SHIPS' WEATHER CODE CARD

Effective as from
1 June 2016
Japan Meteorological Agency

TABLE 1

BBXX	CALL SIGN	$YYGGi_w$			$99L_aL_aL_a$		$Q_cL_oL_oL_oL_o$		i_Ri_xhVV				$Nddff$
		1	2	3	4	5	6	7	8	9	10	11	12	13	14
$1s_nTTT$		$2s_nT_dT_dT_d$			4PPPP		5appp		$7wwW_1W_2$		$8N_hC_LC_MC_H$				$9GGgg$			$222D_sv_s$		
15	16	17	18		19		20	21	22	23	24	25	26	27	28			29	30	31
$0s_sT_wT_wT_w$		$1P_{wa}P_{wa}H_{wa}H_{wa}$			$2P_wP_wH_wH_w$		$3d_{w1}d_{w1}d_{w2}d_{w2}$		$4P_{w1}P_{w1}H_{w1}H_{w1}$				$5P_{w2}P_{w2}H_{w2}H_{w2}$							
32	33	34		35	36	37	38		39		40		39		40					
$6I_sE_sE_sR_s$		$8s_wT_bT_bT_b$			ICE		$c_iS_ib_iD_iz_i$		REMARKS											
41	42	43	44	45	46		47	48	49	50	51									

EXPLANATION

The groups shaded as ▒ shall be always included.
The group shaded as ▒ shall be included in case of transmission through the INMARSAT-B system.
"BBXX" is the identifier for ships' weather reports.
The Japan Meteorological Agency (JMA) accepts ships' weather reports through Yamaguchi Land Earth Station (LES), which provides INMARSAT Service via Pacific Ocean Region (POR) satellite for System "B (LES ID = 003)" and "C (ID = 203)" and via Indian Ocean Region (IOR) satellite for INMARSAT-C (LES ID = 303) for free of charge to the ship, using the Code "41" procedure.

For Transmission through the INMARSAT-B System

(1) Make a file of the current observation. When sending the report, remember to include the indicator BBXX as a separate group before the call sign group. End the report with 5 periods (. . . . .).
(2) Connect the installation with a Land Earth Station (LES). After GA+ appears, type 41+ which indicates that a weather report is following and there will be no charge to the ship.
(3) The automatic answer back of the meteo-service will appear. Then transmit the file with the observation.

For Transmission through the INMARSAT-C System

(1) The first time you send a report, you must store the Code "41" address in your INMARSAT-C System.
In standard C software, the Code 41 is considered a "Special Access Code or Special Access Network". "Character Code" should be TEXT or IA5. "Priority" should be NORMAL or ROUTINE. Remember to select NO Confirmation.
(2) The weather report should be entered beginning with the BBXX and typing all characters from the logsheet. (It is also possible to use the weather report saved in a diskette, by Uploading.) After entering the report, select transmit and the address stored in (1).

TABLE 2 EXPLANATIONS OF CODES

GROUP $YYGGi_w$ This group shall be always included.

1 YY DAY OF THE MONTH [UTC]

Day of the month, with 01 indicating the first day, 02 the second day, etc.

2 GG TIME OF OBSERVATION [UTC]

Actual time of observation, to the nearest whole hour UTC.

UTC	15	18	21	00	03	06	09	12	"24" is not used, but "00" shall be logged.
JST	00	03	06	09	12	15	18	21	

3 i_w SOURCE OF WIND SPEED

$\mathbf{i_w}$ shall be coded as 3 when wind speed is estimated in the absence or failure of instrument; or 4 when wind speed is measured by instrument. Wind speed shall be reported in unit of knots.

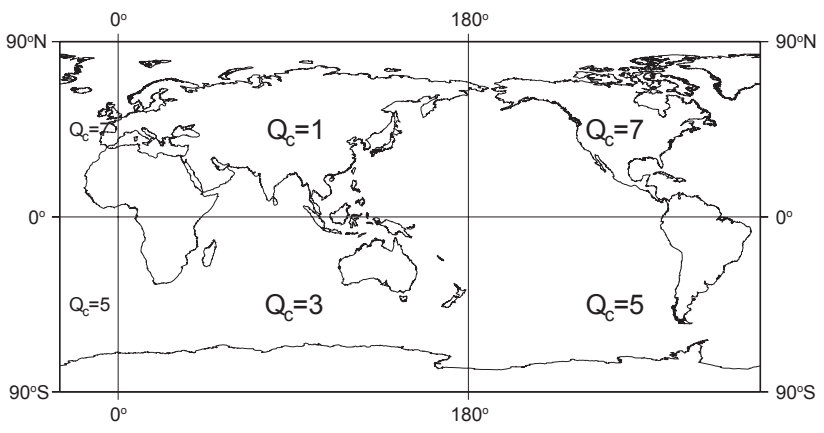
GROUPS $99L_aL_aL_a$ $Q_cL_oL_oL_oL_o$ These groups shall be always included.

4 99 INDICATOR FOR POSITION

5 $L_aL_aL_a$ LATITUDE

Latitude, in tenths of a degree. The tenths digit is obtained by dividing the number of minutes by 6, and disregarding the remainder.

6 Q_c QUADRANT OF THE GLOBE



Note: On the equator and 0˚ and 180˚ meridians, the choice of $\mathbf{Q_c}$ values is left to the observer.

7 $L_oL_oL_oL_o$ LONGITUDE

Longitude, in tenths of a degree. The tenths digit is obtained by dividing the number of minutes by 6, and disregarding the remainder.

GROUP i_Ri_xhVV This group shall be always included.

8 i_R INDICATOR FOR PRECIPITATION DATA

$\mathbf{i_R}$ is always coded as 4.

9 i_x INDICATOR FOR PRESENT AND PAST WEATHER DATA

i_x	Group $7wwW_1W_2$	Notes
1	Included	
3	Omitted	No observation, or data not available

10 h HEIGHT OF THE LOWEST CLOUD

Height above surface of the base of the lowest cloud observed.

h	Height above the surface		h	Height above the surface	
0		< 50 m	6	1000 m ≦	< 1500 m
1	50 m ≦	< 100 m	7	1500 m ≦	< 2000 m
2	100 m ≦	< 200 m	8	2000 m ≦	< 2500 m
3	200 m ≦	< 300 m	9	2500 m ≦ or no clouds	
4	300 m ≦	< 600 m	/	Height of base of cloud not known	
5	600 m ≦	< 1000 m			

11 VV HORIZONTAL VISIBILITY AT SURFACE

VV	Horizontal visibility		VV	Horizontal visibility	
90		< 50 m	96	4 km ≦	< 10 km
91	50 m ≦	< 200 m	97	10 km ≦	< 20 km
92	200 m ≦	< 500 m	98	20 km ≦	< 50 km
93	500 m ≦	< 1 km	99	50 km ≦	
94	1 km ≦	< 2 km	//	Horizontal visibility not known	
95	2 km ≦	< 4 km			

Note: When the horizontal visibility is not the same in different directions, the shortest distance shall be given for **VV**.

GROUP Nddff This group shall be always included.

12 N TOTAL CLOUD COVER [see **24** N_h]

N or N_h	Cloud cover	N or N_h	Cloud cover
0	0, no clouds	7	9/10 or more, but not 10/10
1	1/10 or less, but not 0	8	10/10
2	2/10 – 3/10	9	Sky obscured by fog and/or other meteorological phenomena
3	4/10		
4	5/10	/	Cloud cover indiscernible for reasons other than fog or other meteorological phenomena
5	6/10		
6	7/10 – 8/10		

13 dd DIRECTION OF WIND

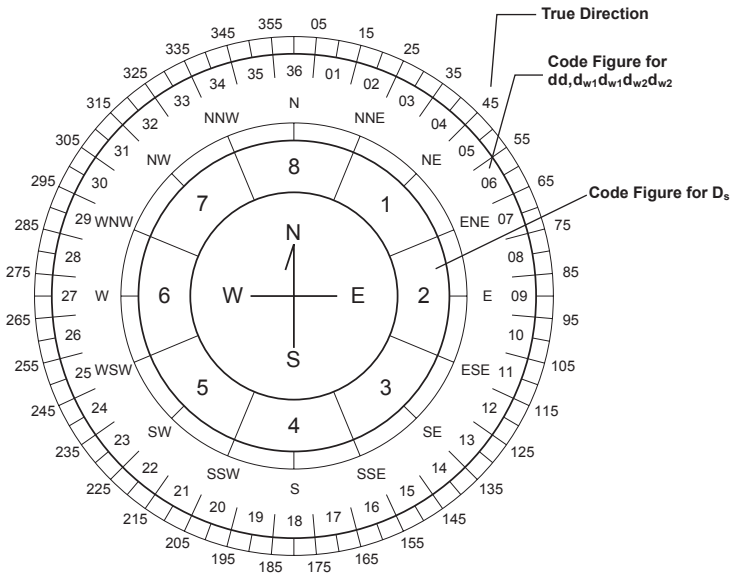
True direction, in tens of degrees (see the below figure), from which wind is blowing. 00 is used only for calm (less than 1 knot) and not for wind direction North which is coded as 36. 99 is used when the wind direction is indeterminate.

When wind direction is not known, **dd** shall be encoded as //.

14 ff WIND SPEED

Wind speed, in knots. The wind speed in meters per second is converted into knots (1 m/s = 1.94 knots). When the wind speed is 99 knots or more, **ff** shall be encoded as 99 and the group **00fff** shall be added.

In the absence of wind instruments, the wind speed shall be estimated on the basis of the Beaufort wind scale (see “BEAUFORT SCALE OF WIND FORCE” issued by JMA). When wind speed is not known, **ff** shall be encoded as //.



GROUP 1s_nTTT

When air temperature is not known, this group shall be omitted.

15 s_n SIGN OF AIR TEMPERATURE

s_n	Sign of temperature	s_n	Sign of temperature
0	positive or zero (0˚C ≦)	1	negative (< 0˚C)

16 TTT AIR TEMPERATURE

Air temperature, in tenths of a degree Celsius, its sign given by $\mathbf{s_n}$. If the ship is not equipped with tested instruments permitting the determination of tenths of degrees, the last digit of **TTT** shall be encoded as /.

GROUP 2$s_nT_dT_dT_d$

17 s_n SIGN OF DEW-POINT TEMPERATURE

See 15 $\mathbf{s_n}$

18 $T_dT_dT_d$ DEW-POINT TEMPERATURE

Explanations of 16 **TTT** shall be applied.

GROUP 4PPPP

19 PPPP PRESSURE AT MEAN SEA-LEVEL

Pressure at mean sea-level, in tenths of a hectopascal, omitting the thousands digit. When pressure is not known, this group shall be omitted. If the ship is not equipped with tested instruments permitting the determination of tenths of hectopascals, the last digit of **PPPP** shall be encoded as /.

GROUP 5appp

20 a CHARACTERISTIC OF PRESSURE TENDENCY

Characteristic of pressure tendency during the 3 hours preceding the time of observation.

a	Characteristic of pressure tendency and net change during the 3 hours	
0	Increasing, then decreasing:	The same or higher than 3 hours ago
1	Increasing, then steady; or increasing, then increasing more slowly	Higher than 3 hours ago
2	Increasing (steadily or unsteadily)	
3	Decreasing or steady, then increasing; or increasing, then increasing more rapidly	
4	Steady;	The same as 3 hours ago
5	Decreasing then increasing:	The same or lower than 3 hours ago
6	Decreasing then steady; or decreasing, then decreasing more slowly	Lower than 3 hours ago
7	Decreasing (steadily or unsteadily)	
8	Steady or increasing, then decreasing; or decreasing, then decreasing more rapidly	
／	Characteristic of pressure tendency is not known	

21 ppp AMOUNT OF PRESSURE TENDENCY

Amount of pressure tendency during the 3 hours preceding the time of observation, expressed in tenths of hectopascal. When amount of pressure tendency is not known, **ppp** shall be encoded as ///.

If the ship is not equipped with tested instruments permitting the determination of tenths of hectopascals, the last digit of **ppp** shall be encoded as /.

When both characteristic and amount of pressure tendency are not known, this group shall be omitted.

GROUP 7wwW_1W_2

This group shall be omitted if both present and past weather are not available (see 9 $\mathbf{i_x}$).

22 ww PRESENT WEATHER

When present weather is not known, **ww** shall be encoded as //.

If more than one form of weather is observed, the highest applicable code figure shall be selected. In any case code figure 17 shall have precedence over figures 20-49.

Present weather phenomena			ww
No precipitation at ship at the time of observation ww = 00-49	No thunder at ship at the time of observation	No precipitation, fog*, ice fog*, duststorm, sandstorm, drifting or blowing snow at ship at the time observation or during preceding hour	00-16 18, 19
		Precipitation, fog, ice fog or thunderstorm at ship during the preceding hour but not at the time of observation	20-29
		Duststorm, sandstorm, drifting or blowing snow at the time of observation	30-39
		Fog, ice fog or rime at the time of observation	40-49
	Thunder at the time of observation		17
precipitation at ship at the time of observation ww = 50-99	Drizzle at the time of observation		50-59
	Rain at the time of observation		60-69
	Snow, diamond dust, snow grains or ice pellets at the time of observation		70-79
	Showery precipitation at the time of observation		80-90
	Thunderstorm during the preceding hour but not at the time of observation		91-94
	Thunderstorm at the time of observation		95-99

Note: * except for 11 and 12

ww	Present weather phenomena	
00	Cloud development not observed or not observable	
01	Clouds generally dissolving or becoming less developed	change of sky during the preceding hour
02	State of sky on the whole unchanged	
03	Clouds generally forming or developing	
04	Smoke, visibility less than 10 km	
05	Haze, visibility less than 10 km	
06	Widespread dust in suspension in the air, visibility less than 10 km	
07	Blowing spray	
08	(Not for marine use)	
09	Duststorm or sandstorm within sight	
10	Mist, visibility less than 10km	
11	Shallow fog or ice fog in patches, not deeper than 10m	
12	More or less continuous shallow fog or ice fog, not deeper than 10 m	
13	Lightning visible, no thunder heard	
14	Precipitation within sight, not reaching the surface of the sea	
15	Precipitation beyond 5 km, reaching the surface of the sea	no precipitation at ship
16	Precipitation within 5 km, reaching the surface of the sea	
17	Thunderstorm, but no precipitation at the time of observation	
18	Squalls within sight of ship	
19	Funnel cloud(s) within sight of ship	
20	Drizzle or snow grains	at ship during the preceding hour but not at the time of observation
21	Rain	
22	Snow	
23	Rain and snow or ice pellets	
24	Freezing rain or freezing drizzle	
25	Shower(s) of rain	
26	Shower(s) of snow, or of rain and snow	
27	Shower(s) of hail, small hail or snow pellets, or of rain and hail, small hail or snow pellets	
28	Fog or ice fog	
29	Thunderstorm	

ww	Present weather phenomena
30	Duststorm or sandstorm, visibility more than 500 m, has decreased — during the preceding hour
31	Duststorm or sandstorm, visibility more than 500 m, no appreciable change — during the preceding hour
32	Duststorm or sandstorm, visibility more than 500 m, has begun or has increased — during the preceding hour
33	Duststorm or sandstorm, visibility less than 500 m, has decreased — during the preceding hour
34	Duststorm or sandstorm, visibility less than 500 m, no appreciable change — during the preceding hour
35	Duststorm or sandstorm, visibility less than 500 m, has begun or has increased — during the preceding hour
36	Drifting snow, visibility more than 500m, generally low (below eye level)
37	Drifting snow, visibility less than 500m, generally low (below eye level)
38	Drifting snow, visibility more than 500m, generally high (above eye level)
39	Drifting snow, visibility less than 500m, generally high (above eye level)
40	Fog or ice fog at a distance at the time of observation, but not at ship during the preceding hour
41	Fog or ice fog in patches
42	Fog or ice fog, sky visible — has become thinner during the preceding hour
43	Fog or ice fog, sky invisible — has become thinner during the preceding hour
44	Fog or ice fog, sky visible — no appreciable change during the preceding hour
45	Fog or ice fog, sky invisible — no appreciable change during the preceding hour
46	Fog or ice fog, sky visible — has begun or has become thicker during the preceding hour
47	Fog or ice fog, sky invisible — has begun or has become thicker during the preceding hour
48	Fog, depositing rime, sky visible
49	Fog, depositing rime, sky invisible
50	Drizzle, intermittent — slight at the time of observation
51	Drizzle, continuous — slight at the time of observation
52	Drizzle, intermittent — moderate at the time of observation
53	Drizzle, continuous — moderate at the time of observation
54	Drizzle, intermittent — heavy (dense) at the time of observation
55	Drizzle, continuous — heavy (dense) at the time of observation
56	Drizzle, freezing, slight
57	Drizzle, freezing, moderate or heavy (dense)
58	Drizzle and rain, slight
59	Drizzle and rain, moderate or heavy
60	Rain, intermittent — slight at the time of observation
61	Rain, continuous — slight at the time of observation
62	Rain, intermittent — moderate at the time of observation
63	Rain, continuous — moderate at the time of observation
64	Rain, intermittent — heavy at the time of observation
65	Rain, continuous — heavy at the time of observation
66	Rain, freezing, slight
67	Rain, freezing, moderate or heavy
68	Rain or drizzle and snow, slight
69	Rain or drizzle and snow, moderate or heavy
70	Intermittent fall of snowflakes — slight at the time of observation
71	Continuous fall of snowflakes — slight at the time of observation
72	Intermittent fall of snowflakes — moderate at the time of observation
73	Continuous fall of snowflakes — moderate at the time of observation
74	Intermittent fall of snowflakes — heavy at the time of observation
75	Continuous fall of snowflakes — heavy at the time of observation
76	Diamond dust
77	Snow grains
78	Isolated star-like snow crystals
79	Ice pellets
80	Rain shower(s), slight
81	Rain shower(s), moderate or heavy
82	Rain shower(s), violent
83	Shower(s) of rain and snow mixed, slight
84	Shower(s) of rain and snow mixed, moderate or heavy
85	Snow shower(s), slight
86	Snow shower(s), moderate or heavy
87	Shower(s) of snow pellets or small hail, slight
88	Shower(s) of snow pellets or small hail, moderate or heavy
89	Hail, slight
90	Hail, moderate or heavy
91	Slight rain — Thunderstorm during the preceding hour but not at the time of observation
92	Moderate or heavy rain — Thunderstorm during the preceding hour but not at the time of observation
93	Slight snow, or rain and snow mixed, or hail, small hail or snow pellets — Thunderstorm during the preceding hour but not at the time of observation
94	Moderate or heavy snow, or rain and snow mixed, or hail, small hail or snow pallets — Thunderstorm during the preceding hour but not at the time of observation
95	Thunderstorm, slight or moderate, with rain and/ or snow — Thunderstorm at the time of observation
96	Thunderstorm, slight or moderate, with hail, small hail or snow pellets — Thunderstorm at the time of observation
97	Thunderstorm, heavy, with rain and/ or snow — Thunderstorm at the time of observation
98	Thunderstorm combined with duststorm or sandstorm — Thunderstorm at the time of observation
99	Thunderstorm, heavy, with hail, small hail or snow pellets — Thunderstorm at the time of observation

23 W_1W_2 PAST WEATHER

The code figures selected for **W_1** and **W_2** shall describe the weather prevailing before the type of weather indicated by **ww** began.

If more than one code figure may be given to **W_1** with regard to the past weather, the highest figure shall be reported for **W_1** and the second highest code figure shall be reported for **W_2**. If the weather during the period has not changed so that only one code figure may be selected for the past weather, then that code figure shall be reported for both **W_1** and **W_2**.

When past weather is not known, **W_1W_2** shall be encoded as //.

Time of observation (UTC)	Period covered by W_1 and W_2
0000, 0600, 1200, and 1800	Six hours
0300, 0900, 1500 and 2100	Three hours
Others (every two hours)	Two hours
Others (every one hour)	One hour

W_1W_2	Past weather	W_1W_2	Past weather
0	Cloud covering 1/2 or less of the sky throughout period	3	Sandstorm, duststorm or blowing snow, visibility less than 1 km
1	Cloud covering more than 1/2 of the sky during part of period and covering 1/2 or less during part of period	4	Fog or ice fog, visibility less than 1 km; or thick haze visibility less than 2 km
		5	Drizzle
		6	Rain
2	Cloud covering more than 1/2 of the sky throughout period	7	Snow, or rain and snow mixed
		8	Shower(s)
		9	Thunderstorm(s)

GROUP $8N_hC_LC_MC_H$

This group shall be always included.

When **N** (see 12) = 0, 9 and /, this group shall be coded as 80000, 89/// and 8////, respectively.

24 N_h AMOUNT OF C_L OR C_M CLOUD

Amount of all the **C_L** cloud present or, if no **C_L** cloud is present, the amount of all the **C_M** cloud present (see 12 **N**).

25 - 27 $C_LC_MC_H$ GENUS OF C_L, C_M AND C_H CLOUDS

C_L	Stratocumulus, Stratus, Cumulus and Cumulonimbus
/	C_L clouds invisible
0	No Stratocumulus, Stratus, Cumulus or Cumulonimbus
9	Cumulonimbus, the upper part of which is clearly fibrous (cirriform), often in the form of an anvil
3	Cumulonimbus, the summits of which are not in the form of an anvil
4	Stratocumulus formed by the spreading out of Cumulus
8	Cumulus and Stratocumulus other than that formed from the spreading out of Cumulus
2	Cumulus of moderate or strong vertical extent, generally with protuberances in the form of domes or towers
1*	Cumulus with little vertical extent and seemingly flattened
5*	Stratocumulus not resulting from the spreading out of Cumulus
6*	Stratus in a more or less continuous sheet or layer, or in ragged shreds, or both
7*	Stratus fractus or Cumulus fractus, or both, usually below Altostratus or Nimbostratus

Note: The code figures are arranged in the order of priority; but the priority among the figures with asterisk (*) are determined in descending order of the amount of the cloud.

C_M	Altocumulus, Altostratus and Nimbostratus
/	C_M clouds invisible
0	No Altocumulus, Altostratus or Nimbostratus
9	Altocumulus of a chaotic sky, generally at several levels
8	Altocumulus with sproutings in the form of small towers or battlements, or Altocumulus having the appearance of cumuliform tufts
7*	Altocumulus in two or more layers; or opaque layer of Altocumulus; or Altocumulus together with Altostratus or Nimbostratus
6	Altocumulus resulting from spreading out of Cumulus
5	Semi-transparent Altocumulus in bands, progressively invading the sky; these Altocumulus clouds generally thicken as a whole
4	Patches (often in the form of almonds or fish) of Altocumulus
3	Altocumulus at a single level, the greater part of which is semi-transparent
2	Altostratus, the greater part of which is sufficiently dense, or Nimbostratus
1	Altostratus, the greater part of which is semi-transparent

Note: The code figures are arranged in the order of priority; but C_M = 7 follows C_M = 4 in case of Altocumulus in several layers; and has the same priority as C_M = 3 in case of Altocumulus in a single layer (the figure with the larger amount of the cloud shall be selected).

C_H	Cirrus, Cirrocumulus and Cirrostratus
/	C_H clouds invisible
0	No Cirrus, Cirrocumulus or Cirrostratus
9	Cirrocumulus alone (or Cirrocumulus accompanied by Cirrus or Cirrostratus)
7	Veil of Cirrostratus covering the celestial dome
8	Cirrostratus not progressively invading the sky and not completely covering the celestial dome
6	Cirrus and Cirrostratus, or Cirrostratus alone, progressively invading the sky; the continuous veil extends more than 45 degrees above the horizon
5	Cirrus and Cirrostratus, or Cirrostratus alone, progressively invading the sky; the continuous veil does not reach 45 degrees above the horizon

C_H	Cirrus, Cirrocumulus and Cirrostratus
4	Cirrus in the form of hooks or of filaments, progressively invading the sky
3	Dense Cirrus, often in the form of an anvil, being the remains of the upper parts of Cumulonimbus
2*	Dense Cirrus which sometimes seem to be the remains of the upper part of a Cumulonimbus
1*	Cirrus in the form of filaments, strands or hooks, not progressively invading the sky

Note: The code figures are arranged in the order of priority; but the priority among the figures with asterisk (*) are determined in descending order of the amount of the cloud.

GROUP 9GGgg

28 GGgg ACTUAL TIME OF OBSERVATION

Time of observation, in hours and minutes UTC. This group shall be included when the actual time observation differs by more than 10 minutes from the standard time **GG** reported in the group **YYGGi$_w$**. The actual time observation shall be the time at which the barometer is read. For example, if the actual time observation is 0015UTC and the standard time is 00UTC, this group is reported as 90015.

GROUP 222D_sv_s This group shall be always included.

29 222 INDICATOR FOR SHIP'S DISPLACEMENT AND SPEED

30 D_s DIRECTION OF SHIP'S DISPLACEMENT

True direction (8 points of the compass; see figure on page 2) of resultant displacement of the ship during the 3 hours preceding the time of observation.

D_s	True direction of ship's displacement	D_s	True direction of ship's displacement
0	Stationary	5	SW
1	NE	6	W
2	E	7	NW
3	SE	8	N
4	S	9	Unknown

31 v_s SHIP'S AVERAGE SPEED

Ship's average speed made good during the 3 hours preceding the time of observation. The average speed is obtained by dividing the displacement in a straight line by 3.

v_s	Ship's average speed	v_s	Ship's average speed
0	< 1 knot	6	26 knot ≦ < 31 knot
1	1 knot ≦ < 6 knot	7	31 knot ≦ < 36 knot
2	6 knot ≦ < 11 knot	8	36 knot ≦ < 40 knot
3	11 knot ≦ < 16 knot	9	40 knot ≦
4	16 knot ≦ < 21 knot	/	Unknown
5	21 knot ≦ < 26 knot		

GROUP 0$s_sT_wT_wT_w$

When sea-surface temperature is not known, this group shall be omitted.

32 s_s SIGN AND TYPE OF MEASUREMENT OF SEA-SURFACE TEMPERATURE

s_s	Sign	Type of measurement
0	Positive or ZERO (0°C ≦)	Intake
1	Negative (< 0°C)	Intake
2	Positive or ZERO (0°C ≦)	Bucket
3	Negative (< 0°C)	Bucket
4	Positive or ZERO (0°C ≦)	Hull contact sensor
5	Negative (< 0°C)	Hull contact sensor
6	Positive or ZERO (0°C ≦)	Other
7	Negative (< 0°C)	Other

33 $T_wT_wT_w$ SEA-SURFACE TEMPERATURE

Explanations of 16 **TTT** shall be applied.

GROUP 1$P_{wa}P_{wa}H_{wa}H_{wa}$

This group shall be used to report instrumental wave data only.

34 $P_{wa}P_{wa}$ PERIOD OF WAVES BY WAVE RECORDER

Period of waves obtained by wave recorder, in seconds.

35 $H_{wa}H_{wa}$ HEIGHT OF WAVES BY WAVE RECORDER

Height of waves obtained by wave recorder, in units of 0.5 meter (see table in 40).

GROUP 2$P_wP_wH_wH_w$

When the period and height of wind waves are not available (except for the case of confused sea), this group shall be omitted.

36 P_wP_w PERIOD OF WIND WAVES

Period of wind waves, in seconds. When the period of the waves cannot be determined, **P_wP_w** shall be encoded as //. When the estimation of the period is impossible owing to confused sea, **P_wP_w** shall be reported as 99.

37 H_wH_w HEIGHT OF WIND WAVES

Height of wind waves, in units of 0.5 meter (see table in 40). When the sea is calm (no waves and no swell), the group **2$P_wP_wH_wH_w$** shall be reported as 20000.

GROUPS 3$d_{w1}d_{w1}d_{w2}d_{w2}$ 4$P_{w1}P_{w1}H_{w1}H_{w1}$ 5$P_{w2}P_{w2}H_{w2}H_{w2}$

These groups shall be reported only when swell can be distinguished from wind waves.

38 $d_{w1}d_{w1}d_{w2}d_{w2}$ DIRECTION OF SWELL WAVES

True direction, in tens of degrees (see figure on page 2), from which waves are coming. 99 is used when the direction is indeterminate. If only one system of swell is observed, **$d_{w2}d_{w2}$** shall be encoded as //.

If a second system of swell is observed, the highest swell is given for **$d_{w1}d_{w1}$**. A third system of swell shall be omitted.

39 $P_{w1}P_{w1}$, $P_{w2}P_{w2}$ PERIOD OF SWELL WAVES

Period of swell, in seconds. If a second system of swell is observed, the period of highest swell is given for **$P_{w1}P_{w1}$**. When the period cannot be determined, **$P_{w1}P_{w1}$** (and/or **$P_{w2}P_{w2}$**) shall be encoded as //.

40 $H_{w1}H_{w1}$, $H_{w2}H_{w2}$ HEIGHT OF SWELL WAVES

Height of swell waves, in units of 0.5 meter (see the following table). If a second system of swell is observed, the highest swell is given for **$H_{w1}H_{w1}$**.

Height of waves ($H_{wa}H_{wa}$), wind waves (H_wH_w) and swell waves ($H_{w1}H_{w1}$, $H_{w2}H_{w2}$)					
00	less than 0.25 m	06	3 m	20	10 m
01	0.5 m	07	3.5 m	|	|
02	1 m	08	4 m	30	15 m
03	1.5 m	09	4.5 m	|	|
04	2 m	10	5 m	//	Data not available or indeterminate
05	2.5 m	|	|		

GROUP 6$I_sE_sE_sR_s$

This group shall be reported whenever ice accretion on ships is observed. When the ice accretion on ship is reported in plain language, it shall be preceded by the code word **ICING**.

41 I_s ICE ACCRETION ON SHIPS

I_s	Ice accretion on ships	I_s	Ice accretion on ships
1	Icing from ocean spray	4	Icing from rain
2	Icing from fog	5	Icing from spray and rain
3	Icing from spray and fog		

42 E_sE_s THICKNESS OF ICE ACCRETION

Thickness of ice accretion on ships, in centimeters.

43 R_s RATE OF ICE ACCRETION OVER PRECEDING 3 HOURS

R_s	Rate of ice accretion	R_s	Rate of ice accretion
0	Ice not building up	3	Ice melting or breaking up: slowly
1	Ice building up slowly	4	Ice melting or breaking up: rapidly
2	Ice building up rapidly		

GROUP 8$s_wT_bT_bT_b$

When the wet bulb is used to derive dew-point value, this group shall be included to report the wet bulb temperature measurement.

44 s_w SIGN AND TYPE OF WET-BULB TEMPERATURE

s_w	Sign of wet-bulb temperature	s_w	Sign of wet-bulb temperature
0	positive or zero (0°C ≦)	2	negative in case of frozen wet-bulb
1	negative in case of not frozen wet-bulb		

45 $T_bT_bT_b$ WET-BULB TEMPERATURE

Explanations of 16 **TTT** shall be applied.

GROUP ICE $c_iS_ib_iD_iz_i$

This group shall be reported whenever sea ice and/or ice of land origin are observed from the ship's position at the time of observation.

Full details are given in "Guide to Ships' Weather Reports" issued by JMA.

46 ICE CODE WORD INDICATING THE GROUP OF SEA ICE

47 c_i CONCENTRATION OR ARRANGEMENT

48 S_i STAGE OF DEVELOPMENT

49 b_i ICE OF LAND ORIGIN

50 D_i TRUE BEARING OF PRINCIPAL ICE EDGE

51 z_i PRESENT SITUATION AND TREND OF CONDITION

REMARKS (SPECIAL PHENOMENA)

This group shall be reported in plain language in the following cases:

(a) When the passing of front is observed;
(b) When the gusts of 34 knots or more are observed during the past 6 hours;
(c) When there are significant change of wind, air pressure or visibility;
(d) When hoar-frost, clean ice, rain and snow mixed, hail or thunderstorm are observed;
(e) When other significant phenomena are observed.