoon from 0000 of the 5th to 2200 JST of that day. The typhoon

Table 1 Position and velocity of Typoon No. 6618 in the vicinity of Miyakojima

Time JST	Position Azimuth (from Miyakojima) deg	Position Distance (from Miyakojima) km	Velocity Speed km/kr	Velocity Direction deg	Time JST	Position Azimuth (from Miyakojima) deg	Position Distance (from Miyakojima) km	Velocity Speed km/hr	Velocity Direction deg
4th 12h	116	213	12	280	5th 12h	256	20	7	330
13	117	202			13	273	23		
14	117	191			14	287	27		
15	118	180	11	290	15	294	34	8	320
16	120	170			16	300	41		
17	121	162			17	302	48		
18	123	152	11	270	18	302	58	9	300
19	126	143			19	301	66		
20	128	134			20	300	76		
21	131	124	11	280	21	299	87	10	290
22	134	116			22	298	97		
23	137	107			23	297	108		
5th 00	139	96	11	300	6th 00	296	119	11	290
01	141	85			01	296	131		
02	141	76			02	296	143		
03	141	66	10	310	03	296	157	11	290
04	143	55			04	296	167		
05	148	46			05	295	178		
06	156	37	10	290	06	295	189	12	290
07	168	32			07	294	204		
08	180	28			08	294	217		
09	196	23	8	320	09	293	230	14	280
10	215	20							
11	234	19							

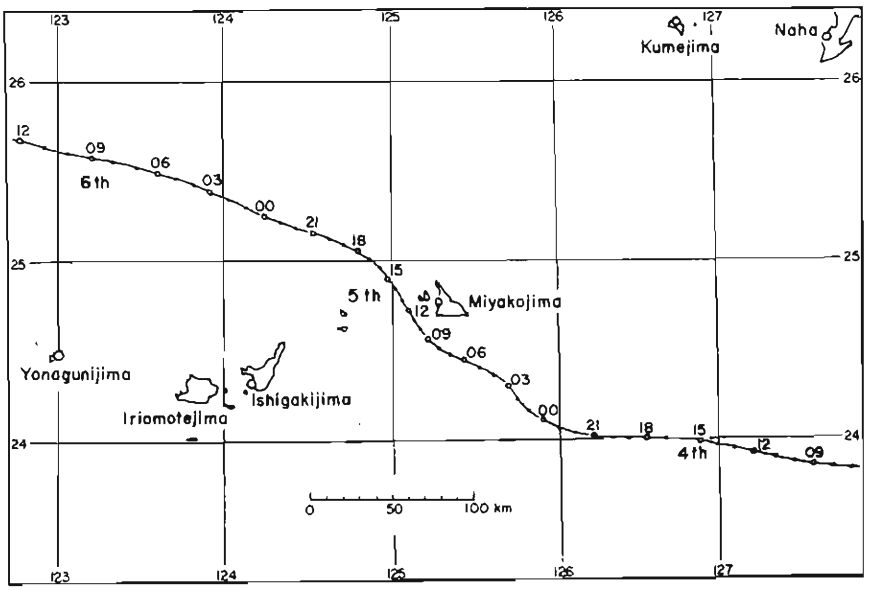

Fig. 3 ; The detailed track of the Second Miyakojima Typhoon near the Ryukyu Islands.

was nearest the Miyakojima Weather Station at 1100, when the distance was about 19 km. The track of the typhoon was not straight but weaving, with a small amplitude over about a half day period.

3. Meteorological environment of Miyakojima Island during the passage of the typhoon.

As Miyakojima is a small (about 20 km in diameter) and flat island (even the highest point on the island is not more than 110 meters above mean sea level), the weather condition over the island can be roughly described by the observed values at the Miyakojima Weather Station in the western central part of the island. (The detailed distribution of wind over the island estimated from wind disasters will be shown in another paper.)

Fig. 4 shows the time changes of hourly rainfall, wind speed and atmospheric pressure at the Miyakojima Weather Station on 4th and 5th. Between 2000 and 2100 JST of the 4th, when the typhoon was about 130 km away, rainfall of 30.2 mm/hr was recorded, that shows the passage of the first spiral rain band of the typhoon. Wind speed exceeded 20 m/sec at 2300 on 4th and reached its maximum intensity on the morning of 5th when the front of the maximum wind zone was over the island. The maximum wind speed of 60.8 m/sec (NE) was observed at 0731 and the maximum peak gust of 85.3 m/sec (NE) at 0631. These records are both first ranking ones in the Ryukyu Area. The typhoon was at about its nearest point during the period from 1000 to 1200, meanwhile the minimum atmospheric pressure of 928.9 mb was observed at 1001. Wind

and rainfall were relatively weak during this period, and the second peak of wind and rainfall in the rear part of the maximum wind zone passed between about 1300 to 1800. But as the center of the typhoon passed along a course away from the island, typical eye phenomena could not be seen there. A strong wind higher than 20 m/sec continued and lasted until 0300 on 6th. The extremes of weather conditions in the Sakijima District are shown in Table 2 and the detailed weather record in Appendix 3.

The barographic record at the Miyakojima Weather Station is reproduced in Fig. 5. As is clearly seen in this figure, regular pressure fluctuations over periods of about 50 minutes overlap the regular V-shaped pressure change caused by typhoon passage. These short period fluctuations have a double amplitude of 15 mb at maximum. Pressure

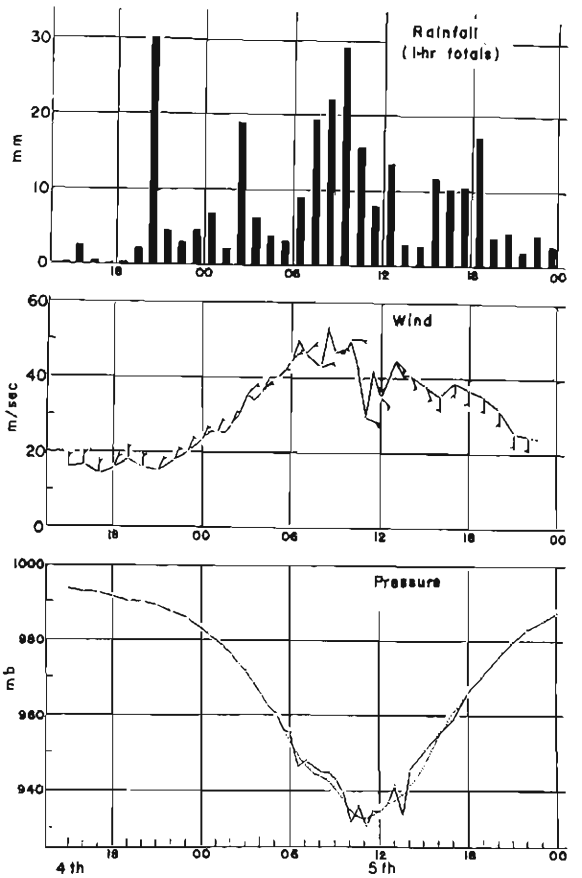

Fig. 4 ; Hourly changes of rainfall, wind and surface pressure at the Miyakojima Weather Station during the passage of the typhoon.

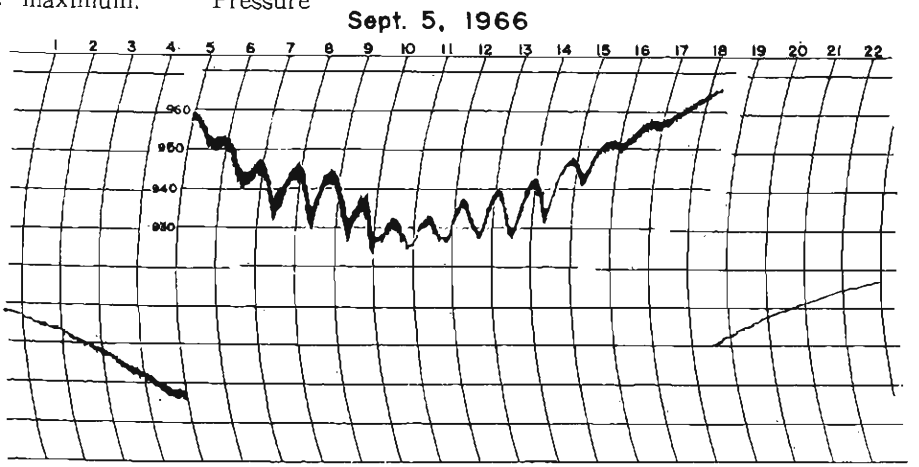

Fig. 5 ; The barographic record at the Miyakojima Weather Station. (Zero position is changed from 0500 to 1820.)

Table 2 Weather records of Typhoon No. 6618

	Yonagunijima		Ishigakijima		Miyakojima	
		Time JST		Time JST		Time JST
Min. sea-level pressure, mb	984.4	060300	978.0	051316	928.9	051001
Max. wind, m/sec	28.2W	060640	27.3WNW	052006	60.8NE	050731
Max. peak gust, m/sec	49.8WNW	060302	44.9WNW	052005	85.3NE	050631
Duration of wind of above 10 m/sec		041300-061300		041758-061213		0410-0616
Total precip., mm	125.8	050150-062030	324.5	042018-070358	291.6	040440-060730
Max. daily precip., mm	115.5	052030-062030	239.4	0424-0524	236.4	0424 0524
Max. hourly precip., mm	16.6	060700-0800	22.0	051033-1133	30.2	042000-042100
Max. 10-min precip., mm	6.8	600200-0210	4.5	050355-0405	8.7	050820-0830

fluctuations of this kind were first found and reported by C. L. Jordan [1962], [2] who found surface pressure oscillations over 20-40 minute periods on the barographic trace at Naha in the Ryukyus, in the case of Typhoon Emma in 1956. But the fluctuations are clearer in this case than the ones shown by him. Moreover fluctuations with the same period were also found on the anemograph (Fig.

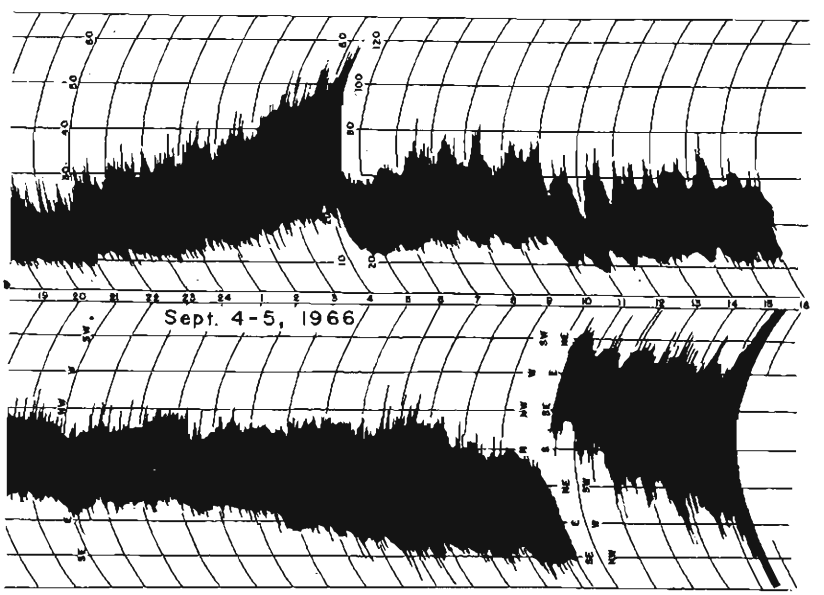

Fig. 6 ; The anemomgraph at the Miyakojima Weather Station. (Wind speed range is changed into 120m/sec from 60m/sec full scale at 0420.)

6), the raingauge (Fig. 7), the tidal record (Fig. 8) and other ther traces. Detailed studies of these unusual phenomena will be seen in another paper by the present authors (1968). [3]

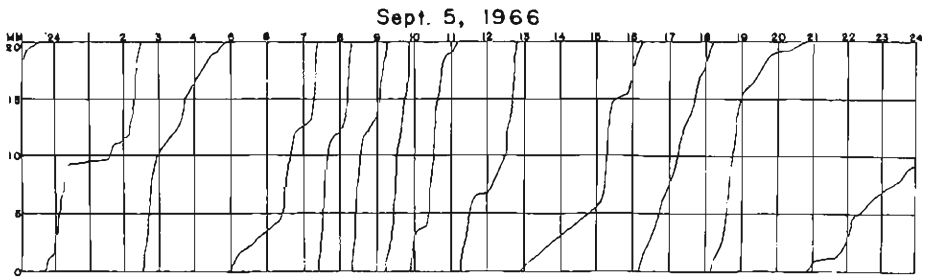

Fig. 7 ; The rainfall record at the Miyakojima Weather Station.

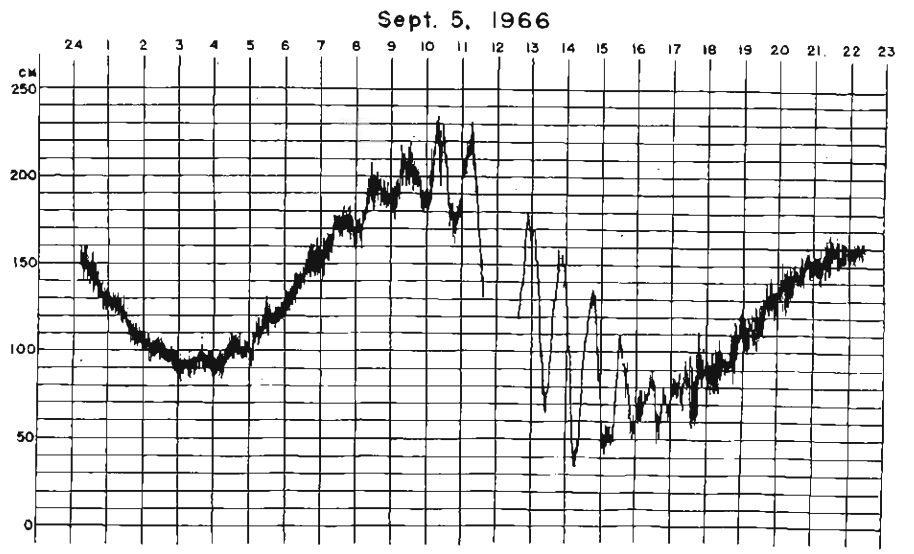

Fig. 8 ; The tidal record at the Hirara Tidal Station.

4. Concluding remarks

The Second Miyakojima Typhoon was one of the ordinary severe typhoons which can be seen once or twice every year in the northwest Pacific area, but it caused extraordinary disasters in the Sakijima District of the Ryukyus as shown in the paper by Prof. Ishizaki et al (1968). [4] The damage was mainly caused by the severe winds of first ranking intensity in this Ryukyu area. These strong winds were seen in Miyakojima because this island was just in the maximum wind zone of the right semi-circle of the typhoon and the unusal pressure oscillations found in the typhoon might have some relations with these extremely strong winds. The slow forward movement of the typhoon resulted in the long duration of the wind storm, that also increased the damage.

Acknowledgement.

This study is part of the project for the study of the disasters caused by the Second Miyakojima Typhoon directed by Prof. H. Ishizaki and sponsored by a Grant in Aid for Fundamental Scientific Reseach from the Ministry of Education of Japan. The authors are indebted to Prof. R. Yamamoto of the Meteorological Research Institute, Kyoto University for valuable advice in the course of study. Particular thanks are due to the various personals and authorities that helped and cooperated with us during the expedition in the Ryukyu Islands. The data shown in the appendix are mainly based on the official report of the Ryukyu Meteorological Agency.

Refferences.

1) Schloemer, R. W.; Analysis and synthesis of hurricane wind patterns over Lake Okeechobee. Hydrometeorological Report, No. 31, 1954.
2) Jordan, C. L.: Surface pressure oscillations during a typhoon at Okinawa. Monthly Weather Review, Vol. 90, No. 5, pp 191-193, 1962.
3) Mitsuta, Y. and S. Yoshizumai: Oscillations of surface pressure, wind, rainfall and other parameters during a typhoon. (to be published).
4) Ishizaki, H., J. Katsura and T. Murota: The study of wind disaster by the Second Miyakojima Typhoon. Bulletin of Disaster Prevention Research Institute, Kyoto University, Vol. 18, Part 1, 1968 (to be published).

Appendix

Appendix I; Typhoon psitions by aircraft reconnaisissance

Date	Time JST	Position deg	deg	Surface (above) or 700 mb (below) Min. press., mb or height, gpm and temp. deg C		Max. wind Speed kt	Dist. from center, n. m.	Quad.	Eye Shape	Diam. n. m.	Wall cloud thickness n. m	Remarks
2nd	1200	N20.8	E133.9 (P)	920 2457	 16	120 —	15 —	 —	C	15	5	Eye filled with cloud. Max wind odserved in eye 65 kt.
3rd	0600	22.8	131.3 (P)	938 2548	 17	80 120	30 57	NE N	C	30	5	Moderate feeder bands north and east extending 50 nm from center.
	2300	23.8	129.0 (R)	— —	 —	— 45	— 45 (10,000 ft)	— NW		20	18	Wall clouds extend from 325 deg to 130 deg. Feeder bands well defined all quadrants. Heavy precipitaiion N and E quadrants.
4th	0620	23.8	127.9 (P)	924 2417	 14	120 60	10 100	W E	C	28	5	
	1105	23.8	127.4 (P)	920 2374	 18	130 120	10 15 (678 mb)	S E	C	30	5	Clouds at flight level 30 nm out from wall clouds. Eye filled with stratus. Light turbulence in wall clouds. Max surface wind observed inside of eye.
	1825	23.9	126.8 (R)	— —	 —	85 —	84 —	N —	C	34		Low level cloud top 42,000 ft 08 nm thick north semicircle and 14 nm thick south semicircle. Feeder band all quadrants. Max of 1500 ft observed wind 120 kt xx from center N quad.

	2225	24.0	125.8 (R)	— —	— —	— 80	— 139	— E	E 35x32 (E-W)	7	Wall cloud top 30,000 ft., Feeder bands all quadrants top 2,500 ft W semicircle.
5th	0700	24.6	125.2 (P)	— —	— —	80 120	50 40	NW NW	E 30x20 (E-W)	5	Wall clouds all quadrants 05 wide clouds above center. Feeder bands all quadrants. Cloud center well organized. Wall clouds moderate intensity.
	1100	24.8	125.1 (P)	927 2378	 17	80 —	30 —	NE —	E 30x20 (NE-SW)		Wall clouds observed inaall quad. and heavy intensity. Moderate feeder bands all quad. Center cloud filled, clear above center.
	1800	25.0	124.8	— —	— —	— —	— —	— —	E 37x26 (NW-SE)	10	Well defined feeder bands extends from eye 90 nm north, 70 nm east, 60 nm south, 80 nm west.
6th	0634	25.5	123.6 (P)	— 2551	 16	— —	— —	— —	E 35x20 (NE-SW)		
	1102	25.6	122.9	— 2548	 19	— —	— —	— —	E 30x25 (N-S)	15	Center 5nm from W wall cloud. Max activity NW quadrant. Eye filled with stratus.

Appendix 2; Position and size of the eye of Typhoon No. 6618 obtained by radar at Miyakojima Meteor. Obs..

Date	Time JST	Position deg	deg	Diameter of eye km
4th	11h	N 24.0	E 127.3	
	12	24.0	127.2	
	13	24.0	127.1	
	14			
	15	24.1	126.9	
	16	24.1	126.8	65
	17	24.1	126.6	60
	18	24.1	126.5	70
	19	24.1	126.4	65x70
	20	24.1	126.3	65
	21	24.1	126.3	65x70
	22	24.1	126.2	60x70
	23	24.2	126.0	60x65
5th	00	24.2	126.0	60x70
	01	24.2	125.9	60x65
	02	24.2	125.8	55x65
	03	24.1	125.7	50x65
	04	24.4	125.7	55x65
	05	24.3	125.5	55x70
	06	24.4	125.5	50x65

Appendix 3; Hourly Weather Records

A. Yonagunijima

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Speed m/sec	Precip. mm	ww	Cloud Amount	Form	Remarks
4th 10h		28.9			N	8.0	—				−=°−,
11					N	9.0	—				
12		29.7			N	9.0	—				
13					N	10.0	—				
14					N	10.0	—				
15	999.9	29.1	33.2	82	N	10.5	—	02	8	Cu, Cb, Ac. Ci	
16					N	10.5	—				
17					N	12.7	0.0				▽⁰1625-1640
18	999.3	27.9	32.4	86	N	11.0	—	02	10⁻	Cu. Ac	
19					N	12.0	—				
20					N	11.3	—				
21	99.5	27.9	32.4	86	N	11.7	—	02	10⁻	Cu. Ac	
22	99.5	27.8	31.6	85	N	12.7	—	02	4	Cu, Sc, Ac, Ci	
23	99.5	27.8	31.9	85	N	11.0	—	02	10⁻	Cu, Ac	
5th 00	998.9	27.7	30.9	83	N	11.3	—	02	10	Cu, Ac	
01	98.1	27.6	31.3	85	N	12.0	—	02	10	Cu, Ac	▽⁰0150-0151,
02	97.1	27.6	31.8	86	NNW	13.0	0.0	80	10	Cu, Ac	▽⁰0153-0205.
03	96.7	27.5	31.3	85	NNW	12.8	0.0	25	10	Cu, Ac	▽⁰0205-0230.
04	96.6	27.4	31.1	85	NNW	13.8	0.5	80	10	Cu. Ac	▽⁰0350-▽¹0351-
05	96.4	26.7	31.8	91	NNW	14.7	1.4	25	10	Cu, Ac	-▽⁰0352-▽²0406-

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount	Cloud Form	Remarks
06	995.4	26.9	32.0	90	NNW	14.2	0.1	02	10	Cu, Ac	-▽[1]0409-▽[0]0412-
07	95.7	27.2	31.5	87	NNW	14.7	—	02	10⁻	Cu, Ac	……0530.
08	95.4	27.4	31.9	87	NNW	15.5	—	02	10⁻	Cu, Ac	▽[0]0848-0935.
09	95.7	27.3	31.7	87	NNW	15.7	0.0	80	10⁻	Cu, Ac	
10	95.3	27.5	31.6	86	NNW	16.2	0.0	25	10⁻	Cu, Ac	
11	94.9	27.9	31.6	84	NNW	16.5	0.0	02	10	Cu, Ac	▽[0]1130-1205.
12	994.0	27.9	31.6	84	NNW	18.2	0.0	80	10	Cu, Ac	—=°—1200.
13	92.8	28.1	31.2	82	NNW	17.3	0.0	25	10	Cu, Ac	
14	92.2	28.4	31.5	81	NNW	19.2	—	02	10	Cu, Ac	
15	91.8	28.4	31.5	81	NNW	20.3	—	02	10	Cu, Ac	
16	91.3	28.1	31.5	83	NNW	20.0	—	02	10	Cu, Ac	
17	91.5	28.2	32.2	84	NNW	19.2	—	02	10⁻	Cu, Ac	▽[0]1714-
18	991.8	27.8	31.9	85	NNW	19.7	0.0	80	10	Cu. Ac	
19	91.4	28.0	31.8	84	NNW	19.8	0.0	25	10	Cu, Ac	
20	91.8	28.1	32.0	84	NNW	21.0	—	02	10	Cu, Ac	
21	91.3	27.4	32.4	89	NNW	20.0	0.3	80	10	Cu, Ac	
22	91.0	27.1	32.6	91	NW	21.3	1.1	80	10	Cu, Ac	
23	90.0	26.9	32.8	92	NW	21.5	1.3	80	10	Cu, Ac	
6th 00	989.1	26.8	32.8	93	NW	23.5	1.8	80	10	Cu, Ac	-●[2]0035-●[0]0040-
01	87.3	26.6	32.7	94	NW	23.7	3.9	63	10	Cu, As	-●[2]0042-●[0]0043-
02	86.4	26.5	33.3	96	NW	23.3	7.7	65	10	Cu, As	-●[1]0120-●[0]0123-
03	88.4	25.9	33.2	99	WNW	24.7	12.6	65	10	Cu, As	-●[2]0143-●[0]0212-
04	85.3	25.9	32.9	98	WNW	22.5	3.0	61	10	Cu, As	-●[1]0213-●[0]0216-
05	85.0	26.0	32.8	98	WNW	24.3	1.0	61	10	Cu, As	-●[2]0225-●[0]0228-
06	984.8	26.0	32.3	96	WNW	24.8	0.8	61	10	Cu, As	-●[2]0246-●[0]0247-
07	85.6	25.8	31.2	94	W	21.3	9.0	61	10	Cu, As	-●[2]0251-●[0]0253-
08	85.4	25.7	31.0	94	WSW	22.0	16.6	63	10	Cu, As	-●[1]0255-●[0]0256-
09	86.7	25.7	31.2	94	W	20.5	15.2	63	10	Cu, As	-●[2]0322-●[0]0323-
10	87.7	25.7	30.5	92	WSW	22.3	6.2	63	10	Cu, As	-●[2]0326-●[0]0328-
11	89.3	25.5	30.1	92	WSW	15.3	4.9	61	10	Cu, As	-●[1]0331-●[0]0340-
12	990.4	26.0	31.3	93	WSW	16.2	1.7	61	10	Cu, As	-●[1]0518-●[0]0522-
13	90.6	25.5	28.6	88	WSW	12.5	2.2	61	10	Cu, As	-●[2]0608-●[0]0622-
14	90.1	27.7	34.1	92	SSW	8.7	0.0	80	10	Cu, As, Ac	-●[1]0636-●[0]0651-
15	91.5	27.2	33.1	92	WSW	5.7	0.3	80	10	Cu, Cb	-●[1]0653-●[0]0721-
16	91.4	27.2	33.9	94	S	3.5	1.0	80	10	Cu, Cb, As, Ac	-●[2]0723-●[0]0735-
17					NE	2.7	1.6				-●[2]0740-●[1]0751-
18		26.5			ESE	3.0	0.3				-●[0]0953-●[1]1013-
19					ESE	5.3	0.3				-●[0]1058-▽°1330-
20					ESE	5.3	0.1				—2030.
21	992.7	27.4	33.8	92	ESE	6.7	0.0	25	10	Cu, Ac	
22					SE	7.5	—				
23					SE	8.0	—				
7th 00		27.5			SSE	7.5	—				

B. Ishigakijima

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount	Cloud Form	Remarks
4th 01	1002.9	26.9	30.4	86	N	1.7	—	02	10^-	Cu, Ci	ψ^{0}Ci0024-0058.
02	02.5	26.8	30.5	86	NE	2.0	—	02	10^-	Cu, Cs, Ci	⊕^{0}Cs0140-0232.
03	02.1	26.6	30.6	88	NNE	2.3	—	02	10^-	Cu, Ci	
04	01.7	26.8	29.7	84	NNE	2.0	—	02	8	Cu, Ci	
05	01.3	27.0	29.8	84	N	3.5	—	02	5	Cu, Ci	
06	1001.7	27.1	29.8	83	NNE	3.5	—	02	4	Cu, Ac, Ci	
07	01.1	27.5	30.0	82	NNE	4.5	—	02	9	Cu, Ac, Ci	▽^{0}0745-0752
08	01.3	28.3	31.8	83	NNE	5.3	0.2	25	10^-	Cu, Ac, Ci	▽^{0}0909-0913.
09	01.1	28.7	30.8	78	N	5.7	—	02	10^-	Cu, Ac, Ci	▽ 0918-0923.
10	00.8	30.0	31.8	75	N	6.3	0.0	25	10^-	Cu, Ac, Cs	⊕^{0}0950-1033.
11	00.4	30.4	31.2	72	N	7.3	—	02	10	Cu, Ac	
12	999.9	30.1	31.2	73	NNE	6.7	—	02	10	Cu, Ac, As	▽^{0}1220-1228.
13	99.5	29.6	31.2	75	NNE	7.5	0.0	25	10	Cu, Ac, As	∞^{0}1430- ▽^{0}2018-
14	98.5	29.3	30.9	76	N	7.5	—	02	10^-	Cu, Ac	
15	97.7	29.8	31.1	74	N	8.3	—	02	10^-	Cu, Ac	
16	97.3	29.4	30.8	75	N	8.0	—	02	10^-	Cu, Ac	
17	97.1	29.3	30.6	75	NNE	7.7	—	02	10	Cu, Ac	
18	997.1	28.9	30.4	76	N	10.3	—	02	10	Cu, Ac	5th
19	96.0	28.6	30.3	77	N	9.2	—	02	10^-	Cu, Ac	-∞^{0}-0750. -
20	96.6	28.5	30.4	78	N	8.8	—	02	10	Cu, Ac	-▽^{0}- ▽^{1}0047-
21	95.8	28.1	31.2	82	N	10.2	0.0	80	10	Cu, Ac	-●^{1}0128-●^{2}0357-
22	95.7	27.4	31.9	87	N	9.0	0.8	80	10	Cu	-●^{1}0412-●^{0}0429-
23	95.0	27.4	31.6	87	N	8.7	1.6	80	10	Cu	-●^{1}0450-●^{0}0513-
5th 00	994.0	27.2	31.5	87	N	10.8	1.2	80	10	Cu	-▽^{c}0537- 0554.
01	92.4	27.0	31.4	88	N	13.0	3.7	81	10	Cu	▽ 0606-▽^{1}0613-
02	91.1	27.0	31.9	90	N	11.7	4.2	63	10	Cu, Ns	-▽^{0}0620-▽^{2}0625-
03	90.6	26.9	31.2	88	N	12.3	7.6	63	10	Cu, Ns	-▽^{1}0632-▽^{2}0639-
04	89.3	26.6	32.2	92	NNW	13.0	9.0	63	10	Cu, Ns	-●^{2}0645-●^{c}0725-
05	88.4	26.6	30.6	88	NNW	13.3	6.6	63	10	Cu, Ns	-●^{2}0729-●^{c}0733-
											-●^{2}0742-▽^{2}0748-
06	986.9	27.4	31.1	85	NNW	14.8	1.7	25	10	Cu, As	-▽^{c}0809-▽^{2}0914-
07	85.1	26.4	32.0	93	NNW	16.0	10.7	65	10	Cu, Ns	-▽^{1}0918-▽^{2}0931-
08	85.0	25.6	31.8	97	NNW	16.7	11.2	82	10	Cu, Ns	-▽^{1}0934-▽^{2}0944-
09	83.9	25.6	31.3	95	NNW	16.2	4.2	80	10	Cu, Ns	-▽^{1}0950-▽^{0}0952-
10	84.0	25.7	32.2	98	NNW	17.5	11.4	82	10	Cu, Ns	-▽^{1}0954-▽^{2}0956-
11	82.1	26.0	32.9	98	NW	17.0	10.7	82	10	Cu, Ns	-▽^{0}1008-▽^{2}1020-
											-▽^{1}1036-▽^{2}1050-
12	980.2	25.8	32.7	98	NW	18.7	19.5	65	10	Cu, Ns	-▽^{1}1110-▽^{2}1117-
13	79.1	25.9	33.2	99	NW	22.8	15.5	65	10	Cu, Ns	-▽^{0}1123-●^{0}1130-
14	78.1	25.9	33.2	99	NW	22.3	15.7	65	10	Cu, Ns	-●^{1}1145-●^{2}1153-
15	78.7	25.9	32.6	98	NW	21.2	5.5	65	10	St, Ns	-●^{1}1236-●^{2}1242-
16	78.5	26.0	33.1	98	NW	22.2	2.8	61	10	St, Ns	-●^{0}1246-●^{2}1255-
17	79.0	26.2	32.7	96	WNW	22.8	4.2	61	10	St, Ns	-●^{0}1520-●^{1}1533-
											-●^{0}1546-●^{1}1628-
18	978.7	26.6	32.7	94	WNW	21.8	6.3	61	10	St, Ns	-●^{0}1631-●^{2}1639-
19	78.7	26.2	32.2	95	WNW	23.0	15.5	63	10	St, Ns	-●^{2}1640-●^{1}1641-
20	78.7	26.0	31.3	93	WNW	26.3	6.6	65	10	St, Ns	-●^{0}1658-●^{1}1704-
21	78.7	26.0	31.0	92	W	23.3	8.6	63	10	St, Ns	-●^{0}1715-●^{1}1719-
22	78.5	25.9	33.2	99	W	24.7	8.2	63	10	St, Ns	-●^{2}1733-●^{1}1735-
23	78.5	25.9	31.6	94	W	23.3	9.9	61	10	St, Ns	-●^{2}1738-●^{1}1740-
5th							-●^{0}1754-●^{1}1813-●^{2}1816-●^{1}1821-●^{2}1843-●^{1}1850-				
							-●^{0}1903-●^{1}1946-●^{2}1950-●^{1}2008-●^{2}2039-●^{2}2042-				
							-●^{0}2248-●^{2}2306-●^{1}2312-●^{2}2318-●^{1}2323-●^{0}2331-				
							-●^{1}2345-●^{2}2350-●^{1}2356-●^{0}2358-				
6th 00h	979.7	25.7	31.5	95	WSW	25.3	14.3	61	10	St, Ns	-●^{1}0024-●^{2}0043-
01	80.6	26.0	32.0	95	WSW	25.2	12.2	63	10	St, Ns	-●^{1}0053-●^{2}0108-

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount Form	Remarks
02	82.1	26.2	32.7	96	WSW	24.5	12.3	63	10 St, Ns	-●^{1}0129-●^{0}0315-
03	83.8	26.1	32.0	94	SW	22.0	12.3	63	10 St, Ns	-●^{1}0340-●^{2}0351-
04	85.1	25.9	32.1	96	SW	21.2	12.7	65	10 St, Ns	-●^{1}0406-●^{1}0450-
05	87.0	25.8	31.4	94	SSW	19.5	8.3	63	10 St, Ns	-●^{0}0511-●^{0}0639- ……0713.
06	987.1	26.2	31.9	94	SSW	18.0	9.5	61	10 St, Ns	=^{0}0730-,
07	88.6	27.4	30.6	84	SSW	16.8	3.4	61	10 Cu, Ns	●^{0}0820-0840.
08	89.0	27.8	32.4	87	S	16.0	0.4	21	10 Cu, Ns	
09	91.4	27.8	33.2	89	SSW	13.2	0.7	21	10 Cu, Ns	
10	92.0	28.0	32.6	86	SSW	13.8	—	02	10 Cu, Sc, As	
11	93.3	28.0	33.1	87	SSW	9.5	—	02	10 Cu, Sc, As	
12	993.7	28.2	33.2	87	SSW	9.7	—	02	10 Cu, Sc, As	
13	94.0	28.6	33.5	86	SSW	9.0	—	02	10 Cu, Ac	▽^{0}1749-1810.
14	93.3	28.6	33.5	86	S	8.8	—	02	10 Cu, Ac	▽^{0}1831…▽^{0}1845-
15	92.8	28.8	33.9	86	S	8.3	—	02	10 Cu, Ac, As	-▽^{0}1849…▽^{0}2003-
16	93.0	28.7	33.3	87	S	8.8	—	02	10 Cu, Ac, As	-▽^{1}2005- ▽^{0}2007-
17	93.7	28.4	33.4	86	S	8.3	—	02	10 Cu, Ac, As	-2014. ▽^{0}2025-2036.
18	994.1	27.7	33.3	90	S	9.0	0.2	80	10 Cu, Ac	▽^{0}2145-▽^{1}2145-
19	94.7	27.5	33.4	91	S	5.8	1.4	80	10 Cu, Ac	-▽^{2}2158-▽^{0}2201-
20	95.3	27.7	33.3	90	SSE	6.8	0.2	25	10 Cu, Ac	-2207.

C. Miyakojima

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount Form	Remarks
4th 05h	1000.1	27.1	31.6	88	NNE	6.0		25	10-Cu, Ac	-=^{0}-, ▽^{0}0440-0444.
06	999.8	26.8	31.5	89	NNE	7.0	1.0	25	10-Cu, Ac	▽^{0}0513-0520.
07	99.7	27.3	31.7	87	N	8.3		25	10-Cu, Ac, Ci	▽^{0}0525-▽ 0527-
08	99.3	27.5	31.8	87	N	8.7		25	10-Cu, Sc, Ac, Ci	-▽^{0}0528-0532.
09	99.3	28.0	31.5	83	NNE	9.3	0.0	25	10-Cu, Ac	▽^{0}0538-0547.
10	99.0	28.4	31.5	81	NNE	11.0		80	10-Cu, Ac	▽^{0}0652-0655.
11	98.6	28.6	32.2	82	N	11.0		80	10-Cu, Ac	▽^{0}0746-0759. ▽^{0}0802-0807.
12	997.9	28.4	31.5	81	N	12.5	0.4	25	10-Cu, Ac	▽^{0}0813-0840.
13	96.5	28.2	32.2	84	N	11.8		02	10-Cu, Ac	▽^{0}0904-0910.
14	95.1	27.8	32.2	84	N	13.2		80	10-Cu, Ac	▽^{0}0932…1004.
15	93.8	27.4	32.4	89	N	15.7	0.7	80	10-Cu, Ac	▽^{0}1045…▽^{0}1104-
16	93.1	26.6	32.4	93	N	16.2		80	10 Cu, Ac	-▽^{0}1106…1110.
17	92.7	27.2	32.3	90	N	14.2		25	10 Cu, Ac	▽^{0}1308-1314. ▽^{0}1327-1332.
18	991.7	27.2	32.3	90	NNE	15.7	3.2	80	10 Cu, Ac	▽^{0}1351-1403.
19	90.6	27.2	32.3	90	N	18.0		80	10-Cu, Cb, Ac	▽^{0}1417-▽^{1}1542-
20	90.4	26.4	32.8	95	N	16.0		80	10 Cu, Cb, Ac	-▽^{0}1553-▽^{1}1608-
21	89.5	26.9	34.6	98	NNE	15.0	31.7	81	10 Cu, Cb, Ac	-▽^{0}1615-1625.
22	87.8	25.9	31.9	95	NNE	17.7		80	10 Cu, Cb, Ac	▽^{0}1720…▽^{0}1730-
23	86.1	26.0	30.0	89	NNE	20.2		61	10 Cu. Ns	-1810.
							-=^{0}-1825.			▽^{0}1825…▽^{0}1850-▽^{2}1935-▽^{0}1937- -▽^{2}1945-▽^{0}1950-▽^{2}2001-▽^{0}2046-▽^{2}2053-▽^{0}2103- -▽^{2}2125-▽^{0}2140-▽^{2}2204-▽^{0}2205-▽^{1}2218-●^{0}2225- -●^{1}2305-●^{0}2314-●^{0}2343-●^{1}2346-●^{1}2356-
5th 0000	983.3	25.6	31.5	96	NNE	23.3	11.1	63	10 Cu, Ns	-●^{2}0003-●^{1}0009-
30	81.7				NNE	25.5		63	10 Cu, Ns	-●^{2}0014-●^{1}0019-
0100	80.2	26.0	30.5	91	NNE	25.3		61	10 Cu, Ns	-●^{1}0132-●^{1}0140-
30	78.5				NNE	25.2		61	10 Cu, Ns	-●^{1}0154-●^{1}0157-
0200	76.5	25.9	31.1	93	NNE	27.5		63	10 Cu, Ns	-●^{1}0207-●^{2}0216-

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount Form	Remarks
5th 0230	973.8				NNE	30.7				-●^{1}0249-
0300	71.9	25.2	31.8	99	NE	35.3	30.0	63	10 Cu, Ns	-●^{2}0330-●^{1}0343-
30	68.9				NE	34.0				
0400	66.0	25.3	31.5	98	NE	36.2		63	10 Cu, Ns	
30	62.7				NE	39.8				
0500	60.6	25.2	31.3	98	NE	40.2		63	10 Cu, Ns	-●^{0}0515
30	56.2				NE	42.0				-●^{1}0609-●^{2}0628-
0600	955.3	25.7	30.0	91	NE	44.5	15.5	61	10 Cu. Ns	-●^{1}0644-●^{0}0651-
30	46.4				NE	50.0				-●^{1}0708-●^{2}0714-
0700	48.2	24.8	30.8	98	NE	46.7		61	10 Cu, Ns	-●^{1}0741-●^{0}0750-
0800	45.1	24.8	30.8	98	ENE	42.7		61	10 Cu, Ns	-●^{1}0801-●^{2}0809-
30	44.8				E	53.7				-●^{1}0836-●^{2}0859-
0900	43.0	25.0	31.7	100	ENE	46.8	50.4	65	10 Cu, Ns	
30	39.4				E	46.8				
1000	31.5	25.0	31.7	100	E	50.2		65	10 Cu, Ns	-●^{0}1003-●^{2}1020-
30	35.9				E	42.5				-●^{1}1045-●^{0}1050-
1100	30.2	25.7	33.0	100	ESE	29.2		61	10 Cu, Ns	-●^{1}1102-●^{2}1115-
30	34.6				ESE	42.2				-●^{1}1131-●^{0}1136-
1200	934.4	25.7	33.0	100	SE	30.0	53.1	61	10 Cu, Ns	-●^{2}1211-
30	36.7				SE	39.8				
1300	41.4	25.7	32.0	97	SE	44.8		65	10 Cu, Ns	-●^{1}1313-
30	33.6				SSE	40.7				
14	45.4	25.7	32.0	97	SSE	40.7		63	10 Cu, Ns	
15	50.2	25.4	31.4	97	SSE	38.0	18.9	63	10 Cu, Ns	-●^{2}1515-●^{1}1526-
16	54.7	25.4	31.4	97	S	35.3		63	10 Cu, Ns	
17	59.0	25.4	31.4	97	S	38.8		63	10 Cu, Ns	-●^{2}1831-●^{1}1859-
										-●^{0}1949-▽^{0}2020-
18	966.5	25.4	31.9	98	S	36.7	36.9	63	10 Cu, Ns	-▽^{1}2045-▽^{0}2057-
19	70.7	25.4	31.4	97	S	35.0		63	10 Cu, Ns	-▽^{1}2146-▽^{0}2210-
20	75.3	26.3	33.7	98	S	31.8		61	10 Cu, Ns	-▽^{1}2226-▽^{0}2255-
21	79.5	26.4	34.4	100	S	25.2	22.8	80	10 Cu, Cb	-▽^{1}2334-▽^{0}2344-
22	82.8	25.4	31.9	98	S	24.3	24.3	81	10 Cu, Cb	-▽^{1}2358-
6th 03h	991.0	24.2	28.5	94	S	20.5	16.8	80	10 Cu, Cb	-▽^{0}0059-▽^{1}0136-
04										-▽^{0}0210-▽^{2}0311-
05										-▽^{0}0312-▽^{1}0344-
										-▽^{0}0350-0730.
06	992.6	25.6	32.3	98	SSE	13.8	3.4	80	5 Cu, Ac	
07	93.7	26.9	34.6	98	SSE	12.7		80	10 Cu, Ac	
08	94.2	27.0	33.0	92	SSE	13.2		25	10 Cu, Ac	=^{0}0730-,
09	95.0	27.5	33.2	90	SSE	11.8	0.1	02	10 Cu, Ac, As	
10	95.6	27.7	33.3	90	SSE	11.3		02	10 Ac, As	
11	96.4	27.9	33.7	90	SSE	11.2		02	10 Ac, As	
12	996.1	28.8	33.9	86	SSE	11.7	—	02	10 Cu, Ac, As	
13	95.6	29.3	34.4	84	SSE	12.0		02	10 Cu, Ac, Cs	
14	96.1	29.2	34.8	86	SSE	10.3		02	10 Cu, Ac, Cs	

D. Kumejima

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount Form	Remarks
3rd 03h	1005.1	26.1		94	ESE	4.9	—			
06		25.9			ESE	3.6	—			
09	05.5	28.2	33.0	86	NE	4.4	—		8 Cu, Ac, Ci	
12		29.3			NE	5.3	—			
15	03.0	29.2	32.6	80	NE	7.1	—		9 Cu, Ci	

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount Form	Remarks
18	03.0	27.8	32.2	86	NE	6.4	—		10⁻Cu, Ci	
21	03.3	27.2	31.2	86	NE	6.9	—		7 Cu, Ci	
4th 00	1002.5	27.0	31.6	89	NE	6.9	—		8 Cu, Cc, C⁰	
03	01.0	27.0	31.6	89	NE	6.8	—		10⁻Cu, Ac	▽⁰0417−0427.
06	00.1	26.9	31.7	90	NE	7.3	0.0		10⁻Cu, Ac	
09	00.5	27.4	31.6	87	NE	7.8	—		10⁻Cu, Ac	▽⁰0912−0917.
12		28.8			ENE	8.4	0.0			▽⁰1325⋯1330.
15	998.1	28.5	31.7	81	NE	8.1	0.0		10⁻Cu, Ac, Ci	
18		27.8			ENE	9.5	0.0			
21	98.9	27.6		86	ENE	9.0	0.0			
5th 00		27.5			ENE	10.5	0.0			▽⁰0713⋯0726.
03	997.6	27.3		86	E	11.3	—			▽⁰1617−1624.
06		27.2			E	13.6	—			▽⁰1635−1642.
09	97.4	28.1	32.0	84	E	13.4	0.0		10⁻Cu	▽⁰2215⋯2230.
12		29.0			ESE	13.4	—			▽⁰2305⋯2331.
15	96.3	29.1	34.0	84	ESE	12.0	—		10⁻Cu, Cb, Ac, Cs	⊕⁰1415−1645.
18		28.0			ESE	12.6	0.0			=⁰0800−,
21	98.7	28.0		91	ESE	12.0	—			

E. Naha

Date Time JST	Sea-level press. mb	Air Temp. beg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount Form	Remarks
3rd 01h	1005.2	26.5	30.7	89	E	6.7	—	02	5 Cu,	−=⁰−0530.
02	05.5	26.3	30.6	89	E	9.0	—	02	4 Cu, Ci	
03	05.0	26.4	30.0	87	E	8.5	—	02	4 Cu,	◫⁰Ci0350−0440.
04	04.7	26.3	30.1	88	E	8.0	—	03	10⁻Cu, Ci	
05	04.8	26.3	30.1	88	ENE	8.0	—	02	7 Cu, Ci	
06	1005.1	26.3	30.1	88	ENE	7.0	—	02	7 Cu, Ci	
07	04.9	26.7	30.3	86	ENE	5.8	—	02	7 Cu, Ci	
08	04.7	27.9	30.0	80	NE	9.3	—	02	7 Cu, Ci	
09	05.0	28.3	30.5	79	ENE	8.3	—	02	9 Cu, Ac, Ci	
10	05.1	29.2	29.7	73	ENE	9.7	—	02	4 Cu, Ci	
11	04.6	29.6	30.2	73	ENE	11.0	—	02	7 Cu, Ac, Ci	
12	1004.1	29.7	31.2	75	ENE	10.5	—	02	10⁻Cu, Ac, Ci	⊕⁰Ci1130−1220
13	03.7	29.5	30.5	74	NE	9.8	—	02	9 Cu, Ac, Ci	
14	03.3	29.9	31.0	73	ENE	10.0	—	02	10⁻ Cu, Ac, Cs, Ci	⊕Cs1350−1510.
15	02.8	29.6	30.4	73	NE	10.7	—	03	9 Cu, Cb, Cs, Ci	
16	02.6	29.5	30.5	74	ENE	10.2	—	02	10⁻ Cu, Cb, Ci	
17	02.3	28.8	31.0	78	NE	10.5	—	02	7 Cu, Ci	
18	1002.1	28.1	30.9	81	NE	8.5	—	02	7 Cu, Ac, Ci	=⁰1830−,
19	02.4	27.6	30.2	82	NE	9.3	—	02	9 Cu, Ci	▽⁰2223−2229.
20	02.4	27.6	30.5	82	NE	7.8	—	02	9 Cu, Ci	▽ 2354−2355.
21	02.7	27.5	30.8	84	NE	9.3	—	02	9 Cu, Ci	
22	02.9	27.5	30.8	84	NE	9.8	—	03	10⁻ Cu, Ci	
23	02.2	27.5	30.0	82	ENE	9.3	0.0	25	10⁻ Cu, Cb, Ac, Ci	
4th 00	1001.6	27.5	30.3	82	NE	10.2	0.0	25	10⁻ Cu, Cb, Ac, Ci,	
01	00.9	27.3	30.4	84	NE	10.0	—	02	10⁻ Cu, Ac, Ci	▽⁰0159−0203.
02	00.5	27.3	30.4	84	ENE	13.3	0.0	80	10⁻ Cu, Ac, Ci	▽⁰0315−0344.
03	999.5	27.2	30.2	84	ENE	12.2	0.0	25	10⁻ Cu, Ac, Ci	
04	99.7	27.2	30.5	84	ENE	11.5	0.0	25	10 Cu, Ac	−=−0630

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount	Cloud Form	Remarks
05	99.4	27.1	30.3	84	ENE	11.0	—	02	10	Cu, Ac	
06	999.4	27.1	30.5	85	ENE	11.3	—	02	10	Cu, Ac	
07	99.2	27.2	30.5	84	NE	12.7	—	02	10	Cu, Ac	
08	99.4	27.4	30.9	84	ENE	12.2	—	02	10	Cu, Ac	
09	99.5	27.7	31.2	84	ENE	13.3	—	02	10	Cu, Ac	
10	99.5	28.1	31.7	83	ENE	13.2	—	02	10⁻	Cu, Ac	
11	99.5	28.7	31.8	81	ENE	14.2	—	02	10⁻	Cu, Ac, Ci	
12	999.1	29.0	32.2	80	ENE	12.7	—	02	10⁻	Cu, Ac	
13	98.7	28.7	31.6	80	ENE	13.2	—	02	10⁻	Cu, Ac	
14	97.9	28.6	31.6	81	ENE	13.7	—	02	10⁻	Cu, Ac, Ci	
15	97.6	28.4	31.5	81	ENE	14.0	—	02	10⁻	Cu, Ac, Ci	
16	97.6	28.3	31.0	81	ENE	14.2	—	02	10⁻	Cu, Ac, Ci	
17	97.6	27.9	31.1	83	E	13.7	—	02	10⁻	Cu, Ci	
18	997.9	27.6	31.3	85	E	14.0	—	02	10⁻	Cu, Ci	
19	98.5	27.5	31.1	84	E	14.2	—	02	10⁻	Cu, Ci	=⁰1830-,
20	98.3	27.4	30.9	84	E	13.8	—	02	10⁻	Cu, Ci	
21	99.1	27.4	31.1	85	E	13.7	—	02	10⁻	Cu, Ci	
22	99.7	27.4	31.1	85	E	14.3	—	02	10⁻	Cu	
23	99.4	27.3	31.2	86	E	14.2	—	02	10⁻	Cu, Ac	
5th 00	999.3	27.3	31.2	86	E	14.0	—	02	10⁻	Cu, Ac,	—=⁰—,
01	99.3	27.2	31.0	86	E	14.8	—	02	10	Cu	
02	98.9	27.1	30.8	86	E	14.5	—	02	10	Cu	
03	98.9	27.0	30.9	86	E	14.3	—	02	10	Cu	ⓘ⁰Cs0340-0420.
04	98.6	27.0	30.1	84	E	17.0	—	02	10	Cu, Cs	
05	98.8	26.8	30.5	86	E	14.8	—	02	10⁻	Cu	
06	998.6	26.8	30.5	86	E	14.3	—	02	10⁻	Cu. Ac	
07	98.8	26.9	30.4	86	E	13.8	—	02	10⁻	Cu, Ac, Ci	
08	98.7	27.1	30.5	85	E	13.5	—	02	10⁻	Cu, Ac, Ci	
09	99.6	27.6	31.0	84	ESE	12.8	—	02	10⁻	Cu, Ci	
10	99.7	28.3	31.3	81	E	13.7	—	02	10⁻	Cu, Cc, Ci	
11	99.7	28.7	31.6	80	E	12.5	—	02	10⁻	Cu. Ci	
12	999.7	28.2	31.6	83	E	12.7	—	02	10⁻	Cu	
13	99.3	28.0	31.5	83	ESE	11.2	—	02	10	Cu	▽⁰1353-1358.
14	99.0	27.8	31.6	85	ESE	12.2	0.0	25	10	Cu	
15	98.8	28.1	30.9	81	E	12.5	—	02	10	Cu, Ac	⊕⁰Cs1550-1605.
16	98.8	28.5	31.4	81	E	12.3	—	02	10⁻	Cu, Ac, Cs, Ci	⊕⁰Cs1650-1730.
17	98.7	27.7	31.2	84	ESE	12.5	—	02	10⁻	Cu, Ac, Cs, Ci	
18	999.0	27.5	31.3	85	E	11.3	—	02	10	Cu, Cs	
19	99.7	27.3	31.7	87	ESE	10.8	—	02	10	Cu, Cs	
20	1000.1	27.2	31.5	87	ESE	10.5	—	02	10⁻	Cu, Cs, Ci	
21	01.0	27.2	31.5	87	ESE	10.2	—	02	9	Cu Ci	
22	01.6	27.2	31.5	87	ESE	9.3	—	02	10⁻	Cu	
23	01.8	27.1	31.3	87	ESE	9.5	—	02	10⁻	Cu, Ci	▽⁰2324…2327.

F. Minamidaitojima

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount	Cloud Form	Remarks
3rd 03h	1003.7	26.6	31.1	89	ENE	8.3	—	02	7	Cu, Ci	−=⁰−,
04											
05											
06	1003.4	26.7	31.3	89	ENE	8.7	—	02	9	Cu, Ci	
07	03.3	27.1	31.3	87	ENE	8.0	—	02	9	Cu, Ci	
08	03.6	27.9	31.8	85	ENE	8.5	—	02	7	Cu, Ci	
09	03.4	28.4	31.8	82	ENE	9.2	—	03	10⁻	Cu, Ac, Ci	
10	03.5	29.1	32.6	81	ENE	10.2	—	02	10⁻	Cu, Ac, Ci	
11	03.6	29.9	33.5	79	ENE	9.2	—	02	10⁻	Cu, Ac, Ci	
12	1003.6	29.9	33.7	80	ENE	9.7	—	02	10⁻	Cu, Ci	
13	02.6	30.0	33.4	79	ENE	9.7	—	02	10⁻	Cu, Ac, Ci	
14	02.3	30.0	33.4	79	E	9.0	—	02	4	Cu, Ac, Ci	
15	02.1	29.4	33.0	81	E	9.7	—	02	9	Cu, Ac, Ci	
16	02.0	29.3	33.0	81	E	10.2	—	02	10⁻	Cu, Ac	
17	02.1	28.5	32.5	83	E	8.8	—	02	9	Cu, Ac	
18	1001.9	27.8	31.9	85	E	9.3	—	02	10	Cu, Ac	
19	01.8	27.7	32.0	86	E	9.7	—	02	10⁻	Cu, Ac	
20	02.4	27.4	32.2	88	E	9.3	—	02	10⁻	Cu, Ac	
21	03.2	27.4	32.2	88	E	9.0	—	02	10⁻	Cu, Ac	▽⁰2127-▽¹2130-
22	03.5	27.1	32.1	90	E	8.8	0.3	25	10⁻	Cu, Ac	-▽⁰2132-2139.
23	02.8	26.9	31.4	89	E	8.7	—	02	10⁻	Cu, Ac	
4th 00	1002.6	27.0	31.4	88	ESE	8.8	—	02	10⁻	Cu, Ac	−=⁰−
01	03.0	26.9	31.4	89	ESE	8.8	—	02	10⁻	Cu, Ac	▽⁰0137-0144.
02	02.6	26.7	31.8	91	ESE	9.0	0.1	80	10⁻	Cu, Ac	▽⁰0157-0204.
03	02.2	25.2	30.5	95	E	8.7	4.0	25	10⁻	Cu, Ac	▽¹0234-▽²0235-
04	02.0	26.0	31.5	94	E	7.8	0.0	25	10	Cu, Ac, Ci	-▽⁰0239-▽²0246-
05	02.3	26.4	31.3	91	E	7.7	—	02	10	Cu, Ac, Ci	-▽⁰0247-0255.
06	1002.5	26.4	31.8	92	E	7.2	—	02	10	Cu, Ac, Ci	▽0306-0309.
07	02.8	26.6	31.1	89	E	7.2	—	02	10⁻	Cu, Ac, Ci	
08	03.4	27.1	31.8	89	ESE	7.7	0.0	80	10	Cu, Ac	▽⁰0755-0810.
09	03.7	27.7	31.4	85	ESE	8.8	0.0	25	10	Cu, Ac	▽⁰0940…0945.
10	03.7	27.4	31.4	86	ESE	8.3	0.0	25	10⁻	Cu, Ac	
11	03.3	28.4	32.6	84	ESE	9.0	—	02	10⁻	Cu, Ac	
12	1003.0	29.0	32.4	81	ESE	7.8	—	02	10	Cu, Ac, Ci	
13	02.7	28.7	31.8	81	ESE	7.5	—	02	10⁻	Cu, Ac, Ci, Cs	
14	02.5	29.2	32.0	79	ESE	8.3	—	02	10⁻	Cu, Ac, Ci, Cs	
15	02.0	28.5	31.4	81	E	8.3	—	02	10⁻	Cu, Ac, Ci, Cs	
16	02.3	28.4	31.0	80	E	8.7	—	02	10⁻	Cu, Ac, Ci, Cs	
17	02.5	28.0	31.0	82	ESE	7.8	—	02	10⁻	Cu,Ac,Cc,Ci,Cs	
18	1002.5	27.3	30.7	84	ESE	7.8	—	02	10⁻	Cu, Ac, Ci	
19	03.2	27.1	30.3	84	ESE	7.3	—	02	10⁻	Cu, Ac, Ci	
20	03.6	27.0	30.9	86	ESE	6.3	—	02	10⁻	Cu, Ci	
21	04.3	27.0	30.3	85	ESE	6.8	—	02	9	Cu, Ci	▽⁰2255-2257.
22	04.7	27.0	30.9	86	ESE	7.0	—	02	10⁻	Cu, Ci	▽¹2328-▽²2330-
23											-▽⁰2331-2342.
5th 00											
01											−=⁰−,
02											▽⁰0255-0258.
03	1003.3	26.6	29.9	86	ESE	7.7	0.5	25	10⁻	Cu, Ac	▽⁰0329-▽¹0334-
04											-▽²0340-▽¹0344-
05											-▽⁰0348-0355.
06	1003.9	26.1	30.4	90	ESE	7.2	2.0	80	10⁻	Cu, Cb, Ac, Ci	▽⁰0437-0445.

Date Time JST	Sea-level press. mb	Air Temp. deg C	Vapor press. mb	R. H. %	Wind Dir.	Wind Speed m/sec	Precip. mm	ww	Cloud Amount Form	Remarks
07	04.3	25.8	29.1	88	ESE	8.3	0.5	25	10⁻ Cu, Cb, Ac	▽⁶0534-0537.
08	04.2	26.9	30.9	87	E	7.5	—	02	10⁻ Cu, Cb, Ac, Ci	▽⁶0556-0602.
09	04.5	28.4	31.8	82	E	7.8	—	02	10⁻ Cu, Cb, Ac, Ci	▽²0619-▽⁰0620-
10	04.7	29.0	32.4	81	E	7.8	—	02	9 Cu, Cb, Ac, Ci	-0624.
11	04.2	29.2	33.4	82	E	7.0	—	02	6 Cu, Cb, Ci	▽⁰0650-0658.
12	03.9	29.5	32.1	78	ESE	8.5	—	02	10⁻ Cu, Cb, Ci	