M.O. 329

AIR MINISTRY

METEOROLOGICAL OFFICE

DECODE

FOR USE WITH THE INTERNATIONAL CODE FOR

Wireless Weather Messages from Ships

ADOPTED BY THE INTERNATIONAL METEOROLOGICAL CONFERENCE COPENHAGEN, SEPTEMBER, 1929

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WORLD WIDE SYSTEM OF VOLUNTARY SELECTED SHIPS ROUTINE WIRELESS WEATHER REPORTS

(1) For the purpose of aiding navigation, in accordance with Article 35, para. (*c*) of the International Convention for Safety of Life at Sea, 1929, Merchant Shipping (Safety and Load Line Conventions) Act, 1932, First Schedule, and to assist the meteorological services of the world with weather intelligence, it is intended that there shall be an agreed number of regularly reporting ships, termed Selected Ships, of all nations, distributed over all oceans, working voluntarily under their national state meteorological institutions.

At present the number agreed upon is 1,000 of all nations.

(2) In order that this work may be fairly distributed amongst the different national merchant navies, and to prevent congestion in wireless communication, it is intended that each national meteorological service should maintain in voluntary service a number of Ships on the register of their own country as Selected Ships, in accordance with their proportion of the world's tonnage of steam and motor vessels of over 100 tons.

(3) Selected Ships are broadly divided into two types, "A" and "B".

"A" Selected Ships are ships fitted for long range W.T. transmission (Type A.1, C.W. apparatus) mostly mail steamers sailing and arriving at dates fixed by advertised programmes.

"B" Selected Ships are ships fitted for comparatively short range W.T. transmission (Type A.2, I.C.W. apparatus) including passenger and cargo liners sailing according to an advertised programme, as well as a number of vessels whose movements are not advertised and may vary from voyage to voyage.

(4) It is necessary that observations reported by wireless telegraphy should synchronize. The International times of observation for weather telegraphy at sea are 0000, 0600, 1200 and 1800 hours G.M.T.

(5) It is necessary that weather reports made for the information of all ships and the meteorological services of the different countries should be in one code, simple and concise, giving only essential information.

Selected Ships use the International Ships' Wireless Weather Telegraphy Code, 1929.

British Selected Ships

(6) When British ships become regular voluntary observing ships to the Meteorological Office, London, their Commanders volunteer to carry out the duties of Selected Ships when required.

The names of all British observing ships are published in a fleet list at the end of the "Marine Observer," corrected monthly by supplement.

(7) Selected Ships are selected from this list, according to their sailing schedules and trades to provide distribution, according to their wireless apparatus to ensure efficient communication, and according to the capacity and keenness of their officers to ensure the most accurate information.

(8) When observing ships are detailed as Selected Ships, their commanders are specially notified; and each Selected Ship is identified by a number placed before her name in the fleet list published in the "Marine Observer" with symbols indicating the nature of her wireless telegraphic apparatus.

(9) Nearly all British ships carrying W.T. are capable of receiving on long wave, whereas far fewer can receive short wave.

(10) A fairly long range with reliability being desirable, at present long wave, C.W. is the most satisfactory, and British "A" Selected Ships are at present confined to ships so fitted.

Times of Observation

(11) The times of observation given in section (4) are the same for all longitudes. International wireless watch keeping periods are fixed according to each zone.

(12) Many Selected Ships only have one officer in each watch. The first essential for safe navigation is a good look out kept by the officer of the watch, as well as the lookout man. The officer of the watch is responsible for meteorological observations, and the accuracy of reports. If the officer of the watch at night goes into the lighted chart house to read meteorological instruments and record them, not only does he leave his post of lookout, but he returns to the bridge momentarily blinded.

(13) Wireless meteorological reports are not asked for in British Selected Ships during the hours of darkness in which there is only one officer in each watch.

The times of observation indicated in the Schedule which follows in section (20) are those which generally fall during daylight in the different zones, and at these times all British Selected Ships are requested to record observations for reporting by wireless.

(14) In certain parts of the world "A" Selected Ships having two officers in each watch are requested to record observations at all four times, and report them to certain meteorological services.

Communication

(15) In order that communication may be effective (that is, that the reports may reach as many ships as possible as well as the appropriate meteorological centres), British Selected Ships work a time schedule for transmitting their reports and use prescribed wavelengths, both when addressing specified stations or all ships.

(16) Generally "A" Selected Ships address their reports to specified meteorological centres, making them to specified coast stations, so that they may be intercepted by all ships within range. In parts of the world where coast stations are not detailed to receive routine reports from "A" Selected Ships they broadcast their reports to C.Q. (all ships).

(17) The reports of "B" Selected Ships are primarily intended in all parts of the world for the information of all ships.

Generally "B" Selected Ships address and make their reports to C.Q. (all ships) so that they may be intercepted by shore stations within range as well as by other ships.

In parts of the world where there may be insufficient "A" Selected Ships, "B" Selected Ships are requested to address their reports to meteorological centres, making them to coast stations.

(18) Great importance is attached to the S.O.S. periods of silence. Therefore the times of transmission for "A" Selected Ships are fixed to commence immediately at the end of the appropriate S.O.S. silence period.

This allows a sufficient interval from the time of observation for recording and coding the observations carefully, and sending the coded messages from the bridge to the wireless house.

(19) Usually the times of commencement of transmission for "A" and "B" Selected Ships are fixed at 18 minutes and 30 minutes respectively after observation time; but for ships with only one W.T. operator in certain zones, special commencing periods are fixed to accord with wireless watch.

(20) The schedule which follows indicates the times of observation, and commencement of times of transmission for both "A" and "B" Selected Ships in the different zones.

It will be noted that against some of the observation times there are two times of commencement of periods for transmitting. The second of these times, where two occur, are for single operator ships to report, in cases where they would not be keeping wireless watch following the observation hour. It should be remembered that a large proportion of "Selected Ships" carry two or three operators, and they should use the earlier periods for transmission, also repeating for the benefit of ships with one operator during the second period.

Schedule

All times are G.M.T.

Zones between Greenwich Meridians.	First Weather Report.			Second Weather Report.		
	Times of observations.	Times of reporting by Type A1(C.W.) Ships.	Times of broadcasting by Type A2 (I.C.W.) and Type B (Spark) Ships.	Times of observations.	Times of reporting by Type A1(C.W.) Ships.	Times of broadcasting by Type A2 (I.C.W.) and Type B (Spark) Ships.
30° W.–30° E.	0600	0618 0818	0830	1200	1218	1230
30° E.–80° E.	0600	0618 0818	0630 0830	1200	1218	1230
80° E.–160° E.	0000	0018	0030	0600	0618 0818	0830
160° E.–140° W.	0000	0018	0030	1800	1818 2018	2030
140° W.–70° W.	0000	0018	0030	1800	1818 2018	1830 2030
70° W.–30° W.	1200	1218	1230	1800	1818 2018	2030

In working this schedule, Selected Ships should be careful not to jam each other.

It may be advantageous for "B Selected Ships" generally—and for "A Selected Ships" beyond the region of the Eastern North Atlantic, regulated by Roll Call, and when not reporting to a shore station—when in W/T communication previous to reporting time to arrange the order in which they will transmit their weather reports to **CQ** at the next scheduled time.

(21) For "A" Selected Ships the wave length to be used in reporting to shore stations is specified in a list of stations detailed to receive coded weather reports from "A" Selected Ships, published in the latest number of the "Marine Observer." In the Eastern North Atlantic, north of Latitude 38° N., where there is great congestion of wireless traffic, British "A" Selected Ships work in accordance with a roll call for the day, broadcast from the specified W/T station for the information of all shipping, particulars of which are given in the detailed list of wireless stations above mentioned.

In parts of the world where there are not stations detailed to receive reports from "A" Selected Ships, they make their reports to **CQ** on 2100 metres.

(22) " B " Selected Ships use 600 metres wave length throughout the service in all parts of the world.

The names of stations detailed to intercept or receive weather reports from " B " Selected Ships are given in a list following that for " A " Selected Ships in the latest number of the " Marine Observer."

In the Eastern North Atlantic, north of Latitude 38° N., the roll call will usually indicate that there are sufficient British Selected ships detailed to perform the service. In this region there is great congestion of I.C.W. communication and broadcasting by " B " Selected Ships has not proved to be always effective and is not generally advocated.

(23) The lists of stations referred to in (21) and (22) are copied from the " Marine Observer " in the Admiralty List of Wireless Signals for the general information of all British shipping, and are kept up to date by Notice to Mariners.

(24) In order that all ships should know when Selected Ships make their reports, and be able to decode them, this pamphlet is published for general use, and jamming and confusion have been much reduced.

All are asked to help in making this voluntary scheme a success.

(25) No communication charges are made to the ship for Selected Ships' routine wireless weather reports broadcast to all ships, or addressed to meteorological centres specified in the lists in the last number of the " Marine Observer," and which are copied in the Admiralty List of Wireless Signals, and kept up to date by Notice to Mariners. Wireless weather reports addressed by ships to meteorological centres not conforming to these instructions may be liable to charges.

(26) The number of messages required for this service is comparatively small, when effectively organized.

Relaying on wave lengths specified in (21), (22), and in the lists of stations in the " Marine Observer " (that is to say, wave lengths used for Selected Ship weather reporting) should not be resorted to.

Every endeavour should be made for the reports in areas in which International W/T link or collective ships, such as the French S.S. *Cuba*, are working, to reach those ships, who will relay them to special shore stations for the information of meteorological centres on a special short wave (long range).

The main object of this system is to make one transmission serve as many ships as possible and the appropriate meteorological centre with the information reported.

(27) While there is congestion in the Eastern North Atlantic and only those Selected Ships indicated by roll call should report, in other parts of the world there may often be insufficient Selected Ships to provide an adequate service of routine reports.

In the regions of heavy weather on the less frequented routes of the Southern Ocean, and particularly in the Hurricane regions during the Hurricane season, British ships other than Selected Ships are asked to assist in this service.

This will be dealt with in (34).

Observation and Coding

(28) Guidance in observing and recording meteorological elements will be found in the " Marine Observer's Handbook."

(29) The code, and full guidance for its use in Selected Ships is given in the January number of the " Marine Observer " each year.

Brief Instructions for the Guidance of British Selected Ships

(30) The work of " A " and " B " Selected Ships is largely interdependent.

It is essential that observing officers should be conversant with communication as well as being skilled in observation, and the application of the meteorological information ; and that wireless operators should be conversant with the general purpose and application of the information communicated as well as skilled in this system of communication.

It is therefore essential that all concerned should be familiar with the whole scheme.

The following brief instructions are intended to assist the Commanders of Selected Ships in regulating the work under their command.

All Selected Ships

(31) *Observing Officers.*—At the times indicated for observation *see* (20), carefully enter your observations in the record of synchronized observations.

In the Eastern North Atlantic ascertain if the ship is on the roll call for the day or not before proceeding further.

Code these observations.

If the message is to be broadcast to **C.Q.** the weather information may be conveniently abbreviated to the four universal groups of figures ; and instead of using supplementary groups, information of Ice or Set and Drift of current may be given briefly in plain language.

If the message is to be sent to a meteorological centre, ascertain from the list in the latest " Marine Observer " (copied in the Admiralty List of Wireless Signals) what groups are desired, and make out the message accordingly.

Write out the message and address carefully to **C.Q. Weather** or the specified meteorological centre for the part of the world given

in the lists in the latest number of the " Marine Observer." Send it to the wireless operator just before the commencement of the S.O.S. period following the observation time.

Example. For Meteorological centre.—From **GMLJ.** to **GKU.** Weather London 20506, 13106, 18603, 88660, 35x08, 54528, 65825.

Example. For all ships.—C.Q. Weather 13167, 55106, 00000, 16979. Current from 15N. 52E. to 16N. 54E. 58 degrees one knot Dalgoma.

" A " Selected Ships

(32) **Wireless Operator.**—Consult the list of stations detailed to receive reports in the " Marine Observer " (copied in the Admiralty List of Wireless Signals).

In the Eastern North Atlantic, when on the roll call transmit the weather report to **GKU.** accordingly on the appointed wave length, following the order of the roll call at the schedule time. The reports for 0000 and 1800 hours G.M.T. should be made as soon as convenient after the silence period.

In parts of the world other than the Eastern North Atlantic where the message is addressed to a meteorological centre call the station detailed in the " Marine Observer " (copied in the Admiralty List of Wireless Signals) at schedule time, see (20), and on the wave-length specified, and transmit the report, which will be acknowledged in the ordinary way, remembering that this message is intended for ships within range as well as the shore station.

The message will be addressed to **C.Q.** in parts of the world where there is no station detailed. Send it out at schedule time on 2100 metres.

Make your transmissions as above with due consideration to circumstances.

" B " Selected Ships

(33) **Wireless Operator.**—If the message is addressed **C.Q.,** broadcast it at or following schedule time given in (20) on 600 metres. When in range of stations indicated in the list as detailed to intercept wireless weather reports, the message may be intercepted.

If the message is addressed to a meteorological centre, call the appropriate station indicated in the " Marine Observer " (copied in the Admiralty List of Wireless Signals) and transmit the message to that station in the usual way.

As far as possible, reports from " B " Selected Ships addressed to a meteorological centre should be made at schedule times, so that they may be intercepted by all ships within range.

If for local reasons these reports addressed to meteorological centres are not made at schedule times and on 600 metres wave-length, they should be made also in accordance with schedule to all ships.

British Ships' Wireless Weather Reports in Parts of the World where there are not sufficient Selected Ships to provide an adequate Service

(34) Under Article 34 of the Convention for Safety of Life at Sea, the master of every ship meeting a dangerous tropical storm, is bound by law to report to ships in the vicinity, and to the first point of the coast with which he can communicate, but routine wireless weather reporting is **voluntary.**

It is desirable that ships and meteorological centres should as far as possible have routine wireless weather reports in fine as well as in bad weather, so that they may be forewarned.

In the Southern Ocean and in the regions and seasons of tropical revolving storms, British ships which are not Selected Ships are asked to assist in this service, when there are not Selected Ships present to perform it.

As far as possible the International Ships' Wireless Weather Telegraphy Code should be used and the procedure for Selected Ships should be carried out. British ships which are not Selected Ships should only make routine wireless weather reports to the shore through stations which have been detailed to receive weather reports without charge to the ship. Notification of these stations is made in the lists referred to in the " Marine Observer " and copied in the Admiralty List of Wireless Signals, for general information.

Notes for the special guidance of masters of British ships which are not Selected Ships will be found on page 24.

DECODING OF SHIPS' WIRELESS WEATHER REPORTS

Any ship intercepting a wireless message from a ship commencing "C.Q. Weather" or "Weather London" or preceded by the word "Weather," containing numbers in five-figure-groups, may decode the message according to the new International Code.

The messages will be in one of the three following forms :—

Key Letters

(1) PQLLL 111GG DDFww BBVTT

(2) PQLLL 111GG DDFww BBVTT $3C_LC_MC_HN$ t_dKdWN_L d_sfabb

(3) PQLLL 111GG DDFww BBVTT 6KdCN $t_dd_sAWC_H$

The meaning of the symbols is given in the key on page 11, in which they are arranged alphabetically. The message as received will consist of five-figure groups, the first two of which refer to Day, Position and Time, the remaining groups giving the meteorological elements observed. It will be seen by reference to the key to the symbol letters that while in many cases a single figure suffices to express a meteorological element, in some cases two figures are required, for example in the case of barometric pressure. Latitude and longitude, in the first two groups, each require three figures. The figures in a group are always in the same sequence, denoted by the symbols of the specimen forms given above.

In all three forms of message the first four groups are identical ; these are termed the universal groups and are never omitted. A message in form No. 2 contains supplementary groups, distinguished by the figure 3 at the beginning of the fifth group. A message in form No. 3 contains supplementary groups distinguished by the figure 6 at the beginning of the fifth group. A message may be shortened by the omission of the last group or groups, but the order of the groups will always be maintained, and the form of the message after the first four groups can always be identified by the first figure of the fifth group. The number of groups in a message is thus never less than four nor more than seven.

Navigational Information

Information of observed set and drift of Current, Ice, and Navigational Dangers may be added after the figure groups, as necessary, in plain language.

Key to Symbol Letters

A = Amount and characteristic of barometric tendency expressed by a single figure. (*See* Table IX.)

a = Characteristic of barometric tendency during the period of three hours preceding the time of observation. (*See* Table X.)

BB = Pressure in whole millibars (initial 9 or 10 omitted). The values refer to sea level and include all corrections for index error, temperature and gravity. (*See* Table VIII.)

bb = Amount of barometric tendency during the three hours preceding the time of observation expressed in units of 1/5th of a millibar. (*See* Table XI.)

C = Form of predominating cloud. (*See* Table XVI.)

C_H = Form of Upper (Cirrus) Cloud. (*See* Table XV.)

C_L = Form of Low Cloud. (*See* Table XIII.)

C_M = Form of Middle Cloud. (*See* Table XIV.)

DD = Direction of the wind (True) near the surface. (*See* Table III.)

d = Direction (True) from which swell comes. (*See* Table IV.)

d_s = Direction of Ship's course on scale (0–8). (*See* Table IV.)

F = Force of the wind on the Beaufort Scale. (Forces above 9 are reported as 9, with the actual force in a word at the end.) (*See* Table V.)

f = Speed of ship in knots. (*See* Table XX.)

GG = Greenwich Mean Time of observation (06 = 6 a.m., 12 = noon, &c.).

K = Swell in the open sea. (*See* Table XIX.)

LLL = Latitude in degrees and tenths, the tenths being obtained by dividing the number of minutes by 6 and neglecting the remainder.

lll = Longitude in degrees and tenths, the tenths being obtained as for Latitude LLL.

N = Total amount of sky covered with cloud. (*See* Table XVII.)

N_L = Amount of Low Cloud. (*See* Table XVII.)

P = Day of the week. (*See* Table I.)

Q = Octant of globe in which ship is situated. (*See* Table II.)

TT = Temperature of the air in whole degrees Fahrenheit.

t_d = Difference between Air and Sea Temperature. (*See* Table XVIII.)

V = Visibility or distance at which objects can be seen in daylight (or at which lights can be seen at night). (*See* Table XII.)

W = Past weather—the weather in the interval preceding the time of observation. (*See* Table VII.)

ww = The actual weather at the time of observation. (*See* Table VI.)

In order to facilitate the decoding of messages, a sheet similar to that shown on page 13, should be ruled up.

Write the figures of the messages in the order received down the column, taking great care to put the first figure of the fifth group in its proper place, so that the supplementary groups may be correctly decoded.

	Key Group Letter/Number	Name of Element and Table No. for decoding figures	Message as Rcd.	Message decoded	Message as Rcd.	Message decoded	Message as Rcd.	Message decoded	Message as Rcd.	Message decoded.	Message as Rcd.	Message decoded
Universal Groups.	P	Day of Week Table I										
	Q 1	Octant of Globe Table II										
	LLL	Latitude										
	III 2	Longitude										
	GG	G.M. Time of Observation										
	DD	True direction Wind Table III.										
	F 3	Force of Wind Table V.										
	ww	Present Weather Table VI.										
	BB	Barometer (Absolute) Table VIII.										
	V 4	Visibility Table VIII.										
	TT	Temperature of Air										
Supplementary Groups	3	Distinguishing figure of Supplementary Group.	3		3		3		3		3	
	C_L 5	Lower Cloud Table XIII										
	C_M 5	Middle Cloud Table XIV										
	C_H 5	Upper Cloud Table XV										
	N	Total Amount of Cloud Table XVII										
	L_a	Direction of Horizontal Temperature Table XVIII										
	K	Swell Table XIX										
	d 6	True direction of Swell Table IX.										
	W	Past Weather Table VII										
	N_L	Amount of Low Cloud Table XVI.										
	d_s	Course of Ship Table IX										
No. 3 Supplementary Groups	f 7	Speed of Ship Table XX										
	a_s	Characteristic of Barometric Tendency Table X										
	bb	Amount of Barometric Change Table XI										
	6	Distinguishing Figure of Supplementary Group.	6		6		6		6		6	
	K	Swell Table XIX										
	d 5	True direction of Swell Table IX										
	C	Predominating Cloud Table XVI										
	N	Total Amount of Cloud Table XVII										
	L_a	Difference of Horizontal Temperature Table XVIII										
	L_a	Sea Temperature Table XVIII										
No. 6 Supplementary Groups	d_s 6	Course of Ship Table IX										
	A	Change of Barometer Table IX										
	W	Past Weather Table VII										
	C_H	Upper Cloud Table XV										
		Ship of Origin										

DECODE TABLES FOR W.T. WEATHER REPORTS FROM SHIPS AT SEA TO ALL SHIPS AND SHORE STATIONS

Day and Position

Table I

P.—Day of the Week

Code Figure.		Code Figure.	
1	= Sunday.	5	= Thursday.
2	= Monday.	6	= Friday.
3	= Tuesday.	7	= Saturday.
4	= Wednesday.		

Table II

Q.—Octant of the Globe

Code Figure.	Longitude.	
0	0° W. — 90° W.	North Latitude.
1	90° W. — 180° W.	
2	180° E. — 90° E.	
3	90° E. — 0° E.	
5	0° W. — 90° W.	South Latitude.
6	90° W. — 180° W.	
7	180° E. — 90° E.	
8	90° E. — 0° E.	

Compass

Table III

DD.—Compass Table for Wind Direction to points

Code Figures.	True Direction.	Code Figures.	True Direction.
00	Calm.	17	S. by W.
01	N. by E.	18	S.S.W.
02	N.N.E.	19	S.W. by S.
03	N.E. by N.	20	S.W.
04	N.E.	21	S.W. by W.
05	N.E. by E.	22	W.S.W.
06	E.N.E.	23	W. by S.
07	E. by N.	24	W.
08	E.	25	W. by N.
09	E. by S.	26	W.N.W.
10	E.S.E.	27	N.W. by W.
11	S.E. by E.	28	N.W.
12	S.E.	29	N.W. by N.
13	S.E. by S.	30	N.N.W.
14	S.S.E.	31	N. by W.
15	S. by E.	32	N.
16	S.		

Table IV

d and d_s.—Compass Table to Half Cardinal Points

Code Figures.	True Direction.
0	No Sea or Swell or Ship hove to.
1	N.E.
2	E.
3	S.E.
4	S.
5	S.W.
6	W.
7	N.W.
8	N.
9	No observation or no information.

Wind

Table V

F.—Wind Force, Beaufort Scale

Code Figures.		Beaufort Number.
0	Calm	Nought
1	Light airs	One
2	Light breeze	Two
3	Gentle breeze	Three
4	Moderate breeze	Four
5	Fresh breeze	Five
6	Strong breeze	Six
7	Moderate gale	Seven
8	Fresh gale	Eight
9	Strong gale	Nine
9	Whole gale	Ten
9	Storm	Eleven
9	Hurricane	Twelve

When force 10, 11 or 12, figure 9 transmitted, words " gale," " storm " or " hurricane " respectively, added at end of the message.

Weather

Table VI

ww.—Present Weather

00–19 Abbreviated description of sky and special phenomena.

*00	Cloudless.
*01	Partly cloudy.
*02	Cloudy.
*03	Overcast.
04	Fog over the Sea.
*05	Haze (but visibility greater than 2,000 metres).

* Used by British ships for reporting weather. The other numbers also are used for reporting weather by coast stations and some foreign ships.

Table VI—*continued*

ww.—Present Weather—*continued*

06 Dust devils seen.
*07 Distant lightning.
*08 Mist.
09 —
*10 Precipitation within sight.
*11 Thunder, without precipitation at the station.
12 —
*13 Ugly, threatening sky.
*14 Squally weather.
*15 Heavy squalls
*16 Waterspouts seen } in last three hours.
17 —
*18 Signs of tropical storm forming.
*19 Signs that tropical storm has formed.

20–29 Precipitation in last hour but not at time of observation.

*20 Precipitation (rain, drizzle, hail, snow or sleet)
21 Drizzle
22 Rain
23 Snow } other than showers.
24 Sleet
25 Rain shower(s).
26 Snow shower(s).
27 Hail or rain and hail shower(s).
28 Slight thunderstorm.
29 Heavy thunderstorm.
} In last hour but not at time.

30–39 Dust storms and storms of drifting snow (visibility less than 1000 metres)

*30 Dust or sand storm.
31 Dust or sand storm has decreased.
32 Dust or sand storm no appreciable change.
33 Dust or sand storm has increased.
34 Line of dust storms.
35 Storm of drifting snow.
36 Slight storm of drifting snow
37 Heavy storm of drifting snow } generally low.
38 Slight storm of drifting snow
39 Heavy storm of drifting snow } generally high.

* Used by British ships for reporting weather. The other numbers also are used for reporting weather by coast stations and some foreign ships.

Table VI—*continued*

ww.—Present Weather—*continued*

40–49 Fog or thick dust haze (visibility less than 100 metres).

*40 Fog.
*41 Moderate fog in last hour.
*42 Thick fog in last hour.
43 Fog, sky discernible
44 Fog, sky not discernible } has become thinner during last hour.
45 Fog, sky discernible
46 Fog, sky not discernible } no appreciable change during last hour.
47 Fog, sky discernible
48 Fog, sky not discernible } has become thick during last hour.
*49 Fog in patches.

50–99 Precipitation at time of observation.

50–59 Drizzle (precipitation consisting of numerous minute drops).

*50 Drizzle.
51 Intermittent
52 Continuous } slight drizzle.
53 Intermittent
54 Continuous } moderate drizzle.
55 Intermittent
56 Continuous } thick drizzle.
*57 Drizzle and fog.
*58 Slight or moderate
*59 Thick } drizzle and rain.

60–69 Rain.

*60 Rain.
61 Intermittent
62 Continuous } slight rain.
63 Intermittent
64 Continuous } moderate rain.
65 Intermittent
66 Continuous } heavy rain.
*67 Rain and fog.
*68 Slight or moderate
*69 Heavy } rain and snow.

70–79 Snow.

*70 Snow or sleet.
71 Intermittent
72 Continuous } slight snow in flakes.
73 Intermittent
74 Continuous } moderate snow in flakes.

* Used by British ships for reporting weather. The other numbers also are used for reporting weather by coast stations and some foreign ships.

Table VI—*continued*

ww.—Present Weather—*continued*

70–79 Snow—*continued*

75 Intermittent
76 Continuous } heavy snow in flakes.
77 Snow and fog.
78 Granular snow.
79 Ice crystals.

80–89 Shower(s).

*80 Shower(s).
81 Shower(s) of slight or moderate
82 ,, heavy } rain.
83 ,, slight or moderate
84 ,, heavy } snow.
85 ,, slight or moderate
86 ,, heavy } rain and snow.
87 ,, granular snow.
*88 ,, slight or moderate
*89 ,, heavy } hail, or rain and hail.

90–99 Thunderstorm.

*90 Thunderstorm.
91 Rain at time
92 Snow or sleet at time } thunderstorm during last hour, but not at time of observation.
93 Thunderstorm, slight, without hail or soft hail, but with rain or snow
94 ,, slight, with soft hail
95 ,, moderate, without hail, but with rain (or snow)
96 ,, moderate, with soft hail
97 ,, heavy, without hail, but with rain (or snow)
98 ,, combined with dust storm
99 ,, heavy, with hail } at time of observation.

Table VII

W.—Past Weather

Code Figure.

0 Fair (clear or slightly clouded).
1 Variable sky.
2 Mainly overcast.
3 Fog or thick dust haze (visibility less than 5 cables).
4 Drizzle.
5 Rain.
6 Snow or sleet.
7 Showers.
8 Sandstorm or duststorm.
9 Thunderstorm.

* Used by British ships for reporting weather. The other numbers also are used for reporting weather by coast stations and some foreign ships.

Barometer

Table VIII

BB.—Decode Table for corrected barometer readings in millibars and inches.

Code Figs.	Mb.	In.	Code Figs.	Mb.	In.	Code Figs.	Mb.	In.	Code Figs.	Mb.	In.
25	925	27·32	60	960	28·35	95	995	29·38	25	1025	30·27
26	926	27·35	61	961	28·38	96	996	29·41	26	1026	30·30
27	927	27·38	62	962	28·41	97	997	29·44	27	1027	30·33
28	928	27·41	63	963	28·44	98	998	29·47	28	1028	30·36
29	929	27·44	64	964	28·47	99	999	29·50	29	1029	30·39
30	930	27·46	65	965	28·50	00	1000	29·53	30	1030	30·42
31	931	27·49	66	966	28·53	01	1001	29·56	31	1031	30·45
32	932	27·52	67	967	28·56	02	1002	29·59	32	1032	30·48
33	933	27·55	68	968	28·59	03	1003	29·62	33	1033	30·51
34	934	27·58	69	969	28·62	04	1004	29·65	34	1034	30·53
35	935	27·61	70	970	28·65	05	1005	29·68	35	1035	30·56
36	936	27·64	71	971	28·67	06	1006	29·71	36	1036	30·59
37	937	27·67	72	972	28·70	07	1007	29·74	37	1037	30·62
38	938	27·70	73	973	28·73	08	1008	29·77	38	1038	30·65
39	939	27·73	74	974	28·76	09	1009	29·80	39	1039	30·68
40	940	27·76	75	975	28·79	10	1010	29·83	40	1040	30·71
41	941	27·79	76	976	28·82	11	1011	29·86	41	1041	30·74
42	942	27·82	77	977	28·85	12	1012	29·89	42	1042	30·77
43	943	27·85	78	978	28·88	13	1013	29·92	43	1043	30·80
44	944	27·88	79	979	28·91	14	1014	29·94	44	1044	30·83
45	945	27·91	80	980	28·94	15	1015	29·97	45	1045	30·86
46	946	27·94	81	981	28·97	16	1016	30·00	46	1046	30·89
47	947	27·97	82	982	29·00	17	1017	30·03	47	1047	30·92
48	948	28·00	83	983	29·03	18	1018	30·06	48	1048	30·95
49	949	28·03	84	984	29·06	19	1019	30·09	49	1049	30·98
50	950	28·05	85	985	29·09	20	1020	30·12	50	1050	31·01
51	951	28·08	86	986	29·12	21	1021	30·15	51	1051	31·04
52	952	28·11	87	987	29·15	22	1022	30·18	52	1052	31·07
53	953	28·14	88	988	29·18	23	1023	30·21	53	1053	31·10
54	954	28·17	89	989	29·21	24	1024	30·24	54	1054	31·13
55	955	28·20	90	990	29·24						
56	956	28·23	91	991	29·26						
57	957	28·26	92	992	29·29						
58	958	28·29	93	993	29·32						
59	959	28·32	94	994	29·35						

NOTE.—It will be seen that the code figures may represent two values of barometric pressure, but this only takes place with a very high or a very low barometer, so that recipients of a message will be able to decide which value is intended.

Table IX

A.—Barometric Tendency

Code Figure	
0	Barometer steady. (The barometer has not fallen or risen more than ½ millibar in 3 hours.)
1	Barometer rising slowly. (The barometer has risen 1 to 1½ millibars (·03–·04 in.) in last 3 hours).
2	Barometer rising. (The barometer has risen 2 to 3½ millibars (·06–·10 in. (in last 3 hours.)
3	Barometer rising quickly. (The barometer has risen 4 to 6 millibars (·12–·18 in.) in last 3 hours.)
4	Barometer rising very rapidly. (The barometer has risen over 6 millibars (·18 in.) in last 3 hours.)
5	Barometer falling slowly. (The barometer has fallen 1 to 1½ millibars (·03–·04 in.) in last 3 hours.)
6	Barometer falling. (The barometer has fallen 2 to 3½ millibars (·06–·10 in.) in last 3 hours.)
7	Barometer falling quickly. (The barometer has fallen 4 to 6 millibars (·12–·18 in.) in last 3 hours.)
8	Barometer falling very rapidly. (The barometer has fallen over 6 millibars (·18 in.) in last 3 hours.)

Barograph

Table X

a.—Characteristic of changes of the Barometer in the last three hours

(Adapted for British Ships)

Code Figure	Description of Changes	
0	Barometer rising at first, then falling by a smaller or like amount.	Net result, Barometer same or higher
1	Barometer rising at first, then steady or rising less quickly.	
2	Barometer unsteady; but generally rising or stationary.	
3	Barometer steady or rising.	
4	Barometer falling or steady at first, then rising by the same or larger amount. Barometer rising, at an increasing rate.	
5	Barometer falling at first, then rising by a smaller amount.	Net result, Barometer lower.
6	Barometer falling at first, then steady or falling quickly.	
7	Barometer unsteady, but falling.	
8	Barometer falling.	
9	Barometer steady or rising at first, then falling by a larger amount. Barometer falling, at an increasing rate.	

NOTE.—These changes are generally only given by ships which have special barographs on board.

For illustration of these characteristic changes and guidance, *see* "Marine Observers' Handbook," 5th Edition.

Table XI

bb.—Amount of Rise or Fall of the Barometer in the last three hours.

(In fifths of Millibars)

Code Figs.	Amount of Rise or Fall		Code Figs.	Amount of Rise or Fall		Code Figs.	Amount of Rise or Fall		Code Figs.	Amount of Rise or Fall	
	Mbs.	In.		Mbs.	In.		Mbs.	In.		Mbs.	In.
01	0·2	·01	23	4·6	·14	45	9·0	·27	67	13·4	·40
02	0·4	·01	24	4·8	·14	46	9·2	·28	68	13·6	·41
03	0·6	·02	25	5·0	·15	47	9·4	·28	69	13·8	·41
04	0·8	·02	26	5·2	·16	48	9·6	·29	70	14·0	·42
05	1·0	·03	27	5·4	·16	49	9·8	·29	71	14·2	·43
06	1·2	·04	28	5·6	·17	50	10·0	·30	72	14·4	·43
07	1·4	·04	29	5·8	·17	51	10·2	·31	73	14·6	·44
08	1·6	·05	30	6·0	·18	52	10·4	·31	74	14·8	·44
09	1·8	·05	31	6·2	·19	53	10·6	·32	75	15·0	·45
10	2·0	·06	32	6·4	·19	54	10·8	·32	76	15·2	·46
11	2·2	·07	33	6·6	·20	55	11·0	·33	77	15·4	·46
12	2·4	·07	34	6·8	·20	56	11·2	·34	78	15·6	·47
13	2·6	·08	35	7·0	·21	57	11·4	·34	79	15·8	·47
14	2·8	·08	36	7·2	·22	58	11·6	·35	80	16·0	·48
15	3·0	·09	37	7·4	·22	59	11·8	·35	81	16·2	·49
16	3·2	·10	38	7·6	·23	60	12·0	·36	82	16·4	·49
17	3·4	·10	39	7·8	·23	61	12·2	·37	83	16·6	·50
18	3·6	·11	40	8·0	·24	62	12·4	·37	84	16·8	·50
19	3·8	·11	41	8·2	·25	63	12·6	·38	85	17·0	·51
20	4·0	·12	42	8·4	·25	64	12·8	·38	86	17·2	·52
21	4·2	·13	43	8·6	·26	65	13·0	·39	87	17·4	·52
22	4·4	·13	44	8·8	·26	66	13·2	·40			

Visibility

Table XII

V.—Visibility

Code Figure	
0	Dense fog. Objects not visible at 50 yards.
1	Thick fog. Objects not visible at 1 cable.
2	Fog. Objects not visible at 2 cables.
3	Moderate fog. Objects not visible at ½ mile (nautical).
4	Mist or haze, or very poor visibility. (Objects not visible at 1 mile (nautical).
5	Poor visibility. Objects not visible at 2 miles (nautical).
6	Moderate visibility. Objects not visible at 5 miles (nautical).
7	Good visibility. Objects not visible at 10 miles (nautical).
8	Very good visibility. Objects not visible at 30 miles (nautical).
9	Excellent visibility. Objects visible at more than 30 miles (nautical).

Clouds

Table XIII

C_L.—Form of Low Cloud

Code Figure	Form of Cloud
0	No low clouds.
1	Cumulus of fine weather.
2	Cumulus (Large, without anvil).
3	Cumulo-Nimbus.
4	Strato-Cumulus (spread from Cumulus).
5	Stratus or Strato-Cumulus (in layer).
6	Nimbus.
7	Cumulus **and** Strato-Cumulus of fine weather.
8	Cumulus, large (or Cumulus-Nimbus) **and** Strato-Cumulus.
9	Cumulus, large (or Cumulo-Nimbus) **and** Nimbus.

Table XIV

C_M.—Form of Middle Cloud

Code Figure	Form of Cloud
0	No middle cloud.
1	Alto-Stratus, typical thin.
2	Alto-Stratus, typical thick (Sun or Moon invisible).
3	Alto-Cumulus or high Strato-Cumulus, single layer.
4	Alto-Cumulus, in bands, decreasing.
5	Alto-Cumulus, in bands, increasing.
6	Alto-Cumulus, spread out from Cumulus.
7	Alto-Cumulus with Alto-Stratus ; or Alto-Stratus with parts resembling Alto-Cumulus.
8	Alto-Cumulus Castellatus (Alto-Cumulus in ragged fragments).
9	Alto-Cumulus in several layers, generally with fibrous veils and chaotic appearance of sky.

Table XV

C_H.—Form of Upper Cloud (Cirrus Cloud)

Code Figure	Form of Cloud
0	No upper clouds (cirrus type).
1	Cirrus, fine, not increasing : scarce.
2	Cirrus, fine, not increasing : plentiful, but not a continuous layer.
3	Cirrus, anvil.
4	Cirrus, fine, increasing.
5	Cirrus or Cirro-Stratus increasing, below 45° altitude.
6	Cirrus or Cirro-Stratus increasing, and reaching above 45° altitude.
7	Cirro-Stratus, veil covering whole sky.
8	Cirro-Stratus, not increasing, and not covering whole sky.
9	Cirro-Cumulus predominating, and a little Cirrus.

Table XVI

C.—Predominating Form of Cloud

Code Figure	Form of Cloud
1	Cirrus.
2	Cirro-Stratus.
3	Cirro-Cumulus.
4	Alto-Cumulus.
5	Alto-Stratus.
6	Strato-Cumulus.
7	Nimbus.
8	Cumulus or Fracto-Cumulus.
9	Cumulo Nimbus.
0	Stratus or Fracto-Stratus.

Table XVII

N. and N_L.—Amount of Cloud

Code Figure	Proportion of Sky covered, in tenths
0	0.
1	Less than 1.
2	1.
3	2 to 3.
4	4 to 6.
5	7 to 8.
6	9.
7	More than 9, but with openings.
8	10, completely covered.
9	Sky obscured by fog, duststorm or other phenomenon.

Temperatures

Table XVIII

t_d.—Difference between Air and Sea Surface Temperatures

Code Figure	
	Air Temperature **higher** than Sea Temperature
0	More than 9° Fahrenheit.
1	6° to 9° ,,
2	3° to 6° ,,
3	1° to 3° ,,
4	0° to 1° ,,
	Air Temperature **lower** than Sea Temperature
5	0° to 1° Fahrenheit.
6	1° to 3° ,,
7	3° to 6° ,,
8	6° to 9° ,,
9	More than 9° ,,

Swell

Table XIX

K.—Swell

Code Figure	
0	No swell.
1	Low swell, short or average length.
2	Low swell, long.
3	Moderate swell, short.
4	Moderate swell, average length.
5	Moderate swell, long.
6	Heavy swell, short.
7	Heavy swell, average length.
8	Heavy swell, long.
9	Confused swell.

Speed

Table XX

f.—Speed of Ship

Code Figure	Speed in Knots
0	Ship stopped.
1	1 to 3 knots.
2	4 to 6 ,,
3	7 to 9 ,,
4	10 to 12 ,,
5	13 to 15 ,,
6	16 to 18 ,,
7	19 to 21 ,,
8	22 to 24 ,,
9	More than 24 knots.

NOTES FOR THE GUIDANCE OF MASTERS OF BRITISH SHIPS

(Not Selected Ships)

Section (34) of the World Wide System of Voluntary Selected Ships Routine Wireless Weather Reports indicates the desirability of all British Shipmasters assisting in this voluntary service, *where and when desirable.*

This is the more necessary in the regions and seasons of tropical revolving storms, and particularly in those regions traversed by few ships.

It is very desirable that throughout the British Merchant Navy, masters, mates, and W.T. operators should be familiar with this system.

It is desirable that the master or officer of the watch should be kept informed by the wireless operator of the weather reports made by ships in range, so that he may determine if it is necessary to make a report at the next schedule time for communication.

When it is considered desirable to make a weather report, observations should be made and noted at the appropriate time indicated in Section (20) on page 5.

For this purpose it will be found convenient to keep a sheet at the end of the ship's log book, or where convenient, ruled as shown at A on page 26.

If the " Marine Observers' Handbook " is available it should be followed in making and recording the observations. If not, by following the ordinary practice of seamen little difficulty will be found in recording the observations.

Great care should be taken in correcting the barometer, and the weather should be logged according to the Beaufort Notation, which is as follows :—

b Blue sky (less than a quarter covered).
bc Sky partly cloudy (between one quarter and three quarters covered).
c Generally cloudy (more than three quarters covered).
d Drizzle, or fine rain.
e Wet air without rain falling.
f Fog.
fe Wet fog.
g Gloomy.
h Hail.
kq Line Squall.
l Lightning.
m Mist.
o Overcast sky (whole sky covered with one impervious cloud).
p Passing showers.
q Squalls.
r Rain.
rs Sleet, *i.e.*, rain and snow together.
s Snow.
t Thunder.
tl Thunderstorm.
u Ugly, threatening sky.
v Unusual visibility.
w Dew.
z Dust haze ; the turbid atmosphere of dry weather.

The Decode tables include the visibility, and the Beaufort scale of wind force.

Having recorded the weather observations as above, they should be coded. For this purpose the Decode tables may be used, only those starred numbers in Table VI, for Present Weather, being used to report the weather recorded by the Beaufort notation.

A sheet ruled in the form shown at B on page 26 will be found of assistance in coding the reports.

To communicate the report follow the procedure indicated for Selected Ships, *see* (33) page 8. Generally the first four groups only are advocated for the use of ships which are not Selected Ships.

The message should be addressed Weather C.Q., or to the appropriate address indicated in the lists of W.T. stations appointed to receive reports for British Selected Ships in all parts of the world, which are given in the " Marine Observer," and which as before stated, are copied in the Admiralty List of Wireless Signals for the information of masters of British ships and all concerned.

For sample of completed message ready to send, *see* (31) page 8, which contains the observations entered on page 26.

A. Record of Synchronized Weather Observations

Year 1933			Ship's position		Wind at time of observation		Barometer			Weather by Beaufort notation at time of observation	Visibility by scale	Remarks
Month	Day of month	Day of week	G.M. time of observation hour	Latitude	Longitude	Direction true	Force 0–12	Uncorrected reading	Att. therm.	True atmospheric pressure at sea level	Temperature air			Ice or derelicts sighted, unusual phenomena
March	5th	Sun.	0 6 12 18	16° 41′ N.	55° 05′ E.	Calm	0	30·156	82	29·999	79	b	9	

Ocean Current Observations

Year 1933, month	From		To		Position				Set	Drift	Remarks
	Day	A.T.S.	Day	A.T.S.	From		To		direction true	nautical miles	
					Latitude	Longitude	Latitude	Longitude			
March	4th	6.0 p.m.	5th	5.35 a.m.	15° 23′ N.	52° 21′ E.	16° 24′ N.	54° 28′ E.	N. 58° E.	11·5	1·0 knot

B. Form for Coding Messages

Date *not to be transmitted*	Address to which sent	Universal groups											Set and drift of current, ice, derelicts, etc.	Call sign to which sent, and wave length	G.M. time sent
		P	Q	LLL	III	GG	DD	F	ww	BB	V	TT			
March 5th	Weather	1	3	167	551	06	00	0	00	16	9	79	Current from 15 N. 52 E. to 16 N. 54 E. 58 degrees 1 knot.	CQ	
		Group 1			Group 2		Group 3			Group 4					

TO DECODE REPORTS OF WEATHER OBSERVATIONS CONTAINED IN WIRELESS WEATHER BULLETINS FOR SHIPPING

Information of Weather observed at coast stations, when included by means of figures in weather shipping bulletins, may be decoded with the Decode Tables of the International Code given above for wireless weather messages from ships; but the arrangement of the groups is different, and varies with different countries.

In the Weather Shipping Bulletins for the British Isles, Germany, and Sweden, the key for the groups is:—

I_nABBV DDFww

I_n signifies the number of the station.

The following are the stations with their distinguishing numbers, for which reports of weather observations are given in the British Weather Shipping Bulletin:—

	Distinguishing Number.	*Station.*
	1	Stornoway
	2	Malin Head
	3	Valentia
	4	Holyhead
	5	Scilly
	6	Guernsey
	7	Dungeness
	8	Yarmouth
	9	Tynemouth
	0	Wick
Foreign	1	Reykjavik (Iceland)
	2	Thorshavn (Faroe Islands).

When there is a change in the stations used in the British Weather Shipping Bulletin the name of the new station is indicated instead of the number, until the change becomes permanent, and has been notified by Notice to Mariners.

For the names of stations and their distinguishing numbers used in the Weather Shipping Bulletins of other countries, it is necessary to refer to the Admiralty List of Wireless Signals.

In the Weather Shipping Bulletin for the coast of Chile, the key for the groups is:—

DDFww BBVTT

and the stations are distinguished by initial letters given in an initial group for each five stations.

In the weather Shipping Bulletin for the coasts of South Africa, the key for the groups is :—

IICAK	DDFww	BBVTT

For Ceylon it is :—

IICKW	DDFww	BBVTT

For Hong Kong it is :—

IIIAW	DDFww	BBVTT

For the South Pacific Islands it is :—

IIICW	DDFww	BBVTT

Thus great care is necessary in using the appropriate decode tables for coast station reports.

For information and guidance as to the use in navigation of the observations received in ships at sea Mariners are referred to a Handbook of Weather, Currents, and Ice for Seamen, published by H.M. Stationery Office.

(23466) Wt. 2328/1135 1000 12/34 Hw. G.371