Code 1838

i_h — Interval indicator

Code figure			
0	No supplementary group		
1	One supplementary group *	intervals of H : 1,000 m above MSL and X for intermediate 500 m intervals	pilot balloon
2	Two supplementary groups *		
3	Three supplementary groups *		
4	No supplementary group	intervals of H : 300 m (1,000 feet) above MSL	
5	No supplementary group		
6	One supplementary group *	intervals of H : 1,000 m above MSL and X for intermediate 500 m intervals	radio wind
7	Two supplementary groups *		
8	Three supplementary groups *		
9	No supplementary group	intervals of H : 300 m (1,000 feet) above MSL	

* In supplementary groups (to be inserted immediately after the group GGi_hDf_a), H refers to levels in hectometres above ground level.

Code 1841

i_j — Units indicator for jet stream (in FM 45.C)

Code figure		
0	Wind in m/sec.	Geopotential of jet stream core in geopotential hectometers
1	Wind in km/hour	
2	Wind in knots	
4	Wind in m/sec.	pressure in whole millibars
5	Wind in km/hour	
6	Wind in knots	

Code 1863

i_2 — Zone type indicator

ZZZ — Zone specification

0i2zzz

00000	Up to the turning point indicated by the first $QL_aL_aL_oL_o$ which appears between the index numbers at the beginning of the message	
01QL_aL_a	Up to latitude L_aL_a	
02QL_oL_o	Up to longitude L_oL_o	
03iii	Up to station iii	
04nnn	Up to a point at a distance of nnn kilometers from preceding point	
050ZZ	For the area indicated in 5° zone numbers	
06QL_aL_a	At latitude L_aL_a	ROFOR and PPORO only
07QL_oL_o	At longitude L_oL_o	
08iii	At station iii	
09nnn	At a point at a distance of nnn kilometers from preceding point	

Code 1864

i_3 — Supplementary phenomena indicator

nnn — Specifications related to supplementary phenomena

$9i_3nnn$

$90DP_wH_w$ Direction, period and height of waves.

Note.—This group can only be used in TAFOR messages for water airparts

$91P_2P_2P_2$ Forecast lowest mean sea pressure (FM 53.B, FM 54.B, FM 55.B, FM 56.C, FM 57.C, FM 58.C) or forecast lowest QNH (FM 51.C, FM 52.C) in whole millibars during the period

$92F_tL_aL_a$ Type of front and its position (track of aircraft approximately N–S)

$93F_tL_oL_o$ Type of front and its position (track of aircraft approximately E–W)

$94F_tGG$ Type of front and time of passage

$951//$ Gradual change along the route

$952L_aL_a$ Rapid change at latitude L_aL_a North along the route

$953L_aL_a$ Rapid change at latitude L_aL_a South along the route

$954L_oL_o$ Rapid change at longitude L_oL_o East along the route

$955L_oL_o$ Rapid change at longitude L_oL_o West along the route

} ROFOR, FIFOR, PRORO and PROFI only. *

$96GGG_p$ Change beginning at GG and continuing throughout the period indicated by G_p

$97GGG_p$ Temporary variation at GG (when G_p = 0) or temporary variations taking place within the period indicated by G_p (when G_p = 1 to 9)

$98GGG_p$ Intermittent variations taking place within the period indicated by G_p

$999C_2$ Probability C_2 indicated in tens of per cent.; C_2 cannot exceed 5 = 50 per cent. (if the probability of occurrence of an element exceeds 50 per cent, then that occurrence should be the predominant feature of the forecast)

Note: Local variations in ARFOR, ROFOR, FIFOR, PROAR, PRORO and PROFI may be described, if necessary, by the following expressions:

LOC—locally (LOC when used, will always be accompanied by plain language sufficient to identify the locality in which the phenomenon is expected)
LAN—inland
COT—at the coast
MAR—at sea
VAL—in valleys
CIT—near or over large towns
MON—above high ground or mountains
SCT—scattered (SCT is used when the phenomenon is expected to be scattered in space or time or in both)

* In ROFOR and PRORO such a change group must be qualified by a change group relative to time. In FIFOR and PROFI this group does not need to be qualified by a change group relative to time.

Plain language alternative terminology for the group $9i_3nnn$

$90DP_wH_w$ The direction, period and height of waves should be given in plain language: e.g., "WAVES FROM NE FIVE TO SEVEN SECONDS TWO METERS (SIX AND ONE-HALF FEET)"

$91P_2P_2P_2$ (i) Forecast lowest QFF; e.g., "Forecast QNF 10020" in ARFOR, ROFOR, FIFOR, PPOAR, PRORO and PROFI.

(ii) Forecast lowest QNF; e.g., "Forecast QNF 10020" in TAFOR and TAF.

Note: In the plain language alternative the figure for tenths of mb shall always be included in the form of a zero to avoid confusion with the accepted definition of QFF and QNH which are always expressed in tenths of mb.

$92F_tL_aL_a$ The term FRONT should be used; the type is not normally designated; e.g., "FRONT 40 N"

$93F_tL_oL_o$ The term FRONT should be used; the type is not normally designated; e.g., "FRONT 30 E"

$94F_tGG$ The term FRONT should be used; the type is not normally designated; e.g., "FRONT 1200 GMT"

$951//$ The term GRADU (without the time group) should be used for this type of change

$952L_aL_a$ The form RAPID L_aL_aN should be used for this type of change where L_aL_a indicates the latitude (North) at which the change takes place

$953L_aL_a$ The form RAPID L_aL_aS should be used for this type of change where L_aL_a indicates the latitude (South) at which the change takes places

$954L_oL_o$ The form RAPID L_oL_oE should be used for this type of change where L_oL_o indicates the longitude (East) at which the change takes place

$955L_oL_o$ The form RAPID L_oL_oW should be used for this type of change where L_oL_o indicates the longitude (West) at which the change takes place

} ROFOR, FIFOR, PRORO, and PROFI only.

$96GGG_p$ The form GRADU GGG_eG_e should be used for this type of change, where G_eG_e denotes the end of the period throughout which the change will extend; e.g., "GRADU 0204" indicates a gradual change between 0200 and 0400 GMT; if the period GG to G_eG_e is one hour or less, the term RAPID may be used in place of GRADU

$97GGG_p$ The form TEMP GGG_eG_e should be used for this type of change, where G_eG_e denotes the end of the period throughout which the temporary change(s) may occur, e.g., "TEMPO 1521" indicates a temporary change (or changes) between 1500 and 2100 GMT

$98GGG_p$ The form INTER GGG_eG_e should be used for this type of change, where G_eG_e denotes the end of the period throughout which the intermittent changes will occur; e.g., "INTER 0913" indicates intermittent changes between 0900 and 1300 GMT

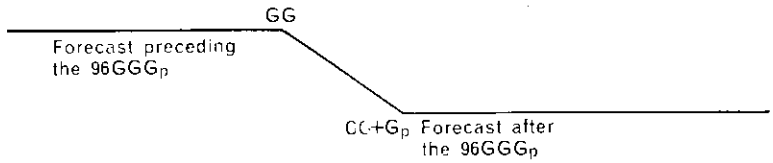
$9999C_2$ The form PROB (per cent) should be used for this group; e.g., "PROB 20"

Note: The "Instructions for the group $9i_3nnn$" appearing as Note (7) under the TAFOR code form apply equally to the plain language alternatives.

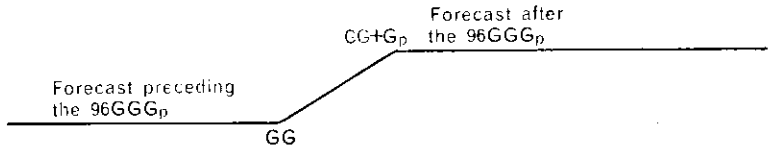
Pictorial illustration of variations (with time as abscissa and for example with "hh" as ordinate in the diagrams.)

96GGG$_p$ — *Change gradual or rapid*

Example (a)

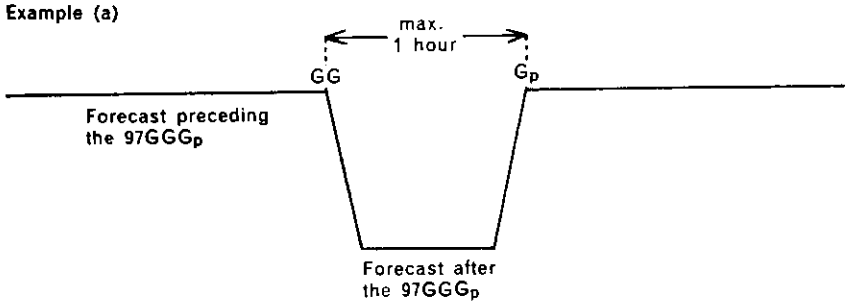


Example (b)

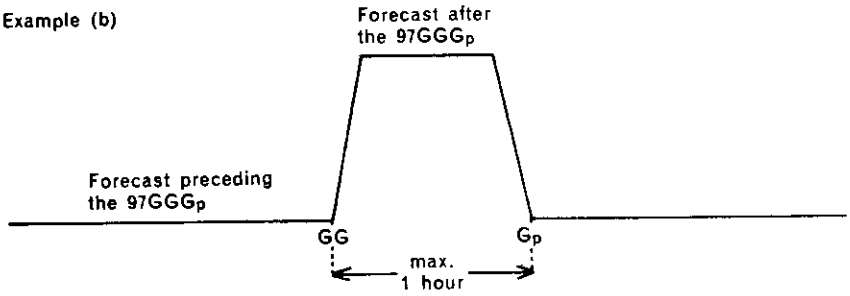


97GGG$_p$ — *Temporary variation(s)*

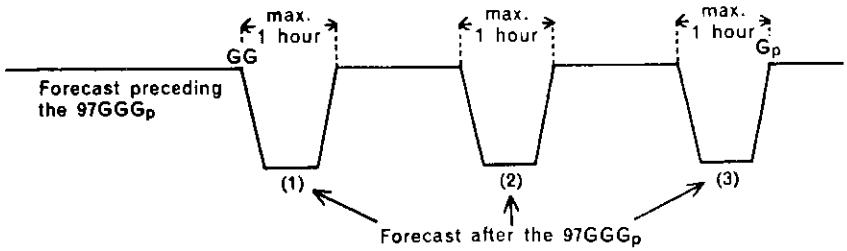
Example (a)



Example (b)

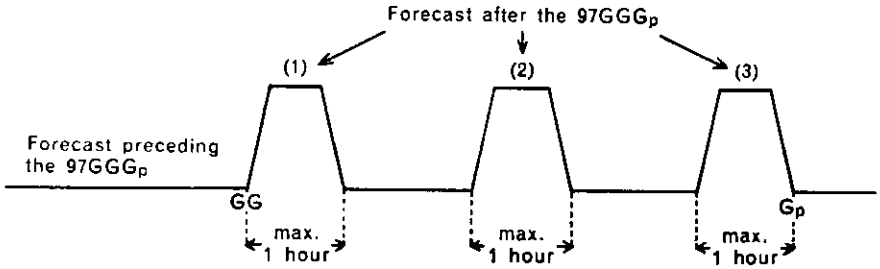


Example (c)



Note : 1 + 2 + 3 = cannot be more than half the time indicated by Gp

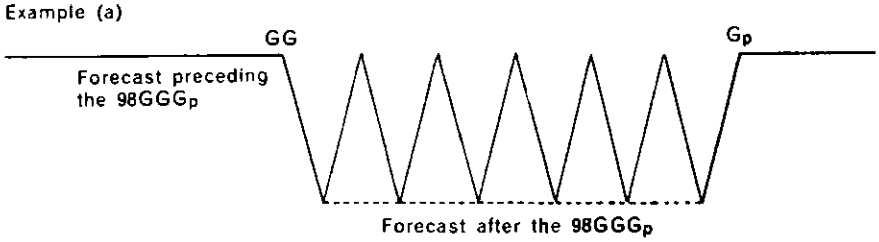
Example (d)



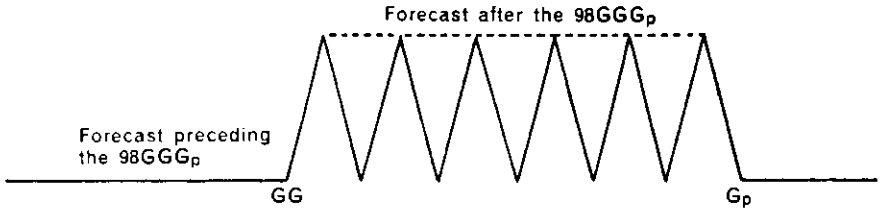
Note : 1 + 2 + 3 = cannot be more than half the time indicated by G_p

98GGG$_p$ — *Intermittent variations*

Example (a)



Example (b)



Code 1900

J — Aircraft icing and turbulence

Code figure		
0	No specification	
1	No icing and no turbulence	
2	Slight turbulence	no icing
3	Moderate turbulence	
4	Heavy turbulence	
5	Slight icing	no turbulence of slight turbulence
6	Moderate icing	
7	Heavy icing	
8	Slight icing	moderate or heavy turbulence
9	Moderate or heavy icing	

Code 2045

i_n — Thickness of the layer through which the wind direction and speed were determined.

Code figure		Code figure	
0	0–250 meters	5	2501–3500 meters
1	251–500 meters	6	3501–4500 meters
2	501–1000 meters	7	4501–5500 meters
3	1001–1500 meters	8	5501–6500 meters
4	1501–2500 meters	9	6501 meters or greater

Code 2100

K — Effect of the ice on navigation

Code figure	
0	Navigation unobstructed
1	Navigation unobstructed for steamers, difficult for sailing ships
2	Navigation difficult for low powered steamers, closed to sailing ships
3	Navigation possible only for powerful steamers
4	Navigation possible only for steamers constructed to withstand ice pressure
5	Navigation possible with the ossistance of ice-breakers
6	Channel open in the solid ice
7	Navigation temporarily closed
8	Navigation closed
9	Navigation conditions unknown (e.g. owing to bad weather)

Code 2200

k — Indicator used to specify the half degrees, if any, to be added to L_aL_a and L_oL_o as given in the group $L_aL_aL_oL_ok$

Code figure		
0	Take $L_aL_aL_oL_o$ as sent	East longitude 0° - 99° or West longitude 100° - 180°
1	Add ½ degree to L_aL_a	
2	Add ½ degree to L_oL_o	
3	Add ½ degree to L_aL_a and L_oL_o	
4*	Whole degrees	
5	Take $L_aL_aL_oL_o$ as sent	West longitude 0° - 99° or East longitude 100° - 180°
6	Add ½ degree to L_aL_a	
7	Add ½ degree to L_oL_o	
8	Add ½ degree to L_aL_a and L_oL_o	
9*	Whole degrees	

* When k = 4 or 9, the values of L_aL_a and L_oL_o are accurate to the nearest whole degree only; for all other values of k, the accuracy is to the nearest ½ degree.

Code 2538

M_h — Continental or maritime character of air mass

Code figure	
0	No specification, or indeterminate
1	Continental (c)
2	Maritime (m)

Code 2551

M_s — Source region of air mass

Code figure		Code figure	
0	No specification, or indeterminate	3	Tropical (T)
1	Arctic (A)	4	Equatorial (E)
2	Polar (P)	5	Superior (S)

Code 2552

M_t — Thermodynamic character of air mass

Code figure		
0	No sepecificotion	
1	Indeterminate	if not followed by another $33M_hM_sM_t$ group, means only one air mass present; if followed by another $33M_hM_sM_t$, means "mixed" with air mass described in second group
2	Cold (k)	
3	Warm (w)	
4	Indeterminote	is followed by another $33M_hM_sM_t$ group, the air mass reported in the first group being above the air mass of the second group
5	Cold (k)	
6	Warm (w)	
7	Indeterminate	is followed by another $33M_hM_sM_t$ group, the oir mass in the first group being "transitional" or "becoming" the air mass in the second group
8	Cold (k)	
9	Warm (w)	

Code 2582

M_iM_i — Message identifier letters

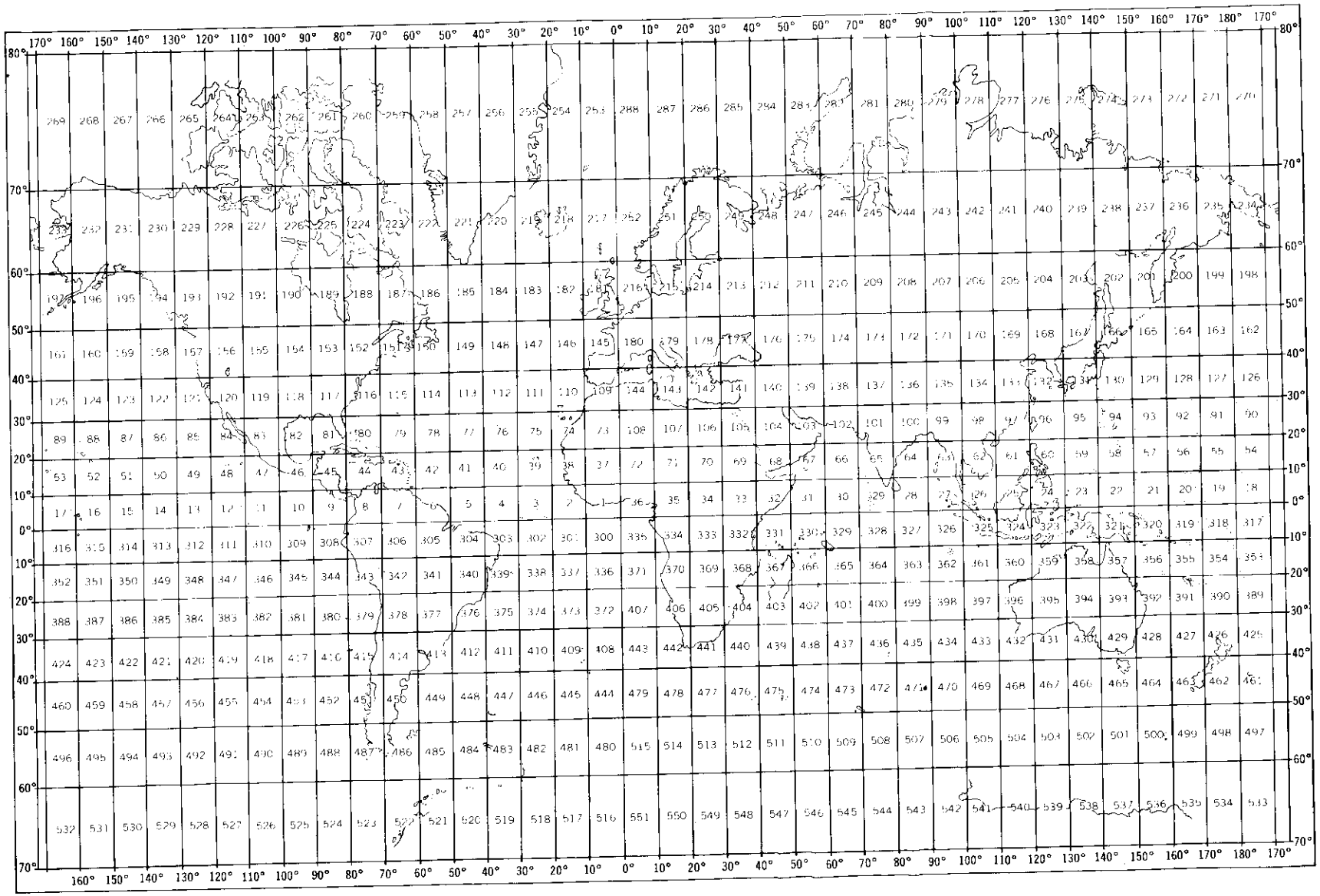
Code letters	Report
LL	PILOT SHIP, Part(s) A ond/or B
MM	PILOT SHIP, Part C
PP	PILOT, Part(s) A and/or B
QQ	PILOT, Part C
TT	TEMP, Part(s) A and/or B
VV	TEMP, Part C
WW	TEMP SHIP, Part(s) A and/or B
YY	TEMP SHIP, Part C

Code 2590

MMM — Number of Morsden square for the ship's position at the time of observation

(See Chartlet page 80)

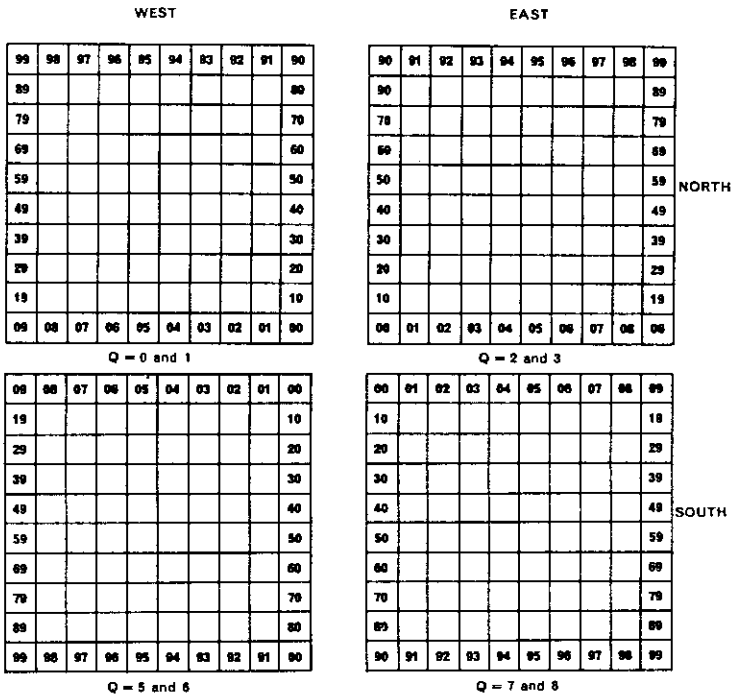
NUMBERS OF MARSDEN TEN-DEGREE SQUARES CODE 2590



Code 2590 continued

ANNEX

Subdivisions of the Marsden ten-degree squares into one-degree squares for the eight octants (Q) of the globe



Note: The number to be coded for UL_aUL_o in the position verifying group $MMMUL_aUL_o$ is obtained by combining the second figure for L_a and the second figure for L_o in the reported position ($QL_aL_aL_a\ L_oL_oL_o$). This number UL_aUL_o is the number of the one-degree subdivision of the Marsden ten-degree square in which the ship is located at the time of observation.

When the ship is on the boundary between two (or four) ten-degree Marsden squares the number to be coded for MMM is that of the Marsden ten-degree square in which the one-degree sub-division whose number is UL_aUL_o, as defined above, corresponds to the ship's position.

When the ship is on the meridian 0° or 180°, as well as on the Equator, the number used for reporting Q shall be taken into account for determining the relevant number of the Marsden ten-degree square.

Examples: (1) For a ship located at 42.3°N and 30.0°W the position is coded as follows:

$Q = 0,\ L_aL_aL_a = 423,\ L_oL_oL_o = 300$

UL_aUL_o is therefore 20. The ship is on the boundary line between Marsden squares 147 and 148. The relevant scheme of the Annex ($Q = 0$) shows that the one-degree subdivision corresponding to the ship's position would be numbered 29 in Marsden square 147 and 20 in Marsden square 148. MMM is therefore to be coded 148.

(2) For a ship located at 40.0° S and 120.0°E the position is coded as follows:

$Q = 7,\ L_aL_aL_a = 400,\ L_oL_oL_o = 200$

UL_aUL_o is therefore 00. The ship is on the boundary point between Marsden squares 431, 432, 467 and 468. The relevant scheme of the Annex ($Q = 7$) shows that the one-degree subdivision corresponding to the ship's position would be 90 in Marsden square 431, 99 in Marsden square 432, 00 in Marsden square 467, and 09 in Marsden square 468. MMM is therefore to be coded 467.

Code 2600

m — Movement indicator figure (in FM 45.C, FM 46.C)

Code figure		Code figure	
0	No specification	5	Curving to left
1	Stationary	6	Recurving
2	Little change	7	Accelerating
3	Becoming stationary	8	Curving to right
4	Retarding	9	Expected to recurve

Note: 1. The specifications apply to the time of the analysis or prognosis when used in the basic code form, and to the periods indicated by $g_p g_p$ when used in the alternative code forms of FM 45.C.

Code 2649

M_r—Method of reducing data.

Code figure	
0	Manually-Nomogram
1	Electronic computer
2	Other method

Code 2700

N — The fraction of the celestial dome covered by cloud

N_h — The fraction of the celestial dome covered by the cloud(s) reported for C_L or, if no C_L — cloud present, for C_M.

N_s Amount of individual cloud layer or mass, of genus C

N′ —Amount of cloud whose base is below the level of the land station

Code figure		Code figure	
0	0	0	
1	1/10 or less, but not zero	1	Octa or less, but not zero
2	2/10 – 3/10	2	Octas
3	4/10	3	Octas
4	5/10	4	Octas
5	6/10	5	Octas
6	7/10 – 8/10	6	Octas
7	9/10 or more, but not 10/10	7	Octas or more, but not 8 octas
8	10/10	8	Octas
9	Sky obscured, or cloud amount cannot be estimated		

Code 2955

O_w — Tendency of height of the waves since the last observation

Code figure		
0	Increasing, then decreasing	height now greater than or equal to that of last observation
1	Increasing, then constant	
2	Height constant	
3	Increasing steadily	
4	Decreasing or constant, then increasing	
5	Decreasing, then increasing	height now less than at last observation
6	Decreasing, then constant	
7	Indeterminate	
8	Decreasing steadily	
9	Increasing or constant, then decreasing	

Code 3122

P_T — Thickness of layer

Code figure	
0	Up to top of cloud
1	25 mb
2	50 mb
3	75 mb
4	100 mb
5	125 mb
6	150 mb
7	175 mb
8	200 mb
9	225 mb

Code 3133

P_c — Character of pressure system

h_c — Character of topography system

Code figure	
0	No specification
1	LOW filling or HIGH weakening
2	Little change
3	LOW deepening or HIGH intensifying
4	Complex
5	Forming or existence suspected (cyclogenesis or anticyclogenesis)
6	Filling or weakening, but not disappearing
7	General rise of pressure (or height)
8	General fall of pressure (or height)
9	Position doubtful

Note: 1. The specifications apply to the time of the analysis or prognosis when used in the basic code form, and to the periods indicated by $g_p g_p$ when used in the alternative code forms of FM 45.B.

Code 3152

P_t — Type of pressure system

h_t — Type of topography system

Code figure		Code figure	
0	Complex LOW	5	HIGH
1	LOW	6	Area of uniform pressure (or height)
2	Secondary	7	Ridge
3	Trough	8	Col
4	Wave	9	Tropical storm

Code 3155

P_w — Period of the waves

Code figure		Code figure	
2	5 seconds or less	8	16 or 17 seconds
3	6 or 7 seconds	9	18 or 19 seconds
4	8 or 9 seconds	0	20 or 21 seconds
5	10 or 11 seconds	1	Over 21 seconds
6	12 or 13 seconds	/	Calm, or period not determined
7	14 or 15 seconds		

Notes: 1. The period of the waves is the time between the passage of two successive wave crests past a fixed point (it is equal to the wave length divided by the wave speed).
2. The average value of the wave period is reported, as obtained from the larger well-formed waves of the wave system being observed.

Code 3300

Q — Octant of the globe

Code figure	Greenwich longitude	Hemisphere	Code figure	Greenwich longitude	Hemisphere
0	0° - 90°W	North	5	0° - 90°W	South
1	90° - 180°W		6	90° - 180°W	
2	180° - 90°E		7	180° - 90°E	
3	90° - 0°E		8	90° - 0°E	

Code 3534

R_d — Indication of the frequency group within which R_1R_1 falls

Code figure		Code figure	
0	Smaller than any value in the 30-year period	4	In the fourth quintile
1	In the first quintile	5	In the fifth quintile
2	In the second quintile	6	Greater than any value in the 30-year period
3	In the third quintile		

Code 3551

R_s — Rate of ice accretion on ships

Code figure	
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

Code 3577

RR — Amount of precipitation

Code figure	mm	Code figure	mm	Code figure	mm
00	0	34	34	68	180
01	1	35	35	69	190
02	2	36	36	70	200
03	3	37	37	71	210
04	4	38	38	72	220
05	5	39	39	73	230
06	6	40	40	74	240
07	7	41	41	75	250
08	8	42	42	76	260
09	9	43	43	77	270
10	10	44	44	78	280
11	11	45	45	79	290
12	12	46	46	80	300
13	13	47	47	81	310
14	14	48	48	82	320
15	15	49	49	83	330
16	16	50	50	84	340
17	17	51	51	85	350
18	18	52	52	86	360
19	19	53	53	87	370
20	20	54	54	88	380
21	21	55	55	89	390
22	22	56	60	90	400
23	23	57	70	91	0.1
24	24	58	80	92	0.2
25	25	59	90	93	0.3
26	26	60	100	94	0.4
27	27	61	110	95	0.5
28	28	62	120	96	0.6
29	29	63	130	97	A little precipitation, non-measurable
30	30	64	140		
31	31	65	150	98	More than 400 mm
32	32	66	160	99	Measurement impossible or inaccurate
33	33	67	170		

Code 3587

R_1R_1 — Total precipitation for the month

Code figure	mm	Code figure	mm	Code figure	mm
00	0	34	340	68	1,800
01	10	35	350	69	1,900
02	20	36	360	70	2,000
03	30	37	370	71	2,100
04	40	38	380	72	2,200
05	50	39	390	73	2,300
06	60	40	400	74	2,400
07	70	41	410	75	2,500
08	80	42	420	76	2,600
09	90	43	430	77	2,700
10	100	44	440	78	2,800
11	110	45	450	79	2,900
12	120	46	460	80	3,000
13	130	47	470	81	3,100
14	140	48	480	82	3,200
15	150	49	490	83	3,300
16	160	50	500	84	3,400
17	170	51	510	85	3,500
18	180	52	520	86	3,600
19	190	53	530	87	3,700
20	200	54	540	88	3,800
21	210	55	550	89	3,900
22	220	56	600	90	4,000
23	230	57	700	91	1
24	240	58	800	92	2
25	250	59	900	93	3
26	260	60	1,000	94	4
27	270	61	1,100	95	5
28	280	62	1,200	96	6
29	290	63	1,300	97	Less than 1 mm
30	300	64	1,400	98	More than 4,000 mm
31	310	65	1,500	99	Measurement impossible or inaccurate
32	320	66	1,600		
33	330	67	1,700		

Code 3600

r — Distance to ice edge from reporting ship

Code figure		
0	Up to 1 mile	Up to 2 kilometers
1	1 – 2 miles	2 – 4 kilometers
2	2 – 4 miles	– 7 kilometers
3	4 – 6 miles	7 – 11 kilometers
4	6 – 8 miles	11 – 15 kilometers
5	8 – 12 miles	15 – 22 kilometers
6	12 – 16 miles	22 – 30 kilometers
7	16 – 20 miles	30 – 37 kilometers
8	More than 20 miles	More than 37 kilometers
9	Unspecified, or no observation	Unspecified, or no observation

Note: The exact bounding distance is to be assigned to the lower code figure in each case; e.g., a distance of 8 miles or 15 kilometers is coded as 4.

Code 3636

$'_f$ — Steadiness of wind

Code figure	Steadiness factor
0	0 – 9%
1	10 – 19%
2	20 – 29%
3	30 – 39%
4	40 – 49%
5	50 – 59%
6	60 – 69%
7	70 – 79%
8	80 – 89%
9	90 – 99%

Code 3644

r_m—Type of rocket motor

Code figure	
0	4.5 inch, end burning
1	3.0 inch, internal burning
2	Boosted, 4.5 inch, end burning
3	Boosted, 3.0 inch, internal burning

Code 3700

S — State of sea

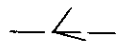
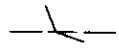
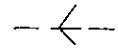
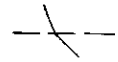
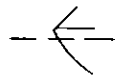
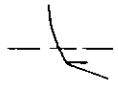
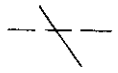
Code figure	Descriptive terms	Height * in metres	Height * in feet (approximately)
0	Calm (glassy)	0	0
1	Calm (rippled)	0 - 0.1	0 1/3
2	Smooth (wavelets)	0.1 - 0.5	1/3 - 1 2/3
3	Slight	0.5 - 1.25	1 2/3 - 4
4	Moderate	1.25 - 2.5	4 - 8
5	Rough	2.5 - 4	8 - 13
6	Very rough	4 - 6	13 - 20
7	High	6 - 9	20 - 30
8	Very high	9 - 14	30 - 45
9	Phenomenal	over 14	over 45

* The average wave height as obtained from the larger well-formed waves of the wave system being observed.

Note: The exact bounding height is to be assigned for the lower code figure, e.g. a height of 4 metres is coded as 5.

Code 3752

S_t — Character of tropopause

Code figure				
1	Conventional tropopause coincides with a significant change in lapse rate	Lapse rate above tropopause ≤ 0° C/km Lapse rate below tropopause ≥ 5° C/km	T	
2		Lapse rate above tropopause > 0° C/km Lapse rate below tropopause ≥ 5° C/km	T	
3		Lapse rate above tropopause ≤ 0° C/km Lapse rate below tropopause < 5° C/km	T	
4		Lapse rate above tropopause > 0° C/km Lapse rate below tropopause < 5° C/km	T	
5	Conventional tropopause does not coincide with any significant change in lapse rate	but a significant change in lapse rate > 3° C/km occurs at a level above the conventional tropopause	T	
6		but a significant change in lapse rate > 3° C/km occurs at a level below the conventional tropopause	T	
7		and no significant change in lapse rate > 3° C/km occurs at any other level	T	

8 Level of tropopause uncretain because top of ascent is less than 2 km above the level which appears to be the tropopause.

9 Tropopause is not allocated to any of preceding categories.

Notes:

1. All lapse rates should be determined over 1 km intervals.
2. If the conventional tropopause does not coincide with any significant change in the lapse rate and a change of lapse rate occurs at levels both above and below conventional tropopause, then the larger of these changes should be used to determine whether allocation of type 5 or type 6 is appropriate.
3. When type 6 conventional tropopause is observed in arctic and antarctic regions in winter, the level of marked change in lapse rate below the conventional tropopause should be referred to as an arctic or antarctic tropopause and should be recorded as such in addition to the conventional tropopause, provided that over no interval of 1 km between the conventional and arctic or antarctic tropopause does the lapse rate exceed 3° C/km. In this case the character of the arctic or antarctic tropopause should be given by code figure 9.

Code 3762

S_1, S_2 — Nature of the zone separated by the line formed by the points following the $2C_sS_1S_2Z_1$ group (S_1 is the part to the right of the line, S_2 is the zone inside the line)

Code figure	
0	Sky clear or slightly clouded
1	Sky cloudy or very cloudy
2	Anterior or lateral zone
3	Central zone
4	Posterior zone
5	Thunder zone
6	Fog
7	Connecting zone
8	Instability
9	Stratus (below 800 metres) or Stratocumulus

Code 3777

SS — Section of front or of pressure system to which NN refers

Code figure		Code figure	
00	No section specified	05	South-West section
01	North-East section	06	West section
02	East section	07	North-West section
03	South-East section	08	North section
04	South section		

Code 3800

s — Depth of snow

Code figure		Code figure	
0	No snow	5	Up to 25 cm
1	Up to 2 cm	6	Up to 50 cm
2	Up to 5 cm	7	Up to 100 cm
3	Up to 10 cm	8	Up to 200 cm
4	Up to 15 cm	9	200 cm or more

Code 3933

T_c — Tropical system characteristics

Code figure		Code figure	
0	No specification	5	Existence uncertain
1	Diffuse	6	Formation suspected
2	Sharply defined	7	Position certain
3	Quasi-stationary	8	Position uncertain
4	Existence certain	9	Movement doubtful

Code 3939

T_i — Tropical system intensity when T_t = 0-8

Code figure		Code figure	
0	No specification	5	Moderate, little or no change
1	Weak, decreasing	6	Moderate, increasing
2	Weak, little or no change	7	Strong, decreasing
3	Weak, increasing	8	Strong, little or no change
4	Moderate, decreasing	9	Strong, increasing

Code 3940

T_i — Tropical system intensity when T_t = 9*

Code figure	Beaufort Scale	Mean speed in knots	Mean speed in m/s	Mean speed in km/h
0	Force 10	48 – 55	24.5 – 28.4	89 – 102
1	11	56 – 63	28.5 – 32.6	103 – 117
2	12	64 – 71	32.7 – 36.9	118 – 133
3	12	72 – 80	37.0 – 41.4	134 – 149
4	12	81 or over	41.5 or over	150 or over
5	5	17 – 21	8.0 – 10.7	29 – 38
6	6	22 – 27	10.8 – 13.8	39 – 49
7	7	28 – 33	13.9 – 17.1	50 – 61
8	8	34 – 40	17.2 – 20.7	62 – 74
9	9	41 – 47	20.8 – 24.4	75 – 88

* When T_t = 9, the code figure given for T_i indicates the force of the strongest wind in the reported cyclonic circulation or, in the case of a prognosis, the strongest wind force expected at the time of the prognosis.

Code 3952

T_t — Tropical circulation type

Code figure		Code figure	
0	Intertropical convergence zone	5	Trough in easterlies
1	Shear line	6	LOW area
2	Line or zone of convergence	7	Surge line
3	Axis of doldrum belt	8	Line or zone of divergence
4	Trough in westerlies	9	Tropical cyclonic circulation

Code 3956

T_x — Maximum air temperature

Tn — Minimum air temperature

Code figure	Temperature in degrees Celsius	Code figure	Temperature in degrees Celsius
0	Less than – 10	5	5 to 10
1	– 10 to – 5	6	10 to 20
2	– 5 to – 1	7	20 to 30
3	About 0 (to nearly ± 1)	8	Greater than 30
4	1 to 5	9	Temperature not forecosted

Code 3957

T_{xo} — Approximate tenths value of air temperature and dew point temperature at surface

T_{x1}, T_{x2}, . . . T_{xn} — Approximate tenths value of air temperature and dew point temperature at levels specified by P_1P_1, P_2P_2, . . . P_nP_n, or at selected levels

Code figure	Tenths of TT	Tenths of T_dT_d	Code figure	Tenths of TT	Tenths of T_dT_d
0	0	0	5	4,5,6	4,5,6
1	1,2,3	1,2,3	6	4,5,6	7,8,9
2	1,2,3	4,5,6	7	7,8,9	1,2,3
3	1,2,3	7,8,9	8	7,8,9	4,5,6
4	4,5,6	1,2,3	9	7,8,9	7,8,9

Notes:

1) In decoding the code figure reported, the middle value of tenths is taken; e.g. if $T_{x-} = 6$, the tenths of TT are taken as 5 and the tenths of T_dT_d are taken as 8.
2) If tenths of either TT or T_dT_d (but not both) are zero, this zero value is treated as if it were one tenth.

Code 4013

t_L — Thickness of layer

Code figure		Code figure	
0	Up to top of cloud	5	1,500 metres (approx. 5,000 feet)
1	300 metres (approx. 1,000 feet)	6	1,800 metres (approx. 6,000 feet)
2	600 metres (approx. 2,000 feet)	7	2,100 metres (approx. 7,000 feet)
3	900 metres (approx. 3,000 feet)	8	2,400 metres (approx. 8,000 feet)
4	1,200 metres (approx. 4,000 feet)	9	2,700 metres (approx. 9,000 feet)

Code 4080

t_Rt_R — Duration of precipitation

Code figure	Hours	Minutes	Code figure	Hours	Minutes
00	No precipitation		50	4	10
01	0	05	51	4	15
02	0	10		etc.	
03	0	15	83	6	55
04	0	20	84	7	00
05	0	25			
06	0	30	89	No specification of duration, RR relates to a period of approximately six hours	
07	0	35			
08	0	40			
09	0	45	90	No specification of duration, RR relates to a period of approximately 12 hours	
10	0	50			
11	0	55			
12	1	00	91	No specification of duration, RR relates to a period of approximately 18 hours	
13	1	05			
	etc.				
			92	No specification of duration, RR relates to a period of approximately 24 hours	

Code 4300

V — Visibility at surface

Code figure	
0	Less than 50 metres (less than 55 yards)
1	50–200 metres (approx. 55–220 yards)
2	200–500 metres (approx. 220–550 yards)
3	500–1,000 metres (approx. 550 yards–5/8 nautical mile)
4	1–2 km (approx. 5/8–1 nautical mile)
5	2–4 km (approx. 1–2 nautical miles)
6	4–10 km (approx. 2–6 nautical miles)
7	10–20 km (approx. 6–12 nautical miles)
8	20–50 km (approx. 12–30 nautical miles)
9	50 km or more (30 nautical miles or more)

Code 4377

VV — Horizontal visibility at surface

Code figure	Km	Nautical Miles
00	< 0.1	< 0.1
01	0.1	< 0.1
02	0.2	0.1
03	0.3	
04	0.4	0.2
05	0.5	
06	0.6	0.3
07	0.7	
08	0.8	0.4
09	0.9	
10	1	0.5
11	1.1	
12	1.2	0.6
13	1.3	
14	1.4	0.7
15	1.5	
16	1.6	0.8
17	1.7	
18	1.8	0.9
19	1.9	
20	2	1.0
21	2.1	1.0
22	2.2	1.1
23	2.3	1.1
24	2.4	1.2
25	2.5	1.2
26	2.6	1.3
27	2.7	1.3
28	2.8	1.4
29	2.9	1.4
30	3	1.5
31	3.1	1.5
32	3.2	1.6
33	3.3	1.6
34	3.4	1.7
35	3.5	1.7
36	3.6	1.8
37	3.7	1.8
38	3.8	1.9
39	3.9	1.9
40	4	2.0
41	4.1	2.0
42	4.2	2.1
43	4.3	2.1
44	4.4	2.2
45	4.5	2.2
46	4.6	2.3
47	4.7	2.3
48	4.8	2.4
49	4.9	2.4
50	5	2.5

Code figure	Km	Nautical Miles
51	Not used	
52		
53		
54		
55		
56	6	3
57	7	3
58	8	4
59	9	4
60	10	5
61	11	5
62	12	6
63	13	6
64	14	7
65	15	7
66	16	8
67	17	8
68	18	9
69	19	9
70	20	11
71	21	11
72	22	12
73	23	12
74	24	13
75	25	13
76	26	14
77	27	14
78	28	15
79	29	15
80	30	16
81	35	19
82	40	22
83	45	24
84	50	27
85	55	30
86	60	32
87	65	35
88	70	38
89	> 70	38
90	< 0.05	< 0.1
91	0.05	< 0.1
92	0.2	0.1
93	0.5	0.3
94	1	0.5
95	2	1.1
96	4	2.2
97	10	5.5
98	20	11.0
99	≧ 50	27.0

Code 4377 continued

Notes:

1) The code is direct reading in units of 100 m (approx. 110 yards or 1/16 statute mile) from 0 to 50.
2) The code figures 51 to 55 are not used.
3) For code figures 56 to 80, 50 is subtracted and the remaining figure is direct reading in units of km (approx. 1,100 yards or 5/8 statute mile).
4) For code figures 81 to 89, the code reads in increments of 5 km (3 1/8 statute miles) from the values given for code figure 80.
5) The code table is to be considered as a coding device in which certain code figures are assigned values. These are discrete values (not ranges). Any observation or forecast of values to be coded in the code table is to be made without regard to the code table. The coding is then accomplished according to the following rule: If the observed or forecast visibility is between two of the reportable distances as given in the table, the code figure for the lower reportable distance is reported.
6) Only code figures 00–89 shall be used for aeronautical purposes at land stations.

Code 4451

V_s — Ship's average speed made good during the three hours preceding the time of observation

Code figure		
0	0 nautical mile per hour	0 kilometer per hour
1	1 – 3 nautical miles per hour	1 – 6 kilometers per hour
2	4 – 6 nautical miles per hour	7 – 12 kilometers per hour
3	7 – 9 nautical miles per hour	13 – 17 kilometers per hour
4	10 – 12 nautical miles per hour	18 – 23 kilometers per hour
5	13 – 15 nautical miles per hour	24 – 28 kilometers per hour
6	16 – 18 nautical miles per hour	29 – 34 kilometers per hour
7	19 – 21 nautical miles per hour	35 – 39 kilometers per hour
8	22 – 24 nautical miles per hour	40 – 44 kilometers per hour
9	Over 24 nautical miles per hour	Over 44 kilometers per hour

Code 4500

W — Past weather

Code figure

0 Cloud covering ½ or less of the sky throughout the appropriate period
1 Cloud covering more than ½ of the sky during part of the appropriate period and covering ½ or less during part of the period
2 Cloud covering more than ½ of the sky throughout the appropriate period
3 Sandstorm, duststorm or drifting snow
4 Fog or thick haze or ice fog.
5 Drizzle
6 Rain
7 Snow, or rain and snow mixed
8 Shower(s)
9 Thunderstorm(s) with or without percipitation

Notes:

1) In the case of a sandstorm, with a temperature below 0°C, the word SANDSTORM is added at the end of the report.
2) In the case of a shower or a thunderstorm, accompanied by hail, the words PAST HAIL are added at the end of the report.
3) In the case of a snow shower or rain and snow mixed, with a temperature above 0°C, the word SNOW or SLEET is added at the end of the report.

Code 4562

W_1 — Forecast weather

Code figure

0 Moderate or good visibility (greater than 5 km/3 nautical miles)
1 Risk of accumulation of ice on superstructures (air temperature between 0 and –5° C)
2 Strong risk of accumulation of ice on superstructures (air temperature below –5° C)
3 Mist (visibility 1–5 km/5/8 to 3 nautical miles)
4 Fog (visibility less than 1 km/5/8 nautical mile)
5 Drizzle
6 Rain
7 Snow or rain and snow
8 Squally weather
9 Thunderstorms

Code 4635

W_e — Type of weather

Code figure	
0	Not allocated
1	Height of base of significant cloud
2	Visibility
3	Wind force
4	Icing
5	Turbulence
6	Squalls
7	Snow cover
8	Saturation (area of 100% relative humidity; i = 0)

Code 4637

W_f — Character of the fog or haze

Code figure		Code figure	
0	Light mist or light haze	5	Moderate fog, decreasing
1	Moderate mist or moderate haze	6	Moderate fog, without change
2	Thick mist or thick haze	7	Moderate fog, increasing
3	Light fog, not increasing	8	Thick fog, decreasing
4	Light fog, increasing	9	Thick fog, without change

Note: The increase or decrease of the fog or haze is determined by comparison of the observations made during the ascent and descent of the aircraft.

Code 4647

W_p — Type of precipitation falling in the flight zone

Code figure		Code figure	
0	Undefined precipitation	5	Rain showers
1	Drizzle	6	Snow showers
2	Rain	7	Snow pellets, hail
3	Snow	8	Rain and thunder
4	Wet snow	9	Hail (snow pellets) and thunder

Code 4663

w_2 — Indication of the element forming the principal object of a report of deterioration or improvement of the weather or for the taking of a special weather report from ship

Code figure	
0	Gusts
1	Wind (either wind direction or speed, or both)
2	Visibility
3	Cloud (amount or height)
4	Precipitation
5	Pressure
6	State of sea or of swell; i.e. waves
7	Duststorm, sandstorm or drifting snow
8	Thunderstorm (with or without precipitation)
9	Squall or tornado

Code 4677

WW — Present weather

ww 00–49 No precipitation at the station at the time of observation

ww 00–19 No precipitation, fog, ice fog (except for 11 and 12) duststorm, sandstorm, drifting or blowing snow at the station * at the time of observation or, except for 09 and 17, during the preceding hour.

Code figure ww		
No meteors except photometeors	00	Cloud development not observed or not observable
	01	Clouds generally dissolving or becoming less developed
	02	State of sky on the whole unchanged
	03	Clouds generally forming or developing
Haze, dust, sand or smoke	04	Visibility reduced by smoke, e.g. veldt or forest fires, industrial smoke or volcanic ashes
	05	Haze
	06	Widespread dust in suspension in the air, not raised by wind at or near the station at the time of observation
	07	Dust or sand raised by wind at or near the station at the time of observation, but no well developed dust whirl(s) or sand whirl(s), and no duststorm or sandstorm seen
	08	Well developed dust whirl(s) or sand whirl(s) seen at or near the station during preceding hour or at the time of observation, but no duststorm or sandstorm
	09	Duststorm or sandstorm within sight at the time of observation or at the station during the preceding hour
	10	Mist
	11	Patches of
	12	More or less continuous — shallow fog or ice fog at the station, whether on land or sea, not deeper than about 2 metres on land or 10 metres at sea
	13	Lightning visible, no thunder heard
	14	Precipitation within sight, not reaching the ground or the surface of the sea
	15	Precipitation within sight, reaching the ground or the surface of the sea, but distant (i.e. estimated to be more than 5 km) from the station
	16	Precipitation within sight, reaching the ground or the surface of the sea, near to, but not at the station
	17	Thunder storm, but no precipitation at the station
	18	Squalls
	19	Funnel cloud(s) ** — at or within sight of the station during the preceding hour or at the time of observation

*) The expression "at the station" refers to a land station or a ship.
**) Tornado cloud or waterspout.

ww = 20–29 Precipitation, fog, ice fog or thunderstorm at the station during the preceding hour but not at the time of observation

Code figure ww		
20	Drizzle (not freezing) or snow grains	not falling as shower(s)
21	Rain (not freezing)	
22	Snow	
23	Rain and snow or ice pellets, type (a)	
24	Freezing drizzle or freezing rain	
25	Shower(s) or rain	
26	Shower(s) of snow, or of rain and snow	
27	Shower(s) of hail, * or of rain and hail *	
28	Fog or ice fog	
29	Thunderstorm (with or without precipitation)	

* Hail, ice pellets type (b), snow pellets

Code 4677 continued

ww = 30 – 39 Duststorm, sandstorm or drifting snow

ww		
30	Slight or moderate duststorm or sandstorm	- has decreased during the preceding hour
31		- no appreciable change during the preceding hour
32		- has begun or has increased during the preceding hour
33	Severe duststorm or sandstorm	- has decreased during the preceding hour
34		- no appreciable change during the preceding hour
35		- has begun or has increased during the preceding hour
36	Slight or moderate drifting snow	generally low (below eye level)
37	Heavy drifting snow	
38	Slight or moderate drifting snow	generally high (above eye level)
39	Heavy drifting snow	

ww = 40 – 49 Fog or ice fog at the time of observation

ww		
40	Fog or ice fog at a distance of the time of observation, but not at the station during the preceding hour, the fog or ice fog extending to a level above that of the observer	
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	
44	Fog or ice fog, sky visible	no appreciable change during the preceding hour
45	Fog or ice fog, sky invisible	
46	Fog or ice fog, sky visible	hos begun or has become thicker during the preceding hour
47	Fog or ice fog, sky invisible	
48	Fog, depositing rime, sky visible	
49	Fog, depositing rime, sky invisible	

ww = 50 – 99 Precipitation at the station at the time of observation

ww = 50 – 59 Drizzle

Code figure ww		
50	Drizzle, not freezing, intermittent	slight at time of observation
51	Drizzle, not freezing, continuous	
52	Drizzle, not freezing, intermittent	moderate at time of observation
53	Drizzle, not freezing, continuous	
54	Drizzle, not freezing, intermittent	thick at time of observation
55	Drizzle, not freezing, continuous	
56	Drizzle, freezing, slight	
57	Drizzle, freezing, moderate or heavy (dense)	
58	Drizzle and rain, slight	
59	Drizzle and rain, moderate or heavy	

Code 4677 continued

ww = 60 – 69 Rain

ww		
60	Rain, not freezing, intermittent	slight at time of observation
61	Rain, not freezing, continuous	
62	Rain, not freezing, intermittent	moderate at time of observation
63	Rain, not freezing, continuous	
64	Rain, not freezing, intermittent	heavy at time of observation
65	Rain, not freezing, continuous	
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	

ww = 70 – 79 Solid precipitation not in showers

ww		
70	Intermittent fall of snow flakes	slight at time of observation
71	Continuous fall of snow flakes	
72	Intermittent fall of snow flakes	moderate at time of observation
73	Continuous fall of snow flakes	
74	Intermittent fall of snow flakes	heavy at time of observation
75	Continuous fall of snow flakes	
76	Ice prisms (with or without fog)	
77	Snow grains (with or without fog)	
78	Isolated starlike snow crystals (with or without fog)	
79	Ice pellets type (a)	

ww = 80 – 99 Showery precipitation, or precipitation with current or recent thunderstorm

Code figure ww		
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 ice pellets, type (b), with or without rain or rain and snow mixed	—slight
88		—moderate or heavy
89	Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder	—slight
90		—moderate or heavy
91	Slight rain at time of observation	thunderstorm during the preceding hour but not at time of observation
92	Moderate or heavy rain at time of observation	
93	Slight snow, or rain and snow mixed or hail ** at time of observation	
94	Moderate or heavy snow, or rain and snow mixed or hail ** at time of observation	
95	Thunderstorm, slight or moderate, without hail **, but with rain and/or snow at time of observation	thunderstorm at time of observation
96	Thunderstorm, slight or moderate, with hail ** at time of observation	
97	Thunderstorm, heavy without hail **, but with rain and/or snow at time of observation	
98	Thunderstorm combined with duststorm or sandstorm at time of observation	
99	Thunderstorm, heavy, with hail ** at time of observation	

** Hail, ice pellets, type (b), snow pellets

W_sW_s — Significant weather

Code figure		Code figure	
00	Area of heavy swell	55	Area of gales (8 Beaufort or more)
11	Area of strong winds (6 and 7 Beaufort)	66	Area of continuous precipitation
22	Area of medium cloud	77	Area of squally weather
33	Area of low cloud	88	Area of heavy showers
44	Area of poor visibility	99	Area of thunderstorms

Code 4687

W_1W_1 — Forecast weather at surface (to be used in aeronautical forecast codes)

Code figure		
00	No cloud	
01	Clouds dissipating	
02	State of sky not changing	
03	Clouds increasing	
04	Smoke	
05	Haze	
06	Widespread dust* In suspension	
07	Dust/sand raised by wind	
08	Well developed dust whirls or sand whirls	
09	—	
10	Mist	
11	Shallow fog or ice fog (in patches)	
12	Shallow fog or ice fog (continuous)	
13	Lightning	
14	—	
15	Precipitation within sight, distant from the station	
16	Precipitation within sight, near to the station	
17	Thunderstorm, but no precipitation	
18	Squall(s)	
19	Funnel cloud(s)	
20–29	—	
30	—	
31	Slight or moderate duststorm or sandstorm	
32	—	
33	—	
34	Severe duststorm or sandstorm	
35	—	
36	Slight or moderate drifting snow	low (below eye level)
37	Heavy drifting snow	low (below eye level)
38	Slight or moderate blowing snow	high (above eye level)
39	Heavy blowing snow	high (above eye level)
40	Fog or ice fog at distance	
41	Fog or ice fog in patches	
42	Fog or ice fog, sky visible	thinning
43	Fog or ice fog, sky invisible	thinning
44	Fog or ice fog, sky visible	
45	Fog or ice fog, sky invisible	
46	Fog or ice fog, sky invisible	thickening
47	Fog or ice fog, sky invisible	thickening
48	Fog, depositing rime, sky visible	
49	Fog, depositing rime, sky invisible	

Code figure		
50	Drizzle, slight, intermittent	
51	Drizzle, slight, continuous	
52	Drizzle, moderate, intermittent	
53	Drizzle, moderate, continuous	
54	Drizzle, heavy (dense), intermittent	
55	Drizzle, heavy (dense), continuous	
56	Drizzle, slight, freezing	
57	Drizzle, moderate or heavy (dense), freezing	
58	Drizzle and rain, slight	
59	Drizzle and rain, moderate or heavy	
60	Rain, slight, intermittent	
61	Rain, slight, continuous	
62	Rain, moderate, intermittent	
63	Rain, moderate, continuous	
64	Rain, heavy, intermittent	
65	Rain, heavy, continuous	
66	Rain, slight, freezing	
67	Rain, moderate or heavy, freezing	
68	Rain or drizzle and snow, slight	
69	Rain or drizzle and snow, moderate or heavy	
70	Snow, slight, intermittent	
71	Snow, slight, continuous	
72	Snow, moderate, intermittent	
73	Snow, moderate, continuous	
74	Snow, heavy, intermittent	
75	Snow, heavy, continuous	
76	Ice prisms	
77	Snow grains	
78	—	
79	Ice pellets type (a)	
80	Rain shower(s), slight	
81	Rain shower(s), moderate or heavy	
82	Rain shower(s), violent	
83	Shower(s) of rain and snow, slight	
84	Shower(s) of rain and snow, moderate or heavy	
85	Snow shower(s), slight	
86	Snow shower(s), moderate or heavy	
87	Shower(s) of snow pellets or ice pellets type (b) with or without rain or rain and snow mixed	—slight
88	Shower(s) of snow pellets or ice pellets type (b) with or without rain or rain and snow mixed	—moderate or heavy
89	Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder	—slight
90	Shower(s) of hail, with or without rain or rain and snow mixed, not associated with thunder	—moderate or heavy
91	—	
92	—	
93	—	
94	—	
95	Thunderstorm, slight or moderate, with rain or snow	
96	Thunderstorm, slight or moderate, with hail	
97	Thunderstorm, heavy, with rain or snow	
98	Thunderstorm, combined with duststorm or sandstorm	
99	Thunderstorm, heavy, with hail	

* Dust haze

Code 4865

x_4 — Hemisphere indicator

Code figure	
0	Northern hemisphere
1	Southern hemisphere

Code 4887

X_1X_1 — Form in which point position groups are given

Code figure	
00	Positions in form $L_aL_aL_oL_ok$ (Northern hemisphere)
11	Positions in form $L_aL_aL_oL_ok$ (Southern hemisphere)
22	Positions in form $L_aL_aL_oL_ok$ (Equatorial)
66	Positions in form $iiiD_1s_1$
88	Positions in form $QL_aL_aL_oL_o$

Code 4892

$X_2X_2X_2$ — Indicator for specifying the type of analysis
$X_3X_3X_3$ — Value designator of a given chart or analysis

Code figure	$x_2x_2x_2$	$x_3x_3x_3$
000	Jet stream analysis	—
111	Constant level chart	in geopotential decameters or hundreds of geopotential feet
222	Isobaric (constant pressure) surface	in whole millibars (except that for the 1,000 mb chart, $x_3x_3x_3$ = 000)
333	Isentropic chart	in whole degrees Kelvin
444	Cross section chart	—
555	Thickness pattern chart	to be followed by two $00x_3x_3x_3$ groups giving the pressure of the upper and lower isobaric surfaces respectively in whole millibars (except that for the 1,000 mb chart, $x_3x_3x_3$ = 000)
666	Pressure or geopotential change chart*	in whole millibars, or in geopatential decametres
777	Isothermal chart	in whole degrees Celsius (add 500 for minus values)
888	Flow analysis	in whole millibars
999	Tropopause analysis	$x_3x_3x_3$ is indicated by ///
///	Upper wind analysis	—

* When $X_2X_2X_2$ = 666, the 86668 group should be followed by either 81118 or 82228 to indicate whether the chart is for a constant level or a constant pressure surface.

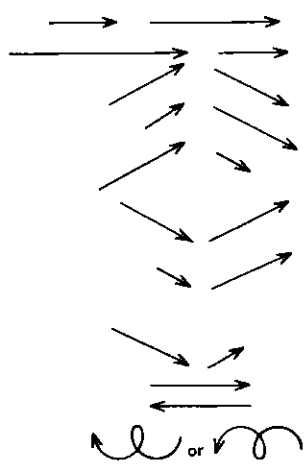
Code 4900

Y — Day of the week

Code figure	
1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

Code 5100

Z — Character of the change of the wind in the vertical at the significant point
Z_b — Character of the change of the wind at the tropopause

Code figure		Graphical descriptions
0	Wind has sharply increased in speed, no change in direction	
1	Wind has sharply decreased in speed, no change in direction	
2	Wind veering with increased height, no change in wind speed	
3	Wind veering with increased height, with a sharp increase in wind speed	
4	Wind veering with increased height, with a sharp decrease in wind speed	
5	Wind backing with increased height, no change in wind speed	
6	Wind backing with increased height, with a sharp increase in wind speed	
7	Wind backing with increased height, with a sharp decrease in wind speed	
8	Wind has shifted almost 180° in direction	
9	Wind has described a complete loop, either to the right or to the left	

Code 5122

Z_T — Character of the temperature reported by TT

Code figure	TT
0	0° or higher
5	1° to -90° inclusive
6	100° to -199° inclusive
/	missing

Code 5162

Z_1 — Nature of evolution of zone S_2

Code figure	
0	No change
1	Increasing in intensity without extension
2	Extending without increase of intensity
3	Extending and increasing in intensity
4	Stopped by the high ground
5	Weakening in advancing
6	Weakening in position
7	Disintegrating or rapidly dissipating
8	Dissipating in the valleys
9	Dissipating on the heights

Code 5177

ZZ — Meteorological zone number by 5 degrees of longitude or latitude

EAST – WEST ZONES			NORTH – SOUTH ZONES	
Zone No	West longitude	East longitude	Zone No	Latitude
01	0° - 5°	180° - 175°	51	90° N - 85° N
02	5° - 10°	175° - 170°	52	85° N - 80° N
03	10° - 15°	170° - 165°	53	80° N - 75° N
04	15° - 20°	165° - 160°	54	75° N - 70° N
05	20° - 25°	160° - 155°	55	70° N - 65° N
06	25° - 30°	155° - 150°	56	65° N - 60° N
07	30° - 35°	150° - 145°	57	60° N - 55° N
08	35° - 40°	145° - 140°	58	55° N - 50° N
09	40° - 45°	140° - 135°	59	50° N - 45° N
10	45° - 50°	135° - 130°	60	45° N - 40° N
11	50° - 55°	130° - 125°	61	40° N - 35° N
12	55° - 60°	125° - 120°	62	35° N - 30° N
13	60° - 65°	120° - 115°	63	30° N - 25° N
14	65° - 70°	115° - 110°	64	25° N - 20° N
15	70° - 75°	110° - 105°	65	20° N - 15° N
16	75° - 80°	105° - 100°	66	15° N - 10° N
17	80° - 85°	100° - 95°	67	10° N - 5° N
18	85° - 90°	95° - 90°	68	5° N - 0°
19	90° - 95°	90° - 85°	69	0° N - 5° S
20	95° - 100°	85° - 80°	70	5° N - 10° S
21	100° - 105°	80° - 75°	71	10° S - 15° S
22	105° - 110°	75° - 70°	72	15° S - 20° S
23	110° - 115°	70° - 65°	73	20° S - 25° S
24	115° - 120°	65° - 60°	74	25° S - 30° S
25	120° - 125°	60° - 55°	75	30° S - 35° S
26	125° - 130°	55° - 50°	76	35° S - 40° S
27	130° - 135°	50° - 45°	77	40° S - 45° S
28	135° - 140°	45° - 40°	78	45° S - 50° S
29	140° - 145°	40° - 35°	79	50° S - 55° S
30	145° - 150°	35° - 30°	80	55° S - 60° S
31	150° - 155°	30° - 25°	81	60° S - 65° S
32	155° - 160°	25° - 20°	82	65° S - 70° S
33	160° - 165°	20° - 15°	83	70° S - 75° S
34	165° - 170°	15° - 10°	84	75° S - 80° S
35	170° - 175°	10° - 5°	85	80° S - 85° S
36	175° - 180°	5° - 0°	86	85° S - 90° S

BALTIC ICE CODE

This code is used by the following countries: Belgium, Denmark, Federal Republic of Germany, Finland, Norway, Poland, Sweden and USSR.

CODE FORM

The code form is the following:

ICE AA ijkijk ijkijk ijkijk
BB ijkijk ijkijk ijkijk
etc.

NOTES: (1) The index letters AA, BB, etc., are included in the message to indicate to which main group of zones the following 3 six-figure groups refer.

(2) Each main group of zones is composed of 6 zones; information for each zone is given by a triad ijk, so that each six-figure group refers to two zones.

(3) If the code figures for ijk are the same for all zones of a main group only one triad ijk is included after the index letters of the main group, e.g., CC 502.

(4) If ice conditions are uniform over all the zones pertaining to several successive main groups only the index letters of the first and last of these main groups are given, followed by the triad ijk depicting the prevailing ice conditions, e.g., DD–HH 000.

TABLE I

(Character of the Ice = i)

0 – No ice.
1 – New ice (ice crystals/frazil crystals, slush/sludge, pancake-ice or ice-rind).
2 – Young or rotten fast ice.
3 – Very open or open pack-ice/very open or open drift-ice.
4 – A compressed accumulation of slush/sludge or small pancake ice. (A thick layer of ice formed where free drift is obstructed.)
5 – Winter fast-ice
6 – Close pack-ice/close drift-ice.
7 – Very close pack-ice/very close drift-ice.
8 – Pressure ice-screw/ice or ice-fields, consisting of heavy floes.
9 – Shore lead.
x – No information.

TABLE II

(Ice Development = j)

0 – No change.
1 – Ice situation getting better.
2 – Ice situation getting worse.
3 – Ice breaking up.
4 – Ice opening or drifting away.
5 – Ice increasing.
6 – Ice freezing together.
7 – Ice drifting in or pressing together.
8 – Warning for pressure ridges.
9 – Warning for hummocking or ice-screwing.
x – No information.

TABLE III

(Effect of the Ice on Navigation = k)

0 – Navigation unobstructed.
1 – Navigation unobstructed for power-driven vessels built of iron and steel, dangerous for wooden vessels without ice-sheathing.
2 – Navigation difficult for low-powered vessels without assistance of ice-breaker, dangerous for vessels of weak construction.
3 – Navigation possible only for high-powered vessels of strong construction.
4 – Ice-breaker assistance available in case of need.
5 – Navigation unobstructed in channel in fast-ice previously made by ice-breaker.
6 – Navigation possible only with assistance of ice-breaker.
7 – Ice-breaker can give assistance only to ships strenthened for navigation in ice.
8 – Navigation temporarily closed.
9 – Navigation closed.
x – No information.

Note.—When conditions in all the areas in one or more main groups are the same, the message can be abbreviated thus: AA xx8 or CC–RR 000. If there is no report from a main group, the designated letters (AA, BB, etc.) are omitted.

METEOROLOGICAL CODES OF CHINESE PEOPLE'S REPUBLIC

THESE CODES DO NOT CONFORM WITH THE RECOGNIZED WMO CODES

ATTACHMENT A

SYNOP

IIiii Nddf$_m$f$_m$ VVwwW PPPTT $N_hC_Lh_hC_mC_h$ $T_dT_d$app ($7R_{12}R_{12}T_{e12}T_{e12}$) $xRR\,T_eT_e\,T_gT_g$ $8N_sC_sh_s$ $9S_pS_ps_ps_p$ hhhP_1P_1 $22R_1R_1R_1$

NOTES: 1. The SYNOP code is used for 3- and 6-hourly observations.

2. Peiping Standard Time is used in this report except that the observation time of T_gT_g in the $xRRT_gT_g$ group is Local Standard time.

3. Supplementary groups are reported in accordance with the following table:

IIiii $-T_dT_d$app plus

Z	P	$7R_{12}R_{12}T_{e12}T_{e12}$	$xRRT_.T_.$	$8N_sC_sh_s$	$9S_pS_ps_ps_p$	hhhP_1P_1	$22R_1R_1R_1$
00	08	"	$xRRT_gT_g$ [1]	"	"	"	"
03	11			"	"	"	
06	14		$xRRT_eT_e$ [2]	"	"	"	
09	17			"	"	"	
12	20	"	xRRxx	"	"	"	
15	23			"	"	"	
18	02		$xRRT_eT_e$ [3]	"	"	"	
21	05			"	"	"	

(1) This group is reported when ground temperature is −5°C to +5°C.

(2) T_eT_e means past 24-hour minimum temperature.

(3) T_eT_e means past 24-hour maximum temperature.

(4) $8N_sC_sh_s$ may be repeated to report a number of layers of clouds. The order of reporting the groups is always from low to high levels.

SYNOP CODE BREAKDOWN

IIiii – Station index number

N – The fraction of the celestial dome covered by cloud.

dd – True direction, in tens of degrees, from which the wind is blowing.

f_mf_m – Wind speed in meters per second (m/s).
(1) With an anemometer with a heavy plate, and a wind speed over 40 m/s, 88 is entered for f_mf_m.

VV – Horizontal visibility in kilometers (k/m).

ww – Present weather.

W – Past weather.

PPP – Pressure in tenths of millibars.
(1) At stations with elevation of 1,500m or more, PPP in group PPPTT is reported as xxx.

TT – Air temperature in whole degrees Celsius.

N_h – Amount of cloud, the height of whose base is reported by h.

C_L – Clouds of genera Sc, St, Cu, and Cb.

h – Height above ground, of the base of the cloud.

C_m – Clouds of genera Ac, As, and Ns.

C_h – Clouds of genera Ci, Cs, and Cc.

T_dT_d – Dew point temperature in whole degrees Celsius.

a – Characteristic of pressure tendency during the three hours preceding the time of observation.

pp – Amount of pressure tendency during the three hours preceding the time of observation, in tenths of millibars.

$R_{12}R_{12}$ – Amount of precipitation for the past 24-hours.

$T_{e12}T_{e12}$ – Extreme temperature in whole degrees Celsius.
(1) At 0800 PST, the minimum night-time temperature and at 2000 PST, the maximum day-time temperature are given for $T_{e12}T_{e12}$.

T_gT_g – Ground temperature in whole degrees Celsius.

$8N_sCh_shs$ – Cloud group, height reported in meters (convert to feet).

$9S_pS_ps_ps_p$ – Special phenomena group.

hhh – The height of the nearest "constant pressure level" of the station, in whole meters.

(1) The $hhhP_1P_1$ is used to report the height of the nearest constant pressure level of the station and station pressure.

(2) At stations with elevation 800m, this group is not reported.
ore reported.

(3) At stations with elevation 800m to 1,500m, both PPP and hhh (height of 850mb) are reported.

(4) At stations with elevation 1,500m to 2,300m, the height of 850mb is reported for hhh, in place of PPP.

(5) At stations with elevation 2,300m to 3,700m, the height of 700mb is reported for hhh, in place of PPP.

(6) At stations with elevation 3,700m or more, the height of 500mb is reported for hhh, in place of PPP.

P_1P_1 – Station pressure in whole millibars.

$22R_1R_1R_1$ – Amount of precipitation for the day in whole millimeters (mm).

(1) When the amount of precipitation is more than 0.5mm, the $22R_1R_1R_1$ is reported.

ATTACHMENT B

TEMP

Section 1	$GGh_1h_1h_1$	$(T_1T_1T_{d1}T_{d1}T_{x1}$	Oddff)	
	$85h_2h_2h_2$	$T_2T_2T_{d2}T_{d2}T_{x2}$	Oddff	
	$70h_3h_3h_3$	$T_3T_3T_{d3}T_{d3}T_{x3}$	Oddff	
	$50h_4h_4h_4$	$T_4T_4T_{d4}T_{d4}T_{x4}$	Oddff	
	$40h_5h_5h_5$	$T_5T_5T_{d5}T_{d5}T_{x5}$	Oddff	
	$30h_6h_6h_6$	$T_6T_6T_{d6}T_{d6}T_{x6}$	Oddff	
	$20h_7h_7h_7$	$T_7T_7T_{d7}T_{d7}T_{x7}$	Oddff	
	$10h_8h_8h_8$	$T_8T_8T_{d8}T_{d8}T_{x8}$	Oddff	
Section 2	55555			
	$OOP_0P_0P_0$	$T_0T_0T_{d0}T_{d0}T_{x0}$	(Oddff)	
	$n_1n_1P_1P_1P_1$	$T_1T_1T_{d1}T_{d1}T_{x1}$	(Oddff)	
	$n_2n_2P_2P_2P_2$	$T_2T_2T_{d2}T_{d2}T_{x2}$	(Oddff)	
Section 3	66666			
	$P_1P_1P_1T_1T_1$		(Oddff)	
	$P_2P_2P_2T_2T_2$		(Oddff)	
Section 4	22222			
	22233	ChhHH ChhHH	22244	W_phhHH w_phhHH
	22255	B_1hhHH B_1hhHH	22266	I_1hhHH I_1hhHH
	22277	W_fhhHH w_fhhHH	22288	$KN_1N_2N_3N_4$ $N_5N_6N_7N_8N_9$
				$99N_zC_zC_z$ $88H_cH_cH_c$
Section 5	33333			
	70hhh	$1d_fd_tf_tf_t$		
	50hhh	$2d_fd_tf_tf_t$		
	35hhh	$3d_fd_tf_tf_t$		
Section 6	11111			
	$6H_zH_zH_zH_z$	$6d_zd_zf_zf_z$	$S_tH_tH_tT_tT_t$	

NOTES:
1. The recommended constant pressure surfaces (levels) for which data should be transmitted in Section 1 are the standard reference surfaces for 1,000mb, 850mb, 700mb, 500mb, 400mb, 300mb, 200mb, and 100mb. The code symbol of $h_1h_1h_1$ refers to the geopotential of the 1,000mb surface.
2. Section 2 significant levels data, the code figure nn – 00 is used to refer to surface data only; the successive levels are numbered 11, 22, ..., 99, 11, 22, etc.
3. Only wind data obtained, either by visual or electronic means, from an ascent in which the pressure is observed and from which temperature and other data are computed, should be included in the upper air report; PILOT or wind data obtained by means other than the radiosonde ascent should not be included.
4. Section 4 is used to report visual observations of clouds, precipitation, turbulence, icing and fog, made during aerometeorolograph soundings. The groups may be repeated as many times as required. If a particular element is not observed at any time during the ascent, the particular group and the data group are omitted.
5. Section 5 is used to report thickness data and thermal wind data.
6. Section 6 is used to report maximum wind data and tropopause data above 5,000m MSL.
7. Code figure 99 is reported for missing air temperature and dew point.
8. Missing data for other elements are reported by the appropriate number of X's.

TEMP CODE BREAKDOWN

Iliii	– Station index number
GG	– Actual time of observation to the nearest quarter hour GMT. (1) HH + 08 – HH + 22: GG + 25 HH + 23 – HH + 37: GG + 50 HH + 38 – HH + 52: GG + 75
Section 1	– See International Code.
Section 2	– See International Code.
Section 3	– See Internatianol Code.
22288	– Cloud information follows.
K	– Number of clouds layers penetroted by the aircraft.
N_1 – N_9	– Amount of cloud on each layer. (1) The order of reporting the cloud layer is always from low to high levels.
99	– Indicotor for cloud information above aircraft follows.
N_z	– Amount of cloud in tenths in each layer.
C_z	– Type of cloud not reached by the aircraft.
88	– Indicator for cloud information of type of cumulus-system cloud neor the aircraft follows.
C_c	– C_c Specification 1. Cumulus 2. Cumulus congestus 3. Cumulonimbus
H_cH_c	– Height of the top of the cloud reported by C_c, in kilometers.
70	– Indicator for information follows on thickness between 700mb – 1,000mb.
50	– Indicator for information follows on thickness between 500mb – 1,000mb.
35	– Indicator for information follows on thickness between 300mb – 500mb.
hhh	– Thickness in tens of meters.
1	– Indicator for thermal wind data between 700mb and at 1,000mb.
2	– Indicator for thermal wind data between 500mb and at 1,000mb.
3	– Indicator for thermal wind data between 300mb and at 500mb.
d_td_t	– Thermal wind direction in tens of degrees.
f_tf_t	– Thermal wind speed in meters per second. (1) At stations with elevation 1,000m to 1,500m MSL, the $2d_td_tf_tf_t$, thermal wind data between 2,000m to 5,500m will be reported. (2) At stations with elevation 1,500m or more, the $2d_td_tf_tf_t$ group is omitted.

TEMP SHIP

Iliii	– $YQL_aL_aL_a$ $L_aL_oL_oGG$
$GGh_1h_1h_1$	– $OOh_1h_1h_1$

ATTACHMENT C

PILOT

IIiii

Section 1 GGi_hDf_a Hddff ....

Section 2 44444 8ddff 7ddff 5ddff 4ddff 3ddff 2ddff 1ddff

Section 3 88888 ($1d_td_tf_tf_t$) $2d_td_tf_tf_t$ ($3d_td_tf_tf_t$)

Section 4 (55555 $H_zH_zH_zH_zZ$ $H_zH_zH_zH_zZ$ .....)

Section 5 11111 $6H_zH_zH_zH_z$ $6d_zd_zf_zf_z$

NOTES:

1. Groups in porentheses are optional data which may or may not be included in the report depending on specified conditians.
2. If a particular element is not observed, the indicator group and the data group are omitted from the report.
3. Section 1 is used to report winds at successive levels.
4. Section 2 (selected levels) is used to indicate wind data, if available, for the levels of either 1,500, 3,000, 5,500, 7,000,9,000, 12,000, and 16,000 meters (when i_h equals 0–3 or 5–8) or 1,500, 3,000, 5,400, 7,200, 9,000, 12,000, and 15,900 meters (when i_h equals 4 or 9). These altitudes approximate the standard pressure levels of 850, 700, 500, 400, 300, 200, and 100 millibars, respectively.
5. Section 3 is used to report thermal wind data.
6. Section 4 is used to report significant wind direction shifts and speed changes.
7. Section 5 is used only when the wind speed exceeds 30 meters per second (60 knots) at some level above the 500mb level.

PILOT CODE BREAKDOWN

IIiii – Station index number.

GG – Actual time of observation to the nearest quarter hour GMT. (See: TEMP GG, attachment B.)

i_h – Interval indicator up to 1,000m MSL.

i_h

0 – No supplementary group

1 – One supplementary group

2 – Two supplementary groups

3 – Three supplementary groups

The above code is used for PILOT, RAWIN and RABAL.

D – Surface wind direction.

f_a – Surface wind speed in units of 5 meters per second.

H – Height.

H	Height	H	Height
3	300m above graund	5	5,000m MSL
6	600m above ground	0	10,000m MSL
9	900m above ground	4	14,000m MSL
1	1,000m MSL	8	18,000m MSL
2	2,000m MSL	0	20,000m MSL
x	2,500m MSL	2	22,000m MSL
4	4,000m MSL		Every 2,000m MSL

dd – Wind direction in tens of degrees.

ff – Wind speed in meters per second.

44444 – Indicator group.

8 – Indicator of 850mb data follows.

7 – Indicator for 700mb data follows.

5 – Indicator for 500mb data follows.

4 – Indicator for 400mb data follows.

3 – Indicator for 300mb data follows.

2 – Indicator for 200mb data follows.

1 – Indicator for 100mb data follows.

88888 – Indicator group.

1 – Indicator for thermal wind data between 700mb and at 1,000mb.

2 – Indicator for thermal wind data between 500mb and at 1,000mb.

3 – Indicator for thermal wind data between 300mb and at 500mb.

$d_t d_t$ – Thermal wind direction in tens of degrees.

$f_t f_t$ – Thermal wind speed in meters per second.

(1) At stations with elevation 1,000m to 1,500m MSL, the $2d_t d_t f_t f_t$ group, thermal wind data between 2,000m to 5,500m will be reported.

(2) At stations with elevation 1,500m or more, the $2d_t d_t f_t f_t$ group is omitted.

(3) If a RABAL observation is taken, the thermal wind data between 1,000mb – 700mb, 1,000 – 500mb and 500mb – 300mb will be reported.

55555 – Indicator group.

$H_z H_z H_z H_z$ – Altitude of significant point of the wind, in geopotential meters.

Z – Character of the change of the wind in the vertical at the significant point.

(1) $H_z H_z H_z H_z Z$ is reported when:

(a) Wind speed changes 5 m/s or more, within 500m layer.

(b) Wind shifts 30° or more, within 500m layer.

(2) $H_z H_z H_z H_z Z$ group should be reported 3 groups or less.

11111 – Indicator group.

6 – Indicator for maximum wind data follows.

$d_z d_z$ – Maximum wind direction in tens of degrees.

$f_z f_z$ – Maximum wind speed in meters per second.

PILOT SHIP

IIiii – $UQL_a L_a L_a \quad L_o L_o L_o GG$

$GGi_h Df_a$ – $OOi_h Df_a$

ATTACHMENT D

ANALYSIS

10001	333_x1_x1	$0YYG_cG_c$ or
10001	333_x1_x1	$0YYG_cG_c$ $8_{x2x2x2}8$ 00_{x3x3x3} or
65556	333_x1_x1	$0YYG_cG_c$ $000G_pG_p$ or
65556	333_x1_x1	$0YYG_cG_c$ $000G_pG_p$ $8_{x2x2x2}8$ 00_{x3x3x3}
(99900)		
(9NNSS)	$8P_t\,P_cPP$ or $8h_th_chh$	yyyyy (.....) $(md_sd_sf_sf_s)$ $(00C_100)$
(99911)		
(9NNSS)	$66F_t\,F_i\,F_c$	yyyyy yyyyy ..... $(md_sd_sf_sf_s)$ $(0CC_100)$
(99922)		
4e1uuu	yyyyy yyyyy ..... $(00C_100)$	
(99933)		
$33M_hM_sM_t$	yyyyy yyyyy ..... $(00C_100)$	
(99944)		
$989w_ei$ or $988ww$ or $987w_sw_s$	yyyyy yyyyy ..... $(md_sd_sf_sf_s)$ $(00C_100)$	
(99955)		
(9NNSS)	$(55T_t\,T_i\,T_c)$ (555PP) (5555T)	yyyyy yyyyy ..... $(md_sd_sf_sf_s)$ $(00C_100)$
(99966)		
$2C_xS_1S_2Z_1$	yyyyy yyyyy ..... $(md_sd_sf_sf_s)$ $(00C_100)$	
(99977)		
88uuu	yyyyy ..... (A section of ISOPLETH)	
77744	..... Vocabulary groups	44777

NOTES:

1. This code form is known as the International Analysis Code (IAC).
2. Notes pertaining to this International Analysis Code can be found under World Meteorological Organization (WMO) FM Code 45.
3. The 99977 group is used by the CPR as follows:
   88 – Indicator
   uuu – Value of isopleth in millimeters (mm).
   (a) This section will only be included during the period from 1 May to 30 September.
   (b) In the 00z Surface analysis chart, this section will report the forecast 24 hour rainfall amount ending at 00z next day. The whole section will be omitted if no rain is expected.
   (c) If there should be major change in the forecast, this section will be inserted in the 06z analysis chart again with the same period of validity i.e., 00z. This section will not appear in the 06z analysis if no correction is required.
   (d) This section will not appear in the other analysis charts.
   (e) Since isobars are analyzed for each 2.5 mbs in our Service, code figures 002, 007, etc., will respectively represent the isobaric values 1002.5, 1007.5, etc.
   (f) In the upper air analysis, contour lines will be reported in geopotential decameters.

INFORMATION DATED: 1 April 1957

OPNAV FORM 3140-2 (Rev. 1-64)
(Effective January 1, 1964)

RECCO CODE

(Aerial Meteorological Reconnaissance Reporting Code)

DATE _____ TYPE A/C _____
ORGANIZATION _____ OBSERVER _____

Section 1 — MANDATORY | Section 2 — OPTIONAL

	Group	Time (GCT) of Observation (hours and minutes)	Humidity Indicator	Day of Week	Octant of Globe	Latitude	Longitude	Turbulence	Flight Conditions	True Altitude of Aircraft (100's of ft. or decameters above m. s. l.)	Type of Wind at Flight Altitude	Reliability of Wind at Flight Altitude	Wind Direction at Altitude (100's of degrees, true)	Wind Speed at Altitude (hhh, knots)	Temperature	Dew Point	Present Weather	Remarks on Present Weather	Index pertaining to HHH	Altitude and Other Data
							In tens, units, and tenths of degrees									In Whole Degrees Celsius				
SEE TABLE	9 xxx 9	GGgg	i_v	Y	Q	$L_a L_a L_a$	$L_o L_o L_o L_o$	B	f_c'	hhh	d_t	d_a	dd	fff	TT	$T_d T_d$	w	m	j	HHH
	1		2	3	4			5	6		7	8					9	10	11	
SEE NOTE	8	9	9	10		10	11 12	13		14 15	15				16	17	18	19		

	Group Indicator	Total Number of Cloud Layers Reported	Cloud Amount (1st layer)	Cloud Amount (2nd layer)	Cloud Amount (3rd layer)	Cloud Type	Altitude of Base of Cloud Type Reported by C	Altitude of Top of Cloud Type Reported by C	Cloud Type	Altitude of Base of Cloud Type Reported by C	Altitude of Top of Cloud Type Reported by C	Cloud Type	Altitude of Base of Cloud Type Reported by C	Altitude of Top of Cloud Type Reported by C	Group Indicator	Direction of Surface Wind (100's of degrees, true)	Wind Speed of Surface (knots)	Group Indicator	Direction of Surface Wind	Force of Surface Wind	State of Sea	Direction of Swell	Group Indicator	Significant Changes in Weather	Distance of Occurrence of WS	Weather Off Course	Bearing (rad.) of Weather Off Course	Group Indicator	Rate of Icing	Type of Icing and Controls	Distance to Beginning of Icing	Distance to Ending of Icing	Group Indicator	Altitude of Base of Icing	Altitude of Top of Icing	Group Indicator	Bearing of Echo Center from Aircraft (10's of degrees, true)	Distance to Echo Center (10's of naut. mi.)	Orientation of Ellipse	Group Indicator	Ellipse Width or Echo Diameter (10's of naut. mi.)	Length of Major Axis (10's of naut. mi.)	Character of Echo	Intensity of Echo	Plain Language Remarks
SEE TABLE	I	k_n	N_1	N_2	N_3	C	hh	HH	C	hh	HH	C	hh	HH	4	dd	ff	5	D	F	S	D_K	6	W_S	S_S	W_C	D_W	7	I_r	I_t	S_b	S_e	7	$h_i h_i$	$H_i H_i$	8	$d_i d_i$	S_r	O_e	8	w_e	a_e	c_e	i	
			12			13	14		13	14		13	14					15	16	17	15		18	19	20	15		21	22	19			14				23						24	25	
SEE NOTE	20	21	22			23 – 25			23 – 25			23 – 25			26	27	28	26	29	30	31	32	33	34	35	36	37	38	39	40	41	37	42	43	44	45	46	44			47		54 – 55	

Sounding Data .....

.....

.....

TABLE 1: 9xxx9

91119 Altitude in feet	RECCO Report without RADAR Data
92229 Altitude in meters	
93333 Pressure (mbs)	
94444 Not assigned	
95555 Not assigned	
96669 Altitude in feet	RECCO Report with RADAR Data
97779 Altitude in meters	
98889 Pressure (mbs)	
99999 Not assigned	

TABLE 2: i_v

0 C., No humidity report
1 C., Relative humidity
2 C., Diff. between dry bulb and wet bulb temp.
3 C., Diff. between dry bulb and dew point temp.
4 C., Data plotted

TABLE 3: Y

1	Sunday
2	Monday
3	Tuesday
4	Wednesday
5	Thursday
6	Friday
7	Saturday

TABLE 4: Q

0	0 - 90 W	North Latitude
1	90 - 180 W	
2	180 - 90 E	
3	90 - 0 E	
4		
5	0 - 90 W	South Latitude
6	90 - 180 W	
7	180 - 90 E	
8	90 - 0 E	

TABLE 5: B

0 None
1 Light turbulence
2 Mod. tur. in clear air, infrequent
3 Mod. tur. in clear air, frequent
4 Mod. tur. in cloud, infrequent
5 Mod. tur. in cloud, frequent
6 Severe tur. in clear air, infrequent
7 Severe tur. in clear air, frequent
8 Severe tur. in cloud, infrequent
9 Severe tur. in cloud, frequent

TABLE 6: f_c'

0 Total amount of cloud less than 1/8
1 Total cloud amount at least 1/8, with either 1/8 - 4/8 above or 1/8 - 4/8 below, or combinations thereof
2 Cloud amount more than 4/8 above and 0 - 4/8 below
3 Cloud amount 0 - 4/8 above and more than 4/8 below
4 Cloud amount more than 4/8 above and more than 4/8 below
5 Chaotic sky - many undefined layers
6 In and out of clouds, on instruments 25% of time
7 In and out of clouds, on instruments 50% of time
8 In and out of clouds, on instruments 75% of time
9 In clouds all of the time, continuous instrument flight
/ Impossible to determine due to darkness

TABLE 7: d_t

0 Spot wind
1 Winds averaged over 100 naut. miles preceding last fix
2 Winds averaged over 200 naut. miles preceding last fix
3 Winds averaged over 300 naut. miles preceding last fix
4 Winds averaged over 400 naut. miles preceding last fix
5 Winds averaged over 100 naut. miles preceding last fix
6 Winds averaged over 200 naut. miles preceding last fix
7 Winds averaged over 300 naut. miles preceding last fix
8 Winds averaged over 400 naut. miles preceding last fix
9 Winds averaged over more than 400 nautical miles

Last fix 25 naut. miles prior to this position
Last fix 75 naut. miles prior to this position

TABLE 8: d_a

0 90% to 100% reliable
1 75% to 100% reliable
2 60% to 100% reliable
3 75% to 90% reliable
4 60% to 90% reliable
5 50% to 75% reliable
6 Less than 50% reliable
7 No reliability
8 No wind
9 Not used (See Note 19)

TABLE 9: w

0 Clear (no cloud at any level)
1 Partly cloudy (scattered or broken)
2 Continuous layer(s) of cloud(s)
3 Sandstorm, duststorm, or storm of drifting snow
4 Fog, thick dust, or haze
5 Drizzle
6 Rain
7 Snow or rain and snow mixed
8 Shower(s)
9 Thunderstorm(s)

TABLE 10: m

0 Light intermittent
1 Light continuous
2 Moderate intermittent
3 Moderate continuous
4 Heavy intermittent
5 Heavy continuous
6 With rain
7 With snow
8 With hail
9 No remarks

TABLE 11: j

0 Surface pressure in whole millibars, thousands figure omitted
1 Altitude of 1,000 mb surface in geopotential meters, if negative add 500
2 Altitude of 850 mb surface in geopotential meters, if negative add 500
3 Altitude of 700 mb surface in geopotential meters
4 Altitude of 500 mb surface in geopotential decameters
5 Altitude of 300 mb surface in geopotential decameters
6 Altitude of 200 mb surface in geopotential decameters
7 Altitude of 100 mb surface in geopotential decameters
8 True altitude (radio altimeter or other method) minus pressure altitude (set at 1,013 mb) in tens of feet, if negative add 500 to absolute value (e.g. -1 = minus 100 is reported as 800)
9 Altimeter sub scale reading in whole mills bars, thousands figure omitted

TABLE 12: N_1, N_2, N_3

0	Zero	Zero
1	1/10 or less, but not zero	1 Okta or less but not zero
2	2/10 and 3/10	2 Oktas
3	4/10	3 Oktas
4	5/10	4 Oktas
5	6/10	5 Oktas
6	7/10 and 8/10	6 Oktas
7	9/10 or more, but not 10/10	7 Oktas or more, but not 8 Oktas
8	10/10	8 Oktas
9	Sky obscured, or cloud amount cannot be estimated	

TABLE 13: C

0 Cirrus (Ci)
1 Cirrocumulus (Cc)
2 Cirrostratus (Cs)
3 Altocumulus (Ac)
4 Altostratus (As)
5 Nimbostratus (Ns)
6 Stratocumulus (Sc)
7 Stratus (St) or Fractostratus (Fs)
8 Cumulus (Cu) or Fractocumulus (Fc)
9 Cumulonimbus (Cb)
/ Cloud not visible owing to darkness fog, duststorm, sandstorm, or other analogous phenomena

TABLE 14: hh, HH, $h_i h_i$, $H_i H_i$

00	Less than 100 ft. (30 m)	57	7,000 ft.	(2,140 m)
01	100 ft. (30 m)	etc	etc.	
02	200 ft. (60 m)	78	28,000 ft.	(8,400 m)
03	300 ft. (90 m)	79	29,000 ft.	(8,700 m)
04	400 ft. (120 m)	80	30,000 ft.	(9,000 m)
05	500 ft. (150 m)	81	35,000 ft.	(10,500 m)
etc.		82	40,000 ft.	(12,000 m)
49	4,900 ft. (1,470 m)	etc	etc.	
50	5,000 ft. (1,500 m)	87	65,000 ft.	(19,500 m)
51	Not specified	88	70,000 ft.	(21,000 m)
etc.	etc.	89	Above	
55	Not specified		70,000 ft.	(21,000 m)
56	6,000 ft. (1,800 m)	//	Unknown	

TABLE 15: D, D_K, D_W

0 Calm or stationary (or at the station)
1 NE
2 E
3 SE
4 S
5 SW
6 W
7 NW
8 N
9 All directions, no definite direction, or unknown, or no report

TABLE 16: F

0 Calm
1 1 - 3 knots
2 4 - 6 knots
3 7 - 10 knots
4 11 - 16 knots
5 17 - 21 knots
6 22 - 27 knots
7 28 - 33 knots
8 34 - 40 knots
9 41 - 47 knots or over*

* see Note 30

TABLE 17: S

0	Calm (glassy)
1	Calm (rippled) (0 - 1 ft.)
2	Smooth (Wavelets) (1 - 2 ft.)
3	Slight (2 - 4 ft.)
4	Moderate (4 - 8 ft.)
5	Rough (8 - 13 ft.)
6	Very rough (13 - 20 ft.)
7	High (20 - 30 ft.)
8	Very high (30 - 45 ft.)
9	Phenomenal* (Over 45 ft.)

*As might exist at the center of a hurricane

TABLE 18: W_S

0 No change
1 Marked wind shift
2 Marked turbulence begins or ends
3 Marked temperature change (not with altitude)
4 Precipitation begins or ends
5 Change in cloud forms
6 Fog bank begins or ends
7 Warm front
8 Cold front
9 Front, type not specified

TABLE 19: S_S, S_T, S_W

0 No report
1 Reported at previous position
2 Occurring at present position
3 20 nautical miles
4 40 nautical miles
5 60 nautical miles
6 80 nautical miles
7 100 nautical miles
8 150 nautical miles
9 More than 150 nautical miles

TABLE 20: W_C

0 No report
1 Signs of hurricane
2 Ugly, threatening sky
3 Duststorm or sandstorm
4 Fog or ice fog
5 Waterspout
6 Cs cloud shield or bank
7 As or Ac cloud shield or bank
8 Line of heavy cumulus
9 Cb heads or thunderstorms

TABLE 21: I_r

0	.1 in. or	2 mm./minute
1	.1 - .2 in. or	2 - 5 mm./minute
2	.3 - .4 in. or	6 - 10 mm./minute
3	.5 - .6 in. or	11 - 15 mm./minute
4	.7 - .8 in. or	16 - 20 mm./minute
5	.9 - 1.0 in. or	21 - 25 mm./minute
6	Over 1.0 in. or	25 mm./minute
7	Light	
8	Moderate	
9	Heavy	

TABLE 22: I_t

0 None
1 Rime ice in clouds
2 Clear ice in clouds
3 Combination rime and clear ice in clouds
4 Rime ice in precipitation
5 Clear ice in precipitation
6 Combination rime and clear ice in precipitation
7 Frost (icing in clear air)
8 Non-persistent contrails
9 Persistent contrails

TABLE 23: O_e

0 Circular Area
1 NNE - SSW
2 NE - SW
3 ENE - WSW
4 E - W
5 ESE - WNW
6 SE - NW
7 SSE - NNW
8 S - N
9 Uncertain

TABLE 24: C_e

0 Not reported or indeterminate
1 Scattered
2 Solid
3 Scattered line
4 Solid line
5 Scattered, all quadrants
6 Solid, all quadrants
7
8
9

TABLE 25: I_e

0 No report or unknown
1 Weak, decreasing
2 Weak, no change
3 Weak, increasing
4 Moderate, decreasing
5 Moderate, no change
6 Moderate, increasing
7 Strong, decreasing
8 Strong, no change
9 Strong, increasing

NOTES

General:

1. The code name RECCO is used as a prefix to the report, indicating that it is a report from meteorological reconnaissance flight.

2. Present weather, cloud genera and amounts, turbulence, and surface data are reported for a cylindrical portion of the atmosphere approximately 30 nautical miles in radius with the aircraft at the center at the time of observation. The length of this cylinder extends from the earth's surface to the top of the atmosphere. Weather beyond the circumference of the observation cylinder is reported as off course weather.

3. The use of Section 1 is MANDATORY and all the groups are always included in the message. If datum is not available for an element, a solidus (/), or a code figure if appropriate, is reported for the element to indicate missing.

4. The use of Section 2 is OPTIONAL. If Section 2 is used all of the groups for which data are observed shall be included in the message. The groups in Section 2 are self-identifying; therefore, they can be omitted from, included in, or repeated (as required) in the message without confusion.

NOTES CONTINUED ON REVERSE

5. Plain language remarks may be added at the end of the message to supplement the coded message or to supply additional information not provided for in the code.

6. The solidus (/) will be used to report missing or unknown data unless otherwise specified for the individual elements. The term "altitude" is defined as the vertical distance of a level point or an object considered as a point, measured from mean sea level.

7. If operational data or position reports are required, they will be transmitted by the aircraft prior to the 9xxx9 key group of the RECCO report. These additional operational reports will not be included in the landline teletypewriter transmission of the RECCO report.

SECTION 1 - MANDATORY Section of the Flight Level Portion of the Message.

8. 9xxx9 - The key group 9xxx9 indicates the dimensional unit being used and whether or not radar observations are being made. This group shall always be included in the report. If radar equipment is operational, this information shall be reported for symbol "xxx" even though no echoes are observed. The omission of the 8-groups from the report will indicate to the recipient that no echoes were observed.
(Note: The units indicated by symbol "xxx" apply only to the flight level portions of the message. All altitudes of standard pressure surfaces and tropopause reported in the sounding portion of the message are given in meters and decameters in accord with the instructions given in the Manual for Radiosonde Code for reporting sounding data.)

9. GGgg and Y - The time the aircraft is on the vertical axis of the observation cylinder is reported for "GGgg". All elements are observed, insofar as practicable, when the aircraft is at the point of observation or in proximity thereto. The actual time of observation is the time at which the observing of all elements is completed. All times (GGgg) and the day of the week (Y) are given in Greenwich Mean Time. The day reported for Y is the day on which the observation is taken and NOT the day on which it is transmitted.

10. $L_aL_aL_a$ and $L_oL_oL_o$ - The latitude and longitude of the point, at which the flight level observation is made, are reported for "$L_aL_aL_a$" and "$L_oL_oL_o$", respectively. Tenths of a degree are obtained by dividing the number of minutes by 6, disregarding the remainder. The hundreds digit is omitted from longitudes 100° to 180°, inclusive.

11. B - The type of turbulence encountered at the time of observation is reported for "B". Definitions of the terms used to indicate the various types of turbulence reported are:

Light - A turbulent condition during which occupants may be required to use seat belts, but objects in the aircraft remain at rest.

Moderate - A turbulent condition in which occupants require seat belts and occasionally are thrown against the belt. Unsecured objects in the aircraft move about.

Severe - A turbulent condition in which the aircraft momentarily may be out of control. Occupants are thrown violently against the belt and back into the seat. Objects not secured in the aircraft are tossed about.

12. f_c' - The average flight condition existing during the time required to make the flight level observation is reported for "f_c'".

13. hhh - The true altitude of the aircraft at the time of the flight level observation is reported to the nearest hundred foot or 30 meter level (e.g., when the aircraft is 50 feet or more above a hundred foot level the next higher level is reported for "hhh").

14. d_t - When code figure 9 is reported, the distance over which the wind is averaged is added at the end of the message in plain language.

15. d_d and ddfff - When code figure 8 is reported for "d_d", five solidi (i.e., /////) are reported for the "ddfff" group. The complete specifications for Table 7 are:

TABLE 8: d_d

0 90% to 100% reliable. Multiple drift with closed wind star, or small open star when winds are 50 kts or greater. Short radar wind runs.

1 75% to 100% reliable. Multiple drift with small open star or double drift or single drift with average ground speed by timing. Short radar run.

2 80% to 100% reliable. Fix to fix winds using the following pin point visual fixes, radar fixes or accurate loran fixes using good ground waves.

3 75% to 90% reliable. Fix to fix winds using two or three lines of positions (LOPs) either loran, celestial, radio or sight bearings or any combination of the three above when all lines of position are considered reliable.

4 60% to 80% reliable. Winds obtained using single drift and single LOP (Speed Line), air-plot, etc.

5 50% to 75% reliable. Fix to fix winds using two or three lines of position either loran, celestial, radio or sight bearings or any combination of the above when one of the lines is not considered reliable.

6 Less than 50% reliable. Winds obtained by any of the above methods which the navigator believes to be inaccurate or of questionable accuracy.

7 No reliability. Assumed or estimated winds.

8 No wind. Navigator unable to determine a wind.

9 Not used.

16. TT - Free air temperature (corrected for calibration, installation, and dynamic heating effects) at flight level (hhh) at the time of observation is reported for "TT" to the nearest whole degree Celsius.

When the temperature is below zero, 50 is added to the absolute value of the temperature and the sum is reported for "TT". The hundreds figure, if any, resulting from this addition is disregarded.

17. T_dT_d - When the wet bulb temperature is below -35°C., "//" is reported for "T_dT_d". Dew point is used to indicate the moisture content of the air in United States RECCO reports. (See Note 16.)

18. w - The specification most descriptive of the weather existing at the time of observation is reported for "w". Code figure 2 is reported when the total amount of cloud above or below the aircraft is 7/8 or more.

19. m - The information which best amplifies the present weather reported for "w" is reported for "m".

SECTION 2 - OPTIONAL Section of the Flight Level Portion of the Message

20. $1k_hN_iN_2N_3$ - If data on more than three layers of cloud are reported, a second $1k_hN_iN_2N_3$ group plus the required number of ChhHH groups are inserted in the message following the last of the first three ChhHH groups. The additional number of layers (i.e., exclusive of the first three layers) being reported is given for "k_h" in the second $1k_hN_iN_2N_3$ group. The coverage of the additional cloud layers is reported for N_i, N_2, and N_3 in the second group, as required. When no clouds exist the $1k_hN_iN_2N_3$ and ChhHH groups are omitted from the message.

21. k_h - When clouds are present in indefinite layers (chaotic sky) code figure 9 is reported for "k_h". If it is impossible to determine that clouds exist (due to darkness or for other reasons) a "/" is reported for "k_h". When a cloud layer is present but data on the type, the extent of coverage, and altitude can not be observed, "/'s" are reported for N, C, hh, and HH, as appropriate; however, the layer will be included in the number of layers reported for "k_h". (See Note 22.)

22. N_i, N_2, N_3 - The amount of cloud reported for N_i, N_2, etc., is the amount in the individual layer as though no other cloud were present; i.e., the summation concept is not used. The cloud layers are reported in the message in ascending order according to altitude of the base. When code figure 9 is reported for "k_h", the value reported for "N_i" is the total amount of cloud coverage present and "//" is reported for "N_2N_3". When a "/" is reported for "k_h", "999" is reported for "$N_iN_2N_3$". (See Note 21.)

23. ChhHH - This group is included in the message for each layer of clouds reported by "k_h" and described by N_i, N_2, etc.

24. C - The type of cloud predominating in the layer is reported for "C".

25. hh and HH - The average altitude of both the base and top of the cloud layer reported for "C" is reported for "hh" and "HH", respectively.

26. 4ddff and $5DFBD_K$ - Surface data are reported in this group. Surface wind data are included in each low level report. Either or both of the groups may be included in the message if required.

27. dd - The estimated direction (true) FROM which the surface wind is blowing is reported for "dd". (See Note 28.)

28. ff - The estimated speed of the surface wind is reported for "ff". In the range of 100-199 knots, inclusive, the hundreds figure is omitted and the tens and the units values are reported for "ff" and 50 is added to the value normally reported for "dd". For speeds in excess of 199 knots, "//" is reported for "ff" and the actual speed is reported in plain language at the end of the message.

29. D - The estimated direction (true) FROM which the surface wind is blowing is reported for "D".

30. F - The estimated force of the surface wind is reported. When the speed exceeds Force 9, code figure 9 is reported for "F" and a plain language remark is added at the end of the flight level portion of the message giving the actual Beaufort Force as "GALE TEN", "STORM ELEVEN", or "HURRICANE TWELVE".

31. D_K - The true direction FROM which the swell is moving is reported for "D_K". Code figure 0 is reported for "no swell" and code figure 9 is reported to indicate "confused" swell. When the waves are from several directions, the direction from which the wave of longest period is traveling is reported.

32. $6W_aS_aW_cD_K$ - Two 6-groups may be included in the message to report two significant weather changes, and/or two weather phenomena off course, or combinations thereof.

33. W_a - Significant weather changes which have occurred since the last observation, or in the preceding hour (whichever period is shorter) along the track of the aircraft are reported for "W_a".

34. S_a - The distance from the present position back to the location of the significant weather change (W_a) is reported for "S_a".

35. W_c - Any off-course weather condition of importance which is not included or implied in the specification reported for present weather, will be reported for "W_c". The information reported for "W_c" supplements the present weather (w). (See Notes 2, 18, 54 and 55.)

36. D_w - Code figure 9 indicates "in all directions".

37. $7I_fI_rS_bS_e$ $7h_ih_iH_iH_i$ - When icing occurs, both of the 7-groups shall be included in the report. The 8-groups may be repeated as often as necessary to describe the icing conditions encountered.

38. I_r - Normally only aircraft equipped with icing rate meters will report code figures 0 through 6; however, if a quantitative estimate is possible it may be reported even though the aircraft equipment does not include a meter. In general, code figures 7 through 9 are used more often than the other code figures.

United States definitions of the terms given in Table 21 used to describe the rate of ice accumulation are:

Light - An accumulation of ice which can be disposed of by the aircraft de-icing equipment, which presents no serious hazard to the flight, and which is not sufficient to cause alterations in speed, altitude, or track.

Moderate - An accumulation of ice which produces a condition intermediate between "light" and "heavy".

Heavy - An accumulation of ice which continues to increase despite operation of de-icing equipment, which is sufficiently serious to cause marked alteration in speed, altitude, or track, and which would seriously affect the safety of the aircraft.

39. I_t - For this purpose a non-persistent contrail is defined as one which is 1/4 nautical mile or less in length and a persistent contrail is one which is over 1/4 nautical mile in length.

40. S_b - Code figure 0 is reported when the aircraft has completed an ascent or a descent, in which case the limits of icing are reported in group $7h_ih_iH_iH_i$. Code figure 2 is reported when the icing began during the time of the flight level observation and it will be an amplification of the information reported for "W" and "w".

41. S_e - Code figure 2 is reported when the icing is continuing at the time of the flight level observation.

42. h_ih_i - When the aircraft encounters icing during an ascent or descent, the altitude of the base of the icing stratum is reported for "h_ih_i". When the aircraft encounters icing during level flight, the altitude at which icing occurred is reported for "h_ih_i".

43. H_iH_i - When the aircraft encounters icing during an ascent or descent the altitude of the top of the icing stratum is reported for "H_iH_i". When the aircraft encounters icing during level flight, "//" is reported for "H_iH_i".

44. $8d_cd_vS_rO_e$ $8w_ea_ec_ei_e$ - When radar data are observed, both the 8-groups shall be included in the report. The 8-groups may be repeated as often as necessary to report essential data.

45. d_rd_r - Code figure 99 is reported to indicate echoes "in all directions". (See Notes 8 and 44.)

46. S_r - When the distance to the center of the echo is greater than 95 nautical miles, 100 is subtracted from the distance and the tens value of the remainder is reported for "S_r" and 50 is added to the value normally reported for "d_rd_r". When a line of echoes is observed, "S_r" is the distance to the midpoint of the line.

47. c_e - The term solid is used when the individual echoes are not distinctly and widely separated. Code figures 1, 2, 5, and 6 are used to report circular areas of echoes.

SECTION 3 - Intermediate Reports (OPTIONAL)

48. When required, intermediate observations may be taken between complete flight level observations. The intermediate data are reported in the next complete flight level message by inserting the coded groups (i.e., Section 3) in the message immediately following the last coded group of the complete flight level report. Section 3 may be attached at the end of either Section 2 or Section 1, as appropriate.

49. The use of Section 3 is OPTIONAL. If this Section is reported, all of the data groups (i.e., $GGgi_w$ through mjHHH) shall be always included in the message for each intermediate observation being reported with appropriate missing indicators being used for those elements for which datum is not available except the ($4L_aL_aL_oL_o$) group. The self-identifying 4-group may be included or omitted as required.

50. The intermediate data groups are extracted from the complete flight level form as follows: 99999 $GGgi_w$ ddfff TTT_wT_w mjHHH ($4L_aL_aL_oL_o$) $GGgi_w$ ddfff ..... etc. .....

51. Unless otherwise indicated it shall be assumed that a straight-line constant-altitude flight has been made between the position of the last reported complete flight level observation and the present one. Any intermediate observations reported in the present complete flight level report shall be assumed to have been made on this flight path.

52. If the direction of the flight has been altered, the latitude and longitude of the turning point shall be reported by the group ($4L_aL_aL_oL_o$). The group ($4L_aL_aL_oL_o$) shall be inserted in the Intermediate Reports portion of the message, as appropriate, with respect to time.

53. If the altitude of the flight is altered between any two consecutive complete flight level observations, intermediate observations shall not be reported between those two flight level reporting positions.

Plain Language Remarks

54. Plain language remarks may be added at the end of the message to supplement the coded data or to supply additional information of importance not provided for in the code. For example: Time of occurrence of significant weather (W_a), past weather, etc.

55. If information on past weather is added as a plain language remark, the most significant weather encountered since the last report, or in the last hour, whichever period of time is shorter, shall be described by the remark.

Sounding Portion of the Message

56. Sounding data are obtained during vertical ascents or descents of the aircraft or by releasing dropsondes from the aircraft. For transmission purposes these data may be added to Section 2 of RECCO or sent as a separate message.

57. Vertical ascent or descent. WMO code form FM 35.C (TEMP) shall be used to report sounding data obtained by means of either a vertical ascent or descent.

a. If the sounding data are added to the flight level report, they shall be added to Section 2 of RECCO and identified by the indicator group 71717. In this instance the groups M_iM_i and (I1)ii shall be omitted from FM 35.C and the group $GGh_ih_ih_i$ shall become $00h_ih_ih_i$. The form being: ..... $8w_ea_ec_ei_e$ 71717 $00h_ih_ih_i$ $(T_iT_iT_{di}T_{di}T_{xi})$ $(Od_id_if_if_i)$ $P_2P_2h_2h_2h_2$ ..... etc.

In this instance the time and position of the ascent or descent shall be given in groups $GGgi_w$ $YOL_aL_aL_a$ $L_oL_oL_oBf_c'$ of the flight level report.

b. When the data obtained by means of a vertical ascent or descent are sent as a separate report, the first four groups of Section 1 of RECCO shall be followed by FM 35.C as follows: 9xxx9 $GGgi_w$ $YOL_aL_aL_a$ $L_oL_oL_oBf_c'$ 71717 ..... etc.

58. Dropsonde. Sounding data obtained from a drop-sonde released from the aircraft shall be reported by means of WMO code form FM 36.C (TEMP SHIP). The drop-sonde data may be added either to the flight level report or sent as a separate report.

a. When the drop-sonde data are added to Section 2 of RECCO the indicator group 71717 precedes the coded sounding data (FM 36.C). In this instance two minor alterations are made in FM 36.C, the M_iM_i group is omitted from the report and GG is reported to the nearest quarter hour. The nearest quarter of an hour is indicated by adding 25, 50 or 75 to the actual number of hours.

When the minute lies between 52 1/2 and 07 1/2 minutes, nothing is added to the hour; e.g., times between 0152 1/2 to 0207 1/2 are coded 02. When the minute lies between 07 1/2 and 22 1/2 minutes, 25 is added to the hour; e.g., times between 0307 1/2 to 0322 1/2 are coded 28. When the minute lies between 22 1/2 and 37 1/2 minutes 50 is added to the hour; e.g., times between 1122 1/2 to 1137 1/2 are coded 61. When the minute lies between 37 1/2 to 52 1/2 minutes 75 is added to the hour; e.g., times between 2037 1/2 to 2052 1/2 are coded 95.

b. When the drop-sonde data are sent as a separate report, the TEMP SHIP form of message (FM 36.C) is preceded by the key groups 9xxx9 and 71717.

c. The location and time (to the nearest quarter hour) at which the drop-sonde was ejected from the aircraft shall be given in the $YOL_aL_aL_a$ and $L_oL_oL_oGG$ groups of TEMP SHIP (FM 36.C).

59. Following are general notes which apply to the coding of sounding data obtained by aircraft:

a. Whenever practicable extrapolated data are reported for $P_oP_oP_o$, T_oT_o and $T_{do}T_{do}$. If extrapolated data are not available for these elements, the surface groups are omitted from the report.

b. If tenths values of air and dew point temperatures are not reported, a zero is coded for T_{xo}, T_{x1}, T_{x2}, etc.

60. Sea Ice Data:

Sea ice, as observed by aircraft, are reported in the national code form (see Chapter III, Part A-4-RECCO).