SHIP SURFACE OBSERVATION CODE, FM 13-IX SHIP

I. SHIP SURFACE OBSERVATION CODE FORMAT

Like the synoptic surface observation code for land stations, the ship surface observation report is transmitted at 6-hourly intervals at the standard hours of observation which are: 0000, 0600, 1200, and 1800 UTC.

The following shows the symbolic form of the message for the synoptic weather report from a ship station.

A. SYMBOLIC FORM OF THE MESSAGE

$M_iM_iM_jM_j$

DDDD YYGGi_w 99$L_aL_aL_a$ $Q_cL_oL_oL_oL_o$ i_Ri_XhVV Nddff (00fff) 1s_nTTT

2$s_n$$T_dT_dT_d$ 4PPPP 5appp 7wwW_1W_2 8$N_hC_LC_MC_H$ 9GGgg
or 29UUU

222D_sV_s (0$s_n$$T_wT_wT_w$) (1$P_{wa}P_{wa}H_{wa}H_{wa}$) (2$P_wP_wH_wH_w$) (3$d_{w1}d_{w1}d_{w2}d_{w2}$)

(4$P_{w1}P_{w1}H_{w1}H_{w1}$) (5$P_{w2}P_{w2}H_{w2}H_{w2}$) ({ **6$I_sE_sE_sR_s$** / **or** / **ICING + plain language** })

(70$H_{wa}H_{wa}H_{wa}$) (8$s_w$$T_bT_bT_b$) (ICE + { **$c_iS_ib_iD_iz_i$** / **or** / **plain language** })

B. DEFINITION OF GROUPS

1. Section 1

$M_iM_iM_jM_j$ - Bulletin Header

This group identifies the bulletin as a collection of marine observations. In a collection of ship, manned buoys, or automatic buoys, the group will be encoded as BBXX and will be the first line of the bulletin. This group is attached at the collection center where the bulletin is prepared.

DDDD - **Ship International Call Sign**. This is a four letter code which is assigned to each ship. The first two letters identifies the ship's country of registry.

YYGGi_w - **Observation Time and Wind Indicator Group**. Unlike the land observation bulletins where the date/time group is pulled out of the report and is placed after the bulletin header, this group remains with the ship report following the ship call sign. Thus, in a bulletin of ship reports there may be one report from one time and another report from a different time. When looking at a bulletin of ship reports, be certain to look at the date/time group to know when the observation was taken.

YY - Day of the month (UTC) on which the observation was taken.

GG - Time of the observation in UTC to the nearest whole hour.

i_W - Wind speed indicator. See table 1855. .

Code table 1855 i_W — Wind speed indicator

Code figure	Description
0	Wind speed estimated, reported in meters per second.
1	Wind speed obtained from anemometer, reported in meters per second.
3	Wind speed estimated, reported in knots.
4	Wind speed obtained from anemometer, reported in knots.
/	Wind speed not available.

99$L_aL_aL_a$ - Ship Latitude Group

99 - Identifier for the ship latitude group.

$L_aL_aL_a$ - Latitude in tenths of degrees.

$Q_cL_oL_oL_oL_o$ - Ship Longitude Group

Q_c - Quadrant of the globe in which the ship is located. See code table 3333 and figure 1.

Code table 3333 Q_c — Quadrant of the globe		
Code figure	Latitude	Longitude
1	North	East
3	South	East
5	South	West
7	North	West

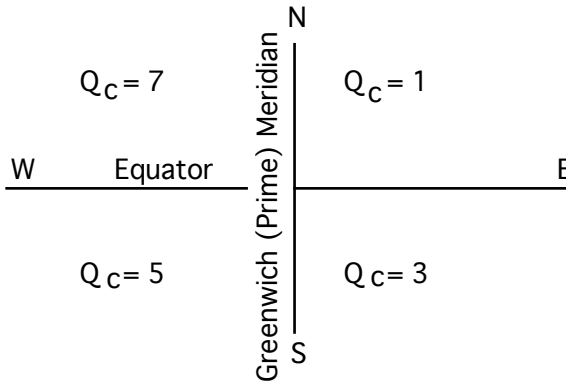

Figure 1. Quadrant of the Globe

$L_oL_oL_oL_o$ - Longitude in tenths of degrees.

i_Ri_Xhvv - Precipitation Indicator, Type Station, Lowest Cloud Height and Visibility Group.

i_R - Indicator for inclusion or omission of precipitation data. See code table 1819 of the land station synoptic code.

i_X - Indicator for the type of station operation and whether group 7 is encoded in section 1. See code table 1860 of the land synoptic code.

h - Height above sea level of the base of the lowest cloud seen. Use code table 1600 of the land station synoptic code.

VV - Horizontal surface visibility. Use groups 90 — 99 of code table 4377 as given below.

Code table 4377 VV — Abbreviated for ship visibility codes		
Code figure	Statute miles	Kilometers
90	<1/16	<0.05
91	1/16	0.05
92	1/8	0.2
93	1/4	0.5
94	1/2	1
95	1 or 11/2	2
96	2, 21/2, or 3	4
97	5, 6, 7, or 8	10
98	9 or 10	20
99	not reported	not reported

Nddff - Cloud Cover and Wind Group.

N - Total cloud amount in oktas. See code table 2700 of the land station synoptic code.

dd - True wind direction in tens of degrees. Use code table 0877 of the land station synoptic code.

ff - Wind speed . Units of wind speed are indicated by the value for i_W. When the wind speed, in units indicated by i_W, is 99 units or more, ff shall be encoded 99, and the group **00fff** shall be included immediately following the group Nddff.

$1s_nTTT$ - Surface Air Temperature Group.

1 - Identifier for the air temperature group.

s_n - Sign of the temperature; 0 = temperature is positive or zero; 1 = temperature is negative.

TTT - Surface air temperature in tenths of degrees Celsius.

$2s_nT_dT_dT_d$ - Dew Point Temperature Group.

2 - Identifier for the dew point temperature group.

s_n - Sign of the dew-point temperature; 0 = positive or zero; 1 = negative, 9 = Relative humidity reported instead of dew point.

$T_dT_dT_d$ - Dew-point temperature reported in tenths of degrees Celsius.

UUU - Relative humidity of the air, in per cent, the first figure being zero except for UUU = 100 per cent. Relative humidity is reported in place of $T_dT_dT_d$ if dew point temperature is unavailable. Every effort should be made to convert relative humidity to a dew point temperature.

4PPPP - Sea-Level Pressure Group.

4 - Identifier for the sea-level pressure group.

PPPP - Sea-level pressure reported to the nearest tenths of hectopascal. If the sea-level pressure is more than 999.9 hectopascals, drop the thousands value of the pressure. Note: the station pressure, group 3, is not encoded since the station pressure and sea-level pressure are the same.

5appp - 3-Hour Pressure Tendency and Change Group.

5 - Identifier for the three-hour pressure tendency and pressure change group.

a - Characteristic of the pressure tendency during the three hours preceding the time of the observation. Use code table 0200 of the land station synoptic code.

ppp - Actual change in the pressure during the three hours ending at the actual time of the observation, in tenths of hectopascals.

7wwW$_1$W$_2$ - Present and Past Weather Group

7 - Identifier for the present and past weather group.

ww - Present weather at the time of the observation. Use code table 4677. Code table 4677 is the present weather symbol table. The two-digit number identifying the most significant present weather is encoded for ww.

W$_1$W$_2$ - The most significant and the second most significant past weather during the period. In general, and together will cover a maximum of three or six hours and will be different code figures. See code table 4561 of the land station synoptic code. For primary reports sent at the main synoptic times, the past weather covers the last six hours. For intermediate synoptic reports, the period covers the last three hours.

$8N_hC_LC_MC_H$- Cloud Type Group

8 - Identifier for the cloud group.

N_h - The total amount of C_L, or, if no low clouds, the total amount o f C_M clouds. Use code table 2700 as found in the Nddff group of the land station synoptic code.

$C_LC_MC_H$ - Principal types of low, middle, and high clouds. See code tables 0513, 0515, and 0509 respectively as found in the land station synoptic code.

9GGgg - Actual Time of Observation Group

9 - Identifier for actual time of observation group.

GG - Hour, in UTC, of actual observation time.

gg - Minute, in UTC, of actual observation time.

NOTE: in WMO Region IV and V, this group is included as 9YYGG, the day of the month and hour UTC of the observation, a redundant reporting of the day and hour as found in the $YYGGi_W$ group.

2. Section 2.

$222D_sV_s$ - Section 2 Identifier and Ship Movement Group

222 - Identifier of Section 2.

D_s - Direction of ship movement made good during the previous three hours. Encode using the code table 0700 in the land station synoptic code.

0 = Calm

1	=	Northeast	5	=	Southwest
2	=	East	6	=	West
3	=	Southeast	7	=	Northwest
4	=	South	8	=	North

V_S - Speed of the ship made good during the previous three hours. Encode using code table 4451.

Code table 4451 v_S — Ship's average speed		
Code figure	speed knots	speed km/hour
0	0	0
1	1-5	1-10
2	6-10	11-19
3	11-15	20-28
4	16-20	29-37
5	21-25	38-47
6	26-30	48-56
7	31-35	57-65
8	36-40	66-75
9	over 40	over 75
/	Report from a coastal land station or not reported.	

$0s_nT_WT_WT_W$- Sea-Water Temperature Group

0 - Identifier for sea water temperature group.

s_n - Sign of the temperature; 0 = positive or zero; 1 = negative.

$T_WT_WT_W$- Sea-water temperature in tenths of degrees Celsius.

$1P_{wa}P_{wa}H_{wa}H_{wa}$ - Instrumental Wave Data Group

1 - Identifier for the instrumental wave data group.

$P_{wa}P_{wa}$ - Period of wind waves in whole seconds.

$H_{wa}H_{wa}$ - Height of wind waves in units of half-meters.

$2P_WP_WH_WH_W$ - Wind-Wave Group

2 - Identifier for the wind-wave group. This group is used when instrumental wave data are not available and the period and height of wind waves are estimated.

P_WP_W - Period of the wind wave in whole seconds.

H_WH_W - Height of the wind waves in units of half-meters. The wave height reported in code form is the significant wave height. See the land station synoptic code for the code figures used to report height values.

$3d_{w1}d_{w1}d_{w2}d_{w2}$ - Swell Wave Direction Group

3 - Identifier for the swell wave direction group.

$d_{w1}d_{w1}$ - The true direction, in tens of degrees, from which the first swell wave system is moving.

$d_{w2}d_{w2}$ - The true direction, in tens of degrees, from which the second swell wave system is moving.

$4P_{w1}P_{w1}H_{w1}H_{w1}$ - First Swell System Group

4 - Identifier for the first swell system group.

$P_{w1}P_{w1}$ - Period of the first swell system in whole seconds.

$H_{w1}H_{w1}$ -Average height of the significant swell waves of the first swell system reported in half meters.

$5P_{w2}P_{w2}H_{w2}H_{w2}$ - Second Swell Wave System Group

5 - Identifier for the second swell wave system group.

$P_{w2}P_{w2}$ - Period of the second swell wave system in whole seconds.

$H_{w2}H_{w2}$ -Average height of the significant swell waves of the second swell system.

$6I_SE_SE_SR_S$ - Ship Ice Accretion Group

6 - Identifier for the ship ice accretion group

I_S - Ice accretion code. See code table 1751

Code table 1751 Is — Ice accretion on ships	
Code figure	Description
1	Icing from ocean spray.
2	Icing from fog.
3	Icing from spray and fog.
4	Icing from rain.
5	Icing from spray and rain.

E_sE_s - Thickness of ice accretion on ship in centimeters.

R_s - Rate of ice accretion. See code table 3551.

ICING + plain language - Report on ice accretion on ships. When the ice accretion on ships is reported in plain language, it is preceded by the word ICING.

Code table 3551 R_s — Rate of ice accretion on ships	
Code figure	Description
0	Ice not building up.
1	Ice building up slowly.
2	Ice building up rapidly.
3	Ice melting or breaking up slowly.
4	Ice melting or breaking up rapidly.

$70H_{wa}H_{wa}H_{wa}$ - Instrumental Wave Height Group

70 - Identifier for the instrumental wave height group. This group shall be reported in addition to the group $1P_{wa}P_{wa}H_{wa}H_{wa}$ when the sea is not calm, $H_{wa}H_{wa}$ has not been reported as // and the station has the capability of accurately measuring instrumental wave height in units of 0.1 meters.

$H_{wa}H_{wa}H_{wa}$ - Height of instrumetal measured waves to the nearest 0.1 meters.

$8s_wT_bT_bT_b$ - Wet-bulb Temperature Group

8 - Identifier for the wet-bulb temperature group. When the wet bulb is used to derive the dew-point value, this group will be included to report the wet-bulb temperature.

s_w - Sign of the wet-bulb temperature: 0 = positive, 1 = negative.

$T_bT_bT_b$ - Wet-bulb temperature to the nearest tenth of a degree Celsius.

ICE $c_iS_ib_iD_iz_i$- **Sea Ice Information Group.** This group is used for the reporting of sea ice of either sea or land origin.

ICE - Identifier that sea ice information follows.

$c_iS_ib_iD_iz_i$ - **Sea ice information**

c_i - Concentration or arrangement of sea ice. See code table 0639.

S_i - Stage of development of the sea ice at the time of the observation. See code table 3739.

b_i - Ice of land origin present at time of observation. See code table 0439.

D_i - Orientation of the principal edge of the sea ice at the time of the observation. See code table 0739.

z_i - Present ice situation and trend of conditions over preceding 3 hours. See code table 5239.

Code table 0639 c_i — Ice concentration

Code figure		Description	
Ship in ice or within 0.5 nautical mile of ice edge	0	No ice in sight.	
	1	Ship in open lead more than 1.0 nautical mile wide, or ship in fast ice with boundary beyond limit of visibility.	
	2	Sea ice present in concentrations less than 3/10 (3/8); open water or very open pack ice.	Sea ice concentration is uniform in the area.
	3	4/10 to 6/10 (3/8 to 6/8) open pack ice.	
	4	7/10 to 8/10 (6/8 to less than 7/8) closed pack ice.	
	5	9/10 or more but not 10/10 (7/8 to less than 8/8) very close pack ice.	
	6	Strips and patches of close or very close pack ice with open water between.	
	7	Strips and patches of close or very close pack ice with areas of lesser concentrations between	Sea ice concentration is not uniform in the area.
	8	Fast ice with open water, very open water, or open pack ice to seaward of the ice boundary.	
	9	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 the ship is more than 0.5 nautical mile away from ice edge.	

Code table 3739 S_i — Stage of development of sea ice	
Code figure	Description
0	New ice only (frazil ice, grease ice, slush, shuga).
1	Nilas or ice rind, less than 10 cm thick.
2	Young ice (gray ice, gray-white ice), 10 to 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 to 70 cm thick.)
6	Predominantly medium first-year ice (70 to 120 cm thick) and thick, first-year ice (greater than 120 cm thick) with some thinner (young) first-year ice.
7	All medium and thick first-year ice.
8	Predominantly medium and thick, first-year ice with some old ice (usually more than 2 meters thick.)
9	Predominantly old ice.
/	Unable to report because of darkness, low visibility, only ice of land origin is visible, or because the ship is more than 0.5 nautical miles away from the ice edge.

Code table b_i — Ice of land origin	
Code figure	Description
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, low visibility, or only sea ice is visible.

Code table D_i — True bearing of principal ice edge	
Code figure	Description
0	Ship in shore or flaw 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, low visibility, or only ice of land origin is visible.

Code table 5239 z_i — Present ice situation and trend of conditions over preceding 3 hours	
Code figure	Description
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	Ship in ice difficult to penetrate; conditions worsening. Ice forming and floes freezing together.
7	Ship in ice difficult to penetrate; conditions worsening. Ice under slight pressure.
8	Ship in ice difficult to penetrate; conditions worsening. Ice under moderate or severe pressure.
9	Ship beset. Ship in ice difficult to penetrate; conditions worsening.
/	Unable to report because of darkness or lack of visibility.