



ff

## WIND SPEED IN KNOTS

This table is based on sea conditions over deep water with a fully developed sea. There will be frequent cases where the sea will not be fully developed because the wind has not blown long enough over a sufficient distance (fetch). Other factors such as currents and water depth will also affect the look of the sea. See NWSOH No. 1 for photos and explanations.

Code Flgs. (Knots)	Mean Speed	Beau- fort	Description	Sea criterion when sea fully developed	Probable ht. of waves in m (ft)	
					Average	Maximum
00	00	0	Calm	Sea like a mirror	-	-
01 - 03	02	1	Light Air	Ripples with the appearance of scales are formed, but without foam crests	0.1 (1/4)	0.1 (1/4)
04 - 06	05	2	Light breeze	Small wavelets, still short but more pronounced, crests have a glassy appearance and do not break	0.2 (1/2)	0.3 (1)
07 - 10	09	3	Gentle breeze	Large wavelets, crests begin to break; foam of glassy appearance; perhaps scattered white horses	0.6 (2)	1 (3)
11 - 16	13	4	Modl. breeze	Small waves, becoming longer; fairly frequent white horses	1 (3 1/2)	1.5 (5)
17 - 21	19	5	Fresh breeze	Moderate waves, taking a more pronounced long form; many white horses are formed (chance of some spray)	2 (6)	2.5 (8 1/2)
22 - 27	24	6	Strong breeze	Large waves begin to form; white foam crests are more extensive everywhere (probably some spray)	3 (9 1/2)	4 (12)
28 - 33	30	7	Near gale	Sea heaps up and white foam from breaking waves begins to be blown in streaks along the direction of the wind	4 (13 1/2)	5.5 (19)
34 - 40	37	8	Gale	Moderately high waves of greater length; edges of crests begin to break into the spindrift; the foam is blown in well-marked streaks along the direction of the wind	5.5 (18)	7.5 (25)
41 - 47	44	9	Strong gale	High waves; dense streaks of foam along the direction of the wind; crests of waves begin to topple, tumble and roll over; spray may affect visibility	7 (23)	10 (32)
48 - 55	52	10	Storm	Very high waves with long overhanging crests; the resulting foam, in great patches, is blown in dense white streaks along the direction of the wind; on the whole, the surface of the sea takes a white appearance; tumbling of the sea becomes heavy and shock-like; visibility affected	9 (29)	12.5 (41)
56 - 63	60	11	Violent Storm	Exceptionally high waves (small and medium-sized ships might be for a time lost to view behind the waves); the sea is completely covered with long white patches of foam lying along the direction of the wind; everywhere the edges of the wave crests are blown into froth; visibility affected	11.5 (37)	16 (52)
64 and over	-	12	Hurricane	The air is filled with foam and spray; sea completely white with driving spray; visibility very seriously affected	14 (45)	-

Note: For wind of 89 knots or greater, use 99 for ff, and report wind speed in group 00ff; e.g. for a wind from 100° true at 125 knots, dd = 10, ff = 99, and fff = 125.

WW

## PRESENT WEATHER (cont'd)

## 60-69 RAIN (NOT FALLING AS SHOWERS)

Slight	Moderate or heavy
68 Rain or drizzle with snow	61
66 Freezing rain	61
Intermittent	Continuous
64 Heavy rain	61
62 Moderate rain	61
60 Slight rain	61

## 50-59 DRIZZLE

Slight	Moderate or heavy
58 Drizzle and rain mixed	51
56 Freezing drizzle	51
Intermittent	Continuous
54 Heavy drizzle	51
52 Moderate drizzle	51
50 Slight drizzle	51

## 00-49 NO PRECIPITATION AT SHIP AT TIME OF OBSERVATION

## 40-49 FOG AT THE TIME OF OBSERVATION

(Visibility in fog is less than 1/2 naut. mi.)

Sky visible	Sky invisible
48 Fog, depositing time	41
46 Fog, has begun or thickened in past hour	41
44 Fog, no change in past hour	41
42 Fog, has become thinner in past hour	41
41 Fog in patches	
40 Fog at a distance but not at ship in past hour	

## 30-39 (Not likely to be used in ship reports)

Slight or moderate	Heavy
38 Blowing snow, high (above eye level)	31
36 Drifting snow, low (below eye level)	31
32 Duststorm or sandstorm, increasing	31
31 Duststorm or sandstorm, unchanging	31
30 Duststorm or sandstorm, decreasing	31

## 20-29 PHENOMENA IN PAST HOUR BUT NOT AT TIME OF OBS.

29 Thunderstorm, with or without precipitation	
28 Fog (in past hour but not at time of obs.)	
27 Shower(s) of hail*, or of hail* and rain mixed	
26 Shower(s) of snow, or of rain and snow mixed	
25 Shower(s) of rain	
24 Freezing drizzle or freezing rain	} Not falling as showers
23 Rain and snow mixed, or ice pellets	
22 Snow	
21 Rain (not freezing)	
20 Drizzle (not freezing) or snow grains	

\*Includes hail, ice pellets or snow pellets.

## 10-19 SQUALLS, FUNNEL CLOUDS

19 Funnel cloud(s) seen in past hour or at time of observation
18 Squalls (no. precip.) in past hour or at time of observation
17 Thunder at time of observation, no precipitation at ship*

\*Code figure 17 has precedence over code figures 20-49.

## 13-16 PHENOMENA WITHIN SIGHT BUT NOT AT SHIP

16 Precip. within 3 naut. mi. — reaching surface	} Fog not deeper than 10 m (33 ft)
15 Precip. beyond 3 naut. mi. — reaching surface	
14 Precipitation in sight, not reaching surface	
13 Lightning visible, no thunder heard	

## 10-12 MIST AND SHALLOW FOG

12 Shallow fog - more or less continuous
11 Shallow fog in patches
10 Mist (Visibility 1/2 Nautical mi. or more)

## 04-09 HAZE, DUST, SAND OR SMOKE

09 Duststorm or sandstorm within sight
08 Dust whirls in past hour (NOT FOR MARINE USE)
07 Blowing spray at the ship
06 Widespread dust suspended in the air
05 Dry haze
04 Visibility reduced by smoke

## 00-03 CHANGE OF SKY DURING PAST HOUR

Code figs.	
03 Clouds generally forming or developing	
02 State of the sky on the whole unchanged	
01 Clouds dissolving or becoming less developed	
00 Cloud development not observable	

PPPP

## SEA LEVEL PRESSURE IN MILLIBARS AND TENTHS

When the sea level pressure is 1000 mb or more, the initial 1 is omitted when coding:

Examples: 992.4 mb: PPPP = 9924  
1000.0 mb: PPPP = 0000  
1002.8 mb: PPPP = 0028  
1032.1 mb: PPPP = 0321

WW

## PRESENT WEATHER

The weather code is arranged in priority order. Reading down the list, select the first applicable (most severe) weather condition (generally highest value) that you observe and enter the code number for ww.

## 59-99 PRECIPITATION AT SHIP AT TIME OF OBSERVATION

## 95-99 THUNDERSTORM AT TIME OF OBSERVATION

99 Heavy thunderstorm with hail*
98 Thunderstorm with duststorm or sandstorm
97 Heavy thunderstorm with rain and/or snow, but no hail*
96 Slight or moderate thunderstorm with hail*
95 Slight or moderate thunderstorm with rain and/or snow, but no hail*

\* Includes hail, ice pellets or snow pellets

## 94-91 THUNDERSTORM DURING THE PAST HOUR BUT NOT AT THE TIME OF OBSERVATION

Note: Use code 29 if there is no precip. at time of observation.

94 Moderate or heavy snow, or rain and snow mixed, or hail*	} Thunderstorm in past hour
93 Slight snow, or rain and snow mixed, or hail*	
92 Moderate or heavy rain	
91 Slight rain	

\* Includes hail, ice pellets or snow pellets

## 85-90 SOLID PRECIPITATION IN SHOWERS

Slight	Moderate or heavy
89 Shower of hail*, no thunder	90
87 Shower of snow pellets or ice pellets†	88
85 Shower of snow	86

†With or without rain, or rain and snow mixed

\*Includes hail, ice pellets or snow pellets

## 80-84 RAIN SHOWERS

84 Shower of rain and snow mixed, moderate or heavy
83 Shower of rain and snow mixed, slight
82 Violent rain shower
81 Moderate or heavy rain shower
80 Slight rain shower

## 70-79 SOLID PRECIPITATION NOT FALLING AS SHOWERS

79 Ice pellets
78 Isolated star-like snow crystals (with or without fog)
77 Snow grains (with or without fog)
76 Diamond dust (with or without fog)

Intermittent	Continuous
74 Heavy snow in flakes	75
72 Moderate snow in flakes	73
70 Slight snow in flakes	71

a

## CHARACTERISTIC OF PRESSURE TENDENCY DURING THE THREE HOURS PRECEDING THE TIME OF OBSERVATION

See NWSOH No. 1 for observing instructions.

Code Flgs.	Examples	Description	Net 3 hour change in pressure
0		Rising, then falling	Higher or no change
1		Rising, then steady; or rising, then rising more slowly	} Pressure now higher than three hours ago
2		Rising (steadily or unsteadily)	
3		Falling or steady, then rising; or rising, then rising more rapidly	} Pressure now lower than three hours ago
4		Steady	
5		Falling, then rising	Lower or no change
6		Falling, then steady; or falling, then falling more slowly	} Pressure now lower than three hours ago
7		Falling (steadily or unsteadily)	
8		Steady or rising, then falling; or falling, then falling more rapidly	

ppp

## AMOUNT OF PRESSURE TENDENCY IN THE THREE HOURS PRECEDING THE TIME OF OBSERVATION

ppp is expressed in millibars and tenths. For example, if the net three-hour pressure change is:

0.0 mb, ppp = 000    4.7 mb, ppp = 047  
0.4 mb, ppp = 004    10.2 mb, ppp = 102

Note: U.S., PMO's set barometers to read sea level pressure. See NWSOH No. 1 for other methods.

# W<sub>1</sub> and W<sub>2</sub>

PAST WEATHER

The code figures for W<sub>1</sub>, W<sub>2</sub> and ww together should give as complete a description as possible of the weather which has occurred since the previous main synoptic hour (0000, 0600, 1200, or 1800 GMT). W<sub>1</sub> and W<sub>2</sub> should describe the types of weather, usually different from that being reported by ww, which occurred according to the following:

The period covered by W<sub>1</sub> and W<sub>2</sub> shall be:

- Six hours for observations at 0000, 0600, 1200 and 1800 UTC.
- Three hours for observations at 0300, 0900, 1500 and 2100 UTC.
- Two hours for intermediate observation if taken every two hours.

If two or more different types of reportable weather occurred, the type having the highest code figure (the primary type) is reported by W<sub>1</sub>; and the type having the second highest code figure (the secondary type) is reported by W<sub>2</sub>. If the past weather has been continuous and unchanging during the entire period, W<sub>1</sub> and W<sub>2</sub> will be the same code.

The table is listed in priority order starting with the most significant weather.

Code figs.

9	Thunderstorm(s) with or without precipitation
8	Shower(s)
7	Snow, or rain and snow mixed
6	Rain
5	Drizzle
4	Fog or thick haze (visibility was less than 1/2 nautical mile)
3	Sandstorm, duststorm, or blowing snow
2	Cloud cover more than 1/2 throughout period
1	Cloud cover more than 1/2 part of period, and 1/2 or less for another part of period
0	Cloud cover 1/2 or less throughout period

# N<sub>h</sub>

FRACTION OF THE SKY COVERED BY ALL THE C<sub>1</sub> CLOUD(S) PRESENT, OR IF NO C<sub>1</sub> CLOUD IS PRESENT, THE FRACTION COVERED BY ALL THE C<sub>w</sub> CLOUD(S) PRESENT

Code figs.

0	No C <sub>1</sub> or C <sub>w</sub> clouds present
1	1 eighth or less, but not zero
2	2 eighths
3	3 eighths
4	4 eighths
5	5 eighths
6	6 eighths
7	7 eighths or more but not totally covered
8	8 eighths; sky totally covered
9	Amount of C <sub>1</sub> (or C <sub>w</sub> ) cloud cannot be estimated
/	Cloud cover indistinguishable for reasons other than Code fig. 9, or observations not made

Cloud types are listed in priority order in the following tables. The most significant will be listed first. See NWSOH No. 1 for additional information.

# CL

CLOUDS OF TYPES STRATOCUMULUS (Sc), STRATUS (St), CUMULUS (Cu), AND CUMULONIMBUS (Cb)

Code figs.

- Cb with a clearly fibrous top, often anvil-shaped; with or without other Cb, or Cu, Sc, St or ragged Cu or St of bad weather.
- Cb the tops of which, at least partially, lack sharp outlines, but are clearly not fibrous or anvil-shaped; Cu, Sc or St may also be present.
- Sc formed by the spreading out of Cu; Cu may also be present.
- Cu and Sc not formed by the spreading out of Cu; the bases of the Cu and Sc at different levels.
- Cu of moderate or strong vertical extent, generally with protuberances in the form of domes or towers, with or without other Cu or Sc, all having their bases at same level.

Codes 1, 5, 6 and 7 are of equal priority. Choose the cloud type that is predominant.

- Cu with little vertical extent and seemingly flattened, and/or ragged Cu other than that of bad weather.
- Sc not formed by the spreading out of Cu.
- St in a more or less continuous layer, and/or in ragged shreds; but no ragged St of bad weather.
- Ragged St and/or ragged Cu, both of bad weather, usually below As or Ns.
- No Sc, St, Cu or Cb clouds present.
- Sc, St, Cu and Cb invisible owing to darkness, fog, blowing dust or sand, or other similar phenomena.

# CM

CLOUDS OF TYPES ALTOCUMULUS (Ac), ALTOSTRATUS (As) AND NIMBOSTRATUS (Ns)

Code figs.

- Ac of a chaotic sky, generally at several levels.
- Ac with sproutings like small towers or battlements, or Ac having the appearance cumulus-shaped tufts.
- Either: (a) Ac in two or more layers, opaque in places, not increasing. (b) Opaque layer of Ac, not increasing. (c) Ac together with As or Ns.
- Ac resulting from the spreading out of Cu (or Cb).
- Ac, semi-transparent; in bands or Ac in one or more layers, progressively invading the sky; these Ac clouds generally thicken as a whole.
- Patches (often almond- or fish-shaped) of Ac, mostly semi-transparent; clouds occur at one or more levels and continually change in appearance.
- Ac, mostly semi-transparent; cloud elements change only slowly and are all at a single level.
- Either As, most of which is sufficiently dense to hide the sun or moon; or Nimbostratus.
- Ac, mostly semi-transparent, through which the sun or moon may be weakly visible, as through ground glass.
- No Ac, As or Ns clouds present
- Ac, As, and Ns invisible owing to darkness, or because of an overcast layer of C<sub>1</sub> cloud.

# CH

CLOUDS OF TYPES CIRRUS (Ci), CIRROCUMULUS (Cc) AND CIRROSTRATUS (Cs)

Code figs.

- Cc alone, or Cc with Ci and/or Cs, but the Cc is predominant.
- Veil of Cs covering the whole sky.
- Cs not increasing and not covering the whole sky.
- Ci (often in converging bands) and Cs, or Cs alone; in either case spreading over the sky and generally thickening, the continuous veil extends more than 45° above the horizon, but does not cover the whole sky.
- Same as code 6 above, except that the continuous veil does not reach 45° above the horizon.
- Ci in the form of hooks and/or filaments, progressively invading the sky; they generally become thicker as a whole.
- Dense Ci, often anvil-shaped, being the remains of the upper parts of a Cb.
- Ci in the form of filaments, strands or hooks, not progressively invading the sky.
- Either: (a) Dense Ci in patches or tangled sheaves, not increasing, which sometimes seem to be the remains of the upper part of a Cb. (b) Ci with sproutings like small towers or battlements, or Ci having the appearance of cumulus-shaped tufts.
- No Ci, Cc or Cs clouds present.
- Ci, Cc and Cs invisible owing to darkness, or because of a continuous layer of lower clouds.

## Section 2 - Oceanographic Data

# D<sub>s</sub>

SHIP'S COURSE (TRUE) MADE GOOD DURING THE THREE HOURS PRECEDING THE TIME OF OBSERVATION

Code figs.	True direction	Code figs.	True direction
0	Ship heve to	5	SW
1	NE	6	W
2	E	7	NW
3	SE	8	N
4	S	9	Unknown
		/	Not reported

# V<sub>s</sub>

SHIP'S AVERAGE SPEED MADE GOOD DURING THE THREE HOURS PRECEDING THE TIME OF OBSERVATION

Code figs.	Avg. Speed	Code figs.	Avg. Speed
0	0 knot	5	21 to 25 knots
1	1 to 5 knots	6	26 to 30 knots
2	6 to 10 knots	7	31 to 35 knots
3	11 to 15 knots	8	36 to 40 knots
4	16 to 20 knots	9	Over 40 knots
		/	Not reported

# S<sub>s</sub>

SIGN AND TYPE OF SEA SURFACE TEMPERATURE

Code figs.

- positive or zero intake measurement
- negative intake measurement
- positive or zero bucket measurement
- negative bucket measurement
- positive or zero hull contact sensor
- negative hull contact sensor
- positive or zero neither intake, bucket or hull
- negative neither intake, bucket or hull

# T<sub>w</sub>T<sub>w</sub>T<sub>w</sub>

SEA SURFACE TEMPERATURE IN DEGREES AND TENTHS, CELSIUS

Examples:

8.4°C: T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> = 084 S<sub>w</sub> = 0  
 0.4°C: T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> = 004 S<sub>w</sub> = 0  
 -0.7°C: T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> = 007 S<sub>w</sub> = 1  
 -1.5°C: T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> = 015 S<sub>w</sub> = 1

If sensor depth is 10 meters (33 feet) or more, record T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> on the record, but do not transmit it as part of the radio weather report. If the thermometer cannot be read to a tenth of a degree enter a slash "/" for the tenth digit; e.g. T<sub>w</sub>T<sub>w</sub>T<sub>w</sub> = 18/.

# P<sub>w</sub>P<sub>w</sub>, P<sub>w1</sub>P<sub>w1</sub>, P<sub>w2</sub>P<sub>w2</sub>

PERIOD OF THE WAVES IN SECONDS

P<sub>w</sub>P<sub>w</sub> --Period of the sea waves, in seconds  
 P<sub>w1</sub>P<sub>w1</sub> --Period of the predominant swell waves, in seconds  
 P<sub>w2</sub>P<sub>w2</sub> --Period of the secondary swell waves, in seconds

Determine (by estimation or measurement) the average period, in seconds, of the larger well-formed waves of the wave system (sea or swell) being observed.

See next column for d<sub>w1</sub>d<sub>w1</sub>d<sub>w2</sub>d<sub>w2</sub>.

# C<sub>i</sub>

CONCENTRATION OR ARRANGEMENT OF SEA ICE

Code figs.

- No sea ice in sight
- Ship in open lead more than 1 nautical mile wide, or ship in fast ice with boundary beyond limit of visibility
- Sea ice present in concentrations less than 1/10 (%); open water or very open pack ice
- 1/10 to 1/5 (10% to less than 20%); open pack ice
- 1/5 to 1/2 (20% to less than 50%); close pack ice
- 1/2 or more, but not 100% (1/2 to less than 100%); very close pack ice
- Strips and patches of pack ice with open water between
- Strips and patches of close or very close pack ice with areas of lesser concentration between
- Fast ice with open water, very open or open pack ice to seaward of the ice boundary
- Fast ice with close or very close pack ice to seaward of the ice boundary
- Unable to report, because of darkness, lack of visibility, or because ship is more than 1/2 nautical mile away from the ice edge.

# dw<sub>1</sub>dw<sub>1</sub>, dw<sub>2</sub>dw<sub>2</sub>

TRUE DIRECTION, IN TENS OF DEGREES, FROM WHICH THE SWELL WAVES ARE COMING

d<sub>w1</sub>d<sub>w1</sub> — True direction of the predominant swell waves  
 d<sub>w2</sub>d<sub>w2</sub> — True direction of the secondary swell waves  
 See wind direction dd for table

When only one swell system is reported, its direction is given by d<sub>w1</sub>d<sub>w1</sub> in the group 3d<sub>w1</sub>d<sub>w1</sub>d<sub>w2</sub>d<sub>w2</sub> and d<sub>w2</sub>d<sub>w2</sub> is coded as "/".

# H<sub>w</sub>H<sub>w</sub>, H<sub>w1</sub>H<sub>w1</sub>, H<sub>w2</sub>H<sub>w2</sub>

HEIGHT OF WAVES

H<sub>w</sub>H<sub>w</sub> = Height of the sea waves  
 H<sub>w1</sub>H<sub>w1</sub> = Height of the waves in the predominant swell system  
 H<sub>w2</sub>H<sub>w2</sub> = Height of the waves in the secondary swell system

Estimate the average height of the larger well-formed waves of the wave system (sea or swell) being observed. THE CODE IS DIRECT READING IN UNITS OF HALF-METERS.

Code figs. (half-meters)	Height in ft. (half-meters)	Code figs. (half-meters)	Height in ft. (half-meters)	Code figs. (half-meters)	Height in ft. (half-meters)
00	Less than 1	10	16 or 17	20	32 to 33
01	1 or 2	11	18	21	34 or 35
02	3 or 4	12	19 or 20	22	36
03	5	13	21 or 22	23	37 or 38
04	6 or 7	14	23	24	39 or 40
05	8 or 9	15	24 or 25	25	41
06	10	16	26 or 27	26	42 or 43
07	11 or 12	17	28	27	44 or 45
08	13	18	29 or 30	//	Not determined
09	14 or 15	19	31		

To obtain the code figures for heights over 45 feet, multiply the height in feet by 0.6 and round off the result to the nearest whole number.

# I<sub>s</sub>

CAUSE OF ICE ACCRETION ON SHIPS

Code figs.

1	Iceing from ocean spray	4	Iceing from rain
2	Iceing from fog	5	Iceing from spray and rain
3	Iceing from spray and fog		

# E<sub>s</sub>E<sub>s</sub>

THICKNESS OF ICE ACCRETION IN CENTIMETERS

Measure maximum thickness to nearest whole centimeter, or to nearest quarter of an inch. Code E<sub>s</sub>E<sub>s</sub> according to the following table:

Code figs. (cm)	Inches	Code figs. (cm)	Inches	Code figs. (cm)	Inches
00	Less than 1/4	08	3 or 3 1/4	16	5 1/4
01	1/4 or 1/2	09	3 1/2	17	6 1/2 or 6 3/4
02	3/4	10	3 3/4 or 4	18	7 or 7 1/4
03	1 to 1 1/4	11	4 1/4 or 4 1/2	19	7 1/2
04	1 1/2 or 1 3/4	12	4 3/4	20	7 3/4 or 8
05	2	13	5 or 5 1/4	21	8 1/4
06	2 1/4 or 2 1/2	14	5 1/2	22	8 1/2 or 8 3/4
07	2 3/4	15	5 3/4 or 6	23	9 or 9 1/4
					etc.

# R<sub>s</sub>

RATE OF ICE ACCRETION ON SHIPS

Code figs.

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		

# S<sub>w</sub>

SIGN AND TYPE OF WET BULB TEMPERATURE

Code figs.

0	Positive or zero measured	5	Positive or zero computed
1	Negative measured	6	Negative computed
2	Ice bulb measured	7	Ice bulb computed
3-4	Not used		

# T<sub>b</sub>T<sub>b</sub>T<sub>b</sub>

WET BULB TEMPERATURE IN DEGREE AND TENTHS, CELSIUS

Example: 11.6°C measured: T<sub>b</sub>T<sub>b</sub>T<sub>b</sub> = 116 and S<sub>w</sub> = 0  
 3.2°C measured: T<sub>b</sub>T<sub>b</sub>T<sub>b</sub> = 032 and S<sub>w</sub> = 0  
 -4.8°C computed: T<sub>b</sub>T<sub>b</sub>T<sub>b</sub> = 048 and S<sub>w</sub> = 6

S <sub>i</sub>	STAGE OF DEVELOPMENT OF SEA ICE	D <sub>i</sub>	BEARING OF PRINCIPAL ICE EDGE
Code figs. 0 New ice only (frazil ice, grease ice, slush ice, shuga) 1 Nilas or ice rind, less than 10 cm thick 2 Young ice (gray ice, grey-white ice), 10-30 cm thick 3 Predominantly new and/or young ice with some first year ice 4 Predominantly thin first-year ice with some new and/or young ice 5 All thin first-year ice (30-70 cm thick) 6 Predominantly medium first-year ice (70-120 cm thick) and thick first-year ice (more than 120 cm thick) with some thinner (younger) first-year ice 7 All medium and thick first-year ice 8 Predominantly medium and thick first-year ice with some old ice (usually greater than 2 meters thick) 9 Predominantly old ice / Unable to report, because of darkness, lack of visibility, or because only ice of land origin is visible, or because ship is more than 1/2 nautical mile away from ice edge		Code figs. 0 Ship in shore or flow lead 1 Principal ice edge towards NE 2 Principal ice edge towards E 3 Principal ice edge towards SE 4 Principal ice edge towards S 5 Principal ice edge towards SW 6 Principal ice edge towards W 7 Principal ice edge towards NW 8 Principal ice edge towards N 9 Not determined (ship in ice) / Unable to report, because of darkness, lack of visibility, or because only ice of land origin is visible	
b <sub>i</sub>	ICE OF LAND ORIGIN	Z <sub>i</sub>	PRESENT ICE SITUATION AND TREND OVER PRECEDING 3 HOURS
Code figs. 0 No ice of land origin 1 1-5 icebergs, no growlers or bergy bits 2 6-10 icebergs, no growlers or bergy bits 3 11-20 icebergs, no growlers or bergy bits 4 Up to and including 10 growlers and bergy bits - no icebergs 5 More than 10 growlers and bergy bits - no icebergs 6 1-5 icebergs with growlers and bergy bits 7 6-10 icebergs with growlers and bergy bits 8 11-20 icebergs with growlers and bergy bits 9 More than 20 icebergs with growlers and bergy bits - a major hazard to navigation / Unable to report, because of darkness, lack of visibility, or because only sea ice is visible		Code figs. 0 Ship in open water with floating ice in sight 1 Ship in easily penetrable ice; conditions improving 2 Ship in easily penetrable ice; conditions not changing 3 Ship in easily penetrable ice; conditions worsening 4 Ship in ice difficult to penetrate; conditions improving 5 Ship in ice difficult to penetrate; conditions not changing 6 Ice forming and floes freezing together 7 Ice under slight pressure 8 Ice under moderate or severe pressure 9 Ship beset / Unable to report, because of darkness, lack of visibility	} Ship in ice difficult to penetrate and conditions worsening } Ship in

### T<sub>d</sub>T<sub>d</sub>T<sub>d</sub>

### DEW POINT CALCULATION TABLE

Subtract wet-bulb temperature from dry-bulb temperature to get "wet-bulb depression." Locate nearest depression across top of table and nearest wet-bulb temperature down the side. Read encoded dew point at intersection of wet-bulb temperature row and depression column. The dew point temperature, T<sub>d</sub>T<sub>d</sub>T<sub>d</sub>, should always be less than the air temperature TTT. More extensive tables are in the NWS Observing Handbook No. 1.

Wet-Bulb Temp. (°C)	Wet-Bulb Depression °C																							
	0.0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	
-16	-18	-21	-25	-30	-40																			
-15	-17	-19	-23	-27	-34	-54																		
-14	-16	-18	-21	-25	-30	-42																		
-13	-15	-17	-19	-23	-27	-35	-50																	
-12	-13	-16	-18	-21	-24	-30	-40																	
-11	-12	-14	-16	-19	-22	-26	-33	-48																
-10	-11	-13	-14	-17	-20	-24	-28	-37																
-9	-10	-12	-13	-15	-18	-21	-24	-30	-40															
-8	-9	-10	-12	-14	-16	-19	-21	-26	-32	-43														
-7	-8	-9	-11	-12	-14	-17	-19	-22	-26	-33	-52													
-6	-7	-8	-9	-11	-12	-15	-17	-20	-22	-27	-34	-51												
-5	-6	-7	-8	-9	-11	-13	-14	-17	-19	-23	-27	-34	-51											
-4	-5	-6	-7	-8	-9	-11	-12	-14	-16	-18	-22	-26	-33	-33										
-3	-3	-4	-5	-7	-8	-9	-11	-12	-14	-16	-19	-22	-26	-31	-36									
-2	-2	-3	-4	-5	-6	-7	-9	-10	-12	-14	-16	-18	-21	-25	-30	-35								
-1	-1	-2	-3	-4	-5	-6	-7	-8	-10	-11	-13	-15	-17	-20	-23	-28	-36							
0	00	-1	-2	-3	-4	-5	-7	-8	-9	-10	-12	-14	-16	-19	-22	-26	-32	-32						
+1	01	00	-1	-2	-3	-4	-5	-6	-7	-9	-10	-12	-13	-15	-18	-20	-24	-29	-39					
2	02	01	01	00	-1	-2	-3	-4	-5	-6	-7	-8	-9	-11	-12	-14	-17	-19	-22	-27	-34			
3	03	02	02	01	00	-1	-1	-2	-3	-4	-5	-6	-7	-8	-9	-10	-12	-13	-15	-18	-21	-24	-30	-36
4	04	03	03	02	02	01	00	-1	-2	-3	-4	-5	-6	-7	-8	-9	-11	-12	-14	-16	-19	-22	-26	-32
5	05	04	04	03	03	02	01	01	00	-1	-2	-3	-4	-5	-6	-7	-8	-9	-11	-12	-14	-17	-19	-25
6	06	06	05	04	04	03	03	02	01	01	00	-1	-2	-3	-4	-5	-6	-7	-8	-10	-11	-13	-15	-19
7	07	07	06	06	05	04	04	03	03	02	01	01	00	-1	-2	-3	-4	-5	-6	-7	-8	-10	-11	-15
8	08	08	07	07	06	05	04	04	03	03	02	01	01	00	-1	-2	-3	-4	-5	-6	-7	-8	-10	-11
9	09	09	08	08	07	07	06	06	05	05	04	03	03	02	01	01	00	-1	-2	-3	-4	-5	-6	-8
10	10	10	09	09	08	08	07	07	06	06	05	05	04	04	03	02	02	01	00	-1	-1	-2	-3	-5
11	11	11	10	10	09	09	08	08	07	07	06	06	05	05	04	04	03	03	02	01	00	00	00	-1
12	12	12	11	11	10	10	09	09	08	08	07	07	06	06	05	05	04	04	03	02	01	00	00	-1
13	13	13	12	12	11	11	10	10	09	09	08	08	07	07	06	06	05	05	04	03	02	01	00	00
14	14	14	13	13	12	12	11	11	10	10	09	09	08	08	07	07	06	06	05	04	03	02	01	00
15	15	15	14	14	13	13	12	12	11	11	10	10	09	09	08	08	07	07	06	05	04	03	02	01
16	16	16	15	15	14	14	13	13	12	12	11	11	10	10	09	09	08	08	07	06	05	04	03	02
17	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	10	09	09	08	07	06	05	04	03
18	18	18	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	10	09	08	07	06	05	04
19	19	19	18	18	17	17	16	16	15	15	14	14	13	13	12	12	11	11	10	09	08	07	06	05
20	20	20	19	19	18	18	17	17	16	16	15	15	14	14	13	13	12	12	11	10	09	08	07	06
21	21	21	20	20	19	19	18	18	17	17	16	16	15	15	14	14	13	13	12	11	10	09	08	07
22	22	22	21	21	20	20	19	19	18	18	17	17	16	16	15	15	14	14	13	12	11	10	09	08
23	23	23	22	22	21	21	20	20	19	19	18	18	17	17	16	16	15	15	14	13	12	11	10	09
24	24	24	23	23	22	22	21	21	20	20	19	19	18	18	17	17	16	16	15	14	13	12	11	10
25	25	25	24	24	23	23	22	22	21	21	20	20	19	19	18	18	17	17	16	15	14	13	12	11
26	26	26	25	25	24	24	23	23	22	22	21	21	20	20	19	19	18	18	17	16	15	14	13	12
27	27	27	26	26	25	25	24	24	23	23	22	22	21	21	20	20	19	19	18	17	16	15	14	13
28	28	28	27	27	26	26	25	25	24	24	23	23	22	22	21	21	20	20	19	18	17	16	15	14
29	29	29	28	28	27	27	26	26	25	25	24	24	23	23	22	22	21	21	20	19	18	17	16	15
30	30	30	29	29	28	28	27	27	26	26	25	25	24	24	23	23	22	22	21	20	19	18	17	16