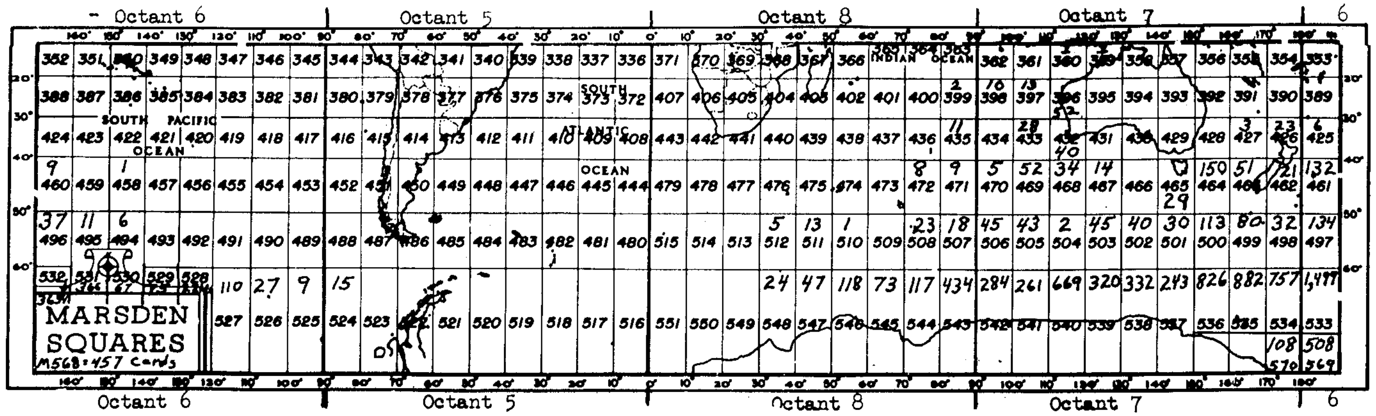
CARD DECK 187 JAPANESE WHALING SHIP SURFACE OBSERVATIONS

Group	Element	Symbol	Punch	Card columns
	Ship No.		9 9	1 2
	Season		9 9	3 4
Date GMT	Year		9 9	5 6
	Month		9 9	7 8
	Day of Month	YY	9 9	9 10
	Hour	GG	9 9	11 12
Position	Octant	Q	9	13
	Latitude 1/10°	$L_aL_aL_a$	9 9.9	14 15 16
	Longitude 1/10°	$L_oL_oL_o$	9 9.9	17 18 19
	Tot. Cld. Amt. + 1/8s	N	9	20
Wind	Direction 36 pt. (dd+50> 100 kts)	dd	9 9	21 22
	Speed (kts.)	ff	9 9	23 24
	Visibility (90-99)	VV	9 9	25 26
Weather	Present (55 Code)	ww	9 9	27 28
	Past	W	9	29
Pressure sea-level 1/10 Mbs.	Tens Units Tenths	PP.P	9 9.9	30 31 32
	Air Temp. °F	TT	9 9	33 34
Clouds	Lower Amt. 1/8s	N_h	9	35
	Type Low	C_L	9	36
	Height of Lower	h	9	37
	Type Middle	C_M	9	38
	Type High	C_H	9	39
Temperatures (Negative values are 100 + TT Algebraic sum.)	Air 1/10 °C	TT.T	9 9.9	40 41 42
	Sea 1/10 °C	TT.T	9 9.9	43 44 45
	Sea °F	TT	9 9	46 47
	Dew Point 1/10 °C	$T_dT_dT_d$	9 9.9	48 49 50
	Dew Point °F	T_dT_d	9 9	51 52
Wind	Direction 12 pt. code	dd	9 9	53 54
	10≥11 Beaufort	F	9	55
Zone	Meridional		9 9	56 57
	Latitude		9	58
	Columns 59-80 Blank		9 9 9	59 60 61

A standard 80 column general purpose card was used with this deck; however, the columnar alignment is shown on the sample above.

AREA COVERAGE

The data in this deck is in the southern hemisphere of the South Pacific and Indian Ocean areas. See map below for inventory of number of observations for each ten degree square.



PERIOD OF RECORD

This deck covers a ten year period of whaling seasons (Months November-March only) for the period Nov 1946 - March 1956.

OBSERVATIONAL TIME

This deck contains three or six hourly daily surface synoptic observations at the hours 00, 03, 06, 09, 12, 15, 18, and 21 GMT.

CODE

All observations in this deck were converted to the 1955 WMO Code FM 11A before punching in Japan. (The 1960 WMO Code number was included in the code tables for reference.) See additional remarks.

SOURCE

The Japanese Meteorological service reproduced these cards from their deck to replace deck 198 that contained erroneous data. They added an additional five years of data.

MISSING DATA

If an element or elements were missing within an observation the card columns for that element or elements were punched with X's or left blank, except missing visibility was punched "9X".

If an entire observation was missing, no identification card was punched.

COLUMNS OR ELEMENTS PUNCHED

The card was punched in columns 1-58; columns 59-80 were not used.

The following weather elements, when available were punched:

- Total Cloud Amounts
- Wind Direction and Speed
- Visibility
- Present Weather
- Past Weather
- Sea Level Pressure
- Air Temperature °F
- Amount of Height of Low Clouds
- Type of Middle and High Clouds
- Air Temperature 1/10 °C
- Sea Temperature 1/10 °C
- Sea Temperature Whole °F
- Dew Point 1/10 °C
- Dew Point Whole °F
- Wind Direction Special 12 Point Code
- Wind Force Beaufort
- Zone Meridional
- Zone Latitudinal

ADDITIONAL REMARKS

Visibility is in the 90-99 decade code.
Temperatures are in 1/10 °C and whole °F.
Ships position is given in both latitude and longitude and meridional and longitudinal zones.
The wind is given as follows:
Direction - 36 points and a special 12 point code.
Speed - Knots and Beaufort Force

CORRECTIONS

Any errors detected in this manual should be called to the attention of Director, National Weather Records Center, or Chief, Data Processing Division, Climatic Center, USAF. Please give specific instances of error, and correct information if available.

CARD CONTENT

Column	Item or Element	Symbolic Letter	Card Code	Card Code Definition	Remarks
1-59	All elements		X, Blank	Missing Data	Card columns are generally punched with X's for missing data except visibility, it is 9X. Some may be left blank.
1-2	Ship Number		01-09 61, 71.	See Code 1.	
3-4	Whaling Season		01-10	See Code 2.	
5-6	Year GMT		46-56	Last two digits of year	
7-8	Month GMT		01-03 11-12	January - March November - December	
9-10	Day GMT	YY	01-31	1st to 31st day of month	
11-12	Hour GMT	GG	00, 03, 06, 09, 12, 15, 18, 21	3 or 6 hourly observations	
13	Octant	Q	5 6 7 8	Longitude 0°-89.9°W Longitude 90°W-180°W Longitude 180°E-90°E Longitude 89.9°E-0°E	All Latitudes are South
14-16	Latitude	$L_aL_a.L_a$	000-900	0.0° to 90.0°S	Tens, units and tenths degrees punched
17-19	Longitude	$L_oL_o.L_o$	000-999 000-799	0.0° - 99.9° 100.0° - 179.9°	Column 13 indicating East or West Column 13 indicating East or West and the hundred position digit.
20	Total Cloud Amount 1/8's	N	0-9	See Code 3.	1955 WMO Code 60.
21-22	Wind Direction	dd	00-36 50-86	See Code 4. dd + 50 = Wind Speed $\geq$ 100 knots	Directions that were in 16 point scale were converted before punching.
23-24	Wind Speed	ff	00-99	Calm through 99 knots	Columns 21-22, dd + 50 $\geq$ 100 knots
25-26	Horizontal Visibility	VV	90-99	See Code 5.	Missing data indicated by 9X.
27-28	Present Weather	WW	00-99	See Code 6.	In general the highest applicable figure is selected for coding.
29	Past Weather	W	0-9	See Code 7.	
30-32	Sea-Level Pressure 1/10 mb.	PP.P	000-999	900.0 through 1099.9 mbs.	Punched as coded in tens, units and tenths mbs. Thousands and hundreds digits are omitted in coding.
33-34	Air Temperature °F	TT	00-99	-99°F through +99°F	In whole degrees Fahrenheit Negative values are coded by adding algebraically to 100. Example: -4°F coded and punched 96.

CARD CONTENT

Column	Item or Element	Symbolic Letter	Card Code	Card Code Definition	Remarks
35	Amount of Lowest Cloud Layer 1/8's	N_h	0-9	See Code 3.	
36	Type of Low Cloud	C_L	0-9, X	See Code 8.	X may indicate missing data or C_L is obscured by darkness, precipitation or other weather phenomena.
37	Height of Lower Cloud	h	0-9	See Code 9.	The height above sea-level of the lowest layer or fragment of lower cloud (C_L or C_m)
38	Type of middle Cloud	C_m	0-9, X	See Code 10.	See remark under column 36
39	Type of high cloud	C_h	0-9, X	See Code 11.	See remark under column 36
40-42	Air Temperature 1/10 °C	TT.T	000-999	-99.9 °C through +99.9 °C	Negative values are coded by adding algebraically to 100. Example:-10.1 °C coded and punched 89.9
43-45	Sea Temperature 1/10 °C	$TT.T_{sea}$	000-999	-99.9 °C through +99.9 °C	See remark under columns 40-42
46-47	Sea Temperature °F	TT_{sea}	00-99	-99 °F through +99 °F	See remark under columns 33-34
48-49	Dewpoint Temperature 1/10 °C	T_dT_d	000-999	-99.9 through +99.9°C	See remark under columns 40-42
51-52	Dewpoint Temperature °F	T_dT_d	00-99	-99 °F through +99 °F	See remark under columns 33-34
53-54	Wind Direction	dd	00-12	See Code 12.	Special code from which wind is blowing in 30° units. Example: 01 = 5° - 34°.
55	Beaufort Wind Force	F	0-9, X, Y	See Code 13.	Y = 12 punch, > Beaufort Force 11. X = X punch = Beaufort Force 10.
56-57	Meridional Zone Number		00-98 X/50 - X 89	See Code 14.	No X overpunch in tens position indicates Latitude is less than 72.5°S. Column 58 punched "1-5" X overpunch in tens position indicates Latitude is equal to or greater than 72.5°S. Column 58 punched 6-8.
58	Latitudinal Zone Number		1-8	See Code 15.	
59-80	Blank				

CODE TABLES

When coding a meteorological report, symbolic letters are replaced by figures, which specify the value or the state of the corresponding element. In some cases, the specification of the symbolic letter (or group of letters) is sufficient to permit a direct transcription into figures (e.g., GG or PPP). In other cases, these figures are obtained by means of a special code table (or code, in short) for each element.

The codes elaborated to this end, as far as they are in world-wide use, are called international meteorological code tables. These same codes are used inversely for decoding observations and thus making available the information contained in them.

Besides the specifications given by the code tables in world-wide use, other sets of code tables are established by the WMO for regional use. Further arbitrary codes have been made necessary by the use of data in card decks which were never encoded into WMO forms.

Only codes pertinent to this card deck are included in the present manual. They appear in the order in which the elements were introduced in the description of the card content. They are numbered consecutively, and if applicable, the corresponding WMO code numbers are shown.

Code 1

SHIP NAME, NUMBER AND DESCRIPTION TABLE

Code Figure	Ship Name	Description
01	Kinjo-Maru	Whaling Ship 11,052 tons
02	Hashidate-Maru	Whaling Ship 10,798 tons
03	Daini-Tenyo-Maru	Refrigerator Ship 10,611 tons
04	Tadotsu-Maru	Refrigerator Ship 9,870 tons
05	Sttsu-Maru	Refrigerator Ship 10,611 tons
06	Nisshin-Maru	Whaling Ship 11,781 tons (Columns 3-4 punched "01-05")
	Nisshin-Maru (New)	Whaling Ship 16,771 tons (Columns 3-4 punched "06-10")
07	Tonan-Maru	Whaling Ship 19,307 tons
08	Matsushima-Maru	Whaling Ship 13,786 tons
09	Kyokuyo-Maru	Whaling Ship 13,002 tons
61	Asama-Maru	Cargo Boat 993 tons
71	Juroku-Seki-Maru	Catcher Boat 647 tons

Code 2

WHALING SEASON

Code Fig.	Whaling Season	Code Fig.	Whaling Season
01	November 1946-March 1947	06	November 1951-March 1952
02	November 1947-March 1948	07	November 1952-March 1953
03	November 1948-March 1949	08	November 1953-March 1954
04	November 1949-March 1950	09	November 1954-March 1955
05	November 1950-March 1951	10	November 1955-March 1956

Code 3

(1955 WMO Code 60)
(1960 WMO 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

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

Code 4

(1955 WMO Code 23)
(1960 WMO Code 0877)

dd - True direction, in tens of degrees,from which wind is blowing (or will blow)

Code figure		Code figure	
00	Calm	19	185° - 194°
01	5° - 14°	20	195° - 204°
02	15° - 24°	21	205° - 214°
03	25° - 34°	22	215° - 224°
04	35° - 44°	23	225° - 234°
05	45° - 54°	24	235° - 244°
06	55° - 64°	25	245° - 254°
07	65° - 74°	26	255° - 264°
08	75° - 84°	27	265° - 274°
09	85° - 94°	28	275° - 284°
10	95° - 104°	29	285° - 294°
11	105° - 114°	30	295° - 304°
12	115° - 124°	31	305° - 314°
13	125° - 134°	32	315° - 324°
14	135° - 144°	33	325° - 334°
15	145° - 154°	34	335° - 344°
16	155° - 164°	35	345° - 354°
17	165° - 174°	36	355° - 4°
18	175° - 184°	99	Variable

Code 5

(1955 WMO Code 84)
(1960 WMO Code 4377)

VV - Horizontal visibility

Code Figure	Km.	Yards (Approx.)	Statute Miles (Approx.)	Nautical Miles (Approx.)
90	<0.05	<55	<1/32	
91	0.05	55	1/32	
92	0.2	220	1/8	
93	0.5	550	5/16	1/4
94	1	1,100	5/8	1/2
95	2	2,200	1 1/4	1
96	4	4,400	2 1/2	2
97	10	11,000	6 1/4	5
98	20	22,000	12 1/2	10
99	≥ 50	≥ 55,000	≥ 31 1/4	> 25

If the observed visibility is between two of the reportable distances as given in the table, the code figure for the lower reportable distance is reported.

Maximum visible distance regardless of direction.

Code 6

(1955 WMO Code 92)
(1960 WMO 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 11 and 12), duststorm, sandstorm, drifting or blowing snow at the station (land station or ship) 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	characteristic change of the state of sky during the past hour
	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 the 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) shallow fog or ice fog at the station,whether on land or sea,	
	12 (More or less) (continuous) not deeper than about 2 metres on land or 10 metres at sea	

Code 6, continued

Code figure		
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	Thunderstorm, but no precipitation at the time of observation	
18	Squalls	at or within sight of the station during the preceding hour or at the time of observation
19	Funnel cloud(s) (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	
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) of rain	
26	Shower(s) of snow, or of rain and snow	
27	Shower(s) of hail(ice pellets, type (b), snow pellets), or of rain and hail (ice pellets, type (b), snow pellets)	
28	Fog or ice fog	
29	Thunderstorm (with or without precipitation)	
ww 30 - 39	Duststorm, sandstorm, drifting or blowing snow	
ww		
30		has decreased during the preceding hour
31	Slight or moderate duststorm or sandstorm	no appreciable change during the preceding hour
32		has begun or has increased during the preceding hour
33		has decreased during the preceding hour
34	Severe duststorm or sandstorm	no appreciable change during the preceding hour
35		has begun or has increased during the preceding hour

Code 6, continued

36	Slight or moderate drifting snow	generally low (below eye level)
37	Heavy drifting snow	
38	Slight or moderate blowing snow	generally high (above eye level)
39	Heavy blowing snow	
ww 40 - 49	Fog or ice fog at the time of observation	
ww		
40	Fog or ice fog at a distance at 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	has 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	
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	heavy(dense) 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	
ww 60 - 69	Rain	
ww		
60	Rain, not freezing, intermittent	slight at time of observation
61	Rain, not freezing, continuous	

Code 6, continued

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	
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) 88	Shower(s) of snow pellets or ice pellets,type(b), with or without rain or rain and snow mixed	87 - slight; 88 - moderate or heavy
89	Shower(s) of hail, with or without rain or rain and snow	slight
90	mixed, not associated with thunder	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 (ice pellets, type (b), snow pellets), at time of observation	

Code 6, continued

94	Moderate or heavy snow, or rain and snow mixed or hail (ice pellets,type(b), snow pellets) at time of observation	thunderstorm during the preceding hour but not at time of observation
95	Thunderstorm, slight or moderate, without hail (ice pellets, type (b), snow pellets);but with rain and/or snow at time of observation	thunderstorm at time of observation
96	Thunderstorm, slight or moderate, with hail (ice pellets, type (b), snow pellets) at time of observation	
97	Thunderstorm, heavy, without hail (ice pellets,type(b), snow pellets), 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 (ice pellets, type(b), snow pellets) at time of observation	

Code 7
(1955 WMO Code 90)
(1960 WMO Code 4500)

W - Past weather

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

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, but is omitted in punching.

(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, but are omitted in punching.

(3) In the case of a snow shower or a shower of rain and snow mixed, with a temperature above 0°C, the word SNOW or SLEET is added at the end of the report, but is omitted in punching.

Code 8
(1955 WMO Code 11)
(1960 WMO Code 0513)

C_L - Clouds of the genera Stratocumulus, Stratus, Cumulus and Cumulonimbus

Code figure	Non technical specifications
0	No Stratocumulus, Stratus, Cumulus or Cumulonimbus
1	Cumulus with little vertical extent and seemingly flattened, or ragged Cumulus other than of bad weather, or both
2	Cumulus of moderate or strong vertical extent, generally with protuberances in the form of domes or towers, either accompanied or not by other Cumulus or by Stratocumulus, all having their bases at the same level
3	Cumulonimbus the summits of which, at least partially, lack sharp outlines, but are neither clearly fibrous (cirriform) nor in the form of an anvil; Cumulus, Stratocumulus or Stratus may also be present
4	Stratocumulus formed by the spreading out of Cumulus; Cumulus may also be present
5	Stratocumulus not resulting from the spreading out of Cumulus
6	Stratus in a more or less continuous sheet or layer, or in ragged shreds, or both, but no Stratus fractus of bad weather
7	Stratus fractus of bad weather (generally existing during precipitation and a short time before and after), or Cumulus fractus of bad weather, or both (pannus), usually below Altostratus or Nimbostratus
8	Cumulus and Stratocumulus other than that formed from the spreading out of Cumulus; the base of the Cumulus is at a different level from that of the Stratocumulus
9	Cumulonimbus, the upper part of which is clearly fibrous (cirriform), often in the form of an anvil; either accompanied or not by Cumulonimbus without anvil or fibrous upper part, by Cumulus, Stratocumulus, Stratus or pannus
X	Stratocumulus, Stratus, Cumulus and Cumulonimbus invisible owing to darkness, fog, blowing dust or sand, or other similar phenomena

Code 9
(1955 WMO Code 43)
(1960 WMO Code 1600)

h - Height, above ground, of the base of the cloud

Code figure	
0	0 to 50 m
1	50 to 100 m
2	100 to 200 m
3	200 to 300 m
4	300 to 600 m
5	600 to 1,000 m
6	1,000 to 1,500 m
7	1,500 to 2,000 m
8	2,000 to 2,500 m
9	2,500 m or more, or no clouds
X	Height of base of cloud not known or base of clouds at a level lower and tops at a level higher than that of the station;

Notes:

(1) A height exactly equal to one of the values at the ends of the ranges is to be coded in the higher range; e.g. a height of 600 m is reported by code figure 5.

(2) The term "height above ground" is considered as being the height above the official aerodrome elevation or above station level at a non-aerodrome station.

Code 10

(1955 WMO Code 12)
(1960 WMO Code 0515)

C_M - Clouds of the genera Altocumulus, Altostratus and Nimbostratus

Code figure	
0	No Altocumulus, Altostratus or Nimbostratus
1	Altostratus, the greater part of which is semi-transparent; through this part the sun or moon may be weakly visible, as through ground glass
2	Altostratus, the greater part of which is sufficiently dense to hide the sun or moon, or Nimbostratus
3	Altocumulus, the greater part of which is semi-transparent; the various elements of the cloud change only slowly and are all at a single level
4	Patches (often in the form of almonds or fishes) of Altocumulus, the greater part of which is semi-transparent; the clouds occur at one or more levels and the elements are continually changing in appearance
5	Semi-transparent Altocumulus in bands, or Altocumulus in one or more fairly continuous layers (semi-transparent or opaque), progressively invading the sky; these Altocumulus clouds generally thicken as a whole
6	Altocumulus resulting from the spreading out of Cumulus (or Cumulonimbus)
7	Altocumulus in two or more layers, usually opaque in places, and not progressively invading the sky; or opaque layer of Altocumulus, not progressively invading the sky; or Altocumulus together with Altostratus or Nimbostratus
8	Altocumulus with sproutings in the form of small towers or battlements, or Altocumulus having the appearance of cumuliform tufts
9	Altocumulus of a chaotic sky, generally at several levels
X	Altocumulus, Altostratus and Nimbostratus invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds

Code 11

(1955 WMO Code 13)
(1960 WMO Code 0509)

C_H - Clouds of the genera Cirrus, Cirrocumulus and Cirrostratus

Code figure	Non technical specifications
0	No Cirrus, Cirrocumulus or Cirrostratus
1	Cirrus in the form of filaments, strands or hooks, not progressively invading the sky
2	Dense Cirrus, in patches or entangled sheaves, which usually do not increase and sometimes seem to be the remains of the upper part of a Cumulonimbus; or Cirrus with sproutings in the form of small turrets or battlements, or Cirrus having the appearance of cumuliform tufts
3	Dense Cirrus, often in the form of an anvil, being the remains of the upper parts of Cumulonimbus

Code 11, continued

4	Cirrus in the form of hooks or of filaments, or both, progressively invading the sky; they generally become denser as a whole
5	Cirrus (often in bands converging towards one point or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are progressively invading the sky, and generally growing denser as a whole, but the continuous veil does not reach 45 degrees above the horizon
6	Cirrus (often in bands converging towards one point or two opposite points of the horizon) and Cirrostratus, or Cirrostratus alone; in either case, they are progressively invading the sky, and generally growing denser as a whole; the continuous veil extends more than 45 degrees above the horizon, without the sky being totally covered
7	Veil of Cirrostratus covering the celestial dome
8	Cirrostratus not progressively invading the sky and not completely covering the celestial dome
9	Cirrocumulus alone, or Cirrocumulus accompanied by Cirrus or Cirrostratus, or both, but Cirrocumulus is predominant
X	Cirrus, Cirrocumulus and Cirrostratus invisible owing to darkness, fog, blowing dust or sand or other similar phenomena, or more often because of the presence of a continuous layer of lower clouds

Code 12

dd - Wind Direction

Code Figure	Wind Direction	Code Figure	Wind Direction
00	Calm	07	185° through 214°
01	5° through 34°	08	215° through 244°
02	35° through 64°	09	245° through 274°
03	65° through 94°	10	275° through 304°
04	95° through 124°	11	305° through 334°
05	125° through 154°	12	335° through 4°
06	155° through 184°		

Code 13

(1955 WMO Code 30)
(1960 WMO Code 1100)

F - Force of Surface Wind

BEAUFORT SCALE OF WIND

Beaufort Number	Descriptive Term	Velocity equivalent at a standard height of 10 meters above open flat ground			
		Mean Velocity in Knots	Meters/Sec.	km/h	m.p.h.
0	Calm	<1	0-0.2	<1	<1
1	Light Air	1-3	0.3-1.5	1-5	1-3
2	Light Breeze	4-6	1.6-3.3	6-11	4-7
3	Gentle Breeze	7-10	3.4-5.4	12-19	8-12
4	Moderate Breeze	11-16	5.5-7.9	20-28	13-18
5	Fresh Breeze	17-21	8.0-10.7	29-38	19-24
6	Strong Breeze	22-27	10.8-13.8	39-49	25-31
7	Near Gale	28-33	13.9-17.1	50-61	32-38
8	Gale	34-40	17.2-20.7	62-74	39-46
9	Strong Gale	41-47	20.8-24.4	75-88	47-54
10	Storm	48-55	24.5-28.4	89-102	55-63
11	Violent Storm	56-63	28.5-32.6	103-117	64-72
12	Hurricane	64-71	32.7-36.9	118-133	73-82
13	-	72-80	37.0-41.4	134-149	83-92
14	-	81-89	41.5-46.1	150-166	93-103
15	-	90-99	46.2-50.9	167-183	104-114
16	-	100-108	51.0-56.0	184-201	115-125
17	-	109-118	56.1-61.2	202-220	126-136

Code 14

Meridional Zone Code

Code Figure	Meridional Zone	Code Figure	Meridional Zone
00-10	Not used	55	169.9°W - 165.0°W
11	10.0°E - 14.9°E	56	164.9 - 160.0
12	15.0 - 19.9	57	159.9 - 155.0
13	20.0 - 24.9	58	154.9 - 150.0
14	25.0 - 29.9	59-60	Not used
15	30.0 - 34.9	61	149.9 - 145.0
16	35.0 - 39.9	62	144.9 - 140.0
17	40.0 - 44.9	63	139.9 - 135.0
18	45.0 - 49.9	64	134.9 - 130.0
19-20	Not used	65	129.9 - 125.0
21	50.0 - 54.9	66	124.9 - 120.0
22	55.0 - 59.9	67	119.9 - 115.0
23	60.0 - 64.9	68	114.9 - 110.0
24	65.0 - 69.9	69-70	Not used
25	70.0 - 74.9	71	109.9 - 105.0
26	75.0 - 79.9	72	104.9 - 100.0
27	80.0 - 84.9	73	99.9 - 95.0
28	85.0 - 89.9	74	94.9 - 90.0
29-30	Not used	75	89.9 - 85.0
31	90.0 - 94.9	76	84.9 - 80.0
32	95.0 - 99.9	77	79.9 - 75.0
33	100.0 - 104.9	78	74.9 - 70.0
34	105.0 - 109.9	79-80	Not used
35	110.0 - 114.9	81	69.9 - 65.0
36	115.0 - 119.9	82	64.9 - 60.0
37	120.0 - 124.9	83	59.9 - 55.0
38	125.0 - 129.9	84	54.9 - 50.0
39-40	Not used	85	49.9 - 45.0
41	130.0 - 134.9	86	44.9 - 40.0
42	135.0 - 139.9	87	39.9 - 35.0
43	140.0 - 144.9	88	34.9 - 30.0
44	145.0 - 149.9	89-90	Not used
45	150.0 - 154.9	91	29.9 - 25.0
46	155.0 - 159.9	92	24.9 - 20.0
47	160.0 - 164.9	93	19.9 - 15.0
48	165.0 - 169.9	94	14.9 - 10.0
49-50	Not used	95	9.9 - 5.0
51	170.0 - 174.9	96	4.9 - 0.0
52	175.0 - 179.9	97	0.1°E - 4.9°E
53	180.0°W - 175.0°W	98	5.0 - 9.9
54	174.9 - 170.0		
X 50	160.0°E - 169.9°E	X 81	55.0 - 59.9
X 51	170.0 - 174.9	X 82	50.0 - 54.9
X 52	175.0 - 179.9	X 83	45.0 - 49.9
X 53	180.0°W - 175.0°W	X 84	40.0 - 44.9
X 54	174.9 - 170.0	X 85	35.0 - 39.9
X 55	169.9 - 165.0	X 86	30.0 - 34.9
X 56	164.9 - 160.0	X 87	25.0 - 29.9
X 57	159.9 - 155.0	X 88	20.0 - 24.9
X 58	154.9 - 150.0	X 89	10.0 - 19.9
X 59	149.9 - 140.0		

Code 15

Latitudinal Zone Code

Code Figure	Latitudinal Zone
1	60.0°S - 62.4°S
2	62.5 - 64.9
3	65.0 - 67.4
4	67.5 - 69.9
5	70.0 - 72.4
6	72.5 - 74.9
7	75.0 - 77.4
8	77.5 - 79.9